## **TEMPORARY REVISION**

## 208PHTR03

## 3 FEBRUARY 2004

for

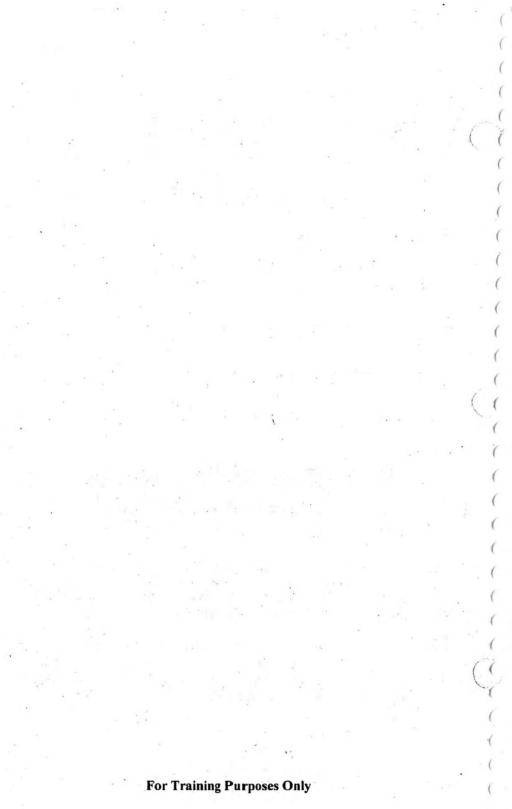
### **CESSNA MODEL 208 SERIES**

### PILOT'S OPERATING HANDBOOKS and

## FAA APPROVED AIRPLANE FLIGHT MANUALS

THIS TEMPORARY REVISION REVISES FUEL QUANTITY VERSUS DEPTH INFORMATION WHEN USING THE DIPSTICK REQUIRED BY CAB04-1 ON BOTH LEFT AND RIGHT WING LEADING EDGE IN THE PILOT'S OPERATING HANDBOOK.

INSERT THE PROVIDED LIST OF TEMPORARY REVISIONS, AND THE TEMPORARY REVISION INTO THE PILOT'S OPERATING HANDBOOK IN ACCORDANCE WITH THE FILING INSTRUCTIONS IN EACH REVISION.



# LIST OF TEMPORARY REVISIONS

for

## CESSNA MODEL 208 SERIES PILOT'S OPERATING HANDBOOKS and FAA APPROVED AIRPLANE FLIGHT MANUALS

### 208PHTR03

3 February 2004 208PHTR

Pilot's Operating Handbook

All Cessna Model 208 Series

Following is the List of Temporary Revisions that may be inserted into this Pilot's Operating Handbook.

Insert this page opposite the first page of the Log of Effective Pages in the front of the Pilot's Operating Handbook.

TEMPORARY REVISION NUMBER	MANUAL SECTION/ TOPIC	ISSUE DATE	SERVICE BULLETIN REFERENCE
208PHTR01	CANCELLED REPLACED BY 208PHTR02	CANCELLED REPLACED BY 208PHTR02	NO REFERENCE
208PHTR02	2/LIMITATIONS	23 September 2003	CAB03-11R1
208PHTR02	3/EMERGENCY PROCEDURES	23 September 2003	CAB03-11R1
208PHTR02	4/NORMAL PROCEDURES	23 September 2003	CAB03-11R1
208PHTR02	5/ PERFORMANCE	23 September 2003	CAB03-11R1
208PHTR03	4/NORMAL PROCEDURES	3 February 2004	CAB04-1

#### TEMPORARY REVISION 208PHTR03 APPROVED BY

FAA APPROVED UNDER FAR 21 SUBPART J The Cessena Aircraft Co Delegation Option Authorization DOA-230428-CE

/ Executive Engineer

DATE OF APPROVAL 3 FEBRUARY 2004

#### Cessna MODEL SERIES 208

Description of Change:

Section 4, NORMAL PROCEDURES

Filing Instructions:

Insert this temporary revision into the Pilot's Operating Handbook.

In Section 4, NORMAL PROCEDURES, insert the temporary revision pages adjacent to the current Pilot's Operating Handbook Section 4 pages containing the information that is shown in this temporary revision.

For Training Purposes Only

3 February 2004 208PHTR03

SECTION 4 - NORMAL PROCEDURES

### CHECKLIST PROCEDURES

### PREFLIGHT INSPECTION

(3) LEFT WING Leading Edge



It is essential in cold weather to remove even small accumulations of frost, ice, or snow from the wing and control surfaces. Also, make sure the control surfaces contain no internal accumulations of ice or debris. Prior to any flight in icing conditions, check that pitot/static source and stall warning heaters are warm to touch after turning pitot/static and stall heat switches on for 30 seconds, then off. Make sure the pitot covers are removed.

- 1. Wing Strut Deice Boots -- CHECK for tears, abrasion and cleanliness.
- Wing Tie-Down -- DISCONNECT.
- 3. Wing Deice Boots -- CHECK for tears, abrasions and cleanliness.
- Stall Warning Vane -- CHECK freedom of movement, audible warning and warmth. (For aircraft equipped with a stall warning ground disconnect switch, check audible warning with elevator off forward stop).
- Pitot/Static Tube -- CHECK security, openings for stoppage and warmth.
- 6. Landing and Taxi Lights -- CHECK condition and cleanliness.
- Fuel Quantity -- USE DIPSTICK required by CAB04-1 to check fuel level. See Figure TC-1 for fuel quantity versus depth.



#### Fuel gages may indicate incorrect fuel quantity.

- 8. Fuel Filler Cap -- SECURE.
- 9. Outboard Fuel Tank Sump Quick-Drain Valve (if installed and airplane parked with one wing low on a sloping ramp) -- DRAIN (using fuel sampler) to check for water, sediment, and proper fuel before each flight and after each refueling. If water is observed, take further samples until clear. Take repeated samples from all fuel drain points until all contamination has been removed.
- Navigation and Strobe Lights -- CHECK for condition and cleanliness.

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Cessna MODEL SERIES 208

Universal XL Fuel Gage	Fuel Quantity	
Gage Scale	Gal	Lbs
0.50	87.4	585
0.75	91.1	610
1.00	94.7	634
1.25	98.2	658
1.50	101.8	682
1.75	105.2	705
2.00	108.6	727
2.25	111.9	750
2.50	115.1	771
2.75	118.3	793
3.00	121.5	814
3.25	124.5	834
3.50	127.5	855
3.75	130.5	874
4.00	133.4	894
4.25	136.2	912
4.50	138.9	931
4.75	141.6	949
5.00	144.3	966
5.25	146.8	984
5.50	149.3	1000
5.75	151.8	1017
6.00	154.1	1033
6.25	156.5	1048
6.50	158.7	1063
6.75	160.9	1078
7.00	163.0	1092
7.25	165.0	1106

Generic Fuel Gage - Inches	Fuel Quantity	
Inches	Gal	Lbs
0.50	88.4	592
0.75	92.6	621
1.00	96.7	648
1.25	100.8	675
1.50	104.7	702
1.75	108.6	727
2.00	112.4	753
2.25	116.1	778
2.50	119.7	802
2.75	123.2	826
3.00	126.7	849
3.25	130.1	. 871
3.50	133.4	894
3.75	136.6	915
4.00	139.7	936
4.25	142.B	956
4.50	145.7	976
4.75	148.6	996
5.00	151.4	1015
5.25	154.1	1033
5.50	156.8	1050
5.75	159.3	1068
6.00	161.8	1084
6.33	165.0	110

### Figure TC-1. Measured Fuel Depth vs Fuel Quantity

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### (7) RIGHT WING Leading Edge

## A WARNING

It is essential in cold weather to remove even small accumulations of frost, ice, or snow from the wing and control surfaces. Also, make sure the control surfaces contain no internal accumulations of ice or debris.

- 1. Navigation and Strobe Lights -- CHECK condition and cleanliness.
- Fuel Quantity -- USE DIPSTICK required by CAB04-1 to check fuel level. See Figure TC-1 for fuel quantity versus depth.

### A CAUTION

#### Fuel gages may indicate incorrect fuel quantity.

- 3. Fuel Filler Cap -- SECURE.
- 4. Outboard Fuel Tank Sump Quick-Drain Valve (if installed and airplane parked with one wing low on a sloping ramp) -- DRAIN (using fuel sampler) to check for water, sediment, and proper fuel before each flight and after each refueling. If water is observed, take further samples until clear. Take repeated samples from all fuel drain points until all contamination has been removed.
- Pitot/Static Tube -- CHECK security, openings for stoppage and warmth.
- 6. Landing and Taxi Lights -- CHECK condition and cleanliness.
- 7. Wing Deice Boots -- CHECK for tears, abrasion and cleanliness.
- 8. Radome -- CHECK condition and security.
- 9. Wing Tie-Down -- DISCONNECT.
- 10. Wing Strut Deice Boots -- CHECK for tears, abrasion, and cleanliness.
- Inboard Fuel Tank Sump and External Sump Quick-Drain Valves --DRAIN (using fuel sampler) to check for water, sediment, and proper fuel before each flight and after each refueling. If water is observed, take further samples until clear. Take repeated samples from all fuel drain points until all contamination has been removed.
- 12. Main Landing Gear -- CHECK proper tire inflation and gear condition.

## **TEMPORARY REVISION**

## 208PHTR02

## 23 SEPTEMBER 2003

for

## **CESSNA MODEL 208 SERIES**

## PILOT'S OPERATING HANDBOOKS and

## FAA APPROVED AIRPLANE FLIGHT MANUALS

THIS TEMPORARY REVISION REPLACES TEMPORARY REVISION 208PHTR01 DATED 8 SEPTEMBER 2003 AND REVISES FLAP USAGE INFORMATION IN SECTIONS 2, 3, 4 AND 5 OF THE PILOT'S OPERATING HANDBOOK.

INSERT THE PROVIDED LIST OF TEMPORARY REVISIONS, AND THE TEMPORARY REVISION INTO THE PILOT'S OPERATING HANDBOOK IN ACCORDANCE WITH THE FILING INSTRUCTIONS IN EACH REVISION.

# LIST OF TEMPORARY REVISIONS for CESSNA MODEL 208 SERIES

## PILOT'S OPERATING HANDBOOKS and FAA APPROVED AIRPLANE FLIGHT MANUALS

## 208PHTR02

23 September 2003 208PHTR

LIST OF TEMPORARY REVISIONS MODEL SERIES 208

Pilot's Operating Handbook

All Cessna Model 208 Series

The following List of Temporary Revisions must be inserted into this Pilot's Operating Handbook.

Insert this page opposite the first page of the Log of Effective Pages in the front of the Pilot's Operating Handbook.

TEMPORARY REVISION NUMBER	MANUAL SECTION/ TOPIC	ISSUE DATE
208PHTR01	CANCELLED REPLACED BY 208PHTR02	CANCELLED REPLACED BY 208PHTR02
208PHTR02	2/LIMITATIONS	23 September 2003
208PHTR02	3/EMERGENCY PROCEDURES	23 September 2003
208PHTR02	4/NORMAL PROCEDURES	23 September 2003
208PHTR02	5/ PERFORMANCE	23 September 2003

#### TEMPORARY REVISION 208PHTR02 APPROVED BY

FAA APPROVED UNDER FAR 21 SUBPART J The Cesane Aircraft Co Delegation Option Authorization DOA-230428-CE

of Can Executive Engineer

23 SEPTEMBER 2003

For Training Purposes Only

23 September 2003 208PHTR MODEL SERIES 208

Description of Change:

Section 2, LIMITATIONS, Section 3, EMERGENCY PROCEDURES, Section 4, NORMAL PROCEDURES, and Section 5, PERFORMANCE.

Filing Instructions:

Insert this temporary revision into the Pilot's Operating Handbook.

In Section 2, LIMITATIONS, insert the temporary revision pages adjacent to the current Pilot's Operating Handbook Section 2 pages containing the information that is shown in this temporary revision.

In Section 3, EMERGENCY PROCEDURES, insert the temporary revision pages adjacent to the current Pilot's Operating Handbook Section 3 pages containing the information that is shown in this temporary revision.

In Section 4, NORMAL PROCEDURES, insert the temporary revision pages adjacent to the current Pilot's Operating Handbook Section 4 pages containing the information that is shown in this temporary revision.

In Section 5, PERFORMANCE, insert the temporary revision pages adjacent to the current Pilot's Operating Handbook Section 5 pages containing the information that is shown in this temporary revision.

Discard any pages of this temporary revision that are not applicable to your model/serial airplane.

For Training Purposes Only

23 September 2003 208PHTR02

Cessna MODEL SERIES 208

SECTION 2 - LIMITATIONS

### OTHER LIMITATIONS

#### FLAP LIMITATIONS

#### USE OF FLAPS IS PROHIBITED

- The flap motor and STBY flap motor circuit breakers must be pulled and collared. (place a tie wrap or equivalent around the pulled circuit breaker.)
- The following placard must be displayed in the cockpit, in clear view of the pilot, on the lower right hand portion of the center instrument panel:

### USE OF FLAPS IS PROHIBITED

#### NOTE

Use  $0^{\circ}$  Flap Takeoff and Landing performance and procedures from Section 5.

#### 23 September 2003 ses Only 208PHTR02

SECTION 2 - LIMITATIONS

### KINDS OF OPERATION LIMITS

This airplane is equipped for day VFR, and may be equipped for night VFR and/or IFR operations and for flight-into-known icing conditions. The operating limitations placard reflects the limits applicable at the time of Airworthiness Certificate issuance.

The following equipment list identifies the systems and equipment upon which type certification for each kind of operation was predicated. These systems and equipment items must be installed and operable for the particular kind of operation indicated. Reference should also be made to the Equipment List furnished with the airplane for additional equipment information. The pilot is responsible for determining the airworthiness of his airplane for each flight and for assuring compliance with current operating FAR's.

#### REQUIRED EQUIPMENT

#### DAY VFR:

Airspeed Indicator (1) Altimeter (1)\* Auxiliary Boost Pump System BATTERY HOT And BATTERY **OVERHEAT Annunciators (NiCad** Batteries Only) Elevator Trim System (Manual) **Engine Ignition System** (Flap Motor Disabled) Flap Position Indicator FUEL PRESS LOW Annunciator Fuel Quantity Indicators (2) Fuel Selectors Off Warning System Generator Inertial Separator System **ITT Indicator** Magnetic Compass

Ng% RPM Indicator **OIL PRESS LOW Annunciator Oil Pressure Gage** Oil Temperature Gage Outside Air Temperature Gage Overspeed (Airspeed) Warning System **Overspeed Governor** Pilots Operating Handbook/AFM Pitot-Static System (1) Propeller RPM Indicator Seat Belts (Each Occupant) Shoulder Harnesses (Front Seats) Slip-Skid Indicator (1) Stall Warning System **Torque Indicator** Trim Position Indicators (3) Volt/Ammeter

#### \* NOTE

When a servoed altimeter is installed, a functioning pneumatic altimeter is also required.

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### ENGINE FAILURES

#### ENGINE FAILURE IMMEDIATELY AFTER TAKEOFF

- 1. Airspeed -- 95 KIAS with 0° flaps.
- 2. Propeller -- FEATHER.
- 3. Fuel Condition Lever -- CUTOFF.
- 4. Fuel Shutoff -- OFF (pull out).
- 5. Fuel Tank Selectors -- OFF (warning horn will sound).
- 6. Battery -- OFF.

#### For Training Purposes Only

23 September 2003 208PHTR02

### FORCED LANDINGS

#### EMERGENCY LANDING WITHOUT ENGINE POWER

- 1. Seats, Seat Belts, Shoulder Harnesses -- SECURE.
- 2. Airspeed -- 100 KIAS (flaps UP)
- 3. Power Lever -- IDLE.
- Propeller Control Lever -- FEATHER.
- 5. Fuel condition Lever -- CUTOFF.
- 6. Fuel Boost Switch -- OFF.
- Ignition Switch -- NORM,
- 8. Standby Power Switch (if installed) -- OFF.
- 9. Non-essential Equipment (if installed) -- OFF.
- 10. Fuel Shutoff -- OFF (pull out).
- 11. Fuel Tank Selectors -- OFF (warning horn will sound).
- 12. Crew Doors -- UNLATCH PRIOR TO TOUCHDOWN.
- 13. Battery Switch -- OFF when landing is assured.
- 14. Touchdown -- SLIGHTLY TAIL LOW.
- 15. Brakes -- APPLY HEAVILY.

#### PRECAUTIONARY LANDING WITH ENGINE POWER

- Seats, Seat Belts, Shoulder Harnesses -- SECURE.
- 2. Wing Flaps -- 0°.
- 3. Airspeed -- 95 KIAS.
- Selected Field -- FLYOVER, noting terrain and obstructions.
- All Electrical Switches (except Battery and Generator) -- OFF.
- 6. Crew Doors -- UNLATCH PRIOR TO TOUCHDOWN.
- 7. Generator Switch (if installed) -- OFF.
- 8. Battery Switch -- OFF.
- 9. Touchdown -- SLIGHTLY TAIL LOW.
- 10. Fuel Condition Lever -- CUTOFF.
- 11. Brakes -- APPLY HEAVILY.

### FORCED LANDINGS

#### DITCHING

- 1. Radio -- TRANSMIT MAYDAY on 121.5 MHz, giving location and intentions and SQUAWK 7700 if transponder is installed.
- Heavy Objects in Cabin -- SECURE if passenger is available to assist.
- 3. Seats, Seat Belts, Shoulder Harnesses -- SECURE.
- 4. Wing Flaps -- 0°.
- 5. Power -- ESTABLISH 300 FT/MIN DESCENT AT 100 KIAS.
- 6. Approach -- High Winds -- INTO THE WIND.
  - Light Winds, Heavy Swells -- PARALLEL TO SWELLS.
- 7. FACE -- CUSHION at touchdown with folded coat or similar object.
- 8. Touchdown -- NO FLARE, maintain descent attitude.
- 9. Airplane -- EVACUATE.
- 10. Life Vests and Raft -- INFLATE when outside cabin.

### SMOKE AND FIRE

## ENGINE FIRE IN FLIGHT (Red ENGINE FIRE Annunciator On Or Off)

- 1. Power Lever -- IDLE.
- 2. Propeller Control Lever -- FEATHER.
- 3. Fuel Condition Lever CUTOFF.
- 4. Fuel Shutoff -- OFF.
- 5. Cabin Heat Firewall Shutoff Control -- PULL OFF.
- 6. Forward Side Vents -- CLOSE.
- 7. Overhead Vents -- OPEN.
- 8. Ventilation Fans (if installed) -- ON.
- 9. Wing Flaps -- 0°.
- 10. Airspeed -- 100 KIAS.
- 11. Forced Landing -- EXECUTE (as described in Emergency Landing Without Engine Power)

### LANDING GEAR MALFUNCTION PROCEDURES

#### LANDING WITH FLAT MAIN TIRE

- 1. Airplane -- FLY as desired to lighten fuel load.
- Fuel Selectors -- POSITION ONE SIDE OFF TO LIGHTEN LOAD ON SIDE OF FLAT TIRE (maximum fuel unbalance of 200 pounds).
- 3. Approach -- NORMAL (0° flaps).
- 4. Touchdown -- INFLATED TIRE FIRST. Hold airplane off flat tire as long as possible with aileron control.
- Directional Control -- MAINTAIN using brake on wheel with inflated tire as required.

### EMERGENCY DESCENT PROCEDURES

#### SMOOTH AIR

- 1. Seats, Seat Belts, Shoulder Harnesses -- SECURE.
- 2. Power Lever -- IDLE.
- 3. Propeller Control Lever -- MAX (full forward).
- 4. Wing Flaps -- 0°.
- 5. Airspeed -- 175 KIAS.

### INADVERTENT OPENING OF AIRPLANE DOORS IN FLIGHT

UPPER HALF OF CARGO DOOR OR UPPER HALF OF PASSENGER AIRSTAIR DOOR OPEN (Red DOOR WARNING Annunciator On)

- 1. Airspeed -- MAINTAIN LESS THAN 100 KIAS.
- If available or practical, have a second crew member go aft to close and latch door.
- 3. If landing is required with door open:
  - a. Approach and Landing NORMAL.

#### LOWER HALF OF PASSENGER AIRSTAIR DOOR OPEN

- 1. Airspeed -- MAINTAIN 100 KIAS.
- 2. Flight Controls -- MANEUVER for return for landing.
- 3. Wing Flaps -- 0°.
- 4. Approach -- NORMAL.
- 5. Landing -- SLIGHTLY TAIL LOW; avoid nose high flare.

#### Cessna MODEL SERIES 208

#### SECTION 3 - EMERGENCY PROCEDURES

### LANDING WITHOUT ELEVATOR CONTROL

Using power lever and elevator trim control, trim for approximately 500 fpm descent with 0° flaps at 100 KIAS. Then control the glide angle by adjusting power. If required, make small trim changes to maintain approximately 85 KIAS as power is adjusted during the approach.

The landing flare can be accomplished by a gentle power reduction accompanied by nose up trim. At forward C.G. loadings, it may be necessary to make a small power increase in the final flare stage to bring the nose up and prevent touchdown on the nose first. After touchdown, move the power lever to idle.

### SECTION 3 - EMERGENCY PROCEDURES

# INADVERTENT OPENING OF AIRPLANE DOORS IN FLIGHT

If any of the airplane doors should inadvertently open in flight, the airplane should be slowed to 100 KIAS to reduce buffeting of the doors. On the Passenger Version, closing the upper cargo door or upper half of the passenger airstair door can be accomplished after airspeed has been reduced by pulling the door forcefully closed and latching the door. If the door cannot be closed in flight, a landing should be made as soon as practical in accordance with the checklist procedures. On Cargo Versions, an open cargo door cannot be closed in flight since the inside of the upper door has no handle.

If any cargo pod doors inadvertently open in flight, the airplane should be slowed to 100 KIAS or less and landed as soon as practical. During the landing, avoid a nose-high flare to prevent dragging an open rear cargo pod door on the runway.

For Training Purposes Only

SECTION 4 - NORMAL PROCEDURES

# PREFLIGHT INSPECTION

# 1) CABIN

- 1. Pilot's Operating Handbook and Other Required Documents --AVAILABLE IN THE AIRPLANE.
- 2. Control Locks -- REMOVE (DISENGAGE rudder lock, if installed).
- 3. Parking Brake -- SET.
- 4. All Switches -- OFF.
- 5. All Circuit Breakers -- IN.
- 6. Static Pressure Alternate Source Valve -- OFF (full in).
- 7. Inertial Separator T-Handle -- NORMAL.
- 8. Standby Flap Motor Switch (Overhead) -- GUARDED NORM.
- 9. Oxygen Supply Pressure -- CHECK.
- 10. Oxygen Masks -- CHECK AVAILABLE.
- 11. Fuel Selector Valves -- CHECK ON and FEEL AGAINST STOPS.
- 12. Radar -- OFF.
- 13. Air Conditioner (if installed) -- OFF.
- 14. Inverter Switch (if installed) -- OFF.
- 15. Bleed Air Heat Switch -- OFF.
- Emergency Power Lever -- NORMAL, and if applicable, copper witness wire present and intact.
- 17. Trim Controls -- SET.
- 18. Fuel Shutoff -- ON.
- 19. Cabin Heat Firewall Shutoff Control -- CHECK IN.
- 20. Battery Switch -- ON.
- Avionics Power Switch No. 2 -- ON. Check audibly that avionics cooling fan is operating.
- 22. Avionics Power Switch No. 2 -- OFF.
- 23. Fuel Quantity Indicators -- CHECK QUANTITY.
- 24. Wing Flaps -- UP.
- Pitot/Static and Stall Heat Switches -- ON for 30 seconds, then OFF. (Ensure pitot/static tube covers are removed.)
- 26. Battery Switch -- OFF.

# 2 LEFT SIDE

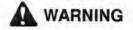
 Fuel Reservoir Drain (bottom of fuselage or left side of cargo pod) --DRAIN (using fuel sampler) to check for water, sediment, and proper fuel before each flight and after each refueling. If water is observed, take further samples until clear. Take repeated samples from all fuel drain points (see Section 7 Fuel System Schematic for all nine drain locations) until all contamination has been removed.

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### SECTION 4 - NORMAL PROCEDURES

# **BEFORE TAKEOFF**

- 1. Parking Brake -- SET.
- 2. Seats, Seat Belts, Shoulder Harnesses -- CHECK SECURE.



Failure to properly utilize seat belts and shoulder harnesses could result in SERIOUS or FATAL injury in the event of an accident.

- Flight Controls -- FREE and CORRECT.
- Flight Instruments -- CHECK and SET.
- 5. Fuel Boost Switch -- RECHECK NORM.
- 6. Fuel Tank Selectors -- RECHECK BOTH ON.
- Fuel Quantity -- RECHECK.
- 8. Fuel Shutoff -- RECHECK FULLY ON.
- Elevator, Aileron, and Rudder Trim Controls -- SET for takeoff.
- 10. Power Lever -- 400 FT-LBS.
  - a. Suction Gage -- CHECK.
  - b. Volt/Ammeter -- CHECK and return selector to BATT position.
  - c. Inertial Separator -- CHECK. Turn control counterclockwise, pull to BYPASS position and check torque drop; move control back to NORMAL position and check that original torque is regained.
  - Engine Instruments -- CHECK (See Section 2, Limitations for minimum oil temperature required for flight).
- Overspeed Governor -- CHECK (stabilized at 1750 ±60 RPM) (See Systems Checks).
- 12. Power Lever -- IDLE.
- 13. Quadrant Friction Lock -- ADJUST.
- 14. Standby Power (if installed) -- CHECK (See Systems Checks).
- 15. Autopilot -- PREFLIGHT TEST (See Systems Checks).
- Known Icing System -- PREFLIGHT COMPLETE (See Systems Checks) prior to any flight in icing conditions.
- Pitot/Static Heat -- On when OAT is below 4°C (40°F).
- 18. Ice Protection -- AS REQUIRED.
- 19. Avionics and Radar -- CHECK and SET.
- 20. GPS/NAV Switch -- SET.
- 21. Strobe Lights -- AS REQUIRED.
- 22. Annunciators -- EXTINGUISHED or considered.
- 23. Wing Flaps -- SET at 0°.
- 24. Cabin Heat Mixing Air Control -- FLT-PUSH.
- 25. Window -- CLOSE.
- 26. Brakes -- RELEASE.
- 27. Fuel Condition Lever -- HIGH IDLE.
- Standby Power Switch (if installed) -- ON (Standby Power INOF Annunciator -- OFF).

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PILOT'S OPERATING HANDBOOK TEMPORARY REVISION

SECTION 4 - NORMAL PROCEDURES

# TAKEOFF

### NORMAL TAKEOFF

NOT APPROVED.

#### SHORT FIELD TAKEOFF

NOT APPROVED.

## For Training Purposes Only

SECTION 4 - NORMAL PROCEDURES

# LANDING

### NORMAL LANDING

NOT APPROVED.

### SHORT FIELD LANDING

- 1. Wing Flaps -- 0°.
- 2. Airspeed -- 93 KIAS (Refer to Section 5 for speeds at reduced weights).
- 3. Power Lever -- REDUCE to IDLE after clearing obstacles.
- 4. Touchdown -- MAIN WHEELS FIRST.
- 5. Power Lever -- BETA range (lever against spring) after TOUCHDOWN.

#### NOTE

Further reduction of landing roll will result from use of reverse thrust (see Section 5).

6. Brakes -- APPLY HEAVILY while holding elevator control full aft.

## BALKED LANDING

- 1. Power Lever -- ADVANCE for takeoff power.
- 2. Wing Flaps -- 0°.
- 3. Climb Speed -- 100 KIAS MINIMUM until obstacles are cleared.



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Cessna MODEL SERIES 208

SECTION 5 - PERFORMANCE - TAKEOFF

## 208 (600 SHP) WITHOUT CARGO POD

## TAKEOFF DISTANCE (GROUND ROLL DISTANCE AND TOTAL DISTANCE TO CLEAR 50 FEET) FLAPS 0°

	TAKEOFF		1200	1	0°C	2	0°C	3	0°C	4	0°C	
WT.	SP	SPEED KIAS		GRND	TOTAL FEET TO	GRND	TOTAL FEET TO	GRND	TOTAL FEET TO	GRND	TOTAL FEET TO	
200	LIFT	AT 50 FT	FT	ROLL FT	CLEAR 50 FT OBS	ROLL FT	CLEAR 50 FT OBS	ROLL FT	CLEAR 50 FT OBS	GRND ROLL FT 1830 2050 2335 2800 3400  1700 1905 2170 2600 3150  1575 1765 2010 2405 2910 	FT	50 FT OBS
8000	89	104	SL	1565	2770	1650	2910	1740	3055	1.0.8.20	3200	
	121		2000	1750	3075	1850	3235	1945	3395	2050	3560	
			4000	1965	3425	2075	3605	2185	3790		4050	
		1.2	6000	2210	3825	2335	4030	2490	4300	102312	4925	
			8000	2495	4290	2680	4615	3010	5285	3400	6130	
			10000	2900	4995	3245	5695	3660	6605			
		11.2	12000	3545	6250	3985	7235	4520	8630	-	-	
7500	89	104	SL	1455	2580	1535	2710	1615	2845	1700	2980	
			2000	1630	2865	1720	3010	1810	3160	1905	3315	
			4000	1825	3185	1930	3355	2035	3525	2170	3765	
			6000	2055	3560	2170	3750	2315	3995	2600	4580	
			8000	2320	3990	2490	4290	2795	4910	3150	5695	
			10000	2695	4645	3010	5290	3395	6130	-		
	1.6.7	11	12000	3285	5805	3695	6715	4185	8005			
7000	89	104	SL	1350	2395	1425	2515	1500	2635	1575	2760	
	1.00		2000	1510	2655	1590	2790	1675	2930	1765	3070	
			4000	1690	2955	1785	3105	1885	3265	2010	3490	
			6000	1905	3300	2010	3470	2140	3700	2405	4235	
			8000	2145	3695	2300	3970	2585	4545	2910	5265	
		1. 24	10000	2490	4300	2780	4890	3135	5670	1		
		1.1	12000	3035	5365	3410	6205	3860	7390			

23 September 2003 208PHTR02

Cessna MODEL SERIES 208

208 (600 SHP)

### 208 (600 SHP) WITHOUT CARGO POD

### TAKEOFF DISTANCE (GROUND ROLL DISTANCE AND TOTAL DISTANCE TO CLEAR 50 FEET) FLAPS 0°

#### CONDITIONS: Flaps 0°

1900 RPM Inertial Separator - Normal Cabin Heat - Off Torque Set per Figure 5-7 Paved, Level, Dry Runway Zero Wind

#### NOTES:

- Use Type II or Type IV anti-ice fluid takeoff technique as specified in Section 4.
- Decrease distances 10% for each 11 knots headwind. For operation with tailwinds up to 10 knots, increase distances by 10% for each 2.5 knots.
- For operation on a dry, grass runway, increase distances by 15% of the "ground roll" figure.
- 4. With takeoff power set below the torque limit (1658 ft-lbs), increase distance (both ground roll and total distance) by 3% for inertial separator in BYPASS and 5% for cabin heat on.
- 5. Where distance values have been replaced by dashes, operating temperature limits of the airplane would be greatly exceeded. Those distance which are included by the operation slightly exceeds the temperature limit are provided for interpolation purposes only.

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SECTION 5 - PERFORMANCE - TAKEOFF

## 208 (600 SHP) CARGO POD INSTALLED

### TAKEOFF DISTANCE (GROUND ROLL DISTANCE AND TOTAL DISTANCE TO CLEAR 50 FEET) FLAPS 0°

	TAKEOFF SPEED KIAS		1-2-	1	0°C	2	0°C	3	0°C	4	0°C
WT.			PRES	GRND	TOTAL FEET TO						
	LIFT OFF	AT 50 FT	FT	ROLL FT	CLEAR 50 FT OBS	ROLL FT	CLEAR 50 FT OBS	ROLL FT	CLEAR 50 FT 0BS	ROLL FT	CLEAR 50 FT OBS
8000	89	104	SL	1585	2825	1670	2970	1760	3115	1850	3270
	0.11	1.1.1	2000	1775	3140	1870	3300	1975	3470	2075	3640
			4000	1990	3495	2105	3680	2220	3870	2370	4145
			6000	2240	3910	2370	4120	2525	4400	2845	5070
			8000	2530	4390	2720	4730	3060	5445	3455	6365
		1.1	10000	2945	5130	3295	5875	3725	6875		
			12000	3605	6470	4055	7570	4610	9235	-	
7500	89	104	SL	1475	2630	1555	2765	1640	2900	1725	3040
		2.11	2000	1650	2920	1740	3075	1835	3230	1930	3385
			4000	1850	3255	1955	3425	2060	3605	2200	3855
		1.1	6000	2085	3640	2200	3835	2350	4095	2640	4710
			8000	2350	4085	2525	4400	2840	5060	3205	5910
			10000	2735	4765	3060	5455	3455	6385		
			12000	3340	6010	3760	7025	4265	8565		-
7000	89	104	SL	1365	2440	1440	2565	1520	2690	1595	2820
		101	2000	1530	2710	1615	2850	1700	2990	1790	3140
			4000	1715	3015	1810	3175	1910	3340	2040	3570
			6000	1930	3370	2040	3550	2170	3790	2440	4360
	C	1.0	8000	2175	3780	2335	4070	2625	4680	2960	5465
		1.1	10000	2530	4410	2825	5045	3190	5900		
			12000	3085	5555	3470	6490	3935	7910		

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208 (600 SHP)

### 208 (600 SHP) CARGO POD INSTALLED

## TAKEOFF DISTANCE

(GROUND ROLL DISTANCE AND TOTAL DISTANCE TO CLEAR 50 FEET) FLAPS 0°

#### CONDITIONS:

Flaps 0° 1900 RPM Inertial Separator - Normal Cabin Heat - Off Torque Set per Figure 5-7 Paved, Level, Dry Runway Zero Wind Cargo Pod Installed

#### NOTES:

- Use Type II or Type IV anti-ice fluid takeoff technique as specified in Section 4.
- Decrease distances 10% for each 11 knots headwind. For operation with tailwinds up to 10 knots, increase distances by 10% for each 2.5 knots.
- For operation on a dry, grass runway, increase distances by 15% of the "ground roll" figure.
- 4. With takeoff power set below the torque limit (1658 ft-lbs), increase distance (both ground roll and total distance) by 3% for inertial separator in BYPASS and 5% for cabin heat on.
- 5. Where distance values have been replaced by dashes, operating temperature limits of the airplane would be greatly exceeded. Those distance which are included by the operation slightly exceeds the temperature limit are provided for interpolation purposes only.

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SECTION 5 - PERFORMANCE - TAKEOFF

## 208 (675 SHP) WITHOUT CARGO POD

## TAKEOFF DISTANCE (GROUND ROLL DISTANCE AND TOTAL DISTANCE TO CLEAR 50 FEET) FLAPS 0°

	TAKEOFF SPEED KIAS			1	0°C	2	0°C	3	0°C	4	0°C
WT.			PRES	GRND	TOTAL FEET TO	GRND	TOTAL FEET TO	GRND	TOTAL FEET TO	GRND	
600	LIFT OFF	AT 50 FT	FT	ROLL FT	CLEAR 50 FT OBS	ROLL FT	CLEAR 50 FT OBS	ROLL FT	CLEAR 50 FT OBS	GRND ROLL FT 2115 2445 2860 3390  1965 2270 2655 3145  1965 2270 2655 3145  1820 2100 2455 2905	CLEAR 50 FT OBS
8000	89	104	SL	1805	3135	1905	3300	2010	3465	2115	3635
	1771		2000	2025	3485	2140	3670	2255	3860	2445	4200
			4000	2275	3890	2405	4100	2545	4325	2860	4950
			6000	2565	4360	2715	4595	3020	5180	3390	5950
			8000	2925	4950	3270	5615	3660	6430		
		0. LJ	10000	3540	6095	3970	6995	4470	8175		
		1-6	12000	4330	7695	4875	9025				
7500	89	104	SL	1680	2920	1775	3070	1870	3225	1965	3380
			2000	1880	3245	1990	3415	2095	3590	2270	3905
		1.51	4000	2115	3620	2235	3810	2365	4020	2655	4600
	1 1	1.21	6000	2385	4050	2520	4275	2800	4815	3145	5525
		1.0	8000	2720	4600	3030	5215	3395	5965		
			10000	3285	5655	3675	6490	4140	7580		
	1.1		12000	4010	7135	4510	8360				-
7000	89	104	SL	1555	2705	1640	2845	1730	2985	1820	3130
			2000	1740	3005	1840	3165	1940	3325	2100	3615
			4000	1955	3350	2070	3530	2185	3725	2455	4255
			6000	2205	3750	2330	3955	2590	4455	2905	5105
			8000	2515	4255	2800	4820	3130	5515		
			10000	3030	5230	3395	5995	3815	6995	-	-
			12000	3700	6590	4155	7715				

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208 (675 SHP)

### 208 (675 SHP) WITHOUT CARGO POD

### TAKEOFF DISTANCE (GROUND ROLL DISTANCE AND TOTAL DISTANCE TO CLEAR 50 FEET) FLAPS 0°

### CONDITIONS:

Flaps 0° 1900 RPM Inertial Separator - Normal Cabin Heat - Off Torque Set per Figure 5-8 Paved, Level, Dry Runway Zero Wind

#### NOTES:

- Use Type II or Type IV anti-ice fluid takeoff technique as specified ir Section 4.
- Decrease distances 10% for each 11 knots headwind. For operation with tailwinds up to 10 knots, increase distances by 10% for each 2 knots.
- For operation on a dry, grass runway, increase distances by 15% o the "ground roll" figure.
- 4. With takeoff power set below the torque limit (1865 ft-lbs), increase distance (both ground roll and total distance) by 3% for inertia separator in BYPASS and increase ground roll 5% and total distance 9% for cabin heat on.
- 5. Where distance values have been replaced by dashes, operating temperature limits of the airplane would be greatly exceeded. Those distance which are included by the operation slightly exceeds the temperature limit are provided for interpolation purposes only.

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SECTION 5 - PERFORMANCE - TAKEOFF

## 208 (675 SHP) CARGO POD INSTALLED

### TAKEOFF DISTANCE (GROUND ROLL DISTANCE AND TOTAL DISTANCE TO CLEAR 50 FEET) FLAPS 0°

	TAKEOFF SPEED KIAS		-	1	0°C	2	0°C	3	0°C	4	40°C	
WT.			PRES	GRND	TOTAL FEET TO	GRND	TOTAL FEET TO	GRND	TOTAL FEET TO	GRND	TOTAL FEET TO	
LDG	LIFT OFF	AT 50 FT	FT	ROLL FT	CLEAR 50 FT OBS	ROLL FT	CLEAR 50 FT OBS	ROLL FT	CLEAR 50 FT OBS		CLEAR 50 FT OBS	
8000	89	104	SL	1830	3195	1930	3365	2035	3535	2145	3710	
		1.00	2000	2050	. 3560	2165	3750	2285	3940	2480	4300	
			4000	2305	3975	2440	4190	2580	4425	2905	5085	
			6000	2605	4455	2755	4705	3065	5320	3445	6145	
			8000	2970	5070	3320	5770	3720	6650			
			10000	3595	6275	4035	7255	4550	8585			
			12000	4405	8015	4965	9550		-			
7500	89	104	SL	1700	2975	1795	3130	1895	3290	1995	3450	
			2000	1905	3310	2015	3485	2125	3665	2300	3995	
			4000	2145	3695	2265	3895	2395	4110	2695	4725	
	4		6000	2420	4145	2560	4370	2845	4940	3195	5705	
		1.1	8000	2755	4710	3080	5360	3450	6170			
		1.1	10000	3335	5825	3740	6730	4210	7960			
	11		12000	4080	7435	4590	8855					
7000	89	104	SL	1575	2755	1665	2900	1750	3045	1845	3195	
			2000	1765	3065	1865	3230	1965	3395	2130	3700	
			4000	1985	3425	2095	3605	2215	3805	2490	4370	
			6000	2235	3835	2365	4045	2630	4570	2950	5270	
		$\parallel \phi_{m}$	8000	2550	4360	2845	4955	3185	5705			
	i	111	10000	3080	5385	3450	6215	3880	7350			
		1.1.1	12000	3765	6865	4230	8170					

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208 (675 SHP)

### 208 (675 SHP) CARGO POD INSTALLED

### TAKEOFF DISTANCE (GROUND ROLL DISTANCE AND TOTAL DISTANCE TO CLEAR 50 FEET) FLAPS 0°

CONDITIONS:

Flaps 0° 1900 RPM Inertial Separator - Normal Cabin Heat - Off Torque Set per Figure 5-8 Paved, Level, Dry Runway Zero Wind Cargo Pod Installed

#### NOTES:

- 1. Use Type II or Type IV anti-ice fluid takeoff technique as specified in Section 4.
- Decrease distances 10% for each 11 knots headwind. For operation with tailwinds up to 10 knots, increase distances by 10% for each 2 knots.
- For operation on a dry, grass runway, increase distances by 15% of the "ground roll" figure.
- 4. With takeoff power set below the torque limit (1865 ft-lbs), increase distance (both ground roll and total distance) by 3% for inertial separator in BYPASS and increase ground roll 5% and total distance 9% for cabin heat on.
- 5. Where distance values have been replaced by dashes, operating temperature limits of the airplane would be greatly exceeded. Those distance which are included by the operation slightly exceeds the temperature limit are provided for interpolation purposes only.

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SECTION 5 - PERFORMANCE - TAKEOFF

## 208B (600 SHP) CARGO POD INSTALLED

### TAKEOFF DISTANCE (GROUND ROLL DISTANCE AND TOTAL DISTANCE TO CLEAR 50 FEET) FLAPS 0°

-	TAKEOFF			1	0°C	2	0°C	3	0°C	4	0°C
		EED	PRES	1000	TOTAL	1.000	TOTAL		TOTAL	1.3.5	TOTAL
LBS	KL	AS	ALT	GRND	FEET TO	GRND	FEET TO	GRND	FEET TO	GRND	FEET TO
		AT	FT	ROLL	CLEAR	ROLL	CLEAR	ROLL	CLEAR	ROLL	CLEAR
	LIFT	50		FT	50 FT	FT	50 FT	FT	50 FT	FT	50 FT
	0.1	FT		1.1	OBS	1 <u> </u>	OBS	100	OBS	1.11	OBS
8750	83	102	SL	2280	4560	2420	4845	2565	5140	2715	5445
			2000	2585	5180	2750	5515	2915	5860	3090	6220
		(12)	4000	2945	5920	3135	6315	3330	6725	3605	7360
			6000	3370	6810	.3590	7275	3875	7940	4530	9770
	1 1		8000	3875	7885	4225	8725	4940	10770	5845	13795
			10000	4650	9740	5405	11965	6405	15430		
		110	12000	6050	13800	7150	17915		-		
8300	83	102	SL	2145	4285	2275	4550	2410	4825	2550	5110
		1.000	2000	2430	4865	2585	5175	2740	5500	2905	5835
			4000	2770	5555	2945	5920	3125	6305	3380	6895
			6000	3165	6380	3370	6815	3635	7435	4245	9130
			8000	3635	7385	3960	8165	4625	10055	5465	12840
			10000	4355	9105	5060	11160	5985	14345		-
			12000	5655	12850	6670-	16620		-		-
7800	83	102	SL	1995	3985	2120	4230	2245	4485	2375	4750
	-		2000	2260	4520	2405	4810	2550	. 5105	2700	5415
			4000	2575	5160	2735	5495	2905	5850	3140	6395
			6000	2940	5920	3130	6320	3375	6885	3935	8440
			8000	3375	6845	3675	7560	4285	9285	5050	11820
			10000	4040	8420	4685	10295	5530	13190		
			12000	5230	11835	6155	15255			-	-
7300	83	102	SL	1850	3690	1965	3915	2080	4150	2200	4395
			2000	2095	4185	2225	4450	2360	4725	2500	5010
			4000	2385	4770	2535	5080	2690	5405	2905	5905
			6000	2720	5470	2895	5840	3125	6355	3635	7775
			8000	3120	6315	3395	6970	3955	8545	4650	10840
			10000	3730	7760	4320	9460	5085	12085		
		_	12000	4820	10860	5660	13950				

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208B (600 SHP)

### 208B (600 SHP) CARGO POD INSTALLED

### TAKEOFF DISTANCE (GROUND ROLL DISTANCE AND TOTAL DISTANCE TO CLEAR 50 FEET) FLAPS 0°

CONDITIONS: Flaps 0° 1900 RPM Inertial Separator - Normal Cabin Heat - Off Torque Set per Figure 5-7 Paved, Level, Dry Runway Zero Wind Cargo Pod Installed

#### NOTES:

- Use Type II or Type IV anti-ice fluid takeoff technique as specified in Section 4.
- Decrease distances 10% for each 11 knots headwind. For operation with tailwinds up to 10 knots, increase distances by 10% for each 2.5 knots.
- For operation on a dry, grass runway, increase distances by 15% of the "ground roll" figure.
- 4. With takeoff power set below the torque limit (1658 ft-lbs), increase distance (both ground roll and total distance) by 3% for inertial separator in BYPASS and 5% for cabin heat on.
- 5. Where distance values have been replaced by dashes, operating temperature limits of the airplane would be greatly exceeded Those distance which are included by the operation slightly exceeds the temperature limit are provided for interpolatior purposes only.

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SECTION 5 - PERFORMANCE - TAKEOFF

## 208B (675 SHP) WITHOUT CARGO POD

### TAKEOFF DISTANCE (GROUND ROLL DISTANCE AND TOTAL DISTANCE TO CLEAR 50 FEET) FLAPS 0°

12.4.4	TAK	EOFF	1.000	1	O*C	2	0°C	3	0°C	40°C	
	SP	SPEED KIAS		-	TOTAL		TOTAL	1000	TOTAL	1000	TOTAL
WT. LBS	K			GRND	FEET TO	GRND	FEET TO	GRND	FEET TO	GRND	FEET TO
LDS	1.000	AT	FT	ROLL	CLEAR	ROLL	CLEAR	ROLL	CLEAR	ROLL	CLEAR
	LIFT	50	10.00	FT	50 FT	FT	50 FT	FT	50 FT	FT	50 FT
	OFF	FT	1.1.1.1	-	OBS		OBS		OBS		OBS
8750	83	104	SL	2040	3790	2170	4025	2300	4270	2435	4520
			2000	2315	4305	2465	4580	2615	4865	2880	5420
			4000	2640	4915	2810	5235	2995	5595	3475	6690
	1.11	2.3	6000	3025	5645	3220	6030	3680	7070	4280	8530
		2.51	8000	3515	6625	4045	7840	4690	9445		
			10000	4450	8730	5175	10570	6100	13155		
	1.3		12000	5775	12050	6810	15065	•••••			
8300	83	104	SL	1920	3560	2040	3780	2165	4010	2290	4250
	1		2000	2180	4045	2315	4300	2460	4565	2705	5085
			4000	2485	4615	2640	4915	2815	5250	3260	6265
			6000	2840	5300	3030	5655	3455	6620	4015	7970
			8000	3305	6210	3795	7335	4395	8815		
		2.1	10000	4175	8160	4845	9855	5700	12220		
			12000	5405	11215	6355	13965			-	-
7800	83	104	SL	1790	3315	1900	3520	2015	3730	2130	3950
1000			2000	2030	3760	2155	4000	2290	4245	2515	4725
	1.1		4000	2310	4290	2460	4565	2620	4875	3030	5810
		1.13	6000	2645	4920	2815	5250	3210	6135	3725	7370
			8000	3070	5760	3520	6790	4075	8140		
			10000	3875	7545	4490	9090	5270	11225		
	1.4	1.1	12000	5000	10320	5870	12800				-
7300	83	104	SL	1660	3075	1765	3260	1870	3455	1975	3660
		104	2000	1885	3485	2000	3705	2120	3930	2330	4370
		5.0	4000	2145	3970	2280	4225	2425	4510	2805	5365
		1.1	6000	2450	4550	2610	4855	2970	5660	3440	6785
			8000	2845	5320	3255	6260	3765	7490		
			10000	3580	6950	4145	8350	4855	10275		
			12000	4610	9465	5405	11690	1000	IOLIO		

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208B (675 SHP)

### 208B (675 SHP) WITHOUT CARGO POD

### TAKEOFF DISTANCE (GROUND ROLL DISTANCE AND TOTAL DISTANCE TO CLEAR 50 FEET) FLAPS 0°

### CONDITIONS:

Flaps 0° 1900 RPM Inertial Separator - Normal Cabin Heat - Off Torque Set per Figure 5-8 Paved, Level, Dry Runway Zero Wind

#### NOTES:

- Use Type II or Type IV anti-ice fluid takeoff technique as specified in Section 4.
- Decrease distances 10% for each 11 knots headwind. For operation with tailwinds up to 10 knots, increase distances by 10% for each 2 knots.
- For operation on a dry, grass runway, increase distances by 15% of the "ground roll" figure.
- 4. With takeoff power set below the torque limit (1865 ft-lbs), increase distance (both ground roll and total distance) by 3% for inertial separator in BYPASS and increase ground roll 5% and total distance 9% for cabin heat on.
- 5. Where distance values have been replaced by dashes, operating temperature limits of the airplane would be greatly exceeded. Those distance which are included by the operation slightly exceeds the temperature limit are provided for interpolation purposes only.

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SECTION 5 - PERFORMANCE - TAKEOFF

## 208B (675 SHP) CARGO POD INSTALLED

### TAKEOFF DISTANCE (GROUND ROLL DISTANCE AND TOTAL DISTANCE TO CLEAR 50 FEET) FLAPS 0°

	TAKEOFF		-	1	0°C	2	0°C	3	0°C	40°C	
	SP	EED	PRES	1.78	TOTAL	in the second	TOTAL		TOTAL	1	TOTAL
WT.	KI	KIAS		GRND	FEET TO	GRND	FEET TO	GRND	FEET TO	GRND	FEET TO
		AT	FT	ROLL	CLEAR	ROLL	CLEAR	ROLL	CLEAR	ROLL	CLEAR
	LIFT	50	1.1	FT	50 F T	FT	50 FT	FT	50 FT	FT	50 FT
	OFF	FT			OBS		OBS	101	OBS	(	OBS
8750	83	104	SL	2085	3880	2215	4125	2350	4375	2490	4640
			2000	2370	4410	2520	4695	2675	4990	2945	5575
	1.11	1.11	4000	2700	5045	2875	5380	3065	5750	3565	6900
	1.10		6000	3095	5805	3300	6205	3775	7295	4400	8845
		1.00	8000	3605	6825	4150	8105	4825	9810		
			10000	4575	9045	53301	1005	6295	13795	-	فسد
			12000	5955	12585	70401	5865	-			
8300	83	104	SL	1965	3650	2085	3875	2210	4110	2340	4355
			2000	2230	4145	2370	4410	2515	4685	2770	5230
		115	4000	2540	4735	2705	5050	2880	5395	3345	6465
	1.0		6000	2910	5445	3100	5815	3545	6830	4125	8260
			8000	3385	6395	3895	7580	4520	9150		
		1.05	10000	4285	8450	4990	10255	5880	12805		
			12000	5570	11705	6570	14690	-			
7800	83	104	SL	1830	3395	1940	3605	2060	3825	2180	4050
	150	100	2000	2075	3855	2205	4100	2340	4355	2575	4855
			4000	2365	4400	2515	4690	2680	5010	3105	5990
		1.11	6000	2705	5055	2885	5400	3290	6325	3825	7630
	1.1	1.1	8000	3145	5930	3615	7015	4190	8445		
			10000	3975	7810	4620	9450	5435	11750		
			12000	5155	10765	6065	13450	T		****	-
7300	83	104	SL	1695	3145	1800	3340	1910	3540	2020	3750
	1000		2000	1925	3570	2045	3795	2170	4030	2385	4490
			4000	2190	4075	2330	4340	2485	4635	2875	5530
			6000	2505	4675	2670	4990	3045	5835	3535	7025
			8000	2910	5475	3340	6465	3870	7765		
			10000	3675	7190	4260	8680	5005	10750		
	1.0	-	12000	4750	9865	5580	12275	-			

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PILOT'S OPERATING HANDBOOK TEMPORARY REVISION

208B (675 SHP)

#### 208B (675 SHP) CARGO POD INSTALLED

#### TAKEOFF DISTANCE (GROUND ROLL DISTANCE AND TOTAL DISTANCE TO CLEAR 50 FEET) FLAPS 0°

#### CONDITIONS:

Flaps 0° 1900 RPM Inertial Separator - Normal Cabin Heat - Off Torque Set per Figure 5-8 Paved, Level, Dry Runway Zero Wind Cargo Pod Installed

#### NOTES:

- Use Type II or Type IV anti-ice fluid takeoff technique as specified in Section 4.
- Decrease distances 10% for each 11 knots headwind. For operation with tailwinds up to 10 knots, increase distances by 10% for each 2 knots.
- For operation on a dry, grass runway, increase distances by 15% of the "ground roll" figure.
- 4. With takeoff power set below the torque limit (1865 ft-lbs), increase distance (both ground roll and total distance) by 3% for inertia separator in BYPASS and increase ground roll 5% and total distance 9% for cabin heat on.
- 5. Where distance values have been replaced by dashes, operating temperature limits of the airplane would be greatly exceeded. Those distance which are included by the operation slightly exceeds the temperature limit are provided for interpolation purposes only.

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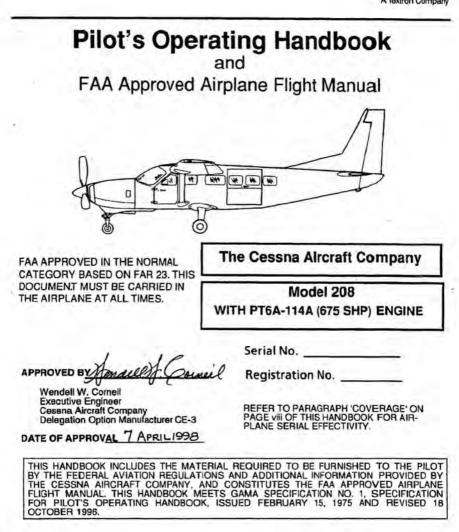
This document is for use in a FlightSafety International classroom training environment only and not to be used in an aircraft. At the time of issuance, this Manual was an exact duplicate of the official Pilot's Operating Handbook and is to be used for general purposes only.

It will not be kept current and therefore cannot be used as a substitute for the official Pilot's Operating Handbook intended for operation of the airplane.

> FlightSafety International January 22, 2004

ADR #1058





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Original Issue - 1 April 1998

Member of GAMA

THIS MANUAL WAS PROVIDED FOR THE AIRPLANE IDENTIFIED ON THE TITLE PAGE ON \_\_\_\_\_\_\_\_. SUBSEQUENT REVISIONS SUPPLIED BY THE CESSNA AIRCRAFT COMPANY MUST BE PROPERLY INSERTED.

The Cessna Aircraft Company, Aircraft Division

PUBLICATION PART NUMBER

CESSNA MODEL 208 (675 SHP)

# Pilot's Operating Handbook

# and

FAA Approved Airplane Flight Manual

Serial Numbers 20800277 and On

# **ORIGINAL ISSUE - 1 April 1998**

**REVISION 6 - 30 OCTOBER 2002** 

PART NUMBER: D1352-6-13PH

**Revision 6** 

# CONGRATULATIONS ....

Welcome to the ranks of Cessna owner/operators! Your Cessna has been designed and constructed to give you the most in performance, economy and comfort. It is our desire that you will find flying it a pleasant and profitable experience.

This Pilot's Operating Handbook has been prepared as a guide to help you get the most utility from your airplane. It contains information about your Cessna's equipment, operating procedures, performance and suggestions for its servicing and care. Please study it carefully and refer to it often.

The worldwide Cessna Organization and Cessna Product Support stand ready to serve you. You will find the following services are offered by each Cessna Service Station:

- THE CESSNA WARRANTY, which provides coverage for parts and labor, is available at Cessna Service Stations worldwide. Specific benefits and provisions of warranty, plus other important benefits for you are contained in your Customer Care Program Handbook supplied with your airplane. Warranty service is available to you at authorized Cessna Service Stations throughout the world upon presentation of your Customer Care Card which establishes your eligibility under the warranty.
- FACTORY-TRAINED PERSONNEL to provide you with courteous, expert service.
- FACTORY-APPROVED SERVICE EQUIPMENT to provide you efficient and accurate workmanship.
- A STOCK OF GENUINE CESSNA SERVICE PARTS on hand when you need them.
- THE LATEST AUTHORITATIVE INFORMATION FOR SERVICING CESSNA AIRPLANES, since Cessna Service Stations have all of the Maintenance Manuals and Parts Catalogs, kept current by Cessna Service Bulletins and Cessna Service Newsletters, published by Cessna Aircraft Company.

We urge all Cessna owners/operators to use the Cessna Organization to the fullest.

A current Cessna Sales and Service Directory accompanies your new airplane. The Directory is revised frequently, and a current copy can be obtained from your Cessna Service Facility. Make your Directory one of your cross-country flight planning aids.

GENERAL INFORMATION

CESSNA MODEL 208 (675 SHP)

# **GENERAL INFORMATION** WITHOUT CARGO POD

* SPEED (KTAS):	
Maximum Cruise at 10,000 FT 18	36 KNOTS
	74 KNOTS
RANGE: With 2224 pounds usable fuel and fuel allo engine start, taxi, takeoff, climb, descent minutes reserve.	
Max Cruise at 10,000 FT Range	932 NM
Time	5.1 HRS
Max Cruise at 20,000 FT Range	1220 NM
Time	7.13 HRS
Max Range at 10,000 FT Range	1085 NM
Time	7.0 HRS
Max Range at 20,000 FT Range	1295 NM
Time	8.3 HRS
RATE OF CLIMB AT SEA LEVEL	1234 FPM
MAXIMUM OPERATING ALTITUDE	25,000 FT
TAKEOFF PERFORMANCE:	
Ground Roll	1160 FT
Total Distance Over 50 FT Obstacle	2053 FT
LANDING PERFORMANCE:	*
Ground Roll	745 FT
Total Distance Over 50 FT Obstacle	1665 FT
STALL SPEED (KCAS):	
Flaps Up, Idle Power 7	5 KNOTS
Flaps Down, Idle Power 6	1 KNOTS
MAXIMUM WEIGHT:	
Ramp	8035 LBS
Takeoff	8000 LBS
승규는 다양 지난 것이 없다. 이렇게 다양 다양 것 같아? 것 같아? 것 같아? 것이 같아? 것 같아? 것이 가지 않는 것이 같아? 나는 것이 가 많아? 것이?	7800 LBS

Speeds are based on mid-cruise weight.

# **GENERAL INFORMATION**

WITHOUT CARGO POD

(Continued)

STANDARD EMPTY WEIGHT	S
MAXIMUM USEFUL LOAD 4110 LBS	3
WING LOADING: Lbs/Sq Ft 28.	6
POWER LOADING Lbs/HP 11.	9
FUEL CAPACITY	L
OIL CAPACITY	S
ENGINE: Pratt & Whitney Canada PT6A-114	A
at 675 Shaft Horsepower PTGA-114 (600 kp)	
PROPELLER:	
McCauley 3-bladed, Constant Speed,	

Full Feathering, Reversible. Diameter: ..... 106 IN

#### NOTE

The above performance figures are based on indicated weights, standard atmospheric conditions, level, hardsurfaced dry runways and no wind. They are calculated values derived from flight tests conducted by The Cessna Aircraft Company under carefully documented conditions and will vary with individual airplanes and numerous factors affecting performance. Performance for other operational conditions can be derived by reference to operational data in other sections of this handbook. GENERAL INFORMATION

CESSNA MODEL 208 (675 SHP)

## **GENERAL INFORMATION** WITH CARGO POD

* SPEED (KTAS):	
Maximum Cruise at 10,000 FT 177 KNOT	S
Maximum Cruise at 20,000 FT 165 KNOT	
RANGE: With 2224 pounds usable fuel and fuel allowance for	or
engine start, taxi, takeoff, climb, descent and 4 minutes reserve.	
Max Cruise at 10,000 FT Range 891 NM	M
Time 5.1 HR	
Max Cruise at 20,000 FT Range 1155 NM	21
Time 7.1 HR	
Max Range at 10,000 FT Range 1028 NM	
Time 6.9 HR	S
Max Range at 20,000 FT Range 1199 NM	٨
Time 7.9 HR	S
RATE OF CLIMB AT SEA LEVEL 1175 FPM	Ν
MAXIMUM OPERATING ALTITUDE 25,000 F	Т
TAKEOFF PERFORMANCE:	
Ground Roll 1170 F	Т
Total Distance Over 50 FT Obstacle 2090 F	Т
LANDING PERFORMANCE:	
Ground Roll 710 F	Г
Total Distance Over 50 FT Obstacle 1600 F	Г
STALL SPEED (KCAS):	
Flaps Up, Idle Power 75 KNOTS	9 H
Flaps Down, Idle Power 61 KNOTS	5
MAXIMUM WEIGHT:	
Ramp 8035 LBS	
Takeoff	
Landing	5

Speeds are based on mid-cruise weight.

# GENERAL INFORMATION

WITH CARGO POD

(Continued)

STANDARD EMPTY WEIGHT	4305 LBS
MAXIMUM USEFUL LOAD	3730 LBS
WING LOADING: Lbs/Sq Ft	
POWER LOADING Lbs/HP	11.9
FUEL CAPACITY	335.6 GAL
OIL CAPACITY	14 QTS
ENGINE: Pratt & Whitney Canada	PT6A-114A
Free Turbine Flat Rated	
at 675 Shaft Horsepower	
PROPELLER:	
McCauley 3-bladed, Constant Speed,	
그는 것이 같은 것이 없는 것이 같아요. 이 것이 같아요. 한 것은 물질에 있는 것이 가지 않는 것이 없다. 이 것이 없는 것이 같아요.	

Full Feathering, Reversible. Diameter: ..... 106 IN

### NOTE

The above performance figures are based on indicated weights, standard atmospheric conditions, level, hardsurfaced dry runways and no wind. They are calculated values derived from flight tests conducted by The Cessna Aircraft Company under carefully documented conditions and will vary with individual airplanes and numerous factors affecting performance. Performance for other operational conditions can be derived by reference to operational data in other sections of this handbook.

### For Training Purposes Only

VII

GENERAL

CESSNA MODEL 208 (675 SHP)

# COVERAGE

The Pilot's Operating Handbook in the airplane at the time of delivery from The Cessna Aircraft Company contains information applicable to the Model 208 (675 SHP) airplane by serial number and registration number shown on the Title Page. This handbook is applicable to airplane serial number 2080277 and On. All information is based on data available at the time of publication.

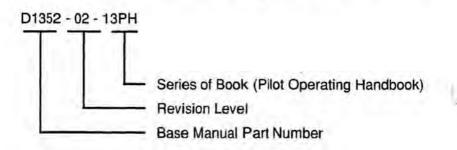
This handbook is comprised of eight sections which cover operational aspects of a standard-equipped airplane. Section 9, Supplements, provides expanded operational procedures for the avionics equipment (both standard and optional), operational procedures for various optional systems, and provides information on special operations.

Supplements in Section 9 are stand-alone documents, and may be issued or revised without regard to revision dates which apply to the POH itself. These supplements contain their own Log of Effective Pages, which should be used to determine the status of each and every individual supplement.

# **ORIGINAL ISSUE AND REVISIONS**

This Pilot's Operating Handbook and FAA Approved Airplane Flight Manual was originally issued on 1 April, 1998. To ensure that information in this manual is current, revisions must be incorporated as they are issued. Revision status is noted on Page i of this section, and also in the Log of Effective Pages table.

The part number of this manual is also coded to aid the owner/operator in determining the revision level of the POH. As revisions to the POH are issued, the Part Number will change to reflect that revision. Refer to the example below:



29 September 1998

It is the responsibility of the airplane owner to maintain this handbook in a current status when it is being used for operational purposes. Owners should contact their Cessna Service Station whenever the revision status of their handbook is in question.

Revisions are distributed to owners of U.S. Registered aircraft according to FAA records at the time of revision issuance, and to Internationally Registered aircraft according to Cessna Owner Advisory records at the time of issuance. Revisions should be read carefully upon receipt and incorporated in this POH.

# **REVISION FILING INSTRUCTIONS**

### REGULAR REVISIONS

Pages to be removed or inserted in the Pilots' Operating Handbook and FAA Approved Airplane Flight Manual are determined by the Log of Effective Pages located in this section. This log contains the page number and date of issue for each page within the POH. At original issue, all pages will contain the same date. As revisions to the POH occur, these dates will change on effected pages. When two pages display the same page number, the page with the latest date shall be inserted into the POH. The date on the Log Of Effective Pages shall also agree with the latest date of the page in question.

### TEMPORARY REVISIONS

Under limited circumstances, temporary revisions to the POH may be issued. These temporary revisions are to be filed in the applicable section in accordance with filing instructions appearing on the first page of the temporary revision.

The recession of a temporary revision is accomplished by incorporation into the POH at revision time or by a superseding temporary revision. In order to accurately track the status of temporary revisions as they pertain to a POH, a Temporary Revision List will be located previous to this section when required. This list will indicate the date the temporary revision was incorporated into the POH, thus authorizing the recession of the temporary revision.

x

X

# IDENTIFYING REVISED MATERIAL

Additions or revisions to the text in an existing section will be identified by a vertical line (revision bar) adjacent to the applicable revised area on the outer margin of the page.

When technical changes cause unchanged text to appear on a different page, a revision bar will be placed in the outer lower margin of the page, opposite the page number and date of the page, providing no other revision bar appears on the page. These pages will display the current revision date as found in the Original Issue and Revisions paragraph of this section.

When extensive technical changes are made to text in an existing section that requires extensive revision, revision bars will appear the full length of text.

New art added to an existing section will be identified by a single pointing hand indicator adjacent to the figure title and figure number. Existing art which is revised will have a pointing hand adjacent to the portion of the art which has changed.

# WARNINGS, CAUTIONS AND NOTES

Throughout the text, warnings, cautions and notes pertaining to airplane handling and operations are utilized. These adjuncts to the text are used to highlight or emphasize important points.

WARNING - Calls attention to use of methods, procedures or limits which must be followed precisely to avoid injury or death to persons.

CAUTION - Calls attention to methods, procedures or limits which must be followed to avoid damage to equipment.

NOTE - Calls attention to additional procedures or information pertaining to the text.

1 April 1998

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## LOG OF EFFECTIVE PAGES

# LOG OF EFFECTIVE PAGES

The following Log of Effective Pages provides the date of issue for original and revised pages, as well as a listing of all pages in the POH. Pages which are affected by the current revision are indicated by an asterisk (\*) preceding the pages listed. Pages which contain a slash (/) mark indicate a blank page on the backup (Example: i/ii indicates that page ii, which backs up page i, is blank).

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#### For Training Purposes Only

15 November 2000

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#### NOTE

Refer to Section 9 Log of Approved Supplements for supplements applicable to optional systems.

#### APPROVED BY

\*0 46 30 OCTOBER 2002 DATE OF APPROVAL

**Revision 6** 



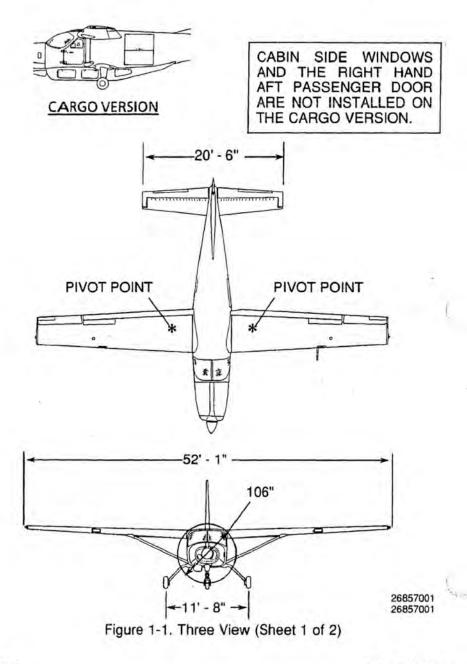
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SECTION 1 GENERAL CESSNA MODEL 208 (675 SHP)

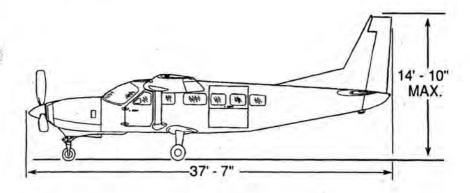


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For Training Purposes Only

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### SECTION 1 GENERAL



### NOTES:

- 1. Dimensions shown are based on standard empty weight and proper inflation of standard nose and main gear tires. Tail height may increase with oversize tires.
- 2. Wing span dimension includes strobe lights.
- Maximum height shown with nose gear depressed as far as possible.
- 4. Wheel base length is 11' -7 1/2".
- 5. Wing area is 279.4 square feet.
- Minimum turning radius (\*pivot point to outboard wing tip strobe light) is 31' - 10 1/2".
- McCauley propeller ground clearance with standard tires: Nose tire inflated and nose gear barrel extended 4 1/2": 16".

Nose tire deflated and nose strut fully compressed: 9".

26857001

Figure 1-1. Three View (Sheet 2 of 2)

1 April 1998

1-3

# INTRODUCTION

This handbook contains 9 sections, and includes the material required to be furnished to the pilot by Federal Aviation Regulations and additional information provided by Cessna Aircraft Company. This handbook constitutes the FAA Approved Airplane Flight Manual.

## A WARNING

This handbook is not intended to be a guide for basic flight instruction or a training manual and should not be used as one. It is not a substitute for adequate and competent flight instruction, pilot skill, and pilot knowledge of current airworthiness directives, applicable federal aviation regulations and/or advisory circulars.

# WARNING

Assuring the airworthiness of the airplane is the responsibility of the airplane owner or operator. Determining if the airplane is safe for flight is the responsibility of the pilot in command. The pilot is also responsible for adhering to the operating limitations set forth by instrument markings, placards, and this Pilot's Operating Handbook and FAA Approved Airplane Flight Manual.

Generally, information in this handbook is applicable to both the Passenger and Cargo versions. Where differences exist between the versions, they are noted in both text and illustration.

SECTION 1 GENERAL

Section 1 provides basic data and information of general interest. It also contains definitions or explanations of symbols, abbreviations, and terminology commonly used.

## DESCRIPTIVE DATA

### ENGINE

Number of Engines: 1 Engine Manufacturer: Pratt & Whitney Canada, Inc. Engine Model Number: PT6A-114A, ? Engine Type: Free turbine, two-shaft engine

Free turbine, two-shaft engine utilizing a compressor section having three axial stages and one centrifugal stage, an annular reverse-flow combustion chamber, a one-stage compressor turbine, a one-stage power turbine, and a single exhaust. The power turbine drives the propeller through a two-stage planetary gearbox at the front of the engine.

Horsepower: Flat rated at 675 shaft horsepower.

->600 hp!

## PROPELLER

Propeller Manufacturer: McCauley Accessory Division. Propeller Model Number: 3GFR34C703/106GA-0. Number of Blades: 3. Propeller Diameter:

> Maximum: 106 inches. Minimum: 104 inches.

Propeller Type:

Constant-speed, full-feathering, reversible, hydraulicallyactuated aluminum-bladed propeller, with a feathered blade angle of 88°, a low pitch blade angle of 15.6°, and a maximum reverse blade angle of  $-14^{\circ}$  (30-inch station).

SECTION 1 GENERAL CESSNA MODEL 208 (675 SHP)

### FUEL

Approved Fuel Grade (Specification):

JET A (ASTM-D1655). JET A-1 (ASTM-D1655). JET B (ASTM-D1655). JP-1 (MIL-L-5616). JP-4 (MIL-T-5624). JP-5 (MIL-T-5624). JP-8 (MIL-T-83133A).

Alternate/Emergency Fuels:

Aviation Fuel (All grades of military and commercial aviation gasoline).

## A CAUTION

Aviation gasoline is restricted to emergency use and shall not be used for more than 150 hours in one overhaul period; a mixture of one part aviation gasoline and three parts of Jet A, Jet A-1, JP-1, or JP-5 may be used for emergency purposes for a maximum of 450 hours per overhaul period.

Approved Fuel Additives:

The following additives are required for anti-icing protection:

Ethylene Glycol Monomethyl Ether. Diethylene Glycol Monomethyl Ether. -1

1

SECTION 1 GENERAL

# A CAUTION

### JP-4 and JP-5 fuel per MIL-T-5624 and JP-8 fuel per MIL-T-83133A contain the correct premixed quantity of an approved type of anti-icing fuel additive and no additional anti-ice compounds should be added.

If additional anti-static protection is desired, the following additive is approved for use:

Dupont Stadis 450

If additional biocidal protection is desired, the following additive is permitted for use in certain conditions:

Sohio Biobor JF Kathon FP 1.5

#### NOTE

Refer to Section 8 for allowable concentrations of the above additives and additional information.

Fuel Capacity:

Total Capacity:	335.6 U.S. gallons.
Total Capacity Each Tank:	167.8 U.S. gallons.
Total Usable:	332.0 U.S. gallons.

#### OIL

Oil Grade (Specification):

Oil conforming to Pratt & Whitney Engine Service Bulletin No. 1001, and all revisions or supplements thereto, **must be used**. Refer to Section 8 for a listing of approved oils.

Total Oil Capacity: 14 U.S. quarts (including oil in filter, cooler and hoses).

Drain and Refill Quantity: Approximately 9.5 U.S. quarts.

**Revision 6** 

For Training Purposes Only

1-7

Oil Quantity Operating Range:

Fill to within 1 1/2 quarts of MAX HOT or MAX COLD (as appropriate) on dipstick. Quart markings indicate U.S. quarts low if oil is hot. For example, a dipstick reading of 3 indicates the system is within 2 quarts of MAX if the oil is cold and within 3 quarts of MAX if the oil is hot.

. Voltige -2

## WARNING

Ensure oil dipstick cap is securely latched down. Operating the engine with less than the recommended oil level and with the dipstick cap unlatched will result in excessive oil loss and eventual engine stoppage.

### NOTE

To obtain an accurate oil level reading, it is recommended the oil level be checked within 10 minutes after engine shutdown while the oil is hot (MAX HOT marking) or prior to the first flight of the day while the oil is cold (MAX COLD marking). If more than 10 minutes has elapsed since engine shutdown and engine oil is still warm, perform an engine dry motoring run before checking oil level.

### MAXIMUM CERTIFICATED WEIGHTS

. voltige: 8450

Ramp:	8035 lbs.	
Takeoff:	8000 lbs.	
Landing:	7800 lbs.	

### NOTE

Refer to Section 6 of this handbook for recommended loading arrangements in the Passenger Version and Cargo Version.

## STANDARD AIRPLANE WEIGHTS

Standard Empty Weight Passenger Version: 39 Cargo Version: 43

3925 lbs 4305 lbs.

Maximum Useful Load Passenger Version: 4110 lbs. Cargo Version: 3730 lbs.

## CABIN AND ENTRY DOOR DIMENSIONS

Detailed dimensions of the cabin interior and entry door openings are illustrated in Section 6.

### BAGGAGE/CARGO COMPARTMENT AND CARGO DOOR ENTRY DIMENSIONS

Dimensions of the baggage/cargo area and cargo door openings are illustrated in detail in Section 6 of this handbook.

## SPECIFIC LOADINGS

Wing Loading: 28.6 lbs./sq.ft. Power Loading: 11.9 lbs./shp.

# SYMBOLS, ABBREVIATIONS AND TERMINOLOGY

## GENERAL AIRSPEED TERMINOLOGY AND SYMBOLS

- KCAS Knots Calibrated Airspeed is indicated airspeed corrected for position and instrument error and expressed in knots. Knots calibrated airspeed is equal to KTAS in standard atmosphere at sea level.
- KIAS Knots Indicated Airspeed is the speed shown on the airspeed indicator and expressed in knots.
- KTAS Knots True Airspeed is the airspeed expressed in knots relative to undisturbed air which is KCAS corrected for altitude and temperature.
- V<sub>A</sub> Maneuvering Speed is the maximum speed at which full or abrupt control movements may be used without overstressing the airframe.
- V<sub>FE</sub> Maximum Flap Extended Speed is the highest speed permissible with wing flaps in a prescribed extended position.
- V<sub>MO</sub> Maximum Operating Speed is the speed that may not be deliberately exceeded at any time.
- V<sub>S</sub> Stalling Speed or the minimum steady flight speed is the minimum speed at which the airplane is controllable.
- V<sub>S0</sub> Stalling Speed or the minimum steady flight speed is the minimum speed at which the airplane is controllable in the landing configuration at the most forward center of gravity.
- V<sub>X</sub> Best Angle-of-Climb Speed is the speed which results in the greatest gain of altitude in a given horizontal distance.
- V<sub>Y</sub> Best Rate-of-Climb Speed is the speed which results in the greatest gain in altitude in a given time.

### METEOROLOGICAL TERMINOLOGY

OAT

Outside Air Temperature is the free air static temperature. It may be expressed in either degrees Celsius or degrees Fahrenheit.

Pressure Altitude is the altitude read from an altimeter when the altimeter's barometric scale has been set to 29.92 inches of mercury (1013 mb).

ISA

International Standard Atmosphere is an atmosphere in which:

- 1. The air is a perfect dry gas;
- 2. The temperature at sea level is 15°C;
- The pressure at sea level is 29.92 inches Hg (1013.2 mb);
- The temperature gradient from sea level to the altitude at which the temperature is -56.5°C is -1.98°C per 1000 feet.

### ENGINE POWER TERMINOLOGY

Beta Mode Beta Mode is the engine operational mode in which propeller blade pitch is controlled by the power lever. The beta mode may be used during ground operations only.

Flameout Flameout is the unintentional loss of combustion chamber flame during operation.

Flat Rated Flat Rated denotes constant horsepower over a specific altitude and/or temperature.

Gas Generator Gas Generator RPM indicates the percent of gas generator RPM based on a figure of 100% being 37,500 RPM.

SECTION 1 GENERAL

### CESSNA MODEL 208 (675 SHP)

## GCU GCU is the generator control unit.

Hot Start Hot Start is an engine start, or attempted start, which results in an ITT exceeding 1090°C.

ITT

ITT signifies inter-turbine temperature.

Maximum Climb Power Climb Power Climb Power Setting is limited to climb operations. This power setting is limited to climb operations. This power corresponds to that developed at the maximum torque limit, ITT of 765°C or Ng limit, whichever is less.

Maximum Maximum Continuous Power is the maximum power rating not limited by time. Use of this power Continuous should be limited to those circumstances which Power aircraft performance require maximum (i.e., extreme icing conditions or windshear downdrafts). This power corresponds to that developed at the maximum torque limit, ITT of 805°C or Ng limit. whichever is less.

Maximum Cruise Power Cruise Power approved for cruise and is not time limited. This power corresponds to that developed at the maximum specified cruise torque (Section 5), ITT of 740°C or Ng limit, whichever is less.

Ng Ng signifies gas generator RPM.

Propeller RPM Propeller RPM indicates propeller speed in RPM.

Reverse Thrust Reverse Thrust is the thrust produced when the propeller blades are rotated past flat pitch into the reverse range.

RPM RPM is revolutions per minute.

SHP **SHP** is shaft horsepower and is the power delivered at the propeller shaft.

Takeoff Power is limited to a maximum of 5 minutes under normal operation. Use of this power should be limited to normal takeoff operations. This power corresponds to that shown in the Engine Torque For Takeoff figure of Section 5.

Torque **Torque** is a measurement of rotational force exerted by the engine on the propeller.

Windmill Windmill is propeller rotation from airstream inputs.

### AIRPLANE PERFORMANCE AND FLIGHT PLANNING TERMINOLOGY

Demon-Demonstrated Crosswind Velocity is the velocity of the crosswind component for which a strated dequate control of the airplane during takeoff and Crosswind actually demonstrated durina Velocity landing was certification The value shown is tests. not considered to be limiting.

g is acceleration due to gravity.

NMPG Nautical Miles Per Gallon is the distance which can be expected per gallon of fuel consumed at a specific engine power setting and/or flight configuration.

GPH Gallons Per Hour is the amount of fuel consumed per hour.

Usable Fuel Usable Fuel is the fuel available for flight planning.

Unusable **Unusable Fuel** is the quantity of fuel that can not be safely used in flight.

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SECTION 1 GENERAL CESSNA MODEL 208 (675 SHP)

### WEIGHT AND BALANCE TERMINOLOGY

Arm is the horizontal distance from the reference Arm datum to the center of gravity (C.G.) of an item. Basic Empty Weight is the standard empty weight **Basic Empty** Weight plus the weight of optional equipment. Center of Gravity is the point at which an airplane Center of Gravity would balance if suspended. Its distance from the reference datum is found by dividing the total moment by the total weight of the airplane. C.G. Center of Gravity Arm is the arm obtained by Arm adding the airplane's individual moments and dividing the sum by the total weight. C.G. Center of Gravity Limits are the extreme center of Limits gravity locations within which the airplane must be operated at a given weight. MAC MAC (Mean Aerodynamic Chord) of a wing is the chord of an imaginary airfoil which throughout the flight range will have the same force vectors as those of the wing. Maximum Maximum Landing Weight is the maximum Landing weight approved for the landing touchdown. Weight Maximum Maximum Ramp Weight is the maximum weight Ramp approved for ground maneuver, and includes the Weight weight of fuel used for start, taxi and runup. Maximum Takeoff Weight is the maximum weight Maximum approved for the start of the takeoff roll. Takeoff Weight Moment is the product of the weight of an item Moment multiplied by its arm. (Moment divided by the constant 1000 is used in this handbook to simplify balance calculations by reducing the number of digits.)

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Reference Datum

Arm

Reference Datum is an imaginary vertical plane 100 inches forward of the front face of the firewall.

Residual Fuel Residual Fuel is the fuel remaining when the airplane is defueled in a specific attitude by the normal means and procedures specified for draining the tanks.

Scale Drift Scale Drift may occur on some types of electronic scales because of the inability of the scale to return to a true zero reading after weighing. If present, this deviation from zero should be accounted for when calculating the net weight of the airplane.

Standard Standard Empty Weight is the weight of a Empty standard airplane, including unusable fuel, full weight operating fluids and full engine oil.

Station Station is a location along the airplane fuselage given in terms of the distance from the reference datum.

Arm is the horizontal distance from the reference datum to the center of gravity (C.G.) of an item.

Tare Tare is the weight of chocks, blocks, stands, etc. used when weighing an airplane, and is included in the scale readings. Tare is deducted from the scale reading to obtain the actual (net) airplane weight.

Useful Load Useful Load is the difference between ramp weight and the basic empty weight.

## AUTOPILOT/FLIGHT DIRECTOR AND IFCS TERMINOLOGY

## WARNING

A thorough understanding of the difference between an autopilot, a flight director, and an IFCS is required before operating any of the components of the KFC-150 Flight Control system. Refer to Section 9, Supplements for complete operating details.

- Autopilot Autopilot is a system which automatically controls attitude and/or flight path of the airplane as directed by the pilot through the system's computer.
- Flight Director Flight Director is a system which provides visual recommendations to the pilot to allow him to manually control the airplane attitude and/or flight path in response to his desires as selected through the system's computer.

Integrated Flight Control System (IFCS) **IFCS** applies to the union of autopilot and flight director systems which allows the pilot to manage his flight by observing computed visual recommendations while the autopilot automatically follows these recommendations as selected by the pilot using the system's controls.

## GROUND OPERATIONS STALL WARNING DISABLE SWITCH

The following procedure applies to airplane serials 20800316 and on, and earlier serials modified with Accessory Kit AK208-22:

To preclude or disable nuisance stall warnings during ground operations, push the control yoke forward to the stop. This will engage the ground stall warning disable switch.

SECTION 2 LIMITATIONS

Page

# SECTION 2 LIMITATIONS

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# INTRODUCTION

Section 2 includes operating limitations, instrument markings, and basic placards necessary for the safe operation of the airplane, its engine, standard systems and standard equipment.

### WARNING

The limitations included in this section and in Section 9 have been approved by the Federal Aviation Administration. Observance of these operating limitations is required by Federal Aviation Regulations.

#### NOTE

- Operation in countries other than the United States may require observance of other limitations, procedures or performance data.
- Refer to Section 9 of this Pilot's Operating Handbook for amended operating limitations, operating procedures, performance data and other necessary information for supplemental systems.
- The airspeeds listed in the Airspeed Limitations chart (Figure 2-1) and the Airspeed Indicator Markings chart (Figure 2-2) are based on Airspeed Calibration data shown in Section 5 with the normal static source. If the alternate static source is being used, ample margins should be observed to allow for the airspeed calibration variations between the normal and alternate static sources as shown in Section 5.

Your Cessna is certificated under FAA Type Certificate No. A37CE as Cessna Model No. 208.

## AIRSPEED LIMITATIONS

Airspeed limitations and their operational significance are shown in Figure 2-1.

	SPEED	KCAS	KIAS	REMARKS
V <sub>MO</sub>	Maximum Operating Speed	175	175	Do not exceed this speed in any operation.
VA	Maneuvering Speed 8000 lbs 6300 lbs 4600 lbs	150 133 114	150 134 115	Do not make full or abrupt control movements above this speed.
VFE	Maximum Flap Extended Speed: 0° - 10° 10° - 20° 20° - 30°	175 150 125	175 150 125	Do not exceed these speeds with the given flap settings.
	Maximum Window Open Speed	175	175	Do not exceed this speed with window open.

· Back door speed: 155 KIAS. (Voltige)

Figure 2-1. Airspeed Limitations

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# AIRSPEED INDICATOR MARKINGS

Airspeed indicator markings and their color code significance are shown in Figure 2-2.

MARKING	KIAS VALUE OR RANGE	SIGNIFICANCE
White Arc	50 - 125	Full Flap Operating Range. Lower limit is maximum weight V <sub>so</sub> in landing configuration. Upper limit is maximum speed permissible with flaps fully extended.
Green Arc	63 - 175	Normal Operating Range. Lower limit is maximum weight V <sub>S</sub> at most forward C.G. with flaps retracted. Upper limit is maximum operating speed.
Red Line	175	Maximum speed for all operations.

Figure 2-2. Airspeed Indicator Markings

### CESSNA MODEL 208 (675 SHP)

### POWER PLANT LIMITATIONS

Engine Manufacturer: Pratt & Whitney Canada Inc.

Engine Model Number: PT6A-114A

Engine Operating Limits: Refer to Figure 2-3.

Fuel Grade and Approved Fuel Additives: Refer to Fuel Limitations.

Oil Grade (Specification):

Oil conforming to Pratt & Whitney Engine Service Bulletin No. 1001, and all revisions or supplements thereto, must be used. Refer to Section 8 for a listing of approved oils. When adding oil, service the engine with the type and brand which is currently being used in the engine.

### A CAUTION

### Do not mix types or brands of oil.

Propeller Manufacturer: McCauley Accessory Division.

Propeller Model Number: 3GFR34C703/106GA-0.

Propeller Diameter, Maximum: 106 inches Minimum: 104 inches. Propeller Blade Angle at 30-inch Station, Feathered: 88°. Low Pitch: 15.6°. Maximum Reverse: -14°. Propeller System Operating Limits:

An overspeed governor check shall be performed before the first flight of the day, after engine control system maintenance, or if adjustment has been made.

Engine Control Operating Limits:

Positioning of power lever below the flight idle stop while the airplane is in flight is prohibited. Such positioning may lead to loss of airplane control or may result in an overspeed condition and consequent loss of engine power.

Operation of the emergency power lever is prohibited with the power lever out of the IDLE position.

#### SECTION 2 LIMITATIONS

Engine Starting Cycle Limits:

Using the airplane battery, the starting cycle shall be limited to the following intervals and sequence:

30 seconds ON - 60 seconds OFF, 30 seconds ON - 60 seconds OFF, 30 seconds ON - 30 minutes OFF.

Repeat the above cycle as required.

Using external power, the starting cycle shall be limited to the following intervals and sequence:

20 seconds ON - 120 seconds OFF, 20 seconds ON - 120 seconds OFF, 20 seconds ON - 60 minutes OFF.

Repeat the above cycle as required.

### CESSNA MODEL 208 (675 SHP)

POWER	TORQUE FT-LBS	MAX ITT (°C) voltige	RPM%	PROP RPM	OIL PRESS PSIG (3)	OIL TEMP °C (7)	SHP (9) # 600
Takeoff	<del>1865-</del> (1)	805 (10)	101.6	1900	85 - 105	10-99	675
Maximum Climb	• <del>1865;</del> 1970 (4)	765	101.6	1900	85 - 105	0 - 99	675
Maximum Cruise	<del>1865</del> , 1970 (4)	740	101.6	1900	85 - 105	0 - 99	675
Idle		685	52 Min	(144)	40 Min	-40 - 99	-
Maximum Reverse (5)	• <del>1865</del>	805	101.6	1825	85 - 105	0 - 99	675
Transient	2400 (11)	850 (6)	102.6 (6)	2090		0 - 99, 0-104 (12)	
Starting		1090 (6)				-40 Min	
Maximum Continuous (8)	• <del>1865</del> •	805	101.6	1900	85 - 105	10 - 99	675

Per the Engine Torque For Takeoff figure of Section 5.

- (2) For every 10°C (18°F) below -30°C (-22°F) ambient temperature, reduce maximum allowable N<sub>g</sub> by 2.2%.
- (3) Normal oil pressure is 85 to 105 PSI at gas generator speeds above 72% with oil temperature between 60° and 70°C (140° and 158°F). Oil pressures below 85 PSI are undesirable and should be tolerated only for the completion of the light, preferably at a reduced power setting. Oil pressures below normal should be reported as an engine discrepancy and should be corrected before the next flight. Oil pressures below 40 PSI are unsafe and require that either the engine be shut down or a landing be made as soon as possible using the minimum power required to sustain flight.
- (4) Propeller RPM must be set so as not to exceed 675 SHP with torque above 1865 ft-lbs. Full 675 SHP rating is available only at RPM setting of 1800 or greater.
- (5) Reverse power operation is limited to one minute.
- (6) These values are time limited to two seconds.
- (7) For increased oil service life, an oil temperature between 74° and 80°C (165° and 176°F) is recommended. A minimum oil temperature of 55°C (130°F) is recommended for fuel heater operation at takeoff power.
- (8) Use of this rating is intended for abnormal situations (i.e., maintain altitude or climb out of extreme icing or windshear conditions).
- (9) The maximum allowable SHP is 675. Less than 675 SHP is available under certain temperature and altitude conditions as reflected in the takeoff, climb and cruise performance charts.
- (10) When the ITT exceeds 765°C, this power setting is time limited to 5 minutes.
- (11) These values are time limited to 20 seconds.
- (12) Up to 10 minutes for airplane serial numbers 20800364 and on, and earlier airplanes equipped with Service Kit SK208-147.

\*Voltige

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### POWER PLANT INSTRUMENT MARKINGS

Power plant instrument markings and their color significance are shown in Figure 2-4.

INSTRUMENT	RED LINE (Min Limit)	GREEN ARC (Normal Operating)	YELLOW ARC (Caution Range)	STRIPED GREEN ARC (Alt Power Range)	RED LINE (Max Limit)
Torque Indicator (1)		0 - 1865 ft-lbs		1865 - 1970 ft-lbs (2)	1970 ft-lbs
Inter-Turbine Temperature Indicator (ITT) (3)		100°C to 740°C			805°C
Gas Generator % RPM Indicator (4)		52% to 101.6%			101.6%
Propeller RPM Indicator		1600 RPM to 1900 RPM			1900 RPM
Oil Pressure Gage	40 PSI	85 PSI to 105 PSI	40 PSI to 85 PSI		105 PSI
Oil Temperature Gage	-40°C	+10°C to +99°C	-40°C to +10°C, +99°C to +104°C (6)		+99°C (5), +104°C (6)

- (1) Incorporates red wedge and T.O. at 1865 ft-lbs to indicate the takeoff position.
- Propeller RPM must be set so as not to exceed 675 SHP with torque (2)above 1865 ft-lbs. Full 675 SHP rating is available only at RPM settings of 1800 or greater.
- Incorporates red triangle at 1090°C and starting temperature limitation (3)box labeled ST. LIM 1090°.
- (4)100% Na is 37,500 RPM.
- Maximum oil temperature indicated by a red wedge.
- (5) (6) Airplane serial numbers 20800364 and on, and earlier airplanes equipped with Service Kit SK208-147.

### Figure 2-4. Power Plant Instrument Markings

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# MISCELLANEOUS INSTRUMENT MARKINGS

Miscellaneous instrument markings and their color code significance are shown in Figure 2-5.

INSTRUMENT	RED LINE (Min Limit)	GREEN ARC (Normal Operating)	YELLOW ARC (Caution Range)	RED LINE (Max Limit)
Fuel Quantity Indicators (1)	E (2.8 Gal Unusable Each Tank)	-		
Suction Gage (2) To 15,000 Ft To 20,000 Ft To 25,000 Ft		4.5 - 5.5 in.Hg 4.0 - 5.5 in.Hg 3.5 - 5.5 in.Hg		
Propeller Anti-ice Ammeter	-	20 Amps to 24 Amps		
Oxygen Pressure Gage		1550 PSI to 1850 PSI	0 PSI to 300 PSI	2000 PSI

- (1) Total unusable when operating with both tanks on is 3.6 U.S. gallons.
- (2) Incorporates stepped green arc with 15K, 20K, 25K and 30K markings at the appropriate step locations to indicate the altitude (in thousands of feet) at which the lower limit of that arc segment is acceptable.

Figure 2-5. Miscellaneous Instrument Markings

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SECTION 2 LIMITATIONS

### WEIGHT LIMITS

Maximum Ramp Weight: 8035 lbs. voltige 8750 lbs. Maximum Takeoff Weight: 8000 lbs. Maximum Landing Weight: 7800 lbs.

#### NOTE

Refer to Section 6 of this handbook for recommended loading arrangements in the Standard 208 and Cargomaster.

### CENTER OF GRAVITY LIMITS

Center of Gravity Range:

- Forward: 162.41 inches (7.29% MAC) aft of datum at 4200 lbs. or less, with straight line variation to 174.06 inches (24.83% MAC) aft of datum at 8000 lbs.
- Aft: 184.35 inches (40.33% MAC) aft of datum at all weights up to 8000 lbs.

Reference Datum: 100 inches forward of front face of firewall. Mean Aerodynamic Chord (MAC):

The leading edge of the MAC is 157.57 inches aft of the datum. The MAC length is 66.40 inches.

### MANEUVER LIMITS

This airplane is certificated in the normal category. The normal category is applicable to aircraft intended for non-aerobatic operations. These include any maneuvers incidental to normal flying, stalls (except whip stalls), lazy eights, chandelles, and turns in which the angle of bank is not more than 60°.

Aerobatic maneuvers, including spins, are not approved.

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# FLIGHT LOAD FACTOR LIMITS

Flight Load Factors:

- \*Flaps Up: +3.8g, -1.52g
- \*Flaps Down (All Settings): +2.4g
- \* The design load factors are 150% of the above, and in all cases, the structure meets or exceeds design loads.

# FLIGHT CREW LIMITS

One pilot required in left seat.

### KINDS OF OPERATION LIMITS

This airplane is equipped for day VFR and may be equipped for night VFR and/or IFR operations and for flight-into-known icing conditions. The operating limitations placard reflects the limits applicable at the time of Airworthiness Certificate issuance.

The following equipment lists identify the systems and equipment upon which type certification for each kind of operation was predicated. These systems and equipment items must be installed and operable for the particular kind of operation indicated. Reference should also be made to the Equipment List furnished with the airplane for additional equipment information. The pilot is responsible for determining the airworthiness of his airplane for each flight and for assuring compliance with current operating FAR's.

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# KINDS OF OPERATION LIMITS (Continued)

### REQUIRED EQUIPMENT

### DAY VFR:

Airspeed Indicator (1) Altimeter (1)\* Auxiliary Boost Pump System

BATTERY HOT And BATTERY OVERHEAT Annunciators (NiCad Batteries Only)

Elevator Trim System (Manual)

Engine Ignition System

Flap Motor (1)

Flap Position Indicator

FUEL PRESS LOW Annunciator

Fuel Quantity Indicators (2)

Fuel Selectors Off Warning System

Generator

Inertial Separator System

**ITT** Indicator

Magnetic Compass

Ng% RPM Indicator OIL PRESS LOW Annunciator Oil Pressure Gauge Oil Temperature Gauge

Outside Air Temperature Gauge Overspeed (Airspeed) Warning System

**Overspeed Governor** 

Pilots Operating Handbook/AFM

Pitot-Static System (1)

Propeller RPM Indicator

Seat Belts (Each Occupant)

Shoulder Harnesses (Front Seats) Slip-Skid Indicator (1) Stall Warning System Torque Indicator Trim Position Indicators (3) Volt/Ammeter

### \* NOTE

When a servoed altimeter is installed, a functioning pneumatic altimeter is also required.

### CESSNA MODEL 208 (675 SHP)

### NIGHT VFR:

All Equipment Required For Day VFR Instrument Lights Navigation Lights (3)

Strobe Lights (2)

### IFR:

All Equipment Required For Day VFR

All Equipment Required For Night VFR (if a night flight)

Attitude Indicator -Gyro Stabilized (1)

Clock

Communications Radio (VHF) (1)

Directional Indicator -Gyro Stabilized (1)

Navigation Radios (As required)

Sensitive Altimeter (1)\*

Suction Gauge (If gyros are vacuum powered)

Turn And Bank Indicator Or Turn Coordinator (1)

#### \*NOTE

When a servoed altimeter is installed, a functioning pneumatic altimeter is also required.

### Flight-Into-Known Icing:

All Equipment Required For Day VFR, Night VFR, And/Or IFR, As Applicable

Horizontal Stabilizer Deice Boots

Ice Detector Light (For night flight)

Propeller Anti-Ice Boots

Pitot-Static Tube Heat System

Standby Electrical System Stall Warning System Heater Vertical Stabilizer De-Ice Boot Windshield Anti-Ice Panel Wing And Wing Strut De-ice Boots

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SECTION 2 LIMITATIONS

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### FUEL LIMITATIONS

Total Fuel

Both Tanks: 335.6 Each Tank: 167.8

335.6 U.S. gallons. (2248.52 1bs) 167.8 U.S. gallons. (1124.26 1bs)

**Usable Fuel** 

Both Tanks On: 332 U.S. gallons total, (2224, 465) Single Tank On: 165 U.S. gallons per tank. (1105.5 166)

Unusable Fuel

Both Tanks On: 3.6 U.S. gallons total. (24.12 165) Single Tank On: 2.8 U.S. gallons per tank. (18.74 165)

#### NOTE

To achieve full capacity, fill fuel tank to the top of the filler neck. Filling fuel tanks to the bottom of the fuel filler collar (level with flapper valve) allows space for thermal expansion and results in a decrease in fuel capacity of four gallons per side (eight gallons total).

With low fuel reserves (FUEL LOW annunciator(s) ON), continuous uncoordinated flight with the turn and bank "ball" more than onequarter ball out of center position is prohibited. Unusable fuel quantity increases when more severe sideslip is maintained.

Due to possible fuel starvation, maximum full rudder sideslip duration time is three minutes.

Maximum fuel unbalance in flight is 200 lbs.

Fuel Grade (Specification) and Fuel Additives:

### A CAUTION

Aviation gasoline is restricted to emergency use and shall not be used for more than 150 hours in one overhaul period; a mixture of one part aviation gasoline and three parts of Jet A, Jet A-1, JP-1, or JP-5 may be used for emergency purposes for a maximum of 450 hours per overhaul period.

\* Refuel voltige: 30016s + 2516s(unsable) = 325 16s totel 1 April 1998 · 32516s = 48.56 = 183.6 litres

### CESSNA MODEL 208 (675 SHP)

FUEL GRADE	FUEL SPECIFICATION	MINIMUM FUEL TEMPERATURE FOR TAKEOFF°C	SPECIFIC WEIGHT (POUNDS PER U.S. GALLON AT 15°C)	COLOR
JetA	ASTM-D1655	-35	6.7	Colorless
Jet A-1	ASTM-D1655	-40	6.7	Colorless
Jet-B	ASTM-D1655	-45	6.5	Colorless
JP-1	MIL-L-5616	-35	6.7	Colorless
JP-4	MIL-T-5624	-54	6.5	Colorless
JP-5	MIL-T-5624	-40	6.8	Colorless
JP-8	MIL-T-83133	-40	6.7	Colorless
Av Gas (all grades) (3)	MIL-G-5572 ASTM-D910	-54	6.0	80/87 Red 100LL Blue 100/130 Green

#### Fuel Grade Specification and Fuel Additives (Continued)

(1) Fuel used must contain anti-icing fuel additive (EGME) or (DIEGME).

### A CAUTION

JP-4 and JP-5 fuels per MIL-T-5624 and JP-8 fuel per MIL-T-83133A contain the correct premixed quantity of an approved type of anti-icing fuel additive and no additional anti-ice compounds should be added.

(2) Minimum starting temperature is that given or the minimum allowable oil temperature (-40°C), whichever is warmer.

#### NOTE

Starts may be attempted with fuel at lower temperatures providing other specified engine limitations are not exceeded.

(3) When using aviation gasoline, the maximum fuel and ambient temperature for takeoff is +29°C (85°F) and the maximum operating altitude is 9000 feet. The boost pump must be ON for all flight operations.

Refer to Section 8 for additional approved additives and concentrations.

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SECTION 2 LIMITATIONS

### MAXIMUM OPERATING ALTITUDE LIMIT

Certificated Maximum Operating Altitude: 25,000 Feet.

### OUTSIDE AIR TEMPERATURE LIMITS

Cold Day: -54°C from sea level to 25,000 feet.

Hot Day:

Ground Operations: +53°C from sea level to 5000 feet; ISA +37°C above 5000 feet.

Flight Operations: ISA +35°C from sea level to 25,000 feet. **3000' = 4/4°c**, **5000' = 40°c**, **10 000' = 30°c 13000' = 24** Refer to Figure 5-5, ISA Conversion and Operating Temperature Limits chart, for a graphical presentation of the operating air temperature limits

### MAXIMUM PASSENGER SEATING LIMITS

A maximum of nine seats, in addition to the pilot's seat may be installed in the Passenger Version. A maximum of one seat, in addition to the pilot's seat may be installed in the Cargo Version.

### OTHER LIMITATIONS

### FLAP LIMITATIONS

Approved Takeoff Range:0° to 20°.Approved Landing Range:0° to 30°.Approved Landing Range in Icing Conditions:0° to 20°.

## TYPE II OR TYPE IV ANTI-ICE FLUID TAKEOFF LIMITATIONS

#### **FLAP LIMITATIONS**

Takeoff Flaps Setting: 0°.

#### AIRSPEED LIMITATIONS

Takeoff Rotation Speed: 89 KIAS.

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CESSNA MODEL 208 (675 SHP)

# FLIGHT IN KNOWN ICING VISUAL CUES

As Required by AD 96-09-15, Paragraph (a) (1)

### WARNING

Severe icing may result from environmental conditions outside of those for which the airplane is certificated. Flight in freezing rain, freezing drizzle, or mixed icing conditions (supercooled liquid water and ice crystals) may result in ice build-up on protected surfaces exceeding the capability of the ice protection system, or may result in ice forming aft of the protected surfaces. This ice may not be shed using the ice protection systems, and may seriously degrade the performance and controllability of the airplane.

During flight, severe icing conditions that exceed those for which the airplane is certificated shall be determined by the following visual cues. If one or more of these visual cues exists, immediately request priority handling from Air Traffic Control to facilitate a route or an altitude change to exit the icing conditions.

- Unusually extensive ice accreted on the airframe in areas not normally observed to collect ice.
- Accumulation of ice on the lower surface of the wing aft of the protected area.
- 3. Since the autopilot may mask tactile cues that indicate adverse changes in handling characteristics, use of the autopilot is prohibited when any of the visual cues specified above exist, or when unusual lateral trim requirements or autopilot trim warnings are encountered while the airplane is in icing conditions.
- All icing detection lights must be operative prior to flight into icing conditions at night.

#### NOTE

This supersedes any relief provided by the Master Minimum Equipment List (MMEL).

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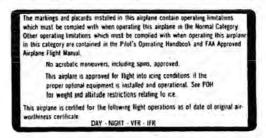
SECTION 2 LIMITATIONS

### PLACARDS

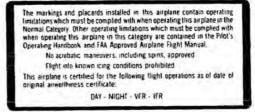
### WARNING

The following information must be displayed in the form of composite or individual placards. As a minimum, the exact wording of these placards is required as specified in this section. Placard wording can be from part numbered placards obtained from Cessna Aircraft Company or equivalent placards installed by an approved repair station in accordance with normal maintenance practices/procedures.

 In full view of the pilot on the sunvisor or windshield trim strip on airplanes equipped for flight into known icing:



 In full view of the pilot on the sunvisor or windshield trim strip on airplanes not equipped for flight into known icing:



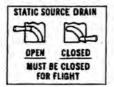
On control lock:

#### CAUTION CONTROL LOCK REMOVE BEFORE STARTING ENGINE

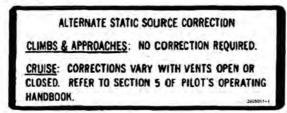
**Revision 6** 

### CESSNA MODEL 208 (675 SHP)

 On left sidewall below and forward of instrument panel and (when right flight instrument panel is installed) on right sidewall below and forward of instrument panel:



On sunvisor or windshield trim-strip:



5. Near airspeed indicator:

### MAX WT. MANEUVER SPEED 150 KIAS SEE POH FOR OTHER WEIGHTS

6. Near torque indicator:

RPM	MAX TORQUE
1900	1865
1800	1970
1700	1970
1600	1970

- A calibration card must be provided to indicate the accuracy of the magnetic compass in 30° increments.
- Near wing flap position indicator:

UP to 10°	175 KIAS	(partial flap range with dark blue color code; also mechanical detent at 10°)
10° to 20°	150 KIAS	(light blue code; also, mechanical detent at 20°)
20° to FULL	125 KIAS	(white color code)

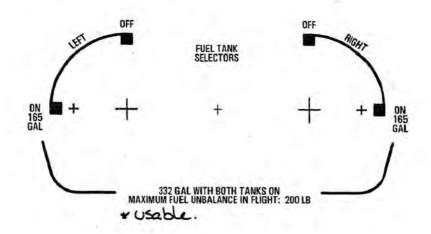
2-20

**Revision 6** 

9. Below power lever:

#### CAUTION USE BETA AND REVERSE ONLY WITH ENGINE RUNNING AND PROPELLER OUT OF FEATHER

10. On fuel tank selector:



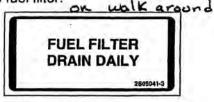
11. Adjacent to each outboard fuel tank filler cap:



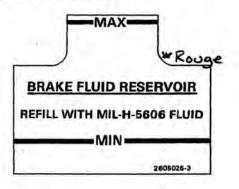
12. Adjacent to each inboard fuel tank filler cap (when installed):



13. Adjacent to fuel filter:



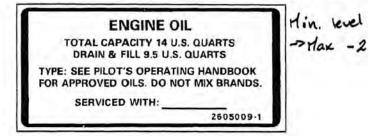
- 14. Adjacent to fuel drain can:
- 15. On the brake fluid reservoir:



8 March 1999

### SECTION 2 LIMITATIONS

16. Adjacent to oil dipstick/filler cap (on inertial separator duct):



17. On side of inertial separator duct:



18. On firewall above battery tray:

#### CAUTION 24 VOLTS D.C. THIS AIRCRAFT IS EQUIPPED WITH GENERATOR AND A NEGATIVE GROUND SYSTEM OBSERVE PROPER POLARITY REVERSE POLARITY WILL DAMAGE

ELECTRICAL COMPONENTS 2605010-2

19. Near ground service plug receptacle:

EXTERNAL POWER 28 VOLTS D.C. NOMINAL 800 AMP STARTING CAPACITY MIN. DO NOT EXCEED 1700 AMPS

15 November 2000

### CESSNA MODEL 208 (675 SHP)

20. On bottom of right hand wing just forward of aileron:

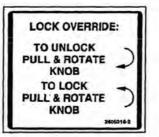
### FLUX VALVE USE NON-MAGNETIC TOOLS AND SCREWS

 On each side of nose strut fairing near tow limit marking (rudder lock placard required when rudder lock installed):





22. Adjacent to left crew door inside door handle:



 Adjacent to upper passenger door outside pushbutton and door handle (Passenger version only):



24. Adjacent to upper passenger door inside door handle (Passenger version only):



At center of lower passenger door on inside and outside (Passenger version only):



26. Adjacent to upper cargo door outside pushbutton and door handle:



27. Adjacent to upper cargo door inside door handle (Passenger version only):



On right sidewall in Zone 6 (Passenger version only):

MAX BAGGAGE 325 LBS. REFER TO WEIGHT AND BALANCE DATA FOR BAGGAGE/CARGO LOADING 1205045-5

 On left and right sides of aft side of cargo barrier (when installed):

> MAX LOAD BEHIND BARRIER 2900 LBS TOTAL ZONES FWD OF LAST LOADED ZONE MUST BE AT LEAST 75% FULL BY VOLUME. SEE POH FOR EXCEPTIONS. -CHECK WEIGHT AND BALANCE-

30. On inside of lower cargo door (Cargo version only):

MAX LOAD BEHIND BARRIER 2900 LBS TOTAL. ZONES FWD OF LAST LOADED ZONE MUST BE AT LEAST 75% FULL BY VOLUME. SEE POH FOR EXCEPTIONS.

-CHECK WEIGHT AND BALANCE-LOAD MUST BE PROTECTED FROM SHIFTING - SEE POH -

1 April 1998

SECTION 2 LIMITATIONS

31. On right sidewall adjacent to Zone 5 (Cargo version only):

#### IF LOAD IN ZONE 5 EXCEEDS 400 LBS A PARTITION NET IS REQD AFT OR LOAD MUST BE SECURED TO FLOOR

On left and right sides of cabin in appropriate zones (Cargo version only):

ZONE 1 MAX LOAD 1410 LBS ZONE 2 MAX LOAD 1430 LBS ZONE 3 MAX LOAD 1410 LBS ZONE 4 MAX LOAD 1380 LBS ZONE 5 MAX LOAD 1270 LBS ZONE 6 MAX LOAD 320 LBS

33. On inside of cargo pod doors:

FWD. COMPARTMENT MAX. WEIGHT 230 LBS. MAX. FLOOR LOADING 30 LBS. PER SQ. FT. NO SHARP EDGES

CTR. COMPARTMENT MAX. WEIGHT 310 LBS. MAX. FLOOR LOADING 30 LBS. PER SQ. FT. NO SHARP EDGES

AFT COMPARTMENT MAX. WEIGHT 280 LBS. MAX. FLOOR LOADING 30 LBS. PER SQ. FT. NO SHARP EDGES

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### CESSNA MODEL 208 (675 SHP)

34. At each sidewall and ceiling anchor plate (except heavy duty anchor plates with additional structural support) and at anchor plate at center of lower cargo door (Cargo version only):



SECTION 3 EMERGENCY PROCEDURES

# SECTION 3 EMERGENCY PROCEDURES

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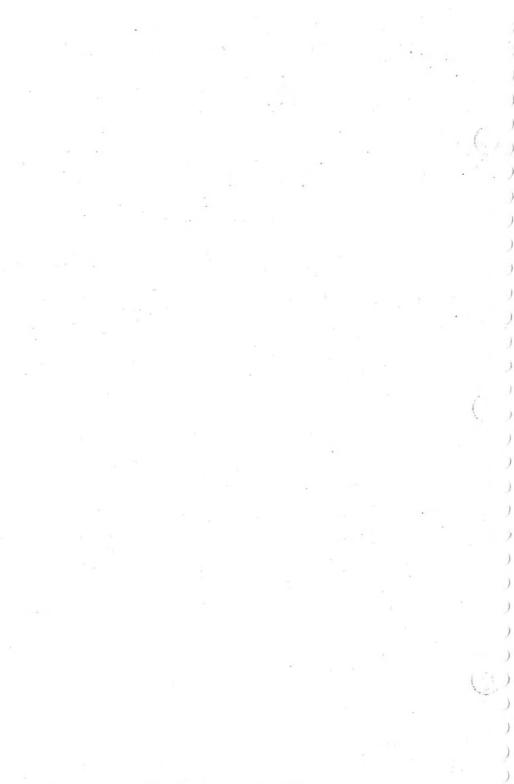
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#### SECTION 3 EMERGENCY PROCEDURES

### INTRODUCTION

Section 3 provides checklist and amplified procedures for coping with emergencies that may occur. Emergencies caused by airplane or engine malfunctions are extremely rare if proper preflight inspections and maintenance are practiced. Enroute weather emergencies can be minimized or eliminated by careful flight planning and good judgment when unexpected weather is encountered. However, should an emergency arise, the basic guidelines described in this section should be considered and applied as necessary to correct the problem. Emergency procedures associated with standard avionics, the ELT, or any optional systems can be found in Section 9.

### A WARNING

There is no substitute for proper and complete preflight planning habits and their continual review in minimizing emergencies. Be thoroughly knowledgeable of hazards and conditions which represent potential dangers, and be aware of the capabilities and limitations of the airplane.

### AIRSPEEDS FOR EMERGENCY OPERATION

Engine Failure After Takeoff: Wing Flaps Up	
Wing Flaps Down	80 KIAS
Maneuvering Speed:	같아요. 그는 일이야지 않는 것이 없다.
8000 Lbs	
6300 Lbs	
4600 Lbs	
Maximum Glide: With Ca	
	6 KIAS 95 99 KIAS
6300 Pounds 8	
4600 Pounds	2 KIAS 71 75 KIAS
Precautionary Landing (Engine Po	
Landing Without Engine Power:	
Wing Flaps Up	
Wing Flaps Down	

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### SECTION 3 EMERGENCY PROCEDURES

CESSNA MODEL 208 (675 SHP)

1

# **OPERATIONAL CHECKLISTS**

Procedures in the Operational Checklists portion of this section shown in **bold faced** type are immediate action items which should be committed to memory.

### ENGINE FAILURES

### ENGINE FAILURE DURING TAKEOFF ROLL

- 1. Power Lever -- BETA range.
- 2. Brakes -- APPLY.
- 3. Wing Flaps -- RETRACT.

If airplane cannot be stopped on remaining runway:

- 4. Fuel Condition Lever -- CUTOFF.
- 5. Fuel Shutoff -- OFF (pull out).
- 6. Fuel Tank Selectors -- OFF (warning horn will sound).
- 7. Battery Switch -- OFF.

### ENGINE FAILURE IMMEDIATELY AFTER TAKEOFF

- 1. Airspeed -- 85 KIAS.
- 2. Propeller -- FEATHER.
- 3. Wing Flaps -- AS REQUIRED (full down recommended).
- Fuel Condition Lever -- CUTOFF.
- 5. Fuel Shutoff -- OFF (pull out).
- 6. Fuel Tank Selectors -- OFF (warning horn will sound).
- 7. Battery -- OFF.

### ENGINE FAILURE DURING FLIGHT

- 1. Airspeed -- 95 KIAS.
- 2. Power Lever -- IDLE.
- 3. Propeller Control Lever -- FEATHER.
- 4. Fuel Condition Lever -- CUTOFF.
- 5. Wing Flaps -- UP.
- 6. Fuel Boost Switch -- OFF.
- 7. Fuel Shutoff -- OFF (pull out).
- 8. Ignition Switch -- NORM.
- 9. Standby Power Switch (if installed) -- OFF.
- 10. Electrical Load -- REDUCE.
- 11. Landing -- Refer to Emergency Landing Without Engine Power checklist.

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### SECTION 3 EMERGENCY PROCEDURES

### ENGINE FLAMEOUT DURING FLIGHT

- 1. If Gas Generator Speed (N<sub>d</sub>) is Above 50%:
  - a. Power Lever -- IDLE.
  - b. Ignition Switch -- ON.
  - Power Lever -- AS DESIRED after satisfactory relight as evidenced by normal ITT and N<sub>q</sub>.
  - Ignition Switch -- OFF if cause of flameout has been corrected.
- If Gas Generator Speed (N<sub>g</sub>) Is Below 50%:
  - Fuel Condition Lever -- CUTOFF.
  - B. Refer to Airstart checklists for engine restart.

### AIRSTART

### STARTER ASSIST (Preferred Procedure)

- Electrical Load -- REDUCE.
- 2. Standby Power Switch (if installed) -- OFF.
- Avionics Power Switches -- OFF.
- Ignition Switch -- NORM.
- 5. Air Conditioner (if installed) -- OFF.
- Bleed Air Heat Switch -- OFF.
- Emergency Power Lever -- NORMAL.
- Power Lever -- IDLE.
- Propeller Control Lever -- MIN RPM.
- Fuel Condition Lever -- CUTOFF.
- 11. Fuel Shutoff -- ON (push in).
- 12. Fuel Tank Selectors -- LEFT ON, RIGHT ON.
- 13. Battery Switch -- ON.
- Fuel Boost Switch -- ON (check AUX FUEL PUMP ON annunciator ON, FUEL PRESS LOW annunciator OFF).
- 15. Altitude -- 20,000 feet maximum.
- Starter Switch -- START and OBSERVE.
  - a. IGNITION ON Annunciator -- CHECK ON.
  - Engine Oil Pressure -- CHECK for indication.
  - c. N<sub>a</sub> -- 12 MINIMUM.
- 17. Fuel Condition Lever -- LOW IDLE and OBSERVE.
  - a. ITT -- MONITOR (1090°C maximum).
  - b. N<sub>a</sub> -- 52% MINIMUM.

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#### SECTION 3 EMERGENCY PROCEDURES

CESSNA MODEL 208 (675 SHP)

18. Starter Switch -- OFF.

### WARNING

If conditions exist, such as heavy precipitation or nearly empty fuel tanks, turn the ignition switch ON.

- Fuel Boost Switch -- NORM (unless it cycles on and off; then leave ON).
- 20. Fuel Condition Lever -- HIGH IDLE.
- 21. Propeller Control Lever -- AS DESIRED.
- 22. Power Lever -- AS DESIRED.
- 23. Electrical Equipment -- AS REQUIRED.

### NO STARTER ASSIST

- 1. Generator Switch -- TRIP and release.
- 2. Standby Power Switch (if installed) -- OFF.
- 3. Avionics Power Switches -- OFF.
- 4. Air Conditioner (if installed) -- OFF.
- 5. Bleed Air Heat Switch -- OFF.
- Emergency Power Lever -- NORMAL.
- 7. Power Lever -- IDLE.
- Propeller Control Lever -- MIN RPM.
- 9. Fuel Condition Lever -- CUTOFF.
- 10. Fuel Shutoff -- ON (push in).
- 11. Fuel Tank Selectors -- LEFT ON, RIGHT ON.
- 12. Battery Switch -- ON.
- Fuel Boost Switch -- ON (check AUX FUEL PUMP ON annunciator ON, FUEL PRESS LOW annunciator OFF).
- 14. Ignition Switch -- ON, check IGNITION ON annunciator ON.
- Airspeed -- 100 KIAS minimum (140 KIAS if propeller is feathered).
- Altitude -- 20,000 feet maximum (15,000 feet if propeller is feathered).

SECTION 3 EMERGENCY PROCEDURES

## A CAUTION

## Do not attempt a restart without starter assist If N<sub>g</sub> tachometer indicates zero % RPM.

- 17. Ng Indicator -- CHECK STABLE.
- Fuel Condition Lever -- LOW IDLE and OBSERVE,
  - a. ITT -- MONITOR (1090°C maximum).
    - b. Na -- 52% MINIMUM.
- Ignition Switch -- NORM (Ng 52% or above) unless conditions warrant leaving ON.

## A WARNING

If conditions exist, such as heavy precipitation or nearly empty fuel tanks, turn the ignition switch ON.

- Fuel Boost Switch -- NORM (unless it cycles on and off); then leave ON.
- 21. Fuel Condition Lever -- HIGH IDLE.
- 22. Propeller Control Lever -- AS DESIRED.
- Power Lever -- AS DESIRED.
- 24. Generator Switch -- RESET and release.
- 25. Electrical and Avionics Equipment -- AS REQUIRED.

## FORCED LANDINGS

#### EMERGENCY LANDING WITHOUT ENGINE POWER

- 1. Seats, Seat Belts, Shoulder Harnesses -- SECURE.
- Airspeed -- 95 KIAS (flaps UP). 80 KIAS (flaps DOWN).
- 3. Power Lever -- IDLE.
- Propeller Control Lever -- FEATHER.
- 5. Fuel Condition Lever -- CUTOFF.
- 6. Fuel Boost Switch -- OFF.
- 7. Ignition Switch -- NORM.
- 8. Standby Power Switch (if installed) -- OFF.
- 9. Nonessential Equipment -- OFF.

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#### For Training Purposes Only

#### CESSNA MODEL 208 (675 SHP)

- 10. Fuel Shutoff -- OFF (pull out).
- 11. Fuel Tank Selectors -- OFF (warning horn will sound).
- 12. Wing Flaps -- AS REQUIRED (FULL recommended).
- 13. Crew Doors -- UNLATCH PRIOR TO TOUCHDOWN.
- 14. Battery Switch -- OFF when landing is assured.
- 15. Touchdown -- SLIGHTLY TAIL LOW.
- 16. Brakes -- APPLY HEAVILY.

#### PRECAUTIONARY LANDING WITH ENGINE POWER

- 1. Seats, Seat Belts, Shoulder Harnesses -- SECURE.
- 2. Wing Flaps -- 10°.
- 3. Airspeed -- 90 KIAS.
- 4. Selected Field -- FLY OVER, noting terrain and obstructions.
- All Electrical Switches (except Battery and Generator) --OFF.
- 6. Wing Flaps -- FULL DOWN (on final approach).
- 7. Airspeed -- 80 KIAS.
- 8. Crew Doors -- UNLATCH PRIOR TO TOUCHDOWN.
- 9. Generator Switch -- TRIP and release.
- 10. Battery Switch -- OFF.
- 11. Touchdown -- SLIGHTLY TAIL LOW.
- 12. Fuel Condition Lever -- CUTOFF.
- 13. Brakes -- APPLY HEAVILY.

#### DITCHING

- Radio -- TRANSMIT MAYDAY on 121.5 MHz, giving location and intentions and SQUAWK 7700 if transponder is installed.
- Heavy Objects in Cabin -- SECURE if passenger is available to assist.
- 3. Seats, Seat Belts, Shoulder Harnesses -- SECURE.
- 4. Wing Flaps -- FULL DOWN.
- 5. Power -- ESTABLISH 300 FT/MIN DESCENT AT 80 KIAS.
- Approach: High Winds -- INTO THE WIND. Light Winds, Heavy Swells -- PARALLEL TO SWELLS.
- Face -- CUSHION at touchdown with folded coat or similar object.
- 8. Touchdown -- NO FLARE, maintain descent attitude.

#### SECTION 3 EMERGENCY PROCEDURES

- 9. Airplane -- EVACUATE.
- 10. Life Vests and Raft -- INFLATE when outside cabin.

### WARNING

The airplane has not been flight tested in actual ditchings, thus the above recommended procedure is based entirely on the best judgment of Cessna Aircraft Company.

### SMOKE AND FIRE

ENGINE FIRE IN FLIGHT (Red ENGINE FIRE Annunciator On or Off)

- 1. Power Lever -- IDLE.
- Propeller Control Lever -- FEATHER.
- 3. Fuel Condition Lever -- CUTOFF.
- 4. Fuel Shutoff -- OFF.
- 5. Cabin Heat Firewall Shutoff Control -- PULL OFF.
- 6. Forward Side Vents -- CLOSE.
- 7. Overhead Vents -- OPEN.
- 8. Ventilation Fans (if installed) -- ON.
- Wing Flaps -- 10°-30°.
- 10. Airspeed -- 80 KIAS.
- Forced Landing -- EXECUTE (as described in Emergency Landing Without Engine Power).

#### **ELECTRICAL FIRE IN FLIGHT**

- 1. Battery Switch -- OFF.
- 2. Generator Switch -- TRIP and release.
- 3. Standby Power Switch (If installed) -- OFF.

## A WARNING

Without electrical power, all electrically-operated gyros and engine instruments, fuel boost pump, annunclator lights, wing flaps and all avionics will be inoperative.

4. Vents -- CLOSED (to avoid drafts).

CESSNA MODEL 208 (675 SHP)

- 5. Bleed Air Heat Switch -- OFF.
- 6. Fire Extinguisher -- ACTIVATE (if available).

#### A WARNING

If an oxygen system is available, occupants should use oxygen masks until smoke clears. After discharging an extinguisher within a closed cabin, ventilate the cabin.

- 7. Avionics Power Switches -- OFF.
- 8. All Other Electrical Switches -- OFF.

If fire appears out and electrical power is necessary for continuance of flight:

- Battery Switch and Standby Power Switch (if installed) -- ON.
- 10. Generator Switch -- RESET and release.
- 11. Circuit Breakers -- CHECK for faulty circuit; do not reset.
- 12. Radio Switches -- OFF.
- 13. Avionics Power Switches -- ON.
- 14. Radio and Electrical Switches -- ON one at a time, with delay after each until short circuit is localized.
- Vents -- OPEN when it is ascertained that fire is completely extinguished.
- 16. Bleed Air Heat -- ON as desired.

#### CABIN FIRE

- 1. Battery Switch -- OFF.
- 2. Generator Switch -- TRIP and release.

## A WARNING

Without electrical power, all electrically-operated gyros and engine instruments, fuel boost pump, annunciator lights, wing flaps and all avionics will be inoperative.

3. Standby Power Switch (if installed) -- OFF.

#### SECTION 3 EMERGENCY PROCEDURES

- Vents -- CLOSED (to avoid drafts).
- Bleed Air Heat Switch -- OFF.
- Fire Extinguisher -- ACTIVATE (if available).

## WARNING

If an oxygen system is available, occupants should use oxygen masks until smoke clears. After discharging an extinguisher within a closed cabin, ventilate the cabin.

Land the airplane as soon as possible.

#### WING FIRE

- Pitot/Static Heat Switch -- OFF.
- 2. Stall Heat Switch -- OFF.
- Strobe Lights Switch -- OFF.
- Navigation Lights Switch -- OFF.
- Landing and Taxi Light Switches -- OFF.
- 6. Radar (If Installed) -- OFF.
- Ventilation Fans (if installed) -- OFF.

## A WARNING

Perform a sideslip as required to keep flames away from the fuel tank and cabin. Land the airplane.

#### CABIN FIRE DURING GROUND OPERATIONS

- Power Lever -- IDLE.
- Brakes -- AS REQUIRED.
- 3. Propeller Control Lever -- FEATHER.
- 4. Fuel Condition Lever -- CUTOFF.
- 5. Battery Switch -- OFF.
- 6. Airplane -- EVACUATE.
- 7. Fire -- EXTINGUISH.

1 April 1998

ENGINE FIRE DURING START ON GROUND (Red ENGINE FIRE Annunciator On Or Off)

- 1. Fuel Condition Lever -- CUTOFF.
- 2. Fuel Boost Switch -- OFF.
- 3. Starter Switch -- MOTOR.

## A CAUTION

- Do not exceed the starting cycle limitations; refer to Section 2.
- Should the fire persist, as indicated by sustained interturbine temperature, immediately close the fuel shutoff and continue motoring.
- 4. Starter Switch -- OFF.
- 5. Fuel Shutoff -- OFF (pull out).
- 6. Battery Switch -- OFF.
- 7. Airplane -- EVACUATE.
- 8. Fire -- EXTINGUISH.

## ICING

THE FOLLOWING WEATHER CONDITIONS MAY BE CONDUCIVE TO SEVERE IN-FLIGHT ICING - As Required by AD 96-09-15, Paragraph (a) (2):

- Visible rain at temperatures below 0 degrees Celsius ambient air temperature.
- Droplets that splash or splatter on impact at temperatures below 0 degrees Celsius ambient air temperature.

#### SECTION 3 EMERGENCY PROCEDURES

#### PROCEDURES FOR EXITING THE SEVERE ICING ENVIRONMENT - As Required by AD 96-09-15, Paragraph (a) (2):

These procedures are applicable to all flight phases from takeoff to landing. Monitor the ambient air temperature. While severe icing may form at temperatures as cold as -18 degrees Celsius, increased vigilance is warranted at temperatures around freezing with visible moisture present. If the visual cues specified in Section 2 Limitations for identifying severe icing conditions are observed, accomplish the following:

- Immediately request priority handling from Air Traffic Control to facilitate a route or an altitude change to exit the severe icing conditions in order to avoid extended exposure to flight conditions more severe than those for which the airplane has been certificated.
- Avoid abrupt and excessive maneuvering that may exacerbate control difficulties.
- Do not engage the autopilot.
- If the autopilot is engaged, hold the control wheel firmly and disengage the autopilot.
- 5. If an unusual roll response or uncommanded roll control movement is observed, reduce the angle-of-attack.
- 6. Do not extend flaps during extended operation in icing conditions. Operation with flaps extended can result in a reduced wing angle-of-attack, with the possibility of ice forming on the upper surface further aft on the wing than normal, possibly aft of the protected area.
- If the flaps are extended, do not retract them until the airframe is clear of ice.
- 8. Report these weather conditions to Air Traffic Control.

#### For Training Purposes Only

#### INADVERTENT ICING ENCOUNTER

- 1. Ignition Switch -- ON.
- 2. Inertial Separator -- BYPASS.
- 3. Pitot/Static Heat Switch -- ON.
- 4. Stall Warning Heat Switch -- ON.
- 5. Windshield Anti-ice Switch(es) (if installed) -- AUTO.
- 6. Prop Anti-ice Switch (if installed) -- AUTO.
- Turn back or change altitude to obtain an outside air temperature that is less conducive to icing.
- Bleed Air Heat Switch and Temp Control -- ON and ADJUST.
- Push Fwd Cabin Heat control full in and pull Defrost control full out to obtain maximum windshield defroster effectiveness.
- Propeller RPM -- INCREASE to 1900 RPM to minimize ice build-up.

## A CAUTION

If excessive vibration is noted, momentarily reduce propeller RPM to 1600 with the propeller control, then rapidly move the control full forward. Cycling the RPM flexes the propeller blades and high RPM increases centrifugal force, causing ice to shed more readily.

- Ignition Switch -- OFF after 5 minutes operation.
- If icing conditions are unavoidable, plan a landing at the nearest airport. With an extremely rapid ice build-up, select a suitable "off airport" landing site.
- With an ice accumulation of 1/4 inch or more on the wing leading edges, be prepared for a significantly higher power requirement, approach speed and stall speed and longer landing roll.
- 14. If necessary, set up a forward slip for visibility through the left portion of the windshield during the landing approach.
- 15. Use a minimum approach speed of 105 KIAS, select the minimum flap setting required, and maintain extra airspeed consistent with available field length. With ice suspected on the airframe, or operating at 4°C or less in visible moisture, Do Not Extend Flaps Beyond 20° for Landing.

#### SECTION 3 EMERGENCY PROCEDURES

## WARNING

With heavy ice accumulations on the horizontal stabilizer leading edge, do not extend flaps while enroute or holding. When landing is assured, select the minimum flap setting required, not to exceed 20°, and maintain extra airspeed consistent with available field length. Do not retract the flaps once they have been extended, unless required for go-around. Then retract flaps in increments while maintaining 5 to 10 knots extra airspeed.

- Land on the main wheels first, avoiding a slow and high flareout.
- 17. Missed approaches should be avoided whenever possible because of severely reduced climb capability. However, if a go-around is mandatory, make the decision much earlier in the approach than normal. Apply takeoff power and maintain 90 to 105 KIAS while retracting the flaps slowly in small increments.

#### STATIC SOURCE BLOCKAGE (Erroneous Instrument Reading Suspected)

1. Static Pressure Alternate Source Valve -- PULL FULL ON.

#### NOTE

The alternate static source is connected to the left-hand flight panel instruments only.

- 2. Refer to Section 5 for airspeed and altimeter corrections.
- 3. Autopilot (if installed) -- DISENGAGE altitude hold mode.

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## ENGINE MALFUNCTIONS

#### LOSS OF OIL PRESSURE (Red OIL PRESS LOW Annunciator On)

 Oil Pressure Gauge -- CHECK oil pressure indication. If oil pressure gauge confirms annunciator warning, proceed in accordance with Engine Failures checklists or at the discretion of the pilot and consistent with safety, continue engine operation in preparation for an emergency landing as soon as possible.

#### FUEL CONTROL UNIT MALFUNCTION IN THE PNEUMATIC OR GOVERNOR SECTIONS (Engine Power Falls Back To Idle)

- 1. Power Lever -- IDLE.
- Emergency Power Lever -- AS REQUIRED (maintain 65% N<sub>a</sub> minimum during flight).

## A CAUTION

The emergency power lever overrides normal fuel control functions and results in the direct operation of the fuel metering valve. Utilize slow and smooth movement of the emergency power lever to avoid engine surges, and/or exceeding ITT, Ng, and torque limits.

#### GEAR BOX CONTAMINATION (Amber CHIP DETECTOR) Annunciator On)

- Engine Gages -- CAREFULLY MONITOR engine gages for abnormal oil pressure, oil temperature, or power indications.
- If engine gages are normal, proceed to destination, and determine cause of chip detector annunciator warning prior to next flight.
- If engine gages confirm chip detector annunciator warning, proceed in accordance with Engine Failures checklists, or at the discretion of the pilot and consistent with safety, continue engine operation in preparation for an emergency landing as soon as possible.

## FUEL SYSTEM MALFUNCTION/INADVERTENT FUEL FLOW INTERRUPTION PROCEDURES

#### LOSS OF FUEL PRESSURE (Amber FUEL PRESS LOW Annunciator On)

#### 1. Fuel Boost Switch -- ON.

(Continued Next Page)

#### SECTION 3 EMERGENCY PROCEDURES

- 2. If FUEL PRESS LOW annunciator extinguishes:
  - Carefully monitor fuel quantity and cabin odor for evidence of a fuel leak.
  - Land as soon as practical and determine cause for motive flow failure before next flight.
- If FUEL PRESS LOW annunciator and AUX FUEL PUMP ON annunciator are illuminated:
  - a. Carefully monitor engine gages for sign of fuel starvation.
  - b. Land as soon as possible.

#### FUEL FLOW INTERRUPTION TO FUEL RESERVOIR (Red RESERVOIR FUEL LOW Annunciator On)

- 1. Fuel Tank Selectors -- LEFT ON, RIGHT ON.
- 2. Ignition Switch -- ON.
- 3. Fuel Boost Switch -- ON.
- If RESERVOIR FUEL LOW annunciator remains illuminated and there is usable fuel in the wing tanks:
  - Carefully monitor engine gages and FUEL PRESS LOW annunciator for signs of fuel starvation.
  - Land as soon as possible and determine cause of RESERVOIR FUEL LOW warning.

## A WARNING

If there are signs of fuel starvation, prepare for a forced landing (as described in Emergency Landing Without Engine Power).

FUEL TANK SELECTOR OFF DURING ENGINE START (Red FUEL SELECT OFF Annunciator On And Both Fuel Selector Warning Horns Activated)

1. Left and Right Fuel Tank Selectors -- ON.

FUEL LEVEL LOW WITH SINGLE TANK SELECTED (Red FUEL SELECT OFF And Amber LEFT Or RIGHT FUEL LOW Annunciators On And Fuel Selector Warning Horn Activated)

 Left and Right Fuel Tank Selectors -- ON (turning both fuel tank selectors ON will extinguish the red FUEL SELECT OFF annunciator and silence the warning horn).

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## FLAP SYSTEM MALFUNCTION PROCEDURES

ASYMMETRIC FLAP EXTENSION OR SUDDEN FLAP RETRACTION ON ONE SIDE

- 1. Apply alleron and rudder to stop the roll.
- 2. Flap Selector -- UP.
- 3. Airspeed -- SLOW to 100 KIAS or less.
- If both flaps retract to a symmetrical setting:
  - a. Plan a flaps up landing.
  - Refer to Section 5 (notes above landing performance tables) for increase in approach speed and landing distance.
- 5. If both flaps cannot be retracted to a symmetrical setting:
  - a. Land as soon as practical.
  - Maintain a minimum airspeed of 90 KIAS on the approach and avoid a nose high flare on landing.

#### FLAPS FAIL TO EXTEND OR RETRACT

- 1. Flap Motor and STBY Flap Motor Circuit Breakers -- CHECK IN.
- 2. If flaps still fail to extend or retract:
  - Guarded and Safetied Standby Flap Motor Switch (Overhead) -- MOVE GUARD, breaking safety wire, and POSITION SWITCH TO STBY.
  - b. Guarded and Safetied Standby Flap Motor Up/Down Switch (Overhead) -- MOVE GUARD, breaking safety wire, and position switch UP or DOWN (hold switch until flaps reach desired position, except release switch before flaps reach full up or full down travel).

## A CAUTION

With the standby flap system in use, limit switches which normally shut off the primary flap motor when reaching the flap travel limits are electrically inactivated. Therefore, the pilot must release the standby flap motor up/down switch before the flaps reach their travel limit to prevent overloading and damage to the flap system.

#### SECTION 3 EMERGENCY PROCEDURES

 Guarded Standby Flap Motor Switch -- Leave in STBY position until after landing when maintenance action can be accomplished.

## LANDING GEAR MALFUNCTION PROCEDURES

#### LANDING WITH FLAT MAIN TIRE

- 1. Airplane -- FLY as desired to lighten fuel load.
- Fuel Selectors -- POSITION ONE SIDE OFF TO LIGHTEN LOAD ON SIDE OF FLAT TIRE (maximum fuel unbalance of 200 pounds).
- 3. Approach -- NORMAL (full flaps).
- Touchdown -- INFLATED TIRE FIRST. Hold airplane off flat tire as long as possible with aileron control.
- Directional Control -- MAINTAIN using brake on wheel with inflated tire as required.

#### LANDING WITH FLAT NOSE TIRE

- Passengers and Baggage -- MOVE AFT if practical (remain within approved C.G. envelope).
- 2. Approach -- NORMAL with full flaps.
- Touchdown -- NOSE HIGH. Hold nose wheel off as long as possible during roll.
- 4. Brakes -- MINIMUM necessary.

## ELECTRICAL POWER SUPPLY SYSTEM MALFUNCTIONS

#### BATTERY TEMPERATURE HIGH (Amber BATTERY HOT Annunciator On) (NI-Cad Battery Equipped Airplanes Only)

- 1. Battery Switch -- OFF.
- 2. Ammeter -- CHECK with selector switch in BATT position.
  - a. If ammeter shows zero indication:
    - Annunciator light should extinguish.
  - b. If ammeter shows charge indication:
    - (1) Generator Switch -- TRIP and release.
      - (2) Standby Power Switch (if installed) -- OFF.
      - (3) All Electrical System Switches -- OFF.

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If standby electrical system is NOT installed:

- (4) Wait five minutes after annunciator extinguished.
- (5) Generator Switch -- RESET and release.
- (6) Ammeter -- CHECK with selector switch in BATT position.
- (7) If ammeter shows charge indication:
   (a) Generator Switch -- TRIP and release.
- (8) If ammeter shows zero indication:
  - (a) Reinstate electrical systems as required.
  - (b) Monitor BATTERY HOT annunciator.

If standby electrical system IS installed:

- (4) Bus 1 Pwr and Bus 2 Pwr Circuit Breakers -- PULL OFF (total of six circuit breakers).
- (5) Avionics Switches -- OFF.
- (6) Standby Power Switch -- ON.
- (7) Avionics Standby Power Switch -- LIFT GUARD, TURN ON.
- (8) Avionics Bus Tie Switch -- LIFT GUARD, TURN ON.
- (9) Reinstate essential electrical systems, exercising caution not to exceed capacity of standby electrical system.
- 3. As Soon as Practical -- LAND.

#### BATTERY OVERHEATED (Red BATTERY OVERHEAT Annunciator On) (Ni-Cad Battery Equipped Airplanes Only)

- 1. Battery Switch -- CHECK OFF.
- Generator Switch -- TRIP and release.
- Standby Power Switch (if installed) -- OFF.
- All Electrical System Switches -- OFF.

If standby electrical system is NOT installed:

- 5. Wait 5 minutes after BATTERY HOT and BATTERY OVERHEAT annunciators are extinguished.
- 6. Generator Switch -- RESET and release.

ì.

#### SECTION 3 EMERGENCY PROCEDURES

- Ammeter -- CHECK with selector switch in BATT position.
  - a. If ammeter shows charge indication:
    - (1) Generator Switch -- TRIP and release.
  - b. If ammeter shows zero indication:
    - (1) Reinstate electrical systems as required.
    - (2) Monitor BATTERY HOT and BATTERY OVERHEAT annunciators.
- 8. As Soon as Practical -- LAND.

If standby electrical system IS installed:

- Bus 1 Pwr and Bus 2 Pwr Circuit Breakers -- PULL OFF (total of 6 circuit breakers.)
- 6. Avionics Switches -- OFF.
- 7. Standby Power Switch -- ON.
- 8. Avionics Standby Power Switch -- LIFT GUARD, TURN ON.
- 9. Avionics Bus tie Switch -- LIFT GUARD, TURN ON.
- Reinstate essential electrical systems, exercising caution not to exceed capacity of standby electrical system.
- 11. As Soon as Practical -- LAND.

## GENERATOR FAILURE (Red VOLTAGE LOW and/or Red GENERATOR OFF Annunciators On)

 Volt/Ammeter Selector Switch -- VOLTS. If voltage is near normal of 28.5 volts, assume fault in VOLTAGE LOW annunciator circuit and continue flight to destination monitoring voltage and generator output.

## A CAUTION

A red VOLTAGE LOW warning followed by a BUS 1 or BUS 2 circuit breaker opening may be a feeder fault that has isolated itself. DO NOT reset the breaker. The VOLTAGE LOW warning should extinguish.

If voltage is less than 24.5 volts:

2. Volt/Ammeter Selector Switch -- GEN and monitor ammeter.

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- If generator output is zero:
  - GEN CONT and GEN FIELD Circuit Breakers -- PUSH IN.
  - Generator Switch -- RESET and release.
- 4. If generator output is still zero:
  - a. Generator Switch -- TRIP.
  - b. Electrical Load -- REDUCE as follows:
    - Avionics Bus 2 Switch -- OFF.
    - (2) Flashing Beacon -- OFF.
    - (3) Strobe Lights -- OFF.
    - (4) All Delcing Equipment -- OFF (if pitot heat is required, pull RIGHT PITOT HEAT circuit breaker and turn pitot heat switch on).
    - (5) Vent Fans OFF.
    - (6) Air Conditioner (if installed) -- OFF.
    - (7) GEN CONT and GEN FIELD Circuit Breakers --PULL (top row, last two breakers on forward end).
    - (8) A/P CONT Circuit Breaker -- PULL (third row from bottom, first breaker from forward end).

To reactivate the avionics fan and the disabled section of the audio amplifier if desired:

 Pull all AVIONICS BUS 2 circuit breakers except AVIONICS FAN and AUDIO AMP breakers (second row from bottom, last two breakers on forward end).

(2) Avionics Bus 2 Switch -- ON.

c. Flight -- TERMINATE as soon as practical.

#### NOTE

If optional standby electrical system is installed, the flight may be continued to destination with the GENERATOR OFF annunciator illuminated. Refer to emergency procedures of Standby Electrical System supplement in Section 9.

#### SECTION 3 EMERGENCY PROCEDURES

- 5. If generator output resumes:
  - a. Volt/Ammeter Selector Switch -- VOLTS and monitor voltmeter. If voltage increases past 29 volts, expect the generator to trip off again. If this occurs, turn off the nonessential radio and electrical equipment and land as soon as practical.

#### STARTER CONTACTOR DOES NOT DISENGAGE AFTER ENGINE START (Amber STARTER ENERGIZED Annunciator On)

- 1. Battery Switch -- OFF.
- 2. Auxiliary Power Unit -- OFF, then DISENGAGE.
- 3. Fuel Condition Lever -- CUTOFF.
- 4. Engine Shutdown -- COMPLETE.

## EMERGENCY DESCENT PROCEDURES

#### ROUGH AIR

- Seats, Seat Belts, Shoulder Harnesses -- SECURE.
- 2. Power Lever -- IDLE.
- Propeller Control Lever -- MAX (full forward)
- 4. Wing Flaps -- UP.
- Weights and Airspeed: 8000 Pounds -- 150 KIAS 6300 Pounds -- 134 KIAS 4600 Pounds -- 115 KIAS

#### SMOOTH AIR

- 1. Seats, Seat Belts, Shoulder Harnesses -- SECURE.
- 2. Power Lever -- IDLE.
- Propeller Control Lever -- MAX (full forward)
- 4. Wing Flaps -- 10°.
- 5. Airspeed -- 175 KIAS.

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## INADVERTENT OPENING OF AIRPLANE DOORS IN FLIGHT

UPPER HALF OF CARGO DOOR OR UPPER HALF OF PASSENGER AIRSTAIR DOOR OPEN (Red DOOR WARNING Annunclator On) (Standard 208 Only)

- 1. Airspeed -- MAINTAIN LESS THAN 100 KIAS.
- 2. Wing Flaps -- FULL (wing downwash with flaps extended will move the doors near their normally closed position).
- If available or practical, have a second crew member go aft to close and latch door.
- If landing is required with door open:
   a. Approach and Landing -- NORMAL.

#### LOWER HALF OF PASSENGER AIRSTAIR DOOR OPEN (Standard 208 Only)

- 1. Airspeed -- MAINTAIN LESS THAN 100 KIAS.
- 2. Flight Controls -- MANEUVER for return for landing.
- 3. Wing Flaps -- FULL.
- 4. Approach -- NORMAL.
- 5. Landing -- SLIGHTLY TAIL LOW; avoid nose high flare.

#### **RIGHT OR LEFT CREW DOORS OPEN**

- 1. Airspeed -- MAINTAIN LESS THAN 125 KIAS.
- Door -- PULL CLOSED and LATCH.

#### CARGO POD DOOR(S) OPEN

- 1. Airspeed -- MAINTAIN LESS THAN 125 KIAS.
- 2. Land -- AS SOON AS PRACTICAL.
  - a. Approach -- NORMAL.
  - b. Landing -- AVOID A NOSE HIGH FLARE.

## AMPLIFIED PROCEDURES

The following Amplified Procedures elaborate upon information contained in the Operational Checklists portion of this section. These procedures also include information not readily adaptable to a checklist format, and material to which a pilot could not be expected to refer in resolution of a specific emergency.

#### NOTE

If a red or non-dimmable amber annunciator illuminates at night and becomes an unacceptable distraction to the pilot because of its brightness level, it may be extinguished for the remainder of the flight by pushing in on the face of the light assembly and allowing it to pop out. To reactivate the annunciator, pull the light assembly out slightly and push back in. For further details, refer to Section 7, Annunciator Panel.

## ENGINE FAILURE

If an engine failure occurs during the takeoff roll, the most important thing to do is stop the airplane on the remaining runway. Those extra items on the checklist will provide added safety after a failure of this type.

Prompt lowering of the nose to maintain airspeed and establish a glide attitude is the first response to an engine failure after takeoff. Feathering the propeller substantially reduces drag, thereby providing increased glide distance. In most cases, the landing should be planned straight ahead with only small changes in direction to avoid obstructions. Altitude and airspeed are seldom sufficient to execute a 180° gliding turn necessary to return to the runway. The checklist procedures assume that adequate time exists to secure the fuel and electrical systems prior to touchdown.

After an engine failure in flight, the best glide speed as shown in Figure 3-1 should be established as quickly as possible Propeller feathering is dependent on existing circumstances and is at the discretion of the pilot. Maximum RPM selection will provide increased gas generator windmilling speed for emergency restarts in the event of a starter failure. On the other hand, to obtain the maximum glide, the propeller must be feathered.

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While gliding toward a suitable landing area, an effort should be made to identify the cause of the power loss. An engine **fallure** might be identified by abnormal temperatures, mechanical noises or high vibration levels in conjunction with the power loss. A **flameout** will be noticed by a drop in ITT, torque and  $%N_{n}$ .

## A CAUTION

## Do not attempt to restart an engine that is definitely known to have failed.

A flameout may result from the engine running out of fuel, or possibly may be caused by unstable engine operation. Unstable engine operation such as a compressor surge (possible due to a bleed valve malfunction (may be identifiable by an audible popping noise just before flameout. Once the fuel supply has been restored to the engine or cause of unstable engine operation eliminated, the engine may be restarted.

The best airstart technique is to initiate the relight procedure immediately after a flameout occurs, provided the pilot is certain that the flameout was not the result of some malfunction that might make it hazardous to attempt a relight.

Regardless of airspeed or altitude, there is always the possibility that the engine may light up successfully just as soon as the ignition is turned on. In an emergency, turn on the ignition just as soon as possible after flameout, provided the gas generator speed has not dropped below 50%. Under these circumstances, it is not necessary to shut off the fuel or feather the propeller. The power lever, however, should be retarded to IDLE position.

## A CAUTION

## The pilot should determine the reason for power loss before attempting an airstart.

If a flameout has occurred and the gas generator speed has dropped below 50, the fuel condition lever should be moved to the CUTOFF position before an airstart is attempted.

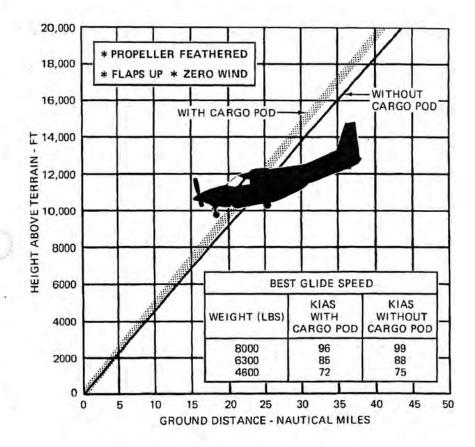


Figure 3-1. Maximum Glide

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Propeller feathering is dependent on circumstances and is at the discretion of the pilot. However, if engine oil pressure drops below 15 psi, the propeller should be feathered.

If an airstart is to be attempted, follow the checklist procedures. The Starter Assist procedure is preferred since it results in cooler engine starts. Successful airstarts (with starter assist) may be achieved at all airspeeds normally flown and up to an altitude of 14,000 feet. However, above 14,000 feet, or with the gas generator RPM below 10%, starting temperatures tend to be higher and caution is required.

## A CAUTION

The fuel condition lever may be moved momentarily to CUTOFF and then back to LOW IDLE if overtemperature tendencies are encountered. This reduces the flow of fuel to the combustion chamber.

If the engine starter is inoperative, follow the No Starter Assist checklist procedures for an airstart.

## A CAUTION

- If a rise in Ng and ITT are not indicated within 10 seconds, place fuel condition lever to CUTOFF and abort start. Refer to Engine Failure During Flight and Emergency Landing Without Power checklists.
- Emergency airstarts may be attempted below 10% Ng and outside the normal airspeed envelope, but ITT should be closely monitored. The fuel condition lever may be moved alternately to CUTOFF and then back to LOW IDLE if overtemperature tendencies are encountered.
- Do not attempt an airstart without starter assist with 0% N<sub>0</sub>.

## FORCED LANDINGS

If all attempts to restart the engine fail and a forced landing is imminent, select a suitable field and prepare for the landing as discussed under the Emergency Landing Without Engine Power checklist.

Before attempting an "off airport" landing with engine power available, one should fly over the landing area at a safe but low altitude to inspect the terrain for obstructions and surface conditions, proceeding as discussed under the Precautionary Landing With Engine Power checklist.

#### NOTE

The overhead fuel tank selectors control shutoff valves at the wing fuel tank outlets. To minimize the possibility of a fire, these selectors may be turned OFF during the final stage of an approach to an "off-airport" landing. With the selectors turned OFF, there is adequate fuel in the fuel reservoir tank for 3 minutes of maximum continuous power operation or approximately 9 minutes idle power operation. A warning horn will sound with both fuel selectors turned OFF. If it is objectionable, it may be silenced by pulling the START CONT circuit breaker.

#### A WARNING

# If the precautionary landing is aborted, turn the fuel tank selectors back ON after initiating the balked landing.

Prepare for ditching by securing or jettisoning heavy objects located in the baggage area and collect folded coats for protection of occupants' faces at touchdown. Transmit Mayday message on 121,5 MHz giving location and intentions and squawk 7700 if a transponder is installed. Avoid a landing flare because of difficulty in judging height over a water surface. The checklists assume the availability of power to make a precautionary water landing. If power is not available, plan to touch down at minimum possible speed in a normal nose up landing attitude.

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## LANDING WITHOUT ELEVATOR CONTROL

Using power lever and elevator trim control, trim for approximately 500 fpm descent with 20° flaps at 85 KIAS. Then control the glide angle by adjusting power. If required, make small trim changes to maintain approximately 85 KIAS as power is adjusted during the approach.

The landing flare can be accomplished by a gentle power reduction accompanied by nose up trim. At forward C.G. loadings, it may be necessary to make a small power increase in the final flare stage to bring the nose up and prevent touchdown on the nose first. After touchdown, move the power lever to idle.

## SMOKE AND FIRE

In the event a fire is encountered, the following information will be helpful in dealing with the emergency as quickly and safely as possible.

The preflight checklist in Section 4 is provided to aid the pilot in detecting conditions which could contribute to an airplane fire. As a fire requires a combustible material, oxygen and a source of ignition, close preflight inspection should be given to the engine compartment and the underside of the wing and fuselage. Leaks in the fuel or oil systems can lead to a ground or inflight fire.

## A WARNING

Flight should not be attempted with known fuel or oil leaks. The presence of fuel or unusual oil stains may be an indication of system leaks and should be corrected prior to flight.

Probable causes of an engine fire are a malfunction of the fuel control unit and improper starting procedures. Improper procedures such as starting with the emergency power lever out of NORMAL position or introducing fuel into the engine when gas generator speed is below 10% RPM will cause a hot start which may result in an engine fire. In the event that this occurs, proceed in accordance with the Engine Fire During Start On Ground checklist

#### SECTION 3 EMERGENCY PROCEDURES

If an airplane fire is discovered on the ground or during takeoff, but prior to committed flight, the airplane should be stopped and evacuated as soon as practical.

Engine fires originating in flight must be controlled as quickly as possible in an attempt to prevent major structural damage. Immediately shut off all fuel to the engine and shut down the engine. Close the cabin heat firewall shutoff control and forward side vents. To avoid drawing fire into the cabin, open the overhead vents, turn the ventilation fans ON if they are installed, extend 10° to 30° flaps and slow down to 80-85 KIAS. This provides a positive cabin pressure in relation to the engine compartment. An engine restart should not be attempted.

An open foul weather window produces a low pressure in the cabin. To avoid drawing the fire into the cabin, the foul weather window should be kept closed.

A fire or smoke in the cabin should be controlled by identifying and shutting down the faulty system. Smoke may be removed by opening the cabin ventilation controls. When the smoke is intense, the pilot may choose to expel the smoke through the foul weather window. The foul weather window should be closed immediately if the fire becomes more intense when the window is opened.

The initial indication of an electrical fire is usually the odor of burning insulation. The checklist for this problem should result in elimination of the fire.

## EMERGENCY OPERATION IN CLOUDS (Vacuum System Failure)

In the event of a complete vacuum system failure during flight, the directional indicator and attitude indicator will be disabled, and the pilot will have to rely on the turn and bank indicator if he inadvertently flies into clouds. If an autopilot is installed, it too can be affected and must be turned off. Refer to Section 9, Supplements, for additional details concerning autopilot operation. The following instructions assume that only the electrically-powered turn and bank indicator is operative, and that the pilot is not completely proficient in instrument flying.

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## **EXECUTING A 180° TURN IN CLOUDS**

Upon inadvertently entering the clouds, an immediate plan should be made to turn back as follows:

- 1. Note the compass heading.
- Note the time of the minute hand and observe the position of the sweep second hand on the clock.
- 3. When the sweep second hand indicates the nearest half minute, initiate a standard rate left turn, holding the needle of the turn and bank indicator in position for a standard rate left turn for 60 seconds. Then roll back to level flight by centering the needle, making sure the ball is also centered.
- Check accuracy of the turn by observing the compass heading which should be the reciprocal of the original heading.
- If necessary, adjust heading primarily with skidding motions rather than rolling motions so that the compass will read more accurately.
- Maintain altitude and airspeed by cautious application of elevator control. Avoid overcontrolling by keeping the hands off the control wheel as much as possible and steering only with rudder.

## EMERGENCY DESCENT THROUGH CLOUDS

If conditions preclude reestablishment of VFR flight by a 180° turn, a descent through a cloud deck to VFR conditions may be appropriate. If possible, obtain radio clearance for an emergency descent through clouds. To guard against a spiral dive, choose an easterly or westerly heading to minimize compass card swings due to changing bank angles. In addition, keep hands off the control wheel and steer a straight course with rudder control by monitoring the turn and bank indicator. Occasionally check the compass heading and make minor corrections to hold an approximate course. Before descending into the clouds, set up a stabilized let-down condition as follows:

- Reduce power to set up a 500 to 800 feet/minute rate of descent.
- Adjust the elevator, aileron, and rudder trim control wheels for a stabilized descent at 115 KIAS.

#### SECTION 3 EMERGENCY PROCEDURES

- 3. Keep hands off control wheel.
- 4. Monitor turn and bank indicator and make corrections by rudder alone.
- Adjust rudder trim to relieve unbalanced rudder force, if present.
- Check trend of compass card movement and make cautious corrections with rudder to stop turn.
- 7. Upon breaking out of clouds, resume normal cruising flight.

## **RECOVERY FROM A SPIRAL DIVE**

If a spiral is encountered, proceed as follows:

- 1. Retard the power lever to IDLE.
- Stop the turn by using coordinated aileron and rudder control to center the needle and ball.
- Cautiously apply control wheel back pressure to slowly reduce the airspeed to 115 KIAS.
- 4. Adjust the elevator trim control to maintain a 115 KIAS glide.
- Keep hands off the control wheel, using rudder control to hold a straight heading. Use rudder trim to relieve unbalanced rudder force, if present.
- 6. Upon breaking out of clouds, resume normal cruising flight.

## INADVERTENT FLIGHT INTO ICING CONDITIONS

Intentional flight into known icing conditions is prohibited unless a complete flight into known icing equipment package is installed. During instrument flights, however, icing conditions may be encountered inadvertently and, therefore, some corrective action will be required as shown in the checklist. Initiation of a climb is usually the best ice avoidance action to take; however, alternatives are descent to warmer air or course reversal.

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#### STATIC SOURCE BLOCKED

If erroneous instrument readings are suspected due to water, ice or other foreign matter in the pressure lines going to the standard external static pressure source, the alternate static source valve should be pulled on. A chart in Section 5 provides a correction which may be applied to the indicated airspeeds and altitudes resulting from inaccuracies in the alternate static source pressures.

#### NOTE

The altitude hold mode of the autopilot should be disengaged before actuating the alternate static source valve.

## SPINS

Intentional spins are prohibited in this airplane. Should an inadvertent spin occur, the following recovery technique may be used.

- 1. RETARD POWER LEVER TO IDLE POSITION.
- 2. PLACE AILERONS IN NEUTRAL POSITION.
- APPLY AND HOLD FULL RUDDER OPPOSITE TO THE DIRECTION OF ROTATION.
- IMMEDIATELY AFTER THE RUDDER REACHES THE STOP, MOVE THE CONTROL WHEEL BRISKLY FORWARD FAR ENOUGH TO BREAK THE STALL. Full down elevator may be required at aft center of gravity loadings to assure optimum recoveries.
- HOLD THESE CONTROL INPUTS UNTIL ROTATION STOPS. Premature relaxation of the control inputs may extend the recovery.
- AS ROTATION STOPS, NEUTRALIZE RUDDER AND MAKE A SMOOTH RECOVERY FROM THE RESULTING DIVE.

#### NOTE

If disorientation precludes a visual determination of the direction of rotation, the needle of the turn and bank indicator or the symbolic airplane of the turn coordinator may be referred to for this information.

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## ENGINE MALFUNCTIONS

#### LOSS OF OIL PRESSURE

The complete loss of oil pressure, as evidenced by the low oil pressure annunciator being illuminated and confirmed by the oil pressure gauge reading, implies that the pilot will eventually lose control of the propeller as the propeller springs and counterweights drive the propeller blades into feather. Also, the engine will eventually seize. Therefore, if the pilot elects to continue to operate the engine after loss of oil pressure, engine and propeller operation should be closely monitored for indication of the onset of propeller feathering or engine seizure and the engine failure checklist should be completed at that time. Operation of the engine at a reduced power setting (preferably at the minimum power required for the desired flight regime) will generally prolong the time to loss of engine/propeller thrust.

Operation of the engine with the oil pressure in the yellow arc is not considered critical, but is a cause for concern and should be tolerated only for the completion of the flight. Continued monitoring of the oil pressure gauge will provide an early indication of dropping oil pressure due to insufficient oil supply or a malfunctioning oil pump, and will give the pilot additional time to divert to a suitable emergency landing area with the engine operating.

#### FUEL CONTROL UNIT MALFUNCTION IN THE PNEUMATIC OR GOVERNOR SECTIONS

A malfunction in the pneumatic or governor sections of the fuel control unit may cause engine power to decrease to minimum flow idle. Symptoms of this type failure would be an ITT indication in the typical idle range of 500 to  $600^{\circ}$ C, N<sub>g</sub> of 48% or above (increases with altitude), and no engine response to power lever movement. If this type of malfunction has occurred, the emergency power lever (fuel control manual override) may be used to restore engine power. To use the manual override system, place the power lever at its IDLE position and move the emergency power lever forward of its IDLE gate and advance as required.

## A CAUTION

When using the fuel control manual override system, engine response may be more rapid than when using the power lever. Utilize slow and smooth movement of the emergency power lever to avoid engine surges, and/or exceeding ITT, Ng, and torque limits.

#### NOTE

- When using emergency power lever, monitor gas generator RPM when reducing power near idle, to keep it from decreasing below 65% in flight.
- The emergency power lever may have a dead band, such that no engine response is observed during the initial forward travel from the IDLE position.

## GEAR BOX CONTAMINATION

Contamination of the reduction gear box as evidenced by the chip detector annunciator being illuminated does not by itself demand any immediate action by the pilot. If this annunciation is accompanied by signs of engine distress (fluctuation in engine power gage indications, or erratic engine operation), engine operation may be continued at the discretion of the pilot consistent with crew safety. However, the power gages should be closely monitored for further degradation in torque or RPM indications, or engine operation, which implies that seizure is imminent. The engine failure checklist should be completed at that time.

## FUEL SYSTEM MALFUNCTION / INADVERTENT FUEL FLOW INTERRUPTION PROCEDURES

Fuel flows by gravity from the wing tanks, through fuel tank shutoff valves at the inboard end of each wing tank, and on to the reservoir located under the center cabin floorboard. After engine start, the main ejector pump (located in the reservoir) provides fuel to the engine-driven fuel pump at approximately 10 psi.

If the main ejector pump should malfunction, a pressure switch will activate the amber FUEL PRESS LOW annunciator as well as turn on the auxiliary boost pump (when the fuel boost switch is in the NORM position) anytime the fuel pressure drops below approximately 4.75 psi.

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#### SECTION 3 EMERGENCY PROCEDURES

Anytime the level of fuel in the reservoir drops to approximately onehalf full, the red RESERVOIR FUEL LOW annunciator will illuminate. If this occurs, the pilot should immediately verify that both fuel tank selectors (located in the overhead panel) are ON and turn on the ignition and fuel boost switches.

## WARNING

#### There is only enough fuel in the reservoir for approximately 1-1/2 minutes of engine operation at maximum continuous power after illumination of the RESERVOIR FUEL LOW annunciator.

If the fuel tank selectors have been left off, turning them on will quickly fill the reservoir and extinguish the RESERVOIR FUEL LOW annunciator. Once the cause of the RESERVOIR FUEL LOW condition has been determined and corrected (annunciator extinguished), the ignition and fuel boost switches can be returned to their NORM positions.

A fuel selector off warning system advises the pilot if both fuel tank selectors are in the OFF position before engine start, if either fuel tank selector is OFF during engine start, or if one fuel tank selector is OFF and the fuel level in the tank being used drops below approximately 25 gallons. The warning system includes a red annunciator labeled FUEL SELECT OFF and two warning horns. If the FUEL SELECT WARN circuit breaker has popped or the START CONT circuit breaker has been pulled (possibly for ground maintenance), the FUEL SELECT OFF annunciator will be illuminated even with both fuel tank selectors in the ON position. This is a warning to the pilot that the fuel selector off warning system has been deactivated. See Section 7 for further details on the fuel selector off warning system.

## ELECTRICAL POWER SUPPLY SYSTEM MALFUNCTIONS

#### BATTERY MALFUNCTIONS

If the optional nickel cadmium battery is installed, a battery temperature monitoring system is provided to detect an incipient thermal problem. The BATTERY HOT annunciator indicates

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internal battery temperature is 140°F or higher. The BATTERY OVERHEAT annunciator indicates battery temperature has reached 160°F. In either case, it is necessary to stop providing charging current to the battery from the airplane power system. This is accomplished by turning the battery switch off using the checklist procedures. During these procedures, the volt/ammeter (in BATT position) should be used to verify that charging current is reduced to zero. A battery temperature of 160°F may be critical and the flight should be terminated as soon as practical. A battery temperature of 140°F is critical if the temperature (above 100°F) conditions, a battery temperature of 140°F is not critical if a decreasing charging current trend is verified and maintained by monitoring the volt/ammeter selected to the BATT position.

#### GENERATOR OR MAIN BUS MALFUNCTIONS

Illumination of the VOLTAGE LOW annunciator is a warning that the power distribution bus voltage is low enough to start discharging the battery. The volt/ammeter (in VOLTS position) is used to verify the low bus voltage. A low or zero reading of the volt/ammeter (in GEN position) confirms that the charge is insufficient or generator output current is zero. If the GENERATOR OFF annunciator is illuminated, it indicates that the generator contactor has disconnected the generator from the power distribution bus. The most likely causes of a generator trip (disconnection) are line surges, tripped circuit breakers or accidental switch operation. In these cases, follow the checklist procedures to restore generator operation.

The airplane is equipped with two starter contactors. One is used for starts on external power and the other for battery starts. If either contactor does not open after reaching approximately 46% Ng, the amber STARTER ENERGIZED annunciator will remain illuminated. In most cases when this occurs, the generator will not transfer to the generate mode, and the GENERATOR OFF annunciator will remain illuminated. Under these conditions, it will be necessary to shut down the engine using checklist procedures and correct the malfunction prior to flight.

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#### SECTION 3 EMERGENCY PROCEDURES

The electrical power distribution system consists of a primary power distribution bus in the engine compartment which receives power from the battery and the generator, and two (No. 1 & No. 2) main power buses located in the circuit breaker panel. The main buses are each connected to the power distribution bus by three feeder cables. Each feeder cable is protected by a fuse link and a circuit breaker. This multiple feeder system provides automatic isolation of a feeder cable ground fault. If one of the three 30-amp feeder circuit breakers on either bus opens, it should be assumed that a feeder cable ground fault has been isolated, and attempted resetting of these breakers prior to troubleshooting is not recommended. The electrical load on the affected bus should be maintained below the remaining 60-ampere capacity.

#### LOSS OF ELECTRICAL POWER

The design of the electrical power system, due to the self-exciting feature of the generator and the multiple protected busing system, minimizes the possibility of a complete electrical power loss. However, a fault to ground (airframe) on the generator or battery cables can be identified by one or more of the following: illumination of the GENERATOR OFF annunciator, sudden dimming of lights, contactor chattering, circuit breaker tripping, or arcing noises. The volt/ammeter provides further information concerning the location of the fault, or the system affected by the fault. In the event of the above indications, the portion of the system containing the fault should be isolated. The battery should be disconnected first by turning the battery switch to OFF. Then, following the checklist procedures for Generator Failure should result in restoration of electrical power to the distribution buses. The volt/ammeter should be monitored to assure that ground fault currents have been shut off and the capacity of the remaining power source(s) is not exceeded.

#### PARTIAL AVIONICS POWER FAILURE

Avionics power is supplied to the No. 1 and No. 2 avionics buses from the power distribution bus in the engine compartment through separate protected feeder cables. In the event of a feeder cable failure, both avionics buses can be connected to the remaining feeder by closing the guarded avionics bus tie switch. If a ground fault has occurred on one feeder, it will be necessary to verify the

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avionics power switch/breaker associated with the affected feeder is off before the avionics bus tie switch will restore power to both avionics buses. The maximum avionics load with one feeder should be limited to 30 amperes. Nonessential avionics equipment should be turned off.

#### STANDBY ELECTRICAL SYSTEM MALFUNCTIONS

An operational check of the standby electrical system is performed by following the Normal Procedures, Before Takeoff checklist. With the generator supplying the electrical load and the standby power switch ON, both the amber annunciators, STBY ELECT PWR ON and STBY ELECT PWR INOP, should be extinguished.

The volt/ammeter should indicate zero amps in the ALT position. If the STBY ELECT PWR INOP annunciator is illuminated, it indicates that the alternator has no output. If a line voltage surge or temporary condition has tripped the ACU (alternator control unit), then cycling the standby power switch to OFF, then back ON, may reset the ACU and restore standby power.

If, due to a power system malfunction, the standby electrical system is carrying part of the electrical load (more than 10 amps), the STBY ELECT PWR ON annunciator will be illuminated and the volt/ammeter (in ALT position) will indicate the amount of current being supplied by the standby electrical system.

To attempt to restore main power, refer to the Section 3 emergency procedures for Loss Of Electrical Power. If this attempt is successful, the standby electrical system will revert to its normal noload condition and the STBY ELECT PWR ON annunciator will extinguish. If main electrical power cannot be restored, reduce nonessential loads as necessary to remain within the 75-amp capability of the standby electrical system. Loads in excess of this capability will be indicated by illumination of the VOLTAGE LOW annunciator and the volt/ammeter showing discharge current (in the BATT position).

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## INADVERTENT OPENING OF AIRPLANE DOORS IN FLIGHT

If any of the airplane doors should inadvertently open in flight, the airplane should be slowed to 125 KIAS or less to reduce buffeting of the doors. If the upper cargo door is open, slow to 100 KIAS or less and lower flaps to full down so that wing downwash will move the door towards its normally closed position. Closing the upper cargo door (or upper half of the passenger door on the Standard 208) can be accomplished after airspeed has been reduced by pulling the door forcefully closed and latching the door. If the door cannot be closed in flight, a landing should be made as soon as practical in accordance with the checklist procedures. On the Cargomaster, an open cargo door cannot be closed in flight since the inside of the upper door has no handle.

## EMERGENCY EXITS

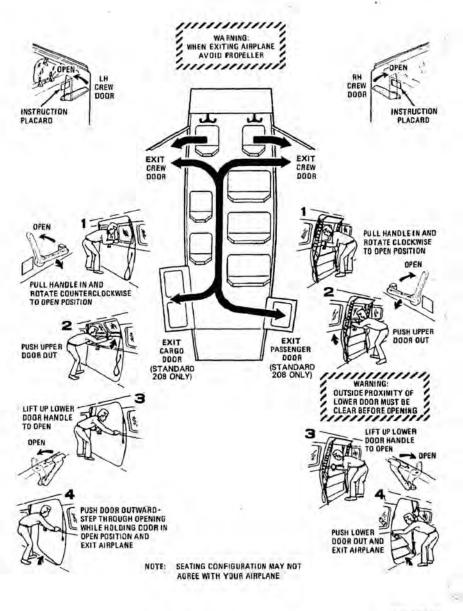
Use of the crew entry doors, the passenger entry doors, and the cargo doors for emergency ground egress from the Standard 208 is illustrated in Figure 3-2. Emergency ground egress from the Cargomaster is accomplished by exiting the airplane through the left and right crew entry doors as shown in Figure 3-2.

## A WARNING

- Do not attempt to exit the Cargomaster through the cargo doors. Since the inside of the upper door has no handle, exit from the airplane through these doors is not possible.
- When exiting the airplane, avoid the propeller area.

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### Figure 3-2. Emergency Exit

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#### For Training Purposes Only

SECTION 4 NORMAL PROCEDURES

# SECTION 4 NORMAL PROCEDURES

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### INTRODUCTION

Section 4 provides checklist and amplified procedures for the conduct of normal operation. Normal procedures associated with optional systems can be found in Section 9.

### WARNING

There is no substitute for proper and complete prefilght planning habits and their continual review in minimizing emergencies. Be thoroughly knowledgeable of hazards and conditions which represent potential dangers, and be aware of the capabilities and limitations of the airplane.

#### SPEEDS FOR NORMAL OPERATION

Unless otherwise noted, the following speeds are based on a maximum weight of 8000 pounds and may be used for any lesser weight. However, to achieve the performance specified in Section 5 for takeoff distance, climb performance, and landing distance, the speed appropriate to the particular weight must be used.

Takeoff:	
Normal Climb Out	85-95 KIAS
Short Field Takeoff, Flaps 20°, Speed at 50 Feet	. 82 KIAS
Type II or Type IV Anti-ice Fluid Takeoff (Flaps 0°)	. 89 KIAS
Enroute Climb, Flaps Up:	
	15-125 KIAS
Best Rate of Climb, Sea Level	107 KIAS
Best Rate of Climb, 10,000 Feet	101 KIAS
Best Rate of Climb, 20,000 Feet	91 KIAS
Best Angle of Climb	90 KIAS
Landing Approach:	
Normal Approach, Flaps Up	95-110 KIAS
Normal Approach, Flaps 30°	78-85 KIAS
Short Field Approach, Flaps 30°	78 KIAS
Balked Landing:	
Takeoff Power, Flaps 20°	77 KIAS
Maximum Recommended Turbulent Air Penetration Speed:	
8000 Lbs	150 KIAS
6300 Lbs	134 KIAS
4600 Lbs	115 KIAS
Maximum Demonstrated Crosswind Velocity:	
Takeoff or Landing	20 KNOTS

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#### PREFLIGHT INSPECTION WARNINGS

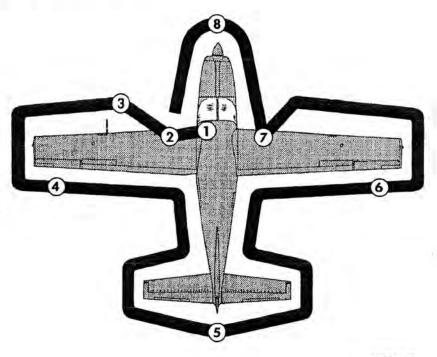
### WARNING

- Visually check airplane for general condition during walk-around inspection and remove any inlet, exit or exhaust covers. If cargo pod is installed, check its installation for security during the walk-around inspection. Use of a ladder will be necessary to gain access to the wing for visual checks, refueling operations, checks of the stall warning and pitot heat, and to reach outboard fuel tank sump drains.
- It is the pilot's responsibility to ensure that the airplane's fuel supply is clean before flight. Any traces of solid contaminants such as rust, sand, pebbles, dirt, microbes, and bacterial growth or liquid contamination resulting from water, improper fuel type, or additives that are not compatible with the fuel or fuel system components must be considered hazardous. Carefully sample fuel from all fuel drain locations during each preflight inspection and after every refueling.
- It is essential in cold weather to remove even small accumulations of frost, ice, or snow from wing, tall, and control surfaces (exercise caution to avoid distorting vortex generators on horizontal stabilizer Also, make sure that control while deicing). surfaces contain no internal accumulations of ice or debris. Prior to any flight in icing conditions, check that pitot/static source and stall warning heaters are warm to touch within 30 seconds with appropriate switches on. If these requirements are not performed, aircraft performance will be degraded to a point where a safe takeoff and climb out may not be possible.
- If a night flight is planned, check operation of all lights, and make sure a flashlight is available and properly stowed.

SECTION 4 NORMAL PROCEDURES

### CHECKLIST PROCEDURES

### PREFLIGHT INSPECTION



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# 1 CABIN

- 1. Pilot's Operating Handbook and Other Required Documents -- AVAILABLE IN THE AIRPLANE.
- Control Locks -- REMOVE (DISENGAGE rudder lock, if installed).
- 3. Parking Brake -- SET.
- 4. All Switches -- OFF.

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- 5. All Circuit Breakers -- IN.
- 6. Static Pressure Alternate Source Valve -- OFF.
- 7. Inertial Separator T-Handle -- NORMAL.
- Standby Flap Motor Switch (Overhead) -- GUARDED NORM.
- Oxygen Supply Pressure (if installed) -- CHECK.
- 10. Oxygen Masks (if installed) -- CHECK AVAILABLE.
- Fuel Selector Valves -- CHECK ON and FEEL AGAINST STOPS.
- 12. Fuel Totalizer (if installed) -- RESET as required.
- 13. Radar (if installed) -- OFF.
- 14. Air Conditioner (if installed) -- OFF.
- 15. Bleed Air Heat Switch -- OFF.
- 16. Emergency Power Lever -- NORMAL, and if applicable, copper witness wire present and intact.
- 17. Trim Controls -- SET.
- 18. Fuel Shutoff -- ON.
- 19. Cabin Heat Firewall Shutoff Control -- CHECK IN.
- 20. Battery Switch -- ON.
- Avionics Power Switch No. 2 -- ON. Check audibly that avionics cooling fan is operating.
- Avionics Power Switch No. 2 -- OFF.
- 23. Fuel Quantity Indicators -- CHECK QUANTITY.
- 24. Wing Flaps -- FULL DOWN.
- Pitot/Static and Stall Heat Switches -- ON for 30 seconds, then OFF. (Ensure pitot/static tube covers are removed.)
- 26. Battery Switch -- OFF.



### LEFT SIDE

 Fuel Reservoir Drain (bottom of fuselage or left side of cargo pod) -- DRAIN (using fuel sampler) to check for water, sediment, and proper fuel before each flight and after each refueling. If water is observed, take further samples until clear. Take repeated samples from all fuel drain points (see Section 7 Fuel System Schematic for all nine drain locations) until all contamination has been removed.

#### NOTE

Properly dispose of samples from all fuel drains, since aviation turbine fuel will deteriorate asphalt surfaces.

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#### SECTION 4 NORMAL PROCEDURES

- Main Landing Gear -- CHECK proper tire inflation and condition of gear.
- 3. Inboard Fuel Tank Sump and External Sump Quick-Drain Valves -- DRAIN (using fuel sampler) to check for water, sediment, and proper fuel before each flight and after each refueling. If water is observed, take further samples until clear. Take repeated samples from all fuel drain points until all contamination has been removed.
- 3 ) LEFT WING Leading Edge

### A WARNING

It is essential in cold weather to remove even small accumulations of frost, ice, or snow from the wing and control surfaces. Also, make sure the control surfaces contain no internal accumulations of ice or debris. Prior to any flight in icing conditions, check that pitot/static source and stall warning heaters are warm to touch after turning pitot/static and stall heat switches on for 30 seconds, then off. Make sure the pitot covers are removed.

- Wing Strut Deice Boots (if installed) -- CHECK for tears, abrasion and cleanliness.
- 2. Wing Tie-Down -- DISCONNECT.
- Wing Deice Boots (if installed) -- CHECK for tears, abrasion and cleanliness.
- Stall Warning Vane -- CHECK freedom of movement, audible warning and warmth. (For aircraft equipped with a stall warning ground disconnect switch, check audible warning with elevator control off forward stop).
- Pitot/Static Tube -- CHECK security, openings for stoppage and warmth.
- 6. Landing and Taxi Lights -- CHECK condition and cleanliness.
- 7. Fuel Quantity -- Visually check for desired level.
- 8. Fuel Filler Cap -- SECURE.

#### CESSNA MODEL 208 (675 SHP)

- 9. Outboard Fuel Tank Sump Quick-Drain Valve (if installed and airplane parked with one wing low on a sloping ramp) --DRAIN (using fuel sampler) to check for water, sediment and proper fuel before each flight and after each refueling. If water is observed, take further samples until clear. Take repeated samples from all fuel drain points until all contamination has been removed.
- 10. Navigation and Strobe Lights -- CHECK for condition and cleanliness.

### 4) LEFT WING Trailing Edge

- Fuel Tank Vent -- CHECK for obstructions.
- 2. Aileron and Servo Tab -- CHECK condition and security.
- Static Wicks -- CHECK condition.
- Spoiler -- CHECK condition and security.
- 5. Flap -- CHECK condition and security.

#### 5) EMPENNAGE

### A WARNING

It is essential in cold weather to remove even small accumulations of frost, ice, or snow from the tail and control surfaces. Exercise caution to avoid distorting vortex generators on the horizontal stabilizer while delcing. Also, make sure the control surfaces contain no internal accumulations of ice or debris.

- 1. Baggage -- CHECK SECURE through cargo door.
- Cargo Door -- CLOSED and LATCHED.
- 3. Tail Tie-Down -- DISCONNECT.
- Deice Boots (if installed) -- CHECK for tears, abrasion and cleanliness.
- 5. Rudder Gust Lock (if installed) -- DISENGAGE.
- Control Surfaces and Elevator Trim Tabs -- CHECK condition, security, freedom of movement and tab position.
- 7. Static Wicks -- CHECK condition.
- 8. Passenger Entry Door (if installed) -- CLOSED and LATCHED.

### SECTION 4 NORMAL PROCEDURES



- Flap -- CHECK condition and security.
- Spoiler -- CHECK condition and security.
- 3. Alleron and Trim Tab -- CHECK condition and security.
- Static Wicks -- CHECK condition.
- Fuel Tank Vent -- CHECK for obstructions.

### 7) RIGHT WING Leading Edge

### A WARNING

It is essential in cold weather to remove even small accumulations of frost, ice, or snow from the wing and control surfaces. Also, make sure the control surfaces contain no internal accumulations of ice or debris.

- Navigation and Strobe Lights -- CHECK condition and cleanliness.
  - 2. Fuel Quantity -- VISUALLY CHECK for desired level.
  - 3. Fuel Filler Cap -- SECURE.
  - 4. Outboard Fuel Tank Sump Quick-Drain Valve (if installed and airplane parked with one wing low on a sloping ramp) --DRAIN (using fuel sampler) to check for water, sediment and proper fuel before each flight and after each refueling. If water is observed, take further samples until clear. Take repeated samples from all fuel drain points until all contamination has been removed.
  - Pitot/Static Tube -- CHECK security, openings for stoppage and warmth.
  - Landing and Taxi Lights -- CHECK condition and cleanliness.
  - Wing Deice Boots (if installed) -- CHECK for tears, abrasion and cleanliness.
  - 8. Radome (if installed) -- CHECK condition and security.
  - 9. Wing Tie-Down -- DISCONNECT.
- 10. Wing Strut Deice Boots (if installed) -- CHECK for tears, abrasion, and cleanliness.

#### CESSNA MODEL 208 (675 SHP)

- 11. Inboard Fuel Tank Sump and External Sump Quick-Drain Valves -- DRAIN (using fuel sampler) to check for water, sediment, and proper fuel before each flight and after each refueling. If water is observed, take further samples until clear. Take repeated samples from all fuel drain points until all contamination has been removed.
- Main Landing Gear -- CHECK proper tire inflation and condition of gear.

8) NOSE

### WARNING

It is essential in cold weather to remove even small accumulations of frost, ice, or snow from the propeller blades and spinner, and the air inlets (starter/generator, oll cooler and engine inlets).

- 1. Exhaust Cover (if installed) -- REMOVE.
- Cowling -- OPEN right side of upper cowling for access and CHECK condition and security.
- 3. Engine (right side) -- CHECK for general condition, security, fuel and oil leakage and damage to any components.

### WARNING

# Avoid touching the output connectors or coupling nuts or ignition excitor with bare hands.

- Battery -- CHECK condition and security, and power cables secure.
- Exhaust System -- CHECK condition, security, cracks, distortion and damage.
- 6. Cowling -- CLOSE and LATCH right side.
- Air Inlet Covers -- REMOVE.
- Air Inlets -- CHECK starter/generator blast tube opening and oil cooler inlet (right) and engine induction air inlet (left) for condition, restrictions, and debris.
- 9. Propeller Anchor -- REMOVE.

#### SECTION 4 NORMAL PROCEDURES

- Propeller -- CHECK blades for nicks, gouges, looseness of material, erosion, cracks and debonds. Also, inspect blades for lightning strike (darkened area near tips), Anti-ice boots for security, and evidence of grease and oil leaks.
- 11. Propeller Spinner -- CHECK condition and security.
- Nose Wheel Strut and Tire -- CHECK for condition, red overtravel indicator block and cable intact (not fallen into view), and proper inflation of tire.
- Cowling -- OPEN left side of upper cowling for access and CHECK condition and security.
- Engine (left side) -- CHECK for general condition, security, fuel and oil leakage and damage to any components.
- Inertial Separator Bypass Outlet -- CHECK CLOSED and duct free of debris.
- Oll Dipstick/Filler Cap -- CHECK oil level, then check dipstick/filler cap SECURE. Fill to within 1 1/2 quarts of MAX HOT or MAX COLD (as appropriate) on dipstick. Markings indicate U.S. quarts low if oil is hot.

### WARNING

Ensure oil dipstick cap is securely latched down. Operating the engine with less than the recommended oil level and with the dipstick cap unlatched will result in excessive oil loss and eventual engine stoppage.

- Fuel Filter -- CHECK FUEL FILTER BYPASS FLAG for proper location (flush).
- 18. Brake Fluid Reservoir -- CHECK LEVEL.
- 19. Cowling -- CLOSE and LATCH left side.
- 20. Fuel Filter Quick-Drain Valve -- DRAIN (using fuel sampler) to check for water, sediment, and proper fuel before each flight and after each refueling. If water is observed, take further samples until clear. Take repeated samples from all fuel drain points until all contamination has been removed.
- 21. Fuel Drain Can -- DRAIN until empty.
- 22. Fuel Pump Drain Reservoir (if installed) -- DRAIN until empty.

### BEFORE STARTING ENGINE

- Preflight Inspection and Weight and Balance Check COMPLETE.
- All Key Locking Cabin Doors -- UNLOCKED (except cargo configured aircraft. Cargo door may be locked if no passengers occupy cargo section of aircraft).
- 3. Passenger Briefing -- COMPLETE.
- 4. Cabin Doors -- LATCHED (check aft doors).
- Left Crew Door Lock Override Knob and Right Crew Door Inside Lock -- UNLOCKED.
- Parking Brake -- SET (pull control out and depress brake pedals).
- 7. Control Lock -- REMOVE.
- Seats, Seat Belts, Shoulder Harnesses -- ADJUST and SECURE (crew seat lock indicator pin(s) extended).

### WARNING

Failure to properly utilize seat belts and shoulder harnesses could result in serious or fatal injury in the event of an accident.

- 9. Switches -- OFF.
- 10. Ignition Switch -- NORM.
- 11. Čircuit Breakers -- CHECK IN.
- 12. Fuel Tank Selectors -- LEFT ON, RIGHT ON.
- 13. Radar (if installed) -- OFF.
- 14. Air Conditioner (if installed) -- OFF.
- 15. Bleed Air Heat Switch -- OFF.

### A CAUTION

#### Leaving the bleed air heat switch ON may result in a hot start or abnormal acceleration to idle.

- 16. Cabin Heat Mixing Air Control -- FLT-PUSH.
- 17. Emergency Power Lever -- NORMAL.
- 18. Power Lever -- IDLE.
- 19. Propeller Control Lever -- MAX (full forward).
- 20. Fuel Condition Lever -- CUTOFF.
- 21. Rudder Lock (if installed) -- TURN and PUSH to unlock.
- 22. Fuel Shutoff -- ON (push in).

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### SECTION 4 NORMAL PROCEDURES

- 23. Battery Switch -- ON.
- 24. Wing Flaps -- UP.
- No Smoking/Seat Belt Sign Switches (if installed) -- ON as required/desired.
- 26. Fire Detector Test Switch -- PRESS-TO-TEST.
- Annunciator Panel Lamp Test Switch -- PRESS-TO-TEST (all annunciator lamps illuminate and both Fuel Selectors Off Warning Horns are activated).
- 28. Annunciator Panel Day/Night Switch -- SET.

### STARTING ENGINE (Battery Start)

- 1. Battery Switch -- ON.
- 2. Volt/Ammeter -- CHECK (24 volts minimum).
- Emergency Power Lever -- NORMAL (full aft) position (check EMERGENCY POWER LEVER annunciator OFF).

### A CAUTION

Ensure that the emergency power lever is in the NORMAL (full aft) position or an overtemperature condition will result during engine start.

- 4. Propeller Area -- CLEAR.
- 5. Fuel Boost Switch -- ON and OBSERVE.
  - a. AUX FUEL PUMP ON Annunciator -- ON.
  - b. FUEL PRESS LOW Annunciator -- OFF.
  - c. No fuel flow,
- Starter Switch -- START and OBSERVE.
  - a. IGNITION ON Annunciator -- CHECK ON.
  - b. Engine Oil Pressure -- CHECK for indication.
  - c. Na -- STABLE (12% minimum).
- 7. Fuel Condition Lever -- LOW IDLE and OBSERVE.
  - a. Fuel Flow -- CHECK for 80 to 110 pph.
  - b. ITT -- MONITOR (1090°C maximum, limited to 2 seconds).

### A CAUTION

If ITT climbs rapidly towards 1090°C, be prepared to return the fuel condition lever to CUTOFF.

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### A CAUTION

Under hot OAT and/or high ground elevation conditions, idle ITT may exceed maximum idle ITT limitation of 685°C. Increase Ng and/or reduce accessory load to maintain ITT within limits.

c. N<sub>g</sub> -- 52% MINIMUM.

- Starter Switch -- OFF (check STARTER ENERGIZED annunciator OFF).
- 9. Engine Instruments -- CHECK.
- Generator -- CHECK GENERATOR OFF annunciator OFF and battery charging.
- 11. Fuel Boost Switch -- NORM (check AUX FUEL PUMP ON annunciator OFF).
- 12. Avionics No. 1 and No. 2 Power Switches -- ON.
- Navigation Lights and Flashing Beacon (if installed) -- ON as required.
- 14. Suction Gauge -- CHECK.
- Cabin Heating, Ventilating and Defrosting Controls -- AS DESIRED.
- 16. Radios -- AS REQUIRED.

#### STARTING ENGINE (Auxiliary Power Start)

(24-28 Volt, Minimum 800 Amp and Maximum 1700 Amp Capacity)

- 1. Battery Switch -- ON.
- 2. External Power Switch -- OFF.
- 3. Volt/Ammeter -- CHECK (20 volts minimum).
- 4. Battery Switch -- OFF.
- 5. Auxiliary Power Unit -- ENGAGE; then ON.
- 6. External Power Switch -- BUS.
- Volt/Ammeter -- CHECK 24 -28.5 Volts.
- 8. Battery Switch -- ON.
- 9. External Power Switch -- STARTER.
- Emergency Power Lever -- NORMAL (check EMERGENCY POWER LEVER annunciator OFF).

### A CAUTION

Ensure that the emergency power lever is in the NORMAL position or an overtemperature condition will result during engine start.

### SECTION 4 NORMAL PROCEDURES

- 11. Propeller -- CLEAR.
- 12. Fuel Boost Switch -- ON and OBSERVE.
  - a. AUX FUEL PUMP ON Annunciator -- ON.
    - b. FUEL PRESS LOW Annunciator -- OFF.
    - c. No fuel flow.

### A CAUTION

If the auxiliary power unit drops off the line, initiate engine shutdown.

- 13. Starter Switch -- START and OBSERVE.
  - a. IGNITION ON Annunciator -- CHECK ON.
  - b. Engine Oil Pressure -- CHECK for indication.
  - c. N<sub>a</sub> -- STABLE (12% minimum).
- Fuel Condition Lever -- LOW IDLE and OBSERVE.
  - a. Fuel Flow -- CHECK for 80 to 110 pph.
  - b. ITT -- MONITOR (1090°C maximum, limited to 2 seconds).

### A CAUTION

- If ITT climbs rapidly towards 1090°C, be prepared to return the fuel condition lever to CUTOFF.
- Under hot OAT and/or high ground elevation conditions, idle ITT may exceed maximum idle ITT limitation of 685°C. Increase Ng and/or reduce accessory load to maintain ITT within limits.

c. N<sub>a</sub> -- 52% MINIMUM.

- 15. Starter Switch -- OFF (check STARTER ENERGIZED annunciator OFF).
- 16. Engine Instruments -- CHECK.
- 17. External Power Switch -- OFF.
- 18. Auxiliary Power Unit -- OFF, then DISENGAGE.
- Generator -- CHECK GENERATOR OFF annunciator OFF and battery charging.
- Fuel Boost Switch -- NORM (check AUX FUEL PUMP ON annunciator OFF).
- 21. Avionics No. 1 and No. 2 Power Switches -- ON.
- Navigation Lights and Flashing Beacon (if installed) -- ON as required.

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- 23. Suction Gauge -- CHECK.
- 24. Cabin Heating, Ventilating and Defrosting Controls -- AS DESIRED.
- 25. Radios -- AS REQUIRED.

### TAXIING

1. Brakes -- CHECK.

### NOTE

For improved brake life, propeller BETA range may be used during taxi with minimum blade erosion up to the point where  $N_g$  increases (against beta range spring).

2. Flight Instruments -- CHECK.

### **BEFORE TAKEOFF**

- 1. Parking Brake -- SET.
- 2. Seats, Seat Belts, Shoulder Harnesses -- CHECK SECURE.

### A WARNING

Failure to properly utilize seat belts and shoulder harnesses could result in serious or fatal injury in the event of an accident.

- Flight Controls -- FREE and CORRECT.
- Flight Instruments -- CHECK and SET.
- 5. Fuel Boost Switch -- RECHECK NORM.
- 6. Fuel Tank Selectors -- RECHECK BOTH ON.
- 7. Fuel Quantity -- RECHECK.
- Fuel Shutoff -- RECHECK FULLY ON.
- Elevator, Aileron, and Rudder Trim Controls -- SET for takeoff.
- 10. Power Lever -- 400 FT-LBS.
  - a. Suction Gauge -- CHECK.
  - b. Volt/Ammeter -- CHECK and return selector to BATT position.
  - c. Inertial Separator -- CHECK. Turn control counterclockwise, pull to BYPASS position and check torque drop; move control back to NORMAL position and check that original torque is regained.
  - Engine Instruments -- CHECK (See Section 2, Limitations for minimum oil temperature required for flight).

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### MODEL 208 (675 SHP)

### SECTION 4 NORMAL PROCEDURES

- Overspeed Governor -- CHECK (stabilized at 1750 ±60 RPM) (See Systems Checks).
- 12. Power Lever -- IDLE.
- 13. Quadrant Friction Lock -- ADJUST.
- 14. Standby Power (if installed) -- CHECK (See Systems Checks).
- Autopilot (if installed) -- PREFLIGHT TEST (See Systems Checks).
- Known lcing System (if installed) -- PREFLIGHT COMPLETE (See Systems Checks) prior to any flight in icing conditions.
- Pitot/Static Heat -- ON when OAT is below 4°C (40°F).
- Ice Protection -- AS REQUIRED.
- 19. Avionics and Radar (if installed) -- CHECK and SET.
- 20. GPS/NAV Switch -- SET.
- 21. Strobe Lights -- AS REQUIRED.
- Annunciators -- EXTINGUISHED or considered.
- 23. Wing Flaps -- SET for takeoff (10° normal, 20° short field).
- 24. Cabin Heat Mixing Air Control -- FLT-PUSH.
- 25. Window -- CLOSE.
- 26. Brakes -- RELEASE.
- 27. Fuel Condition Lever -- HIGH IDLE.
- Standby Power Switch (if installed) -- ON (Standby Power INOP Annunciator -- OFF).

### WARNING

When ground icing conditions are present, a pre-takeoff contamination check should be conducted by the pilot in command within 5 minutes of takeoff, preferably just prior to taxiing onto the active runway. Critical areas of the airplane - such as empennage, wings, windshield, control surfaces and engine inlets - should be checked to ensure they are free of ice, slush and snow; and that the delce or Anti-ice fluid is still protecting the airplane.

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### CESSNA MODEL 208 (675 SHP)

### TAKEOFF

### NORMAL TAKEOFF

- 1. Wing Flaps -- 0° to 20° (10° recommended).
- Power -- SET FOR TAKEOFF (observe Takeoff ITT and Ng limits). Refer to Section 5 for takeoff power.
- 3. Annunciators -- CHECK.
- 4. Rotate -- 70-75 KIAS.
- 5. Climb Speed -- 85-95 KIAS.
- 6. Wing Flaps -- RETRACT after reaching 90 KIAS.

#### SHORT FIELD TAKEOFF

- Wing Flaps -- 20°.
- 2. Brakes -- APPLY.
- Power -- SET FOR TAKEOFF (observe Takeoff ITT and Ng limits). Refer to Section 5 for takeoff power.
- 4. Annunciators -- CHECK.
- 5. Brakes -- RELEASE.
- 6. Rotate -- 70 KIAS.
- Climb Speed -- 82 KIAS until all obstacles are cleared. Refer to Section 5 for speeds at reduced weights.
- 8. Wing Flaps -- RETRACT after reaching 90 KIAS.

### TYPE II OR TYPE IV Anti-ice FLUID TAKEOFF

- 1. Wing Flaps -- 0°.
- Power -- SET FOR TAKEOFF (observe Takeoff ITT and Ng limits) Refer to Section 5 for takeoff limits.
- Annunciators -- CHECK.
- 4. Rotate -- 89 KIAS.
- 5. Climb Speed -- 104 KIAS.

SECTION 4 NORMAL PROCEDURES

### ENROUTE CLIMB

#### CRUISE CLIMB

- Ice Protection -- AS REQUIRED.
- Pitot/Static Heat -- ON when OAT is below 4°C (40°F).
- 3. Airspeed -- 115-125 KIAS.
- Propeller -- 1600-1900 RPM.

#### NOTE

To achieve maximum flat rated horsepower, use a minimum of 1800 RPM.

 Torque -- SET (refer to RPM/MAX TORQUE placard for corresponding RPM; observe Maximum Climb ITT and Ng limits).

#### NOTE

Engine operations which exceed 740°C ITT may reduce engine life.

### A CAUTION

For every 10° below -30°C ambient temperature, reduce maximum allowable N<sub>g</sub> by 2.2%.

#### MAXIMUM PERFORMANCE CLIMB

- 1. Ice Protection -- AS REQUIRED.
- 2. Pitot/Static Heat -- ON when OAT is below 4°C (40°F).
- Airspeed -- 107 KIAS at sea level to 101 KIAS at 10,000 feet to 91 KIAS at 20,000 feet.
- 4. Propeller -- 1900 RPM.

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5. Torque -- 1865 FT-LBS MAXIMUM (observe Maximum Climb ITT and Ng limits).

#### NOTE

Engine operations which exceed 740°C ITT may reduce engine life.

### A CAUTION

For every 10° below -30°C ambient temperature, reduce maximum allowable Ng by 2.2%.

### CRUISE

- Ice Protection -- AS REQUIRED.
- 2. Pitot/Static Heat -- ON when OAT is below 4°C (40°F).
- 3. Propeller -- 1600 to 1900 RPM.
- Power -- SET per Cruise Power Tables (observe Maximum Cruise ITT and N<sub>o</sub> limits).

#### NOTE

Engine operations which exceed 740°C ITT may reduce engine life.

### A CAUTION

For every 10° below -30°C ambient temperature, reduce maximum allowable N<sub>g</sub> by 2.2%.

### DESCENT

- Ice Protection -- AS REQUIRED.
- Pitot/Static Heat -- ON when OAT is below 4°C (40°F).
- No Smoking/Seat Belt Sign Switches (if installed) -- AS REQUIRED.
- Altimeter -- SET.
- 5. GPS/NAV Switch -- SET.
- 6. Power -- AS REQUIRED to give desired rate of descent.

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SECTION 4 NORMAL PROCEDURES

### **BEFORE LANDING**

#### NOTE

Refer to Landing Distance table in Section 5 for anticipated ground roll and total distance requirements.

Seats, Seat Belts, Shoulder Harnesses -- SECURE.

### WARNING

Failure to properly utilize seat belts and shoulder harnesses could result in serious or fatal injury in the event of an accident.

- Fuel Tank Selectors -- LEFT ON, RIGHT ON.
- Fuel Condition Lever -- HIGH IDLE.
- Propeller Control Lever -- MAX (full forward).
- Radar (if installed) -- STANDBY or OFF.
- 6. Autopilot (if installed) -- OFF.
- Wing Flaps -- AS DESIRED (0° to 10° below 175 KIAS, 10° to 20° below 150 KIAS, 20° to 30° below 125 KIAS).

### LANDING

#### NORMAL LANDING

- 1. Airspeed -- 95-110 KIAS (flaps UP).
- 2. Wing Flaps -- AS DESIRED (flaps down preferred).
- Airspeed -- 75-85 KIAS (flaps FULL DOWN).
- 4. Touchdown -- MAIN WHEELS FIRST.
- 5. Power Lever -- BETA range after TOUCHDOWN.
- Brakes -- AS REQUIRED.

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### SHORT FIELD LANDING

- Wing Flaps -- FULL DOWN.
- Airspeed -- 78 KIAS (Refer to Section 5 for speeds at reduced weights).
- Power Lever -- REDUCE to IDLE after clearing obstacles.
- 4. Touchdown -- MAIN WHEELS FIRST.
- Power Lever -- BETA range (lever against spring) after TOUCHDOWN.

### NOTE

Further reduction of landing roll will result from use of reverse thrust (see Section 5).

- Brakes -- APPLY HEAVILY while holding elevator control full aft.
  - 7. Wing Flaps -- RETRACT for maximum brake effectiveness

### BALKED LANDING

- 1. Power Lever -- ADVANCE for takeoff power.
- 2. Wing Flaps -- RETRACT to 20°.
- 3. Climb Speed -- 77 KIAS until obstacles are cleared.
- Wing Flaps -- RETRACT after reaching safe altitude and 90 KIAS.

### AFTER LANDING

- 1. Wing Flaps -- UP.
- Ice Protection Equipment -- OFF.
- 3. Standby Power Switch (if installed) -- OFF.
- Strobe Lights -- OFF.
- Landing and Taxi Lights -- AS REQUIRED.
- Fuel Condition Lever -- LOW IDLE when clear of the runway.

### A CAUTION

It the fuel condition lever is moved past the LOW IDLE position and the engine  $N_g$  falls below 53%, moving the lever back to the LOW IDLE position can cause an ITT over-temperature condition. If the engine has started to shutdown in this situation, allow the engine to complete its shutdown sequence, and proceed to do a normal engine start using the "Starting Engine" checklist.

### SHUTDOWN AND SECURING AIRPLANE

- 1. Parking Brake -- SET.
- 2. Avionics Switches -- OFF.
- Standby Power Switch (if installed) -- OFF.
- 4. Fuel Boost Switch -- OFF.
- Bleed Air Heat, Ventilation Fans and Air Conditioner -- OFF.
- 6. Power Lever -- IDLE.
- 7. ITT -- STABILIZED at minimum temperature for one minute.
- Propeller Control Lever -- FEATHER.
- 9. Fuel Condition Lever -- CUTOFF.
- 10. Oxygen Supply Control Lever (if installed) -- OFF.
- Lighting Switches -- OFF.

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- 12. Battery Switch -- OFF.
- 13. Controls -- LOCK.
- Fuel Tank Selectors -- LEFT OFF or RIGHT OFF (turn high wing tank off if parked on a sloping surface to prevent cross feeding).
- 15. Tie-Downs and Chocks -- AS REQUIRED.
- External Covers -- INSTALL.
- Fuel Filter -- CHECK FUEL FILTER BYPASS FLAG for proper location (flush).
- 18. Oil Breather Drain Can -- DRAIN until empty.

#### NOTE

Possible delays of subsequent flights, or even missed flights, are often eliminated by routinely conducting a brief postflight inspection. Usually, a visual check of the airplane for condition, security, leakage, and tire inflation will alert the operator to potential problems, and is therefore recommended.

# SYSTEMS CHECKS

### OVERSPEED GOVERNOR CHECK

- Overspeed Governor -- CHECK (first flight of the day and after maintenance).
  - a. Propeller Control Lever -- MAX (full forward).
  - Overspeed Governor Test Switch -- PRESS and HOLD.
  - Power Lever -- ADVANCE (propeller should stabilize at 1750 ±60 RPM).
  - d. Power Lever -- IDLE.
  - e. Overspeed Governor Test Switch -- RELEASE.

SECTION 4 NORMAL PROCEDURES

### AUTOPILOT CHECK KING KFC-150 (If Installed)

Refer to Section 9, Supplements, for complete information on the KFC-150 check procedures.

#### NOTE

When autopilot is turned on while airplane is on the ground, the control wheel should be held to prevent ailerons from banging stops.

#### **BEFORE TAKEOFF RELIABILITY TESTS**

#### NOTE

Steps 1 thru 10 are to be performed prior to each flight.

- Gyros -- Allow 3-4 minutes for gyros to come up to speed.
- 2. AVIONICS POWER 1 Switch -- ON.
- PREFLIGHT TEST Button -- PRESS momentarily and NOTE:
  - All annunciator lights on (TRIM annunciator flashing).
  - All legends and digits are displayed on the KAS-297B Vertical Speed and Altitude Selector (Optional).
  - c. After approximately 5 seconds, all annunciator lights off except AP, which will flash approximately 12 times and then remain off.

### NOTE

If trim warning light stays on, the autotrim did not pass the preflight test. The autopilot circuit breaker should be pulled (the autopilot and manual electric trim will be inoperative).

- Manual Electric Trim -- TEST as follows:
  - a. Actuate left side of split switch unit to the fore and aft positions. The trim wheel should not move on its own. Rotate the trim wheel manually against the engaged clutch to check the pilot's trim overpower capability.
  - Actuate right side of split switch unit to the fore and aft positions. The trim wheel should not move on its own and normal trim wheel force is required to move it manually.
  - c. Press the A/P DISC/TRIM INTER switch down and hold. Manual electric trim should not operate either nose up or nose down.

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- 5. Flight Director -- ENGAGE by pressing FD or CWS button.
- 6. Autopilot -- ENGAGE by pressing AP ENG button.
- Yaw Damper (Optional) -- ENGAGE by pressing YAW DAMP switch button.
- Flight Controls -- MOVE fore, aft, left, and right to verify that the autopilot/yaw damper can be overpowered.
- A/P DISC/TRIM INTER Switch -- PRESS. Verify that the autopilot and yaw damper (optional) disconnects and all flight director modes are canceled.
- 10. TRIM -- SET to takeoff position.

### AUTOPILOT CHECK BENDIX/KING KFC-225 (If Installed)

Refer to Supplement S48 of Pilot's Operating Handbook for complete information.

### NOTE

When autopilot is turned on while airplane is on the ground, the control wheel should be held to prevent ailerons from banging stops.

### BEFORE TAKEOFF RELIABILITY TESTS

### NOTE

Steps 1 thru 8 are to be performed prior to each flight.

- 1. Gyros -- Allow 3-4 minutes for gyros to come up to speed.
- 2. AVIONICS POWER 1 Switch -- ON.
- 3. PREFLIGHT TEST -- Performed automatically on power up.

#### NOTE

If TRIM warning light stays on, the autotrim did not pass the preflight test. The autopilot circuit breaker should be pulled (the autopilot and manual electric trim will be inoperative).

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#### SECTION 4 NORMAL PROCEDURES

- 4. Manual Electric Trim -- TEST as follows:
  - a. Actuate left side of split switch unit to the fore and aft positions. The trim wheel should not move on its own. Rotate the trim wheel manually against the engaged clutch to check the pilot's trim overpower capability.
  - b. Actuate right side of split switch unit to the fore and aft positions. The trim wheel should not move on its own and normal trim wheel force is required to move it manually.
  - c. Press the A/P DISC/TRIM INTER switch down and hold. Manual electric trim should not operate either nose up or nose down.
- Autopilot -- ENGAGE by pressing AP button. The optional yaw damper will also engage.
- Flight Controls -- MOVE fore, aft, left, and right to verify that the autopilot/yaw damper can be overpowered.
- A/P DISC/TRIM INTER Switch -- PRESS. Verify that the autopilot and yaw damper (optional) disconnects and all flight director modes are canceled.
- 8. TRIM -- SET to takeoff position.

### STANDBY POWER CHECK (If Standby Electrical System is Installed)

- Standby Power -- CHECK (first flight of the day and before all flights into known icing conditions).
  - a. Standby Power Switch -- ON.
  - Generator -- LOAD to approximately 30 amps (use taxi lights if required), but not more than 60 amps.
  - c. Volt/Ammeter -- SELECT ALT position and verify alternator output near zero.
  - d. Generator Switch -- TRIP.
  - e. Volt/Ammeter -- CHECK for alternator output and voltage approximately one volt less than with generator ON.

#### NOTE

A fully charged battery will carry part of the electrical load when initially switching from generator to standby alternator power because of the generator's higher voltage regulation.

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- f. STBY ELECT PWR ON Annunciator -- CHECK ON.
- g. Generator Switch -- RESET.
- h. STBY ELECT PWR ON Annunciator -- CHECK OFF.
- Volt/Ammeter Selector Switch -- RETURN to BATT position.
- j. Standby Power Switch -- OFF (STBY ELECT PWR INOP Annunciator -- ON).

### KNOWN ICING CHECK (If Flight Into Known Icing Equipment Package is Installed)

### PREFLIGHT INSPECTION

- 1. Windshield Anti-ice Panel -- INSTALL. Check security and electrical connection.
- 2. Battery Switch -- ON.
- Wing Ice Detector Light Switch -- ON and CHECK for illumination.
- DAY/NIGHT Switch to NIGHT -- Windshield Ice Detector Light (if installed) CHECK for illumination.
- PITOT/STATIC and Stall Heat Switches -- ON (for 30 seconds maximum, ensure pitot covers are removed).
- LOW AIRSPEED ADVISORY SYSTEM (if installed) --CHECK for illumination when pitot heat is ON.
- 7. PITOT/STATIC and Stall Heat Switches -- OFF.
- 8. Battery Switch -- OFF.
- 9. Stall Warning Transducer -- PERCEPTIBLY WARM.
- 10. Pitot/Static Tube(s) -- CLEAR and VERY WARM.
- 11. Wing, Wing Strut, Main Landing Gear Leg, Cargo Pod Nose cap and Stabilizer Deice Boots -- CHECK for tears, abrasions and cleanliness.
- Propeller Anti-ice Boots -- CHECK condition of boots and heating elements.
- 13. Control Surface Static Dischargers -- CHECK condition.

### BEFORE TAKEOFF

### A CAUTION

To prevent blistering the cargo pod deice boot (if installed), ground operation in a right hand crosswind or operating the propeller in beta or feather should be kept to a minimum.

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### SECTION 4 NORMAL PROCEDURES

1. (Small Windshield Anti-ice Panel):

Windshield Anti-ice Switch -- AUTO and MANUAL. Observe increase in generator output and illumination of WINDSHIELD ANTI-ICE annunciator in both switch positions.

(Large Windshield Anti-ice Panel):

PRIMARY Windshield Anti-ice Switch -- AUTO. SECONDARY Windshield Anti-ice Switch -- AUTO and MANUAL. PRIMARY Windshield Anti-ice Switch -- MANUAL.

For each switch movement, observe change in generator output and illumination of WINDSHIELD ANTI-ICE annunciator.

- Prop Anti-ice Switch -- AUTO.
- Prop Anti-ice Ammeter -- CHECK in green arc range and for periodic cycling. The ammeter should indicate 20 to 24 amps for 90 seconds, and 0 amps for 90 seconds.
- 4. Prop Anti-ice Switch -- MANUAL.
- 5. Prop Anti-ice Ammeter -- CHECK in green arc range.
- Power Lever -- ADJUST for 400 FT-LBS TORQUE.
- Boot Press Switch -- AUTO and release. Visually check inflation and deflation cycle of stabilizer, wing inboard, main landing gear leg, wing outboard and wing strut deicing boots.
- DEICE PRESSURE Annunciator -- CHECK ON within three seconds and OFF after 18 seconds with approximate twosecond OFF periods after 6 and 12 seconds.
- Boots -- CHÉCK VISUALLY FOR COMPLETE DEFLATION to the vacuum hold-down condition.
- Boot Press Switch -- MANUAL and hold. Visually check inflation of all visible boots and illumination of DEICE PRESSURE annunciator within 6 seconds.
- Inertial Separator -- CHECK for torque drop between NORMAL and BYPASS modes. Return control to BYPASS if moisture is present below approximately 4°C (40°F).
- 12. Power Lever -- IDLE.

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- 13. Standby Power -- CHECK.
- 14. Pitot/Static Heat -- ON when OAT is below 4°C (40°F).
- Stall Heat, Windshield Anti-ice and Propeller Anti-ice Switches, and Inertial Separator Control -- AS REQUIRED for takeoff and climb out conditions.

### A CAUTION

Do not operate pitot/static, stall warning, and propeller Anti-ice heaters for prolonged periods on ground.

## AMPLIFIED PROCEDURES

### PREFLIGHT INSPECTION

The Preflight Inspection, described in Figure 4-1 and adjacent checklist, is recommended. If the airplane has been in extended storage, has had recent major maintenance, or has been operated from rough or unprepared surfaces, an extensive exterior inspection is recommended.

### WARNING

# Flights at night and in cold weather involve a careful check of other specific areas discussed in this section.

After major maintenance has been performed, the flight and trim tab controls should be double-checked for free and correct movement and security. The security of all inspection plates on the airplane should be checked following periodic inspections. If the airplane has been exposed to much ground handling in a crowded hangar, it should be checked for dents and scratches on wings, fuselage, and tail surfaces, as well as damage to navigation and anti-collision lights, and avionics antennas. Outside storage in windy or gusty areas, or tie-down adjacent to taxiing airplanes, calls for special attention to control surface stops, hinges, and brackets to detect the presence of wind damage.

If the airplane has been operated from an unimproved runway, check the propeller tips for stone damage and the leading edges of the horizontal tail for abrasion. Airplanes that are operated from rough fields, especially at high altitude, are subjected to abnormal landing gear abuse. Frequently check all components of the landing gear, tires, and brakes.

Outside storage may result in water and obstructions in airspeed system lines, condensation in fuel tanks, and dust and dirt in the engine air inlet and exhaust areas. If any water is suspected in the static source system, open both static source drain valves and thoroughly drain all water from the system.

### WARNING

### If the static source drain valves are opened, assure both valves are completely closed before flight.

If any water is detected in the fuel system, the inboard fuel tank sump and external sump quick-drain valves, fuel reservoir quickdrain valve, and fuel filter quick-drain valve should all be thoroughly drained until there is no evidence of water or sediment contamination. If the airplane is parked with one wing low on a sloping ramp (as evidenced by the ball of the turn and bank indicator displaced from center), draining of the outboard fuel tank sump quick-drain valves (if installed) is also recommended.

Prolonged storage of the airplane will result in a water buildup in the fuel which "leaches out" the fuel additive. An indication of this is when an excessive amount of water accumulates in the fuel tank sumps. Refer to Section 8 for fuel additive servicing.

To prevent loss of fuel in flight, make sure the fuel tank filler caps are tightly sealed after any fuel system check or servicing. Fuel system vents should also be inspected for obstructions, ice or water, especially after exposure to cold, wet weather.

The interior inspection will vary according to the planned flight and the optional equipment installed. Prior to high-altitude flights, it is important to check the condition and quantity of oxygen face masks and hose assemblies. The oxygen supply system should be functionally checked to ensure that it is in working order and that an adequate supply of oxygen is available.

### BEFORE STARTING ENGINE

### WARNING

- It is the responsibility of the pilot in command to ensure that the airplane is properly loaded within the weight and center of gravity limits prior to takeoff.
- Failure to properly utilize seat belts and shoulder harnesses could result in serious or fatal injury in the event of an accident.

The Before Starting Engine checklist procedures should be followed closely to assure a satisfactory engine start. Most of the checklist items are self-explanatory. Those items that may require further explanation are noted in the following discussion.

When setting electrical switches prior to engine start, only those lighting switches that are necessary for a nighttime engine start should be turned on. All other switches, including exterior lights, Anti-ice, deice, ventilation blower and air conditioning switches, should be turned off. The bleed air heat switch should be off to prevent excessive compressor bleed during the engine start. Also, the standby power switch and avionics 1 and 2 switches should be off during engine starts.



Leaving the bleed air heat switch ON may result in a hot start or abnormal acceleration to idle.

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The generator switch is spring-loaded to the ON position. When the starter switch is placed in the START or MOTOR position, the generator control unit (GCU) opens the generator contactor. When the starter switch is returned to the OFF position after an engine start, the GCU closes the generator contactor, thereby placing the generator on the line.

The ignition switch is left in the NORM position for engine starting with the starter motor (non-windmilling start). In this position, the igniters are energized when the starter switch is placed in the START position. Ignition is automatically terminated when the starter switch is turned OFF.

### A CAUTION

It is especially important to verify that the emergency power lever is in the NORMAL position (aft of the IDLE gate) during engine starts. With the lever forward of this gate, excessive quantities of fuel will be discharged through the fuel nozzles when the fuel condition lever is moved to the LOW IDLE position and a hot start will result.

Before starting the engine, the power lever is placed at the IDLE position (against the BETA gate), the propeller control lever is moved to the MAX RPM position (full forward), and the fuel condition lever is stowed in the CUTOFF position.

### A CAUTION

The propeller reversing linkage can be damaged if the power lever is moved aft of the IDLE position when the engine is not running and the propeller is feathered.

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#### SECTION 4 NORMAL PROCEDURES

### STARTING ENGINE

The Starting Engine checklist procedures should be followed closely to assure a satisfactory engine start. With the fuel condition lever in the CUTOFF position, move the starter switch to the START position; verify that the STARTER ENERGIZED and IGNITION ON annunciators illuminate. Next, check for a positive indication of engine oil pressure. After Ng stabilizes (minimum of 12%), move the fuel condition lever to the LOW IDLE position and verify a fuel flow in the general range of 80 to 110 pph. After the engine "lights" and during acceleration to idle (approximately 52% Na), monitor ITT and No. Maximum ITT during engine start is 1090°C, limited to 2 seconds. Typically, the ITT during start is well below this maximum value. After the engine has stabilized at idle, the STARTER ENERGIZED annunciator should be OFF. If this annunciator remains ON, it indicates the starter has not been automatically disengaged during the engine starting sequence due to a failed speed sensor.

### A CAUTION

If no ITT rise is observed within 10 seconds after moving the fuel condition lever to the LOW IDLE position, or ITT rapidly approaches 1090°C, move the fuel condition lever to CUTOFF and perform the Engine Clearing Procedure in this section.

After the engine reaches idle (52%  $N_g$  or above), return the starter switch to the OFF position. With a cold engine or after making a battery start (high initial generator load into battery), it may be necessary to advance the power lever slightly ahead of the idle detent to maintain a minimum idle of 52%  $N_g$ . To assure maintaining the minimum  $N_g$  and ITT within limits, advance the power lever to obtain approximately 55%  $N_g$  before turning the starter switch OFF (the generator contactor closes when the starter switch is turned OFF).

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### A CAUTION

Under hot OAT and/or high ground elevation conditions, idle ITT may exceed maximum idle ITT limitation of 685°C. Increase Ng and/or reduce accessory load to maintain ITT within limits.

#### NOTE

If the STARTER ENERGIZED annunciator fails to go out after the starter switch has been moved to the OFF position, the start contactor may be closed and the generator will not function. Perform an engine shutdown.

Engine starts may be made with airplane battery power or with an auxiliary power unit (APU). However, it is recommended that an APU be used when the ambient air temperature is less than  $0^{\circ}$ F (-18°C). Refer to Cold Weather Operation in this section when ambient temperature is below  $0^{\circ}$ F (-18°C).

### A CAUTION

- In the event the auxiliary power unit drops off the line during engine start, a loss of electrical power to the starter will result which could cause a hot start. Should a loss of auxiliary power occur, immediately place the fuel condition lever to CUTOFF, monitor ITT, and ensure the engine is shutting down. Turn the external power switch off and place the starter switch to the MOTOR position to aid in reducing ITT if necessary.
- When an auxiliary power unit is used, ensure the unit is negatively grounded and regulated to 28 volts DC with a capability of providing a minimum of 800 amperes during the starting cycle. Auxiliary power units with output exceeding 1700 amperes shall not be used.

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Before engine starting with the airplane battery, check the voltmeter for a minimum of 24 volts. With turbine engines, the operator must monitor ITT during each engine start to guard against a "hot" start. The operator must be ready to immediately stop the start if ITT exceeds 1090°C or is rapidly approaching this limit. Usually, "hot" starts are not a problem if the normal starting procedures are followed. A "hot" start is caused by excessive fuel flow at normal revolutions per minute or normal fuel flow with insufficient revolutions per minute. The latter is usually the problem which is caused by attempting a start with a partially discharged or weak battery.

### A CAUTION

A minimum battery voltage of 24 volts is not always an indication that the battery is near full charge or in good condition. This is especially true with the optional NI-Cad battery which maintains a minimum no-load voltage of 24 volts even at a 50% (or less) charge condition. Therefore, if gas generator acceleration in the initial part of the start is less than normally observed, return the fuel condition lever to CUTOFF and discontinue the start. Recharge the battery or use an auxiliary power unit before attempting another start.

If a cold engine does not quite idle at 52%, it is acceptable to advance the power lever or fuel condition lever slightly. If the starter accelerates the gas generator rapidly above 20%, suspect gear train decouple. Do not continue start. Rapid acceleration through 35%  $N_g$  suggests a start on the secondary nozzles. Anticipate a hot start.

After an aborted start for whatever reason, it is essential before the next start attempt to allow adequate time to drain off unburned fuel. Failure to drain all residual fuel from the engine could lead to a hot start, a hot streak leading to hot section damage, or the torching of burning fuel from engine exhaust on the next successful ignition.

A dry motoring, within starter limitations after confirming that all fuel drainage has stopped, will ensure that no fuel is trapped before the next start.

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# ENGINE CLEARING PROCEDURES (DRY MOTORING RUN)

The following procedure is used to clear an engine at any time when it is deemed necessary to remove internally trapped fuel and vapor, or if there is evidence of a fire within the engine. Air passing through the engine serves to purge fuel, vapor, or fire from the combustion section, gas generator turbine, power turbine, and exhaust system.

- 1. Fuel Condition Lever -- CUTOFF.
- 2. Ignition Switch -- NORM.
- Battery Switch -- ON (to supply current for the starter motor).
- 4. Fuel Shutoff -- OPEN (push in).
- Fuel Boost Switch -- ON (to provide lubrication for the engine-driven fuel pump elements) or OFF (if a fire is suspected).
- 6. Starter Switch -- MOTOR.

# A CAUTION

- Do not exceed the starting cycle limitations; refer to Section 2.
- Should a fire persist, as indicated by sustained ITT, close the fuel shutoff valve and continue motoring the engine.
- 7. Starter Switch -- OFF.
- 8. Fuel Boost Switch -- OFF.
- 9. Fuel Shutoff -- CLOSED (pull out).
- 10. Battery Switch -- OFF.

Allow the required cooling period for the starter before any further starting operation is attempted.

# ENGINE IGNITION PROCEDURES

For most operations, the ignition switch is left in the NORM position (aft). With the switch in this position, ignition is on only when the starter switch is in the START position.

### NOTE

The use of ignition for extended periods of time will reduce ignition system component life.

However, the ignition switch should be turned ON to provide continuous ignition under the following conditions:

- Emergency engine starts without starter assist (refer to Section 3, Airstarts).
- 2. Operation on water or slush covered runways.
- 3. Flight in heavy precipitation.
- During inadvertent icing encounters until the inertial separator has been in BYPASS for 5 minutes (refer to Section 3, Icing).
- 5. When near fuel exhaustion as indicated by RESERVOIR FUEL LOW annunciator ON.

Refer to Section 7, Ignition System for further details regarding the ignition system.

# ENGINE INERTIAL SEPARATOR PROCEDURES

An inertial separator system is built into the engine air inlet duct to prevent ice buildups on the compressor inlet screen. The inertial separator control should be moved to the BYPASS position prior to running the engine during ground or flight operation in visible moisture (clouds, rain, snow or ice crystals) with an OAT of 4°C or less.

The BYPASS mode may also be used for ground operations or takeoffs with dusty, sandy field conditions to minimize ingestion of foreign particles into the compressor. Refer to the charts in Section 5 for performance changes associated with the inertial separator in the BYPASS mode.

The NORMAL mode is used for all other operating conditions, since it provides a substantial inlet ram recovery. This results in more efficient engine operation and higher critical altitude for a particular power setting.

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Refer to Section 7, Air Induction System for further details regarding the inertial separator.

### TAXIING

Power lever BETA range may be used during taxi to improve brake life. A leaf spring is installed in the control quadrant which the power lever contacts and provides the pilot with a noticeable "feel". With the power lever moved to this position in the BETA range, the propeller is near zero thrust in a static, 52% idle condition. Besides acting as a zero thrust reference during taxi, this power lever position (lever against spring) is used after landing to minimize brake wear. Further aft movement of the power lever will result in increased engine power and reverse thrust from the propeller blades.

### A CAUTION

- The use of reverse thrust should be minimized, especially on unprepared surfaces, to protect the propeller.
- To minimize cargo pod temperatures and avoid damage to the pod surfaces, do not leave the power lever in the BETA range for extended periods (greater than 30 seconds) when parked with a right crosswind.

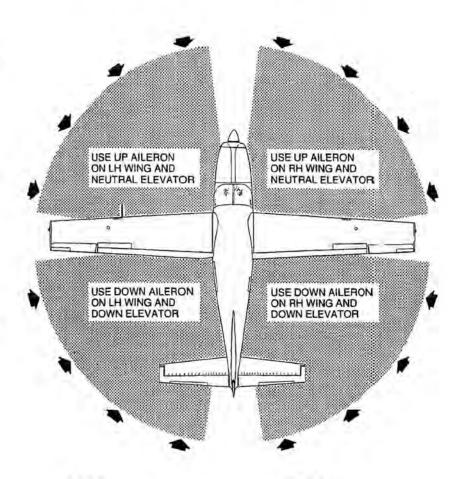
#### NOTE

During low-speed taxi with a strong tailwind, or when stopped with a strong tailwind, a moderate vibration may occur as a result of reverse airflow through the propeller disk with the blades at a positive pitch angle. This vibration can be significantly reduced by placing the power lever in the BETA range, or it can be eliminated by turning the airplane into the wind.

Refer to Figure 4-2 for additional taxiing instructions.

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### CODE

### WIND DIRECTION

NOTE:

Strong quartering tail winds require caution. Avoid excessive use of power and sharp braking when the airplane is in this attitude. Use the steerable nose wheel and rudder to maintain direction.

2685X1053

Figure 4-2. Taxiing Diagram

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# **BEFORE TAKEOFF**

The fuel tank selectors are normally both ON for takeoff and all flight operations. However, one side may be turned OFF as required to balance the fuel load.

### WARNING

- Do not exceed 200 pounds fuel imbalance in flight.
- To obtain accurate fuel quantity indicator readings, verify the airplane is parked in a laterally level condition, or, if in flight, make sure the airplane is in a coordinated and stabilized condition (ball of turn-and-bank indicator centered).

When checking the inertial separator with engine power set at 400 foot-pounds, it is typical to see an approximate 25 foot-pound drop in torque when the T-handle is pulled to the BYPASS position. This torque drop will vary some with wind conditions during static check.

A neutral index mark is added to the pedestal cover which corresponds to the zero degree trim tab position. As loadings vary towards the forward C.G. limit or aft C.G. limit, elevator trim settings towards the nose up and nose down ends of this takeoff range, respectively, will provide comfortable control wheel forces during takeoff and initial climb out.

Refer to Systems Checks (at end of Checklist Procedures in this section) for procedures to use when checking the Overspeed Governor, Autopilot, Standby Power, and Known Icing Systems.

Prior to takeoff, the fuel condition lever is moved forward to the HIGH IDLE position (approximately 65%  $N_g$ ) and left in this position until after landing. The higher gas generator idle speed for flight provides faster engine acceleration when adding power (from an idle condition) on approach or for a balked landing go-around.

### TAKEOFF

### POWER SETTING

Refer to the Takeoff Torque figure in Section 5 to determine the torque corresponding to the surface altitude and OAT conditions. This torque should be obtainable without exceeding  $805^{\circ}$ C ITT or 101.6% Ng.

Takeoff roll is most smoothly initiated by gradually advancing the power lever until propeller RPM nears 1900. Smoothly release the brakes and continue advancing the power lever until the takeoff torgue (from Section 5) is reached.

#### NOTE

As airspeed increases during takeoff, an increase in torque at a fixed power lever position is normal and need not be reduced provided torque limit (1865 foot-pounds) is not exceeded.

#### WING FLAP SETTINGS

For normal takeoffs, 10° flaps is preferred since it results in easier nose wheel liftoff and lower initial climb attitude, as well as a reduction in ground roll and total distance over an obstacle compared to takeoff with flaps up.

For short field takeoffs, or takeoffs from soft or rough fields, use of 20° flaps is recommended since it will allow the safe use of slower speeds, resulting in a shorter ground roll and total distance over the obstacle.

Flap settings greater than 20° are not approved for takeoff.

### SHORT FIELD TAKEOFF

If an obstruction dictates the use of a steep climb angle after liftoff, accelerate to and climb out at an obstacle clearance speed of 82 KIAS with 20° flaps. Takeoff performance data is shown in Section 5 based on this speed and configuration.

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After clearing the obstacle, and reaching a safe altitude, the flaps may be retracted slowly as the airplane accelerates to the normal climb out speed.

Minimum ground roll takeoffs are accomplished using 20° flaps by lifting the nose wheel off the ground as soon as practical and leaving the ground in a slightly tail-low attitude. However, the airplane should be leveled off immediately to accelerate to a safe climb speed.

### TYPE II OR TYPE IV Anti-ice FLUID TAKEOFF

When Type II or Type IV fluid is applied to the airplane, a rotation speed of 89 KIAS with 0° flaps is required. Use of 0° flaps allows the airplane to accelerate to a higher rotation speed without any liftoff tendencies, which is required for the Type II or Type IV fluid to be effective. Takeoff performance data shown in Section 5 is based on this speed and configuration.

### CROSSWIND TAKEOFF

Takeoffs into strong crosswinds normally are performed with 10° flaps. With the ailerons partially deflected into the wind, the airplane is accelerated to a speed higher than normal, and then pulled off abruptly to prevent possible settling back to the runway while drifting. When clear of the ground, make a coordinated turn into the wind to correct for drift.

# ENROUTE CLIMB

Normally, maximum climb power is maintained during the climb to cruise altitude. Adjust the power lever as required to prevent exceeding 1865 foot-pounds torque, maximum climb ITT of 765°C, or maximum climb  $N_g$  of 101.6%, whichever occurs first.

#### NOTE

Engine operations which exceed 740°C ITT may reduce engine life.

At lower altitudes and cool outside air temperatures (below approximately 10,000 feet), the engine will reach the torque limit before reaching the ITT or  $N_g$  limit. As the climb progresses and the torque is maintained by power lever advancement, the ITT and  $N_g$  will increase until an altitude is reached where ITT or  $N_g$  will dictate power lever positioning. When operating near the ITT limit, advance power lever slowly to allow the current ITT to be indicated. The rate of power (and temperature) increase of the engine is greater than the response rate of the ITT indicating system; therefore, a rapid power lever advance could allow an overtemperature condition to exist momentarily in the engine before the over-temperature would be indicated.

For maximum performance climb, the best rate-of-climb speed should be used with 1900 RPM and maximum climb power. This speed is 107 KIAS at sea level to 101 KIAS at 10,000 feet to 91 KIAS at 20,000 feet.

For improved visibility over the nose, a cruise climb speed of 115-125 KIAS may be desirable at altitudes up to approximately 12,000 feet. Also, for improved passenger comfort, propeller RPM may be reduced to 1600, if desired. Adjust the power lever (in accordance with the following table) to prevent exceeding maximum torque for the corresponding RPM, maximum climb ITT of 765°C, or maximum N<sub>a</sub> of 101.6%, whichever occurs first.

#### NOTE

Engine operations which exceed 740°C ITT may reduce engine life.

#### MAX RPM

#### TORQUE

900	1865
800	1970
700	1970
600	1970

If an obstruction dictates the use of a steep climb angle, climb with flaps retracted and maximum continuous power at 86 KIAS.

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# CRUISE

Normal cruising is performed using any desired power setting up to the maximum cruise power (observe ITT, torque, and  $N_g$  cruise limits). Do not exceed the maximum cruise torque shown in Section 5 for the particular altitude and temperature. Normally, a new engine will exhibit an ITT below 740°C when set to the maximum cruise torque.

The Cruise Performance Table, Figure 4-3, illustrates the advantage of higher altitude on both true airspeed and nautical miles per pound of fuel. In addition, the beneficial effect of lower cruise power on nautical miles per pound at a given altitude can be observed. Charts are provided in Section 5 to assist in selecting an efficient altitude based on available winds aloft information for a given trip. The selection of cruise altitude on the basis of the most favorable wind conditions and the use of low power settings are significant factors that should be considered on every trip to reduce fuel consumption.

Pitot/static heat should be ON anytime the OAT is below 4°C (40°F). If icing conditions are encountered, ensure that the additional anti-icing systems (stall vane and inertial separator) are ON and in the BYPASS mode before encountering visible moisture below approximately 4°C (40°F). Windshield and propeller Anti-ice systems should be turned on also.

# **CRUISE PERFORMANCE TABLE**

PARAMETERS:

Standard Conditions 1900 RPM Zero Wind

	Maximum C	ruise Power	ower Maximum Range			
ALTITUDE (in Feet)	KTAS	NMPP	KTAS	NMPP		
5,000	186	0.44	157	0.49		
10,000	186	0.49	156	0.56		
15,000	182	0.56	160	0.61		
20,000	174	0.63	158	0.66		

(WITHOUT CARGO POD)

	Maximum C	ruise Power	Maximum R	n Range Powe					
ALTITUDE (in Feet)	KTAS	NMPP	KTAS	NMPP					
5,000	178	0.42	151	0.47					
10,000	177	0.47	150	0.53					
15,000	173	0.53	150	0.58					
20,000	165	0.60	153	0.62					

(WITH CARGO POD)

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These systems are designed to prevent ice formation, rather than removing it after it has formed. For those airplanes without the "Flight Into Known Icing" equipment, icing conditions should be avoided. Even for those airplanes equipped with the "Flight Into Known Icing" option, accumulation of some airframe ice is unavoidable; this will increase airplane weight and drag and decrease airspeed and general airplane performance. It is always wise to avoid icing conditions, if practical.

Fuel unbalance should be monitored to assure it does not exceed 200 pounds. Normally, both fuel tank selectors are left ON and fuel feeds approximately equal from each tank. If fuel unbalance approaching 200 pounds does occur, the fuel tank selector for the tank with less fuel should be turned OFF until the tanks become balanced. With one fuel tank selector OFF and fuel remaining in the tank being used less than approximately 25 gallons, the FUEL SELECT OFF annunciator will illuminate and a warning horn will be activated.

# WARNING

Ignition should be turned ON when flying in heavy precipitation. Refer to Engine Ignition Procedures in this section for further information on use of ignition.

# A CAUTION

Prolonged zero or negative "G" maneuvers will starve the engine oil pump and result in engine damage.

Supplemental oxygen should be used by all occupants when cruising above 12,500 feet. It is often advisable to use oxygen at altitudes lower than 12,500 feet under conditions of night flying, fatigue, or periods of physiological or emotional disturbances. Also, the habitual and excessive use of tobacco or alcohol will usually necessitate the use of oxygen at less than 10,000 feet.

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# WARNING

- Operation up to the maximum allowable operating altitude is predicated on the availability and use of supplemental oxygen above 12,500 feet as specified by FAR Part 91.211.
- Permit no smoking when using oxygen. Oil, grease, soap, lipstick, lip balm, and other fatty materials constitute a serious fire hazard when in contact with oxygen. Be sure hands and clothing are oil-free before handling oxygen equipment.

### STALLS

The stall characteristics are conventional and aural warning is provided by a stall warning horn which sounds between 5 and 10 knots above the stall in all configurations.

Idle-power stall speeds at maximum weight for both forward and aft C.G. are presented in Section 5.

### NOTE

Practice of stalls should be done conservatively and with sufficient altitude for a safe recovery.

# LANDING

#### NORMAL LANDING

Normal landing approaches can be made with power-on or idle power with any flap setting desired. Use of flaps down is normally preferred to minimize touchdown speed and subsequent need for braking. For a given flap setting, surface winds and turbulence are usually the primary factors in determining the most comfortable approach speed.

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Actual touchdown should be made with idle power and on the main wheels first, just slightly above stall speed. The nose wheel is then gently lowered to the runway, the power lever repositioned to the BETA range, and brakes applied as required. When clear of the runway, reposition the fuel condition lever from HIGH IDLE to LOW IDLE. This will reduce cabin and exterior noise levels as well as reduce braking requirements when the power lever is positioned ahead of the REVERSE range. Landings on rough or soft fields are accomplished in a similar manner except that the nose wheel is lowered to the runway at a lower speed to prevent excessive nose gear loads.

#### NOTE

The use of BETA range after touchdown is recommended to reduce brake wear. Generally, the power lever can be moved aft of the IDLE gate until it contacts a spring in the control quadrant without substantial propeller erosion from loose debris on the runway or taxiway.

### SHORT FIELD LANDING

For short field landings, make a power approach at 78 KIAS with the propeller control lever at MAX (full forward) and with full flaps. After all approach obstacles are cleared, reduce power to idle. Maintain 78 KIAS approach speed by lowering the nose of the airplane. Touchdown should be made with the power lever at IDLE, and on the main wheels first. Immediately after touchdown, lower the nose gear, reposition the power lever against the spring in the BETA range, and apply heavy braking as required.

For maximum brake effectiveness after all three wheels are on the ground, hold full nose up elevator and apply maximum possible brake pressure without sliding the tires.

## A CAUTION

When the small high-pressure tires are installed and when flying at light weights, it is possible to slide the tires with only moderate pressure on the brake pedals. Care must be exercised to prevent overbraking.

The landing performance in Section 5 is based on the above procedure. A reduction in ground roll of approximately 10% will result from the use of reverse thrust (power lever full aft to provide increased power from the gas generator and a reverse thrust propeller blade angle).

# A CAUTION

To minimize propeller blade erosion or possible propeller blade damage, reverse thrust should be used only when necessary to shorten the ground roll. Bringing the propeller out of reverse before decelerating through approximately 25 knots will minimize propeller erosion.

#### CROSSWIND LANDING

For crosswind approaches, either the wing-low, crab or combination method may be used. A flap setting between 10° and 30° is recommended. Use a minimum flap setting for the field length. After touchdown, lower the nose wheel and maintain control. A straight course is maintained with the steerable nose wheel, ailerons, and occasional braking if necessary.

#### BALKED LANDING

In a balked landing (go-around) climb, the wing flap setting should be reduced to 20° after takeoff power is applied. After all obstacles are cleared and a safe altitude and airspeed are obtained, the wing flaps should be retracted.

### AFTER SHUTDOWN

If dusty conditions exist or if the last flight of the day has been completed, install engine inlet covers to protect the engine from debris. The covers may be installed after the engine has cooled down (ITT indicator showing "off scale" temperature). Secure the propeller to prevent windmilling since no oil pressure is available for engine lubrication when the engine is not running.

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# COLD WEATHER OPERATION

Special consideration should be given to the operation of the airplane fuel system during the winter season or prior to any flight in cold temperatures. Proper preflight draining of the fuel system is especially important and will eliminate any free water accumulation. The use of an additive is required for Anti-ice protection. Refer to Section 8 for information on the proper use of additives.

Cold weather often causes conditions which require special care prior to flight. Operating the elevator and aileron trim tabs through their full travel in both directions will assure smooth operation by reducing any stiffness in these systems caused by the cold weather effects on system lubrication. Even small accumulations of frost, ice, or snow must be removed, particularly from wing, tail and all control surfaces to assure satisfactory flight performance and handling. Also, control surfaces must be free of any internal accumulations of ice or snow.

The use of an external pre-heater reduces wear and abuse to the engine and the electrical system. Pre-heat will lower the viscosity of the oil trapped in the oil cooler, prior to starting in extremely cold temperatures.

Use of an APU is recommended when ambient temperatures are below 0°F (-18°C). Assure that oil temperature is in the green arc (10°C to 99°C) prior to takeoff.

If snow or slush covers the takeoff surface, allowance must be made for takeoff distances which will be increasingly extended as the snow or slush depth increases. The depth and consistency of this cover can, in fact, prevent takeoff in many instances.

# HIGH ALTITUDE OPERATION

At altitudes above 20,000 feet, a compressor surge may be experienced if engine power is very rapidly re-applied immediately after a power reduction. This characteristic is not detrimental to the engine and can be eliminated completely by turning on cabin bleed heat to at least the one-half setting.

# ENGINE COMPRESSOR STALLS

An engine compressor stall may be noted by a single or multiple loud "popping" noise from the engine compartment. This situation may be resolved by reducing the engine power to a point where the "popping" discontinues, and slowly advancing the throttle to the necessary setting for continued flight. The use of cabin bleed heat may also help eliminate engine compressor stalls if this situation is encountered.

# NOISE CHARACTERISTICS

Increased emphasis on improving the quality of our environment requires renewed effort on the part of all pilots to minimize the effect of airplane noise on the public.

We, as pilots, can demonstrate our concern for environmental improvement, by application of the following suggested procedures, and thereby tend to build public support for aviation:

- Pilots operating aircraft under VFR over outdoor assemblies of persons, recreational and park areas, and other noisesensitive areas should make every effort to fly not less than 2000 feet above the surface, weather permitting, even though flight at a lower level may be consistent with the provisions of government regulations.
- During departure from or approach to an airport, climb after takeoff and descent for landing should be made so as to avoid prolonged flight at low altitude near noise-sensitive areas.

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### NOTE

The above recommended procedures do not apply where they would conflict with Air Traffic Control clearances or instructions, or where, in the pilot's judgment, an altitude of less than 2000 feet is necessary for him to adequately exercise his duty to see and avoid other aircraft.

The certificated noise level for the Model 208 at 8000 pounds maximum weight is 79.0 dB(A). These measurements were obtained using a takeoff profile. No determination has been made by the Federal Aviation Administration that the noise levels of this airplane are or should be acceptable or unacceptable for operation at, into, or out of, any airport.

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# INTRODUCTION

Performance data charts on the following pages are presented so that you may know what to expect from the airplane under various conditions, and also, to facilitate the planning of flights in detail and with reasonable accuracy. The data in the charts has been computed from actual flight tests using average piloting techniques and an airplane and engine in good condition.

### WARNING

To ensure that performance in this section can be duplicated, the airplane and engine must be maintained in good condition. Pilot proficiency and proper preflight planning using data necessary for all flight phases is also required to assure expected performance with ample margins of safety.

It should be noted that the performance information presented in the range and endurance profile charts allows for 45 minutes reserve fuel at the specified cruise power and altitude. Some indeterminate variables such as engine and propeller condition, and air turbulence may account for variations of 10 or more in range and endurance. Therefore, it is important to utilize all available information to estimate the fuel required for the particular flight.

Notes have been provided on various graphs and tables to approximate performance with the inertial separator in BYPASS and/or cabin heat on. The effect will vary, depending upon airspeed, temperature, and altitude At lower altitudes, where operation on the torque limit is possible, the effect of the inertial separator will be less, depending upon how much power can be recovered after the separator vanes have been extended.

In some cases, performance charts in this section include data for temperatures which are outside of the operating limits (Figure 5-5). This data has been included to aid in interpolation.

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# **USE OF PERFORMANCE CHARTS**

Performance data is presented in tabular or graphical form to illustrate the effect of different variables. Sufficiently detailed information is provided in the tables so that conservative values can be selected and used to determine the particular performance figure with reasonable accuracy.

### SAMPLE PROBLEM

The following sample flight problem utilizes information from the various charts to determine the predicted performance data for a typical flight of an airplane not equipped with a cargo pod. A similar calculation can be made for an airplane with a cargo pod using charts identified as appropriate for this configuration. The following information is known:

AIRPLANE CONFIGURATION (WITHOUT CARGO POD)

Takeoff weight: Usable fuel: 7850 Pounds 2224 Pounds

### TAKEOFF CONDITIONS

Field pressure altitude: Temperature: Wind component: Field length: 3500 Feet 16°C (standard + 8°C) 12 Knot Headwind 4000 Feet

### CRUISE CONDITIONS

Total distance: Pressure altitude: Temperature: Expected wind enroute: 650 Nautical Miles 11,500 Feet 8°C 10 Knot Headwind

### LANDING CONDITIONS

Field pressure altitude: Temperature: Field length: 1500 Feet 25°C 3000 Feet

### TAKEOFF

The Takeoff Distance chart, Figure 5-9, should be consulted, keeping in mind that the distances shown are based on the short field technique. Conservative distances can be established by reading the chart at the next higher value of weight, altitude and temperature. For example, in this particular sample problem, the takeoff distance information presented for a weight of 8000 pounds, pressure altitude of 4000 feet and a temperature of 20°C should be used and results in the following:

Ground roll: 1530 Feet Total distance to clear a 50-foot obstacle: 2655 Feet

These distances are well within the available takeoff field length. However, a correction for the effect of wind may be made based on Note 2 of the takeoff chart. The correction for a 12 knot headwind is:

12 Knots 11 Knots X 10% = 11% Decrease

This results in the following distances, corrected for wind:

Ground roll, zero wind:	1530 Feet
Decrease in ground roll (1530 feet X 11%):	<u>168</u> Feet
Corrected ground roll:	1362 Feet
Total distance to clear a 50-foot obstacle, zero wind:	2655 Feet
Decrease in total distance (2655 feet X 11%):	292 Feet
Corrected total distance	2363 Feet

The Engine Torque For Takeoff chart, Figure 5-8, should be consulted for takeoff power setting. For the above ambient conditions, the power setting is:

Takeoff torque:

1865 Ft-Lbs

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#### For Training Purposes Only

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### SECTION 5 PERFORMANCE

### CESSNA MODEL 208 (675 SHP)

### CRUISE

The cruising altitude should be selected based on a consideration of trip length, winds aloft, and the airplane's performance. A cruising altitude and the expected wind enroute have been given for this sample problem. However, the power setting selection for cruise must be determined based on several considerations. These include the cruise performance characteristics presented in Figure 5-19, the Fuel And Time Required charts presented in Figure 5-20 and 5-21, the Range Profile chart presented in Figure 5-22, and the Endurance Profile chart presented in Figure 5-23.

The Range Profile chart, Figure 5-22, shows range at maximum cruise power and also at maximum range power. For this sample problem, maximum cruise power and 1900 RPM will be used.

The Cruise Performance chart for 12,000 feet pressure altitude is entered using 10°C temperature. These values most nearly correspond to the planned altitude and expected temperature conditions. The torque setting for maximum cruise power is 1291 Ft-Lbs torque at 1900 RPM which results in the following:

True airspeed: Cruise fuel flow: 173 Knots 306 PPH

#### FUEL REQUIRED

The total fuel requirement for the flight may be estimated using the performance information in Figures 5-18, 5-19 and 5-24 or in Figures 5-20 and 5-21. The longer detailed method will be used for this sample problem, but the use of Figures 5-20 and 5-21 will provide the desired information for most flight planning purposes.

Assuming a maximum climb, Figure 5-18 may be used to determine the time, fuel and distance to climb by reading values for a weight of 8000 pounds and a temperature 20°C above standard. The difference between the values shown in the table for 4000 feet and 12,000 feet results in the following:

Time:	10	Minutes
Fuel:	60	Pounds
Distance:	20	Nautical Miles

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Similarly, Figure 5-24 shows that a descent from 12,000 feet to sea level results in the following:

Time	15 Minutes
Fuel	65 Pounds
Distance	43 Nautical Miles
	and the state of the local state of the stat

The distances shown on the climb and descent charts are for zero wind. A correction for the effect of wind may be made as follows:

20
02
18 n.m.

Similarly, the distance for descent may be corrected for the effect of wind and results in 40 nautical miles

The cruise distance is then determined by subtracting the distance during climb and distance during descent.

Total distance	650
Distance during climb and descent	<u>-58</u>
Cruise distance	592 Nautical Miles

### SECTION 5 PERFORMANCE

With an expected 10 knot headwind, the ground speed for cruise is predicted to be:

173

-10

163 Knots

Therefore, the time required for the cruise portion of the trip is:

590 Nautical Miles 163 Knots = 3.6 Hours

The fuel required for cruise is:

3.6 hours X 306 pounds/hour = 1102 Pounds

A 45-minute reserve requires:

45 60 X 306 pounds/hour = 230 Pounds

The total estimated fuel required is as follows:

Engine start, taxi, and takeoff	35
Climb	60
Cruise	1102
Descent	65
Reserve	230
Total fuel required (pounds)	1492

Once the flight is underway, ground speed checks will provide a more accurate basis for estimating the time enroute and the corresponding fuel required to complete the trip with ample reserve.

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### LANDING

A procedure similar to takeoff should be used for estimating the landing distance at the destination airport. The estimated landing weight is as follows:

Takeoff weight	7850

Fuel required for climb, cruise, and descent

1262

Landing weight

6588 Pounds

Figure 5-25 presents landing distance information for the short field technique. The landing distances for a weight of 6800 pounds and corresponding to 2000 feet pressure altitude and a temperature of 30°C should be used and are as follows:

Ground roll

700 Feet

Total distance to clear a 50-foot obstacle

1585 Feet

A correction for the effect of wind may be made based on Note 2 of the landing chart using the same procedure as outlined for takeoff.

SECTION 5 PERFORMANCE CESSNA MODEL 208 (675 SHP)

# AIRSPEED CALIBRATION

### NORMAL STATIC SOURCE

### CONDITIONS:

#### 8000 Pounds

Power required for level flight or maximum rated RPM dive.

### NOTE

Where airspeed values have been replaced by dashes, the airspeed would be either below stall speed at maximum weight or above the maximum approved operating limit speed for the condition.

FLAPS UP				-				
KIAS		80	100	120	140	160	175	
KCAS		79	98	118	139	160	175	
FLAPS 10°								
KIAS	75	80	100	120	140	160	175	
KCAS	75	79	98	118	139	160	175	
FLAPS 20°				2.7	- 1		Ξ.	
KIAS	65	70	80	90	100	110	130	150
KCAS	66	70	79	89	99	109	129	150
FLAPS 30°							65	
KIAS	65	70	80	90	100	110	125	
KCAS	65	69	79	89	99	110	125	

Figure 5-1. Airspeed Calibration (Sheet 1 of 2)

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## AIRSPEED CALIBRATION ALTERNATE STATIC SOURCE

### VENTS CLOSED

FLAPS UP		-				199	
NORMAL KIAS	80	100	120	140	160	175	
ALTERNATE KIAS	80	101	123	144	166	183	
FLAPS 10°				-			
NORMAL KIAS	70	80	100	120	140	160	175
ALTERNATE KIAS	73	81	10	124	146	167	183
FLAPS 20°							
NORMAL KIAS	60	70	80	100	120	140	150
ALTERNATE KIAS	61	71	82	103	125	146	156
FLAPS 30°	200	-	-				
NORMAL KIAS	60	70	80	90	100	110	125
ALTERNATE KIAS	63	71	82	93	104	115	130

### VENTS OPEN

FLAPS UP	1.57				1.1		
NORMAL KIAS	80	100	120	140	160	175	
ALTERNATE KIAS	75	95	117	139	161	177	
FLAPS 10°	1.1.1			100			11.
NORMAL KIAS	70	80	100	120	140	160	175
ALTERNATE KIAS	69	78	100	121	143	164	180
FLAPS 20°					100		
NORMAL KIAS	60	70	80	100	120	140	150
ALTERNATE KIAS	58	69	79	100	122	144	154
FLAPS 30°	1.1					10.00	1.1.5
NORMAL KIAS	60	70	80	90	100	110	125
ALTERNATE KIAS	60	69	80	91	102	113	128

### Figure 5-1. Airspeed Calibration (Sheet 2 of 2)

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### SECTION 5 PERFORMANCE

### CESSNA MODEL 208 (675 SHP)

# ALTIMETER CORRECTION ALTERNATE STATIC SOURCE

NOTES:

1. Add correction to desired altitude to obtain indicated altitude to fly.

Where altimeter correction values have been replaced by dashes, the correction is unnecessary because of conditions in which airspeed is not attainable in level flight.

		VENT	S CLOS	SED			
And the second		COF	RECTION		DDED - F	EET	_
CONDITION	1			KIAS		-	_
	80	90	100	120	140	160	175
FLAPS UP	1.00	1.0	1.5	1.00	1.1	1.00	1.00
Sea Level	0	15	25	50	75	100	116
10,000 Ft.	5	20	35	70	105	135	155
20,000 Ft.	5	25	45	95	145	185	-
30,000 Ft.	0 5 5 5	35	65	135	205	265	-
FLAPS 10°	1. 1.	1.27				1.327	111.
Sea Level	5	20	-30	55	85	105	110
10,000 Ft.	5 5	25	40	80	110	140	150
FLAPS 30°		0.00	15.14			0.11.773	
Sea Level	20	30	40	60		-	100
10,000 Ft.	30	40	55	80		-	

#### VENTS OPEN

CONDITION	CORRECTION TO BE ADDED - FEET KIAS							
Condition	80	90	100	120	140	160	175	
FLAPS UP	12.23		1.1	10.00			100	
Sea Level	-25	-25	-20	-10	5	20	30	
10,000 Ft.	-25	- 25	-25	-15	Б	25	45	
20,000 Ft.	- 50	- 45	-40	-20	5	35		
30,000 Ft.	-75	- 65	-55	-30	10	50		
FLAPS 10°			1.1.2	1.00	1.57		1.1	
Sea Level	- 10	0	10	30	50	70	80	
10,000 Ft.	-15	-5	10	40	65	90	105	
FLAPS 30°								
Sea Level	5	15	25	40				
10,000 Ft.	10	20	30	50			-	

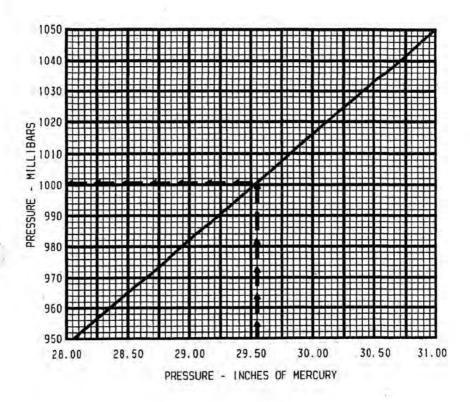
Figure 5-2. Altimeter Correction

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# PRESSURE CONVERSION



EXAMPLE: PRESSURE - 29.55 INCHES OF MERCURY. PRESSURE - 1000.6 MILLIBARS.

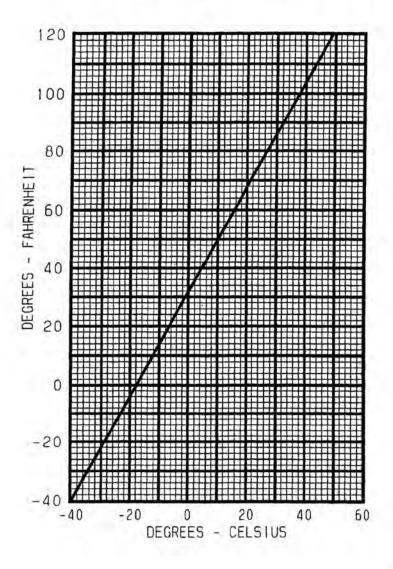
5985T7002

Figure 5-3. Pressure Conversion - Inches of Mercury to Millibars

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# TEMPERATURE CONVERSION CHART



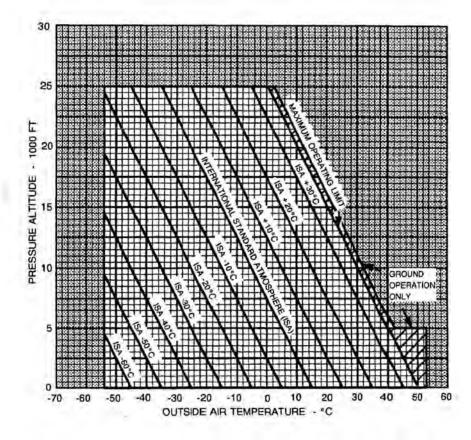
2685T1050

Figure 5-4. Temperature Conversion Chart

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# ISA CONVERSION AND OPERATING TEMPERATURE LIMITS

CAUTION Do not Operate in shaded area of chart.



2685T1010

Figure 5-5. ISA Conversion and Operating Temperature Limits

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#### SECTION 5 PERFORMANCE

# STALL SPEEDS AT 8000 POUNDS

Conditions: Power Lever - Idle Fuel Condition Lever - High Idle

### MOST REARWARD CENTER OF GRAVITY

FLAP SETTING	ANGLE OF BANK										
	0°		30°		45°		60°				
	KIAS	KCAS	KIAS	KCAS	KIAS	KCAS	KIAS	KCAS			
UP	63	75	68	81	75	89	89	106			
10°	60	66	64	71	71	78	85	93			
20	56	62	60	67	67	74	79	88			
30°	50	61	54	66	59	73	71	86			

### MOST FORWARD CENTER OF GRAVITY

FLAP SETTING	ANGLE OF BANK										
	0°		30°		45°		60°				
	KIAS	KCAS	KIAS	KCAS	KIAS	KCAS	KIAS	KCAS			
UP 10° 20 30°	63 61 57 50	75 67 63 61	68 66 61 54	81 72 68 66	75 73 68 59	89 80 75 73	89 86 81 71	106 95 89 86			

NOTES:

- 1. Altitude loss during a stall recovery may be as much as 300 feet from a wings-level stall and even greater from a turning stall.
- 2. KIAS values are approximate.

### Figure 5-6. Stall Speeds

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# WIND COMPONENTS

#### NOTE: Maximum demonstrated crosswind velocity is 20 knots (not a limitation).

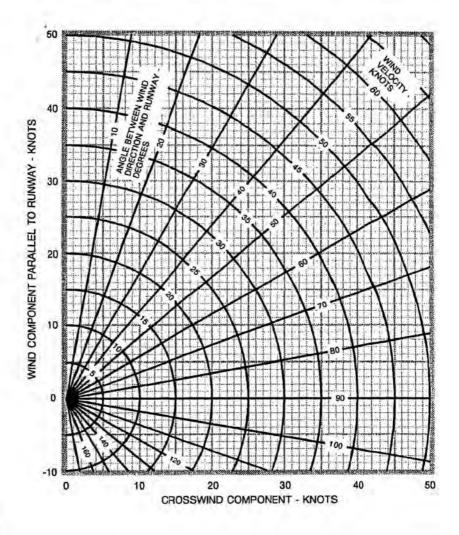


Figure 5-7. Wind Components

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5584T7021

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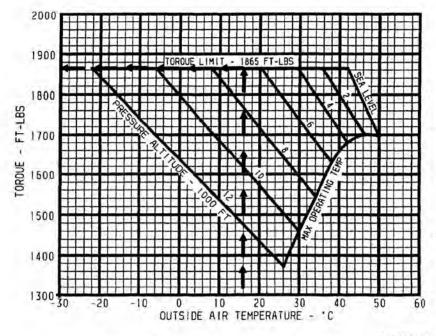
#### CESSNA MODEL 208 (675 SHP)

# ENGINE TORQUE FOR TAKEOFF

CONDITIONS: 1900 RPM 60 KIAS Inertial Separator - Normal

#### NOTES:

- 1. Torque increases approximately 10 Ft-Lbs from 0 to 60 KIAS.
- Torque on this chart shall be achieved without exceeding 805°C ITT or 101.6 percent Ng. When the ITT exceeds 765°C, this power setting is time limited to 5 minutes.
- With the inertial separator in BYPASS and takeoff power set below the torque limit (1865 Ft-Lbs), decrease torque setting by 15 Ft-Lbs.
- With the cabin heater on and takeoff power set below the torque limit (1865 Ft-Lbs), decrease torque setting by 65 Ft-Lbs.



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#### SECTION 5 PERFORMANCE

FOR

#### WITHOUT CARGO POD

#### TAKEOFF DISTANCE

#### (GROUND ROLL DISTANCE AND TOTAL DISTANCE TO CLEAR 50 FEET) SHORT FIELD

CONDITIONS:

#### NOTES:

1. USE SHORT FIELD TECHNIQUES AS SPECIFIED IN SECTION 4. 2. DECREASE DISTANCES 10% FOR EACH 11 KNOTS HEADWIND.

FLAPS 20 DEGREES 1900 RPM INERTIAL SEPARATOR - NORMAL CABIN HEAT - OFF TORQUE SET PER FIGURE 5-8 PAVED, LEVEL, DRY RUNWAY ZERO WIND

- OPERATION WITH TAILWINDS UP TO 10 KNOTS, INCREASE DISTANCES BY 10% FOR EACH 2 KNOTS. 3. FOR OPERATION ON A DRY, GRASS RUNWAY, INCREASE DISTANCES BY 15% OF THE "GROUND ROLL" FIGURE.
- WITH TARCOFF POWER SET BELOW THE TORQUE LIMIT (1865 FT-LBS), INCREASE DISTANCE (BOTH GROUND ROLL AND TOTAL DISTANCE) BY 3% FOR INCREASE DISTANCE 9% FOR CABIN HEAT ON.
- 5. WHERE DISTANCE VALUES HAVE BEEN REPLACED BY DASHES, OPERATING TEMPERATURE LIMITS OF THE AIRPLANE WOULD BE GREATLY EXCEEDED. THOSE DISTANCES WHICH ARE INCLUDED BUT THE OPERATION SLIGHTLY EXCEEDS THE TEMPERATURE LIMIT ARE PROVIDED FOR INTERPOLATION PURPOSES ONLY.

FOR OPERATIONS ABOVE 40°C AND BELOW THE TEMPERATURE OPERATING LIMITATIONS, MULTIPLY TAKEOFF DISTANCES AT 40°C BY 1.2.

ыт	SP	EED	PRESS	-10	o*c		o*c		o"c		°c	3	D°C	4	0°C			
LB		RS	ALT	GRD	TOTAL	GRD	TOTAL											
0	LIFT		FT.	ROLL	TO	ROLL	10											
	DFF	50 FI	1.1.1.1	FI	50 FT	FL	50 F1	FI	50 FT	FI	50 F1	FI	50 F I	FT	50 F1			
8	72	82	SL	1000	1790	1060	1895	1125	2000	1195	2110	1260	2220	1330	2335			
0	1.7	1.20	1000	1060	1890	1130	2000	1195	2115	1270	2230	1340	2350	1430	2505			
0	1.1		2000	1125	2000	1200	2115	1270	2235	1350	2360	1425	2490	1555	2725			
0			3000	1195	2115	1275	2240	1355	2370	1435	2500	1520	2640	1690	2975			
10	111	6	4000	1275	2240	1355	2375	1440	2510	1530	2655	1625	2815	1840	3250			
			5000	1355	2375	1445	2515	1535	2665	1630	2820	1770	3080	2005	3555			
4		1 2	6000	1445	2520	1540	2675	1640	2835	1740	3000	1950	3420	2215	3970			
			7000	1540	2675	1645	2845	1750	3020	1920	3340	2165	3830	2465	4480			
1		1.1	8000	1645	2850	1755	3030	1890	3260	2125	3730	2405	4315	6444				
13			9000		3035	1880	3230	2090	3640	2360	4185	2680	4885					
		6 L L	10000	1885	3240	2070	3580	2320	4080	2625	4730	2995	5580	****				
		1.11	11900	2055	3540	2300	4025	2590	4610	2940	5390	3365	6455					
		·	12000	2280	3975	2565	4540	2895	5245	3295	6205	3790	1585		1444			
7	70	80	SL	855	1525	905	1610	950	1695	1015	1790	1075	1880	1135	1975			
5	100	1.00	1000	905	1605	960	1700	1020	1790	1080	1990	1140	1990	1215	2115			
3	1		2000	960	1695	1020	1795	1085	1895	1150	2000	1215	2105	1320	2300			
D	1 1		3000	1020	1795	1085	1895	1150	2005	1220	2115	1290	2230	1435	2500			
		1.1	4000	1085	1895	1155	2010	1225	2125	1300	2245	1380	2375	1560	2720			
							5000	1155	2010	1230	2130	1305	2255	1385	2380	1505	2590	1695
			6000	1230	2130	1310	2260	1390	2390	1480	2530	1655	2865	1870	3300			
	1.1			1310	2250	1395	2400	1485	2545	1630	2805	1830	3195	2075	3700			
				1400	2405	1490	2555	1605	2745	1800	3115	2030	3575		1.000			
М		K 1		1495	2560	1595	2720	1770	3045	1995	3480	2255	4020	1000				
	1.16		10000		2725	1755	3005	1960	3400	2215	3905	2515	4545					
	1.1		11000		2970	1945	3355	2180	3820	2470	4415	2815	5190	****				
-	-		12000		3315	2165	3765	2435	4310	2760	5020	3160	5985					
7	57	77	SL	725	1285	770	1360	815	1430	860	1505	910	1585	950	1665			
0	111		1000	765	1355	815	1430	865	1510	915	1590	965	1675	1030	1780			
D			2000	815	1430	865	1510	920	1595	970	1680	1025	1770	1115				
0			3000	865	1510	920	1595	975	1685	1035	1780	1095	1870	1210	2090			
1	1.12		4000	920	1595	975	1690	1035	1785	1100	1885	1165	1990	1315	227			
.1			5000	975	1690	1040	1790	1105	1890	1170	1995	1270	2170	1430	2470			
N			6000	1040	1790	1110	1895	1175	2005	1250	2120	1395	2390	1570	273			
1		0	7000	1110	1900	1180	2010	1255	2130	1375	2340	1540	2650	1740	304			
			8000		2015	1260	2140	1355	2295	1515	2595	1705	2955					
	11.11			1265	2140	1345	2275	1495	2540	1675	2880	1890	3300					
			10000		2280	1480	2505	1650	2820	1855	3215	2100	3705					
1	1.1	-	11000		2480	1640	2785	1830	3150	2065	3610	2345	4195					
2.1		1	12000	1625	2755	1815	3110	2035	3535	2300	40/3	2625	4775		+ 44.			

#### Figure 5-9. Takeoff Distance - Short Field

**Revision 6** 

#### CESSNA MODEL 208 (675 SHP)

#### WITHOUT CARGO POD

#### TAKEDFF DISTANCE

#### (GROUND ROLL DISTANCE AND TOTAL DISTANCE TO CLEAR 50 FEET)

FLAPS UP NOTES:

CONDITIONS: FLAPS O DEGREES 1900 RPM INERTIAL SEPARATOR - NORMAL CABIN HEAT - OFF TORQUE SET PER FIGURE 5-8 PAVED, LEVEL, DRY RUNHAY ZERO HIND

- NOTES: 1. USE TYPE 11 DR TYPE 1Y ANIT-ICE FLUID TAKEDFF TECHNIQUES AS SPECIFIED IN SECTION 4. 2. DECREASE DISTANCES 102 FOR EACH 11 KNOTS HEADWIND. FOR DPERATION WITH TAILWINDS UP TO 10 KNOTS. INCREASE DISTANCES BY 102 FOR EACH 2 KNOTS. 3. FOR DPERATION ON A DRY. GRASS RUNNAY. INCREASE DISTANCES BY 15% DF THE "GROUND ROLL" FIBURE. 4. HITH TAKEDFF POHER SET BELOW THE TORQUE LIMIT 11865 FT-LBSJ. INCREASE DISTANCE IBOTH GROUND ROLL AND TOTAL DISTANCEJ BY 3% FOR INCRTIAL SEPARATOR IN BYPASS AND INCREASE GROUND ROLL 5% AND TOTAL DISTANCE 9% FOR CABIN HEAT ON. 5. WHERE DISTANCE YALUES HAVE BEEN REPLACED BY DASHES OPERATING TEMPERATURE LIMITS OF THE ATRPLANE HOULD BE GREATLY EXCEEDED. THOSE DISTANCES WHICH ARE INCLUDED BUT THE OPERATION SLIGHTLY EXCEEDS THE TEMPERTURE LIMIT ARE PROVIDED FOR INTERPOLATION FURPOSES ONLY. PURPOSES ONLY.

HEIGHT		EDFF	PRESS	-21	o°c	-10	o°c		0°C	1	0°C
LBS	LIFT	AS AT 50 F1		GRD ROLL FT	TOTAL TD 50 FT	GRD ROLL FT	TOTAL TD 50 FT	GRD ROLL FT	TOTAL TO 50 FT	GRD ROLL FT	TOTAL TO 50 FT
8000	89	104	SL 2000 4000 6000 8000	1520 1700 1905 2145 2425	3685 413D	1610 1805 2025 2285 2580	3905 4380	1710 1915 2150 2425 2740	2975 3310 3690 4130 4635	2565	4360
	15	$\zeta = 1$	10000		4645 5320	2925 3490	4930 5955	3185 3885	5405 6730		
7500	89	104	4000 6000 8000 10000	2250 2550	3425 3840 4315	1500 1680 1885 2120 2395 2715 3240	3630 4070 4580	1590 1780 2000 2250 2545 2960	2770 3080 3430 3840 4310 5020	2385	4050
7000	89	89 104	6000 8000	1310 1465 1640 1845 2085	4945 2305 2555 2845 3175 3555 3995	1390 1555 1745 1965 2215	2435 2700 3010 3360 3770	3600 1470 1645 1850 2085 2355 2735	6245 2570 2850 3180 3555 3990 4645	1555 1740 1955 2205	2705 3005 3350 3750
	2	-	10000		3995 4570	2510 2990	4240 5115	3320	4645 5770		

Figure 5-10. Takeoff Distance - Flaps Up

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#### WITHOUT CARGO POD

#### RATE DF CLIMB - TAKEOFF FLAP SETTING FLAPS 20°

CONDITIONS: TAKEOFF POWER 1900 RPM INERTIAL SEPARATOR - NORMAL ZERO WIND

NDTES:

- DD NOT EXCEED TORQUE LIMIT FOR TAKEOFF PER ENGINE TORQUE FOR TAKEOFF CHART. WHEN ITT EXCEEDS 765°C, THIS POWER SETTING IS TIME LIMITED TO 5 MINUTES.
- 2. WITH CLIMB POWER SET BELOW THE TORQUE LIMIT, DECREASE RATE OF CLIMB BY 20 FPM FOR INERTIAL SEPARATOR IN BYPASS AND 45 FPM FOR CABIN HEAT DN.
- 3. WHERE RATE OF CLIMB VALUES HAVE BEEN REPLACED BY DASHES, OPERATING TEMPERATURE LIMITS OF THE AIRPLANE NOULD BE GREATLY EXCEEDED. THOSE RATES OF CLIMB WHICH ARE INCLUDED BUT THE OPERATION SLIGHTLY EXCEEDS THE TEMPERATURE LIMIT ARE PROVIDED FOR INTERPOLATION PURPOSES ONLY.

WEIGHT	PRESS	CLIMB	I.J.	RATE OF	CLIMB	- FPM
LBS	FT	KIAS	-20°C	0°C	20°C	40°C
8000	SL	92	1110	1090	1070	1050
	2000	92	1090	1065	1045	975
	4000	91	1065	1040	1015	875
	6000	91	1040	1010	985	760
	8000	90	1005	980	845	620
	10000	88	970	900	700	480
	12000	87	915	750	555	340
7500	SL	92	1230	1210	1190	1170
	2000	91	1210	1185	1165	1090
	4000	90	1185	1160	1135	990
	6000	90	1160	1130	1105	875
	8000	88	1125	1100	960	725
	10000	87	1090	1015	810	580
	12000	85	1035	860	660	435
7000	SL	91	1365	1345	1325	1305
10.1	2000	90	1340	1320	1300	1225
	4000	89	1320	1295	1270	1115
1.19	6000	89	1290	1265	1240	995
	8000	87	1260	1235	1090	840
	10000	86	1225	1150	935	690
	12000	84	1170	985	775	540

#### Figure 5-11. Rate of Climb - Takeoff Flap Setting

1 April 1998

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#### CESSNA MODEL 208 (675 SHP)

#### WITHOUT CARGO POD

#### CLIMB GRADIENT - TAKEDFF FLAP SETTING FLAPS 20°

CONDITIONS: TAKEOFF POWER 1900 RPM INERTIAL SEPARATOR - NORMAL ZERO WIND

#### NDTES:

- DD NDT EXCEED TORQUE LIMIT FOR TAKEOFF PER ENGINE TORQUE FOR TAKEOFF CHART. WHEN ITT EXCEEDS 765°C. THIS POWER SETTING IS TIME LIMITED TO 5 MINUTES.
- 2. WITH CLIMB POWER SET BELOW THE TOROUE LIMIT. DECREASE RATE OF CLIMB BY 10 FT/NM FOR INERTIAL SEPARATOR IN BYPASS AND 30 FT/NM FOR CABIN HEAT DN.
- 3. WHERE RATE OF CLIMB VALUES HAVE BEEN REPLACED BY DASHES. OPERATING TEMPERATURE LIMITS OF THE AIRPLANE WOULD BE GREATLY EXCEEDED. THOSE RATES OF CLIMB WHICH ARE INCLUDED BUT THE OPERATION SLIGHTLY EXCEEDS THE TEMPERATURE LIMIT ARE PROVIDED FOR INTERPOLATION PURPOSES ONLY.

WEIGHT	PRESS	CLIMB SPEED		CLIMB G	RADIENT	- FT/NM
LBS	FT	KIRS	-20°C	0°C	20°C	40°C
8000	SL	77	850	805	760	725
	2000	76	805	760	720	650
	4000	76	760	715	675	570
	6000	76	715	670	630	485
	8000	76	670	625	530	385
	10000	76	625	560	430	295
	12000	76	570	455	330	205
7500	SL	74	960	910	865	820
	2000	74	910	860	815	745
	4000	74	860	815	770	660
	6000	74	815	765	720	565
	8000	74	765	720	610	460
	10000	74	715	645	505	360
- 1.1	12000	73	655	530	400	270
7000	SL	72	1085	1030	980	935
	2000	72	1030	975	930	850
	4000	72	980	925	880	760
	6000	72	925	875	825	660
	8000	72	875	820	710	545
	10000	71	820	740	595	440
	12000	71	755	620	485	340

#### Figure 5-12. Climb Gradient - Takeoff Flap Setting

1 April 1998

#### WITHOUT CARGO POD

# MAXIMUM RATE OF CLIMB

CONDITIONS: 1900 RPM INERTIAL SEPARATOR - NORMAL ZERO WIND

NOTES:

- TORQUE SET AT 1865 FT-LBS OR LESSER VALUE MUST NOT EXCEED MAXIMUM CLIMB 1TT OF 765°C OR NG OF 101.6%.
- 2. WITH CLIMB POWER SET BELOW THE TORQUE LIMIT, DECREASE RATE OF CLIMB BY 30 FPM FOR INERTIAL SEPARATOR IN BYPASS AND 65 FPM FOR CABIN HEAT ON.
- 3. WHERE RATE OF CLIMB VALUES HAVE BEEN REPLACED BY DASHES. AN APPRECIABLE RATE OF CLIMB FOR THE WEIGHT SHOWN CANNOT BE EXPECTED OR OPERATING TEMPERATURE LIMITS OF THE AIRPLANE WOULD BE GREATLY EXCEEDED. THOSE RATES OF CLIMB WHICH ARE INCLUDED BUT THE OPERATION SLIGHTLY EXCEEDS THE TEMPERATURE LIMIT ARE PROVIDED FOR INTERPOLATION PURPDSES ONLY.

WEIGHT	PRESS	CLIMB	RATE OF CLIMB - FPM								
LBS	FT	KIAS	-40°C	-20°C	0°C	20°C	40° C				
8000	SL	107	1275	1260	1245	1230	985				
1.1	4000	105	1235	1220	1200	1085	705				
	8000	103	1190	1170	1090	795	455				
	12000	99	1130	1000	780	520	220				
	16000	95	870	690	485	240					
	20000	91	565	395	195						
-	24000	87	275	110							
7500	SL	107	1400	1385	1370	1355	1100				
	4000	104	1360	1345	1330	1210	810				
	8000	102	1315	1295	1210	905	545				
	12000	99	1255	1120	895	615	300				
	16000	94	985	800	585	330	40				
	20000	90	670	490	285	40					
	24000	86	370	200							
7000	SL	106	1535	1525	1510	1495	1225				
	4000	104	1500	1485	1470	1345	920				
	8000	101	1455	1435	1350	1025	645				
	12000	98	1395	1255	1015	725	390				
1	16000	93	1110	920	695	425	120				
	20000	89	785	600	380	125					
	24000	85	475	300	90						

#### Figure 5-13. Maximum Rate of Climb - Flaps Up

#### 1 April 1998

#### For Training Purposes Only

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#### CESSNA MODEL 208 (675 SHP)

#### WITHOUT CARGO POD

#### MAXIMUM CLIMB GRADIENT FLAPS UP

CONDITIONS: TAKEOFF POWER 1900 RPM INERTIAL SEPARATOR - NORMAL ZERO WIND

NOTES:

- DD NOT EXCEED TORQUE LIMIT FOR TAKEOFF PER ENGINE TORQUE FOR TAKEOFF CHART. WHEN ITT EXCEEDS 765°C, THIS POWER SETTING IS LIMITED TO 5 MINUTES.
- 2. WITH CLIMB POWER SET BELOW THE TOROUE LIMIT. DECREASE RATE OF CLIMB BY 10 FT/NM FOR INERTIAL SEPARATOR IN BYPASS AND 40 FT/NM FOR CABIN HEAT DN.
- 3. WHERE RATE OF CLIMB VALUES HAVE BEEN REPLACED BY DASHES, OPERATING TEMPERATURE LIMITS OF THE AIRPLANE WOULD BE GREATLY EXCEEDED. THOSE RATES OF CLIMB WHICH ARE INCLUDED BUT THE OPERATION SLIGHTLY EXCEEDS THE TEMPERATURE LIMIT ARE PROVIDED FOR INTERPOLATION PURPOSES ONLY.

WEIGHT	PRESS	CLIMB SPEED	CLIMB GRADIENT - FT/NM						
LBS	FT	KIAS	-20°C	0°C	20°C	40°C			
8000	SL	90	825	785	755	605			
0.000	2000	90	790	750	715	510			
	4000	90	750	715	630	420			
	6000	89	715	675	535	340			
	8000	89	675	610	445	· 265			
	10000	88	635	515	365	200			
Sec. 1	12000	88	545	420	285	130			
7500	SL	89	920	880	840	680			
1000	2000	88	880	840	800	585			
	4000	88	840	800	710	490			
	6000	87	BOD	760	610	405			
	8000	87	760	685	515	325			
	10000	8,6	720	585	430	255			
1.1	12000	86	520	490	340	180			
7000	SL	87	1025	980	940	770			
1.00	2000	87	980	940	900	665			
	4000	86	940	895	805	565			
	6000	86	895	855	695	475			
	8000	85	850	775	595	390			
	10000	85	810	670	500	315			
	12000	84	705	565	410	240			

#### Figure 5-14. Maximum Climb Gradient - Flaps Up

1 April 1998

#### WITHOUT CARGO POD

# CRUISE CLIMB

CONDITIONS: 1900 RPM INERTIAL SEPARATOR - NORMAL ZERO HIND

NDTES:

- 1. TORQUE SET AT 1865 FT-LBS OR LESSER VALUE HUST NOT EXCEED MAXIMUM CLIMB ITT OF 765°C OR NG OF 101.6%.
- 2. WITH CLIMB POWER SET BELOW THE TORQUE LIMIT. DECREASE RATE OF CLIMB BY 50 FPM FOR INERTIAL SEPARATOR IN BYPASS AND 70 FPM FOR CABIN HEAT ON.
- 3. WHERE RATE DF CLIMB VALUES HAVE BEEN REPLACED BY DASHES. AN APPRECIABLE RATE OF CLIMB FOR THE WEIGHT SHOWN CANNOT BE EXPECTED OR OPERATING TEMPERATURE LIMITS OF THE AIRPLANE WOULD BE GREATLY EXCEEDED. THOSE RATES OF CLIMB WHICH ARE INCLUDED BUT THE OPERATION SLIGHTLY EXCEEDS THE TEMPERATURE LIMIT ARE PROVIDED FOR INTERPOLATION PURPOSES ONLY.

WEIGHT	PRESS	CLIMB	RATE OF CLIMB - FPM							
LBS	FT	KIAS	-40°C	-20°C	0°C	20°C	40°C			
8000	SL	120	1265	1245	1220	1200	740			
	2000	120	1245	1220	1195	1055	585			
	4000	120	1220	1195	1170	890	430			
	6000	120	1195	1165	1120	725	275			
	8000	120	1165	1135	925	540	110			
	10000	120	1135	1045	735	365				
	12000	120	1100	850	540	195				
7500	SL	120	1385	1365	1340	1320	830			
1.201	2000	120	1365	1340	1315	1165	665			
(1)	4000	120	1340	1315	1290	995	505			
	6000	120	1315	1285	1235	815	340			
	8000	120	1285	1255	1030	625	165			
	10000	120	1255	1160	830	435				
1000	12000	120	1215	955	625	260				
7000	SL	120	1520	1495	1475	1455	930			
10111	2000	120	1495	1475	1450	1290	755			
	4000	120	1475	1450	1420	1110	585			
	6000	120	1450	1420	1365	920	410			
	8000	120	1420	1385	1145	715	225			
	10000	120	1385	1290	935	515	45			
	12000	120	1350	1065	720	325				

#### Figure 5-15. Cruise Climb - Flaps Up 120 KIAS

#### 1 April 1998

#### For Training Purposes Only

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#### CESSNA MODEL 208 (675 SHP)

#### WITHOUT CARGO POD

#### RATE OF CLIMB - BALKED LANDING FLAPS 30°

CONDITIONS: TAKEDFF POWER 1900 RPM INERTIAL SEPARATOR - NORMAL ZERO WIND

#### NOTES :

- DO NDT EXCEED TORQUE LIMIT FOR TAKEOFF PER ENGINE TORQUE FOR TAKEOFF CHART. WHEN ITT EXCEEDS 765°C, THIS POWER SETTING IS LIMITED TO 5 MINUTES.
- 2. WITH CLIMB POWER SET BELOW THE TORQUE LIMIT. DECREASE RATE OF CLIME BY 15 FPM FOR INERTIAL SEPARATOR IN BYPASS AND 45 FPM FOR CABIN HEAT DN.
- 3. WHERE RATE OF CLIMB VALUES HAVE BEEN REPLACED BY DASHES, OPERATING TEMPERATURE LIMITS OF THE AIRPLANE WOULD BE GREATLY EXCEEDED, THOSE RATES OF CLIMB WHICH ARE INCLUDED BUT THE OPERATION SLIGHTLY EXCEEDS THE TEMPERATURE LIMIT ARE PROVIDED FOR INTERPOLATION PURPOSES DNLY.

WEIGHT	PRESS	CL IMB SPEED		RATE O	F CLIMB	- FPM
LBS	FT	KIRS	-20°C	0°C	20°C	40°C
7800	SL	85	1020	1000	975	950
	2000	84	995	970	945	875
	4000	84	970	945	915	780
	6000	83	940	910	885	670
	8000	82	910	875	750	535
	10000	81	870	800	610	400
	12000	79	815	655	470	270
7300	SL	84	1140	1115	1095	1070
	2000	83	1115	1090	1065	995
	4000	83	1090	1060	1035	895
	6000	83	1060	1030	1000	780
	8000	81	1025	995	860	640
l l	10000	80	990	915	720	500
175.1	12000	79	935	765	575	360
6800	SL	83	1270	1250	1225	1200
1000	2000	83	1245	1225	1200	1125
1	4000	82	1220	1195	1170	1020
	6000	82	1195	1165	1135	900
	8000	80	1160	1130	990	755
	10000	79	1120	1045	840	610
	12000	77	1065	890	690	465

#### Figure 5-16. Rate of Climb - Balked Landing

1 April 1998

#### WITHOUT CARGO POD

#### TIME, FUEL, AND DISTANCE TO CLIMB MAXIMUM RATE OF CLIMB

CONDITIONS: FLAPS UP

1900 RPM

INERTIAL SEPARATOR - NORMAL

NOTES :

1. TORQUE SET AT 1865 FT-LBS OR LESSER VALUE HUST NOT EXCEED MAXIMUM CLIMB ITT DF 765°C OR NG DF 101.6%.

2. ADD 35 POUNDS OF FUEL FOR ENGINE START, TAXI, AND TAKEDFF ALLOWANCES. 3. DISTANCES SHOWN ARE BASED ON ZERO WIND.

4. WITH INERTIAL SEPARATOR SET IN BYPASS, INCREASE TIME, FUEL, AND

DISTANCE NUMBERS BY 12 FOR EACH 2000 FET OF CLIMB AND FOR CABIN HEAT ON INCREASE TIME, FUEL, AND DISTANCE NUMBERS BY 12 FOR EACH 1000 FEET OF CLIMB.

5. WHERE TIME. FUEL, AND DISTANCE VALUES HAVE BEEN REPLACED BY DASHES. AN APPRECIABLE RATE OF CLIMB FOR THE WEIGHT SHOWN CANNOT BE EXPECTED.

		1			CL	IMB F	ROM S	EA LEV	EL		100
	PRESS	CLIMB	20 D Stan		TEMP		TANDA		20 DEG C ABOVE STANDARD TEMP		
LBS	ALT FT	SPEED KIRS	TIME	FUEL	DIST		FUEL	DIST	TIME	FUEL	DIST
8000	SL	107	0	0	0	0	0	D	0	0	0
1.000	4000	105	03	24	6	3	24	6	4	27	1 7
1.11	8000	103	7	48	12	7	49	12	9	55	16
	12000	99	10	73	18	11	76	20	14	87	27
	16000	95	14	100	26	16	107	31	22	125	43
1	20000	91	20	132	37	24	145	46	34	180	69
	24000	87	30	178	57	37	203	74			
7500	SL	107	0	0	0	0	0	0	0	D	0
	4000	104	3	21	5	3	22	5	4	24	7
	8000	102	6	43	11	6	44	11	8	49	14
	12000	99	9	66	16	10	68	18	13	77	24
	16000	94	13	90	23	14	95	27	19	109	37
	20000	90	18	118	33	21	127	40	28	152	56
100	24000	86	26	155	49	31	171	60			
7000	SL	. 105	0	0	0	D	0	0	0	D	0
1.000	4000	104	03	19	5	03	20	5	3	22	6
1.00	8000	101	6	39	9	6	40	10	7	44	13
	12000	98	8	59	15	9	61	16	11	68	21
	16000	93	12	81	21	13	85	24	16	96	32
	20000	89	16	105	29	18	112	35	24	130	47
	24000	85	23	136	42	26	147	51	37	180	75

Figure 5-17. Time, Fuel, and Distance to Climb - Max Rate

1 April 1998

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#### WITHOUT CARGO POD

#### TIME, FUEL, AND DISTANCE TO CLIMB CRUISE CLIMB

CONDITIONS: FLAPS UP 1900 RPM INERTIAL SEPARATOR - NORMAL

NOTES:

1. TORQUE SET AT 1865 FT-LBS OR LESSER VALUE MUST NOT EXCEED MAXIMUM CLIMB ITT OF 765°C OR NG OF 101.6%.

2. ADD 35 POUNDS OF FUEL FOR ENGINE START. TAXI. AND TAKEOFF ALLOWANCES. 3. DISTANCES SHOWN ARE BASED ON ZERO WIND.

4. NITH INERTIAL SEPARATOR SET IN BYPASS OR CABIN HEAT ON INCREASE

TIME, FUEL. AND DISTANCE NUMBERS BY 1% FOR EACH 1000 FEET OF CLIMB.

					CL	IMB F	RDM S	ER LEV	/EL			
and a	Sec. 1	3.70			BELON		TANDA		20 DEG C ABOVE			
1.2.2.2	PRESS	CLIMB	STAN		TEMP		MPERR			DARD	TEMP	
WE I GHT LBS	ALT	SPEED	TIME	FUEL	DIST		FUEL	DIST NM		FUEL	DIST	
8000	SL	120	0	0	0	0	0	0	0	0	0	
1000	2000	120	2	12	37	2	13	3	3	16	5	
- I	4000	120	3	24	7	3	25	7	5	32	11	
	6000	120	5	36	10	5	38	11	8	50	17	
	8000	120	7	49	14	7	51 .	15	11	69	25	
	10000	120	9	61	18	10	66	21	15	91	34	
	12000	120	11	75	22	12	82	27	21	118	47	
7500	SL	120	0	O	0	0	0	0	0	0	D	
10.02	2000	120	2	11	3	2	11	3	2	14	5	
	4000	120	3	22	6	3	23	6	5	29	10	
	6000	120	5	33	9	5	34	10	7	44	15	
	8000	120	6	44	13	7	47	14	10	61	22	
	10000	120	8	56	16	9	60	19	14	80	30	
1.1	12000	120	10	68	20	11	74	24	18	103	40	
7000	SL	120	0	0	0	0	0	0	0	0	0	
10.1	2000	120	1	10	3	1	10	3	2	13	4	
	4000	120	3	20	5	3	21	6	4	26	9	
	6000	120	4	30	8	4	31	9	6	40	14	
	8000	120	6	40	11	6	42	13	9	54	19	
	10000	120	7	51	15	8	54	17	12	71	26	
	12000	120	9	61	18	10	67	22	16	90	35	

Figure 5-18. Time, Fuel, and Distance to Climb - Cruise Climb

1 April 1998

#### WITHOUT CARGO POD

# CRUISE PERFORMANCE NOTES

The following general information is applicable to all Cruise Performance Charts continued in Figure 19, Sheet 2 through Sheet 13, in this section.

- The highest torque shown for each temperature and RPM corresponds to maximum allowable cruise power. Do not exceed this torque, 740°C ITT, or 101.6% Ng, whichever occurs first.
- The lowest torque shown for each temperature and RPM corresponds to the recommended torque setting for best range in zero wind conditions.
- With the inertial separator in BYPASSS and power set below the torque limit (1865 foot-pounds), decrease the maximum cruise torque by 100 foot-pounds. Do not exceed 740°C ITT. Fuel flow for a given torque setting will be 15 pph higher.
- 4. With the cabin heat on and power set below the torque limit (1865 foot-pounds), decrease maximum cruise torque by 80 foot-pounds. Do not exceed 740°C ITT. Fuel flow for a given torque setting will be 7 pph higher.

Figure 5-19. Cruise Performance (Sheet 1 of 13)

1 April 1998

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# CESSNA MODEL 208 (675 SHP)

# WITHOUT CARGO POD

#### CRUISE PERFORMANCE PRESSURE ALTITUDE 2000 FEET

000 P	IONS: OUNDS AL SEPAR	RATOR -	NORM	AL	NOTE Do not exceed maximum cruise Torque or 740 deg c itt							
REFER	TO SHEE	T 1 F0	R APP	OPRIATE	NOTES	APPLI	CABLE TO	THIS	CHAR			
TEMP	1	900 RPM		1	750 RPM		1500 RPM					
DEG C	TORQUE FT-LBS	FUEL FLOW PPH	KTAS	TORQUE FT-LBS	FUEL FLOW PPH	KTAS	TORDUE FT-LOS	FUEL FLON PPH	KTRS			
45	1258	346	159	1347	346	158	1439	346	157			
35	1484	377	169	1585	377	168	1689	377	155			
	1340	356	162	1395	350	159	1500	351 345	158			
25	1703	409	177	1814	409	176	1925	409	173			
25 ()	1500	377	168	1700	392	171	1800	390	169			
	1320	350	159	1500	361	163	1600	361	161			
il sur a	2000		- 222	1390	346	158	1450	341	155			
15	1865	433	181	1970	430	180	1970	412	173			
	1700	406	175	1800	404	173	1800	386	157			
	1500	375	166	1600	373	165	1600	358	160			
	1320	347	157	1400	344	156	1430	335	152			
	- acc			1390	341	156						
5	1865	430	179	1970	427	178	1970	407	171			
-0.1	1700	403	173	1800	400	172	1800	383	165			
- 0	1500	372	164	1600	370	164	1600	354	158			
	1340	347	157	1400	341	155	1420	330	150			
	-			1360	336	153		0	_			
-5	1865	427	177	1970	423	176	1970	403	170			
121	1700	400	171	1800	397	170	1800	379	154			
	1500	369	162	1600	367	162	1600	351	156			
	1335	343	155	1400	338	153	1405	325	148			
		-	-	1345	330	150		1.53	1.10			
-15	1865	424	175	1970	419	174	1970	400	168			
	1700	397	169	1800	393	168	1800	375	162			
	1500	366	160	1600	364	160	1600	347	154			
	1325	340	152	1400	334	151	1400	321	146			
	1.11	-		1335	326	148	1390	319	145			
-25	1865	421	173	1970	415	171	1970	396	166			
- 14	1700	394	167	1800	390	166	1900	372	160			
	1500	364	158	1600	360	158	1600	344	153			
	1335	338	151	1400	332	149	1400	317	144			
				1325	321	146	1390	316	144			
-35	1865	420	171	1970	413	169	1970	392	164			
- 1	1700	392	164	1800	387	163	1800	368	159			
	1500	361	156	1600	357	156	1600	340	151			
-	1320	334	148	1400	329	147	1400	314	142			
AP	1000	-	100	1335	320	145	1375	310	141			
-45	1865	418	168	1970	410	167	1970	388	161			
- 1	1700	390 359	152	1800	383	151	1800	364 337	155			
	1500			1600	354		1600		149			
	1320	332	146	1400	326	145	1400	310	141			
54	1000	417	166	1335	317	143	1360	305	139			
-54	1965	387	160	1970 1800	408	155	1970	361	159			
- 1	1500	387	152	1800	381	159	1600	333	154			
-					323	144	and the second se	307	139			
	1335	332	144	1400	323	144	1400 1340	299	139			

Figure 5-19. Cruise Performance (Sheet 2 of 13)

1 April 1998

# WITHOUT CARGO POD

#### CRUISE PERFORMANCE PRESSURE ALTITUDE 4000 FEET

ONDIT 1000 P NERTI		ATOR -	NORME	IL.	NOTE DO NOT EXCEED MAXIMUM CRUISE Torque or 740 des c itt					
REFER	TO SHEE	T 1 F0	R APPR	OPRIATE		_				
TEMP	1	900 RPH	1		750 RPH		16	OD RPM		
DEG C	TORQUE	FUEL	1.11	TORQUE	FUEL	-	TORQUE	FUEL		
	FT-LBS	FLOW	KTRS	FT-LBS	FLOW	KTRS	FT-LBS	FLOW	KTR	
40	1259	335	152	1346	335	151	1437	335	159	
	2018			1345	335	161	1410	332	158	
30	1470	365	171	1567	365	170	1668	365	168	
	1300	339	152	1400	340	162	1500	341	161	
	1280	335	151	1335	330	159	1400	327	156	
20	1670	395	179	1778	395	177	1885	395	175	
	1500	367	171	1600	367	170	1700	366	168	
	1300	336	151	1400	337	151	1500	337	159	
	1270	332	159	1335	327	157	1395	323	154	
10	1865	426	185	1970	423	183	1970	404	176	
	1700	397	178	1800	395	176	1800	378	170	
	1500	365	169	1600	364	168	1600	349	162	
	1300	334	159	1400	334	159	1400	321	153	
-	1275	330	158	1325	323	155	1370	317	152	
0	1965	424	183	1970	421	181	1970	400	174	
	1700	395	176	1900	392	174	1800	374	168	
	1500	36Z	167	1600	361	166	1600	345	160	
	1300	331	157	1400	331	157	1400	318	152	
-	1270	327	156	1300	317	152	1355	312	149	
-10	1865	422	180	1970	418	179	1970	396	172	
	1700	392	174	1800	389	173	1800	371	166	
	1500	360	165	1600	358	165	1600	342	159	
	1300	329	155	1400	328	156	1400	314	150	
	1265	324	154	1290	312	150	1335	306	147	
-20	1865	420	178	1970	415	176	1970	392	170	
	1700	389	172	1800	385	171	1800	367	164	
	1500	357	163	1600	355	163	1600	339	157	
	1300	327	154	1400	325	154	1400	311	146	
_	1265	321	152	1275	307	148	1335	302	145	
-30	1865	418	176	1970	412	174	1970	389	168	
	1700	387	170	1800	38Z	168	1800	364	163	
	1500	355	151	1600	352	161	1600	335	155	
	1300	324	152	1400	322	152	1400	307	146	
	1270	320	150	1270	304	146	1325	297	143	
-40	1865	416	174	1970	409	172	1970	385	166	
	1700	384	167	1800	379	166	1900	360	161	
	1500	353	159	1600	349	158	1600	332	153	
	1300	322	150	1400	320	150	1400	304	145	
-	1250	315	147	1275	302	144	1315	293	141	
-50	1865	414	171	1970	407	170	1970	363	164	
	1700	383	165	1800	375	164	1800	357	158	
	1500	350	157	1600	346	155	1600	328	151	
	1300	320	147	1400	317	148	1400	301	143	
	1250	313	145	1265	298	142	1300	288	138	
-54	1865	414	170	1970	406	169	1970	382	163	
	1700	383	164	1800	376	163	1800	355	158	
	1500	349	156	1600	345	155	1600	327	150	
	1300	319	146	1400	315	147	1400	300	142	
	1250	313	144	1270	298	141	1295	205	137	

Figure 5-19. Cruise Performance (Sheet 3 of 13)

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# For Training Purposes Only

5-33

# CESSNA MODEL 208 (675 SHP)

# WITHOUT CARGO POD

# CRUISE PERFORMANCE PRESSURE ALTITUDE 6000 FEET

CONDIT 1000 P		RATOR -	NORM	11	NOTE Do not exceed maximum cruise Torque or 740 deg c itt						
	TO SHE		R RPP			RPPLI			CHAR		
TEKP		900 RPN			750 RPH			500 RPH	-		
DEG C	TORQUE FT-LBS	FUEL FLON PPH	KTAS	TORQUE FT-LBS	FUEL FLDW PPH	KTAS	TORQUE FT-LBS	FUEL FLOW PPH	KTA		
35	1251	324	164	1337	324	163	1425	324	161		
	1240	322	163	1285	316	160	1360	315	158		
25	1449	353	173	1545	353	172	1641	353	169		
10.14	1300	329	165	1400	331	165	1500	332	163		
	1230	318	151	1290	314	159	1350	310	156		
15	1634	380	180	1737	380	179	1841	381	176		
	1500	359	174	1600	359	173	1700	359	170		
	1300	327	163	1400	328	163	1500	329	162		
-	1220	315	159	1275	309	157	1335	305	154		
5	1819	413	186	1933	413	184	1970	399	179		
100	1700	390	181	1800	388	179	1800	371	173		
	1500	356	172	1600	356	171	1600	340	165		
	1300	324	162	1400	325	162	1400	312	155		
1	1220	312	157	1265	304	154	1325	301	152		
-5	1865	420	186	1970	418	184	1970	396	177		
1.00	1700	388	179	1800	386	177	1800	367	171		
100	1500	354	170	1600	353	169	1600	337	163		
10 A 10	1300	322	160	1400	322	160	1400	309	154		
	1215	309	155	1255	301	152	1305	295	149		
15	1865	419	184	1970	415	182	1970	392	175		
E 11	1700	386	177	1800	383	175	1800	363	169		
	1500	352	168	1600	350	167	1600	334	161		
	1300	320	158	1400	319	158	1400	305	152		
	1210	306	153	1235	295	150	1290	290	147		
-25	1865	416	181	1970	412	179	1970	388	173		
110.0	1700	384	175	1800	380	173	1800	360	167		
	1500	349	165	1600	347	165	1600	331	159		
	1300	318	156	1400	317	156	1400	302	151		
	1205	303	151	1215	290	147	1280	295	145		
-35	1865	414	179	1970	410	177	1970	385	171		
100	1700	393	172	1800	378	171	1800	357	165		
	1500	347	154	1600	344	163	1600	327	157		
	1300	315	154	1400	314	154	1400	299	149		
	1205	301	149	1215	287	145	1280	282	143		
-45	1865	413	177	1970	407	175	1970	383	169		
	1700	381	170	1800	375	169	1800	354	163		
	1500	345	162	1600	341	161	1500	324	156		
	1300	314	152	1400	311	152	1400	296	147		
	1195	297	146	1220	285	143	1260	217	140		
-54	1855	411	174	1970	404	173	1970	381	167		
1	1700	379	168	1800	374	167	1800	351	161		
	1500	343	160	1600	339	159	1600	321	154		
	1300	312	150	1400	309	150	1400	293	145		
	1205	297	145	1215	282	141	1250	273	138		

Figure 5-19. Cruise Performance (Sheet 4 of 13)

1 April 1998

# WITHOUT CARGO POD

#### CRUISE PERFORMANCE PRESSURE ALTITUDE 8000 FEET

ONDIT 000 PI NERTI		ATOR -	NORME	IL.	DO NOT EXCEED MAXIMUM CRUISE Torque or 740 deg c Itt						
REFER	TO SHEE	T 1 F0	R APPE	OPRIATE	NOTES	APPLI	CABLE TO	THIS	CHAR		
TEMP	1	900 RPM		1	750 RPM	-	1	500 RPH	-		
DEG C	TOROUE	FUEL	- market	TORQUE	FUEL		TORQUE	FUEL			
	FT-LB5	FLDN	KTAS	FT-LOS	FLOW	KTRS	F1-LB5	FLON	KIR		
30	1220	311	165	1302	311	164	1387	311	161		
20	1190	305	163	1245	302	160	1315	300	187		
20	1401 1200	338 305	174	1492	338 308	172	1583	338	170		
100	1185	303	161	1235	298	159	1400	310 296	161		
10	1575	354	181	1574	364	179	1771	364	176		
10	1400	335	172	1500	336	171	1600	337	169		
	1200	303	160	1300	305	161	1400	307	159		
10.00	1170	299	158	1235	Z95	157	1290	291	154		
0	1747	397	186	1855	397	184	1960	397	192		
	1600	367	180	1700	367	178	1900	356	175		
	1400	333	170	1500	333	169	1600	333	167		
	1200	301	159	1300	302	159	1400	304	158		
	1160	295	156	1220	290	154	1270	295	151		
-10	1866	418	189	1970	416	187	1970	395	180		
1.00	1700	386	182	1800	384	180	1800	363	174		
A	1500	347	173	1600	347	172	1600	331	165		
	1300	315	163	1400	315	163	1400	301	156		
	1165	293	155	1210	286	152	1260	281	149		
-20	1866	416	187	1970	413	185	1970	391	178		
100	1700	384	180	1800	381	178	1800	359	172		
	1500	345	171	1600	344	170	1500	328	164		
	1300	313	161	1400	312	161	1400	298	155		
	1165	291	153	1200	283	150	1240	275	146		
- 20	1865	414	185	1190 1970	281	149	1970	388	176		
-30	1700	382	178	1800	410 379	175	1800	357	170		
	1500	343	169	1600	341	168	1600	324	162		
	1300	310	159	1400	309	159	1400	295	153		
	1160	288	151	1200	280	148	1235	272	144		
100	0	0	0	1175	275	147	0	0	0		
-40	1965	411	182	1970	407	180	1970	384	173		
	1700	380	175	1800	376	174	1900	354	168		
1.0	1500	341	167	1600	339	166	1600	321	160		
	1300	308	157	1400	307	157	1400	292	151		
	1140	284	148	1200	278	146	1230	268	142		
	D	0	D	1170	273	145	0	0	0		
-50	1866	409	180	1970	404	178	1970	381	171		
	1700	378	173	1800	373	172	1900	352	165		
	1500	340	164	1600	337	164	1600	318	158		
1.01	1300	306	155	1400	304	155	1400	289	149		
1.1	1150	283	146	1200	275	144	1210	262	140		
	0	0	D	1170	271	143	0	0	0		
-54	1966	408	179	1970	403	177	1970	380	171		
	1700	378	172	1800	372	171	1900	350	165		
	1500	340	163	1600	336	163	1600	317	157		
1.1	1300	305	154 145	1400	303 274	154	1400	288 261	148		
	1155	203	145	1165	269	142	1205	201	139		

Figure 5-19. Cruise Performance (Sheet 5 of 13)

1 April 1998

# CESSNA MODEL 208 (675 SHP)

# WITHOUT CARGO POD

#### CRUISE PERFORMANCE PRESSURE ALTITUDE 10000 FEET

	OUNDS AL SEPAR				NOTE Do not exceed maximum cruise Torgue or 740 deg c itt e notes applicable to this chart							
A DESCRIPTION OF A DESC		Andrew States and the	A state of the	A second distance in a		-			CHAR			
TEMP		900 RPM	1.6.11		750 RPM			500 RPH				
DEG C	FT-LBS	FUEL FLOH PPH	KTAS	TORQUE FT-LOS	FUEL FLOW PPH	KTRS	TORQUE	FUEL	KTR			
25	1186	298	165	1265	299	164	1346	298	161			
	1145	292	163	1200	288	160	1270	285	157			
15	1349	322	174	1436	322	172	1523	322	169			
1.1.1.1	1200	298	165	1300	301	165	1400	303	163			
	1145	289	161	1185	283	158	1265	283	155			
5	1512	349	181	1606	349	179	1700	349	176			
A 41	1400	329	175	1500	330	174	1500	316	167			
1.001	1200	296	163	1300	298	153	1300	285	156			
	1135	285	159	1190	281	157	1250	278	153			
-5	1669	379	186	1773	379	184	1873	379	181			
100	1500	345	178	1600	346	177	1700	345	174			
	1300	310	167	1400	312	167	1500	312	165			
(	1115	280	156	1200	281	155	1300	283	155			
S		-	1.1	1175	276	154	1230	273	151			
-15	1814	406	190	1926	406	188	1970	394	183			
1111	1700	383	185	1800	382	183	1800	362	176			
	1500	344	176	1600	344	175	1600	325	158			
	1300	308	166	1400	309	165	1400	295	159			
	1125	280	155	1200	278	154	1215	258	149			
				1155	271	151	12000	0.0	-			
-25	1865	413	190	1970	411	188	1970	390	181			
	1700	381	183	1800	379	191	1800	358	174			
_	1500	342	174	1600	341	173	1600	322	156			
	1300	306	164	1400	305	164	1400	292	157			
_	1115	276	152	1200	276	152	1195	262	146			
				1145	267	149		-	-			
-35	1865	411	188	1970	408	185	1970	387	179			
	1700	379	181	1800	377	179	1800	355	172			
- 11	1500	341	172	1600	339	171	1600	320	164			
_	1300	304	161	1400	303	152	1400	289	155			
- 1	1115	274	151	1200	273	150	1195	259	144			
-				1135	263	147	H.A		10.00			
45	1865	410	185	1970	406	183	1970	383	176			
100	1700	377	179	1900	374	177	1800	353	170			
	1500	339	170	1600	337	169	1600	317	162			
	1300	302	159	1400	300	150	1400	285	153			
	1125	274	149	1200	271	149	1200	258	143			
	19. T. T.	1999	1.1.1	1115	258	143	1180	254	142			
54	1865	409	183	1970	404	191	1970	379	174			
100	1700	376	176	1800	372	175	1800	350	168			
	1500	338	157	1600	335	157	1600	315	151			
	1300	300	157	1400	298	158	1400	284	152			
	1105	270	146	1200	269	147	1200	255	141			
		6-4	2.12	1125	257	142	1165	250	140			

Figure 5-19. Cruise Performance (Sheet 6 of 13)

1 April 1998

# WITHOUT CARGO POD

# CRUISE PERFORMANCE PRESSURE ALTITUDE 12000 FEET

	OUNDS AL SEPAR		ale seres		TOR	QUE OR	NOTE ED MAXIN 740 des	CITT	
TEMP		T 1 FU	1.	OPRIATE	NOTES	RPPLI		D THIS	CHAR
DEG C	TORQUE	FUEL		TORQUE	FUEL				
UEG C	FT-LBS	FLOW	KTAS	FT-LBS	FLOW	KTAS	TORQUE FT-LBS	FUEL FLOW PPH	KTAS
20	1143	284	155	1219	284	164	1295	284	151
10.00	1125	281	154	1170	277	160	1240	275	157
10	1291	306	173	1374	306	172	1456	306	169
1.0	1125	279	152	1200	279	151	1300	282	150
	10000			1165	273	159	1240	273	156
0	1441	333	180	1531	333	178	1620	333	175
10.1	1300	307	172	1400	309	171	1500	310	169
1000	1110	274	159	1200	277	159	1300	279	158
		6 G. 1		1155	271	157	1225	268	154
-10	1589	362	196	1688	361	184	1783	361	181
122	1400	324	176	1500	325	175	1500	327	172
	1200	288	164	1300	289	154	1400	291	153
_	1100	271	157	1150	256	1.55	1205	262	151
-20	1715	384	189	1820	384	187	1919	384	184
	1600	362	184	1700	362	LBZ	1800	361	179
	1400	322	174	1500	323	173	1500	323	171
	1200	285	162	1300	287	152	1400	289	161
	1090	268	155	1135	262	152	1200	259	150
1.1	2050						1190	258	1 49
-30	1842	410	192	1955	409	190	1970	390	184
	1700	380	187	1800	378	184	1800	358	177
	1500	340	177	1600	340	176	1500	321	169
	1300	301	155	1400	302	166	1400	287	159
	1100	257	154	1200	270	154	1200	257	148
	1090	266	153	1120	257	150	1165	252	146
-40	1865	413	191	1970	410	188	1970	387	182
	1700	378	184	1800	375	182	1800	355	175
	1500	339	175	1600	338	174	1500	318	167
	1300	300	164	1400	300	164	1400	284	157
	1100	256	152	1200	267	153	1200	254	146
	1085	263	151	1110	253	147	1165	249	144
-50	1855	411	188	1970	408	186	1970	383	179
-00	1700	375	182	1800	373	180	1800	351	173
Sec. 1	1500	337	173	1600	335	172	1500	315	165
	1300	298	162	1400	298	152	1400	281	156
	1095	253	150	1200	265	151	1200	252	145
1.1	1095	253	150	1105	250	145	1160	245	142
-54	1865	411	187	1970	407	185	1970	382	178
-94	1700	375	181	1800	372	179	1800	350	172
	1500	375	172	1600	334	171	1500	315	164
- 1	1300		161	1400	297	151	1400	280	155
1		298							144
	1100	253	149	1200	264	150	1200	251	
-	1085	261	148	1100	249	144	1150	243	141

# Figure 5-19. Cruise Performance (Sheet 7 of 13)

# CESSNA MODEL 208 (675 SHP)

# WITHOUT CARGO POD

#### CRUISE PERFORMANCE PRESSURE ALTITUDE 14000 FEET

CONDIT		RATOR -	NORH	AL.			NOTE Ed Maxin 740 deg		
211-10 10 17	222 20174		1.1.1.1.1.1.1	OPRIATE			a dama ta an a dama	and the second second	
TEMP		900 RPM			750 RPM			600 RPM	
DEG C	FT-LBS	FUEL FLOW PPH	KTAS	TORQUE FT-L85	FUEL FLOW PPH	KTRS	TORQUE FT-LBS	FUEL FLOW PPH	KTAS
15	1093	270	164	1165 1160	270 269	152 152	1238 1230	270 268	159 158
5	1231 1105	291 270	172 163	1310 1200 1155	291 273 266	170 163 150	1388 1225	291 264	167 157
-5	1369 1200 1095	317 284 255	179 169 151	1454 1300 1140	317 287 261	177 168 158	1538 1400 1210	317 290 260	174 166 155
-15	1501 1300 1100	342 302 255	185 173 159	1594 1400 1200	342 305 269	182 172 160	1584 1500 1300	342 307 271	179 170 159
-25	1085 1615 1500 1300	263 363 340 300	159 188 182 171	1135 1714 1600 1400	258 362 341 303	156 186 181 171	1200 1807 1700 1500	256 362 342 304	153 183 178 168
-35	1100 1080 1735	263 250 388	158 156 191	1200 1120 1841	266 254 388	158 153 199	1300 1180 1939	269 250 387	158 150 186
-50	1600 1400 1200 1065	358 319 279 256	185 175 163 154	1700 1500 1300 1110	358 320 281 250	183 174 163 151	1800 1600 1400 1200 1165	358 320 283 252 245	190 171 162 150
- 45	1859 1700 1500 1300 1100	412 379 336 298 260	194 187 178 167 154	1970 1800 1600 1400 1200	411 377 336 298 262 245	192 185 177 167 155	1970 1800 1600 1400 1200	390 355 317 281 249 241	185 178 169 160 148 145
-54	1070 1865 1700 1500 1300 1100 1060	255 411 377 335 297 258 252	152 192 185 176 165 153 150	1095 1970 1800 1600 1400 1200 1080	245 409 375 334 296 260 242	148 189 183 175 165 154 146	1150 1970 1800 1600 1400 1200 1140	241 387 352 315 279 247 237	145 183 176 168 158 147 143

Figure 5-19. Cruise Performance (Sheet 8 of 13)

1 April 1998

#### WITHOUT CARGO POD

#### CRUISE PERFORMANCE PRESSURE ALTITUDE 16000 FEET

ONDIT 000 PI NERTII		ATOR -	NORMA	IL.	NOTE DO NOT EXCEED MAXIMUM CRUISE Torque or 740 deg c Itt						
REFER	TO SHEE	T 1 F0	R APP	OPRIATE	NOTES	APPLI	CABLE TO	THIS	CHAR		
TEMP	1	900 RPM		1	750 RPM	16	SOD RPM				
DEG C	FT-LBS	FUEL FLOW PPH	KTRS	TORQUE FT-LBS	FUEL FLOW PPH	KTRS	TOROUE F1-L85	FUEL FLOW PPH	KTR		
10	1045	256	162	1113	256	160	1183	256	156		
0	1173 1100	277 263	171 165	1248 1150	277 259	169 162	1322 1215	277 258	165 158		
-10	1298 1100	301 262	178	1379 1200	301 266	176	1458 1300	301 270	172		
-20	1090 1411 1300	260 322 300	163 183 176	1135 1499 1300	255 322 284	159 180 169	1210 1583 1400	255	156 177 167		
	1100	260	162	1120	251	157	1200	207 251 250	154		
-30	1517	342 319	186	1609	342 320	184	1697	342	191 171		
	1200 1055	279 251	168 157	1300 1115	282 247	167 155	1300 1180	266 245	160 152		
-40	1630 1500 1300	366 337 297	190 183 172	1729 1600 1400	366 338 299	187 182 172	1822 1700 1500	365 339 300	184 179 169		
	1100 1050	258 249	158 155	1200 1095	261 242	159 152	1300 1160	264 240	158 149		
-50	1744 1600 1400 1200	388 358 315 276	193 186 176 164	1851 1700 1500 1300	387 357 316 278	190 184 175 164	1951 1800 1600 1400	387 357 316 280	187 181 172 162		
	1035	244	152	1100 1090	242 239	150 150	1200 1135	244	151 146		
-54	1746 1600 1400	387 357 314	192 185 175	1852 1700 1500	387 356 315	189 183 174	1954 1800 1600	386 356 314	186 190 171		
	1200 1025	275 242	163 150	1300 1100 1005	277 241 238	163 150 149	1400 1200 1135	279 243 233	152 150 146		

Figure 5-19. Cruise Performance (Sheet 9 of 13)

1 April 1998

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# CESSNA MODEL 208 (675 SHP)

# WITHOUT CARGO POD

#### CRUISE PERFORMANCE PRESSURE ALTITUDE 18000 FEET

CONDIT	OUNDS AL SEPAI			AL ROPRIATE	DO NOT EXCEED MAXIMUM CRUISE Torque or 740 deg c itt Notes Applicable to this cha							
TEMP	1	900 RPH	1	1'	750 RPN	1	GOD RPM					
DEG C	TORQUE F1-L85	FUEL FLOM PPH	KTRS	1DRQUE FT-LBS	FUEL FLOW PPH	KTRS	TORDUE F1-L85	FUEL FLON PPH	KTAS			
5	998	243	159	1053	243	157	1129	243	153			
-5	1113	264	169	1184	264	166	1255	263	163			
	1055	252	164	1120	251	161	1195	252	158			
-15	1228	285	175	1305	285	174	1380	285	170			
	1100	250	165	1105	247	159	1200	251	157			
-	1040	248	161				1175	245	155			
-25	1324	303	181	1405	303	178	1486	303	175			
100	1200	278	172	1300	282	172	1300	267	163			
	1025	244	158	1100	244	157	1170	242	154			
			223	1095	241	156						
-35	1420	322	184	1506	322	182	1590	322	178			
	1300	297	177	1400	300	175	1400	284	168			
	1100	257	163	.1200	261	163	1200	246	155			
	1005	238	155	1075	238	154	1145	237	151			
-45	1524	344	188	1616	343	185	1705	343	182			
	1400	317	181	1500	319	190	1500	300	172			
	1200	275	168	1300	279	168	1300	263	160			
	995	236	153	1100	241	154	1130	232	149			
				1060	233	151	and the second					
-54	1578	353	188	1673	352	186	1755	351	183			
	1400	315	179	1500	317	178	1600	318	175			
	1200	274	167	1300	277	166	1400	279	165			
	1000	235	151	1100	239	153	1200	243	152			
	980	232	150	1040	228	148	1110	227	146			

Figure 5-19. Cruise Performance (Sheet 10 of 13)

1 April 1998

# WITHOUT CARGO POD

#### CRUISE PERFORMANCE PRESSURE ALTITUDE 20000 FEET

ONDIT		ATOR -	NORMA	IL.	NOTE DO NOT EXCEED MAXIMUM CRUISE Torgue or 740 deg c Itt							
REFER	TO SHEE		R APPR	OPRIATE		RPPLI		THIS	CHART			
TEMP		900 RPM			750 RPH			500 RPM				
DEG C	FT-LBS	FLOW	KTRS	TORQUE FT-LBS	FUEL FLOW PPH	KTAS	TORQUE FT-L85	FUEL FLOW PPH	KTAS			
0	944	229	154	1004	229	151	1065	229	146			
-10	1050	249	165	1115	249	153	1183	249	158			
	1015	242	152	1075	241	159	1170	246	157			
-20	1153	269	173	1225	268	170	1296	268	166			
	1005	239	159	1100	244 235	150	1150	240	154			
-30	1239	284	178	1316	284	175	1391	284	172			
	1100	257	157	1200	262	157	1200	247	158			
	995	235	157	1045	231	154	1130	234	152			
-40	1328	303	182	1408	303	179	1487	302	176			
	1200	275	173	1300	279	173	1300	264	164			
	1000	236	155	1100	241	157	1110	228	149			
	980	231	154	1035	228	152	1.000					
-50	1423	322	185	1509	321	183	1593	321	179			
	1300	295	178	1400	299	177	1400	281	169			
	1100	254	164	1200	258	164	1200	243	155			
	970	228	152	1010	222	149	1085	223	146			
-54	1421	321	184	1507	320	182	1591	319	178			
100	1300	295	177	1400	298	176	1400	280	168			
	1100	254	163	1200	257	153	1200	243	155			
-	960	226	150	1005	220	147	1070	219	145			

Figure 5-19. Cruise Performance (Sheet 11 of 13)

#### CESSNA MODEL 208 (675 SHP)

#### WITHOUT CARGO POD

#### CONDITIONS -7500 POUNDS INERTIAL SEPARATOR - NORMAL NOTE DO NOT EXCEED MAXIMUM CRUISE Torque or 740 deg c itt REFER TO SHEET 1 FOR APPROPRIATE NOTES APPLICABLE TO THIS CHART 1500 RPM TEHP 1900 RPN 1750 RPH DEG C TOROUE FUEL TORDUE FUEL TORQUE FUEL FT-LBS FLOW KTRS FT-LBS FLOW KTRS F1-L85 FLOW KTAS PPH PPH PPH -5 -15 -25 -35 -45 -54

#### CRUISE PERFORMANCE PRESSURE ALTITUDE 22000 FEET

Figure 5-19. Cruise Performance (Sheet 12 of 13)

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1 April 1998

# WITHOUT CARGO POD

#### CRUISE PERFORMANCE PRESSURE RLTITUDE 24000 FEET

	DUNDS AL SEPAR		NORME	Concerned to the	TOR	QUE OR	NOTE Ed Maxim 740 deg	C ITT	
TEMP		1 1 FU	R BPPP	OPRIATE	750 RPM	HPPLI		SOD RPH	CHHRI
DEG C	TORQUE FT-LBS	FUEL FLON PPH	KIAS	TORQUE FI-LOS	FUEL FLOW PPH	KTAS	TORQUE FT-LBS	FUEL FLON PPH	KTAS
-10	837	203	156	891	203	153	946	203	147
-20	927	220	155	986	Z20	163	1045	220	159
	880	211	151	935	21D	159	1015	215	155
-30	1005	235	172	1068	235	170	1131	235	166
	875	208	159	925	205	156	1005	Z10	154
-40	1078	249	177	1146	249	174	1213	249	171
	900	213	150	1000	220	162	1100	226	162
	680	208	158	910	202	153	985	204	151
-50	1158	266	181	1229	266	179	1298	265	175
1	1000	232	158	1100	238	169	1100	225	160
	850	202	153	900	199	151	965	199	148
-54	1154	265	180	1225	264	177	1295	263	174
	1000	231	158	1100	237	169	1100	223	160
	845	200	1.52	900	198	151	955	197	147

Figure 5-19. Cruise Performance (Sheet 13 of 13)

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CESSNA MODEL 208 (675 SHP)

#### WITHOUT CARGO POD FUEL AND TIME REQUIRED MAXIMUM CRUISE POWER (40 - 200 Nautical Miles)

CONDITIONS:

8000 Pounds

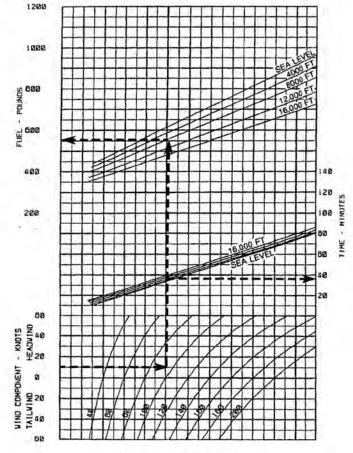
1900 RPM

Inertial Separator - Normal

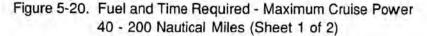
Standard Temperature

NOTES:

 Fuel required includes the luel used for engine start, taxi, takeoff, maximum climb from sea level, descent to sea level and 45 minutes reserve. Time required includes the time during a maximum climb and descent.
 With inertial separator in BYPASS or cabin heat on, increase time by 3% and fuel by 2%.



DISTANCE - NAUTICAL MILES



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# SECTION 5 PERFORMANCE

#### WITHOUT CARGO POD FUEL AND TIME REQUIRED MAXIMUM CRUISE POWER (200 - 1000 Nautical Miles)

#### CONDITIONS:

8000 Pounds

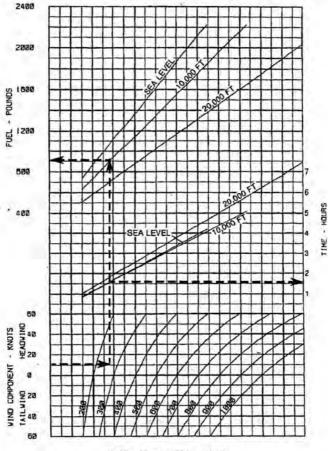
1900 RPM

Inertial Separator - Normal

Standard Temperature

NOTES:

 Fuel required includes the fuel used for engine start, taxi, takeoff, maximum climb from sea level, descent to sea level and 45 minutes reserve. Time required includes the time during a maximum climb and descent.
 With inertial separator in BYPASS or cabin heat on, increase time by 3% and fuel by 2%.



DISTANCE - NAUTICAL MILES

Figure 5-20. Fuel and Time Required - Maximum Cruise Power 200 - 1000 Nautical Miles (Sheet 2 of 2)

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#### For Training Purposes Only

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CESSNA MODEL 208 (675 SHP)

#### WITHOUT CARGO POD FUEL AND TIME REQUIRED MAXIMUM RANGE POWER (40 - 200 Nautical Miles)

CONDITIONS:

8000 Pounds

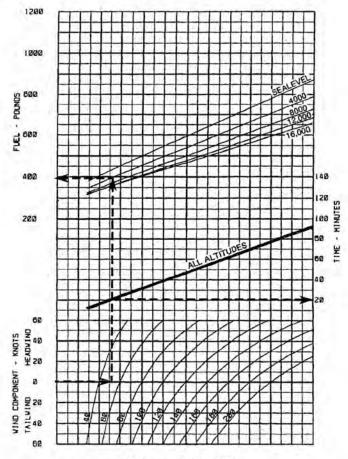
1900 RPM

inertial Separator - Normal

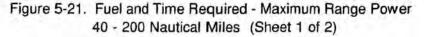
Standard Temperature

NOTES:

 Fuel required includes the fuel used for engine start, taxi, takeoff, maximum climb from sea level, descent to sea level and 45 minutes reserve. Time required includes the time during a maximum climb and descent. 2.) With inertial separator in BYPASS or cabin heat on, increase time by 3% and fuel by 2%.



DISTANCE - NAUTICAL MILES



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# SECTION 5 PERFORMANCE

# WITHOUT CARGO POD FUEL AND TIME REQUIRED MAXIMUM RANGE POWER (200 - 1000 Nautical Miles)

CONDITIONS:

8000 Pounds

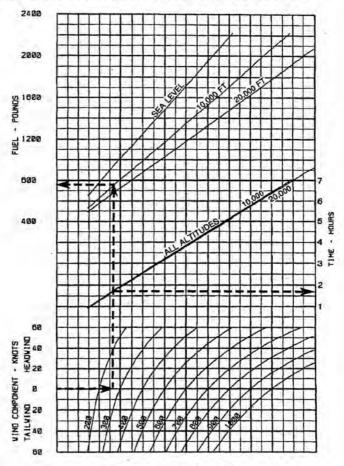
1900 RPM

Inertial Separator - Normal

Standard Temperature

NOTES:

 Fuel required includes the fuel used for engine start, taxi, takeoff, maximum climb from sea level, descent to sea level and 45 minutes reserve. Time required includes the time during a maximum climb and descent.
 With inertial separator in BYPASS or cabin heat on, increase time by 3% and fuel by 2%.



DISTANCE - NAUTICAL MILES

Figure 5-21. Fuel and Time Required - Maximum Range Power 200 - 1000 Nautical Miles (Sheet 2 of 2)

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#### For Training Purposes Only

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# CESSNA MODEL 208 (675 SHP)

#### WITHOUT CARGO POD

#### RANGE PROFILE 45 MINUTES RESERVE 2224 LBS USABLE FUEL

CONDITIONS:

#### NOTES:

 This chart allows for the fuel used for engine start, taxi, takeoff, climb and descent. The distance during a maximum climb and the distance during descent are included.

8000 Pounds 1900 RPM Standard Temp Zero Wind Inertial Separator - Normal

 With the inertial separator in BYPASS or cabin heat on, decrease range by 2%.

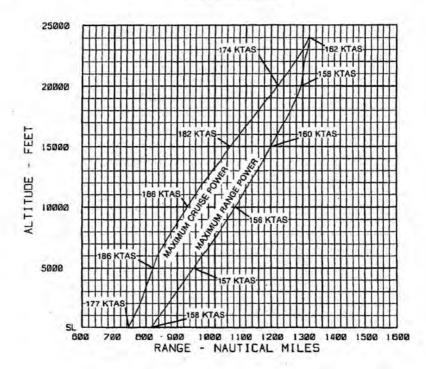


Figure 5-22. Range Profile

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#### SECTION 5 PERFORMANCE

#### WITHOUT CARGO POD

#### ENDURANCE PROFILE 45 MINUTES RESERVE 2224 LBS USABLE FUEL

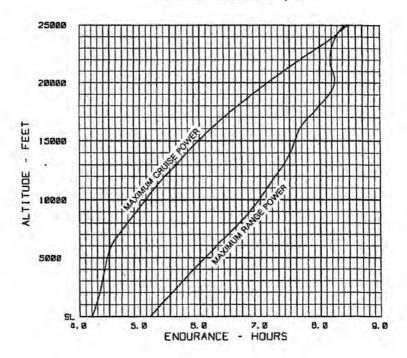
CONDITIONS:

8000 Pounds

Inertial Separator - Normal

1900 RPM Standard Temp NOTES:

- This chart allows for the fuel used for engine start, taxi, takeoff, climb and descent. The distance during a maximum climb and the distance during descent are included.
- 2. With the inertial separator in BYPASS or cabin heat on, decrease endurance by 2%.



#### Figure 5-23. Endurance Profile

1 April 1998

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CESSNA MODEL 208 (675 SHP)

#### WITHOUT CARGO POD

# TIME, FUEL AND DISTANCE TO DESCEND

#### CONDITIONS:

Flaps Up 8000 Pounds 140 KIAS Above 16,000 feet, 160 KIAS Below 16,000 feet Power Set for 800 FPM Rate of Descent 1900 RPM

PRESSURE	DES	CEND TO SEA LE	VEL
ALTITUDE (FEET)	TIME (MIN)	FUEL USED (POUNDS)	DIST (NM)
24,000	30	118	91
20,000	25	102	75
16,000	20	86	59
12,000	15	65	43
8,000	10	45	28
4,000	5	23	14
Sea Level	0	0	0

#### NOTE

Distances shown are based on zero wind.

Figure 5-24. Time, Fuel and Distance to Descend

1 April 1998

# LANDING DISTANCE

#### MAXIMUM WEIGHT 7800 LBS SHORT FIELD

#### CONDITIONS:

- Flaps 30° Power Lever - Idle after clearing obstacles, BETA range (lever against spring) after touchdown. Propeller Control Lever - MAX Maximum Braking Paved, Level, Dry Runway Zero Wind
- 1. Short field technique as specified in Section 4.

NOTES:

- 2. Decrease distances 10% for each 11 knots headwind. For operation with tailwinds up to 10 knots, increase distances by 10% for each 2.5 knots.
- 3. For operation on a dry, grass runway, increase distances by 40% of the "ground roll" figure.
- 4. If a landing with flaps up is necessary, increase the approach speed by 15 KIAS and allow for 40% longer distances.
- 5. Use of maximum reverse thrust after touchdown reduces ground roll by approximately 10%.
- 6. Where distance values have been replaced by dashes, operating temperature limits of the airplane would be greatly exceeded. Those distances which are included but the operation slightly exceeds the temperature limit are provided for interpolation purposes only.

1000	SPEED	00500	-	10°C		D°C	1	0°C	2	0°C	3	0°C	4	0°C
WEIGHT LBS	AT 50 FT KIAS	PRESS ALT FT	GRD ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	FT         GRD           AR         ROLL           BBS         FT           5         775           0         805           5         835           0         865	TOTAL FT TO CLEAR 50 FT OBS								
7800	78	S.L.	655	1525	680	1565	705	1605	725	1645	750	1685		1725
100		1000	675	1565	705	1605	730	1645	755	1690	780	1730		1770
		2000	700	1605	730	1645	755	1690	780	1735	810	1775		1815
- 10		3000	730	1645	755	1690	785	1735	810	1780	840	1820		1865
		4000	755	1690	785	1735	815	1780	840	1825	870	1870		1915
		5000	785	1735	815	1785	845	1830	875	1875	905	1925	935	1970
1.103	a	6000	815	1785	845	1830	875	1880	910	1930	940	1975	970	2025
1.11		7000	845	1835	880	1885	910	1935	945	1980	975	2030	1005	2080
1.102		8000	880	1885	915	1935	945	1985	980	2040	1015	2090	1045	2140
		9000	915	1935	950	1990	985	2045	1020	2095	1055	2150		
		10,000	950	1990	985	2045	1020	2100	1060	2155	1095	2210		
		11,000	985	2050	1025	2105	1060	2165	1100	2220	1135	2275	- <u></u>	
		12,000	1025	2110	1065	2170	1105	2225	1145	2285	1185	2340	-	

WITHOUT CARGO POD

PERFORMANC mon

CESSNA MODEL 208 (675 SHP)

For Training Purposes Only

April 1998

Figure

5-25.

Landing

Distance

(Sheet

of 2)

# WITHOUT CARGO POD

# LANDING DISTANCE

# 7300 LBS AND 6800 LBS SHORT FIELD

DEEED TO

	SPEED	PRESS	-	10°C		0°C	1.1.1	0°C	2	0°C	3	0°C	4	0°C
LBS	AT 50 FT KIAS	ALT	GRD ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRD ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRD ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRD ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRD ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRD ROLL FT	TOTAL FI TO CLEAR 50 FT OBS
7300	75	S.L. 1000 2000 3000 4000 5000 5000 5000 7000 8000 9000 10,000 11,000 12,000	510 635 660 685 710 735 765 795 825 855 890 925 960	1450 1490 1525 1565 1610 1695 1745 1790 1840 1895 1950 2005	635 660 685 710 735 765 795 825 855 890 925 960 1000	1490 1530 1570 1610 1650 1695 1745 1790 1840 1890 1945 2000 2060	660 685 710 735 760 790 820 855 885 920 960 995 1035	1525 1565 1610 1655 1740 1790 1840 1890 1940 2000 2055 2115	680 705 735 760 790 820 850 850 855 920 955 990 1030 1070	1565 1605 1650 1735 1785 1835 1885 1885 1935 1990 2050 2110 2170	705 730 760 785 815 845 880 915 950 985 1025 1065 1110	1605 1645 1690 1735 1780 1830 1830 1930 1935 2040 2100 2160 2225	730 755 785 810 845 875 910 945 980	1640 1685 1730 1775 1820 1870 1925 1975 2030 
6800	72	S.L. 1000 2000 3000 4000 5000 6000 7000 8000 9000 10,000 11,000 12,000	570 590 610 635 660 685 710 735 765 795 825 860 895	1385 1420 1455 1535 1535 1615 1660 -1705 1755 1805 1855 1805	590 610 635 660 685 710 735 765 795 825 880 890 930	1420 1455 1495 1535 1575 1615 1660 1705 1750 1800 1800 1800 1905 1960	610 635 660 685 710 735 765 795 825 855 855 890 925 960	1455 1495 1535 1575 1615 1660 1705 1750 1800 1850 1900 1955 2010	635 655 680 705 735 760 790 820 855 885 920 960 995	1490 1530 1570 1610 1655 1700 1745 1795 1845 1895 1950 2005 2065	655 680 705 730 760 785 815 850 880 915 955 990 1030	1530 1565 1610 1655 1740 1790 1835 1890 1940 1995 2055 2115	675 700 730 755 785 815 845 875 910	1565 1605 1645 1690 1735 1780 1830 1880 1935

Figure 5-25. Landing Distance (Sheet 2 of 2)

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For Training Purposes Only

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#### CARGO POD INSTALLED

#### TAKEOFF DISTANCE

#### (GROUND ROLL DISTANCE AND TOTAL DISTANCE TO CLEAR 50 FEET) SHORT FIELD

#### CONDITIONS: FLAPS 20 DEGREES 1900 RPM

ZERO WIND

INERTIAL SEPARATOR - NORMAL CABIN HEAT - OFF TORQUE SET PER FIGURE 5-8

PAVED, LEVEL, DRY RUNWAY

NOTES:

- 1. USE SHORT FIELD TECHNIQUES AS SPECIFIED IN SECTION 4. 2. DECREASE DISTANCES 10% FOR EACH 11 KNOTS HEADWIND. FOR OPERATION WITH TAILWINDS UP TO 10 KNOTS, INCREASE DISTANCES BY 10%. FOR EACH 2 KNOTS.
- 3. FOR OPERATION ON A DRY, GRASS RUNWAY, INCREASE DISTANCES BY 15% OF THE "GROUND ROLL" FIGURE
- WITH TAKEOFF POWER SET BELOW THE TORQUE LIMIT (1865 FT-LB5), INCREASE DISTANCE (BOTH GROUND ROLL AND TOTAL DISTANCE) BY 3% FOR INERTIAL SEPARATOR IN BYPASS AND INCREASE GROUND ROLL 5% AND TOTAL DISTANCES 10% FOR CABIN HEAT ON
- 5. WHERE DISTANCE VALUES HAVE BEEN REPLACED BY DASHES, OPERATING TEMPERATURE LIMITS OF THE AIRPLANE WOULD BE GREATLY EXCEEDED. THOSE DISTANCES WHICH ARE INCLUDED BUT THE OPERATION SLIGHTLY EXCEEDS THE TEMPERATURE LIMIT ARE PROVIDED FOR INTERPOLATION PURPOSES ONLY

HT			PRESS	-10°C		0°C		10°C		20°C		30°C		40°C	
LB	KI	AS	ALT	GRD	TOTAL	GRD	TOTAL	GRD	TOTAL	GRD	TOTAL	GRD	TOTAL	GRD	TOTAL
	LIFT	AL.	FT	ROLL	TO	ROLL	TO	ROLL	TO	ROLL	TO	ROLL	10	ROLL	TO
1.1	DFF	50 FT	19.11	FT	50 FT	FI	50 FT	FT	50 F1						
8	72	82	SL	1010	1820	1070	1925	1135	2035	1205	2145	1275	2260	1345	2380
0		12	1000	1070	1925	1135	2035	1205	2150	1280	2270	1355	2395	1445	2550
0000			2000	1135	2035	1210	2155	1285	2275	1360	2405	1440	2535	1570	2780
0			3000	1205	2150	1285	2280	1365	2415	1450	2550	1535	2690	1705	3035
511			4000	1285	2280	1370	2415	1455	2560	1540	2705	1640	2870	186D	3320
			5000	1370	2420	1455	2565	1550	2720	1645	2880	1790	31 45	2025	3640
			6000	1460	2570	1555	2725	1655	2890	1755	3065	1975	3500	2240	4070
			7000	1555	2730	1660	2900	1765	3080	1940	3410	2190	3925	2495	4615
			8000	1660	2905	1775	3090	1910	3330	2150	3820	2435	4430		
			9000		3100	1900	3300	2115	3725	2390	4295	2715	5035		
				1905	3305	2090	3660	2350	4180	2660	4865	3040	5775		
			11000	2075	3620	2325	4120	2520	4740	2980	\$570	3415	6730	****	
			12000	2310	4070	2595	4665	2930	5415	3345	6445	3855	7995	****	
7	70	80	SL	860	1545	915	1635	970	1725	1025	1815	1085	1915	1145	2010
5	100		1000	910	1635	970	1725	1030	1820	1090	1920	1150	2025	1225	2155
0	0.0		2000	970	1725	1030	1825	1090	1925	1155	2030	1225	21 40	1335	2340
0			3000	1030	1820	1095	1930	1160	2040	1230	2150	1305	2270	1450	2550
			4000	1095	1930	1165	2045	1235	2160	1310	2280	1390	2415	1575	2775
			5000	1165	2045	1240	2165	1315	2295	1395	2425	1515	2640	1715	3030
				1240	2165	1320	2300	1405	2435	1490	2575	1670	2925	1890	3375
				1320	2300	1410	2445	1500	2590	1645	2860	1850	3265	2100	3795
				1410	2445	1505	2600	1620	2795	1820	3185	2050	3660		
			9000	1510	2605	1610	2770	1790	3110	2015	3560	2280	4125		
1			10000	1615	2775	1770	3065	1985	3475	2240	4000	2545	4680		
			11000		3030	1965	3430	2205	3910	2500		2850	5365		
111			12000	1950	3390	2185	3855	2460	4425	2795	5175	3205	6215		
7	67	77	SL	730	1305	775	1380	820	1455	870	1530	915	1610	970	1690
Ó			1000		1375	820	1455	870	1535	920	1615	975	1700	1040	1805
Ō.			2000	820	1450	870	1535	925	1620	980	1705	1035	1795	1125	1960
ō			3000	870	1535	925	1620	985	1710	1040	1805	1100	1900	1220	2125
			4000	925	1620	985	1715	1045	1815	1110	1915	1175	2025	1325	2310
			5000	985	1715	1050	1815	1115	1920	1180	2030	1280	2205	1440	2515
			6000	1050	1820	1115	1925	1185	2040	1260	2155	1410	2435	1590	2785
			7000	1120	1930	1190	2045	1265	2165	1385	2380	1555	2705	1760	3115
			8000	1195	2050	1270	2175	1365	2335	1530	2640	1720	3015		1.000
				1275	2180	1360	2315	1510	2585	1690	2940	1910			
			10000	1360	2320	1495	2550	1655	2875	1875	3285	2125	3800	14446	
			11000	1480	2520	1655	2840	1850		2090		2375			
		-	02000	1640	2810	1835	3175	2060	3615	2330	4180	2655	4920		

6. FOR OPERATIONS ABOVE 40°C AND BELOW THE TEMPERATURE OPERATING LIMITATIONS, MULTIPLY TAKEOFF DISTANCES AT 40°C BY 1.2.

# Figure 5-26. Takeoff Distance - Short Field

#### **Revision 6**

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#### CARGO POD INSTALLED

#### TAKEOFF DISTANCE

#### (GROUND ROLL DISTANCE AND TOTAL DISTANCE TO CLEAR 50 FEET) FLAPS UP

CONDITIONS: FLAPS O DEGREES 1900 RPM INERTIAL SEPARATOR - NORMAL CABIN HEAT - OFF Torque set per figure 5-B Paved, level, dry runnay ZERO HIND

SECTION 5

PERFORMANCE

- NOTES:

- NOTES: 1. USE TYPE II OR TYPE IV ANIT-ICE FLUID TAKEOFF TECHNIDUES AS SPECIFIED IN SECTION 4. 2. DECREASE DISTANCES 10% FOR EACH 11 KNOTS HEADWIND. FOR OPERATION WITH TAILHINDS UP TO 10 KNOTS. INCREASE DISTANCES BY 10% FOR EACH 2 KNOTS. 3. FOR OPERATION ON A DRY, GRASS RUNNAY. INCREASE DISTANCES BY 15% OF THE "GROUND ROLL" FIGURE. 4. WITH TAKEOFF POWER SET BELOW THE TOROUE LINIT (1865 FT-LBS). INCREASE DISTANCE IBOTH GROUND ROLL AND TOTAL DISTANCE JBY 3% FOR IMERIAL SEPARATOR IN BYPASS AND INCREASE GROUND ROLL 5% AND TOTAL DISTANCE 5% FOR CABIN HEAT ON. 5. WHERE DISTANCE VALUES HAVE BEEN REPLACED BY DASHES DPERATING TEMPERATURE LIMITS OF THE AIRPLANE HOULD BE GREATLY EXCEEDED. THOSE DISTANCES WHICH ARE INCLUDED BUT THE DPERATION SLIGHTLY EXCEEDES THE TEMPERATURE LIMIT RE PROVIDED FOR INTERPOLATION
- TEMPERATURE LIMIT ARE PROVIDED FOR INTERPOLATION PURPOSES ONLY.

NEIGHT	TAKEOFF SPEED KIAS LIFT AT DFF 50 FT		PRESS ALT FT	-20°C		-1	o°c	1	o*c	10°C	
LBS				GRO ROLL FT	TOTAL TO 50 FT	GRD ROLL FT	TOTAL TO 50 FT	GRD ROLL FT	TOTAL TO 50 FT	GRD ROLL FT	TOTAL TO 50 F1
8000	89	104		1930	2720 3020 3365	1630 1830 2055	2875 3195 3565	1730 1940 2180	3035 3375 3765	1830 2050 2305	3195 3560 3975
			5000 8000 10000 12000	2455 2785	3760 4220 4750 5455	2315 2615 2965 3545	3985 4475 5050 6125	2455 2780 3235 3945	4220 4745 5545 6955	2605	4455
7500	89	104	SL 2000	1430	2535 2810 3130	1520 1700	2675 2975 3315	1610 1800 2025	2825 3140 3505	1700 1905 2145	2975 3310 3695
			6000 8000 10000	2020 2285 2585	3500 3925 4415	2150 2430 2755	3710 4160 4690	2285 2580 3000	3925 4410 5150	2420	4145
7000	89	104	12000 SL 2000 4000	1325 1480	5065 2350 2605 2900	3290 1405 1575 1765	5690 2480 2755 3070	3660 1490 1670 1875	6455 2620 2910 3245	1575 1765 1985	2755 3065 3425
			6000 8000 10000	2110	3240 3630 4053	1990 2245 2545	3435 3850 4340	2110 2385 2775	3630 4080 4765	2235	3835
	_		12006		4285	3040	5269	3375	5985	25.00	

Figure 5-27. Takeoff Distance - Flaps Up

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For Training Purposes Only

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#### CARGO POD INSTALLED

#### RATE OF CLIMB - TAKEOFF FLAP SETTING FLAPS ZO°

CONDITIONS: TAKEOFF POWER 1900 RPM INERTIAL SEPARATOR - NORMAL ZERO WIND

NDTES:

- DO NOT EXCEED TORQUE LIMIT FOR TAKEOFF PER ENGINE TORQUE FOR TAKEOFF CHART, WHEN ITT EXCEEDS 765°C. THIS POWER SETTING IS LIMITED TO 5 MINUTES.
- 2. WITH CLIMB POWER SET BELOW THE TORDUE LIMIT, DECREASE RATE OF CLIMB BY 20 FPM FOR INERTIAL SEPARATOR IN BYPASS AND 45 FPM FOR CABIN HEAT ON.
- 3. WHERE RATE OF CLIMB VALUES HAVE BEEN REPLACED BY DASHES, OPERATING TEMPERATURE LIMITS OF THE RIRPLANE WOULD BE GREATLY EXCEEDED. THOSE RATES OF CLIMB WHICH ARE INCLUDED BUT THE OPERATION SLIGHTLY EXCEEDS THE TEMPERATURE LIMIT ARE PROVIDED FOR INTERPOLATION PURPOSES ONLY.

WEIGHT	PRESS	CLIMB		RATE OF	F CLIMB	- FPM	
LBS	FT	KIAS	-20°C	-10°C	0°C	20°C	40°C
8000	SL	92	1075	1065	1055	1030	1010
	2000	92	1055	1040	1030	1005	930
	. 4000	91	1030	1015	1000	975	830
	6000	91	1000	985	970	940	720
	8000	90	970	955	940	805	575
	10000	88	935	920	860	660	435
	12000	87	880	800	710	515	300
7500	SL	92	1195	1180	1170	1150	1125
100100	2000	91	1170	1160	1145	1125	1050
	4000	90	1145	1135	1120	1095	945
	6000	90	1120	1105	1090	1060	830
	8000	88	1085	1070	1055	920	680
	10000	87	1050	1035	975	770	535
- C	12000	85	995	910	820	620	395
7000	SL	91.	1325	1315	1305	1280	1260
1000	2000	90	1300	1290	1280	1255	1180
	4000	89	1280	1265	1255	1225	1070
( I	6000	89	1250	1235	1225	1195	950
	8000	87	1220	1205	1190	1045	795
	10000	86	1185	1170	1105	890	645
	12000	84	1130	1040	945	735	495

#### Figure 5-28. Rate of Climb - Takeoff Flaps Setting

#### CESSNA MODEL 208 (675 SHP)

#### CARGO POD INSTALLED

# CLIMB GRADIENT - TAKEOFF FLAP SETTING

CONDITIONS: TAKEOFF POWER 1900 RPM INERTIAL SEPARATOR - NORMAL ZERO HIND

#### NOTES:

- 1. DO NOT EXCEED TORDUE LIMIT FOR TAKEOFF PER ENGINE TORDUE FOR TAKEOFF CHART. WHEN ITT EXCEEDS 765°C. THIS POWER SETTING IS LIMITED TO 5 MINUTES.
- 2. WITH CLIMB POWER SET BELOW THE TORQUE LIMIT. DECREASE RATE OF CLIMB BY 1D FT/NM FOR INERTIAL SEPARATOR IN BYPASS AND 30 FT/NM FOR CABIN HEAT ON.
- 3. WHERE RATE OF CLIMB VALUES HAVE BEEN REPLACED BY DASHES. OPERATING TEMPERATURE LIMITS OF THE AIRPLANE WOULD BE GREATLY EXCEEDED. THOSE RATES OF CLIMB WHICH ARE INCLUDED BUT THE OPERATION SLIGHTLY EXCEEDE THE TEMPERATURE LIMIT ARE PROVIDED FOR INTERPOLATION PURPOSES ONLY.

NEIGHT	PRESS	CL IMB SPEED		CLIMB GRADIENT - FT/NM							
LBS	FT	KIAS	-20°C	-10°C	0°C	20°C	40° C				
8000	SL	77	830	810	785	745	705				
	2000	76	785	765	740	700 -	635				
	4000	76	740	720	700	655	550				
	6000	76	695	675	655	615	465				
	8000	76	650	630	610	510	370				
	10000	76	610	585	540	410	275				
	12000	76	555	495	435	315	190				
7500	SL	74	940	915	890	845	805				
	2000	74	890	865	845	800	725				
	4000	74	845	820	795	750	640				
	6000	74	795	770	745	705	550				
	8000	74	745	720	700	595	440				
	10000	74	700	675	625	485	345				
100	12000	73	640	580	515	385	250				
7000	SL	72	1065	1035	1010	960	915				
100 A.M.	2000	72	1010	985	960	910	830				
	4000	72	960	930	905	860	740				
	6000	72	905	880	855	810	640				
	8000	72	855	830	805	690	525				
	10000	71	800	775	725	575	420				
	12000	71	740	670	605	465	320				

#### Figure 5-29. Climb Gradient - Takeoff Flap Setting

1 April 1998

#### CARGO POD INSTALLED

#### MAXIMUM RATE OF CLIMB FLAPS UP

CONDITIONS: 1900 RPM INERTIAL SEPARATOR - NORMAL ZERO WIND

NOTES:

- TORQUE SET AT 1865 FT-LBS OR LESSER VALUE MUST NOT EXCEED MAXIMUM CLIMB IIT OF 765°C OR NG OF 101.6%.
- 2. WITH CLIMB POWER SET BELOW THE TORQUE LIMIT. DECREASE RATE OF CLIMB BY 30 FPM FOR INERTIAL SEPARATOR IN BYPASS AND 65 FPM FOR CABIN HEAT DN.
- 3. WHERE RATE OF CLIMB VALUES HAVE BEEN REPLACED BY DASHES, AN APPRECIABLE RATE OF CLIMB FOR THE NEIGHT SHOWN CANNOT BE EXPECTED OR OPERATING TEMPERATURE LIMITS OF THE AIRPLANE WOULD BE GREATLY EXCEEDED. THOSE RATES OF CLIMB WHICH ARE INCLUDED BUT THE OPERATION SLIGHTLY EXCEEDS THE TEMPERATURE LIMIT ARE PROVIDED FOR INTERPOLATION PURPOSES ONLY.

WEIGHT	PRESS	CLIMB	1.1	RATE OF	CLIMB	- FPH	
LBS	FT	KIAS	-40°C	-20°C	0°C	20°C	40° C
8000	SL	107	1220	1205	1190	1170	925
	4000	105	1185	1165	1145	1025	645
1000	8000	103	1140	1115	1030	735	390
	12000	99	1080	945	725	460	155
	16000	95	820	640	430	185	
	20000	91	515	345	140		
	24000	87	230	65			
7500	SL	107	1340	1325	1310	1295	1035
	4000	104	1305	1285	1265	1145	745
	8000	102	1250	1235	1150	840	480
	12000	99	1200	1060	835	555	235
	16000	94	930	745	530	270	
	20000	90	620	440	230		
-	24000	86	325	155			
7000	SL	106	1475	1465	1450	1430	1160
	4000	104	1440	1425	1405	1280	850
	8000	101	1400	1375	1285	960	575
	12000	98	1340	1195	955	660	325
	16000	93	1060	860	635	365	55
	20000	89	735	545	325	70	
- T. T	24000	85	425	250	35		

#### Figure 5-30. Maximum Rate of Climb - Flaps Up

1 April 1998

#### For Training Purnoses Only

#### CESSNA MODEL 208 (675 SHP)

#### CARGO POD INSTALLED

#### MAXIMUM CLIMB GRADIENT FLAPS UP

CONDITIONS: TAKEOFF PONER 1900 RPM INERTIAL SEPARATOR - NORMAL ZERO WIND

#### NOTES :

- DO NOT EXCEED TORQUE LIMIT FOR TAKEOFF PER ENGINE TORQUE FOR TAKEOFF CHART. WHEN ITT EXCEEDS 765°C, THIS POWER SETTING IS LIMITED TO 5 MINUTES.
- 2. WITH CLIMB POWER SET BELOW THE TORDUE LIMIT. DECREASE RATE OF CLIMB BY 10 FT/NM FOR INERTIAL SEPARATOR IN BYPASS AND 4D FT/NM FOR CABIN HEAT ON.
- 3. WHERE RATE OF CLIMB VALUES HAVE BEEN REPLACED BY DASHES, OPERATING TEMPERATURE LIMITS OF THE AIRPLANE WOULD BE GREATLY EXCEEDED. THOSE RATES OF CLIMB WHICH ARE INCLUDED BUT THE OPERATION SLIGHTLY EXCEEDS THE TEMPERATURE LIMIT ARE PROVIDED FOR INTERPOLATION PURPOSES ONLY.

NEIGHT	PRESS	CLIMB	CLIMB GRADIENT - FT/NM							
LBS	FT	KIRS	-20°C	-10°C	0°C	20°C	40°C			
8000	SL	90	800	780	760	730	580			
2014	2000	90	765	745	725	690	485			
	4000	90	725	705	690	605	400			
	6000	89	690	670	650	515	315			
10	8000	89	650	635	585	425	245			
	10000	88	615	555	490	340	180			
	12000	88	525	460	400	260	110			
7500	SL	89	890	870	850	815	655			
	2000	88	855	835	815	775	560			
	4000	88	815	795	775	685	465			
	6000	87	775	755	735	585	380			
	8000	87	735	715	665	490	300			
	10000	86	695	635	560	405	230			
	12000	86	600	535	465	320	160			
7000	SL	87	995	975	955	915	745			
1.00	2000	87	955	935	910	875	640			
	4000	86	910	890	870	775	540			
	6000	86	870	850	830	670	450			
	8000	85	825	805	750	570	365			
	10000	85	785	720	645	475	295			
	12000	84	680	615	540	385	215			

Figure 5-31. Maximum Climb Gradient - Flaps Up.

1 April 1998

#### CARGO POD INSTALLED

#### CRUISE CLIMB FLAPS UP

CONDITIONS: 1900 RPM INERTIAL SEPARATOR - NORMAL ZERO HIND

NOTES :

- TOROUE SET AT 1865 FT-LBS OR LESSER VALUE MUST NOT EXCEED MAXIMUM CLIMB ITT OF 765°C OR NG OF 101.6%.
- 2. WITH CLIMB POWER SET BELOW THE TOROUE LIMIT, DECREASE RATE OF CLIMB BY 50 FPM FOR INERTIAL SEPARATOR IN BYPASS AND 70 FPM FOR CABIN HEAT ON.
- 3. WHERE RATE OF CLIMB VALUES HAVE BEEN REPLACED BY DASHES, AN APPRECIABLE RATE OF CLIMB FOR THE WEIGHT SHOWN CANNOT BE EXPECTED OR OPERATING TEMPERATURE LIMITS OF THE AIRPLANE WOULD BE GREATLY EXCEEDED. THOSE RATES OF CLIMB WHICH ARE INCLUDED BUT THE OPERATION SLIGHTLY EXCEEDS THE TEMPERATURE LIMIT ARE PROVIDED FOR INTERPOLATION PURPOSES ONLY.

WEIGHT	PRESS	CLIMB		RATE DI	CLIMB	- FPM	
LBS	FT	KIRS	-40°C	-20°C	0°C	20°C	40°C
8000	SL	120	1190	1165	1140	1115	650
-	2000	120	1165	1140	1115	965	495
	4000	120	1140	1110	1080	800	340
	6000	120	1110	1080	1025	630	180
	8000	120	1080	1045	830	445	10
	10000	120	1045	955	635	265	
- 1 C	12000	120	1005	755	440	90	
7500	SL	120	1305	1280	1255	1230	735
	2000	120	1280	1255	1225	1075	570
	4000	120	1255	1225	1195	900	405
	6000	120	1225	1195	1140	715	235
	8000	120	1195	1155	930	520	60
	10000	120	1155	1060	725	330	
1.1	12000	120	1115	850	520	145	
7000	SL	120	1435	1405	1385	1355	830
1 mar 1	2000	120	1410	1380	1355	1190	655
	4000	120	1380	1350	1320	1005	480
	6000	120	1355	1320	1265	810	300
	8000	120	1320	1280	1040	- 605	110
	10000	120	1280	1180	825	400	
	12000	120	1240	955	605	205	

#### Figure 5-32. Cruise Climb - Flaps Up

#### 1 April 1998

#### For Training Purposes Only

#### CESSNA MODEL 208 (675 SHP)

#### CARGO POD INSTALLED

#### RATE OF CLIMB - BALKED LANDING FLAPS 30°

CONDITIONS: TRKEOFF POWER 1900 RPM INERTIAL SEPARATOR - NORMAL ZERO WIND

#### NOTES:

- DO NOT EXCEED TORQUE LIMIT FOR TAKEOFF PER ENGINE TORQUE FOR TAKEOFF CHART. WHEN ITT EXCEEDS 765°C. THIS POWER SETTING IS LIMITED TO 5 MINUTES.
- 2. WITH CLIMB POWER SET BELOW THE TORQUE LIMIT, DECREASE RATE OF CLIMB BY 15 FPM FOR INERTIAL SEPARATOR IN BYPASS AND 45 FPM FOR CABIN HEAT ON.
- 3. WHERE RATE OF CLIMB VALUES HAVE BEEN REPLACED BY DASHES, OPERATING TEMPERATURE LIMITS OF THE AIRPLANE WOULD BE GREATLY EXCEEDED. THOSE RATES OF CLIMB WHICH ARE INCLUDED BUT THE OPERATION SLIGHTLY EXCEEDS THE TEMPERATURE LIMIT ARE PROVIDED FOR INTERPOLATION PURPOSES ONLY.

WEIGHT	PRESS	CLIMB SPEED		RATE O	F CLIMB	- FPM	
LBS	FT	KIAS	-20°C	-10°C	0°C	20°C	40°C
7800	SL	85	990	980	970	945	920
1.1.1	2000	84	970	955	940	915	845
1000	4000	84	940	925	910	885	745
	6000	83	910	895	880	850	640
	8000	82	880	860	845	715	500
	10000	81	840	825	765	580	365
	12000	79	785	705	625	440	235
7300	SL	84	1110	1095	1085	1060	1035
	2000	83	1085	1070	1060	1030	960
	4000	83	1055	1045	1030	1000	860
	6000	83	1030	1015	1000	965	745
	8000	81	995	980	965	825	600
	10000	BO	960	940	880	685	465
	12000	79	900	B20	735	540	330
6800	SL	83	1240	1225	1215	1190	1165
( m ( ) )	2000	83	1215	1200	1190	1165	1085
	4000	82	1190	1175	1160	1135	985
Y	6000	82	1160	1145	1130	1100	865
	8000	80	1125	1110	1095	955	715
	10000	79	1090	1075	1010	805	570
	12000	77	1030	945	855	655	430

#### Figure 5-33. Rate of Climb - Balked Landing

1 April 1998

#### CARGO POD INSTALLED

# TIME, FUEL, AND DISTANCE TO CLIMB

CONDITIONS: FLAPS UP 1900 RPM INERTIAL SEPARATOR - NORMAL

NOTES:

1. TORQUE SET AT 1865 FT-LBS OR LESSER VALUE MUST NOT EXCEED MAXIMUM CLIMB ITT OF 765°C DR NG DF 101.6%.

2. ADD 35 POUNDS OF FUEL FOR ENGINE START. TAXI. AND TAKEOFF ALLOWANCES

3. DISTANCES SHOWN ARE BASED ON ZERO WIND.

4. WITH INERTIAL SEPARATOR SET IN BYPASS, INCREASE TIME, FUEL, AND DISTANCE NUMBERS BY 1% FOR EACH 2000 FEET OF CLIMB AND FOR CABIN HEAT ON INCREASE TIME, FUEL, AND DISTANCE NUMBERS BY 1% FOR EACH 1000 FEET OF CLIMB.

5. WHERE TIME, FUEL, AND DISTANCE VALUES HAVE BEEN REPLACED BY DASHES. AN APPRECIABLE RATE OF CLIMB FOR THE WEIGHT SHOWN CANNOT BE EXPECTED.

			1.551		ĊL	IMB F	ROM S	EA LEV	EL		-
	PRESS	CLIMB	20 D Stan	EG C DARD	TEMP		TANDA			EG C Dard	ABDVE
LBS	ALT FT	SPEED		FUEL	DIST	TIME	FUEL	DIST	TIHE MIN	FUEL	DIST
8000	SL	107	0	0	0	0	0	0	0	0	0
	4000	105	4	25	6	4	26	6	4	29	8
	8000	103	7	50	12	7	52	13	9	59	17
	12000	99	11	76	19	12	80	21	15	94	29
	16000	95	15	105	28	17	113	33	24	137	47
	20000	91	21	140	40	26	156	50	38	202	78
	24000	87	33	192	62	42	226	83			
7500	SL	107	0	0	0	0	0	0	0	0	0
	4000	104	3	22	5	3	23	6	4	26	7
	8000	102	6	45	11	7	46	12	8	53	15
	12000	99	10	69	17	10	72	19	13	82	26
	16000	94	14	94	25	15	100	29	20	118	40
	20000	90	19	124	35	22	136	43	31	167	62
1.1	24000	86	28	165	52	34	186	66			
7000	SL	105	0	0	0	D	D	0	D	0	0
	4000	104	3	20	5	Э	21	5	Э	23	6
	8000	101	6	41	10	6	42	10	7	47	13
	12000	98	9	62	15	9	64	17	12	73	22
	16000	93	12	85	22	14	89	25	18	102	34
	20000	89	17	111	31	19	119	37	26	141	52
	24000	85	24	144	44	28	157	55	42	202	85

Figure 5-34. Time, Fuel and Distance to Climb - Max Rate

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#### CESSNA MODEL 208 (675 SHP)

#### CARGO POD INSTALLED

#### TIME. FUEL. AND DISTANCE TO CLIMB CRUISE CLIMB

CONDITIONS: FLAPS UP 1900 RPM INERTIAL SEPARATOR - NORMAL

NOTES:

1. TORQUE SET AT 1865 FT-LBS OR LESSER VALUE MUST NOT EXCEED MAXIMUM CLIMB ITT DF 765°C OR NG OF 101.6%.

2. ADD 35 POUNDS OF FUEL FOR ENGINE START, TAXI. AND TAKEOFF ALLOWANCES.

3. DISTANCES SHOWN ARE BASED ON ZERO WIND.

4. WITH INERTIAL SEPARATOR SET IN BYPASS OR CABIN HEAT ON INCREASE TIME. FUEL. AND DISTANCE NUMBERS BY 1% FOR EACH 1000 FEET OF CLIMB.

			1 1 1 1		CL	IMB FI	ROH SI	EA LEV			0
	PRESS	CLIMB	20 D STAN		TEMP		TANDA		STAN	DARD	TEMP
WE IGHT LBS	RLT FT	SPEED KIAS		FUEL	DIST		FUEL	DIST	TIME	FUEL	DIST NM
8000	SL	120	0	0	0	D	0	O	0	D	0
	2000	120	2	13	4	2	13	4	3	18	6
	4000	120	4	26	7	4	27	8	6	37	12
	6000	120	6	39	11	6	41	12	9	57	19
	8000	120	7	53	15	8	56	17	13	80	28
	10000	120	9	66	19	11	72	23	18	107	40
1.0	12000	120	12	81	24	14	91	30	25	143	57
7500	SL	120	0	0	0	0	0	0	0	D	0
	2000	120	2	12	3	2	12	З	3	16	5
	4000	120	35	24	6	3	24	7	5	32	11
	6000	120	5	35	10	5	37	11	B	50	17
	8000	120	7	48	13	7	50	15	12	70	25
1.1	10000	120	8	60	17	10	65	20	16	93	35
	12000	120	10	73	22	12	82	27	21	122	49
7000	SL	120	0	0	0	0	0	0	0	D	0
	2000	120	2	11	3 6	2	11	3	2	14	5
	4000	120	23	21	6	3	22	6	5	29	10
	6000	120	5	32	9	5	33	10	7	44	15
	8000	120	6	43	12	7	46	14	10	62	22
	10000	120	8	54	16	9	59	18	14	82	31
	12000	120	9	66	20	11	73	24	18	106	42

Figure 5-35. Time, Fuel and Distance to Climb - Cruise Climb

1 April 1998

SECTION 5 PERFORMANCE

CARGO POD INSTALLED

## CRUISE PERFORMANCE NOTES

The following general information is applicable to all Cruise Performance Charts continued in Figure 36, Sheet 2 through Sheet 13, in this section.

- The highest torque shown for each temperature and RPM corresponds to maximum allowable cruise power. Do not exceed this torque, 740°C ITT, or 101.6% N<sub>q</sub>, whichever occurs first.
- The lowest torque shown for each temperature and RPM corresponds to the recommended torque setting for best range in zero wind conditions.
- With the inertial separator in BYPASSS and power set below the torque limit (1865 foot-pounds), decrease the maximum cruise torque by 100 foot-pounds. Do not exceed 740°C ITT. Fuel flow for a given torque setting will be 15 pph higher.
- 4. With the cabin heat on and power set below the torque limit (1865 foot-pounds), decrease maximum cruise torque by 80 foot-pounds. Do not exceed 740°C ITT. Fuel flow for a given torque setting will be 7 pph higher.

Figure 5-36. Cruise Performance (Sheet 1 of 13)

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#### CESSNA MODEL 208 (675 SHP)

#### CARGO POD INSTALLED

#### CONDITIONS NOTE DO NOT EXCEED NAXIMUM CRUISE 8000 POUNDS TORQUE OR 740 DEG C ITT INERTIAL SEPARATOR - NORMAL REFER TO SHEET 1 FOR APPROPRIATE NOTES APPLICABLE TO THIS CHART 1750 RPM 1600 RPH TEMP 1900 RPH DEG C TORQUE FUEL TORQUE FUEL TORDUE FUEL FLON KTRS FT-LBS FLOH K TAS FT-LBS FLOW KTAS FT-LBS PPH PPH PPH -5 -15 -25 -35 -45 -54

#### CRUISE PERFORMANCE PRESSURE ALTITUDE 2000 FEET

Figure 5-36. Cruise Performance (Sheet 2 of 13)

1 April 1998

## CARGO POD INSTALLED

#### CRUISE PERFORMANCE PRESSURE ALTITUDE 4000 FEET

ONDIT 000 P		ATOR -	NORME	IL.	NOTE Do not exceed maximum cruise Torque or 740 des c itt					
REFER	TO SHEE	T 1 F0	R APP	OPRIATE	NOTES	APPLE	CABLE TO	THIS	CHAR	
TENP	1	900 RPH	1.00	1	750 RPM	1	1	DO RPH		
DEG C	TORDUE	FUEL	10000	TORQUE	FUEL		TORDUE	FUEL		
	FT-LBS	FLON	KTAS	FT-LBS	FLOW	KTAS	FT-LBS	FLOH	KTR	
40	1253	335	154	1340	335	154	1431	335	152	
100				LCC PLA			1430	335	15Z	
30	1464	365	164	1552	365	163	1652	365	160	
	1300	339	155	1400	341	155	1500	341	154	
	11.231		1.4.5.1	1350	333	153	1415	330	150	
20	1665	395	171	1772	395	170	1880	395	157	
12.1	1500	368	164	1600	368	163	1700	367	160	
	1300	337	154	1400	338	154	1500	338	152	
	1285	334	153	1350	330	151	1405	326	148	
10	1862	425	177	1970	424	175	1970	405	168	
12.1	1700	398	171	1800	396	169	1800	379	162	
	1500	366	162	1600	365	161	1600	349	155	
	1300	335	152	1400	335	152	1400	322	146	
-	1285	332	151	1335	325	149	1385	320	146	
0	1865	425	175	1970	422	173	1970	401	157	
	1700	396	169	1800	393	157	1800	375	151	
100	1500	363	160	1600	362	159	1600	346	153	
	1300	332	150	1400	332	151	1400	318	145	
111	1280	329	149	1315	320	146	1380	315	144	
-10	1865	423	173	1970	419	171	1970	397	165	
23.3	1700	393	167	1800	390	165	1800	372	159	
	1500	351	158	1600	359	158	1600	343	152	
	1300	330	149	1400	329	149	1400	315	143	
	1275	326	148	1305	315	144	1350	309	142	
-20	1865	421	171	1970	416	169	1970	393	163	
	1700	390	165	1900	386	153	1800	368	157	
1.01	1500	358	155	1600	356	156	1600	339	150	
	1300	327	147	1400	325	147	1400	311	142	
	1265	322	145	1290	310	142	1345	304	139	
-30	3865	419	169	1970	413	167	1970	390	161	
	1700	388	162	1800	383	161	1800	365	156	
	1500	356	154	1600	353	154	1600	336	148	
	1300	325	145	1400	323	145	1400	308	140	
	1265	320	143	1285	307	140	1340	300	138	
-40	1865	417	165	1970	410	155	1970	387	159	
- 11	1700	385	160	1800	380	159	1800	361	154	
1.00	1500	354	152	1600	350	152	1600	332	147	
	1300	323	143	1400	320	144	1400	305	138	
1.00	1260	317	141	1280	303	138	1325	295	135	
-50	1865	415	164	1970	408	163	1970	384	157	
2011	1700	384	158	1800	377	157	1800	358	152	
1.11	1500	351	150	1600	347	150	1500	329	145	
11.17	1300	321	141	1400	317	142	1400	302	137	
1.1.1.1	1260	315	139	1275	300	135	1320	291	133	
-54	1665	414	163	1970	407	162	1970	383	156	
119	1700	383	157	1800	377	156	1800	356	151	
1	1500	350	149	1600	346	149	1600	328	144	
-	1300	320	140	1400	315	141	1400	301	135	
1.1	1250	314	138	1275	299	135	1320	289	132	

Figure 5-36. Cruise Performance (Sheet 3 of 13)

1 April 1998

#### For Training Purposes Only

#### CESSNA MODEL 208 (675 SHP)

## CARGO POD INSTALLED

#### CRUISE PERFORMANCE PRESSURE ALTITUDE 6000 FEET

	DUNDS AL SEPAI				TOR	QUE OR	NOTE Ed Maxin 740 dei	C IT	
	The second	1.1.1.1.1		OPRIATE		- 11 AV		1 2 2 2 2 2	CHAR
TEMP		900 RPM	-	1750 RPM				600 RPM	
DEG C	FT-LBS	FUEL	KTAS	TORQUE FT-LOS	FUEL FLOW PPH	KTRS	TORQUE FT-LBS	FUEL	KTR
35	1246	324	156	1331 1305	324 320	155 154	1419 1380	324 318	153 152
25	1444	353 330	166 158	1539 1400	353 332	164	1635 1500	353 333	162 156
	1250	322	155	1300	316	152	1370	314	150
15	1629	381	172	1732	381	171	1835	381	168
100	1500	360	167	1600	360	165	1700	360	163
	1300	328	156	1400	329	156	1500	330	154
	2230	317	153	1290	312	150	1355	308	148
5	1814	413	178	1928	413	176	1970	400	171
	1700	390	173	1800	389	172	1800	372	165
	1500	357	165	1600	357	164	1600	341	157
	1300	325	155	1400	326	155	1400	312	148
1.00	1230	314	151	1280	308	148	1345	305	146
-5	1865	421	178	1970	419	176	1970	397	169
	1700	389	171	1800	387	170	1800	368	163
	1500	355	163	1600	354	162	1600	338	156
	1300	323	153	1400	323	153	1400	309	147
	1230	312	149	1275	304	147	1330	299	144
-15	1865	A19	176	1970	416	174	1970	393	167
- N	1700	387	170	1800	364	168	1800	364	162
- 1	1500	353	161	1600	351	160	1600	335	154
	1300	321	151	1400	320	151	1400	306	145
-	1220	308	147	1255	299	144	1310	293	141
-25	1865	417	174	1970	413	172	1970	389	165
- 1 I	1700	385	167	1800	381	166	1800	361	160
	1500	350	159	1600	349	158	1600	332	152
	1300	319	149	1400	317	150	1400	303	144
	1205	304	144	1235	293	141	1295	288	139
-35	1865	415	172	1970	411	170	1970	387	164
	1700	383	165	1800	379	164	1800	358	158
	1500	348	157	1600	345	156	1500	328	151
	1300	316	14B	1400	315	148	1400	300	142
-45	1200	301	142	1230	290	139	1295	285	137
-45	1865	413	169		408	168		354	162
	1700	382 345	155	1800	342	162 154	1800 1600	325	155
	1300	345	145	1400	312	146	1400	297	149
	1205	300	140	1230	268	138	1280	280	135
-54					405		1280	381	
-04	1955	412	167	1970 1800	374	165	1970	352	160
	1700	380 344	161		340	152	1600	322	154
	1500		153	1600		152		294	139
	1300	313 298	144	1400	310 284	136	1400	275	139

Figure 5-36. Cruise Performance (Sheet 4 of 13)

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## CARGO POD INSTALLED

#### CRUISE PERFORMANCE PRESSURE ALTITUDE 8000 FEET

ONDIT ODD P NERTI		ATOR -	NORMA	NL.	DO NOT EXCEED MAXIMUM CRUISE Torque or 740 deg c itt					
REFER	TO SHEE	T 1 FO	R APPR	OPRIATE	NOTES	APPLI	CABLE TO	THIS	CHAR	
TEMP	1	900 RPM		1750 RPM			10	SOO RPM		
DEG C	FT-LBS	FUEL FLOW PPH	KTRS	TORDUE FT-LBS	FUEL FLOW PPH	KTRS	TORQUE FT-LBS	FUEL FLOW PPH	KTR	
30	1214	311	157	1296 1260	311 305	156 154	1381	311	154	
20	1395	338	165	1495	338	164	1335	304	151	
20	1205	307	155	1300	309 301	155	1400	311 299	153	
10	1569	364	173	1667	364	171	1765	364	168	
	1400	336	164	1500	337	164	1600	338	161	
	1200	304	153	1300	306	153	1400	308	152	
	1190	302	153	1250	298	151	1310	295	147	
0	1740	396	178	1849	396	176	1954	396	173	
	1600	368	172	1700	358	171	1800	367	168	
	1400	334	163	1500	334	152	1500	334	160	
	1200	302	151	1300	303	152	1400	305	151	
2	1175	298	150	1235	294	148	1290	289	145	
-10	1865	419	181	1970	417	179	1970	396	172	
	1700	386	175	1800	385	173	1800	364	166	
7 I.I.	1500	348	166	1600	348	165	1600	331	150	
	1300	315	156	1400	315	155	1400	302	149	
10 M	1175	296	149	1215	288	146	1270	284	143	
-20	1865	417	179	1970	414	177	1970	392	170	
1.1	1700	385	172	1900	382	171	1900	360	164	
	1500	346	164	1600	345	163	1500	328	156	
	1300	313	154	1400	313	154	1400	299	148	
1000	1170	293	147	1215	285	144	1260	279	141	
-30	1865	415	177	1970	411	175	1970	388	168	
1.1	1700	383	170	1800	380	169	1800	358	162	
	1500	344	162	1600	342	161	1600	325	155	
	1300	311	152	1400	310	152	1400	296	146	
-	1170	290	145	1200	Z81	141	1250	275	139	
-40	1865	413	174	1970	409	172	1970	385	166	
1000	1700	391	168	1800	377	167	1800	355	160	
	1500	342	160	1600	340	159	1600	322	153	
100.00	1300	309	150	1400	308	150	1400	293	144	
	1160	287	142	1200	279	140	1245	271	137	
-	1	-		1175	275	139				
-50	1865	410	172	1970	406	170	1970	382	164	
1.1	1700	379	155	1800	374	164	1900	352	158	
_	1500	341	157	1600	338	157	1600	319	151	
-	1300	307	148	1400	305	148	1400	290	143	
-	1150	286	140	1200	276	138	1235	256	135	
	-		171	1180	273	137	1020	-	100	
-54	1865	410	171	1970	404	169	1970	381	163	
$r \sim 1$	1700	378	165	1800	373	164	1800	352	158	
	1500	341	157	1600	337	156	1600	318	150	
12.1	1300	306	147	1400	304	147	1400	289	142	
-	1165	286	140	1200	275	137	1225	264	134	

Figure 5-36. Cruise Performance (Sheet 5 of 13)

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#### For Training Purposes Only

#### CESSNA MODEL 208 (675 SHP)

## CARGO POD INSTALLED

#### CRUISE PERFORMANCE PRESSURE ALTITUDE 10000 FEET

	OUNOS AL SEPA				NOTE DO NOT EXCEED MAXIMUM CRUISE Torque or 740 dea c itt Notes Applicable to this char						
TEMP		900 RPH	A INTE		750 RPM		1600 RPM				
DEG C	TOROUE FT-LBS	FUEL FLOH PPH	KTAS	TOROUE FT-LBS	FUEL FLOH PPH	KTAS	TORQUE FT-LBS	FUEL FLON PPH	KTAS		
25	1181	298 297	157	1260 1215	298 291	156 153	1341 1290	298 290	153 150		
15	1175 1343 1200	322 299	157 166 157	1430 1300	322 302	164 157	1517 1400	322 304	161 155		
5	1170 1505 1400	294 349 329	155 173 167	1205 1601 1400	287 349 315	152 171 161	1290 1694 1500	287 349 316	149 168 159		
-5	1200 1155 1663	297 290 379	155 153 178	1210	285	150	1300 1280 1865	287 283 379	149 148 173		
	1500 1300 1250	346 311 286	171 160 151	1600 1400 1200	347 312 281	169 159 148	1700 1500 1300	347 313 284	166 158 147		
-15	1806 1700 1500	405 384 345	182 178 169	1919 1800 1600	405 383 345	180 175 167	1255 1970 1800 1600	277 395 363 326	145 175 169 160		
3	1300 1145	309 283	158 149	1400 1200 1190	310 279 277	158 147 146	1400 1240	296 272	151 143		
-25	1865 1700 1500 1300 1135	415 382 343 307 280	182 175 167 156 147	1970 1800 1600 1400 1200	412 380 342 306 276	180 174 165 156 145	1970 1800 1600 1400 1215	391 359 323 293 266	173 167 159 150 140		
-35	1865 1700 1500 1300 1135	412 380 342 304 278	180 173 165 154 145	1175 1970 1800 1600 1400 1200	272 410 378 340 304 274	144 177 171 163 154 144	1970 1800 1600 1400 1200	388 356 320 290 261	171 165 157 148 138		
-45	1865 1700 1500 1300 1230	411 378 340 302 276	177 171 162 152 143	1160 1970 1800 1600 1400 1200	268 407 375 337 301 272	141 175 169 161 153 142	1970 1800 1600 1400 1200	384 353 318 297 258	169 163 155 147 136		
-54	1865 1700 1500 1300 1125	410 377 339 301 273	175 169 160 151 141	1150 1970 1800 1600 1400 1200 1145	264 405 373 335 299 270 261	139 173 167 160 151 140 137	1970 1800 1600 1400 1200 1190	380 351 316 284 256 254	167 161 154 145 135 134		

Figure 5-36. Cruise Performance (Sheet 6 of 13)

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## CARGO POD INSTALLED

#### CRUISE PERFORMANCE PRESSURE ALTITUDE 12000 FEET

	DUNDS RL SEPAR				NOTE DO NOT EXCEED MAXIMUM CRUISE Torque or 740 deg c Itt						
1.4			R APPR	CHI M PHPLY OF	1.	111111111111	CABLE TO				
TEMP		900 RPM	1.11		750 RPM	_	1600 RPM				
DEG C	TORDUE FT-LBS	FUEL FLOW PPH	KTRS	TORQUE FT-LBS	FUEL	KTRS	TORQUE FT-LBS	FUEL FLOW PPH	KTR		
20	1137	284	157	1213	284 282	155 154	1290	284 281	152		
10	1285 1155	306 285	165 157	1368 1195	305 279	163 153	1450 1300 1275	306 283 279	160 152 150		
0	1435 1300 1145	333 307 281	172 164 154	1525 1400 1200	333 310 277	170 164 152	1614 1500 1300	333 311 280	167 162 151		
-10	1583 1400 1200 1135	361 325 289 278	177 168 157 152	1185 1681 1500 1300 1185	275 361 326 290 272	151 175 167 157 150	1250 1776 1600 1400 1240	273 361 327 293 269	140 172 165 155 146		
-20	1706 1600 1400 1200 1125	384 363 323 287 274	181 176 166 155 150	1812 1700 1500 1300 1155	384 363 324 288 267	179 174 165 155 147	1912 1800 1600 1400 1225	383 362 324 290 254	176 171 163 153 144		
-30	1828 1700 1500 1300 1115	408 380 341 302 271	164 179 170 159 148	1941 1800 1600 1400 1200 1160	408 379 341 303 270 264	181 176 168 159 147 145	1970 1800 1600 1400 1205	391 359 321 287 258	176 169 161 152 141		
-40	1855 1700 1500 1300 1105	415 379 339 300 267	183 176 167 157 145	1970 1800 1600 1400 1200 1150	412 375 339 300 269 260	180 174 166 157 146 143	1970 1800 1600 1400 1195	388 355 319 284 254	174 167 159 150 139		
-50	1865 1700 1500 1300 1110	413 377 338 299 266	100 174 165 155 144	1970 1970 1800 1600 1400 1200 1135	410 374 335 299 266 255	178 172 164 155 144 140	1970 1800 1600 1400 1200 1180	385 352 317 282 252 249	172 165 158 149 138 137		
-54	1865 1700 1500 1300 1105	412 376 337 299 264	180 173 164 154 143	1135 1970 1800 1600 1400 1200 1125	409 373 335 298 265 253	177 171 163 154 143 139	1970 1800 1600 1400 1200 1175	383 351 316 280 251 247	137 171 165 157 148 137 136		

Figure 5-36. Cruise Performance (Sheet 7 of 13)

#### CESSNA MODEL 208 (675 SHP)

## CARGO POD INSTALLED

#### CRUISE PERFORMANCE PRESSURE ALTITUDE 14000 FEET

CONDIT BODO P INERTI		RATOR -	NORM	AL.	HOTE Do not exceed maximum cruise Torque or 740 deg c itt							
				ROPRIATE		APPLI			CHAR			
TEMP		900 RPH			750 RPM	100 C	1600 RPH					
DEG C	TORQUE FT-LBS	FUEL FLOW PPH	KTRS	TORDUE FT-LBS	FUEL FLOM PPH	KTAS	TOROUE FT-LBS	FUEL FLOW PPH	KTRS			
15	1087	270	155	1159	270	153	1232	270	150			
5	1226	291	164	1304	291	162	1383	290	159			
1000	1150	278	159	1185	271	154	1250	271	151			
-5	1363	317	171	1448	317	169	1533	317	166			
100	1200	284	161	1300	288	160	1400	291	158			
	1135	273	156	1170	266	152	1255	267	150			
-15	1495	342	176	1588	342	174	1678	342	171			
90	1300	303	165	1400	305	165	1500	308	152			
	1120	269	154	1200	269	153	1300	272	151			
				1165	263	150	1235	262	147			
-25	1606	362	160	1707	362	177	1801	362	174			
100	1500	341	174	1600	342	173	1600	324	165			
	1300	301	164	1400	303	163	1400	286	155			
	1115	255	151	1200	266	151	1215	257	145			
	dara.	S2.2		1160	260	149			12.62			
-35	1721	385	182	1827	385	180	1927	386	177			
S. 1	1600	359	177	1700	359	175	1800	359	172			
	1400	319	167	1500	320	166	1600	320	164			
	1200	280	156	1300	282	156	1400	284	154			
	1100	262	149	1150	257	147	1200	253	142			
-						100	119D	251	142			
-45	1844	410	185	1957	410	183	1970	392	177			
	1700	380	179	1600	378	177	1900	356	170			
	1500	337	170	1600	337	169	1600	318	162			
	1300	298	160	1400	299	159	1400	282	152			
	1100	260	147	1200	263	148	1200	250	141			
	1080	257	146	1135	252	144	1180	246	140			
-54	1865	412	184	1970	410	181	1970	388	175			
111	1700	379	177	1800	376	175	1800	353	168			
	1500	336	168	1600	335	157	1600	315	160			
	1300	297	158	1400	297	158	1400	280	151			
	1100	259	145	1200	260	146	1200	247	140			
1.11.14	1090	256	144	1120	248	141	1170	243	138			

Figure 5-36. Cruise Performance (Sheet 8 of 13)

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## CARGO POD INSTALLED

#### CRUISE PERFORMANCE PRESSURE ALTITUDE 16000 FEET

ONDIT DOO P NERTI		RTOR -	NORME	11	NOTE Do not exceed naximum cruise Torque or 740 deg c itt						
REFER	TO SHEE	T 1 F0	R APPR	OPRIATE	NOTES	APPLI	CABLE TO	THIS	CHART		
TEMP	1	900 RPM		1	750 RPH	· · · · ·	1	SOD RPM			
DEGC	TORQUE FT-LBS	FUEL FLOH PPH	KTRS	TOROUE FT-LBS	FUEL FLOW PPH	KTRS	TORQUE FT-LBS	FUEL FLOW PPH	KTAS		
10	1040	256	153	1109	256	151	1177	256	147		
0	1168 1125	277 269	162 159	1243 1185	277 266	160 156	1317	277 261	157 153		
-10	1292 1110	301 265	169 157	1373 1200 1155	301 267 260	167 156 153	1452 1300 1245	300 271 261	164 154 151		
-20	1406 1300	322 301	174 168	1493 1300	322 284	172 161	1577 1400	322 288	169 159		
-30	1110 1508 1400	263 342 319	155 178 172	1160 1602 1400	257 341 302	152 175 165	1235 1691 1500	257 341 304	149 172 163		
	1200	279	160	1200	263	153	1300	266 251	152		
-40	1617 1500 1300	365 338 298	181 175 164	1715 1600 1400	364 339 300	179 174 164	1810 1700 1500	364 340 301	175 171 161		
	1100 1070	259 252	151 149	1200 1125	262 248	152 147	1300 1190	265 246	151 144		
-50	1730 1600 1400 1200	386 359 316 277	184 178 168 156	1835 1700 1500 1300	386 359 317 279	181 176 167 156	1935 1800 1600 1400	385 358 317 281	178 173 164 154		
	1045	247	145	1115	244	145	1200	245	143		
-54	1729 1600 1400 1200	385 350 315 277	183 177 167 155	1834 1700 1500 1300	394 358 316 278	190 175 166 156	1934 1800 1600 1400	303 357 316 200	177 172 163 154		
	1035	244	144	1110	242	143	1200 1160	244 237	142 140		

Figure 5-36. Cruise Performance (Sheet 9 of 13)

#### CESSNA MODEL 208 (675 SHP)

## CARGO POD INSTALLED

#### CRUISE PERFORMANCE PRESSURE ALTITUDE 18000 FEET

	OUNDS AL SEPRE				NOTE DO NOT EXCEED MAXIMUM CRUISE Torque or 740 des c itt Motes applicable to this chart							
TEMP	1 1	900 RPH	10000	1	750 RPM		1 1	600 RPM				
DEG C	TORQUE FT-LBS	FUEL FLOH PPH	KTAS	TORQUE FT-LBS	FUEL FLOW PPH	KTAS	TORQUE FT-LBS	FUEL FLON PPH	KTAS			
5	993	243	150	1058	243	147	1123	243	143			
-5	1109	263	160	1179	263	157	1250	263	154			
	1075	256	157	114D	255	154	1225	258	151			
-15	1223	285	167	1299	285	165	1374	285	161			
12.2	1100	260	158	1120	250	152	1205	252	149			
	1060	252	154									
-25	1319	303	172	1401	303	169	1481	303	166			
	1200	279	164	1200	264	157	1300	258	155			
	1050	251	153	1105	245	150	1190	247	147			
-35	1412	321	176	1500	321	173	1584	321	170			
22.0	1300	298	169	1300	281	162	1400	284	160			
	1100	258	155	1095	241	147	1200	247	147			
	1035	245	150				1170	242	145			
-45	1511	342	179	1603	342	176	1694	342	173			
	1400	318	173	1400	299	166	1500	301	164			
1.11	1200	276	161	1200	260	154	1300	263	153			
1.00	1015	240	146	1075	236	145	1150	236	142			
-54	1560	350	179	1653	350	177	1745	349	174			
1000	1400	316	171	1500	318	170	1600	319	167			
	1200	275	159	1300	277	159	1400	280	157			
//	995	235	143	1100	240	145	1200	244	145			
				1070	234	143	1130	231	140			

Figure 5-36. Cruise Performance (Sheet 10 of 13)

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#### CARGO POD INSTALLED

#### CRUISE PERFORMANCE PRESSURE ALTITUDE 2000D FEET

ONDIT 500 PI NERTII		ATOR -	NORME	iL.	NOTE DO NOT EXCEED MAXIMUM CRUISE Torque or 740 deb c Itt							
REFER	TO SHEE	T 1 F0	R APPP	OPRINTE	NOTES	RPPLI	CABLE TO	THIS	CHART			
TEMP	19	300 RPM	1	1	750 RPH	dentes a	16	OD RPP	1			
DEG C	TORQUE FT-LBS	FUEL FLOH PPH	KTAS	TOROUE FT-LOS	FUEL FLOW PPH	KTAS	TORQUE FT-LBS	FUEL	KTRS			
0	942	229	151	1003	229	148	1064	229	144			
-10	1047 990	249 238	160 155	1114 1050	249 236	158 153	1180	249	154			
-20	1150 1005	268 239	167 155	1222 1100 1035	268 245 231	155 156 150	1293 1110	268 233	161 148			
-30	1236 1100 990	284 257 235	172 162 153	1312 1200 1020	284 262 227	169 162 149	1388 1200 1100	284 249 229	156 154 145			
-40	1322 1200 1000 945	302 276 236 225	175 167 152 147	1404 1200 1010	302 261 224	173 161 146	1483 1300 1100 1075	302 265 227 223	170 159 145 143			
-50	1414 1300 1100 935	321 296 255 222	178 172 159 145	1499 1300 1100 990	320 278 239 218	176 165 152 143	1582 1400 1200 1060	320 281 244 218	173 163 151 140			
-54	1408 1300 1100 925	319 296 254 220	177 171 158 143	1494 1300 1100 1000	318 277 239 220	175 164 151 143	1578 1400 1200 1050	318 280 243 216	172 162 150 140			

Figure 5-36. Cruise Performance (Sheet 11 of 13)

#### CESSNA MODEL 208 (675 SHP)

## CARGO POD INSTALLED

#### CRUISE PERFORMANCE PRESSURE ALTITUDE 22000 FEET

CONDIT		RATOR -	NORM	AL	NOTE Do not exceed maximum cruise Torque or 740 deb c itt							
REFER	TO SHE	ET 1 FO	R APP	ROPRIATE	NOTES APPLICABLE TO THIS							
TEMP	1	900 RPM		1	750 RPM		1	600 RPH				
DEG C	TORQUE FT-LBS	FUEL FLOW PPH	KTAS	TOROUE FT-LBS	FUEL FLOW PPH	KTAS	TORQUE FT-LBS	FUEL FLOW PPH	KIAS			
-5	888	216	152	945	215	149	1003	215	145			
-15	984	234	161	1046	234	158	1109	234	155			
-	925	222	155	975	219	152	1045	221	149			
-25	1073	251	167	1141	251	165	1208	251	161			
5.4	925	221	154	1000 950	223	153	1100	230 217	153			
-35	1153	255	171	1225	256	169	1296	266	156			
	1000	235	159	1100	241	150	1100	227	152			
	910	217	151	940	210	147	1010	211	144			
-45	1234	283	175	1311	283	173	1387	283	169			
	1100	254	166	1200	259	155	1200	244	158			
	900	214	147	1000	220	151	1000	208	142			
1.11	860	206	144	925	206	144	990	206	141			
-54	1269	290	175	1347	289	173	1426	289	170			
	1100	253	164	1200	258	164	1300	262	153			
	900	213	147	1000	219	149	1100	224	149			
1.11	870	207	144	915	203	142	970	201	139			

Figure 5-36. Cruise Performance (Sheet 12 of 13)

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## CARGO POD INSTALLED

ONDIT 500 PO NERTI		ATOR -	NORMA	11	NOTE DO NOT EXCEED MAXIMUM CRUISE Torque or 740 deg c Itt							
REFER	TO SHEE	T 1 F0	R APPR	ROPRIATE	NOTES	APPLI	CRBLE TO	THIS	CHART			
TEMP	1	900 RPM		1	750 RPH	- 2 A A	1	500 RPH	-			
DEG C	TOROUE FT-LBS	FUEL FLOW PPH	KTAS	TORQUE FT-LBS	FUEL FLOW PPH	KTAS	TOROUE FT-LBS	FUEL FLON PPH	KTAS			
-10	836	203	153	890	203	151	945	203	146			
-20	925 855	220 206	162+ 154	984 890	220 202	159 150	1043 970	220 205	156			
-30	1002 860	235 205	167 153	1056 900 880	235 202 198	165 150 148	1129 1000 950	234 209 200	161 151 146			
- 40	1076 900 815	249 213 195	171 156 147	1143 1000 870	249 220 195	169 158 146	1210 1100 930	249 227 195	156 158 143			
-50	1151 1000 805	265 232 193	175 163 144	1222 1100 900 850	265 238 199 190	172 164 148 143	1292 1100 910	264 224 190	169 156 140			
-54	1144 1000 805	263 232 192	173 163 144	1215 1100 900 870	263 238 199 193	171 164 147 144	1288 1100 900	263 224 197	168 156 139			

#### CRUISE PERFORMANCE PRESSURE ALTITUDE 24000 FEET

Figure 5-36. Cruise Performance (Sheet 13 of 13)

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CESSNA MODEL 208 (675 SHP)

#### CARGO POD INSTALLED FUEL AND TIME REQUIRED MAXIMUM CRUISE POWER (40 - 200 Nautical Miles)

CONDITIONS:

8000 Pounds

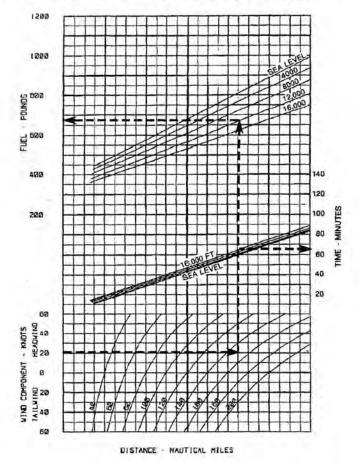
1900 RPM

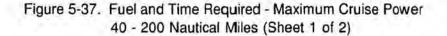
Inertial Separator - Normal

Standard Temperature

NOTES:

1.) Fuel required includes the fuel used for engine start, taxi, takeoff, maximum climb from sea level, descent to sea level and 45 minutes reserve. Time required includes the time during a maximum climb and descent. 2.) With inertial separator in BYPASS or cabin heat on, increase time by 3% and fuel by 2%.





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For Training Purposes Only

#### SECTION 5 PERFORMANCE

## CARGO POD INSTALLED FUEL AND TIME REQUIRED

MAXIMUM CRUISE POWER (200 - 1000 Nautical Miles)

#### CONDITIONS:

8000 Pounds

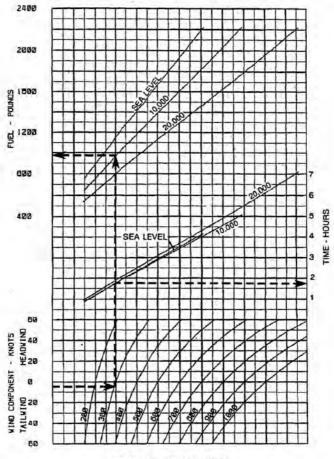
1900 RPM

Inertial Separator - Normal

Standard Temperature

NOTES:

 Fuel required includes the fuel used for engine start, taxi, takeoff, maximum climb from sea level, descent to sea level and 45 minutes reserve. Time required includes the time during a maximum climb and descent.
 With inertial separator in BYPASS or cabin heat on, increase time by 3% and fuel by 2%.



DISTANCE - NAUTICAL MILES

Figure 5-37. Fuel and Time Required - Maximum Cruise Power 200 - 1000 Nautical Miles (Sheet 2 of 2)

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#### For Training Purnoses Only

#### CESSNA MODEL 208 (675 SHP)

#### CARGO POD INSTALLED FUEL AND TIME REQUIRED MAXIMUM RANGE POWER (40 - 200 Nautical Miles)

CONDITIONS:

8000 Pounds

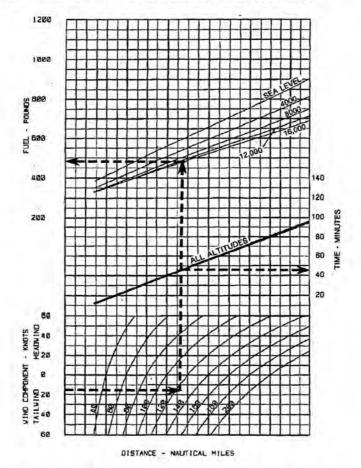
1900 RPM

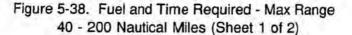
Inertial Separator - Normal

Standard Temperature

NOTES:

1.) Fuel required includes the fuel used for engine start, taxi, takeoff, maximum climb from sea level, descent to sea level and 45 minutes reserve. Time required includes the time during a maximum climb and descent. 2.) With inertial separator in BYPASS or cabin heat on, increase time by 3% and fuel by 2%.





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#### SECTION 5 PERFORMANCE

## CARGO POD INSTALLED FUEL AND TIME REQUIRED

MAXIMUM RANGE POWER (200 - 1000 Nautical Miles)

#### CONDITIONS:

8000 Pounds

1900 RPM

Inertial Separator - Normal

Standard Temperature

NOTES:

 Fuel required includes the luel used tor engine start, taxi, takeoff, maximum climb from sea level, descent to sea level and 45 minutes reserve. Time required includes the time during a maximum climb and descent.
 With inertial separator in BYPASS or cabin heat on, increase time by 3% and fuel by 2%.

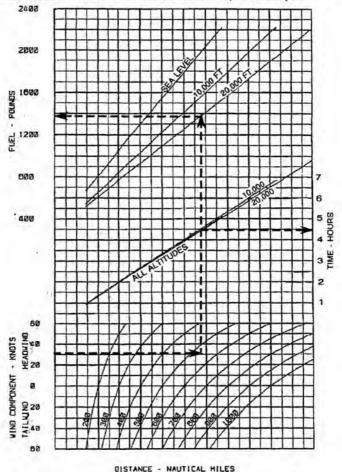


Figure 5-38. Fuel and Time Required - Max Range 200 - 1000 Nautical Miles (Sheet 2 of 2)

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#### For Training Purposes Only

CESSNA MODEL 208 (675 SHP)

#### CARGO POD INSTALLED

#### RANGE PROFILE 45 MINUTES RESERVE 2224 LBS USABLE FUEL

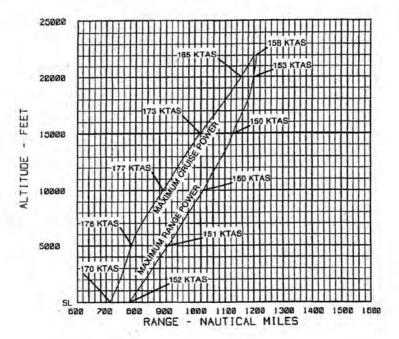
#### CONDITIONS:

#### NOTES:

 This chart allows for the fuel used for engine start, taxi, takeoff, climb and descent. The distance during a maximum climb and the distance during descent are included.

8000 Pounds 1900 RPM Standard Temp Zero Wind Inertial Separator - Normal

2. With the inertial separator in BYPASS or cabin heat on, decrease range by 2%.





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#### SECTION 5 PERFORMANCE

#### CARGO POD INSTALLED

#### ENDURANCE PROFILE 45 MINUTES RESERVE 2224 LBS USABLE FUEL

CONDITIONS:

8000 Pounds 1900 RPM

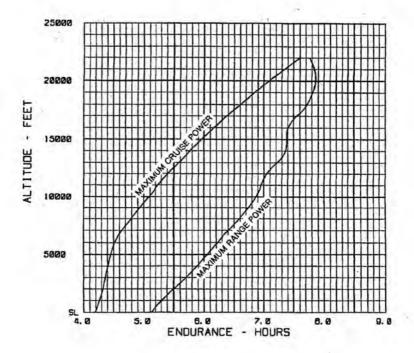
Standard Temp

Inertial Separator - Normal

NOTES:

 This chart allows for the fuel used for engine start, taxi, takeoff, climb and descent. The distance during a maximum climb and the distance during descent are included.

 With the inertial separator in BYPASS or cabin heat on, decrease endurance by 2%.



#### Figure 5-40. Endurance Profile.

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CESSNA MODEL 208 (675 SHP)

#### CARGO POD INSTALLED

## TIME, FUEL AND DISTANCE TO DESCEND

#### CONDITIONS:

Flaps Up 8000 Pounds 140 KIAS Above 16,000 feet, 160 KIAS Below 16,000 feet Power Set for 800 FPM Rate of Descent 1900 RPM

PRESSURE	DES	CEND TO SEA LE	VEL
ALTITUDE (FEET)	TIME (MIN)	FUEL USED (POUNDS)	DIST (NM)
24,000	30	132	91
20,000	25	113	75
16,000	20	95	59
12,000	15	72	43
8,000	10	48	.28
4,000	5	25	14
Sea Level	0	0	0

#### NOTE

Distances shown are based on zero wind.

Figure 5-41. Time, Fuel and Distance to Descend

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CARGO POD INSTALLED

#### MAXIMUM WEIGHT 7800 LBS SHORT FIELD

#### NOTES:

- 1. Short field technique as specified in Section 4.
- Decrease distances 10% for each 11 knots headwind. For operation with tailwinds up to 10 knots, increase distances by 10% for each 2.5 knots.
- 3. For operation on a dry, grass runway, increase distances by 40% of the "ground roll" figure.
- If a landing with flaps up is necessary, increase the approach speed by 15 KIAS and allow for 40% longer distances.
- 5. Use of maximum reverse thrust after touchdown reduces ground roll by approximately 10%.
- 6. Where distance values have been replaced by dashes, operating temperature limits of the airplane would be greatly exceeded. Those distances which are included but the operation slightly exceeds the temperature limit are provided for interpolation purposes only.

	SPEED		4	10°C	0°C		1	10°C		O°C	30°C		40°C	
VEIGHT LBS 7800	AT 50 FT KIAS	PRESS ALT FT	GRD ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRD ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRD ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRD ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRD ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRD ROLL FT	TOTAL F TO CLEAR 50 FT OB
7800	78	S.L. 1000 2000 3000 4000 5000 6000 7000 8000 9000 10,000 11,000 12,000	650 670 695 725 750 780 810 840 875 905 945 980 1020	1500 1540 1580 1620 1665 1710 1755 1805 1855 1910 1965 2020 2080	675 700 725 750 810 840 870 905 940 980 1020 1060	1540 1580 1620 1665 1710 1755 1805 1855 1905 1960 2015 2075 2135	700 725 750 780 810 840 870 905 940 975 1015 1055 1095	1580 1620 1665 1710 1755 1805 1805 1905 2015 2015 2015 2015 2010 2130 2195	720 750 775 805 835 870 900 935 975 1010 1050 1090 1135	1620 1660 1705 1750 1800 1850 1900 1955 2010 2065 2125 2185 2250	745 775 805 835 865 900 970 1005 1045 1085 1130 1175	1660 1705 1750 1795 1845 1895 1945 2000 2060 2115 2180 2240 2310	770 800 830 895 925 965 1000 1040 	1700 1745 1790 1835 1885 1940 1995 2050 2105 

Figure 5-42

Landing

Distance

(Sheet 1

of 2)

obstacles, BETA range (lever against spring) after touchdown. Propeller Control Lever - MAX Maximum Braking Paved, Level, Dry Runway Zero Wind Cargo Pod Installed

Power Lever - Idle after clearing

CONDITIONS:

Flaps 30°

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LANDING DISTANCE

# 7300 LBS AND 6800 LBS SHORT FIELD

#### REFER TO SHEET 1 FOR APPROPRIATE CONDITIONS AND NOTES

53.5	SPEED	PRESS	-	10°C	1	D*C	1	0°C	2	0°C	3	0°C	4	0°C
LBS	AT 50 FT KIAS	ALT FT	grd Roll Ft	TOTAL FT TO CLEAR 50 FT OBS	GRD ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRD ROLL FT	TOTAL TO CLEA						
7300	75	S.L. 1000 2000 4000 5000 6000 7000 8000 9000 10,000 11,000 12,000	610 630 655 680 705 730 760 785 820 850 850 885 920 955	1430 1465 1505 1545 1585 1625 1670 1715 1765 1815 1865 1920 1975	630 655 680 705 730 760 785 815 850 850 880 915 955 990	1465 1505 1545 1625 1625 1670 1715 1765 1815 1865 1915 1970 2030	655 680 705 730 755 815 845 845 880 915 950 990 1030	1505 1545 1585 1625 1670 1715 1760 1810 1860 1915 1970 2025 2085	675 700 730 755 815 845 875 910 945 985 1025 1065	1540 1580 1625 1665 1710 1755 1805 1855 1910 1960 2020 2075 2140	700 725 755 780 810 840 875 905 940 980 1020 1060 1100	1580 1620 1660 1705 1755 1800 1850 1900 1955 2010 2010 2010 2010 2130 2190	725 750 780 805 835 870 900 935 975 	1615 1655 1700 1745 1895 1895 1895 2000
6800	72	S.L. 1000 2000 3000 5000 6000 7000 8000 9000 10,000 11,000 12,000	565 585 605 630 655 680 705 730 760 790 820 855 890	1360 1395 1435 1470 1510 1550 1590 1635 1680 1725 1775 1825 1880	585 610 630 655 680 705 730 760 790 820 850 885 920	1400 1435 1470 1510 1550 1690 1635 1680 1725 1775 1825 1875 1830	610 630 655 580 705 730 760 785 820 850 850 855 920 955	1435 1470 1510 1550 1630 1675 1725 1770 1820 1870 1925 1980	630 650 675 700 730 755 785 815 845 845 880 915 950 990	1470 1505 1545 1585 1630 1675 1720 1765 1815 1865 1920 1975 2035	650 675 700 725 755 780 810 845 875 910 945 985 1025	1505 1545 1585 1625 1670 1715 1760 1810 1860 1915 1970 2025 2085	670 695 725 750 780 810 840 870 905 	1544 1588 1622 1663 1710 1755 1809 1855 1900

CARGO POD INSTALLED

SECTION 5 PERFORMANCE

SECTION 6 WEIGHT & BALANCE/ EQUIPMENT LIST

Page

# SECTION 6 WEIGHT & BALANCE/ EQUIPMENT LIST

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#### SECTION 6 WEIGHT & BALANCE/ EQUIPMENT LIST

## INTRODUCTION

This section describes the procedure for establishing the basic empty weight and moment of the airplane. Sample forms are provided for reference. Procedures for calculating the weight and moment for various operations are also provided.

In order to achieve the performance and flight characteristics which are designed into the airplane, it must be flown with approved weight and center of gravity limits. Although the airplane offers flexibility of loading, it cannot be flown with full fuel tanks and a full complement of passengers or a normal crew and both cabin and cargo pod (if installed) loading zones filled to maximum capacity. The pilot must utilize the loading flexibility to ensure the airplane does not exceed its maximum weight limits and is loaded within the center of gravity range before takeoff.

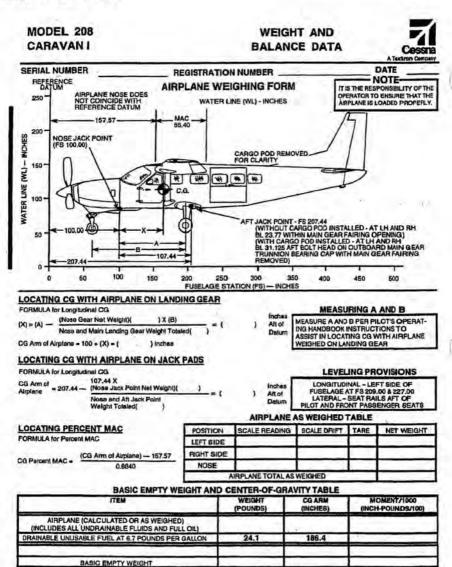
Weight is important because it is a basis for many flight and structural characteristics. As weight increases, takeoff speed must be greater since stall speeds are increased, the rate of acceleration decreases, and the required takeoff distance increases. Weight in excess of the maximum takeoff weight may be a contributing factor to an accident, especially when coupled with other factors such as temperature, field elevation, and runway conditions, all of which may adversely affect the airplane's performance. Climb, cruise, and landing performance will also be affected. Flights at excess weight are possible, and may be within the performance capability of the airplane, but loads for which the airplane was not designed may be imposed on the structure, especially during landing.

The pilot should routinely determine the balance of the airplane since it is possible to be within the maximum weight limit and still exceed the center of gravity limits. An airplane loading which exceeds the forward center of gravity limit may place heavy loads on the nose wheel, and the airplane will be slightly more difficult to rotate for takeoff or flare for landing. If the center of gravity is too far aft, the airplane may rotate prematurely on takeoff, depending on trim settings.

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#### SECTION 6 WEIGHT & BALANCE/ EQUIPMENT LIST

#### CESSNA MODEL 208 (675 SHP)



CESSNA AIRCRAFT COMPANY, AIRCRAFT DIVISION, P.O. BOX 7704, WICHITA, KANSAS 67277

FORM NUMBER 2055, 8 February 1999

Figure 6-1. Airplane Weighing Form

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SECTION 6 WEIGHT & BALANCE/ EQUIPMENT LIST

# SAMPLE WEIGHT AND BALANCE RECORD

(CONTINUOUS HISTORY OF CHANGES IN STRUCTURE OR EQUIPMENT AFFECTING WEIGHT AND BALANCE)

AIRF	LAN	E MC	DDEL	-	SERIA	L NO.		PA	GE NU	IMBE	R
	ITEN	I NO.	Same and the second sec		1200	WEIGHT	CHANC	θE			NING
DATE	II.C.	A NO.	DESCRIPTION OF ARTICLE OR	AD	DED (+)		REMO	VED (-)	BASIC EMPTY WEIGHT		
DATE	IN	OUT	MODIFICATION	WT. (LB.)	T. ARM .) (IN.)	MOMENT	WT. (LB.)	ARM (IN.)	MOMENT /1000	WT. (LB.)	MOMENT
			AS DELIVERED	× 115	100				0	1.1	
									1.00		1000
-				1.1	-		-	-		-	-
	-	-			-	-		-	-	-	
	-						-	1.0		-	-
					1.0.3						
	-			_	-	-		-	-	-	
-				-	-	-			-	-	-
				2			1000	1		1	
				1	1						*
-					-				-	1	
_		-				-	-	-			
	-					1		-		5	

1 April 1998

Figure 6-2.

Sample Weight and Balance Record

0585T1009

#### SECTION 6 WEIGHT & BALANCE/ EQUIPMENT LIST

CESSNA MODEL 208 (675 SHP)

A properly loaded airplane, however, will perform as intended. Before the airplane is licensed, a basic empty weight, center of gravity (C.G.) and moment are computed. Specific information regarding the weight, arm, moment, and installed equipment for this airplane as delivered from the factory can be found in the plastic envelope in the back of this handbook. Using the basic empty weight and moment, the pilot can determine the weight and moment for the loaded airplane by computing the total weight and moment and then determining whether they are within the approved Center of Gravity Moment Envelope.

## A WARNING

It is the responsibility of the pilot to ensure that the airplane is loaded properly. Operation outside of prescribed weight and balance limitations could result in an accident and serious or fatal injury.

## AIRPLANE WEIGHING PROCEDURES

- 1. Preparation:
  - Remove all snow, ice or water which may be on the airplane.
  - Inflate tires to recommended operating pressure.
  - Lock open fuel tank sump quick-drains and fuel reservoir quick-drain to drain all fuel. Drain fuel can.
  - d. Service engine oil as required to obtain a normal full indication (MAX HOT or MAX COLD, as appropriate, on dipstick).
  - e. Move sliding pilot and front passenger seats to position the seat locking pins on the back legs of each seat at station 145. Aft passenger seats (if installed) have recommended fixed positions identified with a code on the seat rails to show the position of each seat front attachment. In the event the aft seats were moved to accommodate a custom loading, they should be returned to the coded locations prior to weighing.
  - f. Raise flaps to fully retracted position.
  - g. Place all control surfaces in neutral position.

## SECTION 6 WEIGHT & BALANCE/ EQUIPMENT LIST

- 2. Leveling:
  - a. Place scales under each wheel (minimum scale capacity, 2000 pounds nose, 4000 pounds each main). The main landing gear must be supported by stands, blocks, etc., on the main gear scales to a position at least four (4) inches higher than the nose gear as it rests on an appropriate scale. This initial elevated position will compensate for the difference in waterline station between the main and nose gear so that final leveling can be accomplished solely by deflating the nose gear tire.
  - b. Deflate the nose tire to properly center the bubble in the level (see Figure 6-1). Since the nose gear strut contains an oil snubber for shock absorption rather than an air/oil strut, it can not be deflated to aid in airplane leveling.
- 3. Weighing .:
  - a. Weigh airplane in a closed hangar to avoid errors caused by air currents.
  - b. With the airplane level and brakes released, record the weight shown on each scale. Deduct the tare from each reading.
- Measuring:
  - a. Obtain measurement A by measuring horizontally (along airplane centerline) from a line stretched between the main wheel centers to a plumb bob dropped from the center of the nose jack point located below the firewall and housed within the nose strut fairing.
  - b. Obtain measurement B by measuring horizontally and parallel to the airplane centerline, from center of nose wheel axle, left side, to a plumb bob dropped from the line between the main wheel centers. Repeat on right side and average the measurements.
- 5. Using weights from item 3 and measurements from item 4, the airplane weight and C.G. can be determined.
- Basic Empty Weight may be determined by completing Figure 6-1.

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## CESSNA MODEL 208 (675 SHP)

# WEIGHT AND BALANCE

The following information will enable you to operate your Cessna within the prescribed weight and center of gravity limitations. To figure weight and balance, use the Sample Loading Problem, Weight and Moment Tables, and Center of Gravity Moment Envelope as follows:

Take the basic empty weight and moment from appropriate weight and balance records carried in your airplane, and enter them in the column titled YOUR AIRPLANE on the Sample Loading Problem.

## NOTE

In addition to the basic empty weight and moment noted on these records, the C.G. arm (fuselage station) is also shown, but need not be used on the Sample Loading Problem. The moment which is shown must be divided by 1000 and this value used as the moment/1000 on the loading problem.

Use the Weight and Moment Tables to determine the moment/1000 for each additional item to be carried; then list these on the loading problem.

# NOTE

Information on the Fuel Weight And Moment Tables is based on average fuel density at fuel temperatures of 60°F. However, fuel weight increases approximately 0.1 lb./gal. for each 25°F decrease in fuel temperature. Therefore, when environmental conditions are such that the fuel temperature is different than shown in the chart headings, a new fuel weight calculation should be made using the 0.1 lb./gal. increase in fuel weight for each 25°F decrease in fuel temperature. As an example, consider the chart for Jet A fuel which has an average density of 6.7 lbs./gal. Assume the tanks are completely filled and the fuel temperature is at 35°F (25°F below the 60°F noted on the chart).

# NOTE

Information on the Fuel Weight And Moment Tables is based on average fuel density at fuel temperatures of 60°F. However, fuel weight increases approximately 0.1 lb./gal. for each 25°F decrease in fuel temperature. Therefore, when environmental conditions are such that the fuel temperature is different than shown in the chart headings, a new fuel weight calculation should be made using the 0.1 lb./gal. increase in fuel weight for each 25°F decrease in fuel temperature. As an example, consider the chart for Jet A fuel which has an average density of 6.7 lbs./gal. Assume the tanks are completely filled and the fuel temperature is at 35°F (25°F below the 60°F noted on the chart).

Calculate the revised fuel weight by multiplying the total usable fuel by the sum of the average density (stated on chart) plus the increase in density estimated for the lower fuel temperature. In this particular sample, as shown by the calculation below, the resulting fuel weight increase due to lower fuel temperature will be 33.6 lbs. over the 2224 lbs. (for 332 gallons) shown on the chart, which might be significant in an actual loading situation:

Then calculate the revised fuel moment. The revised moment is in direct proportion to the revised fuel weight:

X (revised moment)	=2257.6 (revised weight)
408.8 (average moment)	=2224 (average weight)

X = (408.8 X 2257.6) ÷ 2224

The revised moment of X = 414.97. A value of 415 would be used on the Sample Loading Problem as the moment/1000 in conditions represented by this sample.

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## CESSNA MODEL 208 (675 SHP)

# NOTE

the Crew And on Passenger Information and Baggage/Cargo Weight And Moment Tables is based on the pilot and front passenger sliding seats positioned for average occupants (e.g., station 135.5), the aft passenger fixed seats (if installed) in the recommended position coded on the seat rails, and the baggage or cargo uniformly loaded around the center (e.g., station 168.4 in zone 1) of the zone fore and aft boundaries (e.g., stations 155.4 and 181.5 in zone 1) shown on the Loading Arrangements diagrams. For loadings which may differ from these, the Loading Arrangements diagrams and Sample Loading Problem lists fuselage stations for these items to indicate their forward and aft C.G. range limitations (seat travel and baggage/cargo area limitations). Additional moment calculations, based on the actual weight and C.G. arm (fuselage station) of the item being loaded, must be made if the position of the load is different from that shown on the Weight And Moment Tables. For example, if seats are in any position other than stated on the Internal Cabin Loading Arrangements diagram, the moment must be calculated by multiplying the occupant weight times the arm in inches. A point 9 inches forward of the intersection of the seat bottom and seat back (with cushions compressed) can be assumed to be the occupant C.G. For a reference in determining the arm, the forward face of the raised aft baggage floor is fuselage station 284.0.

Total the weights and moments/1000 and plot these values on the Center of Gravity Moment Envelope to determine whether the point falls within the envelope, and if the loading is acceptable.

# WARNING

It is the responsibility of the pilot to ensure that the airplane is loaded properly. Operation outside of prescribed weight and balance limitations could result in an accident and serious or fatal injury.

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# WEIGHT AND BALANCE PLOTTER

A Weight And Balance Plotter is provided to quickly determine the weight and balance of the airplane when loading. If the plotter shows a marginal condition developing, or if there is a question concerning the results in any way, then a more precise weight and balance should be determined using the weight and balance procedure in this section. Instructions for use of the plotter are included on the plotter.

# CREW/PASSENGER LOADING

Six-way adjustable seats are provided for the pilot and front passenger, and these seats slide fore and aft on tracks having adjustment holes for seat position. On the Standard 208, aft passenger seating is available in two configurations. Commuter seating and Utility seating. In Commuter seating, two individual, fixed-position passenger seats are located on the left side of the cabin, and three two-place, fixed-position, bench-type seats are located on the right side of the cabin. An "O" code marking on the aft seat tracks represents the recommended position for placement of the front leg plunger of each Commuter seat. In Utility seating, all seats are individual, fixed-position, collapsible seats which, if removed, can be folded for storage in the aft baggage area. Four passenger seats are located on the left side of the cabin, and four seats are located on the right side. An "X" code marking on the aft seat tracks represents the recommended position for placement of the front leg plunger of each Utility seat. Refer to the Internal Cabin Loading Arrangements diagram for the C.G. arm (fuselage station) of the pilot and all passenger seating positions.

# WARNING

None of the airplane seats are approved for Installation facing aft. Also, the left-hand oneplace seats in the commuter configuration must not be installed on the outboard and middle seat tracks used for the right-hand two-place seats of the commuter configuration, even though the one-place collapsible seats in the utility configuration are normally installed in this location.

CESSNA MODEL 208 (675 SHP)

# **BAGGAGE/CARGO LOADING**

# CABIN AREA

To facilitate the carrying of large or bulky items, all aft seats (Standard 208 only) and the front passenger seat may be removed from the airplane. If a cargo barrier and its three barrier nets are available for installation, removal of the front passenger seat may not be desired. Mission requirements will dictate whether the barrier is to be used and the number of seats removed. If seats are removed for hauling cargo and the cargo barrier and its nets added, the basic empty weight and c.g. moment of the airplane should be adjusted so that these values accurately represent the weight and moment of the airplane before loading. To calculate the new weight and moment, refer to the airplane equipment list and acquire the weight and c.g. arm of each item of equipment to be removed or added, then record these values on Figure 6-2, Sample Weight And Balance Record, to assist in the calculation. For each item of equipment, multiply its weight by its c.g. arm to provide the moment for that item. Subtract weights of removed items (seats) and add weights of installed items (cargo barrier and its nets) to the original basic empty weight to provide a new basic empty weight. Likewise, subtract the moments of removed items and add the moments of installed items to the original moment to provide a new airplane moment. (Remember that the moment value is to be divided by 1000 to reduce the number of digits.) The new basic empty weight and moment/1000 can be used as illustrated in the Sample Loading Problem when figuring airplane loading with the selected items of equipment removed/installed.

With all the seats except the pilot's seat removed, a large cabin volume (341.4 cubic feet, less the volume required for the pilot) is available for baggage/cargo; if a cargo barrier is installed, the total volume available for cargo behind the barrier is 254 cubic feet. Cargo can be loaded through the large, almost square, two-piece cargo door. The floor is flat from the firewall at station 100, except in the rudder pedal area, to the aft side of the cargo door (station 284), and has a 200 pound per square foot allowable loading. Strategically located nutplates are provided which will allow the installation of plywood flooring (standard equipment on the Cargomaster) for ease of loading and distribution of concentrated loads (see Figure 6-11). Between stations 284 and 308, additional baggage/cargo space is provided on a raised floorboard approximately 5 inches above the main floorboard.

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# SECTION 6 WEIGHT & BALANCE/ EQUIPMENT LIST

In the area of the removed front passenger seat, "I" section seat tracks are installed from station 125 to 159.98, and tie-down block assemblies (available from any Cessna Dealer) which clamp to the tracks can be installed to serve as tie-down attach points. From station 158 aft to the raised baggage/cargo floor, the seat tracks are designed to receive quick-release tie-down fittings which can be snapped into the tracks at intervals of 1 inch. The raised baggage/cargo floor contains eight (8) anchor plates to which guickrelease tie-down fittings can be attached. If rope, cable or other fittings are used for tie-downs, they should be rated at a minimum of 2100 pounds when used with all fittings noted in the table on Figure 6-9, except the double-stud quick-release tie-downs which require a 3150 pound rating. Maximum allowable cargo loads will be determined by the individual zone weight limitations and by the airplane weight and C.G. limitations. The number of tie-downs required is dependent on the load(s) to be secured. Figure 6-9 shows the maximum allowable cargo weight for each type of cargo tie-down attachment.

On the Cargomaster, the sidewalls in the cargo area are marked with vertical lines to facilitate the identification of the six (6) loading zones. Markings located on the sidewalls between the lines identify each zone by number and display the maximum load which can be carried within the zones. Refer to Maximum Zone/Compartment Loadings for maximum zone weight limits.

# A CAUTION

## The maximum load values marked in each zone are predicated on all cargo being tied down within the zones.

A horizontal line, labeled 75%, is prominently marked along each sidewall as a loading reference. As indicated on a placard on the lower cargo door, zones forward of the last loaded zone must be at least 75% full by volume. Whenever possible, each zone should be loaded to its maximum available volume prior to loading the next zone. An additional placard located on the right sidewall between zones 5 and 6 cautions that if the load in zone 5 exceeds 400 pounds, a cargo partition net (if available) is required aft of the load or the load must be secured to the floor.

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A cargo barrier and three barrier nets are available for installation directly behind the pilot's and front passenger's seats. The barrier and nets preclude loose cargo from moving forward into the pilot's and front passenger's stations during an abrupt deceleration. The barrier consists of a U-shaped assembly of honeycomb composite construction. The assembly attaches to the four pilot and front passenger seat rails at the bottom at station 153 and to the wing carry-thru spar at the top at approximately station 166. The cargo barrier nets consist of three nets: one for the left sidewall, one for the right sidewall, and one for the center. The left and right nets fill in the space between the barrier assembly and the airplane sidewalls. The side nets are fastened to the airplane sidewalls and the edge of the barrier with six (6) quick-release fasteners each, three on each side. The center net fills in the opening in the top center of the barrier. The center net is fastened with four (4) fasteners, two on each side. Horizontal lines, labeled 75, are marked on the aft side of the cargo barrier. Placards above the horizontal lines caution that the maximum allowable load behind the barrier is 2900 pounds total, and that zones forward of the last loaded zone must be at least 75 full by volume. Refer to Figure 6-6 for additional details.

# WARNING

When utilized, the cargo barrier and its attached nets provide cargo forward crash load restraint and protection of the pilot and front passenger; however, the cargo must still be secured to prevent it from shifting due to takeoff, flight, landing, taxi accelerations and and decelerations. the Standard 208. On If passengers as well as cargo are located aft of barrier, cargo placement the allow must movement and exit of the passengers and the cargo must be secured for crash load restraint conditions. Refer to cargo load restraint in this section for additional information concerning cargo restraint with and without a cargo barrier.

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Ensure the barrier net fasteners are secured for takeoff, landing, and inflight operations, and are momentarily detached only for movement of the nets for loading/unloading of items through the crew area.

Three cargo partition nets are available and can be installed to divide the cargo area into convenient compartments. Partitions may be installed in all of the five locations at stations 181.5, 208, 234, 259, and 284. The cargo partitions are constructed of canvas with nylon webbing reinforcement straps crisscrossing the partition for added strength. The ends of the straps have quick-release fasteners which attach to the floor tracks and two floor-mounted anchor plates located just forward of the raised cargo floor and other anchor plates on the sidewalls and ceiling. Four straps have adjustable buckles for tightening the straps during installation of the partition. Refer to Figure 6-7 for additional details.

Zones divided by cargo partitions can be loaded without additional tie-downs provided a total loaded density for each partitioned zone does not exceed 9.75 pounds per cubic foot and the zone is more than 75% full. Cargo loading that does not meet these requirements must be secured to the cabin floor.

# A CAUTION

The maximum cargo partition load is the sum of any two zones. no more than two adjacent zones can be divided by one partition. The partitions are designed to prevent the cargo from shifting forward and aft in flight; they should not be considered adequate to withstand crash loads and do not replace the need for a cargo barrier.

CESSNA MODEL 208 (675 SHP)

A restraining net is available and can be installed on the inside of the airplane over the cargo door opening. The restraining net precludes loose articles from falling out the cargo door when the doors are opened. The restraining net consists of two halves which part in the center of the door opening. The front and rear halves slide fore and aft, respectively, on a rod to open the net. The net is attached to the sidewall by screws and nutplates along the front and rear edges of the net. When the net is closed, the two halves are held together by snap-type fasteners. Refer to Figure 6-8 for additional details.

Various tie-down belt assemblies and tie-down ring anchors are available for securing cargo within the airplane; the belts may also be used for tying down the airplane. A standard configuration is offered and contains three 3000-pound rated belt assemblies with ratchet-type adjusters and six single-stud, quick-release tie-down ring anchors. A heavy-duty configuration consists of three 5000pound rated belts with ratchet-type adjusters and six double-stud, Three 5000-pound rated belts with quick-release anchors. overcenter-type locking devices are also available for heavy-duty use. The six single-stud and double-stud tie-down ring anchors are also available separately. The single-stud anchors can be attached to any tie-down point in the airplane which isn't placarded for attachment of partition nets only, whereas the double-stud anchors can be attached to the aft seat tracks only. See Figure 6-9 for maximum load ratings and tie-down ring anchor spacing restrictions.

Refer to Maximum Zone/Compartment Loading for maximum zone weight limits.

# A CAUTION

The maximum zone weight limits in each zone are predicated on all cargo being tied down within the zones.

# MAXIMUM ZONE/COMPARTMENT LOADINGS

c	Zone/ Compart- ment	Volume (Cubic Feet)		imits (Lbs) **Unsecured Using Partitions or in Cargo Pod	C.G. (Station Location)
Fuselage	1	40.6	1410	395	168.4
1	2	49.4	1430	480	194.8
	3	48.9	1410	475	221.0
	4	43.5	1380	420	246.5
	5	40.1	1270	390	271.5
	6	31.5	320(Cargomaster 325(Std. 208)	) 305	296.0
Cargo Po	d A	23.4		230	132.3
	в	31.5	-	310	182.1
	С	28.8		280	239.6

Maximum zone loadings are as follows:

\*THIS IS THE MAXIMUM CARGO ALLOWED IN THE BAY INDICATED.

\*\*DENSITY MUST BE 9.75 LBS/FT3 OR LESS AND BAY 75% OR MORE FULL.

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# CARGO POD

The airplane can be equipped with an 83.7 cubic foot capacity cargo pod attached to the bottom of the fuselage. The pod is divided into three compartments (identified as zones A, B, and C) by bulkheads and has a maximum floor loading of 30 pounds per square foot and maximum load weight limit of 820 pounds. Each compartment has a loading door located on the left side of the pod. The doors are hinged at the bottom, and each has two latches. When the latch handles are rotated to the horizontal position with the doors closed, the doors are secured. Refer to Figure 6-4 and 6-13 for additional details.

# CENTER OF GRAVITY PRECAUTIONS

Since the airplane can be used for cargo missions, carrying various types of cargo in a variety of loading configurations, precautions must be taken to protect the forward and aft C.G. limits. Load planning should include a careful comparison of the mission requirements with the volume and weight limitation in each loading zone and the final airplane C.G. Cargo loaded in the forward zones may need to be balanced by loading cargo in one or more aft zones. Conversely, loadings can not be concentrated in the rear of the airplane, but must be compensated by forward cargo to maintain balance. Under ideal conditions, loadings should be accomplished with heavy items on the bottom and the load distributed uniformly around the C.G. of the cabin cargo area zone and/or cargo pod compartment. Loading personnel must maintain strict accountability for loading correctly and accurately, but may not always be able to achieve an ideal loading. A means of protecting the C.G. aft limit is provided by supplying and aft C.G. location warning area between 38.33 MAC and the maximum allowable aft C.G. of 40.33 MAC. The warning area is indicated by shading on the C.G. Moment Envelope (Figure 6-18) and C.G. Limits (Figure 6-19). This shaded area should be used only if accurate C.G. determination can be obtained.

SECTION 6 WEIGHT & BALANCE/ EQUIPMENT LIST

# A CAUTION

Exercise caution while loading or unloading heavy cargo through the cargo doors. An ideal loading in every other respect can still cause tail tipping and structural damage if proper weight distribution is ignored. For example, heavy cargo loaded through the doors and placed momentarily in zones 4 and 5, plus the weight of personnel required to move it to a forward zone, could cause an out-of-balance condition during loading.

# CARGO LOAD RESTRAINT

# PREVENTION OF MOVEMENT

Cargo restraint requires the prevention of movement in five principal directions: forward, aft, upward (vertical), left (side), and right (side) These movements are the result of forces exerted upon the cargo due to acceleration or deceleration of the airplane in takeoffs and landings as well as forces due to air turbulence in flight. Correct restraint ' provides the proper relationship between airplane configuration (with or without barrier), weight of the cargo, and the restraint required. Restraint is required for flight, landing, and taxi loads and for crash loads.

Cargo must be tied down for flight, landing and taxi load restraint and/or crash load restraint. When a cargo barrier is not installed, all cargo must be prevented from movement in the five principal directions and secured to provide crash load restraint. The maximum rated loads specified for loadings without a barrier in the table on Figure 6-9 should be used for each tie-down. Consistent use of these loading criteria is important, and it is the responsibility of the pilot to assure the cargo is restrained properly. When a cargo barrier is installed, cargo aft of the barrier must also be secured to prevent movement in the five principal directions, but

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only to the extent that shifting due to flight, landing, and taxi loads is provided. The maximum rated loads specified for loadings with a barrier installed shown in the table of Figure 6-9 should be used for each tie-down. With a barrier installed, all cargo must be loaded such that loading zones forward of the last loaded zone must be 75% full by volume.

# WARNING

In special loading arrangements which allow the carriage of passengers as well as cargo behind the barrier on the Standard 208, all cargo must be secured to prevent movement in the five principal directions and provide the same crash load restraint as though a barrier was not installed using the maximum rated loads specified for loading without a barrier. In this arrangement, cargo placement must allow for movement and exit of the passengers. The pilot must be responsible to ensure proper load restraint in all loadings.

Refer to Figure 6-15 for diagrams of typical cargo tie-down methods for prevention of movement. Also, the cargo partition nets available for the airplane can be installed at stations 181.5, 208, 234, 259 and 284 to divide the cabin cargo area into compartments. If the partitions are used, they must be used in conjunction with the cargo barrier. Since partitions are not designed to withstand crash loads, they cannot be considered as a replacement for the barrier. Each partition will withstand the forward and aft operational loads applied during takeoff, flight and landing by any two (2) zones forward or aft of the partition. Use of the partitions will allow loading of the zones without tying down the cargo if the load density is not more than 9.75 pounds per cubic foot and the zone is more than 75% full. Cargo loading that does not meet these requirements must be secured to the cabin floor.

# LOADING OF PIERCING OR PENETRATING ITEMS

Regardless of cargo location, items of a piercing or penetrating nature shall be located so that other cargo is loaded between the .barrier/nets, cargo partitions, and rear wall and the piercing or penetrating items to provide a buffer. The density of this cargo shall be sufficient to restrain the piercing or penetrating items from passing through the barrier/nets, partitions, and rear wall under critical emergency landing conditions. If the condition cannot be complied with, the piercing or penetrating items shall be tied down separately.

# TRANSPORTATION OF HAZARDOUS MATERIALS

Special protection of the airplane and training of personnel are key considerations in conducting approved transportation of hazardous materials.

Protection against the damaging effects of leakage of hazardous materials has not been provided in the cabin cargo area or cargo pod. Therefore provisions should be made to ensure this protection if carriage of these materials is planned.

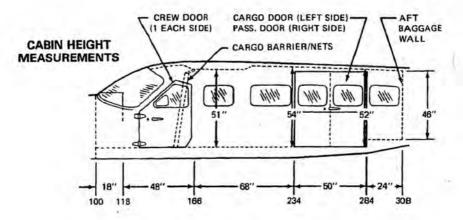
In addition to the pilot-in-command and flight crew member (if used), other personnel such as cargo receiving and loading personnel should be properly trained concerning the acceptance, handling, storage, loading and unloading of hazardous materials if these materials are to be carried. Information and regulations pertaining to the air transportation of hazardous materials is outlined in the Code of Federal Regulations (CFR) Title 49 and in the International Civil Aviation Organization (ICAO) Technical Instructions for the Safe Transport of Dangerous Goods by Air. Additional details on training subject matter and location references for this information are included in the Cargo Loading Manual for this airplane. Some general guidelines important to safe carriage of hazardous materials are also described in the Cargo Loading

# EQUIPMENT LIST

For a complete list of the required and optional equipment installed in the airplane as delivered from the manufacturer, refer to the equipment list furnished with the airplane.

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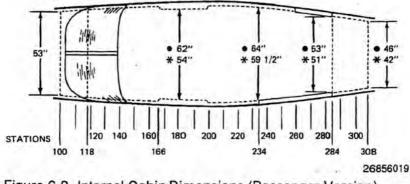
# CESSNA MODEL 208 (675 SHP)

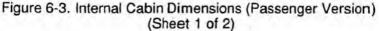


#### DOOR OPENING DIMENSIONS

2-1-1	WIDTH (TOP)	WIDTH (MID/ OVERALL)	WIDTH (BOTTOM)	HEIGHT (FRONT)	HEIGHT (MID/ OVERALL)	HEIGHT (REAR)
CREW DOORS	11 7/8"	35 5/8"	31 7/8"	24 3/8"	41 3/4"	44 3/4"
CARGO DOOR	49"	49"	49"	50"	50".	50"
PASSENGER DOOR	24"	24"	24"	50"	50"	50"

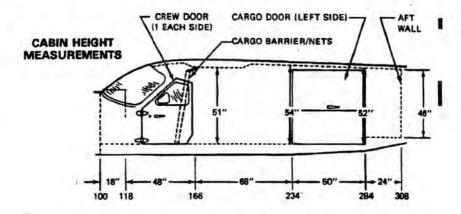
CABIN WIDTH MEASUREMENTS WIDTH
 WINDOW LINE
 KCABIN FLOOR





13 October 1999

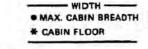
SECTION 6 WEIGHT & BALANCE/ EQUIPMENT LIST



## DOOR OPENING DIMENSIONS

	WIDTH (TOP)	WIDTH (MID/ OVERALL)	WIDTH (BOTTOM)	HEIGHT (FRONT)	HEIGHT (MID/ OVERALL)	HEIGHT
CREW DOORS	11 7/8"	35 5/8"	31 7/8"	24 3/B"	41 3/4"	44 3/4"
CARGO DOOR	49"	49"	49"	50"	50"	50"

CABIN WIDTH MEASUREMENTS



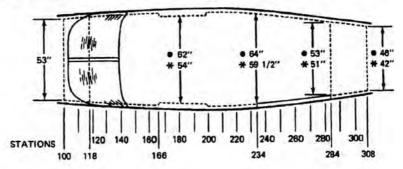


Figure 6-3. Internal Cabin Dimensions (Cargo Version) (Sheet 2 of 2)

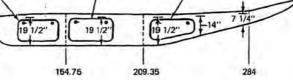
7 September 2001

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AFT DOOR



AFT DOOR



#### NOTES:

 Height dimensions are approximate and measured at fuselage station shown from bottom of fuselage to inside floor.
 Width dimensions are

100

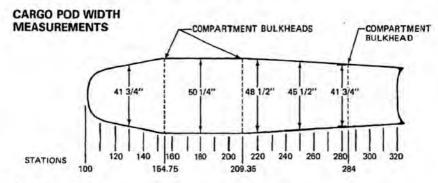
 Width dimensions are approximate and measured at fuselage station shown and on waterline 68.00 inside pod.

	WIDTH	HEIGHT (FRONT)	HEIGHT (MID)	HEIGHT (REAR)
FORWARD DOOR	27 1/2"		14 1/2"	• • • •)
MIDDLE DOOR	20 1/2"	244	15 1/4"	

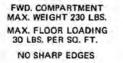
13 1/2"

30 1/2"

DOOR OPENING DIMENSIONS



#### CARGO POD DOOR MARKINGS



CTR. COMPARTMENT MAX: WEIGHT 310 LBS. MAX. FLOOR LOADING 30 LBS. PER SQ. FT. NO SHARP EDGES AFT COMPARTMENT MAX. WEIGHT 280 LBS. MAX. FLOOR LOADING 30 LBS. PER SQ. FT. NO SHARP EDGES

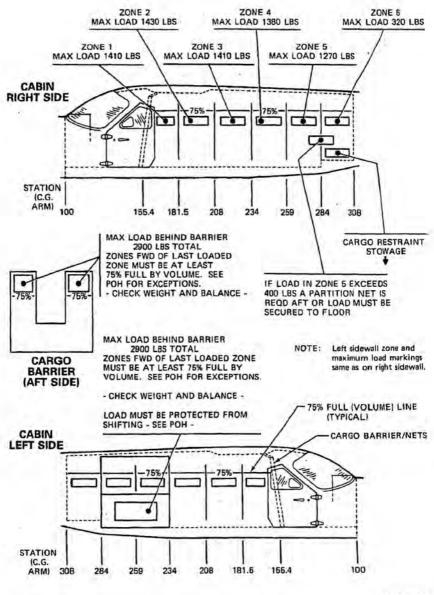
2685X1078

B 1/2"

Figure 6-4. Internal Pod Dimensions and Load Markings

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## SECTION 6 WEIGHT & BALANCE/ EQUIPMENT LIST



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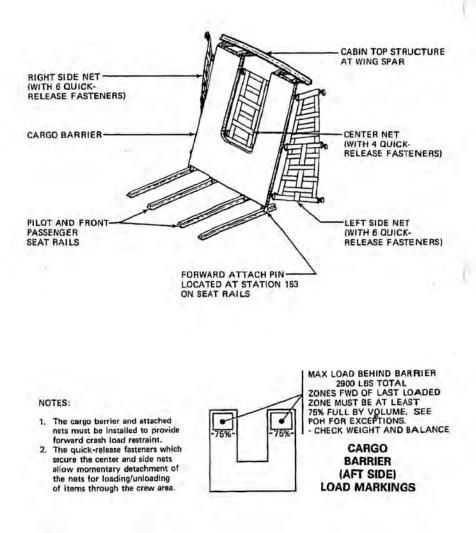
Figure 6-5. Internal Cabin Load Markings (Cargomaster Only)

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6-25

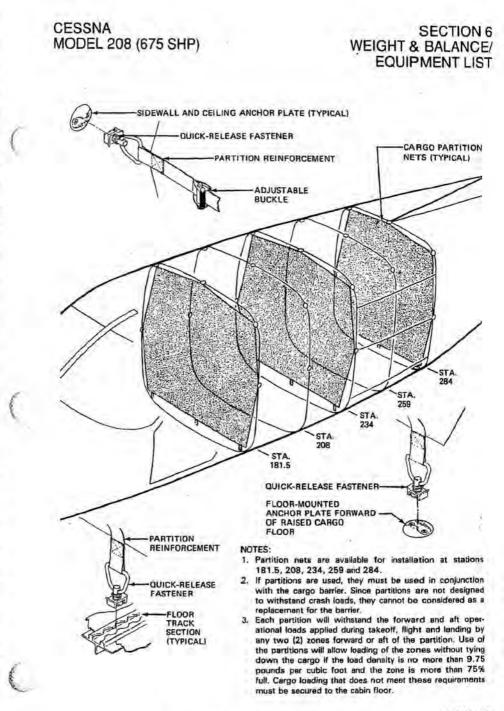
# CESSNA MODEL 208 (675 SHP)



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# Figure 6-6. Cargo Barrier/Nets and Load Markings

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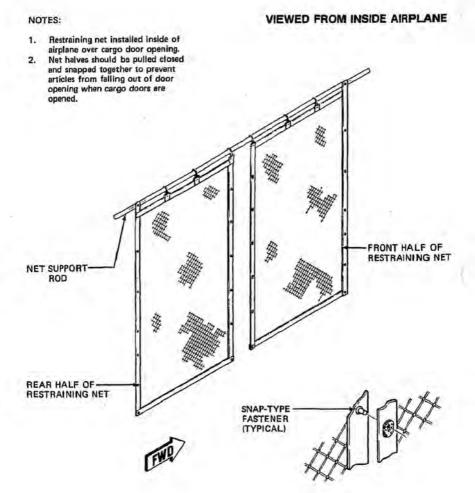
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# Figure 6-7. Cargo Partition Nets

#### For Training Purnoses Only

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# CESSNA MODEL 208 (675 SHP)



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# Figure 6-8. Cargo Door Opening Restraining Net

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# SECTION 6 WEIGHT & BALANCE/ EQUIPMENT LIST

		MAXIMUM RATED	LOAD (POUNDS)
ITEM	LOCATION	WITHOUT CARGO BARRIER/NETS INSTALLED	WITH CARGO BARRIER/NETS INSTALLED
Tie-Down Block on Seat Track	On Front Passenger Seat Tracks	100	100
Single-Stud Quick-Release Tie-Down on Seat Track	On Aft Passenger Seat Tracks	100	200
Single-Stud Quick-Release Tie-Down on Baggage Floor Anchor Plate	On Raised Baggage Floor	100	200
Double-Stud Quick-Release Tie-Down on Seat Track	On Aft Passenger Seat Tracks	150	300

When utilizing the att seat rails for tying down cargo, minimum spacing for single-stud quick-release tledown rings is six inches: minimum spacing for double-stud quick-release tie-down rings is 12 inches.

\* Tie-downs are required forward and alt of cargo load to prevent the load from shifting. The type of liedowns available, the sum of their individual rated loads, and the height and length of the load, whether configured with or without a cargo barrier/nets, and whether passengers are carried aft of the cargo barrier/nets, are the determining factors in selecting the number of tie-downs needed.

#### FOR EXAMPLE:

A 600-pound load which has a height dimension that is equal to or less than its length dimension, requires a minimum of six (6) the downs (3 forward and 3 alt). When the cargo barrier/nets are installed, the number of tie-downs can be reduced by 1/2 as long as load shifting can be prevented. The minimum number of tie-downs for this example would then be 4 (3+1, to utilize an even number of tie-downs). Regardless of whether the cargo barrier/nets are installed, if the cargo height is greater than its length, then the minimum number of tie-downs must be doubled. It passengers are carried att of the cargo barrier/nets, cargo must be secured per the requirements without the barrier/nets installed. Refer to Cargo Load Restraint in this section for additional information.

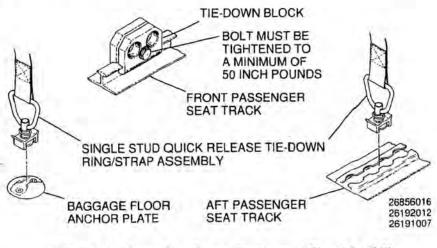
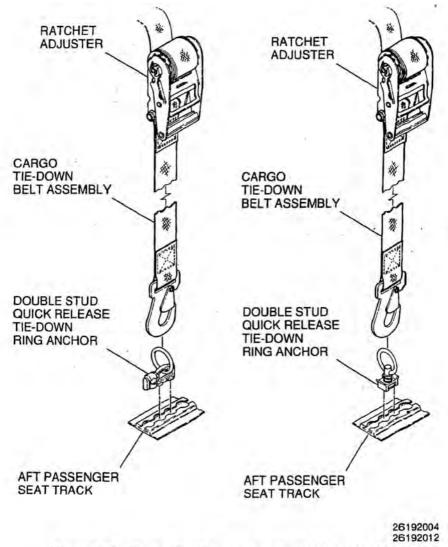


Figure 6-9. Cargo Tie-Down Equipment (Sheet 1 of 2)

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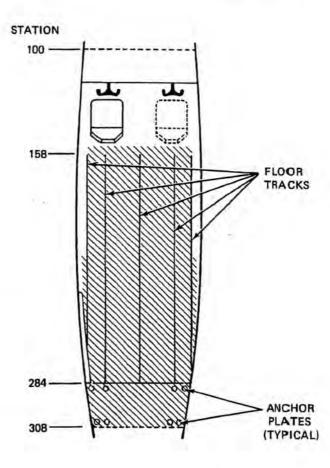


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# SECTION 6 WEIGHT & BALANCE/ EQUIPMENT LIST



NOTE Plywood flooring and anchor plates are secured by screws.



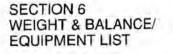
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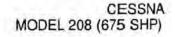
Figure 6-10. Floor Track, Anchor Plate and Plywood Flooring Arrangement

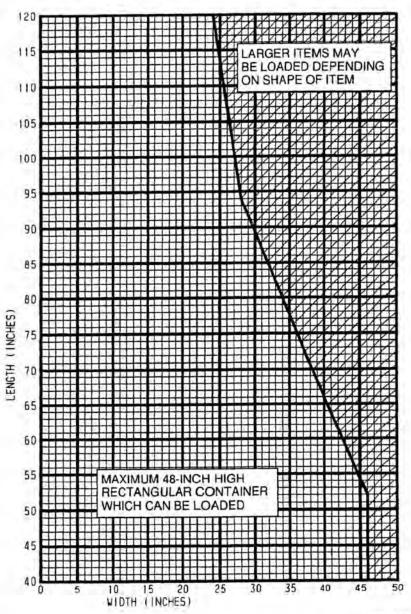
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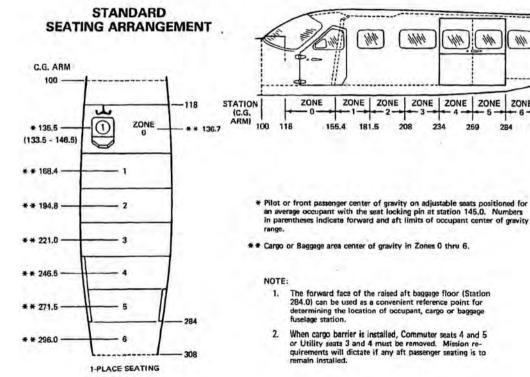
Figure 6-11. Maximum Cargo Sizes

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101 Only

# Figure 6-12. Internal Cabin Loading Arrangements (Passenger Version) (Sheet 1 of 3)

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CESSNA MODEL 208 (675 SHP)

ZONE

260

ZONE

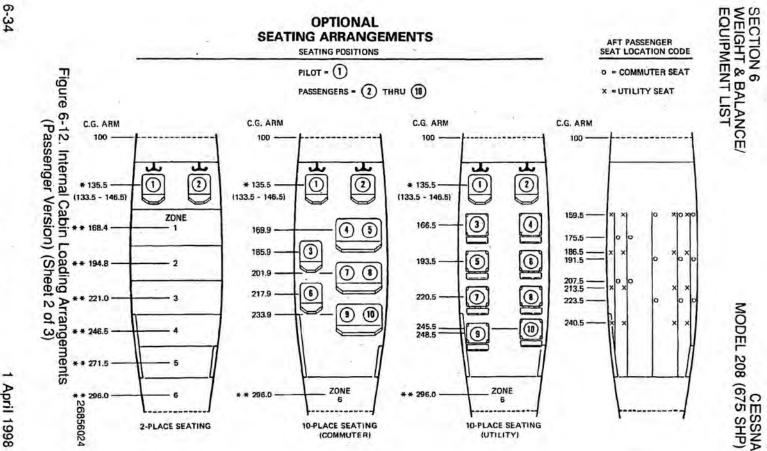
ZONE

200

- The forward face of the raised aft baggage floor (Station 284.0) can be used as a convenient reference point for determining the location of occupant, cargo or baggage
- When cargo barrier is installed, Commuter seats 4 and 5 or Utility seats 3 and 4 must be removed. Mission requirements will dictate if any aft passenger seating is to

EQUIPMENT & BAL ANCE/ LIS 9 NC

6-33

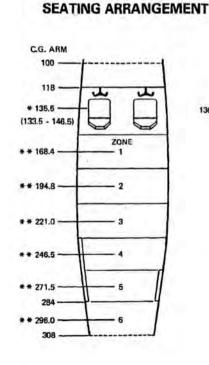


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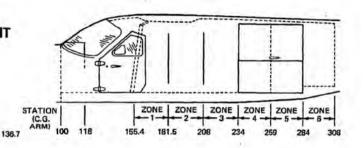
1 April 1998

Figure 6-12. Internal Cabin (Cargo Version) Loading Arrangements of 3)





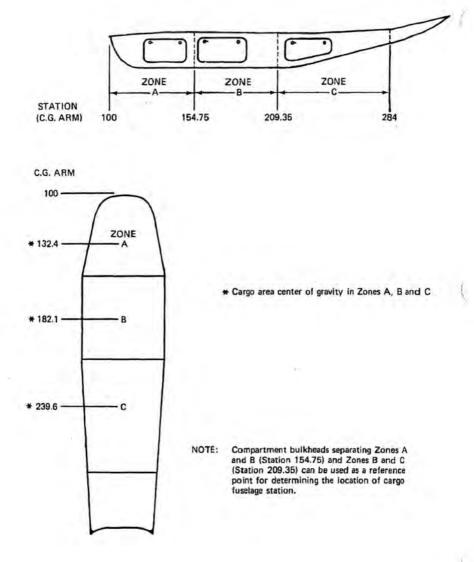
STANDARD



- \* Pliot or front passenger center of gravity on adjustable seats positioned for an average occupant with the seat locking pin at station 145.0. Numbers in parentheses indicate forward and aft limits of occupant center of gravity range.
- \* \* Cargo or Baggage area center of gravity in Zones 0 thru 6.
- NOTE: Vertical lines marked on the cargo area sidewalls or the forward face of the raised floor (Station 284.0) can be used as a convenient reference point for determining the location of occupant or cargo fuselage station.

SECTION 6 WEIGHT & BALANCE/ EQUIPMENT LIST

CESSNA MODEL 208 (675 SHP)

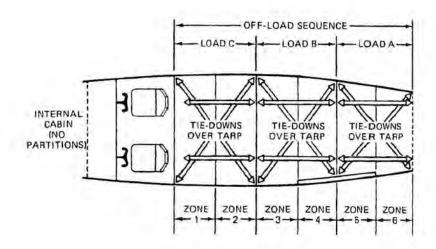


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# Figure 6-13. Cargo Pod Loading Arrangements

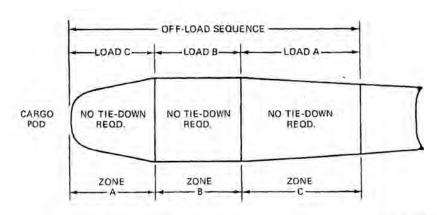
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# SECTION & WEIGHT & BALANCE EQUIPMENT LIST

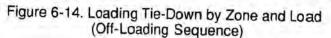


NOTE:

If cargo partitions are not utilized, individual loads must be secured by adequate tie-downs over tarps.

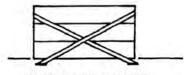


2685X1080



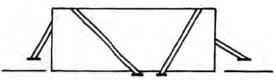
1 April 1998

CESSNA MODEL 208 (675 SHP)



CARGO PROPERLY TIED. NO SHIFTS OCCUR.

CARGO IMPROPERLY TIED. SHIFTS OCCUR.

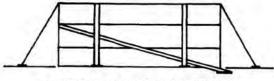


MULTIPLE FORCES SECURED BY FEWER STRAPS.



UPWARD CARGO RESTRAINT.

CYLINDRICAL CARGO TIE-DOWN



PROPER TIE-DOWN FOR ALL FORCES

2685X1083

Figure 6-15. Typical Cargo Restraint Methods

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# SECTION 6 WEIGHT & BALANCE/ EQUIPMENT LIST

	PILOT/	AFT PASSENGER SEATS					
WEIGHT (POUNDS)	FRONT PASS. SEATS () AND (2) ARM= 135.5	() AND (5) ARM = 169.9	3 ARM = 185.9	() AND () ARM = 201.9	6 ARM = 217.9	() AND () ARM = 233.9	
			MOMENT/	1000			
10 20 30 40 50 60 70 80 90 100 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290 300 310 320 320 340 350 350 360 370 380 390 400	$\begin{array}{c} 1.4\\ 2.7\\ 4.1\\ 5.4\\ 6.8\\ 8.1\\ 9.5\\ 10.8\\ 12.2\\ 13.5\\ 14.9\\ 16.3\\ 17.6\\ 19.0\\ 20.3\\ 21.7\\ 23.0\\ 24.4\\ 25.7\\ 27.1\\ 28.5\\ 29.8\\ 31.2\\ 32.5\\ 33.9\\ 35.2\\ 36.6\\ 37.9\\ 39.3\\ 40.6\\ 42.0\\ 43.4\\ 44.7\\ 46.1\\ 47.4\\ 48.8\\ 50.1\\ 51.5\\ 52.8\\ 54.2\\ \end{array}$	$\begin{array}{c} 1.7\\ 3.4\\ 5.1\\ 8.8\\ 10.9\\ 13.6\\ 15.3\\ 17.7\\ 20.4\\ 22.1\\ 23.5\\ 27.2\\ 28.6\\ 324.0\\ 35.7\\ 40.5\\ 29.6\\ 30.0\\ 7\\ 44.9\\ 45.9\\ 61.2\\ 55.5\\ 61.2\\ 9\\ 62.6\\ 68.0\\ 68.0\\ \end{array}$	1.9 3.7 5.6 7.4 9.3 11.2 13.0 14.9 16.7 18.6 20.4 22.3 24.2 26.0 27.9 29.7 31.6 33.5 35.3 37.2 39.0 40.9 42.8 44.6	$\begin{array}{c} 2.0\\ 4.0\\ 6.1\\ 8.1\\ 10.1\\ 12.1\\ 14.1\\ 16.2\\ 20.2\\ 24.2\\ 26.2\\ 28.3\\ 32.3\\ 34.3\\ 36.3\\ 38.4\\ 42.4\\ 44.4\\ 46.4\\ 55.5\\ 54.5\\ 55.5\\ 56.6\\ 62.6\\ 66.6\\ 68.6\\ 80.8\\ 80.$	2.2 4.4 6.5 8.7 10.9 13.1 15.3 17.4 19.6 21.8 24.0 26.1 28.3 30.5 32.7 34.9 37.0 39.2 41.4 43.6 45.8 47.9 50.1 52.3 54.5	2.3 4.7 7.0 9.4 11.7 14.0 16.4 18.7 21.1 23.4 25.7 28.1 30.4 32.7 35.1 37.4 39.8 42.1 44.8 49.1 51.5 53.8 56.1 58.5 60.8 63.2 65.5 67.8 70.2 72.5 81.9 84.2 86.5 88.9 91.2 93.6	

# Figure 6-16. Weight And Moment Tables (Sheet 1 of 9)

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100	PILOT/	AFT PASSENGER SEATS					
WEIGHT (POUNDS)	FRONT PASS. SEATS()AND() ARM = 135.5	(3) AND (4) ARM = 166.5	(5) AND (6) ARM = 193.5	1 AND 1 ARM=220.5	() ARM=248.5	10 ARM = 245.5	
			MOMENT/	000			
10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290 300 310 320 330 340 350 360 370 380 390 400	$\begin{array}{c} 1.4\\ 2.7\\ 4.1\\ 5.4\\ 6.8\\ 8.1\\ 9.5\\ 10.8\\ 12.2\\ 13.5\\ 14.9\\ 16.3\\ 17.6\\ 19.0\\ 20.3\\ 21.7\\ 23.0\\ 24.4\\ 25.7\\ 27.1\\ 28.5\\ 29.8\\ 31.2\\ 32.5\\ 33.9\\ 35.2\\ 36.6\\ 37.9\\ 39.3\\ 40.6\\ 42.0\\ 43.4\\ 44.7\\ 46.1\\ 47.4\\ 48.8\\ 50.1\\ 51.5\\ 52.8\\ 54.2\\ \end{array}$	$\begin{array}{c} 1.7\\ 3.3\\ 5.0\\ 6.7\\ 8.3\\ 10.0\\ 11.7\\ 13.3\\ 15.0\\ 16.6\\ 18.3\\ 25.0\\ 26.6\\ 23.3\\ 25.0\\ 26.6\\ 23.3\\ 35.0\\ 26.6\\ 28.3\\ 30.0\\ 31.6\\ 33.3\\ 35.0\\ 36.6\\ 38.3\\ 40.0\\ 41.6\\ 48.3\\ 45.0\\ 46.6\\ 48.3\\ 49.9\\ 51.6\\ 53.3\\ 54.9\\ 56.6\\ 58.3\\ 59.9\\ 61.6\\ 53.3\\ 59.9\\ 61.6\\ 63.3\\ 64.6\\ 63.9\\ 66.6\\ \end{array}$	$\begin{array}{c} 1.9\\ 3.9\\ 5.8\\ 7.7\\ 9.7\\ 11.6\\ 13.5\\ 15.5\\ 17.4\\ 19.3\\ 21.2\\ 25.2\\ 27.1\\ 29.0\\ 31.9\\ 32.8\\ 38.7\\ 42.6\\ 38.7\\ 42.6\\ 44.5\\ 52.2\\ 56.1\\ 58.0\\ 61.9\\ 65.8\\ 67.7\\ 71.6\\ 58.5\\ 57.4\\ \end{array}$	2.2 4.4 6.6 8.8 11.0 13.2 15.4 17.6 19.8 22.0 24.5 28.7 30.9 33.1 35.5 39.7 41.9 44.1 48.5 50.7 52.9 55.3 59.5 51.3 59.5 61.7 63.9 66.4 72.8 75.2 79.4 81.6 83.8 86.0 88.2	2.5 5.0 7.5 9.9 12.4 14.9 17.4 19.9 22.4 24.8 27.3 29.8 32.3 34.8 37.3 39.8 42.2 44.7 47.2 49.7 52.2 59.6 62.1 64.6 67.1 69.6 72.1 74.5 77.0 89.5 87.0 89.5 91.9 94.4 96.9 99.4	$\begin{array}{c} 2.5\\ 4.9\\ 7.4\\ 9.8\\ 12.3\\ 14.7\\ 17.2\\ 19.6\\ 22.1\\ 24.5\\ 27.0\\ 29.5\\ 31.9\\ 34.4\\ 36.8\\ 39.3\\ 41.7\\ 44.2\\ 46.6\\ 49.1\\ 51.6\\ 56.5\\ 58.9\\ 61.8\\ 66.3\\ 71.2\\ 73.6\\ 61.8\\ 66.3\\ 71.2\\ 73.6\\ 68.7\\ 71.2\\ 73.6\\ 81.0\\ 83.5\\ 85.9\\ 88.4\\ 90.8\\ 93.3\\ 95.7\\ 98.2 \end{array}$	

Figure 6-16. Weight And Moment Tables (Sheet 2 of 9)

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# SECTION 6 WEIGHT & BALANCE/ EQUIPMENT LIST

GALLONS	WEIGHT (POUNDS)	MOMENT/1000 ARM VARIES	GALLONS	WEIGHT (POUNDS)	MOMENT/1000 ARM VARIES
5 10 25 30 35 40 45 50 55 60 55 60 55 60 55 60 55 60 55 60 55 80 85 95 100 105 115 120 125 135 140 155 125 125 125 125 100 15 55 100 15 55 100 55 100 15 55 100 15 55 100 15 55 100 15 55 100 15 55 100 15 55 100 15 55 100 105 105	33 67 100 134 268 301 3368 402 435 536 569 603 636 670 703 737 770 804 837 871 904 938 971 1005 1038 1072 1139	6.1 12.3 18.6 24.8 31.0 37.2 43.4 49.6 55.8 62.0 68.2 74.4 80.6 86.8 93.0 99.2 105.4 111.6 117.8 123.9 130.1 136.3 142.5 148.7 154.8 161.0 167.2 173.3 179.5 185.7 191.8 198.0 204.1 210.3	175 180 185 190 205 210 215 220 225 230 235 240 245 255 260 255 260 255 260 255 260 255 260 255 260 275 280 295 300 305 310 315 320 325 327 330 332	1172 1206 1239 1273 1300 1373 1407 1440 1474 1507 1541 1574 1608 1641 1675 1708 1742 1775 1809 1842 1876 1909 1943 1976 2010 2043 2077 2110 2144 2177 2189 2211 2224	216.5 222.6 228.8 234.9 241.1 247.2 253.3 259.5 265.6 271.8 277.9 284.0 290.2 296.3 302.4 308.5 314.7 320.8 326.9 333.0 339.1 345.2 351.4 357.5 363.6 368.7 375.8 381.9 388.0 384.1 400.2 402.3 406.3 408.8

# Figure 6-16. Weight And Moment Tables (Sheet 3 of 9)

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# CESSNA MODEL 208 (675 SHP)

GALLONS	WEIGHT (POUNDS)	MOMENT/1000 ARM VARIES	GALLONS	WEIGHT (POUNDS)	MOMENT/1000 ARM VARIES
5	33	5.9	175	1138	210.0
10	65	12.0	180	1170	216.0
15	98	18.0	185	1203	221.9
20	130	24.0	190	1235	227.9
25	163	30.1	195	1268	233.9
30	195	36.1	200	1300	239.8
35	228	42.1	205	1333	245.8
40	260	48.1	210	1365	251.7
45	293	54.2	215	1398	257.7
50	325	60.2	220	1430	263.6
55	358 .	66.2	225	1483	269.6
60	390	72.2	230	1495	275.5
65	423	78.2	235	1528	281.5
70	455	84.2	240	1560	287.4
75	488	90.2	245	1593	293.4
80	520	96.2	250	1625	299.3
85	653	102.2	255	1658	305.3
90	585	108.2	260	1690	311.2
95	618	114.2	265	1723	317.1
100	650	120.2	270	1755	323.1
105	683	126.2	275	1788	329.0
110	715	132.2	280	1820	334.9
115	748	138.2	285	1853	340.9
120	780	144.2	290	1885 1918	346.8 352.7
125	813	150.2	295	1918	358.6
130	845	156.2	300	1950	364.6
135	878	162.2	305	2015	370.5
140	910	168.2	310 315	2015	376.4
145	943	174.1 180.1	320	2040	382.3
150 155	975 1008	186.1	325	2113	388.2
160	1008	192.1	327	2123	390.1
165	1073	198.1	330	2145	394.1
170	1105	204.0	332	2158	396.6
170	1105	204.0			
				k	
				c = b	

Figure 6-16. Weight And Moment Tables (Sheet 4 of 9)

1 April 1998

### SECTION 6 WEIGHT & BALANCE/ EQUIPMENT LIST

SALLONS	WEIGHT (POUNDS)	MOMENT/1000 ARM VARIES	GALLONS	WEIGHT (POUNDS)	MOMENT/1000 ARM VARIES
5	34	6.2	175	1190	219.7
10	68	12.5	180	1224	225.9
15	102	18.8	185	1258	232.2
20	136	25.1	190	1292	238.4
25	170	31.4	195	1326	244.7
30	204	37.8	200	1360	250.9
35	238	44.1	205	1394	257.1
40	272	50.4	210	1428	263.4
45	306	56.6	215	1462	269.6
50	340	62.9	220	1496	275.8
55	374	69.2	225	1530	282.0
60	408	75.5	230	1564	288.3
65	442	81.8	235	1598	294.5
70	476	88.1	240	1632	300.7
75	510	94.4	245	1666	306.9
80	544	100.7	250	1700	313.1
85	578	107.0	255	1734	319.4
90	612	113.2	260	1768	325.6
95	646	119.5	265	1802	331.8
100	680	125.8	270	1836	338.0
105	714	132.1	275	1870	344.2
110	748	138.3	280	1904	350.4
115	782	144.6	285	1938	356.6
120	816	150.9	290	1972	362.8
125	850	157.1	295	2006	369.0
130	884	163.4	300	2040	375.2
135	918	169.7	305	2074	381.4
140	952	175.9	310	2108	387.6
145	986	182.2	315	2142	393.8
150	1020	188.4	320	2176	400.0
155	1054	194.7	325	2210	406.2
160	1088	200.9	327	2223	408.4
165	1122	207.2	330	2244	412.3 414.9
170	1156	213.4	332	2258	414.9
	1.1			1.1.1	and the second
					1 A A

# Figure 6-16. Weight And Moment Tables (Sheet 5 of 9)

### SECTION 6 WEIGHT & BALANCE/ EQUIPMENT LIST

### CESSNA MODEL 208 (675 SHP)

GALLONS	WEIGHT (POUNDS)	MOMENT/1000 ARM VARIES.	GALLONS	WEIGHT (POUNDS)	MOMENT/1000 ARM VARIES
5	30	5.5	175	1050	193.8
10	60	11.1	180	1080	199.3
15	90	16.6	185	1110	204.9
20	120	22.2	190	1140	210.4
25	150	27.7	195	1170	215.9
30	180	33.3	200	1200	221.4
35	210	38.9	205	1230	226.9
40	240	44.4	210	1260	232.4
45	270	50.0	215	1290	237.9
50	300	55.5	220	1320	243.4
55	330	61.1	225	1350	248.9
60	360	66.6	230	1380	254.3
65	390	72.2	235	1410	259.8
70	420	77.7	240	1440	265.3
75	450	83.3	245	1470	270.8
80	480	88.8	250	1500	276.3
85	510	94.4	255	1530	281.8
90	540	99.9	260	1560	287.3
95	570	105.5	265	1590	292.7
100	600	111.0	270	1620	298.2
105	630	116.5	275	1650	303.7
110	660	122.1	280	1680	309.2
115	690	127.6	285	1710	314.6
120	720	133.1	290	1740	320.1
125	750	138.6	295	1770	325.6
130	780	144.2	300	1800	331.1
135	810	149.7	305	1830	336.5
140	840	155.2	310	1860	342.0
145	870	160.7	315	1890	347.5
150	900	166.3	320	1920	352.9
155	930	171.8	325	1950	358.4
160	960	177.3	326	1957	359.6
165	990	182.8	330	1980	363.8
170	1020	188.3	332	1992	366.1
			Velocities 11	- C	
				1.1	
				(d) 1	
				Č.	

### Figure 6-16. Weight And Moment Tables (Sheet 6 of 9)

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### SECTION 6 WEIGHT & BALANCE/ EQUIPMENT LIST

			1	1
WEIGHT (POUNDS)	ZONE 0 ARM = 136.7	ZONE 1 ARM = 168.4	ZONE 2 ARM = 194.8	ZONE 3 ARM=221.0
		MOME	ENT/1000	
10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290 300 310 320 330 340 350 360 370 380 390 340 350 360 370 380 390 340 350 360 370 360 360 370 360 360 370 360 360 370 360 360 370 360 360 370 360 360 370 360 360 370 360 360 370 360 360 370 360 360 370 360 360 370 360 360 370 360 360 360 370 360 360 360 370 360 360 360 370 360 360 360 360 360 370 360 360 360 360 360 360 360 36	$\begin{array}{c} 1.4\\ 2.7\\ 4.1\\ 5.5\\ 6.8\\ 8.2\\ 9.6\\ 10.9\\ 12.3\\ 13.7\\ 15.0\\ 16.4\\ 17.8\\ 19.1\\ 20.5\\ 21.9\\ 23.2\\ 24.6\\ 26.0\\ 27.3\\ 28.7\\ 30.1\\ 31.4\\ 32.8\\ 34.2\\ 35.5\\ 36.9\\ 38.3\\ 39.6\\ 41.0\\ 42.4\\ 43.7\\ 45.1\\ 46.5\\ 47.8\\ \end{array}$	1.7 3.4 5.1 6.7 8.4 10.1 11.8 13.5 15.2 16.8 18.5 20.2 21.9 23.6 25.3 26.9 26.9 26.9 26.9 26.9 26.9 26.9 26.9	$\begin{array}{c} 1.9\\ 3.9\\ 5.8\\ 7.8\\ 9.7\\ 11.7\\ 13.6\\ 15.6\\ 17.5\\ 19.5\\ 21.4\\ 23.4\\ 25.3\\ 29.2\\ 31.2\\ 33.1\\ 35.1\\ 37.0\\ 39.0\\ 40.9\\ 42.9\\ 44.8\\ 46.8\\ 48.7\\ 50.6\\ 52.6\\ 54.5\\ 56.5\\ 56.6\\ 58.4\\ 60.4\\ 62.3\\ 64.3\\ 66.2\\ 66.2\\ 70.1\\ 72.1\\ 74.0\\ 76.0\\ 77.9\\ 79.9\\ 81.8\\ 83.8\\ 85.7\\ 77.9\\ 89.6\\ 91.6\\ 93.5\\ 95.5\\ 97.4\\ \end{array}$	2.2 4.4 6.6 8.8 11.0 13.3 15.5 28.7 30.9 33.1 35.4 35.6 28.7 39.8 42.0 44.2 46.4 48.6 53.0 55.5 59.7 61.1 66.3 68.5 70.7 72.9 75.1 77.3 68.1 84.0 86.2 88.4 90.6 92.8 95.2 99.4 101.7 103.9 106.1 108.3 105.5

# Figure 6-16. Weight And Moment Tables (Sheet 7 of 9)

#### SECTION 6 WEIGHT & BALANCE/ EQUIPMENT LIST

CESSNA MODEL 208 (675 SHP)

WEIGHT	ZONE 4 ARM=246.5	ZONE 5 ARM = 271.5	ZONE 6 ARM = 296.0	=		
(POUNDS)	MOMENT/1000					
10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290 310 325 330 340 350 360 370 380 390 400 410 420 400 400 400 400 400 400 40	2.5 4.9 7.4 9.9 12.3 14.8 17.3 19.7 22.2 24.6 32.0 34.5 37.0 39.4 41.9 44.4 46.8 49.3 51.8 54.2 56.7 59.2 61.6 64.1 66.6 69.0 71.5 73.9 76.4 78.9 80.1 81.3 83.8 86.3 88.7 91.2 93.7 96.1 98.6 101.1 103.5 106.0 108.5 110.9	2.7 5.4 8.1 10.9 13.6 16.3 19.0 21.7 24.4 29.9 32.6 35.3 38.0 40.7 43.4 46.2 48.9 51.6 54.3 57.0 59.7 62.4 65.2 67.9 70.6 73.3 76.0 78.7 81.4 84.2 86.9 89.6 92.3 95.0 97.7 100.5 103.2 105.9 108.6	3.0 5.9 8.9 11.8 14.8 17.8 20.7 23.7 26.6 29.6 32.6 35.5 38.5 41.4 44.4 47.4 50.3 53.3 56.2 59.2 62.2 65.1 68.1 71.0 77.0 79.9 82.9 85.8 88.8 91.8 94.7 96.2	Moment and weight limits shown for Zones 0 thru 5 are recommendation only: maximum loading is limited by floor loading (200 lbs./ sq. ft.) and loade airplane C.G. The addition of plywood flooring is recommended to distribute concentrated load on seat tracks and floor structure.		

Figure 6-16. Weight And Moment Tables (Sheet 8 of 9)

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#### SECTION 6 WEIGHT & BALANCE/ EQUIPMENT LIST

WEIGHT	ZONE A ARM = 132.4	ZONE B ARM = 182.1	ZONE C ARM = 239.
(LBS.)		MOMENT/1000	
25 50 75 100 125 150 175 200 225 250 275 300 325	3.3 6.6 9.9 13.2 16.5 19.9 23.2 26.5 29.8 33.1	4.6 9.1 13.7 18.2 22.8 27.3 31.9 36.4 41.0 45.5 50.1 54.6 59.2	6.0 12.0 18.0 24.0 29.9 35.9 41.9 47.9 53.9 59.9 65.9 71.9

Figure 6-16. Weight And Moment Tables (Sheet 9 of 9)

#### SECTION 6 WEIGHT & BALANCE/ EQUIPMENT LIST

#### CESSNA MODEL 208 (675 SHP)

SAMPLE		IPLE LANE	YOUR	
LOADING PROBLEM  1. Basic Empty Weight (Use the data pertaining to your airplane as it is presently equipped. Includes unusable fuel and full oil)  2.*Usable Fuel (332 Gal. Maximum)  3. Pilot (Seat 1) (Sta. 133.5 to 146.5)  4. Front Passengers (Commuter Seating): Seat 3 (Sta. 185.9) Seats 4 and 5 (Sta. 169.9) Seats 7 and 8 (Sta. 201.9) Seats 9 and 10 (Sta. 233.9)  **Aft Passengers (Utility Seating): Seats 3 and 4 (Sta. 166.5) Seat 5 and 6 (Sta. 193.5) Seats 7 and 8 (Sta. 201.9) Seats 7 and 8 (Sta. 220.5) Seat 5 and 6 (Sta. 193.5) Seats 7 and 8 (Sta. 220.5) Seat 9 (Sta. 248.5)  6. Baggage/Cargo: Zone 0 (Sta. 118 to 155.4) Zone 1 (Sta. 208 to 234) Zone 3 (Sta. 208 to 234) Zone 4 (Sta. 234 to 259) Zone 4 (Sta. 234 to 259) Zone 4 (Sta. 246 to 308)  7. Cargo (Cargo Pod Locations): Zone A (Sta. 100 to 154.75) Zone B (Sta. 154.75 to 209.35)	Weight (lbs.)	Moment (lbin. /1000)	Weight (lbs.)	Momen (lbin. /1000)
<ol> <li>Basic Empty Weight (Use the data pertaining to your airplane as it is presently equipped. Includes unusable fuel and full oil)</li></ol>	4265 1720	727.6 316.8		
3. Pilot (Seat 1) (Sta. 133.5 to 146.5)	170	23.0		
4. Front Passenger (Seat 2) (Sta.133.5 to 146.5)	200	27.1		-
5. **Aft Passengers (Commuter Seating): Seat 3 (Sta. 185.9) Seats 4 and 5 (Sta. 169.9)	190 380	35.3 64.6		
Seat 6 (Sta. 217.9)	170	37.0		1
Seats 7 and 8 (Sta. 201.9)	340	68.6		
**Aft Passengers (Utility Seating):	300	70.2		
Seats 5 and 6 (Sta. 193.5)		-		
Seat 9 (Sta. 248.5) Seat 10 (Sta. 245.5)				
6. Baggage/Cargo: Zone 0 (Sta. 118 to 155.4)				
Zone 2 (Sta. 181.5 to 208)			_	-
Zone 4 (Sta. 234 to 259) Zone 5 (Sta. 259 to 284)				
7. Cargo (Cargo Pod Locations): Zone A (Sta. 100 to 154,75)	300	88.8	5.3	
Zone CI (Sta. 209.35 to 284)	-			
8. RAMP WEIGHT AND MOMENT	8035	1459.0	Sec. 2	111.1
9. Fuel allowance for engine start, taxi, and runup	-35	-6.4		
0. TAKEOFF WEIGHT AND MOMENT (Subtract Step 9 from Step 8)	8000	1452.6		

 Locate this point (8000 at 1452.6) on the Center of Gravity Moment Envelope, and since this point falls within the envelope, the loading is acceptable.

Refer to Weight and Moment Tables for weight and moment of fuel being used.
 Refer to Loading Arrangements Diagram for aft passenger seating arrangements. Do not combine Commuter seating and Utility seating.

Figure 6-17. Sample Loading Problem (Sheet 1 of 2)

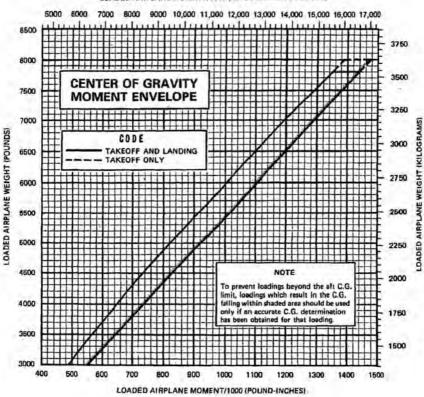
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#### SECTION 6 WEIGHT & BALANCE/ EQUIPMENT LIST

YO	UR LANE	YO	UR	AIRP	UR	AIRP	UR
Weight (Ibs.)	Moment (Ibin.) /1000)	Weight (lbs.)	Moment (Ibin.) /1000)	Weight (Ibs.)	Moment (lbin.) /1000)	Weight (Ibs.)	Momen (Ibin.) /1000)
			<u> </u>				
	-						
				E			
2							
		-					
				1			
						-	
When useful at a g	several load to fill out one lance.	ling configu a or more of	the above c		of your openat specific los	arations, it r adings are a	nay be vailable
It is t Opera	the responsil ation outside ent and serio	of prescrit us or fatal	pilot to en	sure that the that the sure the su	he airplane i limitations	s loaded pr could resul	operly. t in an

Figure 6-17. Sample Loading Problems (Sheet 2 of 2)

### SECTION 6 WEIGHT & BALANCE/ EQUIPMENT LIST



#### LOADED AIRPLANE MOMENT/1000 (KILOGRAM-MILLIMETERS)

#### A WARNING

It is the responsibility of the pilot to ensure that the airplane is loaded properly. Operation outside of prescribed weight and balance limitations could result in an accident and serious or fatal injury.

2685X1084

CESSNA

MODEL 208 (675 SHP)

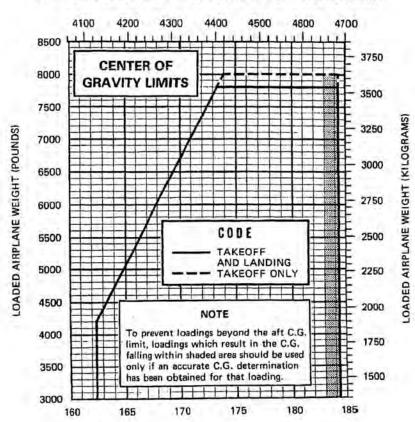
### Figure 6-18. Center of Gravity Moment Envelope

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For Training Purposes Only

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SECTION 6 WEIGHT & BALANCE/ EQUIPMENT LIST



AIRPLANE C.G. LOCATION - MILLIMETERS AFT OF DATUM (STA. 0.0)

#### AIRPLANE C.G. LOCATION - INCHES AFT OF DATUM (STA. 0.0)

#### A WARNING

It is the responsibility of the pilot to ensure that the airplane is loaded properly. Operation outside of prescribed weight and balance limitations could result in an accident and serious or fatal injury.

2685X1085

### Figure 6-19. Center of Gravity Limits

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#### SECTION 7 AIRPLANE AND SYSTEMS DESCRIPTION

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# SECTION 7 AIRPLANE & SYSTEMS DESCRIPTIONS

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#### CESSNA MODEL 208 (675 SHP)

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#### SECTION 7 AIRPLANE AND SYSTEMS DESCRIPTION

# INTRODUCTION

This section provides description and operation of the airplane and its systems. Some equipment described herein is optional and may not be installed in the airplane. Refer to Section 9, Supplements, for details of other optional systems and equipment.

# WARNING

Complete familiarity with the airplane and its systems will not only increase the pilot's proficiency and ensure optimum operation, but could provide a basis for analyzing system malfunctions in case an emergency is encountered. Information in this section will assist in that familiarization. The responsible pilot will want to be prepared to make proper and precise responses in every situation.

### AIRFRAME

The airplane is an all-metal, high-wing, single-engine airplane equipped with tricycle landing gear and designed for general utility purposes. The construction of the fuselage is a conventional formed sheet metal bulkhead, stringer, and skin design referred to as semimonocoque. Major items of structure are the front and rear carry-through spars to which the wings are attached, a bulkhead and forgings for main landing gear attachment and a bulkhead with attaching plates at its base for the strut-to-fuselage attachment of the wing struts.

The externally braced wings, having integral fuel tanks, are constructed of a front and rear spar with formed sheet metal ribs, doublers, and stringers. The entire structure is covered with aluminum skin. The front spars are equipped with wing-to-fuselage and wing-to-strut attach fittings. The aft spars are equipped with wing-to-fuselage attach fittings. The integral fuel tanks are formed by the front and rear spars, upper and lower skins, and inboard and outboard closeout ribs. Extensive use of bonding is employed in the fuel tank area to reduce fueled tank sealing.

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#### SECTION 7 AIRPLANE AND SYSTEMS DESCRIPTION

Round-nosed ailerons and single-slot type flaps are of conventional formed sheet metal of each flap, is of conventional construction. The left aileron incorporates a servo tab while the right aileron incorporates a trimmable servo tab, both mounted on the outboard end of the aileron trailing edge.

The empennage (tail assembly) consists of a conventional vertical stabilizer, rudder, horizontal stabilizer, and elevator. The vertical stabilizer consists of a forward and aft spar, sheet metal ribs and reinforcements, four skin panels, formed leading edge skins, and a dorsal fin. The rudder is constructed of a forward and aft spar, formed sheet metal ribs and reinforcements, and a wrap-around skin panel. The top of the rudder incorporates a leading edge extension which contains a balance weight. The horizontal stabilizer is constructed of a forward and aft spar, ribs and stiffeners, four upper and four lower skin panels, and two left and two right wrap-around skin panels which also form the leading edges. The horizontal stabilizer also contains dual jack screw type actuators for the elevator trim tabs. Construction of the elevator consists of a forward and aft spar, sheet metal ribs, upper and lower skin panels, and wrap-around skin panels for the leading and trailing edges. An elevator trim tab is attached to the trailing edge of each elevator by full length plano-type hinges. Dual pushrods from each actuator located in the horizontal stabilizer transmit actuator movement to dual horns on each elevator trim tab to provide tab movement. Both elevator tip leading edge extensions provide aerodynamic balance and incorporate balance weights. A row of vortex generators on the top of the horizontal stabilizer just forward of the elevator enhances nose down elevator and trim authority.

To assure extended service life of the airplane, the entire airframe is corrosion proofed. Internally, all assemblies and sub-assemblies are coated with a chemical film conversion coating and are then epoxy primed. Steel parts in contact with aluminum structure are given a chromate dip before assembly. Externally, the complete airframe is painted with an overall coat of polyurethane paint which enhances resistance to corrosive elements in the atmosphere. Also, all control cables for the flight control system are of stainless steel construction.

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# FLIGHT CONTROLS

The airplane's flight control system (see Figure 7-1) consists of conventional aileron, elevator and rudder control surfaces and a pair of spoilers mounted above the outboard ends of the flaps. The control surfaces are manually operated through mechanical linkage using a control wheel for the ailerons, spoilers and elevator and rudder/brake pedals for the rudder. The wing spoilers improve lateral control of the airplane at low speeds by disrupting lift over the appropriate flap. The spoilers are interconnected with the aileron system through a push-rod mounted to an arm on the aileron deflections in excess of 5° up. The spoilers are retracted throughout the remainder of aileron travel. Aileron servo tabs provide reduced maneuvering control wheel forces. Fences on ailerons enhance lateral stability.

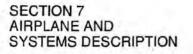
#### TRIM SYSTEMS

Manually-operated aileron, elevator, and rudder trim systems are provided (see Figure 7-1). Aileron trimming is achieved by a trimmable servo tab attached to the right aileron and connected mechanically to a knob located on the control pedestal. Rotating the trim knob to the right (clockwise) will trim right wing down; conversely, rotating it to the left (counterclockwise) will trim left wing down.

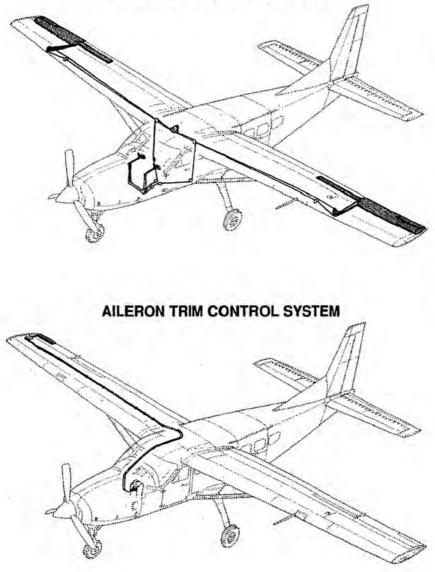
Elevator trimming is accomplished through two elevator trim tabs by utilizing the vertically mounted trim control wheel on the top left side of the control pedestal. Forward rotation of the control wheel will trim nose-down; conversely, aft rotation will trim nose-up. The airplane may also be equipped with an electric elevator trim system. Details of this system are presented in Section 9, Supplements.

Rudder trimming is accomplished through the nose wheel steering bungee connected to the rudder control system and a trim control wheel mounted on the control pedestal by rotating the horizontally mounted trim control wheel either left or right to the desired trim position. Rotating the trim wheel to the right will trim nose-right; conversely, rotating it to the left will trim nose-left.

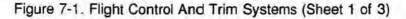
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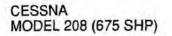




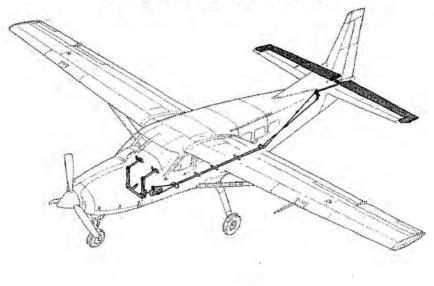
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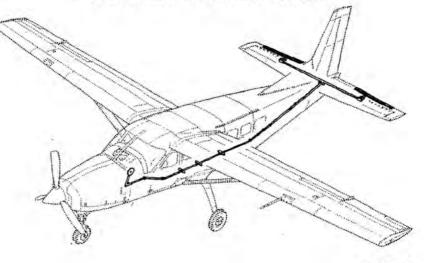
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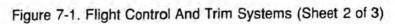




ELEVATOR TRIM CONTROL SYSTEM



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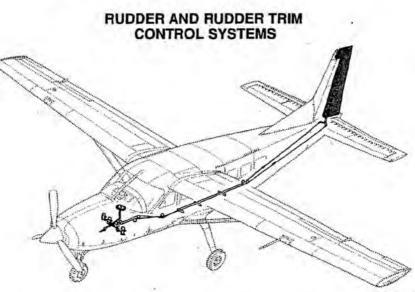


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Figure 7-1. Flight Control And Trim Systems (Sheet 3 of 3)

# INSTRUMENT PANEL

The instrument panel (see Figure 7-2) is designed around the basic "T" configuration. The gyros are located immediately in front of the pilot, and arranged vertically. The airspeed indicator and altimeter are located to the left and right of the gyros respectively. The remainder of the flight instruments are located around the basic "T". Immediately to the left of the flight instruments are the clock, propeller anti-ice ammeter (if installed), suction gauge, altitude alerter (if installed), volt/ammeter, volt/ammeter selector switch, propeller overspeed governor test switch, left fresh air vent pull knob, left fresh air vent outlet, and microphone and headset jacks.

The lower left side of the instrument panel contains a switch panel which has many of the switches necessary to operate the airplane systems. Located directly above the flight instrument panel are the annunciator panel, annunciator panel day-night switch, annunciator panel test switch, and the fire detector test switch. Below the flight instrument panel are the lighting switch panel and the parking brake.

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#### SECTION 7 AIRPLANE AND SYSTEMS DESCRIPTION

Avionics equipment is placed vertically in dual stacks approximately in the center and just right of center of the instrument panel. Located directly above the avionics stacks in the top center of the instrument panel are the engine instruments consisting of the torque indicator, propeller RPM indicator, ITT indicator, Ng RPM indicator, oil pressure/oil temperature gauge, fuel flow indicator, and left and right fuel quantity indicators. The cabin heat switch and control panel, provisions for air conditioning controls, and rudder lock control handle are located directly below the avionics stacks.

The right side of the instrument panel contains space for additional flight instruments and the fuel totalizer. Directly to the right of these instruments are the hour meter, right fresh air vent pull knob, right fresh air vent, right front passenger's microphone and headset jacks, and map compartment.

A control pedestal, extending from the center of the instrument panel to the floor, contains the emergency power lever, power lever, propeller control lever, fuel condition lever, wing flap selector and position indicator, elevator, rudder and aileron trim controls with position indicators, the fuel shutoff valve control, cabin heat firewall shutoff valve control, and a microphone.

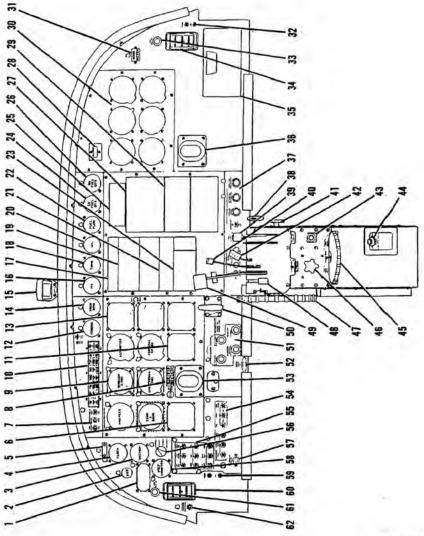
For details concerning the instruments, switches, and controls on this panel, refer in this section to the description of the systems to which these items are related.

#### RIGHT FLIGHT INSTRUMENT PANEL

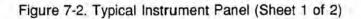
A supplementary flight instrument group is installed directly in front of the right front passenger. Like the pilot's flight instrument panel, the right flight panel groups the attitude and directional indicators vertically with the airspeed indicator to the left and the altimeter to the right to form a basic "T" arrangement. The remainder of the instruments (turn and bank indicator and vertical speed indicator) are grouped around the basic "T". The right flight instruments utilize a second, independent pitot-static pressure system for operation.

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- 1. Altitude Alerter
- 2. Propeller Anti-ice Ammeter
- 3. Suction Gage
- 4. Clock
- 5. Airplane Registration Number
- 6. Additional Instrument Space
- 7. Fire Detection Test and Annunciator Panel Function Switches
- 8. Autopilot Roll Trim Indicator and Autopilot Annunciators
- 9. Pilot's Flight Instrument Group
- 10. Annunciator Panel
- 11. ADF Bearing Indicator (No. 2)
- 12. Torque Indicator
- DME, Course Deviation Indicator (No. 2) and ADF Bearing Indicator (No. 1)
- 14. Propeller RPM Indicator
- 15. Magnetic Compass
- 16. ITT Indicator
- Marker Beacon Indicator Lights and Switches/Audio Control Panel
- 18. No% RPM Indicator
- 19. NAV/COM Radios
- 20. Oil Pressure Gage/Oil Temperature Gage
- 21. Transponder
- 22. Fuel Flow Indicator
- 23. Autopilot Control Unit
- 24. Left Fuel Quantity Indicator
- 25. HF Radio
- 26. Right Fuel Quantity Indicator
- 27. Weather Radar
- 28. Fuel Totalizer
- 29. ADF Radios
- 30. Right Flight Instrument Group

- 31. Flight Hour Recorder
- 32. Right Auxilairy Mic and Phone Jacks
- 33. Instrument Panel Ventilating Control
- 34. Instrument Panel Ventilating Outlet
- 35. Map Compartment
- 36. Right Control Wheel Location
- 37. Cabin Heat Switch and Control Panel
- 38. Rudder Lock Control Handle
- 39. Wing Flap Selector Lever and Position Indicator
- 40. Propeller Control Lever
- 41. Quadrant Friction Lock
- 42. Fuel Condition Lever
- 43. Fuel Shutoff Control
- 44. Cabin Heat Firewall Shutoff Control
- 45. Rudder Trim Control Wheel and Position Indicator
- 46. Alleron Trim Control Knob and Position Indicator
- 47. Elevator Trim Control Wheel and Position Indicator
- 48. Emergency Power Lever
- 49. Power Lever
- 50. Inertial Separator Control
- 51. Instrument, Radio Dial, and Control Panel Lighting Rheostats
- 52. Parking Brake Handle
- 53. Pilot's Control Wheel Location
- 54. Delice/Anti-ice Switch Panel
- 55. Lighting Control Panel
- 56. Volt/Ammeter Selector Switch
- 57. Static Pressure Alternate Source Valve
- 58. Volt/Ammeter
- 59. Pilot's Auxiliary Mic and Phone Jacks
- 60. Instrument Panel Ventilating Outlet
- 61. Instrument Panel Ventilating Control
- 62. Overspeed Governor Test Switch

SYSTEMS DESCRIPTION

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### LEFT SIDEWALL SWITCH AND CIRCUIT BREAKER PANEL

Most of the engine control switches and all circuit breakers are located on a separate panel mounted on the left cabin sidewall adjacent to the pilot. Switches and controls on this panel are illustrated in Figure 7-3.

#### ANNUNCIATOR PANEL

The annunciator panel (see Figure 7-4) is located at the top edge of the instrument panel directly in front of the pilot. The panel contains separate indicator lamps which illuminate green, amber or red when a specific condition occurs in the associated airplane system. A green colored lamp is illuminated to indicate a normal or safe condition in the system. An illuminated **amber** lamp indicates that a cautionary condition exists which may or may not require immediate corrective action. When a hazardous condition exists requiring immediate corrective action, a red lamp illuminates.

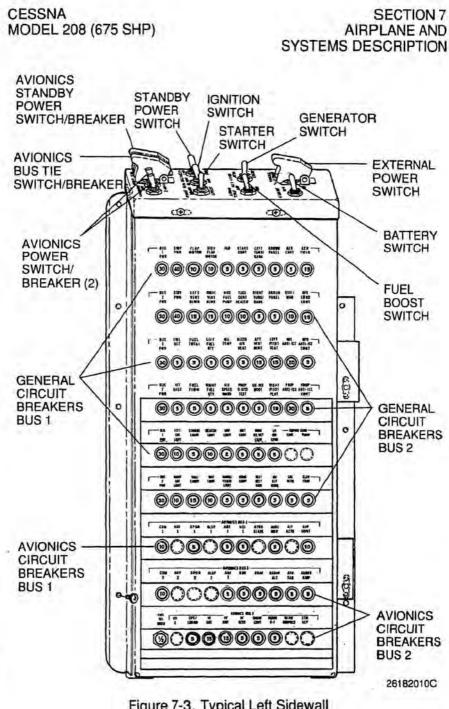
#### NOTE

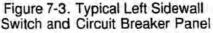
Some annunciator lights shown in Figure 7-4 are optional.

Two annunciator panel function switches, labeled LAMP TEST and DAY/NIGHT, are located to the left of the panel. When activated, the LAMP TEST switch illuminates all lamps on the annunciator panel and activates both of the fuel selector off warning horns. The DAY/NIGHT switch provides variable intensity down to a preset minimum dim level for the green lamps and some of the amber lamps (when in the NIGHT position). This variable intensity is controlled by the ENG INST lighting rheostat.

#### NOTE

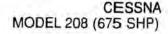
If a red or non-dimmable amber annunciator illuminates at night and becomes an unacceptable distraction to the pilot because of its brightness level, it may be extinguished for the remainder of the flight by pushing in on the face of the light assembly and allowing it to pop out. To reactivate the annunciator, pull the light assembly out slightly and push back in.

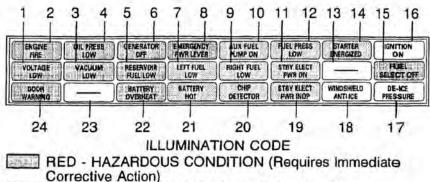


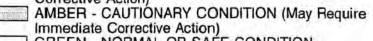


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GREEN - NORMAL OR SAFE CONDITION

— UNUSED ANNUNCIATOR SPACE

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- VOLTAGE LOW (RED) Indicates electrical system bus voltage is low and power is being supplied from the battery.
- ENGINE FIRE (RED) Indicates an excessive temperature condition and/or possible fire has occurred in the engine compartment.
- VACUUM LOW (RED) Indicates the vacuum system suction is less then approximately 3.0 in. Hg.
- OIL PRESSURE LOW (RED) Indicates engine oil pressure is less than 38 psi.
- RESERVOIR FUEL LOW (RED) Indicates the fuel level in the reservoir tank is approximately one-half full or less.
- GENERATOR OFF (RED) Indicates the generator is not connected to the airplane bus.
- LEFT FUEL LOW (AMBER) Indicates fuel quantity in the left fuel tank is 25 gallons or less.
- EMERGENCY POWER LEVER (RED) Indicates the emergency power lever is advanced out of the NORMAL position.

Figure 7-4. Typical Annunciator Panel (Sheet 1 of 2)

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- RIGHT FUEL LOW (AMBER) Indicates fuel quantity in the right fuel tank is 25 gallons or less.
- AUXILIARY FUEL PUMP ON (AMBER) Indicates the auxiliary fuel pump is operating.
- STANDBY ELECTRICAL POWER ON (AMBER) Indicates the standby alternator is supplying electrical power to the bus.
- FUEL PRESSURE LOW (AMBER) Indicates fuel pressure in the fuel manifold assembly is below 4.75 psi.
- 13. NOT USED.
- STARTER ENERGIZED (AMBER) Indicates the startergenerator is operating in the starter mode.
- FUEL SELECT OFF (RED) Indicates one or both fuel tank selectors are off.
- IGNITION ON (GREEN) Indicates electrical power is being supplied to the engine ignition system.
- DE-ICE PRESSURE (GREEN) Indicates pressure in the de-ice boot system has reached approximately 15 psig.
- WINDSHIELD ANTI-ICE (GREEN) Indicates electrical power is being supplied to the windshield anti-ice power relay.
- STANDBY ELECTRICAL POWER INOPERATIVE (AMBER)

   Indicates electrical power is not available from the standby alternator.
- CHIP DETECTOR (AMBER) Indicates that metal chips have been detected in either the reduction gearbox case, or accessory gearbox case.
- BATTERY HOT (AMBER) Indicates the electrolyte temperature in the optional Ni Cad battery is excessively high.
- BATTERY OVERHEAT (RED) Indicates the electrolyte temperature in the optional Ni Cad battery is critically high.
- 23. NOT USED.
- DOOR WARNING (RED) Indicates the upper cargo door and/or upper aft passenger doors (Standard 208 only) are not latched.

Figure 7-4. Annunciator Panel (Sheet 2 of 2)

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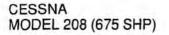
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### GROUND CONTROL

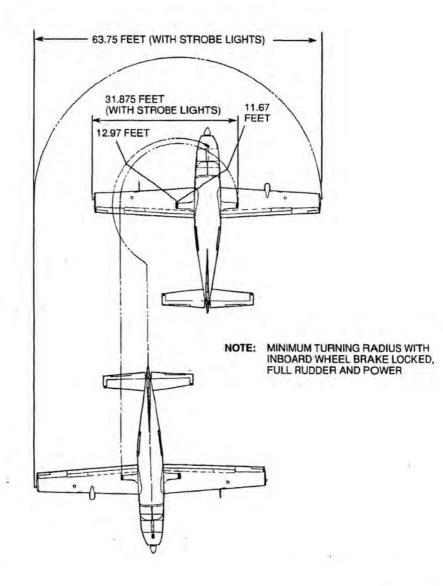
Effective ground control while taxiing is accomplished through nose wheel steering by using the rudder pedals; left rudder pedal to steer left and right rudder pedal to steer right. When a rudder pedal is depressed, a spring-loaded steering bungee (which is connected to the nose gear and to the rudder bars) will turn the nose wheel through an arc of approximately 15° each side of center. By applying either left or right brake, the degree of turn may be increased up to 56° each side of center.

Moving the airplane by hand is most easily accomplished by attaching a tow bar (stowed in aft baggage/cargo compartment) to the nose gear fork axle holes. If a tow bar is not available, or pushing is required, use the wing struts as push points. Do not use the propeller blades or spinner to push or pull the airplane. If the airplane is to be towed by vehicle, never turn the nose wheel beyond the steering limit marks either side of center. If excess force is exerted beyond the turning limit, a red over-travel indicator block (frangible stop) will fracture and the block, attached to a cable, will fall into view alongside the nose strut. This should be checked routinely during preflight inspection to prevent operation with a damaged nose gear.

The minimum turning radius of the airplane, using differential braking and nose wheel steering during taxi, is as shown in Figure 7-5







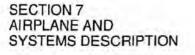
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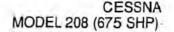
### Figure 7-5. Minimum Turning Radius

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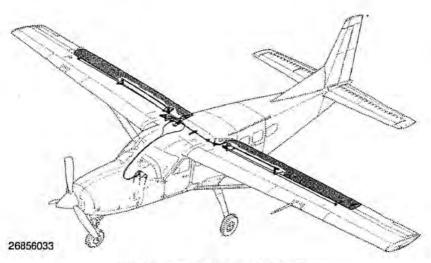


Figure 7-6. Wing Flap System

### WING FLAP SYSTEM

The wing flaps are large span, single-slot type (see Figure 7-6) and are driven by an electric motor. The wing flaps are extended or retracted by positioning the wing flap selector lever on the control pedestal to the desired flap deflection position. The selector lever is moved up or down in a slotted panel that provides mechanical stops at the 10° and 20° positions. For flap deflections greater than 10°, move the selector lever to the right to clear the stop and position it as desired. A scale and white-tipped pointer on the left side of the selector lever provides a flap position indication. The wing flap system is protected by a "pull-off" type circuit breaker, labeled FLAP MOTOR, on the left sidewall switch and circuit breaker panel.

A standby system can be used to operate the flaps in the event the primary system should malfunction. The standby system consists of a standby motor, a guarded standby flap motor switch and a guarded standby flap motor up/down switch located on the overhead panel. Both guarded switches are safetied in the closed position with breakable copper wire.

#### SECTION 7 AIRPLANE AND SYSTEMS DESCRIPTION

The guarded standby flap motor switch located on the overhead panel has NORM and STBY positions. The guarded NORM position of the switch permits operation of the flaps using the control pedestal mounted selector; the STBY position is used to disable the dynamic braking of the primary flap motor when the standby flap motor system is operated.

The standby flap motor up/down switch has UP, center off and DOWN positions. The switch is guarded in the center off position. To operate the flaps with the standby system, lift the guard breaking safety wire, and place the standby flap motor switch in STBY position; then, lift the guard, breaking safety wire and actuate the standby flap motor up/down switch momentarily to UP or DOWN, as desired. Observe the flap position indicator to obtain the desired flap position. Since the standby flap system does not have limit switches, actuation of the standby flap motor up/down switch should be terminated before the flaps reach full up or down travel. After actuation of the standby flap motor system, switch guards should be resafetied to the closed position by maintenance personnel when maintenance action is accomplished. The standby flap system is protected by a "pull-off" type circuit breaker, labeled STBY FLAP MOTOR. located on the left sidewall switch and circuit breaker panel.

### LANDING GEAR SYSTEM

The landing gear is of the tricycle type with a steerable nose wheel and two main wheels. Shock absorption is provided by the tubular spring-steel main landing gear struts, an interconnecting springsteel tube between the two main landing gear struts, and the nose gear oil-filled shock strut and spring-steel drag link. Each main gear wheel is equipped with a hydraulically actuated single-disc brake on the inboard side of each wheel. To improve operation from unpaved runways, and in other conditions, the standard nose gear fork and standard tires can be replaced with a three-inch extended nose gear fork and oversized nose and main gear tires.

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# **BAGGAGE/CARGO COMPARTMENT**

The space normally used for baggage consists of the raised area from the back of the cargo doors to the aft cabin bulkhead. Access to the baggage area is gained through the cargo doors, the aft passenger door (Passenger version only), or from within the cabin. Quick-release tie-down ring/strap assemblies are provided for securing baggage and are attached to baggage floor anchor plates provided in the airplane. When utilizing the airplane as a cargo carrier (Passenger version and Cargo version) refer to Section 6 for complete cargo loading details. When loading the Passenger version, passengers should not be placed in the baggage area unless the airplane is equipped with special seating for this area. Also, any material that might be hazardous to the airplane or occupants should not be placed anywhere in the airplane. For baggage/cargo area and door dimensions, refer to Section 6.

### SEATS

Standard seating consists of both a pilot's and front passenger's six-way adjustable seat. Additional cabin seating is available on the Passenger version which consists of three rows of two place fixed seats and two rows of two place fixed seats and two rows of one-place fixed seats in the Commuter configuration, or four rows of one-place, fixed-position collapsible seats on each side of the cabin in the Utility configuration.

### A WARNING

None of the airplane seats are approved for installation facing aft.

#### PILOT'S AND FRONT PASSENGER'S SEATS

The six-way adjustable pilot's or front passenger's seats may be moved forward or aft, adjusted for height, and the seat back angle changed. Position the seat by pulling on the small T-handle under the center of the seat bottom and slide the seat into position; then release the handle, and check that the seat is locked in place by attempting to move the seat and by noting that the small pin on the end of the T-handle protrudes.

#### SECTION 7 AIRPLANE AND SYSTEMS DESCRIPTION

The seat is not locked if the pin is retracted or only partially extends. Raise or lower the seat by rotating a large crank under the front right corner of the seat. Seat back angle is adjusted by rotating a small crank under the front left corner of the seat. The seat bottom angle will change as the seat back angle changes, providing proper support. Armrests can be moved to the side and raised to a position beside the seat back for stowage.

### PASSENGERS' SEATS (COMMUTER) (Passenger version Only)

The third and sixth seats are individual fixed-position seats with fixed seat backs. Seats for the fourth and fifth, seventh and eighth, and ninth and tenth positions are two-place, fixed-position bench type seats with fixed seat backs. All seats are fastened with quickrelease fasteners in the fixed position to the seat tracks. The seats are lightweight and quick-removable to facilitate cargo hauling.

#### PASSENGERS' SEATS (COLLAPSIBLE) (Passenger version Only)

Individual collapsible seats are available for the aft eight passenger positions. The seats, when not in use, are folded into a compact space for stowage in the aft baggage area. When desired, the seats can be unfolded and installed in the passenger area. The seats are readily fastened with quick-release fasteners to the seat tracks in any one of the eight seat positions.

#### HEADRESTS

Headrests are available for all seat configurations except the aft passenger's collapsible seats. To adjust a pilot or front passenger seat headrest, apply enough pressure to it to raise or lower it to the desired level. The aft passenger seat headrests are not adjustable.

### SEAT BELTS AND SHOULDER HARNESSES

All seat positions are equipped with seat belts and separate shoulder harnesses. The pilot's and front passenger's seat positions are equipped with shoulder harnesses with inertia reels.

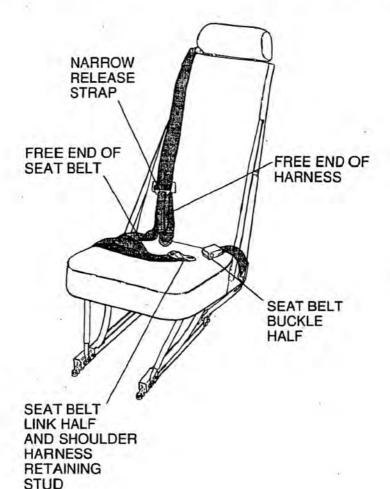
# A WARNING

Failure to properly utilize seat belts and shoulder harnesses could result in serious or fatal injury in the event of an accident.

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# AFT PASSENGERS SEATS (Left Hand Commuter Seating Shown)



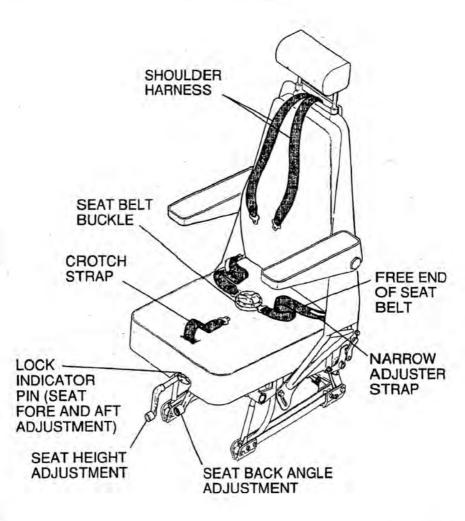
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Figure 7-7. Seat Belts and Shoulder Harnesses (Sheet 1 of 2)

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SECTION 7 AIRPLANE AND SYSTEMS DESCRIPTION

PILOT'S & PASSENGERS SEATS (Typical)



26192017A Figure 7-7. Seat Belts and Shoulder Harnesses (Sheet 2 of 2)

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CESSNA MODEL 208 (675 SHP)

# SEAT BELTS, STRAP AND SHOULDER HARNESS (Pilot/Front Passenger Seats)

Both the pilot's and front passenger's seat positions are equipped with a five-point restraint system which combines the function of conventional type seat belts, a crotch strap, and an inertia reel equipped double-strap shoulder harness in a single assembly. The seat belts and crotch strap attach to fittings on the lower seat frame and the inertia reel for the shoulder harness attaches to the frame of the seat back.

The right half of the seat belt contains the buckle, which is the connection point for the left belt half, crotch strap and harnesses. The left belt, crotch strap and harnesses are fitted with links which insert into the buckle. Both halves of the seat belt have adjusters with narrow straps to enable the belt halves to be lengthened prior to fastening.

To use the restraint system, lengthen each half of the belt as necessary by pulling the buckle (or connecting link) to the lap with one hand while pulling outward on the narrow adjuster strap with the other hand. Insert the left belt link into the left slot of the buckle. Bring the crotch strap upward and insert its link into the bottom slot in the buckle. Finally, position each strap of the shoulder harness over the shoulders and insert their links into the upper slots in the buckle. The seat belts should be tightened for a snug fit by grasping the free end of each belt and pulling up and inward During flight operations, the inertia reel allows complete freedom of upper body movement; however, in the event of a sudden deceleration, the reel will lock automatically to protect the occupant.

During flight operations, the inertia reel allows complete freedom of upper body movement; however, in the event of a sudden deceleration, the reel will lock automatically to protect the occupant.

# WARNING

Failure to properly utilize seat belts and shoulder harnesses could result in SERIOUS or FATAL injury in the event of an accident.

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Release of the belts, strap, and harnesses is accomplished by simply twisting the front section of the buckle in either direction and pulling all connecting links free.

# CABIN ENTRY DOORS

Entry to, and exit from the airplane is accomplished through an entry door on each side of the cabin at the pilot's and front passenger's positions and, on the Passenger version only, through a two-piece, airstair type door on the right side of the airplane just aft of the wing (refer to Section 6 for cabin and cabin entry door dimensions). A cargo door on the left side of the airplane also can be used for cabin entry.

#### CREW ENTRY DOORS

The left crew entry door incorporates a conventional exterior door handle, a key-operated door lock, a conventional interior door handle, a lock override knob, and an openable window. The right crew entry door incorporates a conventional exterior door handle, a conventional interior door handle, and a manually-operated inside door lock. To open either entry door from outside the airplane (if unlocked), rotate the handle down and forward to the OPEN position. To close the door from inside the airplane, use the conventional door handle and door pull. The inside door handle is a three-position handle with OPEN, CLOSE and LATCHED positions. Place the handle in the CLOSE position and pull the door shut; then rotate the handle forward to the LATCHED position. When the handle is rotated to the LATCHED position, an over-center action will hold it in that position.

# A CAUTION

# Failure to properly close and latch the crew doors may allow them to open in flight.

A lock override knob on the inside of the left crew door provides a means of overriding the outside door lock from inside the airplane. To operate the override, pull the knob and rotate it in the placarded direction to unlock or lock the door. Both crew doors should be latched prior to flight, and should not be opened intentionally during flight. To lock the crew entry doors when leaving the airplane, lock the right entry door with the manually-operated inside door lock, close the left crew entry door, and using the key, lock the door.

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# PASSENGER ENTRY DOOR (Passenger Version Only)

The passenger entry door consists of an upper and lower section. When opened, the upper section swings upward and the lower section drops down providing integral steps to aid in boarding or exiting the airplane. The upper door section incorporates a conventional exterior door handle with a separate key-operated lock, a pushbutton exterior door release, and an interior door handle which snaps into a locking receptacle. The lower door section features a flush handle which is accessible from either inside or outside the airplane. This handle is designed so that when the upper door is closed, the handle cannot be rotated to the open position. The lower door also contains integral door support cables and a door lowering device. A cabin door open warning system is provided as a safety feature so that if the upper door is not properly latched, a red light, labeled DOOR WARNING, located on the annunciator panel, illuminates to alert the pilot.

To enter the airplane through the passenger entry door, depress the exterior pushbutton door release, rotate the exterior door handle on the upper door section counterclockwise to the open position, and raise the door section to the over-center position. Following this action, the gas spring telescoping door lift automatically raises the door to the full up position. Once the upper section is open, release the lower section by pulling up on the inside door handle and rotating the handle to the OPEN position. Lower the door section until it is supported by the integral support cables. The door steps deploy automatically from their stowed positions.

# WARNING

# The outside proximity of the lower door section must be clear before opening the door.

Closing the passenger entry door from inside the airplane is accomplished by grasping the support cables of the lower door section and pulling the door up until the top edge is within reach, then grasping the center of the door and pulling inboard until the door is held snugly against the fuselage door frame. Latch the lower door section by rotating the inside handle forward to the CLOSE position.

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#### SECTION 7 AIRPLANE AND SYSTEMS DESCRIPTION

Check that the lower front and rear latches are properly engaged. After the lower door section is secured, grasp the pull strap on the upper door section and pull down and inboard. As the door nears the closed position, pull inboard firmly to assure engagement of the latching pawls. Once the latching pawls are engaged, the inside handle should be rotated counterclockwise to the horizontal (latched) position, but do not use excessive force. If the handle will not rotate easily, the door is not fully closed. A more firm closing motion should allow the latching pawls to engage and permit the door handle to rotate to the latched position. Then snap the interior handle into its locking receptacle.

# A CAUTION

Refer to Section 3, EMERGENCY PROCEDURES, for proper operational procedures to be followed if the passenger entry door should inadvertently open in flight.

Exit from the airplane through the passenger entry door is accomplished by pulling the upper door section inside handle from its locked position receptacle, rotating the handle clockwise to the open position, and pushing the door outward. Once the door is partially open, the automatic door lift will raise the upper door section to the fully open position. Next, rotate the lower section door handle up and aft to open position and push the door outward. The telescoping damper will lower the door to its fully open position and the integral steps will deploy.

# A WARNING

The outside proximity of the lower door section must be clear before opening the door

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Closing the passenger entry door from outside the airplane is accomplished by raising the lower door section until the door is held firmly against the fuselage door frame. Latch the lower door section by rotating the inside handle forward and down to the CLOSE position. After the lower door section is secured, grasp the pull strap on the upper door section and pull down. As the door nears the closed position, grasp the edge of the door and push inward firmly to assure engagement of the latching pawls. Once engaged, the outside door handle can be rotated clockwise to the horizontal (latched) position. After entering the airplane, snap the upper door interior handle into its locking receptacle (unless cargo obstructs access to the door). If desired when leaving the airplane parked, lock the handle in the horizontal position by use of the key in the outside key lock.

# A WARNING

Do not use the outside key lock to lock the door prior to flight since the door could not be opened from the inside if it were needed as an emergency exit.

The exterior pushbutton-type lock release, located on the upper door section just forward of the exterior door handle, operates in conjunction with the interior door handle and is used whenever it is desired to open the door from outside the airplane while the interior door handle is in the locked position. Depressing the pushbutton releases the interior door handle lock and allows the exterior door handle to function normally to open the door.

# CARGO DOORS

A two-piece cargo door is installed on the left side of the airplane just aft of the wing trailing edge. The cargo door is divided into an upper and a lower section. When opened, the upper section swings upward and the lower section swings forward to create a large opening in the side of the fuselage which facilitates the loading of bulky cargo into the cabin. The upper section of the cargo door incorporates a conventional exterior door handle with a separate key-operated lock, and, on the Passenger version only, a pushbutton exterior emergency door release, and an interior door handle which snaps into a locking receptacle.

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The upper door also incorporates two telescoping door lifts which raise the door to the fully open position, when opened. A cargo door open warning system is provided as a safety feature so that if the upper door is not properly latched, a red light, labeled DOOR WARNING, located on the annunciator panel, illuminates to alert the pilot. The lower door section features a flush handle which is accessible from either inside or outside the airplane. The handle is designed so that when the upper door is closed, the handle cannot be rotated to the open position.

# A CAUTION

Failure to properly latch the upper cargo door section will result in illumination of the red door warning annunciator. inattention to this safety feature may allow the upper cargo door to open in flight.

To open the cargo door from outside the airplane, depress the upper door section exterior pushbutton door release (Passenger version only) and rotate the exterior door handle clockwise to the open position. Following this action, the telescoping door lifts will automatically raise the door to the full up position. Once the upper section is open, release the lower section by pulling up on the inside door handle and rotating the handle to the OPEN position. Open the door forward until it swings around next to the fuselage where it can be secured to the fuselage by a holding strap or chain.

To close the cargo door from outside the airplane, disconnect the holding strap or chain from the fuselage, swing the door aft to the closed position, and hold the door firmly against the fuselage door frame to assure engagement of the latching pawls. Latch the lower door section by rotating the inside handle forward and down to the CLOSE position. After the lower door section is secured, grasp the pull strap on the upper door section and pull down.

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As the door nears the closed position, grasp the edge of the door and push inward firmly to assure engagement of the latching pawls. engaged, the exterior door handle can be rotated Once counterclockwise to the horizontal (latched) position. On the Passenger version only, after entering the airplane, snap the upper door interior handle into its locking receptacle (unless cargo obstructs access to the door). If desired when leaving the airplane parked, lock the handle in the horizontal position by use of the key in the outside key lock. To open the cargo door from inside the airplane (Passenger version only), open the upper door section by pulling the inside door handle from its locked position receptacle. rotating the handle counterclockwise to the vertical position, and pushing the door outward. Once the door is partially open, the automatic door lifts will raise the upper door section to the fully open position. Next, rotate the lower section door handle up and aft to the open position and push the aft end of the door outward. The door may be completely opened and secured to the fuselage with the holding strap or chain from outside.

# A WARNING

### Do not attempt to exit the Cargo version through the cargo doors, since the inside of the upper door has no handle, exit from the airplane through these doors is not possible.

To close the cargo door from inside the airplane (Passenger version only), disconnect the holding strap or chain from the fuselage and secure it to the door. Pull the door aft to the closed position and hold the aft edge of the door firmly against the fuselage door frame to assure engagement of the latching pawls. Latch the lower door section by rotating the inside handle forward and down to the CLOSE position.

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#### SECTION 7 AIRPLANE AND SYSTEMS DESCRIPTION

After the lower door section is secured, grasp the pull strap on the upper door section and pull down. As the door nears the closed position, grasp the edge of the door and pull inward firmly to assure engagement of the latching pawls. Once engaged, the interior door handle can be rotated clockwise to the horizontal position. Snap the handle into its locking receptacle.

# WARNING

If the airplane has utility seating, the aft left seat is in close proximity to the cargo door handles. extra precaution should be taken to ensure that the occupant of this seat does not inadvertently actuate the upper cargo door handle to the open position while in flight.

# **CABIN WINDOWS**

The airplane is equipped with a two-piece windshield reinforced with a metal center strip. The Passenger version has twelve cabin side windows of the fixed type, including one each in the two crew entry doors, two windows in the cargo door upper section, and one window in the upper section of the passenger entry door. The side window installed adjacent to the pilot's position incorporates a small triangular foul weather window. The foul weather window may be opened for ground ventilation and additional viewing by utilizing the twist latch which is integral to the window. The Cargo version has two cabin side windows, one each in the two crew entry doors.

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# CONTROL LOCKS

A control lock is provided to lock the aileron and elevator control surfaces to prevent damage to the these systems by wind buffeting while the airplane is parked. The lock consists of a shaped steel rod and flag. The flag identifies it as a control lock and cautions about its removal before starting the engine. To install the control lock, align the hole in the left side of the pilot's control wheel shaft with the hole in the left side of the shaft collar on the instrument panel and insert the rod into the aligned holes. Installation of the lock will secure the ailerons in a neutral position and the elevators in a slightly trailing edge down position. Proper installation of the lock will place the flag over the left sidewall switch panel.

A rudder gust lock is operated by an external handle on the left side of the tailcone. For information and operating procedures pertaining to this type of lock, refer to Aero Twin Rudder Gust Lock in Section 9, Supplements.

# NOTE

The control lock, rudder lock, and any other type of locking device should be removed or unlocked prior to starting the engine.

# ENGINE

The Pratt & Whitney Canada Inc. PT6A-114A powerplant is a freeturbine engine. It utilizes two independent turbines; one driving a compressor in the gas generator section, and the second driving a reduction gearing for the propeller.

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Inlet air enters the engine through an annular plenum chamber formed by the compressor inlet case where it is directed to the compressor. The compressor consists of three axial stages combined with a single centrifugal stage, assembled as an integral unit. It provides a compression ratio of 7.0:1.

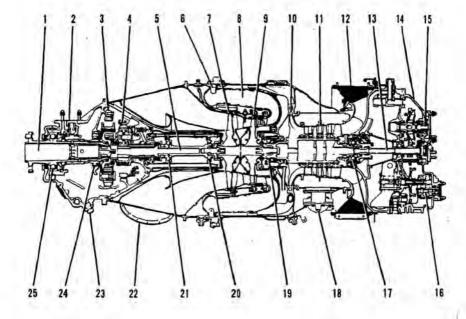
A row of stator vanes located between each stage of compressor rotor blades diffuses the air, raises its static pressure and directs it to the next stage of compressor rotor blades. The compressed air passes through diffuser ducts which turn it 90° in direction. It is then routed through straightening vanes into the combustion chamber.

The combustion chamber liner located in the gas generator case consists of an annular reverse-flow weldment provided with varying sized perforations which allow entry of compressed air. The flow of air changes direction to enter the combustion chamber liner where it reverses direction and mixes with fuel. The location of the combustion chamber liner eliminates the need for a long shaft between the compressor and the compressor turbine, thus reducing the overall length and weight of the engine.

Fuel is injected into the combustion chamber liner by 14 simplex nozzles supplied by a dual manifold. The mixture is initially ignited by two spark igniters which protrude into the combustion chamber liner. The resultant gases expand from the combustion chamber liner, reverse direction and pass through the compressor turbine guide vanes to the compressor turbine. The turbine guide vanes ensure that the expanding gases impinge on the turbine blades at the proper angle, with a minimum loss of energy. The still expanding gases pass forward through a second set of stationary guide vanes to drive the power turbine.

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- 1. Propeller Shaft
- 2. Propeller Governor Drive Pad
- 3. Second Stage Planetary Gear
- 4. First Stage Planetary Gear
- 5. Power Turbine Shaft
  - 6. Fuel Nozzle
  - 7. Power Turbine
  - 8. Combustion Chamber
- 9. Compressor Turbine
- 10. Centrifugal Compressor Impeller
- 11. Axial-Flow Compressor Impellers (3)

- 12. Compressor Air Inlet
- 13. Accessory Gearbox Drive Shaft
- 14. Accessory Gearbox Cover
- 15. Starter-Generator Drive Shaft
- 16. Oil Scavenge Pump
- 17. Number 1 Bearing
- 18. Compressor Bleed Valve
- 19. Number 2 Bearing
- 20. Number 3 Bearing 21. Number 4 Bearing
- 22. Exhaust Outlet
- 23. Chip Detector
- 24. Roller Bearing
- 25. Thrust Bearing

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## Figure 7-8. Typical Engine Components

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#### SECTION 7 AIRPLANE AND SYSTEMS DESCRIPTION

The compressor and power turbines are located in the approximate center of the engine with their shafts extending in opposite directions. The exhaust gas from the power turbine is directed through an exhaust plenum to the atmosphere via a single exhaust port on the right side of the engine.

The engine is flat rated at 675 shaft horsepower (1865 foot-pounds torque at 1900 RPM varying linearly to 1970 foot-pounds torque at 1800 RPM; below 1800 RPM, the maximum torque value remains constant at 1970 foot-pounds). Between 1800 and 1600 propeller RPM, the gearbox torque limit of 1970 foot-pounds will not allow the full flat rating of 675 SHP to be achieved. The speed of the gas generator (compressor) turbine (Ng) is 37,500 RPM at 100 Ng. Maximum permissible speed of the gas generator is 38,100 RPM which equals 101.6 Ng. The power turbine speed is 33,000 RPM at a propeller shaft speed of 1900 RPM (a reduction ratio of 0.0576:1).

All engine-driven accessories, with the exception of the propeller tachometer-generator and the propeller governors, are mounted on the accessory gearbox located at the rear of the engine. These are driven by the compressor turbine with a coupling shaft which extends the drive through a conical tube in the oil tank center section.

The engine oil supply is contained in an integral tank which forms part of the compressor inlet case. The tank has a capacity of 9.5 U.S. guarts and is provided with a dipstick and drain plug.

The power turbine drives the propeller through a two-stage planetary reduction gearbox located on the front of the engine. The gearbox embodies an integral torquemeter device which is instrumented to provide an accurate indication of the engine power output.

# ENGINE CONTROLS

The engine is operated by four separate controls consisting of a power lever, emergency power lever, propeller control lever, and a fuel condition lever. The power and fuel condition levers are engine controls while the propeller control lever controls propeller speed and feathering.

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#### POWER LEVER

The power lever is connected through linkage to a cam assembly mounted in front of the fuel control unit at the rear of the engine. The power lever controls engine power through the full range from maximum takeoff power back through idle to full reverse. The lever also selects propeller pitch when in the BETA range. The power lever has MAX, IDLE, and BETA and REVERSE range positions. The range from MAX position through IDLE enables the pilot to select the desired power output from the engine. The BETA range enables the pilot to control propeller blade pitch from idle thrust back through a zero or no-thrust condition to maximum reverse thrust.

# A CAUTION

#### The propeller reversing linkage can be damaged if the power lever is moved aft of the IDLE position when the propeller is feathered.

#### EMERGENCY POWER LEVER

The emergency power lever is connected through linkage to the manual override lever on the fuel control unit and governs fuel supply to the engine should a pneumatic malfunction occur in the fuel control unit. When the engine is operating, a failure of any pneumatic signal input to the fuel control unit will result in the fuel flow decreasing to minimum idle (about 48% No at sea level and increasing with altitude). The emergency power lever allows the pilot to restore power in the event of such a failure. The emergency power lever has NORMAL, IDLE, and MAX positions. The NORMAL position is used for all normal engine operation when the fuel control unit is operating normally and engine power is selected by the power lever. The range from IDLE position to MAX governs engine power and is used when a pneumatic malfunction has occurred in the fuel control unit and the power lever is ineffective. A mechanical stop in the lever slot requires that the emergency power lever be moved to the left to clear the stop before it can be moved from the NORMAL (full aft) position to the IDLE position.

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#### NOTE

The knob on the emergency power lever has crosshatching. The cross-hatching is visible when the lever is in MAX position. Also, the emergency power lever is annunciated on the annunciator panel whenever it is unstowed from the NORMAL position. These precautions are intended to preclude starting of the engine with the emergency power lever inadvertently placed in any position other than NORMAL.

# A CAUTION

- The emergency power lever and its associated manual override system is considered to be an emergency system and should be used only in the event of a fuel control unit malfunction. When attempting a normal start, the pilot must ensure that the emergency power lever is in the NORMAL (full aft) position; otherwise, an overtemperature condition may result.
- When using the fuel control manual override system, engine response may be more rapid than when using the power lever. Additional care is required during engine acceleration to avoid exceeding engine limitations.

Operation of the emergency power lever is prohibited with the primary power lever out of the IDLE position. The emergency power lever overrides normal fuel control functions and results in the direct operation of the fuel metering valve. The emergency power lever will override the automatic fuel governing and engine acceleration scheduling controlled during normal operation by the primary power lever.

# A CAUTION

Inappropriate use of the emergency power lever may adversely affect engine operation and durability. Use of the emergency power lever during normal operation of the power lever may result in engine surges, or exceeding the ITT, Ng, and torque limits.

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Airplane serials 20800351 and on, and earlier airplanes incorporating Service Kit SK208-142, have a copper witness wire installed that indicates when the emergency power lever has been moved from the NORMAL position. In the event that the emergency power lever is required due to an engine malfunction, moving the emergency power lever out of the NORMAL position and into the IDLE position easily breaks the copper wire.

After EPL use, the witness wire should be replaced after appropriate maintenance action. An entry shall be made in the airplane logbook indicating the circumstances of the EPL use and the action taken.

#### PROPELLER CONTROL LEVER

The propeller control lever is connected through linkage to the propeller governor mounted on top of the front section of the engine, and controls propeller governor settings from the maximum RPM position to full feather. The propeller control lever has MAX. MIN, and FEATHER positions. The MAX position is used when high RPM is desired and governs the propeller speed at 1900 RPM. Propeller control lever settings from the MAX position to MIN permit the pilot to select the desired engine RPM for cruise. The FEATHER position is used during normal engine shutdown to stop rotation of the power turbine and front section of the engine. Since lubrication is not available after the gas generator section of the engine has shut down, rotation of the forward section of the engine is not desirable. Also, feathering the propeller when the engine is shut down minimizes propeller windmilling during windy conditions. A mechanical stop in the lever slot requires that the propeller control lever be moved to the left to clear the stop before it can be moved into or out of the FEATHER position.

### FUEL CONDITION LEVER

The fuel condition lever is connected through linkage to a combined lever and stop mechanism on the fuel control unit. The lever and stop also function as an idle stop for the fuel control unit rod. The fuel condition lever controls the minimum RPM of the gas generator turbine (N<sub>g</sub>) when the power lever is in the IDLE position. The fuel condition lever has CUTOFF, LOW IDLE, and HIGH IDLE positions. The CUTOFF position shuts off all fuel to the engine fuel nozzles. LOW IDLE positions the control rod stop to provide an RPM of 52% N<sub>g</sub>. HIGH IDLE positions the control rod stop to provide an RPM of 65% N<sub>g</sub>.

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#### SECTION 7 AIRPLANE AND SYSTEMS DESCRIPTION

#### QUADRANT FRICTION LOCK

A quadrant friction lock, located on the right side of the pedestal, is provided to minimize creeping of the engine controls once they have been set. The lock is a knurled knob which increases friction on the engine controls when rotated clockwise.

# ENGINE INSTRUMENTS

Engine operation is monitored by the following instruments: torque indicator, propeller RPM indicator, ITT indicator,  $N_g$ % RPM indicator, fuel flow indicator, oil pressure gauge, and oil temperature gauge.

#### TORQUE INDICATOR

The torque indicator is located on the upper portion of the instrument panel and indicates the torque being produced by the engine. On some Cargo Versions, the torque indicator is electrically powered and operates in conjunction with a transmitter located on the top of the reduction gearbox front case. The transmitter senses the difference between the engine torque pressure and the pressure in the engine case and transmits this data to the torque indicator. The torque indicator converts this information into an indication of torque in foot-pounds. The torque indicator system is powered by 28-volt DC power through a circuit breaker, labeled TRQ IND, on the left sidewall switch and circuit breaker panel.

On other Cargo Versions and the Passenger Version, the torque indicator is pressure actuated. Two independent lines enter the back of the torque indicator. One line measures the engine torque pressure and one line measures the reduction gearbox internal pressure. The torque indicator monitors the engine torque pressure and converts this pressure into an indication of torque in footpounds. Instrument markings indicate that the normal operating range (green arc) is from 0 to 1865 foot-pounds, the alternate power range (striped green arc) is from 1865 to 1970 foot-pounds, and maximum torque (red line) is 1970 foot-pounds. Maximum takeoff torque is denoted by "T.O." and a red wedge at 1865 foot-pounds.

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### PROPELLER RPM INDICATOR

The propeller RPM indicator is located on the upper portion of the instrument panel. The instrument is marked in increments of 50 RPM and indicates propeller speed in revolutions per minute. The instrument is electrically-operated from the propeller tachometergenerator which is mounted on the right side of the front case. Instrument markings indicate a normal operating range (green arc) of from 1600 to 1900 RPM and a maximum (red line) of 1900 RPM.

### ITT INDICATOR

The ITT (interturbine temperature ) indicator is located on the upper portion of the instrument panel. The instrument displays the gas temperature between the compressor and power turbines. Instrument markings indicate a normal operating range (green arc) of from 100°C to 740°C, and a maximum (red line) of 805°C. Also, instrument markings indicate a maximum starting temperature (red triangle) of 1090°C.

## Na% RPM INDICATOR

The Ng% RPM indicator is located on the upper portion of the instrument panel. The instrument indicates the percent of gas generator RPM based on a figure of 100% at 37,500 RPM. The instrument is electrically-operated from the gas generator tachometer-generator mounted on the lower right-hand portion of the accessory case. Instrument markings indicate a normal operating range (green arc) of from 52% to 101.6% and a maximum (red line) of 101.6%.

### FUEL FLOW INDICATOR

Details of the fuel flow indicator are included under Fuel System in a later paragraph in this section.

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#### SECTION 7 AIRPLANE AND SYSTEMS DESCRIPTION

### OIL PRESSURE GAGE

The oil pressure gage is the left half of a dual-indicating instrument mounted on the upper portion of the instrument panel. A direct pressure oil line from the engine delivers oil at engine operating pressure to the oil pressure gage. Instrument markings indicate a minimum operating pressure (red line) of 40 psi, a cautionary range (yellow arc) of from 40 to 85 psi, a normal operating range (green arc) of from 85 to 105 psi, and a maximum (red line) of 105 psi.

#### OIL TEMPERATURE GAGE

The oil temperature gage is the right half of a dual-indicating instrument mounted on the upper portion of the instrument panel. The instrument is operated by an electrical-resistance type temperature sensor which receives power from the airplane electrical system.

Instrument markings:

Airplane serials 20800277 thru 20800363 not equipped with Service Kit SK208-147: Minimum operating temperature (red line) -40°C, cautionary range (yellow arc) from -40°C to 10°C, normal operating range (green arc) from 10°C to 99°C, and maximum (red line) 99°C.

Airplane serials 20800364 and on, and earlier airplanes equipped with Service Kit SK208-147: Minimum operating temperature (red line) -40°C, cautionary range (yellow arc) from -40°C to 10°C, normal operating range (green arc) from 10°C to 99°C, 10-minute transient range (yellow arc) 99°C to 104°C, and maximum (red line) 104°C.

#### NEW ENGINE BREAK-IN AND OPERATION

There are no specific break-in procedures required for the Pratt & Whitney Canada Inc. PT6A-114A turboprop engine. The engine may be safely operated throughout the normal ranges authorized by the manufacturer at the time of delivery of your airplane.

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#### CESSNA MODEL 208 (675 SHP)

#### ENGINE LUBRICATION SYSTEM

The lubrication system consists of a pressure system, a scavenge system and a breather system. The main components of the lubrication system include an integral oil tank at the back of the engine, an oil pressure pump at the bottom of the oil tank, an external double-element scavenge pump located on the back of the accessory case, an internal double-element scavenge pump located inside the accessory gearbox, an oil-to-fuel heater located on the top rear of the accessory case, an oil filter located internally on the right side of the oil tank, and an oil cooler located on the right side of the nose cowl.

A large capacity oil cooler is installed to increase the hot day outside air temperature limits for flight operations. Oil is drawn from the bottom of the oil tank through a filter screen where it passes through a pressure relief valve for regulation of oil pressure. The pressure oil is then delivered from the main oil pump to the oil filter where extraneous matter is removed from the oil and precluded from further circulation.Pressure oil is then routed through passageways to the engine bearings, reduction gears, accessory drives, torquemeter, and propeller governor. Also, pressure oil is routed to the oil-to-fuel heater where it then returns to the oil tank.

After cooling and lubricating the engine moving parts, oil is scavenged as follows: Oil from the number 1 bearing compartment is returned by gravity into the accessory gearbox. Oil from the number 2 bearing is scavenged by the front element of the internal scavenge pump back into the accessory gearbox. Oil from the number 3 and number 4 bearings is scavenged by the front element of the external scavenge pump into the accessory gearbox. Oil from the propeller governor, front thrust bearing, reduction gear accessory drives, and torquemeter is scavenged by the rear element of the external scavenge pump where it is routed through a thermostatically-controlled oil cooler and then returned to the oil tank. Also, the rear element of the internal scavenge pump scavenges oil from the accessory case and routes it through the oil cooler where it then returns to the oil tank.

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Breather air from the engine bearing compartments and from the accessory and reduction gearboxes is vented overboard through a centrifugal breather installed in the accessory gearbox. The bearing compartments are connected to the accessory gearbox by cored passages and existing scavenge oil return lines. A bypass valve, immediately upstream of the front element of the internal scavenge pump, vents the accessory gearbox when the engine is operating at high power.

An oil dipstick/filler cap is located at the rear of the engine on the left side and is accessible when the left side of the upper cowling is raised. Markings which indicate U.S. quarts low if the oil is hot are provided on the dipstick to facilitate oil servicing. The oil tank capacity is 9.5 U.S. quarts and total system capacity is 14 U.S. quarts. For engine oil type and brand, refer to Section 8.

#### IGNITION SYSTEM

The ignition system consists of two igniters, an ignition exciter, two high-tension leads, an ignition monitor light, an ignition switch, and a starter switch. Engine ignition is provided by two igniters in the engine combustion chamber. The igniters are energized by the ignition exciter mounted on the engine mount on the right side of the engine compartment. Electrical energy from the ignition exciter is transmitted through two high-tension leads to the igniters in the engine. The ignition system is normally energized only during engine start.

Ignition is controlled by an ignition switch and a starter switch located on the left sidewall switch and circuit breaker panel. The ignition switch has two positions, ON and NORMAL. The NORMAL position of the switch arms the ignition system so that ignition will be obtained when the starter switch is placed in the START position. The NORMAL position is used during all ground starts and during air starts with starter assist. The ON position of the switch provides continuous ignition regardless of the position of the starter switch. This position is used for air starts without starter assist, for operation on water or slush-covered runways, during flight in heavy precipitation, during inadvertent icing encounters until the inertial separator has been in bypass for 5 minutes, and when near fuel exhaustion as indicated by illumination of the RESERVOIR FUEL LOW annunciator.

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The main function of the starter switch is control of the starter for rotating the gas generator portion of the engine during starting. However, it also provides ignition during starting. For purposes of this discussion, only the ignition functions of the switch are described. For other functions of the starter switch, refer to paragraph titled Starting System, in this section. The starter switch has three positions, OFF, START, and MOTOR. The OFF position shuts off the ignition system and is the normal position at all times except during engine start or engine clearing. The START position energizes the engine ignition system provided the ignition switch is in the NORMAL position. After the engine has started during a ground or air start, the starter switch must be manually positioned to OFF for generator operation.

A green annunciator, located on the annunciator panel, is labeled IGNITION ON, and will illuminate when electrical power is being applied to the igniters. The ignition system is protected by a "pulloff" type circuit breaker, labeled IGN, on the left sidewall switch and circuit breaker panel.

### AIR INDUCTION SYSTEM

The engine air inlet is located at the front of the engine nacelle to the left of the propeller spinner. Ram air entering the inlet flows through ducting and an inertial separator system and then enters the engine through a circular plenum chamber where it is directed to the compressor by guide vanes. The compressor air inlet incorporates a screen which will prevent entry of large articles, but does not filter the inlet air.

### INERTIAL SEPARATOR SYSTEM

An inertial separator system in the engine air inlet duct prevents moisture particles from entering the compressor air inlet plenum when in bypass mode. The inertial separator consists of two movable vanes and a fixed airfoil which, during normal operation, route the inlet air through a gentle turn into the compressor air inlet plenum. When separation of moisture particles is desired, the vanes are positioned so that the inlet air is forced to execute a sharp turn in order to enter the inlet plenum. This sharp turn causes any moisture particles to separate from the inlet air and discharge overboard through the inertial separator outlet in the left side of the cowling.

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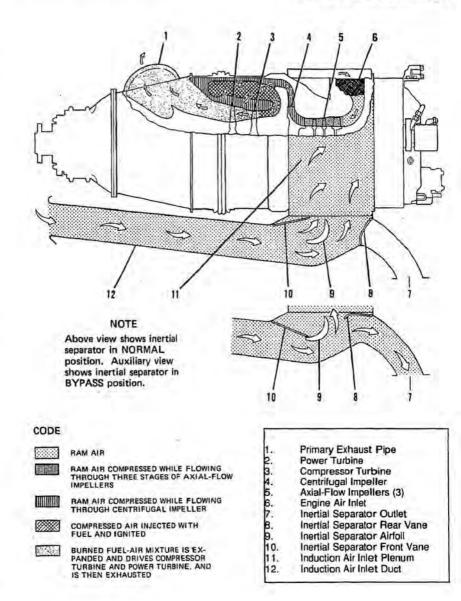


Figure 7-9. Engine Air Flow

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Inertial separator operation is controlled by a T-handle located on the lower instrument panel. The T-handle is labeled BYPASS-PULL, NORMAL-PUSH. The inertial separator control should be moved to the BYPASS position prior to running the engine during ground or flight operation in visible moisture (clouds, rain, snow, ice crystals) with an OAT of 4°C or less. It may also be used for ground operations or takeoffs from dusty, sandy field conditions to minimize ingestion of foreign particles into the compressor. The normal position is used for all other operations.

The T-handle locks in the NORMAL position by rotating the handle clockwise 1/4 turn to its vertical position. To unlock, push forward slightly and rotate the handle 90° counterclockwise. The handle can then be pulled into the BYPASS position. Once moved to the BYPASS position, air loads on the movable vanes hold them in this position.

### NOTE

When moving the inertial separator control from bypass to normal position during flight, reduction of engine power will reduce the control forces.

### EXHAUST SYSTEM

The exhaust system consists of a primary exhaust pipe attached to the right side of the engine just aft of the propeller reduction gearbox. A secondary exhaust duct, fitted over the end of the primary exhaust pipe, carries the exhaust gases away from the cowling and into the slipstream. The juncture of the primary exhaust pipe and secondary exhaust duct is located directly behind the oil cooler. Since the secondary exhaust duct is of larger diameter than the primary exhaust pipe, a venturi effect is produced by the flow of exhaust. This venturi effect creates a suction behind the oil cooler which augments the flow of cooling air through the cooler. This additional airflow improves oil cooling during ground operation of the engine.

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### ENGINE FUEL SYSTEM

The engine fuel system consists of an oil-to-fuel heater, an enginedriven fuel pump, a fuel control unit, a flow divider and dump valve, a dual fuel manifold with 14 simplex nozzles, and two fuel drain lines. The system provides fuel flow to satisfy the speed and power demands of the engine.

Fuel from the airplane reservoir is delivered to the oil-to-fuel heater which is essentially a heat exchanger which utilizes heat from the engine lubricating oil system to preheat the fuel in the fuel system. A fuel temperature-sensing oil bypass valve regulates the fuel temperature by either allowing oil to flow through the heater circuit or bypass it to the engine oil tank.

Fuel from the oil-to-fuel heater then enters the engine-driven fuel pump chamber through a 74-micron inlet screen. The inlet screen is spring-loaded and should it become blocked, the increase in differential pressure will overcome the spring and allow unfiltered fuel to flow into the pump chamber. The pump increases the fuel pressure and delivers it to the fuel control unit via a 10-micron filter in the pump outlet. A bypass valve and cored passages in the pump body enables unfiltered high pressure fuel to flow to the fuel control unit in the event the outlet filter becomes blocked.

The fuel control unit consists of a fuel metering section, a temperature compensating section, and a gas generator  $(N_{n})$ pneumatic governor. The fuel control unit determines the proper fuel schedule to provide the power required as established by the power lever input. This is accomplished by controlling the speed of the compressor turbine. The temperature compensating section alters the acceleration fuel schedule to compensate for fuel density differences at different fuel temperatures, especially during engine start. The power turbine governor, located in the propeller governor housing, provides power turbine overspeed protection in the event of propeller governor failure. This is accomplished by limiting fuel to the gas generator. During reverse thrust operation, maximum power turbine speed is controlled by the power turbine governor. The temperature compensator alters the acceleration fuel schedule of the fuel control unit to compensate for variations in compressor inlet air temperature. Engine characteristics vary with changes in inlet air temperature, and the acceleration fuel schedule must, in turn, be altered to prevent compressor stall and/or excessive turbine temperatures.

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The flow divider schedules the metered fuel, from the fuel control unit, between the primary and secondary fuel manifolds. The fuel manifold and nozzle assemblies deliver fuel to the combustion chamber through 10 primary and 4 secondary fuel nozzles. During engine start, metered fuel is delivered initially by the primary nozzles, with the secondary nozzles cutting in above a preset value. All nozzles are operative at idle and above.

When the fuel cutoff valve in the fuel control unit closes during engine shutdown, both primary and secondary manifolds are connected to a dump valve port and residual fuel in the manifolds is allowed to drain into the fuel drain can attached to the firewall where it can be drained daily.

### COOLING SYSTEM

No external cooling provisions are provided for the PT6A-114A engine in this installation. However, the engine incorporates an extensive internal air system which provides for bearing compartment sealing and for compressor and power turbine disk cooling. For additional information on internal engine air systems, refer to the engine maintenance manual for the airplane.

#### STARTING SYSTEM

The starting system consists of a starter/generator, a starter switch, and a starter annunciator light. The starter/generator functions as a motor for engine starting and will motor the gas generator section until a speed of 46% Ng is reached, at which time, the start cycle will automatically be terminated by a speed sensing switch located in the starter/generator. The starter/generator is controlled by a three-position starter switch located on the left sidewall switch and circuit breaker panel. The switch has OFF, START, and MOTOR positions. The OFF position de-energizes the ignition and starter circuits and is the normal position at all times except during engine The START position of the switch energizes the start. starter/generator which rotates the gas generator portion of the engine for starting. Also, the START position energizes the ignition system, provided the ignition switch is in the NORMAL position. When the engine has started, the starter switch must be manually placed in the OFF position to de-energize the ignition system and activate the generator system. The MOTOR position of the switch motors the engine without having the ignition circuit energized and is used for motoring the engine when

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an engine and start is not desired. This can be used for clearing fuel an engine start is not desired. This can be used for clearing fuel from the engine, washing the engine compressor, etc. The MOTOR position is spring-loaded back to the OFF position. Also, an interlock between the MOTOR position of the starter switch and the ignition switch prevents the starter from motoring unless the ignition switch is in the NORMAL position. This prevents unintentional motoring of the engine with the ignition on. Starter contactor operation is amber annunciator. indicated by an labeled STARTER ENERGIZED, on the annunciator panel.

### ENGINE ACCESSORIES

All engine-driven accessories, with the exception of the propeller tachometer-generator and the propeller governors, are mounted on the accessory gearbox located at the rear of the engine. These accessories are driven from the compressor turbine by a coupling shaft which extends the drive through a conical tube in the oil tank center section.

### OIL PUMP

Pressure oil is circulated from the integral oil tank through the engine lubrication system by a self-contained, gear-type pressure pump located in the lowest part of the oil tank. The oil pump is contained in a cast housing which is bolted to the front face of the accessory diaphragm, and is driven by the accessory gear shaft. The oil pump body incorporates a circular mounting boss to accommodate a check valve, located in the end of the filter housing. A second mounting boss on the pump accommodates a pressure relief valve.

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#### FUEL PUMP

The engine-driven fuel pump is mounted on the accessory gearbox at the 2 o'clock position. The pump is driven through a gear shaft and splined coupling. The coupling splines are lubricated by oil mist from the auxiliary gearbox through a hole in the gear shaft. Another splined coupling shaft extends the drive to the fuel control unit which is bolted to the rear face of the pump. Fuel from the oil-to-fuel heater enters the fuel pump through a 74-micron inlet screen. Then, fuel enters the pump gear chamber, is boosted to high pressure, and delivered to the fuel control unit through a 10-micron pump outlet filter. A bypass valve and cored passages in the pump casing enable unfiltered high pressure fuel to flow from the pump gears to the fuel control unit should the outlet filter become blocked. An internal passage originating at the mating face with the fuel control unit returns bypass fuel from the fuel control unit to the pump inlet downstream of the inlet screen. A pressure regulating valve in this line serves to pressurize the pump gear bushings.

# Ng TACHOMETER-GENERATOR

The N<sub>g</sub> tachometer-generator produces an electric current which is used in conjunction with the gas generator RPM indicator to indicate gas generator RPM. The N<sub>g</sub> tachometer-generator drive and mount pad is located at the 5 o'clock position on the accessory gearbox and is driven from the internal scavenge pump. Rotation is counterclockwise with a drive ratio of 0.1121:1.

#### **PROPELLER TACHOMETER-GENERATOR**

The propeller tachometer-generator produces an electric current which is used in conjunction with the propeller RPM indicator. The propeller tachometer-generator drive and mount pad is located on the right side of the reduction gearbox case and rotates clockwise with a drive ratio of 0.1273:1.

#### TORQUEMETER

The torquemeter is a hydro-mechanical torque measuring device located inside the first stage reduction gear housing to provide an accurate indication of engine power output. The difference between the torquemeter pressure and the reduction gearbox internal pressure accurately indicates the torque being produced.

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The two pressures are internally routed to bosses located on the top of the reduction gearbox front case and are then plumbed to the torquemeter indicator which indicates the correct torque pressure.

### STARTER/GENERATOR

The starter/generator is mounted on the top of the accessory case at the rear of the engine. The starter/generator is a 28-volt, 200-amp engine-driven unit that functions as a motor for engine starting and, after engine start, as a generator for the airplane electrical system. When operating as a starter, a speed sensing switch in the starter/generator will automatically shut down the starter, thereby providing overspeed protection and automatic shutoff. The starter/generator is air cooled by an integral fan and by ram air ducted from the front of the engine cowling.

#### INTERTURBINE TEMPERATURE SENSING SYSTEM

The interturbine temperature sensing system is designed to provide the operator with an accurate indication of engine operating temperatures taken between the compressor and power turbines. The system consists of twin leads, two bus bars, and eight individual chromel-alumel thermocouple probes connected in parallel. Each probe protrudes through a threaded boss on the power turbine stator housing into an area adjacent to the leading edge of the power turbine vanes. The probe is secured to the boss by means of a floating, threaded fitting which is part of the thermocouple probe assembly. Shielded leads connect each bus bar assembly to a terminal block which provides a connecting point for external leads to the ITT indicator in the airplane cabin.

#### PROPELLER GOVERNOR

The propeller governor is located in the 12 o'clock position on the front case of the reduction gearbox. Under normal conditions, the governor acts as a constant speed unit, maintaining the propeller speed selected by the pilot by varying the propeller blade pitch to match the load to the engine torque. The propeller governor also has a power turbine governor section built into the unit. Its function is to protect the engine against a possible power turbine overspeed in the event of a propeller governor failure.

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If such an overspeed should occur, a governing orifice in the propeller governor is opened by flyweight action to bleed off compressor discharge pressure through the governor and computing section of the fuel control unit. When this occurs, compressor discharge pressure, acting on the fuel control unit governor bellows, decreases and moves the metering valve in a closing direction, thus reducing fuel flow to the flow divider.

#### PROPELLER OVERSPEED GOVERNOR

The propeller overspeed governor is located at the 10 o'clock position on the front case of the reduction gearbox. The governor acts as a safeguard against propeller overspeed should the primary propeller governor fail. The propeller overspeed governor regulates the flow of oil to the propeller pitch-change mechanism by means of a flyweight and speeder spring arrangement similar to the primary propeller governor. Since it has no mechanical controls, the overspeed governor is equipped with a test solenoid that resets the governor below its normal overspeed setting for ground test. The overspeed governor test switch is located on the left side of the instrument panel. For a discussion of this switch, refer to the paragraph titled Propellers in this section.

#### ENGINE FIRE DETECTION SYSTEM

The engine fire detection system consists of a heat sensor in the engine compartment, a warning light, labeled ENGINE FIRE, on the annunciator panel, and a warning horn above the pilot. The heat sensor consists of three flexible closed loops. When high engine compartment temperatures are experienced, the heat causes a change in resistance in the closed loops. This change in resistance is sensed by a control box, located on the aft side of the firewall, which will illuminate the annunciator light and trigger the audible warning horn. Fire warning is initiated when temperatures in the engine compartment exceed 425°F (218°C) on the first section (firewall), 625°F (329°C) on the second section (around the exhaust), or 450°F (232°C) on the third section (rear engine compartment). A test switch, labeled FIRE DETECT TEST, is located adjacent to the annunciator panel. When depressed, the ENGINE FIRE annunciator will illuminate and the warning horn will sound indicating that the fire warning circuitry is operational. The system is protected by a "pull-off" type circuit breaker, labeled FIRE DET, on the left sidewall switch and circuit breaker panel.

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### ENGINE GEAR REDUCTION SYSTEM

The reduction gear and propeller shaft, located in the front of the engine, are housed in two magnesium alloy castings which are bolted together at the exhaust outlet. The gearbox contains a two-stage planetary gear train, three accessory drives, and propeller shaft. The first-stage reduction gear is contained in the rear case, while the second-stage reduction gear, accessory drives, and propeller shaft are contained in the front case. Torque from the power turbine is transmitted to the first-stage reduction gear, from there to the second-stage reduction gear, and then to the propeller shaft. The reduction ratio is from a maximum power turbine speed of 33,000 RPM down to a propeller speed of 1900 RPM or a reduction ratio of 0.0576:1.

The accessories, located on the front case of the reduction gearbox, are driven by a bevel gear mounted at the rear of the propeller shaft thrust bearing assembly. Drive shafts from the bevel drive gear transmit rotational power to the three pads which are located at the 12, 3 and 9 o'clock positions.

Propeller thrust loads are absorbed by a flanged ball bearing assembly located on the front face of the reduction gearbox center bore. The bevel drive gear adjusting spacer, thrust bearing, and seal runner are stacked and secured to the propeller shaft by a keywasher and spanner nut. A thrust bearing cover assembly is secured by bolts at the front flange of the reduction gearbox front case.

#### CHIP DETECTORS (Optional)

Some airplanes have two chip detectors installed on the engine, one on the underside of the reduction gearbox case and one on the underside of the accessory gearbox case. The chip detectors are electrically connected to an annunciator, labeled CHIP DETECTOR, on the instrument panel. The annunciator will illuminate when metal chips are present in one or both of the chip detectors. Illumination of the CHIP DETECTOR annunciator necessitates the need for inspection of the engine for abnormal wear.

### **OIL BREATHER DRAIN CAN**

The airplane has an oil breather drain can mounted on the rightlower engine mount truss. This can collects any engine oil discharge coming from the accessory pads for the alternator drive

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pulley, starter/generator and air conditioner compressor (if installed), and the propeller shaft seal. This can should be drained after every flight. A drain valve on the bottom right side of the engine cowlingenables the pilot to drain the contents of the oil breather drain can into a suitable container. The allowable quantity of oil discharge per hour of engine operation 14 cc for airplanes with air conditioning and 11 cc for airplanes without air conditioning. If the quantity of oil drained from the can can is greater than specified, the source of the leakage should be identified and corrected prior to further flight.

# PROPELLER

The airplane is equipped with a McCauley three-bladed aluminum propeller. It is constant-speed, full-feathering, reversible, singleacting, and governor-regulated. A setting is introduced into the governor with the propeller control lever which establishes the propeller speed. The propeller utilizes oil pressure which opposes the force of springs and counterweights to obtain correct pitch for the engine load. Oil pressure from the propeller governor drives the blades toward low pitch (increases RPM) while the springs and counterweights drive the blades toward high pitch (decreasing RPM). The source of oil pressure for propeller operation is furnished by the engine oil system, boosted in pressure by the governor gear pump, and supplied to the propeller hub through the propeller flange.

To feather the propeller blades, the propeller control lever on the control pedestal is placed in the FEATHER position; counterweights and spring tension will continue to twist the propeller blades through pitch and into the streamlined or feathered position. high Unfeathering the propeller is accomplished by positioning the propeller control lever forward of the feather gate. The unfeathering system uses engine oil pressure to force the propeller out of feather. Reversed propeller pitch is available for decreasing landing ground roll during landing. To accomplish reverse pitch, the power lever is retarded beyond IDLE and well into the BETA range. Maximum reverse power is accomplished by retarding the power lever to the MAX REVERSE position which increases power output from the gas generator as well as positions the propeller blades at full reverse An externally grooved feedback ring is provided with the pitch. propeller. Motion of the feedback ring is proportional to propeller

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blade angle, and is picked up by a carbon block running in the feedback ring. The relationship between the axial position of the feedback ring and the propeller blade angle is used to maintain control of blade angle from idle to full reverse.

# A CAUTION

The propeller reversing linkage can be damaged if the power lever is moved aft of the idle position when the propeller is feathered.

#### OVERSPEED GOVERNOR TEST SWITCH

An overspeed governor test switch is located on the left side of the instrument panel. The switch is the push-to-test type and is used to test the propeller overspeed governor during engine run-up. The switch, when depressed, actuates a solenoid on the propeller overspeed governor which restricts propeller RPM when the power lever is advanced. To check for proper operation of the overspeed governor during engine run-up, depress the press-to-test switch and advance the power lever until propeller RPM stabilizes; propeller RPM should not exceed 1750 ±60 RPM.

# FUEL SYSTEM

The airplane fuel system (see Figure 7-10) consists of two vented, integral fuel tanks with shutoff valves, a fuel selectors off warning system, a fuel reservoir, an ejector fuel pump, an electric auxiliary boost pump, a reservoir manifold assembly, a firewall shutoff valve, a fuel filter, an oil-to-fuel heater, an engine-driven fuel pump, a fuel control unit, a flow divider, dual manifolds, and 14 fuel nozzle assemblies. A fuel drain can and drain is also provided. Refer to Figure 7-11 for fuel quantity data for the system.

# WARNING

Unusable fuel levels for this airplane were determined in accordance with Federal Aviation Regulations. Failure to operate the airplane in compliance with the fuel limitations specified in Section 2 may further reduce the amount of fuel available in flight.

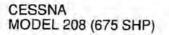
Fuel flows from the tanks through the two fuel tank shutoff valves at each tank. The fuel tank shutoff valves are mechanically controlled by two fuel selectors, labeled LEFT, ON and OFF and RIGHT, ON and OFF, located on the overhead panel. By manipulating the fuel selectors, the pilot can select either left or right fuel tanks or both at the same time. Normal operation is with both tanks on. Fuel flows by gravity from the shutoff valves in each tank to the fuel reservoir.

The reservoir is located at the low point in the fuel system which maintains a head of fuel around the ejector boost pump and auxiliary boost pump which are contained within the reservoir. This head of fuel prevents pump cavitation in low-fuel quantity situations, especially during inflight maneuvering. Fuel in the reservoir is pumped by the ejector boost pump or by the electric auxiliary boost pump to the reservoir manifold assembly. The ejector boost pump, which is driven by motive fuel flow from the fuel control unit, normally provides fuel flow when the engine is operating. In the event of failure of the ejector boost pump, the electric boost pump will automatically turn on, thereby supplying fuel flow to the engine. The auxiliary boost pump is also used to supply fuel flow during starting. Fuel in the reservoir manifold then flows through a fuel shutoff valve located on the aft side of the firewall. This shutoff valve enables the pilot to cut off all fuel to the engine.

After passing through the shutoff valve, fuel is routed through a fuel filter located on the front side of the firewall. The fuel filter incorporates a bypass feature which allows fuel to bypass the filter in the event the filter becomes blocked with foreign material. A red filter bypass flag on the top of the filter extends upward when the filter is bypassing fuel. Fuel from the filter is then routed through the oil-to-fuel heater to the engine-driven fuel pump where fuel is delivered under pressure to the fuel control unit. The fuel control unit meters the fuel and directs it to the flow divider which distributes the fuel to dual manifolds and 14 fuel nozzles located in the combustion chamber. For additional details concerning the flow of fuel at the engine, refer to the Engine Fuel System paragraph in this section.

Fuel rejected by the engine on shutdown drains into a fireproof fuel can located on the front left side of the firewall. The can should be drained during preflight inspection. If left unattended, the drain can fuel will overflow overboard.

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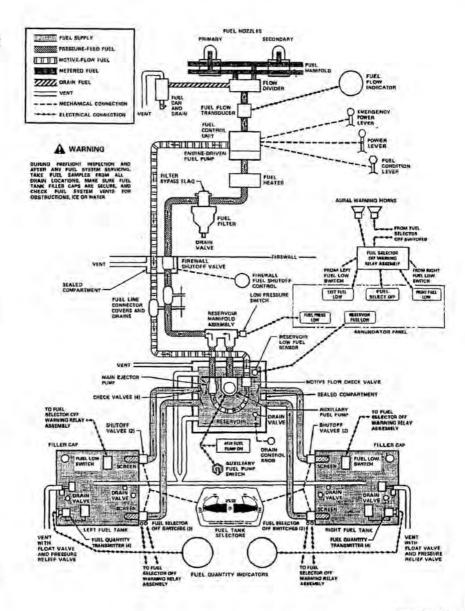


Figure 7-10. Fuel System

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Fuel system venting is essential to system operation. Complete blockage of the vent system will result in decreased fuel flow and eventual engine stoppage. Venting is accomplished by check valve equipped vent lines, one from each fuel tank, which protrude from the trailing edge of the wing at the wing tips. Also the fuel reservoir is vented to both wing tanks.

UNITS OF MEASURE	FUEL LEVEL (QUANTITY EACH TANK)	TOTAL FUEL	TOTAL UNUSABLE	TOTAL USABLE ALL FLT CONDIT- IONS
POUNDS GALLONS	FULL (OUTBOARD FILLERS) 1124.25 167.8	<b>2248.5</b> 335.6	24.1 3.6	<b>2224.4</b> 332
(U.S.) POUNDS GALLONS (U.S.)	FULL (INBOARD FILLERS) 806 120.3	<b>1612</b> 240.6	24.1 3.6	1587.9 237

### FUEL QUANTITY DATA

#### NOTES:

 Pounds are based on a fuel specific weight of 6.7 pounds per U.S. gallon.

# WARNING

To achieve full capacity, fill fuel tank to the top of the fuel filler neck. Filling fuel tanks to the bottom of the fuel filler collar (level with flapper valve) allows space for thermal expansion and results in a decrease in fuel capacity of four gallons per side (eight gallons total).

Figure 7-11. Fuel Quantity Data

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#### FIREWALL FUEL SHUTOFF VALVE

A manual firewall fuel shutoff valve, located on the aft side of the firewall, enables the pilot to shut off all fuel flow from the fuel reservoir to the engine. The shutoff valve is controlled by a red push-pull know labeled FUEL SHUTOFF - FUEL OFF and located on the right side of the pedestal. The push-pull knob has a press-to-release button in the center which locks the knob in position when the button is released.

#### FUEL TANK SELECTORS

Two fuel tank selectors, one for each tank, are located on the overhead console. The selectors - labeled LEFT, ON and OFF(left tank) and RIGHT, ON and OFF (right tank) - mechanically control the position of the two fuel tank shutoff valves for that tank. When a fuel tank selector is in the OFF position, the shutoff valves for that tank are closed. When in the ON position, both shutoff valves in the tank are open, allowing fuel from that tank to flow to the reservoir. Normal fuel management is with both fuel tank selectors in the ON position.

Before refueling, or when the airplane is parked on a slope, turn off one of the fuel tank selectors (if parked on a slope, turn high wing tank off). This action prevents crossfeeding from the fuller or higher tank and reduces any fuel seepage tendency from the wing tank vents.

#### FUEL SELECTORS OFF WARNING SYSTEM

A fuel selectors off warning system is incorporated to alert the pilot if one or bother of the fuel tank selectors are left in the OFF position inadvertently. The system includes redundant warning horns, a red annunciator light labeled FUEL SELECT OFF, actuation switches, and miscellaneous electrical hardware. The dual aural warning system is powered through the START CONT circuit breaker with a non-pullable FUEL SEL WARN circuit breaker installed in series to protect the integrity of the start system. The annunciator is powered from the ANN PANEL circuit breaker.

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The warning system functions as follows: (1) If both the left and right fuel tank shutoff valves are closed (fuel tank selectors in the OFF position), the red FUEL SELECT OFF annunciator illuminates and one of the fuel selector off warning horns is activated; (2) During an engine start operation (STARTER switch in START or MOTOR position) with either the left or right fuel tank shutoff valves closed, the red FUEL SELECT OFF annunciator illuminates and both of the fuel select off warning horns are activated; (3) With one fuel tank selector OFF and fuel remaining in the tank being used less than approximately 25 gallons, the FUEL SELECT OFF annunciator illuminates and one of the fuel selector off warning horns is activated.

If the FUEL SEL WARN circuit breaker has popped or the START CONT circuit breaker has been pulled (possibly for ground maintenance), the FUEL SELECT OFF annunciator will be illuminated even with both fuel tank selectors ON. This is a warning to the pilot that the fuel selector warning system has been deactivated.

#### AUXILIARY BOOST PUMP SWITCH

An auxiliary boost pump switch, located on the left sidewall switch and circuit breaker panel, is labeled FUEL BOOST and has OFF, NORM, and ON positions. When the switch is in the OFF position, the auxiliary boost pump is inoperative. When the switch is in the NORM position, the auxiliary boost pump is armed and will operate when fuel pressure in the fuel manifold assembly drops below 4.75 psi. This switch position is used for all normal engine operation where main fuel flow is provided by the ejector boost pump and the auxiliary boost pump is used as a standby. When the auxiliary boost pump switch is placed in the ON position, the auxiliary boost pump will operate continuously. This position is used for engine start and any other time that the auxiliary boost pump cycles on and off with the switch in the NORM position.

#### FUEL FLOW INDICATOR

A fuel flow indicator, located at the top of the instrument panel, indicates the fuel consumption of the engine in pounds per hour based on Jet A fuel. The indicator measures the flow of fuel downstream of the fuel control unit just before being routed into the flow divider. When power is removed from the indicator, the needle will stow below zero in the OFF band.

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The fuel flow indicator receives power from a "pull-off" type circuit breaker labeled FUEL FLOW, on the left sidewall switch and circuit breaker panel.

#### FUEL QUANTITY INDICATORS

Fuel quantity is measured by eight fuel quantity transmitters (four in each tank) and indicated by two electrically-operated fuel quantity indicators on the upper portion of the instrument panel. The fuel quantity indicators, which measure volume, are calibrated in pounds (based on the weight of Jet A fuel on a standard day) and gallons. An empty tank is indicated by a red line and the letter E. When an indicator shows an empty tank, approximately 2.8 gallons remain in the tank as unusable fuel. The left and right fuel quantity indicators each receive power from a "pull-off" type circuit breaker. The breakers are labeled LEFT FUEL QTY and RIGHT FUEL QTY, respectively, and are located on the left sidewall switch and circuit breaker panel.

## A WARNING

Because of the relatively long fuel tanks, fuel quantity indicator accuracy is affected by uncoordinated flight or a sloping ramp if reading the indicators while on the ground. Therefore, to obtain accurate fuel quantity readings, verify that the airplane is parked in a laterally level condition, or if in flight, make sure the airplane is in a coordinated and stabilized condition.

#### WING TANK FUEL LOW WARNING ANNUNCIATORS

Two amber fuel low warning annunciators, one for each wing tank, are located on the annunciator panel. The annunciators are labeled LEFT FUEL LOW and RIGHT FUEL LOW. Each annunciator will illuminate when the fuel in the respective tank is 25 gallons or less.

#### RESERVOIR FUEL LOW WARNING ANNUNCIATOR

A red reservoir fuel low warning annunciator is located on the annunciator panel. The annunciator is labeled RESERVOIR FUEL LOW, and will illuminate when the level of fuel in the reservoir drops to approximately one-half full.

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#### FUEL PRESSURE LOW WARNING ANNUNCIATOR

An amber fuel pressure low warning annunciator is located on the annunciator panel. The annunciator is labeled FUEL PRESS LOW, and will illuminate when fuel pressure in the reservoir fuel manifold assembly is below 4.75 psi.

#### AUXILIARY FUEL PUMP ON ANNUNCIATOR

An amber auxiliary fuel pump on annunciator is located on the annunciator panel. The annunciator is labeled AUX FUEL PUMP ON and will illuminate when the auxiliary boost pump is operating, such as when the auxiliary boost pump switch is placed in the ON position or when the auxiliary boost pump switch is in the NORM position and fuel pressure in the fuel manifold assembly drops below 4.75 psi.

#### **DRAIN VALVES**

The fuel system is equipped with drain valves to provide a means for the examination of fuel in the system for contamination and grade. Drain valves are located on the lower surface of each wing at the inboard end of the fuel tank, in fuel tank external sumps, on the underside of the reservoir tank, and on the underside of the fuel filter. Outboard fuel tank drain valves may be installed, and their use is recommended if the airplane is parked with one wing low on a sloping ramp (as evidenced by the ball of the turn and bank indicator displaced from center). The drain valves for the wing tanks (and their external sumps, if installed) are tool-operated poppet type and are flush-external mounted. The wing tank and external sump drain valves are constructed so that the Phillips screwdriver on the fuel sampler which is provided can be utilized to depress the valve and then twist to lock the drain valve in the open position. The drain valve for the reservoir consists of a recessed Thandle which can be depressed and then turned to lock the valve open. The drain valve for the fuel filter consists of a drain pipe which can be depressed upward to drain fuel from the filter. The fuel sampler can be used on all of these drain valves for fuel sampling and purging of the fuel system. The fuel tanks should be filled after each flight when practical to minimize condensation.

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Before each flight of the day and after each refueling, use a clear sampler and drain fuel from the inboard fuel tank sump (and external sump, if installed) quick-drain valves, fuel reservoir quickdrain valve, and fuel filter quick-drain valve to determine if contaminants are present, and that the airplane has been fueled with the proper fuel. If the airplane is parked with one wing low on a sloping ramp, draining of the outboard fuel tank sump quick-drain valves (if installed) is also recommended. If contamination is detected, drain all fuel drain points again. Take repeated samples from all fuel drain points until all contamination has been removed. If after repeated sampling, evidence of contamination still exists, the fuel tanks should be completely drained and the fuel system cleaned. Do not fly the airplane with contaminated or unapproved fuel.

## A WARNING

# JP-4 and other naphtha based fuels can cause severe skin and eye irritation.

#### FUEL DRAIN CAN

When the engine is shut down, residual fuel in the engine drains into a fuel drain can mounted on the front left side of the firewall. This can should be drained once a day or at an interval not to exceed six engine shutdowns. A drain valve on the bottom side of the cowling enables the pilot to drain the contents of the fuel drain can into a suitable container.

#### FUEL PUMP DRAIN RESERVOIR

To control expended lubricating oil from the engine fuel pump drive coupling area and provide a way to determine if fuel is leaking past the fuel pump seal, airplanes are equipped with a drainable reservoir to collect this allowable discharge of oil and any fuel seepage. The reservoir is mounted on the front left side of the firewall. It should be drained once a day or at an interval not to exceed six engine shutdowns. A drain valve on the bottom side of the cowling enables the pilot to drain the contents of the reservoir into a suitable container. A quantity of up to 3 cc of oil and 20 cc of fuel discharge per hour of engine operation is allowable. If the quantity of oil or fuel drained from the reservoir is greater than specified, the source of leakage should be identified and corrected prior to further flight.

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## BRAKE SYSTEM

The airplane has a single-disc, hydraulically-actuated brake on each main landing gear wheel. Each brake is connected, by a hydraulic line, to a master cylinder attached to each of the pilot's rudder pedals. The brakes are operated by applying pressure to the top of either the left (pilot's) or right (front passenger's) set of rudder pedals, which are interconnected. When the airplane is parked, both main wheel brakes may be set by utilizing the parking brake which is operated by a handle on the lower left side of the instrument panel. To apply the parking brake, set the brakes with the rudder pedals and pull the handle aft. To release the parking brake, push the handle fully in.

A brake fluid reservoir, located just forward of the firewall on the left side of the engine compartment, provides additional brake fluid for the brake master cylinders. The fluid in the reservoir should be checked for proper level prior to each flight.

For maximum brake life, keep the brake system properly maintained. Airplanes are equipped with metallic type brakes, and require a special brake burn-in before delivery (or after brake replacement). When conditions permit, hard brake application is beneficial in that the resulting higher brake temperatures tend to maintain proper brake glazing and will prolong the expected brake life. Conversely, the habitual use of light and conservative brake application is detrimental to metallic brakes.

Some of the symptoms of impending brake failure are: gradual decrease in braking action after brake application, noisy or dragging brakes, soft or spongy pedals, and excessive travel and weak braking action. If any of these symptoms appear, the brake system is in need of immediate attention. If, during taxi or landing roll, braking action decreases, let up on the pedals and then re-apply the brakes with heavy pressure. If the brakes become spongy or pedal travel increases, pumping the pedals should build braking pressure. If one brake becomes weak or fails, use the other brake sparingly while using opposite rudder, as required, to offset the good brake.

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## ELECTRICAL SYSTEM

The airplane is equipped with a 28-volt, direct-current electrical system (see Figure 7-12). The system uses a 24-volt lead-free battery; or 24-volt sealed lead acid battery; or 24-volt Ni-Cad battery located on the front right side of the firewall, as a source of electrical energy. A 200-amp engine-driven starter-generator is used to maintain the battery's state of charge. Power is supplied to most general electrical and all avionics circuits through two general buses, two avionics buses, and a battery bus. The battery bus is energized continuously for memory keep-alive, clock, and cabin/courtesy lights functions. The two general buses are on anytime the battery switch is turned on. All DC buses are turned on.

An optional standby electrical system, which consists of an enginedriven alternator and separate busing system, may be installed in the airplane. For details of this system, refer to Section 9, Supplements.

#### GENERATOR CONTROL UNIT

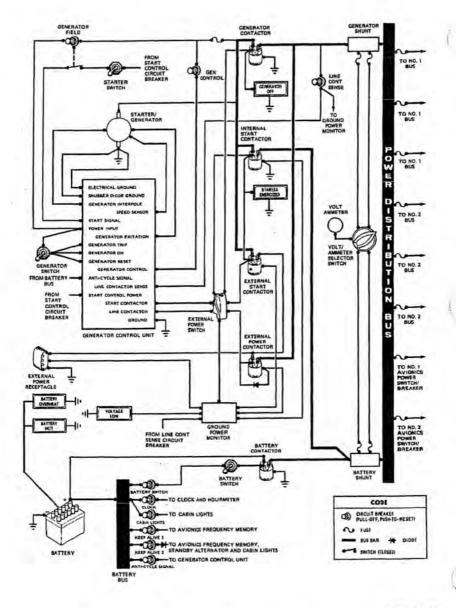
The generator control unit (GCU) is mounted inside the cabin on the left forward fuselage sidewall. The unit provides the electrical control functions necessary for the operation of the startergenerator. The GCU provides for automatic starter cutoff when engine RPM is above 46. Below 46, the starter-generator functions as a starter, and above 46, the starter-generator functions as a generator when the starter switch is OFF. The GCU provides voltage regulation plus high voltage protection and reverse current protection. In the event of a high-voltage or reverse current condition, the generator is automatically disconnected from the buses. The generator contactor (controlled by the GCU) connects the generator output to the airplane bus. If any GCU function the generator contactor to de-energize. causes the red GENERATOR OFF light on the annunciator panel will come on.

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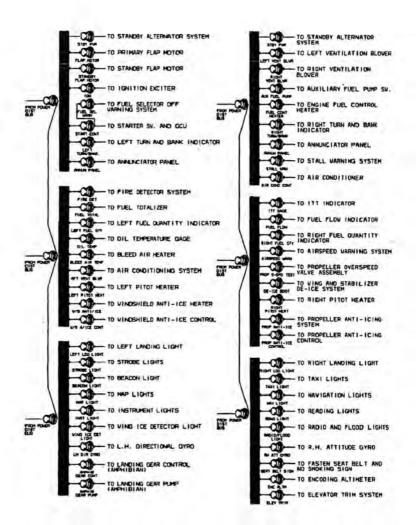
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Figure 7-12. Electrical System (Sheet 1 of 3)

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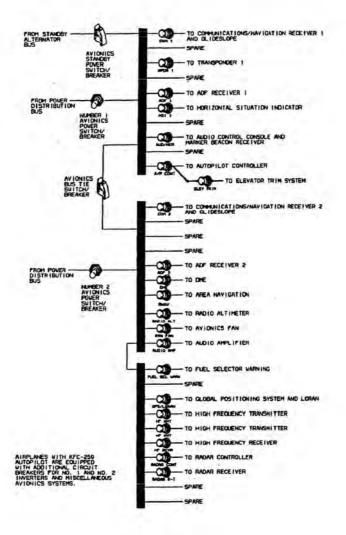
Figure 7-12. Electrical System (Sheet 2 of 3)

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Figure 7-12. Electrical System (Sheet 3 of 3)

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#### GROUND POWER MONITOR

The ground power monitor is located inside the electrical power control assembly mounted on the left hand side of the firewall in the engine compartment. This unit senses the voltage level applied to the external power receptacle and will close the external power contactor when the applied voltage is within the proper limits. In addition, the ground power monitor senses airplane bus voltage and will illuminate the VOLTAGE LOW light on the annunciator panel when bus voltage drops to battery voltage.

#### **BATTERY SWITCH**

The battery switch is a two-position toggle-type switch, labeled BATTERY, and is located on the left sidewall switch and circuit breaker panel. The battery switch is ON in the forward position and OFF in the aft position. When the battery switch is in the ON position, battery power is supplied to the two general buses. The OFF position cuts off power to all buses except the battery bus.

#### STARTER SWITCH

The starter switch is a three-position toggle-type switch, labeled STARTER, on the left sidewall switch and circuit breaker panel. The switch has OFF, START, and MOTOR positions. For additional details of the starter switch, refer to the Starting System paragraph in this section.

#### **IGNITION SWITCH**

The ignition switch is a two-position toggle-type switch, labeled IGNITION, on the left sidewall switch and circuit breaker panel. The switch has ON and NORMAL positions. For additional details of the ignition switch, refer to the Ignition System paragraph in this section.

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#### GENERATOR SWITCH

The generator switch is a three-position toggle-type switch, labeled GENERATOR, on the left sidewall switch and circuit breaker panel. The switch has ON, RESET, and TRIP positions. With the switch in the ON position, the GCU will automatically control the generator line contactor for normal generator operation. The RESET and TRIP positions are momentary positions and are spring-loaded back to the ON position. If a momentary fault should occur in the generating system (as evidenced by the GENERATOR OFF and/or VOLTAGE LOW lights illuminating), the generator switch can be momentarily placed in the RESET position to restore generator power. If erratic operation of the generating system is observed, the system can be shutoff by momentarily placing the generator switch to the TRIP position. After a suitable waiting period, generator operation may be recycled by placing the generator switch momentarily to RESET.

#### AVIONICS POWER SWITCHES

Electrical power from the airplane power distribution bus to the avionics buses (see Figure 7-12) is controlled by two toggle-type switch breakers located on the left sidewall switch and circuit breaker panel. One switch controls power to the number 1 avionics bus while the other switch controls power to the number 2 avionics bus. The switches are labeled AVIONICS and are ON in the forward position and OFF in the aft position. The avionics power switches should be placed in the OFF position prior to turning the battery switch ON or OFF, starting the engine, or applying an external power source. The avionics power switches may be used in place of the individual avionics equipment switches.

#### AVIONICS BUS TIE SWITCH

The avionics bus tie switch is a two-position guarded toggle-type switch located on the left sidewall switch and circuit breaker panel. The switch connects the number 1 and number 2 avionics buses together in the event of failure of either bus feeder circuit. Since each avionics bus is supplied power from a separate current limiter on the power distribution bus, failure of a current limiter can cause failure of the affected bus. Placing the bus tie switch to the ON position will restore power to the failed bus. Operation without both bus feeder circuits may require an avionics load reduction, depending on equipment installed.

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#### SECTION 7 AIRPLANE AND SYSTEMS DESCRIPTION

#### EXTERNAL POWER SWITCH

The external power switch is a three-position guarded toggle-type switch located on the left sidewall switch and circuit breaker panel. The switch has OFF, STARTER, and BUS positions and is guarded in the OFF position. When the switch is in the OFF position, battery power is provided to the main bus and to the starter-generator circuit, external power cannot be applied to the main bus, and, with the generator switch in the ON position, power is applied to the generator control circuit. When the external power switch is in the STARTER position, external power is applied to the starter circuit only and battery power is provided to the main bus. No generator power is available in this position. When the external power switch is in the BUS position, external power is applied to the main bus and no power is available to the starter. The battery, if desired, can be connected to the main bus and external power by the battery switch; however, battery charge should be monitored to avoid overcharge.

#### CIRCUIT BREAKERS

Most of the electrical circuits in the airplane are protected by "pulloff" type circuit breakers mounted on the left sidewall switch and circuit breaker panel. Should an overload occur in any circuit, the controlling circuit breaker will trip, opening the circuit. After allowing the circuit breaker to cool for approximately three minutes, it may be reset (pushed in).

### A WARNING

Ensure all circuit breakers are engaged before all flights. Never operate with disengaged circuit breakers without a thorough knowledge of the consequences.

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#### VOLT/AMMETER AND SELECTOR SWITCH

A volt/ammeter and four-position rotary-type selector switch are mounted on the left side of the instrument panel so that electrical system operation can be monitored. The selector switch has GEN, ALT, BATT, and VOLT positions and selects either generator current, standby alternator current, battery charge or discharge current, or system voltage, respectively, on the volt/ammeter. The ALT position of the selector switch is used for the optional standby alternator system which may not be installed on some airplanes. In that case, the position will be inoperative. Refer to Standby Electrical System in Section 9 of this handbook for further details.

#### ANNUNCIATOR LIGHTS

Six lights on the annunciator panel indicate the condition of the electrical system to the pilot. These lights are GENERATOR OFF, VOLTAGE LOW, BATTERY OVERHEAT, STARTER ENERGIZED, BATTERY HOT, and IGNITION ON. These lights should be observed at all times during airplane operation and if any light illuminates unexpectedly, a malfunction may have occurred and appropriate action should be undertaken to correct the problem. For details of other lights on the annunciator panel, refer to the Annunciator Panel paragraph in this section.

#### GROUND SERVICE PLUG RECEPTACLE

A ground service plug receptacle permits the use of an external power source for cold weather starting and during lengthy maintenance work on the electrical and avionics equipment. External power control circuitry is provided to prevent the external power and the battery from being connected together during starting. The external power receptacle is installed on the left side of the engine compartment near the firewall.

#### SECTION 7 AIRPLANE AND SYSTEMS DESCRIPTION

The ground service circuit incorporates polarity reversal and overvoltage protection. Power from the external power source will flow only if the ground service plug is correctly connected to the airplane. If the plug is accidentally connected backwards or the ground service voltage is too high, no power will flow to the electrical system, thereby preventing any damage to electrical equipment.

## LIGHTING SYSTEM

#### EXTERIOR LIGHTING

Exterior lighting consists of three navigation lights, two landing lights, two taxi/recognition lights, and two strobe lights. A flashing beacon and two underwing courtesy lights are also available. All exterior lights are controlled by toggle switches located on the lighting control panel on the left side of the instrument panel. The toggle switches are ON in the up position and OFF in the down position.

#### NAVIGATION LIGHTS

Conventional navigation lights are installed on the wing tips and tail cone stinger. The lights are protected by a "pull-off" type circuit breaker, labeled NAV LIGHT, on the left sidewall switch and circuit breaker panel.

Two landing lights are installed on the airplane, one in each wing leading edge mounted outboard. The lights provide illumination forward and downward during takeoff and landing. The lights are protected by two "pull-off" type circuit breakers, labeled LEFT LDG LT and RIGHT LDG LT, on the left sidewall switch and circuit breaker panel.

#### LANDING LIGHTS

Two landing lights are installed on the airplane, one in each wing leading edge mounted outboard. The lights provide illumination forward and downward during takeoff and landing. The lights are protected by two "pull-off" type circuit breakers, labeled LEFT LDG LT and RIGHT LDG LT, on the left sidewall switch and circuit breaker panel.

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#### NOTE

It is not recommended that the landing lights be used to enhance the visibility of the airplane in the traffic pattern or enroute, because of their relatively short service life. The taxi/recognition lights have considerably longer service life and are designed for this purpose, if desired.

#### TAXI/RECOGNITION LIGHTS

Two taxi/recognition lights are mounted inboard of each landing light in each wing leading edge. The lights are focused to provide illumination of the area forward of the airplane during ground operation and taxiing. The lights are also used to enhance the visibility of the airplane in the traffic pattern or enroute. The taxi/recognition lights are protected by a "pull-off" type circuit breaker, labeled TAXI LIGHT on the left sidewall switch and circuit breaker panel.

#### STROBE LIGHTS

A high intensity strobe light system is installed on the airplane. The system includes two strobe lights (with remote power supplies) located one on each wing tip. The lights are used to enhance anticollision protection for the airplane and are the required anti-collison lights for night operations. The strobe lights are protected by a "pulloff" type circuit breaker, labeled STROBE LIGHT, on the left sidewall switch and circuit breaker panel.

#### WARNING

Strobe lights should be turned off when taxiing. Ground operation of the high intensity anticollision lights can be of considerable annoyance to ground personnel and other pilots. Do not operate the anti-collision lights in conditions of fog, clouds, or haze as the reflection of the light beam can cause disorientation or vertigo.

#### FLASHING BEACON LIGHT

A red flashing beacon light is installed on the top of the vertical fin as additional anti-collision protection in flight and for recognition during ground operation. The light is visible through 360°. The flashing beacon light circuit is protected by a "pull-off" type circuit breaker, labeled BEACON LIGHT, on the left sidewall switch and circuit breaker panel.

#### WARNING

The flashing beacon should not be used when flying through clouds or overcast; the flashing light reflected from water droplets or particles in the atmosphere, particularly at night, can cause disorientation or vertigo.

#### COURTESY LIGHTS

Two courtesy lights may be installed, one under each wing. The lights illuminate the area outside of the airplane adjacent to the crew entry doors. The lights operate in conjunction with the cabin lights and are controlled by the cabin light switches as described in the Cabin Lights paragraph in this section.

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# INTERIOR LIGHTING

Instrument and control panel lighting is provided by integral, flood, and post lights. Four concentric-type dual lighting control knobs are grouped together on the lower part of the instrument panel to the left of the control pedestal. These four controls vary the intensity of the instrument panel lighting, the left sidewall switch and circuit breaker panel lighting, the pedestal lighting, and the overhead panel lighting. The following paragraphs describe the function of these controls. Other miscellaneous lighting provided or available includes a control wheel maplight, cabin lights, passenger reading lights, and a no smoking/seat belt sign. Discussion of these lights and their controls is also included in the following paragraphs.

#### LEFT FLIGHT PANEL/LEFT FLOOD LIGHTING CONTROL KNOBS

The large (outer) knob of this control, labeled L FLT PANEL, varies the intensity of the postlights illuminating the left portion of the instrument panel directly in front of the pilot. The control also varies the intensity of the integral lighting of the digital clock, HSI, ADI, and radio instruments. The small (inner) knob of the control, labeled L FLOOD, varies the brightness of the left side floodlight located on the right aft side of the overhead panel. This floodlight may also be used to illuminate the left sidewall switch and circuit breaker panel. Clockwise rotation of either of the concentric control knobs increases lamp brightness and counterclockwise rotation decreases brightness.

# RIGHT FLIGHT PANEL/RIGHT FLOOD LIGHTING CONTROL KNOBS

The large (outer) knob of this control, labeled R FLT PANEL, varies the intensity of the postlights illuminating the right flight panel directly in front of the right passenger. The small (inner) knob of this control, labeled R FLOOD, varies the brightness of the right side floodlight located on the left aft side of the overhead panel. Clockwise rotation of either of the concentric control knobs increases lamp brightness and counterclockwise rotation decreases brightness.

#### LOWER PANEL, PEDESTAL, OVERHEAD, SWITCH/CIRCUIT BREAKER LIGHTING CONTROL KNOBS

The large (outer) knob of this control, labeled LWR PANEL/PED/OVHD, varies the intensity of postlights and a floodlight illuminating the lower portion of the instrument panel, a floodlight illuminating the pedestal, and lights illuminating the overhead panel and OAT gauge. The small (inner) knob of the control, labeled SW/CKT BKR, varies the intensity of two floodlights illuminating the left sidewall switch and circuit breaker panel. Clockwise rotation of either of the concentric control knobs increases lamp brightness and counterclockwise rotation decreases brightness.

#### ENGINE INSTRUMENTS/RADIO LIGHTING CONTROL KNOBS

The large (outer) knob of this control, labeled ENG INST, varies the intensity of the post lights which illuminate the engine instruments on the top center of the instrument panel and the intensity of the dimmable lamps on the annunciator panel. The small (inner) knob of this control, labeled RADIO, controls the integral lights and digital readouts of the avionics equipment. Clockwise rotation of either of the concentric control knobs increases lamp brightness and counterclockwise rotation decreases brightness. However, extreme counterclockwise rotation of the RADIO knob turns the digital readouts on bright for daylight viewing.

#### CONTROL WHEEL MAPLIGHT

A control wheel maplight is mounted on the bottom of the pilot's control wheel. This light illuminates the lower portion of the cabin in front of the pilot, and is used for checking maps and other flight data during night operation. Brightness of the light is adjusted with a rheostat control knob on the bottom of the control wheel.

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#### CABIN LIGHTS

Three cabin lights are installed in the interior of the airplane to facilitate boarding or deplaning the airplane or loading and unloading cargo during night operations. On the Standard 208, the lights are located one above the aisle, one above the aft cargo door, and one above the passenger entry door. On the Cargomaster, the lights are located one above the center of the forward cargo area, one above the aft cargo door, and one on the aft right side of the aft cargo area. These lights (and the courtesy light located under each wing) are controlled by a two-position toggle switch, labeled CABIN, on the lighting control panel, a rocker-type switch, located just forward of the cargo door on the inside left sidewall and, on the Standard 208, a rocker-type switch located just forward of the passenger entry door on the inside right sidewall. Activating either of these switches turns on the cabin lights regardless of the corresponding position of the other switches. This light circuit does not require power to be applied to the main electrical system buses (battery switch on) for operation. The courtesy lights circuit may be equipped with a solid-state timer which allows the lights to remain illuminated for a period of 30 minutes after the lights have been turned on.

#### PASSENGER READING LIGHTS (Standard 208 Only)

Passenger reading lights may be installed at each of the aft passengers positions. The lights are located above the window line in small convenience panels above each seat. A pushbutton-type ON, OFF switch, mounted in each panel, controls the lights. The lights can be pivoted in their mounting sockets to provide the most comfortable angle of illumination for the passenger.

#### NO SMOKING/SEAT BELT SIGN (Standard 208 Only)

A lighted warning sign may be installed in the airplane to facilitate warning passengers of impending flight operations necessitating the fastening of seat belts and/or the extinguishing of all smoking materials. This installation consists of a small lighted panel mounted in the cabin headliner immediately aft of the overhead console and two toggle-type switches, labeled SEAT BELT and NO SMOKE, on the lighting control panel. When these switches are placed in the ON position, the warning signs illuminate, displaying

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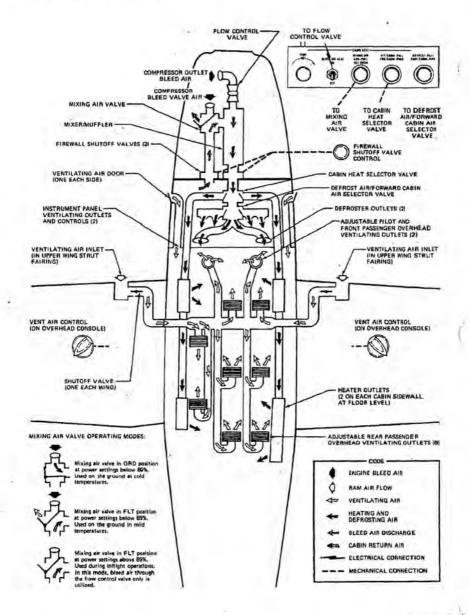
#### SECTION 7 AIRPLANE AND SYSTEMS DESCRIPTION

the international graphic symbolism for "fasten seat belts" and "no smoking" to the rear cabin passengers. The circuit for the warning sign lights is protected by a "pull-off" type circuit breaker, labeled SEAT BELT SIGN, on the left sidewall switch and circuit breaker panel.

## CABIN HEATING, VENTILATING AND DEFROSTING SYSTEM

The temperature and volume of airflow to the cabin is regulated by the cabin heating, ventilating and defrosting system (see Figure 7-13). In the heating system, hot compressor outlet air is routed from the engine through a flow control valve, then through a mixer/muffler where it is mixed with cabin return air or warm air from the compressor bleed valve (depending on the setting of the mixing air valve) to obtain the correct air temperature before the air is routed to the cabin air distribution system. Controls are provided to direct the heated air to the forward and/or aft portions of the cabin for heating and to the windshield for defrosting. Ventilating air is obtained from an inlet on each side at the forward fuselage and through two ram air inlets, one on each wing at the upper end of the wing struts. The wing inlet ventilating air is routed through the wing into a plenum chamber located in the center of the cabin top. The plenum distributes the ventilating air to individual overhead outlets at each seat position. Two electric blowers are available for the overhead ventilating system. Details of this installation are presented in Section 9, Supplements.

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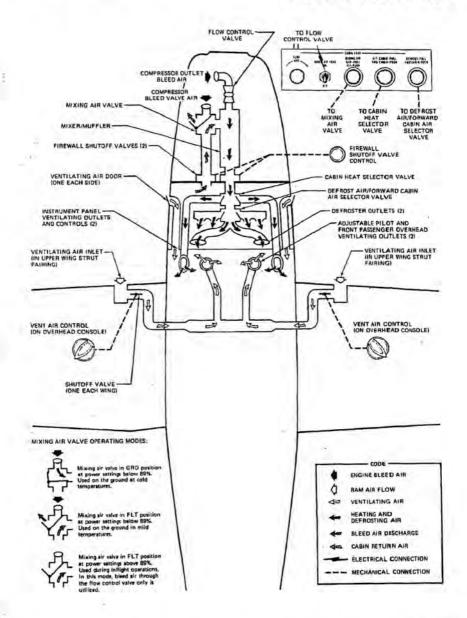
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Figure 7-13. Cabin Heating, Ventilating and Defrosting System (Passenger Version) (Sheet 1 of 2)

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Figure 7-13. Cabin Heating, Ventilating and Defrosting System (Cargo Version) (Sheet 2 of 2)

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#### BLEED AIR HEAT SWITCH

A two-position toggle switch, labeled BLEED AIR HEAT, is located on the cabin heat switch and control panel. The switch controls the operation of the bleed air flow control valve. The ON position of the switch opens the flow control valve, allowing hot bleed air to flow to the cabin heating system. The OFF position closes the valve, shutting off the flow of hot bleed air to the heating system.

#### TEMPERATURE SELECTOR KNOB

A rotary temperature selector knob, labeled TEMP, is located on the cabin heat switch and control panel. The selector modulates the opening and closing action of the flow control valve to control the amount and temperature of air flowing into the cabin. Clockwise rotation of the knob increases the mass flow and temperature of the air.

#### NOTE

- If more cabin heat is needed while on the ground, move the fuel condition lever to HIGH IDLE.
- Some hysteresis may be encountered when adjusting bleed air temperature. The resulting amount and temperature of bleed air may be different when approaching a particular temperature selector knob position from a clockwise versus a counterclockwise direction. Best results can usually be obtained by turning the temperature selector knob full clockwise and then slowly turning it counterclockwise to decrease bleed airflow to the desired amount.

A temperature sensor, located in the outlet duct from the mixer/muffler operates in conjunction with the temperature selector knob. In the event of a high temperature condition (overheat) in the outlet duct, the temperature sensor will be energized, closing the flow control valve and thus shutting off the source of hot bleed air from the engine.

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#### MIXING AIR PUSH-PULL CONTROL

A push-pull control, labeled MIXING AIR, GRD-PULL, FLT-PUSH, is located on the cabin heat switch and control panel. With the pushpull control in the GRD position (pulled out), warm compressor bleed valve air is mixed with hot compressor outlet air in the mixer/muffler. This mode is used during ground operation when warm compressor bleed valve air is available (at power setting below 89% No) and can be used as additional bleed air heat to augment the hot compressor outlet bleed air supply during periods of cold ambient temperature. With the push-pull control in the FLT position (pushed in), cabin return air is mixed with the hot compressor outlet air in the mixer/muffler. This recirculation of cabin return air enables the heating system to maintain the desired temperature for proper cabin heating. If desired, the FLT position of the push-pull control can be used on the ground when ambient temperatures are mild and maximum heating is not required. In this mode, the excess warm compressor bleed valve air available at power settings below 89% Na is exhausted overboard from the mixing air valve.

## A CAUTION

The mixing air push-pull control should always be in the FLT position (pushed in) when the airplane is in flight. Cabin return air must be allowed to flow through the mixing valve and blend with hot compressor outlet air during high engine power operation in order to maintain proper temperature in the cabin heat distribution system. If the FLT position is not used during flight, the system may overheat and cause an automatic shutdown.

#### AFT/FORWARD CABIN PUSH-PULL CONTROL

A push-pull control, labeled AFT CABIN-PULL, FWD CABIN-PUSH, is located on the cabin heat switch and control panel. With the control in the AFT CABIN position (pulled out), heated air is directed to the aft cabin heater outlets located on the cabin sidewalls at floor level on the Standard 208 and the outlets in the floor behind the pilot and front passenger on the Cargomaster.

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With the control in the FWD CABIN position (pushed in), heated air is directed to the the forward cabin through four heater outlets located behind the instrument panel and/or the two windshield defroster outlets. The push-pull control can be positioned at any intermediate setting desired for proper distribution of heated air to the forward and aft cabin areas.

#### DEFROST/FORWARD CABIN PUSH-PULL CONTROL

A push-pull control, labeled DEFROST-PULL, FWD CABIN-PUSH, is located on the cabin heat switch and control panel. With the control in the DEFROST position (pulled out), forward cabin air is directed to two defroster outlets located at the base of the windshield (the aft/forward cabin push-pull control also must be pushed in for availability of forward cabin air for defrosting). With the defrost/forward cabin push-pull control in the FWD CABIN position (pushed in), heated air will be directed to the four heater outlets behind the instrument panel.

#### CABIN HEAT FIREWALL SHUTOFF KNOB

A push-pull shutoff knob, labeled CABIN HEAT FIREWALL SHUTOFF, PULL OFF, is located on the lower right side of the pedestal. When pulled out, the knob actuates two firewall shutoff valves, one in the bleed air supply line to the cabin heating system and one in the cabin return air line, to the off position. This knob should normally be pushed in unless a fire is suspected in the engine compartment.

## A CAUTION

Do not place the cabin heat firewall shutoff knob in the OFF position when the mixing air control is in the GRD position because a compressor stall will occur at low power settings when the compressor bleed valve is open. The engine must be shut down to relieve back pressure on the valves prior to opening the valves.

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#### VENT AIR CONTROL KNOBS

Two vent air control knobs, labeled VENT AIR, are located on the overhead console. The knobs control the operation of the shutoff valves in each wing which control the flow of ventilating air to the cabin. The knob on the right side of the console controls the right wing shutoff valve and similarly, the knob on the left side controls the left wing shutoff valve. When the vent air control knobs are rotated to the CLOSE position, the wing shutoff valves are closed; rotating the knobs to the OPEN position progressively opens the wing shutoff valves. When the optional cabin ventilation fans are installed, rotating the knobs to the full OPEN position also turns on the ventilation fans.

#### INSTRUMENT PANEL VENT KNOBS

Two vent knobs, labeled VENT, PULL ON, are located one on each side of the instrument panel. Each knob controls the flow of ventilating air from an outlet located adjacent to each knob. Pulling each knob opens a small air door on the fuselage exterior which pulls in ram air for distribution through the ventilating outlet.

#### VENTILATING OUTLETS

Adjustable ventilating outlets (one above each seat position) permit individual ventilation to the airplane occupants. The pilot's and front passenger's outlets are the swivel type for optimum positioning, and airflow volume is controlled by rotating the outlet nozzle which controls an internal valve. Eight additional rear seat passenger outlets on the Standard 208 are adjustable fore and aft, and each have a separate rotary type control beside the outlet, with positions labeled AIR ON and AIR OFF, to control airflow volume through the outlet.

## **OXYGEN SYSTEM**

The airplane is equipped with oxygen system provisions which consist of the system plumbing for a 10-port system. If the airplane is equipped with a complete 2-port or 10-port oxygen system, refer to Section 9, Supplements, for complete details and operating instructions.

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#### PITOT-STATIC SYSTEM AND INSTRUMENTS

The pitot-static system supplies ram air pressure to the airspeed indicator and static pressure to the airspeed indicator, vertical speed indicator, and altimeter. The system is composed of a heated pitotstatic tube mounted on the leading edge of the left wing, a static pressure alternate source valve located below the de-ice/anti-ice switch panel, a drain valve located on the left sidewall beneath the instrument panel, an airspeed pressure switch located behind the instrument panel, and the associated plumbing necessary to connect the instruments and sources.

The pitot-static heat system consists of a heating element in the pitot-static tube, a two-position toggle switch, labeled PITOT/STATIC HEAT, on the de-ice/anti-ice switch panel, and a "pull-off" type circuit breaker, labeled LEFT PITOT HEAT, on the left sidewall switch and circuit breaker panel. When the pitot-static heat switch is turned on, the element in the pitot-static tube is heated electrically to maintain proper operation in possible icing conditions.

A static pressure alternate source valve is installed below the deice/anti-ice switch panel, and can be used if the static source is malfunctioning. This valve supplies static pressure from inside the cabin instead of from the pitot-static tube. If erroneous instrument readings are suspected due to water or ice in the pressure line going to the static pressure source, the alternate source valve should be pulled on. Pressures within the cabin will vary with vents open or closed. Refer to Sections 3 and 5 for the effect of varying cabin pressures on airspeed and altimeter readings.

A drain valve is incorporated into the system and is located on the left cabin sidewall beneath the instrument panel. The valve is used to drain suspected moisture accumulation in the system by lifting the drain valve lever to the OPEN position as indicated by the placard adjacent to the valve. The valve must be returned to the CLOSED position prior to flight.

An airspeed pressure switch in the pitot-static system is used to actuate an airspeed warning horn in the event excessive airspeed is inadvertently attained. The horn is located behind the headliner in the area above the pilot, and will sound when airspeed exceeds VMO (175 KIAS). A warning signal may also be heard in the pilot's headset.

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#### RIGHT FLIGHT INSTRUMENT PANEL PITOT-STATIC SYSTEM

A second, independent pitot-static system is included whenever the right flight instrument panel is installed. The system supplies ram air pressure to the airspeed indicator and static pressure to the airspeed indicator, vertical speed indicator, and altimeter utilized in the right flight panel instrument group. The system is composed of a heated pitot-static tube on the leading edge of the right wing, a drain valve on the right cabin sidewall beneath the instrument panel, and the plumbing necessary to connect the instruments to the sources. The right pitot-static system is not connected to the pilot's flight instrument pitot-static (left) system.

The pitot-static heat system for the right flight instrument panel consists of a heating element in the right pitot-static tube, the standard system two-position toggle switch, labeled PITOT/STATIC HEAT, on the de-ice/anti-ice switch panel, a "pull-off" type circuit breaker, labeled RIGHT PITOT HEAT, on the left sidewall switch and circuit breaker panel, and the associated wiring.

The drain valve incorporated into the right flight panel static system functions identically to the standard system drain valve. Use the right valve to drain suspected moisture accumulation in the system lines as indicated by the placard, labeled STATIC SOURCE DRAIN, OPEN, CLOSED, adjacent to the valve. Make sure the valve is returned to the CLOSED position prior to flight.

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#### AIRSPEED INDICATOR(S)

The airspeed indicator(s) is calibrated in knots. Limitation and range markings (in KIAS) include the white arc (full flap operating range of 50 to 125 knots), green arc (normal operating range of 63 to 175 knots), and a red line (maximum speed of 175 knots). The left-hand instrument is a true airspeed indicator and is equipped with a rotatable ring which works in conjunction with the airspeed indicator dial in a manner similar to the operation of a flight computer. To operate the indicator, first rotate the ring until pressure altitude is aligned with outside air temperature in pressure altitude, momentarily set the barometric scale on the altimeter to 29.92 and read pressure altitude on the altimeter. Be sure to return the altimeter barometric scale to the original barometric setting after pressure altitude has been obtained. Having set the ring to correct for altitude and temperature, read the true airspeed shown on the rotatable ring by the indicator pointer. For best accuracy, the indicated airspeed should be corrected to calibrated airspeed by referring to the Airspeed Calibration chart in Section 5. Knowing the calibrated airspeed, read true airspeed on the ring opposite the calibrated airspeed.

#### VERTICAL SPEED INDICATOR(S)

The vertical speed indicator(s) depicts airplane rate of climb or descent in feet per minute. The pointer is actuated by atmospheric pressure changes resulting from changes of altitude as supplied by the static source(s).

#### ALTIMETER(S)

Airplane altitude is depicted by a barometric type altimeter(s). A knob near the lower left portion of the indicator provides adjustment of the instrument's barometric scale to the current altimeter setting.

## VACUUM SYSTEM AND INSTRUMENTS

A vacuum system (see Figure 7-14) provides the suction necessary to operate the left-hand attitude indicator and directional indicator. Vacuum is obtained by passing regulated compressor outlet bleed air through a vacuum ejector. Bleed air flowing through an orifice in the ejector creates the suction necessary to operate the instruments. The vacuum system consists of the bleed air pressure regulator, a vacuum ejector on the forward left side of the firewall, a vacuum relief valve and vacuum system air filter on the aft side of the firewall, vacuum operated instruments and a suction gage on the left side of the instrument panel, and a vacuum-low warning annunciator on the annunciator panel.

#### ATTITUDE INDICATOR

The attitude indicator gives a visual indication of flight attitude. Bank attitude is presented by a pointer at the top of the indicator relative to the bank scale which has index marks at 10°, 20°, 30°, 60°, and 90° either side of the center mark. Pitch and roll attitudes are presented by a miniature airplane superimposed over a symbolic horizon area divided into two sections by a white horizon bar. The upper blue "blue sky" and the lower "ground" area have arbitrary pitch reference lines useful for pitch attitude control. A knob at the bottom of the instrument is provided for inflight adjustment of the miniature airplane to the horizon bar for a more accurate flight attitude indication.

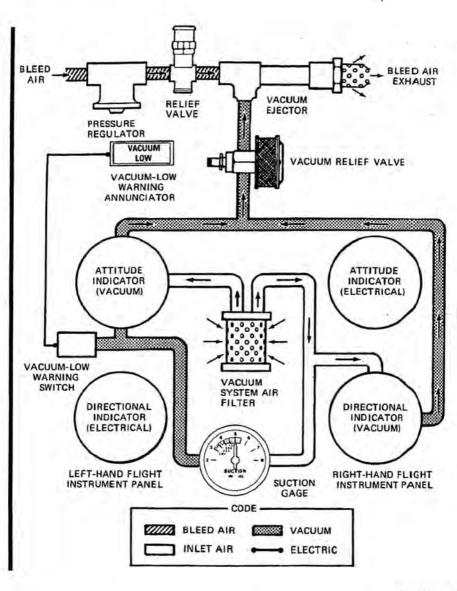
When the airplane is equipped with a right flight instrument panel, the attitude indicator is electrically powered. The instrument is protected by a "pull-off" type circuit breaker, labeled RH ATT GYRO on the left sidewall switch and circuit breaker panel. The instrument is energized any time the battery switch is on and the circuit breaker is pushed in.

Special procedures for caging the attitude indicator must be followed when caging the gyro prior to flight. If takeoff is soon after engine start, cage the gyro immediately after engine start by exercising a moderate even pull on the caging knob. Hold for approximately five seconds and release the caging knob smoothly but guickly.

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### Figure 7-14. Typical Vacuum System

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Allow the gyro to attain full speed and do not re-cage unless the gyro will not erect after approximately five minutes.

If time between engine start and takeoff is ten minutes or more, the alternate caging procedure is recommended. After engine start, do not cage the gyro. Allow gyro to run until ready for the Before Takeoff checklist. If necessary, cage the gyro just before takeoff. In many cases, the gyro will have erected itself sufficiently so that caging is not necessary.

# A CAUTION

#### Avoid re-caging once the gyro has been caged. Repeated caging may cause internal damage.

#### DIRECTIONAL INDICATOR

The directional indicator displays airplane heading on a compass card in relation to a fixed simulated airplane image and index. The directional indicator will precess slightly over a period of time. Therefore, the compass card should be set in accordance with the magnetic compass just prior to takeoff, and occasionally re-adjusted on extended flights. A knob on the lower left edge of the instrument is used to adjust the compass card to correct for any precession.

#### SUCTION GAGE

The suction gage, located on the left side of the instrument panel, is calibrated in inches of mercury and indicates suction available for operation of the attitude and directional indicators. The desired suction range is 4.5 to 5.5 inches of mercury up to 15,000 feet altitude, 4.0 to 5.5 inches of mercury from 15,000 to 20,000 feet, and 3.5 to 5.5 inches of mercury from 20,000 to 25,000 feet. The 15K, 20K, 25K and 30K markings at the appropriate step locations indicate the altitude (in thousands of feet) at which the lower limit of that arc segment is acceptable. A suction reading out of these ranges may indicate a system malfunction or improper adjustment, and in this case, the attitude and directional indicators should not be considered reliable.

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#### VACUUM-LOW WARNING ANNUNCIATOR

A red vacuum-low warning annunciator is installed on the annunciator panel to warn the pilot of a possible low-vacuum condition existing in the vacuum system. Illumination of the annunciator warns the pilot to check the suction gage and to be alert for possible erroneous vacuum-driven gyro instrument indications. The annunciator is illuminated by operation of a warning switch which is activated anytime suction is less than approximately 3.0 in. Hg.

# OUTSIDE AIR TEMPERATURE (OAT) GAGE

An outside air temperature (OAT) gage is installed in the upper left side of the windshield. The gage is calibrated in degrees Fahrenheit and Celsius.

## STALL WARNING SYSTEM

The airplane is equipped with a vane-type stall warning unit, in the leading edge of the left wing, which is electrically connected to a stall warning horn located overhead of the pilot's position. The vane in the wing senses the change in airflow over the wing, and operates the warning horn at airspeeds between 5 and 10 knots above the stall in all configurations.

The stall warning system should be checked during the preflight inspection by momentarily turning on the battery switch and actuating the vane in the wing. The system is operational if the warning horn sounds as the vane is pushed upward. Aircraft equipped with a stall warning ground disconnect switch will require that the elevator control be off the forward stop before the stall warning horn is enabled.

A "pull-off" type circuit breaker, labeled STALL WRN, protects the stall warning system. Also, it is provided to shut off the warning horn in the event it should stick in the on position.

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SECTION 7 AIRPLANE AND SYSTEMS DESCRIPTION

# WARNING

#### This circuit breaker must be pushed in for landing.

The vane and sensor unit in the wing leading edge is equipped with a heating element. The heated part of the system is operated by the STALL HEAT switch on the de-ice/anti-ice switch panel, and is protected by the STALL WRN circuit breaker on the left sidewall switch and circuit breaker panel.

## AVIONICS SUPPORT EQUIPMENT

Various avionics support equipment is installed in the airplane, and includes an avionics cooling fan, microphone-headset installation, and control surface static dischargers. The following paragraphs discuss these items. Description and operation of radio equipment is covered in Section 9 of this handbook.

#### AVIONICS COOLING FAN

An avionics cooling fan system is provided in the airplane to supply internal cooling air for prolonged avionics equipment life. The fan will operate when the battery switch is on and the number 2 avionics power switch is on. If the fan malfunctions, it can be shut off using the "pull-off" type circuit breaker, labeled AVN FAN, located on the left sidewall switch and circuit breaker panel.

#### MICROPHONE-HEADSET INSTALLATIONS

The airplane is equipped with a padded microphone-headset for the pilot. A padded microphone-headset is also available for the front seat passenger. The microphone-headsets utilize remote keying switches located on the left grip of the pilot's control wheel and the right grip of the front passenger's control wheel. Use of the keying switches permits radio communications without interrupting other control operations to handle a hand-held microphone. A hand-held microphone, which plugs into a mic jack on the left side of the control pedestal, is also available and can be used with the airplane speaker when a microphone-headset is not being utilized.

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The microphone stows in a hanger on the front of the pedestal. Microphone and headset jacks are located on the left side of the instrument panel for the pilot and the right side of the instrument panel for the front passenger. Audio to the headsets is controlled by the individual audio selector switches and adjusted for volume level by using the selected receiver volume controls.

#### NOTE

To ensure audibility and clarity when transmitting with the hand-held microphone, always hold it as closely as possible to the lips, then key the microphone and speak directly into it. Avoid covering the opening on the back side of microphone for optimum noise cancelling.

#### STATIC DISCHARGERS

As an aid in IFR flights, wick-type static dischargers are installed to improve radio communications during flight through dust or various forms of precipitation (rain, snow or ice crystals). Under these conditions, the build-up and discharge of static electricity from the trailing edges of the wings, rudder, elevator, propeller tips, and radio antennas can result in loss of usable radio signals on all communications and navigation radio equipment. Usually the ADF is first to be affected and VHF communication equipment is the last to be affected.

Installation of static dischargers reduces interference from precipitation static, but it is possible to encounter severe precipitation static conditions which might cause the loss of radio signals, even with static dischargers installed. Whenever possible, avoid known severe precipitation areas to prevent loss of dependable radio signals. If avoidance is impractical, minimize airspeed and anticipate temporary loss of radio signals while in these areas.

#### SECTION 7 AIRPLANE AND SYSTEMS DESCRIPTION

Static dischargers lose their effectiveness with age, and therefore, should be checked periodically (at least at every annual inspection) by qualified avionics technicians, etc. If testing equipment is not available, it is recommended that the wicks be replaced every two years, especially if the airplane is operated frequently in IFR conditions. The discharger wicks are designed to unscrew from their mounting bases to facilitate replacement.

### CABIN FEATURES

#### CABIN FIRE EXTINGUISHER

A portable Halon 1211 (Bromochlorodifluoromethane) fire extinguisher is available for installation on the inside of the pilot's entry door where it would be accessible in case of fire. The extinguisher has an Underwriters Laboratories classification of 5B:C. If installed, the extinguisher should be checked prior to each flight to ensure that its bottle pressure, as indicated by the gauge on the bottle, is within the green arc (approximately 125 psi) and the operating lever lock pin is securely in place.

To operate the fire extinguisher:

- Loosen retaining clamp(s) and remove extinguisher from bracket.
- Hold extinguisher upright, pull operating lever lock pin, and press lever while directing the discharge at the base of the fire at the near edge. Progress toward the back of the fire by moving the nozzle rapidly with a side-to-side sweeping motion.

### A CAUTION

Care must be taken not to direct the initial discharge directly at the burning surface at close range (less than five feet) because the high velocity stream may cause splashing and/or scattering of the burning material.

3. Anticipate approximately eight seconds of discharge duration.

#### SECTION 7 AIRPLANE AND SYSTEMS DESCRIPTION

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# A WARNING

Ventilate the cabin promptly after successfully extinguishing the fire to reduce the gases produced by thermal decomposition. Occupants should use oxygen masks until the smoke clears.

Fire extinguishers should be recharged by a qualified fire extinguisher agency after each use. Such agencies are listed under "Fire Extinguisher" in the telephone directory. After recharging, secure the extinguisher to its mounting bracket; do not allow it to lie loose on shelves or seats.

#### SUN VISORS

Two sun visors are mounted overhead of the pilot and front passenger. The visors are mounted on adjustable arms which enable them to be swung and telescoped into the desired windshield area.

#### MAP AND STORAGE COMPARTMENTS

A map compartment is located in the lower right side of the instrument panel. A hinged door covers the compartment and can be opened to gain access into the compartment. Storage pockets are also installed on the back of the pilot's and front passenger's seats and along the bottom edge of each crew entry door and can be used for stowage of maps and other small objects.

#### BEVERAGE CUP HOLDERS

Two beverage cup holders, one for the pilot and one for the right front passenger, are installed under the instrument panel. The holders are hinge-mounted and swing out from under the instrument panel where they can be used for holding beverage cups. When not in use, the cup holders should be returned to their stowed position.

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### MISCELLANEOUS EQUIPMENT

#### CARGO BARRIER/NETS

The airplane may be equipped with a cargo barrier and three barrier nets installed directly behind the pilot's and front passenger's seats to prevent the movement of cargo into the forward position of the cabin during abrupt deceleration. Refer to Section 6 for complete details of the cargo barrier and its nets.

#### CARGO PARTITIONS

Cargo partitions are available and can be installed to divide the cargo area into convenient compartments. Partitions may be installed in all of the five locations at stations 181.5, 208.0, 234.0, 259.0, and 284.0. Refer to Section 6 for complete details of the cargo partitions.

#### CARGO DOOR RESTRAINING NET

A restraining net may be installed on the inside of the airplane over the cargo door opening. The restraining net precludes loose articles from falling out the cargo door opening when the doors are opened. Refer to Section 6 for complete details of the cargo door restraining net.

#### CARGO/AIRPLANE TIE-DOWN EQUIPMENT

Various items of tie-down equipment are available for securing cargo within the airplane and/or tying down the airplane. This equipment consists of tie-down belt assemblies having various load ratings and adjustment devices and two types of quick-release tiedown ring anchors for securing the belts to the cabin seat tracks and anchor plates. Refer to Section 6 for the recommended use and restrictions of this equipment.

#### CARGO POD

The airplane may be equipped with a cargo pod which provides additional cargo space. Refer to Section 9, Supplements, for complete details of the cargo pod.

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#### SECTION 7 AIRPLANE AND SYSTEMS DESCRIPTION

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#### ENGINE INLET COVERS AND PROPELLER ANCHOR

Various covers and an anchor are available to close engine openings and restrain the propeller during inclement weather conditions and when the airplane is parked for extended periods of time, such as overnight. The covers preclude the entrance of dust, moisture, bugs, etc. into the engine and engine compartment. Two covers are provided which plug into the two front inlets, thereby closing off these openings. The engine inlet covers may be installed after the engine has cooled down (ITT indicator showing "off scale" temperature). To prevent the propeller from windmilling during windy conditions, the propeller anchor can be installed over a blade of the propeller and its anchor strap hook engaged over the lower forward flange of the nose gear fairing. During towing operations, the hook should be moved to the bracket on the lower right hand cowl near the secondary exhaust.

#### HOISTING RINGS

Provisions are made for the installation of four hoisting rings which attach to the left and right sides of both front and rear spar wing-tofuselage attach fittings. Each hoisting ring consists of a hinge which replaces the washer on the attachment bolt of the fitting. The upper half of the hinge contains a ring which is used for attaching the hoist when the airplane is being hoisted. When not in use, the upper hinge half folds down out of the way. To gain access to the hoisting rings, when installed, it is necessary to remove the wing-tofuselage fairing strips.

#### CREW ENTRY STEP ASSEMBLIES

The airplane is equipped with a crew entry step for the left crew entry door. A second crew entry step is available for the right crew entry door. The step assemblies attach to the floorboard just inside the entry doors and extend toward ground level, providing two steps for entering or exiting the airplane. When not in use, the step assemblies fold and stow just inside the cabin, inboard of the pilot's and front passenger's entry doors.

#### RELIEF TUBE

Provisions are made for the installation of a relief tube in the aft cabin area on the Standard 208. The relief tube is installed on the right sidewall, just aft of the passenger entry door.

#### OIL QUICK-DRAIN VALVE

An oil quick-drain valve is available to replace the drain plug on the bottom of the engine oil tank, and provides quicker, cleaner draining of the engine oil. To drain the oil with this valve, slip a hose over the end of the valve, cut the safety wire securing the valve on-off lever in the off position, and rotate the lever to the on position. After draining, rotate the valve on-off lever to the off position, remove the hose to check for leakage, and resafety the on-off lever in the off position.

SECTION 8 HANDLING, SERVICE & MAINTENANCE

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# SECTION 8 AIRPLANE HANDLING, SERVICE & MAINTENANCE

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SECTION 8 HANDLING, SERVICE & MAINTENANCE

### INTRODUCTION

This section contains factory-recommended procedures for proper ground handling and routine care and servicing of your Cessna. It also identifies certain inspection and maintenance requirements which must be followed if your airplane is to retain that new-plane performance and dependability. It is wise to follow a planned schedule of lubrication and preventive maintenance based on climatic and flying conditions encountered in your locality.

Keep in touch with your Cessna Service Station and take advantage of his knowledge and experience. He knows your airplane and how to maintain it. He will remind you when lubrications and oil changes are necessary, and about other seasonal and periodic services.

## A WARNING

The airplane should be regularly inspected and maintained in accordance with information found in the airplane Maintenance Manual and in company issued Service Bulletins and Service Newsletters. All recommendations for product improvements called for by Service Bulletins should be accomplished and the airplane should receive repetitive and required inspections. Cessna does not condone modifications. whether by Supplemental Type Certificate or otherwise, unless these certificates are held and/or approved by Cessna. Other modifications may vold warranties on the airplane since Cessna has no way of knowing the full effect on the overall airplane. Operation of an airplane that has been modified may be a risk to the operating procedures occupants, and and performance data set forth in the operating handbook may no longer be considered accurate for the modified airplane.

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### **IDENTIFICATION PLATE**

All correspondence regarding your airplane should include the SERIAL NUMBER. The Serial Number, Model Number, Production Certificate Number (PC) and Type Certificate Number (TC) can be found on the Identification Plate, located on the forward doorpost of the left crew door on early serial airplanes or on the left side of the tailcone below the horizontal stabilizer on later serial airplanes. A Finish and Trim Plate is located on the forward doorpost of the left crew door of all airplanes and contains a code describing the interior color scheme and exterior paint combination of the airplane. The code may be used in conjunction with an applicable Parts Catalog if finish and trim information is needed.

### **CESSNA OWNER ADVISORIES**

Cessna Owner Advisories are sent to Cessna Aircraft owners at no charge to inform them about mandatory and/or beneficial aircraft service requirements and product improvements:

#### **United States Aircraft Owners**

If your aircraft is registered in the U.S., appropriate Cessna Owner Advisories will be mailed to you automatically according to the latest aircraft registration name and address provided to the FAA.

If you require a duplicate Owner Advisory to be sent to an address different from the FAA aircraft registration address, please complete and return an Owner Advisory Application (otherwise no action is required on your part).

#### International Aircraft Owners

To receive Cessna Owner Advisories, please complete and return an Owner Advisory Application.

Receipt of a valid Owner Advisory Application will establish your Cessna Owner Advisory service (duplicate Owner Advisory service for U.S. aircraft owners) for one year, after which you will be sent a renewal notice.

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#### PUBLICATIONS

Various publications and flight operation aids are furnished in the airplane when delivered from the factory. These items are listed below.

- CESCOM/CUSTOMER CARE PROGRAM HANDBOOK
- PILOT'S OPERATING HANDBOOK AND FAA APPROVED AIRPLANE
- FLIGHT MANUAL
- PILOT'S CHECKLISTS
- CESSNA SALES AND SERVICE DIRECTORY

The following additional publications, plus many other supplies that are applicable to your airplane, are available from your Cessna Service Station.

- INFORMATION MANUAL (Contains Pilot's Operating Handbook Information)
- MAINTENANCE MANUALS and PARTS CATALOGS for your airplane, engine, accessories, avionics and autopilot.

Your Cessna Service Station has a Customer Care Supplies and Publications Catalog covering all available items, many of which he keeps on hand. He will be happy to place an order for any item which is not in stock.

#### NOTE

A Pilot's Operating Handbook and FAA Approved Airplane Flight Manual which is lost or destroyed may be replaced by contacting your Cessna Service Station or Cessna Product Support. An affidavit containing the owner's name, airplane serial number and registration number must be included in replacement requests since the Pilot's Operating Handbook and FAA Approved Airplane Flight Manual is identified for specific airplanes only

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## AIRPLANE FILE

- A. To be displayed in the airplane at all times:
  - 1. Aircraft Airworthiness Certificate (FAA Form 8100-2).
  - 2. Aircraft Registration Certificate (FAA Form 8050-3).
  - Aircraft Radio Station License, if transmitter installed (FCC Form 556).
- B. To be carried in the airplane at all times:
  - 1. Pilot's Operating Handbook and FAA Approved Airplane Flight Manual.
  - Weight and Balance, and associated papers (latest copy of the Repair and Alteration Form, FAA Form 337, if applicable).
  - 3. Equipment List.
- C. To be made available upon request:
  - 1. Aircraft Maintenance Record.
  - 2. Engine Maintenance Record.
  - 3. Propeller Maintenance Record.
  - 4. Avionics Maintenance Record.

Most of the items listed are required by the United States Federal Aviation Regulations. Since the Regulations of other nations may require other documents and data, owners/operators of airplanes not registered in the United States should check with their own aviation officials to determine their individual requirements.

Cessna recommends that these items, plus the Pilot's Checklists, CESCOM/Customer Care Program Handbook and Customer Care Card, be carried in the airplane at all times.

### AIRPLANE INSPECTION PERIODS

#### FAA REQUIRED INSPECTIONS

As required by Federal Aviation Regulations, all civil aircraft of U.S. registry must undergo a complete inspection (annual) each twelve calendar months. In addition to the required ANNUAL inspection, aircraft operated commercially (for hire) must have a complete inspection every 100 hours of operation.

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#### SECTION 8 HANDLING, SERVICE & MAINTENANCE

The FAA may require other inspections by the issuance of airworthiness directives applicable to the airplane, engine, propeller and components. It is the responsibility of the owner/operator to ensure compliance with all applicable airworthiness directives and, when the inspections are repetitive, to take appropriate steps to prevent inadvertent noncompliance.

In lieu of the 100 HOUR and ANNUAL inspection requirements, an airplane may be inspected in accordance with a progressive inspection schedule, which allows the work load to be divided into smaller operations that can be accomplished in shorter time periods.

The Cessna Progressive Care Program has been developed to provide a modern progressive inspection schedule that satisfies the complete airplane inspection requirements of both the 100 HOUR and ANNUAL inspections as applicable to Cessna airplanes. The program assists the owner/operator in his responsibility to comply with all FAA inspection requirements, while ensuring timely replacement of life-limited parts and adherence to factoryrecommended inspection intervals and maintenance procedures.

#### CESSNA PROGRESSIVE CARE

The Cessna Progressive Care Program has been designed to help you realize maximum utilization of your airplane at a minimum cost and downtime. Under this program, your airplane is inspected and maintained in four operations. The four operations are recycled each 400 hours and are recorded in a specially provided Aircraft Inspection Log as each operation is conducted.

The Cessna Aircraft Company recommends Progressive Care for airplanes that are being flown 400 hours or more per year, and the 100-hour inspection for all other airplanes. The procedures for the Progressive Care Program and the 100-hour inspection have been carefully worked out by the factory and are followed by the Cessna Service Organization. The complete familiarity of Cessna Authorized Caravan Service Stations with Cessna equipment and factoryapproved procedures provides the highest level of service for Cessna owners/operators.

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Regardless of the inspection method selected by the owner/operator, he should keep in mind that FAR Part 43 and FAR Part 91 establishes the requirement that properly certified agencies or personnel accomplish all required FAA inspections and most of the manufacturer recommended inspections.

#### CESSNA CUSTOMER CARE PROGRAM

Specific benefits and provisions of the Cessna Warranty plus other important benefits for you are contained in your CESCOM/Customer Care Program Handbook supplied with your airplane. You will want to thoroughly review your CESCOM/Customer Care Program Handbook and keep it in your airplane at all times.

You will also want to contact your Service Station either at 100 hours for your first Progressive Care Operation, or for your first 100hour inspection depending on which program you choose to establish for your airplane. While these important inspections will be performed for you by any Cessna Caravan Service Station, in most cases you will prefer to have the facility from whom the airplane was purchased accomplish this work.

#### CESCOM SYSTEM

CESCOM is Cessna's Computerized Maintenance Records System. This comprehensive system provides you with an accurate and simple method of monitoring and scheduling inspections, Service Bulletins, Service Kits, Airworthiness Directives as well as scheduled and unscheduled maintenance activities. For detail information about CESCOM, refer to the CESCOM Instruction Manual supplied with your airplane.

#### ENGINE CONDITION TREND MONITORING

Pratt & Whitney Canada Inc. Engine Condition Trend Monitoring is a system of recording engine instrument readings, correcting the readings for ambient conditions, and comparing actual engine operation to typical engine operating characteristics. It has been established that engine operating characteristics, such as output torque (T<sub>q</sub>), propeller RPM (Np), interturbine temperature (ITT), gas generator RPM (Ng, and fuel flow (Wf) are predictable for various engine types under specific ambient conditions.

Because aircraft engines operate at a wide range of altitudes, outside air temperatures, and airspeeds, corrections for varying ambient conditions are also incorporated into the Trend Monitoring process.

Additional information about both of these methods may be obtained from the following sources:

- A Caravan Service Station.
- Cessna Propeller Aircraft Product Support.
- Pratt & Whitney Canada, Inc. 1000 Marie - Victorin, Longueuil, Quebec Canada, J4G 1A1

Attention: Customer Support, Small Turboprops Mail Code: 1RC1

Tel: (514) 677-9411

- The publication "Engine Condition Trend Monitoring and Power Management for PT6A-114, PT6A-114A Installed in the Cessna Caravan I" supplied in this Pilot's Operation Handbook, or from sources listed above.
- Pratt & Whitney Canada Aircraft Gas Turbine Operation Information Letter, No. 23.

#### PILOT CONDUCTED PREVENTIVE MAINTENANCE

A certified pilot who owns or operates an airplane not used as an air carrier is authorized by FAR Part 43 to perform limited maintenance on his airplane. Refer to FAR Part 43 for a list of the specific maintenance operations which are allowed.

#### NOTE

Pilots operating airplanes of other than U.S. registry should refer to the regulations of the country of certification for information on preventive maintenance that may be performed by pilots.

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A 208 Series Maintenance Manual should be obtained prior to performing any preventive maintenance to ensure that proper procedures are followed. You Cessna Service Station should be contacted for further information or for required maintenance which must be accomplished by appropriately licensed personnel.

## ALTERATIONS OR REPAIRS

It is essential that the FAA be contacted prior to any alterations on the airplane to ensure that airworthiness of the airplane is not violated. Alterations or repairs to the airplane must be accomplished by licensed personnel.

### **GROUND HANDLING**

#### TOWING

The airplane is most easily and safely maneuvered by hand with the tow-bar attached to the nose wheel. The tow bar is stowed in Zone 6. Moving the airplane by hand will require that the individual steering with the tow bar be assisted by personnel pushing at the wing struts.

### A CAUTION

# Do not push or pull the airplane using the propeller blades or control surfaces.

In any towing operation, especially when towing with a vehicle, do not exceed the nose gear turning angle of 56° either side of center as shown by the steering limit marks. If excess force is exerted beyond the turning limit, a red over-travel indicator block (frangible stop) will fracture and the block, attached to a cable, will fall into view alongside the nose strut. This should be checked routinely during preflight inspection to prevent operation with a damaged nose gear.

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## A CAUTION

# Disengage rudder lock (if installed) and remove any external rudder locks before towing.

If the airplane is towed or pushed over a rough surface during hangaring, watch that the normal cushioning action of the nose gear does not cause excessive vertical movement of the tail and the resulting contact with low hangar doors or structure. A flat nose tire will also increase tail height.

#### PARKING

When parking the airplane, head into the wind and set the parking brakes. Do not set the parking brakes during cold weather when accumulated moisture may freeze the brakes, or when the brakes are overheated. Install the control wheel lock, engage the rudder lock (if installed), and chock the wheels (if the brakes are not utilized) to prevent airplane movement. In severe weather and high wind conditions, tie the airplane down as outlined in the following paragraph.

### A CAUTION

Any time the airplane is loaded heavily, the footprint pressure (pressure of the airplane wheels upon the contact surface of the parking area or runway) will be extremely high, and surfaces such as hot asphalt or sod may not adequately support the weight of the airplane. precautions should be taken to avoid airplane parking or movement on such surfaces.

#### TIE-DOWN

Proper tie-down procedure is the best precaution against damage to the parked airplane by gusty or strong winds. To tie-down the airplane securely, proceed as follows:

- 1. Head the airplane into the wind, if possible.
- 2. Set the parking brake.

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# A CAUTION

Do not set the parking brake during cold weather when accumulated moisture may freeze the brakes or when the brakes are overheated. If the brakes are not utilized, chock the nose and main wheels to prevent airplane movement.

- Install the control wheel lock and engage the rudder lock (if installed).
- Set aileron and elevator trim tabs to neutral position so that tabs fair with control surfaces.
- 5. Install a pitot tube cover(s), if available.
- Secure ropes or chains of sufficiently strong tensile strength to the wing tie-down fittings and secure to ground anchors.
- 7. Attach a rope or chain to the tail tie-down, and secure to a ground anchor.
- If additional security is desired, attach a rope (no chains or cables) to the nose gear torque link and secure to a ground anchor.
- If dusty conditions exist, or the last flight of the day has been completed, install the two engine inlet covers to protect the engine from debris. The covers may be installed after the engine has cooled down (ITT indicator showing "off scale" temperature).
- To prevent the propeller from windmilling, install the propeller anchor over a blade of the propeller and secure its anchor strap around the nose gear or to the bracket located on the lower right hand cowl.

#### JACKING

Several jack points or jacking locations are available. depending on whether a cargo pod is installed. A fuselage jack point directly below the firewall and housed within the nose gear strut fairing is accessible for nose gear jacking regardless of the installation of a cargo pod. Two additional fuselage jack points are located at the main gear supports, but are not accessible with the cargo pod installed. Their use is generally reserved for maintenance such as main gear removal or raising the entire airplane whenever the cargo pod is not installed.

#### SECTION 8 HANDLING, SERVICE & MAINTENANCE

Anytime the cargo pod is installed, if the main gear-to-fuselage fairings are removed, jacks can be positioned adjacent to the sides of the cargo pod and raised to engage the receptacle on the end of the jacks over the head of the outboard bolt which secures the main gear attach trunnion bearing cap (aft) on the left and right gear. These jacking locations serve essentially the same purpose as the fuselage jack points at the main gear supports. An additional jack point on each main gear axle fitting is used primarily when the cargo pod is installed and it is desired to jack a single main gear for tire replacement, etc. If desired, jack stands with wing jack pads may be fabricated so that the front wing spar at stations 141.2 or 155.9 on each wing may be used as jacking locations. A tail jack must be used in conjunction with wing jacking.

### A CAUTION

- A tail jack stand must be used when conducting maintenance inside the tail section, and should be installed in most jacking operations. Be sure the stand is suitably heavy to keep the tail stable under all conditions and is strong enough to support the airplane. Placing a jack stand under the nose jack point (if not used for jacking) will provide additional stability.
- Do not use cargo pod structure for jacking or as a blocking surface.

#### Raise the airplane no more than required for the maintenance being performed.

In some instances, it may be necessary to use a sling or hoisting rings for the initial lift, to be followed with jacking at the jack points. Refer to the Maintenance Manual for procedures on jacking and hoisting, and information concerning jacking equipment.

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#### LEVELING

Longitudinal leveling of the airplane for weighing will require that the main landing gear be supported by stands, blocks, etc. on the main gear scales to a position at least four inches higher than the nose gear as it rests on an appropriate scale. This initial elevated position will compensate for the difference in waterline station between the main and nose gear so that final leveling can be accomplished solely by deflating the nose gear tire.

#### NOTE

Since the nose gear strut on this airplane contains an oil snubber for shock absorption rather than an air/oil shock strut, it can not be deflated to aid in airplane leveling.

The airplane can also be leveled longitudinally by raising or lowering the airplane at the jack points. Longitudinal leveling points are provided by backing out the two leveling screws located on the left side of the fuselage just forward of the cargo doors. Place a spirit level on the screws, then deflate the nose gear tire (if placed on scales) or adjust the jacks to center the bubble in the level. The pilot's seat rails can also be used for longitudinal leveling by moving the seat to the most forward position and placing the level on the rail just aft of the seat. To level the airplane laterally, center a spirit level across the seat rails aft of the pilot and right front passenger seats and raise or lower one side of the airplane. Refer to the 208 Series Maintenance Manual for additional information.

### SERVICING

In addition to the PREFLIGHT INSPECTION covered in Section 4. COMPLETE servicing, inspection, and test requirements for your airplane are detailed in the 208 Series Maintenance Manual. The Maintenance Manual outlines all items which require attention at 100, 200, and 400 hour intervals plus those items which require servicing, inspection, and/or testing at special intervals. Since Cessna Service Stations have the training and equipment necessary to conduct all service, inspection, and test procedures in accordance with applicable Maintenance Manuals. it . is recommended that you contact your Cessna Service Station concerning these requirements and begin scheduling your airplane for service at the recommended intervals.

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Cessna Progressive Care ensures that these requirements are accomplished at the required intervals to comply with the 100-hour or ANNUAL inspection as previously covered.

Depending on various flight operations, your local Government Aviation Agency may require additional service, inspections, or tests. For these regulatory requirements, owners/operators should check with local aviation officials where the airplane is being operated.

For quick and ready reference, quantities, materials, and specifications for frequently used service items are as follows:

OIL

OIL GRADE (SPECIFICATION) --

Oil conforming to Pratt & Whitney Engine Service Bulletin No. 1001, and all revisions or supplements thereto, must be used. The oils listed below comply with the engine manufacturers specification PWA521 and have a viscosity Type II rating. These oils are fully approved for use in Pratt & Whitney Canada Inc. commercially operated engines. When adding oil, service the engine with the type and brand which is currently being used in the engine. Refer to the airplane and engine maintenance records for this information. Should oils of different viscosities or brands be inadvertently mixed, the oil system servicing instructions in the Maintenance Manual shall be carried out.

BP Turbo Oil 2380 Exxon Turbo Oil ETO 85 (Third generation lubricant) Aero Shell Turbine Oil 500 Aero Shell Turbine Oil 555 Aero Shell Turbine Oil 560 (Third generation lubricant) Royco Turbine Oil 500 Royco Turbine Oil 555 Royco Turbine Oil 560 (Third generation lubricant) Mobil Jet Oil 11 Mobil Jet Oil 254 (Third generation lubricant) Castrol 5000 Turbonycoil 600

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### A CAUTION

- Do not mix brands or types of oils.
- When changing from an existing lubricant formulation to a 'third generation' lubricant formulation (see list above), the engine manufacturer strongly recommends that such a change should only be made when an engine is new or freshly overhauled. For additional information on use third of the generation oils. refer to engine manufacturer's pertinent oil service bulletins

#### NOTE

The oils listed above are recommended when operation will result in frequent cold soaking at ambient temperatures of 0°F (-18°C). Refer to Pratt & Whitney Engine Service Bulletin No. 1001 for additional oils which are approved.

If one or more of the following conditions exist, the accessory gearbox scavenge pump inlet screen and any drained oil should be inspected for the presence of carbon particles, per airplane and engine maintenance manual procedures and the engine manufacturer's pertinent engine and oil service bulletins:

- Engine oil has been switched to a "third generation" lubricant during mid-life.
- High oil consumption.
- 3. Oil leaking from engine intake.

If carbon particles are found, refer to the above referenced maintenance manuals and service bulletins for corrective action.

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# TOTAL OIL CAPACITY:

14 U.S. Quarts (including oil in filter, cooler and hoses).

#### DRAIN AND REFILL QUANTITY: Approximately 9.5 U.S. Quarts.

#### OIL QUANTITY OPERATING RANGE:

Fill to within 1 1/2 quarts of MAX HOT or MAX COLD (as appropriate) on dipstick. Quart markings indicate U.S. quarts low if oil is hot. For example, a dipstick reading of 3 indicates the system is within 2 quarts of MAX, if the oil is cold and within 3 quarts of MAX if the oil is hot.

### A WARNING

Ensure oil dipstick cap is securely latched down. Operating the engine with less than the recommended oil level and with the dipstick cap unlatched will result in excessive oil loss and eventual engine stoppage.

#### NOTE

To obtain an accurate oil level reading, it is recommended the oil level be checked either within 10 minutes after engine shutdown while the oil is hot (MAX HOT marking) or prior to the first flight of the day while the oil is cold (MAX COLD marking). If more than 10 minutes has elapsed since engine shutdown, and engine oil is still warm, perform an engine dry motoring run before checking oil level.

#### OIL DRAIN PERIOD:

For engines operated in corporate or utility airplanes with a typical utilization of 50 hours per month or less, it is recommended the oil be changed every 400 hours or 12 months, whichever occurs first. For engines operated in high utilization commuter airline type operation, a basic oil drain period of 1200 hours or 12 months is recommended. Regardless of the degree of utilization, if operating in a sandy or dusty environment, the oil change interval must be at least every 6 months.

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### FUEL

APPROVED FUEL GRADE (SPECIFICATION):

Jet A (ASTM-D1655). Jet A-1 (ASTM-D1655). Jet B (ASTM-D1655). JP-1 (MIL-L-5616 JP-4 (MIL-T-5624). JP-5 (MIL-T-5624). JP-8 (MIL-T-83133A).

ALTERNATE/EMERGENCY FUEL:

Aviation Fuel (All grades of military and commercial aviation gasoline).

### A CAUTION

Aviation gasoline is restricted to emergency use and shall not be used for more than 150 hours in one overhaul period; A mixture of one part aviation gasoline and three parts of Jet A, Jet A-1, JP-1, OR JP-5 may be used for emergency purposes for a maximum of 450 hours per overhaul period.

CAPACITY EACH TANK:

167.8 U.S. Gallons

### A CAUTION

To obtain accurate fuel quantity indicator readings, verify the airplane is parked in a laterally level condition, or, if in flight, make sure the airplane is in a coordinated and stabilized condition (ball of turn-and-bank indicator centered).

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#### FUEL ADDITIVES:

A variety of fuels may be used in the airplane; however, each must nave an anti-icing additive, (EGME) or (DIEGME), incorporated or added to the fuel during refueling.

It is recommended that fuel anti-icing additive be used to control bacteria and fungi. The anti-ice additives EGME/DIEGME have shown, through service experience, that they provide acceptable protection from microorganisms such as bacteria and fungi that can rapidly multiply and cause serious corrosion in tanks and may block ilters, screens and fuel metering equipment.

### A CAUTION

- JP-4 and JP-5 fuels per MIL-T-5624 and JP-8 fuel per MIL-T-83133A contain the correct premixed quantity of an approved type of anti-icing fuel additive and no additional antiice compounds should be added.
- Proper mixing of EGME or DIEGME compound with the fuel is extremely important. A concentration in excess of that recommended (0.15 percent by volume maximum) will result in detrimental effects to the fuel tanks, such as deterioration of protective primer and sealants and damage to o-rings and seals in the fuel system and engine components. Use only blending equipment that is recommended by the manufacturer to obtain proper proportioning.

#### PROCEDURE FOR ADDING FUEL ANTI-ICING ADDITIVE

Vhen the airplane is being refueled, use the following procedure to lend anti-icing additive to nontreated fuel:

 Attach additive to refuel nozzle, making sure blender tube discharges in the refueling stream.

Start refueling while simultaneously fully depressing and slipping ring over trigger of blender.

### WARNING

Anti-icing additives containing ethylene glycol monomethyl ether (EGME) are harmful if inhaled, swallowed or absorbed through the skin, and will cause eye irritation. It is also combustible. Before using this material, refer to all safety information on the container.

### A CAUTION

- Diethylene glycol monomethyl ether (DIEGME) is slightly toxic if swallowed and may cause eye redness, swelling and irritation. It is also combustible. Before using this material, refer to all safety information on the container.
- Assure the additive is directed into the flowing fuel stream with the additive flow started after the fuel flow starts and stopped before fuel flow stops. Do not allow concentrated additive to contact coated interior of fuel tank or airplane painted surface.
- Use not less than 20 fluid ounces of additive per 156 gallons of fuel or more than 20 fluid ounces of additive per 104 gallons of fuel.

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#### SECTION 8 HANDLING, SERVICE & MAINTENANCE

#### PROCEDURE FOR CHECKING FUEL ADDITIVES

Prolonged storage of the airplane will result in a water 1. buildup in the fuel which "leaches out" the additive. An indication of this is when an excessive amount of water accumulates in the fuel tank sumps. The concentration of additive can be checked using an anti-icing additive concentration test kit. For additional information about this kit, refer to Chapter 12 of the 208 series maintenance manual. It is imperative that the instructions for the test kit be followed explicitly when checking the additive concentration. The additive concentrations by volume for EGME/DIEGME shall be 0.10 percent minimum and 0.15 percent maximum, either individually or mixed in a common tank. Fuel, when added to the tank, should have a minimum concentration of 0.10 percent by volume.

### A CAUTION

If the fuel additive concentration has fallen below 0.035% by volume, the airplane should be defueled and refueled.

If additional anti-static protection is desired, the following additive is approved for use:

Dupont Stadis 450

### A CAUTION

# These additives shall not exceed a maximum concentration of 1 part per million by weight.

If additional biocidal protection is desired, an additive is permitted for use in certain conditions. Fuel tank maintenance practices are of prime importance in controlling microbial growth. However, other factors such as climate, airplane design, route structure and utilization also affect microbial growth; therefore, occasional use of a biocide may be required.

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Biocide additive may be used on a limited basis, defined as intermittent or non-continuous use in a single application, to sterilize airplane fuel systems suspected, or found to be contaminated by microbial organisms. For those operators, where the need for biocide use is dictated, Pratt & Whitney Canada Inc. recommends, as a guide, a dosage interval of once a month. This interval can then be adjusted, either greater or lesser, as an operator's own experience dictates. An engine operated in private and corporate airplanes, where utilization rates are relatively low, may use the additive continuously. The following additives are permitted for use:

Sohio Biobor JF Kathon FP 1.5

### A CAUTION

#### Additive shall not exceed a maximum concentration of 270 parts per million by weight.

FUEL CONTAMINATION:

Fuel contamination is usually the result of foreign material present in the fuel system, and may consist of water, rust, sand, dirt, microbes or bacterial growth. In addition, additives that are not compatible with fuel or fuel system components can cause the fuel to become contaminated.

Before each flight and after each refueling, use a clear sampler and drain at least one sampler full of fuel from the inboard fuel tank sump quick-drain valves, fuel tank external sump quick-drain valves, fuel reservoir quick-drain valve (actuated by a push-pull drain control on cargo pod), and fuel filter quick-drain valve to determine if contaminants are present, and that the airplane has been fueled with the proper fuel. If the airplane is parked with one wing low on a sloping ramp (as evidenced by the ball of the turn and bank indicator displaced from center), draining of the outboard fuel tank sump quick-drain valves (if installed) is also recommended.

If contamination is detected, drain **all** fuel drain points again. Take repeated samples from **all** fuel drain points until all contamination has been removed. If after repeated sampling, evidence of contamination still exists, the fuel tanks should be completely drained and the fuel system cleaned.

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**Do not** fly the airplane with contaminated or unapproved fuel. Anytime the filter bypass flag (red warning button) is found to be extended, the filter element has become clogged. Disassemble the filter, clean the element, and check the fuel system to determine the cause of contamination before further flight.

In addition, owners/operators who are not acquainted with a particular fixed base operator should verify that the fuel supply has been checked for contamination and is properly filtered before allowing the airplane to be serviced. Also, fuel tanks should be kept full between flights, provided weight and balance considerations will permit, to reduce the possibility of water condensing on the inside walls of partially filled tanks.

To further reduce the possibility of contaminated fuel, routine maintenance of the fuel system should be performed in accordance with the airplane Maintenance Manual. Only the proper fuel, as recommended in this handbook, should be used, and fuel additives should not be used unless approved by Cessna and the Federal Aviation Administration.

### WARNING

It is the pilot's responsibility to ensure that the airplane's fuel supply is clean before flight. Any traces of solid contaminants such as rust, sand, pebbles, dirt, microbes and bacterial growth or liguid contamination resulting from water. Improper fuel type, or additives that are not fuel or fuel system compatible with the components must be considered hazardous. Carefully sample fuel from all fuel drain locations during each preflight inspection and after every refueling.

### LANDING GEAR

NOSE WHEEL TIRE PRESSURE:

53-63 PSI on 6.50, 8-Ply Rated Tire. 30-42 PSI on 22x8.00-8, 6-Ply Rated Tire.

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MAIN WHEEL TIRE PRESSURE;

83 PSI on 6.50-10, 8-Ply Rated Tires. 48-52 PSI on 8.50-10, 8-Ply Rated Tires. 35 PSI (minimum) on 29x11.00-10, 10-Ply Rated Tires.

NOSE GEAR SHOCK STRUT;

Keep filled with MIL-H-5606 hydraulic fluid per filling instructions placard. No air pressure is required in strut.

BRAKES:

Service brake fluid reservoir with MIL-H-5606 hydraulic fluid as placarded on reservoir. As placarded on early serial airplanes, refill reservoir to within three-quarters inch (3/4") of the .098 diameter vent hole, whenever the fluid level drops to 1/2 full. As placarded on later serial airplanes, maintain fluid level between MIN and MAX markings.

### OXYGEN

AVIATOR'S BREATHING OXYGEN:

Spec. No. MIL-O-27210.

MAXIMUM PRESSURE (cylinder temperature stabilized after filling):

1850 PSI at 21°C (70°F). Refer to Oxygen Supplements (Section 9) for filling pressures.

### **GROUND DEICE/ANTI-ICE OPERATIONS**

During cold weather operations, flight crews are responsible for ensuring that the airplane is free of ice contamination. Type I deice, and Type II or Type IV anti-ice fluids may be used sequentially to ensure compliance with FAA regulations, which require that all critical components (wings, control surfaces and engine inlets as an example) be free of snow, ice, or frost before takeoff. The deicing process is intended to restore the airplane to a clean configuration so that neither aerodynamic characteristics nor mechanical interference from contaminants will occur.

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### WARNING

Type II and Type IV anti-ice fluid is designed for use on airplanes with a  $V_R$  speed of 85 knots or greater. Whenever Type II or Type IV anti-ice fluid is applied to the airplane, the takeoff flap setting is limited to 0° and the  $V_R$  Is 88 KCAS. Refer to Section 2 for limitations and Section 5 for takeoff distances with 0° flaps setting and liftoff speeds in KIAS. The takeoff distance charts for 0° flaps setting start with the airplane's maximum weight for normal operations. However, when icing conditions exist, the airplane should only be loaded to its maximum weight for flight into known lcing conditions.

#### NOTE

It is recommended that flight crews refamiliarize themselves seasonally with the following publications for expanded deice and anti-ice procedures:

- Cessna 208 Series Maintenance Manual Chapter 12.
- FAA Advisory Circular AC135-17, dated 12-14-94, or later.
- FAA Advisory Circular AC20-117, dated 12-17-82, or later.
- FAA Flight Standards Information Bulletin FSAT 01-09, dated 10-05-01, or later.

Deicing and anti-icing fluids are aqueous solutions which work by lowering the freezing point of water in either the liquid or crystal phase, thus delaying the onset of freezing. For this reason, they are referred to as Freezing Point Depressant (FPD) fluids. Deicing fluid is classified as Type I. Anti-icing fluid is classified as Type II or Type IV. Deicing and anti-icing with fluids may be performed as a one-step or two-step process. The one-step deicing procedure involves using Type I deice fluid to remove ice and slush from the airplane prior to departure and to provide minimal anti-icing protection, as provided in the Type I holdover timetable (refer to FSAT 01-09, dated 10-05-01, or later). The two-step deice/anti-ice procedure involves applying Type II or Type IV anti-ice fluid to ensure the airplane remains clean after deicing. Type II or Type IV fluid is used to provide longer term anti-icing protection, as provided in the Type II, or Type IV holdover timetable (refer to FSAT 01-09, dated 10-05-01, or later). Type I, Type II, and Type IV fluids have time limitations before refreezing begins, at which time additional deicing is required.

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This time limitation is referred to as "holdover time". Because holdover time is highly dependent on a number of factors, charts can provide only approximate estimates. Refer to FSAT 01-09, dated 10-05-01, or later for Type I, Type II, and Type IV holdover times. It remains the responsibility of the pilot in command to determine the effectiveness of any deicing or anti-icing procedure.

### A CAUTION

Type I, Type II and Type IV fluids are not compatible and may not be mixed. Additionally, most manufacturers prohibit the mixing of brands within a type. Line personnel should be supervised by the pilot in command to ensure proper application of Type I deice, and Type II and IV anti-ice fluids (refer to Figures 8-1 thru 8-4).

#### NOTE

Deicing fluids are not intended for use in removing snow deposits. Snow is best removed by mechanically sweeping or brushing it from the airplane structure. Use caution not to damage any airplane structure or antennas when removing snow.

Deicing may be accomplished using the ambient temperature available from a heated hangar or by mechanical means using a glycol-based Freezing Point Depressant (FPD) Type I fluid. А heated hangar is an excellent option to deice airplanes and should be utilized whenever possible. Care must be exercised however, to ensure that all melted precipitation is removed from the airplane to prevent refreezing once the airplane is moved from the hangar to the flight line. Type I deicing fluids should be sprayed on the airplane (with engine shutdown) in a manner which minimizes heat loss of fluid to the air. The fluid should be applied in a temperature range from 160°F to 180°F (71°C to 82°C) using a solid cone pattern of large coarse droplets. Fluid should be sprayed as close as possible to the airplane surfaces, but not closer than approximately 10 feet if a high pressure nozzle is used.

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Application techniques for Type II and Type IV fluids are the same as Type I, except that since the airplane is already clean, the application should last only long enough to properly coat the airplane surfaces. Type II or Type IV fluid should be applied undiluted at ambient temperature to a "clean" airplane within three minutes after deicing is completed, due to the limited holdover times of Type I deice fluid. Type II or Type IV fluid is however sometimes heated and sprayed as a deicing fluid. For this case, it should be considered a Type I fluid, as the heat may change the characteristics of the thickening agents in the fluid. Type II or Type IV fluid therefore, applied in this manner, will not be as effective as it would be if it were applied at ambient temperature.

Refer to Figure 8-1 for areas to spray Type I deicing fluid, Figure 8-2 for areas to spray Type II and Type IV anti-icing fluid, Figure 8-3 for areas to avoid spraying directly, and Figure 8-4 for sequence of application. Heated solutions of FPD are more effective than unheated solutions because thermal energy is used to melt the ice, snow, or frost formations. Type I deicing fluids are used in the diluted state, with specific ratios of fluid-to-water dependent on ambient temperature. Type I deicing fluids have a very limited holdover time (refer to FSAT 01-09, dated 10-05-01, or later).

### A CAUTION

Type I fluids should never be used full strength (undiluted). Undiluted glycol fluid is quite viscous below 14°F (-10°C) and can actually produce lift reductions of about 20 percent. Additionally, undiluted glycol has a higher freezing point than a glycol/water mixture.

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#### NOTE

- Deicing and anti-icing procedures must be closely coordinated between the pilot in command and ground crews, and carried out in a timely manner. Ultimate responsibility for safety of flight rests with the pilot in command, and any decisions to deice or anti-ice an airplane must be accomplished under his or her direct supervision.
- The first area to be deiced and anti-iced should be visible from the cockpit and should be used to provide a conservative estimate for subsequent ice accumulations on unseen areas of the airplane before initiating takeoff.
- Due to the weight and C.G. changes which occur while deicing the airplane, a tail stand should be placed under the tail to prevent the airplane from tipping on its tail.

HOLDOVER TIMETABLE (TYPE I, TYPE II, AND TYPE IV FLUIDS)

#### NOTE

Refer to FAA Flight Standards Information Bulletin FSAT 01-09, dated 10-05-01, or later, for holdover timetables.

The length of time that deicing and anti-icing fluids remain effective is known as "holdover time". The holdover timetables for Type I deicing, and Type II or Type IV anti-icing fluids are only an estimation and vary depending on many factors, such as temperature, precipitation type, wind and aircraft skin temperature. Holdover times are based on the mixture ratio appropriate for the OAT. Holdover times start when the last application has begun.

Guidelines for maximum holdover times anticipated by SAE Type I, Type II, or Type IV, and ISO Type I, Type II or Type IV fluid mixtures are a function of weather conditions and outside air temperature (OAT).

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### A CAUTION

- Aircraft operators are solely responsible for ensuring that holdover timetables contain current data.
- The tables are for use in departure planning only and should be used in conjunction with pretakeoff contamination check procedures.
- The time of protection will be shortened in heavy weather conditions. High wind velocity and jet blast may cause a degradation of the protective film. If these conditions occur, the time of protection may be shortened considerably. This is also the case when fuel temperature is significantly lower than OAT.

#### NOTE

- Holdover timetables in FSAT 01-09, dated 10-05-01, or later, do not apply to other than SAE or ISO Type I, Type II or Type IV fluids.
- The responsibility for the application of this data remains with the user.

### WARNING

When ground icing conditions are present, a pretakeoff contamination check should be conducted by the pilot in command within 5 minutes of takeoff, preferably just prior to taxiing onto the active runway. Critical areas of the airplane such as empennage, wings, windshield, control surfaces, and engine inlets should be checked to ensure they are free of Ice, slush, and snow and that the deice or anti-ice fluid is still protecting the airplane.

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TYPE I DEICE FLUID

#### NOTE

- Freezing point of Type I fluid mixture must be at least 10°C (18°F) below OAT.
- Holdover time starts when last application has begun.
- Type I fluid should be sprayed on the airplane (with engine off) in a manner which minimizes heat loss to the air. If possible, fluid should be sprayed in a solid cone pattern of large coarse droplets at a temperature of 160°F to 180°F. The fluid should be sprayed as close as possible to the airplane surfaces, but not closer than 10 feet if a high pressure nozzle is used.

### A WARNING

When ground icing conditions are present, a pretakeoff contamination check should be conducted by the pilot in command within 5 minutes of takeoff, preferably just prior to taxiing onto the active runway. Critical areas of the airplane such as empennage, wings, windshield, control surfaces, and engine inlets should be checked to ensure they are free of ice, slush, and snow and that the deice or anti-ice fluid is still protecting the airplane.

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#### TYPE II ANTI-ICE FLUID

#### NOTE

- Freezing point of Type II fluid mixture must be at least 10°C (18°F) below OAT.
- Holdover time starts when last application has begun.
- Application techniques for Type II fluid are the same as for Type I, except that since the airplane is already clean, the application should last only long enough to properly coat the airplane surfaces.
- Type II fluid should be applied undiluted at ambient temperature to a "clean" airplane within three minutes after deicing is completed, due to the limited holdover times of Type I deice fluid. Type II fluid is however, sometimes heated and sprayed as a deicing fluid. For this case, it should be considered a Type I fluid, as the heat may change the characteristics of the thickening agents in the fluid. Type II fluid therefore, applied in this manner, will not be as effective as it would be if it were applied at ambient temperature.

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# WARNING

When ground icing conditions are present, a pre-takeoff contamination check should be conducted by the pilot in command within 5 minutes of takeoff, preferably just prior to taxiing onto the active runway. Critical areas of the airplane such as empennage, wings, windshield, control surfaces, and engine inlets should be checked to ensure they are free of ice, slush, and snow and that the deice or anti-ice fluid is still protecting the airplane.

#### TYPE IV ANTI-ICE FLUID

## A CAUTION

The time of protection will be shortened in heavy weather conditions. Heavy precipitation rates, high moisture content, high wind velocity, or jet blast may reduce holdover time below the lowest time stated in the range. Holdover time may be reduced when aircraft skin temperature is lower than OAT.

#### NOTE

- Freezing point of Type IV fluid mixture must be at least 10°C (18°F) below OAT.
- Holdover time starts when last application has begun.
- Application techniques for Type IV fluid are the same as for Type I, except that since the airplane is already clean, the application should last only long enough to properly coat the airplane surfaces.

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#### NOTE

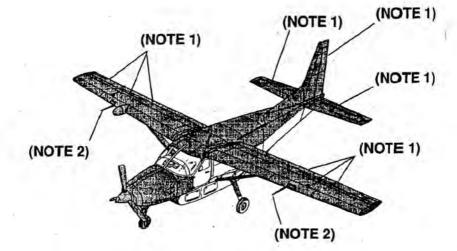
Type IV fluid should be applied undiluted at ambient temperature to a "clean" airplane within three minutes after deicing is completed, due to the limited holdover times of Type I deice fluid. Type IV fluid is however, sometimes heated and sprayed as a deicing fluid. For this case, it should be considered a Type I fluid, as the heat may change the characteristics of the thickening agents in the fluid. Type IV fluid therefore, applied in this manner, will not be as effective as it would be if it were applied at ambient temperature.

## A CAUTION

- Some Type IV fluids could form a thick or high strength gel during "dry-out" and when rehydrated form a slippery film.
- Some Type IV fluid exhibit poor aerodynamic elimination (flow-off) qualities at colder temperatures.
- Heated areas of aircraft (i.e.; heated leading edge) should be avoided due to the fact that fluid may "dry-out" into hard globular nodules.
- Type IV fluid should not be used undiluted below -24°C (-11°F).

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- NOTE 1: GIVE SPECIAL ATTENTION TO THE GAPS BETWEEN THE FLIGHT CONTROLS. ALL SNOW, ICE AND SLUSH MUST BE REMOVED FROM THESE GAPS.
- NOTE 2: REMOVE SNOW, ICE AND SLUSH FROM PITOT TUBES BY HAND ONLY.

# SHADED AREAS INDICATE ESSENTIAL AREAS TO BE DEICED.

**DIRECT SPRAY** AVOIDANCE AREAS: PITOT STATIC TUBES, WINDSHIELDS, CABIN WINDOWS, AND STALL WARNING VANE.

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Figure 8-1. Essential Areas to be Deiced

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SECTION 8 HANDLING, SERVICE & MAINTENANCE



NOTE : ANTI-ICE FLUID SHOULD BE APPLIED AT LOW PRESSURE TO FORM A THIN FILM ON SURFACES. FLUID SHOULD JUST COVER AIRPLANE WITHOUT RUNOFF.

# SHADED AREAS INDICATE ESSENTIAL AREAS WHERE ANTI-ICE FLUID IS APPLIED.

DIRECT SPRAY AVOIDANCE AREAS:

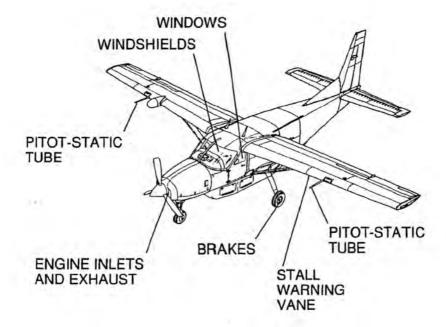
PITOT STATIC TUBES, WINDSHIELDS, CABIN WINDOWS, AND STALL WARNING VANE.

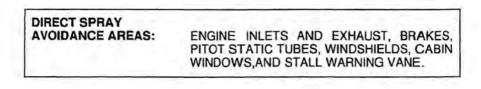
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Figure 8-2. Essential Areas to Apply Anti-ice Fluid

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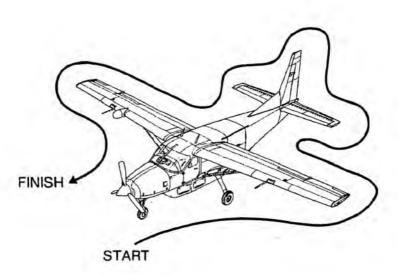
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Figure 8-3. Deice and Anti-ice Fluid Direct Spray Avoidance Areas

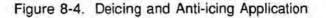
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SECTION 8 HANDLING, SERVICE & MAINTENANCE

NOTE: BY STARTING DEICE AND ANTI-ICE APPLICATION AT THE LEFT FRONT AREA OF THE AIRPLANE, THE PILOT CAN GET A CONSERVATIVE ESTIMATE OF ICE REFORMATION FROM INSIDE THE COCKPIT. SINCE THIS WAS THE FIRST AREA DEICED OR ANTI-ICED, IT WILL BE THE FIRST AREA WHERE ICE WILL REFORM.



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# CLEANING AND CARE

#### WINDSHIELD-WINDOWS

The windshield and windows are constructed of cast acrylic. The surface hardness of acrylic is approximately equal to that of copper or brass. Do not use a canvas cover on the windshield unless freezing rain or sleet is anticipated. Canvas covers may scratch the plastic surface. When cleaning and waxing the windshield and windows, use only the following prescribed methods and materials (see Figure 8-5).

#### WINDSHIELD AND WINDOW MAINTENANCE PROCEDURES

The following procedures provide the most current information regarding cleaning and servicing windshields and windows. Improper cleaning, or use of unapproved cleaning agents, can cause damage to these surfaces.

#### CLEANING INSTRUCTIONS

# A CAUTION

#### Windshields and windows can be easily damaged by improper handling and cleaning techniques.

- Place airplane inside hangar or in shaded area and allow to cool from heat of sun's direct rays.
- Using clean (preferably running) water, flood the surface. Use bare hands with no jewelry to feel and dislodge any dirt or abrasive materials.
- 3. Using a mild soap or detergent (such as a dishwashing liquid) in water, wash the surface. Again, use only the bare hand to provide rubbing force. (A clean cloth may be used to transfer the soap solution to the surface, but extreme care must be exercised to prevent scratching the surface.)
- 4. On acrylic windshields and windows, if soils which cannot be removed by a mild detergent remain, Type II aliphatic naphtha, applied with a soft clean cloth, may be used as a cleaning solvent. Be sure to frequently refold the cloth to avoid redepositing soil and/or scratching the windshield and windows with any abrasive particles.
- Rinse surface thoroughly with clean fresh water and dry with a clean cloth.

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SECTION 8 HANDLING, SERVICE & MAINTENANCE

# A CAUTION

Do not use any of the following on, or for cleaning, windshields and windows: methanol, denatured alcohol, gasoline, benzene, xylene, MEK, acetone, carbon tetrachloride, lacquer thinners, commercial or household window cleaning sprays. When In doubt about any product, do not use it.

- Hard polishing wax should be applied to acrylic surfaces. (The wax has an index of refraction nearly the same as transparent acrylic and will tend to mask any shallow scratches.
  - 7. Acrylic surfaces may be polished using a polish meeting Federal Specification P-P-560 applied per the manufacturer's instructions.

### A CAUTION

On acrylic surfaces, use only rain repellents which conform to specification MIL-W-6882. Refer to Figure 8-5 for specific rain repellent products approved by Cessna.

#### NOTE

When applying or removing wax or polish, use a clean soft cloth.

 Windshields may have rain repellent applied per the manufacturer's instructions. Caution should be used not to get rain repellent on painted surfaces surrounding the windshield.

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#### WINDSHIELD AND WINDOW PREVENTIVE MAINTENANCE

# A CAUTION

Utilization of the following techniques will help minimize windshield and window crazing.

- 1. Keep all surfaces of windshields and windows clean.
- If desired, wax acrylic surfaces.
- Carefully cover all surfaces during any painting, powerplant cleaning or other procedure that calls for the use of any type of solvents or chemicals. The following coatings are approved for use in protecting surfaces from solvent attack:
  - a. White Spray Lab, MIL-C-6799, Type I, Class II.
  - b. WPL-3 Masking Paper St. Regis, Newton, MA.
  - c. 5 X N Poly-Spotstick St. Regis, Newton, MA.
  - d. Protex 40 Mask Off Company, Monrovia, CA and Southwest Paper Co., Wichita, KS.
  - e. Protex 10VS Mask Off Company, Monrovia, CA and Southwest Paper Co., Wichita, KS
  - f. Scotch 344 Black Tape 3M Company
- 4. Do not park or store the airplane where it might be subjected to direct contact with or vapors from: methanol, denatured alcohol, gasoline, benzene, xylene, MEK, acetone, carbon tetrachloride, lacquer thinners, commercial or household window cleaning sprays, paint strippers, or other types of solvents.
- Do not use solar screens or shields installed on inside of airplane or leave sunvisors up against windshield. The reflected heat from these items causes elevated temperatures which accelerate crazing.
- Do not use power drill motor or powered device to clean, polish or wax surfaces.

# PAINTED SURFACES

The painted exterior surfaces of your new Cessna have a durable, long lasting finish. Approximately 10 days are required for the paint to cure completely; in most cases, the curing period will have been completed prior to delivery of the airplane. In the event that polishing or buffing is required within the curing period, it is recommended that the work be done by someone experienced in handling uncured paint. Any Cessna Service Station can accomplish this work.

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#### SECTION 8 HANDLING, SERVICE & MAINTENANCE

#### Materials Required For Acrylic Windshields and Windows

MATERIAL	MANUFACTURER	USE	
Mild soap or detergent (hand dishwashing type without abrasives)	Commercially available	Cleaning windshields and windows.	
Aliphatic naphtha Type II conforming to Federal Specification TT-N-95	Commercially available	Removing deposits which cannot be removed with mild soap solution on acrylic windshields and windows.	
Polishing wax: (Refer to Note 1) Turtle Wax (paste)	Turtle Wax, Inc. Chicago, IL 60638	Waxing acrylic wind- shields and windows.	
Great Reflections Paste Wax	E.I. duPont de Nemours and Co., (Inc.) Wilmington, DE 19898		
Slip-stream Wax (paste)	Classic Chemical Grand Prairie, TX 75050		
Acrylic polish conforming to Federal Specification P-P-560 such as:		Cleaning and polishing acrylic windshields and windows.	
Permatex plastic cleaner Number 403D	Permatex Company, Inc. Kansas City, KS 66115		
Mirror Glaze MGH-17	Mirror Bright Polish Co. Pasadena, CA	1	
		Applying and removing wax and polish.	
Rain repellent conforming to Federal Specification MIL-W-6882, such as: REPCON (Refer to Note 2)	UNELKO Corp. 7428 E. Karen Dr. Scottsdale, AZ 85260	Rain shedding on acrylic windshields.	

NOTE 1: These are the only polishing waxes tested and approved for use by Cessna Aircraft Company.

NOTE 2: This is the only rain repellent approved for use by Cessna Aircraft Company for use on Cessna Model 208 series airplanes.

Figure 8-5. Materials For Acrylic Windshields and Windows

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Generally, the painted surfaces can be kept bright by washing with water and mild soap, followed by a rinse with water and drying with cloths or a chamois. Harsh or abrasive soaps or detergents which cause corrosion or scratches should never be used. Remove stubborn oil and grease with a cloth moistened with Stoddard solvent.

To seal any minor surface chips or scratches and protect against corrosion, the airplane should be waxed regularly with a good automotive wax applied in accordance with the manufacturer's instructions. If the airplane is operated in a seacoast or other salt water environment, it must be washed and waxed more frequently to assure adequate protection. Special care should be taken to seal around rivet heads and skin laps, which are the areas most susceptible to corrosion. A heavier coating of wax on the leading edges of the wings and tail and on the cowl nose cap and propeller spinner will help reduce the abrasion encountered in these areas. Reapplication of wax will generally be necessary after cleaning with soap solutions or after chemical deicing operations.

When the airplane is parked outside in cold climates and it is necessary to remove ice before flight, care should be taken to protect the painted surfaces during ice removal with chemical liquids. Isopropyl alcohol will satisfactorily remove ice accumulations without damaging the paint. However, keep the isopropyl alcohol away from the windshield and cabin windows since it will attack the plastic and may cause it to craze.

#### STABILIZER ABRASION BOOT CARE

If the airplane is equipped with stabilizer abrasion boots, keep them clean and free from oil and grease which can swell the rubber. Wash them with mild soap and water, using Form Tech AC cleaner or naphtha to remove stubborn grease. Do not scrub the boots, and be sure to wipe off all solvent before it dries. Boots with loosened edges or small tears should be repaired. Your Cessna Service Station has the proper material and knowledge how to do this correctly.

#### DEICE/ANTI-ICE BOOT CARE

The wing, wing strut and stabilizer deice boots are electricallyconductive through all plies and the edge sealer to bleed off static charges which cause radio interference and may perforate the boots. Fueling and other servicing operations should be done carefully to avoid damaging or tearing the boots.

To prolong the life of deice boots, they should be washed and serviced on a regular basis. Keep the boots clean and free from oil, grease and other solvents which cause rubber to swell and deteriorate. Outlined below are recommended cleaning and servicing procedures.

## A CAUTION

Use only the following instructions when cleaning boots. Disregard instructions which recommend petroleum base liquids (MEK, nonleaded gasoline, etc.) which can harm the boot material.

Clean boots with mild soap and water, then rinse thoroughly with clean water.

### A CAUTION

# Temperature of water for cleaning de-ice/anti-ice boots shall not exceed 140°F.

#### NOTE

Isopropyl alcohol or toluene can be used to remove grime which can not be removed using soap. If isopropyl alcohol or toluene is used for cleaning, wash area with mild soap and water, then rinse thoroughly with clean water.

 Allow the boots to dry, then apply a coating of Age Master No. 1 to the boots in accordance with application instructions on the container.

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# A CAUTION

# Do not apply Age Master No. 1 to boots treated with BFG Resurfacing Kit 74-451-L.

#### NOTE

Age Master No. 1 is beneficial for its ozone and weather resistance features.

 After the boots have been treated with Age Master No. 1, apply a coating of ICEX II to the boots in accordance with application instructions on the ICEX II container.

#### NOTE

ICEX II may be beneficial as an ice adhesion depressant. Both Age Master No. 1 and ICEX II are distributed by the BFGoodrich Company.

### A CAUTION

ICEX II contains silicone, which lessens paint adhesion. Use care when applying ICEX II, and protect adjacent surfaces from overspray, since overspray of ICEX II will make touch-up painting almost impossible.

Age Master No. 1 and ICEX II coatings last approximately 50 hours on the wing and stabilizer de-ice boots and 150 hours on propeller anti-ice boots.

Small tears and abrasions on pneumatic de-ice boots can be repaired temporarily without removing the boots and the conductive edge sealer can be renewed. Your Cessna Service Station has the proper materials and knowledge how to do this correctly.

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### PROPELLER CARE

Always conduct a preflight inspection and occasionally wipe the blades with a cloth dampened with oil to clean off grass and bug stains, minimize corrosion and assure a longer blade life. Waxing the blades with an automotive type paste wax on a regular basis will further minimize corrosion. Damaged or blistered paint should be repainted. During the preflight inspection, check the blades for nicks, gouges, scratches, corrosion pits, etc., the anti-ice boots for security, the propeller hub for evidence of grease and oil leaks, and the propeller spinner for condition and security.

Repair of small nicks and scratches may be performed by qualified mechanics in accordance with procedures specified in FAA Advisory Circular 43.13-1A. However, whenever a significant amount of metal is removed, or in the case of previously reworked blades which may be at or near minimum width and thickness limits. the appropriate McCauley Service Manual should be consulted to determine if minimum allowable blade width and thickness limits have been exceeded. If these limits are exceeded, blade replacement is required. After filing and polishing, the damaged area should be inspected by the dye penetrant method to verify that all damage has been removed and the blade is not cracked. The area should then be reprotected by localized application of chemical film per MIL-C-5541 (e.g. Alodine) and repainted as necessary. Large nicks or scratches or other damage involving such things as bent blades, balance, diameter reduction, etc. should be corrected by an FAA approved propeller repair station.

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# ENGINE CARE

#### ENGINE EXTERIOR/COMPARTMENT CLEANING

The engine exterior and compartment may be cleaned, using a suitable solvent. Most efficient cleaning is done using a spray-type cleaner. Before spray cleaning, ensure that protection is afforded for components which might be adversely affected by the solvent. Refer to the Maintenance Manual for proper lubrication of controls and components after engine cleaning.

#### ENGINE COMPRESSOR WASH

The benefits of performance improvements and increased service life of hot section parts accruing from instituting a regular compressor wash program cannot be overemphasized. A compressor wash ring is installed on the top of the engine adjacent to the induction air inlet screen to facilitate this maintenance program.

Compressor washes can be performed by either motoring the engine with the starter or running the engine. Depending on the nature of the operating environment and the type of deposits in the engine gas path, either of the two wash methods can be used to remove salt or dirt and other baked on deposits which accumulate over a period of time and cause engine performance deterioration. When the wash is performed solely to remove salt deposits, it is known as a "desalination" wash.

#### SECTION 8 HANDLING, SERVICE & MAINTENANCE

A wash performed to remove baked on deposits to improve engine performance is known as a "performance recovery" wash. A motoring wash is conducted at a gas generator RPM of 14-25%; the running wash is carried out at an  $N_g$  of approximately 60% (23,000 RPM). The water or cleaning mixture and rinsing solution, dependent on ambient temperature, is injected at different pressure, depending on the wash method being conducted.

Operating environment determines the nature of the wash, the frequency, and wash method recommended. If operating in a continuously salt laden environment, a desalination wash is recommended following the last flight of the day by means of the motoring method. Occasionally salt laden environments may necessitate a desalination wash each week using the motoring method. Less severe and more general operating environments are not as conducive to rapid deposit buildup but eventually can contribute to performance deterioration and necessitate a performance recovery wash at intervals of 100-200 hours. In these general environments, a motoring wash is recommended for light soil and multiple motoring or a running wash is suggested for heavy soil.

# A CAUTION

# Always observe engine starting cycle limits when conducting motoring wash procedures.

A number of cleaning agents are recommended for addition to water to form the cleaning solution used for compressor wash. The mixture proportion of all the cleaning agents is not identical, however. Depending on the prevalent ambient temperature, aviation kerosene and methanol must be added to the cleaning solution in various proportions. The quality of the water used is also important; any drinking quality water is permissible for a motoring wash, but demineralized water only is recommended for a running wash. Detailed information concerning the cleaning mixture components, mixture formulation, recommended quantity and application equipment can be found in Pratt & Whitney Aircraft Gas Turbine Operation Information Letter No. 7.

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#### COMPRESSOR TURBINE BLADE WASH

Pratt & Whitney Canada Inc. has developed a procedure for performing a compressor turbine blade motoring wash. This technique will facilitate the removal of contaminants from the compressor turbine blade airfoil surfaces, thereby minimizing sulphidation attack of these surfaces. This serves as an aid for obtaining optimum blade service life. With this method, a water or water/methanol solution is injected directly into the combustion chamber by way of a special spray tube which is installed in one of the igniter plug ports. This method of engine wash does not replace the need for a normal engine compressor wash for performance recovery or desalination purposes.

Compressor turbine blade washing is accomplished using water of drinking quality (potable) only at ambient temperatures of +2°C (36°F) and above. Use a water/methanol solution at ambient temperatures below + 2°C (36 °F). Consult the Engine Maintenance Manual for solution strength according to ambient temperature and review Special Instruction P & WC: 4-84 for washing procedures and limitations.

# INTERIOR CARE

The instrument panel, control wheel, and control knobs need only be wiped off with a damp cloth. Oil and grease on the control wheel and control knobs can be removed with a cloth moistened with Stoddard solvent. Volatile solvents, such as mentioned in paragraphs on care of the windshield, must never be used since they soften and craze the plastic.

The plastic trim, headliner, door panels, and floor covering in the crew area of both versions and the rear cabin headliner and sidewalls of the Passenger Version need only be wiped off with a damp cloth. In Cargo Versions, the sidewalls, cargo doors, and overhead in the cargo area are not easily soiled or stained. Dust and loose dirt should be picked up with a vacuum cleaner. Stubborn dirt can be wiped off with a cloth moistened in clean water. Mild soap suds, used sparingly, will remove grease. The soap should be removed with a clean damp cloth.

#### SECTION 8 HANDLING, SERVICE & MAINTENANCE

The protective plywood floor panels (if installed) and aft bulkhead covering in the cargo area should be vacuum cleaned to remove dust and dirt. A cloth moistened with water will aid in removing heavy soil. Do not use excessive amounts of water which would deteriorate the protective floor panels.

To remove dust and loose dirt from seating upholstery, clean the seats regularly with a vacuum cleaner.

Blot up any spilled liquid on the seats promptly with cleansing tissue or rags. Don't pat the spot; press the blotting material firmly and hold it for several seconds. Continue blotting until no more liquid is taken up. Scrape off sticky materials with a dull knife, then spotclean the area.

Oily spots on the seats may be cleaned with household spot removers, used sparingly. Before using any solvent, read the instructions on the container and test it on an obscure place on the fabric to be cleaned. Never saturate the fabric with a volatile solvent; it may damage the padding and backing materials.

Soiled seating upholstery may be cleaned with foam type detergent, used according to the manufacturer's instructions. To minimize wetting the fabric, keep the foam as dry as possible and remove it with a vacuum cleaner.

# PROLONGED OUT-OF-SERVICE CARE

Prolonged out-of-service care applies to all airplanes which will not be flown for an indefinite period (less than 60 days) but which are to be kept ready to fly with the least possible preparation. If the airplane is to be stored temporarily, or indefinitely, refer to the airplane Maintenance Manual for proper storage procedures. The Maintenance Manual provides amplification for the following procedures:

 The procedure to be followed for preservation of an engine in service depends on the period of inactivity and whether or not the engine may be rotated during the inactive period. The expected period of inactivity should be established and reference made to the Engine Preservation Schedule. The preservation carried out should be recorded in the engine maintenance record and on tags secured to the engine. The following preservation schedule lists procedures to be followed:

SECTION 8 HANDLING, SERVICE & MAINTENANCE

# A CAUTION

UNDER NO CIRCUMSTANCES should preservative oil be sprayed into the compressor or exhaust ports of the engine. Dirt particles deposited on blades and vanes during engine operation will adhere and alter the airfoil shape, adversely affecting compressor efficiency.

- a. 0 to 7 Days -- The engine may be left in an inactive state, with no preservation protection, provided the engine is sheltered, humidity is not excessively high, and the engine is not subjected to extreme temperature changes that would produce condensation.
- b. 8 to 28 Days -- An engine inactive for up to 28 days requires no preservation provided all engine openings are sealed off and relative humidity in the engine is maintained at less than 40 percent. Humidity control is maintained by placing desiccant bags and a humidity indicator on wooden racks in the engine exhaust duct. Suitable windows must be provided in the exhaust closure to facilitate observation of the humidity indicators.
- c. 29 to 90 Days -- An engine inactive for a period exceeding 28 days, but less than 91 days, need only have the fuel system preserved, engine openings covered, and desiccant bags and humidity indicators installed.
- d. 91 Days and Over -- An engine inactive over 90 days in the airframe or removed for long term storage in a container, must, in addition to the 29 to 90 day procedure, have the engine oil drained and unused accessory drive pads sprayed.
- 2. Place a cover over the pitot tube, and install the two engine inlet covers. To prevent the propeller from windmilling, install the propeller anchor over a blade of the propeller and secure the strap around the nose gear or to the bracket located on the lower right hand cowl. Cover all other openings to prevent entry of foreign objects.
- Keep the fuel tanks full to minimize condensation in the tanks.

- 4. If the airplane will be out of service for 5 days or more, disconnect the battery. If the battery is left in the airplane, it should be removed and serviced regularly to prevent discharge. If the battery is removed from the airplane, check it regularly for state of charge.
- 5. If the airplane is stored outside, tie-down the airplane in accordance with the procedure in this section. Chock the nose and main wheels; do not set the parking brake if a long period of inactivity is anticipated as brake seizing can result.
- Every two weeks, move the airplane to prevent flat areas on the tires. Mark the tires with tape to ensure the tires are placed approximately 90° from their previous position.
- 7. Drain all fuel drain points every 30 days and check for water accumulation. Prolonged storage of the airplane will result in a water buildup in the fuel which "leaches out" the fuel additive. An indication of this is when an excessive amount of water accumulates at the fuel drain points. Refer to Fuel Additive in this section for minimum allowable additive concentrations.

# **BULB REPLACEMENT DURING FLIGHT**

Figure 8-6 provides instructions to aid the pilot in the replacement of defective light bulbs during flight without tools. It is suggested that spare bulbs be stored in the map compartment. However, if a spare bulb is not available, an identical bulb which is found to be available from other lights listed herein can be substituted for the defective bulb. For a listing of other bulb requirements and specific tools needed, refer to the Maintenance Manual for this airplane.

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#### ANNUNCIATOR PANEL LIGHTS

Push in on face of light assembly and allow assembly to pop out. Pull assembly out to limit of its hinged retainer and allow it to rotate 90 degrees down. Retainer will keep light assembly suspended in this position. Lift defective bulb out of assembly and replace with MS25237-327 bulb (MS25237-8918 14-volt bulb in IGNITION ON light assembly only). Rotate light assembly upward into position and press into place.

#### NOTE

Each light assembly contains two bulbs, and, if necessary, remains sufficiently illuminated with one bulb defective.

#### POST LIGHTS

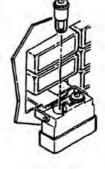
Grasp lens cap and pull straight out from socket. Pull bulb from cap and replace with MS25237-327 bulb. Replace cap in socket and rotate cap to direct light in desired direction.

#### CONTROL WHEEL MAP LIGHT

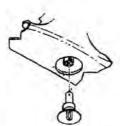
Grasp rim of bulb, push straight up and turn counterclockwise as far as possible, then pull bulb straight down and out of socket. Replace with 24RB bulb. To install new bulb in socket, align pins on bulb with slots in socket, then push straight up and rotate bulb clockwise as far as possible.

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Figure 8-6. Bulb Replacement







# SUPPLEMENTS

# INTRODUCTION

This section consists of a series of supplements, each covering a single system which may be installed in the airplane. Each supplement contains a brief description, and when applicable, operating limitations, emergency and normal procedures, and performance.

Operators should refer to each supplement to ensure that all limitations and procedures appropriate for their airplane are observed.

# WARNING

- Complete familiarity with the airplane and its systems will not only increase the pilot's proficiency and ensure optimum operation, but could provide a basis for analyzing system malfunctions in case of an emergency is encountered. Information in this section will assist in that familiarization. The responsible pilot will want to be prepared to make proper and precise responses in every situation.
- Limitations contained in the following supplements are FAA approved. Observance of these operating limitations is required by Federal Aviation Regulations.

SECTION 9 SUPPLEMENTS

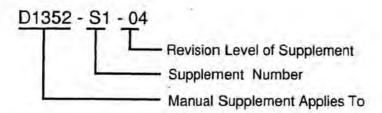
#### CESSNA MODEL 208 (675 SHP)

#### NOTE

Some supplements contain references to equipment manufacturers pilot's manuals which are supplied with the airplane at the time of delivery from the factory, or whenever equipment is installed after delivery. These manuals must be kept up-to-date with the latest revisions issued by the publisher. These vendor manuals contain a user registration form or instructions for obtaining future revisions or changes.

Supplements for installed optional equipment must be maintained to the latest supplement revision. Supplements for optional equipment not installed in the airplane do not have to be retained in the basic manual, and may be discarded, if desired.

A Log of Approved Supplements is provided for convenience only beginning on page Log-1. This log is a numerical list of all the individually approved supplements and their revisions published for this airplane. An installed equipment column is provided in the log to allow owners to mark which supplements apply to their airplane. Each signed supplement contains its own Log of Effective Pages, and each supplement page number includes an "S" and the supplement number (i.e. S1-1). Additionally, the part number of the supplement provides information on the revision level. Refer to the following example:



15 November 2000

#### LOG OF APPROVED SUPPLEMENTS

#### NOTE

IT IS THE AIRPLANE OWNER'S RESPONSIBILITY TO ASSURE THAT THEY HAVE THE LATEST REVISION TO EACH SUPPLEMENT OF A PILOT'S OPERATING HANDBOOK, AND THE LATEST ISSUED "LOG OF APPROVED SUPPLEMENTS". THE LOG OF APPROVED SUPPLEMENTS FURNISHED WITH THIS REVISION WAS THE LATEST VERSION AS OF THE DATE IT WAS SHIPPED BY CESSNA; HOWEVER, SOME CHANGES MAY HAVE OCCURRED, AND THE OWNER SHOULD VERIFY THIS IS THE LATEST, MOST UP-TO-DATE VERSION BY REFERRING TO THE LATEST CESSNA PROPELLER AIRCRAFT REVISION STATUS CHECKLIST OR BY CONTACTING CESSNA PROPELLER PRODUCT SUPPORT: TELEPHONE (316) 517-5800, FAX (316) 942-9006.

SUPPLEMENT NUMBER	NAME	REVISION NUMBER	EQUIPMENT INSTALLED
01	Known Icing Equipment	3 .	
02	Emergency Locator Transmitter (ELT) (Socata ELT 90) (French)	0	
03	Bendix/King Digital ADF (Type KR-87 with KI 227-01 Indicator)	0	
04	Bendix/King Dual Digital ADF (Type KR-87 with KI 228-01 Indicator)	0	
05	Bendix/King KCS-55A Slaved Compass System with KI-525A HSI Indicator	D	-
06	Northern Airborne Technology NPX138 FM Transceiver	0	
07	Air Conditioning System	0	
08	Cargo Doors Removed Kit	O	
09	Cargo Pod	. 0	
10	Digital Clock, Astro Tech LC-2	D	
11	Electric Elevator Trim System	0	
12	DELETED		
13	Fuel Totalizer System	0	
14	Inflight Openable Cargo Door	0	
15	RESERVED		
16	Oxygen System (2-Port)	0	

#### D1352-22-13SL

#### 6 January 2004

#### Log-1

# LOG OF APPROVED SUPPLEMENTS

SUPPLEMENT NUMBER	NAME	REVISION NUMBER	EQUIPMENT	1
17	Oxygen System (10-Port)	0	1.22	
18	Propeller Anti-Ice System	0	1	
19	Rudder Gust Lock (Aero Twin)	0	1000	
20	Standby Electrical System	з		
21	Ventilation Fan System	0		
22	Windshield Anti-Ice System	0	1000	
23	Pointer Model 3000-11/ Model 4000-11 Emergency Locator Transmitter (ELT)	1		
24	Bendix/King GPS Navigation System (Type KLN 89B)	2		
25	Bendix/King Audio Control System (Type KMA-24)	0		
26	Bendix/King Flight Control System (Type KFC-150)	0		-
27	Bendix/King Audio Control System (Type KMA-24H-70) and Optional PA (Passenger Address) System	0	-	
28	RESERVED			
29	Bendix/King Digital ADF (Type KR-87) with KI-227 Indicator or KI-229 Optional RMI	0		
30	Bendix/King DME (Type KN-63)	0		
31	Bendix/King HF Transceiver (Type KHF-950)	0		
32	Bendix/King Marker Beacon (Type KR-21)	0		
33	Bendix/King Nav/Com (Type KX-165) with Optional Integral Glide Slope	1		
34	Bendix/King Radar Altimeter (Type KRA-10A)	0		
35	Bendix/King Radio Magnetic Indicator (Type KI-229)	0		

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# LOG OF APPROVED SUPPLEMENTS

SUPPLEMENT NUMBER	NAME	REVISION	EQUIPMENT
36	Bendix/King Radio Magnetic Indicator (Type KNI-582)	1	—
37	Bendix/King Mode S Transponder (Type KT-70 and KT-71) and Encoding Altimeter (Type KEA-130 or Type 5035P-P45)	0	
38	Bendix/King Digital Weather Radar System (Type RDR 2000)	0	
39	Airplanes Certified to Russian Configuration	1	
40	Bendix/King GPS Navigation System (Type KLN 89B) Interfaced with the KNI 582 RMI	D	·
41	Bendix/King (AlliedSignal) Stand- Alone - VFR Only GPS Navigation System (Type KLN 89B with Software Level 02/02)	0	9
42	High Altitude Takeoff and Landing Performance (Above 12,000 Feet Pressure Altitude)	1	
43	BFGoodrich Skywatch SKY497 Traffic Advisory System	1	
44	BFGoodrich Stormscope WX-1000+/1000E Weather Mapping System	0	
45	Arctic Diesel Fuel	0	
46	300-Amp Starter/Generator Installation	0	-
47	Takeoff Procedures for European Airports with Noise Limitations	0	
48	Bendix/King Flight Control System (Type KFC-225)	0	
49	RESERVED		
50	Bendix/King KLN 94 GPS Navigation System	1	_

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# LOG OF APPROVED SUPPLEMENTS

SUPPLEMENT NUMBER	NAME	REVISION NUMBER	EQUIPMENT
51	Airplanes Certified to China AAD-CAAC Configuration	0	
52	Artex 406 Three Frequency Emergency Locator Transmitter (ELT)	o	
53	Airplanes without Vacuum Powered Gyros	0	
54	Garmin GMA 340 Audio Panel	0	· · · · · · · · · · · · · · · · · · ·
55	Garmin GTX 327 Transponder	1	
56	Bendix/King KGP 560 General Aviation - Enhanced Ground Proximity Warning System (GA-EGPWS)	2	
57	RESERVED		
58	Garmin GNS 530 or GNS 430 Navigation/Communication System	1	
59	Bendix/King KMD 850 Multi-Function Display	o	
60	BFGoodrich Stormscope WX-500 Weather Mapping System	o	
61	Fairchild F1000 Flight Data Recorder	0	
62	Dual HSI and FDI with Bendix/King KFC-225 Autopilot	0	
63	Fairchild FA2100 Cockpit Voice Recorder	0	
64	Bendix/King KI 825 Electronic Horizontal Situation Indicator	o	
65	Honeywell KMH 880 Integrated Hazard Awareness System (IHAS)	o	
66	Honeywell KTA 870 Traffic Advisory System (TAS)	o	
67	2-Port Oxygen System	0	
68	Honeywell KDR 510 Flight Information Services (FIS)	0	
69	Garmin GTX 330 Transponder	o	

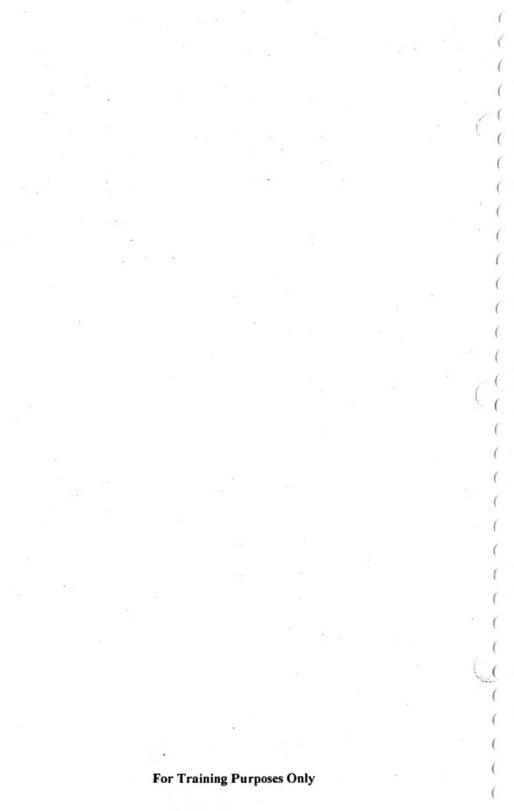
6 January 2004

# LOG OF APPROVED SUPPLEMENTS

SUPPLEMENT NUMBER	NAME	REVISION NUMBER	EQUIPMENT INSTALLED
70	Bendix/King KRA-405B Radar Altimeter	. 0	
71	U.S. Registered Airplanes with Requirements for British (CAA) Certification	0	
72	Altair Avionics Corporation ADAS+ Engine Trend Monitor	0	

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Log-5/(Log-6)





# Pilot's Operating Handbook and FAA Approved Airplane Flight Manual

# CESSNA MODEL 208 (675 SHP)

# SUPPLEMENT 1

# KNOWN ICING EQUIPMENT

#### SERIAL NO.

#### **REGISTRATION NO.**

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual when the flight into known icing equipment package is installed.

ameil APPROVED B

Wendell W. Cornell Executive Engineer Cessna Aircraft Company Delegation Option Manufacturer CE-3

DATE OF APPROVAL 7 APRIL 1998

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1 APRIL 1998

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**REVISION 3 - 25 JUNE 2001** 

S1 MODEL 208 (675 SHP)

#### KNOWN ICING EQUIPMENT POH SUPPLEMENT

# SUPPLEMENT 1

## KNOWN ICING EQUIPMENT

Use the Log of Effective Pages to determine the current status of this supplement. Pages affected by the current revision are indicated by an asterisk (\*) preceding the page number.

#### **Revision Level**

#### Date of Issue

0 (Original) Revision 1 Revision 2 Revision 3 1 April 1998 8 September 1999 12 October 2000 25 June 2001

#### LOG OF EFFECTIVE PAGES

#### PAGE

DATE

#### **REVISION NO.**

 \* S1-1 thru S1-3
 25 June 2001
 3

 S1-4
 1 April 1998
 0

 \* S1-5 thru S1-24
 25 June 2001
 3

 \* S1-25/S1-26
 25 June 2001
 3

APPROVED BY

DATE OF APPROVAL 25 JUNE 2001

25 June 2001

S1-2

KNOWN ICING EQUIPMENT POH SUPPLEMENT

# SUPPLEMENT

# KNOWN ICING EQUIPMENT

# SECTION 1 GENERAL

The flight into known icing equipment package allows flight penetration of icing conditions as defined by FAR Part 25 envelopes for continuous maximum and intermittent maximum icing. These conditions do not include, nor were tests conducted in, all icing conditions that may be encountered (e.g., freezing rain, freezing drizzle, mixed conditions or conditions defined as severe). Flight in these conditions must be avoided. Some icing conditions not defined in FAR Part 25 have the potential of producing hazardous ice accumulations, which (1) exceed the capabilities of the airplane's ice protection equipment, and/or (2) create unacceptable airplane performance. Flight into icing conditions which are outside the FAR defined conditions is not specifically prohibited, however, pilots are advised to be prepared to divert the flight promptly if hazardous ice accumulations occur.

#### NOTE

Whenever icing conditions are encountered, immediate action should be taken to leave these conditions before airplane performance is degraded to a point where a climb, which is normally the best action to take, may not be achievable due to the residual ice buildup.

The flight into known icing equipment package includes pneumatic deicing boots on the wings and wing struts, main landing gear legs and cargo pod nosecap (if installed), horizontal and vertical stabilizer leading edges, electrically-heated propeller blade anti-ice boots, detachable electric windshield anti-ice panel, pitot/static heat system, and a standby electrical system. The wing, wing strut, landing gear, cargo pod and stabilizer deice system includes a deice pressure annunciator. A light is provided that illuminates the LH inboard wing to aid in visually detecting ice accumulation during night operations. Some airplanes may also be equipped with a windshield ice detector light, and a low airspeed advisory system.

As used in this supplement, rime ice formation is opaque "milky" like ice that roughly conforms to the wing airfoil shape. Clear ice formation is translucentlike ice that forms a double horn type shape with horns protruding above and below the wing airfoil leading edge. Mixed ice formations have characteristics of both rime and clear ice to some extent. The known icing equipment will not provide complete protection for continuous operation in extremely wide-spread areas of heavy cloud freezing moisture content.

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#### KNOWN ICING EQUIPMENT POH SUPPLEMENT

The inflight ice protection equipment is not designed to remove ice, snow or frost accumulations on a parked airplane sufficiently enough to ensure a safe takeoff or subsequent flight. Other means (such as a heated hangar or approved deicing fluids) must be used to ensure that all wing, wing strut, landing gear, cargo pod, tail, control, propeller, and windshield surfaces and the fuel vents are free of ice, snow, and frost accumulations, and that there are no internal accumulations of ice or debris in the control surfaces, engine intakes, pitot-static system ports, and fuel vents prior to takeoff.

# A WARNING

If these requirements are not accomplished, aircraft performance will be degraded to a point where a safe takeoff and climbout may not be possible.

#### WING, WING STRUT, MAIN LANDING GEAR LEG, CARGO POD NOSECAP AND STABILIZER DEICE BOOTS

The pneumatic deice boot system installed on the leading edges of the wings, wing struts, main landing gear legs, cargo pod nosecap and horizontal and vertical stabilizers is designed to remove ice after accumulation in flight rather than prevent ice formation. The system components include the pressure line which leads from the engine bleed air system pressure regulator to the vacuum ejector used in the airplane vacuum system, three flow control valves and pressure switches, a timer, a system switch and circuit breaker, an annunciator, and the supply lines and pneumatically-operated surface deice boots. In operation, the boots expand and control valves when they are closed or vacuum created by the dumping action of the flow control valves when they are open. Normally, vacuum is applied to all boots to hold them against the leading edge surfaces. When a deicing cycle is initiated, vacuum is removed and pressure is applied to inflate the boots. Ice on the boots will then be removed by normal inflight air forces.

Controls for the normal operation of the deicing system consist of a threeposition toggle switch, labeled BOOT PRESS, on the deice/anti-ice switch panel, a pressure indicator light in the annunciator panel, and a "pull-off" type circuit breaker on the left sidewall circuit breaker panel. When the switch is placed in the AUTO (upper) position and released, it will activate one deicing cycle. Each time a cycle is desired, the switch must be pushed to the AUTO position and released. The switch is off when placed in the middle position. In the event of a malfunction in the timer, causing erratic operation of a sequence of a cycle, the switch can be held momentarily in the MANUAL (lower) position to achieve simultaneous inflation of all the deice boots. If necessary, the system can be stopped at any point in the cycle (deflating the boots) by pulling the circuit breaker labeled DE-ICE BOOT.

#### KNOWN ICING EQUIPMENT POH SUPPLEMENT

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During a normal deicing cycle, the boots will inflate according to the following sequence: first the horizontal and vertical stabilizer boots will inflate for approximately six seconds, then the inboard wing, main landing gear leg and cargo pod nosecap boots inflate for the next six seconds, followed by the outboard wing boots and wing strut boots for another six seconds. The total time required for one cycle is approximately 18 seconds.

The pressure indicator annunciator, labeled DE-ICE PRESSURE, should illuminate initially within approximately three seconds after initiating a cycle and remain on approximately three additional seconds to the end of the first sequence. Through each of the remaining two sequences of the cycle, the annunciator will remain off during pressure buildup for about three seconds and then illuminate for about three seconds. The system may be recycled six seconds after the completion of a cycle, if necessary. The absence of illumination during any one of the three sequences of a cycle indicates insufficient pressure for proper boot inflation and effective deicing ability. Additionally, any deviation from the sequence described above could indicate a malfunction of some other portion of the system, and icing conditions should be avoided.

#### PROPELLER ANTI-ICE BOOTS

The propeller anti-ice system provides protection for the propeller blade surfaces when icing conditions are encountered. The system is operated by a three-position toggle switch, labeled PROP, on the DE-ICE/ANTI-ICE switch panel. When the switch is placed in the AUTO (upper) position, electric current flows to an anti-ice timer which cycles the current simultaneously to the heating elements in the anti-ice boots on the three propeller blades in intervals of 90 seconds ON and 90 seconds OFF. The anti-ice timer will reset when the anti-ice switch is placed in the OFF position.

This 90 second cycle allows ice to buildup on the propeller boots, then sheds it during the ON cycle. Due to the propeller blade ice shedding characteristics, a slight propeller vibration occurring at the start of the propeller anti-ice ON cycle and lasting 20-30 seconds is considered normal. However, if the vibration continues longer than 30 seconds, or is perceived by the pilot as being excessive, exercising the propeller control lever and returning it to MAX position will shed the remaining ice on the blades. If the vibration continues, refer to the Propeller Anti-Ice System Malfunction checklist in Section 3 of this supplement.

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#### KNOWN ICING EQUIPMENT POH SUPPLEMENT

#### NOTE

An oil-operated pressure switch installed in the electrical circuit is utilized to prevent the propeller anti-ice system from being turned on without the engine running. A failure of this switch will be undetected unless the ammeter is monitored continuously.

The switch is off when placed in the middle position. In the event of a malfunction in the anti-ice timer, the switch can be held for 90 seconds in the MANUAL (lower) position to achieve emergency propeller anti-icing. When operating in the MANUAL (lower) switch position, it is important to cycle the switch in intervals of 90 seconds ON and 90 seconds OFF, the same cycling that occurs when the switch is in the AUTO position.

### A WARNING

If the propeller anti-ice switch is held in the MANUAL position without being cycled every 90 seconds, ice on the boots melts and runs back past the boots and refreezes. This buildup of runback ice may cause a loss in propeller efficiency which reduces airplane performance.

Operation of the anti-ice system can be checked by monitoring an ammeter, labeled PROP ANTI-ICE AMPS, near the upper left corner of the instrument panel. The system is protected by two "pull-off" type circuit breakers, a control circuit breaker labeled PROP ANTI-ICE CONT and a heater circuit breaker labeled PROP ANTI-ICE. Both circuit breakers are located on the left sidewall switch and circuit breaker panel.

#### WINDSHIELD ANTI-ICE PANEL

The windshield anti-ice system assures adequate visibility for a landing during A detachable, flight conditions where ice may form on the windshield. electrically heated, glass panel mounts to the base of the windshield in front of the pilot. A quick disconnect feature utilizing a spring-loaded release pin is provided to facilitate ease of installation and removal. The panel may be stowed in the airplane when not in use; a padded cover is provided for protection against scratches, breakage, and wiring damage. Windshield antiicing is controlled by a three-position toggle switch, labeled W/S on the deice/anti-ice switch panel. Some aircraft are equipped with a large sized windshield anti-ice panel, which contains two heat elements and is controlled by two three-position toggle switches labeled PRIMARY and SECONDARY. When the switch(es) is(are) placed in the AUTO (upper) position, electric current regulated by a controller flows to the anti-ice panel to prevent the formation of ice in the protected segment of the windshield. An annunciator, labeled WINDSHIELD ANTI-ICE, illuminates to indicate that the system is operating.

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#### NOTE

The SECONDARY heat element in the large windshield antiice panel is slaved to the temperature controller of the PRIMARY panel, and will only function in AUTO if the PRIMARY switch is in the AUTO position, and the automatic controller is operative.

The switch(es) is(are) off when placed in the middle position. In the event of a malfunction in the system controller circuitry, the switch(es) can be held in the Manual (lower) position to achieve windshield anti-lcing. The system is protected by two "pull-off" type circuit breakers, a control circuit breaker labeled W/S ANTI-ICE CONT and a heater circuit breaker labeled W/S ANTI-ICE CONT and a heater circuit breaker labeled W/S ANTI-ICE. Both circuit breakers are located on the left sidewall switch and circuit breaker panel. The large anti-ice panel is protected by three "pull-off" type circuit breakers; a control circuit breaker labeled W/S ANTI-ICE CONT and two heater circuit breakers labeled W/S ANTI-ICE CONT and two heater circuit breakers labeled W/S ANTI-ICE CONT and two heater circuit breakers labeled W/S ANTI-ICE PRIMARY and W/S ANTI-ICE SEC. Circuit breakers for the windshield anti-ice panel are located on the left sidewall switch and circuit breaker panel.

The heated glass panel should be installed whenever icing conditions are a possibility on a proposed flight, especially if the freezing level is near or at the surface.

### A WARNING

With heavy ice accumulations on the windshield, or when ice forms alt of the curved sections on the windshield, a straight in or precision approach should be given priority over a circling non-precision approach.

#### PITOT-STATIC HEAT SYSTEMS

A left pitot-static heat system is installed to assure proper airspeed indications in the event icing conditions are encountered. The system is designed to prevent ice formation rather than remove it, once formed. System components include heating elements in the left pitot-static tube, a two-position toggle switch, labeled PITOT/STATIC HEAT, on the deice/antiice panel, and a "pull-off" type circuit breaker, labeled LEFT PITOT HEAT, on the left sidewall switch and circuit breaker panel. When the pitot-static heat switch is turned on, the elements in the pitot-static tube are heated electrically to maintain proper operation in icing conditions.

A second, independent pitot-static system is included for operation of the right flight instruments only. The system has a heated pitot-static tube on the leading edge of the right wing. The heating elements in the right pitot-static tube are controlled by the two-position toggle switch, labeled PITOT/STATIC HEAT, on the deice/anti-ice switch panel. Circuit protection is provided by a "pull-off" type circuit breaker, labeled RIGHT PITOT HEAT, on the left sidewall switch and circuit breaker panel.

### KNOWN ICING EQUIPMENT POH SUPPLEMENT

### STANDBY ELECTRICAL SYSTEM

The standby electrical system serves as a standby power source after starting in the event the main generator system malfunctions in flight. The system includes an alternator operated at a 75-amp capacity rating. The alternator is belt-driven from an accessory pad on the rear of the engine. The system also includes an alternator control unit located forward of the circuit breaker panel, a standby alternator contactor assembly on the left front side of the firewall and two switches on the left sidewall switch panel.

The standby system switches are a two-position toggle-type switch, labeled STBY POWER, and a guarded two-position switch/breaker, labeled AVIONICS STBY PWR. The guard covering the standby avionics power switch must be lifted in order to select the ON position. Circuit protection and isolation is provided by two circuit breakers, labeled STBY PWR, on the left sidewall circuit breaker panel. Field excitation to the alternator control unit is supplied through diode logic from a circuit breaker in the standby alternator relay assembly or the KEEP ALIVE No. 2 circuit breaker in the main power relay box. System monitoring is provided by two amber annunciators, labeled STBY ELECT PWR ON and STBY ELECT PWR INOP, in the annunciator panel. Total amperage supplied from the standby electrical system can be monitored on the airplane volt/ammeter with the selector switch in the ALT position.

Any time the standby electrical system is turned on, standby power will automatically be supplied to the main buses if system voltage drops.

### WARNING

In the event of a generator system failure, the alternatordriven standby electrical system, which has 75-amp capacity rating, can supply essential equipment when nonessential loads are eliminated. During a night flight in icing conditions, it is possible to have an electrical load of approximately 110 amps. This electrical load can be reduced to the standby electrical system capacity (75-amps) by turning off the following equipment:

- All external lights.
- The failed generator (TRIP).
- Autopilot and weather radar and/or enough other nonessential avionics and lights to prevent battery discharge, as indicated by the ammeter with the BATT position selected or illumination of the red VOLTAGE LOW annunciator.
- For airplanes equipped with the large windshield anti-ice panel turn the SECONDARY switch to OFF.

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### WING ICE DETECTOR LIGHT

An ice detector light is flush-mounted in the left wing leading edge-tofuselage fairing to facilitate the detection of wing ice at night by lighting the leading edge of the wing. Components of the system include the ice detector light, a two-position toggle-type switch, labeled WING LIGHT, on the deice/anti-ice switch panel, and a "pull-off" type circuit breaker, labeled ICE DET LIGHT, on the left sidewall circuit breaker panel. The switch is springloaded to the OFF (lower) position and must be held in the ON (upper) position to keep the ice detector light illuminating.

### WINDSHIELD ICE DETECTOR LIGHT (Aircraft with large anti-ice panel)

A red Windshield Ice Detector Light is located on the lower inboard portion of the pilot's windshield. It is activated by moving the DAY/NIGHT switch to NIGHT. If the windshield is clear of ice, distinct red circles will be present above the light. If the windshield is contaminated, the red circles will become more diffuse and the area of red light will increase. The windshield ice detector light should not be relied on as the only means to detect ice.

### LOW AIRSPEED ADVISORY SYSTEM (Aircraft with large anti-ice panel)

An advisory annunciator labeled BELOW 105 KIAS is located just above the annunciator panel. This annunciator illuminates when the pitot heat switch is in the ON position and the airspeed is less than 105 knots. The light will illuminate as a reminder of the minimum speed of 105 KIAS during flight in icing conditions with the flaps up. This does not limit speeds for takeoff or approach phases of flight.

# ENGINE INERTIAL SEPARATOR AND HEATED STALL WARNING SYSTEMS

See Section 7 of the basic Pilot's Operating Handbook for descriptions of these standard/required equipment items.

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### KNOWN ICING EQUIPMENT POH SUPPLEMENT

## SECTION 2 LIMITATIONS

### REQUIRED EQUIPMENT

This airplane is approved for flight into icing conditions as defined by FAR Part 25 continuous maximum and maximum intermittent icing envelopes only if the following Cessna (drawing number 2601066) and FAA approved equipment is installed and is fully operational:

- 1. Wing and wing strut leading edge deice boots.
- Horizontal stabilizer leading edge deice boots.
- Vertical stabilizer leading edge deice boots.
- 4. Propeller anti-ice boots.
- 5. Windshield anti-ice panel.
- 6. Pitot-static tube heat system (left hand).
- 7. Standby electrical system.
- 8. Ice detector light.
- 9. Engine inertial separator (required equipment on standard airplane).
- 10. Heated stall warning system (included equipment on standard airplane).

The following additional equipment is not required for flight into icing conditions as defined by FAR 25, but may be installed on early serial airplanes by using optional accessory Kit AK208-6. On later serial airplanes, this equipment may be included with the flight into known icing package. If installed, this equipment must be fully operational:

- 11. Lower main landing gear leg leading edge deice boots.
- 12. Cargo pod nosecap deice boot.

In addition, refer to Section 2 of the basic handbook for a complete listing of other required equipment.

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### S1 MODEL 208 (675 SHP)

### ENVIRONMENTAL CONDITIONS

Known icing conditions are defined by FAR Part 25, Appendix C. These conditions do not include, nor were tests conducted in, all icing conditions that may be encountered (e.g., freezing rain, freezing drizzle, mixed conditions or conditions defined as severe). Flight in these conditions must be avoided. Some icing conditions not defined in FAR Part 25 have the potential of producing hazardous ice accumulations, which (1) exceed the capabilities of the airplane's ice protection equipment, and/or (2) create unacceptable airplane performance. Flight into icing conditions which are outside the FAR defined conditions is not specifically prohibited, however, pilots are advised to be prepared to divert the flight promptly if hazardous ice accumulations occur. Inadvertent operation in these conditions may be detected by heavy ice accumulations on the windshield, or when ice forms aft of the curved sections on the windshield. Another indication is when ice forms aft of the protected surfaces of the wing struts. If these conditions are encountered, the pilot should take immediate action to leave these conditions. This may best be achieved by climbing to warmer air above the freezing rain or drizzle. Maximum climb power with the flaps retracted should be used.

### MINIMUM SPEED IN ICING CONDITIONS

Minimum speed during flight in icing conditions with the flaps up is 105 KIAS. This does not limit speeds for takeoff or approach phases of flight.

### FLAP SETTINGS FOR HOLDING IN ICING CONDITIONS

When holding in icing conditions the flaps must be UP.

#### FLAP SETTINGS FOR LANDING IN ICING CONDITIONS

With ice suspected on the airframe, or operating at 4°C or less in visible moisture, Do Not Extend Flaps Beyond 20° for Landing.

#### AUTOPILOT OPERATION IN ICING CONDITIONS

Autopilot operation is prohibited when operating in icing conditions which are outside the FAR defined conditions as stated in the Environmental Conditions paragraph above.

### PLACARDS

The following placards must be installed in the airplane:

1. Near the compass (airplanes equipped with the large anti-ice panel):

OPERATION OF THE ANTI-ICE PANEL MAY CAUSE A COMPASS DEVIATION OF MORE THAN 10 DEGREES.

(Continued Next Page)

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### KNOWN ICING EQUIPMENT POH SUPPLEMENT

### PLACARDS (Continued)

The following placards must be installed in the airplane (continued):

2. In full view of the pilot:

The markings and placards installed in this airplane contain operating limitations which must be complied with when operating this airplane in the Normal Category. Other operating limitations which must be complied with when Operating this airplane in this category are contained in the Pilot's Operating Handbook and FAA Approved Airplane Flight Manual.

No acrobatic maneuvers, including spins, approved. This airplane is approved for flights into icing conditions if the proper optional equipment is installed and operational.

This airplane is certified for the following flight operations as of date of original airworthiness certificate:

DAY - NIGHT - VFR - IFR

## SECTION 3 EMERGENCY PROCEDURES

### ENGINE INERTIAL SEPARATOR MALFUNCTION

- 1. Inertial Separator Control -- BYPASS.
- Engine Torque Indicator -- MONITOR for proper operation by noting torque drop (typically 100 to 150 foot-pounds).

If inertial separator fails to operate to the BYPASS mode:

- 3. Ignition Switch -- ON.
- 4. Leave icing conditions as soon as possible.

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### PROPELLER ANTI-ICE SYSTEM MALFUNCTION

If uneven anti-icing of the propeller blades is indicated by excessive vibration:

- 1. Propeller Control Lever -- EXERCISE, then return to MAX.
- 2. Prop Anti-ice and Prop Anti-ice Control Circuit Breakers -- PUSHED IN.
- Prop Anti-ice Ammeter -- CHECK for proper operation. The ammeter should indicate 20 to 24 amps for 90 seconds and then zero amps for 90 seconds.
- 4. If ammeter continuously indicates zero amps:
  - a. Prop Anti-ice Switch -- CHECK in AUTO position.

If zero amps indication persists:

b. Prop Anti-ice Switch -- MANUAL and hold for 90 seconds. Repeat procedure at 90-second intervals.

If zero amps indication still persists:

c. Leave icing conditions as soon as possible.

## A WARNING

When operating propeller anti-ice system in the MANUAL mode, which requires that the switch be held in the lower position, it is important to cycle the switch in intervals of 90 seconds ON and 90 seconds OFF. If the switch is held in the MANUAL position without being cycled OFF every 90 seconds, runback ice may build up on the propeller blades causing a loss in propeller efficiency, which reduces airplane performance. This characteristic may be more pronounced with the Hartzell composite propeller.

- If ammeter reading is below the green arc indicating that the propeller blades may not be deiced uniformly:
  - a. Prop Anti-ice Switch -- OFF.
  - b. Cycle propeller control lever from MAX to MIN and back to MAX at frequent intervals to aid in ice shedding.
  - c. Leave icing conditions as soon as possible.

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### KNOWN ICING EQUIPMENT POH SUPPLEMENT

#### NOTE

- A slight propeller vibration occurring at the start of the propeller anti-ice ON cycle and lasting 20-30 seconds is due to propeller blade ice shedding characteristics and is considered normal. This vibration may be more pronounced with the Hartzell composite propeller.
- To check the heating elements and anti-ice timer for one complete cycle, the system must be left on for approximately three minutes.

## A CAUTION

If, after leaving icing conditions, engine roughness or vibration develops or persists that is not traceable to icing or another cause, reduce propeller RPM to smoothest condition, plan a landing at the nearest airport, and check the security of the anti-ice boots and leads as a possible cause.

### WING, WING STRUT, MAIN LANDING GEAR LEG, CARGO POD NOSECAP AND STABILIZER DEICE SYSTEM MALFUNCTIONS

ICE REMAINS ON LEADING EDGES AND DEICE PRESSURE ANNUNCIATOR DOES NOT ILLUMINATE DURING ALL 3 SEQUENCES OF INFLATION CYCLE (Annunciator verified operational):

#### NOTE

The deice pressure annunciator should illuminate 3 times, approximately 3 seconds each time, during the 18-second cycle.

- 1. Deice Boot Circuit Breaker -- PUSHED IN.
- 2. Suction Gage -- CHECK.

If instrument vacuum is below normal and/or there is an audible leak in the forward cabin or left wing root area, expect a broken engine bleed air line and:

 Leave icing conditions as soon as possible using available nonvacuum powered instruments for attitude information.

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If instrument vacuum is normal:

- 3. Boot Press Switch -- MANUAL and HOLD for approximately 9 seconds.
- Leading Edges -- VISUALLY OBSERVE for simultaneous inflation of all visible leading edge boots.
- Deice Pressure Annunciator -- OBSERVE (should illuminate within 6 seconds after activating boot press switch to MANUAL position).

If the deice pressure annunciator does not illuminate or any of the leading edge boots do not inflate:

#### 6. Leave Icing conditions as soon as possible.

- Maintain a minimum airspeed of 105 KIAS or higher to stay above prestall buffet. If unable to maintain this airspeed, allow altitude to decrease.
- If there are unshed ice accumulations along the wing, wing strut, and stabilizer leading edges during an approach and landing, follow the procedures listed under Inadvertent Icing Encounters in Section 3 of the basic handbook.

## WARNING

- With heavy ice accumulations on the horizontal stabilizer leading edge, do not extend flaps while enroute or holding. When landing is assured, select the minimum flap setting required, not to exceed 20°, and maintain extra airspeed consistent with available field length. Do not retract the flaps once they have been extended, unless required for goaround. Then retract flaps in increments while maintaining 5 to 10 knots extra airspeed.
- With inoperative deice boots, increase engine power to maximum continuous power and leave icing conditions as soon as possible. In heavy icing conditions, it may not be possible to maintain altitude or proper glide path on approach; In this case, it is imperative that a safe airspeed be maintained. The aural stall warning horn may not function and there may be little or no pre-stall buffet with heavy ice loads on the wing leading edges.

LEADING EDGE DEICE BOOTS REMAIN INFLATED (Green Deice Pressure Annunciator Illuminated)

 Boots -- OBSERVE horizontal stabilizer, wing inboard, main landing gear leg, wing outboard and wing strut boots for any that may remain inflated.

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### KNOWN ICING EQUIPMENT POH SUPPLEMENT

If it can be visually verified that all leading edge boots are deflated, assume a fault in a pressure switch or the annunciator system and:

Proceed to destination using visual monitoring of leading edge boots during and after each cycle to verify proper function.

If any of the leading edge boots remain inflated after the normal cycle period:

- 3. Deice Boot Circuit Breaker -- PULL to deflate boots.
- 4. Boots -- OBSERVE for any that may remain inflated and:
  - a. If all boots are deflated, continue flight; be prepared to reset circuit breakers long enough to inflate boots with boot press switch for an additional cycle and again pull the circuit breaker, as required if deicing conditions continue.
  - b. If any boots remain inflated, leave icing conditions as soon as possible; expect a 10-knot increase in stall speeds if any of the wing leading edge boots are inflated.

### WINDSHIELD ANTI-ICE PANEL MALFUNCTION

- (Small Panel) Windshield Anti-ice Switch -- CYCLE to OFF and then AUTO.
  - (Large Panel) PRIMARY Switch -- CYCLE TO OFF AND THEN AUTO.
- 2. W/S Anti-ice and W/S Anti-ice Control Circuit Breakers -- PUSHED IN.
- 3. Windshield Anti-ice (Green) Annunciator -- CHECK ILLUMINATED.

If windshield anti-ice annunciator does not illuminate:

 (Small Panel) Windshield Anti-ice Switch -- MANUAL and HOLD. (Large Panel) PRIMARY and SECONDARY Windshield Anti-ice Switches -- MANUAL and HOLD.

(Large Panel) If either the PRIMARY or SECONDARY heat element malfunctions:

CONTINUE to destination and plan a STRAIGHT-IN-APPROACH, if possible.

### NOTE

Circling approaches were demonstrated with either the PRIMARY or SECONDARY panels of the large windshield antiice panel failed. In the event that a straight-in approach is not possible, preference should be given to a circling approach with turns that are in the direction of the operating half of the windshield anti-ice panel.

If ice remains on windshield anti-ice panel during landing approach:

Execute a forward slip as required for visibility through the left-hand portion of the windshield.

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### HEATED PITOT/STATIC TUBE MALFUNCTION

1. Left Pitot Heat and Right Pitot Heat Circuit Breakers -- PUSHED IN.

If ice begins to form near the static port of the left-hand pitot/static tube (from compensation ring to aft end of tube) or if erroneous readings on the pilot's flight instruments are suspected:

- Confirm a malfunction in the left-hand pitot/static tube heater system by referring to the right-hand flight panel instrument (if the right pitot/static tube is clear of ice).
- Static Pressure Alternate Source Valve -- PULL ON.

#### NOTE

The static pressure alternate source is connected to the lefthand flight panel instruments only.

 Refer to Section 5 of the basic handbook for airspeed and altimeter corrections when using alternate static air.

If ice begins to form near the pitot port (forward end) of the pitot/static tube:

- Indicated Airspeed -- EXPECT NO RELIABLE INDICATION.
- Fly the airplane using attitude, altitude, and power instruments until leaving icing conditions.

### GENERATOR MALFUNCTION (Red Generator Off and/or Amber Stby Elect Pwr ON Annunciators Illuminated)

Refer to the Standby Electrical System supplement in Section 9 for emergency procedures in the event of a generator failure.

In the event of a generator system failure, the alternator-driven standby electrical system has the capacity to supply essential equipment when nonessential loads are shed. The possible load of 110 amps during a night cruise flight in icing conditions can be reduced to the standby electrical system capacity by turning off the following equipment:

- 1. All external lights.
- 2. The failed generator (TRIP).
- Autopilot and weather radar and/or enough other nonessential avionics and lights to prevent battery discharge as indicated by the ammeter with the BATT position selected or illumination of the red VOLTAGE LOW annunciator.
- For airplanes equipped with the large windshield anti-ice panel, turn the SECONDARY switch to OFF.

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### KNOWN ICING EQUIPMENT POH SUPPLEMENT

### HEATED STALL WARNING TRANSDUCER MALFUNCTION

If ice is observed forming on the stall warning vane or its mounting plate:

- 1. Stall Wrn Circuit Breaker -- PUSHED IN.
- With continued ice buildup, expect no stall warning horn during slow speed operation.
- 3. Approach Speeds -- MONITOR indicated airspeed.

## SECTION 4 NORMAL PROCEDURES

### PREFLIGHT INSPECTION

- 1. Wing Ice Detector Light Switch -- ON and CHECK for illumination.
- DAY/NIGHT Switch to NIGHT -- Windshield Ice Detector Light (if installed) CHECK for Illumination.
- PITOT/STATIC and Stall Heat Switches -- ON (for 30 seconds maximum, ensure pitot covers are removed).
- LOW AIRSPEED ADVISORY SYSTEM (if installed) -- CHECK for illumination when pitot heat is ON.
- 5. PITOT/STATIC and Stall Heat Switches -- OFF.
- 6. Battery Switch -- OFF.
- 7. Stall Warning Transducer -- PERCEPTIBLY WARM.
- 8. Pitot/Static Tubes -- CLEAR and VERY WARM.
- Wing, Wing Strut, Main Landing Gear Leg, Cargo Pod Nosecap and Stabilizer Deice Boots -- CHECK for tears, abrasions and cleanliness.
- 10. Propeller Anti-ice Boots -- CHECK condition of boots and heating elements.
- 11. Control Surface Static Dischargers -- CHECK condition.

### BEFORE STARTING ENGINE

 Inertial Separator -- BYPASS if visible moisture is present below 4°C (40°F).

### BEFORE TAKEOFF

### A CAUTION

To prevent blistering the cargo pod deice boot (if installed), ground operation in a right crosswind or operating the propeller in beta or feather should be kept to a minimum.

- (Small Windshield Anti-ice Panel) Windshield Anti-ice Switch AUTO and MANUAL. Observe increase in generator output and illumination of WINDSHIELD ANTI-ICE annunciator in both switch positions.
  - (Large Windshield Anti-ice Panel).

PRIMARY Windshield Anti-ice Switch -- AUTO. SECONDARY Windshield Anti-ice Switch -- AUTO and MANUAL. PRIMARY Windshield Anti-ice Switch -- MANUAL.

For each switch movement, observe change in generator output and illumination of WINDSHIELD ANTI-ICE annunciator.

- Prop Anti-ice Switch -- AUTO.
- Prop Anti-ice Ammeter -- CHECK in green arc range and for periodic cycling. The ammeter should indicate 20 to 24 amps for 90 seconds, and 0 amps for 90 seconds.
- Prop Anti-ice Switch -- MANUAL.
- 5. Prop Anti-ice Ammeter -- CHECK in green arc range.
- 6. Power Lever -- ADJUST for 400 FT-LBS TORQUE,
- Boot Press Switch -- AUTO and release. Visually check inflation and deflation cycle of stabilizer, wing inboard, main landing gear leg, wing outboard and wing strut deicing boots.
- DE-ICE PRESSURE Annunciator -- CHECK ON within three seconds, and OFF after 18 seconds with approximate two-second OFF periods after 6 and 12 seconds.
- Boots -- CHECK VISUALLY FOR COMPLETE DEFLATION to the vacuum hold-down condition.
- Boot Press Switch -- MANUAL and hold. Visually check inflation of all visible boots and illumination of DE-ICE PRESSURE annunciator within 6 seconds.
- Inertial Separator -- CHECK for torque drop between NORMAL and BYPASS modes. Return control to BYPASS if moisture is present below approximately 4°C (40°F).
- 12. Power Lever -- IDLE.
- Standby Power -- CHECK per Supplement 3 (Standby Electrical System).
- 14. Pitot/Static Heat -- ON when OAT is below 4°C (40°F).
- Stall Heat, Windshield Anti-ice and Propeller Anti-ice Switches, and Inertial Separator Control -- AS REQUIRED for takeoff and climb out conditions.

## A CAUTION

Do not operate pitot/static, stall warning, and propeller antiice heaters for prolonged periods on ground.

### KNOWN ICING EQUIPMENT POH SUPPLEMENT

### IN FLIGHT

- Before Visible Moisture is Encountered Below Approximately 4°C (40°F).
  - a. Inertial Separator Control -- Bypass.
  - b. Pitot/Static Heat Switch -- Verify ON.
  - c. Stall Heat Switch -- ON.
  - d. (Small Windshield Anti-ice Panel) Windshield Anti-ice Switch --AUTO.

(Large Windshield Anti-ice Panel).

PRIMARY Windshield Anti-ice Switch -- AUTO. SECONDARY Windshield Anti-ice Switch -- AUTO.

#### NOTE

Under non-icing conditions (especially at night), turn the windshield anti-ice switch(es) OFF to avoid a mild impairment (distortion) of vision through the panel that occurs when the heating elements in the panel are activated during the on cycle.

- e. Prop Anti-ice Switch -- AUTO.
- f. Prop Anti-ice Ammeter -- MONITOR.

### A CAUTION

If the ammeter indicates unusually high or low amperage during the 90-second cycle of operation, a malfunction has occurred and it is imperative that (1) the system be turned off, since uneven anti-icing may result, causing propeller unbalance and engine roughness, and (2) that icing conditions be avoided.

#### NOTE

A slight propeller vibration occurring at the start of the propeller anti-ice ON cycle and lasting 20-30 seconds is due to propeller blade ice shedding characteristics and is considered normal. Rapid cycling of the propeller control lever from 1900 RPM to 1600 RPM and back up to 1900 RPM will aid the propeller antiice boots in shedding any residual ice. Repeat this procedure as required.

- 2. During Icing Encounters:
  - a. Propeller -- 1900 RPM.
  - b. Power -- INCREASE as required to maintain safe airspeed or to climb out of icing conditions, if feasible. When climbing through icing conditions, it is recommended that the Maximum Climb Power rating be used (1900 RPM and 1865 FT-LBS, not to exceed 765°C ITT or 101.6% Ng).

c. Climb Airspeed -- 120 KIAS RECOMMENDED to reduce ice buildup on the areas aft of the deice boots, which include the underside of the wings, horizontal stabilizer and bottom of cargo pod (cargo pod boots optional) or fuselage. However, if a climb through icing conditions can be accomplished fairly quickly to clear or non-icing conditions on top, then a climb at Vy speed is recommended to minimize exposure time to the icing conditions.

## A WARNING

- In a performance critical situation, increase power to the Maximum Continuous rating (1900 RPM and 1865 FT-LBS torque, not to exceed 805°C ITT or 101.6% Ng) as soon as possible to climb or maintain airspeed in moderate or heavy clear icing conditions. This power may be used without time limit at the discretion of the pilot.
- Inadvertent operation in a freezing rain or freezing drizzle environment may cause ice formation on unprotected areas of the airplane such as aft of the wing or tail deice boots. These conditions may be detected bv heavy ice accumulations on the windshield, or when ice forms aft of the curved sections on the windshield. Another indication is when ice forms aft of the protected surfaces on the wing struts. If these conditions are encountered, the pilot should take immediate action to leave these conditions. This may best be achieved by climbing to warmer air above the freezing rain or drizzle. Maximum climb power with the flaps retracted should be used.
- With heavy ice accumulations on the windshield, or when ice forms aft of the curved sections on the windshield, or aft of the protected surfaces of the wing struts, a straight in or precision approach should be given priority over a circling non-precision approach.
- This airplane should not depart from or be flown into an airport where freezing rain or drizzle conditions are being reported.

#### NOTE

Inadvertent operation in freezing rain or freezing drizzle conditions may be detected by ice formation on the windshield near or aft of the curved sections of the windshield, or aft of the protected surfaces of the wing struts.

### KNOWN ICING EQUIPMENT POH SUPPLEMENT

### NOTE

When ice is no longer forming near or outboard of the curved portion of the windshield, the airplane has exited the freezing rain or drizzle conditions.

- d. Ice Detector Light Switch -- ON as required.
- Ice Buildup -- MONITOR until approximately 3/8 to 3/4 inch thick on leading edges.

#### NOTE

- Deicing boots are intended for removal of ice after it has accumulated rather than prevent its formation.
- In rime ice conditions, best results can be obtained by not using the deice system until approximately 1/2 to 3/4 inch of ice has accumulated. Clear the accumulation with one or two cycles of operation. Do not repeat deicing procedure until ice has again accumulated.
- In clear ice conditions, good clearing of the leading edges can be obtained when cycling the deice system with as little as 1/4 to 3/8 inch of ice on the wing leading edges. This procedure is recommended due to the high drag penalties associated with clear ice shapes (double horn type). As with rime ice, use multiple cycles of the deice system if required. Do not repeat the deicing procedure until ice has again accumulated.
  - Boot Press Switch -- AUTO and release. The switch must be actuated after each complete boot cycle if additional cycles are required.

### NOTE

Cycling the deice boots during high speed cruise or descent produces a mild nose-up pitching moment which is easily controlled by less than 10 pounds of control wheel force. Also, cycling the deice boots increases stall speeds by up to 10 knots. These stalls are preceded by mild stall buffet which serves as a good warning.

g. Enroute Airspeed -- MAINTAIN A MINIMUM 105 KIAS with 1/2 inch or more of rime ice accumulation. This will minimize ice buildup on the underside of the wings. If necessary to maintain a minimum airspeed of 105 KIAS, allow altitude to decrease. A significantly higher airspeed may be required with 1/2 inch or more of clear ice accumulation.

### NOTE

- During prolonged icing encounters in cruise, increase engine power to maintain cruise speed as ice accumulates on the unprotected areas, and to preclude ice buildup on the fuselage under surfaces, cargo pod nosecap and lower wing surfaces.
- An accumulation of one inch of ice on the leading edges can cause a large (up to 500 FPM) loss in rate of climb, a cruise speed reduction of up to 40 KIAS, as well as a significant buffet and stall speed increase (up to 20 knots). Even after cycling the deicing boots, the ice accumulation remaining on the unprotected areas of the airplane can cause large performance losses. With residual ice from the initial one-inch accumulation, losses up to 200 FPM in climb, 20 KIAS in cruise, and a stall speed increase of 5 knots can result.
- An accumulation of one inch of clear ice on the leading edges may cause even larger performance losses than those associated with rime ice.
- The autopilot may be used in icing conditions. However, every 10-15 minutes the autopilot should be disconnected to detect any out of trim conditions caused by ice buildup. If significant out of trim conditions are detected, the autopilot should remain off for the remainder of the icing encounter so that the pilot may monitor for additional force buildup.

## A WARNING

When disconnecting the autopilot with ice buildup on the airplane, the pilot should be alert for out of trim forces. Pilot control wheel input should be applied as required to prevent potential undesired flight path deviations.

3 Before Landing -- SELECT MINIMUM FLAP SETTING AND MAINTAIN EXTRA AIRSPEED consistent with available field length.

### KNOWN ICING EQUIPMENT POH SUPPLEMENT

### NOTE

- Prior to a landing approach, cycle all deice boots to shed any accumulated ice. Since pre-stall buffet onset and stall speed are increased slightly when deice boots are actuated, maintain extra airspeed (10 KIAS) before actuating boots.
- With ice suspected on the airframe, or operating at 4°C or less in visible moisture, Do Not Extend Flaps Beyond 20° for landing.
- After a light rime ice encounter, maintain extra airspeed (10-20 KIAS) on approach to compensate for the increased pre-stall buffet associated with ice on the unprotected areas and the increased weight. Under moderate or severe rime icing conditions, limit flap setting to no more than required by available field length, but **Do Not Extend Flaps Beyond 20° for landing.** With flaps up, maintain a MINIMUM approach speed of 105 KIAS.

## A WARNING

- During moderate or heavy clear icing encounters, increase power to maximum continuous rating and maintain maximum possible airspeed on approach (observe V<sub>MO</sub> and flap limitations) to limit ice accretion. Land with partial power still applied as required.
- Do not cycle the boots during landing since boot inflation may increase stall speeds by as much as 10 knots.
- During Landing Rollout -- DO NOT USE REVERSE THRUST, unless required, to prevent residual ice on the airframe from being drawn into the propeller.

## A CAUTION

Leave inertial separator in BYPASS mode after landing to preclude any possible ingestion of ice being shed from internal inlet ducting.

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Refer to Section 8 of the basic handbook for care and maintenance of the wing, wing strut, main landing gear leg, cargo pod nosecap and stabilizer deice boots and propeller anti-ice boots.

#### NOTE

Optimum performance of the deice and anti-ice boots is dependent on keeping the boots clean and coated with an ice adhesion depressant such as ICEX II.

## SECTION 5 PERFORMANCE

There is a slight reduction of 1 KTAS in cruise performance (no ice accumulation) as a result of the leading edge deice boot installation, and an additional 1 KTAS reduction as a result of landing gear strut and cargo pod deice boot installation.

### NOTE

Large changes in performance may occur with ice accumulation. Make appropriate allowances for the possibility of these losses occurring when planning a flight into or through forecast or reported icing conditions.

When making a landing approach using a 10 KIAS higher airspeed than normal, expect a 25% increase in landing distance.

Observe applicable notes in the Performance section of the basic handbook for performance losses associated with the inertial separator in bypass and cabin heat on.

If a landing is performed with flaps up, increase the approach speed by 15 KIAS and allow for 40% longer landing distances.

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## Pilot's Operating Handbook and FAA Approved Airplane Flight Manual

# CESSNA MODEL 208 (675 SHP) SUPPLEMENT 2

### EMERGENCY LOCATOR TRANSMITTER (ELT) (SOCATA ELT 90) For FRENCH CERTIFIED AIRPLANES

### SERIAL NO.

### **REGISTRATION NO.**

This supplement must be inserted into Section 9 of the Pilot's Operating Handbook and FAA Approved Airplane Flight Manual for Cessna Model 208 (675 SHP) airplanes which have the French DGAC Kit installed.

Dorneil APPROVED BY

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REV. NUMBER

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# **SUPPLEMENT 2**

## EMERGENCY LOCATOR TRANSMITTER (ELT)

## (SOCATA ELT 90)

Use the Log of Effective Pages to determine the current status of this supplement. Pages affected by the current revision are indicated by an asterisk (\*) preceding the page number.

### Revision Level Date of Issue

0 (Original)

1 April 1998

### LOG OF EFFECTIVE PAGES

PAGE

S2-1 thru S2-8

1 April 1998

DATE

1 April 1998

### SOCATA ELT 90 (FRENCH) POH SUPPLEMENT

MODEL 208 (675 SHP)

## SUPPLEMENT

## EMERGENCY LOCATOR TRANSMITTER (ELT)

### (SOCATA ELT 90)

### FRENCH CERTIFIED CESSNA MODEL 208 AIRPLANES

### SECTION 1

### GENERAL

This supplement provides information which must be observed when operating the Socata ELT 90 Emergency Locator Transmitter, which conforms to EUROCAE ED-62 specifications.

The Socata ELT consists of a self-contained dual-frequency, solid-state transmitter powered by a lithium battery pack and is automatically activated by a deceleration sensing inertia "G" switch, which is designed to activate when the unit senses longitudinal inertial forces as required in ED-62. Also, a remote control panel is installed on the top center location of the copilot's instrument panel for control of the ELT from the flight crew station. The annunciator, which is on the remote control panel, illuminates when the ELT transmitter is transmitting. The ELT emits an omni-directional signal on the international distress frequencies of 121.5 MHz and 243.0 MHz. General aviation and commercial aircraft, the FAA, and other civil aviation authorities monitor 121.5 MHz. 243.0 MHz is monitored by the military.

The ELT is contained in a high impact, fire retardant, waterproof case and is mounted behind the aft cabin partition wall on the right side of the tailcone. To gain access to the unit, open the zipper in the aft cabin canvas partition. The ELT is operated by a control panel at the forward facing end of the unit or by the remote control panel located on the top center portion of the copilot's instrument panel (refer to Figure 1).

Power for the transmitter is provided by an lithium battery pack inside the transmitter case.

A portable antenna is provided with the ELT 90 unit for portable operations.

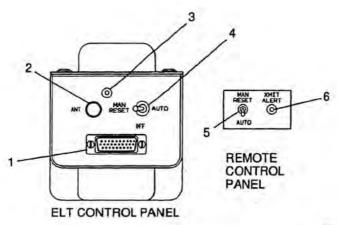
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## WARNING

The ELT's battery pack should be replaced after 2 years shelf or service life, or for any of the following reasons:

- a. After the transmitter has been used in an emergency situation (including any inadvertent activation of unknown duration).
- b. After the transmitter has been operated for more than one cumulative hour (e.g.: time accumulated in several tests and inadvertent activation of known duration).
- c. On or before battery replacement date. Battery replacement date is marked on the battery pack and the label on the transmitter.



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- REMOTE CABLE JACK -- Connects to ELT remote switch/annunciator located on the copilot's instrument panel.
- ANTENNA RECEPTACLE -- Connects to antenna mounted on top of tailcone.
- TRANSMITTER ANNUNCIATOR LIGHT -- Illuminates red to indicate the transmitter is transmitting a distress signal.

Figure 1. ELT Control Panel and Remote Control Panel (Sheet 1 of 2)

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### SOCATA ELT 90 (FRENCH) POH SUPPLEMENT

## S2 MODEL 208 (675 SHP)

### 4. MASTER FUNCTION SELECTOR SWITCH (3-position toggle switch):

- MAN RESET -- Activates transmitter instantly. Used for test purposes and if "G" switch is inoperative. The MAN RESET position bypasses the automatic activation switch. With the switch in MAN RESET position, the annunciator on the ELT will illuminate. (If the ELT is installed in the airplane the red "XMIT ALERT" annunciator on the remote control panel should illuminate). After automatic activation by the "G" switch, positioning the switch from AUTO to MAN RESET then back to AUTO resets the "G" switch, deactivating the transmitter and extinguishing the annunciators.
- OFF -- Deactivates transmitter during handling and following rescue. (The red annunciators on the ELT unit and on the remote control panel should extinguish).
- AUTO -- Arms transmitter for automatic activation if "G" switch senses a predetermined deceleration level.
- REMOTE CONTROL PANEL SWITCH (2-position toggle switch):
  - MAN RESET -- Remotely activates transmitter for test or emergency situations. Red "XMIT ALERT" annunciator on remote control panel illuminates to indicate that the transmitter is transmitting a distress signal. To deactivate transmitter after manual activation, position the switch from MAN RESET to AUTO. After automatic activation by the "G" switch, positioning the switch from AUTO to MAN RESET then back to AUTO resets the "G" switch, deactivating the transmitter and extinguishing the annunciator.
  - AUTO -- Arms transmitter for automatic activation if "G" switch senses a predetermined deceleration level.
- 6. REMOTE CONTROL PANEL ANNUNCIATOR:
  - XMIT ALERT -- Illuminates red to indicate the transmitter is transmitting a distress signal.
  - Figure 1. ELT Control Panel and Remote Control Panel (Sheet 2 of 2)

## SECTION 2 LIMITATIONS

The following information must be present in the form of a placard located on the upper right side of the aft cabin partition:

EMERGENCY LOCATOR TRANSMITTER INSTALLED AFT OF THIS PARTITION MUST BE SERVICED IN ACCORDANCE WITH FAR PART 91.207

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## SECTION 3

### EMERGENCY PROCEDURES

Before performing a forced landing, especially in remote and mountainous areas, activate the ELT transmitter by positioning the switch on the remote control panel to the MAN RESET position. The red "XMIT ALERT" annunciator on the remote control panel should be illuminated.

Immediately after a forced landing where emergency assistance is required, the ELT should be utilized as follows:

#### NOTE

The ELT remote control panel system could be inoperative if damaged during a forced landing. If inoperative, the inertia "G" switch will activate automatically. However, to turn the ELT OFF and ON again requires manual switching of the master function selector switch which is located on the ELT unit.

- 1. ENSURE ELT ACTIVATION:
  - Position remote control panel switch to the MAN RESET position even if annunciator light is already on.
  - b. If airplane radio is operable and can be safely used (no threat of fire or explosion), turn ON and select 121.5 MHz. If the ELT can be heard transmitting, it is working properly.
  - c. Ensure that antenna is clear of obstructions.

### NOTE

When the ELT is activated, a decreasing tone will be heard before the typical warbling tone begins.

- PRIOR TO SIGHTING RESCUE AIRCRAFT -- Conserve airplane battery. Do not activate radio transceiver.
- AFTER SIGHTING RESCUE AIRCRAFT -- Position remote control panel switch from the MAN RESET position to the AUTO position to prevent radio interference. Attempt contact with rescue aircraft with the radio transceiver set to a frequency of 121.5 MHz. If no contact is established return the remote control panel switch to the MAN RESET position immediately.
- FOLLOWING RESCUE -- Position remote control panel switch to the AUTO position, terminating emergency transmissions.

### SOCATA ELT 90 (FRENCH) POH SUPPLEMENT

## SECTION 4

## NORMAL PROCEDURES

As long as the remote control panel switch is in the AUTO position and the ELT master function selector switch remains in the AUTO position, the ELT automatically activates when the unit senses longitudinal inertia forces as required in ED-62.

Following a lightning strike, or an exceptionally hard landing, the ELT may activate although no emergency exists. If the remote control panel illuminates, the ELT has inadvertently activated itself. Another way to check is to select 121.5 MHz on the radio transceiver and listen for an emergency tone transmission. If the remote control panel annunciator is illuminated or an emergency tone is heard, position the remote control panel switch to MAN RESET then back to AUTO to deactivate the transmitter.

### INSPECTION/TEST

1. The emergency locator transmitter should be tested every 100 hours.

#### NOTE

Test should only be conducted within the first 5 minutes of each hour.

- 2. Disconnect antenna cable from ELT.
- 3. Turn airplane battery switch and avionics power switches ON.
- 4. Turn airplane transceiver ON and set frequency to 121.5 MHz.
- Place remote control panel switch in the MAN RESET position. The annunciator should illuminate. Permit <u>only three</u> emergency tone transmissions, then immediately reposition the remote control panel switch to the AUTO position.
- Place the ELT master function selector switch in the MAN RESET position. Verify that the transmitter annunciator light on the ELT and the remote control panel annunciator on the instrument panel are illuminated.
- 7. Place the ELT master function selector switch in the OFF position.
- 8. Reposition ELT master function selector switch to AUTO.
- 9. Reconnect antenna cable to ELT.

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### SOCATA ELT 90 (FRENCH) POH SUPPLEMENT



# A test with the antenna connected should be approved and confirmed by the nearest control tower.

#### NOTE

- Without its antenna connected, the ELT will produce sufficient signal to reach the airplane transceiver, yet it will not disturb other communications or damage output circuitry.
- After accumulated test or operation time equals 1 hour, battery pack replacement is required.

### IN-FLIGHT MONITORING AND REPORTING

Pilots are encouraged to monitor 121.5 MHz and/or 243.0 MHz while in flight to assist in identifying possible emergency ELT transmissions. On receiving a signal, report the following information to the nearest air traffic control facility:

- 1. Your position at the time the signal was first heard.
- Your position at the time the signal was last heard.
- 3. Your position at maximum signal strength.
- 4. Your flight altitude and frequency on which the emergency signal was heard -- 121.5 MHz or 243.0 MHz. If possible, positions should be given relative to a navigation aid. If the aircraft has homing equipment, provide the bearing to the emergency signal with each reported position.

### SECTION 5 PERFORMANCE

There is no change to the airplane performance data when this equipment is installed.



## Pilot's Operating Handbook and FAA Approved Airplane Flight Manual

# CESSNA MODEL 208 (675 SHP)

# SUPPLEMENT 3

### BENDIX/KING DIGITAL ADF (TYPE KR-87 with KI 227-01 INDICATOR)

SERIAL NO.

**REGISTRATION NO.** 

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, if the airplane is equipped with the Bendix/King Digital ADF (Type KR-87 with KI 227-01 Indicator).

APPROVED B

Wendell W. Corneil Executive Engineer Cessna Aircraft Company Delegation Option Manufacturer CE-3

DATE OF APPROVAL 7 APRIL 1998

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D1352-S3-00

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1 APRIL 1998

KR-87 ADF/ KI 227-01 INDICATOR POH SUPPLEMENT

# **SUPPLEMENT 3**

### BENDIX/KING DIGITAL ADF (TYPE KR-87 with KI 227-01 INDICATOR)

Use the Log of Effective Pages to determine the current status of this supplement. Pages affected by the current revision are indicated by an asterisk (\*) preceding the page number.

### Revision Level Date of Issue

0 (Original) 1 April 1998

### LOG OF EFFECTIVE PAGES

PAGE

S3-1 thru S3-10

DATE

REV. NUMBER

1 April 1998

0

1 April 1998

KR-87 ADF/KI 227-01 INDICATOR POH SUPPLEMENT S3 MODEL 208 (675 SHP)

# SUPPLEMENT

## BENDIX/KING DIGITAL ADF (TYPE KR-87 with KI 227-01 INDICATOR)

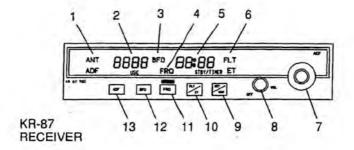
## SECTION 1 GENERAL

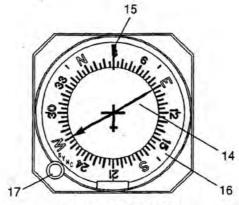
The Bendix/King Digital ADF is a panel-mounted, digitally tuned automatic direction finder. It is designed to provide continuous 1-kHz digital tuning in the frequency range of 200 kHz to 1799 kHz and eliminates the need for mechanical band switching. The system is comprised of a receiver, a built-in electronics timer, a bearing indicator, and a KA-44B combined loop and sense antenna. The system incorporates a KI 227-01 Indicator in conjunction with a KCS 55A Compass System. The compass card on the KI 227-01 Indicator is synchronized to the KI 525A Compass Card by rotating the Sync Knob of the KI 227-01 Indicator, until the reading matches that of the KI 525A Compass Card. Once aligned, the two compass cards will track concurrently. Operating controls and displays for the Bendix/King Digital ADF are shown and described in Figure 1. The audio system used with this ADF system for speaker-phone selection is shown and described in the Bendix/King Audio Control System (Type KMA-24 or KMA-24H-70) supplements in Section 9 of this handbook.

The Bendix/King Digital ADF can be used for position plotting and homing procedures, and for aural reception of amplitude-modulated (AM) signals.

The "flip-flop" frequency display allows switching between pre-selected "STANDBY" and "ACTIVE" frequencies by pressing the frequency transfer button. Both pre-selected frequencies are stored in a non-volatile memory circuit (no battery power required) and displayed in self-dimming gas discharge numerics. The active frequency is continuously displayed in the left window, while the right window will display either the standby frequency or the selected readout from the built-in electronic timer.

The built-in electronic timer has two separate and independent timing functions. An automatic flight timer that starts whenever the unit is turned on. This timer functions up to 59 hours and 59 minutes. An elapsed timer which will count up or down for up to 59 minutes and 59 seconds. When a preset time interval has been programmed and the countdown reaches :00, the display will flash for 15 seconds. Since both the flight timer and elapsed timer operate independently, it is possible to monitor either one without disrupting the other. The pushbutton controls and the bearing indicators are internally lighted. Intensity is controlled by the RADIO light dimming rheostat.





KI 227-01 INDICATOR

066-1072-04 066-3063-01

### Figure 1. Bendix/King Digital ADF Operating Controls/Indicator (Sheet 1 of 3)

1 April 1998

### KR-87 ADF/KI 227-01 INDICATOR POH SUPPLEMENT

- MODE ANNUNCIATOR -- Antenna (ANT) is selected by the "out" position of the ADF button. This mode improves the aural reception and is usually used for station identification. The bearing pointer is deactivated and will park in the 90° relative position. Automatic Direction Finder (ADF) mode is selected by the depressed position of the ADF button. This mode activates the bearing pointer. The bearing pointer will point in the direction of the station relative to the aircraft heading.
- ACTIVE FREQUENCY DISPLAY -- The frequency to which the ADF is tuned is displayed here. The active ADF frequency can be changed directly when either of the timer functions are selected.
- BEAT FREQUENCY OSCILLATOR (BFO) -- The BFO mode, activated and annunciated when the "BFO" button is depressed, permits the carrier wave and associated morse code identifier broadcast on the carrier wave to be heard.

#### NOTE

CW signals (Morse Code) are unmodulated and no audio will be heard without use of BFO. This type of signal is not used in the United States air navigation. It is used in some foreign countries and marine beacons.

- 4. STANDBY FREQUENCY ANNUNCIATION (FRQ) -- When FRQ is displayed the STANDBY frequency is displayed in the right hand display. The STANDBY frequency is selected using the frequency select knobs. The selected STANDBY frequency is put into the ACTIVE frequency windows by pressing the frequency transfer button.
- 5. STANDBY FREQUENCY DISPLAY -- Either the standby irequency, the flight timer, or the elapsed time is displayed in this position. The flight timer and elapsed timer are displayed replacing the standby frequency which goes into "blind" memory to be called back at any time by depressing the FRQ button. Flight time or elapsed time are displayed and annunciated alternatively by depressing the FLT/ET button.
- TIMER MODE ANNUNCIATION -- Either the elapsed time (ET) or flight time (FLT) mode is annunciated here.
- 7. FREQUENCY SELECTOR KNOBS -- Selects the standby frequency when FRQ is displayed and directly selects the active frequency whenever either of the time functions is selected. The frequency selector knobs may be rotated either clockwise or counterclockwise. The small knob is pulled out to tune the 1's. The small knob is pushed in to tune the 10's. The outer knob tunes the 100's with rollover into the 1000's. These knobs are also used to set the desired time when the elapsed timer is used in the countdown mode.

Figure 1. Bendix/King Digital ADF Operating Controls/Indicators (Sheet 2 of 3)

### KR-87 ADF/KI 227-01 INDICATOR POH SUPPLEMENT

- OFF/VOLUME CONTROL (OFF/VOL) -- Controls primary power and audio output level. Clockwise rotation from OFF position applies primary power to the receiver; further clockwise rotation increases audio level. Audio muting causes the audio output to be muted unless the receiver is locked on a valid station.
- SET/RESET BUTTON (SET/RST) -- The set/reset button when pressed resets the elapsed timer whether it is being displayed or not.
- FLIGHT TIME/ELAPSED TIME MODE SELECTOR BUTTON (FLT/ET) --The Flight Timer/Elapsed Time mode selector button when pressed alternatively selects either Flight Timer mode or Elapsed Timer mode.
- FREQUENCY TRANSFER BUTTON (FRQ) -- The FRQ transfer button when pressed exchanges the active and standby frequencies. The new frequency becomes active and the former active frequency goes into standby.
- BFO BUTTON -- The BFO button selects the BFO mode when in the depressed position. (See note under item 3).
- ADF BUTTON -- The ADF button selects either the ANT mode or the ADF mode. The ANT mode is selected with the ADF button in the out position. The ADF mode is selected with the ADF button in the depressed position.
- 14. POINTER -- Indicates the magnetic bearing to the ADF station.
- HEADING INDEX -- Indicates the airplane magnetic heading on the azimuth card.
- ROTATING AZIMUTH (COMPASS) CARD -- Rotates as the airplane turns so that the airplane magnetic heading is continuously displayed at the heading index.
- SYNC KNOB -- Used to manually rotate compass card to synchronize with airplane heading. Once synchronized, compass card will continuously display aircraft heading.

### Figure 1. Bendix/King Digital ADF Operating Controls/ Indicators (Sheet 3 of 3)

1 April 1998

### KR-87 ADF/KI 227-01 INDICATOR POH SUPPLEMENT

S3 MODEL 208 (675 SHP)

### SECTION 2 LIMITATIONS

There are no changes to the airplane Limitations when this avionics equipment is installed.

## SECTION 3 EMERGENCY PROCEDURES

There are no changes to the airplane Emergency Procedures when this avionics equipment is installed.

## SECTION 4 NORMAL PROCEDURES

### TO OPERATE AS AN AUTOMATIC DIRECTION FINDER:

- 1. OFF/VOL Control -- ON,
- Frequency Selector Knobs -- SELECT desired frequency in the standby frequency display.
- FRQ Button -- PRESS to move the desired frequency from the standby to the active position.
- ADF SPEAKER/PHONE Selector Switch (on audio control panel) --SELECT as desired.
- 5. OFF/VOL Control -- SET to desired volume level.
- 6. ADF Button -- SELECT ADF mode and note relative bearing on indicator.

### ADF TEST (PRE-FLIGHT or IN-FLIGHT):

- ADF Button -- SELECT ANT mode and note pointer moves to 90° position.
- ADF Button -- SELECT ADF mode and note the pointer moves without hesitation to the station bearing. Excessive pointer sluggishness, wavering or reversals indicate a signal that is too weak or a system malfunction.

### KR-87 ADF/KI 227-01 INDICATOR POH SUPPLEMENT

### TO OPERATE BFO:

- 1. OFF/VOL Control -- ON.
- BFO Button -- PRESS on.
- ADF SPEAKER/PHONE Selector Buttons (on audio control panel) --SET to desired mode.
- VOL Control -- ADJUST to desired listening level.

### NOTE

A 1000-Hz tone and Morse Code identifier is heard in the audio output when a CW signal is received.

### TO OPERATE FLIGHT TIMER:

- 1. OFF/VOL Control -- ON.
- FLT/ET Mode Button -- PRESS (once or twice) until FLT is annunciated. Timer will already be counting since it is activated by turning the unit on.
- OFF/VOL Control -- OFF and then ON if it is desired to reset the flight timer.

### TO OPERATE AS A COMMUNICATIONS RECEIVER ONLY:

- 1. OFF/VOL Control -- ON.
- 2. ADF Button -- SELECT ANT mode.
- Frequency Selector Knobs -- SELECT desired frequency in the standby frequency display.
- FRQ Button -- PRESS to move the desired frequency from the standby to the active position.
- ADF SPEAKER/PHONE Selector Buttons (on audio control panel) --SET to desired mode.
- 6. VOL Control -- ADJUST to desired listening level.

### TO OPERATE ELAPSED TIME TIMER-COUNT UP MODE:

- 1. OFF/VOL Control -- ON.
- FLT/ELT Mode Button -- PRESS (once or twice) until ET is annunciated.
- 3. SET/RST Button -- PRESS until the ET annunciation begins to flash.
- 4. SET/RST Button -- PRESS to start timer.
- SET/RST Button -- PRESS to stop timer. Timer will reset zero. When the SET/RST button is released the timer will start to count again unless the SET/RST button is held until the ET annunciation flashes.

### KR-87 ADF/KI 227-01 INDICATOR POH SUPPLEMENT

MODEL 208 (675 SHP)

#### NOTE

The Standby Frequency which is in memory while Flight Time or Elapsed Time modes are being displayed may be called back by pressing the FRQ button, then transferred to active use by pressing the FRQ button again.

#### TO OPERATE ELAPSED TIME TIMER-COUNT DOWN MODE:

- 1. OFF/VOL Control -- ON.
- FLT/ELT Mode Button -- PRESS (once or twice) until ET is annunciated.
- 3. SET/RST Button -- PRESS until the ET annunciation begins to flash.
- FREQUENCY SELECTOR KNOBS -- SET desired time in the elapsed time display. The small knob is pulled out to tune the 1's. The small knob is pushed in to tune the 10's. The outer knob tunes minutes up to 59 minutes.

#### NOTE

Selector knobs remain in the time set mode for 15 seconds after the last entry or until the SET/RST, FLT/ET or FRQ button is pressed.

 SET/RST Button -- PRESS to start countdown. When the timer reaches 0, it will start to count up as display flashes for 15 seconds.

#### NOTE

While FLT or ET are displayed, the active frequency on the left side of the window may be changed, by using the frequency selector knobs, without any effect on the stored standby frequency or the other modes.

#### ADF OPERATION NOTES:

#### ERRONEOUS ADF BEARING DUE TO RADIO FREQUENCY PHENOMENA:

In the U.S., the FCC, which assigns AM radio frequencies, occasionally will assign the same frequency to more than one station in an area. Certain conditions, such as Night Effect, may cause signals from such stations to overlap. This should be taken into consideration when using AM broadcast station for navigation.

Sunspots and atmospheric phenomena may occasionally distort reception so that signals from two stations on the same frequency will overlap. For this reason, it is always wise to make positive identification of the station being tuned, by switching the function selector to ANT and listening for station call letters.

## S3 MODEL 208 (675 SHP)

### KR-87 ADF/KI 227-01 INDICATOR POH SUPPLEMENT

#### ELECTRICAL STORMS:

In the vicinity of electrical storms, an ADF indicator pointer tends to swing from the station tuned toward the center of the storm.

#### NIGHT EFFECT:

This is a disturbance particularly strong just after sunset and just after dawn. An ADF indicator pointer may swing erratically at these times. If possible, tune to the most powerful station at the lowest frequency. If this is not possible, take the average of pointer oscillations to determine relative station bearing.

#### MOUNTAIN EFFECT:

Radio waves reflecting from the surface of mountains may cause the pointer to fluctuate or show an erroneous bearing. This should be taken into account when taking bearings over mountainous terrain.

#### COASTAL REFRACTION:

Radio waves may be refracted when passing from land to sea or when moving parallel to the coastline. This also should be taken into account.

## SECTION 5 PERFORMANCE

The is no change to the airplane performance when this avionics equipment is installed. However, the installation of an externally mounted antenna or related external antennas, will result in a minor reduction in cruise performance.

1 April 1998



# Pilot's Operating Handbook and FAA Approved Airplane Flight Manual

# CESSNA MODEL 208 (675 SHP) SUPPLEMENT 4

BENDIX/KING DUAL DIGITAL ADF SYSTEM (TYPE KR-87 with KI 228-01 INDICATOR)

SERIAL NO.

#### **REGISTRATION NO.**

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, if the airplane is equipped with the Bendix/King Dual Digital ADF System (Type KR-87 with 228-01 Indicator).

Dorneil APPROVED B

Wendell W. Corneil Executive Engineer Gessna Aircraft Company Delegation Option Manufacturer CE-3

DATE OF APPROVAL 7 APRIL 1998

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1 APRIL 1998

# **SUPPLEMENT 4**

## BENDIX/KING DUAL DIGITAL ADF SYSTEM (TYPE KR-87 with KI 228-01 INDICATOR)

Use the Log of Effective Pages to determine the current status of this supplement. Pages affected by the current revision are indicated by an asterisk (\*) preceding the page number.

Revision Level	Date of Issue

0 (Original) 1 April 1998

## LOG OF EFFECTIVE PAGES

PAGE

S4-1 thru S4-10

DATE

1 April 1998

REV. NUMBER

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1 April 1998

DUAL KR-87 ADF/KI 228-01 INDICATOR POH SUPPLEMENT 54 MODEL 208 (675 SHP)

# SUPPLEMENT

## BENDIX/KING DUAL DIGITAL ADF SYSTEM (TYPE KR-87 with KI 228-01 INDICATOR)

# SECTION 1 GENERAL

The Bendix/King Digital ADF is a panel-mounted, digitally tuned automatic direction finder. It is designed to provide continuous 1-kHz digital tuning in the frequency range of 200 kHz to 1799 kHz and eliminates the need for mechanical band switching. The Dual Digital ADF system is comprised of two receivers, two built-in electronics timers, two KA-44B combined loop and sense antennas, and one dual-pointer bearing indicator. The system incorporates a KI 228-01 Indicator in conjunction with a KCS 55A Compass System. The compass card on the KI 228-01 Indicator is synchronized to the KI 525A Compass Card by rotating the Sync Knob of the KI 228-01 Indicator, until the reading matches that of the KI 525A Compass Card. Once aligned, the two compass cards will track concurrently. Operating controls and displays for the Bendix/King Digital ADF are shown and described in Figure 1. The audio system used with this ADF system for speaker-phone selection is shown and described in the Bendix/King Audio Control System (Type KMA-24 or KMA-24H-70) supplements in Section 9 of this handbook.

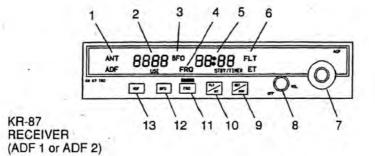
The Bendix/King Digital ADF can be used for position plotting and homing procedures, and for aural reception of amplitude-modulated (AM) signals.

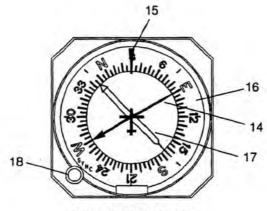
The "flip-flop" frequency display allows switching between pre-selected "STANDBY" and "ACTIVE" frequencies by pressing the frequency transfer button. Both pre-selected frequencies are stored in a non-volatile memory circuit (no battery power required) and displayed in self-dimming gas discharge numerics. The active frequency is continuously displayed in the left window, while the right window will display either the standby frequency or the selected readout from the built-in electronic timer.

The built-in electronic timer has two separate and independent timing functions. An automatic flight timer that starts whenever the unit is turned on. This timer functions up to 59 hours and 59 minutes. An elapsed timer which will count up or down for up to 59 minutes and 59 seconds. When a preset time interval has been programmed and the countdown reaches :00, the display will flash for 15 seconds. Since both the flight timer and elapsed timer operate independently, it is possible to monitor either one without disrupting the other. The pushbutton controls and the bearing indicators are internally lighted. Intensity is controlled by the RADIO light dimming rheostat.

## S4 MODEL 208 (675 SHP)

## DUAL KR-87 ADF/KI 228-01 INDICATOR POH SUPPLEMENT





KI 228-01 INDICATOR

066-1072-04 066-3059-01

## Figure 1. Bendix/King Digital ADF Operating Controls/Indicators (Sheet 1 of 3)

1 April 1998

#### DUAL KR-87 ADF/KI 228-01 INDICATOR POH SUPPLEMENT

- MODE ANNUNCIATOR -- Antenna (ANT) is selected by the "out" position of the ADF button. This mode improves the aural reception and is usually used for station identification. The bearing pointer is deactivated and will park in the 90° relative position. Automatic Direction Finder (ADF) mode is selected by the depressed position of the ADF button. This mode activates the bearing pointer. The bearing pointer will point in the direction of the station relative to the aircraft heading.
- ACTIVE FREQUENCY DISPLAY -- The frequency to which the ADF is tuned is displayed here. The active ADF frequency can be changed directly when either of the timer functions are selected.
- BEAT FREQUENCY OSCILLATOR (BFO) -- The BFO mode, activated and annunciated when the "BFO" button is depressed, permits the carrier wave and associated morse code identifier broadcast on the carrier wave to be heard.

#### NOTE

CW signals (Morse Code) are unmodulated and no audio will be heard without use of BFO. This type of signal is not used in the United States air navigation. It is used in some foreign countries and marine beacons.

- 4. STANDBY FREQUENCY ANNUNCIATION (FRQ) -- When FRQ is displayed the STANDBY frequency is displayed in the right hand display. The STANDBY frequency is selected using the frequency select knobs. The selected STANDBY frequency is put into the ACTIVE frequency windows by pressing the frequency transfer button.
- 5. STANDBY FREQUENCY DISPLAY -- Either the standby frequency, the flight timer, or the elapsed time is displayed in this position. The flight timer and elapsed timer are displayed replacing the standby frequency which goes into "blind" memory to be called back at any time by depressing the FRQ button. Flight time or elapsed time are displayed and annunciated alternatively by depressing the FLT/ET button.
- TIMER MODE ANNUNCIATION -- Either the elapsed time (ET) or flight time (FLT) mode is annunciated here.
- 7. FREQUENCY SELECTOR KNOBS -- Selects the standby frequency when FRQ is displayed and directly selects the active frequency whenever either of the time functions is selected. The frequency selector knobs may be rotated either clockwise or counterclockwise. The small knob is pulled out to tune the 1's. The small knob is pushed in to tune the 10's. The outer knob tunes the 100's with rollover into the 1000's. These knobs are also used to set the desired time when the elapsed timer is used in the countdown mode.

#### Figure 1. Bendix/King Digital ADF Operating Controls/Indicators (Sheet 2 of 3)

## S4 MODEL 208 (675 SHP)

## DUAL KR-87 ADF/KI 228-01 INDICATOR POH SUPPLEMENT

- OFF/VOLUME CONTROL (OFF/VOL) -- Controls primary power and audio output level. Clockwise rotation from OFF position applies primary power to the receiver; further clockwise rotation increases audio level. Audio muting causes the audio output to be muted unless the receiver is locked on a valid station.
- SET/RESET BUTTON (SET/RST) -- The set/reset button when pressed resets the elapsed timer whether it is being displayed or not.
- FLIGHT TIME/ELAPSED TIME MODE SELECTOR BUTTON (FLT/ET) --The Flight Timer/Elapsed Time mode selector button when pressed alternatively selects either Flight Timer mode or Elapsed Timer mode.
- FREQUENCY TRANSFER BUTTON (FRQ) -- The FRQ transfer button when pressed exchanges the active and standby frequencies. The new frequency becomes active and the former active frequency goes into standby.
- BFO BUTTON -- The BFO button selects the BFO mode when in the depressed position. (See note under item 3).
- ADF BUTTON -- The ADF button selects either the ANT mode or the ADF mode. The ANT mode is selected with the ADF button in the out position. The ADF mode is selected with the ADF button in the depressed position.
- 14. SINGLE-BAR POINTER -- Indicates magnetic bearing to the ADF station tuned on ADF 1.
- 15. HEADING INDEX -- Indicates airplane magnetic heading on the azimuth card.
- ROTATING AZIMUTH (COMPASS) CARD -- Rotates as the airplane turns so that the airplane magnetic heading is continuously displayed at the heading index.
- 17. DOUBLE-BAR POINTER Indicates magnetic bearing to the ADF station tuned on ADF 2.
- SYNC KNOB -- Used to manually rotate compass card to synchronize with airplane heading. Once synchronized, compass card will continuously display aircraft heading.

Figure 1. Bendix/King Digital ADF Operating Controls/ Indicators (Sheet 3 of 3)

1 April 1998

DUAL KR-87 ADF/KI 228-01 INDICATOR POH SUPPLEMENT MODEL 208 (675 SHP)

# SECTION 2 LIMITATIONS

There are no changes to the airplane Limitations when this avionics equipment is installed.

## SECTION 3 EMERGENCY PROCEDURES

There are no changes to the airplane Emergency Procedures when this avionics equipment is installed.

# SECTION 4 NORMAL PROCEDURES

#### TO OPERATE AS AN AUTOMATIC DIRECTION FINDER:

- 1. OFF/VOL Control -- ON.
- Frequency Selector Knobs -- SELECT desired frequency in the standby frequency display.
- FRQ Button -- PRESS to move the desired frequency from the standby to the active position.
- ADF SPEAKER/PHONE Selector Switch (on audio control panel) --SELECT as desired.
- 5. OFF/VOL Control -- SET to desired volume level.
- ADF Button -- SELECT ADF mode and note relative bearing on indicator.

#### ADF TEST (PRE-FLIGHT or IN-FLIGHT):

- ADF Button -- SELECT ANT mode and note pointer moves to 90° position.
- ADF Button -- SELECT ADF mode and note the pointer moves without hesitation to the station bearing. Excessive pointer sluggishness, wavering or reversals indicate a signal that is too weak or a system malfunction.

## S4 MODEL 208 (675 SHP)

### DUAL KR-87 ADF/KI 228-01 INDICATOR POH SUPPLEMENT

#### TO OPERATE BFO:

- 1. OFF/VOL Control -- ON.
- BFO Button -- PRESS on.
- ADF SPEAKER/PHONE Selector Buttons (on audio control panel) --SET to desired mode.
- 4. VOL Control -- ADJUST to desired listening level.

#### NOTE

A 1000-Hz tone and Morse Code identifier is heard in the audio output when a CW signal is received.

#### TO OPERATE FLIGHT TIMER:

- 1. OFF/VOL Control -- ON.
- FLT/ET Mode Button -- PRESS (once or twice) until FLT is annunciated. Timer will already be counting since it is activated by turning the unit on.
- OFF/VOL Control -- OFF and then ON if it is desired to reset the flight timer.

#### TO OPERATE AS A COMMUNICATIONS RECEIVER ONLY:

- 1. OFF/VOL Control -- ON.
- 2. ADF Button -- SELECT ANT mode.
- Frequency Selector Knobs -- SELECT desired frequency in the standby frequency display.
- FRQ Button -- PRESS to move the desired frequency from the standby to the active position.
- ADF SPEAKER/PHONE Selector Buttons (on audio control panel) --SET to desired mode.
- 6. VOL Control -- ADJUST to desired listening level.

#### TO OPERATE ELAPSED TIME TIMER-COUNT UP MODE:

- 1. OFF/VOL Control -- ON.
- FLT/ELT Mode Button PRESS (once or twice) until ET is annunciated.
- 3. SET/RST Button -- PRESS until the ET annunciation begins to flash.
- 4. SET/RST Button -- PRESS to start timer.
- SET/RST Button -- PRESS to stop timer. Timer will reset zero. When the SET/RST button is released the timer will start to count again unless the SET/RST button is held until the ET annunciation flash

#### NOTE

The Standby Frequency which is in memory while Flight Time or Elapsed Time modes are being displayed may be called back by pressing the FRQ button, then transferred to active use by pressing the FRQ button again.

#### TO OPERATE ELAPSED TIME TIMER-COUNT DOWN MODE:

- 1. OFF/VOL Control -- ON.
- 2. FLT/ELT Mode Button -- PRESS (once or twice) until ET is annunciated.
- 3. SET/RST Button -- PRESS until the ET annunciation begins to flash.
- FREQUENCY SELECTOR KNOBS -- SET desired time in the elapsed time display. The small knob is pulled out to tune the 1's. The small knob is pushed in to tune the 10's. The outer knob tunes minutes up to 59 minutes.

#### NOTE

Selector knobs remain in the time set mode for 15 seconds after the last entry or until the SET/RST, FLT/ET or FRQ button is pressed.

 SET/RST Button -- PRESS to start countdown. When the timer reaches 0, it will start to count up as display flashes for 15 seconds.

#### NOTE

While FLT or ET are displayed, the active frequency on the left side of the window may be changed, by using the frequency selector knobs, without any effect on the stored standby frequency or the other modes.

#### ADF OPERAION NOTES:

#### ERRONEOUS ADF BEARING DUE TO RADIO FREQUENCY PHENOMENA:

In the U.S., the FCC, which assigns AM radio frequencies, occasionally will assign the same frequency to more than one station in an area. Certain conditions, such as Night Effect, may cause signals from such stations to overlap. This should be taken into consideration when using AM broadcast station for navigation.

Sunspots and atmospheric phenomena may occasionally distort reception so that signals from two stations on the same frequency will overlap. For this reason, it is always wise to make positive identification of the station being tuned, by switching the function selector to ANT and listening for station call letters.

# S4 MODEL 208 (675 SHP)

### DUAL KR-87 ADF/KI 228-01 INDICATOR POH SUPPLEMENT

ELECTRICAL STORMS:

In the vicinity of electrical storms, an ADF indicator pointer tends to swing from the station tuned toward the center of the storm.

NIGHT EFFECT:

This is a disturbance particularly strong just after sunset and just after dawn. An ADF indicator pointer may swing erratically at these times. If possible, tune to the most powerful station at the lowest frequency. If this is not possible, take the average of pointer oscillations to determine relative station bearing.

MOUNTAIN EFFECT:

Radio waves reflecting from the surface of mountains may cause the pointer to fluctuate or show an erroneous bearing. This should be taken into account when taking bearings over mountainous terrain.

COASTAL REFRACTION:

Radio waves may be refracted when passing from land to sea or when moving parallel to the coastline. This also should be taken into account.

## SECTION 5 PERFORMANCE

The is no change to the airplane performance when this avionics equipment is installed. However, the installation of an externally mounted antenna or related external antennas, will result in a minor reduction in cruise performance.

1 April 1998



# Pilot's Operating Handbook and FAA Approved Airplane Flight Manual

# CESSNA MODEL 208 (675 SHP) SUPPLEMENT 5

# BENDIX/KING KCS-55A SLAVED COMPASS SYSTEM with KI-525A HSI INDICATOR

SERIAL NO.

**REGISTRATION NO.** 

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual when the airplane is not equipped with an autopilot system, and the Bendix/King KCS-55A Slaved Compass System with KI-525A HSI Indicator is installed.

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# **SUPPLEMENT 5**

# BENDIX/KING KCS-55A SLAVED COMPASS SYSTEM with KI-525A HSI INDICATOR

Use the Log of Effective Pages to determine the current status of this supplement. Pages affected by the current revision are indicated by an asterisk (\*) preceding the page number.

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### KCS-55A SLAVED COMPASS POH SUPPLEMENT

# SUPPLEMENT

## BENDIX/KING KCS-55A SLAVED COMPASS SYSTEM with KI-525A HSI INDICATOR

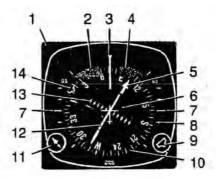
## SECTION 1

### GENERAL

The Bendix/King KCS-55A Slaved Compass System with KI-525A HSI Indicator is designed for aircraft which do not incorporate an autopilot system. The KCS-55A compass system includes a slaving control and compensator unit, magnetic slaving transmitter and a directional gyro. The information obtained from the KCS-55A compass system is displayed on the KI-525A Indicator.

The panel-mounted KI-525A indicator combines the display functions of both the standard Directional Gyro and the Course Deviation Indicator's VOR/LOC/Glideslope information to provide the pilot with a single visual presentation of the complete horizontal navigation situation.

This system also incorporates a slaving meter. This meter indicates any difference between the displayed heading and the magnetic heading. Right or up deflection indicates a clockwise error of the compass card. Left or down deflection indicates a counterclockwise error of the compass card. Whenever the aircraft is in a turn and the compass card rotates, it is normal for this meter to show a full deflection to one side or the other.



2685X6014

Figure 1. Bendix/King KI-525A HSI Indicator (Sheet 1 of 3)

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## S5 MODEL 208 (675 SHP)

### KSC-55A SLAVED COMPASS POH SUPPLEMENT

- KI-525A HORIZONTAL SITUATION INDICATOR (HSI) Provides a pictorial presentation of airplane deviation relative to VOR radials or localizer beams. It also displays glideslope deviations and gives heading reference with respect to magnetic north. The gyro is driven electrically.
- NAV FLAG Flag is in view when the NAV receiver signal is inadequate.
- LUBBER LINE Indicates aircraft magnetic heading on compass card (10).
- HEADING WARNING FLAG (HDG) When flag is in view, the heading display is invalid.
- COURSE BEARING POINTER Indicates selected VOR course or localizer course on the compass card (10). The selected VOR radial or localizer heading remains set on the compass card when the compass card (10) rotates.
- 6 TO/FROM INDICATOR FLAG Indicates direction of VOR station relative to the selected course.
- DUAL GLIDESLOPE POINTERS Indicate on the glideslope scale (8) airplane displacement from glideslope beam center. Glideslope pointers in view indicate a usable glideslope signal is being received. (Glideslope pointers not shown.)
- GLIDESLOPE SCALES Indicate displacement from glideslope beam center. A glideslope deviation bar displacement of 2 dots represents full scale (0.7°) deviation above or below glideslope beam centerline.
- 9. HEADING SELECTOR KNOB POSITIONS THE HEADING BUG (14) ON COMPASS CARD (10) BY ROTATING THE HEADING SELECTOR KNOB. THE BUG ROTATES WITH THE COMPASS CARD.
- COMPASS CARD Rotates to display heading of airplane with reference to lubber line (3) on GSI.
  - COURSE SELECTOR KNOB Positions the course bearing pointer (5) on the compass card (10) by rotating the course selector knob.
- COURSE DEVIATION BAR (D-BAR) The center portion of the omni bearing pointer moves laterally to pictorially indicate the relationship of airplane to the selected course. It indicates degrees of angular displacement from VOR radials and localizer beams, or displacement in nautical miles from RNAV courses.

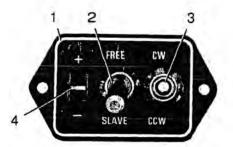
Figure 1. Bendix/King KI-525A HSI Indicator (Sheet 2 of 3)

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## KCS-55A SLAVED COMPASS POH SUPPLEMENT

- 13.COURSE DEVIATION SCALE A course deviation bar displacement of 5 dots represents full scale (VOR = ± 10°, LOC = ± 2-1/2°, RNAV = 5nm, NAV APR = 1-1/4nm) deviation from beam centerline.
- 14. HEADING BUG Moved by heading selector knob (9) to select desired heading.

Figure 1. Bendix/King KI-525A HSI Indicator (Sheet 3 of 3)



2685X6015

- KA-51B SLAVING ACCESSORY AND COMPENSATOR UNIT Controls the KCS-55A Compass System.
- MANUAL/AUTOMATIC (FREE/SLAVE) COMPASS SLAVE SWITCH -Selects either the manual or automatic slaving mode for the Compass System.
- CW/CCW COMPASS MANUAL SLAVE SWITCH With the manual/automatic compass slave switch in the FREE position, allows manual compass card slaving in either the clockwise or counterclockwise direction. The switch is spring loaded to the center position.
- SLAVING METER Indicates the difference between the displayed heading and the magnetic heading. Up deflection indicates a clockwise error of the compass card. Down deflection indicates a counterclockwise error of the compass card.

Figure 2. KA-51B Slaving Accessory and Compensator Unit

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S5 MODEL 208 (675 SHP)

## KSC-55A SLAVED COMPASS POH SUPPLEMENT

## SECTION 2 LIMITATIONS

There is no change to the airplane limitations when the Bendix/King KCS-55A Slaved Compass System with KI-525A HSI Indicator is installed.

## SECTION 3 EMERGENCY PROCEDURES

There is no change to the airplane emergency procedures when the Bendix/King KCS-55A Slaved Compass System with KI-525A HSI Indicator is installed.

## SECTION 4 NORMAL PROCEDURES

There is no change to the airplane normal procedures when the Bendix/King KCS-55A Slaved Compass System with KI-525A HSI Indicator is installed.

## SECTION 5 PERFORMANCE

There is no change to the airplane performance when the Bendix/King KCS-55A Slaved Compass System with KI-525A HSI Indicator is installed.

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# Pilot's Operating Handbook and FAA Approved Airplane Flight Manual

# CESSNA MODEL 208 (675 SHP) SUPPLEMENT 6

# NORTHERN AIRBORNE TECHNOLOGY NPX138 FM TRANSCEIVER

#### SERIAL NO.

#### **REGISTRATION NO.**

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual when the airplane is equipped with The Northern Airborne Technology NPX138 FM Transceiver.

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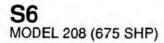
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NPX138 FM TRANSCEIVER POH SUPPLEMENT

# **SUPPLEMENT 6**

## NORTHERN AIRBORNE TECHNOLOGY NPX138 FM TRANSCEIVER

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### NPX138 FM TRANSCEIVER POH SUPPLEMENT

S6 MODEL 208 (675 SHP)

# SUPPLEMENT

# NORTHERN AIRBORNE TECHNOLOGY NPX138 FM TRANSCEIVER

# SECTION 1 GENERAL

The Northern Airborne Technology NPX138 FM Transceiver is a stand-alone, panel mount radio used for FM communication within the high band of the VHF spectrum. The NPX138 covers a frequency range of 138 MHz to 174 MHz in 5.0/12.5 kHz increments, and each of the 100 available channels is capable of including a receive frequency and CTCSS tone, transmit frequency and CTCSS tone, and an alpha/numeric identifier. The NPX138 FM Transceiver has separate controls for selecting channel display mode, preset channels, display brightness, editing mode, receiver volume, channel scan mode, and guard mode. However, for this installation, all guard features will not be operational.

# SECTION 2 LIMITATIONS

The NPX Panel Mount Radio Installation and Operation Manual must be aboard the aircraft whenever the NPX138 FM Transceiver is used for communications.

#### NOTE

Operations have been demonstrated to 85 nautical miles, and drop-outs in signal coverage have been observed in various guadrants beyond 85 nautical miles.

## SECTION 3 EMERGENCY PROCEDURES

There are no changes to the airplane emergency procedures when this avionic equipment is installed.

S6 MODEL 208 (675 SHP)

## NPX138 FM TRANSCEIVER POH SUPPLEMENT

## SECTION 4 NORMAL PROCEDURES

The operating procedures are the same as those in the NPX Panel Mount Radio Installation and Operation Manual, except all guard features described will not be operational for this installation.

## SECTION 5 PERFORMANCE

There are no changes to the airplane performance when this avionic equipment is installed. However, the installation of the externally mounted antenna will result in a minor reduction in cruise performance.



# Pilot's Operating Handbook and FAA Approved Airplane Flight Manual

# CESSNA MODEL 208 (675 SHP)

# SUPPLEMENT 7

# AIR CONDITIONING SYSTEM (Standard 208 Only)

#### SERIAL NO.

#### **REGISTRATION NO.**

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, if the airplane is equipped with an air conditioning system.

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## AIR CONDITIONING SYSTEM POH SUPPLEMENT

# **SUPPLEMENT 7**

# AIR CONDITIONING SYSTEM

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#### AIR CONDITIONING SYSTEM POH SUPPLEMENT

MODEL 208 (675 SHP)

# SUPPLEMENT

# AIR CONDITIONING SYSTEM

## SECTION 1 GENERAL

The air conditioning system provides comfortable cabin temperatures during hot weather operations, both on the ground or in flight. In this system (see (Figure 1), a belt-driven compressor is located on the engine accessory section. Three evaporator units with integral blowers are located, one each in the left and right wing root area, and one in the tail cone behind the aft cabin bulkhead. The evaporator units direct cooled air to a series of overhead outlets in the cabin headliner. The system condenser is mounted in the engine compartment beneath the engine and is provided with an inlet and an outlet in the lower left side of the engine cowling to supply cooling airflow through the condenser. Refrigerant lines under the floorboards and in the fuselage sides interconnect the compressor, evaporators, and the condenser.

Controls for the air conditioning system are located at the lower edge of the instrument panel directly above the control pedestal. Controls consist of one three-position, toggle-type air conditioning switch, and three two-position, toggle-type fan switches. Placing the three-position switch, labeled OFF, VENTILATE, COOL, from the OFF position to the COOL position starts the system compressor and evaporator fans. Placing the switch in the VENTILATE position activates only the system evaporator fans, providing uncooled ventilating air to the cabin. The three two-position switches, all labeled AC FANS, provide separate HIGH or LOW speed control of each evaporator fan. System electrical protection is provided by four 15-ampere "pull-off" type circuit breakers, labeled LEFT VENT BLWR, RIGHT VENT BLWR, AFT VENT BLWR, and AIR COND CONT, located on the left sidewall switch and circuit breaker panel.

When the air conditioning system is operating, cooled air is supplied to the cabin through 16 overhead adjustable outlets (one each above the pilot and front passenger, 11 directly above the rear-seat passengers, and three directing air forward from the aft cabin bulkhead).

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# S7 MODEL 208 (675 SHP)

## AIR CONDITIONING SYSTEM POH SUPPLEMENT

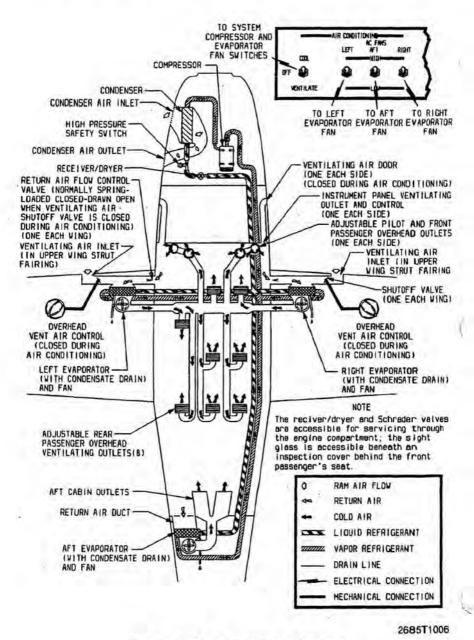


Figure 1. Air Conditioning System

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#### AIR CONDITIONING SYSTEM POH SUPPLEMENT

## S7 MODEL 208 (675 SHP)

The pilot's and passenger's overhead outlets are the swivel type for optimum positioning, and airflow volume is controlled by rotating the outlet nozzle which controls an internal valve. The three aft cabin outlets are directionally adjustable; Each rear passenger outlet has a separate rotary-type control beside the outlet, with positions labeled AIR ON and AIR OFF, to control airflow volume through the outlet.

Access for servicing the system is provided through the engine cowling to the receiver/dryer and through a floorboard inspection cover behind the front passenger's seat to the sight glass and Schrader valves.

## SECTION 2 LIMITATIONS

When the takeoff torque setting per the Engine Torque For Takeoff chart in Section 5 of the basic handbook is less than 1865 ft. lbs, the air conditioner must be turned off for any takeoff or landing under those conditions.

# A WARNING

The following placards must be installed in view of the pilot.

WHEN TAKEOFF TORQUE SETTINGS ARE BELOW 1865 FT. LBS, THE AIR CONDITIONER MUST BE OFF FOR TAKEOFF AND LANDING.

OPERATION OF THE AIR CONDITIONER MAY CAUSE A COMPASS DEVIATION OF MORE THAN 10 DEGREES. S7 MODEL 208 (675 SHP)

## AIR CONDITIONING SYSTEM POH SUPPLEMENT

## SECTION 3 EMERGENCY PROCEDURES

There is no change to the airplane emergency procedures when the air conditioning system is installed.

# SECTION 4 NORMAL PROCEDURES

### PREFLIGHT INSPECTION

During the preflight (walk around) inspection, open cabin doors to aid in cool-down of the cabin before flight. Air conditioning system components should be inspected as follows:

- 1. Check compressor condition and drive belt for tightness.
- Check hoses (where visibility permits) from compressor to the condenser and evaporators for evidence of damage or leakage.
- Check condenser inlet and outlet louvers on lower left side of cowling for installation, condition, and blockage.

## OPERATION ON GROUND

After preflight inspection and engine start, use the following procedures for quickest reduction of hot cabin temperatures prior to takeoff:

- 1. Cabin Doors and Windows -- CLOSED.
- 2. Instrument Panel Vent Controls -- PUSHED IN.
- 3. Overhead Vent Air Outlets -- CLOSE.
- 4. Overhead Air Outlets -- OPEN.
- Fuel Condition Lever -- ADVANCE as required for minimum N<sub>a</sub> of 54 percent.
- 6. Air Conditioning Fan Switches -- HIGH.
- 7. Air Conditioning Switch -- COOL.

AIR CONDITIONING SYSTEM POH SUPPLEMENT

MODEL 208 (675 SHP)

# A CAUTION

Under extremely hot OAT and/or high ground elevation conditions, the idle ITT may exceed the maximum idle ITT limitation of 685°C. Advance the fuel condition lever towards HIGH IDLE to increase the idle Ng as required to maintain a satisfactory ITT (685°C or lower)

#### NOTE

- For increased cooling during ground static conditions, increase N<sub>g</sub> to 60-65 percent for a higher air conditioning compressor RPM.
- Ground operation of the air conditioner with the propeller in beta range for prolonged periods will cause the air conditioning compressor pressure safety switch to disengage the compressor clutch, and therefore should be avoided.
- If the temperature of the air coming from the outlets does not start to cool within a minute or two, the system may be malfunctioning and should be turned off.
- After Initial Cool-Down -- REPOSITION air conditioning fan switches to LOW if desired.

#### BEFORE TAKEOFF

 Air Conditioner Switch -- AS DESIRED (OFF or VENTILATE if takeoff torque is below 1865 ft-lbs). Refer to Section 5 for takeoff power.

#### OPERATION IN FLIGHT

Initially, it may be desirable to operate the system with the air conditioner fans on HIGH for fast cool-down. Later in the flight, operation of the fans on LOW speed and opening of the overhead vent air controls may be more comfortable.

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## S7 MODEL 208 (675 SHP)

### AIR CONDITIONING SYSTEM POH SUPPLEMENT

During extended flight when temperature and humidity are extremely high, the evaporator coils may frost over. Normally, the compressor cycles off when temperatures in the evaporators nears 32°F (0°C). If frost does form as evidenced by reduced cooling airflow, turn the air conditioner switch to VENTILATE and select the HIGH speed fan positions. This should increase evaporator discharge temperature sufficiently to clear the frost.

### NOTE

A high pressure safety switch in the air conditioning system disengages the compressor clutch and stops system operation in the event the system becomes overloaded. The system will cycle on again when the pressure reduces. However, if cooling ability cannot be restored within a reasonable amount of time, the system may be malfunctioning and should be turned off.

The blower portion of the system may be used anytime air circulation (outside or cabin air) is desired. This is accomplished by placing the air conditioner switch in the VENTILATE position and placing the fan switches in LOW or HIGH positions as desired.

#### BEFORE LANDING

 Air Conditioner Switch -- AS DESIRED (OFF or VENTILATE if takeoff torque under landing conditions would be set below 1865 ft-lbs).

## AFTER LANDING

1. Air Conditioner Switch -- AS DESIRED.

## SECTION 5 PERFORMANCE

There is a 10 FPM reduction in climb performance, 1 to 2 KTAS decrease in cruise performance, and approximately 1% increase in fuel required for a given trip as a result of the air conditioner installation.

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### AIR CONDITIONING SYSTEM POH SUPPLEMENT

This reduction in climb and cruise performance may be eliminated by installation of the condenser duct inlet and exit cover plates during flights when the air conditioner will not be used.

When the air conditioner is operating (compressor engaged), the following additional performance changes are also applicable:

#### TAKEOFF

The air conditioner installation has no appreciable effect on takeoff distances.

#### CLIMB

When climbing at altitudes above the critical altitude for 675 SHP (ITT at maximum climb ITT limit and torque below 1865 ft-lbs), there is a 25 FPM loss in maximum rate of climb.

### CRUISE

When cruising at altitudes where the maximum allowable cruise power is below the torque limit (as noted in the Cruise Performance tables in Section 5 of the basic handbook), reduce this setting by 40 ft-lbs when the air conditioner is operating. This will result in an approximate 2 KTAS decrease in maximum cruise performance and a slight increase (1 percent) in fuel required for a given trip.



# Pilot's Operating Handbook and FAA Approved Airplane Flight Manual

# CESSNA MODEL 208 (675 SHP)

# **SUPPLEMENT 8**

# CARGO DOORS REMOVED KIT

SERIAL NO.

**REGISTRATION NO.** 

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, if the airplane is equipped with a cargo doors removed kit.

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CARGO DOORS REMOVED KIT POH SUPPLEMENT

# **SUPPLEMENT 8**

# CARGO DOORS REMOVED KIT

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# SUPPLEMENT

# CARGO DOORS REMOVED KIT

# SECTION 1 GENERAL

The cargo doors removed kit is designed to improve passenger comfort and facilitate passenger-to-pilot communications during special purpose operations such as skydiving, aerial photography, emergency air drops, etc. The kit consists of a vented spoiler installed on the forward cargo door hinges to minimize airflow buffeting within the cabin with the cargo doors removed.

# SECTION 2 LIMITATIONS

- 1. Intentional stalls with cargo doors removed prohibited.
- Removal of the cargo doors requires that the spoiler be installed.
- With cargo door removed, maximum airspeed must not exceed 155KIAS.
- Removal of the cargo doors is not approved in conjunction with installation of the amphibian or floatplane options.

# WARNING

With the cargo doors removed and the spoller installed, the following placards must be installed

1. On aft side of spoiler:

PASSENGER AIRSTAIR DOOR MUST NOT BE OPENED IN FLIGHT WITH CARGO DOOR REMOVED

1 April 1998

**S8** MODEL 208 (675 SHP)

## CARGO DOORS REMOVED KIT POH SUPPLEMENT

2. Adjacent to the static pressure alternate source valve:

CAUTION WITH CARGO DOORS REMOVED, DO NOT USE ALTERNATE STATIC SOURCE.

3. On the pilot's instrument panel near the airspeed indicator:

MAXIMUM AIRSPEED 155 KIAS WITH CARGO DOORS REMOVED

# SECTION 3 EMERGENCY PROCEDURES

There are no changes to the airplane emergency procedures when the cargo doors removed kit is installed.

# SECTION 4 NORMAL PROCEDURES

Both cargo doors (upper and lower) must be removed in order to install the spoiler. Installation of the spoiler substantially reduces airflow buffeting in the cabin; however, all loose equipment should be removed or secured. Face protection is also recommended for passengers near the door opening.

With the cargo doors removed kit installed, flight characteristics are essentially unchanged.

## SECTION 5 PERFORMANCE

Airplane performance information provided in the basic handbook does not apply when the airplane is flown with the cargo doors removed kit installed since significant performance decrements result. For example, takeoff distance is increased by as much as 200 feet, maximum rate of climb is reduced by approximately 150 FPM, and cruise speed is reduced by approximately 15 knots.

1 April 1998

S8-4



## Pilot's Operating Handbook and FAA Approved Airplane Flight Manual

# CESSNA MODEL 208 (675 SHP)

# **SUPPLEMENT 9**

# CARGO POD

SERIAL NO.

**REGISTRATION NO.** 

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, if the airplane is equipped with a cargo pod.

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## **S9** MODEL 208 (675 SHP)

CARGO POD POH SUPPLEMENT

# **SUPPLEMENT 9**

## CARGO POD

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#### CARGO POD POH SUPPLEMENT

59 MODEL 208 (675 SHP)

# SUPPLEMENT

# SECTION 1 GENERAL

The cargo pod provides additional cargo and baggage space. The pod attaches to the bottom of the fuselage with screws and can be removed, if desired, for increased performance and useful load. The pod is fabricated with a Nomex inner housing, a layer of Kevlar, and an outer layer of fiberglass.

The volume of the cargo pod is 83.7 cubic feet and has a loadcarrying capacity of 870 pounds. The pod is divided into three separate compartments divided by aluminum bulkheads. Each compartment has an individual loading door, which is hinged at the bottom, on the left side of the pod. Each door is secured in the closed position by two handles which latch the doors when rotated 90 degrees to the horizontal position. Dimensions of the pod and its loading door openings are contained in Section 6 of the basic handbook.

Complete instructions for installation and removal of the cargo pod are contained in the Maintenance Manual. This includes installation and removal of the DME and transponder antennas mounted on the bottom of the pod, installation and removal of the fuel drain lines for the fuel line connector covers, and installation and removal of the fuel drain lines which are routed from the reservoir tank to the left side of the pod.

## **S9** MODEL 208 (675 SHP)

#### CARGO POD POH SUPPLEMENT

## SECTION 2 LIMITATIONS

## WARNING

The following information must be presented in the form of placards located on the inside of the cargo pod doors.

> FWD. COMPARTMENT MAX. WEIGHT 230 LBS. MAX. FLOOR LOADING 30 LBS. PER SQ. FT. NO SHARP EDGES

CTR. COMPARTMENT MAX. WEIGHT 310 LBS. MAX. FLOOR LOADING 30 LBS. PER SQ. FT. NO SHARP EDGES

AFT COMPARTMENT MAX. WEIGHT 280 LBS. MAX. FLOOR LOADING 30 LBS. PER SQ. FT. NO SHARP EDGES

## SECTION 3 EMERGENCY PROCEDURES

#### INADVERTENT OPENING OF AIRPLANE DOORS IN FLIGHT

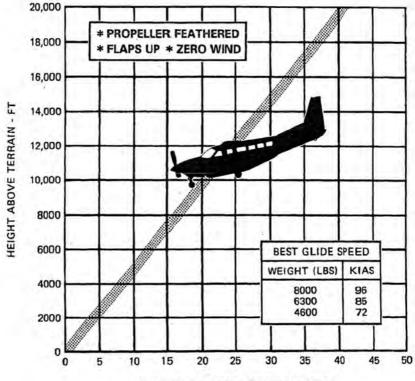
CARGO POD DOOR(S) OPEN

- 1. Airspeed -- MAINTAIN LESS THAN 125 KIAS.
- 2. Land -- As soon as practical.
  - a. Approach -- NORMAL.
  - b. Landing -- AVOID A NOSE-HIGH FLARE.

S9-4

1 April 1998

#### CARGO POD POH SUPPLEMENT



GROUND DISTANCE - NAUTICAL MILES

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Figure 1. Maximum Glide

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## Pilot's Operating Handbook and FAA Approved Airplane Flight Manual

# CESSNA MODEL 208 (675 SHP)

# SUPPLEMENT 10

# ASTRO TECH LC-2 DIGITAL CLOCK

SERIAL NO.

**REGISTRATION NO.** 

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, if the airplane is equipped with an Astro Tech LC-2 Digital Clock

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## S10 MODEL 208 (675 SHP)

DIGITAL CLOCK POH SUPPLEMENT

# **SUPPLEMENT 10**

## ASTRO TECH LC-2 DIGITAL CLOCK

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DIGITAL CLOCK POH SUPPLEMENT

# SUPPLEMENT

## ASTRO TECH LC-2 DIGITAL CLOCK SECTION 1 GENERAL

The Astro Tech LC-2 Quartz Chronometer (see Figure 1) is a precision, solid state time keeping device which will display to the pilot the time-of-day, the calendar date, and the elapsed time interval between a series of selected events, such as in-flight check points or legs of a cross-country flight, etc. These three modes of operation function independently and can be alternately selected for viewing on the four digit liquid crystal display (LCD) on the front face of the instrument. Three push button type switches directly below the display control all time keeping functions. These control functions are summarized in Figure 2 and 3.

The digital display features an internal light (back light) to ensure good visibility under low cabin lighting conditions or at night. The intensity of the back light is controlled by the L FLT PANEL lights rheostat. In addition, the display incorporates a test function (see Figure 1) which allows checking that all elements of the display are operating. To activate the test function, press the LH and RH buttons at the same time.

## SECTION 2 LIMITATIONS

There is no change to the airplane limitations when the digital clock is installed.

## SECTION 3 EMERGENCY PROCEDURES

There is no change to the airplane emergency procedures when the digital clock is installed.

1 April 1998

## S10 MODEL 208 (675 SHP)

#### DIGITAL CLOCK POH SUPPLEMENT

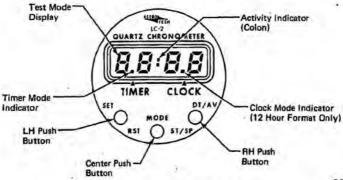


Figure 1. Digital Clock

#### 2685X1089

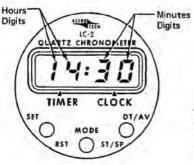
## SECTION 4 NORMAL PROCEDURES

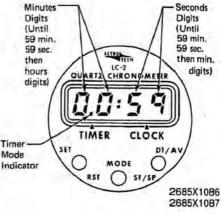
#### CLOCK AND DATE OPERATION

When operating in the clock mode (see Figure 2), the display shows the time of day in hours and minutes while the activity indicator (colon) will blink off for one second each ten seconds to indicate proper functioning. If the RH push button is pressed momentarily while in the clock mode, the calendar date appears numerically on the display with month of year to the left of the colon, and day of the month shown to the right of the colon. The display automatically returns to the clock mode after approximately 1.5 seconds. However, if the RH button is pressed continuously longer than approximately two seconds, the display will return from the date to the clock mode with the activity indicator (colon) blinking altered to show continuously or be blanked completely from the display. Should this occur, simply press the RH button again for two seconds or longer, and correct colon blinking will be restored.

#### DIGITAL CLOCK POH SUPPLEMENT

## S10 MODEL 208 (675 SHP)





LH Button: Sets date and time of day (when used with RH) button.

Center Button: Alternately displays clock or timer status.

RH Button: Shows calendar date momentarily; display returns to clock mode after 1.5 seconds

Figure 2. Clock Mode

LH Button: Resets timer to 'zero.'

- Center Button: Alternately displays clock or timer status.
- RH Button: Alternately starts and stops timer; timer starts from any previously accumulated total.

Figure 3. Timer Mode

#### NOTE

The clock mode is set at the factory to operate in the 24-hour format. However, 12-hour format operation may be selected by changing the position of an internal slide switch accessible through a small hole on the bottom of the instrument case. Notice that in the 24-hour format, the clock mode indicator does not appear.

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## S10 MODEL 208 (675 SHP)

#### DIGITAL CLOCK POH SUPPLEMENT

#### SETTING CORRECT DATE AND TIME

The correct date and time are set while in the clock mode using the LH and RH push buttons as follows: press the LH button once to cause the date to appear with the month flashing. Press the RH button to cause the month to advance at one per second (holding button), or one per push until the correct month appears. Push the LH button again to cause the day of month to appear flashing, then advance as before using RH button until correct day of month appears.

Once set correctly, the date advances automatically at midnight each day. February 29 of each leap year is not programmed into the calendar mode, and the date will advance to March 1. This may be corrected the following day by resetting the mode back to March 1.

Pressing the LH button two additional times will cause the time to appear with the hours digits flashing. Using the RH button as before, advance the hour digits to the correct hour as referenced to a known time standard. Another push of the LH button will now cause the minutes digits to flash. Advance the minutes digits to the next whole minute to be reached by the time standard and "hold" the display by pressing the LH button once more. At the exact instant the time standard reaches the value "held" by the display, press the RH button to restart normal clock timing, which will now be synchronized to the time standard.

In some instances, however, it may not be necessary to advance the minutes digits of the clock; for example when changing time zones. In such a case, do not advance the minutes digits while they are flashing. Instead, press the LH button again, and the clock returns to the normal time keeping mode without alerting the minutes timing.

#### TIMER OPERATION

The completely independent 24-hour elapsed time (see Figure 3) is operated as follow: press the center (MODE) push button until the timer mode indicator appears. Reset the display to "zero" by press-ing the LH button.

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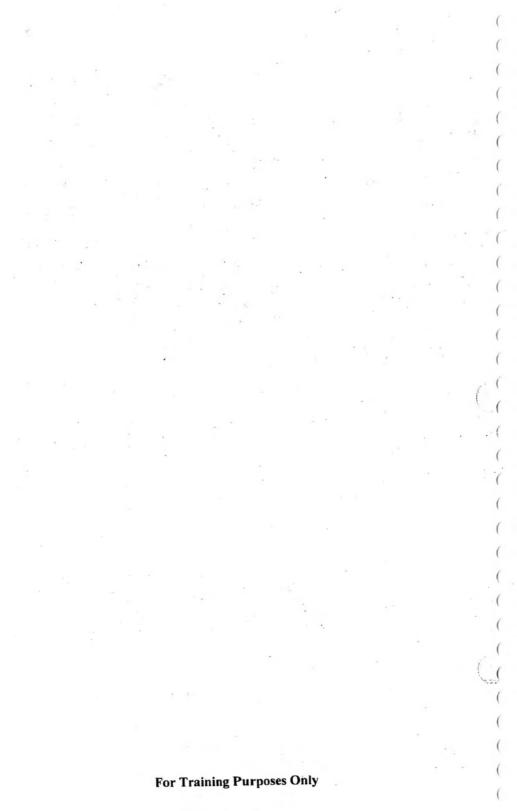
#### DIGITAL CLOCK POH SUPPLEMENT

S10 MODEL 208 (675 SHP)

Begin timing an event by pressing the RH button. The timer will begin counting in minutes and seconds and the colon (activity indicator) will blink off for 1/10 second each second. When 59 minutes 59 seconds have accumulated, the timer changes to count in hours and minutes up to a maximum of 23 hours, 59 minutes. During the count in hours and minutes, the colon blinks off for one second each ten seconds. To stop timing the event, press the RH button once again and the time shown by the display is "frozen." Successive pushes of the RH button will alternately restart the count from the "held" total or stop the count at a new total. The hold status of the timer can be recognized by lack of colon activity, either continuously on or continuously off. The timer can be reset to "zero" at any time using the LH button.

## SECTION 5 PERFORMANCE

There is no change to the airplane performance when the digital clock is installed.





## Pilot's Operating Handbook and FAA Approved Airplane Flight Manual

# CESSNA MODEL 208 (675 SHP)

# **SUPPLEMENT 11**

# ELECTRIC ELEVATOR TRIM SYSTEM

#### SERIAL NO.

#### **REGISTRATION NO.**

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, if the airplane is equipped with the electric elevator trim system.

sincel APPROVED B

Wendell W. Corneil Executive Engineer Cessna Aircraft Company Delegation Option Manulacturer CE-3

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S11 MODEL 208 (675 SHP)

ELECTRIC ELEVATOR TRIM SYSTEM POH SUPPLEMENT

# SUPPLEMENT 11

## ELECTRIC ELEVATOR TRIM SYSTEM

Use the Log of Effective Pages to determine the current status of this supplement. Pages affected by the current revision are indicated by an asterisk (\*) preceding the page number.

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#### ELECTRIC ELEVATOR TRIM SYSTEM POH SUPPLEMENT

# SUPPLEMENT

# ELECTRIC ELEVATOR TRIM SYSTEM SECTION 1

## GENERAL

The electric elevator trim system provides a simple method of relieving pitch control pressures without interrupting other control operations to adjust the manual elevator trim wheel. The system is controlled by a dual-segmented, 3-position trim switch with each segment labeled DN and UP, a red momentary pushbutton autopilot disengage/trim disconnect switch labeled AP/TRIM DISC, and a "pull-off" type circuit breaker, labeled ELEV TRIM. The dual segmented trim switch and pushbutton autopilot switch are located on t he left control wheel grip; the "pull-off" circuit breaker is on the left sidewall switch and circuit breaker panel. Simultaneously pushing the dual segments of the trim switch forward to the DN position moves the elevator trim tabs and the trim wheel in the "nose down" direction; conversely pulling the dual segments aft to the UP position moves the tabs and trim wheel in the "nose up" direction. The dual segments of the trim switch are spring-loaded to automatically return to the center off position when they are released from the DN or UP positions, thus stopping movement of the trim tabs and elevator trim wheel.

During normal operation of the electric elevator trim system, a trim actuator (which includes an electric motor, a solenoid gear engage mechanism, and an override slip clutch) moves the trim tabs in the selected direction. When the dual segments of the trim switch are in the center off position, the trim actuator is disconnected from the trim system and does not impede manual adjustment of the trim tabs by the elevator trim wheel.

## SECTION 2 LIMITATIONS

There is no change to the airplane limitations when the electric elevator trim system is installed.

S11 MODEL 208 (675 SHP)

## SECTION 3 EMERGENCY PROCEDURES

- 1. Elevator Control -- OVERPOWER as required.
- 2. A/P TRIM DISC Pushbutton -- PUSH and RELEASE.
- ELEV TRIM Circuit Breaker -- PULL OFF for the remainder of the flight.
- 4. Manual Trim -- AS REQUIRED.

## SECTION 4 NORMAL PROCEDURES

#### **BEFORE TAKEOFF**

The following electric trim system checks should be made prior to each flight:

- Elevator Trim Switch Segments -- INDIVIDUALLY PUSH FORWARD to DN position and HOLD momentarily, OBSERVE NO MOVEMENT of elevator trim wheel, then release elevator trim switch to center off position.
- Elevator Trim Switch Segments -- INDIVIDUALLY PULL AFT to UP position and HOLD momentarily, OBSERVE NO MOVEMENT of elevator trim wheel, then release elevator trim switch to center off position.

## A CAUTION

If movement of the elevator trim wheel is noted during steps 1 or 2, the electric elevator trim system has malfunctioned.

- Both Segments of Electric Trim Switch -- PUSH FORWARD SIMULTANEOUSLY and HOLD and OBSERVE MOVE-MENT of elevator trim wheel and elevator trim tab in proper direction.
- AP/TRIM DISC Pushbutton -- MOMENTARILY DEPRESS while trim is moving and observe that movement of the elevator trim system stops.

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#### ELECTRIC ELEVATOR TRIM SYSTEM POH SUPPLEMENT

- Elevator Trim Switch -- RELEASE TO CENTER OFF POSITION to reactivate system.
- Both Segments of Electric Elevator Trim Switch -- REPEAT steps 3, 4, and 5, in opposite direction.

## A CAUTION

If movement of the elevator trim wheel is observed after the AP/TRIM DISC pushbutton is depressed and released during step 4, the electric elevator trim system has malfunctioned.

#### INFLIGHT

To operate the electric elevator trim system during flight, proceed as follows:

- 1. Battery Switch -- ON.
- Elevator Trim Circuit Breaker -- PUSH TO RESET, if off.
- 3. Dual Segmented Trim Switch -- ACTUATE as desired.
- 4. Elevator Trim Position Indicator -- CHECK.

## SECTION 5 PERFORMANCE

There is no change to the airplane performance when the electric elevator trim system is installed.



## Pilot's Operating Handbook and FAA Approved Airplane Flight Manual

# CESSNA MODEL 208 (675 SHP)

# **SUPPLEMENT 13**

# FUEL TOTALIZER SYSTEM

#### SERIAL NO.

**REGISTRATION NO.** 

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, if the airplane is equipped with a fuel totalizer system.

Dorneil

Wendell W. Cornell Executive Engineer Cessna Aircraft Company Delegation Option Manulacturer CE-3

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S13-1

S13 MODEL 208 (675 SHP)

FUEL TOTALIZER SYSTEM POH SUPPLEMENT

# **SUPPLEMENT 13**

## FUEL TOTALIZER SYSTEM

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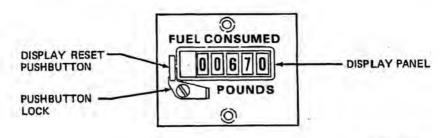
#### FUEL TOTALIZER SYSTEM POH SUPPLEMENT

# SUPPLEMENT

## FUEL TOTALIZER SYSTEM SECTION 1 GENERAL

The fuel totalizer system is available to aid the pilot in monitoring the total fuel consumed each flight. The totalizer system utilizes the fuel flow indicator system circuitry and an additional signal conditioner and totalizer indicator to display pounds of fuel consumed. The indicator (see Figure 1) is located on the right side of the instrument panel and is labeled FUEL CONSUMED, POUNDS. A five-digit display is centered in the indicator. The display can be reset by means of a display reset pushbutton mounted to the left of the display. A display pushbutton lock located below the pushbutton can be rotated to engage the button and prevent inadvertent zeroing of the display. The fuel flow indicator and fuel totalizer, systems are protected by "pull-off" type circuit breakers labeled FUEL FLOW and FUEL TOTAL, respectively.

In operation, the fuel flow transducer in the standard fuel system generates an electrical signal which is proportional to fuel flow rate and transmits this signal to the standard fuel flow indicator where it is registered in pounds per hour. The voltage output from the fuel flow indicator is then sent to a totalizer signal conditioner where it is conditioned and sent to the fuel totalizer indicator which displays its value to the pilot in total pounds of fuel consumed.



2685X1088

#### Figure 1. Fuel Totalizer Indicator

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## S13 MODEL 208 (675 SHP)

#### FUEL TOTALIZER SYSTEM POH SUPPLEMENT

## SECTION 2 LIMITATIONS

There is no change to the airplane limitations when the fuel totalizer system is installed.

## SECTION 3 EMERGENCY PROCEDURES

There is no change to the airplane emergency procedures when the fuel totalizer system is installed.

## SECTION 4 NORMAL PROCEDURES

Depending on pilot preference, the fuel totalizer indicator display can be reset to zero prior to flight or after completion of the flight in preparation for subsequent flight. Also, the indicator might be zeroed for recording the fuel consumed during separate legs of a flight. After zeroing the display, no additional operation is required other than monitoring the indicator readout. The indicator display is reset to zero as follows:

- Pushbutton Lock -- ROTATE COUNTERCLOCKWISE to unlock pushbutton.
- 2. Pushbutton -- PRESS to zero display.
- Pushbutton Lock -- ROTATE CLOCKWISE to lock pushbutton to prevent inadvertent zeroing of the display.

## SECTION 5 PERFORMANCE

There is no change to the airplane performance when the fuel totalizer system is installed.



## Pilot's Operating Handbook and FAA Approved Airplane Flight Manual

# CESSNA MODEL 208 (675 SHP)

# **SUPPLEMENT 14**

# INFLIGHT OPENABLE CARGO DOOR

SERIAL NO.

**REGISTRATION NO.** 

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, if the airplane is equipped with an inflight openable cargo door.

Dorneil APPROVED BY Andel

Wendell W. Cornell Executive Engineer Cessna Aircraft Company Delegation Option Manufacturer CE-3

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S14 MODEL 208 (675 SHP)

INFLIGHT CARGO DOOR POH SUPPLEMENT

# SUPPLEMENT 14

## INFLIGHT OPENABLE CARGO DOOR

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#### INFLIGHT CARGO DOOR POH SUPPLEMENT

# SUPPLEMENT

## INFLIGHT OPENABLE CARGO DOOR SECTION 1 GENERAL

The inflight openable cargo door allows opening the door while airborne for special purpose operations such as delivery of jumpers, air drops of materials, aerial photography, etc. The cargo door is a two-section flexible door which slides in tracks which extend into the cabin overhead area. A motor and chain-driven torque tube at the upper end of the tracks power chain mechanisms attached to the bottom section of the door. Operation of the motor and chains raises and lowers the bottom section which mechanically engages and pulls the top section in the appropriate direction. Limit switches at each end of the aft track interrupt electrical power to stop door movement in the fully open and closed positions. When the door is fully open, the two door sections are positioned just below the headliner in the cabin ceiling where they offer the least restriction to movement of jumpers or other personnel. An emergency disconnect pin is installed in the aft end of the system torque tube. In the event of an electrical malfunction which prevents the door being opened normally, the pin can be pulled to disconnect the torque tube drive mechanism from the motor mechanism. Then the door can be opened by manually moving the door or rotating the torque tube by hand.

The inflight openable cargo door can be controlled from two locations. A control switch and an indicator light are located on the instrument panel just above the cabin heat switch and control panel for use by the pilot. The switch is guarded to prevent inadvertent operation. It is a three-position toggle-type and is labeled CARGO DOOR. When the switch is placed in the UP position, the door raises; the DOWN position of the switch lowers the door. The switch should be returned to its center position when not used so that power for door operation will be available through this switch to a second switch in a secondary control location on the left cabin sidewall just aft of the cargo door for use by a jumpmaster or other personnel. The secondary control switch is also a three-position toggle-type switch labeled CARGO DOOR and is guarded.

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## S14 MODEL 208 (675 SHP)

#### INFLIGHT CARGO DOOR POH SUPPLEMENT

However, its UP (door up) and DOWN (door down) positions are momentary. When the toggle is released, it will return to the center (off) position. The pilot may override the aft control switch from his switch if required. A dimmable amber indicator light, labeled CARGO DOOR IN TRANSIT, is located on the instrument panel above the pilot's cargo door switch to alert the pilot that the cargo door is in transition. Also, the standard DOOR WARNING annunciator on the instrument panel will illuminate anytime the door is not closed. The cargo door electrical system is protected by a "pull off" type circuit breaker, labeled CARGO DOOR, on the left sidewall switch and circuit breaker panel.

A jump light system is available as a separate option, and when installed, can be used with the inflight openable cargo door to facilitate pilot-to-passenger communication concerning the drop zone. The system contains a four-position jump light selector switch, labeled JUMP LIGHTS, located just to the right of the cargo door switch on the instrument panel. The system also includes a three-light signal console located on the left cabin sidewall just forward of the cargo door. When the jump light selector switch is rotated clockwise from OFF to the RED, AMB and GRN positions, the red (upper), amber (middle) and green (lower) signal lights will illuminate. The jump light system is protected by a "pull off" type circuit breaker, labeled RDNG LIGHT, on the left sidewall switch and circuit breaker panel.

A vented spoiler (air deflector) is furnished with the inflight openable cargo door to improve aft passenger comfort when the door is open. The spoiler is secured by six quick-release fasteners to three brackets on the forward cargo doorpost, and is easily installed and removed. Installation of the spoiler is not mandatory for inflight door operation. Its installation will substantially reduce airflow buffeting in the cabin during the period the cargo door is open. However, it is recognized that certain missions may require very limited door-open time compared to the total flight time, and with some compromise in aft passenger comfort, it may be determined that mission requirements are better served by eliminating the performance penalties incurred with the spoiler installed. With or without a spoiler installed, all loose equipment must be removed or secured and face protection in the form of goggles and a helmet should be worn by aft passengers when the cargo door is opened in flight. INFLIGHT CARGO DOOR POH SUPPLEMENT S14 MODEL 208 (675 SHP)

## SECTION 2 LIMITATIONS

#### AIRSPEED LIMITATIONS

With or Without Spoiler:

Maximum Door Operating Speed: 120 KIAS. Maximum Speed With Door Open: 155 KIAS. Maximum Speed With Door Closed: 175 KIAS.

#### OTHER LIMITATIONS

The following limitations must be observed:

- 1. Intentional flights into known icing conditions are prohibited with spoiler installed.
- 2. Intentional stalls with the cargo door open are prohibited.
- Operation with the cargo door open is not approved for airplanes with floats installed.

PLACARDS

## **WARNING**

The following placards must be installed and their limitations observed when the cargo door is open in flight.

1. On the pilot's instrument panel near the airspeed indicator:

MAX CARGO DOOR OPERATING SPEED: 120 KIAS MAX SPEED WITH CARGO DOOR OPEN: 155 KIAS

On upper portion of aft passenger entry door:

PASSENGER AIRSTAIR DOOR MUST NOT BE OPENED IN FLIGHT WITH CARGO DOOR OPEN

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## S14 MODEL 208 (675 SHP)

#### INFLIGHT CARGO DOOR POH SUPPLEMENT

3. Adjacent to static pressure alternate source valve:

#### CAUTION

#### WITH CARGO DOOR OPEN, DO NOT USE ALTERNATE STATIC SOURCE

4. On lower portion of cargo door on inside and outside:

#### WARNING

KEEP CLEAR DURING DOOR OPERATIONS

5. Near aft end of system torque tube:

FOR MANUAL DOOR OPERATION

- 1. REMOVE THIS COVER
- 2. PULL DISCONNECT PIN
- 3. LIFT DOOR OR TURN TORQUE TUBE

## SECTION 3 EMERGENCY PROCEDURES

#### CARGO DOOR FAILS TO OPEN OR CLOSE

Improper positioning of the pilot's switch or a tripped circuit breaker are the most likely causes if the cargo door will not operate electrically. Control of the door from the pilot's position is direct and will present no problem as long as the battery switch is ON and the CARGO DOOR circuit breaker is engaged. However, if control from the aft position switch is desired by a jumpmaster or other personnel, the pilot's switch **must** be returned to its center position so that power will be available through the switch to the aft control switch.

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#### INFLIGHT CARGO DOOR POH SUPPLEMENT

No power will be available to the aft switch if the pilot's switch is left in the UP or DOWN position. The position of the aft switch has no affect on the operation of the pilot's switch.

Failure of the door to operate even though no apparent electrical malfunction exists and the motor is known to be running may be the result of a missing emergency disconnect pin from prior maintenance, etc. The pin can be checked for proper installation in the aft end of the overhead torgue tube.

Pulling the emergency disconnect pin will disconnect the torque tube drive mechanism from the motor mechanism and allow the door to be moved manually, if necessary. Grasp the bottom section of the door to move the door or rotate the torque tube by hand.

## A WARNING

Keep hands clear of the door sections and other mechanisms except when the emergency disconnect pin is removed for manual movement of the door. Caution passengers who might be present during preflight inspections, etc., not to lay their hands on areas such as the door sill during testing of door operation. The door is capable of exerting severe pressure while closing.

## SECTION 4 NORMAL PROCEDURES

#### PREFLIGHT INSPECTION

With the battery switch ON, operate the cargo door to the full open and closed position using both the pilot's switch and the aft control switch. Approximately 30 seconds are required to open or close the door. Note the illumination of the CARGO DOOR IN TRANSIT light while the door is in transit, and the DOOR WARNING annunciator while the door is in all positions except full closed.

## S14 MODEL 208 (675 SHP)

#### INFLIGHT CARGO DOOR POH SUPPLEMENT

## WARNING

Caution passengers who might be present during preflight inspection to keep hands clear of the door sections and other mechanisms and not lay their hands on areas such as the door sill during testing of door operation. The door is capable of exerting severe pressure while closing.

#### NOTE

The upper aft passenger door is also electrically connected to the DOOR WARNING annunciator, and the passenger door should be closed and latched while testing the DOOR WARNING function for the cargo door.

While the battery switch is ON, functionally test the operation of the jump light system (if installed) by turning the jump light switch momentarily from OFF to the RED, AMB and GRN positions and noting the illumination of the proper light on the signal console.

Inspect the cargo door, door tracks and visible mechanisms for security and wear, and the spoiler (if installed) for security of attachment. Ensure that all loose equipment in the cabin is removed or secured. Face protection should be provided for passengers who will be near the door opening while the door is open in flight.

# CARGO DOOR/JUMP LIGHT (IF INSTALLED) OPERATION IN FLIGHT

Mission requirements will dictate cargo door and jump light operating methods. The pilot or a jumpmaster in the aft cabin may operate the cargo door by positioning their respective CARGO DOOR switch in the UP position to open the door or in the DOWN position to close the door. If the aft switch is to be used for door operation, the pilot's switch **must** be placed in its center position to power the aft switch.

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#### INFLIGHT CARGO DOOR POH SUPPLEMENT

The pilot can monitor door operation by watching the CARGO DOOR IN TRANSIT light. The light will go off when the door reaches its full up or down position. Also, the pilot will know when the cargo door is not completely closed by the illumination of the DOOR WARNING annunciator. Jump operations or air drops can be sequenced by the pilot using the jump light selector switch (if installed) to select and illuminate the red, amber and green lights in the signal light console in the aft cabin.

#### FLIGHT CHARACTERISTICS

With the cargo door closed, flight characteristics are essentially unchanged. If a spoiler is installed, a slightly different directional trim may be needed.

When the cargo door is open, in-cabin airflow increases with flap deflection, although to a lesser degree with a spoiler installed.

Without the spoiler at flight idle power and flaps up, an increase in buffeting will be experienced with the cargo door opened between 85 and 110 KIAS. This is caused by propeller blade passage as RPM and propeller pitch angle are changing in this airspeed range. Wing flap deflection of almost any magnitude will eliminate most, if not all, of this phenomenon.

## SECTION 5 PERFORMANCE

Airplane performance information provided in the basic handbook does not apply when the airplane is flown with the inflight openable cargo door closed or open and the spoiler installed, or with the cargo door open and the spoiler off.

Takeoff distances with the inflight openable cargo door installed can increase by as much as 200 feet.

With the inflight openable cargo door closed or open and the spoiler installed, maximum climb performance can be as much as 165 FPM lower than that of the basic airplane. Cruise performance can be as much as 16 knots slower in this configuration.

1 April 1998

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## S14 MODEL 208 (675 SHP)

#### INFLIGHT CARGO DOOR POH SUPPLEMENT

With the inflight openable cargo door open and the spoiler off, maximum climb performance can be as much as 80 FPM lower than that of the basic airplane. Cruise performance can be as much as 7 to 8 knots slower in this configuration.

With the inflight openable cargo door closed and the spoiler off, the performance information provided in the basic handbook does apply.

#### For Training Purposes Only

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## Pilot's Operating Handbook and FAA Approved Airplane Flight Manual

# CESSNA MODEL 208 (675 SHP)

# **SUPPLEMENT 16**

# 2-PORT OXYGEN SYSTEM

#### SERIAL NO.

#### **REGISTRATION NO.**

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, if the airplane is equipped with the optional 2-port oxygen system.

Dorneil APPROVED B

Wendell W. Corneil Executive Engineer Cessna Aircraft Company Delegation Option Manufacturer CE-3

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S16-1

#### 2-PORT OXYGEN SYSTEM POH SUPPLEMENT

# **SUPPLEMENT 16**

## 2-PORT OXYGEN SYSTEM

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# SUPPLEMENT

## 2-PORT OXYGEN SYSTEM

## SECTION 1 GENERAL

A two-port oxygen system provides the supplementary oxygen necessary for continuous flight at high altitude. In this system, a 50.67 cubic foot capacity oxygen cylinder, located in the fuselage tailcone, supplies the oxygen. Cylinder pressure is reduced to an operating pressure of 70 PSI by a pressure regulator attached to the cylinder. A shutoff valve is included as part of the regulator assembly. The system also contains an altitude compensating regulator, located between the pressure regulator and the oxygen supply lines, which varies the flow of oxygen to the masks, depending on altitude. An oxygen cylinder filler valve is located on the right side of the airplane (under a cover plate), at the forward end of the tailcone.

Cylinder pressure is indicated by a pressure gauge located on the overhead console above the pilot's and front passenger's seats. Two oxygen outlets are provided in the cabin ceiling, one each just outboard of the pilot's and front passenger's seats. One permanent, microphone-equipped mask is provided for the pilot, and a second permanent mask serves the front passenger. Both masks are the partial rebreathing type, equipped with vinyl plastic hoses and flow indicators. The oxygen hoses are the high-flow type and are color-coded with a blue band adjacent to the plug-in fitting.

#### NOTE

The pilot's mask is equipped with a microphone to facilitate use of the radio when using oxygen. An adapter cord is furnished with the microphoneequipped mask to mate the mask microphone lead to the microphone jack located on the left side of the instrument panel. To connect the oxygen mask microphone, connect the mask lead to the adapter cord and plug the cord into the microphone jack.

1 April 1998

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## S16 MODEL 208 (675 SHP)

#### 2-PORT OXYGEN SYSTEM POH SUPPLEMENT

#### NOTE

#### (Continued)

If an optional microphone-headset combination has been in use, the microphone lead from this equipment is already plugged into the microphone jack. It will be necessary to disconnect this lead from the microphone jack so that the adapter cord from the oxygen mask microphone can be plugged into the jack. A switch is incorporated on the lefthand control wheel to operate the microphone.

AMBIENT TEMP (F°)	FILLING PRESSURE (PSIG)	AMBIENT TEMP (F°)	FILLING PRESSURE (PSIG)
0	1650	50	1875
10	1700	60	1925
20	1725	70	1975
30	1775	80	2000
40	1825	90	2050

Figure 1. Oxygen Filling Pressures

A remote shutoff valve control in the overhead console above the pilot's and front passenger's seats is used to shut off the supply of oxygen to the system when not in use. The control is mechanically connected to the shutoff valve at the cylinder. With the exception of the shutoff function, the system is completely automatic and requires no manual regulation for change of altitude.

The oxygen cylinder, when fully charged, contains 50.67 cubic feet of aviator's breathing oxygen (Spec. No. MIL-O-27210), under a pressure of 1850 PSI at 70°F (21°C). Filling pressures will vary, however, due to ambient temperature in the filling area, and the temperature rise resulting from compression of the oxygen.

1 April 1998

Because of this, merely filling to 1850 PSI will not result in a properly filled cylinder. Fill to pressures indicated in Figure 1 for ambient temperatures.

## A WARNING

Oil, grease or other lubricants in contact with oxygen create a serious fire hazard, and such contact must be avoided when handling oxygen equipment.

## SECTION 2 LIMITATIONS

There is no change to the airplane limitations when oxygen equipment is installed.

## SECTION 3 EMERGENCY PROCEDURES

There is no change to the airplane emergency procedures when oxygen equipment is installed.

## SECTION 4 NORMAL PROCEDURES

For FAA requirements concerning supplemental oxygen, refer to FAR 91.211. Supplemental oxygen should be used by all occupants when cruising above 12,500 feet. As described in the Cessna booklet "Man At Altitude," it is often advisable to use oxygen at altitudes lower than 12,500 feet under conditions of night flying, fatigue, or periods of physiological or emotional disturbances. Also, the habitual and excessive use of tobacco or alcohol will usually necessitate the use of oxygen at less than 10,000 feet.

Prior to flight, check to be sure that there is an adequate oxygen supply for the trip, by noting the oxygen pressure gauge reading, and referring to the Oxygen Duration Chart (Figure 2). Also, check that the face masks and hoses are accessible and in good condition.

1 April 1998

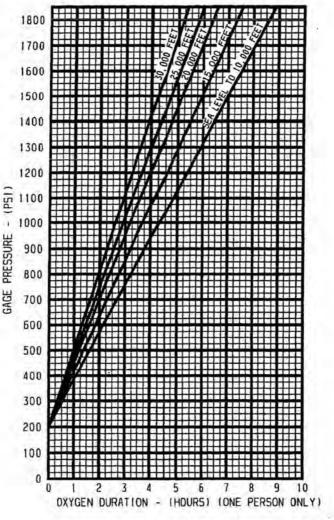
S16-5

## S16 MODEL 208 (675 SHP)

### 2-PORT OXYGEN SYSTEM POH SUPPLEMENT

# (50.67 CUBIC FEET CAPACITY)

NOTE: OXYGEN DURATION IN HOURS = TOTAL HOURS DURATION NUMBER OF PERSONS



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The Oxygen Duration Chart (Figure 2) should be used in determining the usable duration (in hours) of the oxygen supply in your airplane. The following procedure outlines the method of finding the duration from the chart.

- Note the available oxygen pressure shown on the pressure gauge.
- 2. Locate this pressure on the scale on the left side of the chart, then go across the chart horizontally to the right until you intersect the line representing the altitude at which the flight will be conducted. After intersecting the line, drop down vertically to the bottom of the chart and read the duration in hours given on the scale. This duration is for one person only and will have to be divided by the number of persons using oxygen to obtain the total duration in hours.
- As an example of the above procedure, 1700 PSI of pressure will safely sustain the pilot only, flying at 20,000 feet altitude, for 6 hours. If a right front passenger is aboard, the total duration at 20,000 feet altitude for two persons is 3 hours.

#### NOTE

Reliance on oxygen available below 200 PSI is not recommended. At this reduced pressure, flow rates are not predictable.

When ready to use the oxygen system, proceed as follows:

 Mask and Hose -- SELECT. Adjust mask to face and adjust metallic nose strap for snug mask fit.

### A WARNING

Permit no smoking when using oxygen. Oil, grease, soap, lipstick, lip balm, and other fatty materials constitute a serious fire hazard when in contact with oxygen. Be sure hands and clothing are oil-free before handling oxygen equipment.

 Delivery Hose -- PLUG INTO OUTLET nearest to the seat you are occupying.

## S16 MODEL 208 (675 SHP)

#### 2-PORT OXYGEN SYSTEM POH SUPPLEMENT

#### NOTE

When the oxygen system is turned on, oxygen will flow continuously at the proper rate of flow for any altitude without any manual adjustments.

- 3. Oxygen Supply Control Knob -- ON.
- Face Mask Hose Flow Indicator -- CHECK. Oxygen is flowing if the indicator is being forced toward the mask.
- 5. Delivery Hose -- UNPLUG from outlet when discontinuing use of oxygen. This automatically stops the flow of oxygen.
- Oxygen Supply Control Knob -- OFF when oxygen is no longer required.

## SECTION 5 PERFORMANCE

There is no change to the airplane performance when oxygen equipment is installed.

#### 1 April 1998



## Pilot's Operating Handbook and FAA Approved Airplane Flight Manual

# CESSNA MODEL 208 (675 SHP)

## SUPPLEMENT 17

# **10-PORT OXYGEN SYSTEM**

SERIAL NO.

**REGISTRATION NO.** 

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, if the airplane is equipped with the optional 10-port oxygen system.

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Wendell W. Cornell Executive Engineer Cessna Aircraft Company Delegation Option Manufacturer CE-3

DATE OF APPROVAL 7 APRIL 1998

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# **SUPPLEMENT 17**

## **10-PORT OXYGEN SYSTEM**

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# SUPPLEMENT

## 10-PORT OXYGEN SYSTEM SECTION 1 GENERAL

A 10-port oxygen system provides the supplementary oxygen necessary for continuous flight at high altitude. In this system, a 116.95 cubic foot capacity oxygen cylinder, located in the fuselage tailcone, supplies the oxygen. Cylinder pressure is reduced to an operating pressure of 70 PSI by a pressure regulator attached to the cylinder. A shutoff valve is included as part of the regulator assembly. The system also contains an altitude compensating regulator, located between the pressure regulator and the oxygen supply lines, which varies the flow of oxygen to the masks. depending on altitude. An oxygen cylinder filler valve is located on the right side of the airplane (under a cover plate), just aft of the passenger entry door. Cylinder pressure is indicated by a pressure gauge located on the overhead console above the pilot's and front passenger's seats. Ten oxygen outlets are provided in the cabin ceiling, one each just outboard of the pilot's and front passenger's seats, and one adjacent to each of the aft passenger ventilating air However, to meet FAR oxygen requirements, a maximum outlets. of 12 oxygen masks are allowed to be plugged into the oxygen outlets at a time. One permanent, microphone-equipped mask is provided for the pilot, and twelve permanent masks are provided for the passengers. All masks are the partial rebreathing type, equipped with vinyl plastic hoses and flow indicators. The oxygen hoses are the high-flow type and are color coded with a blue band adjacent to the plug-in fitting.

### NOTE

The pilot's mask is equipped with a microphone to facilitate use of the radio when using oxygen. An adapter cord is furnished with the microphone-equipped mask to mate the mask microphone lead to the microphone jack located on the left side of the instrument panel. To connect the oxygen mask microphone, connect the mask lead to the adapter cord and plug the cord into the microphone jack.

## S17 MODEL 208 (675 SHP)

#### 10-PORT OXYGEN SYSTEM POH SUPPLEMENT

#### NOTE

#### (Continued)

If an optional microphone-headset combination has been in use, the microphone lead from this equipment is already plugged into the microphone jack. It will be necessary to disconnect this lead from the microphone jack so that the adapter cord from the oxygen mask microphone can be plugged into the jack. A switch is incorporated on the lefthand control wheel to operate the microphone.

AMBIENT TEMP (F°)	FILLING PRESSURE (PSIG)		AMBIENT TEMP (F°)	FILLING PRESSURE (PSIG)
0	1650		50	1875
10	1700		60	1925
20	1725	-	70	1975
30	1775		80	2000
40	1825		90	2050

Figure 1. Oxygen Filling Pressures

A remote shutoff valve control in the overhead console above the pilot's and front passenger's seats is used to shut off the supply of oxygen to the system when not in use. The control is mechanically connected to the shutoff valve at the cylinder. With the exception of the shutoff function, the system is completely automatic and requires no manual regulation for change of altitude.

The oxygen cylinder, when fully charged, contains 116.95 cubic feet of aviator's breathing oxygen (Spec. No. MIL-O-27210), under a pressure of 1850 PSI at 70°F (21°C). Filling pressures will vary, however, due to ambient temperature in the filling area, and the temperature rise resulting from compression of the oxygen.

1 April 1998

Because of this, merely filling to 1850 PSI will not result in a properly filled cylinder. Fill to pressures indicated in Figure 1 for ambient temperatures.

## WARNING

Oil, grease or other lubricants in contact with oxygen create a serious fire hazard, and such contact must be avoided when handling oxygen equipment.

## SECTION 2 LIMITATIONS

When oxygen is being used by passengers at night, the reading light above each passenger using oxygen must be turned on in order to check face mask hose flow indicator.

### SECTION 3 EMERGENCY PROCEDURES

There is no change to the airplane emergency procedures when oxygen equipment is installed.

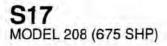
## SECTION 4 NORMAL PROCEDURES

For FAA requirements concerning supplemental oxygen, refer to FAR 91.211. Supplemental oxygen should be used by all occupants when cruising above 12,500 feet. As described in the Cessna booklet "Man At Altitude," it is often advisable to use oxygen at altitudes lower than 12,500 feet under conditions of night flying, fatigue, or periods of physiological or emotional disturbances. Also, the habitual and excessive use of tobacco or alcohol will usually necessitate the use of oxygen at less than 10,000 feet.

Prior to flight, check to be sure that there is an adequate oxygen supply for the trip, by noting the oxygen pressure gauge reading, and referring to the Oxygen Duration Chart (Figure 2). Also, check that the face masks and hoses are accessible and in good condition.

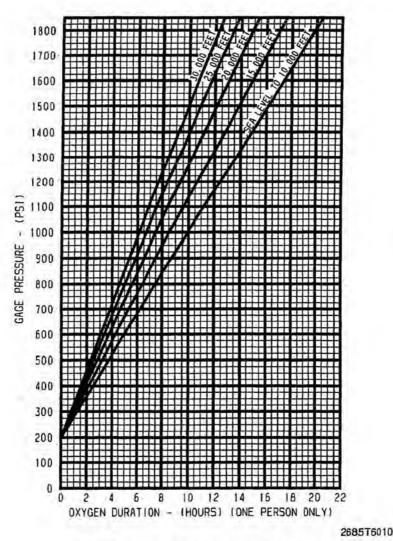
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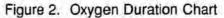
S17-5



## OXYGEN DURATION CHART (116.95 CUBIC FEET CAPACITY)

NOTE: <u>OXYGEN DURATION IN HOURS</u> = TOTAL HOURS DURATION NUMBER OF PERSONS





1 April 1998

### S17 MODEL 208 (675 SHP)

The Oxygen Duration Chart (Figure 2) should be used in determining the usable duration (in hours) of the oxygen supply in your airplane. The following procedure outlines the method of finding the duration from the chart.

- Note the available oxygen pressure shown on the pressure gauge.
- 2. Locate this pressure on the scale on the left side of the chart, then go across the chart horizontally to the right until you intersect the line representing the altitude at which the flight will be conducted. After intersecting the line, drop down vertically to the bottom of the chart and read the duration in hours given on the scale. This duration is for one person only and will have to be divided by the number of persons using oxygen to obtain the total duration in hours.
- As an example of the above procedure, 1700 PSI of pressure will safely sustain the pilot only, flying at 15,000 feet altitude, for 16 hours. If 9 passengers are aboard, the total duration at 15,000 feet altitude for 10 persons (pilot and passengers) is 1.6 hours or 1 hour and 36 minutes.

#### NOTE

Reliance on oxygen available below 200 PSI is not recommended. At this reduced pressure, flow rates are not predictable.

When ready to use the oxygen system, proceed as follows:

 Mask and Hose -- SELECT. Adjust mask to face and adjust metallic nose strap for snug mask fit.

### A WARNING

Permit no smoking when using oxygen. Oil, grease, soap, lipstick, lip balm, and other fatty materials constitute a serious fire hazard when in contact with oxygen. Be sure hands and clothing are oil-free before handling oxygen equipment.

Delivery Hose -- PLUG INTO OUTLET nearest to the seat you are occupying.

## S17 MODEL 208 (675 SHP)

#### 10-PORT OXYGEN SYSTEM POH SUPPLEMENT

#### NOTE

When the oxygen system is turned on, oxygen will flow continuously at the proper rate of flow for any altitude without any manual adjustments.

- 3. Oxygen Supply Control Knob -- ON.
- Face Mask Hose Flow Indicator -- CHECK. Oxygen is flowing if the indicator is being forced toward the mask.
- 5. Delivery Hose -- UNPLUG from outlet when discontinuing use of oxygen. This automatically stops the flow of oxygen.
- Oxygen Supply Control Knob -- OFF when oxygen is no longer required.

## SECTION 5 PERFORMANCE

There is no change to the airplane performance when oxygen equipment is installed.

#### 1 April 1998



## Pilot's Operating Handbook and FAA Approved Airplane Flight Manual

# CESSNA MODEL 208 (675 SHP)

# SUPPLEMENT 18

# PROPELLER ANTI-ICE SYSTEM

SERIAL NO.

**REGISTRATION NO.** 

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual if the airplane is equipped with propeller anti-ice.

Dorneil APPROVED BY

Wendell W. Comeil Executive Engineer Cessna Aircraft Company Delegation Option Manufacturer CE-3

DATE OF APPROVAL 7 APRIL 1998

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S18 MODEL 208 (675 SHP)

PROPELLER ANTI-ICE EQUIPMENT POH SUPPLEMENT

# **SUPPLEMENT 18**

## **PROPELLER ANTI-ICE SYSTEM**

Use the Log of Effective Pages to determine the current status of this supplement. Pages affected by the current revision are indicated by an asterisk (\*) preceding the page number.

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S18-1 thru S18-5/S18-6

1 April 1998

#### PROPELLER ANTI-ICE SYSTEM POH SUPPLEMENT

## SUPPLEMENT

# PROPELLER ANTI-ICE SYSTEM

## SECTION 1 GENERAL

The propeller anti-ice system provides a measure of protection for the propeller blade surfaces if unexpected icing conditions are encountered. The system is operated by a three-position toggle switch, labeled DE-ICE/ANTI-ICE, PROP, on the de-ice/anti-ice switch panel. When the switch is placed in the AUTO (upper) position, electric current flows to an anti-ice timer which cycles the current simultaneously to the heating elements in the anti-ice boots on the three propeller blades in intervals of 90 seconds on and 90 seconds off.

#### NOTE

An oil-operated pressure switch installed in the electrical circuit is utilized to prevent activation of the propeller antiice system in the AUTO mode without the engine running.

The switch is off when placed in the middle position. In the event of a malfunction in the anti-ice timer, the switch can be held in the momentary MANUAL (lower) position to achieve emergency propeller anti-icing. Operation of the anti-ice system can be checked by monitoring an ammeter, labeled PROP ANTI-ICE AMPS, near the upper left corner of the instrument panel. The system is protected by two "pull-off" type circuit breakers, a control circuit breaker labeled PROP ANTI-ICE CONT and a heater circuit breaker labeled PROP ANTI-ICE. Both circuit breakers are located on the left sidewall switch and circuit breaker panel.

## SECTION 2 LIMITATIONS

There is no change to the airplane limitations when the propeller anti-ice system in installed; intentional flight into known icing conditions is prohibited, unless a complete flight into known icing equipment package is installed. S18 MODEL 208 (675 SHP)

#### PROPELLER ANTI-ICE SYSTEM POH SUPPLEMENT

## SECTION 3 EMERGENCY PROCEDURES

Flight into known icing conditions is prohibited unless a complete flight into know icing equipment package is installed. If unexpected icing conditions are encountered, the Inadvertent Icing Encounter checklist in Section 3 of the basic handbook should be followed. In addition, the following procedure is recommended:

- 1. Battery Switch -- ON.
- 2. Prop Anti-Ice Switch -- AUTO (upper position).
- Prop Anti-Ice Ammeter -- CHECK in green arc range (20 to 24 amps) during the on portion of the cycle and a zero reading during the off portion of the cycle.

#### NOTE

- To check the heating elements and the anti-ice timer for one complete cycle, the system must be left on for approximately three minutes.
- In the event of a malfunction in the anti-ice timer, the prop anti-ice switch can be held in the MANUAL position to achieve emergency propeller anti-icing. If operating in the emergency MANUAL mode, the pilot must hold the switch for approximately 90 seconds and repeat this procedure at 90-second intervals.

## A CAUTION

If the anti-ice ammeter indicates unusually high or low amperage (out of the green arc range limits) anytime during te on portion of a cycle, a malfunction has occurred. It is imperative that the system be turned off, since uneven antilcing may result, causing propeller unbalance and engine roughness. If, after leaving icing conditions, engine roughness or vibration develops or persists that is not traceable to icing or another cause, reduce propeller RPM to smoothest condition, plan a landing at the nearest airport, and check the security of the anti-ice boots as a possible cause.

1 April 1998

#### PROPELLER ANTI-ICE SYSTEM POH SUPPLEMENT

 Prop Anti-Ice Switch -- OFF when anti-icing is no longer required.

## SECTION 4 NORMAL PROCEDURES

There is no change to the airplane normal procedures when the propeller anti-ice system is installed.

Refer to Section 8 of the basic handbook for care and maintenance of the propeller anti-ice boots.

## SECTION 5 PERFORMANCE

There is no change to the airplane performance when the propeller anti-ice system is installed.





## Pilot's Operating Handbook and FAA Approved Airplane Flight Manual

# CESSNA MODEL 208 (675 SHP)

# SUPPLEMENT 19

# AERO TWIN RUDDER GUST LOCK

#### SERIAL NO.

#### **REGISTRATION NO.**

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual if the airplane is equipped with rudder gust lock. This supplement is a reissue of Publication Number D1342-13, FAA-approved on 22 September 1988 in conjunction with STC SA3649NM and originally issued 3 January 1994. The original approval page of that supplement has been electronically reproduced on page 519-3 of this supplement.

sincel APPROVED BY

Wendell W. Cornell Executive Engineer Cessna Aircraft Company Delegation Option Manufacturer CE-3

DATE OF APPROVAL 7 APRIL 1998

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S19 MODEL 208 (675 SHP)

AERO TWIN RUDDER GUST LOCK POH SUPPLEMENT

# **SUPPLEMENT 19**

## AERO TWIN RUDDER GUST LOCK

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1 April 1998

#### S19-2

## AERO TWIN RUDDER GUST LOCK FLIGHT MANUAL SUPPLEMENT APPROVAL

AERO TWIN, INC. 2404 Merrill Field Dr. Anchorage, Alaska 99501

#### FAA APPROVED

#### AIRPLANE FLIGHT MANUAL SUPPLEMENT

FOR

#### CESSNA MODEL 208/208A/208B

#### WITH

#### AERO TWIN RUDDER GUST LOCK

Reg. No.

Ser. No.

This supplement must be attached to the FAA Approved airplane Flight Manual when the Aero Twin Rudder Gust Lock is installed in accordance with STC SA3649NM. The information contained herein supplements or supersedes the basic manual only in those areas listed herein. For limitations, procedures, performance and handling/service information not contained in this supplement, consult the basic Airplane Flight Manual.

FAA Approved:

Manager, Aircraft Certification Office Federal Aviation Administration Anchorage, Alaska

Date:

SEP 2 2 1988

Electronic reproduction of the original approval page from Publication Number D1342-13, FAA approved on 22 September 1988 and originally issued 3 January 1994.

1 April 1998

S19-3

## S19 MODEL 208 (675 SHP)

## SUPPLEMENT

## AERO TWIN RUDDER GUST LOCK

## SECTION 1 GENERAL

The Aero Twin Rudder Gust Lock is a positive locking device consisting of a bracket assembly and a bolt action lock attached to the rear bulkhead inside the tailcone stinger below the rudder. When engaged, the rudder is locked in the neutral position. A placard located below the lock handle shaft on the left side of the tailcone explains the operation of the rudder gust lock. The rudder gust lock is manually engaged and disengaged on the ground by turning the airfoil-shaped handle mounted on the shaft projecting from the left side of the tailcone. The lock is engaged by turning the handle so that its trailing edge points upward at an angle of about 60 degrees to the horizontal; however, the rudder must be centered prior to engaging the rudder lock. The lock is manually disengaged by turning the handle downward so that its trailing edge points nearly due aft.

The rudder gust lock also has a fail-safe connection to the elevator control system to ensure that it will always be disengaged before This fail-safe connection airplane becomes airborne. the automatically disengages the lock when the elevator is deflected upward about one-fourth of its travel from neutral. The pilot is responsible for disengaging the rudder gust lock during the preflight inspection and operating the fail-safe disengagement mechanism by momentarily deflecting the elevator to the full up position after the control lock is removed and before starting the engine. If these procedures are not followed the rudder and rudder pedals will be locked in the neutral position making ground steering impossible. In the event that the engagement of the rudder gust lock goes completely unnoticed and the pilot commences a takeoff run with the rudder system locked, the upward elevator deflection during rotation will disengage the rudder gust lock.

Because of the fail-safe system, the elevator lock should always be engaged prior to engaging the rudder lock when securing the airplane after shutdown.

1 April 1998

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#### AERO TWIN RUDDER GUST LOCK POH SUPPLEMENT

S19 MODEL 208 (675 SHP)

## SECTION 2 LIMITATIONS

There is no change to the airplane limitations when this rudder gust lock is installed.

#### PLACARDS

This placard is required to be installed on the left side of the tailcone stinger, affixed to rudder lock shaft cover plate:

UNLOCK	LOCK
UNLOUN	UNLOCK
BEFORE TAXI AND FLIGHT	

## SECTION 3 EMERGENCY PROCEDURES

There is no change to airplane emergency procedures when this rudder gust lock is installed.

## SECTION 4 NORMAL PROCEDURES

#### PREFLIGHT INSPECTION

EMPENNAGE

Rudder Gust Lock -- UNLOCK (left side of tailcone stinger).

## S19 MODEL 208 (675 SHP)

#### AERO TWIN RUDDER GUST LOCK POH SUPPLEMENT

#### **BEFORE STARTING ENGINE**

Elevator Control -- FULL UP then RETURN (to trip fail-safe rudder lock release).

## A CAUTION

If the rudder gust lock is not disengaged manually or by tripping the fail-safe rudder lock release, steering on the ground by using the rudder pedals will not be possible.

#### SHUTDOWN AND SECURING AIRPLANE

Rudder Gust Lock -- LOCK (left side of tailcone stinger).

#### NOTE

Control lock must be engaged and the rudder must be centered prior to engaging rudder gust lock.

## SECTION 5 PERFORMANCE

There is no change to the airplane performance when this rudder gust lock is installed.



## Pilot's Operating Handbook and FAA Approved Airplane Flight Manual

# CESSNA MODEL 208 (675 SHP)

# **SUPPLEMENT 20**

# STANDBY ELECTRICAL SYSTEM

#### SERIAL NO.

#### **REGISTRATION NO.**

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, if the airplane is equipped with a standby electrical system.

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Wendell W. Cornell Executive Engineer Cessna Aircraft Company Delegation Option Manufacturer CE-3

DATE OF APPROVAL 7 APRIL 1998

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**REVISION 3 - 6 FEBRUARY 2001** 

S20-1

S20 MODEL 208 (675 SHP)

STANDBY ELECTRICAL SYSTEM POH SUPPLEMENT

# SUPPLEMENT 20

## STANDBY ELECTRICAL SYSTEM

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- S20-7/S20-8

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#### STANDBY ELECTRICAL SYSTEM POH SUPPLEMENT

S20 MODEL 208 (675 SHP)

# SUPPLEMENT

## STANDBY ELECTRICAL SYSTEM SECTION 1 GENERAL

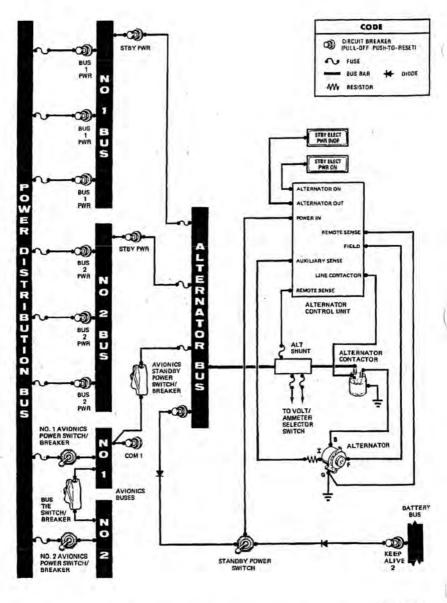
A standby electrical system (see Figure 1) may be installed for use as a standby power source in the event the main generator system malfunctions in flight. The system includes an alternator operated at a 75-amp capacity rating. The alternator is belt-driven from an accessory pad on the rear of the engine. The system also includes an alternator control unit located forward of the circuit breaker panel, a standby alternator contactor assembly on the left front side of the firewall and two switches on the left sidewall switch panel. The standby system switches are a two-position toggle-type switch, labeled STBY PWR, and a guarded two-position toggle-type switch/breaker, labeled AVIONICS STBY PWR. The guard covering the standby avionics power switch must be lifted in order to select the ON position. Circuit protection and isolation are provided by two 40-amp circuit breakers, labeled STBY PWR, on the left sidewall circuit breaker panel. Field excitation to the alternator control unit is supplied through diode logic from either a circuit breaker in the standby alternator relay assembly or the KEEP ALIVE No. 2 circuit breaker in the main power relay box. System monitoring is provided by two amber lights, labeled STBY ELECT PWR ON and STBY ELECT PWR INOP, in the annunciator panel. Total amperage supplied from the standby electrical system can be monitored on the airplane volt/ammeter with the selector switch in the ALT position.

Any time the standby electrical system is turned on, standby power will automatically be supplied to the main buses if system voltage drops. The AVIONICS STBY PWR switch/breaker and AVIONICS BUS TIE switch must be ON to utilize the 75-ampere capacity. Also, the AVIONICS 1 and 2 power switches should be OFF to avoid feeding a possible fault in the primary power system when operating on standby power. The primary power supply system can be completely isolated by pulling the six 30-ampere bus feeder circuit breakers in the event of a fault in the primary power relay box.

1 April 1998

## S20 MODEL 208 (675 SHP)

#### STANDBY ELECTRICAL SYSTEM POH SUPPLEMENT



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1 April 1998

S20-4

#### STANDBY ELECTRICAL SYSTEM POH SUPPLEMENT

S20 MODEL 208 (675 SHP)

## SECTION 2 LIMITATIONS

When operating on the standby electrical system, the maximum electrical load is 75 amps from sea level to 21,000 feet. To assure adequate alternator cooling at higher altitudes, reduce maximum electrical load 5 amps per 1000 feet above 21,000 feet up to the maximum operating altitude.

## SECTION 3 EMERGENCY PROCEDURES

GENERATOR FAILURE - GENERATOR OFF ANNUNCIATOR

1. Generator Switch -- TRIP, then RESET.

If primary power is not restored:

 GEN CONTROL and GEN FLD Circuit Breakers -- RESET (if tripped) and repeat step 1.

If GENERATOR OFF annunciator remains illuminated and STBY ELECT PWR INOP annunciator is illuminated:

- STBY PWR Switch -- OFF, then ON. Check STBY ELECT PWR INOP annunciator extinguished and STBY ELECT PWR ON annunciator illuminated.
- AVIONICS STBY PWR and AVIONICS BUS TIE Switches --ON.
- 5. AVIONICS 1 and 2 Switches -- OFF.
- Volt/Ammeter -- SELECT ALT and verify alternator load is 75 amperes or less. REDUCE LOAD as required to prevent battery discharge.

If GENERATOR OFF annunciator remains illuminated and STBY ELECT PWR ON annunciator is illuminated:

3. Perform steps 4, 5, and 6 above.

6 February 2001

## S20 MODEL 208 (675 SHP)

#### STANDBY ELECTRICAL SYSTEM POH SUPPLEMENT

STANDBY POWER FAILURE - STBY ELECT PWR INOP ANNUN-CIATOR ILLUMINATED

- 1. STBY PWR Switch -- OFF, then ON.
- STBY ELECT PWR INOP Annunciator -- CHECK extinguished.

If STBY ELECT PWR INOP annunciator remains illuminated:

- 3. STBY PWR Switch -- OFF.
- 4. Flight -- COMPLETE utilizing primary power.

#### NOTE

If the STBY ELECT PWR INOP annunciator illuminates, the alternator system may still be operational. A bus voltage surge may have temporarily tripped the ACU (alternator control unit). If so, the ACU can be restored by cycling the standby power switch.

## SECTION 4 NORMAL PROCEDURES

#### AFTER ENGINE START

- 1. STBY PWR Switch -- OFF.
- STBY ELECT PWR INOP Annunciator -- ON.

### **BEFORE TAKEOFF**

The following functional check of the standby electrical system should be accomplished before takeoff, and must be completed prior to any icing flight.

- 1. Standby Power Switch -- ON.
- Generator -- LOAD to approximately 30 amps or greater (use taxi lights if required).
- Volt/Ammeter -- SELECT ALT position and verify alternator output near zero.
- 4. Generator Switch -- TRIP.

(Continued Next Page)

#### 6 February 2001

#### STANDBY ELECTRICAL SYSTEM POH SUPPLEMENT

S20 MODEL 208 (675 SHP)

5. Volt/Ammeter -- CHECK for alternator output and check voltage approximately one volt less than with generator ON.

#### NOTE

A fully charged battery will carry part of the electrical load when initially switching from generator to standby alternator power because of the generator's higher voltage regulation.

- 6. STBY ELECT PWR ON Annunciator -- CHECK ON.
- 7. Generator Switch -- RESET.
- 8. STBY ELECT PWR ON Annunciator -- CHECK OFF.
- 9. Volt/Ammeter Selector Switch -- RETURN to BATT position.

#### NOTE

The STBY ELECT PWR INOP annunciator will not illuminate, except in the event of a broken alternator drive belt, an electrical malfunction in the standby electrical system, or the Standby Power Switch is OFF.

 STBY PWR Switch -- ON (STBY ELECT PWR INOP Annunciator -- OFF).

#### ENGINE SHUTDOWN

The standby alternator receives field current from the keep alive 2 circuit so in an emergency condition, the standby alternator can be brought on line without turning on the battery switch. Normal engine shutdown procedures call for turning the standby power switch off prior to shutting the engine down and turning the battery switch off. If the standby power switch is inadvertently left on, several of the red lights in the annunciator panel will remain illuminated after the battery switch is turned off. The illuminated annunciators serve as a reminder to turn off the standby power switch and thereby preclude draining the airplane's battery.

## SECTION 5 PERFORMANCE

There is no change to the airplane performance when the standby electrical system is installed.

6 February 2001

S20-7/S20-8



## Pilot's Operating Handbook and FAA Approved Airplane Flight Manual

# CESSNA MODEL 208 (675 SHP)

# SUPPLEMENT 21

# **VENTILATION FAN SYSTEM**

SERIAL NO.

**REGISTRATION NO.** 

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, if the airplane is equipped with a ventilation fan.

Donneil ndella APPROVED BY

Wendell W. Cornell Executive Engineer Cessna Aircraft Company Delegation Option Manufacturer CE-3

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S21 MODEL 208 (675 SHP)

VENTILATION FAN SYSTEM POH SUPPLEMENT

# SUPPLEMENT 21

## VENTILATION FAN SYSTEM

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S21-1 thru S21-6

1 April 1998

### VENTILATION FAN SYSTEM POH SUPPLEMENT

# SUPPLEMENT

# VENTILATION FAN SYSTEM (Passenger Version Only)

# SECTION 1 GENERAL

The ventilation fan system (see Figure 1) provides supplemental cabin ventilation. The system controls are located on the overhead console between the pilot and front passenger, and consist of two rotary-type vent air controls, labeled VENT AIR. The vent air controls (one left and one right) operate shutoff valves in the left and right wing to control the flow of ram ventilating air which enters the inlet in each upper wing strut fairing.

The vent air controls also operate switches in two ventilation fan circuits to control fan operation. When the vent air controls are rotated to the CLOSE position, the shutoff valves are closed; rotating the controls toward the OPEN position progressively opens the shutoff valves. An audible clicking sound will be heard as the vent air controls are rotated. As each control is rotated beyond OPEN to the FAN position, a mechanism on the control actuates a switch to operate the duct-mounted fan located just inboard of the shutoff valve in each wing. The switch will not operate the fan until the shutoff valve is open, thus assuring a supply of cooling air to the fan motor. Whenever the vent air controls are in the OPEN position, ram airflow is ducted to the overhead ventilating outlets. This airflow can be augmented during ground operation (or in flight, if desired) by rotating the controls to the FAN position. System electrical protection is provided by two "pull-off" type circuit breakers, labeled LEFT VENT BLWR and RIGHT VENT BLWR, on the left sidewall switch and circuit breaker panel.

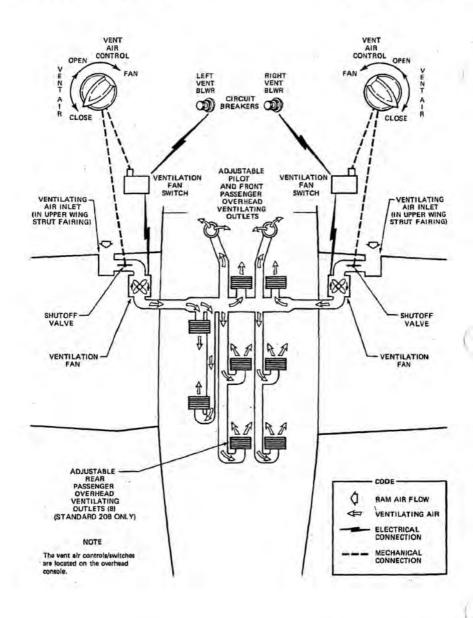
Adjustable ventilating outlets (one above each seat position) offer individual ventilation to the airplane occupants. The pilot and front passenger outlets are the swivel type for optimum positioning, and airflow volume is controlled by rotating the outlet nozzle which controls an internal valve. Eight additional rear seat passenger outlets on the Standard 208 are directionally adjustable fore and aft, and each have a separate rotary-type control beside the outlet, with positions labeled AIR ON and AIR OFF, to control airflow volume.

1 April 1998

S21-3

# S21 MODEL 208 (675 SHP)

### VENTILATION FAN SYSTEM POH SUPPLEMENT



1

## Figure 1. Ventilation Fan System

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1 April 1998

VENTILATION FAN SYSTEM POH SUPPLEMENT S21 MODEL 208 (675 SHP)

# SECTION 2 LIMITATIONS

There is no change to the airplane limitations when the ventilation fan system is installed.

# SECTION 3 EMERGENCY PROCEDURES

There is no change to the airplane emergency procedures when the ventilation fan system is installed.

# SECTION 4 NORMAL PROCEDURES

## PREFLIGHT INSPECTION

In hot weather during the preflight (walk-around) inspection, open the forward entry doors, cargo doors and aft passenger door to aid in cool-down of the cabin before engine start.

### OPERATION ON GROUND

After the preflight inspection and engine start, use the following procedures for best utilization of the system prior to flight.

- 1. Vent Air Controls -- FAN position.
- 2. Ventilation Outlets -- OPEN as desired.

### BEFORE TAKEOFF

1. Forward Entry Doors -- CLOSED AND LOCKED.

## S21 MODEL 208 (675 SHP)

### VENTILATION FAN SYSTEM POH SUPPLEMENT

### **OPERATION IN FLIGHT**

The ventilation fans usually are not required during flight since ventilating airflow is provided by the increased ram effect of outside air entering the system inlets. The vent air controls and the overhead ventilation outlets may be adjusted as required to provide the desired cabin ventilation.

After landing, the vent air controls may be returned to the FAN position (and the forward entry doors may be opened) while taxing to the tie-down area to help ventilate the cabin.

## SECTION 5 PERFORMANCE

There is no change to the airplane performance when the ventilation fan system is installed.

1 April 1998



# Pilot's Operating Handbook and FAA Approved Airplane Flight Manual

# CESSNA MODEL 208 (675 SHP)

# **SUPPLEMENT 22**

# WINDSHIELD ANTI-ICE SYSTEM

SERIAL NO.

**REGISTRATION NO.** 

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, if the airplane is equipped with the windshield anti-ice system.

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Wendell W. Cornell Executive Engineer Cessna Aircraft Company Delegation Option Manufacturer CE-3

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S22 MODEL 208 (675 SHP)

WINDSHIELD ANTI-ICE SYSTEM POH SUPPLEMENT

# SUPPLEMENT 22

## WINDSHIELD ANTI-ICE SYSTEM

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## WINDSHIELD ANTI-ICE SYSTEM POH SUPPLEMENT

S22 MODEL 208 (675 SHP)

# SUPPLEMENT

# WINDSHIELD ANTI-ICE SYSTEM SECTION 1

# GENERAL

The windshield anti-ice system assures adequate visibility for a landing during flight conditions where ice may form on the windshield. A detachable electrically-heated glass panel approximately 19 inches high and 9 inches wide mounts to the base of the windshield in front of the pilot. A quick disconnect feature utilizing a spring-loaded release pin is provided to facilitate ease of installation and removal. The panel may be stowed in the airplane when not in use; a padded cover is provided for protection against scratches, breakage, and wiring damage.

Windshield anti-icing is controlled by a three-position toggle switch, labeled W/S, on the de-ice/anti-ice switch panel. When the switch is placed in the AUTO (upper) position, electric current regulated by a controller flows to the anti-ice panel to prevent the formation of ice in the protected segment of the windshield. The switch is off when placed in the middle position.

In the event of a malfunction in the system controller circuitry, the switch can be held in the momentary MANUAL (lower) position to achieve windshield anti-icing. An annunciator, labeled WINDSHIELD ANTI-ICE, illuminates to indicate that the system is operating. The system is protected by two "pull-off" type circuit breakers, a control circuit breaker labeled W/S ANTI-ICE CONT and a heater circuit breaker labeled W/S ANTI-ICE. Both circuit breakers are located on the left sidewall switch and circuit breaker panel.

The heated glass panel should be installed whenever icing conditions are a possibility on a proposed flight, especially if the freezing level is near or at the surface.

1 April 1998

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S22 MODEL 208 (675 SHP)

WINDSHIELD ANTI-ICE SYSTEM POH SUPPLEMENT

## SECTION 2 LIMITATIONS

There is no change to the airplane limitations when the windshield anti-ice system is installed; intentional flight into known icing conditions is prohibited unless a complete flight into known icing equipment package is installed. Prolonged operation of the system without the engine running should be avoided.

## SECTION 3 EMERGENCY PROCEDURES

Flight into known icing conditions is prohibited unless a complete flight into known icing equipment package is installed. If unexpected icing conditions are encountered, the Inadvertent Icing Encounter checklist in Section 3 of the basic handbook should be followed. In addition, the follow procedure is recommended:

 Windshield Anti-Ice Switch -- AUTO position 5 to 10 minutes in advance of its need. The anti-ice system may become ineffective if a large accumulation of ice is allowed to form.

### NOTE

For accurate magnetic compass readings, turn the windshield anti-ice switch OFF momentarily.

Windshield Anti-Ice Switch -- OFF when the possibility of icing no longer exits.

## SECTION 4 NORMAL PROCEDURES

The anti-ice system should be checked prior to takeoff as follows:

- 1. Windshield Anti-Ice Switch -- AUTO.
- Observe increase in generator output and illumination of WINDSHIELD ANTI-ICE annunciator.
- 3. Windshield Anti-Ice Switch -- MANUAL.

For Training Purposes Only

S22-4

### WINDSHIELD ANTI-ICE SYSTEM POH SUPPLEMENT

S22 MODEL 208 (675 SHP)

 Observe increase in generator output and illumination of WINDSHIELD ANTI-ICE annunciator.

# A CAUTION

Inadvertent prolonged operation of the heated anti-lcing panel without the engine running may cause damage to the panel and crazing of the windshield.

## SECTION 5 PERFORMANCE

There is no significant change to the airplane performance when the windshield anti-ice system is installed.





# Pilot's Operating Handbook and FAA Approved Airplane Flight Manual

# CESSNA MODEL 208 (675 SHP) SUPPLEMENT 23

# POINTER MODEL 3000-11/MODEL 4000-11 EMERGENCY LOCATOR TRANSMITTER (ELT)

SERIAL NO.

### **REGISTRATION NO.**

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, if the airplane is equipped with a Pointer Model 3000-11/Model 4000-11 Emergency Locator Transmitter (ELT).

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**IS23** MODEL 208 (675 SHP)

POINTER 3000-11/4000-11 ELT POH SUPPLEMENT

# **SUPPLEMENT 23**

# POINTER MODEL 3000-11/MODEL 4000-11 EMERGENCY LOCATOR TRANSMITTER (ELT)

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S23-2

POINTER 3000-11/4000-11 ELT POH SUPPLEMENT S23 MODEL 208 (675 SHP)

# SUPPLEMENT

# POINTER MODEL 3000-11/MODEL 4000-11 EMERGENCY LOCATOR TRANSMITTER (ELT)

# SECTION 1 GENERAL

This supplement provides information which must be observed when operating the Pointer Model 3000-11/Model 4000-11 Emergency Locator Transmitter (ELT).

The Pointer Model 3000-11/Model 4000-11 ELT consists of a selfcontained dual-frequency solid-state transmitter powered by a battery pack consisting of five alkaline "C" cell batteries and is automatically activated by a deceleration sensing inertia "G" switch, which is designed to activate when the unit senses longitudinal inertia forces as required in TSO-C91A. Also, a remote switch/annunciator is installed on the top center location of the copilot's instrument panel for control of the ELT from the flight crew The annunciator, which is in the center of the rocker station. switch, illuminates when the ELT transmitter is transmitting. The ELT emits an omni-directional signal on the international distress frequencies of 121.5 MHz and 243.0 MHz. General aviation and commercial aircraft, the FAA and CAP monitor 121.5 MHz, and 243.0 MHz is monitored by the military.

The ELT is contained in a high impact, fire retardant, waterproof case with carrying handle and is mounted behind the aft cabin partition wall on the right side of the tailcone. To gain access to the unit, open the zipper in the aft cabin canvas partition. The ELT is operated by a control panel at the forward facing end of the unit or by the remote switch/annunciator located on the top center portion of the copilot's instrument panel (see Figure 1).

Power for the transmitter is provided by an alkaline battery pack inside the transmitter case.

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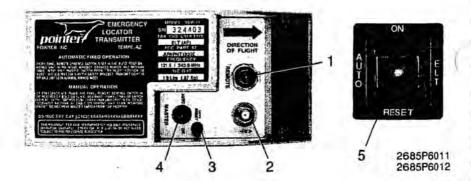
S23-3

S23 MODEL 208 (675 SHP)

# WARNING

In accordance with FAA regulations, the ELT's battery pack must be replaced after 2 years shelf or service life or for any of the following reasons:

- After the transmitter has been used in an emergency situation (including any inadvertent activation of unknown duration).
- b. After the transmitter has been operated for more than one cumulative hour (e.g. time accumulated in several tests and inadvertent activation of known duration).
- c. On or before battery replacement date. Battery replacement date is marked on the battery pack and the label on the transmitter.



- REMOTE CABLE JACK -- Connects to ELT remote switch/annunciator located on the copilot's instrument panel.
- ANTENNA RECEPTACLE -- Connects to antenna mounted on top of tailcone.
- TRANSMITTER ANNUNCIATOR LIGHT -- Illuminates red to indicate the transmitter is transmitting a distress signal.

Figure 1. ELT Control Panel and Remote Switch/Annunciator (Sheet 1 of 2)

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### POINTER 3000-11/4000-11 ELT POH SUPPLEMENT

4. MASTER FUNCTION SELECTOR SWITCH (3-position toggle switch):

AUTO -- Arms transmitter for automatic activation if "G" switch senses a predetermined deceleration level.

- ON -- Activates transmitter instantly. Used for test purposes and if "G" switch is inoperative. The ON position bypasses the automatic activation (The red annunciator in the center of the remote switch/annunciator should illuminate).
- OFF/RESET -- Deactivates transmitter during handling, following rescue and to reset the automatic activation function. (The red annunciator in the center of the remote switch/annunciator should extinguish).

5. REMOTE SWITCH/ANNUNCIATOR (3-position rocker switch):

- ON -- Remotely activates the transmitter for test or emergency situations. Red annunciator in center of rocker switch illuminates to indicate that the transmitter is transmitting a distress signal.
- AUTO -- Arms transmitter for automatic activation if "G" switch senses a predetermined deceleration level.
- RESET -- Deactivates and rearms transmitter after automatic activation by the "G" switch. Red annunciator in center of rocker switch should extinguish.

Figure 1. ELT Control Panel and Remote Switch/Annunciator (Sheet 2 of 2)

# SECTION 2 LIMITATIONS

The following information must be present in the form of a placard located on the upper right side of the aft cabin partition:

EMERGENCY LOCATOR TRANSMITTER INSTALLED AFT OF THIS PARTITION MUST BE SERVICED IN ACCORDANCE WITH FAR PART 91.207

The following information must be presented in the form of a placard on the right, outside skin, adjacent to the ELT:

ELT IS LOCATED BEHIND THIS SURFACE

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IS23 MODEL 208 (675 SHP)

POINTER 3000-11/4000-11 ELT POH SUPPLEMENT

## SECTION 3

## EMERGENCY PROCEDURES

Before performing a forced landing, especially in remote and mountainous areas, activate the ELT transmitter by positioning the remote switch/annunciator to the ON position. The annunciator in center of rocker switch should be illuminated.

Immediately after a forced landing where emergency assistance is required, the ELT should be utilized as follows:

### NOTE

The ELT remote switch/annunciator system could be inoperative if damaged during a forced landing. If inoperative, the inertia "G" switch will activate automatically. However, to turn the ELT OFF and ON again requires manual switching of the master function selector switch which is located on the ELT unit.

### 1. ENSURE ELT ACTIVATION:

- Position remote switch/annunciator to the ON position even if annunciator light is already on.
- b. If airplane radio is operable and can be safely used (no threat of fire or explosion), turn ON and select 121.5 MHz. If the ELT can be heard transmitting, it is working properly.
- c. Ensure that antenna is clear of obstructions.

### NOTE

When the ELT is activated, a decreasing tone will be heard before the typical warbling tone begins.

- 2. PRIOR TO SIGHTING RESCUE AIRCRAFT -- Conserve airplane battery. Do not activate radio transceiver.
- AFTER SIGHTING RESCUE AIRCRAFT -- Position remote switch/annunciator to the RESET position and release to the AUTO position to prevent radio interference. Attempt contact with rescue aircraft with the radio transceiver set to a frequency of 121.5 MHz. If no contact is established, return the remote switch/annunciator to the ON position immediately.
- FOLLOWING RESCUE -- Position remote switch/annunciator to the AUTO position, terminating emergency transmissions.

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### POINTER 3000-11/4000-11 ELT POH SUPPLEMENT

S23 MODEL 208 (675 SHP)

# SECTION 4 NORMAL PROCEDURES

As long as the remote switch/annunciator is in the AUTO position and the ELT master function selector switch remains in the AUTO position, the ELT automatically activates when the unit senses longitudinal inertia forces as required in TSO-C91A.

Following a lightning strike, or an exceptionally hard landing, the ELT may activate although no emergency exists. If the remote switch/annunciator illuminates, the ELT has inadvertently activated itself. Another way to check is to select 121.5 MHz on the radio transceiver and listen for an emergency tone transmission. If the remote switch/annunciator is illuminated or an emergency tone is heard, position the remote switch/annunciator in the RESET position and release to the AUTO position.

The ELT must be serviced in accordance with FAR Part 91.207.

INSPECTION/TEST

1. The emergency locator transmitter should be tested every 100 hours.

### NOTE

Test should only be conducted within the first 5 minutes of each hour.

- 2. Disconnect antenna cable from ELT.
- 3. Turn airplane battery switch and avionics power switches ON.
- 4. Turn airplane transceiver ON and set frequency to 121.5 MHz.
- Place remote switch/annunciator in the ON position. The annunciator should illuminate. Permit <u>only three</u> emergency tone transmissions, then immediately reposition the remote switch/annunciator to the RESET position and release to the AUTO position.
- Place the ELT master function selector switch in the ON position. Verify that the transmitter annunciator light on the ELT and the remote switch/annunciator on the instrument panel are illuminated.
- Place the ELT master function selector switch in the OFF/RESET position.

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S23 MODEL 208 (675 SHP)

### POINTER 3000-11/4000-11 ELT POH SUPPLEMENT

- 8. Reposition ELT master function selector switch to AUTO.
- 9. Reconnect antenna cable to ELT.

# A CAUTION

A test with the antenna connected should be approved and confirmed by the nearest control tower.

### NOTE

- Without its antenna connected, the ELT will produce sufficient signal to reach the airplane transceiver, yet it will not disturb other communications or damage output circuitry.
- After accumulated test or operation time equals 1 hour, battery pack replacement is required.

### INFLIGHT MONITORING AND REPORTING

Pilots are encouraged to monitor 121.5 MHz and/or 243.0 MHz while in flight to assist in identifying possible emergency ELT transmissions. On receiving a signal, report the following information to the nearest air traffic control facility:

- 1. Your position at the time the signal was first heard.
  - 2. Your position at the time the signal was last heard.
  - 3. Your position at maximum signal strength.
  - 4. Your flight altitude and frequency on which the emergency signal was heard -- 121.5 MHz or 243.0 MHz. If possible, positions should be given relative to a navigation aid. If the aircraft has homing equipment, provide the bearing to the emergency signal with each reported position.

# SECTION 5 PERFORMANCE

There is no change to the airplane performance data when this equipment is installed.

4 May 2001



# Pilot's Operating Handbook and FAA Approved Airplane Flight Manual

# CESSNA MODEL 208 (675 SHP) SUPPLEMENT 24

## BENDIX/KING GPS NAVIGATION SYSTEM (Type KLN 89B)

SERIAL NO.

**REGISTRATION NO.** 

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, if the airplane is equipped with the Bendix/King GPS Navigation System (Type KLN 89B).

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**REVISION 2 - 16 DECEMBER 1998** 

S24-1

S24 MODEL 208 (675 SHP)

BENDIX/KING KLN 89B (GPS) POH SUPPLEMENT

# SUPPLEMENT **BENDIX/KING GPS NAVIGATION SYSTEM** (Type KLN 89B)

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16 DECEMBER 1998

16 December 1998

S24 MODEL 208 (675 SHP)

# SUPPLEMENT

# BENDIX/KING GPS NAVIGATION SYSTEM (Type KLN 89B)

# SECTION 1 GENERAL

GPS (Global Positioning System) is a three-dimensional (3-D) precise location and navigation system based on a constellation of 24 satellites orbiting the earth. Receiver Autonomous Integrity Monitoring (RAIM) is a function that every IFR-certified GPS receiver must continuously perform to assure an accurate position. The high order of accuracy that is obtained from RAIM availability requires 5 or more satellites in view, or 4 satellites in view and a pressure altitude input from the airplane's altimeter. If there are not enough satellites in view to assure the position integrity, the KLN 89B GPS navigation system notifies the pilot.

The Bendix/King GPS Navigation System (Type KLN 89B) consists of a panel-mounted control display unit, an externally-mounted flat GPS antenna on the top forward portion of the fuselage and GPS annunciator/switches mounted below the HSI. The left annunciator/switch consists of a pushbutton switch labeled GPS APPROACH, which incorporates a two-segment annunciator labeled ARM and ACTV. This pushbutton switch manually arms the GPS approach mode at a distance greater than 30 NM from an airport when an approach is loaded in the flight plan for that airport and illuminates the ARM annunciator. This pushbutton switch also disarms the GPS approach mode after it has been manually or automatically activated and extinguishes the ARM annunciator. Also, this pushbutton switch cancels the GPS approach active mode which is automatically engaged by KLN 89B GPS unit and cycles back to the arm mode and extinguishes the ACTV annunciator while illuminating the ARM annunciator. The center annunciator consists of a three-segment annunciator labeled GPS WAYPOINT, MSG and ALT (GPS WAYPOINT and GPS MESSAGE when the ALT annunciator is not installed).

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MODEL 208 (675 SHP)

### BENDIX/KING KLN 89B (GPS) POH SUPPLEMENT

The right annunciator/switch consists of a pushbutton switch, incorporating a two-segment annunciator labeled HSI NAV 1 and HSI GPS. This pushbutton switch has a press-to-cycle feature that controls whether NAV 1 or GPS information is being displayed on the HSI. The NAV 1 or GPS annunciator will be illuminated to indicate which position has been selected.

When the HSI GPS annunciator switch is illuminated, Course Deviation, To/From and Flag information from the KLN 89B GPS is displayed on the HSI. The HSI, while in the enroute mode, indicates linear distance and has three sensitivity scale settings:  $\pm 5$  nautical mile (factory default),  $\pm 1.0$  nautical mile and  $\pm 0.3$  nautical mile, full scale deflection. When transitioning to the approach arm mode, the HSI scale factor will change to  $\pm 1.0$  NM (full scale deflection) in the next 30 seconds and the ARM annunciator will illuminate. When transitioning to the approach active mode, the HSI scale factor will change to  $\pm 0.3$  NM (full scale deflection) and the ACTV annunciator will illuminate.

When the autopilot is in the NAV mode, it will couple to NAV 1, VOR/ILS or KLN 89B GPS, depending on the state of the selector switch panel.

A single 5-amp circuit breaker labeled GPS/LORAN on the bottom row breaker panel powers the KLN 89B Navigation System.

Operation of the KLN 89B GPS Navigation System shall be in accordance with the Bendix/King KLN 89B Pilot's Guide (supplied with the airplane). The Pilot's Guide should be thoroughly studied and VFR operations conducted so that you are totally familiar with the GPS system of navigation before actually using this equipment in IFR conditions.

A NavData Card with a current database is supplied with the KLN 89B GPS. Since this database information is updated every 28 days, it is important to monitor the database expiration date. Once the database has expired, the GPS system provides and advisory message which must be acknowledged by the operator. Although the system will continue to operate normally, the warning message will be repeated on each power-up to remind the user that the database is out of date.

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MODEL 208 (675 SHP)

To eliminate this warning the database must be updated. This update is performed by installing a current NavData Card.

## A CAUTION

The database must be updated only while the aircraft is on the ground. The KLN 89B does not perform any navigation function while the database is being updated.

### NOTE

A current database is required by regulation in order to use the KLN 89B GPS system for non-precision approaches.

# SECTION 2 LIMITATIONS

### NAVIGATION OPERATIONAL APPROVALS (FOR UNITS WITH SOFTWARE MODIFICATION 01/05, or 01/06)

The Bendix/King KLN 89B GPS Navigation System is approved under TSO C129 A1, with software modification level 01/05, or 01/06, and meets the requirements for the following operations:

 Enroute and Terminal - In accordance with AC20-138A, provided it is receiving usable navigation information from:

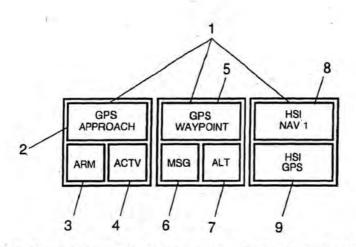
a. GPS (meets requirements of AC90-94)

 Non-Precision Approach - In accordance with AC20-138A and AC90-94 provided the GPS is receiving usable navigation information. The KLN 89B has been demonstrated to meet the accuracy specifications for nonprecision GPS approach operations within the conterminous United States and Alaska.

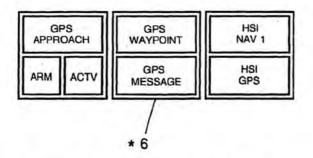
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S24 MODEL 208 (675 SHP)



WITH ALTITUDE (ALT) ANNUNCIATOR LIGHT INSTALLED



\* WITHOUT ALTITUDE (ALT) ANNUNCIATOR LIGHT INSTALLED

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Figure 1. GPS Annunciator/Switch (Sheet 1 of 3)

1 April 1998

For Training Purposes Only

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- GPS ANNUNCIATOR/SWITCH The left annunciator/switch labeled GPS APPROACH consists of a two-segment annunciator/switch labeled ARM (Armed) and ACTV (Active). The center annunciator consists of a three-segment annunciator labeled GPS WAYPOINT, MSG (Message) and ALT (Altitude). When the altitude function is not installed, the center annunciator consists of a two-segment annunciator labeled GPS WAYPOINT (Same) and GPS MESSAGE. The right annunciator/switch consists of a press-to-cycle pushbutton selector switch to select NAV 1 or GPS information to be displayed in the HSI. The switch also incorporates a two-segment annunciator labeled HSI and HSI GPS.
- 2. GPS APPROACH ANNUNCIATOR/SWITCH Pressing the GPS APPROACH switch manually selects or disarms the approach ARM mode and also cancels the approach ACTV mode after being automatically engaged by the KLN 89B GPS system. Illumination of the GPS APPROACH annunciator is controlled through the annunciator panel Day/Night switch and is only illuminated when the switch is in the night position. The white background color of the GPS APPROACH annunciator makes it visible in daylight.
- 3. ARM ANNUNCIATOR LIGHT ARM annunciator will illuminate when the KLN 89B GPS system automatically selects the approach ARM mode or when the approach ARM mode is manually selected. The approach ARM mode will be automatically selected when the airplane is within 30 NM of an airport, and an approach is loaded in the flight plan for that airport. The approach ARM mode can be manually selected at a greater distance than 30 NM from the airport by pressing the GPS APPROACH switch; however, this will not change the CDI scale until the airplane reaches the 30 NM point. The approach ARM mode can also be disarmed by pressing the GPS APPROACH switch.
- 4. ACTIVE (ACTV) ANNUNCIATOR LIGHT ACTV annunciator will illuminate when the KLN 89B GPS system automatically engages the approach ACTV mode (the ACTV mode can only be engaged by the KLN 89B GPS system which is automatic.) To cancel the approach ACTV mode, press the GPS APPROACH switch, this will change the mode to the approach ARM mode and illuminate the ARM annunciator.
- GPS WAYPOINT ANNUNCIATOR LIGHT GPS WAYPOINT annunciator will begin to flash approximately 36 seconds prior to reaching a Direct To waypoint. Also, when turn anticipation is enabled in the KLN 89B GPS unit, the annunciator will begin to flash 20 seconds prior to the beginning of turn anticipation, then illuminate steady at the very beginning of turn anticipation.

Figure 1. GPS Annunciator/Switch (Sheet 2 of 3)

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# S24 MODEL 208 (675 SHP)

### BENDIX/KING KLN 89B (GPS) POH SUPPLEMENT

- 6. MESSAGE (MSG) ANNUNCIATOR LIGHT MSG (GPS MESSAGE when the ALT annunciator is not installed) will begin flashing whenever the message prompt (a large "M" on the left side of the screen) on the KLN 89B GPS unit begins flashing to alert the pilot that a message is waiting. Press the Message (MSG) key to displaythe message. If a message condition exists which requires a specific action by the pilot, the message annunciator will remain on but will not flash.
- ALTITUDE (ALT) ANNUNCIATOR LIGHT ALT annunciator illuminates simultaneously with an aural alarm, which is connected to the audio panel so the alarm is heard through the airplane speakers or headphones, and activates:
  - a. 1000 feet prior to reaching the selected altitude -- three short tones, ALT annunciator illuminates with tones.
  - b. Upon reaching the selected altitude -- two short tones, ALT annunciator illuminates with tones.
  - c. Deviating above or below the selected altitude by more than the warn altitude -- four short tones, ALT annunciator illuminates with tones.

## A CAUTION

The altitude alerting feature will only be accurate if the altimeter baro correction is kept updated. If altitude alerting is used, it is a good idea to update the altimeter baro set on the ALT 1 page each time you make a change to the airplane's altimeter setting.

#### NOTE

There may be some difference (less than 100 feet) between the indicated altitude and the airplane's actual altitude if the altitude input to the KLN 89B is from an altitude encoder, because these encoders only provide altitude in 100 foot increments.

- HSI NAV 1 ANNUNCIATOR/SWITCH HSI NAV 1 annunciator will illuminate steady to inform the pilot that NAV 1 information is being displayed on the HSI.
- HSI GPS ANNUNCIATOR/SWITCH HSI GPS annunciator will illuminate steady to inform the pilot that GPS information is being displayed on the HSI.

Figure 1. GPS Annunciator/Switch (Sheet 3 of 3)

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### OPERATING LIMITATIONS (FOR UNITS WITH SOFTWARE MODIFICATION 01/05, or 01/06)

- The Bendix/King KLN 89B GPS Navigation System Pilot's Guide, part number 006-08786-0000, dated May 1995 (or later revision), as applicable to the specific software modification status, must be immediately available to the pilot whenever navigation is predicated on use of the GPS system. The Operational Revision Status (ORS) of the Pilot's Guide must match the ORS level annunciated on the Self Test page. Software level 01/05, or 01/06 must be installed in order to conduct non-precision instrument approaches. The software level status can be found on page OTH 6, and must be "HOST 00880-0004" for level 01/05, or "HOST 00880-0005" for level 01/06.
- The Bendix/King KLN 89B GPS Navigation System Quick Reference, Part Number 006-08787-0000, dated May 1995 (or later revision), must be immediately available to the pilot during instrument approach operations.
- The Bendix/King KLN 89B GPS Navigation System must utilize Operational Revision Status (ORS) level 02 or later FAA approved revision.
- IFR navigation is prohibited unless the pilot verifies the currency of the database or verifies each selected waypoint for accuracy by reference to current approved data.
- The Bendix/King KLN 89B GPS Navigation System is not approved for IFR precision approaches (ILS, LOC, LOC-BC, LDA, SDF and MLS). However, the equipment meets FAA TSO Class A-1 specifications, which approve this unit for enroute, terminal and non-precision approaches.
- Instrument approaches must be accomplished in accordance with approved instrument approach procedures that are retrieved from the GPS equipment database. The GPS equipment database must incorporate the current update cycle.
- Instrument approaches must be conducted in the approach mode and RAIM must be available at the Final Approach Fix.

(Continued Next Page)

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## S24 MODEL 208 (675 SHP)

BENDIX/KING KLN 89B (GPS) POH SUPPLEMENT

# SECTION 2 LIMITATIONS

(continued)

- 8. APR ACTV mode must be annunciated at the Final Approach Fix.
- 9. When an alternate airport is required by the applicable operating rules, it must be served by an approach based on other than GPS, the airplane must have operational equipment capable of using that navigation aid, and the required navigation aid must be operational.
- The KLN 89B GPS Navigation System can only be used for approach guidance if the reference coordinate datum system for the instrument approach is WGS-84 or NAD-83 (all approaches in the KLN 89B database use the WGS-84 or the NAD-83 geodetic datums).
- The airplane must have other approved navigation equipment installed and operating appropriate to the route of flight.

# NAVIGATION OPERATIONAL APPROVALS (FOR UNITS WITH SOFTWARE MODIFICATION 02/02)

The Bendix/King KLN 89B GPS Navigation System is approved under TSO C129 A1, with software mod level 02/02, and meets the requirements for the following operations:

- Enroute and Terminal In accordance with AC20-138A including BRNAV/RNP5 in accordance with AC90-96 and JAA AMJ 20X2, provided it is receiving usable navigation information from:
  - a. GPS (meets requirements of AC90-94)

(Continued Next Page)

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S24 MODEL 208 (675 SHP)

 Non-Precision Approach - In accordance with AC20-138A and AC90-94 provided the GPS is receiving usable navigation information. The KLN 89B has been demonstrated to meet the accuracy specifications for nonprecision GPS approach operations within the conterminous United States and Alaska.

### OPERATING LIMITATIONS (FOR UNITS WITH SOFTWARE MODIFICATION 02/02)

- The Bendix/King KLN 89B GPS Navigation System Pilot's Guide, part number 006-08786-0000, dated May 1995 (or later revision), as applicable to the specific software modification status, must be immediately available to the pilot whenever navigation is predicted on use of the GPS system. The Operational Revision Status (ORS) of the Pilot's Guide must match the ORS level annunciated on the Self Test page. Software level 02/02 must be installed in order to conduct non-precision instrument approaches. The software level status can be found on page OTH 6, and must be "HOST 00880-0005" and "Rcvr 01621-0001".
- Bendix/King KLN 89B GPS Navigation System Part Number 066-01145-0102 must be installed in the airplane.
- The Bendix/King KLN 89B GPS Navigation System Quick Reference, Part Number 006-08787-0000, dated May 1995 (or later revision), must be immediately available to the pilot during instrument approach operations.
- The Bendix/King KLN 89B GPS Navigation System must utilize Operational Revision Status (ORS) level 02 or later FAA approved revision.
- IFR navigation is prohibited unless the pilot verifies the currency of the database or verifies each selected waypoint for accuracy by reference to current approved data.
- The Bendix/King KLN 89B GPS Navigation System is not approved for IFR precision approaches (ILS, LOC, LOC-BC, LDA, SDF, and MLS). However, the equipment meets FAA TSO Class A-1 specifications, which approve this unit for enroute, terminal, and non-precision approaches.

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## S24 MODEL 208 (675 SHP)

- Instrument approaches must be accomplished in accordance with approved instrument approach procedures that are retrieved from the GPS equipment database. The GPS equipment database must incorporate the current update cycle.
- Instrument approaches must be conducted in the approach mode and RAIM must be available at the Final Approach Fix.
- 9. APR ACTV mode must be annunciated at the Final Approach Fix.
- 10. When an alternate airport is required by the applicable operating rules, it must be served by an approach based on other then GPS, the airplane must have operational equipment capable of using that navigation aid, and the required navigation aid must be operational.
- The KLN 89B GPS Navigation System can only be used for approach guidance if the reference coordinate datum system for the instrument approach is WGS-84 or NAD-83 (all approaches in the KLN 89B database use the WGS-84 or the NAD-83 geodetic datums).
- The airplane must have other approved navigation equipment installed and operating appropriate to the route of flight.

# SECTION 3 EMERGENCY PROCEDURES

If sensor information is intermittent or lost, utilize remaining operational navigation (or later revision) supplied with the airplane, and the current FAA TSO specifications that apply to the use of this equipment.

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# SECTION 4 NORMAL PROCEDURES

The Bendix/King KLN 89B GPS Navigation System shall be operated per the Pilot's Guide, 006-08786-0000, dated May 1995.

## A WARNING

The KLN 89B Pilot's Guide supplied with your airplane should be thoroughly studied and VFR operations conducted, so that you are totally familiar with the GPS system of navigation before actually using this equipment in IFR conditions.

### NOTE

- The Autopilot, KFC-150 or Flight Control Systems will remain coupled to the selected NAV regardless of whether the NAV information is valid or not (flagged). This also applies to GPS operation. It is the responsibility of the pilot to assure that the NAV information is valid.
- The autopilot and flight control systems receive navigation information from the HSI.
- When operating with the autopilot or flight control systems coupled and the KLN 89B GPS navigating in the LEG mode (default mode when the KLN 89B starts up) the course to the active waypoint is selected by the GPS navigation system, which is also displayed on the HSI. The OBS setting should be updated occasionally to agree with the desired track (Dtk). While navigating in the OBS mode with the autopilot or flight control systems coupled, the pilot selects the course "to" or "from" the active waypoint on the HSI. This course is then displayed on the GPS.-mounted antenna or related external antennas, will result in a minor reduction in cruise performance.

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S24 MODEL 208 (675 SHP)

BENDIX/KING KLN 89B (GPS) POH SUPPLEMENT

# SECTION 5 PERFORMANCE

There is no change to the airplane performance when this avionics equipment is installed. However, installation of an externallymounted antenna or related external antennas, will result in a minor reduction in cruise performance.

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# Pilot's Operating Handbook and FAA Approved Airplane Flight Manual

# CESSNA MODEL 208 (675 SHP) SUPPLEMENT 25

# BENDIX/KING AUDIO CONTROL SYSTEM (Type KMA-24)

SERIAL NO.

**REGISTRATION NO.** 

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, if the airplane is equipped with a Bendix/King Audio Control System (Type KMA-24)

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Wendell W. Corneil Executive Engineer Cessna Aircraft Company Delegation Option Manufacturer CE-3

DATE OF APPROVAL 7 APRIL 1998

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D1352-S25-00

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S25 MODEL 208 (675 SHP)

KMA-24 AUDIO CONTROL SYSTEM POH SUPPLEMENT

# **SUPPLEMENT 25**

# **BENDIX/KING AUDIO CONTROL SYSTEM**

## (Type KMA-24)

Use the Log of Effective Pages to determine the current status of this supplement. Pages affected by the current revision are indicated by an asterisk (\*) preceding the page number.

Revision Level Date of	of Issue
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0 (Original)

1 April 1998

## LOG OF EFFECTIVE PAGES

PAGE

S25-1 thru S25-7/S25-8 DATE

**REV. NUMBER** 

0

1 April 1998

1 April 1998

KMA-24 AUDIO CONTROL PANEL POH SUPPLEMENT S25 MODEL 208 (675 SHP)

# SUPPLEMENT

# BENDIX/KING AUDIO CONTROL SYSTEM (Type KMA-24)

## with

# MARKER BEACON RECEIVER

## SECTION 1 GENERAL

Two Bendix/King Audio Control Systems are available. The only difference between the two systems is the choice of the third MIC function that can be either HF functions (to accommodate a HF Radio Installation) or TEL functions (to accommodate the Airborne Radio Telephone Installation).

Both audio control systems have a combination audio amplifier, an audio distribution panel, and a marker beacon receiver. The audio amplifier is for amplification of the audio signals for the speaker system. All receiver audio distribution functions are controlled by two rows of alternate-action pushbuttons. Both rows are completely independent of each other, allowing simultaneous use of speaker and/or headphones. A rotary selector switch on the right side of the console connects the microphone to either Telephone (or HF radio), Com 1 or Com 2. Both audio control panels and all operating controls are shown and described in Figure 1.

Whenever the microphone selector switch is placed in the "OFF" position, power is cut off to the speaker amplifier and the marker beacon receiver; however, the headphone amplifier remains in operation.

Separate "Auto" pushbuttons for speaker and headphones provide automatic switching of the receiver according to the position of the microphone selector.

### NOTE

Phone sidetone may be selected by pushing the AUTO selector button in the PHONE position.

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# S25 MODEL 208 (675 SHP)

### KMA-24 AUDIO CONTROL PANEL POH SUPPLEMENT

A crystal-controlled superheterodyne marker beacon receiver with 3light presentation is incorporated within the unit. Dimming circuitry for the marker lamps automatically adjusts brightness appropriate to the cockpit ambient light level. Hi and Lo sensitivity and lamp test functions are also provided.

Light dimming for the audio control panel is manually controlled by the RADIO light dimming rheostat.

# MARKER FACILITIES

MARKER	IDENTIFYING TONE	LIGHT*
Airway, Inner & Fan	Continuous 6 dots/second (3000 Hz)	White
Back Course	72-95 two dot combinations per minute (3000 Hz)	White
Middle	Alternate dots and dashes (1300 Hz)	Amber
Outer	2 Dashes/second (400 Hz)	Blue

### NOTE

\* When the identifying tone is keyed, the respective indicating light will blink accordingly.

## SECTION 2 LIMITATIONS

There is no change to the airplane limitations when this avionic equipment is installed.

# SECTION 3 EMERGENCY PROCEDURES

There is no change to the airplane emergency procedures when this avionic equipment is installed.

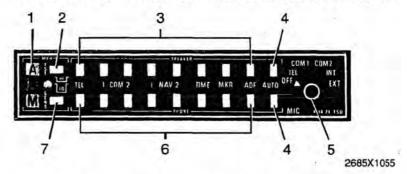
1 April 1998

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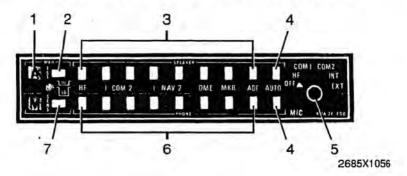
#### KMA-24 AUDIO CONTROL PANEL POH SUPPLEMENT

# S25 MODEL 208 (675 SHP)

#### AUDIO CONTROL PANEL WITH TELEPHONE TRANSCEIVER CAPABILITIES



#### AUDIO CONTROL PANEL WITH HF TRANSCEIVER CAPABILITIES



#### 1. MARKER BEACON ANNUNCIATOR LIGHTS:

AIRWAY, INNER and FAN - Light illuminates white to indicate passage of airways, ILS inner, fan and back course marker beacons. OUTER - Light illuminates blue to indicate passage of outer marker beacon.

MIDDLE - Light illuminates amber to indicate passage of middle marker beacon.

- TEST BUTTON (TST) Illuminates all marker beacon annunciator lights in the full bright position to verify operation of annunciator lights.
- SPEAKER AUDIO SELECTOR BUTTONS (SPEAKER) Selector buttons for speaker audio output. When pressed in, enables operator to select any one or more audio signals.

Figure 1. KMA-24 System Operating Controls (Sheet 1 of 2)

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#### KMA-24 AUDIO CONTROL PANEL POH SUPPLEMENT

- AUDIO SELECTOR BUTTONS (AUTO) Separate AUTO pushbuttons for speaker and headphones allows automatic switching of the receiver with rotation of the microphone selector switch.
- 5. MICROPHONE SELECTOR SWITCH (MIC) Turns on speaker amplifier and marker beacon receiver. Connects the microphone to TEL (telephone), HF (HF Xcvr), COM 1 or COM 2. All receiver outputs are electronically muted whenever the microphone is keyed, to prevent undesirable transmitter feedback. When placed in the INT position, provides hot mic intercom when control wheel mic switches and auxiliary mic jacks are installed. The EXT position si not used.

#### NOTE

When the optional HF Transceiver radio is installed, the TEL (telephone) positions are replaced with HF positions on the audio control panel.

- HEADPHONE AUDIO SELECTOR BUTTONS (PHONE) Selector buttons for headphone audio output. When pressed in, enables operator to select any one or move audio signals. Headphone amplifier remains in operation even with the microphone selector switch off.
- MARKER BEACON SENSITIVITY BUTTON (SENS) Selects LO sensitivity with the pushbutton in the out position and HI sensitivity with pushbutton depressed.

Figure 1. KMA-24 System Operating Controls (Sheet 2 of 2)

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For Training Purposes Only

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#### KMA-24 AUDIO CONTROL PANEL POH SUPPLEMENT

S25 MODEL 208 (675 SHP)

# SECTION 4 NORMAL PROCEDURES

### AUDIO CONTROL SYSTEM OPERATION:

- MIC Selector Switch -- Turn to desired transmitter. This turns on the speaker amplifier.
- SPEAKER and/or PHONE Audio Select Buttons(s) --SELECT desired receiver(s).
- AUTO Select Button(s) -- SELECT AUTO SPEAKER and/or PHONE as desired.

#### NOTE

- When the AUTO SPEAKER and/or PHONE button is depressed, rotation of the MIC selector switch selects the COM audio automatically.
- When the AUTO PHONE button is depressed, sidetone will be head over the headphones.

#### MARKER BEACON RECEIVER OPERATION:

- 1. MIC SELECTOR SWITCH -- TURN to any MIC position. This turns on the marker beacon receiver.
- 2. TST BUTTON -- PRESS to verify all lights are operational.
- SPEAKER and/or PHONE Audio Select Button(s) -- SELECT desired MKR audio.
- SENS Button -- SELECT HI (depress button) sensitivity for airway flying or LO (button in out position) for ILS/LOC approaches.

# SECTION 5 PERFORMANCE

There is no change to the airplane performance when this avionic equipment is installed. However, the installation of n externally mounted antenna or several related external antennas, will result in a minor reduction in cruise performance.

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# Pilot's Operating Handbook and FAA Approved Airplane Flight Manual

# CESSNA MODEL 208 (675 SHP) SUPPLEMENT 26

# KING FLIGHT CONTROL SYSTEM (Type KFC-150)

SERIAL NO.

**REGISTRATION NO.** 

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual if the airplane is equipped with the King Flight Control System (Type KFC-150). This supplement is a reissue of Publication Number D1336-13, FAA approved on 10 April 1992 and originally issued 15 July 1992 in conjunction with STC SA2053CE-D. The original approval page of that supplement has been electronically reproduced on page S26-3 of this supplement.

Dorneil

Wendell W. Corneil Executive Engineer Cessna Aircraft Company Delegation Option Manufacturer CE-3

DATE OF APPROVAL 7 APRIL 1998

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S26-1

# SUPPLEMENT 26

# KING FLIGHT CONTROL SYSTEM (Type KFC-150)

Use the Log of Effective Pages to determine the current status of this supplement. Pages affected by the current revision are indicated by an asterisk (\*) preceding the page number.

#### **Revision Level**

### Date of Issue

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1 April 1998

## LOG OF EFFECTIVE PAGES

PAGE

S26-1 thru S26-28

DATE

1 April 1998

REV. NUMBER

0

1 April 1998

S26 MODEL 208 (675 SHP)

# KING FLIGHT CONTROL SYSTEM AIRPLANE FLIGHT MANUAL SUPPLEMENT APPROVAL

KING King Radio Corp. 400 N. Rogers Road Olathe, Kansas 66062 CFS026-3

#### FAA APPROVED

#### AIRPLANE FLIGHT MANUAL SUPPLEMENT

#### FOR

#### CESSNA MODEL 208/208A/208B

#### WITH

#### KING KFC-150 FLIGHT CONTROL SYSTEM

Reg. No.

Ser. No.

This supplement must be attached to the FAA Approved Airplane Flight Manual when the King KFC-150 Automatic Flight Control System is installed in accordance with STC SA2053CE-D. The information contained herein supplements or supersedes the basic manual only in those areas listed herein. For limitations, procedures and performance information not contained in this supplement, consult the basic Airplane Flight Manual.

FAA Approved:

Chris Durkin DAS Coordinator King Radio Corporation DAS4CE

4-10-42 Date:

Electronic reproduction of the original approval page from Publication Number D1336-13, FAA approved on 10 April 1992 and originally issued 15 July 1992.

1 April 1998

KFC-150 FLIGHT CONTROL SYSTEM POH SUPPLEMENT

# SUPPLEMENT

# KING FLIGHT CONTROL SYSTEM (Type KFC-150)

# SECTION 1 GENERAL

This supplement is provided to acquaint the pilot with the limitations as well as normal and emergency operating procedures of the King KFC-150 Automatic Flight Control System. The limitations presented are pertinent to the operation of the KFC-150 System as installed in Cessna Model 208 airplane (675 SHP). The flight control systems must be operated within the limitations herein specified.

The 150 AFCS is certified in this airplane with 2 axis autopilot control (pitch and roll). A third axis autopilot control for yaw damping is available as an option.

The 150 AFCS has an electric pitch trim system which provides autotrim during autopilot operation and electric trim for the pilot. The trim system is designed to withstand any single inflight malfunction. Trim faults are visually and aurally annunciated.

A lockout device prevents autopilot engagement until the system has been successfully preflight tested.

The following conditions will cause the autopilot to automatically disengage:

- 1. Electrical power failure.
- 2. Internal flight control system failure.
- 3. With the KCS-55A Compass System, a loss of valid compass (display HDG flag) disengages the autopilot when a mode using heading information is engaged. With the HDG flag present, the autopilot may be reengaged in the basic wings-level mode along with any vertical mode.
- Roll rates in excess of 14° per second will cause the autopilot to disengage except when the CWS switch is held depressed.

 Pitch rates in excess of 6° per second will cause the autopilot to disengage except when the CWS switch is held depressed.

# WARNING

A thorough understanding of this supplement, to include the difference between a flight director and an autopilot, is required before operating any of the components of this system.

#### Definition of Terms:

AUTOPILOT - This autopilot system incorporates electrically-driven actuators that trim the airplane by moving the airplane control surfaces which are the ailerons, rudder (when optional yaw damper is installed), elevators, and the elevator trim. In addition, the system incorporates a panel-mounted computer that determines what control inputs are needed to satisfy selected operating modes such as pitch stabilization, roll stabilization, yaw stabilization (when optional yaw damper is installed), altitude hold, heading hold, VOR intercept and tracking, and ILS intercept and tracking, and electrically "authorizes" the appropriate actuator(s) to automatically satisfy those needs.

#### NOTES

- The autopilot can only be coupled to the NAV 1 receiver.
- The fight director (FD) mode must be selected before the autopilot engage mode (AP ENG) can be selected.

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#### KFC-150 FLIGHT CONTROL SYSTEM POH SUPPLEMENT

FLIGHT DIRECTOR - The Flight director system incorporates a panel-mounted computer that calculates intercept angles and displays them to the pilot as pitch and steering **recommendations** on the Fight Command Indicator (FCI). The computer is programmed through the mode selection to follow heading or navigation radio courses as well as pitch attitudes or pressure altitudes. The recommended pitch and steering display serves as a reminder to the pilot as to which way he should fly the airplane to get the desired results of his mode selector input. The flight director may be used with the autopilot engaged or disengaged. In the latter case, the pilot manually flies the airplane to satisfy the command bar on the FCI which is positioned by the computer rather than allowing the autopilot to satisfy the commands.

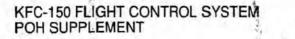
The following circuit breakers are used to protect the elements of the King KFC-150 Flight Control System:

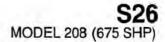
LABEL	FUNCTION
A/P CONT	Supplies power to the KC-192 Computer, the autopilot pitch and roll servos, the KA-185 Annunciator, the ELEV TRIM Circuit Breaker and the KC-296 Yaw Computer and Yaw Servo (optional).
ENC ALTM	Supplies power to the KAS-297B Vertical Speed and Altitude Selector (optional).
ELEV TRIM	Supplies power to the autotrim and manual electric pitch trim systems.
HSI 1	Supplies power to the KCS-55A Compass System.

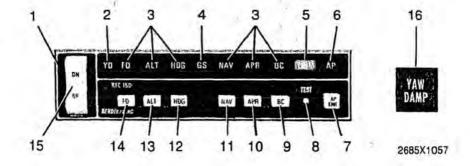
The airplane BATTERY, GENERATOR and STBY PWR SWITCH functions are unchanged and can be used in an emergency to shut off electrical power to all flight control systems while the problem is isolated.

The AVIONICS POWER 1 switch supplies power to the autopilot and ELEV TRIM circuit breakers.

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#### KC-192 AUTOPILOT AND FLIGHT DIRECTOR COMPUTER

- KFC-150 SYSTEM KC-192 AUTOPILOT COMPUTER Complete Flight Director and Autopilot computer, including system mode annunciators and system controls.
- YAW DAMPER (YD) ANNUNCIATOR Illuminates when the yaw damper (optional) is engaged.
- MODE ANNUNCIATORS Illuminate when a mode is selected by the corresponding mode selector button (PUSH ON - PUSH OFF).
- 4. GLIDE SLOPE (GS) ANNUNCIATOR Illuminates continuously whenever the autopilot is coupled to the glide slope signal. The GS annunciator will flash if the glide slope signal is lost (GS flag in CDI or absence of glide slope pointers in KI-525A). The autopilot reverts to pitch attitude hold operation. If a valid glide slope signal returns within six seconds, the autopilot will automatically recouple in the GS mode. If the valid signal does not return within six seconds, the autopilot attitude hold mode until such time that a valid glide slope returns and the airplane passes through the glide slope. At that point, GS couple will re-occur.

Figure 1. King Controls/Indicators

KFC-150 Flight Control

System

(Sheet 1 of 11)

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#### KFC-150 FLIGHT CONTROL SYSTEM POH SUPPLEMENT

- 5. TRIM WARNING LIGHT (TRIM) Illuminates continuously whenever trim power is not on or the system has not been preflight tested. The TRIM warning light illuminates and is accompanied by an audible warning whenever a manual trim fault is detected. The Manual Trim System is monitored for the trim servo running without a command. The TRIM warning light will illuminate and be accompanied by an audible warning whenever an autotrim failure occurs The autotrim system is monitored for the following failures: trim servo running without a command, trim servo not running when commanded to run, and trim servo running in the wrong direction.
- AUTOPILOT (AP) ANNUNCIATOR Illuminates continuously whenever the autopilot is engaged. Flashes approximately 12 times whenever the autopilot is disengaged (an aural alert will also sound for 2 seconds).
- AUTOPILOT ENGAGE (AP ENG) BUTTON When pushed, engages autopilot if all logic conditions are met.
- 8. PREFLIGHT TEST (TEST) BUTTON When momentarily pushed, initiates preflight test sequence which automatically turns on all annunciator lights, tests the roll and pitch rate monitors, tests the autotrim fault monitor, checks the manual trim drive voltage and tests all autopilot valid and dump logic. If preflight is successfully passed, the AP annunciator light will flash for approximately 6 seconds (an aural tone will also sound simultaneously with the annunciator flashés). The autopilot cannot be engaged until autopilot preflight tests are successfully passed.
- BACK COURSE APPROACH (BC) MODE SELECTOR BUTTON -When pushed will select the Back Course Approach mode. This mode functions identically to the approach mode except that response to LOC signals is reversed. Glide slope coupling is inhibited in the Back Course Approach mode.
- 10. APPROACH (APR) MODE SELECTOR BUTTON When pushed, will select the Approach mode. This mode provides all angle intercept, automatic beam capture, and tracking of VOR, RNAV, or LOC signals plus glide slope coupling in the case of an ILS. The tracking gain of the APR mode is greater than the gain in the NAV mode. The APR annunciator on the Autopilot Computer will flash until the automatic capture sequence is initiated. On the KA-185 Remote Mode Annunciator, APR ARM will annunciate until the automatic capture sequence is initiated. At beam capture, APR CPLD will annunciate.

#### Figure 1. King KFC-150 Flight Control System Controls/Indicators (Sheet 2 of 11)

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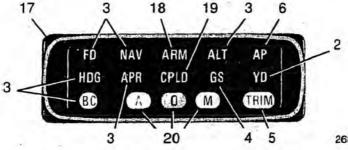
- 11. NAVIGATION (NAV) MODE SELECTOR BUTTON When pushed will select the navigation mode. The mode provides all angle intercept (with HSI), automatic beam capture and tracking of VOR, RNAV, or LOC signals. The NAV annunciator on Autopilot Computer will flash until the automatic capture sequence is initiated. On KA-185 Remote Mode Annunciator; NAV ARM will annunciate until the automatic capture sequence is initiated. At beam capture, NAV CPLD will annunciate.
- 12. HEADING (HDG) MODE SELECTOR BUTTON When pushed will select heading mode, which commands the airplane to turn to and maintain the heading selected by the heading bug on the HSI. A new heading may be selected at any time and will result in the airplane turning to the new heading with a maximum bank and about 20 degrees. Selecting HDG mode will cancel NAV, APR, or BC track modes.
- 13. ALTITUDE HOLD (ALT) MODE SELECTOR BUTTON When pushed will select the altitude hold mode, which commands the airplane to maintain the pressure altitude existing at the moment of selection. Engagement may be accomplished in climb, descent or level flight. In the APR mode, altitude hold will automatically disengage when the glide slope is captured.
- FLIGHT DIRECTOR (FD) MODE SELECTOR BUTTON When pushed will select the flight director mode, bringing the command bar in view on the KI-256 and will command wings-level and pitch attitude hold. The FD mode must be selected prior to autopilot engagement.
- 15. VERTICAL TRIM CONTROL A spring-loaded-to-center rocker switch which will provide up or down pitch command changes: while in ALT, will adjust altitude at rate of about 500 fpm; when not in ALT, will adjust pitch attitude at a rate of .7 deg/sec. Will cancel GS couple. The airplane must pass through the glide slope again to allow GS recouple. When in the Vertical Speed Hold mode (optional), this control can be used to slew the vertical speed up or down at 100 fpm for every second the rocker switch is held down. If altitude is being displayed at the time the rocker switch is depressed, vertical speed will be displayed until 1-2 seconds after the rocker switch is released.
- YAW DAMPER SWITCH (OPTIONAL) May be used to engage or disengage the yaw damper independent of the autopilot.

Figure 1. King KFC-150 Flight Control System Controls/Indicators (Sheet 3 of 11)

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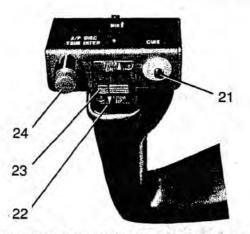
#### KFC-150 FLIGHT CONTROL SYSTEM POH SUPPLEMENT



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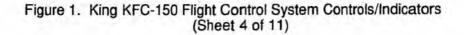
KA-185 REMOTE MODE ANNUNCIATOR

- KA-185 REMOTE MODE ANNUNCIATOR Provides mode annunciation in the pilot's primary scan area as well as three marker beacon lights.
- ARMED (ARM) ANNUNCIATOR Illuminates continuously along with NAV or APR when either the NAV or APR mode selector button is depressed. The ARM annunciator will continue to illuminate until the automatic capture sequence is initiated at which time ARM will extinguish and CPLD will annunciate.



2685X1059

AUTOPILOT CONTROL WHEEL SWITCH CAP



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- 19. COUPLED (CPLD) ANNUNCIATOR Illuminates continuously along with NAV or APR at the initiation of automatic beam capture sequence in either the NAV or APR modes. Normally the CPLD condition follows an ARM condition but may be entered into directly if the beam capture criteria is met when NAV or APR is selected.
- 20. REMOTE MARKER BEACON LIGHTS Remote airway, outer and middle marker beacon lights driven by the marker beacon receiver.
- 21. CONTROL WHEEL STEERING (CWS) BUTTON When depressed, allows pilot to manually control the airplane (disengages the pitch and roll servos) without cancellation of any of the selected modes. Will engage the flight director mode if not previously engaged. Automatically synchronizes the flight director/autopilot to the pitch attitude present when the CWS switch is released, or to the present pressure altitude when operating in the ALT hold mode. Will cancel GS couple. The airplane must pass through the glide slope again to allow GS recouple. When operating in the Vertical Speed Hold mode (optional), the CWS will re-sync the Vertical Speed Hold mode to the current vertical speed of the airplane. If altitude is displayed when the CWS button is pressed, the display will automatically display vertical speed as long as the CWS button is depressed. CWS does not affect the Altitude Select mode.
- AUTOPILOT CONTROL WHEEL SWITCH ASSEMBLY Switch assembly mounted on the pilot's control wheel associated with the autopilot and manual electric trim systems.
- 23. MANUAL ELECTRIC TRIM CONTROL SWITCHES A split switch unit in which the left half provides power to engage the trim servo clutch and the right half to control the direction of motion of the trim servo motor. Both halves of the split trim switch must be actuated in order for the manual trim to operate in the desired direction. When the autopilot is engaged, operation of the manual electric trim will automatically disconnect the autopilot.
- 24. AUTOPILOT DISCONNECT/TRIM INTERRUPT (A/P DISC/TRIM IN-TER) SWITCH - When depressed will disengage the autopilot and yaw damper, (optional) and cancel all operating fight director modes. When depressed and held, will interrupt all electric trim power (stop trim motion), disengage the autopilot and yaw damper (optional) and cancel all operating flight director modes

Figure 1. King KFC-150 Flight Control System Controls/Indicators (Sheet 5 of 11)

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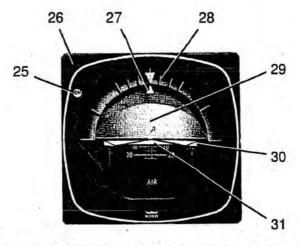
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- DECISION HEIGHT (DH) ANNUNCIATOR LIGHT Non-operational (Not Used).
- KI-265 FLIGHT COMMAND INDICATOR (FCI) Displays airplane attitude as a conventional attitude gyro and displays commands for flight director operation. The gyro is air-driven.
- ROLL ATTITUDE INDEX Displays airplane roll attitude with respect to the roll attitude scale.
  - 28. ROLL ATTITUDE SCALE Scale marked at 0, ±10, 20, 30, 60, and 90 degrees.
  - PITCH ATTITUDE SCALE Moves with respect to the symbolic airplane to present pitch attitude. Scale graduated at 0, ±5, 10, 15, 20, and 25 degrees.
  - COMMAND BAR Displays computed steering commands referenced to the symbolic airplane. The command bar is visible only when FD mode is selected. The command bar will be biased out of view whenever the system is invalid or a flight director mode is not engaged.
  - 31. FCI SYMBOLIC AIRPLANE Airplane pitch and roll attitude is displayed by relationship between the fixed symbolic airplane and the movable background. During flight director operation, the symbolic airplane is flown to align it with the command to satisfy the flight director commands.
  - 32. KI-525A HORIZONTAL SITUATION INDICATOR (HSI) Provides a pictorial presentation of airplane deviation relative to VOR radials or localizer beams. It also displays glide slope deviations and gives heading reference with respect to magnetic north. The gyro is driven electrically.
  - 33. NAV FLAG Flag is in view when the NAV receiver signal is inadequate. When a NAV flag is present in the navigation indicator (KI-525A) the autopilot operation is not affected. The pilot must monitor the navigation indicator for a NAV flag to ensure that the autopilot and/or flight director are tracking valid navigation information.
- LUBBER LINE Indicates aircraft magnetic heading on compass card (41).

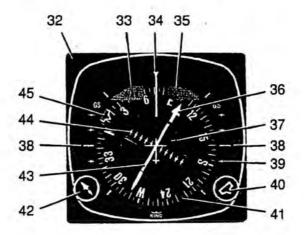
Figure 1. King KFC-150 Flight Control System Controls/Indicators (Sheet 6 of 11)

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KI-256 FLIGHT COMMAND INDICATOR



KI-525A HSI

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Figure 1. King KFC-150 Flight Control System Controls and Indicators (Sheet 5 of 9)

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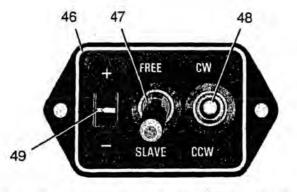
- 35. HEADING WARNING FLAG (HDG) When flag is in view, the heading display invalid. If a HDG flag appears and a fateral mode (HDG, NAV, APR, or APR BC) is selected, the autopilot will be disengaged. The autopilot may be re-engaged in the basic wingslevel mode along with any vertical mode. The CWS switch would be used to manually maneuver the aircraft laterally.
- COURSE BEARING POINTER Indicates selected VOR course or localizer course on the compass card (41). The selected VOR radial or localizer heading remains set on the compass card when the compass card (41) rotates.
- TO/FROM INDICATOR FLAG Indicates direction of VOR station relative to selected course.
- DUAL GLIDE SLOPE POINTERS Indicate on the glide dope scale (39) airplane displacement from glide slope beam center. Glide slope pointers in view indicate a glide slope signal is being received. (Glide slope pointers not shown.)
- GLIDE SLOPE SCALES Indicate displacement from glide slope beam center. A glide slope deviation bar displacement of 2 dots represents full scale (0.7°) deviation above or below glide slope beam centerline.
- HEADING SELECTOR KNOB Positions the heading bug (45) on compass card (41) by rotating the heading selector knob. The bug rotates with the compass card.
- COMPASS CARD Rotates to display heading of airplane with reference to lubber line (34) on HSI.
- COURSE SELECTOR KNOB Positions the course bearing pointer (36) on compass card (41) by rotating the course selector knob.
- 43. COURSE DEVIATION BAR (D-BAR) The center portion of the omni bearing pointer moves laterally to pictorially indicate the relationship of airplane to the selected course. It indicates degrees of angular displacement from VOR radials and localizer beams, or displacement in nautical miles from RNAV courses.

### Figure 1. King KFC-150 Flight Control System Controls/Indicators (Sheet 8 of 11)

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### KA-51B SLAVING ACCESSORY AND COMPENSATOR UNIT

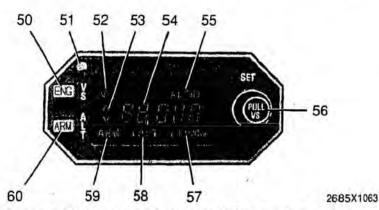
- 44. COURSE DEVIATION SCALE A course deviation bar displacement of 5 dots represents full scale (VOR = ±10°, LOC = ±2-1/2°, RNAV = 5 nm, RNAV APR = 1-1/4 nm) deviation from beam centerline.
- HEADING BUG Moved by knob (40) to select desired heading.
- KA-51B SLAVING ACCESSORY AND COMPENSATOR UNIT -Controls the KCS-55A Compass System.
- MANUAL/AUTOMATIC (FREE/SLAVE) COMPASS SLAVE SWITCH -Selects either the manual or automatic slaving mode for the compass system.
- 48. CW/CCW COMPASS MANUAL SLAVE SWITCH With the manual/automatic compass slave switch in the FREE position, allows manual compass card slaving in either the clockwise or counterdockwise direction. The switch is spring loaded to the center position.
- 49. SLAVING METER Indicates the difference between the displayed heading and the magnetic heading. Up deflection indicates a clockwise error of the compass card. Down deflection indicates a counterclockwise error of the compass card.

Figure 1. King KFC-150 Flight Control System Controls/Indicators (Sheet 9 of 11)

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#### KFC-150 FLIGHT CONTROL SYSTEM POH SUPPLEMENT



KAS-297B VERTICAL SPEED AND ALTITUDE SELECTOR

- 50. VERTICAL SPEED MODE (ENG) BUTTON When pressed, will engage the Vertical Speed Hold mode. When pressed a second time, will disengage the Vertical Speed Hold mode. When pressed with altitude displayed, will engage the Vertical Speed Hold mode and re-sync the Vertical Speed Hold mode to the current vertical speed of the airplane.
- PHOTOCELL Automatically dims display according to the cockpit ambient light.
- VERTICAL SPEED (VS) ANNUNCIATOR Illuminates when the Vertical Speed Hold mode is engaged.
- VERTICAL SPEED UP/DOWN CARETS Indicates whether the selected vertical speed is up or down.
- GAS DISCHARGE DISPLAY Displays selected altitude from 100 to 35,000 feet or the selected vertical speed from 0 to 3000 feet per minute up or down.
- 55. ALTITUDE ALERT (ALERT) ANNUNCIATOR The ALERT annunciator is illuminated 1000 feet prior to the selected altitude, goes out 300 feet prior to the selected altitude and illuminates momentarily when the selected altitude is reached. Once the selected altitude is reached, the light signifies that the 300 feet "safe band" has been exceeded and will remain on until 1000 feet from the selected altitude. The alert light is accompanied by a 2 second aural tone anytime the light initially comes on or the selected altitude is reached.

Figure 1. King KFC-150 Flight Control System Controls/Indicators (Sheet 10 of 11)

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 VERTICAL SPEED/ALTITUDE SELECT KNOB - Concentric knobs which allow easy setting of altitude or vertical speed. The small (inner) knob has an in and out position.

Altitude is displayed and selected when the small (inner) knob is in the "in" position. When rotated, the small knob selects altitude in 100 foot increments with roll over into the 1000 digits. The large (outer) knob selects altitude in 1000 foot increments with roll over into the 10,000 digits.

Vertical speed is displayed and selected when the small (inner) knob is in the "out" position. When rotated, the small knob selects vertical speed in 100 fpm increments. The large (outer) knob selects vertical speed in 1000 fpm increments up to a maximum of 3000 fpm.

- MODE (FT or FT/MIN) ANNUNCIATOR Indicates FT/MIN when in the Vertical Speed Hold mode and FT when in the Altitude Select mode.
- 58. ALTITUDE CAPTURE (CAPT) ANNUNCIATOR Indicates the KAS-297B has switched the autopilot from Pitch Altitude Hold or Vertical Speed Hold mode into the pitch roundout mode (CAPT). The point just prior to transfer into Altitude Hold, at which the CAPT mode becomes active varies with the vertical speed, i.e., the higher the rate of climb, the sooner the CAPT mode becomes active; at low rates of climb, the activation of the CAPT mode and transfer to altitude hold occur almost simultaneously.
- ALTITUDE SELECT ARM (ARM) ANNUNCIATOR Indicates that the Altitude Select mode is armed to capture the selected altitude.
- 60. ALTITUDE SELECT MODE (ARM) BUTTON When pressed and the selected altitude is displayed, will arm the Altitude Select mode. The Altitude Select (ARM) mode will cancel altitude hold (ALT) if ALT is already engaged. If Altitude Select (ARM) mode is present when GS couple occurs, the GS mode will cancel Altitude Select (ARM) mode. The engagement of ALT by the pilot's use of the ALT switch will cancel the Altitude Select (ARM) mode. Reselection of a new altitude will also cycle the Altitude Select (ARM) mode off.

Figure 1. King KFC-150 Flight Control System Controls/Indicators (Sheet 11 of 11)

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#### KFC-150 FLIGHT CONTROL SYSTEM POH SUPPLEMENT

# SECTION 2 LIMITATIONS

The following autopilot limitations must be followed during airplane operation.

- During autopilot operation, a pilot with seat belt fastened must be seated at the left pilot position.
- The autopilot and yaw damper (optional) must be OFF during takeoff and landing.
- The System Is Approved for Category 1 Operation Only --Approach Mode Selected.
- 4. The Autopilot Must Be Disconnected Below 200 feet AGL.
- 5. Autopilot Must Be Off During Use of the Standby Flap System.
- Altitude Select (optional) captures below 800 feet AGL are prohibited.

# A WARNING

IN ACCORDANCE WITH FAA RECOMMENDATION (AC 00-24K), USE OF BASIC PITCH ATTITUDE HOLD MODE IS RECOMMENDED DURING OPERATION IN SEVERE TURBULENCE.

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# SECTION 3 EMERGENCY PROCEDURES

#### IN CASE OF AUTOPILOT/YAW DAMPER MALFUNCTION:

#### NOTE

Accomplish Items 1 and 2 simultaneously.

- Airplane Control Wheel -- GRASP FIRMLY and OPERATE as required to manually override the autopilot.
- A/P DISC/TRIM INTER Switch -- PRESS and HOLD.
- A/P DISC/TRIM INTER SWITCH -- RELEASE while observing pitch trim wheel. If pitch trim wheel is in motion, follow the electric trim malfunction procedure.

IN CASE OF ELECTRIC TRIM MALFUNCTION (Either manual electric or autotrim):

- A/P DISC/TRIM INTER Switch -- PRESS and HOLD throughout recovery.
- ELEV TRIM Circuit Breaker -- PULL OFF.
- 3. Aircraft -- RETRIM manually.

# A WARNING

WHEN DISCONNECTING THE AUTOPILOT AFTER A TRIM MALFUNCTION, HOLD THE CONTROL WHEEL FIRMLY; UP TO 45 POUNDS OP FORCE ON THE CONTROL WHEEL MAY BE NECESSARY TO HOLD THE AIRCRAFT LEVEL.

#### KFC-150 FLIGHT CONTROL SYSTEM POH SUPPLEMENT

MAXIMUM ALTITUDE LOSSES DUE TO AUTOPILOT MALFUNCTION:

#### Configuration -- Altitude Loss.

Cruise, Climb, and Descent -- 500 Ft. Maneuvering -- 100 Ft. Approach -- 100 Ft.

AUTOPILOT/YAW DAMPER DISENGAGEMENT (The autopilot and/or yaw damper may be manually disengaged by any of the following methods):

- Press the A/P DISC/TRIM INTER switch on the pilot's control wheel.
- Operate the pilot's electric trim switch UP or DOWN to automatically disengage the autopilot.
- Press the AP/ENG button to the OFF position.
- 4. Pull the A/P CONT circuit breaker out.
- 5. Turn off the AVIONICS POWER 1 switch.
- YAW DAMPER (OPTIONAL) DISENGAGEMENT (The yaw damper only may be disengaged by the following method):
  - 1. Press the yaw damper switch button to the OFF position.

# SECTION 4 NORMAL PROCEDURES

#### BEFORE TAKEOFF RELIABILITY TESTS: (Preform Steps 1 thru 10 prior to each flight)

- Gyros -- Allow 3-4 minutes for gyros to come up to speed.
- AVIONICS POWER 1 Switch -- ON.
- PREFLIGHT TEST Button -- PRESS momentarily and NOTE:
  - a. All annunciator lights on (TRIM annunciator flashing).
  - All legends and digits are displayed on the KAS-297B Vertical Speed and Altitude Selector (Optional).
  - c. After approximately 5 seconds, all annunciator lights off except AP, which will flash approximately 12 times and then remain off.

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#### NOTE

If trim warning light stays on, the autotrim did not pass the preflight test. The autopilot circuit breaker should be pulled. The autopilot and manual electric trim will be inoperative.

- Manual Electric Trim -- TEST as follows.
  - a. Accurate left side of split switch unit to the fore and aft positions. The trim wheel should not move on its own. Rotate the trim wheel manually against the engaged clutch to check the pilot's trim overpower capability.
  - Actuate right side of split switch unit to the fore and aft positions. The trim wheel should not move on its own and normal trim wheel force is required to move it manually.
    - c. Press the A/P DISC/TRIM INTER switch down and hold. Manual electric trim should not operate either nose up or nose down.
- 5. Flight Director -- ENGAGE by pressing FD or CWS button.
- Autopilot -- ENGAGE by pressing AP ENG button.
- Yaw Damper (Optional) -- ENGAGE by pressing YAW DAMP switch button.
- Flight Controls -- MOVE fore, aft, left and right to verify that the autopilot/yaw damper can be overpowered.
- A/P DISC/TŘIM INTER Switch -- PRESS. Verify that the autopilot and yaw damper (optional) disconnects and all flight director modes are cancelled.
- 10. TRIM -- SET to takeoff position.

#### AUTOPILOT OPERATION

**BEFORE TAKEOFF:** 

1. A/P DISC/TRIM INTER SWITCH -- PRESS to disengage AP.

INFLIGHT AUTOPILOT AND YAW DAMPER (OPTIONAL) ENGAGEMENT:

- 1. FD Mode Selector Button -- PRESS.
- AP ENG Button -- PRESS. Note AP annunciators on. If no other modes are selected, the autopilot will operate in wingslevel and pitch attitude hold.

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#### KFC-150 FLIGHT CONTROL SYSTEM POH SUPPLEMENT

3. YAW DAMP Button -- PRESS. Note YD annunciators on.

# A WARNING

DO NOT HELP THE AUTOPILOT AS THE AUTOPILOT WILL RUN THE PITCH TRIM TO OPPOSE YOUR HELP.

#### CLIMB or DESCENT:

- 1. Using CWS:
  - CWS Button -- PRESS and MOVE airplane nose to the desired attitude.
  - b. CWS Button -- RELEASE. Autopilot will maintain airplane pitch attitude up to the pitch limits of +15 degrees or -10 degrees.
- 2. Using Vertical Trim:
  - a. VERTICAL TRIM Control -- PRESS either up or down to modify airplane attitude at a rate of .7 deg/sec. up to the pitch limits of +15 degrees or -10 degrees.
  - VERTICAL TRIM Control -- RELEASE when desired airplane attitude is reached. The autopilot will maintain the desired pitch attitude.
- 3. Using Vertical Speed Select (Optional):
  - Vertical Speed/Altitude Select Knob -- Pull inner knob to "out" position and rotate knob until desired vertical speed is displayed.
  - b. VS ENG Button -- PRESS to engage the vertical speed hold mode.
  - Or Using Vertical Trim:
  - a. Vertical Trim Control -- PRESS either up or down to increase or decrease displayed vertical speed. Vertical speed display will change 100 fpm for every second the trim control is held down.
  - b. Vertical Trim Control -- RELEASE when desired vertical speed is displayed.

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# A WARNING

WHEN OPERATING AT OR NEAR THE BEST RATE OF CLIMB AIRSPEED AND USING THE VERTICAL SPEED HOLD, IT IS EASY TO DECELERATE TO AN AIRSPEED ON THE BACK SIDE OF THE POWER CURVE WHERE A DECREASE IN AIRSPEED RESULTS IN A DECREASE IN RATE OF CLIMB. CONTINUED OPERATION ON THE BACK SIDE OF THE POWER CURVE IN THE VERTICAL SPEED HOLD MODE WILL RESULT IN A STALL.

WHEN OPERATING AT OR NEAR THE MAXIMUM OPERATING SPEED ( $V_{MO}$ ), IT WILL BE NECESSARY TO REDUCE POWER IN ORDER TO MAINTAIN THE DESIRED RATE OF DESCENT AND NOT EXCEED THE MAXIMUM OPERATING SPEED ( $V_{MO}$ ).

ALTITUDE HOLD:

- ALT Mode Selector Button -- PRESS. Note ALT mode annunciator ON. Autopilot will maintain the selected pressure altitude.
- 2. Change Selected Altitudes:
  - Using CWS (recommended for altitude changes greater than 100 ft.).
    - CWS Button -- PRESS and fly airplane to desired pressure altitude.
    - (2) CWS Button -- RELEASE when desired pressure altitude is reached. The autopilot will maintain the desired pressure altitude.
  - b. Using Vertical Trim (recommended for altitude changes less than 100 ft.).
    - Vertical Trim Control -- PRESS either up or down. Vertical Trim will seek an altitude rate of change about 500 fpm.
    - (2) Vertical Trim Control -- RELEASE when desired pressure altitude is reached.

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- c. Using Altitude Preselect (Optional):
  - (1) Vertical Speed/Altitude Select Knob -- PUSH inner knob to "in" position and rotate until the desired altitude is displayed.
  - (2) ALT ARM Button -- PRESS to arm the altitude select mode.
  - (3) Airplane -- ESTABLISH ATTITUDE necessary to intercept the selected altitude.

HEADING CHANGES:

- 1. Manual Heading Changes:
  - CWS Button -- PRESS and MANEUVER airplane to the desired heading.
  - b. CWS Button -- RELEASE. Autopilot will maintain airplane in wings-level attitude.

#### NOTE

Aircraft heading may change in the wings-level mode due to an airplane out of trim condition.

- 2. Heading Hold:
  - Heading Selector Knob -- SET BUG to desired heading.
  - HDG Mode Selector Button -- PRESS. Note HDG mode annunciator ON. Autopilot will automatically turn the airplane to the selected heading.
- 3. Command Turns (Heading Hold Mode ON):
  - a. Heading Selector Knob -- MOVE BUG to the desired heading. Autopilot will automatically turn the airplane to the new selected heading.

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### NAV COUPLING:

- 1. Course Bearing Pointer -- SET to desired course.
- Heading Selector Knob -- SET BUG to provide desired intercept angle.
- 3. NAV Mode Selector Button -- PRESS.
  - a. If the Course Deviation Bar is greater than 2 to 3 dots: the airplane will continue in HDG mode (or wings-level if HDG not selected) with the NAV annunciator flashing; when the computed capture point is reached, the HDG will disengage, the NAV annunciator will illuminate steady, and the selected course will be automatically captured and tracked.
  - b. If the D-Bar is less than 2 to 3 dots; the HDG mode will disengage upon selecting NAV mode, the NAV annunciator will illuminate steady and the capture/track sequence will automatically begin.

#### APPROACH (APR) COUPLING:

- 1. Course Bearing Pointer -- SET to desired course.
- Heading Selector Knob -- SET BUG to provide desired intercept angle.
- APR Mode Selector Button -- PRESS.
  - a. If the Course Deviation Bar is greater than 2 to 3 dots: the airplane will continue in HDG mode (or wings-level if HDG not selected) with the APR annunciator flashing; when the computed capture point is reached, the HDG will disengage, and the BC and APR annunciators will illuminate steady and the selected course will be automatically captured and tracked.
  - b. If the D-Bar is less than 2 to 3 dots: the HDG mode will disengage upon selecting APR mode; the APR annunciator will illuminate steady and the capture/track sequence will automatically begin.

# WARNING

#### ALTITUDE SELECT CAPTURES BELOW 800 FEET AGL ARE PROHIBITED.

# A WARNING

USE OF THE ALTITUDE PRESELECT SYSTEM (OPTIONAL) FOR LEVEL OFF AT MDA OR DH SHOULD BE AVOIDED DUE TO THE LACK OF DEFINITION OF SELECTED ALTITUDE.

#### BC APPROACH COUPLING:

- Course Bearing Pointer -- SET to the ILS front course inbound heading.
- Heading Selector Knob -- SET BUG to provide desired intercept angle.
- BC Mode Selector Button -- PRESS.
  - a. If the course Deviation Bar is greater than 2 to 3 dots: the airplane will continue in HDG mode (or wings-level if HDG not selected) when the computed capture point is reached, the HDG will disengage, and the BC and APR annunciators will illuminate steady and the selected course will be automatically captured and tracked.
  - b. If the D-Bar is less than 2 to 3 dots: the HDG mode will disengage upon selecting BC mode; the APR BC annunciator will illuminate steady and the capture/track sequence will automatically begin.

GLIDE SLOPE COUPLING:

#### NOTE

Glide slope coupling is inhibited when operating in NAV or APR BC modes. Glide slope coupling occurs automatically in the APR mode.

- 1. APR Mode -- ENGAGED.
- 2. Alt Glide Slope Centering -- NOTE GS annunciator ON.

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#### NOTE

The autopilot can capture the glide slope from above or below the beam while operating in either pitch attitude hold or alt hold modes.

### MISSED APPROACH:

- 1. A/P DISC/TRIM INTER Switch -- PRESS to disengage AP.
- 2. Missed Approach -- EXECUTE.
- CWS Button -- PRESS as desired to activate FD mode during go-around maneuver.
- AP ENG button -- PRESS (if AP operation is desired). Note AP annunciators ON.

If AP is used during missed approach:

 Altitude Select (Optional) -- SELECT missed approach altitude and PRESS ARM button.

#### NOTE

If it is desired to track the ILS course outbound as part of the missed approach procedure, use the NAV mode to prevent inadvertent GS coupling.

#### **BEFORE LANDING:**

 A/P DISC/TRIM INTER Switch -- PRESS to disengage AP and yaw damper (optional).

#### FLIGHT DIRECTOR OPERATION

#### NOTE

The flight director modes of operation are the same as those used for autopilot operations except the autopilot is not engaged and the pilot must maneuver the airplane to satisfy the flight director commands.

KFC-150 FLIGHT CONTROL SYSTEM POH SUPPLEMENT

# SECTION 5 PERFORMANCE

There is no change to the airplane performance data when this avionic equipment is installed.

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# Pilot's Operating Handbook and FAA Approved Airplane Flight Manual

# CESSNA MODEL 208 (675 SHP)

# SUPPLEMENT 27

# BENDIX/KING AUDIO CONTROL SYSTEM (Type KMA-24H-70)

SERIAL NO.

**REGISTRATION NO.** 

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, if the airplane is equipped with a Bendix/King Audio Control System (Type KMA-24H-70).

Dorneil APPROVED BY

Wendell W. Corneil Executive Engineer Cessna Aircraft Company Delegation Option Manufacturer CE-3

DATE OF APPROVAL 7 APRIL 1998

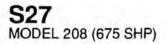
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S27-1



KMA-24H-70 AUDIO PANEL POH SUPPLEMENT

# SUPPLEMENT 27

# BENDIX/KING AUDIO CONTROL SYSTEM (Type KMA-24H-70)

Use the Log of Effective Pages to determine the current status of this supplement. Pages affected by the current revision are indicated by an asterisk (\*) preceding the page number.

#### **Revision Level**

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### LOG OF EFFECTIVE PAGES

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KMA-24H-70 AUDIO PANEL POH SUPPLEMENT S27 MODEL 208 (675 SHP)

# SUPPLEMENT

### BENDIX/KING AUDIO CONTROL SYSTEM (Type KMA-24H-70)

## and

# Optional PA (Passenger Address system) SECTION 1 GENERAL

The King Audio Control Panel (Type KMA-24H-70) is a compact solid state unit containing all operating controls on the front of the unit.

There are two control knobs on the far left of the panel for intercom control, ten push button switches on the top center of the panel for speaker audio control, ten push button switches on the bottom center of the panel for phone audio control and two control knobs on the far right of the panel for a multiple function Mic select switch (includes PA position) and a speaker auto switch.

The electrical power required for operation of the audio control panel's headphone and/or marker beacon functions is supplied by AVIONICS BUS 1 through a "pull-off" type circuit breaker labeled AUD/MKR. The electrical power requirement for the speaker function of the audio control panel is supplied by AVIONICS BUS 2 through a "pull-off" type circuit breaker labeled AUDIO AMP. The audio control panel is functional anytime AVIONICS BUS's 1 and 2 are turned on.

#### INTERPHONE (INTERCOM SYSTEM)

The interphone system consists of a hot mic volume control and an intercom VOX (Voice) sensitivity control which are controlled by the two concentric control knobs on the far left of the panel. The inner control knob controls the intercom volume only and does not affect the other inputs. The outer control knob when rotated fully clockwise to the detent position provides hot mic operation When rotated to the middle range, the control knob adjusts intercom VOX (voice) sensitivity.

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# SPEAKER/PHONE (COM/NAV/DME/MKR & ADF) MONITOR PUSHBUTTONS

The audio panel incorporates, in the center of the panel, two rows of ten pushbutton switches, labeled SPEAKER on the top row and labeled PHONE on the bottom row. These pushbuttons permit the pilot or copilot to monitor the various communication and navigation systems available to the operator. When depressed, each pushbutton connects its respective navigation and/or communication system to either the speaker (top row of pushbuttons) or the headphones (bottom row of pushbuttons). To disconnect a communication or navigation system from either the speaker or headphones, depress the desired pushbutton a second time.

# A CAUTION

Cockpit speaker audio is muted when the MIC select switch is on PA and the optional PA system is installed.

# MIC SELECT SWITCH (INCLUDING EMG, PA & EXT POSITIONS)

A multiple function MIC selector control switch is located on the far right of the panel and is the outer control knob. In the COM position (1 thru 4), microphone audio and keying are routed to the selected transceiver and the receiver audio is connected to the headphones. The PA (passenger address) speaker is functional only if the optional PA system is installed. The EXT (external ramp hail speaker) position is not used in this installation. In the EMG position, the microphone and headphones are connected directly to COM 1 as a means of fail-safe communications in the event of a failure within the Audio Control Panel.

#### SPEAKER AUTO SELECT SWITCH

The SPKR AUTO selector control is located on the far right of the panel and is the inner control knob. When the SPKR AUTO switch is pulled out, it will automatically select the audio from the transceiver selected by the MIC select switch to be heard on the cockpit speaker.

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For Training Purposes Only

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#### PA (PASSENGER ADDRESS) SYSTEM (OPTIONAL)

The PA (passenger address system) consists of two or four speakers in the passenger area of the cabin. Passenger address is accomplished by placing the MIC selector switch to the PA position and keying either the control wheel mic for headphones or the handheld microphone. With PA selected, received communication inputs are not muted from either the headphones or the PA speakers, but are muted from the cockpit speakers. The PA speakers cannot be reliably heard in the cockpit during flight. Switching the mic select switch out of PA will re-enable the cockpit speakers and mute the PA system.

During operations where monitoring ATC or CTAF communications is required or advisable, the PA position should not be selected unless the pilot is using headphones and phone audio is selected.

## SECTION 2 LIMITATIONS

There is no change to the airplane limitations when this avionic equipment is installed.

## SECTION 3 EMERGENCY PROCEDURES

There is no change to the airplane emergency procedures when this avionic equipment is installed.

This type of audio control panel has independent circuits for speaker and headphone functions. Thus, one failure does not cause the loss of both headphone and speaker audio. In case of failure to transmit over the headset MIC, the operator may still be able to transmit using the hand-held MIC. (The hand mic jack is connected in parallel with the copilot's headset jack. For better modulation and less background noise, unplug the copilot's headset when using the hand-held MIC).

## S27 MODEL 208 (675 SHP)

#### KMA-24H-70 AUDIO PANEL POH SUPPLEMENT

 If a complete failure of the audio control panel occurs, place the MIC select switch in the EMG position. The microphone and headphones will be connected directly to COM 1 as a means of failsafe communications.

## SECTION 4 NORMAL PROCEDURES

#### AUDIO CONTROL PANEL OPERATIONS:

 MIC Select Switch -- SELECT desired communications transceiver (COM 1, 2, 3 or 4 position) for transmitting, or PA for passenger address (optional).

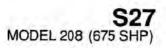
## A CAUTION

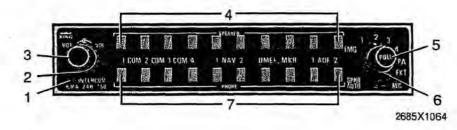
With optional PA system installed, cockpit speaker audio is muted when MIC select switch is on PA. Avoid selection of PA position (unless pilot is using headphones) when operating in controlled or advisory airspace in order to assure receiving ATC/CTAF communications.

- SPEAKER and/or PHONE Audio Select Button(s) -- SELECT the COM/NAV System desired, to monitor audio over either the speaker (top row of pushbuttons) or the headphones (bottom row of pushbuttons).
- SPEAKER AUTO Selector Knob -- PULL OUT for automatic speaker audio on selected communications receiver.
- Transceiver and/or Receiver Audio Control -- ADJUST to desired listening level.
- Interphone INTERCOM VOL Control -- ADJUST to desired listening level while using hot mic.
- INTERCOM VOX (voice) Sensitivity Control -- ROTATE CONTROL knob clockwise to the middle range and then adjust as required for desired voice activation or hot mic intercom.

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KMA-24H-70 AUDIO PANEL POH SUPPLEMENT





- VOX RELEASE ADJUSTMENT The VOX release pot is accessible through the small hole in the lower left corner of the front panel. Clockwise adjustment will increase the time that the intercom remains on after speed has ended. VOX release should be adjusted to suit user preference.
- 2. INTERCOM VOX (VOICE) SENSITIVITY CONTROL Rotate the outer concentric knob to the fully clockwise detent position for hot mike operation. In the middle range, the control selects VOX and the rotation of this knob adjusts the sensitivity of the voice activated switch. In order to set the proper VOX sensitivity, first turn the VOX sensitivity control clockwise until a hissing should is head in the headphones. Next turn the control counterclockwise until the hissing sound stops. The VOX is now properly set for the present noise environment. It is normal to have to reset the VOX sensitivity level whenever the noise in the cockpit/cabin changes, such as when making large power changes.
- 3. INTERCOM VOLUME CONTROL The inner concentric knob is the intercom volume control. This adjusts the intercom volume without affecting the volume of the selected receiver audio inputs. When either the pilot or copilot keys the microphone to transmit, all other intercom microphone inputs are muted to ensure that the keyed microphone is the single source of transmitted audio. All receiver inputs are also muted during transmissions.
- SPEAKER AUDIO SELECTOR BUTTONS (SPEAKER) Selector buttons for speaker audio output. When pressed in, enables operator to select any ore or more audio signals. To disconnect, depress the pushbutton a second time.

Figure 1. Bendix/King Audio Control System Operating Controls (Sheet 1 of 2)

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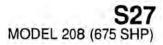
#### S27 MODEL 208 (675 SHP)

- SPEAKER AUTO SWITCH When the inner concentric knob is pulled out, it automatically selects the audio from the transceiver selected by the MIC select switch to be heard on the cockpit speaker. Audio from the transceiver selected by the MIC select switch is always head on the headphones.
- MIC SELECT SWITCH (includes EMG, PA and EXT positions) When 6. the outer concentric knob is in the EMG (emergency) position, microphone audio, microphone key and headphones are connects directly to COM 1. this provides fail-safe communications in the event of audio panel failure. In COM positions (1 thru 4), microphone audio and keying is connected to the appropriate transmitter and audio from the selected receiver will be heard on the headphones and on the speaker when the AUTO SPKR knob is pulled out. During COM transmit, all received audio is muted and sidetone from the selected transmitter is heard on speaker and phones. The PA position is functional only if the optional PA system is installed. In PA, all received audio is muted from the cockpit speakers, but not from the headphones or PA speakers. The EXT position is nonfunctional in this installation. The fire warning, overspeed warning and decision height alert from the radio altimeter (if installed) are unmuted.
- HEADPHONES AUDIO SELECTOR BUTTONS (PHONE) Selector buttons for headphone audio output. when pressed in, enables headphone operation to any one or more audio signals. To disconnect, depress the pushbutton(s) a second time.

Figure 1. Bendix/King Audio Control System Operating Controls (Sheet 2 of 2)

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KMA-24H-70 AUDIO PANEL POH SUPPLEMENT

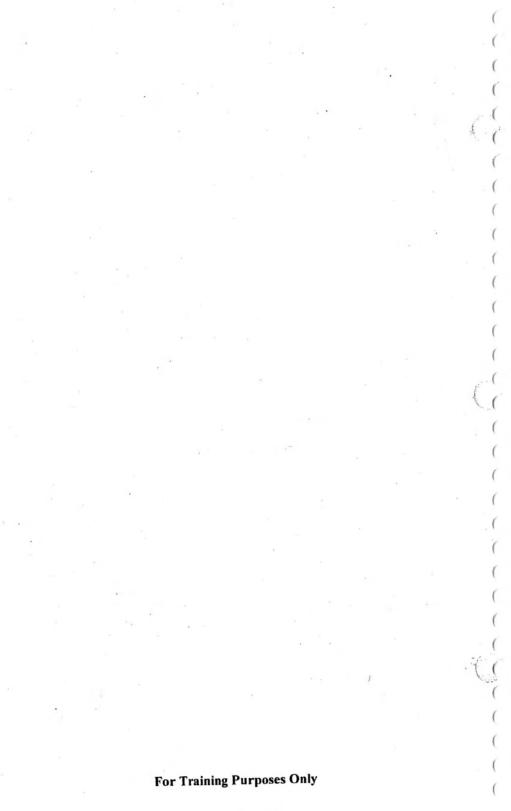


## SECTION 5 PERFORMANCE

There is no change to the airplane performance when this avionic equipment is installed.

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## Pilot's Operating Handbook and FAA Approved Airplane Flight Manual

# CESSNA MODEL 208 (675 SHP)

# **SUPPLEMENT 29**

## BENDIX/KING DIGITAL ADF (Type KR-87)

SERIAL NO.

**REGISTRATION NO.** 

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, if the airplane is equipped with a Bendix/King Digital ADF (Type KR-87).

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Wendell W. Corneil Executive Engineer Cessna Aircraft Company Delegation Option Manufacturer CE-3

DATE OF APPROVAL 7 APRIL 1998

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S29 MODEL 208 (675 SHP)

BENDIX/KING ADF (TYPE KR-87) POH SUPPLEMENT

# **SUPPLEMENT 29**

## BENDIX/KING DIGITAL ADF (Type KR-87)

Use the Log of Effective Pages to determine the current status of this supplement. Pages affected by the current revision are indicated by an asterisk (\*) preceding the page number.

#### Revision Level Date of Issue

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1 April 1998

#### LOG OF EFFECTIVE PAGES

PAGE

S29-1 thru S29-11/S29-12 DATE 1 April 1998 REV. NUMBER

0

1 April 1998

BENDIX/KING ADF (TYPE KR-87) POH SUPPLEMENT S29 MODEL 208 (675 SHP)

# SUPPLEMENT

## BENDIX/KING DIGITAL ADF (Type KR-87)

## SECTION 1 GENERAL

The King Digital ADF is a panel-mounted, digitally tuned automatic direction finder. It is designed to provide continuous 1-kHz digital tuning in the frequency range of 200-kHz to 1799-kHz and eliminates the need for mechanical band switching. The system is comprised of a receiver, a built-in electronic timer, a bearing indicator, and a KA-44B combined loop and sense antenna. Depending on the avionics options installed, the indicator can be a KI-227 or KI-229. Operating controls and displays for the King Digital ADF are shown and described in Figure 1. The audio system used in conjunction with this radio for speaker-phone selection is shown and described in Supplement 25.

The King Digital ADF can be used for position plotting and homing procedures, and for aural reception of amplitude-modulated (AM) signals. The "flip-flop" frequency display allows switching between pre-selected "STANDBY" and "ACTIVE" frequencies by pressing the frequency transfer button. Both pre-selected frequencies are stored in a non-volatile memory circuit (no battery power required) and displayed in self-dimming gas discharge numerics. The active frequency is continuously displayed in the left window, while the right window will display either the standby frequency or the selected readout from the built-in electronic timer.

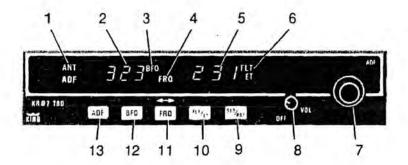
The built-in electronic timer has two separate and independent timing functions. An automatic flight timer that starts whenever the unit is turned on. This timer functions up to 59 hours and 59 minutes. An elapsed timer which will count up or down for up to 59 minutes and 59 seconds. When a preset time interval has been programmed and the countdown reaches :00, the display will flash for 15 seconds. Since both the flight timer and elapsed timer operate independently, it is possible to monitor either one without disrupting the other. The pushbutton controls and the bearing indicators are internally lighted. Intensity is controlled by the RADIO light dimming rheostat.

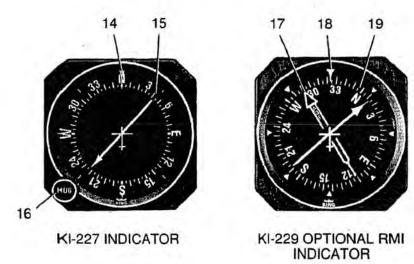
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BENDIX/KING ADF (TYPE KR-87) POH SUPPLEMENT





2685X1065 2685X1066 2685X1067

Figure 1. King Digital ADF Operating Controls and Indicators (Sheet 1 of 3)

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#### BENDIX/KING ADF (TYPE KR-87) POH SUPPLEMENT

- MODE ANNUNCIATION Antenna (ANT) is selected by the "out" position of the ADF button. This mode improves the aural reception and is usually used for station identification. The bearing pointer is deactivated and will park in the 90° relative position. Automatic Direction Finder (ADF) mode is selected by the depressed position of the ADF button. This mode activates the bearing pointer. The bearing pointer will point in the direction of the station relative to the aircraft heading.
- ACTIVE FREQUENCY DISPLAY The frequency to which the ADF is tuned is displayed here. The active ADF frequency can be changed directly when either of the timer functions are selected.
- BEAT FREQUENCY OSCILLATOR (BFO) The BFO mode, activated and annunciated when the "BFO" button is depressed, permits the carrier wave and associated morse code identifier broadcast on the carrier wave to be heard.

#### NOTE

CW signals (Morse Code) are unmodulated and no audio will be heard without use of BFO. This type of signal is not used in the United States air navigation. It is used in some foreign countries and marine beacons.

- 4. STANDBY FREQUENCY ANNUNCIATION (FRQ) When FRQ is displayed the STANDBY frequency is displayed in the right hand display. The STANDBY frequency is selected using the frequency select knobs. The selected STANDBY frequency is put into the ACTIVE frequency window by pressing the frequency transfer button.
- 5. STANDBY FREQUENCY DISPLAY Either the standby frequency, the flight timer, or the elapsed time is displayed in this position. The flight timer and elapsed timer are displayed replacing the standby frequency which goes into "blind" memory to be called back at any time by depressing the FRQ button. Flight time or elapsed time are displayed and annunciated alternatively by depressing the FLT/ET button.
- TIMER MODE ANNUNCIATION Either the elapsed time (ET) or flight time (FLT) mode is annunciated here.
- 7. FREQUENCY SELECTOR KNOBS Selects the standby frequency when FRO is displayed and directly selects the active frequency whenever either of the timer functions is selected. The frequency selector knobs may be rotated either clockwise or counterclockwise. The small knob is pulled out to tune the 1's. The small knob is pushed in to tune the 10's. The outer knob tunes the 100's with rollover into the 1000's. These knobs are also used to set the desired time when the elapsed timer is used in the countdown mode.

Figure 1. King Digital ADF Operating Controls and Indicators (Sheet 2 of 3)

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## S29 MODEL 208 (675 SHP)

#### BENDIX/KING ADF (TYPE KR-87) POH SUPPLEMENT

- OFF/VOLUME CONTROL (OFF/VOL) Controls primary power and audio output level. Clockwise rotation from OFF position applies primary power to receiver; further clockwise rotation increases audio level. Audio muting causes the audio output to be muted unless the receiver is locked on a valid station.
- SET/RESET BUTTON (SET/RST) The set/reset button when pressed resets the elapsed timer whether it is being displayed or not.
- FLIGHT TIME/ELAPSED TIME MODE SELECTOR BUTTON (FLT/ET)

   The Flight Timer/Elapsed Time mode selector button when pressed
   alternatively selects either Flight Timer mode or Elapsed Timer
   mode.
- FREQUENCY TRANSFER BUTTON (FRB) The FRQ transfer button when pressed exchanges the active and standby frequencies. The new frequency becomes active and the former active frequency goes into standby.
- BFO BUTTON The BFO button selects the BFO mode when in the depressed position. (See note under item 3.)
- ADF BUTTON The ADF button selects either the ANT mode or the ADF mode. The ANT mode is selected with the ADF button in the out position. The ADF mode is selected with the ADF button in the depressed position.
  - INDEX (ROTATABLE CARD) Indicates relative, magnetic, or true heading of aircraft, as selected by HDG control.
- POINTER Indicates station bearing in degrees of azimuth, relative to the nose of the aircraft. When heading control is adjusted, indicates relative; magnetic, or true bearing of radio signal.
- HEADING CARD CONTROL (HDG) Rotates card to set in relative, magnetic, or true bearing information.
- 17. DOUBLE-BAR POINTER Indicates bearing of selected ADF station.
- HEADING INDEX Indicates the airplane magnetic heading on the azimuth card.
- 19. ROTATING AZIMUTH CARD Slaved to remote heading source; rotates as the airplane turns so that the airplane magnetic heading is continuously displayed at the heading index.

Figure 1. King Digital ADF Operating Controls and Indicators (Sheet 3 of 3)

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#### BENDIX/KING ADF (TYPE KR-87) POH SUPPLEMENT

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## SECTION 2 LIMITATIONS

There is no change to the airplane limitations when this avionic equipment is installed.

## SECTION 3 EMERGENCY PROCEDURES

There is no change to the airplane emergency procedures when this avionic equipment is installed.

## SECTION 4 NORMAL PROCEDURES

#### TO OPERATE AS AN AUTOMATIC DIRECTION FINDER:

- OFF/VOL Control-- ON.
- Frequency Selector Knobs -- SELECT desired frequency in the standby frequency display.
- FR& Button ;- PRESS to move the desired frequency from the standby to the active position.
- ADF SPEAKER/PHONE Selector Switch (on audio control panel) -- SELECT as desired.
- 5. OFF/VOL Control -- SET to desired volume level.
- ADF Button -- SELECT ADF mode and note relative bearing on indicator.

#### ADF TEST (PRE-FLIGHT or IN-FLIGHT):

- ADF Button -- SELECT ANT mode and note pointer moves to the 900 position.
- ADF Button -- SELECT ADF mode and note the pointer moves without hesitation to the station bearing. Excessive pointer sluggishness, wavering or reversals indicate a signal that is too weak or a system malfunction.

#### TO OPERATE BFO:

- 1. OFF/VOL Control -- ON.
- 2. BFO Button- PRESS on.

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## S29 MODEL 208 (675 SHP)

#### BENDIX/KING ADF (TYPE KR-87) POH SUPPLEMENT

- ADF SPEAKER/PHONE SELECTOR BUTTONS (on audio control panel) -- SET to desired mode.
- 4. VOL Control -- ADJUST to desired listening level.

#### NOTE

A 1000-Hz tone and Morse Code identifier is heard in the audio output when a CW signal is received.

#### TO OPERATE FLIGHT TIMER:

- 1. OFF/VOL Control -- ON.
- FLT/ET Mode Button -- PRESS (once or twice) until FLT is annunciated. Timer will already be counting since it is activated by turning the unit on.
- OFF/VOL Control -- OFF and then ON if it is desired to reset the flight timer.

#### TO OPERATE AS A COMMUNICATIONS RECEIVER ONLY:

- 1. OFF/VOL Control -- ON.
- ADF Button -- SELECT ANT mode.
- Frequency Selector Knobs -- SELECT desired frequency in the standby frequency display.
- FRB Button -- PRESS to move the desired frequency from the standby to the active position.
- ADF SPEAKER/PHONE Selector Buttons (on audio control panel) - SET to desired mode.
- 6. VOL Control -- ADJUST to desired listening level.

#### TO OPERATE ELAPSED TIME TIMER-COUNT UP MODE:

- 1. OFF/VOL Control -- ON.
- FLT/ET Mode Button -- PRESS (once or twice) until ET is annunciated.
- SET/RST Button -- PRESS until the ET annunciation begins to flash.
- 4. SET/RST Button -- PRESS to start timer.
- SET/RST Button -- PRESS to stop timer. Timer will reset zero. When the SET/RST button is released the timer will start to count again unless the SET/RST button is held until the ET annunciation flashes.

#### BENDIX/KING ADF (TYPE KR-87) POH SUPPLEMENT

#### NOTE

The Standby Frequency which is in memory while Flight Time or Elapsed Time modes are being displayed may be called back by pressing the FRQ button, then transferred to active use by pressing the FRQ button again.

#### TO OPERATE ELAPSED TIME TIMER-COUNT DOWN MODE:

- 1. OFF/VOL Control -- ON.
- FLT/ET Mode Button -- PRESS (once or twice) until ET is annunciated.
- SET/RST Button -- PRESS until the ET annunciation begins to flash.
- FREQUENCY SELECTOR KNOBS -- SET desired time in the elapsed time display. The small knob is pulled out to tune the 10's. The small knob is pushed in to tune the 10's. The outer knob tunes minutes up to 59 minutes.

#### NOTE

Selector knobs remain in the time set mode for 15 Seconds after the last entry or until the SET/RST, FLT/ET or FRQ button is pressed.

 SET/RST Button -- PRESS to start countdown. When the timer reaches O, it will start to count up as display flashes for 15 sec- ends.

#### NOTE

While FLT or ET are displayed, the active frequency on the left side of the window may be changed, by using the frequency selector knobs, without any effect on the stored standby frequency or the other modes.

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## S29 MODEL 208 (675 SHP)

#### BENDIX/KING ADF (TYPE KR-87) POH SUPPLEMENT

#### ADF OPERATIONAL NOTES:

ERRONEOUS ADF BEARING DUE TO RADIO FREQUENCY PHENOMENA:

In the U.S., the FCC, which assigns AM radio frequencies, occasionally will assign the same frequency to more than one station in an area. Certain conditions, such as Night Effect, may cause signals from such stations to overlap. This should be taken into consideration when using AM broadcast station for navigation.

Sunspots and atmospheric phenomena may occasionally distort reception so that signals from two stations on the same frequency will overlap. For this reason it is always wise to make positive identification of the station being tuned, by switching the function selector to ANT and listening for station call letters.

#### ELECTRICAL STORMS:

In the vicinity of electrical storms, an ADF indicator pointer tends to swing from the station tuned toward the center of the storm.

#### NIGHT EFFECT:

This is a disturbance particularly strong just after sunset and just after dawn. An ADF indicator pointer may swing erratically at these times. If possible, tune to the most powerful station at the lowest frequency. If this is not possible, take the average of pointer oscillations to determine relative station bearing.

#### MOUNTAIN EFFECT:

Radio waves reflecting from the surface of mountains may cause the pointer to fluctuate or show an erroneous bearing. This should be taken into account when taking bearings over mountainous terrain.

#### BENDIX/KING ADF (TYPE KR-87) POH SUPPLEMENT

#### COASTAL REFRACTION:

Radio waves may be refracted when passing from land to sea or when moving parallel to the coastline. This also should be taken into account.

## SECTION 5 PERFORMANCE

There is no change to the airplane performance when this avionic equipment is installed. However, the installation of an externally mounted antenna or related external antennas, will result in a minor reduction in cruise performance.

## For Training Purposes Only

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## Pilot's Operating Handbook and FAA Approved Airplane Flight Manual

# CESSNA MODEL 208 (675 SHP) SUPPLEMENT 30

## BENDIX/KING DME (Type KN-63)

SERIAL NO.

**REGISTRATION NO.** 

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, if the airplane is equipped with a Bendix/King DME KN-63.

Dorneel APPROVED BY

Wendell W. Corneil Executive Engineer Cessna Aircraft Company Delegation Option Manufacturer CE-3

DATE OF APPROVAL 7 APRIL 1998

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S30 MODEL 208 (675 SHP)

BENDIX/KING KN-63 POH SUPPLEMENT

**REV. NUMBER** 

0

# **SUPPLEMENT 30**

## BENDIX/KING DME (TYPE KN-63)

Use the Log of Effective Pages to determine the current status of this supplement. Pages affected by the current revision are indicated by an asterisk (\*) preceding the page number.

#### Revision Level Date of Issue

0 (Original)

1 April 1998

## LOG OF EFFECTIVE PAGES

PAGE

S30-1 thru S30-6

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DATE

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#### For Training Purposes Only

S30-2

#### BENDIX/KING KN-63 POH SUPPLEMENT

# SUPPLEMENT

## BENDIX/KING DME (Type KN-63) SECTION 1 GENERAL

The Bendix/King DME (Type KN-63) is the airborne "interrogator" portion of a navigation system which supplies continuous, accurate, slant range distance information from a fixed ground station to an aircraft in flight.

Except for selection of the operating channel, which is selected by the VHF navigation receiver frequency selector switches, the Bendix/King DME is capable of independent operation. The equipment consists of a KDI-572 Panel Display which contains all of the operating controls and displays, and a remotely mounted KN-63 Receiver-Transmitter. The KN-63 transmits interrogating pulse pairs on 200 channels between 1041 MHz and 1150 MHz; it receives associated ground-to-air replies between 978 MHz and 1213 MHz. The KDI-572 Panel Display digitally displays distances in nautical miles, ground speed in knots, and time-to-station in minutes. All displays are in self-dimming gas discharge numerics. All operating controls and displays for the DME are shown in Figure 1, and the functions of each are described.

#### NOTE

An interlock is incorporated in the DME so that information from the other receiver cannot be displayed on the DME when an RNAV mode is in use.

## SECTION 2 LIMITATIONS

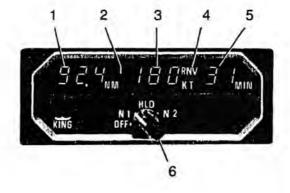
There is no change to the airplane limitations when this avionic equipment is installed.

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## S30 MODEL 208 (675 SHP)

#### BENDIX/KING KN-63 POH SUPPLEMENT



2685X1068

- DISTANCE DISPLAY (NM) DME distance to VORTAC/WAYPOINT displayed in .1 nautical mile increments up to 99.9 NM, then in increments of one nautical mile to 389 NM.
- DME MODE ANNUNCIATOR Displays the DME operating mode; NAV 1 (1); NAV 2 (2); NAV 1 HOLD (1H); NAV 2 HOLD (H2); of the mode selector switch (6).
- GROUND SPEED DISPLAY (KT) Displays ground speed in knots to or from VORTAC/WAYPOINT up to 999 knots (aircraft must be flying directly to or from the VORTAC/WAYPOINT for true ground speed indication).
- RNAV ANNUNCIATOR (RNV)- Indicates RNV when displayed data is in relation to the RNAV waypoint. If the wrong DME mode is selected during RNAV operation, the RNV annunciator will flash.
- TIME-TO-STATION DISPLAY (MIN) Displays time-to-station (VORTAC/ WAYPOINT) in minutes up to 99 minutes (aircraft must be flying directly to or from the Vortac/Waypoint for true time-tostation indication)

#### Figure 1, Bendix/King DME (Type KN-63) (Sheet 1 of 2)

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#### BENDIX/KING KN-63 POH SUPPLEMENT

- DME MODE SELECTOR SWITCH (OFF, N1, HLD, N2) Applies power to the DME and selects DME operating mode as follows:
  - OFF: Turns DME power off.

NAV 1

(N1): Selects DME operation with NO. 1 VHF navigation set; enables channel selection by NAV 1 frequency selector controls.

HOLD

(HLD): Selects DME memory circuit; DME remains channeled to station to which it was last channeled when HOLD was selected and will continue to display information relative to this channel. Allows both the NAV 1 and NAV 2 navigation receivers to be set to new operational frequencies without affecting the previously selected DME operation.

#### NOTE

In the HOLD mode there is no annunciation of the VOR/DME station frequency. However, an annunciator, labeled "1H" or "H2", illuminates on the DME display to flag the pilot that the DME is in the HOLD mode.

NAV 2

(N2):

Selects DME operation with No. 2 VHF navigation set; enables channel selection by NAV 2 frequency selector switches. Brightness of the labels for this switch is controlled by the RADIO light dimming rheostat.

#### Figure 1, Bendix/King DME (Type KN-63) (Sheet 2 of 2)

## S30 MODEL 208 (675 SHP)

BENDIX/KING KN-63 POH SUPPLEMENT

## SECTION 3 EMERGENCY PROCEDURES

There is no change to the airplane emergency procedures when this equipment is installed.

## SECTION 4 NORMAL PROCEDURES

#### DME OPERATION:

- 1. DME Mode Selector Switch -- SET to N1 or N2.
- NAV 1 and NAV 2 VHF Navigation Receivers -- ON; SET FREQUENCY selector switches to VOR/DME station frequencies, as required.

#### NOTE

When the VOR frequency is selected, the appropriate DME frequency is automatically channeled.

 DME SPEAKER/PHONE selector buttons (on audio control panel) -- SET to desired mode.

## SECTION 5 PERFORMANCE

There is no change to the airplane performance when this avionic equipment is installed. However, the installation of an externally mounted antenna, or several related external antennas, will result in a minor reduction in cruise performance.

1 April 1998



## Pilot's Operating Handbook and FAA Approved Airplane Flight Manual

# CESSNA MODEL 208 (675 SHP)

# SUPPLEMENT 31

# BENDIX/KING HF TRANSCEIVER (Type KHF-950)

SERIAL NO.

**REGISTRATION NO.** 

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, if the airplane is equipped with a Bendix/King HF Transceiver (Type KHF-950).

Dorneil APPROVED BY

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DATE OF APPROVAL 7 APRIL 1998

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S31 MODEL 208 (675 SHP)

BENDIX/KING HF (TYPE KHF-950) POH SUPPLEMENT

REV. NUMBER

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# SUPPLEMENT 31

## BENDIX/KING HF TRANSCEIVER (Type KHF-950)

Use the Log of Effective Pages to determine the current status of this supplement. Pages affected by the current revision are indicated by an asterisk (\*) preceding the page number.

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1 April 1998

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BENDIX/KING HF (TYPE KHF-950) POH SUPPLEMENT

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S31 MODEL 208 (675 SHP)

# SUPPLEMENT

## BENDIX/KING HF TRANSCEIVER (Type KHF-950)

## SECTION 1 GENERAL

The Bendix/King KHF-950 is a solid-state HF single sideband transceiver system providing the pilot access to 99 programmable channels plus 280,000 operating frequencies in the 2000 to 29,999.9 kHz range. It provides receive-only and simplex operation, as well as semi-duplex capability (transmission on one frequency, reception on another) to interface with maritime radio-telephone networks (public correspondence). The HF Transceiver system consists of a KCU-951 panel-mounted control display unit, a remote mounted KAC-952 power amplifier/antenna coupler, a remote-mounted KTR-953 Receiver exciter and an external-mounted, fixed-wire, medium/ high frequency antenna.

The KCU-951 Control Display Unit uses electronic gas discharge read outs to display frequency, channel and mode of operation. The 99 channels can be programmed by the pilot on the ground or in the air, and the nonvolatile memory stores this information even when the system is turned off. To add to the operational convenience, the antenna coupler will automatically tune the antenna to the specific frequency desired simply by keying the mike.

All operating controls for the KCU-951 Control Display Unit are shown and described in Figure 1. Refer to the Bendix/King Audio Control Panel (Type KMA-24), shown and described in another supplement in this section, for description of the HF microphone selector switch and HF SPEAKER/PHONE selector button used in conjunction with the KCU-951 Control Display Unit.

## SECTION 2 LIMITATIONS

There is no change to the airplane limitations when this avionic equipment installed.

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"CURSOR" (Not Shown) Refers to a flashing frequency digit. The cursor may be positioned left or right along the frequency display, digit by digit, using the outer concentric knob. The cursor is required to enable frequency changes in the direct tuning mode of operation or during channel programming. If the cursor is not visible, it is in its stowed position and may be retrieved using the outer concentric knob. Similarly, to stow the cursor, rotate the outer concentric knob left or right until the cursor disappears.

- GAS DISCHARGE DISPLAY -- Displays all frequencies, channel numbers and operating modes.
- FREQUENCY DISPLAY -- Frequencies from 2000.0 kHz to 29,999.9 kHz are annunciated.
- EMISSION MODE DISPLAY -- Emission mode annunciations LSB, AM and USE are displayed as selected. LSB (Lower Sideband) is usually disabled since it is not normally used in airborne HF applications.
- TRANSMIT (TX) MODE DISPLAY -- Annunciates when the MIC is keyed. A flashing TX annunciation accompanied by a blanking of the frequency display signifies that the KHF-950 System is in the automatic antenna tuning process.

Figure 1. Bendix/King HF SSB Transceiver (Type KHF-950) (Sheet 1 of 3)

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For Training Purposes Only

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When the TX stops flashing and the frequency display reappears, the transceiver is ready for use on that frequency. Always press the MIC button after selecting a new frequency to initiate antenna tuning. A flashing TX annunciation in the PGM mode signifies that the KHF-950 memory is ready to accept the transmit frequency. In the programming sequence, storing the transmit frequency always follows storage of the receive frequency.

- 5. CHANNEL DISPLAY -- Channels 1 through 99 are annunciated.
- PROGRAM (PGM) MODE DISPLAY -- Annunciates when the program mode is enabled through depression of the program (PGM) switch.
- PHOTOCELL -- Dims display automatically.
- 8. MODE BUTTON -- Momentary depression cycles the KHF-950 emission mode from upper sideband (USE) to lower sideband (LSB) to AM to A3A (simultaneous display of "AM" and "USE"). Single sideband "reduced" carrier operation (A3A) is normally not enabled by the installer. A3A was previously used in maritime radio telephone but is not used currently. Similarly, LSB is not normally authorized for airborne HF use and is not enabled by the installer. Most all aircraft HF SSB Communications are conducted in USE (also referred to as single sideband "suppressed" carrier and designated A3J). Some ground stations continue to use the AM mode but are being phased out in favor of the more efficient SSB mode of operation.
- FREQ/CHAN BUTTON -- In the "out" position, allows direct tuning to any of 280,000 available frequencies (simplex operation only). In the "in" position allows selection of any of 99 available channels of programmed pairs of receive and transmit frequencies (simplex, semi-duplex and receive-only operation).
- PROGRAM (PGM) SWITCH -- Momentary depression (with a pencil or similar pointed object) enables the program mode. PGM will appear in the display. Similarly a second depression of the switch will cause the KHF-950 to exit the program mode.
- OUTER CONCENTRIC KNOB -- Causes the cursor to move left or right, one digit at a time along the frequency display. To remove (or stow) the cursor, twist the knob left or right until the cursor disappears.

Figure 1. Bendix/King HF SSB Transceiver (Type KHF-950) (Sheet 2 of 3)

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## S31 MODEL 208 (675 SHP)

#### BENDIX/KING HF (TYPE KHF-950) POH SUPPLEMENT

- 12. INNER CONCENTRIC KNOB -- May be rotated to (1) change channels or (2) change the digit under the cursor in the frequency display. In order to change channels, the FREQ/CHAN button must be in the "in" position (Channel Operation) and the cursor must be stowed. Prior to changing a frequency digit (Direct Tune Operation or during Channel Programming), the cursor must be moved to that digit.
- STORE (STO) SWITCH -- Momentary depression (with a pencil or 13. similar pointed object) stores the emission mode (i.e. LSB, AM, USE) and the frequency into nonvolatile memory. In the normal channel programming sequence the first set of data stored is the "receive" emission mode and frequency. After the receive data is stored, the TX annunciation will flash signifying the system's readiness to accept the "transmit" frequency. A second momentary depression of the STO switch stores the desired transmit frequency in nonvolatile memory. Note that prior to selecting another channel to program. (1) you may choose receive-only mode of operation by simply not depressing the STO switch a second time (thus locking out the transmitter for receiving say WWV), or (2) you may choose simplex operation by depressing the STO switch a second time storing the same frequency in the transmit position as was stored in the receive position, or (3) you may wish to choose semi-duplex operation and change the transmit frequency prior to depressing the STO switch a second time. (In order to change channels upon completion of data storage, the cursor must be stowed. This will occur automatically upon depressing the STO switch the second time; however, in the case of receive-only programming where the STO switch is not depressed the second time, the cursor must be stowed manually using the outer concentric knob.)
- 14. OFF/VOLUME KNOB -- Turns system on and adjusts audio volume.
- 15. SQUELCH KNOB -- Squelch is set by rotating the knob clockwise until background noise can be heard and then turning it counterclockwise until the background noise is eliminated or just barely audible. Since HF signals are many times only marginally strong, it is usually necessary to leave the squelch knob fully clockwise to maintain satisfactory reception. For this reason, SELCAL (Selective Calling) may be a desirable option to relieve fatigue from background noise on extended flights.
- 16. CLARIFIER KNOB -- When pulled out, the clarifier knob may be rotated to adjust the receiver frequency in SSB operation to improve the speech quality received. The clarifier knob is unique to SSB operation and is not used in AM operation. When the knob is pushed in, the clarifier has no effect. When voice quality is good and natural, the clarifier knob should remain pushed in.

#### Figure 1. Bendix/King HF SSB Transceiver (Type KHF-950) (Sheet 3 of 3)

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BENDIX/KING HF (TYPE KHF-950) POH SUPPLEMENT S31 MODEL 208 (675 SHP)

## SECTION 3 EMERGENCY PROCEDURES

There is no change to the airplane emergency procedures when this avionic equipment is installed.

INTERNATIONAL DISTRESS FREQUENCY. The frequency 2182 kHz on USE emission mode has been designated as an International Distress Frequency. It is monitored worldwide and should be used only in the case of an actual emergency. If repeated calls on 2182 kHz do not bring a response, the flight crew may wish to try the U,S, Coast Guard on the following channels:

USCG CHANNELS/FREQUENCIES (USE emission mode)

ITU CHANNEL NO.	AIRCRAFT RECEIVE (kHz)	AIRCRAFT TRANSMIT (kHz)
424	4428.7	4134.3
601 *	6506.4	6200.0
816 *	8765.4	8241.5
1205 *	13113.2	12342.4
1625	17307.3	16534.4

Monitored 24 hours per day.

If the Coast Guard cannot be contacted on one of these channels/frequencies, try a maritime radiotelephone (public correspondence) operator channel.

S31 MODEL 208 (675 SHP)

## SECTION 4 NORMAL PROCEDURES

#### PREFLIGHT INSPECTION:

## WARNING

When performing a KHF-950 radio check on the ground, make certain that all personnel are clear of the HF antenna before transmitting. Serious RF burns can result from direct contact with the antenna or antenna terminal when the system is transmitting.

- Antenna -- CHECK structural integrity.
- MIC (Microphone) Selector Switch (on audio control panel) --SELECT HF position.
- HF SPEAKER/PHONE Selector Buttons (on audio control panel) -- PRESS desired mode.
- OFF/VOLUME Control Knob -- TURN ON.
- 5. Authorized Channel or Frequency -- SELECT.
- Mike Button (on control wheel) -- PRESS. The TX annunciation should flash and the frequency display blank as the antenna coupler tunes the antenna. When the tuning sequence is complete, the TX stops flashing and the frequency display reappears.
- Radio Check -- TRANSMIT and RECEIVE on usable frequency.

#### NOTE

If the KHF-950 detects a fault during transmission or during the tuning of the antenna, the frequency digits will begin to flash. Simply key the mike and the automatic antenna coupler will begin a new tuning cycle to clear the fault. If repeated antenna tuning cycles fail to clear the fault there is probably an equipment malfunction. If practical, attempt to returne the antenna on an alternate frequency.

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For Training Purposes Only

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#### BENDIX/KING HF (TYPE KHF-950) POH SUPPLEMENT

#### CHANNEL PROGRAMMING:

- 1. OFF/VOLUME Control Knob -- TURN ON.
- FREQ/CHAN Button -- "IN" position for channel operation. Note the channel number annunciation in the display.
- PGM Switch -- DEPRESS. Note PGM annunciated in the display.
- Outer Concentric Knob -- ROTATE to stow cursor.
- Inner Concentric Knob -- ROTATE to select desired channel number.
- MODE BUTTON -- PRESS. Repeat until desired emission mode is annunciated.
- Outer Concentric Knob -- ROTATE to position cursor over receive frequency digit to be changed.
- 8. Inner Concentric Knob -- ROTATE to set desired number under the cursor.

#### NOTE

Repeat steps 7 and 8 until the desired receive frequency has been set.

 STO Switch -- DEPRESS to store the emission mode and receive frequency in memory. Note flashing TX annunciation indicating system readiness to accept a transmit frequency.

#### NOTE

For **Semi-Duplex** channel programming, continue with step 10. For **Simplex** channel programming, continue starting with step 12. For **Receive-Only** channel programming, continue starting with step 13.

- Outer Concentric Knob -- ROTATE to position cursor over transmit frequency digit to be changed.
- 11. Inner Concentric Knob -- ROTATE to set desired number under cursor.

#### NOTE

Repeat steps 10 and 11 until the desired transmit frequency has been set.

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## S31 MODEL 208 (675 SHP)

#### BENDIX/KING HF (TYPE KHF-950) POH SUPPLEMENT

- STO Switch -- DEPRESS to store the transmit frequency in memory.
- Outer Concentric Knob -- ROTATE to stow cursor if not already stowed. (The cursor is automatically stowed when the transmit frequency is stored in memory).
- 14. Inner Concentric Knob -- ROTATE to select the next desired channel number for programming. There are 99 channels available.

#### NOTE

Return to step 6 to continue channel programming.

 PGM Switch -- DEPRESS to exit the program mode when programming is completed. Note PGM annunciation extinguishes.

#### NORMAL OPERATION:

## WARNING

When performing a KHF-950 radio check on the ground, make certain that all personnel are clear of the HF antenna before transmitting. Serious RF burns can result from direct contact with the antenna or antenna terminal when the system is transmitting.

- 1. Preflight -- COMPLETE.
- MIC (Microphone) Selector Switch (on audio control panel)
   SELECT HF position.
- HF SPEAKER/PHONE Selector Buttons (on audio control panel) -- PRESS desired mode.
- 4. OFF/VOLUME Control Knob -- TURN ON.
- FREQ/CHAN Button -- SELECT direct tuning operation (FREQ/CHAN button "out" simplex-only) or programmed channel operation (FREQ/CHAN button "in").

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#### BENDIX/KING HF (TYPE KHF-950) POH SUPPLEMENT

#### DIRECT TUNING:

- Outer Concentric Knob -- ROTATE to position cursor over simplex frequency digit to be changed.
- Inner Concentric Knob -- ROTATE to set desired number under the cursor.

#### NOTE

Repeat steps a. and b. until the desired frequency has been set.

MODE Button -- PRESS as required. Repeat until desired emission mode is annunciated.

#### CHANNEL OPERATION:

- Outer Concentric Knob -- ROTATE to stow cursor if not already stowed.
- Inner Concentric Knob -- ROTATE to select desired channel number.
- MIC Button (on control wheel) -- PRESS to initiate antenna tuning sequence. Note flashing TX and the blanking of the frequency display.
- OFF/VOLUME Knob -- SET to desired volume level.
- SQUELCH Knob -- SET to desired level usually full clockwise.
- CLARIFIER Knob -- PULL out knob and ROTATE in either direction to optimize incoming SSB signal quality.

#### **OPERATIONAL NOTES:**

HF SSB COMMUNICATIONS:

 Most all aircraft HF SSB communications are conducted in USE mode. Some ground stations continue to use the AM mode, but these stations are being phased out in favor of the more efficient SSB mode of operation.

#### SEMI-DUPLEX OPERATION:

 In semi-duplex operation, the emission mode you select (USE or AM) will always control both receive and transmit frequencies. Also, the receive frequency is displayed until the mike is keyed, at which time the transmit frequency is displayed.

## S31 MODEL 208 (675 SHP)

#### BENDIX/KING HF (TYPE KHF-950) POH SUPPLEMENT

## SELECTING FREQUENCIES:

1. The higher frequencies are best during daylight (10,000.0 to 29,999.9 kHz) and the lower frequencies work best at night (2000.0 to 10,000.0 kHz).

#### RETUNING THE ANTENNA COUPLER:

 It is necessary to retune the antenna coupler whenever the MODE selector knob is changed from one mode to another. Pressing the MIC button momentarily initiates antenna tuning.

#### ADDITIONAL INFORMATION:

 For expanded information and operational instructions, refer to the "Bendix/King KHF-950 Pilot's Guide and Directory of HF Services" supplied with your aircraft.

## SECTION 5 PERFORMANCE

There is no change to the airplane performance when this avionic equipment is installed. However, the installation of an externallymounted antenna or several related external antennas will result in a minor reduction in cruise performance.



## Pilot's Operating Handbook and FAA Approved Airplane Flight Manual

# CESSNA MODEL 208 (675 SHP) SUPPLEMENT 32

## BENDIX/KING MARKER BEACON (Type KR-21)

SERIAL NO.

**REGISTRATION NO.** 

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, if the airplane is equipped with a Bendix/King Marker Beacon (Type KR-21).

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DATE OF APPROVAL 7 APRIL 1998

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S32 MODEL 208 (675 SHP)

MARKER BEACON (TYPE KR-21) POH SUPPLEMENT

## **SUPPLEMENT 32**

## BENDIX/KING MARKER BEACON (Type KR-21)

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### MARKER BEACON (TYPE KR-21) POH SUPPLEMENT

S32 MODEL 208 (675 SHP)

## SUPPLEMENT

## BENDIX/KING MARKER BEACON (Type KR-21)

## SECTION 1 GENERAL

The King Type KR-21 Marker Beacon System consists of a panel mounted 75 MHz marker beacon receiver, a KMA-24H-70 Audio Control Panel forspeaker/phone audio selection and externally mounted marker beacon antenna mounted on the under side of the airplane.

The front panel of the KR-21 Marker Beacon Receiver incorporates a three position toggle switch that provides for selection of HI or LO marker beacon signal sensitivity and a marker beacon lamp test. Three lights are installed on the front of the panel with different colored lenses to indicate passage over the markers. The white light (Inner and Fan) has an A engraved on its lens, the blue light (Outer) has an O engraved on its lens and the amber light (Middle) has an A engraved on its lens. The receiver's front panel also incorporates a photo-cell light sensor which provides automatic dimming circuits for the marker lamps to compensate for ambient cockpit lighting.

The KMA-24H-70 Audio Control Panel provides marker beacon SPEAKER and PHONE selector pushbuttons to let the operator receive marker beacon audio signals over the cockpit speaker or headphones as desired. Refer to Supplement 27 in this manual for complete audio control panel operations.

The HI sensitivity selector switch position, labeled H, is used for airway operation.

The LO sensitivity selector switch position, labeled L, is used for ILS approaches.

The marker beacon lights test position, labeled T, is selected to verify operation of the marker beacon lights.

All operating controls for the KR-21 Marker Beacon Receiver and marker beacon operating controls on the Audio Control Panel are shown and described in Figure 1.

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## MARKER FACILITIES

MARKER	<b>IDENTIFYING TONE</b>	LIGHT*
Inner & Fan	Continuous 6 dots/second (3000 Hz)	White
Back Course	72-95 two dot combinations per minute (3000 Hz)	White
Middle	Alternate dots and dashes (1300 Hz)	Amber
Outer	2 Dashes/second (400 Hz)	Blue

### NOTE

When the identifying tone is keyed, the respective indicating light will blink accordingly.

## SECTION 2 LIMITATIONS

There is no change to the airplane limitations when this avionic equipment is installed.

### SECTION 3 EMERGENCY PROCEDURES

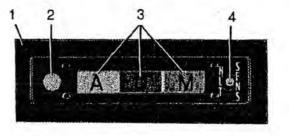
There is no change to the airplane emergency procedures when this avionic equipment is installed.

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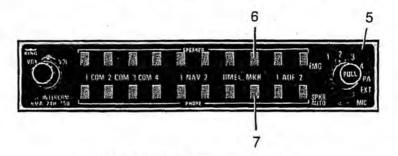
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### MARKER BEACON (TYPE KR-21) POH SUPPLEMENT

S32 MODEL 208 (675 SHP)



KR-21 Marker Beacon Receiver Panel



#### KMA-24H-70 Audio Control Panel

2685X1072 2685X1073

- BENDIX/KING TYPE KR-21 MARKER BEACON RECEIVER PANEL.
- PHOTO-CELL LIGHT SENSOR -- Provides automatic dimming for the marker lamps to compensate for ambient cockpit lighting.
- 3. MARKER BEACON ANNUNCIATOR LIGHTS:

AIRWAY, INNER and FAN (A) -- Light illuminates white to indicate passage airway, ILS inner, fan and back course marker. beacons.

OUTER (O) - Light illuminates amber to indicate passage of outer marker beacon.

MIDDLE (M) -- Light illuminates amber to indicate passage of middle marker beacon.

#### Figure 1. King Marker Beacon (Type KR-21) Operating Controls and Indicators (Sheet 1 of 2)

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### S32 MODEL 208 (675 SHP)

 THREE POSITION TOGGLE SWITCH FOR MARKER BEACON SENSITIVITY SELECTION AND MARKER BEACON LIGHTS TEST: H Position -- When placed in the H position (Up), HI SENSE is selected which increases receiver sensitivity for airway flying. L Position -- When placed in the L position (Middle), LO SENSE is selected for ILS approaches.

T Position -- When placed in the T position (Bottom), automatically illuminates the marker beacon lights to verify test.

- 5. KING KMA-24H-70 AUDIO CONTROL PANEL REQUIRED WITH KING KR-21 MARKER BEACON INSTALLATION.
- MARKER BEACON SPEAKER AUDIO MONITOR PUSHBUTTON --When depressed, the marker beacon audio signals can be heard over the cabin-top speaker. To disconnect the marker beacon audio from the cabin-top speaker, depress the pushbutton a second time.
- MARKER BEACON PHONE AUDIO MONITOR PUSHBUTTON -When depressed, the marker beacon audio signals can be heard over the headphones. To disconnect the marker beacon audio from the headphones, depress the pushbutton a second time.

Figure 1. King Marker Beacon (Type KR-21) Operating Controls and Indicators (Sheet 2 of 2)

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### MARKER BEACON (TYPE KR-21) POH SUPPLEMENT

S32 MODEL 208 (675 SHP)

### SECTION 4 NORMAL PROCEDURES

### MARKER BEACON OPERATING PROCEDURES:

### NOTE

The marker beacon receiver is capable of receiving marker beacon signals anytime the No. 1 AVIONICS switch is ON.

- 1. Nav Receiver Volume Control -- ADJUST to desired listening level.
- HI/LO Sensitivity Selector Switch -- SELECT H (HI) position for airway flying or L (LO) position for ILS approaches.
- 3. MKR SPEAKER/PHONE Pushbuttons (On Audio Control Panel) SELECT desired speaker or headphone audio.
- Test (T) Selector Switch -- SELECT T position and verify that all marker beacon annunciator lights will illuminate full bright to indicate lights are operational.

## SECTION 5 PERFORMANCE

There is no change to the airplane performance when this avionics equipment is installed. However, the installation of an externally mounted antenna or several related external antennas, will result in minor reduction in cruise performance.

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## Pilot's Operating Handbook and FAA Approved Airplane Flight Manual

# CESSNA MODEL 208 (675 SHP) SUPPLEMENT 33

## BENDIX/KING NAV/COM (TYPE KX-165 WITH INTEGRAL GLIDE SLOPE)

SERIAL NO.

#### **REGISTRATION NO.**

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, if the airplane is equipped with Bendix/King Nav/Com (Type KX-165 with integral Glide Slope).

Domeil APPROVED B

Wendell W. Cornell Executive Engineer Cessna Aircraft Company Delegation Option Manufacturer CE-3

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S33 MODEL 208 (675 SHP)

BENDIX/KING KX-165 NAV/COM POH SUPPLEMENT

## SUPPLEMENT 33 BENDIX/KING NAV/COM (TYPE KX-165 WITH INTEGRAL GLIDE SLOPE)

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BENDIX/KING KX-165 NAV/COM POH SUPPLEMENT S33 MODEL 208 (675 SHP)

## SUPPLEMENT

## BENDIX/KING NAV/COM (TYPE KX-165 WITH INTEGRAL GLIDE SLOPE)

## SECTION 1 GENERAL

The Bendix/King KX-165 Nav/Com, shown in Figure 1, consists of a panel-mounted receiver-transmitter, and a KI-206 CDI or KI-525A HSI. The KX-165 can be a single or dual unit. Installations with dual KX-165's have the number 2 unit wired directly to a KI-206 CDI, and the number 1 unit interfaced with a KI-206 or a KI-525A, depending on other equipment installed.

The set includes a 720 channel VHF communications receivertransmitter, a 200-channel VHF navigation receiver, and a 40channel glide slope receiver, all of which may be operated simultaneously. The communications receiver-transmitter receives and transmits signals between 118.000 and 135.975 MHz with 25 kHz spacing. The navigation receiver receives omni and localizer signals between 108.00 and 117.95 MHz in 50 kHz steps. The glide slope receiver is automatically tuned when a localizer frequency is selected. The circuits required to interpret the omni and localizer signals are also an integral part of the Nav receiver.

Large self-dimming gas discharge readouts display both the communications and navigation operating frequencies. The KX-165's unique "flip- flop" pre-select feature enables you to store one frequency in the standby display while operating on another and then interchange them instantly with the touch of a button. Both the active (use) and the standby frequencies may be displayed at all times and are stored in a circuit component called EAROM (Electrically Alterable Read Only Memory) that provides non-volatile storage of both frequencies without drain on the aircraft battery or use of memory battery. The radial of the "active" VOR station may be displayed, if desired.

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### S33 MODEL 208 (675 SHP)

### BENDIX/KING KX-165 NAV/COM POH SUPPLEMENT

A DME receiver-transmitter may be interconnected with the Nav/Comm set for automatic selection of the associated DME frequency. When a VOR frequency is selected on the Nav/Comm, the associated VORTAC or VOR/DME station frequency will also be selected automatically.

When an autopilot is installed, Nav and Glide Slope information from the No. 1 Nav is available for autopilot Nav tracking or ILS approaches when selected on the autopilot switch panel. The HSI provides course datum information to the autopilot.

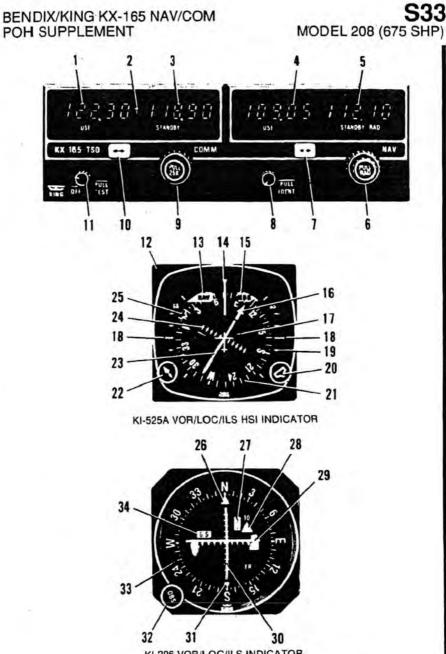
The Com portion incorporates an automatic squelch. To override the automatic squelch, the volume control knob is pulled out. Push the knob back in to re-activate the automatic squelch. The Nav portion uses the pull out feature of the volume control to receive the Nav signal Ident. When the volume control knob is pulled out, the Ident signal plus voice may be heard. When the knob is pushed in, only Nav voice may be heard.

All controls for the Nav/Com, except those for navigation course selection, are mounted on the front panel of the receiver-transmitter. Control lighting is provided by the instrument panel flood lighting system. Operation and description of the audio control panel used in conjunction with the radio is shown and described in the appropriate audio panel Supplement for the equipment installed in your airplane.

## SECTION 2 LIMITATIONS

There is no change to the airplane limitations when this avionic equipment is installed.

28 March 2001



KI-206 VOR/LOC/ILS INDICATOR

Figure 1. Bendix/King Nav/Com (Type KX-165) Operating Controls and Indicators (Sheet 1 of 4)

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### S33 MODEL 208 (675 SHP)

- OPERATING COMM FREQUENCY DISPLAY (USE) -- Displays ACTIVE communication frequency.
- TRANSMIT INDICATOR -- "T" appears to indicate that the transceiver is in the transmit mode.
- STANDBY COMM FREQUENCY DISPLAY (STANDBY) -- Displays STANDBY communication frequency.
- OPERATING NAV FREQUENCY DISPLAY (USE) -- Displays ACTIVE navigation frequency.
- STANDBY NAV FREQUENCY DISPLAY (STANDBY/RAD) -- Displays STANDBY navigation frequency or VOR radial.
- NAV FREQUENCY SELECTOR KNOBS -- The larger selector knob is 6. used to change the MHz portion of the frequency display; the smaller knob (PULL RAD) changes the kHz portion in 50-kHz steps. At either band-edge of the 108.00 to 117.95 MHz frequency spectrum, an offscale rotation will wrap the display around to the other frequency band-edge (i.e., 117.95 advance to 108.95 with MHz knob rotation, or 117.00 with kHz knob rotation). Remote DME and internal glide slope frequencies are also controlled by these selector knobs. When small knob is pulled out, the radial from the VOR in USE is displayed in the STANDBY/RAD frequency display. If VOR signal is too weak, or an ILS frequency has been selected, a digital warning flag is activated consisting of three dashes "---" displayed in the STANDBY/RAD window. Any frequency selection made with the radial display (RAD) active will be displayed in the USE display, without any effect on the (non-displayed) stored standby frequency.
- 7. NAV FREQUENCY TRANSFER BUTTON -- Interchanges the frequencies in the USE and STANDBY displays.
- NAV VOLUME CONTROL (PULL IDENT) -- Adjusts volume of navigation receiver audio. When the knob is pulled out, the Ident signal plus voice may be heard.
- COMM FREQUENCY SELECTOR KNOBS -- The outer, larger selector knob is used to change the MHz portion of the frequency display; the smaller knob (PULL 25K) changes the kHz portion. This smaller knob is designed to change the indicated frequency in steps of 50-kHz when it is pushed in, and in 25-kHz steps when it is pulled out. At either band-edge of the 118-135 MHz frequency spectrum, an off scale rotation will wrap the display around to the other frequency band-edge (i.e., 135 MHz advances to 118 MHz).
- COMM FREQUENCY TRANSFER BUTTON -- Interchanges the frequencies in the USE and STANDBY displays.

Figure 1. Bendix/King Nav/Com (Type KX-165) Operating Controls and Indicators (Sheet 2 of 4)

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### BENDIX/KING KX-165 NAV/COM POH SUPPLEMENT

- COMM VOLUME CONTROL (OFF/PULL TEST) -- Rotary switch turns set on/off and adjusts volume of communication receiver audio. When pulled out disables automatic squelch control.
- KI-525A HORIZONTAL SITUATION INDICATOR (HSI) -- Provides a pictorial presentation of aircraft deviation relative to VOR radials or localizer beams. It also displays glide slope deviations, and gives heading reference with respect to magnetic north. The gyro is electrically driven.
- 13. NAV FLAG Flag is in view when the NAV receiver signal is inadequate. When a NAV flag is present in the navigation indicator (KI-525A), KAP/KFC-150 autopilot operation is not affected. The pilot must monitor the navigation indicator for a NAV flag to ensure that the autopilot and/or flight director are tracking valid navigation information. THE KFC-225 will revert to ROL mode with a NAV flag.
- LUBBER LINE Indicates aircraft magnetic heading on compass card (21).
- 15. HEADING WARNING FLAG (HDG) When flag is in view, the heading display is invalid. If an HDG flag appears, and a lateral mode (HDG, NAV, APR, or APR BC) is selected, the autopilot will be disengaged. The autopilot may be re-engaged in the basic wingslevel mode along with any vertical mode. The CWS switch would be used to manually maneuver the aircraft laterally.
- COURSE BEARING POINTER Indicates selected VOR course or localizer course on the compass card (21). The selected VOR radial or localizer heading remains set on the compass card when the compass card (21) rotates.
- TO/FROM INDICATOR FLAG indicates direction of VOR station relative to the selected course.
- DUAL GLIDE SLOPE POINTERS Indicate on the glide slope scale (19) airplane displacement from glide slope beam center. Glide slope pointers in view indicate a usable glide slope signal is being received. (Glide slope pointers not shown).
- GLIDE SLOPE SCALES Indicate displacement from glide slope beam center. A glide slope deviation bar displacement of 2 dots represents full-scale (0.7°) deviation above or below glide slope beam centerline.
- HEADING SELECTOR KNOB Positions the heading bug (25) on compass card (21) by rotating the heading selector knob. The bug rotates with the compass card.

Figure 1. Bendix/King Nav/Com (Type KX-165) Operating Controls and Indicators (Sheet 3 of 4)

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### S33 MODEL 208 (675 SHP)

- 21. COMPASS CARD Rotates to display heading of airplane with reference to lubber line (14) on HSI.
- COURSE SELECTOR KNOB Positions the course bearing pointer (16) on the compass card (21) by rotating the course selector knob.
- COURSE DEVIATION BAR (D-BAR) The center portion of the omni bearing pointer moves laterally to pictorially indicate the relationship of airplane to the selected course. It indicates degrees of angular displacement, or nautical miles from RNAV, or GPS courses.
- COURSE DEVIATION SCALE A course deviation bar displacement of 5 dots represents full scale (VOR = ±10°, LOC = ±2 1/2°, RNAV = 5nm, RNAV APR = 1 1/4nm, GPS = 5nm, 1nm, or 0.3nm) deviation from beam centerline.
- 25. HEADING BUG Moved by heading selector knob (20) to select desired heading.
- 26. COURSE INDEX Indicates selected VOR course.
- NAVIGATION FLAG (NAV) When visible, red NAV flag indicates unreliable VOR signals, or improperly operating equipment. Flag disappears when a reliable VOR signal is being received.
- TO-FROM INDICATOR Operates only with a VOR signal. With usable VOR signal, indicates whether selected course is "TO" or "FROM" station. With usable localizer signal, the indicator is not in view.
- GLIDE SLOPE DEVIATION NEEDLE Indicates deviation from ILS glide slope.
- COURSE DEVIATION POINTER Indicates course deviation from selected omni course or localizer centerline.
- 31. RECIPROCAL COURSE INDEX Indicates reciprocal or selected VOR course.
- OMNI BEARING SELECTOR (OBS) Rotates OBS course card to select desired course.
- OBS COURSE CARD Indicates selected VOR course under course index.
- GLIDE SLOPE FLAG (GS) When visible, red GS flag indicates unreliable glide slope signal or improperly operating equipment. Flag disappears when reliable glide slope signal is being received.

Figure 1. Bendix/King Nav/Com (Type KX-165) Operating Controls and Indicators (Sheet 4 of 4)

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## SECTION 3 EMERGENCY PROCEDURES

There is no change to the airplane emergency procedures when this avionic equipment is installed. However, if the frequency readouts fail, the radio will remain operational on the last frequency selected. The frequency control should not be moved due to the difficulty of obtaining a known frequency under this condition.

## SECTION 4 NORMAL PROCEDURES

### COMMUNICATION RECEIVER-TRANSMITTER OPERATION:

- OFF/PULL TEST Volume Control -- Turn clockwise; pull out and adjust to desired audio level; push control back in to activate the automatic squelch.
- MIC Selector Switch (on audio control panel) -- SET to COM 1.
- SPEAKER/PHONE Selector Buttons (on audio control panel)
   SET to desired mode.
- COMM Frequency Selector Knobs -- Select desired operating frequency.
- COMM Transfer Button -- PRESS to transfer desired frequency from the "STANDBY" display into the "USE" display.
- 6. Mic Button:
  - To transmit -- DEPRESS and SPEAK in microphone.

#### NOTE

- During COMM Transmission, a lighted "T" will appear between the "USE" and "STANDBY" displays to indicate that the transceiver is operating in the transmit mode.
- Phone sidetone may be selected by pushing the AUTO selector button (on audio control panel) in the PHONE position.
  - b. To Receive -- RELEASE mic button.

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S33 MODEL 208 (675 SHP)

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### NAVIGATION RECEIVER OPERATION:

### WARNING

The pilot should be aware that on the Cessna Model 208 equipped with the vertical fin mounted combination glide slope and omni antenna, the propeller RPM should be set at MAX (1900 RPM) during ILS approaches to avoid any possibility of oscillations of the glide slope deviation pointer caused by propeller interference.

- NAV Volume Control (PULL IDENT) -- SET to desired audio level.
- SPEAKER/PHONE Selector Buttons (on audio control panel)

   SET to desired mode.
- PULL/RAD Knob -- PULL out to display the VOR radial from the station in use.
- NAV Frequency Selector Knobs -- SELECT desired operating frequency.
- NAV TRANSFER BUTTON -- PRESS to transfer desired frequency from the "STANDBY" display into the "USE" display.
- 6. NAV Volume Control --
  - ADJUST to desired audio level.
  - PULL out to identify station.
- NAV Frequency Selector Knobs -- SELECT new standby frequency, if desired.
- PULL RAD Knob -- PULL out to display the VOR radial from the station in USE.

#### NOTE

The VOR radial will be displayed in the NAV STANDBY/ RAD display. If the signal is too weak, or an ILS frequency was selected, three dashes "---" will be displayed instead. Pulling out this knob does not affect the stored standby frequency. Any further NAV frequency selection will be displayed directly in the USE display until the smaller knob is pushed back in. The Transfer button function is unchanged during radial display use.

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### BENDIX/KING KX-165 NAV/COM POH SUPPLEMENT

 Course Selector Knob (on HSI indicator) or OBS Knob (on KI-206) -- SELECT desired VOR radial or localizer course.

## SECTION 5 PERFORMANCE

There is no change to the airplane performance when this avionics equipment is installed. Since this avionics equipment is standard on this airplane model, all airplane performance data in the Pilot's Operating Handbook includes the effect of this installation.

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## For Training Purposes Only

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## Pilot's Operating Handbook and FAA Approved Airplane Flight Manual

# CESSNA MODEL 208 (675 SHP) SUPPLEMENT 34

## BENDIX/KING RADAR ALTIMETER (TYPE KRA-10A)

SERIAL NO.

**REGISTRATION NO.** 

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, if the airplane is equipped with a Bendix/King Radar Altimeter (Type KRA-10A).

Derneil APPROVED BY

Wendell W. Cornell Executive Engineer Gessna Aircraft Company Delegation Option Manufacturer CE-3

DATE OF APPROVAL 7 APRIL 1998

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## **SUPPLEMENT 34**

## BENDIX/KING RADAR ALTIMETER (TYPE KRA-10A)

Use the Log of Effective Pages to determine the current status of this supplement. Pages affected by the current revision are indicated by an asterisk (\*) preceding the page number.

**Revision Level** 

Date of Issue

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1 April 1998

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1 April 1998

### RADAR ALTIMETER (TYPE KRA-10A) POH SUPPLEMENT

S34 MODEL 208 (675 SHP)

## SUPPLEMENT

## BENDIX/KING RADAR ALTIMETER (Type KRA-10A)

## SECTION 1 GENERAL

The The Bendix/King Radar Altimeter (Type KRA-10A), shown in Figure 1, consists of a panel-mounted indicator, a remote mounted receiver/transmitter and an antenna.

The Radar Altimeter (depending upon terrain reflectivity and aircraft bank angle) gives an absolute altitude indication from 2500 feet AGL to  $35 \pm 15$  feet AGL. It provides continuous selection of warning altitude and annunciation of descent to that altitude by both a DH (decision height) light and an aural warning. Climbing through the selected warning altitude extinguishes the DH light. The DH light is automatically dimmed by a photo cell. Indicator lighting is controlled by the RADIO light dimming rheostat.

The Radar Altimeter remote receiver/transmitter is all solid-state and operates on 28-volt primary power. Complete self-test may be accomplished both on preflight and in-flight.

## SECTION 2 LIMITATIONS

There is no change to the airplane limitation when this avionic equipment is installed.

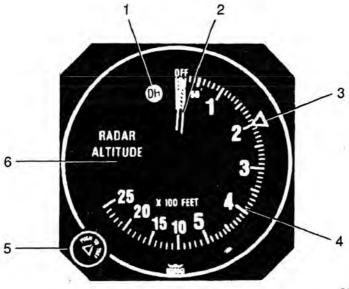
## SECTION 3 EMERGENCY PROCEDURES

There is no change to the airplane emergency procedures when this avionic equipment is installed.

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S34 MODEL 208 (675 SHP)

### RADAR ALTIMETER (TYPE KRA-10A) POH SUPPLEMENT



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- 1. DECISION HEIGHT LIGHT (DH) Alerts that the airplane is at or below the selected decision height.
- 2. POINTER Indicates the airplane's absolute altitude.
- DH BUG Indicates the selected alert altitude which, when reached, will trigger an aural and visual warning.
- ALTITUDE SCALE Indicates height above ground level in feet from 2500 to 20.
- DH SELECT/TEST KNOB (PUSH TO TEST Δ) Rotates to select the position of the DH Bug and presses to test the altimeter for proper operation.
- MASK Hides pointer when above 2500 feet AGL or the receiver experiences loss of signal.

Figure 1. King Radar Altimeter (Type KRA-10A)

1 April 1998

RADAR ALTIMETER (TYPE KRA-10A) POH SUPPLEMENT **S34** MODEL 208 (675 SHP)

## SECTION 4 NORMAL PROCEDURES

### PREFLIGHT AND IN-FLIGHT SELF-TEST:

- 1. AVIONICS MASTER Switch -- ON.
- 2. DH Bug -- SET to 20 feet.
- DH Select/Test Knob -- DEPRESS and HOLD. The indicated altitude should be 50 ±5 feet and the DH lamp should be off.
- DH Select/Test Knob -- DEPRESS and TURN slowly clockwise. The DH lamp should light and a two-second audio tone will sound when the DH bug reaches 50 ±5 feet.
- DH Select/Test Knob -- RELEASE. The DH lamp will go out and the pointer will move clockwise behind the mask. When flying at an altitude below 2500 feet AGL, pointer will remain in view.

### NOTE

Ground operation near large hangars, other aircraft, water puddles and other nearby objects may cause the pointer to come into view. This does not indicate a system malfunction since the reflections constitute a real signal.

#### NORMAL OPERATION:

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- 1. AVIONICS MASTER Switch -- ON.
- DH Bug -- SET as desired.

### A CAUTION

The radar altimeter must not be used to identify the MDA (Minimum Descent Altitude) or DH (Decision Height) while making an instrument approach.

### S34 MODEL 208 (675 SHP)

### OPERATIONAL NOTES:

- During take-off, radar altimeter indications are unreliable until after approximately the first 15 seconds after climbing above 50 feet altitude.
- Depending upon terrain reflectivity, initial and/or reliable indications during descents through the 2500-foot level may not occur until the aircraft has reached absolute altitudes as low as 1500 feet.
- Accuracy in level flight or in descents at rates up to 1000 FPM is within 7% or 80 feet, whichever is greater.
- 4. The pointer will disappear from view below 2500 feet if the ground return signal is lost. The pointer may also disappear from view momentarily when the aircraft is in a bank in excess of 15° (above 2000 feet) or 45° (below 1000 feet).
- Once the indicator has reached 35 ±15 feet during landing approach, further indications in this range are unreliable, since the indicator may dwell briefly in this range even as the aircraft descends further.
- The pointer will move to the OFF position if primary power is lost.

## SECTION 5 PERFORMANCE

There is no change to the airplane performance when this avionic equipment is installed. However, the installation of an externally mounted antenna or several related external antennas, will result in minor reduction in cruise performance.

1 April 1998



## Pilot's Operating Handbook and FAA Approved Airplane Flight Manual

## CESSNA MODEL 208 (675 SHP)

## **SUPPLEMENT 35**

## BENDIX/KING RADIO MAGNETIC INDICATOR (TYPE KI-229)

#### SERIAL NO.

#### **REGISTRATION NO.**

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, if the airplane is equipped with a Bendix/King Radio Magnetic Indicator (Type KI-229).

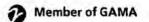
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DATE OF APPROVAL 7 APRIL 1998

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1 APRIL 1998

S35 MODEL 208 (675 SHP)

BENDIX/KING RMI (TYPE KI-229) POH SUPPLEMENT

## **SUPPLEMENT 35**

## BENDIX/KING RADIO MAGNETIC INDICATOR (TYPE KI-229)

Use the Log of Effective Pages to determine the current status of this supplement. Pages affected by the current revision are indicated by an asterisk (\*) preceding the page number.

### Revision Level Date of Issue

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1 April 1998

S35 MODEL 208 (675 SHP)

## SUPPLEMENT

## BENDIX/KING RADIO MAGNETIC INDICATOR (TYPE KI-229)

## SECTION 1 GENERAL

The Bendix/King Radio Magnetic Indicator (RMI) is used in conjunction with other airborne navigation equipment to aid the pilot in navigating the airplane. The RMI eliminates the need for many of the mental computations necessary for determining the airplane position.

The RMI is a panel mounted navigation instrument that combines the display of VOR and ADF bearing information with the airplane heading on a single instrument. The VOR and ADF magnetic bearings to the selected stations are displayed by individual rotating pointers against the background of a rotating azimuth card. The azimuth card is driven by the slaved magnetic compass system in the airplane and continuously indicates airplane heading. Thus, the relative bearing between the aircraft heading and the station is pictorially displayed.

Each pointer in the Type KI-229 RMI is dependent on its associated receiver for indicating bearings. A single-bar pointer indicates VOR bearings and a double-bar pointer indicates ADF bearings. Two NAV receivers supply VOR signals to the RMI for selection. When one of the VOR receivers is a KNS-81 Area Navigation System, the single-bar pointer can indicate the RNAV waypoint bearing. A two-position selector switch (NAV 1INAV 2) on the instrument panel selects the desired VOR signal for display of bearing information. The KI-229 RMI is internally lighted. Intensity is controlled by the RADIO light dimming rheostat.

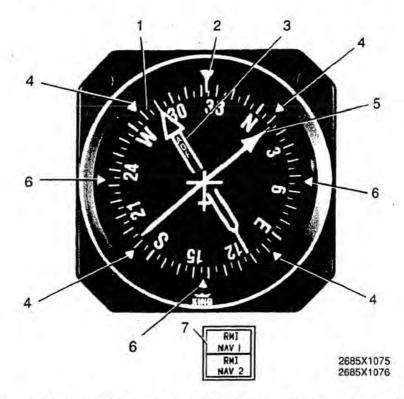
### SECTION 2 LIMITATIONS

There is no change to the airplane limitations when this avionic equipment is installed.

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S35 MODEL 208 (675 SHP)



- ROTATING AZIMUTH (COMPASS) CARD Rotates as the airplane turns so that the airplane magnetic heading is continuously displayed at the heading index.
- HEADING INDEX Indicates the airplane magnetic heading on the azimuth card.
- DOUBLE-BAR POINTER Indicates the magnetic bearing to the station to which the ADF is tuned.
- INDICES Four reference marks spaced 45 degrees between the Heading Index and Cardinal Points.
- 5. SINGLE-BAR POINTER Indicates the magnetic bearing to the selected VOR station.
- CARDINAL POINT One of the four main points on a compass. Cardinal points are spaced 90 degrees apart.
- NAV I / NAV 2 FUNCTION SWITCH Selects either NAV 1 or NAV 2 VOR signal for display by the single-bar pointer.

Figure I. King Radio Magnetic Indicator (Type KI-229)

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S35 MODEL 208 (675 SHP)

## SECTION 3 EMERGENCY PROCEDURES

There is no change to the airplane emergency procedures when this avionic equipment is installed.

## SECTION 4 NORMAL PROCEDURES

#### NORMAL OPERATION:

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#### NOTE

Operation of the RMI is dependent upon input information from the compass system (slaved directional gyro or HSI), the associated VHF navigation and ADF receivers. Refer to the appropriate supplements in this section for operation of this equipment.

- 1. Compass Cards (on RMI and HSI) -- CHECK heading indications on RMI and HSI the same.
- ADF Receiver -- SELECT STATION on receiver. The doublebar pointer will indicate the magnetic bearing to the station.

#### NOTE

If the ADF receiver is turned OFF, the double-bar pointer will remain fixed in its last position.

 NAV 1-2 Selector Switch (for RMI) -- SET to NAV 1 or NAV 2 and select VOR station on the associated NAV receiver. The single-bar pointer will indicate the magnetic bearing to the station.

#### NOTE

This reading is equivalent to the "TO" course reading obtained with the standard CDI omni bearing selector. The "FROM" radial of the VOR station is obtained by reading the opposite end of the pointer.

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S35 MODEL 208 (675 SHP)

## WARNING

- If the RMI Compass Card is not tracking the Directional Gyro or HSI, the VOR bearings are invalid. This may be caused by a failure in the RMI, Slaved Compass System, or a loss of power from the Autopilot Computer or AC Inverter on aircraft without autopilot.
- The ADF indications are valid relative to the nose of the aircraft only and may be used by referring to the Heading Index and 45 degree indices on the RMI.

RMI TEST:

- ADF Receiver -- TUNE to usable frequency with ADF mode selected.
- ADF Button (On KR-87 Receiver) -- SELECT ANT mode. Double- bar pointer will slew to the three o'clock position.
- ADF -- SELECT ADF mode and OBSERVE that double-bar pointer (on RMI) returns to the same station bearing as in step 1 to indicate a normal operation.

### NOTE

If the ADF Receiver is turned OFF, the double-bar pointer will remain fixed in its last position.

- VOR Receiver -- TUNE to usable VOR frequency.
- VOR Receiver -- TURN OFF. Single-bar pointer will slew to the three o'clock position.
- VOR Receiver -- TURN ON and OBSERVE that the singlebar pointer (on RMI) returns to the same station bearing as in step 4 to indicate a normal operation.

#### NOTE

If the selected VOR Receiver is turned off or a reliable signal is not being received, or an ILS frequency is selected, the single-bar pointer will move to the stowed position (fixed at the 3 o'clock position).

## SECTION 5 PERFORMANCE

There is no change to the airplane performance when this avionic equipment is installed in addition to that which occurs with installation of the ADF or VOR antennas.

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## Pilot's Operating Handbook and FAA Approved Airplane Flight Manual

## CESSNA MODEL 208 (675 SHP)

## **SUPPLEMENT 36**

### BENDIX/KING RADIO MAGNETIC INDICATOR (TYPE KNI-582)

SERIAL NO.

**REGISTRATION NO.** 

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, if the airplane is equipped with a Bendix/King Radio Magnetic Indicator (Type KNI-582).

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DATE OF APPROVAL 7 APRIL 1998

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**REVISION 1 - 13 OCTOBER 1999** 

S36-1

S36 MODEL 208 (675 SHP)

## SUPPLEMENT 36

### **BENDIX/KING RADIO MAGNETIC INDICATOR (TYPE KNI-582)**

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APPROVED BY

Wendell W. Corneil **Executive Engineer** Cessna Aircraft Company Delegation Option Manufacturer CE-3 13 OCTOBER 1909

DATE OF APPROVAL

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BENDIX/KING RMI (TYPE KNI-582) POH SUPPLEMENT S36 MODEL 208 (675 SHP)

## SUPPLEMENT

### BENDIX/KING RADIO MAGNETIC INDICATOR (TYPE KNI-582)

### SECTION 1 GENERAL

The Bendix/King KNI-582 Radio Magnetic Indicator (RMI) is used in conjunction with other airborne navigation equipment to aid the pilot in navigating the airplane. The RMI eliminates the need for many of the numerical and graphical computations necessary for determining the airplane position.

The RMI is a panel mounted navigation instrument that combines the display of NAV and ADF bearing information with the airplane heading on a single instrument. The NAV and ADF magnetic bearings to the selected stations are displayed by individual rotating pointers against the background of a rotating azimuth card. The azimuth card is driven by the slaved magnetic compass system in the airplane and continuously indicates airplane heading. Thus, the relative bearing between the aircraft heading and the station is pictorially displayed.

Each pointer in the KNI-582 RMI is dependent only on its associated receiver for indicating bearings. A single-bar pointer indicates NAV 1 or ADF bearings and a double-bar pointer indicates NAV 2 or ADF bearings. The choice of NAV or ADF information displayed by each pointer is determined by the corresponding front panel display switch.

For airplanes equipped with a single NAV/COM, the single-bar pointer and the double-bar pointer both indicate NAV 1 or ADF.

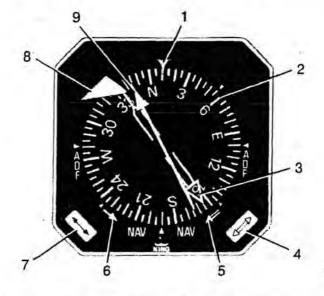
Should a localizer frequency be selected or the NAV receiver indicate a flagged condition, the NAV pointer will slew to the 3 o'clock position.

A HDG flag falls into view in the upper left corner of the display when the heading information being displayed is invalid.

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### S36 MODEL 208 (675 SHP)

### BENDIX/KING RMI (TYPE KNI-582) POH SUPPLEMENT



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- HEADING INDEX Indicates the airplane magnetic heading on the azimuth card.
- ROTATING AZIMUTH (COMPASS) CARD Rotates as the airplane turns so that the airplane magnetic heading is continuously displayed at the heading index.
- DOUBLE-BAR POINTER Indicates the magnetic bearing to NAV 2 or the ADF station. Will slew to the 3 o'clock position if in NAV mode and a localizer frequency is selected, or the NAV receiver flags.
- DOUBLE-BAR POINTER DISPLAY SWITCH Dual position pushbutton switch used to select either NAV 2 or ADF mode.
- DOUBLE-BAR POINTER MODE INDICATOR Indicates either NAV 1 or ADF mode.
- SINGLE-BAR POINTER MODE INDICATOR Indicates either NAV 1 or ADF mode.
- SINGLE-BAR POINTER DISPLAY SWITCH Dual position pushbutton switch used to select either NAV 1 or ADF mode.
- COMPASS (HDG) FLAG Comes into view whenever heading information is in- valid.
- SINGLE-BAR POINTER Indicates the magnetic bearing to NAV 1 or the ADF station. Will slew to the 3 o'clock position if in nav mode and a localizer frequency is selected, or the NAV receiver flags.

Figure 1. King RMI (Type KNI-582) Operating Controls and Indicators

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BENDIX/KING RMI (TYPE KNI-582) POH SUPPLEMENT S36 MODEL 208 (675 SHP)

### SECTION 2 LIMITATIONS

There is no change to the airplane limitations when this avionic equipment is installed.

### SECTION 3 EMERGENCY PROCEDURES

There is no change to the airplane emergency procedures when this avionic equipment is installed.

### SECTION 4 NORMAL PROCEDURES

#### NORMAL OPERATION:

#### NOTE

Operation of the RMI is dependent upon input information from the compass system (slaved directional gyro), the associated VHF navigation and ADF receivers. Refer to the appropriate supplements in this section for operation of this equipment.

- 1. Compass Cards (on RMI and HSI) -- CHECK heading indications on RMI and HSI the same.
- ADF Receiver -- TUNE to usable frequency with ADF mode selected.
- Single or Double Bar Pointer Display Switch -- SELECT ADF mode.
- READ magnetic bearing to the ADF station under the selected pointer.

#### NOTE

If the ADF receiver is turned off, the selected pointer will remain fixed in its last position.

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### S36 MODEL 208 (675 SHP)

### BENDIX/KING RMI (TYPE KNI-582) POH SUPPLEMENT

- 5. NAV Receiver TUNE to usable VOR frequency.
- Single or Double-Bar Pointer Display Switch SELECT NAV mode. Choose double-bar pointer if NAV 2 is desired or single-bar pointer for NAV 1.
- READ indicated magnetic bearing to the VOR station under the selected pointer.

#### NOTE

- If the NAV receiver is turned off or a localizer frequency is selected, the pointer will slew to the 3 o'clock position.
- This reading is equivalent to the "TO" course reading obtained with the standard CDI omni bearing selector. The radial of the VOR station is obtained by reading the opposite end of the pointer.

RMI TEST:

- ADF Receiver -- TUNE to usable frequency with ADF mode selected.
- Single or Double Bar Pointer Display Switch -- SELECT ADF mode.
- ADF Button (On KR-87 Receiver) -- SELECT ANT mode. Selected RMI pointer will slew to the 3 o'clock position.
- ADF Button (On KR-87 Receiver) -- SELECT ADF mode and OBSERVE that selected RMI pointer returns to the same station bearing as in step 2 to indicate normal operation.

#### NOTE

If the ADF receiver is turned off, the selected pointer will remain fixed in its last position.

- NAV Receiver (NAV 1 or NAV 2) -- TUNE to usable VOR frequency.
- Single or Double Bar Pointer Display Switch (as appropriate to the selected NAV) -- SELECT NAV mode.
- NAV Receiver -- TURN OFF. Appropriate RMI pointer will slew to the 3 o'clock position.

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### BENDIX/KING RMI (TYPE KNI-582) POH SUPPLEMENT

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 NAV Receiver -- TURN ON and observe that the appropriate RMI pointer returns to the same station bearing as in step 6 to indicate normal operation.

#### NOTE

If the selected NAV receiver is turned off or a reliable signal is not being received, or an ILS frequency is selected, the appropriate pointer will stow at the 3 o'clock position.

### SECTION 5 PERFORMANCE

There is no change to the airplane performance data when this avionic equipment is installed.



### Pilot's Operating Handbook and FAA Approved Airplane Flight Manual

CESSNA MODEL 208 (675 SHP)

SUPPLEMENT 37

BENDIX/KING MODE S TRANSPONDER (TYPE KT-70)

> BENDIX KING TRANSPONDER (TYPE KT-71)

BENDIX/KING ENCODING ALTIMETER (TYPE KEA-130)

UNITED INSTRUMENTS ENCODING ALTIMETER (TYPE 5035P-P45)

SERIAL NO.

**REGISTRATION NO.** 

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, if the airplane is equipped with above-listed avionic components.

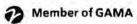
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Wendell W. Cornell Executive Engineer Cessna Aircraft Company Delegation Option Manufacturer CE-3

DATE OF APPROVAL 7 APRIL 1998

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S37 MODEL 208 (675 SHP)

KT-70 / KT-71 TRANSPONDERS POH SUPPLEMENT

## SUPPLEMENT 37

BENDIX/KING MODE S TRANSPONDER (TYPE KT-70)

### BENDIX KING TRANSPONDER (TYPE KT-71)

### BENDIX/KING ENCODING ALTIMETER (TYPE KEA-130)

### UNITED INSTRUMENTS ENCODING ALTIMETER (TYPE 5035P-P45)

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**Revision Level** 

Date of Issue

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### LOG OF EFFECTIVE PAGES

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KT-70/KT-71 TRANSPONDERS POH SUPPLEMENT S37 MODEL 208 (675 SHP)

## SUPPLEMENT

### BENDIX/KING MODE S TRANSPONDER (TYPE KT-70)

### BENDIX KING TRANSPONDER (TYPE KT-71)

### BENDIX/KING ENCODING ALTIMETER (TYPE KEA-130)

### UNITED INSTRUMENTS ENCODING ALTIMETER (TYPE 5035P-P45)

### SECTION 1 GENERAL

The Bendix/King Mode S Transponder (Type KT-70), Shown in Figure 1, is the airborne component of an Air Traffic Control Radar Beacon System (ATCRBS). The transponder enables the ATC ground controller to "see" and identify more readily the airplane on the radarscope. The Mode S capability enables the ground station to individually select the airplane by its Aircraft Address assigned to the airplane by the FAA. The Bendix/King KT-71 Transponder is a Mode C transponder and is the same as the KT-70 except it does not have the Mode S capability. The encoding altimeter (also shown in Figure 1) enables the transponder to automatically report airplane altitude to ATC.

The Bendix/King Transponder system consists of a panel-mounted unit, an externally-mounted antenna and a control wheel-mounted XPDR IDENT switch. The transponder receives interrogating pulse signals on 1030 MHz and transmits coded pulse-train reply signals on 1090 MHz. It is capable of replying to Mode A (aircraft identification) and also to Mode C (altitude reporting) interrogations on a selective reply basis on any of 4096 information code selections. When a panel-mounted KEA-130 or 5035P-P45 Encoding Altimeter (not part of KT-70 or KT-71 Transponder system) is included in the avionic configuration, the transponder can provide altitude reporting in 100-foot increments between -1000 and

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S37 MODEL 208 (675 SHP)

#### KT-70/KT-71 TRANSPONDERS POH SUPPLEMENT

The KT-70 and KT-71 feature an all solid-state transmitter with microprocessor control and LSI (Large Scale Integrated) encoding circuitry. Mode and code selection are performed by five front panel mounted knobs, and all functions including the flight level altitude are presented on a gas discharge display. All display segments are automatically dimmed by a photocell type sensor.

A VFR programming sequence, described in Section 4, allows the pilot to preprogram any single code such as "1200" into the KT-70 and KT-71. Pressing the function selector knob instantly returns to the preprogrammed code without having to turn any other knobs.

All Bendix/King Transponder operating controls, with the exception of the operational altitude encoding altimeter setting knob, are located on the front panel of the unit. The altimeter setting knob is located on the encoding altimeter. Functions of the operating controls are described in Figure 1.

### SECTION 2 LIMITATIONS

There is no change to the airplane limitations when this avionic equipment is installed.

### SECTION 3 EMERGENCY PROCEDURES

TO TRANSMIT AN EMERGENCY SIGNAL:

- 1. Function Selector Knob -- ON (or ALT).
- 2. Code Selector Knobs -- SELECT 7700 operating code.

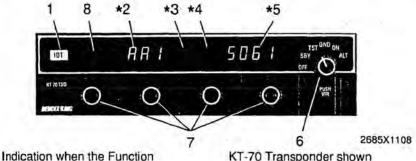
#### TO TRANSMIT A SIGNAL REPRESENTING LOSS OF ALL COMMUNI-CATIONS (WHEN IN A CONTROLLED ENVIRONMENT):

- 1. Function Selector Knob -- ON (or ALT).
- 2. Code Selector Knobs -- SELECT 7600 operating code.

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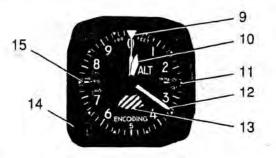
### KT-70/KT-71 TRANSPONDERS POH SUPPLEMENT

### **S37** MODEL 208 (675 SHP)



Indication when the Function Selector Knob is in TST Mode

KT-70 Transponder shown KT-71 Transponder same



2685X1109

- IDENT BUTTON (IDT) When depressed, selects special identifier pulse to be transmitted with transponder reply to effect immediate identification of the airplane on the ground controller's display. (The "R" shaped reply indicator annunciator light will glow for approximately 18 seconds.) Pressing the Ident Button will terminate a normal 5-second delay associated with the selection of a Mode A reply code. Button illumination is controlled by the RADIO light dimming rheostat.
- ALTITUDE DISPLAY Displays FL and flight level altitude (pressure altitude) in hundreds of feet when used in conjunction with an encoding altimeter and ALT mode is selected. Should an invalid code be detected from the altimeter, dashes will appear in the display window and altitude reporting will be disabled.
- MODE ANNUNCIATORS Displays the operating mode of the transponder.

Figure 1. Bendix/King Transponder and Encoding Altimeter Operating Controls (Sheet 1 of 3)

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### S37 MODEL 208 (675 SHP)

- REPLY INDICATOR (R) "R" flashes to indicate transmission of reply pulses: glows for 18 seconds after pressing the Ident Button.
- CODE DISPLAY Displays selected Mode A reply code. Code is also written into nonvolatile memory so that the code will not change due to power interruption.
- FUNCTION SELECTOR KNOB Push to select VFR code. Controls application of power and selects transponder operating mode as follows:

OFF - Turns set off.

- SBY Turns set on for standby power and code selection. "SBY" is annun-ciated.
- TST Self-test function, when selected, causes transponder to respond to internal interrogation verifying all memory data and making hardware and squitter checks. The transmitter is disabled. All display segments will illuminate. Should a squitter error occur, the transmitter is considered inoperative and the message "FO 1" will appear in altitude display (KT-70 only). Should a memory error occur, the message "FO 2" (internal) or "FO 3" (external) will appear. Should a hardware failure occur, normal operation is prohibited and the message "FO 4" will appear. If no errors are detected, the unit will remain in the test mode.
- GND Turns set on and enables transponder to transmit Mode S reply pulses (KT-70 only). ID code 4096 is shown on right side of display with altitude shown on the left side. "GND" is annunciated. Mode A and C interrogations are inhibited.
- ON Turns set on and enables transponder to transmit Mode A (aircraft identification) and Mode S (aircraft address) reply pulses (KT-70 only). ON is annunciated.
- ALT Turns set on and enables transponder to transmit Mode A (aircraft identification). Mode C (altitude reporting), Mode S (aircraft address) reply pulses selected automatically by the interrogating signal (KT-70 only). ALT ON is annunciated.
- CODE SELECTOR KNOBS Each of the four selector knobs selects a separate digit of the assigned Mode A reply code.
- PHOTOCELL Automatically dims display according to the cabin ambient light.
  - Figure 1. Bendix/King Transponder and Encoding Altimeter Operating Controls (Sheet 2 of 3)

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### KT-70/KT-71 TRANSPONDERS POH SUPPLEMENT

S37 MODEL 208 (675 SHP)

- 9. 10,000-FOOT POINTER AND LOW ALTITUDE WARNING DISC -Pointer indicates altitude readout in 10,000 foot increments between -1000 feet and +35,000 feet. Low altitude warning disc rotates with pointer as altitude is gained or reduced. (Refer to Item 13.)
- 10. 1000-FOOT POINTER Indicates altitude in 1000 foot increments between 0 feet and 10,000 feet.
- ALTIMETER SETTING SCALE (IN. HG.) Indicates selected altimeter setting in the range of 28.1 to 31.0 inches of mercury.
- 12. 100-FOOT POINTER Indicates altitude in 100-foot increments between 0 feet and 1000 feet with 20-foot subdivisions.
- 13. LOW ALTITUDE WARNING FLAG Complete flag is visible when altitude indicates 0-feet altitude. As the airplane gains altitude, the low altitude warning flag will start to be covered over by the disc attached to the 10,000-foot pointer (mentioned in Item 9). When the airplane reaches an altitude of approximately 17,000 feet, the low altitude warning flag will be completely covered over (out of view) by the disc. As the airplane starts descending, the flag will start coming into view at approximately 17,000 feet and progress proportionately into view as the airplane descends to sea level.
- ALTIMETER SETTING KNOB Dials in desired altimeter setting in the range of 28.1 to 31.0 inches of mercury or 946 to 1050 millibars.
- ALTÍMETER SETTING SCALE (MILLIBARS) Indicates selected altimeter setting in the range of 946 to 1050 millibars.

Figure 1. Bendix/King Transponder and Encoding Altimeter Operating Controls (Sheet 3 of 3)

### SECTION 4 NORMAL PROCEDURES

#### BEFORE TAXI:

1. Function Selector Knob -- GND (KT-70), SBY (KT-71).

**BEFORE TAKEOFF:** 

1. Function Selector Knob -- GND (KT-70), SBY (KT-71).

### S37 MODEL 208 (675 SHP)

### KT-70/KT-71 TRANSPONDERS POH SUPPLEMENT

TO TRANSMIT MODE A (AIRCRAFT IDENTIFICATION) AND MODE S (AIRCRAFT ADDRESS) CODES IN FLIGHT (KT-71 will not transmit Mode S):

1. Code Selector Knobs -- SELECT assigned code.

2. Function Selector Knob -- ON.

### NOTE

- During normal operation with function selector knob in ON position, reply indicator "R" flashes, indicating transponder replies to interrogations.
- Mode A reply codes are transmitted in ALT also; however, Mode C codes only are suppressed when the Function Selector Knob is positioned to ON.
- Ident Button (IDT) -- DEPRESS momentarily when instructed by ground controller to "squawk IDENT" ("R" reply indicator will glow for approximately 18 seconds, indicating IDENT operation).

TO TRANSMIT MODE C (ALTITUDE REPORTING) AND MODE S (AIRCRAFT ADDRESS) CODES IN FLIGHT (KT-71 will not transmit Mode S):

- Encoder Altimeter Setting Knob -- SET IN local altimeter setting.
- 2. Transponder Code Selector Knobs -- SELECT assigned code.
- 3. Function Selector Knob -- ALT.

#### NOTE

 When directed by ground controller to "stop altitude squawk", turn Function Selector Knob to ON for Mode A and Mode S operation only (KT-71 will not transmit Mode S).

(Continued next page)

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### KT-70/KT-71 TRANSPONDERS POH SUPPLEMENT

Altitude transmitted by the transponder for altitude squawk and displayed on the KT-70 and KT-71 panel is pressure altitude (independent of altimeter setting) and conversion to indicated altitude is done in the ATC computers. Altitude displayed on the airplane encoding altimeter will agree with altitude indicated on the ATC radar only when the local altimeter setting in use by the ground controller is set in the pilot's encoding altimeter. Altitude displayed on the airplane encoding altimeter will agree with the altitude displayed on the KT-70 and KT-71 panel only when the encoding altimeter setting is 29.92 inches of mercury.

#### AFTER LANDING

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1. Function Selector Knob -- GND.

### TO SELF-TEST TRANSPONDER OPERATION:

- 1. Function Selector Knob -- TST Check all displays. Verify presence of Reply Indicator.
- 2. Function Selector Knob -- SELECT desired function.

### TO PROGRAM VFR CODE:

- 1. Function Selector Knob -- SBY.
- 2. Code Selector Knobs -- SELECT desired VFR code.
- 3. IDT Button -- PRESS AND HOLD.
  - a. Function Selector Knob -- PRESS to place new VFR code in nonvolatile memory for subsequent call up.

### SECTION 5 PERFORMANCE

There is no change to the airplane performance when this avionic equipment is installed. However, the installation of an externally-mounted antenna, or several related external antennas, will result in a minor reduction in cruise performance.

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### Pilot's Operating Handbook and FAA Approved Airplane Flight Manual

# CESSNA MODEL 208 (675 SHP) SUPPLEMENT 38

### BENDIX/KING DIGITAL WEATHER RADAR SYSTEM (Type RDR 2000)

#### SERIAL NO.

#### **REGISTRATION NO.**

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, if the airplane is equipped with the Bendix/King Digital Weather Radar System (Type RDR 2000).

APPROVED BY

Wendell W. Cornell Executive Engineer Cessna Aircraft Company Delegation Option Manufacturer CE-3

DATE OF APPROVAL 7 APRIL 1998

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S38 MODEL 208 (675 SHP)

## **SUPPLEMENT 38**

### BENDIX/KING DIGITAL WEATHER RADAR SYSTEM (Type RDR 2000)

Use the Log of Effective Pages to determine the current status of this supplement. Pages affected by the current revision are indicated by an asterisk (\*) preceding the page number.

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S38-2

BENDIX/KING DIGITAL WEATHER RADAR 538 POH SUPPLEMENT MODEL 208 (675 SHP)

## SUPPLEMENT

### BENDIX/KING DIGITAL WEATHER RADAR SYSTEM (Type RDR 2000)

### SECTION 1 GENERAL

The Bendix/King Digital Weather Radar System (Type RDR 2000) consists of a wing pod mounted receiver-transmitter and stabilized 12-inch X-band radar antenna, and a panel-mounted radar indicator. All operating controls are mounted on the front panel of the radar indicator and operating controls and functions are described in Figure 1.

The Bendix/King Digital Weather Radar System (Type RDR 2000) is designed to detect significant enroute weather formations up to a distance of 240 nautical miles (when set to maximum range) to preclude undesired penetration of heavy weather and its usually associated turbulence. The antenna is fully stabilized to compensate for up to  $\pm 30^{\circ}$  of airplane pitch and roll. The indicator provides a four-color weather display, showing four separate levels of rainfall intensity in green, yellow, red and magenta. In addition the indicator displays evenly-spaced blue segmented concentric range arcs, displays blue alphanumerics, displays degrees away from the airplane heading in yellow numbers, and also provides an amber antenna tilt angle readout. In addition to its primary purpose of weather mapping, a ground mapping mode permits displaying prominent topographical features such as lakes, bays, islands, shore lines and urban areas.

### A WARNING

This system generates microwave radiation in the Wx, WxA and MAP operating modes. Improper use, or exposure, may cause serious bodily injury. DO NOT OPERATE UNTIL YOU HAVE READ AND CAREFULLY FOLLOWED ALL SAFETY PRECAUTIONS AND INSTRUCTIONS CALLED OUT IN SECTION 4 (NORMAL PROCEDURES) OF THIS SUPPLEMENT.

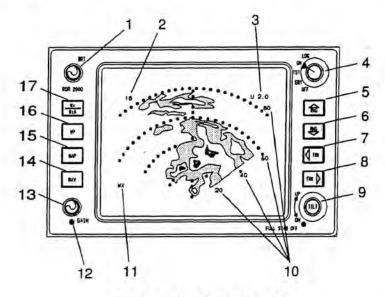
### S38 MODEL 208 (675 SHP)

### BENDIX/KING DIGITAL WEATHER RADAR POH SUPPLEMENT

For expanded information and operating instructions, refer to the RDR 2000 Pilot's Guide supplied with your airplane.

A WARNING

Users of this equipment are strongly urged to familiarize themselves with FAA Advisory Circular AC No. 00-24B(1-20-83), subject: "Thunderstorms".



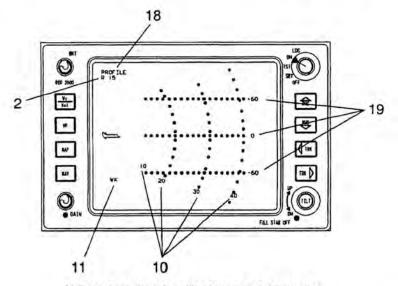
VIEW OF WEATHER MODE

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Figure 1. Bendix/King RDR 2000 Operating Controls and Indicators (Sheet 1 of 4)

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538 MODEL 208 (675 SHP)



VIEW OF VERTICAL PROFILE MODE

2618T1105

- 1. BRT CONTROL KNOB Use to adjust the display brightness to accommodate existing cockpit ambient light conditions.
- TRACK CENTERLINE READOUT Displays the number of degrees the track line is slewed left or right of the airplane nose.
- ANTENNA TILT CONTROL READOUT Displays the tilt angle in degrees in the upper right corner that has been selected by the TILT control.
- FUNCTION SELECTOR SWITCH Controls application of power and selects mode of operation for transmitting, testing and warmup. Switch positions are as follows:

OFF - Primary power is removed from the system.

SBY - (Standby) After 60 seconds in this mode, places system in operational ready status. Use during warmup and in-flight periods when the system is not in use. The word "STBY" is displayed in the lower left corner.

Figure 1. Bendix/King RDR 2000 Operating Controls and Indicators (Sheet 2 of 4)

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MODEL 208 (675 SHP)

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- TST (Test) Selects test function to determine operability of the system. A test pattern is displayed. No transmission exists in the TST condition. The word "TEST" is displayed in the lower left corner.
- ON Selects the condition for normal operation. Radar transmission exists in the ON position. The Wx mode and 80 mile range are automatically selected when turned on. Wx will be displayed in the lower left corner and 80 will be displayed just above the right end of the top concentric range mark.
- LOG Not used (used only when Bendix/King radar graphics units are installed, and with compatible long range navigation system).
- 5. RANGE INCREASE PUSHBUTTON (ARNG) Clears the display and advances the indicator to the next higher range each time the pushbutton is pressed (eg: 20 to 40, 40 to 80, etc.), until 240 mile range is reached. The range selected is displayed in the upper right corner on the last range mark, and the distance to each of the other range mark arcs is displayed along the right edge of the arcs.
- BANGE DECREASE PUSHBUTTON (VRNG) Clears the display and places the indicator in the next lower range each time the pushbutton is pressed (eg: 40 to 20, etc.), until minimum range is reached.
- 7. TRACK LEFT PUSHBUTTON (< TRK) Provides a yellow track centerline for the horizontal sector scan and vertical profile. With the track button pushed and held, a yellow line will appear on the screen and start to slew left in 1 degree steps at about 15 degrees per second from the nose of the airplane. In the upper left corner of the display, a yellow number will display the number of degrees the track line is positioned from the nose of the airplane. To stop the track line at a desired position, release the track button. If the track button is not pressed for 15 seconds, the track line will disappear from the display. When the track button is pressed while in the VP mode, the track line moves in 2 degree steps to select the vertical "slice" to be displayed. The display will complete the upward scan if currently in progress, and then transition to the bottom rail at the track line azimuth. Once the horizontal track line is positioned, the display will provide a vertical scan of ±30 degrees of that location.</p>
- TRACK RIGHT BUTTON (TRK >) Same as track left pushbutton except with the track button pushed and held the track line will slew to the right.
- 9. ANTENNA TILT CONTROL Turn the knob to adjust antenna tilt. Adjusts the antenna to move the radar beam up to +15 degrees above the horizontal, or to a maximum of -15 degrees below the horizontal position. The horizontal position is indicated as zero degrees on the control. The tilt angle selected is displayed in the upper right corner of the indicator. Pulling this knob out disables stabilization and "NO STAB" will appear in the upper left corner of the screen. Disabling the stabilization is generally only necessary in case of a gyro malfunction.

Figure 1. Bendix/King RDR 2000 Operating Controls and Indicators (Sheet 3 of 4)

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S38 MODEL 208 (675 SHP)

- DISPLAY RANGE/RANGE MARKS Displays selected range and range marks in nautical miles. The following six ranges are available for display using the range (RNG) pushbuttons as desired: 10/2.5, 20/5, 40/10, 80/20, 160/40 and 240/60.
- 11. MODE DISPLAY Displays selected mode of operation for ground mapping (MAP), weather (Wx) or weather alert WxA).
- 12. LOCKING PAWL (Each Side) Locks radar indicator in mounting cover.
- GAIN CONTROL Permits adjusting the radar receiver gain in the terrain MAP mode only.

#### NOTE

In the test (TST) function as well as in all weather modes the receiver gain is preset, thus no adjustment is required.

- 14. NAVIGATION PUSHBUTTON (NAV) Not used (this button is effective only when an optional radar graphics unit and Flight Management System is installed). If activated without these units installed. "NO NAV" will appear at lower left corner of the screen.
  - 15 GROUND MAPPING PUSHBUTTON (MAP) Selects ground mapping mode. When pressed, "MAP" is displayed in the lower left corner of the screen. The GAIN control setting becomes an operator function. Manual GAIN control is important in obtaining a definitive presentation during varying topographic conditions. Prominent terrain features are presented in green for weak returns, yellow for moderate returns and magenta for intense returns.
  - 16. VERTICAL PROFILE PUSHBUTTON (VP) Selects and deselects the vertical profile mode when pressed. "PROFILE" is displayed in the upper left corner of the screen. When VP is selected on the indicator the ART will provide a vertical scan of ±30 degrees at the location of the horizontal track line. Selecting the VP mode of operation will not change the selected mode of operation: TST, Wx, WxA or GND MAP. Once in VP, these modes may be changed as desired.
  - 17. WEATHER AND WEATHER-ALERT PUSHBUTTON (Wx/WxA) Alternately selects between Wx (weather) and WxA (weather alert) modes when pressed. "Wx" or "WxA" will appear in the lower left corner of the display. Wx or WxA colors are black for no returns, green for weak returns, yellow for moderate returns, red for heavy returns and magenta for intense returns. When the WxA mode is selected, magenta areas of storms flash between magenta and black at a 1 HZ rate.
  - VERTICAL PROFILE MODE DISPLAY Displays "PROFILE" in the upper left corner of the screen when operating in the vertical profile mode.
- 19. RELATIVE ALTITUDE DISPLAY Displays, while in the vertical profile mode, plus thousands of feet and minus thousands of feet from the relative altitude reference line "0". The altitude values vary with selected range x 100.

Figure 1. Bendix/King RDR 2000 Operating Controls and Indicators (Sheet 4 of 4)

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### S38 MODEL 208 (675 SHP)

### BENDIX/KING DIGITAL WEATHER RADAR POH SUPPLEMENT

### SECTION 2 LIMITATIONS

There is no change to the airplane limitations when this avionics equipment is installed. However, the following radar limitations must be followed during airplane operation.

- 1. Do not operate radar during refueling.
- Do not operate radar within 15 feet of ground personnel or containers holding flammable or explosive material.
  - 3. Do not operate radar above 25,000 feet flight altitude.

### SECTION 3 EMERGENCY PROCEDURES

There is no change to the airplane emergency procedures when this avionics equipment is installed.

### SECTION 4 NORMAL PROCEDURES

#### PRIOR TO FLIGHT:

### 

The radar system generates microwave radiation and improper use, or exposure, may cause serious bodily injury. DO NOT OPERATE THIS EQUIPMENT UNTIL YOU HAVE READ AND CAREFULLY FOLLOWED THE FOLLOWING SAFETY PRECAUTIONS AND INSTRUCTIONS:

SAFETY PRECAUTIONS AND INSTRUCTIONS TO BE FOLLOWED PRIOR TO RADAR OPERATION ON THE GROUND:

- 1. Do not turn on, or operate radar within 15 feet of ground personnel or containers holding flammable or explosive material.
- 2. Do not turn on, or operate radar during refueling operations.

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For Training Purposes Only

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#### PREFLIGHT CHECKS PRIOR TO ENERGIZING RADAR:

### A WARNING

IN ORDER TO PREVENT POSSIBLE SERIOUS BODILY INJURY TO GROUND PERSONNEL OR IGNITION OF FLAMMABLE OR EXPLOSIVE MATERIALS, THE FOLLOWING TESTS MUST BE ACCOMPLISHED WITH THE FUNCTION SELECTOR SWITCH ALWAYS IN THE TEST (TST) MODE OF OPERATION.

- Function Selector Switch -- SBY (standby) position and after 6 seconds select TST (test) position.
- 2. Antenna TILT Control -- Set to +5°.
- 3. BRT Control -- ADJUST to mid-range.
- Indicator Test Display -- CHECK TEST PATTERN for the followir indications:
  - a. After 7 to 8 seconds four equally spaced blue range marks shou be visible, the word "TEST" and the number "80" should appear and be visible in blue displays in opposite corners of the display.
  - b. No video noise distortion should appear on the display.
    - c. There are four colored bands appearing on the indicator.
    - d. Starting with the closest band to the origin, the bands will be green yellow, red, and magenta.

#### NOTE

The width of the test pattern bands is not critical, nor is the position of the bands relative to the range marks.

- e. The update action may be observed as a small "ripple" movir along the outer magenta band, indicating that the antenna scanning.
- 5. Function Selector Switch -- SBY position.

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PREFLIGHT CHECKS WITH RADAR ENERGIZED:

### A WARNING

IN ORDER TO PREVENT POSSIBLE BODILY INJURY TO GROUND PERSONNEL OR IGNITION OF FLAMMABLE OR EXPLOSIVE MATERIALS, THE AIRPLANE MUST BE TAXIED WITH THE FUNCTION SWITCH IN THE OFF, SBY, OR TST POSITIONS ONLY TO A "CLEAR-AHEAD" AREA WHERE METAL BUILDINGS, AIRPLANES, GROUND PERSONNEL, ETC., ARE NOT IN THE LINE-OF-SIGHT OF THE RADAR UNIT. OBSERVE THE SAFETY PRE-CAUTIONS AND INSTRUCTIONS AT THE START OF SECTION 4 PRIOR TO PERFORMING THE FOLLOWING CHECKS WITH THE RADAR UNIT ENERGIZED.

- 1. Ensure safety precautions have been observed.
- Function Selector Switch -- ON position. The indicator will automatically be in the weather (Wx) mode.
- 3. RNG (Range) Selector Pushbuttons -- 40-10 range.
- Wx/WxA Mode Selector Pushbutton -- SELECT WxA mode and observe that magenta areas (if any) alternate from magenta to black approximately once per second.
- 5. BRT Control -- ADJUST as required.
- Antenna TILT Control -- TILT UP (+ degrees) and DOWN (- degrees) in small increments. Close-in ground targets should appear on the display at low tilt angles and any local moisture laden weather should appear at higher angles.
- TRK (Track) Selector Pushbuttons -- PRESS and hold Track Left (< TRK), a track line will appear and slew left in 1 degree steps. Repeat for Track Right (> TRK). (If neither button has been pressed for 15 seconds, the track line will disappear).
- VP (Vertical Profile) Selector Pushbutton -- SELECT VP mode and the vertical profile "slice" will be taken at the position of the track line. If the track buttons are pressed, the vertical scan will change position with the track line and the track line will move in 2 degree steps.
- 9. Function Selector Switch -- SBY position for taxi maneuvers.

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#### OPERATIONAL NOTES:

#### FALSE RETURN DISPLAY:

 Ground radar stations or other airborne weather radars may occasionally cause interference with the presentation of the return. The effect of this interference is to create one or more radial bands of false signal or noise extending from the bottom center outward to the outer range scale. These effects are usually of short duration and are dependent on the airplane's position and range from the ground station, the signal strength, and other factors.

#### EXTENDING LIFE OF THE MAGNETRON TRANSMITTING TUBE:

 The RDR 2000 Color Weather Radar System is designed so that full operation is possible approximately 60 seconds after turn on. Therefore, the pilot may choose to leave the function switch in OFF rather than SBY if no significant weather is in the immediate area of the airplane. The life of the magnetron transmitting tube will be extended by leaving the system "OFF" when possible. This in turn will reduce the cost of maintenance.

#### EFFECT OF SOME SUNGLASSES ON THE RADAR DISPLAY SCREEN:

 The RDR 2000 Color Indicator utilizes a special filter to assure optimum video contrast to the pilot in the presence of high cockpit ambient light. Some sunglasses may interfere with the effectiveness of this filter. To check for this, cock your head to one side while viewing the display and note any dramatic change in brilliance. If the brilliance decreases sharply, some compromise such as removing or changing sunglasses should be effected.

#### **OPERATING TEMPERATURE LIMITS:**

1. Operating temperature limits for the IN-182A Indicator is -20°C (-4°F) to +55°C (+131°F).

#### TURN-OFF PROCEDURES (On the ground):

 The ART 2000 Antenna/Receiver/Transmitter will tilt the antenna down, for increased radar receiver protection, when the indicator is switched to SBY and OFF position. Always turn the indicator function switch to SBY or OFF before disengaging the avionics master switch in the airplane. The system will power-down in about 5 seconds after switched to the OFF position, to allow time for the antenna to move to the down position.

### S38 MODEL 208 (675 SHP)

### BENDIX/KING DIGITAL WEATHER RADAR POH SUPPLEMENT

#### GROUND MAPPING DISPLAYS:

1. The display resulting from ground mapping resembles an ordinary pilotage chart. Cities, open ground and bodies of water are distinguished by the intensity of the signals that they reflect back to the signal source. Cities usually provide the most intense reflections and appear magenta on the display. Open ground and water provide progressively less intense reflections and appear as yellow and green. Calm bodies of water provide very weak signal returns, and are usually not displayed, while very rough water provides a stronger return signal and will usually appear as green color.

#### RANGE REDUCTION WITH RADAR POD ABRASION BOOT:

 A circular polyurethane film abrasion boot may be installed on the nosecap, of the radar pod to protect the pod frontal surface from the abrasive effects of objects contacting the pod during ground and lowlevel flight operations. However, installation of the boot will decrease the effective ranges of the radar by approximately 6%.

#### NORMAL OPERATION:

#### WEATHER DETECTION

 Function Selector Switch -- ON position (allow 60 seconds warm-up if previously in the "OFF" position).

### A WARNING

The indicator will automatically be in the Weather (Wx) mode when Function Selector Switch is placed in the ON position. In the ON position, the radar system will be generating microwave radiation.

Wx/WxA Weather and Weather-Alert Pushbutton -- PRESS to select desired mode.

Wx - Weather.

WxA - Weather Alert.

- BRT Control -- ADJUST as required for ambient light conditions.
- Antenna TILT Control -- +4° to +6° (approximate minimum angle relative to horizon without ground return).
- 5. RNG (Range) Selector Pushbuttons -- SELECT desired range.
- Airplane -- MAINTAIN SPEED and HEADING to assure an accurate picture of relative motion of storm in next step.
- Wx/WxA Weather and Weather-Alert Pushbutton -- PRESS to select Weather-Alert (WxA), which causes the strongest storm cell displayed in magenta color to flash for easier identification.

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#### VERTICAL PROFILING:

#### NOTE

The vertical profile feature of this radar should only be used after the operator is very familiar with this equipment.

- Function Selector Switch -- ON position (allow 60 seconds warmup if previously in the "OFF" position).
- 2. RNG (Range) Selector Pushbuttons -- SELECT desired range.
- TRK (Track) Selector Pushbuttons -- SELECT desired track line position.
- VP (Vertical Profile) Mode Selector Pushbutton -- PRESS.
- 5. BRT Control -- ADJUST as required.
- Function Selector Switch -- OFF position before landing.

#### **GROUND MAPPING**

#### NOTE

Ground mapping is a secondary feature of this radar which should only be used after the operator is very familiar with this equipment.

- Function Selector Switch -- ON position (allow 60 seconds warmup if previously in the "OFF" position).
- 2. RNG (Range) Selector Pushbuttons -- SELECT desired range.
- MAP Mode Selector Pushbutton -- PRESS. Set GAIN as desired for clearest ground mapping interpretation.
- 4. BRT Control -- ADJUST as required.
- 5. Antenna TILT Control -- ADJUST for clearest display.
- 6. Function Selector Switch -- OFF position before landing.

### SECTION 5 PERFORMANCE

There is no change to the airplane performance when this radar equipment is installed. However, installation of the wing mounted radar pod will result in a minor reduction of 1 KTAS cruise speed performance.

1 April 1998

S38-13/S38-14



### Pilot's Operating Handbook and FAA Approved Airplane Flight Manual

# CESSNA MODEL 208 (675 SHP) SUPPLEMENT 39

### AIRPLANES CERTIFIED TO RUSSIAN CONFIGURATION

#### SERIAL NO.

#### **REGISTRATION NO.**

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, if the airplane is certified to Russian configuration.

Sondra R. Ketture APPROVED BY

Wendell W. Cornell Executive Engineer Cessna Aircraft Company Délegation Option Manufacturer CE-3

DATE OF APPROVAL 17 JUNE 1999

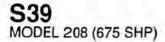
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17 JUNE 1999

D1352-S39-01

**REVISION 1 - 12 FEBRUARY 2002** 



#### RUSSIAN CONFIGURATION POH SUPPLEMENT

## SUPPLEMENT

### AIRPLANES CERTIFIED TO RUSSIAN CONFIGURATION

Use the Log of Effective Pages to determine the current status of this supplement. Pages affected by the current revision are indicated by an asterisk (\*) preceding the page number.

#### **Revision Level**

#### Date of Issue

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* S39-4 thru S39-8	12 February 2002	1
S39-9	17 June 1999	0
* S39-10	12 February 2002	1
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* \$39-13/\$39-14	12 February 2002	1

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DATE OF APPROVAL 12 FEBRUARY 2002

RUSSIAN CONFIGURATION POH SUPPLEMENT S39 MODEL 208 (675 SHP)

## SUPPLEMENT

### AIRPLANES CERTIFIED TO RUSSIAN CONFIGURATION

### SECTION 1 GENERAL

This supplement must be placed in Section 9 of the basic Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, if the airplane is certified to Russian configuration. The information contained herein supplements the information of the basic Pilot's Operating Handbook and FAA Approved Airplane Flight Manual. For limitations, procedures, and performance information not contained in this supplement, consult the basic Pilot's Operating Handbook and FAA Approved Airplane Flight Manual.

### SECTION 2 LIMITATIONS

The following Limitations supersede and/or are in addition to the Limitations set forth in the basic Pilot's Operating Handbook and FAA Approved Airplane Flight Manual:

### KINDS OF OPERATION LIMITS

This airplane is equipped for day VFR and/or IFR operations and for flight-into-known icing conditions. The operating limitations placard reflects the limits applicable at the time of Airworthiness Certificate issuance.

The aircraft can operate in CIS airspace on routes covered by ATC ground facilities using RBS mode.

GPS (if installed) can be used only for enroute and terminal navigation, but not as primary means.

A minimum flight crew performing commercial flights using instrument flight rules (IFR) is 2 pilots.

(Continued Next Page)

17 June 1999

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S39 MODEL 208 (675 SHP)

#### RUSSIAN CONFIGURATION POH SUPPLEMENT

### KINDS OF OPERATION LIMITS (Continued)

The aircraft is approved for Category I instrument approach operations only.

Airplanes performing commercial flights must be equipped with a Flight Data Recorder (FDR) in compliance with AP 23.1459.

If the crew consists of two pilots, and performs regular commercial flights carrying six or more passengers, a Cockpit Voice Recorder must be installed and operational in the aircraft.

The following equipment lists identify the systems and equipment upon which type certification for each kind of operation was predicated. These systems and equipment items must be installed and operable for the particular kind of operation indicated. Reference should also be made to the Equipment List furnished with the airplane for additional equipment information. The pilot is responsible for determining the airworthiness of the airplane for each flight, and for assuring compliance with current operating AP requirements.

#### REQUIRED EQUIPMENT

#### DAY VFR:

Airspeed Indicator (1) Altimeter (1) Altimeter - Metric (1) Ammeter displaying current draw of Pitot Heaters (2) Auxiliary Boost Pump System BATTERY HOT and BATTERY OVERHEAT Annunciators (NiCad Batteries ONLY) Elevator Trim System (Manual) Engine Ignition System Flap Motor (1) Flap Position Indicator Flasher on VACUUM LOW Annunciator FUEL PRESS LOW Annunciator Fuel Quantity Indicators (2) Fuel Selectors Off Warning System Generator Horizontal Stabilizer Deice Boots Ice Detector Light (For Night Flight) Inertial Separator ITT Indicator KHF-950 HF Radio Magnetic Compass Ng % RPM Indicator

**OIL PRESS LOW Annunciator Oil Pressure Gage** Oil Temperature Gage Outside Air Temperature Gage Overspeed (Airspeed) Warning System Overspeed Governor Pilot's Operating Handbook/AFM Pitot-Static System (1) Pitot-Static Tube Heat System Propeller Anti-Ice Boots Propeller RPM Indicator Seat Belts (Each Occupant) Shoulder Harness (Front Seats) Slip-Skid Indicator (1) Stall Warning System Stall Warning System Heater Standby Electrical Systems **Torque Indicator** Trim Position Indicators (3) Vertical Stabilizer Deice Boot Volt/Ammeter Windshield Anti-Ice Panel Wing And Wing Strut Deice Boots

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#### RUSSIAN CONFIGURATION POH SUPPLEMENT

### S39 MODEL 208 (675 SHP)

#### REQUIRED EQUIPMENT (Continued)

#### NOTE

When a servoed altimeter is installed, a functioning pneumatic altimeter is also required.

#### IFR:

All Equipment Required for Day VFR Attitude Indicator (Gyro Stabilized) (1) Clock Communications Radio (VHF) (1) Directional Indicator (Gyro Stabilized) (1) Instrument Lights Two-axis Autopilot with Yaw Damper Navigation Lights (3) Taxi-Landing Lights Navigation Radios (As Required) Right Hand Flight Panel Sensitive Altimeter (2)\* Strobe Lights Suction Gage (If gyros are vacuum powered) Turn and Bank Indicator or Turn Coordinator (1)

### MINIMUM OIL TEMPERATURE

The minimum oil temperature allowed during engine starts is -35°C.

### FUEL LIMITATIONS

2 Standard Tanks

Total Fuel

Both Tanks: Each Tank: 335.6 U.S. gallons. 167.8 U.S. gallons.

Usable Fuel Both Tanks On: 332 U.S. gallons total. Single Tank On: 165 U.S. gallons per tank.

Unusable Fuel

Both Tanks On: 3.6 U.S. gallons total. Single Tank On: 2.8 U.S. gallons per tank.

#### NOTE

To achieve full capacity, fill fuel tank to the top of the filler neck. Filling fuel tanks to the bottom of the fuel filler collar (level with the flapper valve) allows space for thermal expansion and results in a decrease in fuel capacity of four gallons per side (eight gallons total).

(Continued Next Page)

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### FUEL LIMITATIONS (Continued)

With low fuel reserves (FUEL LOW annunciator(s) ON), continuous uncoordinated flight with the turn and bank "ball" more than onequarter ball out of center position is prohibited. Unusable fuel quantity increases when more severe sideslip is maintained.

Due to possible fuel starvation, maximum full rudder sideslip duration time is three minutes.

Maximum fuel unbalance in flight is 200 lbs.

Fuel Grade Specification and Fuel Additives:

FUEL GRADE	FUEL SPECIFICATION	MINIMUM FUEL TEMPERATURE FOR TAKEOFF
Jet A	ASTM-D1655	-35°C
Jet A-1	ASTM-D1655	-40°C
Jet B	ASTM-D1655	-45°C
JP-1	MIL-L-5616	-35°C
JP-4	MIL-T-5624	-54°C
JP-5	MIL-T-5624	-40°C
JP-8	MIL-T-83133A	-40°C
RT	GOST-10227-86	-35°C
TS-1	GOST-10227-86	-45°C

The following fuel grades and fuel additives are approved.

 (1) Fuel used must contain anti-icing fuel additive in compliance with MIL-I-27686 (EGME), MIL-I-85470, (DIEGME).

### A CAUTION

JP-4 and JP-5 fuels per MIL-T-5624 and JP-8 fuel per MIL-T-83133A contain the correct premixed quantity of an approved type of anti-icing fuel additive and no additional anti-icing compounds should be added.

(Continued Next Page)

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S39 MODEL 208 (675 SHP)

## FUEL LIMITATIONS (Continued)

### NOTE

- The fuel used requires the addition of anti-ice fuel additives. Maximum concentration of anti-ice additives Fluid I (GOST 8313), and Fluid I-M (TU6-10-1458), are .30% by volume. Minimum concentration is .10% by volume additive for effective protection. Fluid I-M is a mixture of Fluid I and Methanol (GOST 2222) in a 1-to-1 proportion.
- When using RT and TS-1 fuels, and anti-icing additives Fluid I and Fluid I-M, maintenance requirements of Pratt & Whitney Canada (P&WC) Service Bulletin SB1244, Rev 17, or later version, must be complied with.
- The fuel used requires anti-static additive Sigbol (TU38-101741), maximum concentration .0005% by mass.
- (2) The minimum starting temperature is that given, or the minimum allowable oil temperature (-35°C), whichever is warmer.

#### NOTE

Starts may be attempted with fuel at lower temperatures providing other specified engine limitations are not exceeded.

## MAXIMUM OPERATING ALTITUDE LIMIT

Certificated Maximum Operating Altitude: 4,200 Meters (13,780 Feet).

## **OUTSIDE AIR TEMPERATURE LIMITS**

Cold Day:

-40°C for Ground Operations. -54°C for Flight Operations.

Hot Day:

Ground Operations:

+53°C from sea level to 1,524 meters (5,000 feet); ISA +37°C above 1,524 meters (5,000 feet).

Flight Operations:

ISA +35°C from sea level to 4,200 meters (13,780 feet).

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## TAKEOFF AND LANDING OPERATIONAL LIMITS

## ALLOWABLE RUNWAY SURFACE CONDITIONS

Runway paved with hard surface.

Contaminated, paved hard surface runway with precipitation. Average depth and type as follows:

- Water, not to exceed 0.4 inch depth (10.0 mm)

- Slush, not to exceed 0.4 inch depth (10.0 mm)

- Loose snow, not to exceed 1.2 inch depth ( 30.0 mm)

Unpaved runway.

- Surface hardness not less than 5 kgf/cm<sup>2</sup>.

- Packed snow surface hardness not less than 5 kgf/cm<sup>2</sup>.

## A WARNING

Landing on soft, wet, unpaved runways is prohibited.

## MAXIMUM CROSSWIND ON CONTAMINATED RUNWAYS

Contaminated, paved hard surface runway with no more than:

Paved hard surface runway with no more than 0.125 inches (3 mm) of precipitation and braking coefficient of friction ( $\mu$ ) of:

$\mu = 0.3$ (poor braking)	10 knots (5 m/s)
$\mu = 0.4$ (average braking)	15 knots (7 m/s)
$\mu = 0.5$ (good braking, dry and equivalent	
to dry runway)	20 knots (10 m/s)

(Continued Next Page)

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For Training Purposes Only

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RUSSIAN CONFIGURATION POH SUPPLEMENT MODEL 208 (675 SHP)

## MAXIMUM CROSSWIND ON CONTAMINATED RUNWAYS (Continued)

#### NOTE

- For intermediate values of coefficient of friction (μ) crosswind is estimated by interpolation.
- Operation is prohibited on a runway covered with ice at a coefficient of friction µ < 0.3.</li>

## CABIN CARGO LIMITS

The maximum allowable cargo weight in the cabin area of the plane is limited to 2,900 pounds.

The minimum allowable distance between the seat back of the last occupied seat and cargo in the cabin is 12 inches.

## SECTION 3 EMERGENCY PROCEDURES

The procedures outlined within this section are in addition to the procedures described in Section 3 Emergency Procedures in the basic Pilot's Operating Handbook.

#### VHF EMERGENCY RADIO (P-855A1)

#### NOTE

For aircraft operating in uninhabited areas, the VHF Emergency Radio (P-855A1) with attached instructions is located in the pouch behind the copilot's seat.

Original Issue

### RUSSIAN CONFIGURATION POH SUPPLEMENT

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## EMERGENCY PROCEDURES (Continued)

#### FLASHING RED VACUUM LOW ANNUNCIATOR

#### NOTE

The flashing "VACUUM LOW" annunciator warns that the left hand vacuum driven attitude indicator and the right hand vacuum driven directional gyro (if installed) are not operating correctly. Attitude and heading information should be derived from the appropriate back-up procedures.

## SECTION 4 NORMAL PROCEDURES

The procedures outlined within this section are in addition to the procedures described in Section 4 Normal Procedures in the basic Pilot's Operating Handbook.

#### NOTE

When operating along routes of  $\pm$  5 km width not covered by VOR/DME facilities, it is necessary to verify aircraft position using any possible means, including ATC verification, every 60 minutes.

## COLD WEATHER OPERATIONS

#### NOTE

During aircraft operation at very low ambient air temperatures (-40°C and lower) and at an altitude of 3,000 meters and higher, the rate of engine power lever advancement from Flight Idle to Takeoff position should not be less than 5 seconds.

#### COLD SOAK

If prolonged cold soak is anticipated, refer to maintenance manual procedures to prepare the aircraft for cold soak. If the airplane has cold soaked on the ground for more than two hours at temperatures colder than -18°C, refer to maintenance manual procedures to prepare the aircraft for flight.

#### BEFORE STARTING ENGINE

- 1. Battery Switch -- ON.
- 2. Verify Red "Vacuum Low Annunciator IS Flashing".

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## SECTION 5 PERFORMANCE

## OPERATION ON CONTAMINATED RUNWAY

The takeoff distance on a paved runway with no more than 0.125 inches (3 mm) of precipitation is equal to the dry runway takeoff distance.

The takeoff distance on a paved runway with precipitation exceeding 0.125 inches (3 mm) is increased by 20% as compared with dry runway takeoff distance.

The takeoff distance on an unpaved runway with packed snow is increased by 20% as compared with paved runway takeoff distance.

To determine the required landing distance on contaminated paved runway the dry runway landing distance shall be multiplied by the following coefficients corresponding to different  $\mu$  factors:

K = 1.67, when  $\mu \ge 0.5$  (good braking, dry and equivalent to dry runway)

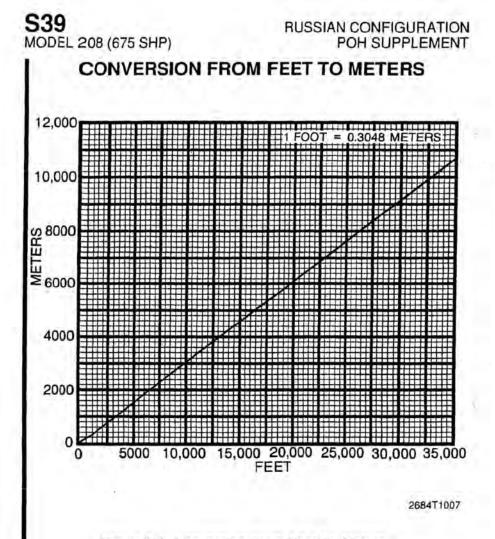
K = 1.72, when  $0.5 > \mu \ge 0.4$  (average braking)

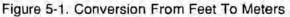
K = 2.0, when  $0.4 > \mu \ge 0.3$  (poor braking)

The required landing distance on a paved runway with precipitation exceeding 0.125 inches (3 mm) is determined by multiplying the dry runway landing distance by K = 2.0.

The required landing distance on an unpaved runway is determined by multiplying the paved runway landing distance by K = 2.0.

Original Issue





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For Training Purposes Only

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## RUSSIAN CONFIGURATION POH SUPPLEMENT

## METRIC ALTIMETER CORRECTION ALTERNATE STATIC SOURCE

NOTES: .

1. Add correction to desired altitude to obtain indicated altitude to fly.

Where altimeter correction values have been replaced by dashes, the correction is unnecessary because of conditions in which airspeed is not attainable in level flight.

	CORRECTION TO BE ADDED - METERS KIAS									
CONDITION										
	80	90	100	120	140	160				
FLAPS UP	0000		1200	1	1.1.1.1					
Sea Level	0	5	8	15	23	35				
3,000 m	2	6	11	21	32	47				
FLAPS 20°	-				21					
Sea Level	2	6	9	17	26	34				
3,000 m	2	8	12	24	34	46				
FLAPS 30°			1.1		1					
Sea Level	6	9	12	18	1.2.1					
3,000 m	9	12	17	24						

## VENTS CLOSED

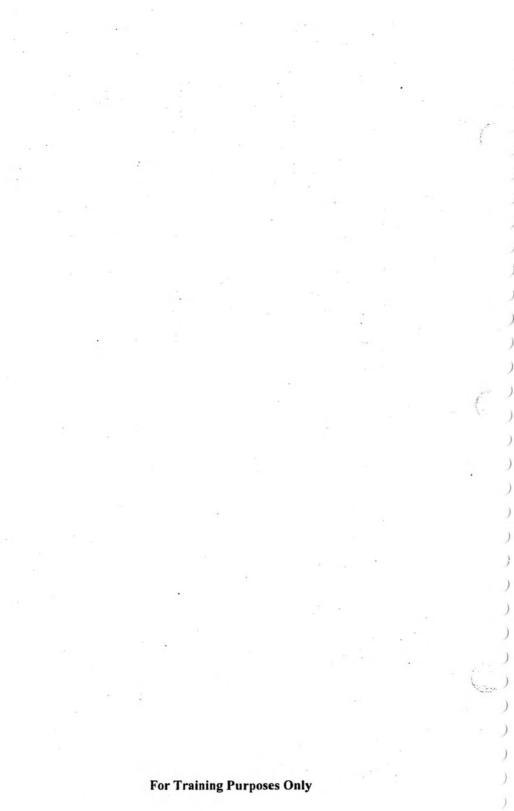
#### VENTS OPEN

	CORRECTION TO BE ADDED - METERS KIAS									
CONDITION										
	80	90	100	120	140	160				
FLAPS UP										
Sea Level	-8	-8	-6	-3	2	9				
3,000 m	-8	-8	-8	-5	2	12				
FLAPS 20°										
Sea Level	-3	0	3	9	15	24				
3,000 m	-5	-2	3	12	20	32				
FLAPS 30°										
Sea Level	2	5	6 9	12						
3,000 m	3	6	9	15						

## Figure 5-2. Metric Altimeter Correction

12 February 2002

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## Pilot's Operating Handbook and FAA Approved Airplane Flight Manual

# CESSNA MODEL 208 (675 SHP)

## **SUPPLEMENT 40**

## BENDIX/KING GPS NAVIGATION SYSTEM (TYPE KLN 89B) INTERFACED WITH THE KNI 582 RMI

SERIAL NO.

**REGISTRATION NO.** 

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, if the airplane is equipped with the Bendix/King GPS Navigation System (Type KLN 89B) Interfaced with the KNI 582 RMI.

APPROVED BY

Wendell W. Corneil Executive Engineer Cessna Aircraft Company Delegation Option Manufacturer CE-3 OF APPROVAL 16 DECEMBER 1998

DATE OF APPROVAL

Member of GAMA

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**16 DECEMBER 1998** 

D1352-S40-00

S40 MODEL 208 (675 SHP)

## SUPPLEMENT

# BENDIX/KING GPS NAVIGATION SYSTEM (TYPE KLN 89B) INTERFACED WITH THE KNI 582 RMI

Use the Log of Effective Pages to determine the current status of this supplement. Pages affected by the current revision are indicated by an asterisk (\*) preceding the page number.

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S40-2

BENDIX/KING KLN 89B GPS/KNI 582 RMI POH SUPPLEMENT S40 MODEL 208 (675 SHP)

## SUPPLEMENT

## BENDIX/KING GPS NAVIGATION SYSTEM (TYPE KLN 89B) INTERFACED WITH THE KNI 582 RMI

## SECTION 1 GENERAL

The KNI 582 RMI is a dual NAV dual ADF capable RMI. A remote NAV1/GPS source select switch interfacing between the RMI and KLN 89B GPS allows the pilot to switch RMI navigation between NAV1 and GPS. The remote source select switch is a pushbutton toggle switch. The switch is divided in half horizontally, the top half illuminated green is the RMI/NAV1 selector, the bottom half illuminated cyan is the RMI/GPS selector.

## SECTION 2 LIMITATIONS

NAV1 (the single solid needle) must be selected on the KNI 582 RMI to enable the RMI to display NAV data from the remote NAV1/GPS source select switch. The KLN 89B GPS must have an active flight plan loaded.

## SECTION 3 EMERGENCY PROCEDURES

No change.

16 December 1998

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S40 MODEL 208 (675 SHP)

## BENDIX/KING KLN 89B GPS/KNI 582 RMI POH SUPPLEMENT

## SECTION 4 NORMAL PROCEDURES

With RMI/GPS selected on the remote source select switch, the NAV1 (single solid needle) will point to the active waypoint on the KLN 89B flight plan.

## SECTION 5 PERFORMANCE

No change.

16 December 1998



## Pilot's Operating Handbook and FAA Approved Airplane Flight Manual CESSNA MODEL 208 (675 SHP)

## **SUPPLEMENT 41**

## BENDIX/KING (ALLIEDSIGNAL) STAND-ALONE - VFR ONLY GPS NAVIGATION SYSTEM

(TYPE KLN 89B WITH SOFTWARE LEVEL 02/02)

#### SERIAL NO.

#### **REGISTRATION NO.**

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, if the airplane is equipped with the Bendix/King (AlliedSignal) Stand-Alone - VFR Only GPS Navigation System (Type KLN 89B with software level 02/02), not coupled to any other airplane system (FMS or Autopilot), and certified for VFR use only.

APPROVED BY Could Could

Wendeli W. Comeli Executive Engineer Gesena Alroraft Company Delegation Option Manufacturer CE-3

DATE OF APPROVAL 12 APRIL 1999

12 APRIL 1999

Member of GAMA

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D1352-S41-00

S41 MODEL 208 (675 SHP)

BENDIX/KING (ALLIEDSIGNAL) GPS (TYPE KLN 89B) VFR ONLY

# SUPPLEMENT CESSNA MODEL 208 (675 SHP)

## SUPPLEMENT 41

## BENDIX/KING (ALLIEDSIGNAL) STAND-ALONE - VFR ONLY GPS NAVIGATION SYSTEM

(TYPE KLN 89B WITH SOFTWARE LEVEL 02/02)

Use the Log of Effective Pages to determine the current status of this supplement. Pages affected by the current revision are indicated by an asterisk (\*) preceding the page number.

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BENDIX/KING (ALLIEDSIGNAL) GPS (TYPE KLN 89B) VFR ONLY S41 MODEL 208 (675 SHP)

## SUPPLEMENT

## BENDIX/KING (ALLIEDSIGNAL) STAND-ALONE - VFR ONLY GPS NAVIGATION SYSTEM (TYPE KLN 89B WITH SOFTWARE LEVEL 02/02)

## SECTION 1 GENERAL

GPS (Global Positioning System) is a three-dimensional (3-D) precise location and navigation system based on a constellation of 24 satellites orbiting the earth. The Bendix/King (AlliedSignal) GPS Navigation System (Type KLN 89B) consists of a panel-mounted control display unit, and an externally-mounted flat GPS antenna on the top forward portion of the fuselage

A single 5-amp circuit breaker labeled GPS/LORAN on the bottom row breaker panel powers the KLN 89B Navigation System.

Operation of the KLN 89B GPS Navigation System shall be in accordance with the Bendix/King (Allied Signal) KLN 89B Pilot's Guide (supplied with the airplane).

A NavData Card with a current database is supplied with the KLN 89B GPS. Since this database information is updated every 28 days, it is important to monitor the database expiration date. Once the database has expired, the GPS system provides an advisory message which must be acknowledged by the operator. Although the system will continue to operate normally, the warning message will be repeated on each power-up to remind the user that the database is out of date. To eliminate this warning, the database must be updated. This update is performed by installing a current NavData Card.

## A CAUTION

The database must be updated only while the aircraft is on the ground. The KLN 89B does not perform any navigation function while the database is being updated.

**Original Issue** 

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S41 MODEL 208 (675 SHP)

BENDIX/KING KLN 89B(ALLIEDSIGNAL) GPS (TYPE KLN 89B) VFR ONLY

## SECTION 2 LIMITATIONS

- The Bendix/King KLN 89B GPS Navigation System Pilot's Guide, part number 006-08786-0000, dated May 1995 (or later revision), as applicable to the specific software modification status, must be immediately available to the pilot whenever navigation is predicated on use of the GPS system. The Operational Revision Status (ORS) of the Pilot's Guide must match the ORS level annunciated on the Self Test page.
- The Bendix/King (AlliedSignal) KLN 89B GPS Navigation System must utilize Operational Revision Status (ORS) level 02, or later FAA approved revision.
- The Bendix/King (AlliedSignal) KLN 89B GPS Navigation System, as installed, is a stand-alone panel-mounted VFR navigation system. It may not be coupled to the KAP-150 Autopilot, KFC-150 or KFC-250 Flight Control System (if installed).
- IFR navigation is prohibited using the KLN 89B GPS Navigation System as installed.
- The Bendix/King (AlliedSignal) KLN 89B GPS Navigation System is not approved for IFR precision or non-precision approaches.
- The following placard must be installed on the instrument panel adjacent to the control display unit, signifying that the Bendix/King (AlliedSignal) KLN 89B GPS Navigation System is "Not Approved for IFR":

GPS NOT APPROVED FOR IFR

Original Issue

S41-4

BENDIX/KING (ALLIEDSIGNAL) GPS (TYPE KLN 89B) VFR ONLY S41 MODEL 208 (675 SHP)

## SECTION 3 EMERGENCY PROCEDURES

if sensor information is intermittent or lost, utilize remaining operational navigation equipment as required.

## SECTION 4 NORMAL PROCEDURES

The Bendix/King (AlliedSignal) KLN 89B GPS Navigation System shall be operated per the Pilot's Guide, 006-08786-0000, dated May 1995 (or later revision) supplied with the airplane, and the current FAA TSO specifications that apply to the use of this equipment.

## SECTION 5 PERFORMANCE

There is no change to the airplane performance when this avionics equipment is installed. However, installation of an externallymounted antenna, or related external antennas, will result in a minor reduction in cruise performance.

Original Issue

S41-5/S41-6

## For Training Purposes Only

Ser.



# Pilot's Operating Handbook and FAA Approved Airplane Flight Manual CESSNA MODEL 208 (675 SHP) SUPPLEMENT 42 HIGH ALTITUDE TAKEOFF AND LANDING PERFORMANCE

(ABOVE 12,000 FEET PRESSURE ALTITUDE)

SERIAL NO.

**REGISTRATION NO.** 

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, if takeoff and landing operations are to be conducted above 12,000 feet pressure altilude.

APPROVED BY

Wendell W. Cornell Executive Engineer Cessna Aircraft Company Delegation Option Manufacturer CE-3

DATE OF APPROVAL 11 MAY 1999

11 MAY 1999

Member of GAMA

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D1352-S42-01

**REVISION 1 - 19 JULY 2002** 

S42-1

S42 MODEL 208 (675 SHP)

HIGH ALTITUDE TAKEOFF AND LANDING (ABOVE 12,000 FEET)

# SUPPLEMENT CESSNA MODEL 208 (675 SHP)

## **SUPPLEMENT 42**

## HIGH ALTITUDE TAKEOFF AND LANDING PERFORMANCE

## (ABOVE 12,000 FEET PRESSURE ALTITUDE)

Use the Log of Effective Pages to determine the current status of this supplement. Pages affected by the current revision are indicated by an asterisk (\*) preceding the page number.

## **Revision Level**

## Date of Issue

0 (Original) Revision 1 11 May 1999 19 July 2002

## LOG OF EFFECTIVE PAGES

Page	<b>Revision Status</b>	Revision No.
* S42-1 thru S42-2	Revision	1
* S42-3/S42-4	Revision	1
* S42-5 thru S42-14	Revision	1
* S42-15/S42-16	Added	1
* S42-17 thru S42-28	Added	1
* S42-29/S42-30	Added	1
* S42-31 thru S42-32	Added	Ť
* S42-33/S42-34	Added	- î

APPROVED BY

FAA APPROVED UNDER FAR 21 SUBART J The Cosana Anona Co. Delegation Dopin Autoritation DOA 220/28-CE Januar H. Co. L. Executive Engineer

DATE OF APPROVAL 19 JULY 2002

S42 MODEL 208 (675 SHP)

## SUPPLEMENT

## HIGH ALTITUDE TAKEOFF AND LANDING PERFORMANCE (ABOVE 12,000 FEET PRESSURE ALTITUDE)

## SECTION 1 GENERAL

This supplement provides an engine torque for takeoff graph, and airplane performance charts for takeoff and landing operations between 12,000 feet and 16,000 feet pressure altitudes.

## SECTION 2 LIMITATIONS

No change.

## SECTION 3 EMERGENCY PROCEDURES

No change.

## SECTION 4 NORMAL PROCEDURES

No change.

## SECTION 5 PERFORMANCE

For engine torque for takeoff above 12,000 feet pressure altitude, refer to the Engine Torque for Takeoff graph in Figure 1 of this supplement.

For takeoff and landing operations above 12,000 feet pressure altitude, refer to airplane performance charts in Figure 2 thru Figure 19 of this supplement.

**Revision 1** 

S42-3/S42-4

S42 MODEL 208 (675 SHP)

## ENGINE TORQUE FOR TAKEOFF

CONDITIONS:

1900 RPM 60 KIAS Inertial Separator - Normal

#### NOTES:

- 1. Torque increases approximately 10 Ft-Lbs from 0 to 60 KIAS.
- Torque on this chart shall be achieved without exceeding 805°C ITT or 101.6 percent N<sub>g</sub>. When the ITT exceeds 765°C, this power setting is time limited to 5 minutes.
- With the inertial separator in BYPASS and takeoff power set below the torque limit (1865 Ft-Lbs), decrease torque setting by 15 Ft-Lbs.
- With the cabin heater on and takeoff power set below the torque limit (1865 Ft-Lbs), decrease torque setting by 65 Ft-Lbs.

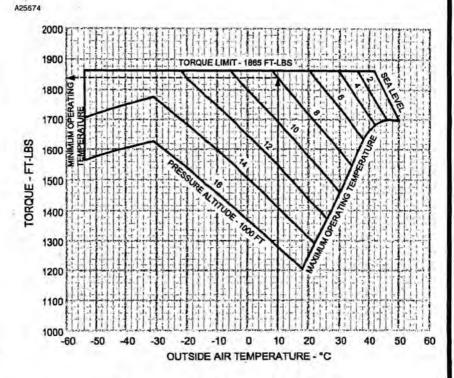


Figure 1. Engine Torque for Takeoff

**Revision 1** 

For Training Purposes Only

S42-5

S42-6

Takeoff Distance -Short Field (Sheet 1 9 N

Figure

N

# TAKEOFF DISTANCE

SHORT FIELD (WITHOUT CARGO POD)

#### CONDITIONS:

Flaps 20° 1900 RPM Inertial Separator - Normal Cabin Heat - Off Torque Set per Figure 5-8 Paved, Level, Dry Runway Zero Wind

NOTES:

- 1. Short field technique, as specified in Section 4.
- Decrease distances 10% for each 11 knots headwind. For operation with tailwinds up to 10 knots, increase distances by 10% for each 2 knots.
- 3. For operation on a dry, grass runway, refer to Figure 2A to determine takeoff ground roll distance.
- 4. With takeoff power set below the torque limit (1865 ft-lbs), increase distance (both ground roll and total distance) by 3% for inertial separator in BYPASS, and increase ground roll 5% and total distances 9% for cabin heat on.
- 5. Where distance values have been replaced by dashes, operating temperature limits of the airplane would be greatly exceeded. Those distances which are included, but the operation slightly exceeds the temperature limit, are provided for interpolation purposes only.

**Revision 1** 

For Training Purposes Only

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Revision 1

# Figure 2. Takeoff Distance - Short Field (Sheet 2 of 2)

## TAKEOFF DISTANCE SHORT FIELD (WITHOUT CARGO POD)

REFER TO SHEET 1 FOR APPROPRIATE CONDITIONS AND NOTES

WEIGHT		EOFF		-2	o°C	-1	0°C	0	°C	10	D°C	20	D°C
LBS	KLAS		PRESS	GRD	TOTAL	GRD	TOTAL	GRD 1	TOTAL	GRD	TOTAL	GRD	TOTAL
10.0	LIFT	AT	ALT	ROLL	TO	ROLL	то	ROLL	TO	ROLL	TO	ROLL	TO
	OFF	50 FT	FT	FT	50 FT	FL	50 FT	FT	50 FT	FT	50 FT	FT	50 FT
8000	72	82	12000	2045	3520	2280	3975	2565	4540	2895	5245	3295	6205
1.1.1			13000	2275	3950	2545	4480	2865	5155	3240	6015	3705	7225
			14000	2535	4455	2840	5085	3210	5895	3645	6980	4190	8595
			15000	2830	5055	3185	5820	3610	6830	4125	8275	4765	10730
			16000	3175	5780	3585	6730	4075	8040	4685	10140	-	-
7500 70	70	80	12000	1735	2955	1930	3315	2165	3765	2435	4310	2760	5020
	1.1		13000	1925	3300	2145	3720	2410	4245	2720	4890	3095	5755
			14000	2140	3700	2390	4190	2690	4810	3045	5595	3480	6675
			15000	2385	4170	2675	4755	3020	5500	3435	6490	3940	7920
			16000	2665	4725	3000	5430	3395	6345	3885	7840	-	
7000	67	77	12000	1465	2465	1625	2755	1815	3110	2035	3535	2300	4075
11101		1000	13000	1620	2745	1805	3075	2020	3485	2270	3980	2575	4620
			14000	1795	3060	2005	3445	2250	3920	2535	4510	2885	5280
			15000	2000	3430	2235	3880	2515	4445	2850	5160	3255	6125
		1.00	16000	2230	3860	2500	4395	2820	5065	3210	5960		

HIGH ALTITUDE TAKEOFF AND LANDING (ABOVE 12,000 FEET)

WITHOUT CARGO POD

S42 MODEL 208 (675 SHP)

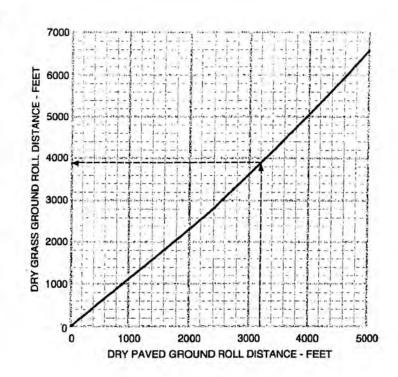
## S42 MODEL 208 (675 SHP)

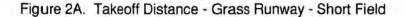
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## HIGH ALTITUDE TAKEOFF AND LANDING (ABOVE 12,000 FEET)

#### WITHOUT CARGO POD

## TAKEOFF DISTANCE (DRY GRASS GROUND ROLL DISTANCE) FLAPS 20°





**Revision 1** 

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### S42 MODEL 208 (675 SHP)

#### WITHOUT CARGO POD

#### TAKEOFF DISTANCE

## (GROUND ROLL DISTANCE AND TOTAL DISTANCE TO CLEAR 50 FEET) FLAPS UP

#### CONDITIONS:

Flaps 0 Degrees 1900 RPM Inertial Separator - Normal Cabin Heat - Off Torque Set per Figure 1 Paved, Level, Dry Runway Zero Wind

#### NOTES:

- Use Type II or Type IV Anti-ice Fluid takeoff techniques, as specified in Section 4 of the POH.
- Decrease distances 10% for each 11 knots headwind. For operation with tailwinds up to 10 knots, increase distances by 10% for each 2 knots.
- For operation on a dry, grass runway, refer to Figure 3A to determine ground roll distance.
- 4. With takeoff power set below the torque limit (1865 Ft-Lbs), increase distance (both ground roll and total distance) by 3% for inertial separator in BYPASS, and increase ground roll 5% and total distance 9% for cabin heat on.
- Where distance values have been replaced by dashes, operating temperature limits of the airplane would be greatly exceeded. Those distances which are included, but the operation slightly exceeds the temperature limit, are provided for interpolation purposes only.

WEIGHT	1.51.62	EOFF	PRESS	-20	oʻc	-10	D°C	0	c	10	°C
LBS	KIAS		ALT	GRND	TOTAL	GRND	TOTAL	GRND	TOTAL	GRND	TOTAL
	LIFT	AT 50 FT	FT	ROLL	TO 50 FT	ROLL	TO 50 FT	ROLL	TO 50 FT	ROLL	TO 50 FT
8000	89	104	12000 13000 14000	3155 3480 3845	5320 5925 6620	3490 3860 4270	5955 6660 7485	3885 4295 4760	6730 7570 8575	4330 4805 5335	7690 8740 10065
			15000 16000	4260 4725	7440 8425	4740 5270	8485 9730	5295 5900	9855 11570	5955 6660	11950 15120
7500 E	89	104	12000 13000 14000	2925 3230 3565	4945 5500 6145	3240 3575 3955	5530 6180 6940	3600 3980 4405	6245 7020 7950	4010 4445 4935	7135 8100 9325
			15000 16000	3945 4375	6900 7810	4385 4875	7865 9015	4895 5450	9130 10720	5500 6145	11070 14010
7000	89	104	12000 13000 14000	2705 2980 3290	4570 5085 5675	2990 3300 3650	5115 5710 6410	3320 3670 4060	5770 6485 7335	3700 4095 4540	6585 7480 8605
	1.11	÷ (	15000 16000	3640 4030	6375 7210	4045 4490	7260 8315	4510 5015	8425 9885	5060 5645	10210 12930

#### Figure 3. Takeoff Distance - Flaps Up

**Revision 1** 

#### For Training Purposes Only

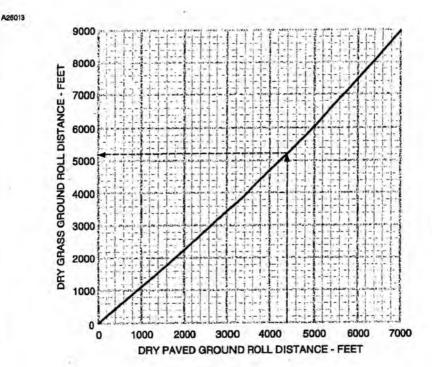
S42-9

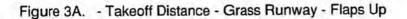
## S42 MODEL 208 (675 SHP)

### HIGH ALTITUDE TAKEOFF AND LANDING (ABOVE 12,000 FEET)

#### WITHOUT CARGO POD

## TAKEOFF DISTANCE (DRY GRASS GROUND ROLL) FLAPS UP





**Revision 1** 

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## S42 MODEL 208 (675 SHP)

#### WITHOUT CARGO POD

## RATE OF CLIMB - TAKEOFF FLAP SETTING FLAPS 20°

#### CONDITIONS:

Takeoff Power 1900 RPM Inertial Separator - Normal Zero Wind

#### NOTES:

- Do not exceed torque limit for takeoff per ENGINE TORQUE FOR TAKEOFF chart. When ITT exceeds 765°C, this power setting is time limited to 5 minutes.
- With climb power set below the torque limit, decrease rate of climb by 20 fpm for inertial separator set in BYPASS and 45 fpm for cabin heat on.
- 3. Where rate of climb values have been replaced by dashes, operating temperature limits of the airplane would be greatly exceeded. Those rates of climb which are included, but the operation slightly exceeds the temperature limit, are provided for interpolation purposes only.

WEIGHT	PRESS	CLIMB	RA	TE OF C	LIMB - FF	M
LBS	FT	KIAS	-20°C	0°C	20°C	40°C
8000	12000	87	915	750	555	340
	13000	86	840	675	485	275
	14000	85	765	605	415	205
	15000	85	695	530	345	
	16000	84	620	460	275	-
7500	12000	85	1035	860	660	435
	13000	85	955	785	585	365
	14000	84	880	710	515	295
	15000	83	805	635	440	
	16000	83	730	560	370	
7000	12000	84	1170	985	775	540
	13000	84	1085	905	700	465
	14000	83	1005	830	625	395
	15000	82	925	750	550	-
	16000	81	850	675	475	

#### Figure 4. Rate of Climb - Takeoff Flap Setting

**Revision 1** 

S42-11

## S42 MODEL 208 (675 SHP)

### HIGH ALTITUDE TAKEOFF AND LANDING (ABOVE 12,000 FEET)

#### WITHOUT CARGO POD

## CLIMB GRADIENT - TAKEOFF FLAP SETTING FLAPS 20°

#### CONDITIONS:

Takeoff Power 1900 RPM Inertial Separator - Normal Zero Wind

NOTES:

- 1. Do not exceed torque limit for takeoff per ENGINE TORQUE FOR TAKEOFF chart. When ITT exceeds 765°C, this power setting is time limited to 5 minutes.
- With climb power set below the torque limit, decrease rate of climb by 10 FT/NM for inertial separator set in BYPASS and 30 FT/NM for cabin heat on.
- 3. Where rate of climb values have been replaced by dashes, operating temperature limits of the airplane would be greatly exceeded. Those rates of climb which are included, but the operation slightly exceeds the temperature limit, are provided for interpolation purposes only.

WEIGHT	PRESS	CLIMB	CLIN	MB GRAD	IENT - FT	/NM
LBS	ALT FT	SPEED	-20°C	0°C	20°C	40°C
.8000	12000	76	570	455	330	205
1002	13000	76	515	405	285	165
	14000	76	465	355	240	125
1.1.1	15000	76	415	310	200	
1	16000	76	365	265	155	
7500	12000	73	655	530	400	-270
	13000	73	600	480	355	225
	14000	73	545	430	305	180
	15000	73	490	380	260	
	16000	73	440	330	215	1.94
7000	12000	71	755	620	485	340
1000	13000	71	695	565	430	290
	14000	71	635	510	380	245
	15000	71	580	455	330	
	16000	70	525	405	285	

Figure 5. Climb Gradient - Takeoff Flap Setting

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**Revision 1** 

## S42 MODEL 208 (675 SHP)

#### WITHOUT CARGO POD

## MAXIMUM CLIMB GRADIENT FLAPS UP

#### CONDITIONS:

Takeoff Power 1900 RPM Inertial Separator - Normal Zero Wind

NOTES:

- Do not exceed torque limit for takeoff per ENGINE TORQUE FOR TAKEOFF chart. When ITT exceeds 765°C, this power setting is time limited to 5 minutes.
- With climb power set below the torque limit, decrease rate of climb by 10 FT/NM for inertial separator set in BYPASS and 40 FT/NM for cabin heat on.
- 3. Where rate of climb values have been replaced by dashes, operating temperature limits of the airplane would be greatly exceeded. Those rates of climb which are included, but the operation slightly exceeds the temperature limit, are provided for interpolation purposes only.

WEIGHT	PRESS	CLIMB	CLIN	AB GRAD	IENT - FT	/NM
LBS	ALT FT	SPEED	-20°C	0°C	20°C	40°C
8000	12000	88	545	420	285	130
	13000	88	500	380	245	100
	14000	87	455	335	205	70
	15000	87	405	295	165	
C	16000	87	365	250	130	13
7500	12000	86	620	490	340	180
Date of	13000	85	570	445	300	145
1.1	14000	85	525	400	260	115
	15000	85	475	355	220	-
	16000	84	425	310	180	-
7000	12000	84	705	565	410	240
1. A.	13000	83	655	515	365	200
	14000	83	600	470	325	165
1 march 1	15000	82	550	420	280	1
	16000	81	500	375	235	

#### Figure 6. Maximum Climb Gradient - Flaps Up

**Revision 1** 

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## S42 MODEL 208 (675 SHP)

## HIGH ALTITUDE TAKEOFF AND LANDING (ABOVE 12,000 FEET)

#### WITHOUT CARGO POD

# FLAPS UP

CONDITIONS:

1900 RPM Inertial Separator - Normal Zero Wind

NOTES:

- 1. Torque set at 1865 foot-pounds or lesser value must not exceed maximum climb ITT of 765°C or Ng of 101.6%.
- With climb power set below the torque limit, decrease rate of climb by 50 fpm for inertial separator set in BYPASS and 70 fpm for cabin heat on.
- 3. Where rate of climb values have been replaced by dashes, an appreciable rate of climb for the weight shown cannot be expected or operating temperature limits of the airplane would be greatly exceeded. Those rates of climb which are included, but the operation slightly exceeds the temperature limit, are provided for interpolation purposes only.

WEIGHT	PRESS	CLIMB	R	ATE OF C	LIMB - FF	M
LBS	ALT FT	SPEED KIAS	-40°C	-20°C	0°C	20°C
8000	12000	120	1100	850	540	195
	13000	120	1015	755	445	105
	14000	120	920	655	360	20
	15000	120	820	560	270	-
	16000	120	715	475	180	
7500	12000	120	1215	955	625	260
	13000	120	1130	850	525	165
	14000	120	1025	750	435	70
	15000	120	920	645	340	
	16000	120	815	555	245	1.0
7000	12000	120	1350	1065	720	325
	13000	120	1255	960	610	225
	14000	120	1145	850	515	130
/	15000	120	1030	740	415	
	16000	120	920	645	315	

Figure 7. Cruise Climb - Flaps Up, 120 KIAS

S42-14

**Revision 1** 

## S42 MODEL 208 (675 SHP)

#### WITHOUT CARGO POD

## RATE OF CLIMB - BALKED LANDING FLAPS 30°

CONDITIONS:

Takeoff Power 1900 RPM Inertial Separator - Normal Zero Wind

NOTES:

- Do not exceed torque limit for takeoff per ENGINE TORQUE FOR TAKEOFF chart. When ITT exceeds 765°C, this power setting is time limited to 5 minutes.
- With climb power set below the torque limit, decrease rate of climb by 15 fpm for inertial separator set in BYPASS and 45 fpm for cabin heat on.
- 3. Where rate of climb values have been replaced by dashes, operating temperature limits of the airplane would be greatly exceeded. Those rates of climb which are included, but the operation slightly exceeds the temperature limit, are provided for interpolation purposes only.

WEIGHT	PRESS	CLIMB SPEED	RA	TE OF C	LIMB - FPM		
LBS	ALT FT	KIAS	-20°C	0°C	20°C	40°C	
7800	12000	79	815	655	470	270	
0.000	13000	78	740	585	405	205	
	14000	78	670	515	340	140	
	15000	77	600	445	270		
	16000	76	530	375	205		
7300	12000	79	935	765	575	360	
	13000	78	855	690	505	295	
	14000	77	785	620	435	230	
	15000	76	710	550	365		
-	16000	76	640	480	295		
6800	12000	77	1065	890	690	465	
	13000	77	985	810	615	400	
	14000	76	910	740	545	330	
	15000	75	830	665	470		
[1]	16000	75	755	590	400		

Figure 8. Rate of Climb - Balked Landing

**Revision 1** 

S42-15/S42-16

## S42 MODEL 208 (675 SHP)

#### WITHOUT CARGO POD

## TIME, FUEL, AND DISTANCE TO CLIMB CRUISE CLIMB

#### CONDITIONS:

Flaps Up 1900 RPM Inertial Separator - Normal

NOTES:

- Torque set at 1865 foot-pounds or lesser value must not exceed maximum climb ITT of 765°C or Ng of 101.6%.
- 2. Add 35 pounds of fuel for engine start, taxi, and takeoff allowance.
- 3. Distances shown are based on zero wind.
- With inertial separator set in BYPASS or cabin heat on, increase time, fuel, and distance numbers by 1% for each 1000 feet of climb.

	1.000		÷	CLIMB FROM SEA LEVEL									
1	PRESS	CLIMB	20 DEG C BELOW STANDARD TEMP			1.1.1	STANDARD TEMPERATURE			20 DEG C ABOVE STANDARD TEMP			
WEIGHT	ALT FT	SPEED KIAS	TIME	FUEL	DIST NM	TIME	FUEL	DIST	TIME	FUEL	DIST		
8000	12000	120	11	75	22	12	82	27	21	118	47		
12.001	13000	120	12	82	25	14	91	31	24	134	55		
	14000	120	13	89	27	16	101	35	28	153	65		
61 13	15000	120	14	97	30	18	112	40	33	176	77		
	16000	120	16	106	34	20	123	45	40	207	95		
7500	12000	120	10	68	20	11	74	24	18	103	40		
1	13000	120	11	74	22	12	82	27	21	116	47		
1.1	14000	120	12	81	25	14	90	31	24	131	55		
	15000	120	13	88	27	16	100	35 .	27	148	65		
	16000	120	14	95	30	18	109	40	32	170	77		
7000	12000	120	9	61	18	10	67	22	16	90	35		
1410	13000	120	10	67	20	11	74	25	18	101	41		
1.11	14000	120	11	73	22	13	81	28	20	113	47		
1.1	15000	120	12	79	25	14	89	31	23	127	55		
1.0	16000	120	13	86	27	16	97	35	27	143	64		

Figure 9. Time, Fuel, and Distance to Climb - Cruise Climb

**Revision 1** 

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#### CONDITIONS:

Flaps 30°

Power Lever - Idle after clearing obstacles. Beta range (lever against spring) after touchdown. Propeller Control Lever - MAX Maximum Braking Paved, Level, Dry Runway Zero Wind

NOTES:

- 1. Short field technique as specified in Section 4.
- 2. Decrease distances 10% for each 11 knots headwind. For operation with tailwinds up to 10 knots, increase distances by 10% for each 2 knots.
- 3. For operation on a dry, grass runway, increase distances by 40% of the "ground roll" figure.
- 4. If a landing with flaps up is necessary, increase the approach speed by 15 KIAS and allow for 40% longer distances.
- Use of maximum reverse thrust after touchdown reduces ground roll by approximately 10%.
- 6. Where distance values have been replaced by dashes, operating temperature limits of the airplane would be greatly exceeded. Those distances which are included, but the operation slightly exceeds the temperature limit, are provided for interpolation purposes only.

No No

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208 (675 SHP)

ANDING (ABOV

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EET)

Figure

10.

Landing Distance

1

Short Field (Sheet 1 of 2)

For Training Purposes Only

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**Revision 1** 

Figure 10. Landing Distance -Short Field (Sheet 2 of 2)

### LANDING DISTANCE SHORT FIELD (WITHOUT CARGO POD)

REFER TO SHEET 1 FOR APPROPRIATE CONDITIONS AND NOTES

WEIGHT	SPEED AT	PRESS		20°C	-1	0°C	0	°C	1	0°C	2	o°C
LBS	50 FT	ALT	GRD	TOTAL		TOTAL	the contract of	TOTAL	1067 - 10 K	12.00		TOTA
	KIAS	FT	ROLL	OVER	ROLL	OVER	ROLL	Charles Scherchen	ROLL	100 A 100	ROLL	OVER
	1.11		FT	50 FT	FT	50 FT	FT	50 FT	FT	50 FT	FT	50 FT
7800	78	12000	985	2045	1025	2110	1065	2170	1105	2225	1145	2285
		13000	1025	2105	1065	2170	1105	2230	1145	2290	1190	2350
	14000	1065	2170	1110	2230	1150	2295	1195	2355	1235	2420	
	15000	1110	2235	1155	2300	1200	2365	1240	2425	1285	2490	
	16000	1155	2300	1200	2370	1250	2435	1295	2500	-		
7300 75	75	12000	925	1945	960	2005	1000	2060	1035	2115	1070	2170
		13000	960	2005	1000	2060	1035	2115	1075	2175	1115	2230
		14000	1000	2060	1040	2120	1080	2180	1120	2240	1160	2295
	$1 \rightarrow 2$	15000	1040	2125	1080	2185	1125	2245	1165	2305	1205	2365
		16000	1085	2185	1125	2250	1170	2315	1210	2375	-	-
6800	72	12000	860	1850	895	1905	930	1960	960	2010	995	2065
	1.45	13000	895	1905	930	1960	965	2015	1000	2065	1035	2120
1		14000	930	1960	965	2015	1005	2075	1040	2130	1075	2185
		15000	970	2020	1005	2075	1045	2135	1080	2190	1120	2250
	· · · · · · · · · · · · · · · · · · ·	16000	1005	2080	1045	2140	1085	2200	1125	2255	-	

HIGH ALTITUDE TAKEOFF AND LANDING (ABOVE 12,000 FEET)

WITHOUT CARGO POD

S42 MODEL 208 (675 SHP)

HIGH

ALTITUDE

ANDING

(ABO

m

12,000 FE

EET)

# TAKEOFF DISTANCE

#### SHORT FIELD (CARGO POD INSTALLED)

#### CONDITIONS:

Flaps 20° 1900 RPM Inertial Separator - Normal Cabin Heat - Off Torque Set per Figure 5-8 Paved, Level, Dry Runway Zero Wind

#### NOTES:

- 1. Short field technique, as specified in Section 4.
- 2. Decrease distances 10% for each 11 knots headwind. For operation with tailwinds up to 10 knots. increase distances by 10% for each 2 knots.
- 3. For operation on a dry, grass runway, refer to Figure 11A to determine takeoff ground roll distance.
- 4. With takeoff power set below the torque limit (1865 ft-lbs), increase distance (both ground roll and total distance) by 3% for inertial separator in BYPASS, and increase ground roll 5% and total distances 10% for cabin heat on.
- 5. Where distance values have been replaced by dashes, operating temperature limits of the airplane would be greatly exceeded. Those distances which are included but the operation slightly exceeds the temperature limit are provided for interpolation purposes only.

S42-20

Figure 11.

Takeoff Distance -

Short Field (Sheet 1 of 2)

For Training Purposes Only

**Revision** 1

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For Training Purposes Only

S42-21

Figure 11. Takeoff Distance - Short Field (Sheet 2 of 2)

### TAKEOFF DISTANCE SHORT FIELD (CARGO POD INSTALLED)

REFER TO SHEET 1 FOR APPROPRIATE CONDITIONS AND NOTES

WEIGHT	1.	EOFF		-2	0°C	-1	0°C	0	°C	1	o°C	20	o°c		
LBS	1. mm	IAS	PRESS	GRD	TOTAL	GRD	TOTAL	GRD	TOTAL	GRD	TOTAL	GRD	TOTA		
	LIFT	AT	ALT	ROLL	TO	ROLL	TO	ROLL	TO	ROLL	TO	ROLL	TO		
	OFF	50 FT	FT	FT	50 FT	FT	50 FT	FT	50 FT	FT	50 FT	FT	50 FT		
8000	72	82	12000	2065	3595	2310	4070	2595	4665	2930	5415	3345	6445		
		1.1	13000	2300	4045	2575	4600	2900	5310	3290	6235	3765	7570		
	177.20	14000	2565	4570	2880	5240	3255	6105	3700	7290	4260	9150			
	1. I.I.	15000	2870	5205	3230	6020	3665	7120	4195	8755	4850	11880			
		16000	3220	5975	3640	7005	4145	8470	4770	11035	-				
7500 70	80	12000	1750	3010	1950	3390	2185	3855	2460	4425	2795	5175			
		1000	13000	1945	3370	2170	3805	2440	4355	2755	5040	3135	5960		
			14000	2160	3785	2420	4300	2725	4950	3090	5790	3535	6965		
					15000	2410	4275	2710	4890	3060	5680	3485	6750	4005	8365
			16000	2700	4855	3040	5605	3445	6590	3945	8030		-		
7000	67	77	12000	1475	2510	1640	2810	1835	3175	2060	3615	2330	4180		
	12	1.001	13000	1635	2795	1820	3140	2040	3565	2295	4080	2605	4755		
			14000	1815	3125	2025	3525	2275	4020	2570	4635	2925	5455		
		1. 2	15000	2020	3505	2260	3975	2545	4565	2885	5325	3300	6360		
			16000	2255	3950	2530	4510	2855	5220	3255	6180	-			

HIGH ALTITUDE TAKEOFF AND LANDING (ABOVE 12,000 FEET)

CARGO POD INSTALLED

S42 MODEL 208 (675 SHP)

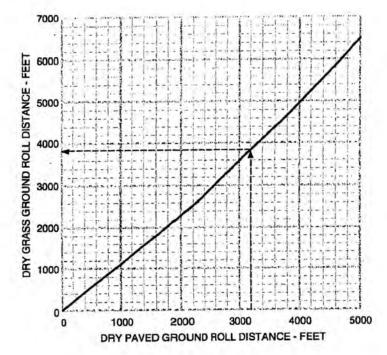
# S42 MODEL 208 (675 SHP)

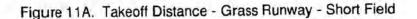
#### HIGH ALTITUDE TAKEOFF AND LANDING (ABOVE 12,000 FEET)

#### CARGO POD INSTALLED

### TAKEOFF DISTANCE (DRY GRASS GROUND ROLL) FLAPS 20°

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**Revision 1** 

#### HIGH ALTITUDE TAKEOFF AND LANDING (ABOVE 12,000 FEET)

### S42 MODEL 208 (675 SHP)

#### CARGO POD INSTALLED

#### TAKEOFF DISTANCE

#### (GROUND ROLL DISTANCE AND TOTAL DISTANCE TO CLEAR 50 FEET) FLAPS UP

#### CONDITIONS:

Flaps 0 Degrees 1900 RPM Inertial Separator - Normal Cabin Heat - Off Torque Set per Figure 1 Paved, Level, Dry Runway Zero Wind

#### NOTES:

- 1. Use Type II or Type IV Anti-ice Fluid takeoff techniques, as specified in Section 4 of the POH.
- Decrease distances 10% for each 11 knots headwind. For operation with tailwinds up to 10 knots, increase distances by 10% for each 2 knots.
- For operation on a dry, grass runway, refer to Figure 12A to determine ground roll distance.
   With takeoff power set below the torque limit (1865 Ft-
- 4. With takeoff power set below the torque limit (1865 Ft-Lbs), increase distance (both ground roll and total distance) by 3% for inertial separator in BYPASS, and increase ground roll 5% and total distance 9% for cabin heat on.
- 5. Where distance values have been replaced by dashes, operating temperature limits of the airplane would be greatly exceeded. Those distances which are included, but the operation slightly exceeds the temperature limit, are provided for interpolation purposes only.

TAKEOFF WEIGHT SPEED		S. 5. 5. 199	PRESS	PRESS -20"C		-10	D*C	0	Ċ	10°C		
LIFT	ĸ	AS	ALT	GRND	TOTAL	GRND	TOTAL	GRND	TOTAL	GRND	TOTAL	
		LIFT A	1.1.1.1.1.1.1	FT	ROLL	TO 50 FT	ROLL	TO 50 FT	ROLL	TO 50 FT	ROLL	TO 50 FT
8000	8000 89 104	12000 13000 14000	3200 3535 3910	5455 6090 6830	3545 3920 4345	6125 6875 7770	3945 4370 4845	6955 7870 8995	4405 4890 5440	8010 9200 10790		
		15000 16000	4330 4810	7720 8810	4825 5370	8880 10330	5395 6015	10500 12755	6075 6800	13375 19795		
7500	7500 89	104	12000 13000 14000	2970 3280 3625	5065 5655 6340	3290 3635 4025	5690 6380 7205	3660 4050 4485	6455 7300 8340	4080 4525 5025	7430 8525 10000	
			15000 16000	4010 4450	7160 8170	4465 4965	8235 9575	4990 5555	9735 11820	5610 6275	12400 18385	
7000 85	89	104	12000 13000 14000	2745 3025 3345	4685 5225 5860	3040 3355 3710	5260 5895 6655	3375 3735 4135	5965 6740 7695	3765 4170 4625	6860 7870 9225	
	1-1-1		15000 16000	3700 4100	6615 7540	4115 4570	7600 8835	4590 5110	8980 10910	5160 5760	11445	

#### Figure 12. Takeoff Distance - Flaps Up

#### S42-23

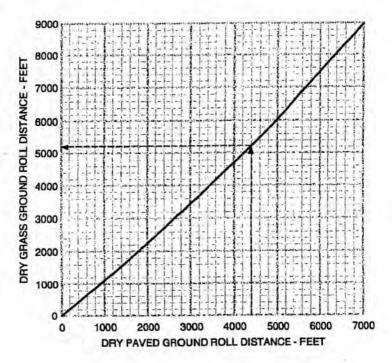
# S42 MODEL 208 (675 SHP)

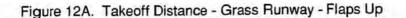
#### HIGH ALTITUDE TAKEOFF AND LANDING (ABOVE 12,000 FEET)

#### CARGO POD INSTALLED

### TAKEOFF DISTANCE (DRY GRASS GROUND ROLL) FLAPS UP







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**Revision 1** 

#### HIGH ALTITUDE TAKEOFF AND LANDING (ABOVE 12,000 FEET)

## S42 MODEL 208 (675 SHP)

#### CARGO POD INSTALLED

#### RATE OF CLIMB - TAKEOFF FLAP SETTING FLAPS 20°

#### CONDITIONS:

Takeoff Power 1900 RPM Inertial Separator - Normal Zero Wind

#### NOTES:

- 1. Do not exceed torque limit for takeoff per ENGINE TORQUE FOR TAKEOFF chart. When ITT exceeds 765°C, this power setting is time limited to 5 minutes.
- With climb power set below the lorgue limit, decrease rate of climb by 20 fpm for inertial separator set in BYPASS and 45 fpm for cabin heat on.
- 3. Where rate of climb values have been replaced by dashes, operating temperature limits of the airplane would be greatly exceeded. Those rates of climb which are included but the operation slightly exceeds the temperature limit are provided for interpolation purposes only.

WEIGHT	PRESS	CLIMB SPEED		RATE C	OF CLIME	B - FPM	
LBS	ALT FT	KIAS	-20°C	-10°C	0°C	20°C	40°C
8000	12000	87	880	800	710	515	300
이 있는 같은 같은 것을 하는 것이 같이	13000	86	805	725	635	445	230
	14000	85	730	650	565	375	165
	15000	85	655	575	490	305	
	16000	84	585	505	420	235	
7500	12000	85	995	910	820	620	395
	13000	85	920	835	745	545	320
1.1	14000	84	840	760.	670	475	255
	15000	83	765	685	595	400	1.1.
	16000	83	690	610	520	330	
7000	12000	84	1130	1040	945	735	495
-	13000	84	1045	960	865	655	425
	14000	83	965	880	790	580	350
	15000	82	885	800	710	505	-
	16000	81	810	725	635	430	

#### Figure 13. Rate of Climb - Takeoff Flap Setting

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# S42 MODEL 208 (675 SHP)

#### HIGH ALTITUDE TAKEOFF AND LANDING (ABOVE 12,000 FEET)

#### CARGO POD INSTALLED

#### CLIMB GRADIENT - TAKEOFF FLAP SETTING FLAPS 20°

#### CONDITIONS:

Takeoff Power 1900 RPM Inertial Separator - Normal Zero Wind

NOTES:

- Do not exceed torque limit for takeoff per ENGINE TORQUE FOR TAKEOFF chart. When ITT exceeds 765°C, this power setting is time limited to 5 minutes.
- With climb power set below the torque limit, decrease rate of climb by 10 FT/NM for inertial separator set in BYPASS and 30 FT/NM for cabin heat on.
- Where rate of climb values have been replaced by dashes, operating temperature limits of the airplane would be greatly exceeded. Those rates of climb which are included but the operation slightly exceeds the temperature limit are provided for interpolation purposes only.

WEIGHT	PRESS	CLIMB	1	CLIMB GRADIENT - FT/NM								
LBS	ALT FT	SPEED KIAS	-20°C	-10°C	0°C	20°C	40°C					
8000	12000	76	555	495	435	315	190					
	13000	76	500	445	385	270	145					
	14000	76	445	395	340	225	105					
	15000	76	395	345	290	180						
	16000	76	350	300	245	140	-					
7500	12000	73	640	580	515	385	250					
	13000	73	580	525	460	335	205					
	14000	73	525	470	410	290	165					
	15000	73	475	420	360	245						
	16000	73	420	365	310	200	-					
7000	12000	71	740	670	605	465	320					
	13000	71	675	615	545	415	275					
1	14000	71	615	555	495	365	230					
	15000	71	560	500	440	315						
	16000	70	505	445	390	265	94					

Figure 14. Climb Gradient - Takeoff Flap Setting

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**Revision 1** 

#### HIGH ALTITUDE TAKEOFF AND LANDING (ABOVE 12,000 FEET)

### S42 MODEL 208 (675 SHP)

#### CARGO POD INSTALLED

### MAXIMUM CLIMB GRADIENT FLAPS UP

#### CONDITIONS:

Takeoff Power 1900 RPM Inertial Separator - Normal Zero Wind

#### NOTES:

- Do not exceed torque limit for takeoff per ENGINE TORQUE FOR TAKEOFF chart. When ITT exceeds 765°C, this power setting is time limited to 5 minutes.
- With climb power set below the torque limit, decrease rate of climb by 10 FT/NM for inertial separator set in BYPASS and 40 FT/NM for cabin heat on.
- 3. Where rate of climb values have been replaced by dashes, operating temperature limits of the airplane would be greatly exceeded. Those rates of climb which are included but the operation slightly exceeds the temperature limit are provided for interpolation purposes only.

WEIGHT	PRESS	CLIMB	1	CLIMB G	RADIENT	- FT/NM	
LBS	ALT FT	SPEED KIAS	-20°C	-10°C	0°C	20°C	40°C
8000	12000	88	525	460	400	260	110
	13000	88	475	415	355	220	75
	14000	87	430	375	315	185	45
	15000	87	385	330	270	145	
	16000	87	340	285	230	105	
7500	12000	86	600	535	465	320	160
	13000	85	550	485	420	280	125
1.1	14000	85	500	440	375	240	90
	15000	85	450	395	330	195	
	16000	84	405	350	285	155	-
7000	12000	84	680	615	540	385	215
	13000	83	630	565	495	345	180
	14000	83	580	515	445	300	145
P	15000	82	525	465	400	255	
	16000	81	475	415	350	210	-

#### Figure 15. Maximum Climb Gradient - Flaps Up

**Revision 1** 

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## S42 MODEL 208 (675 SHP)

#### HIGH ALTITUDE TAKEOFF AND LANDING (ABOVE 12,000 FEET)

#### CARGO POD INSTALLED

# FLAPS UP

CONDITIONS:

1900 RPM Inertial Separator - Normal Zero Wind

NOTES:

- Torque set at 1865 foot-pounds or lesser value must not exceed maximum climb ITT of 765°C or Ng of 101.6%.
- With climb power set below the torque limit, decrease rate of climb by 50 fpm for inertial separator set in BYPASS and 70 fpm for cabin heat on.
- 3. Where rate of climb values have been replaced by dashes, an appreciable rate of climb for the weight shown cannot be expected or operating temperature limits of the airplane would be greatly exceeded. Those rates of climb which are included but the operation slightly exceeds the temperature limit are provided for interpolation purposes only.

WEIGHT	PRESS	CLIMB	RATE OF CLIMB - FPM							
LBS	FT KIAS		-40°C	-20°C	0°C	20°C				
8000	12000	120	1005	755	440	90				
	13000	120	925	655	345					
	14000	120	820	555	260	1.0				
	15000 120		720	460	165					
	16000	120	615	370	75	-				
7500	12000	120	1115	850	520	145				
1010	13000	120	1030	745	415	50				
	14000	120	925	640	325	-				
	15000	120	815	540	225					
	16000	120	705	445	130	-				
7000	12000	120	1240	955	605	205				
	13000	120	1150	845	495	105				
	14000	120	1035	735	400	- 5				
	15000	120	920	625	295					
	16000	120	805	525	190	- 4				

Figure 16. Cruise Climb - Flaps Up

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#### HIGH ALTITUDE TAKEOFF AND LANDING (ABOVE 12,000 FEET)

# S42 MODEL 208 (675 SHP)

#### CARGO POD INSTALLED

## RATE OF CLIMB - BALKED LANDING

FLAPS 30°

CONDITIONS:

Takeoff Power 1900 RPM Inertial Separator - Normal Zero Wind

NOTES:

- Do not exceed torque limit for takeoff per ENGINE TORQUE FOR TAKEOFF chart. When ITT exceeds 765°C, this power setting is time limited to 5 minutes.
- With climb power set below the torque limit, decrease rate of climb by 15 fpm for inertial separator set in BYPASS and 45 fpm for cabin heat on.
- 3. Where rate of climb values have been replaced by dashes, operating temperature limits of the airplane would be greatly exceeded. Those rates of climb which are included but the operation slightly exceeds the temperature limit are provided for interpolation purposes only.

WEIGHT	PRESS	CLIMB	RATE OF CLIMB - FPM								
LBS	ALT FT	SPEED KIAS	-20°C	-10°C	0°C	20°C	40°C				
7800	12000	79	785	705	625	440	235				
	13000	78	710	635	555	375	175				
	14000	78	640	565	485	305	110				
	15000	77	570	495	415	240	-				
	16000	76	500	425	345	175	-				
7300	12000	79	900	820	735	540	330				
100	13000	78	825	745	660	475	265				
	14000	77	755	675	590	405	195				
1	15000	76	680	600	515	335	-				
4	16000	76	610	530	445	265					
6800	12000	77	1030	945	855	655	430				
	13000	77	955	870	780	585	365				
	14000	76	875	795	705	510	295				
	15000	75	800	720	630	440	-				
	16000	75	725	645	560	365					

Figure 17. Rate of Climb - Balked Landing

**Revision 1** 

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### For Training Purposes Only

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#### HIGH ALTITUDE TAKEOFF AND LANDING (ABOVE 12,000 FEET)

## S42 MODEL 208 (675 SHP)

#### CARGO POD INSTALLED

### TIME, FUEL, AND DISTANCE TO CLIMB CRUISE CLIMB

#### CONDITIONS:

Flaps Up 1900 RPM Inertial Separator - Normal

NOTES:

- Torque set at 1865 foot-pounds or lesser value must not exceed maximum climb ITT of 765°C or Ng of 101.6%.
- 2. Add 35 pounds of fuel for engine start, taxi, and takeoff allowance.
- 3. Distances shown are based on zero wind.
- With inertial separator set in BYPASS or cabin heat on, increase time, fuel, and distance numbers by 1% for each 1000 feet of climb.

	12.7 3	1			(	CLIMB F	ROM SE	A LEVE	L	1.00	_
•	PRESS	CLIMB	20 DEG C CLIMB STANDARD		ELOW		TANDAR		20 D STAN	BOVE	
	ALT FT	SPEED KIAS	TIME	FUEL	DIST NM	TIME	FUEL	DIST NM	TIME	FUEL	DIST
8000	12000	120	12	81	24	14	91	30	25	143	57
	13000	120	13	89	27	16	102	- 34	30	168	70
	14000	120	14	97	30	18	114	39	37	199	86
	15000	120	16	107	-33	20	127	45	47	249	114
	16000	120	17	116	37	23	142	52	75	373	185
7500	12000	120	10	73	22	12	82	27	21	122	49
1.000	13000	120	11	80	24	14	91	30	25	141	58
	14000	120	13	88	27	16	101	35	30	164	70
1 2.2	15000	120	14	96	30	18	112	40	37	194	87
1	16000	120	15	104	33	20	125	46	48	244	116
7000	12000	120	9	66	20	11	73	24	18	106	42
100	13000	120	10	72	22	12	81	27	22	120	49
	14000	120	11	79	24	14	90	31	25	138	58
	15000	120	13	86	27	16	99	35	30	160	70
	16000	120	14	94	30	18	110	40	37	190	88

Figure 18. Time, Fuel, and Distance to Climb - Cruise Climb

**Revision 1** 

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#### LANDING DISTANCE SHORT FIELD (CARGO POD INSTALLED)

#### CONDITIONS:

Flaps 30°

Power Lever - Idle after clearing obstacles. Beta range (lever against spring) after touchdown. Propeller Control Lever - MAX Maximum Braking Paved, Level, Dry Runway Zero Wind

NOTES:

- 1. Short field technique as specified in Section 4. 2. Decrease distances 10% for each 11 knots headwind. For operation with tailwinds up to 10 knots, increase distances by 10% for each 2 knots.
- 3. For operation on a dry, grass runway, increase distances by 40% of the "ground roll" figure.
- 4. If a landing with flaps up is necessary, increase the approach speed by 15 KIAS and allow for 40% longer distances.
- 5. Use of maximum reverse thrust after touchdown reduces ground roll by approximately 10%.
- 6. Where distance values have been replaced by dashes, operating temperature limits of the airplane would be greatly exceeded. Those distances which are included, but the operation slightly exceeds the temperature limit, are provided for interpolation purposes only.

S42 MODEL

208 (675

SHP)

ANDING (ABOV

E TAKEOFF

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Figure 19.

Landing Distance -

Short Field (Sheet 1

of 2)

For Training Purposes Only

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Figure 19. Landing Distance - Short Field (Sheet 2 of 2)

### LANDING DISTANCE SHORT FIELD (CARGO POD INSTALLED)

REFER TO SHEET 1 FOR APPROPRIATE CONDITIONS AND NOTES

WEIGHT	SPEED	PRESS	-2	0°C	-1	0°C	C	°C	1	D°C	20	o°C
LBS	50 FT	ALT	GRD	TOTAL								
1000	KIAS	FT	ROLL	OVER								
- · · · ·	( rapid )		FT	50 FT								
7800	78	12000	980	2015	1020	2080	1060	2135	1095	2195	1135	2250
	13000	1020	2075	1060	2135	1100	2195	1140	2255	1180	2315	
	14000	1060	2135	1100	2200	1145	2260	1185	2320	1225	2385	
	15000	1105	2200	1145	2265	1190	2330	1235	2395	1275	2455	
	16000	1150	2270	1195	2335	1240	2400	1285	2465	-		
7300 75	12000	920	1915	955	1975	990	2030	1030	2085	1065	2140	
	1. I. C.	13000	955	1975	990	2030	1030	2085	1070	2140	1105	2200
		14000	995	2030	1030	2090	1070	2150	1110	2205	1150	2265
		15000	1035	2090	1075	2150	1115	2215	1155	2270	1195	2330
		16000	1075	2155	1120	2215	1160	2280	1205	2340	-	-
6800		12000	855	1825	890	1880	920	1930	955	1980	990	2035
		13000	885	1875	920	1930	955	1985	990	2035	1025	2090
		14000	925	1930	960	1985	995	2040	1035	2095	1070	2150
		15000	960	1990	1000	2045	1035	2105	1075	2160	1115	2215
		16000	1000	2050	1040	2110	1080	2165	1120	2225	-	

HIGH ALTITUDE TAKEOFF AND LANDING (ABOVE 12,000 FEET)

S42 MODEL 208 (675 SHP)

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CARGO POD INSTALLED

**Revision 1** 



# Pilot's Operating Handbook and FAA Approved Airplane Flight Manual CESSNA MODEL 208 (675 SHP) SUPPLEMENT 43 BFGOODRICH SKYWATCH SKY497 TRAFFIC ADVISORY SYSTEM

SERIAL NO.

**REGISTRATION NO.** 

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, if the airplane is equipped with the BFGoodrich SKYWATCH SKY497 Traffic Advisory System.

APPROVED BY Sandra R. Ketten

Wendell W. Cornell Executive Engineer Cessna Aircraft Company Delegation Option Manufacturer CE-3

DATE OF APPROVAL 2 DECEMBER 1999

**2 DECEMBER 1999** 

Member of GAMA

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**REVISION 1 - 9 AUGUST 2001** 

S43-1

S43 MODEL 208 (675 SHP)

BFGOODRICH SKYWATCH SKY497 TRAFFIC ADVISORY SYSTEM

# SUPPLEMENT CESSNA MODEL 208 (675 SHP) SUPPLEMENT 43

# BFGOODRICH SKYWATCH SKY497 TRAFFIC ADVISORY SYSTEM

Use the Log of Effective Pages to determine the current status of this supplement. Pages affected by the current revision are indicated by an asterisk (\*) preceding the page number.

#### **Revision Level**

#### Date of Issue

0 (Original) Revision 1 2 December 1999 9 August 2001

# LOG OF EFFECTIVE PAGES

PAGE

DATE

REV. NUMBER

1

\* S43-1 thru S43-7/S43-8

9 August 2001

APPROVED BY

FAA APPROVED UNDER FAR 21 SUBPART J The Casena Averation Co. Delegation Option Authorization DOA-230428-CE

Shew & Co / Executive Engineer

DATE OF APPROVAL 9 AUGUST 2001

9 August 2001

S43-2

BFGOODRICH SKYWATCH SKY497 TRAFFIC ADVISORY SYSTEM S43 MODEL 208 (675 SHP)

# SUPPLEMENT

# BFGOODRICH SKYWATCH SKY497 TRAFFIC ADVISORY SYSTEM

# SECTION 1 GENERAL

This supplement provides information which must be observed when operating the BFGoodrich SKYWATCH SKY497 Traffic Advisory System.

The SKYWATCH SKY497 is an airborne Traffic Advisory System (TAS). It monitors the airspace around the aircraft and advises the flight crew where to look for transponder-equipped aircraft that may pose a collision threat.

The SKY497 can be configured to display traffic information on any combination of the following displays:

#### BFGOODRICH WX-1000+/1000E/SKY497 CRT DISPLAY

The display can be dedicated to the SKY497, or shared with a BFGoodrich Stormscope WX-1000+/1000E Weather Mapping System (if installed). However, the display does not show traffic and storm information simultaneously. The SKYWATCH/STORMSCOPE mode switch position determines whether the display shows traffic or storm information. If the mode switch is in the STORMSCOPE position and the SKY497 detects traffic that may pose an immediate threat to the aircraft, the display switches temporarily to SKYWATCH mode.

#### BENDIX/KING KMD 850 MULTI-FUNCTION DISPLAY

Press the TRFC button at the bottom of the KMD 850 MFD to display SKY497 data. Use the RANGE buttons on the right hand side of the unit to scale the display between 2 nm and 6 nm. The MODE button will toggle the display between ABOVE, NORMAL, and BELOW viewing modes. The SKY497 data may

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### S43 MODEL 208 (675 SHP)

#### BFGOODRICH SKYWATCH SKY497 TRAFFIC ADVISORY SYSTEM

also be overlaid onto other pages of the KMD 850 such as terrain avoidance, some weather pages, and/or the moving map. If the SKY497 detects traffic that may pose an immediate threat to the aircraft, the KMD 850 will automatically display the TRFC page regardless of whether the SKY497 data is overlaid on the current page.

Refer to the Bendix/King KMD 850 Pilot's Guide P/N 006-18222-0000 Rev 0 or later for specific operating instructions regarding displaying and overlaying SKY497 data.

#### GARMIN GNS 530 OR GNS 430 NAV/COM/GPS

Select the NAV3 page to display the SKY497 data. Use the Range buttons on the right side of the unit to scale the display between 2 nm and 6 nm. The MENU button and right hand control knobs (inner and outer) are used to control the contents of the NAV3- page. Other external systems such as the BFGoodrich SKY497 SKYWATCH may also be displayed on this page.

The SKY497 data may also be overlaid onto the moving map page(s) of the Garmin GNS 530 or GNS 430 using the MAP SETUP function. Refer to the Garmin GNS 400 Series Pilot's Guide Addendum "Display Interface for Traffic and Weather Data" P/N 190-00140-10 Rev B or later or the Garmin GNS 530 Pilot's Guide P/N 190-00181-00 Rev A or later for specific operating instructions regarding displaying and overlaying SKY497 data.

#### NOTE

In aircraft where the SKY497 data is displayed in multiple places, one display is designated as the master control. The SKY497 may be put into STAND-BY mode only by that display. All other functions will operate independently on each display.

A solid circle is the visual part of the Traffic Advisory (TA) that the SKY497 generates when it predicts that an intruder aircraft may pose a collision threat. The traffic information generally includes the relative range, bearing, and altitude of intruder aircraft. The aural part of the TA, "Traffic, Traffic," is annunciated over the cockpit speaker or headset as selected on the aircraft's audio control panel.

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#### BFGOODRICH SKYWATCH SKY497 TRAFFIC ADVISORY SYSTEM

An open diamond represents traffic that does not pose an immediate collision threat. Refer to the SKY497 Pilot's Guide for a more detailed description of Traffic Advisories.

The 208 has a fixed landing gear and no radar altimeter interface. Thus, the SKYWATCH should be turned off before landing to preclude nuisance traffic advisories (TA's) while near airports. Airplanes on the ground that have their transponders on will be detected by the SKYWATCH and interpreted as posing a threat.

#### NOTE

It is especially useful to visually scan the airspace around an airport prior to takeoff while the unit is in Standby Mode.

The aircraft is equipped with an airspeed switch located below the left wing. When the airspeed switch is in the relaxed position (less than 30 knots), the SKY497 is in standby mode and does not display or annunciate traffic advisories. The SKY497 switches to Normal Operating Mode 8 to 10 seconds after the switch closes during the takeoff run. While in flight, the standby mode is not available. The SKY497 returns to standby mode automatically 24 seconds after landing, with the airspeed switch in the relaxed position.

# SECTION 2 LIMITATIONS

The BFGoodrich SKYWATCH Traffic Advisory System Model SKY497 Pilot's Guide P/N 009-10801-001 (Rev A 6/23/97 or later) must be readily available to the flight crew when operating the SKYWATCH system.

Pilots must not maneuver the aircraft based solely on the traffic display. The traffic display is intended to be a Traffic Advisory System only and is intended to assist in visually locating other traffic. The display lacks the resolution necessary for use in evasive maneuvering.

The operator-initiated self-test is inoperative in flight.

The BFGoodrich SKYWATCH must be turned off for takeoff, until 400 feet AGL.

The BFGoodrich SKYWATCH must be turned off by 400 feet AGL, prior to landing.

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MODEL 208 (675 SHP)

BFGOODRICH SKYWATCH SKY497 TRAFFIC ADVISORY SYSTEM

# SECTION 3 EMERGENCY PROCEDURES

No Change.

# SECTION 4 NORMAL PROCEDURES

Refer to the SKYWATCH Traffic Advisory System Model SKY497 Pilot's Guide.

The operating procedures are the same as those in the Pilot's Operating Handbook except as follows:

#### STARTING ENGINE

#### SKY497 FAILURE

IF "SKY497 FAILED" REMAINS ON THE DISPLAY AFTER THE SECOND POWER UP ATTEMPT, OR IF THE OPERATOR-INITIATED SELF-TEST STILL FAILS AFTER PRESSING TEST BUTTON A SECOND TIME:

SKYWATCH circuit breaker (labeled SKY WATCH) (LH Panel) -- PULL (If the message is not "ERROR 20 -Barometric Altitude Input"). The system will automatically revert to Stormscope (if installed).

#### NOTE

If the message is "ERROR 20 - Barometric Altitude Input", the message goes away and normal operation resumes once valid barometric input is received.

## WARNING

The SKYWATCH only has display ranges of 2 and 6 - nm, and a maximum closure rate of 900 knots.

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#### BFGOODRICH SKYWATCH SKY497 TRAFFIC ADVISORY SYSTEM

MODEL 208 (675 SHP)

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If power is removed from the Stormscope, the BFGoodrich CRT display goes blank regardless of the position of the SKYWATCH/STORMSCOPE mode switch.

If power is removed from the SKY497 while the SKYWATCH/STORMSCOPE mode switch is in the STORMSCOPE position, the BFGoodrich CRT display remains on Stormscope.

#### BEFORE TAKEOFF

SKYWATCH (if installed) -- OFF, until 400 feet AGL.

#### BEFORE LANDING

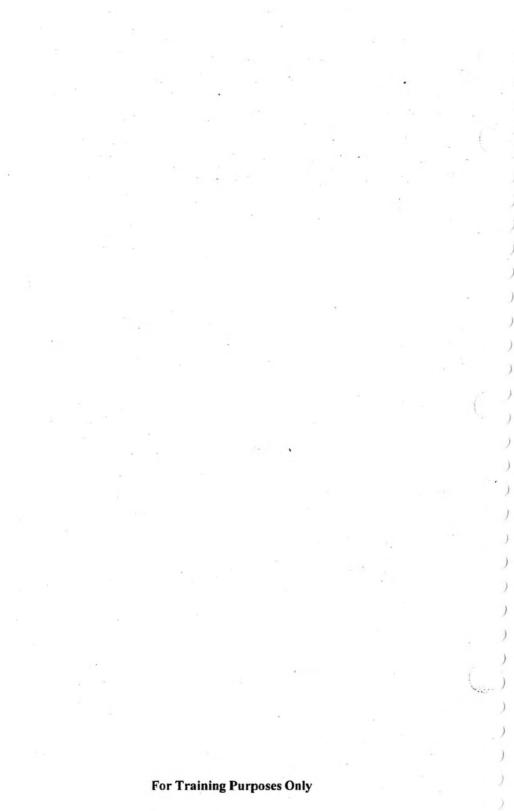
SKYWATCH (if installed) -- OFF, by 400 feet AGL.

If power is removed from the SKY497 while the SKYWATCH/STORMSCOPE mode switch is in the SKYWATCH position, the BFGoodrich CRT display switches to Stormscope (if installed) even though the mode switch stays in the SKYWATCH position.

# SECTION 5 PERFORMANCE

No Change.

9 August 2001





# Pilot's Operating Handbook and FAA Approved Airplane Flight Manual CESSNA MODEL 208 (675 SHP)

# SUPPLEMENT 44

# BFGOODRICH STORMSCOPE WX-1000+/1000E WEATHER MAPPING SYSTEM

SERIAL NO.

**REGISTRATION NO.** 

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, if the airplane is equipped with the BFGoodrich Stormscope WX-1000+/1000E Weather Mapping System.

APPROVED BY Sandra R. Kettaun

Wendell W. Cornell Executive Engineer Cessna Alroraft Company Delegation Option Manufacturer CE-3

DATE OF APPROVAL 2 DECEMBER 1919

# **2 DECEMBER 1999**

Member of GAMA

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D1352-S44-00

S44 MODEL 208 (675 SHP)

BFGOODRICH WX-1000+/1000E WEATHER MAPPING SYSTEM

# SUPPLEMENT CESSNA MODEL 208 (675 SHP)

# **SUPPLEMENT 44**

## BFGOODRICH STORMSCOPE WX-1000+/1000E WEATHER MAPPING SYSTEM

Use the Log of Effective Pages to determine the current status of this supplement. Pages affected by the current revision are indicated by an asterisk (\*) preceding the page number.

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2 December 1999

2 December 1999

For Training Purposes Only

S44-2

BFGOODRICH WX-1000+/1000E WEATHER MAPPING SYSTEM S44 MODEL 208 (675 SHP)

# SUPPLEMENT

# BFGOODRICH STORMSCOPE WX-1000+/1000E WEATHER MAPPING SYSTEM

# SECTION 1 GENERAL

This supplement provides information which must be observed when operating the BFGoodrich Stormscope WX-1000+/1000E Weather Mapping System.

The Stormscope WX-1000+/1000E provides information to the flight crew about the presence of thunderstorm activity allowing the pilot to make appropriate flight path changes. The Stormscope maps electrical discharge activity in ranges of 360 degrees and 120 degrees around the aircraft up to a distance of 200 nautical miles. The system is heading stabilized, allowing it to maintain proper display orientation during turns.

The processor continuously provides storm data acquisition and self-test functions regardless of the display mode selected. Electrical discharge data is acquired continuously, even if the system is not in the weather mapping mode, to ensure that the data presented to the pilot is always current.

The Stormscope incorporates electronic checklists. The checklists are not pilot programmable but can be field programmed to meet the pilot's specific requirements. Up to six checklists with thirty items each are available. The electronic clock provides current time and date, an elapsed time counter and a stopwatch for timed approaches.

With the Navaid option installed and enabled, simultaneous presentation of weather mapping data and navigation data is displayed. With the Navaid Option, the MAIN MENU includes a Navaid display selection and the OPTIONS menu includes a Navaid Setup function. Refer to the Stormscope Series II Weather Mapping Systems Pilot's Handbook for further information.

2 December 1999

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### S44 MODEL 208 (675 SHP)

#### BFGOODRICH WX-1000+/1000E WEATHER MAPPING SYSTEM

The WX-1000+/1000E displays weather information on a BFG WX-1000+/1000E/SKY497 CRT display of green symbols and text. The display can be dedicated to the WX-1000+/1000E, or shared with a BFGoodrich SKYWATCH SKY497 Traffic Advisory System (if installed). However, the display does not show traffic and storm information simultaneously. The position of a green light, push-button type SKYWATCH/STORMSCOPE mode switch, located adjacent to the display, determines whether the display shows traffic or storm information. If the mode switch is in the STORMSCOPE position and the SKY497 detects traffic that may pose an immediate threat to the aircraft, the display switches temporarily to SKYWATCH mode.

The following functions apply to Stormscope operations:

Inhibit - Processor data acquisition is inhibited while the mic key is depressed. If the system is inhibited for more than one minute, "MIC KEY STUCK" will be displayed.

Heading Stabilization Unavailable - "FLAG" will appear where heading information is normally displayed. See the Pilot's Handbook for operating without heading stabilization.

Navaid Unavailable - "NAV FLAG" will appear below the weather display when the receiver fails to acquire a consistent signal. See the Pilot's Handbook for operating without heading stabilization.

#### NOTE

It may be useful to validate the lightning strike data by pressing the CLEAR button and then monitoring the reappearance of the thunderstorm activity on the display.

# SECTION 2 LIMITATIONS

The BFGoodrich Stormscope Series II Weather Mapping Systems Pilot's Handbook P/N 75-0299-7690-1 (Rev. B 7/2/98 or later), must be readily available to the flight crew when operating the Stormscope system.

S44-4

2 December 1999

#### BFGOODRICH WX-1000+/1000E WEATHER MAPPING SYSTEM

Pilots must not use the Stormscope weather mapping display to attempt thunderstorm penetration. The system is intended only to help the pilot make better thunderstorm avoidance decisions.

The electronic checklists must contain FAA approved operating procedures. It is the operator's responsibility to ensure that checklist contents are consistent with current Pilot's Operating Handbook procedures.

The optional Navaid presentation is not approved as a primary or sole means of navigation information display. Other approved navigation information displays must be installed and operable, as required by the FAR's applicable to the specific type of operation (i.e. VOR, DME, etc.).

# SECTION 3 EMERGENCY PROCEDURES

No Change.

# SECTION 4 NORMAL PROCEDURES

### A CAUTION

Static discharge from the static wicks on the wing and tail may cause false indications of lightning strikes at the 9 o'clock, 3 o'clock, and 6 o'clock positions, with the 200 nm range selected.

Refer to the Stormscope Series II Weather Mapping Systems Pilot's Handbook.

The operating procedures are the same as those in the Pilot's Operating Handbook except as follows:

IF ANY OF THE FOLLOWING ERROR MESSAGES "ERROR 01 -CONTINUED OPERATION IS NOT POSSIBLE", "ERROR 46 --WEATHER MAPPING IS INHIBITED" OR "ERROR 44 OR 45 -WEATHER MAPPING IS INHIBITED" APPEAR ON THE STORMSCOPE DISPLAY.

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# S44

MODEL 208 (675 SHP)

#### BFGOODRICH WX-1000+/1000E WEATHER MAPPING SYSTEM

SKYWATCH/STORMSCOPE switch (if installed) - SKYWATCH.

Or

Stormscope - OFF.

# SECTION 5 PERFORMANCE

No Change.

2 December 1999



# Pilot's Operating Handbook and FAA Approved Airplane Flight Manual CESSNA MODEL 208 (675 SHP)

# **SUPPLEMENT 45**

# ARCTIC DIESEL FUEL

SERIAL NO.

**REGISTRATION NO.** 

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual when using Automotive Arctic Diesel (Arctic Grade) Fuel.

APPROVED BY

Wendell W. Comeil Executive Engineer Cessna Aircraft Company Delegation Option Manufacturer CE-3

DATE OF APPROVAL 26 AUGUST 1999

26 AUGUST 1999

Member of GAMA

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S45 MODEL 208 (675 SHP)

ARCTIC DIESEL FUEL POH SUPPLEMENT

# SUPPLEMENT CESSNA MODEL 208 (675 SHP) SUPPLEMENT 45 ARCTIC DIESEL FUEL

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#### ARCTIC DIESEL FUEL POH SUPPLEMENT

# SUPPLEMENT ARCTIC DIESEL FUEL

# SECTION 1 GENERAL

This supplement provides information concerning use of Automotive Arctic Diesel (Arctic Grade) fuel in the Model 208 (675 SHP) fuel system.

# SECTION 2

### LIMITATIONS

FUEL GRADE	FUEL SPECIFICATION (Per P&WC SB1244)	MINIMUM FUEL TEMPERATURE AND OAT FOR ALL FLIGHT AND GROUND OPERATION
AUTOMOTIVE ARCTIC DIESEL (ARCTIC GRADE)	ASTM D975, GRADE 1D or VV-V-800, GRADE DF-A or CAN/CGSB-3.6-M90, TYPE A	-15°C

- Fuel used must contain anti-icing additive in compliance with MIL-I-27686 or MIL-I-85470. Refer to Section 8 of the Pilot's Operating Handbook for allowable concentrations of additives, and other information.
- Minimum OAT applies to minimum OAT within last 24 hours for ground cold soak, unless fuel temperature is checked.
- 3. It is the operator's responsibility to insure that the fuel is free of water and other liquid and solid contaminants to the same extent as normal aviation fuels. If there is doubt, a sample of fuel as delivered by the refueling equipment should be tested and compared to the cleanliness standards for Jet A fuel per ASTM D1655.
- Other types and grades of Diesel fuel, or Arctic Diesel fuel containing dyes, must not be used. Arctic Diesel fuel without dye is straw colored similar to Jet A fuel.

### A CAUTION

Use of Arctic Diesel Fuel containing dyes may have detrimental effects on the engine fuel system and hot section parts.

Original Issue

S45 MODEL 208 (675 SHP)

ARCTIC DIESEL FUEL POH SUPPLEMENT

# SECTION 3 EMERGENCY PROCEDURES

There are no changes to the airplane emergency procedures when using Arctic Diesel Fuel.

# SECTION 4 NORMAL PROCEDURES

There are no changes to the airplane normal procedures when using Arctic Diesel Fuel.

SECTION 5 PERFORMANCE

There are no changes to airplane performance when using Arctic Diesel Fuel.

**Original Issue** 

S45-4



# Pilot's Operating Handbook and FAA Approved Airplane Flight Manual

# CESSNA MODEL 208 (675 SHP)

# **SUPPLEMENT 46**

# 300-AMP STARTER-GENERATOR INSTALLATION

SERIAL NO.

**REGISTRATION NO.** 

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, if the airplane is equipped with a 300-amp starter-generator.

APPROVED BY

Wendell W. Corneil Executive Engineer Cessna Aircraft Company Delegation Option Manufacturer CE-3

DATE OF APPROVAL 2 SEPTEMBER 1999

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D1352-S46-00

S46 MODEL 208 (675 SHP)

300-AMP STARTER-GENERATOR POH SUPPLEMENT

# SUPPLEMENT CESSNA MODEL 208 (675 SHP) SUPPLEMENT 46 300-AMP STARTER-GENERATOR INSTALLATION

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300-AMP STARTER-GENERATOR POH SUPPLEMENT S46 MODEL 208 (675 SHP)

# SUPPLEMENT

# 300-AMP STARTER-GENERATOR INSTALLATION

# SECTION 1 GENERAL

The starter-generator is mounted on the top of the accessory case at the rear of the engine. The starter-generator is a 28 volt, 300amp engine-driven unit that functions as a motor for engine starting, and after engine start, as a generator for the airplane electrical system. When operating as a starter, a speed sensing switch in the starter-generator will automatically shut down the starter, thereby providing overspeed protection and automatic shutoff. The startergenerator is air cooled by an integral fan, and by ram air drawn from the engine cowling.

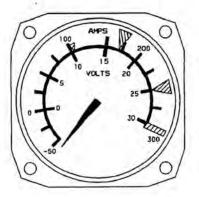


Figure 1. Volt/Ammeter

Original Issue

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## S46 MODEL 208 (675 SHP)

## 300-AMP STARTER-GENERATOR POH SUPPLEMENT

## SECTION 2 LIMITATIONS

### GROUND

- Do not exceed a load of 105 amps (first triangle on the volt/ammeter) with engine power set at Ground Idle (52% Ng min).
- Do not exceed a load of 170 amps (second triangle on the volt/ammeter) with engine power set at or above Flight Idle (64% Ng min).

#### FLIGHT

 The 300-amp starter-generator is certified to produce 300 amps (red line on the volt/ammeter) up to FL180. Above FL180, the 300-amp starter-generator is limited to a load of 250 amps (third triangle on the volt/ammeter) if the airplane is operating at a speed below 100 KIAS.

## SECTION 3 EMERGENCY PROCEDURES

There are no changes to the airplane emergency procedures.

## SECTION 4 NORMAL PROCEDURES

There are no changes to the airplane normal procedures.

# SECTION 5 PERFORMANCE

There are no changes to airplane performance.

Original Issue

S46-4



## Pilot's Operating Handbook and FAA Approved Airplane Flight Manual

# CESSNA MODEL 208 (675 SHP)

# SUPPLEMENT 47

# TAKEOFF PROCEDURES FOR EUROPEAN AIRPORTS WITH NOISE LIMITATIONS

#### SERIAL NO.

#### **REGISTRATION NO.**

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, if the airplane is operated out of European airports that have noise limitations.

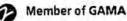
APPROVED BY

Wendell Corneil **Executive Engineer** Cessna Aircraft Company **Delegation Option Manufacturer CE-3** 

DATE OF APPROVAL

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S47 MODEL 208 (675 SHP) TAKEOFF PROCEDURES FOR EUROPEAN AIRPORTS WITH NOISE LIMITATIONS

# SUPPLEMENT CESSNA MODEL 208 (675 SHP) SUPPLEMENT 47

# TAKEOFF PROCEDURES FOR EUROPEAN AIRPORTS WITH NOISE LIMITATIONS

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S47-2

TAKEOFF PROCEDURES FOR EUROPEAN S47 AIRPORTS WITH NOISE LIMITATIONS MODEL 208 (675 SHP)

# TAKEOFF PROCEDURES FOR EUROPEAN AIRPORTS WITH NOISE LIMITATIONS

## SECTION 1 GENERAL

This supplement is to be used when operating out of European airports that have noise limitations. In order to meet the limitations for operations out of these airports, climbout procedures are amended. Takeoff will be accomplished as prescribed in Section 4 of the basic Pilot's Operating Handbook. After reaching an altitude of 600 ft AGL, the propeller setting is reduced to 1750 RPM, and maintained through 1000 feet AGL, or until clear of noise sensitive area.

Also included in this supplement is a Performance Section containing new figures and tables which incorporate the takeoff procedures for operation in the designated airports with noise limitations.

The Model 208 (675 SHP) without the cargo pod has the same, or better, noise signature as the Model 208 (675 SHP) with the cargo pod.

## SECTION 2 LIMITATIONS

There are no changes to the airplane Limitations when these procedures are used.

## SECTION 3 EMERGENCY PROCEDURES

There are no changes to the airplane Emergency Procedures when these procedures are used.

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S47 т MODEL 208 (675 SHP)

TAKEOFF PROCEDURES FOR EUROPEAN AIRPORTS WITH NOISE LIMITATIONS

# SECTION 4 NORMAL PROCEDURES

## CHECKLIST PROCEDURES

## TAKEOFF

## NORMAL TAKEOFF

- 1. Wing Flaps -- 20°.
- Power -- SET FOR TAKEOFF (observe Takeoff ITT and Ng limits). Refer to Section 5 of the Pilot's Operating Handbook for takeoff power.
- 3. Annunciators -- CHECK.
- 4. Rotate -- 70-75 KIAS.
- 5. Climb Speed -- 85-95 KIAS.
- PROPELLER -- 1750 RPM between 600 ft AGL and 1000 ft AGL, or until clear of noise sensitive area.
- 7. Wing Flaps -- RETRACT.

## SHORT FIELD TAKEOFF

- 1. Wing Flaps -- 20°.
- 2. Brakes -- APPLY.
- Power -- SET FOR TAKEOFF (observe Takeoff ITT and Ng limits). Refer to Section 5 of the Pilot's Operating Handbook for takeoff power.
- 4. Annunciators -- CHECK.
- 5. Brakes -- RELEASE.
- 6. Rotate -- 70 KIAS.
- Climb Speed -- 83 KIAS, until all obstacles are cleared. Refer to Section 5 for speeds at reduced weights.
- Propeller -- 1750 RPM between 600 ft AGL and 1000 ft AGL, or until clear of noise sensitive area.
- 9. Wing Flaps -- RETRACT.

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TAKEOFF PROCEDURES FOR EUROPEAN S47 AIRPORTS WITH NOISE LIMITATIONS MODEL 208 (675 SHP)

## AMPLIFIED PROCEDURES

## TAKEOFF

Refer to the engine torque for takeoff figure in Section 5 of the Pilot's Operating Handbook to determine the torque corresponding to the surface altitude and OAT conditions. This torque should be obtainable without exceeding 805°C ITT or 101.6% Ng.

Takeoff roll is most smoothly initiated by gradually advancing the power lever until propeller RPM nears 1900. Smoothly release the brakes and continue advancing the power lever until the takeoff torque (from Section 5) is reached.

#### NOTE

As airspeed increases during takeoff, an increase in torque at a fixed power lever position is normal and need not be reduced, provided torque limit (1865 foot-pounds) is not exceeded.

At 600 feet AGL, reduce propeller setting to 1750 RPM. Maintain 1750 RPM and takeoff engine torque for the day through 1000 feet AGL, or until clear of the noise sensitive area, and then retract flaps and resume normal climb power setting.

# SECTION 5 PERFORMANCE

When operating from European airports with noise limitations, the following climb performance charts represent aircraft performance at the reduced power setting.

(Continued Next Page)

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## S47 MODEL 208 (675 SHP)

## TAKEOFF PROCEDURES FOR EUROPEAN AIRPORTS WITH NOISE LIMITATIONS

#### (WITHOUT CARGO POD)

## RATE OF CLIMB - CUTBACK PROCEDURE

FLAPS 20°

CONDITIONS:

Takeoff Torque 1750 RPM Inertial Separator - Normal

NOTES:

- Do not exceed torque limit for takeoff per ENGINE TORQUE FOR TAKEOFF chart. When ITT exceeds 765°C, this power setting is time limited to 5 minutes.
- With inertial separator set in BYPASS or cabin heat on, and climb power set below the torque limit, decrease rate of climb by 50 fpm for each condition.
- 3. Where rate of climb values have been replaced by dashes, operating temperature limits of the airplane would be greatly exceeded. Those rates of climb which are included but the operation slightly exceeds the temperature limit are provided for interpolation purposes only.

LT SPEED T KIAS S.L. 91 000 91 000 90 000 90 000 89 000 89 000 89 000 89	- 20°C 930 910 890 865 840 810	0*C 915 890 870 840 810	20°C 895 870 845 815	40°C 875 845 810
000 91 000 90 000 90 000 89 000 89	910 890 865 840 810	890 870 840	870 845	845
	775	780 690	775 630 490	680 650 410 275
000 69 000 89 000 68 000 68	1040 1020 1000 975 950 920 890	1020 1000 980 950 925 895 800	1005 980 955 925 805 735 590	985 960 920 790 650 505 365
000 89 000 88 000 88 000 87 000 87	1160 1145 1125 1100 1075 1045 1015	1145 1125 1100 1075 1050 1020 920	1125 1105 1080 1050 1010 865 705	1105 1085 1045 905 760 615 465
	000         90           000         89           000         89           000         88           000         87           5.L         89           000         89           000         87           000         87	000         90         1020           000         89         1000           000         89         976           000         89         976           000         88         920           000         87         890           5.L         89         1160           000         89         1145           000         88         1125           000         81         1100           000         87         1045	000         90         1020         1000           000         89         1000         980           000         89         976         980           000         89         976         980           000         89         976         980           000         88         925         925           000         87         890         800           5.L         89         1160         1145           000         89         1145         1125           000         88         1125         1000           000         88         1125         1000           000         87         1075         1050           000         87         1045         1020	000         90         1020         1000         980         955           000         89         1000         980         955         925         900         925         900         925         905         925         905         925         905         925         905         925         905         926         925         905         900         88         920         8300         690         540

## Figure 1. Rate of Climb - Takeoff Flap Setting

**Original Issue** 

### TAKEOFF PROCEDURES FOR EUROPEAN 54/ AIRPORTS WITH NOISE LIMITATIONS MODEL 208 (675 SHP)

(CARGO POD INSTALLED)

#### RATE OF CLIMB - CUTBACK PROCEDURE

FLAPS 20°

CONDITIONS:

Takeoff Torque 1750 RPM Inertial Separator - Normal Cargo Pod Installed

NOTES:

- Do not exceed torque limit for takeoff per ENGINE TORQUE FOR TAKEOFF chart. When ITT exceeds 765°C, this power setting is time limited to 5 minutes.
- With inertial separator set in BYPASS or cabin heat on, and climb power set below the torque limit, decrease rate of climb by 50 fpm for each condition.
- 3. Where rate of climb values have been replaced by dashes, operating temperature limits of the airplane would be greatly exceeded. Those rates of climb which are included but the operation slightly exceeds the temperature limit are provided for interpolation purposes only.

WEIGHT	PRESS CLIME ALT SPEED		RATE OF CLIMB - FPM			
LBS	ALT FT	KIAS	-20°C	0°C	20"C	40°C
8000	S.L. 2000 4000 6000 8000 10,000 12,000	91 90 89 89 89 89 89 88	890 870 845 820 795 765 730	870 845 820 795 765 730 840	850 825 795 765 725 580 440	825 800 760 630 495
7500	S.L. 2000 4000 5000 8000 10,000 12,000	90 89 88 88 88 88 88 88 88	995 975 955 930 905 875 840	975 955 930 905 875 845 750	955 930 905 875 835 685 540	935 910 870 735 596
7000	S.L 2000 4000 6000 8000 10,000 12,000	89 89 88 88 87 87 87 86	1115 1095 1076 1050 1025 995 960	1095 1075 1055 1025 995 965 870	1075 1055 1030 1000 956 800 650	1055 1030 990 850 705

## Figure 2. Rate of Climb - Takeoff Flaps Setting

Original Issue

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# SECTION 6 WEIGHT & BALANCE / EQUIPMENT LIST

There are no changes to the airplane Weight & Balance/ Equipment List when these procedures are used.

**Original Issue** 



## Pilot's Operating Handbook and FAA Approved Airplane Flight Manual

# CESSNA MODEL 208 (675 SHP) SUPPLEMENT 48

# BENDIX/KING FLIGHT CONTROL SYSTEM (TYPE KFC-225)

SERIAL NO.

**REGISTRATION NO.** 

This supplement must be inserted into Section 9 of the Pilot's Operating Handbook and FAA Approved Airplane Flight Manual for Cessna Model 208 (675 SHP) airplanes equipped with the Bendix/King Flight Control System (Type KFC-225).

APPROVED BY

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DATE OF APPROVAL 6 NOVEMBER 2000

6 NOVEMBER 2000



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D1352-S48-00

S48 MODEL 208 (675 SHP)

BENDIX/KING FLIGHT CONTROL SYSTEM (TYPE KFC-225)

# SUPPLEMENT CESSNA MODEL 208 (675 SHP) SUPPLEMENT 48

# BENDIX/KING FLIGHT CONTROL SYSTEM (TYPE KFC-225)

Use the Log of Effective Pages to determine the current status of this supplement. Pages affected by the current revision are indicated by an asterisk (\*) preceding the page number.

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S48-1 thru S48-12

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BENDIX/KING FLIGHT CONTROL SYSTEM (TYPE KFC-225) S48 MODEL 208 (675 SHP)

# BENDIX/KING FLIGHT CONTROL SYSTEM (TYPE KFC-225)

## SECTION 1 GENERAL

This supplement is provided to acquaint the pilot and copilot with limitations, and normal and emergency operating procedures for the Bendix/King KFC-225 Automatic Flight Control System. The limitations presented are pertinent to operation of the KFC-225 System as installed in Cessna Model 208 airplanes. The flight control systems must be operated within the limitations herein specified.

The KFC-225 is certified in this airplane with 2 axis autopilot control (pitch and roll). A third axis autopilot control for yaw damping is available as an option.

The KFC-225 has an electric pitch trim system which provides autotrim during autopilot operation, and electric trim for the pilot. The trim system is designed to withstand any single inflight malfunction. Trim faults are visually and aurally annunciated.

A lockout device prevents autopilot engagement until the system has been successfully preflight tested. Successful completion of the preflight test is identified by all display segments being illuminated, the Flight Director command bars brought into view, and the disconnect tone sounding.

The following conditions will cause the autopilot to automatically disengage:

- 1. Electrical power failure.
- 2. Internal flight control system failure.
- 3. With the KCS-55A Compass System, a loss of valid compass (displaying HDG flag) disengages the autopilot when a mode using heading information is engaged. With the HDG flag present, the autopilot may be reengaged in the basic wingslevel mode along with any vertical mode.

(Continued Next Page)

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## S48 MODEL 208 (675 SHP)

## BENDIX/KING FLIGHT CONTROL SYSTEM (TYPE KFC-225)

- Roll rates in excess of 14° per second for one second will cause the autopilot to disengage, except when the CWS button is held depressed.
- Pitch rates in excess of 6° per second for one second will cause the autopilot to disengage, except when the CWS button is held depressed.
- Pitch accelerations in excess of +1.6g, or less than +0.4g, will cause only the autopilot servo clutches to disengage. Sustained accelerations will cause autopilot disengagement, except when the CWS button is held depressed.

The following circuit breakers are used to protect the elements of the Bendix/King KFC-225 Flight Control System:

## LABEL FUNCTION

- A/P Supplies power to the KFC-225 Autopilot Computer. COMP SERVO Supplies power to all servos.
- A/P Supplies power to all autopilot aural alerts.
- HSI 1 Supplies power to the KCS-55A Compass System.

ENC Supplies power to the KEA-130A Encoding Altimeter.

The following voice messages will be annunciated as conditions warrant:

- "TRIM IN MOTION, TRIM IN MOTION" Elevator trim running for more than 5 seconds.
- "CHECK PITCH TRIM" An out of trim condition has existed for 16 seconds.

The airplane BATTERY, GENERATOR and STBY PWR SWITCH functions are unchanged and can be used in an emergency to shut off electrical power to all flight control systems while the problem is isolated.

The AVIONICS POWER 1 switch supplies power to the autopilot and ELEV TRIM circuit breakers.

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## BENDIX/KING FLIGHT CONTROL SYSTEM (TYPE KFC-225)

S48 MODEL 208 (675 SHP)

## SECTION 2 LIMITATIONS

The following autopilot limitations must be followed during airplane operation:

**OPERATING LIMITATIONS:** 

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- The Bendix/King KFC-225 Pilot's Guide, part number 006-18035-0000, dated April 1999, or later version, must be immediately available to the pilot whenever operating the KFC-225 Flight Control System.
- During autopilot operation, a pilot with seat belt fastened must be seated at the left pilot position.
- The autopilot and yaw damper (optional) must be OFF during takeoff and landing.
- The system is approved for Category 1 operation only --Approach Mode Selected.
- 5. The autopilot must be disconnected below 200 feet AGL.
- 6. Autopilot must be off during use of the Standby Flap System.
- 7. Altitude Select captures below 800 feet AGL are prohibited.
- 8. Autopilot operation prohibited with more than 20° flaps.

## A WARNING

In accordance with FAA recommendation (AC 00-24K), use of basic pitch attitude hold mode is recommended during operation in severe turbulence.

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MODEL 208 (675 SHP)

## SECTION 3 EMERGENCY PROCEDURES

## IN CASE OF AUTOPILOT/YAW DAMPER MALFUNCTION:

#### NOTE

Accomplish Items 1 and 2 simultaneously.

- 1. Airplane Control Wheel -- GRASP FIRMLY and OPERATE as required to manually override the autopilot.
- 2. A/P DISC/TRIM INTER Switch -- PRESS and HOLD.
- A/P DISC/TRIM INTER Switch -- RELEASE while observing pitch trim wheel. If pitch trim wheel is in motion, follow the electric trim malfunction procedure.

IN CASE OF ELECTRIC TRIM MALFUNCTION (Either manual electric or autotrim):

- A/P DISC/TRIM INTER Switch -- PRESS and HOLD throughout recovery.
- 2. SERVO Circuit Breaker -- PULL.
- 3. Aircraft -- RETRIM manually.

## A WARNING

When disconnecting the autopliot after a trim malfunction, hold the control wheel firmly; up to 30 pounds of force on the control wheel may be necessary to hold the aircraft level.

MAXIMUM ALTITUDE LOSS DUE TO AUTOPILOT MALFUNCTION:

ConfigurationAltitude lossCruise, Climb, and Descent300 Ft.Maneuvering150 Ft.Approach100 Ft.

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For Training Purposes Only

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## BENDIX/KING FLIGHT CONTROL SYSTEM (TYPE KFC-225)

MODEL 208 (675 SHP)

AUTOPILOT/YAW DAMPER DISENGAGEMENT (The autopilot and/or yaw damper may be manually disengaged by any of the following methods):

- Press the A/P DISC/TRIM INTER switch on the pilot's control wheel.
- Operate the pilot's electric trim switch UP or DOWN to automatically disengage the autopilot only. The yaw damper remains engaged.
- Press the AP/ENG button to the OFF position. The yaw damper remains engaged.
- Pull the SERVO or A/P COMP circuit breakers out.
- 5. Turn off the AVIONICS POWER 1 switch.

YAW DAMPER (OPTIONAL) DISENGAGEMENT (The yaw damper only may be disengaged by the following method):

1. Press the yaw damper switch button to the OFF position.

In case of "CHECK PITCH TRIM" aural message (An out of trim condition has existed for 16 seconds):

- Airplane Control Wheel -- GRASP FIRMLY, press CWS, and check for an out of pitch trim condition. Manually retrim as required.
  - 2. CWS Button -- RELEASE.
  - AUTOPILOT OPERATION -- CONTINUE if satisfied that the out of trim condition was temporary. DISCONTINUE if evidence indicates a failure of the autotrim function.

#### FLASHING PT:

A flashing PT autotrim annunciation with an up or down arrowhead in the display of the autopilot computer suggests a failure of the autotrim function to relieve pitch servo loading in a timely manner.

1. FLASHING PT ANNUNCIATION -- OBSERVE aircraft pitch behavior. If pitch behavior is satisfactory, wait 5 - 10 seconds for the annunciation to stop.

(Continued Next Page)

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## S48 MODEL 208 (675 SHP)

- If annunciation continues, Airplane Control Wheel -- GRASP FIRMLY, press CWS and check for an out of pitch trim condition. Manually retrim as required.
- 3. CWS Button -- RELEASE.
- AUTOPILOT OPERATION -- CONTINUE, if satisfied that the out of trim indication was temporary. DISCONTINUE, if evidence indicates a failure of the auto trim function.

RED "P" or "R" (A red P or R annunciation on the face of the autopilot computer):

 A red P annunciation is an indication that the pitch axis of the autopilot has been disabled, and the autopilot cannot be engaged.

#### NOTE

If the red P lamp was the result of some abnormal accelerations on the airplane, the annunciation should extinguish within approximately one minute, and normal use of the autopilot will be reestablished. This annunciation may be present during power up.

 A red R annunciation is an indication that the roll axis of the autopilot has been disabled, and the autopilot cannot be engaged.

#### FLASHING MODE

A flashing mode annunciation on the display of the autopilot computer, or on the remote mode annunciator, is normally an indication of mode loss.

- Flashing HDG -- Indication of a failed heading input. PRESS HDG button to terminate flashing.
- Flashing NAV, APR, or REV -- Usually an indication of a flagged navigation source, or an interruption of navigation signal. The autopilot will default to ROL mode. PRESS the NAV, APR, or REV button to terminate flashing. Select a valid navigation source.

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## BENDIX/KING FLIGHT CONTROL SYSTEM (TYPE KFC-225)

S48 MODEL 208 (675 SHP)

#### NOTE

A flashing NAV, APR, or REV annunciation can also be caused by a failed heading, or course datum input.

 Flashing GS -- Indication of a flagged glideslope (or a fault in the KFC-225 pressure sensor). The autopilot will default to PIT mode. GS will rearm automatically if a valid GS signal is received.

## NOTE

To continue tracking the localizer, observe the appropriate minimums for a non-precision approach. (Press VS to terminate the flashing GS and allow vertical speed control of the pitch axis).

# SECTION 4 NORMAL PROCEDURES

BEFORE TAKEOFF (Perform Steps 1 thru 8 prior to each flight)

- 1. Gyros -- Allow 3-4 minutes for gyros to come up to speed.
- AVIONICS POWER 1 Switch -- ON.
- 3. PREFLIGHT TEST -- Performed automatically on power up.

#### NOTE

If TRIM warning light stays on, the autotrim did not pass the preflight test. The autopilot circuit breaker should be pulled. The autopilot and manual electric trim will be inoperative.

- 4. Manual Electric Trim -- TEST as follows:
  - a. Actuate left side of split switch unit to the fore and aft positions. The trim wheel should not move on its own. Rotate the trim wheel manually against the engaged clutch to check the pilot's trim overpower capability.

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## S48 MODEL 208 (675 SHP)

## BENDIX/KING FLIGHT CONTROL SYSTEM (TYPE KFC-225)

- b. Actuate right side of split switch unit to the fore and aft positions. The trim wheel should not move on its own and normal trim wheel force is required to move it manually.
- c. Press the A/P DISC/TRIM INTER switch down and hold. Manual electric trim should not operate either nose up or nose down.
- Autopilot -- ENGAGE by pressing the AP button. The optional yaw damper will also engage.
- Flight Controls -- MOVE fore, aft, left, and right to verify that the autopilot/yaw damper can be overpowered.
- A/P DISC/TRIM INTER Switch -- PRESS. Verify that the autopilot and yaw damper (optional) disconnects and all flight director modes are canceled.
- 8. TRIM -- SET to takeoff position.

## AUTOPILOT OPERATION

## A CAUTION

Retract and extend flaps in increments of 10° in order to minimize altitude deviations during configuration changes.

#### BEFORE TAKEOFF:

- 1. A/P DISC/TRIM INTER Switch -- PRESS to disengage AP.
- Refer to the Bendix/King KFC-225 Pilot's Guide, part number 006-18035-0000, dated April 1999, or later version, for autopilot operation.

CLIMB

## A CAUTION

When operating at or near the best rate of climb airspeed, and using vertical speed hold (VS), avoid slowing to an airspeed on the back side of the power curve where a decrease in airspeed results in a reduced rate of climb. Continued operation on the back side of the power curve in VS mode may result in a stall.

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## BENDIX/KING FLIGHT CONTROL SYSTEM (TYPE KFC-225)

#### MISSED APPROACH:

- 1. A/P DISC/TRIM INTER Switch -- PRESS to disengage AP.
- 2. Missed Approach -- EXECUTE.
- GA Button -- PRESS as desired to activate FD mode during go-around maneuver.
- AP ENG button -- PRESS (if AP operation is desired). Note AP annunciators ON.

## A CAUTION

When operating at or near the best rate of climb airspeed, and using vertical speed hold (VS), avoid slowing to an airspeed on the back side of the power curve where a decrease in airspeed results in a reduced rate of climb. Continued operation on the back side of the power curve in VS mode may result in a stall.

If AP is used during missed approach:

 Altitude Select -- SELECT missed approach altitude, and verify that ALT ARM is illuminated.

#### NOTE

If it is desired to track the ILS course outbound as part of the missed approach procedure, use the NAV mode to prevent inadvertent GS coupling.

#### **BEFORE LANDING:**

1

 A/P DISC/TRIM INTER Switch -- PRESS to disengage AP and yaw damper (optional).

### FLIGHT DIRECTOR OPERATION

#### NOTE

The flight director modes of operation are the same as those used for autopilot operations, except the autopilot is not engaged, and the pilot must maneuver the airplane to satisfy the flight director commands.

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## S48 MODEL 208 (675 SHP)

BENDIX/KING FLIGHT CONTROL SYSTEM (TYPE KFC-225)

# SECTION 5 PERFORMANCE

There is no change to the airplane performance data when this avionics equipment is installed.

## **Original Issue**



## Pilot's Operating Handbook and FAA Approved Airplane Flight Manual

# CESSNA MODEL 208 (675 SHP) SUPPLEMENT 50

# BENDIX/KING KLN 94 GPS NAVIGATION SYSTEM

SERIAL NO.

**REGISTRATION NO.** 

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, if the airplane is equipped with the Bendix/King KLN 94 GPS Navigation System.

APPROVED BY

DATE OF APPROVAL

8 JANUARY 2001

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# **8 JANUARY 2001**

**REVISION 1 - 16 DECEMBER 2002** 

S50-1

S50 MODEL 208 (675 SHP)

BENDIX/KING KLN 94 GPS POH SUPPLEMENT

# SUPPLEMENT

## BENDIX/KING KLN 94 GPS NAVIGATION SYSTEM

Use the Log of Effective Pages to determine the current status of this supplement. Pages affected by the current revision are indicated by an asterisk (\*) preceding the page number.

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BENDIX/KING KLN 94 GPS POH SUPPLEMENT

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# SUPPLEMENT

# BENDIX/KING KLN 94 GPS NAVIGATION SYSTEM

# SECTION 1 GENERAL

GPS (Global Positioning System) is a three-dimensional (3-D) precise location and navigation system based on a constellation of 24 satellites orbiting the earth. Receiver Autonomous Integrity Monitoring (RAIM) is a function that every IFR-certified GPS receiver must continuously perform to assure an accurate position. The high order of accuracy that is obtained from RAIM availability requires 5 or more satellites in view, or 4 satellites in view and a pressure altitude input from the airplane's altimeter. If there are not enough satellites in view to ensure the position integrity, the KLN 94 GPS navigation system notifies the pilot.

The Bendix/King KLN 94 GPS Navigation System consists of a panel-mounted control display unit, an externally mounted flat GPS antenna on the top forward portion of the fuselage and GPS annunciator/switches mounted below the HSI. The left annunciator/switch consists of a pushbutton switch labeled GPS APPROACH, which incorporates a two-segment annunciator labeled ARM and ACTV. The center annunciator consists of a threesegment annunciator labeled GPS WAYPOINT, MSG and ALT (GPS WAYPOINT and GPS MESSAGE when the ALT annunciator is not installed). The right annunciator/switch consists of a pushbutton switch incorporating a two-segment annunciator labeled HSI NAV 1 and HSI GPS. This pushbutton switch has a press-to-cycle feature that controls whether NAV 1 or GPS information is being displayed on the HSI. The NAV 1 or GPS annunciator illuminates to indicate which position has been selected.

When the HSI GPS annunciator switch is illuminated, Course Deviation, To/From and Flag information from the KLN 94 GPS is displayed on the HSI. The HSI, while in the enroute mode, indicates linear distance and has three sensitivity scale settings:  $\pm 5$  nautical mile (factory default),  $\pm 1.0$  nautical mile and  $\pm 0.3$  nautical mile, full scale deflection. When transitioning to the approach ARM

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## BENDIX/KING KLN 94 GPS POH SUPPLEMENT

mode, the HSI scale factor changes to  $\pm 1.0$  NM (full scale deflection) over 30 seconds and the ARM annunciator illuminates. When transitioning to the approach active mode, the HSI scale factor changes to  $\pm 0.3$  NM (full scale deflection) and the ACTV annunciator illuminates.

When the autopilot is in the NAV mode, it will couple to NAV 1, VOR/ILS or KLN 94 GPS, depending on the state of the NAV/GPS switch.

A single 5-amp circuit breaker labeled GPS/LORAN on the bottom row breaker panel powers the KLN 94 Navigation System.

Operation of the KLN 94 GPS Navigation System shall be in accordance with the Bendix/King KLN 94 Pilot's Guide (supplied with the airplane). The Pilot's Guide should be thoroughly studied and VFR operations conducted prior to using this equipment in IFR conditions.

A NavData Card with a current database is supplied with the KLN 94 GPS. Since this database information is updated every 28 days, it is important to monitor the database expiration date. Once the database has expired, the GPS system provides an advisory message that must be acknowledged by the operator. Although the system will continue to operate normally, the warning message will be repeated on each power-up to remind the user that the database is out of date. To eliminate this warning the database must be updated.

## A CAUTION

The database must be updated only while the aircraft is on the ground. The KLN 94 does not perform any navigation function while the database is being updated.

#### NOTE

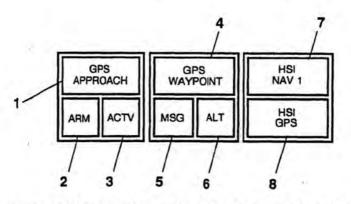
A current database is required by regulation to use the KLN 94 GPS system for nonprecision approaches.

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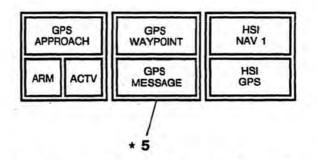
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BENDIX/KING KLN 94 GPS POH SUPPLEMENT







## \* WITHOUT ALTITUDE (ALT) ANNUNCIATOR LIGHT INSTALLED

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## Figure 1. GPS Annunciator/Switch (Sheet 1 of 4)

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## S50 MODEL 208 (675 SHP)

## BENDIX/KING KLN 94 GPS POH SUPPLEMENT

 GPS APPROACH SWITCH/ANNUNCIATOR - Used to manually select or deselect approach ARM (or deselect approach ACTV). The remote switch annunciator also annunciates the stage of approach operation; either armed (ARM) or activated (ACTV). Sequential button pushes if in ACTV would first result in approach ARM and then approach ARM cancelled. Subsequent button pushes will cycle between the armed state (if an approach is in the flight plan) and approach ARM cancelled. Approach ACTV cannot be selected manually.

Illumination of the GPS APPROACH annunciator is controlled through the annunciator panel Day/Night switch and is only illuminated when the switch is in the night position. The white background color of the GPS APPROACH annunciator makes it visible in daylight.

- 2. ARM ANNUNCIATOR LIGHT ARM annunciator will illuminate when the KLN 94 GPS system automatically selects the approach ARM mode or when the approach ARM mode is manually selected. The approach ARM mode will be automatically selected when the airplane is within 30 NM of an airport and an approach is loaded in the flight plan for that airport. The approach ARM mode can manually be selected at a greater distance than 30 NM from the airport by pressing the GPS APPROACH switch; however, this will not change the CDI scale until the airplane reaches the 30 NM point.
- ACTIVE (ACTV) ANNUNCIATOR LIGHT ACTV annunciator illuminates when the KLN 94 GPS system automatically engages the approach ACTV mode (the ACTV mode can only be engaged by the KLN 94). To cancel the approach ACTV mode, press the GPS APPROACH switch, this will change the mode to the approach ARM mode and illuminate the ARM annunciator.

Figure 1. GPS Annunciator/Switch (Sheet 2 of 4)

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## BENDIX/KING KLN 94 GPS POH SUPPLEMENT

## S50 MODEL 208 (675 SHP)

- 4. GPS WAYPOINT ANNUNCIATOR LIGHT GPS WAYPOINT annunciator will begin to flash approximately 36 seconds prior to reaching a Direct To waypoint. Also, when turn anticipation is enabled in the KLN 94 GPS unit, the annunciator will begin to flash 20 seconds prior to the beginning of turn anticipation, then illuminate steady at the very beginning of turn anticipation.
- 5. GPS MESSAGE ANNUNCIATOR LIGHT GPS MESSAGE (MSG when the ALT annunciator is installed) will begin flashing whenever the message prompt (a large "M" on the right side of the screen) on the KLN 94 GPS unit begins flashing to alert the pilot that a message is waiting. Press the Message (MSG) key to display the message. If a message condition exists which requires a specific action by the pilot, the message annunciator will remain on but will not flash.
- ALTITUDE (ALT) ANNUNCIATOR LIGHT If installed, the ALT annunciator illuminates simultaneously with an aural alarm, which is connected to the audio panel so the alarm is heard through the airplane speakers or headphones, and activates:
  - a. 1000 feet prior to reaching the selected altitude -- three short tones, ALT annunciator illuminates with tones.
  - Upon reaching the selected altitude -- two short tones, ALT annunciator illuminates with tones.
  - c. Deviating above or below the selected altitude by more than the warn altitude -- four short tones, ALT annunciator illuminates with tones.

## A CAUTION

The altitude alerting feature will only be accurate if the altimeter baro correction is kept updated. If altitude alerting is used, it is a good idea to update the altimeter baro set on the ALT 1 page each time you make a change to the alrplane's altimeter setting.

Figure 1. GPS Annunciator/Switch (Sheet 3 of 4)

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S50 MODEL 208 (675 SHP)

### BENDIX/KING KLN 94 GPS POH SUPPLEMENT

## NOTE

There may be some difference (less than 100 feet) between the indicated altitude and the airplane's actual altitude if the altitude input to the KLN 94 is from an altitude encoder, because these encoders only provide altitude in 100-foot increments.

- HSI NAV 1 ANNUNCIATOR/SWITCH HSI NAV 1 annunciator will illuminate to inform the pilot that NAV 1 information is being displayed on the HSI. Pressing this switch will toggle between NAV 1 and GPS as the displayed navigation source.
- HSI GPS ANNUNCIATOR/SWITCH HSI GPS annunciator will illuminate to inform the pilot that GPS information is being displayed on the HSI. Pressing this switch will toggle between NAV 1 and GPS as the displayed navigation source.

Figure 1. GPS Annunciator/Switch (Sheet 4 of 4)

# SECTION 2 LIMITATIONS

### NAVIGATION OPERATIONAL APPROVALS

The Bendix/King KLN 94 GPS Navigation System is approved under TSO C129 A1 and meets the requirements for the following operations:

 Enroute and Terminal - In accordance with AC20-138A including BRNAV/RNP5 in accordance with AC90-96 and JAA AMJ 20X2, provided it is receiving usable navigation information from the internal GPS receiver (meets requirements of AC90-94).

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## BENDIX/KING KLN 94 GPS POH SUPPLEMENT

 Non-Precision Approach - In accordance with AC20-138A and AC90-94 provided the GPS is receiving usable navigation information. The KLN 94 has been demonstrated to meet the accuracy specifications for non-precision GPS approach operations within the U.S. National Airspace System. The advisory VNAV function does not meet the requirements for approach VNAV.

### OPERATING LIMITATIONS

- The Bendix/King KLN 94 GPS Navigation System Pilot's Guide, part number 006-18207-0000, dated September 2000 (or later revision), as applicable to the specific software modification status, must be immediately available to the pilot whenever navigation is predicated on use of the GPS system. The Operational Revision Status (ORS) of the Pilot's Guide must match the ORS level annunciated on the Self Test page.
- 2. Navigation is prohibited within 60 n.m. of the north and south poles (i.e. greater than 89° north and south latitudes).
- 3. IFR operations are limited as follows:
  - The Bendix/King KLN 94 GPS Navigation System must utilize Operational Revision Status (ORS) level 01 or later FAA approved revision.
  - b. The data on the self-test page must be verified prior to use.
  - c. IFR en route and terminal navigation is prohibited unless the pilot verifies the currency of the database or verifies each selected waypoint for accuracy by reference to current approved data.
  - d. The airplane must have other approved navigation equipment installed and operating appropriate to the route of flight.

## S50 MODEL 208 (675 SHP)

- 4. Instrument approach limitations:
  - a. The Bendix/King KLN 94 GPS Navigation System Quick Reference, Part Number 006-18228-0000, Rev. 1 dated August 2000 (or later revision), must be immediately available to the pilot during instrument approach operations.
  - b. Instrument approaches must be accomplished in accordance with approved instrument approach procedures that are retrieved from the GPS equipment database. The GPS equipment database must incorporate the current update cycle.
  - APR ACTV mode must be annunciated at the Final Approach Fix.
  - d. When an alternate airport is required by the applicable operating rules, it must be served by an approach based on other than GPS, the airplane must have operational equipment capable of using that navigation aid, and the required navigation aid must be operational.
  - e. The KLN 94 GPS Navigation System can only be used for approach guidance if the reference coordinate datum system for the instrument approach is WGS-84 or NAD-83 (all approaches in the KLN 94 database use the WGS-84 or the NAD-83 geodetic datums).
  - f. The Bendix/King KLN 94 GPS Navigation System is not approved for the following approaches: ILS, LOC, LOC-BC, LDA, SDF, and MLS. These are approaches contained within the KLN 94 database only to provide greater situational awareness when conducting these procedures with approved sensors.
- 5. For BRNAV operations in the European region:
  - a. With 23 (24 if the altitude input to the KLN 94 is not available) or more satellites projected to be operational for the flight, the aircraft can depart without further action.

(Continued on Next Page)

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## BENDIX/KING KLN 94 GPS POH SUPPLEMENT

## S50 MODEL 208 (675 SHP)

b. With 22 (23 if the altitude input to the KLN 94 is not available) or fewer satellites projected to be operational for the flight, the availability of the GPS integrity (RAIM) should be confirmed for the intended flight (route and time). This should be obtained from a prediction program run outside the aircraft. The prediction program must comply with the criteria of Appendix 1 of AC90-96. In the event of a predicted continuous loss of RAIM of more than 5 minutes for any part of the intended flight, the flight should be delayed, cancelled, or rerouted on a track where RAIM requirements can be met.

## **SECTION 3**

## EMERGENCY PROCEDURES

If information from the KLN 94 GPS Navigation System is intermittent or lost, utilize remaining operational navigation equipment as required.

Refer to the KLN 94 Pilot's Guide, Appendices B and C, for appropriate pilot actions to be accomplished in response to annunciated messages.

## **SECTION 4**

## NORMAL PROCEDURES

The Bendix/King KLN 94 GPS Navigation System shall be operated per the Pilot's Guide, 006-18207-0000, dated September 2000 (or later revision) supplied with the airplane.

#### NOTE

The KAP-150 Autopilot, KFC-150 or KFC-250 Flight Control Systems will remain coupled to the selected NAV regardless of whether the NAV information is valid or not (flagged). This also applies to GPS operation. It is the responsibility of the pilot to assure that the NAV information is valid.

(Continued Next Page

**B January 2001** 

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## S50 MODEL 208 (675 SHP)

## BENDIX/KING KLN 94 GPS POH SUPPLEMENT

#### NOTE

- The KFC-225 Automatic Flight Control System will revert to ROL Mode if NAV information is lost, or becomes invalid (flagged).
- The autopilot and flight control systems receive navigation information from the HSI.
- Airplanes equipped with KLN 94 part number 069-0134-0102 (displayed in the AUX pages) will have a roll steering input to the KFC 225 Autopilot. With this system, the autopilot does not require adjustments to the course needle after making leg changes. However, it is recommended that the course needle be changed to the correct value to enhance the pilot's situational awareness.
- When operating with the autopilot or flight control systems coupled and the KLN 94 GPS navigating in the LEG mode (default mode when the KLN 94 starts up) the course to the active waypoint is selected by the GPS navigation system, which is also displayed on the HSI. The OBS setting should be updated occasionally to agree with the desired track (Dtk). While navigating in the OBS mode with the autopilot or flight control systems coupled, the pilot selects the course "to" or "from" the active waypoint on the HSI. This course is then displayed on the GPS.

# SECTION 5 PERFORMANCE

There is no change to the airplane performance when this avionics equipment is installed. However, installation of an externallymounted antenna or related external antennas, will result in a minor reduction in cruise performance.

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**Revision 1** 



## Pilot's Operating Handbook and FAA Approved Airplane Flight Manual

# CESSNA MODEL 208 (675 SHP) SUPPLEMENT 51

# AIRPLANES CERTIFIED TO CHINA AAD-CAAC CONFIGURATION

#### SERIAL NO.

#### **REGISTRATION NO.**

This supplement must be inserted into Section 9 of the Cessna 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, if the airplane has been modified by Cessna Drawing 2601449, and conforms to China AAD-CAAC certification requirements. This supplement is approved by the FAA on behalf of the China AAD-CAAC.

APPROVED BY

FAA APPROVED UNDER FAA 2's SUBPART J Delegation Option Autorization DOA-220428-CE Standard J Gamed Executive Engineer

2 FEBRUARY 2001

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# **2 FEBRUARY 2001**

S51-1

CHINA AAD-CAAC CONFIGURATION POH SUPPLEMENT

# SUPPLEMENT

# AIRPLANES CERTIFIED TO CHINA AAD-CAAC CONFIGURATION

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S51-2

CHINA AAD-CAAC CONFIGURATION POH SUPPLEMENT

S51 MODEL 208 (675 SHP)

# SUPPLEMENT

# AIRPLANES CERTIFIED TO CHINA AAD-CAAC CONFIGURATION

# SECTION 1 GENERAL

#### INTRODUCTION

This supplement, written especially for operators of airplanes conforming to China AAD - CAAC requirements, provides information not found in the basic Pilot's Operating Handbook/FAA Approved Airplane Flight Manual. It contains additional information specifically required for operation of Model 208 airplanes equipped and certified in accordance with China AAD - CAAC requirements. Information contained in the basic handbook is generally not repeated in this supplement, and the basic handbook should be used for that information.

#### EMERGENCY EXITS

On airplanes conforming to China AAD - CAAC requirements, the cargo door has been identified as an emergency exit by the addition of a lighted EXIT sign inside the cabin and a placard and an arrow on the outside of the door. Refer to Figure 3-1 for illustrated emergency exit procedures.

#### EMERGENCY EXIT LIGHT

A lighted EXIT sign located above the cargo door inside the cabin provides a visual means to quickly locate and use the door as an emergency exit when the airplane is on the ground. The NAV/EXIT switch on the instrument panel controls illumination of the light.

Normal and emergency power for exit sign lighting is provided through the clock circuit which will illuminate the interior exit light anytime the NAV/EXIT switch is in the ON position, regardless of the position of the battery switch.

2 February 2001

### S51 MODEL 208 (675 SHP)

#### CHINA AAD-CAAC CONFIGURATION POH SUPPLEMENT

#### EMERGENCY EXIT MARKINGS

The cargo door is identified as an emergency exit on the outside of the door by a placard and an arrow. On the inside of the cabin, the cargo door is marked with a lighted EXIT sign.

# SECTION 2

There is no change to the airplane limitations for airplanes equipped and certified in accordance with China AAD - CAAC requirements. Limitations in Section 2 of the basic handbook shall be observed.

#### PLACARDS

Placards in the passenger area of the cabin and near the exterior door handle of the passenger entry door on the right side of the airplane aft of the wing are bilingual (English/Chinese) placards. Other placards on the airplane are shown in English only.

# SECTION 3 EMERGENCY PROCEDURES

There is no change to the airplane emergency procedures for airplanes equipped and certified in accordance with China AAD -CAAC requirements, other than the designation of the cargo door as an emergency exit. Use of the crew entry doors, the passenger entry door, and the cargo door (emergency exit) for emergency ground egress is illustrated in Figure 3-1.

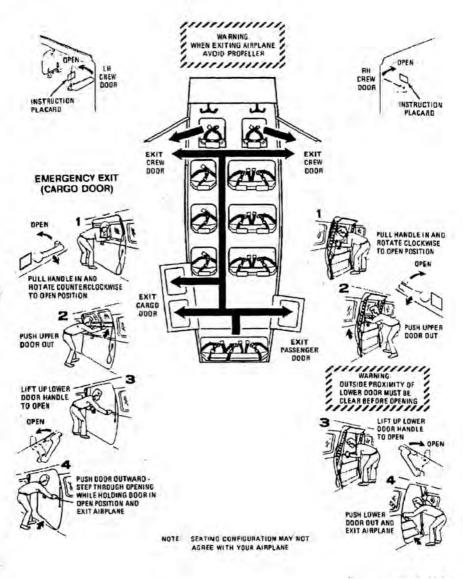
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#### CHINA AAD-CAAC CONFIGURATION POH SUPPLEMENT

### S51 MODEL 208 (675 SHP)

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#### Figure 3-1. Emergency Exit

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For Training Purposes Only

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S51 MODEL 208 (675 SHP)

#### CHINA AAD-CAAC CONFIGURATION POH SUPPLEMENT

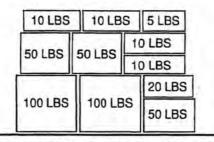
# SECTION 4 NORMAL PROCEDURES

There is no change to the airplane normal procedures for airplanes equipped and certified in accordance with China AAD - CAAC requirements.

Since the airplane can be used for both passenger and cargo missions, and loaded in a variety of loading configurations, precautions must be taken during loading to ensure the airplane does not exceed its maximum weight limits and is loaded within the center of gravity range before takeoff. The pilot is responsible for conducting a careful preflight check and weight and balance calculation for each loading configuration.

In addition to the maximum weight and center of gravity considerations required during the loading of baggage and cargo, the pilot should ensure that loadings are accomplished with heavy items on the bottom and the loads are distributed uniformly. A sample loading of items of various weights is illustrated in Figure 4-1.

# CHINA AAD-CAAC CONFIGURATION POH SUPPLEMENT



CARGO LOADED WITH HEAVIEST ITEMS ON THE BOTTOM AND LOADS DISTRIBUTED UNIFORMLY

#### NOTE

Loading information in Section 6 of the basic handbook should be consulted for other considerations regarding the carriage of cargo. These include the weight and C.G. effects of seat removal, use of a cargo barrier, selection of tiedown equipment, use of cargo partition nets, maximum loads in specific cargo zones, center of gravity precautions, prevention of cargo movement, the loading of piercing or penetrating items of cargo, and the transportation of hazardous materials.

#### Figure 4-1. Cargo Weight Considerations

2 February 2001

### S51 MODEL 208 (675 SHP)

#### CHINA AAD-CAAC CONFIGURATION POH SUPPLEMENT

## SECTION 5 PERFORMANCE

There is no change to the airplane performance for airplanes equipped and certified in accordance with China AAD-CAAC requirements.

#### 2 February 2001



# Pilot's Operating Handbook and FAA Approved Airplane Flight Manual

# CESSNA MODEL 208 (675 SHP)

# **SUPPLEMENT 52**

# ARTEX 406 THREE FREQUENCY EMERGENCY LOCATOR TRANSMITTER (ELT)

#### SERIAL NO.

#### **REGISTRATION NO.**

This supplement must be inserted into Section 9 of the Pilot's Operating Handbook and FAA Approved Airplane Flight Manual for Cessna Model 208 (675 SHP) airplanes which have the Artex 406 Three Frequency Emergency Locator Transmitter (ELT) installed.

APPROVED BY

DATE OF APPROVAL SO MARCH 2001

UNDER FAR 21 BUBPART J

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30 MARCH 2001

D1352-S52-00

S52 MODEL 208 (675 SHP)

ARTEX 406 THREE FREQUENCY ELT POH SUPPLEMENT

# **SUPPLEMENT 52**

# ARTEX 406 THREE FREQUENCY EMERGENCY LOCATOR TRANSMITTER (ELT)

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ARTEX 406 THREE FREQUENCY ELT POH SUPPLEMENT S52 MODEL 208 (675 SHP)

# SUPPLEMENT 52

# ARTEX 406 THREE FREQUENCY EMERGENCY LOCATOR TRANSMITTER (ELT)

# SECTION 1 GENERAL

The Artex 406 Three Frequency Emergency Locator Transmitter (ELT) is located under the floor near the passenger entry door of the Cessna Model 208. A remote, two-position switch is provided on the copilot's instrument panel and is labeled "ON" and "ARMED". The ELT has two activation monitors to warn the pilot if the ELT is inadvertently activated. The aural monitor provides a distinct signal that is easily heard by the pilot or a search and rescue effort. The visual monitor flashes an annunciator directly above the remote ELT switch to inform the pilot that the ELT has been activated.

The Artex 406 ELT automatically activates during a crash and transmits the standard swept tone on 121.5 MHz and 243.0 MHz. Every 50 seconds, the 406.025 MHz transmitter turns on and transmits a short burst of information for approximately a half a second. During that time an encoded digital message is sent to a The information in that message will be the Aircraft ID, satellite. country code, ID code and position coordinates (if available). The 406.025 MHz transmitter will operate for 24 hours and then shut down automatically. The 121.5 MHz and 243.0 MHz transmitter will continue to operate until the unit has exhausted the battery power which typically will be at least 72 hours. This will enable search and rescue operations to be launched immediately and usually to within 1 to 2 kilometers accuracy. If position coordinates are available through a GPS NAV source, the search and rescue accuracy improves to within 100 meters of the transmitter location.

30 March 2001

S52 MODEL 208 (675 SHP)

ARTEX 406 THREE FREQUENCY ELT POH SUPPLEMENT

# SECTION 2 LIMITATIONS

There are no additional limitations when the Artex 406 Three Frequency ELT is installed in the aircraft. Refer to the current FAR/AIM regulations concerning the testing and servicing of an Emergency Locator Transmitter.

### SECTION 3 EMERGENCY PROCEDURES

Shortly before performing a forced landing, especially in remote or mountainous terrain, consider activating the ELT transmitter by positioning the remote switch to the "ON" position. The annunciator just above the switch should flash and the aural monitor should sound.

After a landing where search and rescue assistance is required, use the ELT as follows:

- 1. ENSURE ELT ACTIVATION:
  - Position remote switch to "ON" if the annunciator is not already flashing.
  - b. Listen for aural buzzer, and/or, if aircraft radio is operable and can be safely used (no threat of fire or explosion), turn ON and select 121.5 MHz. The ELT swept tone should be audible if working correctly.
  - c. Turn the aircraft radio off to conserve the battery.
  - Ensure antenna (on top of fuselage above passenger entry door) is clear of obstructions.

#### NOTE

The ELT is designed to withstand most crash situations; however, the ELT remote switch and/or aircraft radios could be inoperative if damaged during landing.

30 March 2001

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#### ARTEX 406 THREE FREQUENCY ELT POH SUPPLEMENT

### S52 MODEL 208 (675 SHP)

#### 2. FOLLOWING RESCUE:

Reset remote switch to the "ARM" position to terminate emergency transmissions. If remote switch is inoperative, gain access to the ELT under the floor by the passenger door and turn the switch to the "OFF" position.

Following a lightning strike, or an exceptionally hard landing, the ELT may activate although no emergency exists. If the annunciator just above the remote ELT switch is flashing and the aural monitor is audible, the ELT has activated itself. Another way to confirm that the ELT has activated is to select 121.5 MHz on the aircraft radio and listen for the emergency tone. Press the remote switch to "ON" momentarily and then back to "ARM" to cease the transmissions.

# SECTION 4 NORMAL PROCEDURES

The Artex 406 Three Frequency ELT must be serviced in accordance with 14CFR Part 91.207.

INSPECTION/TEST (First 5 minutes at the top of the hour)

- 1. The emergency locator transmitter should be tested every 100 hours.
- 2. Remove cover panel on floor and disconnect the antenna cable from the ELT.
- 3. Turn aircraft battery switch and avionics power switches ON.
- 4. Tune the aircraft radio to 121.5 MHz.
- Place the ELT remote switch in the "ON" position. Permit ONLY THREE emergency tone transmissions before returning the switch to the "ARM" position.
- Reconnect the antenna cable to the ELT.

30 March 2001

S52 MODEL 208 (675 SHP)

#### ARTEX 406 THREE FREQUENCY ELT POH SUPPLEMENT

#### NOTE

With the antenna disconnected, the ELT will produce a sufficient signal to be received by the aircraft radio, but should not disturb other communications.

### A CAUTION

Tests with the antenna connected should be approved and confirmed by the nearest air traffic control tower.

# SECTION 5 PERFORMANCE

There are no changes to airplane performance when the Artex 406 Three Frequency ELT is installed in the airplane.

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# Pilot's Operating Handbook and FAA Approved Airplane Flight Manual

# CESSNA MODEL 208 (675 SHP) SUPPLEMENT 53

# AIRPLANES WITHOUT VACUUM POWERED GYROS

#### SERIAL NO.

#### **REGISTRATION NO.**

This supplement must be inserted into Section 9 of the Pilot's Operating Handbook and FAA Approved Airplane Flight Manual for Cessna Model 208 (675 SHP) airplanes optionally equipped without vacuum powered gyroscopic flight instruments.

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7 JUNE 2001

S53 MODEL 208 (675 SHP)

AIRPLANES WITHOUT VACUUM GYROS POH SUPPLEMENT

# **SUPPLEMENT 53**

# AIRPLANES WITHOUT VACUUM POWERED GYROS

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AIRPLANES WITHOUT VACUUM GYROS POH SUPPLEMENT

S53 MODEL 208 (675 SHP)

# **SUPPLEMENT 53**

# AIRPLANES WITHOUT VACUUM POWERED GYROS

# SECTION 1 GENERAL

The Cessna Model 208 (675 SHP) may be optionally equipped without vacuum powered gyroscopic flight instruments. An electric attitude gyro, electric directional gyro or horizontal situation indicator (HSI), and an electric turn coordinator or turn and bank indicator, all on the pilot's instrument panel will provide the pilot necessary attitude and heading references.

#### NOTE

The power source for each gyroscopic instrument is marked on the face of the unit.

The electrically powered gyros are protected by pull-off type circuit breakers labeled: LH ATT GYRO, LH DIR GYRO, and LEFT TURN/BANK.

# SECTION 2 LIMITATIONS

Airplanes equipped without vacuum powered gyros on the pilot's instrument panel are limited to flight only under Visual Flight Rules (VFR) unless the aircraft is also equipped with the optional standby power system.

# SECTION 3 EMERGENCY PROCEDURES

ELECTRICAL SYSTEM FAILURE (aircraft not equipped with standby power system):

1. Land as soon as practical using visual references, the magnetic compass, and pitot-static instruments.

7 June 2001

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S53 MODEL 208 (675 SHP)

# SECTION 4 NORMAL PROCEDURES

#### CAGING THE ELECTRIC ATTITUDE GYRO

#### NOTE

If takeoff is soon after engine start, cage the gyro immediately. Otherwise, gyro will erect itself within 10 minutes.

- 1. Caging knob -- PULL.
- 2. Hold approximately 5 seconds.
- 3. Release smoothly but quickly.

### A CAUTION

Avoid re-caging once the attitude gyro has been caged. Repeated caging may cause internal damage.

### SECTION 5 PERFORMANCE

There are no changes to aircraft performance when an electric attitude gyro is installed in the aircraft.

7 June 2001



# Pilot's Operating Handbook and FAA Approved Airplane Flight Manual

# CESSNA MODEL 208 (675 SHP) SUPPLEMENT 54

# GARMIN GMA 340 AUDIO PANEL

#### SERIAL NO.

#### **REGISTRATION NO.**

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, if the airplane is equipped with the Garmin GMA 340 Audio Panel.

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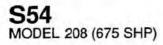
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S54-1



GARMIN GMA 340 AUDIO PANEL POH SUPPLEMENT

# **SUPPLEMENT 54**

# GARMIN GMA 340 AUDIO PANEL

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For Training Purposes Only

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GARMIN GMA 340 AUDIO PANEL POH SUPPLEMENT 854 MODEL 208 (675 SHP)

# **SUPPLEMENT 54**

# GARMIN GMA 340 AUDIO PANEL

# SECTION 1 GENERAL

The Garmin GMA 340 Audio Panel contains an audio speaker amplifier, audio distribution circuitry, and an internal marker beacon receiver. Audio functions are controlled by two rows of buttons located on the face of the unit. Included are controls for up to three communication transceivers, the capability to monitor all radio navigation aids, a passenger address system (if installed), and a multi-place intercom. The intercom controls allow the flight crew a variety of isolation options.

# SECTION 2 LIMITATIONS

There are no additional limitations when the Garmin GMA 340 Audio Panel is installed.

### SECTION 3

EMERGENCY PROCEDURES

There are no additional emergency procedures required when the Garmin GMA 340 Audio Panel is installed. It is a fail-safe design that connects the pilot's headset and microphone directly to COM1 in the event that power is interrupted to the GMA 340.

# SECTION 4 NORMAL PROCEDURES

#### POWER ON/OFF

The GMA 340 is powered on when the small knob on the left side of the unit is turned clockwise to bring the switch out of its detent.

21 August 2001

S54 MODEL 208 (675 SHP)

#### GARMIN GMA 340 AUDIO PANEL POH SUPPLEMENT

#### VHF COMMUNICATIONS

Selecting a radio for transmission and audio reception is accomplished by pressing COM1 MIC, COM2 MIC, or (if installed) COM3 MIC. Additional audio sources may be overlaid by selecting the smaller COM1, COM2, (if installed) COM3, NAV1, NAV2, DME, ADF1, ADF2, and MKR buttons located just above the MIC buttons. When transmitting, the active MIC button will blink at a rate of approximately once per second.

#### PA SYSTEM (If Installed)

Pressing the PA button activates the Passenger Address system. When the pilot's, copilot's, or hand MIC switches are keyed, audio is broadcast over the cabin speakers.

#### NOTE

The SPKR button does not need to be pressed in order for the PA to function.

#### INTERCOM SYSTEM (ICS)

Intercom volume is controlled by the small inner knobs. The pilot's side knob controls the pilot's volume and the copilot's side knob controls the copilot's volume. Pulling the copilot's knob out will control volume for the passengers (if installed). Squelch is similarly controlled by the large knobs on each side of the GMA 340 audio panel. Full counter-clockwise rotation provides a hot mic (no squelch).

The GMA 340 has three intercom modes: PILOT, CREW, and ALL. These modes are controlled by two buttons marked PILOT and CREW. With the PILOT button selected, the pilot is isolated on a separate circuit while allowing the copilot to communicate with the passengers. Depressing the CREW button allows the pilot and copilot to communicate while isolating the passengers to a separate circuit. Deselecting both the PILOT and CREW modes allow pilot, copilot, and passengers to ALL communicate.

#### MARKER BEACON RECEIVER

The Garmin GMA 340 Audio Panel contains an integral marker beacon receiver with the corresponding marker beacon annunciators and tones illustrated in Figure 1.

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21 August 2001

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#### GARMIN GMA 340 AUDIO PANEL POH SUPPLEMENT

PITCH	CODE	LAMP
400 Hz		BLUE "O" OUTER MARKER
1300 Hz	·_·_·_·_·	AMBER "M" MIDDLE MARKER
3000 Hz		WHITE "A" INNER MARKER OR AIRWAYS

#### Figure 1. Marker Beacon Annunciators and Tones

The tones are mutable through the MKR MUTE button, however they will automatically unmute after the marker has been passed. Sensitivity is controlled by the SENS button, and the sensitivity level (HI / LO) is displayed just above the SENS button.

### SECTION 5 PERFORMANCE

There is no change to airplane performance when this avionics equipment is installed.

21 August 2001

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# Pilot's Operating Handbook and FAA Approved Airplane Flight Manual

# CESSNA MODEL 208 (675 SHP)

# **SUPPLEMENT 55**

# GARMIN GTX 327 TRANSPONDER

#### SERIAL NO.

**REGISTRATION NO.** 

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, if the airplane is equipped with the Garmin GTX 327 Transponder.

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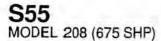
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21 AUGUST 2001

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**REVISION 1 - 20 FEBRUARY 2002** 

S55-1



GARMIN GTX 327 TRANSPONDER POH SUPPLEMENT

# SUPPLEMENT 55

# GARMIN GTX 327 TRANSPONDER

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S55-2

GARMIN GTX 327 TRANSPONDER POH SUPPLEMENT S55 MODEL 208 (675 SHP)

# SUPPLEMENT 55 GARMIN GTX 327 TRANSPONDER

# SECTION 1 GENERAL

The Garmin GTX 327 Transponder is capable of both Mode A and Mode C operations. In addition to altitude and location reporting functions, the GTX 327 also provides a pressure altitude display with trend indications, a flight time display, a count up timer, and a count down timer. A remote IDENT button is located on the pilot's control wheel in addition to the button on the face of the GTX 327.

Some installations contain two GTX 327 Transponders. A toggle switch is located next to the units on the instrument panel to select the active transponder. The inactive transponder will automatically be placed in STBY mode.

### SECTION 2

#### LIMITATIONS

The avionics cooling fan must be operational when operating at outside air temperatures above 41°C.

# SECTION 3 EMERGENCY PROCEDURES

There are no additional emergency procedures when the Garmin GTX 327 Transponder is installed in the airplane. Refer to current FAR/AIM procedures for emergency codes and transponder inoperative situations.

#### NOTE

When two GTX 327 Transponders are installed, toggle to the STBY transponder in the case of transponder failure. However, both transponders receive altitude information from the same encoding altimeter, so if a failure occurs in the encoding altimeter, neither transponder will have mode C (altitude reporting) capability. Mode A (position reporting) may still be available.

20 February 2002

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#### S55 MODEL 208 (675 SHP)

#### GARMIN GTX 327 TRANSPONDER POH SUPPLEMENT

## SECTION 4 NORMAL PROCEDURES

#### MODE SELECTION

- OFF Powers off the GTX 327.
- STBY Powers on the GTX 327, but does not allow a reply to interrogations.
- ON Powers on the GTX 327 for Mode A operations.
- ALT Powers on the GTX 327 for both Mode A and Mode C operations.

#### CODE SELECTION

Code selection is accomplished using the numerical keys (0 - 7). Pushing one of these keys begins the code selection sequence. The new code will not be active until the fourth digit is entered. Pressing the CLR button will move the cursor back to the previous digit. Pressing the CLR button when the cursor is on the first digit, or pressing the CRSR button at any time will cancel the entry and restore the previous code.

#### NOTE

Numerical keys 8 and 9 are not used for code entry, only for entering a Count Down time.

#### OTHER FUNCTIONS

- IDENT Pressing IDENT or the remote IDENT button on the pilot's control wheel activates the Special Position Identification (SPI) pulse for 18 seconds, identifying the transponder return from others on the air traffic controller's screen. The word "IDENT" will appear in the upper left corner of the display when IDENT mode is active.
- VFR Sets the transponder code to 1200 (unless configured otherwise). Pressing the VFR button again will restore the previous code.

(Continued Next Page)

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For Training Purposes Only

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#### GARMIN GTX 327 TRANSPONDER POH SUPPLEMENT

S55 MODEL 208 (675 SHP)

FUNC Multiple presses of the FUNC button changes the function page to one of the following:

PRESSURE Displays pressure altitude in hundreds of ALT feet.

FLIGHT Controlled by the START/STOP button, or TIME can be configured to START when the aircraft exceeds 30 KTS GPS ground speed, and STOP when the aircraft slows below 30 KTS.

COUNT UP Controlled by the START/STOP button. TIMER Use CLR to reset to 0:00.

COUNTEnter time using numerical keys, and useDOWNSTART/STOP button to activate. Use CLRTIMERto reset to 0:00.

#### ALTITUDE TREND INDICATOR

When the PRESSURE ALT page is displayed, an arrow may be displayed to the right of the altitude, indicating that the altitude is increasing or decreasing. Two sizes of arrows may be displayed depending on rate of climb/descent.

#### AUTOMATIC ALT/STBY MODE SWITCHING

When interfaced with a Garmin GNS 530 or GNS 430, the GTX 327 automatically switches to ALT mode when ground speed exceeds approximately 30 knots GPS ground speed. The unit automatically returns to STBY mode when the aircraft slows below 30 knots.

#### NOTE

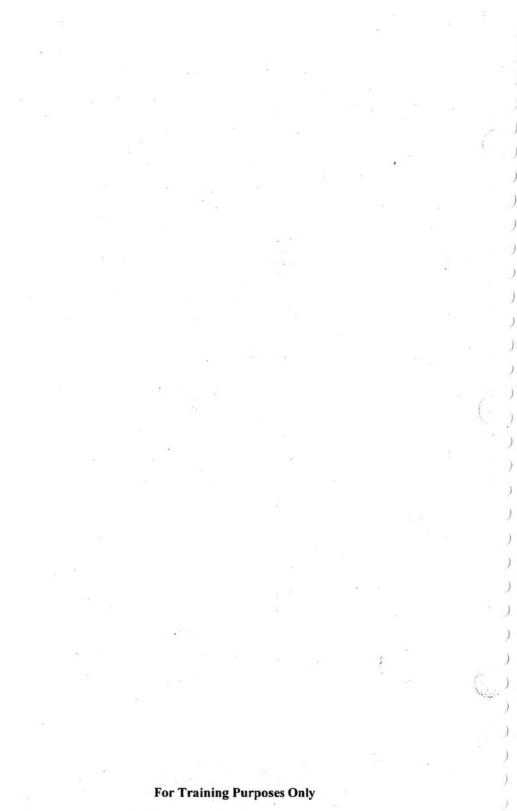
The ON (Mode A), ALT (Mode C), and STBY buttons can be used at any time to manually override the automatic ALT/STBY mode switching.

### SECTION 5 PERFORMANCE

There is no change to airplane performance when this avionics equipment is installed.

20 February 2002

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# CESSNA MODEL 208 (675 SHP) PILOT'S OPERATING HANDBOOK

# **SUPPLEMENT 56**

# **REVISION 2**

D1352-S56-02

3 DECEMBER 2003

# BENDIX/KING KGP 560 GENERAL AVIATION -ENHANCED GROUND PROXIMITY WARNING SYSTEM (GA-EGPWS)

THE FOLLOWING SUPPLEMENT 56 - REVISION 2, PRINTED IN ITS ENTIRETY, REPLACES THE ORIGINAL ISSUE DATED 20 AUGUST 2001 AND REVISION 1 DATED 30 JANUARY 2003. INSERT IT INTO SECTION 9 OF THE PILOT'S OPERATING HANDBOOK, IF THE AIRPLANE IS EQUIPPED WITH THE BENDIX/KING KGP 560 GA-EGPWS.

THE LOG OF APPROVED SUPPLEMENTS FURNISHED WITH THIS SUPPLEMENT REPLACES ALL EARLIER DATED VERSIONS OF THE LOG.

NOTE

IT IS THE AIRPLANE OWNER'S RESPONSIBILITY TO ASSURE THAT THEY HAVE THE LATEST REVISION TO EACH SUPPLEMENT OF A PILOT'S OPERATING HANDBOOK, AND THE LATEST ISSUED "LOG OF APPROVED SUPPLEMENTS." THE LOG OF APPROVED SUPPLEMENTS FURNISHED WITH THIS REVISION WAS THE LATEST VERSION AS OF THE DATE IT WAS SHIPPED BY CESSNA; HOWEVER, SOME CHANGES MAY HAVE OCCURRED, AND THE OWNER SHOULD VERIFY THIS IS THE LATEST, MOST UP-TO-DATE VERSION BY CONTACTING CESSNA PROPELLER AIRCRAFT PRODUCT SUPPORT AT (316) 517-5800.



### Pilot's Operating Handbook and FAA Approved Airplane Flight Manual

# CESSNA MODEL 208 (675 SHP)

# SUPPLEMENT 56

BENDIX/KING KGP 560 GENERAL AVIATION -ENHANCED GROUND PROXIMITY WARNING SYSTEM (GA-EGPWS)

#### SERIAL NO.

**REGISTRATION NO.** 

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, if the airplane is equipped with the Bendix/King KGP 560 GA-EGPWS.

APPROVED BY

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DATE OF APPROVAL 20 AUGUST 2001

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20 AUGUST 2001

D1352-S56-02

#### **REVISION 2 - 3 DECEMBER 2003**

S56-1

S56 MODEL 208 (675 SHP)

BENDIX/KING KGP 560 GA-EGPWS POH SUPPLEMENT

# **SUPPLEMENT 56**

# BENDIX/KING KGP 560 GENERAL AVIATION -ENHANCED GROUND PROXIMITY WARNING SYSTEM (GA-EGPWS)

Use the Log of Effective Pages to determine the current status of this supplement.

Pages affected by the current revision are indicated by an asterisk (\*) preceding the page number.

#### SUPPLEMENT STATUS DATE

Original Revision 1 Revision 2 20 August 2001 30 January 2003 3 December 2003

#### LOG OF EFFECTIVE PAGES

PAGE	PAGE STATUS	Revision Number
S56-1 thru S56-2	Revision	2
S56-3 thru S56-4	Original	0
S56-5	Revision	1
S56-6 thru S56-8	Original	0
S56-9 thru S56-10	Revision	2
S56-11/S56-12	Revision	2

REVISION 2 APPROVED BY

3 DECEMBER 2003

**Revision 2** 

BENDIX/KING KGP 560 GA-EGPWS POH SUPPLEMENT S56 MODEL 208 (675 SHP)

# **SUPPLEMENT 56**

# BENDIX/KING KGP 560 GENERAL AVIATION -ENHANCED GROUND PROXIMITY WARNING SYSTEM (GA-EGPWS)

# SECTION 1 GENERAL

The KGP 560 GA-EGPWS uses Global Positioning System (GPS) information from either an airplane-installed GPS receiver, or an internal GPS receiver in the KGP 560 to provide Terrain Awareness and Warning. The GPS signals provide both a vertical and horizontal position reference. Additional inputs are uncorrected barometric pressure (from the encoding altimeter) and outside air temperature data for vertical position accuracy. This three-dimensional position in space is then compared to the terrain, obstacle, and runway database contained inside the KGP 560 to alert and warn the pilot of danger with respect to controlled flight into terrain and man-made obstacles. The KGP 560 is interfaced with a cockpit display to provide greater situational awareness by showing airplane position relative to terrain and obstacles.

Should the airplane fly into danger where a conflict with terrain or a known obstacle is imminent, the KGP 560 will provide visual and aural alerts and warnings to the pilot. Alerting is also present for excessive rates of descent and inadvertent altitude loss after takeoff. Additional features include an aural callout when 500 feet above runway elevation during a landing approach, and monitoring of the altimeter system in the airplane for possible altimeter malfunctions. All visual and aural alerts and warnings may be inhibited by pressing the "Terrain Inhibit" switch (located on the right side of the pilot's instrument panel) once. Pressing the "Terrain Inhibit" switch again will re-engage the visual and aural alerts and warnings.

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#### BENDIX/KING KGP 560 GA-EGPWS POH SUPPLEMENT

# A CAUTION

The terrain, obstacle, and runway database is not all-inclusive.

#### TERRAIN AWARENESS DISPLAY

The primary purpose of the terrain awareness display is to show terrain ahead of the airplane. Additional information is also available to the pilot including altitude, track, range, and elevations of the highest and lowest points on the terrain display. The information may be displayed either as a partial arc for terrain ahead of the airplane, or a full circle for terrain around the airplane within a selectable radius. The color and density of the display corresponds to the terrain elevation relative to the altitude at which the airplane is flying. The table in Figure 1 outlines all of the various colors used by the KGP 560 GA-EGPWS.

COLOR	INDICATION	
Solid Red	Terrain/Obstacle Threat Area Warning.	
Solid Yellow	Terrain/Obstacle Threat Area Caution.	
50% Red Dots	Terrain/Obstacle that is more than 2000 feet above airplane altitude.	
50% Yellow Dots	Terrain/Obstacle that is between 1000 and 2000 feet above airplane altitude.	
25% Yellow Dots	Terrain/Obstacle that is 250 feet below to 1000 feet above airplane altitude.	
Solid Green	Shown only when no Red or Yellow Terrain/Obstacle areas are within range on the display. Shows highest Terrain/Obstacle not within 250 feet of airplane altitude.	
50% Green Dots	Terrain/Obstacle that is 250 to 1000 feet below airplane altitude. When there are no Red or Yellow terrain areas within range on the display, depicts a middle elevation band.	
16% Green Dots	Terrain/Obstacle that is 1000 to 2000 feet below airplane altitude. When there are no Red or Yellow terrain areas within range on the display, depicts a lower elevation band.	
Black	No significant Terrain/Obstacles.	
16% Cyan	Area having sea level elevation (0 feet MSL).	
Magenta Dots	Unknown Terrain. No terrain data in the database for the area shown.	

Figure 1. Terrain Awareness Display Color Indications

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#### BENDIX/KING KGP 560 GA-EGPWS POH SUPPLEMENT

S56 MODEL 208 (675 SHP)

#### "LOOK-AHEAD" ALERTING AND WARNING

The "Look-Ahead" function compares the airplane flight path to terrain and obstacle database information, and distance to known runways. When the "Look-Ahead" function detects a terrain or obstacle threat at least 30 seconds ahead of the airplane, the voice alert "Caution Terrain, Caution Terrain" (or "Caution Obstacle, Caution Obstacle") sounds, and a bright yellow threat area is shown on the Terrain Display. The alert will be repeated approximately every 7 seconds. If the airplane flight path approaches within 15 to 30 seconds of a threat area, the voice message "Terrain, Terrain, Pull Up, Pull Up" (or "Obstacle, Obstacle, Pull Up, Pull Up") sounds continuously and the threat area on the Terrain Display will be shown as solid red. When the airplane flight path changes to avoid the threat, the alerts and warnings will cease and the threat areas shown on the Terrain Display will be removed.

#### A CAUTION

The KGP 560 GA-EGPWS "Look-Ahead" function is gradually desensitized as an airplane nears a known runway. Airplanes operating in close proximity to known runways may experience very short or no advance warnings with respect to terrain or obstacles in the area.

#### S56 MODEL 208 (675 SHP)

#### BENDIX/KING KGP 560 GA-EGPWS POH SUPPLEMENT

#### RUNWAY FIELD CLEARANCE FLOOR

When the airplane is within 5 nm of a known runway, the system establishes a "floor" of protection below the airplane. The floor is 300 feet above the field from 5 nm to 2.5 nm and then decreases to field elevation 1 nm from the runway. Penetration of this floor will cause the yellow caution alert annunciator to illuminate, and the voice alert "Too Low Terrain" to be heard. If the airplane continues to descend, the voice alert will be repeated at an increasing frequency. If the airplane climbs back above the floor, the annunciator will extinguish and the voice alerts will cease.

### A CAUTION

The KGP 560 GA-EGPWS Runway Field Clearance Floor function is gradually desensitized as an airplane nears a known runway. Airplanes operating in close proximity to known runways may experience very short or no advance warnings with respect to terrain or obstacles in the area.

#### EXCESSIVE RATE OF DESCENT

When the KGP 560 GA-EGPWS determines that the airplane is descending toward terrain at a high rate for its relative altitude above terrain, the system will provide alerting and warning to the pilot. Initially, the voice alert "Sink Rate" will be heard, and the yellow caution annunciator will illuminate. If the airplane continues to descend at that rate, the voice alert will be repeated at an increasing frequency. Should the airplane penetrate an altitude boundary above the terrain, the voice alert "Pull Up, Pull Up" will be heard continuously and the red warning annunciator will illuminate. If the airplane slows its rate of descent sufficiently, the annunciator will extinguish and the voice warnings will cease.

#### LOSS OF ALTITUDE AFTER TAKEOFF

Should the airplane experience a loss of altitude within approximately 700 feet above runway elevation after takeoff, the KGP 560 GA-EGPWS will illuminate the yellow caution annunciator and sound the "Don't Sink, Don't Sink" voice alert. The voice alert will be repeated with increasing frequency. When a positive rate of climb is re-established, the annunciator will extinguish and the voice alerts will cease.

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### BENDIX/KING KGP 560 GA-EGPWS POH SUPPLEMENT

### ALTITUDE MONITORING

When an abnormal altitude discrepancy is detected by the KGP 560 GA-EGPWS, there will be a single voice callout of "Check Altitude". There will also be a text message CHK ALT shown on the Terrain Display (if installed) as long as the condition that triggered the alert persists.

#### NOTE

An incorrectly set altimeter or failed encoding altimeter will not cause a "Check Altitude" message.

### ALTITUDE CALLOUT

When the airplane is within 5 nm of a known runway, the KGP-560 provides a single "Five-Hundred" voice alert when the airplane passes through approximately 500 feet above runway elevation. There is no associated annunciator lamp. The callout will be reset when the airplane climbs to more than 700 feet above runway elevation.

## SECTION 2 LIMITATIONS

Navigation must not be predicated upon the use of the Terrain Awareness Display. The Terrain Awareness Display is intended to serve as a situational awareness tool only, and may not provide the accuracy and/or fidelity on which to solely base terrain or obstacle avoidance maneuvering decisions.

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### S56 MODEL 208 (675 SHP)

### BENDIX/KING KGP 560 GA-EGPWS POH SUPPLEMENT

### SECTION 3 EMERGENCY PROCEDURES

### **GA-EGPWS ALERTS AND WARNINGS**

### "PULL UP"

In IMC or Night VMC:

- 1. Level wings and simultaneously pitch up to achieve best angle of climb airspeed.
- 2. Apply maximum climb power.
- 3. Continue climb until all visual and aural warnings cease.

### In Day VMC:

1. Take corrective action as necessary to avoid terrain and/or obstacles.

### "TERRAIN, TERRAIN" or "OBSTACLE, OBSTACLE"

 Take immediate action to adjust flight path away from threat until warning ceases.

### "CAUTION TERRAIN" or "CAUTION OBSTACLE"

 Adjust flight path as required away from threat until alert ceases.

### "TOO LOW TERRAIN"

 Adjust flight path to recover safe terrain clearance until alert ceases.

### "CHECK ALTITUDE"

1. Cross-check against copilot's altimeter (if installed) and reference altitude displayed on terrain display.

### "DON'T SINK"

1. Re-establish positive rate of climb.

### "SINK RATE, SINK RATE"

1. Reduce rate of descent.

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BENDIX/KING KGP 560 GA-EGPWS POH SUPPLEMENT S56 MODEL 208 (675 SHP)

### SECTION 3 EMERGENCY PROCEDURES

### FORCED LANDINGS EMERGENCY LANDING WITHOUT ENGINE POWER

- 1. Seats, Seat Belts, Shoulder Harnesses -- SECURE.
- 2. Airspeed -- 95 KIAS (flaps UP). 80 KIAS (flaps DOWN).
- 3. Power Lever -- IDLE.
- 4. Propeller Control Lever -- FEATHER.
- Fuel Condition Lever -- CUTOFF.
- 6. Fuel Boost Switch -- OFF.
- 7. Ignition Switch -- NORM.
- 8. Standby Power Switch (if installed) -- OFF.
- KGP 560 GA-EGPWS INHIBIT Switch -- CONSIDER pressing.
- 10. Nonessential Equipment -- OFF.
- 11. Fuel Shutoff -- OFF (pull out).
- 12. Fuel Tank Selectors -- OFF (warning horn will sound).
- 13. Wing Flaps -- AS REQUIRED (FULL recommended).
- 14. Crew Doors -- UNLATCH PRIOR TO TOUCHDOWN.
- 15. Battery Switch -- OFF when landing is assured.
- 16. Touchdown -- SLIGHTLY TAIL LOW.
- 17. Brakes -- APPLY HEAVILY.

#### PRECAUTIONARY LANDING WITH ENGINE POWER

- 1. Seats, Seat Belts, Shoulder Harnesses -- SECURE.
- 2. Wing Flaps -- 10°.
- KGP 560 GA-EGPWS INHIBIT Switch -- CONSIDER pressing.
- 4. Airspeed -- 90 KIAS.
- Selected Field -- FLY OVER, noting terrain and obstructions.
- All Electrical Switches (except Battery and Generator) --OFF.
- 7. Wing Flaps -- FULL DOWN (on final approach).
- 8. Airspeed -- 80 KIAS.
- Crew Doors -- UNLATCH PRIOR TO TOUCHDOWN.
- 10. Generator Switch -- TRIP and release.

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### S56 MODEL 208 (675 SHP)

### BENDIX/KING KGP 560 GA-EGPWS POH SUPPLEMENT

- 11. Battery Switch -- OFF.
- 12. Touchdown -- SLIGHTLY TAIL LOW.
- 13. Fuel Condition Lever -- CUTOFF.
- 14. Brakes -- APPLY HEAVILY.

### DITCHING

- Radio -- TRANSMIT MAYDAY on 121.5 MHz, giving location and intentions and SQUAWK 7700 if transponder is installed.
- Heavy Objects in Cabin -- SECURE if passenger is available to assist.
- 3. Seats, Seat Belts, Shoulder Harnesses -- SECURE.
- KGP 560 GA-EGPWS INHIBIT Switch -- CONSIDER pressing.
- 5. Wing Flaps -- FULL DOWN.
- 6. Power -- ESTABLISH 300 FT/MIN DESCENT AT 80 KIAS.
- Approach: High Winds -- INTO THE WIND. Light Winds, Heavy Swells -- PARALLEL TO SWELLS.
- Face -- CUSHION at touchdown with folded coat or similar object.
- Touchdown -- NO FLARE, maintain descent attitude.
- Airplane -- EVACUATE.
- 11. Life Vests and Raft -- INFLATE when outside cabin.

### A WARNING

THE AIRPLANE HAS NOT BEEN FLIGHT TESTED IN ACTUAL DITCHINGS, THUS THE ABOVE RECOMMENDED PROCEDURE IS BASED ENTIRELY ON THE BEST JUDGMENT OF CESSNA AIRCRAFT COMPANY.

**Revision 2** 

BENDIX/KING KGP 560 GA-EGPWS POH SUPPLEMENT S56 MODEL 208 (675 SHP)

## SECTION 4 NORMAL PROCEDURES

#### BEFORE TAKEOFF

GA-EGPWS Self Test:

- 1. Self Test Switch -- PRESS.
- NOT AVAILABLE and WARNING Annunciators -- CHECK illuminated.
- 3. EGPWS SYSTEM, OK -- Audible.
- 4. WARNING Annunciator -- CHECK extinguished.
- 5. CAUTION Annunciator -- CHECK illuminated.
- GA-EGPWS Display -- CHECK test pattern for 6 to 8 seconds.
- CAUTION and NOT AVAILABLE Annunciators -- CHECK extinguished.

#### NOTE

If internal GPS is used, the GA-EGPWS could take up to 12 minutes to acquire position.

### GA-EGPWS VOICE CALLOUT

"FIVE HUNDRED"

1. No action required. (Airplane is approximately 500 feet above nearest known runway).

### SECTION 5 PERFORMANCE

Airplane performance does not change when the KGP 560 GA-EGPWS is installed in the airplane.

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S56-11/S56-12



## Pilot's Operating Handbook and FAA Approved Airplane Flight Manual

# CESSNA MODEL 208 (675 SHP)

## SUPPLEMENT 58

## GARMIN GNS 530 or GNS 430 NAVIGATION/COMMUNICATION SYSTEM

SERIAL NO.

**REGISTRATION NO.** 

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, if the airplane is equipped with the Garmin GNS 530 or GNS 430 Navigation/Communication System.

APPROVED BY

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DATE OF APPROVAL 20 AUGUST 2001

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REVISION 1 - 12 MARCH 2003

S58-1

S58 MODEL 208 (675 SHP)

GNS 530 or GNS 430 NAV/COM POH SUPPLEMENT

## **SUPPLEMENT 58**

## GARMIN GNS 530 or GNS 430 NAVIGATION/COMMUNICATION SYSTEM

Use the Log of Effective Pages to determine the current status of this supplement. Pages affected by the current revision are indicated by an asterisk (\*) preceding the page number.

### **Revision Level**

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DATE OF APPROVAL 12 MARCH 2003

GNS 530 or GNS 430 NAV/COM MODEL 208 (675 SHP) S58 POH SUPPLEMENT

## SUPPLEMENT 58 GARMIN GNS 530 or GNS 430 NAVIGATION/COMMUNICATION SYSTEM

### SECTION 1 GENERAL

The GNS 530/430 is a fully integrated, panel-mounted navigation/communication system that contains a VHF Communications Transceiver, a VOR/ILS receiver, and a Global Positioning System (GPS) Navigation computer. The system consists of a GPS antenna, GPS Receiver, VHF VOR/LOC/GS antenna, VOR/ILS receiver, VHF COMM antenna and a VHF Communications Transceiver.

Provided the GARMIN GNS 530/430's GPS receiver is receiving adequate usable signals, it has been demonstrated capable of, and has been shown to meet the accuracy specifications for:

- VFR/IFR enroute, terminal, and non-precision instrument approach (GPS, Loran-C, VOR, VOR-DME, TACAN, NDB, NDB-DME, RNAV) operation within the U.S. National Airspace System in accordance with AC 20-138.
- The system meets RNP5 airspace (BRNAV) requirements of AC 90-96 and in accordance with AC 20-138, and JAA AMJ 20X2 Leaflet 2 Revision 1, provided it is receiving usable navigation information from the GPS receiver.

Navigation is accomplished using the WGS-84 (NAD-83) coordinate reference datum. Navigation data is based upon use of only the Global Positioning System (GPS) operated by the United States of America.

## SECTION 2 LIMITATIONS

 One of the following Pilot's Guide(s), or later appropriate revision, must be immediately available whenever communication or navigation is predicated on the use of the system:

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### S58 MODEL 208 (675 SHP)

### GNS 530 or GNS 430 NAV/COM POH SUPPLEMENT

### **GNS 530**

### **GNS 430**

### 190-00181-00 Rev B, dated May 2001

### 190-00140-00 Rev F, dated July 2000

 The GNS 530/430 must utilize the following or later FAA approved software versions. See drawing number 3931XXX "GNS 530 or GNS 430 Configuration Procedures" in the flyaway kit provided with the airplane for the serial number specific approved software level:

Sub-System	GNS 530 Software System	GNS 430 Software System
Main	2.06	2.22
GPS	2.10	2.10
COMM	4.01	4.01
VOR/LOC	3.01	3.01
G/S	2.03	2.03

The Main software version is displayed for 5 seconds on the GNS 530/430 self-test page immediately after turn-on. The remaining system software versions can be verified on the AUX group sub-page 2, "SOFTWARE/DATABASE VER".

- IFR enroute and terminal navigation predicated upon the GNS 530/430's GPS receiver is prohibited, unless the pilot verifies the currency of the database, or verifies each selected waypoint for accuracy by reference to current approved data.
- 4. Instrument approach navigation predicated upon the GNS 530/430's GPS receiver must be accomplished in accordance with approved instrument approach procedures that are retrieved from the GPS equipment database. The GPS equipment database must incorporate the current update cycle.
  - Instrument approaches utilizing the GPS receiver must be conducted in the approach mode, and Receiver Autonomous Integrity Monitoring (RAIM) must be available at the Final Approach Fix.

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**Revision** 1

### GNS 530 or GNS 430 NAV/COM MODEL 208 (675 SHP)

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### S58 POH SUPPLEMENT

- Accomplishment of ILS, LOC, LOC-BC, LDA, SDF, MLS, or any other type of approach not approved for GPS overlay with the GNS 530/430's GPS receiver, is not authorized.
- c. Use of the GNS 530/430 VOR/ILS receiver to fly approaches not approved for GPS requires VOR/ILS navigation data to be present on the external indicator.
- d. When an alternate airport is required by the applicable operating rules, it must be served by an approach based on other than GPS or Loran-C navigation, the aircraft must have the operational equipment capable of using that navigation aid, and the required navigation aid must be operational.
- e. VNAV information may be utilized for advisory information only. Use of VNAV information for Instrument Approach Procedures does not guarantee Step-Down Fix altitude protection, or arrival at approach minimums in a normal position to land.
- If not previously defined, the following default settings must be made in the "SETUP 1" menu of the GNS 530/430 prior to operation (refer to Pilot's Guide for procedure if necessary):
  - dis, spd n/m kt (sets navigation units to "nautical miles" and "knots").
  - alt, vs ft fpm (sets altitude units to "feet" and "feet per minute").
  - map WGS 84 (sets map datum to WGS-84, see note datum below).

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posn deg-min (sets navigation grid units to decimal minutes).

### NOTE

In some areas outside the United States, datums other than WGS-84 or NAD-83 may be used. If the GNS 530/430 is authorized for use by the appropriate Airworthiness authority, the required geodetic datum must be set in the GNS 530/430 prior to its use for navigation.

 The avionics cooling fan must be operational during operations with OAT greater than 41°C.

## SECTION 3 EMERGENCY PROCEDURES

### ABNORMAL PROCEDURES

- If GARMIN GNS 530/430 navigation information is not available or invalid, utilize remaining operational navigation equipment as required.
- If "RAIM POSITION WARNING" message is displayed the system will flag and no longer provide GPS based navigational guidance. The pilot should revert to the GNS 530/430 VOR/ILS receiver or an alternate means of navigation other than the GNS 530/430's GPS receiver.
- 3. If "RAIM IS NOT AVAILABLE" message is displayed in the enroute, terminal, or initial approach phase of flight, continue to navigate using the GPS equipment or revert to an alternate means of navigation other than the GNS 530/430's GPS receiver appropriate to the route and phase of flight. When continuing to use GPS navigation, position must be verified every 15 minutes using the GNS 530/430's VOR/ILS receiver or another IFR approved navigation system.

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GNS 530 or GNS 430 NAV/COM MODEL 208 (675 SHP)

- 4. If "RAIM IS NOT AVAILABLE" message is displayed while on the final approach segment, GPS based navigation will continue for up to 5 minutes with approach CDI sensitivity (0.3 nautical mile). After 5 minutes the system will flag and no longer provide course guidance with approach sensitivity. Missed approach course guidance may still be available with 1 nautical mile CDI sensitivity by executing the missed approach.
- In an inflight emergency, depressing and holding the Comm transfer button for 2 seconds will select the emergency frequency of 121.500 MHz into the "Active" frequency window.

### SECTION 4 NORMAL PROCEDURES

#### DETAILED OPERATING PROCEDURES

Normal operating procedures are described in the Pilot's Guide(s) referenced in Section II Limitations.

#### PILOT'S DISPLAY

GNS 530/430 System data appears on the pilot's CDI/HSI. The source of data is either GPS or VLOC as annunciated on the display above the CDI key, or the external switch annunciator located near the HSI. Navigation information from the number one unit is displayed on the HSI; data from the number two unit is displayed on the pilot's CDI. The external CDI contains built-in annunciators that display the current source of navigation.

#### NOTE

It is the pilot's responsibility to assure that published or assigned procedures are correctly complied with. Course guidance is not provided for all possible ARINC 424 leg types. See the GNS 530/430 Pilot's Guide for detailed operating procedures regarding navigation capabilities for specific ARINC 424 leg types.

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### AUTOPILOT / FLIGHT DIRECTOR OPERATION

Coupling GNS 530/430 steering information to the autopilot/flight director can be accomplished by engaging the autopilot/flight director in the NAV or APR mode.

When interfaced with the KFC-225 autopilot, the GNS 530/430 sends roll steering information to the autopilot. With this system, the autopilot does not require adjustments to the course needle after making leg changes. However, the course needle should be changed to the correct value to enhance the pilot's situational awareness. For additional autopilot/flight director operational instructions, refer to the FAA Approved Flight Manual Supplement for the autopilot/flight director.

### CROSSFILL OPERATIONS

For dual GNS 530, GNS 430, or GNS 530/430 installations, crossfill capabilities exist between the number one and number two systems. Refer to the GARMIN GNS 530/430 Pilot's Guide(s) for detailed crossfill operating instructions.

### AUTOMATIC LOCALIZER COURSE CAPTURE

By default, the GNS 530/430 automatic localizer course capture feature is enabled. This feature provides a method for system navigation data present on the external indicators to be switched automatically from GPS guidance to localizer/glide slope guidance as the aircraft approaches the localizer course inbound to the Final Approach Fix. If an offset from the final approach course is being flown, it is possible that the automatic switch from GPS course guidance to localizer/glide slope course guidance will not occur. It is the pilot's responsibility to ensure correct system navigation data is present on the external indicator before continuing a localizerbased approach beyond the Final Approach Fix. Refer to the GNS 530/430 Pilot's Guide for detailed operating instructions.

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Revision 1

### GNS 530 or GNS 430 NAV/COM MODEL 208 (675 SHP)

#### NOTE

If the autopilot is coupled to GPS when the automatic GPS to ILS transfer occurs, the autopilot will drop the NAV mode and revert to a roll hold mode. Recycle the APR button to reselect the ILS signal for navigation.

### DISPLAY OF LIGHTNING STRIKE DATA

For installations that interface the BFGoodrich WX-500 Stormscope and the GNS 530/430, lightning strike data detected by the WX-500 will appear on the GNS 530/430. For detailed operating instructions regarding the interface of the GNS 530/430 with the WX-500, refer to the WX-500 Pilot's Guide, and the GNS 530 Pilot's Guide or the GNS 430 Pilot's Guide Addendum for the WX-500 Stormscope interface.

### DISPLAY OF TRAFFIC ADVISORY DATA

For installations that interface the BFGoodrich SKYWATCH Traffic Advisory System (TAS) and the GNS 530/430, traffic data detected by the SKYWATCH will appear on the GNS 530/430. For detailed operating instructions regarding the interface of the GNS 430 with the SKYWATCH, refer to the FAA Approved Flight Manual Supplement for the SKYWATCH, the Pilot's Guide for the SKYWATCH and the GNS 430 Pilot's Guide Addendum for the SKYWATCH Traffic Advisory System interface.

### SECTION 5 PERFORMANCE

There are no changes to performance when the Garmin GNS 530 and/or GNS 430 are installed in the airplane.

Revision 1

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## Pilot's Operating Handbook and FAA Approved Airplane Flight Manual CESSNA MODEL 208 (675 SHP) SUPPLEMENT 59 BENDIX/KING KMD 850 MULTI-FUNCTION DISPLAY

#### SERIAL NO.

#### **REGISTRATION NO.**

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, if the airplane is equipped with the Bendix/King KMD 850 Multi-Function Display.

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3 AUGUST 2001

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D1352-S59-00

S59 MODEL 208 (675 SHP)

BENDIX/KING KMD 850 MULTI-FUNCTION DISPLAY

# SUPPLEMENT CESSNA MODEL 208 (675 SHP) SUPPLEMENT 59

## BENDIX/KING KMD 850 MULTI-FUNCTION DISPLAY

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S59-1 thru S59-5/S59-6

3 August 2001

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BENDIX/KING KMD 850 MULTI-FUNCTION DISPLAY **S59** MODEL 208 (675 SHP)

## SUPPLEMENT BENDIX/KING KMD 850 MULTI-FUNCTION DISPLAY

### SECTION 1 GENERAL

The Bendix/King KMD 850 is a multi-function display that combines an internal aeronautical and cartographic database with external GPS data to display aircraft position, ground track, and ground speed on a 5-inch diagonal screen. In addition to position data, the KMD 850 can be configured to provide display and control for weather radar, lightning strike finders, traffic avoidance sensors, ground proximity warning systems, or external video inputs. See the appropriate Pilot's Operating Handbook supplements for detailed descriptions of these avionics systems.

The KMD 850 is powered on the Avionics 1 Bus and is current protected by a pull-type circuit breaker. Controls include an on/off switch, dimming control, a joystick, a series of five power keys located on the right side of the unit, a series of function keys located along the bottom, and an inner and outer knob control located on the lower right-hand corner of the unit.

Operation of the KMD 850 consists of selecting a function from the lower row of keys and then controlling that function through power keys on the right side of the display, the joystick, or the inner and outer knobs. The available functions are: MAP, WX, TRFC, TERR, and AUX. Multiple sensors may be available for a given key. For example, if weather radar and a lightning detector are installed in the airplane, the two functions are accessed through multiple presses of the WX key. The available control options for a given function are defined by either "soft labels" on the display screen, or through backlit "power labels" on the far right side of the unit.

The moving map display is the only function intrinsic to the KMD 850. It contains two separate databases, a Jeppesen aeronautical database and a cartographic database. Pressing the MAP button will display data from both databases. Pressing the MAP button a

### S59 MODEL 208 (675 SHP)

### BENDIX/KING KMD 850 MULTI-FUNCTION DISPLAY

second time will remove the cartographic data. Range can be selected from between 1 nm and 2000 nm using the range power keys. The small boxes marked TRK and GS display present track and ground speed. Track will be magnetic (i.e. true with local variation automatically taken into account). The joystick may be used to direct a pointer on the screen to "interrogate" data. Boxes labeled PDIS and PBRG will be displayed when the joystick is moved. These boxes display the distance and bearing from the airplane's present position to the position indicated by the pointer.

Refer to the Bendix/King KMD 850 Pilot's guide p/n 006-18222-0000 Rev 1 or later for more detailed information on the operation of the unit. Pilot's guide addendums are available for additional interfaces such as weather radar or traffic alerting systems.

## SECTION 2 LIMITATIONS

The Bendix/King KMD 850 Moving Map Display is a situational awareness and advisory tool. It may not be used for navigation.

## SECTION 3 EMERGENCY PROCEDURES

There are no additional Emergency Procedures required when the Bendix/King KMD 850 Multi-Function Display is installed in the airplane.

## SECTION 4 NORMAL PROCEDURES

Since the KMD 850 is a situational awareness and advisory tool, the aeronautic and cartographic databases are not required to be current. However, it is recommended that the databases be updated from time to time as towers, obstacles, and other data changes.

3 August 2001

For Training Purposes Only

S59-4

### BENDIX/KING KMD 850 MULTI-FUNCTION DISPLAY

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### CHANGING THE DATABASE CARD

### A CAUTION

Never remove the database card while the unit is switched on, and never attempt to switch the unit on when there is no database card installed.

- 1. Turn OFF the KMD 850.
  - Grasp the data card and pull it straight out of its socket.
  - Insert the new data card, being careful to align the card with the socket. Press the new card firmly in place.
  - 4. Turn the unit on and check for correct operation. If the new card contains a newer version of the operating software, the unit will update the operating system to this newer version. Status bars will be displayed during the update process.

## SECTION 5 PERFORMANCE

There are no changes to airplane performance when the Bendix/King KMD 850 Multi-Function Display is installed in the airplane.

S59-5/S59-6



# Pilot's Operating Handbook and FAA Approved Airplane Flight Manual CESSNA MODEL 208 (675 SHP) SUPPLEMENT 60

## BFGOODRICH STORMSCOPE WX-500 WEATHER MAPPING SYSTEM

SERIAL NO.

**REGISTRATION NO.** 

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, if the airplane is equipped with the BFGoodrich Stormscope WX-500 Weather Mapping System.

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D1352-S60-00

S60 MODEL 208 (675 SHP)

BFGOODRICH STORMSCOPE WX-500 WEATHER MAPPING SYSTEM

# SUPPLEMENT CESSNA MODEL 208 (675 SHP)

## **SUPPLEMENT 60**

## BFGOODRICH STORMSCOPE WX-500 WEATHER MAPPING SYSTEM

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BFGOODRICH STORMSCOPE WX-500 WEATHER MAPPING SYSTEM S60 MODEL 208 (675 SHP)

## SUPPLEMENT

## BFGOODRICH STORMSCOPE WX-500 WEATHER MAPPING SYSTEM

## SECTION 1 GENERAL

The BFGoodrich Stormscope WX-500 provides information to the flight crew about the presence of thunderstorm activity, allowing the pilot to make appropriate flight path changes. The Stormscope maps electrical discharge activity in ranges of 360 degrees and 120 degrees around the aircraft up to a distance of 200 nautical miles. The system is heading stabilized, allowing it to maintain proper display orientation during turns.

The WX-500 can be configured to display information on any of the following optional multi-function displays:

- 1. Bendix/King KMD 850 Multi-Function Display.
- 2. Garmin GNS 430 NAV/COM/GPS.
- 3. Garmin GNS 530 NAV/COM/GPS.

The processor continuously provides storm data acquisition and self-test functions regardless of the display mode selected. Electrical discharge data is acquired continuously, even if the system is not in the weather mapping mode, to ensure that the data presented to the pilot is always current.

# SECTION 2

The BFGoodrich Stormscope Series II Weather Mapping Systems Pilot's Handbook P/N 75-0299-7690-1 (Rev. B 7/2/98 or later), must be readily available to the flight crew when operating the Stormscope system.

Pilots must not use the Stormscope weather mapping display to attempt thunderstorm penetration. The system is intended only to help the pilot make better thunderstorm avoidance decisions.

8 August 2001

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S60 MODEL 208 (675 SHP)

BFGOODRICH STORMSCOPE WX-500 WEATHER MAPPING SYSTEM

## SECTION 3 EMERGENCY PROCEDURES

No Change.

## SECTION 4 NORMAL PROCEDURES

It is highly recommended that the pilot read and understand the contents of the Stormscope WX-500 Series II Weather Mapping Sensor User's Guide P/N 009-11501-001 Rev A or later before operating the Stormscope WX-500 as a thunderstorm avoidance tool.

### A CAUTION

Static discharge from the static wicks on the wing and tail may cause false indications of lightning strikes at the 9 o'clock, 3 o'clock, and 6 o'clock positions, with the 200 nm range selected.

#### MESSAGES

MIC KEY STUCK -- Check COMM Radios for open microphone.

FLAG (Where heading information is displayed) -- Clear all strikes with each heading change. Data will not be overlaid on moving maps.

ERROR 01 thru 15, 21, 25 thru 34, 41, 42 -- Stormscope circuit breaker -- PULL.

ERROR (others) -- See pilot's guide. Continued weather mapping may be unavailable.

### **BENDIX/KING KMD 850**

Press the WX button at the bottom of the unit. If the aircraft is also equipped with weather radar, press the WX button again to toggle between the two systems. Use the RANGE buttons on the right side of the unit to scale the display range between 25 nm and 200 nm, and use the VIEW button to toggle between 120° and 360° views. The MODE button on the right hand side of the display will toggle between CELL and STRIKE mode. The joystick at the top right of the unit will clear the screen of previously recorded data.

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### BFGOODRICH STORMSCOPE WX-500 WEATHER MAPPING SYSTEM

S60 MODEL 208 (675 SHP)

The Stormscope WX-500 data may also be overlaid onto other pages of the KMD 850 such as terrain avoidance, traffic avoidance, and/or the moving map. When WX-500 data is overlaid onto other pages, the lightning bolt symbol will change from gray to yellow. However, data will not be displayed when ranges of less than 25 nm or greater than 200 nm are displayed.

Refer to the Bendix/King KMD 850 Pilot's Guide P/N 006-18222-0000 Rev 0 or later for specific operating instructions regarding displaying and overlaying WX-500 data.

#### GARMIN GNS 430 OR GNS 530

Select the NAV3 page to display the WX-500 data. Use the RANGE buttons on the right side of the unit to scale the display range between 25 nm and 200 nm. The MENU button and the Right Control Knobs (inner and outer) are used to control the contents of the NAV3 page. Pilot selectable parameters include the view (120° and 360°), CELL mode and STRIKE mode toggling, data clearing, and maximum display range. Other external systems such as the BFGoodrich SKY497 SKYWATCH may also be displayed on this page.

The WX-500 Stormscope data may also be overlaid onto the moving map page(s) of the Garmin GNS 430 or GNS 530 using the MAP SETUP function. Data will not be shown with ranges of less than 25 nm. Storm data may be displayed up to the 2000 nm zoom scale, but the data only goes out as far as the WX-500 can report (200 nm).

Refer to the Garmin GNS 400 Series Pilot's Guide Addendum P/N 190-00140-10 Rev B or later, or the Garmin GNS 530 Pilot's Guide P/N 190-00181-00 Rev A or later for specific operating instructions regarding displaying and overlaying WX-500 data.

#### NOTE

In aircraft where the WX-500 data is displayed in multiple places, one display (usually the Bendix/King KMD 850) is designated as the master control. A pilot selected SELF-TEST may only be initiated from the master control. All other functions will operate independently on each display.

8 August 2001

## S60 MODEL 208 (675 SHP)

### BFGOODRICH STORMSCOPE WX-500 WEATHER MAPPING SYSTEM

## SECTION 5 PERFORMANCE

No Change.

8 August 2001



## Pilot's Operating Handbook and FAA Approved Airplane Flight Manual CESSNA MODEL 208 (675 SHP) SUPPLEMENT 61 FAIRCHILD F1000 FLIGHT DATA RECORDER

SERIAL NO.

**REGISTRATION NO.** 

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, if the airplane is equipped with the Fairchild F1000 Flight Data Recorder.

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D1352-S61-00

S61 MODEL 208 (675 SHP)

FAIRCHILD F1000 FLIGHT DATA RECORDER

# SUPPLEMENT CESSNA MODEL 208 (675 SHP) SUPPLEMENT 61 FAIRCHILD F1000 FLIGHT DATA RECORDER

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FAIRCHILD F1000 FLIGHT DATA RECORDER S61 MODEL 208 (675 SHP)

## SUPPLEMENT

## FAIRCHILD F1000 FLIGHT DATA RECORDER

## SECTION 1 GENERAL

The Fairchild F1000 Flight Data Recorder is mounted in the tailcone of the Model 208, and is designed to record multiple flight parameters that can be recovered to aid an investigation in the event of a crash. The system is passive to the flight crew and displays an advisory annunciator on the center instrument panel only if the system has failed. Power is supplied from the main electrical bus. Data is recorded digitally based on inputs from various airplane sensors as well as pitot and static pressures.

## SECTION 2 LIMITATIONS

There are no additional limitations when the Fairchild F1000 Flight Data Recorder is installed.

## SECTION 3 EMERGENCY PROCEDURES

There are no changes to the Emergency Procedures when the Fairchild F1000 Flight Data Recorder is installed. If the FDR FAIL annunciator is illuminated, the system is inoperative; but there is no hazard to continued flight.

### SECTION 4 NORMAL PROCEDURES

There are no changes to the normal procedures when the Fairchild F1000 Flight Data Recorder is installed.

11 February 2002

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S61 MODEL 208 (675 SHP)

### FAIRCHILD F1000 FLIGHT DATA RECORDER

## SECTION 5 PERFORMANCE

There are no changes to airplane performance when the Fairchild F1000 Flight Data Recorder is installed.

### 11 February 2002



## Pilot's Operating Handbook and FAA Approved Airplane Flight Manual CESSNA MODEL 208 (675 SHP)

## **SUPPLEMENT 62**

## DUAL HSI and FDI with BENDIX/KING KFC-225 AUTOPILOT

SERIAL NO.

**REGISTRATION NO.** 

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, if the airplane is equipped with the Dual HSI and FDI Installation with Bendix/King KFC-225 Autopilot.

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S62-1

S62 MODEL 208 (675 SHP)

DUAL HSI and FDI with BENDIX/KING KFC-225 AUTOPILOT

# SUPPLEMENT CESSNA MODEL 208 (675 SHP) SUPPLEMENT 62

## DUAL HSI and FDI with BENDIX/KING KFC-225 AUTOPILOT

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DUAL HSI and FDI with BENDIX/KING KFC-225 AUTOPILOT

MODEL 208 (675 SHP)

## SUPPLEMENT

## DUAL HSI and FDI with BENDIX/KING KFC-225 AUTOPILOT

## SECTION 1 GENERAL

The Dual HSI and FDI installation with Bendix/King KFC-225 Autopilot allows flight director information to be displayed on either the pilot's or copilot's attitude indicator, but not both at the same The installation also includes a vacuum powered attitude time. indicator and an electrically powered HSI in the copilot's instrument panel. A NAV2 (VHF Navigation only - No GPS) repeater is also installed in the pilot's instrument panel in place of the NAV2/GPS2 Course Deviation Indicator (CDI). Switching autopilot/flight director control between the pilot and copilot is accomplished by means of a transfer switch/annunciator labeled AP/FD PILOT / AP/FD COPILOT. Pressing the switch also automatically disconnects the autopilot, which may immediately be recoupled to the newly activated flight director indicator. Altitude information to the autopilot/flight director comes only from the pilot's encoding altimeter regardless of switch position. The pilot's HSI input is always from the NAV1/GPS1 source. The copilot's HSI input is always from the NAV2/GPS2 source. The position of the AP/FD PILOT / AP/FD COPILOT switch determines the NAV source for the autopilot.

## SECTION 2 LIMITATIONS

There are no changes to airplane limitations when the Dual HSI and FDI are installed with the KFC-225 Autopilot. All limitations for the KFC-225 Autopilot are effective for the Dual HSI and FDI installation.

29 October 2001

S62 MODEL 208 (675 SHP)

DUAL HSI and FDI with BENDIX/KING KFC-225 AUTOPILOT

## SECTION 3 EMERGENCY PROCEDURES

There are no changes to airplane emergency procedures when the Dual HSI and FDI are installed with the KFC-225 Autopilot. All emergency procedures for the KFC-225 Autopilot are effective for the Dual HSI and FDI installation.

### A CAUTION

Pressing the AP/FD PILOT / AP/FD COPILOT Switch disconnects the autopilot. If a "Check Pitch Trim" aural message, or a flashing PT annunciation is observed, expect the airplane to be out of trim when the autopilot disconnects as a result of switching the autopilot/flight director controls.

### SECTION 4 NORMAL PROCEDURES

In addition to the before takeoff checks required for the KFC-225 Autopilot:

- 1. Copilot's Manual Electric Trim
  - a. Actuate the left side of the split switch unit on the copilot's control wheel to the fore and aft positions. The trim wheel should not move on its own.
  - b. Actuate the right side of the split switch unit on the copilot's control wheel to the fore and aft positions. The trim wheel should not move on its own.
  - c. Press the copilot's control wheel A/P DISC/TRIM INTER switch down and hold. Manual electric trim should not operate either nose down or nose up when both halves of the switch are moved fore or aft.
- 2. Autopilot -- ENGAGE by pressing AP button.
- Copilot's control wheel A/P DISC/TRIM INTER switch PRESS. Verify that the autopilot (and optional yaw damper) disconnects and all flight director modes are cancelled.

29 October 2001

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DUAL HSI and FDI with BENDIX/KING KFC-225 AUTOPILOT S62 MODEL 208 (675 SHP)

#### SWITCHING AUTOPILOT/FLIGHT DIRECTOR CONTROL BETWEEN PILOT AND COPILOT

 AP/FD PILOT / AP/FD COPILOT Switch - PRESS. The annunciator light for the enabled side will illuminate (pilot green, copilot - white).

#### NOTE

If the autopilot is engaged prior to pressing the AP/FD PILOT / AP/FD COPILOT switch, the autopilot will automatically disengage. The previously selected autopilot/flight director modes will flash on the autopilot annunciator, and the desired modes will need to be reselected to continue operation. The yaw damper (if previously engaged) will remain engaged.

### SECTION 5 PERFORMANCE

There are no changes to airplane performance when the Dual HSI and FDI are installed with the KFC-225 Autopilot.

29 October 2001

S62-5/S62-6

### For Training Purposes Only

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# Pilot's Operating Handbook and FAA Approved Airplane Flight Manual CESSNA MODEL 208 (675 SHP) SUPPLEMENT 63 FAIRCHILD FA2100 COCKPIT VOICE RECORDER

#### SERIAL NO.

#### **REGISTRATION NO.**

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, if the airplane is equipped with the Fairchild FA2100 Cockpit Voice Recorder.

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S63 MODEL 208 (675 SHP)

FAIRCHILD FA2100 COCKPIT VOICE RECORDER

# SUPPLEMENT CESSNA MODEL 208 (675 SHP) SUPPLEMENT 63 FAIRCHILD FA2100 COCKPIT VOICE RECORDER

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FAIRCHILD FA2100 COCKPIT VOICE RECORDER **S63** MODEL 208 (675 SHP)

# SUPPLEMENT

# FAIRCHILD FA2100 COCKPIT VOICE RECORDER

### SECTION 1 GENERAL

The FA2100 CVR system consists of a recorder unit mounted on a shelf in the tailcone and a control unit/area microphone assembly installed in the center radio instrument panel between the pilot and copilot. It is interfaced with the audio system to record all pilot and copilot radio, intercom, warning, and P/A audio activity.

Power to the unit is supplied from the main electrical bus. An external annunciator is installed on the center radio panel to indicate CVR system failure.

Power to the unit is interrupted upon impact by a G-switch mounted in the tailcone to prevent recording over existing data.

A bulk erase feature is interlocked through the cabin doors to prevent accidental erasure.

The FA2100 system is qualified to TSO C123a and includes an underwater locator beacon qualified to TSO C121.

### SECTION 2 LIMITATIONS

There is no change in limitations when the FA2100 CVR is installed.

11 February 2002

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S63 MODEL 208 (675 SHP)

#### FAIRCHILD FA2100 COCKPIT VOICE RECORDER

### SECTION 3 EMERGENCY PROCEDURES

There is no change in emergency procedures when the FA2100 CVR is installed.

### SECTION 4 NORMAL PROCEDURES

To verify proper operation of the CVR, press the self-test button. If a headset is plugged into the CVR speaker jack, a tone is generated in the headset speaker. Illumination of a green light indicates proper completion of the self-test sequence.

If the CVR FAIL annunciator illuminates, the unit is not functioning and should be serviced for proper operation.

To activate the bulk erase feature, press the Bulk Erase button for a minimum of two seconds while one of the rear cabin doors is in the open position.

### SECTION 5 PERFORMANCE

There is no change in airplane performance when the FA2100 CVR is installed.

11 February 2002

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# CESSNA MODEL 208 (675 SHP) PILOT'S OPERATING HANDBOOK SUPPLEMENT 64 ORIGINAL ISSUE

D1352-S64-00

**6 JANUARY 2004** 

# BENDIX/KING KI 825 ELECTRONIC HORIZONTAL SITUATION INDICATOR

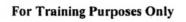
THE FOLLOWING SUPPLEMENT S64 - ORIGINAL ISSUE, MUST BE INSERTED INTO SECTION 9 OF THE PILOT'S OPERATING HANDBOOK, IF THE AIRPLANE IS EQUIPPED WITH THE BENDIX/KING KI 825 ELECTRONIC HORIZONTAL SITUATION INDICATOR

THE LOG OF APPROVED SUPPLEMENTS FURNISHED WITH THIS SUPPLEMENT REPLACES ALL EARLIER DATED VERSIONS OF THE LOG.

#### NOTE

IT IS THE AIRPLANE OWNER'S RESPONSIBILITY TO ASSURE THAT THEY HAVE THE LATEST REVISION TO EACH SUPPLEMENT OF A PILOT'S OPERATING HANDBOOK, AND THE LATEST ISSUED "LOG OF APPROVED SUPPLEMENTS". THE LOG OF APPROVED SUPPLEMENTS FURNISHED WITH THIS REVISION WAS THE LATEST VERSION AS OF THE DATE IT WAS SHIPPED BY CESSNA; HOWEVER, SOME CHANGES MAY HAVE OCCURRED, AND THE OWNER SHOULD VERIFY THIS IS THE LATEST, MOST UP-TO-DATE VERSION BY REFERRING TO THE LATEST CESSNA PROPELLER AIRCRAFT REVISION STATUS CHECKLIST OR BY CONTACTING CESSNA PROPELLER PRODUCT SUPPORT: TELEPHONE (316) 517-5800, FAX (316) 942-9006.

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### Pilot's Operating Handbook and FAA Approved Airplane Flight Manual

# CESSNA MODEL 208 (675 SHP)

# **SUPPLEMENT 64**

# BENDIX/KING KI 825 ELECTRONIC HORIZONTAL SITUATION INDICATOR

SERIAL NO. \_\_\_\_\_\_ REGISTRATION NO. \_\_\_\_\_

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, if the airplane is equipped with the Bendix/King KI 825 Electronic Horizontal Situation Indicator.

#### APPROVED BY

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S64

BENDIX/KING KI 825 EHSI CESSNA MODEL 208 (675 SHP) PILOT'S OPERATING HANDBOOK SUPPLEMENT

# **SUPPLEMENT S64**

# BENDIX/KING KI 825 ELECTRONIC HORIZONTAL SITUATION INDICATOR

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PILOT'S OPERATING HANDBOOK SUPPLEMENT BENDIX/KING KI 825 EHSI CESSNA MODEL 208 (675 SHP)

# SUPPLEMENT S64

# BENDIX/KING KI 825 ELECTRONIC HORIZONTAL SITUATION INDICATOR

## SECTION 1 GENERAL

The KI 825 can be operated in one of three display modes: HSI mode, 360 Map mode, and Arc Map mode.

In HSI mode, the KI 825 displays navigation information in a 360-degree compass format. The display contains information found on a standard HSI including compass card, heading bug, course arrow with course deviation indicator, TO/FROM indicator, and glideslope deviation indicator. Additional information available with the KI 825 includes digital heading and course readout, primary navigation source annunciation, groundspeed, and time to station.

In 360 Map mode, the KI 825 displays navigation information is in a 360-degree compass format. The same information available in HSI mode is displayed, except there is no course arrow and the CDI is moved to the bottom of the display. In 360 Map mode, the KI 825 can display GPS moving map information such as flight plan, direct to waypoints, course lines, and map scale.

In Arc Map mode, the KI 825 displays the same information as it does in the 360 Map mode, but the display only shows approximately 45-degrees each side of the aircraft heading.

Refer to the Bendix/King KI 825 Pilot's guide p/n 006-18282-000 (Revision 1 or later) for more detailed information on the operation of the unit.

Original Issue

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#### S64

BENDIX/KING KI 825 EHSI CESSNA MODEL 208 (675 SHP) PILOT'S OPERATING HANDBOOK SUPPLEMENT

### SECTION 4 NORMAL PROCEDURES

(Continued)

#### MENU OPTIONS

- MENU Button -- PRESS momentarily, then PRESS and hold for 1 second.
- 2. COURSE Knob and HEADING Knob -- SELECT from the table below:

DESCRIPTION	LH KNOB	RH KNOB	
Display Brightness	BRITE	(Adjust)	
Map Range	RNG	2 NM to 320 NM	
Navigation Source	NAV	GPS VOR (LOC)	
Display Mode	MODE	HSI 360 ARC	
Bearing Pointer Source	BRG	GPS VOR (LOC)	
Lightning Overlay	LGHTN	Not Available	
Clear Lightning Strikes	CLR	Not Available	
Memory Functions	MEMRY	See Pilot's Guide	
Groundspeed / Time to Station	GSTTS	GS or TTS	

# A WARNING

IT IS POSSIBLE TO DIM THE DISPLAY BRIGHTNESS UNTIL THE DISPLAY IS TOTALLY DARK. CARE SHOULD BE TAKEN WHEN ADJUSTING THE DISPLAY BRIGHTNESS IN FLIGHT. THE MENU WILL DISAPPEAR AFTER A SHORT PERIOD OF INACTIVITY, AND IF THE SCREEN IS DARK AT THAT TIME, THE PILOT WILL BE UNABLE TO ADJUST THE DISPLAY BRIGHTNESS USING ONLY THE RH KNOB (REFERENCE - EMERGENCY PROCEDURES).

#### NOTE

The KI 825 is unable to accept a remote navigation source switch. Switching between GPS and VOR (LOC) navigation sources may only be accomplished by using the MENU option - NAV. Garmin equipped airplanes will receive a message on the GNS 530 that the CDI function has been disabled. The CDI function on the GNS 430 will function correctly for the No. 2 NAV course deviation indicator.

**Original Issue** 

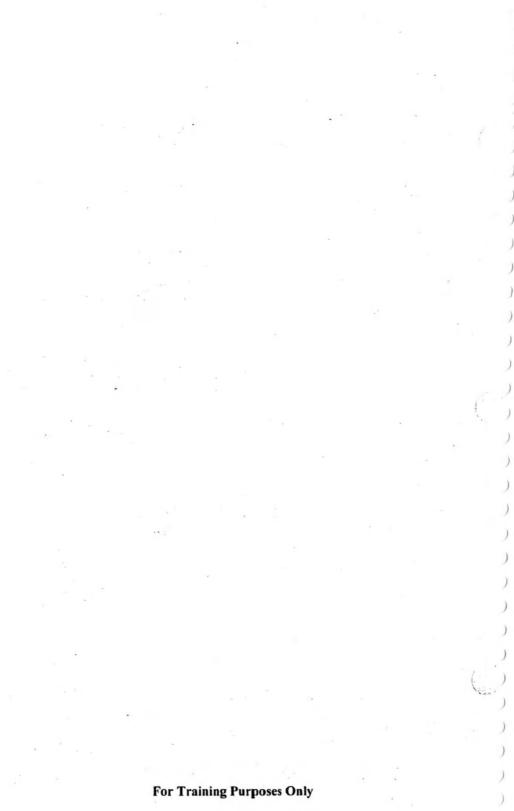
PILOT'S OPERATING HANDBOOK SUPPLEMENT

# SECTION 5 PERFORMANCE

Airplane performance does not change when the KI 825 Electronic Horizontal Situation Indicator is installed in the airplane.

**Original Issue** 

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# Pilot's Operating Handbook and FAA Approved Airplane Flight Manual CESSNA MODEL 208 (675 SHP)

# **SUPPLEMENT 65**

# HONEYWELL KMH 880 INTEGRATED HAZARD AWARENESS SYSTEM (IHAS)

SERIAL NO.

**REGISTRATION NO.** 

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, if the airplane is equipped with the Honeywell KMH 880 Integrated Hazard Awareness System (IHAS).

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S65

HONEYWELL KMH 880 INTEGRATED MODEL 208 (675 SHP) HAZARD AWARENESS SYSTEM (IHAS)

# SUPPLEMENT CESSNA MODEL 208 (675 SHP)

# SUPPLEMENT 65

# HONEYWELL KMH 880 INTEGRATED HAZARD AWARENESS SYSTEM (IHAS)

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HONEYWELL KMH 880 INTEGRATED HAZARD AWARENESS SYSTEM (IHAS) MODEL 208 (675 SHP)

# SUPPLEMENT

# HONEYWELL KMH 880 INTEGRATED HAZARD AWARENESS SYSTEM (IHAS)

### SECTION 1 GENERAL

The Honeywell KMH 880 Integrated Hazard Awareness System (IHAS) combines the KGP 560 General Aviation Enhanced Ground Proximity Warning System (GA-EGPWS) with the KTA 870 Traffic Advisory System (TAS) into one unit. The system consists of a processing unit located in the tail of the airplane, a configuration module, directional antenna on the top of the fuselage, an omnidirectional antenna on the bottom of the fuselage or cargo pod, and a GPS antenna (optional). Graphical data is displayed on the KMD 850 Multi-function Display. Aural warnings are sounded through cockpit speakers and the airplane audio panel (if installed). The KTA 870 TAS may also be configured to display on the Garmin GNS 530 or Garmin GNS 430 NAV/COM/GPS. See the individual supplements for the KGP 560 GA-EGPWS and KTA 870 TAS for detailed operating instructions, limitations, and emergency procedures.

### SECTION 2 LIMITATIONS

There are no additional limitations when the KGP 560 and KTA 870 systems are combined into the KMH 880 IHAS. Reference the appropriate supplements for limitations unique to each system.

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HONEYWELL KMH 880 INTEGRATED MODEL 208 (675 SHP) HAZARD AWARENESS SYSTEM (IHAS)

### SECTION 3 EMERGENCY PROCEDURES

There are no additional emergency procedures required when the KGP 560 and KTA 870 systems are combined into the KMH 880 IHAS. Reference the appropriate supplements for emergency procedures unique to each system.

#### NOTE

In the event of a simultaneous warning from the KGP 560 and KTA 870 systems, the warning from the KGP 560 GA-EGPWS will have priority over the KTA 870 TAS.

### SECTION 4 NORMAL PROCEDURES

No additional normal procedures are required when the KGP 560 and KTA 870 systems are combined into the KMH 880 IHAS. Reference the appropriate supplements for normal procedures unique to each system.

### SECTION 5 PERFORMANCE

Airplane performance does not change when the KMH 880 IHAS is installed in the airplane.

13 March 2002

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# Pilot's Operating Handbook and FAA Approved Airplane Flight Manual CESSNA MODEL 208 (675 SHP) SUPPLEMENT 66 HONEYWELL KTA 870 TRAFFIC ADVISORY SYSTEM (TAS)

SERIAL NO.

**REGISTRATION NO.** 

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, if the airplane is equipped with the Honeywell KTA 870 Traffic Advisory System (TAS).

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S66 MODEL 208 (675 SHP)

HONEYWELL KTA 870 TRAFFIC ADVISORY SYSTEM (TAS)

# SUPPLEMENT CESSNA MODEL 208 (675 SHP)

# **SUPPLEMENT 66**

# HONEYWELL KTA 870 TRAFFIC ADVISORY SYSTEM (TAS)

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HONEYWELL KTA 870 TRAFFIC ADVISORY SYSTEM (TAS)

S66 MODEL 208 (675 SHP)

# SUPPLEMENT

# HONEYWELL KTA 870 TRAFFIC ADVISORY SYSTEM (TAS)

### SECTION 1 GENERAL

The Honeywell KTA 870 Traffic Advisory System (TAS) is an airborne system used for detecting and tracking aircraft near your own airplane. The KTA 870 processor and antennae detect and track other aircraft by interrogating their transponders. Aircraft tracked and displayed by the KTA 870 TAS are referred to as Intruders.

#### NOTE

The KTA 870 is unable to detect an intruding aircraft if the intruder is not equipped with an operating transponder. TAS can detect and track aircraft with either Mode A, Mode C, or Mode S transponders.

Due to aircraft geometry, the relative bearing to a Mode A (Non-Altitude Reporting) aircraft may appear erratic when the intruding aircraft is at close horizontal range with a large vertical separation. In this case, the Non-Altitude Reporting traffic symbol may momentarily disappear or move rapidly around the TAS display. Continue to use visual scan techniques to scan for this and all other intruding aircraft.

The KTA 870 analyzes the transponder replies to determine range, bearing and relative altitude (if the Intruder aircraft is reporting altitude). Using this data, the KTA 870 predicts the time to, and separation at, the Intruder's Closest Point of Approach (CPA). Should the KTA 870 determine that a collision hazard exists, it issues visual and aural warnings in the form of a Traffic Advisory (TA) to the flight crew. It is highly recommended that the pilot read and understand the contents of the KTA 870/KMH 880 Traffic Advisory System/Multi-hazard Awareness System Pilot's Guide P/N 006-18265-0000 Rev 0 or later before operating the KTA 870 TAS as a traffic avoidance tool.

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#### S66 MODEL 208 (675 SHP)

#### HONEYWELL KTA 870 TRAFFIC ADVISORY SYSTEM (TAS)

The KTA 870 TAS will display three different traffic symbols on the traffic display(s). The symbols change shape and color as separation decreases between your airplane and the Intruder. The traffic symbols also have an associated altitude tag that shows RELATIVE altitude in hundreds of feet. A trend arrow appears when the Intruder's vertical rate is 500 feet per minute or greater.

- 1. Open White Diamond: Intruder's relative altitude is greater than +/- 1200 feet and/or its distance is greater than 5 nm.
- Filled White Diamond: Intruder aircraft is less than +/- 1200 feet and its distance is less than 5 nm, but the intruder is not considered a threat.
- Yellow Circle: Intruder aircraft is less than +/- 1200 feet and its distance is less than 5 nm and the intruder is considered a threat. The KTA 870 will display a TA when the CPA is 15 to 30 seconds away.
- No Bearing Traffic: Traffic advisories will include range and relative altitude, but no symbol may be generated (when the KTA 870 is unable to calculate azimuth).

The maximum range of the KTA 870 TAS is 18 nm laterally and +/- 10,000 feet vertically. However, there are instances when traffic up to 36 nm away may be tracked. The KTA 870 automatically reduces its range in high traffic density areas to reduce the number of receptions that the KTA 870 processes and for interference limiting. The KTA 870 can track as many as 45 aircraft and display up to the 30 closest aircraft. For airplanes equipped with a Radio Altimeter, the KTA 870 will be made slightly less sensitive below 2000 feet AGL in order to reduce nuisance traffic advisories in the terminal area.

The KTA 870 TAS may be configured to display on any combination of the Honeywell KMD 850 Multi-function Display, the Garmin GNS 530 NAV/COM/GPS, and/or the Garmin GNS 430 NAV/COM/GPS.

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#### HONEYWELL KTA 870 TRAFFIC ADVISORY SYSTEM (TAS)

S66 MODEL 208 (675 SHP)

#### BENDIX/KING KMD 850

Press the TRFC button at the bottom of the unit. If the airplane is also equipped with another traffic advisory system, press the TRFC button again to toggle between the two systems. Use the RANGE buttons on the right side of the unit to scale the display range. The MODE button will toggle the display between ABOVE, NORMAL, and BELOW viewing modes. The KTA 870 TAS data may also be overlaid onto other pages of the KMD 850 such as terrain avoidance, weather, and/or the moving map. When KTA 870 data is overlaid onto other pages, the airplane symbol will change from gray to yellow. Refer to the Bendix/King KMD 850 Pilot's Guide P/N 006-18222-0000 Rev. 0 or later for specific operating instructions regarding displaying and overlaying KTA 870 TAS data. If the KTA 870 TAS detects traffic that may pose an immediate threat to the airplane, the KMD 850 will automatically display the TRFC page regardless of whether the KTA 870 data is overlaid on the current page.

#### GARMIN GNS 430 OR GNS 530

Select the NAV3 page to display the KTA 870 TAS Data. Use the RANGE buttons on the right side of the unit to scale the display range. The MENU button and the Right Control Knobs (inner and outer) are used to control the contents of the NAV3 page. Other external situational awareness systems may also be displayed on this page. The KTA 870 TAS data may also be overlaid onto the moving map page(s) of the Garmin GNS 430 or GNS 530 using the MAP SETUP function.

Refer to the Garmin GNS 400 Series Pilot's Guide Addendum "Display Interface for Traffic and Weather Data" P/N 190-00140-10 Rev. B or later or the Garmin GNS 530 Pilot's Guide P/N 190-00181-00 Rev A or later for specific operating instructions regarding displaying and overlaying KTA 870 TAS data.

#### NOTE

In airplanes where the KTA 870 data is displayed in multiple places, one display (usually the Bendix/King KMD 850) is designated as the master control. A pilotselected SELF-TEST and system standby (STBY) may only be initiated from the master control. All other functions will operate independently on each display.

13 March 2002

S66 MODEL 208 (675 SHP)

HONEYWELL KTA 870 TRAFFIC ADVISORY SYSTEM (TAS)

## SECTION 2 LIMITATIONS

Evasive traffic avoidance maneuvers must not be based solely on the traffic display or a Traffic Advisory from the KTA 870 TAS. These displays and advisories are intended to assist the flight crew in visually locating traffic.

## SECTION 3 EMERGENCY PROCEDURES

No additional emergency procedures are required when the KTA 870 TAS is installed in the airplane.

#### NOTE

If the airplane is also equipped with a KGP 560 GA-EGPWS, the KGP 560 GA-EGPWS warnings will have priority over the KTA 870 TAS warnings in the rare instance that warnings are issued from both systems simultaneously.

### SECTION 4 NORMAL PROCEDURES

#### BEFORE TAKEOFF

Pilot Initiated Self-Test - Complete.

- a. Traffic Advisory (Yellow Circle) 9 o'clock, range 2 miles, 200 feet below and climbing.
- b. Proximity Traffic (Solid White Diamond) 1 o'clock, range 3.6 miles, 1000 feet below and descending.
- Non-Threat Traffic (Open White Diamond) 11 o'clock, range 3.6 miles, 1000 feet above.
- d. Voice Annunciation "TAS SYSTEM TEST OK".
- 2. TAS STBY.

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#### HONEYWELL KTA 870 TRAFFIC ADVISORY SYSTEM (TAS)

MODEL 208 (675 SHP)

#### TAKEOFF

1. TAS - ON (Recommend range 10 nm or less).

#### CLIMB

- 1. Range (Recommend 10 nm or greater).
- 2. Display Volume Mode (Recommend ABOVE).

#### CRUISE

- 1. Range (Recommend 10 nm or greater).
- 2. Display Volume Mode (Recommend NORM).

#### DESCENT

- 1. Range (Recommend 10 nm or less in terminal area).
- 2. Display Volume Mode (Recommend BELOW).

#### LANDING

1. TAS - STBY (Below 400 ft AGL for aircraft not equipped with a Bendix/King KRA 405B Radio Altimeter).

#### NOTE

Use of the TAS self-test function in flight will inhibit TAS operation for up to eight seconds.

## SECTION 5 PERFORMANCE

Aircraft performance does not change when the KTA 870 TAS is installed in the airplane.

13 March 2002

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### Pilot's Operating Handbook and FAA Approved Airplane Flight Manual

# CESSNA MODEL 208 (675 SHP)

# SUPPLEMENT 67

# 2-PORT OXYGEN SYSTEM

SERIAL NO.

**REGISTRATION NO.** 

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, if the airplane is equipped with the optional 2-port oxygen system.

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S67 MODEL 208 (675 SHP)

2-PORT OXYGEN SYSTEM POH SUPPLEMENT

# **SUPPLEMENT 67**

### 2-PORT OXYGEN SYSTEM

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S67 MODEL 208 (675 SHP)

# SUPPLEMENT

### 2-PORT OXYGEN SYSTEM

### SECTION 1 GENERAL

A two-port oxygen system provides supplemental oxygen necessary for continuous flight at high altitude. In this system, a 50.67 or 116.95 cubic foot capacity oxygen cylinder, located in the fuselage tailcone, supplies the oxygen. Cylinder pressure is reduced to an operating pressure of 70 PSI by a pressure regulator attached to the cylinder. A shutoff valve is included as part of the regulator assembly. The system also contains an altitude compensating regulator, located between the pressure regulator and the oxygen supply lines, which varies the flow of oxygen to the masks, depending on altitude. An oxygen cylinder filler valve is located on the right side of the airplane (under a cover plate), at the forward end of the tailcone.

Cylinder pressure is indicated by a pressure gage located on the overhead console above the pilot's and front passenger's seats. Two oxygen outlets are provided in the cabin ceiling, one each just outboard of the pilot's and front passenger's seats. One permanent, microphone-equipped mask is provided for the pilot, and a second permanent mask is provided for the front passenger. Both masks are the partial rebreathing type, equipped with vinyl plastic hoses and flow indicators. The oxygen hoses are the high-flow type and are color-coded with a blue band adjacent to the plug-in fitting.

#### NOTE

The pilot's mask is equipped with a microphone to facilitate use of the radio when using oxygen. An adapter cord is furnished with the microphoneequipped mask to mate the mask microphone lead to the microphone jack located on the left side of the instrument panel. To connect the oxygen mask microphone, connect the mask lead to the adapter cord and plug the cord into the microphone jack.

25 February 2002

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#### NOTE

If an optional microphone-headset combination has been in use, the microphone lead from this equipment is already plugged into the microphone jack. It will be necessary to disconnect this lead from the microphone jack so that the adapter cord from the oxygen mask microphone can be plugged into the jack. A switch is incorporated on the lefthand control wheel to operate the microphone.

AMBIENT TEMPE RATURE (F°)	FILLING PRESSURE (PSIG)	AMBIENT TEMPERATURE (F°)	FILLING PRESSURE (PSIG)
0	1650	50	1875
10	1700	60	1925
20	1725	70	1975
30	1775	80	2000
40	1825	90	2050

#### Figure 1. Oxygen Filling Pressures

A remote shutoff valve control in the overhead console above the pilot's and front passenger's seats is used to shut off the supply of oxygen to the system when not in use. The control is mechanically connected to the shutoff valve at the cylinder. With the exception of the shutoff function, the system is completely automatic and requires no manual regulation for change of altitude.

The oxygen cylinder, when fully charged, contains 50.67 or 116.95 cubic feet of aviator's breathing oxygen (Spec. No. MIL-O-27210), under a pressure of 1850 PSI at 70°F (21°C). Filling pressures will vary, however, due to ambient temperature in the filling area, and the temperature rise resulting from compression of the oxygen.

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Because of this, merely filling to 1850 PSI will not result in a properly filled cylinder. Fill to pressures indicated in Figure 1 for ambient temperatures.

### A WARNING

Oil, grease or other lubricants in contact with oxygen create a serious fire hazard, and such contact must be avoided when handling oxygen equipment.

### SECTION 2 LIMITATIONS

There is no change to the airplane limitations when oxygen equipment is installed.

### SECTION 3 EMERGENCY PROCEDURES

There is no change to the airplane emergency procedures when oxygen equipment is installed.

### SECTION 4 NORMAL PROCEDURES

Prior to flight, check to be sure that there is an adequate oxygen supply for the trip, by noting the oxygen pressure gage reading, and referring to the Oxygen Duration Chart (Figure 2 or Figure 3). Also, check that the face masks and hoses are accessible and in good condition.

The Oxygen Duration Chart (Figure 2 or Figure 3) should be used in determining the usable duration (in hours) of the oxygen supply in your airplane. The following procedure outlines the method of finding the duration from the chart:

 Note the available oxygen bottle size and pressure shown on the pressure gage.

(Continued Next Page)

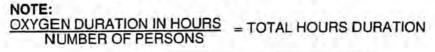
25 February 2002

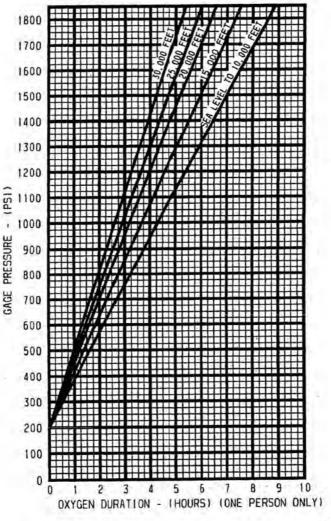
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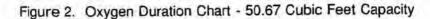
#### 2-PORT OXYGEN SYSTEM POH SUPPLEMENT

### OXYGEN DURATION CHART (50.67 CUBIC FEET CAPACITY)





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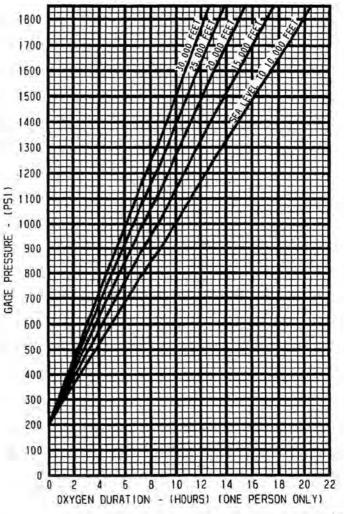
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S67 MODEL 208 (675 SHP)

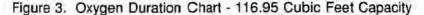
### OXYGEN DURATION CHART (116.95 CUBIC FEET CAPACITY)

NOTE:

OXYGEN DURATION IN HOURS = TOTAL HOURS DURATION NUMBER OF PERSONS



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For Training Purposes Only

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### S67 MODEL 208 (675 SHP)

#### 2-PORT OXYGEN SYSTEM POH SUPPLEMENT

- 2. Locate this pressure on the scale on the left side of the appropriate chart, then go across the chart horizontally to the right until you intersect the line representing the altitude at which the flight will be conducted. After intersecting the line, drop down vertically to the bottom of the chart and read the duration in hours given on the scale. This duration is for one person only and will have to be divided by the number of persons using oxygen to obtain the total duration in hours.
- 3. As an example of the above procedure, 1700 PSI of pressure will safely sustain the pilot only, flying at 20,000 feet altitude, for 6 hours (50.67 cubic foot bottle). If a right front passenger is aboard, the total duration at 20,000 feet altitude for two persons is 3 hours.

#### NOTE

Reliance on oxygen available below 200 PSI is not recommended. At this reduced pressure, flow rates are not predictable.

When ready to use the oxygen system, proceed as follows:

 Mask and Hose -- SELECT. Adjust mask to face and adjust metallic nose strap for snug mask fit.

### A WARNING

Permit no smoking when using oxygen. Oil, grease, soap, lipstick, lip balm, and other fatty materials constitute a serious fire hazard when in contact with oxygen. Be sure hands and clothing are oil-free before handling oxygen equipment.

 Delivery Hose -- PLUG INTO OUTLET nearest to the seat you are occupying.

#### NOTE

When the oxygen system is turned on, oxygen will flow continuously at the proper rate of flow for any altitude without any manual adjustments.

- 3. Oxygen Supply Control Knob -- ON.
- Face Mask Hose Flow Indicator -- CHECK. Oxygen is flowing if the indicator is being forced toward the mask.
- 5. Delivery Hose -- UNPLUG from outlet when discontinuing use of oxygen. This automatically stops the flow of oxygen.
- 6. Oxygen Supply Control Knob -- OFF when oxygen is no longer required.

### SECTION 5 PERFORMANCE

There is no change to airplane performance when oxygen equipment is installed.

25 February 2002

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### For Training Purposes Only

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### Pilot's Operating Handbook and FAA Approved Airplane Flight Manual

## CESSNA MODEL 208 (675 SHP)

## **SUPPLEMENT 68**

### HONEYWELL KDR 510 FLIGHT INFORMATION SERVICES (FIS)

#### SERIAL NO.

**REGISTRATION NO.** 

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HONEYWELL KDR 510 MODEL 208 (675 SHP) FLIGHT INFORMATION SERVICES (FIS)

## CESSNA MODEL 208 (675 SHP) SUPPLEMENT 68

### HONEYWELL KDR 510 FLIGHT INFORMATION SERVICES (FIS)

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HONEYWELL KDR 510 FLIGHT INFORMATION SERVICES (FIS) MODEL 208 (675 SHP)

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## SUPPLEMENT

## **HONEYWELL KDR 510** FLIGHT INFORMATION SERVICES (FIS)

### SECTION 1 GENERAL

The Honeywell KDR 510 Flight Information Services (FIS) installation provides weather information and other flight advisory information to pilots to enhance situational awareness. The services rely on a network of ground based VHF transmitters that continuously broadcast data to any aircraft within line-of-sight of the transmitter. The aircraft must be equipped with a dedicated VHF antenna and receiver. Data is then presented to the pilot using the KMD 850 Multi-function display. FIS information is intended to be used as a strategic planning tool to help the pilot make decisions about AVOIDING inclement weather areas that are beyond his visual range. FIS lacks the sufficient resolution and update rate necessary for severe weather penetration.

#### NOTE

Cessna Aircraft Company does not guarantee the quality, accuracy, or availability of FIS data. Some data is available to all KDR 510 installations while other data is available only by subscription. The network of transmitters may not cover the entire area where the aircraft is operated, and the aircraft may need to be above 5000 feet AGL to receive FIS data in areas where coverage does exist.

### SECTION 2 LIMITATIONS

Use of the Honeywell KDR 510 Flight Information Services (FIS) for severe weather penetration is prohibited.

31 May 2002

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MODEL 208 (675 SHP)

HONEYWELL KDR 510 FLIGHT INFORMATION SERVICES (FIS)

### SECTION 3 EMERGENCY PROCEDURES

No additional emergency procedures are required when the KDR 510 Flight Information Services (FIS) equipment is installed in the airplane.

### SECTION 4 NORMAL PROCEDURES

Press the WX function select key of the KMD 850 Multi-function display to toggle through weather related systems installed on the aircraft that display on the KMD 850. The MODE button toggles between different weather related information displays such as switching between METARs and PIREPs. It is highly recommended that the pilot read the Honeywell subscription agreement and the FIS addendum to the KMD 550/850 Pilot's guide P/N 006-18222-0000 to understand the entire range of information available. It is possible that data availability and subscription services may change over time.

### SECTION 5 PERFORMANCE

Airplane performance does not change when the KDR 510 Flight Information Services (FIS) equipment is installed.

31 May 2002

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Pilot's Operating Handbook and FAA Approved Airplane Flight Manual

## CESSNA MODEL 208 (675 SHP)

## **SUPPLEMENT 69**

## GARMIN GTX 330 TRANSPONDER

SERIAL NO.

**REGISTRATION NO.** 

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, if the airplane is equipped with the Garmin GTX 330 Transponder.

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S69 MODEL 208 (675 SHP)

GARMIN GTX 330 TRANSPONDER POH SUPPLEMENT

## SUPPLEMENT 69

## GARMIN GTX 330 TRANSPONDER

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8 January 2003

GARMIN GTX 330 TRANSPONDER POH SUPPLEMENT MODEL 208 (675 SHP)

## SUPPLEMENT 69 GARMIN GTX 330 TRANSPONDER SECTION 1 GENERAL

The Garmin GTX 330 Transponder is capable of both Mode A (location) and Mode C (altitude) reporting. In addition, the Mode S capability of the transponder allows information unique to the airplane such as tail number and maximum level airspeed to be interrogated by various air traffic control facilities.

The face of the Garmin GTX 330 will display pressure altitude, an altitude deviation alert, flight time, a count up timer, and a count down timer. All audio functions have been disabled for the GTX 330 installation due to redundant alerting tones elsewhere in the cockpit. An OAT input is not available for the GTX 330, so the OAT/DALT display listed in the pilot's guide is not available. A remote IDENT button is located on the pilot's control wheel in addition to the button on the face of the GTX 330.

Some installations may contain two transponders. A toggle switch is located next to the units on the instrument panel to select the active transponder. The inactive transponder will automatically be placed in STBY mode.

### SECTION 2 LIMITATIONS

The avionics cooling fan must be operational when operating at outside air temperatures above 41°C.

The Altitude Trend Indicator arrows descibed in the pilot's guide must be set to a trigger level of 9999 feet per minute in the configuration mode (factory setting). Changing this setting may provide misleading or inaccurate information to the pilot.

Original Issue

S69-3

S69 MODEL 208 (675 SHP)

#### GARMIN GTX 330 TRANSPONDER POH SUPPLEMENT

### SECTION 3 EMERGENCY PROCEDURES

There are no additional emergency procedures when the Garmin GTX 330 Transponder is installed in the airplane. Refer to current FAR/AIM procedures for emergency codes and transponder inoperative situations.

#### NOTE

When two transponders are installed, toggle to the STBY transponder in the case of transponder failure. However, both transponders receive altitude information from the same encoding altimeter, so if a failure occurs in the encoding altimeter, neither transponder will have Mode C (altitude reporting) capability. Mode A (position reproting) and Mode S (aircraft information) may still be available.

### SECTION 4 NORMAL PROCEDURES

#### MODE SELECTION

- OFF Powers off the GTX 330.
- STBY Powers on the GTX 330, but does not allow a reply to interrogations.
- ON Powers on the GTX 330 for Mode A, Mode C, and Mode S operations.
- ALT Powers on the GTX 330 for both Mode A and Mode C operations.

#### NOTE

When interfaced with a Garmin GNS 430 or GNS 530, the transponder will display GND after landing. This is to alert the pilot that the transponder has discontinued Mode A, Mode C, and Mode S reporting. Otherwise, the transponder functions as if in STBY mode.

#### GARMIN GTX 330 TRANSPONDER POH SUPPLEMENT

#### CODE SELECTION

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Code selection is accomplished using the numerical keys (0 - 7). Pushing one of these keys begins the code selection sequence. The new code will not be active until the fourth digit is entered. Pressing the CLR button will move the cursor back to the previous digit. Pressing the CLR button when the cursor is on the first digit, or pressing the CRSR button at any time will cancel the entry and restore the previous code.

#### NOTE

Numerical keys 8 and 9 are not used for code entry, only for entering a Count Down time.

#### **OTHER FUNCTIONS**

- IDENT Pressing IDENT or the remote IDENT button on the pilot's control wheel activates the Special Position Identification (SPI) pulse for 18 seconds, identifying the transponder return from others on the air traffic controller's screen. The word "IDENT" will appear in the upper left corner of the display when IDENT mode is active.
- VFR Sets the transponder code to 1200 (unless configured otherwise). Pressing the VFR button again will restore the previous code.
- FUNC Multiple presses of the FUNC button changes the function page to one of the following:

PRESSURE Displays pressure altitude in hundreds of ALT feet.

FLIGHT Controlled by the START/STOP button, or TIME can be configured to START when the aircraft exceeds 30 KTS GPS ground speed, and STOP when the airplane slows below 30 KTS.

- ALTITUDE Controlled by START/STOP button. MONITOR Displays altitude deviation (in hundreds of feet) after the reference altitude is set using the START button. If altitude deviation is greater than 1000 feet, the Altitude Monitor function will turn itself to OFF. COUNT UP TIMER Controlled by the START/STOP button.
- COUNT Enter time using numerical keys, and use DOWN START/STOP button to activate. Use CLR TIMER to reset to 0:00.

#### AUTOMATIC ALT/STBY MODE SWITCHING

When interfaced with a Garmin GNS 430 or GNS 530, the GTX 330 automatically switches to ALT mode when ground speed exceeds approximately 30 knots GPS ground speed. The unit automatically switches to GND mode when the airplane slows below 30 knots.

#### NOTE

The ON, ALT, and STBY buttons can be used at any time to manually override the automatic ALT/STBY mode switching.

### SECTION 5 PERFORMANCE

There is no change to airplane performance when the Garmin GTX 330 Transponder is installed.

**Original Issue** 



### Pilot's Operating Handbook and FAA Approved Airplane Flight Manual

## CESSNA MODEL 208 (675 SHP)

## SUPPLEMENT S70

## BENDIX/KING KRA-405B RADAR ALTIMETER

SERIAL NO.

REGISTRATION NO.

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, if the airplane is equipped with the Bendix/King KRA-405B Radar Altimeter.

#### APPROVED BY

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D1352-S70-00

S70 BENDIX/KING KRA-405B RADAR ALTIMETER

PILOT'S OPERATING HANDBOOK SUPPLEMENT CESSNA MODEL 208 (675 SHP)

## **SUPPLEMENT S70**

## BENDIX/KING KRA-405B RADAR ALTIMETER

Use the Log of Effective Pages to determine the current status of this supplement.

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S70-1 thru S70-7/S70-8

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**Original Issue** 

PILOT'S OPERATING HANDBOOK SUPPLEMENT CESSNA MODEL 208 (675 SHP)

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## SUPPLEMENT BENDIX/KING KRA-405B RADAR ALTIMETER

### SECTION 1 GENERAL

The Bendix/King KRA-405B Radar Altimeter System provides the pilot with dependable accurate AGL altitude information during the critical approach phase of a flight. The system has the capability of alerting the pilot when a predetermined altitude (Decision Height) is reached. The system also provides altitude information to the Flight Control System during the approach.

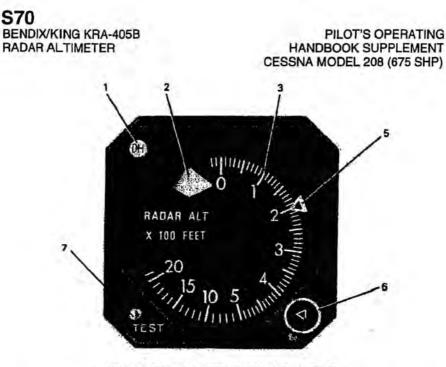
The Radar Altimeter (depending upon terrain reflectivity and airplane bank angle) gives an absolute decision height of 0 to 2000 feet (0 to 609.60 m) with an altitude accuracy of 0 to 500 feet:  $\pm 5$  feet (1.5 m), or  $\pm 5\%$  (whichever is greater), and an altitude accuracy of 500 to 2000 feet:  $\pm 7\%$ . It provides continuous selection of warning altitude and annunciation of descent to that altitude by both a DH (decision height) light and an aural warning which sounds through both the speaker and headsets. Climbing through the selected warning altitude extinguishes the DH light.

The Radar Altimeter System operates on 28-volts and consists of a panel mounted KNI-415 indicator, a remote, right-hand tailcone mounted KRA-405B Receiver/Transmitter, and KDA-687 audio adapter. In addition, two aft belly-mounted antennas are installed. The front antenna is the transmitting antenna and the aft antenna is the receiving antenna.

Indicator lighting is controlled by the L FLT PANEL dimming rheostat mounted on the lower portion of the instrument panel. All indicators and operating controls for the altimeter are shown and described in Figure 1.

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**KNI-415 RADAR ALTIMETER INDICATOR** 

 DECISION HEIGHT LAMP (DH) -- Lamp will illuminate to alert the pilot when the selected Decision Height is reached. The lamp can be turned off by pushing the lamp in. The lamp can be turned on again, when below the Decision Height, by depressing the lamp a second time.

Once turned off, the DH lamp will be automatically armed upon climb out as the aircraft passes through the DH altitude. Pressing the self-test button will also turn on the DH lamp if the DH bug is set above 50 feet.

- FLAG -- When in view, indicates invalid altitude information is being displayed or self-test button is depressed.
- ALTITUDE SCALE -- The KNI-415 indicates accurate altitude indications from -20 to +2000 feet. From -20 to +500 feet, each mark on the scale represents 10 feet. From 500 to 2000 feet, each mark represents 100 feet.
- INDICATOR NEEDLE (Not Shown) -- The AGL altitude in feet is displayed beneath this needle. Needle will be clockwise behind mask when above 2000 feet.

Figure 1. King Radar Altimeter Operating Controls and Indicators (Sheet 1 of 2)

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#### PILOT'S OPERATING HANDBOOK SUPPLEMENT CESSNA MODEL 208 (675 SHP)

- DH BUG -- Indicates altitude during an approach at which the DH lamp will illuminate and an aural warning will sound simultaneously through the overhead speaker and headsets.
- DH BUG KNOB (∇) -- The DH knob controls the DH (decision height) bug. Turning the knob clockwise, the DH bug will increase in altitude; rotated counterclockwise, the DH bug will decrease in altitude.
  - SELF-TEST BUTTON (TEST) -- The test button is used to test the Radar Altimeter Receiver/Transmitter and Indicator. When the TEST button is depressed, the flag will come into view and 50 ±5 feet will be displayed.

Figure 1. King Radar Altimeter Operating Controls and Indicators (Sheet 2 of 2)

# SECTION 2

There is no change to airplane limitations when this avionic equipment is installed.

## SECTION 3 EMERGENCY PROCEDURES

There is no change to the airplane emergency procedures when this avionic equipment is installed. However, should errors occur during self-testing the following procedures should be followed:

#### SELF-TEST ERRORS

- Altimeter does not indicate 50 ±5 feet when initiating SELF-TEST --DISREGARD the RADAR ALTIMETER SYSTEM.
- Flag will not come in view but the Indicated Altitude is correct --ALTIMETER SYSTEM MAY BE USED (However, keep in mind subsequent failures will not be indicated by the flag).
- Failure of the DH lamp to light during SELF-TEST means -- Pilot must watch the indicator closely since the Decision Height will not be annunciated.

#### S70 BENDIX/KING KRA-405B RADAR ALTIMETER

PILOT'S OPERATING HANDBOOK SUPPLEMENT CESSNA MODEL 208 (675 SHP)

## SECTION 4 NORMAL PROCEDURES

#### PREFLIGHT SELF-TEST

- 1. AVIONICS MASTER Switch -- ON.
- 2. DH Bug -- SET to 25 feet.
- TEST Button -- DEPRESS and HOLD. The indicated altitude should be 50 ±5 feet and the flag should come into view. The DH lamp should be off.
- 4. TEST Button -- DEPRESS and TURN DH Bug slowly clockwise until the DH lamp illuminates and an aural warning is sounded over the speaker and headset. The DH Bug should be at 50 ±5 feet. The DH lamp should be illuminated and the aural warning will sound at all altitudes above 50 feet.
- TEST Button -- RELEASE. The warning flag should move out of view and the indicated altitude should be 0 feet, nominal.

#### TAXIING

When taxiing to and from the ramp, the DH light can sometimes be distracting. The light may be turned off by simply pressing the DH lamp button. Once off, the lamp may be turned on again by pressing the DH lamp button or pressing the TEST button, if the DH bug is set above 50 feet. Climbing past the decision height (indicated by the DH bug) arms the DH lamp so during the approach the lamp will light upon reaching the decision height.

#### INFLIGHT OPERATION

At normal crulse altitudes above 2000 feet, the indicator pointer is behind the mask and the warning flag is hidden from view above 2500 feet. A Flight Control System (FCS) warning is applied to the autopilot or flight director system indicating that usable information is not available.

When the approach plates are reviewed prior to beginning the actual approach, the pilot should set the DH to the Decision Height altitude, and check altimeter operation as follows:

- 1. Depress the Self-TEST Button and Hold:
  - a. 50 ±5 feet should be indicated.
  - b. The flag should come into view.
  - c. The DH lamp should illuminate (if the DH setting is above 50 feet).

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#### PILOT'S OPERATING HANDBOOK SUPPLEMENT CESSNA MODEL 208 (675 SHP)

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- Verify that the pointer comes on scale at 2000 feet AGL by using the barometric altitude as a reference.
- If altimeter does not come on as specified above, refer to Section 3, Emergency Procedures.

#### NOTE

During the actual approach, the radar altimeter system provides altitude information to the flight control system. When the Decision Height is reached, the DH lamp illuminates to alert the pilot that a decision is to be made. The DH lamp may then be turned off by pressing the lamp.

#### NORMAL OPERATION

- 1. AVIONICS MASTER Switch -- ON.
- 2. DH Bug -- SET as desired.

### SECTION 5 PERFORMANCE

There is no change to airplane performance when this avionic equipment is installed.

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## Pilot's Operating Handbook and FAA Approved Airplane Flight Manual CESSNA MODEL 208 (675 SHP) SUPPLEMENT S71

## U.S. REGISTERED AIRPLANES WITH REQUIREMENTS FOR BRITISH (CAA) CERTIFICATION

SERIAL NO.

REGISTRATION NO.

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual for U.S. registered Cessna 208 (675 SHP) airplanes which have the British (CAA) kit installed.

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5 June 2003 Page S71-1

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#### S71

BRITISH (CAA) KIT ON U.S. REGISTERED AIRPLANES PILOT'S OPERATING MODEL 208 (675 SHP) HANDBOOK SUPPLEMENT

## SUPPLEMENT S71

## U.S. REGISTERED AIRPLANES WITH REQUIREMENTS FOR BRITISH (CAA) CERTIFICATION

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PILOT'S OPERATING BRITISH (CAA) KIT ON U.S. REGISTERED AIRPLANES HANDBOOK SUPPLEMENT MODEL 208 (675 SHP)

## SUPPLEMENT

## U.S. REGISTERED AIRPLANES WITH REQUIREMENTS FOR BRITISH (CAA) CERTIFICATION

## SECTION 1 GENERAL

This supplement contains information on equipment installed as a part of the British (CAA) kit when installed on U.S. registered airplanes. The descriptions of the following equipment are similar to those found in Section 7 of the Model 208 British Aeroplane Flight Manual.

## **SECTION 2**

### LIMITATIONS

The limitations do not change when the British (CAA) kit is installed.

### **SECTION 3**

### EMERGENCY PROCEDURES

GENERATOR OVERHEATED (Red GENERATOR OVERHEAT Annunciator ON)

- 1. Generator Switch TRIP and release.
- 2. GENERATOR OFF Annunciator CHECK Illuminated.
- 3. Standby Power Switch ON.
- 4. AVIONICS STBY PWR and AVIONICS BUS TIE Switches ON.
- 5. AVIONICS 1 and 2 Switches OFF.
- Volt/Ammeter SELECT ALT and verify alternator load is 75 amps or less. REDUCE LOAD as required to prevent battery discharge.

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#### S71

BRITISH (CAA) KIT ON U.S. REGISTERED AIRPLANES PILOT'S OPERATING MODEL 208 (675 SHP) HANDBOOK SUPPLEMENT

STANDBY ALTERNATOR OVERHEATED (Red STDBY ALT OVRHT Annunciator ON)

- 1. Standby Power Switch OFF.
- 2. STBY ÉLECT PWR INOP Annunciator CHECK ON.

## SECTION 4 NORMAL PROCEDURES

The normal procedures do not change when the British (CAA) kit is installed.

## SECTION 5 PERFORMANCE

Airplane performance does not change when the British (CAA) kit is installed.

### SECTION 6 WEIGHT AND BALANCE

Airplane weight and balance does not change when the British (CAA) kit is installed.

### SECTION 7

### AIRPLANE AND SYSTEM DESCRIPTION

#### WING FLAP SYSTEM

For flap deflection, slide the selector lever to the  $10^{\circ}$  stop. For  $20^{\circ}$  flap deflection, push down on the selector lever to clear the  $10^{\circ}$  stop then release and slide the lever to the  $20^{\circ}$  stop. Repeat for  $30^{\circ}$  flap deflection. To retract the flaps, slide the selector lever from  $30^{\circ}$  to the  $20^{\circ}$  stop. Retraction to the  $10^{\circ}$  or  $0^{\circ}$  positions can be accomplished in the same manner as during extensions past those intermediate stops.

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PILOT'S OPERATING BRITISH (CAA) KIT ON U.S. REGISTERED AIRPLANES HANDBOOK SUPPLEMENT MODEL 208 (675 SHP)

#### STARTER GENERATOR

A red annunciator, labeled GENERATOR OVERHEAT, indicates when the temperature of the cooling air being exhausted from the starter generator exceeds 300°F (149°C).

#### PROPELLER

An amber annunciator, labeled BETA, indicates when the propeller blade angle has been reduced into the BETA range.

The power lever incorporates a design, which only allows it to be positioned in the BETA range from the idle stop position. This prevents the power lever from inadvertently being positioned in the BETA range before reaching the idle stop.

#### ELECTRICAL SYSTEM

A red indicator light, labeled, STDBY ALT OVRHT, is installed in the upper left portion of the instrument panel to the left of the clock to monitor the alternator upper operating temperature limit. The light operates in conjunction with an overheat sensor installed at the exhaust area of the alternator cooling fan. The light will illuminate if the temperature of the cooling air being exhausted from the alternator exceeds 300°F (149°C).

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S71-5/S71-6

## CESSNA MODEL 208 (675 SHP) PILOT'S OPERATING HANDBOOK

## SUPPLEMENT S72

## **ORIGINAL ISSUE**

D1352-S72-00

**6 JANUARY 2004** 

## ALTAIR AVIONICS CORPORATION ADAS+ ENGINE TREND MONITOR

THE FOLLOWING SUPPLEMENT S72 - ORIGINAL ISSUE SHOULD BE INSERTED INTO SECTION 9 OF THE PILOT'S OPERATING HANDBOOK, IF THE AIRPLANE IS EQUIPPED WITH THE ALTAIR ADAS+ ENGINE TREND MONITOR.

THE LOG OF APPROVED SUPPLEMENTS FURNISHED WITH THIS SUPPLEMENT REPLACES ALL EARLIER DATED VERSIONS OF THE LOG.

#### NOTE

IT IS THE AIRPLANE OWNER'S RESPONSIBILITY TO ASSURE THAT THEY HAVE THE LATEST REVISION TO EACH SUPPLEMENT OF A PILOT'S OPERATING HANDBOOK, AND THE LATEST ISSUED "LOG OF APPROVED SUPPLEMENTS". THE LOG OF APPROVED SUPPLEMENTS FURNISHED WITH THIS REVISION WAS THE LATEST VERSION AS OF THE DATE IT WAS SHIPPED BY CESSNA; HOWEVER, SOME CHANGES MAY HAVE OCCURRED, AND THE OWNER SHOULD VERIFY THIS IS THE LATEST, MOST UP-TO-DATE VERSION BY REFERRING TO THE LATEST CESSNA PROPELLER AIRCRAFT REVISION STATUS CHECKLIST OR BY CONTACTING CESSNA PROPELLER PRODUCT SUPPORT: TELEPHONE (316) 517-5800, FAX (316) 942-9006.



## Pilot's Operating Handbook and FAA Approved Airplane Flight Manual CESSNA MODEL 208 (675 SHP) SUPPLEMENT S72

## ALTAIR AVIONICS CORPORATION ADAS+ ENGINE TREND MONITOR

SERIAL NO.

REGISTRATION NO.

This supplement must be inserted into Section 9 of the Cessna Model 208 (675 SHP) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual for airplanes that have Altair ADAS+ Engine Trend Monitor installed.

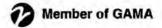
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FAA APPROVED UNDER FAR 21 SUBPART J The Ceases Aircraft Co. Delegation Option Authorization DOA-230428-CE

\_ Executive Engineer

DATE OF APPROVAL & JANUARY 2004

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ALTAIR AVIONICS CORPORATION ADAS+ ENGINE TREND MONITOR MODEL 208 (675 SHP) PILOT'S OPERATING HANDBOOK SUPPLEMENT

## SUPPLEMENT S72

## ALTAIR AVIONICS CORPORATION ADAS+ ENGINE TREND MONITOR

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PILOT'S OPERATING HANDBOOK SUPPLEMENT ALTAIR AVIONICS CORPORATION ADAS+ ENGINE TREND MONITOR MODEL 208 (675 SHP)

## SUPPLEMENT ALTAIR AVIONICS CORPORATION ADAS+ ENGINE TREND MONITOR SECTION 1 GENERAL

The Altair ADAS+ Engine Trend Monitor is an engine trend recording device and an engine parameter exceedance monitor. The Altair ADAS+ Engine Trend Monitor allows operators to monitor the health of a particular engine through periodic sampling of engine parameters. The Engine Trend Monitor contains logic to determine when the airplane is in a stable cruise flight regime before automatically taking a trend sample. The pilot may also initiate a trend sample by pressing the cockpit annunciator.

The Altair ADAS+ Engine Trend Monitor also contains software to indicate to the pilot by means of a white "ETM" annunciator when an engine limitation has been exceeded. If an exceedance event is allowed to continue for a time specified by the Pratt & Whitney engine maintenance manual, the amber "ENGINE" annunciator will solidly illuminate during the event. The annunciator will extinguish when the exceedance event has been corrected or when the pilot presses the annunciator.

If an event occurs, the white "ETM" light will flash after shutdown and prior to engine start to alert maintenance personnel or the pilot(s) of subsequent flights that an exceedance event has occurred. If the exceedance event(s) caused a white "ETM" light only, the annunciation can be extinguished by pressing the annunciator. If the exceedance event(s) caused an amber "ENGINE" light, the exceedance annunciation cannot be extinguished by pressing the annunciator. Downloading the Engine Trend Monitor's log file clears these reminder annunciations.

The Engine Trend Monitor will automatically record engine parameters when an exceedance event occurs, until it is corrected. This will help determine the severity of the exceedance event for maintenance purposes.

### A CAUTION

A flashing white "ETM" annunciation after shutdown or prior to engine start indicates a previous exceedance of an engine limitation. Engine damage may have occurred. The "ETM" annunciation will extinguish when the engine is operating.

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#### S72

#### ALTAIR AVIONICS CORPORATION ADAS+ ENGINE TREND MONITOR MODEL 208 (675 SHP)

#### PILOT'S OPERATING HANDBOOK SUPPLEMENT

#### NOTE

This is an advisory system only. The airplanes engine gages are still the primary source of detecting and correcting conditions where engine limitations are exceeded.

The system will perform a self-test at initial power-up. Both amber "ENGINE" and white "ETM" annunciators will be illuminated for approximately 5 seconds.

### SECTION 2

### LIMITATIONS

There are no additional airplane limitations with the Altair Engine Trend Monito installed.

### SECTION 3 EMERGENCY PROCEDURES

Both the amber "ENGINE" and white "ETM" annunciator remain continuously illuminated (after self-test).

1. Flight -- CONTINUE. This indicates a failure of the self-test.

White "ETM" annunciator flashing after shutdown or prior to engine start (afte self-test):

- 1. Annunciator PRESS
  - Annunciator -- EXTINGUISHED: Indicates only a white "ETM' annunciated event has occurred.
  - Annunciator -- NOT EXTINGUISHED: Indicates an ambe "ENGINE" annunciated event has occurred.
- Engine parameter Exceedance Condition INVESTIGATE for previous exceedance condition(s).

(Continued Next Page)

PILOT'S OPERATING HANDBOOK SUPPLEMENT ALTAIR AVIONICS CORPORATION ADAS+ ENGINE TREND MONITOR MODEL 208 (675 SHP)

### SECTION 3 EMERGENCY PROCEDURES

(Continued)

White "ETM" or amber "ENGINE" annunciator continuously illuminated after engine start:

- 1. Engine Gages CHECK.
- Engine Parameter Exceedance Condition CORRECT, as necessary.

White "ETM" annunciator only, continuously illuminated after shutdown or prior to engine start after self-test:

1. Annunciation -- CONTINUOUSLY ILLUMINATED: Indicates a sensor fault condition has been detected, or memory is at or near full capacity.

### SECTION 4 NORMAL PROCEDURES

Before Starting Engine:

1. White "ETM" annunciator - CHECK EXTINGUISHED.

Manual Engine Trend:

1. Annunciator -- PRESS. White "ETM" annunciator will flash for approximately 5 seconds.

### SECTION 5 PERFORMANCE

There is no performance change with the Altair Engine Trend Monitor installed.

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