Crafted in Switzerland

PC-12

PILOT'S INFORMATION MANUAL
PC-12 SERIES 10 AND 10A

PILATUS

PILOT'S INFORMATION MANUAL
PC-12 SERIES 10 AND 10A

WARNING

- This PC-12 Pilot's Information Manual is published for general and familiarization purposes only.
- This Pilot's Information Manual does NOT meet FAA, FOCA or any other civil aviation authority regulations for operation of ANY Aircraft.
- This Pilot's Information Manual is a reproduction of a PC-12 Airplane Flight Manual, however, it is NOT revised or updated.
- This Pilot's Information Manual does NOT reflect the configuration or operating parameters of any actual aircraft.
- Only the Approved Airplane Flight Manual/Pilot's Operating Handbook issued for a specific serial number aircraft may be used for actual operation of that serial number aircraft.

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PILATUS

PILOT'S OPERATING HANDBOOK
AND
FOCA APPROVED AIRPLANE FLIGHT MANUAL

PC-12 SERIES

MSN 321, 401-544 AND 546-888

Report No. 02211

Manufacturer's Serial No. - ____________________

Registration No. - ____________________

EASA Type Certificate No: EASA.A.089
FAA Type Certificate No: A78EU

PILATUS AIRCRAFT LTD.
CH-6370 STANS
SWITZERLAND

APPROVED IN THE NORMAL CATEGORY BASED ON FAR 23 THROUGH AMENDMENT 42. THIS DOCUMENT MUST BE CARRIED IN THE AIRPLANE AT ALL TIMES.

THIS HANDBOOK INCLUDES THE MATERIAL REQUIRED TO BE FURNISHED TO THE PILOT BY THE FEDERAL AVIATION REGULATIONS AND ADDITIONAL INFORMATION PROVIDED BY THE MANUFACTURER AND CONSTITUTES THE EASA APPROVED AIRPLANE FLIGHT MANUAL.

This Handbook meets General Aviation Manufacturer's Association (GAMA) Specification No. 1, Specification For Pilot's Operating Handbook, issued 15 February 1975, revised 1 September 1984.

This Handbook is also FAA approved for U.S. registered aircraft in accordance with FAR 21.29.

AFM approved by European Aviation Safety Agency (EASA)
Ref – EASA.0010004233-001

Signature - R. Lau

Date - 27.07.2010

Bundesamt für Zivilluftfahrt - Federal Office of Civil Aviation - BERN

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FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

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LIST OF EFFECTIVE PAGES

Page No.	Rev. No.	Page No.	Rev No.	Page No.	Rev. No.
Title Page	N/A	2-iii	15	3-20	11
LOEP-1 thru -4	15	2-iv	0	3-21 thru 3-23	7
LOTR-1	2	2-1	7	3-24	11
LOTR-2	12	2-2 thru 2-4	0	3-25	7
LOTR-3 and -4	15	2-5	8	3-26	11
LOR-1 thru -4	1	2-6	9	3-27 thru 3-29	7
LOR-5 and -6	2	2-7	13	3-30	11
LOR-7	3	2-8	7	3-31 thru 3-34	7
LOR-8	4	2-9	9	3-35	11
LOR-9	5	2-10	1	3-36	7
LOR-10 and -11	6	2-11 thru 2-13	0	3-37	11
LOR-12	7	2-14 thru 2-16	8	3-38	12
LOR-13 and -14	8	2-17 thru 2-22	0	3-39 thru 3-41	15
LOR-15 and -16	9	2-23	15	3-42 thru 3-52	12
LOR-17	10	2-24 and 2-25	0	3-53 thru 3-55	7
LOR-18 and -19	11	2-26	8	3-56 and 3-57	11
LOR-20 and -21	12	2-27	12	3-58	7
LOR-22 and -23	13	2-28	15	3-59	11
LOR-24	14	2-29	0	3-60 and 3-61	7
LOR-25 and -26	15	2-30	15	3-62 thru 3-64	11
CONTENTS-1	6	2-31 and 2-32	0	3-65	13
CONTENTS-2	0	2-33 and 2-34	8	3-66	12
0-i	11	2-35 thru 2-37	0	3-67	11
0-ii	0	2-38	1	3-68	12
0-1	12	2-39	4	3-69 and 3-70	13
0-2 and 0-3	11	2-40	15	3-71	12
0-4	0	2-41 and 2-42	0	3-72 and 3-73	13
1-i and 1-ii	0	2-43 thru 2-45	9	3-74	7
1-1	0	2-46	0	3-75	11
1-2	3	2-47	4	3-76	7
1-3	6	2-48	9	3-77	13
1-3A and 1-3B	6	3-i thru 3-iv	12	3-78 thru 3-80	11
1-4	9	3-1 and 3-2	7	3-81 and 3-82	7
1-5	6	3-3	10	4-i and 4-ii	12
1-6	15	3-4	13	4-1	6
1-7 thru 1-14	0	3-5	10	4-2	13
1-15	8	3-6 thru 3-10	7	4-3 and 4-4	11
1-16	0	3-11	14	4-5 thru 4-7	15
1-17 thru 1-20	13	3-12	7	4-8 and 4-9	13
2-i	0	3-13	15	4-10	1
2-ii	12	3-14 thru 3-19	7	4-11	2

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

LIST OF EFFECTIVE PAGES

Page No.	Rev. No.	Page No.	Rev No.	Page No.	Rev. No.
4-12	15	6-12	0	7-4-3	13
4-13 and 4-14	11	6-13	15	7-4-4	8
4-15	7	6-14 and 6-15	6	7-4-5	13
4-16	15	6-16	15	7-4-6	8
4-17	0	6-17 thru 6-25	6	7-4-7 thru 7-4-16	13
4-18	14	6-26	11	7-5-1 and 7-5-2	7
4-19 thru 4-21	2	6-27 thru 6-31	6	7-6-1 and 7-6-2	7
4-22	12	6-32 and 6-33	8	7-7-1	15
4-23 and 4-24	13	6-34 thru 6-38	6	7-7-2 thru 7-7-4	13
4-25	0	6-01-1	0	7-8-1	15
4-26	14	6-01-2 thru 6-01-6	15	7-8-2 thru 7-8-4	7
4-27	15	6-02-1	15	7-9-1 and 7-9-2	7
4-28	12	6-02-2	1	7-10-1 thru 7-10-8	7
4-29 and 4-30	0	6-02-3	4	7-10-9	9
4-31 and 4-32	12	6-02-4	11	7-10-10 and 7-10-11	7
4-33 thru 4-42	0	6-02-5 and 6-02-6	0	7-10-12	14
4-43 thru 4-45	12	6-03-1 and 6-03-2	1	7-10-13 and 7-10-14	7
4-46	13	6-03-3 and 6-03-4	14	7-10-15 and 7-10-16	13
4-47	0	6-03-5 and 6-03-6	1	7-11-1 thru 7-11-12	7
4-48	12	6-04-1	15	7-12-1 and 7-12-2	7
4-49	0	6-04-2	1	7-12-3 and 7-12-4	13
4-50 and 4-51	12	6-04-3 and 6-04-4	14	7-13-1 and 7-13-2	15
4-52	0	6-04-5 and 6-04-6	0	7-13-3	8
5-i and 5-ii	3	6-05-1	15	7-13-4	15
5-iii and 5-iv	13	6-05-2	1	7-13-5 thru 7-13-8	7
5-1	7	6-05-3 and 6-05-4	14	7-14-1	7
5-2 thru 5-45	3	6-05-5 and 6-05-6	0	7-14-2 and 7-14-3	8
5-46 thru 5-49	8	6-06-1 thru 6-06-6	15	7-14-4 and 7-14-5	7
5-50 thru 5-53	3	6-07-1 and 6-07-2	15	7-14-6	13
5-54 thru 5-57	6	6-07-3	14	7-14-7 thru 7-14-13	7
5-58 thru 5-91	3	6-07-4 thru 6-07-8	15	7-14-14 thru 7-14-16	15
5-92 thru 5-116	13	7-1-1 and 7-1-2	7	7-15-1	15
6-i	6	7-2-1	15	7-15-2	7
6-ii	0	7-2-2	7	7-16-1 and 7-16-2	13
6-1	0	7-3-1	7	7-16-3 thru 7-16-6	7
6-2	15	7-3-2	12	7-17-1 and 7-17-2	7
6-3	8	7-3-3	13	7-18-1 and 7-18-2	7
6-4 thru 6-6	2	7-3-4	12	7-19-1 thru 7-19-4	7
6-6A and 6-6B	1	7-3-5 and 7-3-6	13	7-20-1 thru 7-20-6	7
6-7 thru 6-10	0	7-4-1	13	7-21-1	8
6-11	6	7-4-2	7	7-21-2 and 7-21-3	7

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

LIST OF EFFECTIVE PAGES

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The incorporation of Temporary Revisions into this manual are to be recorded on the sheet below. Instructions for the removal of Temporary Revisions will be given in the Instruction Sheet issued with each regular revision.

NO.	TEMPORARY REVISION TITLE	DATE OF ISSUE	CANCELLED BY
1	ELECTRICAL LOAD SCHED PROCEDURE	Jan 30/02	POH REV 1
2	AVIONIC 1 BUS FAILURE	Jan 30/02	POH REV 1
3	MAXIMUM FREIGHT LOAD	Jan 30/02	POH REV 1
4	CREW OXYGEN MASK DONNING	Aug 19/02	POH REV 1
5	AHRS LIMITATION	Sep 27, 02	POH REV 1
6	MODIFICATION TO THE CAWS	Oct 10/02	POH REV 1
7	FUEL LIMITATIONS	Jun 6/03	SB 28-011
8	ENGINE COND LEVER – CUT-OFF GUARD	Sep 23/03	POH REV 2
9	LANDING WITH MLG UNLOCKED	Sep 29/03	POH REV 2
10	ENGINE OIL DEBRIS MONITORING SYSTEM	Oct 3/03	POH REV 2
11	AUTOPILOT DISENGAGE	Feb 4/04	SB 22-004
12	AIRPLANE INSPECTIONS	May 11/04	POH REV 2
13	ENGINE POWER LOSS	Sep 22/04	POH REV 2
14	ADDITIONAL PLACARD	Oct 4/04	POH REV 2

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NO.	TEMPORARY REVISION TITLE	DATE OF ISSUE	CANCELLED BY
15	OTHER LIMITATIONS	Mar 14/05	POH REV 2
1	SUPPLEMENT No.33 – MSN 727 ONLY	May 16/06	S 33 REV 1
16	FLIGHT CONTROLS	Nov 22/07	POH REV 6
17	FLIGHT CONTROLS BEFORE TAXI AND BEFORE TAKE-OFF CHECK.	Oct 05/10	POH REV 7
18	GENERATOR 1 OFFLINE EMERGENCY PROCEDURE	Jun 22/11	POH REV 7
19	SECTION 9 LOEP	Oct 12/11	POH REV 8
20	GROUND DE-ICING/ANTI-ICING OPERATIONS	Oct 31/11	POH REV 8
21	FUEL FILLER PLACARD	Mar 22/12	POH REV 8
22	ENGINE OIL PLACARD	Mar 22/12	POH REV 8
23	GENERATOR 1 OFFLINE EMERGENCY PROCEDURE	May 01/12	POH REV 8
24	ELECTRICAL POWER LOSS	Feb 18/16	POH REV 12
25	PRE-FLIGHT INSPECTION	Feb 17/16	POH REV 12
26	TORQUE LIMITER	Jun 12/18	POH REV 14

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NO.	TEMPORARY REVISION TITLE	DATE OF ISSUE	CANCELLED BY

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NO.	TEMPORARY REVISION TITLE	DATE OF ISSUE	CANCELLED BY

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LOG OF REVISIONS

Revision Number and Date	Page Number	Description
1	LOTR-1 & 2	Log of Temporary Revisions updated, page 2 issued
1 Mar 03	LOR-1 thru 3	Log of Revisions pages issued
	Sect 2	Executive Code No. corrected to EX 6S-2
	2-ii & 2-iii	Contents pages updated
	2-10	Gen 2 max load figures revised
	2-14	Flight load factor limits corrected
	2-23	
	2-24	TR No. 5 AHRS limitation added
	2-28	TR No. 3 Cargo Limitations & cabin floodlights limitation added
	2-38	New standby compass placard & control wheel placard updated
	2-45	Optional lavatory oxygen mask placards added
	2-45	Executive seat placards wording corrected
	Sect 3	
	3-ii thru iv	Contents page updated
	3-1	EIS info updated to Post SB 31-004
	3-10	Chip detector changed to plural (optional 2nd chip detector). In flight procedure changed. CAWS Oil Quantity warning info updated
	3-13	Propeller overspeed indications updated to Post SB 31-004
	3-14	Propeller underspeed indications updated to Post SB 31-004
	3-15 thru 17	TR No. 4 Crew Oxygen Mask Donning procedure added Cockpit/cabin Fire, Smoke or Fumes procedure revised
	3-19 thru 22	TR No. 1 Electrical Load Shed procedure info added TR No. 4 Crew Oxygen Mask Donning procedure added Maximum range descent procedures rewritten for single & dual battery installation
	3-23	Para re-numbered & TR No. 4 Crew Oxygen Mask Donning
	3-24 thru 29	Pages run on
	3-30	Electrical power off step corrected
	3-31 thru 40	Pages run on
	3-41	Gen 2 load, step 4 changed to reduce electrical load. Step 6 additional info added
	3-42	Gen 2 Off procedure step 3 clarified
	3-43	TR No. 2 Avionic 1 Bus Failure info added
	3-44 thru 48	Pages run on
	3-49 & 50	TR No. 4 Crew Oxygen Mask Donning procedure added
	3-51	ECS Failure procedure added
	3-52 thru 66	Pages run on, six new pages added
	3-70	Notes added to AHRS failure procedure.
	Sect 4	
	4-5 & 4-6	Engine drains steps added remaining steps re-numbered
	4-7	Over-wing emergency exit lock pin info added
	4-8	MSN 501 & UP. Mask/mic switch added

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LOG OF REVISIONS (CONT.)

Revision Number and Date	Page Number	Description
	4-9	Note ref CAWS test deleted. Update to Post SB 31-004
		Booster pumps operational check step added
	4-10	Steps re-numbered
	4-11	Voice callout info deleted. Update to Post SB 31-004
	4-14	Voice callout info updated to Post SB 31-004
	4-14 & 4-15	Stick pusher test, PCL set to idle step added, steps re-numbered
		Stick pusher voice callout info deleted. Update to Post SB 31-004
	4-26	CAWS oil quantity check added to shutdown procedure
	4-27	Steps re-numbered
	Sect 5	
	odd pages	POH Report No. corrected on all odd pages 5-1 thru 95 footer
	Sect 6	
	6-I	Contents page updated
	6-2	Page title changed
	6-3	Procedure changed to weighing with load plates
	6-5 & 6-6	Amm corrected to Arm in table heading. Decimal point removed from mm figures
	6-6A & 6B	New weighing procedure with jacks and load cells added
	6-32	New para ref two interior codes placard added
	6-01-2	Direction of flight indicator added to seat position info
	6-02-2	Direction of flight indicator added, seat positions clarified
	6-02-3	New bench seat Part Nos. added
	6-03-1 thru 6	Executive Code No. corrected to EX 6S-2
	6-03-2	Forward and aft facing executive seat positions clarified
	6-03-3	New executive seat Part Nos. added
	6-04-2	Forward and aft facing executive seat positions clarified
	6-04-3	New executive seat Part Nos. added
	6-05-2	Forward and aft facing executive seat positions clarified
	6-05-3	New executive seat and bench Part Nos. added
	6-06-2	Forward and aft facing seat positions clarified
	6-06-3	New executive seat Part Nos. added
	6-07-2	Forward and aft facing seat positions clarified
	6-07-3	New executive seat Part Nos. added
	Sect 7	
	7-i,ii,iv,v,vi	Contents page updated
	7-4	Flaps info brought forward
	7-5	Modified FCWU info added
	7-6	Updated to Post SB 31-004. Flap position indicator info added
	7-16	Voice callout info deleted. Update to Post SB 31-004
	7-20	Steel brakes info added
	7-25	Aircraft security para added
	7-26	Figure 7-4 updated to show emergency exit locking pin

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LOG OF REVISIONS (CONT.)

Revision Number and Date	Page Number	Description
	7-38	Optional second oil chip detector info added
	7-46	Voice callout info deleted. Update to Post SB 31-004
	7-64	Gen 2 amp rating figure changed
	7-66	Caution ref Gen 2 load figures changed
	7-67	Systems connected to Standby bus corrected
	7-69	Gen 1 amp figure changed
	7-70	2nd bat relay wiring corrected. Gen 1 amp figure changed
	7-71	Batt direct bus connection point corrected
	7-73	Left circuit breaker panels updated
	7-75	115V AC bus removed from schematic
	7-77	Gen 2 amps figure changed. Caws battery caution info added
	7-78	Additional baggage compartment light info added
	7-79	Optional dual filament navigation lights para added
	7-82	CAWS ECS annunciator on sentence clarified
	7-99	Optional lavatory oxygen mask info added
	7-101	Second larger capacity optional oxygen system info added
	7-102	Cockpit description info corrected
	7-104	Gang bar annotation deleted from cockpit figure
	7-105 & 106	Voice only callouts info deleted. Update to Post SB 31-004
	7-109	CAWS ECS caption description corrected
	7-110	CAWS Oil Qty caution – not operative added
	7-113	Optional third altimeter info added
	7-115	Pusher disc corrected to pusher intr
	7-116 & 117	Voice callout info deleted. Update to Post SB 31-004
	7-119	Figure 7-20 Sheet 1 corrected, airspeed input deleted, engine running input added
	7-126	Fire extinguisher info changed for different types
	7-129	Figure 7-22 Typical Avionics schematic updated
	7-130	LCR-92 AHRS continuous orbiting maneuvering info added
	7-131	Page run on
	7-132	ELT description updated and brought forward
	7-133	ELT system new equipment info added, operation updated
	7-136	Voice callout info deleted. Update to Post SB 31-004. EHSI info brought forward
	7-138	EHSI new features added
	7-139	Figure 7-24 EHSI new features shown
	Sect 8	
	8-4	Towing last sentence deleted
	8-7 and 8	Blanks and covers Figures updated
	8-22	Steel brake wheel type info added.
	8-22	Brake wear indicator pin info clarified

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LOG OF REVISIONS (CONT.)

Revision Number and Date	Page Number	Description
	Sect 9	
	9-ii	Contents page updated
	9-00-1 & 2	Supplements List of Effective Pages added
	Supp 11	Pages 2, 11 and 12 re-issued to correct page revision status
	Supp 25	PC-12 4100 kg – revision 1 issued
	Supp 26	TAWS/TAS - initial issue
	Supp 27	WX-500 Stormscope – initial issue
	Supp 28	DC-DC Converter – initial issue
	Supp 29	Pilot's Relief Tube – initial issue
		FOCA signed original held on file by Pilatus Aircraft Ltd.
		Signature date: 25 August 2003

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LOG OF REVISIONS (CONT.)

Revision Number and Date	Page Number	Description
2 28 Feb 05	LOTR-1 & 2	Log of Temporary Revisions updated
	Sect 2	
	2-28	TR No. 15 Limitation for aft facing seats and all seat belts added
	2-45	TR No. 14 Additional executive seat placard added
	Sect 3	
	3-i	Contents page updated
	3-5 thru 8	Engine failures updated and re-arranged. Fuel control unit failure procedure amalgamated with partial power loss procedure TR No. 13 Engine Power Loss added
	3-9	Page run on.
	3-10	Caution updated and made applicable to single battery aircraft
	3-11 & 12	TR No. 10 ODM system added together with additional information
	3-27	TR No 9 Landing with MLG unlocked info added
	3-41	RH windshield heat deleted from Services Inoperative list
	3-43	The word battery added to bus tie failure step 3
	3-47	Note added to low fuel pressure. Pump failure procedure revised
	3-48	More info added to fuel auto balance procedure
	3-53	New step 2 added to boot deice failure
	3-55	Procedure made applicable to LH & RH windshield deice failure
	3-59	Paras A and B transposed. Step 1 moved to new para B
	4-11 and 12	Engine start procedure clarified for hot and hung starts
	4-13	Note added to dry motoring run procedure
	4-19	New Note added after step 3
	4-21	New step 6 added, existing step 6 moved to step 5
	4-24	Balked Landing step 5 KIAS speeds corrected for PC-12/45
	Sect 6	
	6-4	Page footer corrected
	6-5 & 6-6	Fig No. changed to 1A
	6-21	Landing gear retraction moment calculation updated
	6-27 and 28	Landing gear retraction moment deleted
	6-02-3	501 Part No's changed to 959
	Sect 7	
	7-6	Voice callout time corrected
	7-11	Hydraulic system operation description updated
	7-12	Fig 7.2 (Sheet 1) check valve position corrected
	7-13	Fig 7.2 (Sheet 2) low level switch deleted (not installed)
	7-16	Hydraulic power pack operation clarified
	7-23	New crew seats info added
	7-34	TR No. 13 manual override lever added
	7-36	TR No. 8 condition lever guard added
	7-38 & 39	TR No. 10 Oil Debris Monitoring (ODM) added
	7-40	Fig 7-9. TR No. 10 ODM sensor added
	7-42	Second battery option start sequence para corrected
	7-44 thru 47	Info brought forward

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LOG OF REVISIONS (CONT.)

Revision Number and Date	Page Number	Description
	7-48	TR No. 10 Oil Debris Monitoring (ODM) added
	7-51 & 52	TR No. 10 ODM Fig. 7-10 (Sheets 1 and 2) updated
	7-56	Incorrect statement deleted from prop deice operation on ground
	7-59	Left and right low fuel lbs value corrected
	7-67	Latest overhead panel configuration added
	7-72	Fig. 7-13 (Sheet 4) Latest overhead panel configuration added
	7-73 & 74	Circuit breaker panel Figures updated
	7-79	Dual nav lights terminology changes and corrections
	7-82	CAWS ECS caution operation updated
	7-104	Fig 7-17 typical cockpit layout updated with latest options
	7-109	CAWS ECS caution description
	7-114	Typical pitot and static systems Figure updated
	7-117	Duplicated sentence deleted
	7-123	Pneumatic deice system indication para clarified
	7-126	General para updated. Cooling fans switch positions corrected
	7-127	Page run-on
	7-177	Figure reference No's corrected
	Sect 8	
	8-1 & 2	TR No. 12 Airplane Inspections info included
	8-3	Page run on
	8-15	First para of second Caution changed
	Sect 9	
	9-i and 9-ii	New column for if installed added. Table of Contents list updated
	9-00-1	Supplements List of Effective Pages updated
	Supp 3	KHF 950 – Revision 1 issue
	Supp 11	Canada - Revision 4 issue
	Supp 17	Mechanical Copilot Instrumentation – Initial issue
	Supp 25	PC-12 4100 kg – Revision 2 issue
	Supp 30	Steep Approach Landings – Initial issue
	Supp 31	Garmin GTX 330D Transponder – Revision 1 issue
	Supp 32	PC-12 and PC-12/45 Registered in the CIS – Initial issue
	Sect 10	
	10-10 & 11	Passenger seat headrests and seat belts briefing info updated
		FOCA signed original held on file by Pilatus Aircraft Ltd.
		Signature date: 4 November 2005

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LOG OF REVISIONS (CONT.)

Revision Number and Date	Page Number	Description
3 28 Oct 05	LOR 7 & 8	Log of Revisions pages issued
	Sect 1	
	1-2	MSN 684 & UP three view and new dimensions added
	Sect 5	
	5-i thru 5-iv	Contents updated
	5-1 thru 98	All applicable performance charts updated to 10,450 lb (4740 kg)
	Sect 6	
	6-01-3	PC-12/47 added to table
	6-03-3	PC-12/47 added to table
	6-03-4	PC-12 and PC-12/45 header deleted
	6-04-3	PC-12/47 added to table
	6-04-4	PC-12 and PC-12/45 header deleted
	6-06-3	PC-12/47 added to table
	6-06-4	PC-12 and PC-12/45 header deleted
	6-07-3	PC-12/47 added to table
	6-07-4	PC-12 and PC-12/45 header deleted
	Sect 7	
	7-3	MSN effectivity added to aileron/rudder interconnect system
	7-3	MSN 684 & UP added to aileron trim system
	Sect 9	
	9-ii	Table of Contents list updated
	9-00-1	Supplements List of Effective Pages updated
	Supp 33	PC-12/47 (4740 kg MTOW variant) – Initial issue
		FOCA signed original held on file by Pilatus Aircraft Ltd.
		Signature date: 30 November 2005

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LOG OF REVISIONS (CONT.)

Revision Number and Date	Page Number	Description
4 30 Apr 07	Title page	POH applicability changed to Series and end at MSN 888
	LOTR-2	Log of Temporary Revisions updated
	Sect 2	
	2-28	Pax seat lap belt extension limitation updated
	2-39	New emergency gear extension placard added
	2-47	Pull tape for oxygen masks placards added
	Sect 3	
	3-i	Contents page corrected
	3-1	Paragraph added ref check of circuit breakers
	3-51	Circuit breaker check added to ECS Failure procedure
	Sect 4	
	4-12	Clarify generator switching
	Sect 6	
	6-01-3	New pax seat lap belt Part No. added
	6-02-3	New pax seat lap belt Part No. added
	6-06-3	New pax seat lap belt Part No. added
	6-07-3	New pax seat lap belt Part No. added
	Sect 7	
	7-34	Last sentence of first para clarified
	7-39	Engine torque drop with altitude value updated
	7-55	Missing Mode 3 text added
	7-79	Optional pulse lights added
	7-81	Last para corrected
	Sect 8	
	8-20	Fuel anti-ice additive specification and procedure updated
	Sect 9	
	9-ii	Table of Contents updated
	9-00-1	Supplements List of Effective Pages updated
		FOCA signed original held on file by Pilatus Aircraft Ltd. Signature date: 3 September 2007

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LOG OF REVISIONS (CONT.)

Revision Number and Date	Page Number	Description
5	Sect 7	
	7-34	Deleted old text word, that was brought back in error by revision mark formatting
	7-39	Deleted old text number, that was brought back in error by revision mark formatting
		FOCA signed original held on file by Pilatus Aircraft Ltd.
		Signature date: 26 November 2007

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LOG OF REVISIONS (CONT.)

Revision Number and Date	Page Number	Description
6	Title page	Copyright information added. Fill in the aircraft MSN and Registration details on the new page.
Jun 30, 2010	LOEP-1 and 2	List updated
	LOTR-2	List updated
	LOR 10 thru 12	Pages issued.
	CONTENTS 1	Approved Sections are EASA approved
	Section 1	
	1-3 and 1-3A	Aircraft turning circle information expanded.
	1-3B	Page issued.
	1-5	Anti-icing additives updated.
	Section 2	
	2-27	FAA AC 00-24A superseded by AC 00-24B.
	2-28	Retaining Angle changed to Retaining Bar.
	Section 3	
	3-i thru 3-iv	Table of Contents updated.
	3-12	Para 3.6.6 moved onto the page.
	3-13	Para 3.6.8 moved onto the page.
	3-14 and 3-15	New emergency procedures for engine torque, ITT and NG.
	3-16	Page run on.
	3-17 and 3-18	Fire, Smoke or Fumes procedure expanded.
	3-19	Page run on.
	3-20 to 3-23	Cabin altitude changed from 12,500 ft to 10,000 ft.
	3-24 thru 3-32	Page run on
	3-34	Flap Reset switch added.
	3-35 thru 3-46	Page run on
	3-47	Reference to Sect 3.6 added
	3-48 thru 3-54	Fuel procedures rewritten
	3-55 thru 3-57	Cabin altitude changed from 12,500 ft to 10,000 ft.
	3-58 and 3-59	Page run on
	3-60	45 seconds was 30 seconds.
	3-61 thru 3-65	Page run on
	3-66	Passenger and Cargo Door procedure expanded.
	3-67	Transparency cracking in flight added.
	3-68 thru 3-73	Paragraphs renumbered
	Section 4	
	4-1	Cautions removed from this page and transferred to Section 7.
	4-2	Maximum Flaps Extended setting changed to 30°/40°.
	4-7 and 4-8	Test Lamp switch removed, steps renumbered.
	TR16	Remove and destroy
	4-15	TR 16 incorporated
	4-22	Note added for flap settings.
	4-23	Steps 2 and 3 clarified.
	4-50	Carbon brakes (if installed) added.

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LOG OF REVISIONS (CONT.)

Revision Number and Date	Page Number	Description
6 Jun 30, 2010 (cont'd)	Section 5	
	5-54 to 5-57	Maximum Endurance Cruise data updated.
	Section 6	
	6-i	Table of Contents updated.
	6-11	General loading recommendations updated.
	6-14 to 6-25	Cargo loading procedure totally rewritten.
	6-26 to 6-38	Figure references changed, pages run on.
	Section 7	
	7-38	Oil Debris Monitoring System paragraph added
	7-44	EIS fault codes listed in Section 10
	7-58	Description of pump captions added
	7-59	CAWS FUEL PUMP caption shows pump selection, not operation
	7-60	Illustration corrected – inward vent valve and flame arrestor added.
	7-69	Illustration corrected – heating CB removed.
	7-70	Illustration corrected – U/F heating CB added.
	7-100	Cautions added – moved from Section 4.
	7-101	Page run on.
	Section 8	
	8-1	Pilatus contact details updated.
	8-4	Towing by lifting the nosewheel added.
	Section 9	
	9-ii	Table of Contents updated.
	9-00-1	Supplements List of Effective Pages updated.
	9-34-1 to 14	Supplement 34 issued.
	Section 10	
	10-i	Table of Contents updated.
	10-5	De-icing with engine running added.
	10-6 to 10-12	Pages run on.
	10-13 and 10-14	EIS fault codes and crew actions added.
		Approved under P-EASA 0010004233-001
		FOCA signed original held on file by Pilatus Aircraft Ltd.

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LOG OF REVISIONS (CONT.)

Revision Number and Date	Page Number	Description
7 Jul 20, 2011	LOEP-1 and 2	List updated.
	LOTR-2	List updated.
	LOR 12 thru 14	Pages issued.
	Section 2	
	2-ii	Page numbering updated.
	2-1	Circuit breaker reset limitation added.
	2-8	Warning added for anti-icing fuel additive.
	Section 3	Section format changed.
	3-i thru 3-iv	Contents and page numbering updated.
	3-1	Circuit breaker reset limitation added.
	3-2 thru 3-45	Page run-on.
	3-46	GEN 1 OFF procedure – TR 18 incorporated.
	3-70	Probes De-Ice Failure – Step 11 clarified.
	3-75	AHRS Failure – Note added.
	3-76 and 3-77	Airspeed and Altitude indication malfunction procedures expanded.
	3-78 thru 3-82	Page run-on.
	Section 4	
	4-14 and 4-15	Stick Push test procedure updated Para 4.6.
	4-16	TR 17 incorporated – Para 4.8.8.
	Section 5	
	5-1	Note added for wet/contaminated runways.
	Section 7	Section split into sub-sections and renumbered.
	7-3-1	Static wicks deleted from ailerons.
	7-11-11	EIS fault codes and reset procedure added.
	7-19-1	VCCS operating altitude statement removed.
	Section 8	
	8-ii	Corrosion inspection added.
	8-20	Warning added for fuel anti-icing additive.
	8-26	Oxygen charging pressure table expanded.
	8-32	Caution added for fire retardant material cleaning. References to manufacturer's instructions added.
	8-35 and 8-36	Corrosion inspection added.
		CONTINUED

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LOG OF REVISIONS (CONT.)

Revision Number and Date	Page Number	Description
7 Jul 20, 2011	Section 9 9-00-1	Revision status updated. Approved under EASA Project No. 0010011375-001: Signed: Paul Hatton (EASA Project Certification Manager) Date: 31.08.2011 Signed original held by Pilatus Aircraft Ltd.
8 Dec 01, 2012	LOEP 1&2 LOTR 2 LOR 13 and 14	List updated. List updated. Pages updated.
	Section 1 1-15	Tare weight added.
	Section 2 2-ii 2-5 2-14 thru 2-16 2-26 2-33 and 2-34	Contents updated. TR 22 incorporated. Pneumatic deicing boot text consolidated. Text roll-on. Pneumatic deicing boot text moved to page 2-15. TR 21 and TR 22 incorporated.
	Section 3 3-iii 3-46 thru 3-49	Contents updated. TR 23 incorporated. Editorial changes. Text roll-on.
	Section 4 4-9 4-12	EXT PWR connecting procedure change. Note added. EXT PWR step change.
	Section 5 5-46 thru 5-49	“Values applicable with inertial separator closed” added.
	Section 6 6-3 6-32 and 6-33	Weighing procedure updated. Loading form format changed.
	Section 7 7-4-4 thru 7-4-16 7-13-3 7-14-2 and 7-14-3 7-21-1 and 7-21-2	Text referring to MAU removed. Editorial changes: footer. Duplicate “L/R FUEL PUMP” changed to “L/R FUEL LOW”. Editorial changes: footer. Oxygen charging pressure changed.

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LOG OF REVISIONS (CONT.)

Revision Number and Date	Page Number	Description
8 Dec 01, 2012 (cont.)	Section 8	
	8-i and 8-ii	Contents updated.
	8-6 thru 8-38	Addition of blanks and covers check. New. Fig. added and subsequent Figs. renumbered. Oil restriction removed. Oxygen charging pressure changed. Repagination.
	Section 9	
	9-ii	Contents updated to include Supplement 35.
	9-00-1	TR 19 incorporated. List updated.
	9-11-1A thru 9-11-1F	Pages issued to Supplement 11.
	9-11-7	Interior code change to Supplement 11.
	9-11-14 and 9-11-15	Editorial change to Supplement 11. Paragraph numbers Added and section page numbers changed.
	9-35-1 thru 9-35-22	Supplement 35 issued.
	Section 10	
	10-i	Contents updated.
	10-4 thru 10-24	TR 20 incorporated. Text roll-on.
		Approved under P-EASA 0010020967-001
		FOCA signed original held on file by Pilatus Aircraft Ltd.

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LOG OF REVISIONS (CONT.)

Revision Number and Date	Page Number	Description
9 01 Jun 2014	LOEP 1 and 2 LOR 15 and 16	List updated. New pages.
	Section 1	
	1-4	Propeller model added.
	Section 2	
	2-6 and 2-7	Note 10 added regarding permitted RPM variation.
	2-9	Propeller model added. Prop fine pitch changed.
	2-28	Seat limitations consolidated.
	2-43 thru 2-45	Placard changes.
	2-48	Placard changes.
	Section 3	
	3-41	Note removed. Editorial correction.
	Section 7	
	7-4-9	Gear warning condition change.
	7-8-1	Cargo door opening instructions clarified.
	7-10-9	Propeller feather mechanism corrected.
	7-13-4	Fuel system diagram adjusted.
		The Revision No. 9 of the AFM ref. 02211 is approved under the authority of DOA ref. EASA.21J.357. Approval date: 05.06.2014.

14110

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LOG OF REVISIONS (CONT.)

Revision Number and Date	Page Number	Description
10 02 March 2015	LOEP 1 and 2 LOR 17 and 18	List updated. New pages.
	Section 3	
	3-ii	Contents updated.
	3-3	Editorial change.
	3-5	Editorial change.
	3-42 thru 3-45	Trim runaway procedure revised. Page roll-on.
	3-79	Green advisory caption added.
		The Revision No. 10 of the AFM ref. 02211 is approved under the authority of DOA ref. EASA.21J.357. Approval date: 11.02.2015.

15008

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LOG OF REVISIONS (CONT.)

Revision Number and Date	Page Number	Description
11 30 Jan 2016	LOEP-1 and -2	List updated.
	LOR-18 and -20	List updated. New pages 19 and 20.
	Section 0	
	0-i and 0-ii	Contents updated.
	0-2	Revision marking text changed, revision issue/dates added.
	0-3	Copyright and legal statements added.
	Section 2	
	2-27	Autopilot coupled go-arounds added.
	Section 3	
	3-20	Circuit breaker location added.
	3-24	Circuit breaker location added.
	3-26	Circuit breaker location added.
	3-30	Circuit breaker location added.
	3-35	Procedure note added, circuit breaker location added.
	3-37	Circuit breaker location added.
	3-40 thru 3-42	Circuit breaker location added.
	3-46	Circuit breaker location added.
	3-56 and 3-57	Circuit breaker location added.
	3-59	Circuit breaker location added.
	3-62	Circuit breaker location added.
	3-63	Circuit breaker location added, Procedure updated.
	3-64	Circuit breaker location added.
	3-66 thru 3-68	Circuit breaker location added.
	3-70 and 3-71	Circuit breaker location added.
	3-72	Page run on.
	3-75	Circuit breaker location added.
	3-78	Circuit breaker location added. Unidentified warning tone procedure added.
	3-80	Circuit breaker location added.
	Section 4	
	4-3 and 4-4	Battery compartment added.
	4-13	Circuit breaker location added.
	4-14	Page reformatted.
	Section 6	
	6-26	Landing gear and flap extension/retraction text changed.
	6-01-4	Units, weight and moment corrected.
	6-02-4	Units, weight and moment corrected.
	6-03-4	Units, weight and moment corrected.
	6-04-4	Units, weight and moment corrected.
	6-05-4	Units, weight and moment corrected.
	6-06-4	Units, weight and moment corrected.
	6-07-4	Units, weight and moment corrected.

15277

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LOG OF REVISIONS (CONT.)

Revision Number and Date	Page Number	Description
11 30 Jan (Continued)	**Section 7**	
	7-23-6	Fuel pump advisory indications clarified.
	7-26-1	Text removed.
	Section 8	
	8-17	Oil replenishment procedure expanded.
	Section 9	
	9-00-1	LOEP updated.
	Supp 18	PC-12 Registered in France - Rev 3 issued.
	Supp 33	PC-12/47 (4740 kg MTOW variant) - Rev 3 issued.
	Supp 34	PC-12, PC/45 and PC-12/47 Registered in the Republic of Argentina - Rev 1 issued.
	Supp 35	PC-12, PC/45 and PC-12/47 Registered in the Republic of Chile - Rev 1 issued.
		The Revision No. 11 of the AFM ref. 02211 is approved under the authority of DOA ref. EASA.21J.357. Approval date: 27.01.2016

15277

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LOG OF REVISIONS (CONT.)

Revision Number and Date	Page Number	Description 16642
12 25 Nov 2016	LOEP-1 thru -4	List updated. New pages 3 and 4
	LOTR-2	List updated
	LOR-20 thru -22	List updated. New pages 21 and 22
	Section 0	
	0-1	Editorial (updated layout of Warning and Caution to latest standard)
	Section 2	
	2-ii	Contents page updated
	2-27	16195 - RF working distances added
	Section 3	
	3-i thru 3-iv	Contents pages updated. Editorial corrections
	3-38	16066 - Procedure updated
	3-39 thru 3-42	16039 - Inadvertent Pusher/Shaker Operation procedure updated.
	3-43	16039 - Inadvertent Pusher/Shaker Operation procedure updated. Pages run on
	3-44 thru 3-51	TR Number 24 incorporated. Electrical Power Loss paragraph introduced. Updated subparagraph numbers accordingly
	3-50	15854 - CAWS AV BUS trigger updated to 22V
	3-52	Editorial (text run on from previous page)
	3-65	16201 - Caution added
	3-66	Editorial (updated layout of warning to latest standard)
	3-68	16201 - Flap limitation added to procedure
	3-69	Editorial (text run on from previous page)
	3-70	Editorial (updated layout of warning to latest standard)
	3-71	16201 - Flap limitation added to procedure
	3-72 and 3-73	Editorial (text run on from previous page)
	Section 4	
	4-i and 4-ii	Contents pages updated
	4-7	TR Number 25 incorporated: MASTER POWER switch to ON and check of condition of guard. Updated step numbering accordingly
	4-8	Editorial (text run on from previous page)
	4-22	16201 - Caution and speed reference removed
	4-26	16534 - Updated procedure, moved steps 17 and up to new Parking paragraph
	4-27	16534 - Introduction of Parking paragraph. 15204 - Parking procedure updated with tail stand
	4-28 thru 4-52	Editorial (updated paragraph numbering due to the introduction of the Parking paragraph)
	4-31 and 4-32	Editorial (updated layout of Warnings to latest standard)

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LOG OF REVISIONS (CONT.)

Revision Number and Date	Page Number	Description
12 25 Nov 2016 (Continued)	4-44	Editorial (updated layout of Caution to latest standard)
	4-48	16477 - Post icing situations wording added
	4-51	16477 - Post icing situations wording added
	4-49 thru 4-52	Editorial (text run on)
	Section 5	
	5-92	16066 - Updated the first paragraph to include reference to AoA vanaes. Identified the deice boots as pneumatic deice boots. Updated the wording in the table
	5-93	Editorial (moved part of text from page 5-92 to page 5-93)
	Section 7	
	7-3-2	Editorial (moved part of text to next page)
	7-3-3	16066 - Updated flap panel assymmetry description
	7-3-4	Editorial (text run on from previous page)
	7-13-2	16123 - Description updated
	7-25-1	16066 - Angle of Attack vanes reference added
	7-25-2 and 7-25-3	Editorial (updated layout of Warnings to latest standard)
	7-25-4	16066 - Updated "safe mode" description
	Section 8	
	8-i	15520 - Table of Contents updated. Passenger Seat Removal and Installation title added
	8-ii	Contents page updated
	8-6	15204 - Use of tail stand added
	8-15	15520 - Passenger Seat Removal and Installation paragraph added
	8-16	Editorial (updated layout of Cautions to latest standard)
	Section 9	
	9-00-1	Supplements List of Effective Pages updated
	Supplement 4	Revision 3. Updated to new format. See LOR in the Supplement for changes
	Supplement 10	Revision 2. Updated to new format. See LOR in the Supplement for changes
	Supplement 11	Revision 8. See LOR in the Supplement for changes
	Supplement 25	Revision 3. Updated to new format. See LOR in the Supplement for changes
	Supplement 33	Revision 4. See LOR in the Supplement for changes
		The Revision No. 12 of the AFM ref. 02211 is approved under the authority of DOA ref. EASA.21J.357. Approval date: 25.11.2016

16642

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LOG OF REVISIONS (CONT.)

Revision Number and Date	Page Number	Description
13 06 Oct 2017	LOEP-1 thru -4	List updated.
	LOR-22 thru -24	List updated. New pages 23 and 24
	Section 1	
	1-17	16805 - Editorial (Duplicate EIS and ELT abbreviations deleted)
	1-18 thru 1-20	17692 - Editorial (Minor update to layout of pages)
	Section 2	
	2-7	16812 - Steady state operation note updated
	Section 3	
	3-4	17188 - Minimum approach speed updated
	3-65	17188 - Minimum approach speed and total landing distance updated
	3-69	17188 - Minimum approach speed and total landing distance updated
	3-70	17188 - Total landing distance updated
	3-72	16805 - AIR/GND caution procedure updated
		17188 - Minimum approach speed and total landing distance updated
	3-73	16805 - Editorial (Text run on)
	3-77	17188 - Total landing distance updated
	Section 4	
	4-2	17188 - Pusher Ice Mode airspeeds updated
	4-8	17072 - MOR procedure updated
	4-9	16565 - Procedure to set passenger oxygen selector to AUTO updated
	4-23	17188 - Landing speeds updated
	4-24	17188 - Climb speeds updated
	4-46	17188 - Minimum recommended speeds for icing encounters updated
	Section 5	
	5-iii	17692 - Contents updated
	5-iv	17692 - Editorial (Page layout updated to latest standard)
	5-92 thru 5-110	16966 - Flight in Icing Conditions paragraphs updated with detailed tables and examples
	5-111 thru 5-116	16966 - Editorial (text run on from previous pages)
	Section 7	
	7-3-3	16805 - FLAP CB reset attempts updated
	7-3-5	16805 - Airspeed indicator in illustration updated
	7-3-6	17692 - Editorial (Page layout updated to latest standard)
	7-4-1	16805 - Aural tone description updated

17692

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LOG OF REVISIONS (CONT.)

Revision Number and Date	Page Number	Description
13 06 Oct 2017 (Continued)	7-4-3	16805 - Changed ESSENTIAL BUS to NON ESSENTIAL BUS
	7-4-5	17692 - Editorial (Issue date in footer updated)
	7-4-7 and 7-4-8	17692 - Editorial (Issue date in footer updated)
	7-4-9	16805 - Flap settings updated
	7-4-10	16805 - Emergency extension system description updated
	7-4-11 thru 7-4-16	17692 - Editorial (Issue date in footer updated)
	7-7-1 and 7-7-2	16805 - Crew seat description updated. New illustration added
	7-7-3	16805 - Illustration title updated
	7-7-4	16805 - New page added (Intentionally left blank)
	7-10-15	16805 - Cold engine start description updated
	7-10-16	16805 - Editorial (Spelling corrections incorporated)
	7-12-3	16805 - Mode temperature description updated. Layout updated to show modes in a table 17692 - Editorial (Updated layout of warning to latest standard)
	7-12-4	16805 - Editorial (Text run on)
	7-14-6	16805 - Ammeters description updated
	7-16-1 and 7-16-2	16805 - Name of shutoff valves updated
	7-16-2	17692 - Editorial (Layout of caution updated to latest standard)
	Section 9	
	9-00-1	17692 - Supplements List of Effective Pages updated
	Supplement 25	Revision 4. See LOR in the Supplement for changes
	Supplement 33	Revision 5. See LOR in the Supplement for changes
		The Revision No. 13 of the AFM ref. 02211 is approved under the authority of DOA ref. EASA.21J.357. Approval date: 06.10.2017

17692

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LOG OF REVISIONS

Revision Number and Date	Page Number	Description
14 08 Oct 2018	LOEP-1 thru -4 LOR-24	List updated LOR updated for Revision 14
	Section 3	
	3-11	17779 - Sequence of GEN 2 and GEN 1 switches changed
	Section 4	
	4-12	17779 - Sequence of GEN 2 and GEN 1 switches changed
	4-18	18935 - Editorial (TR 26 incorporated: Note updated)
	4-26	17779 - Sequence of GEN 2 and GEN 1 switches changed
	Section 6	
	6-03-3	18879 - Seat part numbers added
	6-03-4	18879 - Seat weight and moment updated
	6-04-3	18879 - Seat part numbers added
	6-04-4	18879 - Seat weight and moment updated
	6-05-3	18879 - Seat part numbers added
	6-05-4	18879 - Seat weight and moment updated
	6-06-3	18879 - Seat part numbers added
	6-06-4	18879 - Seat weight and moment updated
	6-07-3	18879 - Seat part numbers added
	6-07-4	18879 - Seat weight and moment updated
	6-08-3	18879 - Seat part numbers added
	6-08-4	18879 - Seat weight and moment updated
	Section 7	
	7-10-12	18935 - Editorial (TR 26 incorporated: Torque limiter description updated)
	7-21-4	18088 - Description of PASS OXY annunciator updated
		The Revision No. 14 of the AFM ref. 02211 is approved under the authority of DOA ref. EASA.21J.357. Approval date: 08.10.2018

18935

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LOG OF REVISIONS (CONT.)

Revision Number and Date	Page Number	Description
15 12 Dec 2019	LOEP-1 thru -4	List updated for Revision 15
	LOTR-3 and -4	19046 - New LOTR pages for Revision 15
	LOR-25 and -26	LOR updated for Revision 15. New pages LOR-25 and LOR-26
	Section 1	
	1-6	19880 - Updated name for "passenger door" (editorial)
	Section 2	
	2-iii	20565 - Updated for Revision 15
	2-23	20457 - Single pilot operation limitation added
	2-28	19880 - Updated name for "passenger door" (editorial) 20925 - Incorporated TR 28 and updated limitation phrasing
	2-30	19880 - Updated name for "passenger door" (editorial)
	2-40	19880 - Updated name for "passenger door" (editorial)
	Section 3	
	3-13	19427 - "oil quantity" procedure updated with a reference to Section 4
	3-39 thru 3-41	19281 - Flaps 30° airspeed added
	Section 4	
	4-5	19427 - Updated oil level check description
	4-6	19427 - Editorial (Text run on)
	4-7	19880 - Updated name for "passenger door" (editorial)
	4-12	19094 - Sequence of EXT PWR switch changed
	4-16	20121 - Added beta range check
	4-27	19880 - Updated name for "passenger door" (editorial)
	Section 6	
	6-2	19880 - Updated name for "passenger door" (editorial)
	6-13	19880 - Updated name for "passenger door" (editorial)
	6-16	19796 Added restraint bars 525.25.12.276 and 525.25.12.277
	6-01-2 thru 6-01-6	20925 - Incorporated TR 28 and updated limitation phrasing
	6-02-1	20565 - Editorial (corrected typo)
	6-04-1	20565 - Editorial (corrected typo)
	6-05-1	20565 - Editorial (corrected typo)
	6-06-1 thru 6-06-6	20925 - Incorporated TR 28 and updated limitation phrasing
	6-07-1 and 6-07-2	20565 - Incorporated TR 28
	6-07-4 thru 6-07-7	20925 - Incorporated TR 28 and updated limitation phrasing
	6-07-8	20565 - Editorial (new page due to text run on)

20565

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Revision Number and Date	Page Number	Description
15 12 Dec 2019 (Continued)	**Section 7**	
	7-2-1	19880 - Updated name for "passenger door" (editorial)
	7-7-1	20565 - Incorporated TR 28
	7-8-1	19880 - Updated name for "passenger door" (editorial)
	7-13-1 and 7-13-2	19696 - Added drain valve to air separator
	7-13-4	19696 - Added drain valve indication to air separator
	7-14-14	19436 - Sequence of GEN 2 and GEN 1 switches changed
	7-14-15 and 7-14-16	19436 - Editorial (Text run on)
	7-15-1	19880 - Updated name for "passenger door" (editorial)
	7-23-3	19880 - Updated name for "passenger door" (editorial)
	7-28-1	19880 - Updated name for "passenger door" (editorial)
	Section 9	
	9-i and 9-ii	20565 - Updated for Revision 15
	9-00-1	20565 - Updated for Revision 15
	Supplement 18	Revision 4. See LOR in the Supplement for changes
	Supplement 34	Revision 2. See LOR in the Supplement for changes
	Supplement 35	Revision 2. See LOR in the Supplement for changes
	Supplement 02474	20084 - New Supplement for aircraft with placards in the German language
		The Revision No. 15 of the AFM ref. 02211 is approved under the authority of DOA ref. EASA.21J.357. Approval date: 12.12.2019

20565

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CONTENTS

Section	Subject	Page

THE CONTENTS OF SECTIONS 2, 3, 4, 5, 6, AND 9 ARE EASA APPROVED

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SECTION 0

INTRODUCTION

TABLE OF CONTENTS

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GENERAL

This Pilot's Operating Handbook (POH) is designed to provide the information required for the operation of the airplane. Each airplane is delivered with a POH that reflects the standard airplane with all of the approved options plus any special equipment installed on an individual basis.

WARNINGS, CAUTIONS, AND NOTES

The following definitions apply to the warnings, cautions, and notes as used in this manual:

WARNING

ANY OPERATING PROCEDURE, PRACTICE, OR CONDITION WHICH, IF NOT STRICTLY COMPLIED WITH, MAY RESULT IN PERSONAL INJURY OR LOSS OF LIFE.

CAUTION

ANY OPERATING PROCEDURE, PRACTICE, OR CONDITION WHICH, IF NOT STRICTLY COMPLIED WITH, MAY RESULT IN DAMAGE TO THE AIRPLANE OR EQUIPMENT.

NOTE

Any operating procedure, practice, or condition that requires emphasis.

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REVISION MARKINGS

Additions, technical changes, and revisions to existing POH material will be identified by a vertical revision bar (black line) in the outside margin of the applicable page, next to the change.

The revision bar will only indicate the current change on each page. Physical relocation of material or the correction of typographical or grammatical errors, outside of the material revised, will not be identified by a revision bar.

REVISION / ISSUE DATES

At the bottom of each page, opposite the page number, there will be the original issue date of the manual. As the page is subsequently revised, the original issue date will be followed by the current revision number and date. If a new page is issued, it will be identified by having the same original issue and revision date.

REVISION PROCEDURE

To keep this POH current, revisions will be issued to latest registered owner of airplane. Revisions to this POH will consist of:

- Transmittal Letter
- Log of Revisions
- List of Effective Pages
- New or Revised Pages
- Temporary Revisions

The Equipment List is not included in the Revision Procedure. The Equipment List is a separate report and was current at the time of license at the manufacturer and must be maintained by the airplane owner.

TRANSMITTAL LETTER

The Transmittal Letter will show the revision number and date. All POH pages affected by the Transmittal Letter will be listed along with instructions for incorporating the revision into the POH.

LOG OF REVISIONS

The Log of Revisions provides a brief description of each revision.

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LIST OF EFFECTIVE PAGES

The List of Effective Pages will list all of the current POH page numbers with the applicable revision number.

NEW OR REVISED PAGES

In accordance with the instructions of the Transmittal Letter, new or revised pages will be incorporated into the POH and superseded pages destroyed.

CAUTION

IT IS THE RESPONSIBILITY OF THE OWNER OR OPERATOR TO MAINTAIN THIS PILOT'S OPERATING HANDBOOK IN A CURRENT STATUS AND INCORPORATE SUCCESSIVE REVISIONS.

TEMPORARY REVISIONS

Temporary Revisions are issued when the POH must be revised between the regular formal revisions. They are issued on yellow paper and must be recorded on the Log Of Temporary Revisions. Temporary Revisions should normally be put at the front of the POH, apart from Section 9 Temporary Revisions which should be put in front of the applicable Supplement. Temporary Revisions must only be removed from the POH when instructed to do so by, the Transmittal Letter of the next issue of a formal revision, superseded by another temporary revision and sometimes by the incorporation of a Service Bulletin. The Log Of Temporary Revisions will be updated and issued with each formal revision.

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FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

SECTION 1

GENERAL

TABLE OF CONTENTS

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

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FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

GENERAL

This section contains basic data and information of general interest to the pilot. It also contains definitions and explanations of symbols, abbreviations, and terminology that is used throughout this POH.

INTRODUCTION

This POH includes the material required to be furnished by the Federal Aviation Regulations and additional information provided by the manufacturer and constitutes the FOCA Approved Airplane Flight Manual. This POH must be read, and thoroughly understood, by the owner and operator in order to achieve maximum utilization as an operating guide for the pilot.

This POH is divided into numbered sections which are separated by tabs. Section 3, Emergency Procedures, is further highlighted by the use of a red tab to facilitate quick recognition.

Pages that have been intentionally left blank will be so indicated by the statement "THIS PAGE INTENTIONALLY LEFT BLANK".

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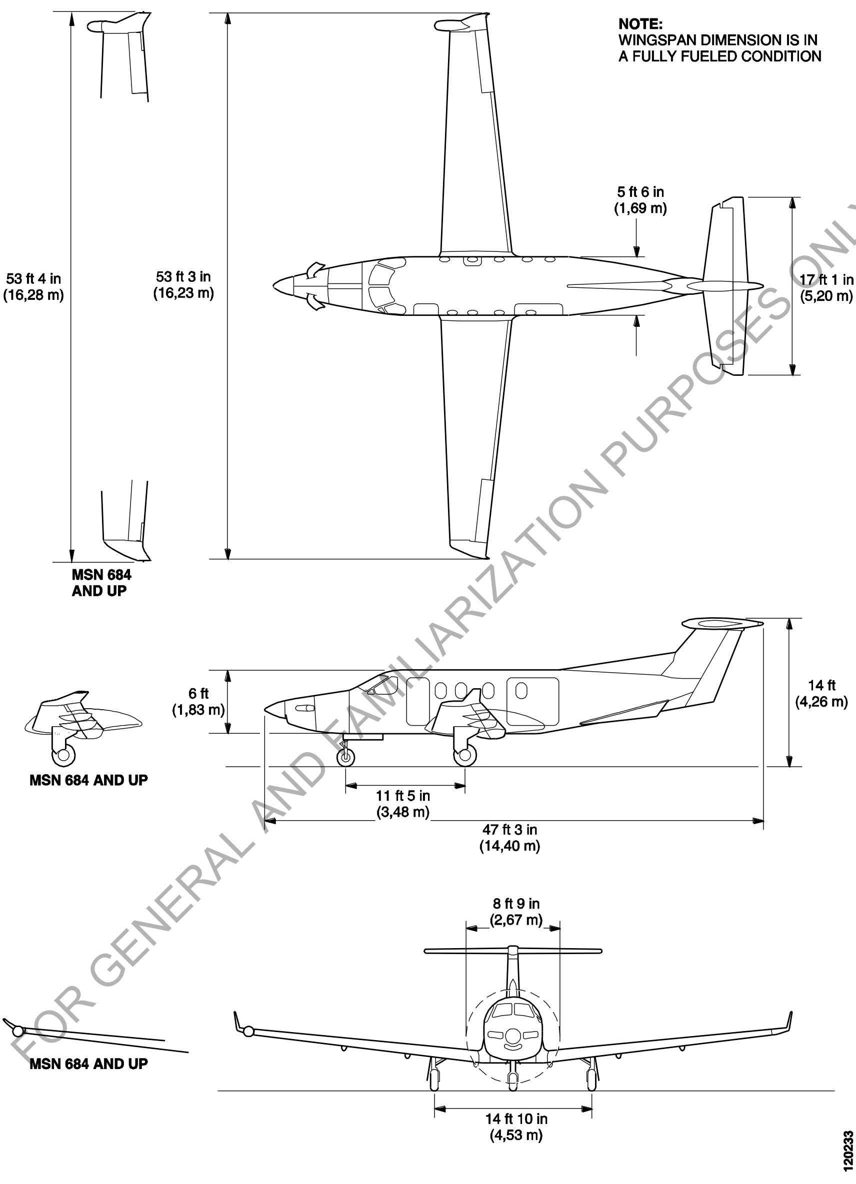

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Figure 1-1. Airplane Three View and Dimensions

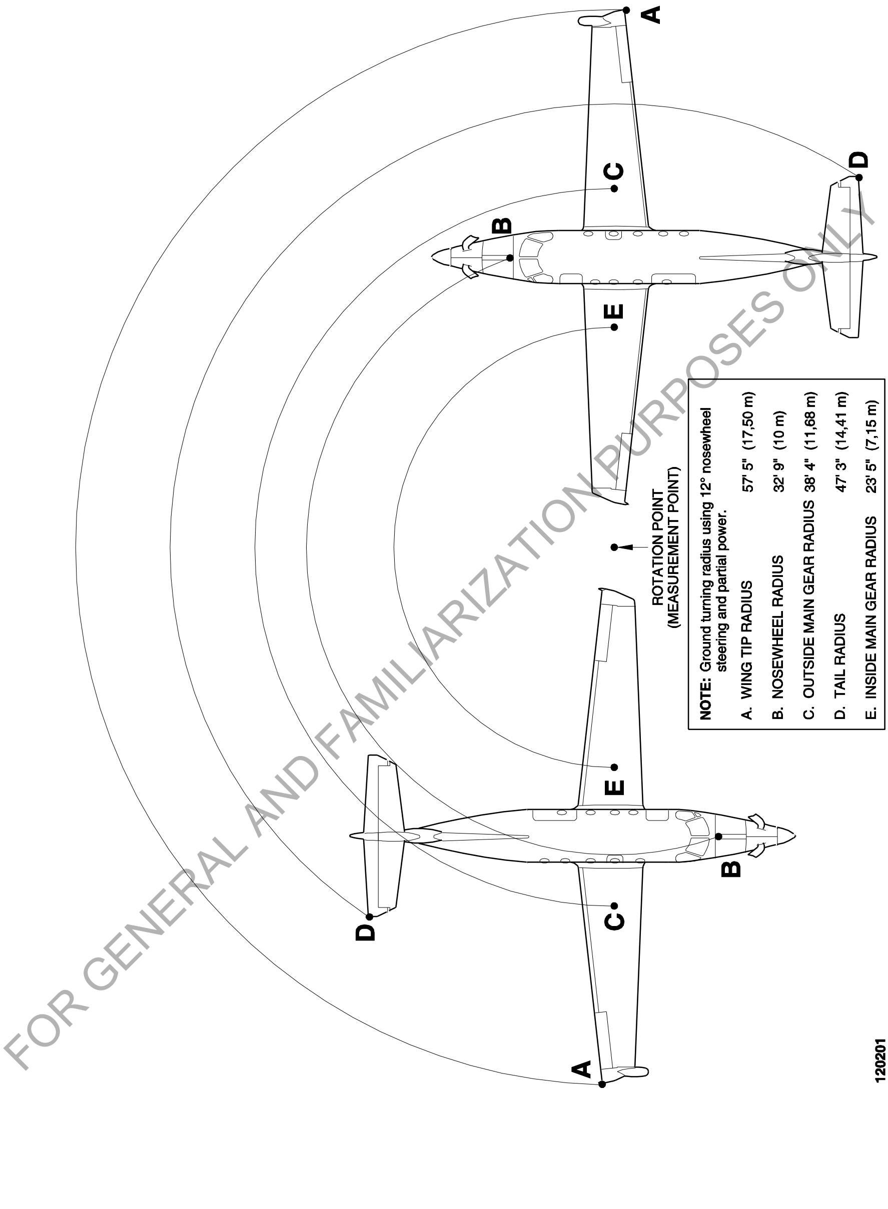

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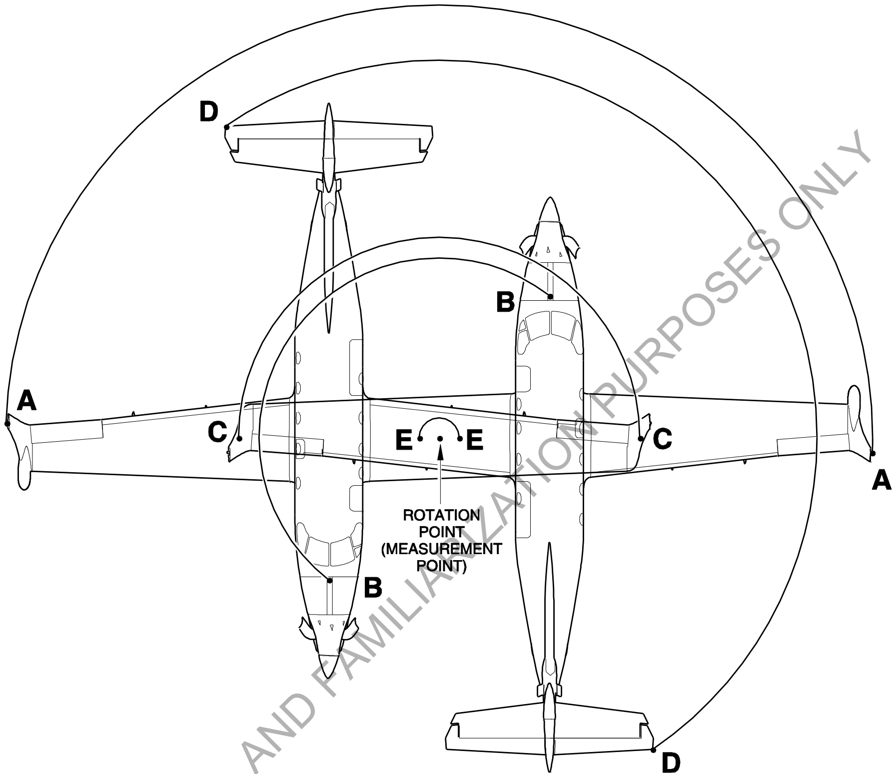
Figure 1-2. Airplane Ground Turning Clearance – MWS only (No Braking)



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NOTE: Ground turning radius using nosewheel steering, inside brake and partial power.

A.	WING TIP RADIUS	35' 7"	10,864 m
B.	NOSEWHEEL RADIUS	14' 10"	4,513 m
C.	OUTSIDE MAIN GEAR RADIUS	16' 6"	5,03 m
D.	TAIL RADIUS	31' 1"	9,475 m
E.	INSIDE MAIN GEAR RADIUS	19.5"	0,5 m

Figure 1-3. Airplane Ground Turning Clearance – NWS and Braking

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DESCRIPTIVE DATA

ENGINE

Number of Engines	1
Engine Manufacturer	Pratt & Whitney Canada
Engine Model Number	PT6A-67B

Engine Type

This airplane incorporates a twin shaft turboprop engine with 4 axial and 1 centrifugal compressor stages, an annular combustion chamber, and a 3 stage turbine where one stage drives the compressor and two stages power the propeller.

Horsepower Rating and Engine Speed

Takeoff Power	1,200 shp
Maximum Climb/Cruise Power	1,000 shp
Compressor Turbine (N_g)	
Speed (104%)	39,000 rpm
Propeller Speed (N_p)	1,700 rpm

PROPELLER

Number of Propellers	1
Propeller Manufacturer	Hartzell
Propeller Model Number	HC-E4A-3D/E10477K or HC-E4A-3D/E10477SK
Number of Blades	4
Propeller Diameter	105" (2.67 m)

Propeller Type

The propeller assembly consists of a hub unit and four metal blades, and is a hydraulically actuated, constant speed, full feathering and reversible type.

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FUEL

APPROVED FUELS

JET A, JET-A-1, JET B, JP-4

Any other fuel which complies with the latest revision of Pratt & Whitney Service Bulletin 14004.

TOTAL CAPACITY

406.8 US gal, 2,736.5 lb (1,540 liters, 1,241.3 kg)

USABLE FUEL

402 US gal, 2,703.6 lb (1,521.5 liters, 1,226.4 kg)

ANTI-ICING ADDITIVE

Anti-Icing additive conforming to MIL-DTL-27686 or MIL-DTL-85470.

Anti-icing additives should be in compliance to Pratt & Whitney Service Bulletin 14004.

OIL

OIL GRADE OR SPECIFICATION

Any oil specified by brand name in the latest revision of Pratt & Whitney Service Bulletin 14001.

OIL QUANTITY

Total Oil Capacity 3.6 US gal (13.6 liters)

Drain and Refill Quantity 2.0 US gal (7.6 liters)

Oil Quantity Operating Range 1.0 US gal (3.8 liters)

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MAXIMUM WEIGHTS

Maximum Ramp Weight	9965 lb (4520 kg)
Maximum Takeoff Weight	9921 lb (4500 kg)
Maximum Landing Weight	9921 lb (4500 kg)
Maximum Zero Fuel Weight	9039 lb (4100 kg)
Maximum Cargo Weight	
Baggage Area	400 lb (180 kg)
Cabin Area	3300 lb (1500 kg)

TYPICAL AIRPLANE WEIGHTS

Empty Weight	5468 lb (2480 kg) *
Useful Load	4454 lb (2020 kg)

*Empty weight of standard airplane without 9 passenger seats and cabin floor covering.

CABIN AND ENTRY DIMENSIONS

Maximum Cabin Width	5' 0" (1.52 m)
Cabin Floor Width	4' 3" (1.30 m)
Maximum Cabin Length	16' 11" (5.16 m)
Cabin Floor Length	15' 4" (4.68 m)
Maximum Cabin Height	4' 9" (1.45 m)
Passenger Door	
Width	2' 0" (0.61 m)
Height	4' 5" (1.35 m)
Cargo Door	
Width	4' 5" (1.35 m)
Height	4' 4" (1.32 m)

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Overwing Emergency Exit	
Width	1' 6" (0.49 m)
Height	2' 2" (0.68 m)
Compartment Volume	
Baggage	34.3 ft^3 (0.97 m^3)
Cabin	326 ft^3 (9.23 m^3)

SPECIFIC LOADINGS

Wing Loading	35.7 lb/sq ft (174.4 kg/sq m)
Power Loading	9.9 lb/shp (4.5 kg/shp)

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

SYMBOLS, ABBREVIATIONS, AND TERMINOLOGY

GENERAL AIRSPEED TERMINOLOGY AND SYMBOLS

CAS	Calibrated airspeed means the indicated airspeed of an aircraft, corrected for position and instrument error. Calibrated airspeed is equal to true airspeed in standard atmosphere at sea level.
GS	Ground speed is the speed of an airplane relative to the ground.
IAS	Indicated airspeed means the speed of an aircraft as shown on its pitot-static airspeed indicator uncorrected for airspeed system error. IAS values in this handbook assume zero instrument error.
KCAS	Calibrated airspeed expressed in knots.
KIAS	Indicated airspeed expressed in knots.
M	Means Mach number. Mach number is the ratio of true airspeed to the speed of sound.
M_{MO}	Maximum operating limit speed is the speed limit that may not be deliberately exceeded in normal flight operations. M is expressed in Mach number.
TAS	True airspeed means the airspeed of an airplane relative to undisturbed air which is the CAS corrected for altitude, temperature, and compressibility.
V_{FE}	Maximum flap extended speed is the highest speed permissible with wing flaps in a prescribed extended position.
V_{LE}	Maximum landing gear extended speed is the maximum speed at which an airplane can be safely flown with the landing gear extended.
V_{LO}	Maximum landing gear operating speed is the maximum speed at which the landing gear can be safely extended or retracted.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

V_{MO}	Maximum operating speed is the speed limit that may not be exceed at any time. V is expressed in knots.
V_O	Maximum Operating Maneuvering airspeed is the maximum speed at which application of full available aerodynamic control will not overstress the airplane. NOTE V_O is defined in accordance with FAR 23 Amendment 45.
V_R	Rotation speed used for takeoff.
V_S	Stalling speed or the minimum steady flight speed at which the airplane is controllable.
V_{SO}	Stalling speed or the minimum steady flight speed at which the airplane is controllable in the landing configuration at maximum gross weight.
V_{S1}	Stalling speed or the minimum steady flight speed at which the airplane is controllable in the specified configuration at the specified weight.
V_X	Best angle of climb speed is the airspeed which delivers the greatest gain of altitude in the shortest possible horizontal distance.
V_Y	Best rate of climb speed is the airspeed which delivers the greatest gain of altitude in the shortest possible time.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

METEOROLOGICAL TERMINOLOGY

Indicated	The number actually read from an altimeter when the
Altitude	barometric subscale has been Pressure set to 29.92 in hg (1013.2 mbar).
IOAT	Indicated Outside Air Temperature is the temperature obtained from an indicator and not corrected for instrument error and compressibility effects.
ISA	International Standard Atmosphere in which - the air is a dry, perfect gas; - the temperature at sea level is 59° F (15° C); - the pressure at sea level is 29.92 in hg (1013.2 mbar); - the temperature gradient from sea level to the altitude at which the temperature is -69.7° F (-56.5° C) is -0.003564° F (-0.00198° C) per foot and zero above that altitude.
OAT	Outside Air Temperature is the free air static temperature, obtained either from inflight temperature indications or ground meteorological sources, adjusted for instrument error and compressibility effects.
Pressure	Pressure Altitude measured from standard sea level pressure
Altitude	(29.92 in hg/1013.2 mbar) by a pressure or barometric altimeter. It is the indicated pressure altitude corrected for position and instrument error. In this AFM, altimeter instrument errors are assumed to be zero.
Station Pressure	Actual atmospheric pressure at field elevation.
Wind	The wind velocities recorded as variables on the charts of this AFM are to be understood as the headwind or tailwind components of the reported winds.
Icing Conditions	Can exist when the outside air temperature (OAT) on the ground and for take-off, or total air temperature (TAT) in flight, is 10°C or colder, and visible moisture in any form is present (such as clouds, fog or mist with visibility of one mile or less, rain, snow, sleet and ice crystals).

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Icing Conditions (Continued)	Can exist when the OAT on the ground and for take-off is 10°C or colder when operating on ramps, taxiways or runways, where surface snow, ice, standing water, or slush may be ingested by the engine, or freeze on the engine, or the engine nacelle. Can exist when there are visible signs of ice accretion on the aircraft.
Severe Icing Conditions	Severe icing may result from environmental conditions during flight in freezing rain, freezing drizzle, or mixed icing conditions (supercooled liquid water and ice crystals) which 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.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

POWER TERMINOLOGY

Cruise Climb Power	The power recommended to operate the airplane in a cruise climb (a continuous, gradual climb) profile.
Flight Idle Power	The power required to run an engine, in flight, at the lowest speed that will ensure satisfactory engine and systems operation and airplane handling characteristics. Power setting is achieved with the Power Control Lever at the Idle Detent and the Condition Lever in the Flight Idle position.
Ground Idle Power	The power required to run an engine on the ground, as slowly as possible, yet sufficient to ensure satisfactory engine, engine accessory, and airplane operation with a minimum of thrust. Power setting is achieved with the Power Control Lever at or aft of the Idle Detent and the Condition Lever in the Ground Idle position.
Maximum Climb Power	The maximum power approved for climb.
Maximum Cruise Power	The maximum power approved for cruise.
Reverse Thrust	The thrust of the propeller directed opposite the usual direction, thereby producing a braking action. Power setting is achieved with the Power Control Lever aft of the Idle Detent and the Condition Lever in Flight or Ground Idle.
Takeoff Power	The maximum power permissible for takeoff (limited to 5 minutes).
Zero Thrust	The absence of appreciable thrust, in either direction.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

ENGINE CONTROLS AND INSTRUMENTS TERMINOLOGY

Adjustable Minimum Prop Pitch in flight	The Power Control Lever position selects the minimum pitch in flight (6° to 12°) when forward of the idle detent. This pitch can only be reached when the propeller is underspeeding at low power and low airspeed conditions.
Beta Range	The range of propeller pitch where the beta valve in the Constant Speed Unit (CSU) controls the pitch. Forward of the Idle Detent only the minimum pitch is limited by the beta valve. In case of a propeller overspeed the CSU moves the propeller to a coarser pitch. Below flight regime, i.e. aft of the Idle Detent, the pneumatic section of the CSU limits the propeller speed to an underspeed condition and the beta valve, i.e. PCL position, directly controls the propeller pitch.
Condition Lever	This lever selects the gas generator idle speed and fuel cutoff, and feathers the propeller when in the CUTOFF/FEATHER position.
Constant Speed Range	The engine operating range where the propeller is out of Beta range and operating at a constant rpm, under control of the propeller governor.
ITT Gauge	A temperature measuring system that senses gas temperature in the turbine section of the engine.
Manual Override (MOR)	The device that controls engine power in case of a pneumatic failure in the engine control systems. It can also control engine power in case of a power control lever failure.
Power Control Lever	The lever used to control engine power, from reverse (see Beta Range) to maximum power (see Constant Speed Range).
Propeller Feather	This is a propeller pitch condition which produces minimum drag in a flight condition.
Propeller Governor	The device that keeps propeller rpm constant by increasing or decreasing propeller pitch through a pitch change mechanism in the propeller hub. See Beta and Constant Speed Range.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Py Pressure	P3 pressure (after engine compressor) to limit fuel flow during engine acceleration in order to not cause compressor surges. The torque limiter and the N_f governor reduce P3 pressure (which is called Py pressure) to limit fuel flow so that the torque and N_f limits are not exceeded.
Tachometer	An instrument that indicates rotational speed. Gas generator tachometers measure speed as a percentage of the nominal maximum speed of the turbine(s), while propeller tachometers measure actual propeller rpm.
Torquemeter	An indicating system that displays the output torque available on the propeller shaft. Torque is shown in reference terms, such as the oil pressure generated by the engine torquemeter piston.
Torque Limiter	A device which monitors torque pressure and adjusts the Py air pressure to the Fuel Control Unit to prevent an overtorque condition by limiting engine power.

AIRPLANE PERFORMANCE AND FLIGHT PLANNING TERMINOLOGY

Climb Gradient	The demonstrated ratio of the change in height during a portion of a climb, to the horizontal distance traversed in the same time interval.
Demonstrated Crosswind Velocity	The demonstrated crosswind velocity is the velocity of the crosswind component for which adequate control of the airplane during takeoff and landing was actually demonstrated during certification tests. The value shown may or may not be limiting. Whether or not the value shown is limiting will be stated.
MEA	Minimum Enroute IFR Altitude.
Route Segment	A part of a route. Each end of that part is identified by: (1) a geographical location; or (2) a point at which a definite radio fix can be established.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

WEIGHT AND BALANCE TERMINOLOGY

A.O.D.	Aft of Datum.
Arm	The horizontal distance from the reference datum to the center of gravity (C.G.) of an item.
Basic Empty Weight	Standard empty weight plus optional equipment.
Center of Gravity (C.G.)	The point at which an airplane 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. Arm	The arm obtained by adding the airplane's individual moments and dividing the sum by the total weight.
C.G. Limits	The extreme center of gravity locations within which the airplane must be operated at a given weight.
Datum	An imaginary vertical plane from which all horizontal distances are measured for balance purposes.
Maximum Landing Weight	Maximum weight approved for the landing touchdown.
Maximum Ramp Weight	Maximum weight approved for ground maneuver. It includes weight of start, taxi, and run-up fuel.
Maximum Takeoff Weight	Maximum weight approved for the start of the takeoff run.
Maximum Zero Fuel Weight	Maximum weight exclusive of usable fuel.
Moment	The product of the weight of an item multiplied by its arm. Moment divided by a constant is used to simplify balance calculations by reducing the number of digits.
Payload	Weight of occupants, cargo, and baggage.
Standard Empty Weight	Weight of a standard airplane including unusable fuel, full operating fluids, and full oil.
Station	A location along the airplane fuselage usually given in terms of distance from the reference datum.
Tare Weight	The weight indicated by a scale before it is loaded.
Unusable Fuel	Fuel which may not be considered usable for flight planning.
Usable Fuel	Fuel available for flight planning.
Useful Load	Difference between takeoff weight, or ramp weight if applicable, and basic empty weight.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

GENERAL ABBREVIATIONS AND SYMBOLS

C	Celsius
cu	Cubic
F	Fahrenheit
FAA	Federal Aviation Administration (U.S.A.)
FOCA	Federal Office for Civil Aviation (Switzerland)
fpm	Feet per Minute
ft	Feet
g	Unit of acceleration measured against the force of gravity
gal	Gallon (US)
hg	Mercury
IFR	Instrument Flight Rules
in	Inches
kg	Kilogram
KTAS	Knots True Airspeed
lb	Pound (mass)
m	Meter
MAC	Mean Aerodynamic Chord
max	Maximum
mbar	Millibar
mkg	Moment in meters/kilograms
min	Minimum
mm	Millimeters
nm	Nautical Mile
N/A	Not Applicable
psi	Pounds per Square Inch
rpm	Revolutions Per Minute
sec	Second
shp	Shaft Horsepower
sm	Statute Mile
TBD	To Be Determined
TBO	Time Between Overhauls
VFR	Visual Flight Rules
°	Degrees
'	Feet
"	Inches

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

ELECTRICAL / AVIONIC ABBREVIATIONS

A/P	Autopilot
ADF	Automatic Direction Finder
ALT	Autopilot Altitude hold mode
APR	Autopilot Approach mode
ARC	EFIS sectored display
ASI	Airspeed Indicator
ATC XPNDR	Transponder with altitude reporting capability
ATT	Autopilot Attitude hold mode
BC	Back Course mode
CAT	Cabin Air Temperature or Computer Aided Testing
CAWS	Central Advisory and Warning System
CDI	Course Deviation Indicator
CRS	Course
CWS	Control Wheel Steering
DU	Display Unit
EADI	Electronic Attitude Director Indicator
EFIS	Electronic Flight Instrumentation System
EHSI	Electronic Horizontal Situation Indicator
EIS	Engine Instrument System
ELT	Emergency Locator Transmitter
FD	Flight Director
FDWU	Flap Drive Warning Unit
HDG	Heading
HF COM	High Frequency Band Communication
IAS	Autopilot Airspeed hold mode
MFD	Multi Function Display
MKR	Marker Beacon
NAV	Autopilot Navigation mode
OBS	Ommi Bearing Selector
RMI	Radio Magnetic Indicator
R/A	Radar Altimeter
SPWU	Stick Pusher Warning Unit
SR	Soft ride mode
V/S	Vertical Speed
VSI	Vertical Speed Indicator
VHF COM	VHF band communication radio
VHF NAV	VHF Navigation radio
WX	Weather

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CONVERSION INFORMATION

All numerical data contained in this AFM is shown in standard format with the metric equivalent immediately following in parenthesis, ex. 7' 3" (2.1 m). The following formulas can be used to make required conversions.

GENERAL

Fahrenheit (°F) = (°C x 1.8) + 32

Celsius (°C) = (°F - 32) x 0.556

Statute Mile (sm) = Nautical Mile (nm) x 1.151

Nautical Mile (nm) = Statute Mile (sm) x 0.869

Jet Fuel (JET A) Standard Weights at 15° C (Relative Density 0.806)

One (1) Liter = 1.777 lb

One (1) U.S. Gallon (US gal) = 6.73 lb

One (1) Imperial Gallon (IMP gal) = 8.078 lb

STANDARD TO METRIC

Millimeters (mm) = Inches (in) x 25.4

Centimeters (cm) = Inches (in) x 2.54

Meters (m) = Feet (ft) x 0.305

Meters (m) = Yards (yd) x 0.914

Kilometers (km) = Statute Miles (sm) x 1.61

Kilometers (km) = Nautical Miles (nm) x 1.852

Liters = US Gallons (US gal) x 3.785

Liters = Imperial Gallons (IMP gal) x 4.546

Kilograms (kg) = Pounds (lb) x 0.454

Bar = psi x 0.069

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

METRIC TO STANDARD

Inches (in) = Millimeters (mm) x 0.039

Inches (in) = Centimeters (cm) x 0.393

Feet (ft) = Meters (m) x 3.281

Yards (yd) = Meters (m) x 1.094

Statute Miles (sm) = Kilometers (km) x 0.621

Nautical Miles (nm) = Kilometers (km) x 0.54

US Gallons (US gal) = Liters x 0.264

Imperial Gallons (IMP gal) = Liters x 0.22

Pounds (lb) = Kilograms (kg) x 2.205

psi = Bar x 14.504

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

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FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

SECTION 2

LIMITATIONS

TABLE OF CONTENTS

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Subject | Page

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

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FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

GENERAL

This section contains the FOCA Approved operating limitations, instrument markings, color coding, and basic placards necessary for the operation of the airplane, its engine, systems, and equipment. Compliance with approved limitations is mandatory.

With the exception of circuit breakers on the Battery Bus, Avionic 1 Bus and 26V AC Bus, and unless detailed otherwise in procedures, all tripped open circuit breakers are not allowed to be reset in flight. Circuit breakers on the Battery Bus, Avionic 1 Bus and 26V AC Bus, if tripped, may be reset once only in flight providing:

- At least one minute has elapsed from the time of the circuit breaker trip
- There is no remaining smoke or burning smell.

Limitations associated with systems or equipment which require POH supplements are included in Section 9, Supplements.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

AIRSPEED LIMITATIONS

AIRSPEED	KCAS	KIAS	SIGNIFICANCE
Maximum operating speed			Do not exceed this speed in any operations. Refer to V_{MO} schedule for maximum speed above 15,200 ft.
- V_{MO}	240	236	
- M_{MO}	0.48		(See Fig No. 2-1, V_{mo} Schedule)
Maximum Operating Maneuvering Speed - V_O			Do not make full or abrupt control movements above this speed.
9921 lb (4500 kg)	161	158	
9480 lb (4300 kg)	158	155	
9039 lb (4100 kg)	154	151	
8380 lb (3800 kg)	148	145	
7940 lb (3600 kg)	144	141	
7500 lb (3400 kg)	140	137	
7060 lb (3200 kg)	136	133	
6610 lb (3000 kg)	132	129	
6170 lb (2800 kg)	127	124	
5730 lb (2600 kg)	123	120	
Maximum flap extended speed - V_{FE}			Do not exceed this speed with flaps extended.
$\leq 15°$	165	163	
$> 15°$	130	130	
Maximum landing gear operating speed - V_{LO}	180	177	Do not retract or extend landing gear above this speed.
Maximum landing gear extended speed - V_{LE}	240	236	Do not exceed this speed with landing gear extended.

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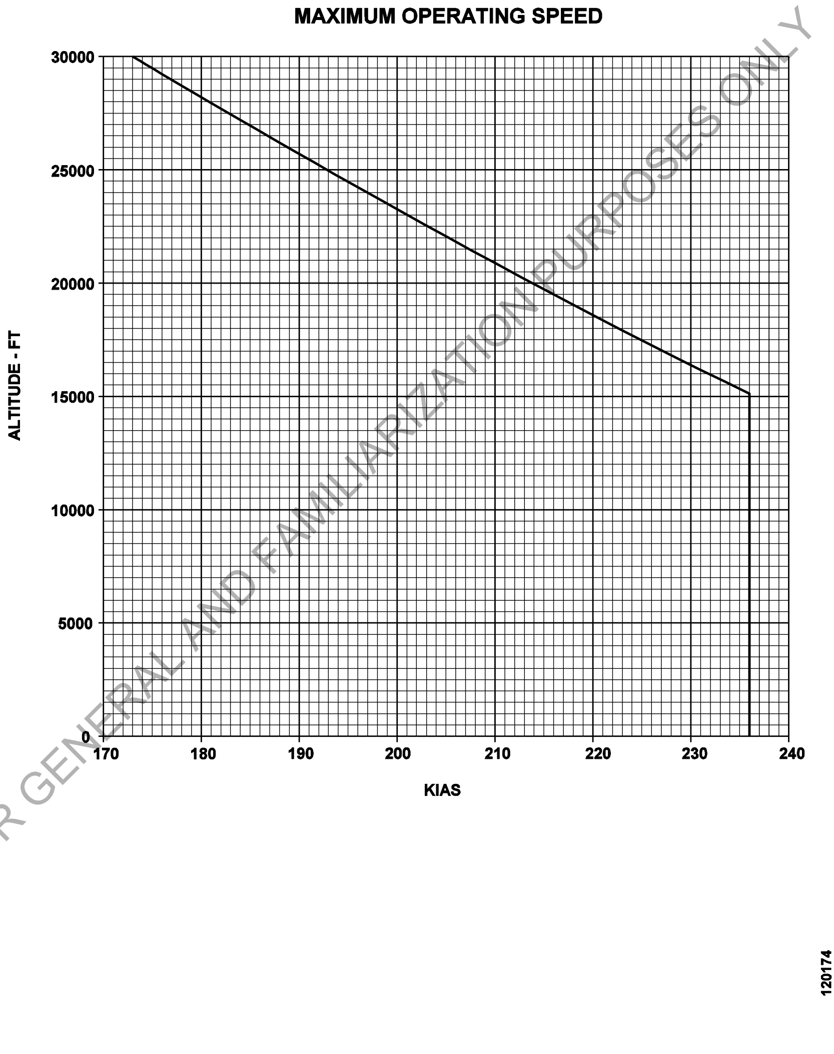

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Figure 2-1, V_{MO} Schedule

AIRSPEED INDICATOR MARKINGS

MARKING	KIAS VALUE OR RANGE	REMARKS
Red Line or Red/White Needle	236 or 0.48 M whichever is lower	Maximum operating limit (V_{MO}/M_{MO})
Green Arc	91 to 236	Normal operating range. Lower limit is maximum weight stall speed in the clean configuration (V_S). Upper limit is the maximum operating speed (V_{MO}/M_{MO}).
White Arc	64 to 130	Full flap operating range. Lower limit is maximum weight stall speed in landing configuration (V_{SO}). Upper limit is maximum speed with full flaps extended (V_{FE}).

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POWER PLANT LIMITATIONS

ENGINE

Number of Engines	1
Engine Manufacturer	Pratt & Whitney Canada
Engine Model Number	PT6A-67B

OIL

OIL GRADE OR SPECIFICATION

Any oil specified by brand name in the latest revision of Pratt & Whitney Service Bulletin 14001 is approved.

OIL QUANTITY

Total Oil Capacity 3.6 US gal (13.6 liters)

Drain and Refill Quantity 2.0 US gal (7.6 liters)

Oil Quantity Operating Range 1.0 US gal (3.8 liters)

An oil quantity check is required for takeoff. Takeoff is not approved with the OIL QTY annunciator illuminated.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

ENGINE OPERATING LIMITS

The limits presented in each column shall be observed. The limits presented do not necessarily occur simultaneously. Refer to the Pratt & Whitney Engine Maintenance Manual for specific action if limits are exceeded.

OPERATING CONDITION	SHP	TORQUE PSI (1)	MAX ITT ° C	Ng % (8)	Np RPM (8)	OIL PRESS PSI (2)	OIL TEMP °C (6) (7)
TAKEOFF (9)	1200	44.34	800	104	1700 (10)	90 TO 135	10 TO 110
MAX. CONT. MAX. CLIMB/ CRUISE	1000	36.95	760	104	1700 (10)	90 TO 135	10 TO 105
MIN. IDLE			750 (5)	50.7 (G.I.) 64 (F. I.)		60 MIN.	-40 TO 110
STARTING			1000 (3)			200 MAX.	-40 MIN.
TRANSIENT		61.00 (4)	870 (4)	104	1870 (4)	40 TO 200 (4)	-40 TO 110
MAX. REVERSE	900	34.25	760		1650	90 TO 135	10 TO 105

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

(1) Torque limit applies within a range of 1000 to 1700 propeller rpm. Torque is limited to 23.9 psi below 1000 propeller rpm.

(2) Normal oil pressure is 90 to 135 psi at gas generator speeds above 72%. With engine torque below 35.87 psi, minimum oil pressure is 85 psi at normal oil temperature (60 to 70° C). Oil pressures under 90 psi are undesirable. Under emergency conditions, to complete a flight, a lower oil pressure of 60 psi is permissible at reduced power level not exceeding 23.9 psi torque. Oil pressures below 60 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.

(3) These values are time limited to 5 seconds maximum.

(4) These values are time limited to 20 seconds maximum.

(5) Applies over a speed range of 50.7% to 61.4% Ng rpm.

(6) For increased service life of the engine oil, an oil temperature of between 60 to 70° is recommended.

(7) Oil temperature limits are -40° C to 105° C with limited periods of 10 minutes at 105 to 110°C.

(8) 100% gas generator speed corresponds to 37468 rpm. 100% power turbine speed (N_1) corresponds to 29894 rpm which also corresponds to 1700 rpm propeller speed.

(9) Takeoff power is time limited to 5 minutes.

(10) During steady state operation, operation from 1670 rpm up to 1730 rpm is permitted to allow for governing accuracy.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

FUEL

APPROVED FUEL GRADES

JET A, JET-A-1, JET B, JP-4

Any other fuel which complies with the latest revision of Pratt & Whitney Service Bulletin 14004.

ANTI-ICING ADDITIVE

Anti-icing additive must be used for all flight operations in ambient temperatures below 0° C.

WARNING

OPERATING IN AMBIENT TEMPERATURES LESS THAN 0°C WITHOUT FOLLOWING THE PROCEDURE TO ADD ANTI-ICING ADDITIVES MAY LEAD TO ICE IN THE FUEL SYSTEM WHICH MAY EVENTUALLY BLOCK THE DELIVERY LINES AND COMPONENTS OF THE FUEL SYSTEM, INCLUDING THE FUEL FILTER, SUBSEQUENTLY RESTRICTING OR STOPPING THE FLOW OF FUEL TO THE ENGINE

Use anti-icing additive conforming to MIL-DTL-27686 or MIL-DTL-85470.

Anti-icing additives should be in compliance to Pratt & Whitney Service Bulletin 14004.

Additive concentration must be between a minimum of 0.06 % and a maximum of 0.15 % by volume.

CAUTION

THE CORRECT MIX OF ANTI-ICING ADDITIVE WITH THE FUEL IS IMPORTANT. CONCENTRATIONS OF MORE THAN THE MAXIMUM (0.15% BY VOLUME) WILL CAUSE DAMAGE TO THE PROTECTIVE PRIMER AND SEALANTS OF THE FUEL TANKS. DAMAGE WILL OCCUR IN THE FUEL SYSTEM AND ENGINE COMPONENTS.

Refer to Section 8, Handling, Servicing, and Maintenance for blending instructions.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

PROPELLER

Propeller Manufacturer	Hartzell
Propeller Model Number	HC-E4A-3D/E10477K or HC-E4A-3D/E10477SK
Number of Propellers	1
Number of Propeller Blades	4
Propeller Diameter	
Minimum	104" (2.642 m)
Maximum	105" (2.667 m)
Propeller Operating Limits (N_p)	
Maximum Normal Operation	1,700 rpm
Maximum transient (20 sec.)	1,870 rpm
Maximum reverse	1,650 rpm

Stabilized operation on the ground between 350 and 950 rpm is not permitted.

Blade Angles at Station 42	
Fine Pitch	19° +/- 0.2°
Maximum Reverse Pitch	-17.5° +/- 0.5°
Feather	79.6° +/- 0.5°
Minimum pitch in flight	6°

STARTER

The engine automatic starting cycle shall be limited to the following intervals:

1. Sequence, 60 seconds OFF
2. Sequence, 60 seconds OFF
3. Sequence, 30 minutes OFF

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

GENERATOR

Maximum generator load limit as follows

GENERATOR	MAX CONTINUOUS LOAD	MAX LOAD FOR 2 MINUTES *
Starter / Generator	300 AMP	450 AMP
Second Generator	115 AMP	N/A
*Maximum load permitted for a 2 minute period per each one hour of operation.		

POWER CONTROL LEVER OPERATION

Power Control Lever operation aft of the idle detent is prohibited:

1. When engine is not running.
2. During flight. Such operation may lead to loss of airplane control.
3. When engine is controlled by the Manual Override System. Such operation may lead to loss of airplane control or may result in an engine/propeller overspeed condition and consequent loss of engine power.

CHIP DETECTOR

Takeoff is not approved with CHIP annunciator illuminated.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

POWER PLANT INSTRUMENT MARKINGS

	RED DIA/RAD Min. Limit	YELLOW ARC Caution	GREEN ARC Norm Ops.	YELLOW ARC Caution	RED RAD/DIA Max. Limit
Engine Speed (N_g)	N/A	N/A	60 to 104%	N/A	104%
ITT	N/A	N/A	400° to 760° C	760° to 800° C	800°/ 1,000° C
Oil Temperature	N/A	N/A	10° to 105° C	105° to 110° C	110° C
Oil Pressure (psi)	40/60	60 to 90	90 to 135	N/A	135/200
Torque (psi)	N/A	N/A	0 to 36.9	36.9 to 44.3	44.3/61.0

MISCELLANEOUS INSTRUMENT MARKINGS

Instrument	RED RADIAL Min. Limit	YELLOW ARC Caution	GREEN ARC Norm Ops.	YELLOW ARC Caution	RED RAD/DIA Max. Limit
Oxygen Pressure (psi)	N/A	N/A	N/A	N/A	1850 to 2000
Cabin Differential (psi)	N/A	N/A	0 to 5.75	5.75 to 6.50*	6.50

*Cabin Differential Pressure Caution Range is Amber.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

WEIGHT LIMITS

Maximum Ramp Weight	9965 lb (4520 kg)
Maximum Takeoff Weight	9921 lb (4500 kg)
Maximum Landing Weight	9921 lb (4500 kg)
Maximum Zero Fuel Weight	9039 lb (4100 kg)
Maximum Baggage Weight	400 lb (180 kg)
Maximum Floor Loading -	
On Seat Rails	205 lb/ft^2 (1000 kg/m^2)
On Cabin Floor	125 lb/ft^2 (600 kg/m^2)

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

CENTER OF GRAVITY LIMITS

Weight Pounds (kilograms)	Forward Limit A.O.D.: In. / M	Aft Limit A.O.D.: In. / M
9921 (4500)	232.20 / 5.898	240.94 / 6.120
8158 (3700)	224.13 / 5.693	-
7938 (3600)	-	242.99 / 6.172
6615 (3000)	-	242.99 / 6.172
5733 (2600)	220.75 / 5.607	225.47 / 5.727

NOTES

Straight line variation between points given.

The datum is 118 in (3.0 m) forward of firewall.

It is the responsibility of the pilot to ensure that airplane is loaded properly.

See Section 6, Weight and Balance for proper loading instructions.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

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 bank angle does not exceed 60°.

Aerobatic maneuvers, including spins, are not approved.

FLIGHT LOAD FACTOR LIMITS

Flight load limits with flaps up	+3.3 g, -1.32 g
Flight load limits with flaps down	+2.0 g, -0.0 g

FLIGHT CREW LIMITS

Minimum required flight crew is one pilot in the left hand seat.

KINDS OF OPERATION

The Pilatus PC-12 is approved for the following types of operation when the required equipment is installed and operational as defined within the Kinds of Operation Equipment List:

1. VFR Day.
2. VFR Night.
3. IFR Day incl. CAT 1 approaches, single pilot.
4. IFR Night incl. CAT 1 approaches, single pilot.
5. Flight into Known Icing Conditions.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

PNEUMATIC DEICING BOOT SYSTEM

The pneumatic deice system boots are required to be installed for all flights.

Preflight function test required before takeoff and flight into known icing conditions.

The system is required to function properly for flight into known icing conditions.

Operation of the pneumatic de-ice boot system in ambient temperatures below -40°C and above +40°C may cause permanent damage to the boots.

The wing and tail leading edge pneumatic deicing boot system must be activated at the first sign of ice formation anywhere on the aircraft, or upon annunciation from an ice detector system (if installed), whichever occurs first.

The wing and tail leading edge pneumatic deicing boot system may be deactivated only after leaving icing conditions and after the aircraft is determined to be clear of ice.

ICING LIMITATIONS

Icing conditions can exist when:

> The outside air temperature (OAT) on the ground and for takeoff, or total air temperature (TAT) in flight, is 10°C or colder, and visible moisture in any form is present (such as clouds, fog or mist with visibility of one mile or less, rain snow, sleet and ice crystals).
>
> The OAT on the ground and for take-off is 10°C or colder when operating on ramps, taxiways or runways, where surface snow, ice, standing water, or slush may be ingested by the engine, or freeze on the engine, or the engine nacelle.
>
> There are visible signs of ice accretion on the aircraft.

Flight in icing conditions is only approved with all ice protection systems, generator 1 and generator 2 serviceable.

During flight in icing conditions, if there is a failure of any of the aircraft ice protection systems or generator 1 or generator 2, exit icing conditions. Contact ATC for priority assistance if required.

Prolonged flight in severe icing conditions should be avoided as this may exceed the capabilities of the aircraft ice protection systems.

During flight in icing conditions or flight with any visible ice accretion on the airframe, the following flap maximum extension limits apply:

- With operational airframe pneumatic deice boots 15° FLAP.
- After failure of the airframe pneumatic deice boots 0° FLAP.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

In the event of a balked landing go-around with residual ice on the airframe, the flaps should not be retracted from the 15° position.

Flight in freezing rain, freezing fog, freezing drizzle and mixed conditions causing ice accretion beyond the protected areas of the pneumatic boots is not approved.

The aircraft must be clear of all deposits of snow, ice and frost adhering to the lifting and control surfaces immediately prior to takeoff.

In the event of a balked landing (go around) with residual ice on the airframe, the landing gear and flaps may not fully retract after selection.

The left wing inspection light must be operative prior to flight into known or forecast icing conditions at night.

SEVERE ICING CONDITIONS

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 accumulation on the airframe and windshield areas not normally observed to collect ice
- accumulation of ice beyond the active portions of the wing pneumatic boots

Care must be taken when using the autopilot that tactile cues, such as increased aileron forces, are not masked by the autopilot function. Periodically disengage the autopilot to check for abnormal forces.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

KINDS OF OPERATION EQUIPMENT LIST

This airplane is approved for operations under day or night VFR, day or night IFR and flight into known icing conditions when the required equipment is installed and operating properly. The following systems and equipment list is predicated on a crew of one pilot and does not include specific flight and radio/navigation equipment required by any particular country's operating regulations. The pilot in command is responsible for determining the airworthiness of the aircraft and assuring compliance with current operating regulations for each intended flight.

The zeros (0) used in the list below mean that the system and/or equipment was not required for type certification for that kind of operation. When (AR) appears for the number required it indicates As Required.

Deviations from this KOEL may be approved for the operation of a specific aircraft if a proper MEL (Minimum Equipment List) has been authorized by the appropriate regulatory agency.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

SYSTEM / EQUIPMENT	VFR DAY	VFR NIGHT	IFR DAY	IFR NIGHT	ICING
Flight Instruments:					
Airspeed Indicator	1	1	1	1	1
Sensitive Altimeter	1	1	2	2	2
Magnetic Compass	1	1	1	1	1
Attitude Indicator (EADI)	0	0	1	1	1
Attitude Indicator (Self contained)	0	0	1	1	1
Rate of Turn Indicator (EADI)	0	0	1	1	1
Slip-Skid Indicator (Inclinometer)	1	1	1	1	1
Directional Indicator (EHSI)	0	0	1	1	1
AHRS	0	0	1	1	1
Vertical Speed Indicator	0	0	1	1	1
Clock	0	0	1	1	1
Engine Instruments (EIS):					
Torquemeter	1	1	1	1	1
Propeller Tachometer (N_P)	1	1	1	1	1
Inter Turbine Temperature Gauge (ITT)	1	1	1	1	1
Gas Generator Tachometer (Ng)	1	1	1	1	1
Oil Pressure Gauge	1	1	1	1	1
Oil Temperature Gauge	1	1	1	1	1
Miscellaneous Instruments (EIS):					
Fuel Quantity Indicators	2	2	2	2	2
L FUEL LOW Annunciator	1	1	1	1	1
R FUEL LOW Annunciator	1	1	1	1	1

SYSTEM / EQUIPMENT	VFR DAY	VFR NIGHT	IFR DAY	IFR NIGHT	ICING
Miscellaneous Instrs (EIS) (con'd):					
DC Voltmeter	1	1	1	1	1
DC Ammeter	1	1	1	1	1
Outside Air Temperature Gauge	1	1	1	1	1
Engine:					
Starter Generator	1	1	1	1	1
Second Generator	0	0	1	1	1
Inertial Separator	1	1	1	1	1
INERT SEP Annunciator	1	1	1	1	1
Engine Driven Low Pressure Fuel Pump	1	1	1	1	1
FUEL PRESS Annunciator	1	1	1	1	1
Electric Wing Tank Fuel Boost Pump	2	2	2	2	2
L FUEL PUMP Annunciator	1	1	1	1	1
R FUEL PUMP Annunciator	1	1	1	1	1
Firewall Fuel Shutoff Valve	1	1	1	1	1
FCU Manual Override System	1	1	1	1	1
Torque Limiter	1	1	1	1	1
PROP LOW P Annunciator	1	1	1	1	1
Ignition System	1	1	1	1	1
Fire Detect System	1	1	1	1	1
ENG FIRE Annunciator	1	1	1	1	1
FIRE DETECT Annunciator	1	1	1	1	1
OIL QTY Annunciator	1	1	1	1	1
CHIP Annunciator	1	1	1	1	1
Electrical:					
Battery	1	1	1	1	1
2nd Battery (if installed)	1	1	1	1	1
BAT OFF Annunciator	1	1	1	1	1
BAT HOT Annunciator (nicad battery)	1	1	1	1	1
BATTERY Annunciator	1	1	1	1	1
Stall Warning/Stick Pusher System	1	1	1	1	1
AOA Probes	2	2	2	2	2
PUSHER Annunciator	1	1	1	1	1
AIR / GND Annunciator	1	1	1	1	1
V_{mo} Overspeed Aural Warning	1	1	1	1	1
CAWS	1	1	1	1	1
CAWS FAIL Annunciator	1	1	1	1	1
GEN 1 LED	1	1	1	1	1
GEN 2 LED	1	1	1	1	1

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

SYSTEM / EQUIPMENT	VFR DAY	VFR NIGHT	IFR DAY	IFR NIGHT	ICING
Electrical (cont'd):					
AV 1 LED	1	1	1	1	1
AV 2 LED	1	1	1	1	1
BAT 1 LED	1	1	1	1	1
BAT 1 HOT LED	1	1	1	1	1
BAT 2 LED (if installed)	1	1	1	1	1
BAT 2 HOT LED (if installed)	1	1	1	1	1
Longitudinal (Stab) Trim System	1	1	1	1	1
Alternate Stab Trim System	1	1	1	1	1
STAB TRIM Annunciator	1	1	1	1	1
Lateral Trim System	1	1	1	1	1
Directional Trim System	1	1	1	1	1
Triple Trim Indicator	1	1	1	1	1
Trim Interrupt System	1	1	1	1	1
Windshield Heat	2	2	1*	1*	2
WSHLD HT Annunciator	1	1	1	1	1
INVERTER Annunciator	0	0	1	1	1
GEN 1 OFF Annunciator	1	1	1	1	1
GEN 2 OFF Annunciator	0	0	1	1	1
ESNTL BUS Annunciator	1	1	1	1	1
AV BUS Annunciator	1	1	1	1	1
N ESNTL B Annunciator	1	1	1	1	1
BUS TIE Annunciator	1	1	1	1	1
Position Lights	0	3	3	3	3
Strobe Lights	0	2	2	2	2
Landing Lights	0	2	2	2	2
Taxi Light	0	1	1	1	1
Instrument and Panel Lighting	0	AR	AR	AR	AR
Audio System	1	1	1	1	1
Cockpit Speaker	1	1	1	1	1
Cabin Speaker	1	1	1	1	1
PUSHER ICE MODE Annunciator	0	0	0	0	1
DE ICE BOOTS Annunciator	0	0	0	0	1
Deice Boot Timer	0	0	0	0	1
AOA Heater LH	1	1	1	1	1
AOA Heater RH	1	1	1	1	1
Probe Current Monitor	1	1	1	1	1
AOA DE ICE Annunciator	1	1	1	1	1

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

* Refer to Section 2 System and Equipment Limits - Heated Windshield for the actual limitation

SYSTEM / EQUIPMENT	VFR DAY	VFR NIGHT	IFR DAY	IFR NIGHT	ICING
Electrical (cont'd):					
Propeller Deice Timer	0	0	0	0	1
Propeller Deice Brush	0	0	0	0	1
Propeller Deice MOV	0	0	0	0	1
Propeller Deice Boots	0	0	0	0	4
Propeller Deice OAT Sensor	0	0	0	0	2
PROP DE ICE Annunciator	0	0	0	0	1
Left Wing Inspection Light	0	0	0	0	1
A/P TRIM Annunciator	1	1	1	1	1
A/P DISENG Annunciator	1	1	1	1	1
PITOT 1 Annunciator	1	1	1	1	1
PITOT 2 Annunciator	1	1	1	1	1
STATIC Annunciator	1	1	1	1	1
Mechanical Systems :					
Landing Gear Actuating System	1	1	1	1	1
HYDR Annunciator	1	1	1	1	1
Gear Position Indications/Warning	3	3	3	3	3
Emergency Gear Extension System	1	1	1	1	1
Flap Control & Indication	1	1	1	1	1
Flap Interrupt System	1	1	1	1	1
FLAPS Annunciator	1	1	1	1	1
Seat Restraints (each occupant)	AR	AR	AR	AR	AR
PASS DOOR Annunciator	1	1	1	1	1
CAR DOOR Annunciator	1	1	1	1	1
Firewall ECS Shutoff Valve	1	1	1	1	1
Emergency Ram Air Scoop	1	1	1	1	1
Oxygen System	1	1	1	1	1
PASS OXY Annunciator	1	1	1	1	1
Deice Boot PRV	1	1	1	1	1
Deice Boot EFCV's	1	1	1	1	5
Deice Boot Pressure Switches	0	0	0	0	5
Deice Boot, Inner Wing LH	1	1	1	1	1
Deice Boot, Outer Wing LH	1	1	1	1	1
Deice Boot, Inner Wing RH	1	1	1	1	1
Deice Boot, Outer Wing RH	1	1	1	1	1
Deice Boot, Tail LH	1	1	1	1	1
Deice Boot, Tail RH	1	1	1	1	1

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

SYSTEM / EQUIPMENT	VFR DAY	VFR NIGHT	IFR DAY	IFR NIGHT	ICING
For Pressurized Flight:					
Pressurization Control System (CPCS)	1	1	1	1	1
Cabin Altimeter	1	1	1	1	1
Cabin Vertical Speed Indicator	1	1	1	1	1
Cabin Differential Pressure Indicator	1	1	1	1	1
Maximum Cabin Altitude Warning	1	1	1	1	1
CAB PRESS Annunciator	1	1	1	1	1
ECS	1	1	1	1	1
ECS Annunciator	1	1	1	1	1

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

FUEL LIMITATIONS

Total Fuel Capacity	406.8 US gal, 2,736.5 lb (1,540 liters, 1,241.3 kg)
Total Usable Fuel	402 US gal, 2,703.6 lb (1,521.5 liters, 1,226.4 kg)
Total Unusable Fuel	4.8 US gal, 32.9 lb (18.5 liters, 14.9 kg)
Maximum Fuel Imbalance	26.4 US gal, 178 lb (100 liters, 80.6 kg) (Maximum 3 LCD segments on indicator)

NOTE

Usable fuel can be safely used during all Normal Category airplane maneuvers.

MAXIMUM OPERATING ALTITUDE LIMITS

Maximum Operating Altitude	30,000 ft (9,144 m)

OUTSIDE AIR TEMPERATURE LIMITS

Minimum Outside Air Temperature	-55° C (-67° F)
Maximum Outside Air Temperature	+50° C (122° F)

CABIN PRESSURIZATION LIMITS

Maximum cabin pressure differential is 5.75 psi (400 mbar).

Pressurized landing is not approved.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

MAXIMUM PASSENGER SEATING LIMITS

Maximum number of occupants is 9 passengers plus pilot(s).

Refer to Section 6, Weight and Balance, for seat locations.

During single pilot operation, the pilot occupies the left hand cockpit seat and an additional passenger may occupy the right hand cockpit seat.

The PC-12 was certified with two basic cabin interior configurations, a Corporate Commuter and an Executive interior. Variations to the two basic interior configurations that have been approved together with general limitations are given below:

Corporate Commuter Interior Code STD-9S nine standard seats.

Corporate Commuter Interior Code STD-6S-3B six standard seats and three seat bench.

Executive Interior Code EX-6S-2 six executive seats.

Executive Interior Code EX-8S eight executive seats.

Leave seats 5, 6, 7 and 8 vacant during takeoff and landing unless seat in front is occupied.

Executive Interior Code EX-4S-3B four executive seats and three seat bench.

Executive Interior Code EX-6S-STD-2S six executive seats and two standard seats.

Leave seats 5, 6, 7 and 8 vacant during takeoff and landing unless seat in front is occupied.

Executive Interior Code EX-4S-STD-4S four executive seats and four standard seats.

Pilatus must be contacted to determine the modification work required to the aircraft, before any change to an interior configuration is made.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

SYSTEMS AND EQUIPMENT LIMITS

STALL WARNING/STICK PUSHER SYSTEM

Preflight function test required before takeoff.

System is required to function properly in normal mode for all flights and in ice mode for flight into known icing conditions.

TRIM SYSTEMS

Stabilizer normal and alternate, and rudder trim systems must function properly for all flights.

HEATED WINDSHIELD

Left Hand and Right Hand Heated Windshields must function properly for all flights. Exception, for IFR flights conducted into no known or forecast icing conditions at least one heating zone of the windshield on the side of the pilot in command must function properly.

FIRE DETECTION SYSTEM

Preflight Function Test is required for takeoff.

System must function properly for all flights.

ENGINE ICE PROTECTION

Preflight Function Test is required for takeoff.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

OXYGEN SYSTEM

A minimum oxygen supply of 10 minutes duration for each occupant is required for dispatch for pressurized flight above FL250.

NOTE

Some National Operating Requirements may require that a larger quantity of oxygen be carried on the aircraft.

The oxygen system shut-off valve handle in the cockpit must be selected to on prior to engine start and throughout the duration of flight.

The oxygen masks for the crew must be connected for all flights.

For aircraft with the Corporate Commuter side wall paneling, oxygen masks must be connected and properly stowed for each passenger prior to takeoff when the aircraft is to be operated above 10,000 feet.

NOTE

In the executive interior configurations the oxygen masks are permanently connected.

EFIS

During EFS 40/50 operation, the Bendix/King EFS 40/50 Pilot's Guide must be on board the airplane and immediately available to the pilot.

Standby artificial horizon must be operational for departure (IFR operation only).

No SG or DU flag may be visible prior to departure (IFR operation only).

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

PROBE HEAT

Preflight function test required before takeoff.

The system is required to function properly for IFR flight and flight into known icing condition.

ENGINE INSTRUMENT SYSTEM (EIS)

EIS must function properly for all flights.

EIS system test required before takeoff.

Takeoff is not approved with the red EIS warning light illuminated after a system test.

FLAP SYSTEM CYCLE LIMITS

A flap cycle is defined as movement from 0° to 15° to 0° and from 0° to 15° to 40° to 0°. Maximum number of cycles per hour -

Up to 25° C OAT	10
25° C to 50° C OAT	8

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

AUTOPILOT

During autopilot operation, the Bendix/King KFC 325 Pilot's Guide must be on board and immediately available to the pilot.

If the autopilot is to be used in flight, the entire preflight test must be successfully completed prior to each flight.

During autopilot operation, a pilot must be seated in a pilot position with seat belt fastened.

The autopilot (A/P) and yaw damper (YD) must be OFF during takeoff and landing.

Altitude Select captures below 1000 feet AGL are prohibited.

The autopilot must be disengaged, when the airplane is below 1000 ft AGL, except in accordance with the conditions given below.

For airplanes equipped with a functioning Pilatus option radar altimeter, the autopilot must be disengaged below 200 ft AGL during ILS approach operations provided that the autopilot is coupled to glideslope vertical guidance of 6° or less. The system is approved for Category 1 operation (Approach mode selected) and autopilot coupled go-arounds initiated at decision altitude.

In normal operation do not override the autopilot to change pitch or roll attitude.

Continued autopilot operation is prohibited following abnormal operation or malfunctioning prior to corrective maintenance.

CAUTION

In accordance with FAA recommendation (AC 00-24B), use of "PITCH ATTITUDE HOLD" mode is recommended during operation in severe turbulence.

AHRS

Fly straight and level for 1 minute after each 15 minutes of continuous orbiting maneuvering (not applicable to LCR-93 AHRS).

WEATHER RADAR

When the weather radar system is operated while the aircraft is on the ground, direct the nose of the aircraft so that the antenna scan sector is free of large metallic objects, such as hangars or other aircraft for a minimum distance of 15 feet (5 meters), and tilt the antenna fully upwards.

Do not operate the weather radar system during aircraft refueling or during refueling operations within 15 feet (5 meters). Do not operate the weather radar system when personnel are standing within 15 feet (5 meters) of the 270° forward sector of the aircraft.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

OTHER LIMITATIONS

PASSENGER SEAT LAP BELT EXTENSION

The lap belt extension Part No. 959.30.01.588 (used only with restraint system Part No. 959.30.01.232 or 959.30.01.233 or 959.30.01.584 or 959.30.01.585) or lap belt extension Part No. 959.30.01.590 (used only with restraint system Part No. 959.30.01.259) can be used on all standard passenger seats Part Nos. 959.30.01.501-520 and 525.22.12.011/012. It's use is limited to those who need it and it shall be handed out by the pilot on a case by case basis before flight. The lap belt extension must not be used for strapping small children sitting on a persons lap.

STANDARD PASSENGER SEAT TYPES

There are two different types of standard seats (TYPE I and II). It is not allowed to install TYPE I and II seats behind each other.

CARGO LIMITATIONS

Maximum Freight Load	3300 lbs (1500 kg)

Cargo must be arranged to permit free access to the passenger door and the right hand emergency overwing exit. No cargo must be placed on the seats.

All cargo must be secured by approved Cargo Restraints as described in Section 6.
Tie Down Straps with a breaking strength of at least 1800 lb per strap must be used.
All Cargo/Containers must be located against a Retaining Bar secured laterally to the seat rails.

Items up to a total weight of 66 lb (30 kg) can be stowed in the cabin area without being strapped down providing a Cargo Net is installed in front of the items.
Cargo Nets may only be installed on the attachments at Frames 24 and 27.
No passengers must be seated rearward of a Cargo Net.

If an extendable baggage net is used the tie down fittings and the cargo strap fittings must have a minimum space of 5 inches between the fittings.

EXECUTIVE CABIN FLOODLIGHTS

The cabin floodlights that are Pre SB 33-008 in MSN 321 and 401 thru 416 with executive interiors, shall not be operated on the ground for more than 2 hours in any 4 hour period if the outside air temperature is greater than 25 °C.

ALL PASSENGER SEATS

For takeoff and landing the seat lap and shoulder belts must be fastened, the lap belt tightened, and the seat headrest positioned to support the head.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

LUGGAGE LIMITATIONS

The luggage area maximum load is given in the following table. The load is dependent on the aircraft interior configuration and the Part No. of the luggage net installed.

Interior Configuration	950.10.00.071 or 950.10.00.314	525.25.12.011	525.25.12.037	525.25.12.043
STD-9S	154 lb (70 kg)	154 lb (70 kg)	154 lb (70 kg)	265 lb (120 kg)
EX-6S-STD-2S	154 lb (70 kg)	154 lb 70 kg)	154 lb (70 kg)	265 lb (120 kg)
EX-4S-STD-4S	154 lb (70 kg)	154 lb (70 kg)	154 lb (70 kg)	265 lb (120 kg)
EX-6S-1	400 lb (180 kg)	220 lb (100 kg)	400 lb (180 kg)	400 lb (180 kg)
EX-6S-2	400 lb (180 kg)	220 lb (100 kg)	400 lb (180 kg)	400 lb (180 kg)
EX-8S	400 lb 180 kg)	220 lb (100 kg)	400 lb (180 kg)	400 lb (180 kg)

A Luggage Net must be installed at Frame 34 when luggage is stowed.

The luggage area maximum load is 500 lb (225 kg) with an extendable luggage net installed. The extendable luggage net and/or any luggage may not extend in front of frame 32. If the extendable luggage net is used without a three seat bench installed, there must be a clear area in front of the net as follows:

- at least 280 mm forward of frame 32, when the net floor attachments are placed at frame 32 (the most forward position of the net)
- at least 340 mm forward of frame 34, when the net floor attachments are placed at frame 34

When an optional wardrobe is installed, the maximum weight limit for luggage items stowed in the bottom of the wardrobe is 35 lb (15.9 kg). All stowed luggage in the wardrobe must be secured with the safety net.

STRUCTURAL LIMITATIONS

Refer to Chapter 4 of the PC-12 Aircraft Maintenance Manual, Pilatus Report Number 02049.

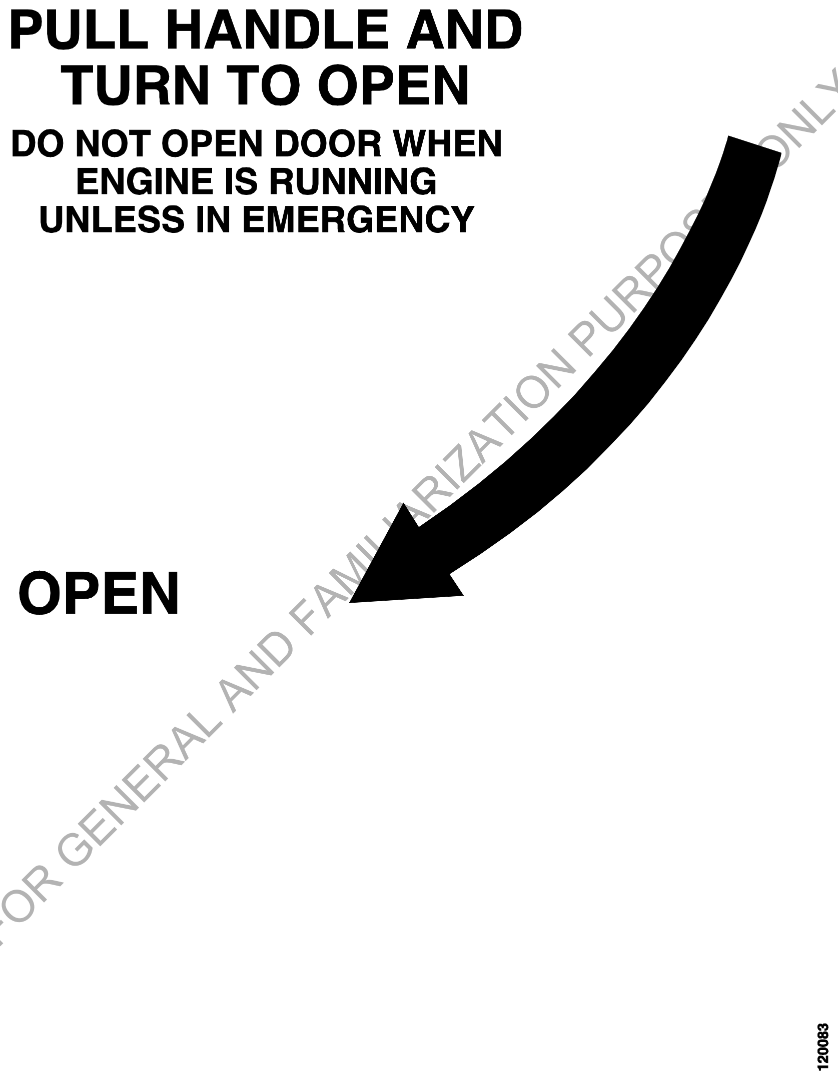
SMOKING

Smoking is not permitted in the cabin of aircraft equipped with a standard interior unless ashtrays are installed.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

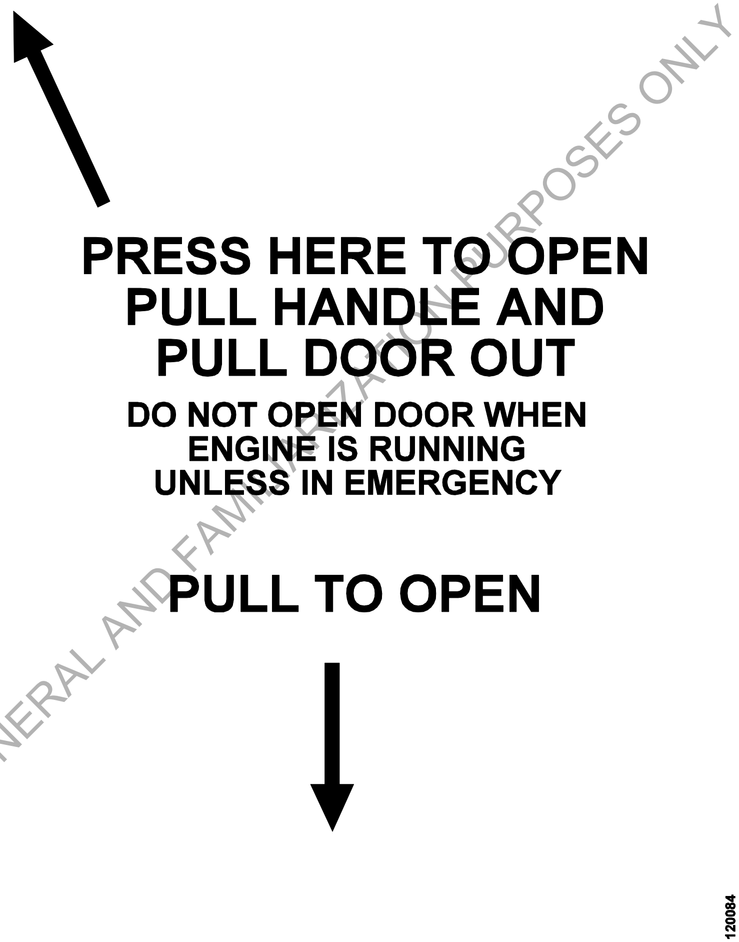
PLACARDS - EXTERIOR

On exterior Passenger Door:



FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

On exterior Cargo Door:

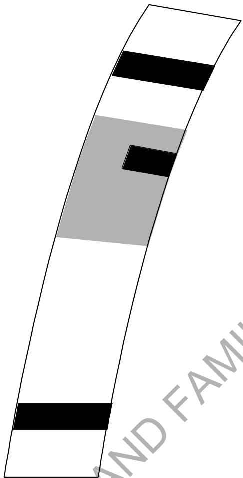


FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Near Static Ports:

STATIC PRESSURE KEEP CLEAR

On left side Vertical Tail forward of Horizontal Stabilizer:



On Rudder (each side):

DO NOT PUSH

120085

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

On exterior Emergency Exit:
(Not to Scale)

EMERGENCY EXIT

PUSH

PUSH IN AFTER RELEASE

Inside left Engine Cowling:

TURBINE OIL

ACCEPTABLE OILS SEE P+W SB 14001

TOTAL SYSTEM CAPACITY
14,5 QRT 13,6 LTR

ENGINE OIL TYPE USED,
____
DO NOT MIX OIL TYPES

or

ENGINE OIL TYPE USED,
____

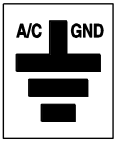
Post Optional SB 11-006

NOTE: The engine oil type used will be added to the placard prior to delivery of the aircraft.

120086

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

On Nose Landing Gear (each side):



On Nose Landing Gear:

← DO NOT TURN BEYOND RED MARKS →

Near Fuel Filler:

FUEL:
ASTM-D-1655 JET A, JET A-1 AND JET B
(CPW 204 SPEC)
TOTAL CAPACITY
770 LTR. 203 US. GAL.
USABLE CAPACITY
761 LTR. 201 US. GAL.

ANTI-ICE ADDITIVE MUST BE USED FOR ALL
FLIGHT OPERATIONS IN AMBIENT TEMPERATURES BELOW 0°C.
SEE PILOT'S OPERATING HANDBOOK FOR
QUANTITY AND TYPE OF ADDITIVE.

Post Optional SB 11-005

REFUELING BONDING POINT

On top surface of each Aileron and three places on top surface of each flap:

DO NOT PUSH

On the main landing gear doors:

TYRE PRESSURE 60 psi (4,1 bar)

On the nose landing gear doors:

TYRE PRESSURE 60 psi (4,1 bar)

120155

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

PLACARDS - COCKPIT

On the Instrument Panel:

V_{FE}	UP TO 15¡	163 KIAS
V_{FE}	ABOVE 15¡	130 KIAS

V_O	(4500KG)	158	KIAS
V_O	(2600KG)	120	KIAS
V_{MO}		236	KIAS
M_{MO}		0.48	M

On the center panel below Display Unit:

**STABILIZED PROPELLER OPERATION ON GROUND (NOT FEATHERED)
BETWEEN 350 AND 950 rpm IS PROHIBITED**

Near Fuel Quantity Indicator:

**TOTAL USABLE
CAPACITY
1521 LTR
402 US. GAL
2704 LBS JET-A1**

Near Landing Gear Selector Handle:

V_{LO}	177	KIAS
V_{LE}	236	KIAS

120156

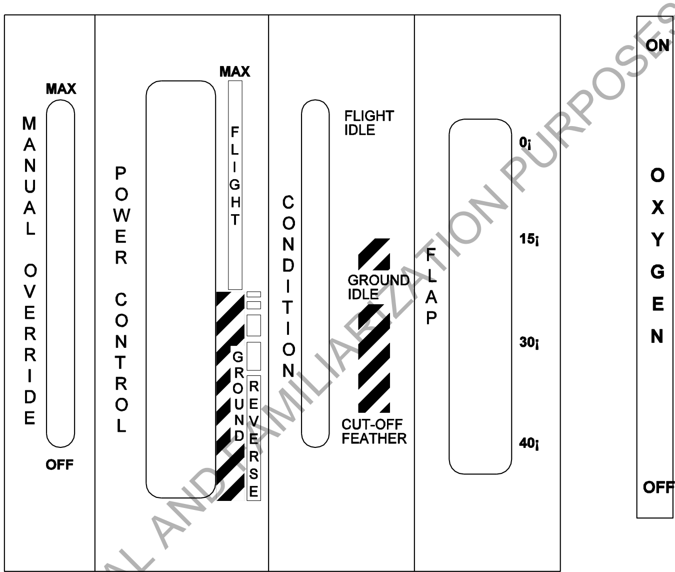
FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Near Pressurization Controls:

ENSURE CABIN DEPRESSURIZED BEFORE LANDING

MAXIMUM CABIN DIFF. PRESS. = 5.75 PSID

On Center Console:



At aft end of Center Console:

CAUTION	**PCL OPERATION AFT OF IDLE DETENT IS PROHIBITED WHEN:** **- ENGINE NOT RUNNING** **- IN FLIGHT** **- WITH MOR OPERATION**

120157

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

On center console (FWD of trim indicators):

WARNING - DURING FLIGHT IN ICING CONDITIONS OR FLIGHT WITH ANY VISIBLE ICE ACCRETION ON THE AIRFRAME THE FOLLOWING FLAP MAXIMUM EXTENSION LIMITS APPLY:-
- WITH OPERATIONAL AIRFRAME PNEUMATIC DE-ICE BOOTS 15¡ FLAP.
- AFTER FAILURE OF THE AIRFRAME PNEUMATIC DE-ICE BOOTS 0¡ FLAP.

At rear of Center Console:

FUEL EMER SOV HANDLE	HYDRAULIC HAND PUMP HANDLE	ECS EMER SOV HANDLE

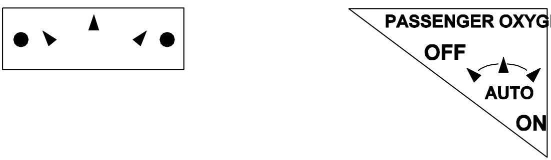
Near Fuel Shut off Valve Handle:

PRESS LATCH DOWN
& PULL LEVER UP

On Fuel and ECS Firewall Shut off Valve Handles:

FUEL EMERG SHUT OFF **PULL**	**ECS** EMERG SHUT OFF **PULL**

On Cockpit LH Side Panels near oxygen system controls:



120158

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Near Standby Magnetic Compass:

STANDBY COMPASS
FOR CORRECT READING SWITCH:
AVIONICS ON
NAV & INSTRUMENT LIGHTING AS REQUIRED
WINDSHIELD DE-ICE LH & RH OFF
CABIN HEATING SYSTEM OFF
U/F HEATER CB PULL
FOOTWARMER SYSTEM OFF (IF INST.)
AUXILIARY COOLING SYSTEMS OFF (IF INST.)

MSN 321 AND 401-500

STANDBY COMPASS
FOR CORRECT READING SWITCH:
AVIONICS ON
NAV & INSTRUMENT LIGHTING AS REQUIRED
WINDSHIELD DE-ICE LH & RH OFF
CABIN HEATING SYSTEM OFF
U/F HEATER CB PULL
FOOTWARMER SYSTEM OFF (IF INST.)
AUXILIARY COOLING SYSTEMS OFF (IF INST.)
CABIN POWER SYSTEM OFF (IF INST.)

MSN 501 AND UP AND
AIRCRAFT WITH A
DC-DC CONVERTER INSTALLED

Near DV Window:

**DV WINDOW
PRESS BUTTON
AND PULL INWARDS**

On Left and Right Control Wheel:

DN
LH **RH**
UP

CWS

A/P DISC

ICS

TRIM ENGAGE

PUSHER INTR

PTT

MAP LIGHT

Near Cockpit Oxygen Outlet:

OXYGEN

120159

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

On left Cockpit Side Panel and right Cockpit Side Panel for a dual instrumented aircraft:
(LH Shown, RH Opposite)

OPERATIONAL LIMITATIONS

THIS AIRPLANE MUST BE OPERATED AS A NORMAL CATEGORY AIRPLANE IN COMPLIANCE WITH THE OPERATING LIMITATIONS STATED IN THE FORM OF PLACARDS, MARKINGS AND MANUALS.

NO ACROBATIC MANEUVERS INCLUDING SPINS ARE APPROVED.

THIS AIRPLANE APPROVED FOR VFR, IFR, DAY & NIGHT OPERATION & ICING CONDITIONS.

WARNING DO NOT SMOKE WHILE OXYGEN IS IN USE

EMERGENCY GEAR EXTENSION

- AIRSPEED 110 KIAS
- ENSURE LANDING GEAR HANDLE DOWN
IF 3 GREENS NOT ILLUMINATED AFTER 30 SECONDS
- EMERGENCY GEAR PUMP HANDLE (LOCATED AT PEDESTAL REARSIDE) AND PUMP SLOWLY - ACTIVATE UNTIL 3 GREENS OBTAINED
IF 3 GREENS STILL NOT ILLUMINATED
- YAW AIRCRAFT TO LOCK LH & RH GEAR
- REDUCE AIRSPEED TO LOCK NOSE GEAR

or

EMERGENCY GEAR EXTENSION

- AIRSPEED 110 KIAS
- ENSURE LANDING GEAR HANDLE DOWN
IF 3 GREENS NOT ILLUMINATED AFTER 30 SECONDS
- EMERGENCY GEAR PUMP HANDLE (AFT END OF CENTRE PEDESTAL) EXTEND AND PUMP (UP/DOWN) UNTIL 3 GREENS ARE OBTAINED
IF 3 GREENS STILL NOT ILLUMINATED
- YAW AIRCRAFT TO LOCK LH & RH GEAR
- REDUCE AIRSPEED TO LOCK NOSE GEAR

On the front side of the right cockpit bulkhead:

FIRE EXTINGUISHER

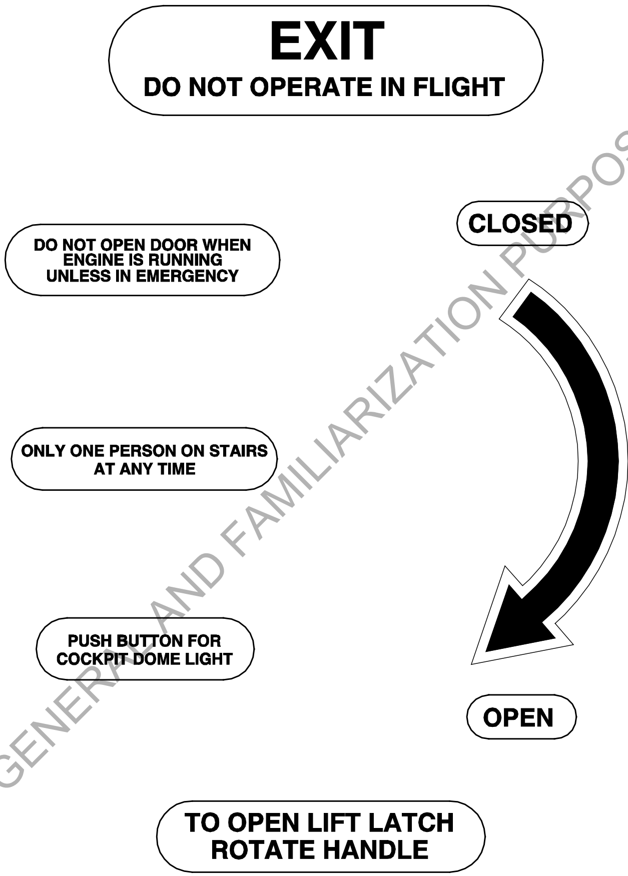
120126

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

PLACARDS - CABIN

The following standard placards are installed in all aircraft.

On Interior Passenger Door:



120070

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

On Interior Emergency Exit:

EXIT

On Interior Emergency Exit Handle:

PULL

On Interior Cargo Door Handle Cover:

DO NOT REMOVE COVER IN FLIGHT

On Interior Cargo Door Handle:

**LIFT LOCKING LEVER AND
PULL HANDLE PUSH DOOR OUT**

On Interior Cargo Door:

**DO NOT OPEN DOOR WHEN
ENGINE IS RUNNING
UNLESS IN EMERGENCY**

On Cabin to Baggage Area Step:

KEEP GRILL CLEAR

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

120160

On forward and rear Cargo Door Frame:

MAX FREIGHT LOAD = 1500 kg / 3300 lb	
Max Load on Seat Rails	Max Load on Floor Panels
1000 kg/m^2 205 lb/ft^2	600 kg/m^2 125 lb/ft^2
CARGO MUST NOT OBSTRUCT ACCESS TO CABIN DOOR AND EMERGENCY EXIT	

On lower Cargo Door Frame:

INSTALL TAIL SUPPORT STAND BEFORE LOADING CARGO

Above Baggage Area:

MAX BAGGAGE LOAD = 70 kg / 155 lb

or

MAX BAGGAGE LOAD = 100 kg / 220 lb

or

MAX BAGGAGE LOAD = 120 kg / 265 lb

or

MAX BAGGAGE LOAD = 180 kg / 400 lb

Post SB 25-010 the above placard is replaced by:

MAX BAGGAGE LOAD = 225 kg / 500 lb (ONLY IF BAGGAGE NET 525.25.12.026 IS INSTALLED)

At interior fuselage cargo net attachment points:

FR 24	FR 27	FR 34

120161

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

PLACARDS - 9 SEAT CORPORATE COMMUTER (Interior Code STD-9S).

The cabin placards plus the following additional placards are those required for this interior.

On the rear of the left and right cockpit bulkheads, and on the rear of each seat:

FOR TAKEOFF AND LANDING
- FASTEN SEAT BELT
- SEAT BACK MUST BE FULLY UPRIGHT

or

FOR TAKEOFF AND LANDING
- FASTEN SEAT LAP AND SHOULDER BELT
- ADJUST HEADREST TO SUPPORT HEAD
- SEAT BACK MUST BE FULLY UPRIGHT

or

FOR TAKEOFF AND LANDING
- FASTEN SEAT LAP AND SHOULDER BELT
- SEAT BACK MUST BE FULLY UPRIGHT

On the rear of each seat,
except seat No.5:

OXYGEN MASK LOCATED UNDER YOUR SEAT

On the rear of the seat No.5:

OXYGEN MASK LOCATED UNDER SEAT IN FRONT

On the rear of the left cockpit bulkhead:

FIRE EXTINGUISHER LOCATED ON COCKPIT SIDE RH BULK-HEAD BEHIND CO-PILOT SEAT

NO SMOKING

Near each Passenger Oxygen Outlet and Cover:

OXYGEN

On the forward cargo door frame (Post SB 25-016 and MSN 261 and UP):

INTERIOR CODE:
STD-9S
(SEE AFM/POH SECTION 6)

120129

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

PLACARDS - 6 SEAT CORPORATE COMMUTER AND A THREE SEAT BENCH (Interior Code STD-6S-3B).

The cabin placards, the 9 seat commuter placards and the following replacement/additional placards are required for this interior.

On the rear of seats 5 and 6:

OXYGEN MASK LOCATED UNDER YOUR SEAT

Near to the left bench seat on the armrest:

LEFT PART OF BENCH SEAT MUST BE FULLY AFT DURING THE ENTIRE FLIGHT

On the left side of the bench seat:

LEFT PART OF BENCH SEAT MUST BE FULLY AFT DURING THE ENTIRE FLIGHT

When the large baggage net is installed:

MAX BAGGAGE LOAD = 225 kg / 500 lb
(ONLY IF BAGGAGE NET 525.25.12.026 IS INSTALLED)

On the forward cargo door frame (Post SB 25-016 and MSN 261 and UP):

INTERIOR CODE:
STD - 6S - 3B
(SEE AFM/POH SECTION 6)

120132

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

PLACARDS - 6 SEAT EXECUTIVE (Interior Code EX-6S-1 and -2).

The cabin placards plus the following additional placards are those required for this interior.

On the rear of the left bulkhead:

FIRE EXTINGUISHER LOCATED
ON COCKPIT SIDE RH BULK-
HEAD BEHIND CO-PILOT SEAT

On the inside of the lavatory doors:

NO SMOKING
IN LAVATORY

TOILET COMPARTMENT
NOT TO BE OCCUPIED
DURING TAKEOFF/LANDING
AND TURBULENCE

TO CLOSE
PULL HERE

TO CLOSE
PULL HERE

OXYGEN MASK INSIDE

PULL TAPE FOR
OXYGEN MASK

POST SB 35-003

On the inside of the optional wardrobe:

DOORS MUST BE CLOSED
DURING TAKEOFF & LANDING

NO BAGGAGE ALLOWED ABOVE EDGE
NET MUST BE CLOSED FOR FLIGHT

WEIGHT LIMIT 35 LB / 15.9 KG

MAX. OF 6 COATS ALLOWED

On the inside of the left and right cabinet drawers:

	Upper	Lower
Right cabinet	WEIGHT LIMIT 5 LB	WEIGHT LIMIT 7 LB
Left cabinet	WEIGHT LIMIT 10 LB	WEIGHT LIMIT 25 LB

Near each executive seat:

FOR TAKEOFF AND LANDING
- SEAT MUST BE FULLY UPRIGHT
  FULLY AFT AND FULLY OUTBOARD
- TABLE MUST BE STOWED

or

FOR TAKEOFF AND LANDING
- SEAT MUST BE FULLY UPRIGHT,
  FULLY TO THE REAR OF CABIN
  AND FULLY OUTBOARD
- TABLE MUST BE STOWED

or

FOR TAKEOFF AND LANDING
- SEAT MUST BE FULLY UPRIGHT,
  FULLY TO THE REAR OF CABIN
  AND FULLY OUTBOARD
- ADJUST HEADREST TO SUPPORT HEAD
- FASTEN SEAT LAP AND SHOULDER BELT
- TABLE MUST BE STOWED

- ARMREST MUST BE LOWERED

POST SB 25-003 INTERIOR CODE EX-65-1

120130

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

On each Passenger Oxygen Mask Cover:

OXYGEN MASK INSIDE

On the armrest near each Passenger Oxygen Mask:

PULL TAPE FOR OXYGEN MASK ➡ or ⬅ **PULL TAPE FOR OXYGEN MASK**

By the ashtray near each seat:

DO NOT SMOKE WHILE OXYGEN IN USE

Near the optional coat rail in the baggage compartment:

MAX COAT RAIL 5 kg / 11 lb

On the forward cargo door frame:

INTERIOR CODE:
EX - 6S-2
(SEE AFM/POH SECTION 6)

120165

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

PLACARDS - 8 SEAT EXECUTIVE (Interior Code EX-8S) and a 6 SEAT EXECUTIVE AND 2 SEAT CORPORATE COMMUTER (Interior Code EX-6S-STD-2S)

The cabin placards, the 6 seat executive placards and the following replacement/additional placards are required for this interior.

Near seats 5, 6, 7 and 8:

LEAVE THIS SEAT VACANT DURING TAKEOFF AND LANDING UNLESS SEAT IN FRONT IS OCCUPIED

On the forward cargo door frame:

INTERIOR CODE: EX - 8S (SEE AFM/POH SECTION 6)	or	INTERIOR CODE: EX - 6S - STD - 2S (SEE AFM/POH SECTION 6)

On the armrest near Passenger Oxygen Mask for seats 7 and 8:

PULL TAPE FOR OXYGEN MASK ➡	or	⬅ PULL TAPE FOR OXYGEN MASK

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

PLACARDS - 4 SEAT EXECUTIVE AND 4 SEAT CORPORATE COMMUTER (Interior Code EX-4S-STD-4S)

The cabin placards, the 6 seat executive placards and the following placard is required for this interior.

INTERIOR CODE: EX - 4S - STD - 4S (SEE AFM/POH SECTION 6)

On the armrest near Passenger Oxygen Mask for seats 7 and 8:

PULL TAPE FOR OXYGEN MASK ➡	or	⬅ PULL TAPE FOR OXYGEN MASK

120166

PLACARDS - 4 SEAT EXECUTIVE AND A THREE SEAT BENCH (Interior Code EX-4S-3B).

The cabin placards, the 6 seat executive placards and the following replacement/additional placards are required for this interior.

On the rear of seats 3 and 4:

OXYGEN MASK LOCATED UNDER YOUR SEAT

FOR TAKEOFF AND LANDING
-FASTEN SEAT LAP AND SHOULDER BELT
-SEAT BACK MUST BE FULLY UPRIGHT

or

FOR TAKEOFF AND LANDING
- SEAT BACK MUST BE FULLY UPRIGHT
- ADJUST HEADREST TO SUPPORT HEAD
- FASTEN SEAT LAP AND SHOULDER BELT

Near to the left bench seat on the arm rest:

LEFT PART OF BENCH SEAT MUST BE
FULLY AFT DURING THE ENTIRE FLIGHT

On the left side of the bench seat:

LEFT PART OF BENCH SEAT MUST BE
FULLY AFT DURING THE ENTIRE FLIGHT

When the large baggage net is installed:

MAX BAGGAGE LOAD = 225 kg / 500 lb
(ONLY IF BAGGAGE NET 525.25.12.026 IS INSTALLED)

On the forward cargo door frame:

INTERIOR CODE:
EX - 4S - 3B
(SEE AFM/POH SECTION 6)

120167

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

SECTION 3

EMERGENCY PROCEDURES

CONTENTS

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

EMERGENCY PROCEDURES

3.1 GENERAL

The recommended action to be taken in case of failure or in emergency situations are contained in this section. Some situations require rapid action, leaving little time to consult the emergency procedures. Prior knowledge of these procedures and a good understanding of the aircraft system is a prerequisite for safe aircraft handling.

KNOW YOUR AIRCRAFT AND BE THOROUGHLY FAMILIAR WITH IMPORTANT EMERGENCY PROCEDURES.

The emergency procedures use the terms " Land as soon as possible" and "Land as soon as practical". For the purpose of these procedures the meanings are as follows:

- Land as soon as possible – Land without delay at the nearest airport where a safe approach and landing is reasonably assured
- Land as soon as practical – Landing airport and duration of flight are at the discretion of the pilot. Extended flight beyond the nearest suitable airport is not recommended

Emergency procedures alone cannot protect against all situations. Good airmanship must be used in conjunction with the emergency procedures to manage the emergency. It is good practice during the emergency procedures, where CAWS annunciations are given, to check the circuit breaker panels to ensure there are no open circuit breakers related to the CAWS annunciation.

Unless detailed otherwise in the procedures, for circuit breakers on the Battery Bus, Avionic 1 Bus and 26V AC Bus which trip in flight:
One attempt only is allowed to reset the circuit breaker if the pilot in command determines that the system/equipment is needed for safe completion of that flight.
The open circuit breaker can be reset after at least one minute has elapsed since the circuit breaker trip and if there is no remaining smoke or burning smell.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

A. WARNING SYSTEMS:

The PC-12 is fitted with a comprehensive warning system.

The Central Advisory and Warning System (CAWS) contains:

RED WARNINGS which require immediate action.

AMBER CAUTIONS which advise that a system is not functioning or is an alert to a precautionary situation.

GREEN ADVISORIES which indicate a system is functioning.

Whenever a CAWS red or amber caption illuminates, the MASTER WARNING or CAUTION will illuminate. A voice callout will also be given with all red annunciations and an aural gong will sound with all amber annunciations.

The Engine Instrument System (EIS) contains:

Red warnings and amber caution annunciators to advise of out of limit parameters on the engine display. The relevant parameter display will blink at defined rates.

Whenever an EIS red warning or amber caution illuminates the MASTER WARNING or CAUTION will also illuminate.

B. AURAL WARNINGS

Aural warnings are provided to warn of an aircraft or flap overspeed, stall conditions and possible landing gear-up approach to landing. When the autopilot is engaged, aural warnings also indicate the approach to, or deviation from, selected altitude and/ or autopilot disconnects or system failures.

Voice call outs are also provided to warn of a stall condition, decision height reached and an engine warning condition.

CAWS and EIS warnings and cautions will remain illuminated as long as the initiating condition exists. The MASTER WARNING and CAUTION lamps should be pressed to reset them for further failures once the failure is identified.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

3.2 AIRSPEEDS FOR EMERGENCY OPERATIONS

All airspeeds shown are with airplane in clean configuration under ISA conditions.

A. Operating Maneuvering Speed (V_O):

9921 lb (4500 kg)	158 KIAS
9480 lb (4300 kg)	155 KIAS
9039 lb (4100 kg)	151 KIAS
8380 lb (3800 kg)	145 KIAS
7940 lb (3600 kg)	141 KIAS
7500 lb (3400 kg)	137 KIAS
7060 lb (3200 kg)	133 KIAS
6610 lb (3000 kg)	129 KIAS
6170 lb (2800 kg)	124 KIAS
5730 lb (2600 kg)	120 KIAS

B. Best Glide (Propeller feathered):

9921 lb (4500 kg)	114 KIAS
9039 lb (4100 kg)	110 KIAS
8380 lb (3800 kg)	106 KIAS
7720 lb (3500 kg)	102 KIAS
7060 lb (3200 kg)	97 KIAS
6400 lb (2900 kg)	93 KIAS

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C. Landing Approach Speeds with ice accretion on the airframe:

After failure of:	Minimum Approach Speed:
Pneumatic Deice Boots (flap position limit 0°)	130 KIAS
AOA Probe Deice and/or	108 KIAS
Pitot and Static Probe Deice and/or	108 KIAS
Pusher Ice Mode (flap position limit 15°)	105 KIAS

D. Balked Landing (Go Around)

After failure of:

Pneumatic Deice Boots (flap position limit 0°)	
(TO/Pwr, flaps 0°, Pusher Ice Mode)	130 KIAS

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3.3 REJECTED TAKEOFF (Not engine related)

1.	**PCL**	**Idle**
2.	**Reverse**	**As required**
3.	**Braking**	**As required**

If the aircraft cannot be stopped on the remaining runway:

4.	**PCL**	**Idle**
5.	**CONDITION LEVER**	**CUT-OFF/FEATHER**
6.	**FUEL EMERG SHUT OFF**	**Press latch down (if installed) and pull lever up**
7.	**MASTER POWER switch**	**EMERGENCY OFF**
8.	**After the aircraft has stopped**	**Evacuate.**

CAUTION

A REJECTED TAKEOFF MAY CAUSE OVERHEATING OF WHEEL AND BRAKE ASSEMBLY COMPONENTS. THE MAIN WHEELS AND BRAKES SHOULD BE INSPECTED FOR DAMAGE IN ACCORDANCE WITH THE RESPECTIVE COMPONENT MANUALS BEFORE THE NEXT FLIGHT.

END

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

3.4 ENGINE FAILURE

3.4.1 ENGINE FAILURE BEFORE ROTATION

1. **PCL** — **Idle**
2. **Braking** — **As required**

If runway overrun or collision is likely, then:

3. **CONDITION LEVER** — **CUT-OFF/FEATHER**
4. **FUEL EMERG SHUT OFF** — **Press latch down and pull lever up**
5. **MASTER POWER switch** — **EMERGENCY OFF**
6. **After the aircraft has stopped** — **Evacuate.**

END

3.4.2 ENGINE FAILURE AFTER ROTATION - LANDING GEAR DOWN

If partial power loss refer to 3.4.4.

If total power loss:

1. **If altitude is not sufficient to select a runway or field.** — **Land straight ahead, turning only to avoid obstructions**
2. **Flaps** — **40°**
3. **Final Approach Speed** — **84 KIAS**
4. **PCL** — **Idle**
5. **CONDITION LEVER** — **CUT-OFF/FEATHER**
6. **FUEL EMERG SHUT OFF** — **Press latch down and pull lever up**

After touch down:

7. **MASTER POWER switch** — **EMERGENCY OFF**
8. **After the aircraft has stopped** — **Evacuate.**

END

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3.4.3 ENGINE FAILURE AFTER ROTATION - LANDING GEAR UP

If partial power loss refer to 3.4.4.

If total power loss:

1.	**Landing Gear**	**DOWN**
2.	**NON ESS OVRD switch (Overhead Panel)**	**NON ESS OVRD**
3.	**Flaps**	**40°**
4.	**Final Approach Speed**	**98 KIAS Flaps 15°** **84 KIAS Flaps 40°**
5.	**PCL**	**Idle**
6.	**CONDITION LEVER**	**CUT-OFF/FEATHER**
7.	**FUEL EMERG SHUT OFF**	**Press latch down and pull lever up**

After touch down:

8.	**MASTER POWER switch**	**EMERGENCY OFF**

END

3.4.4 ENGINE FAILURE IN FLIGHT - PARTIAL POWER LOSS

Indications: Uncommanded engine power reduction.
No response to PCL movement.

1.	**PCL**	**Idle**
2.	**Manual Override Lever**	**Pull upwards and move slowly forward until engine responds, wait and let engine stabilize**

If engine compressor stalls and/or ITT exceeded:

3.	**Manual Override Lever**	**Retard and move very slowly forward**

If engine falls below 50% Ng:

4.	**STARTER switch**	**Push for 2 seconds**

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CAUTION

WHEN THE STARTER SWITCH IS PUSHED ON AIRCRAFT WITH A SINGLE BATTERY INSTALLED, THE AUTOPILOT MAY DISENGAGE AND THE AHRS AND EFIS MAY GO OFF-LINE.

5. **Manual Override Lever** — **Move forward to required power (Ng > 80%)**

6. **Land as soon as practical**.

CAUTION

WHEN MOR IS IN OPERATION, DO NOT PERMIT NG TO FALL BELOW 65% AND OBSERVE ENGINE LIMITATIONS.

7. **In descent and until touch down maintain at least 75% Ng.**

WARNING

DEPENDING ON AIRFIELD CONDITIONS AND AIRCRAFT WEIGHT AND CONFIGURATION, THE AVAILABLE POWER MIGHT NOT BE SUFFICIENT TO ENSURE A GO AROUND.

8. **Touch down,**
   CONDITION LEVER — **CUT-OFF/FEATHER**

WARNINGS

DO NOT MOVE PCL AFT OF IDLE DETENT.

TOTAL LANDING DISTANCE IS INCREASED BY A FACTOR OF 2.

CAUTION

DO NOT USE MOR ON GROUND FOR TAXIING.

NOTE

For complete MOR description and operation refer to Section 7 Engine – Controls - Manual Override Lever.

END

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3.4.5 ENGINE FAILURE IN FLIGHT – TOTAL POWER LOSS

1.	PCL	Idle
2.	CONDITION LEVER	CUT-OFF/FEATHER
3.	Remaining fuel	Check
4.	Air start	(refer to Sect. 3.5)
5.	If above 13500 ft, make an emergency descent	(refer to Sect. 3.8)
6.	If engine air start is not successful, make a forced landing	(refer to Sect. 3.9)

END

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3.5 AIR START

3.5.1 AIR START ENVELOPE

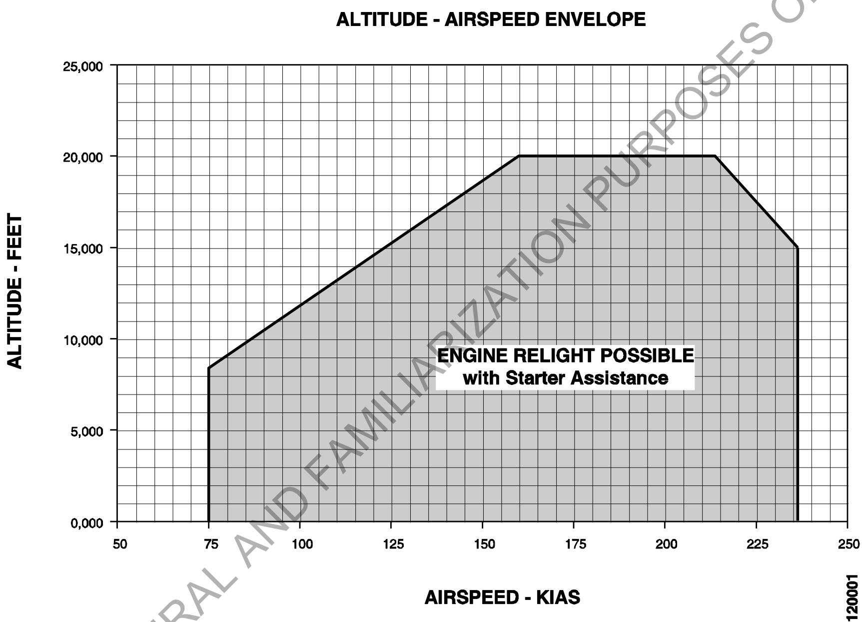

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Figure 3-1. Relight Envelope

3.5.2 AIR START - WITH STARTER

WARNING

DO NOT ATTEMPT MORE THAN ONE AIR START. REPEATED AIR START ATTEMPTS COULD DISCHARGE THE BATTERY TO A LEVEL THAT WOULD NOT BE ABLE TO SUPPORT ESSENTIAL ELECTRICAL SERVICES.

1. PCL	**Idle**
2. CONDITION LEVER	**CUT-OFF/FEATHER**
3. FUEL EMERG SHUT OFF	**Full in**
4. ♦ Electrical loads	**Reduce**
5. ♦ ECS	**OFF**
6. GEN 2 then GEN 1 switches	**OFF**
7. BATT 1 switch **BATT 2 switch**	**ON** **ON (if 2nd battery installed)**
8. Air start envelope	**Check**

CAUTION

ON AIRCRAFT WITH A SINGLE BATTERY INSTALLED AN AIR START WILL GIVE A TRANSIENT DC VOLTAGE DROP, CAUSING THE AUTOPILOT TO DISENGAGE AND THE EFIS AND AHRS TO GO OFF-LINE. THE AHRS WILL LOSE ITS REFERENCE, FORCING THE SYSTEM TO REALIGN, WHEN THE VOLTAGE IS RESTORED. DURING THIS PERIOD THE AIRCRAFT SHOULD BE FLYING STRAIGHT AND LEVEL.

9. STARTER switch	**Push for 2 seconds**
10. IGNITION switch	**ON**
11. CONDITION LEVER (NG >13%)	**GROUND IDLE**
12. ITT and Ng	**Monitor**

When engine has relit Ng >60%:

13. IGNITION switch	**AUTO**
14. CONDITION LEVER	**FLIGHT IDLE**
15. GEN 2 then GEN 1 switches	**ON**
16. Electrical Equipment	**As required**
17. ECS	**AUTO**

NOTE

Items marked thus: ♦ may be omitted if time is short.

END

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3.6 ENGINE EMERGENCIES

3.6.1 OIL PRESSURE

Indications: EIS Caution oil blinking 40/min. (after 20 secs, EIS warning oil blinking 80/min). Oil Px 60 to 90 PSI:

1. **Ng** — **Check above 72 %**
2. **Torque** — **Reduce to below 24 PSI**
3. **Aircraft** — **Land as soon as practical.**

Indications: EIS caution oil blinks 40/min and/or EIS warning oil blinks 80/min. Oil Px below 60 PSI or above 135 PSI

4. **Aircraft** — **Land as soon as possible using minimum torque. If possible always retain glide capability to the selected landing area in case of total engine failure.**

END

3.6.2 OIL TEMPERATURE

Indications: EIS caution oil blinking 40/min. or EIS warning oil blinking 80/min oil temp above 105°C.

1. **PCL** — **Reduce power.**

If oil temperature does not return to normal:

2. **Landing gear** — **DOWN**
3. **Land as soon as practical.**

END

3.6.3 OIL CONTAMINATION CAWS CHIP

Indication: CAWS CHIP caution

A. ON GROUND:

Before engine start:

1. **Do not start engine**

After engine start or after landing.

2. **Return to parking area.**
3. **Shut down engine.**
4. **Inspect chip detector(s) and engine, if required.**

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B. IN FLIGHT

1. Check and monitor engine parameters
2. Reduce power to minimum required for safe flight

3. Land as soon as practical

After landing:

4. Inspect chip detector(s) and engine, if required.

END

3.6.4 OIL QUANTITY ON GROUND

Indication: CAWS OIL QTY warning caption (only on ground, before engine start and voice callout “Warning, Oil” 60 seconds after shutdown)

1. Servicing required as per POH Section 4.3.4.B step 10.

END

3.6.5 OIL CONTAMINATION EIS CHIP

Indication CHIP caption continuous on EIS

1. Check and monitor engine parameters.

2. Reduce power to minimum required for safe flight.

3. Land as soon practical.

After landing:

4. Inspect engine (P&WC EMM) and reset EIS.

Indication CHIP caption blinking on EIS

1. Check CAWS CHIP caution is not on.

2. Push EIS TEST and note failure code.

3. Continue flight.

After landing:

4. Inspect ODM.

END

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3.6.6 PROPELLER - LOW PITCH

Indications: CAWS PROP LOW P warning caption and voice callout "Warning, Prop Low Pitch". Possible excessive propeller speed or height loss.

1. **PCL** — **Ensure forward of idle detent.**

If it is not possible to maintain speed and height:

2. **CONDITION LEVER** — **CUT-OFF/FEATHER**
3. **Carry out emergency descent (Sect. 3.8) and landing (Sect. 3.9)**

END

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3.6.7 PROPELLER - OVERSPEED

Indications: EIS caution and prop digits blinking 40/min
or
EIS and Master Warning, prop digits blinking 80/min.
Propeller speed above 1760 RPM.

1. **PCL** — **Reduce power**
2. **Aircraft speed** — **Reduce**

If NP remains between 1760 and 1870 RPM:

3. **Continue flight, at low speed, using minimum possible power.**

If NP is above 1870 RPM:

1. **PCL** — **Reduce power (to idle if necessary)**
2. **Aircraft speed** — **Reduce to 120 KIAS or below**
3. **Aircraft** — **Land as soon as possible, using minimum power. If possible always retain glide capability, to the selected landing airfield, in case of total engine failure.**

In the event of heavy vibration or uncontrolled speed runaway, be prepared to shut down engine.

4. **CONDITION LEVER** — **CUT-OFF/FEATHER**
5. **Aircraft** — **Descent (Sect. 3.8) and landing (Sect. 3.9) procedures.**

END

3.6.8 PROPELLER - UNDERSPEED

A. IN FLIGHT

Indications: EIS caution, propeller digits blink 40/min
Propeller speed below 1640 RPM

1. PCL	**Increase power**
2. Aircraft speed	**Increase**

B. ON GROUND

Indications: EIS caution, prop digits blink 40/min.
Prop speed below 950 RPM.
or
EIS and Master Warning, prop digits blink 80/min.
Prop speed below 950 RPM more than 10 seconds.

1. PCL	**Retard PCL aft of Idle Detent or Increase power until NP is above 950 RPM.**

END

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3.6.9 ENGINE TORQUE

Indications: EIS caution and torque digits blinking 40/min, or
EIS warning and torque digits blinking 80/min.

1. **TORQUE** — **Check torque indication**

If torque above 44.3 psi:

2. **PCL** — **Reduce power**

If torque warning remains:

3. **Aircraft** — **Land as soon as possible, using minimum power. If possible always retain glide capability, to the selected landing airfield, in case of total engine failure**

END

3.6.10 ENGINE ITT

Indications: EIS caution and ITT digits blinking 40/min, or
EIS warning and ITT digits blinking 80/min.

1. **ITT** — **Check ITT indication**

If ITT above 800° C:

2. **PCL** — **Reduce power**

If ITT warning remains:

3. **Aircraft** — **Land as soon as possible, using minimum power. If possible always retain glide capability, to the selected landing airfield, in case of total engine failure**

END

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3.6.11 ENGINE NG

Indication: EIS caution and NG digits blinking 40/min, or
EIS warning and NG digits blinking 80/min.

1. NG — **Check NG % indication**

If NG is above 104%:

2. PCL — **Reduce power**

3. Aircraft speed — **Reduce to 120 KIAS or below**

4. Aircraft — **Land as soon as possible, using minimum power. If possible always retain glide capability, to the selected landing airfield, in case of total engine failure**

If NG is below 60%:

5. PCL — **Increase power**

6. Aircraft speed — **Increase**

If engine does not respond to PCL inputs:

7. Aircraft — **Carry out Engine Failure in Flight – Partial Power Loss procedure (Sect. 3.4.4)**

END

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3.7 FIRE, SMOKE OR FUMES

3.7.1 ENGINE FIRE - ON GROUND

Indications: CAWS warning ENG FIRE and voice callout “Fire, Fire, Fire”. Possible smoke and/or fumes.

1. PCL	**Idle**
2. CONDITION LEVER	**CUT-OFF/FEATHER**
3. ECS EMER shut off	**Pull**
4. Fuel EMER shut off	**Press latch down and pull lever up**
5. Radio	**Emergency call**
6. Electrical Power	**EMERGENCY OFF (use MASTER POWER switch)**
7. Parking brake	**OFF (if possible)**
8. Aircraft	**Evacuate**
9. Fire	**Extinguish**

END

3.7.2 ENGINE FIRE - IN FLIGHT

Indications: CAWS warning ENG FIRE and voice callout “Fire, Fire, Fire”. Possible smoke and/or fumes.

1. Engine Power	**Reduce to minimum acceptable according to flight situation.**
2. ECS EMER shut off	**Pull**
3. Oxygen masks	**ON (all aircraft occupants)**

Procedure to put on the crew oxygen masks:

a. **Remove the normal headset.**
b. **Put the oxygen mask on.**
c. **Put the normal headset back on.**
d. **MSN 321 and 401-500 (Pre SB 23-004):**
   - **Disconnect the normal headset boom microphone connector from the MIC connector on the sidewall.**
   - **Connect the oxygen mask microphone connector to the MIC connector on the sidewall.**
e. **Post SB 23-004 and MSN 501 & UP:**
   - **Set MASK/MIC switch on the sidewall to MASK.**

4. Passenger Oxygen selector	**ON**
5. Confirm that fire exists	

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6.	**Fuel EMER shut off**	**Press latch down and pull lever up**
7.	**CONDITION LEVER**	**CUT-OFF/FEATHER**

8. **Carry out emergency descent (Sect. 3.8) and/or emergency landing (Sect. 3.9) procedures.**

END

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3.7.3 COCKPIT/CABIN FIRE, SMOKE OR FUMES AND SMOKE EVACUATION

1. **Oxygen masks** — **ON (all occupants)**

   Procedure to put on the crew oxygen masks:

   a. **Remove the normal headset.**
   b. **Put the oxygen mask on.**
   c. **Put the normal headset back on.**
   d. **MSN 321 and 401-500 (Pre SB 23-004):**
      - **Disconnect the normal headset boom microphone connector from the MIC connector on the sidewall.**
      - **Connect the oxygen mask microphone connector to the MIC connector on the sidewall.**

   e. **Post SB 23-004 and MSN 501 and UP:**
      - **Set MASK/MIC switch on the sidewall to MASK.**

2. **Crew Oxygen** — **100%**
3. **PASSENGER OXYGEN selector** — **ON**
4. **Passengers** — **Instruct to don masks**
5. **Aircraft** — **Initiate descent to below 10,000 ft or to minimum safe altitude if higher**
6. **Aircraft** — **Proceed to nearest Airfield**

If smoke evacuation is required

   a. **ECS EMERG shut off** — **PULL**
   b. **CABIN PRESS switch** — **DUMP**

   When cabin differential pressure is zero:

   c. **DV window** — **Open**
   d. **FANS** — **ON**

7. **Fire Extinguisher** — **Use if required**

As soon as time permits and source is known electrical:

8. **Associated electrical equipment** — **Off (pull circuit breakers)**

WARNING

DO NOT PULL THE FOLLOWING CIRCUIT BREAKERS ASSOCIATED WITH THE AUXILIARY HEATING SYSTEM:

COND CTL (Non Essential bus / Panel RH front-L3)
CABIN FAN (Generator 1 bus / Panel RH front-D1)
U/F FAN (Generator 2 bus / Panel LH rear-X3)

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If smoke/fumes still persist and source is suspected electrical:

9. BUS TIE CB (overhead panel)	**Pull**
10. GEN 2 TIE CB (overhead panel)	**Pull**
11. GEN 1 / BATT 2 (if installed)	**OFF**

If smoke/fumes persists and source is suspected electrical:

12. GEN 1	**ON**
13. GEN 2	**OFF**

If smoke/fumes persists and source is suspected electrical:

14. GEN 2	**ON**
15. BATT 1	**OFF**

If smoke/fumes persists and In VMC conditions:

16. All electrical power	**OFF**

END

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3.8 EMERGENCY DESCENT

3.8.1 GENERAL

The type of emergency descent will depend on the kind of failure and the aircraft situation.

Two types of descent are considered:

1. Engine failure, aircraft flown for maximum range.
2. Engine running, maximum descent rate.

   The factors to be considered are:

   i) Cabin altitude and oxygen duration.

   ii) Electrical power endurance.

   iii) Distance to suitable landing area.

   iv) Flight conditions IMC, VMC, ICING.

   v) Minimum safe altitude.

   vi) Fuel reserves.

The pilot must consider the situation and priorities and adjust his actions accordingly.

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3.8.2 MAXIMUM RANGE DESCENT - AFTER ENGINE FAIL – SINGLE BATTERY

1.	**PCL**	**Idle**
2.	**CONDITION LEVER**	**CUT-OFF/FEATHER (to feather propeller)**
3.	**Aircraft configuration**	**Landing gear UP and flaps to 0°.**

CAUTION

IF LANDING GEAR AND OR FLAPS ARE EXTENDED GLIDE RANGE WILL BE SEVERELY REDUCED. RETRACTING LANDING GEAR AND FLAPS WILL REDUCE BATTERY ENDURANCE SIGNIFICANTLY AND MAY PREJUDICE SUBSEQUENT FLAPS LOWERING. AHRS AND EIS MAY FAIL DURING LANDING GEAR/FLAP OPERATION.

4.	**Speed**	**114 KIAS for 9921 lb (4500 kg) (for best glide speed see para 3.2.B) (In icing conditions 134 KIAS)**
5.	**All occupants**	**Check seat lap and shoulder belts are fastened and the lap belt tightened.**
6.	**Oxygen masks**	**Prepare. Put on before cabin altitude exceeds 10,000 ft.**

Procedure to put on the crew oxygen masks:

a. **Remove the normal headset.**
b. **Put the oxygen mask on.**
c. **Put the normal headset back on.**
d. **MSN 321 and 401-500 (Pre SB 23-004):**
   - **Disconnect the normal headset boom microphone connector from the MIC connector on the sidewall.**
   - **Connect the oxygen mask microphone connector to the MIC connector on the sidewall.**

e. **Post SB 23-004 and MSN 501 and UP:**
   - **Set MASK/MIC switch on the sidewall to MASK.**

7.	**Passenger Oxygen**	**AUTO. Check contents. Calculate Oxygen duration and check flow to PAX.**
8.	**Electrical load**	**Monitor battery amps and reduce load as follows:**
a.	**External lights**	**All OFF or as required**
b.	**De-ice systems**	**In icing conditions, all OFF – except probes**
c.	**Internal lights**	**All OFF, if flying at night – instrument panel and cockpit flood lights as required**

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d.	**Nav/Com 2**	**Off**
e.	**ADF**	**Off**
f.	**Transponder**	**Off if radar communication is not required**
g.	**Wx Radar**	**Off, if in IMC – as required**

If time permits, pulling the following CB's will assist to reduce electrical load:

RMI 1	Avionics 1 bus / Panel LH rear-V2
AHRS 2 (if installed)	Avionics 1 bus / Panel LH rear-Z1
	and
	Avionics 2 bus / Panel RH rear-Z1
EFIS 2 EHSI (if installed)	Avionics 1 bus / Panel LH rear-X2
RMI 2 (if installed)	Avionics 2 bus / Panel RH rear-V2
EFIS 2 EADI (if installed)	Avionics 2 bus / Panel RH rear-Y2
LH PITOT DE ICE	Generator 1 bus / Panel RH front-K1

NOTE

During extended glide period engine low oil quantity warning may appear - disregard for air start.

9.	**Engine**	**restart soon as possible (if applicable) refer to Sect 3.5 – perform only one start attempt.**

If engine restart was not successful or not applicable:

10.	**Rate of descent**	**Adjust to achieve cabin altitude of 10,000 ft before oxygen supply exhausted.**

Below 10,000 ft:

11.	**Windshield heat**	**When required, to HEAVY (uses less current than LIGHT)**
12.	**ECS EMER shut off**	**Pull (cabin ventilation)**

For forced landing (Sect. 3.9.2).

END

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3.8.3 MAXIMUM RANGE DESCENT - AFTER ENGINE FAIL – DUAL BATTERY

1. PCL	**Idle**
2. CONDITION LEVER	**CUT-OFF/FEATHER (to feather propeller)**
3. Aircraft configuration	**Landing gear UP and flaps to 0°.**

CAUTION

IF LANDING GEAR AND OR FLAPS ARE EXTENDED GLIDE RANGE WILL BE SEVERELY REDUCED. RETRACTING LANDING GEAR AND FLAPS WILL REDUCE BATTERY ENDURANCE SIGNIFICANTLY AND MAY PREJUDICE SUBSEQUENT FLAPS LOWERING. AHRS AND EIS MAY FAIL DURING LANDING GEAR/FLAP OPERATION.

4. Speed	**114 KIAS for 9921 lb (4500 kg) (for best glide speed see para 3.2.B) (In icing conditions 134 KIAS)**
5. Autopilot	**Engage NAV or HDG and IAS hold mode**
6. All occupants	**Check seat lap and shoulder belts are fastened and the lap belt tightened.**
7. Oxygen masks	**Prepare. Put on before cabin altitude exceeds 10,000 ft.**

Procedure to put on the crew oxygen masks:

a. **Remove the normal headset.**
b. **Put the oxygen mask on.**
c. **Put the normal headset back on.**
e. **MSN 321 and 401-500 (Pre SB 23-004):**
   - **Disconnect the normal headset boom microphone connector from the MIC connector on the sidewall.**
   - **Connect the oxygen mask microphone connector to the MIC connector on the sidewall.**

e. **Post SB 23-004 and MSN 501 and UP:**
   - **Set MASK/MIC switch on the sidewall to MASK.**

8. Passenger Oxygen	**AUTO. Check contents. Calculate Oxygen duration and check flow to PAX.**

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9. Electrical load	**Monitor battery amps and reduce load as follows:**
a. External lights	**All OFF or as required**
b. De-ice systems	**In icing conditions, all OFF – except probes**
c. LH PITOT DE ICE circuit breaker (Generator 1 bus / Panel RH front-K1)	**Pull**

CAUTION

MONITOR BAT 1 AND BAT 2 AMPS. IF ONE INDICATION IS POSITIVE, SWITCH OFF AFFECTED BATTERY. AFTER 5 MINS BATTERY CAN BE SWITCHED ON AGAIN. IF INDICATION STILL POSITIVE SWITCH BATTERY OFF.

NOTE

During extended glide period engine low oil quantity warning may appear - disregard for air start.

10. Engine	**Restart soon as possible (if applicable) refer to Sect 3.5 – perform only one start attempt**

If engine restart was not successful or not applicable:

11. Rate of descent	**Adjust to achieve cabin altitude of 10,000 ft before oxygen supply exhausted.**

Below 10,000 ft:

12. Windshield heat	**When required, to HEAVY (uses less current than LIGHT)**
13. ECS EMER shut off	**Pull (cabin ventilation)**

For forced landing (Sect. 3.9.2).

END

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3.8.4 MAXIMUM RATE DESCENT

1. **PCL** — **IDLE**
2. **Landing gear** — **Below 177 KIAS, down**
3. **Aircraft speed** — **M_{MO}/V_{MO}**
4. **All occupants** — **Check seat lap and shoulder belts are fastened and the lap belt tightened.**
5. **Oxygen masks** — **Prepare. Put on before cabin altitude exceeds 10,000 ft.**

   Procedure to put on the crew oxygen masks:

   a. **Remove the normal headset.**
   b. **Put the oxygen mask on.**
   c. **Put the normal headset back on.**
   f. **MSN 321 and 401-500 (Pre SB 23-004):**
      - **Disconnect the normal headset boom microphone connector from the MIC connector on the sidewall.**
      - **Connect the oxygen mask microphone connector to the MIC connector on the sidewall.**
   e. **Post SB 23-004 and MSN 501 and UP:**
      - **Set MASK/MIC switch on the sidewall to MASK.**

6. **Passenger Oxygen** — **AUTO. Check contents. Calculate Oxygen duration and check flow to PAX.**

CAUTION

IN TURBULENCE REDUCE SPEED TO 170 KIAS

7 . **Windshield heat** — **As required**

END

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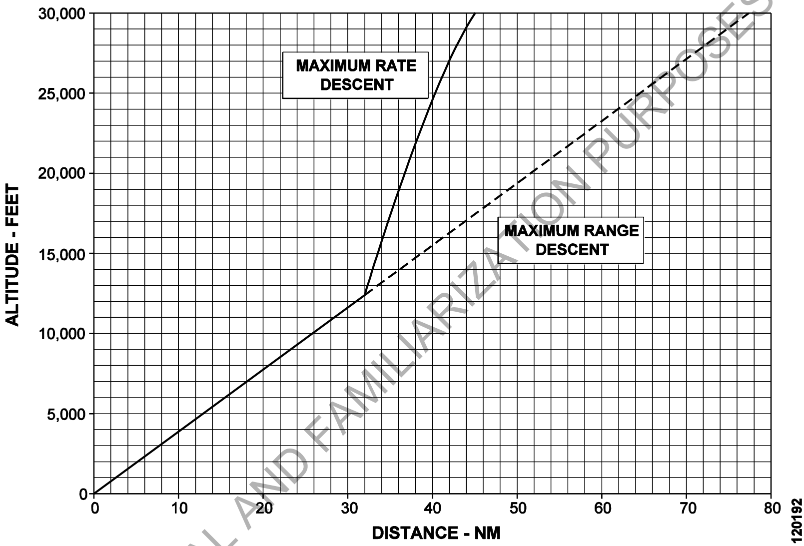
EMERGENCY DESCENT PROFILES



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3.9 EMERGENCY LANDING

3.9.1 GLIDE DISTANCE AND SPEED

Configuration:

1.	**Landing gear**	**UP**
2.	**Flaps**	**0°**
3.	**CONDITION LEVER**	**CUT-OFF/FEATHER**
4.	**Best glide speed**	**114 KIAS for 9921 lb (4500 kg) (for best glide speed see para 3.2.B)**

NOTE

A fully loaded battery will last as follows:

- 60 Amps for 20 minutes.
- 50 Amps for 30 minutes.

NOTE

Two fully loaded batteries (if installed) will last as follows:

- 60 Amps for 40 minutes.
- 50 Amps for 60 minutes.

END

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3.9.2 FORCED LANDING (ENGINE CUT-OFF/FEATHER)

1. PCL	**Idle**
2. CONDITION LEVER	**CUT-OFF/FEATHER**
3. FUEL EMERG SHUT OFF	**Pull**
4. Electrical load	**Reduce**
5. CABIN PRESS switch	**DUMP**
6. Best glide speed	**114 KIAS for 9921 lb (4500 kg) (for best glide speed see para 3.2.B)**
7. Seat backs	**Upright**
8. Seat belts	**Fastened. Tighten lap straps**
9. Passengers	**Brief. Instruct to sit upright**

If landing site allows:

10. Landing gear	**DOWN**

Use hand pump until 3 greens appear.

If landing site not suitable for gear down landing:

11. Keep landing gear	**UP**
12. Flaps	**40°**

NOTE

To silence the flap aural warning pull the AUDIO circuit breaker (Battery bus / Panel LH front-F3).

13. Final approach speed	**84 KIAS**

After touch down:

14. Electrical Power	**EMERGENCY OFF (use MASTER POWER switch)**

15. Evacuate aircraft after stop

END

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

3.9.3 LANDING WITH MAIN LANDING GEAR UNLOCKED

1. Confirm landing gear position by control tower or other aircraft.

CAUTION

IF ONE MAIN LANDING GEAR IS NOT DOWN, IT IS RECOMMENDED TO LAND WITH GEAR UP.

If failed gear is down but not locked:

2. Fuel weight	**Reduce**
3. Passengers	**Brief**
4. Flaps	**40°**
5. Final approach speed	**84 KIAS**
6. Touchdown	**Gently, avoid sideslip during touchdown**

7. Lower nose wheel immediately to maintain lateral control.

8. Use full aileron during roll-out. -- To lift the wing with the failed landing gear.

9. PCL	**Idle**
10. CONDITION LEVER	**CUT-OFF/FEATHER**
11. Electrical Power	**EMERGENCY OFF (use MASTER POWER switch)**

12. Evacuate aircraft after stop

13. Do not taxi the aircraft before deficiency is rectified.

END

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

3.9.4 LANDING WITH NOSE LANDING GEAR UNLOCKED

1. Passengers	Brief
2. Flaps	40°
3. Final approach speed	84 KIAS
4. Land on main wheels, keep nose high.	
5. CONDITION LEVER	CUT-OFF/FEATHER
6. Electrical Power	EMERGENCY OFF (use MASTER POWER switch)
7. Lower nose wheel slowly	
8. Avoid braking	
9. Evacuate aircraft after stop.	

END

3.9.5 LANDING WITH GEAR UP

1. Passengers	Brief
2. Approach	Standard
3. Flaps	40°
4. Final approach speed	84 KIAS
5. CABIN PRESS Switch	DUMP

When runway is assured:

6. PCL	Idle
7. CONDITION LEVER	CUT-OFF/FEATHER
8. FUEL EMERG SHUT OFF	Pull
9. Flare out	

After touch down:

10. Electrical Power	EMERGENCY OFF (use MASTER POWER switch)
11. Evacuate aircraft after stop	

END

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

3.9.6 LANDING WITHOUT ELEVATOR CONTROL

1.	**Passengers**	**Brief**
2.	**Landing gear**	**Down**
3.	**Flaps**	**40°**
4.	**Final approach speed**	**90 KIAS**

5. Set power as necessary to maintain speed and 300 to 500 ft rate of descent.

6. Use stab trim to adjust pitch.

When closing to ground:

7. Reduce Rate of Descent by increasing pitch and/or power.

8. Reduce power progressively.

WARNINGS

STALLS ARE NOT PROTECTED WITH THE STICK PUSHER INOPERATIVE.

STALLS MUST BE AVOIDED WHEN THE STICK PUSHER IS INOPERATIVE. EXCESSIVE WING DROP AND ALTITUDE LOSS MAY RESULT DURING STALL WITH FLAPS DOWN AND/OR WHEN POWER IS APPLIED.

END

3.9.7 LANDING WITH IMMOBILIZED HORIZONTAL STABILIZER

1.	**IAS**	**Fly at IAS which reduces elevator forces to minimum.**
2.	**Flaps**	**At a safe altitude select flap required for landing.**
3.	**Land**	**Land using normal procedures holding elevator forces.**

END

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

3.9.8 LANDING WITHOUT FLAPS

1.	**Proceed as for normal approach**	
2.	**Landing gear**	**DOWN**
3.	**Final approach speed**	**118 KIAS**
4.	**Landing**	**Normal**
5.	**Braking**	**As required**
6.	**Reverse**	**As required**

NOTE

Landing distance will increase by 80%

END

3.9.9 DITCHING

1.	**Landing gear**	**UP**

Heavy swell with light wind, ditch parallel to the swell. Strong wind, ditch into the wind.

2.	**Passengers**	**Brief**
3.	**Flaps**	**40°**
4.	**Final approach speed**	**84 KIAS**
5.	**CABIN PRESS switch**	**DUMP**
6.	**Ditch with a low rate of descent.**	
7.	**Electrical Power**	**EMERGENCY OFF (use MASTER POWER switch)**
8.	**Evacuate through the overwing emergency exit only.**	

END

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

3.10 LANDING GEAR/HYDRAULIC SYSTEM FAILURE

3.10.1 LANDING GEAR FAILS TO RETRACT

Indications: All Landing Gear Indicator Lights do not extinguish.

If CAWS N ESNTL BUS caution is ON

1. **Refer to electrical failure (Sect. 3.15)**

If CAWS HYDR Caution is ON

2. **Refer to emergency gear lowering (Sect. 3.10)**

END

3.10.2 HYDRAULIC SYSTEM FAILURE

A. ON GROUND:

CAWS HYDR caution continuously illuminated:

1. **Aircraft** **Requires maintenance.**

NOTE

If no maintenance facility is available:

The pilot shall visually check the areas around the nose and the two main landing gear actuators for signs of hydraulic fluid leakage. A visual check shall also be done along the belly of the aircraft and in the area of the left hand-hand wing to fuselage fairing. The preflight inspection of the hydraulic system per section 4 of the POH has to be carried out as well. If no irregularities are found and the hydraulic caution is not illuminated anymore after an electrical power cycle, further flight is possible without limitations.

B. IN FLIGHT:

CAWS HYDR caution continuously illuminated:

1. **HYDR CTL circuit breaker (Non Essential bus / Panel RH front-A3)** **Pull**
2. **Airspeed** **< 177 KIAS**

NOTE

After 200 minutes, landing gear may start to extend.

3. **Before landing refer to emergency extension (Sect 3.10.3)**

END

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

3.10.3 EMERGENCY EXTENSION

Indications: Incorrect Indication on landing gear indicator lights. Red unlocked lights on and/or green lights not illuminated.

1. Airspeed	**110 KIAS**
2. Landing gear selector	**DOWN**

If 3 green lights not illuminated within 30 sec:

3. Hand pump	**Activate. Use full strokes, pump until 3 green lights are illuminated.**

NOTE

Complete lowering takes about 80 strokes.

If 3 green lights still not illuminated:

4. Yaw the aircraft left and right to lock the main landing gear.

5. Airspeed reduce to minimum safe to improve nose gear locking.

If 3 green lights illuminated:

6. Aircraft	**Land**

If not successful refer to emergency landing (Sect. 3.9.5)

END

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

3.11 FLAPS FAILURE

A. ON GROUND

Indication: CAWS FLAPS caution illuminated - means flap system failed

1. FLAP circuit breaker (Battery bus / Panel LH front-M2)	**Check. If tripped, wait 5 minutes, reset (max. 2 attempts) and continue normal operation if caption goes off.**

If not tripped:

2. FLAP RESET switch (on maintenance panel, right sidewall behind copilot seat)	**Push (max. 1 attempt)**

If unsuccessful:

3. Aircraft	**No flight permitted, maintenance action required.**

B. IN FLIGHT

Indication: CAWS FLAPS caution illuminated - means flap system failed

1. FLAP circuit breaker (Battery bus / Panel LH front-M2)	**Check. If tripped, wait 5 minutes, reset (max. 2 attempts) and continue normal operation.**

If unsuccessful:

2. Aircraft	**Land with flaps at the failed position.**

END

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

C. FAILURE IN FLIGHT - WITH POTENTIAL FLAP ASYMMETRY

Indication: CAWS FLAPS caution illuminated shortly followed by PUSHER caution illuminating and voice callout “Flap Asymmetry Detected, Pusher Safe Mode” - means flap system failed and stick pusher remains available in ‘safe’ mode

1. **Airspeed** — **Reduce to below 120 KIAS for indicated flaps position 30° or greater.**
2. **Aircraft** — **Land as soon as practical with flaps at the failed position.**

NOTE

The approach speed must be increased for indicated flap position 12° or greater. No speed increase is needed if the flap position is less than 12°.

3. **Approach** — **For indicated flaps position 12° or greater, use EADI Angle of Attack display at the fast diamond.**

NOTE

Landing distance will increase.

END

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

3.12 STICK PUSHER FAILURE

Indication: CAWS PUSHER caution illuminated

A. ON GROUND:

1. Pusher Test **Carry out**

If pusher caution persists:

2. Aircraft **No flight permitted, requires maintenance.**

B. IN FLIGHT:

1. Pusher Test **Carry out**

If Shaker 1 and 2 active and PUSHER caution extinguished:

2. No further action required.

If Shaker 1 or 2 not active or PUSHER caution persists:

WARNING

THE AIRCRAFT IS NOT STALL PROTECTED.

3. Airspeed not below 1.3 Vs

Flaps 0°	**118 KIAS**
Flaps 15°	**98 KIAS**
Flaps 30°	**89 KIAS**
Flaps 40°	**84 KIAS**

WARNING

STALLS MUST BE AVOIDED WHEN THE STICK PUSHER IS INOPERATIVE. EXCESSIVE WING DROP AND ALTITUDE LOSS MAY RESULT DURING STALL WITH FLAPS DOWN AND/OR WHEN POWER IS APPLIED.

CAUTION

STALL SPEEDS IN TURNS ARE HIGHER.

END

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3.13 INADVERTENT PUSHER/SHAKER OPERATION

3.13.1 PUSHER

Indication: Non-commanded pusher operation, rapid nose pitch-down motion.

NOTE

Control wheel force to stop pusher operation is 60 to 65 pounds.

1.	**Control wheel**	**HOLD against pusher action**
2.	**PUSHER INTR switch**	**PRESS and HOLD**
3.	**PUSHER SYS circuit breaker (Battery bus / Panel LH front-B3)**	**Pull**
4.	**If shaker continues to operate**	**Carry out the Inadvertent Shaker Operation (Sect. 3.13.2)**

WARNING

THE AIRCRAFT IS NOT STALL PROTECTED

5.	**Airspeed not below 1.3 Vs**	**Flaps 0°**	**118 KIAS**
		Flaps 15°	**98 KIAS**
		Flaps 30°	**89 KIAS**
		Flaps 40°	**84 KIAS**

WARNINGS

NATURAL STALLS ARE NOT PREVENTED WITH THE STICK PUSHER INOPERATIVE.

STALLS MUST BE AVOIDED WHEN THE STICK PUSHER IS INOPERATIVE. EXCESSIVE WING DROP AND ALTITUDE LOSS MAY RESULT DURING STALL WITH FLAPS DOWN AND/OR WHEN POWER IS APPLIED.

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CAUTION

STALL SPEEDS IN TURNS ARE HIGHER.

AOA MAY NOT BE RELIABLE

6. Pusher Test	**Carry out to check shaker availability.**

If shaker 1 or 2 not active:

WARNING

APPROACHES TO STALLS ARE NOT WARNED AND NATURAL STALLS ARE NOT PREVENTED WITH THE STICK SHAKER INOPERATIVE.

END

3.13.2 SHAKER

Indication: Non-commanded shaker operation (automatic autopilot disconnect).

1. AOA	**Decrease**
2. IAS	**Increase**

If shaker continues to operate:

3. STALL WARN UNIT 1 circuit breaker (Battery bus / Panel LH front-J2)	**Pull**
4. STALL WARN UNIT 2 circuit breaker (Generator 1 bus / RH front-J2)	**Pull**

WARNING

THE AIRCRAFT IS NOT STALL PROTECTED

5. Airspeed not below 1.3 Vs	**Flaps 0°**	**118 KIAS**
	Flaps 15°	**98 KIAS**
	Flaps 30°	**89 KIAS**
	Flaps 40°	**84 KIAS**

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WARNINGS

APPROACHES TO STALLS ARE NOT WARNED AND NATURAL STALLS ARE NOT PREVENTED WITH THE STICK SHAKER INOPERATIVE.

STALLS MUST BE AVOIDED WHEN THE STICK PUSHER IS INOPERATIVE. EXCESSIVE WING DROP AND ALTITUDE LOSS MAY RESULT DURING STALL WITH FLAPS DOWN AND/OR WHEN POWER IS APPLIED.

CAUTION

STALL SPEEDS IN TURNS ARE HIGHER.

AOA MAY NOT BE RELIABLE.

END

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3.14 ELECTRICAL TRIM

3.14.1 TRIM RUNAWAY

Indication: Uncommanded trim operation, rapidly increasing out of trim forces and/or pitch trim runaway medium pitch warning tone.

1. **TRIM INTERRUPT switch** **INTR**

If CAWS A/P TRIM green advisory caption and/or A/P trim light on triple trim indicator is on:

- **A. A/P CB (Avionic 2 bus / Panel RH rear-R2)** **Pull**
- **B. Trim Interrupt Switch** **NORM**
- **C. Aircraft** **Trim as required**

If CAWS A/P TRIM green advisory caption and/or A/P trim light on triple trim indicator is not on:

2. CB of failed trim PULL

NOTE

STAB TRIM on Battery bus / Panel LH front-A1
AIL TRIM CBs on Battery bus / Panel LH front-B1
STAB ALTERN on Generator 1 bus / Panel RH front-A1
RUD TRIM CBs on Generator 1 bus / Panel RH front-B1

3. TRIM INTERRUPT switch NORM

NOTE

Reduce speed if control forces are high.

If main stabilizer trim has failed:

4. Pitch trim Use ALTERNATE STAB TRIM.

NOTE

The autopilot will disconnect when TRIM INTERRUPT is operated.

END

3.14.2 STABILIZER TRIM

Indication: CAWS red STAB TRIM warning and voice callout "Warning, Trim" / ON ground only.

1. Stabilizer trim Set for take-off.

END

3.14.3 NO MAIN STABILIZER TRIM

1. TRIM INTERRUPT Check at NORM

2. ALTERNATE STAB TRIM Operate as reqd

END

3.14.4 NO STABILIZER TRIM, MAIN OR ALTERNATE

1. Carry out LANDING WITH IMMOBILIZED HORIZONTAL STABILIZER procedure (refer to Sect. 3.9.7)

END

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3.15 ELECTRICAL SYSTEM FAILURES

3.15.1 ELECTRICAL POWER LOSS

Indication: Loss of electrical power

1. MASTER POWER switch	**Check ON and guarded**
2. BATT and GEN switches	**Check ON**

If indication remains:

3. Aircraft	**Land as soon as possible**

END

3.15.2 ESNTL BUS

CAWS ESNTL BUS warning and voice callout ”Warning Essential Bus, Battery” or Warning Essential Bus, Generator 1” or Warning Essential Bus, Generator 2”.

Indicates that the BATT, GEN 1 or GEN 2 BUS volts is below 22 V.

1. OVERHEAD PANEL	**Identify the failure**
2. Battery indication flashing, Affected BATT switch	**OFF**
3. Bus is off-line	**Continue flight without service of failed BUS:**

A. Battery Bus Fail:
Battery 1 Bus Fail: **Do not fly in icing conditions**
(If second battery installed)

1. INVERTER switch	**GEN 1**
2. EFIS CMPST switch	**Operate if required**

NOTE

Operation of the EFIS CMPST switch with the autopilot engaged, will cause the autopilot to disengage.

3. Pitch Trim	**Use alternate**

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4 **Aircraft** — **Descend below 12,500'**

5. **Land as soon as possible.**

CAUTION

THE FOLLOWING SYSTEMS ARE INOPERATIVE:

- Engine Start/relight
- Stick pusher
- Propeller feather
- Landing gear Indications
- Fire detection
- Fuel quantity sensing
- Standby attitude (operative with EPS option)
- Fuel pump LH
- Air/ground system
- Internal + external lights (partial)
- ECS
- Main pitch trim
- Aileron trim
- AOA plate heaters

END

B. GEN 1 BUS FAIL

1. **INVERTER switch** — **BATT**
2. **EFIS CMPST switch** — **Operate if required**
3. **Aircraft** — **Do not fly in icing conditions**

CAUTION

THE FOLLOWING SERVICES ARE INOPERATIVE:

- Auto pilot (pitch modes)
- Auto fuel pump and fuel quantity measuring system
- Alternate pitch trim
- RH fuel pump
- Rudder trim
- Oxygen contents
- Air/ground system
- Internal + External lights (partial)
- Inertial separator
- AOA plate heaters

END

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C. GEN 2 BUS FAIL

1. **Aircraft** — **Do not fly in icing conditions**

CAUTION

THE FOLLOWING SERVICES ARE INOPERATIVE:

- Wing deice
- LH Windshield heat
- Taxi light
- Wing inspection light
- Cabin electrical heater
- AOA vane heaters
- Pitot/static heating system

END

3.15.3 BAT HOT CAWS CAUTION

Indicates that the battery temperature is excessive.

1. **Overhead Panel** — **Identify the battery overtemp (If second battery installed)**
2. **Battery charge current** — **Check**

If charge current high:

3. **Affected BATT switch** — **OFF (Do not select ON again)**

If charge current normal:

4. **Affected BATT switch** — **OFF**

If BAT HOT caption extinguishes, wait 5 minutes then:

5. **Affected BATT switch** — **ON (Once only)**

NOTE

The BAT HOT caution is inoperative on aircraft with a lead acid battery or two lead acid batteries installed.

END

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3.15.4 GEN 1 OFF CAWS CAUTION

Indicates that GEN 1 is OFF line.

NOTE

N ESNTL BUS caution will also illuminate.

A. If engine not running:

1. Engine	**Air start, refer to Para. 3.5.2**

B. If engine running:

1. GEN 1 Master switch	**Confirm ON**
2. GEN 1 reset	**Press**
3. GEN 1 Master switch	**ON**

If GEN 1 does reset:

4. Aircraft	**Continue flight. Report on landing**

If GEN 1 does not reset:

5. STARTER circuit breaker (Battery bus / Panel LH front-G1)	**PULL. Do not reset**

NOTE

The engine starting is inoperative if the STARTER CB is pulled.

6. GEN 1 Master switch	**Confirm ON**
7. GEN 1 reset	**Press**
8. GEN 1 Master switch	**ON**

If GEN 1 does reset:

9. Aircraft	**Land as soon as practical**

If GEN 1 does not reset:

10. Electrical load	**Reduce until battery current is positive (not discharging)**
11. EIS	**Monitor DC AMPS GEN 2**
12. Overhead panel	**Monitor DC AMPS BAT, ensure battery is not discharging**
13. Aircraft	**Land as soon as practical**

Services on the NON ESSENTIAL BUS are automatically switched OFF.

14 Before landing refer to landing gear emergency lowering (Sect. 3.10)

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CAUTION

THE FOLLOWING SERVICES ARE INOPERATIVE:

- Hydraulic Control (Landing Gear)
- Vent Fans
- Flood Fans
- Cabin Reading Lights
- Cabin Flood Light 100%
- Landing Light (RH)
- Auxiliary Heating System
- Cooling System
- Cabin Services
- AOA Heater Plates

END

3.15.5 GEN 2 OFF CAWS CAUTION

1. GEN 2 master switch	**Confirm ON**
2. GEN 2 master switch	**OFF then ON**

If GEN 2 does not RESET:

3. Overhead Panel	**Confirm GEN 2 BUS failure, indicator off. (GEN 1 supplies GEN 2 BUS).**
4. Overhead panel	**Check DC AMPS BAT positive/monitor**

5. Continue flight - Report on landing.

END

3.15.6 BAT OFF CAWS CAUTION

1. Overhead Panel	**Identify BAT 1 or BAT 2 loss (If second battery installed)**
2. Affected BATT switch	**Confirm ON**
3. Overhead Panel	**Confirm BAT BUS failure indicator extinguished. (GEN 1 supplies BAT BUS).**
4. Overhead panel	**Monitor DC VOLTS, DC AMPS**

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5. **Continue flight - Report on landing.**

If BAT OFF CAWS caution remains on:

6. **Continue flight - Report on landing.**

CAUTION

NO ENGINE RELIGHT POSSIBLE

NOTE

If a CAWS BAT OFF caution occurs at the same time as an Engine Power loss, the STBY BUS switch can be selected ON. This will provide electrical power to the GPS, Com/NAV 1 and Audio System if Battery 1 holds sufficient charge.

END

3.15.7 INVERTER CAWS CAUTION and/or RMI flag

1. **Overhead panel**	**Select alternate inverter**

2. **CONTINUE FLIGHT - REPORT ON LANDING.**

END

3.15.8 BUS TIE CAWS CAUTION

1. **EIS**	**Check GEN 1, GEN 2 for normal volts/amps.**
2. **Overhead panel**	**Check BATT1 and BATT 2 indicators (If second battery installed)**

NOTE

GEN 1 bus and AVIONIC 2 bus supplied from GEN 1.

If normal amps indicated and no other electrical cautions or warning illuminated:

3. **BUS TIE circuit breaker (overhead panel)**	**Reset (one attempt only)**

If no reset:

4. **Continue flight using remaining electrical services.**

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5. **GEN 2** — **Reduce load until battery current is positive (not discharging)**

END

3.15.9 AV BUS CAWS WARNING and voice callout “Warning, Avionics Bus”

Indicates Avionics Bus 1 or 2 voltage below 22 V

1. **Overhead Panel** — **Identify failed AVIONIC BUS**
2. **Overhead panel AV 1 and AV 2 switches** — **Confirm set to ON**
3. **If AV 1 bus failed** — **Set the STBY BUS switch to ON. The GPS, VHF Com/Nav and audio will then be operative.**
4. **EFIS CMPST switch** — **CMPST (if required)**

NOTE

Operation of the EFIS CMPST switch with the autopilot engaged will cause the autopilot to disengage.

5. **Continue flight without the services of the failed bus.**

END

3.15.10 N ESNTL BUS CAWS CAUTION

Normally indicates automatic load shedding after GEN 1 failure.

A. If GEN 1 OFF, caution is illuminated - refer to GEN 1 OFF (Sect. 3.15.4)

B. If GEN 1 charge current is positive:

1. **NON ESS OVRD switch** — **OVRD**
2. **N ESNTL BUS Caution** — **OFF**

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3. **Report failure after landing.**

CAUTION

A FULLY CHARGED BATTERY WILL LAST FOR 20 MINUTES IF THE LOAD IS REDUCED BELOW 60 AMPS OR FOR 30 MINUTES IF THE LOAD IS REDUCED BELOW 50 AMPS.

TWO FULLY CHARGED BATTERIES (IF INSTALLED) WILL LAST FOR 40 MINUTES IF THE LOAD IS REDUCED BELOW 60 AMPS OR FOR 60 MINUTES IF THE LOAD IS REDUCED BELOW 50 AMPS.

END

3.15.11 BATTERY CAWS CAUTION

Indicates an increase in battery current discharge or a high battery voltage.

1.	**Overhead panel**	**Check BATT 1 and BATT 2 indicators, identify affected battery (If second battery installed)**
2.	**Affected BATT switch**	**OFF**
3.	**Wait 5 minutes then:**	
4.	**BATT switch**	**ON (once only)**

END

3.16 ENGINE INSTRUMENT SYSTEM (EIS) FAILURE

Indication: Torque or ITT suspect, frozen or blank.

1. **EIS MENU button** **Press**

Digital readouts of ITT and Torque will replace the normal digital OAT °C and ENDUR hours and minutes readouts on the EIS Display.

Indication: Any indication other than Torque or ITT frozen or blank.

1. **No action possible. Land as soon as practical.**

If ITT or Ng indication inoperative, set torque as required - not to exceed value in the appropriate Torque Chart in the Performance Section.

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Pre/Post flight inspection:

Indication: EIS caution light blinking or any indication blank.

1.	**EIS TEST switch**	**Press** **Note failure code**

END

PARAMETER OUT OF RANGE ACTION:

RED	ACTION:
Torque	See Sect. 3.6 - Engine emergencies
ITT	See Sect. 3.6 - Engine emergencies
Gas GEN RPM (NG)	See Sect. 3.6 - Engine emergencies
Oil Temperature	See Sect. 3.6 - Engine emergencies
Oil Pressure	See Sect. 3.6 - Engine emergencies
Propeller RPM (NP)	See Sect. 3.6, Engine emergencies
DC Volts	Check electrical system status

AMBER	ACTION:
Torque	See Sect. 3.6, Engine emergencies
ITT	See Sect. 3.6, Engine emergencies
Gas GEN RPM (NG)	See Sect. 3.6, Engine emergencies
Oil Temperature	See Sect. 3.6 - Engine emergencies
Oil Pressure	See Sect. 3.6 - Engine emergencies
Propeller RPM (NP)	See Sect. 3.6, Engine emergencies
DC Volts	Check electrical system status
DC AMPS	Check electrical system status. Reduce load below 60 A (20 min) Reduce load below 50 A (30 min)
OAT	Switch ON "Probes Deice"

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3.17 FUEL SYSTEM

3.17.1 LOW FUEL PRESSURE

Indication: - FUEL PRESS CAWS caution, and/or

- CAWS Advisory FUEL PUMP cycling on and off every 10 seconds

1.	**Power**	**Reduce to minimum to sustain flight**
2.	**FUEL PUMPS**	**ON**
3.	**Fuel state**	**Monitor**

If there are 2 segments or more difference between the left and right:

4.	**FUEL PUMP (emptier side)**	**AUTO**
5.	**Fuel state**	**Monitor**

When fuel balanced:

6.	**FUEL PUMPS**	**ON**
7.	**Aircraft**	**Descend to warmer air**

NOTE

A possible cause is the fuel filter blocked with ice crystals.

8.	**FUEL PUMPS**	**AUTO**

If failure conditions remain:

9.	**FUEL PUMP(s)**	**ON**
10.	**Aircraft**	**Land as soon as possible. If possible always retain glide capability to the selected airfield in case of total engine failure**

END

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3.17.2 FUEL QUANTITY LOW

Indication: CAWS caution – L FUEL LOW or R FUEL LOW or L + R FUEL LOW

1. FUEL indications	**Check**

If fuel leak from one wing is suspected:

2. Aircraft	**Carry out suspected fuel leak procedure (Para 3.17.4)**

If no fuel leak is suspected and both fuel low quantity cautions are on:

3. FUEL PUMPS	**ON**
4. Power	**Reduce to minimum to sustain flight**
5. Aircraft	**Land as soon as possible. If possible always retain glide capability to the selected landing airfield, in case of total engine failure**

END

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3.17.3 AUTO FUEL BALANCING FAILURE

Indication: EIS analogue fuel gauges indicate 3 segments or more difference between left and right.

A. ON GROUND

1. **Fuel L and R indications** — **Check for difference**

WARNING

IF THERE ARE 4 SEGMENTS OR MORE DIFFERENCE BETWEEN LEFT AND RIGHT DO NOT TAKE OFF.

If Fuel pump on fuller side is not running:

2. **FUEL PUMP (fuller side)** — **ON**
3. **Fuel state** — **Monitor**

If difference cannot be balanced:

4. **Aircraft** — **Do not take off**

When fuel balanced:

5. **FUEL PUMP** — **AUTO**

END

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B. IN FLIGHT

1. Fuel L and R indications	**Check for difference**

CAUTION

IF THERE ARE 3 SEGMENTS OR MORE DIFFERENCE BETWEEN LEFT AND RIGHT, POSSIBLE AILERON DEFLECTION REQUIRED FOR WINGS LEVEL FLIGHT, ESPECIALLY AT LOW SPEED.

If fuel leak from one wing is suspected:

2. Aircraft	**Carry out Suspected Fuel Leak procedure (Sect. 3.17.4)**

If no fuel leak is suspected:

3. FUEL PUMP CB (on fuller side) (Battery bus / Panel LH front-F1 or Generator 1 bus / Panel RH front-F1)	**Reset**
4. FUEL PUMP (fuller side)	**ON**
5. FUEL PUMP CB (on emptier side) (Battery bus / Panel LH front-F1 or Generator 1 bus / Panel RH front-F1)	**Pull**
6. Fuel state	**Monitor.**

If difference cannot be balanced:

7. Aircraft	**Land as soon as possible**

NOTE

If a prompt landing is not possible, keep high IAS to nearest airfield and consider burning off fuel until the fuel imbalance is not greater than 5 segments for landing. Use flaps up to keep approach speed high

If fuel is balanced:

8. FUEL PUMP CBs (Battery bus / Panel LH front-F1 or Generator 1 bus / Panel RH front-F1)	**Reset**
9. FUEL PUMPS	**AUTO.**

END

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

3.17.4 SUSPECTED FUEL LEAK

1.	**FUEL PUMP (on leaking side)**	**ON**
2.	**FUEL PUMP CB (on good side)** **(Battery bus / Panel LH front-F1** **or Generator 1 bus / Panel RH front-F1)**	**Pull**
3.	**Fuel state**	**Monitor**

If fuel imbalance (3 segments or more):

4.	**Aircraft**	**Land as soon as possible**

NOTE

If a prompt landing is not possible, keep high IAS to nearest airfield and consider burning off fuel until the fuel imbalance is not greater than 5 segments for landing. Use flaps up to keep approach speed high.

END

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

3.17.5 LOSS OF FUEL QUANTITY INDICATION

CAUTION

THE AUTOMATIC FUEL BALANCING SYSTEM MAY NOT BE OPERATIVE.

If fuel imbalance is suspected:

NOTE

To check fuel imbalance, disengage the autopilot regularly to check for roll trim changes.

1. **Aircraft** **Land as soon as possible**

END

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

3.17.6 FUEL PUMP FAILURE

Indication:

- Fuel pump(s) on for more than 10 seconds with fuel balanced and no CAWS FUEL PRESS caution, or
- Both fuel pumps on for more than 10 seconds with 2 or more segments difference between left and right and no CAWS FUEL PRESS caution, or
- Fuel pump(s) not on with the CAWS PUMP advisory caption(s) on.

1. **FUEL PUMP(s)** — **AUTO**
2. **FUEL CTL circuit breaker (Generator 1 / Panel RH front-G1)** — **Reset**
3. **LH FUEL PUMP circuit breaker (Battery bus / Panel LH front-F1)** — **Reset**
4. **RH FUEL PUMP circuit breaker (Generator 1 bus / Panel RH front-F1)** — **Reset**

If failure still present:

5. **Fuel state** — **Monitor**

If fuel imbalance:

6. **Aircraft** — **Carry out Fuel Balance procedure refer to 3.17.3.**

END

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

3.18 CABIN CONDITIONING FAILURES

3.18.1 CABIN PRESSURIZATION FAILURE

Indication: CAWS CAB PRESS warning and voice callout “Warning, Cabin pressure”

1. Pressure Indication:	**Check**
A. If CAB P > 5.75 PSI:	
1. Cabin Altitude Selector	**Check correct setting**
2. Manual control valve	**Operate to reduce pressure differential to required level**

If unsuccessful:

3. ECS switch	**OFF**
4. ECS EMERG shut off	**Pull**
5. Oxygen masks	**ON**

Procedure to put on the crew oxygen masks:

a. **Remove the normal headset.**
b. **Put the oxygen mask on.**
c. **Put the normal headset back on.**
d. **MSN 321 and 401-500 (Pre SB 23-004):**
   - **Disconnect the normal headset boom microphone connector from the MIC connector on the sidewall.**
   - **Connect the oxygen mask microphone connector to the MIC connector on the sidewall.**
e. **Post SB 23-004 and MSN 501 and UP:**
   - **Set MASK/MIC switch on the sidewall to MASK.**

6. PASSENGER OXYGEN valve	**AUTO/ON**
7. Passengers	**INSTRUCT to don masks**
8. Emergency descent	**Refer to Sect. 3.8.**

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

B. If cab. alt. > 10,000 ft:

1. Oxygen masks	**ON**

Procedure to put on the crew oxygen masks:

a. Remove the normal headset.
b. Put the oxygen mask on.
c. Put the normal headset back on.
d. MSN 321 and 401-500 (Pre SB 23-004):
- **Disconnect the normal headset boom microphone connector from the MIC connector on the sidewall.**
- **Connect the oxygen mask microphone connector to the MIC connector on the sidewall.**

e. Post SB 23-004 and MSN 501 and UP:
- **Set MASK/MIC switch on the sidewall to MASK.**

2. PASSENGER OXYGEN valve	**AUTO/ON**
3. Passengers	**INSTRUCT to don masks**
4. ECS switch	**Check AUTO**
5. CABIN PRESS switch	**Check AUTO**
6. Manual control valve	**Confirm fully closed.**

If unsuccessful:

7. Limit flight altitude to maintain cabin altitude < 10,000 ft.

8. If necessary carry out emergency descent.

END

3.18.2 TEMPERATURE CONTROL SYSTEM FAILURE

1. ECS switch	**MAN**
2. TEMPERATURE MAN switch	**HOT or COLD as required**
3. TEMPERATURE MAN switch	**Control should be adjusted following each change in engine power, to prevent air temperature limits being exceeded.**

END

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

3.18.3 ECS FAILURE

Indication: CAWS ECS caution

1. ECS circuit breaker (Battery bus / Panel LH front-H3)	**CHECK. Reset if tripped**

If problem remains, reset the ECS:

2. ECS switch	**OFF**
3. ECS switch	**AUTO**

If unsuccessful:

4. ECS SWITCH	**OFF**
5. ECS EMERG shut off	**Pull**

If aircraft alt. > 10,000 ft:

6. Oxygen masks	**ON**

Procedure to put on the crew oxygen masks:

- **a. Remove the normal headset.**
- **b. Put the oxygen mask on.**
- **c. Put the normal headset back on.**
- **d. MSN 321 and 401-500 (Pre SB 23-004):**
  - **Disconnect the normal headset boom microphone connector from the MIC connector on the sidewall.**
  - **Connect the oxygen mask microphone connector to the MIC connector on the sidewall.**
- **e. Post SB 23-004 and MSN 501 and UP:**
  - **Set MASK/MIC switch on the sidewall to MASK.**

7. PASSENGER OXYGEN valve	**AUTO/ON**
8. Passengers	**INSTRUCT to don masks**
9. Emergency descent	**Refer to Sect. 3.8.**

END

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

3.19 DEICE SYSTEMS

3.19.1 PROPELLER DEICE FAILURE IN ICING CONDITIONS

Indication: PROP DE ICE CAWS caution

WARNING

THE LOSS OF PROPELLER DEICE IN ICING CONDITIONS CAN CAUSE SEVERE DEGRADATION IN AIRCRAFT SPEED AND CLIMB PERFORMANCE.

1.	**PROP switch**	**Push to OFF and wait 10 seconds**
2.	**PROP switch**	**Push to ON**
3.	**PROP DE ICE circuit breakers (Battery bus / Panel LH front-C2 and Generator 1 bus / Panel RH front-J1)**	**Check. Do not reset unless tripped**

If captions return to normal operation after 5 seconds:

4.	**Aircraft**	**Continue flight and monitor system**

If captions stay in failure status after 5 seconds:

5.	**PROP switch**	**Maintain ON (together with INERT SEP OPEN) to maintain PUSHER ICE MODE**
6.	**Aircraft**	**DEPART ICING CONDITIONS to positive IOAT atmosphere, if possible**

If propeller vibration occurs:

7.	**PCL**	**Increase or decrease power as required to minimize vibration and sustain level flight**
8.	**Aircraft**	**Avoid further icing conditions**

If propeller vibration continues or attained performance degrades:

9.	**Aircraft**	**Land as soon as possible.**

END

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

3.19.2 BOOT DEICE FAILURE IN ICING CONDITIONS

Indication: DE ICE BOOTS CAWS caution with DE ICE BOOTS CAWS advisory OFF

WARNING

A BOOT DEICE FAILURE IN ICING CONDITIONS CAN CAUSE DEGRADATION OF AIRCRAFT SPEED AND CLIMB PERFORMANCE AND A PREMATURE STALL. FLAP POSITION IS LIMITED TO 0° WITH THIS FAILURE.

1.	**BOOTS switch**	**Push to OFF and wait 1 minute**
2.	**PCL**	**Increase power**
3.	**BOOTS switch**	**Push to ON**
4.	**BOOTS DE ICE circuit breaker (Generator 2 bus / Panel LH rear-U3)**	**Check. Do not reset unless tripped.**

If captions return to normal operation:

5.	**Aircraft**	**Continue flight and monitor system. Avoid low power settings if possible**

If captions stay in failure status:

6.	**Aircraft**	**DEPART ICING CONDITIONS to positive IOAT atmosphere, if possible**
7.	**BOOTS switch**	**Push to off**
8.	**Aircraft**	**Avoid large or sudden changes in aircraft directional, longitudinal and lateral control until airframe is judged to be free of residual ice.**
9.	**Aircraft**	**Avoid further icing conditions**

If airframe is free of ice accretion:

10.	**Landing approach**	**Flaps as required**

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

If airframe is not free of ice accretion:

11. Flap position	**Limited to 0°**
12. Landing approach	**Keep minimum landing approach speed above 130 KIAS. The total landing distance will be longer by up to 150%.**

CAUTION

ON LANDING APPROACH AFTER BOOT FAILURE (FLAPS 0°), THE EFIS AOA FAST SLOW POINTER WILL NOT BE CORRECT AND SHOULD NOT BE USED AS REFERENCE.

END

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

3.19.3 INERTIAL SEPARATOR FAILURE

Indication: INERT SEP CAWS caution

WARNINGS

AN INERTIAL SEPARATOR FAILURE IN ICING CONDITIONS CAN CAUSE DEGRADATION OF THE AIRCRAFT ENGINE PERFORMANCE (AN INCREASE IN ITT).

AN INERTIAL SEPARATOR FAILURE DURING OPERATIONS IN FOREIGN OBJECT DAMAGE ENVIRONMENTS (FOD) MAY CAUSE LONG TERM ENGINE DETERIORATION AND SHOULD BE REPORTED FOR POST FLIGHT MAINTENANCE.

1.	**INERT SEP switch**	**Push to off and wait 30 seconds**
2.	**INERT SEP switch**	**Push to OPEN**
3.	**INERT SEP circuit breaker (Generator 1 bus / Panel RH front-H1)**	**Check. Do not reset unless tripped.**

If caption returns to normal operation after 45 seconds:

4.	**Aircraft**	**Continue flight and monitor system**

If caption stays in failure status after 45 seconds:

5.	**INERT SEP switch**	**Maintain OPEN (together with PROP ON) to maintain PUSHER ICE MODE**
6.	**Aircraft**	**DEPART ICING CONDITIONS to positive IOAT atmosphere, if possible**
7.	**Aircraft**	**Avoid further icing conditions**

If any attained performance degradation continues:

8.	**Aircraft**	**Land as soon as possible.**

END

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

3.19.4 WINDSHIELD DEICE FAILURE IN ICING CONDITIONS

Indication: WSHLD HEAT CAWS caution

1.	**LH WSHLD circuit breaker (Generator 1 bus / Panel RH front-M2)**	**Check. Do not reset unless tripped.**
2.	**LH WSH switch**	**Push to off then ON again**
3.	**RH WSHLD circuit breaker (Generator 2 bus / Panel LH rear-W3)**	**Check. Do not reset unless tripped.**
4.	**RH WSH switch**	**Push to off then ON again**

If caption returns to normal operation:

5.	**Aircraft**	**Continue flight and monitor system**

If caption stays in failure status and forward visibility through LH windshield is lost:

6.	**Windshield**	**Use RH windshield**

If total forward visibility is lost:

7.	**Aircraft**	**DEPART ICING CONDITIONS to positive IOAT atmosphere, if possible. Interior fogging can be cleared by hand.**
8.	**Aircraft**	**Avoid further icing conditions**

If windshield has not cleared by time of landing:

9.	**Cabin pressure**	**Make sure depressurized**
10.	**DV window**	**Use, if required.**

END

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

3.19.5 AOA PROBE DEICE FAILURE IN ICING CONDITIONS

Indication: AOA DE ICE CAWS caution

WARNING

AN AOA PROBE DEICE FAILURE IN ICING CONDITIONS CAN CAUSE A FALSE ACTIVATION OF THE STALL PROTECTION SYSTEM.

1.	**LH AOA SENS DE ICE circuit breaker (Generator 2 bus / Panel LH rear-P3)**	**Check. Do not reset unless tripped**
2.	**RH AOA SENS DE ICE circuit breaker (Generator 2 bus / Panel LH rear-N3)**	**Check. Do not reset unless tripped**
3.	**AOA PLATE HEAT circuit breaker (Non Essential bus / Panel RH front-C3)**	**Check. Do not reset unless tripped**
4.	**PROBES switch**	**Push to off and wait 3 minutes**
5.	**PROBES switch**	**Push to ON**

If captions return to normal operation:

6.	**Aircraft**	**Continue flight and monitor system**

If captions stay in failure status:

7.	**Aircraft**	**DEPART ICING CONDITIONS to positive IOAT atmosphere, if possible**

CAUTION

STICK SHAKER MAY ACTIVATE AT HIGHER SPEEDS THAN NORMAL. IF THIS OCCURS, INCREASE SPEED UNTIL SHAKER STOPS.

8.	**Aircraft**	**Avoid further icing conditions**
9.	**Flap position**	**Limited to 15°**

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

10. Landing approach	**Keep minimum landing approach speed above 105 KIAS or shaker activation speed, whichever is highest. The total landing distance will be longer by up to 67%.**

CAUTION

WHEN LANDING WITH AOA DEICE FAILURE THE EFIS AOA FAST SLOW POINTER MAY NOT BE CORRECT AND SHOULD NOT BE USED AS REFERENCE.

END

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

3.19.6 PITOT AND STATIC PROBE DEICE FAILURE IN ICING CONDITIONS

Indication: PITOT 1 or PITOT 2 or STATIC CAWS caution

WARNING

A PITOT AND STATIC DEICE FAILURE IN ICING CONDITIONS CAN CAUSE AN INCORRECT INDICATION ON THE ASI AND/OR ALTIMETER AND VSI.

1. PROBES switch	**Push to off then ON again**
2. LH PITOT DE ICE circuit breaker (Generator 1 bus / Panel RH front-K1)	**Check. Do not reset unless tripped**
3. LH STATIC DE ICE circuit breaker (Generator 1 bus / Panel RH front-M1)	**Check. Do not reset unless tripped**
4. RH PITOT DE ICE circuit breaker (Generator 2 bus / Panel LH rear-S3)	**Check. Do not reset unless tripped**
5. RH STATIC DE ICE circuit breaker (Generator 2 bus / Panel LH rear-T3)	**Check. Do not reset unless tripped**

If caption returns to normal operation:

6. Aircraft	**Continue flight and monitor system**

If caption stays in failure status:

7. Autopilot	**Disconnect**
8. Aircraft	**DEPART ICING CONDITIONS to positive IOAT atmosphere, if possible**
9. Aircraft	**Avoid further icing conditions**
10. Aircraft	**Land as soon as practical**
11. Landing approach	**Use AoA based landing speed reference in EFIS (1.3 Vstall) with PUSHER ICE MODE and flaps 15°. The total landing distance will be longer by up to 67%.**

END

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

3.19.7 PUSHER ICE MODE FAILURE IN ICING CONDITIONS

Indication: PUSHER CAWS caution on with PUSHER ICE MODE CAWS advisory off.

WARNING

A FAILURE OF THE STALL WARNING/STICK PUSHER SYSTEM TO RE-DATUM TO ICE MODE WHEN IN ICING CONDITIONS CAN LEAVE THE AIRCRAFT UNPROTECTED AGAINST THE NATURAL STALL WITH RESIDUAL ICE ON THE AIRFRAME.

1. PUSHER test switch	**Press and hold for duration of Pusher test sequence (approx. 5 seconds) (this identifies Pusher ice mode computer or selection failure).**

If failure stays during test go to step 7

If failure disappears during test but returns after completion of test:

2. PROP switch	**Push to off then ON again**
3. INERT SEP switch	**Push to off then OPEN again**

If captions return to normal operation within 30 seconds:

4. Aircraft	**Continue flight and monitor system**
5. PROP DE ICE circuit breakers (Battery bus / Panel LH front-C2 Generator 1 bus / Panel RH front-J1)	**Check. Do not reset unless tripped**
6. INERT SEP circuit breaker (Generator 1 bus / Panel RH front-H1)	**Check. Do not reset unless tripped**

If caption stays in failure status:

7. Aircraft	**DEPART ICING CONDITIONS to positive IOAT atmosphere, if possible.**
8. Aircraft	**Avoid further icing conditions**
9. Flap position	**Limited to 15°**

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

10. Landing approach	**Keep minimum landing approach speed above 105 KIAS. The total landing distance will be longer by up to 67%**

CAUTION

WHEN LANDING WITH FAILED PUSHER ICE MODE, THE EFIS AOA FAST SLOW POINTER WILL NOT BE CORRECT AND SHOULD NOT BE USED AS REFERENCE.

END

3.20 MISCELLANEOUS

3.20.1 AIR GND

Indication — CAWS AIR/GND warning and voice callout “Warning, Air Ground”

Indicates the left and right weight on wheels switches give different indications.

A. ON GROUND - the following systems could be affected:

Stick shaker -Aural warning	Active
Pressurization	Cabin pressurizes to altitude on pressurization controller
Landing gear handle	Up selection possible, gear will retract.
Transponder	Can transmit on ground

B. IN FLIGHT - the following systems could be affected:

NOTE

Consider fuel and range before extending landing gear.

1. Landing gear	**Cycle DOWN, UP (once only)**
If no effect:	
Stick pusher	Inoperative
Landing gear handle solenoid	Goes to locked. Possible to lower gear but not to raise it.
Transponder	Set to ON or Altitude
Hydraulic Pump	Not operative with engine OFF

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

ECS	If ground idle selected, cabin will depressurize
Prop deice	Not operative with engine off.

The following CAWS captions will also be illuminated:

CAB PRESS	PROP LOW P	STAB TRIM
HYDR		

The EIS propeller caution and warnings may be incorrect.

END

3.20.2 PASSENGER AND CARGO DOOR

Indication: CAWS PASS DOOR or CAR DOOR warning and voice callout “Warning, Passenger Door” or “Warning, Cargo Door”:
Indicates that passenger or cargo door is not correctly locked.

A. ON GROUND:

1. **Visually check for the correct locking of the door latches (green indicators visible).**
2. **Passenger door - check the handle lock pin for freedom of movement.**

B. IN FLIGHT:

CAUTION

DO NOT ADJUST THE POSITION OF THE DOOR HANDLES IN FLIGHT.

1.	**All occupants**	**Check seat lap and shoulder belts are fastened and the lap belt tightened.**
2.	**Airspeed**	**Reduce to practical minimum**
3.	**Aircraft**	**Start a slow descent to 10,000 ft, or minimum safe altitude if higher**
4.	**Cabin Pressure**	**Set to landing field elevation + 500 feet**
5.	**Aircraft**	**Land as soon as practical**

END

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

3.20.3 CRACKED WINDOW IN FLIGHT

1.	All occupants	Check seat lap and shoulder belts are fastened and the lap belt tightened.
2.	Airspeed	Reduce IAS to practical minimum
3.	Aircraft	Start a slow descent to 10,000 ft, or to minimum safe altitude if higher
4.	Cabin Pressure	Set to landing field elevation +500 feet
5.	Aircraft	Land as soon as practical

NOTE

When left hand front windshield is cracked and the visibility is impaired, use direct vision window for landing.

END

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

3.20.4 ATTITUDE AND HEADING REFERENCE SYSTEM (AHRS) FAILURE

Indication: Attitude fail and/or heading fail ON EFIS.

A. Aircraft with single AHRS installation

NOTE

Failure of the AHRS will cause the autopilot to disengage.

1.	**Attitude and heading reference**	**Use standby attitude and compass**
2.	**Overhead panel**	**Check at least one avionic bus is powered**
3.	**LH WSH and RH WSH switches**	**OFF**
4.	**CABIN HEATING switch**	**OFF**
5.	**U/F HEATER circuit breaker (Generator 2 bus / Panel LH rear-Y3)**	**Pull**
6.	**FOOT HEATING switch (if installed)**	**OFF**
7.	**COOLING SYS switch (if installed)**	**OFF**
8.	**Aircraft**	**Fly wings level, constant speed**
9.	**AV 1 and AV 2 bus switches**	**Both OFF, wait 5 secs then both ON**
10.	**Aircraft**	**Maintain wings level, constant speed, pitch attitude 10° or less from level. Wait 1 min to see if system realigns.**

If no realignment continue flight using standby instruments.

NOTE

If a yaw rate sensor is installed the yaw rate reference is independent of AHRS function.

B. Aircraft with second AHRS installation

1.	**AHRS 1/AHRS 2 switch**	**Select AHRS 2**

NOTE

The autopilot can be re-engaged after AHRS selection.

END

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

3.20.5 EFIS FAILURE

Indication: DU goes blank.

1. EFIS CMPST switch **CMPST**

NOTE

Operation of the EFIS CMPST switch with the autopilot engaged, will cause the autopilot to disengage.

Indication: EFIS goes blank.

1. Use alternate instruments as required.

END

3.20.6 AIRSPEED AND/OR ALTITUDE INDICATION MALFUNCTION, PITOT / STATIC SYSTEM FAILURE

Indications: Incorrect Airspeed and/or Altitude and/or Vertical Speed Indication on ASI and/or Altimeter and VSI.

1. PROBES switch **Check ON**

If problem persists:

2. Airspeed and Altitude **Cross check instruments Airspeed and Altitude**

NOTE

The pilots instruments (including autopilot Air Data Computer) receive dynamic and static pressure from the RH pitot/static system, the copilot instruments and Standby Altimeter from the LH pitot/static system.

NOTE

A failed pitot static system may cause erroneous Altitude and Airspeed indications.

If erroneous system cannot be determined**:**

3. Pilot **Advise ATC that the aircraft could be somewhere between the two altitudes and the transponder altitude may be wrong.**

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

4.	**PCL**	**Set maximum cruise power torque and cross check resulting indicated airspeed from Max Cruise table (Section 5 page 46 onwards) against cockpit indications**
5.	**Pilot**	**If determined which system is correct, use the associated instruments.**
6.	**Aircraft**	**Land as soon as practical.**

If erroneous system cannot be determined**:**

A If Airspeed indication malfunctions:

1.	**Cruise and descent**	**Use only known power settings and aircraft attitudes**
2.	**Approach**	**Use AoA based landing speed reference in EFIS (1.3 Vstall) with PUSHER ICE MODE and flaps 15°.**
3.	**Aircraft**	**Land as soon as practical.**

NOTE

The total landing distance will be longer by up to 67%.

B. If Altitude indication malfunctions:

1. **Below 10,000 feet**

   a. **Cabin altitude selector** — **Depressurize aircraft by selecting actual aircraft altitude on outer scale.**

   When cabin pressure differential approaches 0:

   b. **CABIN PRESS switch** — **DUMP**

   c. **Use cabin altimeter to give approximate aircraft altitude**

2. **Aircraft** — **Land as soon as practical.**

END

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

3.20.7 WHEEL BRAKE FAILURE

Indications:	1)	Wheel brakes ineffective
	2)	Pedal excessively soft when pressed.

1. Landing + Taxi	**Use reverse power, BETA and Nose wheel steering.**

END

3.20.8 CAWS MALFUNCTION

Indication: CAWS FAIL caution on.

1. CAWS 1 circuit breaker (Battery bus / Panel LH front-L1)	**Pull open then push to reset.**
2. CAWS 2 circuit breaker (Generator 1 bus / Panel RH front-L1)	**Pull open then push to reset.**

END

3.20.9 UNIDENTIFIED WARNING TONE

Indication: Unidentified, medium pitch warning tone with no accompanying indications or effects.

1. Aircraft	**Confirm no other indication/effect (e.g., LDG unsafe tone or indication)**
2. Yoke Trim Engage switch	**Pull red trigger momentarily**

If tone is silenced:

3. STAB TRIM CB (Battery bus / Panel LH front-A1)	**Pull**
4. Trim runaway procedure	**Carry out procedure, 3.14.1.**

END

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

3.21 AUTOPILOT

3.21.1 CHECKLIST

The four step procedure listed under paragraph A should be among the basic airplane emergency procedures that are committed to memory. It is important that the pilot be proficient in accomplishing all four steps without reference to this manual.

A. Autopilot Malfunction (abrupt control and/or airplane motion, an A/P TRIM green CAWS advisory caption, or an **AP TRIM** CAWS warning annunciation with a voice callout “Warning, Autopilot Trim”).

Accomplish Items 1 and 2 simultaneously.

1. Airplane Control Wheel - **GRASP FIRMLY** and regain aircraft control.
2. Autopilot Disengage Switch - **PRESS** to disengage the autopilot (pilot or co-pilot wheel).
3. Aircraft - **RETRIM** manually as needed.
4. **AUTOPILOT** circuit breaker - **PULL.**
   (Avionic 2 bus / Panel RH rear-R2)

WARNING

DO NOT ATTEMPT TO RE-ENGAGE THE AUTOPILOT FOLLOWING AN AUTOPILOT OR AUTOTRIM MALFUNCTION.

Maximum Altitude losses due to autopilot malfunction:

Configuration	Alt Loss
Cruise, Climb, Descent	300 ft
Maneuvering	20 ft
APR 3° ILS	70 ft
APR 6° ILS	40 ft

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B. Autopilot Disengagement. The autopilot may be manually disengaged by any of the following methods:

1. Press the Autopilot Disengage switch on the pilot's or copilot's control wheel.
2. Actuate the airplane Electric Stabilizer Manual Trim Engage switch (momentary).
3. Press the autopilot (AP) mode selector switch (disengage).
4. Pull the **AUTOPILOT** circuit breaker (Avionic 2 bus / Panel RH rear-R2).
5. **AVIONICS MASTER 2** switch to the OFF position.

C. Airplane Stall - Automatic Autopilot disengagement will occur by the stall warning system if stick shaker speed is approached.

D. Aileron (amber ROLL) mistrim:

NOTE

In the case of an aileron out of trim force for longer than 6 seconds, a steady, yellow, ROLL annunciation will appear on the EADI. The annunciation will flash after 10 seconds if not attended to. Failure to retrim at this point may result in either roll forces exceeding the authority of the autopilot or a sharp rolling motion upon autopilot disconnect. Autopilot operation in the presence of a continuing roll annunciation should not be continued.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

3.21.2 AMPLIFIED MALFUNCTION PROCEDURES

The following paragraphs are presented to supply additional information for the purpose of providing the pilot with a more complete understanding of the recommended course of action for an emergency situation.

1. An autopilot or autopilot trim disengage occurs when there is an uncommanded deviation in the airplane flight path due to a system malfunction. In some cases, and especially for autopilot trim, there may be little to no airplane motion, yet the red **AP TRIM** annunciator may illuminate and the voice callout “Warning, Autopilot Trim” heard. The KFC 325 autopilot incorporates monitors that detect abnormal airplane motion, therefore, if the airplane for any reason is moved rapidly in pitch or roll the autopilot may be disconnected automatically.

   The main concern in reacting to an autopilot or autopilot trim malfunction, or to an automatic disconnect of the autopilot, is in maintaining control of the airplane. Immediately grasp the control wheel and press the Autopilot Disengage Switch. Manipulate the controls as required to safely maintain operation of the airplane within all of its operating limitations. Manual trim should be used as needed to relieve control forces.

   With the AP and YD mode OFF or disengaged, the servo motors are no longer connected to the airplane's flight controls; autopilot trim will also be isolated from the alternate pitch trim and rudder trim system. Finally, the AUTOPILOT circuit breakers must be pulled to completely disable these systems.

   WARNING

   DO NOT ATTEMPT TO RE-ENGAGE THE AUTOPILOT FOLLOWING AN AUTOPILOT/ AUTOTRIM MALFUNCTION UNTIL CORRECTIVE SERVICE ACTION HAS BEEN PERFORMED ON THE SYSTEM.

2. It is important that all portions of the autopilot system are preflight tested prior to each flight in accordance with the procedures published herein in order to assure their integrity and continued safe operation during flight. As a safety feature, autopilot functions cannot be engaged prior to successful completion of the preflight test (mode controller TEST), due to an integrated system lock-out.

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SECTION 4

NORMAL OPERATING PROCEDURES

CONTENTS

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

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NORMAL OPERATING PROCEDURES

4.1 GENERAL

This section provides the normal operating procedures. All of the procedures required by regulation as well as those procedures which have been determined as necessary for the operation of this airplane are provided.

Normal operating procedures associated with optional systems or equipment which require supplements are contained in Section 9, Supplements.

Pilots must familiarize themselves with these procedures to become proficient in the normal operation of the airplane.

It is recommended that these procedures be followed for the normal operation of the aircraft, however a Short Checklist has been produced on an easy to use card. When the aircraft has been in extended storage, had recent major maintenance or been operated from prepared unpaved surfaces the full preflight inspection procedure given in this section is recommended.

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4.2 AIRSPEEDS FOR NORMAL OPERATIONS

Airspeeds for normal operations are listed below. Unless otherwise noted, all airspeeds are based on a maximum takeoff weight of 9,921 lb (4,500 kg) at sea level under ISA standard day conditions.

Takeoff (V_R):	
Flaps 15°	79 KIAS
Flaps 30°	73 KIAS
Maximum Climb:	
Best Angle (V_X)	110 KIAS
Best Rate (V_Y) Flaps 0°:	
Up to 10,000 ft	120 KIAS
15,000 ft	115 KIAS
20,000 ft and above	110 KIAS
Recommended Climb Speed with Flaps retracted and Pusher Ice Mode	135 KIAS
Recommended Holding Pattern Speed Range for Flight into Known Icing Conditions with Flaps retracted	140 to 170 KIAS
Maximum Operating Maneuvering Speed (V_O) (9,921 lb/ 4,500 kg)	158 KIAS
Maximum Flaps Extended (V_{FE}):	
Flaps 15° (≤ = 15°)	163 KIAS
Flaps 30° / 40° (>15°)	130 KIAS
Maximum Landing Gear:	
Extension (V_{LO})	177 KIAS
Retraction (V_{LO})	177 KIAS
Extended (V_{LE})	236 KIAS
Landing Approach Speed (based on Maximum Landing Weight of 9,921 lb/ 4,500 kg):	
Flaps 0°	118 KIAS
Flaps 15°	98 KIAS
Flaps 30°	89 KIAS
Flaps 40°	84 KIAS
with residual ice on the airframe	
Flaps 15°, Pusher Ice Mode	105 KIAS
Balked Landing (Go-Around):	
TO/Pwr, Flaps 15°	95 KIAS
TO/Pwr, Flaps 30°	85 KIAS
TO/Pwr, Flaps 40°	84 KIAS
TO/Pwr, Flaps 15°, Pusher Ice Mode	105 KIAS

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Maximum Demonstrated Crosswind for Takeoff and Landing (not a limitation):

Flaps 0°	30 kts
Flaps 15°	25 kts
Flaps 30°	20 kts
Flaps 40° (landing only)	15 kts

4.3 PREFLIGHT INSPECTION

4.3.1 EMPENNAGE

1. Luggage	CHECKED and SECURED
2. Cargo (Combi Interior)	CHECK that cargo is located against retainer angles installed on seat rails.
3. Tie Down Straps (Combi interior)	CHECK fittings properly inserted into seat rails and that the straps are tight.
4. Cargo Door	After cargo loading / unloading: CHECK lower attachment lugs for condition.
5. Hydraulic system	Make sure nitrogen pressure is in the green sector and the level indicator shows full.
6. Cargo Door	CLOSED and LOCKED (check for green flags)
7. Static ports	CHECK CLEAR of OBSTRUCTIONS
8. Tail tie-down	DISCONNECTED
9. External Power Door	CLOSED

If a larger capacity oxygen system is installed in the rear fuselage:

10. Oxygen rupture disc	INTACT
11. Rudder and trim tab	CHECK VISUALLY
12. Vertical stabilizer	CHECK VISUALLY
13. Elevator assembly	CHECK VISUALLY
14. Horizontal stabilizer	CHECK VISUALLY, Stabilizer Trim Mark within green range.
15. Deicing Boots	CHECK VISUALLY
16. Static discharge wicks	CHECK
17. Dorsal and ventral fairings	CHECK
18. General condition	CHECK

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19. Battery compartment

a.	ELT (If installed)	CHECK CONDITION
b.	Autopilot servos and cables	CHECK CONDITION
c.	Steering bar	STOWED and SECURED
d.	Battery	CONNECTED
e.	Battery compartment	CHECK CLOSED

4.3.2 RIGHT WING TRAILING EDGE

1.	Flaps	CHECK CONDITION
2.	Aileron	CHECK CONDITION
3.	Static discharge wicks	CHECK
4.	General condition	CHECK

4.3.3. RIGHT WING LEADING EDGE

1.	Nav/Strobe light	CHECK CONDITION
2.	Fuel tank vent	CLEAR of OBSTRUCTIONS
3.	Fuel quantity and filler cap	CHECK and SECURE
4.	Pitot probe	COVER REMOVED and CHECKED
5.	AOA probe	COVER REMOVED CHECK FREE MOVEMENT
6.	Wing tie-down/wheel chocks	DISCONNECTED and REMOVED
7.	De-Icing boot	CHECK GENERAL CONDITION
8.	Right main landing gear	CHECK
9.	Right brake assembly	CHECK
10.	Two fuel drains	SAMPLE and SECURE
11.	General condition	CHECK

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4.3.4 NOSE SECTION

A. SERVICE BAY (RIGHT) (If a standard oxygen system is installed):

1.	Oxygen Press	CHECK
2.	Oxygen and ECS Doors	CLOSED
3.	Oxygen rupture disc	INTACT

WARNING

DO NOT TOUCH OUTPUT CONNECTORS OR COUPLING NUTS OF IGNITION EXCITER WITH BARE HANDS.

B. Engine Area:

1.	Cowling RH	CHECK and SECURE
2.	Propeller -	
	a. Blade Anchor	REMOVED and STOWED
	b. Blade	CHECK
	c. De-Icing Boots	CHECK GENERAL CONDITION
	d. Spinner	CHECK
3.	Air Inlet and Exhaust Covers	REMOVED and STOWED
4.	Air Inlets	CHECK ENGINE AIR INTAKE, OIL COOLER, ECS and GENERATOR for OBSTRUCTIONS
5.	Exhaust System	CHECK
6.	Nose Gear and Doors	CHECK
7.	Wheel Chocks	REMOVED
8.	Engine drain mast (LH)	CHECK. No leaks permitted
9.	Engine drain (LH)	SAMPLE and SECURE
10.	Oil Quantity	CHECK SIGHT GLASS AND DIPSTICK FOR SECURITY

Check oil level in green range of sight glass within 10 to 20 minutes after engine shut down. If engine has been shut down for more than 30 minutes, check dipstick indication and if it indicates that oil is needed, check for oil leaks in the engine bay, start the engine and run at ground idle for 5 minutes. Recheck oil level using dipstick and refill if necessary.

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11. General Condition	CHECK
12. Cowling LH	CHECK and SECURE
13. Windshield	CHECK CLEAN

C. SERVICE BAY (LEFT)

1. Fuel Filter	SECURE INDICATOR FLUSH
2. Fuel Filter drain	SAMPLE AND SECURE
3. Fuel Compartment Doors	CLOSED
4. Air Separator drain	SAMPLE AND SECURE

4.3.5 LEFT WING LEADING EDGE

1. Two fuel drains	SAMPLE and SECURE
2. Left main landing gear	CHECK
3. Left brake assembly	CHECK
4. De Icing boot	CHECK GENERAL CONDITION
5. Pitot probe	COVER REMOVED and CHECKED
6. AOA Probe	COVER REMOVED and CHECK FREE MOVEMENT
7. Wing tie-down/wheel chocks	DISCONNECTED and REMOVED
8. Fuel quantity and filler cap	CHECK and SECURE
9. Fuel tank vent	CLEAR of OBSTRUCTIONS
10. Nav/Strobe light	CHECK CONDITION
11. General condition	CHECK

4.3.6 LEFT WING TRAILING EDGE

1. Static discharge wicks	CHECK SECURITY and CONDITION
2. Aileron and trim tab	CHECK CONDITION
3. Flaps	CHECK CONDITION
4. General condition	CHECK

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4.3.7 CABIN

1.	Passenger Door	CLOSED and LOCKED (check for 6 green flags) If required, fit thermal blanket. Make sure door handle and latch are accessible.
2.	Hand luggage	SECURED/STOWED
3.	Passenger Seat	CHECK Backrests in upright position (for takeoff and landing)
4.	Passenger Seat Belts	FASTENED
5.	Overwing emergency exit	LOCK PIN REMOVED, EXIT CHECKED and LOCKED
6.	Fire Extinguisher	CHECK ATTACHMENT and PRESSURE

For flights above 10,000 ft altitude:

7.	Passenger oxygen masks	CONNECTED AND STOWED (for each passenger)

4.3.8 COCKPIT

1.	Flight Control Lock	REMOVED and placed in STOWAGE POINT
2.	Parking Brake Handle	SET/PUSH BRAKE PEDALS
3.	MASTER POWER switch	ON and guarded. Check condition of guard
4.	External Power switch	OFF
5.	BATT 1 switch BATT 2 switch	OFF OFF (if 2nd battery installed)
6.	GEN 1 & GEN 2 switches	OFF
7.	AV 1 and AV 2 Bus switches	OFF
8.	NON ESS OVRD switch	AUTO
9.	STBY BUS switch	ON
10.	EXTERNAL LIGHTS switches	OFF
11.	FUEL PUMPS switches	AUTO
12.	IGNITION switch	AUTO
13.	DE-ICING switches INERT SEP switch	OFF OFF
14.	COOLING SYS switch	OFF
15.	HEATING switches	OFF

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16. PASS-WNG switches (if installed)	OFF
17. Circuit breakers	CHECK IN
18. MSN 501 and UP. MASK/MIC switch	CHECK set to MIC
19. EFIS CMPST switch	NORM
20. AHRS	SLAVE
AHRS 1/AHRS 2 (if installed)	SLAVE
21. Landing Gear Handle	DN
22. ECS switch	OFF
23. CABIN PRESS switch	AUTO/GUARDED
24. Cabin Pressure Controller	SET to cruise altitude + 500 ft SET rate knob to mid position
25. Trim Interrupt switch	NORM/GUARDED
26. Flap Interrupt switch	NORM/GUARDED

CAUTION

TO PREVENT DAMAGE TO ENGINE CONTROLS, DO NOT MOVE THE POWER CONTROL LEVER AFT OF THE IDLE DETENT WITH ENGINE NOT RUNNING.

27. Manual Override Lever	OFF and stowed properly
28. Power Control Lever	IDLE DETENT
29. Condition Lever	CUT-OFF/FEATHER
30. Flap Lever	0°
31. Cockpit/Instrument/ Cabin Light switches	OFF
32. Fuel Firewall Shut-off lever	FULLY IN
33. Hydraulic hand pump handle	STOWED
34. ECS Firewall Shut-off lever	FULLY IN

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4.4 BEFORE STARTING ENGINE

4.4.1 PROCEDURE

1.	Preflight inspection	COMPLETE
2.	Seats	ADJUSTED and LOCKED
3.	Seat belts	FASTENED
4.	BATT 1 switch BATT 2 switch	ON ON (if 2nd battery installed)
5.	Overhead Panel Voltmeter	CHECK (24 VDC min). Both indicators (if 2nd battery installed)
6.	External power (if available)	Check 28 VDC
	a. External power	Connect
	b. EXT PWR switch	ON
c.	Overhead Panel Voltmeter	CHECK 28 VDC

NOTE

The external power control unit on the aircraft will disconnect the EPU if the output voltage is above 29.5 or below 23 VDC.

7.	Landing Gear 3 greens	CHECK
8.	Fuel Contents	CHECK equal L & R levels
9.	FUEL PUMP LH switch ON and AUTO FUEL PUMP RH switch ON and AUTO	CHECK for audible operation CHECK for audible operation
10.	OXYGEN lever	ON
11.	Oxygen pressure gage	CHECK 1,850 psi MAX
12.	PASSENGER OXYGEN switch	AUTO. Set switch to OFF if no passengers on board.
13.	Oxygen masks	AVAILABLE for all occupants, as required

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14. Pilot ventilation window	CLOSED and LOCKED
15. External lights	AS REQUIRED

NOTE

Avoid prolonged use of the beacon and logo lights (if installed), as this can cause a decrease in battery power and affect the engine starting.

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4.5 ENGINE STARTING

4.5.1 WITH OR WITHOUT EXTERNAL POWER

1.	Fuel quantity	CHECK
2.	EIS System	TEST
3.	TEST FIRE switch	PUSH. (ENG FIRE and F DETECT lights on)
4.	TEST LAMP switch	PUSH. (Warning, caution, advisory lights on). Overhead panel switches and red LED's lit.
5.	Propeller area	CLEAR, Confirm CLEAR of obstructions
6.	STARTER switch	PUSH for 2 seconds
	a. Oil pressure	CHECK rising
	b. Ng	STABLE between 13% and 20%
7.	Condition Lever	GROUND IDLE

NOTES

Set FLIGHT IDLE for a cold engine (oil temperature below + 5°) until NG above 50%, then set GROUND IDLE.

Apply maximum possible brake pressure prior to engine start.

8.	ITT	MONITOR. MAXIMUM 1000°C limited to 5 sec. 800° - 870°C limited to 20 sec.

If there is a rapid increase in ITT towards 1000°C, then:

	a. Condition Lever	CUT-OFF/FEATHER, refer to DRY MOTORING RUN.
9.	Ng	STABLE above 50%

If Ng stays below 50% then:

	a. Condition Lever	FLIGHT IDLE
	b. ITT	MONITOR

If there is no increase in ITT or Ng within 10 sec of moving Condition Lever to GROUND OR FLIGHT IDLE, then:

	c. Condition Lever	CUT-OFF/FEATHER
	d. STARTER INTERRUPT switch	Push
	e. Allow min 30 sec draining period, then refer to DRY MOTORING RUN.	

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10.	Starter sequence	COMPLETED
11.	Engine instruments	CHECK
12.	Fuel Totalizer	RESET
13.	EXT PWR switch	OFF (If external power used)
14.	GEN 2 switch	ON-Check CAWS Caution GEN 2 OFF is off
15.	GEN 1 switch	ON-Check CAWS Caution GEN 1 OFF is off

NOTE

If the propeller rpm after start-up is below 950 rpm, refer to Para. 3.6.8 in the Emergency Procedures section. If NG is below 60% after start-up, refer to Para. 3.6.11 in the Emergency Procedures section.

16.	External Power Unit (if used)	Disconnect, then off
17.	INVERTER BATT or GEN 1	CHECK FUNCTION CHANGE SELECTION
18.	AV 1 and AV 2 Bus switches	ON
19.	STBY BUS switch	OFF
20.	Overhead panel lighting check:	
	a. INSTR LIGHTING ADVISORY switch	DIM (Overhead panel switch lights dim)
	b. TEST FIRE switch	PUSH. Check Overhead Panel switch lights go bright
	c. INSTR LIGHTING ADVISORY switch	NORM
21.	Radios/Avionics	AS REQUIRED
22.	ECS switch	AUTO
23.	Temperature setting	AS REQUIRED
24.	Cooling or Heating System	AS REQUIRED
25.	Inertial Separator	OPEN, if operating on unprepared surface

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4.5.2 DRY MOTORING RUN

NOTE

This procedure is used to remove internally trapped fuel and vapor or if there is evidence of fire within the engine gas path.

Allow min 30 sec draining period, then:

1.	Condition Lever	CUT-OFF/FEATHER
2.	Power Control Lever	IDLE DETENT
3.	Ignition CB (Battery bus / Panel LH front-H1)	PULL
4.	Battery Master/Ext pwr switch	ON/ON
5.	Fuel Pumps switches	ON
6.	STARTER switch	PUSH for 2 seconds
After 15 seconds:		Should a fire persist, as indicated by sustained ITT, CLOSE the Fuel Emerg Shut-off valve at this point and continue motoring for another 15 sec.
7.	STARTER INTERRUPT switch	PUSH
8.	Fuel Pumps switches	AUTO
9.	Ignition CB (Battery bus / Panel LH front-H1)	RESET
10.	BATT Master/EXT PWR switch	OFF/OFF

Observe starter cooling off limits, then initiate the engine start procedure.

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4.6 BEFORE TAXIING

1.	AHRS 1/AHRS 2 (if installed)	CHECK - NO FLAGS
2.	Flaps Lever	15°
3.	Autopilot TEST Button (Autopilot Mode Controller)	PRESS momentarily and NOTE:

a. All annunciator lights on (ROLL, PTRM and AP TRIM FAIL annunciators flashing).

b. After approximately 5 seconds, all annunciator lights off except AP which will flash prior to extinguishing. Note the “Warning Auto Pilot” voice call out and the aural disconnect tone. If the voice callout is not heard, repeat the test. (Voice callout is inhibited until 60 seconds after the engine start cycle has reached 50% Ng).

WARNING

IF THE AP TRIM FAIL WARNING ON THE CAWS STAYS ON,
THEN THE AUTOTRIM DID NOT PASS PREFLIGHT TEST.
THE AUTOPILOT CIRCUIT BREAKER MUST BE PULLED.

c.	Control Wheel	HOLD to keep from moving.
d.	AP Button (Autopilot Mode Controller)	PRESS to engage autopilot.
e.	Control Wheel	MOVE fore, aft, left & right to verify that the autopilot can be overpowered.
f.	A/P DISC switch (Control Wheel)	PRESS. Verify that the autopilot disconnects and all flight director modes are cancelled. Note the single aural chime, CAWS A/P DISENGAGE caution and Master Caution come ON.

4.	PCL	SET 5 - 10 psi
5.	TEST PUSHER switch (Overhead Panel)	PUSH AND HOLD

a.	PCL	Set to idle.
b.	Control Wheel	PULL
c.	CAWS PUSHER ICE MODE advisory	CHECK ON
d.	Shaker and Audio Warning for 2 sec Break for 1 sec Shaker and Audio Warning for 2 sec Break for 1 sec Pusher, Shaker, and Audio Warning	CHECK correct operation

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When pusher operates:

e.	PUSHER INTR switch (Control Wheel)	PRESS and HOLD, check pusher interrupts
f.	TEST PUSHER switch (Overhead Panel)	RELEASE
g.	CAWS PUSHER caution	CHECK ON after 3 sec
h.	PUSHER INTR switch	RELEASE
i.	CAWS PUSHER caution and CAWS PUSHER ICE MODE advisory	CHECK OFF
j.	Elevator Control	CHECK FULL AND FREE movement

6.	CAWS panel	CHECK (No red warning lights)
7.	DE-ICING PROBES switch	Push to ON and check CAWS AOA DE ICE, PITOT 1, PITOT 2, STATIC cautions off
8.	DE-ICING LH WSH switch	Push to ON and check CAWS WSHLD HEAT off
9.	DE-ICING RH WSH switch	Push to ON and check CAWS WSHLD HEAT off

If icing conditions expected

a.	DE-ICING PROPELLER switch	PUSH to ON and check CAWS PROP DE ICE caution off
b.	INERT SEP switch	Push to OPEN and check CAWS INERT SEP caution off
c.	CAWS PUSHER ICE MODE advisory	Check CAWS PUSHER ICE MODE advisory light is on
d.	DE-ICING BOOTS switch	Push to ON and check for a minimum of one minute CAWS DE ICE BOOTS advisory is on and caution is off
e.	All DE-ICING switches	Push to off

10.	Pilot ventilation window	CLOSED and LOCKED
11.	EXTERNAL LIGHTS switches	AS REQUIRED
12.	Parking Brake Handle	RELEASE

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

4.7 TAXIING

1.	Brakes	CHECK
2.	PCL	CHECK beta is available, return to IDLE
3.	Flight instruments	CHECK
4.	PASS-WNG switches (if installed)	ON

CAUTION

TO AVOID POSSIBLE PROPELLER DAMAGE, DO NOT ALLOW STABILIZED PROPELLER OPERATION BETWEEN 350 AND 950 RPM (PROPELLER NOT FEATHERED).

NOTE

Beta range (aft of idle detent) may be used during taxi to control taxi speed and reduce wear on brakes.

4.8 BEFORE TAKEOFF

1.	Takeoff power setting	CALCULATED
2.	Fuel quantity	CHECK
3.	Friction lock	ADJUST
4.	Engine instruments	CHECK
5.	Flight instruments	CHECK and SET
6.	Trim If CG is 236 inches (6 meters) or further aft of datum	SET GREEN LINES SET GREEN DIAMOND
7.	Flaps	15°
8.	Flight controls	FULL, FREE and CORRECT
9.	CAWS panel	CHECK (No warning RED lights)
10.	Radios/Avionics	AS REQUIRED
11.	DE-ICING PROBES switch	ON
12.	Windshield Heat	AS REQUIRED
13.	External light switches	AS REQUIRED
14.	DC Amps Battery Batteries (if 2nd battery installed)	CHECK (15 amps maximum. If greater than 15 amps, delay takeoff until indication at or below 15 amps)
15.	Transponder	ON Altitude

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16.	Condition Lever	FLIGHT IDLE

If icing conditions expected set the DE ICING switches as follows:

17.	DE-ICING PROP switch	PUSH to ON
18.	DE-ICING INERT SEP	PUSH to OPEN
19.	DE-ICING BOOTS	PUSH to ON. Select 3 MIN or 1 MIN as required
20.	DE-ICING LH and RH WSH switches	PUSH to ON. Select LIGHT or HEAVY as required

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4.9 TAKEOFF

1.	EHSI	CHECK HDG
2.	ECS switch	OFF (If torque as per Static Takeoff Torque chart in Section 5 is below flat rating)
3.	Power Control Lever	SET (Under certain hot and/or high airfield altitude the engine power is below the torque limiter setting and manual power setting is required according to Static Takeoff Torque chart in Section 5)

CAUTION

THE TORQUE LIMITER ASSISTS THE PILOT IN SETTING THE ENGINE POWER. THE PILOT IS RESPONSIBLE TO RESPECT ALL ENGINE OPERATING LIMITS.

NOTE

Increasing airspeed might cause torque and ITT to increase. If torque increases above 44.3 psi (CAS caution), reduce power to avoid a CAS warning.

4. Engine instruments:

a.	Torque	MONITOR
b.	ITT	MONITOR
c.	Ng	MONITOR
d.	Oil Temp/Pressure	MONITOR

5. Rotate at V_R, initial climb at V_X or V_Y, as required

6.	Brakes	PRESS to stop wheel rotation

After lift-off and positive rate of climb:

7.	Landing Gear Handle	UP
8.	Flaps	0° above 100 KIAS
9.	Taxi Light	OFF
10.	External Lights	AS REQUIRED
11.	Yaw Damper	AS REQUIRED
12.	WX Radar	AS REQUIRED (if installed)

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4.10 FLIGHT INTO KNOWN ICING CONDITIONS

Icing conditions are defined in Section 1.

NOTE

Flight in icing conditions is only permitted with full operational status of all aircraft deicing systems. The deicing systems may be activated before takeoff.

WARNING

FLIGHT IN ICING CONDITIONS IS PROHIBITED IF THERE IS A KNOWN FAILURE OF ANY OF THE ICE PROTECTION SYSTEMS OR A FAILURE OF GENERATOR 1 OR GENERATOR 2.

WARNING

DURING FLIGHT IN ICING CONDITIONS OR FLIGHT WITH ANY VISIBLE ICE ACCRETION ON THE AIRFRAME, THE FOLLOWING FLAP EXTENSION LIMITS APPLY:

- WITH OPERATIONAL AIRFRAME PNEUMATIC DEICE BOOTS = 15° FLAP.
- AFTER FAILURE OF THE AIRFRAME PNEUMATIC DEICE BOOTS = 0° FLAP.

Before entering icing conditions set the DE ICING switches as follows

1.	PROP	ON
2.	INERT SEP	OPEN
3.	BOOTS	ON and 3 MIN or 1 MIN as required

NOTE

A de-ice boots failure indication can occur at low power settings while in high pressure altitudes. Refer to the Emergency Procedures 3.19.2 for system reset.

4.	LH and RH WSHLD switches	ON and LIGHT or HEAVY as required

NOTE

When DE ICING switch PROP is set to ON and INERT SEP is set to OPEN, the stick shaker/pusher system is automatically reset to provide stall protection at lower angles of attack. The CAWS advisory caption PUSHER ICE MODE comes on to inform the aircrew of this mode change. In this mode the shaker and pusher are activated at higher airspeeds.

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During icing conditions:

5.	Wing leading edge	MONITOR for continual shedding of ice
6.	CAWS	MONITOR for correct function of ice protection systems

WARNINGS

IF ANY OF THE AIRCRAFT ICE PROTECTION SYSTEMS FAIL DURING FLIGHT IN ICING CONDITIONS, EXIT ICING CONDITIONS. CONTACT ATC FOR PRIORITY ASSISTANCE IF REQUIRED.

IF SEVERE ICING CONDITIONS ARE ENCOUNTERED, REQUEST PRIORITY HANDLING FROM AIR TRAFFIC CONTROL TO FACILITATE A ROUTE OR AN ALTITUDE CHANGE TO EXIT THE ICING CONDITIONS.

After departure of icing conditions with residual airframe ice:

7.	PROP	Maintain ON
8.	INERT SEP	Maintain OPEN

This ensures that the stick shaker/pusher system is maintained in PUSHER ICE MODE.

9.	BOOTS	ON and 3 MIN or 1 MIN as required
10.	LH and RH WSHLD	ON and LIGHT or HEAVY as required
11.	Flaps	Do not extend beyond 15° or if extended do not retract to 0°

After removal of residual airframe ice:

12.	PROP	OFF
13.	INERT SEP	OFF
14.	BOOTS	OFF
15.	LH or RH WSHLD	LIGHT or HEAVY as required
16.	Flaps	AS REQUIRED

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4.11 CLIMB

1.	Ice Protection system	AS REQUIRED
2.	Autopilot	AS REQUIRED
3.	Power Control Lever	SET (According to Climb Torque chart for best performance or 720°C ITT recommended)
4.	ECS switch	AUTO
5.	Temperature setting	AS REQUIRED
6.	Cabin pressure	Monitor
7.	Engine instruments:	
	a. Torque	MONITOR
	b. ITT	MONITOR
	c. Ng	MONITOR

4.12 CRUISE

1.	Altimeters	SET 1013.2/29.92
2.	AHRS	CHECK
3.	Cabin Pressurization	Monitor* *Confirm cabin pressure differential is $\leq$ 5.75 psi (i.e. gauge green arc)

If cabin pressure differential > 5.75 psi check cabin altitude selection correct. If cabin pressure differential still > 5.75 psi there is a malfunction of the cabin pressure control system. Refer to section 3.18 to determine appropriate action.

4.	Power Control Lever	SET (According to Cruise Torque table)
5.	Engine Instruments	MONITOR
6.	Ice Protection system	AS REQUIRED

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4.13 DESCENT

1.	Ice Protection system	AS REQUIRED
2.	Power Control Lever	SET to desired torque
3.	Cabin Pressure Controller	SET to field elevation + 500 ft
4.	Windshield Heat	AS REQUIRED

4.14 BEFORE LANDING

4.14.1 APPROACH CHECK

1.	Ice Protection system	AS REQUIRED
2.	Altimeter	SET
3.	Fuel Quantity	CHECK
4.	Landing Gear	DOWN (below 177 KIAS)
5.	Landing Lights	AS REQUIRED
6.	External Lights	AS REQUIRED
7.	Flaps	AS REQUIRED
	- With residual airframe ice	SET maximum 15°
	- Boot failure	Maintain at 0°

NOTE

For flap settings for crosswind operation, icing conditions and associated landing performance refer to 4.2 and Section 5.

8.	Speed	Minimum AOA Centered
9.	Passengers	Brief
10.	Inertial Separator	ON, if operating on unprepared surface

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4.14.2 FINAL CHECK

1.	Landing Gear	3 Green Lights
2.	Flaps - With residual airframe ice - Boot failure	AS REQUIRED SET maximum 15° Maintain at 0°
3.	Speed	Reduce to AOA centered and stabilized
	Boot failure	130 KIAS
	AOA Deice or PUSHER ICE MODE failure	105 KIAS
4.	Pressurization	0 Diff Pressure
5.	Autopilot	DISENGAGED
6.	Yaw Damper (prior landing)	DISENGAGED

NOTES

For crosswind information, refer to para 4.2 and Section 5.

For minimum autopilot use height, refer to Section 2 (Autopilot).

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

4.15 BALKED LANDING (GO-AROUND)

1.	Go Around switch (if autopilot engaged)	PRESS
2.	Power Control Lever	SET (According to the Balked Landing Torque chart in Section 5)
3.	Climb airspeed	84 KIAS
4.	Flaps - Normal - With residual airframe ice - Boot failure	 SET 15° (max 163 KIAS) Maintain at 15° Maintain at 0°
5.	Climb airspeed - Pusher Normal Mode - Pusher Ice Mode - Boot failure	 95 KIAS 105 KIAS 130 KIAS
6.	Landing Gear Handle	Up with positive rate-of-climb
7.	Flaps - Normal - With residual airframe ice - Boot failure	 AS REQUIRED Maintain at 15° Maintain 0°
8.	Ice Protection system	AS REQUIRED

CAUTION

IN THE EVENT OF A BALKED LANDING (GO-AROUND) WITH RESIDUAL ICE ON THE AIRFRAME, THE FLAPS SHOULD NOT BE RETRACTED. THE LANDING GEAR MAY NOT FULLY RETRACT AFTER SELECTION (REMAINING RED INDICATION).

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

4.16 LANDING

4.16.1 NORMAL

1. TOUCH DOWN MAIN WHEELS FIRST.
2. DO NOT FLARE WITH HIGH PITCH ANGLE.

3.	Power Control Lever	IDLE
4.	Condition Lever	GROUND IDLE
5.	Braking	AS REQUIRED

4.16.2 SHORT FIELD

1. TOUCH DOWN MAIN WHEELS FIRST.
2. DO NOT FLARE WITH HIGH PITCH ANGLE.

3.	Power Control Lever	IDLE
4.	Reverse	SELECT MAX (if desired)
5.	Brake	FIRM
6.	Power Control Lever	IDLE (before airplane stops)

4.17 AFTER LANDING

When runway vacated:

1.	Power Control Lever	AS REQUIRED
2.	Condition Lever	GROUND IDLE
3.	Flaps	UP
4.	External Lights	AS REQUIRED
5.	All DE-ICING switches	OFF
6.	Transponder	STBY
7.	WX Radar	STBY (if installed)

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

4.18 SHUTDOWN

WARNING

FOR ANY INDICATION OF ENGINE FIRE AFTER SHUTDOWN, IMMEDIATELY DO DRY MOTORING RUN PROCEDURE.

NOTES

Allow ITT to stabilize at least two minutes at ground idle.

Monitor compressor deceleration after shutdown for possible engine damage.

1.	Power Control Lever	IDLE DETENT
2.	Parking Brake	SET/PEDALS PUSH
3.	ECS switch	OFF
4.	External Lights switches	OFF
5.	DE-ICING switches	OFF
6.	Cooling and Heating systems	OFF
7.	PASS-WNG switches (if installed)	OFF
8.	STBY BUS switch	ON (if EFIS MFD is installed)
9.	AV 1 and AV 2 Bus switches	OFF
10.	GEN 2 then GEN 1 switches	OFF
11.	Condition Lever	CUT-OFF/FEATHER
12.	Oxygen shut-off lever	OFF
13.	Lighting switches	OFF
14.	CAWS OIL QTY warning (60 secs minimum after shutdown)	CHECK. Refill engine with an approved oil
15.	BATT 1 switch BATT 2 switch	OFF OFF (if 2nd battery installed)
16.	STBY BUS switch	OFF position

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

4.19 PARKING

1.	Flight Control Lock	INSTALLED
2.	Passenger door	REMOVE thermal blanket (if installed)
3.	Wheel chocks	AS REQUIRED
4.	Tail stand	AS REQUIRED

NOTE

Install the tail stand when the aircraft is parked outside and wet snow fall is expected.

5.	Tie downs	AS REQUIRED

CAUTION

MAKE SURE PROPELLER ANCHOR IS PROPERLY INSTALLED TO PREVENT POSSIBLE ENGINE DAMAGE DUE TO WINDMILLING WITH ZERO OIL PRESSURE.

6.	Propeller anchor	INSTALLED
7.	External covers	INSTALLED

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

4.20 OXYGEN SYSTEM

1. Oxygen Pressure Gauge — NOTE READING
2. Outside Air Temperature — NOTE READING
3. Percentage of Full Bottle — DETERMINE from the " Oxygen Available with Partially Full Bottle " graph, Figure 4-1.
4. COMPUTE Oxygen Duration in minutes:
   a. Determine the Oxygen Duration in minutes for a full bottle for the number of connected passenger oxygen masks and pilots from the " Oxygen Duration with Full Bottle " graph, Figure 4-2.
   b. Multiply the Full Bottle Duration by the percent of Usable Capacity to obtain the available oxygen duration in minutes.
5. Turn the Oxygen shut-off lever and Passenger Oxygen control valve to ON. Insert the connector of each mask into an outlet and verify proper oxygen flow to the mask. For flights above 10,000 feet leave the masks connected to the outlets and turn the Oxygen Control Valve to AUTO.

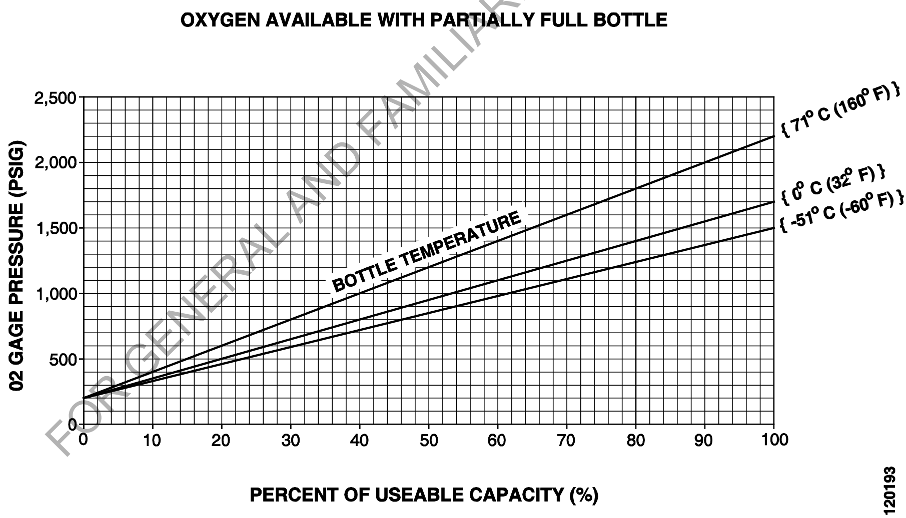

Figure 4-1. Oxygen Available with Partially Full Bottle

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

No. of Pax Oxygen Masks Connected	Oxygen Duration Pax plus 1 Crew Mask on		Oxygen Duration Pax plus 2 Crew Masks on	
	Diluter/ Demand (min)	100 % (min)	Diluter/ Demand (min)	100 % (min)
0	141	59	71	29
1	70	42	47	24
2	47	32	35	21
3	35	26	28	18
4	28	22	23	16
5	23	19	20	14
6	20	17	17	13
7	17	15	16	12
8	16	13	14	11
9	14	12	13	10

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Figure 4-2. Oxygen Duration with Full Bottle (Standard Oxygen System)
(Sheet 1 of 2)

No. of Pax Oxygen Masks Connected	Oxygen Duration Pax plus 1 Crew Mask on		Oxygen Duration Pax plus 2 Crew Masks on	
	Diluter/ Demand (min)	100 % (min)	Diluter/ Demand (min)	100 % (min)
0	477	200	240	98
1	237	142	159	81
2	159	108	118	71
3	118	88	95	61
4	95	74	78	54
5	78	64	68	47
6	68	57	57	44
7	57	51	54	41
8	54	44	47	37
9	47	41	44	34

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Figure 4-2. Oxygen Duration with a Full Bottle (Larger Capacity Oxygen System)
(Sheet 2 of 2)

4.21 AUTOPILOT

4.21.1 AUTOPILOT OPERATION SUMMARY

WARNINGS

THE PILOT IN COMMAND MUST CONTINUOUSLY MONITOR THE AUTOPILOT WHEN IT IS ENGAGED, AND BE PREPARED TO DISCONNECT THE AUTOPILOT AND TAKE IMMEDIATE CORRECTIVE ACTION - INCLUDING MANUAL CONTROL OF THE AIRPLANE AND/OR PERFORMANCE OF EMERGENCY PROCEDURES - IF AUTOPILOT OPERATION IS NOT AS EXPECTED OR IF AIRPLANE CONTROL IS NOT MAINTAINED.

DURING ALL AUTOPILOT COUPLED OPERATIONS THE PILOT IN COMMAND MUST USE PROPER AUTOPILOT COMMANDS AND USE THE APPROPRIATE COMBINATION OF ENGINE POWER, WING FLAPS, AND LANDING GEAR TO ENSURE THAT THE AIRPLANE DOES NOT EXCEED AIRPLANE OPERATING LIMITATIONS.

NOTE

The autopilot is inoperative with two failed inverters.

1. Before takeoff

   a. Autopilot and Yaw Damper - DISENGAGE.

WARNING

IF THE AIRPLANE IS NOT LEVEL AND THE YD IS INADVERTENTLY ENGAGED, THERE IS A POSSIBILITY OF RUDDER AUTOTRIM MOVEMENT. PRIOR TO TAKEOFF, CONFIRM THAT THE RUDDER TRIM IS SET TO THE GREEN MARK.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

2. Inflight Autopilot Engagement

(Verify the airplane is in a trimmed condition prior to autopilot engagement.)

a. AP Button - **PRESS**. Note **AP** and **FD** annunciators **ON**. If no other flight director modes are selected at the time of autopilot engagement the mode of operation will be flight director wings level and pitch attitude hold.

WARNING

DO NOT HELP THE AUTOPILOT OR HAND-FLY THE AIRPLANE WITH THE AUTOPILOT ENGAGED AS THE AUTOPILOT WILL RUN THE TRIM TO OPPOSE YOUR CONTROL MOVEMENT. A MISTRIM OF THE AIRPLANE, WITH ACCOMPANYING LARGE ELEVATOR AND/OR RUDDER CONTROL FORCES, MAY RESULT IF THE PILOT MANIPULATES THE CONTROLS MANUALLY WHILE THE AUTOPILOT IS ENGAGED.

3. Climb or Descent in Pitch Attitude Hold.

a. Using CWS

1) **CWS** Button - **PRESS** and **MOVE** aircraft nose to the desired attitude.

2) **CWS** Button - **RELEASE**. Autopilot will maintain aircraft pitch attitude up to the pitch limits.

b. Using Vertical Trim

1) **VERTICAL TRIM** Control - **PRESS** either up or down to modify aircraft attitude at a rate of 0.75 deg/sec up to the pitch limits.

2) **VERTICAL TRIM** Control - **RELEASE** when desired aircraft attitude is reached. The autopilot will maintain the desired pitch attitude.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

4. Altitude Hold

   a. **ALT** Mode Selector Button - **PRESS**. Note **ALT** mode annunciator **ON**. Autopilot will maintain the pressure altitude.

NOTE

In accordance with FAA recommendation(ACOO-24B), use of basic "PITCH ATTITUDE HOLD" mode is recommended during operation in severe turbulence.

   b. Change selected altitudes.

      1) Using **CWS** (Recommended for altitude changes greater than 100 ft.)

         a) **CWS** Button - **PRESS** and fly aircraft to desired altitude.

         b) **CWS** Button - **RELEASE** when desired altitude is reached. The autopilot will maintain the pressure altitude.

      2) Using Vertical Trim (Recommended for altitude changes less than 100 ft.)

         a) **VERTICAL TRIM** Control - **PRESS** either up or down. Vertical Trim will seek an altitude rate of change of about 500 fpm.

         b) **VERTICAL TRIM** Control - **RELEASE** when desired pressure altitude is reached. The autopilot will maintain the desired pressure altitude.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

5. Vertical speed and Altitude Preselect Operation

NOTE

The altitude alert annunciator is illuminated 1000 ± 50 feet prior to the selected altitude, goes out 200 ± 50 feet prior to the selected altitude and illuminates momentarily when the selected altitude is reached. Once the selected altitude is reached the reillumination of the light signifies that the 200 ± 50 feet "safe band" has been exceeded and will remain on until 1000 ± 50 feet from the selected altitude. An aural tone accompanies the alert annunciator.

a. Altitude Preselect

1) ALTITUDE SELECT (SET) knobs - **PUSH** small knob to the "IN" position.

WARNING

VERIFY UNIT IS DISPLAYING ALTITUDE SELECT WINDOW PRIOR TO INITIATING ANY CHANGE IN THE SELECTED ALTITUDE VALUE.

2) ALTITUDE SELECT (SET) knobs - **ROTATE** to select and automatically **ARM** the desired altitude. Note the **ARM** mode annunciation **ON**. (The pilot must terminate an existing ALT HOLD mode or glideslope coupling to acquire ALT ARM.)

3) ALTITUDE SELECT **(ARM)** button - **PUSH** to engage or cancel altitude ARM as necessary (Altitude ARM is inhibited in glideslope.). May be used to bring up the flight director if not already engaged.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

CAUTION

ENGAGING GO AROUND WILL CANCEL ALT ARM. PILOT EFFORT SUCH AS RESELECTING THE DESIRED ALTITUDE, OR PUSHING THE ARM BUTTON, IS REQUIRED TO ARM ALTITUDE HOLD IN GO AROUND.

4) Airplane - ESTABLISH ATTITUDE to intercept the selected altitude.

b. Vertical Speed Select

1) VERTICAL SPEED SELECT (SET) knobs - **PULL** small knob to the "**OUT**" position.

WARNING

VERIFY UNIT IS DISPLAYING VERTICAL SPEED SELECT WINDOW PRIOR TO INITIATING ANY CHANGE IN THE SELECTED VERTICAL SPEED VALUE.

2) VERTICAL SPEED SELECT (SET) knobs - SELECT the desired vertical speed.

3) VERTICAL SPEED **(ENG)** button - **PUSH** to engage vertical speed hold mode.

NOTE

The vertical speed display will flash after five seconds. Push the small knob "IN" to cancel the flashing and restore the altitude display.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

c. Changing Vertical Speed

1) Using CWS

a) **CWS** button - **PRESS** and **HOLD**.

b) Airplane - Establish desired vertical speed.

c) CWS button - **RELEASE**.

2) Using Vertical Trim Control

VERTICAL TRIM CONTROL - **PRESS** either up or down to increase or decrease the vertical speed. Displayed vertical speed changes 100 fpm for every second the control is held down.

WARNING

WHEN OPERATING AT OR NEAR THE BEST RATE OF CLIMB AIRSPEED AND USING VERTICAL SPEED HOLD, IT IS EASY TO DECELERATE TO AN AIRSPEED ON THE BACK SIDE OF THE POWER CURVE (A DECREASE IN AIRSPEED RESULTS IN A REDUCED RATE OF CLIMB). CONTINUED OPERATION ON THE BACK SIDE OF THE POWER CURVE IN VERTICAL SPEED HOLD MODE WILL RESULT IN APPROACHING THE STICK SHAKER SPEED AND AN AUTOMATIC AUTOPILOT DISENGAGE.

WARNING

WHEN OPERATING AT OR NEAR THE MAXIMUM AUTOPILOT SPEED, IT WILL BE NECESSARY TO REDUCE POWER IN ORDER TO MAINTAIN THE DESIRED RATE OF DESCENT AND NOT EXCEED V_{MO}/M_{MO}.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

6. Indicated Airspeed Hold

   a. IAS Mode Selector button - **PRESS**. Note the **IAS** mode annunciator **ON**. The autopilot will maintain the current indicated airspeed.

   b. Change Selected Indicated Airspeed.

      1) Using CWS (recommended for airspeed changes of 10 KIAS or greater).

         a) **CWS** button - **PRESS** and fly aircraft to desired airspeed.

         b) **CWS** button - **RELEASE** when desired airspeed is reached. The autopilot will maintain the desired airspeed.

      2) Using Vertical Trim (recommended for airspeed changes less than 10 KIAS).

         a) **VERTICAL TRIM** control - **PRESS** either up or down. Vertical Trim will seek a new airspeed at a rate of about .75 knot per second.

         b) **VERTICAL TRIM** Control - Due to the lag in response, **RELEASE** approximately 3 to 6 knots prior to reaching the desired airspeed as read on the airplane airspeed indicator. The autopilot will maintain the new stabilized airspeed.

7. Heading Hold

   a. Heading Hold

      1) Heading Selector Knob - **SET BUG** to desired heading.

      2) HDG Mode Selector Button - **PRESS**. Note HDG mode annunciator **ON**. Autopilot will automatically turn the aircraft to the selected heading.

   b. Command Turns (Heading Hold mode ON)

      1) Heading Selector Knob - **MOVE BUG** to the desired heading. Autopilot will automatically turn the aircraft to the new selected heading.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

8. Roll Attitude Hold (HDG Mode Off)

   a. **CWS** button - **PRESS** and hold while manually banking the airplane to any desired angle between 6° and the maximum autopilot limit of 25° ± 4°.

   b. **CWS** button - **RELEASE**. Roll attitude hold will maintain the desired bank angle. **HDG**, **NAV** and **APR** mode selections will cancel roll attitude hold.

   c. Manual Heading Changes

      1) **CWS** Button - **PRESS** and **MANEUVER** aircraft to the desired heading.

      2) **CWS** Button - **RELEASE** when wings level. Autopilot will maintain aircraft in wings level mode.

NOTE

Aircraft heading may change in the wings level mode due to an aircraft out of trim condition.

9. Reduced Bank Angle

   HALF BANK (HB) Mode Button - **PRESS**. The commanded bank angle will be reduced to 12° ± 5°. This mode is functional during **HDG** and **NAV** mode operations but will be automatically deselected and inhibited during **APR** coupled operations.

10. Soft Ride

   SOFT RIDE (SR) Mode Button - **PRESS**. This mode softens the autopilots commands to provide a smoother ride during operations in turbulence.

   The normal autopilot performance (maintaining heading, wings level, attitude, airspeed and/or altitude) may be degraded by use of the Soft Ride mode. Soft Ride is automatically deselected and inhibited during **APR** coupled operations.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

11. NAV Coupling

a. Course Bearing Pointer - **SET** to desired course.

b. Heading Selector Knob - **SET BUG** to provide desired intercept angle.

c. **NAV** Mode Selector Button - **PRESS**.

1) If the Course Deviation Bar is greater than 40% to 60% of full scale from center: the aircraft will continue in HDG mode (or wings level if **HDG** not selected) with the **NAV ARM** annunciated; when the computed capture point is reached **HDG** will disengage, **ARM** will extinguish and the selected course will be automatically captured and tracked.

2) If the D-Bar is less than 40% to 60% of full scale from center, the **HDG** mode will disengage upon selecting **NAV** mode; the **NAV** annunciator will illuminate and the capture/track sequence will automatically begin.

12. Approach (APR) Coupling

a. Course Bearing Pointer - **SET** to desired course.

b. Heading Selector Knob - **SET BUG** to provide desired intercept angle.

c. **APR** Mode Selector Button - **PRESS**.

1) If the Course Deviation Bar is greater than 40% to 60% of full scale from center: the aircraft will continue in **HDG** mode (or wings level if **HDG** not selected) with the **APR ARM** annunciated; when the computed capture point is reached the **HDG** will disengage, **ARM** will extinguish and the selected course will be automatically captured and tracked.

2) If the D-Bar is less than 40% to 60% of full scale from center, the **HDG** mode will disengage upon selecting **APR** mode; the **APR** annunciator will illuminate steady and the capture/track sequence will automatically begin.

CAUTION

RECOMMEND SETTING FLAPS TO 15° PRIOR TO GLIDESLOPE CAPTURE. POOR GLIDESLOPE CAPTURE AND INITIAL TRACKING MAY OCCUR IF FLAPS ARE EXTENDED GREATER THAN 15° PRIOR TO COMPLETION OF GLIDESLOPE CAPTURE.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

WARNING

THE AUTOPILOT MUST BE DISENGAGED WHEN THE AIRPLANE IS BELOW 1000 FT AGL IN COUPLED ILS APPROACH MODE, WHEN THE AIRPLANE IS NOT EQUIPPED WITH A FUNCTIONING PILATUS OPTION RADAR ALTIMETER.

13. BC Approach Coupling

    a. Course Bearing Pointer - **SET** to the ILS front course inbound heading.

    b. Heading Selector Knob - **SET BUG** to provide desired intercept angle.

    c. APR Mode Selector Button - PRESS. **APR** to automatically activate BC when the airplane heading differs from the front course bearing set in 13.a. above by more than 105° (refer to EFIS BC annunciation).

        1) If the Course Deviation Bar is greater than 40% to 60% of full scale from center, the aircraft will continue in **HDG** mode (or wings level if **HDG** not selected) with **APR ARM BC** annunciated; when the computed capture point is reached **HDG** will disengage, **ARM** will extinguish and the selected course will be automatically captured and tracked.

        2) If the D-Bar is less than 40% to 60% of full scale from center, the **HDG** mode will disengage upon selecting **APR** mode; the **APR BC** annunciators will illuminate and the capture/track sequence will automatically begin.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

14. Glideslope Coupling

NOTE

Glideslope coupling is inhibited when operating in NAV or APR BC modes. Glideslope coupling occurs automatically in the APR mode.

a. **APR** Mode - **ENGAGED**.

NOTE

Autopilot can capture glideslope from below or slightly above the beam while operating in either PITCH ATTITUDE HOLD, IAS HOLD, VS HOLD, or ALT HOLD modes. Capture is better assured from below the beam.

b. Near glideslope centering - **NOTE GS** annunciator **ON**.

NOTE

If after glideslope coupling the glideslope signal becomes inadequate (GS flag in view), the GS annunciator will flash at least six times before extinguishing and the system will transfer to PITCH ATTITUDE HOLD. If a valid glideslope signal returns within six seconds, the system will automatically recouple. If a valid glideslope signal does not return within six seconds, the autopilot must once again capture the glideslope beam to achieve glideslope coupling.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

15. Missed Approach

    a. Power Lever **GA** Switch - **PRESS** to engage the go-around mode. This will provide a wings level, pitch up command. Note **GA** mode annunciator **ON**. Forward PCL to the required setting.

    b. Activate A/P modes as desired.

CAUTION

ENGAGING GO AROUND WILL CANCEL ALL MODES. PILOT EFFORT IS REQUIRED TO ACTIVATE A/P MODES AS DESIRED IN GO AROUND.

    c. MISSED APPROACH - EXECUTE.

    d. Lateral Guidance (Select one)

        1) Heading Mode - **SET BUG** and **PRESS HDG**.

        2) **NAV** Mode - **PRESS NAV**.

        3) **APR** Mode - **PRESS APR**. Glideslope coupling will be inhibited so that the LOC can be tracked outbound and the autopilot will not couple to false glideslope signals.

16. Before Landing

Autopilot Disengage Switch - **PRESS** to disengage **AP** and **YD**.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

4.21.2 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 aircraft to satisfy the Flight Director commands.

No autotrim functions are provided by the autopilot.

4.22 NOISE LEVEL

The noise levels stated below have been verified and approved by FOCA in noise level test flights conducted in accordance with ICAO Annex 16, Chapter 10 and Swiss VEL. This airplane model is in compliance with all ICAO Annex 16 and Swiss VEL noise standards applicable to this type.

ICAO Annex 16, Chapter 10	77.8 dB(A)
Swiss VEL	74.3 dB(A)

The noise level stated below has been verified and approved by the FAA in noise level test flights conducted in accordance with FAR Part 36, Appendix G. This airplane model is in compliance with FAR 36 noise standards applicable to this type.

FAR Part 36, Appendix G	74.3 dB(A)

No determination has been made by the Certifying Authority that the noise levels of this airplane are or should be acceptable or unacceptable for operation at, into, or out of, any airport.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

AMPLIFIED PROCEDURES

4.23 CROSSWIND OPERATION

The maximum demonstrated crosswind for takeoff and landing for all flap configurations is shown in para 4.2.

CAUTION

ON RUNWAYS WITH POOLS OF STANDING WATER AND/OR POOR BRAKING ACTION IT MAY NOT BE POSSIBLE TO MAINTAIN THE CENTERLINE AND/OR THE CORRECT ALIGNMENT OF THE AIRCRAFT ON THE RUNWAY IN CONDITIONS OF STRONG CROSSWIND.

For further information on crosswind operation refer to Section 10.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

4.24 FLIGHT IN ICING CONDITIONS

Icing conditions can exist when:

The Outside Air Temperature (OAT) on the ground and for takeoff, or Total Air Temperature (TAT) in flight, is 10°C or colder, and visible moisture in any form is present (such as clouds, fog or mist with visibility of one mile or less, rain snow, sleet and ice crystals).

The OAT on the ground and for takeoff is 10°C or colder when operating on ramps, taxiways or runways, where surface snow, ice, standing water, or slush may be ingested by the engine, or freeze on the engine, or the engine nacelle.

There are visible signs of ice accretion on the aircraft.

Severe icing may result from environmental conditions during flight in freezing rain, freezing drizzle, or mixed icing conditions (supercooled liquid water and ice crystals) which 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.

Information on the removal of snow, ice and frost from the aircraft is provided in Section 10.

Freezing rain, freezing fog, freezing drizzle and mixed conditions and descent into icing clouds from above freezing temperatures can result in excessive accretion of ice on the protected surfaces. They may also result in runback ice forming beyond the protected surfaces over a large percentage of the chordwise extent of the lifting surfaces. This ice cannot be shed and it may seriously degrade performance and control of the aircraft.

Flight in severe icing conditions should be avoided, as this may exceed the capabilities of the aircraft ice protection systems. Severe icing conditions can be identified by excessive ice accretion on the visible parts of the airframe including the protected surfaces. This might affect the aircraft performance and handling qualities, and cause significant loss in powerplant performance. If this occurs request priority assistance from ATC to facilitate a route or an altitude change to exit the icing conditions.

Operation on deep slush or snow covered runways greater than 1 inch (2.5 cm) may result in contamination of the flap drive mechanism resulting in failure to retract. If possible operation on deep slush and snow compacted runways should be avoided.

For takeoff and landing on runways covered with surface snow, ice, standing water, or slush, the inertial separator must be open.

For flight in heavy precipitation the inertial separator must be open.

Detection of icing conditions and ice accretion on the aircraft is by pilot visual identification on the left hand wing leading edge. A wing inspection light is provided for night time operations.

Prior to entering icing conditions, activate all ice protection systems as required.

If not already activated, select all systems as required, immediately icing conditions are identified.

The procedures for selection of the ice protection systems are provided in Section 4.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

During all icing encounters or times with visible ice accretion on any part of the airframe the flaps must not be extended beyond certain limits. These limits eliminate the possibility of tailplane stall which results in an uncontrolled aircraft pitch down moment.

- With operational airframe pneumatic deice boots 15° flap
- After failure of the airframe pneumatic deice boots 0° flap.

The minimum recommended speeds for icing encounters and with residual ice on the airframe are :-

- Climb, Flaps 0°, Pusher Ice Mode	= 135 KIAS
- Holding Pattern, Flaps 0°	= 140 KIAS to 170 KIAS
- Landing Approach, Flaps 15°, Pusher Ice Mode	= 105 KIAS
- Landing Approach, Flaps 0°, Boot Failure Pusher Ice Mode	= 130 KIAS
- Balked Landing (Go-Around) Flaps 15° Pusher Ice Mode	= 105 KIAS
- Balked Landing (Go-Around) Boot failure Flaps 0° Pusher Ice Mode	= 130 KIAS

Flight in icing conditions is only permitted with full operational status of all aircraft de-icing systems. This includes :-

- Propeller Deice
- Wing and Horizontal Tail Deice Boots
- Inertial Separator
- Windshield Deice
- Probes Deice
- Stick Pusher Ice Mode

The propeller de-ice is activated from the overhead DE-ICING switch panel by the switch labeled PROP being pushed to ON. In this mode the propeller de-ice system will be automatically selected to the correct cycle with reference to outside air temperature. No further aircrew input is required. If a system failure occurs when activated, the amber CAWS caption labeled PROP DE ICE will be illuminated and an aural gong will sound.

The wing and horizontal tail de-ice boots are activated from the overhead DE-ICING switch panel by the switch labeled BOOTS being pushed to ON and the 3 MIN/1 MIN switch pushed to either 3MIN or 1MIN. 3MIN is to be selected in icing conditions with moderate ice accretion rates as judged by the aircrew. 1MIN is to be selected in icing conditions with high ice accretion rates. When activated in either 1MIN or 3MIN mode and operating correctly, the green CAWS caption labeled DE ICE BOOTS will be continuously illuminated. If a system failure occurs when activated, the green CAWS caption will go off and the amber CAWS caption labeled DE ICE BOOTS will be illuminated and an aural gong will sound.

The engine inertial separator is activated to its open (icing encounter) position from the overhead DE ICING switch panel by the switch labeled INERT SEP being pushed to OPEN. Once activated the inertial separator door will reach its fully open position in approximately 30 seconds. If the door does not reach its fully open position or moves away from its fully open position when still selected, the amber CAWS caption labeled INERT SEP will be illuminated and an aural gong will sound.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

The LH side and RH side windshield deice is activated from the overhead DE ICING switch panel by two switches labeled LH WSH and RH WSH respectively, being pushed to ON and the HEAVY/LIGHT switch pushed to either LIGHT or HEAVY depending on the severity of the icing encounter. If a system failure occurs when activated, the amber CAWS caption labeled WSHLD HEAT will be illuminated and an aural gong will sound.

Deicing of all probes, AOA (vane and mounting plate), pitot and static, is activated from the overhead DE ICING switch panel by a switch labeled PROBES being pushed to ON. If deicing of the left pitot or right pitot probes or the static ports fails when selected, then either the amber CAWS caption labeled PITOT 1 or PITOT 2 or STATIC will be illuminated and an aural gong will sound. If deicing of the AOA probes fails when selected, then the amber CAWS caption labeled AOA DE ICE will be illuminated and an aural gong will sound.

When the propeller de-ice is selected to ON and the inertial separator selected to ON, the stall protection system, stick pusher/shaker system is re-datumed to provide both shake and push functions at lower angles of attack and higher speeds. This is to protect against the natural stall through the effects of residual ice on the protected surfaces of the airfoil leading edges. When the system is in the re-datum mode, the aircrew are alerted by illumination of the green CAWS caption labeled PUSHER ICE MODE. Failure of the system in ice mode will result in the caption being extinguished and the amber CAWS caption labeled PUSHER will be illuminated and an aural gong will sound.

Night time flight in icing conditions is only authorized with full operational status of all the aircraft de-icing systems above, plus the wing inspection light.

The wing inspection light is activated from the EXTERNAL LIGHTS switch panel by the switch labeled WING being moved to ON. No functional or failure indications are provided.

A full description of all of the de-ice systems, their switch terminology and caution and warning logic is provided in Section 7.

The probes de-ice should be selected to on, prior to, and during all flights.

During the icing encounter the pneumatic de-ice boots will operate continuously in either 3min or 1min cycle mode as selected by the aircrew. During this time the aircrew should frequently monitor the continual shedding of ice from the wing leading edge and the airframe for ice accretion on all visible surfaces that could affect aircraft controllability. It should be noted that some residual ice will be maintained on the wing leading edge during cycling of the boots.

During the icing encounter continue to monitor the CAWS for correct function of the ice protection systems.

During flight in icing conditions the aircraft may be subject to a slight degradation in aircraft performance and engine performance. This may be recognized by a required increase in engine power to maintain a constant indicated airspeed and an increased engine ITT to maintain a constant power respectively. If failure of any of the ice protection systems occurs this degradation may become more severe. After such failure the pilot should make immediate arrangements for departure of icing conditions as soon as practicable. If required ATC priority assistance should be requested.

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The emergency procedures, concerning failure of the ice protection systems during flight in icing conditions, are provided in Section 3.

On departure from icing conditions the inertial separator (INERT SEP) and the propeller deice system (PROP DE ICE) should be kept OPEN and ON respectively until all visible and unprotected areas of the aircraft are observed as being free of ice. This protects the engine from possible ice ingestion and maintains the stick shaker/pusher computer in PUSHER ICE MODE therefore protecting the aircraft against the onset of natural stall. The flaps are not to be extended beyond 15° or in the case of deice boot failure, left at 0°. If the flaps are in an extended position, do not retract them until the airframe is clear of ice.

On departure of icing conditions the deice boots are to be selected OFF and the windshield heat is to be selected as required for good visibility, irrespective of the presence of residual ice.

Once all visible protected and unprotected areas are observed as being free of ice then the inertial separator and the propeller deice system can be selected CLOSED and OFF respectively. This will return the stick shaker/pusher computer to its normal mode. The flaps can be extended or retracted to any required position.

When performing a landing approach after an icing encounter and with residual ice on the airframe the minimum landing speeds defined above should be observed. This will prevent stick shaker activation in PUSHER ICE MODE.

When performing a landing approach after an icing encounter and with residual ice on the airframe the flap limitations defined above must be observed.

Of note, the tailplane may have residual ice that is not visible to the pilot. The speeds listed as minimum recommended speeds for icing encounters should be adhered to and recognized as MINIMUM recommended speeds following any icing encounter where there is even the slightest suspicion that the airframe may have residual ice. As additional operational guidance and, if possible, the pilot should maintain a minimum airspeed of 150 KIAS, in the clean configuration, throughout the IFR approach procedures, including initial and intermediate segments. It is also recommended to fly the approach segment clean as well as to establish the landing configuration with gear down and flaps 15° (pusher ice mode AOA or DSB centered) not later than passing through 1000 ft. AGL.

After you have encountered, or suspect you have encountered, severe icing, you should apply the procedures as given in para 4.25.

In case of a balked landing go around after an icing encounter, the climb speeds defined above should be maintained. This will prevent stick shaker activation in PUSHER ICE MODE.

In case of a balked landing go around after an icing encounter, the flap position should not be changed and should be maintained at the approach position.

The landing gear can be retracted but a locked indication may not be achieved due to ice contamination of the up position switch striker.

Use of **ICE X** (B.F. Goodrich Brand Name) improves the shedding capability of the pneumatic de-ice boots. Its use (see Aircraft Maintenance Manual) is recommended but not mandatory.

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System	Setting	CAWS STATUS	
		System Functional	System Failed
BOOTS	1MIN 3MIN	**DE ICE BOOTS** GREEN on	**DE ICE BOOTS** GREEN off with **DE ICE** AMBER on
PROP	ON		**PROP DE ICE** AMBER on
INERT SEP	OPEN		**INERT SEP** AMBER on
LH or RH WSH	HEAVY LIGHT		**WSHLD HEAT** AMBER on
PROBES	ON		(Left or right Pitot Heating System Failure) **PITOT 1 or PITOT 2** AMBER on (Static Port Heating System Failure) **STATIC** AMBER on (AOA Heating System Failure) **AOA DE ICE** AMBER on
PUSHER ICE MODE	PROP and INERT SEP OPEN	**PUSHER ICE MODE** GREEN on	**PUSHER ICE MODE** green off with **PUSHER** AMBER on

An aural gong sounds when an amber caption comes on.

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Figure 4-3. Ice Protection Systems CAWS Advisory

4.25 SEVERE ICING CONDITIONS

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.

The following weather conditions may be conductive to severe in-flight icing:

- 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.

The following procedures are for exiting the severe icing environment and 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 for identifying severe icing conditions are observed, accomplish the following:

- report the weather conditions to Air Traffic Control
- 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.

It should be recalled that flight in severe icing conditions may exceed the capabilities of the aircraft ice protection systems. If severe icing has been encountered or suspected, even after having exited icing conditions, the pilot should consider maintaining speeds higher than the minimum recommended speeds to account for the possibility if degraded flying qualities due to excessive residual ice.

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4.26 PREVENTING OF FROZEN/LOCKED BRAKES (IF CARBON BRAKES INSTALLED)

Frozen brakes could occur when fully saturated with water and operated at or below +41° F (+5° C). The following procedures will help to prevent frozen brakes:

TAXI BEFORE TAKEOFF

- Dry out the brakes with 3 complete taxi stops in the last 10 minutes prior to takeoff

TAKEOFF

- Do not operate the brakes after takeoff
- Avoid prolonged gear down flight in freezing conditions

LANDING

- Do not operate the brakes before landing
- If operating conditions permit avoid prolonged gear down flight in freezing conditions
- Make a positive contact with the runway and achieve wheel load as quickly as possible
- If operating conditions permit use the brakes to slow down the aircraft and minimize the use of propeller reverse in order to drive off excessive moisture.

TAXI AFTER LANDING

- Use the brakes to slow down the aircraft and minimize the use of propeller reverse in order to drive off excessive moisture.

AIRCRAFT WASHING

- Install wheel/tire covers to minimize water ingress.

CAUTION

DO NOT USE ANTI-ICING OR DEFROST AGENTS (SUCH AS ETHYLENE GLYCOL) ON CARBON BRAKES, THIS CAN HAVE AN ADVERSE EFFECT ON VIBRATION, OXIDATION AND WEAR OF THE CARBON.

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SECTION 5

PERFORMANCE

TABLE OF CONTENTS

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Subject	Page

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Subject **Page**

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

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GENERAL

This section contains all of the required and complementary performance data for airplane operation. PC-12/45 operation with this POH is limited in the performance charts to an aircraft Maximum Takeoff Weight of 9921 lb (4500 kg). Aircraft performance associated with optional equipment and systems which require supplements is provided in Section 9, Supplements.

The performance information presented in this section is derived from actual flight test data corrected to standard day conditions and analytically expanded for the different parameters such as weight, altitude, and temperature, etc. This information does not account for many factors that the pilot must evaluate before each takeoff such as pilot proficiency, aircraft condition, runway surface and slope other than that specified, or the effect of winds aloft. When necessary, a performance chart (table) will specify the aircraft configuration and the procedure to achieve the published performance.

NOTE

The take-off, accelerate –stop and landing distance performance chart data is based on a **DRY TARMAC RUNWAY** surface. Runways that are wet, or contaminated with slush or snow will adversely affect the runway coefficient of friction and subsequently increase the take-off, accelerate-stop and landing distance.

A Flight Planning Example is provided to assist the pilot in the preflight performance calculations as required by the operating regulations. Each performance chart (table) has an example plotted to indicate the proper sequence in which to use the chart and determine accurate performance data.

All performance data is limited to between the -55° C (-67° F) and +50° C (122° F) outside air temperature limits. Some tables presented in this section show data for temperatures below -55° C (-67° F) which is purely for ease of interpolation between data points. These temperature areas in the tables are shaded.

Performance data regarding takeoff, landing and accelerate-stop distances is presented up to 10,000 ft. This does not, however, imply an operational limitation of the aircraft. Field performance data at higher altitudes can be supplied under special request.

The stall speeds shown in the performance charts are achieved at an entry rate of 1 knot/second. Maximum altitude loss observed during the stall was 300 feet. During an accelerated stall, a rapid pitch-down in excess of 30° may result with an altitude loss of up to 500 feet.

By setting the climb torque as defined in this section, the recommended ITT of 720°C (see Section 4 Climb) could be exceeded.

When landing with flaps set to less than 40°, the total landing distances will be increased by the following factors:

FLAP SETTING	FACTOR
0°	1.83
15°	1.31
30°	1.22

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FAHRENHEIT TO CELSIUS CONVERSION

EXAMPLE:
DEGREES ~ °F 34 °F
DEGREES ~ °C 1 °C

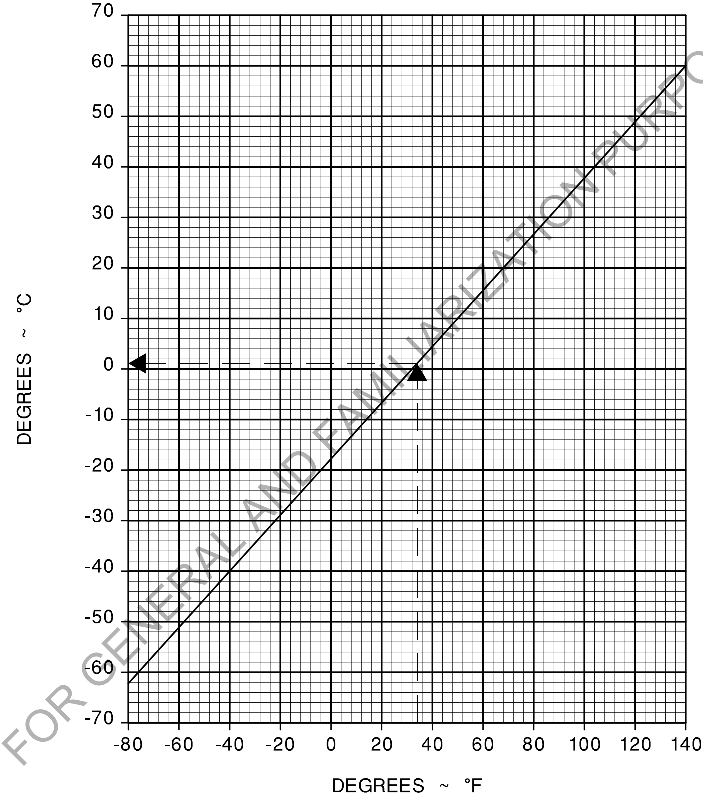

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Figure 5-1. Fahrenheit to Celsius Conversion

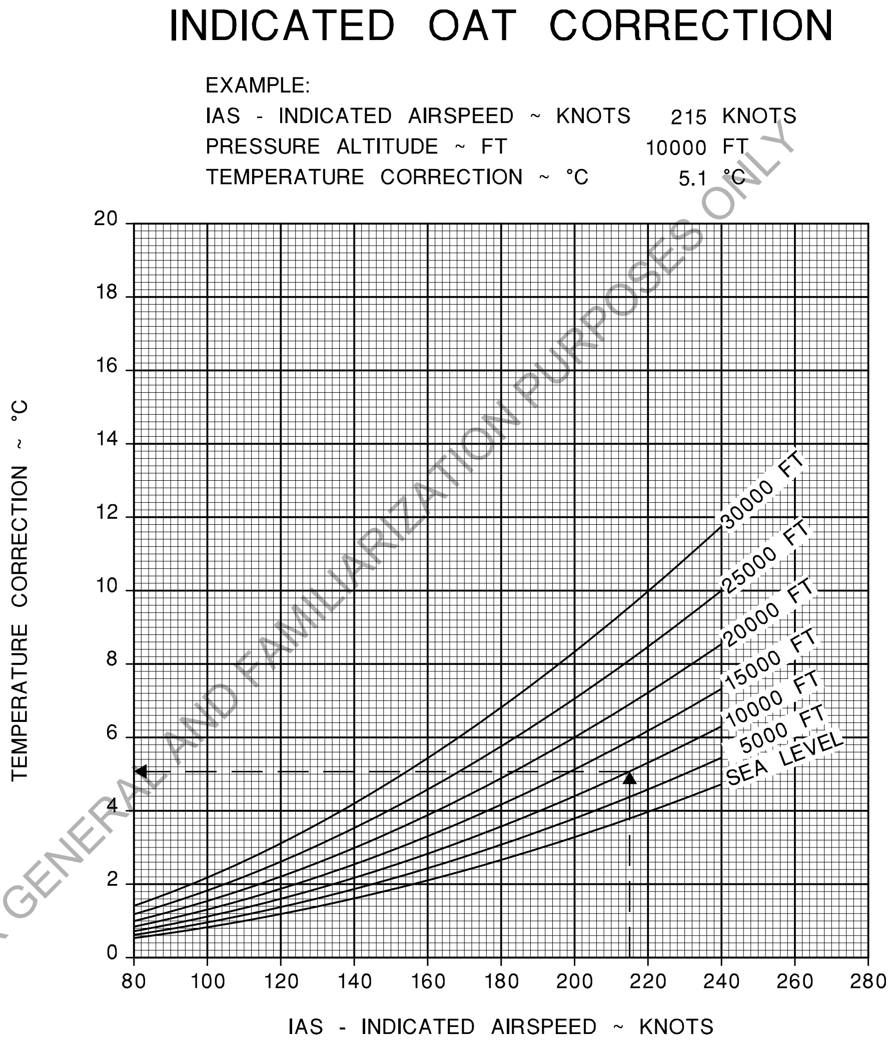

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Figure 5-2. Indicated OAT Correction

ISA TEMPERATURE CONVERSION

EXAMPLE:

OUTSIDE AIR TEMPERATURE ~ °C	-12 °C
PRESSURE ALTITUDE ~ FT	25000 FT
DIFFERENCE FROM ISA ~ °C	23 °C

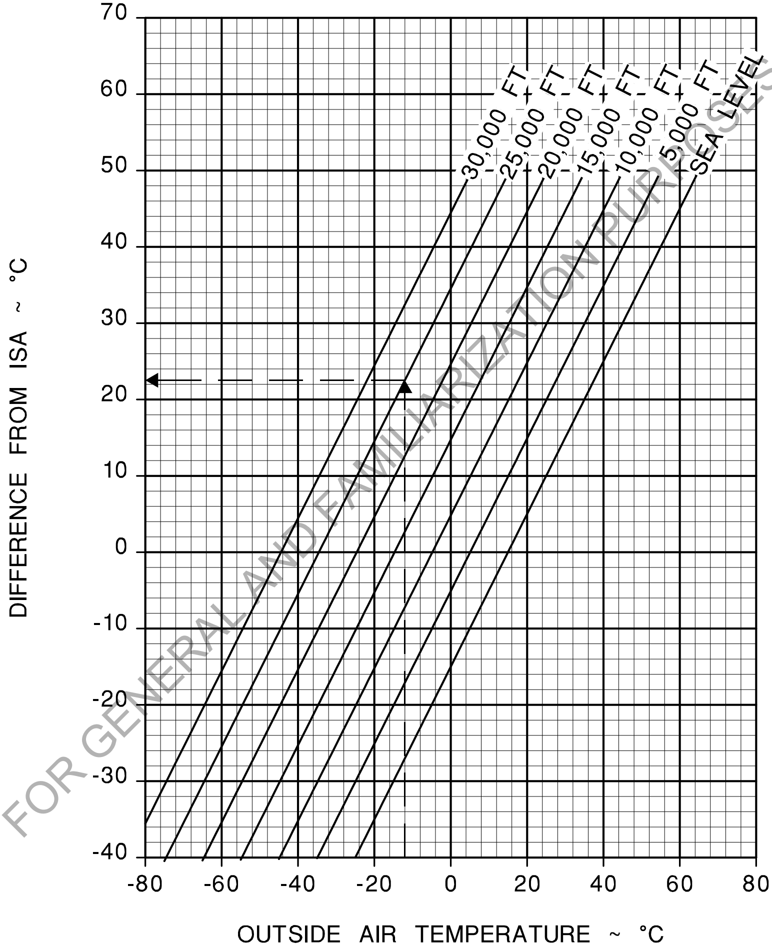

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Figure 5-3. ISA Conversion

US GALLONS TO LITERS CONVERSION

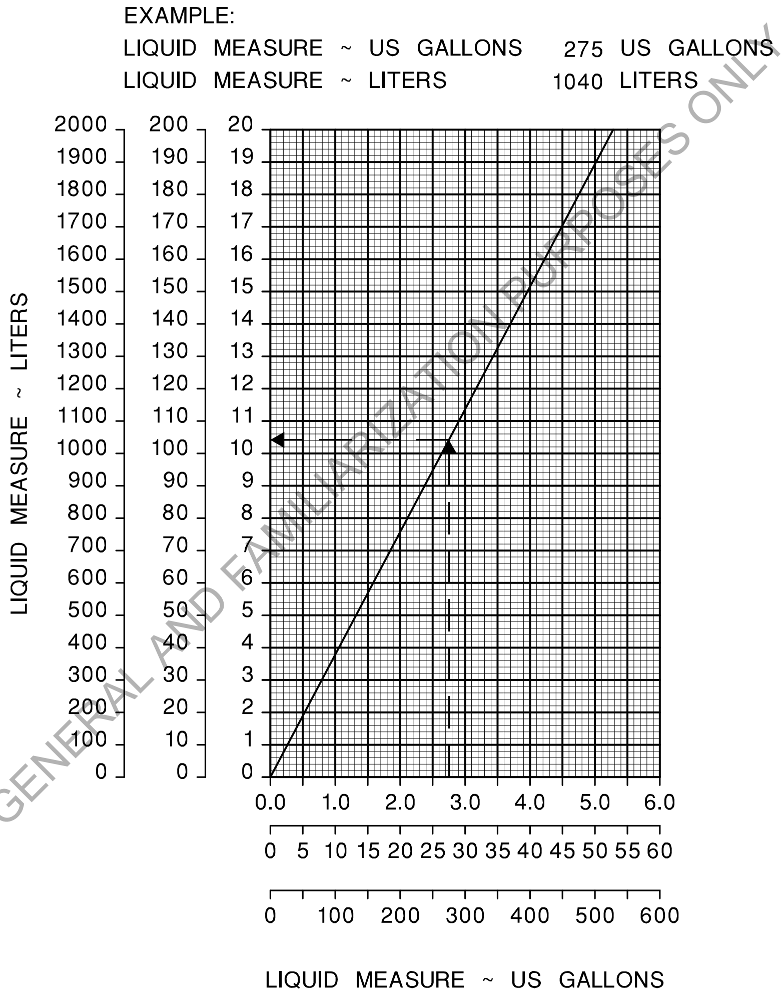

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Figure 5-4. U.S. Gallons to Liters Conversion

FEET TO METERS CONVERSION

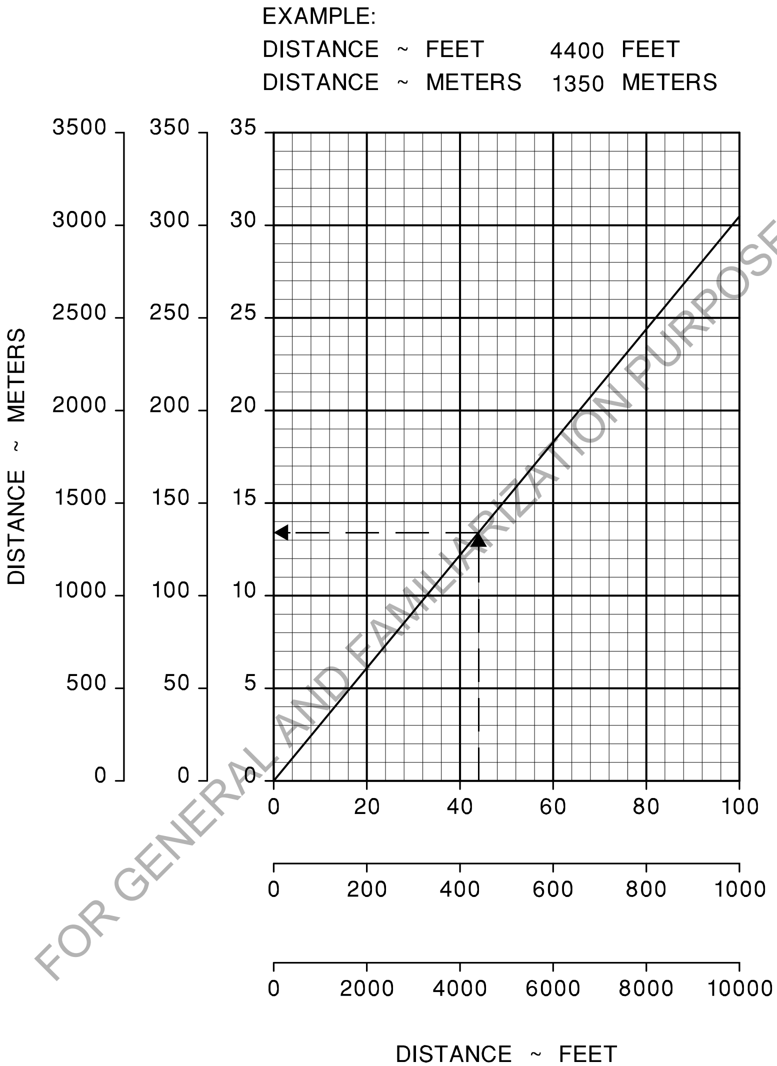

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Figure 5-5. Feet to Meters Conversion

POUNDS TO KILOGRAMS CONVERSION

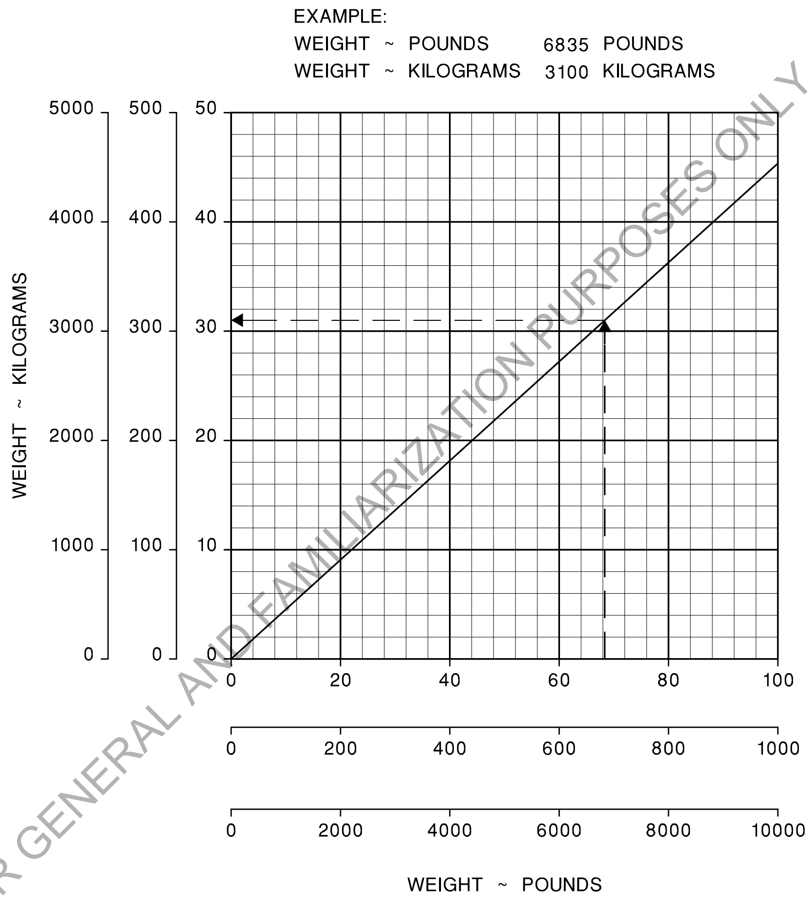

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Figure 5-6. Pounds to Kilograms Conversion

INCHES TO MILLIMETERS CONVERSION

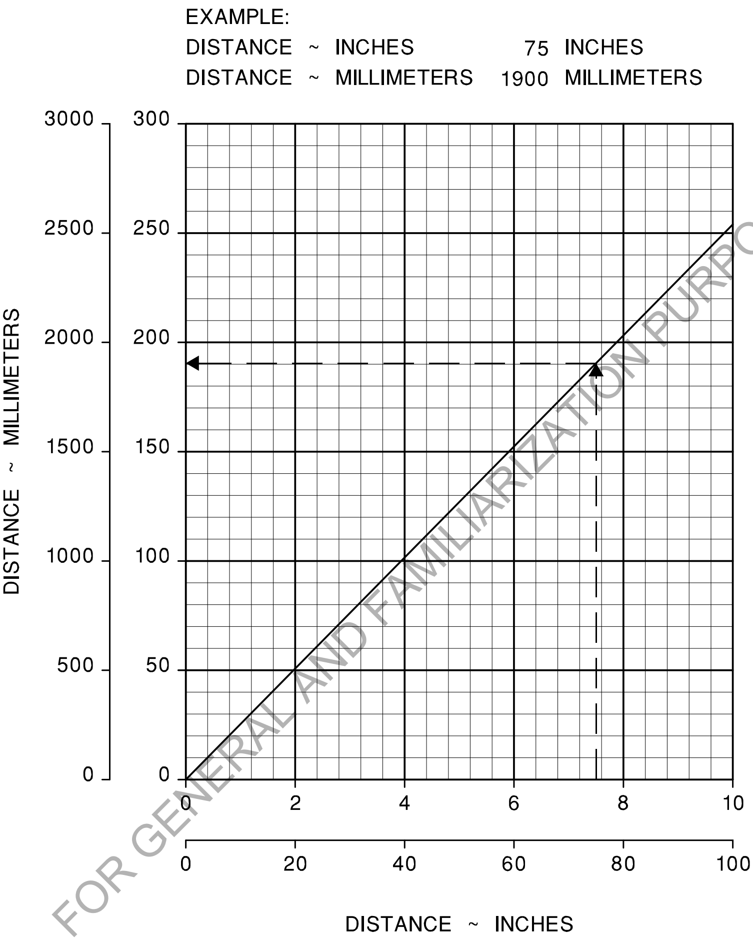

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Figure 5-7. Inches to Millimeters Conversion

TAKEOFF AND LANDING

CROSSWIND COMPONENT

EXAMPLE:	
WIND SPEED ~ KNOTS	31 KNOTS
WIND DIRECTION ~ °	34 °
CROSSWIND COMPONENT ~ KNOTS	17 KNOTS
HEADWIND COMPONENT ~ KNOTS	26 KNOTS

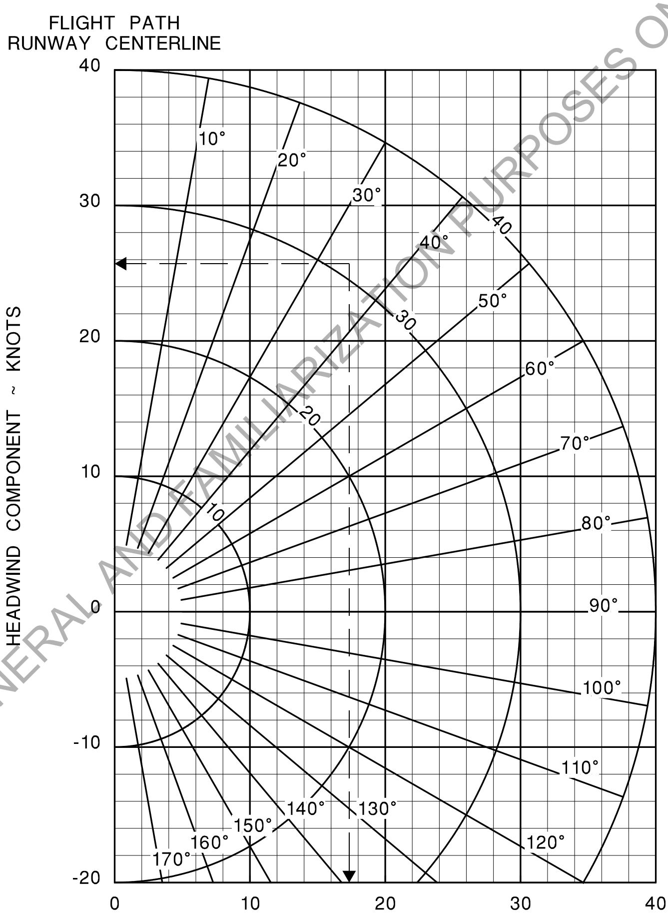

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Figure 5-8. Wind Components

AIRSPEED CALIBRATION - FLAPS RETRACTED

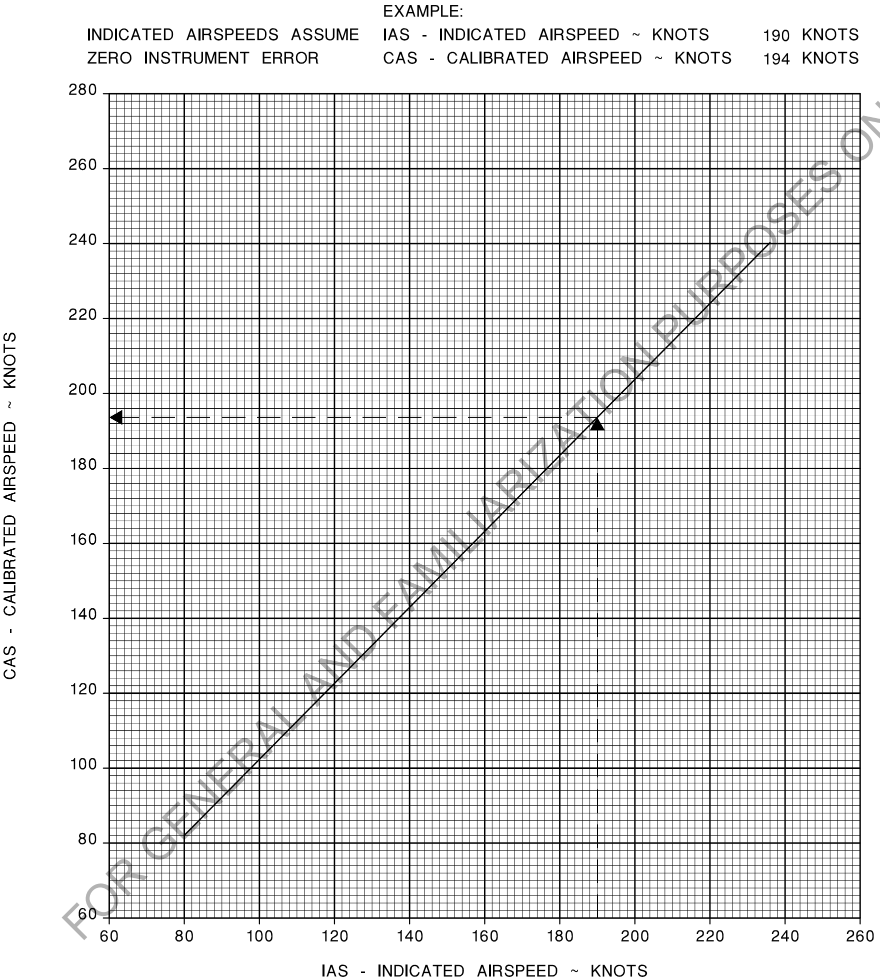

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Figure 5-9. Airspeed Calibration - Flaps Retracted

AIRSPEED CALIBRATION - FLAPS EXTENDED

EXAMPLE:

IAS - INDICATED AIRSPEED ~ KNOTS 91 KNOTS

FLAPS 15°

CAS - CALIBRATED AIRSPEED ~ KNOTS 93 KNOTS

INDICATED AIRSPEEDS ASSUME ZERO INSTRUMENT ERROR

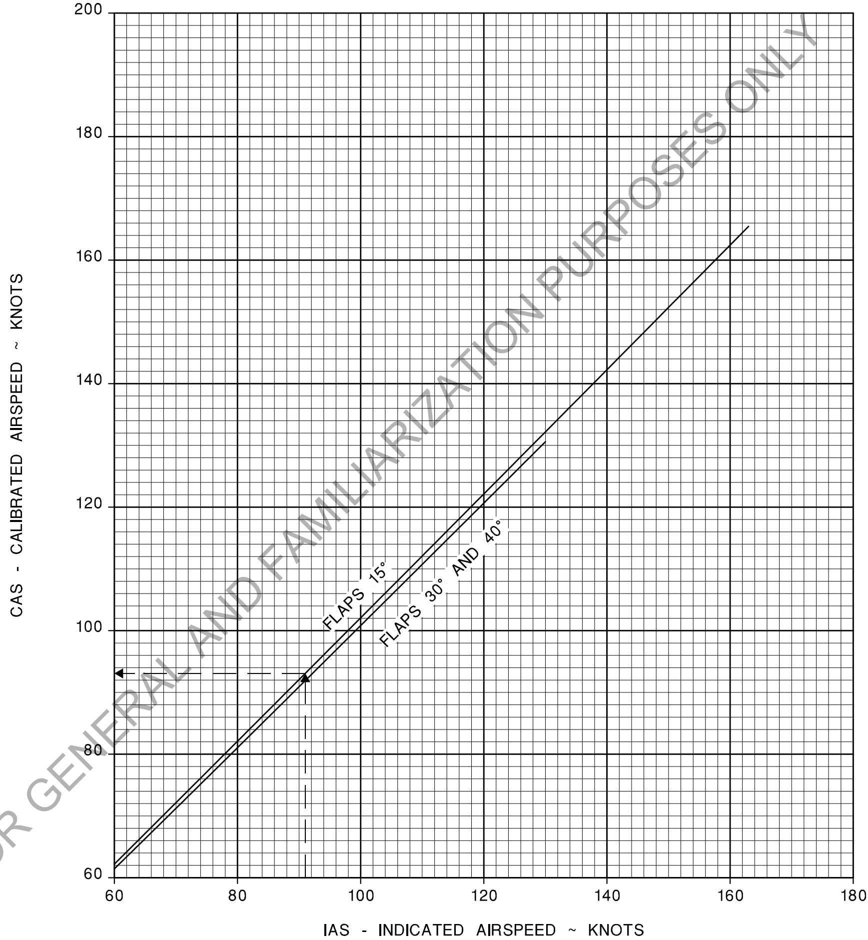

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Figure 5-10. Airspeed Calibration - Flaps Extended

ALTIMETER CORRECTION

ADD ALTIMETER CORRECTION TO INDICATED ALTITUDE TO OBTAIN CORRECTED ALTITUDE
ALTIMETER ERROR SHOWN IS FOR FLAPS RETRACTED WITH FLAPS EXTENDED THE ERROR NEVER EXCEED 20 FT

EXAMPLE:

IAS - INDICATED AIRSPEED ~ KNOTS	215	KNOTS
PRESSURE ALTITUDE ~ FT	10000	FT
ALTIMETER CORRECTION ~ FEET	52	FEET

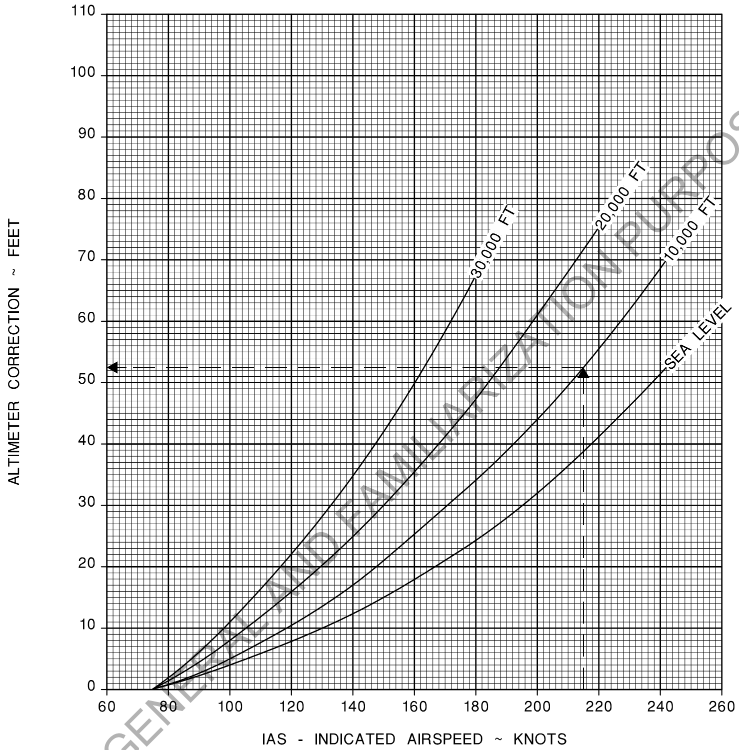

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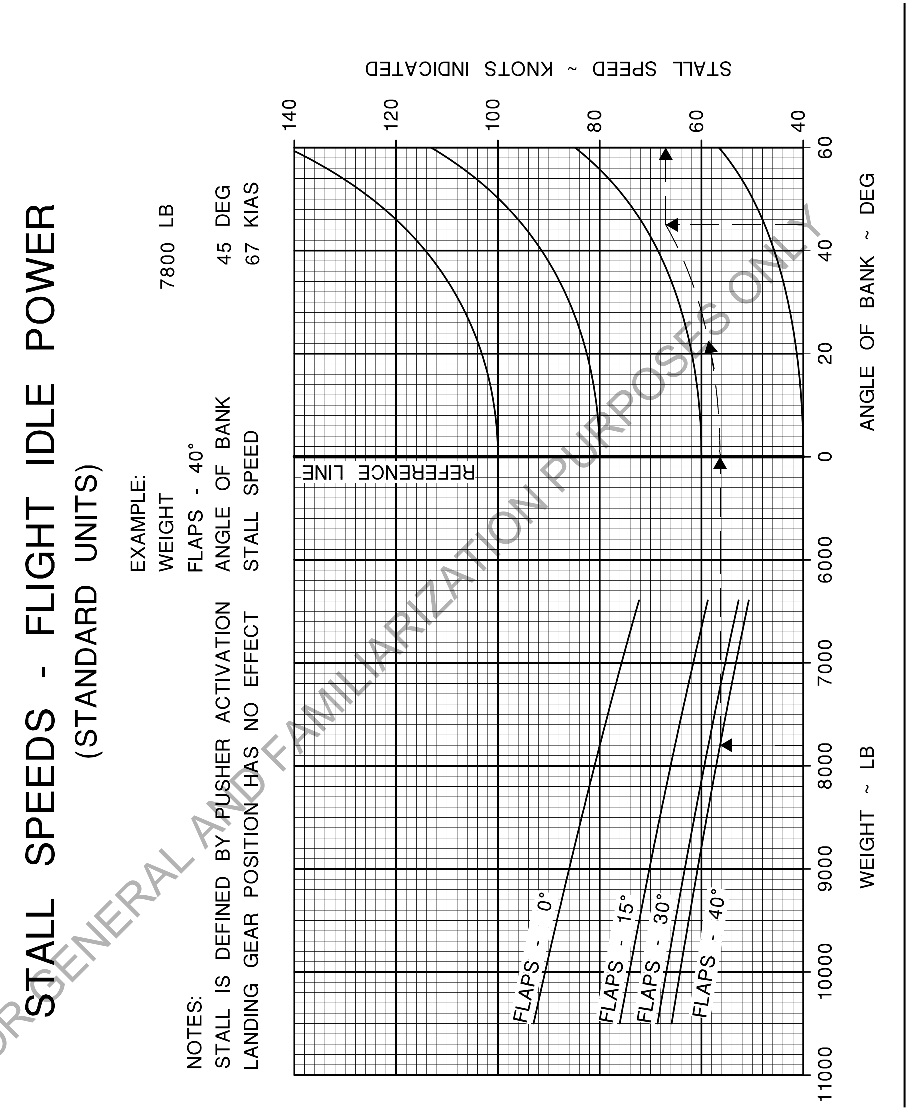
Figure 5-11. Altimeter Correction



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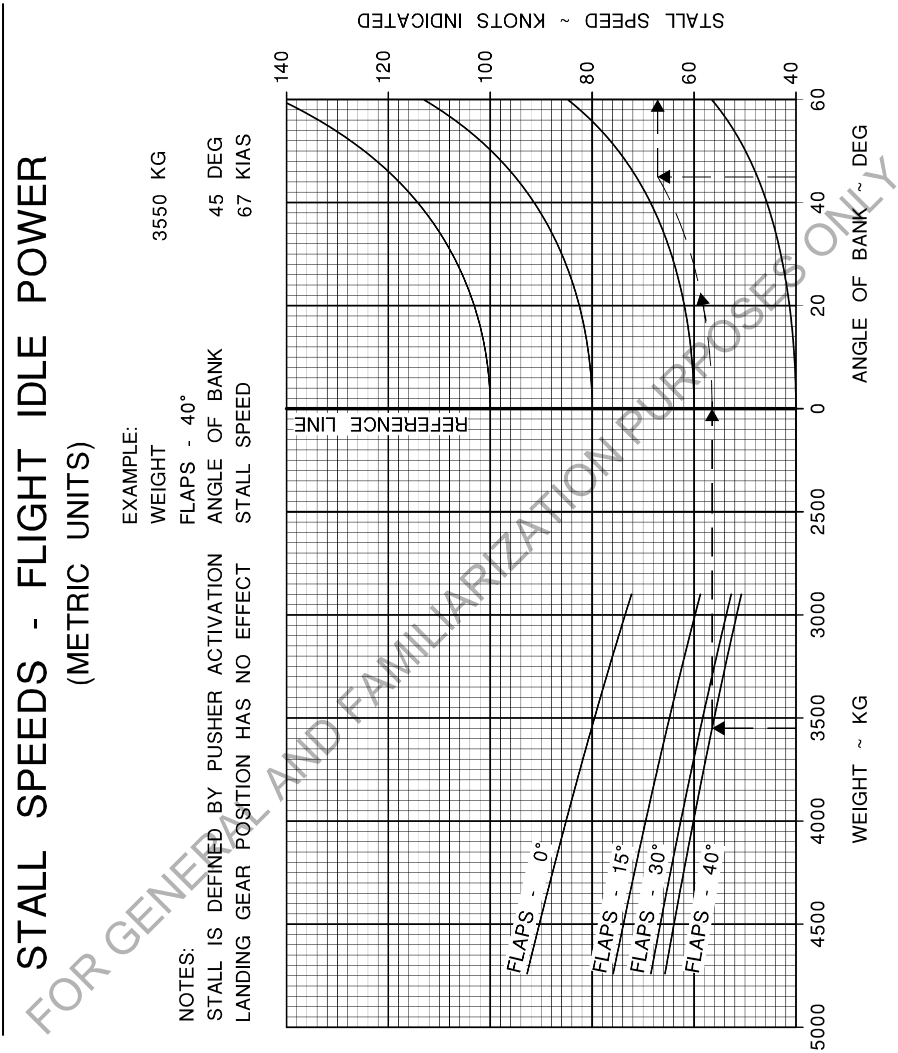
See FLIGHT IN ICING CONDITIONS para for info on effect of icing

Figure 5-12. Stall Speeds KIAS - Flight Idle Power (standard units)



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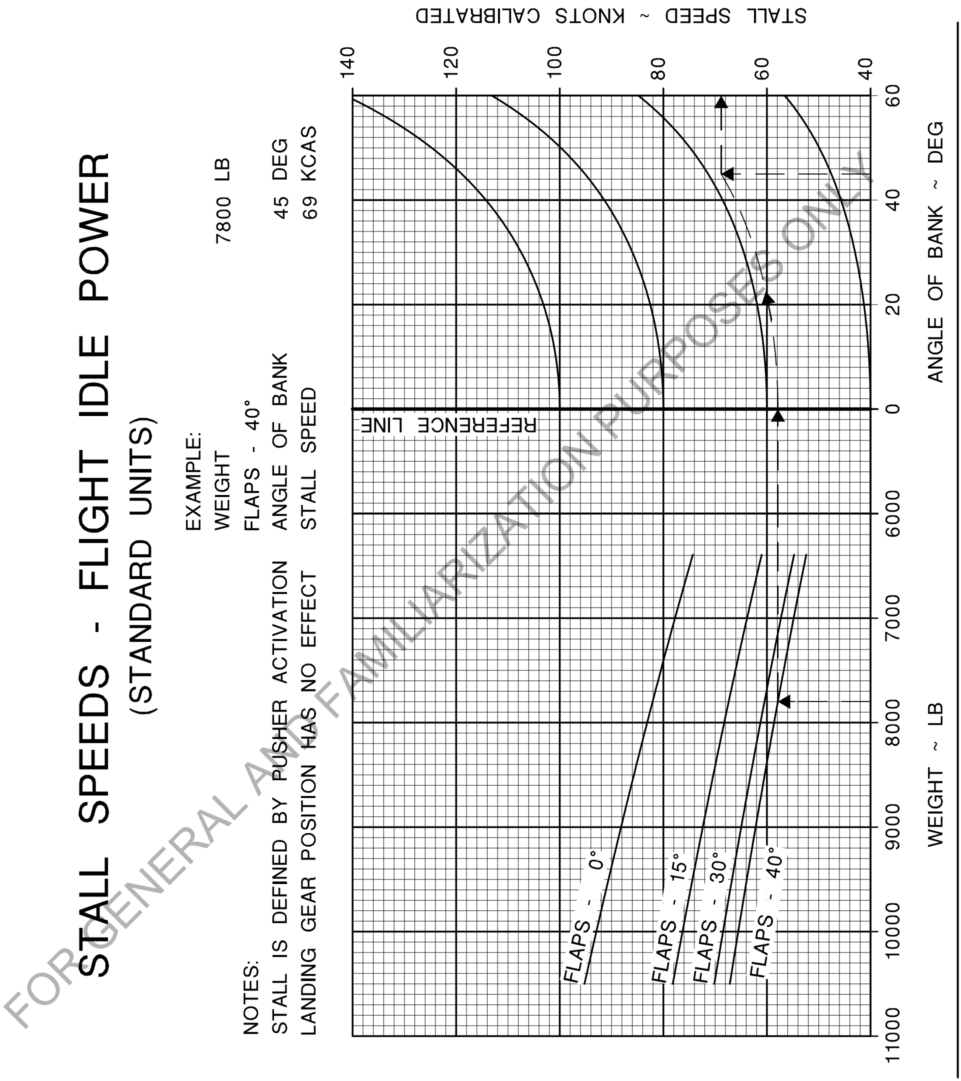
See FLIGHT IN ICING CONDITIONS para for info on effect of icing

Figure 5-13. Stall Speeds KIAS - Flight Idle Power (metric units)



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See FLIGHT IN ICING CONDITIONS para for info on effect of icing

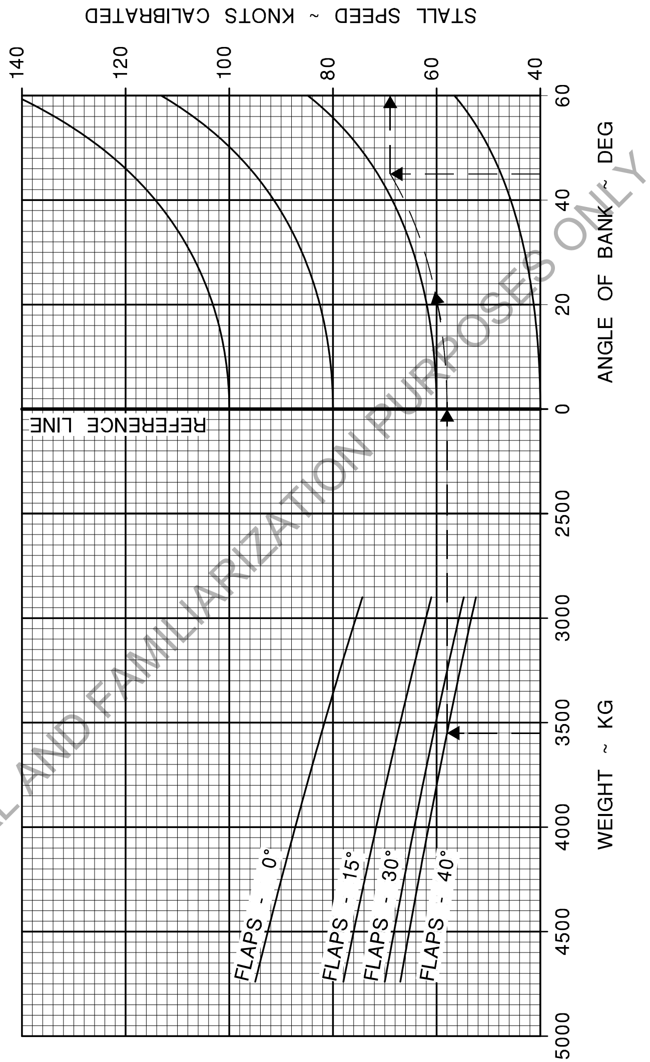
Figure 5-14. Stall Speeds KCAS - Flight Idle Power (standard units)

STALL SPEEDS - FLIGHT IDLE POWER
(METRIC UNITS)

EXAMPLE:

WEIGHT	3550 KG
FLAPS - 40°	
ANGLE OF BANK	45 DEG
STALL SPEED	69 KCAS

NOTES:
STALL IS DEFINED BY PUSHER ACTIVATION
LANDING GEAR POSITION HAS NO EFFECT



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See FLIGHT IN ICING CONDITIONS para for info on effect of icing

Figure 5-15. Stall Speeds KCAS - Flight Idle Power (metric units)

 Issued: March 30, 2001
Revision 3: October 28, 2005

STATIC TAKEOFF TORQUE

TORQUE WILL INCREASE
WITH INCREASING AIRSPEED
PROPELLER SPEED 1700 RPM
INERTIAL SEPARATOR CLOSED
MAXIMUM TORQUE REDUCTION WITH
INERTIAL SEPARATOR OPEN :
- 1.2 PSI IN NON ICING CONDITIONS
- 2.1 PSI IN ICING CONDITIONS

EXAMPLE:

ALTITUDE ~ FT	4000 FT
OAT ~ °C	28 °C
ENGINE TORQUE ~ PSI	41 PSI

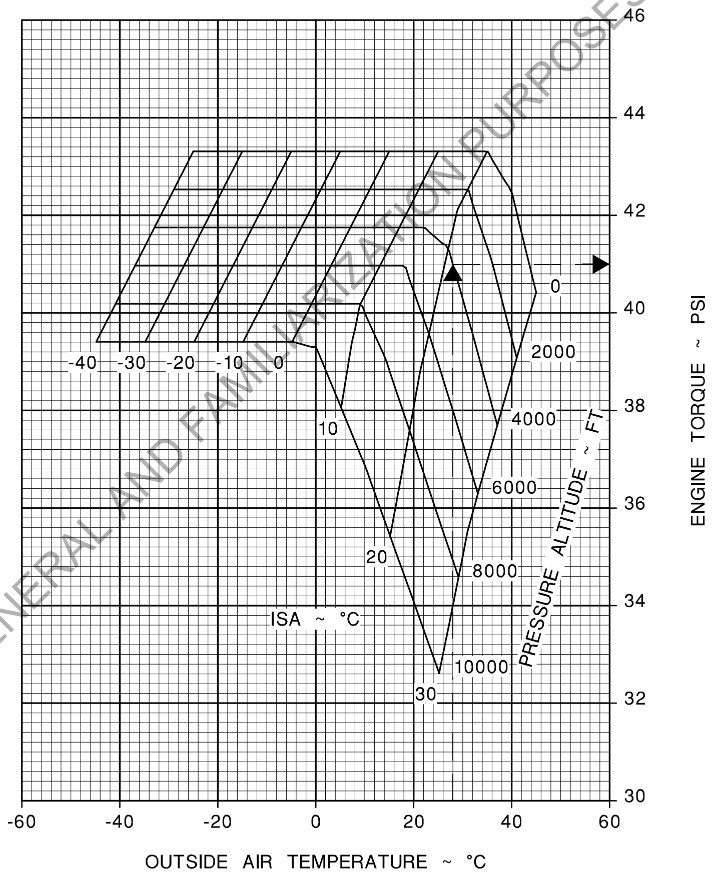

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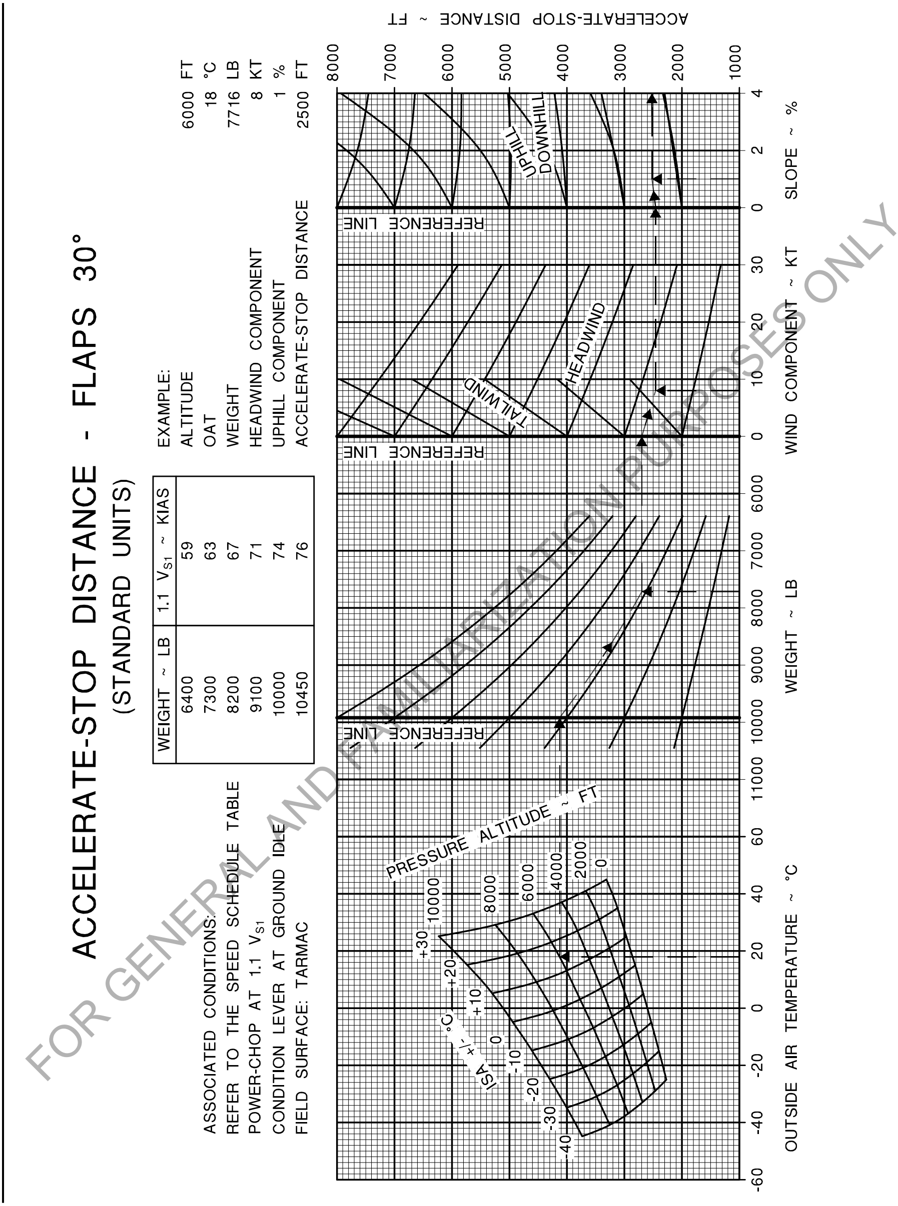
Figure 5-16. Static Takeoff Torque



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See FLIGHT IN ICING CONDITIONS para for info on effect of icing

Figure 5-17. Accelerate - Stop Distance - Flaps 30° (standard units)

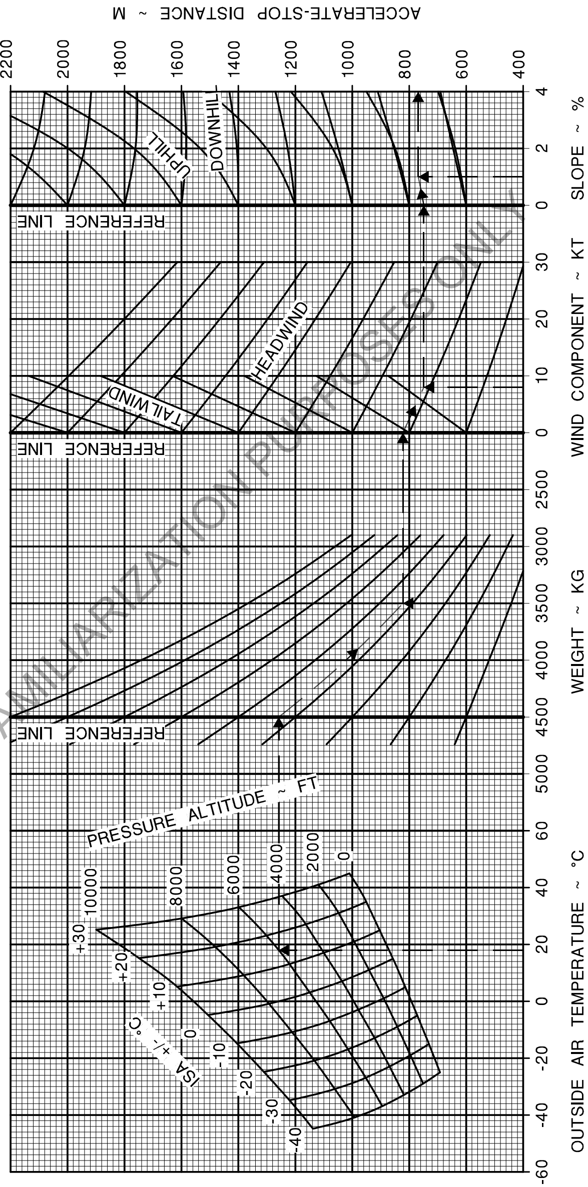
ACCELERATE-STOP DISTANCE - FLAPS 30°

(METRIC UNITS)

WEIGHT ~ KG	1.1 V_{S1} ~ KIAS
2900	59
3300	63
3700	67
4100	71
4500	74
4740	76

ASSOCIATED CONDITIONS:
REFER TO THE SPEED SCHEDULE TABLE
POWER-CHOP AT 1.1 V_{S1}
CONDITION LEVER AT GROUND IDLE
FIELD SURFACE: TARMAC

EXAMPLE:	
ALTITUDE	6000 FT
OAT	18 °C
WEIGHT	3500 KG
HEADWIND COMPONENT	8 KT
UPHILL COMPONENT	1 %
ACCELERATE-STOP DISTANCE	770 M



See FLIGHT IN ICING CONDITIONS para for info on effect of icing

Figure 5-18. Accelerate - Stop Distance - Flaps 30° (metric units)

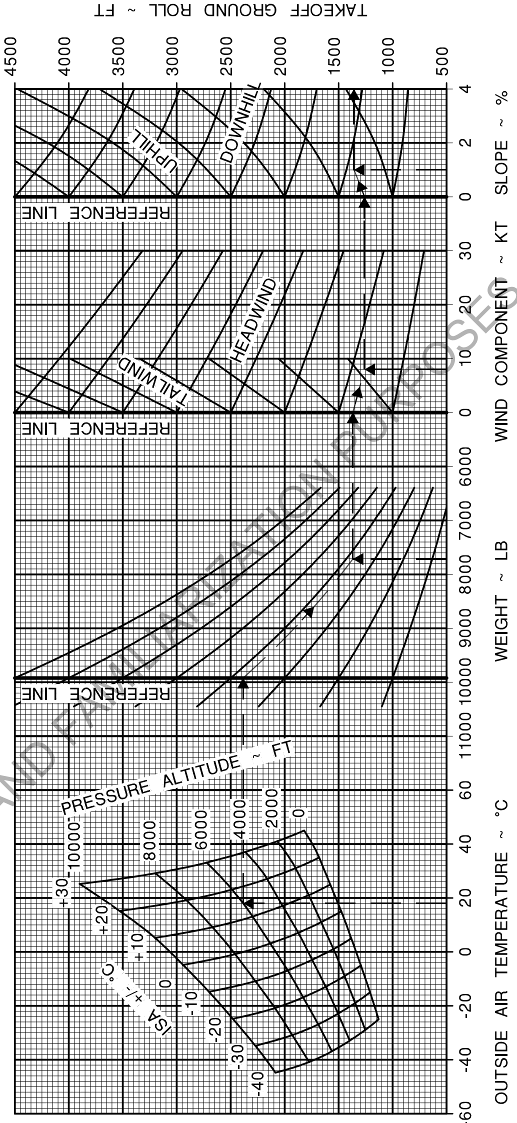
TAKEOFF GROUND ROLL - FLAPS 30°

(STANDARD UNITS)

WEIGHT ~ LB	V_R ~ KIAS
6400	58
7300	62
8200	66
9100	70
10000	73
10450	75

EXAMPLE:	
ALTITUDE	6000 FT
OAT	18 °C
WEIGHT	7716 LB
HEADWIND COMPONENT	8 KT
UPHILL COMPONENT	1 %
TAKEOFF GROUND ROLL	1350 FT

ASSOCIATED CONDITIONS:
REFER TO THE SPEED SCHEDULE TABLE
LIFT OFF AT 1.1 V_{S1}
RUNWAY SURFACE: TARMAC



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See FLIGHT IN ICING CONDITIONS para for info on effect of icing

Figure 5-19. Takeoff Ground Roll - Flaps 30° (standard units)

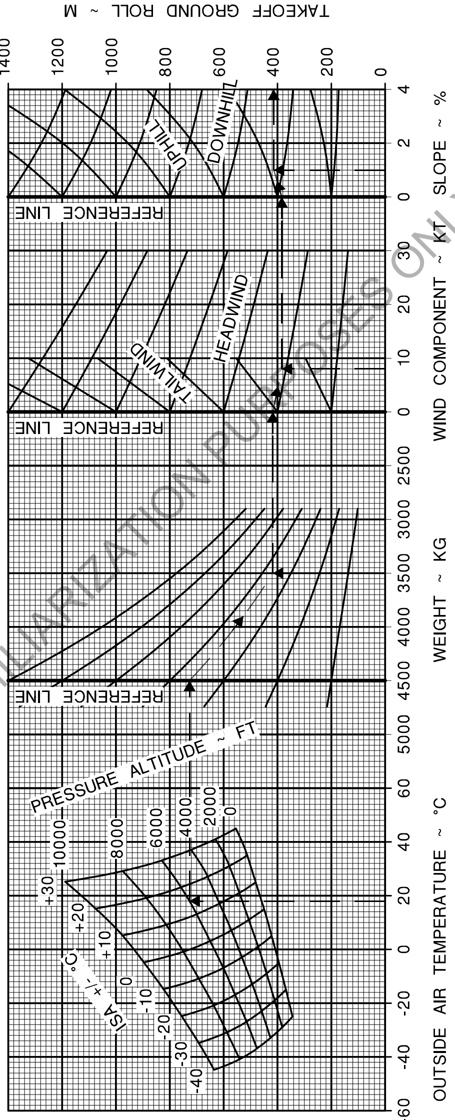
TAKEOFF GROUND ROLL - FLAPS 30°
(METRIC UNITS)

WEIGHT ~ KG	V_R ~ KIAS
2900	58
3300	62
3700	66
4100	70
4500	73
4740	75

EXAMPLE:

ALTITUDE	6000 FT
OAT	18 °C
WEIGHT	3500 KG
HEADWIND COMPONENT	8 KT
UPHILL COMPONENT	1 %
TAKEOFF GROUND ROLL	410 M

ASSOCIATED CONDITIONS:
REFER TO THE SPEED SCHEDULE TABLE
LIFT OFF AT 1.1 V_{S1}
RUNWAY SURFACE: TARMAC



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See FLIGHT IN ICING CONDITIONS para for info on effect of icing

Figure 5-20. Takeoff Ground Roll - Flaps 30° (metric units)

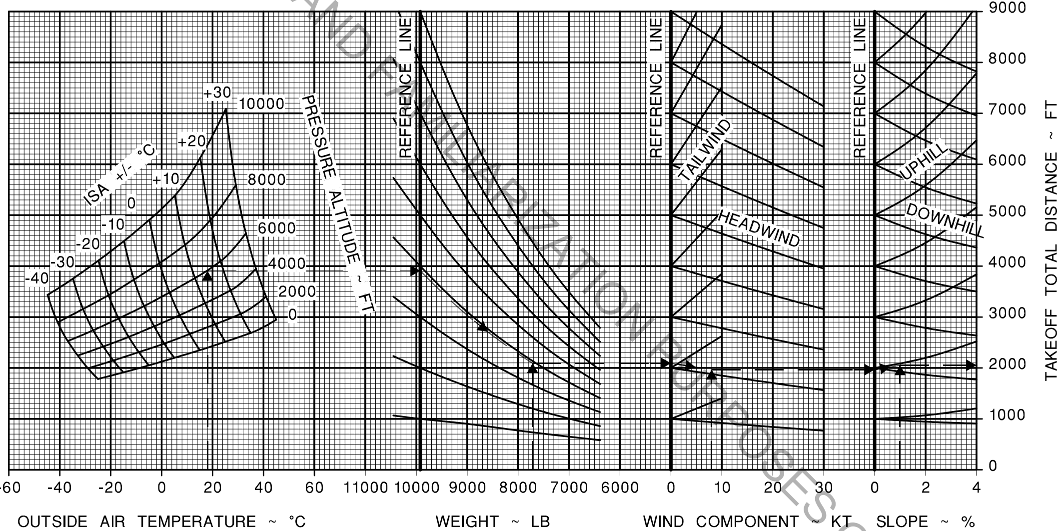
TAKEOFF TOTAL DISTANCE - FLAPS 30°

OVER 50 FT OBSTACLE; (STANDARD UNITS)

ASSOCIATED CONDITIONS:
LIFT OFF AT 1.1 V_{S1}
OBSTACLE AT 1.3 V_{S1}
REFER TO THE SPEED SCHEDULE TABLE
RUNWAY SURFACE: TARMAC

WEIGHT ~ LB	V_R ~ KIAS	V_{50FT} ~ KIAS
6400	58	71
7300	62	76
8200	66	81
9100	70	85
10000	73	89
10450	75	91

EXAMPLE:	
ALTITUDE	6000 FT
OAT	18 °C
WEIGHT	7716 LB
HEADWIND COMPONENT	8 KT
UPHILL COMPONENT	1 %
TAKEOFF TOTAL DISTANCE	2050 FT



FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

See FLIGHT IN ICING CONDITIONS para for info on effect of icing

Figure 5-21. Takeoff Total Distance - Flaps 30° (standard units)

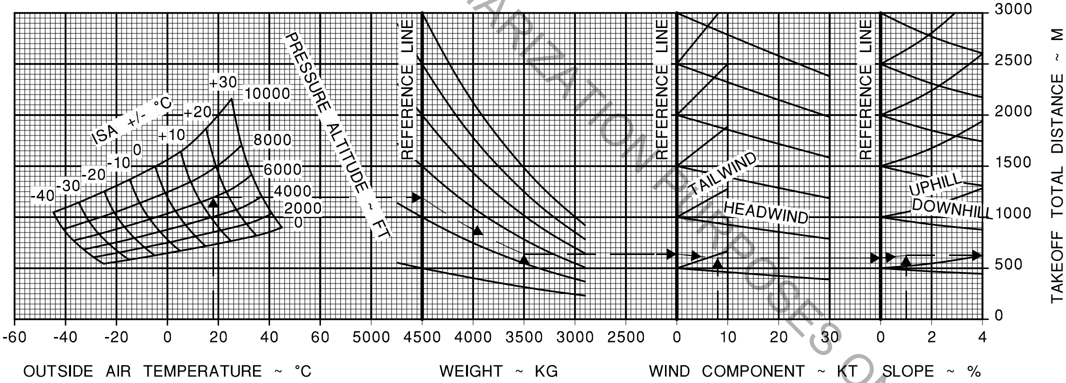
TAKEOFF TOTAL DISTANCE - FLAPS 30°

OVER 15 M OBSTACLE; (METRIC UNITS)

ASSOCIATED CONDITIONS:
LIFT OFF AT 1.1 V_{S1}
OBSTACLE AT 1.3 V_{S1}
REFER TO THE SPEED SCHEDULE TABLE
RUNWAY SURFACE: TARMAC

WEIGHT ~ KG	V_R ~ KIAS	V_{50FT} ~ KIAS
2900	58	71
3300	62	76
3700	66	81
4100	70	85
4500	73	89
4740	75	91

EXAMPLE:		
ALTITUDE	6000	FT
OAT	18	°C
WEIGHT	3500	KG
HEADWIND COMPONENT	8	KT
UPHILL COMPONENT	1	%
TAKEOFF TOTAL DISTANCE	625	M



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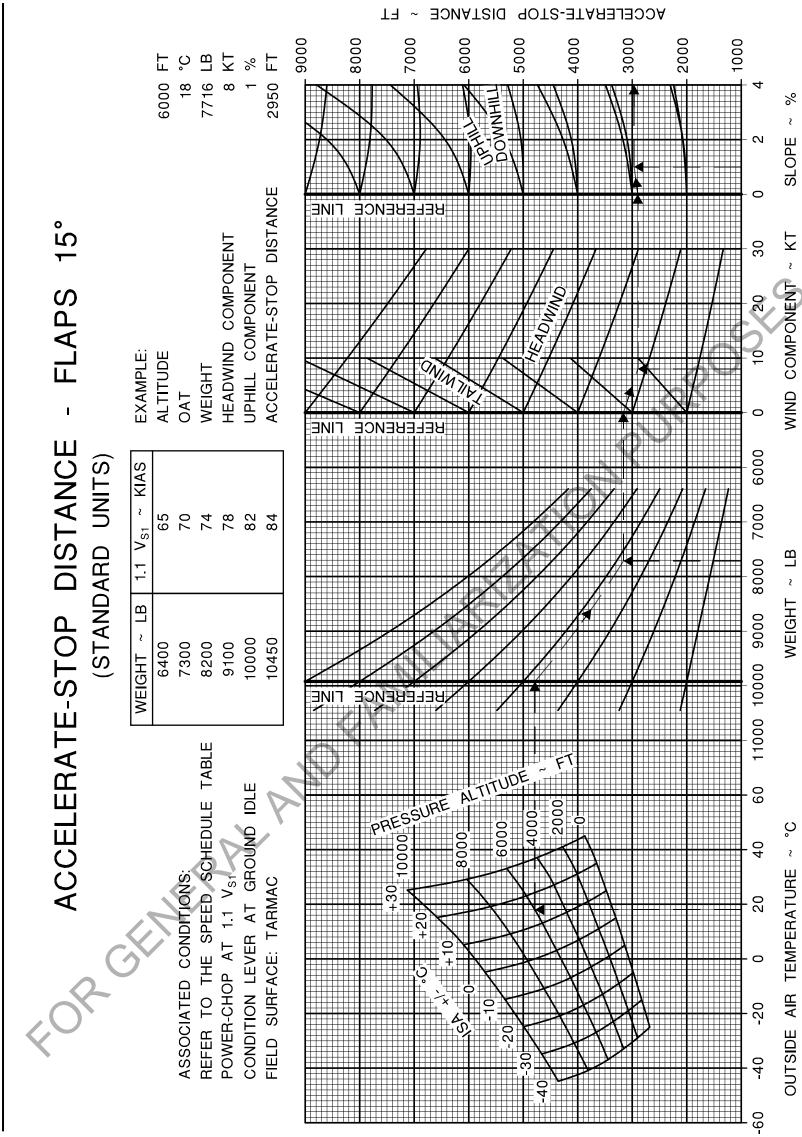
See FLIGHT IN ICING CONDITIONS para for info on effect of icing

Figure 5-22. Takeoff Total Distance - Flaps 30° (metric units)



WEIGHT ~ LB	1.1 V_{S1} ~ KIAS
6400	65
7300	70
8200	74
9100	78
10000	82
10450	84

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

See FLIGHT IN ICING CONDITIONS para for info on effect of icing

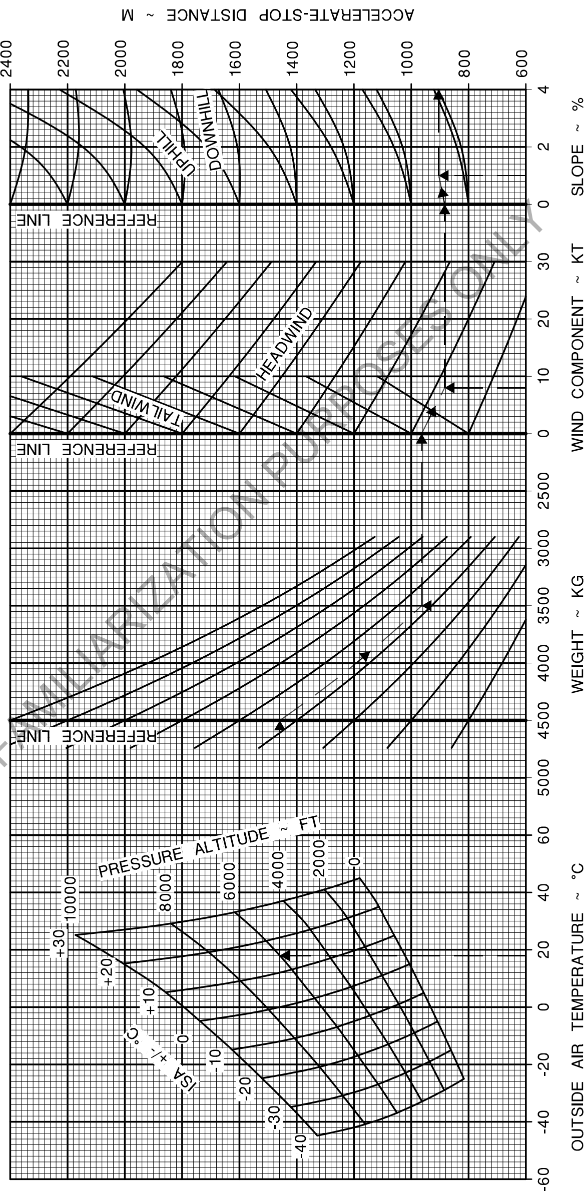
Figure 5-23. Accelerate - Stop Distance - Flaps 15° (standard units)

ACCELERATE-STOP DISTANCE - FLAPS 15°
(METRIC UNITS)

ASSOCIATED CONDITIONS:
REFER TO THE SPEED SCHEDULE TABLE
POWER-CHOP AT 1.1 V_{S1}
CONDITION LEVER AT GROUND IDLE
FIELD SURFACE: TARMAC

WEIGHT ~ KG	1.1 V_{S1} ~ KIAS
2900	65
3300	70
3700	74
4100	78
4500	82
4740	84

EXAMPLE:	
ALTITUDE	6000 FT
OAT	18 °C
WEIGHT	3500 KG
HEADWIND COMPONENT	8 KT
UPHILL COMPONENT	1 %
ACCELERATE-STOP DISTANCE	900 M



FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

See FLIGHT IN ICING CONDITIONS para for info on effect of icing

Figure 5-24. Accelerate - Stop Distance - Flaps 15° (metric units)

TAKEOFF GROUND ROLL - FLAPS 15°

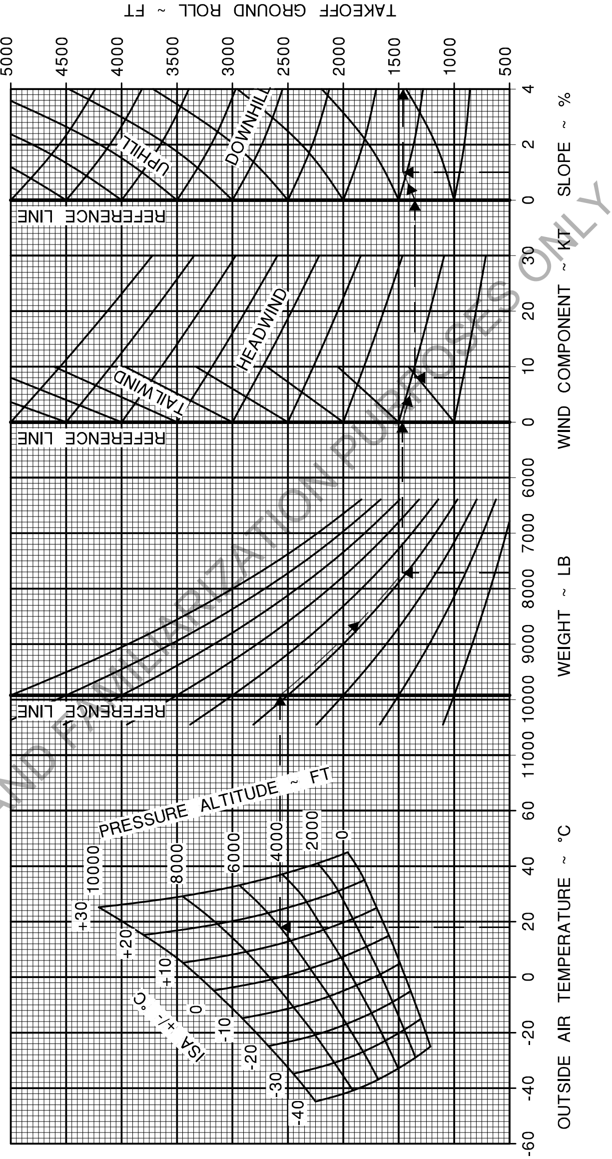
(STANDARD UNITS)

WEIGHT ~ LB	V_R ~ KIAS
6400	63
7300	67
8200	71
9100	75
10000	79
10450	81

EXAMPLE:

ALTITUDE	6000 FT
OAT	18 °C
WEIGHT	7716 LB
HEADWIND COMPONENT	8 KT
UPHILL COMPONENT	1 %
TAKEOFF GROUND ROLL	1450 FT

ASSOCIATED CONDITIONS:
LIFT OFF AT 1.1 V_{S1}
REFER TO THE SPEED SCHEDULE TABLE
RUNWAY SURFACE: TARMAC



FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

See FLIGHT IN ICING CONDITIONS para for info on effect of icing

Figure 5-25. Takeoff Ground Roll - Flaps 15° (standard units)

TAKEOFF GROUND ROLL - FLAPS 15°

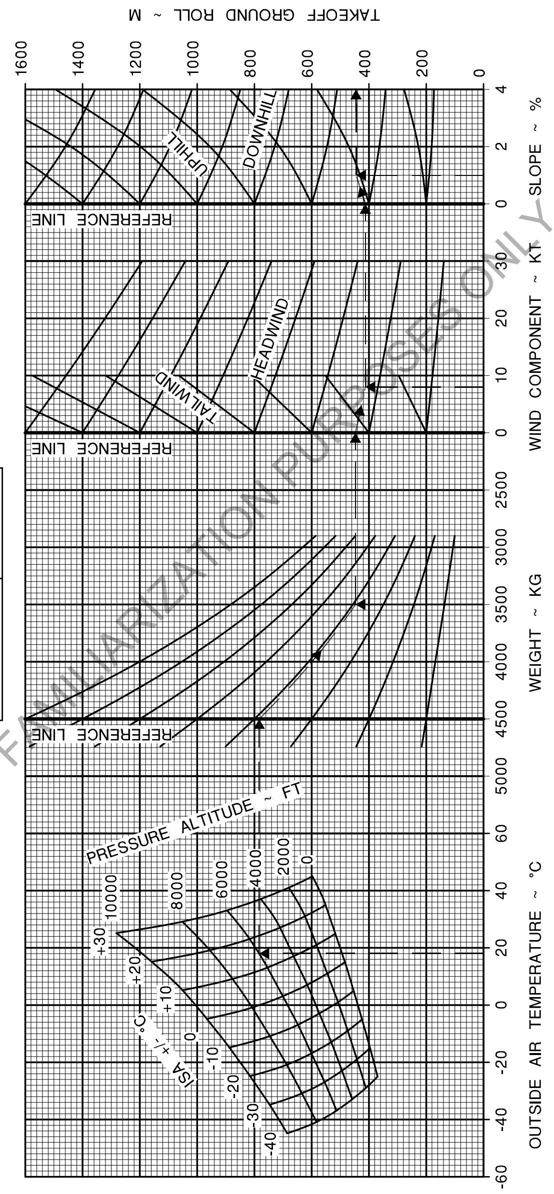
(METRIC UNITS)

WEIGHT ~ KG	V_R ~ KIAS
2900	63
3300	67
3700	71
4100	75
4500	79
4740	81

EXAMPLE:

ALTITUDE	6000 FT
OAT	18 °C
WEIGHT	3500 KG
HEADWIND COMPONENT	8 KT
UPHILL COMPONENT	1 %
TAKEOFF GROUND ROLL	450 M

ASSOCIATED CONDITIONS:
LIFT OFF AT 1.1 V_{S1}
REFER TO THE SPEED SCHEDULE TABLE
RUNWAY SURFACE: TARMAC



FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

See FLIGHT IN ICING CONDITIONS para for info on effect of icing

Figure 5-26. Takeoff Ground Roll - Flaps 15° (metric units)

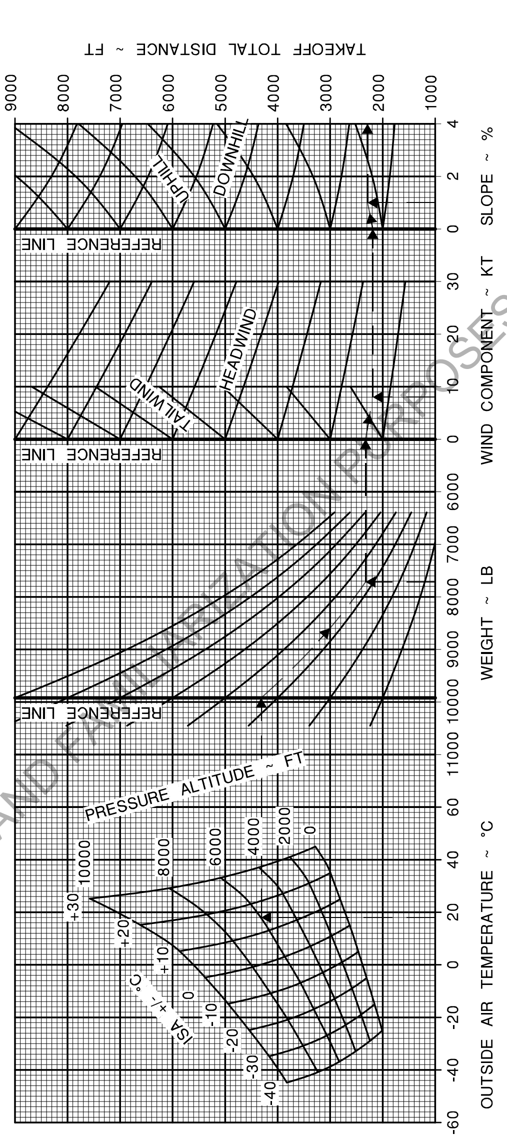
TAKEOFF TOTAL DISTANCE - FLAPS 15°

OVER 50 FT OBSTACLE; (STANDARD UNITS)

WEIGHT ~ LB	V_R ~ KIAS	V_{50FT} ~ KIAS
6400	63	78
7300	67	83
8200	71	88
9100	75	93
10000	79	98
10450	81	100

EXAMPLE:	
ALTITUDE	6000 FT
OAT	18 °C
WEIGHT	7716 LB
HEADWIND COMPONENT	8 KT
UPHILL COMPONENT	1 %
TAKEOFF TOTAL DISTANCE	2300 FT

ASSOCIATED CONDITIONS:
LIFT OFF AT 1.1 V_{S1}
OBSTACLE AT 1.3 V_{S1}
REFER TO THE SPEED SCHEDULE TABLE
RUNWAY SURFACE: TARMAC



FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

See FLIGHT IN ICING CONDITIONS para for info on effect of icing

Figure 5-27. Takeoff Total Distance - Flaps 15° (standard units)

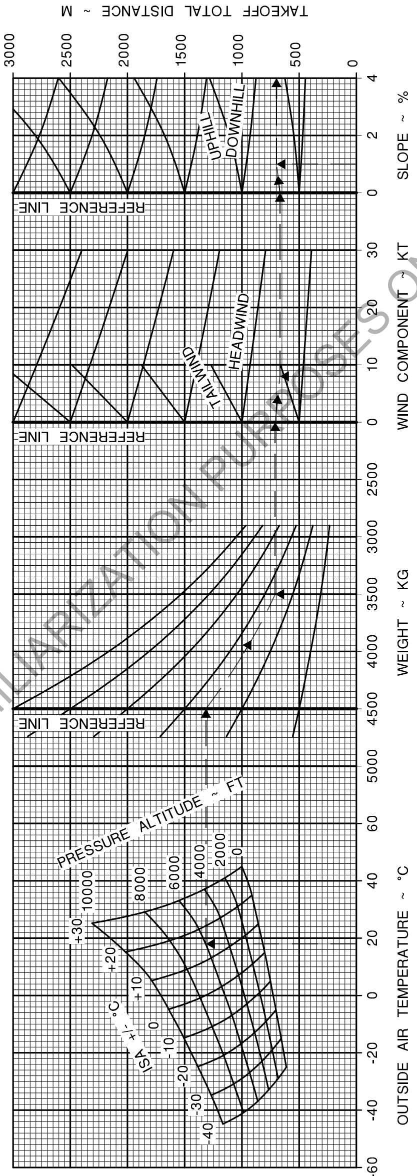
TAKEOFF TOTAL DISTANCE - FLAPS 15°

OVER 15 M OBSTACLE; (METRIC UNITS)

ASSOCIATED CONDITIONS:
LIFT OFF AT 1.1 V_{S1}
OBSTACLE AT 1.3 V_{S1}
REFER TO THE SPEED SCHEDULE TABLE
RUNWAY SURFACE: TARMAC

WEIGHT ~ KG	V_R ~ KIAS	V_{50FT} ~ KIAS
2900	63	78
3300	67	83
3700	71	88
4100	75	93
4500	79	98
4740	81	100

EXAMPLE:	
ALTITUDE	6000 FT
OAT	18 °C
WEIGHT	3500 KG
HEADWIND COMPONENT	8 KT
UPHILL COMPONENT	1 %
TAKEOFF TOTAL DISTANCE	700 M



FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

See FLIGHT IN ICING CONDITIONS para for info on effect of icing

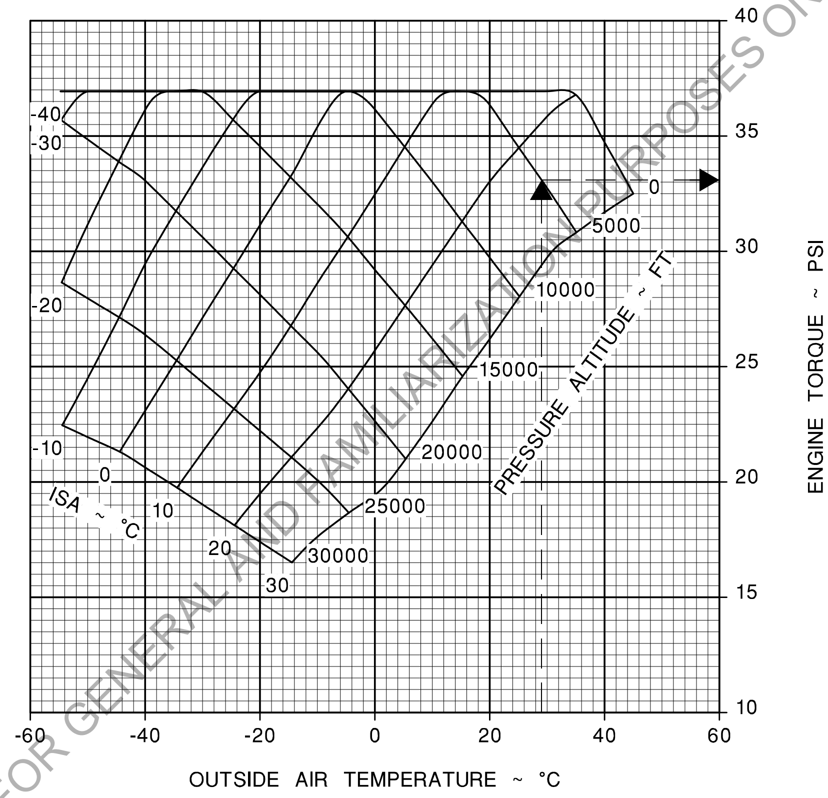
Figure 5-28. Takeoff Total Distance - Flaps 15° (metric units)

MAXIMUM CLIMB TORQUE

PROPELLER SPEED 1700 RPM
INERTIAL SEPARATOR CLOSED
MAXIMUM TORQUE REDUCTION WITH INERTIAL SEPARATOR OPEN :
- 1.2 PSI IN NON ICING CONDITIONS
- 2.1 PSI IN ICING CONDITIONS

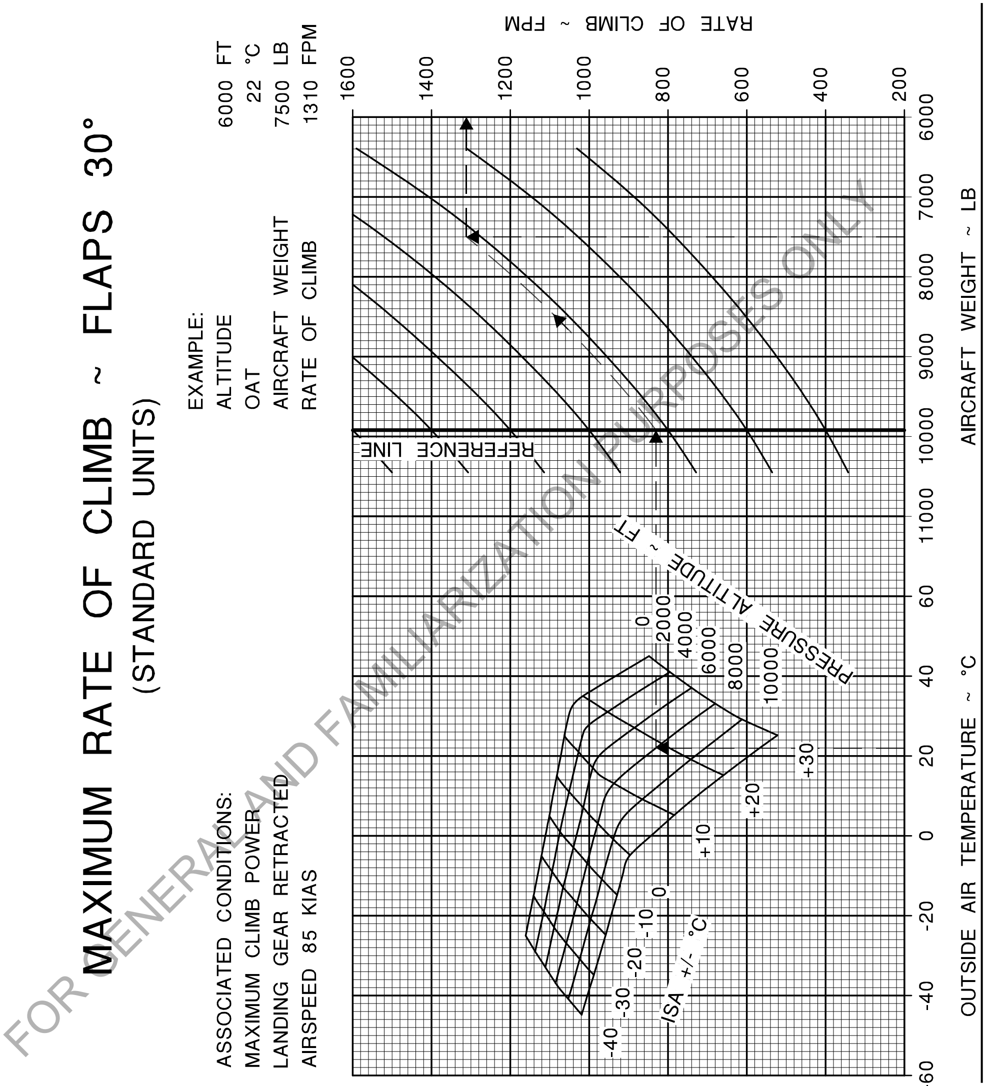
EXAMPLE:

ALTITUDE ~ FT	5000 FT
OAT ~ °C	29 °C
ENGINE TORQUE ~ PSI	33 PSI



FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Figure 5-29. Maximum Climb Torque



FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Figure 5-30. Maximum Rate of Climb - Flaps 30° (standard units)

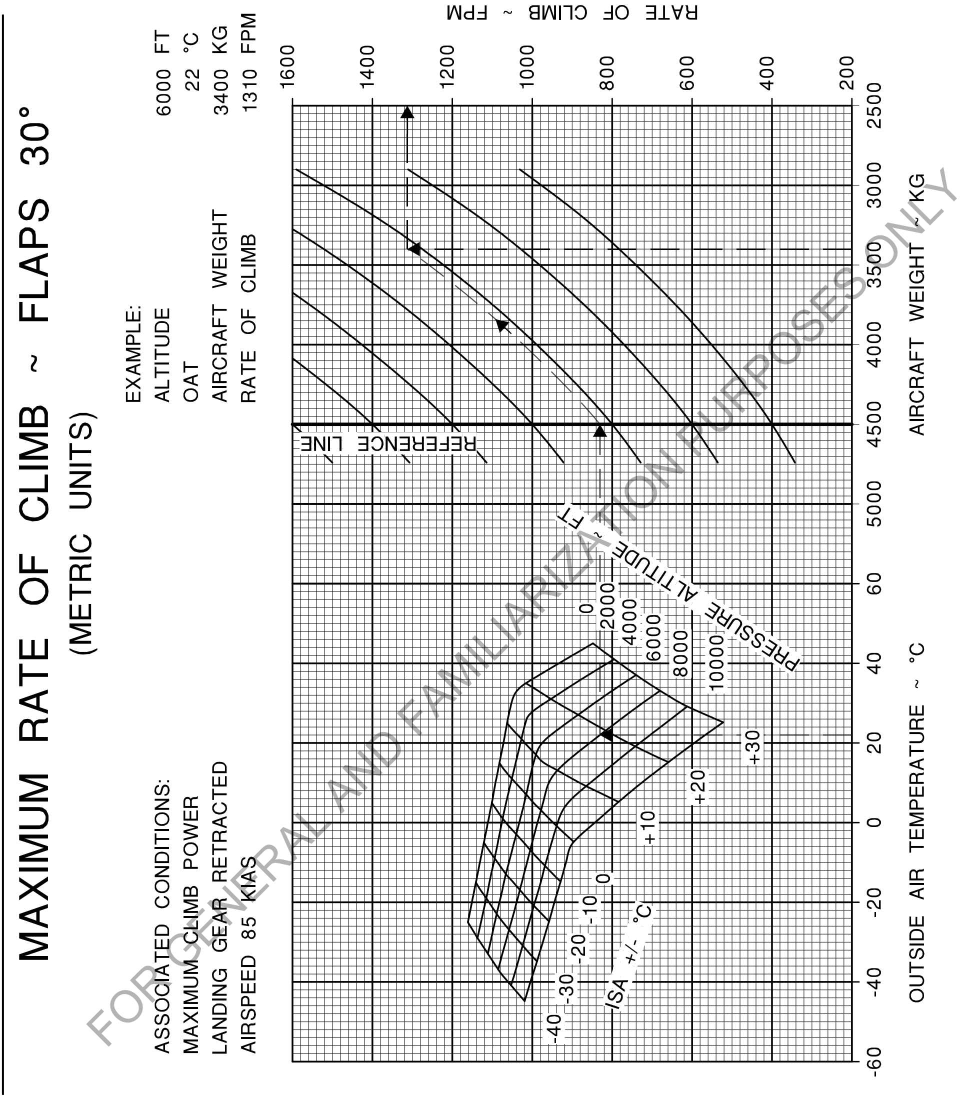


Figure 5-31. Maximum Rate of Climb - Flaps 30° (metric units)

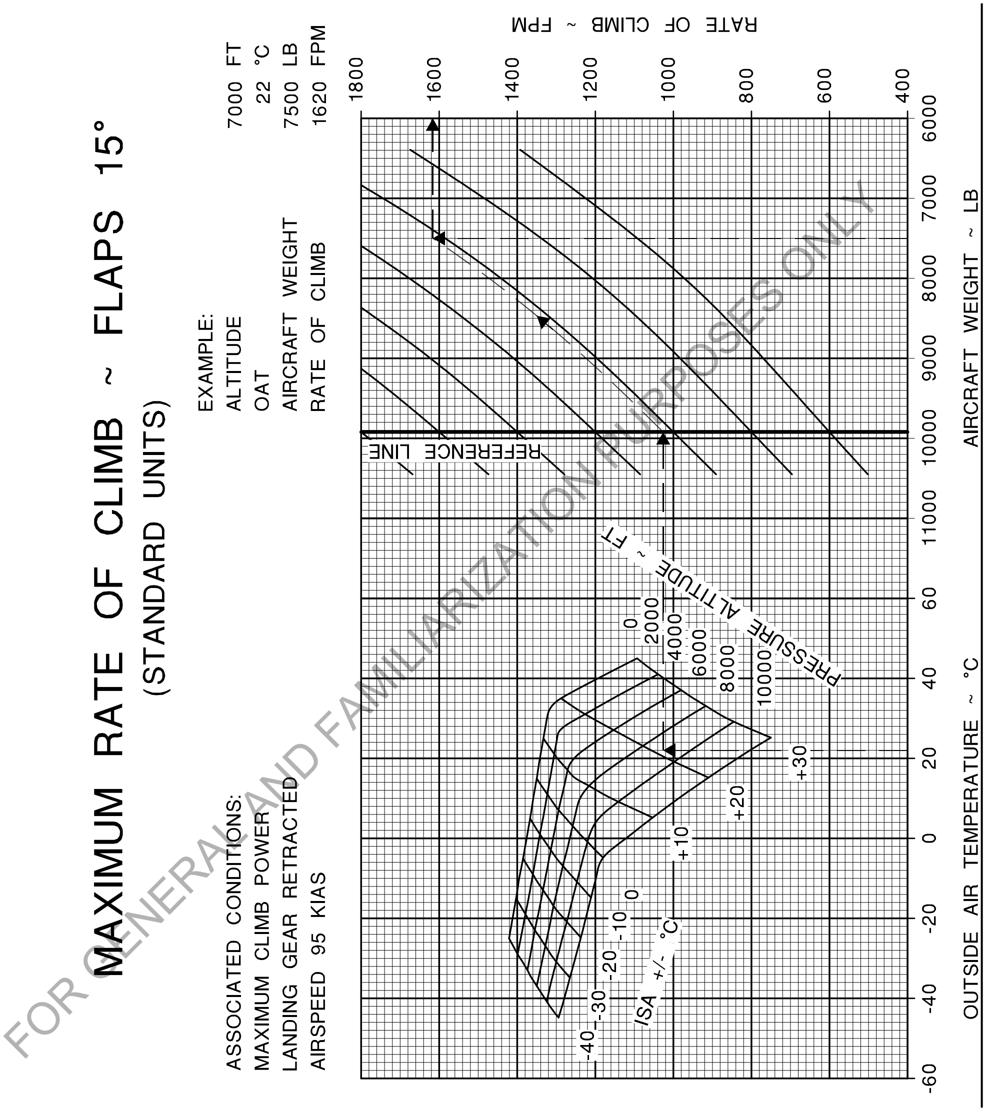
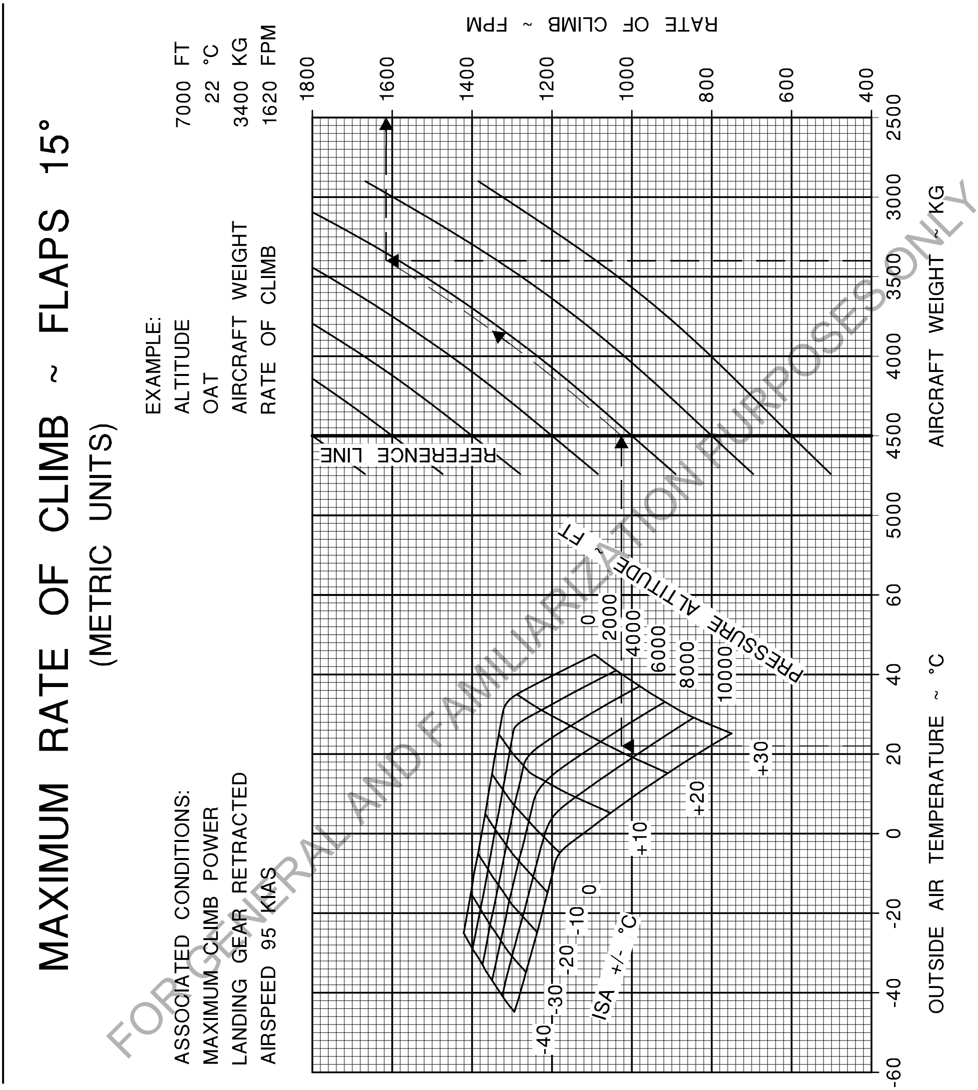
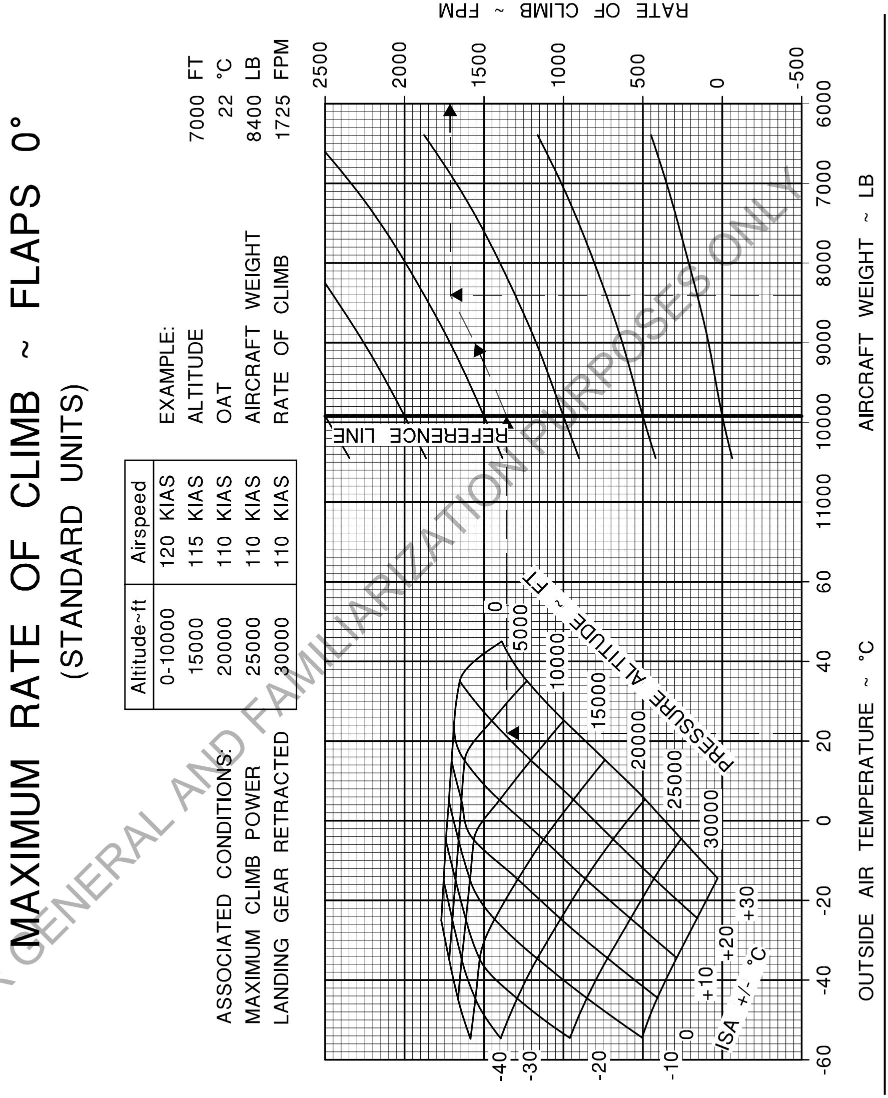


Figure 5-32. Maximum Rate of Climb - Flaps 15° (standard units)



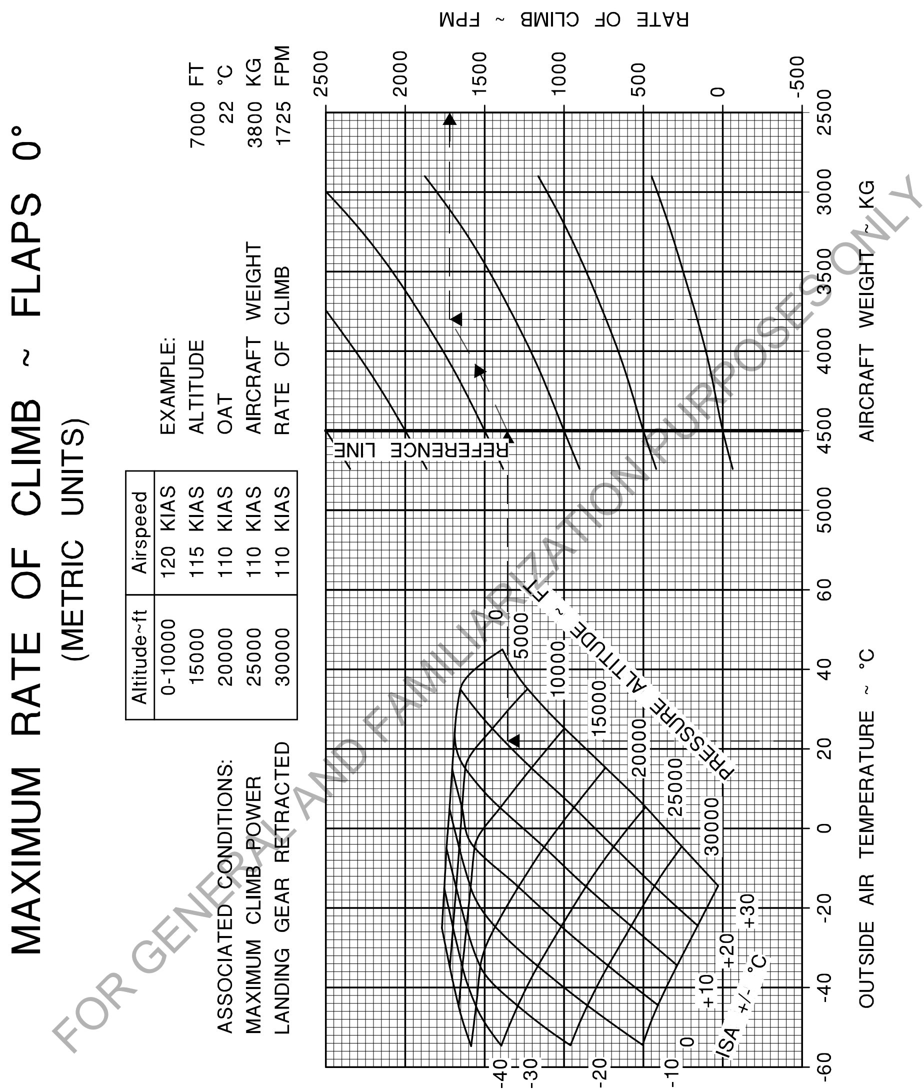
FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Figure 5-33. Maximum Rate of Climb - Flaps 15° (metric units)



See FLIGHT IN ICING CONDITIONS para for info on effect of icing

Figure 5-34. Maximum Rate of Climb - Flaps 0° (standard units)



FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

See FLIGHT IN ICING CONDITIONS para for info on effect of icing

Figure 5-35. Maximum Rate of Climb - Flaps 0° (metric units)

CRUISE CLIMB AIRSPEED SCHEDULE

ASSOCIATED CONDITIONS: **PROPELLER SPEED 1700 RPM**
INERTIAL SEPARATOR CLOSED

ISA (°C)	Altitude (ft)	IOAT (°C)	OAT (°C)	IAS (kt)	TAS (kt)
-40	0	-23	-25	160	151
	5000	-33	-35	160	162
	10000	-42	-45	160	175
	15000	-52	-55	160	188
	20000	-61	-65	160	203
	25000	-71	-75	150	206
	30000	-81	-84	125	188
-30	0	-13	-15	160	154
	5000	-22	-25	160	166
	10000	-32	-35	160	178
	15000	-41	-45	160	192
	20000	-51	-55	160	208
	25000	-60	-65	150	211
	30000	-71	74	125	193
-20	0	-3	-5	160	157
	5000	-12	-15	160	169
	10000	-22	-25	160	182
	15000	-31	-35	160	197
	20000	-41	-45	155	206
	25000	-51	-55	142	205
	30000	-61	-64	125	197
-10	0	7	5	160	160
	5000	-2	-5	160	172
	10000	-12	-15	160	186
	15000	-21	-25	160	201
	20000	-31	-35	148	201
	25000	-41	-45	135	200
	30000	-51	-54	120	194

ISA (°C)	Altitude (ft)	IOAT (°C)	OAT (°C)	IAS (kt)	TAS (kt)
0	0	18	15	160	163
	5000	8	5	160	176
	10000	-2	-5	160	189
	15000	-11	-15	150	192
	20000	-21	-25	140	194
	25000	-31	-35	130	197
	30000	-41	-44	115	190
10	0	28	25	160	166
	5000	18	15	160	179
	10000	8	5	155	187
	15000	-2	-5	140	183
	20000	-12	-15	130	184
	25000	-21	-25	120	186
	30000	-31	-34	110	186
20	0	38	35	160	169
	5000	28	25	155	176
	10000	18	15	140	172
	15000	8	5	130	173
	20000	-2	-5	120	174
	25000	-12	-15	110	174
	30000	-21	-24	110	190
30	0	47	45	150	161
	5000	38	35	140	162
	10000	28	25	130	163
	15000	18	15	120	163
	20000	8	5	110	162
	25000	-2	-5	110	177
	30000	-11	-14	110	194

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Figure 5-36. Cruise Climb Airspeed Schedule

RATE OF CLIMB ~ CRUISE CLIMB
(STANDARD UNITS)

ASSOCIATED CONDITIONS:
MAXIMUM CLIMB POWER
LANDING GEAR RETRACTED
FLAPS UP
AIRSPEED SCHEDULE: SEE RELEVANT TABLE

EXAMPLE:	
ALTITUDE	7000 FT
OAT	22 °C
AIRCRAFT WEIGHT	8600 LB
RATE OF CLIMB	1400 FPM

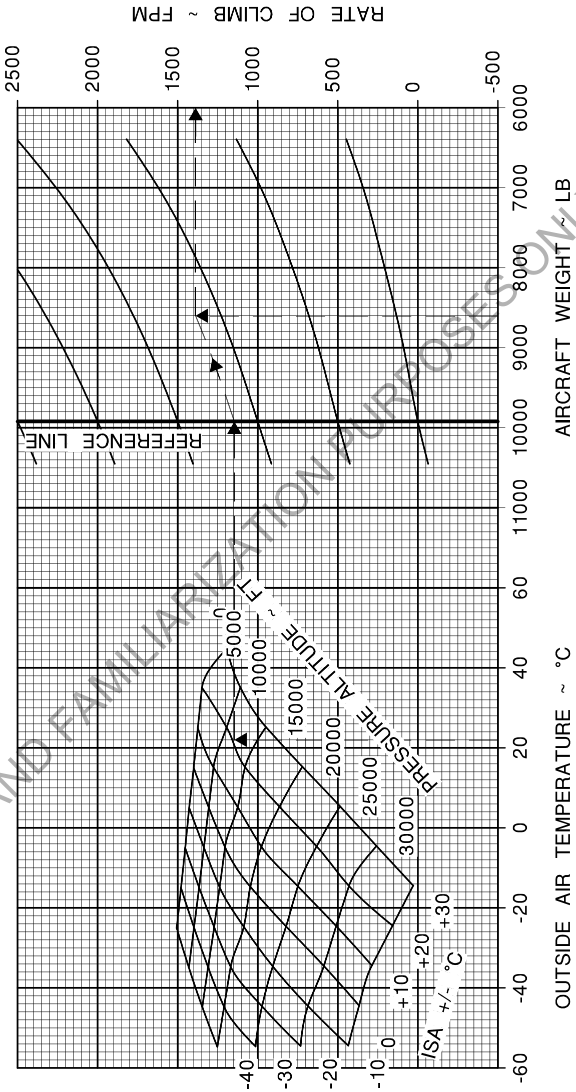

Figure 5-37. Rate of Climb - Cruise Climb (standard units)

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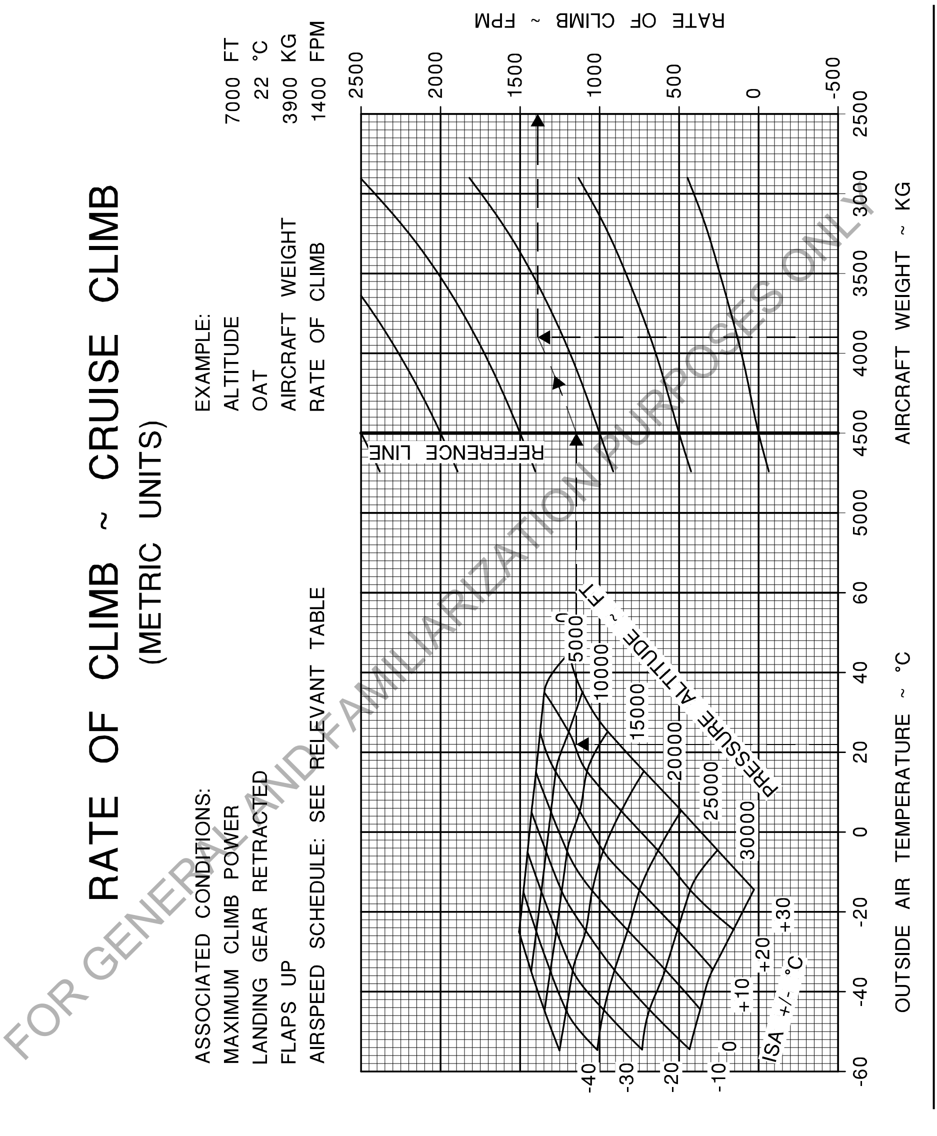
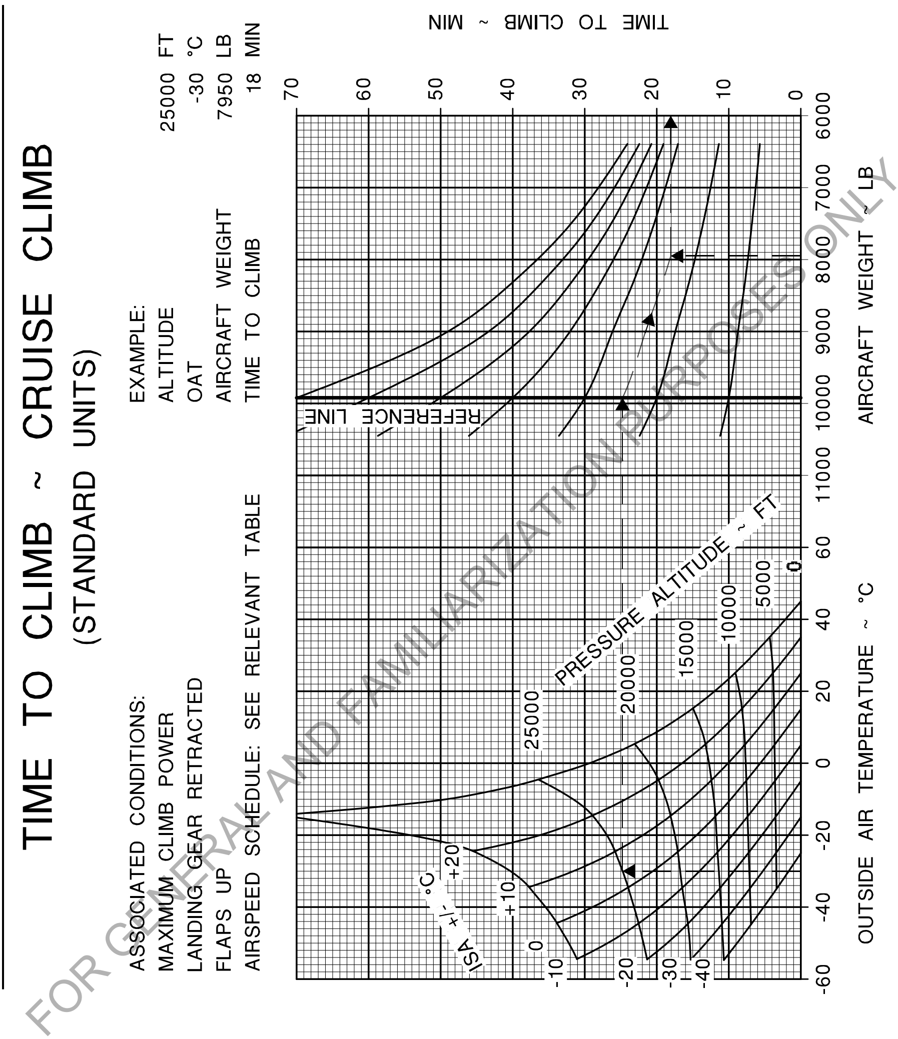


Figure 5-38. Rate of Climb - Cruise Climb (metric units)



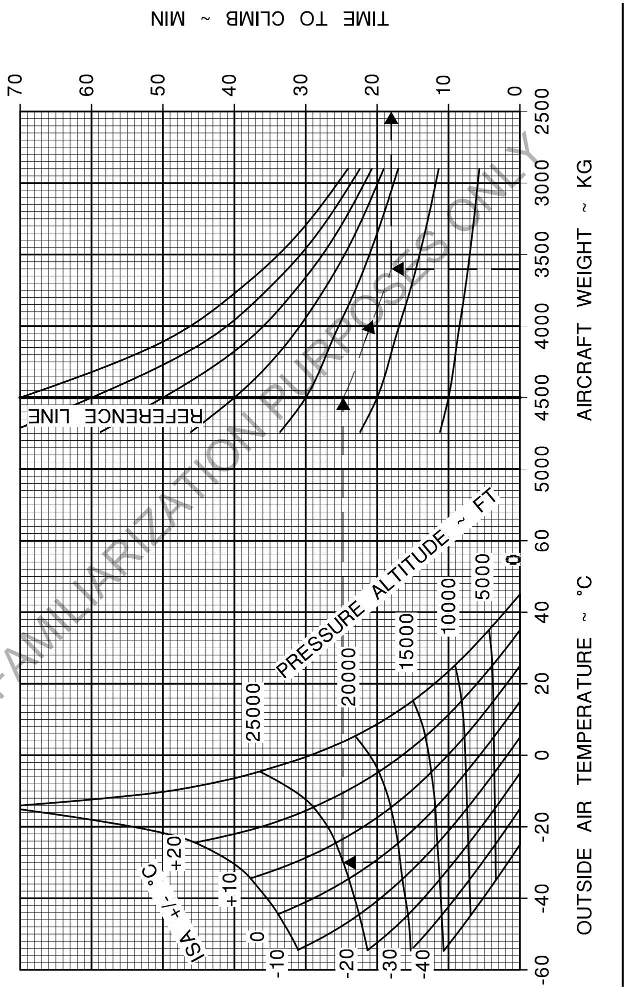
FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Figure 5-39. Time to Climb - Cruise Climb (standard units)

TIME TO CLIMB ~ CRUISE CLIMB
(METRIC UNITS)

ASSOCIATED CONDITIONS:
MAXIMUM CLIMB POWER
LANDING GEAR RETRACTED
FLAPS UP
AIRSPEED SCHEDULE: SEE RELEVANT TABLE

EXAMPLE:	
ALTITUDE	25000 FT
OAT	-30 °C
AIRCRAFT WEIGHT	3600 KG
TIME TO CLIMB	18 MIN



FOR GENERAL FAMILIARIZATION PURPOSES ONLY

Figure 5-40. Time to Climb - Cruise Climb (metric units)

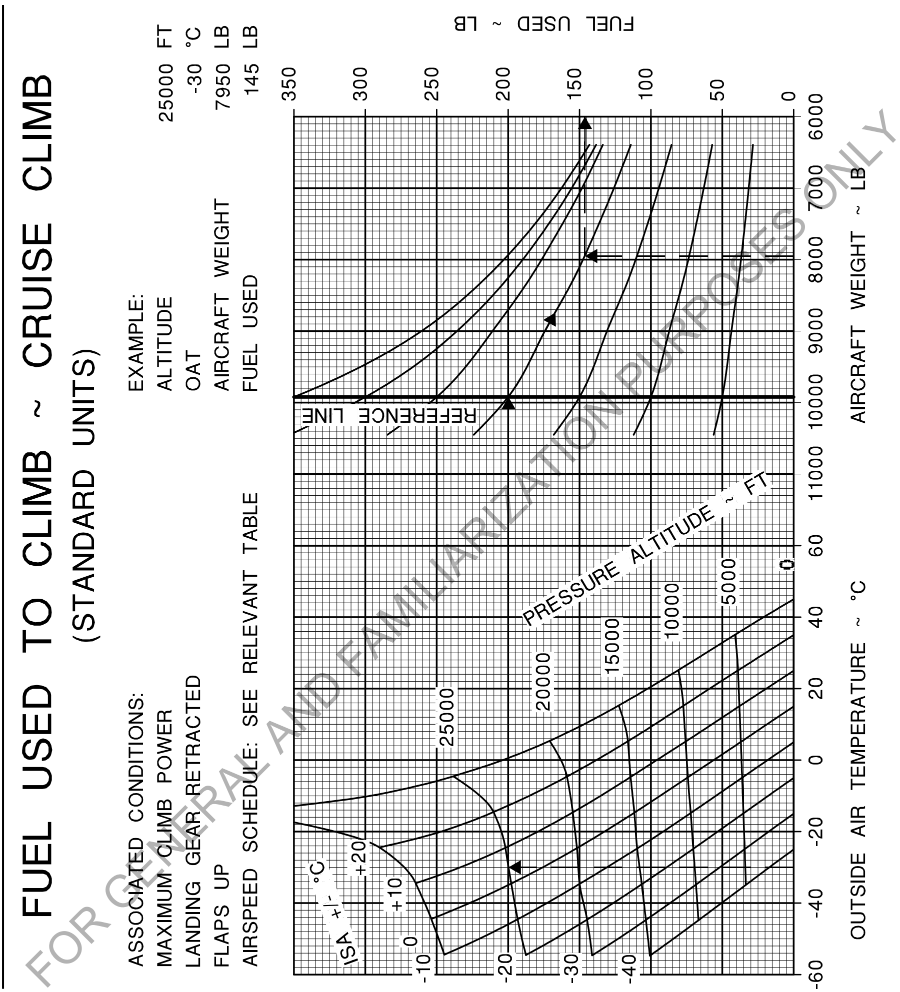
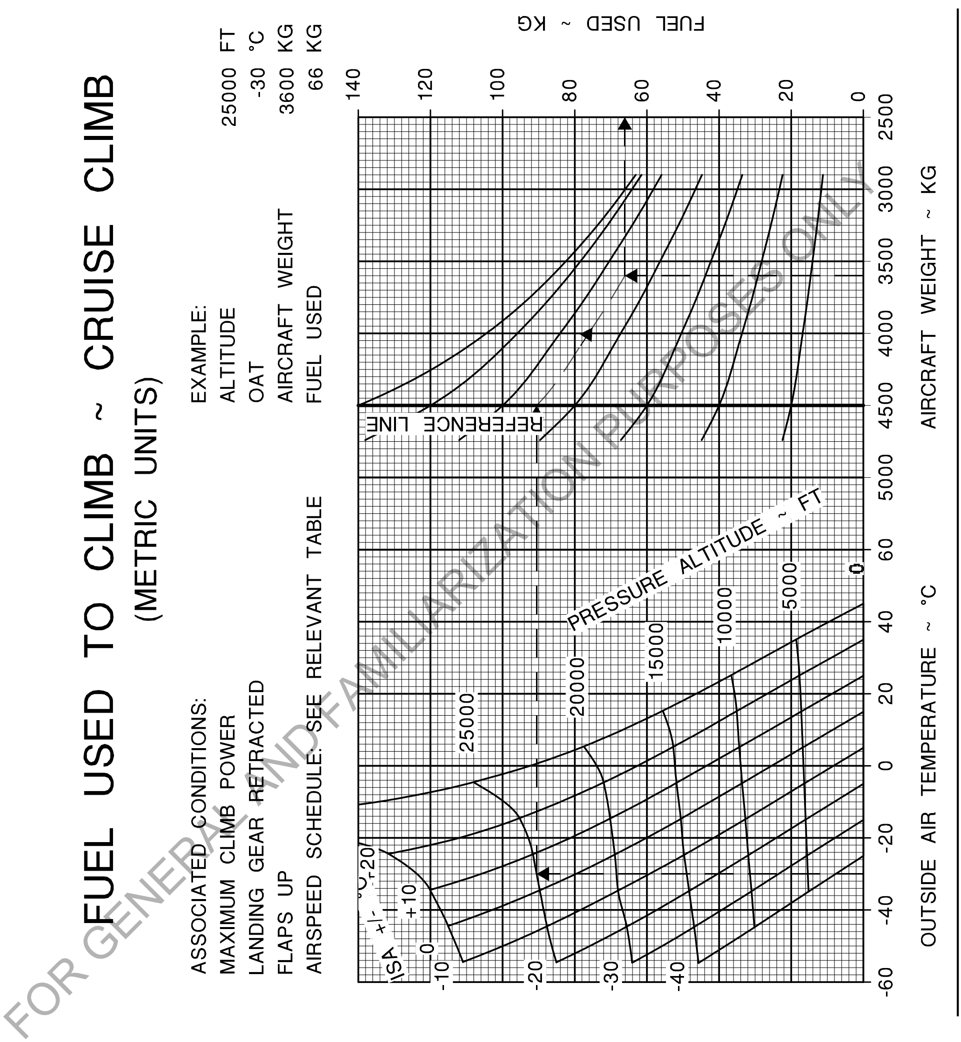


Figure 5-41. Fuel Used to Climb - Cruise Climb (standard units)



FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Figure 5-42. Fuel Used to Climb - Cruise Climb (metric units)

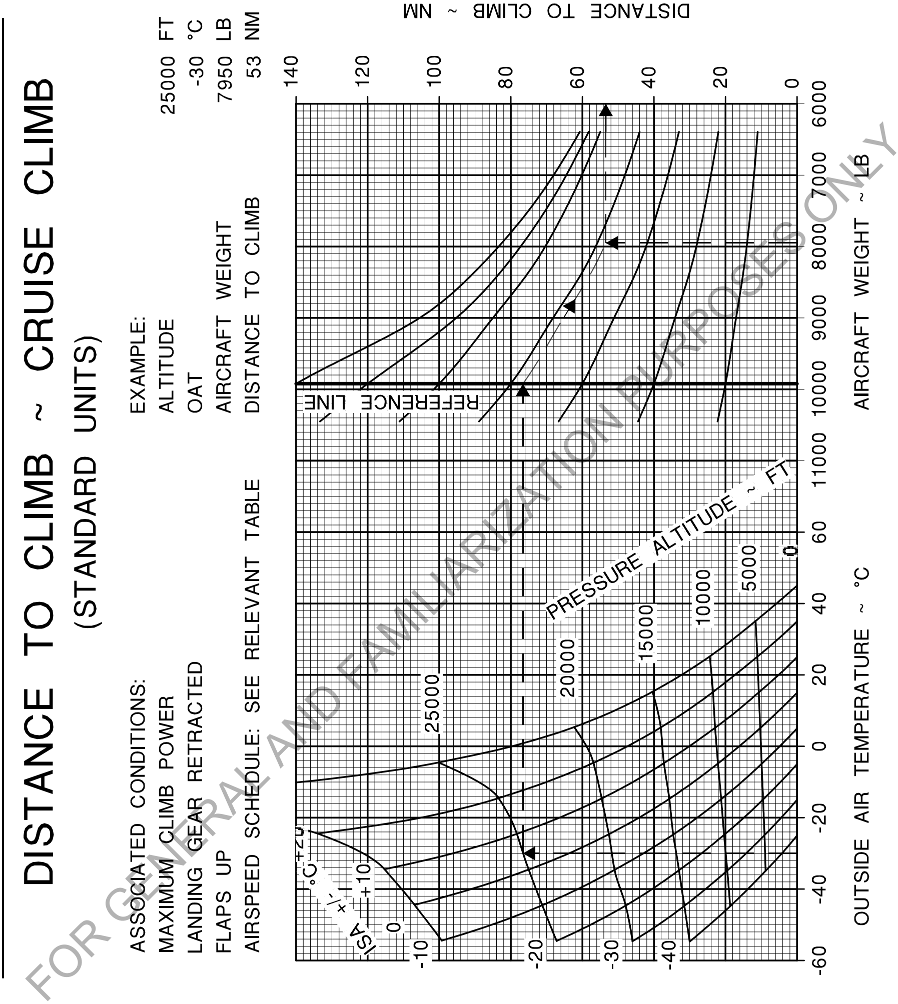


Figure 5-43. Distance to Climb - Cruise Climb (standard units)

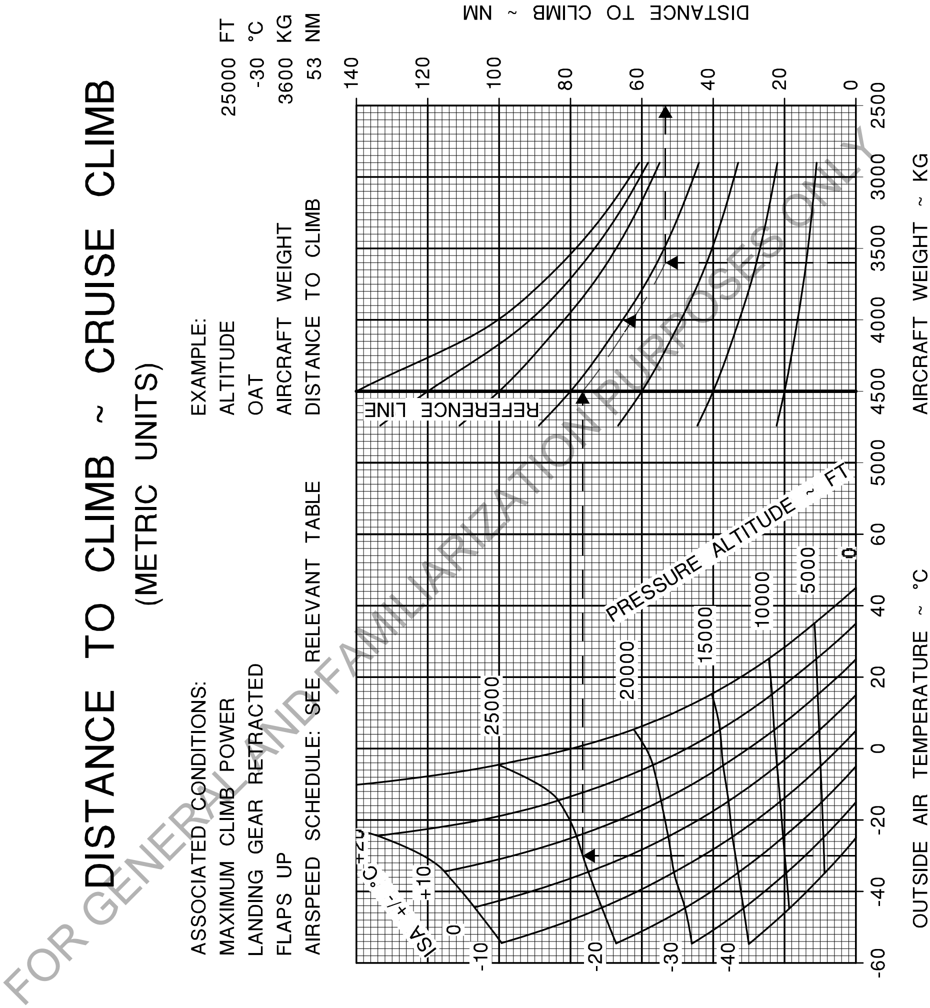


Figure 5-44. Distance to Climb - Cruise Climb (metric units)

MAXIMUM CRUISE POWER

NOTE: IOAT, TORQUE AND FUEL FLOW BASED ON 8000 lb (3629 kg)

ISA (°C)	Altitude (ft)	IOAT (°C)	OAT (°C)	Torque (psi)	Fuel flow (lb/h)	Fuel flow (kg/h)	@ 7000 lb (3175 kg) IAS (kt)	@ 7000 lb (3175 kg) TAS (kt)	@ 8000 lb (3629 kg) IAS (kt)	@ 8000 lb (3629 kg) TAS (kt)	@ 9000 lb (4082 kg) IAS (kt)	@ 9000 lb (4082 kg) TAS (kt)	@ 10000 lb (4536 kg) IAS (kt)	@ 10000 lb (4536 kg) TAS (kt)	@ 10400 lb (4717 kg) IAS (kt)	@ 10400 lb (4717 kg) TAS (kt)
-40	0	-21	-25	36.9	601	273	235	222	235	222	234	221	233	220	233	220
	2000	-25	-29	36.9	583	264	233	227	233	226	232	225	231	224	230	224
	4000	-29	-33	36.9	568	258	232	231	231	230	230	230	229	229	228	228
	6000	-33	-37	36.9	555	252	230	236	229	235	228	234	227	233	226	232
	8000	-36	-41	36.9	543	246	228	240	227	240	226	239	225	237	224	237
	10000	-40	-45	36.9	534	242	226	245	225	244	224	243	223	242	222	241
	12000	-44	-49	36.9	528	239	224	250	223	249	222	248	220	247	220	246
	14000	-48	-53	36.9	522	237	222	255	221	254	220	253	218	251	218	251
	16000	-51	-57	36.8	514	233	219	260	219	259	217	258	216	256	215	255
	18000	-55	-61	36.3	503	228	217	265	216	264	214	262	213	260	212	259
	20000	-59	-65	35.5	489	222	213	268	212	267	210	265	209	263	208	262
	22000	-63	-69	33.6	463	210	205	267	205	267	205	267	205	266	204	266
	24000	-67	-73	31.1	430	195	197	264	197	264	197	264	197	264	197	264
	26000	-71	-77	29.0	403	183	189	262	189	262	189	262	189	262	189	262
	28000	-75	-81	26.8	373	169	181	259	181	259	181	259	181	259	181	259
	30000	-79	-84	24.8	347	157	172	256	172	256	172	256	171	254	170	252
-30	0	-11	-15	36.9	604	274	233	225	233	224	232	224	231	223	230	222
	2000	-15	-19	36.9	586	266	231	229	231	229	230	228	229	227	228	226
	4000	-19	-23	36.9	570	259	229	234	229	233	228	232	227	231	226	230
	6000	-22	-27	36.9	556	252	227	238	227	238	226	237	225	235	224	235
	8000	-26	-31	36.9	545	247	225	243	225	242	224	241	222	240	222	239
	10000	-30	-35	36.9	535	243	223	248	223	247	222	246	220	244	220	244
	12000	-34	-39	36.9	528	239	221	253	221	252	219	251	218	249	217	249
	14000	-38	-43	36.9	522	237	219	258	219	257	217	256	216	254	215	253
	16000	-41	-47	36.8	514	233	217	263	216	262	215	261	213	259	213	258
	18000	-45	-51	36.3	503	228	214	268	213	267	212	265	210	263	209	262
	20000	-49	-55	35.5	490	222	210	271	209	270	208	268	206	266	205	265
	22000	-53	-59	34.6	475	216	205	273	205	273	204	271	202	269	201	268
	24000	-57	-63	32.3	445	202	197	271	197	271	197	271	197	271	196	270
	26000	-61	-67	29.8	413	187	188	268	188	268	188	268	188	268	188	268
	28000	-65	-71	27.8	386	175	181	266	181	266	181	266	180	265	179	263
	30000	-69	-74	25.7	358	162	173	263	173	263	172	262	168	257	167	254

Values applicable with inertial separator closed

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Figure 5-45. Maximum Cruise Power (Sheet 1 of 4)

MAXIMUM CRUISE POWER

NOTE: IOAT, TORQUE AND FUEL FLOW BASED ON 8000 lb (3629 kg)

							@ 7000 lb (3175 kg)		@ 8000 lb (3629 kg)		@ 9000 lb (4082 kg)		@ 10000 lb (4536 kg)		@ 10400 lb (4717 kg)	
ISA (°C)	Altitude (ft)	IOAT (°C)	OAT (°C)	Torque (psi)	Fuel flow (lb/h)	Fuel flow (kg/h)	IAS (kt)	TAS (kt)	IAS (kt)	TAS (kt)	IAS (kt)	TAS (kt)	IAS (kt)	TAS (kt)	IAS (kt)	TAS (kt)
-20	0	-1	-5	36.9	607	276	232	228	231	227	230	226	229	225	228	225
	2000	-5	-9	36.9	589	267	229	232	229	231	228	230	227	229	226	229
	4000	-9	-13	36.9	572	260	227	236	227	236	226	235	225	233	224	233
	6000	-12	-17	36.9	558	253	225	241	225	240	224	239	222	238	222	237
	8000	-16	-21	36.9	547	248	223	246	222	245	221	244	220	242	220	242
	10000	-20	-25	36.9	537	243	221	251	220	250	219	249	218	247	217	246
	12000	-24	-29	36.9	528	240	219	256	218	255	217	253	216	252	215	251
	14000	-27	-33	36.9	523	237	217	261	216	260	215	259	213	257	213	256
	16000	-31	-37	36.8	515	234	215	266	214	265	212	263	211	262	210	261
	18000	-35	-41	36.3	504	229	212	271	211	269	209	267	208	266	207	265
	20000	-39	-45	35.5	492	223	208	274	207	273	205	271	203	269	203	268
	22000	-43	-49	34.4	475	216	203	277	202	275	200	272	198	270	197	269
	24000	-47	-53	32.5	449	204	197	277	195	274	193	272	191	269	190	268
	26000	-51	-57	30.3	420	190	189	275	187	273	185	270	182	266	181	264
	28000	-55	-61	28.0	389	177	180	272	179	270	176	266	173	261	172	260
	30000	-59	-64	25.8	360	163	173	270	171	266	167	261	164	256	162	254
-10	0	9	5	36.9	611	277	230	230	229	229	228	228	227	227	227	227
	2000	5	1	36.9	592	269	228	234	227	233	226	233	225	231	224	231
	4000	2	-3	36.9	575	261	225	239	225	238	224	237	222	236	222	235
	6000	-2	-7	36.9	561	254	223	243	223	243	222	242	220	240	220	239
	8000	-6	-11	36.9	548	249	221	248	220	247	219	246	218	245	217	244
	10000	-10	-15	36.9	538	244	219	253	218	252	217	251	216	249	215	249
	12000	-14	-19	36.9	529	240	217	259	216	258	215	256	213	254	213	254
	14000	-17	-23	36.9	523	237	215	264	214	263	213	261	211	259	211	259
	16000	-21	-27	36.7	515	234	212	269	211	267	210	266	208	264	208	263
	18000	-25	-31	35.9	501	227	208	272	207	271	205	269	204	267	203	266
	20000	-29	-35	34.2	477	216	203	273	201	271	199	269	198	267	197	266
	22000	-33	-39	32.5	453	206	196	274	194	271	193	269	191	266	190	265
	24000	-37	-43	30.5	427	193	189	273	187	270	186	268	183	264	182	262
	26000	-41	-47	28.4	398	181	182	271	180	268	177	265	174	260	173	259
	28000	-45	-51	26.3	370	168	174	269	172	265	169	261	165	256	164	254
	30000	-49	-54	24.2	342	155	166	266	163	261	160	256	156	251	155	249

Values applicable with inertial separator closed

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Figure 5-45. Maximum Cruise Power (Sheet 2 of 4)

MAXIMUM CRUISE POWER

NOTE: IOAT, TORQUE AND FUEL FLOW BASED ON 8000 lb (3629 kg)

ISA (°C)	Altitude (ft)	IOAT (°C)	OAT (°C)	Torque (psi)	Fuel flow (lb/h)	Fuel flow (kg/h)	@ 7000 lb (3175 kg) IAS (kt)	@ 7000 lb (3175 kg) TAS (kt)	@ 8000 lb (3629 kg) IAS (kt)	@ 8000 lb (3629 kg) TAS (kt)	@ 9000 lb (4082 kg) IAS (kt)	@ 9000 lb (4082 kg) TAS (kt)	@ 10000 lb (4536 kg) IAS (kt)	@ 10000 lb (4536 kg) TAS (kt)	@ 10400 lb (4717 kg) IAS (kt)	@ 10400 lb (4717 kg) TAS (kt)
0	0	19	15	36.9	614	279	228	232	227	231	226	231	225	229	225	229
	2000	15	11	36.9	595	270	226	237	225	236	224	235	223	234	222	233
	4000	12	7	36.9	578	262	224	241	223	240	222	239	220	238	220	237
	6000	8	3	36.9	563	255	221	246	221	245	220	244	218	242	218	242
	8000	4	-1	36.9	550	250	219	251	219	250	217	249	216	247	215	246
	10000	0	-5	36.9	539	245	217	256	216	255	215	253	214	252	213	251
	12000	-3	-9	36.9	530	241	215	261	214	260	213	258	211	257	211	256
	14000	-7	-13	36.5	518	235	212	266	211	265	210	263	208	260	207	260
	16000	-11	-17	35.3	498	226	208	268	206	267	205	265	202	262	202	261
	18000	-15	-21	33.4	471	214	201	269	200	266	198	264	196	261	195	260
	20000	-19	-25	31.7	446	202	195	269	193	266	191	264	189	260	188	259
	22000	-23	-29	29.9	422	191	188	268	187	266	185	264	181	259	180	257
	24000	-27	-33	28.1	397	180	182	268	180	265	177	262	174	257	173	255
	26000	-31	-37	26.4	373	169	175	267	173	263	170	259	166	254	165	252
	28000	-35	-41	24.6	349	158	168	265	165	261	162	256	158	250	156	248
	30000	-39	-44	22.8	325	148	160	262	157	257	153	252	149	245	147	242
10	0	29	25	36.9	618	280	226	234	225	234	225	233	223	231	223	231
	2000	26	21	36.9	599	272	224	239	223	238	222	237	221	236	220	235
	4000	22	17	36.9	580	263	222	243	221	243	220	242	219	240	218	239
	6000	18	13	36.9	565	256	220	248	219	247	218	246	216	244	216	244
	8000	14	9	36.9	552	250	217	253	217	252	215	251	214	249	213	249
	10000	10	5	36.9	541	245	215	258	214	257	213	256	212	254	211	253
	12000	7	1	35.9	519	235	211	261	210	260	209	258	207	256	206	255
	14000	3	-3	34.3	493	223	206	263	204	261	203	259	200	256	200	255
	16000	-1	-7	32.5	465	211	199	263	198	261	196	259	194	256	193	254
	18000	-5	-11	30.7	438	199	193	263	191	260	189	258	186	254	185	253
	20000	-9	-15	29.0	414	188	186	262	184	260	183	257	179	252	178	251
	22000	-13	-19	27.3	390	177	180	261	178	259	175	255	172	250	170	248
	24000	-17	-23	25.6	367	166	173	260	171	257	168	253	164	248	163	246
	26000	-21	-27	24.0	345	157	166	259	163	255	160	251	156	244	155	242
	28000	-26	-31	22.5	324	147	159	258	156	253	153	248	149	241	147	238
	30000	-30	-34	21.0	303	137	152	255	149	250	145	244	140	235	138	232

Values applicable with inertial separator closed

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Figure 5-45. Maximum Cruise Power (Sheet 3 of 4)

MAXIMUM CRUISE POWER

NOTE: IOAT, TORQUE AND FUEL FLOW BASED ON 8000 lb (3629 kg)

							@ 7000 lb (3175 kg)		@ 8000 lb (3629 kg)		@ 9000 lb (4082 kg)		@ 10000 lb (4536 kg)		@ 10400 lb (4717 kg)	
ISA (°C)	Altitude (ft)	IOAT (°C)	OAT (°C)	Torque (psi)	Fuel flow (lb/h)	Fuel flow (kg/h)	IAS (kt)	TAS (kt)	IAS (kt)	TAS (kt)	IAS (kt)	TAS (kt)	IAS (kt)	TAS (kt)	IAS (kt)	TAS (kt)
20	0	39	35	36.9	621	282	225	237	224	236	223	235	222	233	221	233
	2000	36	31	36.9	602	273	222	241	222	240	221	239	219	238	219	237
	4000	32	27	36.9	583	264	220	246	219	245	218	244	217	242	216	241
	6000	28	23	36.6	564	256	217	250	217	249	215	248	214	246	213	245
	8000	24	19	35.8	542	246	214	253	213	252	211	251	209	248	209	247
	10000	20	15	34.4	514	233	208	255	207	253	206	251	203	249	203	248
	12000	16	11	32.7	485	220	202	255	201	253	199	251	197	248	196	247
	14000	12	7	31.0	456	207	196	255	194	253	193	251	190	247	189	246
	16000	8	3	29.3	429	194	190	255	188	253	186	251	183	246	182	245
	18000	4	-1	27.7	403	183	183	255	182	252	179	249	176	244	175	243
	20000	0	-5	26.1	380	172	177	254	175	251	172	247	168	242	167	240
	22000	-4	-9	24.5	357	162	170	253	168	250	165	245	161	240	160	238
	24000	-8	-13	23.1	336	152	164	252	161	248	158	243	154	237	152	235
	26000	-12	-17	21.7	316	143	157	251	154	246	151	241	146	233	144	231
	28000	-16	-21	20.4	298	135	151	249	147	244	144	238	138	229	136	226
	30000	-20	-24	19.1	281	127	144	247	140	241	136	234	129	223	126	218
30	0	49	45	36.1	618	281	222	238	221	237	220	236	218	233	217	232
	2000	46	41	35.1	588	267	218	240	217	239	215	237	213	235	212	234
	4000	42	37	34.2	561	254	213	242	212	241	211	239	208	237	208	236
	6000	38	33	33.3	534	242	209	244	208	243	206	241	204	238	203	238
	8000	34	29	32.2	507	230	204	246	203	244	201	243	199	240	198	239
	10000	30	25	30.9	479	217	199	247	197	245	195	243	193	240	192	239
	12000	26	21	29.2	449	204	192	247	191	245	189	243	186	238	185	237
	14000	22	17	27.6	421	191	186	247	184	244	182	242	179	237	177	235
	16000	18	13	26.0	394	179	179	246	177	243	175	240	171	235	170	233
	18000	14	9	24.4	368	167	173	244	170	241	167	237	164	232	162	230
	20000	10	5	22.8	343	156	166	243	163	239	160	234	156	228	154	226
	22000	6	1	21.2	320	145	159	241	156	236	152	231	148	224	146	221
	24000	2	-3	20.1	302	137	153	240	149	235	146	229	140	221	139	218
	26000	-2	-7	19.2	287	130	147	240	144	234	140	228	134	219	132	215
	28000	-6	-11	18.3	273	124	142	239	138	234	134	226	127	214	123	208
	30000	-10	-14	17.2	257	117	136	238	132	231	126	221	116	204	112	198

Values applicable with inertial separator closed

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Figure 5-45. Maximum Cruise Power (Sheet 4 of 4)

LONG RANGE CRUISE

NOTE: IOAT BASED ON 8000 lb (3629 kg)

				@ 7000 lb (3175 kg)					@ 8000 lb (3629 kg)					@ 9000 lb (4082 kg)					@ 10000 lb (4536 kg)					@ 10400 lb (4717 kg)				
ISA (°C)	Altitude (ft)	IOAT (°C)	OAT (°C)	Torque (psi)	Fuel flow (lb/h)	Fuel flow (kg/h)	IAS (kt)	TAS (kt)	Torque (psi)	Fuel flow (lb/h)	Fuel flow (kg/h)	IAS (kt)	TAS (kt)	Torque (psi)	Fuel flow (lb/h)	Fuel flow (kg/h)	IAS (kt)	TAS (kt)	Torque (psi)	Fuel flow (lb/h)	Fuel flow (kg/h)	IAS (kt)	TAS (kt)	Torque (psi)	Fuel flow (lb/h)	Fuel flow (kg/h)	IAS (kt)	TAS (kt)
-40	0	-22	-25	30.0	544	247	218	206	30.0	544	247	217	205	30.0	545	247	216	204	30.0	545	247	214	203	30.0	546	247	214	202
	2000	-26	-29	28.8	511	232	212	206	28.9	512	232	212	206	29.0	514	233	211	205	29.1	516	234	210	204	29.2	516	234	209	203
	4000	-30	-33	27.6	479	217	207	207	27.8	481	218	207	207	28.1	484	220	206	206	28.3	487	221	205	205	28.4	488	221	205	205
	6000	-34	-37	26.4	449	204	202	207	26.8	453	205	202	207	27.1	456	207	201	207	27.4	461	209	201	206	27.6	462	210	200	206
	8000	-37	-41	25.2	424	192	196	208	25.7	428	194	196	208	26.2	432	196	196	208	26.6	437	198	196	207	26.7	438	199	196	207
	10000	-41	-45	24.0	398	180	191	208	24.6	403	183	191	208	25.2	409	185	191	208	25.7	414	188	191	208	25.9	416	189	191	208
	12000	-45	-49	22.8	374	170	185	207	23.5	381	173	186	208	24.2	388	176	186	209	24.8	395	179	186	209	25.1	397	180	186	209
	14000	-49	-53	21.6	350	159	179	207	22.4	358	163	180	208	23.3	367	166	181	210	24.0	376	170	181	209	24.3	379	172	181	210
	16000	-53	-57	20.4	327	148	173	206	21.4	337	153	175	208	22.3	347	157	176	209	23.1	357	162	176	210	23.5	361	164	176	210
	18000	-57	-61	19.2	306	139	167	205	20.3	317	144	169	207	21.4	329	149	170	209	22.3	341	154	171	210	22.7	345	156	171	211
	20000	-61	-65	18.0	284	129	160	204	19.2	298	135	163	206	20.4	312	141	164	209	21.4	325	147	166	210	21.8	330	150	166	211
	22000	-65	-69	16.8	264	120	154	201	18.1	279	127	156	205	19.4	295	134	159	208	20.5	310	141	160	210	21.0	316	143	161	210
	24000	-69	-73	15.6	245	111	147	199	17.0	262	119	150	203	18.5	279	127	153	207	19.7	295	134	155	209	20.2	302	137	155	210
	26000	-73	-77	14.4	228	103	139	195	16.0	246	112	143	200	17.5	264	120	147	205	18.8	282	128	149	208	19.4	289	131	150	209
	28000	-77	-81	13.2	210	95	132	191	14.9	230	104	136	197	16.6	250	113	140	203	18.0	269	122	143	207	18.7	277	125	144	208
	30000	-81	-84	12.0	193	88	123	185	13.8	214	97	129	193	15.6	235	107	133	200	17.2	256	116	137	205	17.9	264	120	138	207
-30	0	-12	-15	30.0	548	249	216	208	30.0	548	249	215	207	30.0	549	249	214	206	30.0	550	249	212	205	30.0	550	249	212	204
	2000	-16	-19	28.8	515	234	211	209	28.9	516	234	210	208	29.0	518	235	209	207	29.1	519	236	208	206	29.2	520	236	207	206
	4000	-19	-23	27.6	482	219	205	209	27.8	485	220	205	209	28.1	487	221	204	208	28.3	490	222	203	207	28.4	491	223	203	207
	6000	-23	-27	26.4	451	205	200	210	26.8	455	206	200	210	27.1	459	208	199	209	27.4	463	210	199	209	27.6	465	211	198	208
	8000	-27	-31	25.2	426	193	194	210	25.7	430	195	194	210	26.2	434	197	194	210	26.6	439	199	194	210	26.7	441	200	194	209
	10000	-31	-35	24.0	400	182	189	210	24.6	406	184	189	210	25.2	411	186	189	211	25.7	417	189	189	210	25.9	419	190	189	210
	12000	-35	-39	22.8	376	171	183	210	23.5	383	174	184	211	24.2	389	177	184	211	24.8	397	180	184	211	25.1	399	181	184	211
	14000	-39	-43	21.6	352	160	177	209	22.4	360	163	178	211	23.3	368	167	179	212	24.0	377	171	179	212	24.3	380	172	179	212
	16000	-43	-47	20.4	328	149	171	209	21.4	338	153	173	211	22.3	348	158	174	212	23.1	358	163	174	212	23.5	362	164	174	212
	18000	-47	-51	19.2	307	139	165	208	20.3	318	144	167	210	21.4	330	150	168	211	22.3	342	155	169	212	22.7	346	157	169	213
	20000	-51	-55	18.0	285	129	159	206	19.2	298	135	161	208	20.4	312	142	162	211	21.4	326	148	163	212	21.8	331	150	164	212
	22000	-55	-59	16.8	265	120	152	204	18.1	280	127	154	207	19.4	296	134	157	210	20.5	311	141	158	212	21.0	316	143	158	212
	24000	-59	-63	15.6	246	112	145	201	17.0	263	119	148	205	18.5	280	127	151	209	19.7	296	134	152	211	20.2	302	137	153	212
	26000	-63	-67	14.4	228	103	137	197	16.0	246	112	141	202	17.5	265	120	144	207	18.8	282	128	146	210	19.4	289	131	147	211
	28000	-67	-71	13.2	211	96	130	193	14.9	230	104	134	199	16.6	250	113	138	205	18.0	269	122	140	208	18.7	277	126	141	210
	30000	-71	-74	12.0	193	88	121	187	13.8	214	97	126	194	15.6	235	107	131	201	17.2	256	116	134	206	17.9	265	120	135	208

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Figure 5-46. Long Range Cruise (Sheet 1 of 4)

LONG RANGE CRUISE

NOTE: IOAT BASED ON 8000 lb (3629 kg)

				@ 7000 lb (3175 kg)					@ 8000 lb (3629 kg)					@ 9000 lb (4082 kg)					@ 10000 lb (4536 kg)					@ 10400 lb (4717 kg)				
ISA (°C)	Altitude (ft)	IOAT (°C)	OAT (°C)	Torque (psi)	Fuel flow (lb/h)	Fuel flow (kg/h)	IAS (kt)	TAS (kt)	Torque (psi)	Fuel flow (lb/h)	Fuel flow (kg/h)	IAS (kt)	TAS (kt)	Torque (psi)	Fuel flow (lb/h)	Fuel flow (kg/h)	IAS (kt)	TAS (kt)	Torque (psi)	Fuel flow (lb/h)	Fuel flow (kg/h)	IAS (kt)	TAS (kt)	Torque (psi)	Fuel flow (lb/h)	Fuel flow (kg/h)	IAS (kt)	TAS (kt)
-20	0	-2	-5	30.0	552	250	214	210	30.0	552	250	213	210	30.0	553	251	212	208	30.0	554	251	211	207	30.0	554	251	210	206
	2000	-5	-9	28.8	519	235	209	211	28.9	520	236	208	210	29.0	522	237	207	209	29.1	523	237	206	208	29.2	524	238	206	208
	4000	-9	-13	27.6	486	220	204	212	27.8	488	221	203	211	28.1	491	223	202	210	28.3	494	224	201	210	28.4	495	224	201	209
	6000	-13	-17	26.4	455	206	198	212	26.8	458	208	198	212	27.1	462	210	197	211	27.4	466	212	197	211	27.6	468	212	197	210
	8000	-17	-21	25.2	428	194	193	212	25.7	433	196	193	212	26.2	437	198	193	212	26.6	441	200	192	212	26.7	443	201	192	211
	10000	-21	-25	24.0	403	183	187	212	24.6	408	185	187	213	25.2	414	188	188	213	25.7	419	190	187	213	25.9	421	191	187	212
	12000	-25	-29	22.8	378	172	181	212	23.5	385	174	182	213	24.2	391	178	182	214	24.8	398	181	182	213	25.1	401	182	182	213
	14000	-29	-33	21.6	354	160	175	212	22.4	362	164	176	213	23.3	370	168	177	214	24.0	378	172	177	214	24.3	382	173	177	214
	16000	-33	-37	20.4	330	150	169	211	21.4	340	154	171	213	22.3	350	159	172	214	23.1	360	163	172	214	23.5	363	165	172	214
	18000	-37	-41	19.2	308	140	163	210	20.3	319	145	165	212	21.4	331	150	166	213	22.3	342	155	167	214	22.7	347	157	167	214
	20000	-41	-45	18.0	287	130	157	208	19.2	300	136	159	211	20.4	313	142	160	213	21.4	326	148	161	214	21.8	331	150	161	214
	22000	-45	-49	16.8	267	121	150	206	18.1	282	128	152	209	19.4	296	134	155	212	20.5	311	141	156	214	21.0	316	143	156	214
	24000	-49	-53	15.6	248	112	143	203	17.0	264	120	146	207	18.5	281	127	148	211	19.7	296	134	150	213	20.2	303	137	151	214
	26000	-53	-57	14.4	229	104	135	199	16.0	247	112	139	204	17.5	265	120	142	209	18.8	283	128	144	211	19.4	290	131	145	213
	28000	-57	-61	13.2	211	96	128	195	14.9	231	105	132	201	16.6	251	114	135	206	18.0	270	122	138	210	18.7	277	126	139	211
	30000	-61	-64	12.0	194	88	119	188	13.8	215	97	124	196	15.6	236	107	128	202	17.2	257	117	131	207	17.9	266	120	132	209
-10	0	9	5	30.0	556	252	212	213	30.0	556	252	212	212	30.0	557	253	210	210	30.0	558	253	209	209	30.0	558	253	208	208
	2000	5	1	28.8	523	237	207	213	28.9	524	238	206	213	29.0	526	239	205	212	29.1	528	239	204	210	29.2	528	240	204	210
	4000	1	-3	27.6	490	222	202	214	27.8	492	223	201	213	28.1	495	224	201	213	28.3	498	226	200	212	28.4	499	226	199	211
	6000	-3	-7	26.4	458	208	197	215	26.8	462	209	196	214	27.1	466	211	196	214	27.4	470	213	195	213	27.6	471	214	195	213
	8000	-7	-11	25.2	431	195	191	215	25.7	435	197	191	215	26.2	439	199	191	214	26.6	444	201	190	214	26.7	446	202	190	213
	10000	-11	-15	24.0	406	184	185	215	24.6	411	186	185	215	25.2	416	189	186	215	25.7	422	191	185	215	25.9	424	192	185	214
	12000	-15	-19	22.8	380	172	179	214	23.5	387	175	180	215	24.2	393	178	181	216	24.8	400	182	180	215	25.1	403	183	180	215
	14000	-19	-23	21.6	356	161	174	214	22.4	364	165	175	215	23.3	372	169	175	216	24.0	380	172	175	216	24.3	383	174	175	216
	16000	-23	-27	20.4	332	150	168	213	21.4	341	155	169	215	22.3	351	159	170	216	23.1	361	164	170	216	23.5	365	165	170	216
	18000	-27	-31	19.2	309	140	162	212	20.3	321	145	163	214	21.4	332	151	164	216	22.3	343	156	164	216	22.7	348	158	165	216
	20000	-31	-35	18.0	289	131	155	210	19.2	302	137	157	213	20.4	314	143	158	215	21.4	327	148	159	216	21.8	332	150	159	216
	22000	-35	-39	16.8	269	122	148	208	18.1	283	128	150	211	19.4	297	135	152	214	20.5	311	141	154	215	21.0	316	143	154	216
	24000	-39	-43	15.6	249	113	141	205	17.0	265	120	144	209	18.5	281	127	146	212	19.7	296	134	148	215	20.2	302	137	148	215
	26000	-43	-47	14.4	231	105	134	201	16.0	248	112	137	206	17.5	265	120	140	211	18.8	282	128	142	213	19.4	289	131	142	214
	28000	-47	-51	13.2	213	96	126	196	14.9	232	105	130	202	16.6	251	114	133	207	18.0	269	122	136	211	18.7	277	126	136	212
	30000	-51	-54	12.0	195	88	117	190	13.8	215	98	122	197	15.6	236	107	126	203	17.2	257	116	129	208	17.9	266	121	130	209

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Figure 5-46. Long Range Cruise (Sheet 2 of 4)

LONG RANGE CRUISE

NOTE: IOAT BASED ON 8000 lb (3629 kg)

				@ 7000 lb (3175 kg)					@ 8000 lb (3629 kg)					@ 9000 lb (4082 kg)					@ 10000 lb (4536 kg)					@ 10400 lb (4717 kg)				
ISA (°C)	Altitude (ft)	IOAT (°C)	OAT (°C)	Torque (psi)	Fuel flow (lb/h)	Fuel flow (kg/h)	IAS (kt)	TAS (kt)	Torque (psi)	Fuel flow (lb/h)	Fuel flow (kg/h)	IAS (kt)	TAS (kt)	Torque (psi)	Fuel flow (lb/h)	Fuel flow (kg/h)	IAS (kt)	TAS (kt)	Torque (psi)	Fuel flow (lb/h)	Fuel flow (kg/h)	IAS (kt)	TAS (kt)	Torque (psi)	Fuel flow (lb/h)	Fuel flow (kg/h)	IAS (kt)	TAS (kt)
0	0	19	15	30.0	561	254	211	215	30.0	561	254	210	214	30.0	561	255	209	213	30.0	562	255	207	211	30.0	562	255	207	210
	2000	15	11	28.8	527	239	206	216	28.9	529	240	205	215	29.0	530	240	204	214	29.1	532	241	203	212	29.2	532	241	202	212
	4000	11	7	27.6	494	224	200	216	27.8	496	225	200	216	28.1	499	226	199	215	28.3	502	228	198	214	28.4	503	228	198	213
	6000	7	3	26.4	462	209	195	217	26.8	465	211	194	216	27.1	469	213	194	216	27.4	473	215	193	215	27.6	474	215	193	214
	8000	3	-1	25.2	433	197	189	217	25.7	438	198	189	217	26.2	442	200	189	216	26.6	446	202	188	216	26.7	448	203	188	215
	10000	-1	-5	24.0	408	185	184	217	24.6	413	187	184	217	25.2	418	190	184	217	25.7	424	192	183	216	25.9	426	193	183	216
	12000	-5	-9	22.8	382	173	178	217	23.5	389	176	178	217	24.2	395	179	179	218	24.8	402	182	178	217	25.1	405	184	178	217
	14000	-9	-13	21.6	357	162	172	216	22.4	365	166	173	217	23.3	373	169	173	218	24.0	381	173	173	217	24.3	384	174	173	217
	16000	-13	-17	20.4	334	151	166	216	21.4	343	156	167	217	22.3	353	160	168	218	23.1	362	164	168	218	23.5	365	166	168	218
	18000	-17	-21	19.2	311	141	160	214	20.3	322	146	161	216	21.4	333	151	162	217	22.3	344	156	162	218	22.7	348	158	163	218
	20000	-21	-25	18.0	290	132	153	212	19.2	302	137	155	215	20.4	315	143	156	217	21.4	327	148	157	218	21.8	331	150	157	218
	22000	-25	-29	16.8	270	122	146	210	18.1	284	129	149	213	19.4	298	135	150	215	20.5	311	141	151	217	21.0	316	143	152	218
	24000	-29	-33	15.6	251	114	139	207	17.0	266	121	142	211	18.5	281	128	144	214	19.7	296	134	146	216	20.2	302	137	146	217
	26000	-33	-37	14.4	232	105	132	203	16.0	249	113	135	208	17.5	266	120	138	212	18.8	282	128	139	214	19.4	289	131	140	215
	28000	-37	-41	13.2	214	97	124	198	14.9	232	105	128	204	16.6	250	114	131	209	18.0	269	122	133	212	18.7	278	126	134	213
	30000	-41	-44	12.0	196	89	116	192	13.8	216	98	120	199	15.6	236	107	124	204	17.2	257	117	126	208	17.9	266	121	127	210
10	0	29	25	30.0	565	256	209	217	30.0	565	256	208	216	30.0	565	256	207	215	30.0	566	257	205	213	30.0	566	257	205	212
	2000	25	21	28.8	531	241	204	218	28.9	533	242	203	217	29.0	534	242	202	216	29.1	536	243	201	214	29.2	536	243	200	214
	4000	21	17	27.6	498	226	199	218	27.8	500	227	198	217	28.1	503	228	197	217	28.3	506	229	196	216	28.4	506	230	196	215
	6000	17	13	26.4	465	211	193	219	26.8	468	212	193	218	27.1	472	214	192	218	27.4	476	216	192	217	27.6	478	217	191	216
	8000	13	9	25.2	436	198	188	219	25.7	440	200	187	219	26.2	444	201	187	218	26.6	449	204	187	218	26.7	451	205	186	217
	10000	9	5	24.0	411	186	182	219	24.6	416	189	182	219	25.2	421	191	182	219	25.7	426	193	181	218	25.9	428	194	181	218
	12000	5	1	22.8	384	174	176	219	23.5	391	177	177	219	24.2	397	180	177	220	24.8	403	183	176	219	25.1	406	184	176	219
	14000	1	-3	21.6	359	163	170	218	22.4	366	166	171	219	23.3	374	170	171	220	24.0	382	173	171	219	24.3	385	174	171	219
	16000	-3	-7	20.4	335	152	164	218	21.4	344	156	165	219	22.3	353	160	166	219	23.1	362	164	166	219	23.5	366	166	166	220
	18000	-7	-11	19.2	313	142	158	216	20.3	323	146	159	218	21.4	333	151	160	219	22.3	344	156	161	219	22.7	349	158	161	220
	20000	-11	-15	18.0	292	132	151	214	19.2	303	138	153	216	20.4	315	143	154	218	21.4	328	149	155	219	21.8	333	151	155	220
	22000	-15	-19	16.8	271	123	145	212	18.1	284	129	147	215	19.4	297	135	148	217	20.5	312	142	150	219	21.0	318	144	150	219
	24000	-19	-23	15.6	252	114	138	209	17.0	266	121	140	212	18.5	281	128	142	216	19.7	298	135	143	217	20.2	304	138	144	218
	26000	-23	-27	14.4	233	106	130	205	16.0	249	113	134	210	17.5	266	120	136	213	18.8	284	129	137	215	19.4	291	132	138	216
	28000	-27	-31	13.2	215	97	123	200	14.9	232	105	126	205	16.6	251	114	129	210	18.0	271	123	131	213	18.7	279	127	132	214
	30000	-31	-34	12.0	197	89	114	193	13.8	216	98	118	199	15.6	236	107	122	205	17.2	259	117	123	208	17.9	268	121	124	209

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Figure 5-46 Long Range Cruise (Sheet 3 of 4)

LONG RANGE CRUISE

NOTE: IOAT BASED ON 8000 lb (3629 kg)

				@ 7000 lb (3175 kg)					@ 8000 lb (3629 kg)					@ 9000 lb (4082 kg)					@ 10000 lb (4536 kg)					@ 10400 lb (4717 kg)				
ISA (°C)	Altitude (ft)	IOAT (°C)	OAT (°C)	Torque (psi)	Fuel flow (lb/h)	Fuel flow (kg/h)	IAS (kt)	TAS (kt)	Torque (psi)	Fuel flow (lb/h)	Fuel flow (kg/h)	IAS (kt)	TAS (kt)	Torque (psi)	Fuel flow (lb/h)	Fuel flow (kg/h)	IAS (kt)	TAS (kt)	Torque (psi)	Fuel flow (lb/h)	Fuel flow (kg/h)	IAS (kt)	TAS (kt)	Torque (psi)	Fuel flow (lb/h)	Fuel flow (kg/h)	IAS (kt)	TAS (kt)
20	0	39	35	30.0	569	258	208	219	30.0	569	258	207	218	30.0	569	258	205	216	30.0	570	259	204	215	30.0	570	259	203	214
	2000	35	31	28.8	535	243	203	220	28.9	537	243	202	219	29.0	538	244	200	217	29.1	540	245	199	216	29.2	540	245	199	216
	4000	31	27	27.6	502	228	197	220	27.8	504	229	196	219	28.1	507	230	196	219	28.3	509	231	195	218	28.4	510	231	194	217
	6000	27	23	26.4	469	213	192	221	26.8	472	214	191	220	27.1	476	216	191	219	27.4	480	218	190	219	27.6	482	218	189	218
	8000	23	19	25.2	438	199	186	221	25.7	443	201	186	221	26.2	448	203	186	220	26.6	453	206	185	219	26.7	455	206	184	219
	10000	19	15	24.0	410	186	180	221	24.6	415	188	181	221	25.2	422	191	181	221	25.7	428	194	180	220	25.9	431	195	179	220
	12000	15	11	22.8	384	174	175	221	23.5	390	177	175	221	24.2	398	181	175	221	24.8	406	184	175	221	25.1	409	185	174	220
	14000	11	7	21.6	359	163	169	220	22.4	367	166	170	221	23.3	376	170	170	221	24.0	385	175	169	221	24.3	388	176	169	221
	16000	7	3	20.4	335	152	163	219	21.4	344	156	163	220	22.3	355	161	164	221	23.1	365	166	164	221	23.5	369	167	164	221
	18000	3	-1	19.2	313	142	156	218	20.3	323	147	157	219	21.4	335	152	158	221	22.3	347	157	159	221	22.7	351	159	159	221
	20000	-1	-5	18.0	292	132	150	216	19.2	303	138	151	218	20.4	317	144	153	220	21.4	330	150	153	221	21.8	335	152	154	221
	22000	-5	-9	16.8	271	123	143	213	18.1	284	129	145	216	19.4	299	136	147	219	20.5	314	142	148	220	21.0	319	145	148	221
	24000	-9	-13	15.6	252	114	136	210	17.0	266	121	138	214	18.5	283	128	141	217	19.7	299	135	141	218	20.2	305	138	142	219
	26000	-13	-17	14.4	234	106	129	206	16.0	249	113	132	211	17.5	267	121	134	215	18.8	285	129	135	217	19.4	292	132	136	217
	28000	-17	-21	13.2	215	98	121	201	14.9	232	105	124	207	16.6	252	114	127	211	18.0	272	123	128	213	18.7	280	127	129	214
	30000	-21	-24	12.0	198	90	112	193	13.8	216	98	116	200	15.6	238	108	119	205	17.2	260	118	120	207	17.9	269	122	121	208
30	0	49	45	30.0	572	259	206	221	30.0	572	259	205	220	30.0	572	260	204	218	30.0	573	260	202	217	30.0	573	260	202	216
	2000	45	41	28.8	538	244	201	222	28.9	540	245	200	221	29.0	541	245	199	219	29.1	543	246	198	218	29.2	543	246	197	218
	4000	41	37	27.6	506	230	196	222	27.8	508	231	195	221	28.1	511	232	194	220	28.3	513	233	193	219	28.4	514	233	193	219
	6000	37	33	26.4	475	215	190	223	26.8	478	217	190	222	27.1	481	218	189	221	27.4	485	220	188	220	27.6	486	221	188	220
	8000	33	29	25.2	444	201	185	223	25.7	449	204	184	223	26.2	453	206	184	222	26.6	458	208	183	221	26.7	460	209	183	221
	10000	29	25	24.0	415	188	179	223	24.6	421	191	179	223	25.2	427	194	179	223	25.7	433	196	178	222	25.9	435	197	178	221
	12000	25	21	22.8	388	176	173	223	23.5	395	179	174	223	24.2	402	182	173	223	24.8	409	185	173	222	25.1	412	187	173	222
	14000	21	17	21.6	362	164	167	222	22.4	370	168	168	223	23.3	378	172	168	223	24.0	387	175	168	223	24.3	390	177	168	223
	16000	17	13	20.4	337	153	161	221	21.4	347	157	162	222	22.3	357	162	162	223	23.1	366	166	162	223	23.5	370	168	162	223
	18000	13	9	19.2	315	143	155	220	20.3	326	148	156	221	21.4	337	153	157	222	22.3	348	158	157	223	22.7	352	160	157	223
	20000	9	5	18.0	294	133	148	218	19.2	306	139	150	220	20.4	318	144	151	222	21.4	331	150	151	222	21.8	335	152	152	223
	22000	5	1	16.8	273	124	142	215	18.1	287	130	143	218	19.4	301	136	145	220	20.5	314	142	146	221	21.0	319	145	146	222
	24000	1	-3	15.6	253	115	135	212	17.0	269	122	137	216	18.5	284	129	139	219	19.7	299	136	140	220	20.2	305	138	140	220
	26000	-3	-7	14.4	234	106	127	208	16.0	251	114	130	213	17.5	268	122	132	216	18.8	285	129	133	217	19.4	292	132	134	218
	28000	-7	-11	13.2	215	98	119	202	14.9	234	106	122	207	16.6	253	115	125	212	18.0	272	123	126	214	18.7	280	127	127	215
	30000	-11	-14	12.0	197	90	110	193	13.8	218	99	114	200	15.6	238	108	116	205	17.2	259	118	117	207	17.9	269	122	118	208

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Figure 5-46 Long Range Cruise (Sheet 4 of 4)

MAXIMUM ENDURANCE CRUISE

NOTE: INDICATED AIRSPEED IS 115 KTS CONSTANT

ISA (ºC)	Altitude (ft)	IOAT (ºC)	OAT (ºC)	TAS (kt)	@ 7000 lb (3175 kg) Torque (psi)	Fuel flow (lb/h)	Fuel flow (kg/h)	@ 8000 lb (3629 kg) Torque (psi)	Fuel flow (lb/h)	Fuel flow (kg/h)	@ 9000 lb (4082 kg) Torque (psi)	Fuel flow (lb/h)	Fuel flow (kg/h)	@ 10000 lb (4536 kg) Torque (psi)	Fuel flow (lb/h)	Fuel flow (kg/h)	@ 10400 lb (4717 kg) Torque (psi)	Fuel flow (lb/h)	Fuel flow (kg/h)
-40	0	-24	-25	109.1	9.17	357.3	162.1	9.62	362.5	164.4	10.13	368.3	167.1	10.69	374.7	170.0	10.89	377.0	171.0
	2000	-28	-29	112.2	9.14	337.2	153.0	9.19	342.1	155.2	10.07	347.6	157.7	10.70	354.6	160.8	10.92	357.1	162.0
	4000	-32	-33	115.4	9.08	318.2	144.3	9.15	322.9	146.5	10.07	329.0	149.2	10.72	336.2	152.5	10.95	338.6	153.6
	6000	-36	-37	118.8	9.00	300.2	136.2	9.09	305.6	138.6	10.09	311.9	141.5	10.74	319.0	144.7	10.97	321.4	145.8
	8000	-40	-41	122.3	8.99	283.8	128.7	9.12	289.3	131.2	10.09	295.4	134.0	10.79	302.8	137.3	11.03	305.4	138.5
	10000	-44	-45	125.9	8.99	268.0	121.6	9.12	273.1	123.9	10.12	279.4	126.7	10.86	286.8	130.1	11.10	289.3	131.2
	12000	-47	-49	129.7	8.97	253.5	115.0	9.11	258.8	117.4	10.20	265.2	120.3	10.97	272.7	123.7	11.27	275.5	125.0
	14000	-51	-53	133.7	9.03	240.8	109.2	9.17	246.2	111.7	10.33	252.7	114.6	11.16	260.4	118.1	11.45	263.1	119.3
	16000	-55	-57	137.9	9.14	229.7	104.2	9.24	235.3	106.7	10.51	242.1	109.8	11.40	250.1	113.4	11.72	253.0	114.8
	18000	-59	-61	142.3	9.27	219.7	99.7	9.41	225.5	102.3	10.73	232.9	105.6	11.66	241.4	109.5	11.99	244.4	110.9
	20000	-63	-65	146.8	9.40	210.3	95.4	9.57	216.9	98.4	10.96	224.7	101.9	11.92	233.4	105.9	12.27	236.6	107.3
	22000	-67	-69	151.6	9.62	202.6	91.9	9.80	209.5	95.0	11.22	217.5	98.7	12.24	227.0	103.0	12.61	230.4	104.5
	24000	-71	-73	156.5	9.84	195.4	88.6	10.03	202.4	91.8	11.53	211.2	95.8	12.60	221.3	100.4	12.98	224.8	102.0
	26000	-74	-77	161.8	10.06	188.8	85.6	10.28	196.4	89.1	11.86	205.8	93.4	12.96	216.2	98.1	13.36	220.9	100.2
	28000	-78	-81	167.2	10.33	183.5	83.2	10.58	191.7	87.0	12.22	202.8	92.0	13.36	216.5	98.2	13.77	221.4	100.4
	30000	-82	-84	172.9	10.62	179.7	81.5	10.89	190.2	86.3	12.58	203.1	92.1	13.76	217.2	98.5	14.19	222.4	100.9
-30	0	-14	-15	111.2	9.17	358.8	162.8	9.22	363.9	165.1	10.11	369.6	167.7	10.71	376.5	170.8	10.93	379.1	172.0
	2000	-18	-19	114.4	9.12	338.4	153.5	9.18	343.3	155.7	10.08	349.3	158.4	10.74	356.6	161.8	10.96	359.1	162.9
	4000	-22	-23	117.8	9.05	319.1	144.7	9.13	324.3	147.1	10.11	330.8	150.1	10.77	338.1	153.4	10.99	340.5	154.4
	6000	-26	-27	121.2	9.01	301.5	136.8	9.13	307.1	139.3	10.12	313.4	142.2	10.79	320.8	145.5	11.04	323.5	146.7
	8000	-30	-31	124.9	9.02	285.3	129.4	9.15	290.7	131.9	10.13	297.2	134.8	10.86	304.9	138.3	11.11	307.5	139.5
	10000	-34	-35	128.7	9.01	269.5	122.2	9.14	275.0	124.7	10.21	281.8	127.8	10.95	289.4	131.3	11.24	292.4	132.6
	12000	-37	-39	132.6	9.03	255.3	115.8	9.18	261.1	118.4	10.30	267.7	121.4	11.15	275.9	125.1	11.44	278.7	126.4
	14000	-41	-43	136.7	9.15	243.3	110.4	9.25	248.9	112.9	10.50	255.8	116.0	11.37	263.9	119.7	11.69	266.9	121.1
	16000	-45	-47	141.1	9.27	232.3	105.4	9.40	238.1	108.0	10.70	245.2	111.2	11.63	253.7	115.1	11.96	256.6	116.4
	18000	-49	-51	145.6	9.41	222.2	100.8	9.56	228.4	103.6	10.95	236.1	107.1	11.90	244.8	111.0	12.24	247.9	112.4
	20000	-53	-55	150.3	9.61	213.2	96.7	9.78	219.9	99.7	11.20	227.8	103.3	12.21	237.0	107.5	12.57	240.3	109.0
	22000	-57	-59	155.2	9.84	205.1	93.0	10.01	212.0	96.2	11.50	220.5	100.0	12.57	230.4	104.5	12.94	233.9	106.1
	24000	-61	-63	160.4	10.05	197.9	89.8	10.26	205.3	93.1	11.83	214.5	97.3	12.93	224.7	101.9	13.33	228.4	103.6
	26000	-64	-67	165.8	10.32	191.8	87.0	10.55	199.8	90.6	12.19	209.4	95.0	13.35	221.0	100.2	13.76	225.9	102.5
	28000	-68	-71	171.5	10.62	186.7	84.7	10.87	195.1	88.5	12.58	207.3	94.0	13.75	221.3	100.4	14.18	226.4	102.7
	30000	-72	-74	177.5	10.93	183.4	83.2	11.21	194.3	88.1	12.96	207.6	94.2	14.20	222.4	100.9	14.65	227.8	103.3

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Figure 5-47 Maximum Endurance Cruise (Sheet 1 of 4)

MAXIMUM ENDURANCE CRUISE

NOTE: INDICATED AIRSPEED IS 115 KTS CONSTANT

ISA (ºC)	Altitude (ft)	IOAT (ºC)	OAT (ºC)	TAS (kt)	@ 7000 lb (3175 kg) Torque (psi)	Fuel flow (lb/h)	Fuel flow (kg/h)	@ 8000 lb (3629 kg) Torque (psi)	Fuel flow (lb/h)	Fuel flow (kg/h)	@ 9000 lb (4082 kg) Torque (psi)	Fuel flow (lb/h)	Fuel flow (kg/h)	@ 10000 lb (4536 kg) Torque (psi)	Fuel flow (lb/h)	Fuel flow (kg/h)	@ 10400 lb (4717 kg) Torque (psi)	Fuel flow (lb/h)	Fuel flow (kg/h)
-20	0	-4	-5	113.4	9.16	360.1	163.3	9.21	365.1	165.6	10.09	370.9	168.2	10.75	378.5	171.7	10.97	381.1	172.9
	2000	-8	-9	116.7	9.10	339.5	154.0	9.16	344.4	156.2	10.13	351.1	159.3	10.78	358.6	162.7	11.00	361.1	163.8
	4000	-12	-13	120.1	9.03	320.2	145.2	9.14	325.9	147.8	10.14	332.5	150.8	10.80	339.8	154.1	11.04	342.5	155.4
	6000	-16	-17	123.7	9.04	303.1	137.5	9.17	308.6	140.0	10.14	315.0	142.9	10.87	322.9	146.5	11.11	325.6	147.7
	8000	-20	-21	127.4	9.04	286.8	130.1	9.17	292.2	132.5	10.21	299.3	135.8	10.94	307.2	139.3	11.21	310.1	140.7
	10000	-23	-25	131.3	9.03	271.2	123.0	9.19	277.3	125.8	10.29	284.2	128.9	11.12	292.8	132.8	11.41	295.8	134.2
	12000	-27	-29	135.4	9.15	257.8	116.9	9.26	263.6	119.6	10.48	271.0	122.9	11.33	279.4	126.7	11.64	282.5	128.1
	14000	-31	-33	139.7	9.26	245.6	111.4	9.37	251.7	114.2	10.67	258.9	117.4	11.60	267.5	121.3	11.92	270.6	122.7
	16000	-35	-37	144.1	9.41	234.8	106.5	9.55	240.8	109.2	10.92	248.5	112.7	11.86	257.2	116.7	12.19	260.2	118.0
	18000	-39	-41	148.8	9.58	225.0	102.1	9.75	231.6	105.1	11.17	239.4	108.6	12.16	248.4	112.7	12.51	251.6	114.1
	20000	-43	-45	153.7	9.82	215.8	97.9	9.97	222.5	100.9	11.46	230.8	104.7	12.51	240.4	109.0	12.88	243.9	110.6
	22000	-47	-49	158.8	10.03	207.4	94.1	10.22	214.7	97.4	11.79	223.6	101.4	12.88	233.6	106.0	13.27	237.2	107.6
	24000	-50	-53	164.2	10.30	200.4	90.9	10.50	208.1	94.4	12.14	217.4	98.6	13.29	228.1	103.5	13.70	232.2	105.3
	26000	-54	-57	169.8	10.59	194.5	88.2	10.82	202.6	91.9	12.54	212.6	96.4	13.72	226.3	102.6	14.13	231.2	104.9
	28000	-58	-61	175.7	10.91	189.6	86.0	11.16	198.8	90.2	12.92	211.8	96.1	14.15	226.4	102.7	14.60	231.6	105.1
	30000	-62	-64	181.9	11.25	187.4	85.0	11.52	198.7	90.1	13.36	212.6	96.4	14.64	227.9	103.4	15.10	233.5	105.9
-10	0	6	5	115.5	9.14	361.3	163.9	9.20	366.2	166.1	10.13	372.9	169.1	10.79	380.5	172.6	11.01	383.1	173.8
	2000	2	1	118.9	9.06	340.5	154.5	9.15	346.3	157.1	10.16	353.0	160.1	10.81	360.4	163.5	11.04	363.1	164.7
	4000	-2	-3	122.4	9.06	321.9	146.0	9.18	327.6	148.6	10.15	334.1	151.5	10.86	342.0	155.1	11.11	344.8	156.4
	6000	-6	-7	126.1	9.07	304.6	138.2	9.19	310.1	140.7	10.21	317.1	143.8	10.94	325.2	147.5	11.19	327.9	148.7
	8000	-10	-11	129.9	9.05	288.2	130.7	9.19	294.4	133.5	10.29	301.6	136.8	11.08	310.1	140.7	11.37	313.3	142.1
	10000	-13	-15	133.9	9.13	273.5	124.1	9.26	279.7	126.9	10.44	287.3	130.3	11.28	296.1	134.3	11.58	299.3	135.8
	12000	-17	-19	138.1	9.25	260.1	118.0	9.33	266.5	120.9	10.63	274.0	124.3	11.54	283.1	128.4	11.86	286.3	129.9
	14000	-21	-23	142.5	9.40	248.0	112.5	9.52	254.2	115.3	10.87	262.1	118.9	11.81	271.2	123.0	12.15	274.4	124.5
	16000	-25	-27	147.1	9.54	236.8	107.4	9.70	243.6	110.5	11.12	251.5	114.1	12.09	260.5	118.2	12.45	263.8	119.7
	18000	-29	-31	152.0	9.78	227.3	103.1	9.93	234.0	106.1	11.40	242.1	109.8	12.43	251.5	114.1	12.81	254.9	115.6
	20000	-33	-35	157.0	10.01	218.0	98.9	10.17	225.1	102.1	11.72	233.7	106.0	12.81	243.6	110.5	13.19	247.1	112.1
	22000	-37	-39	162.3	10.25	209.9	95.2	10.44	217.5	98.7	12.07	226.6	102.8	13.19	237.0	107.5	13.60	240.7	109.2
	24000	-40	-43	167.8	10.55	203.2	92.2	10.75	211.2	95.8	12.45	220.9	100.2	13.63	233.4	105.9	14.05	238.1	108.0
	26000	-44	-47	173.7	10.86	197.4	89.5	11.08	205.9	93.4	12.86	218.0	98.9	14.07	231.7	105.1	14.51	236.6	107.3
	28000	-48	-51	179.8	11.21	193.2	87.6	11.45	203.9	92.5	13.28	216.9	98.4	14.56	231.5	105.0	15.01	236.7	107.4
	30000	-52	-54	186.2	11.55	191.8	87.0	11.82	203.4	92.3	13.74	217.3	98.6	15.07	232.7	105.6	15.55	238.4	108.1

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Figure 5-47 Maximum Endurance Cruise (Sheet 2 of 4)

MAXIMUM ENDURANCE CRUISE

NOTE: INDICATED AIRSPEED IS 115 KTS CONSTANT

					@ 7000 lb (3175 kg)			@ 8000 lb (3629 kg)			@ 9000 lb (4082 kg)			@ 10000 lb (4536 kg)			@ 10400 lb (4717 kg)		
ISA (ºC)	Altitude (ft)	IOAT (ºC)	OAT (ºC)	TAS (kt)	Torque (psi)	Fuel flow (lb/h)	Fuel flow (kg/h)	Torque (psi)	Fuel flow (lb/h)	Fuel flow (kg/h)	Torque (psi)	Fuel flow (lb/h)	Fuel flow (kg/h)	Torque (psi)	Fuel flow (lb/h)	Fuel flow (kg/h)	Torque (psi)	Fuel flow (lb/h)	Fuel flow (kg/h)
0	0	16	15	117.5	9.11	362.5	164.4	9.18	368.1	167.0	10.17	375.0	170.1	10.83	382.7	173.6	11.05	385.3	174.8
	2000	12	11	121.0	9.08	342.2	155.2	9.18	348.1	157.9	10.18	354.9	161.0	10.86	362.7	164.5	11.10	365.5	165.8
	4000	8	7	124.6	9.08	323.5	146.7	9.21	329.3	149.4	10.20	336.1	152.5	10.93	344.4	156.2	11.18	347.2	157.5
	6000	4	3	128.4	9.08	306.1	138.8	9.20	312.0	141.5	10.28	319.3	144.8	11.03	327.7	148.6	11.32	330.8	150.0
	8000	1	-1	132.4	9.11	290.1	131.6	9.25	296.5	134.5	10.38	304.0	137.9	11.23	313.2	142.1	11.52	316.3	143.5
	10000	-3	-5	136.5	9.23	276.0	125.2	9.33	282.4	128.1	10.59	290.5	131.8	11.46	299.8	136.0	11.79	303.2	137.5
	12000	-7	-9	140.8	9.37	262.7	119.2	9.48	269.4	122.2	10.80	277.5	125.9	11.74	287.1	130.2	12.07	290.5	131.8
	14000	-11	-13	145.4	9.52	250.3	113.5	9.65	257.3	116.7	11.06	265.8	120.6	12.02	275.3	124.9	12.36	278.8	126.5
	16000	-15	-17	150.1	9.73	239.6	108.7	9.88	246.8	111.9	11.32	255.2	115.8	12.35	265.3	120.3	12.71	268.8	121.9
	18000	-19	-21	155.1	9.97	229.9	104.3	10.12	237.0	107.5	11.64	245.9	111.5	12.72	256.2	116.2	13.10	259.9	117.9
	20000	-23	-25	160.3	10.20	220.5	100.0	10.38	228.0	103.4	11.99	237.3	107.6	13.09	247.7	112.4	13.49	251.8	114.2
	22000	-26	-29	165.7	10.48	212.5	96.4	10.67	220.4	100.0	12.36	229.9	104.3	13.52	242.1	109.8	13.94	246.4	111.8
	24000	-30	-33	171.4	10.79	205.8	93.4	10.99	214.1	97.1	12.76	225.6	102.3	13.96	238.5	108.2	14.39	243.1	110.3
	26000	-34	-37	177.5	11.13	200.6	91.0	11.35	210.6	95.5	13.17	222.8	101.1	14.44	236.6	107.3	14.89	241.5	109.5
	28000	-38	-41	183.8	11.48	197.7	89.7	11.73	208.5	94.6	13.63	221.6	100.5	14.95	236.1	107.1	15.43	241.4	109.5
	30000	-42	-44	190.4	11.86	196.1	89.0	12.16	207.5	94.1	14.11	221.4	100.4	15.49	237.0	107.5	15.99	242.8	110.1
10	0	26	25	119.5	9.09	363.8	165.0	9.18	370.0	167.8	10.20	376.9	171.0	10.85	384.7	174.5	11.10	387.6	175.8
	2000	22	21	123.1	9.10	344.0	156.0	9.22	349.9	158.7	10.19	356.6	161.8	10.92	365.1	165.6	11.17	368.0	166.9
	4000	18	17	126.8	9.10	325.2	147.5	9.22	330.9	150.1	10.26	338.4	153.5	11.00	346.7	157.3	11.26	349.7	158.6
	6000	15	13	130.7	9.10	307.6	139.5	9.24	314.2	142.5	10.35	321.6	145.9	11.17	330.8	150.0	11.46	334.0	151.5
	8000	11	9	134.8	9.21	292.5	132.7	9.31	298.9	135.6	10.53	307.0	139.3	11.38	316.4	143.5	11.70	319.8	145.1
	10000	7	5	139.0	9.33	278.2	126.2	9.42	285.2	129.4	10.73	293.5	133.1	11.66	303.6	137.7	11.98	307.1	139.3
	12000	3	1	143.5	9.49	265.6	120.5	9.60	272.8	123.7	10.99	281.8	127.8	11.94	292.1	132.5	12.27	295.6	134.1
	14000	-1	-3	148.1	9.67	253.8	115.1	9.80	261.5	118.6	11.25	270.6	122.7	12.24	281.2	127.6	12.60	285.0	129.3
	16000	-5	-7	153.0	9.91	243.3	110.4	10.03	251.0	113.9	11.55	260.4	118.1	12.60	271.4	123.1	12.98	275.4	124.9
	18000	-9	-11	158.1	10.13	233.5	105.9	10.28	241.6	109.6	11.88	251.4	114.0	12.98	262.2	118.9	13.36	265.8	120.6
	20000	-13	-15	163.5	10.41	224.7	101.9	10.58	233.1	105.7	12.24	242.9	110.2	13.38	253.8	115.1	13.79	257.7	116.9
	22000	-16	-19	169.1	10.72	216.9	98.4	10.90	225.5	102.3	12.64	235.9	107.0	13.83	247.6	112.3	14.26	251.9	114.3
	24000	-20	-23	175.0	11.04	210.3	95.4	11.26	219.5	99.6	13.05	230.7	104.6	14.30	243.3	110.4	14.75	247.9	112.4
	26000	-24	-27	181.2	11.39	205.2	93.1	11.65	215.2	97.6	13.51	227.3	103.1	14.81	240.9	109.3	15.28	245.8	111.5
	28000	-28	-31	187.7	11.76	201.7	91.5	12.06	212.5	96.4	13.99	225.5	102.3	15.36	240.1	108.9	15.85	245.9	111.5
	30000	-31	-34	194.5	12.16	200.1	90.8	12.52	211.6	96.0	14.51	225.7	102.4	15.93	243.6	110.5	16.43	250.0	113.4

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Figure 5-47 Maximum Endurance Cruise (Sheet 3 of 4)

MAXIMUM ENDURANCE CRUISE

NOTE: INDICATED AIRSPEED IS 115 KTS CONSTANT

ISA (ºC)	Altitude (ft)	IOAT (ºC)	OAT (ºC)	TAS (kt)	@ 7000 lb (3175 kg) Torque (psi)	Fuel flow (lb/h)	Fuel flow (kg/h)	@ 8000 lb (3629 kg) Torque (psi)	Fuel flow (lb/h)	Fuel flow (kg/h)	@ 9000 lb (4082 kg) Torque (psi)	Fuel flow (lb/h)	Fuel flow (kg/h)	@ 10000 lb (4536 kg) Torque (psi)	Fuel flow (lb/h)	Fuel flow (kg/h)	@ 10400 lb (4717 kg) Torque (psi)	Fuel flow (lb/h)	Fuel flow (kg/h)
20	0	36	35	121.5	9.12	365.5	165.8	9.22	371.6	168.6	10.21	378.5	171.7	10.91	386.8	175.4	11.16	389.8	176.8
	2000	32	31	125.2	9.12	345.9	156.9	9.24	351.9	159.6	10.25	359.2	162.9	10.98	367.8	166.8	11.23	370.7	168.1
	4000	28	27	129.0	9.11	327.2	148.4	9.23	333.6	151.3	10.33	341.3	154.8	11.11	350.3	158.9	11.40	353.7	160.4
	6000	25	23	133.0	9.17	310.3	140.8	9.29	317.0	143.8	10.46	325.1	147.5	11.31	334.8	151.9	11.60	338.1	153.4
	8000	21	19	137.2	9.30	295.2	133.9	9.37	302.2	137.1	10.66	310.6	140.9	11.56	320.8	145.5	11.88	324.5	147.2
	10000	17	15	141.5	9.45	281.1	127.5	9.54	288.3	130.8	10.90	297.4	134.9	11.84	307.9	139.7	12.17	311.6	141.3
	12000	13	11	146.1	9.59	268.3	121.7	9.72	276.3	125.3	11.16	285.7	129.6	12.12	296.4	134.4	12.48	300.4	136.3
	14000	9	7	150.8	9.83	257.4	116.8	9.96	265.6	120.5	11.44	275.1	124.8	12.47	286.4	129.9	12.84	289.7	131.4
	16000	5	3	155.8	10.07	247.5	112.3	10.20	255.8	116.0	11.76	266.1	120.7	12.85	275.8	125.1	13.23	279.2	126.6
	18000	1	-1	161.1	10.32	238.7	108.3	10.47	247.6	112.3	12.11	256.5	116.3	13.23	266.5	120.9	13.63	270.1	122.5
	20000	-2	-5	166.6	10.62	230.7	104.6	10.80	238.4	108.1	12.49	247.7	112.4	13.68	258.6	117.3	14.10	262.4	119.0
	22000	-6	-9	172.4	10.93	222.0	100.7	11.15	230.3	104.5	12.91	240.3	109.0	14.15	251.8	114.2	14.59	255.9	116.1
	24000	-10	-13	178.4	11.28	215.0	97.5	11.55	223.9	101.6	13.36	234.7	106.5	14.66	247.1	112.1	15.12	251.4	114.0
	26000	-14	-17	184.8	11.66	209.6	95.1	11.95	219.3	99.5	13.85	231.1	104.8	15.20	244.7	111.0	15.68	250.4	113.6
	28000	-18	-21	191.5	12.06	205.8	93.4	12.40	216.2	98.1	14.36	229.4	104.1	15.75	246.2	111.7	16.25	252.3	114.4
	30000	-21	-24	198.5	12.50	203.7	92.4	12.87	215.6	97.8	14.90	231.8	105.1	16.36	249.9	113.4	16.89	256.4	116.3
30	0	46	45	123.5	9.14	366.1	166.1	9.25	372.2	168.8	10.24	379.2	172.0	10.97	388.0	176.0	11.22	390.9	177.3
	2000	42	41	127.2	9.14	347.6	157.7	9.25	353.8	160.5	10.32	361.7	164.1	11.05	370.5	168.1	11.33	373.9	169.6
	4000	38	37	131.1	9.15	330.1	149.7	9.27	337.1	152.9	10.40	345.1	156.5	11.25	355.2	161.1	11.53	358.7	162.7
	6000	35	33	135.2	9.26	314.2	142.5	9.35	321.2	145.7	10.60	330.2	149.8	11.46	340.4	154.4	11.78	344.2	156.1
	8000	31	29	139.5	9.39	299.0	135.6	9.47	306.6	139.1	10.81	315.6	143.2	11.74	326.6	148.1	12.07	330.4	149.9
	10000	27	25	143.9	9.56	285.1	129.3	9.65	292.9	132.9	11.07	302.6	137.3	12.03	313.8	142.3	12.36	317.4	144.0
	12000	23	21	148.6	9.75	272.7	123.7	9.86	281.1	127.5	11.34	291.0	132.0	12.34	301.0	136.5	12.69	304.4	138.1
	14000	19	17	153.5	9.99	261.6	118.7	10.10	270.1	122.5	11.64	279.0	126.6	12.71	288.9	131.0	13.08	292.5	132.7
	16000	15	13	158.6	10.22	251.6	114.1	10.38	259.1	117.5	11.98	268.0	121.6	13.09	278.1	126.1	13.48	281.8	127.8
	18000	12	9	164.0	10.50	241.5	109.5	10.69	249.2	113.0	12.34	258.3	117.2	13.51	268.9	122.0	13.93	272.7	123.7
	20000	8	5	169.7	10.82	232.4	105.4	11.03	240.2	109.0	12.76	249.9	113.4	13.98	260.8	118.3	14.41	264.7	120.1
	22000	4	1	175.6	11.15	224.4	101.8	11.41	232.7	105.6	13.19	242.8	110.1	14.47	254.6	115.5	14.92	259.3	117.6
	24000	0	-3	181.8	11.53	218.1	98.9	11.82	226.9	102.9	13.68	237.6	107.8	15.00	251.8	114.2	15.47	256.9	116.5
	26000	-4	-7	188.4	11.93	212.8	96.5	12.26	222.3	100.8	14.18	235.4	106.8	15.56	250.8	113.8	16.05	256.3	116.3
	28000	-8	-11	195.2	12.37	208.7	94.7	12.74	220.3	99.9	14.72	235.1	106.6	16.16	251.7	114.2	16.68	257.6	116.8
	30000	-11	-14	202.5	12.83	207.7	94.2	13.23	220.7	100.1	15.30	236.7	107.4	16.80	254.4	115.4	17.34	261.3	118.5

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Figure 5-47 Maximum Endurance Cruise (Sheet 4 of 4)

SPECIFIC AIR RANGE

WEIGHT 7000 lb (3175 kg) - ISA-20°

ASSOCIATED CONDITIONS:	EXAMPLE:	
	PRESSURE ALTITUDE ~ FEET	15000 FEET
LANDING GEAR RETRACTED	TORQUE ~ PSI	27 PSI
FLAPS UP	TRUE AIRSPEED ~ KT	234 KT
INERTIAL SEPARATOR CLOSED	SPECIFIC AIR RANGE ~ NM/lb	0.58 NM/lb

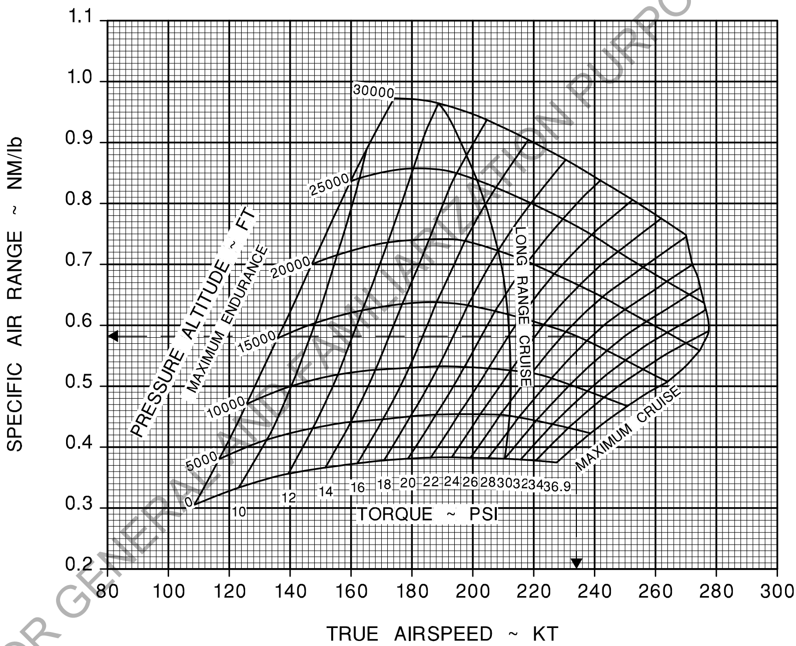

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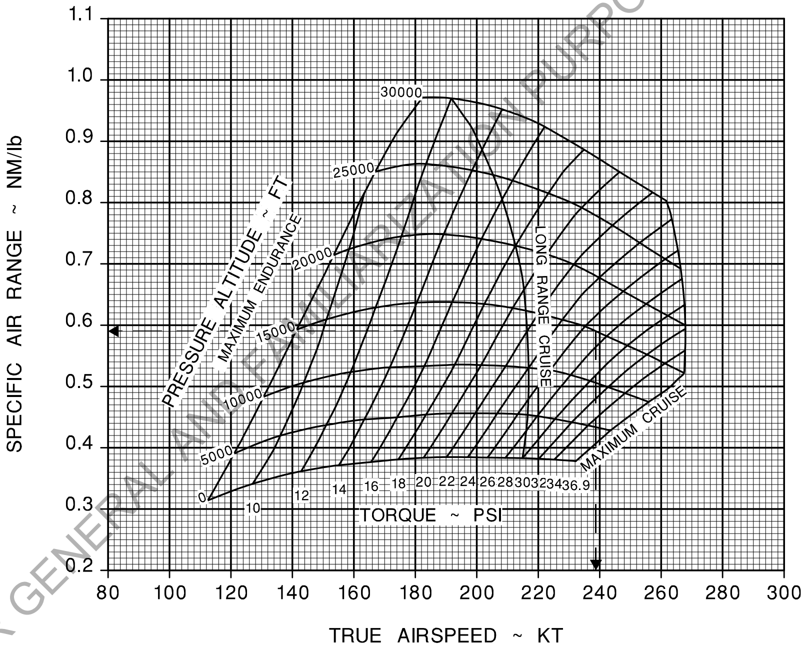
Figure 5-48 Specific Air Range - 7000 lb (Sheet 1 of 3)

SPECIFIC AIR RANGE

WEIGHT 7000 lb (3175 kg) - ISA

ASSOCIATED CONDITIONS:	EXAMPLE:	
LANDING GEAR RETRACTED	PRESSURE ALTITUDE ~ FEET	15000 FEET
FLAPS UP	TORQUE ~ PSI	27 PSI
INERTIAL SEPARATOR CLOSED	TRUE AIRSPEED ~ KT	239 KT
	SPECIFIC AIR RANGE ~ NM/lb	0.59 NM/lb



FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

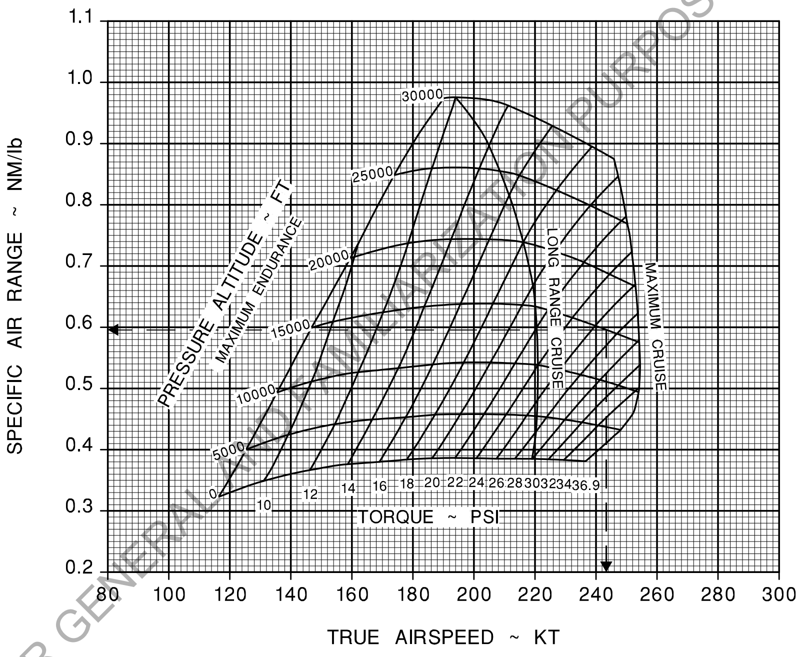
Figure 5-48 Specific Air Range - 7000 lb (Sheet 2 of 3)

SPECIFIC AIR RANGE

WEIGHT 7000 lb (3175 kg) - ISA+20°

ASSOCIATED CONDITIONS:
LANDING GEAR RETRACTED
FLAPS UP
INERTIAL SEPARATOR CLOSED

EXAMPLE:
PRESSURE ALTITUDE ~ FEET 15000 FEET
TORQUE ~ PSI 27 PSI
TRUE AIRSPEED ~ KT 243 KT
SPECIFIC AIR RANGE ~ NM/lb 0.595 NM/lb



FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Figure 5-48 Specific Air Range - 7000 lb (Sheet 3 of 3)

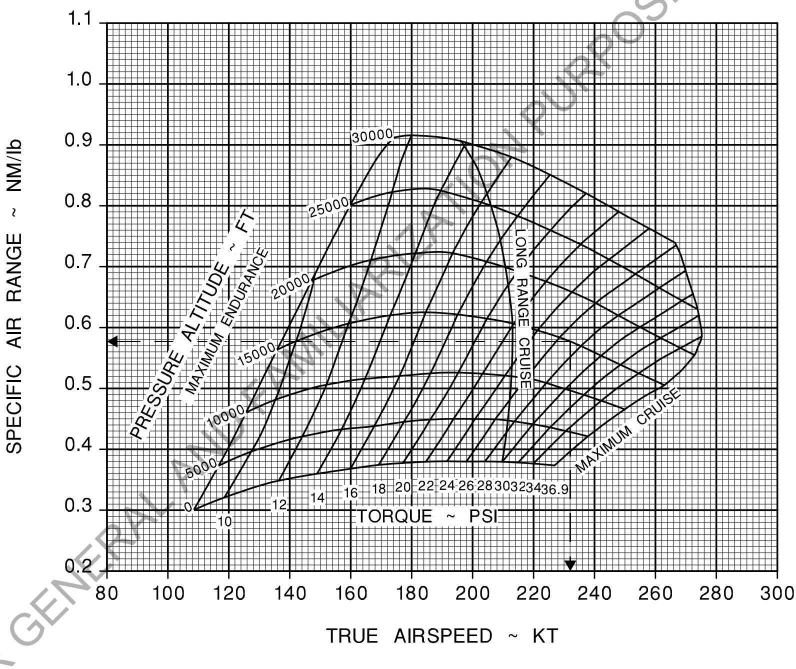
SPECIFIC AIR RANGE

WEIGHT 8000 lb (3629 kg) - ISA-20°

ASSOCIATED CONDITIONS:
LANDING GEAR RETRACTED
FLAPS UP
INERTIAL SEPARATOR CLOSED

EXAMPLE:

PRESSURE ALTITUDE ~ FEET	15000 FEET
TORQUE ~ PSI	27 PSI
TRUE AIRSPEED ~ KT	232 KT
SPECIFIC AIR RANGE ~ NM/lb	0.575 NM/lb



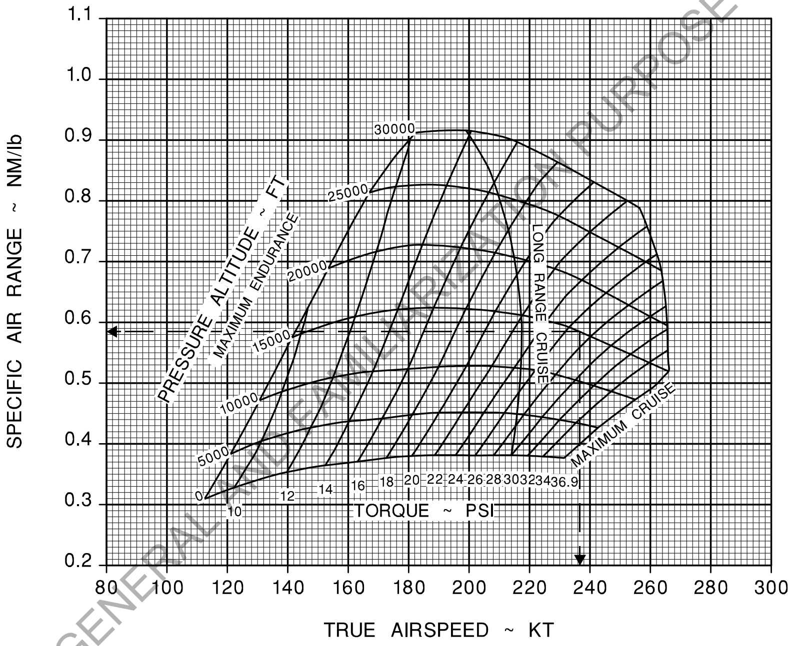
FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Figure 5-49 Specific Air Range - 8000 lb (Sheet 1 of 3)

SPECIFIC AIR RANGE

WEIGHT 8000 lb (3629 kg) - ISA

ASSOCIATED CONDITIONS:	EXAMPLE:		
LANDING GEAR RETRACTED	PRESSURE ALTITUDE ~ FEET	15000	FEET
FLAPS UP	TORQUE ~ PSI	27	PSI
INERTIAL SEPARATOR CLOSED	TRUE AIRSPEED ~ KT	237	KT
	SPECIFIC AIR RANGE ~ NM/lb	0.585	NM/lb



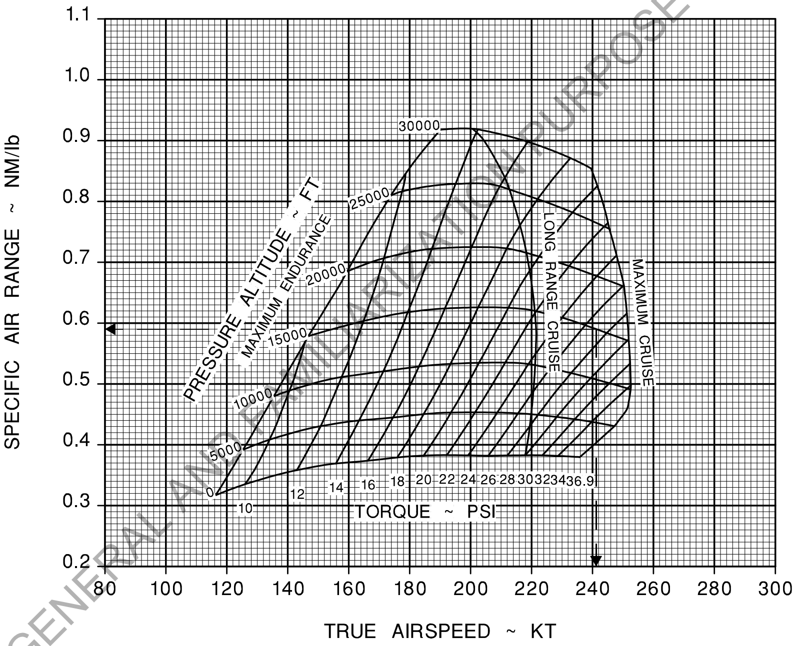
FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Figure 5-49 Specific Air Range - 8000 lb (Sheet 2 of 3)

SPECIFIC AIR RANGE

WEIGHT 8000 lb (3629 kg) - ISA+20°

ASSOCIATED CONDITIONS:	EXAMPLE:	
LANDING GEAR RETRACTED	PRESSURE ALTITUDE ~ FEET	15000 FEET
FLAPS UP	TORQUE ~ PSI	27 PSI
INERTIAL SEPARATOR CLOSED	TRUE AIRSPEED ~ KT	241 KT
	SPECIFIC AIR RANGE ~ NM/lb	0.59 NM/lb



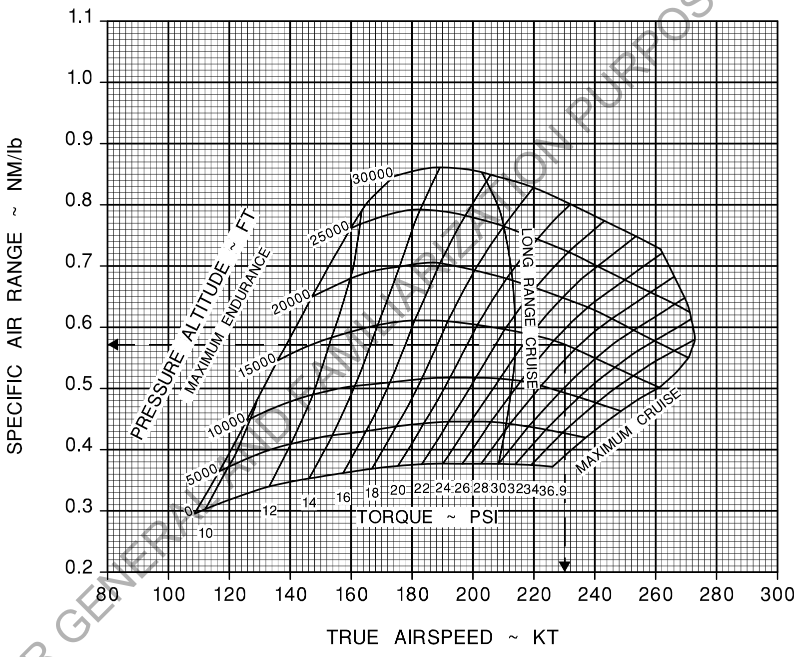
FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Figure 5-49 Specific Air Range - 8000 lb (Sheet 3 of 3)

SPECIFIC AIR RANGE

WEIGHT 9000 lb (4082 kg) - ISA-20°

ASSOCIATED CONDITIONS:	EXAMPLE:	
LANDING GEAR RETRACTED	PRESSURE ALTITUDE ~ FEET	15000 FEET
FLAPS UP	TORQUE ~ PSI	27 PSI
INERTIAL SEPARATOR CLOSED	TRUE AIRSPEED ~ KT	230 KT
	SPECIFIC AIR RANGE ~ NM/lb	0.57 NM/lb



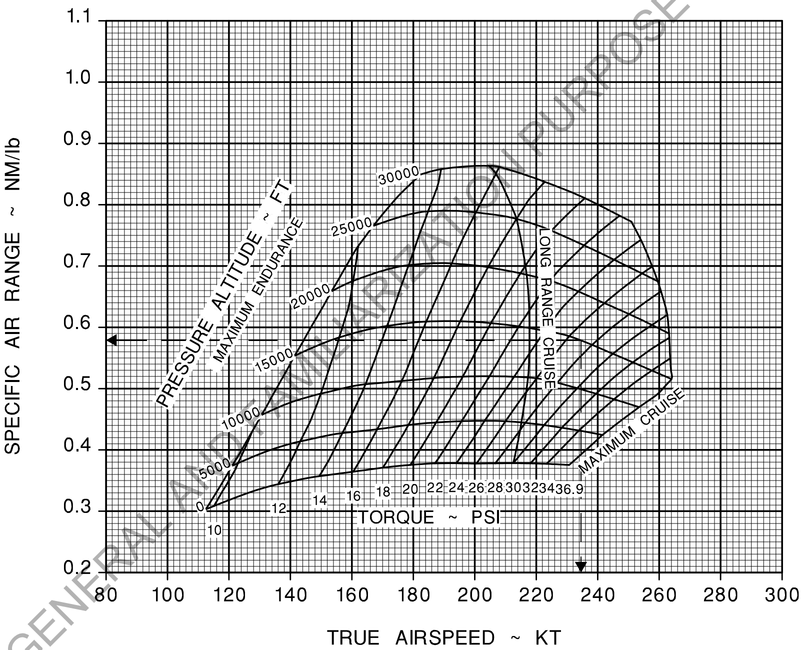
FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Figure 5-50 Specific Air Range - 9000 lb (Sheet 1 of 3)

SPECIFIC AIR RANGE

WEIGHT 9000 lb (4082 kg) - ISA

ASSOCIATED CONDITIONS:	EXAMPLE:	
LANDING GEAR RETRACTED	PRESSURE ALTITUDE ~ FEET	15000 FEET
FLAPS UP	TORQUE ~ PSI	27 PSI
INERTIAL SEPARATOR CLOSED	TRUE AIRSPEED ~ KT	235 KT
	SPECIFIC AIR RANGE ~ NM/lb	0.58 NM/lb



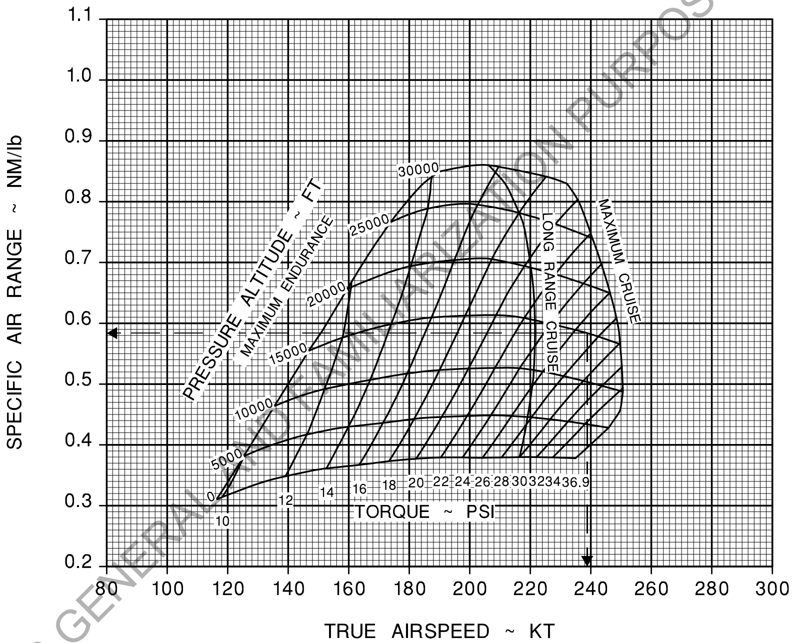
FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Figure 5-50 Specific Air Range - 9000 lb (Sheet 2 of 3)

SPECIFIC AIR RANGE

WEIGHT 9000 lb (4082 kg) - ISA+20°

ASSOCIATED CONDITIONS:	EXAMPLE:	
LANDING GEAR RETRACTED	PRESSURE ALTITUDE ~ FEET	15000 FEET
FLAPS UP	TORQUE ~ PSI	27 PSI
INERTIAL SEPARATOR CLOSED	TRUE AIRSPEED ~ KT	239 KT
	SPECIFIC AIR RANGE ~ NM/lb	0.585 NM/lb



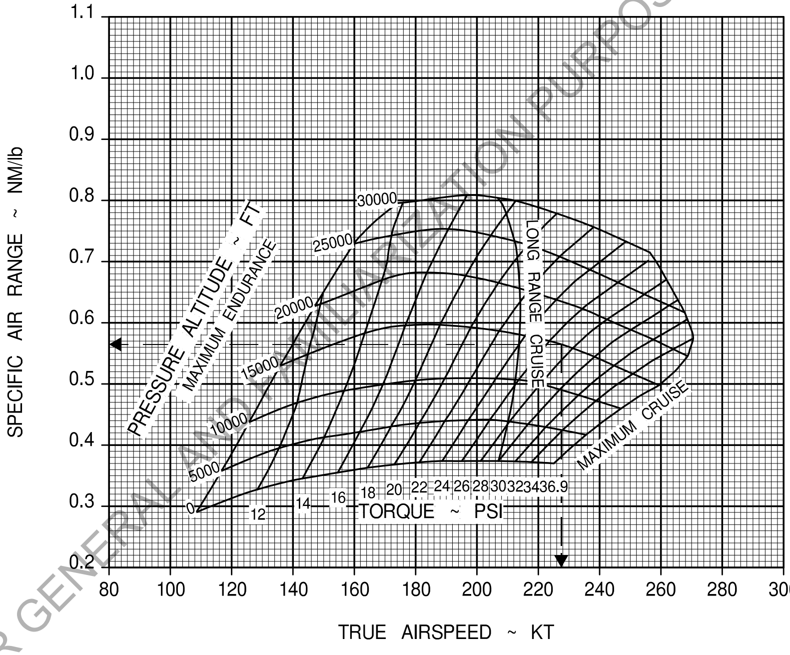
FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Figure 5-50 Specific Air Range - 9000 lb (Sheet 3 of 3)

SPECIFIC AIR RANGE

WEIGHT 10000 lb (4536 kg) - ISA-20°

ASSOCIATED CONDITIONS:	EXAMPLE:	
	PRESSURE ALTITUDE	15000 FEET
LANDING GEAR RETRACTED	TORQUE	27 PSI
FLAPS UP	TRUE AIRSPEED	227 KT
INERTIAL SEPARATOR CLOSED	SPECIFIC AIR RANGE	0.56 NM/lb



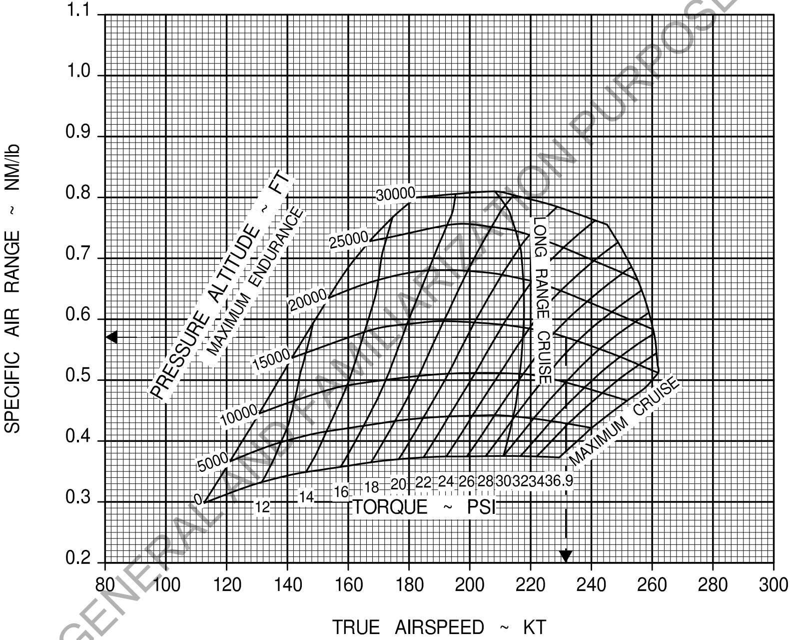
FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Figure 5-51 Specific Air Range - 10000 lb (Sheet 1 of 3)

SPECIFIC AIR RANGE

WEIGHT 10000 lb (4536 kg) - ISA

ASSOCIATED CONDITIONS:	EXAMPLE:		
	PRESSURE ALTITUDE	15000	FEET
LANDING GEAR RETRACTED	TORQUE	27	PSI
FLAPS UP	TRUE AIRSPEED	232	KT
INERTIAL SEPARATOR CLOSED	SPECIFIC AIR RANGE	0.57	NM/lb



FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Figure 5-51 Specific Air Range - 10000 lb (Sheet 2 of 3)

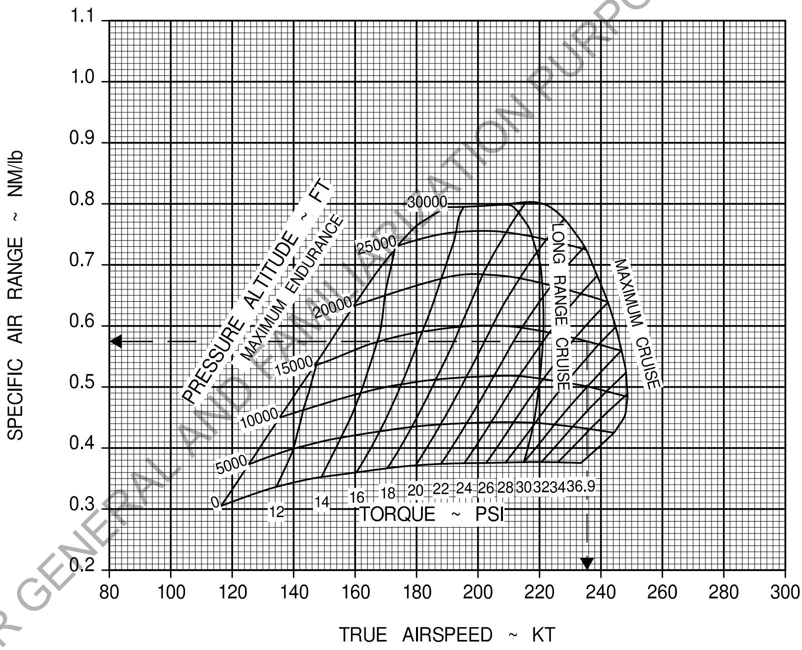
SPECIFIC AIR RANGE

WEIGHT 10000 lb (4536 kg) - ISA+20°

ASSOCIATED CONDITIONS:
LANDING GEAR RETRACTED
FLAPS UP
INERTIAL SEPARATOR CLOSED

EXAMPLE:

PRESSURE ALTITUDE	15000	FEET
TORQUE	27	PSI
TRUE AIRSPEED	235	KT
SPECIFIC AIR RANGE	0.58	NM/lb



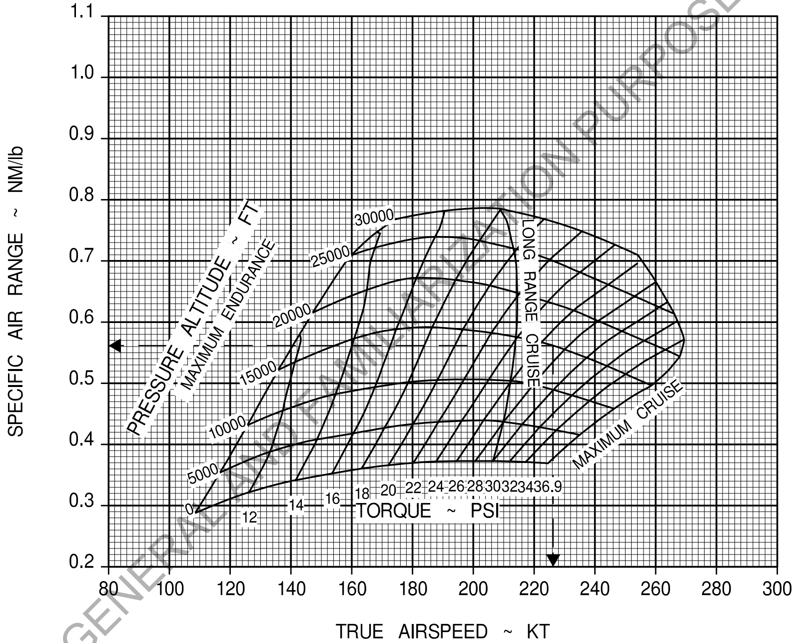
FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Figure 5-51 Specific Air Range - 10000 lb (Sheet 3 of 3)

SPECIFIC AIR RANGE

WEIGHT 10400 lb (4717 kg) - ISA-20°

ASSOCIATED CONDITIONS:	EXAMPLE:		
LANDING GEAR RETRACTED	PRESSURE ALTITUDE	15000	FEET
FLAPS UP	TORQUE	27	PSI
INERTIAL SEPARATOR CLOSED	TRUE AIRSPEED	226	KT
	SPECIFIC AIR RANGE	0.56	NM/lb



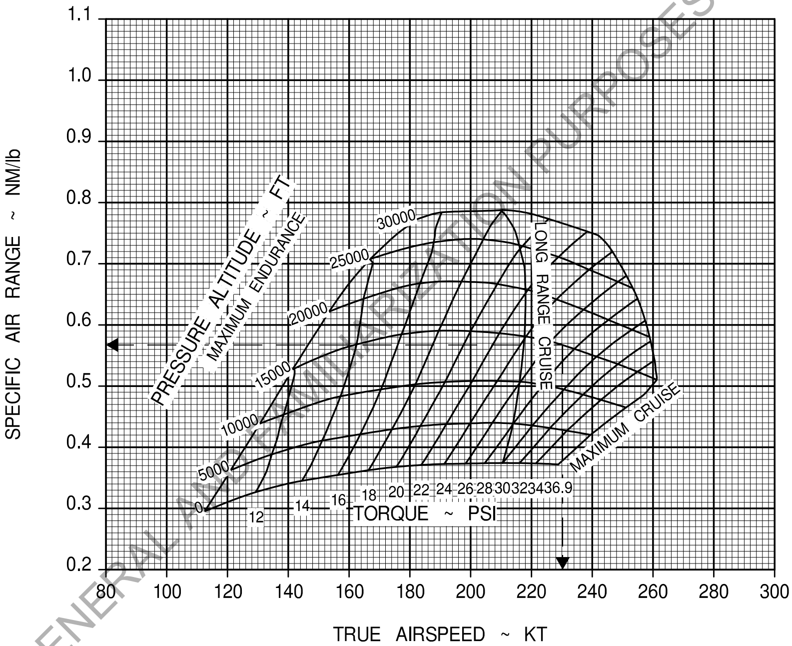
FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Figure 5-52 Specific Air Range - 10400 lb (Sheet 1 of 3)

SPECIFIC AIR RANGE

WEIGHT 10400 lb (4717 kg) - ISA

ASSOCIATED CONDITIONS:	EXAMPLE:	
LANDING GEAR RETRACTED	PRESSURE ALTITUDE	15000 FEET
FLAPS UP	TORQUE	27 PSI
INERTIAL SEPARATOR CLOSED	TRUE AIRSPEED	230 KT
	SPECIFIC AIR RANGE	0.57 NM/lb

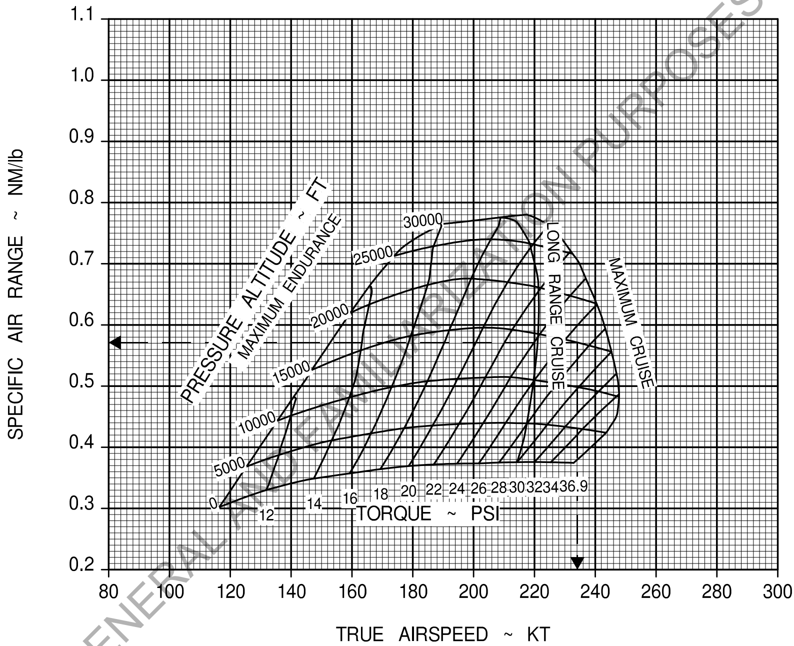


FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

SPECIFIC AIR RANGE

WEIGHT 10400 lb (4717 kg) - ISA+20°

ASSOCIATED CONDITIONS:	EXAMPLE:		
	PRESSURE ALTITUDE	15000	FEET
LANDING GEAR RETRACTED	TORQUE	27	PSI
FLAPS UP	TRUE AIRSPEED	234	KT
INERTIAL SEPARATOR CLOSED	SPECIFIC AIR RANGE	0.57	NM/lb



FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

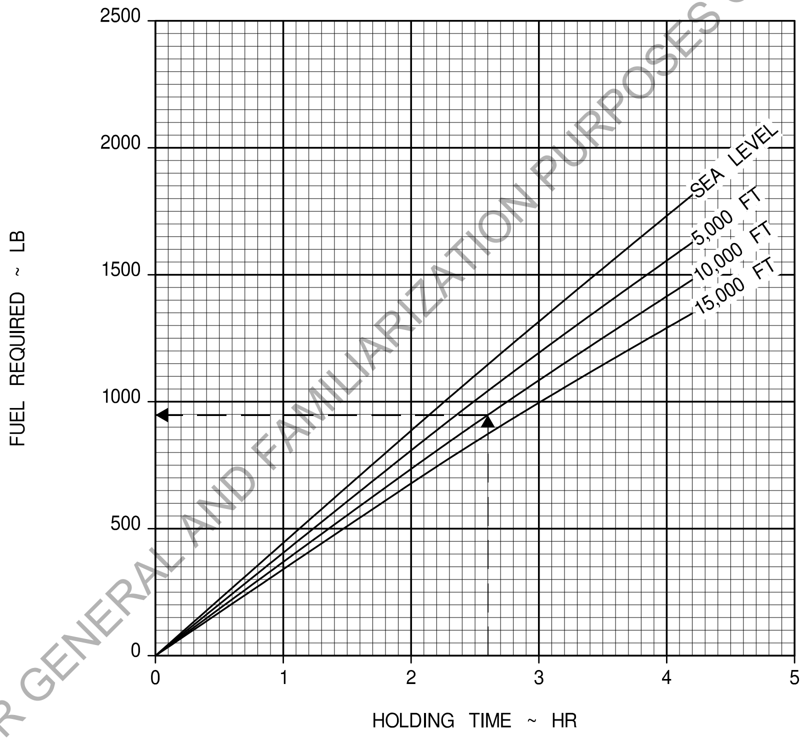
Figure 5-52 Specific Air Range - 10400 lb (Sheet 3 of 3)

HOLDING TIME AND FUEL

LANDING GEAR RETRACTED - FLAPS UP
ISA STANDARD DAY
AIRSPEED 150 KIAS
POWER FOR LEVEL FLIGHT
INERTIAL SEPARATOR CLOSED

EXAMPLE:

HOLDING TIME	2.6 HR
ALTITUDE	10000 FT
FUEL REQUIRED	950 LB



FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

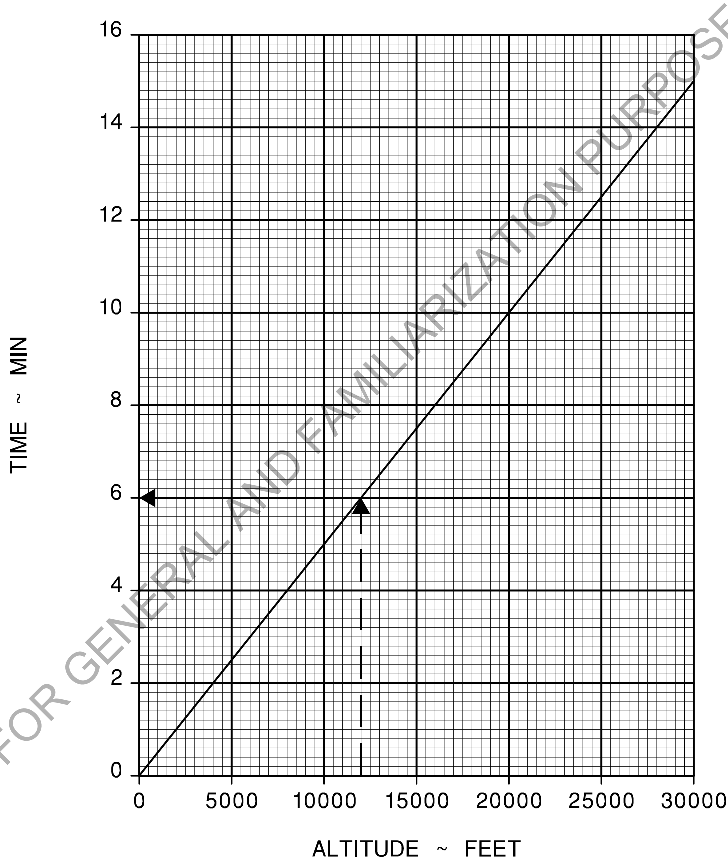
See FLIGHT IN ICING CONDITIONS para for info on effect of icing

Figure 5-53 Holding Time and Fuel

TIME TO DESCEND

ASSOCIATED CONDITIONS:
LANDING GEAR RETRACTED - FLAPS UP
POWER AS REQUIRED TO
DESCEND AT 2000 FPM
AIRSPEED: MACH 0.48 OR 236 KIAS,
WHICHEVER IS LOWER

EXAMPLE:
ALTITUDE ~ FEET 12000 FEET
TIME ~ MIN 6 MIN



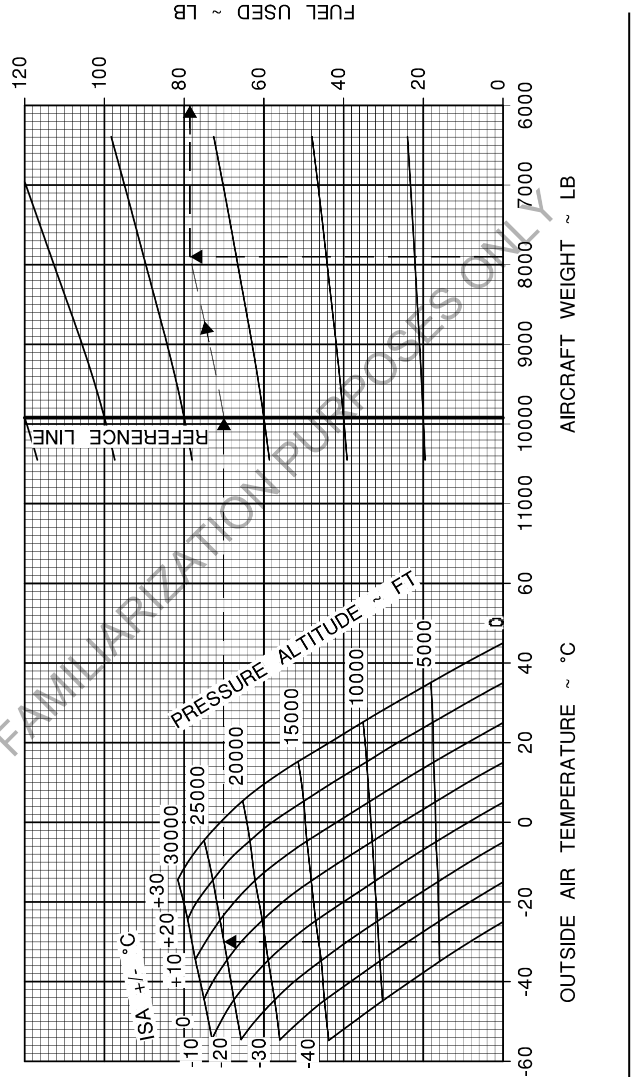
FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Figure 5-54 Time to Descend

FUEL USED TO DESCEND
(STANDARD UNITS)

ASSOCIATED CONDITIONS:
LANDING GEAR RETRACTED - FLAPS UP
POWER AS REQUIRED TO DESCEND AT 2000 FPM
MACH 0.48 OR 236 KIAS, WHICHEVER IS LOWER

EXAMPLE:		
ALTITUDE	25000	FT
OAT	-30	°C
AIRCRAFT WEIGHT	7900	LB
FUEL USED	79	LB



FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

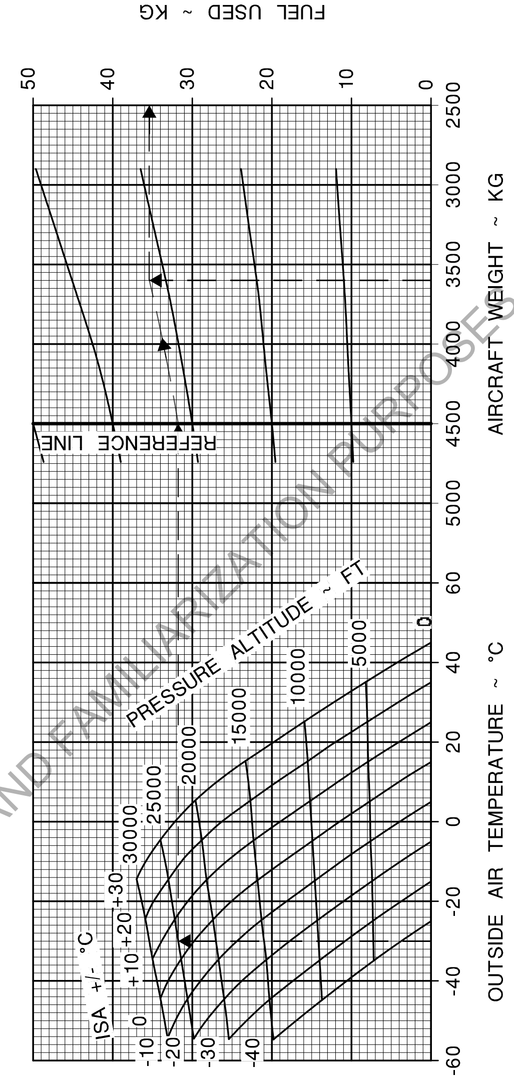
Figure 5-55 Fuel Used to Descend (standard units)

FUEL USED TO DESCEND
(METRIC UNITS)

ASSOCIATED CONDITIONS:
LANDING GEAR RETRACTED - FLAPS UP
POWER AS REQUIRED TO DESCEND AT 2000 FPM
MACH 0.48 OR 236 KIAS, WHICHEVER IS LOWER

EXAMPLE:

ALTITUDE	25000 FT
OAT	-30 °C
AIRCRAFT WEIGHT	3600 KG
FUEL USED	35.5 KG



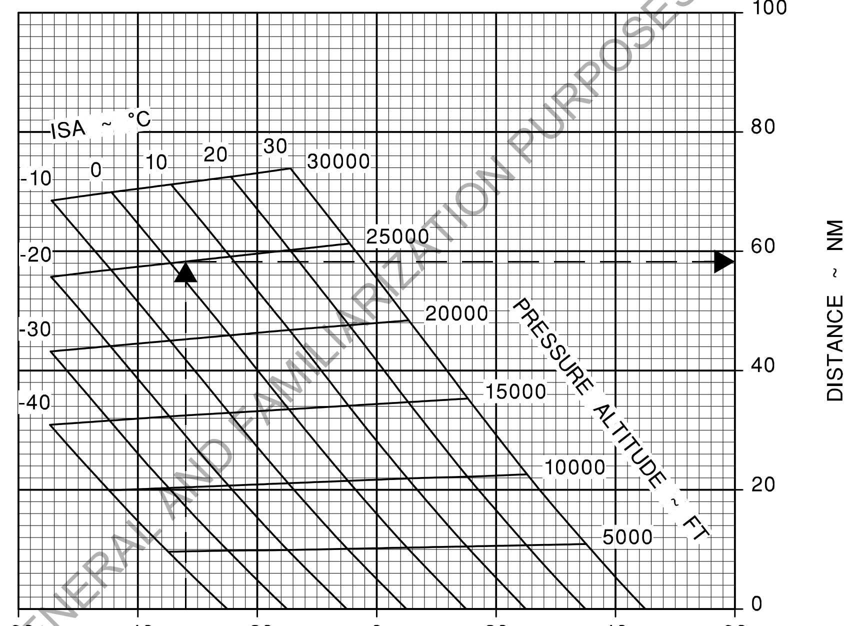
FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Figure 5-56 Fuel Used to Descend (metric units)

DISTANCE TO DESCEND

ASSOCIATED CONDITIONS:
LANDING GEAR RETRACTED - FLAPS UP
POWER AS REQUIRED TO
DESCEND AT 2000 FPM
AIRSPEED: MACH 0.48 OR 236 KIAS,
WHICHEVER IS LOWER

EXAMPLE:
ALTITUDE ~ FT 25000 FT
OAT ~ °C -32 °C
DISTANCE ~ NM 58 NM



FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Figure 5-57 Distance to Descend

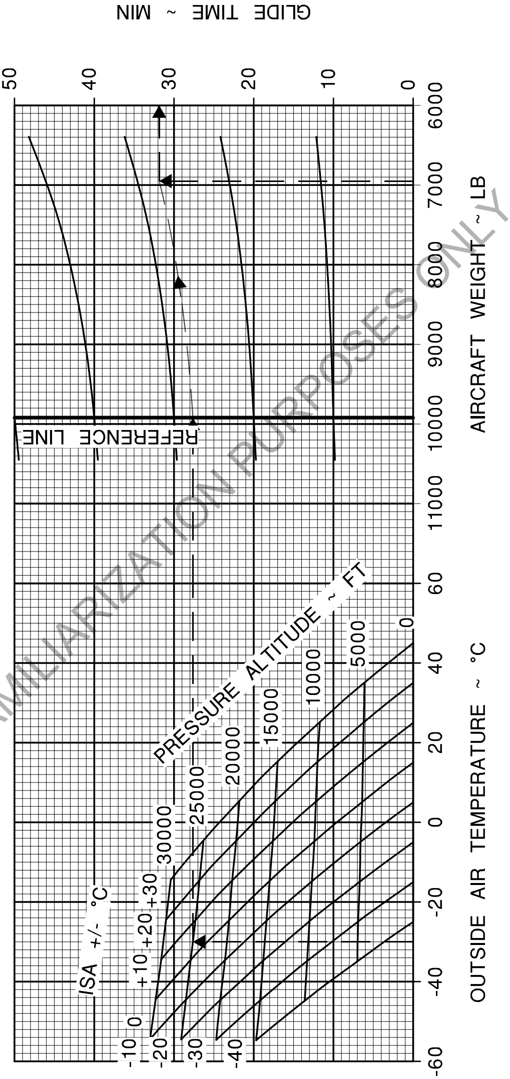
POWER-OFF GLIDE TIME
(STANDARD UNITS)

WEIGHT ~ LB	KIAS
10450	116
9920	114
9040	110
8160	105
7280	99
6400	92

ASSOCIATED CONDITIONS:
POWER OFF
PROPELLER FEATHERED
LANDING GEAR RETRACTED
FLAPS UP

EXAMPLE:

ALTITUDE	25000 FT
OAT	-30 °C
AIRCRAFT WEIGHT	6950 LB
GLIDE TIME	32 MIN



FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Figure 5-58 Power-off Glide Time (standard units)

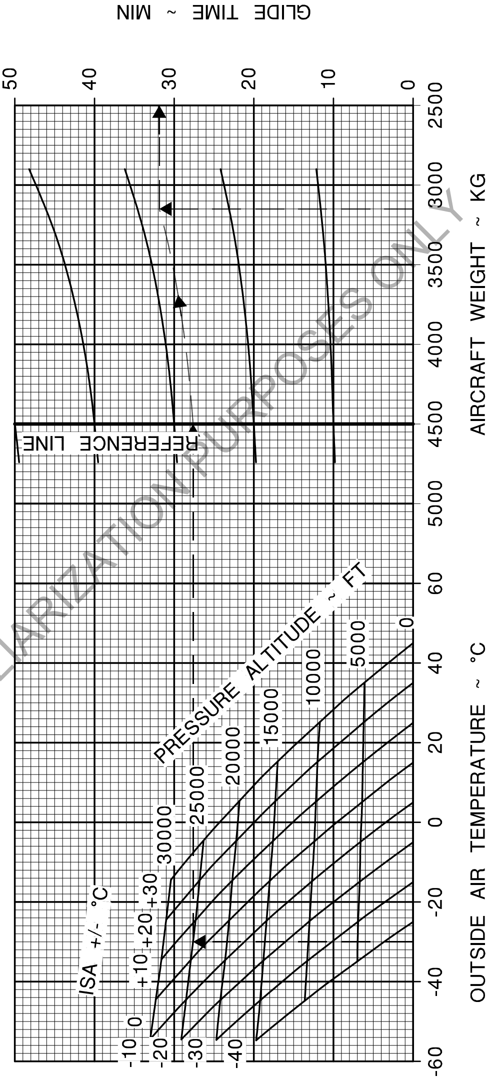
POWER-OFF GLIDE TIME
(METRIC UNITS)

WEIGHT ~ KG	KIAS
4740	116
4500	114
4100	110
3700	105
3300	99
2900	92

ASSOCIATED CONDITIONS:
POWER OFF
PROPELLER FEATHERED
LANDING GEAR RETRACTED
FLAPS UP

EXAMPLE:

ALTITUDE	25000 FT
OAT	-30 °C
AIRCRAFT WEIGHT	3150 KG
GLIDE TIME	32 MIN



FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Figure 5-59 Power-off Glide Time (metric units)

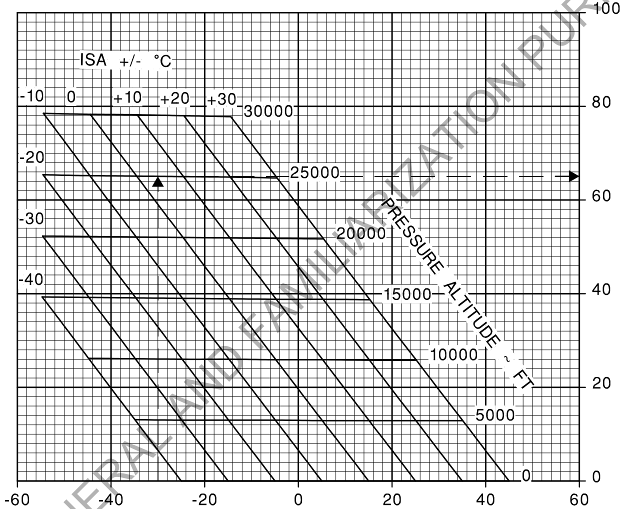
POWER-OFF GLIDE DISTANCE

(VALID FOR ALL AIRCRAFT WEIGHTS)

ASSOCIATED CONDITIONS:
POWER OFF
PROPELLER FEATHERED
LANDING GEAR RETRACTED
FLAPS UP

WEIGHT ~ LB	WEIGHT ~ KG	KIAS
10450	4740	116
9920	4500	114
9040	4100	110
8160	3700	105
7280	3300	99
6400	2900	92

EXAMPLE:
ALTITUDE 25000 FT
OAT -30 °C
GLIDE DISTANCE 65 NM



FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

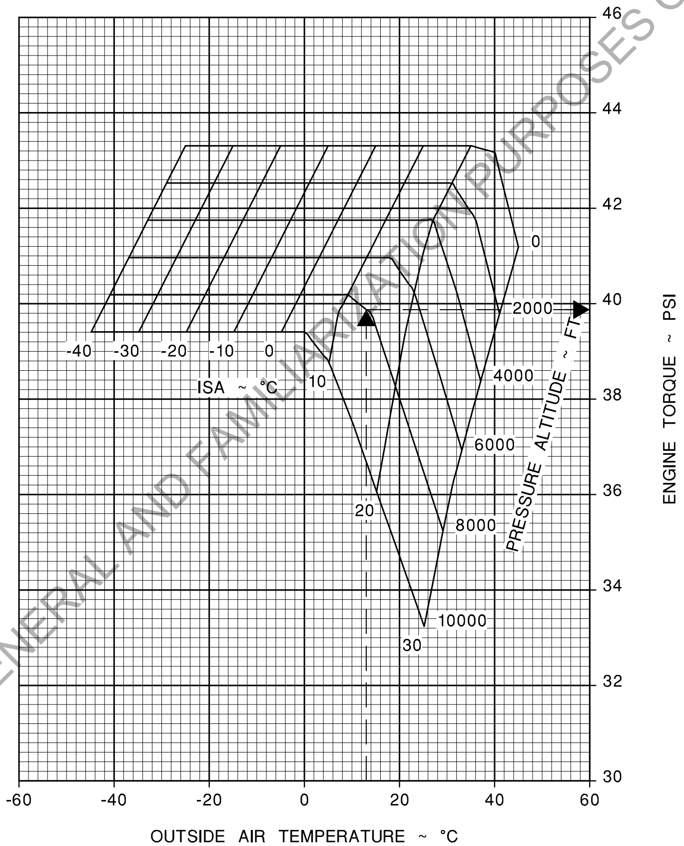
Figure 5-60 Power-off Glide Distance

BALKED LANDING TORQUE

PROPELLER SPEED 1700 RPM
AIRSPEED 80 KIAS
INERTIAL SEPARATOR CLOSED
MAXIMUM TORQUE REDUCTION WITH INERTIAL SEPARATOR OPEN :
- 1.2 PSI IN NON ICING CONDITIONS
- 2.1 PSI IN ICING CONDITIONS

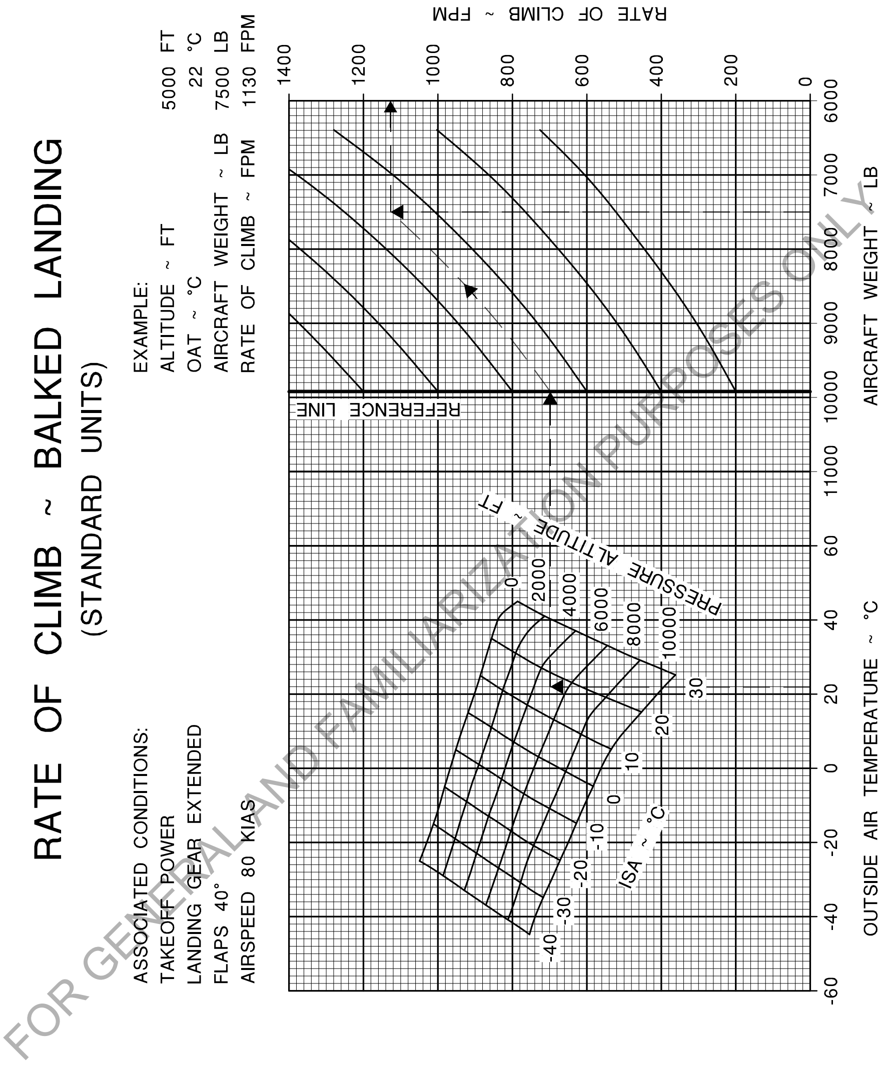
EXAMPLE:

ALTITUDE ~ FT	8000	FT
OAT ~ °C	13	°C
ENGINE TORQUE ~ PSI	39.9	PSI



FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

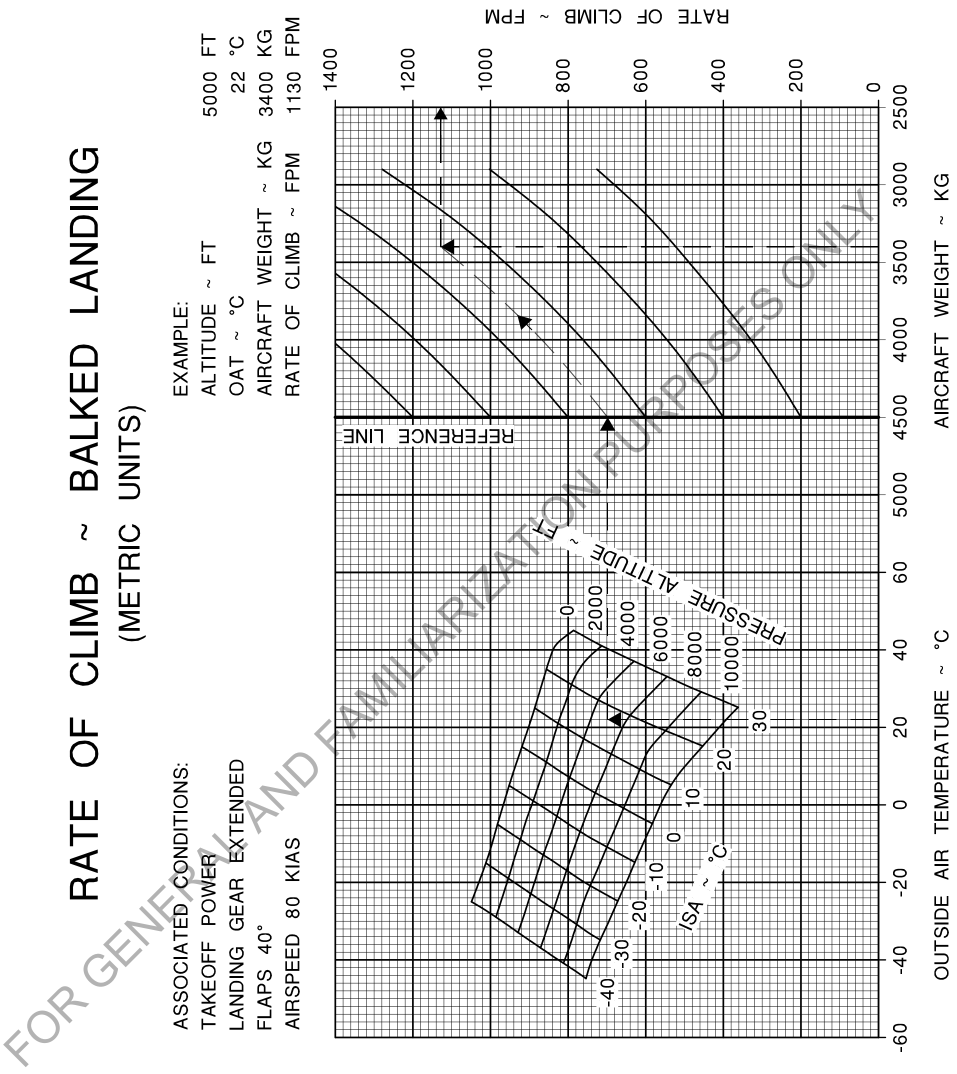
Figure 5-61 Balked Landing Torque



FOR GENERAL FAMILIARIZATION PURPOSES ONLY

See FLIGHT IN ICING CONDITIONS para for info on effect of icing

Figure 5-62 Rate of Climb - Balked Landing (standard units)



See FLIGHT IN ICING CONDITIONS para for info on effect of icing

Figure 5-63 Rate of Climb - Balked Landing (metric units)

LANDING TOTAL DISTANCE - FLAPS 40°

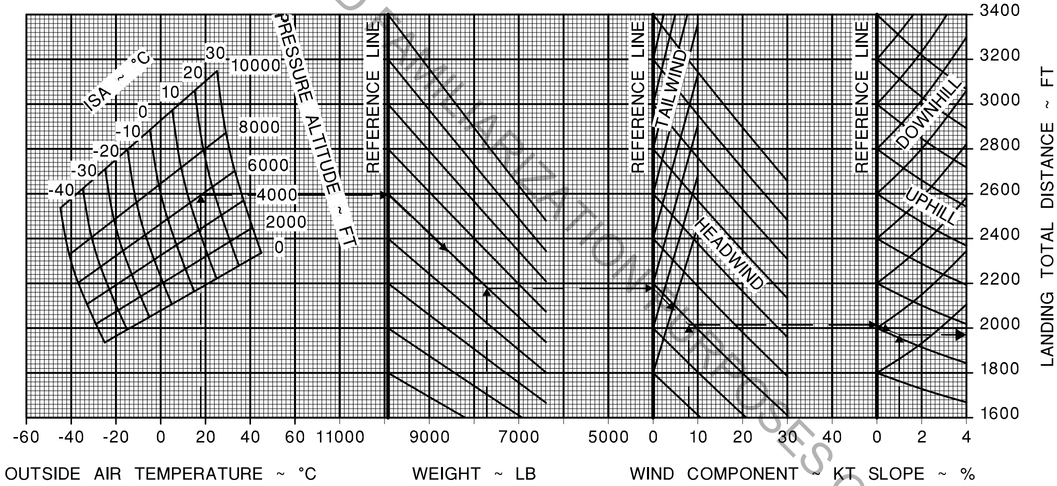
FROM 50 FT; (STANDARD UNITS)

ASSOCIATED CONDITIONS:
APPROACH AT 1.3 V_{S1}
REFER TO THE SPEED SCHEDULE TABLE
AVERAGE BRAKING TECHNIQUE
GROUND IDLE AFTER TOUCH DOWN
RUNWAY SURFACE: TARMAC
SEE SECTION 2 - LIMITATIONS

WEIGHT ~ LB	V_{APP} ~ KIAS
6400	67
7300	72
8200	76
9100	80
10000	84

EXAMPLE:

ALTITUDE ~ FT	6000 FT
OAT ~ °C	18 °C
WEIGHT ~ LB	7716 LB
HEADWIND COMPONENT ~ KT	8 KT
UPHILL COMPONENT ~ %	1 %
LANDING TOTAL DISTANCE ~ FT	1970 FT



FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

See FLIGHT IN ICING CONDITIONS para for info on effect of icing

Figure 5-64 Landing Total Distance - Flaps 40° (standard units)

LANDING TOTAL DISTANCE - FLAPS 40°

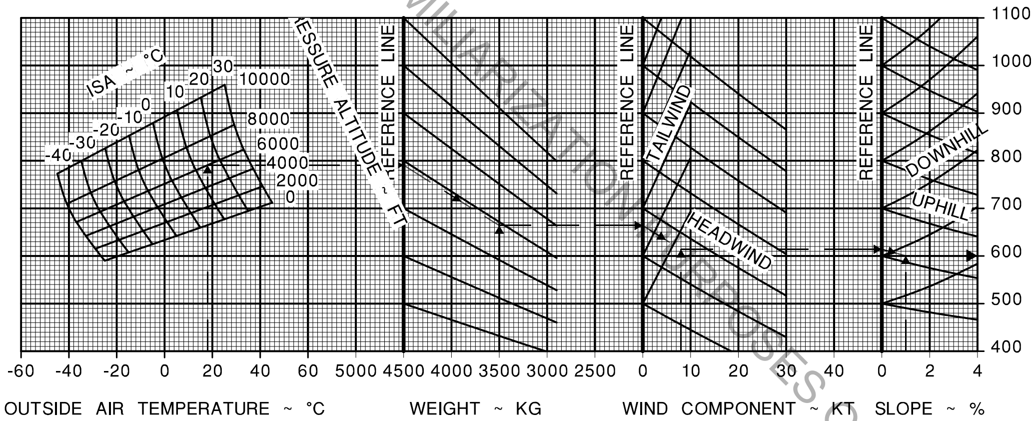
FROM 15 M; (METRIC UNITS)

ASSOCIATED CONDITIONS:
APPROACH AT 1.3 V_{S1}
REFER TO THE SPEED SCHEDULE TABLE
AVERAGE BRAKING TECHNIQUE
GROUND IDLE AFTER TOUCH DOWN
RUNWAY SURFACE: TARMAC
SEE SECTION 2 - LIMITATIONS

WEIGHT ~ KG	V_{APP} ~ KIAS
2900	67
3300	72
3700	76
4100	80
4500	84

EXAMPLE:

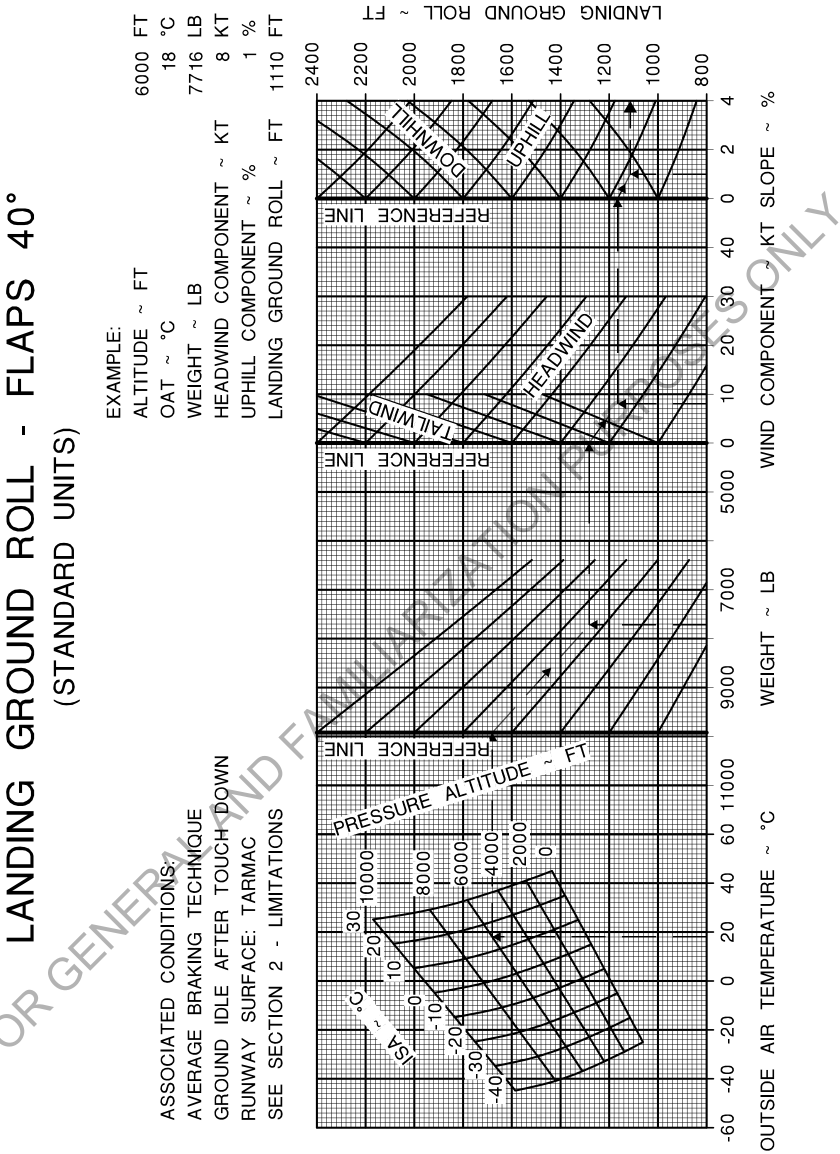
ALTITUDE ~ FT	6000 FT
OAT ~ °C	18 °C
WEIGHT ~ KG	3500 KG
HEADWIND COMPONENT ~ KT	8 KT
UPHILL COMPONENT ~ %	1 %
LANDING TOTAL DISTANCE ~ M	600 M



FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

See FLIGHT IN ICING CONDITIONS para for info on effect of icing

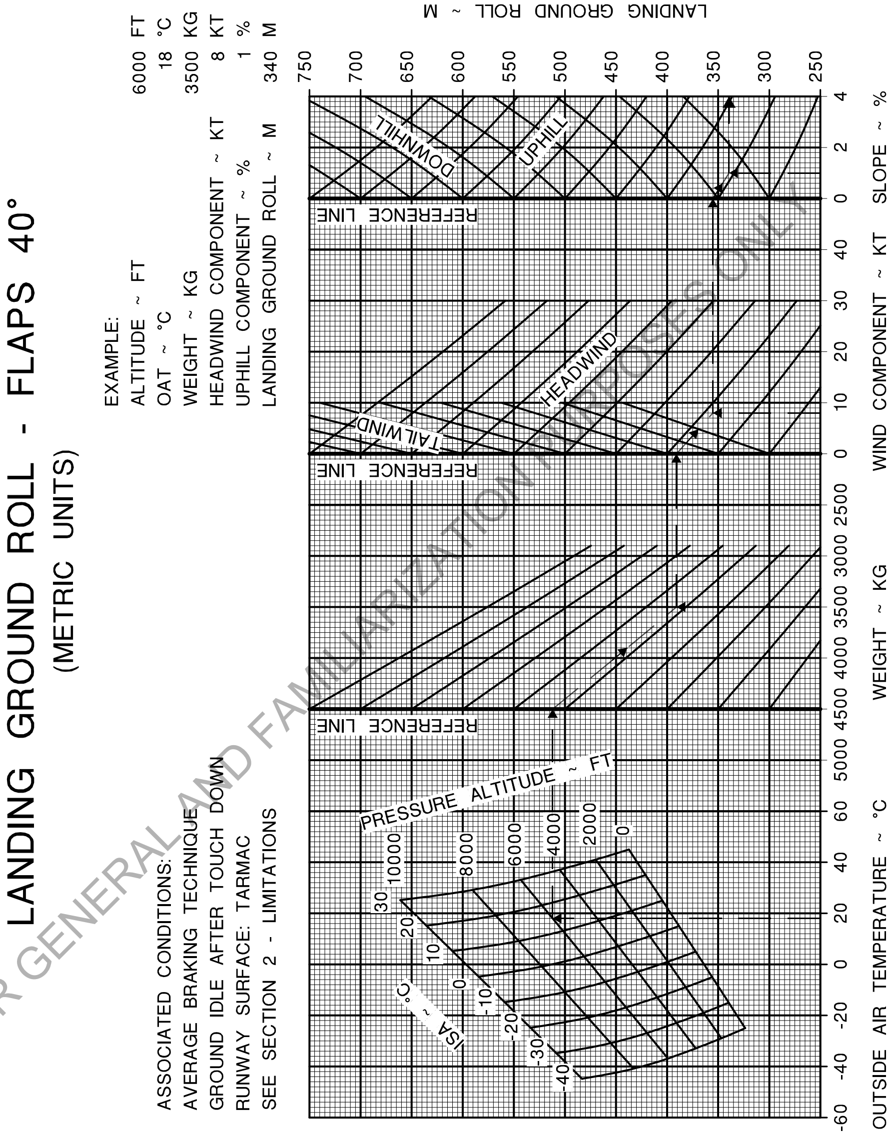
Figure 5-65 Landing Total Distance - Flaps 40° (metric units)



See FLIGHT IN ICING CONDITIONS para for info on effect of icing

Figure 5-66 Landing Ground Roll - Flaps 40° (standard units)

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY



See FLIGHT IN ICING CONDITIONS para for info on effect of icing

Figure 5-67 Landing Ground Roll - Flaps 40° (metric units)

LANDING TOTAL DISTANCE WITH REVERSE THRUST - FLAPS 40°

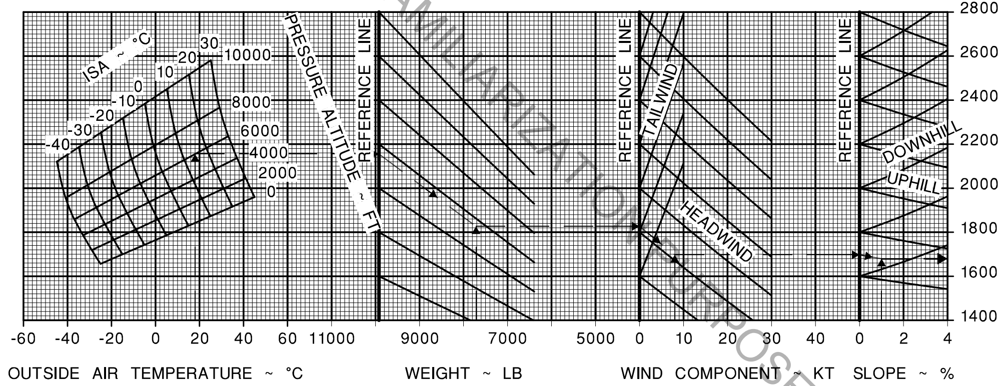
FROM 50 FT; (STANDARD UNITS)

ASSOCIATED CONDITIONS:
APPROACH AT 1.3 V_{S1}
REFER TO THE SPEED SCHEDULE TABLE
AVERAGE BRAKING TECHNIQUE
FULL REVERSE THRUST AFTER TOUCH DOWN
RUNWAY SURFACE: TARMAC
SEE SECTION 2 - LIMITATIONS

WEIGHT ~ LB	V_{APP} ~ KIAS
6400	67
7300	72
8200	76
9100	80
10000	84

EXAMPLE:

ALTITUDE ~ FT	6000 FT
OAT ~ °C	18 °C
WEIGHT ~ LB	7716 LB
HEADWIND COMPONENT ~ KT	8 KT
UPHILL COMPONENT ~ %	1 %
LANDING TOTAL DISTANCE ~ FT	1680 FT



FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

See FLIGHT IN ICING CONDITIONS para for info on effect of icing

Figure 5-68 Landing Total Distance with the use of Reverse Thrust - Flaps 40° (standard units)

LANDING TOTAL DISTANCE WITH REVERSE THRUST - FLAPS 40°

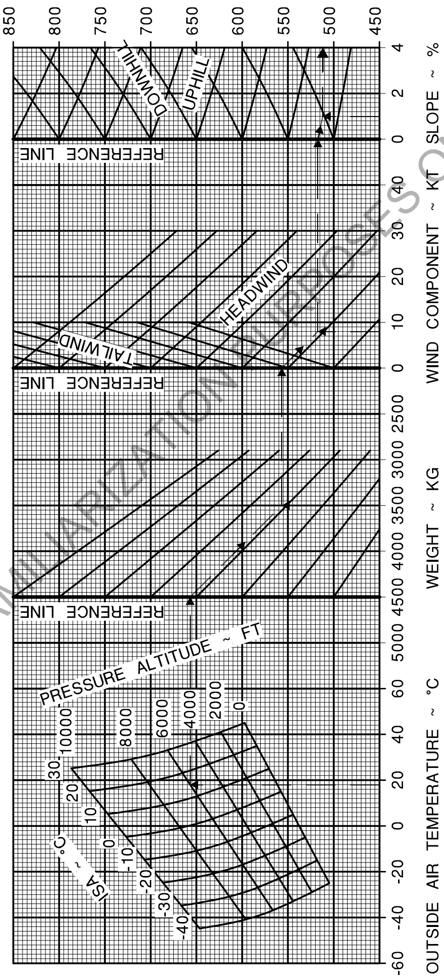
FROM 15 M; (METRIC UNITS)

ASSOCIATED CONDITIONS:
APPROACH AT 1.3 V_{S1}
REFER TO THE SPEED SCHEDULE TABLE
AVERAGE BRAKING TECHNIQUE
FULL REVERSE THRUST AFTER TOUCH DOWN
RUNWAY SURFACE: TARMAC
SEE SECTION 2 - LIMITATIONS

WEIGHT ~ KG	V_{APP} ~ KIAS
2900	67
3300	72
3700	76
4100	80
4500	84

EXAMPLE:

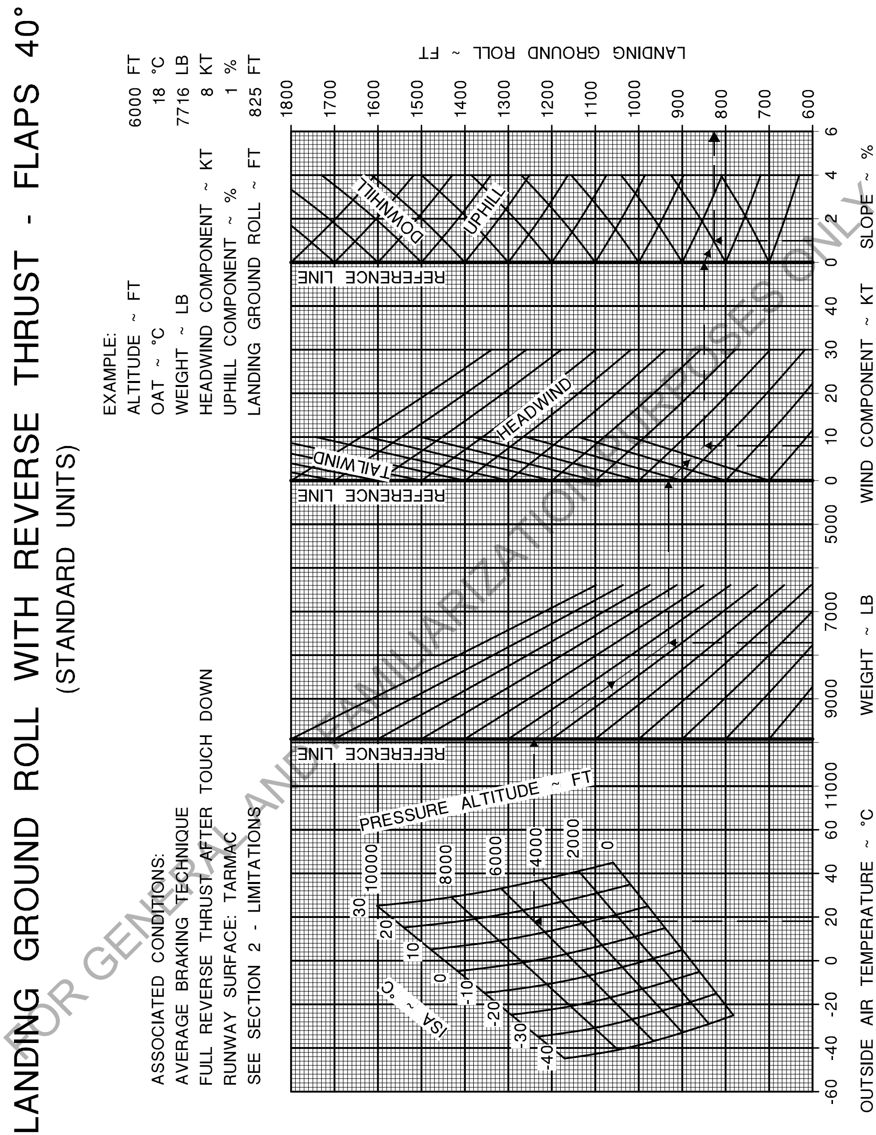
ALTITUDE ~ FT	6000 FT
OAT ~ °C	18 °C
WEIGHT ~ KG	3500 KG
HEADWIND COMPONENT ~ KT	8 KT
UPHILL COMPONENT ~ %	1 %
LANDING TOTAL DISTANCE ~ M	512.5 M



FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

See FLIGHT IN ICING CONDITIONS para for info on effect of icing

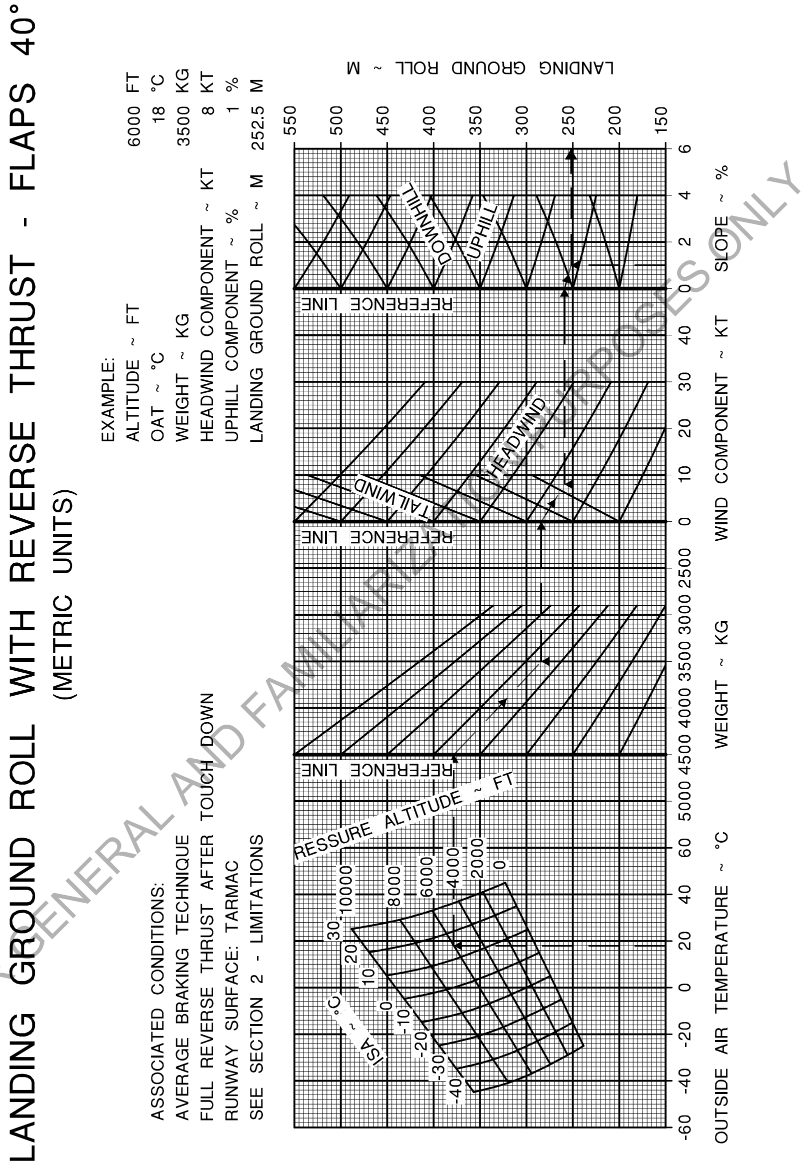
Figure 5-69 Landing Total Distance with the use of Reverse Thrust - Flaps 40° (metric units)



FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

See FLIGHT IN ICING CONDITIONS para for info on effect of icing

Figure 5-70 Landing Ground Roll with the use of Reverse Thrust - Flaps 40° (standard units)



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See FLIGHT IN ICING CONDITIONS para for info on effect of icing

Figure 5-71 Landing Ground Roll with the use of Reverse Thrust - Flaps 40° (metric units)

FLIGHT IN ICING CONDITIONS

The following section presents performance information related to the operation in or into known icing conditions. This information was derived analytically from actual wind tunnel tests with natural ice. The following cases are considered:

- 45 minutes holding in moderate icing conditions with fully operational pneumatic de-ice boots and substantial ice accretion on unprotected surfaces.
- 20 minutes holding in moderate icing conditions with ice accretion on the total airframe due to inoperative pneumatic de-ice boots.

Besides these aerodynamic degradations, performance losses to the aircraft's propulsive system have been considered (increased bleed air extraction, inertial separator open, less ram recovery, and ice-build up on unprotected parts of the propeller blades).

FLAPS

When operating in or into known icing conditions, the use of Flaps 30° or 40° is prohibited

When operating in or into known icing conditions with fully operational pneumatic de-ice boots, the flap position is limited to a maximum of 15°.

When operating in or into known icing conditions with failed operational pneumatic de-ice boots, the flap position is limited to a maximum of 0°.

STALL SPEEDS

When operating in STICK PUSHER ICE MODE the stick pusher computer automatically reduces the shaker and pusher settings, as measured by the angle of attack vanes, by 8°. With operational pneumatic de-ice boots, this results in an increase of the stall speed at the maximum takeoff weight of 12 kts with flaps set to 0° and 9 kts with flaps set to 15°.

The wings level stall speeds at the maximum takeoff weight of 9921 lb (4500 kg) and with flight idle power are summarized in Table 1.

Table 1 - Stall Speeds in accordance with ICE Mode Set

FLAPS	STALL SPEED (PUSHER ACTIVATION) AT MTOW		
		KIAS	KCAS
0°	Non icing	91	93
	Icing conditions (STICK PUSHER ICE MODE)	102	104
	Pneumatic deice boots failure (unprotected)	105	107
15°	Non icing	74	76
	Icing conditions (STICK PUSHER ICE MODE)	83	85

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ENGINE TORQUE

When the engine inlet inertial separator is open during flight at altitudes above 5000 ft, the maximum torque available can be reduced by up to 1.2 psi in non icing conditions, and up to 2.1 psi in icing conditions.

TAKEOFF PERFORMANCE

The flaps must be set to 15° for takeoff. The use of flaps 30° for takeoff is prohibited.

When de-icing / anti-icing fluids are applied to the aircraft before departure, and/or when the stick pusher is in ICE mode: The takeoff reference speeds must be adjusted to the values indicated by the corresponding correction table.

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The total takeoff distance is calculated by first computing the total takeoff distance in non-icing conditions from Figure 5-27 (standard units) or Figure 5-28 (metric units) and then correcting that distance for takeoff in or into known icing conditions by using the corrections in Table 2.

Table 2 - Icing Corrections to Takeoff Total Distance

TABLE A	TAKEOFF WEIGHT - KG				
ALTITUDE CORRECTION (%)	2900	3300	3700	4100	4500
V_R / V_{50ft} (KIAS)	72 / 88	77 / 94	81 / 100	86 / 105	90 / 110
0 FT	+19	+26	+26	+27	+28
2000 FT	+22	+26	+26	+28	+29
4000 FT	+25	+26	+27	+28	+29
6000 FT	+25	+26	+27	+28	+29
8000 FT	+25	+26	+27	+28	+30
10000 FT	+26	+26	+27	+29	+31
12000 FT	+25	+27	+28	+30	+31
14000 FT	+27	+29	+32	+30	+31
ALTITUDE CORRECTION (%)	6393	7275	8157	9039	9921
TABLE A	TAKEOFF WEIGHT - LB				

TABLE B	TAKEOFF WEIGHT - KG
WIND CORRECTION (%)	2900 - 4500
10 KTS TAILWIND	-2
NO WIND	0
10 KTS HEADWIND	+1
20 KTS HEADWIND	+3
30 KTS HEADWIND	+5
WIND CORRECTION (%)	6393 - 9921
TABLE B	TAKEOFF WEIGHT - LB

TABLE C	TAKEOFF WEIGHT - KG				
SLOPE CORRECTION (%)	2900	3300	3700	4100	4500
4% DOWN	+2	+2	+1	-1	-1
2% DOWN	+2	+2	+1	-1	-1
NO SLOPE	0	0	0	0	0
2% UP	+4	+4	+3	+3	+4
4% UP	+7	+5	+7	+8	+9
SLOPE CORRECTION (%)	6393	7275	8157	9039	9921
TABLE C	TAKEOFF WEIGHT - LB				

ICING CORRECTION (%) = A + B + C

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Analogically, the takeoff ground roll is derived correcting the distances obtained from Figure 5-25 (standard units) or Figure 5-26 (metric units) by using Table 3.

Table 3 - Icing Corrections to Takeoff Ground Roll

TABLE A	**TAKEOFF WEIGHT - KG**				
ALTITUDE CORRECTION (%)	**2900**	**3300**	**3700**	**4100**	**4500**
V_R / V_{50ft} (KIAS)	**72 / 88**	**77 / 94**	**81 / 100**	**86 / 105**	**90 / 110**
0 FT	+27	+28	+28	+29	+29
2000 FT	+27	+28	+28	+29	+29
4000 FT	+27	+28	+29	+29	+29
6000 FT	+28	+28	+29	+29	+29
8000 FT	+28	+28	+29	+29	+29
10000 FT	+27	+28	+28	+29	+29
12000 FT	+27	+28	+28	+28	+29
14000 FT	+28	+29	+28	+28	+29
ALTITUDE CORRECTION (%)	**6393**	**7275**	**8157**	**9039**	**9921**
TABLE A	**TAKEOFF WEIGHT - LB**				

TABLE B	**TAKEOFF WEIGHT - KG**
WIND CORRECTION (%)	**2900 - 4500**
10 KTS TAILWIND	-4
NO WIND	0
10 KTS HEADWIND	+2
20 KTS HEADWIND	+5
30 KTS HEADWIND	+8
WIND CORRECTION (%)	**6393 - 9921**
TABLE B	**TAKEOFF WEIGHT - LB**

TABLE C	**TAKEOFF WEIGHT - KG**				
SLOPE CORRECTION (%)	**2900**	**3300**	**3700**	**4100**	**4500**
4% DOWN	0	0	0	-1	-1
2% DOWN	0	0	0	0	0
NO SLOPE	0	0	0	0	0
2% UP	0	+1	+1	+1	+1
4% UP	+1	+2	+1	+2	+2
SLOPE CORRECTION (%)	**6393**	**7275**	**8157**	**9039**	**9921**
TABLE C	**TAKEOFF WEIGHT - LB**				

ICING CORRECTION (%) = A + B + C

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Example:

- Pressure Altitude 6000 ft
- Outside Air Temperature 18°C
- Weight 3500 kg
- Headwind Component 8 kt
- Uphill Component 1%
- Takeoff Ground Roll 450 m (from Figure 5-26)
- Icing Correction (A + B +C) = 28.5% + 1.6% + 0.5% = 30.6%
- Takeoff Ground Roll in Icing Conditions = 450 m x 1.306 = 588 m.

ACCELERATE STOP PERFORMANCE

The flaps must be set to 15° for takeoff. The use of Flaps 30° for takeoff is prohibited.

The maximum speed for power chop is assumed to be 10 kts higher than that for non-icing conditions.

The total accelerate-stop distance is calculated by first computing the total accelerate-stop distance in non-icing conditions from Figure 5-23 (standard units) or Figure 5-24 (metric units) and then correcting that distance for takeoff in or into known icing conditions by using the corrections in Table 4.

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Table 4 - Icing Corrections to Accelerate Stop Distance

TABLE A	TAKEOFF WEIGHT - KG				
ALTITUDE CORRECTION (%)	2900	3300	3700	4100	4500
POWER CHOP SPEED (KIAS)	76	81	86	90	95
0 FT	+24	+25	+26	+27	+28
2000 FT	+25	+26	+27	+28	+28
4000 FT	+25	+26	+27	+28	+28
6000 FT	+26	+26	+27	+28	+28
8000 FT	+26	+27	+27	+28	+29
10000 FT	+26	+27	+28	+28	+29
12000 FT	+27	+27	+28	+29	+29
14000 FT	+27	+28	+29	+30	+31
ALTITUDE CORRECTION (%)	6393	7275	8157	9039	9921
TABLE A	TAKEOFF WEIGHT - LB				

TABLE B	TAKEOFF WEIGHT - KG
WIND CORRECTION (%)	2900 - 4500
10 KTS TAILWIND	-3
NO WIND	0
10 KTS HEADWIND	+2
20 KTS HEADWIND	+3
30 KTS HEADWIND	+5
WIND CORRECTION (%)	6400 - 9921
TABLE B	TAKEOFF WEIGHT - LB

TABLE C	TAKEOFF WEIGHT - KG				
SLOPE CORRECTION (%)	2900	3300	3700	4100	4500
4% DOWN	+1	+2	+2	+2	+2
2% DOWN	+1	+1	+1	+1	+1
NO SLOPE	0	0	0	0	0
2% UP	0	0	0	+1	+1
4% UP	0	+1	+1	+2	+4
SLOPE CORRECTION (%)	6393	7275	8157	9039	9921
TABLE C	TAKEOFF WEIGHT - LB				

ICING CORRECTION (%) = A + B + C

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MAXIMUM RATE OF CLIMB

The use of Flaps 30° is prohibited in or into known icing conditions. After icing encounters, and with visible ice accretion on the airframe, a climb is performed with the flaps retracted and a climb speed based on the schedule below.

Table 5 - Climb Speed in Icing Conditions

FLAPS UP	NON-ICING	ICING	PNEUMATIC DE-ICE BOOT FAILURE
ALTITUDE	KIAS	KIAS	KIAS
0 FT	130	135	140
5000 FT	125		
10000 FT	125		
15000 FT	125		
20000 FT	120		
25000 FT	120		
30000 FT	120		

The total climb performance is calculated by first computing the Rate of Climb in non-icing conditions from Figure 5-34 (standard units) or Figure 5-35 (metric units) and then correcting the Rate of Climb in or into known icing conditions by using the corrections in Table 6 (with operational pneumatic de-ice boots) or Table 7 (with the pneumatic de-ice boots inoperative).

Table 6 - Icing Corrections to Maximum Rate of Climb with Operational Pneumatic De-ice Boots

RATE OF CLIMB CORRECTION (FEET PER MINUTE)			
ALTITUDE - FT	TAKEOFF WEIGHT - KG		
	2900	3500	4500
0	-1190	-990	-770
5000	-1280	-1070	-820
10000	-1500	-1250	-960
15000	-1570	-1310	-1000
20000	-1670	-1390	-1050
25000	-1720	-1420	-1080
30000	-1780	-1470	-1120
ALTITUDE - FT	6393	7716	9921
	TAKEOFF WEIGHT - LB		

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Table 7 - Icing Corrections to Maximum Rate of Climb with Pneumatic De-ice Boots Inoperative

RATE OF CLIMB CORRECTION (FEET PER MINUTE)			
ALTITUDE - FT	TAKEOFF WEIGHT - KG		
	2900	3500	4500
0	-1510	-1270	-980
5000	-1640	-1370	-1050
10000	-1900	-1590	-1220
15000	-1980	-1650	-1270
20000	-2120	-1760	-1340
25000	-2240	-1860	-1420
30000	-2340	-1940	-1480
ALTITUDE - FT	6393	7716	9921
	TAKEOFF WEIGHT - LB		

Example:

- Pressure Altitude 7000 ft
- Outside Air Temperature 22°C
- Aircraft Weight 3800 kg
- Rate of Climb (non-icing) 1725 fpm (from Figure 5-35)
- Icing Correction -1062 fpm (interpolated from Table 6)
- Max. Rate of Climb in Icing Conditions = 1725 fpm - 1062 fpm = 663 fpm.

HOLDING ENDURANCE

During holding flight in icing conditions, a higher engine torque is required to maintain level flight. Table 8 and Table 9 give the increases in fuel flow with respect to non-icing conditions. Refer to Figure 5-53.

Table 8 - Icing Corrections to Holding Fuel Flow with Operational Pneumatic De-ice Boots

FUEL FLOW CORRECTION (%)	
ALTITUDE - FT	AIRCRAFT WEIGHT - KG
	2900 - 4500
0 FT	+22
5000 FT	+27
10000 FT	+36
15000 FT	+50
ALTITUDE - FT	6393 - 9921
	AIRCRAFT WEIGHT - LB

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Table 9 - Icing Corrections to Holding Fuel Flow with Pneumatic De-ice Boots Inoperative

FUEL FLOW CORRECTION (%)	
ALTITUDE - FT	AIRCRAFT WEIGHT - KG
	2900 - 4500
0 FT	+29
5000 FT	+35
10000 FT	+47
15000 FT	+64
ALTITUDE - FT	6393 - 9921
	AIRCRAFT WEIGHT - LB

BALKED RATE OF CLIMB

The use of Flaps 30° or Flaps 40° is prohibited in or into known icing conditions.

After icing encounters and with visible ice accretion on the airframe, a balked landing climb is performed with Flaps 15° and a climb speed of 105 KIAS. The total climb performance is calculated by first computing the Rate of Climb in non-icing conditions from Figure 5-62 (standard units) or Figure 5-63 (metric units) and then correcting the Rate of Climb in or into known icing conditions by using the corrections in Table 10.

Table 10 - Icing Corrections to Balked Landing Climb with Operational Pneumatic De-ice Boots

RATE OF CLIMB CORRECTION (FEET PER MINUTE)			
ALTITUDE - FT	LANDING WEIGHT - KG		
	2900	3500	4500
0	-150	-100	-70
2000	-140	-100	-70
4000	-150	-100	-70
6000	-160	-110	-80
8000	-170	-120	-80
10000	-180	-120	-90
12000	-180	-120	-90
14000	-240	-170	-120
ALTITUDE - FT	6393	7716	9921
	LANDING WEIGHT - LB		

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After failure of the airframe pneumatic boots in icing conditions, a balked landing climb is performed with Flaps 0° and a climb speed of 130 KIAS. The total climb performance is calculated by first computing the Rate of Climb in non-icing conditions from Figure 5-62 (standard units) or Figure 5-63 (metric units) and then correcting the Rate of Climb in or into known icing conditions by using the corrections in the Table 11.

Table 11 - Icing Corrections to Balked Landing Climb with Pneumatic De-ice Boots inoperative

RATE OF CLIMB CORRECTION (FEET PER MINUTE)			
ALTITUDE - FT	**LANDING WEIGHT - KG**		
	2900	**3500**	**4500**
0	-610	-480	-330
2000	-660	-510	-360
4000	-720	-560	-390
6000	-760	-590	-410
8000	-810	-630	-440
10000	-850	-660	-460
12000	-920	-720	-500
14000	-1110	-880	-620
ALTITUDE - FT	**6393**	**7716**	**9921**
	LANDING WEIGHT - LB		

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LANDING PERFORMANCE

The flaps must be set to 15° for landing. The use of Flaps 30° or 40° for landing is prohibited. With pneumatic de-ice boots failed; a flaps-up-landing must be performed. For both flap configurations, the landing reference speed must be adjusted to the values indicated by the corresponding correction table.
The landing distance is calculated by first computing the landing distance in non-icing conditions and then correcting that distance for landing in or into known icing conditions by using the following correction tables:

Table 12 - Landing in Icing Conditions - Overview

Reverse Thrust	Pneumatic De-ice Boots	Flap Setting	Landing Performance Information	Non-icing Figure No.	Icing Correction Table
No	Operational	Flaps 15°	Landing Total Distance	Figure 5-64/65	Table 13
			Landing Ground Roll	Figure 5-66/67	Table 14
	Inoperative	Flaps 0°	Landing Total Distance	Figure 5-64/65	Table 15
			Landing Ground Roll	Figure 5-66/67	Table 16
Yes	Operational	Flaps 15°	Landing Total Distance	Figure 5-68/69	Table 17
			Landing Ground Roll	Figure 5-70/71	Table 18
	Inoperative	Flaps 0°	Landing Total Distance	Figure 5-68/69	Table 19
			Landing Ground Roll	Figure 5-70/71	Table 20

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Table 13 - Icing Corrections to Landing Total Distance – Flaps 15° - No Reverse Thrust

TABLE A	**LANDING WEIGHT - KG**				
ALTITUDE CORRECTION (%)	**2900**	**3300**	**3700**	**4100**	**4500**
V_{APP} (KIAS)	**84**	**90**	**95**	**100**	**105**
0 FT	+40	+43	+46	+48	+50
2000 FT	+43	+45	+47	+49	+51
4000 FT	+44	+47	+49	+51	+53
6000 FT	+46	+48	+50	+52	+54
8000 FT	+47	+50	+52	+54	+55
10000 FT	+48	+51	+53	+55	+56
12000 FT	+49	+52	+54	+56	+57
14000 FT	+51	+53	+55	+56	+56
ALTITUDE CORRECTION (%)	**6393**	**7275**	**8157**	**9039**	**9921**
TABLE A	**LANDING WEIGHT - LB**				

TABLE B	**LANDING WEIGHT - KG**				
WIND CORRECTION (%)	**2900**	**3300**	**3700**	**4100**	**4500**
10 KTS TAILWIND	-6	-6	-6	-6	-6
NO WIND	0	0	0	0	0
10 KTS HEADWIND	+3	+3	+3	+3	+3
20 KTS HEADWIND	+7	+7	+6	+6	+6
30 KTS HEADWIND	+11	+11	+11	+10	+10
WIND CORRECTION (%)	**6393**	**7275**	**8157**	**9039**	**9921**
TABLE B	**LANDING WEIGHT - LB**				

TABLE C	**LANDING WEIGHT - KG**
SLOPE CORRECTION (%)	**2900 - 4500**
4% DOWN	+1
2% DOWN	0
NO SLOPE	0
2% UP	0
4% UP	0
SLOPE CORRECTION (%)	**6393 - 9921**
TABLE C	**LANDING WEIGHT - LB**

ICING CORRECTION (%) = A + B + C

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Table 14- Icing Corrections to Landing Ground Roll – Flaps 15° - No Reverse Thrust

TABLE A	LANDING WEIGHT - KG				
ALTITUDE CORRECTION (%)	**2900**	**3300**	**3700**	**4100**	**4500**
V_{APP} (KIAS)	**84**	**90**	**95**	**100**	**105**
0 FT	+53	+61	+63	+59	+58
2000 FT	+54	+62	+60	+57	+58
4000 FT	+62	+61	+58	+58	+59
6000 FT	+61	+59	+58	+59	+60
8000 FT	+60	+58	+59	+60	+61
10000 FT	+57	+58	+60	+61	+62
12000 FT	+57	+59	+60	+62	+63
14000 FT	+58	+60	+62	+63	+65
ALTITUDE CORRECTION (%)	**6393**	**7275**	**8157**	**9039**	**9921**
TABLE A	**LANDING WEIGHT - LB**				

TABLE B	LANDING WEIGHT - KG				
WIND CORRECTION (%)	**2900**	**3300**	**3700**	**4100**	**4500**
10 KTS TAILWIND	-7	-7	-7	-6	-6
NO WIND	0	0	0	0	0
10 KTS HEADWIND	+5	+5	+5	+4	+4
20 KTS HEADWIND	+11	+11	+11	+9	+8
30 KTS HEADWIND	+19	+19	+19	+16	+14
WIND CORRECTION (%)	**6393**	**7275**	**8157**	**9039**	**9921**
TABLE B	**LANDING WEIGHT - LB**				

TABLE C	LANDING WEIGHT - KG
SLOPE CORRECTION (%)	**2900 - 4500**
4% DOWN	-2
2% DOWN	-1
NO SLOPE	0
2% UP	+2
4% UP	+4
SLOPE CORRECTION (%)	**6393 - 9921**
TABLE C	**LANDING WEIGHT - LB**

ICING CORRECTION (%) = A + B + C

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Table 15 - Icing Corrections to Landing Total Distance – Flaps 0° - No Reverse Thrust

TABLE A	LANDING WEIGHT - KG				
ALTITUDE CORRECTION (%)	2900	3300	3700	4100	4500
V_{APP} (KIAS)	104	111	118	124	130
0 FT	+86	+93	+98	+103	+107
2000 FT	+91	+96	+101	+105	+109
4000 FT	+94	+100	+105	+109	+113
6000 FT	+97	+102	+107	+112	+116
8000 FT	+101	+106	+111	+116	+120
10000 FT	+103	+109	+114	+119	+123
12000 FT	+106	+111	+117	+122	+125
14000 FT	+110	+116	+122	+123	+124
ALTITUDE CORRECTION (%)	6393	7275	8157	9039	9921
TABLE A	LANDING WEIGHT - LB				

TABLE B	LANDING WEIGHT - KG				
WIND CORRECTION (%)	2900	3300	3700	4100	4500
10 KTS TAILWIND	-12	-12	-11	-11	-11
NO WIND	0	0	0	0	0
10 KTS HEADWIND	+7	+7	+6	+6	+6
20 KTS HEADWIND	+15	+15	+14	+14	+14
30 KTS HEADWIND	+25	+25	+24	+23	+22
WIND CORRECTION (%)	6393	7275	8157	9039	9921
TABLE B	LANDING WEIGHT - LB				

TABLE C	LANDING WEIGHT - KG				
SLOPE CORRECTION (%)	2900	3300	3700	4100	4500
4% DOWN	-3	-3	-3	-4	-4
2% DOWN	-1	-1	-1	-1	-1
NO SLOPE	0	0	0	0	0
2% UP	+2	+2	+2	+2	+2
4% UP	+3	+3	+3	+3	+3
SLOPE CORRECTION (%)	6393	7275	8157	9039	9921
TABLE C	LANDING WEIGHT - LB				

ICING CORRECTION (%) = A + B + C

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Table 16 - Icing Corrections to Landing Ground Roll – Flaps 0° - No Reverse Thrust

TABLE A	LANDING WEIGHT - KG				
ALTITUDE CORRECTION (%)	2900	3300	3700	4100	4500
V_{APP} (KIAS)	104	111	118	124	130
0 FT	+103	+115	+117	+113	+114
2000 FT	+105	+116	+114	+114	+116
4000 FT	+115	+115	+114	+117	+120
6000 FT	+114	+113	+116	+119	+123
8000 FT	+114	+116	+120	+124	+128
10000 FT	+113	+118	+122	+127	+129
12000 FT	+116	+120	+125	+126	+124
14000 FT	+119	+125	+125	+126	+126
ALTITUDE CORRECTION (%)	6393	7275	8157	9039	9921
TABLE A	LANDING WEIGHT - LB				

TABLE B	LANDING WEIGHT - KG				
WIND CORRECTION (%)	2900	3300	3700	4100	4500
10 KTS TAILWIND	-14	-13	-13	-12	-12
NO WIND	0	0	0	0	0
10 KTS HEADWIND	+10	+10	+10	+8	+8
20 KTS HEADWIND	+22	+22	+22	+19	+17
30 KTS HEADWIND	+38	+37	+37	+32	+29
WIND CORRECTION (%)	6393	7275	8157	9039	9921
TABLE B	LANDING WEIGHT - LB				

TABLE C	LANDING WEIGHT - KG				
SLOPE CORRECTION (%)	2900	3300	3700	4100	4500
4% DOWN	-8	-7	-7	-8	-7
2% DOWN	-3	-3	-3	-3	-3
NO SLOPE	0	0	0	0	0
2% UP	+6	+6	+6	+6	+5
4% UP	+12	+11	+11	+10	+10
SLOPE CORRECTION (%)	6393	7275	8157	9039	9921
TABLE C	LANDING WEIGHT - LB				

ICING CORRECTION (%) = A + B + C

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Table 17 - Icing Corrections to Landing Total Distance – Flaps 15° - With Reverse Thrust

TABLE A	**LANDING WEIGHT - KG**				
ALTITUDE CORRECTION (%)	**2900**	**3300**	**3700**	**4100**	**4500**
V_{APP} (KIAS)	**84**	**90**	**95**	**100**	**105**
0 FT	+36	+39	+41	+44	+45
2000 FT	+39	+40	+43	+44	+46
4000 FT	+39	+42	+44	+46	+47
6000 FT	+41	+43	+45	+47	+48
8000 FT	+43	+45	+46	+48	+49
10000 FT	+44	+46	+47	+48	+49
12000 FT	+45	+46	+48	+48	+48
14000 FT	+46	+48	+48	+47	+48
ALTITUDE CORRECTION (%)	**6393**	**7275**	**8157**	**9039**	**9921**
TABLE A	**LANDING WEIGHT - LB**				

TABLE B	**LANDING WEIGHT - KG**
WIND CORRECTION (%)	**2900 - 4500**
10 KTS TAILWIND	-6
NO WIND	0
10 KTS HEADWIND	+3
20 KTS HEADWIND	+7
30 KTS HEADWIND	+11
WIND CORRECTION (%)	**6393 - 9921**
TABLE B	**LANDING WEIGHT - LB**

TABLE C	**LANDING WEIGHT - KG**
SLOPE CORRECTION (%)	**2900 - 4500**
4% DOWN	0
2% DOWN	0
NO SLOPE	0
2% UP	+1
4% UP	+1
SLOPE CORRECTION (%)	**6393 - 9921**
TABLE C	**LANDING WEIGHT - LB**

ICING CORRECTION (%) = A + B + C

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Table 18 - Icing Corrections to Landing Ground Roll – Flaps 15° - With Reverse Thrust

TABLE A	**LANDING WEIGHT - KG**				
ALTITUDE CORRECTION (%)	**2900**	**3300**	**3700**	**4100**	**4500**
V_{APP} (KIAS)	**84**	**90**	**95**	**100**	**105**
0 FT	+48	+54	+55	+52	+50
2000 FT	+48	+55	+53	+50	+50
4000 FT	+55	+54	+51	+51	+51
6000 FT	+54	+52	+50	+51	+51
8000 FT	+53	+50	+51	+51	+51
10000 FT	+51	+51	+51	+51	+52
12000 FT	+50	+51	+51	+52	+52
14000 FT	+51	+51	+52	+52	+53
ALTITUDE CORRECTION (%)	**6393**	**7275**	**8157**	**9039**	**9921**
TABLE A	**LANDING WEIGHT - LB**				

TABLE B	**LANDING WEIGHT - KG**				
WIND CORRECTION (%)	**2900**	**3300**	**3700**	**4100**	**4500**
10 KTS TAILWIND	-7	-7	-7	-6	-6
NO WIND	0	0	0	0	0
10 KTS HEADWIND	+5	+5	+5	+4	+4
20 KTS HEADWIND	+10	+10	+10	+9	+8
30 KTS HEADWIND	+18	+17	+17	+15	+13
WIND CORRECTION (%)	**6393**	**7275**	**8157**	**9039**	**9921**
TABLE B	**LANDING WEIGHT - LB**				

TABLE C	**LANDING WEIGHT - KG**
SLOPE CORRECTION (%)	**2900 - 4500**
4% DOWN	-2
2% DOWN	-1
NO SLOPE	0
2% UP	+2
4% UP	+3
SLOPE CORRECTION (%)	**6393 - 9921**
TABLE C	**LANDING WEIGHT - LB**

ICING CORRECTION (%) = A + B + C

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Table 19 - Icing Corrections to Landing Total Distance – Flaps 0° - With Reverse Thrust

TABLE A	**LANDING WEIGHT - KG**				
ALTITUDE CORRECTION (%)	**2900**	**3300**	**3700**	**4100**	**4500**
V_{APP} (KIAS)	**104**	**111**	**118**	**124**	**130**
0 FT	+79	+85	+90	+94	+97
2000 FT	+84	+87	+93	+96	+99
4000 FT	+85	+92	+95	+99	+101
6000 FT	+89	+94	+97	+100	+103
8000 FT	+92	+96	+100	+103	+105
10000 FT	+94	+98	+101	+104	+105
12000 FT	+96	+100	+103	+104	+105
14000 FT	+98	+102	+103	+104	+105
ALTITUDE CORRECTION (%)	**6393**	**7275**	**8157**	**9039**	**9921**
TABLE A	**LANDING WEIGHT - LB**				

TABLE B	**LANDING WEIGHT - KG**				
WIND CORRECTION (%)	**2900**	**3300**	**3700**	**4100**	**4500**
10 KTS TAILWIND	-14	-14	-14	-14	-14
NO WIND	0	0	0	0	0
10 KTS HEADWIND	+7	+7	+6	+6	+6
20 KTS HEADWIND	+14	+14	+14	+14	+14
30 KTS HEADWIND	+24	+24	+23	+23	+22
WIND CORRECTION (%)	**6393**	**7275**	**8157**	**9039**	**9921**
TABLE B	**LANDING WEIGHT - LB**				

TABLE C	**LANDING WEIGHT - KG**
SLOPE CORRECTION (%)	**2900 - 4500**
4% DOWN	-2
2% DOWN	-1
NO SLOPE	0
2% UP	+2
4% UP	+4
SLOPE CORRECTION (%)	**6393 - 9921**
TABLE C	**LANDING WEIGHT - LB**

ICING CORRECTION (%) = A + B + C

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Table 20 - Icing Corrections to Landing Ground Roll – Flaps 0° - With Reverse Thrust

TABLE A	LANDING WEIGHT - KG				
ALTITUDE CORRECTION (%)	2900	3300	3700	4100	4500
V_{APP} (KIAS)	104	111	118	124	130
0 FT	+93	+102	+103	+99	+98
2000 FT	+95	+103	+101	+98	+98
4000 FT	+103	+102	+98	+99	+100
6000 FT	+102	+100	+99	+100	+101
8000 FT	+101	+99	+100	+101	+102
10000 FT	+99	+100	+101	+102	+104
12000 FT	+99	+100	+102	+104	+105
14000 FT	+100	+102	+104	+105	+105
ALTITUDE CORRECTION (%)	6393	7275	8157	9039	9921
TABLE A	LANDING WEIGHT - LB				

TABLE B	LANDING WEIGHT - KG				
WIND CORRECTION (%)	2900	3300	3700	4100	4500
10 KTS TAILWIND	-14	-14	-13	-13	-13
NO WIND	0	0	0	0	0
10 KTS HEADWIND	+9	+9	+9	+8	+7
20 KTS HEADWIND	+21	+20	+20	+18	+16
30 KTS HEADWIND	+35	+35	+35	+30	+27
WIND CORRECTION (%)	6393	7275	8157	9039	9921
TABLE B	LANDING WEIGHT - LB				

TABLE C	LANDING WEIGHT - KG
SLOPE CORRECTION (%)	2900 - 4500
4% DOWN	-5
2% DOWN	-2
NO SLOPE	0
2% UP	+4
4% UP	+8
SLOPE CORRECTION (%)	6393 - 9921
TABLE C	LANDING WEIGHT - LB

ICING CORRECTION (%) = A + B + C

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FLIGHT PLANNING EXAMPLE

GENERAL

Before performance calculations can begin, it will be necessary to determine the aircraft loading. Refer to Section 6, Weight and Balance to calculate the actual aircraft loading. For this flight planning example, the sample aircraft loading in Section 6, Fig. 6-8, will be used.

Aircraft Configuration:			
Takeoff Weight	8798 lb	Total Trip Distance	765 nm
Usable Fuel	1650 lb		
Departure Airport Conditions:		**Destination Airport Conditions:**	
Field Pressure Altitude	4000 ft	Field Pressure Altitude	2000 ft
OAT	+17°C (ISA +10°C)	OAT	+16°C (ISA + 5°C)
Wind Component	9 kt (headwind)	Wind Component	6 kt (headwind)
Runway Slope	1% (uphill)	Runway Slope	1.5% (downhill)
Field Length	3690 ft	Field Length	2550 ft
Total Trip Distance	765 nm		
Cruise Conditions:			
Pressure Altitude	FL 280		
Forecast Temperature	-31°C (ISA +10°C)		
Forecast Wind Component	10 kt (headwind)		

TAKEOFF

Apply the departure airport conditions and the aircraft weight to the appropriate takeoff performance charts and check that the corresponding distances are less than the available field length at the departure airport.

Apply the departure airport conditions to the Takeoff Power Chart to determine maximum torque to be applied before brake release.

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CLIMB

NOTE

The climb performance chart assumes a no wind condition. The pilot must consider the effect of the winds aloft when computing time, fuel, and distance to climb. The fuel to climb includes the fuel consumed during the takeoff run.

Apply the cruise conditions of pressure altitude and temperature (respectively 28000 ft and ISA + 10°C in this case) to the appropriate chart to determine the time, fuel, and distance to climb from sea level to the cruise altitude at the specified takeoff weight (8798 lb in this case). Next, apply the departure airport conditions (respectively 4000 ft and ISA + 10°C in this case) to the same chart to determine those same values to climb from sea level to the departure airport. Subtract the values for the departure airport from those for the cruise altitude. The remaining values are the time, fuel, and distance to climb from the departure airport to the cruise altitude.

Climb	Time	Fuel	Distance
From S. L. to 28000 ft	26 min	180 lb	78 nm
From S. L. to departure airport	3 min	25 lb	7 nm
Departure airport to 28000 ft.	23 min	155 lb	71 nm

DESCENT

NOTE

The descent performance chart assumes a no wind condition. The pilot must consider the effect of the winds aloft when computing time, fuel, and distance to descend.

Apply the cruise conditions of pressure altitude and temperature (respectively 28000 ft and ISA + 10°C in this case) to the appropriate chart to determine the time, fuel, and distance to descend from cruise altitude to sea level. The weight at the beginning of the descent is not known exactly at this stage, but it can be estimated in practice as shown in the following table:

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Takeoff weight	- Usable fuel	+ Fuel reserve*	+ Allowance for descent	= Weight at beginning of descent
8798 lb	- 1650 lb	+ 300 lb	+ 100 lb	= 7548 lb

*As required by operating regulations; here a reserve corresponding to 45 min hold at 5000 ft is assumed.

Next, apply the destination airport conditions (respectively 2000 ft and ISA + 5°C in this case) to the same chart to determine those same values to descend from the destination airport to sea level. Subtract the values for the destination airport from those for the cruise altitude. The remaining values are the time, fuel, and distance to descend from the cruise altitude to the destination airport.

Descent	**Time**	**Fuel**	**Distance**
From 28000 ft. to S. L.	14 min	86 lb	66 nm
From destination airport to S. L.	1 min	8 lb	4 nm
From 28000 ft. to destination airport	13 min	78 lb	62 nm

CRUISE

Calculate the cruise distance by subtracting the climb and descent distances from the total trip distance. Select a cruise power setting and refer to the appropriate chart to determine the true airspeed and fuel flow for the forecast cruise conditions. Adjust the true airspeed for the winds aloft headwind component to determine the ground speed. Divide the cruise distance by the ground speed to determine the cruise time. Calculate the cruise fuel required by multiplying the fuel flow by the cruise time.

Total trip distance	- Climb distance	- Descent distance	= Cruise distance
765 nm	-71 nm	- 62 nm	= 632 nm

By assuming an average cruise weight of 8500 lb, Maximum Cruise Power setting for 28000 ft. at ISA +10°C yields 250 KTAS at 325 lb/hr.

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Cruise Speed	+/- Headwind Component	= Ground Speed
250 KTAS	-10 kt	240 KTAS

Cruise Distance	/ Ground Speed	= Cruise Time
632 nm	/ 240 kt	= 2.63 hr (2hr 38 min)

Cruise Time	x Fuel Flow	= Cruise Fuel
2.63 hr	x 325 lb/hr	= 855 lb

LANDING

Calculate the estimated landing weight by the subtracting the weight of the fuel for climb, descent, and cruise from the takeoff weight.

Takeoff weight	- Climb Fuel	- Descent Fuel	- Cruise Fuel	= Landing Weight
8798 lb	- 155 lb	- 78 lb	- 855 lb	= 7710 lb

Apply the destination airport conditions and the calculated aircraft weight to the appropriate landing performance charts and check that the corresponding distances are less than the available field length at the destination airport.

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TOTAL FLIGHT TIME

The total flight time is the sum of the time to climb, descent, and cruise.

Climb Time	+ Descent Time	+ Cruise Time	= Total Time
23 min	+ 13 min	+ 2 hr 38 min	3 hr 14 min

TOTAL FUEL REQUIRED

The total fuel required is the sum of the fuel consumed during engine start and ground operation, takeoff and climb, descent, and cruise.

Ground Ops	+ TO & Climb	+ Descent	+ Cruise	+ Reserve	= Total
40 lb	+ 155 lb	+ 78 lb	+ 855 lb	+ 300 lb	=1428 lb

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SECTION 6

WEIGHT AND BALANCE

TABLE OF CONTENTS

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GENERAL

This section contains the information required to determine the Basic Empty Weight and Moment of the aircraft, adjust the B.E.W. & M as equipment is added or removed, and calculate aircraft loading for various flight operations. Sample loading forms are provided.

To achieve the performance designed for the aircraft it must be flown with approved weight and center of gravity limits.

It is the responsibility of the pilot in command to make sure that the aircraft does not exceed the maximum weight limits and is loaded within the center of gravity range before takeoff.

Weight in excess of the maximum takeoff weight may be a contributing factor to an accident, especially with other factors of temperature, airfield elevation and runway conditions. The aircraft's climb, cruise and landing performance will also be affected. Loads that the aircraft was not designed for may be put on the structure, particularly during landing.

The pilot should routinely determine the balance of the aircraft since it is possible to be within the maximum weight limit and still exceed the center of gravity limits. Information regarding the Basic Empty Weight can be found on the Weight and Balance Record in this section. Installed equipment information can be found in the Equipment List at the back of this manual. Using the basic empty weight and moment together with the Loading Form the pilot can determine the weight and moment for the loaded aircraft by computing the total weight and moment and then determine whether they are within the Center of Gravity Envelope.

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AIRPLANE WEIGHING

PREPARATION

1. Make sure that all applicable items listed on the airplane equipment list are installed in their proper locations.
2. Clean airplane. Remove dirt, excessive grease, water, and foreign items.
3. Completely defuel the fuel tanks. Use the wing fuel drain ports for the completion of the task.
4. Fill oil, hydraulic fluid, and all other operating fluids to full capacity.
5. Make sure that the flaps are fully retracted and that the flight controls are in the neutral position.
6. Place crew seats in the center position and make sure the cabin passenger seats are in the correct positions. Refer to the relevant Interior Configuration Code Seat Location Chart in this Section.
7. Close access panels and passenger door.
8. Make sure that all tires are inflated to normal operating pressure.
9. Place airplane in a closed hangar to prevent scale reading errors due to wind.

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WEIGHING PROCEDURE WITH LOAD PLATES

LEVELING

Open the cargo door and place a level across the seat tracks. Adjust the main gear tire pressure until the airplane is laterally level. Place the level along the top of the inboard seat track and adjust the nose tire pressure until the airplane is longitudinally level. Refer to Section 8 of this Handbook for more information concerning airplane leveling. Remove the level and carefully close the cargo door.

WEIGHING

1. Record the tare weight for each applicable scale on Figure 6-1A Sheet 1 Airplane Weighing Form.
2. Refer to the manufacturer's instructions and position the aircraft on the load plates.
3. With the airplane level and brakes released, record the weight shown on each scale in the appropriate section on Figure 6-1A Sheet 1 Airplane Weighing Form.
4. Subtract tare weight from applicable scale reading for net weight and record in appropriate section on Figure 6-1A Sheet 1 Airplane Weighing Form.
5. Refer to Figure 6-1A Sheet 2 and 3. Record the strut extensions of the nose gear (a), the left main gear (b_{LH}) and the right main gear (b_{RH}) dimensions on Figure 6-1A Sheet 2 Airplane Weighing Form. Calculate the average of the main gear strut extensions (b) and (c) and record the average (B) on Figure 6-1A Sheet 2 Airplane Weighing Form.
6. Calculate the Arm of the nose gear (A) from the extension of the nose gear strut (a) using the Table in Figure 6-1A Sheet 2. If the extension of the nose gear strut (a) is somewhere in between the two values in the table, the arm of the nose gear (A) must be calculated by linear interpolation. Record the arm of the nose gear (A) in the appropriate section on Figure 6-1A Sheet 2 Airplane Weighing Form.
7. Calculate the arm of the main gear (B) from the average of the extensions of the main gear struts (b) and (c) using the table in Figure 6-1A Sheet 3. If the average extension of the main gear struts is somewhere between the two values in the table, the arm of the main gear (B) must be calculated by linear interpolation. Record the arm of the main gear (B) in the appropriate section on Figure 6-1A Sheet 2 Airplane Weighing Form.
8. Calculate airplane C.G. Arm using the formula in Figure 6-1A Sheet 3 and record it on the appropriate section on Figure 6-2, Airplane Basic Empty Weight.
9. Refer to Figure 6-2. Adjust weight and moment for unusable fuel and optional equipment installed after airplane weighing to determine airplane Total Basic Empty Weight and Moment of the airplane.
10. Update Figure 6-3, Weight and Balance Record, as required.
11. After weighing return tire pressures to operational values. Refer to Section 8 for instructions

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Scale Position	Symbol	Scale Reading lb (kg)	Tare lb (kg)	Net Weight lb (kg)
Nose Landing Gear	N			
Left Main Landing Gear	L			
Right Main Landing Gear	R			
TOTAL AIRCRAFT WEIGHT				

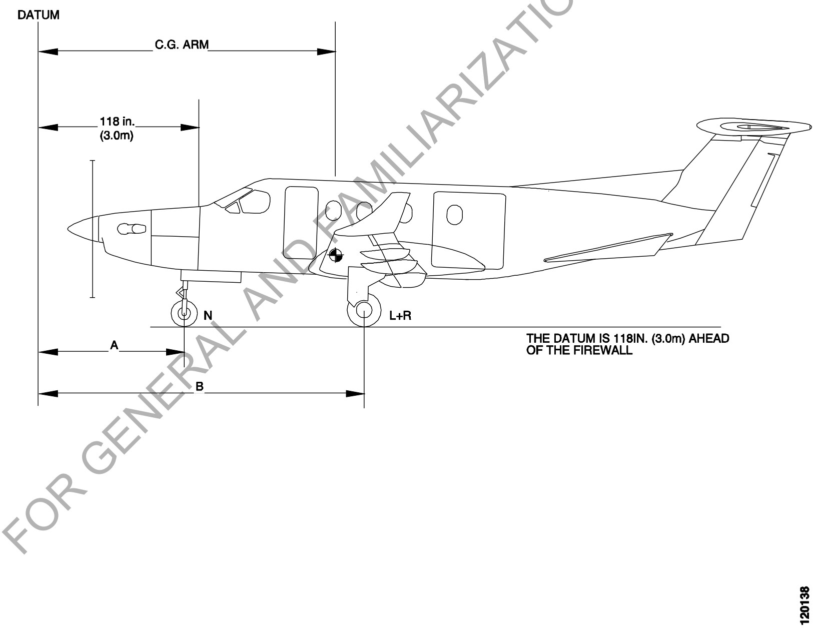

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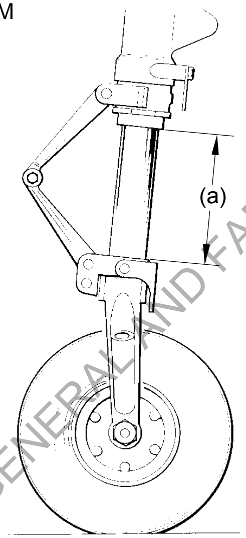
Figure 6-1A. Airplane Weighing Form
(Sheet 1 of 3)

Landing Gear	Symbol	Dimension mm	Average (b) mm	Arm in (mm)	
Nose	(a)		- -		(A)
Left Main	(b)				(B)
Right Main	(c)		(L+R) / 2		

NOSE GEAR ARM



Dimension (a) is strut extension

Dimension (a) (mm)	Arm (A) (in)	Arm (A) (mm)
0	111.90	2842
20	111.82	2840
40	111.74	2838
60	111.62	2835
80	111.54	2833
100	111.46	2831
120	111.34	2828
140	111.27	2826
160	111.19	2824
180	111.07	2821
200	110.99	2819
220	110.91	2817
240	110.79	2814

120139

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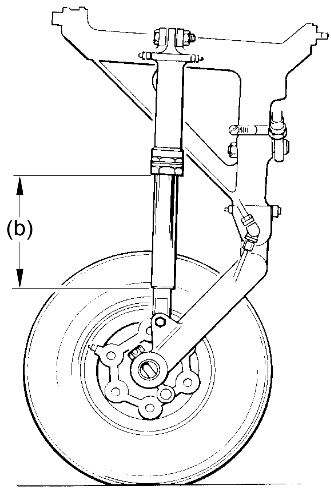
Figure 6-1A. Airplane Weighing Form
(Sheet 2 of 3)

MAIN GEAR ARM



Dimension (b) is strut extension

Dimension (b) (mm)	Arm (B) (in)	Arm (B) (mm)
110	254.78	6471
130	254.46	6463
150	254.07	6453
170	253.60	6441
190	253.04	6427
210	252.41	6411
230	251.71	6393
250	250.88	6372
270	249.97	6349
290	248.91	6322
310	247.73	6292

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Calculate the airplane C.G. arm as weighed:

$$\text{C.G. Arm (In or m)} = \frac{N \times A + (L + R) \times B}{T}$$

Where:
- A = Nose Landing gear arm
- B = Main Landing gear arm
- N = Nose Landing gear weight
- L = Left main landing gear weight
- R = Right main landing gear weight
- T = Total weight of N + L + R

120140

Figure 6-1A. Airplane Weighing Form
(Sheet 3 of 3)

WEIGHING PROCEDURE WITH JACKS AND LOAD CELLS

LEVELING

Put the jacks in position below the wing and tail jacking points. The fuselage jacking points must not be used. Refer to the manufacturers instructions for the use of the load cell equipment. Position the load cells and adapters and slowly raise the aircraft clear of the ground.

Open the cargo door and place a level across the seat tracks. Place the level along the top of the inboard seat track and adjust the tail jack until the airplane is longitudinally level. Refer to Section 8 of this Handbook for more information concerning airplane leveling. Remove the level and carefully close the cargo door.

WEIGHING

1. With the airplane level, record the weight shown on each load cell in the appropriate section on Figure 6-1B, Airplane Weighing Form.

2. Calculate airplane C.G. Arm and record on Figure 6-2, Airplane Basic Empty Weight. The C. G. Arm calculation formula is:

   $$\text{C. G. Arm in (m)} = \frac{(L + R) \times B + T \times A}{L + R + T}$$

3. Adjust weight and moment for unusable fuel and optional equipment installed after airplane weighing to determine airplane Total Basic Empty Weight and Moment.

4. Calculate Basic Empty Weight C.G.

5. Update Figure 6-3, Weight and Balance Record, as required.

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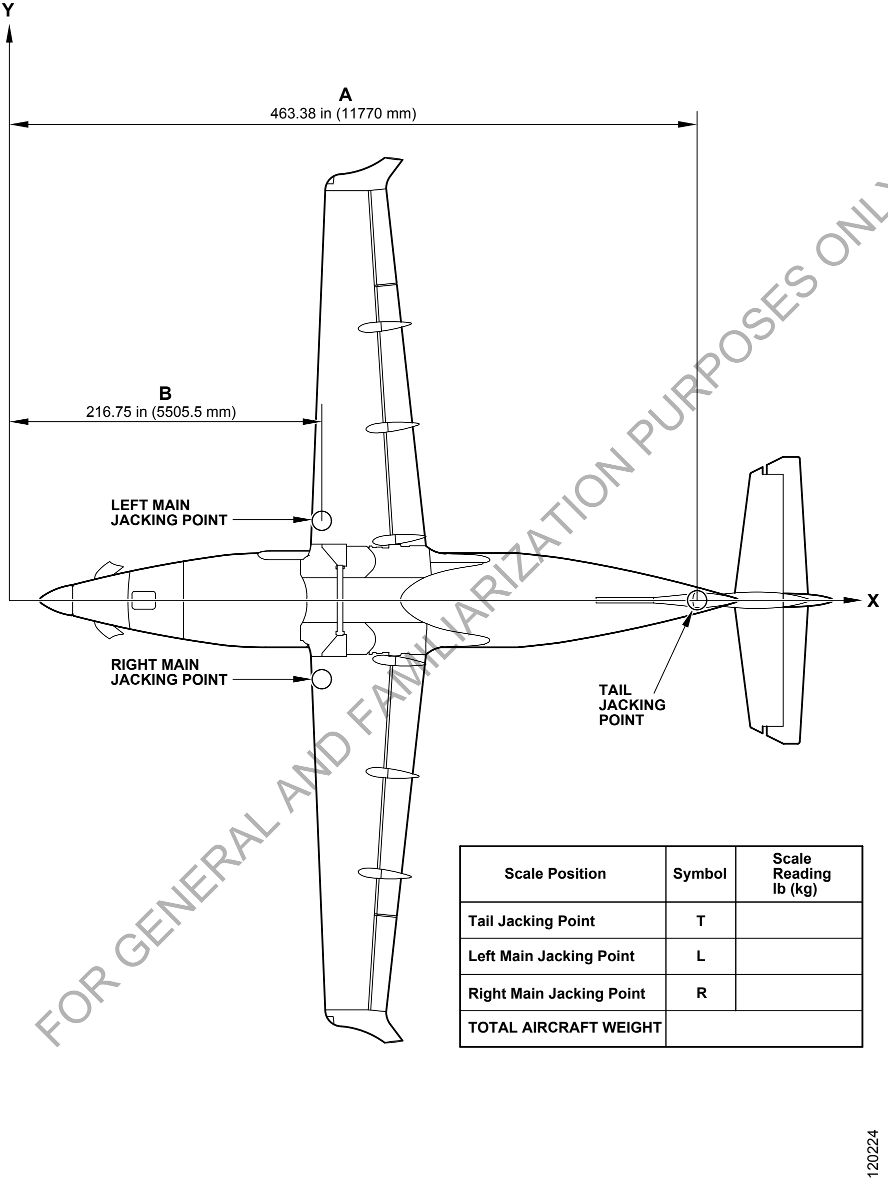

Scale Position	Symbol	Scale Reading lb (kg)
Tail Jacking Point	T	
Left Main Jacking Point	L	
Right Main Jacking Point	R	
TOTAL AIRCRAFT WEIGHT		

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Figure 6-1B. Airplane Weighing Form

Model:	Serial No.:	Registration No.:	Date:

Item	Weight lb (kg)	C.G. Arm in (m)	Moment lb-in (mkg)
1. Airplane Weight, C.G. arm, and moment. (As weighed in Figure 6-1)			
2. Unusable Fuel	32.9 (14.9)	225.6 (5.73)	7422 (87.38)
3. Optional equipment, if applicable			
4. Optional equipment, if applicable			
5. Optional equipment, if applicable			
6. TOTAL BASIC EMPTY WEIGHT AND MOMENT (Sum of 1 thru 5)			

AIRPLANE USEFUL LOAD - NORMAL CATEGORY OPERATION

Ramp Weight lb (kg)	- Basic Empty Weight lb (kg)	= Useful Load lb (kg)
	-	=

The Basic Empty Weight, C.G., and Useful Load are for the airplane as licensed at the factory. These figures are only applicable to the specific airplane serial number and registration number shown. Refer to Figure 6-3. Weight and Balance Record when modifications to the airplane have been made.

Figure 6-2. Airplane Basic Empty Weight

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WEIGHT AND BALANCE RECORD

Figure 6-3. Weight and Balance Record is a log of the modifications that occurred after the airplane was licensed at the factory. Any change to the permanently installed equipment or airplane modifications which effect the airplane Basic Empty Weight or Total Moment must be entered in Figure 6-3. Weight and Balance Record. The last entry on the Weight and Balance Record will be the current airplane Basic Empty Weight and Total Moment.

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Serial Number		Registration Number					Page Number	
Date	Item No.	Description of Article or Modification	Add (+) Rem (-)	Weight Change			Running Basic Empty Weight	
				Wt lb (kg)	Arm in (m)	Moment lb-in / 1000 (mkg)	Wt lb (kg)	Moment lb-in / 1000 (mkg)
		As Delivered						

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120141

Figure 6-3. Weight and Balance Record
(Sheet 1 of 2)

	Serial Number		Registration Number					Page Number	
Date	Item No.	Description of Article or Modification	Add (+) Rem (-)	Weight Change			Running Basic Empty Weight	
				Wt lb (kg)	Arm in (m)	Moment lb-in / 1000 (mkg)	Wt lb (kg)	Moment lb-in / 1000 (mkg)

120142

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Figure 6-3. Weight and Balance Record
(Sheet 2 of 2)

GENERAL LOADING RECOMMENDATIONS

The following general loading recommendation is intended as only a guide. Refer to Section 2 for Seating and Cargo Limitations. The pilot in command must refer to the appropriate moment charts, loading form, and the C.G. Envelope to determine that the airplane is properly loaded.

Fuel load may be limited by maximum weight.

Load fuel equally between the left and right wing fuel tanks.

CARGO

Before loading airplane, attach the tail support stand to prevent the tail from contacting the ramp surface while ground personnel are in the aft cabin during the loading process.

Observe the maximum floor and seat rail load limits given on the placard on the forward and rear cargo door frame. Figure 6-4 gives the cabin dimensions and loading areas.

Cargo having a total weight less than 66 lb (30 kg) may be stowed aft of the cargo net. Heavier cargo is to be secured in the cabin area with tie-down straps attached to seat rail anchor points. Refer to Figures 6-5 thru 6-14 for cargo weight calculation, restraining bar installation and tie-down strap installation. Refer to Figure 6-15 for cargo net installation.

Refer to the Illustrated Parts Catalog (IPC) Chapter 25 for the part numbers of the approved cargo restraint nets, tie down straps, load carriers and retaining bars.

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HAZARDOUS MATERIALS

Protection against the damaging effects of leakage of hazardous materials has not been provided in the cargo area. Provisions should be made for protection if carriage of these materials is planned.

In addition to the pilot in command, other personnel used for loading and unloading should be properly trained concerning the handling, storage, loading and unloading of hazardous materials if they 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.

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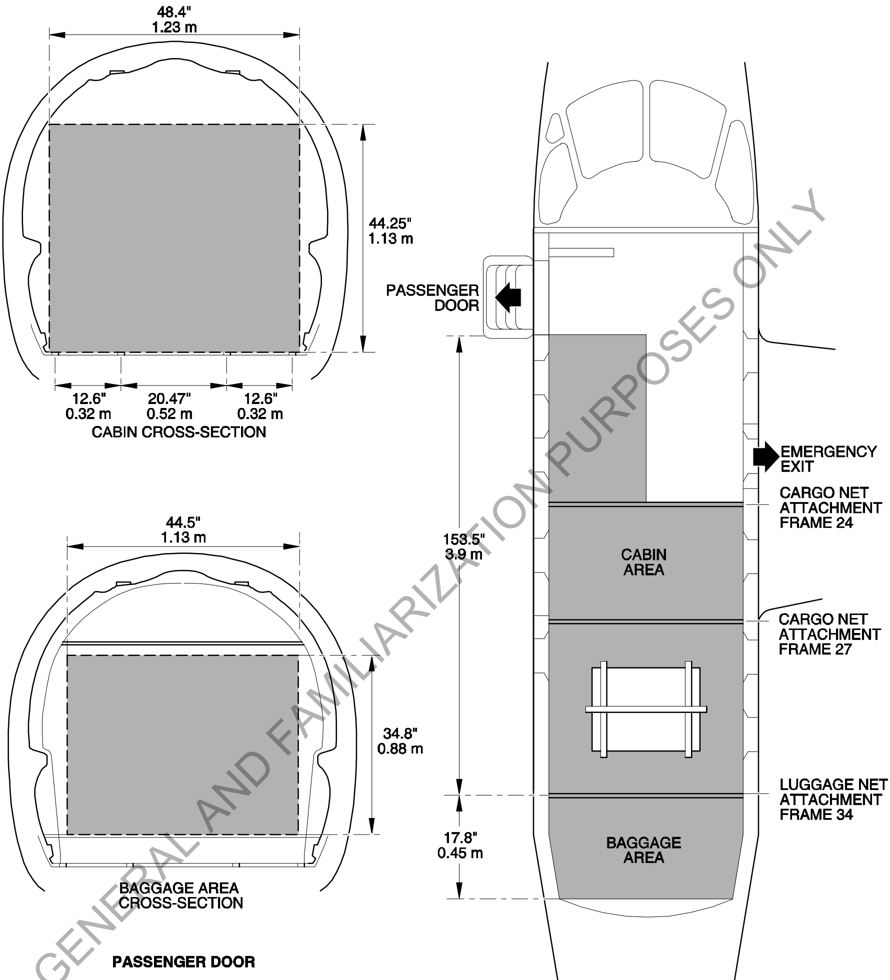

PASSENGER DOOR

HEIGHT	**4' 5" (1.35 m)**
WIDTH	**2' 0" (0.61 m)**

CARGO DOOR

HEIGHT	**4' 4" (1.32 m)**
WIDTH	**4' 5" (1.35 m)**

COMPARTMENT VOLUME
(WITHIN DIMENSIONED AREAS)

CABIN	**190.25 ft^3 (5.4 m^3)**
BAGGAGE	**16.0 ft^3 (0.45 m^3)**

CARGO MAY BE LOCATED ANYWHERE IN SHADED AREA

ALL CARGO MUST BE ARRANGED TO PERMIT FREE ACCESS TO THE PASSENGER DOOR AND EMERGENCY OVERWING EXIT

ALL CARGO MUST BE SECURED BY APPROVED CARGO RESTRAINTS

120136

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Figure 6-4. Loading Areas

MAXIMUM ALLOWABLE WEIGHT PER SINGLE CONTAINER (WITHOUT SPECIAL EQUIPMENT)

The maximum allowable weight is based on the package dimensions, vertical c.g. and the number of seat rails used to secure the fore-aft tie-down straps.

The flowcharts below can be used to determine whether the weight of a cargo item is acceptable, which Restraint Bars are to be used, and how the cargo is to be loaded.

The cargo dimensions are defined as shown in Figure 6-5.

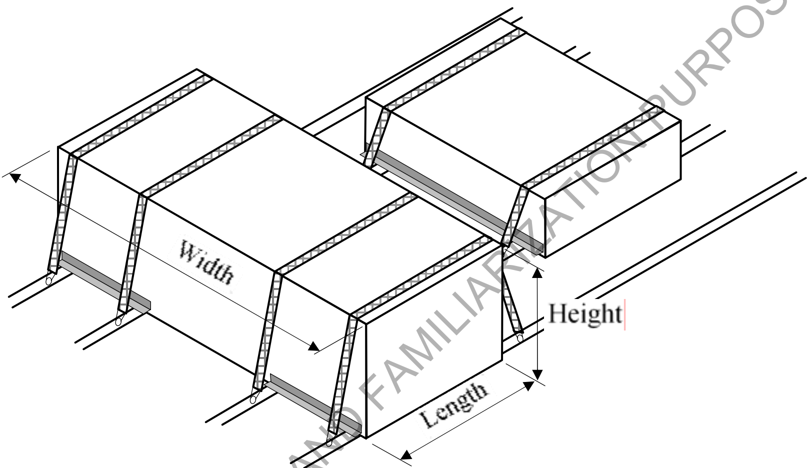

Figure 6-5 Cargo Dimensions

The process to decide whether and how cargo can be tied down follows the following 4 steps

Step 1: Determine the cargo size and orientation

Step 2: Determine the correct restraint bars

Step 3: Determine the correct cargo tie-down configuration chart and curve

Step 4: Determine allowable cargo weight

These steps are explained in the following flowcharts, followed by an example to demonstrate their use.

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MAXIMUM ALLOWABLE WEIGHT PER SINGLE CONTAINER
(WITHOUT SPECIAL EQUIPMENT)

Step One

Determine the best orientation for the cargo in the cabin

↓

Shortest side: Vertical
Longest side: Across width of cabin

↓

Measure the cargo size:

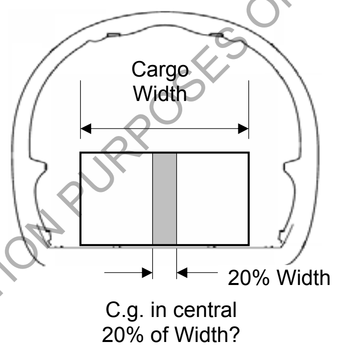
Length, Width, Height

Weight

↓

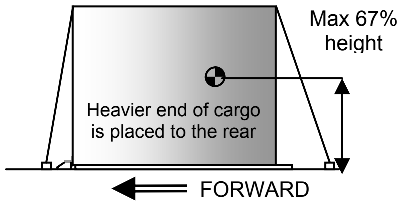
Is the cargo lateral c.g. within centre 20% of width?

No → The Cargo Tie-Down Configuration Charts are not valid: contact Pilatus for advice



Yes ↓

1. Place the cargo in the cabin with the heavier end to the rear.
2. Heavier cargo items should be placed in front of lighter ones.



↓

Go to Step Two

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Figure 6-6. Cargo Size and Orientation

MAXIMUM ALLOWABLE WEIGHT PER SINGLE CONTAINER
(WITHOUT SPECIAL EQUIPMENT)

Step Two

Choose the correct Restraint Bar(s) based on the cargo width

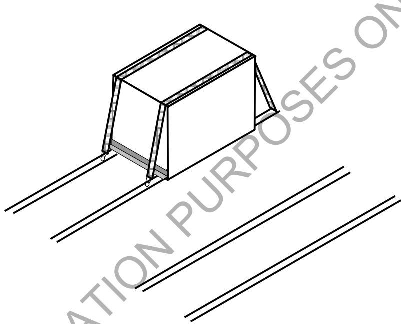
↓

Cargo width between 14 ½” and 15 ¾”
(between 370mm and 400mm)

Use a single, short Restraint Bar

(525.25.12.072 or
525.25.12.171 or
525.25.12.276)

at one side of the aircraft



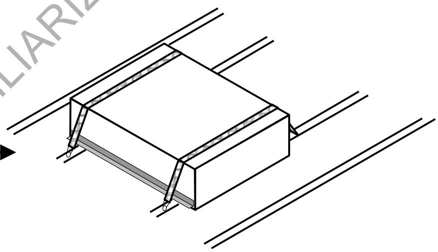
↓

Cargo width between 22 ½” and 33”
(between 570mm and 840mm)

Use a single, long Restraint Bar

(525.25.12.073 or
525.25.12.172 or
525.25.12.277)

in the centre of the aircraft



↓

Cargo width between 33” and 48.4”
(between 840mm and 1’230mm)

Use both short Restraint Bars

(525.25.12.072 or
525.25.12.171 or
525.25.12.276)

one either side of the aircraft

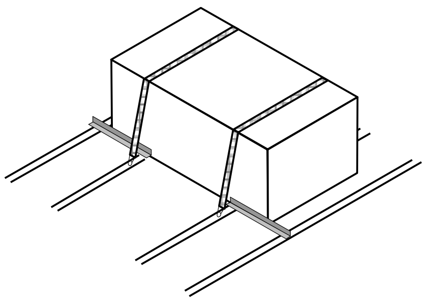


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Figure 6-7. Determine the Correct Cargo Restraint Bars

MAXIMUM ALLOWABLE WEIGHT PER SINGLE CONTAINER
(WITHOUT SPECIAL EQUIPMENT)

Step Three

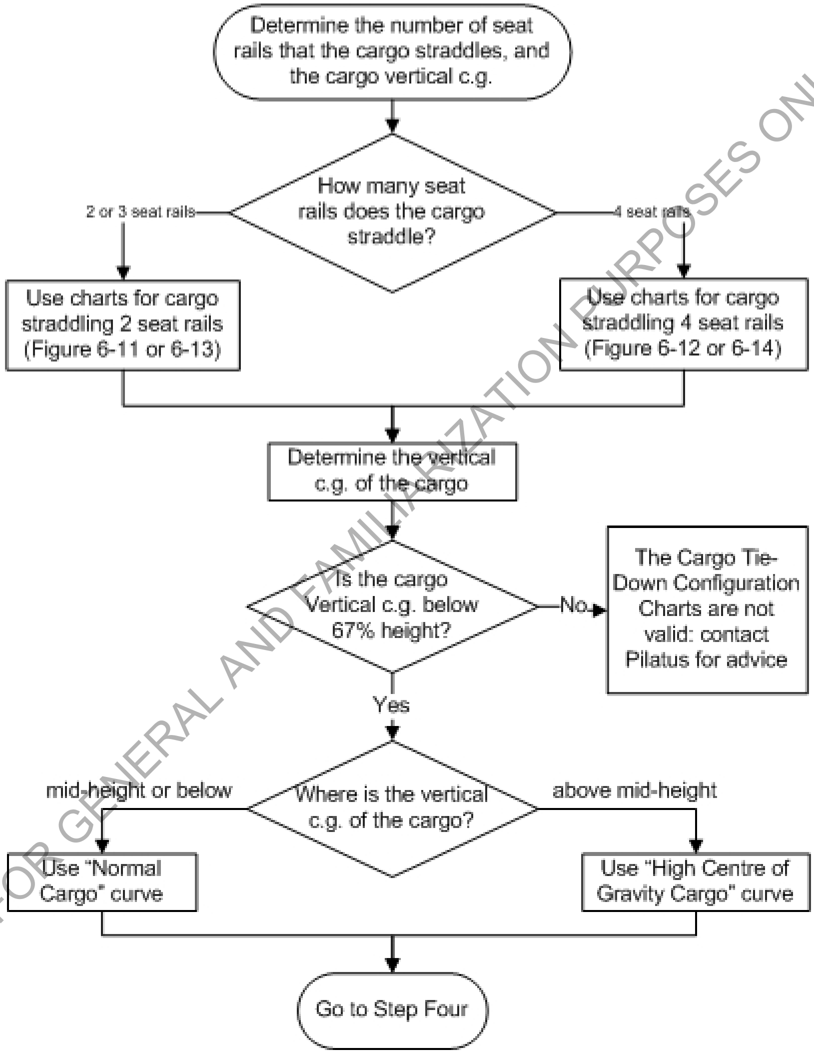

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Figure 6-8. Determine Correct Cargo Tie-Down Chart & Curve

MAXIMUM ALLOWABLE WEIGHT PER SINGLE CONTAINER
(WITHOUT SPECIAL EQUIPMENT)

Step Four

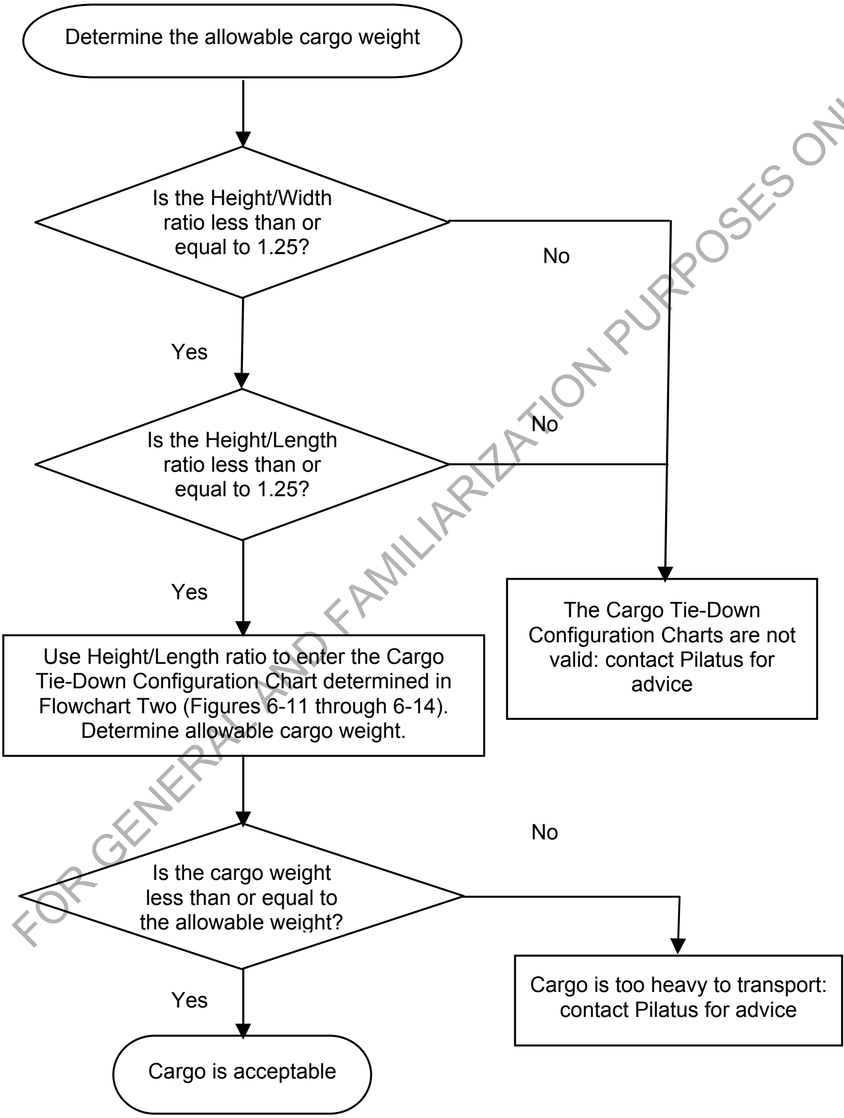

Figure 6-9. Determine Allowable Cargo Weight

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MAXIMUM ALLOWABLE WEIGHT PER SINGLE CONTAINER (WITHOUT SPECIAL EQUIPMENT)

RESTRAIN CARGO IN CABIN

Fit the Restraint Bars and the Load Carrier Assemblies to the aircraft. If there is more than one cargo item, try to place the heavier items forward of the lighter ones.

Place cargo in cabin: ensure cargo is firmly against Restraint Bar(s)

Restrain cargo with straps attached to the seat rails.

- The straps shall be placed in the fore-aft direction: do not place diagonally.
- Place front strap fitting as close as feasible to Restraint Bar. Place rear fitting to give a strap angle of 10° to 20°, as shown in Figure 6-10.
- Additional straps may be placed laterally on cargo straddling the centre two seat rails, if desired.

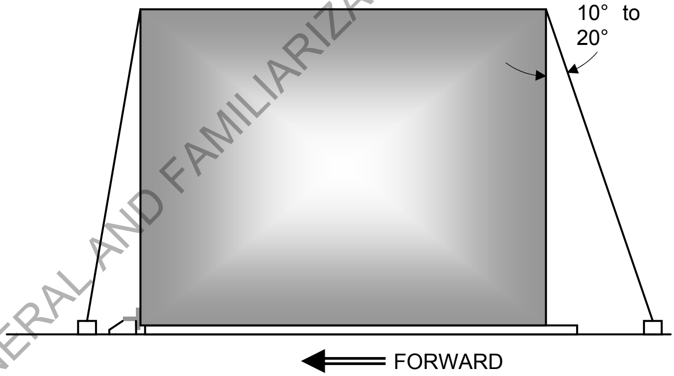

Figure 6-10. Fore-aft Strap Angles

Perform the Weight and Balance check to verify that the MTOW and aircraft c.g. position are within the limits given in Section 2.

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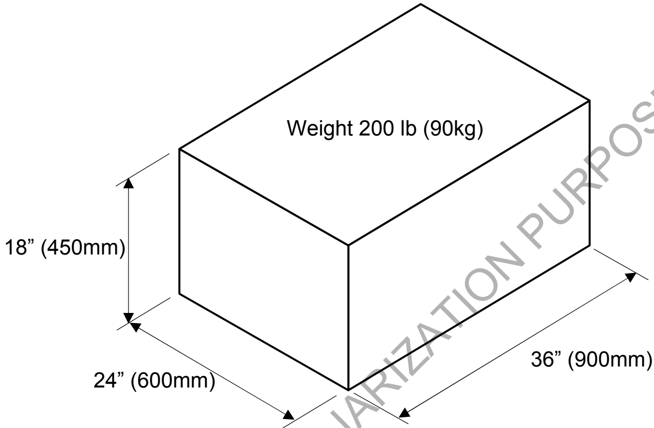
MAXIMUM ALLOWABLE WEIGHT PER SINGLE CONTAINER (WITHOUT SPECIAL EQUIPMENT)

EXAMPLE

The cargo to be transported is shown below. Looking down, the c.g. is roughly in the centre of the box, but its height is unknown.



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Step 1: Determine the cargo size and orientation

1a. The best orientation in the cabin is with the shortest side (18”) vertical and the longest side (36”) across the cabin width. Figure 6-4 shows that this will fit in the cargo area.

1b. Using the definitions of Figure 6-5, the cargo dimensions are:

Height	18” (450mm)
Length	24” (600mm)
Width	36” (900mm)

1c. The cargo lateral c.g. is approximately in middle of the box: the charts are valid.

Step 2: Determine the correct restraint bars

2a. The cargo width is 36” (900mm). Both short restraining bars are used.

2b. Two cargo-restraining straps, fitted to the inner seat rails, are required.

Step 3: Determine the correct cargo tie-down configuration chart and curve

3a. The front stop is attached to 4 seat rails, but cargo tie down straps can only be fitted to the inner seat tracks. This cargo straddles 2 seat rails. The restraining Bars are angle shaped (not "T"-section) and thus Figure 6-11 is used.

3b. The cargo vertical c.g. position is unknown: use the "high centre of gravity" curve.

Step 4: Determine allowable cargo weight

4a. Height/Width = 18"/36" = 0.33. Less than 1.25, therefore OK.

4b. Height/Length = 18"/24" = 0.75. Less than 1.25, therefore OK.

4c. From Figure 6-11, the allowable cargo weight is 214 lb (97kg): cargo weight is acceptable.

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MAXIMUM ALLOWABLE WEIGHT PER SINGLE CONTAINER (WITHOUT SPECIAL EQUIPMENT)

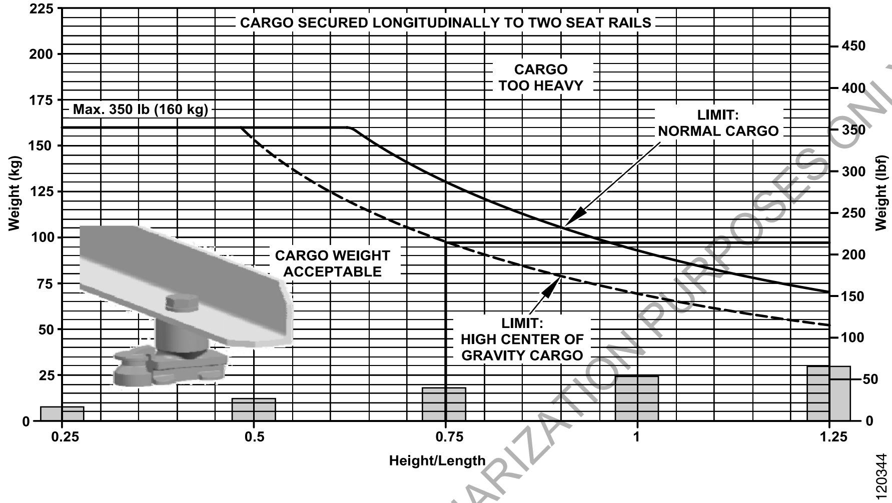

Figure 6-11. Cargo straddling two (2) seat rails: Angle Restraining Bar

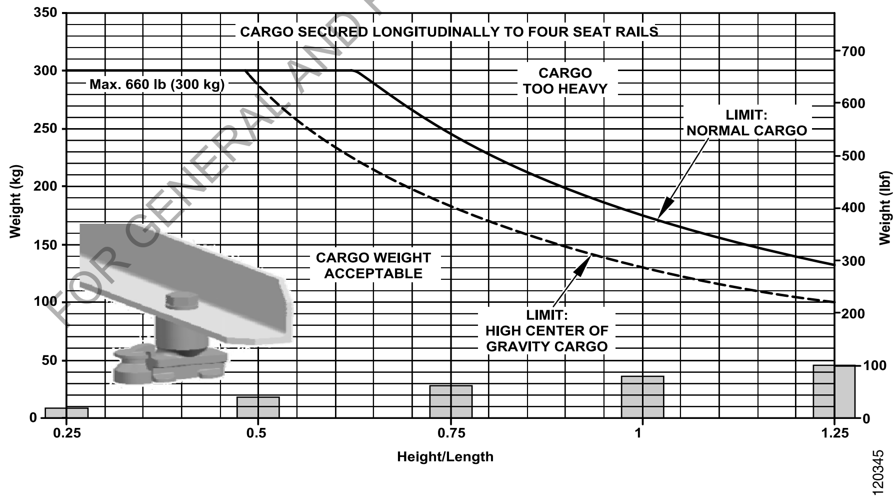

Figure 6-12. Cargo straddling four (4) seat rails: Angle Restraining Bar

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MAXIMUM ALLOWABLE WEIGHT PER SINGLE CONTAINER (WITHOUT SPECIAL EQUIPMENT)

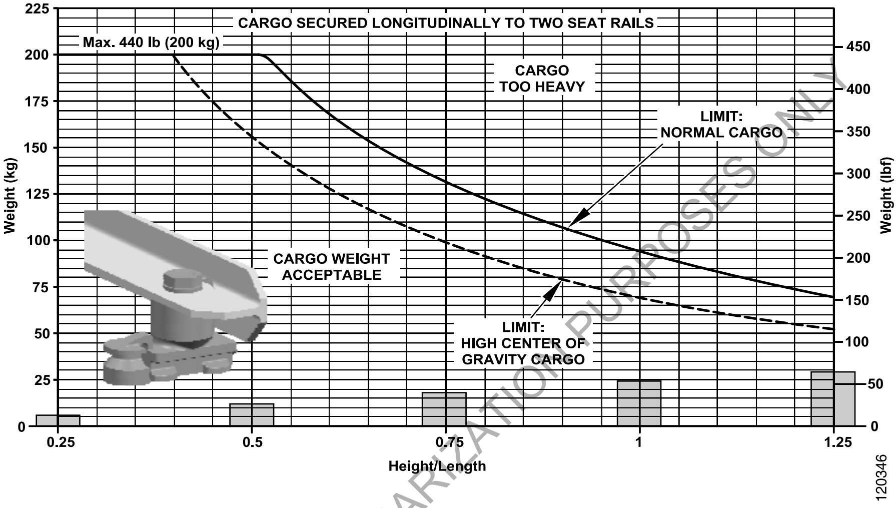

Figure 6-13. Cargo straddling two (2) seat rails: “T” Restraining Bar

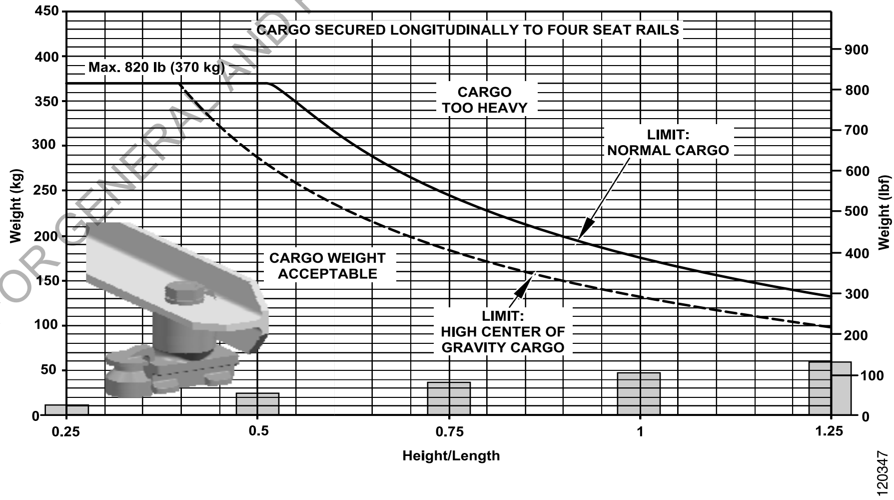

Figure 6-14. Cargo straddling four (4) seat rails: “T” Restraining Bar

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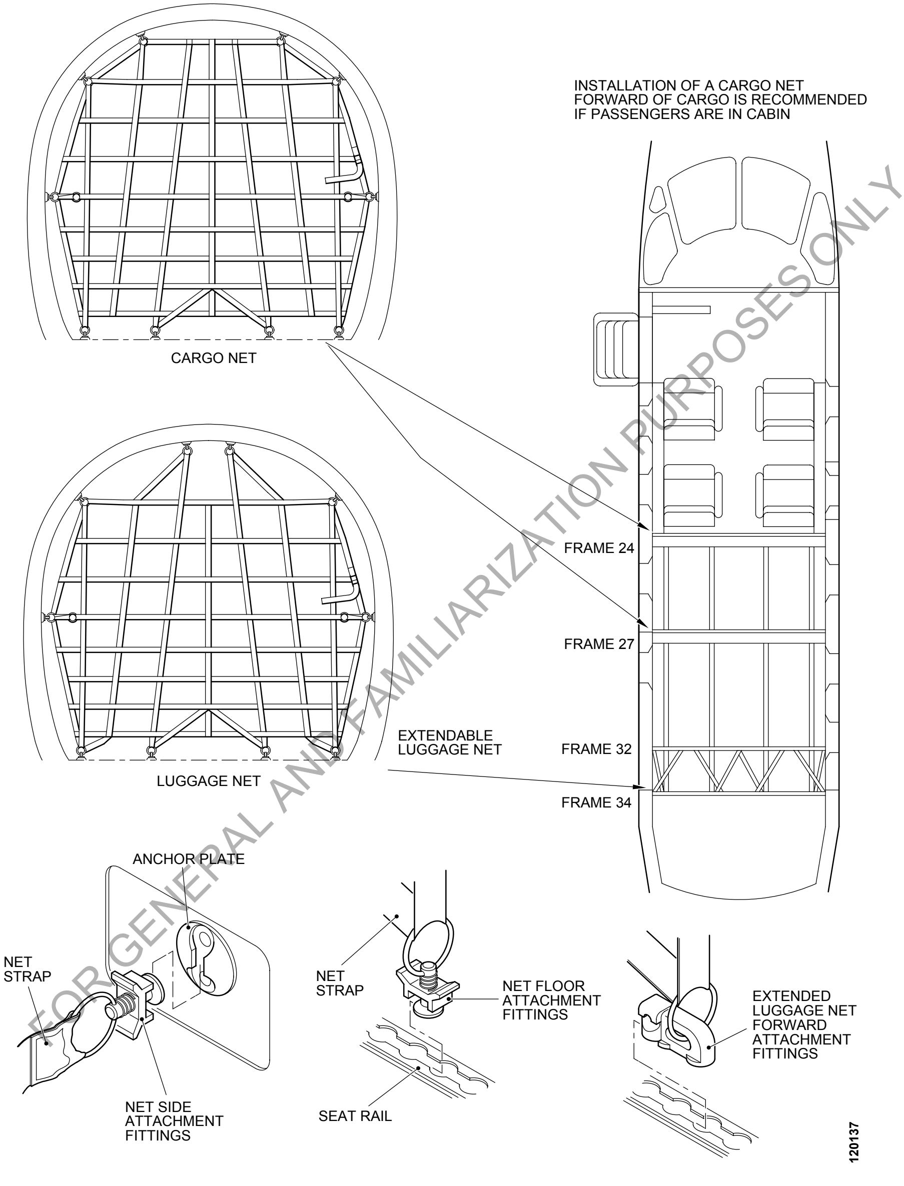

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Figure 6-15. Cargo and Luggage Restraint Installation

WEIGHT AND BALANCE DETERMINATION FOR FLIGHT

This section contains the crew seats, baggage, fuel load moments charts and C of G envelopes in LB-IN and MKG.

Refer to the Interior Configurations section for the passenger seat moments. Find the correct Moment Chart for the Interior Code No. of the aircraft.

An Example Loading Form and a blank Loading Form for owners/operators use are given in Figure 6-17. Instructions on how to use the charts, complete the loading form and to determine if center of gravity is within approved limits are given below.

COMPLETION OF THE LOADING FORM

Enter the current Running Basic Empty Weight and Total Moment from Figure 6-3 in the appropriate space on the Loading Form, Figure 6-17 (be careful to factor the moment by 1000 if appropriate).

Enter the weights of all of the crew, passengers, items stowed in cabinets and baggage to be loaded, in the appropriate space on the Loading Form, Figure 6-17.

Use the Moment Charts in Figure 6-16, to determine the moment for the crew and baggage.

Use the correct Interior Code No. Moment Chart in the Interior Configurations section, to determine the moment for the passengers.

Enter the moment of each item in the appropriate space on the Loading Form, Figure 6-17.

Add the weight and moment of all of the items to the Basic Empty Weight and Moment of the airplane to determine the Zero Fuel Weight and Moment. Divide the moment by the weight to determine the C.G. arm.

Locate this point in the C.G. Envelope, Figure 6-18. If the point falls within the envelope, the loading meets the weight and balance requirements.

Use the Moment Chart in Figure 6-16, to determine the moment of the fuel load.

Enter the weight and moment of the fuel in the appropriate space on the Loading Form, Figure 6-17.

Add the fuel weight and moment to the calculated Zero Fuel Weight and Moment to determine the Ramp Weight and Moment. Divide the moment by the weight to determine the C.G. arm.

Locate this point in the C.G. Envelope, Figure 6-18. If the point falls within the envelope, the loading meets the weight and balance requirements.

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Subtract the weight and moment of the fuel allowance for engine start and ground operations to determine Takeoff Weight and Moment. Divide the moment by the weight to determine the C.G. arm. Nose and main landing gear retraction or extension and flap retraction or extension weight and balance effects need not be considered by the pilot for the weight and balance calculation.

Locate this point in the C.G. Envelope, Figure 6-18. If the point falls within the envelope, the loading meets the weight and balance requirements for takeoff.

COMBI CONVERSION

A Combi Conversion can be made from the removal of cabin seats from a Corporate Commuter and the removal of cabin seats and furnishings from an Executive Interior aircraft. The Combi Interior consists of 2 crew seats and payload or a combination of seats and payload. Cargo nets can be installed to attachment points at frames 24 and 27. Refer to Section 2 for the Cargo Limitations.

The airplane is weighed at the factory before the time of delivery. When other interior configurations are required, adjust the Basic Empty Weight and Moment and complete the landing form as follows:

- Make a temporary mark on the seat rail at the forward edge of the Corporate Commuter Seat(s) or mark position of the Executive Seat attachment fittings of the seat(s) to be removed with masking tape or similar material to expedite re-installation. Remove the passenger seats and furnishings as required.
- Use the passenger seats and furnishings weight and moment data in the relevant Interior Code section and determine the total weight and moment difference of the interior items removed from the aircraft.

Example: Three Seat Bench removed. Frame 27 Cargo Net installed.

ITEM	WEIGHT LB (KG)	MOMENT LB IN (M KG)
Three Seat Bench	- 125.2 (56.8)	- 40586 (467.61)
Frame 27 Cargo Net	+ 3.6 (1.65)	+ 1049 (12.21)
Total Value	- 121.6 (55.15)	- 39537 (455.4)

NOTE: The moment figure is obtained by multiplying the weight of the item by the fuselage station given in the Seat Location Chart.

Enter the Total Value on line 2 of the Loading Form, Figure 6-17.

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- Calculate the cargo moment as follows:

  Locate one of the luggage net floor attachment points at frame 34.
  Measure distance from the attachment point to the center of the cargo i.e.35 in (0,889 m).
  The fuselage station dimension at the luggage net attachment point is 361.15 in (9,170 m)
  The arm of the cargo is the fuselage station dimension of the net attachment point minus the distance to the center of the cargo.

  Example: Distance to cargo center = 35 in (0,889 m)
  Net Fuselage Station = 361.15 in (9,170 m)
  Cargo Arm = 361.15 in – 35 in = 326.15 in (9,170 m – 0,889 m = 8,281 m)

  Enter the cargo arm and the weight of the cargo plus tie down straps and cargo arm on the Loading Form.

- Complete the remainder of the Loading Form as given above.

When re-installing the passenger seats, return the seats to their original positions and verify the dimensions as shown in the Seat Location Chart for the aircraft configuration. Secure the arresting pin on the Corporate Commuter Seat(s) or install the locking needles on the Executive Seat(s). Remove the temporary seat rail marks.

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CREW OCCUPANT MOMENTS (LB - IN) ARM 160.27 IN*							
WEIGHT lb	MOMENT lb - in*	WEIGHT lb	MOMENT lb - in*	WEIGHT lb	MOMENT lb - in*	WEIGHT lb	MOMENT lb - in*
50	8014	**100**	16027	**150**	24040	**200**	32054
60	9616	**110**	17630	**160**	25643	**210**	33657
70	11219	**120**	19232	**170**	27246	**220**	35259
80	12822	**130**	20835	**180**	28849	**230**	36862
90	14424	**140**	22438	**190**	30451	**240**	38465

* Arm for center position only. Adjust arm 0.69 inch for each hole from center position. Maximum seat travel is +/- 4 holes or +/- 2.76 inches from center position.

CREW OCCUPANT MOMENTS (Kg - m) ARM 4.071 m*							
WEIGHT kg	MOMENT Kg - m	WEIGHT kg	MOMENT kg - m	WEIGHT kg	MOMENT kg - m	WEIGHT kg	MOMENT kg - m
25	101.78	**50**	203.55	**75**	305.33	**100**	407.10
30	122.13	**55**	223.91	**80**	325.68	**105**	427.46
35	142.49	**60**	244.26	**85**	346.04	**110**	447.81
40	162.84	**65**	264.62	**90**	366.39	**115**	468.17
45	183.20	**70**	284.97	**95**	386.75	**120**	488.52

* Arm for center position only. Adjust arm 0.018 meter for each hole from center position. Maximum seat travel is +/- 4 holes or +/- 0.070 meters from center position.

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Figure 6-16. Moment Chart
(Sheet 1 of 4)

REAR BAGGAGE AREA MOMENTS (LB - IN) STANDARD NET AT FRAME 34 - ARM 371.0 IN							
WEIGHT lb	MOMENT lb - in	WEIGHT lb	MOMENT lb - in	WEIGHT lb	MOMENT lb - in	WEIGHT lb	MOMENT lb - in
10	3,710	110	40,810	210	77,910	310	115,010
20	7,420	120	44,520	220	81,620	320	118,720
30	11,130	130	48,230	230	85,330	330	122,430
40	14,840	140	51,940	240	89,040	340	126,140
50	18,550	150	55,650	250	92,750	350	129,850
60	22,260	160	59360	260	96,460	360	133,560
70	25,970	170	63,070	270	100,170	370	137,270
80	29,680	180	66,780	280	103,880	380	140,980
90	33,390	190	70,490	290	107,590	390	144,690
100	37,100	200	74,200	300	111,300	397	147,287

REAR BAGGAGE AREA MOMENTS (Kg - m) STANDARD NET AT FRAME 34 - ARM 9.420 M							
WEIGHT kg	MOMENT kg - m	WEIGHT kg	MOMENT kg - m	WEIGHT kg	MOMENT kg - m	WEIGHT kg	MOMENT kg - m
5	47.10	55	518.10	105	989.10	155	1460.10
10	94.20	60	565.20	110	1036.20	160	1507.20
15	141.30	65	612.30	115	1083.30	165	1554.30
20	188.40	70	659.40	120	1130.40	170	1601.40
25	235.50	75	706.50	125	1177.50	175	1648.50
30	282.60	80	753.60	130	1224.60	180	1695.60
35	329.70	85	800.70	135	1271.70		
40	376.80	90	847.80	140	1318.80		
45	423.90	95	894.90	145	1365.90		
50	471.00	100	942.00	150	1413.00		

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Figure 6-16. Moment Chart
(Sheet 2 of 4)

REAR BAGGAGE AREA MOMENTS (LB - IN) EXTENDABLE NET AT FRAME 32 - ARM 361.0 IN							
WEIGHT lb	**MOMENT** lb - in	**WEIGHT** lb	**MOMENT** lb - in	**WEIGHT** lb	**MOMENT** lb - in	**WEIGHT** lb	**MOMENT** lb - in
10	3610	140	50543	270	97476	400	144409
20	7220	150	54154	280	101087	410	148020
30	10831	160	57764	290	104697	420	151630
40	14441	170	61374	300	108307	430	155240
50	18051	180	64984	310	111917	440	158850
60	21661	190	68594	320	115528	450	162461
70	25272	200	72205	330	119138	460	166071
80	28882	210	75815	340	122748	470	169681
90	32492	220	79425	350	126358	480	173291
100	36102	230	83035	360	129969	490	176902
110	39713	240	86646	370	133579	500	180512
120	43323	250	90256	380	137189		
130	46933	260	93866	390	140799		

REAR BAGGAGE AREA MOMENTS (Kg - m) EXTENDABLE NET AT FRAME 32 - ARM 9.17 M							
WEIGHT kg	**MOMENT** kg - m	**WEIGHT** kg	**MOMENT** kg - m	**WEIGHT** kg	**MOMENT** kg - m	**WEIGHT** kg	**MOMENT** kg - m
5	45.85	70	641.90	135	1237.95	200	1834.00
10	91.70	75	687.75	140	1283.80	205	1879.85
15	137.55	80	733.60	145	1329.65	210	1925.70
20	183.40	85	779.45	150	1375.50	215	1971.55
25	229.25	90	825.30	155	1421.35	220	2017.40
30	275.10	95	871.15	160	1467.20	225	2063.25
35	320.95	100	917.00	165	1513.05		
40	366.80	105	962.85	170	1558.90		
45	412.65	110	1008.70	175	1604.75		
50	458.50	115	1054.55	180	1650.60		
55	504.35	120	1100.40	185	1696.45		
60	550.20	125	1146.25	190	1742.30		
65	596.05	130	1192.10	195	1788.15		

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Figure 6-16. Moment Chart
(Sheet 3 of 4)

FUEL LOAD MOMENTS (LB - IN)							
WEIGHT lb	MOMENT lb - in	WEIGHT lb	MOMENT lb - in	WEIGHT lb	MOMENT lb - in	WEIGHT lb	MOMENT lb - in
100	22572	800	183555	1500	347656	2200	511463
200	45161	900	207111	1600	371079	2300	534839
300	67776	1000	230572	1700	394500	2400	558130
400	90443	1100	253974	1800	417912	2500	581450
500	113351	1200	277441	1900	441347	2600	604724
600	136538	1300	300811	2000	464746	2700	628029
700	159955	1400	324221	2100	488120		

FUEL LOAD MOMENTS (Kg - m)							
WEIGHT kg	MOMENT kg - m	WEIGHT kg	MOMENT kg - m	WEIGHT kg	MOMENT kg - m	WEIGHT kg	MOMENT kg - m
50	286.64	400	2337.14	750	4419.61	1100	6497.53
100	573.59	450	2635.13	800	4717.33	1150	6793.90
150	860.84	500	2932.34	850	5014.59	1200	7090.37
200	1149.27	550	3230.45	900	5312.14	1250	7385.69
250	1441.88	600	3526.99	950	5608.06		
300	1738.40	650	3824.03	1000	5905.10		
350	2037.52	700	4122.29	1050	6201.26		

NOTE

Unusable fuel is considered in empty weight. The chart shows only additional fuel.

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Figure 6-16. Moment Chart
(Sheet 4 of 4)

PC-12/45 EXAMPLE LOADING FORM	INTERIOR CODE: STD-9S		
ITEM	**WEIGHT lb**	**ARM AFT OF DATUM in (m)**	**MOMENT lb-in**
1. **Basic Empty Weight**	5613	225.16 (5.719)	1263823
2. Combi Interior Conversion	NA	NA	NA
3. Pilot	170	160.27 (4.071)	27246
4. Copilot (Right Seat Passenger)	170	160.27 (4.071)	27246
5. Passenger 1	170	215.00 (5.461)	36550
6. Passenger 2	170	212.03 (5.386)	36045
7. Passenger 3	170	248.00 (6.299)	42160
8. Passenger 4	170	245.03 (6.224)	41655
9. Passenger 5	170	281.00 (7.137)	47770
10. Passenger 6	170	278.05 (7.062)	47269
11. Passenger 7	170	314.00 (7.976)	53380
12. Passenger 8	170	311.03 (7.900)	52875
13. Passenger 9	170	344.03 (8.738)	58485
14. Optional Wardrobe		191.00 (4.851)	
15. LH Cabinet		212.10 (5.387)	
16. RH Cabinet		211.19 (5.364)	
17. a. Rear Baggage (net at frame 32) b. Rear Baggage (net at frame 34)	215	361.00 (9.170) 371.00 (9.423)	79765
18. Cargo			
19. **Zero Fuel Weight** MZFW 9039 lb (4100 kg) (Sum of 1 thru 18)	7698	235.68	1814269
20. Fuel	1650	-	382790
21. **Ramp Weight** MRW 9965 lb (4520 kg) (Sum of 19 + 20)	9348	235.03	2197059
22. Less Fuel for Ground Operations	-40	-	-
23. Fuel at Takeoff (Sum of 20 + 22)	1610	-	373421
24. **Takeoff Weight** MTOW 9921 lb (4500 kg) (Sum of 19 + 23)	9308	235.03	2187690

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Figure 6-17. Example Loading Form (Sheet 1 of 2)

PC-12/45 LOADING FORM	INTERIOR CODE:		
ITEM	WEIGHT lb (kg)	ARM AFT OF DATUM in (m)	MOMENT lb-in (kg-m)
1. **Basic Empty Weight**			
2. Combi Interior Conversion			
3. Pilot		160.27 (4.071)	
4. Copilot (Right Seat Passenger)		160.27 (4.071)	
5. Passenger 1			
6. Passenger 2			
7. Passenger 3			
8. Passenger 4			
9. Passenger 5			
10. Passenger 6			
11. Passenger 7			
12. Passenger 8			
13. Passenger 9			
14. Optional Wardrobe		191.00 (4.851)	
15. LH Cabinet		212.10 (5.387)	
16. RH Cabinet		211.19 (5.364)	
17. a. Rear Baggage (net at frame 32) b. Rear Baggage (net at frame 34)		361.00 (9.170) 371.00 (9.423)	
18. Cargo			
19. **Zero Fuel Weight** MZFW 9039 lb (4100 kg) (Sum of 1 thru 18)			
20. Fuel		-	
21. **Ramp Weight** MRW 9965 lb (4520 kg) (Sum of 19 + 20)			
22. Less Fuel for Ground Operations		-	-
23. Fuel at Takeoff (Sum of 20 + 22)			
24. **Takeoff Weight** MTOW 9921 lb (4500 kg) (Sum of 19 + 23)			

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Figure 6-17. Loading Form (Sheet 2 of 2)

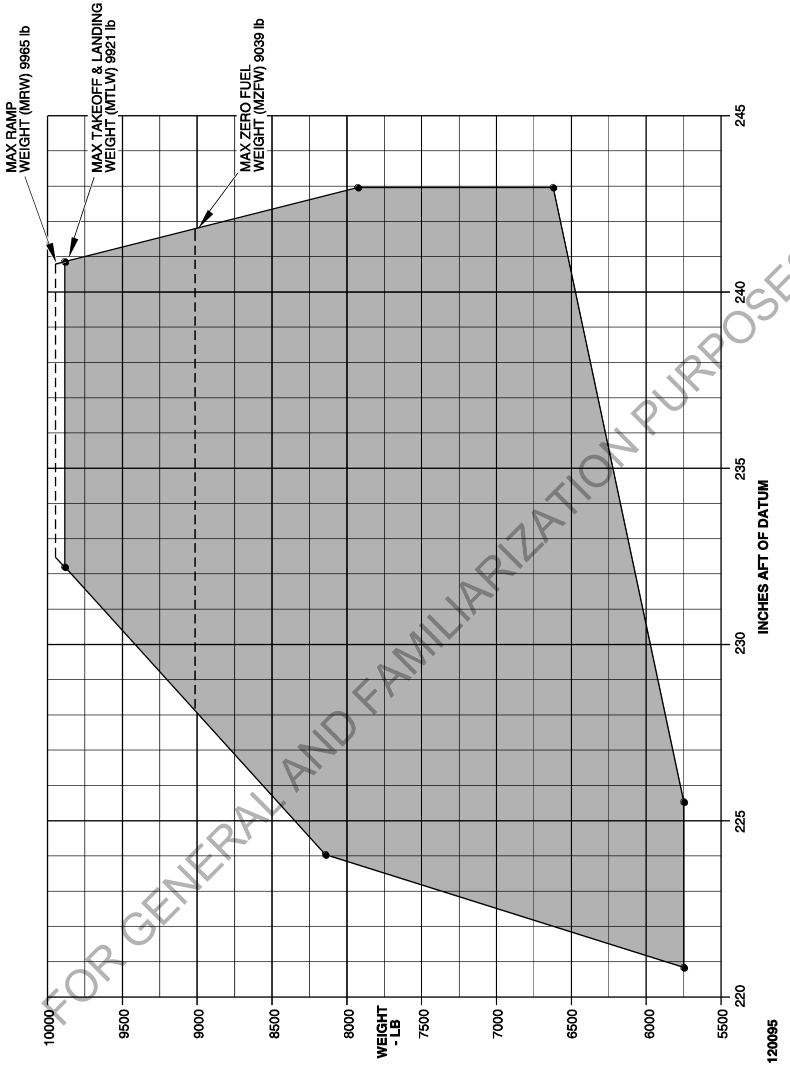

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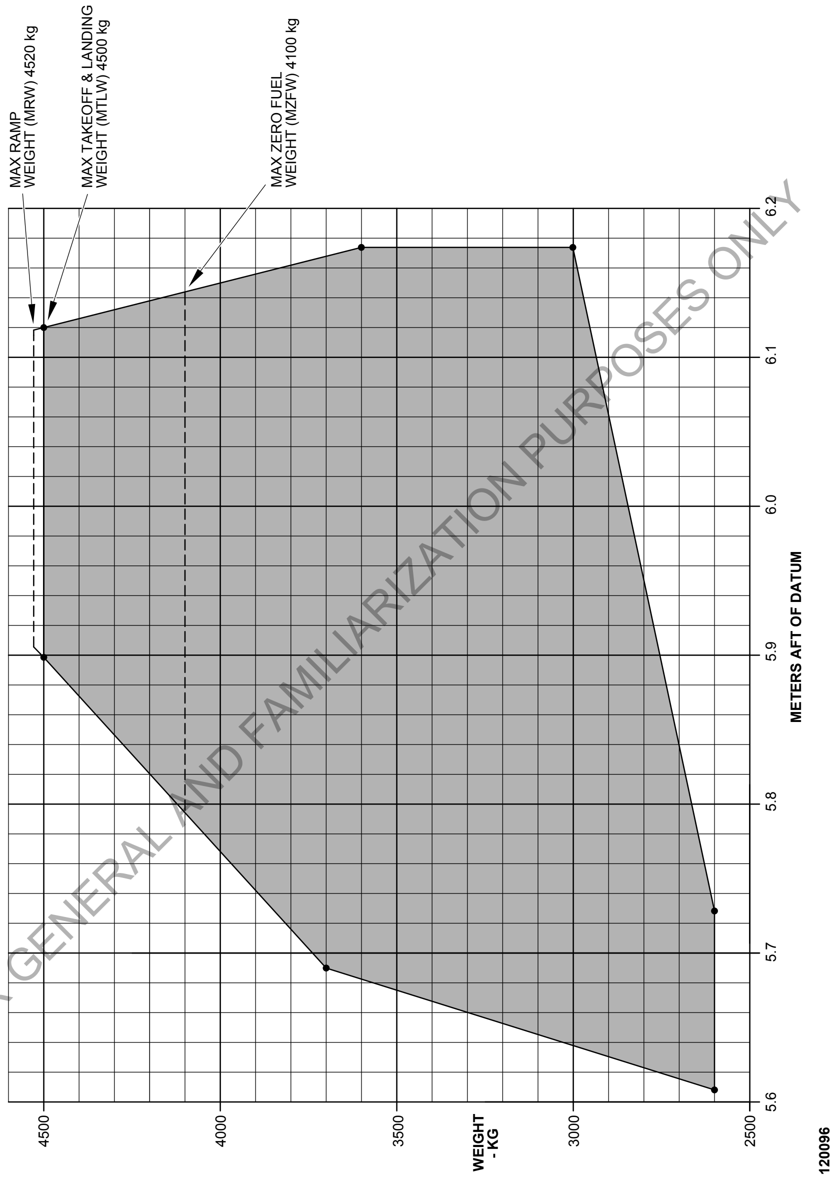
Figure 6-18. C. G. Envelope
(Sheet 1 of 2)



FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Figure 6-18. C. G. Envelope
(Sheet 2 of 2)

EQUIPMENT LIST

Refer to Pilatus Report No. 02047, Airplane equipment List, attached to the back of this report. The equipment list itemizes the installed equipment included in the Basic Empty Weight indicated in Figure 6-2 of this Airplane Flight Manual.

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INTERIOR CONFIGURATIONS

The PC-12 was designed and certified initially with two basic cabin interior configurations, a Corporate Commuter (Code STD-9S) and an Executive interior (Code EX-6S). The Corporate Commuter interior consists of two crew seats and 9 standard passenger seats. The Executive interior consists of two crew seats and 6 executive seats with forward storage cabinets and a toilet.

Variations to the two basic interior configurations are continuously being developed. The various configurations that have been approved are given below. Before using them it is the operators responsibility to check whether they require authorization by their regulatory authority. Some of the configurations require structural and system modifications, check with the Service Bulletin Index for the applicable SB's.

A Code Number is given to each interior configuration. The code is shown on a placard which is installed on the cargo door frame. The placard code gives the type and number of seats that are installed in the aircraft. Before making any changes to the interior configuration, contact Pilatus to make sure that any modification work or SB's are identified for embodiment. The placard must then be changed to show the correct code for the new configuration.

It is possible for aircraft with the executive interior to have more than one placard installed on the cargo door frame. The removal or installation of the rear seats must be done in accordance with an approved configuration. The correct weight and moment charts for the configuration must then be used for weight and balance determination for flight.

An optional three seat bench can be installed at the rear of the cabin in a Corporate Commuter and an Executive aircraft. A large baggage net can be installed in these configurations.

The following code numbers have been allocated and the seat locations are given in the following sub-sections:

- CORPORATE COMMUTER Interior Layout CODE STD-9S (nine standard seats)
- CORPORATE COMMUTER Interior Layout CODE STD-6S-3B (six standard seats and three seat bench)
- EXECUTIVE Interior Layout CODE EX-6S (six executive seats)
- EXECUTIVE Interior Layout CODE EX-8S (eight executive seats)
- EXECUTIVE Interior Layout CODE EX-4S-3B (four executive seats and three seat bench)
- EXECUTIVE Interior Layout CODE EX-6S-STD-2S (six executive seats and two standard seats)
- EXECUTIVE Interior Layout CODE EX-4S-STD-4S (four executive seats and four standard seats)

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CORPORATE COMMUTER INTERIOR CODE STD-9S

GENERAL

The basic Corporate Commuter Interior consisting of 9 standard passenger seats. The section contains the following information:

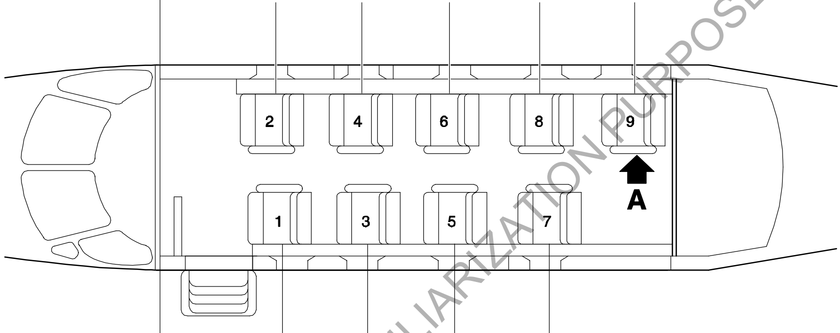
- passenger seat location chart
- permitted passenger seat Part Nos. that can be installed
- passenger seat and furnishings weight and moment chart (standard and metric units)
- passenger seat occupant moment charts (standard and metric units)

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

CORPORATE COMMUTER INTERIOR CODE STD-9S

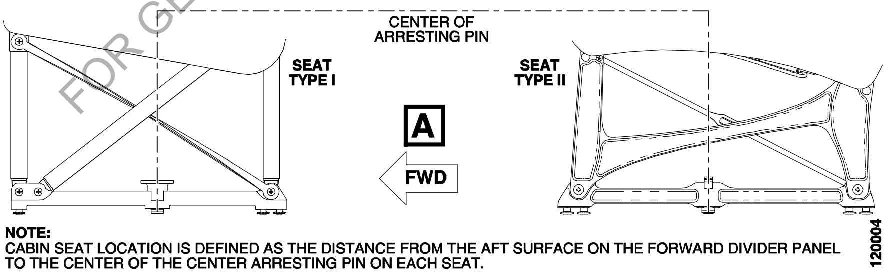
SEAT LOCATIONS

SEAT TYPE I	FUSELAGE STATION	179.88" 4.569 m	211.13" 5.363 m	244.13" 6.201 m	277.13" 7.039 m	310.13" 7.877 m	343.13" 8.716 m
SEAT TYPE I	DISTANCE FROM DIVIDER AFT SURFACE	0" 0 m	31.25" 0.794 m	64.25" 1.632 m	97.25" 2.470 m	130.25" 3.308 m	163.25" 4.147 m
SEAT TYPE II	FUSELAGE STATION	179.88" 4.569 m	209.13" 5.312 m	242.13" 6.150 m	275.13" 6.988 m	308.13" 7.827 m	341.13" 8.665 m
SEAT TYPE II	DISTANCE FROM DIVIDER AFT SURFACE	0" 0 m	29.25" 0.743 m	62.25" 1.581 m	95.25" 2.419 m	128.25" 3.258 m	161.25" 4.096 m
			PAX 2	PAX 4	PAX 6	PAX 8	PAX 9



			PAX 1	PAX 3	PAX 5	PAX 7
SEAT TYPE I	DISTANCE FROM DIVIDER AFT SURFACE	0" 0 m	34.25" 0.870 m	67.25" 1.708 m	100.25" 2.546 m	133.25 3.385 m
SEAT TYPE I	FUSELAGE STATION	179.88" 4.569 m	214.13" 5.439 m	247.13 6.277 m	280.13" 7.115 m	313.13" 7.954 m
SEAT TYPE II	DISTANCE FROM DIVIDER AFT SURFACE	0" 0 m	32.25" 0.819 m	65.25" 1.657 m	98.25" 2.496 m	131.25 3.334 m
SEAT TYPE II	FUSELAGE STATION	179.88" 4.569 m	212.13" 5.388 m	245.13 6.226 m	278.13" 7.065 m	311.13" 7.903 m

NOTE: PAX 9 SEAT INSTALLATION IS NOT PERMITTED ON THE LEFT HAND SIDE OF THE AIRPLANE CABIN.



NOTE:
CABIN SEAT LOCATION IS DEFINED AS THE DISTANCE FROM THE AFT SURFACE ON THE FORWARD DIVIDER PANEL TO THE CENTER OF THE CENTER ARRESTING PIN ON EACH SEAT.

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CORPORATE COMMUTER INTERIOR CODE STD-9S

PERMITTED PASSENGER SEAT PART Nos. THAT CAN BE INSTALLED

SEAT TYPE I				
	PC-12		PC-12/45 AND PC-12/47	
SEAT NO.	FIXED CUSHIONS	REMOVABLE CUSHIONS	FIXED CUSHIONS	REMOVABLE CUSHIONS
1,3,5,7	959.30.01.501 959.30.01.503 959.30.01.505 959.30.01.507 959.30.01.509 959.30.01.511 959.30.01.513 959.30.01.515 959.30.01.517 959.30.01.519	525.22.12.011	959.30.01.511 959.30.01.513 959.30.01.515 959.30.01.517 959.30.01.519	525.22.12.011
2,4,6,8,9	959.30.01.502 959.30.01.504 959.30.01.506 959.30.01.508 959.30.01.510 959.30.01.512 959.30.01.514 959.30.01.516 959.30.01.518 959.30.01.520	525.22.12.012	959.30.01.512 959.30.01.514 959.30.01.516 959.30.01.518 959.30.01.520	525.22.12.012

NOTE: The lap belt extension Part No. 959.30.01.588 or Part No. 959.30.01.590 can be installed on all of the above seats.

SEAT TYPE II	
SEAT NO.	PC-12, PC-12/45 AND PC-12/47
1,3,5,7	959.30.01.445 959.30.01.447
2,4,6,8,9	959.30.01.446 959.30.01.448

NOTE: It is not allowed to install TYPE I and II seats behind each other.

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CORPORATE COMMUTER INTERIOR CODE STD-9S

PASSENGER SEATS AND FURNISHINGS WEIGHT AND MOMENT CHART

	SEAT TYPE I		SEAT TYPE II	
ITEM	WEIGHT LB (KG)	MOMENT LB-IN (KG-M)	WEIGHT LB (KG)	MOMENT LB-IN (KG-M)
PASS SEAT 1	29.10 (13.2)	6358 (73.25)	31.60 (14.3)	6890 (79.38)
PASS SEAT 2	29.10 (13.2)	6271 (72.25)	31.60 (14.3)	6795 (78.29)
PASS SEAT 3	29.10 (13.2)	7318 (84.31)	31.60 (14.3)	7933 (91.40)
PASS SEAT 4	29.10 (13.2)	7231 (83.32)	31.60 (14.3)	7838 (90.30)
PASS SEAT 5	29.10 (13.2)	8278 (95.38)	31.60 (14.3)	8975 (103.41)
PASS SEAT 6	29.10 (13.2)	8192 (94.38)	31.60 (14.3)	8881 (102.32)
PASS SEAT 7	29.10 (13.2)	9239 (106.44)	31.60 (14.3)	10018 (115.42)
PASS SEAT 8	29.10 (13.2)	9152 (105.44)	31.60 (14.3)	9923 (114.33)
PASS SEAT 9	29.10 (13.2)	10112 (116.51)	31.60 (14.3)	10966 (126.35)
FR 24 CARGO NET	3.6 (1.65)	941 (10.96)	3.6 (1.65)	941 (10.96)
FR 27 CARGO NET	3.6 (1.65)	1049 (12.21)	3.6 (1.65)	1049 (12.21)
FR 32 EXTENDABLE BAGGAGE NET	6.44 (2.92)	2325 (26.78)	6.44 (2.92)	2325 (26.78)
FR 34 BAGGAGE NET	5.13 (2.325)	1855 (21.38)	5.13 (2.325)	1855 (21.38)

Adjust the aircraft Basic Empty Weight on the Loading Form for items removed/added when converting to or from a Combi Interior Conversion.

When installing the extendable baggage net refer to Section 2 for the Luggage Limitations.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

CORPORATE COMMUTER INTERIOR CODE STD-9S

PASSENGER SEAT OCCUPANT MOMENT CHART

PASSENGER SEAT TYPE I & II OCCUPANT MOMENTS (LB - IN)									
WEIGHT lb	PAX 1 215.00 in	PAX 2 212.00 in	PAX 3 248.00 in	PAX 4 245.00 in	PAX 5 281.00 in	PAX 6 278.00 in	PAX 7 314.00 in	PAX 8 311.00 in	PAX 9 344.00 in
50	10750	10602	12400	12252	14050	13902	15700	15552	17202
60	12900	12722	14880	14702	16860	16682	18840	18662	20642
70	15050	14842	17360	17152	19670	19462	21980	21772	24082
80	17200	16963	19840	19603	22480	22243	25120	24883	27523
90	19350	19083	22320	22053	25290	25023	28260	27993	30963
100	21500	21203	24800	24503	28100	27803	31400	31103	34403
110	23650	23323	27280	26953	30910	30583	34540	34213	37843
120	25800	25444	29760	29404	33720	33364	37680	37324	41284
130	27950	27564	32240	31854	36530	36144	40820	40434	44724
140	30100	29684	34720	34304	39340	38924	43960	43544	48164
150	32250	31805	37200	36755	42150	41705	47100	46655	51605
160	34400	33925	39680	39205	44960	44485	50240	49765	55045
170	36550	36045	42160	41655	47770	47265	53380	52875	58485
180	38700	38166	44640	44106	50580	50046	56520	55986	61926
190	40850	40286	47120	46556	53390	52826	59660	59096	65366
200	43000	42406	49600	49006	56200	55606	62800	62206	68806
210	45150	44527	52080	51457	59010	58387	65940	65317	72247
220	47300	46647	54560	53907	61820	61167	69080	68427	75687
230	49450	48767	57040	56357	64630	63947	72220	71537	79127
240	51600	50888	59520	58808	67440	66728	75360	74648	82568

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CORPORATE COMMUTER INTERIOR CODE STD-9S

PASSENGER SEAT OCCUPANT MOMENT CHART

PASSENGER SEAT TYPE I & II OCCUPANT MOMENTS (KG - M)									
WEIGHT kg	PAX 1 5.461 m	PAX 2 5.386 m	PAX 3 6.299 m	PAX 4 6.224 m	PAX 5 7.137 m	PAX 6 7.062 m	PAX 7 7.976 m	PAX 8 7.900 m	PAX 9 8.738 m
25	136.5	134.6	157.5	155.6	178.4	176.6	199.4	197.5	218.5
30	163.8	161.6	189.0	186.7	214.1	211.9	239.3	237.0	262.2
35	191.1	188.5	220.5	217.8	249.8	247.2	279.1	276.5	305.8
40	218.4	215.4	252.0	249.0	285.5	282.5	319.0	316.0	349.5
45	245.7	242.4	283.5	280.1	321.2	317.8	358.9	355.5	393.2
50	273.1	269.3	315.0	311.2	356.9	353.1	398.8	395.0	436.9
55	300.4	296.2	346.5	342.3	392.6	388.4	438.7	434.5	480.6
60	327.7	323.1	378.0	373.4	428.2	423.7	478.5	474.0	524.3
65	355.0	350.1	409.4	404.5	463.9	459.0	518.4	513.5	568.0
70	382.3	377.0	440.9	435.7	499.6	494.3	558.3	553.0	611.7
75	409.6	403.9	472.4	466.8	535.3	529.7	598.2	592.5	655.4
80	436.9	430.8	503.9	497.9	571.0	565.0	638.0	632.0	699.1
85	464.2	457.8	535.4	529.0	606.7	600.3	677.9	671.5	742.8
90	491.5	484.7	566.9	560.1	642.4	635.6	717.8	711.0	786.5
95	518.8	511.6	598.4	591.3	678.1	670.9	757.7	750.5	830.1
100	546.1	538.6	629.9	622.4	713.7	706.2	797.6	790.0	873.8
105	573.4	565.5	661.4	653.5	749.4	741.5	837.4	829.5	917.5
110	600.7	592.4	692.9	684.6	785.1	776.8	877.3	869.0	961.2
115	628.0	619.3	724.4	715.7	820.8	812.1	917.2	908.5	1004.9
120	655.3	646.3	755.9	746.9	856.5	847.4	957.1	948.0	1048.6

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CORPORATE COMMUTER INTERIOR CODE STD-6S-3B

GENERAL

This configuration is a variation of the basic Corporate Commuter interior and consists of 6 standard passenger seats and a 3 seat bench. It is the operator's responsibility to check before using this configuration whether they require authorization by their regulatory authority. The following information is given:

- passenger seat location chart.
- permitted passenger seat Part Nos. that can be installed.
- passenger seats and furnishings weight and moment chart (standard and metric units).
- passenger seat occupant moment charts (standard and metric units).

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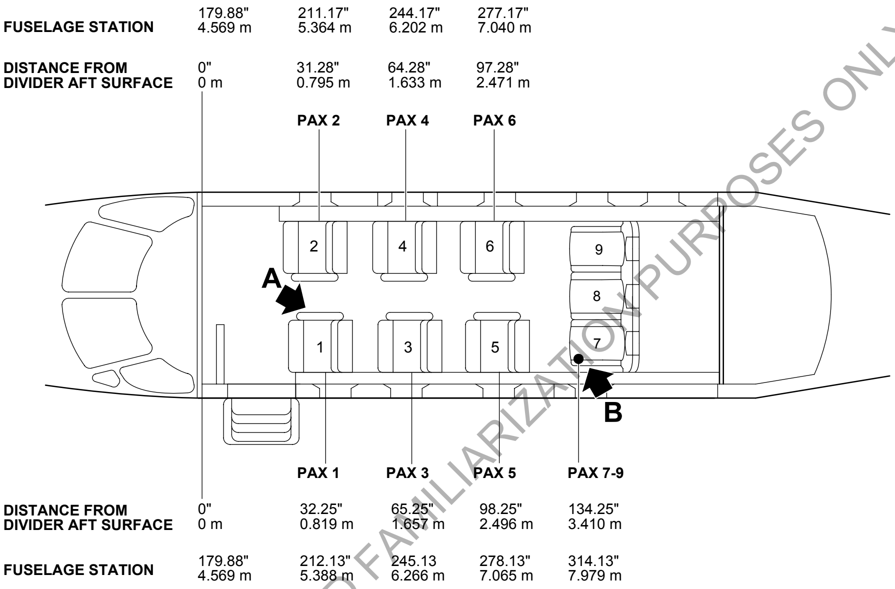
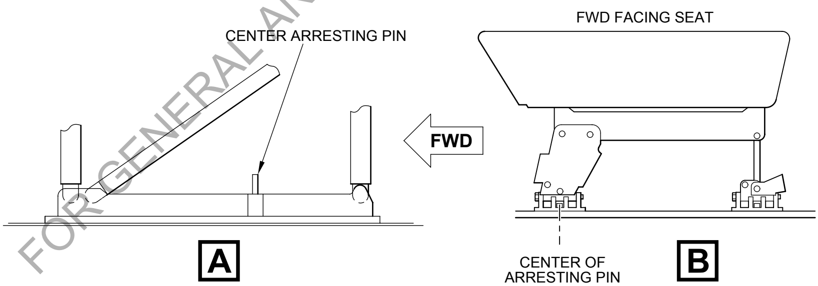
CORPORATE COMMUTER INTERIOR CODE STD-6S-3B

SEAT LOCATIONS





NOTE:

CABIN SEAT 1 THRU 6 LOCATION IS DEFINED AS THE DISTANCE FROM THE AFT SURFACE ON THE FORWARD DIVIDER PANEL TO THE CENTER OF THE CENTER ARRESTING PIN ON EACH SEAT.

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CORPORATE COMMUTER INTERIOR CODE STD-6S-3B

PERMITTED PASSENGER SEAT PART Nos. THAT CAN BE INSTALLED

	PC-12		PC-12/45	
SEAT NO.	**FIXED CUSHIONS**	**REMOVABLE CUSHIONS**	**FIXED CUSHIONS**	**REMOVABLE CUSHIONS**
1,3,5	959.30.01.501 959.30.01.503 959.30.01.505 959.30.01.507 959.30.01.509 959.30.01.511 959.30.01.513 959.30.01.515 959.30.01.517 959.30.01.519	525.22.12.011	959.30.01.511 959.30.01.513 959.30.01.515 959.30.01.517 959.30.01.519	525.22.12.011
2,4,6	959.30.01.502 959.30.01.504 959.30.01.506 959.30.01.508 959.30.01.510 959.30.01.512 959.30.01.514 959.30.01.516 959.30.01.518 959.30.01.520	525.22.12.012	959.30.01.512 959.30.01.514 959.30.01.516 959.30.01.518 959.30.01.520	525.22.12.012
7,8,9	959.30.01.801 959.30.01.802 959.30.01.803 959.30.01.804 959.30.01.805 (Bench Seat)	959.30.01.801 959.30.01.802 959.30.01.803 959.30.01.804 959.30.01.805 (Bench Seat)	959.30.01.801 959.30.01.802 959.30.01.803 959.30.01.804 959.30.01.805 (Bench Seat)	959.30.01.801 959.30.01.802 959.30.01.803 959.30.01.804 959.30.01.805 (Bench Seat)

NOTES: The extendable baggage net can be used with this interior.

The lap belt extension Part No. 959.30.01.588 or Part No. 959.30.01.590 can be installed on seats 1 thru 6 only.

A bulkhead plus curtain Part No. 525.24.12.021 can be installed at frame 32.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

CORPORATE COMMUTER INTERIOR CODE STD-6S-3B

PASSENGER SEATS AND FURNISHINGS WEIGHT AND MOMENT CHART

ITEM	WEIGHT LB (KG)	MOMENT LB-IN (KG-M)
PASS SEAT 1	29.10 (13.2)	6299 (72.57)
PASS SEAT 2	29.10 (13.2)	6271 (72.25)
PASS SEAT 3	29.10 (13.2)	7260 (83.64)
PASS SEAT 4	29.10 (13.2)	7231 (83.32)
PASS SEAT 5	29.10 (13.2)	8220 (94.70)
PASS SEAT 6	29.10 (13.2)	8192 (94.38)
PASS SEAT 7, 8, 9	125.20 (56.8)	40586 (467.61)
FR 24 CARGO NET	3.6 (1.65)	941 (10.96)
FR 27 CARGO NET	3.6 (1.65)	1049 (12.21)
FR 32 EXTENDABLE BAGGAGE NET	6.44 (2.92)	2325 (26.78)
FR 34 BAGGAGE NET	5.13 (2.325)	1855 (21.38)

Adjust the aircraft Basic Empty Weight on the Loading Form for items removed/added when converting to or from a Combi Interior Conversion.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

CORPORATE COMMUTER INTERIOR CODE STD-6S-3B

PASSENGER SEAT OCCUPANT MOMENT CHART

PASSENGER SEAT OCCUPANT MOMENTS (LB - IN)									
WEIGHT lb	PAX 1 213.00 in	PAX 2 212.03 in	PAX 3 246.00 in	PAX 4 245.03 in	PAX 5 279.00 in	PAX 6 278.03 in	PAX 7 321.12 in	PAX 8 321.12 in	PAX 9 321.12 in
50	10650	10602	12300	12252	13950	13902	16056	16056	16056
60	12780	12722	14760	14702	16740	16682	19267	19267	19267
70	14910	14842	17220	17152	19530	19462	22478	22478	22478
80	17040	16963	19680	19603	22320	22243	25690	25690	25690
90	19170	19083	22140	22053	25110	25023	28901	28901	28901
100	21300	21203	24600	24503	27900	27803	32112	32112	32112
110	23430	23323	27060	26953	30690	30583	35323	35323	35323
120	25560	25444	29520	29404	33480	33364	38534	38534	38534
130	27689	27564	31979	31854	36269	36144	41746	41746	41746
140	29819	29684	34439	34304	39059	38924	44957	44957	44957
150	31949	31805	36899	36755	41849	41705	48168	48168	48168
160	34079	33925	39359	39205	44639	44485	51379	51379	51379
170	36209	36045	41819	41655	47429	47265	54590	54590	54590
180	38339	38166	44279	44106	50219	50046	57802	57802	57802
190	40469	40286	46739	46556	53009	52826	61013	61013	61013
200	42599	42406	49199	49006	55799	55606	64224	64224	64224
210	44729	44527	51659	51457	58589	58387	67435	67435	67435
220	46859	46647	54119	53907	61379	61167	70646	70646	70646
230	48989	48767	56579	56357	64169	63947	73858	73858	73858
240	51119	50888	59039	58808	66959	66728	77069	77069	77069

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

CORPORATE COMMUTER INTERIOR CODE STD-6S-3B

PASSENGER SEAT OCCUPANT MOMENT CHART

PASSENGER SEAT OCCUPANT MOMENTS (KG - M)									
WEIGHT kg	PAX 1 5.410 m	PAX 2 5.386 m	PAX 3 6.248 m	PAX 4 6.224 m	PAX 5 7.087 m	PAX 6 7.061 m	PAX 7 8.156 m	PAX 8 8.156 m	PAX 9 8.156 m
25	135.25	134.64	156.21	155.60	177.16	176.55	203.91	203.91	203.91
30	162.30	161.57	187.45	186.71	212.60	211.86	244.69	244.69	244.69
35	189.35	188.50	218.69	217.83	248.03	247.17	285.48	285.48	285.48
40	216.40	215.42	249.93	248.95	283.46	282.48	326.26	326.26	326.26
45	243.45	242.35	281.17	280.07	318.89	317.79	367.04	367.04	367.04
50	270.51	269.28	312.42	311.19	354.33	353.10	407.82	407.82	407.82
55	297.56	296.21	343.66	342.31	389.76	388.41	448.60	448.60	448.60
60	324.61	323.14	374.90	373.43	425.19	423.72	489.39	489.39	489.39
65	351.66	350.06	406.14	404.55	460.62	459.03	530.17	530.17	530.17
70	378.71	376.99	437.38	435.67	496.06	494.34	570.95	570.95	570.95
75	405.76	403.92	468.62	466.79	531.49	529.65	611.73	611.73	611.73
80	432.81	430.85	499.86	497.90	566.92	564.96	652.52	652.52	652.52
85	459.86	457.78	531.11	529.02	602.35	600.27	693.30	693.30	693.30
90	486.91	484.70	562.35	560.14	637.79	635.58	734.08	734.08	734.08
95	513.96	511.63	593.59	591.26	673.22	670.89	774.86	774.86	774.86
100	541.01	538.56	624.83	622.38	708.65	706.20	815.64	815.64	815.64
105	568.06	565.49	656.07	653.50	744.08	741.51	856.43	856.43	856.43
110	595.11	592.42	687.31	684.62	779.52	776.82	897.21	897.21	897.21
115	622.16	619.34	718.55	715.74	814.95	812.13	937.99	937.99	937.99
120	649.21	646.27	749.80	746.86	850.38	847.44	978.77	978.77	978.77

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

EXECUTIVE INTERIOR CODE EX 6S-2

GENERAL

The basic Executive Interior consisting of 6 executive passenger seats. The section contains the following information:

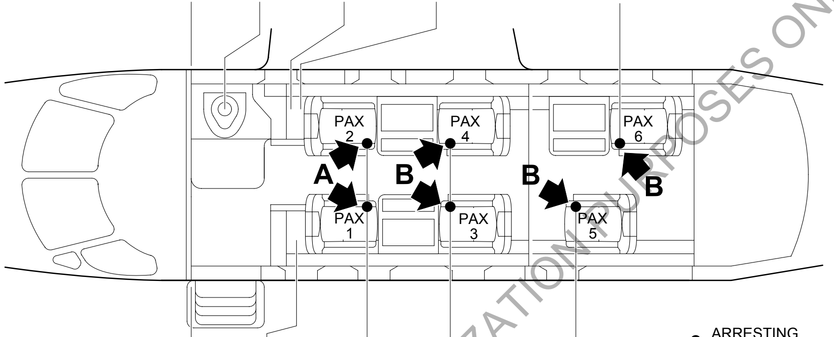
- passenger seat location chart
- permitted passenger seat Part Nos. that can be installed
- passenger seats and furnishings weight and moment chart (standard and metric units)
- passenger seat occupant moment charts (standard and metric units)

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

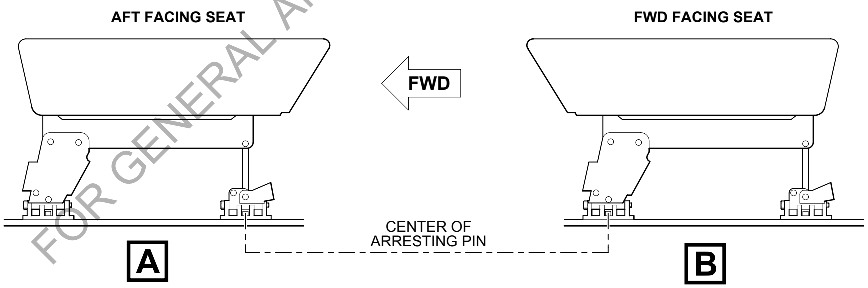
EXECUTIVE INTERIOR CODE EX-6S-2

SEAT LOCATIONS

		TOILET	RH CABINET	CD PLAYER (OPTIONAL)	PAX 6
DISTANCE FROM DIVIDER AFT SURFACE	0" 0 m	10.05" 0.255 m	31.89" 0.810 m	31.30" 0.795 m	147.18" 3.738 m
FUSELAGE STATION	179.95" 4.571 m	190.00" 4.826 m	211.85" 5.381 m	211.19" 5.364 m	327.13" 8.309 m



		LH CABINET	PAX 1/2	PAX 3/4	PAX 5
DISTANCE FROM DIVIDER AFT SURFACE	0" 0 m	31.88" 0.809 m	56.18" 1.427 m	89.18" 2.265 m	135.18" 3.435 m
FUSELAGE STATION	179.95" 4.571 m	211.83" 5.380 m	236.13" 5.998 m	269.13" 6.836 m	315.13" 8.004 m



NOTE:
CABIN SEAT LOCATION IS DEFINED AS THE DISTANCE FROM THE AFT SURFACE ON THE FORWARD DIVIDER PANEL TO THE CENTER OF THE ARRESTING PIN ON EACH SEAT.

120099

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Issued: March 30, 2001
Revision 1: March 1, 2003

EXECUTIVE INTERIOR CODE EX-6S-2

PERMITTED PASSENGER PART Nos. THAT CAN BE INSTALLED

	PC-12, PC-12/45 AND PC-12/47			
SEAT NO.	PACIFIC SCIENTIFIC RESTRAINT	SCHROTH RESTRAINT		
1	959.30.01.601	959.30.01.613	or	959.30.01.625
		959.30.01.617		959.30.01.627
		959.30.01.619		959.30.01.629
		959.30.01.621		959.30.01.631
		959.30.01.623		
		959.30.01.815		959.30.01.817
		959.30.01.819		959.30.01.821
2	959.30.01.602	959.30.01.614	or	959.30.01.626
		959.30.01.618		959.30.01.628
		959.30.01.620		959.30.01.630
		959.30.01.622		959.30.01.632
		959.30.01.624		
		959.30.01.816		959.30.01.818
		959.30.01.820		959.30.01.822
3, 5	959.30.01.609	959.30.01.615	or	959.30.01.649
		959.30.01.633		959.30.01.651
		959.30.01.635		959.30.01.653
		959.30.01.637		959.30.01.655
		959.30.01.639		959.30.01.657
		959.30.01.641		959.30.01.659
		959.30.01.643		959.30.01.661
		959.30.01.645		959.30.01.663
		959.30.01.647		
		959.30.01.823		959.30.01.825
		959.30.01.827		959.30.01.829
		959.30.01.831		959.30.01.833
		959.30.01.835		959.30.01.837
4, 6	959.30.01.610	959.30.01.616	or	959.30.01.650
		959.30.01.634		959.30.01.652
		959.30.01.636		959.30.01.654
		959.30.01.638		959.30.01.656
		959.30.01.640		959.30.01.658
		959.30.01.642		959.30.01.660
		959.30.01.644		959.30.01.662
		959.30.01.646		959.30.01.664
		959.30.01.648		
		959.30.01.824		959.30.01.826
		959.30.01.828		959.30.01.830
		959.30.01.832		959.30.01.834
		959.30.01.836		959.30.01.838

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

EXECUTIVE INTERIOR CODE EX-6S-2

PASSENGER SEATS AND FURNISHINGS WEIGHT AND MOMENT CHART

ITEM	WEIGHT LB (KG)	MOMENT LB-IN (KG-M)
PASS SEAT 1 OR 2	44.1 (20.0)	10143.4 (116.87)
PASS SEAT 3 OR 4	48.61 (22.05)	13570.5 (156.35)
PASS SEAT 5	48.61 (22.05)	15806.5 (182.11)
PASS SEAT 6	48.61 (22.05)	16389.8 (188.83)
TOILET	81.0 (36.7)	15390.0 (177.3)
LH CABINET	31.3 (14.2)	6630.3 (76.5)
RH CABINET	27.0 (12.3)	5720 (66.0)
CD PLAYER (optional)	5 (2.5)	1162 (13.41)
FR 24 CARGO NET	3.6 (1.65)	941 (10.96)
FR 27 CARGO NET	3.6 (1.65)	1049 (12.21)
FR 32 EXTENDABLE BAGGAGE NET	6.44 (2.92)	2325 (26.78)
FR 34 BAGGAGE NET	5.13 (2.325)	1855 (21.38)

Adjust the aircraft Basic Empty Weight on the Loading Form for items removed/added when converting to or from a Combi Interior Conversion.

When installing the extendable baggage net refer to Section 2 for the Luggage Limitations.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

EXECUTIVE INTERIOR CODE EX-6S-2

PASSENGER SEAT OCCUPANT MOMENT CHART

PASSENGER SEAT OCCUPANT MOMENTS (LB - IN)				
WEIGHT lb	**PAX 1/2** 234.09 in	**PAX 3/4** 276.12 in	**PAX 5** 322.13 in	**PAX 6** 334.12 in
50	11705	13806	16107	16706
60	14046	16567	19328	20047
70	16387	19329	22549	23388
80	18728	22090	25771	26729
90	21068	24851	28992	30070
100	23409	27612	32213	33412
110	25750	30374	35434	36753
120	28091	33135	38656	40094
130	30432	35896	41877	43435
140	32773	38657	45098	46776
150	35114	41419	48320	50117
160	37455	44180	51541	53459
170	39796	46941	54762	56800
180	42137	49702	57984	60141
190	44478	52464	61205	63482
200	46819	55225	64426	66823
210	49160	57986	67648	70164
220	51501	60747	70869	73506
230	53842	63508	74090	76847
240	56183	66270	77312	80188

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

EXECUTIVE INTERIOR CODE EX-6S-2

PASSENGER SEAT OCCUPANT MOMENT CHART

EXECUTIVE INTERIOR CODE EX 6S-2 PASSENGER SEAT OCCUPANT MOMENTS (KG - M)				
WEIGHT kg	**PAX 1/2** 5.946 m	**PAX 3/4** 7.014 m	**PAX 5** 8.182 m	**PAX 6** 8.487 m
25	148.65	175.34	204.55	212.16
30	178.38	210.41	245.46	254.60
35	208.11	245.47	286.38	297.03
40	237.84	280.54	327.29	339.46
45	267.57	315.61	368.20	381.89
50	297.30	350.68	409.11	424.33
55	327.03	385.75	450.02	466.76
60	356.76	420.81	490.93	509.19
65	386.49	455.88	531.84	551.63
70	416.22	490.95	572.75	594.06
75	445.95	526.02	613.66	636.49
80	475.68	561.08	654.57	678.92
85	505.41	596.15	695.48	721.36
90	535.14	631.22	736.39	763.79
95	564.87	666.29	777.30	806.22
100	594.60	701.35	818.21	848.65
105	624.33	736.42	859.13	891.09
110	654.06	771.49	900.04	933.52
115	683.79	806.56	940.95	975.95
120	713.52	841.63	981.86	1018.39

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

EXECUTIVE INTERIOR CODE EX-8S

GENERAL

This configuration is a variation of the basic executive interior and consists of 8 executive passenger seats. It is the operator's responsibility to check before using this configuration whether they require authorization by their regulatory authority. The following information is given:

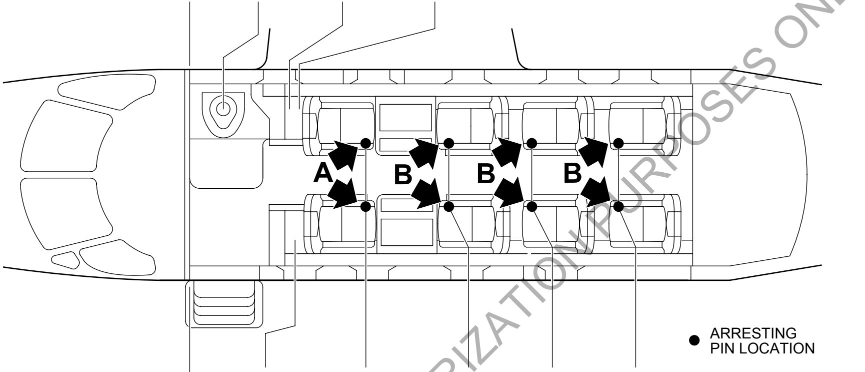
- passenger seat location chart.
- permitted passenger seat Part Nos. that can be installed.
- passenger seats and furnishings weight and moment chart (standard and metric units).
- passenger seat occupant moment charts (standard and metric units).

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

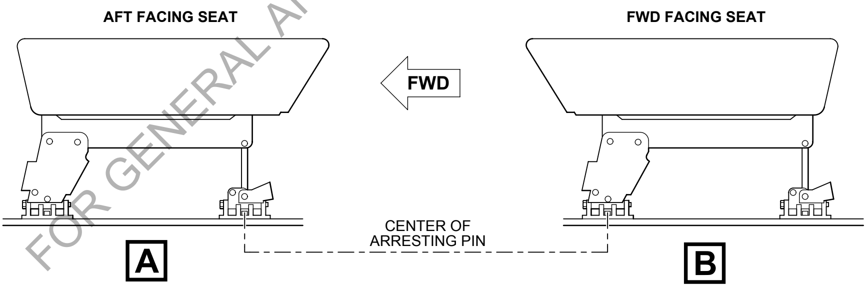
EXECUTIVE INTERIOR CODE EX-8S

SEAT LOCATIONS

		TOILET	RH CABINET	CD PLAYER (OPTIONAL)
DISTANCE FROM DIVIDER AFT SURFACE	0" 0 m	10.05" 0.255 m	31.89" 0.810 m	31.30" 0.795 m
FUSELAGE STATION	179.95" 4.571 m	190.00" 4.826 m	211.85" 5.381 m	211.19" 5.364 m



		LH CABINET	PAX 1/2	PAX 3/4	PAX 5/6	PAX 7/8
DISTANCE FROM DIVIDER AFT SURFACE	0" 0 m	31.88" 0.809 m	56.18" 1.427 m	89.18" 2.265 m	121.18" 3.078 m	153.18" 3.891 m
FUSELAGE STATION	179.95" 4.571 m	211.83" 5.380 m	236.14" 5.998 m	269.13" 6.836 m	301.13" 7.649 m	333.13" 8.462 m



NOTE:
CABIN SEAT LOCATION IS DEFINED AS THE DISTANCE FROM THE AFT SURFACE ON THE FORWARD DIVIDER PANEL TO THE CENTER OF THE ARRESTING PIN ON EACH SEAT.

120113

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

EXECUTIVE INTERIOR CODE EX-8S

PERMITTED PASSENGER SEAT PART Nos. THAT CAN BE INSTALLED

SEAT NO.	PC-12, PC-12/45 AND PC-12/47		
1	959.30.01.613	or	959.30.01.625
	959.30.01.617		959.30.01.627
	959.30.01.619		959.30.01.629
	959.30.01.621		959.30.01.631
	959.30.01.623		
	959.30.01.815		959.30.01.817
	959.30.01.819		959.30.01.821
2	959.30.01.614	or	959.30.01.626
	959.30.01.618		959.30.01.628
	959.30.01.620		959.30.01.630
	959.30.01.622		959.30.01.632
	959.30.01.624		
	959.30.01.816		959.30.01.818
	959.30.01.820		959.30.01.822
3, 5, 7	959.30.01.615	or	959.30.01.649
	959.30.01.633		959.30.01.651
	959.30.01.635		959.30.01.653
	959.30.01.637		959.30.01.655
	959.30.01.639		959.30.01.657
	959.30.01.641		959.30.01.659
	959.30.01.643		959.30.01.661
	959.30.01.645		959.30.01.663
	959.30.01.647		
	959.30.01.823		959.30.01.825
	959.30.01.827		959.30.01.829
	959.30.01.831		959.30.01.833
	959.30.01.835		959.30.01.837
4, 6, 8	959.30.01.616	or	959.30.01.650
	959.30.01.634		959.30.01.652
	959.30.01.636		959.30.01.654
	959.30.01.638		959.30.01.656
	959.30.01.640		959.30.01.658
	959.30.01.642		959.30.01.660
	959.30.01.644		959.30.01.662
	959.30.01.646		959.30.01.664
	959.30.01.648		
	959.30.01.824		959.30.01.826
	959.30.01.828		959.30.01.830
	959.30.01.832		959.30.01.834
	959.30.01.836		959.30.01.838

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

EXECUTIVE INTERIOR CODE EX-8S

PASSENGER SEATS AND FURNISHINGS WEIGHT AND MOMENT CHART

ITEM	WEIGHT LB (KG)	MOMENT LB-IN (KG-M)
PASS SEAT 1 OR 2	44.1 (20.0)	10143.4 (116.87)
PASS SEAT 3 OR 4	48.61 (22.05)	13570.5 (156.35)
PASS SEAT 5 OR 6	48.61 (22.05)	15126.0 (174.27)
PASS SEAT 7 OR 8	48.61 (22.05)	16681.5 (192.19)
TOILET	81.0 (36.7)	15390.0 (177.3)
LH CABINET	31.3 (14.2)	6630.3 (76.5)
RH CABINET	27.0 (12.3)	5720 (66.0)
CD PLAYER (optional)	5 (2.5)	1162 (13.41)
FR 24 CARGO NET	3.6 (1.65)	941 (10.96)
FR 27 CARGO NET	3.6 (1.65)	1049 (12.21)
FR 32 EXTENDABLE BAGGAGE NET	6.44 (2.92)	2325 (26.78)
FR 34 BAGGAGE NET	5.13 (2.325)	1855 (21.38)

Adjust the aircraft Basic Empty Weight on the Loading Form for items removed/added when converting to or from a Combi Interior Conversion.

When installing the extendable baggage net refer to Section 2 for the Luggage Limitations.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

EXECUTIVE INTERIOR CODE EX-8S

PASSENGER SEAT OCCUPANT MOMENT CHART

PASSENGER SEAT OCCUPANT MOMENTS (LB - IN)				
WEIGHT lb	**PAX 1/2** 234.09 in	**PAX 3/4** 276.12 in	**PAX 5/6** 308.12 in	**PAX 7/8** 340.12 in
50	11705	13806	15406	17006
60	14046	16567	18487	20407
70	16387	19329	21569	23809
80	18728	22090	24650	27210
90	21068	24851	27731	30611
100	23409	27612	30812	34012
110	25750	30374	33894	37414
120	28091	33135	36975	40815
130	30432	35896	40056	44216
140	32773	38657	43137	47617
150	35114	41419	46219	51019
160	37455	44180	49300	54420
170	39796	46941	52381	57821
180	42137	49702	55462	61222
190	44478	52464	58544	64624
200	46819	55225	61625	68025
210	49160	57986	64706	71426
220	51501	60747	67787	74827
230	53842	63508	70868	78228
240	56183	66270	73950	81630

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

EXECUTIVE INTERIOR CODE EX-8S

PASSENGER SEAT OCCUPANT MOMENT CHART

CREW AND PASSENGER SEAT OCCUPANT MOMENTS (KG - M)				
WEIGHT kg	**PAX 1/2** 5.946 m	**PAX 3/4** 7.014 m	**PAX 5/6** 7.826 m	**PAX 7/8** 8.639 m
25	148.65	175.34	195.66	215.98
30	178.38	210.41	234.79	259.17
35	208.11	245.47	273.92	302.37
40	237.84	280.84	313.05	345.57
45	267.57	315.61	352.19	388.76
50	297.30	350.68	391.32	431.96
55	327.03	385.75	430.45	475.15
60	356.76	420.81	469.58	518.35
65	386.49	455.88	508.71	561.54
70	416.22	490.95	547.84	604.74
75	445.95	526.02	586.98	647.94
80	475.68	561.08	626.11	691.13
85	505.41	596.15	665.24	734.33
90	535.14	631.22	704.37	777.52
95	564.87	666.29	743.50	820.72
100	594.60	701.35	782.63	863.91
105	624.33	736.42	821.77	907.11
110	654.06	771.49	860.90	950.31
115	683.79	806.56	900.03	993.50
120	713.52	841.63	939.16	1036.70

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

EXECUTIVE INTERIOR CODE EX-4S-3B

GENERAL

This configuration is a variation of the basic Executive interior and consists of 4 executive passenger seats and a 3 seat bench. It is the operator's responsibility to check before using this configuration whether they require authorization by their regulatory authority. The following information is given:

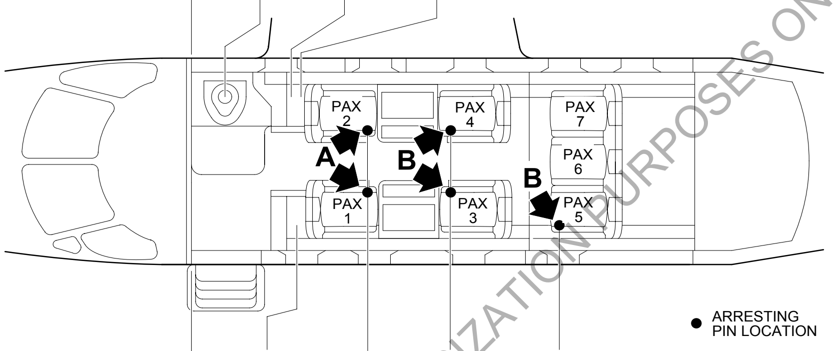
- passenger seat location chart.
- permitted passenger seat Part Nos. that can be installed.
- passenger seats and furnishings weight and moment chart (standard and metric units)..
- passenger seat occupant moments (standard and metric units).

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

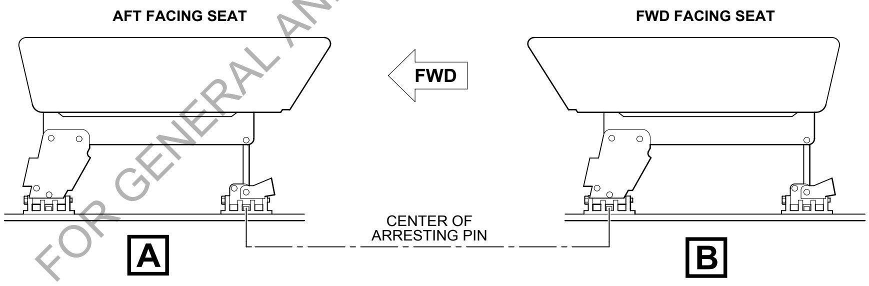
EXECUTIVE INTERIOR CODE EX-4S-3B

SEAT LOCATIONS

		TOILET	RH CABINET	CD PLAYER (OPTIONAL)
DISTANCE FROM DIVIDER AFT SURFACE	0" 0 m	10.05" 0.255 m	31.89" 0.810 m	31.30" 0.795 m
FUSELAGE STATION	179.95" 4.571 m	190.00" 4.826 m	211.85" 5.381 m	211.19" 5.364 m



		LH CABINET	PAX 1/2	PAX 3/4	PAX 5-7
DISTANCE FROM DIVIDER AFT SURFACE	0" 0 m	31.88" 0.809 m	56.18" 1.427 m	89.18" 2.265 m	133.18" 3.383 m
FUSELAGE STATION	179.95" 4.571 m	211.83" 5.380 m	236.13" 5.998 m	269.13" 6.836 m	313.13" 7.954 m



NOTE:
CABIN SEAT LOCATION IS DEFINED AS THE DISTANCE FROM THE AFT SURFACE ON THE FORWARD DIVIDER PANEL TO THE CENTER OF THE ARRESTING PIN ON EACH SEAT.

120121

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

EXECUTIVE INTERIOR CODE EX-4S-3B

PERMITTED PASSENGER SEAT PART Nos. THAT CAN BE INSTALLED

	PC-12 AND PC-12/45			
SEAT NO.	PACIFIC SCIENTIFIC RESTRAINT	SCHROTH RESTRAINT		
1	959.30.01.601	959.30.01.613	or	959.30.01.625
		959.30.01.617		959.30.01.627
		959.30.01.619		959.30.01.629
		959.30.01.621		959.30.01.631
		959.30.01.623		
		959.30.01.815		959.30.01.817
		959.30.01.819		959.30.01.821
2	959.30.01.602	959.30.01.614	or	959.30.01.626
		959.30.01.618		959.30.01.628
		959.30.01.620		959.30.01.630
		959.30.01.622		959.30.01.632
		959.30.01.624		
		959.30.01.816		959.30.01.818
		959.30.01.820		959.30.01.822
3	959.30.01.603	959.30.01.615	or	959.30.01.649
	959.30.01.609	959.30.01.633		959.30.01.651
		959.30.01.635		959.30.01.653
		959.30.01.637		959.30.01.655
		959.30.01.639		959.30.01.657
		959.30.01.641		959.30.01.659
		959.30.01.643		959.30.01.661
		959.30.01.645		959.30.01.663
		959.30.01.647		
		959.30.01.823		959.30.01.825
		959.30.01.827		959.30.01.829
		959.30.01.831		959.30.01.833
		959.30.01.835		959.30.01.837
4	959.30.01.604	959.30.01.616	or	959.30.01.650
	959.30.01.610	959.30.01.634		959.30.01.652
		959.30.01.636		959.30.01.654
		959.30.01.638		959.30.01.656
		959.30.01.640		959.30.01.658
		959.30.01.642		959.30.01.660
		959.30.01.644		959.30.01.662
		959.30.01.646		959.30.01.664
		959.30.01.648		
		959.30.01.824		959.30.01.826
		959.30.01.828		959.30.01.830
		959.30.01.832		959.30.01.834
		959.30.01.836		959.30.01.838

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

5, 6, 7		959.30.01.801 or 959.30.01.804 959.30.01.802 959.30.01.805 959.30.01.803 (Bench Seat)

NOTES: The extendable baggage net can be used with this interior.

A bulkhead plus curtain Part No. 525.24.12.023 can be installed at frame 32.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

EXECUTIVE INTERIOR CODE EX-4S-3B

PASSENGER SEATS AND FURNISHINGS WEIGHT AND MOMENT CHART

PC-12 AND PC-12/45		
ITEM	WEIGHT LB (KG)	MOMENT LB-IN (KG-M)
PASS SEAT 1 OR 2	44.1 (20.0)	10143.4 (116.87)
PASS SEAT 3 OR 4	48.61 (22.05)	13570.5 (156.35)
PASS SEAT 5, 6, 7	125.2 (56.8)	40461.0 (466.24)
TOILET	81.0 (36.7)	15390.0 (177.3)
LH CABINET	31.3 (14.2)	6630.3 (76.5)
RH CABINET	27.0 (12.3)	5720 (66.0)
CD PLAYER (optional)	5 (2.5)	1162 (13.41)
FR 24 CARGO NET	3.6 (1.65)	941 (10.96)
FR 27 CARGO NET	3.6 (1.65)	1049 (12.21)
FR 32 EXTENDABLE BAGGAGE NET	6.44 (2.92)	2325 (26.78)
FR 34 BAGGAGE NET	5.13 (2.325)	1855 (21.38)

Adjust the aircraft Basic Empty Weight on the Loading Form for items removed/added when converting to or from a Combi Interior Conversion.

When installing the extendable baggage net refer to Section 2 for the Luggage Limitations.

EXECUTIVE INTERIOR CODE EX-4S-3B

PASSENGER SEAT OCCUPANT MOMENTS

PASSENGER SEAT OCCUPANT MOMENTS (LB - IN)			
WEIGHT lb	**PAX 1/2** 234.09 in	**PAX 3/4** 276.12 in	**PAX 5/6/7** 320.12 in
50	11705	13806	16006
60	14046	16567	19207
70	16387	19329	22409
80	18728	22090	25610
90	21068	24851	28811
100	23409	27612	32012
110	25750	30374	35214
120	28091	33135	38415
130	30432	35896	41616
140	32773	38657	44817
150	35114	41419	48019
160	37455	44180	51220
170	39796	46941	54421
180	42137	49702	57622
190	44478	52464	60824
200	46819	55225	64025
210	49160	57986	67226
220	51501	60747	70427
230	53842	63508	73628
240	56183	66270	76830

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

EXECUTIVE INTERIOR CODE EX-4S-3B

PASSENGER SEAT OCCUPANT MOMENTS

PASSENGER SEAT OCCUPANT MOMENTS (KGM)			
WEIGHT kg	**PAX 1/2** 5.946 m	**PAX 3/4** 7.014 m	**PAX 5/6/7** 8.131 m
25	148.65	175.34	203.28
30	178.38	210.41	243.93
35	208.11	245.47	284.59
40	237.84	280.54	325.25
45	267.57	315.61	365.90
50	297.30	350.68	406.56
55	327.03	385.75	447.21
60	356.76	420.81	487.87
65	386.49	455.88	528.52
70	416.22	490.95	569.18
75	445.95	526.02	609.84
80	475.68	561.08	650.49
85	505.41	596.15	691.15
90	535.14	631.22	731.80
95	564.87	666.29	772.46
100	594.60	701.35	813.11
105	624.33	736.42	853.77
110	654.06	771.49	894.43
115	683.79	806.56	935.08
120	713.52	841.63	975.74

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

EXECUTIVE INTERIOR CODE EX-6S-STD-2S

GENERAL

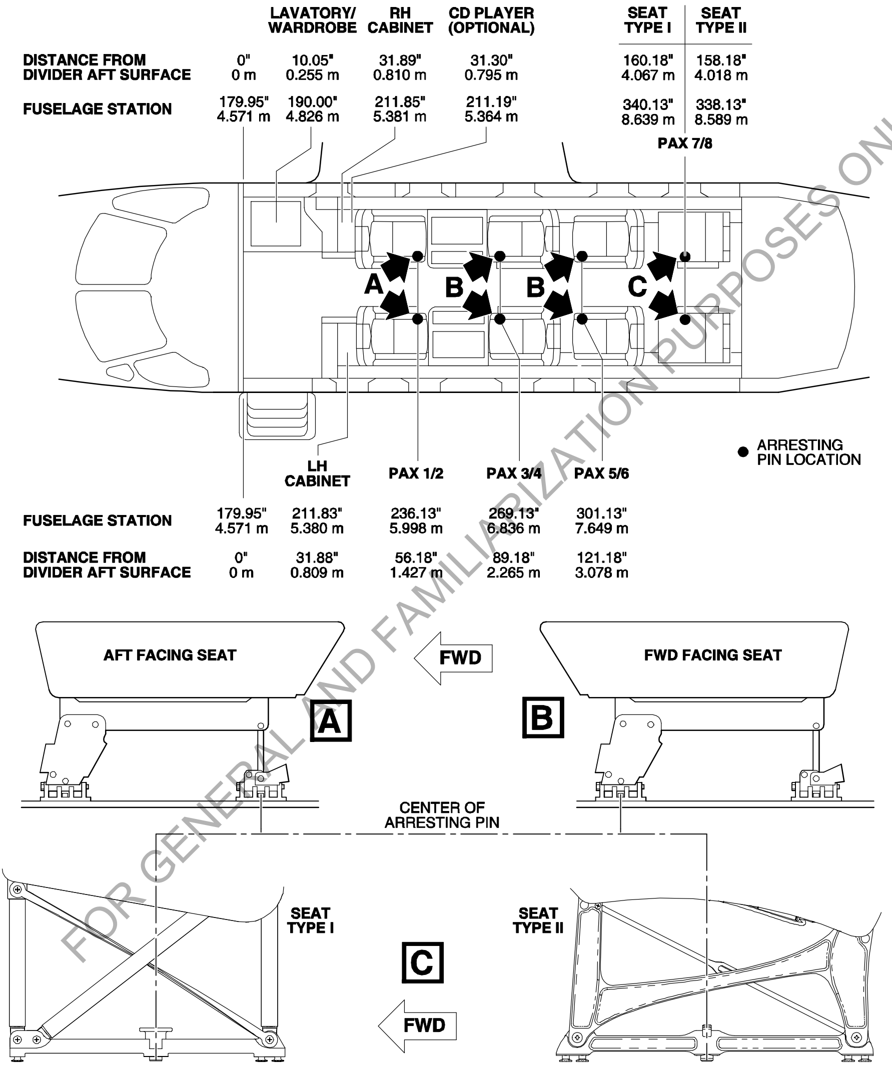
This configuration is a variation of the basic Executive interior and consists of 6 executive passenger seats and 2 standard seats. It is the operator's responsibility to check before using this configuration whether they require authorization by their regulatory authority. The following information is given:

- passenger seat location chart.
- permitted passenger seat Part Nos. that can be installed.
- passenger seats and furnishings weight and moment chart.
- passenger seat occupant moments (standard and metric units).

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

SIX EXECUTIVE AND TWO STANDARD INTERIOR CODE EX-6S-STD-2S

SEAT LOCATIONS



NOTE:
CABIN SEAT LOCATION IS DEFINED AS THE DISTANCE FROM THE AFT SURFACE ON THE FORWARD DIVIDER PANEL TO THE CENTER OF THE ARRESTING PIN ON EACH SEAT.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

EXECUTIVE INTERIOR CODE EX-6S-STD-2S

PERMITTED PASSENGER SEAT PART Nos. THAT CAN BE INSTALLED

SEAT NO.	PC-12, PC-12/45 AND PC-12/47		
1	959.30.01.613	or	959.30.01.625
	959.30.01.617		959.30.01.627
	959.30.01.619		959.30.01.629
	959.30.01.621		959.30.01.631
	959.30.01.623		
	959.30.01.815		959.30.01.817
	959.30.01.819		959.30.01.821
2	959.30.01.614	or	959.30.01.626
	959.30.01.618		959.30.01.628
	959.30.01.620		959.30.01.630
	959.30.01.622		959.30.01.632
	959.30.01.624		
	959.30.01.816		959.30.01.818
	959.30.01.820		959.30.01.822
3, 5	959.30.01.615	or	959.30.01.649
	959.30.01.633		959.30.01.651
	959.30.01.635		959.30.01.653
	959.30.01.637		959.30.01.655
	959.30.01.639		959.30.01.657
	959.30.01.641		959.30.01.659
	959.30.01.643		959.30.01.661
	959.30.01.645		959.30.01.663
	959.30.01.647		
	959.30.01.823		959.30.01.825
	959.30.01.827		959.30.01.829
	959.30.01.831		959.30.01.833
	959.30.01.835		959.30.01.837
4, 6	959.30.01.616	or	959.30.01.650
	959.30.01.634		959.30.01.652
	959.30.01.636		959.30.01.654
	959.30.01.638		959.30.01.656
	959.30.01.640		959.30.01.658
	959.30.01.642		959.30.01.660
	959.30.01.644		959.30.01.662
	959.30.01.646		959.30.01.664
	959.30.01.648		
	959.30.01.824		959.30.01.826
	959.30.01.828		959.30.01.830
	959.30.01.832		959.30.01.834
	959.30.01.836		959.30.01.838

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

SEAT NO.	PC-12, PC-12/45 AND PC-12/47	
	SEAT TYPE I	SEAT TYPE II
7	525.22.12.011	959.30.01.445 959.30.01.447
8	525.22.12.012	959.30.01.446 959.30.01.448

NOTE: The lap belt extension Part No. 959.30.01.588 or Part No. 959.30.01.590 can be installed on TYPE I seats 7 and 8 only.

NOTE: It is not allowed to install TYPE I and II seats behind each other.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

EXECUTIVE INTERIOR CODE EX-6S-STD-2S

PASSENGER SEATS AND FURNISHINGS WEIGHT AND MOMENT CHART

PC-12, PC-12/45 AND PC-12/47			
ITEM		WEIGHT LB (KG)	MOMENT LB-IN (KG-M)
PASS SEAT 1 OR 2		44.1 (20.0)	10143.4 (116.87)
PASS SEAT 3 OR 4		48.61 (22.05)	13570.5 (156.35)
PASS SEAT 5 OR 6		48.61 (22.05)	15126.0 (174.27)
PASS SEAT 7 OR 8	SEAT TYPE I	29.10 (13.2)	10024.3 (115.5)
	SEAT TYPE II	31.6 (14.3)	10871.5 (125.25)
TOILET or WARDROBE		81.0 (36.7) 45.0 (20.4)	15390 (177.3) 8595 (98.97)
LH CABINET		31.3 (14.2)	6630.3 (76.5)
RH CABINET		27.0 (12.3)	5720 (66.0)
CD PLAYER (optional)		5 (2.5)	1162 (13.41)
FR 24 CARGO NET		3.6 (1.65)	941 (10.96)
FR 27 CARGO NET		3.6 (1.65)	1049 (12.21)
FR 32 EXTENDABLE BAGGAGE NET		6.44 (2.92)	2325 (26.78)
FR 34 BAGGAGE NET		5.13 (2.325)	1855 (21.38)

Adjust the aircraft Basic Empty Weight on the Loading Form for items removed/added when converting to or from a Combi Interior Conversion.

When installing the extendable baggage net refer to Section 2 for the Luggage Limitations.

EXECUTIVE INTERIOR CODE EX-6S-STD-2S

PASSENGER SEAT OCCUPANT MOMENT CHART

PASSENGER SEAT TYPE I & II OCCUPANT MOMENTS (LB - IN)				
WEIGHT lb	**PAX 1/2** 234.09 in	**PAX 3/4** 276.12 in	**PAX 5/6** 308.12 in	**PAX 7/8** 341.00 in
50	11705	13806	15406	17050
60	14046	16567	18487	20460
70	16387	19329	21569	23870
80	18728	22090	24650	27280
90	21068	24851	27731	30690
100	23409	27612	30812	34100
110	25750	30374	33894	37510
120	28091	33135	36975	40920
130	30432	35896	40056	44330
140	32773	38657	43137	47740
150	35114	41419	46219	51150
160	37455	44180	49300	54560
170	39796	46941	52381	57970
180	42137	49702	55462	61380
190	44478	52464	58544	64790
200	46819	55225	61625	68200
210	49160	57986	64706	71610
220	51501	60747	67787	75020
230	53842	63508	70868	78430
240	56183	66270	73950	81840

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

EXECUTIVE INTERIOR CODE EX-6S-STD-2S

PASSENGER SEAT OCCUPANT MOMENT CHART

PASSENGER SEAT TYPE I & II OCCUPANT MOMENTS (KG - M)				
WEIGHT kg	**PAX 1/2** 5.946 m	**PAX 3/4** 7.014 m	**PAX 5/6** 7.826 m	**PAX 7/8** 8.661 m
25	148.65	175.34	195.66	216.54
30	178.38	210.41	234.79	259.84
35	208.11	245.47	273.92	303.15
40	237.84	280.84	313.05	346.46
45	267.57	315.61	352.19	389.76
50	297.30	350.68	391.32	433.07
55	327.03	385.75	430.45	476.38
60	356.76	420.81	469.58	519.68
65	386.49	455.88	508.71	562.99
70	416.22	490.95	547.84	606.30
75	445.95	526.02	586.98	649.61
80	475.68	561.08	626.11	692.91
85	505.41	596.15	665.24	736.22
90	535.14	631.22	704.37	779.53
95	564.87	666.29	743.50	822.83
100	594.60	701.35	782.63	866.14
105	624.33	736.42	821.77	909.45
110	654.06	771.49	860.90	952.75
115	683.79	806.56	900.03	996.06
120	713.52	841.63	939.16	1039.37

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

EXECUTIVE INTERIOR CODE EX-4S-STD-4S

GENERAL

This configuration is a variation of the basic Executive interior and consists of 4 executive passenger seats and 4 standard seats. It is the operator's responsibility to check before using this configuration whether they require authorization by their regulatory authority. The following information is given:

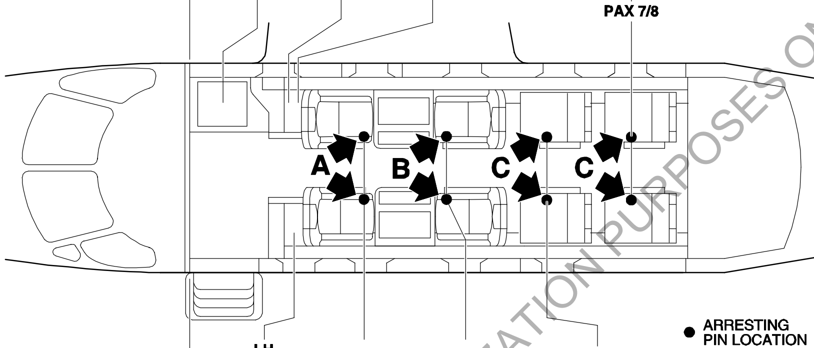
- passenger seat location chart.
- permitted passenger seat Part Nos. that can be installed.
- passenger seats and furnishings weight and moment chart.
- passenger seat occupant moments (standard and metric units).

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

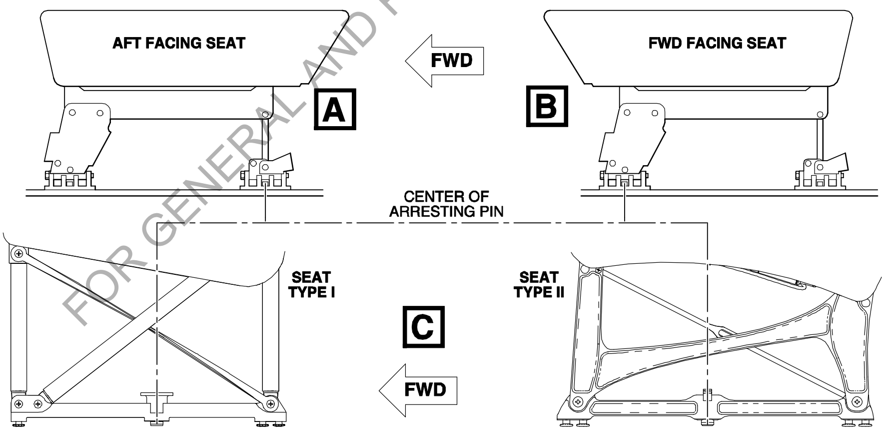
FOUR EXECUTIVE AND FOUR STANDARD INTERIOR CODE EX-4S-STD-4S

SEAT LOCATIONS

		LAVATORY/ WARDROBE	RH CABINET	CD PLAYER (OPTIONAL)	SEAT TYPE I	SEAT TYPE II
DISTANCE FROM DIVIDER AFT SURFACE	0" 0 m	10.05" 0.255 m	31.89" 0.810 m	31.30" 0.795 m	162.18" 4.119 m	160.18" 4.068 m
FUSELAGE STATION	179.95" 4.571 m	190.00" 4.826 m	211.85" 5.381 m	211.19" 5.364 m	342.13" 8.690 m	340.13" 8.639 m



		LH CABINET	PAX 1/2	PAX 3/4	PAX 5/6 SEAT TYPE I	PAX 5/6 SEAT TYPE II
FUSELAGE STATION	179.95" 4.571 m	211.83" 5.380 m	236.13" 5.998 m	269.13" 6.836 m	309.13" 7.852 m	307.13" 7.801 m
DISTANCE FROM DIVIDER AFT SURFACE	0" 0 m	31.88" 0.809 m	56.18" 1.427 m	89.18" 2.265 m	129.18" 3.281 m	127.18" 3.230 m



NOTE:
CABIN SEAT LOCATION IS DEFINED AS THE DISTANCE FROM THE AFT SURFACE ON THE FORWARD DIVIDER PANEL TO THE CENTER OF THE ARRESTING PIN ON EACH SEAT.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

EXECUTIVE INTERIOR CODE EX-4S-STD-4S

PERMITTED PASSENGER SEAT PART Nos. THAT CAN BE INSTALLED

SEAT NO.	PC-12, PC-12/45 AND PC-12/47		
1	959.30.01.613	or	959.30.01.625
	959.30.01.617		959.30.01.627
	959.30.01.619		959.30.01.629
	959.30.01.621		959.30.01.631
	959.30.01.623		
	959.30.01.815		959.30.01.817
	959.30.01.819		959.30.01.821
2	959.30.01.614	or	959.30.01.626
	959.30.01.618		959.30.01.628
	959.30.01.620		959.30.01.630
	959.30.01.622		959.30.01.632
	959.30.01.624		
	959.30.01.816		959.30.01.818
	959.30.01.820		959.30.01.822
3	959.30.01.615	or	959.30.01.649
	959.30.01.633		959.30.01.651
	959.30.01.635		959.30.01.653
	959.30.01.637		959.30.01.655
	959.30.01.639		959.30.01.657
	959.30.01.641		959.30.01.659
	959.30.01.643		959.30.01.661
	959.30.01.645		959.30.01.663
	959.30.01.647		
	959.30.01.823		959.30.01.825
	959.30.01.827		959.30.01.829
	959.30.01.831		959.30.01.833
	959.30.01.835		959.30.01.837
4	959.30.01.616	or	959.30.01.650
	959.30.01.634		959.30.01.652
	959.30.01.636		959.30.01.654
	959.30.01.638		959.30.01.656
	959.30.01.640		959.30.01.658
	959.30.01.642		959.30.01.660
	959.30.01.644		959.30.01.662
	959.30.01.646		959.30.01.664
	959.30.01.648		
	959.30.01.824		959.30.01.826
	959.30.01.828		959.30.01.830
	959.30.01.832		959.30.01.834
	959.30.01.836		959.30.01.838

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

SEAT NO.	PC-12, PC-12/45 AND PC-12/47	
	SEAT TYPE I	**SEAT TYPE II**
5, 7	525.22.12.011	959.30.01.445 959.30.01.447
6, 8	525.22.12.012	959.30.01.446 959.30.01.448

NOTE: The lap belt extension Part No. 959.30.01.588 and Part No. 959.30.01.590 can be installed on TYPE I seats 5 through 8 only.

NOTE: It is not allowed to install TYPE I and II seats behind each other.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

EXECUTIVE INTERIOR CODE EX-4S-STD-4S

PASSENGER SEATS AND FURNISHINGS WEIGHT AND MOMENT CHART

PC-12, PC-12/45 AND PC-12/47			
ITEM		WEIGHT LB (KG)	MOMENT LB-IN (KG-M)
PASS SEAT 1 OR 2		44.1 (20.0)	10143.4 (116.87)
PASS SEAT 3 OR 4		48.61 (22.05)	13570.5 (156.35)
PASS SEAT 5 OR 6	SEAT TYPE I	29.10 (13.2)	9122.1 (105.10)
	SEAT TYPE II	31.6 (14.3)	9891.9 (113.97)
PASS SEAT 7 OR 8	SEAT TYPE I	29.10 (13.2)	10082.5 (116.16)
	SEAT TYPE II	31.6 (14.3)	10934.7 (125.98)
TOILET or WARDROBE		81.0 (36.7) 45.0 (20.4)	15390 (177.3) 8595 (98.97)
LH CABINET		31.3 (14.2)	6630.3 (76.5)
RH CABINET		27.0 (12.3)	5720 (66.0)
CD PLAYER (optional)		5 (2.5)	1162 (13.41)
FR 24 CARGO NET		3.6 (1.65)	941 (10.96)
FR 27 CARGO NET		3.6 (1.65)	1049 (12.21)
FR 32 EXTENDABLE BAGGAGE NET		6.44 (2.92)	2325 (26.78)
FR 34 BAGGAGE NET		5.13 (2.325)	1855 (21.38)

Adjust the aircraft Basic Empty Weight on the Loading Form for items removed/added when converting to or from a Combi Interior Conversion.

When installing the extendable baggage net refer to Section 2 for the Luggage Limitations.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

EXECUTIVE INTERIOR CODE EX-4S-STD-4S

PASSENGER SEAT OCCUPANT MOMENT CHART

PASSENGER SEAT TYPE I & II OCCUPANT MOMENTS (LB - IN)				
WEIGHT lb	PAX 1/2 234.09 in	PAX 3/4 276.12 in	PAX 5/6 310.00 in	PAX 7/8 343.00 in
50	11705	13806	15500	17150
60	14046	16567	18600	20580
70	16387	19329	21700	24010
80	18728	22090	24800	27440
90	21068	24851	27900	30870
100	23409	27612	31000	34300
110	25750	30374	34100	37730
120	28091	33135	37200	41160
130	30432	35896	40300	44590
140	32773	38657	43400	48020
150	35114	41419	46500	51450
160	37455	44180	49600	54880
170	39796	46941	52700	58310
180	42137	49702	55800	61740
190	44478	52464	58900	65170
200	46819	55225	62000	68600
210	49160	57986	65100	72030
220	51501	60747	68200	75460
230	53842	63508	71300	78890
240	56183	66270	74400	82320

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

EXECUTIVE INTERIOR CODE EX-4S-STD-4S

PASSENGER SEAT OCCUPANT MOMENT CHART

PASSENGER SEAT TYPE I & II OCCUPANT MOMENTS (KG - M)				
WEIGHT kg	PAX 1/2 5.9460 m	PAX 3/4 7.0135 m	PAX 5/6 7.8740 m	PAX 7/8 8. 7122 m
25	148.65	175.34	196.85	217.81
30	178.38	210.41	236.22	261.37
35	208.11	245.47	275.59	304.93
40	237.84	280.54	314.96	348.49
45	267.57	315.61	354.33	392.05
50	297.30	350.68	393.70	435.61
55	327.03	385.75	433.07	479.17
60	356.76	420.81	472.44	522.73
65	386.49	455.88	511.81	566.29
70	416.22	490.95	551.18	609.85
75	445.95	526.02	590.55	653.42
80	475.68	561.08	629.92	696.98
85	505.41	596.15	669.29	740.54
90	535.14	631.22	708.66	784.10
95	564.87	666.29	748.03	827.66
100	594.60	701.35	787.40	871.22
105	624.33	736.42	826.77	914.78
110	654.06	771.49	866.14	958.34
115	683.79	806.56	905.51	1001.90
120	713.52	841.63	944.88	1045.46

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VOLUME 2

OF

PILOT'S OPERATING HANDBOOK
AND
EASA APPROVED AIRPLANE FLIGHT MANUAL

PC-12 SERIES

MSN 321, 401-544 AND 546-888

Report No. 02211

Manufacturer's Serial No. - ____________________

Registration No. - ___________________________

EASA Type Certificate No: EASA.A.089
FAA Type Certificate No: A78EU

PILATUS AIRCRAFT LTD.
CH-6370 STANS
SWITZERLAND

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

GENERAL

Section 7 of this Pilot's Operating Handbook contains information related to the detailed description and operation of the airplane and its systems.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

SECTION	CONTENTS

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

AIRFRAME

GENERAL

The airplane is a low wing, T-tail, single engine, retractable landing gear type designed to transport passengers, cargo, or various combinations of both passengers and cargo. Construction is conventional semimonocoque, primarily incorporating aluminum alloy, but composite structures are used in certain areas.

Flush riveting is used where appropriate to minimize drag. Access panels are installed to facilitate inspection and maintenance. The complete airframe is electrically bonded to eliminate electro-magnetic interference and static discharge wicks are used to reduce static charges while inflight.

FUSELAGE

The fuselage consists of the engine area, nose gear assembly, cockpit, cabin, and aft fuselage. The engine area contains the powerplant, and associated accessories. The engine cowling is constructed from a carbon/nomex honeycomb material while the engine mount is welded steel tubing and bolted to the firewall in four places. The firewall is titanium and protected by insulation material.

A two piece windshield, two side windows, and a direct vision (DV) window provide cockpit visibility. The two piece windshield is glass while the two side windows and the DV window are stretched acrylic. All windows are of two ply laminated design.

The cabin area is from the cockpit to the aft pressure bulkhead and contains the passenger door, the cargo door, and an emergency overwing exit. The nine cabin windows are two ply laminated monolithic stretched acrylic and incorporate dry neoprene seals. Airplane avionics are mounted under the cabin floor, running the length of the center cabin, and are accessible through quick release panels. The cabin carry-through spar attachment fittings are one piece machined aluminum. Fuselage fairings are constructed from either carbon/nomex or aramid/nomex honeycomb material.

A safety net is installed aft of the rear pressure bulkhead to protect the bulkhead from damage during maintenance.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

EMPENNAGE

The empennage is a T-tail design with the horizontal stabilizer mounted on top of the vertical stabilizer. The aft fuselage is attached to the cabin at the aft pressure bulkhead. The vertical and horizontal stabilizer assemblies are conventional aluminum construction. The horizontal stabilizer is a trimmable structure. The dorsal and ventral fin fairings are kevlar honeycomb material.

WINGS

The wings are of conventional construction incorporating front and rear spars, ribs, and skin. The front and rear spars are mainly from machined aluminum alloy plate. Both spars include fuselage and integral landing gear attachment points, while the rear spar also integrates flap actuator attachment points. Main load carrying ribs are machined from aluminum alloy plate. All other ribs are formed sheet metal. The ribs incorporate lightening holes to reduce weight and integral beads for stiffening. The wing skin is stiffened clad aluminum alloy sheet riveted to the spars and ribs. Access panels are in the wing bottom only.

Each wing is attached to the fuselage using three titanium shear pins and, at the aft upper fitting, one steel tension bolt.

Each wing contains an integral fuel tank, aileron, flaps, deice boot, and main landing gear. The fuel tanks are located between ribs 3 and 16, forward of the main spar to the nose rib and between ribs 6 and 16 behind the main spar to the rear spar.

The ailerons are conventional construction with a single spar and ribs. The aileron access panels are a carbon/nomex honeycomb construction. The ailerons are mass balanced and the aileron/wing gap is sealed.

Each wing incorporates a single piece Fowler flap of conventional construction, with three support arms and associated linkages. The wing trailing edges above the flaps are foam core covered with carbon laminate while the flap fairings are a carbon laminate with nomex honeycomb reinforcement strips.

A surface mounted deice boot is attached to the nose skin of each wing. Each wing has a main landing gear attached to the front and rear spar, with a carbon fiber/nomex honeycomb gear door attached to the leg. The wing tips are constructed of carbon fiber/honeycomb and metal strips for lightning protection.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

FLIGHT CONTROLS

GENERAL

The flight control system is conventional using push-pull rods and carbon steel cables. Electric trim systems are provided for the aileron, rudder, and elevator. All trim systems can be disconnected in the event of a runaway condition.

An aileron/rudder interconnect system is installed to improve lateral stability and turn coordination. The system operates:

- MSN 101-683. When a turn is initiated with the flaps extended
- MSN 684 & UP. Permanently active regardless of the flap position

When the pilot initiates a turn by giving a roll control input, the spring package in the interconnect systems applies a force to the rudder cables that tends to deflect the rudder in the direction of the turn. Alternatively, when the pilot gives a yaw control input by pushing one of the rudder pedals, the spring package applies a force to the aileron control system which tends to roll the aircraft in the direction of turn.

AILERON

The ailerons are connected to the cockpit control wheels by control cables in the fuselage and push-pull rods in the wings. Each aileron is attached to the wing at two hinge points.

The left aileron incorporates a trim tab which is electrically operated from the cockpit. Refer to Trim system, this section, for more information. MSN 684 & UP. The left aileron trim tab also acts, together with the geared tab installed on the right aileron, as balance tabs when the ailerons are moved.

ELEVATOR

The elevator is a two piece unit attached to the horizontal stabilizer at a total of five hinge points and is connected to the cockpit control wheel by carbon steel control cables. A down spring is installed in the control circuit to improve longitudinal stability. The elevator is equipped with static wicks to dissipate static charges to the atmosphere.

Pitch trim is provided by positioning the horizontal stabilizer. Refer to Trim system, this section, for more information.

RUDDER

The rudder is a single piece unit attached to the vertical stabilizer at two hinge points and is connected to the cockpit rudder pedals by carbon steel control cables. Both pilot and copilot rudder pedals are adjustable by use of a crank located between each set of rudder pedals. Clockwise rotation of the crank moves the pedals aft. The rudder is equipped with static wicks to dissipate static charges to the atmosphere. The rudder incorporates a trim tab that is electrically operated from the cockpit. Refer to Trim system, this section, for more information.

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TRIM

The aileron, horizontal stabilizer and rudder trim are electrically operated. Aileron and horizontal stabilizer trim operation are controlled by a switch on the outboard horn of each control wheel while rudder trim operation is controlled by a switch located on the Engine Power Control Lever. Prior to selecting pitch and aileron trim press and hold the pitch trim engage switch located on the forward side of each outboard control wheel horn.

Pitch trim is accomplished by an electrically controlled actuator connected to the moveable horizontal stabilizer. The secondary trim motor, installed in the same actuator, is controlled by the autopilot and can also be used as a backup system (alternate stabilizer trim) by the pilot. Alternate pitch trim can be accomplished by pressing the ALTERNATE STAB TRIM switch in the desired direction.

The leading edge of the stabilizer moves down for nose up trim and up for nose down trim. At the root of the leading edge of the left horizontal stabilizer there is a trim range indicator which has markings to show full travel in either direction and a takeoff trim range. During the preflight inspection this external trim indicator should be used to verify cockpit trim position indication.

In the event of uncommanded trim operation, all trim operation can be stopped by pressing the TRIM INTR switch located ahead of the Engine Control Quadrant on the center console.

FLAPS

Each wing trailing edge has a single piece Fowler type flap supported by three flap arms. The flaps are controlled by a selector handle located to the right of the power controls on the center console. The flaps may be set to one of the four preset positions 0°, 15°, 30° and 40° by moving the handle to the appropriate position. If the flap lever is not at one of the four preset positions, the Flap Control and Warning Unit (FCWU) will drive the flaps to the nearest preset position. A flap position indicator is located near the top of the left instrument panel.

The flaps are electrically actuated. There is a single flap Power Drive Unit (PDU) installed below the cabin floor at the rear main frame. It drives screw actuators at the inboard and middle stations through flexible shafts. The screw actuators are connected to the flap actuating arms.

The flap control system incorporates a failure detection system. The system can detect a failure of a flexible shaft by disconnection or jamming, potentially resulting in flap asymmetry or failure of the system to achieve the selected flap position. The system can detect a failure of a single actuator, potentially resulting in single flap panel twisting. If a failure is detected, the FCWU disconnects the power to the PDU and the CAWS FLAPS caution will come on. This condition cannot be reset by pilot action, a landing should be made IAW the EMERGENCY PROCEDURES as maintenance action is required.

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A rotation sensor is installed on each of the outer flap screw actuators. These sense the rotation of the flexible shafts and give signals to the FCWU. The FCWU monitors these signals for asymmetrical flexible shaft rotation of more than 20 rotations (caused by a broken inner flap drive shaft). If failure is detected the FCWU disconnects the power to the PDU and the CAWS FLAPS caution will come on. This condition cannot be reset by pilot action. To detect satisfactory system operation, the FCWU monitors the left sensor for 10 rotations of the flexible shaft in the first 5 seconds (7 seconds with a modified FCWU) of a flap up or down selection. If the selected flap position is not achieved the FCWU disconnects the power to the PDU and the CAWS FLAPS caution will come on.

There are five position sensors in the flap system, one at each center flap actuating arm, one at each inner flap actuating arm and one on the flap position lever, which give signals to the FCWU. The FCWU monitors the signals from the left and right flap sensors for flap asymmetry (caused by a broken inner flap drive shaft). If an asymmetry is detected, power to the PDU is disconnected and the CAWS FLAPS caution will come on. Flap panel asymmetry occurs when the difference between the left and right flap angle exceeds a specific angle as in accordance with the table below:

Flap position between	**Asymmetry occurs when the left and right flap panel difference is at least**
0° and 15°	1.6°
15° and 30°	4.3°
30° and 40°	5°

The FCWU also monitors the signals from the left and right flap sensors for twisting of the left or right flap (caused by a broken outer flap drive shaft or unequal movement of the flap screw actuators). If a failure is detected, the FCWU disconnects the power to the PDU and the CAWS FLAPS caution will come on.

If the Power Drive Unit (PDU) motor overheats or a stalled motor condition is detected, a signal from the PDU will open the FLAP circuit breaker on the Battery Bus circuit breaker panel. The FCWU then removes the up or down command to the PDU and the CAWS FLAPS caution will come on. After waiting for a period of 5 minutes the FLAP circuit breaker can be reset a maximum of two attempts and normal flap operation resumes. This is the only pilot re-settable failure and cycling the flap circuit breaker if it has not opened will not reset any other failure mode detected.

To avoid an inadvertent flap down command at high speed, flap down enable is disabled when the flap selector handle is in the 0° position.

Flap system operation may be stopped at any time by lifting the switch guard and pressing the INTERRUPT FLAP switch on the center console to INTR. The CAWS FLAPS caution will then come. If the switch is moved back to the NORM position, normal operation will not resume, even if the FCWU does not detect any failures.

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A FLAP GROUND RESET switch is installed on the maintenance test panel (right sidewall behind the co-pilot seat). The FLAP GROUND RESET switch is only operational on the ground for maintenance purposes.

INDICATION / WARNING

A three-axis trim position indicator is located on the center console. The triple trim indicator shows a pictorial presentation of the trim position of the aileron trim tab (roll), horizontal stabilizer (pitch) and rudder trim tab (yaw). The triple trim indicator includes three white indicator lights, one for each trim axis. When the autopilot activates the autotrim system, the white light for the applicable axis illuminates.

A warble tone at 850 and 854 Hz will sound when a stabilizer trim runaway of the main system is sensed.

The Central Advisory and Warning System (CAWS) annunciator panel includes a STAB TRIM warning light. The illumination of this warning caption will illuminate after 60 seconds when weight is on the wheels and the trim position is unsafe for takeoff. A voice callout “Warning Trim” will also be heard. On start up the voice callout will not be heard until 120 seconds after the engine has reached 50% Ng.

The Central Advisory and Warning System (CAWS) annunciator panel includes a FLAPS caution light. This caution will come on together with an aural gong when the FCWU shuts down the system. If the FCWU detects a flap asymmetry or a twist and the flap angle is greater than 2° it will make the CAWS FLAP caution come on will also make the CAWS PUSHER caution come on 10 seconds after the FLAPS caution, to annunciate the condition. A CAWS voice callout “Flap Asymmetry Detected, Pusher Safe Mode” will also be given. The CAWS FLAP caution will also come on if the FLAP circuit breaker on the Battery Bus circuit breaker panel opens.

A flap position indicator is located on the pilots left instrument panel. The indicator face is marked with the positions 0°, 15°, 30° and 40° and has a red warning caption. Flap position is shown by a pointer which moves in relation to flap movement. The red warning caption and a 1600 Hz aural warning tone interrupted at 5 Hz are activated anytime the airspeed is above the maximum limit for the current flap setting.

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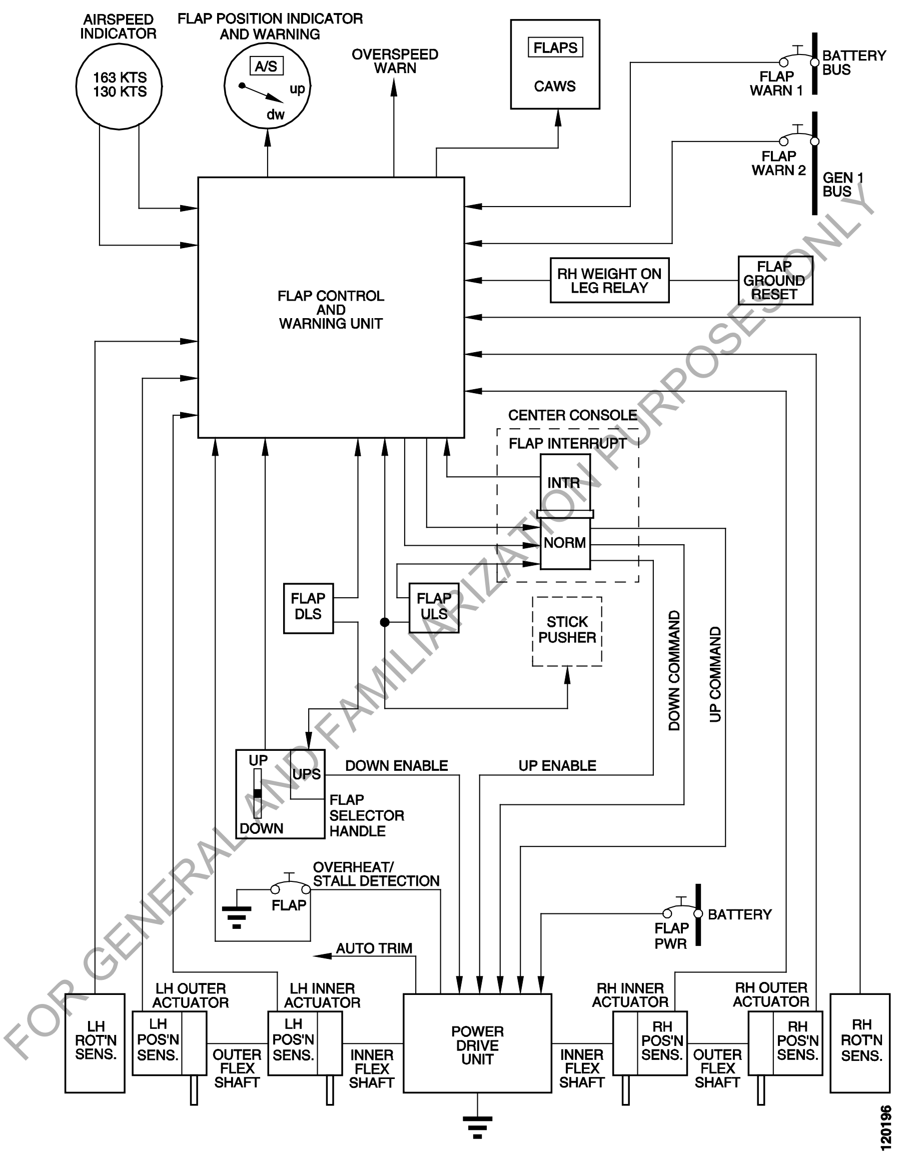

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Fig 7-3-1. Flap System

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LANDING GEAR

GENERAL

Refer to Figure 7-4-1, Landing Gear System, for system operation.

The landing gear is a conventional tricycle configuration that is extended and retracted using hydraulic pressure produced by an electrically powered hydraulic pump. Landing gear extension and retraction is the only function of the hydraulic system and landing gear operation is completely automatic upon pilot gear selection.

A nitrogen charged accumulator is used to maintain hydraulic pressure and hold the landing gear in the retracted position following a hydraulic system failure. If required, the landing gear can be lowered manually through a combination of free-falling and the emergency landing gear hand pump.

Landing gear position and warning indications consist of three indicator lights (green/red) and an aural tone with a silencer button.

Nosewheel steering is accomplished by mechanical nosewheel steering and by differential braking.

Aircraft braking is controlled by toe pedals that operate brake assemblies attached to the left and right landing gear. Propeller reverse also contributes to aircraft braking. Refer to Propeller system, this section, for more information.

DESCRIPTION

The nose gear is a fluid and nitrogen filled shock strut. The shock strut consists of a piston and fork assembly that slides inside a cylinder. A torque link connects the piston/fork assembly to the cylinder. The cylinder is mounted inside the nosewheel well. The nose gear is locked in the extended position by putting the folding strut in an over-center position. A spring is attached to the nose gear to assist in free fall during emergency extension. The nose gear doors are spring loaded to the open position and are mechanically closed during nose gear retraction. The nose gear retracts rearward into the nosewheel well and is completely enclosed by the gear doors when the landing gear is retracted.

Both main landing gear are trailing link types. A fluid and nitrogen filled shock strut connects the trailing link to the main leg hinge point. Each main gear actuator incorporates a mechanical down-lock and a gear down and locked indicator switch. The main landing gear doors consist of a single door that is attached to the main gear leg and the outside edge of the main gear wheel well. Each main gear retracts inward into the main gear wheel well. With the landing gear retracted the main landing gear wheel and tire assemblies are not enclosed and protrude out of the main gear wheel well approximately one inch (25.4 mm).

All landing gear are held in the fully retracted position by hydraulic pressure. No mechanical up-locks are required.

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Nose wheel steering is accomplished using the rudder pedals which are mechanically connected to the nosewheel. Additional nosewheel steering is done through differential braking. Use of rudder pedal only will turn the nosewheel ± 12 degrees from center while differential braking will turn the nosewheel ± 60 degrees from center. A shimmy damper is installed on the nose landing gear strut to eliminate nosewheel oscillations.

The tires are a low pressure type that allows operations from soft and unimproved fields.

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HYDRAULIC SYSTEM DESCRIPTION

The main hydraulic system comprises a power pack located in the hydraulic service bay in the left wing root behind the main spar, a nitrogen charged accumulator in the same location, a landing gear selector valve mounted in the cockpit mechanically linked to the pilots control panel selector handle by a push/pull rod and three actuators, one for each landing gear leg.

The power pack features an electrically driven variable displacement hydraulic pump along with associated filtration, pressure regulation and failure protection systems, and an integral reservoir with a visual sight gauge. It provides the main source of hydraulic pressure and flow to facilitate landing gear extension and retraction. It is pressurized with nitrogen from a pressure cylinder to prevent pump cavitation. Filtration consists of an integral filter with automatic by-pass and visual by-pass indication. (pop out button). Thermal protection is provided.

The nitrogen pressure cylinder also contains hydraulic fluid thus increasing the system fluid volume. A visual level indicator is installed at the rear of the cylinder and can be seen at the wing root when the cargo door is open. This enables the hydraulic fluid level status to be seen during a pre flight inspection.

Electrical power supply for the system is provided from the SECONDARY POWER LINE and is applied to the power pack, causing the pump to operate when low hydraulic pressure is sensed by the system pressure switch. The hydraulic control circuit is powered from the NON ESSENTIAL BUS.

The selector valve is a two position, four-way rotary type located in the cockpit and mechanically actuated by the landing gear selector handle.

The nitrogen charged accumulator is present for fluid thermal expansion and to ensure system pressure is maintained after power pack failure. Its size accounts for normal system pressure leakage rates to ensure that after such a failure, the landing gear will be maintained in the retracted position for 200 minutes.

NOTE

The landing gear may partially extend during large gust loads and then return to the retracted position. After 200 minutes, the landing gear may start extending due to loss of system pressure.

The accumulator is charged via a charging valve located in the service bay with pressure indicated on a gauge at the same location. A service selector valve, located in the service bay, allows the system to be operated from a ground hydraulic service unit.

The actuators are of the linear type with the main landing gear actuators also incorporating the down locking mechanism.

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Cockpit controls consist of the following -

- A landing gear selector handle is located on the pilot's lower right panel and facilitates extension or retraction of the landing gear. It acts directly, via a rod, on the landing gear selector valve. The handle is equipped with an electrical spring loaded solenoid which prevents it from moving to the retracted position when the airplane is on the ground. The airplane on ground status is sensed by the air/ground system which comprises two proximity switches and associated targets, one on each main landing gear leg and a relay.

- An emergency landing gear hand pump and operating handle, located at the rear of the center console, is used to assist in free fall emergency landing gear deployment after failure of the main system.

HYDRAULIC SYSTEM OPERATION

The system pressure switch monitors the hydraulic system accumulator pressure and controls the operation of the power pack pump. When the pressure in the hydraulic system accumulator is less than 2450 psi the system pressure switch operates and starts the power pack pump. When the pressure in the hydraulic system accumulator is between 2725 and 2875 psi the system pressure switch operates and stops power pack pump. The power pack pump is powered on the ground with the engine running and always in the air. This allows the hydraulic system to operate in the event of an engine failure in flight.

The low pressure switch monitors the hydraulic system fluid pressure. It will make the CAS show a Hydraulics caution if the hydraulic system fluid pressure falls to below 1800 psi.

Movement of the landing gear selector valve to pass pressure to the appropriate side of the main landing gear and nose landing gear actuator retracts the landing gear, which is then held there by continued application of hydraulic pressure. In normal operation, the landing gear is extended by moving the landing gear selector valve to apply pressure to the other side of all three actuators. Locking of the main landing gear actuators is accomplished by internal locks within the actuator housings which are actuated and released by the application of hydraulic pressure in the appropriate sense. The nose landing gear is held in its extended position by an over-center two piece drag link.

The hydraulic system is isolated in the following conditions -

- After the loss of the GEN 1 which will also isolate the NON-ESSENTIAL BUS (auto load shed) due to a GEN 1 or engine failure.

- After power pack overheat via thermal protection integral to the power pack itself.

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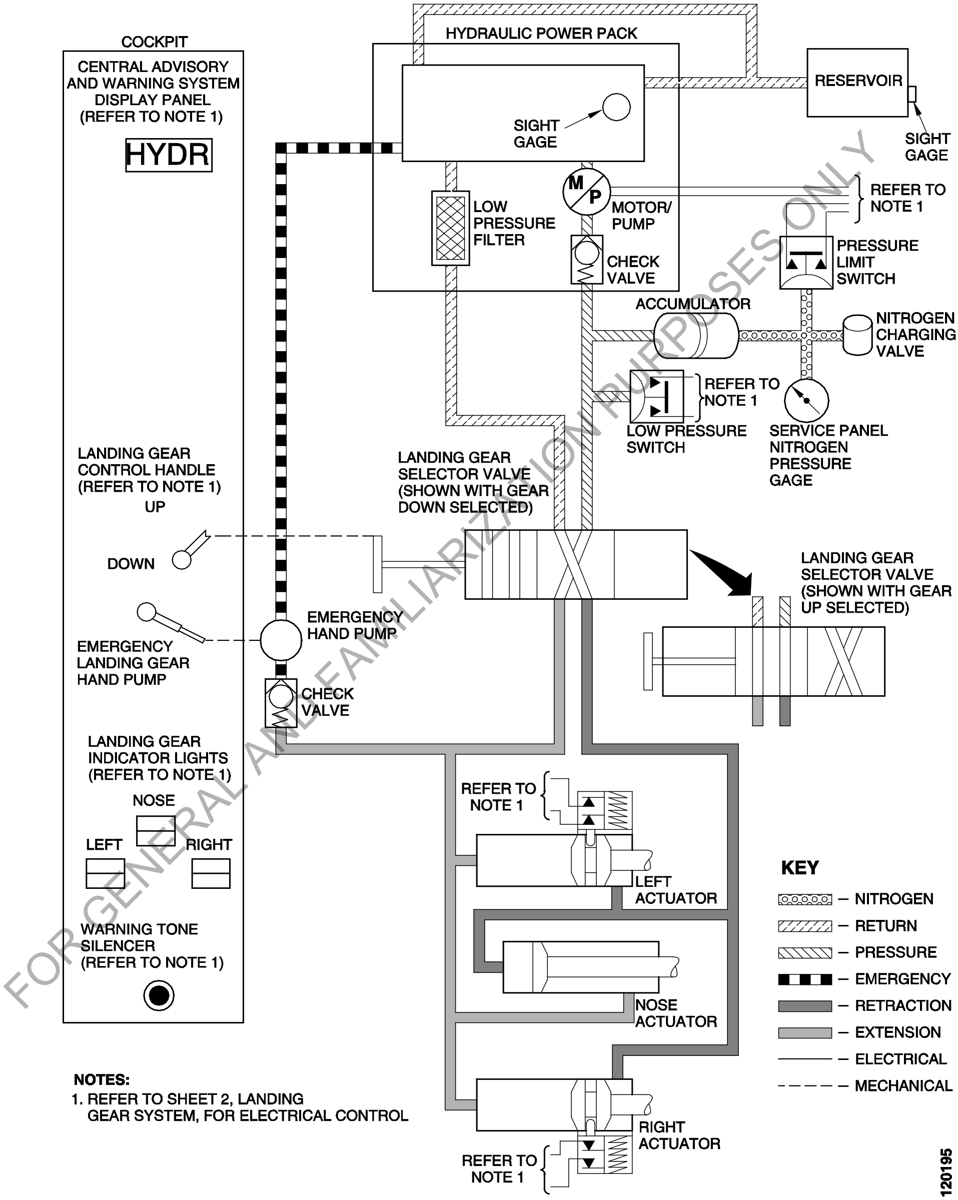

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Figure 7-4-1. Landing Gear System
(Sheet 1 of 4)

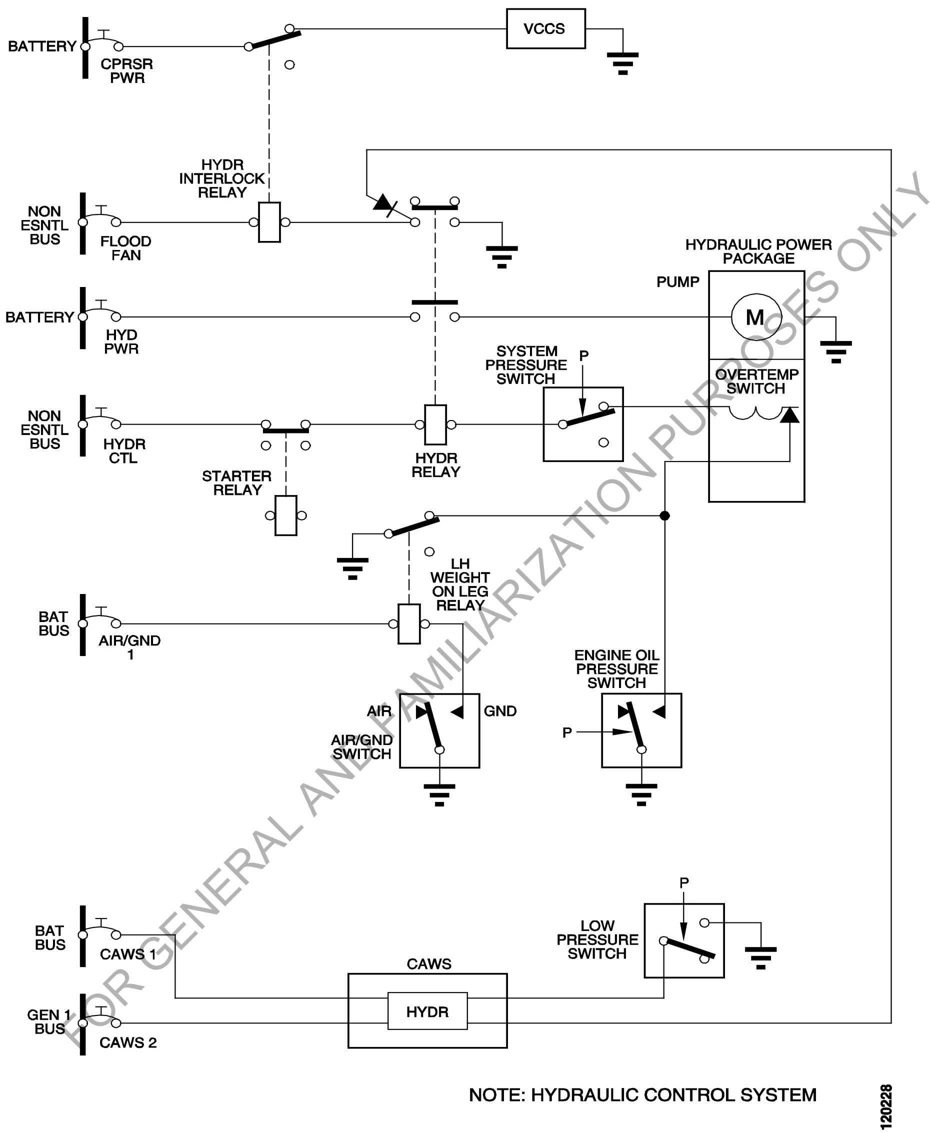

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Figure 7-4-1. Landing Gear System
(Sheet 2 of 4)

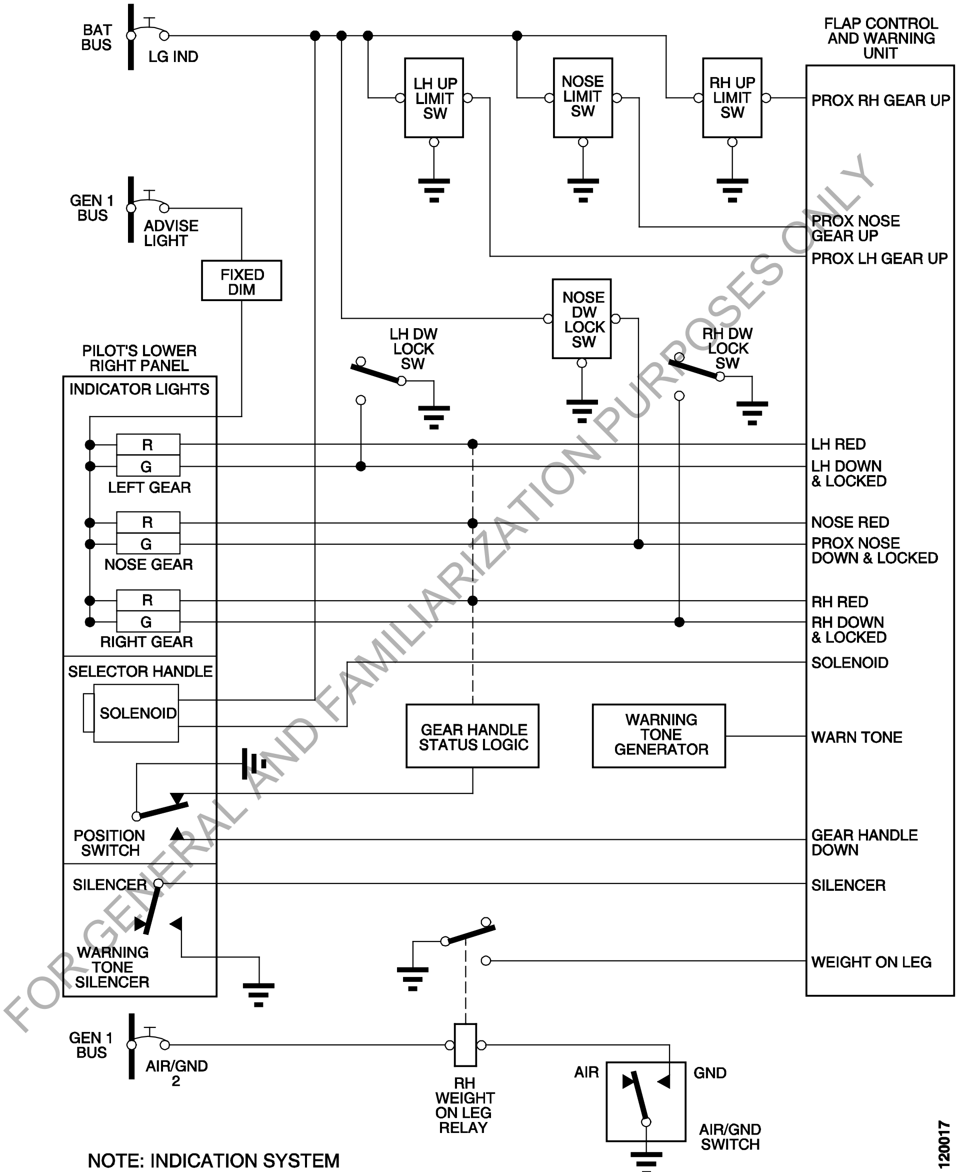

Figure 7-4-1. Landing Gear System
(Sheet 3 of 4)

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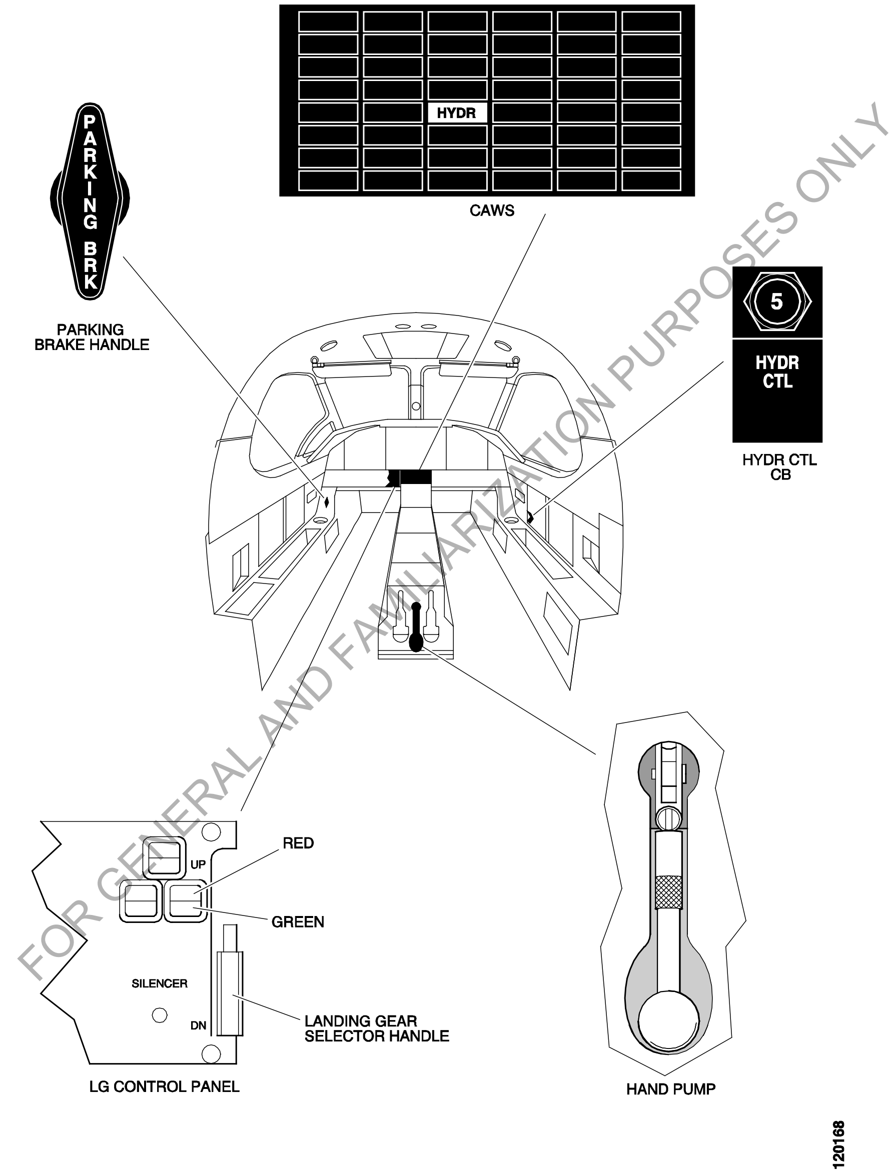

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Figure 7-4-1. Landing Gear System
(Sheet 4 of 4)

INDICATION/WARNING

Extended position indication is provided by micro switches internal to the main landing gear actuators and a proximity switch on the nose landing gear drag link. Retraction position indication is provided by proximity switches on the landing gear doors.

Landing gear position is indicated in the cockpit by three dual-indication lights (one for each leg), located to the left of the landing gear selector handle. Each light is split into two sections with the top section being a red light while the bottom section is a green light. When a landing gear is down and locked, the bottom green light will be illuminated. Anytime a landing gear is in transit, or in an unsafe condition, the top red light will be illuminated. Both lights will be off with a landing gear fully retracted.

The Central Advisory and Warning System (CAWS) annunciator panel includes a caution light labeled HYDR which is accompanied by an aural gong. This caution provides two different functions:

- In flight a continuously illuminated caption means that the power pack pump has been operating for more than 10 minutes or the main system pressure has fallen below operational limits (nominal 1,800 psi) and cannot be relied upon for proper landing gear system operation. The annunciator is illuminated 30 seconds after the pump has been operating for more than 10 minutes or low pressure is sensed by a low pressure switch mounted in the power pack pressure supply line upstream of the landing gear selector valve

- On ground after landing a continuously illuminated caption means that the power pack has been automatically initiated in flight more than six times in an hour by the system pressure switch in order to maintain system pressure. This indicates that the pressure leak rate from the accumulator is too high or a low fluid level. Pilot initiated landing gear cycle will reset this counter to zero

All three landing gear indicator lights will come on red and an audible warning tone will be heard through the overhead speaker and through the headphone audio when the following conditions are met with electrical power applied to the airplane:

- Anytime the landing gear is not down and locked, while in the air, with:

    - flaps set to 30° or more, or
    - airspeed is less than 130 KIAS and the PCL is in the idle position.

The audible warning tone can be turned off, if flaps are not set to 30° or more, by pressing the SILENCER button on the landing gear control panel.

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EMERGENCY EXTENSION SYSTEM

The emergency extension system is required to ensure that the landing gear can be extended and locked after a failure of the main system. This is accomplished by releasing the hydraulic pressure in the actuators by selecting landing gear DOWN via the selector handle. This returns the hydraulic fluid back to the reservoir, thus allowing the landing gear to free-fall. Emergency extension of the nose landing gear is assisted by a spring strut to overcome aerodynamic loads. If necessary, yawing the airplane to use the aerodynamic load may assist the emergency extension.

To manually extend the landing gear, set the landing gear selector handle to DN with airspeed less than 110 KIAS. This will allow the landing gear to free fall. If the landing gear do not completely extend and show three green indicator lights, pull the emergency landing gear hand pump handle out of the aft center console and begin pumping. Stop pumping when all three landing gear indicator lights are green. Experience has shown that approximately 60 to 80 strokes of the hand pump are required in adverse conditions. Stow the emergency landing gear hand pump handle back into the aft center console before landing.

If the HYDR caution light on the CAWS annunciator panel was on due to low hydraulic system pressure, wait until the HYDR caution light goes out. If there is no apparent landing gear malfunction, make sure that airspeed is less than 177 KIAS, then move the landing gear selector handle to UP.

NOTE

The landing gear hydraulic control circuit is on the NON ESSENTIAL BUS. In the event that generator 1 goes off-line with a subsequent auto load shed of the NON ESSENTIAL BUS, normal landing gear operation is not available. Gear extension must be accomplished by the Emergency Gear Extension procedure.

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AIR / GROUND SYSTEM

The airplane is equipped with independent weight on wheel detectors, one on each main landing gear. Each weight on wheel signal is generated by a proximity switch. Each proximity switch controls a relay that provides the AIR/GND signal to the different systems.

The LH weight on wheel signal is sent to the following systems:

LH Stick Pusher Computer
Cabin Pressurization Control System
Central Advisory and Warning System
Engine Instrument System
Hydraulic System Control

The RH weight on wheel signal is sent to the following systems:

RH Stick Pusher Computer
Landing Gear Indication
Attitude and Heading Reference System
Transponder

If a disparity occurs between the detector signals (proximity switch or relay), a failure signal is routed to the CAWS to activate the warning AIR/GND annunciator after a delay of a maximum of 10 seconds. A voice callout “Warning Air Ground” will also be heard. If both weight on wheel detectors become inoperative at the same time (within a short period of time, maximum 10 seconds), the AIR/GND warning will not be activated.

Failure of a weight on wheel signal, while the **airplane is on the ground** (AIR signal provided), will have the following effects on the systems:

LH and RH Stick Pusher Computers	The Stick Shaker and aural stall warning may activate.
Cabin Pressurization	The system will pressurize the cabin to the altitude set on the controller.
Landing Gear Indication	Selector Handle Solenoid will be retracted and it will be possible to move the Selector Handle to the UP position and retract the landing gear.
Transponder	Transponder may be active.

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Failure of a weight on wheel signal, while the **airplane is in the air** (GND signal provided), will have the following effects on the systems:

LH and RH Stick Pusher Computers	Stick Pusher is inoperative. Stick Shaker and aural stall warning still operative from the other computer
Cabin Pressurization	No effect on system operation as long as condition lever is not set to GROUND IDLE.
Hydraulic System Control	No effect on system operation as long as engine is running. If the engine stops, the hydraulic pump will be inoperative due to NON ESSENTIAL BUS shedding and the loss of the AIR/GROUND engine out sensor bypass. The landing gear must be extended in accordance with the Emergency Extension Procedures.
Landing Gear Indication	Selector Handle Solenoid will go to the locked position preventing gear retraction. Landing gear may still be extended by normal operation.
Transponder	Transponder will not be activated.

Failure of a weight on wheel signal will have the following effects on the systems at any time:

Central Advisory and Warning System	The following warnings and cautions will come on: CAB PRESS, PROP LOW P, STAB TRIM, and HYDR. A subsequent failure of one of these systems will not be annunciated
Engine Instrument System	The propeller rpm indication will be correct but the associated warnings and cautions will be erroneous

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BRAKES

Refer to Figure 7-4-2, Brake System, for system operation.

Aircraft braking is provided by two brake assemblies, one bolted to each main landing gear axle. The brakes are controlled by toe pedals attached to each rudder pedal assembly. The pilot and copilot left toe brakes operate the left brake while the pilot and copilot right toe brakes operate the right brake.

The brake system consists of a brake fluid reservoir, four brake master cylinders, a left and right shuttle valve, a parking brake valve, and two brake assemblies. If the pilot and copilot simultaneously apply pressure to the same side brake pedal, the one applying the greatest pressure will control the braking.

The brake system is separate and independent from the airplane hydraulic system. The brake fluid reservoir is located on the right hand side of the cabin sidewall and incorporates a fluid level indicator.

A separate brake master cylinder, located in the cockpit footwell, is mechanically connected to each toe pedal. There is no mechanical connection between the pilot and copilot brake pedals. Two shuttle valves, a left and a right, are used to combine inputs from their respective pilot and copilot brake pedals. Pressing a brake pedal causes the applicable brake master cylinder to force brake fluid through the respective shuttle valve and parking brake valve to the brake assembly.

Pre SB 32-013 brake assemblies have carbon friction surfaces and Post SB 32-013 and MSN 476-999 have steel friction surfaces. The performance of the two brake assemblies is similar. Each brake assembly incorporates two brake lining wear indicators. As the brake linings wear, the pins will be pulled into the piston housing. When the system is pressurized and the pins are flush with the piston housing, the brake linings must be overhauled.

The parking brake valve has two off-center cams that hold open poppet valves whenever the parking brake is released. This allows hydraulic fluid flow through the brake system. When the parking brake is set, the off-center cams are rotated to allow the poppet valves to close. This traps brake fluid under pressure between the parking brake valve and the brake assemblies.

To set the parking brake, pull the PARKING BRK T-handle fully out and rotate to lock, then evenly press both brake pedals. Release pedal pressure and the brakes will remain set. To release the brakes, rotate and push the PARKING BRK T-handle fully in.

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WHEELS AND TIRES

The wheels are split-hub type, the main wheels have three fusible plugs which melt when there is too much heat from the brakes. Tubeless tires are installed on the wheels and each wheel has a tire inflation valve and an overinflation safety plug. The main wheels have fairings on the outer hubs which make the wheels aerodynamically smooth when the landing gear is retracted. The main wheels are modified when brake assemblies with steel friction surfaces (Post SB 32-013) are installed. Figure 7-4-2. Brake System.

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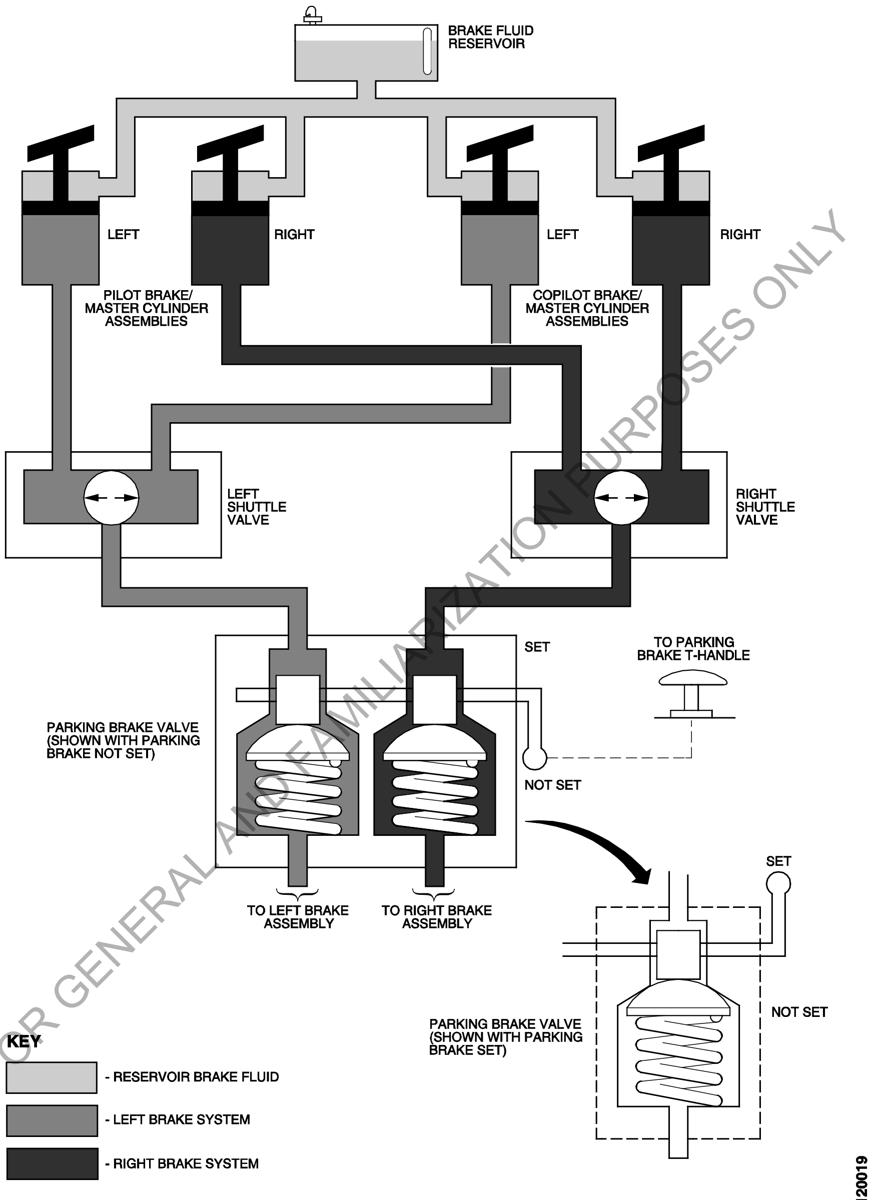

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Figure 7-4-2. Brake System

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BAGGAGE COMPARTMENT

A baggage compartment is provided at the rear of the cabin and is accessible during flight. A standard luggage net is secured at twelve attachment points to secure the baggage. An extendible baggage net can be installed instead of the standard net, to secure baggage in front of and in the baggage compartment. The floor attachments at the front of the net can be moved between frames 32 and 34.

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CARGO TIE-DOWNS

Tie-down anchor points fit into the seat rails and lock into place by an over-center lever. Tie-down straps can be secured to these anchor points.

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SEATS/RESTRAINT SYSTEMS

SEATS

For aircraft MSN 321, 401-455 and 546-660: The crew seats are adjustable both fore and aft and vertically. The fore and aft adjustment handle is under the front and the up and down adjustment handle is at the rear of the seat. All armrests can be moved upwards. The inner arms can also be turned through 90° before being moved upwards, to provide free access to get in and out of the seat (Refer to Figure 7-7-1).

For aircraft MSN 661 and up: The crew seats are adjustable fore and aft and vertically (Refer to Figure 7-7-1). They also have controls for recline, thigh support, back cushion lumbar support, armrests and headrest. The fore and aft and recline control levers are on the rear inboard side of the seats. The vertical adjustment lever and the thigh support control wheel are at the front of the seat cushion. When the thigh support control wheel is turned it raises or lowers the thigh pads. There is a push button at the bottom of each side of the seat back board. When the inboard button is pushed the lumbar support pad can be moved up or down with the aid of a handle. When the outboard button is pushed the lumbar support pad can be moved inwards or outwards by easing or applying body weight to the back cushion. The padded armrests can be moved upwards and inwards to provide free access to get in and out of the seat. They also have a control wheel on the underside which can be used to adjust the height of the armrest. The seat headrest can be adjusted by moving the headrest to the side and rotating it to one of the six lock positions. There is a life vest stowage box installed under the seat.

For the standard passenger seats, two different types of seats are available. Both seat types have a reclining backrest, sliding headrest, and a folding inner armrest. The Type I seats can have a luggage restraint bar installed on the bottom front part of the seat structure. This allows small luggage to be put under the seat.

The executive seats are leather upholstered, with 90° swivel and 3.4 in (86.4 mm) of forward/rear travel. A reclining backrest, sliding headrest, sliding armrest, magazine pocket and a restraint system are fitted. The seat position control is located on the forward edge of the arm. Pulling up on control handle will allow the seat to be moved to the desired position. Releasing the control handle will lock the seat in position. The control for the back recline is a round push button located in the inner surface of the arm. Depressing the button will allow the seat back angle to be adjusted.

The optional three seat bench comprises three seats installed on a pedestal which goes across the width of the bench. Each seat has a reclining backrest, sliding headrests and a three point restraint system. The left seat has a handle which when moved upwards allows the seat to be moved forwards to make baggage loading easier.

SEAT BELTS AND SHOULDER HARNESSES

Each crew seat is equipped with a four-point restraint system consisting of an adjustable lap belt and a dual-strap inertia reel-type shoulder harness. Each passenger seat is equipped with a three-point restraint system consisting of an adjustable reel-type lap belt and an inertia reel-type shoulder harness.

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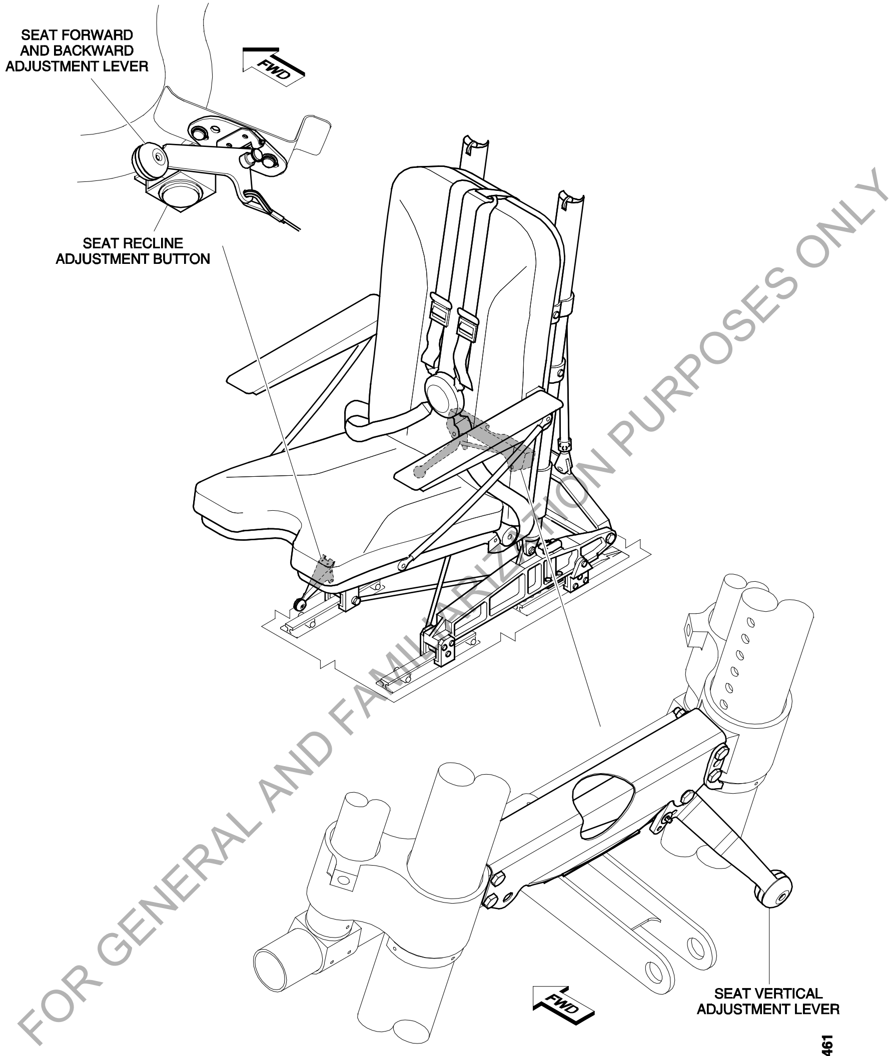

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Figure 7-7-1. Crew Seat Controls (MSN 321, 401-544 and 546-660)
(Sheet 1 of 2)

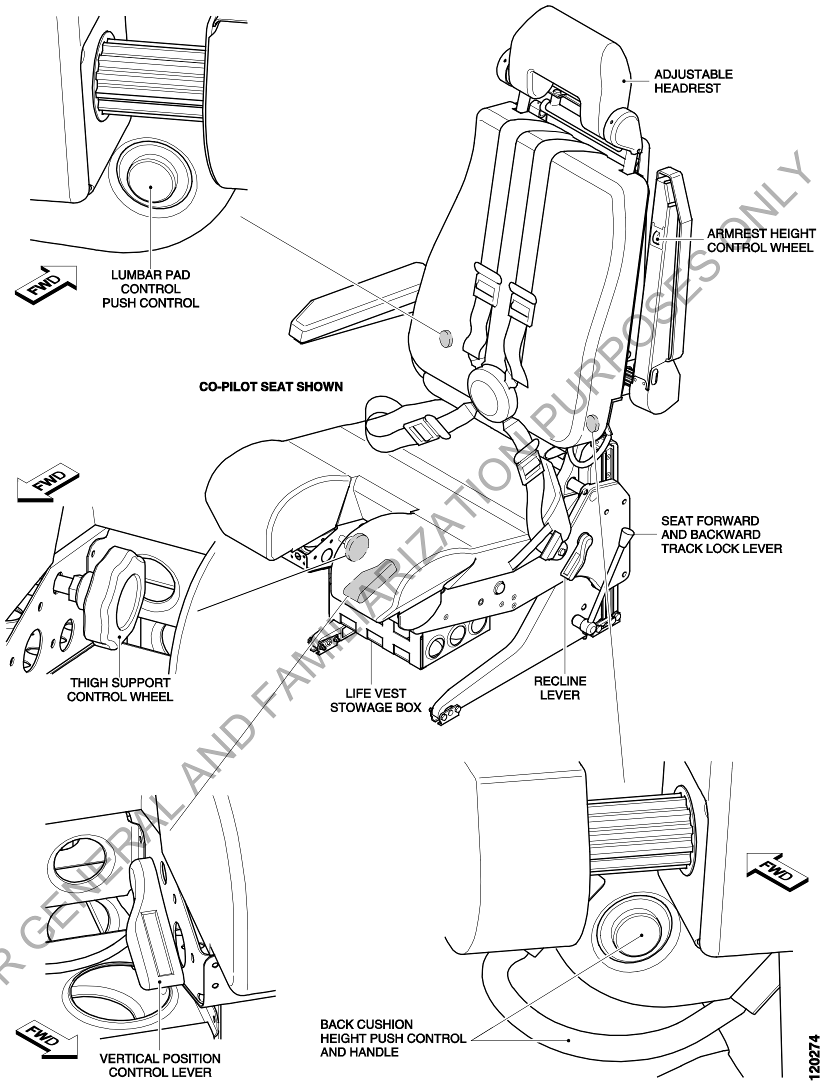

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Figure 7-7-1. Crew Seat Controls (MSN 661 and up)
(Sheet 2 of 2)

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DOORS, WINDOWS, AND EXITS

PASSENGER DOOR

The passenger door is located in the front left fuselage, immediately aft of the cockpit, and is 4 ft 5 in (1.35 m) high by 2 ft 0 in (0.61 m) wide. The door can be opened or closed from either side and is secured by six locking pins. These can be checked visually from inside the cabin to verify engagement. The door is hinged at the bottom and has an integral steps/handrail assembly which automatically extends and retracts as the door is opened or closed. A non-inflatable seal attached to the door seals the gap to allow the cabin to pressurize when the door is closed.

To open the door from the outside, pull outward on the aft end of the handle. Rotate the handle clockwise to the vertical position then pull outward on the door. As the door opens, the steps and the handrail will be pulled from the stowed position. Close the door by lifting the door into position, allowing the steps and handrail to fall into the stowed position, and rotating the handle counterclockwise. To open the door from the inside, lift the latch and rotate the handle clockwise to the open position and push the door open. To close, pull the door closed and allow the steps and handrail to fall into the stowed position before rotating the handle counterclockwise.

The passenger door is an emergency exit and it must be accessible at all times.

The CAWS warning PASS DOOR annunciator will illuminate and a voice callout “Warning Passenger Door” will be heard when the door is not properly closed and locked.

CARGO DOOR

The cargo door is located in the aft left fuselage and is 4 ft 4 in (1.32 m) high by 4 ft 5 in (1.35 m) wide. It is secured by locking pins which can be checked visually from outside the airplane to verify engagement. The door is hinged at the top and swings up out of the way to facilitate loading and unloading. A gas cylinder assists in door operation and holds the door in the open position. A non-inflatable seal attached to the door seals the gap to allow the cabin to pressurize when the door is closed.

To open the door from the outside, push the button and pull the handle outward and upward. The gas cylinder will assist in raising the door to the open position. An electrical motor and cable is installed to assist the closure of the cargo door. To operate, press and hold the switch located aft of the cargo door until the door has lowered to the near closed position. Push the door closed and push handle in until flush and the button pops back to the lock position. To open the door from the inside, remove the cover, lift the lever and pull handle to unlock and then push open the door. To close, pull down on the strap to bring the door almost closed and stow the strap. Pull the door closed and push handle down to the lock position.

The power supply to the electrical motor is from the BAT DIR BUS and is disconnected by a microswitch which is operated by the drive mechanism when the door is nearly closed. The door must be manually pushed and locked to the closed position.

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The CAWS warning CAR DOOR annunciator will illuminate and a voice callout “Warning Cargo Door” will be heard when the door is not properly closed and locked.

WINDOWS

A two-piece windshield and two side windows provide cockpit visibility. Both pilot and copilot windshields are laminated twin-layer mineral glass with an embedded polyvinyl butyrol (PVB) layer. The windshield incorporates three electric heating elements for defogging and anti-icing capability. Both side windows are stretched acrylic with inner 2 mm thick double-glazed acrylic windows. A separate direct vision (DV) window, also stretched acrylic, is installed in the left side window. This can be opened to provide pilot visibility/smoke evacuation during emergencies and can be used to provide additional airflow during ground operations.

Windshield heat is controlled by four switches, LH WSH, HEAVY/LIGHT and RH WSH HEAVY/LIGHT on the DE-ICING section of the overhead panel. The HEAVY/LIGHT switches offer two heat levels to be used as required for defog and anti-ice. The windshield is protected from an overheat condition by a temperature sensor. This sensor will remove current from the windshield heat circuit when the windshield surface temperature is above 60° C.

The cabin has four windows on the left side and five on the right side. All of the windows are stretched acrylic with integral sliding shades.

INDICATION/WARNING

Windshield heat operation is controlled by four switches on the DE-ICING section of the overhead panel. The system is selected on by pressing the switches LH WSH and RH WSH. When the system is selected to on, an ON annunciator in the switch comes on. When the HEAVY/LIGHT switch is pressed, the system toggles between light and heavy and an arrow symbol annunciated in the switch shows which selection is made. In the event of a failure, an amber WSHLD HEAT caption on the CAWS is illuminated and an aural gong will sound.

EMERGENCY EXIT

The overwing emergency exit is located over the right wing and is 2 ft 2 in (0.68 m) high by 1 ft 6 in (0.49 m) wide. This exit contains a window and can be quickly opened from either inside or outside when required. A non-inflatable seal attached to the exit seals the gap to allow the cabin to pressurize when the exit is in place. To open the exit from inside, remove cover and pull handle to release exit locking mechanism and pull inward. To open from the outside, push on the release lever and push exit inward. Refer to Figure 7-8-1, Emergency Exit.

AIRCRAFT SECURITY

To secure the aircraft when parked, install the lock pin in the emergency exit (Refer to Figure 7-8-1) and lock the cargo and passenger door locks. Lock the service door under the rear fuselage, if a lock is installed.

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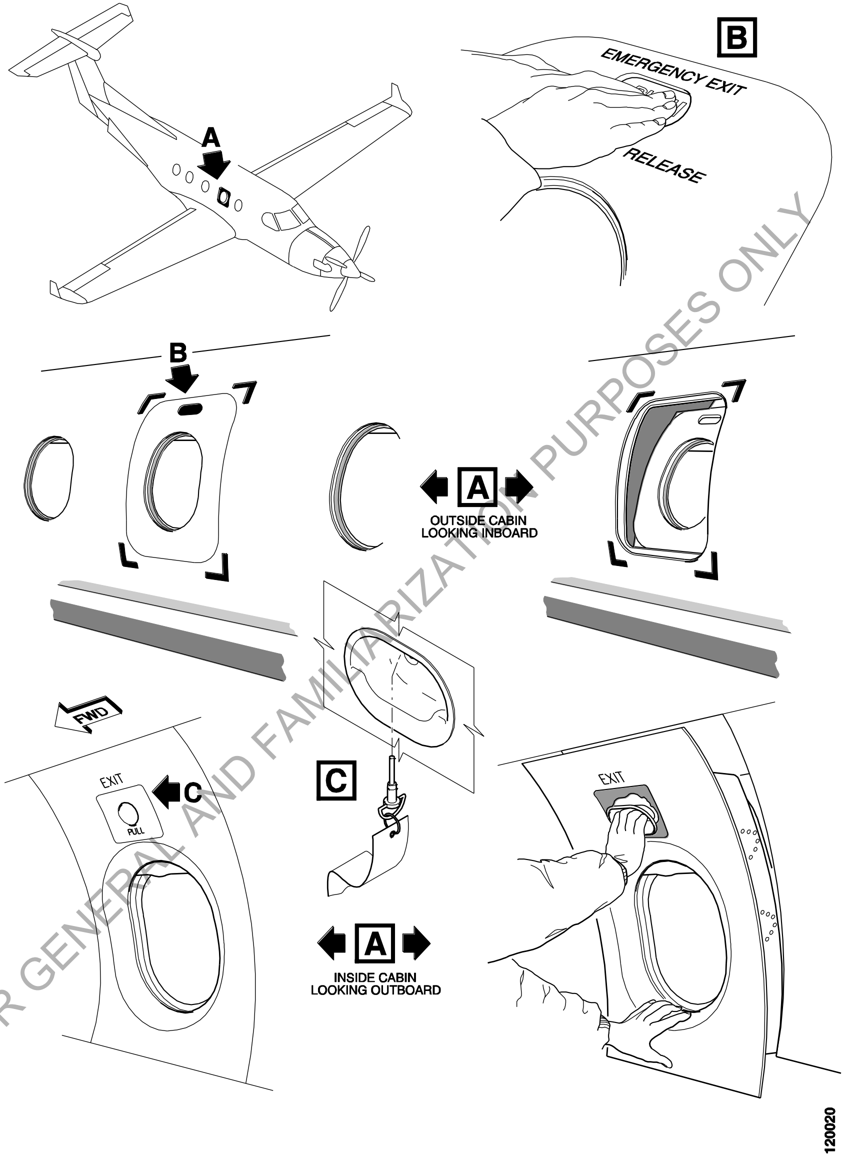

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Figure 7-8-1. Emergency Exit

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CONTROL LOCKS

The elevator and ailerons can be secured by placing a control lock through the hole in the collar and control column when the elevator is full down and the ailerons are neutral. For flight the control lock is stowed in a stowage point located on the cockpit left sidewall to the rear of the pilots seat. The rudder is held in position by the mechanical connection with the nose wheel steering.

WARNING

THE CONTROL LOCK MUST BE REMOVED BEFORE TAKE-OFF.

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ENGINE

DESCRIPTION AND OPERATION

Refer to Figure 7-10-1, PT6A-67B Engine, for engine configuration.

This airplane is powered by the Pratt & Whitney PT6A-67B, which is a light weight, reverse flow, free turbine engine. In addition to the gas generator section, the PT6A-67B incorporates a power section with the power turbine and propeller reduction gearbox, an integral oil system, and an accessory gearbox for mountings for various accessories.

Air enters the compressor through an annular plenum chamber. The compressor consists of four axial stages and a single centrifugal stage. Stator vanes between each stage of compression diffuse the air, raise its static pressure, and direct it to the next stage of compression. From the centrifugal compressor, air flows through a diffuser tube, then changes direction 180 degrees as it flows into the combustion chamber. A compressor bleed valve is installed on the gas generator case at the 3 o'clock position. It automatically opens to spill interstage compressor air to prevent compressor stall.

The combustion chamber consists of two perforated annular sections bolted together with a large exit duct. Compressed air enters the combustion chamber through the perforations, where it is mixed with fuel and ignited. The rapidly expanding gas is directed through another 180 degree direction change into the turbine.

The turbine consists of a single stage compressor turbine and a two-stage power turbine. As the gas exits the combustion chamber, it is directed onto the compressor turbine, which powers the compressor. From the compressor turbine, the gas is directed to the two-stage power turbine which drives the propeller via the propeller reduction gearbox. Engine inter turbine temperature (ITT) is measured between the compressor and power turbines.

Gas flow is directed into the exhaust duct from the turbine. The exhaust duct has an annular inlet which leads exhaust gas to a bifurcated duct connected to two opposed exhaust ports. The exhaust duct is made from heat resistant nickel alloy metal and incorporates mounting flanges for the exhaust nozzles.

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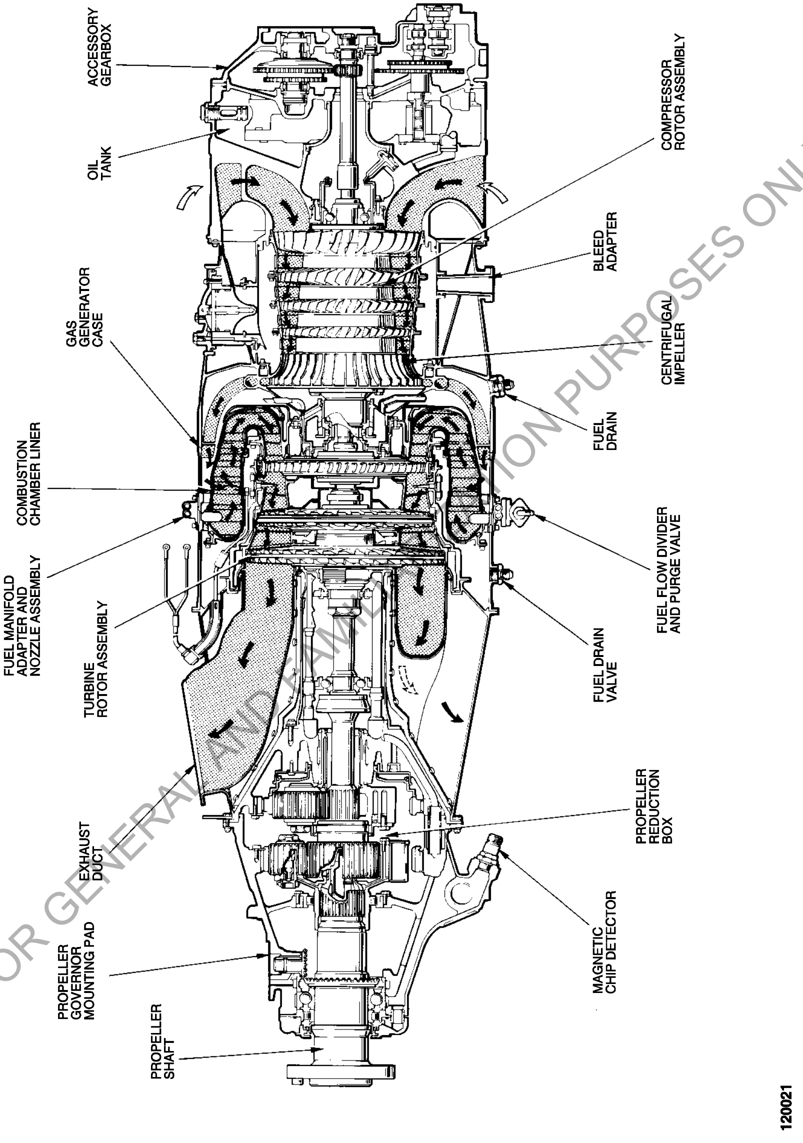

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Figure 7-10-1. PT6A-67B Engine

AIR INDUCTION

The air induction system is integrated into the front and rear lower cowlings and comprises of an air inlet and inlet duct, a plenum, and an inertial separator.

The air inlet consists of a crescent shaped metal leading edge through which hot exhaust is passed to prevent ice accumulation. The exhaust gas is extracted from the left hand side exhaust stub by the means of a 1.5 inch diameter pitot probe inserted into the stub itself. It then passes through the lip, consisting of a sealed chamber, before exiting into the right hand stub through a 1.5 inch discharge tube. The probes are connected to the exhaust lip by 1.5 inch diameter metal ducts complete with integral connectors. The inlet duct, which connects the inlet lip to the plenum, consists of a diverging nozzle following the same general shape as the inlet lip.

The plenum consists of a sealed circular metal canister surrounding the engine compressor inlet screen. It is here that the engine draws air to be compressed for combustion and services supply.

The inertial separator is of the `fixed geometry´ design and provides engine induction system protection when operating in icing or FOD conditions. It can be used for takeoff when operating in a FOD environment. It comprises of a fixed No. 2 mesh screen attached to the rear wall of the plenum covering a percentage of the inlet area, a moveable outlet door and electrical actuator situated directly above the oil cooler outlet exit, and a converging by-pass duct.

In normal operations (non icing, non FOD) the outlet door is closed which seals the by-pass and provides the induction air with a single flow path to the plenum and engine through the porous No. 2 screen.

In icing or FOD conditions the actuator is retracted to open the outlet door. This allows a flow path past the plenum to ambient and increases the pressure ratio across the inlet system. The increased pressure ratio has the effect of accelerating heavy particles present in the inlet air, which then go straight past the plenum and into the by-pass duct before exiting through the outlet door. In icing conditions the porous No. 2 screen ices to restrict the flow path of solid particles which can not turn into the plenum and thus further assist in engine protection. However the pressure of the air to the engine, with the inertial separator open, is also reduced with consequent reduction in available engine performance.

The inertial separator outlet door operation is controlled by the INERT SEP switch on the DE-ICING section of the overhead panel. The switch has two positions OPEN and off, when the switch is pushed to the open position an OPEN annunciator in the switch is illuminated. The door opens when the switch is pushed to OPEN. When the door is selected to open but does not reach its selected position, an amber INERT SEP caption on the CAWS is illuminated and an aural gong will sound. When the switch is pushed to off the door closes and the switch ON annunciator will go off.

After failure of the inertial separator, the aircrew should prepare for departure of icing conditions as soon as possible.

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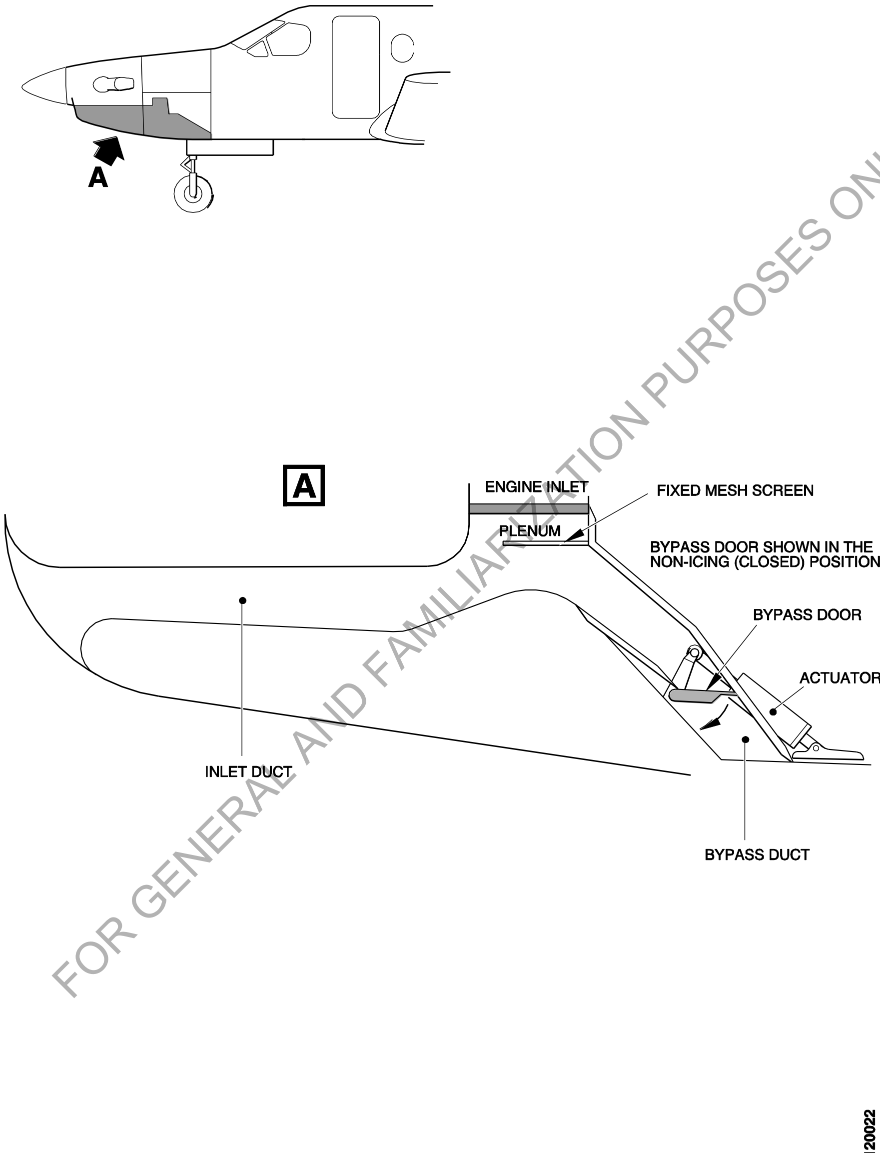

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Figure 7-10-2. Inertial Separator

CONTROLS

Refer to Figure 7-10-3, Engine and Propeller Controls / Indication.

Engine power is controlled by POWER CONTROL, CONDITION, and MANUAL OVERRIDE levers located on the center console.

POWER CONTROL LEVER

The POWER CONTROL lever (PCL) selects the required engine power (N_g) and in certain conditions it directly controls the propeller pitch. The PCL has a flight and a ground operating range separated by an idle detent. The flight operating range is forward of the detent. As the PCL is moved forward of the idle detent the minimum propeller pitch (6° to 12°) is directly controlled by the PCL while the propeller is in an underspeed condition during low engine power at a low airplane speed. When the PCL is moved further forward, engine power and airplane speed increase until each are high enough for the propeller to operate in a constant speed mode. In this mode, the Constant Speed Unit (CSU) selects the propeller pitch to maintain a propeller speed of 1700 rpm.

When the PCL is at the idle detent, the gas generator is at idle and the propeller is at minimum pitch. A lifting action to raise the PCL over the detent is required to move the PCL into the ground operating range.

WARNING

DO NOT MOVE THE PCL BELOW THE IDLE DETENT WHEN THE ENGINE IS NOT OPERATING TO PREVENT DAMAGE TO THE CONTROL LINKAGE.

PCL OPERATION AFT OF THE IDLE DETENT IS NOT PERMITTED IN FLIGHT OR WHEN ENGINE OPERATION IS CONTROLLED BY THE MANUAL OVERRIDE LEVER.

Aft of the idle detent is the ground operating range or beta mode. The Nf governor limits the propeller speed to an underspeed condition to give the beta valve full authority in controlling the propeller pitch. The engine power and propeller pitch are directly controlled by the PCL. Initial PCL movement aft of the idle detent adjusts the propeller pitch while the gas generator remains at idle and can be used to control taxi speed. Further aft movement causes the propeller to move into the reverse range followed by an increase in engine power.

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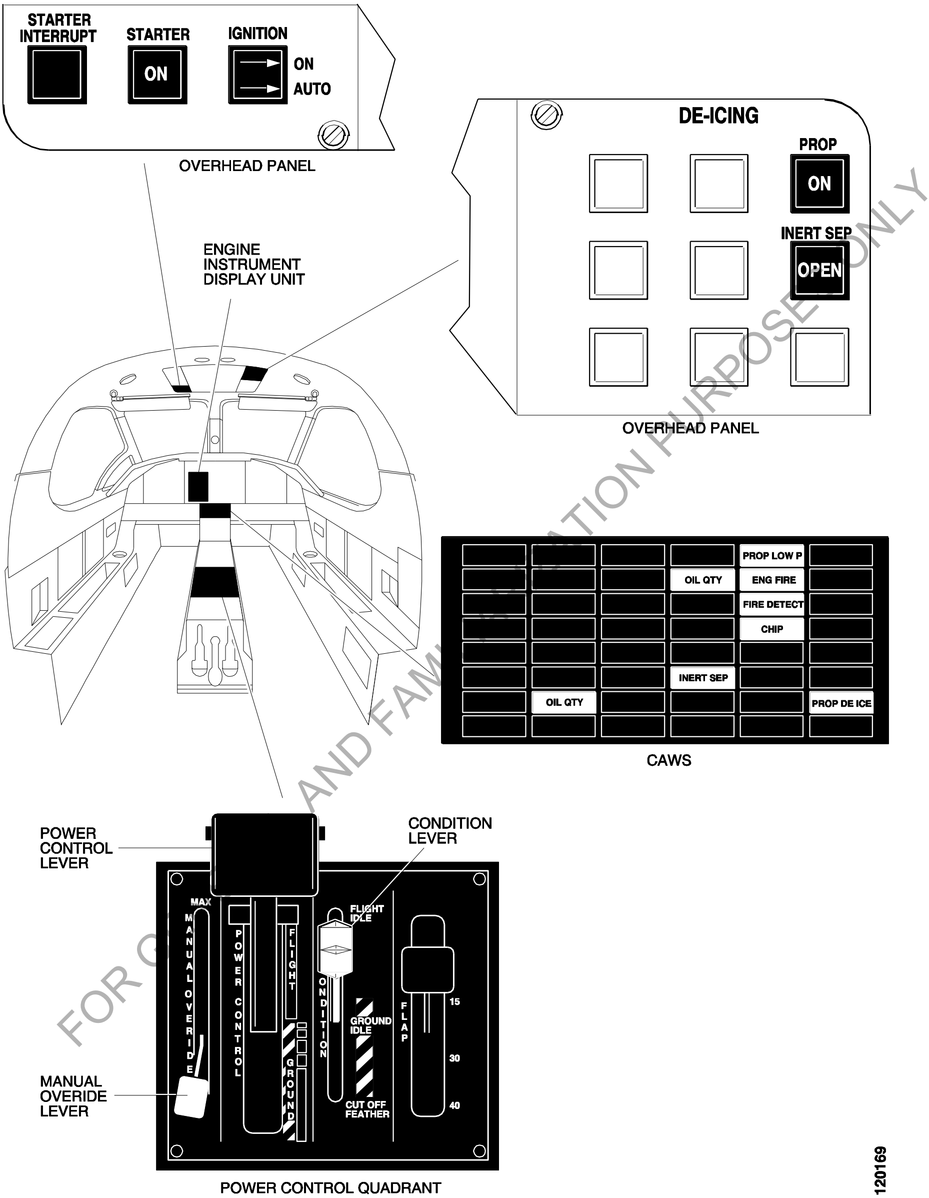

Figure 7-10-3. Engine and Propeller Controls / Indications

MANUAL OVERRIDE LEVER

Description

The MANUAL OVERRIDE lever (MOR) is located on the center console to the left of PCL. The MOR controls the engine power in case of a pneumatic failure of the engine fuel control or in case of a PCL system failure. The MOR lever is an emergency device and it is possible to exceed engine limits if the MOR lever is operated too fast. However, even if the engine limits have been momentarily exceeded, the MOR will allow the crew to continue safe flight and landing if the Engine Failure in Flight - Partial Power Loss emergency procedure is followed.

The MOR directly operates the fuel metering valve by mechanically compressing the pneumatic bellows (Py pressure) in the FCU. There is a gap between the MOR mechanism and the pneumatic bellows. This gap must first be taken up before the pneumatic bellows start to compress, this results in a dead band when starting to operate the MOR lever. In case of a Py leak, the engine spools down to minimum fuel flow with no response to PCL inputs. Minimum fuel flow is 90 lb/h and results in 35% Ng on the ground to 70% Ng at 30,000 ft. The higher the altitude and the faster the forward speed the longer the engine spool down time to 50% (spool down times of 15 secs are possible). At high altitudes it is possible to achieve full engine power when operating the MOR system. At low altitudes with the MOR lever fully forward the MOR system may not give full engine power (min. 30 psi torque). When the MOR system is in operation the torque limiter and Ng governor are inoperative.

Operation

During normal engine operation the MOR lever is in the full aft or OFF position. In the case of a possible PCL or pneumatic failure, the PCL should be exercised to check engine response. If not successful the PCL should be set to the idle position and the MOR lever operated slowly forward (at least 4 secs to the mid position) to take up the dead band until the engine responds (fuel flow above 90 lb/h and Ng/ITT stable or increasing), then wait until the engine stabilizes. If the engine stalls and/or ITT reaches 870° C, operate the MOR lever slightly rearward then forward again with an even slower movement. If the engine is allowed to drop below 50% Ng, starter assistance may be required to recover Ng above 50%. Once the engine has stabilized adjust the required power setting with the MOR lever. Observe the engine limitations by making adjustments with the MOR lever. Do not permit the Ng to fall below 65% as ITT may then be exceeded, this will also maintain better engine acceleration. In descent and until touch down adjust Ng to 75% or above. After touch down select cut-off feather to avoid exceeding ITT limits. On the ground with no forward speed it is not possible to recover low Ng with the MOR lever.

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WARNING

PCL OPERATION AFT OF THE IDLE DETENT IS NOT PERMITTED WHEN ENGINE OPERATION IS CONTROLLED BY THE MANUAL OVERRIDE LEVER.

CAUTION

THE MOR LEVER MUST BE IN THE OFF POSITION PRIOR TO ENGINE START TO PREVENT A HOT START.

NOTE

During MOR operation the Py pressure has no authority which causes the loss of the torque limiting function and Nf governor operation (no reverse power to be used). Maximum N_g is also not limited.

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CONDITION LEVER

The Condition Lever has three positions and is used to select the gas generator idle speed, shut down the engine, and feather the propeller. The GROUND IDLE position (G.I.) is for ground operation only. This setting ensures that the propeller speed remains above the prohibited range (350 rpm to 950 rpm) for ambient conditions up to a temperature of approximately 45°C. The FLIGHT IDLE position (F.I.) is selected for flight operation which provides sufficient bleed air flow to maintain cabin pressurization at minimum N_g and to give smooth engine response to PCL movement during approach and landing. The CUT-OFF/FEATHER position mechanically stops the fuel flow to shut down the engine and energizes the overspeed governor solenoid valve, which feathers the propeller at the same time. The low fuel pressure switch is inoperative when the Condition Lever is in the CUT-OFF/FEATHER position.

To move the Condition Lever from the CUT-OFF position the lever needs to be lifted. Movement from GROUND IDLE to FLIGHT IDLE needs only pressure on the lever towards the new positions to overcome the soft stop. To move the lever from FLIGHT IDLE to GROUND IDLE it has to be lifted to get over the soft stop. To move the lever from GROUND IDLE to CUT-OFF/FEATHER it has to be lifted again to get over the hard stop.

Aircraft Post SB 76-001 and 521 & UP have a cut-off guard installed which makes a positive hard stop at the GROUND IDLE position. The hard stop is held in position by a spring. A black guard lever is attached to the hard stop and protrudes from the right side of the Condition Lever. The guard lever must be pushed to the right against the spring pressure to move the hard stop clear of the Condition Lever. The Condition Lever can then be lifted and moved to the CUT-OFF/FEATHER position in the normal way. The engine STARTER and IGNITION switches are located on the overhead panel.

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ENGINE FUEL

Refer to Figure 7-10-4, Engine Fuel System, for system configuration. For airplane fuel storage and distribution, refer to Fuel system, this section.

The engine fuel system consists of an oil to fuel heat exchanger, a high pressure engine driven fuel pump, a fuel control unit, a fuel flow transducer, a fuel flow divider and dump valve, and the fuel nozzles.

Fuel is delivered to the fuel/oil heat exchanger from the low pressure engine driven pump. The oil to fuel heat exchanger pre-heats the fuel, to eliminate the chance of ice formation in the fuel, and reduces the oil temperature. The high pressure engine driven fuel pump delivers fuel to the fuel control unit after it passes through the oil to fuel heat exchanger. See Fuel System for more information.

The fuel control unit is controlled by the POWER CONTROL and CONDITION levers during normal operations, and the MANUAL OVERRIDE lever during emergency operation. Fuel flows through the fuel flow transducer on its way to the fuel flow divider and dump valve. The fuel flow transducer converts fuel flow rate into an electrical signal which is then displayed in the cockpit on the Engine Instrument System (EIS).

The fuel flow divider and dump valve serves two functions. First, it divides the fuel between the primary and secondary system. Secondly, it directs air from the purge air accumulator into the fuel manifolds to purge them of unused fuel at engine shutdown.

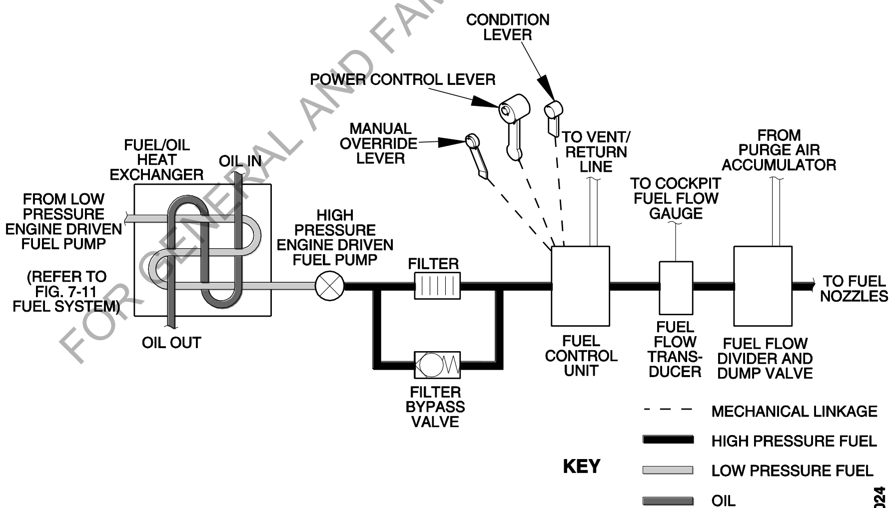

Figure 7-10-4. Engine Fuel System

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OIL

Refer to Figure 7-10-5, Engine Oil System, for system configuration.

The engine oil system consists of pressure, scavenge, and breather systems with the oil tank being an integral part of the engine compressor inlet case. Oil is supplied to the engine bearings, reduction gears, accessory drives, torquemeter, and propeller governor. Oil is also used to cool the bearings. A filler neck with quantity dipstick and cap are located on top of the accessory gearbox. The quantity dipstick is marked in one US quart increments. A visual sight gauge is provided to determine oil quantity without removing the dipstick. If the oil level is in the green range of the sight gauge there is sufficient oil quantity for flight. If the oil level is below the green range, the oil system needs refilling according to the dipstick markings. If the CAWS OIL QTY warning illuminates with a voice callout “Warning Oil”, the oil level is not adequate for safe engine operation. It is not recommended to start a flight with the oil level below the green range on the sight glass. Total oil capacity is 3.6 US gal (13.6 liters) while usable oil quantity is 1.5 US gal (5.7 liters). The oil tank incorporates a drain plug.

An engine driven gear type pressure pump provides oil to the engine bearings, torquemeter, propeller bearings and reduction gears, and propeller governor. Oil flows from the integral oil tank, through the pick-up screen, to the oil pump. Oil then goes through a pressure regulating valve which regulates oil pressure to between 90 and 135 psi (6.2 to 9.3 bar). A pressure relief valve opens when pressure exceeds 160 psi (11.0 bar), possibly during cold weather operations. Oil then goes through a cartridge type oil filter assembly, which incorporates a bypass valve and a spring loaded check valve. The bypass valve allows oil to bypass the filter in case the filter becomes clogged, however oil pressure drops to below 90 psi (6.2 bar) when the filter by-pass valve is open. The check valve prevents gravity oil flow into the engine after shutdown and permits the oil filter to be changed without draining the oil tank. Oil is then directed throughout the engine and applicable accessories.

The oil scavenge system incorporates two double element pumps. The oil from the reduction gearbox is pumped directly through the airframe mounted oil cooler. All remaining oil passes through the oil to fuel heat exchanger and, depending on oil temperature, is directed back to the oil tank or through the oil cooler.

When the fuel temperature is low, warm oil flows through the oil to fuel heater. At fuel temperatures above 21° C (70° F) the bypass valve begins to open and at 37° C (98° F) the bypass valve is fully open and the oil bypasses the oil to fuel heater. The scavenge system in the propeller reduction gearbox incorporates a magnetic chip detector that detects foreign matter in the system and causes the CHIP caution light on the CAWS annunciator panel to come on and an aural gong will sound. The chip detector also acts as the propeller reduction gearbox oil drain. An optional second magnetic chip detector can be installed in the accessory gearbox. It is also connected to the CAWS CHIP caution and operates in parallel to the reduction gearbox chip detector.

The breather system allows air from the engine bearing compartments and the propeller reduction and accessory gearboxes to be vented overboard into the right exhaust stub, through the centrifugal breather in the accessory gearbox.

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OIL DEBRIS MONITORING (ODM) (MSN 534-999 PRE SB 79-006)

A sensor module is installed in the oil pipeline to the oil cooler. The sensor module detects metal particles above a certain size that pass through it. A signal conditioner connected to the sensor converts a detected metal particle into a pulse signal. The signal conditioner also has automatic Built In Test (BIT). The particle pulse and BIT signals are sent to the power module where they are monitored for correct operation. The power module is installed on the firewall. It receives electrical power from the battery bus through the ODM circuit breaker. The power module supplies electrical power to the sensor module and the return signals from the sensor to the EIS.

TORQUE LIMITER

A torque limiter is installed on the engine at the torque transmitter boss on the forward engine case. Within the unit is a sealed bellows connected directly to the torquemeter oil pressure outlet, a chamber connected to the reduction gearbox to provide gearbox static pressure and to a drain port on the thrust bearing cover, a balance beam, and a pneumatic pressure orifice.

Oil pressure proportional to engine torque is applied through cored passages in the reduction gearbox to the sealed bellows in the limiter body. The bellows is mechanically connected to the balance beam and to the controlling spring. With an increase in torque pressure, above the control spring setting, the balance beam adjusts to compensate for this increase and causes the pneumatic pressure orifice to open and bleed off Py air. As Py air pressure is bled off, the fuel flow from the FCU is reduced by closing the metering valve, causing engine speed and hence engine torque to decrease until engine torquemeter pressure is balanced by the torque control spring pressure; at this time the Py pressure orifice close.

The torque limiter should assist the pilot during takeoff. In most cases it limits the maximum torque to below 44.3 psi (see description below). However, it is the pilot's responsibility to respect all engine operating limits including torque by reducing engine power.

The torque limiter limits the engine torque to below 44.3 psi. Due to ambient pressure at altitude and interference with the FCU maximum governing speed, maximum torque may not be obtained.

Engine torque will drop approximately 3.9 psi per 10,000 feet of altitude. Above 102% to 104% Ng (maximum Ng limit) the torque will decrease by approximately 2.9 psi. After this point the engine power is limited to maintain 104% Ng.

The maximum torque droop due to altitude has been considered in the static takeoff and balked landing torque charts.

If the maximum torque according to the torque chart is below flat rating (below the torque limiter setting), the torque has to be set manually by the PCL. Torque limiter operation must always be verified to ensure engine limits are respected. During the takeoff and the balked landing the PCL does not need to be retracted unless any limits are exceeded. The torque (if below flat rating) and ITT increases are acceptable.

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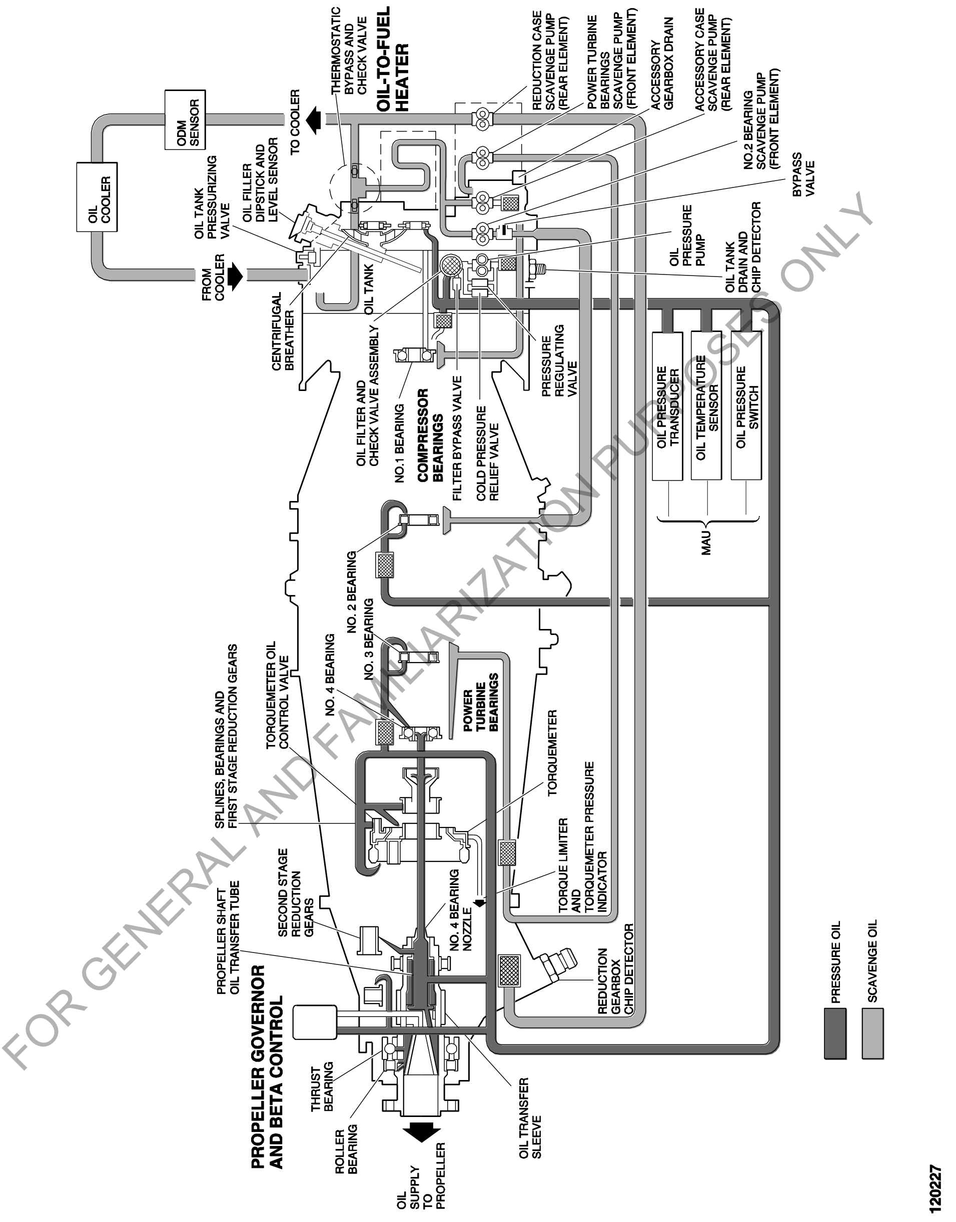

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Figure 7-10-5. Engine Oil System

INDICATION/WARNING

Engine indication for normal operation is displayed on the Engine Instrument System (EIS).

Generator 1 and generator 2 voltages and currents are displayed on two of the EIS displays (GEN 1 and GEN 2). Continuous monitoring of the voltages and currents for close to limit cautions and out of limit warnings is provided by the EIS.

The CAWS red warning lights that indicate engine status are:

PROP LOW P	Indicates propeller has gone below the minimum in-flight pitch (6°) with the airplane not on the ground. A voice callout “Warning Prop Pitch” will be heard.
OIL QTY	Indicates low engine oil quantity when the engine is not running. A voice callout “Warning Oil” will be heard.
ENG FIRE	Indicates an overtemperature condition and/or possible engine fire. A voice callout “Fire, Fire, Fire” will be heard.

The CAWS amber caution lights that indicate engine status are:

CHIP	Indicates metal particles in the engine oil system when airplane is on the ground and in the air.
INERT SEP	Indicates an inertial separator door operation failure.
PROP DE ICE	Indicates a malfunction in the propeller deice system.
FIRE DETECT	Indicates a malfunction in the engine fire detection system.

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STARTING

Starting is provided by a combination starter/generator unit. Starter function is controlled by the STARTER switch on the pilot's overhead panel. When the STARTER switch is pressed to ON for more than 2 seconds, the green ON annunciator in the switch is illuminated, and the EIS energizes the Starting Control Relay which through the Starter Relay energizes the starter. The starter will automatically disengage and the green ON annunciator in the switch goes off when the engine Ng reaches 50% or 60 seconds after the start sequence was initiated.

The start sequence can be interrupted at anytime by pressing the STARTER INTERRUPT switch on pilot's overhead panel. When pressed, the EIS will remove the ground from the Starter Master Relay causing it to open and remove electrical power from the starter circuit.

For aircraft with the second battery option the start sequence is in two stages. Stage 1 starts the engine start sequence using the second battery. When the engine reaches at 10% Ng or 10 seconds after the start sequence was initiated power from the main battery is also supplied to the start sequence.

For improved engine starting with a cold engine (oil temperature below +5° C), use FLIGHT IDLE position for engine starting. Set to GROUND IDLE when Ng is above 50%. At FLIGHT IDLE more fuel is provided during the start cycle to enhance engine acceleration to idle speed.

For information on the generator function, refer to Electrical System, this section.

IGNITION

Ignition is provided by an ignition exciter and two spark igniter plugs. The ignition exciter is a sealed electronic unit mounted at the engine cowling and is operated by the aircraft 28 VDC system. Two spark igniter plugs, located at the 4 and 9 o'clock positions in the gas generator section, provide the spark to ignite the fuel/air mixture.

Ignition is controlled from the cockpit by the IGNITION switch, located on the pilot's overhead panel. The push switch has two positions, ON and AUTO. When set to ON, ignition will occur continuously.

When set to AUTO, ignition will automatically activate, regardless of the PCL position, when the ITT is less than 500° C and the Ng is 10% or more. It stops 10 seconds after the ITT is more than 500° C and when the Ng is less than 10%.

Ignition should be manually switched ON when operating in heavy precipitation.

ACCESSORIES

Engine accessories comprising the propeller, propeller overspeed governors, and torque limiter are mounted on the front of the engine. The starter/generator, second generator, fuel control unit, high and low pressure fuel pumps, and fuel/oil heat exchanger are mounted on the accessory gearbox.

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FIRE DETECTION

The system is composed of a sensor element and a responder. The sensor is a stainless steel capillary tube filled with helium and containing a central hydrogen-charged core which readily releases hydrogen gas when heated above a temperature threshold. The responder houses both the fire pressure switch and the integrity switch consisting of preformed metal diaphragms which snap over center to contact stationary pins under the effect of gas pressure.

Due to generalized temperature increase over the entire length of the sensor, the helium pressure increases and actuates the fire pressure switch triggering the alarm. Alternatively, when the sensor is heated up intensely over a short length, the core material releases hydrogen gas causing a pressure rise and actuates the fire pressure switch. The CAWS warning ENG FIRE red light will illuminate and a voice callout “Fire, Fire, Fire” will be heard whenever the fire pressure switch is activated. Both the averaging and discrete functions are reversible. When the sensor tube is cooled, the average gas pressure is lowered and the discrete hydrogen gas returns to the core material. The reduction of internal pressure allows the alarm switch to return to its normal position, opening the electrical alarm switch.

In addition to the pressure activated alarm switch, the integrity switch is held closed by the averaging gas pressure at all temperatures down to -55° C. If a detector should develop a leak, the loss of gas pressure would allow the integrity switch to open and activating the system fault caution. The amber FIRE DETECT caution light will illuminate when the Fire Detection system is inoperative.

System integrity is checked by pressing the FIRE switch on the TEST section of the overhead panel. When pressed, the availability of electrical power and circuit continuity is checked. Proper system function is indicated when both the ENG FIRE and FIRE DETECT annunciators illuminate. If the FIRE DETECT annunciator fails to illuminate during the test, the warning circuit is already closed and will not provide proper warning. In addition a back up power supply to the overhead panel is tested when the switch is pressed.

CAUTION

DUE TO THE COMPOSITE CONSTRUCTION OF THE ENGINE COWLING AND THE POSSIBILITY OF TOXIC GASSES, THE AIRPLANE ECS MUST BE SHUTOFF WHEN A FIRE CONDITION IS SUSPECTED.

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ENGINE INSTRUMENT SYSTEM (EIS)

GENERAL

The Engine Instrument System (EIS) is a computer controlled system which receives input from the sensors. It displays engine and other system information and provides warnings when certain parameter limits are exceeded (Figure 7-11-1). The EIS has two independent Acquisition and Processing Units (APU) and a Display Unit (DU) combined into a single unit.

The APU data is also used by the processors in the Engine Conditioning Monitoring System (ECMS).

The EIS unit is installed in the center instrument panel. The unit has a battery installed at the rear and behind a panel. The battery is used by internal date time clock for the ECMS. An error code will be given during the EIS test if the battery capacity is low.

Electrical power is supplied to the APUs and DU from the battery bus and generator 1 bus through the EIS 1 and 2 circuit breakers. Power for the automatic engine starting system is supplied from the battery bus through the STARTER circuit breaker and overhead panel. Power to the LCD permanent back-lighting is supplied from the battery bus through the EIS LIGHT circuit breaker.

DESCRIPTION

Each APU drives a section of the DU, both APUs acquire and can display the critical parameters of TORQUE and ITT.

Inputs for the displayed parameters are compared in the APU with the limitations for those parameters. If the limitations are exceeded the system illuminates an amber caution or red warning light in the DU. To help identify the exceeded parameter the appropriate LCD display will flash 40 times/minute when the parameter is in the caution range and 80 times/minute when the parameter is in the warning range.

Continuous internal monitoring of the EIS system detects internal failures and automatically selects an alternate signal path for the displayed parameter without alerting the pilot when the engine is running. An internal failure will be signaled to the pilot when the engine is not running by a flashing EIS DU amber caution light. To identify which failure a self test should be initiated. A self test can also be initiated with the engine running in flight to check for serviceability of the EIS system. See Section 2 Limitations for EIS failures not accepted for takeoff.

The APUs also process the fuel quantity and fuel flow signals received from the fuel tank probes and provide a wing fuel quantity balancing function and provide continuous monitoring of all the EIS parameters. EIS fault codes are allocated to specifically identify a fault. The fault codes with a permitted flight crew action are listed in Section 10.

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Within the EIS display is a fuel totalizer function. The digital display indicates total fuel remaining, fuel flow, fuel used and endurance. The fuel QTY indicates the total computed fuel quantity in the wings. The fuel USED indicates fuel consumed based on fuel flow vs time (FL/H) of engine operation. The ENDUR display has a range of 9 hrs and 59 minutes and is computed from fuel flow during engine operation. The QTY and USED values are stored in non volatile memory at shutdown. After engine start, push the FUEL RESET switch on the DU to re-datum fuel quantity to the actual fuel contents detected by the tank capacitance probes and to reset the fuel USED to zero. When the FUEL RESET switch is pushed, the APUs totals the indicated left and right fuel quantities, stores the new value in memory, and displays quantity on the DU. As fuel is consumed, the fuel QTY and ENDUR values will be recomputed based on the current fuel flow.

NOTE

The computed fuel QTY value is based on a previous known quantity and will not indicate the increase in fuel quantity after fuel has been added to the wings until the FUEL RESET switch has been pushed after engine start to update the digital display.

If a failure of the fuel flow sensing system occurs, the fuel QTY and USED values are frozen. Re-setting of the fuel quantity indication is possible in flight, by pressing the FUEL RESET button when the aircraft is in straight and level flight.

Refer to the Electrical section for information on the Gen 1 and Gen 2 indicators.

The EIS is connected to an RS 232 connector on the maintenance panel which is used to set the date and time clock and input the engine and aircraft serial numbers for the ECMS.

The EIS controls the engine automatic start and ignition systems.

The EIS has a CHIP annunciator and internal logic for the provision of an Oil Debris Monitoring (ODM) system. The ODM system is not installed and the EIS CHIP annunciator is inoperative. It will come on during an EIS system test.

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OPERATION

When electrical power is supplied to the EIS, the acquisition and display unit does a self test. If the self test is satisfactory the displays will come on.

The system test is activated by momentarily pressing the test switch on the EIS panel. The EIS test progressively activates all of the LCD display segments, illuminates the caution and warning lights, and checks the APUs and power supplies for serviceability. If there are no faults detected after all of the display segments are activated, the displays will return and operate normally. If an internal fault is detected, the fault code will appear on the display before returning to the normal display. If the system test is initiated before engine start and a fault is detected the EIS caution light will flash. If the system test is performed in the air the caution light will not flash if an internal fault is detected.

If during an engine start the battery capacity becomes low momentarily the EIS display may go blank. The EIS will then restore the display after 3 seconds.

If an amber caution light illuminates with no fault codes shown after a system test before takeoff, system redundancy is lost, but flight is permitted. Maintenance is required as soon as practicable to clear the system fault.

Illumination of a red warning or an amber caution on the EIS is accompanied by the appropriate MASTER CAUTION or WARNING light switch coming on. The illumination of a red warning or an amber caution on the EIS can be cancelled by pressing the appropriate MASTER CAUTION or WARNING light switch. The appropriate EIS display will continue to flash. This will allow for any further exceeded limitations to be annunciated and shown.

If a failure occurs in the APU that normally drives the TORQUE and ITT displays, the pilot can select TORQUE and ITT from the other APU by pushing the menu switch on the DU. When the secondary menu is selected a TORQUE digital value is displayed in place of the ENDUR display and an ITT digital value is displayed in place of the OAT display. The primary analog and digital displays for TORQUE and ITT go blank.

NOTE

A fault of all serial data lines from the APUs to the DU causes the DU to turn off all display modules and suspend parameter updating. No failure code will be presented.

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ENGINE CONDITION MONITORING SYSTEM

General

The Engine Condition Monitoring system (ECMS) monitors the health of the engine and detects engine deterioration, thus enabling planned corrective and /or preventative maintenance actions. The ECMS periodically records the engine data and corrects the reading to correspond to ambient conditions (air data). The corrected data is then compared with a set of typical engine characteristics where any deviation can easily be detected. Additionally the system records all engine limits that are exceeded and the engine's run time.

Description

When required the ECMS processor in the EIS records the following parameters; ITT, torque, Ng, Np, fuel flow, engine oil pressure, engine oil temperature, weight on wheels condition, engine P3 bleed air condition, inertial separator system mode, pressure altitude, true airspeed and total air temperature on a data storage card which is inserted in the front of the EIS. The EIS display also has a manual store switch and a store annunciator which comes on when recording is taking place. This also indicates to the pilot that the system is operating correctly. Data is recorded by the following modes:

Manual Data Recording

The pilot can do a manual record of the engine running condition by pressing the STORE switch on the front of the EIS. The ECMS obtains each parameter for 20 seconds and then stores them on the storage card with the date and time. The STORE annunciator comes on to indicate that the system is operating correctly.

Automatic Trend Recording

The automatic trend is active when the engine is running and with the following parameters stable for more than two minutes:

- ITT between 600 and 800° C
- torque between 15 and 44.4 psi
- altitude between 10000 and 35000 feet
- no weight on wheels
- engine inertial separator door is closed
- engine bleed air offtake is at P2.5

The ECMS obtains each parameter for 20 seconds and then stores them on the storage card with the date and time. The STORE annunciator comes on to indicate that the system is operating correctly. This function is repeated every two minutes.

Exceedance Recording

If a parameter is exceeded the ECMS will record the parameter exceedance and all the other parameters data from the previous two minutes. It will write the exceedance and the other parameters data on the storage card with the date and time. The STORE annunciator will also come on to show that the system is recording.

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Engine Run recording

Engine run condition is when the fuel flow is more 50 lbs/h or the Np is more than 1000 RPM. The ECMS stores the engine start and stop times and all maximum parameters values. It also stores the flight duration and the number of engine runs and flights. After each startup of the EIS, the ECMS writes the EIS, engine, gas generator, power section, tail and aircraft serial number on the data storage card. An RS 232 interface is used to set the engine serial numbers, date and time and chip counter thresholds and values. The ability to reset these values is also possible.

Indication

At each EIS test the ECMS checks the following:

- a data storage card is installed in the EIS
- that the data storage card is not more than 80% full
- that there are no faults in the system or missing ARINC 429 inputs
- the voltage of the EIS internal battery

At the end of the test error codes will be shown on the EIS if any of the above conditions are not correct. A date and time indication is shown on the EIS display for 5 seconds after the system test sequence is finished. The date indication is “MM DD” and the time indication is “HH MM”.

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OIL DEBRIS MONITORING (ODM) SYSTEM (MSN 534-999 PRE SB 79-006)

General

The ODM system counts metal particles in the engine oil flow. It makes the CHIP caution on the EIS come on if the number of particles within a fixed time exceeds predefined limits.

Description

The EIS receives the particle pulse and BIT signals from the ODM power module. The EIS Engine Condition Monitoring System (ECMS) processor counts the particle pulses from the ODM and maintains a chip counter. The EIS has chip count threshold limits that provide low and high level cautions. The threshold limits are set through the ground maintenance panel and are defined in the Aircraft Maintenance Manual. If the low threshold limit is exceeded the EIS failure code 86 will be shown after an EIS system test. In addition the EIS CHIP caution will flash if the aircraft is on the ground. If the high threshold limit is exceeded the EIS CHIP caution will come on when the aircraft is on the ground and in the air.

If the BIT signal from the ODM power module gives a fault condition the ECMS processor in the EIS will make the EIS CHIP caution flash and the EIS failure code 83 will be shown after an EIS system test.

The ECMS processor will periodically record the chip counter value on the ECMS data storage card, which is inserted in the front of the EIS. This will allow the particle trend data to be analyzed.

Operation

The ODM system is operational as soon as electrical power is supplied to the EIS and ODM system from the battery bus and the self test has been completed. The ODM system is fault checked by the ECMS processor when the EIS TEST switch is pressed before engine start. The EIS failure code 83 will be shown if a fault is found during the test.

Indication

The EIS chip caution indicator is independent from the CAWS CHIP caution indicator. The EIS CHIP caution is operated by the ODM system and the CAWS CHIP caution is operated by the magnetic chip detector(s).

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CAUTIONS AND WARNINGS

PARAMETER	CAUTION RANGE (Digits blink 40/min)	WARNING RANGE (Digits blink 80/min)
Torque	44.4 to 61.0 psi	44.4 to 61 psi (after 20 sec. delay). above 61 psi
ITT	800 to 870° C	800 to 870° C (after 20 sec. delay). above 870° C
During Start Only	870 to 1000° C	870 to 1000° C (after 5 sec. delay). above 1000° C
Prop RPM above 1000	below 350° C	
N_g	below 60% (engine running)	above 104 %
Oil Temperature	-40 to 10° C (Note 1 & 2) 105 to 110° C	below -40° C (Note 2) 105 to 110° C (after 10 min. delay). above 110° C
Oil Pressure	40 to 60 psi (Note 1 & 2)	below 40 psi (Note 1 & 2). 40 to 60 psi (after 20 sec. delay)
Ng above 1000	60 to 90 psi (after 5 sec. delay) 135 to 200 psi	60 to 90 psi (after 20 sec. delay). 135 to 200 psi (after 20 sec. delay). above 200 psi
OAT	below +4° C and Probes de-ice switch off (Note 2)	None

Note 1: Caution or warning inhibited during pre-start and post-flight.
Note 2: Caution or warning inhibited during engine start.
Note 3: If the warning illuminates for a parameter, the caution automatically extinguishes.

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CAUTIONS AND WARNINGS (CONT'D)

PARAMETER	**CAUTION RANGE** (Digits blink 40/min)	**WARNING RANGE** (Digits blink 80/min)
N_p		below 950 (on ground, after 5 sec. if unfeather delay) (Note 1 & 2)
Ng above 90 %	below 1640 (after 5 sec. delay) 1760 to 1870	1760 to 1870 rpm (after 20 sec. delay) above 1870
DC Volt Gen 1	below 22.0 V (after 3 sec. delay if Ng more than 50%) (Note 2) above 31.5 V	None
DC Volt Gen 2	below 22.0 V (after 3 sec. delay if Ng more than 50%) above 31.5 V	None

Note 1: Caution or warning inhibited during pre-start and post-flight.
Note 2: Caution or warning inhibited during engine start.
Note 3: If the warning illuminates for a parameter, the caution automatically extinguishes.

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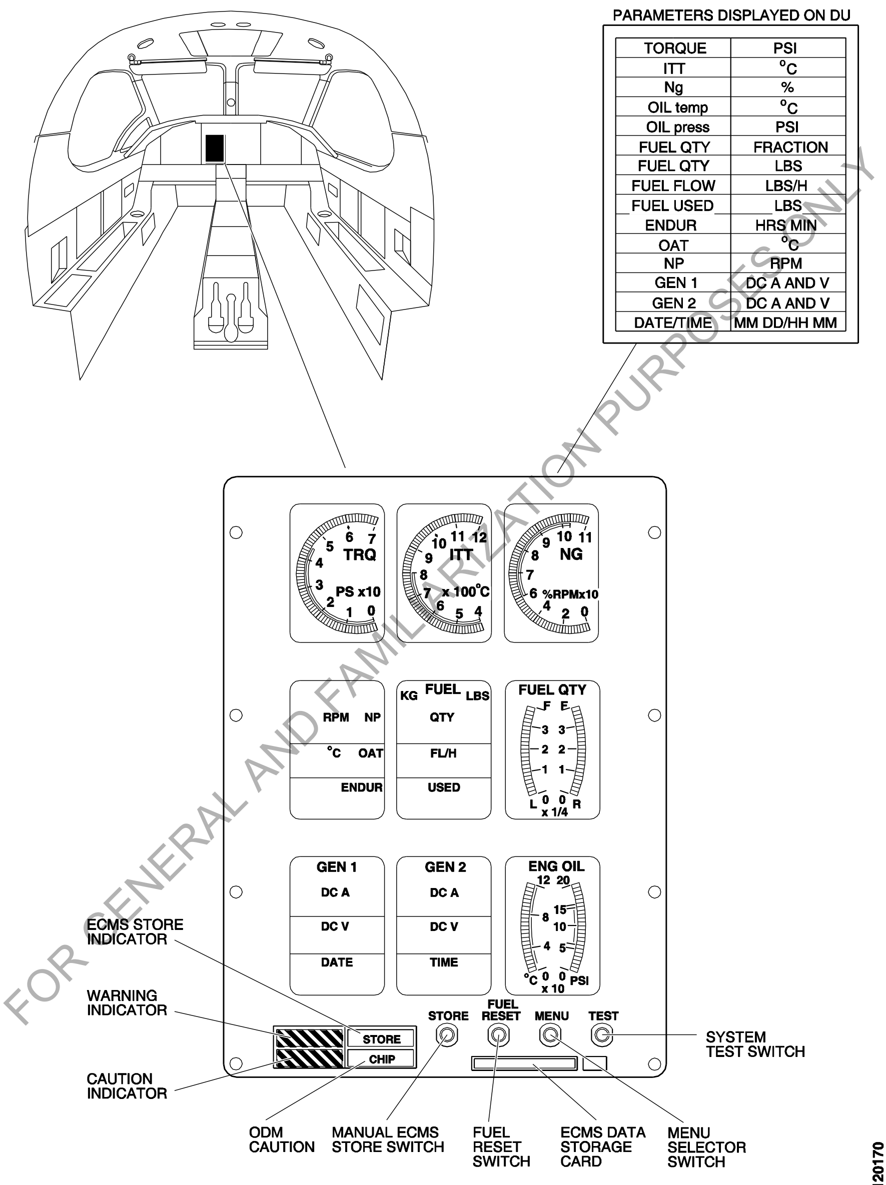

TORQUE	PSI
ITT	°C
Ng	%
OIL temp	°C
OIL press	PSI
FUEL QTY	FRACTION
FUEL QTY	LBS
FUEL FLOW	LBS/H
FUEL USED	LBS
ENDUR	HRS MIN
OAT	°C
NP	RPM
GEN 1	DC A AND V
GEN 2	DC A AND V
DATE/TIME	MM DD/HH MM

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Figure 7-11-1. Engine Instrument System
(Sheet 1 of 2)

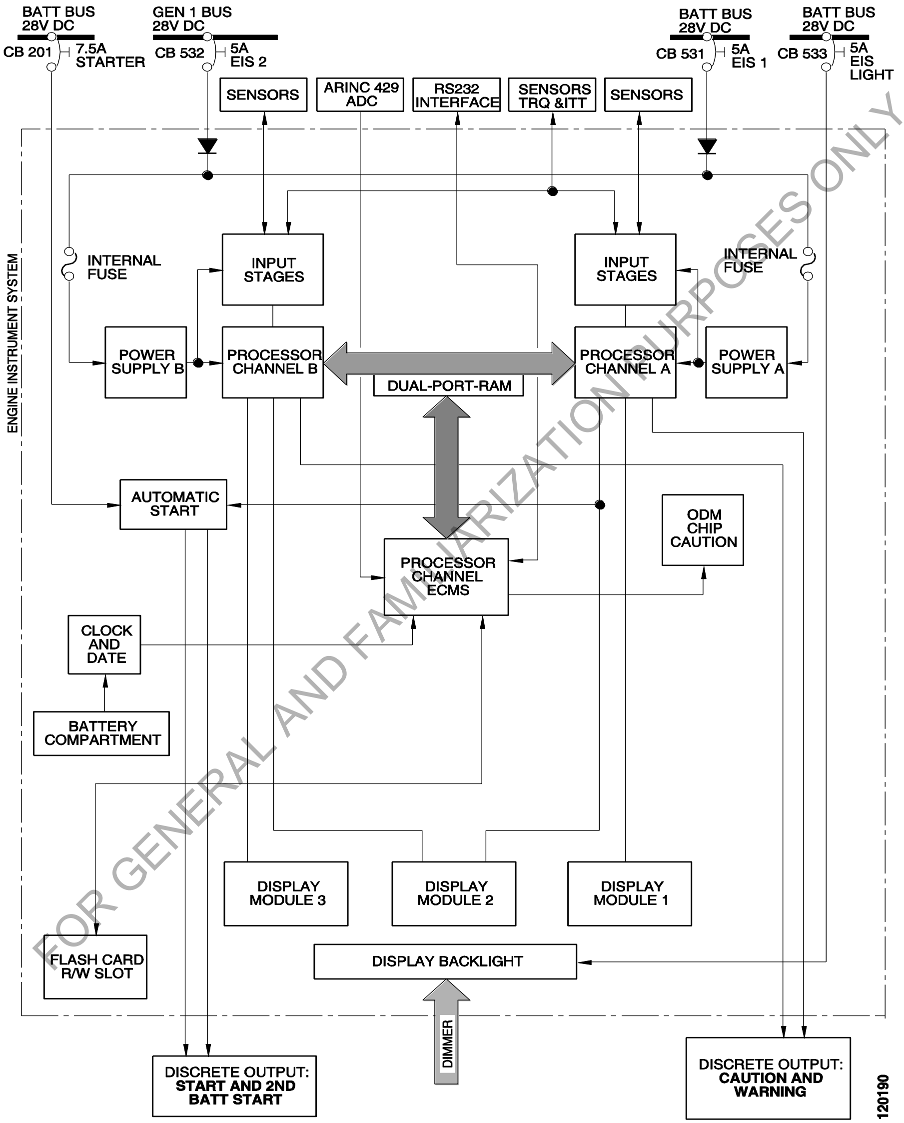

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Figure 7-11-1. Engine Instrument System
(Sheet 2 of 2)

EIS FAILURE CODES

To assist with preliminary troubleshooting, help maintenance personnel and avoid unnecessary EIS replacements, if the following fault codes appear flight crew may cycle EIS power and verify if the fault code remains.

One EIS power cycle consists of:

1.	EIS 1 circuit breaker Battery Bus	OPEN
2.	EIS 2 circuit breaker Generator 1 Bus	OPEN
3.	Wait ten seconds	
4.	EIS 1 circuit breaker Battery Bus	CLOSE
5.	EIS 2 circuit breaker Generator 1 Bus	CLOSE
6.	Wait until EIS completes the Self Test	
7.	EIS Test button	PRESS.

EIS Fault Code	EIS Fault Code	Action
1	38	If code still present after three EIS Power cycles, replace EIS unit
2	39	
3	43	
4	47	
5	59	
6	65	
10	66	
11	69	
12	70	
13	71	
14	72	
15	74	
16	75	
17	76	
18	79	
19	88	
23	89	
24	90	
25	Miscellaneous (EIS unit caution light flashing)	
35		

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PROPELLER

GENERAL

Refer to Figure 7-10-3, Engine Controls/ Indications and Figure 7-12-1, Propeller Pitch Mechanism.

The airplane is equipped with a Hartzell 105 in (2.67 m), four blade, variable pitch, full feathering propeller which is driven by the engine power turbine through a reduction gearing. The propeller hub and the four propeller blades are made of aluminum. Each blade incorporates an electric deice boot.

DESCRIPTION

The propeller is powered by the engine through the reduction gearbox. Propeller pitch is adjusted by engine oil pressure regulated through the Propeller Governor/Constant Speed Unit (CSU). Nominal propeller rpm during all phases of operation is 1,700 rpm, except at low power settings at low speeds where there is insufficient energy available to rotate the prop at 1700 rpm.

The pitch change mechanism is mounted on the propeller front hub and consists of a fixed cylinder, a sliding piston, and a feathering spring. The piston is connected to each propeller blade by a fork assembly which engages a cam follower on the blade root. A counterweight is attached to each blade near its root in such a position that when the propeller is rotating the counterweight is transferred to the blade as a force tending to turn the blade to coarse pitch. The feathering spring within the cylinder also tends to move the blades towards coarse pitch and the feather position.

Oil pressure from the engine oil system is boosted to a higher pressure by a pump in the CSU. Oil pressure is then applied to the rear of the sliding piston, overcoming the force of the feathering spring and counterweights, to move the blades towards fine pitch. Thus, the blade angle is set by controlling the pressure of the oil supplied to the propeller.

In case that neither the CSU nor the overspeed governor limit the propeller speed, the Nf governor will limit the engine power to not exceed (Np=109%) 1853 rpm.

Should the CSU governing system fail, the overspeed governor will operate to limit the propeller speed (Np) to 106% (1802 rpm). The overspeed governor incorporates a feathering solenoid valve which is energized when the Condition Lever is moved to the CUT OFF position, causing the blades to feather. The BATTERY BUS must be powered to enable propeller feathering.

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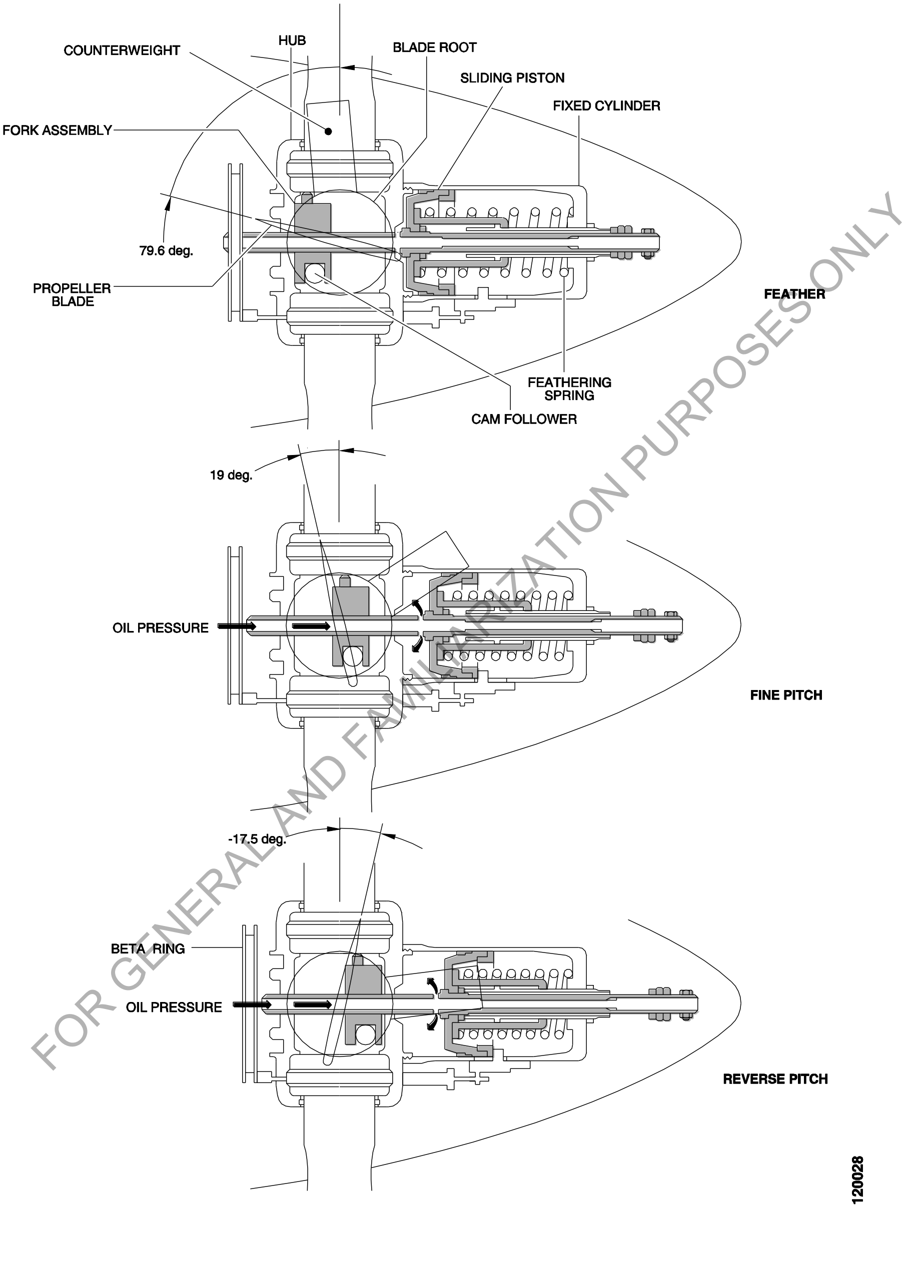

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Figure 7-12-1. Propeller Pitch Mechanism

OPERATION

Refer to Figure 7-12-1, Propeller Pitch Mechanism.

In normal operation the propeller unfeathers after the condition lever is moved to Ground Idle and the engine is accelerating to idle Ng during engine start. On the ground at idle power the propeller rotates at approximately 1060 rpm. When power is increased the CSU will control propeller speed at 1700 rpm. In the air, at low speeds and idle power (F.I.) the propeller rpm may drop below 1700 rpm. The propeller feathers automatically when the condition lever is moved to CUT OFF/FX.

The propeller is reversible for operation in the Ground Operating range during ground operations only. To achieve propeller pitch below the low pitch stop, lift up the triggers on either side of the Power Control Lever (PCL) to clear the idle detent and pull aft. As the PCL moves aft, the propeller blade angle decreases to the maximum reverse blade angle of -17.5°.

WARNING

GROUND OPERATION WITH PROPELLER BELOW 950 RPM IS NOT PERMITTED.

PROPELLER DE ICE

Each propeller blade has an electrically heated boot on the inboard upper and lower leading edge. 28 VDC power supply for the boots is taken directly from the GEN 1. It is supplied to the propeller de-ice boots via a slip ring mounted on the rear of the spinner bulkhead and brush block mounted on a bracket on the engine. Protection against the effects of lightning strike is provided by a set of metal oxide varistors (MOV's) mounted on the brush block assembly. The system is selected by the PROP switch on the DE ICING section of the overhead panel. An ON annunciator in the switch comes on when the switch is pressed.

A deice timer unit selects power alternately to opposite pairs of blades to minimize the chance of asymmetric ice shedding. When the DE ICING PROP switch is selected ON, the timer selects automatically the appropriated cycle depending on the indicated OAT. The three possible modes are:

Mode	IOAT Range	Operation
Mode 1	Warmer than 0°C	The timer is in standby and none of the blades are heated
Mode 2	0°C or colder, but not colder than -16°C	Blades 1 and 3 are heated for 45 seconds followed by blades 2 and 4 for 45 seconds then all blades are off for 90 seconds.
Mode 3	Colder than -16°C	Blades 1 and 3 are heated for 90 seconds followed by blades 2 and 4 for 90 seconds.

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The above cycles are repeated until the DE ICING PROP switch is set to OFF.

OAT sensing is by a sensor mounted under the left hand wing. This sensor is termed the controller and presents the principal control signal. A second sensor is mounted in an identical position under the right hand wing. This sensor is termed the comparator and allows the control sensor to be checked.

The Propeller De Ice Controller (PDIC) also monitors various system control functions and initiates warnings in the event of detected failures. The following functions are monitored:

- Inhibit input open
- Failure of OAT sensor (Open or short sensor or unacceptable difference between OAT control sensor and OAT comparator sensor.
- Heater supply voltage out of tolerance
- Heater current out of tolerance
- Built in test for PDIC internal failure (power supply, oscillator, watchdog etc)

When the system is on, if the PIDC detects a failure, an amber PROP DEICE caption on the CAWS is illuminated and an aural gong will sound.

INDICATION/WARNING

The propeller speed is displayed digitally on the EIS.

The CAWS warning PROP LOW P annunciator will illuminate and a voice callout “Warning Prop Pitch” will be heard when the propeller pitch is less than 6° (minimum pitch in flight) and the airplane is not on the ground.

Upon initiation of the system the de-ice timer performs a built in test function lasting 5 seconds. A pre-flight test is performed in this manner. The amber CAWS PROP DE ICE caption will illuminate and an aural gong will sound if the system electrical load is outside its limits.

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FUEL

GENERAL

Refer to Figure 7-13-1, Fuel System for system schematics and equipment layout.

Fuel is contained in two integral wing tanks and is supplied to the engine in excess of that required for all ground and flight operations. Each wing tank contains drain valves. The transfer and delivery of fuel is achieved using a motive flow jet pump system and two engine driven pumps (low pressure pump and the FCU high pressure pump). Electric fuel pumps provide pressure only during the engine start sequence and as a standby function when the normal system cannot maintain adequate pressure. Fuel symmetry is maintained automatically by a Fuel Balancing Device.

Refueling is accomplished using over-wing filler caps. Fuel quantity and fuel flow rate are displayed on the Engine Instrument System (EIS). Electric pump operation, low fuel pressure, and low fuel quantity conditions will be indicated on the Central Advisory and Warning System (CAWS) annunciator panel. In an emergency, fuel flow to the engine can be stopped by pulling the FUEL EMERG SHUT OFF handle, located at the aft end of the center console, left of the airplane centerline.

DESCRIPTION

The fuel storage system includes integral wing tanks, fuel drains, refueling ports, and vents. The main fuel tank is between ribs 6 and 16, forward of the rear and main spars. A collector tank is forward of the main spar between ribs 3 and 6. Fuel drains are located in the lower wing-skins and in the fuel service bay (fuel filter and air separator) on the left side of the fuselage, left of the nose wheelwell. These fuel drains allow the removal of water and other contaminants during preflight.

Refueling is accomplished through an overwing filler cap located at the outer, upper section of each wing. Each wing has a usable fuel capacity of 201 US gal (761 liters).

The fuel vent bay allows venting of the fuel system through inward and outward vents located on the lower surface of the outer fuel bay.

A check valve is installed in the motive flow line at each collector tank. The check valves stop fuel flow between the left and right wing tanks.

The distribution system transfers fuel from left and right wing tanks and delivers fuel from the collector tanks to the engine fuel control unit. Within the wing tank are electric boost pumps, transfer ejector pumps, and delivery ejector pumps. From the wing tank the fuel flows through a fuel filter, maintenance and firewall shutoff valves, an air separator, a low pressure engine driven pump, an oil/fuel heat exchanger, and a high pressure engine driven pump to the fuel control unit.

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OPERATION

During normal operation with the engine running, fuel is transferred from the wings to the engine by a motive flow system. Fuel under pressure from the low pressure engine driven pump is returned to the wings to provide motive flow through the transfer ejector pump and the delivery ejector pump. The transfer ejector pump transfers fuel from the wing tank to the collector tank. The left and right wing delivery ejector pumps transfer fuel to a common manifold. Fuel then flows through the maintenance shutoff valve and the fuel filter. The fuel filter incorporates a bypass valve in case the filter becomes blocked, and a spring loaded drain valve. Fuel is then directed into the air separator. The air separator passes air in the fuel system to the vent return line and incorporates a fuel low pressure switch and a spring loaded drain valve. The fuel then passes through the firewall shutoff valve to the low pressure engine driven fuel pump. The firewall shutoff valve is mechanically connected to the FUEL EMERG SHUT-OFF handle in the cockpit. The low pressure engine driven fuel pump includes a pressure relief valve that maintains a fuel pump outlet pressure of 43.5 psi (3 bar). A bypass valve allows for fuel flow around the engine driven fuel pump in the event of a fuel pump failure.

An electric boost pump, located within each collector tank, provides fuel pressure during engine start and is used to maintain system pressure and fuel balancing when required. Each boost pump LH and RH is controlled by a two position (ON or AUTO) switch located on the FUEL PUMPS section of the overhead panel. When the switch is pressed the system toggles between AUTO and ON and an arrow symbol in the switch is annunciated to show which selection is made. When set to ON, the boost pump will operate continuously. With the switch set to AUTO (the normal operating setting), the boost pump will operate automatically whenever fuel system pressure falls below 2 psi (0.14 bar). The boost pump will shutoff automatically 10 seconds after the fuel system pressure reaches 3.5 psi (0.24 bar). A boost pump is capable of supplying the engine in case the low pressure pump fails.

The green PUMP captions indicate that the electric booster pumps have been selected to ON, by the overhead panel switches or by the automatic fuel balancing or due to low fuel pressure. The green PUMP captions do not confirm correct pump operation.

Fuel supply greater than engine demand is returned from the fuel control unit to the vent bays.

Refer to Engine Fuel System, this section, for engine fuel supply.

Fuel symmetry is automatically maintained by a Fuel Balancing Device when the Fuel Pump switches are set to AUTO. Left and right fuel quantities are monitored to detect fuel asymmetry exceeding 5% of each wing total fuel capacity (approximately 10.5 US gallons, 2 LCD segments) and will activate the fuel boost pump in the tank with the higher quantity. Fuel boost pump activation is delayed one minute to avoid pump cycling during flight in turbulence. The fuel boost pump will continue to operate until the left and right fuel levels are sensed to be equal. Automatic activation of the fuel boost pumps will only occur when the condition lever is out of the CUT-OFF position. To cater for refueling errors, up to 40 gallons (150 liters), up to 6 LCD segments will be automatically handled by the automatic fuel balance system. In the event of a system failure, the fuel load symmetry can be maintained by manually selecting the Fuel Pump switch to ON for the fuel tank with the higher quantity until a balanced fuel condition is restored and then turning OFF the fuel boost pump. During normal operation the pilot should monitor the fuel quantity gauges to verify that the Fuel Balancing Device is operating properly.

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Normal system operation is indicated by the left and right fuel quantity gauges remaining within 2 LCD segments of each other. (When a difference of 3 LCD segments is observed, the fuel boost pump for the tank with the higher quantity should be turned ON until the quantities are even. Monitor the fuel quantity gauges for fuel symmetry for the remainder of the flight.)

INDICATION/WARNING

Each wing tank contains four capacitance type fuel quantity probes that are connected to the EIS.

Power for the fuel analog indications is taken from the BATTERY BUS. Fuel level switches in the collector and main tanks powered from the GEN 1 BUS and BATTERY BUS, cause the CAWS captions to illuminate at low fuel levels. A fuel flow sensor located forward of the FCU, sends a signal to the EIS to indicate fuel flow in lbs per hour. The EIS calculates and displays fuel quantity, fuel remaining and endurance. The fuel flow indication requires power from Engine Acquisition Unit. A Fuel Reset switch is used to re-datum the total fuel quantity and fuel used value of the totalizer function after each time fuel is added to the wing tanks. These values are stored in non-volatile memory when power is removed. To reset the totalizer, momentarily press the Fuel Reset switch after engine start. Verify that the fuel quantity indication increases to the new fuel quantity and the fuel used indication is reset to zero. Refer to Engine Instrument System, this section, for additional information.

The CAWS captions that indicate fuel system status are:

L FUEL PUMP, R FUEL PUMP	Indicates fuel boost pump selection.
L FUEL LOW, R FUEL LOW	Indicates fuel level in tank less than 133 lbs (20 US gal, 75 Liters).
FUEL PRESS	Indicates fuel system pressure less than 2 psi (0.14 bar).

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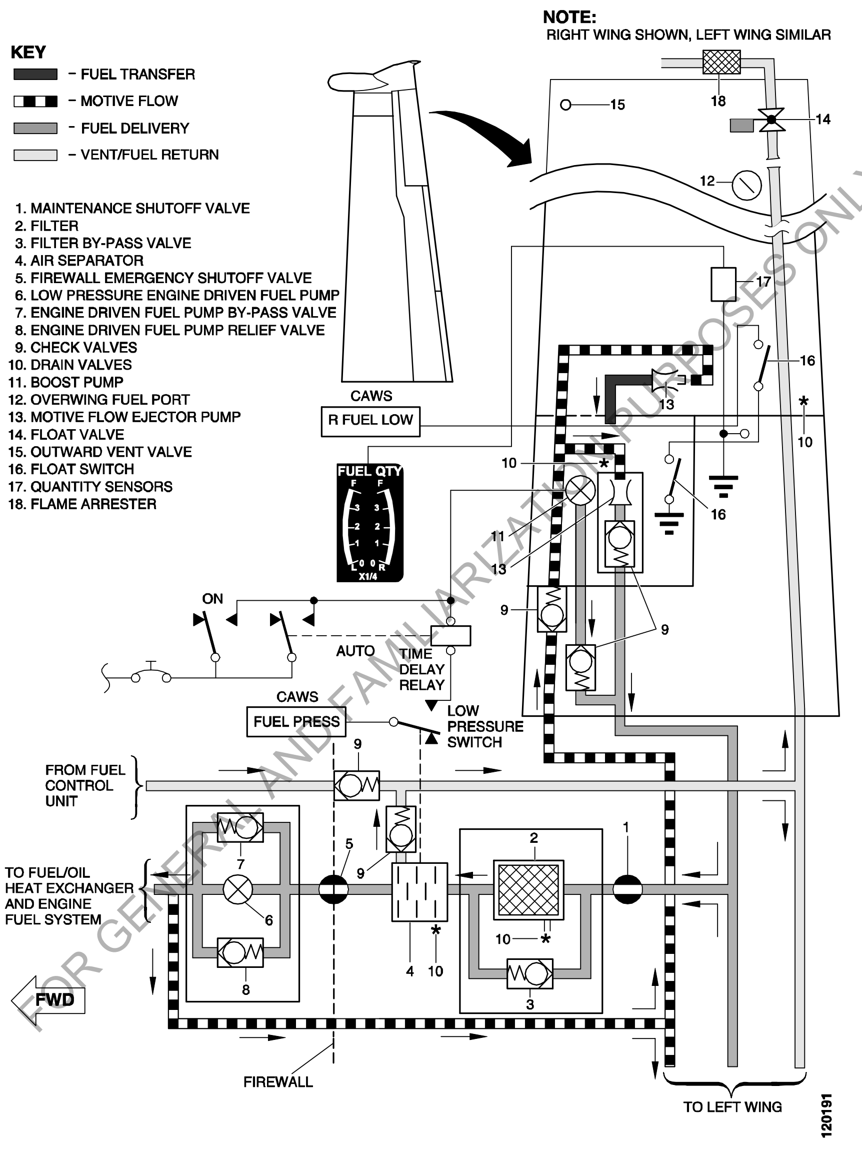

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Figure 7-13-1. Fuel System
(Sheet 1 of 4)

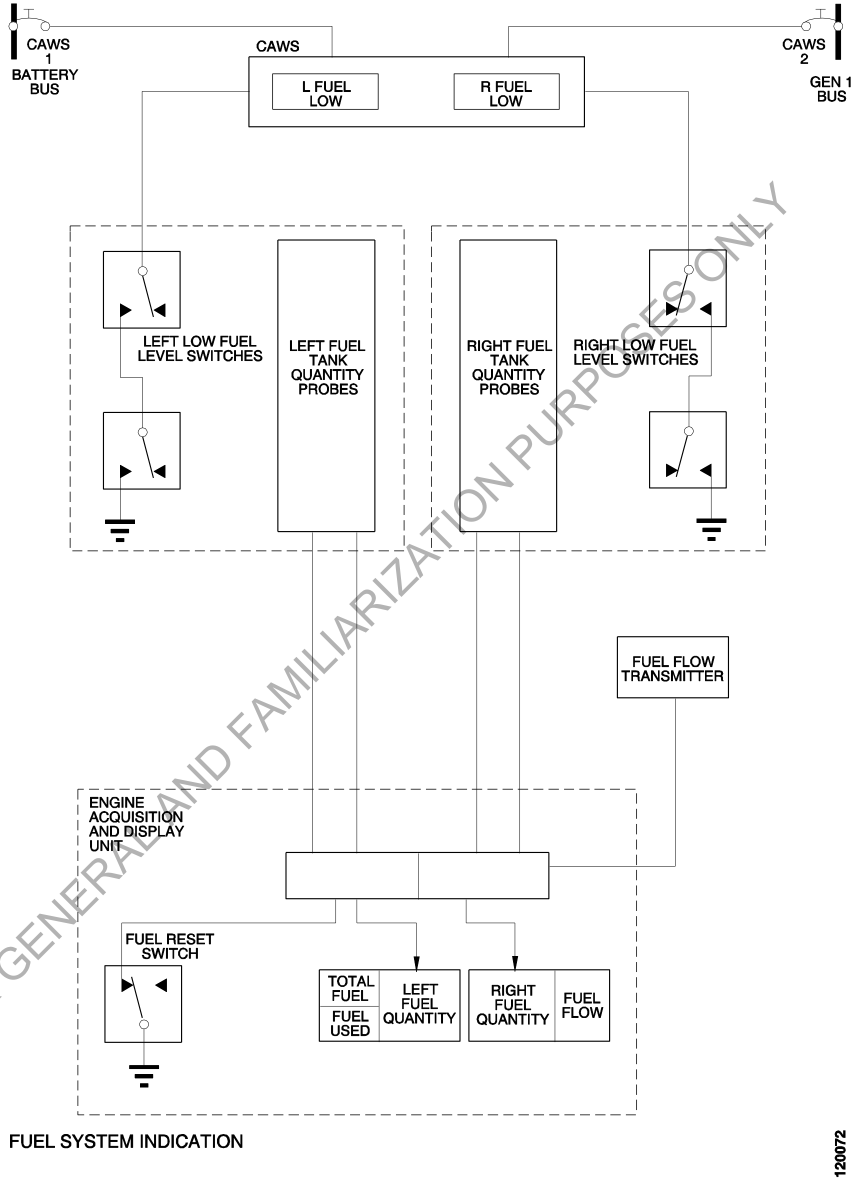

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Figure 7-13-1. Fuel System
(Sheet 2 of 4)

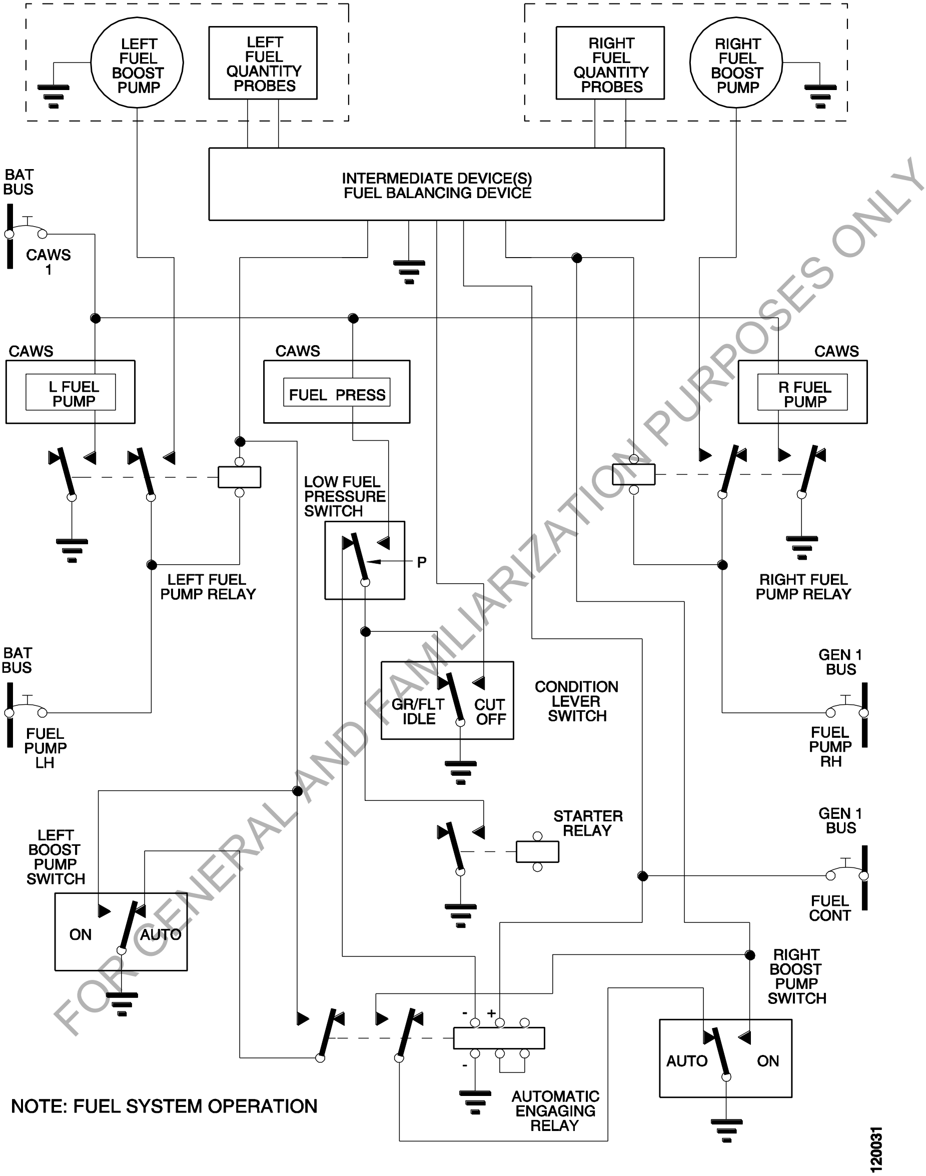

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Figure 7-13-1. Fuel System
(Sheet 3 of 4)

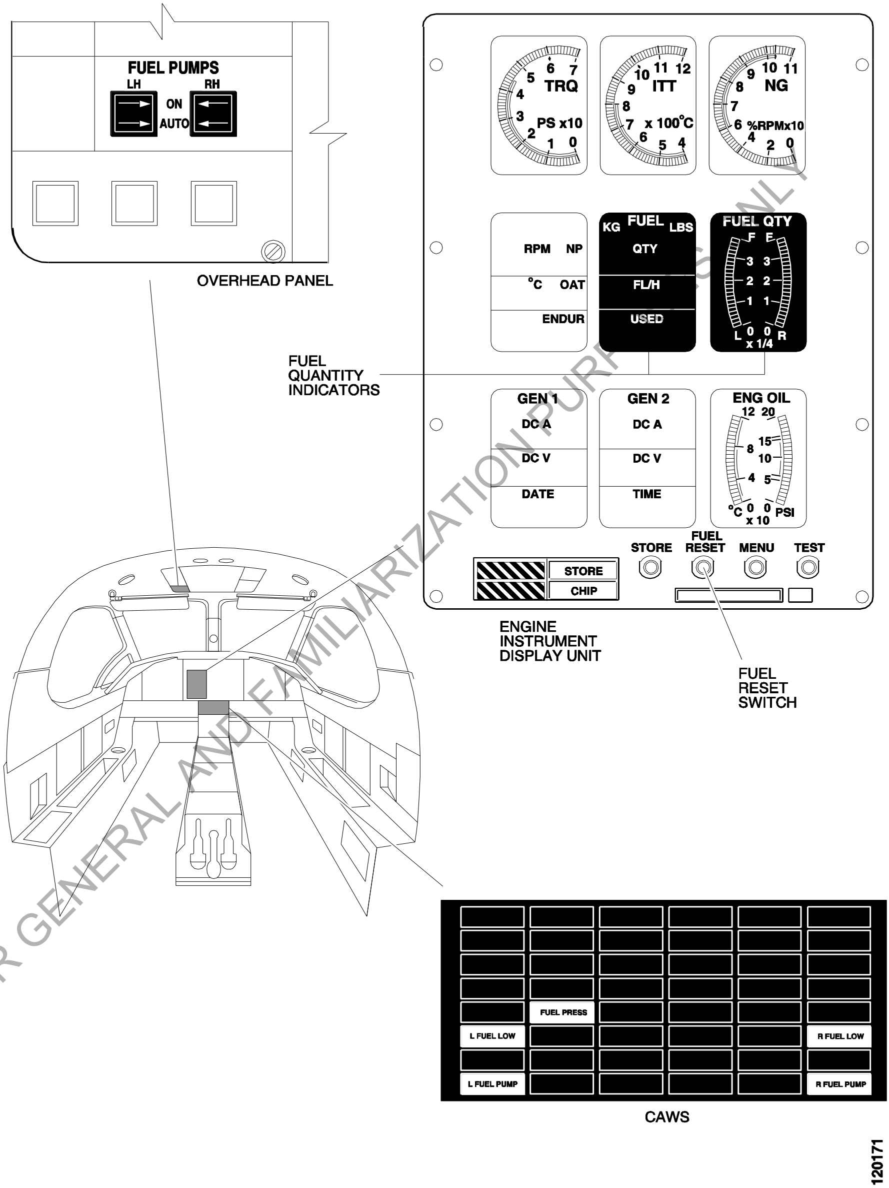

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Figure 7-13-1. Fuel System
(Sheet 4 of 4)

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ELECTRICAL

GENERAL

Refer to Figure 7-14-1, Power Generation Distribution System (PGDS) for system schematics and equipment layout.

The electrical 28 VDC system, consists of the following power sources:

- GEN 1 system: a main generator 28 V, 300 A or a 28 V 400 A option
- GEN 2 system: a secondary generator 28 V, 115 A
- Storage battery system: one or two nickel cadmium batteries 24 V 40 Ah or one or two lead-acid batteries 24 V 42Ah
- Optional Emergency Power System (EPS): Refer to Supplement No. 22

An external power socket permits DC power to be provided from a ground power unit. In the event of system failures, automatic switching and load shedding takes place to reduce pilot work load.

Two static inverters provide 26 VAC 400 Hz synchro references for certain avionics equipment.

DESCRIPTION

POWER SUPPLIES

When the engine is running, Generator 1 is the main source of power. It is capable of supplying the full aircraft electrical load. Generator 1 is also the engine starter motor. If the engine STARTER switch is selected ON; GEN 1 is automatically switched OFF.

Generator 2 is a secondary power supply which, in normal operation, supplies only the GEN 2 BUS (and charges the second battery - if installed). If GEN 1 fails, the GEN 2 ensures essential services are supplied, but it is unable to supply the full electrical load.

The battery (two batteries - if installed) provides power for starting the engine and, in case of an engine or double generator failure; it will supply essential electrical systems for 20 minutes if the load is reduced below 60 amps or 30 minutes if the load is below 50 amps. (When two batteries are installed they will supply essential electrical systems for 40 minutes if the load is reduced below 60 amps or 60 minutes if the load is below 50 amps).

On ground the DC system can be powered by an external power unit which is connected under the rear fuselage left side. When external power is connected to the battery, GEN 1 and GEN 2 relays remain open, preventing a direct connection between the external and airplane power sources. When the external power supply is connected to the aircraft an AVAIL caption to the right of the EXT PWR switch on the overhead panel is illuminated to show that external power is available. At this time, all panel text, indicators and LEDs will be on bright and the annunciators in the pushbutton switches will indicate the position of the switch. To apply external power to the aircraft electrical system, the EXT PWR switch must be selected to EXT PWR. When the EXT PWR switch is set to EXT PWR, an ON caption to the right of the EXT PWR switch is

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illuminated. An external power control unit is installed which will disconnect the external power unit if the output voltage goes above 29.5 VDC or below 23 VDC.

CAUTION

THE GPU MUST BE CAPABLE OF PROVIDING A MINIMUM OF 500 AMPS FOR ALL SYSTEMS TO BE OPERATED CONTINUOUSLY AND 1,000 AMPS IF ENGINE STARTER OPERATION IS REQUIRED.

BUS BARS

The DC power sources distribute the power via an interconnected system of BUS BARS.

The BATTERY BUS, the GEN 1 BUS and the GEN 2 BUS are connected to their respective power sources through the BAT relay, the GEN 1 relay and the GEN 2 relay, each relay being controlled by a switch on the cockpit overhead panel.

The AVIONIC 1 BUS is connected to the main battery line and the AVIONIC 2 BUS is connected to the main GEN 1 line through relays controlled by switches on the overhead panel.

The NON ESSENTIAL BUS is connected to the main battery line through an automatic load shedding device.

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BUS TIE INTERLOCK

To permit both generators to charge the battery (two batteries - if installed) and supply all electrical services, GEN 1 is connected to the BAT BUS via the BUS TIE and GEN 2 to the BAT BUS via the GEN 2 TIE. The two BUS TIES have an automatic interlock.

When the engine is running and both generators are on line, the BUS TIE is closed and the GEN 2 TIE is open. GEN 1 then supplies the GEN 1 and BAT busses and charges the battery. GEN 2 supplies only GEN 2 BUS and charges the second battery (if installed).

When both generators are off line (engine off or double generator failure), both the BUS TIE and GEN 2 TIE will close, allowing the battery (two batteries - if installed) or external power unit to supply all BUS bars.

If GEN 1 stops supplying power to the main battery line (GEN 1 fail or BUS TIE open), the GEN 2 TIE will close connecting GEN 2 (and the second battery - if installed) to the main battery line.

NON ESSENTIAL BUS

To protect GEN 2 from overload, the NON ESSENTIAL BUS is provided with an automatic load shedding device which operates when its selector switch is in the AUTO position If it is required to operate services on the NON ESSENTIAL BUS from either the battery or GEN 2 with no GEN 1 on line, set the bus selector switch to OVRD (override) to reconnect the bus to the main battery line.

CAUTION

MAXIMUM PERMITTED CONTINUOUS LOAD FROM GENERATOR 2 IS 115 AMPS. ABOVE 115 AMPS, GENERATOR 2 VOLTAGE WILL PROGRESSIVELY DECREASE AND THE BATTERY WILL DISCHARGE.

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CIRCUIT BREAKERS

The COOLING, ELECTRICAL HEATING, HYDRAULIC and FLAP systems are all high current consuming systems which are connected directly to the main battery line. The electrical power circuit breakers for these systems are not accessible to the pilot (under cabin floor). The control circuits for the COOLING, ELECTRIC HEATING and HYDRAULIC (landing gear) systems are on the NON ESSENTIAL BUS.

Circuits supplied from the BUS BARS have circuit breakers on color coded panels on the left and right cockpit walls (see Figure 7-14-1). The BAT and AVIONIC 1 BUS are green, the GEN 1 and AVIONIC 2 BUS are blue, the GEN 2 BUS is yellow, and the NON ESSENTIAL and AC busses are white.

Both the BUS TIE and the GEN 2 TIE are overcurrent protection devices which open automatically if the current through them is excessive to protect power supplies and circuits. The BUS TIE open automatically when the continuous current exceeds 220 amps and the GEN 2 TIE opens with a continuous 145 amps. Both TIES can be opened manually and reset, if required, by pulling or pushing the control circuit CBs on the overhead panel.

AC POWER

AC power (26 V) is provided by a dual static inverter. The inverter contains the No. 1 inverter and the No. 2 inverter. The No. 1 inverter is powered from the BAT BUS; the No. 2 inverter is powered from the GEN 1 BUS. The selector switch is on the overhead panel. When the inverter selector switch is set to GEN 1, AC power is supplied from the No 1 inverter, when the switch is set to BATT, AC power is supplied from the No 2 inverter. AC power is only used for synchro references for the avionics systems.

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CONTROLS AND INDICATORS

Overhead Panel

The electrical system is controlled from the ELECTRICAL POWER MANAGEMENT section of the overhead panel. The overhead panel has:

- Control relay circuit breakers for BUS TIE and GEN 2 TIE
- Battery overheat (BAT HOT) indicator (two if second battery installed)
- AMP/VDC indicator (two if second battery installed)
- Five Bus status indicators
- Battery on/off line indicator (two if second battery installed)

Switches are provided for the:

- Master power (MASTER POWER)
- Standby bus (STBY BUS)
- Battery (BATT 1) (and BATT 2 if second battery installed)
- Generators (GEN 1 and GEN 2)
- External power (EXT PWR)
- Avionics busses (AV 1 and AV 2)
- Non essential bus (NON ESS)
- Inverter selection (INV GEN 1/BATT)

The guarded MASTER POWER EMERGENCY OFF switch enables all electrical power to be switched off.

On the latest overhead panel, the GEN 1, GEN 2, BAT 1, BAT 2 (if installed), AV1 and AV 2 switches are locking type switches. These switches must be pulled out before they can be moved from the on position.

The STBY BUS switch is a two position switch, when the switch is set to STBY BUS power is provided to the standby busbar, without the battery or external power circuits being on. A blue illuminated ON caption next to the switch comes on when the STBY BUS is selected. Power is supplied to the overhead panel; this enables the positions of the panel switches to be monitored before power is applied. The systems connected to the Standby Busbar are:

- VHF NAV /COMM 1
- AUDIO Integrating
- GPS
- Avionic blower

NOTE

When the Avionics 1 Bus is active, the Standby bus supply is from the Avionics bus 1. In this condition when the STBY BUS switch is set to ON, the panel and caption lighting comes on bright.

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The INV switch is a two position switch GEN 1 or BATT. When the switch is set to GEN 1 the 26 VAC 400 Hz is supplied by the No 1 Inverter, when the switch is set to BATT the 26 VAC 400 Hz is supplied from the No 2 inverter.

The five bus status indicators illuminate red to show when a BUS BAR is not powered. The two battery on/off line indicators illuminate red to show when the batteries are off line.

The BATT 1 (and BATT 2 if installed) – AMP/VDC indicators are in the ELECTRICAL POWER MANAGEMENT section of the overhead panel. The BATT 1 (and BATT 2 if installed) indicators show the voltage and current of the relevant battery. A positive BAT current indicates battery charging rate.

With NiCad batteries installed, a BAT HOT red indicator for each battery will illuminate to show if the internal temperature of a battery becomes excessive. These indicators are linked to the BAT HOT amber caption on the CAWS. If this caption comes on, the overhead panel battery over-temperature indicators should be checked to determine which battery is at fault before taking the appropriate action. This option does not operate with lead acid batteries installed.

The overhead panel provides monitoring of the battery voltage and current. Three conditions will result in warning and caution outputs to the CAWS. These conditions are:

- A decrease of battery voltage below 22.0 VDC (after a 3 sec. Delay) will give a CAWS ESNTL BUS warning and the applicable display will flash
- An increase of battery current above 60 Amps discharge will give a CAWS BATTERY caution and the applicable display will flash
- An increase of battery voltage above 29.6 VDC will give a CAWS BATTERY caution and the applicable display will flash

Engine Instrument System (EIS)

The GEN 1 and GEN 2 – AMP/VDC indicators are in the EIS. A current sensor installed near the generator 1 contactor will detect any current drawn from the generator and send the amps reading to the indicator. A positive GEN current indicates generator output. The voltage signal is taken directly from the generator output. The GEN 1 and GEN 2 voltmeters indicate output volts before the generator relay and the ammeters show supply current before the generator relay.

Continuous monitoring of the GEN 1 and GEN 2 voltages for close to limit cautions is provided by the EIS.

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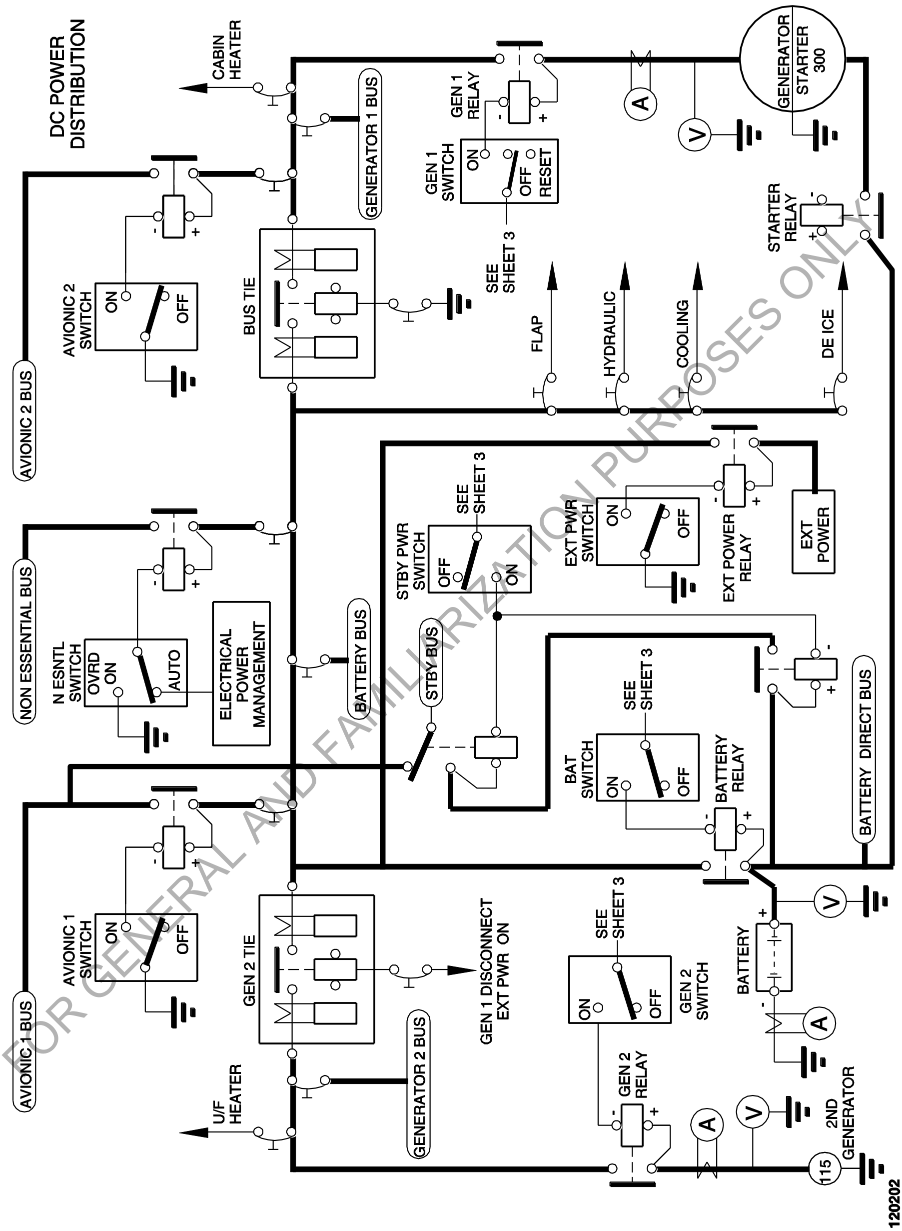

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Figure 7-14-1. Electrical Power System – Single Battery
(Sheet 1 of 7)

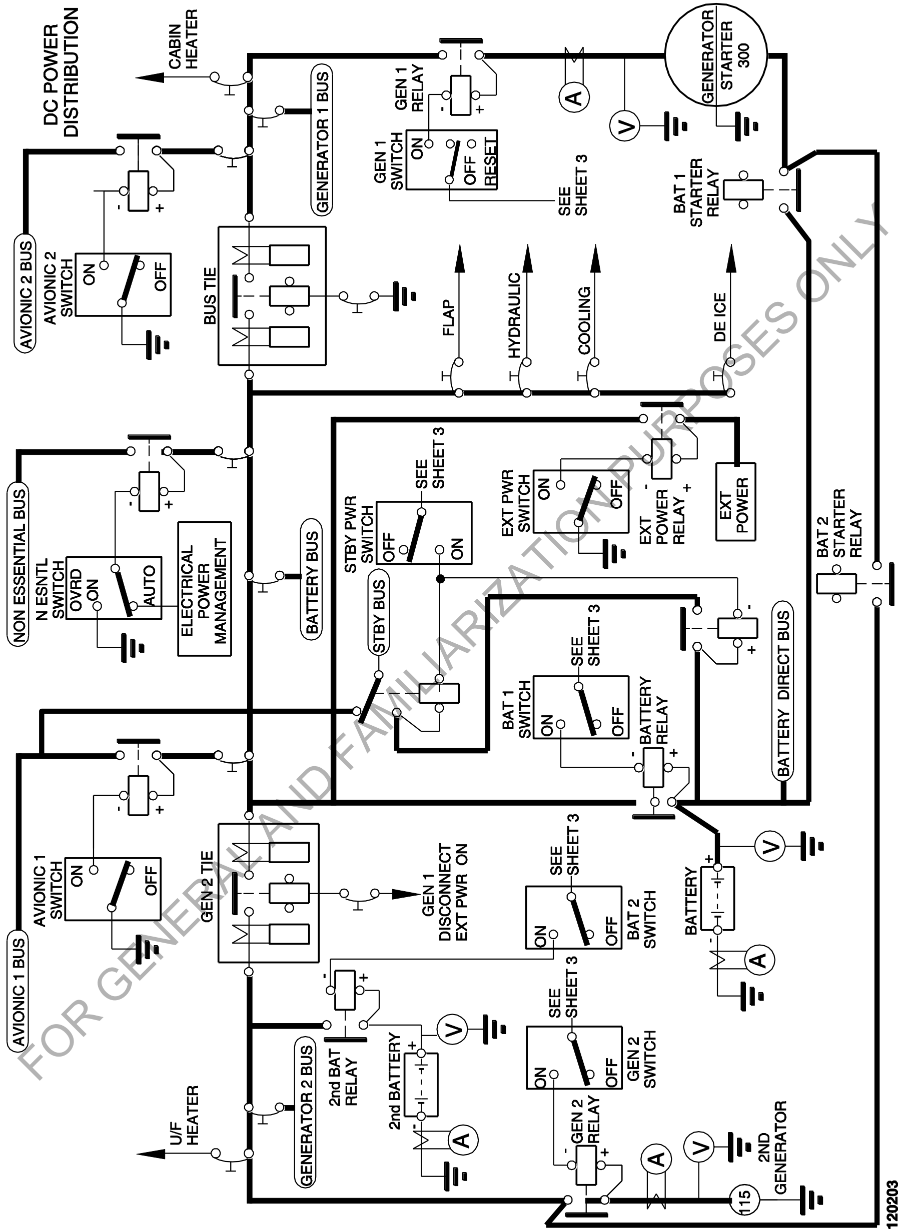

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Figure 7-14-1. Electrical Power System - Dual Batteries
(Sheet 2 of 7)

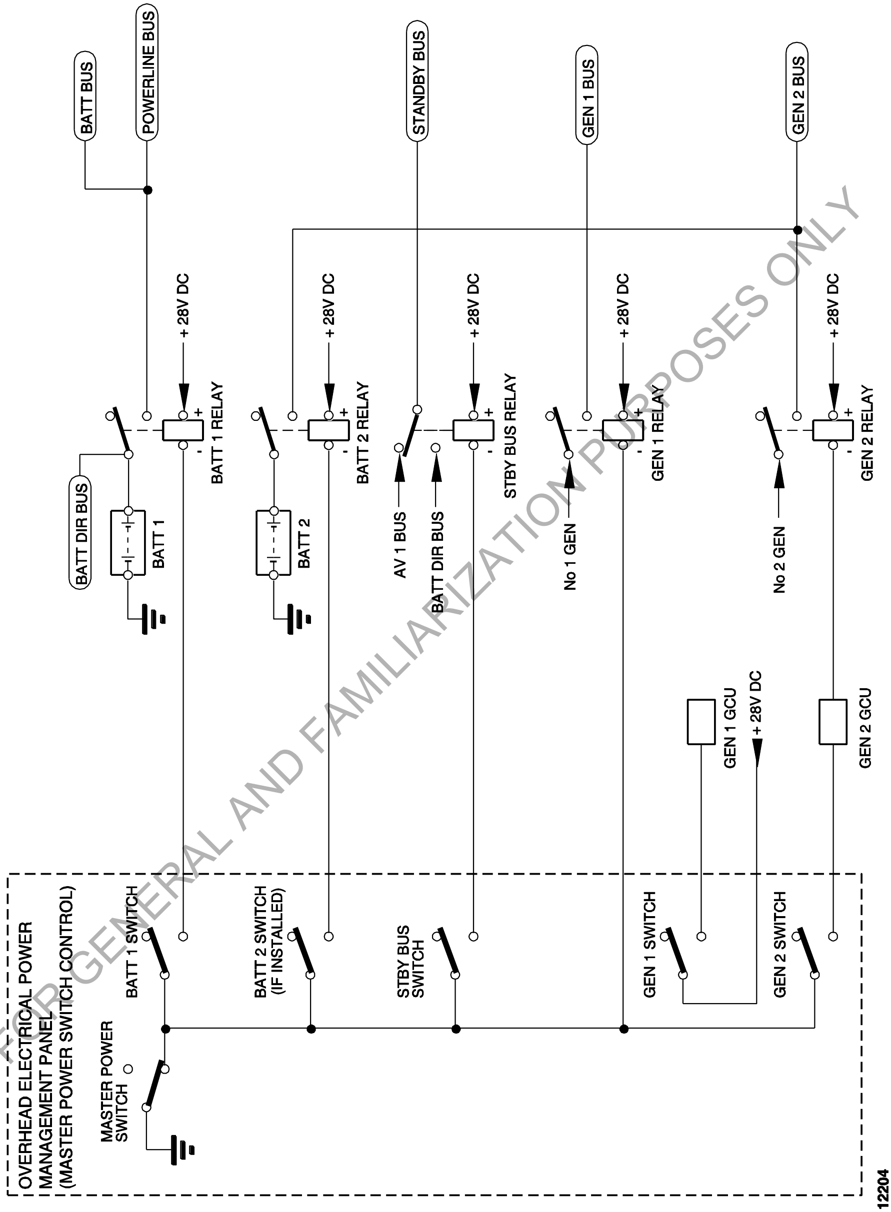

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Figure 7-14-1. Electrical Power System – Master Power Switch
(Sheet 3 of 7)

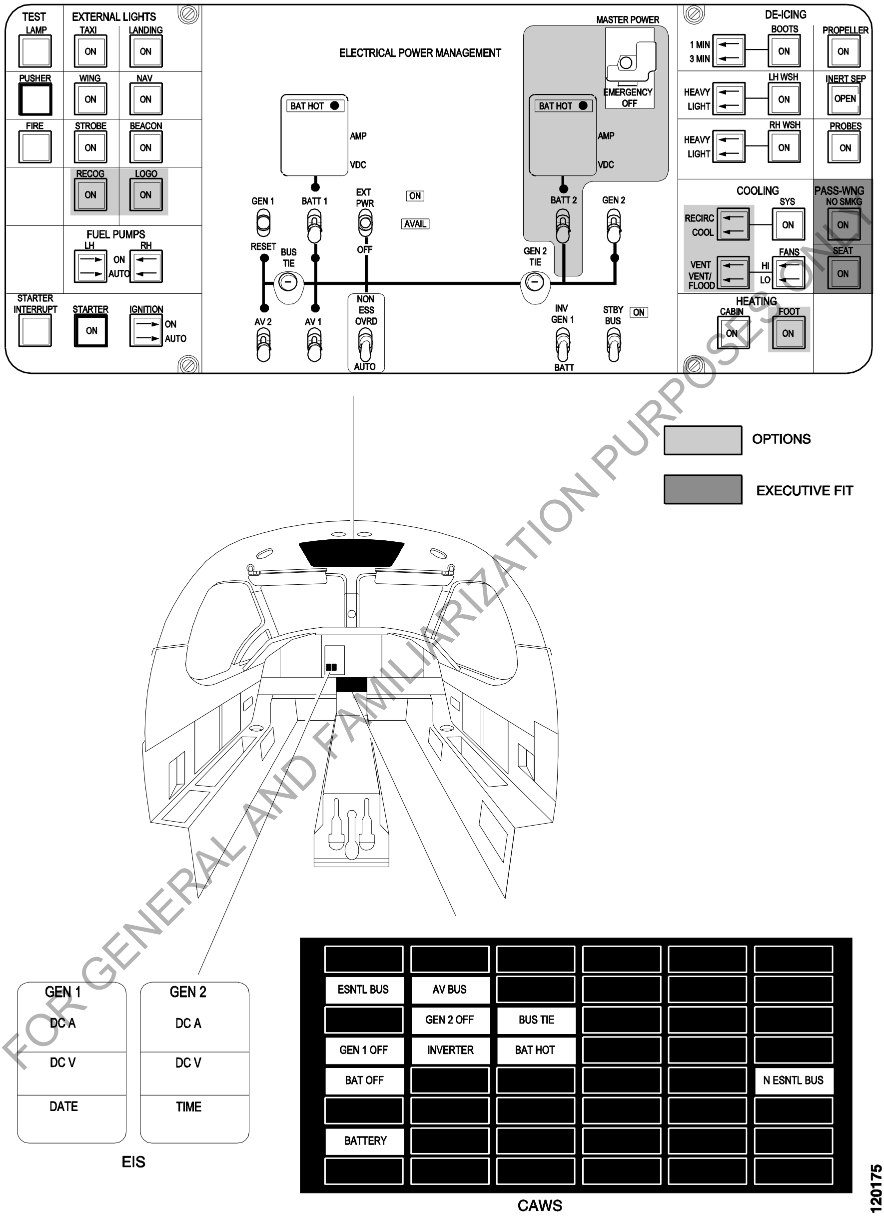

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Figure 7-14-1. Electrical Power System (Typical Overhead Panel)
(Sheet 4 of 7)

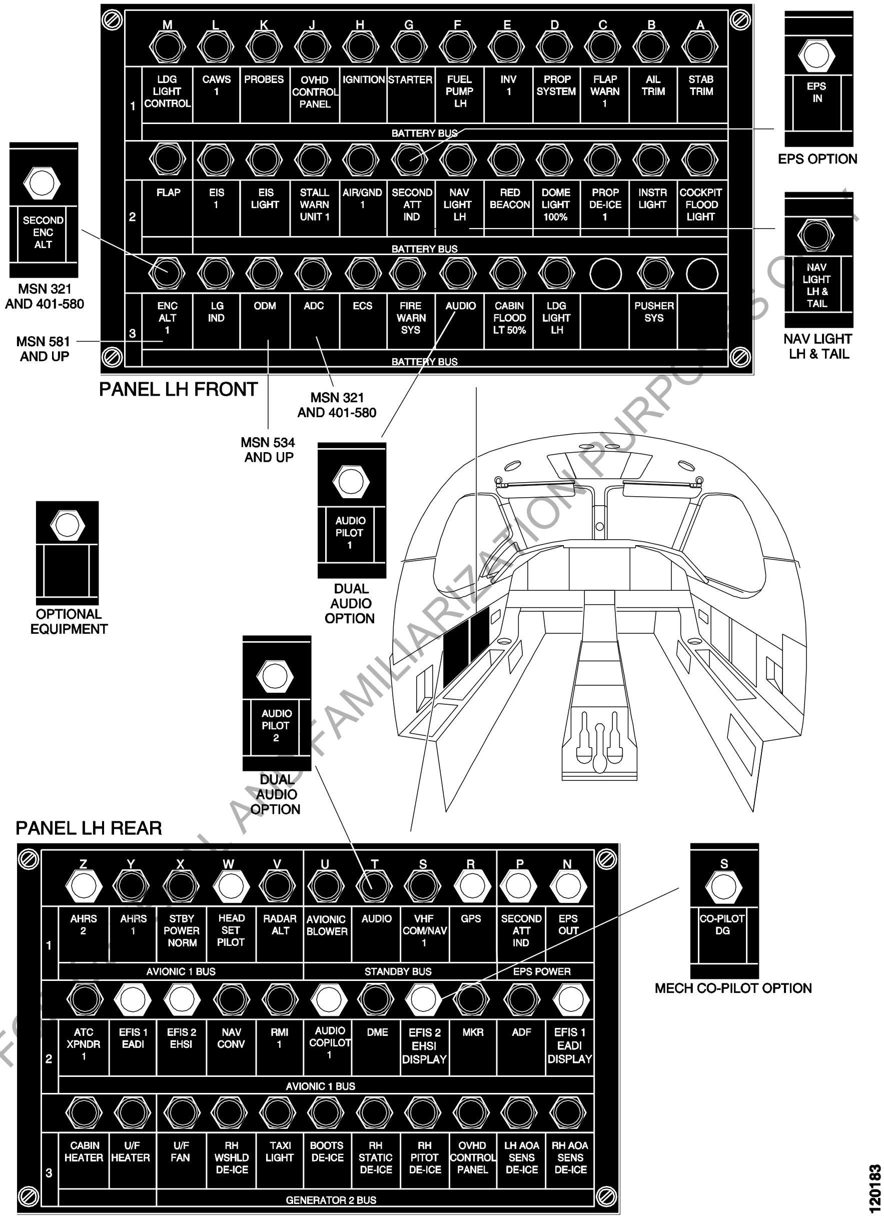

Figure 7-14-1. Electrical Power System (Typical Left Circuit Breaker Panels)
(Sheet 5 of 7)

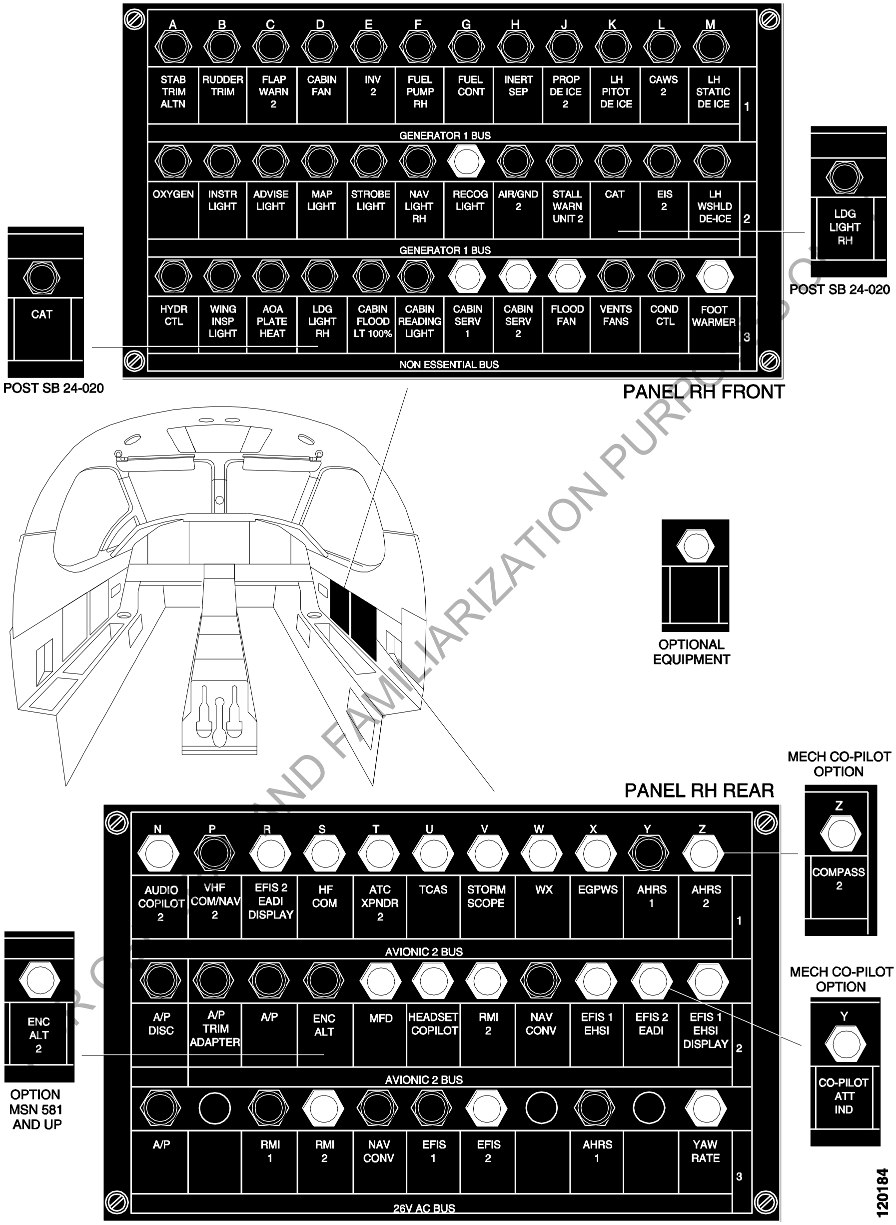

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Figure 7-14-1. Electrical Power System (Typical Right Circuit Breaker Panels)
(Sheet 6 of 7)

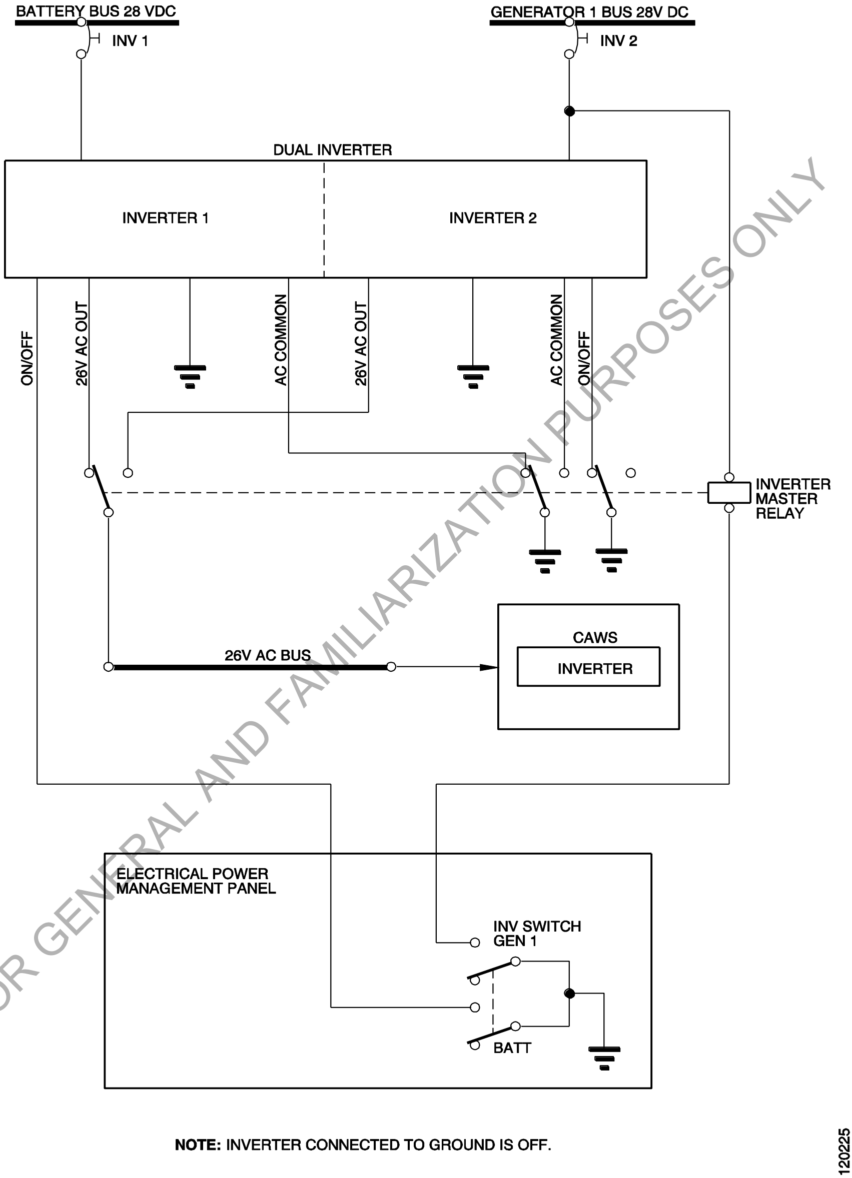

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Figure 7-14-1. Electrical Power System (AC Power)
(Sheet 7 of 7)

OPERATION

Before applying electrical power to the aircraft, set the STBY BUS switch to the STBY BUS position and check the overhead panel switch positions to ensure that all electrical services are off, the NON ESS bus selector is set to AUTO, and the red bus status indicators are illuminated to show that no busbars are powered. Applying external power to the socket causes the AVAIL annunciator on the overhead panel to illuminate and the red bus status indicators stay illuminated to show that no busbars are powered.

Turning the batteries ON will then cause the BATT 1, GEN 1 and GEN 2 bus status indicators to extinguish. Battery volts can be checked on the overhead panel. If external power is required, selecting the EXT PWR switch ON, will apply external power to the system. If no external power is used and services from the NON ESSENTIAL BUS are required, select the NON ESS switch to OVRD.

CAUTION

WHEN OVRD ON IS SELECTED MONITOR BATTERY AMPS AND VOLTS AS IT IS POSSIBLE TO RAPIDLY DISCHARGE THE BATTERY COMPLETELY WITH HIGH CURRENT CONSUMING SERVICES.

After engine start, disconnecting the external power from the airplane will cause the green AVAIL indicator to extinguish and allow the generators to be switched on. Generator 2 is prevented from starting while the external power is connected.

Selecting GEN 2 ON will cause the GEN 2 OFF CAWS caption to extinguish, the GEN 2 relay will close allowing GEN 2 to supply the GEN 1, Battery and GEN 2 bus bars. The output current of GEN 2 is limited, it can charge BAT 1 (if the second battery is not installed), but it cannot charge both BAT 1 and BAT 2 (if the second battery is installed), for this, GEN 1 needs to be switched on.

Selecting GEN 1 will cause the GEN 2 TIE to open. GEN 2 then supplies the GEN 2 BUS and charges the second battery (if installed). GEN 1 supplies all the other busses and charges the main battery.

NOTE

If GEN 1 is selected first, the high battery charge current of two NiCd batteries may cause the BUS TIE to open due to the current overload. Therefore, the normal procedure is to switch on first GEN 2, followed by GEN 1.

The output voltages and load of the GEN 1 and GEN 2 may be observed from the V/A meters on the EIS. The voltage and load or charging current of both batteries may be observed on the BATT 1, BATT 2 V/A meters on the overhead panel.

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Selecting AV 1 and 2 switches to ON applies power to the AVIONICS busses and extinguishes their red status indicators. It is not significant which inverter is selected, as long as the amber INVERTER caption on the CAWS is not illuminated. At this time the STBY BUS switch should be set to the off position.

MALFUNCTIONS, CAUTIONS AND WARNINGS

The BUS TIE interlock system and the NON ESSENTIAL BUS automatic load shedding system minimize the actions necessary in the event of system failures.

If GEN 2 fails, the GEN 2 TIE closes automatically and GEN 1 supplies all bus bars. No load shedding is necessary. The amber GEN 2 OFF caption on the CAWS will illuminate.

If GEN 1 fails, the GEN 2 TIE closes automatically and the NON ESSENTIAL BUS is automatically switched OFF. The pilot must ensure that the remaining electrical load on GEN 2 does not exceed 115 amps and that the battery is not discharging. The amber GEN 1 OFF and amber N ESNTL BUS captions on the CAWS will illuminate.

Refer to the Emergency Procedures (Section 3) for further information on emergency procedures.

Electrical system status is displayed on the CAWS and overhead control panel. No captions or lights indicate that the system is functioning correctly (except in the event of a total electrical failure).

The CAWS displays the following WARNINGS and CAUTIONS and gives the voice callouts:

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RED WARNING

ESNTL BUS	-	Indicates voltage on BAT, GEN 1 or GEN 2 Busses is below 22 V. Voice callout "Warning Essential Bus, Generator 1" or "Warning Essential Bus, Generator 2" or "Warning Essential Bus, Battery"
AV BUS	-	Avionics bus voltage below 22 V. Voice callout "Warning Avionic Bus"

AMBER CAUTION

N ESNTL BUS	-	NON ESSENTIAL BUS voltage below 22 V.
BAT OFF	-	Battery is OFF LINE.
GEN 1 OFF	-	GEN 1 is OFF LINE.
GEN 2 OFF	-	GEN 2 is OFF LINE.
BUS TIE	-	BUS TIE is open.
INVERTER	-	Inverter output below 20 V.
BAT HOT	-	Battery over temperature or thermal runaway (inoperative on aircraft with optional lead acid batteries installed)
BATTERY	-	Battery over voltage or over current condition

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LIGHTING

INTERIOR

Cockpit lighting consists of internally lit cockpit instruments, glareshield mounted floodlights, control wheel reading lights, and a dome light. Light intensity is controlled by switches and rheostats located at the aft end of the center console. Separate intensity control of the pilot, copilot, and center console panels is provided. The overhead and side panel intensity is controlled with the center console switches. The overhead dome light can be set to two preset intensities of 50% or 100% brightness. The advisory lights are on a fixed dim circuit. The map light on each control wheel is controlled by separate rheostat.

NOTE

Cockpit/cabin curtain must be installed and closed during night flight to prevent glare and reflection in the cockpit area.

A switch located on the forward edge of the passenger door (accessible when open) will activate a timer for the cockpit overhead dome light. When pressed the dome light will go on for 45 seconds to facilitate night preflight boarding.

A vestibule light illuminates the cabin airstairs and the baggage area has an overhead light. The main cabin is equipped with an overhead flood light system that can be set to 50% or 100% brightness as selected by the cockpit switch. Individual reading lights are provided for each passenger seat and are controlled by a switch in the cockpit and by a switch near each seat.

MSN 501 & UP and Post SB 33-007 have an additional light in the baggage compartment. It is operated by a push switch installed on the bulkhead trim adjacent to the cargo door. The light stays on for five minutes when the switch is pushed. For continued lighting the switch must be pushed again.

EXTERIOR

Exterior lighting consists of a position and strobe light on each wing tip, a white position light on the tail, a landing light on each main landing gear, a taxi light on the nose landing gear, and a wing inspection light mounted in the left fuselage forward of the cabin door. These lights are controlled by switches located on the EXTERNAL LIGHTS section of the overhead panel. When the switch is set to the on position, an ON annunciator in the switch is illuminated.

Red flashing beacon lights are installed on the top of the horizontal stabilizer fairing and on the lower center fuselage. They give recognition during ground operation and additional anti-collision protection in flight. The lights are controlled by a BEACON switch located on the EXTERNAL LIGHTS section of the overhead panel. When the switch is set to the on position, an ON annunciator in the switch is illuminated. Power for the lights is supplied from the battery bus through the RED BEACON circuit breaker.

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RECOGNITION LIGHTS

Optional recognition lights and power supply units are installed in the left and right forward outer flap fairings. They provide forward illumination during taxiing and enhance the conspicuity of the aircraft in the traffic pattern or enroute. The lights are controlled by a switch located on the EXTERNAL LIGHTS section of the overhead panel. When the switch is set to the on position, an ON annunciator in the switch is illuminated. Power for the lights is supplied from the generator 1 bus through the RECOG LIGHT circuit breaker.

Optional pulse recognition lights are installed in the left and right forward outer flap fairings. They provide forward illumination during taxiing and enhance the conspicuity of the aircraft in the traffic pattern or enroute. The lights are controlled by a switch located on the EXTERNAL LIGHTS section of the overhead panel and a RECOG NORMAL/PULSE switch located on the pilot side crossbar panel. When the overhead panel switch is set to ON and the crossbar panel switch is set to the NORMAL position the lights illuminate continuously. When set to PULSE the lights illuminate alternately left and right approximately 45 times per minute. Power for the light control unit is supplied from the generator 1 bus through the RECOG CNTL circuit breaker.

If the aircraft is fitted with collision avoidance, the pulse recognition lights will automatically pulse when the strobe lights are powered and a Traffic alert signal is received.

LOGO LIGHTS

Optional logo lights can be installed under each side of the horizontal stabilizer. They provide illumination of the vertical stabilizer to show the owner's logo. The lights are controlled by a switch located on the EXTERNAL LIGHTS section of the overhead panel. When the switch is set to the on position, an ON annunciator in the switch is illuminated. Power for the lights is supplied from the battery bus through the LOGO LIGHTS circuit breaker, which is installed in the rear fuselage. Each logo light has two filaments, if the battery is the only power source one filament in each light will illuminate. When the Generator 1 is on-line all four filaments will illuminate. If the Generator 1 fails in flight, two filaments are automatically switched off. The remaining two filaments should be switched off manually. Avoid prolonged use of the logo lights when the aircraft is on the ground without external power.

DUAL NAVIGATION LIGHTS

Optional or Post SB 33-009 dual bulb navigation lights can be installed in place of the standard lights. The lights are controlled by an electronic switch unit installed adjacent to each navigation light assembly. When the EXTERNAL LIGHTS NAV switch is set to ON, the electronic switch units start a 4.5 minute test sequence. During this time, the bulbs are alternatively on for approx. 1.5 seconds each. This gives sufficient time to check that all the bulbs are serviceable. If only one bulb is flashing, this indicates that the other bulb is broken and should be replaced at the next opportunity. After the test sequence is completed the secondary bulb will go off. It will only come on again if the primary bulb fails. Each lamp unit has a thermal protection fuse which, if a failure condition occurs and the two bulbs come on, will open after six minutes and make the second bulb go off.

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ENVIRONMENTAL CONTROL SYSTEM

GENERAL

Refer to Figure 7-16-1, Environmental Control System, for system layout.

The Environmental Control System (ECS) is designed to take engine bleed air, reduce its temperature to that desired, and deliver it to the cabin air distribution system for pressurization and ventilation. The ECS consists of an air cycle system, a distribution system, and a control system. The air cycle system cools a portion of the bleed air and then mixes it with hot bleed air to provide the correct temperature. A firewall shutoff valve can be closed to prevent contaminated air from entering the cabin in the event of an engine compartment fire.

DESCRIPTION

The air cycle system consists of a flow control venturi, a heat exchanger, a cooling turbine, a temperature control valve, a water separator, high pressure shutoff valve, a primary shutoff valve, and associated non return valves and control sensors.

The flow control venturi is sized to regulate flow and pressure.

The heat exchanger is an aluminum single pass, crossflow, plate and fin unit. The unit includes one charge air tap to assist the injection of water into the heat exchanger coolant intake. The evaporation of the water on contact with the heat exchanger surface increases the efficiency of the unit.

The cooling turbine is a ball bearing turbo fan and consists of a radial turbine in a stainless steel assembly coupled to an axial flow fan. The turbine casing incorporates a containment ring.

The Temperature Control Valve is three ported consisting of one inlet and two outlets and driven by a 28 VDC actuator. The valve body and rotating drum are aluminum. The actuator has gearing, limit switches, and magnetic brake to control the reversible series wound motor.

The water separator consists of an aluminum shell containing a coalescor and its support. The coalescor collects moisture from the passing air and forms large droplets which then enter a swirl section, where they are removed by centrifugal force. The separator has a spring loaded poppet valve which allows air to bypass the unit in the event of the coalescor becoming blocked.

The high pressure shutoff valve is solenoid operated and allows automatic selection between P3 and P2.5 compressor stages depending on flight condition to maintain the pressure schedule required for cabin pressurization.

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A Firewall Shutoff Valve enables isolation of the system in emergency conditions such as an engine fire. Operation of the Firewall Shutoff Valve also opens a ram air scoop on the right fuselage underside which introduces ambient ventilation air through the distribution system. This is used in the event of smoke in the cockpit or cabin.

CAUTION

DUE TO THE COMPOSITE CONSTRUCTION OF THE ENGINE COWLING AND THE POSSIBILITY OF TOXIC GASES, THE AIRPLANE ECS MUST BE SHUTOFF WHEN A FIRE CONDITION IS SUSPECTED.

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OPERATION

Air is drawn from the P2.5 and P3 compressor bleed ports on the engine casing. This consists of a single port in the case of the P2.5 connection and two diametrically opposed ports for the P3 connections. The bleed air will be taken exclusively from the P2.5 port during normal operation. However, when the engine is at idle there is insufficient pressure to maintain cabin pressurization. When the P2.5 bleed air pressure falls below a specific value, a pressure sensor in the bleed air ducting opens the high pressure shutoff valve. This creates a back pressure on the non-return valve at the P2.5 port and closes the valve to shut off the P2.5 bleed. The bleed air then passes through the Primary Shutoff Valve and the Flow control venturi, which is sized to regulate the bleed air flow rate and pressure.

The air then passes on to the Temperature Control Valve (TCV). At the TCV the bleed air splits where variable amounts are either supplied to the Heat Exchanger or to a mix point downstream of the Cooling Turbine.

The heat exchanger is cooled by ambient air drawn from a NACA intake in the airplane skin. Cooling airflow is provided by the Heat Exchanger Coolant Fan located downstream of the heat exchanger.

From the heat exchanger, the bleed air is passed to the Cooling Turbine. As the bleed air passes through the Cooling Turbine, its pressure is reduced to delivery pressure and its temperature is, in many cases, close to 0°C. The energy extracted from the bleed air is used to power the Heat Exchanger Coolant Fan which is mechanically linked to the turbine by a shaft.

The duct downstream of the turbine is the mixing duct where the now-cooled turbine exhaust air is mixed with un-cooled bleed air directed from the other port of the TCV. The mixing proportions are controlled by the TCV. The TCV is an electrically operated three port valve with one inlet and two outlet ports. Depending on the selected temperature the TCV modulates to either pass air through or bypass the Heat Exchanger and Cooling Turbine. The TCV operation is controlled by the Temperature Control System.

The Temperature Control System has two modes of operation as selected on the Auto/Manual switch. In the Auto mode, TCV operation is controlled by electrical signals from a cabin temperature sensor, located on the cabin headliner, to maintain the selected temperature between 18°C and 30°C. The TCV will move to allow more bleed air to bypass the Cooling Turbine if the cabin temperature is less than desired. Conversely it will move to pass more air through the Heat Exchanger and Cooling Turbine if the temperature is greater than desired.

The temperature of the duct downstream is monitored by a temperature sensor and will limit the movement of the TCV as required to keep the duct temperature within the maximum and minimum temperature limits. In the Manual mode, a separate switch marked HOT and COLD directly controls the position of the TCV.

CAUTION

WHEN OPERATING IN THE MANUAL MODE THE SYSTEM MAXIMUM AND MINIMUM TEMPERATURE LIMITS ARE DISABLED AND THERE IS A POSSIBILITY OF DAMAGING THE SYSTEM BY SETTING OUTLET TEMPERATURES OUTSIDE THESE LIMITS. THE MANUAL MODE SHOULD THEREFORE ONLY BE USED WHEN IT IS NOT POSSIBLE TO CONTROL THE ECS AIR OUTLET TEMPERATURE USING THE AUTOMATIC MODE.

From the mixing duct the conditioned air passes through a water separator. Moisture is removed from the conditioned air and drawn to the heat exchanger and sprayed into the heat exchanger intake. The conditioned air passes through the Firewall Shutoff Valve and the non-return valves to the cabin for distribution. The non-return valves prevent sudden depressurization in the event of a loss of cabin air supply.

The air enters a small plenum where it is distributed to the cockpit and the cabin. Cockpit air is directed to adjustable outlets at the crews feet and adjustable outlets adjacent to the instrument panel. Air to the cabin is introduced through fixed outlets placed at floor level along both sides of the cabin.

The ECS will automatically shut down when the engine starter is activated.

INDICATION/WARNING

Cabin air temperature is displayed on the center console forward of the engine power controls. Overpressure and overtemperature switches are installed to monitor the system. If pressures greater than 40 psi are sensed in the bleed air line downstream of the Flow control venturi, temperatures greater than 290°C in the bleed line upstream of the Primary Shutoff Valve, temperatures greater than 105°C are sensed in the air line downstream of the water separator, or if the Firewall Shutoff Valve is closed, the ECS will automatically shutdown. The ECS caution will illuminate and an aural gong will be heard when the ECS is automatically shutdown. Post SB 21-007 and MSN 611 and UP. The ECS caution will also illuminate when the ECS switch is in the OFF position.

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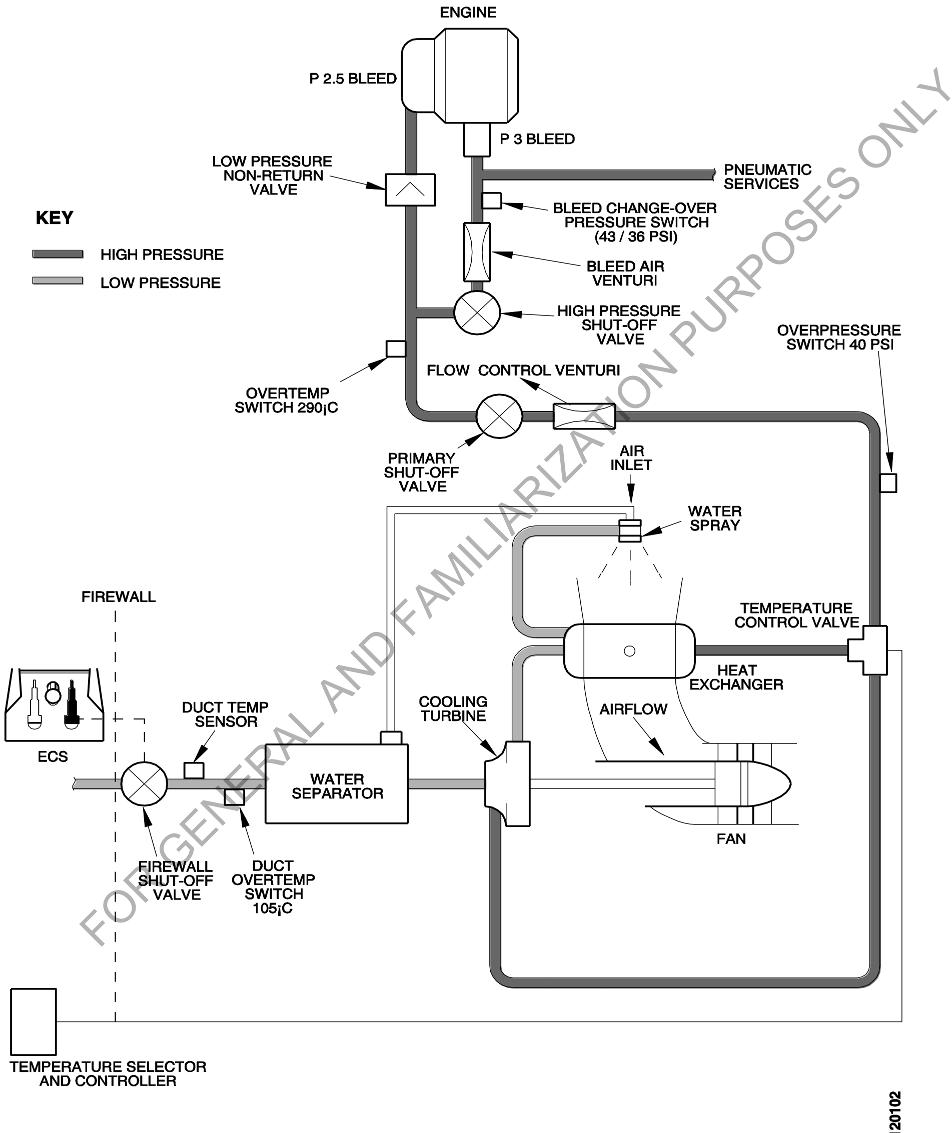

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Figure 7-16-1. Environmental Control System
(Sheet 1 of 3)

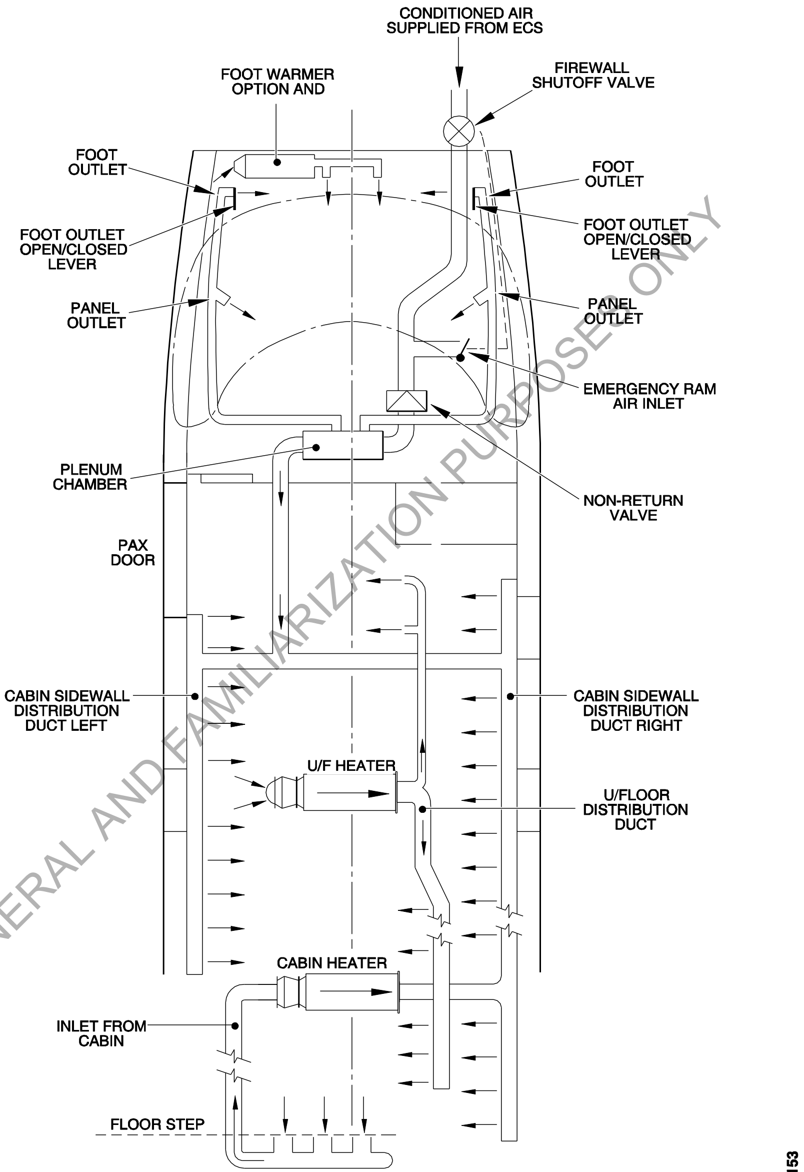

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Figure 7-16-1. Environmental Control System
(Sheet 2 of 3)

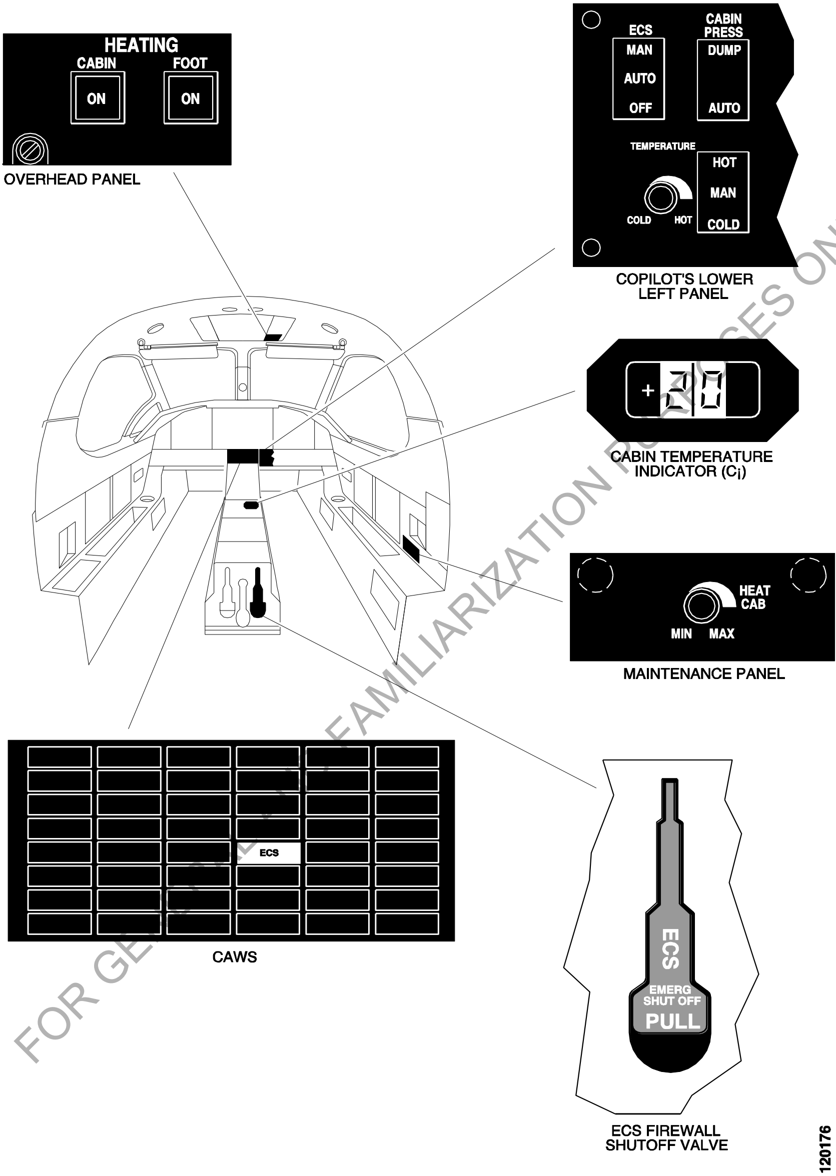

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Figure 7-16-1. Environmental Control System
(Sheet 3 of 3)

HEATING SYSTEM

GENERAL

Refer to Figure 7-16-1, Environmental Control System, for the system layout.

The PC12 is equipped with an auxiliary electrical heating system, which is used to supplement the air cycle system during prolonged low temperature operations such as cruise at high altitude. It can also be used for pre-heating the cabin on the ground.

DESCRIPTION

The system comprises two 28 VDC heating units each equipped with a 75 mm mixed flow fan. Each unit is cylindrical in form and contains two heating elements producing 1.625 kW/unit. The system therefore produces 3.25kW in addition to that of the air cycle system. The units are situated under the cabin floor, one is dedicated to heating the cabin and the other to heating the under floor avionics bay. The cabin heater is supplied 28 VDC power by the GEN 1 bus and the under floor heater is supplied by the GEN 2 bus.

The under floor heater is located between frames 21 and 22. The fan scavenges its air supply from the general under floor zone, through a wire mesh inlet grill, and passes it over the heating element where its temperature is raised. The air is then distributed along the length of the under floor avionics bay by way of a longitudinal distribution duct.

The cabin heater is located between frames 29 and 30. The fan draws its air supply from the cabin, through a grill in the rear floor step. The heated air is then ducted directly to the ECS distribution duct in the cabin sidewall and augments the ECS airflow. The airflow created by the cabin heater is effective in equalizing the temperature throughout the cabin.

Both heater units are equipped with an internal thermal protection system, which isolates the heater when the element temperature overheats. In the event of an over heat, the fans continue to run and the relevant CABIN or U/F HEATER circuit breaker, located in the rear left circuit breaker panel on the pilots side, will trip. The heater will remain isolated until the temperature falls within the heater allowing the circuit breaker to be reset by the pilot.

The power for the heater element circuits is interrupted when the hydraulic pump or cooling system (VCCS) is operating. The under floor fan continues to run, the cabin fan is inhibited. This minimizes generator accessory loads during continuous normal operation and prevents generator overload.

The heating capacity of the system is reduced while the engine is operating at P3 bleed in flight. The cabin heater and fan are inhibited while airborne and P3 bleed is extracted, the under floor heater and fan remain operating. While on the ground (WOW valid) the cabin heater and fan continue to operate when P3 is extracted. During engine start and for 10 seconds following engine start both heaters and fans are inhibited.

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The function of the power inhibits are fully automatic and require no pilot input. Thermal protection, once tripped, will require pilot action to reset.

OPERATION

The Auxiliary heating system is controlled by a combination of the ECS switch, situated on the co-pilot's lower left panel to the left of the pilots control yoke and the CABIN switch on the HEATING section of the overhead panel. Selecting the ECS switch to AUTO or MANUAL will automatically enable the under floor heater. Selecting the CABIN switch to ON will enable the cabin heater.

When selected, both heater elements are automatically controlled by temperature sensors located in the under floor and the rear cabin. The sensor outputs are processed along with pilot inputs, power supply condition inputs and heater thermal safety switch condition to enable or inhibit the heater and fan functions.

With the ECS switch selected to AUTO, the under floor fan runs continuously and the heater element is switched on when the under floor sensor reads below + 5°C and is switched off above + 11°C. The cabin fan runs continuously when the CABIN switch is selected to ON and the heater element is switched at +/- 1°C about a nominal cabin temperature of 24°C. This switching temperature can be adjusted from 21°C to 27°C by using the HEAT CAB potentiometer located in the maintenance panel. It is recommended that the potentiometer be normally set to the mid (24°C) position.

Both heaters and fans can be operated independently of the ECS bleed air system for pre-heating the aircraft before engine start when required. Switching the CABIN switch to ON will select both heaters on when the aircraft is connected to a 28 VDC external power supply.

There are no special operating procedures for the system. Temperature control of the cabin is principally a function of the air cycle system (ECS). The CABIN TEMP display on the center console gives an indication of the cabin air temperature. It is recommended that the CABIN switch be kept ON and the ECS TEMPERATURE control be used to adjust the cabin temperature. With the cabin heater operating, the recommended ECS TEMPERATURE control settings, based on the IOAT, are:

- \- 20°C IOAT, set the control to the mid (12 o-clock) position
- \- 40°C IOAT, set the control to the MAX (hot) position

INDICATION/WARNING

System function may be monitored on the GEN 1 AMP and GEN 2 DC A indication on the EIS Display Unit.

When CABIN HEATING is selected ON the GEN 1 output will increase by approximately 60 amps. The under floor heater can be checked by monitoring the GEN 2 output. A reading of more than 50 amps indicates that the heater is on.

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FOOT WARMER SYSTEM (OPTIONAL)

DESCRIPTION

The foot warmer system (when installed) comprises a 28 VDC 1kW heater installed forward above the cockpit floor. Ducting connects the heater to foot outlets at the pilot and copilot position. A FOOT heater switch is installed on the HEATING section of the overhead panel. It has the positions ON and OFF. When the switch is in the ON position an ON annunciator in the switch is illuminated. Power supplies are 28 VDC from the powerline to the heater relay and from the non essential bus through the FOOT WARMER circuit breaker to the switch.

OPERATION

The foot warmer system operates from the aircraft electrical power or from external power. When the FOOT heater switch is set to ON, 28 VDC is supplied to the heater relay. The relay is energized and the heater and fan operates. The heated air is sent by the fan to the pilot and copilot foot outlets. If the temperature of the heater becomes too high the thermal protection switch operates and de-energizes the heater relay.

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COOLING SYSTEM (OPTIONAL)

GENERAL

The Vapor Cycle Cooling System (VCCS) (when installed) is designed to operate on the ground from a 28 VDC power cart or aircraft electrical power when the engine is operating. The electric motor driven system provides a means of precooling cockpit and cabin areas prior to and during passenger boarding, providing comfort prior to engine start.

This type of system removes a large percentage of the moisture as well as dust and pollen particles from the cabin air.

DESCRIPTION

Refer to Figure 7-19-1, Vapor Cycle Cooling System.

A refrigerant gas is the media which absorbs heat and rejects heat from the cabin air. By continuous recirculation of cabin air, heat is absorbed in the evaporator modules and transferred to the outside through the system condenser.

The system is provided with safety interlock devices to prevent component damage and/or excessive power drain from the aircraft electrical system. The evaporator modules are equipped to prevent coil icing at all ambient conditions.

Cabin temperature control is by varying the airflow through each evaporator module rather than cycling the refrigerant compressor. Airflow is controlled by the flight crew. The cabin is cooled by air ducted from the two evaporators located just forward of the aft pressure bulkhead and exhausted through individual outlets down the left and right sides of the cabin. A third evaporator, located between the other two, exhausts air directly into the cabin.

The cockpit is cooled by individual outlets located in the overhead panel. These outlets receive air ducted from the two evaporators in the cabin.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

OPERATION

When the system is activated, an electric motor drives the compressor at constant speed and capacity which compresses the refrigerant gas to high pressure. The hot, high pressure gas then passes through the condenser coil where it is cooled and condensed into a warm liquid at constant pressure. The heat removed from the fluid is exhausted overboard through a vent in the right rear tail section aft of the pressure bulkhead. The warm liquid from the condenser is then routed into a receiver-dryer container where the liquid and any remaining gas are separated and any moisture in the liquid is absorbed. The warm dry, high quality liquid is then routed to the evaporator module expansion valve where the high pressure liquid is expanded to a low pressure. The large expansion process creates a super cool liquid which passes through the evaporator coil and absorbs heat from the warm cabin air. The cooled air is returned to the cabin. The gas, now warm, is returned to the compressor to repeat the cycle.

Moisture removed from the cabin air by each evaporator drains into a small holding tank below the rear baggage floor panel. The water is held in the tank until the cabin differential pressure is low enough for the tank outlet valve to open allowing the water to drain overboard.

The VCCS operation is controlled by four switches located on the COOLING section of the overhead panel; SYS, RECIRC COOL, FANS and VENT VENT/FLOOD.

The SYS switch has two positions ON and OFF, when the switch is in the ON position an ON annunciator in the switch is illuminated. The OFF position removes power from both the compressor and the evaporator fans. The ON position will supply power to the fans and the compressor.

The RECIRC COOL switch has two positions and when pressed, the system toggles between RECIRC and COOL and an arrow symbol annunciated in the switch shows which selection is made. Setting the switch in the RECIRC position will supply power to the evaporator fans only for recirculation of the cabin air. Setting the switch in the COOL position; supplies power to the fans and compressor.

Cabin air temperature control is accomplished by selecting evaporator fan speed. The evaporator fan speed is controlled by the FANS and VENT VENT/FLOOD switches. The VENT VENT/FLOOD switch has two positions and when pressed, the system toggles between VENT and VENT FLOOD and an arrow symbol annunciated in the switch shows which selection is made. When the VENT VENT/FLOOD switch is set to VENT, power is removed from the center evaporator fan. When the switch is set to VENT/FLOOD, the center evaporator fan blows cool air directly into the cabin. The FANS HI, LO switch controls the speed of the evaporator fans which blow cool air into the left and right overhead ducts. Individual outlets in the overhead panel are adjustable for local temperature control at each seat location.

When the VCCS is operating, the GEN 1 DC Indication will increase by approximately 100 amps for compressor and evaporator fans operation.

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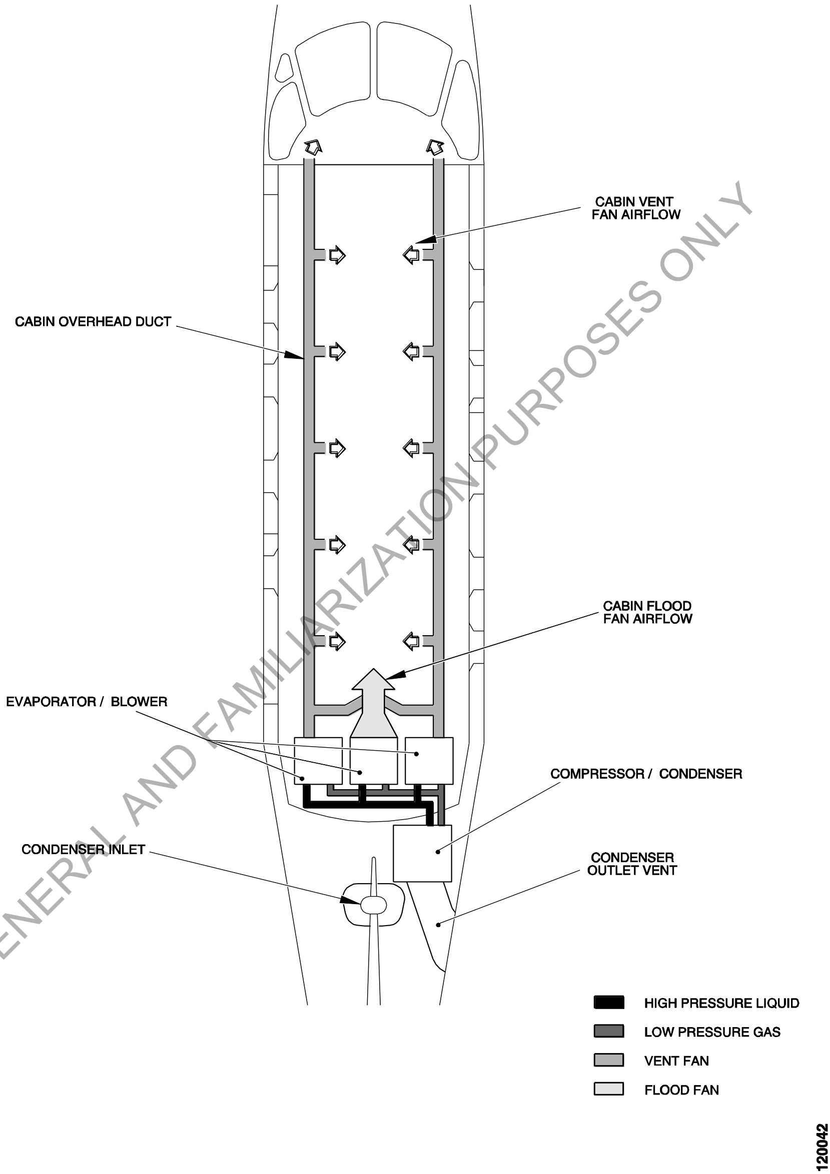

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Figure 7-19-1. Vapor Cycle Cooling System

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CABIN PRESSURIZATION CONTROL SYSTEM

GENERAL

Refer to Figure 7-20-1, Cabin Pressurization Control system, for controls and functional diagram.

Control of the cabin pressure is obtained by regulating the rate of exhaust of the outflow air that is provided for pressurization and ventilation of the airplane cabin. Operation of the Cabin Pressurization Control System (CPCS) is entirely pneumatic, except when switching between ground and flight operating modes and during manual inflight depressurization. Mode switching and inflight depressurization are accomplished through a solenoid operated valve controlled by the weight on wheels switch, a microswitch on the engine condition lever and the DUMP/AUTO switch on the ECS control panel. The CPCS will maintain the selected cabin altitude up to a maximum pressure differential of 5.75 psi, equivalent to a 10,000 foot cabin altitude at a cruising altitude of 30,000 feet.

DESCRIPTION

The CPCS consists of a cabin outflow valve controller, two cabin outflow/safety valves, an auxiliary volume tank, a check valve, a ejector valve, a manual control valve, a solenoid valve, a condition lever switch, a depressurization switch, a weight on wheels switch, and indication of cabin altitude, cabin altitude rate of change, and pressure differential. Airplane electrical power is supplied to the system for the mode switching, solenoid operation, cabin altitude warning on the CAWS, and outflow valve controller lighting.

The outflow valve controller is pneumatically connected to the system through three ports: VALVE, TANK, and VACUUM. The controller VALVE port is connected to the outflow valve control chamber to provide control reference pressure for operation of the outflow valve. The controller TANK port is connected to the auxiliary volume tank, located near the controller. The VACUUM port is connected to the ejector valve which provides a source of low pressure air. The controller contains a chamber that houses an absolute pressure bellows and a rotating actuator. This chamber is vented to the cabin through the cabin air sense port. Rotating the cabin altitude selector knob on the face of the controller to the desired altitude causes the actuator to rotate and compress or extend the bellows depending on the direction of knob rotation. The bellows position controls the reference pressure applied the outflow valve control chamber. The cabin rate control selector knob on the face of the controller adjusts the position of the rate control valve. Rotating the knob counterclockwise decreases rate of change while rotating the knob clockwise increase the rate of change. When the arrow is at 12 o' clock the rate of cabin altitude change is approximately 500 fpm. The rate of change can be adjusted from approximately 100 fpm to 2000 fpm.

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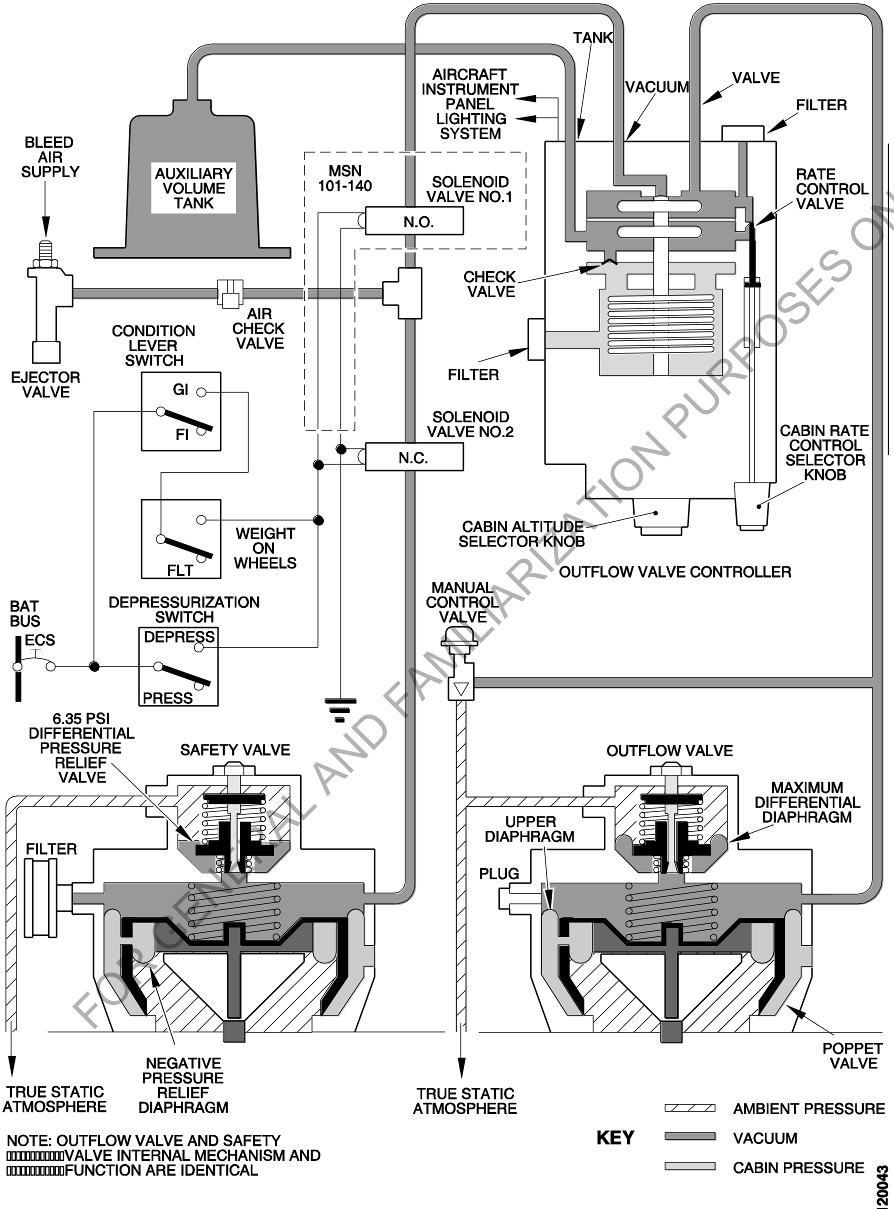

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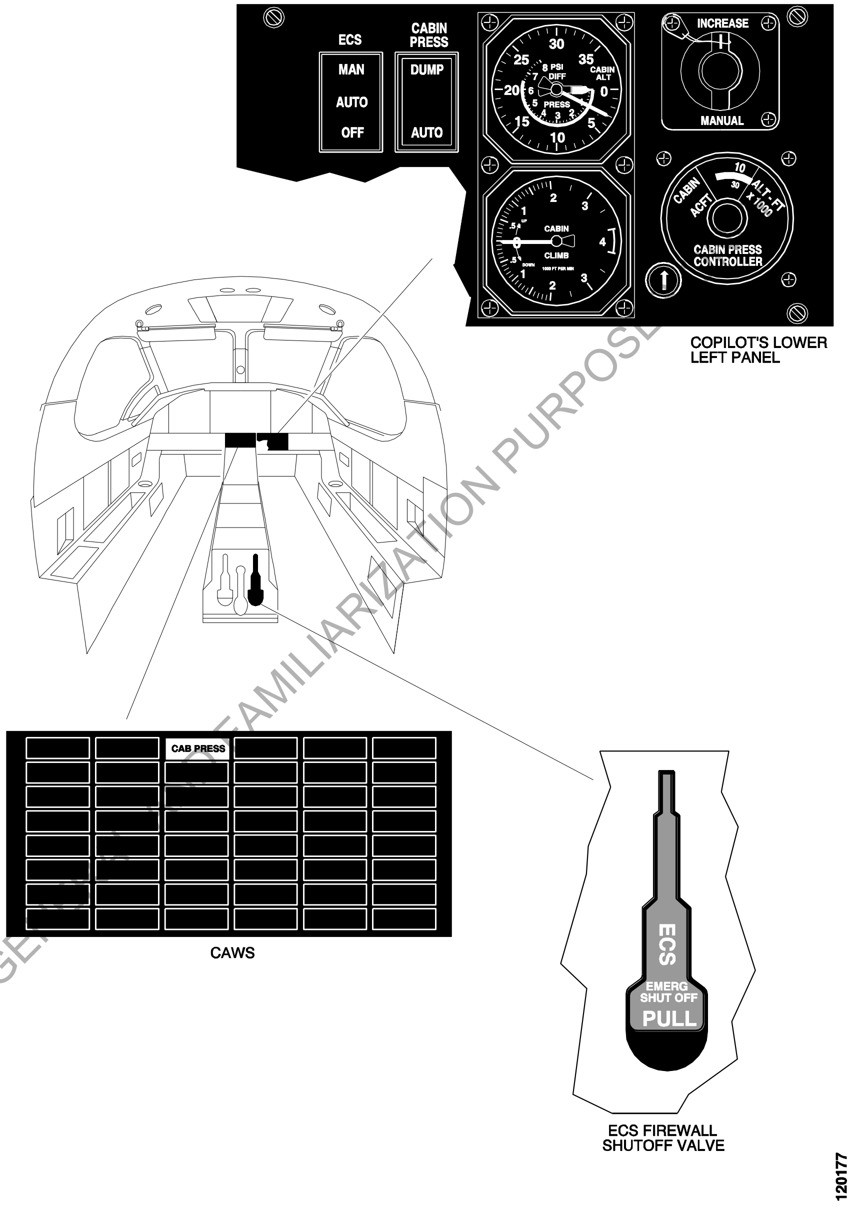
Figure 7-20-1. Cabin Pressurization
(Sheet 1 of 2)



FOR GENERAL FAMILIARIZATION PURPOSES

Figure 7-20-1. Cabin Pressurization
(Sheet 2 of 2)

Low pressure needed for operation of the controller is provided by the ejector valve, which is connected to the controller VACUUM port through a check valve. The ejector valve is also connected to the safety valve through a normally closed solenoid valve to provide the low pressure to operate the valve for inflight depressurization and unpressurized ground operation. Engine bleed air flows through the ejector valve inducing low pressure to be applied to the controller. The check valve installed in the vacuum line between the ejector valve and the controller prevents high pressure bleed air from entering the control system in the event that the ejector valve exhaust becomes blocked.

The manual control valve is connected on one side to the control line from the controller to the outflow valve. The other side of the manual control valve is vented to atmospheric pressure. Opening the manual control valve reduces the pressure in the outflow control chamber, opening the outflow valve. The manual control valve controls the cabin pressure from the unpressurized condition to the maximum differential with the outflow valve controller inoperative.

The auxiliary volume tank is a small sealed chamber that adds volume to the controller rate chamber to increase the accuracy of the rate of change control.

There are two cabin outflow/safety valves located under the cabin floor. These valves are identical except for the installation and intended function. The outflow valve is connected to the controller and controls cabin pressure. The safety valve is connected to the vacuum line from the ejector valve through a normally closed solenoid to open for inflight depressurization and unpressurized ground operation. Both valves are vented to atmospheric pressure. Each valve senses control chamber-to-atmosphere pressure differential and modulates to maintain the selected pressure differential.

A solenoid valve is installed in the CPCS. It is installed in the safety valve control line and is normally closed. It is controlled by the pressurization switch, AIR/GND switch, or the microswitch on the condition lever. When these switches are activated, the solenoid is energized, the solenoid valve opens and vacuum is applied to the safety valve to depressurize the cabin. Electrical power for the mode switching is from the ECS circuit breaker on the battery bus.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

OPERATION

During normal ground operation with the pressurization switch in AUTO and the condition lever in the Ground Idle position, the solenoid valve will open when electrical power is applied to the system. The airplane will be unpressurized. Before selecting the ECS on, set the desired cabin rate of climb and set the outflow controller to 500 feet above the airplane cruise altitude. After engine start and engine bleed air is supplied to the ejector valve, the outflow valve and the safety valve will open

When the condition lever is moved to the flight idle position prior to takeoff, electrical power is removed from the solenoid. The solenoid valve will close, removing the vacuum from the safety valve and allowing it to move to the closed position. As before, the controller applies a low reference pressure to the outflow valve control chamber.

As the airplane altitude increases, the cabin altitude increases at the selected rate of change until the preselected cabin altitude is reached. Cabin altitude is then maintained until the cabin altitude controller is set to a different cabin altitude, the airplane descends below the selected cabin altitude, or the airplane climbs to an altitude where the maximum pressure differential is exceeded.

Should the airplane climb to an altitude where the cabin-to-atmosphere pressure differential exceeds the calibrated settings on the outflow/safety valves, the pressure relief function overrides the automatic pressure control function, and the cabin altitude rate of change begins to track the airplane altitude rate of change.

NOTE

If the airplane climbs at a high rate with a low cabin rate selected on the controller, the positive pressure relief function may activate before the airplane reaches the selected cruise altitude.

When operating at a cabin altitude that produces a pressure differential near the maximum limit and a climb is initiated, select a higher cabin altitude on the outflow valve controller so that the cabin altitude is controlled by the rate control and not by the positive pressure relief function of the outflow valve.

If an unpressurized condition is desired for an emergency (smoke in the cabin), select the DUMP position on the pressurization switch to apply electrical power to the solenoid valve. The solenoid valve opens, allows vacuum to be applied to the safety valve and opens the valve. Cabin air is quickly exhausted to the atmosphere, depressurizing the airplane cabin. An alternate means to depressurize the cabin is by closing the Bleed Air Firewall Shutoff Valve located at aft end of the center console.

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Repressurizing the airplane cabin after depressurization is accomplished by setting the pressurization switch to AUTO to remove electrical power from the solenoid valve. The solenoid valve closes and removes the vacuum from the safety valve, causing the valve to close. Automatic control functions return and the CPCS operates on the rate-of-change control adjusting the position of the outflow valve poppet until the selected cabin altitude is regained.

When atmospheric pressure exceeds cabin pressure and there is a reduction of cabin air inflow, a negative cabin differential exists across the inner diaphragm of both the outflow and safety valves. When the control chamber-to-atmosphere pressure differential is sufficient, poppet valves open and allow air at atmospheric pressure to flow into the cabin until the pressures are equal. This condition may occur during a rapid descent as the airplane descends through the selected cabin altitude. Selecting a lower cabin altitude before a descent is commenced, will allow the cabin altitude to be controlled by the rate controller and prevent an unpressurized condition.

During descent and in preparation for landing, select a cabin altitude approximately 500 feet above landing field elevation and select a cabin rate of change that will bring the cabin altitude to the new setting before the airplane descends to selected cabin altitude. This reselection should be accomplished far enough in advance to prevent the airplane from descending through the cabin altitude, which may occur because of a low cabin rate of change selection. As the airplane descends through the preselected cabin altitude, the cabin becomes unpressurized and follows the airplane rate of descent to touchdown. On approach, check that the cabin is depressurized. At touchdown the AIR/GND switch closes.

After landing when the condition lever is set to Ground Idle, electrical power is applied to the solenoid valve. The solenoid valve opens, allows vacuum to be applied to the safety valve and opens the valve.

INDICATION/WARNING

The cabin altitude selector displays the selected airplane cruise altitude and the corresponding cabin altitude at the maximum pressure differential. The actual cabin altitude, cabin altitude rate of change, and cabin pressure differential are displayed on the copilots lower panel.

It is possible to operate at a cabin differential pressure above the normal operating range if the cabin altitude controller was improperly set by the pilot or if a system failure has occurred. A "dead band" exists between the normal operating maximum differential pressure (5.75 psid) and the pressure at which the system relief valves open (6.35 psid). This "dead band" is indicated on the cabin differential pressure gauge by an amber arc between 5.75 and 6.5 psid. A red radial at 6.5 psid indicates the maximum permissible cabin pressure and is the maximum switching point set for the cabin pressure differential warning switch.

The CAWS warning CAB PRESS annunciator will illuminate and a voice callout “Warning Cabin Pressure” will be heard when the cabin altitude exceeds 10,500 ± 200 feet or when the maximum cabin pressure differential is exceeded.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

OXYGEN SYSTEM

GENERAL

The aircraft is equipped with an emergency oxygen system for use by the crew and passengers in the event of contaminated air being introduced into the cabin or a loss of pressurization with a rapid descent to lower altitudes.

The pilot and copilot masks are supplied with quick-donning diluter-demand masks which are permanently connected to outlets in the cockpit sidewalls.

A constant flow mask is provided at each passenger seat location in the cabin. In the Corporate Commuter interior configuration the nine masks must be connected to the bayonet outlets in the cabin sidewall before flight by the flight crew for flights above 10,000 ft. In the executive interior configuration the masks (the number is dependent on the interior variation) are located in boxes in the arm rests and are permanently connected for all flights. No connection action is required by the flight crew or passengers.

DESCRIPTION

An oxygen cylinder, made of composite material, is located in an external compartment in the right side of the fuselage forward of the main wing (outside the pressure area) from which the oxygen system is serviced and replenished (Refer to Section 8 for servicing instructions).

Attached to the cylinder head is an isolation valve to permit cylinder removal and installation. The valve is connected by a push pull cable to a handle in the cockpit allowing the system to be isolated while the aircraft is on the ground. The valve is connected to the aircraft supply, ground charging valve, the contents pressure gauges and the over-pressure relief valve.

Two gauges are provided, one in the service bay and one on the left cockpit side panel forward of the Test Panel. Overpressure protection is provided by a relief valve in the form of a green rupture disc located in the fuselage skin above the service bay door. This disc is designed to rupture at 2775 +50/-0 psi, discharging the cylinder contents overboard. Disc integrity is checked during the preflight inspection. If found ruptured and the contents pressure gauge indicates zero, proper maintenance must be performed on the system before flights above 10,000 ft altitude.

When filled, the storage cylinder should be charged to 1841 psi (126.9 bar) at 20° C, with a minimum pressure of 265 psi (18.3 bar) for proper flow to the masks. A pressure reducing valve, adjacent to the oxygen cylinder reduces the oxygen pressure to a nominal 70 psi, prior to entering the cabin. This is for safety reasons and to avoid excessive flow through the masks.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Two crew full-face masks of the diluter demand type are located in boxes on the front of the cockpit bulkhead behind each crew member. They are permanently connected to outlets in the cockpit sidewalls. Each mask which is of the diluter-demand type, is equipped with a microphone and an ON/OFF - AIRMIX/100% selector valve. Oxygen is provided to the crew masks at all times regardless of the PASSENGER OXYGEN selector position. Each mask has a PRESS TO TEST button and a flow indicator that shows when proper pressure is supplied to the mask. Turning the PRESS TO TEST button counterclockwise to the emergency position will supply 100% oxygen at a slight overpressure.

The main OXYGEN lever is mounted to the right of the center console. It is connected by a push pull cable to the isolation valve on the cylinder head. While the aircraft is on ground the lever is normally in the OFF position isolating the cylinder from the system and preventing prolonged leakage from the crew masks. Before engine start and as the first action associated with the oxygen system, the lever should be moved to the ON position.

The PASSENGER OXYGEN selector, located in the left cockpit sidewall, has three positions to control the operation of the passenger distribution system. The OFF position stops the flow to the passenger outlets. The ON position permits flow to the passenger masks. The AUTO position will permit automatic pressurization of the passenger oxygen system when the Cabin Pressure Control System (CPCS) senses a cabin altitude above 13,500 feet +/- 500 feet or when in HI FIELD mode the cabin altitude is sensed above takeoff/landing field elevation +2000 ft or 14,500 +/- 500 ft.

In the Corporate Commuter configuration the passenger constant flow oxygen masks are stored under or near each seat position. For flights below 10,000 ft altitude the masks need not be connected to the outlets in the lower cabin sidewalls. In the event of an emergency requiring oxygen use, the passengers are instructed to connect the mask bayonet type connector to the outlets themselves. For flights above 10,000 ft altitude the mask must be connected to the outlets by the flight crew before flight. When disconnected, the outlets are spring loaded closed to prevent oxygen leakage.

In the executive interior configuration the passenger constant flow oxygen masks are stowed under covers placarded OXYGEN MASK INSIDE in the cabin sidewall armrests. The masks are permanently connected to the outlets irrespective of the type of operation and flight altitude. The mask stowage compartments are located near to the seats. The masks have a red tape band attached, which must be positioned to show from the cover, the direction accessible to the seat occupant. A placard PULL TAPE FOR OXYGEN MASK is attached to the armrest near each oxygen mask cover. An oxygen mask is installed in the lavatory. The mask is connected to the passenger oxygen system and is stowed in a box attached to the top of the lavatory sidewall. A visible red tape band is pulled to release the oxygen mask.

In aircraft with an optional three seat bench installed, an oxygen mask is stowed below each seat behind a cover in the front pedestal of the bench seat. A red tape band attached to the mask shows from the panel and assists in the removal of the mask, in the event of it being required for use.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

OPERATION

WARNING

TO PREVENT POSSIBLE FREEZING AND MALFUNCTIONING OF SYSTEM, MAKE SURE THAT THE SYSTEM IS ONLY SERVICED WITH APPROVED, AVIATION GRADE OXYGEN.

TO PREVENT POSSIBLE EXPLOSION AND/OR FIRE, MAKE SURE ALL OIL AND GREASE IS KEPT AWAY FROM OXYGEN SYSTEM COMPONENTS.

SMOKING IS STRICTLY PROHIBITED ANY TIME OXYGEN IS IN USE.

OILY, FATTY OR GREASY SUBSTANCES, INCLUDING SOAPS, LIPSTICK, AFTER SHAVE LOTION, MAKE-UP ARE CAPABLE OF SPONTANEOUS COMBUSTION ON CONTACT WITH OXYGEN.

CAUTION

PILOTS WHO FLY AT HIGH ALTITUDE MUST BE AWARE OF THE PHYSIOLOGICAL PROBLEMS ASSOCIATED WITH PROLONGED FLIGHTS AT SUCH ALTITUDES. DEHYDRATION AND THE SLOW ONSET OF HYPOXIA MAY BE NOTICED IN THE PASSENGERS.

PASSENGER COMFORT MAY BE INCREASED BY AN OCCASIONAL INTAKE OF FLUIDS. PROLONGED HIGH ALTITUDE FLIGHTS REQUIRE WARM CLOTHING AND MONITORING OF THE CABIN TEMPERATURE AND THE PHYSICAL STATE OF THE CREW AND PASSENGERS.

Normal system operation is with the three-position Oxygen Control Valve in the AUTO position, to provide oxygen immediately in the event of a depressurization. The crew will then don their own masks and order the passengers to don their masks. The masks in an executive interior aircraft can easily be removed from their stowage by pulling the red tape band showing from the cover marked OXYGEN MASK INSIDE. Oxygen flow to the cabin is verified by the oxygen pressure switch activating the CAWS annunciator PASS OXY.

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The ON position will be selected by the pilot, in the event of smoke or fumes being present in the cabin, and also to test the passengers masks on the ground before passenger boarding. The OFF position will be selected if the aircraft is being flown without passengers or is taken out of service for an extended time in order to conserve oxygen.

NOTE

When a full oxygen supply is stored, it will supply two crew and nine passengers for a minimum of ten minutes, in which time a descent from 30,000 ft to 10,000 ft is performed. Refer to the Oxygen Duration Chart in Section 4 to determine the minimum oxygen supply required for the number of occupants when operating at less than full oxygen pressure.

As the oxygen system is an emergency system, normal usage will consist only of periodic mask testing (both crew and passengers masks require testing) and of checking, and topping up, if necessary, the storage cylinder.

INDICATION / WARNING

Oxygen system pressure is indicated on a gauge on the left cockpit sidewall forward of the Test Panel. The PASS OXY annunciator on the CAWS will come on when oxygen pressure is supplied to the passenger masks.

LARGER CAPACITY OXYGEN SYSTEM (OPTIONAL)

REAR LEFT SIDE

The system has a 1965 liter gaseous oxygen cylinder installed in the top left side of the rear fuselage compartment, behind the rear pressure bulkhead. The large cylinder replaces the standard smaller oxygen cylinder. The cylinder head isolation valve is secured in the open position. System shut off, when the aircraft is on the ground, is by a rotary valve connected to the cable from the oxygen shut-off handle on the center console. The rotary valve is installed between frames 16 and 17 on the right side of the fuselage. A pressure transducer installed near the oxygen cylinder sends a pressure signal to the pressure gauge on the left side of the cockpit. The oxygen replenishment point comprising a charging valve and a system pressure gauge is installed at the bottom of the rear fuselage compartment. The system overpressure protection burst disc indicator is installed on the left side of the rear fuselage.

System controls and operation are the same as for the standard system. The system with full oxygen pressure will meet the Canadian Operational CAR 605.31 and CAR 605.32 requirements. Refer to the Oxygen Duration Chart in Section 4 to determine the minimum oxygen supply required for the number of occupants when operating at less than full oxygen pressure.

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REAR RIGHT SIDE

The right side larger capacity oxygen system has the same operation and components as the left side. The following components have a different location. The oxygen cylinder is installed in the top right side of the rear fuselage compartment. The oxygen replenishment point comprising a charging valve and a system pressure gauge is installed at the bottom right of the rear fuselage compartment. The system overpressure protection burst disc indicator is installed on the right side of the rear fuselage.

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COCKPIT ARRANGEMENT

GENERAL

Refer to Figure 7-22-1, for the Cockpit Layout.

The cockpit is of a conventional layout in that all of controls, switches, and instruments are readily accessible to the pilot for single pilot operation. The overhead panel contains the switches to control the electrical bus distribution, external lighting de-icing, starting and cabin heating systems. The sidewalls contain the circuit breaker panels. The instrument panel contains: the flight, navigation, and engine instruments; avionics; and pressurization. The center console contains the CAWS annunciator panel, EFIS control units, trim indicator, engine power controls, flap selector, cockpit and cabin lighting controls, emergency landing gear handpump, and the fuel and ECS firewall shutoff controls.

DESCRIPTION

The overhead panel contains the switches to control the DC and AC electrical power generation and distribution to the various busses. A bus distribution diagram is shown on the panel with the switches in the appropriate places to help identify system design, operation, and malfunction. The individual busses and their associated circuit breakers are located in the left and right cockpit sidewalls.

The overhead panel has a TEST section. The different system and annunciator test circuits are controlled here. Individual test circuits are described with their associated systems within this section, except for the LAMP test switch. When this switch is pressed, all of the annunciators in the push switches, the five bus status indicators, the two battery off line indicators and the two battery overheat indicator LEDs are functionally checked. This includes the CAWS, landing gear indicators, flap overspeed light within the flap gauge, and the master warning and caution lights. The lamp function may be checked at any time without interfering with system function. The overhead panel annunciators have a back up power supply which can be tested by using the second function of the TEST FIRE switch. With the overhead panel lighting set to dim and the TEST FIRE switch is pressed, all the overhead panel annunciators must come on bright to show that the back up power supply is operative. This check is a pre flight requirement.

On the rear left side there is a small panel which contains the oxygen pressure gauge. The clock and parking brake handle are located forward of the left side circuit breaker panel below the instrument panel. The clock is powered directly from the Battery Direct bus.

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The left side of the instrument panel contains the flight instruments for the pilot. These include the airspeed, attitude, directional, altitude, and rate of climb instruments. The airspeed indicator provides data for various system control inputs and has a variable M_{mo} needle for the constant Mach maximum airspeed limit above 15,200 feet. Exceeding this maximum airspeed limit (V_{mo} or M_{mo}) will trigger the overspeed aural warning alert. Also, if the maximum speed for the current flap setting is exceeded, a red warning light will illuminate on the face of the flap indicator. To the left of the airspeed indicator is the standby attitude gyro.

This gyro is power from the Battery Bus. Refer to the Electronic Flight Instrumentation System (EFIS) within this section for the description of the attitude and directional instruments.

The right side of the instrument panel is available for optional copilot instruments.

The left center of the instrument panel contains the Engine Instrument System (EIS). Refer to EIS within this section for the description of this system. The right center of the instrument panel contains the audio selector panel and the communication and navigation radios. Refer to Section 9, Supplements for description and operation information for optional avionics systems.

The lower panel on the pilot’s side contains switches for the ELT, avionics and the landing gear selector and position indicators. The lower panel on the copilot's side contains the ECS and pressurization controls.

The center console contains the CAWS annunciator panel, EFIS control units, trim indicator, cabin air temperature gauge, the trim and flap interrupt and alternate power switches, and the engine power controls and flap lever. Further aft will be the cockpit and cabin lighting controls. The ECS and fuel firewall shutoff valve controls and the emergency landing gear handpump can be found on the aft vertical surface of the console.

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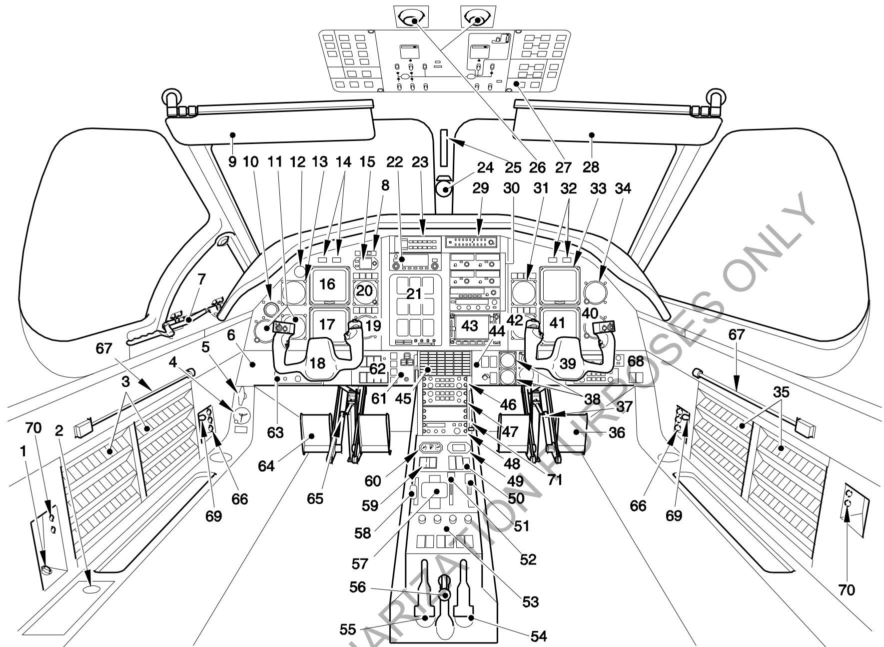

1. OXYGEN CONTROL VALVE
2. OXYGEN PRESSURE INDICATOR
3. LEFT SIDEWALL CIRCUIT BREAKER PANELS
4. CLOCK
5. PARKING BRAKE HANDLE
6. PILOT'S LOWER LEFT PANEL
7. DIRECT VISION (DV) WINDOW
8. MARKER BEACON
9. SUNVISOR
10. STANDBY ATTITUDE GYRO
11. NAVIGATION INSTRUMENTS
12. FLAP POSITION INDICATOR
13. AIRSPEED INDICATOR
14. MASTER CAUTION AND WARNING LIGHTS
15. ALT / VERTICAL SPEED PRESELECTOR
16. EADI
17. EHSI
18. CONTROL WHEEL
19. VERTICAL SPEED INDICATOR
20. ALTIMETER
21. EIS
22. LONG RANGE NAVIGATION RADIO
23. AUTOPILOT MODE CONTROLLER
24. MAGNETIC COMPASS
25. HANDLE
26. AIR VENTS
27. OVERHEAD ELECTRICAL CONTROL PANEL
28. SUNVISOR
29. AUDIO SELECTOR PANEL
30. COMMUNICATION / NAVIGATION
31. AIRSPEED INDICATOR
32. MASTER CAUTION AND WARNING LIGHTS
33. EADI
34. ALTIMETER
35. RIGHT SIDEWALL CIRCUIT BREAKER PANELS
36. RUDDER PEDALS
37. RUDDER PEDAL ADJUSTMENT HANDLE
38. PRESSURIZATION CONTROLS / INDICATORS
39. CONTROL WHEEL
40. VERTICAL SPEED INDICATOR
41. EHSI
42. RMI
43. MFD
44. COPILOT'S LOWER LEFT PANEL
45. CAWS
46. EFIS CONTROL
47. WX RADAR CONTROL
48. HF RADIO
49. CABIN AIR TEMPERATURE INDICATOR
50. ALTERNATE STAB TRIM SWITCH
51. FLAP SELECTOR
52. CONDITION LEVER
53. COCKPIT/ CABIN LIGHTING CONTROLS
54. ECS FIREWALL SHUTOFF CONTROL
55. FUEL FIREWALL SHUTOFF CONTROL
56. EMERGENCY LANDING GEAR HANDPUMP
57. POWER CONTROL LEVER
58. MANUAL OVERRIDE FUEL CONTROL
59. TRIM AND FLAP SYSTEM INTERRUPT SWITCHES
60. TRIPLE TRIM INDICATOR
61. LANDING GEAR SELECTOR, POSITION INDICATORS, AND WARNING SILENCER
62. PILOT'S LOWER RIGHT SWITCH PANEL
63. ELT REMOTE CONTROL PANEL
64. RUDDER PEDALS
65. RUDDER PEDAL ADJUSTMENT HANDLE
66. MIC/PHONE JACKS
67. UTILITY LIGHT
68. COPILOT'S LOWER RIGHT PANEL
69. MIC SELECTOR SWITCH (IF INSTALLED)
70. MASK OXY/MIC JACKS (IF INSTALLED)
71. OXYGEN SHUT OFF LEVER

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Figure 7-22-1. Typical Cockpit Layout

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CENTRAL ADVISORY AND WARNING SYSTEM (CAWS)

GENERAL

Refer to Figure 7-23-1, Central Advisory and Warning System (CAWS), for more information on the warning/caution/advisory lights and voice callouts.

DESCRIPTION

The Central Advisory and Warning System (CAWS) integrates the control and display functions of aircraft systems status into a single unit. The CAWS comprises a Central Advisory Computer Unit (CACU) and a Central Advisory Display Unit (CADU). The CACU is installed under the cabin floor between frames 20 and 21. The CADU is installed in the lower center section of the instrument panel.

The CACU is supplied with 28 VDC from the BAT BUS and the GEN 1 BUS. It monitors the aircraft systems, processes the data and passes the information to the CADU via the serial bus to display the appropriate annunciation. For system failures the CACU generates a voice output or a gong that is sent to the aircraft audio system.

The CADU receives information regarding which annunciator to illuminate from the CACU via the serial bus. The CADU displays 48 individual captioned annunciations. Each annunciator comprises six colored Light Emitting Diodes (LED) connected in parallel covered with a legend panel. The CADU annuciators indicate warning, caution, and advisory conditions.

A warning light is red and indicates a condition that requires an immediate corrective action by the pilot. It is accompanied by a voice callout and the master WARNING light will come on.

A caution light is amber and indicates a condition that requires a pilots attention but not an immediate reaction. It is accompanied by the master CAUTION light coming on and an aural gong will sound.

An advisory light is green and indicates that a system is in operation.

Red master WARNING and amber master CAUTION lights are positioned on the instrument panel directly in front of the pilot and copilot. They alert the crew to changes in status of the CADU annunciators. Any condition that causes a red or amber annunciator to come on also causes the applicable master WARNING or CAUTION light to come on. A voice callout will sound through the overhead speaker and/or headset(s) anytime a master WARNING light comes on. Pushing the applicable master WARNING or CAUTION light will extinguish that light. The CADU warning or caution annunciator that triggered the master WARNING or CAUTION light will remain on.

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OPERATION

The CAWS must be tested when the aircraft is on the ground before takeoff. Pressing the TEST LAMP switch on the overhead panel will check the system and make all the annunciator LED's and the master WARNING and CAUTION lights illuminate. Pressing the TEST LAMP switch in the air will only make all the CAWS annunciator LED's illuminate.

The voice callouts from the CAWS are inhibited until 60 seconds after the engine start cycle has reached 50% Ng.

The CAWS continuously checks the communication between the CACU and CADU. In the event of a communication error the master CAUTION light will illuminate and the CAWS FAIL amber caption will come on.

The voice messages, warnings voice callouts and the cautions have been given a priority status. The purpose of the priority status is that during an active voice callout any new incoming signals are held in a queuing system based on priorities.

If an EGPWS is installed it will send a suppression signal to inhibit the voice callouts of the CAWS and the TCAS (if installed) when it is sending voice messages to the flight crew.

If a TCAS is installed its voice messages will be delivered to the flight crew after EGPWS and CAWS voice messages.

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WARNING / CAUTION AND ADVISORY INDICATIONS

Caption	Color	Voice Callout	Description
PASS DOOR	Red	Warning Passenger Door	Indicates passenger door and/or handle are not locked.
CAR DOOR	Red	Warning Cargo Door	Indicates cargo door and/or handle are not locked.
CAB PRESS	Red	Warning Cabin Pressure	Indicates cabin altitude above 10,700 ft. or if the maximum pressure differential is exceeded.
AIR/GND	Red	Warning Air Ground	Indicates a disparity between LH and RH AIR/GND switch inputs to the Stick Pusher computers.
PROP LOW P	Red	Warning Prop Pitch	Indicates propeller has gone to a low pitch (below minimum in-flight pitch) with aircraft not on the ground.
A/P TRIM	Red	Warning Autopilot Trim	Indicates autopilot and/or auto trim failure.
ESNTL BUS	Red	Warning Essential Bus	Indicates voltage of the Bat, Gen 1, or Gen 2 busses less than 22 VDC.
AV BUS	Red	Warning Avionics Bus	Indicates avionic busbar 1 or 2 voltage less than 22 VDC.
STAB TRIM	Red	Warning trim	Indicates stabilizer trim is unsafe for takeoff (on ground only).
OIL QTY	Red	Warning Oil	Indicates low engine oil quantity (engine not running).
ENG FIRE	Red	Fire Fire Fire	Indicates overtemperature condition and/or possible engine fire.

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WARNING / CAUTION AND ADVISORY INDICATIONS (CONT'D)

Caption	Color	Voice Callout	Description
GEN 2 OFF	Amber	None	Indicates that generator 2 is off-line.
BUS TIE	Amber	None	Indicates generator 1 bus tie isolation relay is open.
PUSHER	Amber	None	Indicates Stall Warning/Stick Pusher System malfunction.
FIRE DETECT	Amber	None	Indicates a malfunction in the engine fire detection circuit.
GEN 1 OFF	Amber	None	Indicates that generator 1 is off-line.
INVERTE R	Amber	None	Indicates inverter output less than 20 VAC.
BAT HOT	Amber	None	Indicates a battery over-temperature or temperature sensor disconnected (inoperative on aircraft with optional lead acid single or dual batteries installed)
FLAPS	Amber	None	Indicates a flap system failure (mechanical or electrical)
FLAPS & PUSHER (10 sec delay)	Amber	Asymmetry Detected, Pusher Safe Mode	Indicates a flap asymmetric condition
CHIP	Amber	None	Indicates metal particles in the engine oil system.
CAWS FAIL	Amber	None	Indicates a CAWS internal failure.
BAT OFF	Amber	None	Indicates a battery is off-line.

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WARNING / CAUTION AND ADVISORY INDICATIONS (CONT'D)

Caption	Color	Voice Callout	Description
FUEL PRESS	Amber	None	Indicates fuel system pressure is less then 2 psi (0.14 bar). Light goes off when fuel system pressure is greater than 3.5 psi (0.24 bar).
HYDR	Amber	None	Continuously illuminated in flight indicates low hydraulic pressure. Continuously illuminated on the ground indicates that the hydraulic pump cycled too often during flight and requires maintenance.
ECS	Amber	None	Indicates Environmental Control System malfunction. Post SB 21-007 and MSN 611 & UP also when the ECS switch is in the OFF position
AOA DE ICE	Amber	None	Indicates AOA deice malfunction or DE ICING PROBES switch set to OFF (3 minute delay).
N ESNTL BUS	Amber	None	Indicates non essential busbar voltage less than 22 VDC.
L FUEL LOW	Amber	None	Indicates fuel quantity in left wing tank has reached 20 US gal (75 liters).
A/P DISENG	Amber	None	Indicates autopilot pitch and aileron servos disengaged.
DE ICE BOOTS	Amber	None	Indicates a pressure sequence failure.
INERT SEP	Amber	None	Indicates an inertial separator door operation failure
STATIC	Amber	None	Indicates a static port heater failure.

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WARNING / CAUTION AND ADVISORY INDICATIONS (CONT'D)

Caption	Color	Voice Callout	Description
R FUEL LOW	Amber	None	Indicates fuel quantity in right wing tank has reached 20 US gal (75 liters).
BATTERY	Amber	None	Indicates a battery over voltage or over current condition
OIL QTY	Amber	None	Indicates low engine oil quantity, engine running (not operative)
WSHLD HEAT	Amber	None	Indicates a windshield heating system failure.
PITOT 1	Amber	None	Indicates a pilot pitot head heater failure.
PITOT 2	Amber	None	Indicates a copilot pitot head heater failure.
PROP DE ICE	Amber	None	Indicates a propeller de ice system failure.
L FUEL PUMP	Green	None	Indicates left fuel boost pump has been selected ON.
A/P Trim	Green	None	Indicates autopilot trim is operating.
PUSHER ICE MODE	Green	None	Indicates that the pusher computer is set to ice mode.
DE ICE BOOTS	Green	None	Indicates boots deice operating and pressure sequence correct
PASS OXY	Green	None	Indicates adequate pressure of oxygen to the passenger masks
R FUEL PUMP	Green	None	Indicates right fuel boost pump has been selected ON.

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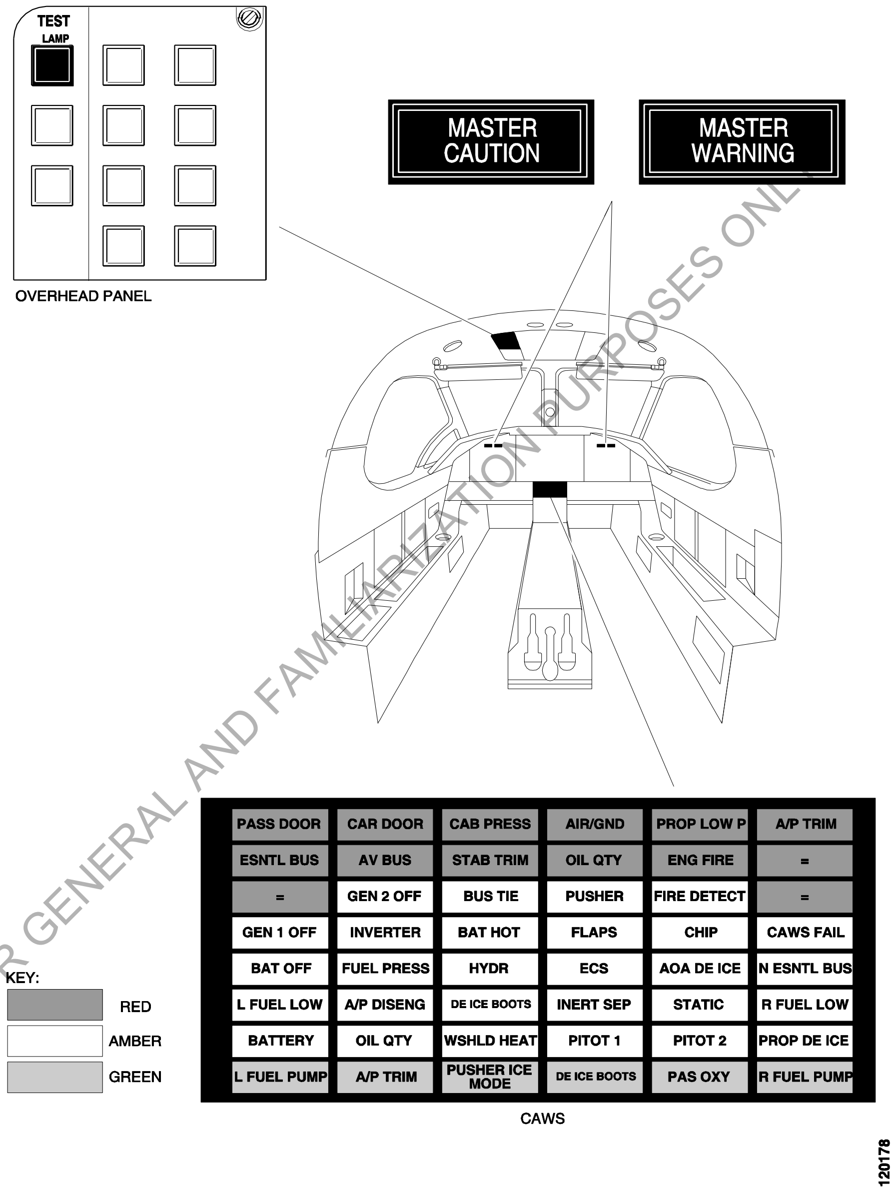

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Figure 7-23-1. Central Advisory and Warning System (CAWS) Annunciator Panel

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PITOT STATIC SYSTEMS

GENERAL

The pitot static systems obtain dynamic and static pressure to operate instruments for the pilot and copilot flight information.

DESCRIPTION

Pitot pressure, for the pilot's airspeed indicator is sensed by a heated pitot head which is installed on the bottom of the right wing and is carried through lines within the wing and fuselage to the gauge on the pilot's instrument panel. The pitot system can be drained by a valve located in the right bottom wing root.

Pitot pressure, for the copilot's airspeed indicator is sensed by a heated pitot head which is installed on the bottom of the left wing and is carried through lines within the wing and fuselage to the gauge on the copilot's instrument panel. The pitot system can be drained by a valve located in the left bottom wing root.

Two dual heated static ports are installed, one each side of the rear fuselage aft of the rear pressure bulkhead. Two pickups are used one on each side are used for each static system. The two pickups balance out the differences in static pressure caused by slight side slips or skids.

Static pressure for the pilot's airspeed, encoding altimeter, vertical speed, as well as the cabin altimeter differential pressure indicator, is sensed by the forward left and rear right static ports. They connect to a single line leading to the instruments. Also, a tapping is taken from the static line to supply the cabin altimeter differential switch. From the pitot and static lines, tappings are taken to supply the autopilot air data computer.

Static pressure for the copilot's airspeed, altimeter and vertical speed indicator is sensed by the rear left and forward right static ports. They connect to a single line leading to the instruments.

If one or more of the pitot static instruments malfunction, the systems should be checked for dirt, leaks or moisture. The holes in the sensors for pitot and static pressures must be fully open and free from blockage. Blocked sensor holes will give erratic or zero readings on the instruments. The static line of each system can be drained by a valve located inside the rear fuselage, aft of the rear pressure bulkhead.

The heaters for the pitot head and static ports are controlled by the PROBES switch on the overhead panel. Electrical power for heating and CAWS indication is supplied through the PITOT DEICE and STATIC DEICE circuit breakers on the generator 1 and 2 busses (Refer to the Typical Pitot and Static Systems Schematic Fig 7-24-1).

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INDICATION / WARNING

There are three amber caution annunciators on the CAWS for the pitot and static systems, which are accompanied by a gong. If the gong is heard and the CAWS PITOT 1 annunciator is on, this indicates a failure of the right pitot head heating circuit which supplies the pilot's instruments. A PITOT 2 annunciator on, indicates a failure of the left pitot head heating circuit which supplies the copilot's instruments. If the STATIC annunciator is on, this indicates a failure of one of the dual static ports heating circuits.

ALTIMETERS KEA 346

A factory option installs three altimeters in the flight compartment. An encoding altimeter is installed on the pilots main instrument panel and is connected to the pilots static system. A non encoding altimeter is installed on the pilots lower left instrument panel and is connected to the copilots static system. A second encoding altimeter, where the encoding output function is not used, is installed in the copilots main instrument panel and is connected to the copilots static system. The power supply to the second encoding altimeter is through the SECOND ENC ALT circuit breaker on the BATTERY BUS circuit breaker panel.

ALTIMETERS AM-250

Two factory options, both install three altimeters in the flight compartment. One where the encoding output function of the copilots altimeter is not used. The other is when a second transponder is installed and the encoding output function is used. The pilots altimeter is connected to the pilots pitot and static systems. The power supply is through the ENC ALT 1 circuit breaker on the BATTERY BUS. The copilots altimeter is connected to the copilots pitot and static systems. The power supply is through the ENC ALT 2 circuit breaker on the AVIONICS 2 BUS. A non encoding altimeter is installed on the pilots lower left instrument panel and is connected to the copilots static system

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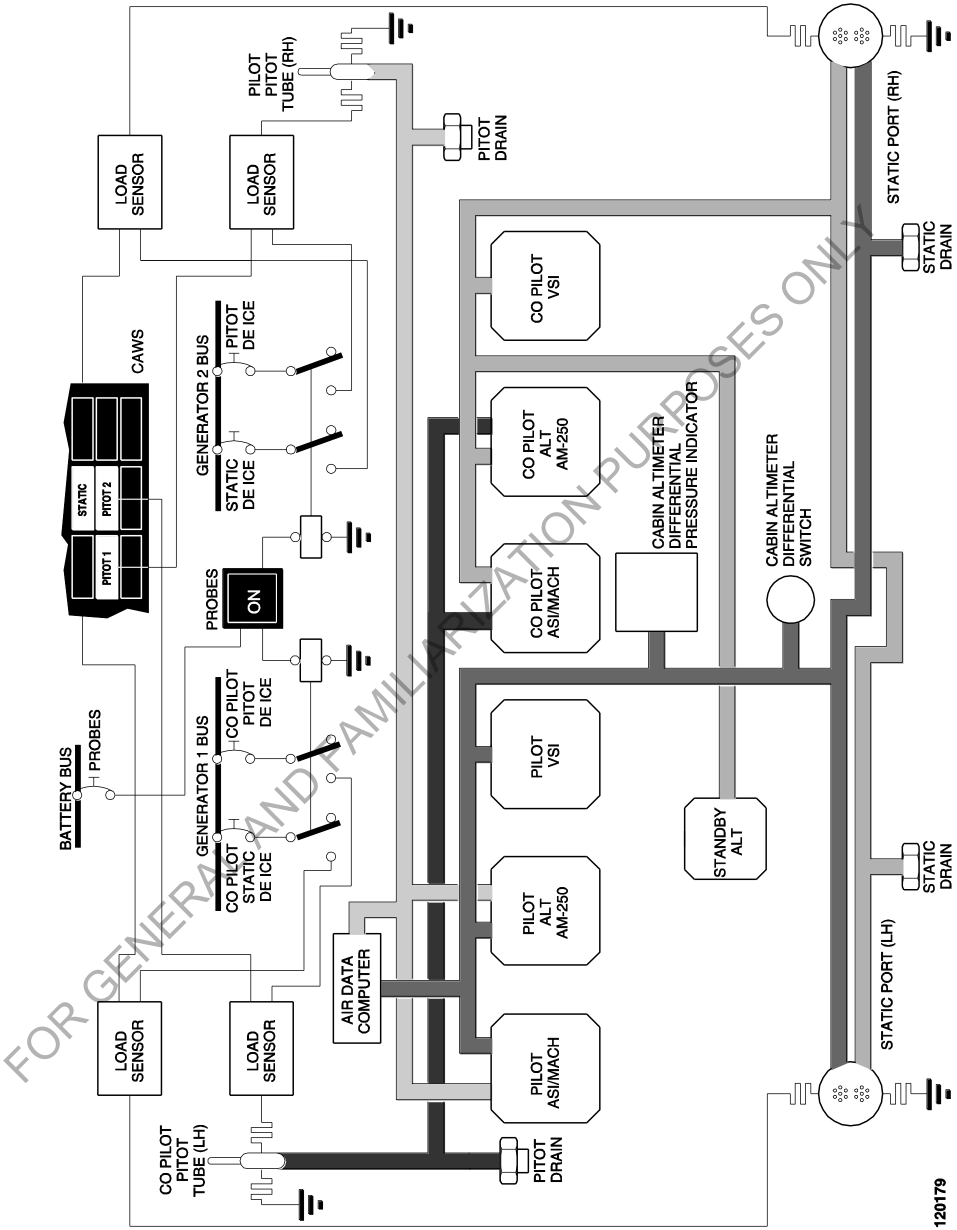

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Figure 7-19. Pitot and Static Systems

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STALL WARNING / STICK PUSHER SYSTEM

GENERAL

The airplane is equipped with a stick shaker-pusher system to improve aircraft handling in the low speed flight regime by preventing the airplane from inadvertently entering a stall condition. The stick shaker-pusher system contains two Angle-of-Attack (AOA) sensors, two computers, a single stick shaker and a single stick pusher. The two computers are connected in such a way that either computer can, independently, provide stall warning (stick shaker and stall warning) but both computers are required to actuate the stick pusher.

DESCRIPTION

Refer to Figure 7-25-1, Stall Warning/Stick Pusher System, for system operation.

The left and right Stick Pusher Computers are each provided power from the Battery and Generator 1 bus. Each computer receives inputs from its respective AOA vane and AIR/GND switch. Both computers receive inputs from the engine torque, flap position, and self test. From these various inputs, each computer independently determines the "Defined Angle of Attack" for stall warning (aural stall warning and stick shaker activation), stick pusher activation, and stick pusher disengagement following an actual push.

The stick pusher, shaker, and the aural stall warning are disabled on the ground through the AIR/GND switches, except for the self test function. The stick pusher is inhibited for 5 seconds after lift-off. The shaker and the aural stall warning are operative immediately after lift-off.

The stick pusher actuator has a built-in g-switch which inhibits the stick-pusher when the airplane's normal acceleration becomes less than 0.5 g. The output torque of the stick-pusher actuator is electronically-limited to have a force of 60 to 65 lbf on the control wheel. A slip-clutch on the stick-pusher capstan allows control on the elevator with a force of 85 to 90 lbf on the control wheel, in the event of stick-pusher jam. The force on the control wheel is defined when the longitudinal control is pulled to 3/4 of its travel. This allows the pilot or copilot to override the stick-pusher in the instance of an inadvertent operation.

Each outboard control wheel horn is equipped with a PUSHER INTR push switch providing a means to quickly disengage the stick pusher actuator in the event of an inadvertent operation.

When operated in PUSHER ICE MODE (to provide protection in icing conditions), all the shaker and pusher actuating points, measured by the angle of attack vanes, are reduced by 8°. The pusher ICE mode is set when the propeller de-icing system is switched ON and the inertial separator is set to OPEN. When both pusher computers are set in ICE mode, the green CAWS PUSHER ICE MODE advisory is activated. If only one computer is set in ICE mode, or if no computer is set in ICE mode while conditions for ICE mode are present, the amber PUSHER caution is activated and an aural gong will sound.

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The system is provided with a self test function that can be activated at any time by pressing and holding the PUSHER switch located on the TEST section of the overhead panel. The amber PUSHER and green PUSHER ICE MODE annunciator on the CAWS will remain illuminated until the self test is passed.

The system must be tested when the airplane is on the ground before takeoff. The engine must be operating at a minimum of 5 psi torque; the flaps set to 15°, then press and hold the PUSHER test switch to initiate the test. If the test switch is pressed and the test sequence does not occur and/or the PUSHER annunciator remains illuminated, the system has failed the self test and further flight before maintenance is not approved. If the test switch is pressed without the engine operating above 5 psi torque and the flaps are not set to 15°, the PUSHER annunciator will remain illuminated, the aural warning and the test sequence will not occur. The pusher test will not function when the propeller de-ice system is switched on.

The system function may be tested in the air anytime the engine is operating with the flaps at any setting. Press and hold the test switch and observe the following sequence; PUSHER ICE MODE advisory, aural stall warning with stick shaker for 2 seconds followed by a 1 second pause, and aural stall warning with stick shaker for 2 seconds. The pusher will not activate when the system is tested in flight. If the test switch is pushed and the test sequence does not occur and/or the PUSHER caution remains illuminated, the system has failed the self test.

WARNING

STALLS MUST BE AVOIDED WHEN THE STICK PUSHER IS INOPERATIVE. EXCESSIVE WING DROP AND ALTITUDE LOSS MAY RESULT DURING STALL WITH FLAPS DOWN AND/OR WHEN POWER IS APPLIED.

The AOA vanes and mounting plates are electrically heated by internal heating elements. AOA vane and mounting plate heat is controlled by the PROBES switch located on the DE-ICE section of the overhead panel. Refer to Figure 7-25-1, Stall Warning/Stick Pusher System for system schematic.

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OPERATION

The vane attached to the AOA probe aligns itself with the relative airflow. As it moves, it positions a wiper unit in the probe. This wiper unit adjusts the electrical output to its respective pusher computer. As the airplane approaches the artificial stall (5 to 10 knots before pusher actuator), the stick shaker and the “Stall” warning will activate when one of the AOA pusher computers senses the defined angle of attack for stall warning/stick shaker activation. If the “Stall” warnings are ignored and the approach to stall is continued, the stick pusher will activate when both AOA pusher computers sense the defined angle of attack for stick pusher activation. The stick shaker and “Stall” warning remain active during pusher operation.

Pusher operation will be stopped when either AOA computer senses an angle of attack lower than the angle of attack required to active the pusher or when the airplane acceleration is less than 0.5 g.

If an inadvertent operation of the stick pusher occurs, push the PUSHER INTR switch on the control wheel outer horn to quickly disengage the stick pusher actuator.

Activation of the stick shaker disengages the autopilot if engaged, in order to give full authority to a possible stick pusher activation. The autopilot can be manually reconnected after the angle of attack is reduced and the stick shaker has ceased operation.

WARNING

IF ACCELERATED STALLS ARE PERFORMED IN THE LANDING CONFIGURATION WITH HIGH POWER AND SIDESLIP, A RAPID PITCH-DOWN MAY RESULT WITH AN ALTITUDE LOSS OF UP TO 500 FEET.

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INDICATION / WARNING

A digital serial output, from the left hand computer, provides the data for the FAST/SLOW pointer on the EFIS EADI. (Refer to EFIS section for more information).

In the instance of disparity between the LH and RH weight-on-wheels inputs, the Central Advisory and Warning System annunciator AIR/GND and PUSHER are activated to warn the pilot of the malfunction.

The stick pusher computers have an internal-fault monitoring system which will illuminate the CAWS PUSHER annunciator when one of the following events occur:

- a built-in test failure
- a push signal from only one computer that is longer than 3 seconds
- no output torque during a push
- if either of the pilot or copilot DISC switches is pressed
- if the aircraft normal acceleration is below 0.5 g for longer than 3 seconds.

A malfunction in either pusher computer activates the Central Advisory and Warning System annunciator PUSHER to warn the pilot about a system malfunction and the pusher becoming inoperative.

The stick shaker and aural stall warning devices may still be operational if the stick pusher is inoperative.

The CAWS AOA DE ICE caution annunciator will illuminate when a malfunction is sensed in the AOA vane or mounting plate heater circuits (current sensing).

The CAWS PUSHER ICE MODE advisory annunciator will illuminate when the propeller de-ice system is set ON and the inertial separator is set OPEN. In the ICE mode, the shaker and pusher activation points are coming 8° earlier than in the NORMAL mode and the FAST/SLOW pointer is set for a 15° flap landing.

If the Flap Control and Warning Unit detects a flap asymmetry or a twist and the flap angle is greater than 2° it will make the CAWS FLAP caution come on and will send a signal to the stick pusher computers. This will set the stick pusher computers to a ‘safe’ mode which corresponds to 0° flap position irrespective of the actual flap position. As a result of the ‘safe’ mode, the stick shaker and stick pusher will operate at higher airspeeds than would be normal for the actual flap position. This can be as much as 5 KIAS faster, but varies with power and flap angle and occurs only if the indicated flaps is 12° or greater. However, the Fast/Slow pointer will continue to operate based on the actual position of the left flap. To allow for this difference when in ‘safe’ mode, the pilot must use the fast diamond on the Fast/Slow pointer when making an approach if the indicated flaps position is 12° or greater. The setting of the stick pusher computers to the ‘safe’ mode will also make the CAWS PUSHER caution come on 10 seconds after the FLAPS caution, to annunciate the condition. A CAWS voice callout “Flap Asymmetry Detected, Pusher Safe Mode” will also be given.

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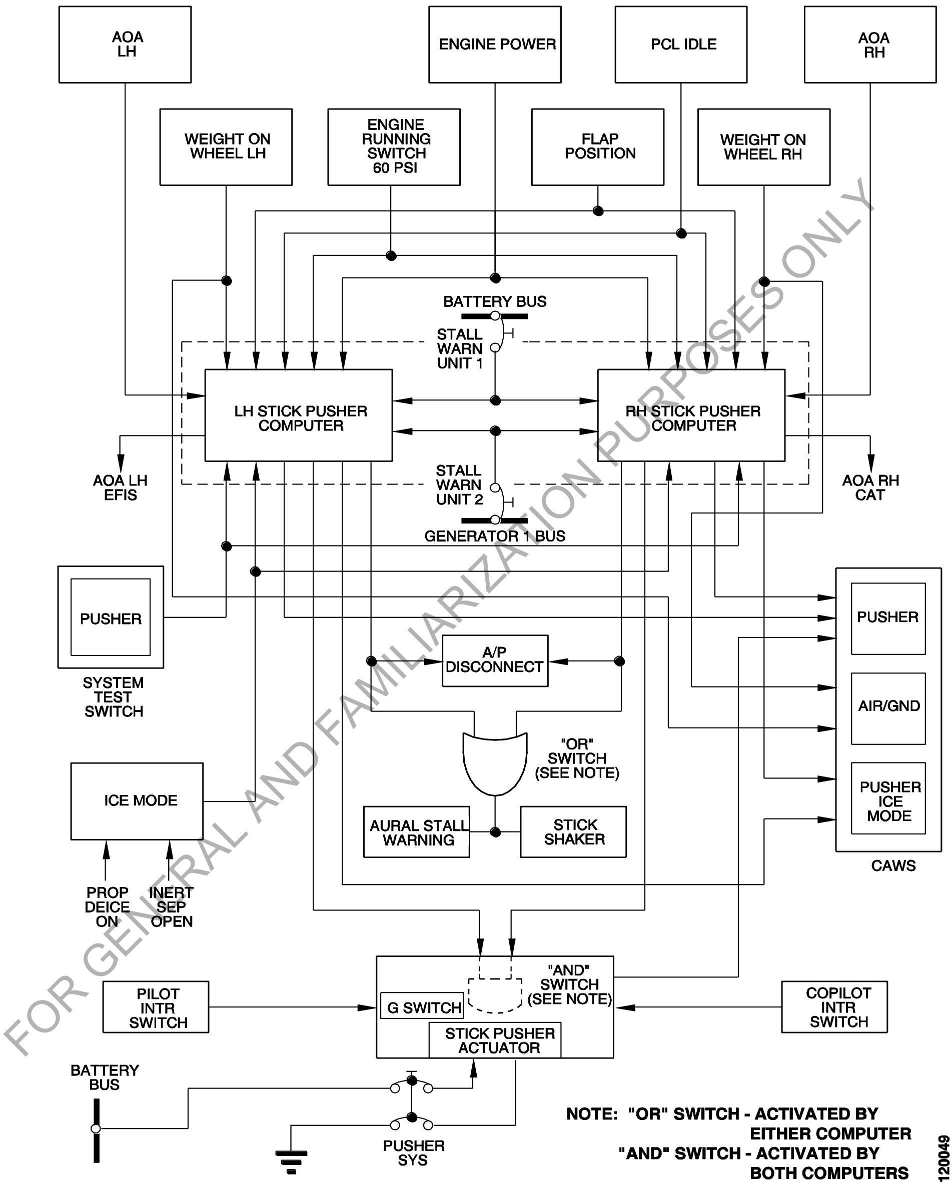

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Figure 7-25-1. Stall Warning/Stick Pusher System
(Sheet 1 of 3)

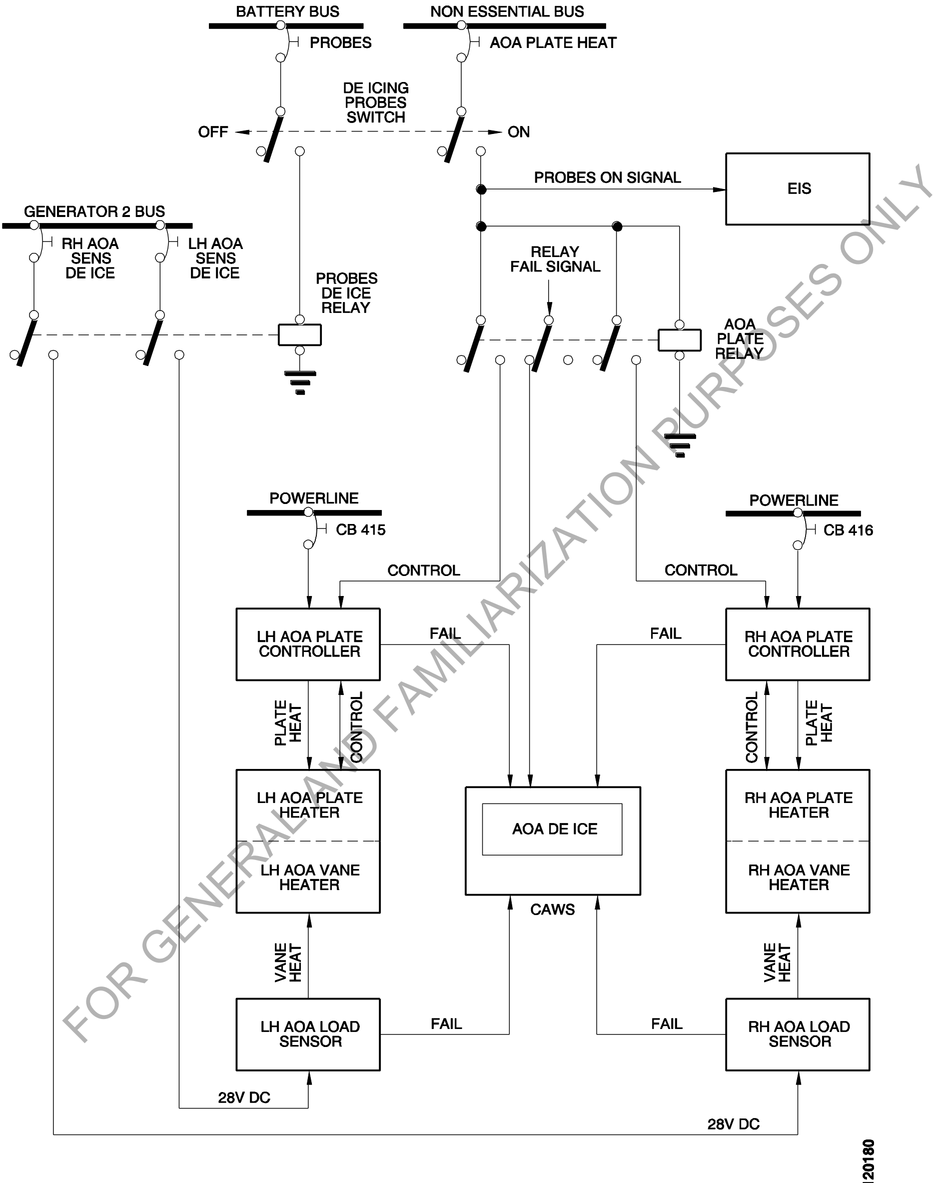

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Figure 7-25-1. Stall Warning/Stick Pusher System
(Sheet 2 of 3)

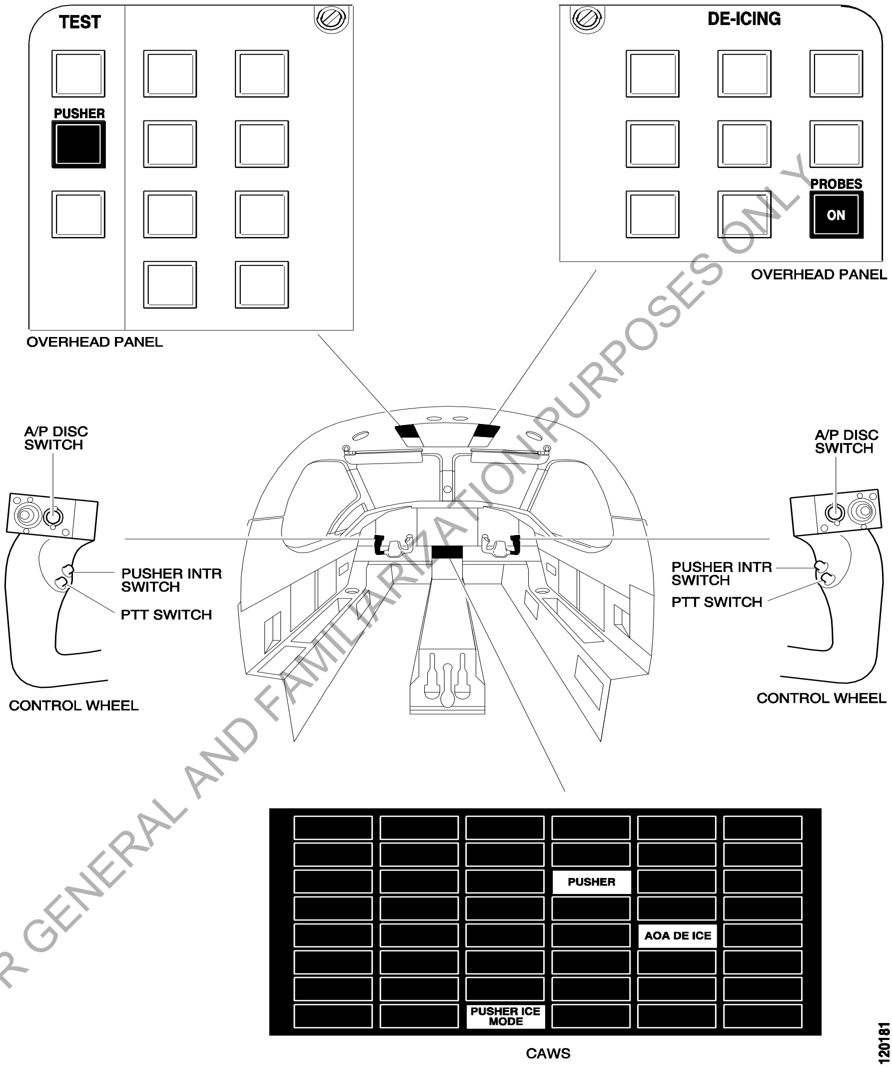

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Figure 7-25-1. Stall Warning/Stick Pusher System
(Sheet 3 of 3)

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PNEUMATIC WING DEICE SYSTEM

GENERAL

Inflatable neoprene boots are installed on the leading edges of the wings and horizontal tail surfaces. Their purpose is to inflate and dispense any ice which may accrete on their surface during flight in atmospheric icing conditions. When not in use, the boots have a vacuum applied to prevent partial inflation while in flight.

DESCRIPTION

The airplane is equipped with inflatable pneumatic deicing boots fixed to the leading edges of the wings (two boots per wing - inboard and outboard) and the horizontal stabilizer. Air bled from the 3rd stage of the engine compressor section, is routed to the regulator-reliever valve of nominal 14 psi regulating pressure, then through a water separator to the ejector flow control valves. These valves, which are solenoid-operated, port air pressure to the deicing boots in a prescribed sequence: - first to the horizontal stabilizer deicer, then to the lower portion of the inboard wing deicers, the upper portion, the lower portion of the outboard wing deicers, and finally the upper portion. Progression through this sequence is controlled by an electronic Timer/controller and monitored by low pressure sensing switches in each line, which are linked to annunciator lights in the CAWS.

When pressure is not being applied to the deicer boots a small airflow is allowed to pass through the ejector valves to impose a vacuum in the lines to the deicing boots. This provides a negative air pressure at the boots ensuring the airfoil contour is maintained.

The pneumatic deice boot consists of a smooth neoprene and fabric blanket containing small spanwise deicer tubes. Each wing deicer has two air connections - one for the tubes on the lower surface and one for the tubes on the upper surface. The smaller boots on the horizontal stabilizer have one connection only.

The water separator is located upstream of the ejector control valves. Its function is to remove any condensation from the system and consists simply of a set of vanes which introduce a rotational swirl to the air that removes entrained water through centrifugal forces. A drain connection is fitted to the bottom of the housing to vent the moisture overboard.

The pressure-reliever valve consists of a spring and poppet valve which, at the required pressure, will open to allow air to pass from the inlet to the outlet port. The nominal regulating pressure is 14 psi. It also has an integral relief valve relieving at 18 psi.

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OPERATION

Refer to Figure 7-26-1, Pneumatic Wing Deice System.

In the off mode the system applies a continuous vacuum to the de-ice boots while the engine is running. The system is initiated by pressing the switch labeled BOOTS on the DE-ICING section of the overhead panel. When the switch is in the ON position, an ON annunciator in the switch is illuminated and a green DE ICE BOOTS caption on the CAWS illuminates. The 1MIN/3MIN switch also then becomes active. When the 3 MIN / 1 MIN switch is pressed, the system toggles between 3 MIN and 1 MIN and an arrow symbol annunciated in the switch shows which selection is made. When activated the timer actuates each ejector flow control valve (EFCV) in the prescribed sequence, for eight seconds. The time to inflate and deflate all of the de-icer units is thus 40 seconds. There is then a dwell period of 20 seconds (if the \`one minute cycle´ has been selected) or of 140 seconds (if the \`three minute cycle´ has been selected) before the inflation sequence is repeated.

Pressurization of each de-icer will cause the pressure switch to close, if there is a pressure sequence failure, the CAWS green DE ICE BOOTS caption goes off, the amber BOOTS DEICE caption comes on and an aural gong will sound. Operation of the wing boots can also be observed directly during ground checkout or from the airplane cabin. If the control system is de-activated during a de-icing cycle, the cycle will be completed prior to system shut-down.

CAUTION

OPERATION OF THE PNEUMATIC WING DEICE SYSTEM IN AMBIENT TEMPERATURES BELOW -40° C OR ABOVE 40° C MAY CAUSE PERMANENT DAMAGE TO THE DEICER BOOTS.

INDICATION / WARNING

The BOOTS switch on the DE-ICING section of the overhead panel has an ON annunciator in the switch and a green CAWS caption illuminates when the system is set to on. Should the inflation pressure at the individual pressure switches not reach the nominal filling pressure of 11 psi during the inflation sequence, indicating failure, then the amber caption DE ICE BOOTS on the CAWS is illuminated, the green CAWS caption goes off and an aural gong will sound.

After failure of the de-icing boots, the aircrew should prepare for departure of icing conditions as soon as possible.

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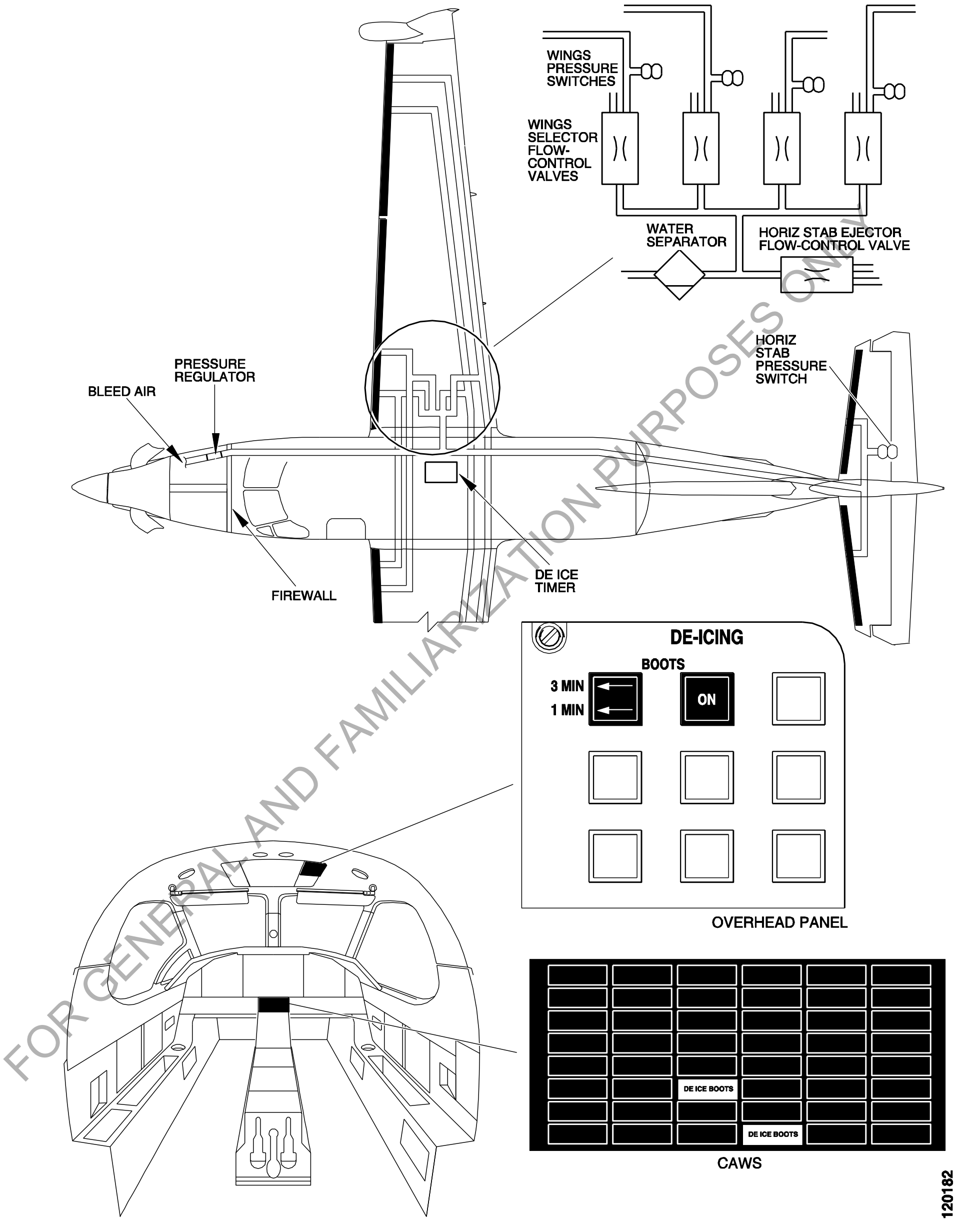

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Figure 7-26-1. Deicing System
(Sheet 1 of 2)

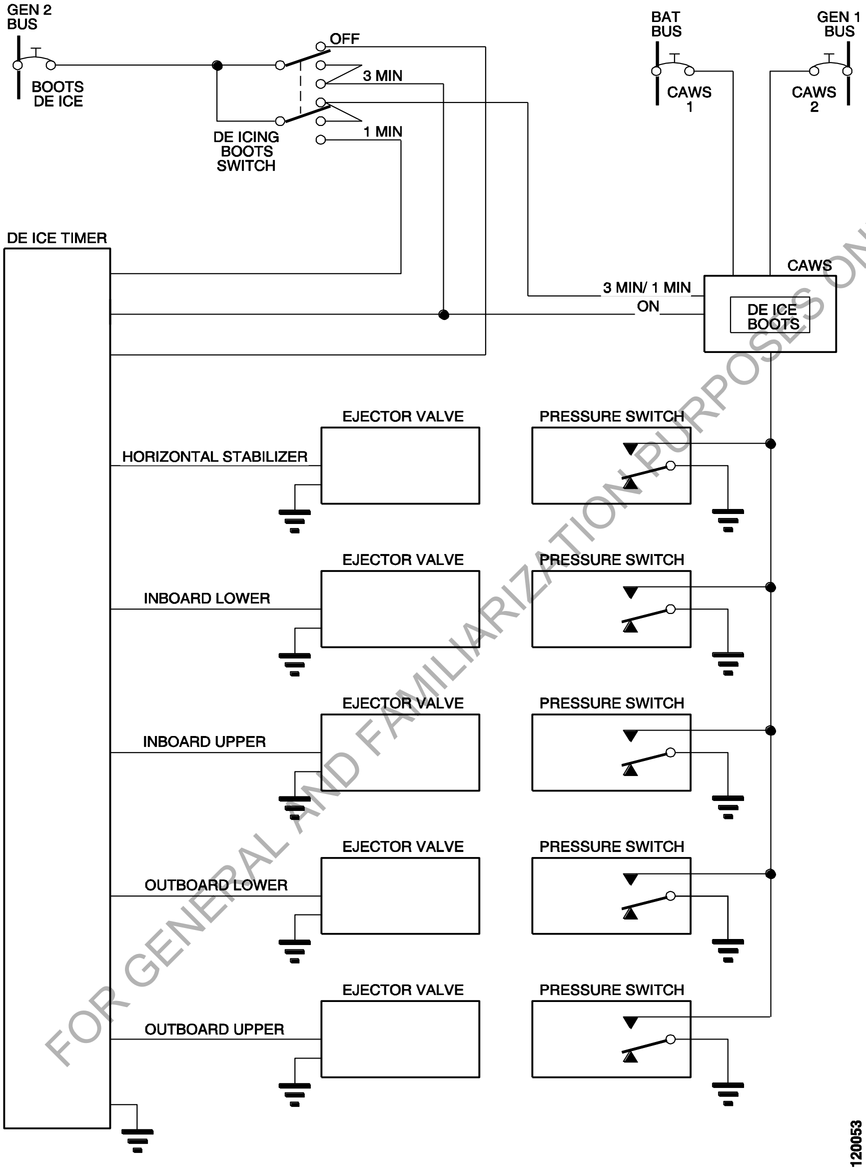

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Figure 7-26-1. Deicing System
(Sheet 2 of 2)

COMFORT FEATURES

GENERAL

Extra comfort for the pilot and copilot can be provided by optional equipment installed at build. For colder climates a foot warmer system can be installed, refer to the Foot Warmer System description and operation for more information. Noise canceling headsets can be installed in place of the normal headsets. Power for the noise canceling function of the headsets is through the HEADSET PILOT circuit breaker on the AVIONIC 1 bus and the HEADSET CO-PILOT circuit breaker on the AVIONIC 2 bus. Another option or SB 25-026 installs relief tube system for male pilots. The system has plastic horn with a spring loaded trigger. When the relief tube is in use the trigger is pulled and fluid is then passed down tubing to overboard by the atmospheric pressure difference.

Passenger comfort is provided for by an ECS and a pressurization system. Additional comfort can be provided on the ground with the vapor cycle cooling system (when installed). The fans installed at the rear of the cabin can be used to increase the general air circulation around the cabin. The switches for the fans are on the COOLING section of the overhead panel.

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CABIN FEATURES

GENERAL

The PC-12 has a large cabin that offers a flexible interior configuration for passenger and cargo loading. There are two basic cabin configurations, a Corporate Commuter and an Executive interior. Variations to the two basic configurations are continually being developed, refer to Section 2 for the variations that have been approved. See Section 6 for passenger seat locations, combi conversions and cargo loading information.

Divider walls are installed behind the pilot and copilot seats and a curtain or door fits between the walls to form a division between the cockpit and cabin.

A fire extinguisher is located on the forward side of the cabin divider behind the copilot seat. Full operating instructions are given on the side of the extinguisher.

A thermal blanket can be fitted on the inside of the passenger door. The blanket can be easily fitted and removed (instructions are on the blanket); its color matches the color of the interior. It is installed on the inside of the door when closed for flight. It covers the steps on the door to help maintain the cabin temperature during long high flights. The door operating placards that are on the inside of the door are duplicated in the same format and attached to the outside of the blanket.

CORPORATE COMMUTER INTERIOR

The standard Corporate Commuter Interior consists of two crew seats plus seating for up to nine passengers. The baggage compartment is situated at the rear of the cabin and a baggage net must be installed at frame 34 when baggage is stowed. An optional three seat bench can be installed at the rear of the cabin in place of seats 7, 8 and 9. This provides a larger area for baggage stowage which is then secured with the larger baggage net. An optional bulkhead and curtain assembly can be installed at frame 32 in front of the larger baggage net.

EXECUTIVE INTERIOR

The standard executive interior aircraft consists of two crew seats plus executive seating for six passengers. The two forward passenger seats 1 and 2 face rearwards and the remainder face forwards. The baggage compartment is situated at the rear of the cabin and a baggage net must be installed at frame 34 when baggage is stowed.

Folding tables installed in the cabin sidewalls extend between the seats. Ashtrays, cupholders, table and overhead lighting switches are provided in the sidewall armrests adjacent to each seat. Individual reading lights and air outlets are installed in the headliner panel above each seat position.

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A toilet compartment is installed in the front right hand side of the aircraft. The forward wall of the toilet compartment forms the cabin divider. Left and right storage cabinets are installed, the left cabinet fits against a small divider behind the passenger door and the right cabinet fits against the toilet compartment rear wall.

An optional wardrobe can be installed in place of the toilet compartment. The wardrobe is used to hang up to six coats and stow small items of luggage. A safety net must be installed inside the wardrobe above the stowed luggage. A small drawer is installed at the bottom of the wardrobe.

An optional stereo/CD unit can be installed in the right hand cabinet. Headphone jack points are provided adjacent to each seat. The antenna for the stereo/CD unit is installed under the upper dorsal fairing.

Passenger information no smoking/fasten seat belt illuminated signs are installed on the rear of left cabin divider and above the baggage compartment. The signs are turned on and off by the pilot using the switch installed in the electrical overhead panel.

An optional three seat bench can be installed in place of the rear cabin seats. This can provide a larger area for baggage stowage which is then secured with the larger baggage net. An optional bulkhead and curtain assembly can be installed at frame 32 in front of the larger baggage net.

COMBI/CARGO INTERIOR

A Combi or a full cargo interior can be made by the removal of passenger seats from both the Corporate Commuter and Executive Interior aircraft. Cargo net attachment points are installed in the cabin walls at frame positions 24 and 27. Baggage net attachment points are installed at frame 34. Cargo restraining nets can be installed at the attachment points and allow lightweight cargo to be loaded without being secured with tie-down straps. A cargo securing kit contains the necessary items for the securing of heavyweight cargo.

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GENERAL AVIONICS INSTALLATION

AUDIO PANEL

GENERAL

The audio panel provides the capability to select transmitter and audio either though the cockpit speakers or headphones. Crew intercom and cabin PA are also available. Aural warnings can be heard in the headphone audio and loudspeakers.

An optional second audio control panel can be installed in the copilot's instrument panel. The operating mode is the same as that of the pilot's. Each audio panel has access to the transmitters and the intercom lines. A summing amplifier is installed to match certain warning audio signals for the two audio panels.

AVIONICS

GENERAL

Refer to Figure 7-29-1, Typical Avionics.

The standard avionics suite includes two communication/ navigation radios, a transponder, a DME, an ADF, and a marker beacon. The radios are panel mounted, except the DME, and are centrally located on the instrument panel. Provisions for additional optional equipment are included in the standard avionics harness.

The Attitude and Heading Reference System (AHRS), Electronic Flight Instrument System (EFIS) and auto flight system are described on the following pages.

An optional comm/nav transceivers with 8.33 kHz channel spacing can be installed, this is mandatory for aircraft that operate at high altitudes in European airspace.

Refer to the appropriate manufacturer's pilot's guide for information on individual avionics equipment.

Refer to Section 9, Supplements, for information concerning limitations and operating instructions for optional avionics installations.

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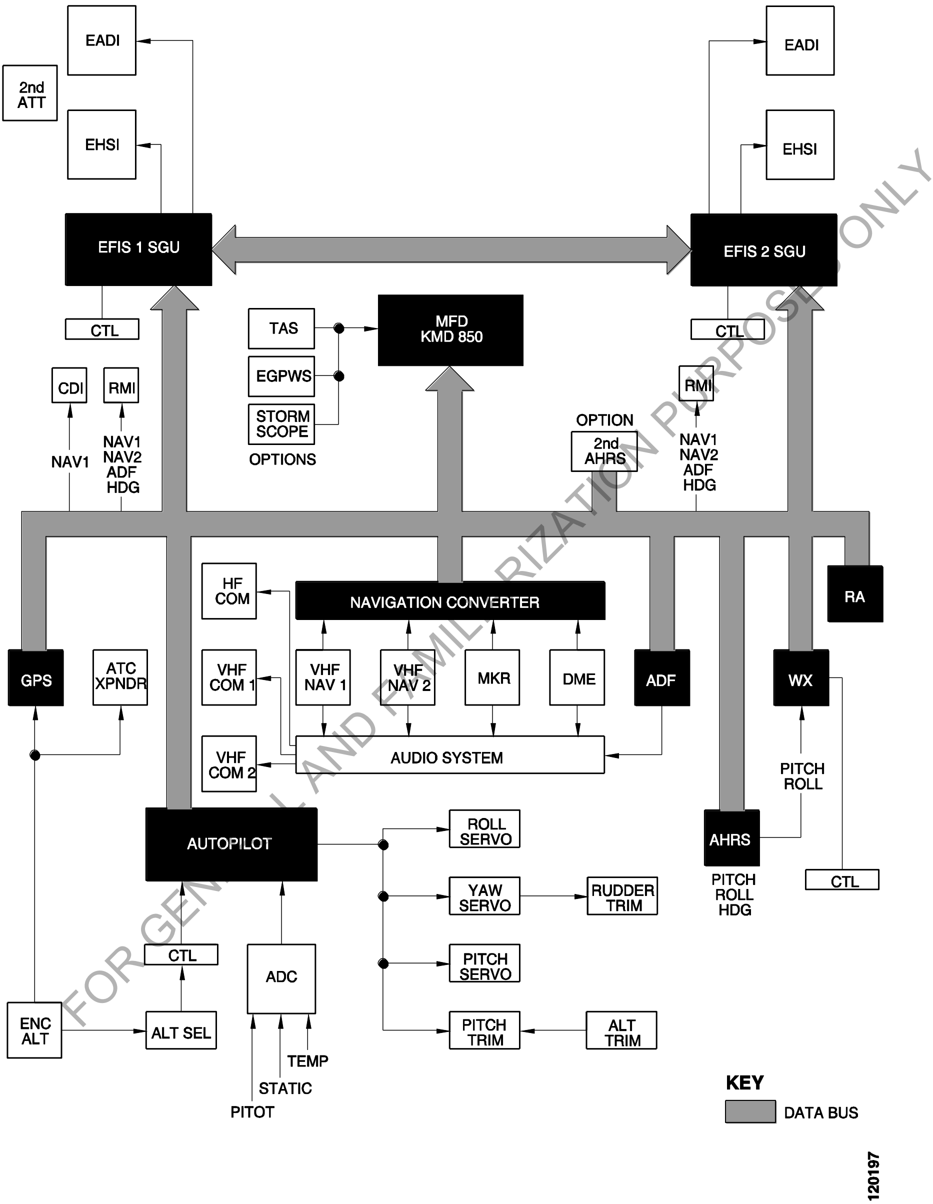

Figure 7-29-1. Typical Avionics

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ATTITUDE AND HEADING REFERENCE SYSTEM

GENERAL

The Attitude and Heading Reference System (AHRS) supplies pitch, roll, heading and turn rate information to the EFIS EADI and EHSI and the Radio Magnetic Indicator (RMI). The system maintains accurate indications in all aircraft attitudes. The AHRS is installed in the avionics bay and the magnetic sensing unit is within the right wing.

DESCRIPTION

The computer processes information from a Sensor Module containing a Fiber Optic Gyro (FOG) a two-axis Electrolytic Tilt Sensor, and from a Flux valve. The system requires 28 V DC power from either the AVIONICS 1 or AVIONICS 2 bus AHRS circuit breaker and 26 V AC from the inverter through the AHRS HDG (for RMI) and AHRS ATT (for Wx Radar) circuit breakers. The DG/SLAVE switch, located on the pilot's lower right switch panel, enables full gyro operation with CW and CCW slave capability.

OPERATION

When one of the AVIONICS switches is turned ON, the system automatically goes through an alignment process. During the first 15 seconds, phase 1, self-test functions and coarse alignment are performed. The duration of alignment phase 2 depends upon airplane movement. Under static conditions, no ground movement or during straight and level flight, phase 2 alignment is completed after a further 15 seconds (30 seconds after power application) and attitude and heading references are valid. If excessive motion is detected during alignment, the AHRS switches to the moving alignment sequence and completion of the phase 2 alignment will take additional time. On completion of the alignment process, the ATTITUDE FAIL and HDG flags will disappear from view on the EFIS displays and the RMI.

During normal operation, the aircraft has complete freedom to maneuver in all axis without risk of the AHRS toppling. When in straight and level flight, the system continually re-datum's the indications, at a slow rate, to earth vertical and magnetic North.

During continuous orbiting maneuvering with LCR-92 AHRS the attitude and heading will not re-datum and after approximately 20 to 30 minutes the attitude and heading information is unreliable and warning flags are set. If the warning flags are set, a reset can be performed by flying straight and level for 10 to 60 seconds. If the AHRS does not recover after 1 minute of straight and level flight, a hardware failure has to be suspected. To avoid this situation and to maintain AHRS accuracy, fly the aircraft straight and level for 1 minute after each 15 minutes of continuous maneuvering.

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Two switches AHRS 1 on the pilot's lower right panel control the source of heading information displayed. The DG/SLAVE switch selects a free gyro mode when set to DG or AHRS heading information when the switch is set to SLAVE. The CW/CCW switch slews the heading card clockwise (CW) or counterclockwise (CCW) when the DG/SLAVE switch is set to DG. For normal operation set the DG/SLAVE switch to SLAVE.

DG mode is recommended when magnetic abnormality is detected and compass re-datum is required.

BUILT-IN TEST EQUIPMENT (BITE)

The AHRS provides attitude, rate of turn and heading information regardless of aircraft maneuver. BITE detects any system errors that occur and causes the appropriate flag to appear on the EADI or EHSI indicating a system failure.

INDICATION / WARNING

During normal operation the following faults may be detected and displayed:

ATTITUDE FAIL (red)	Appears on the EADI when attitude information is unreliable and horizon display blanks out.
HDG FAIL (red)	Appears in the EHSI and the RMI when heading information is unreliable.

CAUTION

AN ENGINE RELIGHT CAN GIVE A TRANSIENT DC VOLTAGE DROP, CAUSING THE AHRS TO LOSE ITS REFERENCE, FORCING THE SYSTEM TO REALIGN WHEN THE VOLTAGE IS RESTORED.

SECOND AHRS INSTALLATION (OPTIONAL)

An optional second AHRS provides an alternative source of aircraft attitude, rate of turn and heading information.

The system comprises a second computer installed in the avionics bay, a second magnetic sensing unit installed in the right wing, and a selector push switch installed on the pilots instrument panel. Two switches AHRS 2 on the pilots lower right panel control the source of heading information displayed.

The second AHRS information can be selected by pressing the switch on the pilots main instrument panel to AHRS 2. Pressing the switch to AHRS 2 also transfers the autopilot operation, the RMI heading source and the weather radar stabilization data to the second AHRS.

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If the AHRS selection is changed the autopilot will automatically disconnect. It can be re-engaged manually.

YAW RATE SENSOR INSTALLATION (OPTIONAL)

An optional remote mounted sensor when installed, provides angular rate information, displayed independent of AHRS function on the EFIS EHSI display unit(s).

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STANDBY ATTITUDE INDICATOR

GENERAL

A second attitude indicator gyro is located on the instrument panel to the left of the airspeed indicator.

DESCRIPTION

The attitude gyro provides a second source of pitch and roll information. This attitude gyro is a self contained vertical axis gyroscope, mounted in a pitch gimbal, which is mounted in a roll gimbal. The indicator is capable of operation through 360° of airplane pitch and roll displacement. The gyroscope incorporates stops on the inner (pitch) axis to limit pitch axis freedom to +/- 85° relative to the roll gimbal. Pitch range of 360° is accomplished using controlled precession when the pitch stops are contacted.

OPERATION

The attitude gyro operation is continuous whenever the Battery Bus is powered.

INDICATION / WARNING

An OFF flag will appear when power is removed from the gyro.

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EMERGENCY LOCATOR TRANSMITTER

DESCRIPTION

An Emergency Locator Transmitter (ELT) is installed in the rear fuselage. It is connected to an antenna which is installed on the top of the fuselage below the dorsal fairing and has a battery pack that must be replaced after a specified time. The ELT 121 AF transmits on the international distress frequencies of 121.5 and 243.0 MHz. An optional (SB 25-021) ELT 406 AF will transmit on the international distress frequencies of 121.5, 243.0 and 406 MHz. The ELT unit has a switch with the positions ARM, OFF and ON.

There is an ELT remote control panel installed on the pilots lower left instrument panel. On the panel there is a gated switch with the positions TEST / RESET ARMED and ON, an indicator light and a buzzer. Optional SB 25-024 installs a smaller remote control panel on the left of the pilots lower left instrument panel. This remote control panel does not have a buzzer.

A smart connector is installed in the ELT wiring harness (MSN 521 & up and Post SB 25-029). With an ELT 406 AF installed the smart connector is programmed with the aircraft identity data. If there is a change to the aircraft identity the smart connector must be re-programmed at an approved service center.

The factory option or Post SB 25-030 installs a navigation interface module adjacent to the ELT in the rear fuselage. It has a 28 VDC power supply from the Battery Direct Bus, receives aircraft position information from the GPS and is connected to the ELT. The interface module also has an ON/OFF switch and an indicator.This navigation interface module can only be installed with an ELT 406 AF.

OPERATION (MSN 521 & UP AND POST SB 25-029)

The ELT is installed in the aircraft with the switch at the ARM position this also makes the remote control panel active. For flight the remote control switch must be in the ARMED gated position. In the ARMED mode the ELT is automatically operated at a specified g force by an internal g switch. The ELT 121 AF will continuously transmit at 121.5 and 243.0 MHz for up to 48 hours. The optional (SB 25-021) ELT 406 AF will continuously transmit at 121.5 and 243.0 MHz for up to 48 hours and it will also transmit a digital message at 406 MHz every 50 seconds for the first 24 hours. With the factory option or Post SB 25-030 navigation interface module installed the aircraft position is also transmitted as part of the digital message at 406 MHz.

In an emergency the remote switch can be selected to ON. The ELT will then immediately start the distress signal transmission. The red indicator will come on. Pre SB 25-024 the buzzer will sound.

In the case of accidental transmission, the ELT can be reset by either selecting the gated remote switch to RESET or the switch on the ELT unit to OFF.

The remote switch TEST position is used to check the battery voltage and transmission power of the ELT for maintenance purposes.

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ELECTRONIC FLIGHT INSTRUMENTATION SYSTEM EFS 40/50

GENERAL

The Bendix King Electronic Flight Instrumentation System (EFIS) is an electronic navigation display system. The system receives data from the AHRS, angle of attack, and navigation systems. The data is displayed to the pilot on two multimode color displays.

The following information is applicable to both pilot and copilot (if installed) EFIS installations.

DESCRIPTION

The EFIS symbol generator receives information from flight systems either directly or through data converter adapters. Data such as aircraft attitude, heading, rate of turn and respective valid flags are received from the Attitude and Heading Reference System (AHRS), and angle of attack information are received from the SPWU. Navigational data from the various systems, either directly or through data converters is also received by the symbol generator. The information is processed and displayed graphically on two multicolored Display Units (DU). A reversionary mode select switch is dedicated to EFIS 1or EFIS 2 (if installed) in order to allow composite mode selection if one tube or a partial symbol generator failure occurs. This function allows the restoration of critical flight data. The EFIS CMPST switch is located on the pilot’s lower right instrument panel.

The symbol generator monitors the system for faults using continuous Built In Test (BIT) and, if errors are detected, are displayed on the DU's. A self test is available by pushing the TEST REF switch which initiates a self test of the system the result of which is displayed on the DU's.

Two DU's are installed in the instrument panel. The DU's are electronically identical but differ physically, with a slip-skid inclinometer installed on the upper DU. During normal operation, the upper DU is used as an Electronic Attitude Director Indicator (EADI) and the lower DU is used as an Electronic Horizontal Situation Indicator (EHSI).

The EFIS control panel is installed in the center console. This control panel is for the selection of display mode, format and navigation data, brightness control of the display units, course pointer, and heading bug selection.

The EFIS is supplied with DC power from both the AVIONICS 1 and AVIONICS 2 bus. This prevents a total loss of the system in the event of a single DC bus failure. Similarly, system AC power can be provided from either of two switchable static inverters (BAT or GEN).

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ELECTRONIC ATTITUDE DIRECTOR INDICATOR

The Electronic Attitude Director Indicator (EADI) displays aircraft flight attitude from roll, pitch, yaw and heading data provided by the AHRS. Refer to Figure 7-33-1, EADI.

Airplane Symbol:	An airplane symbol in the center of the display is used as a reference point.
Sky Pointer:	The roll attitude scale is marked at 10, 20, 30, 45, and 60 degrees. Roll indication opposite direction of turn. Recovery from a turn is in the direction of the sky pointer.
Speed Pointer:	The speed pointer on the LH side of the display is controlled by the AOA system and is visible at all times. AN is displayed to indicate that pointer is referenced to the angular system.
Glideslope:	A Glideslope (GS) scale and deviation pointer on the RH side and a runway symbol towards the bottom of the picture is displayed when an ILS frequency is selected and the EHSI course pointer is within 105° of the aircraft heading. Beyond 105° BC will be annunciated for backcourse sensing.
Marker Beacon:	The marker beacons are annunciated at the bottom LH side of the display when a marker beacon signal is detected.
Rate of Turn Pointer:	A scale and pointer at the bottom of the display provides rate of turn information based on yaw rate corrected for angle of bank.
Inclinometer:	The inclinometer installed on the EADI presents aircraft slip and skid.
Heading Tape:	Aircraft heading is shown on a heading tape at the sky/ground border.
Lateral Deviation:	Lateral deviation scale and bar are for the primary navigation sensor.
Rising Runway:	Present during ILS approach. The centerline represents the fly to command. The rising runway symbol will start increasing in size at 200 feet and continue to increase in size to 0 feet, if the radar altimeter is installed.
Radar Altimeter (if installed)	The radar altimeter display is composed of three elements; radar altimeter (RA) height, decision height (DH) set and decision height (DH) alert. In the upper right corner of the display, a field of white alphanumeric data provides radar altimeter height and annunciation.

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In the lower right corner of the display, a green alphanumeric field displays the selected DH. This field is active only when the DH set knob is active or when the radar altimeter is providing valid height data. To the right and above center of the display, a yellow DH alert is displayed in a black box outlined in yellow. When the radar altimeter height is equal to or less than the selected decision height, the DH annunciator will be displayed combined with an aural alert. When first activated, the DH annunciator will flash for 10 seconds. The DH symbol is a large yellow DH on a black background enclosed in a yellow box, located to the right of the pitch scale and above the horizon line when in normal attitude.

ELECTRONIC HORIZONTAL SITUATION INDICATOR

The Electronic Horizontal Situation Indicator (EHSI) can provide 360° compass HSI, 120° arc sectored HSI and navigation map displays. The type of display is selected on the EHSI control panel located on the center console. Refer to Figure 7-33-2, EHSI.

360° Compass Display

Normal Compass Card Display: A 360° rotating compass scale indicates the airplane heading referenced to the white triangle heading index (lubber line). The compass scale is divided in 5° marks. Fixed 45° index marks are adjacent to the compass scale. Compass heading is referenced to magnetic north.

Symbolic Airplane: The symbolic airplane provides a visual reference of the airplane position in relationship to the deviation bar.

Navigation Source Annunciation: A vertical three letter alphanumeric readout, located on the left side of the display, indicates the navigation selecting system selected as the primary navigation sensor.

Green annunciation indicates a NAV 1 system and yellow indicates a NAV 2 system. These color codes apply to the NAV source annunciator, CRS pointer and CDI, CRS line in MAP mode, CRS readout, distance, ground speed readout, and time to station.

NOTE

A failure to NAV 2 when LOC 2 is the primary nav sensor is indicated by the removal of the nav display and flagged with a red X. The primary nav sensor annunciator will revert to VOR 2.

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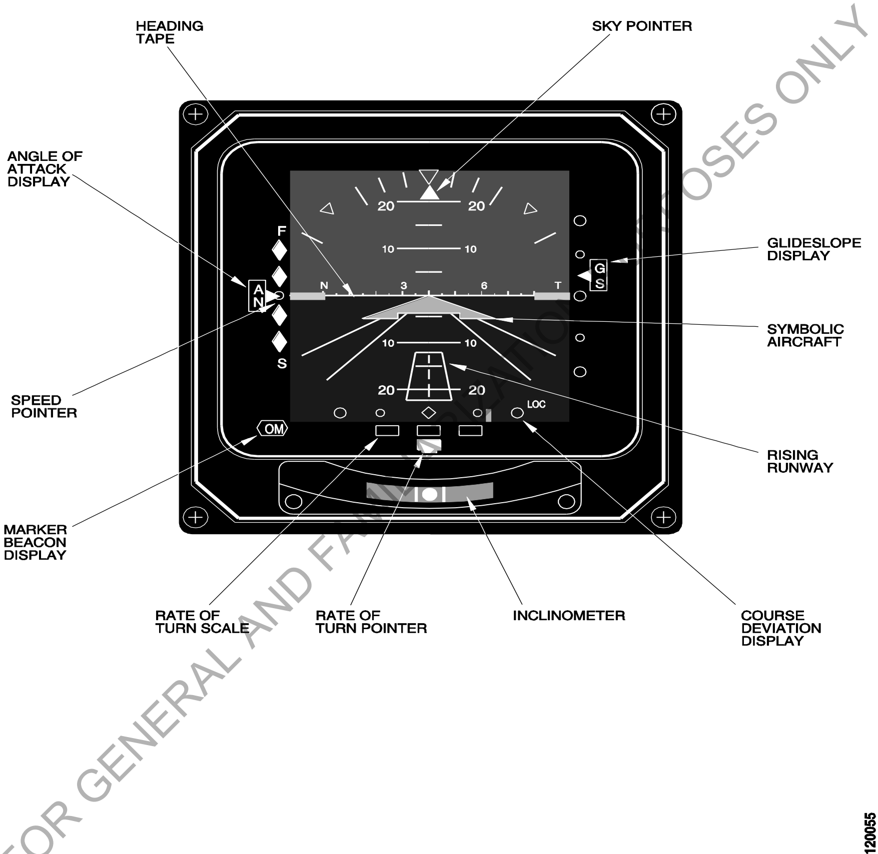

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Figure 7-33-1. EADI

Wind Speed and Vector	The full time wind vectoring indicating approximate wind direction and speed is displayed on the EHSI display in white in the upper left corner below the selected course. Wind vector information will be available only when valid data is provided by the LNAV.

NOTE

The information provided by this vector is advisory only. It is NOT intended for use during approach as critical flight data because it will become inaccurate during altitude changes.

Drift Angle Pointer	The pointer is a hollow cyan (green or yellow in approach mode) triangular pointer and rotates about the outside of the compass scale. Referenced to the lubber line, the drift angle pointer represents the drift angle left or right of the aircraft heading. With respect to the compass scale, the drift angle pointer represents aircraft actual ground track.

NOTE

If the pointer information becomes invalid it will be removed from the display.

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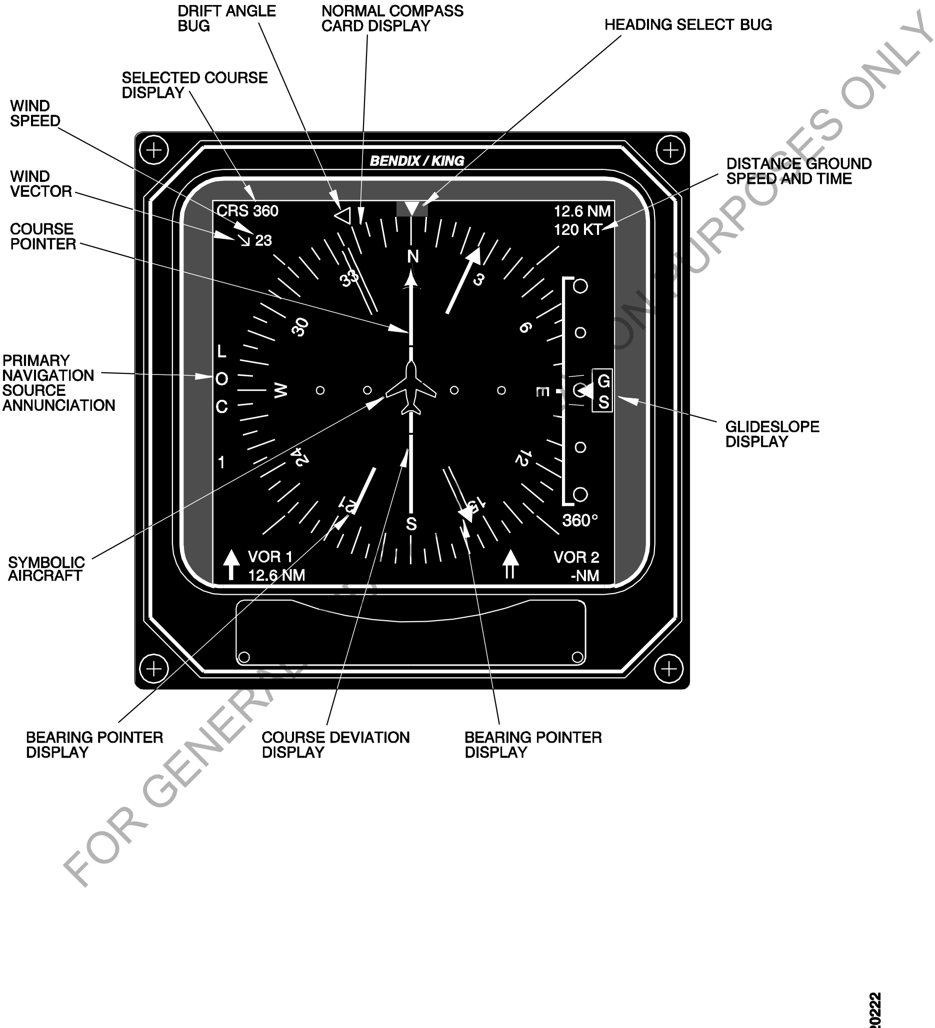

Figure 7-33-2. EHSI
(Sheet 1 of 2)

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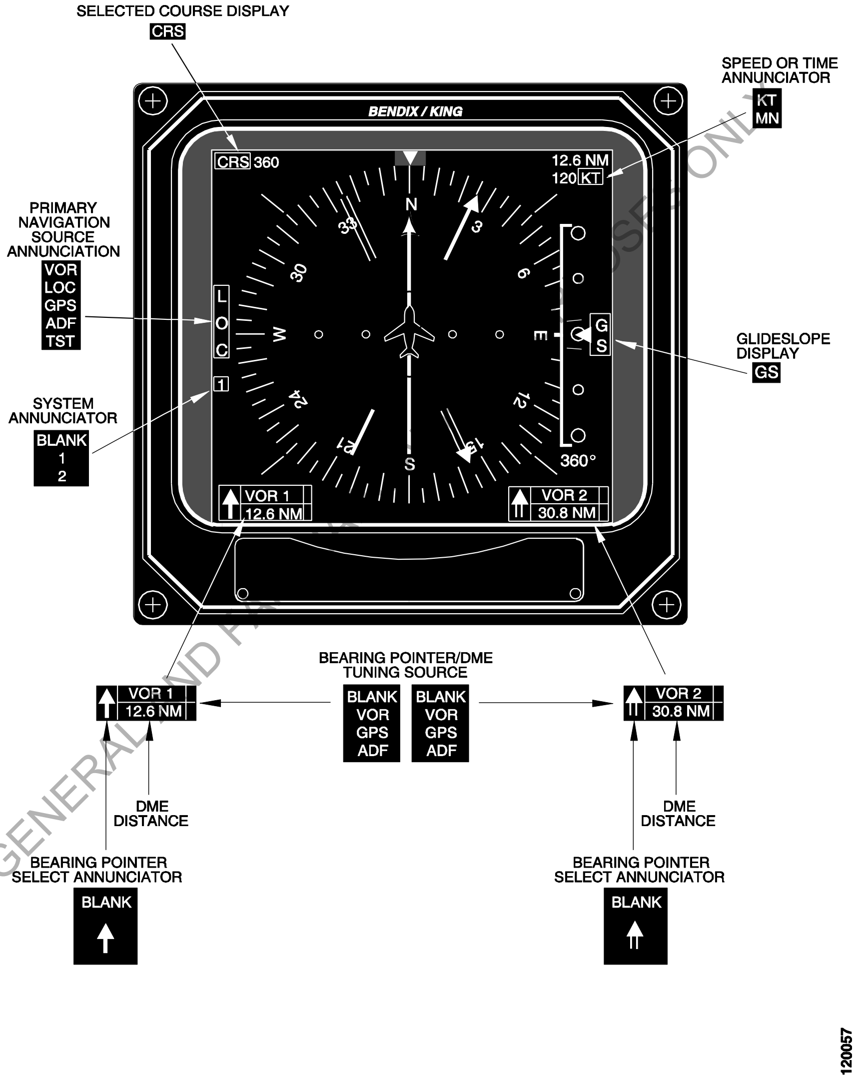

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Figure 7-33-2. EHSI
(Sheet 2 of 2)

Heading Select Bug: An orange heading bug is manually rotated around the compass scale by the heading select knob on the control panel. A digital readout of the selected heading is displayed in the lower right hand corner. Once set, the heading bug rotates with the compass card. The heading bug is used to indicate desired heading and provides selected heading reference for autopilot steering.

The auto sync feature allows the heading bug to be centered under the lubber line by pulling out on the heading select knob.

Course Pointer: The course pointer is rotated about the compass scale by the course select knob. Once set, the course pointer rotates with the compass card. It is used to indicate the desired navigation course to be flown.

Course Deviation Scale: The course deviation scale, four white dots evenly spaced on the symbolic airplane, provides a reference for the course deviation bar to indicate the centerline of the selected navigation or localizer course in relation to the symbolic airplane.

The following represents the lateral deviation scale for different navigation sources:

MODE	ANGULAR DEV	(DEGREES)	LINEAR DEV	(MILES)
VOR	1 dot	5.0 deg		
	2 dots	10.0 deg		
ADF	1 dot	7.5 deg		
	2 dots	15.0 deg		
GPS			1 dot	2.5 NM
			2 dots	5.0 NM

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To/From Indicator: (not illus. in Fig. 7-33-3)

A white arrow head is displayed near the center of the EHSI with head pointing toward the course pointer (TO) or toward the tail or the course pointer (FROM). It indicates the selected course is to or from the station or waypoint. The TO/FROM indicator is not displayed unless a valid signature is received or during ILS operations.

Distance and Ground Speed Display:

The EHSI provides three distance displays; the upper corner, lower left below the #1 bearing pointer sensor annunciator, and lower right below the #2 bearing pointer sensor annunciator. In the upper right corner, an alphanumeric readout annunciates distance in nautical miles from the aircraft to selected DME station in VOR mode or to waypoint in GPS mode. Below the distance readout is an alphanumeric readout of the aircraft ground speed in knots or time to station in minutes and is selectable by pressing the TST/REF button.

When the selected bearing pointer source has DME data associated with it, the distance information will be displayed below the bearing pointer source annunciator.

In the event that the DME station is out of range or not operational, or if for any reason the DME receiver is operational but not providing computed data, the distance will be dashed in the original color. If the DME receiver is indicating an internal fault, is being tuned by another receiver, or is turned off, the distance will be dashed in red. When DME is flagged, the ground speed and time to station display is removed.

Bearing Pointer Display:

The rotating blue #1 RMI Pointer points in the direction of the selected sensor ground station or waypoint.

The rotating magenta #2 RMI Pointer points in the direction of the selected sensor ground station or waypoint.

No pointer will be displayed if a localizer frequency is selected for that sensor.

NOTE

If a selected bearing sensor ground station is out of range or signals are not being received properly, the RMI pointer assigned to that bearing source is not displayed. If the selected bearing sensor has DME distance associated with it and is valid, the distance data will remain valid. Failure of the RMI source is flagged by a red X and the source letter appearing in red.

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Course Annunciation: Magnetic course is automatically displayed in VOR/LOC, GPS, and ADF.

Glide Slope Display: If the selected primary sensor is an ILS, the vertical scale will appear on the right side when the selected inboard course is within 105 degrees of the aircraft heading. Beyond 105° BC will be annunciated for backcourse sensing.

The vertical two letter identifier in the pointer annunciates the deviation source. GS will be annunciated if the source is an ILS.

Failure of the glide slope receiver is flagged by a red X and the letters GS appearing in red.

Nav Map Display

The EHSI provides two basic types of map; a 360 degree map display about the aircraft and an approximately 85 degree sectored map display in front of the aircraft. Options to be displayed on the map include waypoints and navaids. The type and amount of data presented on the map will depend on the interfacing equipment. When coupled with GPS, waypoints, flight plan identification, airports, and navaids may be may be selected for display by pushing the TST/REF button. Refer to Figure 7-33-3, Map Mode Display.

The following will address only those areas of the EHSI MAP Mode which are different from the standard compass presentations previously described.

MAP 360 Compass Card Display: The operation of the compass card remains the same in the map modes as in the standard EHSI display. To provide more usable display area for map waypoints and navaids, the 5 and 10 degree tic marks have been reduced in size. The compass card radius is unchanged.

Symbolic Aircraft Display: The size of the symbolic aircraft is reduced to provide a less cluttered display as the map graphic data is added.

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Selected Course Display:	The alphanumeric course select readout in the upper left corner of the display functions the same in the map mode as in the standard EHSI mode. The standard EHSI selected course is removed from the center of the display. The selected course pointer is replaced with the course line. If the selected waypoint or vortac is within map range, it will be displayed with a movable course line drawn through its center. As the selected course is changed, the course line will rotate about the referenced point. If the selected primary nav sensor is an approach approved No. 1 sensor, the inbound TO course line is green and the outbound FROM course line is white. If the selected primary nav sensor is GPS the inbound TO course line is cyan (light blue). Any time the No. 2 sensor is selected as the primary nav sensor, the inbound TO course line is yellow.
Course Deviation Display:	The stationary white deviation scale along the bottom of display provides reference for the course deviation bar to indicate position of airplane in relation to selected navigation course. To provide back course CDI needle reversal annunciation, ILS map mode only, the deviation scale center triangle will point to the bottom of the display and annunciate a BC when the selected course is 105 degrees or more from the aircraft heading.
TO/FROM Display:	To the right of the alphanumeric course select, a TO or FR will replace the standard EHSI TO/FROM pointer when in non ILS map modes.
Bearing Pointer Display:	Standard EHSI bearing pointers will display when the selected bearing source does not have DME distance associated with it or when the distance is not within map range. Once the source is within map range, the associated map symbol is displayed as the bearing pointer is removed.
Range Ring Display:	A light blue range ring located between the symbolic aircraft and the outside of the map compass scale aids in determining distance of navaids in relation to the aircraft. Off the right wing of the symbolic aircraft adjacent to the range ring is the range ring distance. The range ring represents half the distance to the outer range ring compass scale. The available ranges are 5, 10, 20, 40, 80, 160, 240, 320 and 1000 NM.

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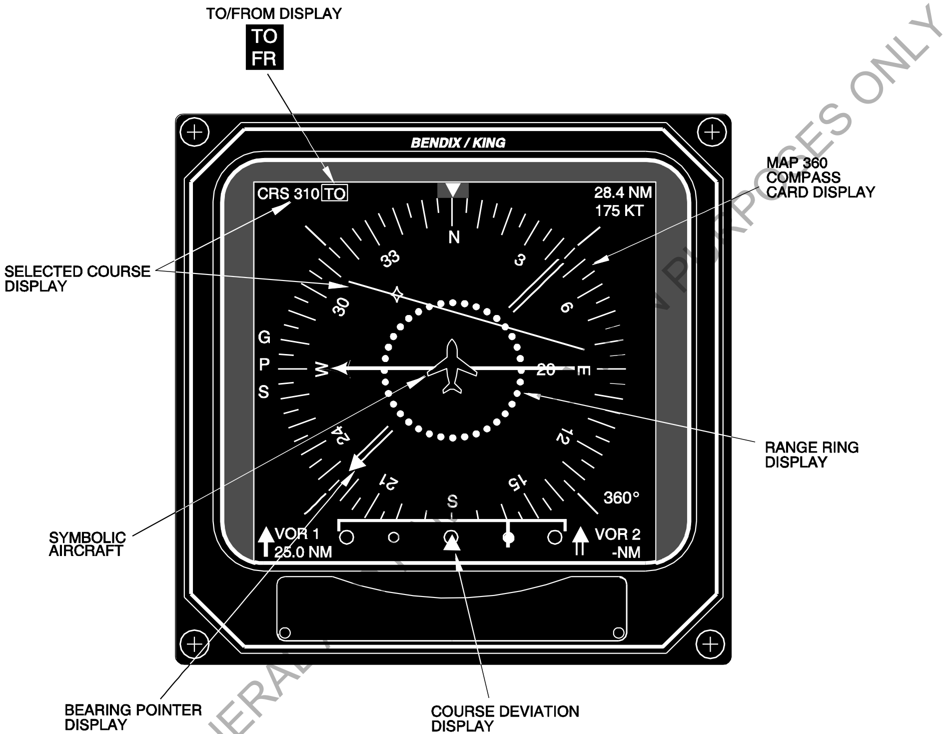

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Figure 7-33-3. Map Mode Display

ARC Display

The expanded (ARC) format provides an enlarged display for increased resolution to NAV data due to the enlarged compass scale presentation. Refer to Figure 7-33-4, Arc Display.

The following will address only those areas of the EHSI ARC Mode which are different from the standard compass presentations previously described.

Heading Bug:	The heading bug operation is the same in all display modes. The only difference is in appearance, the digital readout will change to the color orange. This display occurs when the heading bug moves out of view and the heading display will appear on the left or right side of the compass scale, whichever is closest.
Course Deviation Scale:	The rotating white deviation scale operates the same in all modes. The deviation scale is slightly reduced in size and is positioned at the bottom of the display.
Course Pointer:	The course pointer may not be in view but the CRS readout will be displayed in the upper left corner.

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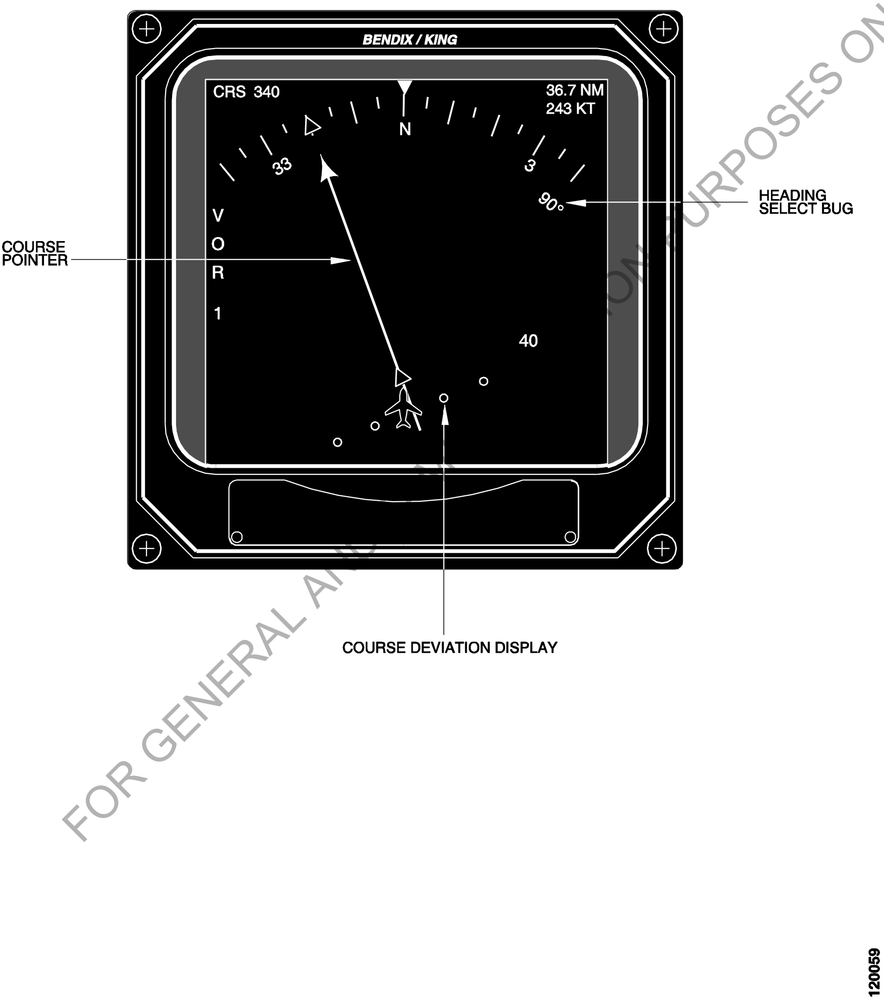

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Figure 7-33-4. Arc Display

EFIS CONTROL PANEL

Refer to Figure 7-33-5, EFIS Control Panel. The EFIS Control Panel is located on the center console and provide the following functions.

NAV SENSOR SELECT: During installation, the system was programmed with the type and quantity of each piece of interfacing equipment. Of all the equipment interfaced to the system, only a few sensors are usable for navigation. The system creates and maintains in permanent memory a list of the usable navigation sensors.

The NAV push button is used to select the primary nav sensor which is annunciated on the left side of the display. A press of the NAV sensor select button sequentially selects the next available sensor from the list of those installed. DME information in the upper right corner, selected course, course pointer, and deviation bar are referenced to the selected primary nav sensor.
The following is a list, in order, of the possible primary navigation sensors that may be interfaced with the EFIS 40/50:

VOR (LOC/GIS)
GPS
ADF

1-2 SYSTEM SELECT: The 1-2 button is used to cycle between primary navigation sensor system #1 and #2 for display. The primary NAV system selected is annunciated as sensor, sensor 1, or sensor 2 on the EHSI. For example, if the VOR 1 is being displayed and the 1-2 button is pressed, VOR 2 will become the displayed sensor. If only one sensor is installed, the display will not cycle and the sensor annunciation will not show a system number.

NUMBER 1 SYSTEM BEARING POINTER SELECT: The bearing pointer select button works similar to the NAV sensor select button. A press of the bearing pointer button sequentially selects the next available sensor for display. The bearing pointer select list contains only those sensors which are associated with the bearing. If the selected sensor has distance information paired with it, that distance will also be displayed in the lower left-hand corner along with the sensor annunciation.

The following is a list, in order, of the bearing pointer sensors that may be interfaced with the EFS 40/50:

DECLUTTER (no number one bearing pointer information is displayed):

VOR 1
GPS
ADF

Only those sensors installed in this aircraft and interfaced will be selectable for use and display.

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NUMBER 2 SYSTEM BEARING POINTER SELECT: The bearing pointer select button works similar to the NAV sensor select button and the Number 1 Bearing Pointer Select button. A press of the bearing pointer button sequentially selects the next available sensor. The bearing pointer sensor list contains only those sensors which have bearing associated with them. If the selected sensor has distance information paired with it, that distance will be displayed in the lower right hand corner along with the sensor annunciation.

The following is a list, in order, of the bearing pointer sensors that may be interfaced with the EFS 40/50:

DECLUTTER (no number two bearing pointer information is displayed)
VOR 2
GPS
ADF

Only those sensors installed in this aircraft and interfaced, will be selectable for use and display.

HSI 360 DEGREE: Two different 360 degree display formats: standard HSI compass rose and HSI NAV MAP mode. Each press of the HSI button sequentially button will sequentially select the possible display formats.
The display selection list may include the following:

MODE SELECTION
HSI COMPASS ROSE WITH NAV DISPLAYS
HSI NAV MAP

ARC MODE SELECTION: The ARC mode provides the pilot with a large scale view of the CDI by presenting an approximate 85 degree sector display of the compass.
The EHSI has two possible ARC sectored display formats: standard HSI compass rose and ARC NAV MAP mode. A press of the ARC button will sequentially select the possible display formats.
A press of the ARC button while in the 360 degree mode will result in an ARC presentation of the same format. For example, if the 360 NAV MAP mode was being displayed and the ARC button was pressed, the resulting display format would be ARC NAV MAP. A press of the HSI button while in the ARC mode will change the display to the standard HSI compass rose.

The ARC display selection list may include the following:

ARC COMPASS ROSE WITH NAV DISPLAY

ARC NAV MAP

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RANGE SELECTION:	RANGE DOWN - A press of the RANGE DOWN button selects the next lower range to be displayed while in the NAV MAP mode of operation. Once the lowest selectable range is reached, the RANGE UP button button must be used for a range change. RANGE UP - The operation of the RANGE UP button is similar to the RANGE DOWN except it selects the next higher range to be displayed while in the NAV MAP mode of operation.
DH SET: (if installed)	To set Decision Height, pull out and turn the DH knob. Turning clockwise will increase the Decision Height selected, turning counter clockwise will decrease the Decision Height. The Decision Height range is from OFF to 2,500 feet and will be displayed in one foot increments to 500 feet and then in 10 foot increments to 2,500 feet. Once the Decision Height is selected, push in the DH knob to lock the selected DH altitude. If DH is set to off, the DH annunciator will not be displayed.
TST/REF	TST: The TST/REF button performs the function of SELF TEST display. To activate the SELF TEST, press and hold the TST/REF button for 3 seconds. The self test processing time may last up to 5 seconds depending upon the particular functions being performed by the symbol generator. Upon completion of self test, a test pattern annunciating pass or fail will be displayed until the TST button is pressed once again. REF: When GPS MAP display has been selected, pressing the button for 1 second will annunciate the present map format. If the displayed format is desired, no additional action is required. If a different format is desired, sequence through the list by pressing the button for 1 second for each format until the desired annunciation (FPL ID, AIRPORT, or NAVAIDS) is displayed. In either case, approximately 10 seconds after the last button press, the map format annunciation will be removed. The alphanumeric readout of the DME can be changed between ground speed in knots to time to station by pressing the TST/REF button.
RALT TST: (if installed)	Pressing the RALT TST push button provides a discrete output to the Radar Altimeter initiating its self test function.
COURSE SELECT KNOB:	Rotation of the COURSE SELECT knob allows the course pointer on the EHSI to be rotated to the desired course. The Control Panel provides a DIRECT TO feature. Pulling the COURSE SELECT knob will cause the course pointer and digital course readout on the EHSI to slew the direct course to the selected navaid or active waypoint.

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HEADING SELECT KNOB:	Rotation of the HEADING SELECT knob allows the heading bug on the EHSI to be rotated to the desired heading.
	The Control Panel provides a HEADING SYNC feature. Pulling the Control Panel HEADING SELECT knob will cause the heading bug on the EHSI to slew to the present aircraft heading (lubber line).
DISPLAY UNIT BRIGHTNESS CONTROL	The BRT knob is a split knob which allows individual control of the EADI and EHSI display brightness.

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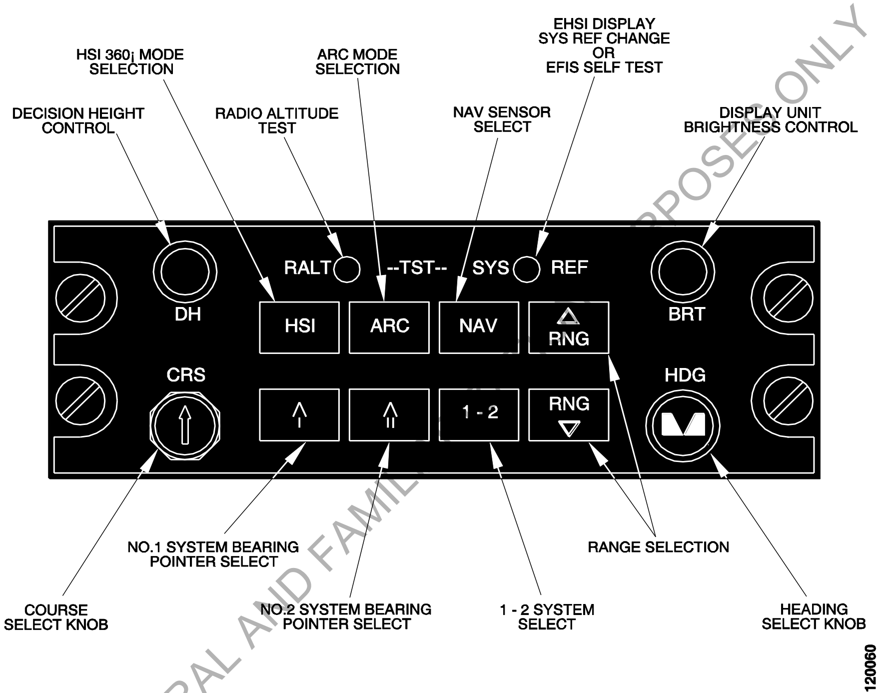

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Figure 7-33-5. EFIS Control Panel

MULTI-FUNCTION DISPLAY (KMD 850)

The KMD 850 Multi-function display (MFD) is an independent Liquid crystal display (LCD) which shows:

- A moving map display
- Weather radar data (if installed)
- Terrain data (if EGPWS or TAWS is installed)
- Traffic data (if TCAS is installed)

The MFD is installed in the center instrument panel and contains the controls and indicators necessary to operate the MFD in each of its operating modes. The MFD has the following controls and display. Ref. Fig 7-33-6:

Display area

The display area operates in the mode set by the function select keys. The functions that can be set on the display area are:

- Map function – When the start up sequence is complete, the MFD shows a "TOPO ON" MAP page, if the MFD has a valid GPS input the map corresponds to the position of the aircraft
- Weather Radar function – When the WX function key is pushed the weather radar page is shown
- Auxiliary function – When the AUX function key is pushed, the MFD shows an auxiliary code cover page. This provides access to the MFD set up pages.
- Terrain function – (if EGPWS is installed) When the TERR function key is pushed, the MFD shows the terrain page for the EGPWS
- Traffic function – (if TCAS is installed) When the TRFC function key is pushed, the MFD shows the traffic page for TCAS

Joystick

The joystick moves a pointer around the LCD display. The joystick is used to point at items on the map page for further information and for measuring range and bearing to specific points.

When the WX radar function is selected, the joystick controls the tilt angle and track line of the antenna. On the AUX setup pages the joystick is used to select and change the settings for a given set up field.

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Control keys

The control keys are used to manipulate the page that is currently displayed. Either a soft label on the LCD on the left side of the key or the control key annunciator on the right side of the control key indicates the functionality of each key.

The control key functions are MODE, RNG UP, RNG DOWN, VIEW and OVLY.

MODE – This key makes the display sequence through all available modes associated with the displayed page

RNG UP – This key increases the range scale up one level on the displayed page. The default range on start up is 80 nm.

RNG DOWN – This key decreases the range scale down one level on the displayed page.

VIEW – This key makes the display sequence through the available views associated with the displayed page.

OVLY – This key allows data from more than one source to be displayed simultaneously on the display screen.

The MFD has a fault indicator located between the RNG UP and RNG DOWN keys. When there is a hardware fault detected, the letter “F” in a circle appears.

Inner and Outer control knobs

The inner and outer control knobs have various functions as indicated by the relevant soft label when active. If the weather radar page is selected the inner knob controls the gain of the weather radar in the ground mapping mode. The outer knob acts as the weather radar function selector for the standby, test and on functions.

Selected function indicators

The selected function indicators come on when the applicable function key is pushed to set a particular function of the display.

Function select keys

The function select keys select the available data sources to be displayed on the display area. The function select keys have the following captions:

- MAP
- WX (Weather Radar if installed)

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- TRFC (TCAS if installed)
- TERR (Terrain if EGPWS or TAWS is installed)
- AUX (Set-up pages)

When a function select key is pushed, the indicator above the key is illuminated to show that the function has been selected for display. If the key is pressed multiple times in sequence, the available pages associated with the particular function are shown on the display area.

OFF/ON control

The OFF/ON control sets the MFD to on or off.

Regional map data card

The regional map data card is a front panel loading PCMCIA flashdisk. The card contains application software and a customized Jeppesen aeronautical database. Three regions are covered on different databases, the Atlantic, Americas and Pacific. The appropriate database card for your area must be installed before switching on the MFD. The database contains data VORs, NDBs, intersections and special use airspace. The data card also has a topographical database which includes rivers, roads, lakes, coastlines, cities, rail tracks, and towers.

Brightness control

The brightness control changes the intensity of the display.

Detailed operating instructions or technical information for the KMD 850 Multi-Function Display may be obtained by consulting the latest available revision of the pilots guide Pt No 006-18222-0000.

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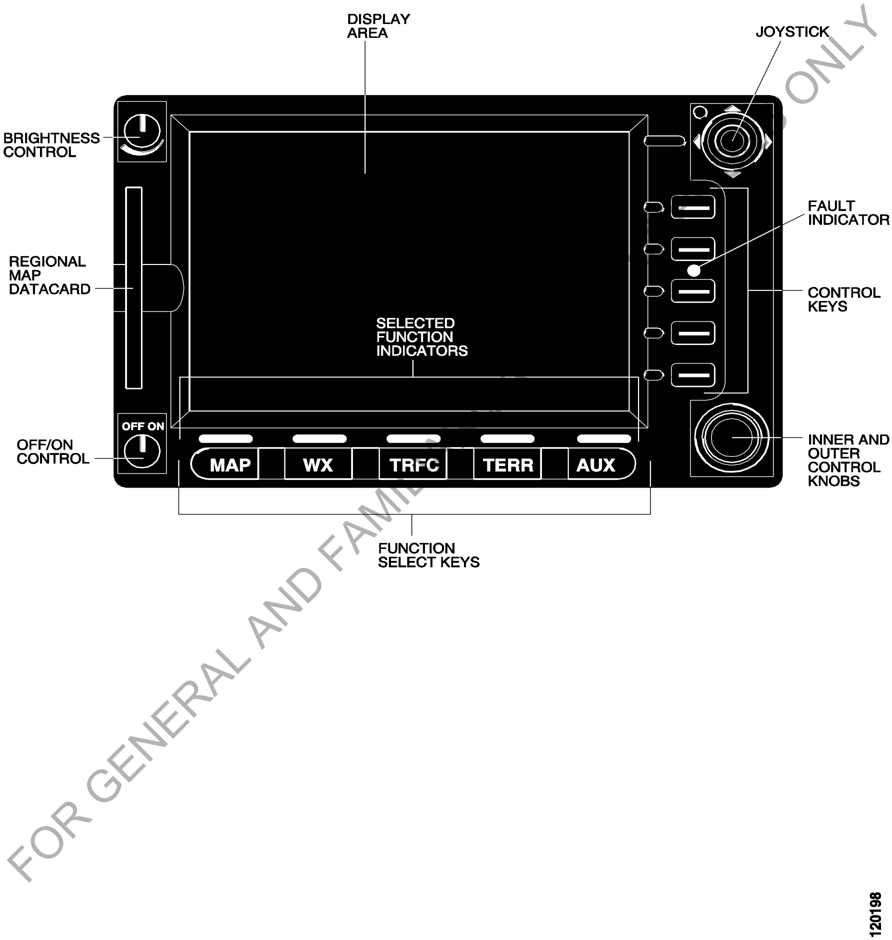

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Figure 7-33-6. Multifunction Display Control Panel

WEATHER RADAR (IF INSTALLED)

Display

Weather radar information may be displayed with or without navigation data presentation on the EFIS or the MFD. When selected, a vertical view of the weather return along the Track Line may be displayed on the MFD. Refer to Figure 7-33-7, MFD Weather Only Display.

Radar Mode:	Indicates present operational mode - OFF, TST, SBY, WX, WXA, and MAP.
Track Line:	A dashed line drawn from the center of the symbolic aircraft to the compass card or the outer range ring is activated and slewed by pressing one of the TRK buttons. The track line will automatically declutter if it remains stationary for more than 15 seconds. Pressing the VP button will activate the vertical profile feature of the radar at the angle of the track line.
Track Line Location Annunciation:	A digital readout in the upper left hand corner displays the present position of the track line relative to the nose of the airplane.
Select Range:	Distance scale for radar display in nautical miles.
Range Rings:	Evenly spaced dashed lines for distance scale.
Symbolic Aircraft:	Provides a visual reference of the aircraft position in relationship to the weather display.
Tilt Angle:	Indicates present antenna vertical angle.
Profile Angle:	Indicates present position of the vertical profile radar display relative to the nose of the airplane.
Altitude Lines:	Three horizontal altitude lines are present on the VP display. The center line represents the actual airplane altitude. Equally spaced above and below the center line are two lines a certain number of feet above or below the airplane. The number associated with these lines varies with the selected range to compensate for the radar beam width at the various ranges. The altitude is expressed in thousands of feet from the center line.

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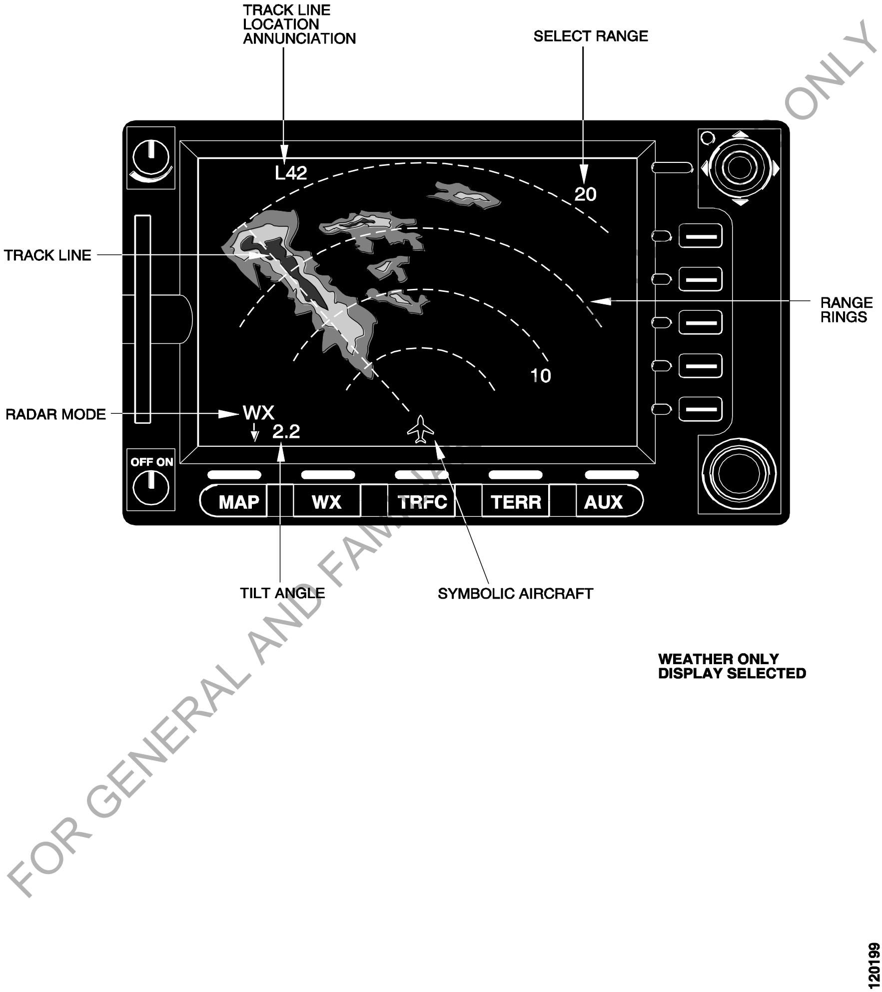

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Figure 7-33-7. MFD Weather Radar Display
(Sheet 1 of 2)

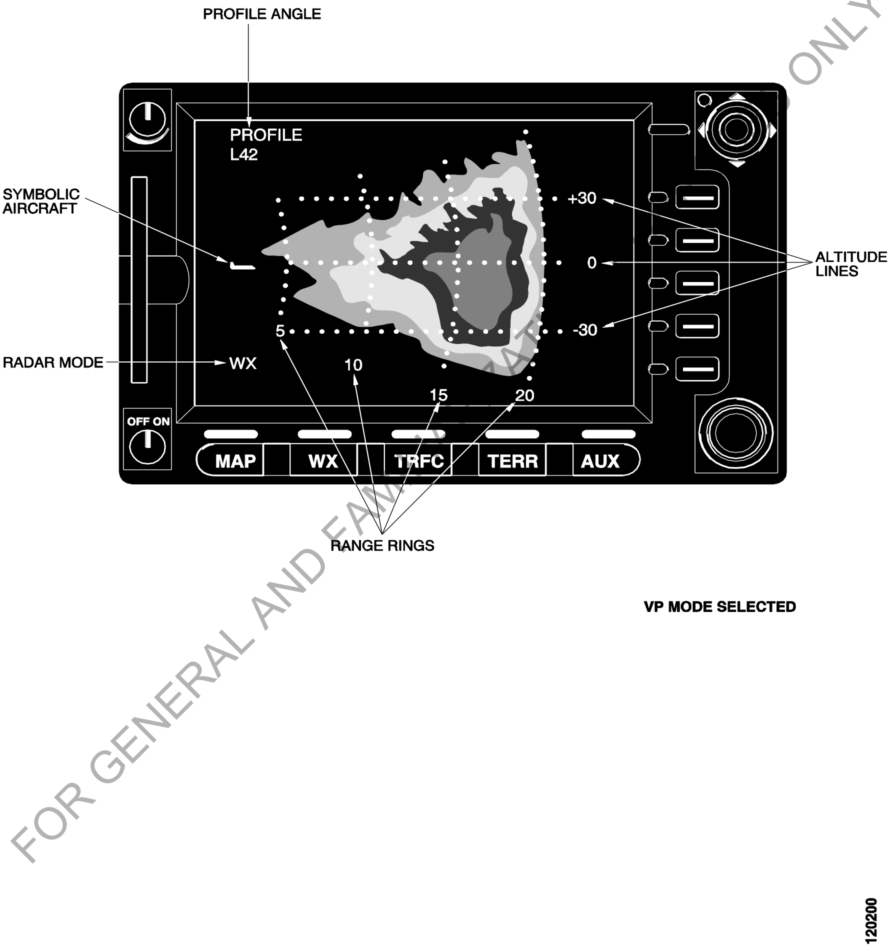

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Figure 7-33-7. MFD Weather Radar Display
(Sheet 2 of 2)

Control Panel

Weather radar display is controlled by a panel located on the center lower panel of the cockpit. Refer to Figure 7-33-8, Radar Control Panel.

The Radar Control Panel provides the following functions.

Radar Function Selector Switch:	Rotary switch selects the desired operating condition. ON - Selects the condition of normal operation, allowing for weather detection or other modes of operation. Radar emission exists in the ON position. However, if a radar mode is not selected for display on at least one indicator the ART is placed in STANDBY. TST - Selects the test mode and the test pattern will appear on the indicator. The antenna will scan without radar emission. STBY - Selects the standby mode for system warm-up and when the system is not in use. After 30 seconds in this mode, the system is in a state of readiness. No radar emission occurs and the antenna is parked in the down position. OFF - Removes power from the ART.
WX Button:	Selects the Weather mode when pressed. Areas of high rainfall will appear in magenta color. WX will appear on the indicator when a weather mode is selected.
WXA:	Selects the Weather Alert mode when pressed. Magenta areas of precipitation will flash between magenta and black. WXA will appear on the indicator when a weather mode is selected.
GND MAP:	Selects Ground Mapping mode, disables the weather alert feature, and activates the gain control. MAP will appear on the indicator when a weather mode is selected.
VP:	Selects and deselects the vertical profile modes, either the VP only modes or the horizontal and vertical (VP) weather presentation. Selecting one of the VP modes will not change the selected mode of operation. Once in VP mode, weather modes may be changed as desired. VP will engage from GND MAP mode but the NAV function will be disabled.

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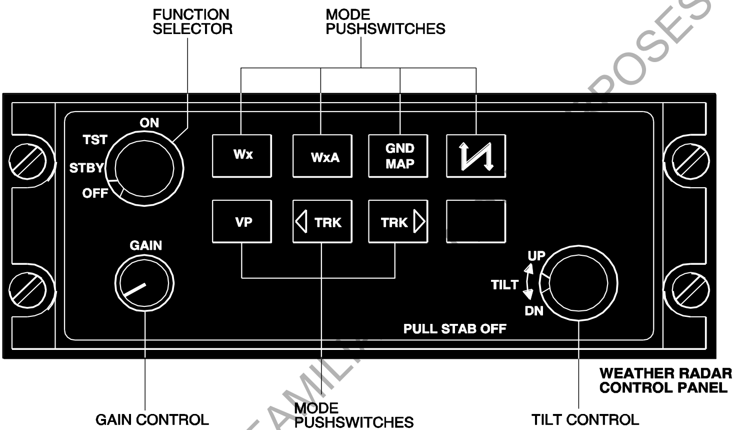

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Figure 7-33-8. Radar Control Panel

TRK Buttons:	When pressed provides a yellow azimuth line and a digital display of the azimuth line placement left or right of the airplane nose. For vertical profile (VP) operations, the track buttons perform the two functions: 1. Prior to engaging VP, the appropriate button (left or right) is used to place the track line at the desired azimuth angle to be vertically scanned (sliced). When VP is engaged, the slice will be taken at the last position of the track line, whether it is visible or not. If the track line has not been selected after power has been applied to the system and VP is selected, the slice will be taken at 0° (directly in front of the airplane). 2. Continuously holding the TRK button will result in the system slicing in 2° increments.
GAIN Control Knob:	Manual gain control becomes active only when GND MAP is selected. Gain is automatically set for all other modes.
Tilt Control Knob:	Permits manual adjustment of the antenna tilt angle to a maximum of +/- 15° in order to obtain the best indicator presentation. The tilt angle is displayed in the lower left corner of the display.
Lightning Button: (if installed)	Selects the Lightning display when pressed if a weather mode is selected for display.

Lightning Detection and Display (if installed)

The Stormscope System detects lightning activity 360 degrees around the aircraft up to a distance of 200 nautical miles. The system processes the lightning data and transmits it to the EFIS in the form of cells (areas) of electrical discharge (not individual discharges). The locations of up to 63 cells are displayed, together with the intensity level of each cell. There are three levels of intensity, level 1 is the lowest rate of electrical discharge and level 3 is the highest.

The lightning display mode is selected/deselected on the weather display by pressing the Lightning button on the Radar Control Panel. The lightning mode status is shown on the EFIS display in a data field above the weather radar data fields. The lightning data field shows a lightning bolt followed by ON (lightning mode selected), OFF (lightning mode deselected) or FLT (fault). The default condition is lightning mode OFF at system power up.

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With lightning mode ON, up to 63 grey colored lightning cell symbols can be displayed on the EFIS. There are three lightning cell symbols to show the different levels of lightning intensity. The level 1 (lowest rate of discharge) symbol is a lightning bolt with no arrowheads. Level 2 has one arrowhead. Level 3 (highest rate of discharge) has two arrowheads. The lightning symbols can appear anywhere in the 360 degrees of display area (unlike weather radar information).

A pushswitch marked STORMSCOPE CLEAR is used to erase the lightning data from the Stormscope System memory. This removes the accumulated lightning cell symbols from the EFIS display in order to start a new display.

OPERATION

Refer to the Bendix/King EFS 40/50 Pilot's Guide for detailed operating information.

When the main DC distribution system is energized, the EFIS is switched on by selecting the AVIONICS 1 and AVIONICS 2 switches to ON. Various flags may be annunciated on the displays after initial power on, indicating systems which are not immediately ready for use.

At initial power on the system conducts a self test. The displays should be clear of warning flags shortly after power on. System testing can be initiated using the test switch.

In the event of a DU or EADI symbol generator failure, a combined (composite) display of EADI and EHSI information may be displayed on the remaining operational DU. This is accomplished by setting the appropriate EFIS switch to the CMPST position. The navigation information added is the standard deviation scale, selected course and heading, distance information, selected navigation sensor, and the TO/FROM display. This format presents the pilot with a familiar display that requires minimal transition time when it is selected for use. The function of the control panel, navigation guidance presentation and color coding remain the same as in normal operation.

The pilot's EFIS switch is located on the pilot's lower right panel and the copilot's EFIS switch (if installed) is located on the copilot's lower right panel.

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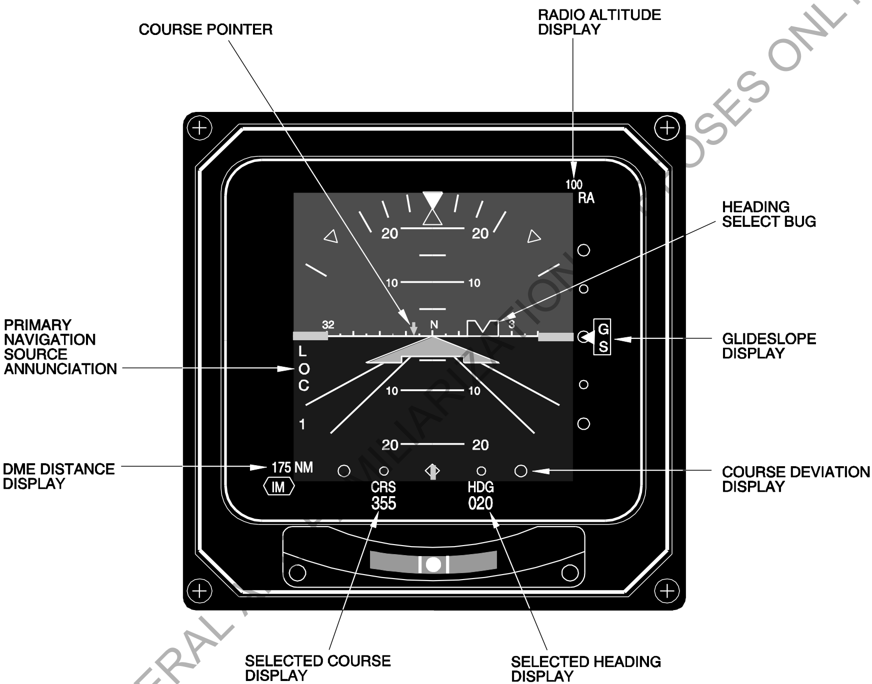

120065

Figure 7-33-9. Composite Display - Approach

Figure 7-33-10. Composite Display - Enroute

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INDICATION / WARNING

During normal operation the following faults may be detected and displayed automatically.

SG (Red):	EFIS information in general is unreliable. Revert to backup instruments.
CP (Red):	EFIS control panel switch stuck for more than 10 seconds. If the switch fails, the display will remain all currently selected conditions. Continue with current Nav system selection or revert to backup instruments.
Blank CRT:	Display Unit failure. Switch to DU CMPST mode.

A red cross on any display indicates that the information is unreliable.

SG (Yellow):	Symbol Generator fan has failed. Once annunciated, the faulty DU will continue to operate for at least 30 minutes if the rated ambient temperature is not exceeded. Reduce display information to a minimum to extend operating time.
DU (Yellow):	Display Unit fan has failed. Once annunciated, the faulty DU will continue to operate for at least 30 minutes if the rated ambient temperature is not exceeded. Reduce display information and brightness level to a minimum to extend operating time.

Refer to the Bendix/King Pilot's Guide for additional warning caution flags.

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INTENTIONALLY BLANK

AUTOPILOT

GENERAL

The autopilot installed in the PC-12 aircraft is the Bendix/King KFC 325 Digital Automatic Flight Control System (AFCS). The limitations presented in Section 2 of this Handbook are pertinent to the operation of the KFC 325 AFCS as installed. The Automatic Flight Control System must be operated within the limitations specified. Refer to the appropriate sections of this Handbook for the Emergency and Normal Procedures associated with this installation.

The KFC 325 Digital AFCS has 3 axis controls: pitch, roll and yaw.

The KFC 325 Digital AFCS has an automatic electric pitch trim system which provides pitch autotrim during autopilot operation. When the pitch autotrim function is in operation, a signal is sent to the triple trim indicator to illuminate the pitch trim light (if this version of indicator is installed). The autotrim system is designed to withstand any single inflight malfunction. Trim faults are visually and aurally annunciated.

The KFC 325 Digital AFCS has an automatic rudder trim relief function which provides directional trim during yaw damper and autopilot operation. When the rudder autotrim function is in operation, a signal is sent to the triple trim indicator to illuminate the rudder trim light (if this version of indicator is installed).

No aileron autotrim function is available.

Vertical autopilot functions include Altitude Select and Vertical Speed modes.

A lockout device prevents autopilot engagement until the system has been successfully preflight tested.

DESCRIPTION

MODE CONTROLLER

The KFC 325 AFCS operation is controlled by a KMC 321 Mode Controller located at the top of the center panel. Refer to Figure 7-34-1, Autopilot Mode Controller. Autopilot mode selection provides the following functions.

HDG:	Alternately engages and disengages the Heading Select mode. Heading information is received from the Heading Bug on the EHSI. Depressing HDG will activate the Flight Director in Heading mode.
NAV:	Alternately engages and disengages the Navigation mode. Depressing NAV will activate the Flight Director. The Flight Director will command tracking of the coupled

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navigation receiver based on the EHSI selected primary navigation source. Glideslope coupling is inhibited in the NAV mode.

APR: Alternately engages and disengages the Approach mode. Depressing APR will activate the Flight Director. APR mode will capture and track selected EHSI primary navigation sensor with approach accuracy. Glideslope coupling is allowed in the APR Capture or Track mode. BC is automatically engaged and disengaged. Back Course functions identically to the Approach mode except that the autopilot response to the localizer signal is reversed. Glideslope coupling is inhibited in the Back Course Approach mode.

With the EFS 40/50, Back Course is determined from aircraft heading and the Course Pointer. The APR pushbutton activates/deactivates the Back Course mode.

YD: Alternately engages and disengages the Yaw Damper and rudder trim relief independent of the autopilots pitch and roll axes

AP: Alternately engages and disengages the autopilot. Yaw Damp is automatically activated when the autopilot is engaged, however, Yaw Damp remains engaged if AP is pressed again.

DN/UP: Controls the vertical axis of the autopilot. The rocker switch function is dependent upon the autopilots active mode. Depressing and holding the switch up or down results in the following:

In Pitch Attitude Hold mode the vertical trim switch adjusts the pitch attitude at a rate dependent upon the current airspeed.

In Altitude Hold mode the vertical trim switch adjusts the altitude which the autopilot is holding. Trim control up and down operates at a rate of up to 500 feet per minute. This does not affect the altitude selected and displayed on the Altitude Select.

In Indicated Airspeed Hold mode the vertical trim switch adjusts the indicated airspeed reference at a constant rate of three quarters of a knot per second (0.75 kt/sec).

In Vertical Speed Hold mode the vertical trim switch adjusts the vertical speed at a rate of one hundred feet per minute for each second the switch is held.

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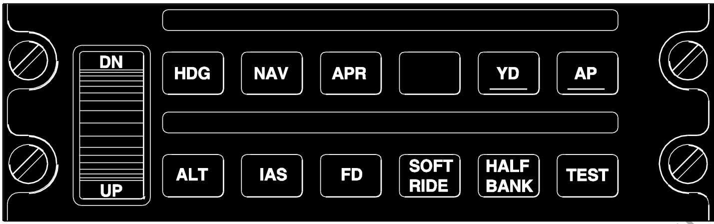

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Figure 7-34-1. Autopilot Mode Annunciations

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ALT: Alternately engages and disengages the Altitude Hold mode. Altitude Hold commands the aircraft to maintain the pressure altitude existing at the moment of selection. The pilot must correct for altimeter changes during flight to insure barometrically corrected altitude.

IAS: Alternately engages and disengages the Indicated Airspeed Hold mode. This mode commands the aircraft to maintain the Indicated Airspeed existing at the moment of selection. The aircraft pitch command is varied by the Flight Director to maintain the selected airspeed during changing air conditions, power and/or configuration changes.

FD: Engages the Flight Director in Pitch Attitude Hold mode and Wings Level mode. The pitch attitude of the Flight Director is synchronized to the current aircraft pitch attitude. Pressing FD when the Flight Director is engaged will disengage all Flight Director modes if the autopilot is not engaged.

SOFT RIDE: Engages the Soft Ride mode. Soft Ride mode decreases the autopilot gains thus decreasing the aggressiveness of the autopilot resulting in a more comfortable ride in turbulent conditions. Routine use of this mode during all flight conditions will result in less than optimum autopilot performance. Soft Ride mode is automatically disengaged when the Approach mode is activated.

HALF BANK: Engages the Half Bank mode. The autopilots maximum commanded bank angle is reduced to one half the normal value. This mode is provided to increase passenger comfort. This mode is automatically disengaged when the Approach mode is activated.

TEST: The Preflight Test Sequence is initiated when this button is momentarily pressed. The test includes illumination of all annunciator lights, testing of rate, acceleration and trim monitors, and testing of the computers internal logic circuits.

The AP annunciator will flash for approximately six seconds upon successful completion of the Preflight Test. An aural tone accompanies the flashing AP annunciation. The Autopilot mode will not be enabled until the Preflight Test has been successfully passed.

ALTITUDE / VERTICAL SPEED PRESELECT

The KAS 297C operation is controlled by a Controller located in the pilot's instrument panel. Refer to Figure 7-34-3 Altitude / Vertical Speed Preselect Controller. Mode selection provides the following functions.

VERTICAL SPEED / ALTITUDE SELECT KNOB
: Concentric knobs allow selection of altitude or vertical speed.

The small inner knob has two positions:

- IN - Altitude is displayed. When rotated, the small inner knob selects altitude in 100 foot increments with roll over into the 1000 digits. The large outer knob selects 1000 foot increments with roll over into the 10,000 digits.
- OUT - Vertical Speed is displayed. When rotated, the small inner knob selects vertical speed in 100 feet per minute increments. The large outer knob selects vertical speed in 1000 feet per minute increments up to a maximum of 5000 feet per minute.

ARM
: Engages the autopilot Altitude Arm mode when depressed while the selected altitude is displayed. Altitude Select (ARM) mode will cancel the autopilot Altitude Hold (ALT) mode if autopilot Altitude Hold is already engaged. Glideslope coupling will cancel Altitude Select (ARM) mode. The engagement of Altitude Hold by the pilot with the Autopilot Mode Controller will cancel the Altitude Select (ARM) mode. Altitude Select (ARM) mode allows selection of a new altitude without deactivating the ARM.

NOTE

The display of the selected altitude is required to activate the Altitude Select mode. This assures pilot verification of altitude before activation.

ENG
: Engages the Vertical Speed Hold mode when depressed while the selected vertical speed is displayed. When depressed with no vertical speed value selected, the Vertical Speed Hold mode is engaged and is synchronized to the current vertical speed of the aircraft. The synchronized vertical speed is momentarily displayed.

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OPERATION

AUTOPILOT

Emergency and Normal Procedures are detailed in Sections 3 and 4 of this Handbook.

The following conditions will cause the autopilot to automatically disengage:

Pilot related input

Roll rates in excess of 10° per second will cause the autopilot to disengage except when the CWS switch is held depressed.

Manual trim engage pilot or copilot, FD and operational modes remain engaged.

Alternate trim action.

Activation of Trim Interrupt.

System related input

Power failure.

Internal Flight Control System failure.

Pitch rates in excess of 5° per second will cause the autopilot to disengage except when the CWS switch is held depressed.

Accelerations outside of a +1.6 g to +0.3 g envelope (1.0 g's being normal for straight and level flight). Disengagement will take place regardless of whether or not the CWS switch is activated.

The presence of an EFIS ATT/HDG flag. The flight director will also disengage.

Stall warning (approaching stall condition).

The airplane AVIONICS 2 (AV 2) SWITCH function is unchanged and can be used in an emergency to shut off electrical power to all flight control systems while the problem is isolated.

PITCH LIMITS

IAS mode	+15°	-10°
PAH/VS	+20°	-10°
APR (GS)	+20°	-20°
ALT/ALT CAPT	rate limited	

The following circuit breakers are used to protect the following elements of the King KFC 325 Autopilot:

Avionic Bus 2	A/P Disc, A/P Trim Adapter, A/P
26 V AC Bus	A/P (ref voltage only)

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ALTITUDE / VERTICAL SPEED PRESELECT

Emergency and Normal Procedures are detailed in Sections 3 and 4 of this Handbook.

CONTROL WHEEL STEERING

Mounted on each inboard control wheel horn is the Control Wheel Steering (CWS) switch. Pressing the CWS pushbutton disengages the autopilot servo clutches and allows manual control of the aircraft. Upon release of the pushbutton, the autopilot clutches re-engage and the autopilot follows the new vertical reference if no lateral or vertical mode was selected or re-track the previous engaged AP mode.

If the Flight Director is not engaged when the CWS pushbutton is depressed, the Flight Director will be activated in the Pitch Attitude and Wings Level Hold mode. The Flight Director command bar will synchronize the aircraft to the attitude present upon pushbutton release. Re-synchronization is possible by pressing the CWS button again.

AUTOPILOT DISCONNECT

Mounted on each outboard control wheel horn is the Autopilot Disconnect switch. When momentarily pressed, it disengages the autopilot and yaw damper and cancels all operating Flight Director modes. A tone will sound upon successful autopilot disconnect. Automatic pitch trim function is inhibited and the second pitch trim motor reverts to alternate pitch trim function.

MANUAL TRIM ENGAGE

Mounted on each outboard control wheel horn is the manual trim engage switch. When momentarily pressed, it disengages the autopilot but leaves the yaw damper and all selected modes including the flight director engaged. A tone will sound upon successful autopilot disconnect. Rudder trim relief function will be operational as long as the yaw damper is activated.

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INDICATION / WARNING

AUTOPILOT

The engaged and armed autopilot modes are annunciated on the Mode Controller and in the upper area of the EADI. Refer to Figure 7-34-2, Autopilot Mode Annunciations. The following annunciations are illuminated on the Mode Controller (EADI annunciations are shown in Figure 7-34-2).

HDG:	Illuminates when the Heading Select mode is engaged by depressing the Heading pushbutton.
NAV:	Illuminates when the Navigation mode is engaged by depressing the NAV pushbutton and normally sequenced through NAV ARM. Nav mode can be used with VOR or GPS Navigation sensors.
NAV ARM:	Illuminates when Nav mode is called for by the NAV pushbutton and the course needle deflection exceeds the capture requirements of the Nav mode. While capture requirements (needle displacement and rate of needle displacement) are exceeded, the system will remain in the Arm mode. When the requirement is achieved, the autopilot will capture and track the course needle.
APR:	Illuminates when the Approach mode is engaged by depressing the APR pushbutton and normally sequenced through Approach Arm.
APR ARM:	Illuminates when the Approach mode is called for by the APR pushbutton and the Course Needle exceeds the capture requirements of the Approach mode. Heading mode may be used to intercept the desired course while the autopilot is Approach Armed.
BC:	Illuminates when the Back Course mode is engaged. Back Course automatically activates the Approach Arm/Capture mode and illuminates the respective annunciator.
YD:	Illuminates when the Yaw Damp is engaged by depressing the YD or AP pushbutton.
AP:	Illuminates when the autopilot is engaged by depressing the AP pushbutton.
ALT:	Illuminates when the Altitude Hold mode is engaged by depressing the ALT pushbutton or by automatic sequencing through Altitude Capture when using the KAS 297C Altitude Preselect System.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

IAS:	Illuminates when the Airspeed Hold mode is engaged by depressing the IAS pushbutton.
FD:	Illuminates when the FD pushbutton is depressed or by default when any Flight Director mode is engaged. The Flight Director mode is Wings Level and Pitch Attitude Hold.
SR:	Illuminates when the Soft Ride mode is engaged by depressing the SR pushbutton. Soft Ride mode can be activated only when the autopilot is engaged.
HB:	Illuminates when the Half Bank is engaged by depressing the HB pushbutton. Half Bank can only be activated when the autopilot is engaged.
TRIM:	Illuminates continuously in the absence of trim power or if the system has not been preflight tested. An audible warning accompanies the annunciator during a trim fault.

NOTE

A flashing mode annunciator indicates a loss of the selected (mode) source or an unreliable source.

EFIS

All armed or captured modes are duplicated in the EFIS EADI display. The following additional autopilot annunciators are presented in the EFIS EADI.

PTRM: (red)	Illuminates when the autopilot monitors a pitch trim failure.
ROLL: (yellow)	Illuminates when the autopilot monitors an aileron mistrim.
AP: (red)	Illuminates when the autopilot monitors a system fault and momentarily flashes on autopilot disengagement.

CAWS

Additional autopilot annunciations are provided on the CAWS panel.

A/P TRIM: (red)	Indicates an autopilot and/or auto trim failure. A voice callout “Warning Autopilot Trim” is also heard. Warning is also present prior to successful passing of the autopilot preflight test.
AP DISENG: (amber)	Indicates that the autopilot pitch and aileron servo is disengaged. During CWS activation with an engaged autopilot, disengage annunciation is inhibited. A/P DISENG caution is delayed 3 seconds in order to prevent aural warning conflict with the autopilot system. A/P DISENG caution goes off after 30 seconds.

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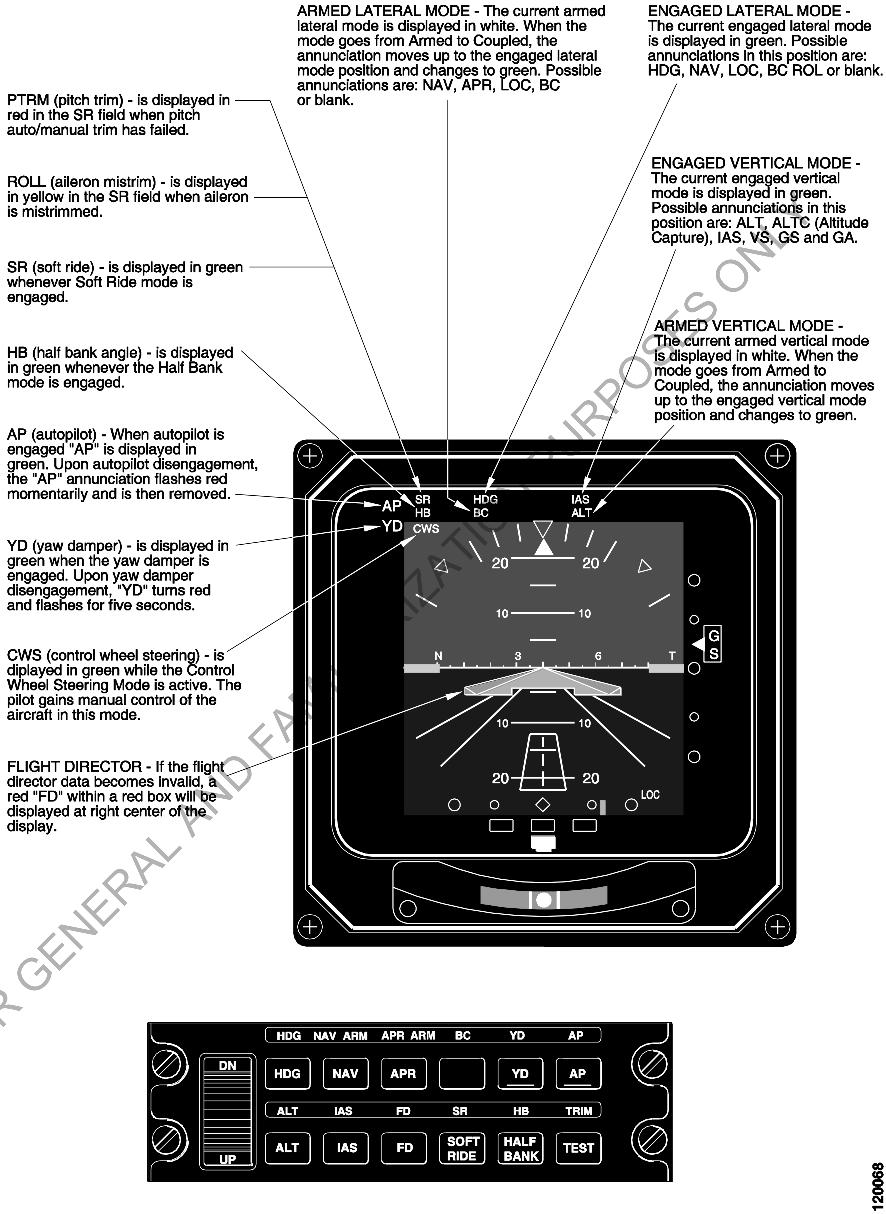

Figure 7-34-2. Autopilot Mode Annunciations

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ALTITUDE / VERTICAL SPEED PRESELECT

The engaged and armed modes are annunciated on the Controller and in the upper area of the EADI. Refer to Figure 7-34-3, Altitude / Vertical Speed Preselect Annunciations. The following annunciations are illuminated on the Controller (EADI annunciations are shown in Figure 7-34-2.

VS: Illuminates when the Vertical Speed Hold mode is engaged by depressing the ENG pushbutton.

ALERT: Illuminates 1000 ± 50 feet prior to the selected altitude and extinguishes 200 ± 50 feet prior to the selected altitude. The ALERT annunciator will momentarily illuminate when the selected altitude is reached. Anytime the aircraft is more than 200 ± 50 feet and less than 1000 ± 50 feet from the selected altitude, the annunciator is illuminated. An aural tone accompanies the ALERT annunciator illumination.

ALTITUDE / VERTICAL SPEED: Indicates the selected altitude from 100 to 50,000 feet or the selected vertical speed ranging from zero to 5,000 feet per minute up or down. Altitude is displayed while the small inner selector knob is in the "IN" position. Selected vertical speed is displayed when the small inner selector knob is in the "OUT" position. Rotating the concentric knobs changes the selected altitude or vertical speed.

NOTE

Attention is required to determine if the number selected is selected vertical speed or selected altitude, depending on the position of the small concentric knob. However, the display will start to flash after 5 seconds if it is displaying a selected vertical speed.

VERTICAL SPEED UP / DOWN CARET: Indicates whether the selected vertical speed is up or down.

ARM: Indicates that the Altitude Select mode is armed to capture the selected altitude. The ARM pushbutton activates the Altitude Select mode or whenever the adjustment knobs on the KAS 297C are rotated for a new altitude and the autopilot flight director (FD) associated with or without other modes are engaged.

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Figure 7-34-3. Altitude / Vertical Speed Preselect Annunciations

CAPT: Illuminates when the KAS 297C has switched the Flight Director from the active Pitch mode to Altitude Capture (CAPT) mode. The Altitude Capture mode occurs prior to the point the Flight Director engages Altitude Hold. The point at which the Flight Director initiates Capture varies with vertical speed. The higher the rate of altitude change, the sooner Altitude Capture becomes active. At a low rate of altitude change, the activation of the Altitude Capture mode and the transfer to Altitude Hold occur almost simultaneously.

FT / MIN: Indicates FT / MIN when in Vertical Speed mode. Displays FT when in Altitude Hold mode.

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SECTION 8

HANDLING, SERVICING AND MAINTENANCE

TABLE OF CONTENTS

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

GENERAL

This section contains factory-recommended procedures for proper ground handling and routine care and servicing of the PC-12 airplane. It also identifies certain inspection and maintenance requirements that must be followed if the airplane is to retain its performance and dependability. It is recommended that a planned schedule be followed for lubrication and preventive maintenance based on climatic and flying conditions which may be encountered.

All correspondence regarding the airplane must contain a reference to the manufacturer's serial number (MSN) and be addressed to:

PILATUS AIRCRAFT LTD.
CUSTOMER SUPPORT GENERAL AVIATION,
CH-6371 STANS,
SWITZERLAND

Tel: 41-41-619 3333
Fax: 41-41-619 7311
eMail: SupportPC12@pilatus-aircraft.com

Pilatus Aircraft Ltd. cannot accept responsibility for continued airworthiness of any airplane not maintained in accordance with the information contained within this section or the Airplane Maintenance Manual (AMM).

IDENTIFICATION PLATE

An identification plate is located on the lower left side of the fuselage aft of the cargo door. This plate displays the manufacturer's name, model designation, serial number (MSN), date of manufacture and the FOCA and FAA type certificate numbers.

Certain regulations may require an identification plate that displays the airplane registration number. This identification plate is located in the empennage.

AIRPLANE INSPECTIONS

AIRPLANE INSPECTION PERIODS

As required by regulations, all civil airplanes must undergo a complete inspection annually (each twelve calendar months). In addition to the required annual inspection, the manufacturer also requires Inspections based on flying hours and Time Limited Inspections.

Other inspections may be required by the issuance of airworthiness directives or service bulletins applicable to the airplane, engine, propeller and components. It is the responsibility of

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the operator to ensure compliance with all applicable airworthiness directives and, when the inspections are repetitive, to take appropriate steps to prevent inadvertent non-compliance.

AIRPLANE SCHEDULED INSPECTIONS

As required by regulations, the airplane must be the subject of a complete Annual Inspection each 12 calendar months of operation. In addition, national regulations may require periodic, hourly inspections. The PC-12 AMM Chapter 5 gives the manufacturers recommended time limits for inspections, maintenance checks and the scheduled and unscheduled inspections.

The inspection intervals are based on normal usage of the airplane under average environmental conditions. Airplane operated in extremely humid tropics, or in exceptionally cold, damp climates, salt-laden conditions may need more frequent inspections for wear, corrosion and lubrication. Under these adverse conditions, the Hourly Inspection should be done in compliance with the inspection sheets at a more frequent interval. The owner or operator can then set his own inspection interval based on field experience.

The Hourly Inspection interval should never be exceeded by more than 10 hours, which can be used only if additional time is required to reach a maintenance center. Any extension of the hourly interval must be subtracted from the following inspection interval. For an example, if a 100 Hour Inspection is at 110 hours, the next is due 90 hours later at 200 hours.

The owner or operator is responsible for complying with any local regulations. The owner or operator is primarily responsible for maintaining the airplane in an airworthy condition, including compliance with Airworthiness Directives. It is further the responsibility of the owner or operator to make sure that the airplane is inspected in conformity with the inspection sheets.

Inspection sheets have been prepared to assist the owner or operator in meeting the foregoing responsibilities. They include, together with the inspection requirements, lists of tools, equipment, parts and materials which are necessary to do the inspections. The inspections sheets are not intended to be all-inclusive, for no such sheets can replace the good judgment of a qualified mechanic in the performance of his duties. As the one primarily responsible for the airworthiness of the airplane, the owner or operator should select only qualified personnel to maintain the airplane.

Detailed information of systems and sub-systems on the airplane can be found in the relevant chapters of the AMM. Reference is made to the topics in this manual and Pilatus issued Service Bulletins for inspection, repair, removal and installation procedures called for in the inspection sheets. It is the responsibility of the owner or operator to make sure that mechanics inspecting the airplane have access to these documents as well as the inspection sheets.

The Hourly Inspection and Annual Inspection sheets list the maintenance and structural significant items for inspection and state the level of inspection required.

The Time Limited Inspection sheets list items that require inspecting at intervals that are different from the hourly and annual inspections.

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COMPONENT LIFE POLICY

The AMM Section 4 contains the Airworthiness Limitations which specify Life Limit and Inspection Intervals for major components of the airplane.

The AMM Section 5 contains the time limits for overhaul and replacement of components based on average usage and environmental conditions. The stated time limits do not constitute a guarantee that the component will remain in service until this time as the environmental conditions that the component is operated in cannot be controlled by the manufacturer.

PREVENTIVE MAINTENANCE

Pilots operating airplane should refer to the regulations of the country of registry for information on preventive maintenance that may be performed by pilots.

The holder of a Pilot Certificate may perform certain preventive maintenance described in FAR Part 43. This maintenance may be performed only on an airplane which the pilot owns or operates and which is not used to carry persons or property for hire, except as provided in the applicable FAR's. Although such maintenance is allowed by law, each individual should make an analysis as to whether he/she has the ability to perform the work.

Pilatus Aircraft Ltd should be contacted for further information, or for the required maintenance which must be accomplished by appropriately licensed personnel. All other maintenance required on the airplane should be accomplished by the appropriately licensed personnel.

The aircraft has Computer Aided Testing (CAT) connectors which are installed in the maintenance test panel on the right side of the flight compartment. They are the central access point for ground maintenance to do aircraft system tests using either a portable computer or a maintenance box. Serious flight safety implications could result if equipment is connected to the CAT connectors during flight. The protective CAT connector caps must be installed during flight and all test equipment must be removed from the aircraft.

If maintenance is accomplished, an entry must be made in the appropriate logbook. The entry should contain:

The date the work was accomplished.
Description of the work.
Number of hours on the airplane.
The certificate number of pilot performing the work.
Signature of the individual doing the work.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

MODIFICATIONS OR REPAIRS

It is essential that the Airworthiness Authorities of the country of registry be contacted prior to any modifications to the airplane to ensure that the airworthiness of the airplane is not violated. Modifications or repairs to the airplane must be accomplished by licensed personnel.

SERVICE BULLETINS AND SERVICE LETTERS

Pilatus Aircraft will issue Service Bulletins and Service Letters from time to time which will be sent to owners, service centers and distributors. Service Bulletins should be complied with promtly and depending on their nature material and labor allowances may apply, this aspect will be addressed in the Planning Information section of the bulletin. Service Letters give information on product improvements, changed part numbers or discussion on field problems. Service Bulletin and Service Letter Indexes are issued periodically to provide a complete listing of all issued bulletins and letters.

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GROUND HANDLING

TOWING

The use of a towing arm which attaches to lugs on the nose leg is the recommended method of towing the airplane over prepared, hard, even ground. The towing arm should incorporate shock absorbers to prevent damage to the airplane. The steering arm provided for this airplane is a steering bar extension to the tail stand. When not in use the components of the towing arm are stowed inside the rear fuselage cone accessible through the battery door.

When towing the airplane, a qualified person should sit in the cockpit ready for immediate braking action, in the event that the towing arm becomes uncoupled. The movement of the towing vehicle should always be started and stopped slowly to avoid unnecessary shock loads. When towing in a congested area, two helpers should watch the wing tip and tail clearances.

In any towing operation, especially when towing with a vehicle, do not exceed the nose gear maximum tow limit angle either side of center, or damage to the nose gear will result. The maximum tow limit angle is indicated by a placard on the nose strut. 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 the tail height.

In the event that towing lines are necessary, ropes should be attached to the main gear struts as high as possible without contacting brake lines or wire harness. The lines should be long enough to clear the nose and/or tail by not less than 20 feet. A qualified person should occupy the pilot's seat to maintain control of the airplane by the use of the nose wheel steering and brakes.

It is acceptable to tow the aircraft by grasping the nose wheel and lifting it just enough to clear the ground.

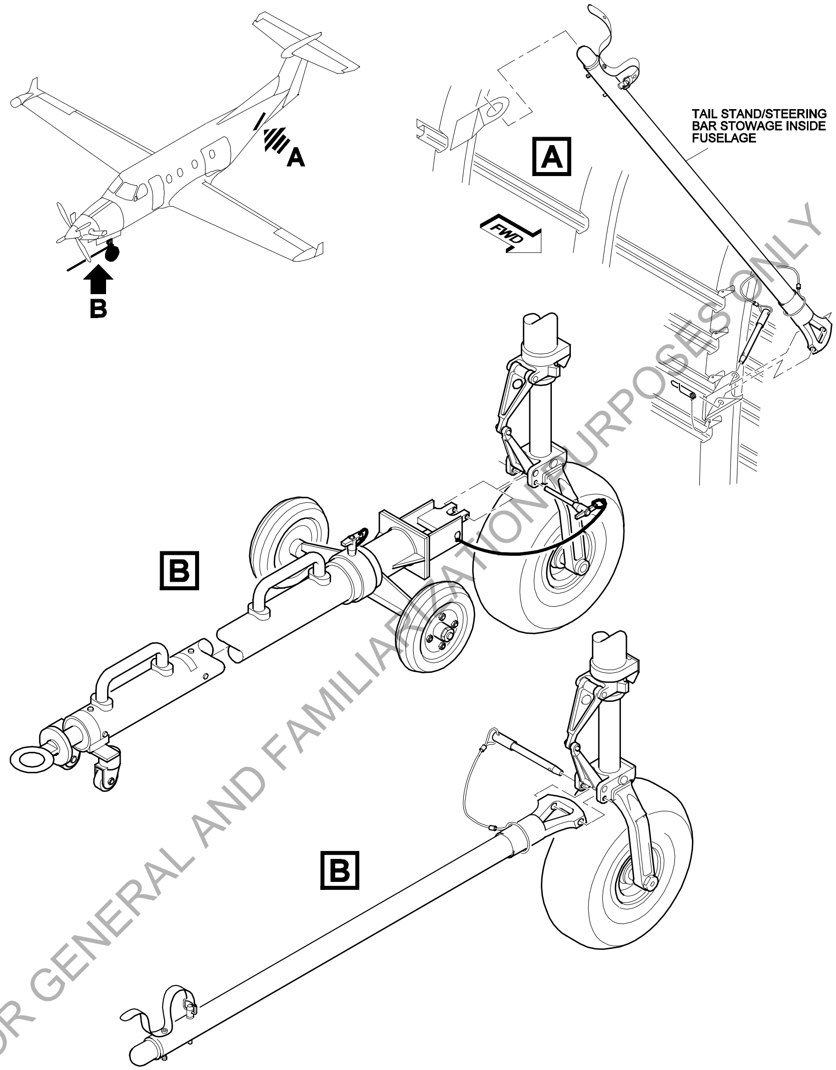

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Figure 8-1. Aircraft Towing

PARKING

In normal weather conditions, the airplane can be parked on any firm surface, headed into wind (if possible) and the parking brake applied, or wheel chocks in place, or both. The tail stand should be installed any time the aircraft is parked outside and wet snow fall is expected. Parking for long periods should be done with wheel chocks in place and the parking brake released. Install cockpit control locks. Blanks and covers should be fitted at any time the airplane is parked for an extended time or overnight (Ref. Fig. 8-2). Before the blanks and covers are installed they must be checked for condition and completeness (i.e. in serviceable condition with all warning flags attached). The airplane should be moored if it is to be parked in the open for long periods and weather conditions are unfavorable. In extreme conditions, the airplane should be parked in a hangar, as structural damage can occur in high winds, even when moored correctly.

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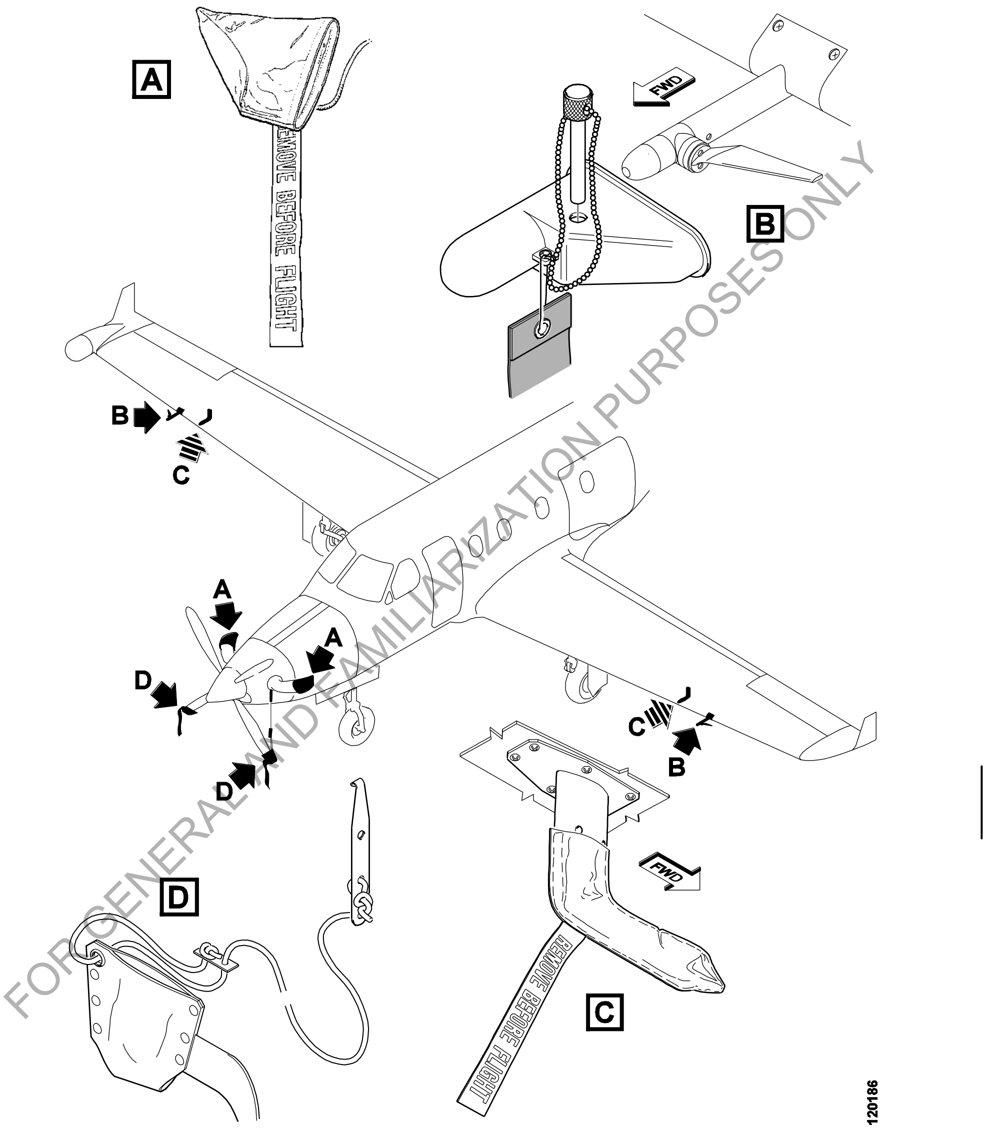

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Figure 8-2. Blanks and Covers (Existing Standard)
(Sheet 1 of 2)

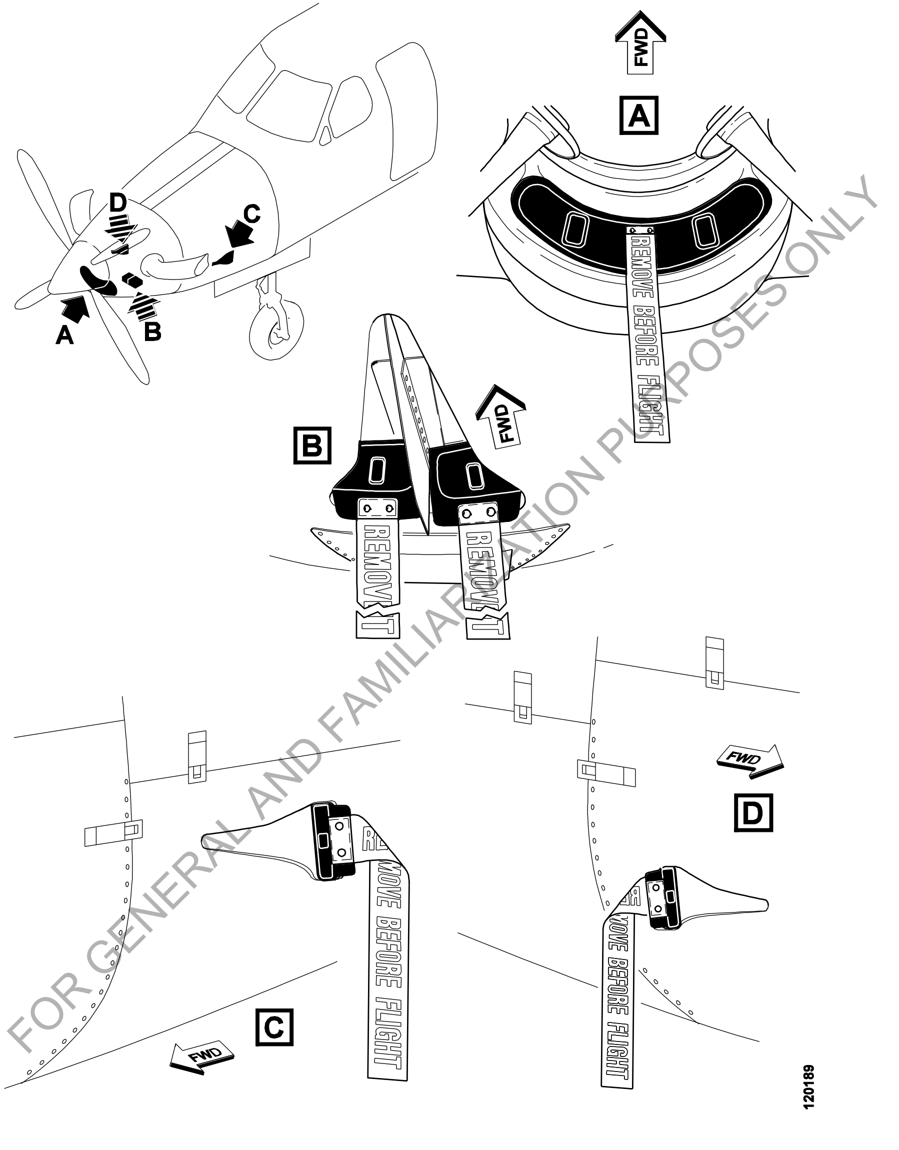

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Figure 8-2. Blanks and Covers (Existing Standard)
(Sheet 2 of 2)

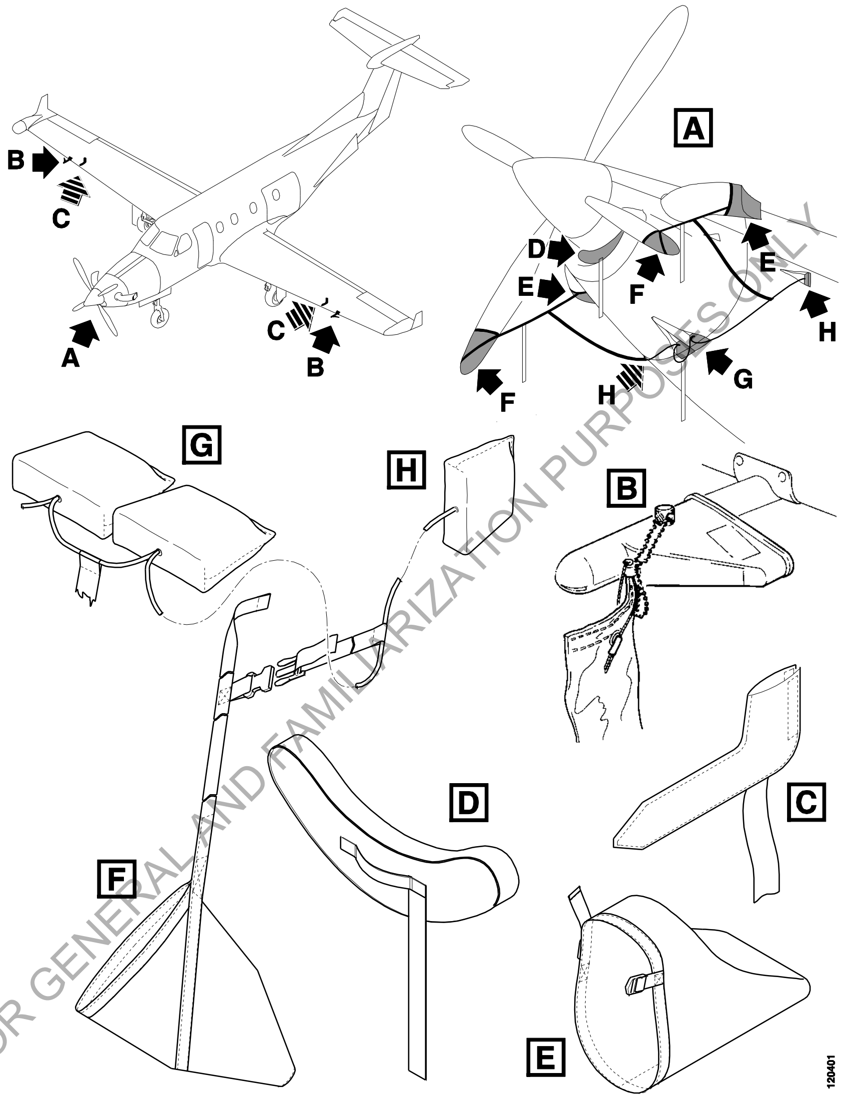

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Figure 8-3. Blanks and Covers (New Standard)

MOORING

The airplane should be moored for immovability, security and protection. The following procedures should be used for the proper mooring of the airplane (Ref. Figs. 8-2, 8-3 and 8-4):

Head the airplane into wind, where possible.

Retract the flaps.

Close the inertial separator.

Install cockpit control locks.

Chock the wheels.

Install the blanks and covers.

Install the propeller anchor.

Secure tiedown ropes to the wings at approximately 45° and tail tiedown points at a maximum of 25° angle to the ground.

Fit the propeller boots, and attach to the nose landing gear, to prevent engine wind milling.

CAUTION

USE BOWLINE KNOTS, SQUARE KNOTS OR LOCKED SLIP KNOTS. DO NOT USE PLAIN SLIP KNOTS.

CAUTION

MAKE SURE PROPELLER ANCHOR IS PROPERLY INSTALLED TO PREVENT POSSIBLE ENGINE DAMAGE DUE TO WINDMILLING WITH ZERO OIL PRESSURE.

NOTE

When using rope of a non-synthetic material, leave sufficient slack to avoid damage to the airplane should the ropes contract. Hemp ropes contract significantly in high moisture conditions.

NOTE

Additional preparations for high winds include using tiedown ropes from the nose landing gear.

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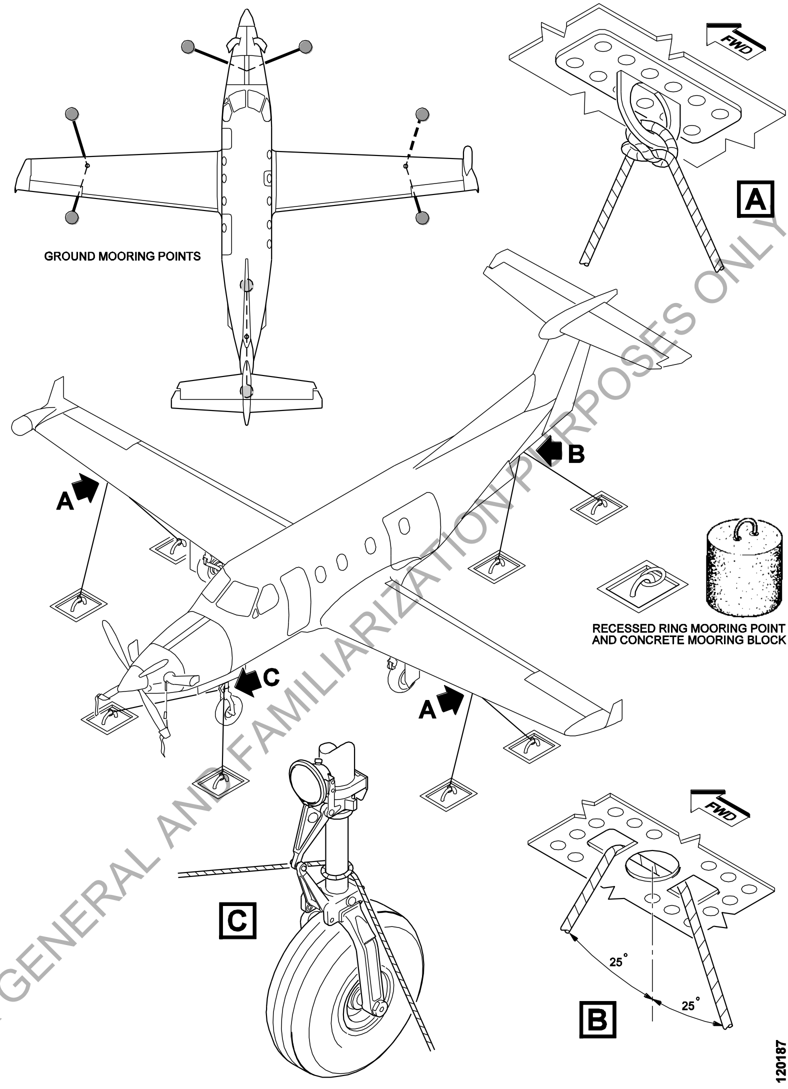

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Figure 8-4. Airplane Mooring

JACKING

SINGLE WHEEL JACKING

To assist in wheel and brake maintenance, both the two main wheels and the nose wheel can be jacked, independently, using a bottle jack and an adapter (Ref. Fig. 8-5). The adapters are shaped to accept the piston of a bottle jack. It is advisable that when jacking the nose wheel up, the tail support should be fitted in the rear main jacking pad as a precautionary measure.

Chock the other two tires before single wheel jacking to prevent airplane movement.

AIRPLANE JACKING

The airplane is equipped with two main jacking points and a combined tail jacking pad/mooring point (Ref. Fig. 8-6). The two main jacking points are located on the wing bottom surface just outboard of the fuselage and the tail jacking pad is located on the fuselage bottom surface just forward of the empennage.

Hydraulic jacks are used at the main jacking points to raise and lower the airplane. The tail jacking point is used to maintain the airplane in a level attitude during lifting. When the airplane is raised or lowered, the airplane tail is also progressively raised or lowered accordingly.

CAUTION

ATTACH BALLAST TO THE TAIL JACKING POINT TO PREVENT ANY POSSIBLE REAR FUSELAGE UPWARDS MOVEMENT, WHILE THE AIRPLANE IS ON JACKS.

Refer to the Aircraft Maintenance Manual Chap 7 for procedures on lifting and lowering the complete airplane and information concerning the amount of ballast to be attached to the tail jacking point.

NOTE

When jacking the airplane outdoors, use the tiedown for provisions for the wing and tail as described in Figure 8-4.

LEVELLING

Longitudinal and lateral levelling of the airplane is achieved by positioning a spirit level along or across one of the seat rails in the aft fuselage area. This task is normally done in conjunction with raising the airplane on the three main jacks for weighing, setting of landing lights and fuel system calibration.

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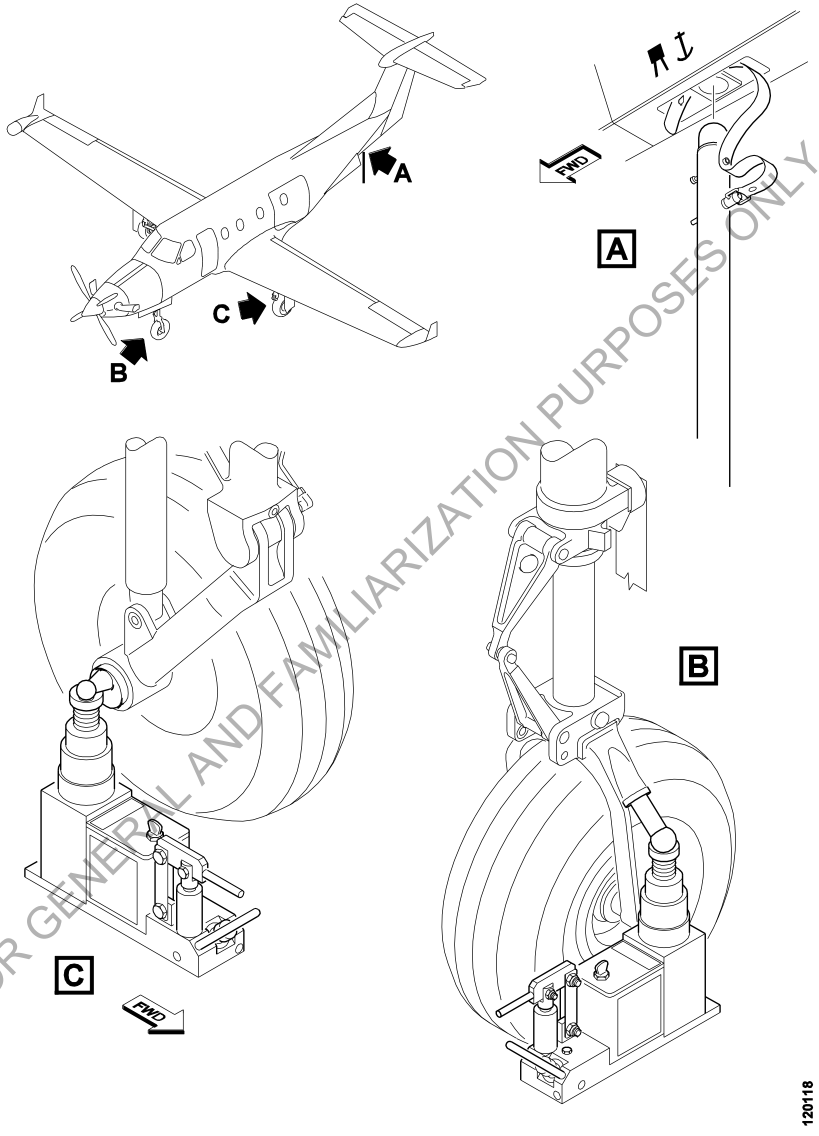

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Figure 8-5. Single Wheel Jacking

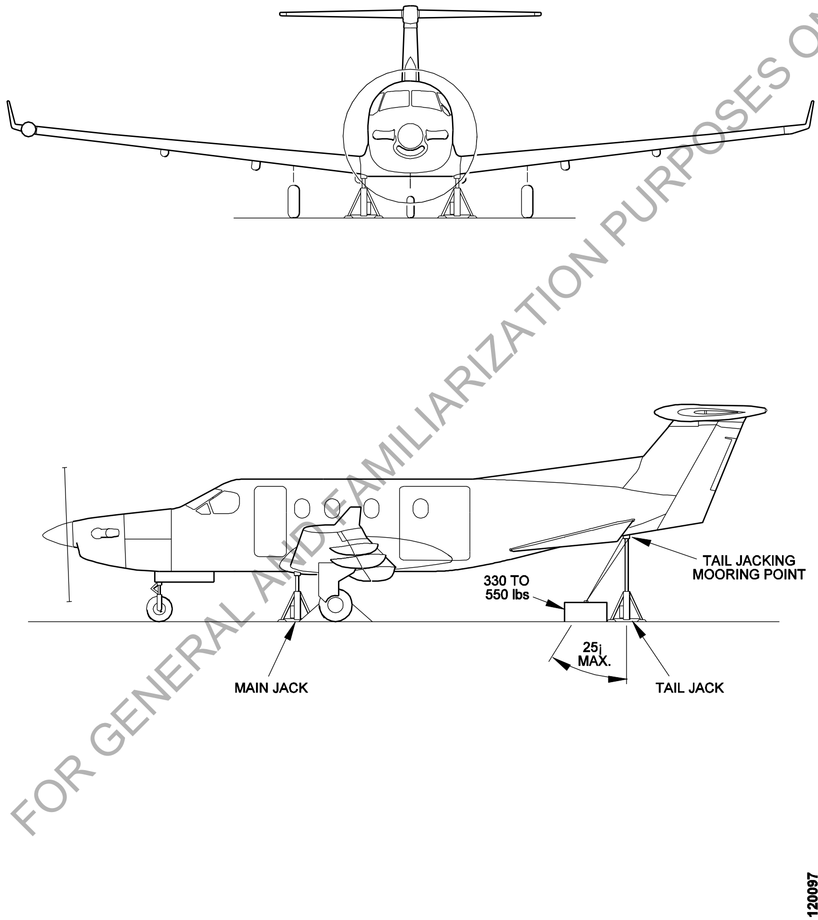

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Figure 8-6. Main Jacking Points

PASSENGER SEAT REMOVAL AND INSTALLATION

Pilots may remove and install passenger seats in accordance with the information given in Section 6 – Weight and Balance.

SERVICING

In addition to the inspection periods (detailed in Airplane Inspection) and the pre-flight inspections provided in Section 4 of this Handbook, complete servicing instructions are detailed in the AMM Chapter 12-00-00. The following sub-paragraphs give an overview.

BATTERY

Access to the battery (batteries - if second battery installed) is gained by opening the hinged panel (31AB) located on the rear fuselage bottom surface. The battery (batteries - if second battery installed) must be regularly maintained in accordance with the AMM. The operator must also make sure that the battery vents pipes which extrude from the fuselage, just aft of the hinged panel, are free of dirt and any sign of corrosion. In the event that corrosion or a blockage is found, a maintenance shop visit is required, as this situation - if left unchecked - could lead to explosive pressure being reached within the battery which could jeopardize airplane safety.

An an external power control unit is installed which will allow the battery (batteries - if second battery installed) to be charged on the ground. With an external power unit connected and operating set the EXT PWR and BAT (BAT 1 or 2 - if second battery installed) switches to ON to ground charge a battery. The battery must be vented during ground charging operations, refer to the AMM Chap 24 for instructions.

ENGINE OIL

Oils specified for use in the PT6A-67B engine oil system are listed in the Pratt and Whitney (P&WC) SB No. 14001, latest revision.

If operating conditions are such that the engine will be subjected to frequent cold soaking at an ambient temperature of -18°C or lower, the use of PWA521, Type II oil (5cs) (viscosity) oil (Type II) is recommended. The engine oil dipstick is marked MAX HOT, MAX COLD, ADD US QUARTS, 1,2,3,4,5,6. The term HOT refers to the engine condition when the engine has been shutdown. COLD refers to the engine condition when the engine has been shutdown for 12 hours or more. Ideally, the engine oil tank level should be checked and replenished, as required, within 10 minutes of shutdown.

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A visual sight gauge is provided to allow the oil level to be checked without removing the dipstick. If the oil level is below the green band on the sight gauge the oil level has to be checked with the dipstick.

CAUTION

THE GREEN MARKS ON THE FILLER SLEEVE AND THE DIPSTICK MUST BE ALIGNED WHEN THE DIPSTICK IS INSTALLED.

NOTE

The usual oil level is when the dipstick shows one to two quarts below maximum. Oil above this level can be vented overboard.

CAUTION

NEVER REPLENISH THE OIL IN A COLD ENGINE, AS THIS CAN RESULT IN OVERFILLING OF THE SYSTEM. START THE ENGINE AND RUN AT GROUND IDLE FOR 5 MINUTES, RECHECK THE OIL LEVEL BEFORE ADDING OIL TO THE SYSTEM.

MAKE SURE THAT THE OIL IS OF THE CORRECT TYPE. REFER TO P&WC SERVICE BULLETIN 14001.

TO PREVENT OIL DRIPPING FROM THE DIPSTICK AND CONTAMINATING EQUIPMENT, HOLD A PIECE OF ABSORBENT LINT-FREE MATERIAL UNDER THE DIPSTICK DURING REMOVAL.

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OIL REPLENISHMENT PROCEDURE

Open the left engine access panel and secure open with the struts.

Use a ladder for better access to the filler cap/dipstick.

Disconnect the electrical cannon plug.

Release the locking mechanism and remove the filler cap/dipstick assembly from the filler neck on the filler neck on the accessory gearbox.

Replenish the oil according to HOT/COLD condition of the engine.

Reinstall the filler cap/dipstick assembly and engage the locking mechanism.

Connect the electrical cannon plug.

Check that the green markings on the filler sleeve and dipstick are aligned.

Close the access panel.

COMPLETE OIL SYSTEM REPLENISHMENT

Refer to the AMM for the Complete Oil System Replenishment procedure.

WARNING

MAKE SURE THE FILLER CAP/DIPSTICK IS PROPERLY ENGAGED AND LOCKED AFTER REPLENISHMENT.

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FUEL SYSTEM

The left and right wing fuel tanks are gravity filled through openings on the upper surface. The tanks should always be kept full between flights to reduce explosive vapor space and condensation. Allowance should be made for expansion to minimize venting of fuel if ambient temperature is expected to rise markedly. Approved fuels conforming to P&WC specifications are to be used.

WARNING

CHECK FUEL SUPPLY VEHICLE FOR CORRECT FUEL GRADE AND TYPE. USE AN APPROVED WATER DETECTION KIT TO CHECK FOR WATER CONTAMINATION.

CAUTION

AS THE ANTI-ICING ADDITIVE IS NOT ALWAYS INDICATED ON THE FUELLING INSTALLATION PLACARD, CHECK WITH THE FUEL SUPPLIER TO MAKE SURE THE FUEL CONTAINS AN APPROVED ANTI-ICING ADDITIVE.

IF IT IS KNOWN THAT THE AIRCRAFT WILL FLY IN AMBIENT TEMPERATURES OF LESS THAN 0° C AND IF THE FUEL DOES NOT CONTAIN AN ANTI-ICING ADDITIVE, ONE MUST BE BLENDED WITH THE FUEL DURING FUELING.

NOTE

There are two fuel tank drain valves on the lower surface of each wing and one on the front left of the fuselage, aft of the nose wheel well.

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REFUELING PRECAUTIONS

During refueling/defueling operations, the following arrangements must be complied with:

Refuel and defuel only in a well ventilated area.

Do not allow open flame or smoking in the vicinity of the airplane while refueling.

Do not replenish the oxygen system during refueling or defueling.

Do not operate airplane electrical or radio equipment while refueling.

High frequency pulse transmissions in the vicinity of the airplane represents a fire hazard.

During all refueling/defueling operations, fire fighting equipment must be available.

FUELING PROCEDURE

Make sure the fuel supplied is checked for type, grade and freedom from contamination.

Make sure that the refueling vehicle is grounded.

Ground the vehicle to the airplane (attach the vehicle grounding lead to the nose landing gear).

Remove external power, if connected

Make sure all electrical power is OFF.

Connect the grounding cable from the nozzle to grounding point next to the fuel cap.

Open the wing fuel cap and insert the nozzle, after first making sure that the filler nozzle is clean.

Add fuel. Allow the fuel to settle when topping-off the fuel tank. Remove the fuel nozzle and disconnect the grounding cable. Secure the filler cap.

Repeat the procedure for the other wing tank.

Remove the vehicle grounding cable from the airplane.

Clean up any fuel spillage (Use a water hose if excessive).

On the overhead panel set the STBY BUS switch to ON

Check all system switches are OFF.

Set the Battery switch to ON and check the fuel quantity gauges for correct

indication.

Reset the fuel totalizer.

Set the Battery switch to OFF.

Set the STBY BUS switch to the OFF position.

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FUEL CONTAMINATION

Fuel contamination is usually the result of foreign material present in the fuel system. This foreign material can take many forms, i.e. water, sand, dirt, microbes or bacterial growth. In addition, additives that are not compatible with the fuel used can cause the fuel to become contaminated.

Jet fuel contains some dissolved, suspended water and is a fuel contamination concern. The quantity of water that can remain in solution will depend upon the temperature of the fuel. Dissolved water cannot be removed by a filter during a fuel service but will be released from suspension as the fuel temperature decreases, as during flight. These supercooled water droplets only need to contact solid contaminates or receive an impact shock to change into ice crystals. If a sufficient quantity of water drops out of suspension and changes to ice, a blocked filter may result.

Before the first flight of the day and after each refueling, use a clean container and drain at least one sample of fuel from each tank drain valve to determine if contaminants are present (and that the airplane has been fueled with the proper fuel). If contamination is detected, drain all fuel drains 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 flushed. Do not fly the airplane with contaminated or unapproved fuel.

In addition, operators who are not acquainted with a particular airfield should be assured 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 walls of partially filled tanks.

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FUEL ANTI-ICE ADDITIVE

Anti-icing additive must be used for all flight operations in ambient temperatures below 0°C.

WARNING

OPERATING IN AMBIENT TEMPERATURES LESS THAN 0°C WITHOUT FOLLOWING THE PROCEDURE TO ADD ANTI-ICING ADDITIVES MAY LEAD TO ICE IN THE FUEL SYSTEM, WHICH MAY EVENTUALLY BLOCK DELIVERY LINES AND COMPONENTS OF THE FUEL SYSTEM, INCLUDING THE FUEL FILTER, SUBSEQUENTLY RESTRICTING OR STOPPING THE FLOW OF FUEL TO THE ENGINE.

Refer to Section 2 – Limitations – for additive types and concentration levels.

Blend the additive in accordance with the following procedure:

Calculate the quantity of anti-icing additive required based on the quantity of fuel to be added. Refer to the CAUTION below.

Clip the tube end to the fuel nozzle.

Pull trigger firmly to ensure full flow, then lock into place.

Start flow of additive when fueling begins. Refueling rates should be between 30 and 60 gallons per minute.

Do a water drain check before the first flight of the day.

WARNING

THE FUEL SYSTEM ANTI-ICING ADDITIVES CONTAIN ETHYLENE GLYCOL MONOETHYL ETHER WHICH IS HIGHLY TOXIC. THESE PRODUCTS MUST BE HANDLED WITH EXTREME CARE. AVOID ALL DIRECT CONTACT WITH SKIN AND CLOTHING. ANY CLOTHING ACCIDENTLY CONTAMINATED BY SPLASHING SHOULD BE PROMPTLY REMOVED AND THE SKIN WASHED WITH SOAP AND WATER. PREVENT CONTACT WITH EYES AND AVOID INHALATION OF VAPORS. IF CONTACT IS MADE WITH THE EYES THEY SHOULD BE FLUSHED WITH WATER FOR 15 MINUTES. CONSULT A PHYSICIAN AS RAPIDLY AS POSSIBLE AFTER ALL CONTACT CASES.

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CAUTION

THE ADDITIVE CONCENTRATION BY VOLUME SHALL BE A MINIMUM OF 0.06% AND A MAXIMUM OF 0.15%.

THE CORRECT MIX OF ANTI-ICING ADDITIVE IS IMPORTANT. CONCENTRATIONS OF MORE THAN 0.15% BY VOLUME WILL CAUSE DAMAGE TO THE PROTECTIVE PRIMER AND SEALANTS OF THE FUEL TANKS AND TO THE SEALS IN THE FUEL SYSTEM AND ENGINE COMPONENTS. CONCENTRATIONS OF LOWER THAN 0.06 VOL % MAY NOT BE ENOUGH TO INHIBIT ICE FORMATION.

MAKE SURE THAT THE ADDITIVE IS DIRECTED INTO THE FUEL STREAM. START ADDITIVE FLOW AFTER THE FUEL FLOW STARTS AND STOP THE ADDITIVE FLOW BEFORE THE FUEL FLOW STOPS. DO NOT ALLOW CONCENTRATED ADDITIVE TO CONTACT THE INTERIOR OF THE FUEL TANKS OR EXTERIOR PAINTED SURFACES.

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LANDING GEAR - TIRES

For maximum service, keep tires inflated to the proper pressures. All wheels and tires are balanced before original installation, and the relationship to tire and wheel should be maintained upon reinstallation. Unbalanced wheels can cause extreme vibration in the landing gear; therefore, in the installation of new components, it may be necessary to re-balance the wheels with tires mounted. When checking the tire pressures, examine the tires for wear, cuts, bruises and slippage.

Nose Wheel Tire

Wheel type - BFG PN3-1501
Tire size - 17.5 x 6.25-6, 8PR, TL (160 mph)
Tire Pressure - 60 +3 -0 psi (4.1 +0.2 -0 bar)
Max. castor rotation - +/- 60° free (+/- 12° Nose Wheel Steering)

Main Wheel Tires

Wheel type - BFG PN3-1543 or 1543-1 (Post SB 32-013)
Tire size - 8.50-10, 10PR, TL (160 mph)
Tire pressure - 60 + 3 - 0 psi (4.1 + 0.2 - 0 bar)

Refer to the AMM for the alternative types of tires that can be installed.

LANDING GEAR - BRAKES

The fluid level should be checked periodically or at a scheduled maintenance event and replenished as necessary. Each brake assembly incorporates a brake lining wear indicator. As the brake pads wear, the pin will be pulled into the piston housing. When the system is pressurized and the pin is flush with the piston housing, the brake linings must be overhauled.

Refer to the AMM for complete information on the type of hydraulic fluid, servicing the fluid level and brake inspection and replacement.

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HYDRAULIC SYSTEM

With the cargo door open, the hydraulic fluid level can be checked on the visual indicator installed on the hydraulic pressure tank in the wing root.

Servicing of the hydraulic system should only be performed by approved personnel with the correct maintenance equipment in accordance with procedures in the AMM. It is normally not required between annual inspections.

LUBRICATION POINTS

Proper lubrication is essential for trouble-free operation of mechanical components. Lubricants and dispensing equipment must be kept clean. Use only one lubricant in a grease gun or oil can. After lubrication, clean off all excessive grease or oil to prevent dust and dirt build-up.

The frequency of application may be increased for a particular type of operation or if excessive wear is experienced. For lubricating instructions, locations and lubricants refer to the AMM, Chapter 12.

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OXYGEN SYSTEM

The standard oxygen system replenishment is carried out at a hinged service panel (11BR) on the right side of the fuselage, forward of the wing leading edge. The service panel is fitted with an oxygen replenishment valve and a system pressure gage. The gage is marked from 0 to 2000 psi, with a red zone from 1850 to 2000 psi. A charge pressure/temperature chart is installed on the inside of the service panel.

The larger capacity oxygen system replenishment is carried out at a hinged service door (31AB) on the bottom of the fuselage, rear of the wing trailing edge. An oxygen service panel is installed inside of the rear fuselage on the forward frame. The service panel is fitted with an oxygen replenishment valve and a system pressure gage. The gage is marked from 0 to 2000 psi, with a red zone from 1850 to 2000 psi. A charge pressure/temperature chart is also installed on the service panel.

Replenishment Procedure

WARNING

MAKE SURE THAT THE AIRPLANE IS FITTED WITH A GROUNDING CABLE AND IS PROPERLY GROUNDED. THE OXYGEN CART MUST BE ELECTRICALLY BONDED TO THE AIRPLANE.

DO NOT OPERATE THE AIRPLANE ELECTRICAL SWITCHES OR CONNECT/DISCONNECT GROUND POWER DURING OXYGEN SYSTEM REPLENISHMENT.

DO NOT OPERATE THE OXYGEN SYSTEM DURING REFUELING/DEFUELING OR ANY OTHER SERVICING PROCEDURE THAT COULD CAUSE IGNITION.

INTRODUCTION OF PETROLEUM BASED SUBSTANCES SUCH AS GREASE OR OIL TO OXYGEN CREATES A SERIOUS FIRE HAZARD. USE NO OIL OR GREASE WITH THE OXYGEN REPLENISHMENT EQUIPMENT.

ALWAYS OPEN SHUT-OFF VALVE SLOWLY TO AVOID GENERATING HEAT AND REPLENISH THE SYSTEM SLOWLY (MINIMUM TIME 6 MINUTES).

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CAUTION

REPLENISHMENT OF THE OXYGEN SYSTEM SHOULD ONLY BE CARRIED OUT BY QUALIFIED PERSONNEL.

Obtain the outside air temperature. (OAT). A fully charged cylinder has a pressure of 1841 psi at a temperature of 20°C. Filling pressures will vary depending upon the ambient temperature in the service bay and the temperature rise due to the compression of the oxygen. If the airplane is or has been parked outside in the sun, the temperature inside the fuselage will be appreciably higher than ambient. Figure 8-7 lists the required charging pressures for a range of temperatures.

Open the oxygen service panel 11BR on aircraft with the standard oxygen system.
Open the service door 31AB on aircraft with the larger capacity oxygen system.

Hold the thermometer close to the oxygen cylinder.

Make sure the thermometer indication is constant. Make a note of the indication.

Refer to the temperature/pressure graph for the correct oxygen cylinder pressure.

If the pressure on the service panel gage is low, fill the oxygen cylinder.

Make sure the area around the service panel charging valve is clean. Remove the cap from the charging valve.

Make sure the oxygen supply hose is clean and connect it to the charging valve.

Slowly pressurize the oxygen cylinder to the correct pressure.

Close the oxygen supply and let the cylinder temperature become stable.

Monitor the oxygen pressure on the gage and fill to the correct pressure if necessary.

Release the pressure in the oxygen supply hose and disconnect from the charging valve.

Install the cap on the charging valve. Make sure the work area is clear of tools and other items.

Close the service panel 11BR or the service door 31AB.

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Temp (°C)	Press (psig)
85	2419
80	2375
75	2331
70	2287
65	2242
60	2198
55	2153
50	2108
45	2063
40	2018
35	1974
30	1930
25	1885
21	1850
20	1841
15	1798
10	1755
5	1712
0	1669
-5	1628
-10	1586
-15	1545
-20	1505
-25	1466
-30	1426
-35	1388
-40	1351
-45	1313
-50	1275
-55	1239

Figure 8-7. Oxygen Charging Pressures

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CLEANING AND CARE

WINDSHIELD/SIDE WINDOWS

CAUTION

REMOVE WRIST-WATCHES, RINGS AND OTHER JEWELRY FROM HANDS AND WRISTS BEFORE CLEANING THE SIDE WINDOWS.

WINDSHIELDS AND WINDOWS ARE EASILY DAMAGED BY IMPROPER HANDLING AND CLEANING TECHNIQUES.

DO NOT USE SOLVENTS, FUELS, DETERGENTS, ALCOHOL, ACETONE OR THINNERS TO CLEAN THE SIDE WINDOWS.

TRANSPARENT PLASTICS LACK THE SURFACE HARDNESS OF GLASS. EXERCISE CAUTION WHEN CLEANING ALL THE SIDE WINDOWS TO AVOID SCRATCHING OR SCORING TRANSPARENCIES.

The following procedures provide information regarding cleaning and servicing of windshields and windows. Improper cleaning, or use of unapproved cleaning agents, can cause damage to these surfaces. As a preventive measure, do not park the airplane where it might be subjected to direct contact with or vapor 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 park airplane near a paint-spray shop.

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Windshield (Glass)

Place the airplane inside a hanger or in a shaded area and allow to cool from the heat of the sun's rays.

Using clean (preferably running) water, flood the surface. Use bare clean hands, with no jewelry, to feel and dislodge any dirt or abrasive materials.

Using a mild soap or detergent (such as dish washing liquid) in water, wash the surface. Again, use only the bare hand to provide rubbing force. (A clean lint-free cloth may be used to transfer the soap solution to the surface, but extreme care must be excised to prevent scratching the surface.)

Rinse the surface thoroughly with clean fresh water and dry with a clean cloth or damp chamois leather.

Side Windows (Acrylic)

Flush with clean water to remove loose dust etc.

Wash the side windows using a soft sponge, warm water and soft soap solution.

Rinse with clean water and dry with a damp chamois leather.

Use an appropriate transparency cleaner to remove any grease, smears, etc., still adhering to the side windows.

NOTE

Rubbing transparencies with a dry cloth will cause scratches and the build-up of an electrostatic charge which attracts dust. Where an electrostatic charge is present, gently pat the area with a damp chamois leather to remove the charge and any accumulated dust.

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EXTERIOR PAINT SURFACES

The airplane should be washed with a mild soap and water solution. Harsh abrasives or alkaline soaps or detergents could make scratches on painted or plastic surfaces or cause corrosion of metal. Cover areas where cleaning solutions could cause damage.

Exterior Recommended Cleaning Agents:

Mild soap or approved detergent.

Jet MULSO 2 (TURCO product) or equivalent.

To wash the airplane, use the following procedure:

NOTE

To prevent water from entering the pitot/static systems, the pitot tube openings and the static ports should be blanked off. Exposed flight control bearings should be protected prior to washing.

Flush away loose dirt with water.

Apply cleaning solution with a soft cloth, a sponge or a soft bristle brush. Do not allow the solution to dry before washing off. To remove exhaust stains, allow the solution to remain on the surface longer.

To remove stubborn oil and grease, use a cloth dampened with naphtha.

Rinse all surfaces thoroughly.

Polish and seal the surfaces with a wax polish.

NOTE

Any good automotive wax may be used to preserve the painted surfaces. Soft lint-free cleaning cloths should be used to prevent scratches when cleaning or polishing. A heavier coating of wax on the leading surfaces will reduce the abrasion problems in these areas, but see also paragraph "DEICING BOOT CARE".

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DEICING BOOT CARE

The wings, T-tail, and propeller deicing boots have a special electrical-conductive coating to bleed off static charges which cause radio interference and may perforate the boots. Fuelling and other servicing practices should be done carefully to avoid damaging the conductive coating or tearing of the boots.

To prolong the life of the deicing boots, they should be washed, with a mild soap and water solution, rinsed with clean water, and serviced on a regular basis in accordance with the instructions in the AMM. Keep the boots clean and free from oil, grease and other solvents which cause neoprene to swell and deteriorate.

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PROPELLER CARE

Propeller care consists of checking the propeller area for leaks and damage, this also includes any damage to the propeller hub and deicing boots. Inspect the visible hub parts daily for surface damage. Look for evidence of grease and or oil leaks. Inspect the propeller blades, daily, for scratches and gouges in the leading or trailing edge, or on the blade face and camber surfaces.

NOTE

Any scratch or gouge, in a metal blade, must be repaired before next flight. Otherwise, fatigue cracks may start, and the blade may fail in flight. Scratches and gouges in the outer 18 in (457 mm) of the blade propeller diameter are especially critical because this is the area of highest vibratory stress.

Should any damage, scratches or gouges be found, obtain a qualified opinion prior to flight.

LANDING GEAR CARE

Before cleaning the landing gear, place a plastic cover or similar material over the wheel and brake assembly.

Place a catch-pan under the gear to catch the waste.

Spray or brush the gear area with solvent or a mixture of solvent and degreaser, as desired. Where heavy grease and dirt deposits have collected, it may be necessary to brush the areas sprayed, in order to clean them.

Allow the solvent to remain on the gear from five to ten minutes. Then rinse the gear with additional solvent and allow to dry. If necessary help the drying process with a gentle blast of compressed air.

Remove the plastic cover and the catch-pan from the wheel.

Lubricate the gear in accordance with the Lubrication Chart in the AMM.

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ENGINE CARE

The engine exterior and compartment may be cleaned, using a suitable solvent. Most efficient cleaning is done using a spry-type cleaner. Before spry cleaning, make sure the protection is afforded for components which might be adversely affected by the solvent. Refer to the AMM for proper lubrication of controls and components after engine cleaning.

INTERIOR CARE

The cockpit area should be frequently vacuum-cleaned. Instrument and side panels may be cleaned with a chamois leather made moist with clean water.

CAUTION

DO NOT CLEAN FABRIC SURFACES WITH A SOAP SOLUTION OR WATER. THIS CAN INHIBIT THE PROPERTIES OF THE FIREBLOCK TREATMENT APPLIED TO THE FABRIC.

Seat harnesses that have been soiled may be cleaned by gently scrubbing with a soft brush, water and an approved soap. Alternatively, an officially approved detergent emulsion may be used when diluted in the proper proportions. Seats may be cleaned as per manufacturers-recommended instructions.

Dust and loose dirt should be picked up regularly with a vacuum-cleaner. Stained carpets should be cleaned with a non-flammable dry cleaning carpet shampoo which should be kept as dry as possible and again vacuumed.

Blot up any spilled liquid on the seats promptly with cleansing tissue or rags. Do not 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 any sticky materials with a dull knife, then spot-clean the area, following the manufacturer's instructions.

Headliners, side panels and paint work should be cleaned with a lint-free cloth dampened with a mild soap and water mixture. Oil and grease can be removed with a sponge and common household detergent and then wiped dry with a clean rag.

Oxygen masks assemblies should be cleaned with a suitable oil-free disinfectant. and then wipe dirt or foreign particles from the unit with a clean dry lint-free cloth.

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EXTENDED STORAGE

Prolonged out-of-service care applies to all airplane 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, reference must be made to the AMM for the proper storage procedures, which are all time related and classified as follows:

Stage 1	Up to 7 days.
Stage 2	7 to 30 days.
Stage 3	30 to 90 days.
Stage 4	More than 90 days.

Stages 1 and 2 are considered as flyable storage status.

No special service care is required for Stage 1 other than the airplane is moored and properly grounded, all covers and blanks are fitted, and that the fuel tanks are full. 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. Where possible, cover the windshield with a light cotton dust cover.

Stage 2 storage, begins after Stage 1 (7 days) has elapsed, and includes placing desiccant bags and humidity indicators in the engine exhaust stubs and behind the exhaust stub covers. A suitable means must be provided to view the humidity indicators with the stub covers installed. 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%.

At 7 day intervals:

Check the tire pressures.

Drain any water from the fuel system.

Check the humidity indicator, in the engine exhaust stubs, and replace the desiccant bags, if the humidity is in excess of 40%.

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At 14 day intervals:

Move the airplane to prevent flat areas on the tires. Mark the tires with tape to ensure the tires are placed approximately 90 degrees from their previous position.

Stage 3 storage should be a planned situation, when the time difference can be foreseen but following on from the Stage 2, the engine fuel system would need to be preserved in accordance with the P&WC EMM.

At 30 day intervals:

Drain all fuel drain points and check for water accumulation. Prolonged storage of the airplane will result in a water build-up in the fuel which "leeches out" the EGME fuel additive. An indication of this is when an excessive amount of water accumulates at the fuel drain points. The concentration can be checked using a differential refractometer, but, it is imperative that the technical manual for differential refractometer be followed explicitly when checking the additive concentration.

Stage 4 is a definite planned exercise, when deterioration of the airplane must be considered. An engine inactive for over 90 days in the airframe, or removed for long term storage, must in addition to the Stage 3 procedure, have the engine oil drained and filled with preserving oil in accordance with the P&WC EMM. Remove the battery and regularly check its state of charge.

To return the airplane to service, refer to the AMM for specific instructions.

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CORROSION INSPECTION

If a flight to a Service Center imposes an operational burden, the following bi-weekly corrosion inspection may be carried out by the operator. Pilots must be trained by qualified maintenance personnel to identify corrosion and to understand the critical inspection areas. The training must be given to the corrosion inspection procedures as detailed in the AMM.

The inspection must be recorded in the aircrafts flight log book.

If corrosion is evident or suspected, you must contact a Pilatus service center for further instructions.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

GEOGRAPHICAL LOCATION AND ENVIRONMENT

The geographical location and environmental conditions can cause damage to the aircraft exposed to the conditions that follow:

- Marine atmospheres
- Moisture
- Acid rain
- Tropical temperatures
- Industrial chemicals
- Soil and dust in the atmosphere

Moisture is in the air as a gas, water vapor or as finely divided droplets of liquid. These forms of moisture contain chemicals such as chlorides, sulfates and nitrates. When the moisture evaporates the chemicals remain on the surfaces. The moisture and the chemicals can be trapped in joints. A capillary action can put moisture in to bond lines and cause corrosion.

Salt particles, when dissolved in water, form strong electrolytes. Sea winds carry the dissolved salt, on to the land and can make the coastal environments very corrosive.

The industrial chemicals that follow can cause corrosion:

- Carbon
- Nitrates
- Ozone
- Sulfur dioxide
- Sulfates

These industrial chemicals cause damage to non-metallic materials and can cause severe corrosion of many metals.

Warm, moist air, usually in tropical climates can make the formation of corrosion a very quick process. Cold dry air, usually in cold climates makes the formation of corrosion a slower process.

Islands and areas near the sea are in severe corrosion zones.

CORROSION INSPECTION

Aircraft based/operated in severe climatic areas must be inspected every 14 days as follows:

- Wash the exterior surface of the aircraft
- Examine the aircraft skin, specially around the seams and fasteners
- Make sure all drain holes are clear
- Examine the landing gear compartments, specially the landing gear, wheels, tubing clamps and hydraulic actuators
- Examine the flight control surfaces, specially the bearings
- Examine all doors, specially the locks, handles and hinge.

Based on inspection results, the inspection interval can be increased to every 30 days. At this interval it is recommended that the aircraft is washed on a weekly basis.

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SECTION 9

SUPPLEMENTS

TABLE OF CONTENTS

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Mark X If INSTALLED	Supp No.	Subject	Report No.
	20	Not applicable	
	21	Not applicable	
	22	Emergency Power System	01973-001/9-22
	23	Multifunction Display (KMD 850)	01973-001/9-23
	24	Enhanced Ground Proximity Warning System (EGPWS)	01973-001/9-24
	25	PC-12 (4100 kg MTOW variant)	02211/9-25
	26	Multi Hazard Awareness Processor KMH 820 TAWS/TAS	02211/9-26
	27	BF Goodrich WX-500 Stormscope System	02211/9-27
	28	DC-DC Converter	02211/9-28
	29	Pilot's relief Tube (No longer available)	02211/9-29
	30	Steep Approach landings	02211/9-30
	31	Garmin GTX 330D Mode S Air Traffic Control Transponder System	02211/9-31
	32	PC-12 and PC-12/45 Registered in the Commonwealth of Independent States (CIS)	02211/9-32
	33	PC-12/47 (4740 kg MTOW variant)	02211/9-33
	34	PC-12, PC-12/45 and PC-12/47 Registered in the Republic of Argentina	02211/9-34
	35	PC-12, PC-12/45 and PC-12/47 Registered in the Republic of Chile	02211/9-35
	-	German Placards	02474

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GENERAL

This section provides information in the form of supplements for the operation of the airplane when equipped with optional equipment or systems which are not installed on the standard airplane. All of the supplements are FOCA Approved and those that are applicable are part of this Handbook.

The information contained in each supplement applies only when the specific equipment or system is installed in the airplane.

SUPPLEMENTS LIST OF EFFECTIVE PAGES

Report. No.	Page No.	Rev No.
01973-001/9-3	9-03-1 thru 9-03-4	1
01973-001/9-4	See Supplement	3
01973-001/9-5	9-05-1 thru 9-05-4	0
01973-001/9-6	9-06-1 thru 9-06-6	1
01973-001/9-7	9-07-1 thru 9-07-8	1
01973-001/9-9	9-09-1 thru 9-09-4	1
01973-001/9-10	See Supplement	2
01973-001/9-11	See Supplement	8
01973-001/9-13	9-13-1 thru 9-13-3	0
01973-001/9-14	See Supplement	1
01973-001/9-15	9-15-1 thru 9-15-4	0
01973-001/9-16	9-16-1 thru 9-16-4	1
01973-001/9-17	9-17-1 thru 9-17-5	0
01973-001/9-18	See Supplement	4
01973-001/9-19	9-19-1 thru 9-19-21	0
01973-001/9-22	9-22-1 thru 9-22-4	1
01973-001/9-23	9-23-1 thru 9-23-6	1
01973-001/9-24	9-24-1 thru 9-24-8	0
02211/9-25	See Supplement	4
02211/9-26	9-26-1 thru 9-26-15	0
02211/9-27	9-27-1 thru 9-27-4	0
02211/9-28	9-28-1 thru 9-28-3	0
02211/9-29	9-29-1 thru 9-29-3	0
02211/9-30	9-30-1 and 9-30-2	0
02211/9-31	9-31-1 thru 9-31-4	1
02211/9-32	9-32-1 thru 9-32-6	1
02211/9-33	See Supplement	5
02211/9-34	See Supplement	2
02211/9-35	See Supplement	2
02474	See Supplement	0

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PILOT'S OPERATING HANDBOOK AND FOCA APPROVED AIRPLANE FLIGHT MANUAL

SUPPLEMENT NO. 3 FOR BENDIX / KING KHF 950 COMMUNICATIONS SYSTEM

This supplement must be attached to the Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual when the Bendix/King KHF 950 Communications System is installed in accordance with Pilatus Drawings. The information contained herein supplements or supersedes the information in the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual only in those areas listed. For limitations, procedures and performance information not contained in this supplement, consult the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual.

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Approved by:

Federal Office for Civil Aviation (FOCA) of Switzerland
Section for Type Certification

Office fédéral de l'aviation civile - Bundesamt für Zivilluftfahrt

Date of Approval:

4. NOV. 2005

SECTION 1 - GENERAL

This supplement supplies the information necessary for the operation of the airplane when the BENDIX/KING KHF 950 Communications System is installed in accordance with FOCA Approved Pilatus drawings.

SECTION 2 - LIMITATIONS

The KHF 950 Pilot's Guide (KPN 006-08343-0002 or 006-18038-0000 or laterr revisionss) must be immediately available to the pilot whenever this HF Communication System is used.

CAUTION

Do not operate the HF Communications System when ground power is connected.

SECTION 3 - EMERGENCY PROCEDURES

No changes to the Emergency Procedures described in the basic Pilot's Operating handbook.

SECTION 4 - NORMAL PROCEDURES

Preflight and normal operating procedures are presented in the latest revision of the Bendix/King KHF 950 Pilot's Guide.

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SECTION 5 - PERFORMANCE

No change.

SECTION 6 - WEIGHT AND BALANCE

Factory installed optional equipment is included in the licensed weight and balance data in Section 6 of the basic Pilot's Operating Handbook and FOCA approved Airplane Flight Manual.

SECTION 7 - DESCRIPTION

The High Frequency (HF) communication system gives long-distance voice communication between aircraft and a ground station. The system consists of a control unit, a receiver, a coupler and an antenna.

NOTE

Detailed operating instructions or technical information for the Bendix/King KHF 950 Communications System may be obtained by consulting the latest available version of the Pilot's Guide, KPN 006-08343-0002 or 006-18038-0000 or a later available revision.

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PILOT'S OPERATING HANDBOOK
AND
FOCA APPROVED AIRPLANE FLIGHT MANUAL

SUPPLEMENT NO. 4
FOR
BENDIX / KING KLN 90B GPS NAVIGATION SYSTEM

This supplement must be attached to the Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual when the Bendix/King KLN 90B Global Positioning System (GPS) is installed in accordance with Pilatus Drawings. The information contained herein supplements or supersedes the information in the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual only in those areas listed. For limitations, procedures and performance information not contained in this supplement, consult the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Approved by: J. Pitsch

Federal Office for Civil Aviation (FOCA) of Switzerland
Section for Type Certification

Date of Approval:

2 8. April 1998

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LIST OF EFFECTIVE PAGES

Page No	Rev No.
9-04-1 Title	2
9-04-2 thru 9-04-18	3

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LOG OF REVISIONS

Revision Number and Date	Page Number	Description
3 Sep 09, 2016	9-04-2 thru 9-04-6	Introduction of List of Effective Pages and Log of Revisions.
	9-04-9	Updated required software versions for B-RNAV to include later versions.
		Supplement revised to bring the layout up to the latest standard (editorial change).
		This revision 3 of AFM Supplement 4 is approved under the Authority of DOA ref. EASA.21J.357
		Date of Approval: 09 September 2016

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SECTION 1 - GENERAL

This supplement supplies the information necessary for the operation of the airplane when the BENDIX/KING KLN 90B GPS Navigation System is installed in accordance with Modification Approval Sheet PIL 12/34/009.

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SECTION 2 - LIMITATIONS

A. The KLN 90B GPS Pilot's Guide, P/N 006-08773-0000, dated December, 1994 (or later applicable revision) must be immediately available to the flight crew whenever navigation is predicated on the use of the system. The Operational Revision Status (ORS) of the Pilot's Guide must match the ORS level annunciated on the Self-Test page.

B. IFR Navigation is restricted as follows:

(1) The system must utilize ORS level 20 or later approved revision.

(2) The data on the self-test page must be verified prior to use. Verify valid altitude data is available to the KLN 90B prior to flight.

(3) IFR en route and terminal navigation is prohibited unless the pilot verifies the currency of the data base or verifies each selected waypoint for accuracy by reference to current approved data.

(4) Instrument approaches must be accomplished in accordance with approved instrument approach procedures that are retrieved from the KLN 90B data base. The KLN 90B data base must incorporate the current update cycle.

(a) Instrument approaches must be conducted in the approach mode and RAIM must be available at the Final Approach Fix.

(b) APR ACT (approach active) mode must be annunciated at the Final Approach Fix.

(c) Accomplishment of ILS, LOC, LOC-BC and LDA approaches are not authorized.

(d) When an alternate airport is required by the applicable operating rules, it must be served by an approach based on other than GPS navigation.

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(e) The KLN 90B can only be used for approach guidance if the reference co-ordinate datum system for the instrument approach is WGS-84 or NAD-83. (All approaches in the KLN 90B data base use the WGS-84 or the NAD-83 geodetic datum.)

(5) The use of the KLN 90B to perform Basic RNAV (B-RNAV) operations in the designated European airspace is limited as follows:

(a) The system must have the GPS XPRESS software update with the following display on the STA 3 page:

HOST 01515-0046 (or later version)
RCVR 01621-0001 (or later version)

(b) The KLN 90B data base must incorporate the current update cycle.

(c) Given a GPS constellation of 23 satellites or less (22 or less when the KLN 90B incorporates automatic pressure altitude aiding), the availability of RAIM must be confirmed for the intended flight (route and time). Dispatch for B-RNAV must not be made in the event of predicted continuous loss of RAIM of more than 5 minutes for any part of the intended flight.

(d) Radar coverage must be available for the route to be flown.

(6) Traditional approved navigation equipment (e.g. VOR, DME, ADF) appropriate to the route of flight must be installed and operational in accordance with the applicable operational rules.

SECTION 3 - EMERGENCY PROCEDURES

ABNORMAL PROCEDURES

A. If the KLN 90B GPS information is not available or invalid, utilize traditional operational navigation equipment as required.

B. If the alarm limit is exceeded during B-RNAV operation, revert to an alternative means of navigation.

C. If a “RAIM NOT AVAILABLE” message is displayed while conducting an instrument approach, terminate the approach. Execute a missed approach if required.

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D. If a “RAIM NOT AVAILABLE” message is displayed during B-RNAV operation, navigation may continue using KLN 90B provided cross-check with VOR, DME and NDB information shows adequate airplane positioning performance (RNP5). Otherwise, revert to an alternative means of navigation

E. Refer to the KLN 90B Pilot’s Guide, Appendices B and C, for appropriate pilot actions to be accomplished in response to annunciated messages.

SECTION 4 - NORMAL PROCEDURES

WARNING

FAMILIARITY WITH THE EN ROUTE OPERATION OF THE KLN 90B DOES NOT CONSTITUTE PROFICIENCY IN APPROACH OPERATIONS. DO NOT ATTEMPT APPROACH OPERATIONS IN IMC PRIOR TO ATTAINING PROFICIENCY IN THE USE OF THE KLN 90B.

OPERATION

(A) Normal operating procedures are outlined in the KLN 90B GPS Pilot's Guide, P/N 006-08773-0000, dated December, 1994, (or later applicable revision).

(B) During B-RNAV operation, traditional navigation equipment (e.g. VOR, DME and ADF) should be selected to available ground based aids so as to allow immediate cross-checking or reversion in the event of loss of GPS navigation capability.

(C) Before joining and during operation on an RNAV route, correct operation of the RNAV system shall be established. This includes that:

- The routing is in accordance with the clearance, and

- The navigation performance accuracy meets RNP5.

SYSTEM ANNUNCIATORS/SWITCHES/CONTROLS

(A) GPS Status **(MSG)** annunciation - The message **(MSG)** annunciation on the EFIS display, will flash to alert the pilot of a situation that requires attention. Press the MSG button on the KLN 90B GPS to view the message. (Appendix B of the KLN 90B Pilot's Guide contains a list of all of the message page messages and their meanings).

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(B) The waypoint **(WPT)** annunciation on the EFIS display, will be activated prior to reaching a waypoint in the active flight plan. The KLN 90B GPS will provide navigation along a curved path segment to ensure a smooth transition between two adjacent legs in the flight plan. This feature is called turn anticipation. Approximately 20 seconds prior to the beginning of turn anticipation the WPT annunciator will flash, going solid upon initialization of the turn, and extinguishing upon turn completion.

WARNING

TURN ANTICIPATION IS AUTOMATICALLY DISABLED FOR FAF WAYPOINTS AND THOSE USED EXCLUSIVELY IN SID/STARS WHERE OVER-FLIGHT IS REQUIRED. FOR WAYPOINTS SHARED BETWEEN SID/STARS AND PUBLISHED EN ROUTE SEGMENTS (REQUIRING OVER-FLIGHT IN THE SID/STARS), PROPER SELECTION ON THE PRESENTED WAYPOINT PAGE IS NECESSARY TO PROVIDE ADEQUATE ROUTE PROTECTION ON THE SID/STARS.

(C) GPS omni bearing or leg (**CRS OBS / LEG**) course switch/annunciator - Used to select the basic modes of KLN 90B operation, either:

1) single waypoint with omni - bearing course (OBS) selection through that waypoint (like a VOR)

or

2) automatic leg sequencing (LEG) between waypoints.

NOTE

Either **LEG** or **OBS** will illuminate during system self-test depending upon switch position.

(D) EFIS course control knob - Provides analog course input to the KLN 90B in OBS when the GPS source is selected on the EFIS. When other than GPS navigation sources are selected, GPS course selection in OBS mode is digital through the use of the controls and display at the KLN 90B.

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(E) GPS approach (**APR ARM/ACT**) switch/annunciator - Used to a) manually select or deselect approach **ARM** (or deselect approach **ACT**) and b) annunciate the stage of approach operation either armed (ARM) or activated (ACT). Sequential button pushes if in **ACT** 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 **ACT** cannot be selected manually.

PILOT'S DISPLAY

Left/right steering information is presented on the EFIS as a function of the navigation source selection on the EFIS control panel.

AUTOPILOT COUPLED OPERATION

The KLN 90B may be coupled to the autopilot. The autopilot approach mode (APR) should be used when conducting a coupled GPS non-precision approach, according to the procedure indicated.

NOTE

Select autopilot HDG mode for DME arc intercepts. Using NAV or APR for coupled DME arc intercepts can result in excessive overshoots.

APPROACH MODE SEQUENCING AND RAIM PREDICTION

NOTE

The special use airspace alert will automatically be disabled prior to flying an instrument approach to reduce the potential for message congestion.

(A) Prior to arrival, select a STAR if appropriate from the **APT 7** page. Select an approach and an Initial Approach Fix (IAF) from the **APT 8** page.

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NOTE

Using the right hand outer knob, select the **ACT** (Active Flight Plan Waypoints) pages. Pull the right hand inner knob out and scroll to the destination airport, then push the inner knob in and select the **ACT 7** or **ACT 8** page.

To delete or replace a SID, STAR or approach, select **FPL 0** page. Place the cursor over the name of the procedure, press **ENT** to change it, or **CLR** then **ENT** to delete it.

(B) En route, check for RAIM availability at the destination airport ETA on the **STA 5** page.

NOTE

RAIM must be available at the FAF in order to fly an instrument approach. Be prepared to terminate the approach upon loss of RAIM.

(C) At 30 NM from the FAF:

(1) Verify automatic annunciation of APR **ARM**.

(2) Note automatic dbar scaling change from ± 5.0 NM to ± 1.0 NM over the next 30 seconds.

(3) Update the KLN 90B altimeter baro setting as required.

(4) Internally the KLN 90B will transition from en route to terminal integrity monitoring.

(D) Select GPS **NAV 5** page or applicable EFIS presentation, to fly the approach procedure.

(1) If receiving radar vectors, or need to fly a procedure turn or holding pattern, fly in **OBS** until inbound to the FAF.

NOTE

OBS navigation is TO-FROM (like a VOR) without waypoint sequencing.

(2) **NoPT** routes including DME arc's are flown in **LEG**. **LEG** is mandatory from the Final Approach Fix (FAF) to the MAP.

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NOTE

Select HDG mode for DME arc intercepts. NAV or APR coupled DME arc intercepts can result in excessive overshoots (aggravated by high ground speeds and/or intercepts from inside the arc).

WARNING

FLYING FINAL OUTBOUND FROM AN OFF-AIRPORT VORTAC ON AN OVERLAY APPROACH; BEWARE OF THE DME DISTANCE INCREASING ON FINAL APPROACH, AND THE GPS DISTANCE-TO-WAYPOINT DECREASING, AND NOT MATCHING THE NUMBERS ON THE APPROACH PLATE.

(E) At or before 2 NM from the FAF inbound:

(1) Select the FAF as the active waypoint, if not accomplished already.

(2) Select LEG operation.

(F) Approaching the FAF inbound (within 2 NM.):

(1) Verify APR **ACT**.

(2) Note automatic dbar scaling change from ± 1.0 NM to ± 0.3 NM over the 2 NM inbound to the FAF.

(3) Internally the KLN 90B will transition from terminal to approach integrity monitoring.

(G) Crossing the FAF and APR **ACT** is not annunciated:

(1) Do not descend.

(2) Execute the missed approach.

(H) Missed Approach:

(1) Climb

(2) Navigate to the MAP (in APR **ARM** if APR **ACT** is not available).

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NOTE

There is no automatic **LEG** sequencing at the MAP.

(3) After climbing in accordance with the published missed approach procedure, press , verify or change the desired holding fix and press **ENT**.

GENERAL NOTES

- The data base must be up to date for non-precision instrument approach operation.
- Only <u>one</u> approach can be in the active flight plan at a time.
- If the destination airport is the active waypoint at the time of the instrument approach selection, the active waypoint will shift automatically to the chosen IAF.
- Checking RAIM prediction for your approach while en route using the **STA 5** page is recommended. A self-check occurs automatically within 2 NM of the FAF. APR **ACT** is inhibited without RAIM.
- Data cannot be altered, added to or deleted from the approach procedures contained in the data base. (DME arc intercepts may be relocated along the arc through the **SUPER NAV 5** or the **FPL 0** pages).
- **Some approach waypoints do not appear on the approach plates (including in some instances the <u>FAF</u>)!**
- Waypoint suffixes in the flight plan:

i	-	IAF
f	-	FAF
m	-	MAP
h	-	missed approach holding fix.

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- The DME arc IAF (arc intercept waypoint) will be:

  (a) On your present position radial off the arc VOR when you load the IAF into the flight plan.

  or

  (b) The beginning of the arc if currently on a radial beyond the arc limit.

  To adjust the arc intercept to be compatible with a current radar vector, bring up the arc IAF waypoint in the SUPER NAV 5 page scanning field, or applicable EFIS GPS presentation, or under the cursor on the FPL 0 page, press CLR, then ENT. Fly the arc in LEG. Adjust the HSI or CDI course pointer with reference to the desired track value on the SUPER NAV 5 page, or applicable EFIS GPS presentation (it will flash to remind you). Left/right dbar information is relative to the arc. Displayed distance is not along the arc but direct to the active waypoint. If desired, select NAV 2 page for digital DME arc distance to and radial from the reference VOR.

- The DME arc IAF identifier may be unfamiliar. Example: D098G where 098 stands for the 098° radial off the referenced VOR, and G is the seventh letter in the alphabet indicating a 7 DME arc.

- APR **ARM** to APR **ACT** is automatic provided:

  (a) You are in APR **ARM** (normally automatic).

  (b) You are in **LEG** mode**!**

  (c) The **FAF** is the active waypoint**!**

  (d) Within 2 NM of the FAF.

  (e) Outside of the FAF.

  (f) Inbound to the FAF.

  (g) RAIM is available.

- Direct-To operation between the FAF and MAP cancels APR **ACT**. Fly the missed approach in APR **ARM**.

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- Flagged navigation inside the FAF may usually be restored (not guaranteed) by pressing the GPS APR button changing from **ACT** to **ARM**. Fly the missed approach.

- The instrument approach using the KLN 90B may be essentially automatic starting 30 NM out (with a manual barometer setting update) or it may require judicious selection of the OBS and LEG modes.

- APR **ARM** may be cancelled at any time by pressing the GPS APR button. (A subsequent press will reselect it.)

SECTION 5 - PERFORMANCE

No change.

SECTION 6 - WEIGHT AND BALANCE

Factory installed optional equipment is included in the licensed weight and balance data in Section 6 of the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual.

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SECTION 7 DESCRIPTION

The KLN 90B GPS panel mounted unit contains the GPS sensor, the navigation computer, a CRT display, and all controls required to operate the unit. It also houses the data base cartridge which plugs directly into the back of the unit.

The data base cartridge is an electronic memory containing information on airports, navaids, intersections, SID's, STAR's, instrument approaches, special use airspace, and other items of value to the pilot.

Every 28 days, Bendix/King receives new data base information from Jeppesen Sanderson. This information is processed and downloaded onto the data base cartridges. Bendix/King makes these data base cartridge updates available to KLN 90B GPS users.

Provided the KLN 90B GPS navigation system is receiving adequate usable signals, it has been demonstrated capable of and has been shown to meet the accuracy specifications of:

VFR/IFR supplemental en route oceanic and remote, en route domestic, terminal, and non-precision instrument approach (GPS, Loran-C, VOR, VOR-DME, TACAN, NDB, NDB-DME, RNAV) operation within latitudes bounded by 74° North and 60° South using the WGS-84 (or NAD 83) coordinate reference datum in accordance with the criteria of AC 20-138, AC 91-49, and AC 120-33. Navigation data is based upon use of only the global positioning system (GPS) operated by the United States.

NOTE

Airplane using GPS for oceanic IFR operations may use the KLN 90B to replace one of the other approved means of long-range navigation. A single KLN 90B GPS installation may also be used on short oceanic routes which require only one means of long-range navigation.

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PILOT'S OPERATING HANDBOOK
AND
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SUPPLEMENT NO. 5
FOR
ARGUS 5000 ELECTRONIC
RMI/MOVING MAP DISPLAY

This supplement must be attached to the Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual when the ARGUS 5000 Electronic RMI/Moving Map Display is installed in accordance with Pilatus Drawings. The information contained herein supplements or supersedes the information in the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual only in those areas listed. For limitations, procedures and performance information not contained in this supplement, consult the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual.

Approved by:

Federal Office for Civil Aviation (FOCA) of Switzerland
Section for Type Certification

Date of Approval:

6. Dez. 1995

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

SECTION 1 - GENERAL

This supplement supplies the information necessary for the operation of the airplane when the ARGUS 5000 ELECTRONIC RMI/MOVING MAP DISPLAY is installed in accordance with FOCA Approved Pilatus drawings.

SECTION 2 - LIMITATIONS

The eventide ARGUS 5000 PILOT'S GUIDE, P/N 5009, Rev. 4 (or later revision) must be immediately available to the flight crew whenever navigation is predicated on the use of the ARGUS 5000.

The ARGUS 5000 utilization is limited for GPS and/or ADF navigation display.

If optional RMI adapter is installed, the ARGUS 5000 use may be extended for VHF navigation display.

The ARGUS 5000 moving map presentation must not be utilized for conducting GPS guided instrument approaches or departures.

IFR navigation must not be predicated on the use of ARGUS 5000 unless it's data base is current. The currency of the ARGUS 5000 data base must be verified before departure.

SECTION 3 - EMERGENCY PROCEDURES

If sensor information is intermittent or lost, utilize alternate navigation equipment as required.

SECTION 4 - NORMAL PROCEDURES

Normal operating procedures are presented in the eventide ARGUS 5000 PILOT'S GUIDE, P/N 5009, Rev 4 (or later revision).

SECTION 5 - PERFORMANCE

No change.

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SECTION 6 - WEIGHT AND BALANCE

Factory installed optional equipment is included in the licensed weight and balance data in Section 6 of the basic Pilot's Operating Handbook and FOCA approved Airplane Flight Manual.

SECTION 7 - DESCRIPTION

INTRODUCTION

The Eventide Avionics ARGUS 5000 Moving Map Display is a pictorial navigation instrument which provides visual reference of aircraft position relative to landing facilities, navigational aids and special use airspace. The ARGUS 5000 requires present geodetic position and other navigation information from a Global Positioning Satellite system (GPS). Map graphics and bearing displays of ARGUS 5000 relate to the airplane's stabilized direction system. The standard ARGUS 5000 displays an ADF bearing pointer and digital magnetic bearing readout from compatible ADF receivers or indicators. With an optional RMI Adapter, the ARGUS 5000 may display bearing pointer(s) and digital magnetic bearing readouts(s) from compatible VHF navigation receivers. The ADF MODE or the RMI MODE may be used for IFR approaches, independent of other navigation systems. The bearing pointer(s) may be superimposed on the map graphics screen. Optional Flight Planning software is available for the ARGUS 5000 to allow users to add, delete, and activate user-entered waypoints and flightplans directly on the ARGUS 5000.

SYSTEM DESCRIPTION

Reference must be made to the Eventide ARGUS 5000 PILOT'S GUIDE, P/N 5009, Rev. 4 (or later revision) for descriptive and operational details.

The basic ARGUS 5000 System comprises a Pilot and/or Co-Pilot Indicator.

The indicators receive digital and analog sensor inputs from the airplane systems and process the data for presentation on the display unit(s). The system inputs which may be processed include AHRS, NAV (VOR, ADF, LNAV/VNAV).

The controls are used to select the desired display format, NAV source data and modes.

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PILOT'S OPERATING HANDBOOK
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SUPPLEMENT NO. 6
FOR
BENDIX / KING TRAFFIC COLLISION AND AVOIDANCE SYSTEM
CAS 66A TCAS I

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

This supplement must be attached to the Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual when Bendix/King Traffic Collision and Avoidance System (CAS 66A TCAS I) is installed in accordance with Pilatus Drawings. The information contained herein supplements or supersedes the information in the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual only in those areas listed. For limitations, procedures and performance information not contained in this supplement, consult the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual.

Approved by:

Federal Office for Civil Aviation (FOCA) of Switzerland
Section for Type Certification

G. Hofer

Date of Approval:

24. JULI 2001

SECTION 1 - GENERAL

This supplement supplies the information necessary for the operation of the airplane when the BENDIX/KING Traffic Collision and Avoidance System - CAS 66A TCAS I is installed in accordance with Modification Approval Sheet PIL 12/34/017 or PIL 12/34/109.

SECTION 2 - LIMITATIONS

The Bendix/King CAS 66A TCAS I Pilot's Guide (Bendix/King part no. 006-08746-0000 Rev. 0, Dated 5/93 or later revision) must be readily accessible to the flight crew when operating the CAS 66A TCAS I system.

The pilot should not manoeuvre the aircraft based on the traffic display only. The traffic display is intended to assist in visually locating the traffic. The traffic display lacks the resolution necessary for use in evasive manoeuvring.

Maximum Intruder display limit on the KMD 850 or EFIS MFD is set to 20.

TCAS 1 is unable to detect any intruding aircraft without an operating transponder. TCAS 1 can select and track aircraft with either ATC operating Mode A, C or S.

SECTION 3 - EMERGENCY PROCEDURES

No change.

SECTION 4 - NORMAL PROCEDURES

NOTE

IF ATTITUDE SOURCE, ALTITUDE SOURCE AND/OR RADIO ALTIMETER IS INOPERATIVE, TCAS WILL BE INOPERATIVE.

1. Normal TCAS operation is described in the Bendix/King CAS 66A TCAS I Pilot's Guide (Bendix/King part no. 006-08746-0000 Rev. 0, Dated 5/93 or later).
2. TCAS I Non-Threat Traffic:

AURAL	VISUAL	DEFINITION	CREW RESPONSE
None	An open white diamond on the traffic display.	Intruder relative altitude is greater than ± 1200ft or distance is beyond 5 NM range.	None, not considered as threat.

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3. TCAS I Proximity Intruder Traffic:

AURAL	VISUAL	DEFINITION	CREW RESPONSE
None	A filled white diamond on the traffic display.	Intruder relative altitude is within ± 1200ft and within 5 NM range.	None, not considered as threat.

4. TCAS I Traffic Advisory (TA):

AURAL	VISUAL	DEFINITION	CREW RESPONSE
TRAFFIC TRAFFIC	A filled yellow circle on the traffic display.	Intruder time to closest point of approach is 15 to 30 sec.	Conduct visual search for the Intruder. If successful, maintain visual acquisition to ensure safe operation.

WARNING

THE TRAFFIC DISPLAY IS ADVISORY ONLY. DO NOT MANOEUVRE THE AIRCRAFT BASED ONLY ON TRAFFIC DISPLAY INFORMATION. ATTEMPT TO VISUALLY ACQUIRE THE INTRUDER OR CONTACT ATC BEFORE YOU MANOEUVRE THE AIRCRAFT.

NOTE

Aural alerting is enabled at 600 ft. AGL climbing and inhibited at 400 ft. AGL descending.

NOTE

In most situations no manoeuvre will be necessary to maintain safe separation. Manoeuvre only if it becomes apparent safe separation will not be maintained.

a. Attempt to visually acquire the Intruder aircraft and maintain/attain safe separation in accordance with regulatory requirements and good operating practice.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

b. If the Intruder aircraft is not visually acquired, air traffic control should be contacted to obtain any information that may assist concerning the Intruder aircraft.

c. Minor adjustments to the vertical flight path consistent with air traffic requirements are not considered evasive manoeuvres.

NOTE

Traffic Advisories (TA's) can be expected to occur during normal flight operation. Generally, TA's will occur more frequently in terminal areas during arrival, and less frequently during departure and en route operations. In the vast majority of these cases, the aircraft displayed will be safely separated and there will be no need for pilots to initiate any avoidance manoeuvres.

NOTE

Evasive manoeuvres (rapid change in pitch, roll, normal acceleration, thrust or speed) should only be conducted after visual acquisition of the Intruder and then only when necessary to achieve or assure safe separation.

SECTION 5 - PERFORMANCE

No change.

SECTION 6 - WEIGHT AND BALANCE

Factory installed optional equipment is included in the licensed weight and balance data in Section 6 of the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

SECTION 7 - DESCRIPTION

The TCAS I is an on-board traffic alert and collision avoidance system which includes a display. The system detects and tracks other (Intruder) aircraft by interrogating their transponders. From the transponder replies, TCAS I determines range, bearing and (if the Intruder is equipped with a Mode C or S transponder) relative altitude. Intruders equipped with a Mode A transponder do not provide altitude information. With this data, the TCAS I uses standard algorithms to determine the threat of collision. When a possible collision hazard exists, the TCAS I issues a visual and aural Traffic Advisory (TA) to the flight crew. The TCAS I will not detect aircraft which have no operating transponder.

The TCAS I is a single system installation consisting of one TCAS I processor, one top-mounted bearing antenna, one bottom-mounted bearing antenna and the EFIS MFD or KMD 850. Aural alerts are available through the headphones and cockpit speaker.

For Aircraft with an EFIS MFD, system control is through the EFIS MFD CP469A control panel. For aircraft with a KMD 850 installed system control is through the KMD 850. The traffic display is informative only, displaying area traffic without attempting to provide any form of conflict resolution.

If an Intruder gets to within 15 to 30 seconds of a projected Closest Point of Approach (CPA) and/or meets other range and closure criteria, it is then considered a potential threat and an aural and visual TA is issued with the voice message, "TRAFFIC TRAFFIC". This assists the pilot in achieving visual acquisition of the threat traffic.

TCAS I is intended as an aid to the see and avoid concept. Once an Intruder is visually acquired, it is the pilot's responsibility to manoeuvre as necessary to maintain safe separation.

TCAS I does not incorporate the sophisticated sensors, bearing accuracy or track rate computations incorporated in TCAS II or TCAS III that are necessary for evasive manoeuvring (rapid change in pitch, roll, normal acceleration, thrust or speed). In general, TCAS I does not provide adequate information for pilots to determine reliably which horizontal or, in some cases, vertical direction to move to increase separation, and there is some likelihood that such manoeuvres will actually result in reduced separation.

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PILOT'S OPERATING HANDBOOK
AND
FOCA APPROVED AIRPLANE FLIGHT MANUAL

SUPPLEMENT NO. 7
FOR
PC-12 REGISTERED IN AUSTRIA

This supplement must be attached to the Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual when operating the PC-12 in Austria. The information contained herein supplements or supersedes the information in the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual only in those areas listed. For limitations, procedures and performance information not contained in this supplement, consult the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Approved by: J. Dutsch

Federal Office for Civil Aviation (FOCA) of Switzerland
Section for Type Certification

Date of Approval:

25 June 1996

SECTION 2 - LIMITATIONS

KINDS OF OPERATION EQUIPMENT LIST

SYSTEM / EQUIPMENT	VFR DAY	VFR NIGHT	IFR DAY	IFR NIGHT	ICING
Flight Instruments:					
Sensitive Altimeter	1	2	2	2	2
Attitude Indicator (EADI)	0	1	1	1	1
Attitude Indicator (Self contained)	0	1	1	1	1
Rate of Turn Indicator (EADI)	0	1	1	1	1
Directional Indicator (EHSI)	0	1	1	1	1
AHRS	0	1	1	1	1
Vertical Speed Indicator	0	1	1	1	1
Clock	0	1	1	1	1
Emergency Equipment:					
Fire Extinquisher Cockpit	1	1	1	1	1
Fire Extinquisher Cabin	1	1	1	1	1
First Aid Kit	1	1	1	1	1

CARGO LIMITATIONS

When a cabin cargo net is installed the cabin fire extinquisher must be positioned to be accessable forward of the cargo net.

PLACARDS

On Interior Emergency Exit:

AUSGANG

On Interior Emergency Exit Handle Cover and Handle:

ZIEHEN

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On Interior Cabin Door:

AUSGANG DARF WÄHREND DEM FLUG NICHT BETÄTIGT WERDEN

OFFEN

GESCHLOSSEN

UM TÜR ZU ÖFFNEN HEBEL ZIEHEN UND DREHEN

MAXIMAL EINE PERSON GLEICHZEITIG AUF DER EINSTIEGSTREPPE

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On Interior Cabin Door and Cargo Door:

DIE TÜR DARF BEI LAUFENDEM TRIEBWERK NICHT GEÖFFNET WERDEN AUSNAHME: NUR IM NOTFALL

On Interior of Cargo Door:

ABDECKUNG DARF WÄHREND DEM FLUG NICHT ENTFERNT WERDEN

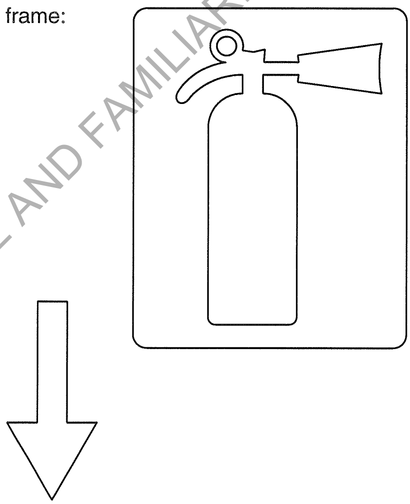
On the left and right cockpit side panel:

COCKPIT FIRE EXTINGUISHER LOCATED BEHIND CO-PILOTS SEAT. CABIN FIRE EXTINGUISHER LOCATED BEHIND REAR RIGHT HAND SEAT, OR IN COMBI CONFIGURATION IN FRONT OF FREIGHT NET.

At each seat position on cabin sidewall:

DER FEUERLÖSCHER BEFINDET SICH HINTER DEM RECHTEN HINTEREN SITZ ODER VOR DEM FRACHTNETZ

At rear of cabin on freight bay frame:



120093

In the cabin on the Frame 16 bulkhead divider:

DER ERSTE-HILFE-KASTEN BEFINDET SICH HINTER DEM PILOTENSITZ

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SECTION 8 - HANDLING, SERVICING AND MAINTENANCE

Aircraft Serial No:

Ref No.	SB No.	Title	Incorporated
001	32-001	Nose Landing Gear - Crack Inspection of the Forged Main Fitting	
002	22-001	Replace EPROM IC (1236) in the Autopilot Flight Control System	
003	11-001	Takeoff/Landing Weight and Speed Placard	
004	32-002	Replacement of Brake Unit	
005	30-001	Modification to the Anti-icing and Deice-icing systems	
006	24-002	Re-routing of the Starter-Generator and Generator 2 power return cables	

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Mark X in box when Service Bulletins are incorporated on the aircraft.

SECTION 9 - SUPPLEMENTS

Aircraft Serial No:

Supp. No	Applicable	Subject	Page
1		Bendix/King KLN 90A GPS	9-01-1
2		Bendix/King RDS 82 VP Weather Radar	9-02-1
3		Bendix/King KHF 950 Communications System	9-03-1
4		Bendix/King KLN 90B GPS	9-04-1
5		Argus 5000 Electronic RMI/Moving Map Display	9-05-1
6		Bendix/King Traffic Collision and Avoidance System CAS 66A TCAS 1	9-06-1
7	X	PC-12 registered in Austria	9-07-1

Mark X in box which Supplements are applicable to the aircraft.

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SECTION 10 - SAFETY AND OPERATIONAL TIPS

For the location of the emergency equipment installed in the aircraft refer to the following figure:

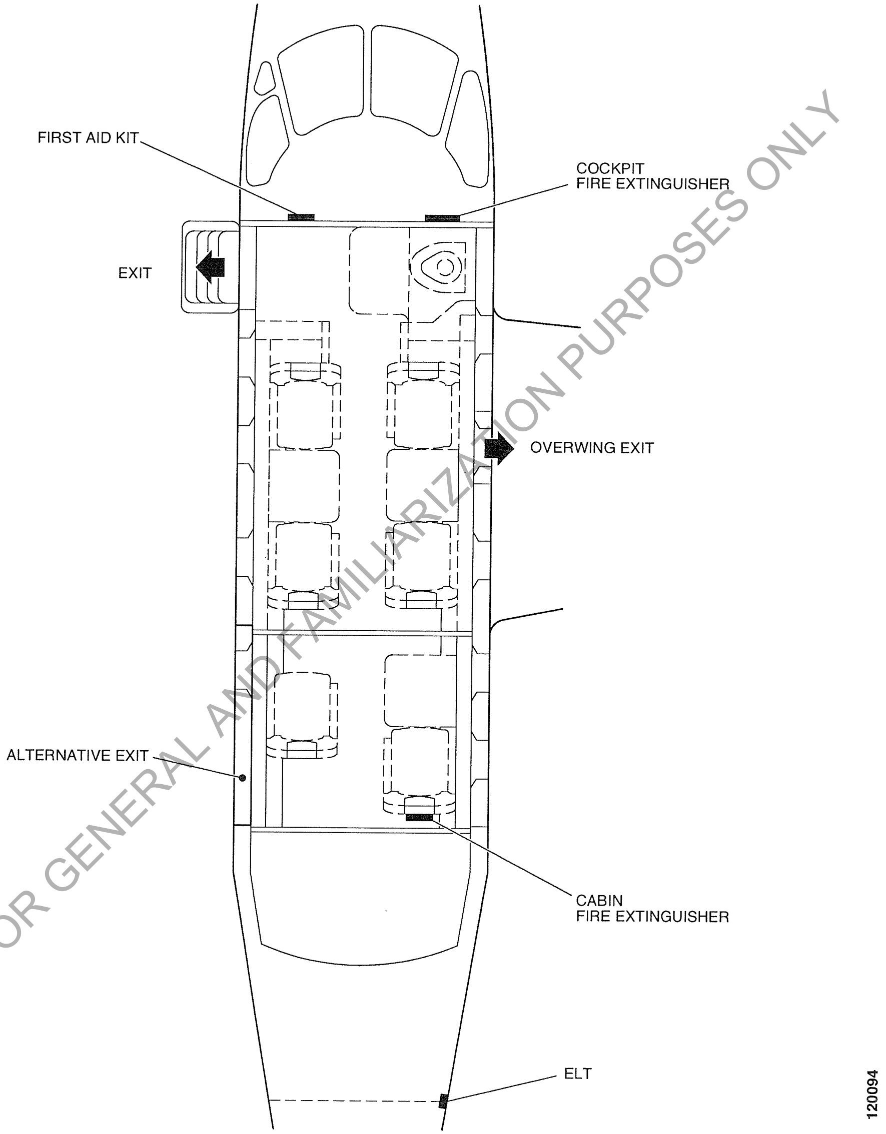

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Figure 10-1 Exits and Emergency Equipment Location

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PILOT'S OPERATING HANDBOOK
AND
FOCA APPROVED AIRPLANE FLIGHT MANUAL

SUPPLEMENT NO. 9
FOR
BENDIX / KING RDR 2000
WEATHER RADAR

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

This supplement must be attached to the Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual when the Bendix/King RDR 2000 Weather Radar is installed in accordance with Pilatus Drawings. The information contained herein supplements or supersedes the information in the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual only in those areas listed. For limitations, procedures and performance information not contained in this supplement, consult the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual.

Approved by: D. Dütsch
Dütsch
Federal Office for Civil Aviation (FOCA) of Switzerland
Section for Type Certification

Date of Approval:

2 2. Jan. 1997

SECTION 1 - GENERAL

This supplement supplies the information necessary for the operation of the airplane when the BENDIX/KING RDR 2000 Weather Radar System is installed in accordance with FOCA Approved Pilatus drawings.

SECTION 2 - LIMITATIONS

Do not operate the radar during refueling operations or in the vicinity of trucks or containers accommodating flammables or explosives.

Do not allow personnel within 15 feet (4.5 meters) in front of antenna when system is transmitting.

Vertical profile (VP) weather display is not allowed on the EHSI display (mode inhibited) but can be used on the EFIS MFD or the independent weather radar indicator (whichever is installed).

SECTION 3 - EMERGENCY PROCEDURES

No changes to the Emergency Procedures described in the basic Pilot's Operating handbook.

SECTION 4 - NORMAL PROCEDURES

Preflight and normal operating procedures are presented in the Bendix/King RDR 2000 Weather Radar Pilot's Guide KPN 006-08755-0001 latest revision.

CAUTION

TESTS INVOLVING THE RADIATION OF RF ENERGY BY THE RADAR ANTENNA MUST NOT BE MADE WHILE THE RADAR ANTENNA IS DIRECTED TOWARD CLOSE-BY LARGE METAL OBJECTS SUCH AS HANGARS, DOORS, OR THE INSIDE OF A HANGAR. USE TEST MODE OR TURN THE INDICATOR FUNCTION SWITCH TO OFF WHERE APPLICABLE.

NOTE

Operation of the Bendix/King RDR 2000 is inhibited automatically by the air/ground logic when the aircraft is on ground.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

SECTION 5 - PERFORMANCE

No change.

SECTION 6 - WEIGHT AND BALANCE

Factory installed optional equipment is included in the licensed weight and balance data in Section 6 of the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual.

SECTION 7 - DESCRIPTION

The RDR 2000 Weather Radar installation consists of a Receiver/Transmitter unit in a pod located at the right wing tip and a weather radar control panel. Weather indication is provided on the pilots EFIS and supplemented on the co-pilots EFIS (if installed) and the EFIS MFD or the independent weather radar indicator (whichever is installed). Vertical profile modes can be activated on the EFIS MFD or the independent weather radar indicator (whichever is installed).

NOTE

Detailed operating instructions or technical information for the Bendix/King RDR 2000 Weather Radar may be obtained by consulting the latest available revision of the Pilot's Guide.

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PILOT'S OPERATING HANDBOOK
AND
FOCA APPROVED AIRPLANE FLIGHT MANUAL

SUPPLEMENT NO. 10

OPERATIONS IN COLD CONDITIONS

This supplement must be attached to the Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual when operating the PC-12, PC-12/45 and PC-12/47 in cold conditions with SB 25-002 modifications installed. The information contained herein supplements or supersedes the information in the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual only in those areas listed. For limitations, procedures and performance information not contained in this supplement, consult the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual.

Bundesamt für Zivilluftfahrt - Office fédéral de l'aviation civile - BERN

Approved by:

Federal Office for Civil Aviation (FOCA) of Switzerland
Section for Type Certification

Date of Approval:

26. Juni 2006

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LIST OF EFFECTIVE PAGES

Page No	Rev No.	Page No.	Rev No.
9-10-1	1		
9-10-2 thru 9-10-14	2		

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LOG OF TEMPORARY REVISIONS

The incorporation of temporary revisions into this supplement are to be recorded on the sheet below. Instructions for the removal of temporary revisions will be given in the instruction sheet issued with revisions.

NO.	TEMPORARY REVISION TITLE	DATE OF ISSUE	CANCELLED BY

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LOG OF REVISIONS

Revision Number and Date	Page Number	Description
2 05.09.2016		Supplement updated to new format: added LOEP, LOTR and LOR.
		Editorial and layout changes.
	9-10-9 thru 9-10-14	115V Cold weather kit (SB 25-040) incorporated.
		The Revision Number 2 to AFM Supplement No. 10 is approved under the authority of DOA ref. EASA.21J.357.
		Approval Date: 05.09.2016

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SECTION 1 - GENERAL

This supplement provides the information necessary to operate the PC-12, PC-12/45 and PC-12/47 aircraft in cold temperatures with a battery and an engine heater system installed (Post SB 25-002 and Post SB 25-040).

SECTION 2 - LIMITATIONS

OTHER LIMITATIONS

OPERATIONS IN COLD CONDITIONS

Ambient ground temperature	0 to -15° C	Battery heater required
Ambient ground temperature	-15° C and below	Battery, engine and supplementary cabin heater required. External engine blanket recommended

A cabin underfloor temperature of -15° C or warmer is required prior to takeoff.

The aircraft must be clear of deposits of snow, ice and frost from the lifting and control surfaces immediately prior to takeoff.

PLACARDS

Near the Engine Heating electrical power connector:

110 VOLTS AC ENGINE HEATER OR **115 VOLTS AC 60HZ ENGINE HEATER**

Near the Battery Heater electrical power connector:

110 VOLTS AC BATTERY HEATER AND CABIN POWER OUTLET OR **115 VOLTS AC 60HZ BATTERY HEATER AND CABIN POWER OUTLET**

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

SECTION 4 - NORMAL PROCEDURES

GENERAL

If the aircraft is to be parked outside for a period of time and the ambient ground temperature is expected to be:

0 to -15° C	connect a 110/115 VAC ground power supply to the battery heater connector.
-15° C and below	connect a 110/115 VAC ground power supply to the battery and engine heater connectors. Put a blanket cover over the engine. Put a supplementary heater in the center of the cabin.

PRE FLIGHT INSPECTION

Switch off and disconnect 110/115 VAC ground power supply to battery, engine and supplementary heaters.
Remove blanket cover from engine and supplementary heater from the cabin.

ENGINE STARTING

It is recommended to use external power procedure for engine starting, using a ground power unit capable of supplying 1000 Amp VDC power.

After engine start at cold temperatures of below -15° C, maximum cabin heating should be selected and the temperature of the underfloor avionic bay monitored by pressing the button near the cabin temperature indicator, to observe a minimum temperature of above -15° C prior to commencement of flight.

In the event of the underfloor temperature sensor being inoperative, a period of 3 minutes per 10° below the ambient temperature of -15° C should be allowed after the selection of maximum cabin heating, to ensure that the underfloor equipment is brought up to an ambient operating temperature of above -15° C prior to commencement of flight.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

SECTION 7 - SYSTEM DESCRIPTION

BATTERY HEATER SYSTEM

Description

A belt type 110/115 VAC heating element is wrapped around the outside of the battery. A temperature sensor is attached to the aircraft skin and a wiring harness connects the temperature sensor to the battery heating element and the external power receptacle. The wiring harness has an additional connector installed for the connection of a supplementary cabin heater. The receptacle is installed in the lower rear fuselage. A power on indicator light is installed near the receptacle.

Operation

When 110/115 VAC power is supplied to the external receptacle the indicator light will come on and power is supplied to the temperature sensor and supplementary heater connector. The temperature sensor will supply power to the battery heating element when the skin temperature of the aircraft goes below 0° C.

ENGINE HEATER SYSTEM

Description

Four 110/115 VAC wrap around type heating elements are installed on the engine at the following locations:

- on the LH side of the reduction gearbox
- on the RH side of the reduction gearbox
- on the LH side of the accessory gearbox
- on the underside of the fuel control unit.

A wiring harness routed down the left side of the engine connects the heating elements to an external power receptacle. The receptacle is installed in the left lower front fuselage. A power on indicator light is installed near the receptacle.

Operation

When 110/115 VAC power is supplied to the external receptacle the indicator light will come on and power is supplied to the four engine heating elements. An insulated engine cover is placed over the engine to assist in heat retention in the engine bay.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

SUPPLEMENTARY HEATER

Supplementary ceramic element safety heater of 1500 Watts is placed in the center of the aircraft cabin to provide heating. The cabin heater is connected to the connector on the battery heating element wiring harness.

CAUTIONS

FOR A 110/115 VAC SYSTEM, THE CABIN HEATER CONNECTOR IS LIMITED TO A MAXIMUM OF 1500W.

DO NOT OVERLOAD, AS THIS MAY RESULT IN DAMAGE TO THE CONNECTOR AND WIRING.

DO NOT USE A SUPPLEMENTARY HEATER OF A DIFFERENT VOLTAGE RATING TO THAT PLACARDED ON THE AIRCRAFT.

A temperature sensor is installed under the cabin floor between frames 17 and 18. A press button is installed near the cabin temperature indicator on the cockpit center panel. When the button is pressed the cabin temperature indicator is changed from showing the cabin temperature to the cabin under floor avionic bay temperature.

SECTION 8 - HANDLING, SERVICING AND MAINTENANCE

SERVICING

At each aircraft inspection examine the battery and engine heating elements for damage and the wiring harnesses for security of attachment.

BATTERY SERVICING

Depending on the type of battery installed, a more frequent check of the fluid level maybe recommended, when using the battery heating system for long periods of time. Check the battery manufacturer’s information for any additional servicing requirements.

When removing and installing the battery from the battery box take care not to damage the heating element on the edges of the box. Small tears in the element can be repaired with RTV silicone. If any of the element wire is exposed the element should be replaced.

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AIRPLANE EQUIPMENT LIST

This list itemizes the equipment installed and required for operations in cold weather conditions.

Mark 'X' if installed	ATA Code	ITEM	PILATUS PART NO.	MASS kg	ARM m
	12	**SERVICING**			
		Cold weather kit (110 VAC)			
		Battery heater installation	Tanis TAS200-03		
		Engine heater installation	Tanis TAS300-15		
		Power on indicator light (2)	Tanis PLT		
		Insulated engine cover	Tanis CVR 619		
		110 V power extension outlet	Jet Aviation 160-4N or 160-2N		
		Cold weather kit (115 VAC)			
		Battery heater installation	968.20.13.912		
		Engine heater installation	968.20.13.909		
		Insulated engine cover	968.20.13.901		
		110 V power extension outlet	968.20.13.906		
		Supplementary heater Recommended `Windmere` or similar			
		Temperature sensor	975.15.16.102		

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PILOT'S OPERATING HANDBOOK AND FOCA APPROVED AIRPLANE FLIGHT MANUAL

SUPPLEMENT NO. 11 FOR PC-12, PC-12/45 AND PC-12/47 REGISTERED IN CANADA

This supplement must be attached to the Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual when operating the PC-12, PC-12/45 and PC-12/47 in Canada. The information contained herein supplements or supersedes the information in the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual only in those areas listed. For limitations, procedures and performance information not contained in this supplement, consult the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Approved by:

Federal Office for Civil Aviation (FOCA) of Switzerland
Section for Type Certification

R. Muie

Date of Approval:

28.09.2006

Federal Office for Civil Aviation
Design and Production

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FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

LIST OF EFFECTIVE PAGES

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LOG OF TEMPORARY REVISIONS

The incorporation of temporary revisions into this supplement are to be recorded on the sheet below. Instructions for the removal of temporary revisions will be given in the instruction sheet issued with revisions.

NO.	TEMPORARY REVISION TITLE	DATE OF ISSUE	CANCELLED BY

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LOG OF REVISIONS

Revision Number and Date	Page Number	Description
7 May 08, 2012	- 9-11-7 9-11-14 thru 9-11-16	Pages 1A thru 1F issued. Interior codes updated. Page references updated. Approved under DOA No. EASA.21J.357
8 Nov 14, 2016	9-11-1B 9-11-1F 9-11-7 9-11-8 thru 9-11-16	LOEP updated LOR updated Paragraph reference updated Editorial (text run on from previous pages) The revision Number 8 to AFM Supplement No. 11 is approved under the authority of DOA ref. EASA.21J.357. Approval Date: 14.11.2016

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

SECTION 2 - LIMITATIONS

Service Bulletin 04-002 lists the aircraft tasks which must be done prior to the registration of the aircraft and the use of this Supplement in Canada.

PC-12 CENTER OF GRAVITY LIMITS

Weight Pounds (kilograms)	Forward Limit A.O.D.: In. / M	Aft Limit A.O.D.: In. / M
9039 (4100)	227.49 / 5.778	241.63 / 6.137
8160 (3700)	227.49 / 5.778	242.73 / 6.163
7938 (3600)	227.49 / 5.778	243.06 / 6.172
6615 (3000)	227.49 / 5.778	243.06 / 6.172
5732 (2600)	227.49 / 5.778	-

PC-12/45 CENTER OF GRAVITY LIMITS

Weight Pounds (kilograms)	Forward Limit A.O.D.: In. / M	Aft Limit A.O.D.: In. / M
9921 (4500)	232.20 / 5.898	240.94 / 6.120
9039 (4100)	227.49 / 5.778	241.63 / 6.143
7938 (3600)	227.49 / 5.778	243.06 / 6.172
6615 (3000)	227.49 / 5.778	243.06 / 6.172
5732 (2600)	227.49 / 5.778	-

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

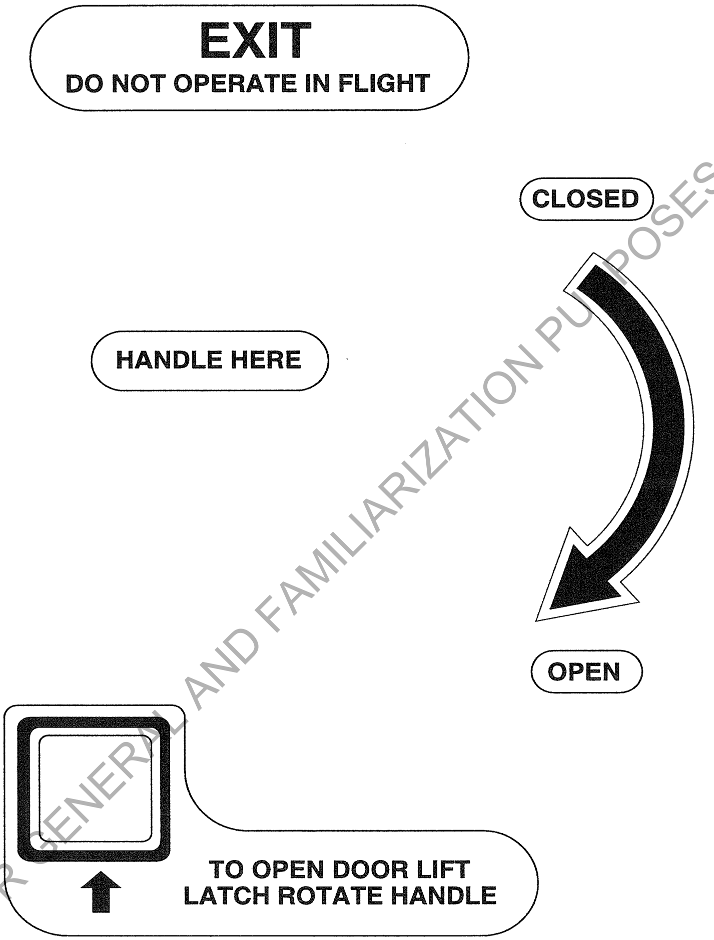
PC-12/47 CENTER OF GRAVITY LIMITS

Weight Pounds (kilograms)	Forward Limit A.O.D.: In. / M	Aft Limit A.O.D.: In. / M
10450 (4740)	232.20 / 5.898	240.43 / 6.107
9921 (4500)	232.20 / 5.898	240.94 / 6.120
9039 (4100)	227.49 / 5.778	241.63 / 6.143
7938 (3600)	227.49 / 5.778	243.06 / 6.172
6615 (3000)	227.49 / 5.778	243.06 / 6.172
5732 (2600)	227.49 / 5.778	-

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

PLACARDS

Luminescent placards on Interior of Cabin Door:



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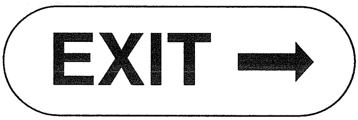
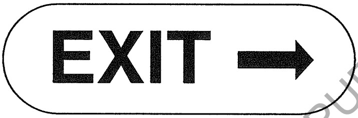
FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

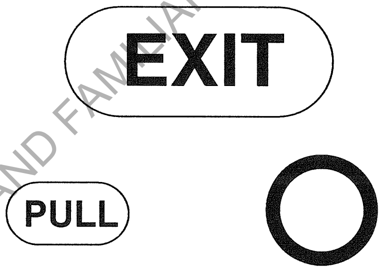
Luminescent placard on Interior of upper LH sidewall near Cabin Door:



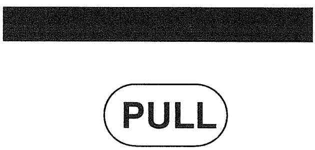
Luminescent placard on Interior of upper RH sidewall near Emergency Exit:



Luminescent placards on Interior of Emergency Exit:



Luminescent placards underneath cover on Emergency Exit:



120105

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Luminescent placards on rear of LH forward bulkhead:

FIRE EXTINGUISHER
LOCATED ON RIGHT
HAND SIDE BEHIND
CO-PILOT SEAT

ELT LOCATED IN THE UN-PRESSURISED REAR FUSELAGE

OPERATING INSTRUCTIONS:

ARM: TO ARM ELT FUNCTION
ON: TO ACTIVATE ELT FUNCTION
OFF: TO DE-ACTIVATE ELT FUNCTION

Placard on cover plates under crew seats (only required for crew seats manufactured by IAI):

NO STORAGE AREA

Placard near ELT remote control switch:

FOR AVIATION EMERGENCY USE ONLY
UNAUTHORIZED OPERATION PROHIBITED

120106

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

SECTION 3 - EMERGENCY PROCEDURES

3.15 ELECTRICAL SYSTEM FAILURES

For POH 01973-001:

3.15.1. ESNTL BUS

A. Battery Bus Failure

The following system remains operative:

- Low airspeed warning

For POH 02211:

3.15.2. ESNTL BUS

A. Battery Bus Failure

The following system remains operative:

- Low airspeed warning

SECTION 4 - NORMAL PROCEDURES

4.4 BEFORE ENGINE START

4.4.1. PROCEDURE

Additional item:

9. Before first flight of the day:

Trim interrupt switch	INTR
Pitch trim switch	OPERATE. Check trim interrupted
Trim interrupt switch	NORM and guarded

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

SECTION 6 - WEIGHT AND BALANCE

Refer to POH Section 6, Interior Configurations and then to the applicable Interior Code No. for seat locations, permitted seat Part Nos. that can be installed, seat weight and moment charts and seat occupant moment charts.

The following Interior Configurations are approved for PC-12, PC-12/45 and PC-12/47 use in Canada:

Corporate Commuter Interior Code STD-9S (9 single seats)

Corporate Commuter Interior Code STD-6S-3B (6 single seats and a 3 seat bench)

MSN 101 thru 171 Executive Interior Code EX-6S-1 (6 single seats)

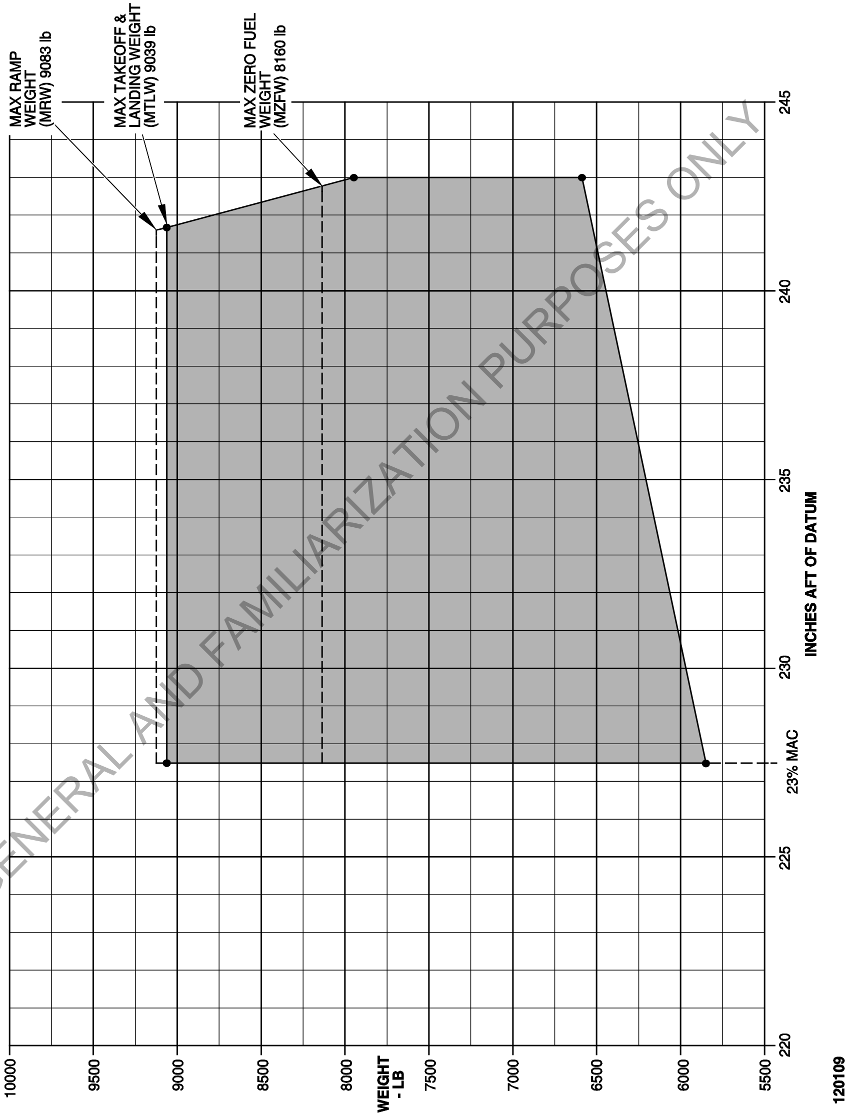
MSN 172 and up Executive Interior Code EX-6S-2 (6 single seats)

Executive Interior Code EX-4S-3B (4 single seats and a 3 seat bench)

Executive Interior Code EX-4S-STD-4S (4 single executive seats and 4 single standard seats)

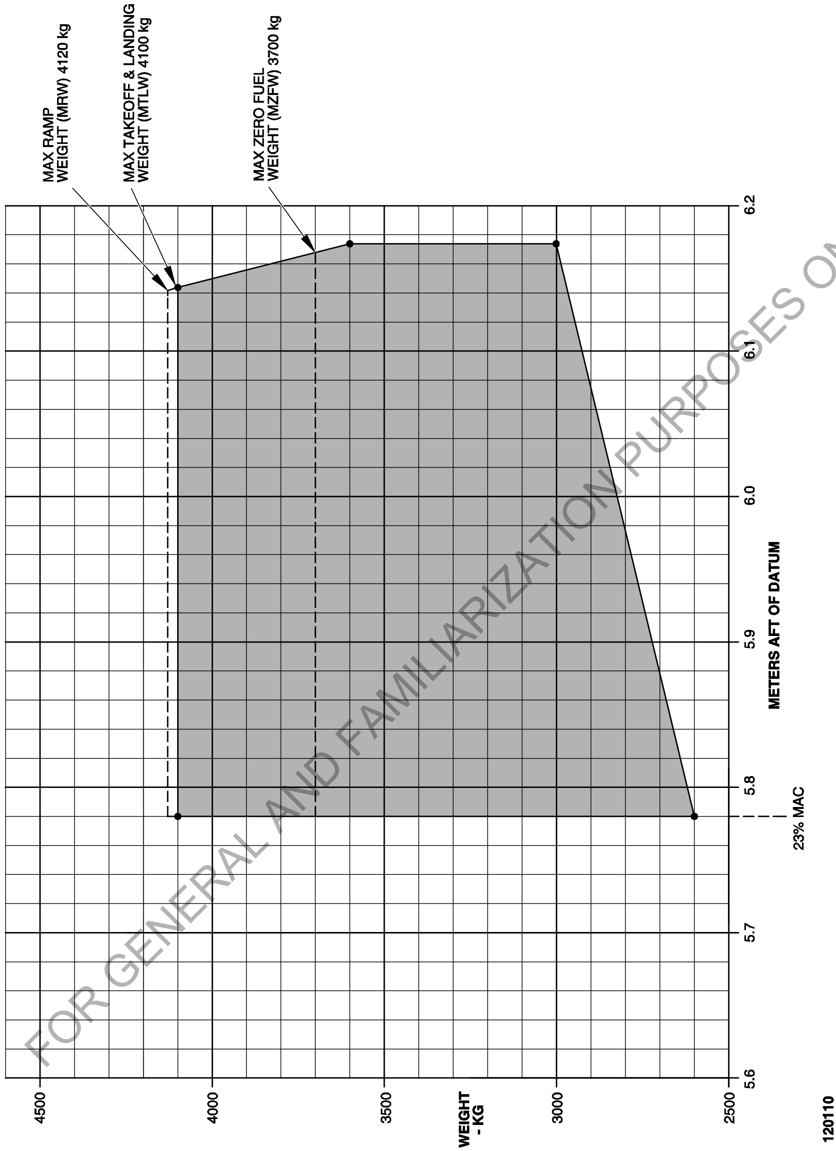
FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

SECTION 6 - PC-12 WEIGHT AND BALANCE



FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

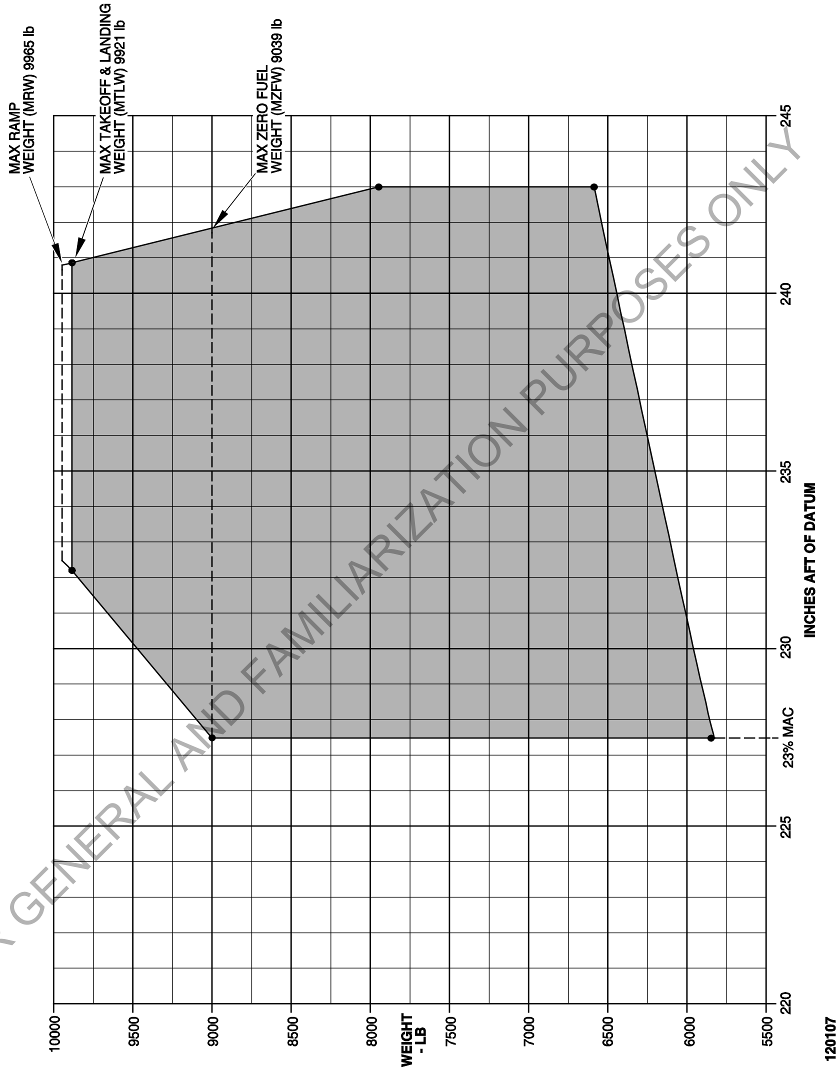
Figure 6-9. C. G. Envelope (9039 lb)
(Sheet 1 of 2)



FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

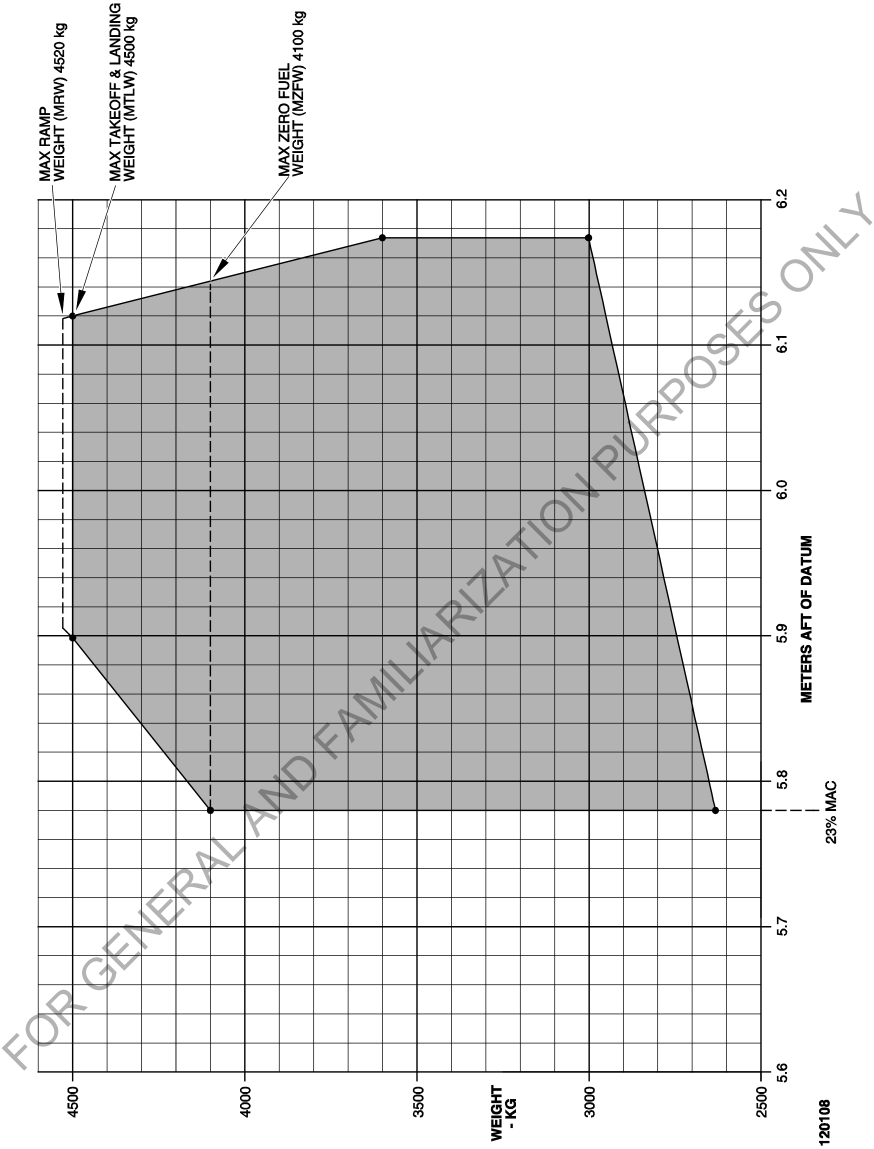
Figure 6-9. C. G. Envelope (4100 kg)
(Sheet 2 of 2)

SECTION 6 - PC-12/45 WEIGHT AND BALANCE



FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

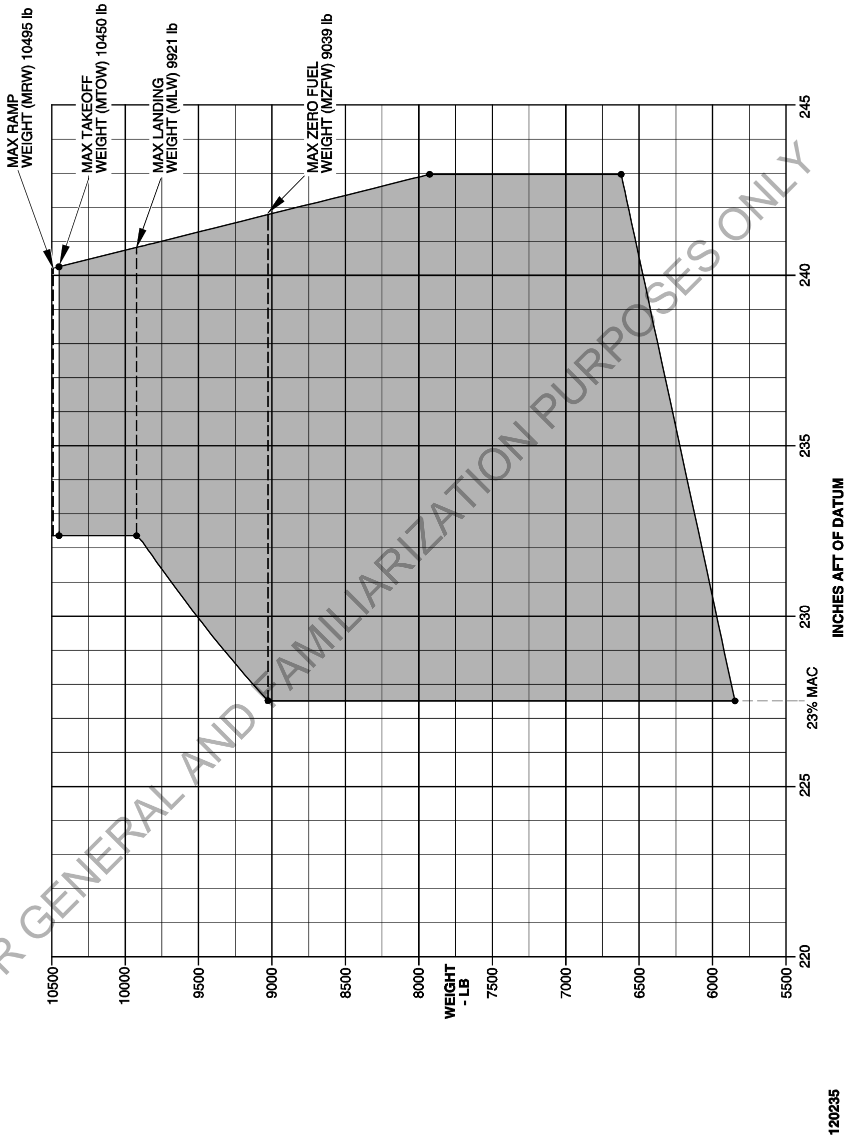
Figure 6-9. C. G. Envelope (9921 lb)
(Sheet 1 of 2)



FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

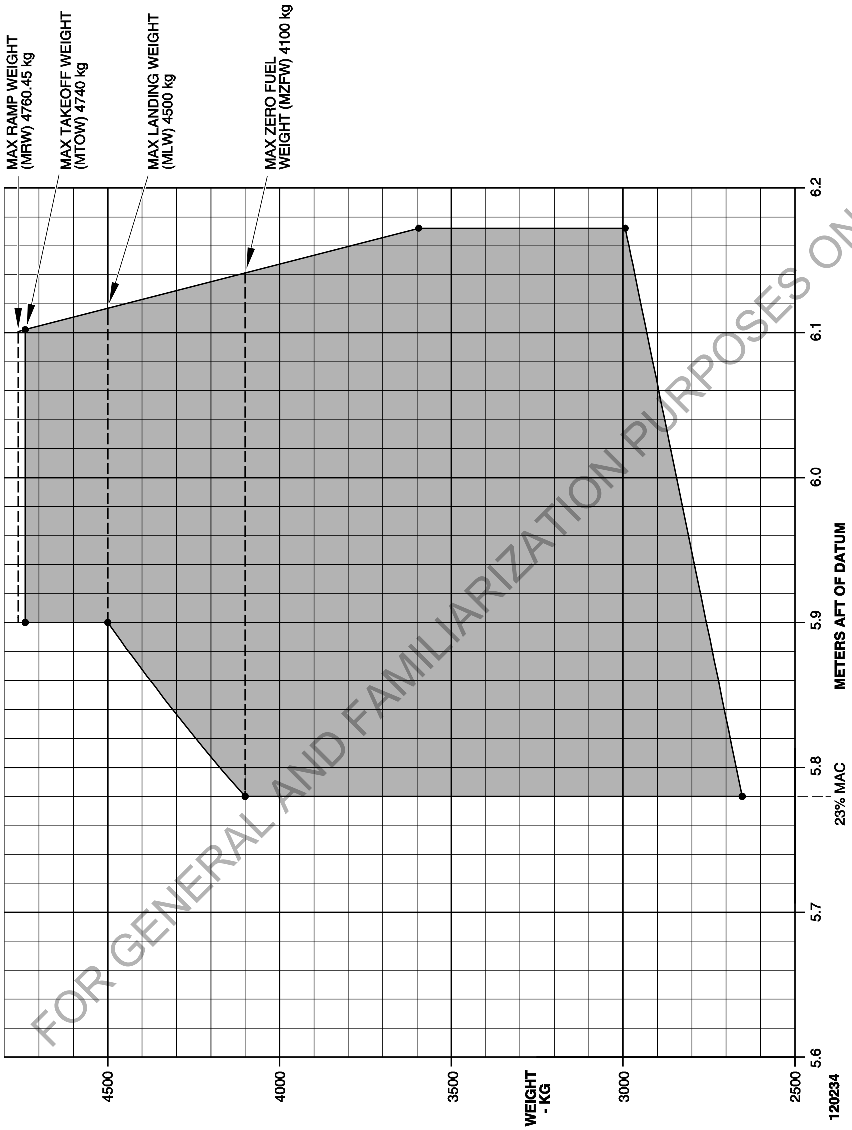
Figure 6-9. C. G. Envelope (4500 kg)
(Sheet 2 of 2)

SECTION 6 - PC-12/47 WEIGHT AND BALANCE



FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Figure 6-9. C. G. Envelope (10450 lb)
(Sheet 1 of 2)



FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Figure 6-9. C. G. Envelope (4740 kg)
(Sheet 2 of 2)

SECTION 7 - AIRPLANE AND SYSTEMS DESCRIPTION

SECTION 7-3 FLIGHT CONTROLS

INDICATION / WARNING SYSTEM

Page 7-3-5

The Central Advisory and Warning System (CAWS) annunciator panel includes a STAB TRIM warning light. The illumination of this warning caption will illuminate when the aircraft is on the ground for more than 60 seconds and the trim position is unsafe for takeoff.

SECTION 7-14 ELECTRICAL

CIRCUIT BREAKERS

Page 7-14-3

The A/S LOW WARN circuit breaker on the LH front circuit breaker panel is deleted.

SECTION 7-20 CABIN PRESSURIZATION CONTROL SYSTEM

INDICATION/WARNING

Page 7-20-7

End of second paragraph additional sentence:

A red radial at 10,500 feet on the cabin pressure altimeter indicates the maximum permissible cabin pressure altitude.

SECTION 7-23 CENTRAL ADVISORY AND WARNING SYSTEM (CAWS)

Page 7-23-3

Index	Nomenclature	Color	Description
9	STAB TRIM	Red	Indicates stabilizer trim is unsafe for takeoff (comes on when aircraft is on ground for more than 60 sec).
12	A/P DISENG	Amber	Indicates autopilot pitch and aileron servos disengaged (goes off after 30 secs).

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

SECTION 7-34 AUTOPILOT

INDICATION / WARNING

Page 7-34-8

A/P DISENG caution is delayed 3 seconds in order to prevent aural warning conflict with the autopilot system. The caution will go off after 30 seconds.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

PILOT'S OPERATING HANDBOOK
AND
FOCA APPROVED AIRPLANE FLIGHT MANUAL

SUPPLEMENT NO. 13
FOR
DUAL CHANNEL AUDIO CONTROLLER SYSTEM
(NORTHERN AIRBORNE TECHNOLOGY AMS 44)

This supplement must be attached to the Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual when a dual channel NAT AMS 44 Audio Controller System is installed in accordance with Pilatus Drawings. The information contained herein supplements or supersedes the information in the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual only in those areas listed. For limitations, procedures and performance information not contained in this supplement, consult the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual.

Approved by: J. Dütsch

Federal Office for Civil Aviation (FOCA) of Switzerland
Section for Type Certification

Date of Approval:

2 4. April 1998

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

SECTION 1 - GENERAL

This supplement supplies the information necessary for the operation of the airplane when the dual channel NAT AMS 44 Audio Controller System is installed in accordance with Modification Approval Sheet PIL 12/23/039.

SECTION 2 - LIMITATIONS

The NAT AMS 42/44 Dual Channel Audio Controller Manual, Section 3.8 to 3.14.1 (Rev 1.00, Dated 11-Jan-95 or later applicable revision) must be readily accessible to the flight crew when operating the dual channel NAT AMS 44 Audio Controller System.

SECTION 3 - EMERGENCY PROCEDURES

Audio System Failure	Select EMER on red mode switch.

The emergency mode limits radio signal reception to pilot's and copilot's headsets. The transmitting function is limited to the pilot's hand mike.

SECTION 4 - NORMAL PROCEDURES

No change.

SECTION 5 - PERFORMANCE

No change.

SECTION 6 - WEIGHT AND BALANCE

Factory installed optional equipment is included in the licensed weight and balance data in Section 6 of the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual.

SECTION 7 DESCRIPTION

GENERAL

The NAT AMS 44 Dual Channel Audio Controller System consists of a single audio control panel, mounted on top of the center instrument panel.

The unit is configured with the controls for the pilot on the left side of the panel, the controls for the copilot and passengers on the right side.

The volume level of the pilot and copilot loudspeakers are independently controlled by rotary switches. The rotary switches are located near the pilot and copilot map lights.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

The pilot's hand mic and the headphones of the pilot and copilot function without power and will work in emergency or equipment failure situations.

AUDIO CONTROLLER EMERGENCY MODE OPERATION

In the event of an audio controller fault or power failure, set the red mode selector to EMER. This places the controller in emergency mode operation.

NOTE

When the red mode selector is switched to the EMER position, the pilot and the copilot are removed from the ICS bus and are connected directly to their respective radios.

EMERGENCY MODE EFFECTS

In the EMER mode, all functions are retained by the pilot and copilot, except ICS.

In the EMER mode, all switches work exactly as they do during NORM operation, except for the RX and ICS volume controls. These volume controls will have no effect.

PILOT ISOLATION OPERATION

When the mode switch is set to ISO, the pilot is isolated from ICS audio. This is useful to prevent passengers interfering during critical flight operations (landing, etc.).

PASSENGER RECEIVE AUDIO

The passengers hear the radio as selected on the right (copilot) side of the controller.

The passengers will not hear any radio audio when the red mode switch on the controller is in the EMER position.

UNMUTED AUDIO WARNINGS

The dual audio control panel receives unmuted audio warnings on two inputs. All unmuted audio warnings go to both inputs. One input is amplified and is connected to the pilot and copilot positions. The other input is connected directly to the pilot position only.

If there is an amplifier failure, the pilot will continue to receive all unmuted audio warnings.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

PILOT'S OPERATING HANDBOOK AND FOCA APPROVED AIRPLANE FLIGHT MANUAL

SUPPLEMENT NO. 14 FOR DUAL AIR TRAFFIC CONTROL TRANSPONDER SYSTEM (BENDIX/KING KT70 TRANSPONDERS)

This supplement must be attached to the Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual when a dual system Bendix/King KT70 Air Traffic Control Transponder System is installed in accordance with Pilatus Drawings. The information contained herein supplements or supersedes the information in the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual only in those areas listed. For limitations, procedures and performance information not contained in this supplement, consult the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Approved by:

Federal Office for Civil Aviation (FOCA) of Switzerland
Section for Type Certification

Date of Approval:

05. Feb. 1998

LIST OF EFFECTIVE PAGES

Page No	Rev No.
9-14-1 Title	N/A
9-14-1A	0
9-14-1B	0
9-14-2	1
9-14-3	0

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LOG OF REVISIONS

Revision Number and Date	Page Number	Description
1 Jul 20, 2011	9-14-1A and 9-14-1B 9-14-2	Page issued Documentary change - Bendix King document number removed. Approved under the Authority of DOA ref. EASA.21J.357

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

SECTION 1 - GENERAL

This supplement supplies the information necessary for the operation of the airplane when the dual system BENDIX/KING KT70 Mode S Air Traffic Control (ATC) transponder system is installed in accordance with Modification Approval Sheet PIL 12/34/040.

SECTION 2 - LIMITATIONS

The Bendix/King KT70 and KT71 (Panel-Mounted Transponders) Pilot's Guide (at the latest revision) must be readily accessible to the flight crew when operating the dual KT70 system.

SECTION 3 - EMERGENCY PROCEDURES

No change.

SECTION 4 - NORMAL PROCEDURES

Press the XPNDR1/XPNDR2 switch on the center instrument panel to change operation from one ATC transponder system to the other.

SECTION 5 - PERFORMANCE

No change.

SECTION 6 - WEIGHT AND BALANCE

Factory installed optional equipment is included in the licensed weight and balance data in Section 6 of the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

SECTION 7 DESCRIPTION

Two BENDIX/KING KT70 Mode S ATC transponder systems are installed in the aircraft. One is used as the main system, the other is used as a standby.

A push-switch installed on the center instrument panel is used to select the 'active' transponder system. The switch has two lighted captions, XPNDR1 and XPNDR2. The relevant caption comes on to show which transponder system is 'active'.

The two transponder systems operate independently. Each transponder system has its own antenna and encoding altimeter. The pilot's encoding altimeter is used for the XPNDR1 system. The copilot's encoding altimeter is used for the XPNDR2 system.

The two transponder systems share a common L-band suppression circuit which is connected to the Distance Measuring Equipment and the Traffic Collision and Avoidance System (if installed).

The two transponder systems are also connected to the same weight-on-wheels switch, to stop both systems from replying to ATCRBS interrogations when the aircraft is on the ground.

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FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

PILOT'S OPERATING HANDBOOK AND FOCA APPROVED AIRPLANE FLIGHT MANUAL

SUPPLEMENT NO. 15 FOR GROUND PROXIMITY WARNING SYSTEM (ALLIEDSIGNAL AVIONICS MK-VI GPWS)

This supplement must be attached to the Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual when a MK-VI GPWS is installed in accordance with Pilatus Drawings. The information contained herein supplements or supersedes the information in the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual only in those areas listed. For limitations, procedures and performance information not contained in this supplement, consult the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual.

Approved by:

Federal Office for Civil Aviation (FOCA) of Switzerland
Section for Type Certification

Date of Approval:

27. Mai 1998

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

SECTION 1 - GENERAL

This supplement supplies the information necessary for the operation of the airplane when the MK VI GPWS is installed in accordance with Modification Approval Sheet PIL 12/34/041.

SECTION 2 - LIMITATIONS

The MK VI GPWS Pilot's Guide (060-4087-000 Rev A, Dated 10/96 or later applicable revision) must be readily accessible to the flight crew when operating the MK VI GPWS.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

SECTION 3 - EMERGENCY PROCEDURES

SECTION 3A - ABNORMAL PROCEDURES

3A.1 GENERAL

3A.1.1 Press the GPWS FLAP OVRD switch to prevent operation of the "TOO LOW FLAPS" alert when you need to land with less than full flaps.

3A.1.2 Press the G/S BELOW switch to deactivate the "GLIDESLOPE" alert when you intentionally plan to go below the glideslope.

3A.1.3 When the GPWS INOP amber caption illuminates to indicate a system failure, the failure may be identified by the following methods:

(a) When the aircraft is on the ground, press and hold the GPWS test switch to perform an Abnormal Self Test. The test will prove if the fault is external to the GPWS (with an aural fault message) or is internal.

(b) In flight, pull the RADAR ALT circuit breaker (the GPWS will assume it is on the ground). Press and hold the GPWS test switch to perform an Inflight Self Test.

NOTE

The aural message "RADAR ALTIMETER FAULT" will be announced because the circuit breaker is pulled.

If the fault cannot be cleared, pull the GPWS circuit breaker.

3A.1.4 The GPWS can be deactivated by pulling the GPWS circuit breaker, located on the AVIONIC 2 circuit breaker panel, when a system failure cannot be cleared.

SECTION 4 - NORMAL PROCEDURES

Perform a Self Test of the GPWS prior to flight.

SECTION 5 - PERFORMANCE

No change.

SECTION 6 - WEIGHT AND BALANCE

Factory installed optional equipment is included in the licensed weight and balance data in Section 6 of the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual.

SECTION 7 DESCRIPTION

GENERAL

The MK VI GPWS consists of a GPWS test switch, four GPWS indicator lamps/switches and. a GPWS computer.

GPWS TEST SWITCH

The GPWS test switch is installed on the AVIONIC TESTS switch panel on the left of the flight compartment.

GPWS INDICATOR LAMPS/SWITCHES

There are four GPWS indicator lamps/switches installed on the left and right instrument panels:

GPWS

This indicator is red. It comes on when the GPWS computer detects an alert or warning in Modes 1 (Excessive Descent Rate), 2 (Excessive Closure Rate to Terrain), 3 (Altitude Loss After Takeoff) and 4 (Insufficient Terrain Clearance).

GPWS INOP

This indicator is amber. It comes on when the GPWS computer detects a failure of the system.

BELOW/CANCLD

This indicator switch is amber. The BELOW caption comes on when the GPWS computer detects a Mode 5 (Descent Below Glideslope) alert situation.

The CANCLD caption comes on when the pilot or copilot switch is pressed for more than one second and released.

GPWS FLAP OVRD

This indicator switch is blue. The switch is covered by a switch guard. The caption comes on when the pilot or copilot switch is pressed and released.

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GPWS COMPUTER

The GPWS computer is installed below the passenger cabin floor. It uses the following system inputs for its computations:

- AHRS	roll attitude
- radar altimeter	altitude AGL
- air data computer	vertical speed and airspeed
- VHF NAV1 system	ILS/glideslope
- autopilot	decision height (DH)
- flaps system	flaps position
- landing gear system	landing gear position.

The GPWS computer sends unmuted voice messages, when necessary, to the flight compartment headphones and loudspeakers. At the same time, it sends a suppression signal to the TCAS (if installed) to inhibit TCAS voice messages when the GPWS is generating voice messages.

The (Modes 1 thru 6) GPWS voice messages used are:
"SINK RATE"
"PULL-UP"
"TERRAIN-TERRAIN"
"DON'T SINK"
"TOO LOW, GEAR"
"TOO LOW, TERRAIN"
"TOO LOW, FLAPS"
"GLIDESLOPE"
"BANK ANGLE"
"FIVE HUNDRED"
"TWO HUNDRED"
"MINIMUMS - MINIMUMS"

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PILOT'S OPERATING HANDBOOK
AND
FOCA APPROVED AIRPLANE FLIGHT MANUAL

SUPPLEMENT NO. 16
FOR
PC-12, PC-12/45 AND PC-12/47 REGISTERED
IN THE
REPUBLIC OF SOUTH AFRICA (RSA)

This supplement must be attached to the Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual when operating the PC-12, PC-12/45 and PC-12/47 in the RSA. The listing contained herein supplements the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Approved by:

Federal Office for Civil Aviation (FOCA) of Switzerland
Section for Type Certification

Date of Approval:

02. Feb. 2006

Bundesamt für Zivilluftfahrt - Office fédéral de l'aviation civile - BERN -

SECTION 9 - SUPPLEMENTS

If installations are made to the aircraft which are not covered by the PC-12 and/or PC-12/45 and/or PC-12/47 type design (i.e. STC's, Major Alterations) and require operating instructions, the installer must list the relevant documents below and insert them in the POH/AFM. It is the installers responsibility to make sure that the installations are approved by the RSA CAA.

This listing is applicable to:

Aircraft Serial No: ....

Aircraft Registration No: ....

No.	Equipment Details	CAA Mod No.	Signature of the Installer

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No.	Equipment Details	CAA Mod No.	Signature of the Installer

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

No.	Equipment Details	CAA Mod No.	Signature of the Installer

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PILOT'S OPERATING HANDBOOK
AND
FOCA APPROVED AIRPLANE FLIGHT MANUAL

SUPPLEMENT NO. 17
FOR
MECHANICAL COPILOT INSTRUMENTATION

This supplement must be attached to the Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual when the Mechanical Copilot Instrumentation is installed in accordance with Pilatus Drawings. The information contained herein supplements or supersedes the information in the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual only in those areas listed. For limitations, procedures and performance information not contained in this supplement, consult the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Approved by:

Federal Office for Civil Aviation (FOCA) of Switzerland
Section for Type Certification

Date of Approval:

17. Feb. 1999

SECTION 1 - GENERAL

This supplement supplies the information necessary for the operation of the airplane when the mechanical copilot instrumentation is installed in accordance with Modification Approval Sheet PIL 12/23/074.

SECTION 2 - LIMITATIONS

The Mechanical Copilot Instrumentation is limited as a supplemental display only.

SECTION 3 - EMERGENCY PROCEDURES

No change.

SECTION 4 - NORMAL PROCEDURES

No change.

SECTION 5 - PERFORMANCE

No change.

SECTION 6 - WEIGHT AND BALANCE

Factory installed optional equipment is included in the licensed weight and balance data in Section 6 of the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

SECTION 7 - SYSTEM DESCRIPTION

ATTITUDE INDICATOR GYRO

The Attitude Indicator Gyro is located on the copilot's instrument panel between airspeed indicator on the left and altimeter on the right side. The attitude gyro provides a source of pitch and roll information. The attitude gyro is in operation whenever the GEN 1 Bus is powered.

CAUTION

AN OFF FLAG WILL APPEAR WHEN POWER IS REMOVED FROM THE GYRO.

PICTORIAL NAVIGATION SYSTEM KCS 55

The Pictorial Navigation System KCS55A consists of a Directional Gyro KG-102A, a Pictorial Navigation Indicator KI-525A, a Slaving Accessory KA-51B, and a Magnetic Azimuth Transmitter KMT-112. The KCS55A System is powered by the Avionics 2 Bus CB COMPASS 2.

- The Directional Gyro KG-102A is located in the avionics bay under the floor. It is a remote mounted unit that, in conjunction with the KMT-112 Magnetic Azimuth Transmitter, provides a gyro-stabilized magnetic heading to the KI-525A indicator. It also supplies the pilot's EFIS EADI and EHSI with heading information. A heading source selection switch HDG 1/HDG 2 is installed in the pilot's instrument panel to the right of the GPS select switches. Select HDG 1 for heading information from AHRS 1, and HDG 2 for heading information from the Compass System No. 2. The selected heading source is displayed on the EFIS EADI EHSI, and on the selector switch.

- The Ki-525A is located on the copilot's instrument panel below the attitude gyro. The Pictorial Navigation Indicator KI-525A provides a pictorial display of the horizontal navigation situation. It also provides manual controls for course and heading datum selection. The Pictorial Navigation indicator KI-525A receives converted VOR/LOC/GS navigation data from the VHF COM/NAV 2 system.

- The Slaving Accessory KA-51B is located on the copilot's instrument panel to the right of the altimeter. The Slaving Accessory KA-51B contains the slaving meter, slaving switches, and corrector circuitry which compensates for the effect of local magnetic disturbances on the Magnetic Azimuth Transmitter. The SLAVE/FREE switch selects a free gyro mode when set to free, and slave gyro mode when set to slave. The CW/CCW switch moves the heading card clockwise CW and counterclockwise CCW when the slave/free switch is set to free. The Magnetic Azimuth Transmitter KMT-112 senses the direction of the

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earths magnetic field and transmits this information to the Pictorial Navigation Indicator. It is located in the outer right wing.

CAUTION

IN CASE OF AHRS 1 SYSTEM FAIL AND HEADING SOURCE SELECT SWITCH ON HDG 2, NO ATTITUDE INDICATION ON PILOT'S EFIS EADI AND THE AUTO FLIGHT IS INOPERATIVE.

COURSE DEVIATION INDICATOR

The Course Deviation Indicator KI 206 is located on the copilot's instrument panel to the right of the vertical speed indicator. The CDI indicator KI-206 is powered by the VHF COM/NAV 1. It receives converted VOR/LOC and GS navigation data from the VHF COM/NAV 1 system.

RADIO MAGNETIC INDICATOR

The RMI KI-229 is located on the copilot`s instrument panel below the airspeed indicator. The KI-229 is powered from the by the Avionic 2 Bus CB RMI 2. It receives its excitation from the 26 VAC Bus CB RMI 2. The KI-229 receives navigation data from the VHF NAV 2 and the ADF receiver. The heading information is received from the KCS55A compass system.

AUTOMATIC DIRECTION FINDER INDICATOR (IF INSTALLED)

The Automatic Direction Finder Indicator KI-227 could be optional installed as a replacement of the Radio Magnetic Indicator KI-229. It is the same location as the KI-229. The ADF indicator KI-227 is powered by the ADF. The ADF indicator KI-227 receives navigation data from the ADF receiver, and has a synchronised compass card which is driven by the KCS55A compass system.

CAUTION

AFTER THE START-UP COMPARE HEADING FROM KI-227 WITH THE ACTUAL HEADING. IF READING IS NOT EQUAL, SET KI-227 COMPASS CARD WITH HDG KNOB TO ACTUAL HEADING.

DISTANCE MEASUREMENT EQUIPMENT

The Distance Measurement Equipment Indicator KDI-574 is located on the copilot's instrument panel above the attitude indicator. The DME indicator KDI-574 is powered by the DME. The KDI-574 receives navigation data from the DME and displays an alphanumeric readout. Such as distance in nautical miles NM, ground speed in knots KTS, and time to/from station in

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minutes MIN from the aircraft to the selected DME ground station. The DME tuning is accomplished by the selected NAV 1 or NAV 2 receiver frequency controls. The DME tuning source selector is installed on the pilot's instrument panel and the selected source is displayed on the KDI 574 to the right of the distance annunciation.

CAUTION

THE DISTANCE MEASUREMENT EQUIPMENT INDICATOR DME KDI 574 MUST BE INSTALLED AND SERVICEABLE. THE KDI 574 SUPPLIES DISTANCE SPEED AND TIME TO/FROM STATION INFORMATION TO THE PILOT'S EFIS EHSI.

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PILOT'S OPERATING HANDBOOK
AND
FOCA APPROVED AIRPLANE FLIGHT MANUAL

SUPPLEMENT NO. 18

PC-12 REGISTERED IN FRANCE

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

This supplement must be attached to the Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual when operating the PC-12 in France. The information contained herein supplements or supersedes the information in the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual only in those areas listed. For limitations, procedures and performance information not contained in this supplement, consult the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual.

Approved by:

Federal Office for Civil Aviation (FOCA) of Switzerland
Section for Type Certification

Date of Approval:

22 Dec. 1999

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LIST OF EFFECTIVE PAGES

Page No	Rev No.	Page No.	Rev No.
9-18-1	01		
9-18-2	02		
9-18-3	04		
9-18-4 thru 9-18-6	02		
9-18-7	04		
9-18-8 and 9-18-9	02		
9-18-10	04		
9-18-11 and 9-18-12	02		
9-18-13 and 9-18-14	04		
9-18-15	03		
9-18-16	02		
9-18-17	03		
9-18-18	02		

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LOG OF TEMPORARY REVISIONS

The incorporation of temporary revisions into this supplement are to be recorded on the sheet below. Instructions for the removal of temporary revisions will be given in the instruction sheet issued with revisions.

NO.	TEMPORARY REVISION TITLE	DATE OF ISSUE	CANCELLED BY

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LOG OF REVISIONS

Revision Number and Date	Page Number	Description
2 01.09.2014	9-18-2 thru 9-18-18 9-18-18	Alternate placards added. Structure completely revised. New LOEP, LOTR and LOR. Editorial and layout changes. The Revision Number 2 to AFM Supplement No. 18 is approved under the authority of DOA ref. EASA.21J.357. Approval Date: 23. September 2014.
3 Oct 26, 2015	9-18-3 9-18-7 9-18-13, 9-18-15, 9-18-17	Corrected page numbers on: 9-18-13, 9-18-15 and 9-18-17 The Revision Number 3 to AFM Supplement No. 18 is approved under the authority of DOA ref. EASA.21J.357. Approval Date: 26. October 2015
4 Dec 12, 2019	9-18-3 9-18-7 9-18-10 9-18-13 and 9-18-14	Updated LOEP for Revision 4 Updated LOR for Revision 4 19880 - Changed "cabin door" to "passenger door" (editorial) 19880 - Changed "cabin door" to "passenger door" (editorial) The Revision Number 4 to AFM Supplement No. 18 is approved under the authority of DOA ref. EASA.21J.357. Approval Date: 12 December 2019

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SECTION 1 - GENERAL

This Airplane Flight Manual Supplement gives the information and lists the specifics necessary for the operation of the airplane on the French register in accordance with the requirements of the French DGAC.

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SECTION 2 – LIMITATIONS

Service Bulletin 04-005 lists the modifications (tasks) that must be done before registration of the airplane in France and before use of this supplement.

The three French DGAC-approved pages (Ref: Report 01973-001-FR, MANUEL DE VOL) must be attached to the original Swiss FOCA-approved Airplane Flight Manual (AFM) (Ref. Report 01973-001).

STEEP APPROACH

Steep approaches greater than 6° are not approved.

KINDS OF OPERATION EQUIPMENT LIST

SYSTEM / EQUIPMENT	VFR DAY	VFR NIGHT	IFR DAY	IFR NIGHT	ICING
Flight Instruments:					
Altimeter	2	2	2	2	2
Airspeed Indicator	2	2	2	2	2
Pitot/Static System	2	2	2	2	2
AHRS	0	0	2*	2*	2*

*If EFIS is on the co-pilot side

SYSTEM / EQUIPMENT	VFR DAY	VFR NIGHT	IFR DAY	IFR NIGHT	ICING
Emergency Equipment:					
Emergency Locator Transmitter (ELT) (French DGAC-approved unit)	1	1	1	1	1

PLACARDS

Exterior Markings:

On the passenger door:

**TIRER LA POIGNÉE ET
TOURNER POUR OUVRIR
NE PAS OUVRIR LA PORTE LORSQUE LE MOTEUR
TOURNE SAUF EN CAS D`URGENCE**

OUVERT

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On the cargo door:

TIRER POUR OUVRIR
(Accompanied by a downward pointing arrow)

APPUYER ICI POUR
OUVRIR LA PORTE
TIRER LA POIGNÉE
ET TIRER LA PORTE
VERS L`EXTERIEUR
NE PAS OUVRIR LA PORTE LORSQUE LE MOTEUR
TOURNE SAUF EN CAS D`URGENCE

On each side of the rudder, on the top surface of each aileron and three places on the top surface of each flap (total ten places):

NE PAS POUSSER

On the emergency exit:

SORTIE DE SECOURS

POUSSER

POUSSER APRÈS
DEVERROUILLAGE

On the left side of the rear fuselage:

APPUYER SUR LE
BOUTON POUR ABAISSER
LA PORTE

On each side of the engine air intake:

SURFACE TRÈS CHAUDE
NE PAS TOUCHER

Interior Placards – Corporate Commuter Configuration:

Near eight of the nine passenger seats:

OXYGÈNE
OXYGEN

On the rear of eight of the nine passenger seats:

LE MASQUE À OXYGÈNE SE TROUVE SOUS LE SIÈGE

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On the rear of one of the nine passenger seats:

LE MASQUE À OXYGÈNE SE TROUVE SOUS LE SIÈGE AVANT

On the rear of the nine passenger seats:

POUR LE DECOLLAGE ET L`ATTERRISSAGE
- **CEINTURE ATTACHÉE**
- **DOSSIER EN POSITION VERTICALE**

FOR TAKEOFF AND LANDING
- **FASTEN SEAT BELT**
- **SEAT BACK MUST BE FULLY UPRIGHT**

OR:

POUR LE DÉCOLLAGE ET L`ATTERISSAGE
- **LE SIÈGE DOIT ÊTRE COMPLÈTEMENT REDRESSÉ**
- **AJUSTER L`APPUIE – TÊTE**
- **BOUCLER LA CEINTURE VENTRALE ET D`ÉPAULE**

FOR TAKEOFF AND LANDING
- **SEAT MUST BE FULLY UPRIGHT**
- **ADJUST HEADREST TO SUPPORT HEAD**
- **FASTEN SEAT LAP AND SHOULDER BELT**

On the left cockpit/cabin divider wall:

NE PAS FUMER
NO SMOKING

LE MASQUE À OXYGÈNE SE TROUVE SOUS LE SIÈGE
OXYGEN MASK LOCATED UNDER SEAT

POUR LE DECOLLAGE ET L`ATTERRISSAGE
- **CEINTURE ATTACHÉE**
- **DOSSIER EN POSITION VERTICALE**

FOR TAKEOFF AND LANDING
- **FASTEN SEAT BELT**
- **SEAT BACK MUST BE FULLY UPRIGHT**
-

OR:

POUR LE DÉCOLLAGE ET L`ATTERISSAGE
- **LE SIÈGE DOIT ÊTRE COMPLÈTEMENT REDRESSÉ**
- **AJUSTER L`APPUIE – TÊTE**
- **BOUCLER LA CEINTURE VENTRALE ET D`ÉPAULE**

FOR TAKEOFF AND LANDING
- **SEAT MUST BE FULLY UPRIGHT**
- **ADJUST HEADREST TO SUPPORT HEAD**
- **FASTEN SEAT LAP AND SHOULDER BELT**

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On the left cockpit/cabin divider wall (continued):

L`EXTINCTEUR EST SITUÉ SUR LE
COTÉ DROIT DU COCKPIT DERRIÈRE
LE SIÈGE DU CO-PILOTE
FIRE EXTINGUISHER LOCATED
ON COCKPIT SIDE R.H. BULK-
HEAD BEHIND CO-PILOT SEAT
(Accompanied by an arrow pointing to the right)

On the emergency exit:

TIRER / PULL (white letters, transparent background)

SORTIE / EXIT

TIRER / PULL (white letters, red background)

On the passenger door:

SORTIE / EXIT
NE PAS OUVRIR EN VOL
DO NOT OPERATE IN FLIGHT

POUR OUVRIR LA PORTE
LEVER LA POIGNÉE ET TOURNER
TO OPEN LIFT LATCH
ROTATE HANDLE

OUVERT
OPEN

FERMÉ
CLOSED

NE PAS OUVRIR LA PORTE
LORSQUE LE MOTEUR TOURNE
SAUF EN CAS D`URGENCE

UNE SEULE PERSONNE
À LA FOIS SUR L`ESCALIER

On the cargo door:

NE PAS ENLEVER LE COUVERCLE EN VOL

TIRER LE VERROU TIRER LA POIGNÉE
ET POUSSER LA PORTE VERS L`EXTERIEUR
LIFT LOCKING LEVER AND PULL HANDLE PUSH DOOR OUT

NE PAS OUVRIR LA PORTE
LORSQUE LE MOTEUR TOURNE
SAUF EN CAS D`URGENCE

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Interior Placards – Executive Configuration:

On the passenger door:

SORTIE / EXIT
NE PAS OUVRIR EN VOL
DO NOT OPERATE IN FLIGHT

POUR OUVRIR LA PORTE
LEVER LA POIGNÉE ET TOURNER
TO OPEN LIFT LATCH
ROTATE HANDLE

OUVERT
OPEN

FERMÉ
CLOSED

NE PAS OUVRIR LA PORTE
LORSQUE LE MOTEUR TOURNE
SAUF EN CAS D`URGENCE

UNE SEULE PERSONNE
À LA FOIS SUR L`ESCALIER

On the cargo door:

NE PAS ENLEVER LE COUVERCLE EN VOL

TIRER LE VERROU TIRER LA POIGNÉE
ET POUSSER LA PORTE VERS L`EXTERIEUR
LIFT LOCKING LEVER AND PULL HANDLE PUSH DOOR OUT

NE PAS OUVRIR LA PORTE
LORSQUE LE MOTEUR TOURNE
SAUF EN CAS D`URGENCE

On the emergency exit:

TIRER / PULL (white letters, transparent background)

SORTIE / EXIT

TIRER / PULL (white letters, red background)

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Near each of six passenger seats:

NE PAS FUMER LORS DE L`UTILISATION DE L`OXYGÈNE
DO NOT SMOKE WHILE OXYGEN IS IN USE

POUR LE DECOLLAGE ET L`ATTERRISSAGE
- LE SIEGE DOIT ÊTRE
COMPLÈTEMENT REDRESSÉ
COMPLÈTEMENT EN ARRIÈRE
COMPLÈTEMENT À L`EXTÉRIEUR
- LA TABLE DOIT ÊTRE REPLIÉE
FOR TAKEOFF AND LANDING
- SEAT MUST BE FULLY UPRIGHT
FULLY AFT AND FULLY OUTBOARD
- TABLE MUST BE STOWED

OR:

POUR LE DÉCOLLAGE ET L`ATTERISSAGE
- LE SIÈGE DOIT ÊTRE COMPLÈTEMENT REDRESSÉ
POSITIONNÉ ENTÈREMENT EN DIRECTION
DE L`ARRIÈRE DE LA CABINE ET CONTRE L`EXTÉRIEUR
- AJUSTER L`APPUIE – TÊTE
- BOUCLER LA CEINTURE VENTRALE ET D`ÉPAULE
- LA TABLE DOIT ÊTRE RANGÉE CORRECTEMENT
FOR TAKEOFF AND LANDING
- SEAT MUST BE FULLY UPRIGHT
FULLY TO THE REAR OF CABIN
AND FULLY OUTBOARD
- ADJUST HEADREST TO SUPPORT HEAD
- FASTEN SEAT LAP AND SHOULDER BELT
- TABLE MUST BE STOWED

Near five of six passenger seats:

MASQUE À OXYGÈNE À L`INTÉRIEUR
OXYGEN MASK INSIDE

Near four of six passenger seats:

TITER LA BANDE POUR
LIBERER LE MASQUE À OXYGÈNE
PULL TAPE FOR OXYGEN MASK
(accompanied by a rearward pointing arrow)

Near two of six passenger seats:

TITER LA BANDE POUR
LIBERER LE MASQUE À OXYGÈNE
PULL TAPE FOR OXYGEN MASK
(accompanied by a forward pointing arrow)

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On the left cockpit/cabin divider wall:

**L`EXTINCTEUR EST SITUÉ SUR LE
COTÉ DROIT DU COCKPIT DERRIÈRE
LE SIÈGE DU CO-PILOTE
FIRE EXTINGUISHER LOCATED
ON COCKPIT SIDE R.H. BULK-
HEAD BEHIND CO-PILOT SEAT**
(accompanied by an arrow pointing to the right)

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SECTION 7 – AIRPLANE AND SYSTEMS DESCRIPTION

In the POH on page 7-34-3 the following Note is added after the HALF BANK paragraph:

NOTE: Depending on course changes, Half Bank mode may lead to wide turns exceeding RNP-5 volumes.

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SECTION 9 – SUPPLEMENTS

At the date of issue of this supplement, these are the FOCA-approved supplements (to the Airplane Flight Manual) that are also accepted by the DGAC for French registered airplanes:

Original Supp. No	Subject
2	Bendix/King RDS 82 VP Weather Radar
3	Bendix/King KHF 950 Communications System
4	Bendix/King KLN 90B GPS Navigation System
5	Argus 5000 Electronic RMI/Moving Map Display
6	Bendix/King Traffic Collision and Avoidance System CAS 66A TCAS 1
9	Bendix/King RDR 2000 Weather Radar
12	Engine Condition Trend Monitoring (ECTM)
13	Dual Channel Audio Controller System (Northern Airborne Technology AMS 44)
15	Ground Proximity Warning System (AlliedSignal Avionics MK VI GPWS)
17	Mechanical Copilot Instrumentation
18	PC-12 Registered in France

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NOTE

For French DGAC acceptance of supplements issued after the date of this supplement (No.18), please contact the French DGAC.

PILOT'S OPERATING HANDBOOK
AND
FOCA APPROVED AIRPLANE FLIGHT MANUAL

SUPPLEMENT NO. 19
FOR
OPERATION WITH GPS KLN 900 NAVIGATION SYSTEM

This supplement must be attached to the Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual when the GPS KLN 900 Navigation System is installed in accordance with Pilatus Drawings. The information contained herein supplements or supersedes the information in the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual only in those areas listed. For limitations, procedures and performance information not contained in this supplement, consult the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual.

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Approved by:

Federal Office for Civil Aviation (FOCA) of Switzerland
Section for Type Certification

Date of Approval: 22. Dez. 1999

SECTION 1 - GENERAL

This supplement supplies the information necessary for the operation of the airplane when the AlliedSignal Aerospace GPS KLN 900 Navigation System is installed.

The GPS KLN 900 Navigation System is a panel-mounted unit that contains the GPS sensor, the navigation computer, a CRT display and all controls required to operate the unit. It also houses the data base cartridge which plugs directly into the front of the unit.

The data base cartridge is an electronic memory containing information on airports, navaids, intersections, SID`s, STAR`s, instrument approaches, special use airspace, and other items of value to the pilot.

Every 28 days, AlliedSignal receives new data base information from Jeppesen Sanderson. This information is processed and downloaded onto the data base cartridges. AlliedSignal makes these data base cartridge updates available to GPS KLN 900 Navigation System users.

Provided that the GPS KLN 900 Navigation System receives adequate usable signals, it has been demonstrated to be capable of and has been shown to meet the accuracy specifications of VFR/IFR en route oceanic and remote, en route domestic, terminal, and instrument approach operation within latitudes bounded by 74° North and 60° South using the WGS (or NAD 83) coordinate reference datum in accordance with the criteria of AC 20-138, AC 91-49, AC 120-33, and FAA Notice 8110.60.

Provided that the GPS KLN 900 Navigation System receives adequate usable signals, that the airplane has alternative, serviceable navigation systems (e.g. VOR; DME; ADF) adequate to the route to be flown and full radar coverage, it has demonstrated that the system installation can perform Basic RNAV (RNP-5) operations in designated European airspace in accordance with JAA Temporary Guidance Leaflet No 2 (TGL 2) rev 1: AMJ 20X2 – JAA Guidance Material on Airworthiness Approval and Operational Criteria for the use of Navigation Systems in European Airspace designated for Basic RNAV Operations.

The KLN 900 GPS equipment as installed has been found to comply with the requirements for GPS primary means of navigation in oceanic and remote airspace, when used in conjunction with the KLN 900 prediction program. This does not constitute an operational approval.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

NOTE

Airplanes using GPS navigation Systems for oceanic IFR operations may use the KLN 900 if the installations are approved in accordance with FAA Notice 8110.60 or equivalent JAA or national documentation and their operation is approved in accordance with FAA HBAT 95-09 or equivalent JAA or National documentation

A single KLN 900 system installation may be used on short oceanic routes where only one Long Range Navigation System is required.

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SECTION 2 - LIMITATIONS

A. The KLN 900 GPS Pilot's Guide, P/N 006-08796-0000, (or later applicable revision) must be immediately available to the flight crew whenever navigation is predicated on the use of the system. The Operational Revision Status (ORS) of the Pilot's Guide must match the ORS level annunciated on the Self Test page.

B. IFR Navigation is restricted as follows:

(1) The system must utilize ORS level 04 or later approved revision.

(2) The data on the self test page must be verified prior to use. Verify valid altitude data is available to the KLN 900 prior to flight.

(3) IFR en route and terminal navigation is prohibited unless the pilot verifies the database contains the current update cycle or each selected waypoint for accuracy by reference to current approved data.

(4) Instrument approaches must be accomplished in accordance with approved instrument approach procedures that are retrieved from the KLN 900 data base. The KLN 900 data base must incorporate the current update cycle.

(a) Instrument approaches must be conducted in the approach mode and RAIM must be available at the Final Approach Fix.

(b) APR ACT (approach active) mode must be annunciated at the Final Approach Fix.

(c) Accomplishment of ILS, LOC, LOC-BC, LDA, SDF and MLS approaches are not authorized.

(d) When an alternate airport is required by the applicable operating rules, it must be served by an approach based on other than GPS navigation.

(e) The KLN 900 can only be used for approach guidance if the reference co-ordinate datum system for the instrument approach is WGS-84 or NAD-83. (All approaches in the KLN 900 data base use the WGS-84 or the NAD-83 geodetic datum and approval of the NAA.)

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(5) The use of the KLN 900 to perform Basic RNAV (RNP-5) operations in the designated European airspace is limited as follows:

(a) The system must have the GPS XPRESS software update with the following display on the STA 3 page:

HOST01515-0046
RCVR 01621-0001

(b) The KLN 900 data base must incorporate the current update cycle.

(c) Given a GPS constellation of 23 satellites or less (22 or less when the KLN 900 incorporates automatic pressure altitude aiding) is projected to be operational, the availability of RAIM must be confirmed for the intended flight (route and time). Dispatch for Basic-RNAV must not be made in the event of predicted continuous loss of RAIM of more than 5 minutes for any part of the intended flight. For RAIM prediction Preflight Version 2.0 or equivalent approved software must be used.

(d) Radar coverage must be available for the route to be flown.

(6) Traditional approved navigation equipment (e.g. VOR, DME, ADF) adequate for the route to be flown must be installed and serviceable for use of the KLN 900 GPS navigation system in accordance with the operational approval.

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SECTION 3 - EMERGENCY PROCEDURES

ABNORMAL PROCEDURES

A. If the KLN 900 GPS information is not available or invalid, utilize traditional operational navigation equipment as required.

B. If the alarm limit is exceeded during Basic-RNAV operation, revert to an alternative means of navigation.

C. If a "RAIM NOT AVAILABLE" message is displayed while conducting an instrument approach, terminate the approach. Execute a missed approach if required.

D. If a "RAIM NOT AVAILABLE" message is displayed during Basic-RNAV operation, navigation may continue using the KLN 900 provided cross-check with VOR, DME and/or NDB information shows an acceptable level of navigation performance (RNP-5). Otherwise revert to an alternative navigation as required.

E. Refer to the KLN 900 Pilot's Guide, Appendices B and C, for appropriate pilot actions to be accomplished in response to annunciated messages.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

SECTION 4 - NORMAL PROCEDURES

WARNING

FAMILIARITY WITH THE EN ROUTE OPERATION OF THE KLN 900 DOES NOT CONSTITUTE PROFICIENCY IN APPROACH OPERATIONS. DO NOT ATTEMPT APPROACH OPERATIONS IN IMC PRIOR TO ATTAINING PROFICIENCY IN THE USE OF THE KLN 900.

OPERATION

A. Normal operating procedures are outlined in the KLN 900 GPS Pilot's Guide, P/N 006-08796-0000 (ORS 04 or later applicable revision).

B. During Basic-RNAV operation, traditional navigation equipment (e.g. VOR, DME and ADF) should be selected to available ground based aids so as to allow immediate cross-checking or reversion in the event of loss of GPS navigation capability.

C. Before joining and during operation on an RNAV route, correct operation of the RNAV system shall be established. This includes that:

- the routing is in accordance with the clearance
- the navigation performance accuracy meets RNP-5 requirements

SYSTEM ANNUNCIATORS/SWITCHES/CONTROLS

A. GPS Status message **(MSG)** annunciation – In addition to the **MSG** annunciation on the KLN 900 GPS, the white **MSG** annunciation on the EFIS display will flash for five seconds (then go solid) to alert the pilot of a situation that requires attention. Press the MSG button on the KLN 900 GPS to view the message. Appendix B of the KLN 900 Pilots Guide contains a list of all of the message page messages and their meanings.

B. GPS waypoint **(WPT)** alerting - The KLN 900 GPS will provide navigation along a curved path segment to ensure a smooth transition between two adjacent legs in the flight plan. This feature is called turn anticipation. Approximately 20 seconds prior to the beginning of turn anticipation, the arrow preceding the active waypoint will begin flashing on the FPL 0 page, going solid upon initialization of the turn, and extinguishing upon turn completion. At the same time, the white **WPT** annunciation on the EFIS display will flash for five seconds, then go solid and extinguish upon turn completion.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

WARNING

TURN ANTICIPATION IS AUTOMATICALLY DISABLED FOR FAF WAYPOINTS AND THOSE USED EXCLUSIVELY IN SID/STAR WHERE OVER-FLIGHT IS REQUIRED. FOR WAYPOINTS SHARED BETWEEN SID/STAR AND PUBLISHED EN ROUTE SEGMENTS (REQUIRING OVER-FLIGHT IN THE SID/STAR), PROPER SELECTION ON THE PRESENTED WAYPOINT PAGE IS NECESSARY TO PROVIDE ADEQUATE ROUTE PROTECTION ON THE SID/STAR.

C. The **OBS** switch on the KLN 900 bezel (face) is used to select one of two basic course modes of KLN 900 operation, either:

(1) **OBS,** which is single waypoint with omni bearing (OBS) selection through that waypoint (like a VOR).

or

(2) **LEG** which is automatic leg sequencing between waypoints.

D. The course control knob on the EFIS control panel provides analog course input to the KLN 900 in OBS mode when the GPS source is selected on the EFIS. When other than GPS navigation sources are selected, GPS course selection in OBS mode is digital through the use of the controls and display of the KLN 900.

E. GPS omni bearing or leg **CRS** (white) **OBS** (white)/ **LEG** (green) course switch/annunciator - Used to select the basic modes of KLN 900 operation, either:

1) single waypoint with omni - bearing course (OBS) selection through that waypoint (like a VOR)

or

2) automatic leg sequencing (LEG) between waypoints.

NOTE

Either **LEG** or **OBS** will illuminate during system self test depending upon switch position.

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F. A GPS approach **APR** (white) **ARM** (white)/**ACT** (green) remote switch/annunciator is located to the left of the EIS, below the altimeter. The **APR** and **ARM** annunciators are white and the **ACT** annunciator is green. The **APR** (white) annunciator is repeated on the EHSI display. The remote switch is used to:

(1) Manually select or deselect approach **ARM** (or deselect approach **ACT**).

and

(2) Annunciate the stage of approach operation either armed **(ARM)** or activated **(ACT)**.

Sequential button pushes if in **ACT** would first result in approach ARM and then approach arm canceled. Subsequent button pushes will cycle between the armed state (if an approach is in the flight plan) and approach arm canceled. Approach **ACT** cannot be selected manually.

PILOT'S DISPLAY

Left/right steering information is presented on the EFIS as a function of the navigation source selection on the EFIS control panel.

AUTOPILOT COUPLED OPERATION

The KLN 900 may be coupled to the autopilot by first selecting **GPS** on the NAV/GPS switch. The autopilot approach mode (APR) should be used when conducting a coupled GPS approach.

NOTE

NAV or APR coupled DME arc intercepts can result in excessive overshoots (aggravated by high ground speeds and intercepts from <u>inside</u> the arc).

Tracking the GPS in NAV autopilot mode with a ± 0.3 nm CDI scale factor selected is not recommended. The GPS CDI scale factor may be changed on the KLN 900 MOD page.

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APPROACH MODE SEQUENCING AND RAIM PREDICTION

NOTE

The special use airspace alert will automatically be disabled prior to flying an instrument approach to reduce the potential for message congestion.

A. Prior to arrival, select a STAR if appropriate from the APT 7 page. Select an approach and an Initial Approach Fix (IAF) from the APT 8 page.

NOTE

Using the right hand outer knob, select the **ACT** (Active Flight Plan Waypoints) pages. Pull the right hand inner knob out and scroll to the destination airport, then push the inner knob in and select the ACT 7 or ACT 8 page.

To delete or replace a SID, STAR or approach, select **FPL 0** page. Place the cursor over the name of the procedure, press **ENT** to change it, or **CLR** then **ENT** to delete it.

B. En route, check for RAIM availability at the destination airport ETA on the **STA 5** page.

NOTE

RAIM must be available at the FAF in order to fly an instrument approach. Be prepared to terminate the approach upon loss of RAIM.

C. At 30 NM from the FAF:

(1) Verify automatic annunciation of APR **ARM**.

(2) Note automatic dbar scaling change from ± 5.0 NM to ± 1.0 NM over the next 30 seconds.

(3) Update the KLN 900 altimeter baro setting as required.

(4) Internally the KLN 900 will transition from en route to terminal integrity monitoring.

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D. Select GPS **NAV 5** page or applicable EFIS presentation, to fly the approach procedure.

(1) If receiving radar vectors, or need to fly a procedure turn or holding pattern, fly in **OBS** until inbound to the FAF.

NOTE

OBS navigation is TO-FROM (like a VOR) without waypoint sequencing.

(2) **NoPT** routes including DME arcs are flown in **LEG**. LEG is mandatory from the Final Approach Fix (FAF) to the MAP.

NOTE

Select HDG mode for DME arc intercepts. NAV or APR coupled DME arc intercepts can result in excessive overshoots (aggravated by high ground speeds and/or intercepts from inside the arc).

WARNING

FLYING FINAL OUTBOUND FROM AN OFF-AIRPORT VORTAC ON AN OVERLAY APPROACH; BEWARE OF THE DME DISTANCE INCREASING ON FINAL APPROACH, AND THE GPS DISTANCE-TO-WAYPOINT DECREASING, AND NOT MATCHING THE NUMBERS ON THE APPROACH PLATE.

E. At or before 2 NM from the FAF inbound:

(1) Select the FAF as the active waypoint, if not accomplished already.

(2) Select LEG operation.

F. Approaching the FAF inbound (within 2 NM.):

(1) Verify APR **ACT**.

(2) Note automatic dbar scaling change from ± 1.0 NM to ± 0.3 NM over the 2 NM inbound to the FAF.

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(3) Internally the KLN 900 will transition from terminal to approach integrity monitoring.

G. Crossing the FAF and APR ACT is not annunciated:

(1) Do not descend.

(2) Execute the missed approach.

H. Missed Approach:

(1) Climb

(2) Navigate to the MAP (in APR **ARM** if APR **ACT** is not available).

NOTE

There is no automatic **LEG** sequencing at the MAP.

(3) After climbing in accordance with the published missed approach procedure, press [-D->], verify or change the desired holding fix and press ENT.

GENERAL NOTES

- The data base must be up to date for non-precision instrument approach operation.
- Only one approach can be in the active flight plan at a time.
- If the destination airport is the active waypoint at the time of the instrument approach selection, the active waypoint will shift automatically to the chosen IAF.
- Checking RAIM prediction for your approach while en route using the STA 5 page is recommended. A self-check occurs automatically within 2 NM of the FAF. APR ACT is inhibited without RAIM.
- Data cannot be altered, added to or deleted from the approach procedures contained in the data base. (DME arc intercepts may be relocated along the arc through the **SUPER NAV 5** or the **FPL 0** pages).

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- **Some approach waypoints do not appear on the approach plates (including in some instances the FAF).**

- Waypoint suffixes in the flight plan:

i	-	IAF
f	-	FAF
m	-	MAP
h	-	missed approach holding fix.

- The DME arc IAF (arc intercept waypoint) will be:

  (a) On your present position radial off the arc VOR when you load the IAF into the flight plan.

  or

  (b) The beginning of the arc if currently on a radial beyond the arc limit.

  To adjust the arc intercept to be compatible with a current radar vector, bring up the arc IAF waypoint in the SUPER NAV 5 page scanning field, or applicable EFIS GPS presentation, or under the cursor on the FPL 0 page, press CLR, then ENT. Fly the arc in LEG. Adjust the HSI or CDI course pointer with reference to the desired track value on the SUPER NAV 5 page, or applicable EFIS GPS presentation (it will flash to remind you). Left/right DBAR information is relative to the arc. Displayed distance is <u>not</u> along the arc but direct to the active waypoint. If desired, select NAV 2 page for digital DME arc distance to and radial from the reference VOR.

- The DME arc IAF identifier may be unfamiliar. Example: D098G where 098 stands for the 098° radial off the referenced VOR, and G is the seventh letter in the alphabet indicating a 7 DME arc.

- APR **ARM** to APR **ACT** is automatic provided:

  (a) You are in APR **ARM** (normally automatic).

  (b) You are in **LEG** mode

  (c) The **FAF** is the active waypoint

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(d) Within 2 NM of the FAF.

(e) Outside of the FAF.

(f) Inbound to the FAF.

(g) RAIM is available.

- Direct-To operation between the FAF and MAP cancels APR **ACT**. Fly the missed approach in APR **ARM**.

- Flagged navigation inside the FAF may usually be restored (not guaranteed) by pressing the GPS APR button changing from **ACT** to **ARM**. Fly the missed approach.

- The instrument approach using the KLN 900 may be essentially automatic starting 30 NM out (with a manual barometer setting update) or it may require judicious selection of the OBS and LEG modes.

- APR **ARM** may be cancelled at any time by pressing the GPS APR button. (A subsequent press will reselect it.)

SECTION 5 - PERFORMANCE

No change

SECTION 6 - WEIGHT AND BALANCE

Factory installed optional equipment is included in the licensed weight and balance data in Section 6 of the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual.

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SECTION 7 – AIRPLANE AND SYSTEMS DESCRIPTION

DESCRIPTION (REF. FIG. 7-1)

The KLN 900 GPS Navigation System processes signals from a maximum of eight satellites to give the pilot present position information and to display guidance information with respect to a flight plan defined by the pilot. The pilot uses the controls on the front panel of the GPS unit to enter the flight plan.

The KLN 900 GPS Navigation System calculates crosstrack error, distance-to-waypoint, groundspeed, track angle, time to waypoint, bearing to waypoint and vertical navigation data. The memory of the GPS holds the present position, the pilot-specified waypoints and up to 26 different flight plans with up to 30 waypoints each.

The GPS Navigation System comprises these components:

- one KLN 900 GPS navigation unit
- one KA 92 GPS antenna
- one APR - ARM/ACT switch
- one CRS OBS/LEG switch

The Computer Aided Test (CAT) connector on the aircraft can be used as a database loader. This is an alternative method to the practice of replacing the database card in the front GPS unit.

The GPS antenna is located on the top of the aircraft, above the forward door.

A GPS navigation unit is located in the aft center pedestal.

An APR - ARM/ACT switch and a CRS OBS/LRG switch are located on the instrument panel.

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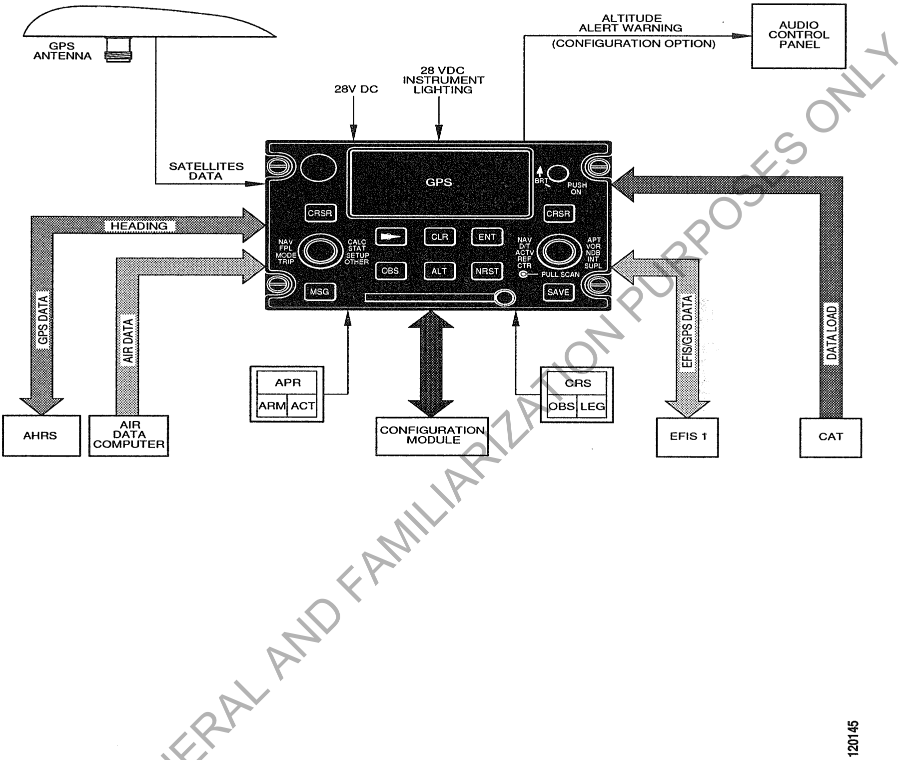

Figure 7-1. GPS Schematic

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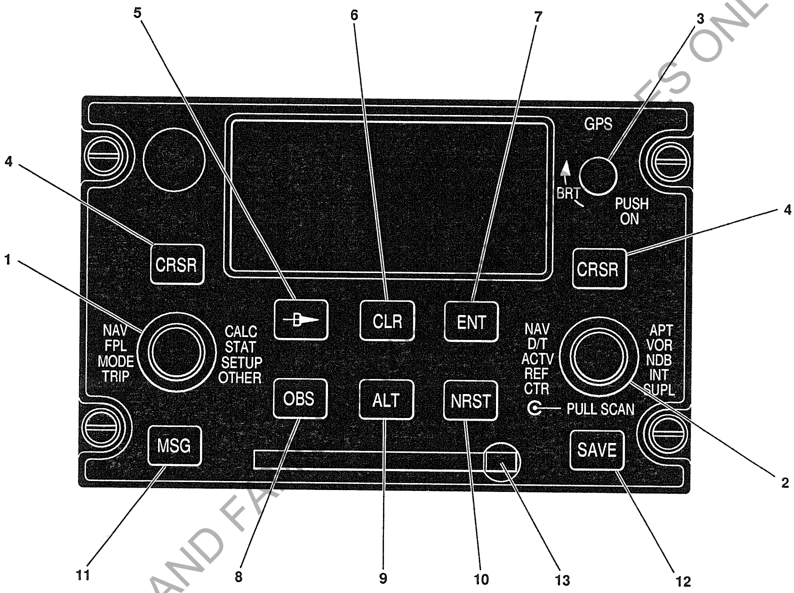

Figure 7-2. GPS Controls

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GPS DISPLAY CONTROL SWITCHES (REF. FIG. 7-2)

The GPS display is a Cathode Ray Tube (CRT). The display screen is divided into a maximum of five segments, the number of segments depending on the mode of operation selected. Most operations show a five-segment display, with two of the segments larger than the other three. These are used as the left page data display and the right page data display. The left and right page data controls are used to select and change data on these pages. The left and right page data controls have an inner knob and an outer knob.

The outer knob:

- sets different pages when the cursor is off
- moves the cursor on the display when the cursor is on

The inner knob:

- selects the next page of the page group when the cursor is off
- changes the data below the cursor when the cursor is on

1. Left Page Data Control
   - NAV (navigation)
   - FPL (flight plan)
   - MODE (mode)
   - TRIP (trip planning)
   - CALC (flight calculator)
   - STAT (status)
   - SETUP (set-up)
   - OTHER
2. Right Page Data Control:
   - NAV (navigation)
   - D/T (distance/time)

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- ACTV (active waypoint)
- REF (reference waypoint)
- CTR (center waypoint)
- APT (airport waypoint)
- VOR (VOR waypoint)
- NDB (non-directional beacon waypoint)
- INT (intersection page)
- PULL SCAN: when the right page data control inner knob is pulled out, it allows the pilot to view the data in the database

The functions of the remaining switches are:

3. BRT/PUSH ON

(a) PUSH ON the GPS navigation unit is switched on when the control is pushed in and switched off when it is pulled out.

(b) BRT the light intensity of the display changes when the control is rotated. The panel lighting is controlled from the COCKPIT LIGHTS - SIDE PNL controls.

4. Left and Right CRSR (Cursor)

Switches the cursor on or off. The cursor is a block of light and it is moved on the display with the left or right page data controls.

5. Direct-To (Arrowed D)

Shows the navigation data from the aircraft's present position to the selected waypoint on the display panel.

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6. CLR (Clear)

   Removes the data shown on the display panel.

7. ENT (Enter)

   The data under the cursor is put in the computer memory.

8. OBS

   When the OBS navigation mode is used, each push of the switch causes the mode to alternate between OBS and LEG.

9. ALT (Altitude)

   Shows the altitude page and data on the altitude alert mode.

10. NRST (Nearest)

    Shows a list of the nearest nine airports.

11. MSG (Message)

    When there is a situation which requires attention, the MSG prompt flashes at the bottom right of the display. The MSG button is then pressed to show the message page.

12. SAVE

    Used to create a user waypoint at the present position.

13. Card Ejection Button

    The GPS navigation unit is turned off and this button is pressed to eject the database card from the front of the unit.

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APR - ARM/ACT SWITCH

The APR - ARM/ACT switch is used to arm, disarm or deactivate the approach mode.

CRS - OBS/LEG SWITCH

The CRS – OBS/LEG switch is used to select either OBS or LEG mode.

ALTITUDE ALERT FUNCTION

The aircraft is wired for the altitude alert function, which can be set on or off when configuring the GPS navigation system options.

When the altitude alert option is used, the GPS navigation system receives altitude information from the air data computer and, when necessary, sends an altitude alert warning signal to the audio integrating system. The altitude alert warning signal is connected to the unmuted input of the audio control panel. The warning tone frequency is 1 kHz. The tone volume is adjusted on the SET 9 page. The altitude alerts include:

- 3 short tones: the aircraft is within 1000 ft of the selected altitude
- 2 short tones: the aircraft has reached the selected altitude
- - 2 short tones - pause - 2 short tones: the aircraft has deviated from the selected altitude by more than 300 ft
- 1 short tone - 1 long tone - 1 short tone: height above airport alert

DATA LOADING

The GPS will not navigate during data loading, therefore it is necessary to load the data base before the flight. The published database can be updated by either of the following methods:

- using a personal computer (connected to the CAT connector)
- replacing the database card in the GPS navigation unit, which is accessible through the front panel of the unit

PUBLISHED DATA BASE

The published data base is an electronic memory containing information on airports, navaids, intersections, SID's, STAR's, instrument approaches, special use airspace, and other items of value to the pilot.

Every 28 days, AlliedSignal receives new data base information from Jeppesen Sanderson. This information is processed and downloaded onto the data base cards. AlliedSignal makes these data base card updates available to KLN 900 GPS navigation system users.

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PILOT'S OPERATING HANDBOOK
AND
FOCA APPROVED AIRPLANE FLIGHT MANUAL

SUPPLEMENT NO. 22
FOR
EMERGENCY POWER SYSTEM

This supplement must be attached to the Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual when the emergency power system is installed in accordance with Pilatus Drawings. The information contained herein supplements or supersedes the information in the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual only in those areas listed. For limitations, procedures and performance information not contained in this supplement, consult the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual.

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Approved by:

Federal Office for Civil Aviation (FOCA) of Switzerland
Section for Type Certification

Federal Office for Civil Aviation

Date of Approval:

16. NOV. 01

SECTION 1 - GENERAL

This supplement supplies the information necessary for the operation of the airplane when the emergency power system is installed in accordance with Modification Approval Sheet PIL 12/24/093 or at aircraft build on MSN 321 and 401 & UP.

SECTION 2 - LIMITATIONS

No change.

SECTION 3 – EMERGENCY PROCEDURES

3.0 EMERGENCY PROCEDURES

The following step is added to all the Emergency Procedures where the electrical system gangbar (MSN 101-320 and 322-400) or MASTER POWER switch (MSN 321 and 401& UP) is operated:

EMER PWR SYSTEM switch OFF

3.15 ELECTRICAL SYSTEM FAILURES

3.15.1 The standby attitude indicator is operative.

SECTION 4 – NORMAL PROCEDURES

4.4 BEFORE STARTING ENGINE

4.4.1 PROCEDURE

1. EPS switch	TEST (minimum 5 seconds)
2. BAT TEST indicator	Check green LED comes on and stays on during test
3. EPS switch	ARMED
4. EPS ON indicator	Check amber LED comes on
5. BAT switch BAT 1 and 2 switches	ON ON (if 2nd battery installed)
6. EPS ON indicator	Check amber LED goes off

4.18 SHUTDOWN

1. EPS switch	OFF

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SECTION 5 - PERFORMANCE

No change.

SECTION 6 - WEIGHT AND BALANCE

Factory installed optional equipment is included in the licensed weight and balance data in Section 6 of the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual.

SECTION 7 - SYSTEM DESCRIPTION

ELECTRICAL

GENERAL

- Emergency Power system option: a lead-acid battery 24 V 5 Ah

DESCRIPTION

POWER SUPPLIES (MSN 101-320 and 322-400)

The Emergency Power System (EPS) uses a 24 V 5 Ah lead-acid battery to supply power to the EPS bus. The COMM/NAV 1 and the second Attitude Indicator are connected to the EPS bus. During normal operation and when the EPS is armed, a relay connects the EPS bus to the battery bus through the EPS. If the battery bus fails or there is a total power loss, the EPS battery will continue to provide power through the EPS bus to the COMM/NAV 1 and the second Attitude Indicator. Power is also supplied to the lighting circuits of the CDI and the second Attitude Indicator.

POWER SUPPLIES (MSN 321 and 401 & UP)

The Emergency Power System (EPS) uses a 24 V 5 Ah lead-acid battery to supply power to the second Attitude Indicator. During normal operation and when the EPS is armed, a relay connects the SECOND ATT IND circuit breaker to the battery bus through the EPS. If the battery bus fails or there is a total power loss, the EPS battery will continue to provide power to the second Attitude Indicator. Power is also supplied to the lighting circuit of the second Attitude Indicator.

CONTROLS AND INDICATORS

The Emergency Power System (EPS) is controlled from a switch on the Overhead Electrical Power Management Panel (MSN 101-320 and 322-400) or the pilot's lower right switch panel (MSN 321 and 401 & UP). The switch EMER PWR SYSTEM has the positions ARMED, OFF and TEST. There are two indicators EPS ON (amber) and BAT TEST (green) adjacent to the

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switch. With the switch in the TEST position (minimum 5 seconds) the BAT TEST indicator will come on to show that the system is serviceable. The switch is put in the ARMED position before flight and if there is a total power loss, the EPS ON indicator will come on to show that the system is supplying power.

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PILOT'S OPERATING HANDBOOK
AND
FOCA APPROVED AIRPLANE FLIGHT MANUAL

SUPPLEMENT NO. 23
FOR
MULTI FUNCTION DISPLAY (KMD 850)

This supplement must be attached to the Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual when the KMD 850 Multi-function display is installed in accordance with Pilatus Drawings. The information contained herein supplements or supersedes the information in the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual only in those areas listed. For limitations, procedures and performance information not contained in this supplement, consult the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual.

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Approved by:

Federal Office for Civil Aviation (FOCA) of Switzerland
Section for Type Certification

Date of Approval:

17. APR. 2001

SECTION 1 - GENERAL

This supplement supplies the information necessary for the operation of the airplane when the multi function display (KMD 850) is installed in accordance with Modification Approval Sheet PIL 12/34/109.

SECTION 2 - LIMITATIONS

No change.

SECTION 3 – EMERGENCY PROCEDURES

No change

SECTION 4 – NORMAL PROCEDURES

No change

SECTION 5 - PERFORMANCE

No change.

SECTION 6 - WEIGHT AND BALANCE

Factory installed optional equipment is included in the licensed weight and balance data in Section 6 of the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual.

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SECTION 7 - SYSTEM DESCRIPTION

MULTI-FUNCTION DISPLAY (KMD 850)

Ref. Fig 7.1

The KMD 850 Multi-function display (MFD) is an independent Liquid crystal display (LCD) which shows:

- A moving map display
- Weather radar data (if installed)
- Terrain data (if EGPWS or TAWS is installed)
- Traffic data (if TCAS is installed).

The MFD is installed in the center instrument panel and contains the controls and indicators necessary to operate the MFD in each of its operating modes. The MFD has the following controls and display:

1. Display area

   The display area operates in the mode set by the function select keys. The functions that can be set on the display area are:

   - Map function – When the start up sequence is complete, the MFD shows a "TOPO ON" MAP page, if the MFD has a valid GPS input the map corresponds to the position of the aircraft
   - Weather Radar function – When the WX function key is pushed the weather radar page is shown
   - Auxiliary function – When the AUX function key is pushed, the MFD shows an auxiliary code cover page. This provides access to the MFD set up pages.
   - Terrain function – (if EGPWS is installed) When the TERR function key is pushed, the MFD shows the terrain page for the EGPWS
   - Traffic function – (if TCAS is installed) When the TRFC function key is pushed, the MFD shows the traffic page for TCAS.

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2. Joystick

The joystick moves a pointer around the LCD display. The joystick is used to point at items on the map page for further information and for measuring range and bearing to specific points.

When the WX radar function is selected, the joystick controls the tilt angle and track line of the antenna. On the AUX setup pages the joystick is used to select and change the settings for a given set up field.

3. Control keys

The control keys are used to manipulate the page that is currently displayed. Either a soft label on the LCD on the left side of the key or the control key annunciator on the right side of the control key indicates the functionality of each key.

The control key functions are MODE, RNG UP, RNG DOWN, VIEW and OVLY.

MODE – This key makes the display sequence through all available modes associated with the displayed page

RNG UP – This key increases the range scale up one level on the displayed page. The default range on start up is 80 nm.

RNG DOWN – This key decreases the range scale down one level on the displayed page.

VIEW – This key makes the display sequence through the available views associated with the displayed page.

OVLY – This key allows data from more than one source to be displayed simultaneously on the display screen.

The MFD has a fault indicator located between the RNG UP and RNG DOWN keys. When there is a hardware fault detected, the letter "F" in a circle appears.

4. Inner and Outer control knobs

The inner and outer control knobs have various functions as indicated by the relevant soft label when active. If the weather radar page is selected the inner knob controls the gain of the weather radar in the ground mapping mode. The outer knob acts as the weather radar function selector for the standby, test and on functions.

5. Selected function indicators

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The selected function indicators come on when the applicable function key is pushed to set a particular function of the display.

6. Function select keys

The function select keys select the available data sources to be displayed on the display area. The function select keys have the following captions:

- MAP
- WX (Weather Radar if installed)
- TRFC (TCAS if installed)
- TERR (Terrain if EGPWS or TAWS is installed)
- AUX (Set-up pages)

When a function select key is pushed, the indicator above the key is illuminated to show that the function has been selected for display. If the key is pressed multiple times in sequence, the available pages associated with the particular function are shown on the display area.

7. OFF/ON control

The OFF/ON control sets the MFD to on or off.

8. Regional map data card

The regional map data card is a front panel loading PCMCIA flashdisk. The card contains application software and a customized Jeppesen aeronautical database. Three regions are covered on different databases, the Atlantic, Americas and Pacific. The appropriate database card for your area must be installed before switching on the MFD. The database contains data VORs, NDBs, intersections and special use airspace. The data card also has a topographical database which includes rivers, roads, lakes, coastlines, cities, rail tracks, and towers.

9. Brightness control

The brightness control changes the intensity of the display.

Detailed operating instructions or technical information for the KMD 850 Multi-Function Display may be obtained by consulting the latest available revision of the pilots guide Pt No 006-18222-0000.

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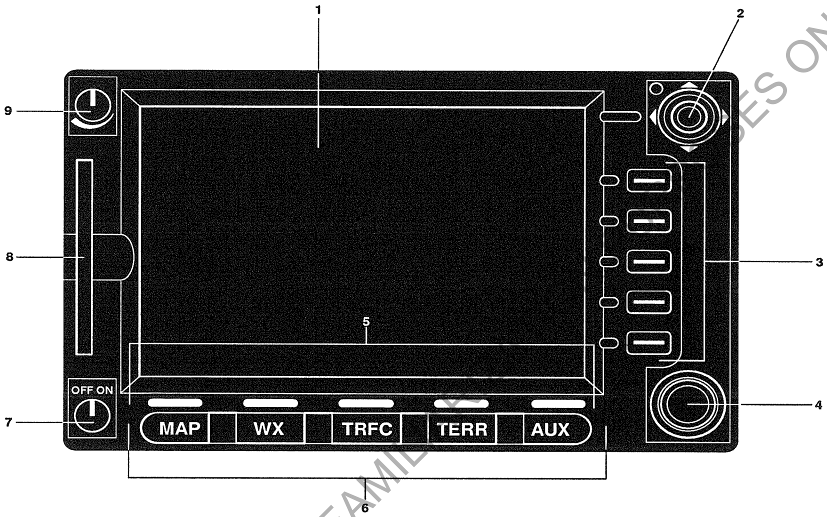

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Figure 7-1
Multifunction Display (KMD 850)

PILOT'S OPERATING HANDBOOK
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FOCA APPROVED AIRPLANE FLIGHT MANUAL

SUPPLEMENT NO. 24
FOR
ENHANCED GROUND PROXIMITY WARNING SYSTEM
(HONEYWELL MK-VI EGPWS)

This supplement must be attached to the Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual when a MK-VI EGPWS is installed in accordance with Pilatus Drawings. The information contained herein supplements or supersedes the information in the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual only in those areas listed. For limitations, procedures and performance information not contained in this supplement, consult the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual.

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Approved by:

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Section for Type Certification

Date of Approval:

28. JUNI 2001

SECTION 1 - GENERAL

This supplement supplies the information necessary for the operation of the airplane when the MK VI EGPWS is installed in accordance with Modification Approval Sheet PIL 12/34/103.

SWITCH LEGEND	FUNCTION
GND PROX WARN	Ground Proximity Warning
GPWS INOP	Ground Proximity Warning System inoperative
TERR INOP	Terrain Function Inoperative
G/S P/CNCL	Glideslope press to cancel
BELOW G/S	Below Glideslope
GPWS P/TEST	Ground Proximity Warning System press to test
G/S CNCLD	Glideslope cancelled

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SECTION 2 - LIMITATIONS

The MK VI EGPWS Pilot's Guide (060-4314-000 Initial Issue dated April 2000 or later applicable revision) must be readily accessible to the flight crew when operating the MK VI EGPWS. Navigation using the terrain database is not permitted.

SECTION 3 - EMERGENCY PROCEDURES

SECTION 3A - ABNORMAL PROCEDURES

3A.1 GENERAL

3A.1.1 Press the GPWS FLAP OVRD switch to prevent operation of the "TOO LOW FLAPS" alert when you need to land with less than full flaps. Flap override is automatically deselected below 50 feet AGL.

3A.1.2 Press the G/S P/CNCL switch to deactivate the "BELOW G/S" alert when you intentionally plan to go below the glideslope. A G/S CNCLD amber caption will illuminate, it will automatically reset after landing or if the aircraft climbs above 2000 feet, or a non ILS frequency is selected.

3A.1.3 Press the TERR INHIBIT switch to prevent nuisance or unwanted warnings when operating at an airport not in the terrain database. Terrain inhibit requires manual deactivation.

3A.1.4 Press the GPWS STEEP APP switch if steep approaches greater than 4° and within the operational limitations of the aircraft are performed to eliminate unwanted 'SINKRATE' and 'PULL UP' aural warnings. GPWS steep approach requires manual deactivation

3A.1.5 Flight outside the installed database region will initiate an amber TERR INOP caution, all enhanced functions dependant on the database are inoperative. The terrain display will display Magenta, depicting unknown terrain. All GPWS functions remain active.

3A.1.6 When the GPWS INOP amber caption illuminates to indicate a system failure, the failure may be identified by the following method:

(a) On ground, press and hold the GPWS test switch to perform a System Self Test. The test will prove if the fault is external to the EGPWS (with an aural fault message) or is internal.

If the fault cannot be cleared, pull the EGPWS circuit breaker.

The aircraft must not be flown until the pilot has verified that operational requirements are met with the systems available.

(b) In flight, if the fault cannot be cleared, pull the EGPWS circuit breaker.

Continue flight – Report on landing.

3A.1.7 The EGPWS can be deactivated by pulling the EGPWS circuit breaker, located on the AVIONIC 2 circuit breaker panel, when a system failure cannot be cleared.

SECTION 4 - NORMAL PROCEDURES

Perform a Self Test of the EGPWS prior to flight.

SECTION 5 - PERFORMANCE

No change.

SECTION 6 - WEIGHT AND BALANCE

Factory installed optional equipment is included in the licensed weight and balance data in Section 6 of the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual.

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SECTION 7 DESCRIPTION

GENERAL

The Enhanced GPWS Mk VI provides an enhanced capability of reducing accidents caused by controlled flight into terrain. The system achieves this by receiving a variety of aircraft parameters as inputs, then applying alerting algorithms to provide the flight crew with aural messages and visual annunciation and display. The EGPWS provides the flight crew with enhanced terrain awareness while following an ATC flight plan clearance. The terrain and obstacle display is shown on the KMD 850 Multi-function display.

The EGPWS has an integral GPS receiver for accurate position determination and a regional terrain database of geographical topography and physical obstructions. There are three regional terrain databases available which cover the Americas, the Atlantic and the Pacific regions. Only one regional terrain database can be installed at a given time and this is indicated by the version number and letter designation during a system self test.

The installed regional database limits the availability of the Enhanced functionality to operations within the installed region, operation outside of the installed regional database does not affect the basic GPWS functionality. If the incorrect region is installed for the current location of the aircraft, the Enhanced functions are inoperative, this is indicated by a TERR INOP annunciation and Outside database region indicated during a self test.

The Mk VI EGPWS consists of two GPWS test switches, nine GPWS indicator lamps/switches, a GPS antenna and. an EGPWS computer.

EGPWS TEST SWITCH

A test switch for the EGPWS system is installed on the left and the right instrument panel. It has the legend 'GPWS P/TEST' in illuminated white letters on a black background.

EGPWS INDICATOR LAMPS/SWITCHES

There are four indicator lamps/switches for the EGPWS installed on the left and the right instrument panels and three indicator lamps/switches are installed on the left crossbar panel:

GND PROX WARN (LEFT AND RIGHT INSTRUMENT PANELS)

The GND PROX WARN indicator consists of black letters on a black background when not illuminated. It comes on with red illuminated letters on a black background when the EGPWS computer detects an alert or warning in Modes:
1 (Excessive Descent Rate),
2 (Excessive Closure Rate to Terrain),
3 (Altitude Loss After Takeoff)
and 4 (Insufficient Terrain Clearance).

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GPWS INOP/TERR INOP (LEFT AND RIGHT INSTRUMENT PANELS)

This indicator is a split screen annunciator, The upper GPWS INOP consists of black letters on an black background. The text comes on in amber when the EGPWS detects a failure of the system. The lower TERR INOP consists of black letters on a black background. The text comes on in amber when the EGPWS Terrain mode has a disabled function.

G/S P/CNCL / BELOW G/S (LEFT AND RIGHT INSTRUMENT PANELS)

This momentary indicator switch has a split screen annunciator. The upper G/S P/CNCL consists of illuminated white letters on a black background. The lower BELOW G/S caption consists of black letters on a black background. The text comes on in amber on a black background when the EGPWS computer detects a Mode 5 (Descent Below Glideslope) alert situation.

GPWS P/TEST / G/S CNCLD (LEFT AND RIGHT INSTRUMENT PANELS)

This is a momentary action switch with a split screen annunciator. The upper GPWS P/TEST legend consists of illuminated white letters on a black background. The lower G/S CNCLD consists of black letters on a black background. The text comes on in amber on a black background when a BELOW G/S caution has been cancelled using the G/S PCNCL switch. This shows that the EGPWS mode 5 function has been inhibited. The legend will stay illuminated until the EGPWS reverts to ground mode, or the aircraft climbs above 2000 feet, or a non ILS frequency is selected.

TERR INHIBIT (LEFT CROSSBAR PANEL)

This indicator switch consists of illuminated white letters on a black background when inoperative. When operated the switch comes on with blue letters on a black background. When operated the switch will inhibit the aural and terrain warnings associated with the enhanced features of the EGPWS, allowing the aircraft to operate without nuisance or unwanted warnings. This function is particularly useful when operating at airfields that are not in the terrain database. The terrain awareness display remains fully operational.

GPWS STEEP APR (LEFT CROSSBAR PANEL)

This indicator switch consists of illuminated white letters on a black background when inoperative. The switch is covered by a switch guard. The caption comes on with blue letters on a black background when the switch is selected to enable a steep approach greater than 4° and within the operational limitations of the aircraft without nuisance aural alerts. GPWS steep approach requires manual deactivation.

GPWS FLAP OVRD (LEFT CROSSBAR PANEL)

This momentary indicator switch consists of illuminated white letters on a black background when inoperative. The switch is covered by a switch guard. The caption comes on with blue letters on a black background when the switch is pressed and released. The switch is selected to enable late deployment of landing flaps without

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receiving nuisance alerts (Too Low Flaps). GPWS flap overide is automatically deselected below 50 feet AGL.

EGPWS COMPUTER

The EGPWS computer is installed below the passenger cabin floor. It uses the following system inputs for its computations:

- AHRS	roll attitude
- radar altimeter	altitude AGL
- air data computer	vertical speed and airspeed
- VHF NAV1 system	ILS/glideslope
- EFIS 1 symbol generator	decision height (DH)
- flaps system	flaps position
- landing gear system	landing gear position
- KMD850 multi-function display	range data
- Autopilot	autopilot engaged

The EGPWS computer sends unmuted voice messages, when necessary, to the flight compartment headphones and loudspeakers. At the same time, it sends a suppression signal to the CAWS and TCAS (if installed) to inhibit voice messages from the CAWS and TCAS when the EGPWS is generating voice messages.

The (Modes 1 thru 6) EGPWS voice messages used in order of priority are:

"PULL-UP PULL UP"
"TERRAIN-TERRAIN"
"OBSTACLE OBSTACLE"
"CAUTION TERRAIN"
"CAUTION OBSTACLE"
"TERRAIN"
"MINIMUMS - MINIMUMS"
"TOO LOW, GEAR"
"TOO LOW, TERRAIN"
"Altitude Callouts" (see NOTE 1)
"TOO LOW, FLAPS"
"SINK RATE SINK RATE"
"DON'T SINK DON'T SINK"
"GLIDESLOPE"
"BANK ANGLE BANK ANGLE"

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NOTE

The following altitude callouts are enabled:

MINIMUMS MINIMUMS
FIVE HUNDRED
TWO HUNDRED
ONE HUNDRED
FIFTY
FORTY
THIRTY
TWENTY
TEN

The enhanced feature of the EGPWS is the ability to alert the crew to and provide a display of potential conflict with terrain. Terrain conflict alerts will initiate a specific aural message and illuminate the GND PROX WARN annunciator. The EGPWS keeps a synthetic image of local terrain in front of the aircraft for display on the KMD 850 multi-function display.

Terrain is displayed as a variable density dot pattern in green, yellow or red. The pattern density and color being a function of how close the terrain or obstacle is, relative to the altitude of the aircraft.

There are two different background terrain awareness display modes Standard and Peaks.

In the Standard Mode, terrain data is shown using colors and shading patterns which correspond to the vertical displacement between the elevation of the terrain and the current altitude of the aircraft. Red and Yellow dot patterns indicate terrain near or above the current altitude of the aircraft. Solid Red and Yellow colors indicate warning and caution areas relative to the flight path of the aircraft when an alert is active. Medium and low density green display patterns indicate terrain which is below the aircraft and within 2000 feet of the aircraft altitude. Terrain which is more than 2000 feet below the aircraft is not displayed.

In the Peaks mode, additional density patterns and level thresholds are added to the Standard mode display levels and patterns. These additional levels are based on absolute terrain elevations relative to the range and distribution of the terrain in the display area. The Peaks mode display is a merged display applicable to all flight phases. At altitudes safely above all terrain for the chosen display range, the terrain is shown independent of aircraft altitude emphasizing the highest and lowest elevations. This gives greater situational awareness. The Peaks mode display includes a solid green level to indicate the highest non threatening terrain. The standard lower density green display patterns indicate mid and upper terrain in the display area as well as terrain that is within 2000 feet of the aircraft. Terrain identified as water (0 feet MSL) is displayed as a cyan color dot pattern. Additionally with the Peaks mode display, two elevation numbers indicating the highest and lowest terrain currently being displayed are overlaid on the display. The elevation numbers indicate terrain in hundreds of feet above sea level (MSL). The terrain elevation numbers are displayed with the highest terrain number on top and the lowest terrain number beneath it. The elevation numbers are unique to the Peaks mode.

The terrain alerting algorithms continuously compute the terrain clearance envelopes ahead of the aircraft. If the boundaries of these envelopes conflict with terrain elevation data in the terrain database, then alerts are issued. Two envelopes are computed, one corresponding to a terrain caution alert and the other to a terrain warning alert. Terrain awareness caution and warning

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alerts are inhibited below 30 feet of radio altitude, within 1nm of the runway or below 60 knots groundspeed.

When the required conditions have been met to generate a terrain or obstacle caution alert, the terrain image on the KMD 850 multi-function display is enhanced to highlight the threatening terrain as solid yellow for caution threats and the appropriate aural alert is given. When the required conditions have been met to generate a terrain or obstacle warning alert, the display image on the KMD 850 multi-function display is enhanced to highlight the terrain as solid red and the appropriate aural alert is given.

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PILOT'S OPERATING HANDBOOK
AND
FOCA APPROVED AIRPLANE FLIGHT MANUAL

SUPPLEMENT NO. 25
FOR
PC-12 (4100 KG MTOW VARIANT)

FROM MSN 401 UPWARDS

This supplement must be attached to the Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual when operating the PC-12 at a weight of 4100 kg. The information contained herein supplements or supersedes the information in the basic Pilot's Operating Handbook only in those areas listed. For limitations, procedures and performance information not contained in this supplement, consult the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual.

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Approved by:

Federal Office for Civil Aviation (FOCA) of Switzerland
Section for Type Certification

Bundesamt für Zivilluftfahrt - Office fédéral de l'aviation civile

Date of Approval: 4. NOV. 2005

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LIST OF EFFECTIVE PAGES

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LOG OF REVISIONS

Revision Number and Date	Page Number	Description
3 Jul 12, 2016	9-25-2 thru 9-25-6	Introduction of List of Effective Pages and Log of Revisions.
	9-15-13 and 9-15-14	Updated paragraph numbers due to introduction of new paragraph 4.19 in POH 02211 resulting in renumbering of subsequent paragraphs (editorial change).
	9-25-15	Parts of text revised to make clearer that stick shaker and pusher settings are measured by the angle of attack vanes. Added clarification that in icing conditions the shaker and pusher operate in PUSHER ICE MODE. Identified the deice boots as “pneumatic deice boots” throughout the text.
		Supplement revised to bring the layout up to the latest standard (editorial change).
		This revision 3 of AFM SUPPLEMENT 25 is approved under the Authority of DOA ref. EASA.21J.357
		Date of Approval: 12 July, 2016
4 Oct 06, 2017	9-25-3	LOEP updated to reflect Revision 4
	9-25-5 and 9-25-6	LOR updated to reflect Revision 4
	9-25-11	17188 - Landing approach speeds with ice accretion on the airframe updated. Balked landing with Pusher Ice Mode speed updated
	9-25-12	17188 - Minimum approach speeds updated
	9-25-13	17188 - Pusher Ice Mode speeds updated. Balked Landing configuration updated (LG down added)
	9-25-14	17188 - Minimum recommended speeds for icing encounters updated
	9-25-15 thru 9-25-33	16966 - Updated Flight in Icing Conditions paragraphs with detailed tables and examples.

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Revision Number and Date	Page Number	Description
4 Oct 06, 2017 (Continued)	9-25-34 thru 9-25-38	Text run on (editorial). This revision 4 of AFM SUPPLEMENT 25 is approved under the Authority of DOA ref. EASA.21J.357 Date of Approval: 06 Oct, 2017

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SECTION 1 - GENERAL

MAXIMUM WEIGHTS

Maximum Ramp Weight	9,083 lb (4,120 kg)
Maximum Takeoff Weight	9,039 lb (4,100 kg)
Maximum Landing Weight	9,039 lb (4,100 kg)
Maximum Zero Fuel Weight	8,160 lb (3,700 kg)
Maximum Cargo Weight	
Baggage Area	400 lb (180 kg)
Cabin Area	2205 lb (1000 kg)

TYPICAL AIRPLANE WEIGHTS

Empty Weight	5439 lb (2467 kg) *
Useful Load	3600 lb (1633 kg)

*Empty weight of standard airplane without 9 passenger seats and cabin floor covering.

SPECIFIC LOADINGS

Wing Loading	35.5 lb/sq ft (158.8 kg/sq m)
Power Loading	9.0 lb/shp (4.1 kg/shp)

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SECTION 2 - LIMITATIONS

AIRSPEED INDICATOR MARKINGS

MARKING	KIAS VALUE OR RANGE	REMARKS
Green Arc	86 to 236	Normal operating range. Lower limit is maximum weight stall speed in the clean configuration (V_S). Upper limit is the maximum operating speed (V_{MO}/M_{MO}).
White Arc	59 to 130	Full flap operating range. Lower limit is maximum weight stall speed in landing configuration (V_{SO}). Upper limit is maximum speed with full flaps extended (V_{FE}).

WEIGHT LIMITS

Maximum Ramp Weight	9,083 lb (4,120 kg)
Maximum Takeoff Weight	9,039 lb (4,100 kg)
Maximum Landing Weight	9,039 lb (4,100 kg)
Maximum Zero Fuel Weight	8,160 lb (3,700 kg)

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CENTER OF GRAVITY LIMITS

Weight Pounds (kilograms)	Forward Limit A.O.D.: In. / M	Aft Limit A.O.D.: In. / M
9083 (4120)	230.49 / 5.854	241.57 / 6.136
9039 (4100)	230.18 / 5.847	241.63 / 6.137
8160 (3700)	223.99 / 5.689	242.73 / 6.163
7938 (3600)	223.87 / 5.684	243.06 / 6.172
6615 (3000)	221.85 / 5.633	243.06 / 6.172
5954 (2700)	220.75 / 5.607	231.50 / 5.880
5623 (2550)	220.75 / 5.607	225.47 / 5.727

NOTES

Straight line variation between points given.

The datum is 118 in (3.0 m) forward of firewall.

It is the responsibility of the pilot to ensure that airplane is loaded properly.

See Section 6, Weight and Balance for proper loading instructions.

OTHER LIMITS

PC-12 AIRCRAFT

The aircraft must be operated in accordance with this Supplement when the Identification Plate installed on the lower left side of the fuselage aft of the cargo door defines the Model Designation as PC-12.

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PLACARDS

On the main landing gear doors:

TYRE PRESSURE 55 PSI

On the instrument panel:

V_O	(4100 KG)	151	KIAS
V_O	(2600 KG)	120	KIAS
V_{MO}		236	KIAS
M_{MO}		0.48	M

On the left and right cargo door frame:

MAX FREIGHT LOAD = 1000 kg / 2200 lb

Max Load on Seat Rails	Max Load on Floor Panels
1000 kg/m^2 205 lb/ft^2	600 kg/m^2 125 lb/ft^2

CARGO MUST NOT OBSTRUCT ACCESS TO CABIN DOOR AND EMERGENCY EXIT

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SECTION 3 - EMERGENCY PROCEDURES

3.2 AIRSPEEDS FOR EMERGENCY OPERATIONS

All airspeeds shown are with airplane in clean configuration under ISA conditions.

C. Landing Approach Speeds with ice accretion on the airframe:

After failure of:	Minimum Approach Speed:
Pneumatic Deice Boots (flap position limit 0°)	124 KIAS
AOA Probe Deice and/or	100 KIAS
Pitot and Static Probe Deice and/or	100 KIAS
Pusher Ice Mode (flap position limit 15°)	100 KIAS

D. Balked Landing (Go Around)

After failure of:	
Pneumatic Deice Boots (flap position limit 0°)	
(TO/Pwr, flaps 0°, LG down Pusher Ice Mode)	130 KIAS

3.8 EMERGENCY DESCENT

3.8.2 MAXIMUM RANGE DESCENT - AFTER ENGINE FAIL - SINGLE BATTERY

4. Speed — 110 KIAS for 9039 lb (4100 kg) (for best glide speed see para 3.2.B)

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3.9 EMERGENCY LANDING

3.9.1 GLIDE DISTANCE AND SPEED

4. Best glide speed	110 KIAS for 9039 lb (4100 kg) (for best glide speed see para 3.2.B)

3.9.2 FORCED LANDING (ENGINE CUT-OFF/FEATHER)

6. Best glide speed	110 KIAS for 9039 lb (4100 kg) (for best glide speed see para 3.2.B)
13. Final approach speed	78 KIAS

3.9.8 LANDING WITHOUT FLAPS

3. Final approach speed	110 KIAS

3.9.9 DITCHING

4. Final approach speed	78 KIAS

3.19 DEICE SYSTEM

3.19.2 BOOT DEICE FAILURE IN ICING CONDITIONS

11. Landing approach	Keep minimum landing approach speed above 124 KIAS.

3.19.5 AOA PROBE DEICE FAILURE IN ICING CONDITIONS

9. Landing approach	Keep minimum landing approach speed above 100 KIAS or shaker activation speed, whichever is highest.

3.19.7 PUSHER ICE MODE FAILURE IN ICING CONDITIONS

9. Landing approach	Keep minimum landing approach speed above 100 KIAS.

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SECTION 4 - NORMAL PROCEDURES

4.2 AIRSPEEDS FOR NORMAL OPERATIONS

Airspeeds for normal operations are listed below. Unless otherwise noted, all airspeeds are based on a maximum takeoff weight of 9039 lb (4100 kg) at sea level under ISA standard day conditions.

Takeoff (V_R):	
Flaps 15°	78 KIAS
Recommended Climb Speed with Flaps retracted and Pusher Ice Mode	135 KIAS
Maximum Operating Maneuvering Speed (V_O) (9,921 lb/ 4,500 kg)	151 KIAS
Landing Approach Speed :	
Flaps 0°	110 KIAS
Flaps 15°	95 KIAS
Flaps 40°	78 KIAS
with residual ice on the airframe	
Flaps 15°, Pusher Ice Mode	100 KIAS
Balked Landing (Go-Around):	
TO/Pwr, Flaps 15°, LG down, Pusher Ice Mode	105 KIAS

4.15 BALKED LANDING (GO-AROUND)

5. Climb airspeed

- Pusher Normal Mode	95 KIAS
- Pusher Ice Mode	105 KIAS
- Boot failure	130 KIAS

4.22 NOISE LEVEL

ICAO Annex 16, Chapter 10	76.7 dB(A)
Swiss VEL	73.2 dB(A)
FAR Part 36, Appendix G	73.2 dB(A)

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4.24 FLIGHT IN ICING CONDITIONS

The minimum recommended speeds for icing encounters and with residual ice on the airframe are:

- Climb, Flaps 0°, Pusher Ice Mode	= 135 KIAS
- Holding Pattern, Flaps 0°	= 140 KIAS to 170 KIAS
- Landing Approach, Flaps 15°, Pusher Ice Mode	= 100 KIAS
- Landing Approach, Flaps 0°, Boot Failure Pusher Ice Mode	= 124 KIAS
- Balked Landing (Go-Around) Flaps 15° LG down, Pusher Ice Mode	= 105 KIAS
- Balked Landing (Go-Around) Boot failure Flaps 0°, LG down, Pusher Ice Mode	= 130 KIAS

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SECTION 5 - PERFORMANCE

GENERAL

The performance information presented in Section 5 of this POH can be used for aircraft operation but is limited to an aircraft Maximum Takeoff Weight of 4100 kg (9039 lb).

FLIGHT IN ICING CONDITIONS

The following section presents performance information related to the operation in or into known icing conditions. This information was derived analytically from actual wind tunnel tests with natural ice. The following cases are considered:

- 45 minutes holding in moderate icing conditions with fully operational pneumatic de-ice boots and substantial ice accretion on unprotected surfaces.
- 20 minutes holding in moderate icing conditions with ice accretion on the total airframe due to inoperative pneumatic de-ice boots.

Besides these aerodynamic degradations, performance losses to the aircraft's propulsive system have been considered (increased bleed air extraction, inertial separator open, less ram recovery, and ice-build up on unprotected parts of the propeller blades).

FLAPS

When operating in or into known icing conditions, the use of Flaps 30° or 40° is prohibited

When operating in or into known icing conditions with fully operational pneumatic de-ice boots, the flap position is limited to a maximum of 15°.

When operating in or into known icing conditions with failed operational pneumatic de-ice boots, the flap position is limited to a maximum of 0°.

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STALL SPEEDS

When operating in STICK PUSHER ICE MODE the stick pusher computer automatically reduces the shaker and pusher settings, as measured by the angle of attack vanes, by 8°. With operational pneumatic de-ice boots, this results in an increase of the stall speed at the maximum takeoff weight of 12 kts with flaps set to 0° and 9 kts with flaps set to 15°.

The wings level stall speeds at the maximum takeoff weight of 9039 lb (4100 kg) and with flight idle power are summarized in Table 1.

Table 1 - Stall Speeds in accordance with ICE Mode Set

FLAPS	STALL SPEED (PUSHER ACTIVATION) AT MTOW		
		KIAS	KCAS
0°	Non icing	86	88
0°	Icing conditions (STICK PUSHER ICE MODE)	96	98
0°	Pneumatic deice boots failure (unprotected)	100	102
15°	Non icing	74	76
15°	Icing conditions (STICK PUSHER ICE MODE)	81	83

ENGINE TORQUE

When the engine inlet inertial separator is open during flight at altitudes above 5000 ft, the maximum torque available can be reduced by up to 1.2 psi in non-icing conditions, and up to 2.1 psi in icing conditions.

TAKEOFF PERFORMANCE

The flaps must be set to 15° for takeoff. The use of flaps 30° for takeoff is prohibited.

When de-icing / anti-icing fluids are applied to the aircraft before departure, and/or when the stick pusher is in ICE mode: The takeoff reference speeds must be adjusted to the values indicated by the corresponding correction table.

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The total takeoff distance is calculated by first computing the total takeoff distance in non-icing conditions from Figure 5-27 (standard units) or Figure 5-28 (metric units) and then correcting that distance for takeoff in or into known icöing conditions by using the corrections in Table 2.

Table 2 - Icing Corrections to Takeoff Total Distance

TABLE A	**TAKEOFF WEIGHT - KG**			
ALTITUDE CORRECTION (%)	**2900**	**3300**	**3700**	**4100**
V_R / V_{50ft} (KIAS)	**72 / 88**	**77 / 94**	**81 / 100**	**86 / 105**
0 FT	+19	+26	+26	+27
2000 FT	+22	+26	+26	+28
4000 FT	+25	+26	+27	+28
6000 FT	+25	+26	+27	+28
8000 FT	+25	+26	+27	+28
10000 FT	+26	+26	+27	+29
12000 FT	+25	+27	+28	+30
14000 FT	+27	+29	+32	+30
ALTITUDE CORRECTION (%)	**6393**	**7275**	**8157**	**9039**
TABLE A	**TAKEOFF WEIGHT - LB**			

TABLE B	**TAKEOFF WEIGHT - KG**
WIND CORRECTION (%)	**2900 - 4100**
10 KTS TAILWIND	-2
NO WIND	0
10 KTS HEADWIND	+1
20 KTS HEADWIND	+3
30 KTS HEADWIND	+5
WIND CORRECTION (%)	**6393 - 9039**
TABLE B	**TAKEOFF WEIGHT - LB**

TABLE C	**TAKEOFF WEIGHT - KG**			
SLOPE CORRECTION (%)	**2900**	**3300**	**3700**	**4100**
4% DOWN	+2	+2	+1	-1
2% DOWN	+2	+2	+1	-1
NO SLOPE	0	0	0	0
2% UP	+4	+4	+3	+3
4% UP	+7	+5	+7	+8
SLOPE CORRECTION (%)	**6393**	**7275**	**8157**	**9039**
TABLE C	**TAKEOFF WEIGHT - LB**			

ICING CORRECTION (%) = A + B + C

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Analogically, the takeoff ground roll is derived correcting the distances obtained from Figure 5-25 (standard units) or Figure 5-26 (metric units) by using Table 3.

Table 3 - Icing Corrections to Takeoff Ground Roll

TABLE A	TAKEOFF WEIGHT - KG			
ALTITUDE CORRECTION (%)	**2900**	**3300**	**3700**	**4100**
V_R / V_{50ft} (KIAS)	**72 / 88**	**77 / 94**	**81 / 100**	**86 / 105**
0 FT	+27	+28	+28	+29
2000 FT	+27	+28	+28	+29
4000 FT	+27	+28	+29	+29
6000 FT	+28	+28	+29	+29
8000 FT	+28	+28	+29	+29
10000 FT	+27	+28	+28	+29
12000 FT	+27	+28	+28	+28
14000 FT	+28	+29	+28	+28
ALTITUDE CORRECTION (%)	**6393**	**7275**	**8157**	**9039**
TABLE A	**TAKEOFF WEIGHT - LB**			

TABLE B	TAKEOFF WEIGHT - KG
WIND CORRECTION (%)	**2900 - 4100**
10 KTS TAILWIND	-4
NO WIND	0
10 KTS HEADWIND	+2
20 KTS HEADWIND	+5
30 KTS HEADWIND	+8
WIND CORRECTION (%)	**6393 - 90390**
TABLE B	**TAKEOFF WEIGHT - LB**

TABLE C	TAKEOFF WEIGHT - KG			
SLOPE CORRECTION (%)	**2900**	**3300**	**3700**	**4100**
4% DOWN	0	0	0	-1
2% DOWN	0	0	0	0
NO SLOPE	0	0	0	0
2% UP	0	+1	+1	+1
4% UP	+1	+2	+1	+2
SLOPE CORRECTION (%)	**6393**	**7275**	**8157**	**9039**
TABLE C	**TAKEOFF WEIGHT - LB**			

ICING CORRECTION (%) = A + B + C

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Example:

- Pressure Altitude 6000 ft
- Outside Air Temperature 18°C
- Weight 3500 kg
- Headwind Component 8 kt
- Uphill Component 1%
- Takeoff Ground Roll 450 m (from Figure 5-26)
- Icing Correction (A + B +C) = 28.5% + 1.6% + 0.5% = 30.6%
- Takeoff Ground Roll in Icing Conditions = 450 m x 1.306 = 588 m.

ACCELERATE STOP PERFORMANCE

The flaps must be set to 15° for takeoff. The use of Flaps 30° for takeoff is prohibited.

The maximum speed for power chop is assumed to be 10 kts higher than that for non-icing conditions.

The total accelerate-stop distance is calculated by first computing the total accelerate-stop distance in non-icing conditions from Figure 5-23 (standard units) or Figure 5-24 (metric units) and then correcting that distance for takeoff in or into known icing conditions by using the corrections in Table 4.

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Table 4 - Icing Corrections to Accelerate Stop Distance

TABLE A	TAKEOFF WEIGHT - KG			
ALTITUDE CORRECTION (%)	**2900**	**3300**	**3700**	**4100**
POWER CHOP SPEED (KIAS)	**76**	**81**	**86**	**90**
0 FT	+24	+25	+26	+27
2000 FT	+25	+26	+27	+28
4000 FT	+25	+26	+27	+28
6000 FT	+26	+26	+27	+28
8000 FT	+26	+27	+27	+28
10000 FT	+26	+27	+28	+28
12000 FT	+27	+27	+28	+29
14000 FT	+27	+28	+29	+30
ALTITUDE CORRECTION (%)	**6393**	**7275**	**8157**	**9039**
TABLE A	**TAKEOFF WEIGHT - LB**			

TABLE B	TAKEOFF WEIGHT - KG
WIND CORRECTION (%)	**2900 - 4100**
10 KTS TAILWIND	-3
NO WIND	0
10 KTS HEADWIND	+2
20 KTS HEADWIND	+3
30 KTS HEADWIND	+5
WIND CORRECTION (%)	**6400 - 9039**
TABLE B	**TAKEOFF WEIGHT - LB**

TABLE C	TAKEOFF WEIGHT - KG			
SLOPE CORRECTION (%)	**2900**	**3300**	**3700**	**4100**
4% DOWN	+1	+2	+2	+2
2% DOWN	+1	+1	+1	+1
NO SLOPE	0	0	0	0
2% UP	0	0	0	+1
4% UP	0	+1	+1	+2
SLOPE CORRECTION (%)	**6393**	**7275**	**8157**	**9039**
TABLE C	**TAKEOFF WEIGHT - LB**			

ICING CORRECTION (%) = A + B + C

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MAXIMUM RATE OF CLIMB

The use of Flaps 30° is prohibited in or into known icing conditions. After icing encounters, and with visible ice accretion on the airframe, a climb is performed with the flaps retracted and a climb speed based on the schedule below.

Table 5 - Climb Speed in Icing Conditions

FLAPS UP	NON-ICING	ICING	PNEUMATIC DE-ICE BOOT FAILURE
ALTITUDE	KIAS	KIAS	KIAS
0 FT	130	135	140
5000 FT	125		
10000 FT	125		
15000 FT	125		
20000 FT	120		
25000 FT	120		
30000 FT	120		

The total climb performance is calculated by first computing the Rate of Climb in non-icing conditions from Figure 5-34 (standard units) or Figure 5-35 (metric units) and then correcting the Rate of Climb in or into known icing conditions by using the corrections in Table 6 (with operational pneumatic de-ice boots) or Table 7 (with the pneumatic de-ice boots inoperative).

Table 6 - Icing Corrections to Maximum Rate of Climb with Operational Pneumatic De-ice Boots

RATE OF CLIMB CORRECTION (FEET PER MINUTE)			
ALTITUDE - FT	TAKEOFF WEIGHT - KG		
	2900	3500	4100
0	-1190	-990	-860
5000	-1280	-1070	-920
10000	-1500	-1250	-1070
15000	-1570	-1310	-1120
20000	-1670	-1390	-1180
25000	-1720	-1420	-1210
30000	-1780	-1470	-1260
ALTITUDE - FT	6393	7716	9039
	TAKEOFF WEIGHT - LB		

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Table 7 - Icing Corrections to Maximum Rate of Climb with Pneumatic De-ice Boots Inoperative

RATE OF CLIMB CORRECTION (FEET PER MINUTE)			
ALTITUDE - FT	TAKEOFF WEIGHT - KG		
	2900	3500	4100
0	-1510	-1270	-1090
5000	-1640	-1370	-1180
10000	-1900	-1590	-1370
15000	-1980	-1650	-1420
20000	-2120	-1760	-1510
25000	-2240	-1860	-1590
30000	-2340	-1940	-1660
ALTITUDE - FT	6393	7716	9039
	TAKEOFF WEIGHT - LB		

Example:

- Pressure Altitude 7000 ft
- Outside Air Temperature 22°C
- Aircraft Weight 3800 kg
- Rate of Climb (non-icing) 1725 fpm (from Figure 5-35)
- Icing Correction -1062 fpm (interpolated from Table 6)
- Max. Rate of Climb in Icing Conditions = 1725 fpm - 1062 fpm = 663 fpm.

HOLDING ENDURANCE

During holding flight in icing conditions, a higher engine torque is required to maintain level flight. Table 8 and Table 9 give the increases in fuel flow with respect to non-icing conditions. Refer to Figure 5-53.

Table 8 - Icing Corrections to Holding Fuel Flow with Operational Pneumatic De-ice Boots

FUEL FLOW CORRECTION (%)	
ALTITUDE - FT	AIRCRAFT WEIGHT - KG
	2900 - 4100
0 FT	+22
5000 FT	+27
10000 FT	+36
15000 FT	+50
ALTITUDE - FT	6393 - 9039
	AIRCRAFT WEIGHT - LB

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Table 9 - Icing Corrections to Holding Fuel Flow with Pneumatic De-ice Boots Inoperative

FUEL FLOW CORRECTION (%)	
ALTITUDE - FT	**AIRCRAFT WEIGHT - KG**
	2900 - 4100
0 FT	+29
5000 FT	+35
10000 FT	+47
15000 FT	+64
ALTITUDE - FT	**6393 - 9039**
	AIRCRAFT WEIGHT - LB

BALKED RATE OF CLIMB

The use of Flaps 30° or Flaps 40° is prohibited in or into known icing conditions.

After icing encounters and with visible ice accretion on the airframe, a balked landing climb is performed with Flaps 15° and a climb speed of 105 KIAS. The total climb performance is calculated by first computing the Rate of Climb in non-icing conditions from Figure 5-62 (standard units) or Figure 5-63 (metric units) and then correcting the Rate of Climb in or into known icing conditions by using the corrections in Table 10.

Table 10 - Icing Corrections to Balked Landing Climb with Operational Pneumatic De-ice Boots

RATE OF CLIMB CORRECTION (FEET PER MINUTE)			
ALTITUDE - FT	**LANDING WEIGHT - KG**		
	2900	**3500**	**4100**
0	-150	-100	-90
2000	-140	-100	-90
4000	-150	-100	-90
6000	-160	-110	-100
8000	-170	-120	-100
10000	-180	-120	-110
12000	-180	-120	-110
14000	-240	-170	-140
ALTITUDE - FT	**6393**	**7716**	**9039**
	LANDING WEIGHT - LB		

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After failure of the airframe pneumatic boots in icing conditions, a balked landing climb is performed with Flaps 0° and a climb speed of 130 KIAS. The total climb performance is calculated by first computing the Rate of Climb in non-icing conditions from Figure 5-62 (standard units) or Figure 5-63 (metric units) and then correcting the Rate of Climb in or into known icing conditions by using the corrections in the Table 11.

Table 11 - Icing Corrections to Balked Landing Climb with Pneumatic De-ice Boots inoperative

RATE OF CLIMB CORRECTION (FEET PER MINUTE)			
ALTITUDE - FT	**LANDING WEIGHT - KG**		
	2900	**3500**	**4100**
0	-610	-480	-390
2000	-660	-510	-420
4000	-720	-560	-460
6000	-760	-590	-490
8000	-810	-630	-520
10000	-850	-660	-540
12000	-920	-720	-590
14000	-1110	-880	-730
ALTITUDE - FT	**6393**	**7716**	**9039**
	LANDING WEIGHT - LB		

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LANDING PERFORMANCE

The flaps must be set to 15° for landing. The use of Flaps 30° or 40° for landing is prohibited. With pneumatic de-ice boots failed; a flaps-up-landing must be performed. For both flap configurations, the landing reference speed must be adjusted to the values indicated by the corresponding correction table.
The landing distance is calculated by first computing the landing distance in non-icing conditions and then correcting that distance for landing in or into known icing conditions by using the following correction tables:

Table 12 - Landing in Icing Conditions - Overview

Reverse Thrust	Pneumatic De-ice Boots	Flap Setting	Landing Performance Information	Non-icing Figure No.	Icing Correction Table
No	Operational	Flaps 15°	Landing Total Distance	Figure 5-64/65	Table 13
			Landing Ground Roll	Figure 5-66/67	Table 14
	Inoperative	Flaps 0°	Landing Total Distance	Figure 5-64/65	Table 15
			Landing Ground Roll	Figure 5-66/67	Table 16
Yes	Operational	Flaps 15°	Landing Total Distance	Figure 5-68/69	Table 17
			Landing Ground Roll	Figure 5-70/71	Table 18
	Inoperative	Flaps 0°	Landing Total Distance	Figure 5-68/69	Table 19
			Landing Ground Roll	Figure 5-70/71	Table 20

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Table 13 - Icing Corrections to Landing Total Distance – Flaps 15° - No Reverse Thrust

TABLE A	LANDING WEIGHT - KG			
ALTITUDE CORRECTION (%)	**2900**	**3300**	**3700**	**4100**
V_{APP} (KIAS)	**84**	**90**	**95**	**100**
0 FT	+40	+43	+46	+48
2000 FT	+43	+45	+47	+49
4000 FT	+44	+47	+49	+51
6000 FT	+46	+48	+50	+52
8000 FT	+47	+50	+52	+54
10000 FT	+48	+51	+53	+55
12000 FT	+49	+52	+54	+56
14000 FT	+51	+53	+55	+56
ALTITUDE CORRECTION (%)	**6393**	**7275**	**8157**	**9039**
TABLE A	**LANDING WEIGHT - LB**			

TABLE B	LANDING WEIGHT - KG			
WIND CORRECTION (%)	**2900**	**3300**	**3700**	**4100**
10 KTS TAILWIND	-6	-6	-6	-6
NO WIND	0	0	0	0
10 KTS HEADWIND	+3	+3	+3	+3
20 KTS HEADWIND	+7	+7	+6	+6
30 KTS HEADWIND	+11	+11	+11	+10
WIND CORRECTION (%)	**6393**	**7275**	**8157**	**9039**
TABLE B	**LANDING WEIGHT - LB**			

TABLE C	LANDING WEIGHT - KG
SLOPE CORRECTION (%)	**2900 - 4100**
4% DOWN	+1
2% DOWN	0
NO SLOPE	0
2% UP	0
4% UP	0
SLOPE CORRECTION (%)	**6393 - 9039**
TABLE C	**LANDING WEIGHT - LB**

ICING CORRECTION (%) = A + B + C

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Table 14- Icing Corrections to Landing Ground Roll – Flaps 15° - No Reverse Thrust

TABLE A	**LANDING WEIGHT - KG**			
ALTITUDE CORRECTION (%)	**2900**	**3300**	**3700**	**4100**
V_{APP} (KIAS)	**84**	**90**	**95**	**100**
0 FT	+53	+61	+63	+59
2000 FT	+54	+62	+60	+57
4000 FT	+62	+61	+58	+58
6000 FT	+61	+59	+58	+59
8000 FT	+60	+58	+59	+60
10000 FT	+57	+58	+60	+61
12000 FT	+57	+59	+60	+62
14000 FT	+58	+60	+62	+63
ALTITUDE CORRECTION (%)	**6393**	**7275**	**8157**	**9039**
TABLE A	**LANDING WEIGHT - LB**			

TABLE B	**LANDING WEIGHT - KG**			
WIND CORRECTION (%)	**2900**	**3300**	**3700**	**4100**
10 KTS TAILWIND	-7	-7	-7	-6
NO WIND	0	0	0	0
10 KTS HEADWIND	+5	+5	+5	+4
20 KTS HEADWIND	+11	+11	+11	+9
30 KTS HEADWIND	+19	+19	+19	+16
WIND CORRECTION (%)	**6393**	**7275**	**8157**	**9039**
TABLE B	**LANDING WEIGHT - LB**			

TABLE C	**LANDING WEIGHT - KG**
SLOPE CORRECTION (%)	**2900 - 4100**
4% DOWN	-2
2% DOWN	-1
NO SLOPE	0
2% UP	+2
4% UP	+4
SLOPE CORRECTION (%)	**6393 - 9039**
TABLE C	**LANDING WEIGHT - LB**

ICING CORRECTION (%) = A + B + C

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Table 15 - Icing Corrections to Landing Total Distance – Flaps 0° - No Reverse Thrust

TABLE A	LANDING WEIGHT - KG			
ALTITUDE CORRECTION (%)	2900	3300	3700	4100
V_{APP} (KIAS)	104	111	118	124
0 FT	+86	+93	+98	+103
2000 FT	+91	+96	+101	+105
4000 FT	+94	+100	+105	+109
6000 FT	+97	+102	+107	+112
8000 FT	+101	+106	+111	+116
10000 FT	+103	+109	+114	+119
12000 FT	+106	+111	+117	+122
14000 FT	+110	+116	+122	+123
ALTITUDE CORRECTION (%)	6393	7275	8157	9039
TABLE A	LANDING WEIGHT - LB			

TABLE B	LANDING WEIGHT - KG			
WIND CORRECTION (%)	2900	3300	3700	4100
10 KTS TAILWIND	-12	-12	-11	-11
NO WIND	0	0	0	0
10 KTS HEADWIND	+7	+7	+6	+6
20 KTS HEADWIND	+15	+15	+14	+14
30 KTS HEADWIND	+25	+25	+24	+23
WIND CORRECTION (%)	6393	7275	8157	9039
TABLE B	LANDING WEIGHT - LB			

TABLE C	LANDING WEIGHT - KG			
SLOPE CORRECTION (%)	2900	3300	3700	4100
4% DOWN	-3	-3	-3	-4
2% DOWN	-1	-1	-1	-1
NO SLOPE	0	0	0	0
2% UP	+2	+2	+2	+2
4% UP	+3	+3	+3	+3
SLOPE CORRECTION (%)	6393	7275	8157	9039
TABLE C	LANDING WEIGHT - LB			

ICING CORRECTION (%) = A + B + C

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Table 16 - Icing Corrections to Landing Ground Roll – Flaps 0° - No Reverse Thrust

TABLE A	LANDING WEIGHT - KG			
ALTITUDE CORRECTION (%)	2900	3300	3700	4100
V_{APP} (KIAS)	104	111	118	124
0 FT	+103	+115	+117	+113
2000 FT	+105	+116	+114	+114
4000 FT	+115	+115	+114	+117
6000 FT	+114	+113	+116	+119
8000 FT	+114	+116	+120	+124
10000 FT	+113	+118	+122	+127
12000 FT	+116	+120	+125	+126
14000 FT	+119	+125	+125	+126
ALTITUDE CORRECTION (%)	6393	7275	8157	9039
TABLE A	LANDING WEIGHT - LB			

TABLE B	LANDING WEIGHT - KG			
WIND CORRECTION (%)	2900	3300	3700	4100
10 KTS TAILWIND	-14	-13	-13	-12
NO WIND	0	0	0	0
10 KTS HEADWIND	+10	+10	+10	+8
20 KTS HEADWIND	+22	+22	+22	+19
30 KTS HEADWIND	+38	+37	+37	+32
WIND CORRECTION (%)	6393	7275	8157	9039
TABLE B	LANDING WEIGHT - LB			

TABLE C	LANDING WEIGHT - KG			
SLOPE CORRECTION (%)	2900	3300	3700	4100
4% DOWN	-8	-7	-7	-8
2% DOWN	-3	-3	-3	-3
NO SLOPE	0	0	0	0
2% UP	+6	+6	+6	+6
4% UP	+12	+11	+11	+10
SLOPE CORRECTION (%)	6393	7275	8157	9039
TABLE C	LANDING WEIGHT - LB			

ICING CORRECTION (%) = A + B + C

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Table 17 - Icing Corrections to Landing Total Distance – Flaps 15° - With Reverse Thrust

TABLE A	**LANDING WEIGHT - KG**			
ALTITUDE CORRECTION (%)	**2900**	**3300**	**3700**	**4100**
V_{APP} (KIAS)	**84**	**90**	**95**	**100**
0 FT	+36	+39	+41	+44
2000 FT	+39	+40	+43	+44
4000 FT	+39	+42	+44	+46
6000 FT	+41	+43	+45	+47
8000 FT	+43	+45	+46	+48
10000 FT	+44	+46	+47	+48
12000 FT	+45	+46	+48	+48
14000 FT	+46	+48	+48	+47
ALTITUDE CORRECTION (%)	**6393**	**7275**	**8157**	**9039**
TABLE A	**LANDING WEIGHT - LB**			

TABLE B	**LANDING WEIGHT - KG**
WIND CORRECTION (%)	**2900 - 4100**
10 KTS TAILWIND	-6
NO WIND	0
10 KTS HEADWIND	+3
20 KTS HEADWIND	+7
30 KTS HEADWIND	+11
WIND CORRECTION (%)	**6393 - 9039**
TABLE B	**LANDING WEIGHT - LB**

TABLE C	**LANDING WEIGHT - KG**
SLOPE CORRECTION (%)	**2900 - 4100**
4% DOWN	0
2% DOWN	0
NO SLOPE	0
2% UP	+1
4% UP	+1
SLOPE CORRECTION (%)	**6393 - 9039**
TABLE C	**LANDING WEIGHT - LB**

ICING CORRECTION (%) = A + B + C

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Table 18 - Icing Corrections to Landing Ground Roll – Flaps 15° - With Reverse Thrust

TABLE A	LANDING WEIGHT - KG			
ALTITUDE CORRECTION (%)	2900	3300	3700	4100
V_{APP} (KIAS)	84	90	95	100
0 FT	+48	+54	+55	+52
2000 FT	+48	+55	+53	+50
4000 FT	+55	+54	+51	+51
6000 FT	+54	+52	+50	+51
8000 FT	+53	+50	+51	+51
10000 FT	+51	+51	+51	+51
12000 FT	+50	+51	+51	+52
14000 FT	+51	+51	+52	+52
ALTITUDE CORRECTION (%)	6393	7275	8157	9039
TABLE A	LANDING WEIGHT - LB			

TABLE B	LANDING WEIGHT - KG			
WIND CORRECTION (%)	2900	3300	3700	4100
10 KTS TAILWIND	-7	-7	-7	-6
NO WIND	0	0	0	0
10 KTS HEADWIND	+5	+5	+5	+4
20 KTS HEADWIND	+10	+10	+10	+9
30 KTS HEADWIND	+18	+17	+17	+15
WIND CORRECTION (%)	6393	7275	8157	9039
TABLE B	LANDING WEIGHT - LB			

TABLE C	LANDING WEIGHT - KG
SLOPE CORRECTION (%)	2900 - 4100
4% DOWN	-2
2% DOWN	-1
NO SLOPE	0
2% UP	+2
4% UP	+3
SLOPE CORRECTION (%)	6393 - 9039
TABLE C	LANDING WEIGHT - LB

ICING CORRECTION (%) = A + B + C

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Table 19 - Icing Corrections to Landing Total Distance – Flaps 0° - With Reverse Thrust

TABLE A	LANDING WEIGHT - KG			
ALTITUDE CORRECTION (%)	2900	3300	3700	4100
V_{APP} (KIAS)	104	111	118	124
0 FT	+79	+85	+90	+94
2000 FT	+84	+87	+93	+96
4000 FT	+85	+92	+95	+99
6000 FT	+89	+94	+97	+100
8000 FT	+92	+96	+100	+103
10000 FT	+94	+98	+101	+104
12000 FT	+96	+100	+103	+104
14000 FT	+98	+102	+103	+104
ALTITUDE CORRECTION (%)	6393	7275	8157	9039
TABLE A	LANDING WEIGHT - LB			

TABLE B	LANDING WEIGHT - KG			
WIND CORRECTION (%)	2900	3300	3700	4100
10 KTS TAILWIND	-14	-14	-14	-14
NO WIND	0	0	0	0
10 KTS HEADWIND	+7	+7	+6	+6
20 KTS HEADWIND	+14	+14	+14	+14
30 KTS HEADWIND	+24	+24	+23	+23
WIND CORRECTION (%)	6393	7275	8157	9039
TABLE B	LANDING WEIGHT - LB			

TABLE C	LANDING WEIGHT - KG
SLOPE CORRECTION (%)	2900 - 4100
4% DOWN	-2
2% DOWN	-1
NO SLOPE	0
2% UP	+2
4% UP	+4
SLOPE CORRECTION (%)	6393 - 9039
TABLE C	LANDING WEIGHT - LB

ICING CORRECTION (%) = A + B + C

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Table 20 - Icing Corrections to Landing Ground Roll – Flaps 0° - With Reverse Thrust

TABLE A	LANDING WEIGHT - KG			
ALTITUDE CORRECTION (%)	2900	3300	3700	4100
V_{APP} (KIAS)	104	111	118	124
0 FT	+93	+102	+103	+99
2000 FT	+95	+103	+101	+98
4000 FT	+103	+102	+98	+99
6000 FT	+102	+100	+99	+100
8000 FT	+101	+99	+100	+101
10000 FT	+99	+100	+101	+102
12000 FT	+99	+100	+102	+104
14000 FT	+100	+102	+104	+105
ALTITUDE CORRECTION (%)	6393	7275	8157	9039
TABLE A	LANDING WEIGHT - LB			

TABLE B	LANDING WEIGHT - KG			
WIND CORRECTION (%)	2900	3300	3700	4100
10 KTS TAILWIND	-14	-14	-13	-13
NO WIND	0	0	0	0
10 KTS HEADWIND	+9	+9	+9	+8
20 KTS HEADWIND	+21	+20	+20	+18
30 KTS HEADWIND	+35	+35	+35	+30
WIND CORRECTION (%)	6393	7275	8157	9039
TABLE B	LANDING WEIGHT - LB			

TABLE C	LANDING WEIGHT - KG
SLOPE CORRECTION (%)	2900 - 4100
4% DOWN	-5
2% DOWN	-2
NO SLOPE	0
2% UP	+4
4% UP	+8
SLOPE CORRECTION (%)	6393 - 9039
TABLE C	LANDING WEIGHT - LB

ICING CORRECTION (%) = A + B + C

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SECTION 6 - WEIGHT AND BALANCE

PC-12 EXAMPLE LOADING FORM	INTERIOR CODE: STD-9S		
ITEM	**WEIGHT lb**	**ARM AFT OF DATUM in (m)**	**MOMENT lb-in**
1. **Basic Empty Weight**	5613	225.16 (5.719)	1263823
2. Combi Interior Conversion	NA	NA	NA
3. Pilot	170	160.27 (4.071)	27246
4. Copilot (Right Seat Passenger)	170	160.27 (4.071)	27246
5. Passenger 1	170	215.00 (5.461)	36550
6. Passenger 2	170	212.03 (5.386)	36045
7. Passenger 3	170	248.00 (6.299)	42160
8. Passenger 4	170	245.03 (6.224)	41655
9. Passenger 5	170	281.00 (7.137)	47770
10. Passenger 6	170	278.05 (7.062)	47268
11. Passenger 7	170	314.00 (7.976)	53380
12. Passenger 8	170	311.03 (7.900)	52875
13. Passenger 9	170	344.03 (8.738)	58485
14. Optional Wardrobe		191.00 (4.851)	
15. LH Cabinet		212.10(5.387)	
16. RH Cabinet		211.19 (5.364)	
17. a. Rear Baggage (net at frame 32) b. Rear Baggage (net at frame 34)	215	361.00 (9.170) 370.87 (9.420)	79765
18. Cargo			
19. **Zero Fuel Weight** MZFW 8160 lb (3700 kg) (Sum of 1 thru 18)	7698	229.49	1814268
20. Fuel	1650	-	382790
21. **Ramp Weight** MRW 9083 lb (4120 kg) (Sum of 19 + 20)	9348	229.92	2197058
22. Less Fuel for Ground Operations	40	-	9369
23. Add Moment Due to Gear Retraction	-	-	538(6.2)
24. **Takeoff Weight** MTOW 9039 lb (4100 kg) (Sum of 21 – 22 + 23)	9308	229.97	2188227

Figure 6-8. Example Loading Form (Sheet 1 of 2)

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

PC-12 LOADING FORM		INTERIOR CODE:	
ITEM	**WEIGHT lb (kg)**	**ARM AFT OF DATUM in (m)**	**MOMENT lb-in (kg-m)**
1. **Basic Empty Weight**			
2. Combi Interior Conversion			
3. Pilot		160.27 (4.071)	
4. Copilot (Right Seat Passenger)		160.27 (4.071)	
5. Passenger 1			
6. Passenger 2			
7. Passenger 3			
8. Passenger 4			
9. Passenger 5			
10. Passenger 6			
11. Passenger 7			
12. Passenger 8			
13. Passenger 9			
14. Optional Wardrobe		191.00 (4.851)	
15. LH Cabinet		212.10 (5.387)	
16. RH Cabinet		211.19 (5.364)	
17. a. Rear Baggage (net at frame 32) b. Rear Baggage (net at frame 34)		361.00 (9.170) 370.87 (9.420)	
18. Cargo			
19. **Zero Fuel Weight** MZFW 8160 lb (3700 kg) (Sum of 1 thru 18)			
20. Fuel		-	
21. **Ramp Weight** MRW 9083 lb (4120 kg) (Sum of 19 + 20)			
22. Less Fuel for Ground Operations		-	
23. Add Moment Due to Gear Retraction	-	-	538(6.2)
24. **Takeoff Weight** MTOW 9039 lb (4100 kg) (Sum of 21 - 22 + 23)			

Figure 6-8. Loading Form (Sheet 2 of 2)

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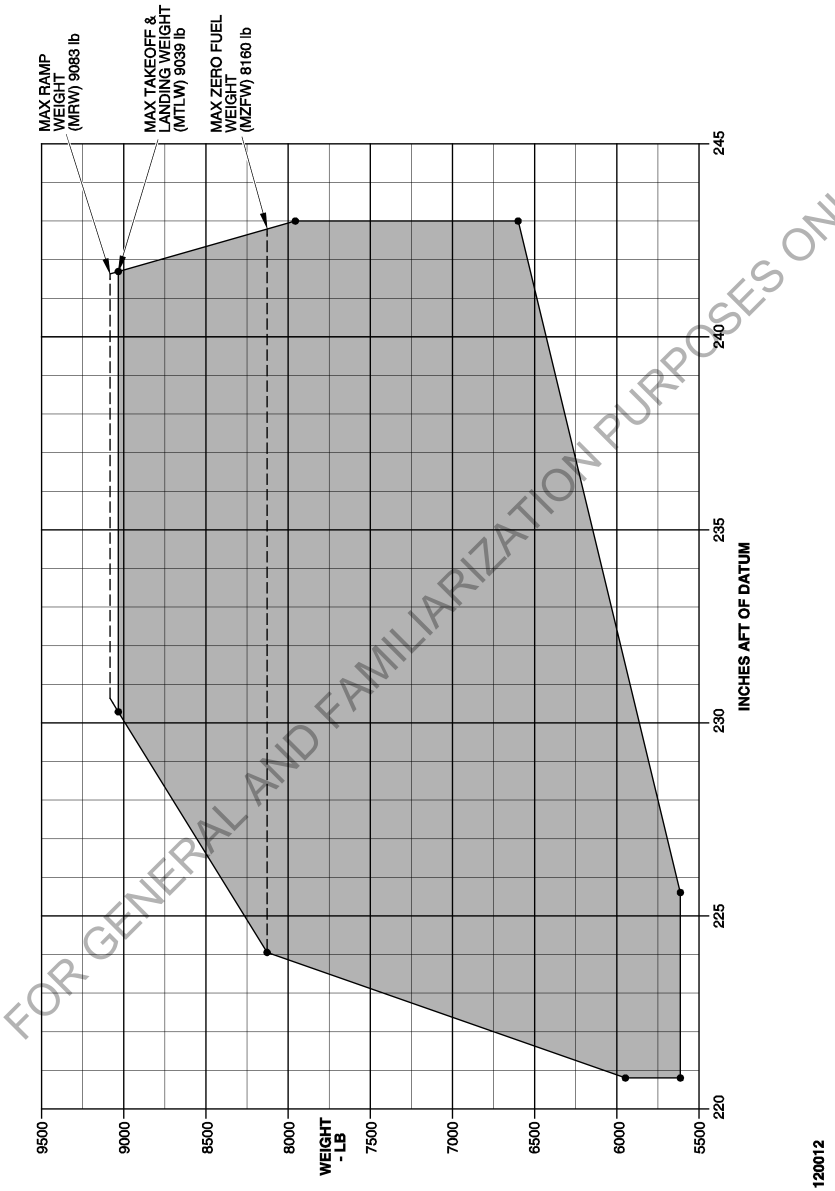

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Figure 6-9. C. G. Envelope
(Sheet 1 of 2)

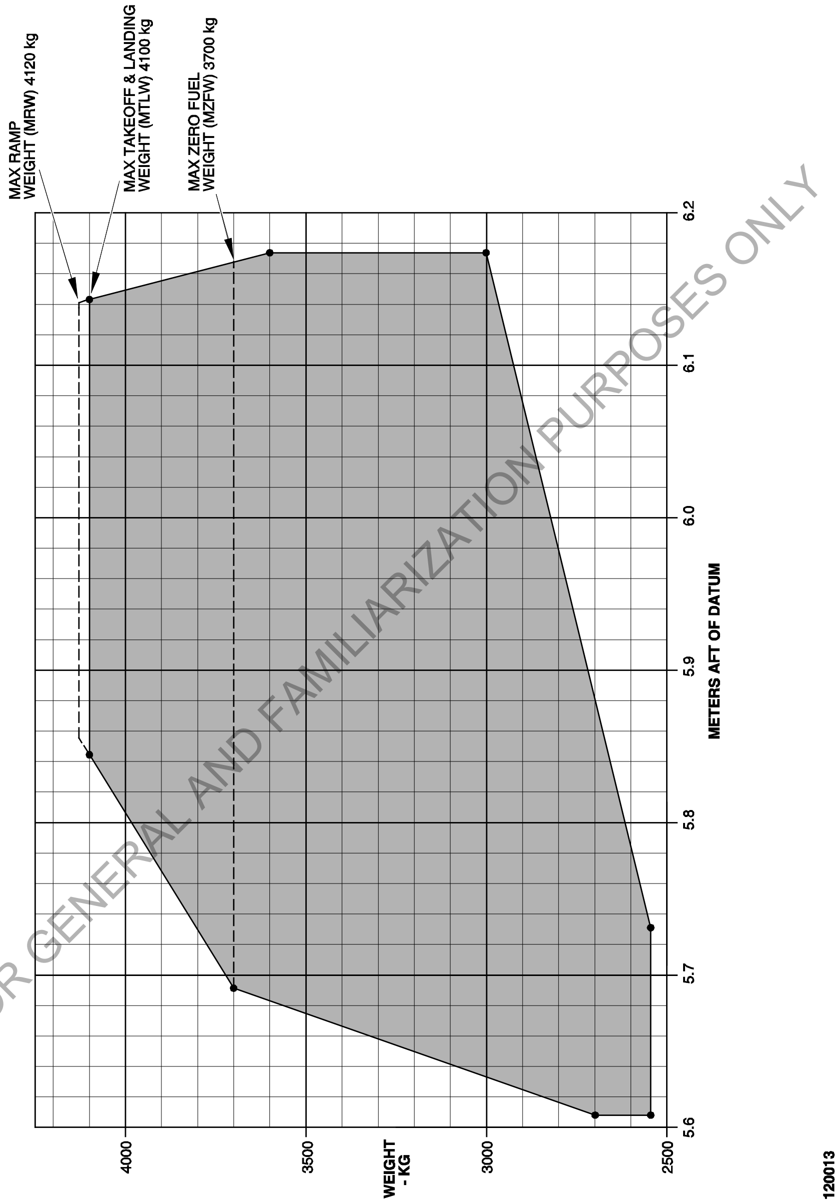

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Figure 6-9. C. G. Envelope
(Sheet 2 of 2)

SECTION 8 HANDLING, SERVICING AND MAINTENANCE

LANDING GEAR - TIRES

Main Wheel Tires

Wheel type - BFG PN3-1543
Tire type - 8.50-10, 10PR, TL (160 mph)
Tire pressure - 55 + 3 - 0 psi (3.8 + 0.2 - 0 bar)

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

PILOT'S OPERATING HANDBOOK
AND
FOCA APPROVED AIRPLANE FLIGHT MANUAL

SUPPLEMENT NO. 26
FOR
MULTI HAZARD AWARENESS PROCESSOR KMH 820 TAWS/TAS

This supplement must be attached to the Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual when the KMH 820 Multi-hazard Awareness Processor is installed in accordance with Pilatus Drawings. The information contained herein supplements or supersedes the information in the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual only in those areas listed. For limitations, procedures and performance information not contained in this supplement, consult the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Approved by:

Federal Office for Civil Aviation (FOCA) of Switzerland
Section for Type Certification

Date of Approval:

1 4. JUNI 2002

SECTION 1 - GENERAL

This supplement supplies the information necessary for the operation of the airplane when the Multi Hazard Awareness Processor (KMH 820) is installed in accordance with Modification Approval Sheet PIL 12/34/123.

The KMH 820 Multi Hazard Awareness Processor provides Terrain Awareness and Warning (TAWS) and Traffic Advisory (TAS) functions combined within the same processor.

The TAWS part provides a Class B Terrain Awareness and Warning Processor, which gives:

- Situation awareness
- Terrain alerting caution and warning
- Obstacle alerting caution and warning
- A display of terrain to the crew on the Multi Function Display (MFD) option

The TAS part of the processor detects and tracks potential intruder aircraft in near vicinity to itself by interrogating their operating transponders. When another aircraft is determined to be an intruder and poses a safety threat, the TAS issues a Traffic Advisory (TA), alerting the crew to the threat with an aural advisory and display on the MFD.

Refer to the Bendix/King KTA 870/KMH 880 Traffic Advisory System/Multi Hazard Awareness System Pilots Guide, for information regarding the specific operating details of the system. Also refer to the KMD 550/850 Traffic Function Pilots Guide Addendum and to the KMD 550/850 Terrain Function (EGPWS) Pilots Guide Addendum.

SECTION 2 - LIMITATIONS

The Bendix/King KTA 870/KMH 880 Traffic Advisory System/Multi Hazard Awareness System Pilots Guide (Honeywell part number 006-18265-000, Revision 0, dated 03/2001, or later revision) must be readily accessible to the pilot when operating the KMH 820 System.

The pilot should not maneuver the aircraft based on the traffic display only. The traffic display is intended to assist in visually locating traffic. The traffic display lacks the resolution necessary for use in evasive maneuvering.

To avoid giving unwanted alerts, the Terrain Alerting function must be inhibited by selecting the TERR INHIBIT switch (amber ON illuminated) when landing at an airport that is not included in the airport database.

Pilots are authorized to deviate from their current air traffic control clearance to the extent necessary to comply with a TAWS warning.

Navigation must not be predicated upon the use of the Terrain Awareness Display.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

NOTE

The Terrain Awareness Display is intended to serve as a situational awareness tool only. It may not provide either the accuracy and/or fidelity on which to solely base terrain or obstacle avoidance maneuvering decisions.

SECTION 3 – EMERGENCY PROCEDURES

For ditching or other off-airport landings, inhibit the TAWS aural alert functions by selecting the TERR INHIBIT switch on the pilots instrument panel to ON (annunciated).

SECTION 4 – NORMAL PROCEDURES

Normal operating procedures and system controls are outlined in the Bendix/King KTA870/KMH880 Traffic Advisory System/Multi Hazard Awareness System Pilot's Guide, Honeywell part number 006-18265-0000 Revision 0, dated 03/2001, or later revision.

The TAS and the TAWS functions are separated in this Supplement for clarity.

SYSTEM ACTIVATION

TAS

The traffic page is selected by pressing the TRFC function select button on the MFD. The outer control knob, located on the lower right side of the unit, is the function selector for TST, SBY and ON mode of operation.

TAWS

The TERRAIN function is active when electrical power is supplied, the amber TERR INOP annunciator is extinguished when the following systems are operational:

- Internal GPS Receiver
- Altimeter source

If the horizontal position derived from the integral GPS Receiver is invalid, the TAWS will not be available.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

INDICATORS AND CONTROLS

TAS

All TAS indication and control is via the MFD option. Refer to the Bendix/King KTA870/KMH880 Traffic Advisory System/Multi Hazard Awareness System Pilot's Guide, Honeywell part number 006-18265-0000 Revision 0, dated 03/2001, or later revision. Also refer to the KMD 550/850 Traffic Avoidance Function (TCAS/TAS) Pilots Guide Addendum, Honeywell part number 006-18238-0000, Revision 0, dated April/2001, or later revision.

TAWS

The TAWS has three annunciators and switch annunciators installed on each side of the instrument panel. These are:

- TERR/TERR annunciator (Pilot and Co-pilot side)
- TERR INHIBIT/ON switch annunciator (Pilots side)
- TERR P/TEST / TERR INOP switch annunciator (Pilot and Co-pilot side)
- TERR INHIBIT ON annunciator (Co-pilots side)

The **TERR/TERR** annunciator is a horizontally split screen annunciator, which is installed in the line of sight.

When not illuminated, the upper and lower TERR legends consist of black letters on a black background.

When illuminated, the upper TERR legend consists of illuminated red letters on a black background when the TAWS gives a terrain warning. This occurs when a terrain conflict approaches to within 30 seconds of the aircraft. The lower TERR legend consists of illuminated amber letters on a black background when the TAWS, gives a terrain caution. This occurs when a terrain conflict is detected approximately one minute ahead of the aircraft.

The **TERR INHIBIT / ON** switch annunciator is an alternate action switch with a horizontally split screen annunciator, which is installed in line of sight on the pilots main instrument panel.

In the inactive state, the upper TERR INHIBIT legend consists of white letters on a black background. The lower ON legend consists of black letters on a black background.

In the activated state, the upper TERR INHIBIT legend consists of illuminated white letters on a black background. The lower ON legend consists of illuminated amber letters on a black background. Operation of this switch will inhibit all visual alerts, aural alerts and caution/warning functions associated with TAWS. The terrain display remains operational when terrain inhibit is selected.

The purpose of the TERR INHIBIT is to allow the aircraft to operate without nuisance or unwanted caution/warnings, for example at airports that are not in the system terrain database

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i.e. runways shorter than 2000 feet. The terrain inhibit switch should not be operated for normal flight operations.

The **TERR P/TEST / TERR INOP** switch annunciator is a momentary action switch with a horizontally split screen annunciator, which is installed in the line of sight.

When not illuminated, the upper TERR P/TEST legend consists of white letters on a black background. The lower TERR INOP legend consists of black letters on a black background.

When illuminated, the upper P/TEST legend consists of illuminated white letters on a black background. Operating this switch initiates the TAWS self test sequence. The lower TERR INOP legend consists of illuminated amber letters on a black background. This occurs when the TAWS has a disabled function.

The following failures will illuminate the TERR INOP annunciator:

- System internal fault
- System internal GPS or GPS position input fault
- Baro input or ADC failure
- Configuration module failure
- Display range input failure
- Self test input active for more than 15 seconds

The **TERR INHIBIT ON** annunciator is a full screen annunciator, which is installed in line of sight on the co-pilots main instrument panel.

When not illuminated, the TERR INHIBIT ON legend consists of black letters on a black background.

When illuminated, the TERR INHIBIT ON legend consists of illuminated amber letters on a black background. This occurs when the terrain inhibit switch on the pilots side has been selected on.

DATA DISPLAY

The KMH 820 outputs a display of terrain/obstacle awareness and traffic data to the MFD. The MFD has front panel controls, which allow different source selection of displayed data. Range control of displayed data is via the front panel controls on the MFD.

Detailed operating instructions or technical information for the KMD 850 Multi-Function Display option may be obtained by consulting the latest available revision of the pilots guide Pt No 006-18222-0000.

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RESPONSE TO ALERTS

TAS ALERTS

Traffic Advisory annunciations (TA) are shown in the following table.

Aural	Visual	Pilot Response
TRAFFIC, TRAFFIC	A filled yellow circle on the traffic display.	Conduct a visual search for the intruder. If successful, maintain visual acquisition to ensure safe operation

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NOTE

In most situations no maneuvering will be necessary to maintain safe separation. Maneuver only if it becomes apparent safe separation will not be maintained.

- Attempt to visually acquire the intruder aircraft and maintain/attain safe separation in accordance with regulatory requirements and good operating practice
- If the intruder aircraft is not visually acquired, air traffic control should be contacted to obtain any information that may assist concerning the intruder aircraft

WARNING

THERE IS SOME LIKELIHOOD THAT MANEUVERING BASED UPON THE TRAFFIC DISPLAY INFORMATION ONLY WILL ACTUALLY RESULT IN A REDUCED SEPARATION FROM AN INTRUDER AIRCRAFT.

Selecting other display pages does not disable the traffic function as evidenced by the black on gray traffic sensor icon shown on the icon bar. If the traffic sensor issues a traffic advisory when the traffic display page is not selected, the traffic display page will automatically pop-up.

The TAS inhibits aural annunciation under the following conditions:

- When the aircraft is below 400 feet AGL during descent
- When the aircraft is below 600 feet during ascent
- When the landing gear is extended

NOTES

Traffic Advisories can be expected to occur during normal flight operation. Generally TA's will occur more frequently in terminal areas during arrival, and less frequently during departure and enroute operations. In the vast majority of these cases, the aircraft displayed will be safely separated and there will be no need for pilots to initiate any avoidance maneuvers.

Evasive maneuvers (Rapid change in Pitch, Roll, Normal acceleration thrust or speed) should only be conducted after visual acquisition of the intruder and then only when necessary to achieve or assure safe separation.

Minor adjustments to the vertical flight path that are consistent with an existing ATC clearance, instruction or restriction are not considered evasive maneuvers.

When any of the aural TAWS messages are in progress, all aural TAS alert messages are inhibited.

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TAWS ALERTS

Respond to TAWS alerts as follows:

1. WARNING ALERT

When an aural PULL UP warning TERRAIN TERRAIN PULL UP or OBSTACLE OBSTACLE PULL UP occurs, the following procedure should be followed:

1. Level the wings, simultaneously adding maximum power.

2. Smoothly pitch up at a rate of 2 to 3 degrees per second towards an initial target pitch attitude of 15 degrees nose up.

3. Adjust pitch attitude to ensure terrain clearance, while respecting stall warning. If flaps are extended, retract flaps to the up position.

4. Continue climb at best angle of climb speed (Vx) until clearance is assured.

   - Only vertical maneuvers are recommended unless operating in VMC or the pilot determines, using all available information and instruments, that a turn, in addition to the vertical escape maneuver, is the safest course of action
   - **Pilots are authorized to deviate from their current ATC clearance to the extent necessary to comply with a TAWS warning**

When an aural warning other than PULL UP occurs, initiate corrective action to remove the cause of the warning. Recommended procedures for TAWS alerts in flight are described in the KTA 870/KMH 880 System Pilots Guide (Honeywell part number 006-18265-000).

NOTE

During operations at certain locations, warning thresholds may be exceeded due to specific terrain or operating procedures. During day VFR, these expected warnings may be considered as cautionary and the approach continued.

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Selecting other display pages does not disable the terrain function as evidenced by the black on gray terrain icon displayed on the icon bar. If the TAWS issues a warning when the terrain display page is not selected, the terrain page will automatically pop-up.

2. CAUTION ALERT

When an aural CAUTION TERRAIN or a CAUTION OBSTACLE alert occurs, take positive action until the alert ceases. Stop descending, or initiate a climb and/or turn as necessary, based on the analysis of all available instruments and information.

Selecting other display pages does not disable the terrain function as evidenced by the black on gray terrain icon displayed on the icon bar. If the TAWS issues a caution when the terrain display page is not selected, the terrain page will automatically pop-up.

SYSTEM SELF TEST

TAS

Perform a System Self Test on the ground prior to each flight to verify proper operation of the KMH 820 TAS. Proper operation of the TAS can be verified as follows:

1. Select the TRFC (traffic) function select button on the KMD 850 MFD.
2. Select the 5nm range (for best viewing).
3. Select the TST position using the outer control knob located in the lower right corner of the MFD. A test pattern should appear on the MFD.

At the end of a successful test, an aural TAS SYSTEM TEST OK should be heard over the cockpit speaker and the pilot headsets. Should a failure be detected during the self-test, the audio message says TAS SYSTEM FAIL TEST.

NOTE

Use of the Self Test function while in flight will inhibit the TAS operation for up to 8 seconds, depending on the number of targets being tracked.

TAWS

Perform a System Self Test on the ground prior to each flight to verify proper operation of the KMH 820 TAWS. To perform the TAWS self test:

1. Verify the TERR INHIBIT is not enabled (ON illuminated).
2. Verify the amber TERR INOP is not illuminated (system is available).
3. Initiate Self Test by pressing the TERR P/TEST switch in the pilots or copilots instrument panel for less than 2 seconds.
4. Verify the following:

- The amber TERR INOP and the red TERR warning lights illuminate

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- An aural TAWS SYSTEM OK message is given over the cockpit speaker
- The red TERR warning light extinguishes and amber TERR caution light illuminates
- A terrain self-test pattern appears on the MFD
- The terrain self-test pattern disappears after several sweeps of the terrain display
- The amber TERR caution and amber TERR INOP lights extinguish

NOTE

The self-test aural volume is 6db lower than the warning aural volume.

SECTION 5 - PERFORMANCE

No change.

SECTION 6 - WEIGHT AND BALANCE

Factory installed optional equipment is included in the licensed weight and balance data in Section 6 of the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual.

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SECTION 7 - SYSTEM DESCRIPTION

MULTI-HAZARD AWARENESS SYSTEM (KMH 820)

Ref. Fig 7-1

The KMH 820 Multi Hazard Awareness Processor (TAWS/TAS) consists of a processor, two directional Antennas (Upper and Lower), a dedicated GPS antenna (Upper) and a configuration Module.

The TAS monitors the airspace surrounding the aircraft by interrogating transponders of the intruding aircraft. TAS can detect and track aircraft with either an ATCRBS (operating in Mode A or C) or Mode S transponders. If the TAS determines that certain safe boundaries may be violated, it issues an aural and visual Traffic Advisory to alert the crew that closing traffic is nearby.

The TAWS receives position information from an internal GPS receiver along with information from the air data system. TAWS uses position information in combination with its various terrain, obstacle and runway database information to provide the crew with a display of the aircraft position relative to surrounding terrain and known obstacles. Flight into an area where a conflict with terrain or obstacle is imminent will result in the system providing aural and visual alerts. The system also provides alerts and warnings for excessive rates of descent and inadvertent descents or altitude loss after takeoff.

The system is interfaced with a Multi Function Display (MFD) to provide a display of terrain data and traffic data to the crew. The TAS information provides traffic symbols which change shape and color to represent increasing level of urgency as separation with intruders decreases. Similarly, the color-coded terrain and obstacle display offers an enhancement to situational awareness.

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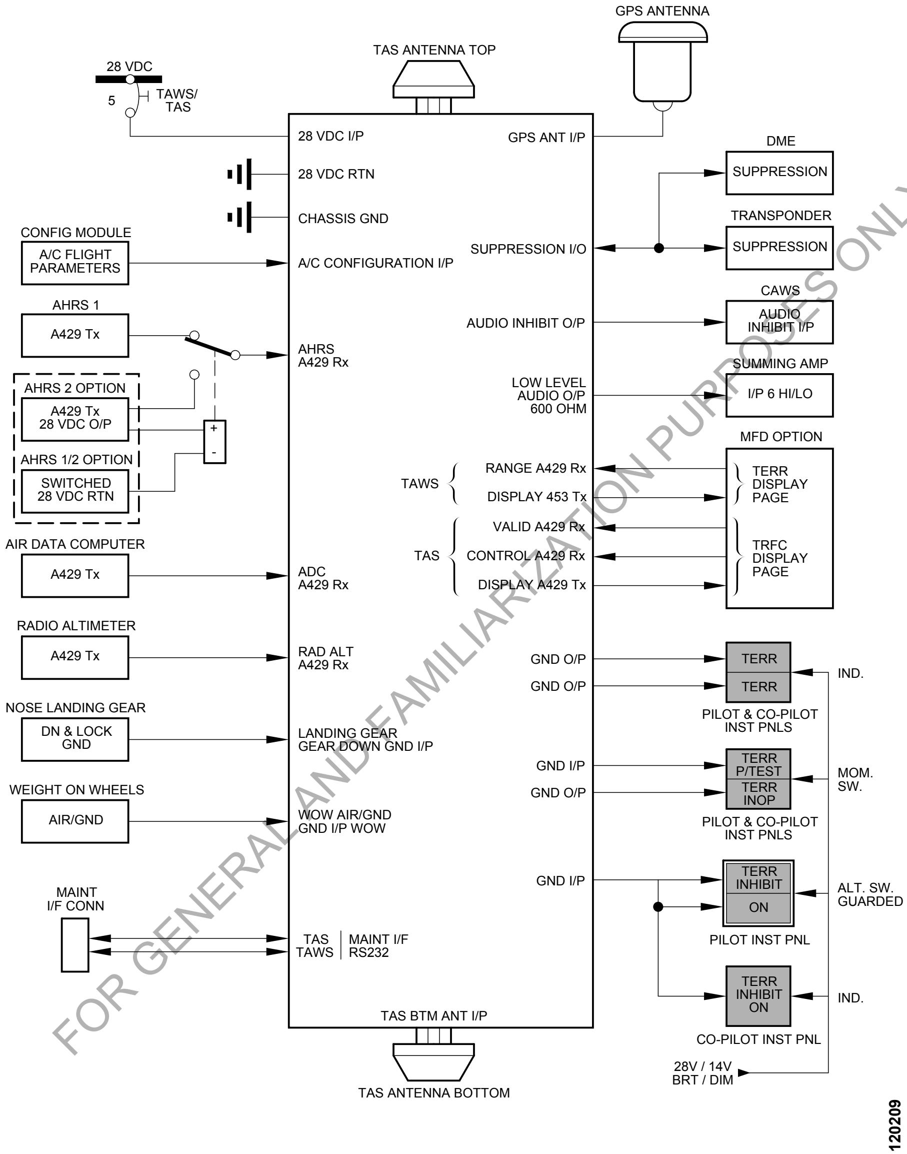

Figure 7-1 KMH 820 System Schematic

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TAS

The TAS is capable of surveillance of aircraft equipped with transponders (i.e. Mode S and Mode C) able to reply to ATCRBS Mode C interrogations in their operational environments. The TAS system is unable to detect any intruding aircraft without an operating transponder.

The TAS portion of the KMH 820 processor provides the flight crew with situational awareness and position information for transponder equipped aircraft in proximity to their own aircraft. The TAS system provides the crew with traffic advisory (TA) information it **does not** provide resolution advisories (RA). The TAS system assists the crew in visually acquiring an intruding aircraft it provides a 'backup' traffic advisory service in support of existing conventional air traffic control procedures without producing unwanted advisories. The operation of the TAS is independent of ground-based systems.

The MFD is the display and control panel for the TAS system, it displays the horizontal picture of the traffic around the aircraft. The horizontal picture represents aircraft (intruders) within the surveillance volume, including the range, azimuth, altitude and vertical direction arrows, when the information is available from the TAS processor.

The flight crew must not use a TA on the MFD traffic display to initiate evasive maneuvering. ATC procedures and visual acquisition of the intruder prior to initiation of evasive maneuvers must continue to be the primary means of ensuring aircraft separation.

The TAS system will issue an aural "*Traffic, Traffic*" alert message at the same time a TA is detected and displayed on the 'TRFC' display on the MFD. The TAWS portion of the KMH 820 automatically takes audio priority for a TAWS aural alert over a TAS aural alert message.

The following table lists all the aural messages and advisories in the TAS vocabulary.

Condition	Aural Message
Traffic Advisory	*Traffic, Traffic*
If previous TA is active	*Traffic*
Self test passed	*TAS System Test OK*
Self test failed	*TAS System Test Fail*

The TAS inhibits aural annunciation under the following conditions;

- When the aircraft is below 400 feet AGL during descent
- When the aircraft is below 600 feet during ascent
- When the landing gear is extended

TAWS

The TAWS portion of the KMH 820 processor is a Class B enhanced ground proximity warning system (EGPWS). The TAWS provides aural voice cautions/warnings, visual cautions/warning and terrain display of impending Controlled Flight Into Terrain (CFIT) offering the flight crew increased situational awareness. Data is collected from a variety of sources including existing

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aircraft sensors and processed to determine if the aircraft is in danger. The TAWS is uniquely configured for operation in the PC-12 by programming a system configuration module with PC-12 specific parameters.

The TAWS portion of the KMH 820 comprises the following functions;

- Basic Ground Proximity Warning; GPWS Mode 1 Excessive Descent Rate, Mode 3 Altitude Loss After Takeoff and Mode 6 Altitude Callout
- Enhanced Alerts; Based on aircraft position/altitude relative to terrain, obstacle and airport databases, 'Look Ahead' alerting and warning and Runway Field Clearance Floor
- Terrain display; Terrain/Obstacles relative to aircraft altitude is shown on the MFD

The following table defines the TAWS aural alert message priority from highest to lowest priority. The highest priority message always takes priority and will immediately interrupt any lower priority message. Only one message is produced at any one time, if the aircraft is in a situation that meets more than one condition for an aural alert at the same time, the higher priority message will be heard until that condition is resolved. If a lower priority message is already in progress the lower priority message will be completed before the higher priority message is started.

Alert/Warning Condition	Aural alert	Notes
Pull up	*Pull Up*	1
Terrain Awareness Preface	*Terrain, Terrain*	1, 2
Terrain Awareness Warning	*Pull Up*	1, 3
Obstacle Awareness Preface	*Obstacle, Obstacle*	1, 2
Obstacle Awareness Warning	*Pull Up*	1, 3
Terrain Awareness Caution	*Caution Terrain, Caution Terrain*	4
Obstacle Awareness Caution	*Caution Obstacle, Caution Obstacle*	4
RFCF Too low Terrain	*Too Low Terrain*	
Above Field Callout	*Five Hundred*	
Sink Rate	*Sink Rate, Sink Rate*	5
Don't Sink	*Don't Sink, Don't Sink*	
Altitude Monitor	*Check Altitude*	

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Notes

1. These are the only aural alerts that can interrupt.
2. The preface voices will always be given prior to the warning voice.
3. This aural alert is continuous.
4. Aural alert will repeat every seven seconds.
5. The basic warning is "*Sink Rate Sink Rate*", however if the Pull up curve is violated only a single "*Sink Rate*" callout may occur prior to the pull up voice.

When the TAWS initiates an aural alert an audio inhibit discrete ground is output to the CAWS system, which suppresses any aural callout initiated by the CAWS for the duration of the TAWS aural alert.

The TAWS is internally configured to suppress any TAS aural alerts for the duration of any TAWS aural alerts.

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PILOT'S OPERATING HANDBOOK
AND
FOCA APPROVED AIRPLANE FLIGHT MANUAL

SUPPLEMENT NO. 27
FOR
BFGOODRICH WX-500
STORMSCOPE SYSTEM

This supplement must be attached to the Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual when the BFGoodrich WX-500 Stormscope System is installed in accordance with Pilatus Drawings. The information contained herein supplements or supersedes the information in the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual only in those areas listed. For limitations, procedures and performance information not contained in this supplement, consult the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual.

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Approved by:

Federal Office for Civil Aviation (FOCA) of Switzerland
Section for Type Certification

Date of Approval: 4. JULI 2002

SECTION 1 - GENERAL

This supplement supplies the information necessary for the operation of the airplane when the BFGOODRICH WX500 Stormscope System is installed in accordance with Modification 02-0089.

SECTION 2 - LIMITATIONS

No change.

SECTION 3 - EMERGENCY PROCEDURES

No change.

SECTION 4 - NORMAL PROCEDURES

No change.

SECTION 5 - PERFORMANCE

No change.

SECTION 6 - WEIGHT AND BALANCE

Factory installed optional equipment is included in the licensed weight and balance data in Section 6 of the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual.

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SECTION 7 – DESCRIPTION

DESCRIPTION

The Stormscope System detects lightning activity 360 degrees around the aircraft up to a distance of 200 nautical miles. The stormscope antenna installed on the bottom of the fuselage detects intra-cloud, inter-cloud or cloud-to-ground electrical discharges and sends the resulting discharge signals to the processor. The processor converts the signals into range and bearing data then stores the data in memory. The processor then communicates the data to the Multi Function Display (KMD 850) as strikes and cells with updates every two seconds.

To maintain correct storm orientation the system receives heading source data from the AHRS.

The stormscope system is inhibited automatically when the pilot or co-pilot presses his PTT switch. This prevents false lightning activity detections which could be caused by the communications transmission signals.

The power supply to the stormscope system is 28 VDC through the STORMSCOPE circuit breaker on the AVIONIC 2 BUS circuit breaker panel.

OPERATION

The stormscope system is selected on by pressing the WX function key on the MFD. The WX function key toggles between the Stormscope and/or Weather Radar. At power up the stormscope system does a self test which takes approximately 25 seconds during which time no stormscope data is displayed. An error message is displayed if a fault is detected.

STORMSCOPE MFD VIEWS

The MFD can display the stormscope data in one of two views, either an all round (360°) or a forward looking only (120°). Press the VIEW key on the MFD to toggle between the displays.

STORMSCOPE MFD MODES

The MFD can display the stormscope data in one of two modes, either a Cell Mode or a Strike Mode. Press the MODE key on the MFD to toggle between the modes. The current selected mode is shown at the top left of the MFD display.

Cell Display Mode

In the cell display mode a + symbol (discharge point) is shown on the MFD when the strormscope system detects discharges within the selected range and view. The system will show another + close to the first for each additional discharge determined to be associated with the group. Discharges not associated with a group are not shown unless its detected within 25 nm radius of the aircraft. The effect of this clustering algorithm is to display the location of storm cells instead of individual discharges. The cell display mode is most useful during periods of heavy electrical discharge activity.

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Strike Display Mode

In the strike display mode a X symbol (discharge point) is shown on the MFD when the stormscope system detects a discharge within the selected range and view. The strike display mode shows the discharge points on the MFD in relation to where the discharges are actually detected instead of close to an associated group as is done in the cell display mode. The strike display mode is most useful during periods of light electrical discharge activity because it may show discharges associated with a building thunderstorm.

STORMSCOPE RANGE DISPLAY

The current selected displayed range of the stormscope display is shown at the bottom left of the MFD display. To change the displayed range press the RNG up or down key on the MFD. The range indicator will also change to show the value of the new range (25, 50, 100 or 200 nm). The new range corresponds to the distance from the aircraft to the outer range ring on the display. The 25 nm range is always shown as a solid ring to advise the pilot of his close proximity to thunderstorms.

STORMSCOPE STRIKE RATE DISPLAY

The approximate strike per minute rate is shown at the bottom right of the MFD display. The strike rate may be used by the pilot to determine if storm cells are building or dissipating. The strike rate is calculated by the MFD for the selected range and view.

CLEARING DISCHARGE POINTS

The discharge points can be cleared by moving the joystick on the MFD. Clearing the discharge points periodically while monitoring thunderstorms is a good way to determine if the storm is building or dissipating. Discharge points in a building storm will reappear faster and in larger numbers. Discharge points in a dissipating storm will appear slower and in smaller numbers.

STORMSCOPE DISPLAY WITH OTHER DISPLAYS

If the MFD is receiving flight plan information from the GPS, the flight plan lines and waypoints may be displayed on the stormscope displays in an overlay. Press the OVLY and Flight Plan keys on the MFD.

It is also possible to see stormscope cell or strike data while in the MAP display. Press the OVLY and Stormscope keys on the MFD.

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PILOT'S OPERATING HANDBOOK
AND
FOCA APPROVED AIRPLANE FLIGHT MANUAL

SUPPLEMENT NO. 28
FOR
DC-DC CONVERTER

This supplement must be attached to the Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual when the DC-DC Converter is installed in accordance with Pilatus Drawings. The information contained herein supplements or supersedes the information in the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual only in those areas listed. For limitations, procedures and performance information not contained in this supplement, consult the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Approved by:

Federal Office for Civil Aviation (FOCA) of Switzerland
Section for Type Certification

Date of Approval: 16. 12. 2002

SECTION 1 - GENERAL

This supplement supplies the information necessary for the operation of the airplane when DC-DC Converter and 12V DC power outlets are installed.

SECTION 2 - LIMITATIONS

The cabin placards:

Near each 12 VDC power outlet:

MAX 5 A DO NOT USE DURING TAKE OFF AND LANDING

Near the switch on the panel at rear left side of the cockpit:

CABIN POWER

SECTION 3 – EMERGENCY PROCEDURES

In the event of all Electrical System Failures the CABIN POWER switch must be set to OFF.

All equipment connected to the DC 12V power outlets must be disconnected in an emergency situation.

SECTION 4 – NORMAL PROCEDURES

No change.

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SECTION 5 - PERFORMANCE

No change.

SECTION 6 - WEIGHT AND BALANCE

Converter weight and moment

PC-12/45		
ITEM	WEIGHT LB (KG)	MOMENT LB/IN (KG/M)
Converter RG 40	3.5 (1.6)	1084.449 (12.592)

SECTION 7 - SYSTEM DESCRIPTION

The DC-DC converter and the six 12V DC power outlets give the facility for passengers to operate portable electronic equipment in the cabin.

The installation consists of a 25-amp 12VDC AUX POWER circuit breaker installed on the RH front circuit breaker panel. The circuit breaker is connected to the 28VDC Non Essential Bus and provides the input power to the DC-DC power converter. The DC-DC converter is installed under the passenger compartment floor. The converter output is controlled by a CABIN POWER ON/OFF switch located on the small panel at the rear left side of the cockpit.

The output of the DC-DC converter is connected directly to a bus-bar and distributed via six 5 amp circuit breakers to the six power outlet sockets.

The power outlet sockets are installed in the cabin wall trim panels adjacent to each seat. They are an automotive type socket equipped with a self retaining protective cap.

SECTION 8 – HANDLING AND SERVICING

No change.

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PILOT'S OPERATING HANDBOOK
AND
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SUPPLEMENT NO. 29
FOR
PILOT'S RELIEF TUBE

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

This supplement must be attached to the Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual when the Pilot's Relief Tube is installed in accordance with Pilatus Drawings. The information contained herein supplements or supersedes the information in the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual only in those areas listed. For limitations, procedures and performance information not contained in this supplement, consult the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual.

Approved by:

Federal Office for Civil Aviation (FOCA) of Switzerland
Section for Type Certification

Date of Approval: 13. MARCH. '03

Federal Office for Civil Aviation

SECTION 1 - GENERAL

This supplement supplies the necessary information for the use of the pilot's relief tube when installed with Modification Approval Sheet 12/25/126 or SB 25-026.

SECTION 2 – LIMITATIONS

The pilot's relief tube is for male pilots only and its use is restricted as follows:

- must not be used on the ground (suction is required for system operation)
- must not be used when the flaps are extended
- must not be used in turbulence
- use only with the autopilot engaged and the aircraft in straight and level flight

PLACARDS

On the top of the relief tube box:

STORE AFTER USE

On the cover of the relief tube box:

RELIEF TUBE BOX

SECTION 3 – EMERGENCY PROCEDURES

No change.

SECTION 4 – NORMAL PROCEDURES

1. Open the stowage box cover and remove the horn.

2. Before use, depress the trigger on the horn and make sure there is a suction present in the tube.

3. After all the fluid has drained from the horn, keep the trigger depressed for an additional 10 seconds to make sure all the fluid is drained overboard.

4. After use, coil the tubing, stow the horn in the storage box and close the cover.

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SECTION 5 - PERFORMANCE

No change.

SECTION 6 - WEIGHT AND BALANCE

Factory installed optional equipment is included in the licensed weight and balance data in Section 6 of the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual.

SECTION 7 - SYSTEM DESCRIPTION

DESCRIPTION

The optional pilot's relief tube system consists of a plastic horn with a spring loaded trigger which opens a valve at the base of the horn. A flexible pipe connected to the base of the horn is routed under the cabin floor then out to the center flap fairing under the left wing and overboard. When the relief tube is not in use the horn is stored in a box attached to the cockpit sidewall adjacent to the pilots seat.

OPERATION

Fluid is emptied from the relief tube by depressing the trigger on the horn. The pressure difference between the open ends of the pipe in the cockpit and atmosphere at the flap fairing, creates a suction which draws the fluid down the pipe and out to atmosphere.

SECTION 8 – HANDLING AND SERVICING

After the relief tube has been used it is recommended to flush it.

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FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

PILOT'S OPERATING HANDBOOK AND FOCA APPROVED AIRPLANE FLIGHT MANUAL

SUPPLEMENT NO. 30 FOR STEEP APPROACH LANDINGS

This supplement must be attached to the Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual when performing steep approach landings. The information contained herein supplements or supersedes the information in the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual only in those areas listed. For limitations, procedures and performance information not contained in this supplement, consult the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual.

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Approved by:

Federal Office for Civil Aviation (FOCA) of Switzerland
Section for Type Certification

R. [signature]

Date of Approval:

25. MARCH. 2004

SECTION 1 - GENERAL

This supplement supplies the information necessary for the operation of the airplane when performing steep approaches using an approved flight path reference system.

SECTION 2 - LIMITATIONS

STEEP APPROACH

Steep approaches greater than 8° are not approved.

The autopilot must be disconnected and the aircraft flown manually when performing a steep approach greater than 6°.

Steep approaches with tail winds greater than five knots have not been demonstrated.

Steep approaches in icing conditions or with any visible ice accretion on the airframe are not permitted.

SECTION 3 - EMERGENCY PROCEDURES

No change.

SECTION 4 - NORMAL PROCEDURES

4.13 DESCENT

For a steep approach set the flaps to 40° prior to intercepting the glide scope. Maintain the flaps at 40° until landing.

WEATHER MINIMA

For visual approach path reference it is recommended that the weather minima associated with a steep approach landing using an external visual approach path reference system should permit the visual element of the approach to be commenced at a height not less than 500 feet. For internal reference, weather minima not less than the normal minima is recommended.

SECTION 5 - PERFORMANCE

No change.

SECTION 6 - WEIGHT AND BALANCE

No change.

SECTION 7 DESCRIPTION

No change.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

PILOT'S OPERATING HANDBOOK AND FOCA APPROVED AIRPLANE FLIGHT MANUAL

SUPPLEMENT NO. 31 FOR GARMIN GTX 330D MODE S AIR TRAFFIC CONTROL TRANSPONDER SYSTEM

This supplement must be attached to the Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual when a single or a dual Garmin GTX 330D Mode S Air Traffic Control Transponder System is installed in accordance with Pilatus Drawings. The information contained herein supplements or supersedes the information in the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual only in those areas listed. For limitations, procedures and performance information not contained in this supplement, consult the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual.

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Approved by:

Federal Office for Civil Aviation (FOCA) of Switzerland
Section for Type Certification

Date of Approval: 11. JULI 2005

SECTION 1 - GENERAL

This supplement supplies the information necessary for the operation of the airplane when the Garmin GTX 330D Mode S Air Traffic Control (ATC) transponder system is installed.

An optional dual Garmin GTX 330D Mode S transponder system can also be installed in the aircraft.

SECTION 2 - LIMITATIONS

For aircraft with Mode S elementary surveillance, the Garmin GTX 330D Pilot's Guide (Garmin Part No. 190-00207-00 Rev A, Dated September 2002 or later revision) must be readily accessible to the flight crew when operating the Garmin GTX 330D system.

For aircraft equipped with Mode S enhanced surveillance, the Garmin GTX 330D Pilot's Guide (Garmin Part No. 190-00207-00 Rev C, Dated March 2005 or later revision) must be readily accessible to the flight crew when operating the Garmin GTX 330D system.

The Mode S enhanced surveillance system installed in the aircraft is not able to transmit the Selected Altitude parameter.

The Mode S Surveillance system must be serviceable (one system when dual systems are installed) when the aircraft is operated in airspace where the regulations require surveillance.

It is the responsibility of the pilot to make sure the aircraft is equipped with the correct level of surveillance equipment to comply with operating airspace regulations.

SECTION 3 - EMERGENCY PROCEDURES

No change.

SECTION 4 - NORMAL PROCEDURES

When the optional dual Garmin GTX 330D Mode S transponder systems are installed, press the XPNDR1/XPNDR2 switch on the center instrument panel to change operation from one transponder system to the other.

SECTION 5 - PERFORMANCE

No change.

SECTION 6 - WEIGHT AND BALANCE

Factory installed optional equipment is included in the licensed weight and balance data in Section 6 of the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

SECTION 7 DESCRIPTION

GENERAL

The Garmin GTX 330D Mode S transponder is a radio transmitter and receiver that operates on radar frequencies, receiving ground radar or Traffic Collision and Avoidance System (TCAS) interrogations at 1030 MHz and transmitting a coded response of pulses to ground radar on a frequency of 1090 MHz. Ground stations can interrogate the transponder using a Mode S address which is unique to the aircraft. In addition, ground stations may interrogate for the transponder data capability and the aircraft's flight ID.

In addition to displaying the code, reply symbol and mode of operation, the transponder will display pressure altitude and timer functions. The transponder also features an altitude monitor, which will give altitude information in the interrogation reply signal.

The transponder is installed in the center instrument panel and is configured with the key controls. The layout of the keys and displays segregates the transponder's primary functions keys on the left and the secondary functions keys on the right. It has a ten-digit numeric keypad along the bottom of the display. The transponder has a BITE that constantly monitors the operational functions of the unit. If an internal fault is detected, the transponder screen will display a FAIL message.

The power supply to the transponder is 28 VDC from the Avionic 1 bus through the ATC XPNDR 1 circuit breaker. The transponder receives inputs from the pilot's encoding altimeter and has an L-band suppression circuit, which is connected to the Distance Measuring Equipment (DME) and the TCAS (if installed). The transponder is connected to the right weight-on-wheels switch. The transponder configuration pages can be set to stop the system from replying to ATCRBS interrogations when the aircraft is on the ground. The transponder receives and transmits through an upper and a lower antenna for diversity operation.

The transponder's configuration is normally set at the time of installation. The configuration parameters can be viewed with the transponder in the configuration mode. If there has been a change to the aircraft identity or flight ID it is recommended before the next flight that the configuration page be checked for correctness. The configuration page data is stored in an EEPROM memory.

DUAL TRANSPONDER SYSTEM

Two Garmin GTX 330D Mode S transponders are installed in the aircraft. Transponder 1 is used as the main system and Transponder 2 is used as a standby. The Transponder 2 is installed in the copilots lower panel.

The power supply to the Transponder 2 is 28 VDC from the Avionic 2 bus through the ATC XPNDR 2 circuit breaker. The crew can select the desired transponder system by a push-switch installed on the center instrument panel. The switch has two lighted captions, XPNDR1 and XPNDR2. The relevant caption comes on to show which transponder system is 'active'.

The two transponders operate independently. The copilot's encoding altimeter is used for the Transponder 2 system. Both systems receive and transmit through the same upper and lower

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antennas. The antennas are normally connected through relays to the Transponder 1 system. When the Transponder 2 is selected by the push-switch the relays are energized and disconnect the Transponder 1 and connect the Transponder 2 to the upper and lower antennas.

The two transponders share a common L-band suppression circuit, which is connected to the DME and the TCAS (if installed).

The two transponders are also connected to the same weight-on-wheels switch. The transponder configuration pages can be set to stop both systems from replying to Air Traffic Control Radar Beacon System (ATCRBS) interrogations when the aircraft is on the ground.

ENHANCED SURVEILLANCE

The transponder(s) has/have upgraded software and configuration changes to enable the enhanced surveillance. In addition to the elementary surveillance system inputs, the transponder(s) receive ARINC 429 inputs for magnetic heading and roll angle from the AHRS (AHRS 1 on a dual installation) LCR 92 or LCR 93, Mach No., indicated airspeed, true airspeed and vertical rate from the pilots AM 250 altimeter and air data computer, ground speed and true track angle from the KLN 90B GPS. The configuration change enables the transmission of 25 ft resolution Mode S altitude from the pilots AM 250 altimeter. Also the Outside Air Temperature (OAT) and Density Altitude (DALT) page can be selected with the FUNC key and shown on the right side of the display.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

PILOT'S OPERATING HANDBOOK
AND
FOCA APPROVED AIRPLANE FLIGHT MANUAL

SUPPLEMENT NO. 32
FOR
PC-12, PC-12/45 AND PC-12/47
REGISTERED IN THE COMMONWEALTH
OF INDEPENDENT STATES (CIS)

This supplement must be attached to the Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual when operating a PC-12 or a PC-12/45 or a PC-12/47 which is registered in the Commonwealth of Independent States (CIS). The information contained herein supplements or supersedes the information in the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual only in those areas listed. For limitations, procedures and performance information not contained in this supplement, consult the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual.

Approved by:

Federal Office for Civil Aviation (FOCA) of Switzerland
Section for Type Certification

Bundesamt für Zivilluftfahrt - Office fédéral de l'aviation civile - BERN -

Date of Approval:

18th october 2006

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

SECTION 1 - GENERAL

The Service Bulletin 04-007 CIS Registration lists the aircraft tasks which must be done prior to the registration of the aircraft in one of the Commonwealth of Independent States (CIS) and the use of this Supplement.

SECTION 2 - LIMITATIONS

KINDS OF OPERATION EQUIPMENT LIST

SYSTEM / EQUIPMENT	VFR DAY	VFR NIGHT	IFR DAY	IFR NIGHT	ICING
Airspeed Indicator	1	1	2	2	2
Attitude Indicator	1	1	2	2	2
Directional Indicator	1	1	2	2	2
Altimeter (metric units)	1	1	1	1	1
ADF	1	1	1	1	1
DME	1	1	1	1	1
VOR	1	1	1	1	1
GPS with B-RNAV	0	0	1	1	1
ELT 406 MHz	0	0	1	1	1
EGPWS with bank angle callout	0	0	1	1	1
WX	0	0	1	1	1
ATC Transponder	0	0	1	1	1

For ALL operations in remote un-inhabited areas, the operator is required to have a hand held emergency VHF radio (Russian type P855A1) on board. The radio is to be securely stowed behind the rear right passenger seat.

OUTSIDE AIR TEMPERATURE LIMITS

Operation on the ground is prohibited when the aircraft has been exposed to outside air temperatures below minus 35° C for more than 3 hours without the engine running.

OTHER LIMITATIONS

Aircraft operation is limited to dry and wet paved runways and surfaces with a minimum surface hardness of 8 kg/cm^2.

Maximum airfield elevation is 14000 feet. Refer to Section 5 of this Supplement.

Flights over an expanse of water must be performed within the gliding range of land.

Supplementary aircraft heating system must be installed in accordance with SB 25-002. Operate the aircraft in accordance with the AFM/POH Supplement No. 10 Operations in Cold Conditions.

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Maximum allowed wind value during taxiing:

Headwind limit		50 kts	(26 m/s)
Tailwind limit		10 kts	(5 m/s)
Crosswind limits	Flap 0°	30 kts	(15 m/s)
	Flap 15°	25 kt	(13 m/s)
	Flap 30°	20 kts	(10 m/s)
	Flap 40°	15 kt	(8 m/s)

During en-route navigation without VOR/DME coverage, in case of GPS data not available, the pilot is required to confirm aircraft position with ATC not less than once each 30 minutes.

The aircraft is approved to fly in CIS airspace covered by ATC ground facilities operating transponders in RBS mode. For CIS airspace covered by ATC ground facilities operating transponders in UVD mode, permission for flights shall be coordinated with the ATC.

SECTION 3 - EMERGENCY PROCEDURES

No change.

SECTION 4 - NORMAL PROCEDURES

4.8 BEFORE TAKE-OFF

7. Flap — 15° (For reduced Take-off distance flap 30° may be used)

Take-off and Landing techniques for operations from prepared unpaved surfaces are defined in AFM/POH Section 10 Operations from Prepared Unpaved Surfaces.

4.10 FLIGHT INTO KNOWN ICING CONDITIONS

WARNING

IF SEVERE ICING CONDITIONS ARE ENCOUNTERED, REQUEST PRIORITY HANDLING FROM AIR TRAFFIC CONTROL TO FACILITATE A ROUTE OR AN ALTITUDE CHANGE TO EXIT THE ICING CONDITIONS.

While exiting the severe icing conditions:

- With flap 0° maintain indicated airspeed above 155 kts
- With flap 15° maintain indicated airspeed above 135 kts

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

- Manoeuver with bank angles less than 30°
- Avoid sideslip
- Avoid more than half travel of aileron

4.12 CRUISE

1. Altimeters — Do a regular cross check of the metric altimeter reading and the main instrument panel altimeter reading. (Section 5, Figure 5-5 gives a meters to feet conversion chart).

SECTION 5 - PERFORMANCE

GENERAL

The total landing distance obtained from the landing charts should be factored as follows:

Primary airfield 1.67

Secondary airfield 1.43

HIGH ALTITUDE FIELD PERFORMANCE

Section 5 of the AFM/POH provides performance data for takeoff, landing and accelerate-stop distances up to 10,000 feet.

The existing approved performance data at 10,000 feet was re-run for altitudes from 10,000 feet to 14,000 feet. The results where then normalized to the same point but at 10,000 feet pressure altitude. This gave factored distances which are given in the Table below.

Phase	Flaps	Factored Distance / 1,000' above 10,000'
Takeoff	15°	1.16
Takeoff	30°	1.20
Landing	40°	1.06
Landing (with reverse)	40°	1.06
Accelerate Stop	15°	1.11
Accelerate Stop	30°	1.11
Accelerate Stop (with reverse)	15°	1.12
Accelerate Stop (with reverse)	30°	1.12

Table 1: Factored Distances (with respect to 10,000')

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EQUATION

To determine the correct field performance distance for pressure altitudes above 10,000' but equal to or less than 14,000' the following equation may be used:

$$s = s_{10,000'} \times \left[\left(\frac{\text{Altitude} - 10,000}{1,000}\right) \times (\text{Factor} - 1) + 1\right]$$

Equation 1: Corrected estimated distance.

Where:

s	- The distance (same units as $s_{10,000}$)
$s_{10,000}$	- The distance determined at a pressure altitude of 10,000'
Altitude	- The pressure altitude (feet)
Factor	- The factor from table 1 according to the performance parameter and configuration.

EXAMPLE

To estimate the accelerate stop distance (without using reverse) with flaps set to 30° with an aircraft weighing 4,500 kg at 12,500 ft with an OAT of 4° then:

1. Determine the performance but at 10,000 ft. This is found as 1,600m.

2. To correct this distance for a pressure altitude of 12,500' then the accelerate stop distance is determined as:

   $s_{10,000}$ - 1,600m
   Altitude - 12,500 ft
   Factor - 1.11 - from table 1 for accelerate stop without reverse, flaps 30°

IN THIS EXAMPLE:

$$s_{ac} = 1,600m \times \left[\left(\frac{12,500 - 10,000}{1,000}\right) \times (1.11 - 1) + 1\right] = 2,040m$$

The distance to perform an accelerate stop with flaps set to 30° at 12,500 ft, OAT 4° and a weight of 4,500 kg is 2,040m

SECTION 6 - WEIGHT AND BALANCE

Factory installed optional equipment is included in the licensed weight and balance data in Section 6 of the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

SECTION 7 DESCRIPTION

No change.

SECTION 8 HANDLING, SERVICING AND MAINTENANCE

PARKING

For wind strengths greater than 30 m/s (53 kts) the aircraft must be parked in an area protected from the wind.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

PILOT'S OPERATING HANDBOOK
AND
EASA APPROVED AIRPLANE FLIGHT MANUAL

SUPPLEMENT NO. 33
FOR
PC-12/47

This supplement must be attached to the Pilot's Operating Handbook and EASA Approved Airplane Flight Manual when operating the PC-12 at a weight of 4740 kg. The information contained herein supplements or supersedes the information in the basic Pilot's Operating Handbook only in those areas listed. For limitations, procedures and performance information not contained in this supplement, consult the basic Pilot's Operating Handbook and EASA Approved Airplane Flight Manual.

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Approved by:

European Aviation Safety Agency (EASA)
Ref – EASA.A.C.0010001050

Date of Approval:

16.12.2010

Bundesamt für Zivilluftfahrt - Federal Office of Civil Aviation - BERN -

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LIST OF EFFECTIVE PAGES

Page No	Rev No.	Page No.	Rev No.
9-33-1	2		
9-33-2	3		
9-33-3 and 9-33-4	5		
9-33-5 and 9-33-6	3		
9-33-7 and 9-33-8	5		
9-33-9 thru 9-33-13	3		
9-33-14 thru 9-33-40	5		

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LOG OF TEMPORARY REVISIONS

The incorporation of temporary revisions into this supplement are to be recorded on the sheet below. Instructions for the removal of temporary revisions will be given in the instruction sheet issued with revisions.

NO.	TEMPORARY REVISION TITLE	DATE OF ISSUE	CANCELLED BY

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LOG OF REVISIONS

Revision Number and Date	Page Number	Description
3 01.09.2014	9-33-2 thru 9-33-22	Arm value correction. MTOW and Loading form values corrected. New LOEP, LOTR and LOR. Editorial and layout changes. The Revision Number 3 to AFM Supplement No. 33 is approved under the authority of DOA ref. EASA.21J.357. Approval Date: 23. September 2014.
4 12.07.2016	9-33-17	Updated paragraph numbers due to introduction of new paragraph 4.19 in POH 02211 resulting in renumbering of subsequent paragraphs (editorial change).
	9-33-18	Parts of text revised to make clearer that stick shaker and pusher settings are measured by the angle of attack vanes. Added clarification that in icing conditions the shaker and pusher operate in PUSHER ICE MODE. Identified the deice boots as “pneumatic deice boots” throughout the text. The Revision Number 4 to AFM Supplement No. 33 is approved under the authority of DOA ref. EASA.21J.357. Date of Approval: 12 July 2016.
5 06.10.2017	9-33-3 and 9-33-4	LOEP updated.
	9-33-7 and 9-33-8	LOR updated.
	9-33-14	17188 - Landing approach speeds with ice accretion on the airframe updated. Balked Landing Pusher Ice Mode speed updated 17301 - (MTOW) references added
	9-33-15	17301 - (MTOW) references added
	9-33-16	Editorial (Item number at paragraph 3.12 updated)

14344/14238

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Revision Number and Date	Page Number	Description
5 06.10.2017 (Continued)	9-33-16	17058 - Paragraph 3.13 added which details PC-12/47 flap settings and speeds during an inadvertent pusher/shaker operation situation. 17188 - Minimum landing approach speed updated at paragraph 3.19.2 17301 - (MTOW) reference added to paragraphs 3.9.8 and 3.9.9 Maximum Landing Weight reference added to paragraph 3.19.2
	9-33-17	17188 - Minimum landing approach speed updated at paragraphs 3.19.5 and 3.19.7 17301 - Maximum Landing Weight references added Editorial (text run on due to the addition of paragraph 3.13 information on the previous page 9-33-16)
	9-33-18 thru 9-33-36	16966 - Icing performance tables added. The Revision Number 5 to AFM Supplement No. 33 is approved under the authority of DOA ref. EASA.21J.357. Date of Approval: 06 October 2017.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

SECTION 1 - GENERAL

MAXIMUM WEIGHTS

Maximum Ramp Weight	10495 lb (4760 kg)
Maximum Takeoff Weight	10450 lb (4740 kg)
Maximum Landing Weight	9921 lb (4500 kg)

TYPICAL AIRPLANE WEIGHTS

Useful Load	4982 lb (2260 kg)

SPECIFIC LOADINGS

Wing Loading	37.6 lb/sq ft (183.7 kg/sq m)
Power Loading	10.45 lb/shp (4.74 kg/shp)

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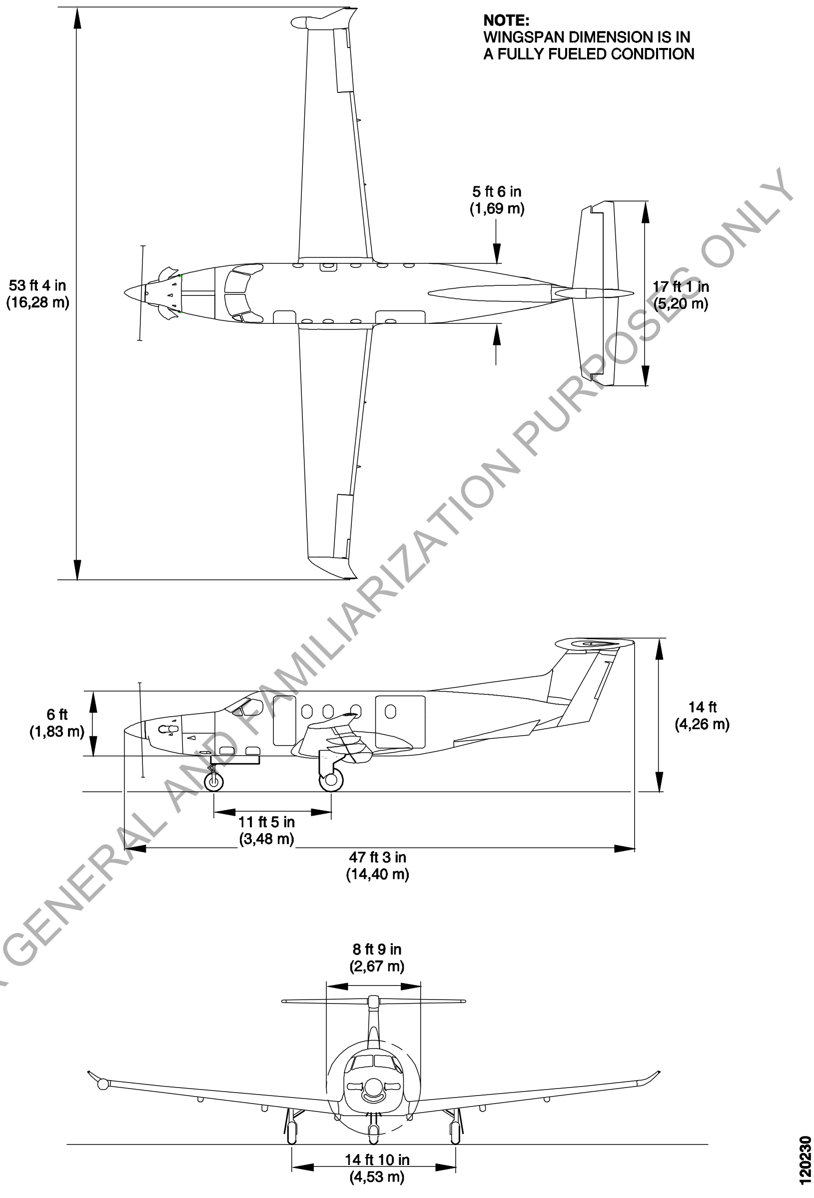

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Figure 1-1. Airplane Three View and Dimensions

SECTION 2 - LIMITATIONS

AIRSPEED LIMITATIONS

AIRSPEED	KCAS	KIAS	SIGNIFICANCE
Maximum Operating Maneuvering Speed - V_O 10450 lb (4740 kg)	166	163	Do not make full or abrupt control movements above this speed.

AIRSPEED INDICATOR MARKINGS

MARKING	KIAS VALUE OR RANGE	REMARKS
Green Arc	93 to 236	Normal operating range. Lower limit is maximum weight stall speed in the clean configuration (V_S). Upper limit is the maximum operating speed (V_{MO}/M_{MO}).
White Arc	66 to 130	Full flap operating range. Lower limit is maximum weight stall speed in landing configuration (V_{SO}). Upper limit is maximum speed with full flaps extended (V_{FE}).

WEIGHT LIMITS

Maximum Ramp Weight	10495 lb (4760 kg)
Maximum Takeoff Weight	10450 lb (4740 kg)
Maximum Landing Weight	9921 lb (4500 kg)

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CENTER OF GRAVITY LIMITS

Weight Pounds (kilograms)	Forward Limit A.O.D.: In. / M	Aft Limit A.O.D.: In. / M
10450 (4740)	232.20 / 5.898	240.43 / 6.107
9921 (4500)	232.20 / 5.898	240.94 / 6.120
8158 (3700)	224.13 / 5.693	-
7938 (3600)	-	242.99 / 6.172
6615 (3000)	-	242.99 / 6.172
5733 (2600)	220.75 / 5.607	225.47 / 5.727

NOTES

Straight line variation between points given.

The datum is 118 in (3.0 m) forward of firewall.

It is the responsibility of the pilot to ensure that airplane is loaded properly.

See Section 6, Weight and Balance for proper loading instructions.

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OTHER LIMITATIONS

PC-12/47 AIRCRAFT

The aircraft must be operated in accordance with this Supplement when the Identification Plate installed on the lower left side of the fuselage aft of the cargo door defines the Model Designation as PC-12/47.

CREW SEATS

Pilot crew seat Part No. 959.30.01.143 (original) or 959.30.01.163 (new cushion) and Copilot crew seat Part No. 959.30.01.144 (original) or 959.30.01.164 (new cushion) must be installed in the aircraft.

PLACARDS

PLACARDS - COCKPIT

On the instrument panel:

V_O	(4740 KG)	163	KIAS
V_O	(2600 KG)	120	KIAS
V_{MO}		236	KIAS
M_{MO}		0.48	M

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

SECTION 3 - EMERGENCY PROCEDURES

3.2 AIRSPEEDS FOR EMERGENCY OPERATIONS

All airspeeds shown are with airplane in clean configuration under ISA conditions.

A. Operating Maneuvering Speed (V_O):

10450 lb (4740 kg)	163 KIAS

B. Best Glide (Propeller feathered):

10450 lb (4740 kg)	116 KIAS

C. Landing Approach Speeds with ice accretion on the airframe (based on Maximum Landing Weight (MLW) of 9921 lb / 4500 kg):

After failure of:	Minimum Approach Speed:
Pneumatic Deice Boots (flap position limit 0°)	130 KIAS
AOA Probe Deice and/or	105 KIAS
Pitot and Static Probe Deice and/or	105 KIAS
Pusher Ice Mode (flap position limit 15°)	105 KIAS

D. Balked Landing (Go Around), for 10450 lb (4740 kg):

After failure of:

Pneumatic Deice Boots (flap position limit 0°)	
(TO/Pwr, flaps 0°, LG down, Pusher Ice Mode)	130 KIAS

3.4 ENGINE FAILURE

3.4.2 ENGINE FAILURE AFTER ROTATION - LANDING GEAR DOWN

3. Final Approach Speed for 10450 lb (4740 kg) (MTOW) — 86 KIAS

3.4.3 ENGINE FAILURE AFTER ROTATION - LANDING GEAR UP

4. Final Approach Speed for 10450 lb (4740 kg) (MTOW)	100 KIAS	Flaps 15°
	91 KIAS	Flaps 30°
	86 KIAS	Flaps 40°

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3.8 EMERGENCY DESCENT

3.8.2 MAXIMUM RANGE DESCENT - AFTER ENGINE FAIL – SINGLE BATTERY

4. Speed	116 KIAS for 10450 lb (4740 kg) (for lighter aircraft weights refer POH, Sect 3, para 3.2.B) (in icing conditions 140 KIAS)

3.8.3 MAXIMUM RANGE DESCENT - AFTER ENGINE FAIL – DUAL BATTERY

4. Speed	116 KIAS for 10450 lb (4740 kg) (for lighter aircraft weights refer POH, Sect 3, para 3.2.B) (in icing conditions 140 KIAS)

3.9 EMERGENCY LANDING

3.9.1 GLIDE DISTANCE AND SPEED

4. Best glide speed	116 KIAS for 10450 lb (4740 kg) (for lighter aircraft weights refer POH, Sect 3, para 3.2.B)

3.9.2 FORCED LANDING (ENGINE CUT-OFF/FEATHER)

6. Best glide speed	116 KIAS for 10450 lb (4740 kg) (for lighter aircraft weights refer POH, Sect 3, para 3.2.B)
13. Final approach speed for 10450 lb (4740 kg) (MTOW)	86 KIAS

3.9.3 LANDING WITH MAIN LANDING GEAR UNLOCKED

5. Final approach speed for 10450 lb (4740 kg) (MTOW)	86 KIAS

3.9.4 LANDING WITH NOSE LANDING GEAR UNLOCKED

3. Final approach speed for 10450 lb (4740 kg) (MTOW)	86 KIAS

3.9.5 LANDING WITH GEAR UP

4. Final approach speed for 10450 lb (4740 kg) (MTOW)	86 KIAS

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

3.9.8 LANDING WITHOUT FLAPS

3. Final approach speed for 10450 lb (4740 kg) (MTOW)	121 KIAS

3.9.9 DITCHING

4. Final approach speed for 10450 lb (4740 kg) (MTOW)	86 KIAS

3.12 STICK PUSHER FAILURE

B. IN FLIGHT:

3. Airspeed not below 1.3 Vs for 10450 lb (4740 kg)	Flaps 0°	121 KIAS
	Flaps 15°	100 KIAS
	Flaps 30°	91 KIAS
	Flaps 40°	86 KIAS

3.13 INADVERTENT PUSHER/SHAKER OPERATION

3.13.1 PUSHER

5. Airspeed not below 1.3 Vs for 10450 lb (4740 kg)	Flaps 0°	121 KIAS
	Flaps 15°	100 KIAS
	Flaps 30°	91 KIAS
	Flaps 40°	86 KIAS

3.13.2 SHAKER

5. Airspeed not below 1.3 Vs for 10450 lb (4740 kg)	Flaps 0°	121 KIAS
	Flaps 15°	100 KIAS
	Flaps 30°	91 KIAS
	Flaps 40°	86 KIAS

3.19 DEICE SYSTEM

3.19.2 BOOT DEICE FAILURE IN ICING CONDITIONS

12. Landing approach for 9921 lb (4500 kg) (MLW)	Keep minimum landing approach speed above 130 KIAS.

The CAUTION referring to EFIS AOA fast slow pointer indication is to be disregarded.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

3.19.5 AOA PROBE DEICE FAILURE IN ICING CONDITIONS

9. Landing approach for 9921 lb (4500 kg) (MLW)	Keep minimum landing approach speed above 105 KIAS or shaker activation speed, whichever is highest.

3.19.7 PUSHER ICE MODE FAILURE IN ICING CONDITIONS

9. Landing approach for 9921 lb (4500 kg) (MLW)	Keep minimum landing approach speed above 105 KIAS.

SECTION 4 - NORMAL PROCEDURES

4.2 AIRSPEEDS FOR NORMAL OPERATIONS

Airspeeds for normal operations are listed below. Unless otherwise noted, all airspeeds are based on a maximum takeoff weight of 10450 lb (4740 kg) at sea level under ISA standard day conditions.

Takeoff (V_R):	
Flaps 15°	81 KIAS
Flaps 30°	75 KIAS
Recommended Climb Speed with Flaps retracted and Pusher Ice Mode	135 KIAS
Maximum Operating Maneuvering Speed (V_O) (10450 lb/ 4740 kg)	163 KIAS

4.22 NOISE LEVEL

ICAO Annex 16, Chapter 10	77.7 dB(A)
Swiss VEL	77.7 dB(A)
FAR Part 36, Appendix G	77.7 dB(A)

4.24 FLIGHT IN ICING CONDITIONS

The minimum recommended speeds for icing encounters and with residual ice on the airframe are:

- Climb, Flaps 0°, Pusher Ice Mode = 135 KIAS

SECTION 5 – PERFORMANCE

The performance charts given in Section 5 of this POH Report No. 02211 can be used for PC-12/47 aircraft operation with an aircraft Maximum Takeoff Weight of 10,450 lb (4,740 kg).

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

FLIGHT IN ICING CONDITIONS

The following section presents performance information related to the operation in or into known icing conditions. This information was derived analytically from actual wind tunnel tests with natural ice. The following cases are considered:

- 45 minutes holding in moderate icing conditions with fully operational pneumatic de-ice boots and substantial ice accretion on unprotected surfaces.
- 20 minutes holding in moderate icing conditions with ice accretion on the total airframe due to inoperative pneumatic de-ice boots.

Besides these aerodynamic degradations, performance losses to the aircraft's propulsive system have been considered (increased bleed air extraction, inertial separator open, less ram recovery, and ice-build up on unprotected parts of the propeller blades).

FLAPS

When operating in or into known icing conditions, the use of Flaps 30° or 40° is prohibited

When operating in or into known icing conditions with fully operational pneumatic de-ice boots, the flap position is limited to a maximum of 15°.

When operating in or into known icing conditions with failed operational pneumatic de-ice boots, the flap position is limited to a maximum of 0°.

STALL SPEEDS

When operating in STICK PUSHER ICE MODE the stick pusher computer automatically reduces the shaker and pusher settings, as measured by the angle of attack vanes, by 8°. With operational pneumatic de-ice boots, this results in an increase of the stall speed at the maximum takeoff weight of 12 kts with flaps set to 0° and 9 kts with flaps set to 15°.

The wings level stall speeds at the maximum takeoff weight of 10450 lb (4740 kg) and with flight idle power are summarized in Table 1.

Table 1 - Stall Speeds in accordance with ICE Mode Set

FLAPS	STALL SPEED (PUSHER ACTIVATION) AT MTOW		
		KIAS	**KCAS**
0°	Non icing	93	95
	Icing conditions (STICK PUSHER ICE MODE)	105	107
	Pneumatic deice boots failure (unprotected)	108	110
15°	Non icing	76	78
	Icing conditions (STICK PUSHER ICE MODE)	85	87

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ENGINE TORQUE

When the engine inlet inertial separator is open and during flight, the maximum torque available can be reduced by up to 2.2 psi in non-icing conditions, and up to 3.0 psi in icing conditions.

TAKEOFF PERFORMANCE

The flaps must be set to 15° for takeoff. The use of flaps 30° for takeoff is prohibited.

When de-icing / anti-icing fluids are applied to the aircraft before departure, and/or when the stick pusher is in ICE mode: The takeoff reference speeds must be adjusted to the values indicated by the corresponding correction table.

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The total takeoff distance is calculated by first computing the total takeoff distance in non-icing conditions from Figure 5-27 (standard units) or Figure 5-28 (metric units) and then correcting that distance for takeoff in or into known icing conditions by using the corrections in Table 2.

Table 2 - Icing Corrections to Takeoff Total Distance

TABLE A	**TAKEOFF WEIGHT - KG**					
ALTITUDE CORRECTION (%)	**2900**	**3300**	**3700**	**4100**	**4500**	**4740**
V_R / V_{50ft} (KIAS)	**72 / 88**	**77 / 94**	**81 / 100**	**86 / 105**	**90 / 110**	**92 / 113**
0 FT	+19	+26	+26	+27	+28	+29
2000 FT	+22	+26	+26	+28	+29	+30
4000 FT	+25	+26	+27	+28	+29	+30
6000 FT	+25	+26	+27	+28	+29	+30
8000 FT	+25	+26	+27	+28	+30	+31
10000 FT	+26	+26	+27	+29	+31	+32
12000 FT	+25	+27	+28	+30	+31	+32
14000 FT	+27	+29	+32	+30	+31	+32
ALTITUDE CORRECTION (%)	**6393**	**7275**	**8157**	**9039**	**9921**	**10450**
TABLE A	**TAKEOFF WEIGHT - LB**					

TABLE B	**TAKEOFF WEIGHT - KG**
WIND CORRECTION (%)	**2900 - 4740**
10 KTS TAILWIND	-2
NO WIND	0
10 KTS HEADWIND	+1
20 KTS HEADWIND	+3
30 KTS HEADWIND	+5
WIND CORRECTION (%)	**6393 - 10450**
TABLE B	**TAKEOFF WEIGHT - LB**

TABLE C	**TAKEOFF WEIGHT - KG**					
SLOPE CORRECTION (%)	**2900**	**3300**	**3700**	**4100**	**4500**	**4740**
4% DOWN	+2	+2	+1	-1	-1	-2
2% DOWN	+2	+2	+1	-1	-1	-1
NO SLOPE	0	0	0	0	0	0
2% UP	+4	+4	+3	+3	+4	+4
4% UP	+7	+5	+7	+8	+9	+11
SLOPE CORRECTION (%)	**6393**	**7275**	**8157**	**9039**	**9921**	**10450**
TABLE C	**TAKEOFF WEIGHT - LB**					

ICING CORRECTION (%) = A + B + C

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Analogically, the takeoff ground roll is derived correcting the distances obtained from Figure 5-25 (standard units) or Figure 5-26 (metric units) by using Table 3.

Table 3 - Icing Corrections to Takeoff Ground Roll

TABLE A	TAKEOFF WEIGHT - KG					
ALTITUDE CORRECTION (%)	2900	3300	3700	4100	4500	4740
V_R / V_{50ft} (KIAS)	72 / 88	77 / 94	81 / 100	86 / 105	90 / 110	92 / 113
0 FT	+27	+28	+28	+29	+29	+29
2000 FT	+27	+28	+28	+29	+29	+29
4000 FT	+27	+28	+29	+29	+29	+30
6000 FT	+28	+28	+29	+29	+29	+30
8000 FT	+28	+28	+29	+29	+29	+30
10000 FT	+27	+28	+28	+29	+29	+29
12000 FT	+27	+28	+28	+28	+29	+29
14000 FT	+28	+29	+28	+28	+29	+29
ALTITUDE CORRECTION (%)	6393	7275	8157	9039	9921	10450
TABLE A	TAKEOFF WEIGHT - LB					

TABLE B	TAKEOFF WEIGHT - KG
WIND CORRECTION (%)	2900 - 4740
10 KTS TAILWIND	-4
NO WIND	0
10 KTS HEADWIND	+2
20 KTS HEADWIND	+5
30 KTS HEADWIND	+8
WIND CORRECTION (%)	6393 - 10450
TABLE B	TAKEOFF WEIGHT - LB

TABLE C	TAKEOFF WEIGHT - KG					
SLOPE CORRECTION (%)	2900	3300	3700	4100	4500	4740
4% DOWN	0	0	0	-1	-1	-1
2% DOWN	0	0	0	0	0	0
NO SLOPE	0	0	0	0	0	0
2% UP	0	+1	+1	+1	+1	+1
4% UP	+1	+2	+1	+2	+2	+2
SLOPE CORRECTION (%)	6393	7275	8157	9039	9921	10450
TABLE C	TAKEOFF WEIGHT - LB					

ICING CORRECTION (%) = A + B + C

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Example:

- Pressure Altitude 6000 ft
- Outside Air Temperature 18°C
- Weight 3500 kg
- Headwind Component 8 kt
- Uphill Component 1%
- Takeoff Ground Roll 450 m (from Figure 5-26)
- Icing Correction (A + B +C) = 28.5% + 1.6% + 0.5% = 30.6%
- Takeoff Ground Roll in Icing Conditions = 450 m x 1.306 = 588 m.

ACCELERATE STOP PERFORMANCE

The flaps must be set to 15° for takeoff. The use of Flaps 30° for takeoff is prohibited.

The maximum speed for power chop is assumed to be 10 kts higher than that for non-icing conditions.

The total accelerate-stop distance is calculated by first computing the total accelerate-stop distance in non-icing conditions from Figure 5-17 (standard units) or Figure 5-18 (metric units) and then correcting that distance for takeoff in or into known icing conditions by using the corrections in Table 4.

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Table 4 - Icing Corrections to Accelerate Stop Distance

TABLE A	TAKEOFF WEIGHT - KG					
ALTITUDE CORRECTION (%)	2900	3300	3700	4100	4500	4740
POWER CHOP SPEED (KIAS)	76	81	86	90	95	97
0 FT	+24	+25	+26	+27	+28	+28
2000 FT	+25	+26	+27	+28	+28	+29
4000 FT	+25	+26	+27	+28	+28	+29
6000 FT	+26	+26	+27	+28	+28	+29
8000 FT	+26	+27	+27	+28	+29	+29
10000 FT	+26	+27	+28	+28	+29	+29
12000 FT	+27	+27	+28	+29	+29	+30
14000 FT	+27	+28	+29	+30	+31	+31
ALTITUDE CORRECTION (%)	6393	7275	8157	9039	9921	10450
TABLE A	TAKEOFF WEIGHT - LB					

TABLE B	TAKEOFF WEIGHT - KG
WIND CORRECTION (%)	2900 - 4740
10 KTS TAILWIND	-3
NO WIND	0
10 KTS HEADWIND	+2
20 KTS HEADWIND	+3
30 KTS HEADWIND	+5
WIND CORRECTION (%)	6400 - 10450
TABLE B	TAKEOFF WEIGHT - LB

TABLE C	TAKEOFF WEIGHT - KG					
SLOPE CORRECTION (%)	2900	3300	3700	4100	4500	4740
4% DOWN	+1	+2	+2	+2	+2	+2
2% DOWN	+1	+1	+1	+1	+1	+1
NO SLOPE	0	0	0	0	0	0
2% UP	0	0	0	+1	+1	+2
4% UP	0	+1	+1	+2	+4	+6
SLOPE CORRECTION (%)	6393	7275	8157	9039	9921	10450
TABLE C	TAKEOFF WEIGHT - LB					

ICING CORRECTION (%) = A + B + C

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MAXIMUM RATE OF CLIMB

The use of Flaps 30° is prohibited in or into known icing conditions. After icing encounters, and with visible ice accretion on the airframe, a climb is performed with the flaps retracted and a climb speed based on the schedule below.

Table 5 - Climb Speed in Icing Conditions

FLAPS UP	NON-ICING	ICING	PNEUMATIC DE-ICE BOOT FAILURE
ALTITUDE	**KIAS**	**KIAS**	**KIAS**
0 FT	130		
5000 FT	125		
10000 FT	125		
15000 FT	125	135	140
20000 FT	120		
25000 FT	120		
30000 FT	120		

The total climb performance is calculated by first computing the Rate of Climb in non-icing conditions from Figure 5-34 (standard units) or Figure 5-35 (metric units) and then correcting the Rate of Climb in or into known icing conditions by using the corrections in Table 6 (with operational pneumatic de-ice boots) or Table 7 (with the pneumatic de-ice boots inoperative).

Table 6 - Icing Corrections to Maximum Rate of Climb with Operational Pneumatic De-ice Boots

RATE OF CLIMB CORRECTION (FEET PER MINUTE)				
ALTITUDE - FT	**TAKEOFF WEIGHT - KG**			
	2900	**3500**	**4500**	**4740**
0	-1190	-990	-770	-720
5000	-1280	-1070	-820	-770
10000	-1500	-1250	-960	-900
15000	-1570	-1310	-1000	-940
20000	-1670	-1390	-1050	-980
25000	-1720	-1420	-1080	-1010
30000	-1780	-1470	-1120	-1050
ALTITUDE - FT	**6393**	**7716**	**9921**	**10450**
	TAKEOFF WEIGHT - LB			

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Table 7 - Icing Corrections to Maximum Rate of Climb with Pneumatic De-ice Boots Inoperative

RATE OF CLIMB CORRECTION (FEET PER MINUTE)				
ALTITUDE - FT	TAKEOFF WEIGHT - KG			
	2900	3500	4500	4740
0	-1510	-1270	-980	-920
5000	-1640	-1370	-1050	-990
10000	-1900	-1590	-1220	-1150
15000	-1980	-1650	-1270	-1200
20000	-2120	-1760	-1340	-1260
25000	-2240	-1860	-1420	-1330
30000	-2340	-1940	-1480	-1400
ALTITUDE - FT	6393	7716	9921	10450
	TAKEOFF WEIGHT - LB			

Example:

- Pressure Altitude 7000 ft
- Outside Air Temperature 22°C
- Aircraft Weight 3800 kg
- Rate of Climb (non-icing) 1725 fpm (from Figure 5-35)
- Icing Correction -1062 fpm (interpolated from Table 6)
- Max. Rate of Climb in Icing Conditions = 1725 fpm - 1062 fpm = 663 fpm.

HOLDING ENDURANCE

During holding flight in icing conditions, a higher engine torque is required to maintain level flight. Table 8 and Table 9 give the increases in fuel flow with respect to non-icing conditions. Refer to Figure 5-53.

Table 8 - Icing Corrections to Holding Fuel Flow with Operational Pneumatic De-ice Boots

FUEL FLOW CORRECTION (%)	
ALTITUDE - FT	AIRCRAFT WEIGHT - KG
	2900 - 4740
0 FT	+22
5000 FT	+27
10000 FT	+36
15000 FT	+50
ALTITUDE - FT	6393 - 10450
	AIRCRAFT WEIGHT - LB

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Table 9 - Icing Corrections to Holding Fuel Flow with Pneumatic De-ice Boots Inoperative

FUEL FLOW CORRECTION (%)	
ALTITUDE - FT	AIRCRAFT WEIGHT - KG
	2900 - 4740
0 FT	+29
5000 FT	+35
10000 FT	+47
15000 FT	+64
ALTITUDE - FT	6393 - 10450
	AIRCRAFT WEIGHT - LB

BALKED RATE OF CLIMB

The use of Flaps 30° or Flaps 40° is prohibited in or into known icing conditions.

After icing encounters and with visible ice accretion on the airframe, a balked landing climb is performed with Flaps 15° and a climb speed of 105 KIAS. The total climb performance is calculated by first computing the Rate of Climb in non-icing conditions from Figure 5-62 (standard units) or Figure 5-63 (metric units) and then correcting the Rate of Climb in or into known icing conditions by using the corrections in Table 10.

Table 10 - Icing Corrections to Balked Landing Climb with Operational Pneumatic De-ice Boots

RATE OF CLIMB CORRECTION (FEET PER MINUTE)			
ALTITUDE - FT	LANDING WEIGHT - KG		
	2900	3500	4500
0	-150	-100	-70
2000	-140	-100	-70
4000	-150	-100	-70
6000	-160	-110	-80
8000	-170	-120	-80
10000	-180	-120	-90
12000	-180	-120	-90
14000	-240	-170	-120
ALTITUDE - FT	6393	7716	9921
	LANDING WEIGHT - LB		

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After failure of the airframe pneumatic boots in icing conditions, a balked landing climb is performed with Flaps 0° and a climb speed of 130 KIAS. The total climb performance is calculated by first computing the Rate of Climb in non-icing conditions from Figure 5-62 (standard units) or Figure 5-63 (metric units) and then correcting the Rate of Climb in or into known icing conditions by using the corrections in the Table 11.

Table 11 - Icing Corrections to Balked Landing Climb with Pneumatic De-ice Boots inoperative

RATE OF CLIMB CORRECTION (FEET PER MINUTE)			
ALTITUDE - FT	**LANDING WEIGHT - KG**		
	2900	**3500**	**4500**
0	-610	-480	-330
2000	-660	-510	-360
4000	-720	-560	-390
6000	-760	-590	-410
8000	-810	-630	-440
10000	-850	-660	-460
12000	-920	-720	-500
14000	-1110	-880	-620
ALTITUDE - FT	**6393**	**7716**	**9921**
	LANDING WEIGHT - LB		

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LANDING PERFORMANCE

The flaps must be set to 15° for landing. The use of Flaps 30° or 40° for landing is prohibited. With pneumatic de-ice boots failed, a flaps-up-landing must be performed. For both flap configurations, the landing reference speed must be adjusted to the values indicated by the corresponding correction table.
The landing distance is calculated by first computing the landing distance in non-icing conditions and then correcting that distance for landing in or into known icing conditions by using the following correction tables:

Table 12 - Landing in Icing Conditions - Overview

Reverse Thrust	**Pneumatic De-ice Boots**	**Flap Setting**	**Landing Performance Information**	**Non-icing Figure No.**	**Icing Correction Table**
No	Operational	Flaps 15°	Landing Total Distance	Figure 5-64/65	Table 13
			Landing Ground Roll	Figure 5-66/67	Table 14
	Inoperative	Flaps 0°	Landing Total Distance	Figure 5-64/65	Table 15
			Landing Ground Roll	Figure 5-66/67	Table 16
Yes	Operational	Flaps 15°	Landing Total Distance	Figure 5-68/69	Table 17
			Landing Ground Roll	Figure 5-70/71	Table 18
	Inoperative	Flaps 0°	Landing Total Distance	Figure 5-68/69	Table 19
			Landing Ground Roll	Figure 5-70/71	Table 20

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Table 13 - Icing Corrections to Landing Total Distance – Flaps 15° - No Reverse Thrust

TABLE A	**LANDING WEIGHT - KG**				
ALTITUDE CORRECTION (%)	**2900**	**3300**	**3700**	**4100**	**4500**
V_{APP} (KIAS)	**84**	**90**	**95**	**100**	**105**
0 FT	+40	+43	+46	+48	+50
2000 FT	+43	+45	+47	+49	+51
4000 FT	+44	+47	+49	+51	+53
6000 FT	+46	+48	+50	+52	+54
8000 FT	+47	+50	+52	+54	+55
10000 FT	+48	+51	+53	+55	+56
12000 FT	+49	+52	+54	+56	+57
14000 FT	+51	+53	+55	+56	+56
ALTITUDE CORRECTION (%)	**6393**	**7275**	**8157**	**9039**	**9921**
TABLE A	**LANDING WEIGHT - LB**				

TABLE B	**LANDING WEIGHT - KG**				
WIND CORRECTION (%)	**2900**	**3300**	**3700**	**4100**	**4500**
10 KTS TAILWIND	-6	-6	-6	-6	-6
NO WIND	0	0	0	0	0
10 KTS HEADWIND	+3	+3	+3	+3	+3
20 KTS HEADWIND	+7	+7	+6	+6	+6
30 KTS HEADWIND	+11	+11	+11	+10	+10
WIND CORRECTION (%)	**6393**	**7275**	**8157**	**9039**	**9921**
TABLE B	**LANDING WEIGHT - LB**				

TABLE C	**LANDING WEIGHT - KG**
SLOPE CORRECTION (%)	**2900 - 4500**
4% DOWN	+1
2% DOWN	0
NO SLOPE	0
2% UP	0
4% UP	0
SLOPE CORRECTION (%)	**6393 - 9921**
TABLE C	**LANDING WEIGHT - LB**

ICING CORRECTION (%) = A + B + C

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Table 14- Icing Corrections to Landing Ground Roll – Flaps 15° - No Reverse Thrust

TABLE A	**LANDING WEIGHT - KG**				
ALTITUDE CORRECTION (%)	**2900**	**3300**	**3700**	**4100**	**4500**
V_{APP} (KIAS)	**84**	**90**	**95**	**100**	**105**
0 FT	+53	+61	+63	+59	+58
2000 FT	+54	+62	+60	+57	+58
4000 FT	+62	+61	+58	+58	+59
6000 FT	+61	+59	+58	+59	+60
8000 FT	+60	+58	+59	+60	+61
10000 FT	+57	+58	+60	+61	+62
12000 FT	+57	+59	+60	+62	+63
14000 FT	+58	+60	+62	+63	+65
ALTITUDE CORRECTION (%)	**6393**	**7275**	**8157**	**9039**	**9921**
TABLE A	**LANDING WEIGHT - LB**				

TABLE B	**LANDING WEIGHT - KG**				
WIND CORRECTION (%)	**2900**	**3300**	**3700**	**4100**	**4500**
10 KTS TAILWIND	-7	-7	-7	-6	-6
NO WIND	0	0	0	0	0
10 KTS HEADWIND	+5	+5	+5	+4	+4
20 KTS HEADWIND	+11	+11	+11	+9	+8
30 KTS HEADWIND	+19	+19	+19	+16	+14
WIND CORRECTION (%)	**6393**	**7275**	**8157**	**9039**	**9921**
TABLE B	**LANDING WEIGHT - LB**				

TABLE C	**LANDING WEIGHT - KG**
SLOPE CORRECTION (%)	**2900 - 4500**
4% DOWN	-2
2% DOWN	-1
NO SLOPE	0
2% UP	+2
4% UP	+4
SLOPE CORRECTION (%)	**6393 - 9921**
TABLE C	**LANDING WEIGHT - LB**

ICING CORRECTION (%) = A + B + C

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Table 15 - Icing Corrections to Landing Total Distance – Flaps 0° - No Reverse Thrust

TABLE A	LANDING WEIGHT - KG				
ALTITUDE CORRECTION (%)	**2900**	**3300**	**3700**	**4100**	**4500**
V_{APP} (KIAS)	**104**	**111**	**118**	**124**	**130**
0 FT	+86	+93	+98	+103	+107
2000 FT	+91	+96	+101	+105	+109
4000 FT	+94	+100	+105	+109	+113
6000 FT	+97	+102	+107	+112	+116
8000 FT	+101	+106	+111	+116	+120
10000 FT	+103	+109	+114	+119	+123
12000 FT	+106	+111	+117	+122	+125
14000 FT	+110	+116	+122	+123	+124
ALTITUDE CORRECTION (%)	**6393**	**7275**	**8157**	**9039**	**9921**
TABLE A	**LANDING WEIGHT - LB**				

TABLE B	LANDING WEIGHT - KG				
WIND CORRECTION (%)	**2900**	**3300**	**3700**	**4100**	**4500**
10 KTS TAILWIND	-12	-12	-11	-11	-11
NO WIND	0	0	0	0	0
10 KTS HEADWIND	+7	+7	+6	+6	+6
20 KTS HEADWIND	+15	+15	+14	+14	+14
30 KTS HEADWIND	+25	+25	+24	+23	+22
WIND CORRECTION (%)	**6393**	**7275**	**8157**	**9039**	**9921**
TABLE B	**LANDING WEIGHT - LB**				

TABLE C	LANDING WEIGHT - KG				
SLOPE CORRECTION (%)	**2900**	**3300**	**3700**	**4100**	**4500**
4% DOWN	-3	-3	-3	-4	-4
2% DOWN	-1	-1	-1	-1	-1
NO SLOPE	0	0	0	0	0
2% UP	+2	+2	+2	+2	+2
4% UP	+3	+3	+3	+3	+3
SLOPE CORRECTION (%)	**6393**	**7275**	**8157**	**9039**	**9921**
TABLE C	**LANDING WEIGHT - LB**				

ICING CORRECTION (%) = A + B + C

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Table 16 - Icing Corrections to Landing Ground Roll – Flaps 0° - No Reverse Thrust

TABLE A	LANDING WEIGHT - KG				
ALTITUDE CORRECTION (%)	**2900**	**3300**	**3700**	**4100**	**4500**
V_{APP} (KIAS)	**104**	**111**	**118**	**124**	**130**
0 FT	+103	+115	+117	+113	+114
2000 FT	+105	+116	+114	+114	+116
4000 FT	+115	+115	+114	+117	+120
6000 FT	+114	+113	+116	+119	+123
8000 FT	+114	+116	+120	+124	+128
10000 FT	+113	+118	+122	+127	+129
12000 FT	+116	+120	+125	+126	+124
14000 FT	+119	+125	+125	+126	+126
ALTITUDE CORRECTION (%)	**6393**	**7275**	**8157**	**9039**	**9921**
TABLE A	**LANDING WEIGHT - LB**				

TABLE B	LANDING WEIGHT - KG				
WIND CORRECTION (%)	**2900**	**3300**	**3700**	**4100**	**4500**
10 KTS TAILWIND	-14	-13	-13	-12	-12
NO WIND	0	0	0	0	0
10 KTS HEADWIND	+10	+10	+10	+8	+8
20 KTS HEADWIND	+22	+22	+22	+19	+17
30 KTS HEADWIND	+38	+37	+37	+32	+29
WIND CORRECTION (%)	**6393**	**7275**	**8157**	**9039**	**9921**
TABLE B	**LANDING WEIGHT - LB**				

TABLE C	LANDING WEIGHT - KG				
SLOPE CORRECTION (%)	**2900**	**3300**	**3700**	**4100**	**4500**
4% DOWN	-8	-7	-7	-8	-7
2% DOWN	-3	-3	-3	-3	-3
NO SLOPE	0	0	0	0	0
2% UP	+6	+6	+6	+6	+5
4% UP	+12	+11	+11	+10	+10
SLOPE CORRECTION (%)	**6393**	**7275**	**8157**	**9039**	**9921**
TABLE C	**LANDING WEIGHT - LB**				

ICING CORRECTION (%) = A + B + C

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Table 17 - Icing Corrections to Landing Total Distance – Flaps 15° - With Reverse Thrust

TABLE A	**LANDING WEIGHT - KG**				
ALTITUDE CORRECTION (%)	**2900**	**3300**	**3700**	**4100**	**4500**
V_{APP} (KIAS)	**84**	**90**	**95**	**100**	**105**
0 FT	+36	+39	+41	+44	+45
2000 FT	+39	+40	+43	+44	+46
4000 FT	+39	+42	+44	+46	+47
6000 FT	+41	+43	+45	+47	+48
8000 FT	+43	+45	+46	+48	+49
10000 FT	+44	+46	+47	+48	+49
12000 FT	+45	+46	+48	+48	+48
14000 FT	+46	+48	+48	+47	+48
ALTITUDE CORRECTION (%)	**6393**	**7275**	**8157**	**9039**	**9921**
TABLE A	**LANDING WEIGHT - LB**				

TABLE B	**LANDING WEIGHT - KG**
WIND CORRECTION (%)	**2900 - 4500**
10 KTS TAILWIND	-6
NO WIND	0
10 KTS HEADWIND	+3
20 KTS HEADWIND	+7
30 KTS HEADWIND	+11
WIND CORRECTION (%)	**6393 - 9921**
TABLE B	**LANDING WEIGHT - LB**

TABLE C	**LANDING WEIGHT - KG**
SLOPE CORRECTION (%)	**2900 - 4500**
4% DOWN	0
2% DOWN	0
NO SLOPE	0
2% UP	+1
4% UP	+1
SLOPE CORRECTION (%)	**6393 - 9921**
TABLE C	**LANDING WEIGHT - LB**

ICING CORRECTION (%) = A + B + C

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Table 18 - Icing Corrections to Landing Ground Roll – Flaps 15° - With Reverse Thrust

TABLE A	LANDING WEIGHT - KG				
ALTITUDE CORRECTION (%)	2900	3300	3700	4100	4500
V_{APP} (KIAS)	84	90	95	100	105
0 FT	+48	+54	+55	+52	+50
2000 FT	+48	+55	+53	+50	+50
4000 FT	+55	+54	+51	+51	+51
6000 FT	+54	+52	+50	+51	+51
8000 FT	+53	+50	+51	+51	+51
10000 FT	+51	+51	+51	+51	+52
12000 FT	+50	+51	+51	+52	+52
14000 FT	+51	+51	+52	+52	+53
ALTITUDE CORRECTION (%)	6393	7275	8157	9039	9921
TABLE A	LANDING WEIGHT - LB				

TABLE B	LANDING WEIGHT - KG				
WIND CORRECTION (%)	2900	3300	3700	4100	4500
10 KTS TAILWIND	-7	-7	-7	-6	-6
NO WIND	0	0	0	0	0
10 KTS HEADWIND	+5	+5	+5	+4	+4
20 KTS HEADWIND	+10	+10	+10	+9	+8
30 KTS HEADWIND	+18	+17	+17	+15	+13
WIND CORRECTION (%)	6393	7275	8157	9039	9921
TABLE B	LANDING WEIGHT - LB				

TABLE C	LANDING WEIGHT - KG
SLOPE CORRECTION (%)	2900 - 4500
4% DOWN	-2
2% DOWN	-1
NO SLOPE	0
2% UP	+2
4% UP	+3
SLOPE CORRECTION (%)	6393 - 9921
TABLE C	LANDING WEIGHT - LB

ICING CORRECTION (%) = A + B + C

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Table 19 - Icing Corrections to Landing Total Distance – Flaps 0° - With Reverse Thrust

TABLE A	LANDING WEIGHT - KG				
ALTITUDE CORRECTION (%)	**2900**	**3300**	**3700**	**4100**	**4500**
V_{APP} (KIAS)	**104**	**111**	**118**	**124**	**130**
0 FT	+79	+85	+90	+94	+97
2000 FT	+84	+87	+93	+96	+99
4000 FT	+85	+92	+95	+99	+101
6000 FT	+89	+94	+97	+100	+103
8000 FT	+92	+96	+100	+103	+105
10000 FT	+94	+98	+101	+104	+105
12000 FT	+96	+100	+103	+104	+105
14000 FT	+98	+102	+103	+104	+105
ALTITUDE CORRECTION (%)	**6393**	**7275**	**8157**	**9039**	**9921**
TABLE A	**LANDING WEIGHT - LB**				

TABLE B	LANDING WEIGHT - KG				
WIND CORRECTION (%)	**2900**	**3300**	**3700**	**4100**	**4500**
10 KTS TAILWIND	-14	-14	-14	-14	-14
NO WIND	0	0	0	0	0
10 KTS HEADWIND	+7	+7	+6	+6	+6
20 KTS HEADWIND	+14	+14	+14	+14	+14
30 KTS HEADWIND	+24	+24	+23	+23	+22
WIND CORRECTION (%)	**6393**	**7275**	**8157**	**9039**	**9921**
TABLE B	**LANDING WEIGHT - LB**				

TABLE C	LANDING WEIGHT - KG
SLOPE CORRECTION (%)	**2900 - 4500**
4% DOWN	-2
2% DOWN	-1
NO SLOPE	0
2% UP	+2
4% UP	+4
SLOPE CORRECTION (%)	**6393 - 9921**
TABLE C	**LANDING WEIGHT - LB**

ICING CORRECTION (%) = A + B + C

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Table 20 - Icing Corrections to Landing Ground Roll – Flaps 0° - With Reverse Thrust

TABLE A	LANDING WEIGHT - KG				
ALTITUDE CORRECTION (%)	**2900**	**3300**	**3700**	**4100**	**4500**
V_{APP} (KIAS)	**104**	**111**	**118**	**124**	**130**
0 FT	+93	+102	+103	+99	+98
2000 FT	+95	+103	+101	+98	+98
4000 FT	+103	+102	+98	+99	+100
6000 FT	+102	+100	+99	+100	+101
8000 FT	+101	+99	+100	+101	+102
10000 FT	+99	+100	+101	+102	+104
12000 FT	+99	+100	+102	+104	+105
14000 FT	+100	+102	+104	+105	+105
ALTITUDE CORRECTION (%)	**6393**	**7275**	**8157**	**9039**	**9921**
TABLE A	**LANDING WEIGHT - LB**				

TABLE B	LANDING WEIGHT - KG				
WIND CORRECTION (%)	**2900**	**3300**	**3700**	**4100**	**4500**
10 KTS TAILWIND	-14	-14	-13	-13	-13
NO WIND	0	0	0	0	0
10 KTS HEADWIND	+9	+9	+9	+8	+7
20 KTS HEADWIND	+21	+20	+20	+18	+16
30 KTS HEADWIND	+35	+35	+35	+30	+27
WIND CORRECTION (%)	**6393**	**7275**	**8157**	**9039**	**9921**
TABLE B	**LANDING WEIGHT - LB**				

TABLE C	LANDING WEIGHT - KG
SLOPE CORRECTION (%)	**2900 - 4500**
4% DOWN	-5
2% DOWN	-2
NO SLOPE	0
2% UP	+4
4% UP	+8
SLOPE CORRECTION (%)	**6393 - 9921**
TABLE C	**LANDING WEIGHT - LB**

ICING CORRECTION (%) = A + B + C

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

SECTION 6 - WEIGHT AND BALANCE

PC-12/47 EXAMPLE LOADING FORM		INTERIOR CODE: STD-9S	
ITEM	**WEIGHT lb (kg)**	**ARM AFT OF DATUM in (m)**	**MOMENT lb-in (kg-m)**
1. **Basic Empty Weight**	5613	225.16 (5.719)	1263823
2. Combi Interior Conversion	NA	NA	NA
3. Pilot	170	160.27 (4.071)	27246
4. Copilot (Right Seat Passenger)	170	160.27 (4.071)	27246
5. Passenger 1	170	215.00 (5.461)	36550
6. Passenger 2	170	212.03 (5.386)	36045
7. Passenger 3	170	248.00 (6.299)	42160
8. Passenger 4	170	245.03 (6.224)	41655
9. Passenger 5	170	281.00 (7.137)	47770
10. Passenger 6	170	278.05 (7.062)	47268
11. Passenger 7	170	314.00 (7.976)	53380
12. Passenger 8	170	311.03 (7.900)	52875
13. Passenger 9	170	344.03 (8.738)	58485
14. Optional Wardrobe		191.00 (4.851)	
15. LH Cabinet		212.10 (5.387)	
16. RH Cabinet		211.19 (5.364)	
17. a. Rear Baggage (net at frame 32) b. Rear Baggage (net at frame 34)	215	361.00 (9.170) 371.00 (9.423)	79765
18. Cargo			
19. **Zero Fuel Weight** MZFW 9039 lb (4100 kg) (Sum of 1 thru 18)	7358	229.49	1814268
20. Fuel	1650	-	382790
21. **Ramp Weight** MRW 10495 lb (4760 kg) (Sum of 19 + 20)	9008	229.92	2197058
22. Less Fuel for Ground Operations	40	-	9369
23. **Takeoff Weight** MTOW 10450 lb (4740 kg) (Sum of 21 – 22 + 23)	8968	229.97	2188227

Figure 6-7. Example Loading Form (Sheet 1 of 2)

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

PC-12/47 EXAMPLE LOADING FORM	INTERIOR CODE:		
ITEM	**WEIGHT lb (kg)**	**ARM AFT OF DATUM in (m)**	**MOMENT lb-in (kg-m)**
1. **Basic Empty Weight**			
2. Combi Interior Conversion			
3. Pilot		160.27 (4.071)	
4. Copilot (Right Seat Passenger)		160.27 (4.071)	
5. Passenger 1			
6. Passenger 2			
7. Passenger 3			
8. Passenger 4			
9. Passenger 5			
10. Passenger 6			
11. Passenger 7			
12. Passenger 8			
13. Passenger 9			
14. Optional Wardrobe		191.00 (4.851)	
15. LH Cabinet		212.10 (5.387)	
16. RH Cabinet		211.19 (5.364)	
17. a. Rear Baggage (net at frame 32) b. Rear Baggage (net at frame 34)		361.00 (9.170) 371.00 (9.423)	
18. Cargo			
19. **Zero Fuel Weight** MZFW 9039 lb (4100 kg) (Sum of 1 thru 18)			
20. Fuel		-	
21. **Ramp Weight** MRW 10495 lb (4760 kg) (Sum of 19 + 20)			
22. Less Fuel for Ground Operations		-	
23. **Takeoff Weight** MTOW 10450 lb (4740 kg) (Sum of 21 - 22 + 23)			

Figure 6-8. Loading Form (Sheet 2 of 2)

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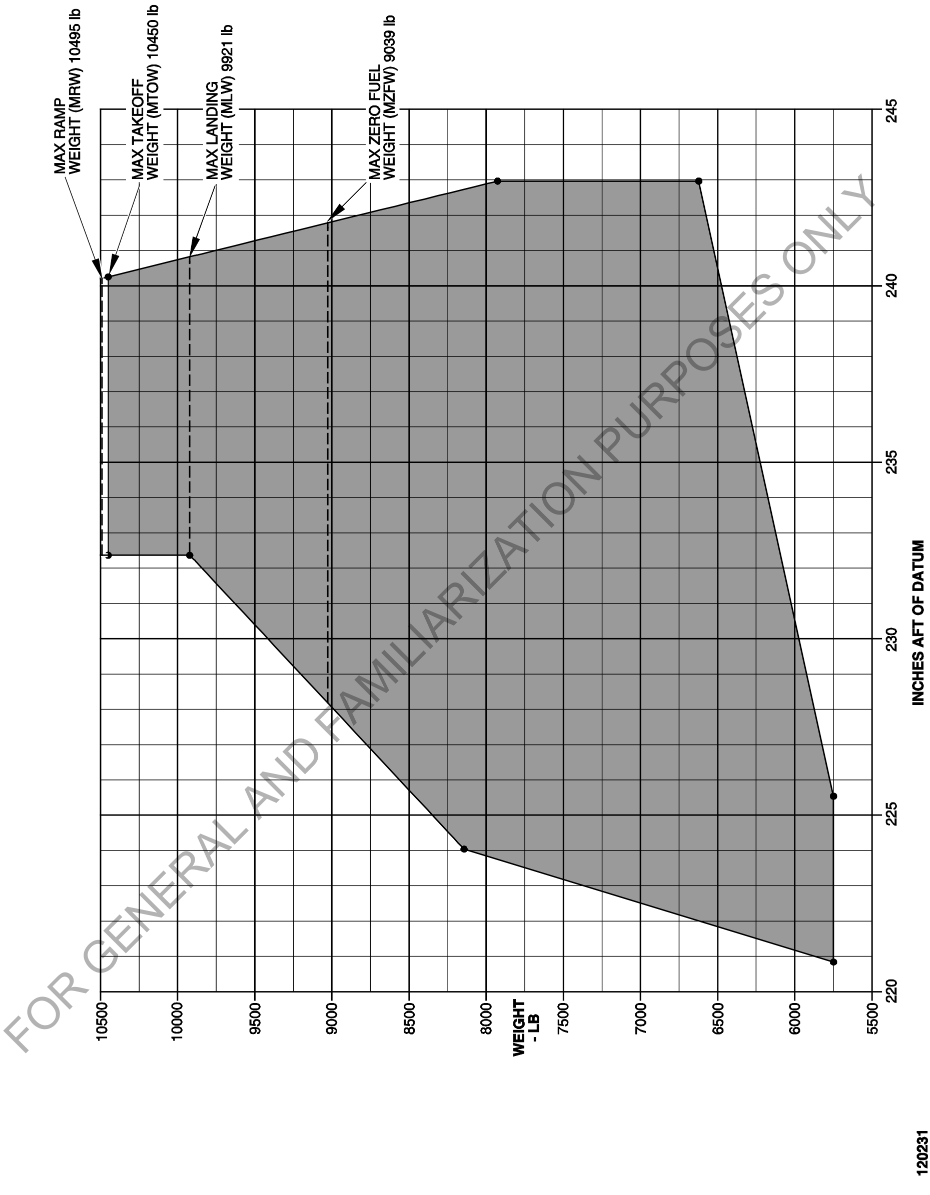

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Figure 6-9. C. G. Envelope
(Sheet 1 of 2)

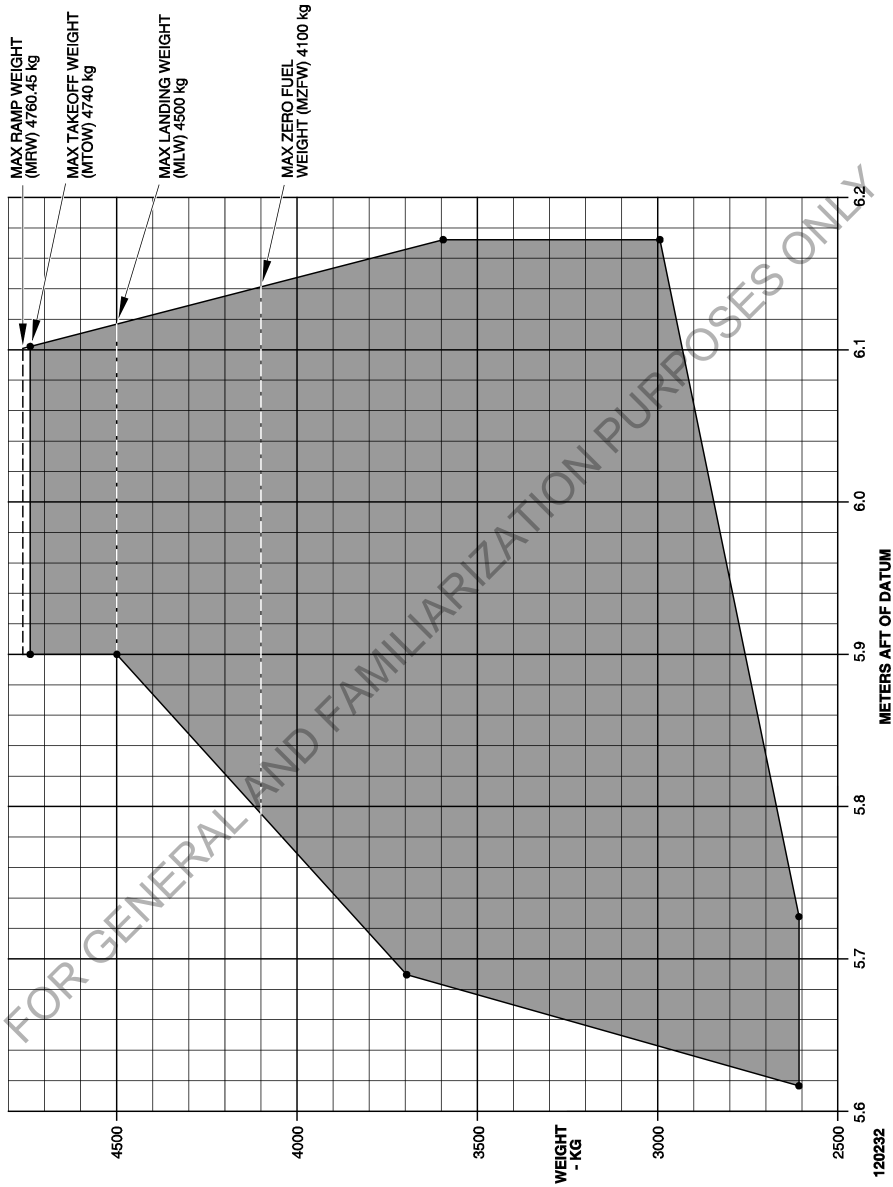

Figure 6-9. C. G. Envelope
(Sheet 2 of 2)

PILOT'S OPERATING HANDBOOK AND FOCA APPROVED AIRPLANE FLIGHT MANUAL

SUPPLEMENT NO. 34 FOR PC-12, PC-12/45 AND PC-12/47 REGISTERED IN THE REPUBLIC OF ARGENTINA

This supplement is approved in accordance with the paragraph 21.29 of the DNAR 21 for Argentine registered aircraft and is approved by EASA on behalf of the Administracion Nacional de Aviacion Civil (ANAC).

This supplement must be attached to the Pilot's Operating Handbook and EASA Approved Airplane Flight Manual when operating the PC-12 in the Republic of Argentina.

The information contained herein supplements or supersedes the information in the basic Pilot's Operating Handbook and EASA Approved Airplane Flight Manual only in those areas listed. For limitations, procedures and performance information not contained in this supplement, consult the basic Pilot's Operating Handbook and EASA Approved Airplane Flight Manual.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Approved by:

European Aviation Safety Agency (EASA)
Ref – P-EASA.CSV.A.01459

Date of Approval:

22 SEP 2009

Bundesamt für Zivilluftfahrt - Federal Office of Civil Aviation - BERN -

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LIST OF EFFECTIVE PAGES

Page No	Rev No.	Page No.	Rev No.
9-34-1	00		
9-34-2 thru 9-34-22	01		
9-34-3	02		
9-34-4 thru 9-34-6	01		
9-34-7	02		
9-34-8 and 9-34-9	01		
9-34-10	02		
9-34-11	01		
9-34-12	02		
9-34-13 thru 9-34-22	01		

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LOG OF TEMPORARY REVISIONS

The incorporation of temporary revisions into this supplement are to be recorded on the sheet below. Instructions for the removal of temporary revisions will be given in the instruction sheet issued with revisions.

NO.	TEMPORARY REVISION TITLE	DATE OF ISSUE	CANCELLED BY

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LOG OF REVISIONS

Revision Number and Date	Page Number	Description 14218
1 01.09.2014	9-34-2 thru 9-34-22	Alternate placards added. Structure completely revised. New LOEP, LOTR and LOR. Editorial and layout changes. The Revision Number 1 to AFM Supplement No. 34 is approved under the authority of DOA ref. EASA.21J.357. Approval Date: 23. September 2014.
02 12.12.2019	9-34-3 9-34-7 9-34-10 9-34-12	Updated for Revision 02. 20565 Updated for Revision 02. 19880 - Changed "cabin door" to "passenger door" (editorial). 19880 - Changed "cabin door" to "passenger door" (editorial). The Revision Number 02 to AFM Supplement No. 34 is approved under the authority of DOA ref. EASA.21J.357. Approval Date: 12 December 2019

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SECTION 1 – GENERAL

This supplement provides the information necessary to operate the PC-12, PC-12/45 and PC12/47 aircraft in the Republic of Argentina.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

SECTION 2 – LIMITATIONS

On airplanes registered in the Republic of Argentina, the necessary equipment for the different kinds of operations must comply with the applicable Argentine Regulations.

GLOBAL POSITIONING SYSTEM

The pilot is not authorized to use the Global Positioning System (GPS) for precision approach and landing.

EMERGENCY LOCATOR TRANSMITTER

The Emergency Locator Transmitter (ELT) must comply with RAAC 91.207.

EXTERNAL PLACARDS

On exterior of passenger door:

**TIRE DE LA MANIJA
Y GIRE PARA ABRIR**

**NO ABRIR LA PUERTA
CON EL MOTOR EN MARCHA
EXCEPTO EN EMERGENCIA**

ABRIR

On exterior of cargo door:

**PRESIONE AQUI PARA ABRIR
TIRE DE LA MANIJA Y
TIRE DE LA PUERTA HACIA AFUERA**

**NO ABRIR LA PUERTA
CON EL MOTOR EN MARCHA
EXCEPTO EN EMERGENCIA**

TIRAR PARA ABRIR

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

On interior emergency exit:

SALIDA DE EMERGENCIA

EMPUJE

EMPUJE HACIA ADENTRO DESPUES DE SOLTAR

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CABIN PLACARDS

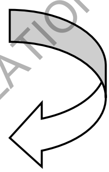
The following placards are installed in all aircraft.

On interior of passenger door:

SALIDA/EXIT
NO UTILIZAR EN VUELO
DO NOT OPERATE IN FLIGHT

NO ABRIR LA PUERTA
CON EL MOTOR EN MARCHA
EXCEPTO EN EMERGENCIA
DO NOT OPEN DOOR WHEN ENGINE
IS RUNNING UNLESS IN EMERGENCY

CERRADO
CLOSED



ABIERTO
OPEN

SOLO UNA PERSONA
A LA VEZ EN LAS
ESCALERAS
ONLY ONE PERSON ON STAIRS
AT ANY TIME

PARA ABRIR LEVANTAR EL
CERROJO Y ROTAR LA MANIJA
TO OPEN LIFT LATCH
ROTATE HANDLE

PRESIONE BOTON PARA LUZ DE CABINA
PUSH BUTTON FOR COCKPIT DOME LIGHT

On interior of emergency exit:

SALIDA/EXIT

On interior emergency exit handle:

TIRE/PULL

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On interior cargo door handle cover:

NO QUITAR LA CUBIERTA EN VUELO DO NOT REMOVE COVER IN FLIGHT

On interior cargo door handle:

LEVANTAR LA PALANCA DE CIERRE, TIRAR DE LA PALANCA Y EMPUJAR LA PUERTA HACIA AFUERA LIFT LOCKING LEVER AND PULL HANDLE PUSH DOOR OUT

On interior of cargo door:

NO ABRIR LA PUERTA CON EL MOTOR EN MARCHA EXCEPTO EN EMERGENCIA DO NOT OPEN DOOR WHEN ENGINE IS RUNNING UNLESS IN EMERGENCY

On the forward and rear cargo door frame:

MAXIMO PESO DE CARGA = 1000 kg / 2200 lb	
Carga Maxima Sobre Rieles de Asientos	**Carga Maxima Sobre Los Paneles De Piso**
1000 kg/m^2 205 lb/ft^2	**600 kg/m^2 125 lb/ft^2**
LA CARGA NO DEBE OBSTRUIR EL ACCESO A LA PUERTA DE CABINA Y SALIDA DE EMERGENCIA	

Valid for PC-12

Or

MAXIMO PESO DE CARGA = 1500 kg / 3300 lb	
Carga Maxima Sobre Rieles de Asientos	**Carga Maxima Sobre Los Paneles De Piso**
1000 kg/m^2 205 lb/ft^2	**600 kg/m^2 125 lb/ft^2**
LA CARGA NO DEBE OBSTRUIR EL ACCESO A LA PUERTA DE CABINA Y SALIDA DE EMERGENCIA	

Valid for PC-12/45 and PC-12/47

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

On lower cargo door frame:

INSTALAR EL SOPORTE DE COLA ANTES DE CARGAR EL AVION

On lower cargo door frame:

INSTALL TAIL SUPPORT STAND BEFORE LOADING CARGO

On cabin to baggage area step:

MANTENGA LIBRE LA REJILLA KEEP GRILL CLEAR

Above the baggage area:

MAXIMA CARGA DE EQUIPAJE = 70 kg / 155 lb MAX BAGGAGE LOAD = 70 kg / 155 lb

or

MAXIMA CARGA DE EQUIPAJE = 100 kg / 220 lb MAX BAGGAGE LOAD = 100 kg / 220 lb

or

MAXIMA CARGA DE EQUIPAJE = 120 kg / 265 lb MAX BAGGAGE LOAD = 120 kg / 265 lb

or

MAXIMA CARGA DE EQUIPAJE = 180 kg / 400 lb MAX BAGGAGE LOAD = 180 kg / 400 lb

Post SB 25-010 above placard is replaced by:

MAXIMA CARGA DE EQUIPAJE = 225 kg / 500 lb (SOLO SI LA RED DE EQUIPAJE 525.25.12.026 ESTA INSTALADA) MAX BAGGAGE LOAD = 225 kg / 500 lb (ONLY IF BAGGAGE NET 525.25.12.026 IS INSTALLED)

Above the baggage area coat rail:

MAX PESO A COLGAR 11 lb / 5 kg MAX COAT RAIL LOAD 11 lb / 5 kg

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9 SEAT CORPORATE COMMUTER (Interior Code STD-9S)

The cabin placards plus the following additional placards are those required for this interior.

On the rear of the left and right cockpit bulkheads, and on the rear of each seat:

PARA DESPEGUE Y ATERRIZAJE
-AJUSTAR EL CINTURON DE SEGURIDAD Y EL ARNES
-EL RESPALDO DEL ASIENTO DEBE ESTAR COMPLETAMENTE VERTICAL

FOR TAKEOFF AND LANDING
-FASTEN SEAT LAP AND SHOULDER BELT
-SEAT BACK MUST BE FULLY UPRIGHT

or

PARA DESPEGUE Y ATERRIZAJE
-AJUSTESE EL CINTURON
-EL RESPALDO DEBE ESTAR TOTALEMENTE VERTICAL
FOR TAKEOFF AND LANDING
-FASTEN SEAT BELT
-SEAT BACK MUST BE FULLY UPRIGHT

or

PARA DESPEGUE Y ATERRIZAJE
-EL RESPALDO DEL ASIENTO DEBE ESTAR COMPLETAMENTE VERTICAL
-AJUSTAR EL REPOSACABEZAS
-AJUSTAR EL CINTURON DE SEGURIDAD Y EL ARNES

FOR TAKEOFF AND LANDING
-SEAT MUST BE FULLY UPRIGHT
-ADJUST HEADREST TO SUPPORT HEAD
-FASTEN SEAT LAP AND SHOULDER BELT

On rear of each seat, except seat 5:

MASCARA DE OXIGENO DEBAJO DE SU ASIENTO
OXYGEN MASK LOCATED UNDER YOUR SEAT

On the rear of seat 5:

MASCARA DE OXIGENO UBICADA DEBAJO DEL ASIENTO AL FRENTE
OXYGEN MASK LOCATED UNDER SEAT IN FRONT

On the rear of left cockpit bulkhead:

EL EXTINTOR DE INCENDIOS
ESTA UBICADO EN LA CABINA,
DETRAS DEL ASIENTO DEL COPILOTO
FIRE EXTINGUISHER LOCATED
ON COCKPIT SIDE RH BULKHEAD
BEHIND CO-PILOT SEAT

NO FUMAR
NO SMOKING

Near each passenger oxygen outlet of the standard interior:

OXIGENO
OXYGEN

120416

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

6 SEAT CORPORATE COMMUTER AND A THREE SEAT BENCH (Interior Code STD-6S-3B)

The cabin placards, the 9 seat commuter placards and the following replacement/additional placards are required for this interior.

On the rear of seats 5 and 6:

MASCARA DE OXIGENO DEBAJO DE SU ASIENTO **OXYGEN MASK LOCATED UNDER YOUR SEAT**

Near to the left bench seat on the armrest:

EL ASIENTO IZQUIERDO DEBE ESTAR TOTALMENTE PLEGADO **HACIA ATRAS DURANTE TODO EL VUELO** **LEFT PART OF BENCH SEAT MUST BE** **FULLY AFT DURING THE ENTIRE FLIGHT**

On the left side of bench seat:

EL ASIENTO IZQUIERDO DEBE ESTAR TOTALMENTE PLEGADO **HACIA ATRAS DURANTE TODO EL VUELO** **LEFT PART OF BENCH SEAT MUST BE** **FULLY AFT DURING THE ENTIRE FLIGHT**

When large baggage net is installed:

MAXIMA CARGA DE EQUIPAJE = 225 kg / 500 lb **(SOLO SI LA RED DE EQUIPAJE 525.2512.026 ESTA INSTALADA)** **MAX BAGGAGE LOAD = 225 kg / 500 lb** **(ONLY IF BAGGAGE NET 525.25.12.026 IS INSTALLED)**

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120417

6 SEAT EXECUTIVE (Interior Code EX-6S-2)

The cabin placards plus the following additional placards are those required for this interior.

On the inside of the lavatory doors:

- NO FUMAR EN EL LAVABO **- NO SMOKING IN LAVATORY**

- NO OCUPAR EL LAVABO DURANTE **DESPEGUE / ATERRIZAJE Y TURBULENCIA** **- TOILET COMPARTMENT NOT TO BE OCCUPIED DURING** **TAKEOFF / LANDING AND TURBULENCE**

- PARA CERRAR **TIRE AQUI** **- TO CLOSE** **PULL HERE**	**- PARA CERRAR** **TIRE AQUI** **- TO CLOSE** **PULL HERE**

MASCARA DE OXIGENO EN EL INTERIOR **OXYGEN MASK INSIDE**

TIRE DE LA CINTA PARA **LA MASCA DE OXIGENO** **PULL TAPE FOR OXYGEN MASK**

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On the inside of the optional wardrobe:

MANTENER LAS PUERTAS CERREDAS DURANTE DESPEGUE / ATERRIZAJE DOORS MUST BE CLOSED DURING TAKEOFF / LANDING

EL EQUIPAJE NO DEBE SOBREPASAR EL BORDE. MANTENER CERRADA LA RED DURANTE EL VUELO. NO BAGGAGE ALLOWED ABOVE EDGE NET MUST BE CLOSED FOR FLIGHT

PESO LIMITE WEIGHT LIMIT 35 LB / 15.9 KG

PERMITIDO MAX 6 SOBRETODOS. MAX. OF 6 COATS ALLOWED

On the inside of the left and right cabinet drawers:

On the left upper drawer

PESO LIMITE WEIGHT LIMIT 10 lb / 4.5kg

On the left lower drawer

PESO LIMITE WEIGHT LIMIT 25 lb / 11.3kg

On the right upper drawer

PESO LIMITE WEIGHT LIMIT 5 lb / 2.3kg

On the right lower drawer

PESO LIMITE WEIGHT LIMIT 7 lb / 3.1kg

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Near each executive seat:

PARA DESPEGUE Y ATERRIZAJE
-EL ASIENTO DEBE ESTAR COMPLETAMENTE VERTICAL
ATRAS Y CONTRA LA PARED DEL FUSELAJE
-LA MESA DEBE ESTAR PLEGADA

FOR TAKEOFF AND LANDING
-SEAT MUST BE FULLY UPRIGHT
FULLY AFT AND FULLY OUTBOARD
-TABLE MUST BE STOWED

or

PARA DESPEGUE Y ATERRIZAJE
-EL RESPALDO DEL ASIENTO DEBE
ESTAR COMPLETAMENTE VERTICAL
MOVER EL ASIENTO HASTA EL TOPE
TRASERO Y HASTA EL TOPE PARED
-AJUSTAR EL REPOSACABEZAS
-AJUSTAR EL CINTURON DE
SEGURIDAD Y EL ARNES
-PLEGAR Y ASEGURAR LA MESA

FOR TAKEOFF AND LANDING
-SEAT MUST BE FULLY UPRIGHT
FULLY TO THE REAR OF CABIN
AND FULLY OUTBOARD
-ADJUST HEADREST TO SUPPORT HEAD
-FASTEN SEAT LAP AND SHOULDER BELT
-TABLE MUST BE STOWED

On each passenger oxygen mask cover:

MASCARA DE OXIGENO EN EL INTERIOR
OXYGEN MASK INSIDE

On the armrest near each passenger oxygen mask:

TIRE DE LA CINTA PARA LA MASCARA DE OXIGENO PULL TAPE FOR OXYGEN MASK ⇨	or	⇦ **TIRE DE LA CINTA PARA LA MASCARA DE OXIGENO PULL TAPE FOR OXYGEN MASK**

By the ashtray near each seat:

NO FUMAR MIENTRAS SE USE OXIGENO
DO NOT SMOKE WHILE OXYGEN IN USE

120418

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

Near the optional coat rail in the baggage compartment:

MAX PESO A COLGAR 5 KG / 11 LB. MAX COAT RAIL 5 KG / 11 LB.

8 SEAT EXECUTIVE (Interior Code EX-8S) and a 6 SEAT EXECUTIVE AND 2 SEAT CORPORATE COMMUTER (Interior Code EX-6S-STD-2S)

The cabin placards, the 6 seat executive placards and the following replacement / additional placards are required for this interior:

Rear of executive passenger seat No. 5, 6, 7, 8:

DEJAR ESTE ASIENTO DESOCUPADO DURANTE DESPEGUE Y ATERRIZAJE A MENOS QUE EL ASIENTO DE ENFRENTE ESTE OCUPADO LEAVE THIS SEAT VACANT DURING TAKE-OFF AND LANDING UNLESS SEAT IN FRONT IS OCCUPIED

On the armrest near passenger oxygen mask for seats 7 and 8:

TIRE DE LA CINTA PARA LA MASCARA DE OXIGENO PULL TAPE FOR OXYGEN MASK ⇨	or	⇦ TIRE DE LA CINTA PARA LA MASCARA DE OXIGENO PULL TAPE FOR OXYGEN MASK

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PLACARDS – 4 SEAT EXECUTIVE AND 4 SEAT CORPORATE COMMUTER (Interior Code EX4S-STD-4S)

On the armrest near passenger oxygen mask for seats 7 and 8:

TIRE DE LA CINTA PARA LA MASCARA DE OXIGENO PULL TAPE FOR OXYGEN MASK →	or	← **TIRE DE LA CINTA PARA LA MASCARA DE OXIGENO PULL TAPE FOR OXYGEN MASK**

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

4 SEAT EXECUTIVE and THREE SEAT BENCH (Interior Code EX4S-3B)

The cabin placards, the 6 seat executive placards and the following replacement/additional placards are required for this interior.

On rear of seats 3 and 4:

MASCARA DE OXIGENO DEBAJO DE SU ASIENTO
OXYGEN MASK LOCATED UNDER YOUR SEAT

PARA DESPEGUE Y ATERRIZAJE
-AJUSTESE EL CINTURON
-EL RESPALDO DEBE ESTAR TOTALEMENTE VERTICAL

FOR TAKEOFF AND LANDING
-FASTEN SEAT BELT
-SEAT BACK MUST BE FULLY UPRIGHT

or

PARA DESPEGUE Y ATERRIZAJE
-EL RESPALDO DEL ASIENTO DEBE ESTAR COMPLETAMENTE VERTICAL
-AJUSTAR EL REPOSACABEZAS
-AJUSTAR EL CINTURON DE SEGURIDAD Y EL ARNES

FOR TAKEOFF AND LANDING
-SEAT MUST BE FULLY UPRIGHT
-ADJUST HEADREST TO SUPPORT HEAD
-FASTEN SEAT LAP AND SHOULDER BELT

or

PARA DESPEGUE Y ATERRIZAJE
-AJUSTAR EL CINTURON DE SEGURIDAD Y EL ARNES
-EL RESPALDO DEL ASIENTO DEBE ESTAR COMPLETAMENTE VERTICAL

FOR TAKEOFF AND LANDING
-FASTEN SEAT LAP AND SHOULDER BELT
-SEAT BACK MUST BE FULLY UPRIGHT

Near to the left bench seat on the armrest:

EL ASIENTO IZQUIERDO DEBE ESTAR TOTALMENTE PLEGADO HACIA ATRAS DURANTE TODO EL VUELO
LEFT PART OF BENCH SEAT MUST BE FULLY AFT DURING THE ENTIRE FLIGHT

On the left side of bench seat:

EL ASIENTO IZQUIERDO DEBE ESTAR TOTALMENTE PLEGADO HACIA ATRAS DURANTE TODO EL VUELO
LEFT PART OF BENCH SEAT MUST BE FULLY AFT DURING THE ENTIRE FLIGHT

When large baggage net is installed:

MAXIMA CARGA DE EQUIPAJE = 225 kg / 500 lb
(SOLO SI LA RED DE EQUIPAJE 525.2512.026 ESTA INSTALADA)
MAX BAGGAGE LOAD = 225 kg / 500 lb
(ONLY IF BAGGAGE NET 525.25.12.026 IS INSTALLED)

120419

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

PILOT'S OPERATING HANDBOOK
AND
EASA APPROVED AIRPLANE FLIGHT MANUAL

SUPPLEMENT NO. 35
FOR
PC-12, PC-12/45 AND PC-12/47 REGISTERED IN THE REPUBLIC OF CHILE

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

This supplement is approved in accordance with DAR 08 for Chilean registered aircraft and is approved by the DGAC – Chile.

This supplement must be attached to the Pilot's Operating Handbook and EASA Approved Airplane Flight Manual when operating the PC-12 in the Republic of Chile.

The information contained herein supplements or supersedes the information in the basic Pilot's Operating Handbook and EASA Approved Airplane Flight Manual only in those areas listed. For limitations, procedures and performance information not contained in this supplement, consult the basic Pilot's Operating Handbook and EASA Approved Airplane Flight Manual.

Approved by:
Dirección General de Aeronáutica Civil (DGAC) Chile

Date of Approval:

DIRECCION GENERAL DE AERONAUTICA CIVIL
DEPTO. SEGURIDAD OPERACIONAL
SUBDEPTO. AERONAVEGABILIDAD
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LIST OF EFFECTIVE PAGES

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LOG OF TEMPORARY REVISIONS

The incorporation of temporary revisions into this supplement are to be recorded on the sheet below. Instructions for the removal of temporary revisions will be given in the instruction sheet issued with revisions.

NO.	TEMPORARY REVISION TITLE	DATE OF ISSUE	CANCELLED BY

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LOG OF REVISIONS

Revision Number and Date	Page Number	Description
Revision 1 01.09.2014	9-35-3 thru 9-35-10 9-35-14 and 9-35-15 9-35-19 9-35-22	LOEP & LOR Updated to reflect Revision 1. Editorial changes to footers. Structure change. Additional placards added. Additional placards added. Additional placards added. The Revision Number 1 to AFM Supplement No. 35 is approved under the authority of DOA ref. EASA.21J.357. Approval Date: 23. September, 2014.
Revision 02 12.12.2019	9-35-3 9-35-7 9-35-10 and 9-35-11	Updated for Revision 02. Updated for Revision 02. 19880 - Changed "cabin door" to "passenger door" (editorial). The Revision Number 02 to AFM Supplement No. 35 is approved under the authority of DOA ref. EASA.21J.357. Approval Date: 12 December 2019

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SECTION 1 – GENERAL

This supplement provides the information necessary to operate the PC-12, PC-12/45 and PC12/47 aircraft in the Republic of Chile.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

SECTION 2 – LIMITATIONS

On airplanes registered in the Republic of Chile, the necessary equipment for the different kinds of operations must comply with the applicable Chilean Regulations.

EXTERNAL PLACARDS

On exterior of passenger door:

TIRE DE LA MANILLA Y GIRE PARA ABRIR NO ABRIR LA PUERTA CON EL MOTOR EN MARCHA EXCEPTO EN EMERGENCIA

ABRIR

On exterior of cargo door:

PRESIONE AQUI PARA ABRIR TIRE DE LA MANILLA Y TIRE DE LA PUERTA HACIA AFUERA NO ABRIR LA PUERTA CON EL MOTOR EN MARCHA EXCEPTO EN EMERGENCIA

TIRAR PARA ABRIR

On exterior of emergency exit:

SALIDA DE EMERGENCIA

EMPUJE

EMPUJE HACIA ADENTRO DESPUES DE SOLTAR

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CABIN PLACARDS

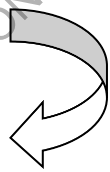
The following placards are installed in all aircraft.

On interior of passenger door:

SALIDA/EXIT
NO UTILIZAR EN VUELO
DO NOT OPERATE IN FLIGHT

NO ABRIR LA PUERTA
CON EL MOTOR EN MARCHA
EXCEPTO EN EMERGENCIA
DO NOT OPEN DOOR WHEN ENGINE
IS RUNNING UNLESS IN EMERGENCY

CERRADO
CLOSED



ABIERTO
OPEN

SOLO UNA PERSONA
A LA VEZ EN LAS
ESCALERAS
ONLY ONE PERSON ON STAIRS
AT ANY TIME

PARA ABRIR LEVANTAR EL
CERROJO Y ROTAR LA MANILLA
TO OPEN LIFT LATCH
ROTATE HANDLE

PRESIONE BOTON PARA LUZ DE CABINA
PUSH BUTTON FOR COCKPIT DOME LIGHT

On interior of emergency exit:

SALIDA/EXIT

On interior emergency exit handle:

TIRE/PULL

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On interior cargo door handle cover:

NO QUITAR LA CUBIERTA EN VUELO **DO NOT REMOVE COVER IN FLIGHT**

On interior cargo door handle:

LEVANTAR EL SEGURO, TIRAR LA **PALANCA Y EMPUJAR LA PUERTA HACIA AFUERA** **LIFT LOCKING LEVER AND** **PULL HANDLE PUSH DOOR OUT**

On interior of cargo door:

NO ABRIR LA PUERTA **CON EL MOTOR EN MARCHA** **EXCEPTO EN EMERGENCIA** **DO NOT OPEN DOOR WHEN ENGINE** **IS RUNNING UNLESS IN EMERGENCY**

On the forward and rear cargo door frame:

MAXIMO PESO DE CARGA = 1000 kg / 2200 lb	
Carga Maxima Sobre Rieles de Asientos	**Carga Maxima Sobre Los Paneles De Piso**
1000 kg/m^2 **205 lb/ft^2**	**600 kg/m^2** **125 lb/ft^2**
LA CARGA NO DEBE OBSTRUIR EL ACCESO A LA PUERTA DE CABINA Y SALIDA DE EMERGENCIA	

Valid for PC-12

Or

MAXIMO PESO DE CARGA = 1500 kg / 3300 lb	
Carga Maxima Sobre Rieles de Asientos	**Carga Maxima Sobre Los Paneles De Piso**
1000 kg/m^2 **205 lb/ft^2**	**600 kg/m^2** **125 lb/ft^2**
LA CARGA NO DEBE OBSTRUIR EL ACCESO A LA PUERTA DE CABINA Y SALIDA DE EMERGENCIA	

Valid for PC-12/45 and PC-12/47

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On lower cargo door frame:

INSTALAR EL SOPORTE DE COLA ANTES DE CARGAR EL AVION

On lower cargo door frame:

INSTALL TAIL SUPPORT STAND BEFORE LOADING CARGO

On cabin to baggage area step:

MANTENGA LIBRE LA REJILLA KEEP GRILL CLEAR

Above the baggage area:

MAXIMA CARGA DE EQUIPAJE = 70 kg / 155 lb MAX BAGGAGE LOAD = 70 kg / 155 lb

or

MAXIMA CARGA DE EQUIPAJE = 100 kg / 220 lb MAX BAGGAGE LOAD = 100 kg / 220 lb

or

MAXIMA CARGA DE EQUIPAJE = 120 kg / 265 lb MAX BAGGAGE LOAD = 120 kg / 265 lb

or

MAXIMA CARGA DE EQUIPAJE = 180 kg / 400 lb MAX BAGGAGE LOAD = 180 kg / 400 lb

Post SB 25-010 above placard is replaced by:

MAXIMA CARGA DE EQUIPAJE = 225 kg / 500 lb (SOLO SI LA RED DE EQUIPAJE 525.25.12.026 ESTA INSTALADA) MAX BAGGAGE LOAD = 225 kg / 500 lb (ONLY IF BAGGAGE NET 525.25.12.026 IS INSTALLED)

Above the baggage area coat rail:

MAX PESO A COLGAR 11 lb / 5 kg MAX COAT RAIL LOAD 11 lb / 5 kg

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9 SEAT CORPORATE COMMUTER (Interior Code STD-9S)

The cabin placards plus the following additional placards are those required for this interior.

On the rear of the left and right cockpit bulkheads, and on the rear of each seat:

PARA DESPEGUE Y ATERRIZAJE
-AJUSTAR EL CINTURON DE
SEGURIDAD Y EL ARNES
-EL RESPALDO DEL ASIENTO DEBE
ESTAR COMPLETAMENTE VERTICAL

FOR TAKEOFF AND LANDING
-FASTEN SEAT LAP AND SHOULDER BELT
-SEAT BACK MUST BE FULLY UPRIGHT

or

PARA DESPEGUE Y ATERRIZAJE
-EL RESPALDO DEL ASIENTO DEBE
ESTAR COMPLETAMENTE VERTICAL
-AJUSTAR EL REPOSACABEZAS
-AJUSTAR EL CINTURON DE
SEGURIDAD Y EL ARNES

FOR TAKEOFF AND LANDING
-SEAT MUST BE FULLY UPRIGHT
-ADJUST HEADREST TO SUPPORT HEAD
-FASTEN SEAT LAP AND SHOULDER BELT

On the rear of each seat, except seat No. 5:

MASCARA DE OXIGENO DEBAJO DE SU ASIENTO
OXYGEN MASK LOCATED UNDER YOUR SEAT

On the rear of seat 5:

MASCARA DE OXIGENO UBICADA EN PARTE FRONTAL
DEBAJO DEL ASIENTO
OXYGEN MASK LOCATED UNDER SEAT IN FRONT

On the rear of left cockpit bulkhead:

EL EXTINTOR DE INCENDIOS
ESTA UBICADO EN LA CABINA,
DETRAS DEL ASIENTO DEL COPILOTO
FIRE EXTINGUISHER LOCATED
ON COCKPIT SIDE RH BULKHEAD
BEHIND CO-PILOT SEAT

NO FUMAR
NO SMOKING

Near each passenger oxygen outlet of the standard interior:

OXIGENO
OXYGEN

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6 SEAT CORPORATE COMMUTER and a THREE SEAT BENCH (Interior Code STD-6S-3B)

The cabin placards, the 9 seat commuter placards and the following replacement/additional placards are required for this interior.

On rear of seats 5 and 6:

MASCARA DE OXIGENO DEBAJO DE SU ASIENTO **OXYGEN MASK LOCATED UNDER YOUR SEAT**

Near to the left bench seat on the armrest:

EL ASIENTO IZQUIERDO DEBE ESTAR TOTALMENTE HACIA **ATRAS DURANTE TODO EL VUELO** **LEFT PART OF BENCH SEAT MUST BE** **FULLY AFT DURING THE ENTIRE FLIGHT**

On the left side of bench seat:

EL ASIENTO IZQUIERDO DEBE ESTAR TOTALMENTE HACIA **ATRAS DURANTE TODO EL VUELO** **LEFT PART OF BENCH SEAT MUST BE** **FULLY AFT DURING THE ENTIRE FLIGHT**

When large baggage net is installed:

MAXIMA CARGA DE EQUIPAJE = 225 kg / 500 lb **(SOLO SI LA RED DE EQUIPAJE 525.2512.026 ESTA INSTALADA)** **MAX BAGGAGE LOAD = 225 kg / 500 lb** **(ONLY IF BAGGAGE NET 525.25.12.026 IS INSTALLED)**

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120421

6 SEAT EXECUTIVE (Interior Code EX-6S-2)

The cabin placards plus the following additional placards are those required for this interior.

On the inside of the lavatory doors:

On the toilet door #1:

- NO FUMAR EN EL BAÑO
- NO SMOKING IN LAVATORY

- NO OCUPAR EL BAÑO DURANTE DESPEGUE / ATERRIZAJE Y TURBULENCIA
- TOILET COMPARTMENT NOT TO BE OCCUPIED DURING TAKEOFF / LANDING AND TURBULENCE

- PARA CERRAR TIRE AQUI
- TO CLOSE PULL HERE

On the toilet door #3:

- PARA CERRAR TIRE AQUI
- TO CLOSE PULL HERE

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On the oxygen mask box:

MASCARA DE OXIGENO EN EL INTERIOR **OXYGEN MASK INSIDE**

Below the oxygen mask box:

TIRE DE LA CINTA PARA **LA MASCA DE OXIGENO** **PULL TAPE FOR OXYGEN MASK**

Near the toilet seat:

PRESIONE PARA VACIAR **PUSH TO FLUSH**

LUZ DEL BAÑO **LAVATORY LIGHT**

On the inside of the optional wardrobe:

MANTENER LAS PUERTAS CERRADAS **DURANTE DESPEGUE / ATERRIZAJE** **DOORS MUST BE CLOSED DURING** **TAKEOFF / LANDING**

EL EQUIPAJE NO DEBE SOBREPASAR EL BORDE. MANTENER CERRADA LA RED DURANTE EL VUELO. **NO BAGGAGE ALLOWED ABOVE EDGE** **NET MUST BE CLOSED FOR FLIGHT**

PESO LIMITE **WEIGHT LIMIT 35 LB / 15.9 KG**

PERMITIDO MAX 6 SOBRETODOS. **MAX. OF 6 COATS ALLOWED**

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On the inside of the left and right cabinet drawers:

On the left upper drawer

PESO LIMITE **WEIGHT LIMIT 10 lb / 4.5kg**

On the left lower drawer

PESO LIMITE **WEIGHT LIMIT 25 lb / 11.3kg**

On the right upper drawer

PESO LIMITE **WEIGHT LIMIT 5 lb / 2.3kg**

On the right lower drawer

PESO LIMITE **WEIGHT LIMIT 7 lb / 3.1kg**

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Near each executive seat:

PARA DESPEGUE Y ATERRIZAJE
-EL RESPALDO DEL ASIENTO DEBE
ESTAR COMPLETAMENTE VERTICAL
MOVER EL ASIENTO HASTA EL TOPE
TRASERO Y HASTA EL TOPE PARED
-AJUSTAR EL REPOSACABEZAS
-AJUSTAR EL CINTURON DE
SEGURIDAD Y EL ARNES
-PLEGAR Y ASEGURAR LA MESA

FOR TAKEOFF AND LANDING
-SEAT MUST BE FULLY UPRIGHT
FULLY TO THE REAR OF CABIN
AND FULLY OUTBOARD
-ADJUST HEADREST TO SUPPORT HEAD
-FASTEN SEAT LAP AND SHOULDER BELT
-TABLE MUST BE STOWED

On each passenger oxygen mask cover:

MASCARA DE OXIGENO EN EL INTERIOR
OXYGEN MASK INSIDE

On the armrest near each passenger oxygen mask:

TIRE DE LA CINTA PARA
LA MASCARA DE OXIGENO
PULL TAPE FOR
OXYGEN MASK

⇨ or ⇦

TIRE DE LA CINTA PARA
LA MASCARA DE OXIGENO
PULL TAPE FOR
OXYGEN MASK

By the ashtray near each seat:

NO FUMAR MIENTRAS SE USE OXIGENO
DO NOT SMOKE WHILE OXYGEN IN USE

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Near the optional coat rail in the baggage compartment:

MAX PESO A COLGAR 5 KG / 11 LB.
MAX COAT RAIL 5 KG / 11 LB.

8 SEAT EXECUTIVE (Interior Code EX-8S) and a 6 SEAT EXECUTIVE AND 2 SEAT CORPORATE COMMUTER (Interior Code EX-6S-STD-2S)

The cabin placards, the 6 seat executive placards and the following replacement / additional placards are required for this interior:

Rear of executive passenger seat No. 5, 6, 7, 8:

NO OCUPAR ESTE ASIENTO DURANTE
DESPEGUE Y ATERRIZAJE A MENOS QUE EL ASIENTO DE
ADELANTE ESTE OCUPADO
LEAVE THIS SEAT VACANT DURING TAKE-OFF AND
LANDING UNLESS SEAT IN FRONT IS OCCUPIED

On the armrest near passenger oxygen mask for seats 7 and 8:

TIRE DE LA CINTA PARA
LA MASCARA DE OXIGENO
PULL TAPE FOR
OXYGEN MASK ⇨

or

⇦ **TIRE DE LA CINTA PARA**
LA MASCARA DE OXIGENO
PULL TAPE FOR
OXYGEN MASK

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PLACARDS – 4 SEAT EXECUTIVE AND 4 SEAT CORPORATE COMMUTER (Interior Code EX4S-STD-4S)

On the armrest near passenger oxygen mask for seats 7 and 8:

TIRE DE LA CINTA PARA LA MASCARA DE OXIGENO PULL TAPE FOR OXYGEN MASK	⇨ or ⇦	TIRE DE LA CINTA PARA LA MASCARA DE OXIGENO PULL TAPE FOR OXYGEN MASK

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4 SEAT EXECUTIVE and THREE SEAT BENCH (Interior Code EX4S-3B)

The cabin placards, the 6 seat executive placards and the following replacement/additional placards are required for this interior.

On rear of seats 3 and 4:

MASCARA DE OXIGENO DEBAJO DE SU ASIENTO OXYGEN MASK LOCATED UNDER YOUR SEAT

PARA DESPEGUE Y ATERRIZAJE
-AJUSTAR EL CINTURON DE
SEGURIDAD Y EL ARNES
-EL RESPALDO DEL ASIENTO DEBE
ESTAR COMPLETAMENTE VERTICAL

FOR TAKEOFF AND LANDING
-FASTEN SEAT LAP AND SHOULDER BELT
-SEAT BACK MUST BE FULLY UPRIGHT

or

PARA DESPEGUE Y ATERRIZAJE
-EL RESPALDO DEL ASIENTO DEBE
ESTAR COMPLETAMENTE VERTICAL
-AJUSTAR EL REPOSACABEZAS
-AJUSTAR EL CINTURON DE
SEGURIDAD Y EL ARNES

FOR TAKEOFF AND LANDING
-SEAT MUST BE FULLY UPRIGHT
-ADJUST HEADREST TO SUPPORT HEAD
-FASTEN SEAT LAP AND SHOULDER BELT

Near to the left bench seat on the armrest:

EL ASIENTO IZQUIERDO DEBE ESTAR TOTALMENTE HACIA ATRAS DURANTE TODO EL VUELO LEFT PART OF BENCH SEAT MUST BE FULLY AFT DURING THE ENTIRE FLIGHT

On the left side of bench seat:

EL ASIENTO IZQUIERDO DEBE ESTAR TOTALMENTE HACIA ATRAS DURANTE TODO EL VUELO LEFT PART OF BENCH SEAT MUST BE FULLY AFT DURING THE ENTIRE FLIGHT

When large baggage net is installed:

MAXIMA CARGA DE EQUIPAJE = 225 kg / 500 lb (SOLO SI LA RED DE EQUIPAJE 525.2512.026 ESTA INSTALADA) MAX BAGGAGE LOAD = 225 kg / 500 lb (ONLY IF BAGGAGE NET 525.25.12.026 IS INSTALLED)

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FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

PILOT'S OPERATING HANDBOOK
AND
EASA APPROVED AIRPLANE FLIGHT MANUAL SUPPLEMENT

REPORT NO. 02474

FOR

GERMAN PLACARDS

This supplement must be attached to the Pilot's Operating Handbook and EASA Approved Airplane Flight Manual for the EASA certified PC-12 airplanes. The information contained herein supplements or supersedes the information in the basic Pilot's Operating Handbook and EASA Approved Airplane Flight Manual only in those areas listed. For limitations, procedures and performance information not contained in this supplement, consult the basic Pilot's Operating Handbook and EASA Approved Airplane Flight Manual.

This Airplane Flight Manual Supplement is approved under the authority of DOA No. EASA.21J.357.

Date of Approval: 21 November 2019

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Front Matter

Table of Contents

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List of Effective Data Modules

All DMC are preceded with PC-12-C but for clarity this has been left out

C = Changed data module

N = New data module

	Data module code (DMC)	Document title	N/C	Issue date
	A15-00-2474-00A-002A-A	List of Effective Data Modules	N	21.11.2019
	A15-00-2474-00A-003B-A	Log of Revisions	N	21.11.2019
	A15-00-2474-00A-002B-A	Log of Temporary Revisions	N	21.11.2019
	A15-00-2474-01A-010A-A	General	N	21.11.2019
*	A15-10-2474-02A-043A-A	Limitations	N	21.11.2019

* Authority Approved

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12-C-A15-00-2474-00A-002A-A

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Log of Revisions

1 Issue 001 - Revision 00 - Dated: 21 November 2019

Initial Issue of the PC-12 AFM Supplement 02474.

The Issue 001 Revision 00 of the AFM Supplement ref. 02474 is approved under the authority of DOA No. EASA.21J.357.

Approval date: 21.11.2019

Table 1: Issue 001 - Revision 00 - List of changes

Section	PTS Number	Description of Change
All	20084	AFM Supplement ref. 02474 - Aircraft with German Placards installed.

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Log of Temporary Revisions

No.	Temporary Revision Title	Date of Issue	Cancelled by

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

12-C-A15-00-2474-00A-002B-A

No.	Temporary Revision Title	Date of Issue	Cancelled by

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

SECTION 1

General

Table of Contents

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General

1 General

This supplement provides the information necessary to operate the PC-12 aircraft with placards in the German language installed.

This Supplement must be attached to Pilot's Operating Handbook Report No.:

- 01973-001
- 02211
- 02277
- 02406

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SECTION 2

Limitations (EASA Approved)

Table of Contents

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Limitations

CABIN PLACARDS

The following placards are installed in all aircraft.

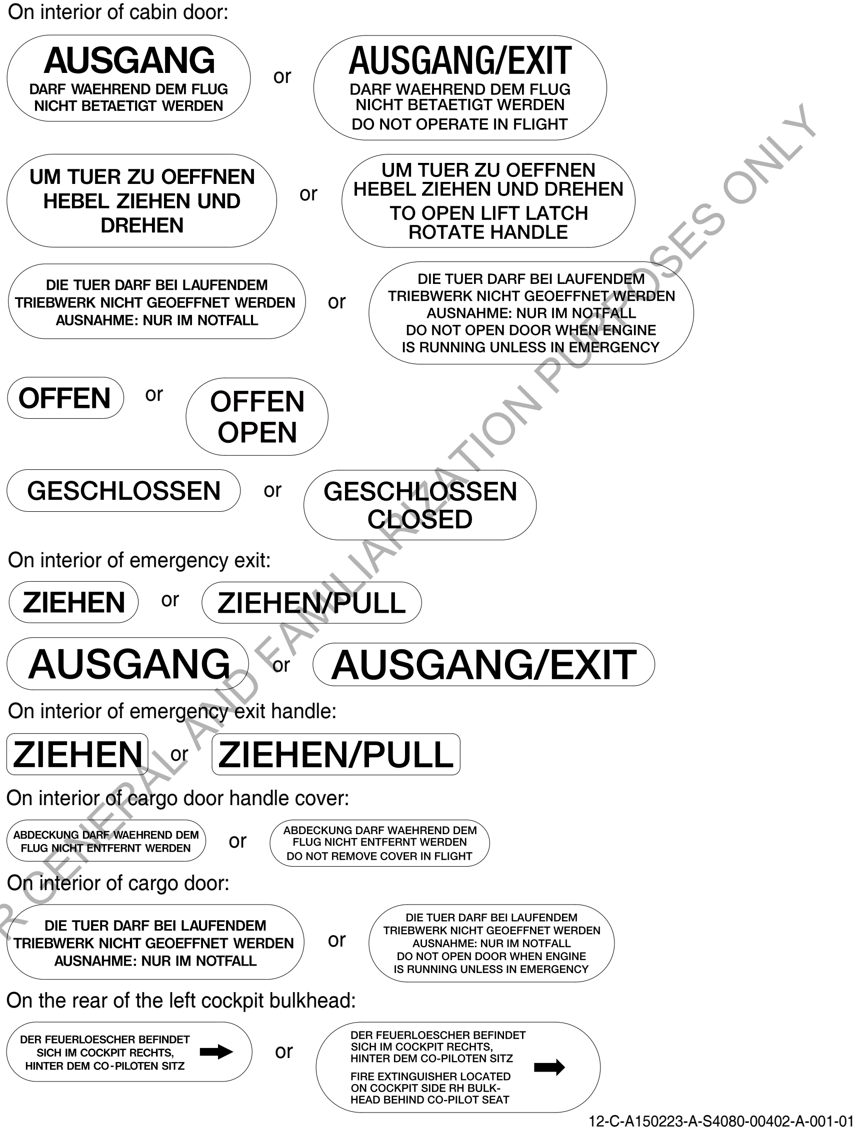

Figure 2-1: Placards - Cabin - German

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12-C-A15-10-2474-02A-043A-A

9 SEAT CORPORATE COMMUTER INTERIOR (Interior Code STD-9S)

The cabin placards plus the following are those required for the interior.

Near each passenger oxygen outlet:

SAUERSTOFF	or	**SAUERSTOFF** **OXYGEN**

On the rear of the left cockpit bulkhead:

RAUCHEN VERBOTEN	or	RAUCHEN VERBOTEN NO SMOKING
SAUERSTOFFMASKE BEFINDET SICH UNTER DEM SITZ	or	SAUERSTOFFMASKE BEFINDET SICH UNTER DEM SITZ OXYGEN MASK LOCATED UNDER YOUR SEAT
WAEHREND START UND LANDUNG BEACHTEN -SITZLEHNE MUSS AUFRECHT SEIN -KOPFSTUETZE AN KOPF ANPASSEN -BECKEN - UND SCHULTERGURT MUESSEN ANGELEGT UND GESCHLOSSEN SEIN	or	WAEHREND START UND LANDUNG BEACHTEN - SITZLEHNE MUSS AUFRECHT SEIN - KOPFSTUETZE AN KOPF ANPASSEN - BECKEN- UND SCHULTERGURT MUESSEN ANGELEGT UND GESCHLOSSEN SEIN FOR TAKEOFF AND LANDING - SEAT MUST BE FULLY UPRIGHT - ADJUST HEADREST TO SUPPORT HEAD - FASTEN SEAT LAP AND SHOULDER BELT

On the rear of the right cockpit bulkhead:

SAUERSTOFFMASKE BEFINDET SICH UNTER DEM SITZ	or	SAUERSTOFFMASKE BEFINDET SICH UNTER DEM SITZ OXYGEN MASK LOCATED UNDER YOUR SEAT

On the back of the standard passenger seat (except seat 5):

WAEHREND START UND LANDUNG BEACHTEN -SITZLEHNE MUSS AUFRECHT SEIN -KOPFSTUETZE AN KOPF ANPASSEN -BECKEN - UND SCHULTERGURT MUESSEN ANGELEGT UND GESCHLOSSEN SEIN	or	WAEHREND START UND LANDUNG BEACHTEN - SITZLEHNE MUSS AUFRECHT SEIN - KOPFSTUETZE AN KOPF ANPASSEN - BECKEN- UND SCHULTERGURT MUESSEN ANGELEGT UND GESCHLOSSEN SEIN FOR TAKEOFF AND LANDING - SEAT MUST BE FULLY UPRIGHT - ADJUST HEADREST TO SUPPORT HEAD - FASTEN SEAT LAP AND SHOULDER BELT
SAUERSTOFFMASKE BEFINDET SICH UNTER DEM SITZ	or	SAUERSTOFFMASKE BEFINDET SICH UNTER DEM SITZ OXYGEN MASK LOCATED UNDER YOUR SEAT

On the back of seat 5:

WAEHREND START UND LANDUNG BEACHTEN -SITZLEHNE MUSS AUFRECHT SEIN -KOPFSTUETZE AN KOPF ANPASSEN -BECKEN - UND SCHULTERGURT MUESSEN ANGELEGT UND GESCHLOSSEN SEIN	or	WAEHREND START UND LANDUNG BEACHTEN - SITZLEHNE MUSS AUFRECHT SEIN - KOPFSTUETZE AN KOPF ANPASSEN - BECKEN- UND SCHULTERGURT MUESSEN ANGELEGT UND GESCHLOSSEN SEIN FOR TAKEOFF AND LANDING - SEAT MUST BE FULLY UPRIGHT - ADJUST HEADREST TO SUPPORT HEAD - FASTEN SEAT LAP AND SHOULDER BELT
SAUERSTOFFMASKE BEFINDET SICH UNTER DEM VORDEREN SITZ	or	SAUERSTOFFMASKE BEFINDET SICH UNTER DEM VORDEREN SITZ OXYGEN MASK LOCATED UNDER SEAT IN FRONT

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Figure 2-2: Placards - Cabin - 9 Seat corporate commuter (Interior code STD-9S) - German

12-C-A15-10-2474-02A-043A-A

6 SEAT EXECUTIVE INTERIOR (Interior Code EX-6S-2)

The cabin placards plus the following are those required for the interior.

On each oxygen mask pocket:

ENTHAELT SAUERSTOFFMASKE

or

ENTHAELT SAUERSTOFFMASKE
OXYGEN MASK INSIDE

On the armrest near each passenger oxygen mask:

FUER SAUERSTOFFMASKE
BAND ZIEHEN →

or

FUER SAUERSTOFFMASKE
BAND ZIEHEN →
PULL TAPE FOR OXYGEN MASK

or

← FUER SAUERSTOFFMASKE
BAND ZIEHEN

or

← FUER SAUERSTOFFMASKE
BAND ZIEHEN
PULL TAPE FOR OXYGEN MASK

Near each executive seat:

WAEHREND START UND LANDUNG BEACHTEN
-SITZLEHNE MUSS AUFRECHT SEIN
-SITZ MUSS BEZUEGLICH KABINE GANZ HINTEN UND AUSSEN POSITIONIERT SEIN
-KOPFSTUETZE AN KOPF ANPASSEN
-BECKEN- UND SCHULTERGURT MUESSEN ANGELEGT UND GESCHLOSSEN SEIN
-TISCH MUSS SICHER VERSTAUT SEIN

or

WAEHREND START UND LANDUNG BEACHTEN
- SITZLEHNE MUSS AUFRECHT SEIN
- SITZ MUSS BEZUEGLICH KABINE GANZ HINTEN UND AUSSEN POSITIONIERT SEIN
- KOPFSTUETZE AN KOPF ANPASSEN
- BECKEN- UND SCHULTERGURT MUESSEN ANGELEGT UND GESCHLOSSEN SEIN
- TISCH MUSS SICHER VERSTAUT SEIN

FOR TAKEOFF AND LANDING
- SEAT MUST BE FULLY UPRIGHT, FULLY TO THE REAR OF CABIN AND FULLY OUTBOARD
- ADJUST HEADREST TO SUPPORT HEAD
- FASTEN SEAT LAP AND SHOULDER BELT
- TABLE MUST BE STOWED

BEI GEBRAUCH VON SAUERSTOFF
RAUCHEN VERBOTEN

or

BEI GEBRAUCH VON SAUERSTOFF
RAUCHEN VERBOTEN
DO NOT SMOKE WHILE OXYGEN IN USE

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Figure 2-3: Placards - Cabin - 6 Seat executive (Interior code EX-6S-2) - German

12-C-A15-10-2474-02A-043A-A

8 SEAT EXECUTIVE INTERIOR (Interior Code EX-8S)

The cabin placards, the 6 seat executive and the following replacement/additional placards are required for this interior.

Rear of executive passenger seat No. 5, 6, 7 and 8:

DIESER SITZ DARF NICHT BENUETZT
WERDEN WENN DER VORDERE SITZ
NICHT BESETZT IST

or

DIESER SITZ DARF NICHT BENUETZT WERDEN
WENN DER VORDERE SITZ NICHT BESETZT IST
LEAVE THIS SEAT VACANT DURING TAKE-OFF AND
LANDING UNLESS SEAT IN FRONT IS OCCUPIED

FUER SAUERSTOFFMASKE
BAND ZIEHEN →

or

FUER SAUERSTOFFMASKE
BAND ZIEHEN →
PULL TAPE FOR OXYGEN MASK

or

← FUER SAUERSTOFFMASKE
BAND ZIEHEN

or

← FUER SAUERSTOFFMASKE
BAND ZIEHEN
PULL TAPE FOR OXYGEN MASK

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Figure 2-4: Placards - Cabin - 8 Seat executive (Interior code EX-8S) - German

12-C-A15-10-2474-02A-043A-A

TOILET PLACARDS

The toilet placards are installed in all executive interiors.

On the toilet door #1:

ZUM SCHLIESSEN ZIEHEN **or** ZUM SCHLIESSEN ZIEHEN / TO CLOSE PULL HERE

TOILETTENABTEIL WAEHREND START, LANDUNG UND TURBULENZ NICHT BELEGEN **or** TOILETTENABTEIL WAEHREND START, LANDUNG UND TURBULENZ NICHT BELEGEN / TOILET COMPARTMENT NOT TO BE OCCUPIED DURING TAKEOFF / LANDING AND TURBULENCE

AUF DER TOILETTE RAUCHEN VERBOTEN **or** AUF DER TOILETTE RAUCHEN VERBOTEN / NO SMOKING IN LAVATORY

On the toilet door #3:

ZUM SCHLIESSEN ZIEHEN **or** ZUM SCHLIESSEN ZIEHEN / TO CLOSE PULL HERE

Near the toilet seat:

FUER TOILETTENSPUELUNG HIER DRUECKEN **or** FUER TOILETTENSPUELUNG HIER DRUECKEN / PUSH TO FLUSH

TOILETTENBELEUCHTUNG **or** TOILETTENBELEUCHTUNG / LAVATORY LIGHT

On the oxygen mask box:

ENTHAELT SAUERSTOFFMASKE **or** ENTHAELT SAUERSTOFFMASKE / OXYGEN MASK INSIDE

Below the oxygen mask box:

FUER SAUERSTOFFMASKE BAND ZIEHEN → **or** FUER SAUERSTOFFMASKE BAND ZIEHEN / PULL TAPE FOR OXYGEN MASK →

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12-C-A150223-A-S4080-00406-A-001-01

Figure 2-5: Placards - Cabin - Toilet - German

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SECTION 10

SAFETY AND OPERATIONAL TIPS

TABLE OF CONTENTS

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

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GENERAL

This section provides information for the operation of the airplane.

SAFETY TIPS

Pilots who fly above 10,000 feet should be aware of the need for physiological training. It is recommended that this training be taken before flying above 10,000 feet and receive refresher training every two or three years.

Information on the location of flammable materials, pressure vessels and equipment locations for crash-fire-rescue purposes is given in Figure 1.

OPERATIONAL TIPS

ANTI-COLLISION LIGHTS

Anti-collision strobe lights should not be operating when flying through cloud, fog, or haze. Reflected light can produce spatial disorientation.

CROSSWIND OPERATION

Takeoff

It is possible, if required, to hold the aircraft stationary with the brakes while the engine is at max takeoff power. When the brakes are released rapid and aggressive use of the rudder and possibly some small application of brake is necessary to establish and maintain the centerline but, once rolling, directional control is easy with rudder only. Holding the elevator neutral will keep the nosewheel on the ground and assist in maintaining directional control.

In strong crosswinds the aircraft establishes a drift angle of up to 10° while accelerating to rotation speed.

In gusty conditions it is recommended to rotate at V_R + 10 Kts**.** On rotation the aircraft yaws considerably further into wind and automatically establishes the heading necessary to track the runway centerline.

Landing

It is recommended to use the wing down technique. At approximately 100 to 200 ft on approach to the runway, apply rudder to align the longitudinal axis of the aircraft to the runway

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and put on bank in the opposite direction to maintain the runway centerline. The aircraft is then flown in a sideslip to touch down initially on one wheel. As soon as one wheel touches, lower the other two to the runway and immediately select either the condition lever to ground idle or the PCL to beta or reverse. Once the aircraft is established on the runway it can be stopped as normal with brakes or reverse power without difficulty. Do not attempt heavy braking in a strong crosswind as the into wind wheel will tend to lock more easily.

In conditions of strong turbulence it is recommended, if runway length permits, to fly the approach with reduced flap deflection to increase IAS and aileron efficiency. It is also recommended to increase the approach speed for the chosen flap setting by 50% of the difference between the wind mean speed and max gust speed, to give a greater speed margin over the stall.

FLAMMABLE MATERIALS, PRESSURE VESSELS AND EQUIPMENT LOCATIONS

Refer to Figure 10-1 for the location of these items.

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FLAMMABLE MATERIALS, PRESSURE VESSELS AND EQUIPMENT LOCATIONS

Refer to Figure 10-1 for the location of these items.

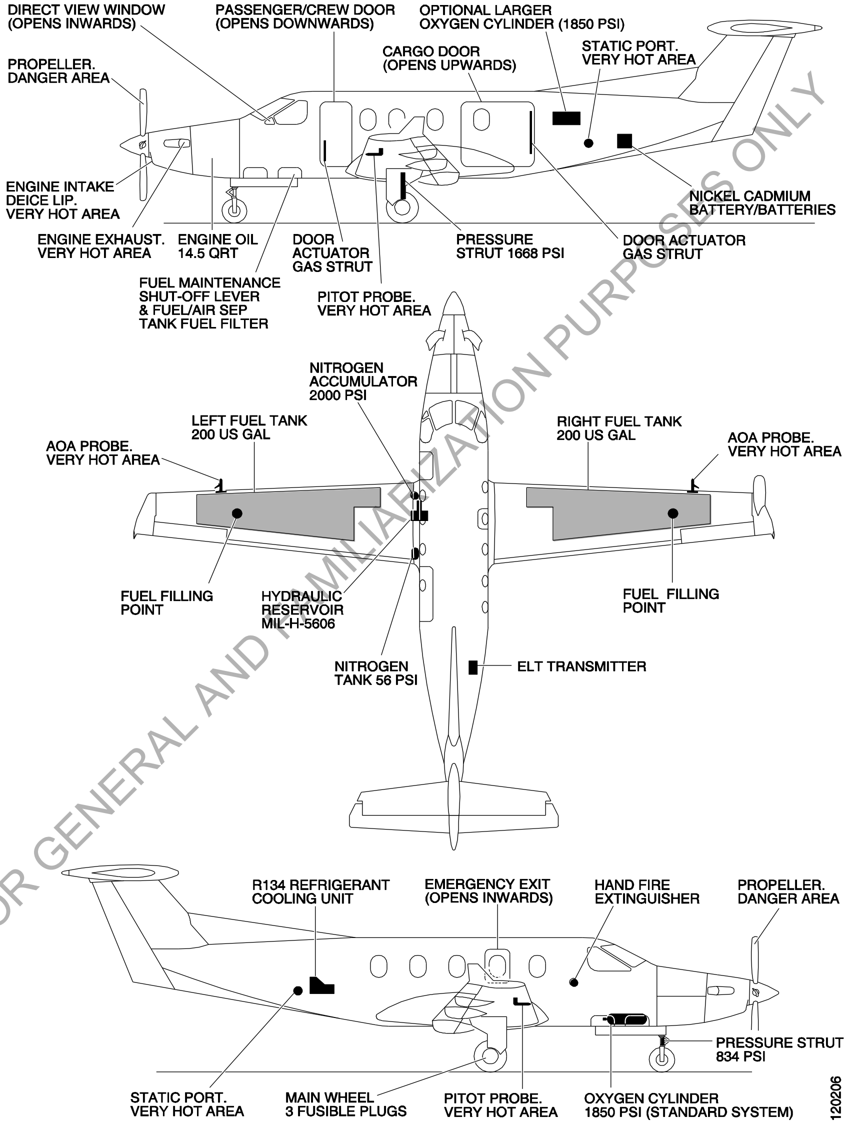

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Figure 10-1. Flammable Materials, Pressure Vessels and Equipment Locations

REMOVAL OF SNOW, ICE AND FROST FROM THE AIRCRAFT

1. GENERAL

Flight crews are responsible for ensuring the aircraft is free of ice, snow or any contaminants. Ground icing may occur whenever there is high humidity with temperatures of +10°C (+50°F) or colder.

Approved de-icing/anti-icing fluids must be used during the de-icing/anti-icing procedure.

The aircraft must be clear of all deposits of snow, ice and frost adhering to the lifting and control surfaces immediately prior to take-off. The clean aircraft concept is essential for safe flight operations. The pilot in command of the aircraft has the ultimate responsibility to determine if the aircraft is clean and in a condition for safe flight.

Manual methods of de-icing provide a capability in clear weather to clean the aircraft to allow a safe take-off and flight. De-icing/anti-icing fluids can be used to quickly remove frost and to assist in melting and removal of snow. In inclement cold weather conditions, the only alternative may be limited to placing the aircraft in a hangar to perform the cleaning process. Manual methods are described in more detail in paragraph 5.

It is recommended that flight crews familiarize themselves seasonally with the following publications for expanded de-ice and anti-ice procedures:

- FAA Advisory Circular AC135-17 (small aircraft)
- AEA Recommendations for De-icing/Anti-icing Aeroplanes on the Ground
- FAA and Transport Canada Holdover Timetables

Pilatus recommend that ground de-icing/anti-icing is done with the engine shutdown to minimize fluid ingestion into the engine and bleed air ducting.

The ECS switch must remain set to OFF for approximately five minutes after the de-icing/anti-icing procedure has been completed.

The de-icing/anti-icing crew must be instructed not to direct fluid at the propeller or engine.

De-icing with the engine running may result in a strong and unpleasant smell inside the aircraft, as the engine bleed system carries the odors to the passengers and crew.

Propwash from operating the propeller can cause rapid flow-off of de-icing/anti-icing fluid from the wing and other surfaces within the slip stream.

During the de-icing/anti-icing procedure, the ground crew may have to request the pilot to power down the engine in order to reduce propwash, or to stop the aircraft from sliding forward on a slippery surface.

FOR GENERAL AND FAMILIARIZATION PURPOSES ONLY

A. DE-ICING/ANTI-ICING FLUIDS

Various de-icing fluids are commercially available.

Clariant fluids were rigorously tested on PC-12 aircraft with no detrimental effect identified. Clariant fluids are therefore recommended by Pilatus for use on PC-12 aircraft.

NOTE

For de-icing the temperature of all heated fluids should be at least 60°C (140°F) at the nozzle. The aircraft skin maximum temperature limit is 70°C (158°F).

As part of a two-step procedure, cold Type IV fluids shall only be used within 3 minutes after the surface has been de-iced with heated water or heated Type I fluid as cold Type IV fluids significantly reduce the aircraft lift and increase control forces.

The following de-icing/anti-icing fluids are recommended for use on the PC-12:

Fluid	International Standard	Primary Use	Description
SAE Type I	AMS 1424	De-Icing	Type I fluids are water/glycol mixtures with a glycol content of at least 80%, which contain a corrosion inhibitor package. These fluids have been used for many years to remove ice, snow and frost (de-icing). They offer only limited protection against further icing due to freezing precipitation.
ISO Type I	ISO 11075		
SAE Type II	AMS 1428	Anti-Icing	Type II fluids contain at least 50% of glycol and a corrosion inhibition package. Furthermore, they contain a pseudoplastic thickener system which additionally protects against re-freezing (anti-icing) due to its film-forming properties.
SAE Type III	AMS 1428	Anti-Icing	Type III fluids are used for de-icing/anti-icing and offer longer “holdover” performance than Type I fluids.
SAE Type IV	AMS 1428	Anti-Icing	Type IV fluids contain at least 50% of glycol and a corrosion inhibition package. Furthermore, they contain a pseudoplastic thickener system which additionally protects against re-freezing (anti-icing) due to its film-forming properties.

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2. HEALTH EFFECTS

Pilots must be aware of the potential health problems of de-icing/anti-icing fluids to ensure the correct precautions are taken when a de-icing/anti-icing procedure is done, and to better ensure the wellbeing of the passengers and crew.

3. PRE-FLIGHT CHECKS FOR ICE, SLUSH, SNOW OR FROST THAT ADHERES TO THE AIRCRAFT

To establish the need for aircraft de-icing, a pre-flight check is required to identify any contamination that adheres to the aircraft surface and to direct any required de-icing/anti-icing operations.

NOTE

This check should normally be done by the flight crew when they do a walk around pre-flight check.

Ice can build up on aircraft surfaces during flight through dense clouds or precipitation. When ground OAT at the destination is low, it is possible for flaps and other moveable surfaces to be treated but accumulations of ice may remain undetected between stationary and moveable surfaces. It is important that these areas are checked before departure and any frozen deposits removed.

4. SELECTING THE DE-ICING ONLY OR DE-ICING/ANTI-ICING METHOD

Ice, slush and snow must be removed from all aircraft surfaces before dispatch or before anti-icing.

Any contamination found on components of the aircraft that are critical to safe flight must be removed by de-icing.

When freezing precipitation exists, and the precipitation is adhering to the surfaces at the time of dispatch, the aircraft surfaces must be de-iced/anti-iced.

If both de-icing and anti-icing are required, the procedure may be performed in one or two steps.

The selection of one or two-step processes depends on the weather conditions, available equipment, available fluids and the holdover time to be achieved.

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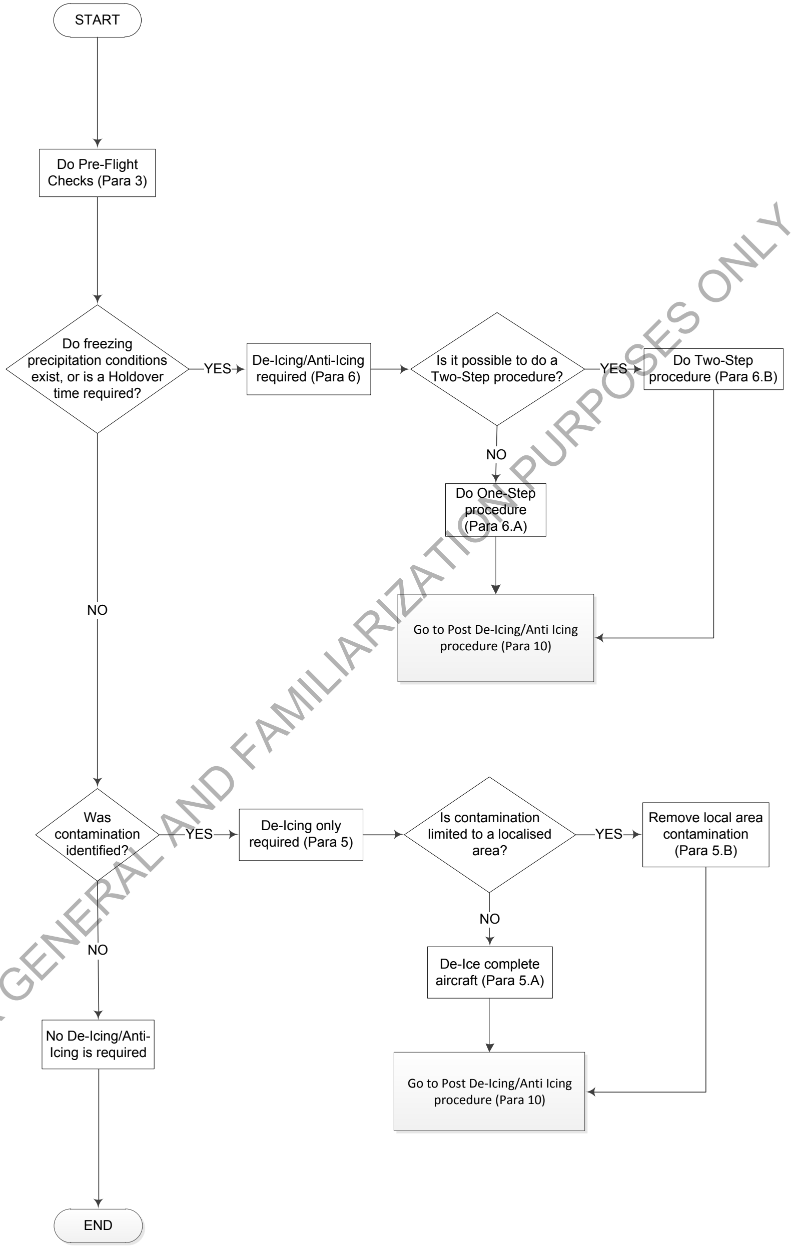

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- Figure 10-2 Selection of De-Icing Only or De-Icing/Anti-Icing Method Flowchart

5. DE-ICING ONLY PROCEDURE

To reduce the quantity of de-icing fluid required, a manual method can be used as a pre-step process, before the de-icing process, in order to remove large amounts of frozen contamination, for example, snow, slush or ice

Ice, slush, snow or frost may be removed from aircraft surfaces by manual methods or fluids.

Manual methods of de-icing such as brooms, brushes, ropes, squeegees etc. can be used to remove dry snow accumulations and to remove the bulk of wet snow deposits. These manual methods require that caution be exercised to prevent damage to the aircraft skin or components.

A. DE-ICING OF THE COMPLETE AIRCRAFT

Ground support equipment is required and must have the capability to heat the water and/or de-icing fluids to 60ºC (140ºF) or more at the nozzle. However, the temperature of the de-icing/anti-icing fluids in contact with the aircraft surfaces must be limited to less than 70ºC (158ºF). Refer to Paragraph 6.A.

B. REMOVAL OF LOCAL AREA ICE CONTAMINATION

CAUTION

THE AIRCRAFT MUST BE TREATED SYMMETRICALLY, THAT IS, LEFT HAND AND RIGHT HAND SIDES SHALL RECEIVE THE SAME AND COMPLETE TREATMENT. AERODYNAMIC PROBLEMS COULD RESULT IF THIS REQUIREMENT IS NOT MET.

When the presence of frost and/or ice is limited to localized areas on the surfaces of the aircraft and no precipitation is falling or expected, it is not necessary to apply de-icing/anti-icing fluids to the complete aircraft.

If no holdover time or only de-icing is required, only the contaminated areas will require treatment, then a “local area” de-icing may be done. The affected area(s) must be sprayed with de-icing fluid.

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6. DE-ICING/ANTI-ICING

CAUTION

THE APPLICATION OF TYPE II, III OR IV FLUIDS, MAY CAUSE RESIDUES TO COLLECT IN AERODYNAMICALLY QUIET AREAS, CAVITIES AND GAPS.
DRIED RESIDUES MAY REHYDRATE AND FREEZE FOLLOWING A PERIOD OF HIGH HUMIDITY AND/OR RAIN CONDITIONS.
THIS MAY IMPEDE FLIGHT CONTROLS. THESE RESIDUES MUST BE REMOVED BY HOT WATER WASHING BEFORE THE NEXT FLIGHT.

WHENEVER POSSIBLE, USE HEATED WATER AND/OR TYPE I FLUID TO DE-ICE THE AIRCRAFT.

A. ONE STEP DE-ICING/ANTI-ICING

Heated SAE Type I, II or III Fluid may be used to remove ice, slush and snow from the aircraft prior to departure, and to provide minimal anti-icing protection as given in the applicable Fluid holdover timetable.

B. TWO STEP DE-ICING/ANTI-ICING

CAUTION

WHERE RE-FREEZING OCCURS FOLLOWING THE INITIAL TREATMENT, BOTH FIRST AND SECOND STEPS MUST BE REPEATED.

Step 1 – De-icing with heated water and/or heated SAE Type I de-icing fluids.

Step 2 – Anti-icing: A separate over-spray of cold SAE Type II, III or IV anti-icing fluids may be applied within three minutes (if necessary, area by area) to completely cover the first step fluid in a sufficient amount of second step fluid. The fluid used and it’s concentration must be chosen with respect to the desired holdover time, which is dictated by the OAT wing temperature and the weather conditions.

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7. APPLICATION OF DE-ICING/ANTI-ICING FLUID

A. GENERAL

Flight crew should supervise the de-icing and anti-icing of the aircraft to ensure proper application of the fluid.

When ice, snow or slush is removed from aircraft surfaces, care must be taken to prevent entry and accumulation of the ice, snow or slush in intakes or control surface hinge areas.

All doors and windows shall be closed.

De-icing and anti-icing fluids must not be directed towards the static ports, pitot heads, AOA transmitters, cockpit windows, air intakes, brakes, wheels, engine inlet or exhaust ports.

NOTE

De-icing or anti-icing fluid that may splash onto heated surfaces (exhaust ducts, AOA transmitters, etc.) will produce significant smoke/vapor.

Fluid must always be sprayed from the front of the aircraft. Fluid sprayed from the rear can force fluid into aerodynamically quiet areas where it may not be able to drain. Refer to Essential Aircraft De-Icing/Anti- Icing Areas, Figures 10-3 and 10-4.

Any forward area from which fluid may blow back onto the windscreen during taxi or subsequent take-off shall be free of fluid residues prior to departure.

NOTE

If fluid is sprayed or runs onto the windscreen during application, it must be removed prior to taxi and take-off.

De-icing and anti-icing fluid can be removed by rinsing with approved cleaner and a soft cloth.

The first area to be de-iced/anti-iced should be easily visible from the cockpit and must be used to provide a conservative estimate for unseen areas of the aircraft before a take-off roll is initiated.

Anti-icing of the lower side of the wings and/or horizontal stabilizer and elevator is not normally expected. However, if these surfaces must be de-iced, the freezing point of the de-icing fluid must be low enough to prevent refreezing.

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B. DE-ICING/ANTI-ICING THE WINGS, TAIL AND FUSELAGE

The wings are the main lifting surfaces of the aircraft and must be free of snow and ice to operate efficiently. De-icing/anti-icing of the wings should begin at the leading edge wing tip with the flaps retracted, sweeping in the aft and inboard direction.

Tail surfaces should be de-iced/anti-iced in a similar manner to the wing. Move the horizontal stabilizer to nose down for a better visual check. The area adjacent to the elevator balance horns and the horizontal stabilizer must be thoroughly inspected.

Passenger and cargo doors must be de-iced to ensure correct operation. All door hinges, locks and seals must be inspected to make sure that they are free from contamination.

C. PROPELLER AND ENGINE AREA DE-ICING

WARNING

ICE DEPOSITS SHED FROM THE PROPELLER MAY CAUSE SERIOUS INJURY TO PERSONNEL

CAUTION

DE-ICING/ANTI-ICING SPRAY DIRECTED INTO THE ENGINE CAN CAUSE A FLAMEOUT OR OTHER PROBLEMS, DEPENDING ON THE AMOUNT OF DE-ICING/ANTI-ICING FLUID INGESTED.

The propeller must be thoroughly de-iced while static. **DO NOT** start the engine until it has been ascertained that all ice deposits have been removed from the propeller.

If the engine is required to run while de-icing/anti-icing:

- Set the ECS switch to OFF
- Set the INERT SEP switch to OPEN
- Apply the brakes
- Set the engine to GROUND IDLE.

If needed, minimal amounts of de-icing/anti-icing fluid can be used to de-ice the engine external cowling area. The engine inlet area must be avoided. Fluid residue on the engine compressor blades can reduce engine performance or cause a stall or surge. This will also minimize the ingestion of fluid vapors into the engine air bleed system.

Engine intake areas must be inspected for the presence of ice immediately after shutdown. Any accumulation must be removed while the engine is still warm and before the installation of the intake covers.

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D. LANDING GEAR AND WHEEL BAYS DE-ICING

The application of de-icing fluid in this area must be kept to a minimum. De-icing fluid must not be directed onto the brakes and wheels.

Landing gear and wheel bays must be kept free from a buildup of slush, ice or accumulation of blown snow. Deposits can be removed by brush etc. Where deposits have bonded to surfaces, these can be removed by spraying with de-icing fluids.

E. CLEAR ICE PRECAUTIONS

Clear ice can form on aircraft surfaces below a layer of snow or slush. It is important that surfaces are closely examined after each de-icing operation to make sure that all deposits have been removed.

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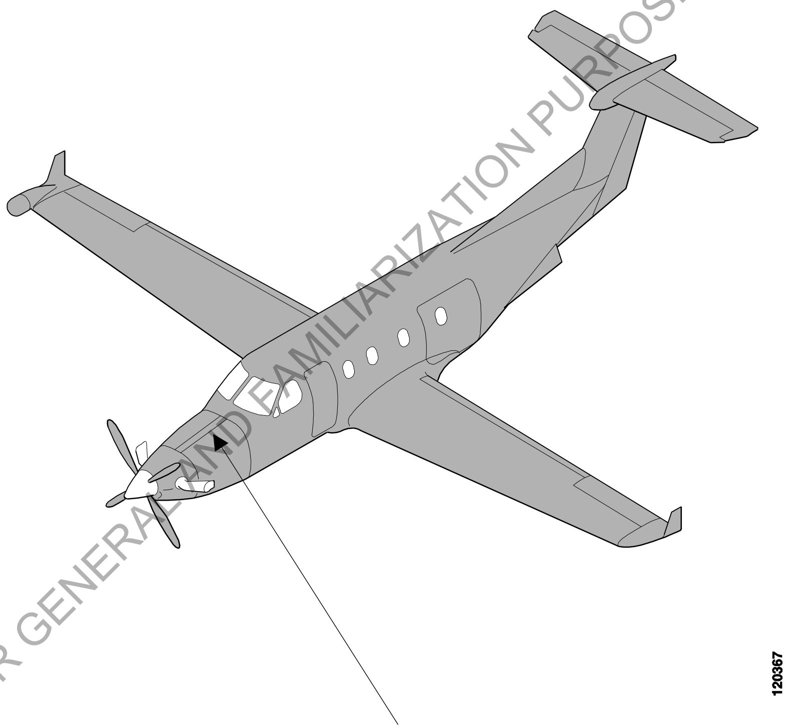
SHADED AREAS INDICATES ESSENTIAL AREAS TO BE DEICED

NOTE

AVOID DIRECT SPRAYING OF DEICING FLUID ON/IN THE FOLLOWING AREAS

ENGINE INLETS	BRAKES	PITOT HEADS
ENGINE EXHAUST	WINDSHIELD	STATIC PORTS
RAM AIR INLETS	CABIN WINDOWS	AOA VANES



NOTE

Any forward area from which fluid may blow back onto the windscreen during taxi or take-off must be free of fluid residues prior to departure.

Figure 10-3 Essential Aircraft De-Icing Areas

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SHADED AREAS INDICATES ESSENTIAL AREAS TO BE ANTI-ICED

NOTE

AVOID DIRECT SPRAYING OF ANTI-ICING FLUID ON/IN THE FOLLOWING AREAS

ENGINE INLETS	BRAKES	PITOT HEADS
ENGINE EXHAUST	WINDSHIELD	STATIC PORTS
RAM AIR INLETS	CABIN WINDOWS	AOA VANES

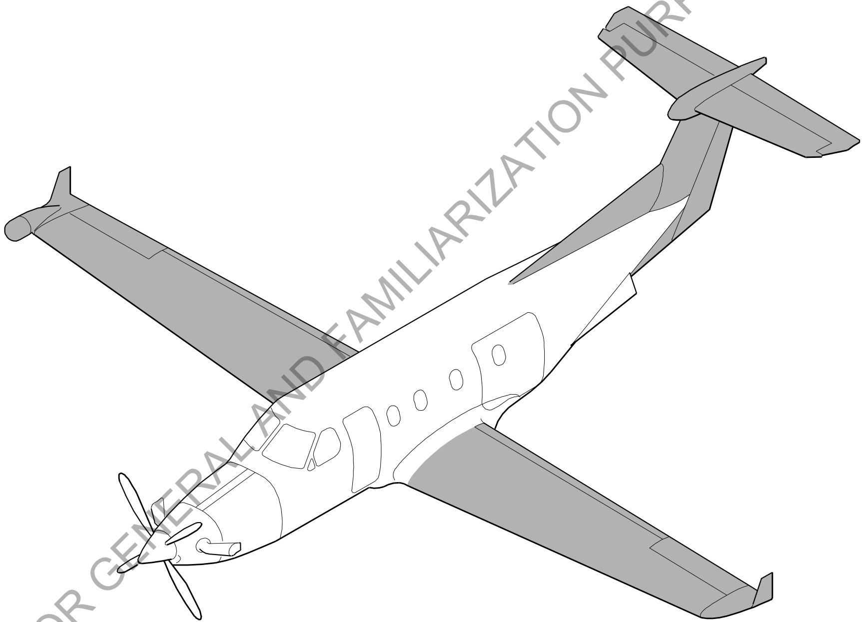

Figure 10-4 Essential Aircraft Anti-Icing Areas

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8. SPRAYING TECHNIQUE

A. ONE STEP DE-ICING/ANTI-ICING

Heated water and/or heated fluid must be sprayed on the aircraft in a manner which minimizes heat loss on the aircraft. If spraying is carried out with the engine running, the engine must be at Idle with all engine bleed air turned off.

For de-icing, the temperature of all heated fluids must be at least 60°C (140°F) at the nozzle. The aircraft skin maximum temperature limit is 70°C (158°F).

If possible, fluid should be sprayed in a solid cone pattern of large, coarse droplets.

The fluid must be sprayed as close as possible to the aircraft surface, but not closer than 3 m (10 feet) if a high pressure nozzle is used. Refer to Essential Aircraft De-Icing / Anti- Icing Areas, Figures 10-3 and 10-4.

B. TWO STEP DE-ICING/ANTI-ICING

The application technique for SAE Type II, III and IV fluids are the same as for SAE Type I fluid, except that as the aircraft surface is already de-iced, the application lasts only long enough to coat the aircraft surfaces. Refer to Essential Aircraft De-Icing/Anti-Icing Areas, Figures 10-3 and 10-4.

9. HOLDOVER TIMETABLES

Holdover Timetables are only estimates and vary depending on many factors such as temperature, precipitation type, precipitation rate, wind, and airplane skin temperature. Holdover times are based on the mixture ratio of fluid/water.

For a one-step De-icing/Anti-icing procedure, the holdover time begins at the start of the treatment.

For a two-step De-icing/Anti-icing procedure, the holdover time begins at the start of the second step (anti-icing).

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10. POST DE-ICING/ANTI-ICING PROCEDURE

CAUTION

AIRCRAFT OPERATORS ARE SOLELY RESPONSIBLE FOR ENSURING HOLDOVER TIMETABLES CONTAIN CURRENT DATA.

TABLES ARE FOR USE IN DEPARTURE PLANNING ONLY AND MUST BE USED IN CONJUNCTION WITH PRE TAKE-OFF CONTAMINATION PROCEDURES.

A. POST DE-ICING/ANTI-ICING CHECK

The areas that follow must be checked for any contamination that may still remain after the de-icing/anti-icing procedure has been done:

- Wing leading edges, upper and lower surfaces and aileron including the wing seals
- Horizontal stabilizer leading edges, upper and lower surfaces and the elevator surfaces, particularly the balance horns
- Vertical stabilizer and rudder surfaces
- Flaps
- Propeller
- Engine oil cooler and ECS air intakes
- Inertial separator and screen
- Fuselage
- Static ports, pitot heads, AOA vanes and temperature probes
- Fuel tank vents
- Landing gear

A thorough pre-flight inspection is more important in extreme temperatures, as this may affect the aircraft and/or its performance.

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B. PRE-TAKEOFF CONTAMINATION CHECK

CAUTION

UNDER NO CIRCUMSTANCES SHALL AN AIRCRAFT THAT HAS BEEN ANTI-ICED RECEIVE A FURTHER COATING OF ANTI-ICING FLUID DIRECTLY ON TOP OF THE CONTAMINATED FILM.
IF AN ADDITIONAL TREATMENT IS REQUIRED BEFORE FLIGHT, A COMPLETE DE-ICING/ANTI-ICING PROCEDURE MUST BE PERFORMED.
MAKE SURE THAT ALL RESIDUES FROM ANY PREVIOUS TREATMENTS ARE FLUSHED OFF.
ANTI-ICING ONLY IS NOT PERMITTED.

A pre-take-off check must be done by the flight crew before take-off and within the holdover time. This check is normally done from within the cockpit. It may be accomplished by the continuous assessment of the conditions that affect holdover times, and should include the assessment and adjustment of holdover times.

When freezing precipitation exists, aerodynamic surfaces must be checked just before the aircraft taxis onto the active runway or initiates the take-off roll, to make sure that they are free of ice, slush and snow or frost (Refer to Figures 10-3 and 10-4). This is most important when severe conditions are experienced. When adhering deposits are in evidence, de-icing of the aircraft must be repeated.

C. FLIGHT CONTROL CHECK

After the de-icing/anti-icing procedure has been done, and before the take-off roll has started, the flaps must be fully extended and then retracted to the 15 degree position. During control checks, the controls may feel heavier than normal.

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11. TAKE-OFF PERFORMANCE – SAE TYPE II, TYPE III AND TYPE IV FLUIDS

CAUTION

ANTICIPATE A HEAVIER THAN NORMAL ELEVATOR FORCE AT ROTATION. EVEN WITH THE INCREASED PULL FORCE, THE AIRCRAFT MAY ROTATE SLOWER THEN NORMAL. THE ELEVATOR FORCES WILL RETURN TO NORMAL SHORTLY AFTER TAKE-OFF.

THE TAKE-OFF CORRECTION FACTOR IS APPROXIMATE. ACTUAL CONDITIONS MAY REQUIRE DISTANCES GREATER THAN THOSE DETERMINED.

For take-off after a de-icing/anti-icing procedure has been done, PUSHER ICE MODE must be used, with the flaps set to 15 degrees, and the rotational speed increased by 9 KIAS (as specified in Section 5 Performance). As a result, the take-off ground roll distance can be increased by up to 30% and the total distance by up to 31%.

12. PERIODIC INSPECTION – TYPE II, III AND IV FLUIDS

Operators who use SAE Type II, III or IV anti-icing fluids are recommended to carry out periodic inspections for anti-icing fluid residues. The visual inspection must include:

- Along the wing rear spar area with flaps extended.
- Around the perimeter of the aileron surface.
- The gaps around the elevator and elevator trim tab.
- The gaps around the rudder and rudder trim tab.
- Inside the drain hole located at the base of the rudder

Any identified residues must be removed by cleaning with warm water or an approved fluid.

If the aircraft is washed, or if SAE Type I fluid is used for de-icing, the frequency of inspection may be reduced.

Initially, the inspections must be carried out after a maximum of three applications of SAE Type II, III or IV anti-icing fluids.

The operator must determine the frequency of inspections based on the results of residue inspections, the frequency of de-icing/anti-icing operations as well as the frequency of aircraft washing.

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OPERATIONS FROM PREPARED UNPAVED SURFACES

The aircraft is constructed for operations from prepared unpaved surfaces.

Prepared unpaved surfaces are taxi-ways and runways that are prepared and approved for aircraft operations with a surface other than tarmac or concrete.

CAUTION

PREPARED UNPAVED SURFACES SUITABLE FOR AIRCRAFT OPERATIONS VARY GREATLY AND SOME MAY NOT BE SUITABLE FOR OPERATIONS. IT IS THE RESPONSIBILITY OF THE PILOT IN COMMAND TO MAKE SURE THAT EACH TAXI-WAY AND RUNWAY SURFACE IS FIT FOR USE AT THE INTENDED AIRCRAFT WEIGHT BEFORE COMMENCING OPERATIONS ON IT.

The following factors should be considered when deciding if a surface is fit for operation or when operating from prepared unpaved surfaces:

1. SURFACE HARDNESS

A prepared unpaved surface may be hard after a period of dry weather but after rain can become soft. The wheels of a heavy aircraft can sink into soft surfaces causing a large increase in drag. This can make taxiing difficult or impossible and increase the takeoff ground roll distance considerably, sometimes to the point where V_R cannot be achieved. How deep the wheels sink in, varies with aircraft weight and surface condition. It may be possible to operate a light weight aircraft when it is not possible to operate it at maximum take off weight.

2. SURFACE ROUGHNESS

The taxi-way and runway surface should be smooth. Undulations, depression or bumps can cause longitudinal pitching of the aircraft which may cause a significant reduction in propeller ground clearance. Particular care should be exercised in long grass which can conceal hard objects and depressions and also at the borders between grass and concrete surfaces.

3. SURFACE TYPE

Loose stones or gravel can cause propeller or airframe damage. The propeller creates turbulence which lifts stones into the air which then are struck by following blades or are accelerated rearwards to hit the airframe. The risk of damage is reduced if the aircraft is allowed to accelerate forwards before high power is selected and if reverse thrust is not used below 30 kts forward speed.

Wet or fresh grass on a hard surface is slippery and has a lower coefficient of friction than short dry grass. Takeoff and stopping distances may increase. On a soft surface landing ground roll may decrease but takeoff ground roll may increase.

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On sandy or dusty surfaces, or where loose grass is present, reverse thrust can cause a loss of forward visibility and particles ingested into the air intake can cause increased engine wear.

4. INERTIAL SEPARATOR

When operating from any surface where there is a risk of dust, sand or other material entering the engine intake, it is recommended to open the inertial separator.

On takeoff from hot and high airfields with the inertial separator open it may not be possible to obtain maximum takeoff power (44 psi) and the takeoff performance will consequently deteriorate.

5. AIRCRAFT INSPECTION

When operating from prepared unpaved surfaces where there are loose stones, gravel, grit, sand, dust or cut grass etc. there is always a risk of propeller or airframe damage or blockage of air inlets. After operations from prepared unpaved surfaces, where a risk of damage or contamination exists, the aircraft should be thoroughly inspected.

6. BEFORE STARTING ENGINE

Make sure the area under and adjacent to the propeller is clear of loose stones or other objects which could damage the propeller or enter the engine or oil cooler air inlets.

7. TAXIING

- Use minimum power to prevent stone damage particularly when moving away from rest and when turning.
- Be alert for surface unevenness or obstructions which could cause propeller damage.
- To turn the aircraft on soft or slippery surfaces using nosewheel steering assisted by brake will help to keep the power low. (Reducing the risk of damage to the propeller or runway surface). If possible avoid making small radius turns.

8. TAKEOFF

When aligned for takeoff set a low power before brake release. After brake release, as the aircraft begins to accelerate, move the power lever steadily forwards to achieve Takeoff power. This procedure will reduce the risk of damaging the propeller by loose stones on the ground.

9. LANDING

CAUTION

BEFORE LANDING ON A PREPARED UNPAVED RUNWAY CHECK THAT THE SURFACE IS FIT FOR OPERATION AT THE INTENDED WEIGHT.

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PASSENGER BRIEFINGS

1. GENERAL

In Sections 3 and 4 there are procedural actions that call for the pilot to brief the passengers. They fall into two categories those forming part of an emergency procedure and the more regular type ones for taxiing prior to takeoff and before landing. Tips for passenger briefings during an emergency cannot be specified as each situation will place a different demand on the pilot. However, much of the content in the Taxiing briefing tips can be used to brief the passengers, if time permits. Tips for the recommended subjects that should be covered for the regular passenger briefings are given in the following lists:

2. **TAXIING** (Section 4, para 4-7)

For aircraft with a standard cabin interior:

- Stow hand baggage under the seats
- Put the seat back in the upright position
- Position the seat headrest to support the head
- Switch off electronic equipment
- Fasten seat lap and shoulder belts, and tighten lap strap
- Mention how to locate, remove and put on the passenger oxygen masks
- Mention the location and usage of the emergency exits
- Mention to remain buckled up during cruise in case of unexpected turbulence, but that the shoulder strap may be released (if releasable type) when airborne and permission has been given
- Mention the safety on board cards for more detailed information about the safety features (if available)

For aircraft with an executive cabin interior:

- Stow hand baggage in the seat or cabinet drawers
- Move the seat to the required position for takeoff (as per the placard adjacent to each seat)
- Position the seat headrest to support the head
- Stow the tables, cabinet drawers, seat drawers and legrests
- Switch off electronic equipment
- Fasten seat lap and shoulder belts, tighten lap strap
- Mention how to locate, remove and put on the passenger oxygen masks
- Mention the location and usage of the emergency exits
- Mention to remain buckled up during cruise in case of unexpected turbulence, but that the shoulder strap may be released once the fasten seat belt sign has been switched off
- Mention the safety on board cards for more detailed information about the safety features (if available)

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3. **BEFORE LANDING** (Section 4, para 4-14)

For aircraft with a standard cabin interior:

- Stow hand baggage under the seats
- Put the seat back in the upright position
- Position the seat headrest to support the head
- Switch off electronic equipment
- Fasten seat lap and shoulder belts, tighten lap strap
- Remain seated and buckled until the aircraft has come to a standstill and the engine is turned off

For aircraft with an executive cabin interior:

- Stow hand baggage in the seat or cabinet drawers
- Move the seat to the required position for landing (as per the placard adjacent to each seat)
- Position the seat headrest to support the head
- Stow the tables, cabinet drawers, seat drawers and legrests
- Switch off electronic equipment
- Fasten seat lap and shoulder belts, tighten lap strap
- Remain seated and buckled until the aircraft has come to a standstill and the engine is turned off

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ENGINE INSTRUMENT SYSTEM FAULT CODES

The flight crew are permitted to reset the following EIS fault codes using a maximum of three EIS power cycles.

1, 2, 3, 4, 5, 6, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 23, 24, 25, 35, 38, 39, 43, 47, 59, 65, 66, 69, 70, 71, 72, 74, 75, 76, 79, 88, 89, 90 and EIS unit caution light flashing (fault with the EIS internal self-test).

One EIS power cycle is as follows:

- Open circuit breaker EIS 1 and EIS 2
- Wait ten seconds
- Close circuit breaker EIS 1 and EIS 2
- After the EIS self test is complete, press the EIS Test button

If the fault code is still present after three EIS power cycles, replace the EIS unit.

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