



COSTRUZIONI AERONAUTICHE S.p.A.
NAPLES - ITALY

P68C

FLIGHT MANUAL

2nd ISSUE

NOR 10.707-1

SERIAL NUMBER

REGISTRATION NUMBER

COMPILED BY

R.A.I. APPROVED

FOR U.S. REGISTERED AIRPLANES, THIS MANUAL IS F.A.A. APPROVED IN ACCORDANCE WITH THE PROVISIONS OF 14 CFR SECTION 21.29 AND IS REQUIRED BY F.A.A. TYPE CERTIFICATE DATA SHEET NO. A31EU.

THIS MODEL IS INCLUDED IN THE F.A.A. TYPE CERTIFICATE DATA SHEET NO. A31EU REV. 4, DATED JULY 24, 1980.

THE A.F.M. IS R.A.I. APPROVED WITH LETTER NO. 158229/T
DATED JULY 23, 1979

THIS DOCUMENT MUST BE CARRIED IN THE AIRPLANE AT ALL THE
TIMES

Reprinted by Vulcanair

Rev. 20
DATE: 14 April 2010

This page intentionally left blank

TABLE OF CONTENTS

Section	Title	List of effective pages
	INTRODUCTION	1 through 6 Plus 5a; 5b
1	GENERAL	1-1 through 1-6
2	OPERATING LIMITATIONS R.A.I. approved pages: 2-1 through 2-9	2-1 through 2-9
3	EMERGENCY PROCEDURES R.A.I. approved pages: 3-1 through 3-7	3-1 through 3-11 Plus 3-5a
4	NORMAL PROCEDURES R.A.I. approved pages: 4-1 through 4-7	4-1 through 4-7
5	PERFORMANCE R.A.I. approved pages: 5-7; 5-9; 5-12; 5-14; 5-15	5-1 through 5-31 Plus 5-6a
6	EQUIPMENT LIST WEIGHT AND BALANCE R.A.I. approved pages: 6-1 through 6-40	6-1 through 6-40 Plus 6-19a; 6-19b
7	SUPPLEMENTS	7-1, 7-1a and Supplements of Equipment installed

LOG OF REVISIONS

REV. NO.	REVISED PAGES	DATE	R.A.I. APPROVAL	
			Letter No.	Dated
1	2-6			
1	6-6			
1	6-10 up to 6-17			
2	2-3			
2	2-7			
2	2-8			
2	2-9			
2	4-5			
2	6-3			
2	6-7			
2	6-8	JAN. 31, 1979	161286/T	DEC. 7, 1979
3	5-6a	JAN. 10, 1980	162541/T	FEB. 7, 1980
4	2-3			
	2-8	JULY 4, 1980	166666/T	JULY 25, 1980
5	3, 4-7, 6-1 up to 6-21, 7-1, Supplements	MAY 23, 1984	201.547/T	JUNE 26, 1984
6	3, 2-6, 4-1 5-1, 5-15, 5-28, 6-14 through 6-39 7-1	MAR. 15, 1985	210887/T	JUNE 18, 1985

NOTE: Rev. 2 applicable from S/N 210 onwards.

LOG OF REVISIONS

Revised Material Indicated by Black Vertical Line in Right Hand Margin

REV. NO.	REVISED PAGES	DATE	ENAC APPROVAL	
			Letter No.	Dated
7	3; 6; 1-2; 2-2; 2-3; 2-6; 2-7; 2-8; 2-9; 3-1; 3-2; 3-6; 3-7; 4-2; 4-3; 5-3; 5-6a; 5-15 Suppl. A, page 1 Suppl. B, page 1 Suppl. D, page 1 “ page 2	OCT. 18, 1985	221452/T	JULY 11, 1986
8	Suppl. L/1 Suppl. N	MAY 23, 1990	277978/SCMA	DEC. 23, 1991
9	Suppl. D1; 6-39	APR. 16, 1991	2387/SR	JULY 12, 1991
10*	3; 3-5a; 6-19a	APR. 07, 1992	281081/SCMA	MAY 12, 1992
11	6-30; 7-1; Suppl. G/1	AUG. 04, 1995	96/2205/MAE	MAY 28, 1996
12	6-25; 7-1; Suppl. E/1	DEC. 05, 1995	96/1465/MAE	APR. 10, 1996
13*	6-26; 7-1; Added Suppl. E/2	AUG. 06, 1999	99/3895/MAE	OCT. 25, 1999
14	6-22; 6-25	MAR. 27, 2000	00/2022/MAE	JULY 10, 2000
15	6-22; 6-26; 7-1; Added Suppl. P	MAY 24, 2000	00/2023/MAE	JULY 10, 2000
16	3; Added : 6-40; 7-1 a; Suppl. Q; Suppl. R; Suppl. S	MAY 24, 2000	00/2023/MAE 00/2024/MAE	JULY 10, 2000
17	Pending Issue			
18	6-40; 7-1a; Added Suppl. U	MAY 24, 2000	00/2023/MAE	JULY 10, 2000

Note:* Rev. 10 is applicable from S/N 391 onwards.

Rev. 13 is applicable for airplanes modified as per VulcanAir MOD.P68/04

LOG OF REVISIONS (Cont.)

REV NO.	REVISED PAGES	DATED	REF. APPROVAL	
			No.	Dated
19	3; 7-1a; Added pages 5a; 5b;	25 Sep. 2009	Under Authority of DOA No. EASA.21J.009 with No. AS-AFM/09/035	01 Oct. 2009
	Added Supplement W/1		EASA No. 10028664	02 Feb. 2010
20	Cover Page	14 Apr. 2010	Under Authority of DOA No. EASA.21J.009 with No. AS-AFM/10/026	16 Apr. 2010
21	3; 6-19a; 6-29; 7-1 Supplement B: Complete reprint; Added page 6-19b	01 Mar. 2011	Under Authority of DOA No. EASA.21J.009 with No. AS-AFM/11/008	01 Mar. 2010

This page intentionally left blank

APPLICABILITY

This Flight Manual, in the airplane at the time of delivery from Partenavia Costruzioni Aeronautiche S.p.A., contains all of the information applicable to the P68C airplanes powered by AVCO Lycoming engines model IO-360-A1B6.

REVISIONS

This Manual will be kept current by Revisions published by Partenavia Costruzioni Aeronautiche S.p.A.

These will be distributed to Partenavia Dealers whenever necessary as complete page replacement or addition and shall be inserted into the Manual in accordance with the instructions given below:

1. Revision pages will replace only pages with the same page number.
2. Insert all additional pages in proper numerical order within each section.
3. Page numbers followed by a small letter shall be inserted in direct sequence with the same common numbered page.

Revised text and illustrations shall be indicated by a black vertical line along the outside margin of the page, opposite revised, added or deleted material. A line along the outside margin of the page opposite the page number will indicate that an entire page was added.

Changes in capitalization, spelling, punctuation or the physical location of material on a page will not be identified.

SECTION 1 GENERAL

TABLE OF CONTENTS

	PAGE
INTRODUCTION	1-1
ASSOCIATED PUBLICATIONS	1-1
DIMENSIONS AND AREAS	1-2
CABIN, BAGGAGE COMPARTMENT AND ENTRY DIMENSIONS	1-4
ABBREVIATIONS	1-5
WEIGHT, VOLUME AND LENGTH CONVERSION GRAPHS	1-6

INTRODUCTION

This section of the Aircraft Flight Manual presents the basic aircraft data and general information which will be of value to the user.

ASSOCIATED PUBLICATIONS

Useful publications relating to equipment are listed below for the convenience of the user:

- 1) P68C MAINTENANCE MANUAL
- 2) LYCOMING ENGINE OPERATOR'S MANUAL
- 3) HARTZELL PROPELLER OWNER'S MANUAL

DIMENSIONS AND AREAS

A three view illustration, showing the principal dimensions of the Aircraft, appears in Fig. 1-1.

The following table shows the area values.

AREA (GROSS)	SQ. FEET	SQ. METRES
Wing	200.20	18.60
Wing Flaps	26.00	2.42
Ailerons	18.90	1.76
Fin & Rudder	21.80	2.02
Stabilator	41.40	3.85

**PARTENAVIA
P68C**

A.F.M. P/N NOR10.707-1
**Section 1
GENERAL**

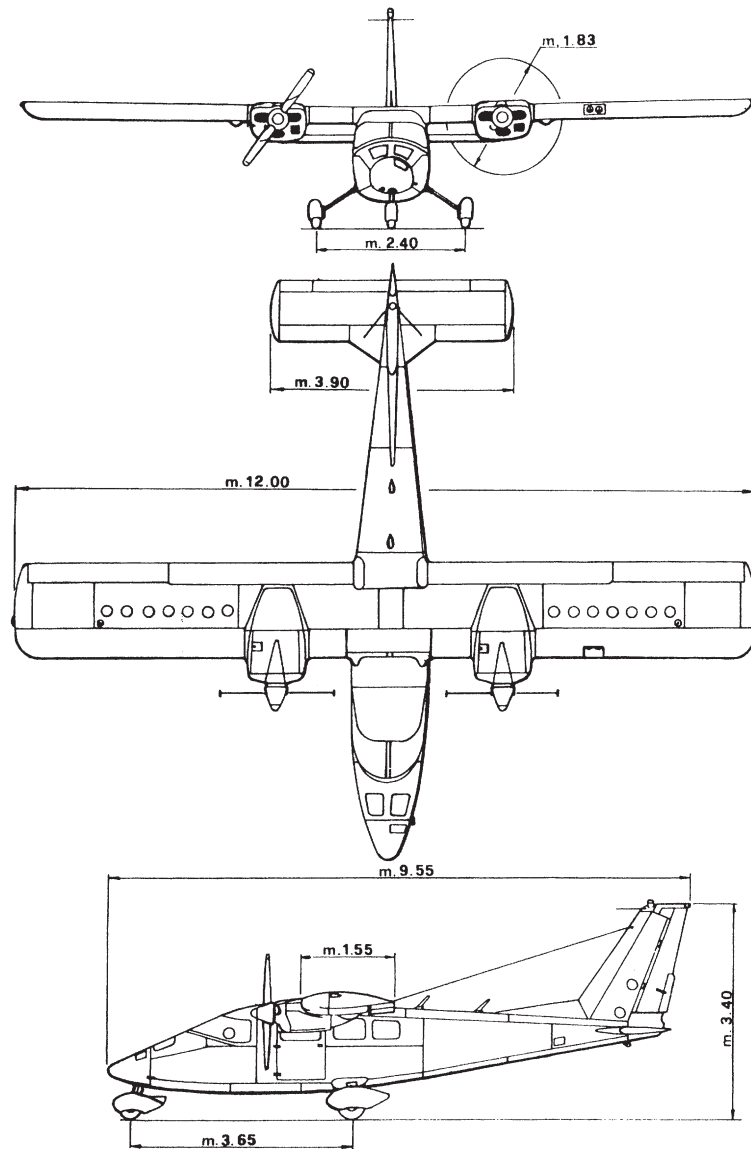


Figure 1-1
AIRCRAFT'S THREE VIEW

DATE: JULY 23, 1979

1-3

CABIN, BAGGAGE COMPARTMENT AND ENTRY DIMENSIONS

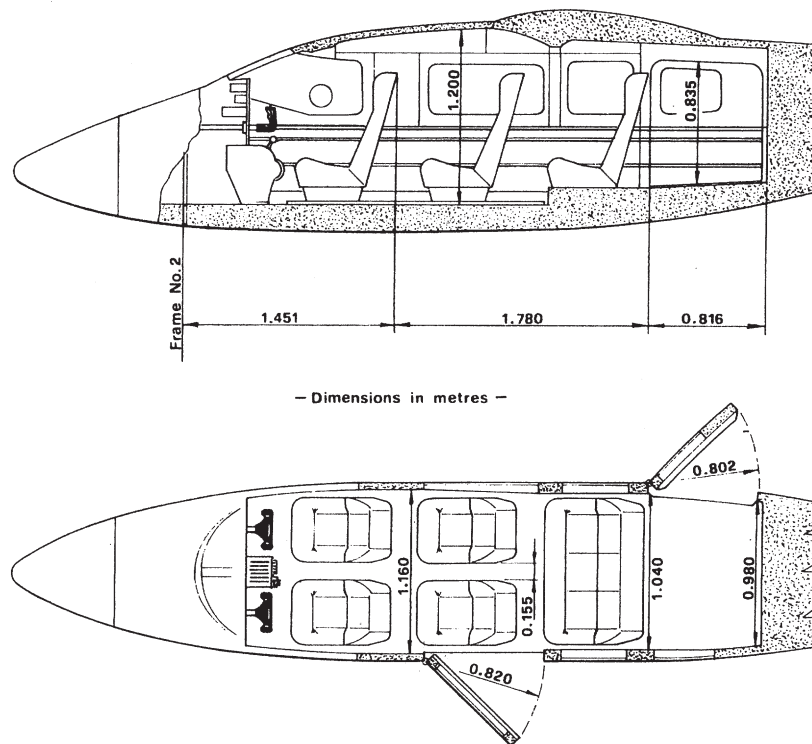


Figure 1-2

ABBREVIATIONS

AIRSPPEED

KLAS	Indicated Airspeed - Knots
KCAS	Calibrated Airspeed - Knots
KTAS	True Airspeed - Knots
V_x	Best Angle-of-Climb Speed
V_y	Best Rate-of-Climb Speed
R/C	Rate of Climb
V_{mc}	Minimum Control Speed
g	Gravity Acceleration

TEMPERATURE

°C	Temperature in degrees Celsius
°F	Temperature in degrees Fahrenheit
I.S.A.	International Standard Atmosphere
O.A.T.	Outside Air Temperature

POWER

BHP	Brake Horsepower
RPM	Revolution per minute (of the propeller shaft)
M.P.	Manifold Pressure (in inches of Hg)
CHT	Cylinder Head Temperature
MCP	Maximum Continuous Power

WEIGHT, VOLUME AND LENGTH CONVERSION GRAPHS

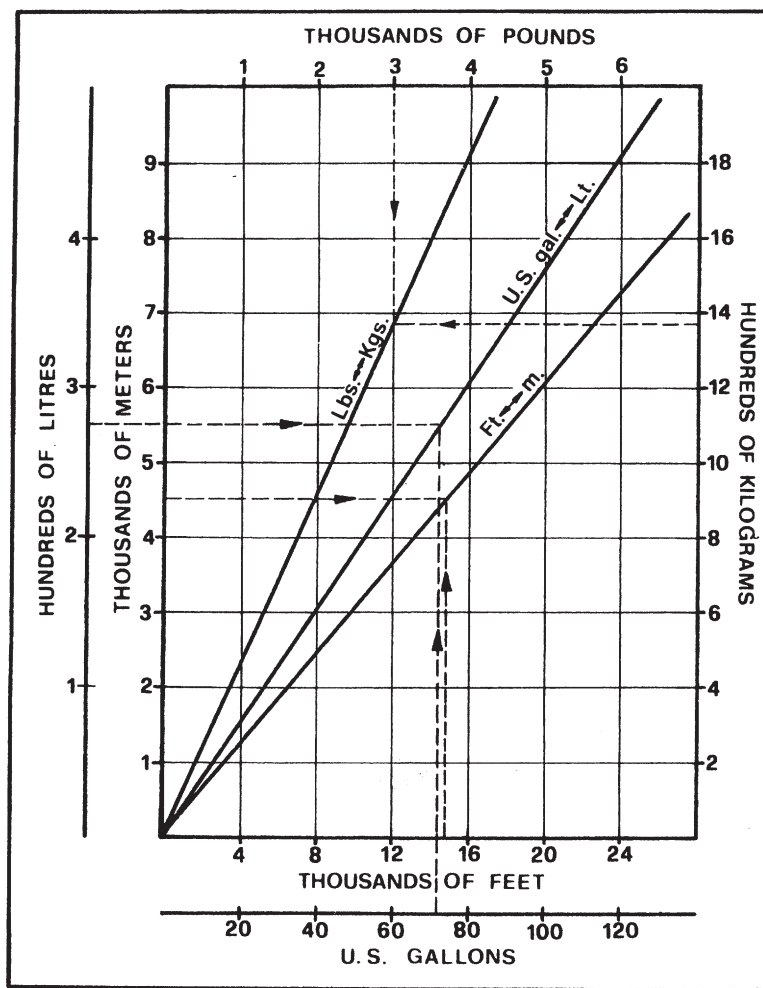


Figure 1-3

SECTION 2

OPERATING LIMITATIONS

TABLE OF CONTENTS

	PAGE
INTRODUCTION	2-1
POWERPLANT LIMITATIONS	2-2
POWERPLANT INSTRUMENT MARKINGS	2-3
AIRSPEED LIMITATIONS	2-4
MANOEUVRE LIMITS	2-5
FLIGHT LOAD FACTOR LIMITS	2-6
WEIGHT AND CENTER OF GRAVITY LIMITS	2-6
FLIGHT CREW AND MAXIMUM PASSENGER SEATING LIMITS	2-7
OPERATIONAL LIMITS	2-7
FLAP LIMITS	2-7
PLACARDS	2-7

INTRODUCTION

Section 2 of this Manual presents the operating limitations and their significance, instrument markings, color coding, and basic placards necessary for the safe operation of the aircraft, its power plant, standard systems and standard equipment.

NOTE

Refer to Section 7 of this Flight Manual for operating limitations for airplanes equipped with specific options.

POWERPLANT LIMITATIONS

Number of Engines: 2

Engine Manufacturer: AVCO LYCOMING

Engine Model: IO-360-A1B6

Engine Operating Limits:

- a. Maximum power for all operation
 1. 2700 RPM, 200 HP
 2. 475°F Max. Cylinder Head Temperature
 3. 245°F Max. Engine Oil Temperature

Oil Grade

Single or multi viscosity aviation grade oils, in accordance with the latest issue of Avco Lycoming Service Instruction 1014, should be used.

The following seasonal aviation oil grades and seasonal ambient temperature ranges are recommended:

AMBIENT TEMPERATURE	SINGLE VISCOSITY	MULTI VISCOSITY
Above 60 °F (15.5 °C)	SAE 50	SAE 40 or 50
30 to 90 °F (-1 to 32 °C)	SAE 40	SAE 40
0 to 70 °F (-18 to 21 °C)	SAE 30	SAE 40 or 30
Below 10 °F (-12 °C)	SAE 20	SAE 30

Oil Pressure

- a. Minimum for idle: 25 PSI
- b. Maximum: 90 PSI

Oil Quantity

- a. Total Capacity: 8 Qts. (7.5 lts) per engine
- b. Usable: 6 Qts (5.7 lts) per engine

Fuel grade

- a. 100/130 Minimum Grade Aviation Gasoline

Fuel Pressure

- a. Maximum 12 PSI

Fuel Quantity

- a. 68.5 U.S. Gals. (260 lts.) usable fuel in each tank
- b. 2.5 U.S. Gals. (9 lts.) unusable fuel in each tank

Use of isopropyl alcohol is approved as fuel anti-ice additive in concentration no more than 1% by volume of the total fuel quantity.

NOTE

To obtain maximum fuel capacity, fill one tank then the other tank, and then return to first tank and top up.

PROPELLER OPERATING LIMITS

- a. Number of Propellers: 2
- b. Manufacturer: Hartzell
- c. Model Number: HC-C2YK-2C () F/FC7666A-4
- e. Diameter: 72 inches
- d. Number of blades: 2
- f. Blade angle range (at 30 in. station)
 - 1. Low Pitch: $14.2^{\circ} \pm 0.2^{\circ}$
 - 2. Feather: $81.2^{\circ} \pm 0.3^{\circ}$

POWERPLANT INSTRUMENT MARKINGS

Oil Temperature

- a. Green Arc (Normal) 75 to 245 °F
- b. Red Radial (Maximum) 245 °F

Oil Pressure

- a. Red Radial (Minimum for Idle) 25 PSI
- b. Green Arc (Normal) 60 to 90 PSI
- c. Red Radial (Maximum) 90 PSI

Cylinder Head Temperature

- a. Green Arc (Normal) 200° to 475 °F
- b. Red Radial (Maximum) 475 °F

Tachometer

- a. Green Arc (Normal) 550 to 2700 RPM
- b. Red Radial (Maximum) 2700 RPM

Fuel Pressure

- a. Red Radial (Maximum) 12 PSI

Suction

- a. Green Arc (Normal) 4.5 to 5.2 In. Hg

REV. 7

R.A.I. Approval No. 221452/T

DATE: JULY 11, 1986

AIRSPEED LIMITATIONS

AIRSPEED LIMITATION TABLE

SPEED	KIAS	REMARKS	KCAS
Maneuvering Speed, V_A	130	Do not make full or abrupt control movements above this speed	126
Maximum Flap Extended Speed V_{FE} 0° to 17° 17° to 30° 30° to 35°	157 143 101	Do not exceed this speed with the given flap setting	152 138 99
Minimum Control Speed, V_{MC}	62	This is the lowest speed at which the aircraft is controllable with a bank of not more than 5° when one engine suddenly becomes inoperative and the other engine is operating at Take-off power	60
Never Exceed Speed, V_{NE}	200	Do not exceed this speed in any operation	193
Maximum Structural Cruising Speed, V_{NO}	158	Do not exceed this speed except in smooth air and then only with caution	153

AIRSPEED INDICATOR MARKINGS

MARKING	KIAS VALUE OR RANGE	SIGNIFICANCE
Red Radial	62	Minimum Control Speed
White Arc	61 to 101	Full Flap Operating Range, Lower Limit is maximum weight stalling speed in Landing configuration. Upper limit is maximum speed permissible with flaps extended.
Blue Radial	88	One Engine Inoperative Best Rate of Climb Speed
Green Arc	66 to 158	Normal Operating Range. Lower Limit is maximum weight stalling speed with flaps retracted. Upper limit is maximum structural cruising speed
Yellow Arc	158 to 200	Operations must be conducted with caution and only in smooth air
Red Radial	200	Maximum Speed for all operation

CROSSWIND

- a. Maximum demonstrated crosswind velocity for take-off and landing
25 KTS

MANOEUVRE LIMITS

This is a normal category airplane. Acrobatic maneuvers, including spins, are prohibited.

When above the Maneuvering Speed (130 KIAS), the controls must not be fully deflected.

FLIGHT LOAD FACTOR LIMITS

At the Maximum Gross Weight of 4387 Pounds:

- a. Flaps 0°: + 3.80 g to — 1.52 g
- b. Flaps 35°: + 2.00 g to — 0.80 g

WEIGHT AND CENTER OF GRAVITY LIMITS**Weight Limits**

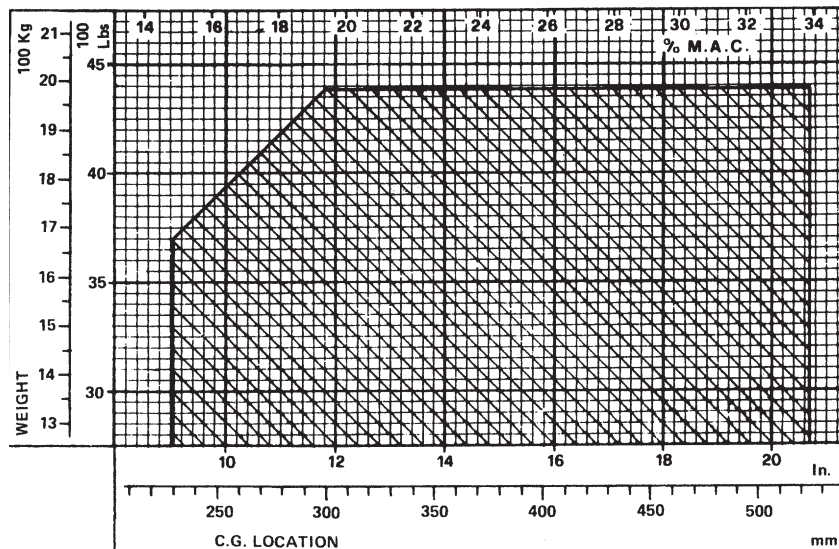
- a. Maximum Take-off Weight: 4387 Lbs (1990 Kg)
- b. Maximum Landing Weight: Up to S/N 380/XX-TC: 4167 Lbs (1890 Kg)
S/N 381 and on: 4365 Lbs (1980 Kg)
- c. Maximum Weight in baggage compartment: 400 Lbs (181 Kg)

Center of Gravity Limits (see Figure 2-1)

20.7 inches (34% M.A.C.) aft of Datum at all weights.

- b. Forward Limits:
11.8 inches (19.36% M.A.C.) aft of Datum at 4387 Lbs (1990 Kg)
9.06 inches (14.84% M.A.C.) aft of Datum at 3704 Lbs (1680 Kg)
or less with straight line variation between these points.

Datum location is at wing leading edge.



REV. 7

R.A.I. Approval No. 221452/T

DATE: JULY 11, 1986

FLIGHT CREW AND MAXIMUM PASSENGER SEATING LIMITS

- a. The minimum flight crew is one pilot seated in the left-hand pilot seat.
- b. The total number of persons carried in the aircraft should not exceed the number of seats, equipped with safety belts, and in any case should not exceed seven (two in the 1st row, two in the 2nd row and three on the bench-seat).

OPERATIONAL LIMITS

The standard airplane is approved for day and night operation under VFR conditions.

With the proper optional equipment installed and operational, the airplane is approved for day and night IFR operations.

This airplane has not been approved for flight into icing conditions.

FLAP LIMITS

Do not lower flaps with cargo door open.

PLACARDS

On Emergency Window

- a. "EMERGENCY EXIT"
 - " 1. PULL LOWER HANDLE
 2. SLIDE UPPER LEVER RIGHT
 3. PUSH WINDOW OUT "

Near Fuel Selector Valves:

- a. "TAKE-OFF AND LAND WITH AUXILIARY FUEL PUMPS ON"
- b.

RIGHT TANK 68.5 gals.			LEFT TANK 68.5 gals.		
LEFT ENGINE			RIGHT ENGINE		
L.H. TANK	—|—	ENG. SHUT OFF	ENG. SHUT OFF	—|—	R.H. TANK
68.5 gals.					68.5 gals.

REV. 7

R.A.I. Approval No. 221452/T

DATE: JULY 11, 1986

2-7

Section 2
OPERATING LIMITATIONS

PARTENAVIA
P68C

On Overhead Panel:

a. "OPERATIONAL LIMITS"

"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 aerobatic manouvers, including spins, approved.

Minimum Single Engine Control Speed: 62 KIAS

Maneuvering Speed: 130 KIAS

Demonstrated Crosswind Velocity for Take-off and Landing: 25 kts

One Engine Inoperative Stall:

Max. Altitude Loss: 600 ft

Max. Pitch Angle: 30°.

b. "WARNING

— Do not lower flaps with cargo door open.

— Expect large trim change with flaps.

— Maximum flaps extension speed:

0° - 17° : 157 KIAS

17° - 30° : 143 KIAS

30° - 35° : 101 KIAS

c. "PARKING BRAKE - To apply brakes, depress rudder pedals and pull knob, then release pedal pressure.

To release brakes, push knob".

On Instrument Panel:

a. "Stall warning inoperative with battery and alternators OFF"

b. "VFR"

"IFR"

"DAY" or "NIGHT" as applicable

c. "Calibration placard of the magnetic compass

d. "WARNING - When flying in high humidity enviroment at any air temperature, open the engine alternate air doors"

e. "Flight in know icing conditions prohibited"

f. "To avoid optical illusion and severe vertigo, turn anti-collision lights OFF upon entering clouds, fog or haze".

On Electrical Panel:

a. "When starting on external power select "OFF" both alternators and battery"

On Aft Cabin Wall:

- a. "Maximum baggage capacity: 400 lbs (181 Kg)
maximum distributed load on cabin and cargo floor: 200 lb/sq.ft.
(977 Kg/sq. mt.)

On Engine Control Pedestal:

- a. "OPEN - THROTTLE - CLOSED"
- b. "INCR. - PROPELLER - RPM - DECR - FEATHER"
- c. RICH - MIXTURE - LEAN - IDLE CUT-OFF"
- d. Near Stabilator Trim Control:
"NOSE DOWN - NOSE UP"
- e. Near Rudder Trim Control:
"L - O - R"
- f. On Rudder Trim Control:
"L - NOSE - R"

On the door:

- a. "OPEN - LOCKED"

Near Each Fuel Filler Cap:

- a. "Full Tank Capacity 71 U.S. Gals. (269 lts)
— 100/130 Minimum Grade aviation gasoline"

Near the Oil Filler Cap:

- a. "Oil - 8 Qts. (7.5 lts) capacity"

This page intentionally left blank

SECTION 3

EMERGENCY PROCEDURES

TABLE OF CONTENTS

	PAGE
INTRODUCTION	3-1
ENGINE INOPERATIVE PROCEDURES	3-2
FLIGHT INSTRUMENTS EMERGENCY PROCEDURES	3-4
ELECTRICAL SYSTEM EMERGENCY PROCEDURES	3-4
SPINS	3-5
FIRE PROCEDURES	3-6

INTRODUCTION

This Section of the Flight Manual describes the approved procedures for emergency situations.

NOTE

Refer to Section 7 of this Flight Manual for emergency procedures for aircraft equipped with specific options.

**REV. 7
R.A.I. Approval No. 221452/T
DATE: JULY 11, 1986**

ENGINE INOPERATIVE PROCEDURES

- a. ENGINE FAILURE DURING TAKE-OFF — SPEED BELOW 62 KIAS
 - 1. Throttles — CLOSE IMMEDIATELY
 - 2. Brakes — AS REQUIRED
- b. ENGINE FAILURE DURING TAKE-OFF — SPEED ABOVE 62 KIAS
RUNWAY STILL AVAILABLE FOR LANDING
 - 1. Close Throttle
 - 2. Maintaining direction, land directly.
- c. ENGINE FAILURE DURING TAKE-OFF — SPEED ABOVE 62 KIAS
NO RUNWAY AVAILABLE FOR LANDING
 - 1. Mixtures — FULL RICH
 - 2. Propellers — FULL FORWARD
 - 3. Throttles — FULL FORWARD
 - 4. Establish Best Angle-of-Climb Speed V_x — 76 KIAS and bank 5° towards operative engine.
 - 5. Inoperative engine:
 - (1) Throttle — CLOSE;
 - (2) Propeller — FEATHER;
 - (3) Mixture — IDLE CUT-OFF.
 - 6. Flaps — RETRACT (if extended)
 - 7. Best Rate-of-Climb Speed V_y — 88 KIAS
 - 8. Trim Tabs — ADJUST
 - 9. Inoperative Engine — SECURE as follows:
 - (1) Fuel Selector — ENG. SHUT-OFF;
 - (2) Auxiliary Fuel Pump — OFF;
 - (3) Magneto Switches — OFF;
 - (4) Alternator—OFF.
 - 10. As soon as practical — LAND.
- d. PROCEDURE FOR BEST PERFORMANCE AFTER ENGINE
FAILURE DURING CRUISE FLIGHT
 - 1. Inoperative Engine — SECURE (Refer to items c-5 and c-9)
 - 2. Operative Engine — ADJUST as required
 - 3. Trim Tabs — ADJUST
 - 4. Fuel Valves Position:
 - (1) Inoperative Engine — ENG. SHUT-OFF
 - (2) Operative Engine — ON (also see Crossfeed Procedure)
 - 5. Electrical Load — DECREASE to minimum required
 - 6. As soon as practical — LAND.

- e. ENGINE INOPERATIVE LANDING
 - 1. Operative Engine:
 - (1) Fuel Selector — ON;
 - (2) Mixture — FULL RICH;
 - (3) Propeller — FORWARD
 - (4) Auxiliary Fuel Pump — ON
 - 2. Flaps — EXTEND 15°
 - 3. Approach Speed — 90 KIAS
 - 4. Flaps — FULL DOWN only when Landing assured
 - 5. Speed — BELOW 90 KIAS only when Landing assured.
- f. ENGINE INOPERATIVE GO AROUND
 - 1. Power — 2700 RPM and FULL THROTTLE
 - 2. Flaps — UP or 15° if extended
 - 3. Trim — ADJUST for Climb with 5° bank toward operative Engine
 - 4. Speed — Best Angle of Climb — 76 KIAS
 - 5. Speed — Best Rate of Climb — 88 KIAS
- g. ENGINE RESTART IN FLIGHT
 - 1. Fuel Selector — ON
 - 2. Magneto Switches — ON
 - 3. Auxiliary Fuel Pump — ON
 - 4. Throttle — FORWARD approximately 1/2 inch.
 - 5. Propeller — FULL FORWARD
 - 6. Mixture — RICH, until, a fuel flow is indicated, then IDLE CUT-OFF
 - 7. Starter — PRESS; when engine fires, RELEASE Starter and move Mixture toward FULL RICH (The Mixture Lever should be advanced in function of the Altitude).
 - 8. Auxiliary Fuel Pump — OFF
 - 9. Alternator — ON

NOTE

If start is unsuccessful, turn inoperative engine magneto switches OFF, retard mixture to IDLE CUT-OFF, open throttle fully, and engage starter for several revolutions. Then repeat airstart procedure.

- h. FUEL CROSSFEED PROCEDURE
 - 1. Right Tank to Left Engine (Right Engine Shut-Off);
 - (1) L/H Fuel Selector — RIGHT TANK;
 - (2) R/H Fuel Selector — ENG. SHUT-OFF.

Section 3
EMERGENCY PROCEDURES

PARTENAVIA
P68C

2. Left Tank to Right Engine (Left Engine Shut-Off):
 - (1) R/H Fuel Selector — LEFT TANK;
 - (2) L/H Fuel Selector — ENG. SHUT-OFF.
 3. Right Tank to Both Engines:
 - (1) R/H Fuel Selector — RIGHT TANK;
 - (2) L/H Fuel Selector — RIGHT TANK.
 4. Left Tank to Both Engines:
 - (1) R/H Fuel Selector — LEFT TANK;
 - (2) L/H Fuel Selector — LEFT TANK.
- i. FUEL SYSTEM INDEPENDENCE
To render right side fuel system completely independent from left side fuel system, position each fuel selector on to corresponding tank.

FLIGHT INSTRUMENTS EMERGENCY PROCEDURES

- a. VACUUM SYSTEM (Attitude and Directional Gyros)
 1. Red Indicator on Gauge will show Failure.
 2. Automatic Valve will select Operative Source.
- b. STATIC ALTERNATE AIR SOURCE ACTUATION
In the event of ice, foreign matter or other causes obstructing the external static sources, actuate the alternate static air source control located on the left hand side of the engine pedestal.
The corrections of Altitude and Airspeed do not exceed – 30 ft and – 4 Kts respectively, when using the alternate static air source.

ELECTRICAL SYSTEM EMERGENCY PROCEDURES

- a. ONE ALTERNATOR FAILURE LIGHT COMES ON
 1. Check output of affected alternator;
 2. If output is normal, disregard light and have the system checked after landing;
 3. If output is zero, insufficient or fluctuating, switch OFF the Alternator and PULL the related Breaker.
- b. BOTH ALTERNATOR FAILURE LIGHTS COME ON
 1. Electrical Load — REDUCE
 2. Left Alternator:
 - (1) Check output;

R.A.I. Approval No. 158229/T
DATE: JULY 23, 1979

- (2) If output is normal, disregard left alternator Failure Light and have the system checked after landing;
If output is zero, insufficient or fluctuating, switch OFF left alternator and PULL the related breaker.
3. Right Alternator:
 - (1) Check output;
 - (2) If output is normal, disregard right alternator Failure Light and have the system checked after Landing;
 - (3) If output is zero, insufficient or fluctuating, switch OFF right alternator and PULL the related breaker.

WARNING

IF BOTH ALTERNATORS HAVE BEEN SWITCHED OFF, REDUCE THE ELECTRICAL LOADS TO THE MINIMUM REQUIRED AND PREPARE TO TERMINATE THE FLIGHT.

SPINS

All spins are prohibited, however in the event an unintentional spin is encountered, recovery can be accomplished by immediately using the following procedure.

1. Retard both throttles to the idle position.
2. Apply full rudder in the opposite direction to the spin.
3. Push control wheel full forward.
4. Maintain controls in these position until the spin stops.
Then neutralize rudder.
5. Recover from dive with smooth back pressure in the control wheel.
No abrupt control movement should be used during recovery from the dive, as the manoeuvring speed and positive limit manoeuvring load factor may be exceeded.

NOTE

The aircraft has not been flight tested in spins, thus the above recommended procedure is based entirely on Partenavia's best judgment.

Section 3
EMERGENCY PROCEDURES

PARTENAVIA
P68C

- (2) If output is normal, disregard left alternator Failure Light and have the system checked after landing:
If output is zero, insufficient or fluctuating, switch OFF left alternator and PULL the related breaker.
3. Right Alternator:
 - (1) Check output;
 - (2) If output is normal, disregard right alternator Failure Light and have the system checked after Landing;
 - (3) If output is zero, insufficient or fluctuating, switch OFF right alternator and PULL the related breaker.

WARNING

IF BOTH ALTERNATORS HAVE BEEN SWITCHED OFF, REDUCE THE ELECTRICAL LOADS TO THE MINIMUM REQUIRED AND PREPARE TO TERMINATE THE FLIGHT.

NOTE

VHF1 System can be powered directly from battery by switching ON "COM 1 / NAV 1" Emergency power.

SPINS

All spins are prohibited, however in the event an unintentional spin is encountered, recovery can be accomplished by immediately using the following procedure.

1. Retard both throttles to the idle position.
2. Apply full rudder in the opposite direction to the spin.
3. Push control wheel full forward.
4. Maintain controls in these position until the spin stops.
Then neutralize rudder.
5. Recover from dive with smooth back pressure in the control wheel.
No abrupt control movement should be used during recovery from the dive, as the manoeuvring speed and positive limit manoeuvring load factor may be exceeded.

NOTE

The aircraft has not been flight tested in spins, thus the above recommended procedure is based entirely on Partenavia's best judgment.

REV. 10 (applicable from S/N 391 onwards)
R.A.I. Approval No. 281081/SCMA
DATE: MAY 12, 1992

This page intentionally left blank

FIRE PROCEDURES

FIRE ON THE GROUND

- a) **ENGINE FIRE**
 - 1. Fuel Selectors — ENG. SHUT-OFF
 - 2. Mixtures — IDLE CUT-OFF
 - 3. Throttles — CLOSE
 - 4. Battery and Alternators — OFF (Use Gang Bar)
 - 5. Brakes — AS REQUIRED
 - 6. As Soon As Practical — EVACUATE AIRPLANE
- b) **ELECTRIC OR CABIN FIRE**
 - 1. Throttles — CLOSE
 - 2. Mixtures — IDLE CUT-OFF
 - 3. Battery and Alternators — OFF (Use Gang Bar)
 - 4. Brakes — AS REQUIRED
 - 5. As Soon As Practical — EVACUATE AIRPLANE

If possible, attempt to deal with fire using fire extinguisher located beneath pilot seat.

FIRE IN THE AIR

- c) **ENGINE FIRE**
 - 1. Affected Engine — IDENTIFY
 - 2. Fuel Selector — ENG. SHUT-OFF
 - 3. Mixture — ENG. SHUT-OFF
 - 4. Throttles — CLOSE
 - 5. Propeller — FEATHER
 - 6. Cabin Heater — OFF
 - 7. Engine Securing Procedure — COMPLETE:
 - a. Auxiliary fuel pump — OFF
 - b. Magneto Switches — OFF
 - c. Alternator — OFF
 - d. Crossfeed — AS REQUIRED
 - 8. As Soon As Practical — LAND

WARNING

Should fire die out, do not attempt to relight engine.

d) ELECTRIC OR CABIN FIRE

1. Fire Source — ATTEMPT TO ISOLATE
(Use fire extinguisher located beneath pilot's seat)
2. Electric Load — REDUCE TO MINIMUM
3. Cabin Ventilating Outlets — OPEN
4. As Soon as Practical — LAND

This page intentionally left blank

SECTION 4

NORMAL PROCEDURES

TABLE OF CONTENTS

	PAGE
INTRODUCTION	4-1
PRE-FLIGHT INSPECTION	4-2
BEFORE ENGINE STARTING	4-2
ENGINE STARTING	4-2
BEFORE TAXYING	4-4
TAXYING	4-4
ENGINES RUN-UP	4-4
BEFORE TAKE-OFF	4-5
TAKE-OFF	4-5
CLIMB	4-5
CRUISE	4-5
BEFORE LANDING	4-6
BAULKED LANDING	4-6
AFTER LANDING	4-6
SECURING AIRCRAFT	4-6

INTRODUCTION

This Section of the Flight Manual describes the recommended procedures for the conduct of normal operations.

NOTE

Refer to Section 7 of the Flight Manual for normal procedures for aircraft equipped with specific option.

PRE-FLIGHT INSPECTION

1. Check for general serviceability and cleanliness of all external surfaces, intakes and aerals; accumulated frost or snow must be adequately removed.
2. Check security of access panels and fuel tank caps.
3. Check fuel sump drains for water accumulation.
4. Examine nose oleo gear for obvious pressure faults and inspect tyres for creeping and conditions; check the brake hoses for general serviceability and look for signs of fluid leakage in this area.
5. See that all external locks and covers are removed and stowed.

CAUTION

If fluid de-frosting preparation are used to clear ice and snow from wing and tail surfaces, ensure that the solutions do not contaminate the control surface ball bearings as this leads to seizure.

BEFORE ENGINE STARTING

1. Preflight Inspection — COMPLETE
2. Cabin Door — LATCHED
3. Seat, Seat Belts and Shoulder Harness — ADJUST and SECURE
4. Brakes — TEST and SET
5. Circuit Breakers — IN
6. All Switches — OFF
7. Avionics — OFF
8. Auxiliary Fuel Pumps — OFF
9. Altimeter and Clock — SET
10. Throttles — OPEN 1/2 INCH.
11. Propellers — FULL FORWARD
12. Mixtures — IDLE CUT-OFF
13. Light Dimming Switches — AS REQUIRED
14. Fuel Selectors: RH. ENG. — RH. TANK/LH. ENG. — LH. TANK
15. Alternate Air Controls — OFF
16. Battery — ON; Check Fuel Quantity and then OFF.

ENGINE STARTING (LEFT ENGINE FIRST)

- a. WITH A/C BATTERY
 1. Battery and Alternators — ON
 2. Anticollision Light — ON

REV. 7

R.A.I. Approval No. 221452/T

DATE: JULY 11, 1986

3. Left Magneto Switch — ON
4. Auxiliary Fuel Pump — ON
5. Mixture Control — RICH until a stabilized fuel flow is indicated, then IDLE CUT-OFF
6. Propeller — CLEAR
7. Starter — ENGAGE
8. Mixture Control — ADVANCE as engine starts
9. Magneto Switches — ON
10. Oil Pressure — CHECK to see that the oil pressure rises within 30 seconds (except in very cold weather, when it may take somewhat longer). If the oil pressure gauge does not show an indication, shut down the engine and have it checked.
11. Starter light — CHECK OFF
If starter light remains on, shut down the engine and investigate.
12. Auxiliary Fuel Pump — OFF
13. Throttle — 1000 RPM
14. Right Engine — START — Repeat steps 3 through 12
15. Alternators — CHECK
Note: Check Voltage output 27.5 ± 0.5 V. If alternator output is low, shut down the engine and investigate.

b. WITH EXTERNAL POWER

1. Battery and Alternators — OFF
2. External Power Source — ATTACH
3. Anticollision Light — ON
4. Left Magneto Switch — ON
5. Auxiliary Fuel Pump — ON
6. Mixture Control — RICH until a stabilised fuel flow is indicated, then IDLE CUT-OFF
7. Propeller — CLEAR
8. Starter — ENGAGE
9. Mixture Control — ADVANCE as engine starts
10. Magneto Switches — ON
11. Oil Pressure — CHECK to see that the oil pressure rises within 30 seconds (except in very cold weather, when it may take somewhat longer). If the oil pressure gauge does not show an indication, shut down the engine and have it checked.
12. Auxiliary Fuel Pump — OFF
13. Throttle — 1000 RPM
14. Right Engine — START; repeat steps 4 through 13.
15. External Power Source — REMOVE.

Section 4
NORMAL PROCEDURES

PARTENAVIA
P68C

16. Battery — ON
17. Alternators — ON and CHECK

BEFORE TAXYING

1. Wing Flaps — CHECK full Range and then UP
2. Avionics — SET
3. Lights — AS REQUIRED
4. Brakes — RELEASE

TAXYING

1. Throttles — AS REQUIRED
2. Brakes — CHECK
3. Rate Gyros — CHECK

ENGINES RUN-UP

1. Parking Brake — SET
2. Fuel Selectors: RH. ENG. — RH. TANK/LH. ENG. — LH. TANK
3. Auxiliary Fuel Pumps — OFF.
4. Mixture — FULL RICH
5. Propellers — FULL FORWARD
6. Alternate Air — OFF
7. Throttles — 1200 RPM
8. Left Engine:
 - (1) Throttle — FORWARD to 1500 RPM;
 - (2) Alternate Output — CHECK;
 - (3) Vacuum Gauge — CHECK 4.5 to 5.2 inches Hg.;
 - (4) Propeller — CHECK feathering to 1000 RPM; return to high RPM;
 - (5) Mixture — CHECK;
 - (6) Alternate Air — ON, then OFF again;
 - (7) Throttle — FORWARD to 2100 RPM;
 - (8) Magnetos — CHECK 175 RPM, maximum drop with a maximum differential of 50 RPM — Normal drop: 100 RPM;
 - (9) Throttle — 1200 RPM;
9. Right Engine — Repeat steps 8. (1) through 8. (9).

R.A.I. Approval No. 158229/T
DATE: JULY 23, 1979

BEFORE TAKE-OFF

1. Flight Instruments — CHECK and SET
2. Engine Gages — CHECK green Arc
3. Wing Flaps — SET for Take-Off
4. Rudder Trim — SET
5. Stabilator Trim — SET for Take-Off (White Arc)
6. Auxiliary Fuel Pumps — ON
7. Seat Belts — FASTENED
8. Flight Controls — CHECK, free and correct
9. Mixture — FULL RICH
10. Propellers — FULL FORWARD
11. Alternate Air — OFF
12. Quadrant Friction — ADJUSTED

WARNING

WHEN FLYING IN HIGH HUMIDITY
ENVIRONMENT AT ANY AIR TEMPERA-
TURE, OPEN THE ENGINE ALTERNATE
AIR DOORS.

TAKE-OFF

1. Power — 2700 RPM and FULL THROTTLE
2. Air Minimum Control Speed — 62 KIAS
3. Stabilator Control — Raise Nose Wheel at 65 KIAS
4. Best Angle of Climb Speed — 76 KIAS

CLIMB

1. Wing Flaps — RETRACT at safe Altitude
2. Auxiliary Fuel Pumps — OFF at safe Altitude
3. Maximum Climb Power — 2700 RPM and FULL THROTTLE
4. Best Rate of Climb Speed — 90 KIAS

CRUISE

1. Throttles — SET
2. Propellers — SET
3. Mixtures — SET

BEFORE LANDING

1. Fuel Selectors: RH. ENG. — RH. TANK/LH. ENG. — LH. TANK
2. Auxiliary Fuel Pumps — ON
3. Mixtures — FULL RICH
4. Propellers — FULL FORWARD
5. Wing Flaps — DOWN 15° below 157 KIAS
6. Wing Flaps — DOWN 30° below 143 KIAS
7. Wing Flaps — DOWN 35° below 101 KIAS
8. Approach Speed — 76 KIAS Minimum
9. Air Minimum Control Speed — 62 KIAS

BAULKED LANDING

1. Power — 2700 RPM and FULL THROTTLE
2. Baulked Landing Transition Speed — 76 KIAS
3. Flaps — REDUCE to 15°
4. Trim — ADJUST for Climb
5. Flaps — RETRACT when all Obstacles are cleared and a safe Altitude and Airspeed are obtained.

AFTER LANDING

1. Auxiliary Fuel Pumps — OFF
2. Wing Flaps — UP
3. Unnecessary Avionics — OFF

SECURING AIRCRAFT

1. Parking Brake — SET
2. Avionics — OFF
3. All Switches, except Battery, Alternator and Magneto Switches OFF
4. Throttle — IDLE
5. Propellers — FORWARD
6. Mixtures — IDLE CUT-OFF
7. Magneto Switches — OFF after Engines stop
8. Battery and Alternators — OFF
9. Fuel Selectors — OFF
10. Control Locks — INSTALL

NOISE ABATEMENT

An increased emphasis on improving the quality for our environment, requires effort on the part of the pilots to minimize the effect of the airplane noise on the public.

The noise level, determined according to FAR36 (ICAO Annexe 16) regulations for the P68C at maximum continuous power is 76.8 dB (A). In conformity with above regulations, the maximum noise level permitted for the P68C is 80 dB (A) at highest power in the normal operating range.

NOTE

No determination has been made by the Federal Aviation Administration that the noise levels of this airplane are or should be acceptable or unacceptable for operation at, into or out of any airport.

The C. of A. of P68C S/N has been issued with noise certification statement according to above regulations.

This page intentionally left blank

SECTION 5

PERFORMANCE

TABLE OF CONTENTS

	PAGE
INTRODUCTION	5-2
SAMPLE PROBLEM	5-2
AIRSPED CALIBRATION	5-7
ALTIMETER CORRECTION	5-7
TEMPERATURE CONVERSION	5-8
STALL SPEEDS	5-9
WIND COMPONENT	5-10
TAKE-OFF DISTANCE	5-11
RATE-OF-CLIMB — MAXIMUM CLIMB	5-12
RATE-OF-CLIMB — CRUISE CLIMB	5-13
RATE-OF-CLIMB — SINGLE ENGINE	5-14
RATE-OF-CLIMB — BAULKED LANDING	5-15
TIME AND FUEL TO CLIMB — MAXIMUM CLIMB	5-16
DISTANCE TO CLIMB — MAXIMUM CLIMB	5-17
TIME AND FUEL TO CLIMB — CRUISE CLIMB	5-18
DISTANCE TO CLIMB — CRUISE CLIMB	5-19
CRUISE PERFORMANCE - BEST ECONOMY MIXTURE	
Sea Level	5-20
3000 Feet	5-21
6000 Feet	5-22
9000 Feet	5-23
12000 Feet	5-24
RANGE PROFILE	5-25
OPERATING ENVELOPE	5-26
TIME, FUEL AND DISTANCE TO DESCENT	5-27
LANDING DISTANCE	5-28
PAYLOAD Vs. RANGE (75% RATED POWER)	5-29
PAYLOAD Vs. RANGE (65% RATED POWER)	5-30
PAYLOAD Vs. RANGE (55% RATED POWER)	5-31

NOTE

Refer to Section 7 of the Flight Manual for performance for aircraft equipped with specific options.

INTRODUCTION

Performance data charts presented in this Section may be used, to know what to expect from aircraft under various conditions, and also to facilitate the planning of flights with reasonable accuracy. The data on graphical and tabular charts have been averaged from actual flight tests, with the aircraft and engines in good condition, and using average piloting techniques.

NOTE

Performance loss should be expected when incorporating external modifications causing a significant increase in the aerodynamic drag.

SAMPLE PROBLEM

CONDITIONS

AIRPLANE

Airplane Weight.		4200 Pounds
Usable Fuel Load		370 Pounds

TAKE-OFF

Airport Altitude	2000 Feet
Temperature	21°C (I.S.A. + 10°C)
Wind Component along runway	5 Kts.-Tailwind

CRUISE

Total required Distance.	450 n.m.
Altitude	6000 Feet
Temperature	3°C (I.S.A.)

LANDING

Airport Altitude	2000 Feet
Temperature	21°C (I.S.A. + 10°C)
Wind Component along runway	5 Kts.-Headwind

PROCEDURE

TAKE-OFF

The measured take-off distances are reported in figure 5-5 as a function of ambient temperature, including variations for weight change and wind influence. These distances are related to HARD RUNWAYS (friction coefficient of 0.05) and they increase up to 25% when operating from a

grass surface (friction coefficient of 0.1).

In this particular sample problem:

- (1) Enter Figure 5-5 at 21°C Temperature;
- (2) proceed horizontally to the 2000 feet airport altitude line;
- (3) proceed vertically down to the reference line;
- (4) follow the slope of the adjacent take-off lines until intersecting the horizontal 4200 Pounds line;
- (5) proceed vertically downwards to the reference line;
- (6) follow the slope of the adjacent take-off lines until intersecting the horizontal 5 kts tailwind line;
- (7) proceed vertically to obtain the total required take-off distance (1740 Feet).

NOTE

The take-off run will not exceed 60% of the take-off distance.

RATE-OF-CLIMB — MAXIMUM CLIMB

- (1) Enter Figure 5-6 at 2000 Feet-Altitude;
- (2) proceed horizontally right up to the Rate-of-Climb line at I.S.A. + 10°C;
- (3) proceed vertically downwards to the reference line;
- (4) follow the slope of the adjacent Rate-of-Climb lines until intersecting the horizontal 4200 Pounds line;
- (5) proceed vertically to obtain the initial Rate-of-Climb (1260 FPM).

RATE-OF-CLIMB — CRUISE CLIMB

- (1) Enter Figure 5-7 at 2000 Feet-Altitude;
- (2) proceed horizontally right up to the Rate-of-Climb line at I.S.A. + 10°C;
- (3) proceed vertically downwards to the reference line;
- (4) follow the slope of the adjacent Rate-of-Climb lines until intersecting the horizontal 4200 Pounds line;
- (5) proceed vertically to obtain the Rate-of-Climb (1125 FPM).

RATE-OF-CLIMB — SINGLE ENGINE

- (1) Enter Figure 5-8 at 2000 Feet-Altitude;
- (2) proceed horizontally right up to the Rate-of-Climb line at I.S.A. +10°C;
- (3) proceed vertically downwards to the reference line;
- (4) follow the slope of the adjacent Rate-of-Climb lines until intersecting the horizontal 4200 Pounds line;
- (5) proceed vertically to obtain the Rate-of-Climb (207 FPM).

TIME, FUEL AND DISTANCE TO CLIMB — CRUISE CLIMB

Time, Fuel and Distance to Climb are determined by finding the difference between the airport and cruise conditions; thus, the indicated procedure must be followed twice: one for the airport conditions and the second for the cruise conditions.

- (1) Enter Figure 5-12 at the given Altitude (Airport or Cruise);
- (2) proceed horizontally up to the Time-to-Climb line at given temperature;
- (3) proceed vertically up to the reference line;
- (4) follow the slope of the adjacent Time-to-Climb lines until intersecting the horizontal 4200 Pounds line;
- (5) proceed vertically until intersecting the horizontal (given) Altitude line;
- (6) Interpolate the value of the required Fuel-to-Climb;
- (7) proceed vertically to read the required Time-to-Climb;
- (8) enter Figure 5-13 at the given Altitude;
- (9) proceed horizontally up to the Distance line at the given temperature;
- (10) proceed vertically up to the reference line;
- (11) follow the slope of the adjacent Distance-to-Climb lines until intersecting the horizontal 4200 Pounds line;
- (12) proceed vertically to read the required Distance-to-Climb.

In this sample problem the calculation supplies the following results:

Airport Time-to-Climb	= 1.8 minutes
Airport Fuel-to-Climb	= 3.5 pounds
Airport Distance-to-Climb	= 2.4 nautical miles
Cruise Time-to-Climb	= 5.5 minutes
Cruise Fuel to-Climb	= 12.0 pounds
Cruise Distance-to-Climb	= 8.5 nautical miles
Time-to-Climb	= 5.5-1.8 = 3.7 minutes
Fuel-to-Climb	= 12.0-3.5 = 8.5 pounds
Distance-to-Climb	= 8.5-2.4 = 6.1 nautical miles

For total fuel used add 20 pounds for start, taxi and take-off.

TIME, FUEL AND DISTANCE TO CLIMB-MAXIMUM CLIMB

If the values of the Time, Fuel and Distance to Climb are required in maximum power conditions, the figure 5-10 and 5-11 must be used with the same procedure of the previous paragraph.

CRUISE PERFORMANCE — BEST ECONOMY MIXTURE

The power setting selection for cruise must be determined on the basis of the required and available fuel load.

In this sample problem, with a cruise altitude of 6000 feet (I.S.A. Temperature) and distance of 450 n.m., the figure 5-14 shows:

Percent Power	= 57.5 (at 2350 RPM and 20" Hg)
T.A.S.	= 145 Knots
Fuel Flow	= 99 pounds per hour

The required Fuel Load must be calculated as follows:

Distance during cruise	= Total distance-Climb distance = Descent distance = 450 - 6 - 25 = 419 nautical miles
Fuel to Cruise	= (Distance during Cruise/T.A.S.) x Fuel Flow = (419/145) x 99 = 286 Pounds
Total Required Fuel Load	= Fuel to Cruise + Fuel to Climb + Fuel to descent = 286+8+8.5 = 302.5 Pounds
Reserve Fuel	= Usable Fuel Load-Total Required-Fuel Load = 370 - 302.5 = 67.5

The reserve Fuel must be greater than 60 Pounds to allow minimum 45 minutes of Reserve at 45% Power (2200 RPM).

TIME, FUEL AND DISTANCE TO DESCENT

Time, Fuel and Distance to Descent are determined by finding the difference between the cruise and the landing airport conditions; thus the indicated procedure must be followed twice: one for the cruise conditions and the second for the airport landing conditions.

- (1) Enter figure 5-17 at the given Altitude (Cruise or Airport);
- (2) proceed vertically up to Time to Descent line relating to selected R/S and read the required Time to Descent;
- (3) proceed vertically to Fuel to Descent line relating to selected R/S and read the required Fuel to Descent;

- (4) proceed vertically up to Distance to Descent line relating to selected R/S and read the required Distance to Descent.

In this sample problem the calculation supplies the following results, with a selected R/S of 500 FPM:

Airport Landing Time to Descent	= 4.0 minutes
Airport Landing Fuel to Descent	= 4.0 pounds
Airport Landing Distance to Descent	= 13 nautical miles
Cruise Time to Descent	= 13 minutes
Cruise Fuel to Descent	= 12 pounds
Cruise Distance to Descent	= 38 nautical miles
Time to Descent	= 13-4 = 9.0 minutes
Fuel to Descent	= 12-4 = 8.0 pounds
Distance to Descent	= 38-13 = 25 n.m.

LANDING

The measured Landing distances (over 50 Feet obstacle) are reported in figure 5-18 as a function of Ambient Temperature including variations for weight change and wind influence.

These Distances are related to HARD RUNWAYS. Increments of 12% should be applied when operating from a grass surface.

In this sample problem:

- (1) Enter Figure 5-18 at 21°C Temperature;
- (2) proceed horizontally right to the 2000 - foot Airport Altitude line;
- (3) proceed vertically down to the reference line;
- (4) follow the slope of the adjacent Landing distance lines until intersecting the horizontal 3897 Pounds (Foreseen Landing Weight = T.O. Weight—Total Required Fuel Load) line;
- (5) proceed vertically down to the reference line;
- (6) follow the slope of the adjacent Landing distance lines until intersecting the horizontal 5 kts Headwind line;
- (7) proceed vertically to read the required Landing Distance (1560 Feet).

NOTE

For the convenience of the User, the Figures 5-19, 5-20 and 5-21 show the PAYLOAD Vs. RANGE Graph for 75%, 65% and 55% Rated Power.

This page intentionally left blank

BAULKED LANDING

In the event of a Baulked Landing, the Rate-of-Climb in the Landing configuration may be found from figure 5-9, with the same procedure outlined above and with the landing condition (weight, temperature, altitude). In this sample problem a Baulked Landing Rate-of-Climb of 955 FPM is found.

AIRSPPEED CALIBRATION

a. A.S.I. SYSTEM ERROR Vs. I.A.S.

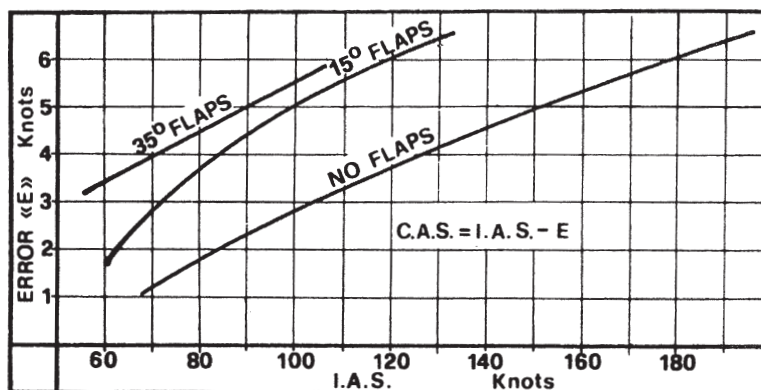


Figure 5-1

b. A.S.I. SYSTEM ERROR Vs. C.A.S.

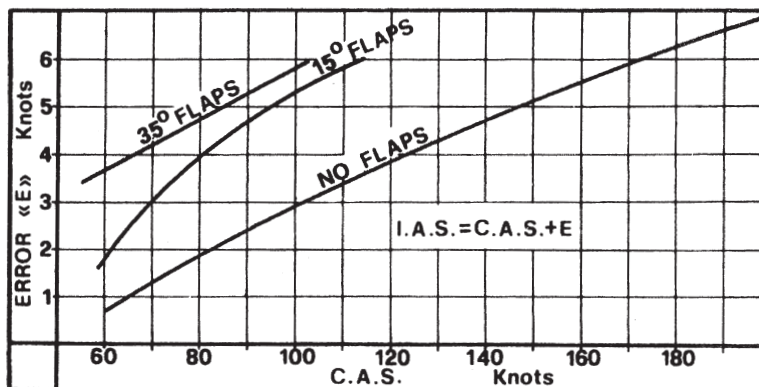


Figure 5-2

ALTIMETER CORRECTION

The maximum value of the static error correction to be applied to the altimeter reading does not exceed 30 feet.

TEMPERATURE CONVERSION

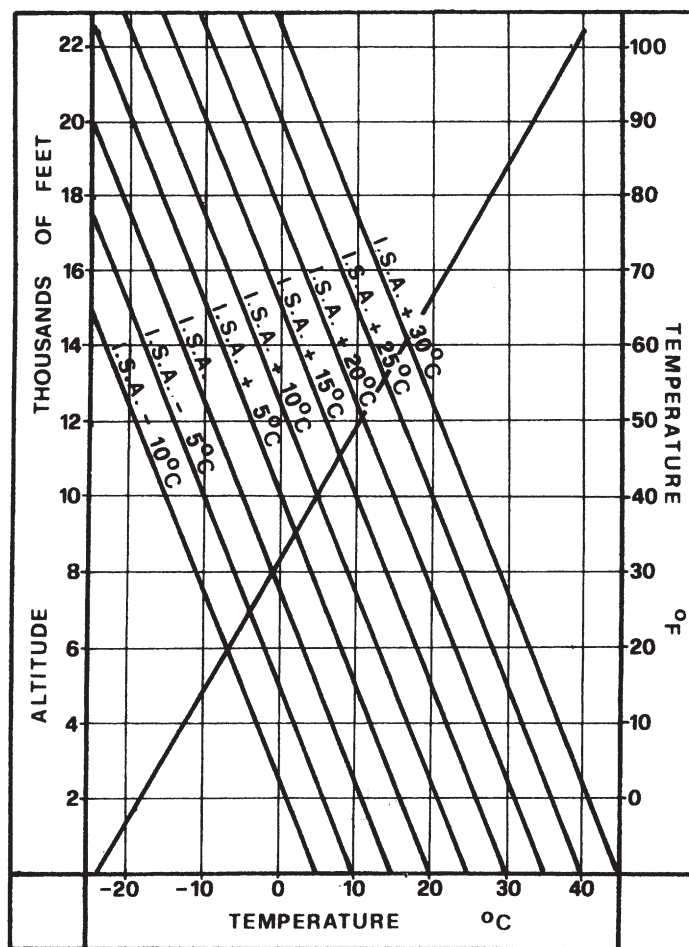


Figure 5-3

STALL SPEEDS

CONDITIONS:
Throttles — IDLE

NOTE

1. Maximum altitude loss experienced during conventional stalls is 120 feet.
2. Maximum altitude loss experienced during one engine inoperative stalls is 600 feet.

WEIGHT Pounds	FLAPS	ANGLE OF BANK							
		0°		20°		40°		60°	
		KIAS	KCAS	KIAS	KCAS	KIAS	KCAS	KIAS	KCAS
4387	0°	66	65	68	67	76	74	95	92
	15°	63	61	65	63	73	70	90	86
	35°	61	57	63	59	69	65	85	80
4200	0°	64	63	66	65	73	72	92	89
	15°	61	59	63	61	71	68	88	84
	35°	59	55	61	57	67	63	83	78
4000	0°	63	62	65	64	71	70	90	87
	15°	60	58	62	60	69	66	86	82
	35°	58	54	60	56	66	62	81	76
3800	0°	61	60	63	62	70	69	87	85
	15°	57	56	60	58	66	64	84	80
	35°	56	53	58	54	64	60	79	74
3600	0°	59	58	61	60	68	67	85	83
	15°	56	55	58	57	65	63	82	78
	35°	54	51	56	53	62	58	76	72

WIND COMPONENT

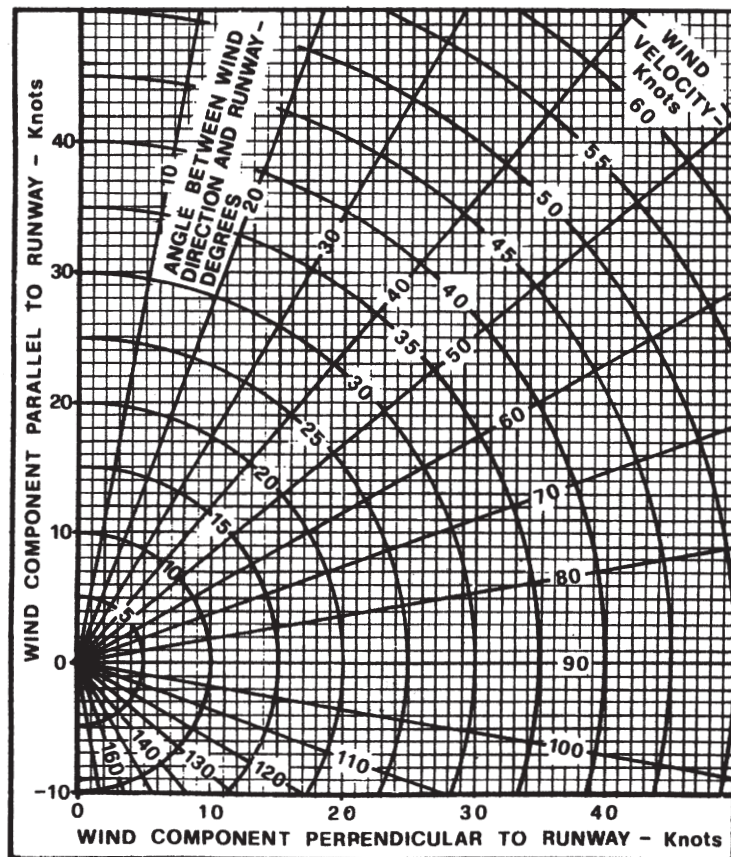


Figure 5-4

TAKE-OFF DISTANCE — BOTH ENGINES OPERATING

CONDITIONS:

1. 2700 RPM and Full Throttle, before brake release
2. Flaps: 15°
3. Level, Hard Surface, Dry Runway
4. Speed over 50 ft obstacle-76KIAS
at Max. T.O. Wt
(For lower weight, refer to table).

SCREEN SPEED	
Wt. (lb)	KIAS
4200	73
4000	72
3800	68
3600	67

NOTE

The Ground Run is approx. 60% of T.O. Distance. Increase Ground Run 25% when operating from a grass surface.

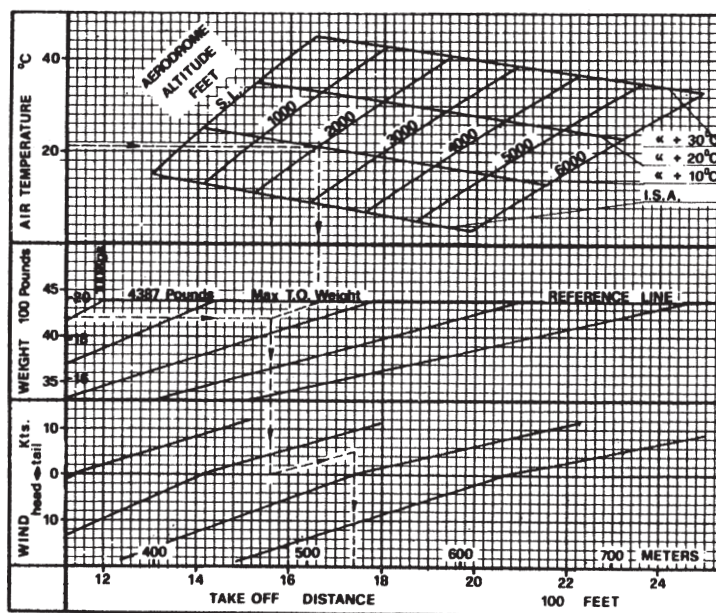


Figure 5-5

RATE-OF-CLIMB — MAXIMUM CLIMB

CONDITIONS:

1. 2700 RPM and Full Throttle
2. Mixture—FULL RICH up to 5000 ft; at higher altitude lean for smooth operation. Do not exceed 435°F (224°C) C.H.T.
3. Flaps — UP
4. Best Rate-of-Climb Speed — 90 KIAS

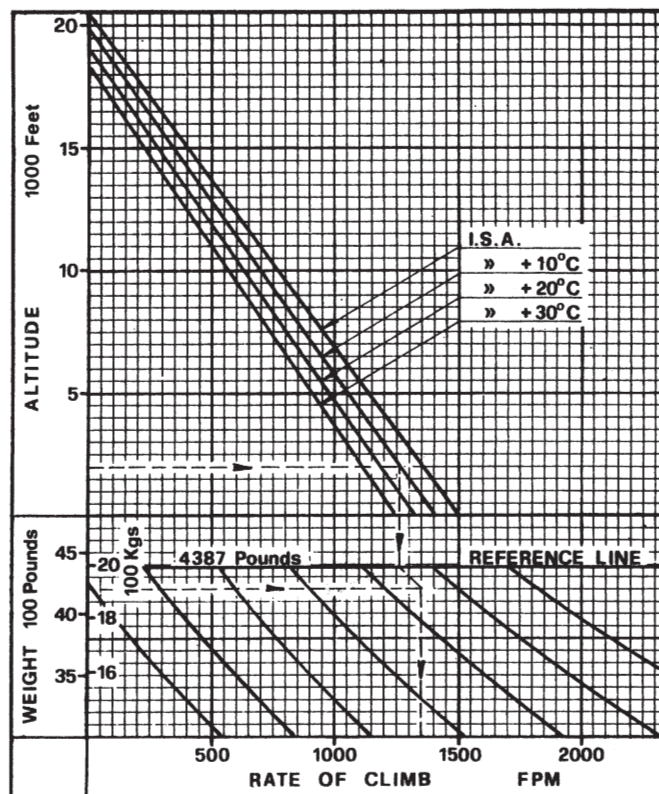


Figure 5-6

R.A.I. Approval No. 158229/T
 DATE: JULY 23, 1979

RATE-OF-CLIMB — CRUISE CLIMB

CONDITIONS:

1. 2500 RPM and 26 Inches of Hg to 3000 Feet. 2500 RPM and Full Throttle above 3000 feet
2. Mixture — lean for smooth operations. Do not exceed 435° (224°) C.H.T.
3. Flaps — UP
4. Climb Speed — 90 KIAS

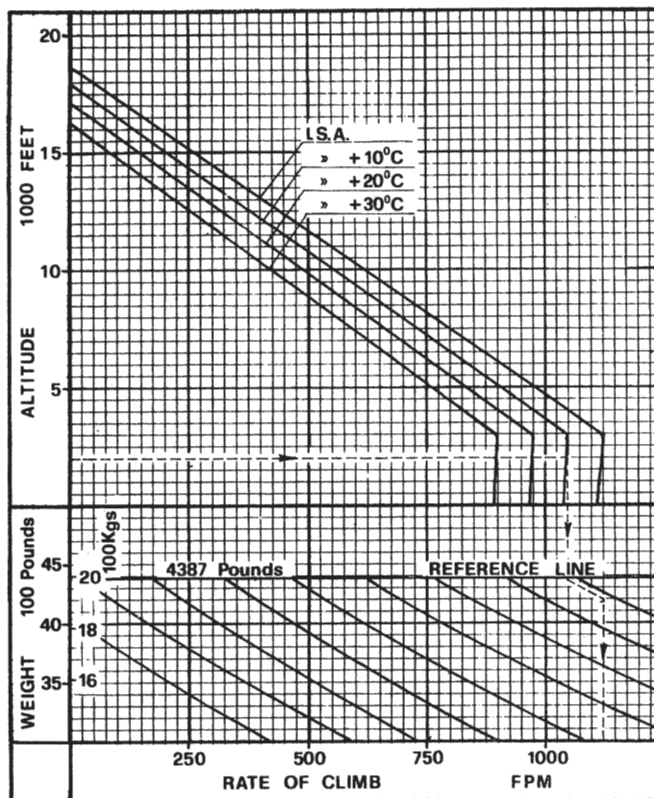


Figure 5-7

RATE-OF-CLIMB — SINGLE ENGINE

CONDITIONS:

1. 2700 RPM and Full Throttle
2. Mixture — Full Rich up to 5000 Ft; at Higher Altitude lean for smooth operation. Do not exceed 435°F (224°C) C.H.T.
3. Flaps — UP
4. Best Rate-of-Climb Speed — 88 KIAS

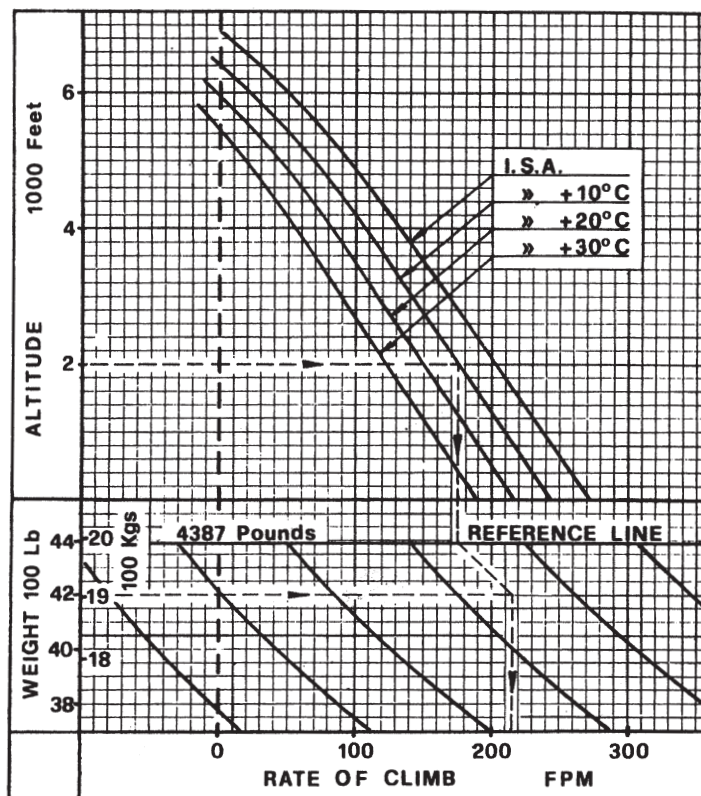


Figure 5-8

R.A.I. Approval No. 158229/T
DATE: JULY 23, 1979

RATE-OF-CLIMB — BAULKED LANDING

CONDITIONS:

1. 2700 RPM and Full Throttle
2. Mixture — FULL RICH up to 5000 Ft; at higher altitude lean for smooth operation. Do not exceed 435°F (224°C) C.H.T.
3. Flaps — 35 degrees
4. Best Rate-of-Climb Speed — 76 KIAS

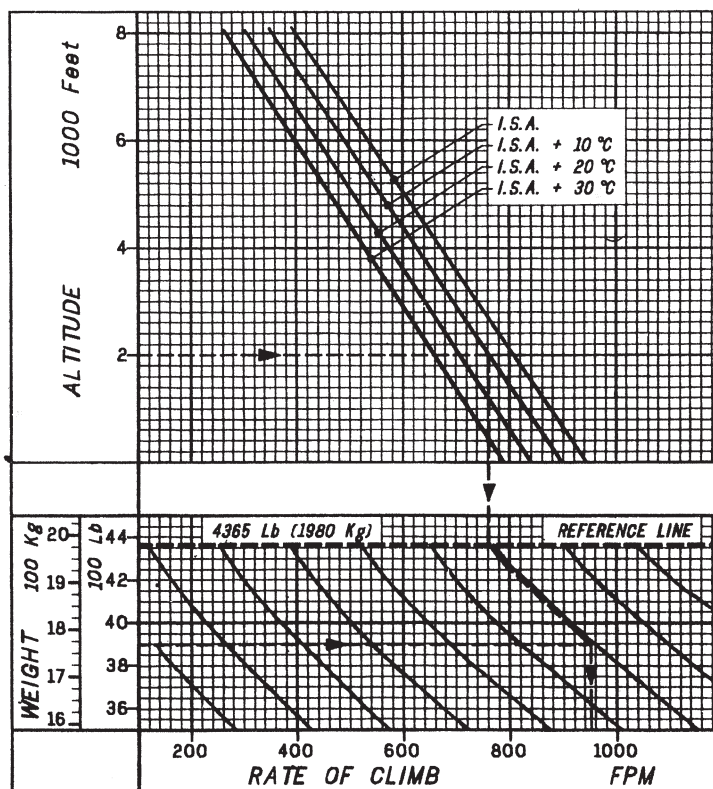


Figure 5-9

TIME AND FUEL TO CLIMB — MAXIMUM CLIMB

CONDITIONS:

1. 2700 RPM and Full Throttle
2. Flaps — UP
3. Mixture — FULL RICH up to 5000 Ft; at Higher Altitude lean for smooth operation. Do not exceed 435°F (224°C) C.H.T.

NOTE

For total fuel used, add 20 pounds for start taxi and take-off

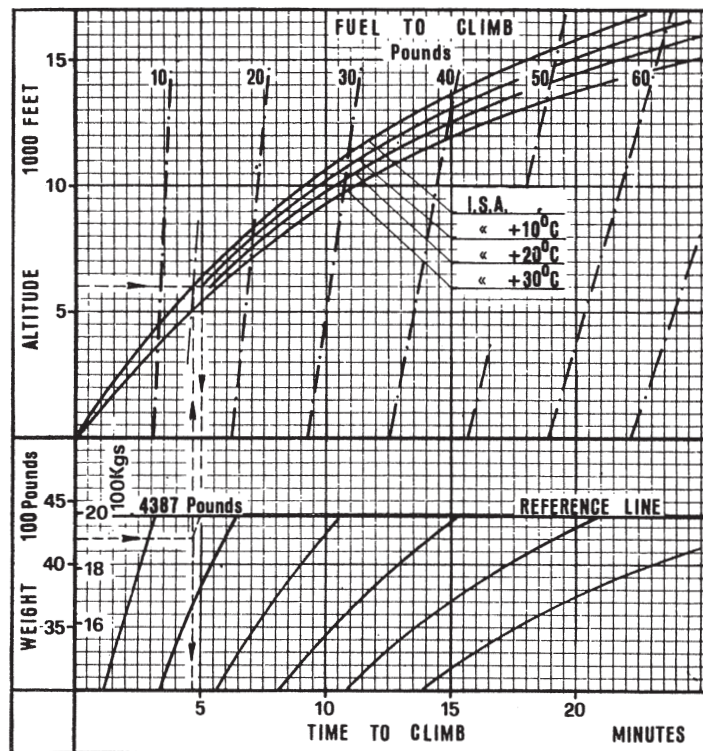


Figure 5-10

DISTANCE TO CLIMB — MAXIMUM CLIMB

CONDITIONS:

1. 2700 RPM and Full Throttle
2. Mixture — FULL RICH up to 5000 Ft; at higher Altitude lean for smooth operation. Do not exceed 435°F (224°C) C.H.T.
3. Flaps — UP
4. Best Rate-of-Climb Speed — 90 KIAS

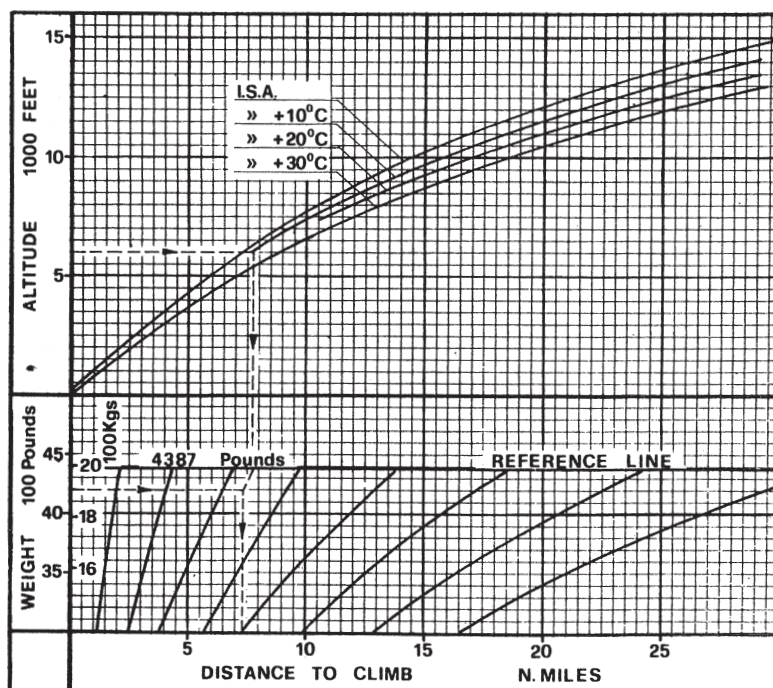


Figure 5-11

TIME AND FUEL TO CLIMB — CRUISE CLIMB

CONDITIONS:

1. 2500 RPM and 26 Inches of Hg to 3000 Feet. 2500 RPM and Full Throttle above 3000 Feet
2. Flaps — UP
3. Mixture — Lean for smooth operation; do not exceed 435°F (224°C) C.H.T.

NOTE

For total fuel used, add 20 Pounds for start, taxi and take off

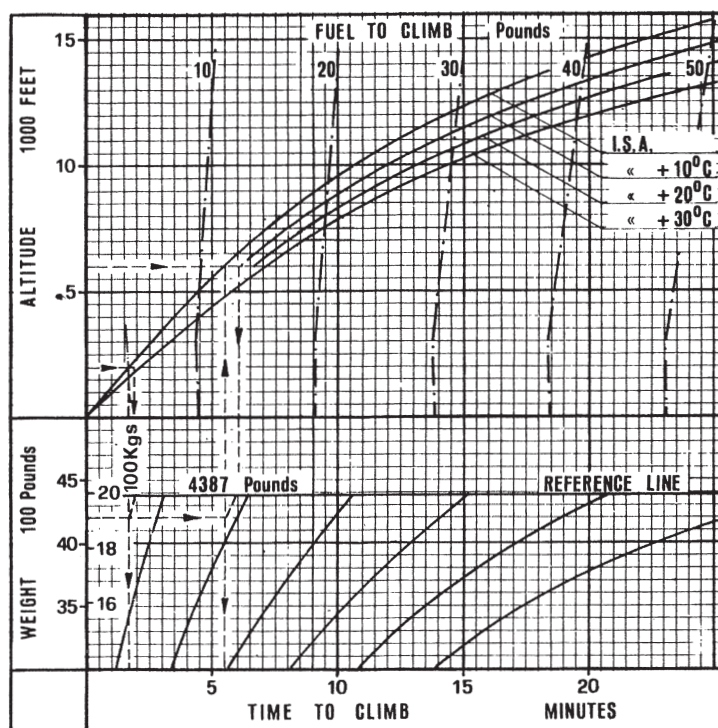


Figure 5-12

DISTANCE TO CLIMB — CRUISE CLIMB

CONDITIONS:

1. 2500 RPM and 26 Inches of Hg to 3000 Feet 2500 RPM and Full Throttle above 3000 Feet
2. Mixture — Lean for smooth operation; Do not exceed 435°F (224°C) C.H.T.
3. Flaps — UP
4. Climb Speed — 90 KIAS

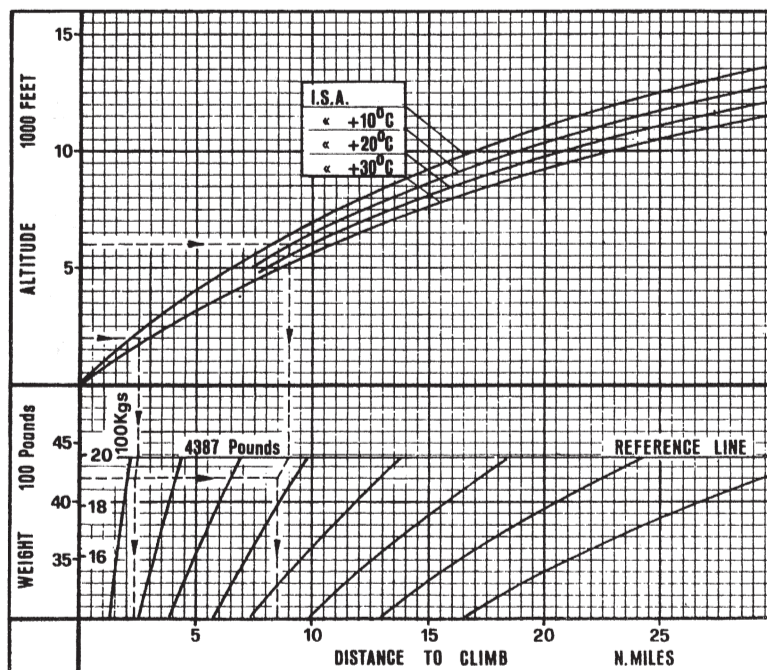


Figure 5-13

CRUISE PERFORMANCE — BEST ECONOMY MIXTURE

NOTE

1. Increase speed by 1 KTAS for each 200 pounds below 4387 pounds.

ALTITUDE	R.P.M.	M.P.	ISA — 20°C			ISA			ISA + 20°C		
			% BHP	KTAS	LB/HR	% BHP	KTAS	LB/HR	% BHP	KTAS	LB/HR
Sea level	2450	25	77.7	153	127	75.0	154	123	72.5	155	120
	2450	23	69.8	147	117	67.3	148	113	65.1	149	111
	2450	21	61.2	139	105	59.0	140	103	57.1	141	100
	2450	19	53.3	132	95	51.4	132	93	49.7	133	91
	2400	25	76.2	152	124	73.5	153	120	71.1	154	117
	2400	23	67.9	145	113	65.5	146	110	63.3	147	107
	2400	21	60.4	139	103	58.3	139	101	56.4	140	98
	2400	19	52.1	130	93	50.3	131	90	48.6	131	88
	2350	25	74.1	150	120	71.5	151	117	69.1	152	114
	2350	23	66.3	144	110	64.0	145	107	61.9	145	104
	2350	21	58.6	137	100	56.5	137	97	54.6	138	95
	2350	19	50.8	129	90	49.0	129	88	47.4	130	86
	2300	25	72.6	149	117	70.0	150	114	67.7	151	111
	2300	23	64.8	142	107	62.5	143	104	60.4	144	101
	2300	21	57.0	135	97	55.0	136	94	53.2	136	92
	2300	19	50.8	129	88	49.0	129	85	47.4	129	83

Figure 5-14
Sheet 1 of 5

CRUISE PERFORMANCE — BEST ECONOMY MIXTURE

NOTE

1. Increase speed by 1 KTAS for each 200 pounds below 4387 pounds.

ALTITUDE	R.P.M.	M.P.	ISA — 20°C			ISA			ISA + 20°C		
			% BHP	KTAS	LB/HR	% BHP	KTAS	LB/HR	% BHP	KTAS	LB/HR
3000 Feet	2450	25	81.3	160	132	78.4	161	128	75.8	162	124
	2450	23	73.0	154	121	70.4	154	117	68.0	155	114
	2450	21	64.5	146	110	62.2	147	107	60.1	147	104
	2450	19	56.4	138	99	54.2	139	96	52.4	139	94
	2400	24	75.2	155	123	72.5	156	119	70.1	157	116
	2400	22	67.2	149	112	64.8	149	109	62.6	150	106
	2400	20	58.6	141	101	56.5	141	98	54.6	141	96
	2400	18	50.8	132	91	49.0	132	89	47.4	132	87
	2350	24	73.1	153	119	70.5	154	116	68.1	155	112
	2350	22	65.4	147	109	63.0	147	106	60.9	148	103
	2350	20	57.3	139	109	55.2	140	96	53.4	140	94
	2350	18	49.5	131	88	47.8	131	86	46.1	131	84
	2300	24	71.6	152	116	69.0	153	113	66.7	153	110
	2300	22	63.8	145	106	61.5	146	103	59.4	146	100
	2300	20	56.0	138	96	54.0	138	93	52.2	138	91
	2300	18	48.1	129	85	46.4	129	83	44.8	129	81

Figure 5-14
Sheet 2 of 5

CRUISE PERFORMANCE — BEST ECONOMY MIXTURE

NOTE

1. Increase speed by 1 KTAS for each 200 pounds below 4387 pounds.

ALTITUDE	R.P.M.	M.P.	ISA — 20°C			ISA			ISA + 20°C		
			% BHP	KTAS	LB/HR	% BHP	KTAS	LB/HR	% BHP	KTAS	LB/HR
6000 Feet	2450	24	79.9	164	130	77.0	164	126	74.4	164	123
	2450	22	72.2	157	120	69.5	157	116	67.1	158	113
	2450	20	63.3	149	108	61.0	149	105	58.9	149	102
	2450	18	54.5	140	97	52.5	140	94	50.7	139	92
	2400	24	78.4	162	127	75.5	162	123	72.9	163	120
	2400	22	70.1	155	116	67.5	155	113	65.2	156	110
	2400	20	61.3	147	105	59.0	147	102	57.0	148	99
	2400	18	53.4	139	94	51.4	138	92	49.6	138	89
	2350	24	75.8	160	122	73.0	160	119	70.5	160	116
	2350	22	68.0	153	112	65.5	153	109	63.3	154	106
	2350	20	59.7	145	102	57.5	145	99	55.5	145	96
	2350	18	52.2	137	92	50.3	137	89	48.6	137	87
	2300	24	74.1	158	119	71.4	159	116	68.9	159	112
	2300	22	66.4	152	109	64.0	152	106	61.8	152	103
	2300	20	58.5	144	99	56.3	144	96	54.4	144	94
	2300	18	50.5	135	89	48.6	135	86	46.9	134	84

Figure 5-14
Sheet 3 of 5

CRUISE PERFORMANCE — BEST ECONOMY MIXTURE

NOTE

1. Increase speed by 1 KTAS for each 200 pounds below 4387 pounds.

ALTITUDE	R.P.M.	M.P.	ISA — 20°C			ISA			ISA + 20°C		
			% BHP	KTAS	LB/HR	% BHP	KTAS	LB/HR	% BHP	KTAS	LB/HR
9000 Feet	2450	22	75.4	165	124	72.6	165	120	65.2	164	117
	2450	20	66.0	156	112	63.5	156	108	61.3	155	106
	2450	19	61.5	151	106	59.2	151	103	57.1	150	100
	2450	18	57.2	147	100	55.0	147	97	53.1	147	95
	2400	21	68.4	158	114	65.8	158	110	63.5	157	107
	2400	20	63.9	152	108	61.5	152	105	59.3	151	102
	2400	19	59.8	149	103	57.5	149	100	55.5	148	97
	2400	18	55.6	145	97	53.5	145	94	51.6	145	92
	2350	21	66.5	156	110	64.0	156	107	61.8	155	104
	2350	20	62.2	152	105	59.9	151	102	57.8	151	99
	2350	19	58.1	147	99	55.9	147	97	53.9	147	94
	2350	18	54.5	143	95	52.4	143	92	50.6	142	90
	2300	21	64.9	154	107	62.5	154	104	60.3	153	101
	2300	20	60.6	150	102	58.3	149	99	56.3	149	96
	2300	19	56.6	146	96	54.5	145	94	52.6	145	91
	2300	18	52.6	141	91	50.6	141	89	48.8	139	86

Figure 5-14
Sheet 4 of 5

CRUISE PERFORMANCE — BEST ECONOMY MIXTURE

NOTE

1. Increase speed by 1 KTAS for each 200 pounds below 4387 pounds.

ALTITUDE	R.P.M.	M.P.	ISA — 20°C			ISA			ISA + 20°C		
			% BHP	KTAS	LB/HR	% BHP	KTAS	LB/HR	% BHP	KTAS	LB/HR
12000 Feet	2450	19	64.0	158	109	61.5	158	106	59.3	158	103
	2450	18	59.6	153	103	57.3	153	100	55.2	153	98
	2450	17	55.1	148	98	53.0	148	95	51.1	148	92
	2400	19	62.4	156	106	60.0	156	103	57.9	156	100
	2400	18	58.0	151	100	55.8	151	97	53.8	151	95
	2400	17	53.8	146	95	51.7	146	92	49.8	146	90
	2400	16	49.4	140	90	47.5	140	87	45.8	140	85
	2350	19	60.3	154	102	58.0	154	99	55.9	154	97
	2350	18	56.4	150	97	54.2	150	94	52.3	150	92
	2350	17	52.4	145	92	50.4	145	89	48.6	145	87
	2350	16	48.3	139	87	46.4	139	84	44.7	139	82
	2300	19	58.8	152	99	56.5	152	96	54.5	152	94
	2300	18	54.6	147	94	52.5	147	91	50.6	147	89
	2300	17	50.5	141	89	48.6	141	86	46.9	141	84
	2300	16	46.6	136	84	44.8	136	82	43.2	136	79

Figure 5-14
Sheet 5 of 5

RANGE PROFILE

CONDITIONS:

1. Starting Weight — 4387 Pounds
2. Maximum Climb to desired Altitude
3. Mixture — Best Economy
4. Zero Wind
5. Standard Day

NOTE

Range Computation includes 20 pounds of fuel for start, taxi and take-off and fuel required for climb, cruise, descent and 45' reserve at 45% power.

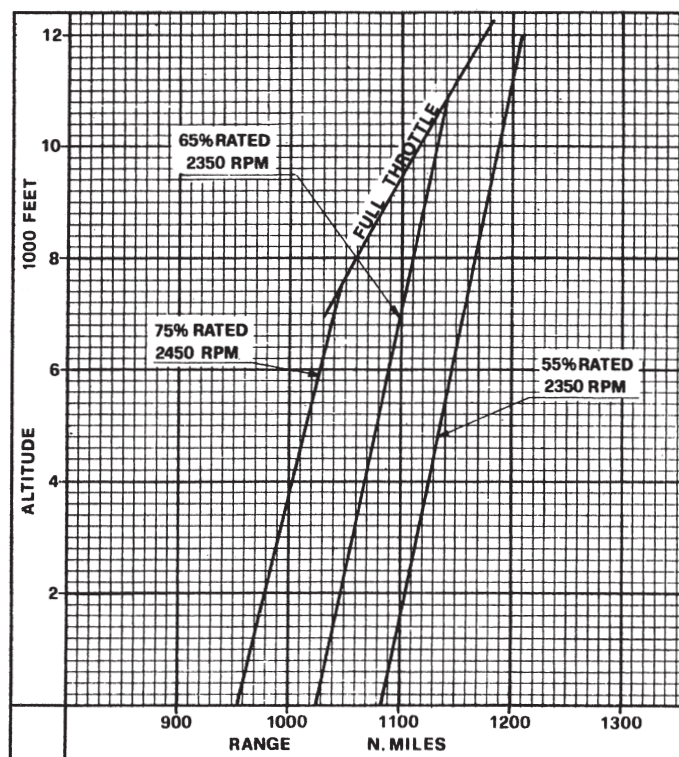


Figure 5-15

OPERATING ENVELOPE

CONDITIONS:

1. Weight: 4387 Pounds
2. Zero Wind
3. Standard Day
4. Flaps — UP

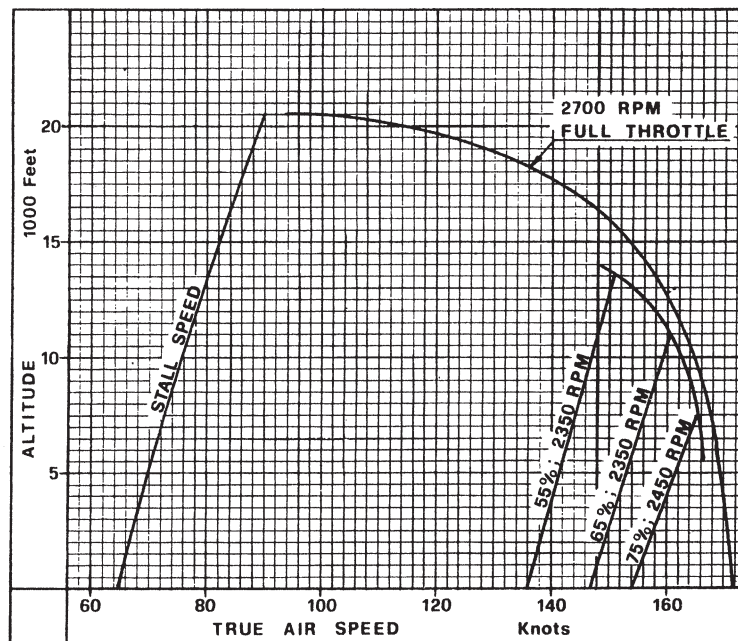


Figure 5-16

TIME, FUEL AND DISTANCE TO DESCENT

CONDITIONS:

1. Mixture — BEST ECONOMY
2. Flaps — UP
3. Airspeed — 158 KIAS
4. Power — As required.

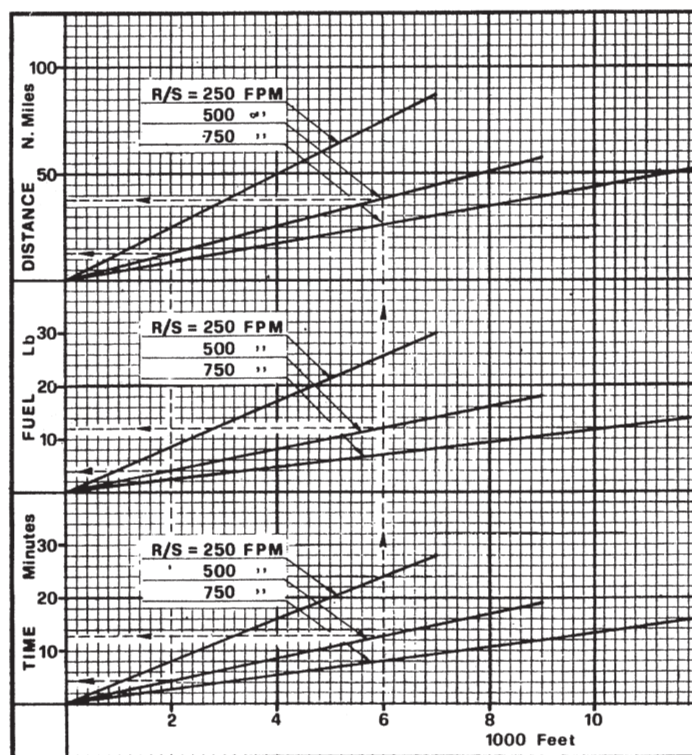


Figure 5-17

LANDING DISTANCE

CONDITIONS:

1. Throttle — Idle at 50 Feet above ground level
2. Flaps — 35°
3. Maximum Effective Braking
4. Level, Hard Surface, Dry Runway
5. Speed at 50 Ft obstacle — $1.3 V_{SO}$

NOTE

Increase Landing Distance by 12% when operating from a grass surface.

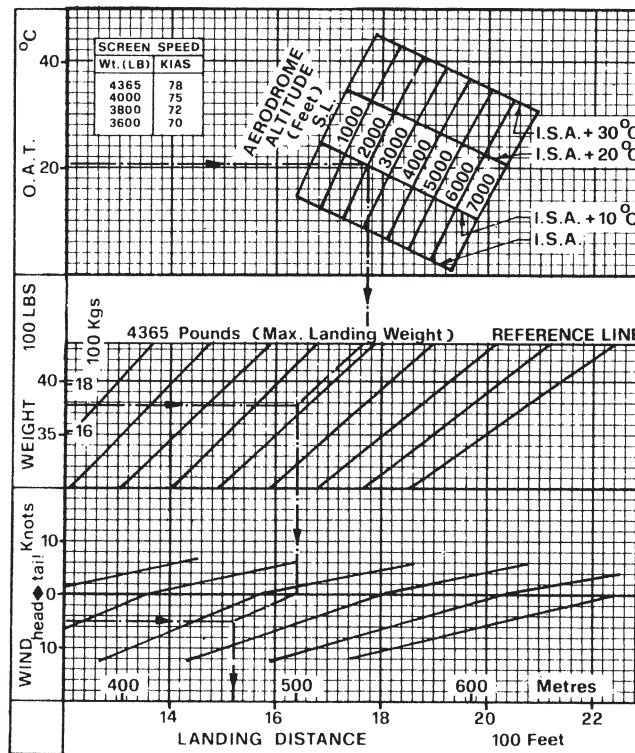
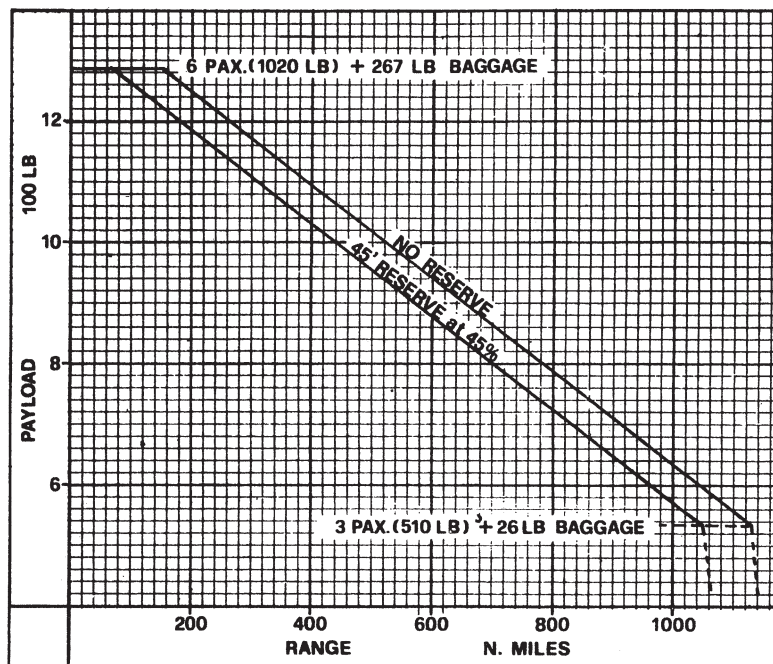


Figure 5-18

PAYLOAD Vs. RANGE (75% RATED POWER)

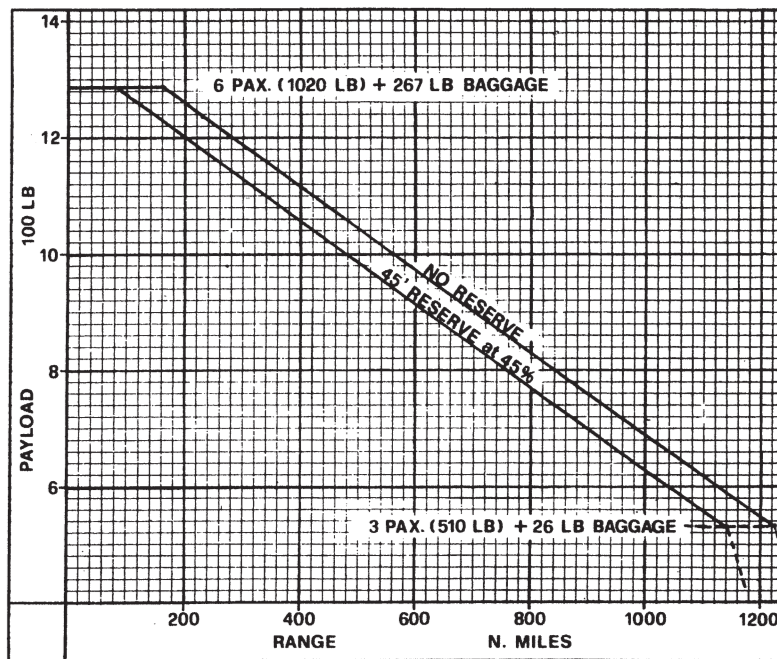


CONDITIONS:

1. I.S.A., Zero Wind
2. T.A.S.: 166 Kts.
3. Altitude: 7500 Feet
4. Fuel Consumption: 20.6 U.S.G./hr.
5. Max T.O. Weight: 4387 lbs.
6. Basic Operating Weight: 3005 lbs. (including unusable fuel, 170 lbs. pilot, IFR inst., avionics and oil; not including de-icing equipment).
7. Range computation includes fuel required for taxi, t.o., climb, descent and landing.

Figure 5-19

PAYLOAD Vs. RANGE (65% RATED POWER)

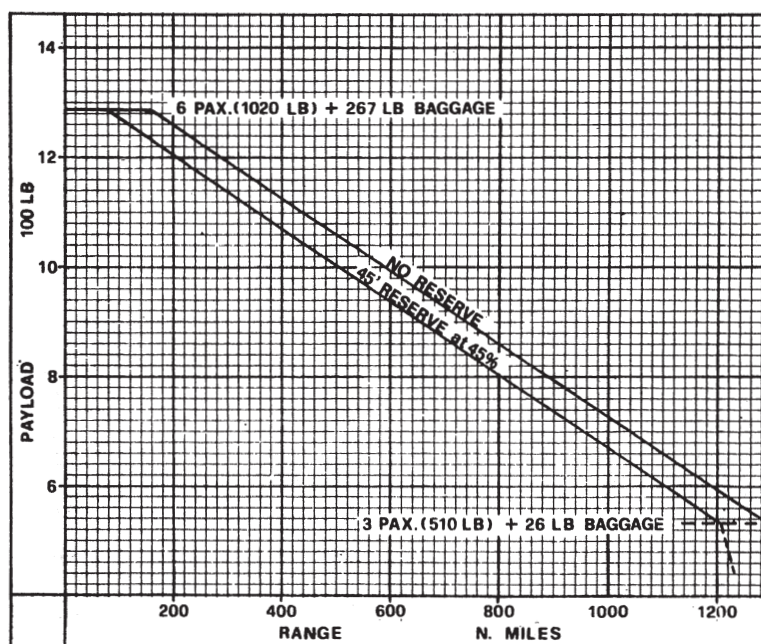


CONDITIONS:

1. I.S.A., Zero Wind
2. T.A.S.: 161 Kts.
3. Altitude: 11000 Feet
4. Fuel Consumption: 18.3 U.S.G./hr.
5. Max T.O. Weight: 4387 lbs.
6. Basic Operating Weight: 3005 lbs. (including unusable fuel, 170 lbs. pilot, IFR inst.; avionics and oil; not including de-icing equipment).
7. Range computation includes fuel required for taxi, t.o., climb, descent and landing.

Figure 5-20

PAYLOAD Vs. RANGE (55% RATED POWER)



CONDITIONS:

1. I.S.A., Zero Wind
2. T.A.S.: 150 Kts.
3. Altitude: 12000 Feet
4. Fuel Consumption: 16 U.S.G./hr.
5. Max T.O. Weight: 4387 lbs.
6. Basic Operating Weight: 3005 lbs. (including unusable fuel, 170 lbs. pilot, IFR inst., avionics and oil; not including de-icing equipment).
7. Range computation includes fuel required for taxi, t.o., climb, descent and landing.

Figure 5-21

This page intentionally left blank

SECTION 6

WEIGHT & BALANCE EQUIPMENT LIST

TABLE OF CONTENTS

	PAGE
INTRODUCTION	6-1
AIRPLANE WEIGHING PROCEDURES	6-2
WEIGHT AND BALANCE DATA RECORD	6-6
LOADING PROCEDURES	6-6
WEIGHT AND BALANCE DETERMINATION FOR FLIGHT	6-6
EQUIPMENT LISTS	6-13

INTRODUCTION

This sections contains the necessary information and procedures for correct loading and center of gravity calculation of the airplane.

This section also contains the procedures to establish the weight and balance for flight and describes the arms and weights of all equipment installed on the airplane at the time of delivery. Weight and Balance limitations specified in Section 2 must never be exceeded and it is the pilot's responsibility to ensure that the airplane is loaded within limits before any flight.

The following pages include forms used in weighing the airplane and in determining basic empty weight, C.G. position and useful load. Following this is the method for determining takeoff weight and C.G.

AIRPLANE WEIGHING PROCEDURES

The airplane has been weighed at the time of delivery and its Basic Empty Weight and Center of Gravity location are recorded in the figure 6-3. Any change in equipment or airplane modification can affect the Basic Empty Weight and Center of Gravity. The following procedure to determine the Basic Empty Weight and Center of Gravity location:

(a) Preparation

- (1) Remove excessive dirt, grease, moisture etc., from the aircraft before weighing.
- (2) Tow the aircraft inside a closed building or in an area free from any wind disturbances to prevent error in the scale reading.
- (3) To determine the center of gravity, place the aircraft in a level attitude. (See (b) below).
- (4) Have all items of equipment included in the certificated empty weight installed in the aircraft when weighing.
- (5) Defuel the aircraft and drain the sumps. Fuel remaining aboard after draining is included in the empty weight.
- (6) Fill to full capacity with oil brake fluid.

(b) Levelling

To laterally level the airplane place a spirit-level across the seat sliding rails and deflate the tyre or lower the jack on the high side of the airplane.

To longitudinally level the airplane, partially withdraw the two leveling screws located below the left centre window and place a spirit level on these screws. Deflate or inflate the nose wheel tyre or raise or lower the jacks as required in both instances to centre the bubble longitudinally.

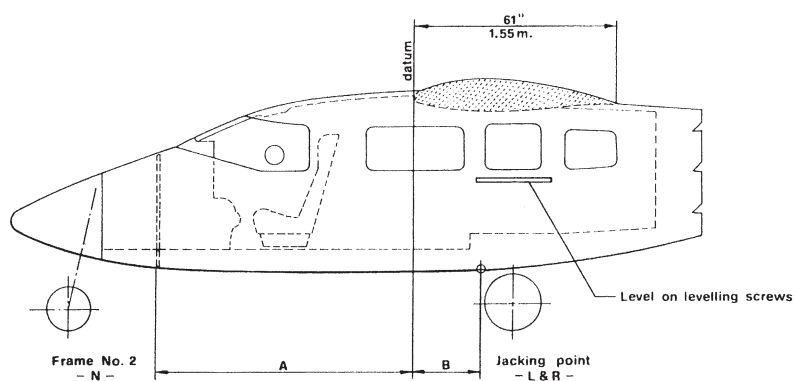
(c) Weighing Airplane

- (1) Properly calibrate, zero and use scales in accordance with the scale manufacturer's instructions.
- (2) Place the scales or jacks under the aircraft wheels or jacking point as appropriate and record the scale readings in the WEIGHING FORM (Figure 6-1).

PARTENAVIA
P68C

A.F.M. P/N NOR10.707-1
Section 6
WEIGHT&BALANCE

WEIGHING ON JACKS

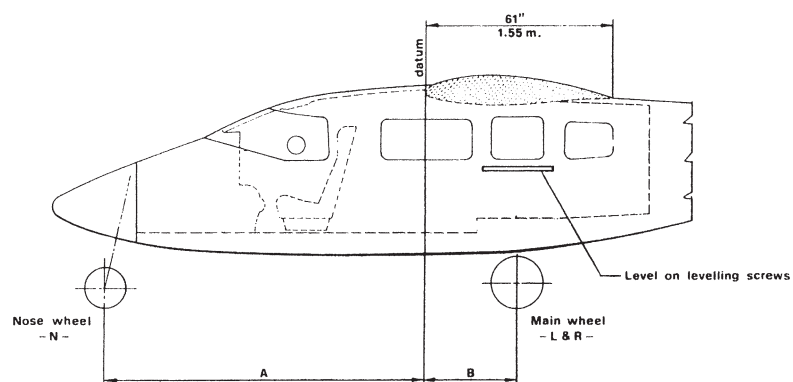


WEIGHING POINT	1	2	3 = 1 - 2	4	5 = 4 x 3
	SCALE READING (KG)	TAKE (KG)	NET WEIGHT (KG)	ARM (M)	MOMENT (KG - M)
N				- 2.075	
L				.568	
R				.568	
TOTAL			W	C.G.	M
C.G. = M/W % MAC = (C.G. / 1.550) x (100) = %					

Figure 6-1
Sheet 1 of 2
WEIGHING FORM

REV. 5
R.A.I. Approval No. 201547/T
DATE: JUNE 26, 1984

WEIGHING ON WHEELS



WEIGHING POINT	1 SCALE READING (KG)	2 TAKE (KG)	3 = 1 - 2 NET WEIGHT (KG)	4 ARM (M)	5 = 4 x 3 MOMENT (KG - M)
N				- 2.792	
L				.808	
R				.808	
TOTAL			W	C.G.	M
C.G. = M/W % MAC = (C.G. / 1.550) x (100) = %					

Figure 6-1
Sheet 2 of 2
WEIGHING FORM

- (3) Note tare when the aircraft is removed from the scales and deduct, if any, from each reading.
- (d) Center of Gravity
 - (1) Complete WEIGHING FORM to determine the Center of Gravity arm of the airplane as weighed.
- (e) Basic Empty Weight
 - (1) Complete the figure 6-2 to determine the Basic Empty Weight and the C.G. location.

ITEM	WEIGHT x ARM = MOMENT		
	(Kg)	(m)	(Kg.m)
Weight (as weighed)			
Unusable Fuel	13	0.770	10.010
Basic Empty Weight			

Figure 6-2
BASIC EMPTY WEIGHT

WEIGHT AND BALANCE DATA RECORD

The Basic Empty Weight, Center of Gravity Location and Useful Load listed in Figure 6-3 are for the airplane as delivered from the factory. These figures apply only to the specific airplane serial number and registration number shown.

The figure 6-4 provides the Weight and Balance Record form to present the current status of the airplane basic empty weight and a complete history of previous modifications. Any change to installed equipment or modification which affects weight or moment must be entered in the Weight and Balance Record.

LOADING PROCEDURES

Load occupants from front to rear progressively and observe maximum take-off weight and maximum baggage weight limitations.

WARNING

Make sure that the baggage load has been adequately secured to the tie down points.

WEIGHT AND BALANCE DETERMINATION FOR FLIGHT

NOTE

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

- a) Add the weight of all items to be loaded to the Actual Basic Empty Weight.
- b) By using the relevant arm shown in Figure 6-6, determine the moment of all items to be loaded.

PARTENAVIA
P68C

A.F.M. P/N NOR10.707-1
Section 6
WEIGHT & BALANCE

Airplane Serial Number

Registration Number

Date

AIRPLANE ACTUAL BASIC EMPTY WEIGHT

ITEM	Weight x C.G. Arm = Moment (Aft of Datum)
Basic Empty Weight * (From Figure 6-2)	
Optional Equipment (If not on board when factory weighed)	
Actual Basic Empty Weight	

* The basic empty weight includes full 8.0 gallon oil capacity, full brake fluid, and 5 gallons of unusable fuel.

**AIRPLANE USEFUL LOAD
NORMAL CATEGORY OPERATION**

(Max T.O. Weight) — (Actual Basic Empty Weight) = Useful load

(4387 lbs) - (..... lbs) = lbs

(1990 kg) - (..... kg) = kg

THIS ACTUAL BASIC EMPTY WEIGHT, C.G. AND USEFUL LOAD
ARE FOR THE AIRPLANE AS DELIVERED FROM THE FACTORY.
REFER TO WEIGHT AND BALANCE RECORD (Figure 6-4) WHEN
ALTERATIONS HAVE BEEN MADE.

Figure 6-3
WEIGHT AND BALANCE DATA FORM

REV. 5
R.A.I. Approval No. 201547/T
DATE: JUNE 26, 1984

[illegible]

Figure 6-4
WEIGHT AND BALANCE RECORD

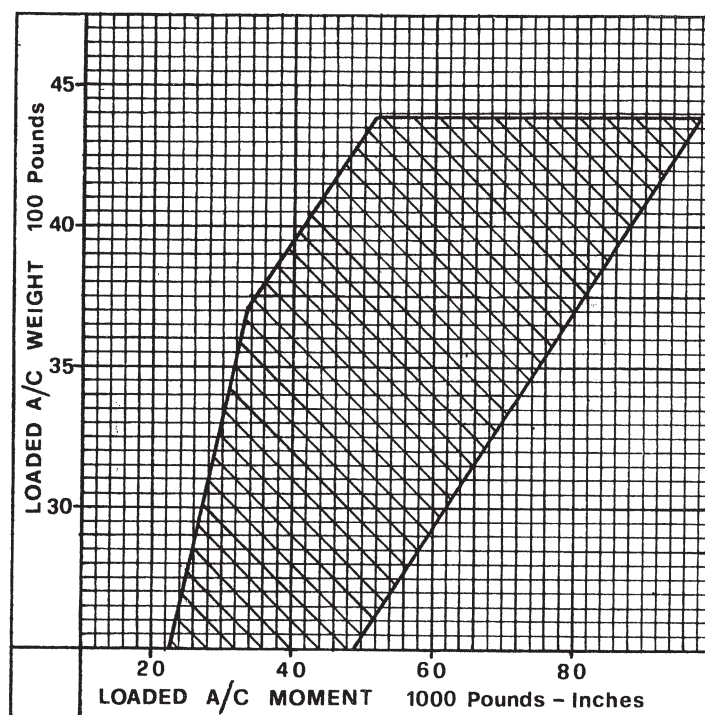


Figure 6-5
CENTER OF GRAVITY MOMENT ENVELOPE

Section 6
WEIGHT & BALANCE
PARTENAVIA
P68C
STANDARD CONFIGURATION

I T E M	WEIGHT (LBS)	ARM (Inches)	MOMENT (Inch. Pounds)
Basic Airplane			
Revised Airplane			
Pilot's Seat		— 37.40	
Copilot's Seat		— 37.40	
Seat No. 3		— 5.75	
Seat No. 4		— 5.75	
Seat No. 5		34.13	
Seat No. 6		34.13	
Seat No. 7		34.13	
Baggage (Max 400 lbs)		60.70	
Fuel		30.30	
TOTAL WT.		TOTAL MOMENT	

Figure 6-6
 Sheet 2 of 2
 WORK SHEET

CLUB SEATING CONFIGURATION

I T E M	WEIGHT (LBS)	ARM (Inches)	MOMENT (Inch. Pounds)
Basic Airplane			
Revised Airplane			
Pilot's Seat		— 37.40	
Copilot's Seat		— 37.40	
Seat No. 3		— 7.33	
Seat No. 4		— 7.33	
Seat No. 5		34.13	
Seat No. 6		34.13	
Seat No. 7		34.13	
Baggage (Max 400 lbs)		60.70	
Fuel		30.32	
TOTAL WT.		TOTAL MOMENT	

Figure 6-6
Sheet 1 of 2
WORK SHEET

- c) Add the moment of all items to be carried on board to the Actual Basic Empty Weight Moment.
- d) By using the figures of above items (a) and (c), locate a point on the Center of Gravity Moment Envelope (Figure 6-7). If the point falls within the Envelope, the loading meets the weight and balance requirements.

EQUIPMENT LIST

The following is a list of equipment which must, or may (if marked "Optional") be installed in the airplane. It consist of those items used for defining the configuration of an airplane when the actual basic empty weight is established at the time of delivery.

Items marked with an "X" are those items which were installed on the airplane described below as delivered by the manufacturer.

SERIAL No.

REGISTRATION No.

DATE

COMPILED

APPROVED

Section 6
WEIGHT&BALANCE
PARTENAVIA
P68C
A. PROPELLER AND PROPELLER ACCESSORIES

Item No.	Item	Mark If Instl.	Weight (Pounds)	Arm (In.)
A01	Two Propellers, TRW Hartzell Model HC-C2YK-2CUF/FC7666A-4, Per P.C.A. drwg NOR 7.153-3, Cert. Basis TC P920	.....	60.0 ea	- 19.80
A02	Two Hydraulic Propeller Governors, Woodward Model C210655, Per P.C.A. drwg 68-7.5075-1, Cert. Basis SO A151, TC A31EU	.....	4.6 ea	14.25
A03	Two Propeller Spinners, TRW Hartzell Model 836-29, Per P.C.A. drwg NOR 7.153-4, Cert. Basis SO A151, TC A31EU	.....	2.1 ea	- 21.

PARTENAVIA
P68C

A.F.M. P/N NOR10.707-1
Section 6
WEIGHT&BALANCE

B. ENGINE AND ENGINE ACCESSORIES

Item No.	Item	Mark If Instl.	Weight (Pounds)	Arm (In.)
B01	Two Engines, Avco Lycoming, Model I0 360-A1B6, Per P.C.A. drwg 68-6.1001, Cert. Basis TC E16EA	.....	307.8 ea	-1.36
B02	Two Engine Starter, Prestolite Model MHB4016, Cert. Basis SO A151, TC A31EU	.....	18.0 ea	6.60
B03	Four Engine Magnetos, Bendix Model S4LN1209 and S4LN1227, Cert. Basis TC E16EA	.....	4.4 ea	5.91
B04	Two Oil Coolers Per P.C.A. drwg NOR 7.373-4, Cert. Basis SO A151, TC A31EU	.....	2.8 ea	11.60
B05	Two Oil Filters, Champion CH 48110, Cert. Basis TC E16EA	.....	1.6 ea	15.75
B06	Two Exhaust Pipe Assemblies, Per P.C.A. drwg 68-6.1029-1 and -2, Cert. Basis SO A151, TC A31EU	.....	11.0 ea	10.04
B07	Two Tachometer Generator, a. Per P.C.A. drwg NOR 7.319-4, b. Per P.C.A. drwg NOR 7.319-6, Cert. Basis SO A151, TC A31EU	..... .....	2.6 ea 2.6 ea	-23.50 -23.50

REV. 6
R.A.I. Approval No. 210887/T
DATE: JUNE 18, 1985

Section 6
WEIGHT&BALANCE
PARTENAVIA
P68C

B. ENGINE AND ENGINE ACCESSORIES (cont.)				
Item No.	Item	Mark If Instl.	Weight (Pounds)	Arm (In.)
B08	Two Cylinder Head Thermocouple, AN 5546-1, Per P.C.A. drwg NOR 7.323-2, Cert. Basis SO A151, TC A31EU	.....	0.1 ea	16.73
B09	Two Fuel Pumps, Electric, Weldon Model C8100F, Per P.C.A. drwg 68-7.1081-1, Cert. Basis SO A151, TC A31EU	.....	2.3 ea	14.17
B10	Two Fuel Filters, Secondo Mona Model SM2418, Per P.C.A. drwg NOR 7.057-2, Cert. Basis SO A151, TC A31EU	.....	1.5 ea	13.77
B11	Two Fuel Quantity Sensor Assemblies, Per P.C.A. drwg NOR 7.289-1, - 1A, Cert. Basis SO A151, TC A31EU	.....	1.5 ea	20.08

PARTENAVIA
P68C

A.F.M. P/N NOR10.707-1
Section 6
WEIGHT&BALANCE

C. LANDING GEAR AND BRAKES

Item No.	Item	Mark If Instl.	Weight (Pounds)	Arm (In.)
C01	Two Main Wheel Assemblies, Per P.C.A. drwg NOR 7.1101, Cert. Basis TSO C26b	.....	7.2 ea	27.76
C02	Two Brake Assemblies, Per P.C.A drwg NOR 7.1121-1, Cert. Basis TSO C26b	.....	2.5 ea	39.49
C03	Two Main Tires, 6.00-6, 8 Ply Rating, Type III, Per P.C.A. drwg NOR 7.1105-1, Cert. Basis TSO C62b	.....	9.7 ea	27.76

REV. 6
R.A.I. Approval No. 210887/T
DATE: JUNE 18, 1985

Section 6
WEIGHT&BALANCE
PARTENAVIA
P68C

C. LANDING GEAR AND BRAKES (cont.)				
Item No.	Item	Mark If Instl.	Weight (Pounds)	Arm (In.)
C04	Two Main Tubes, 6.00-6, Per P.C.A. drwg NOR 7.1107-2	.....	1.9 ea	27.76
C05	One Nose Wheel Assembly, Per P.C.A. drwg NOR 7.1103, Cert. Basis TSO C26b	.....	3.8	- 111.22
C06	One Nose Tire, 5.00-5, 6 Ply Rating, Type III, Per P.C.A. drwg NOR 7.1105-4, Cert. Basis TSO C62b	.....	3.7	- 111.22
C07	One Nose Tube, 5.00-5 Per P.C.A. drwg NOR 7.1107-1	.....	1.4	- 111.22
C08	Four Brake Pumps, Per P.C.A. drwg NOR 7.311-3, Cert. Basis SO A151, TC A31EU	.....	0.5 ea	- 79.52
C09	One Parking Brake Valve Assy, Per P.C.A. drwg NOR 7.227-4	.....	0.5	- 63.00
C10	One Antishimmy Assy, Per P.C.A. drwg NOR 7.309-1,	.....	0.5	-107.48

PARTENAVIA
P68C

A.F.M. P/N NOR10.707-1
Section 6
WEIGHT&BALANCE

D. ELECTRICAL EQUIPMENT				
Item No.	Item	Mark If Instl.	Weight (Pounds)	Arm (In.)
D01	Two Alternators, 70 Amp ea., Prestolite Model ALU 8421, Per P.C.A. drwg NOR 7.341-1, Cert. Basis SO A151, TC A31EU	.....	13.0 ea	- 4.72
D02	One Battery, 24 Volt, Per P.C.A. drwg NOR 7.349-2, Cert. Basis SO A151, TC A31EU	.....	27.8	83.35
D03	Two Over Voltage Relay, Prestolite Model FOC4003B Per P.C.A. drwg NOR 7.367-2, Cert. Basis SO A151, TC A31EU	.....	0.6 ea	- 98.97
D04	Two Transistor Voltage Regulator, Lamar Model B-00343-1, Per P.C.A. drwg NOR 7.375-3, Cert. Basis SO A151, TC A31EU	.....	0.8 ea	- 97.79
D05	Two Landing Lights, 28 Volt, 200 Watt, General Electric No. 4594, Cert. Basis SO A151, TC A31EU	.....	0.5 ea	7.36

REV. 6
R.A.I. Approval No. 210887/T
DATE: JUNE 18, 1985

WEIGHT&BALANCE**P.68C****D. ELECTRICAL EQUIPMENT**

Item No.	Item	Mark if Instl.	Weight (Pounds)	Arm (In.)
D01	Two Alternators ,100 Amp. ea. Prestolite, Model ALV 8511R, Per P.C.A. drwg NOR 7.341-5, Cert. Basis TC E16EA	.....	20.9 ea.	-4.72
D02	One Battery, a. 24 Volt, 18 Ah, Per P.C.A. drwg NOR7.349-5, Cert. Basis SO A 151, TC A31EU b. 24V, 19 Ah, CONCORDE P/N RG24-20, Per Vulcanair drwg NV7.003-96, Cert. Basis TC EASA.A.385, TC A31EU	.....	39.7	83.55
D03	Two Over Voltage relays, Per P.C.A. drwg NOR7.367-2, Cert. Basis SO A 151, TC A31EU	.....	51.2	83.46
			0.6 ea.	-98.97

P.68C

WEIGHT&BALANCE**D. ELECTRICAL EQUIPMENT (Cont.)**

Item No.	Item	Mark if Instl.	Weight (Pound)	Arm (In.)
D04	Two Transistor Voltage Regulators, Lamar Model B-00343-1 Per P.C.A. drwg NOR7.375-3, Cert. Basis SO A 151, TC A31EU	..... ..	0.8 ea.	-97.79
D05	Two Landing Lights, 28 Volt, 200 Watt, General Electric No. 4594 Per P.C.A. drwg NOR7.331-1, Cert. Basis SO A 151, TC A31EU	..... ..	0.5 ea.	7.36

Rev. 21

DATE: 01 March 2011

6-19b

Section 6
WEIGHT&BALANCE
PARTENAVIA
P68C

D. ELECTRICAL EQUIPMENT (cont.)				
Item No.	Item	Mark If Instl.	Weight (Pounds)	Arm (In.)
D06	Two Wing Tip Position Lights, Per P.C.A. drwg NOR 7.329-2, and -3 Cert. Basis SO A151, TC A31EU	.....	0.1 ea	21.65
D07	One Tail Position Light, Per P.C.A. drwg NOR 7.329-1 Cert. Basis SO A151, TC A31EU	.....	0.1	249.21
D08	One Anti-Collision (Strobe) Light, Per P.C.A. drwg NOR 7.337-3, Cert. Basis SO A151, TC A31EU	.....	0.4	222.44
D09	One Anti-Collision Light Power Supply Per P.C.A. drwg NOR 7.337-8, Cert. Basis SO A151, TC A31EU	.....	1.5	107.57
D10	One Annunciator Panel, Per P.C.A. drwg NOR 7.381-9A, Cert. Basis SO A151,TC A31EU	.....	0.3	- 64.76

**PARTENAVIA
P68C**

A.F.M. P/N NOR10.707-1
**Section 6
WEIGHT&BALANCE**

E. INSTRUMENTS				
Item No.	Item	Mark If Instl.	Weight (Pounds)	Arm (In.)
E01	Airspeed Indicator, a. Per P.C.A. drwg NOR 7.1001-2, b. Per P.C.A. drwg NOR 7.1001-3, Cert. Basis SO A151, TC A31EU	..... .....	0.6 0.6	- 65.51 - 65.51
E02	Sensitive Altimeter Per P.C.A. drwg NOR 7.1003-1, Cert. Basis TSO C10b	.....	1.4	- 66.53
E03	Rate of Climb Indicator, Per P.C.A. drwg NOR 7.1005-1, Cert. Basis TSO C8b	.....	0.8	- 66.54
E04	Turn & Bank Indicator a. Per P.C.A. drwg NOR 7.1011-1 b. Per P.C.R. drwg NOR 7.1011-2 Cert. Basis TSO C3b	..... .....	1.4 1.4	- 67.12 - 67.12
E05	Gyro Horizon, Vacuum Driven, a. Per P.C.A. drwg NOR 7.1007-1, b. Per P.C.A. drwg NOR 7.1007-2, Cert. Basis TSO C4c	..... .....	1.9 1.9	- 67.32 - 67.32
E06	Directional Gyro, Per P.C.A. drwg NOR 7.1009-1, Cert. Basis TSO C5c	.....	2.4	- 66.54
E07	Magnetic Compass, Per P.C.A. drwg NOR 7.1055-2, Cert. Basis SO A151, TC A31EU	.....	0.8	- 53.15

REV. 6
R.A.I. Approval No. 210887/T
DATE: JUNE 18, 1985

E. INSTRUMENTS (cont.)				
Item No.	Item	Mark If Instl.	Weight (Pounds)	Arm (In.)
E08	Flap Position Indicator,			
	a. Per P.C.A. drwg NOR 7.1013-1	.....	0.3	- 64.57
	b. Per P.C.A. drwg NOR 7.1013-2	.....	0.3	- 64.57
	Cert. Basis SO A151, TC A31EU			
E09	c. Per Vulcanair drwg NOR7.1013-3	.....	0.3	- 64.57
	Two Triple Engine Instruments,			
	Per P.C.A. drwg NOR 7.1015-1,			
	Cert. Basis SO A151, TC A31EU	.....	2.2 ea	- 65.12
E10	Dual Tachometer			
	a. Per P.C.A. drwg NOR 7.1029-2,	.....	0.4	- 65.08
	b. Per P.C.A. drwg NOR 7.1029-3,	.....	0.5	- 65.28
	c. Per P.C.A. drwg NOR 7.1029-5,	.....	0.5	- 65.28
E11	Cert. Basis SO A151, TC A31EU			
	Dual Manifold Pressure Gauge,			
	Per P.C.A. drwg NOR 7.1027-1,			
	Cert. Basis SO A151, TC A31EU	.....	1.0	- 65.08
E12	Dual E.G.T. Indicator,			
	a. Per P.C.A. drwg NOR 7.1035-1,	.....	0.4	- 66.14
	b. Per P.C.A. drwg NOR 7.1035-2,	.....	0.4	- 66.14
	Cert. Basis SO A151, TC A31EU			
E13	Dual Fuel Flowmeter,			
	a. Per P.C.A. drwg NOR 7.1025-1,	.....	0.3	- 65.05
	b. Shadin P/N 910522P	.....	0.8	- 67.20
	Cert. Basis TSO C44a			
E14	Dual Fuel Quantity Gauge,			
	Per P.C.A. drwg NOR 7.1037-3,			
	Cert. Basis SO A151, TC A31EU	.....	0.8	- 65.35

PARTENAVIA
P68C

A.F.M. P/N NOR10.707-1
Section 6
WEIGHT&BALANCE

Item No.	Item	E. INSTRUMENTS (cont.)			Arm (In.)
		Mark If Instl.	Weight (Pounds)		
E15	Engine Hour Recorder, Per P.C.A. drwg NOR 7.1041-1	.....	0.2		- 64.96
E16	Volt/Ammeter, Per P.C.A. drwg NOR 7.1047-2	.....	0.6		- 63.78
E17	O.A.T. Indicator, Per P.C.A. drwg NOR 7.1051-1	.....	0.2		- 53.15
E18	Gyro Suction Gauge, Per P.C.A. drwg NOR 7.1053-2, Cert. Basis SO A151, TC A31EU	.....	0.4		- 64.96
E19	Electric Clock, Per P.C.A. drwg NOR 7.1043-2	.....	0.2		- 64.92

REV. 6
R.A.I. Approval No. 210887/T
DATE: JUNE 18, 1985

Section 6
WEIGHT&BALANCE
PARTENAVIA
P68C
F. MISCELLANEOUS

Item No.	Item	Mark If Instl.	Weight (Pounds)	Arm (In.)
F01	Cabin Air Outflow Valve (Six) Per P.C.A. drwg NOR 7.335-6 and-7	.....	0.8	- 13.78
F02	Stall Warning Detector, Safe Flight No. 164, Per P.C.A. drwg NOR 7.377-1, Cert. Basis SO A151, TC A31EU	.....	0.1	0.00
F03	Stall Warning Horn, Per P.C.A. drwg NOR 7.331-3, Cert. Basis SO A151, TC A31EU	.....	0.4	- 98.60
F04	Heated Pitot Tube, Per P.C.A. drwg NOR 7.289-2, Cert. Basis TSO C16	.....	0.7	- 92.50
F05	Fire Extinguisher, Per P.C.A. drwg NOR 7.227-1	.....	4.3	- 35.90
F06	Two Vacuum Pumps (std.), Per P.C.A. drwg 68-7.7511B-1, Cert. Basis SO A151, TC A31EU	.....	1.8 ea	12.01
F07	Two Vacuum Valves, Per P.C.A. drwg 68-7.7513-2	.....	0.9 ea	18.07

**PARTENAVIA
P68C**

A.F.M. P/N NOR10.707-1
**Section 6
WEIGHT&BALANCE**

F. MISCELLANEOUS (cont.)				
Item No.	Item	Mark If Instl.	Weight (Pounds)	Arm (In.)
F08	Flap Position Transmitter a. Per P.C.A. drwg NOR 7.357-3, b. Per P.C.A. drwg NOR 7.357-6, Cert. Basis SO A151, TC A31EU c. Per Vulcanair drwg NOR7.357-8	..... ..... .....	0.4 0.4 0.3	35.43 37.40 35.43
F09	Flap Actuator, 28 Volt, Per P.C.A. drwg 68-5.5055, Cert. Basis SO A151, TC A31EU	.....	4.2	23.62
F10	Pilot's Seat, Per P.C.A. drwg 68-8.1049-1	.....	17.2	- 37.40
F11	Copilot's Seat, Per P.C.A. drwg 68-8.1049-1	.....	17.2	- 37.40
F12	Third Seat, Per P.C.A. drwg 68-8.1049-1, Optional Reversed	..... .....	17.2 17.2	- 5.70 - 7.30
F13	Fourth Seat, Per P.C.A. drwg 68-8.1049-1, Optional Reversed	..... .....	17.2 17.2	- 5.70 - 7.30
F14	Rear Settee, Per P.C.A. drwg 68-8.1091-1	.....	32.0	34.20
F15	Approved Flight Manual	.....	No Weight Change	
F16	FWD Fan Heater Per P.C.A. drwg NOR7.1205-1	.....	2.65	-82.48
F17	FWD Fan Heater Per P.C.A. drwg NOR7.1205-1	.....	2.65	24

REV. 14
E.N.A.C. Approval No. 00/2022/MAE
DATE: JULY 10, 2000

F. MISCELLANEOUS (cont.)

Item No.	Item	Mark If Instl.	Weight (Pounds)	Arm (In.)
F18	FWD Fan Heater Per Vulcanair drwg 7.6271-1	.....	2.2	-82.48
F19	FWD Fan Heater Per Vulcanair drwg 7.6271-1	.....	2.2	24
F20	Two Fuel Flow Transducer Shadin P/N 680501X	.....	0.6	2.95

G. LANDING GEAR AND BRAKES (OPTIONAL EQUIPMENT)

Item No.	Item	Mark If Instl.	Weight (Pounds)	Arm (In.)
G01	Two Main Wheel Fairing Assemblies, Per P.C.A. drwg 68-4.2095-1, Cert. Basis SO A151, TC A31EU	.....	3.4 ea	31.89
G02	Nose Wheel Fairing Assembly Per P.C.A. drwg 68-4.4051-1, Cert. Basis SO A151, TC A31EU	.....	3.4	- 109.05
G03	Two Main Wheel Tires, 7.00-6, 8 Ply Rating, Type III, Per P.C.A. drwg NOR 7.1105-2, Cert. Basis TSO C62b	.....	12.5 ea	27.76

PARTENAVIA
P68C

A.F.M. P/N NOR10.707-1
Section 6
WEIGHT&BALANCE

H. ELECTRICAL EQUIPMENT (OPTIONAL EQUIPMENT)

Item No.	Item	Mark If Instl.	Weight (Pounds)	Arm (In.)
H01	Anticollision Light, Per P.C.A. drwg NOR 7.337-3, Cert. Basis TSO C30	.....	0.4	9.06
H02	Wing Ice Inspection Light, Per P.C.A. drwg 68-79047B-1 Cert. Basis SO A151, TC A31EU	.....	0.2	- 3.94
H03	Heated Stall Warning Detector, Per P.C.A. drwg NOR 7.387-1, Cert. Basis SO A151, TC A31EU	.....	0.1	0.00
H04	Ventilating Blower Per P.C.A. drwg 68-7.6011, Cert. Basis SO A151, TC A31EU	.....	3.5	- 103.70
H05	Electric Propeller Deicing System, Per P.C.A. drwg 68-7.8049, Cert. Basis SO A151, TC A31EU	.....	9.3	- 17.72
H06	Emergency Locator Transmitter, Per P.C.A. drwg NOR 7.1201, Cert. Basis TSO C91	.....	3.5	61.02

REV. 6
R.A.I. Approval No. 210887/T
DATE: JUNE 18, 1985

Section 6
WEIGHT&BALANCE
PARTENAVIA
P68C
I. INSTRUMENTS (OPTIONAL EQUIPMENT)

Item No.	Item	Mark If Instl.	Weight (Pounds)	Arm (In.)
I01	2nd Airspeed Indicator, a. Per P.C.A. drwg NOR 7.1001-2 b. Per P.C.R. drwg NOR 7.1001-3 Cert. Basis SO A151, TC A31EU	..... .....	0.6 0.6	- 65.51 - 65.51
I02	2nd Sensitive Altimeter, a. Per P.C.R. drwg NOR 7.1003-1 b. Per P.C.A. drwg NOR 7.1003-2 Cert. Basis TSO C10b	..... .....	1.4 1.4	- 66.53 - 66.53
I03	2nd Gyro Horizon, Vacuum Driven, a. Per P.C.A. drwg NOR 7.1007-1 b. Per P.C.A. drwg NOR 7.1007-2 Cert. Basis TSO C4c	..... .....	1.9 1.9	- 67.32 - 67.32
I04	2nd Gyro Horizon, Electric Driven, Per P.C.A. drwg NOR 7.1007-3 Cert. Basis TSO C4c	.....	2.0	- 67.30
I05	2nd Directional Gyro, Per P.C.A. drwg NOR 7.1009-1, Cert. Basis TSO C5c	.....	2.4	- 66.54
I06	Chronometer, Control Wheel, Per P.C.A. drwg NOR 7.1045-1	.....	0.3	- 55.54
I07	Deicing System Ammeter, Goodrich 3E 1219-1	.....	0.4	- 64.96

J. MISCELLANEOUS (OPTIONAL EQUIPMENT)

Item No.	Item	Mark if Instl.	Weight (Pounds)	Arm (In.)
J01	2 nd Heated Pitot Tube, Per P.C.A. drwg NOR 7.289-2 Cert. Basis TSO C16	.....	0.7	-92.50
J02	Vacuum Pump for Gyros and Surface Deicer, Per P.C.A. drwg 68-7.8061C, Cert. Basis SO/A 151, TC A31EU	.....	3.7	12.01
J03	Pilot's Seat, Adjustable, Per P.C.A. drwg 68-8.1061-1	.....	18.7	-37.40
J04	Copilot's Seat, Adjustable, Per P.C.A. drwg 68-8.1061-1	.....	18.7	-37.40
J05	Third Seat, Adjustable, Per P.C.A. drwg 68-8.1061-1	.....	18.7	-5.70
J06	Fourth Seat, Adjustable, Per P.C.A. drwg 68-8.1061-1	.....	18.7	-5.70
J07	Surface De-ice System, a. per P.C.A. drwg 68-7.8079, Cert. Basis SO A151, TC A31EU b. per Vulcanair drwg 7.8131-807 Cert. Basis TC EASA.A.385, TC A31EU	.....	38.1	-53.94
		.....	35.1	-53.94

Section 6
WEIGHT&BALANCE
PARTENAVIA
P68C

J. MISCELLANEOUS (OPTIONAL EQUIPMENT) (cont)		Mark If Instl.	Height (Pounds)	Arm (In.)
Item No.	Item			
J08	Two Underwing Auxiliary Fuel Tanks, Per P.C.A. drwg 68-7.9261, Cert. Basis SO A151, TC A31EU	-----	35.3 ea	20.88
J09	Air Conditioning System, Dynamic Air Model 1218, Per P.C.A. Kit No. 68-031, Cert. Basis SO A151, TC A31EU	-----	69.20	81.61
J10	Cabin Heater, 28 Volt, Janitrol Model B4050, Per P.C.A. drwg 68-7.6111, Cert. Basis TSO C20	-----	33.3	100.79
J11	Air Conditioning System "KEITH" per P.C.A drwg 7.9501, cert. Basis SO/A151	-----	55	87.5

K. AVIONICS (OPTIONAL EQUIPMENT)				
Item No.	Item	Mark If Instl.	Weight (Pounds)	Arm (In.)
K01	King Silver Crown Line Basic Avionics Installation, Per P.C.A. drwg 68-7.2929,	.....	38.6 (*)	- 69.70
	(a) KMA 24-00 Audio Panel & Marker Receiver, Cert. Basis TSO C50b	.....	1.7	- 67.09
	(b) KY 196-00 Transceiver No. 1	.....	3.2	- 69.88
	Cert. Basis TSO C37b, C38b	.....	3.2	- 69.88
	(c) KY 196-00 Transceiver No. 2	.....	3.0	- 69.88
	Cert. Basis TSO C37b, C38b	.....	3.2	- 69.88
	(d) KN 53-00 Navigation Receiver No. 1	.....	3.0	- 69.88
	Cert. Basis TSO C36a	.....	3.0	- 69.88
	(e) KR 53-00 Navigation Receiver No. 2	.....	3.2	- 69.88
	Cert. Basis TSO C36a	.....	3.2	- 69.88
	(f) KR 87-03 ADF	.....	3.2	- 69.88
	Cert. Basis TSO C41c	.....	3.2	- 69.88
	(g) KR 87-03 ADF	.....	3.2	- 69.88
	Cert. Basis TSO C41c	.....	3.1	- 68.06
	(h) KT 76-01 Transponder	.....	1.7	- 68.66
	Cert. Basis TSO C74b	.....		
	(i) KI 204-02 VOR/ILS Indicator No. 1	.....		
	Cert. Basis TSO C66A	.....		

(*) Includes individual component weights listed below.

Section 6
WEIGHT&BALANCE
PARTENAVIA
P68C

K. AVIONICS (OPTIONAL EQUIPMENT) (cont.)				
Item No.	Item	Mark If Instl.	Weight (Pounds)	Arm (In.)
K01 cont.	(j) KI 204-02 VOR/ILS Indicator No. 2 Cert. Basis TSO C66a	.....	1.7	- 68.66
	(k) KCS 55A-01 Pictorial Navigation Indicator, Cert. Basis TSO C6c	.....	4.3	- 68.66
	(l) KN 62-04 DME Cert. Basis TSO C66a	.....	2.6	- 68.06
	(m) KI 229 Radio Magnetic Indicator Cert. Basis TSO C6c	.....	2.8	- 68.66
	(n) 5335.P2.44 Encoding Altimeter Cert. Basis TSO C10b	.....	1.9	- 79.25
	Collins Microline Basic Avionics Group-Installation, Per P.C.A. drwg 68-7.2971,	.....	41.2 (*)	- 70.80
K02	(a) AMR350H Audio Panel & Marker Receiver, Cert. Basis TSO C50b	.....	1.8	- 67.09
	(b) 25IE Transceiver No. 1 Cert. Basis TSO C37b, C38b	.....	3.8	- 71.03
	(c) 25IE Transceiver No. 2 Cert. Basis TSO C37b, C38b	.....	3.8	- 71.03
	(d) VIR 351 Nav. Receiver No. 1 Cert. Basis TSO C36a	.....	2.3	- 71.03
	(e) VIR 351 Nav. Receiver No. 2 Cert. Basis TSO C36a	.....	2.3	- 71.03
	(*) Includes individual component weights listed below.			

PARTENAVIA
P68C

A.F.M. P/N NOR10.707-1
Section 6
WEIGHT&BALANCE

K. AVIONICS (OPTIONAL EQUIPMENT) (cont.)				
Item No.	Item	Mark If Instl.	Weight (Pounds)	Arm (In.)
K02 cont	(f) RCR650A ADF No. 1 Cert. Basis TSO C41c	.....	3.0	- 71. 03
	(g) RCR650A ADF No. 2 Cert. Basis TSO C41c	.....	3.0	- 71. 03
	(h) TDR950 Transponder Cert. Basis TSO C74b	.....	2.0	- 71.03
	(i) IND351A VOR/ILS Indicator No. 1 Cert. Basis TSO C66a	.....	1.3	- 68.66
	(j) IND351A VOR/ILS Indicator No. 2 Cert. Basis TSO C66a	.....	1.3	- 68.66
	(k) PN101 Pictorial Nav. Indicator Cert. Basis TSO C6c	.....	3.5	- 68.66
	(l) DME 451 DME Cert. Basis TSO C66a	.....	0.9	- 67.06
	(m) HF 220 Full Frequency System Cert. Basis TSO C31c, C32c	.....	2.8	- 71.03
	(n) 5535.P2.44 Encoding Altimeter Cert. Basis TSO C10b	.....	1.9	- 79. 25
	K03 COM/NAV Aerial No. 1, Per P.C.A. drwg NOR 7.385.8	.....	1.2	83.85

REV. 6
R.A.I. Approval No. 210887/T
DATE: JUNE 18, 1985

Section 6
WEIGHT&BALANCE
PARTENAVIA
P68C

K. AVIONICS (OPTIONAL EQUIPMENT) (cont.)				
Item No.	Item	Mark If Instl.	Weight (Pounds)	Arm (In.)
K04	COM/NAV Aerial No. 2 Per P.C.A. drwg NOR 7. 385-8	.....	1. 2	24.99
K05	Mike, Per P.C.A. drwg NOR 7.385-4	.....	0.2	- 59. 87
K06	VOR/LOC Aerial Per P.C.A. drwg NOR 7.385-3,	.....	0.7	83.85
K07	Sperry Primus 200 Weather Radar	.....	29.0 (*)	- 88.32
	(a) DI-2008 Digital Multi Color Indicator, Cert. Basis TSO C63b	.....	10.6	- 68.40
	(b) RTA 1003 Transceiver-Antenna Cert. Basis TSO C63b	.....	18.4	- 99.80
K08	Sperry Primus 100 Weather Radar	.....	23.6 (*)	- 85.70
	(a) DI-1006 Digital Multi Color Indicator, Cert. Basis TSO C63b	.....	10.6	- 68.40
	(b) RTA 1002 Transceiver-Antenna Cert. Basis TSO C63b	.....	13.0	- 99.80

(*) Includes individual component weights listed below.

K. AVIONICS (OPTIONAL EQUIPMENT) (cont.)				
Item No.	Item	Mark If Instl.	Weight (Pounds)	Arm (In.)
K09	Bendix RDR 160 XD Weather Color Radar	.....	21.2 (*)	- 84.25
	(a) ART 161A Transceiver-Antenna	.....		
	Cert. Basis TSO C63b	.....	10.7	- 99.80
	(b) IND 232A Color Indicator	.....		
	Cert. Basis TSO C63b	.....	10.5	- 68.40
K10	Bendix RDR 160 Weather Radar	.....	20.7 (*)	- 84.63
	(a) ART 161A Transceiver-Antenna	.....		
	Cert. Basis TSO C63b	.....	10.7	- 99.80
	(b) FN I52A Indicator	.....		
	Cert. Basis TSO C63b	.....	10.0	- 68.40
K11	Loudspeaker, Per P.C.A. drwg NOR 7.337-9	.....	0.3	- 20.02

(*) Includes individual component weights listed below.

Section 6
WEIGHT&BALANCE
PARTENAVIA
P68C

K. AVIONICS (OPTIONAL EQUIPMENT) (cont.)				
Item No.	Item	Mark If Instl.	Weight (Pounds)	Arm (In.)
K12	Edo Mitchell Century III Autopilot Installation, Option I	.....	17.4 (*)	- 14.21
	(a) 52D67M Gyro Horizon	.....		
	Cert. Basis TSO C6c	.....	2.2	- 66.53
	(b) 52D54M Directional Gyro	.....		
	Cert. Basis TSO C6c	.....	2.8	- 67.30
	(c) IC407 Altitude Hold	.....		
	Cert. Basis TSO C9c, C52a	.....	0.9	- 97.24
	(d) IC404 Console	.....		
	Cert. Basis TSO C9c, C52a	.....	1.4	- 65.75
	(e) IC465-1-511R Roll Servo	.....		
	Cert. Basis TSO C9c	.....	2.2	- 6.69
	(f) IC465-1-511P Pitch Servo	.....		
	Cert. Basis TSO C9c	.....	2.2	150.79
	(g) IC469-6-511 Pitch Trim Servo	.....		
	Cert. Basis TSO C9c	.....	2.4	106.69
	(h) IC515-3 Computer Amplifier	.....		
	Cert. Basis TSO C52a	.....	2.7	- 95.67
	(i) IC709-6 Pitch Trim Amplifier	.....		
	Cert. Basis TSO C9c	.....	0.6	- 97.20

(*) Includes individual component weights listed below.

K. AVIONICS (OPTIONAL EQUIPMENT) (cont.)				
Item No.	Item	Mark If Instl.	Weight (Pounds)	Arm (In.)
K13	Edo Mitchell Century III Autopilot Installation, Option II	.....	19.1 (*)	- 20.00
	(a) 52D67M Gyro Horizon	.....		
	Cert. Basis TSO C6c	.....	2.2	- 66.53
	(b) 52D54M Directional Gyro	.....		
	Cert. Basis TSO C6c	.....	2.8	- 67.30
	(c) IC407 Altitude Hold	.....		
	Cert. Basis TSO C9c, C52a	.....	0.9	- 97.24
	(d) IC404 Console	.....		
	Cert. Basis TSO C9c, C52a	.....	1.4	- 65.75
	(e) IC465-1-511R Roll Servo	.....		
	Cert. Basis TSO C9c	.....	2.2	- 6.69
	(f) IC465-1-511P Pitch Servo	.....		
	Cert. Basis TSO C9c	.....	2.2	150.79
	(g) IC469-6-511 Pitch Trim Servo	.....		
	Cert. Basis TSO C9c	.....	2.4	106.69
	(h) IC515-3 Computer Amplifier	.....		
	Cert. Basis TSO C52a	.....	2.7	- 95.67
	(i) IC709-6 Pitch Trim Amplifier	.....		
	Cert. Basis TSO C9c	.....	0.6	- 97.20
	(j) IC388-M Radio Coupler	.....		
	Cert. Basis TSO C9c	.....	0.9	- 64.96
	(k) IC493 Glide Slope Coupler	.....		
	Cert. Basis TSO C9c	.....	0.8	- 97.64

(*) Includes individual component weights listed below.

Section 6
WEIGHT&BALANCE
PARTENAVIA
P68C

K. AVIONICS (OPTIONAL EQUIPMENT) (cont.)				
Item No.	Item	Mark If Instl.	Weight (Pounds)	Arm (In.)
K14	Edo Mitchell Century III Autopilot Installation, Option III	.....	25.5 (*)	- 35.16
	(a) 52D67M Gyro Horizon	.....	2.2	- 66.53
	(b) KING K1525A Pictorial Nav. Indicator	.....	3.9	- 66.54
	(c) Cert. Basis TSO C6c	.....	0.9	- 97.24
	IC407 Altitude Hold	.....	1.4	- 65.75
	(d) Cert. Basis TSO C9c, C52a	.....	2.2	- 6.69
	IC404 Console	.....	2.2	150.79
	(e) Cert. Basis TSO C9c, C52a	.....	2.4	106.69
	IC465-1-511R Roll Servo	.....	2.7	- 95.67
	(f) Cert. Basis TSO C9c	.....	0.6	- 97.20
	IC465-1-511P Pitch Servo	.....	0.9	- 64.96
	(g) Cert. Basis TSO C9c	.....	0.8	- 97.64
	IC469-6-511 Pitch Trim Servo	.....		
	IC469-6-511 Pitch Trim Servo	.....		
	IC515-3 Computer Amplifier	.....		
	IC709-6 Pitch Trim Amplifier	.....		
	IC388-M Radio Coupler	.....		
	IC493 Glide Slope Coupler	.....		
	IC493 Glide Slope Coupler	.....		

(*) Includes individual component weights listed below.

K. AVIONICS (OPTIONAL EQUIPMENT) (cont.)				
Item No.	Item	Mark If Instl.	Weight (Pounds)	Arm (In.)
K14 cont	(l) KING KA 51A Slaving Control Cert. Basis TSO C6c	.....	0.3	- 66.14
	(m) KING KMT-112 Magnetic Slaving Transmitter, Cert. Basis TSO C6c	.....	0.3	129.53
	(n) KING KA-52 Autopilot Adapter Cert. Basis TSO C6c	.....	0.4	- 98.03
	(o) KING KG-102A Directional Gyro Unit, Cert. Basis TSO C6c	.....	4.3	- 97.24
K15	King KAP/KFC 150 Autopilot Installation (*) Per P.C.A. drwg 68-7.9301, (a) KC 191 Computer Controller (b) KC 192 Computer Controller (c) KI 256 Flight Director Indicator Cert. Basis TSO C52a (d) KG 258 Attitude Horizon Cert. Basis TSO C52a (e) KS 270A Pitch Servo Cert. Basis TSO C9c (f) KS 271A Roll Servo Cert. Basis TSO C9c (g) KS 272 Pitch Trim Servo Cert. Basis C9c	..... ..... ..... ..... ..... ..... ..... ..... ..... ..... ..... ..... .....	2.3 2.5 3.3 3.1 2.6 2.4 2.4	- 70.80 - 70.70 - 68.90 - 68.90 128.50 - 5.00 - 96.50

(*) Includes individual components listed below

K. AVIONICS (OPTIONAL EQUIPMENT) (cont.)				
Item No.	Item	Mark if Instl.	Weight (Pounds)	Arm. (In.)
K16	Garmin Line			
	Avionics Installation			
	(a) GMA340 Audio Panel & Marker Receiver	.....	1.6	- 67.07
	Cert. Basis TSO C50c, C35d			
	(b) GTX320 Transponder	.....	2.2	- 67.68
	Cert. Basis TSO C74c			
K17	(c) Two GNS430 COM/NAV/GLS/GPS System			
	Cert. Basis TSO C37d, C38d, C40c, C36e, C34e, C129a	.....	13	- 69.07
	(d) Two GA56 GPS Antenna			
	Cert. Basis TSO C129a	.....	0.5	- 22.48
	Bendix/King RDR 2000 Weather Color Radar			
	(a) ART 2000 Transceiver- Antenna			
	Cert. Basis TSO C63c	.....	10.5	- 112.83
	(b) IN 182A Color Indicator			
	Cert. Basis TSO C63b	.....	9.6	- 68.18

SECTION 7 SUPPLEMENTS TABLE OF CONTENTS

INTRODUCTION	1 page
SUPPLEMENT A - INSTALLATION OF PHOTOGRAMMETRIC HATCH	1 page
SUPPLEMENT B - SURFACE DE-ICE BOOT SYSTEM AND PROPELLER ELECTRIC ANTI-ICE SYSTEM	10 pages
SUPPLEMENT C - PARACHUTIST VERSION	3 pages
SUPPLEMENT D - EDO-AIRE MITCHEL CENTURY III AUTOPILOT AND ELECTRIC TRIM MOD. AK511	8 pages
SUPPLEMENT D/1 - BENDIX KING 150 SERIES FLIGHT CONTROL SYSTEM	33 pages
SUPPLEMENT E - HEATING AND VENTILATING SYSTEM JANITROL MODEL B-4050 COMBUSTION HEATER	2 pages
SUPPLEMENT E/1 - CABIN FORCED AIR HEATING SYSTEM (As per modif. MOD.P68/02)	5 pages
SUPPLEMENT E/2 - CABIN FORCED AIR HEATING SYSTEM (As per modif. MOD.P68/04)	5 pages
SUPPLEMENT F - RESERVED	
SUPPLEMENT G - AIR CONDITIONING SYSTEM	2 pages
SUPPLEMENT G/1 - AIR CONDITIONING SYSTEM (As per modif. MOD.P68/01)	7 pages
SUPPLEMENT H - RESERVED	
SUPPLEMENT I - CREW DOOR	3 pages
SUPPLEMENT L - UNDERWING AUXILIARY FUEL TANKS	10 pages
SUPPLEMENT L/1 - AUXILIARY FUEL TANKS	4 pages
SUPPLEMENT M - CARGO VERSION	6 pages
SUPPLEMENT N - INCREASE IN MAXIMUM TAKE-OFF WEIGHT TO 2084 kg	2 pages
SUPPLEMENT P - DIGIFLO DIGITAL FUEL MANAGEMENT SYSTEM (As per modif. MOD.P68/07)	6 pages

INTRODUCTION

This section consists of a series of supplements, each covering a single optional system which may be installed in the aircraft.

NOTE

The Partenavia Model P68C Airplane Flight Manual Supplements are FAA-approved for U.S. registered airplanes in accordance with the provisions of 14 CFR Section 21.29. The information contained in each supplement applies only when the related equipment is installed in the airplane.

SECTION 7

SUPPLEMENTS

TABLE OF CONTENTS (Cont.)

SUPPLEMENT Q	GARMIN GMA 340 AUDIO PANEL (As per change No. MOD. P68/12) 7 pages
SUPPLEMENT R	GARMIN GTX 320 TRANSPONDER (As per change No. MOD. P68/13) 5 pages
SUPPLEMENT S	GARMIN GNS 430 VHF COMMUNICATIONS TRANSCEIVER VOR/ILS RECEIVER, GPS RECEIVER (As per change No. MOD.P68/14) 11 pages
SUPPLEMENT T	RESERVED
SUPPLEMENT U	BENDIX/KING RDR 2000 COLOR WEATHER RADAR (As per change No. MOD.P68/16) 15 pages
SUPPLEMENT V	RESERVED
SUPPLEMENT W	RESERVED
SUPPLEMENT W/1	MAXIMUM ZERO FUEL WEIGHT INCREASE (As per change No. MOD. P68/124) 6 pages

SUPPLEMENT A

INSTALLATION OF PHOTOGRAMMETRIC HATCH

SECTION 1 - GENERAL

The aircraft is equipped with a photogrammetric hatch which can be opened in flight.
The hatch is actuated by a hand wheel located at frame no. 8, on the floor, right hand side.

SECTION 2 - LIMITATIONS

The hatch can be operated at all speeds and configurations permitted. Intentional sideslippings with the hatch open are prohibited.

SECTION 3 - EMERGENCY PROCEDURES

None

SECTION 4 - NORMAL PROCEDURES

It is compulsory for the hatch operator to keep his safety belt fastened.

SECTION 5 - PERFORMANCE

No change

SECTION 6 - WEIGHT AND BALANCE

No change

This page intentionally left blank

SUPPLEMENT B

SURFACE DE-ICE BOOT SYSTEM AND PROPELLER ELECTRIC ANTI-ICE SYSTEM

SECTION 1 – GENERAL

This supplement must be attached to the ENAC Approved Airplane Flight Manual when the Surface De-Ice Boot System and/or Propeller Electric Anti-Ice System are installed.

The information contained herein supplements the basic approved Airplane Flight Manual. For limitations, procedures and performance information not contained in this supplement consult the basic approved Airplane Flight Manual. Wherever conflict arises between information in this supplement and the approved Flight Manual, the information herein must take precedence.

The aircraft is equipped with pneumatic De-Ice boots on wing and empennage and electric propeller Anti-Ice.

NOTES, CAUTIONS AND WARNINGS

In this Supplement the Note, Caution and Warning indications are supplied in accordance with these definitions:

NOTE *An operating procedure, technique or maintenance practice which is considered essential to emphasize.*

CAUTION An operating procedure, technique or maintenance practice which may result in a minor damage if not carefully followed.

WARNING **An operating procedure, technique or maintenance practice which may result in personal injury or loss of life if not carefully followed.**

SECTION 2 - OPERATING LIMITATIONS

- A. This aircraft is not approved for flight in icing conditions.
- B. De icing boots must be off for take-off and during final approach for landing.
- C. Placards - On front panel, in full view of the pilot

**THIS AIRCRAFT IS NOT
APPROVED FOR FLIGHT
IN ICING CONDITIONS**

WARNING

Severe icing may result from environmental conditions outside of those for which the airplane is certificated. Flight in freezing rain, freezing drizzle, or mixed icing conditions (super cooled 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.

- A. Unusually extensive ice accumulation on the airframe and windshield in areas not normally observed to collect ice.

- B. Accumulation of ice on the lower surface of the wing aft of the protected area.**
- C. Accumulation of ice on the engine nacelles and propeller spinners farther aft than normally observed.**

Since the autopilot, when installed and operating, may mask tactile cues that indicate adverse changes in handling characteristics, use of the autopilot is prohibited when any of the visual cues specified above exist, or when unusual lateral trim requirements or autopilot trim warnings are encountered while the airplane is in icing conditions.

All wing icing inspection lights must be operative prior to flight into known or forecast icing conditions at night.

NOTE

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

SECTION 3 - EMERGENCY PROCEDURE

- A. If Uneven Deicing of Propeller Blades is indicated.
 - 1. Propeller Anti-Ice Switch – OFF

SECTION 4 - NORMAL PROCEDURE

Flight in (Inadvertently Encountered)
Icing Conditions

FOR PROCEDURES TO EXIT THE SEVERE ICING ENVIRONMENT REFER TO SECTION 4, PARA 4.13 OF THE BASIC AIRPLANE FLIGHT MANUAL.

- A. Before take-off
 - 1. Surface De-Ice Switch - ACTUATE - visually check operation of boots then OFF.
 - 2. Propeller Anti-Ice Switch - ON - check propeller anti-ice ammeter.
 - 3. Pitot Heat Switch - ON - check volt-amperometer.
- B. In Flight - Inadvertent icing encounter
 - 1. Before Entering Visible Moisture
 - a. Pitot Heat Switch – ON
 - b. Wing icing inspection light – ON (at night)
 - 2. If Icing Conditions are inadvertently encountered
 - a. Propeller Anti-ice Switch – ON
 - 3. If Ice Accumulates to approximately 1/2 Inch thickness
 - a. Surface De-Ice Switch – ACTUATE
 - 4. Prepare for landing check:
 - a. Surface De-Ice Switch – OFF.

NOTES

1. *This aircraft is not approved for flight in icing conditions since wing, horizontal stabilizer and vertical stabilizer deice boots alone do not provide adequate protection for the entire aircraft. If icing is encountered inadvertently, close attention should be given to the pitot-static system, propellers, induction system and other components subject to icing, and appropriate action taken to leave the icing area as soon as possible.*
2. *Proper operation of propeller anti-ice system is indicated by periodic fluctuation from 8 to 12 Amps on propeller anti-ice amperometer. A reading below 8 Amps indicates that the blades of the propellers are not being deiced uniformly. Should this occur, it is imperative that the system be turned OFF. Do not operate when propellers are static.*
3. *Positioning the surface de-ice switch to ACTUATE will result in one complete inflation lasting approximately 7 seconds.*

SECTION 5 – PERFORMANCE

There is no change to airplane performance when the Surface De-Ice Boot System and/or Propeller Electric Anti-Ice System are installed.

SECTION 6 - WEIGHT AND BALANCE

The installation of the Surface De-Ice System and/or Propeller Electric Anti-ice System are listed in the Equipment List on Section 6 of this Flight Manual.

This page intentionally left blank

SUPPLEMENT C

PARACHUTIST VERSION

(For airplane equipped with Kit p/n 68-012 installed as described in S.I. no. 06 rev. 1).

SECTION 1 - GENERAL

The aircraft is operated for parachuting.

SECTION 2 - OPERATING LIMITATIONS

Maximum number of persons on board including pilot: 7

Maximum weight of aircraft allowed at take-off: 4321 lbs (1960 Kg)

Maximum speed allowed: 150 KIAS

Minimum control speed: 65 KIAS

Maximum flap angle extension during jumps: 15°

Length of the static line: 3.50 mt

All other limitations indicated in the Flight Manual are also applicable, unless contradictory to those mentioned above.

SECTION 3 - EMERGENCY PROCEDURES

The relative sections of the Basic Flight Manual are to be applied with the exception of higher value of the minimum control speed, $V_{mc} = 65$ KIAS.

SECTION 4 - NORMAL PROCEDURES

- a. External checks
In addition to normal checks:
 - Right wheel fairing (if installed) — REMOVED
 - Baggage compartment door — REMOVED
- b. Internal checks
In addition to normal checks:
 - Interior equipment according to "PARTENAVIA SPECIFICATION" for parachutist version
 - Seating of parachutists on board according to the enclosed graph
- c. In Flight
 - The parachutists must hold onto the proper handles during take-off, flight in turbulent air conditions and landing
 - Configuration and speed: Flaps = 15°; Speed = ± 75 KIAS; Engines = Low power
 - In the case of static line dropping, the pilot must not be responsible for the recovery of the static lines. They must be withdrawn and fixed on board by a person not involved in the piloting of the aircraft.

SECTION 5 - PERFORMANCE

The indicated stall airspeed values, with the door removed, are modified as follows:

- Flaps retracted $V_s = 65$ KIAS
- Flaps 15° $V_s = 62$ KIAS
- Flaps 35° $V_s = 60$ KIAS

SECTION 6 - WEIGHT & BALANCE

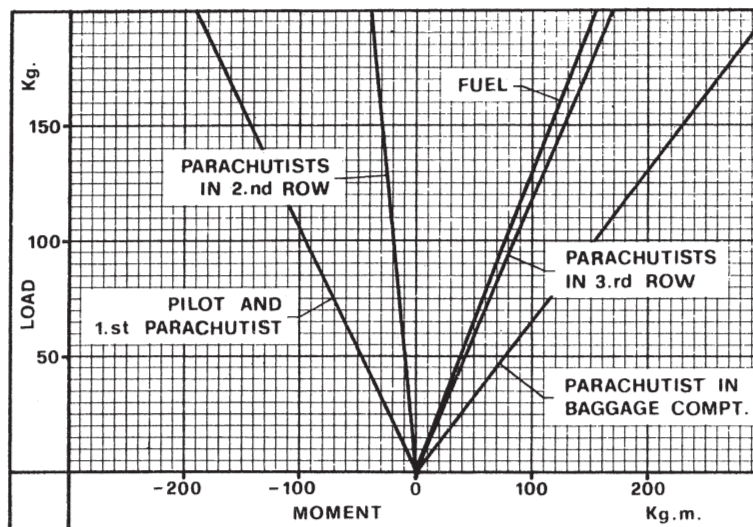
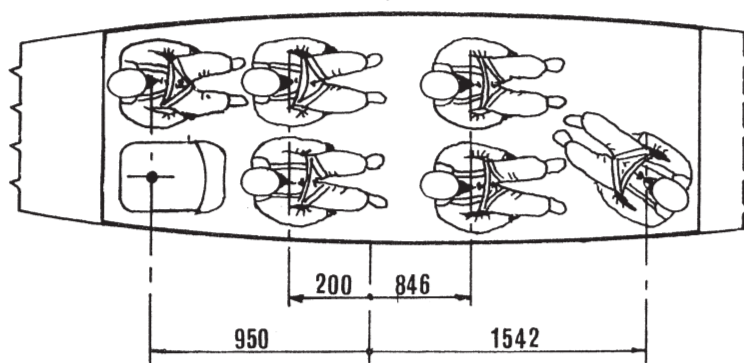
To obtain the empty weight and the moment for the parachutist version, apply the following corrections to the STD equipped empty weight and moment respectively:

- 37.9 Kg
- + 14.832 m.Kg

Add the weights and moments obtained from the "Load Graph" to the empty equipped weight and moment for the parachutist version. Take-off weight should not exceed 4321 lbs (1960 Kg); weight and moment should be contained within the allowed envelope shown in the Weight and Balance data sheet N. 3.

EXAMPLE	WEIGHTS	MOMENT
STD empty equipped weight of aircraft	1250,4 –	536,490 +
Correction to pass from STD to parachutist version	37,9 =	14,832 =
STD equipped empty weight of aircraft	1212,5	551,322
Pilot plus parachutist (copilot)	172	– 165,000
Parachutist 2nd row	172	– 35,000
Parachutist 3rd row	172	+ 145,000
Parachutist — rear	86	+ 132,000
Engine oil (full)	13	+ 1,300
Fuel	132,5	+ 100,000
	1960,0	729,622

Equipped empty weight STD version	Equipped empty weight moment STD version
..... - 37,9 Kg	 + 14,832 Kgm
Equipped empty weight Parachutist version	Equipped empty weight moment Parachutist version
.....	



Add the load weights and moments to the equipped empty weight and moment. The total weight and moment values thus obtained must correspond to a point within the envelope of the centre of gravity positions.

This page intentionally left blank

SUPPLEMENT D

EDO-AIRE MITCHELL CENTURY III AUTOPILOT AND ELECTRIC TRIM MODEL AK 511

SECTION 1 - GENERAL

This aircraft is equipped with autopilot and command trim system designed to withstand any type of single malfunctions, either mechanical or electrical, without uncontrolled operating resulting.

SECTION 2 - OPERATING LIMITATIONS

1. Autopilot OFF during take-off and landing and at any time, when operating below:
 - 500 ft AGL during climb, cruise and descent
 - 200 ft AGL during coupled approach
2. Maximum airspeed for autopilot operation is 180 Kts. CAS
3. Maximum speed for flap operation during autopilot operation is 100 Kts. CAS
4. During autopilot operation, initial flap actuation limited to 15°. After airspeed is stabilized, flaps may be extended to 35°.
5. Missed Approach (GO-AROUND) manoeuvre not authorized on autopilot.
6. During autopilot operation, the pilot must be in his seat with the seat belt fastened.

SECTION 3 - EMERGENCY PROCEDURES

The aircraft is equipped with a Master Disconnect/Interrupt Switch on the pilot's control wheel. When the switch button is depressed it will disconnect the autopilot. When depressed and held it will interrupt all Electric Elevator Trim Operations. Trim operations will be restored when the switch is released. If any autopilot or trim emergency is encountered, do not attempt to determine which system is at fault. Immediately depress and hold the Master disconnect/Interrupt button. Turn off autopilot and trim master switch to retrim aircraft, then release the interrupt switch.

NOTE: During examination of this supplement, the pilot is advised to locate and identify the autopilot controls, the trim master switch and circuit breakers for both systems.

1. In the event of an autopilot malfunction, the autopilot can be:
 - a. Overpowered at either control wheel.

CAUTION: Do not overpower autopilot pitch axis for periods longer than 3 seconds because the autotrim system will operate in a direction to oppose the pilot and will, thereby, cause an increase in the pitch overpower forces.
 - b. Disconnected by depressing the Master Disconnect/Interrupt Switch.
 - c. Disconnect by depressing the Trim Switch "AP OFF" bar.
 - d. Disconnect by pushing the roll rocker switch OFF.

2. In the event of a trim malfunction:
 - a. Depress and hold the Master Trim Interrupt Switch.
 - b. Trim Master Switch — OFF. Retrim aircraft as necessary using manual trim system.
 - c. Release Master Interrupt Switch — be alert for possible trim action.
 - d. Trim Circuit Breaker — Pull. Do not operate trim until problem is corrected.
3. If a trim runaway occurs with the autopilot operating, the above procedures will disconnect the autopilot which will immediately result in higher control wheel forces. Be prepared to manually retrim as necessary to eliminate undesirable forces.
4. Altitude Loss During Malfunction:
 - a. An autopilot malfunction during Climb Cruise or Descent with a 3 second delay in recovery initiation could result in as much as 60° bank and 300 feet altitude loss.
 - b. An autopilot malfunction during an approach with a 1 second delay in recovery initiation could result in as much as 20° bank and 100 feet altitude loss.
5. Single Engine Operations:
 - a. Engine failure during an autopilot approach operation: Disengage autopilot. Conduct remainder of approach manually.
 - b. Engine failure during normal Climb, Cruise, Descent: Retrim aircraft, perform normal aircraft engine out procedures.
 - c. Maintain aircraft yaw trim throughout all single engine operations.

SECTION 4 - NORMAL OPERATING PROCEDURES

A. Pre-Flight

1. Roll Section
 - a. Place Radio Coupler in "Heading" mode and place Roll rocker switch "ON" to engage roll section. Rotate roll command knob left and right and observe that control wheel describes a corresponding left and right turn, then center knob.
 - b. Set proper D.G. Heading on D.G. and turn Heading Bug to aircraft heading. Engage "Heading" mode rocker switch and rotate heading bug right and left. Aircraft control wheel should turn in the same direction as Bug. Grasp control wheel and manually override servo, in both directions.

REV. 7

R.A.I. Approval No. 221452/T

DATE: JULY 11, 1986

- c. Disengage Autopilot by depressing trim switch. Check Aileron operation is free and A/P is disconnected from controls.
- 2. Pitch Section
 - a. Engage a "Roll" rocker switch.
 - b. Center pitch command disc and engage a "Pitch" rocker switch.
 - c. Rotate pitch command disc up and then down and check control yoke moves same direction. Check to see that servo can be overridden by hand at control wheel.
NOTE: Autopilot might not be able to raise elevators, on ground, without assistance from pilot.
 - d. Hold control yoke and disengage Autopilot by pressing Master A/P Disconnect/Trim Interrupt switch button. Check Roll and Pitch controls to assure autopilot has disconnected.
- 3. Trim System

The pre-flight check procedure is designed to uncover hidden failures that might otherwise go undetected. Proper operation of the electric elevator trim system is predicated on conducting the following pre-flight check before each flight.

In the trim system fails in any part of the procedure, pull the trim circuit breaker out until trim system is repaired. Substitution of any trim system component for another model is not authorised. For emergency interrupt information, refer to Section 3 of this Supplement.

The command Electric Trim Switch on the left hand side of the pilot's control wheel has two functions:

 - a. When the top bar (AP OFF) is pressed, it disconnects the Autopilot
 - b. When the top bar is pressed AND the rocker is moved forward, nose down trim will occur; when moved aft, nose up trim will occur.
Pre-flight: Command Trim — Before Each Flight
 - a. Check trim circuit breaker — IN
 - b. Trim Master Switch — ON
 - c. AP OFF — Check normal trim operation — UP. Grasp trim wheel and check override capability. Check nose down operation. Recheck override.
 - d. Activate centre bar only — Push rocker fore and aft — only. Trim should not operate with either separate action.

Autotrim — Before Each Flight

- a. AP ON — (Roll and Pitch Sections) Check automatic operation by activating autopilot pitch command UP then DN. Observe trim operation follows pitch command direction.
NOTE: In autopilot mode, there will be approximately a 3 second delay between operation of pitch command and operation of trim.
- b. Press centre bar (AP OFF) — release — check autopilot disengagement.
- c. Rotate trim wheel to check manual trim operation. Reset to take-off position prior to take-off.

B. In Flight

1. Trim aircraft (Ball centred)
2. Check air pressure or vacuum to ascertain that the directional gyro and attitude gyro are receiving sufficient air.
3. Roll Section
 - a. To engage centre ROLL knob, push ROLL rocker to a "ON" position. To turn, rotate console ROLL knob in desired direction.
 - b. For heading mode, set directional gyro magnetic compass. Push directional gyro HDG knob in, rotate to select desired heading. Push console heading rocker (HDG) to "ON" position. (Maximum angle to bank will be 20° with heading lock engaged).
4. Pitch Section (Roll Section must be engaged prior to pitch section engagement).
 - a. Centre pitch trim indicator with the pitch command disc.
 - b. Engage pitch rocker switch. To change attitude, rotate pitch command disc in the desired direction.
5. Altitude Hold
Upon reaching desired or cruising altitude, engage altitude hold mode rocker switch. As long as Altitude Hold mode rocker is engaged, aircraft will maintain selected altitude. For maximum passenger comfort, rate of climb or descent should be reduced to approximately 500 ft/m prior to altitude hold engagement. For accurate Altitude Holding below 100 Knots, initially lower flaps 15°. After airspeed stabilization, lower flaps additionally, as desired.

6. Radio Coupling VOR/ILS with H.S.I. type instrument display.
(Optional)
VOR Navigation
 - a. Tune and identify VOR Station. Select desired course with O.B.S. (OMNI Bearing Selector) (Course Selector of H.S.I. Instrument).
 - b. Select OMNI mode on Radio Coupler.
 - c. Select HDG mode on autopilot console to engage coupler. Aircraft will turn to a 45° intercept angle to intercept the selected VOR course. Intercept angle magnitude depends on radio needle off-course magnitude, 100% needle deflection will result in 45° intercept angle, diminishing as the needle off-set diminishes.
 - d. NAV mode — NAV mode provides reduced VOR sensitivity for tracking weak or noisy VOR signals.
NAV mode should be selected after the aircraft is established on course.ILS — LOC Front Course
 - a. Set inbound, front, localizer course on O.B.S. (Course Selector knob).
 - b. Select LOC — Normal on Radio Coupler to intercept and track inbound on the localizer. Select LOC — REV to intercept and track the localizer course outbound to procedure turn area.
 - c. Select HDG mode on autopilot console to engage coupler.ILS — Back Course
 - a. Set inbound, front, localizer course on O.B.S. (Course Selector Knob).
 - b. Select LOC-REV on radio coupler to intercept and track inbound on the back localizer course. Select LOC-NOR to intercept and track outbound on the back course to the procedure turn area.
 - c. Select HDG mode on autopilot console to engage coupler.
7. Radio Coupling — VOR/ILS with standard directional gyro.
Radio Coupler operation in conjunction with a standard directional gyro and VOR/LOC display differs from operation with an integrated display (H.S.I.) only in one respect.
The HDG bug is used as the radio course datum and therefore must be set to match the desired VOR/ILS course as selected on the O.B.S.
 1. For VOR Intercepts and Tracking:
Select the desired VOR course and set the HDG bug to the same heading. Select OMNI mode on the coupler and HDG mode on the autopilot console.

2. For ILS Front Course Intercepts and Tracking:
Tune the localizer frequency and place the HDG bug on the inbound, front course heading. Select LOC-NOR mode on the Coupler and HDG mode on the autopilot console.
 3. For LOC Back Course Intercepts and Tracking:
Tune the localizer frequency and place the HDG bug on the inbound course heading to the airport.
Select LOC-REV mode with coupler and HDG mode on the autopilot console.
- C. Coupler Approach Operations
VOR or LOC
- a. After arrival at the VOR Station, track outbound to the procedure turn area as described in Section B (6) or (7), as appropriate, and slow to 100 Kts. CAS and initially extend flaps 15°. After airspeed has stabilized, lower flaps as desired.
 - b. Use HDG mode and Pitch or Altitude Hold modes as appropriate during procedure turn.
 - c. At the F.A.F. inbound, return to pitch mode for control of descent.
 - d. At the M.D.A. Select Altitude Hold mode and add power for level flight. Monitor Altimeter to assure accurate altitude control is being provided by the autopilot.
 - e. GO AROUND. The Go Around or Missed Approach manoeuvre is not authorised while operating with the autopilot engaged. At the Missed Approach point (or D.H.) disengage autopilot and prepare for landing or conduct the Missed Approach. After the Missed Approach climb is established and the flaps are retracted, the autopilot may be re-engaged for Climb Out. Flap retraction during autopilot operation may cause a significant altitude loss depending upon aircraft configuration and power. (Refer to Limitations, Section I).
- ILS Front Course Approach with Glide Slope Capture (Optional).
- a. Track inbound to L.O.M. as described in B - (6) or (7) above and in Altitude Hold mode.
 - b. Inbound to L.O.M. slow to 100 Kts. IAS and lower flaps 25° to 35°.
 - c. Automatic Glide Slope capture will occur at Glide Slope intercept if the following conditions are met:
 1. Coupler in LOC-Normal mode
 2. Altitude Hold mode engaged (Altitude Rocker or Console).
 3. Under Glide Slope for more than 20 seconds.
 4. Localizer radio frequency selected on NAV. Receiver

- d. At Glide Slope Intercept immediately reduce power to maintain 90-100 Kts. CAS on final approach. Glide Slope capture is indicated by lighting of the green Glide Slope engage Annunciator Lamp and by a slight pitch down of the aircraft.
- e. Monitor localizer and Glide Slope raw data throughout approach. Adjust power as necessary to maintain correct final approach airspeed. All power changes should be of small magnitude and smoothly applied for best tracking performance. Do not change aircraft configuration during approach while autopilot is engaged.
- f. Go around or Missed Approach manoeuvre not authorised. Refer to Item C (e) above.

NOTE: Glide Slope coupler will not automatically decouple from Glide Slope.

Decoupling may be accomplished by any of the following means:

- 1. Disengage Altitude Mode.
- 2. Switch Radio Coupler to HDG Mode.
- 3. Disengage Autopilot.

SECTION 5 - PERFORMANCE

No change

SECTION 6 - WEIGHT & BALANCE

Refer to Section 6, Equipment List, item K09.

SUPPLEMENT D1

BENDIX/KING 150 SERIES FLIGHT CONTROL SYSTEM

SECTION 1 GENERAL

This Supplement must be attached to the R.A.I. Approved Flight Manual when the airplane is equipped with the King 150 Series Automatic Flight Control Systems.

The information contained here supplements the basic Flight Manual.

For limitation, procedures, performance data not contained in this Supplement, consult the basic R.A.I. Approved Flight Manual.

The limitations and information in this Supplement must be considered to override the R.A.I. Approved Flight Manual where there is any conflict between the supplement and the manual.

DESCRIPTION

This manual is provided to acquaint the pilot with the limitations as well as normal and emergency operating procedures of the King 150 Series Automatic Flight Control Systems. The limitations presented are pertinent to the operation of the 150 System as installed in the Partenavia Model P68C airplane; the Flight Control System must be operated within the limitations herein specified.

The 150 Series AFCS is certified in this airplane with 2 axis autopilot control, pitch and roll.

The 150 Series AFCS has an electric pitch trim system which provides autotrim during autopilot operation and manual electric trim for the pilot. The trim system is designed to withstand any single inflight malfunction.

Trim faults are visually and aurally annunciated.

A lockout device prevents autopilot engagement until the system has been successfully preflight tested.

The following conditions will cause the Autopilot to disengage automatically:

- (a) Power failure.
- (b) Internal Flight Control System failure.
- (c) With the KCS 55A Compass System, a loss of compass valid (displaying HDG flag) disengages the Autopilot when a mode using heading information is engaged. With the HDG flag present, the Autopilot may be re-engaged in the basic wings level mode along with any vertical mode.
- (d) Roll rates in excess of 16° per second will cause the autopilot to disengage except when the CWS switch is held depressed.
- (e) Pitch rates in excess of 8° per second will cause the autopilot to disengage except when the CWS switch is held depressed.

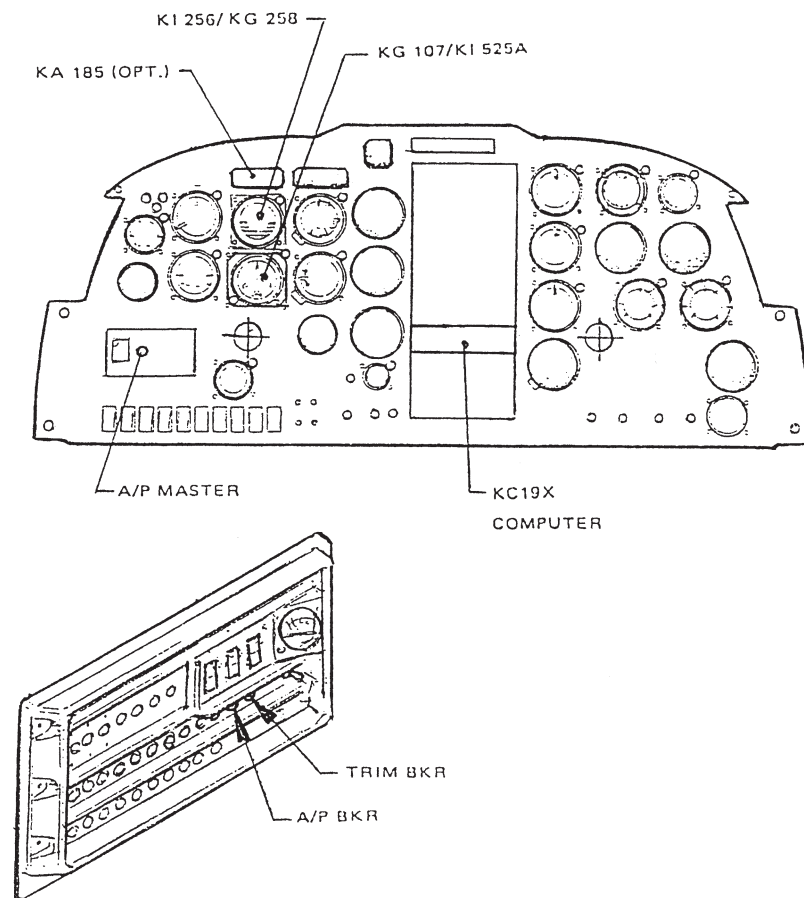


Figure 1
AUTOPILOT INSTRUMENT LAYOUT

1. KFC 150 SYSTEM KC 192 AUTOPILOT COMPUTER -

Complete FLIGHT Director and Autopilot computer, including system mode annunciators and system controls.

2. NOT USED

3. MODE ANNUNCIATORS (OPTIONAL) -

They come on when a mode is selected by the corresponding mode selector button (PUSH ON - PUSH OFF).

4. GLIDESLOPE (GS) ANNUNCIATOR -

It comes on continuously whenever the autopilot is coupled to the glideslope signal. The GS annunciator will flash if the glideslope signal is lost (GS flag in CDI or absence of glideslope pointers in KI 525A).

The autopilot reverts to pitch attitude hold operation. If a valid glideslope signal returns within six seconds, the autopilot will automatically recouple in the GS mode.

If the valid signal does not return within six seconds, the autopilot will remain in pitch attitude hold mode until such time that a valid glideslope returns and the aircraft passes thru the glideslope. At that point GS couple will re-occur.

5. TRIM WARNING LIGHT (TRIM) -

It comes on continuously whenever trim power is not on or the system has not been preflight tested. THE TRIM warning light comes on and is accompanied by an audible warning whenever a manual trim fault is detected.

The Manual Trim System is monitored for the Trim Servo running without a command. The TRIM warning light will come on and be accompanied by a steady audible tone whenever an autotrim failure occurs.

The autotrim system is monitored for the following failures: trim servo running without a command; trim servo not running when commanded to run; trim servo running in the wrong direction.

The Trim Circuit Breaker may be cycled off to silence the continuous tone but the trim fail light will remain on. Manual Electric Trim may be used but the autopilot should not be engaged.

6. AUTOPILOT (AP) ANNUNCIATOR -

It comes on continuously whenever the autopilot is engaged. Flashes approximately 12 times whenever the autopilot is disengaged (an aural alert will also sound for 2 seconds).

7. AUTOPILOT ENGAGE (AP ENG) BUTTON -

When pushed, it engages autopilot if all logic conditions are met.

8. PREFLIGHT TEST (TEST) BUTTON -

When momentarily pushed, it initiates preflight test sequence which automatically turns on all annunciator lights, tests the roll and pitch rate monitors, tests the autotrim fault monitor, checks the manual trim drive voltage and tests all autopilot valid and dump logic. If the preflight is successfully passed, the AP annunciator light will flash for approximately 6 seconds (an aural tone will also sound simultaneously with the annunciator flashes).

The autopilot can not be engaged until the autopilot preflight tests are successfully passed.

9. BACK COURSE APPROACH (BC) MODE SELECTOR BUTTON-

When pressed it will select the Back Course Approach mode. This mode functions identically to the approach mode except that response to LOC signals is reversed. Glideslope coupling is inhibited in the Back Course Approach mode.

10. APPROACH (APR) MODE SELECTOR BUTTON -

When pressed, it will select the Approach mode. This mode provides all angle intercept (with HSI) or a fixed angle intercept of 45° (with DG), automatic beam capture and tracking of VOR, RNAV or LOC signals plus Glideslope coupling in the case of an ILS.

The tracking gain of the APR mode is greater than the gain in the NAV mode. The APR annunciator on the Autopilot Computer will flash until the automatic capture sequence is initiated. On the KA 185 Remote Mode Annunciator, APR ARM will annunciate until the automatic capture sequence is initiated. At beam capture, APR CPLD will annunciate.

11. NAVIGATION (NAV) MODE SELECTOR BUTTON -

When pressed, it will select the Navigation mode. The mode provides all angle intercept (with HSI) or a fixed angle intercept of 45° (with DG), automatic beam capture and tracking of VOR, RNAV or LOC signals.

The NAV annunciator on the Autopilot Computer will flash until the automatic capture sequence is initiated. On the KA 185 Remote Mode Annunciator, NAV ARM will annunciate until the automatic capture sequence is initiated. At beam capture, NAV CPLD will annunciate.

12. HEADING (HDG) MODE SELECTOR BUTTON -

When pressed, it will select the Heading mode, which commands the airplane to turn to and maintain the heading selected by the heading bug on the DG or HSI.

A new heading may be selected at any time and will result in the airplane turning to the new heading with a maximum bank angle of about 22°. Selecting HDG mode will cancel NAV, APR or BC track mode.

13. ALTITUDE HOLD (ALT) MODE SELECTOR BUTTON -

When pressed, it will select the Altitude Hold mode, which commands the airplane to maintain the pressure altitude existing at the moment of selection.

Engagement may be accomplished in climb, descent, or level flight. In the APR mode, altitude hold will automatically disengage when the glideslope is captured.

14. FLIGHT DIRECTOR (FD) MODE SELECTOR BUTTON -

When pressed, it will select the flight Director mode (with KC 192 Autopilot Computer only), bringing the Command Bar in view on the KI 256 and will command wings level and pitch attitude hold. The FD mode must be selected prior to Autopilot engagement.

15. VERTICAL TRIM CONTROL

A spring loaded to center rocker switch which will provide up or down pitch command changes: while in ALT, it will adjust altitude at rate of about 500 fpm; when not in ALT, it will adjust pitch attitude at a rate of .7 deg/sec.

It will cancel GS couple. The aircraft must pass through the glideslope again to allow GS recouple.

16. KAP 150 SYSTEM KC 191 AUTOPILOT COMPUTER -

Complete Autopilot computer, including system mode annunciators and system controls.

17. KA 185 REMOTE MODE ANNUNCIATOR (OPTIONAL) -

Provides mode annunciation in the pilot's primary scan area as well as three Marker Beacon lights.

18. ARMED (ARM) ANNUNCIATOR -

It comes on continuously along with NAV or APR when either the NAV or APR mode selector button is pressed. The ARM annunciator will continue to come on until the automatic capture sequence is initiated at which time ARM will go off and CPLD will come on.

19. COUPLED (CPLD) ANNUNCIATOR -

It comes on continuously along with NAV or APR at the initiation of automatic beam capture sequence in either the NAV or APR modes.

Normally the CPLD condition follows an ARM condition but may be entered into directly if the beam capture criteria is met when NAV or APR is selected.

20. REMOTE MARKER BEACON LIGHTS -

Remote Airway, outer and Middle Marker Beacon lights driven by the Marker Beacon receiver.

21. NOT USED -

22. AUTOPILOT CONTROL WHEEL SWITCH ASSEMBLY -

Switch assembly mounted on the pilot's control wheel associated with the autopilot and manual electric trim systems.

23. AUTOPILOT DISCONNECT/TRIM INTERRUPT
(A/P DISC/TRIM INTER) Switch -

When pressed, it will disengage the autopilot and cancel all operating Flight Director modes. When pressed and held, it will interrupt all electric trim power (stop trim motion), disengage the autopilot and cancel all operating Flight Director modes.

24. CONTROL WHEEL STEERING (CWS) BUTTON -

When pressed, it allows pilot to control manually the aircraft (disengages the pitch, roll and pitch trim servos) without cancellation of any of the selected modes.

It will engage the Flight Director mode if not previously engaged. Automatically synchronizes the Flight Director/Autopilot to the pitch attitude present when the CWS switch is released, or to the present pressure altitude when operating in the ALT hold mode. Will cancel GS couple.

The aircraft must pass through the glideslope again to allow GS recouple.

25. MANUAL ELECTRIC TRIM CONTROL SWITCHES -

A split switch unit in which the left half provides power to engage the trim servo clutch and the right half to control the direction of motion of the trim servo motor.

Both halves of the split trim switch must be actuated in order for the manual trim to cooperate in the desired direction. When the autopilot is engaged, operation of the manual electric trim will automatically disconnect the autopilot.

26. KI 256 FLIGHT COMMAND INDICATOR (FCI) -

Displays airplane attitude as a conventional attitude gyro and displays commands for flight director operation. The gyro is air driven.

27. DECISION HEIGHT (DH) ANNUNCIATOR LIGHT -

Optional light for use with the aircraft optional radar altimeter.

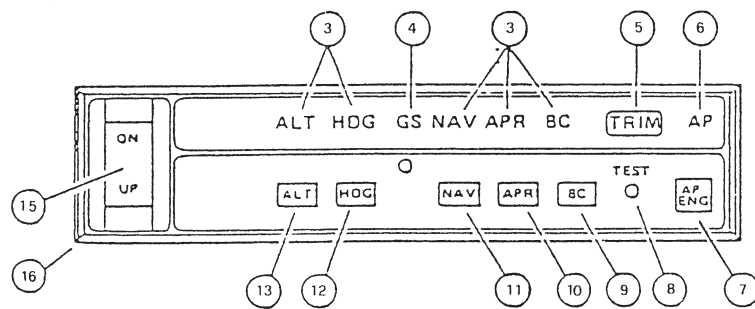
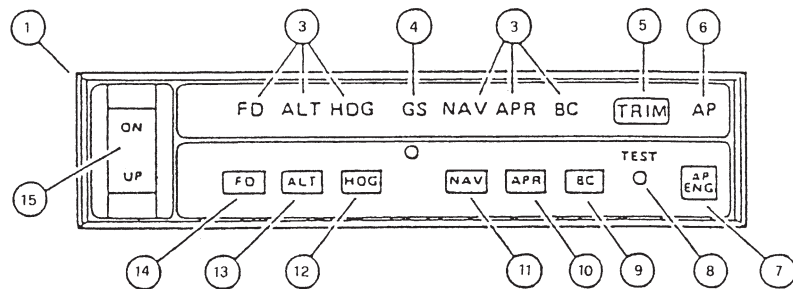


Figure 2
KC192 - KC 191

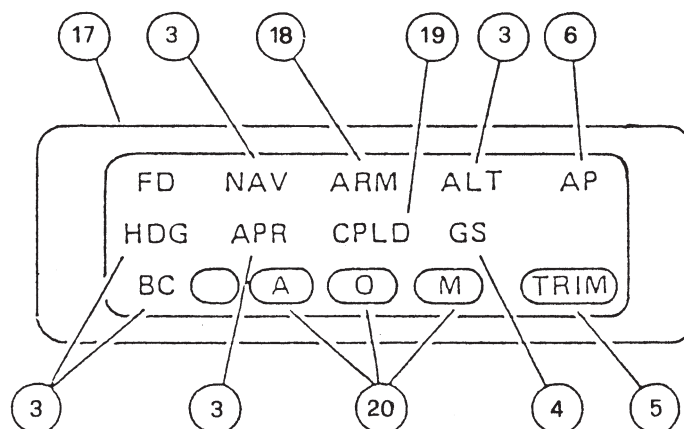


Figure 3
KA 185 REMOTE MODE ANNUNCIATOR
(OPTIONAL)

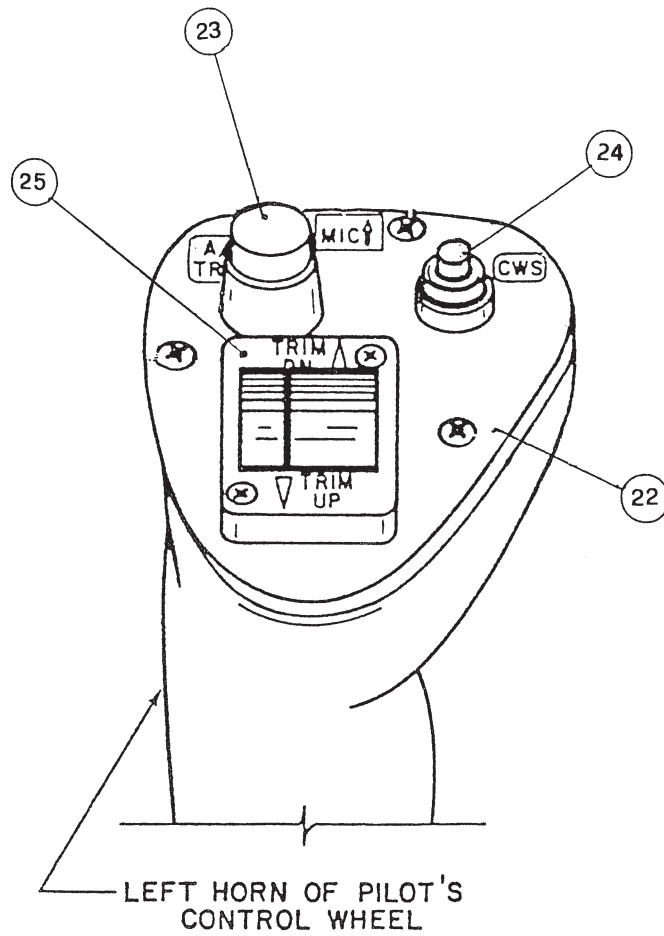


Figure 4
AUTOPILOT CONTROL WHEEL SWITCH CAP

28. ROLL ATTITUDE INDEX -

Displays airplane roll attitude with respect to the roll attitude scale.

29. ROLL ATTITUDE SCALE -

Scale marked at 0, 10, 20, 30, 60 and 90 degrees.

30. PITCH ATTITUDE SCALE -

Moves with respect to the symbolic airplane to present pitch attitude.
Scale graduated at 0, 5, 10, 15, 20 and 25 degrees.

31. COMMAND BAR -

Displays computed steering commands referenced to the symbolic airplane.

The command bar is visible only when FD mode is selected. The command bar will be biased out of view whenever the system is invalid or a Flight Director mode is not engaged.

32. FCI SYMBOLIC AIRPLANE -

Airplane pitch and roll attitude is displayed by the relationship between the fixed symbolic airplane and the movable background. During flight director operation, the symbolic airplane is flown to align it with the command bar to satisfy the flight director commands.

33. KG 258 VERTICAL GYRO -

Displays airplane attitude as a conventional attitude gyro. The gyro is air driven.

34. SYMBOLIC AIRPLANE -

Serves as a stationary symbol of the aircraft. Aircraft pitch and roll attitudes are displayed by the relationship between the fixed symbolic aircraft and the movable background.

35. SYMBOLIC AIRCRAFT ALIGNMENT KNOB -

Provides manual positioning of the symbolic aircraft for level flight under various load conditions.

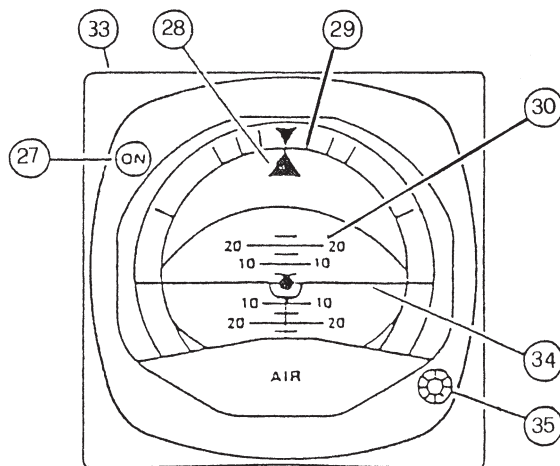
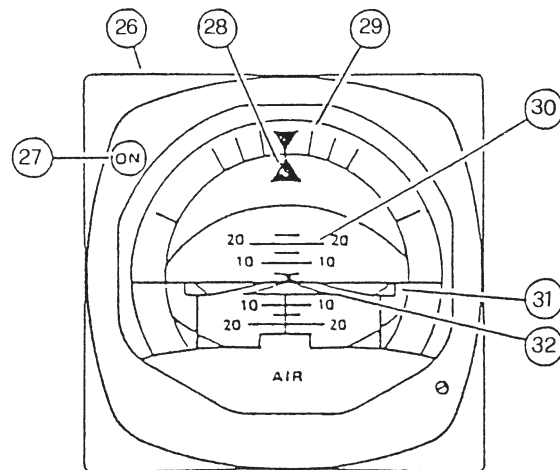


Figure 5
KI 258 - KI 256

36. KI 525A HORIZONTAL SITUATION INDICATOR (HSI) -

Provides a pictorial presentation of aircraft deviation relative to VOR radials or localizer beams. It also displays glideslope deviations and gives heading reference with respect to magnetic north.

37. NAV FLAG -

Flag is in view when the NAV receiver signal is inadequate. When a NAV flag is present in the navigation indicator (CDI or KI 525A) the autopilot operation is not affected.

The pilot must monitor the navigation indicators for NAV flags to insure that the Autopilot and/or Flight Director are tracking valid navigation information.

38. LUBBER LINE -

Indicates aircraft magnetic heading on compass card (45).

39. HEADING WARNING FLAG (HDG) -

When flag is in view the heading display is invalid. If a HDG flag appears and a lateral mode (HDG, NAV, APR or APR BC) is selected, the Autopilot will be disengaged. The Autopilot may be re-engaged in the basic wings level mode along with any vertical mode. The CWS switch would be used to maneuver the aircraft laterally.

40. COURSE BEARING POINTER -

Indicates selected VOR course or localizer course on compass card (45).

The selected VOR radial or localizer heading remains set on the compass card when the compass card (45) rotates.

41. TO/FROM INDICATOR FLAG -

Indicates direction of VOR station relative to selected course.

42. DUAL GLIDESLOPE POINTERS -

Indicate on glideslope scale (43) aircraft displacement from glideslope beam center. Glideslope pointers in view indicate a usable glideslope signal is being received.

43. GLIDESLOPE SCALES -

Indicate displacement from glideslope beam center. A glideslope deviation bar displacement of 2 dots, represents full scale (0.7°) deviation above or below glideslope beam centerline.

44. HEADING SELECTOR KNOB () -

Positions heading bug (49) on compass card (45) by rotating the heading selector knob. The Bug rotates with the compass card.

45. COMPASS CARD -

Rotates to display heading of airplane with reference to lubber line (38) on HSI or DG.

46. COURSE SELECTOR KNOB -

Position course bearing pointer (40) on the compass card (45) by rotating the course selector knob.

47. COURSE DEVIATION BAR (D-BAR) -

The center portion of omni bearing pointer moves laterally to indicate pictorially the relationship between the aircraft and the selected course. It indicates degrees of angular displacement from VOR radials and localizer beams, or displacement in nautical miles from RNAV courses.

48. COURSE DEVIATION SCALE -

A course deviation bar displacement of 5 dots represents full scale (VOR = 10° , LOC = $21/2^\circ$, RNAV = 5NM, RNAV APR = $1\ 1/4$ NM) deviation from beam centerline.

49. HEADING BUG -

Moved by  knob (44) to select desired heading.

50. K 107 NON-SLAVED DIRECTIONAL GYRO (DG) -

Provides a stable visual indication of aircraft heading to the pilot. The gyro is air driven.

51. GYRO ADJUSTMENT KNOB (PUSH) -

When pushed in, allows the pilot to rotate manually the gyro compass card (45) to correspond with the magnetic heading indicated by the magnetic compass. The unslaved compass card must be manually reset periodically to compensate for precessional errors in the gyro.

52. KI 206/209 VOR/LOC/GLIDESLOPE INDICATOR -

Provides rectilinear display of VOR/LOC and Glideslope deviation.

53. COURSE INDEX -

Indicates selected VOR course.

54. COURSE CARD -

Indicates selected VOR course under course index

55. GLIDESLOPE DEVIATION NEEDLE -

Indicates deviation from ILS glideslope.

56. GLIDESLOPE SCALE -

Indicates displacement from glideslope beam center. A glideslope deviation needle displacement of 5 dots, represents full scale (0.7°) deviation above or below glideslope beam centerline.

57. RECIPROCAL COURSE INDEX -

Indicates reciprocal of selected VOR course.

58. OMNI BEARING SELECTOR (OBS) KNOB -

Rotates course card to selected course.

59. COURSE DEVIATION NEEDLE -

Indicates course deviation from selected omni course or localizer centerline.

60. GLIDESLOPE (GS) FLAG -

Flag is in view when the GS receiver signal is inadequate.

FIGURE 1 KING 150 AUTOPILOT SYSTEM
CONTROLS AND INDICATORS

The airplane BATTERY 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.

The AUTOPILOT switch supplies power to the autopilot (A/P) and TRIM circuit breakers.

The following circuit breakers are used to protect the following elements of the King 150 Series Autopilot:

LABEL	FUNCTION
A/P	Supplies power to the KC 192 or the KC 191 Computer, to the autopilot pitch and roll servo, the optional KA 185 Annunciator and the Trim circuit breaker. The A/P circuit breaker receives power from the bar.
TRIM	Supplies power to the autotrim and manual electric pitch trim systems. The Trim circuit breaker receives power from the A/P circuit breaker.
HSI	Supplies power to the optional KCS 55A Compass System. The HSI circuit breaker receives power from the bar.

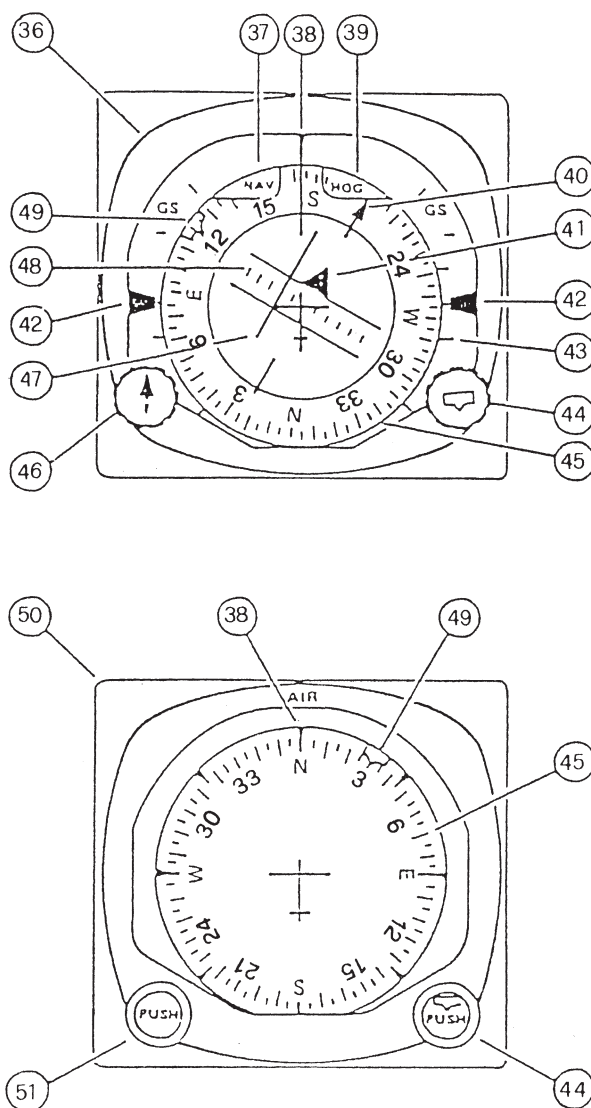
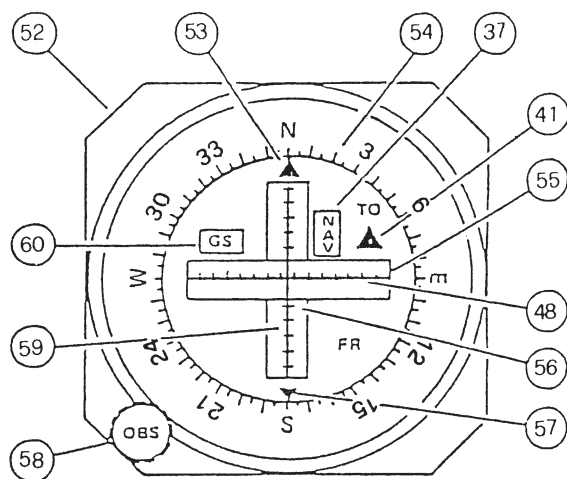
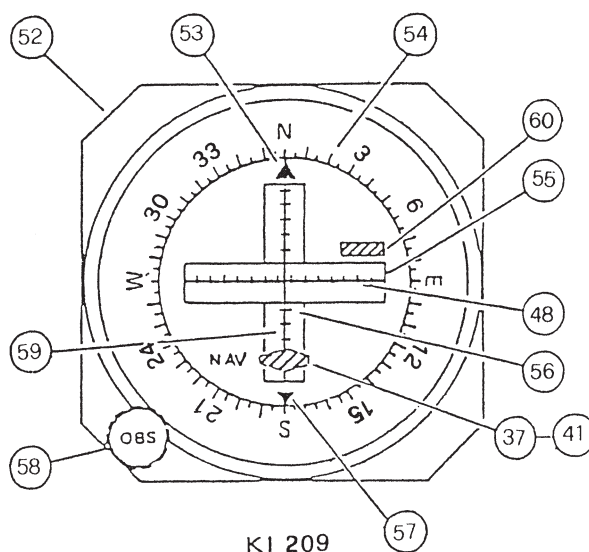


Figure 6
 KI 525A HSI - KG 107 DG



K1 206



K1 209

Figure 7
VOR/LOC/GS INDICATOR

SECTION 2 - LIMITATIONS

- (a) During autopilot operation, a pilot with seat belt fastened must be seated at the left pilot position.
- (b) The autopilot must be OFF during takeoff and landing.
- (c) The system is approved for Category I operation only (Approach mode selected).
- (d) Autopilot operation prohibited with more than 15° flaps.
- (e) The minimum altitude for autopilot operating is 200 ft AGL during an approach and 1000 ft AGL during cruise, climb and descent.
- (f) Max A/P operating speed is 170 KIAS.

NOTE

In accordance with FAA recommendation (AC00-24A), use of basic "Altitude Hold" mode is not recommended during operation in severe turbulence.

Placards:

NONE

SECTION 3 - EMERGENCY PROCEDURES

- (a) In case of Autopilot malfunction: (accomplish Items 1 and 2 simultaneously)
 - (1) Airplane Control Wheel -
GRASP FIRMLY and regain aircraft control.
 - (2) A/P DISC/TRIM INTER Switch -
PRESS and HOLD.
 - (3) A/P DISC/TRIM INTER Switch -

RELEASE while observing pitch trim wheel. If pitch trim wheel is in motion, follow the Electric Trim Malfunction Procedure.

- (b) In case of Electric Trim Malfunction (either manual electric or autotrim):
 - (1) A/P DISC/TRIM INTER Switch
PRESS and HOLD throughout recovery.
 - (2) TRIM Circuit Breaker - OFF.
 - (3) Aircraft - RETRIM manually.

CAUTION

When disconnecting the autopilot after a trim malfunction, hold the control wheel firmly, up to 45 pounds of force on the control wheel may be necessary to hold the aircraft leveled.

- (c) Engine Failure (Coupled)
 - (1) Disengage AP.
 - (2) Follow basic Airplane Flight Manual engine inoperative procedures.
 - (3) Airplane rudder and aileron axes must be manually trimmed prior to engaging autopilot for engine inoperative operations.

CAUTION

If rudder trim cannot be maintained when power is changed during an engine inoperative coupled approach, disengage autopilot and continue approach manually.

Maximum Altitude losses due to autopilot malfunction:

Configuration	Alt loss
Cruise, Climb	300'
Descent	300'
Maneuvering	180'
APPR	50'
SE APPR	70'

SECTION 4 - NORMAL PROCEDURES

(a) PREFLIGHT (Perform prior to each flight)

- (1) GYROS-
Allow 3-4 minutes for gyros to come up to speed.
- (2) A/P MASTER - ON
- (3) PREFLIGHT TEST BUTTON -
PRESS momentarily and NOTE:
 - a. All annunciator lights on (TRIM annunciator flashing).
 - b. After approximately 5 seconds, all annunciator lights go off except AP which will flash approximately 12 times and then remain off. Aural alert tone should also sound.

NOTE

If trim warning light stays on then the autotrim did not pass preflight test. The autopilot circuit breaker should be pulled. Manual electric trim can not be used.

(4) MANUAL ELECTRIC TRIM - TEST as follows:

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

(5) FLIGHT DIRECTOR (KFC 150 ONLY) -

ENGAGE by pressing FD or CWS button.

(6) AUTOPILOT -

ENGAGE by pressing AP ENG button.

(7) FLIGHT CONTROLS -

MOVE fore, aft, left & right to verify that the autopilot can be overpowered.

(8) A/P DISC/TRIM INTER Switch -

PRESS. Verify that the autopilot disconnects and all flight director modes are cancelled.

(9) TRIM -

SET to take off position.

(b) AUTOPILOT OPERATION

- (1) Before takeoff
A/P DISC/TRIM INTER Switch - PRESS.
- (2) Inflight Autopilot Engagement
 - a. FD Mode Selector Button (KFC 150 Only)
PRESS.
 - b. AP ENG Button -
PRESS. Note AP annunciator on. If no other modes are selected the autopilot will operate in wings level and pitch attitude hold.

CAUTION

Do not help the autopilot as the autopilot will run the pitch trim to oppose your help.

- (3) Climb or Descent
 - 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 of + 15° or – 10°.
 - b. Using Vertical Trim
 1. VERTICAL TRIM Control - PRESS either up or down to modify aircraft attitude at a rate of 0.7 deg/sec up to the pitch limits of + 15° or – 10°.
 2. VERTICAL TRIM Control - RELEASE when desired aircraft attitude is reached. The autopilot will maintain the desired pitch attitude.

(4) Altitude Hold

- a. ALT Mode Selector Button -
PRESS. Note ALT mode annunciator ON. Autopilot will maintain the selected pressure altitude.
- b. Change selected altitudes
 1. Using CWS (Recommended for altitude changes greater than 100 ft.)
 - a) CWS Button -
PRESS and fly aircraft to desired pressure altitude.
 - b) CWS Button -
RELEASE when desired pressure altitude is reached. The autopilot will maintain the desired 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.

(5) Heading Changes

- a. Manual Heading Changes
 1. CWS Button -
PRESS and MANEUVER aircraft to the desired heading.
 2. CWS Button -
RELEASE. Autopilot will maintain aircraft in wings level attitude.

NOTE

Aircraft heading may change in the wings level mode due to an aircraft out of trim condition.

b. 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.

c. 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.

(6) NAV Coupling

a. When equipped with HSI.

1. COURSE Bearing Pointer -
SET to desired course.

NOTE

When equipped with NAV 1/NAV 2 switching and NAV 2 is selected, set OBS to the desired course.

2. HEADING Selector Knob - SET BUG to provide desired intercept angle.

3. NAV Mode Selector Button - PRESS.

- a) If the Course Deviation Bar is greater than 2 to 3 dots: the aircraft will continue in HDG mode (or wings level if HDG not selected) with the NAV annunciator flashing; when the computed capture point is reached the HDG mode will disengage, the NAV annunciator will come on steady and the selected course will be automatically captured and tracked.
- b) If the D-Bar is less than 2 to 3 dots: the HDG mode will disengage upon selecting NAV mode; the NAV annunciator will come on steady and the capture/track sequence will begin automatically.

b. When equipped with DG.

- 1. OBS Knob - SELECT desired course.
- 2. NAV Mode Selector Button - PRESS.
- 3. HEADING Selector Knob - ROTATE BUG to agree with OBS course.

NOTE

When NAV is selected, the lateral operating mode will change from HDG (if selected) to wings level for 5 seconds. A 45° intercept angle will be then automatically established based on the position of the bug.

- a) If the D-Bar is greater than 2 to 3 dots: the autopilot will annunciate HDG mode (unless HDG not selected) and NAV flashing; when the computed capture point is reached the HDG annunciator will go off, the NAV annunciator will come on steady and the selected course will be automatically captured and tracked.

- b) If the D-Bar is less than 2 to 3 dots: the HDG mode will disengage upon selecting NAV mode; the NAV annunciator will come on steady and the capture/track sequence will automatically begin.

(7) Approach (APR) Coupling

- a. When equipped with HSI.

- 1. COURSE Bearing Pointer - SET to desired course.

NOTE

When equipped with NAV 1/NAV 2 switching and NAV 2 is selected, set OBS to the desired course.

- 2. HEADING Selector Knob - SET BUG to provide desired intercept angle.
- 3. APR Mode Selector Button - PRESS.
 - a) If the Course Deviation Bar is greater than 2 to 3 dots: the aircraft will continue in HDG mode (or wings level if HDG not selected) with the APR annunciator flashing; when the computed capture point is reached the HDG mode will disengage, the APR annunciator will come on steady and the selected course will be automatically captured and tracked.
 - b) If the D-Bar is less than 2 to 3 dots: the HDG mode will disengage upon selecting APR mode; the APR annunciator will come on steady and the capture/track sequence will automatically begin.

- a. When equipped with DG
 1. OBS Knob - SELECT desired approach course.
 2. APR Mode Selector Button - PRESS.
 3. Heading Selector Knob - ROTATE Bug to agree with OBS Course

NOTE

When APR is selected, the lateral operating mode will change from HDG (if selected) to wings level for 5 seconds.

A 45° intercept angle will then be automatically established based on the position of the bug.

- a) If the D- Bar is greater than 2 or 3 dots: the autopilot will annunciate HDG mode (unless HDG not selected) and APR flashing; when the computed capture point is reached the HDG annunciator will go off, the APR annunciator will come on steady and the selected course will be automatically captured and tracked.
- b) If the D-Bar is less than 2 to 3 dots: the HDG mode will disengage upon selecting APR mode; the APR annunciator will come on steady and the capture / track sequence will begin automatically.

(8) BC Approach Coupling

- a. When equipped with HSI
 1. COURSE Bearing Pointer -
SET to the ILS front course inbound heading.

NOTE

When equipped with NAV 1/NAV 2 switching and NAV 2 is selected, set OBS to the ILS front course inbound heading.

2. HEADING Selector Knob - SET BUG to provide desired intercept angle.
3. BC Mode Selector Button - PRESS
 - a) If the Course Deviation Bar is greater than 2 or 3 dots: the aircraft will continue in HDG mode (or wings level if HDG not selected) with BC annunciated steady and APR annunciator flashing; when the computed capture point is reached the HDG mode will disengage, and the BC and APR annunciators will come on steady and the selected course will be automatically captured and tracked.
 - b) If the D-Bar is less than 2 to 3 dots: the HDG mode will disengage upon selecting BC mode; the APR BC annunciator will come on steady and the capture/track sequence will begin automatically.
- b. When equipped with DG.
 1. OBS Knob - SELECT the ILS front course inbound heading.
 2. BC Mode Selector Button - PRESS.
 3. HEADING Selector Knob - ROTATE Bug to the ILS front course inbound heading.

NOTE

When BC is selected, the lateral operating mode will change from HDG (if selected) to wings level for 5 seconds. A 45° intercept angle will then be established based on the position of the bug.

- a) If the D-Bar is greater than 2 to 3 dots: the autopilot will annunciate HDG (unless HDG not selected) and BC modes with APR flashing; when the computed capture point is reached the HDG annunciator will go off, the BC and APR annunciators will come on steady and the selected course will be automatically captured and tracked.
- b) If the D-Bar is less than 2 to 3 dots: the HDG mode will disengage upon selecting BC mode; the BC and APR annunciators will come on steady and the capture / track sequence will automatically begin.

(9) 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.
- b. At glideslope centering - NOTE GS annunciator ON.

NOTE

Autopilot can capture Glideslope from above or below the beam while operating in either pitch attitude HOLD or ALT HOLD modes.

(10) Missed Approach

- a. A/P DISC/TRIM INTER Switch - PRESS to disengage AP.
- b. MISSED APPROACH - EXECUTE.
- c. CWS Button - PRESS (KFC 150 only) as desired to activate FD mode during go-around maneuver.
- d. AP ENG Button - PRESS (If AP operation is desired). Note AP annunciator ON.

NOTE

If it is desired to track the ILS course outbound as part of the missed approach procedure, use the NAV mode to prevent inadvertent GS coupling.

(11) Before Landing

- a. A/P DISC/TRIM INTER Switch - PRESS to disengage AP.
- (c) FLIGHT DIRECTOR OPERATION (KFC 150 Systems Only)

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 command.

SECTION 5 - PERFORMANCE

No change.

SECTION 6 - WEIGHT AND BALANCE

Refer to section 6 of basic A.F.M. equipment list, item K15.

This page intentionally left blank

SUPPLEMENT E

HEATING AND VENTILATING SYSTEM JANITROL MODEL B-4050 COMBUSTION HEATER

SECTION 1 - GENERAL

Heated Air for Cabin heat is provided by a Janitrol (Aero Division, Model B-4050) combustion heater located in the aft fuselage behind the cabin baggage compartment.

Air enters the system through an inlet located at the root of the tail vertical fin and after being heated is ducted forward along the cabin floor to outlets at each seat.

A cycling switch immersed in the heated air and set to operate at 250°F regulates the temperature according to the request. An overheat switch set to operate at 350°F automatically cuts off the heater should a malfunction occur.

The system may also be used for ventilation both in flight by utilizing ram air and on the ground by utilizing the air of the ventilating blower which is part of the combustion heater.

SECTION 2 - OPERATING LIMITATIONS

PLACARDS ON INSTRUMENT PANEL

Near the heater switch: FAN — OFF — HEATER

Upon the heater switch: BEFORE SWITCHING ON, PULL CABIN AIR
KNOB

Near the cabin air control handle: CABIN AIR —PULL TO OPEN

Near the cabin temperature control handle: CABIN TEMP. — PULL TO
INCREASE

Near the red warning light of the heater overheat: HEATER OVERHEAT

SECTION 3 - EMERGENCY PROCEDURES

None

SECTION 4 - NORMAL PROCEDURE

HEATING MODE

To activate the combustion heater

- a) CABIN AIR handle: OPEN (immediately)
- b) CABIN TEMP. handle: INCREASE
- c) HEATER Switch: HEATER
- d) CABIN TEMP. handle: adjust as desired when cabin temperature rises.

To disactivate the combustion heater

In Flight

- a) HEATER Switch: OFF
- b) CABIN AIR handle: As desired

On the ground

- a) HEATER Switch: FAN for at least two minutes and then OFF
 - b) CABIN AIR handle: CLOSE only after switching heater OFF
- WARNING: If the HEATER OVERHEAT light illuminates, switch heater off and do not attempt to restart it until the cause of the malfunction has been determined and corrected.

VENTILATION MODE

On the ground:

- a) CABIN AIR handle: OPEN (completely)
- b) HEATER Switch: FAN

In Flight

- a) CABIN AIR handle: OPEN

SECTION 5 - PERFORMANCE

No change

SECTION 6 - WEIGHT AND BALANCE

Refer to Section 6, Equipment List, item J-07.

SUPPLEMENT E/1

CABIN FORCED AIR HEATING SYSTEM
(as per modification MOD: P68/02)

SECTION 1 - GENERAL

This supplement must be attached to the Approved Airplane Flight Manual when the airplane is equipped with a Cabin Forced Air Heating System as per modification MOD. P68/02

The information contained herein supplements or supersedes the basic Approved Airplane Flight Manual in those areas listed herein.

For limitations, procedures and performance information not contained in this supplement, consult the basic Approved Airplane Flight Manual.

The Cabin Forced Air Heating System improves the crew compartment and cabin heating during either ground or flight operations.

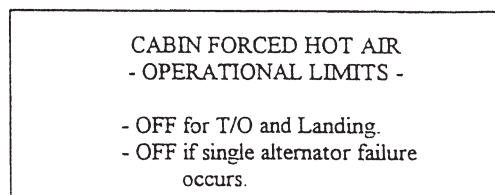
SECTION 2 - LIMITATIONS

Operation of the Cabin Forced Air Heating System is not approved for the following conditions:

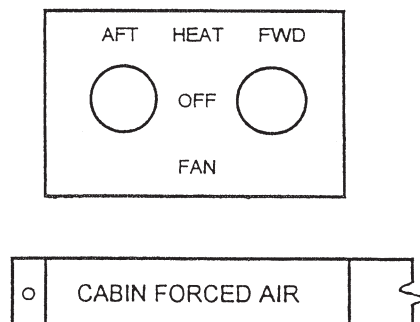
- Take-Off and Landing
- Single alternator operation.

PLACARDS

In full view of pilot:



On breaker panel, left to the pilot seat:



SECTION 3 - EMERGENCY PROCEDURES
ENGINE OR ALTERNATOR FAILURE EMERGENCY PROCEDURES

NOTE

When engine or alternator failure occurs, the Cabin Forced Air Heating System will automatically powered OFF.

Add the following step before performing the procedure

- | | |
|--------------------------|-----|
| a. FWD fan heater switch | OFF |
| b. AFT fan heater switch | OFF |

SECTION 4 - NORMAL PROCEDURES

PREFLIGHT CHECK LIST

Add the following checks:

NOTE

External Power Unit connected

Cabin Forced Air Switches

1. VENTILATING MODE

- | | |
|--------------------------|-----|
| a. FWD fan heater switch | FAN |
| b. AFT fan heater switch | FAN |

2. HEATING MODE

- | | |
|--------------------------|------|
| a. FWD fan heater switch | HEAT |
| b. AFT fan heater switch | HEAT |

NOTE

Verify the proper run of the Cabin Forced Air Heating System by putting hand near the cabin air outlet. In case of system failure, switch OFF and indagate.

BEFORE STARTING ENGINES

Add the following step before performing the procedure

(a) Cabin Forced Air Switches OFF

CLIMB/CRUISE/DESCENT

CABIN FORCED AIR AS REQUIRED

BEFORE LANDING

Add the following step before performing the procedure:

a. FWD fan heater switch OFF
b. AFT fan heater switch OFF
c. Before Landing procedure COMPLETE

SECTION 5 - PERFORMANCE

No change to the basic performance provided by the Section 5 of the Approved Airplane Flight Manual are necessary for this supplement.

SECTION 6 - WEIGHT AND BALANCE

Negligible

SECTION 7 - DESCRIPTION AND OPERATION

The Cabin Forced Air Heating System consists of two fan heaters "HEIZLUFTER" type HL-3210 (Partenavia P/N NOR 7.1205-1) and the necessary hardware to complete the system.

The two fan heaters are installed, respectively, between frame No 1 and No 2, on the cabin floor, and between frame No 8 and No 9, under main RH gear leaf spring, on inner face of external skin.

Two hot air outlets, obtained with a "Y" adapter installed on the FWD fan heaters, provide proper distribution of hot air in the FWD cabin compartment.

Aft cabin compartment heating is assured by another two hot air outlet installed on LH/RH lower side of frame No 8.

Two three position switch "HEAT - OFF - FAN" installed on the breaker panel, left to the pilot seat, control, respectively, the FWD and AFT fan heaters.

In the FAN position the system provides forced ventilation air only, while in the HEAT position it acts as a forced hot air heating.

A thermal switch located inside the FAN heaters is provided to turn OFF this last one in case of its overheating.

If an alternator failure occurs fan heaters will be cut off automatically.

This page intentionally left blank

SUPPLEMENT E/2

CABIN FORCED AIR HEATING SYSTEM

(as per modification MOD P68/04)

SECTION 1 - GENERAL

This document must be attached to the Approved Airplane Flight Manual when the airplane is equipped with a Cabin Forced Air Heating System as per modification MOD P68/04.

The information contained herein supplements or supersedes the basic Approved Airplane Flight Manual in those areas listed herein.

For limitations, procedures and performance information not contained in this supplement, consult the basic Approved Airplane Flight Manual. The Cabin Forced Air Heating System improves the crew compartment and cabin heating during either ground or flight operations.

SECTION 2 -LIMITATIONS

Operation of the Cabin Forced Air Heating System
is not approved for the following conditions :

- TAKE-OFF AND LANDING
- SINGLE GENERATOR OPERATION

PLACARDS

IN FULL VIEW OF PILOT :

CABIN FORCED HOT AIR
-OPERATIONAL LIMITS-

- OFF for T/O and Landing.
- OFF if single generator
failure occurs.

Magnetic Compass may deviate
by more than 10° when Fan
Heater System is operative

ON BREAKER PANEL :

CABIN FORCED HOT AIR
AFT - HEAT - FWD

OFF

SECTION 3 - EMERGENCY PROCEDURES

Engine or generator failure emergency procedures

NOTE

When engine or generator failure occurs, the Cabin Forced Air Heating System will automatically be powered OFF.

Add the following step before performing the procedure

- | | |
|--------------------------|-----|
| a) HEAT/OFF/A.C. switch | OFF |
| b) FWD fan heater switch | OFF |
| c) AFT fan heater switch | OFF |

SECTION 4 - NORMAL PROCEDURES

PREFLIGHT CHECK LIST

Add the following check:

NOTE

External Power Unit connected

Cabin Forced Air Switches

- | | |
|--------------------------|------|
| a) HEAT/OFF/A.C. Switch | HEAT |
| b) FWD fan heater switch | HEAT |
| c) AFT fan heater switch | HEAT |

NOTE

Verify the proper run of the Cabin Forced Air Heating System by putting hand near the cabin air outlet. In case of system failure, switch OFF and investigate.

BEFORE STARTING ENGINE

Add the following step before performing the procedure

- a) HEAT/OFF/A.C. OFF
- b) Cabin Forced Air Switches OFF

CLIMB/CRUISE/DESCENT

CABIN FORCED AIR AS REQUIRED

BEFORE T/O OR LANDING

Add the following step before performing the procedure:

- a) HEAT/OFF/A.C. switch OFF
- b) FWD fan heater switch OFF
- c) AFT fan heater switch OFF
- D) Before T/O or Landing procedure COMPLETE

SECTION 5 - PERFORMANCE

No change to the basic performance provided by the Section 5 of the Approved Airplane Flight Manual are necessary for this supplement.

SECTION 7 - DESCRIPTION AND OPERATION

The Cabin Forced Air Heating System consists of two fan heater VulcanAir p/n 7.2671-1 and the necessary hardware to complete the system.

The two fan heaters are installed , respectively, in the fuselage nose, and between frame N° 8 and N° 9, under main gear leaf spring, on inner face of bottom panel.

Two hot air outlets, installed on frame N° 2, FWD rudder control pedal, provide proper distribution of hot air in the FWD cabin compartment.

Aft cabin compartment heating is assured by another two hot air outlet installed on LH/RH lower side of frame N° 8.

One hot air outlet , installed on the FWD fan heater , provides windshield defroster.

Two position switch “ HEAT - OFF “ installed on the breaker panel, control respectively, the FWD and AFT fan heaters.

In the heat position, the system provides forced hot air heating.

A thermal switch located inside the fan heaters,together with an external relay are provided to turn the fan heaters OFF in case of overheating. If this occurs, the system can be reset; turning the switch OFF and ON again.

Should an overheating occurs again, the system must be switched OFF and troubleshooting carried out once on ground.

This page intentionally left blank

SUPPLEMENT G

AIR CONDITIONING SYSTEM

SECTION 1 - GENERAL

This Supplement must be attached to the R.A.I. Approved Flight Manual when the air conditioning system (Kit P/N 68-031) is installed on the airplane.

The information contained herein supplements the basic Flight Manual. For limitation, procedures and performance data not contained in this supplement, consult the basic Flight Manual.

The conditioning system is installed in the baggage compartment. The system is composed of two separate units: air enters through the inlets located on the side wall of the evaporator unit, on the rear cabin roof. In the ventilating mode, the air is directly blown through the outlet located on the front of the unit. In the conditioning mode, the air is cooled by a refrigeration while being blown into the cabin. The refrigeration cycle of the liquid takes place in the condenser unit, located behind and below the evaporator. Exhaust air flows outside through a hole located on the aircraft L.H. skin.

SECTION 2 - OPERATING LIMITATIONS

AIR CONDITIONING SYSTEM LIMITATIONS

Operation of the air conditioning system is not approved for the following conditions:

1. Take off and landing
2. Single alternator operation
3. Ground operation at engine speed below 1500 RPM

PLACARDS

Near cooler switch - OFF COOL
FAN

Near blower switch - OFF HIGH
LOW

Near both switches:

Air Conditioner

1. OFF FOR T/O & LANDING
2. OFF BELOW 1500 RPM
3. OFF FOR SINGLE ALTERNATOR

SECTION 3 - EMERGENCY PROCEDURES

ENGINE OR ALTERNATOR FAILURE EMERGENCY PROCEDURES

- a) BLOWER switch - OFF
- b) COOLER switch - OFF

SECTION 4 - NORMAL PROCEDURES

VENTILATING MODE

- a) COOLER switch - FAN
- b) BLOWER switch - high or low as desired

CONDITIONING MODE

- a) COOLER switch - COOL
- b) BLOWER switch - high or low as desired

SECTION 5 - PERFORMANCE

No change

SECTION 6 - WEIGHT AND BALANCE EQUIPMENT LIST

Refer to Section 6, Equipment List, item no. H-07

SUPPLEMENT G/1

**AIR CONDITIONING SYSTEM
(as per modification MOD.P68/01)**

SECTION 1 - GENERAL

This supplement must be attached to the R.A.I. Approved Airplane Flight Manual when the airplane is equipped with KEITH Air-conditioning System as per modification MOD.P68/01 (Kit 68-072).

The information contained herein supplements or supersedes the basic Approved Airplane Flight Manual in those areas listed herein.

For limitations, procedures and performance information not contained in this supplement, consult the basic Approved Airplane Flight Manual.

The KEITH Air-conditioning System improves the flight compartment and cabin cooling during either ground or flight operations.

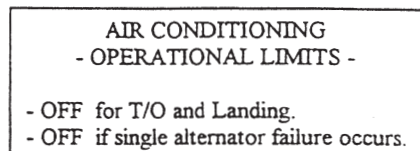
SECTION 2 - LIMITATIONS

Operation of the Air-conditioning System is not approved for the following conditions:

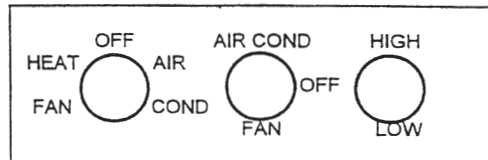
- Take-Off and Landing
- Single generator operation.

PLACARDS

On overhead panel, in full view of pilot:



On breakers panel:



SECTION 3 - EMERGENCY PROCEDURES

SINGLE ALTERNATOR FAILURE

(Zero Amps or ALT OUT light ON)

NOTE

When engine or alternator failure occurs, the Air Conditioning System will automatically be powered OFF.

"HEAT FAN - OFF - AIR COND." switch to	OFF
"AIR COND. - OFF - FAN" switch to	OFF

ENGINE AIR START

Add the following step before performing the procedure:

"HEAT FAN - OFF - AIR COND." switch to	OFF
"AIR COND. - OFF - FAN" switch to	OFF

INFLIGHT ENGINE FIRE

Add the following step before performing the procedure:

"HEAT FAN - OFF - AIR COND." switch to	OFF
"AIR COND. - OFF - FAN" switch to	OFF

SECTION 4 - NORMAL PROCEDURES

PRE-FLIGHT CHECK LIST

Add the following checks:

FUSELAGE (left side)

- | | |
|-------------------------|-----------------------|
| 1. Condenser air outlet | FREE FROM OBSTRUCTION |
|-------------------------|-----------------------|

FUSELAGE (right side)

On the baggage bulkhead:

- | | |
|--------------------------|-----------------------|
| 1. Evaporator air intake | FREE FROM OBSTRUCTION |
|--------------------------|-----------------------|

GROUND OPERATION (with external power unit connected)

" HEAT FAN - OFF - AIR COND." switch to	AIR COND.
---	-----------

1. VENTILATING MODE

- | | |
|--------------------------------------|--------------|
| a. "AIR COND. - OFF - FAN" switch to | FAN |
| b. "HIGH - LOW" switch | AS REQUESTED |

2. CONDITIONING MODE

- | | |
|--------------------------------------|--------------|
| a. "AIR COND. - OFF - FAN" switch to | AIR COND. |
| b. "HIGH - LOW" switch to | AS REQUESTED |

BEFORE STARTING ENGINE

- | | |
|---|----------|
| 1. "HEAT FAN - OFF - AIR COND." switch to | OFF |
| 2. "AIR COND. - OFF - FAN" switch to | OFF |
| 3. Before starting engine procedure | COMPLETE |

BEFORE TAXI

- | | |
|---|------------------------|
| 1. "HEAT FAN - OFF - AIR COND." switch to | AIR COND. (if desired) |
| 2. "AIR COND. - OFF - FAN" switch to | AS REQUIRED |
| 3. "HIGH - LOW" switch | AS REQUIRED |
| 4. Before Taxi Procedure | COMPLETE |

BEFORE TAKE-OFF

Add the following step before performing the procedure:

- | | |
|---|----------|
| 1. "HEAT FAN - OFF - AIR COND." switch to | OFF |
| 2. "AIR COND. - OFF - FAN" switch to | OFF |
| 3. Before Take-Off procedure | COMPLETE |

CLIMB/CRUISE/DESCENT

Air Conditioning System Operation	AS REQUIRED
-----------------------------------	-------------

BEFORE LANDING

Add the following step before performing the procedure:

- | | |
|---|----------|
| 1. "HEAT FAN - OFF - AIR COND." switch to | OFF |
| 2. "AIR COND. - OFF - FAN" switch to | OFF |
| 3. Before Landing procedure | COMPLETE |

SECTION 5 - PERFORMANCE

No change to the basic performance provided by the Section 5 of the Approved Airplane Flight Manual are necessary for this supplement.

SECTION 6 - WEIGHT AND BALANCE

The installation of the Air Conditioning System is included in the weight and balance information presented in Section 6 (paragraph 6.13 - Equipment List, item J11) of the Approved Airplane Flight Manual.

SECTION 7 - DESCRIPTION AND OPERATION

In order to improve the cabin air cooling, an Air Conditioning System can be installed in addition to the basic cabin ventilating air system.

The Air Conditioning System consists of two separate units: a compressor/condenser/dryer/receiver unit and evaporator/fan unit which are installed in the rear cone section of the fuselage, behind the baggage bulkhead.

The AIR COND controls are located on the breakers panel.

A 3-position (HEAT FAN - OFF - AIR COND.) switch enables the system to operate by placing it to AIR COND.

A further 3-position switch (AIR COND. - OFF - FAN) controls the operation of the system in conditioning mode or ventilating mode.

A 2-position (HIGH - LOW) switch allows setting of the FAN operating mode to HIGH speed or LOW speed when the control switch is in either Air Conditioning or FAN position.

Air is drawn through the inlet located on the baggage bulkhead into the evaporator/fan unit.

In the ventilating mode, the air is directly blown through the cabin distributor air outlet located on baggage bulkhead.

In the conditioning mode, the air is cooled by a refrigeration while being blown into the cabin through the air outlet.

Exhaust air flows outside through a hole located on the left skin of the fuselage rear cone section.

A pressure switch, installed on the Compressor/Condenser unit, is provided to turn OFF the compressor in case of refrigerant gas leak in order to prevent its damage.

The system is powered through main bus. In addition, a control system cuts off power whenever there is a faulty generator.

The compressor/condenser circuit is protected by 100 Amps circuit breaker while the fan is protected by a 15 Amps breaker.

SECTION 8 - AIRPLANE HANDLING, SERVICING AND MAINTENANCE

Refer to the P68C Maintenance Manual Supplement NOR10.771-2 for servicing and maintenance operation.

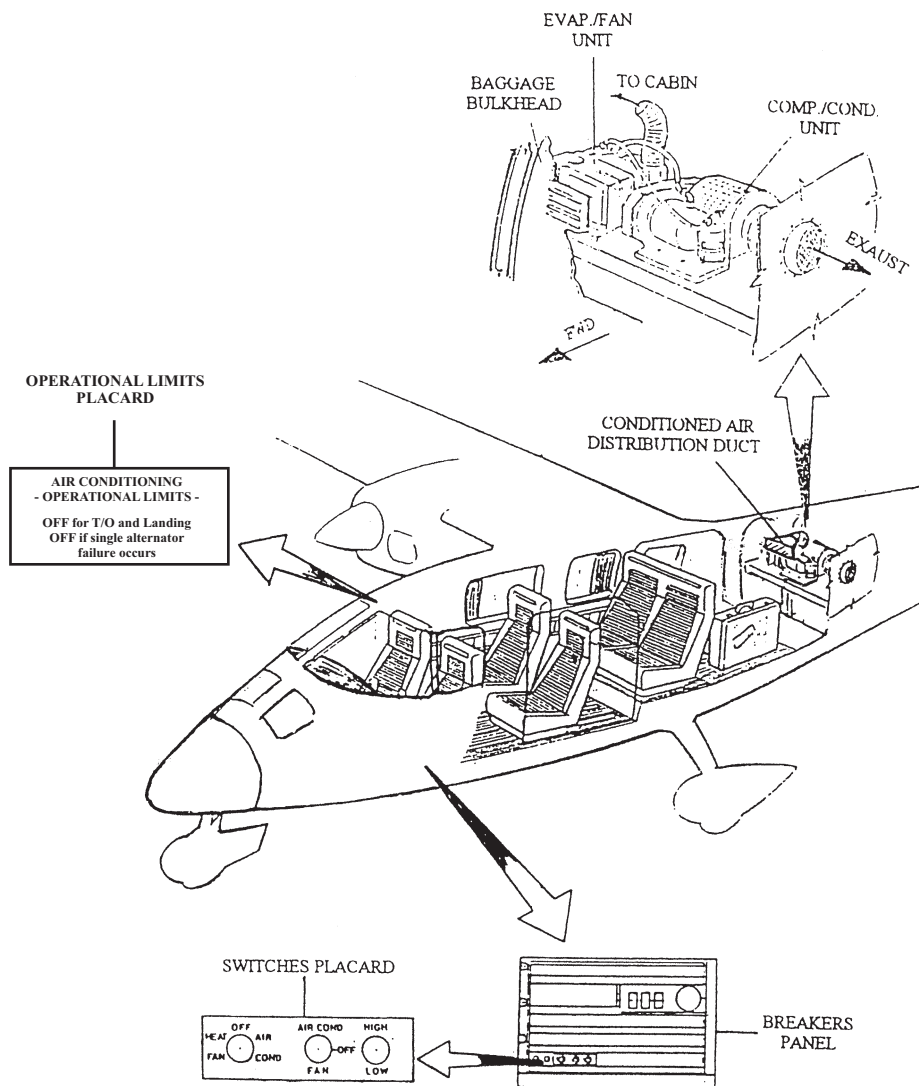


Fig. 1
AIR CONDITIONING SYSTEM
LAYOUT

This page intentionally left blank

SUPPLEMENT I

CREW DOOR

SECTION 1 - GENERAL

This Supplement must be attached to the Approved P68C Flight Manual and kept aboard the airplane when it is equipped with a forward right-side door (CREW DOOR).

This door constitutes also the emergency exit and is equipped with a solenoid operated locking plunger that prevents the door from opening while the right propeller is running.

The information contained herein supplements the information of the basic Flight Manual. The limitations and information in this supplement must be considered to override the Basic Flight Manual where there is any conflict between the Supplement and the Manual.

For limitation, procedures and performance data not contained in this supplement, consult the Basic Flight Manual.

SECTION 2 - OPERATING LIMITATIONS

PLACARDS

Inside the crew door
"Emergency exit"

SECTION 3 - EMERGENCY PROCEDURES

No change

SECTION 4 - NORMAL PROCEDURES

PRE-FLIGHT INSPECTION

Check the door hinges for security and operation

BEFORE ENGINE STARTING

Check that all cabin doors are secured

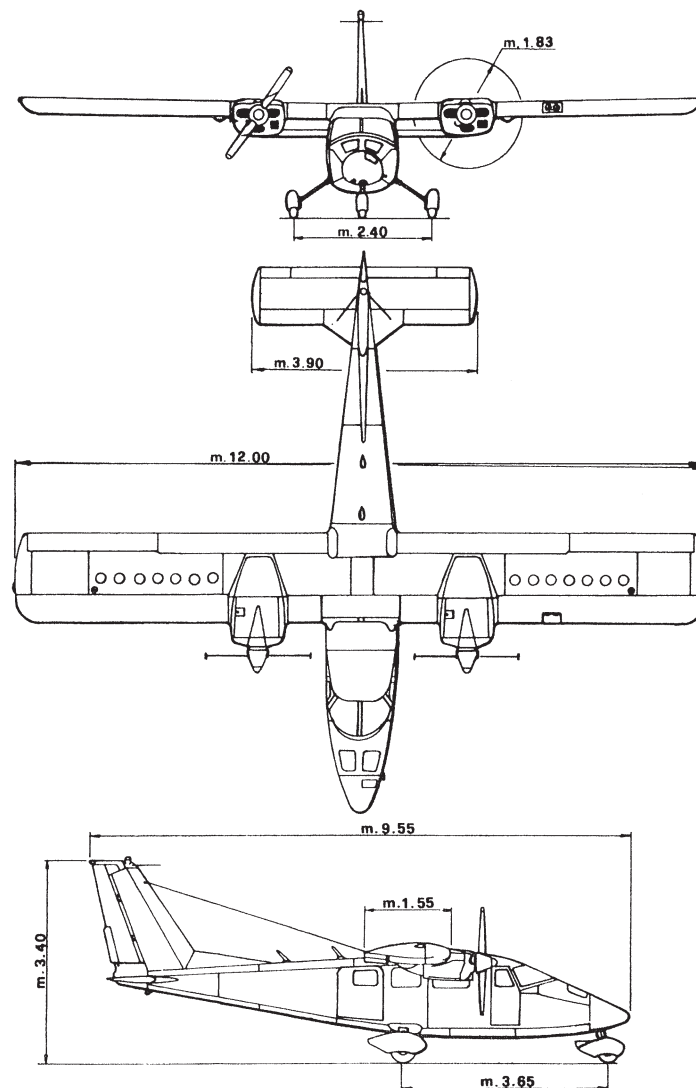
SECTION 5 - PERFORMANCE

No change

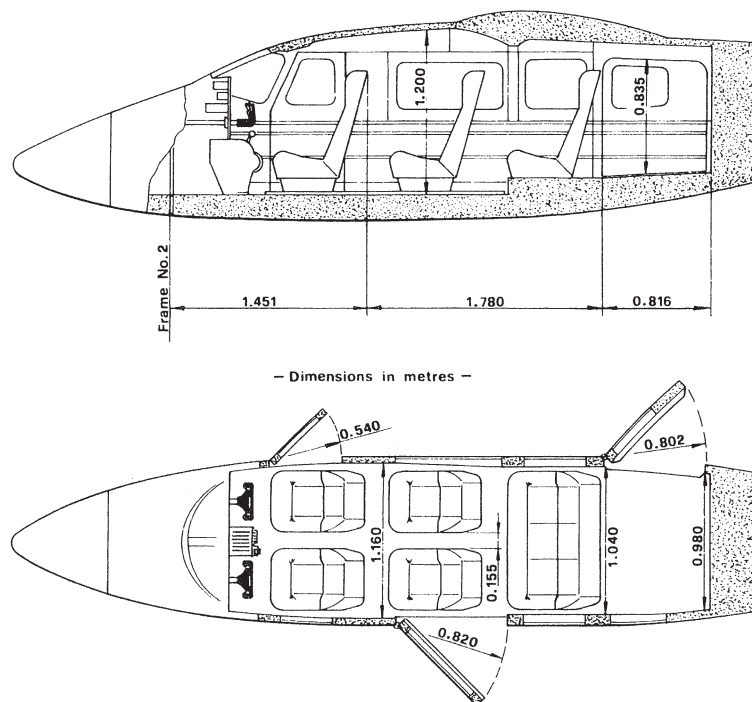
SECTION 6 - WEIGHT AND BALANCE

No change

THREE - VIEW DRAWING



CABIN, BAGGAGE COMPARTMENT AND ENTRY DIMENSIONS



This page intentionally left blank

SUPPLEMENT L

UNDERWING AUXILIARY FUEL TANKS

SECTION 1 - GENERAL

This Supplement must be attached to the R.A.I. Approved Flight Manual when the airplane is equipped with the underwing auxiliary fuel tanks (P/N 68-034). The information contained herein supplements the Basic Flight Manual.

For limitation, procedures, performance data not contained in this Supplement, consult the basic R.A.I. Approved Flight Manual.

The limitations and information in this Supplement must be considered to override the R.A.I. Approved Flight Manual where there is any conflict between the supplement and the manual.

DESCRIPTION

Optional auxiliary fuel tanks are carried under the wing by two pylons. There are no separate fuel selector controls for these tanks. Fuel is pumped from the auxiliary fuel tank into the same side main tank by an electric pump installed in the rear section of the tank pod and operated by a switch located on the lateral breaker panel. Two red lights in the annunciator panel, marked "AUX TANK EMPTY", illuminate when all auxiliary fuel has been transferred. The transfer pumps use fuel for lubrication; therefore, in order not to shorten their lives, they should be switched OFF when the AUX TANK EMPTY lights illuminate.

SECTION 2 - LIMITATIONS**FUEL LIMITATIONS****FUEL QUANTITY**

- a. 26.5 U.S. Gals. (100 Its) usable fuel for each auxiliary tank.
- b. 190 U.S. Gals (720 Its) total usable fuel quantity.

FUEL TRANSFER

- a. Do not transfer fuel from the auxiliary tank, when the fuel quantity indicator reads more than 1/2 capacity.

AIRSPEED LIMITATIONS**AIRSPEED LIMITATION TABLE**

SPEED	KIAS	REMARKS	KCAS
Never Exceed Speed, V _{NE}	181	Do not exceed this speed in any operation	175

AIRSPEED INDICATOR MARKINGS

MARKING	KIAS VALUE OR RANGE	SIGNIFICANCE
Red button	181	Maximum Speed for all operation with auxiliary tanks installed

PLACARDS

Near the fuel transfer pump switches:

- TRANSFER AUX TANK FUEL WHILE IN LEVEL FLIGHT AND WITH THE MAIN TANK HALF FULL OR LESS.
- SWITCH TRANSFER PUMP OFF WHEN CORRESPONDING AUX TANK EMPTY LIGHT ILLUMINATES.

Near each auxiliary fuel tank filler cap:

"Full tank capacity: 26.5 U.S. Gals. (100 Its.)
100/130 Minimum grade aviation gasoline".

SECTION 3 - EMERGENCY PROCEDURES

Fuel Transfer Pump Failure

If a fuel transfer pump failure occurs, the appropriate AUX TANK EMPTY light will illuminate before the fuel transfer is completed.
Switch OFF the pump and PULL the appropriate breaker.
Have the system checked after landing.

SECTION 4 - NORMAL PROCEDURES

Cruise - Fuel Transfer

As soon as fuel quantity indicators read 1/2 tank capacity:

- (a) Fuel transfer pump switches ON
- (b) Main tank fuel quantity CHECK
for a rising indication
- (c) Aux. tank empty lights CHECK

When the aux. tank empty lights illuminate:

- (d) Fuel transfer pump switches OFF
- (e) Main tank fuel quantity CHECK

SECTION 5 - PERFORMANCE

TAKE-OFF DISTANCE

Refer to figure 5-5 of the basic Flight Manual.
Increase Distance 5% when the auxiliary fuel tanks are installed.

RATE-OF-CLIMB — MAXIMUM CLIMB

Refer figure 5-6 of the Basic Flight Manual.
Subtract 250 FPM from the read rate-of-climb when the auxiliary fuel tanks are installed.

RATE-OF-CLIMB — CRUISE CLIMB

Refer to figure 5-7 of the basic Flight Manual.
Subtract 190 FPM from the read rate-of-climb when the auxiliary fuel tanks are installed.

RATE-OF-CLIMB — SINGLE ENGINE

Refer to figure 5-8 of the basic Flight Manual.
Subtract 50 FPM from the read rate-of-climb when the auxiliary fuel tanks are installed.

RATE-OF-CLIMB — BAULKED LANDING

Refer to figure 5-9 of the basic Flight Manual.
Subtract 140 FPM from the read rate-of-climb when the auxiliary fuel tanks are installed.

TIME AND FUEL TO CLIMB

Refer to figure 5-10 or 5-12 of the basic Flight Manual, as applicable.
Increase time 25% and read fuel for the new time value, when the auxiliary fuel tanks are installed.

DISTANCE TO CLIMB

Refer to figure 5-11 or 5-13 of the basic Flight Manual, as applicable.
Increase distance 25%, when the auxiliary fuel tanks are installed.

CRUISE PERFORMANCE — BEST ECONOMY MIXTURE

Refer to figure 5-14 of the basic Flight Manual.
Decrease speed 3% when the auxiliary fuel tanks are installed.

OPERATING ENVELOPE

Refer to figure 5-16 of the basic Flight Manual.
No significant change should be expected in stall speed. Decrease maximum speed 3% when the auxiliary fuel tanks are installed.

RANGE PROFILE

Refer to figure 5-1 of this Supplement, when the auxiliary fuel tanks are installed.

TIME, FUEL AND DISTANCE TO DESCENT

Refer to figure 5-17 of the basic Flight Manual.
No significant change should be expected when the auxiliary fuel tanks are installed.

LANDING DISTANCE

Refer to figure 5-18 of the basic Flight Manual.
No significant change should be expected when the auxiliary fuel tanks are installed.

PAYLOAD Vs. RANGE

Refer to figure 5-2 of this Supplement, when the auxiliary fuel tanks are installed.

RANGE PROFILE

CONDITIONS:

1. Maximum take-off Weight: 4387 Pounds.
2. Standard Day, zero wind.
3. Maximum Climb to desired Altitude.
4. Mixture: Best Economy.

NOTE

Range computation includes 20 pounds of fuel for start, taxi and take-off and fuel required for climb, cruise, descent and 45' reserve at 45% power.

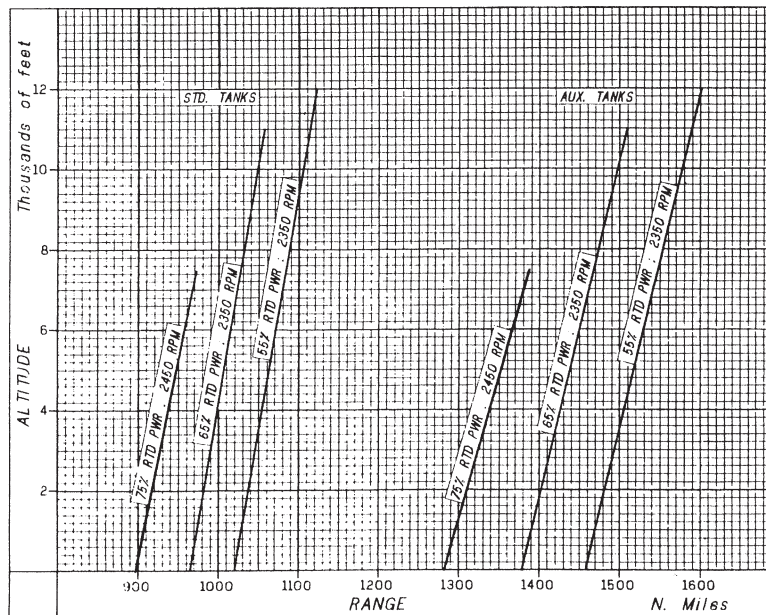


Figure L5 - 1

PAYLOAD Vs. RANGE

CONDITIONS:

1. Standard day, zero wind.
2. Mixture — Best Economy.
3. Altitude — 75% Rated: 7500 feet
65% Rated: 11000 feet
55% Rated: 12000 feet
4. Maximum T.O. Weight: 4387 Pounds
5. Basic Operating Weight: 3035 Pounds (including unusable fuel, oil, 170 lbs pilot, IFR instruments, avionics; not including anti-icing equipment).
6. Range computation includes fuel required for taxi, take-off, climb and descent at 750 FPM.

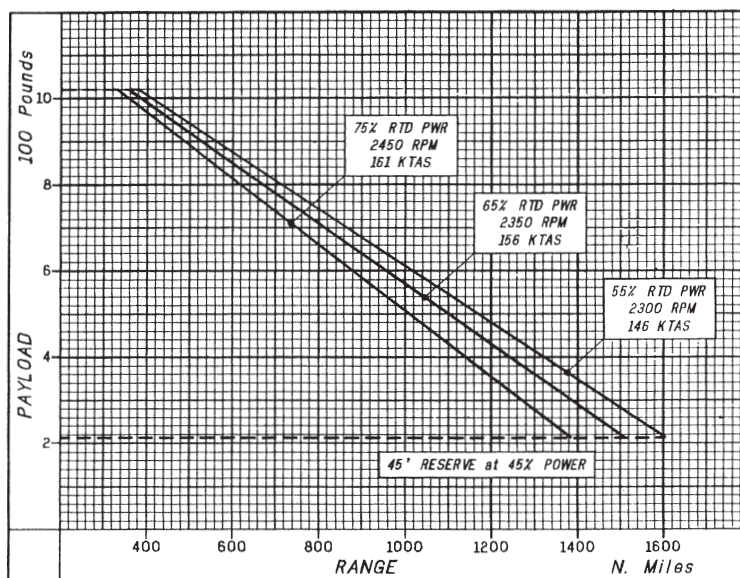


Figure L5-2

SECTION 6 - WEIGHT AND BALANCE

Weight and Balance Determination for Flight

When the auxiliary fuel tanks are installed, the Airplane Basic Empty Weight and the corresponding Center of Gravity position are changed as shown in figure L6-1. To determine the Weight and the Moment for flight, complete the figure L6-2. By using the above values of Weight and Moment, locate a point on the Center of Gravity Moment Envelope (Figure 6-5 of the Basic Flight Manual). If the point falls within the envelope, the loading meets the weight and balance requirements.

NOTE

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

I T E M	WEIGHT X ARM = MOMENT		
	(Kg)	(m)	(Kg.m)
Basic Empty Weight	.....	.....	.....
Pylons	14	.618	8.652
Total	.....	.....	.....
Aux. Fuel Tanks	18	.462	8.316
Total	.....	.....	.....

Figure L6-1
BASIC EMPTY WEIGHT

STANDARD CONFIGURATION

I T E M	WEIGHT (LBS)	ARM (Inches)	MOMENT (Inch. Pounds)
Basic Airplane			
Revised Airplane			
Pilot's Seat		— 37.40	
Copilot's Seat		— 37.40	
Seat No. 3		— 5.75	
Seat No. 4		— 5.75	
Seat No. 5		34.13	
Seat No. 6		34.13	
Seat No. 7		34.13	
Baggage (Max 400 lbs)		60.70	
Fuel (Standard tanks)		30.30	
Fuel (Auxiliary tanks)		17.32	
TOTAL WT.		TOTAL MOMENT	

Figure L6-2
Sheet 1 of 2
WORK SHEET

CLUB SEATING CONFIGURATION

I T E M	WEIGHT (LBS)	ARM (Inches)	MOMENT (Inch. Pounds)
Basic Airplane			
Revised Airplane			
Pilot's Seat		— 37.40	
Copilot's Seat		— 37.40	
Seat No. 3		— 7.33	
Seat No. 4		— 7.33	
Seat No. 5		34.13	
Seat No. 6		34.13	
Seat No. 7		34.13	
Baggage (Max 400 lbs)		60.70	
Fuel (Standard tanks)		30.30	
Fuel (Auxiliary tanks)		17.32	
TOTAL WT.		TOTAL MOMENT	

Figure L6-2
Sheet 2 of 2
WORK SHEET

SUPPLEMENT L/1

AUXILIARY FUEL TANKS

SECTION 1 - GENERAL

This supplement must be attached to the R.A.I. Approved Flight Manual when the airplane is equipped with the optional auxiliary fuel tank system. (Mod. kit no. 68-050).

The information contained herein supplements the Basic Flight Manual.

For limitation, procedures, performance data not contained in this Supplement, consult the basic R.A.I. Approved Flight Manual.

The limitations and information in this Supplement must be considered to override the R.A.I. Approved Flight Manual where there is any conflict between the supplement and the manual.

DESCRIPTION

Optional auxiliary fuel tanks of integral type are contained in the wing outboard of the main tanks. There are no separate fuel selector controls for these tanks. Fuel is pumped from the auxiliary fuel tank into the same side main tank by an electric pump installed in the wing leading edge, and operated by a switch located on the lateral breaker panel. Two amber lights in the Fuel Transfer System warning panel, marked.

“AUX TANK EMPTY”, illuminate when all auxiliary fuel has been transferred. The transfer pumps use fuel for lubrication; therefore, in order not to shorten their lives, they should be switched OFF when the AUX TANK EMPTY lights illuminate.

SECTION 2 - LIMITATIONS

FUEL LIMITATIONS

FUEL QUANTITY - See Following table.

FUEL TABLE

SYSTEM	TOTAL FUEL CAPACITY		USABLE FUEL	
	U.S. GALS	Lt.	U.S. GALS	Lt.
STANDARD SYSTEM	142	538	137	520
STD SYSTEM WITH ONE OPTIONAL AUX. TANK	163	617	157	595
STD SYSTEM WITH TWO OPTIONAL AUX. TANKS	184	696	177	670

FUEL TRANSFER

- a. Do not transfer fuel from the auxiliary tank, when the fuel quantity indicator reads more than 1/2 capacity

PLACARDS

Near the fuel transfer pump switches:

- TRANSFER AUX TANK FUEL WHILE IN LEVEL FLIGHT AND WITH THE MAIN TANK HALF FULL OR LESS.

On the Auxiliary Transfer warning panel:

- TRANSFER PUMPS OFF WHEN AMBER LIGHT ON.

Near each auxiliary fuel tank filler cap:

“Full tank capacity: 79 litres (21 U.S. gals) 100/130 Minimum grade aviation gasoline”.

SECTION 3 - EMERGENCY PROCEDURES

Fuel Transfer Pump Failure

If a fuel transfer pump failure occurs, the appropriate AUX TANK EMPTY light will illuminate before the fuel transfer is completed.

Switch OFF the pump and PULL the appropriate breaker.

Have the system checked after landing.

SECTION 4 - NORMAL PROCEDURES

Cruise - Fuel Transfer

As soon as fuel quantity indicators read 1/2 tank capacity:

- | | |
|-----------------------------------|-------------------------------|
| (a) Fuel transfer pump switches | ON |
| (b) Main tank fuel quantity | CHECK for a rising indication |
| (c) Aux. tank empty (amber) light | CHECK |

When the aux. tank empty lights illuminate:

- | | |
|---------------------------------|-------|
| (d) Fuel transfer pump switches | OFF |
| (e) Main tank fuel quantity | CHECK |

SECTION 5 - PERFORMANCE

No change - Refer to Figure 5-1 of this Supplement for the range figures with the optional fuel

SECTION 6 - WEIGHT AND BALANCE

No change

RANGE PROFILE - AUXILIARY FUEL

(a) Associated Conditions

- | | |
|--------------------------|------------------------------|
| (1) Airplane Weight | M.T.O.W. before engine start |
| (2) Initial Fuel Loading | 670 lt (480 Kg) (See Note) |
| (3) Mixture | Best Economy |
| (4) Ambient Conditions | I.S.A., no wind |

NOTE

Range includes start, taxi, climb, descent at 1000 fpm and 45 minutes reserve fuel at 45% power.

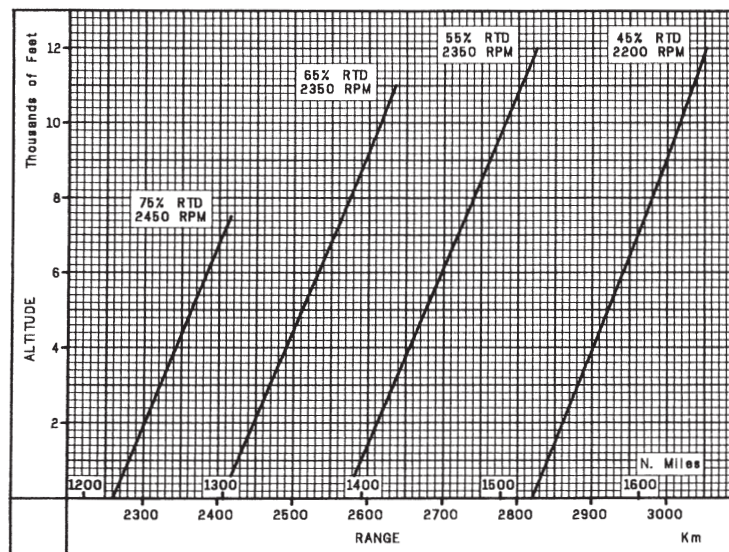


Figure 5-1
RANGE PROFILE - AUXILIARY FUEL

SUPPLEMENT M

CARGO VERSION

SECTION 1 - GENERAL

This supplement must be attached to the R.A.I. Approved Airplane Flight Manual when the airplane is used for freight transportation according to the Service Bulletin no. 77, latest revision.

The information contained herein supplements the basic approved Airplane Flight Manual. For limitations, procedures and performance information not contained in this supplement consult the basic approved Airplane Flight Manual. Wherever conflict arises between information in this supplement and the approved Flight Manual, the information herein must take precedence.

DESCRIPTION

All but the pilot's and copilot's seat must be removed and Vulcanair kit P/N NOR 7.449-13 must be installed on board, in compliance with Vulcanair Service Bulletin No. 77, latest revision.

The kit contains a cargo web net and the relevant tie-down restraints on the floorboard seat tracks and airframe.

The total weight of the kit is 10 Kg (22 lb) and its center of gravity position should be considered to be its vertical center line when it is installed.

The cargo net is equipped with adjustable buckles, to allow adjustment to the freight dimensions and to introduce a pre-load.

SECTION 2 - LIMITATIONS

NUMBER OF OCCUPANTS

The maximum number of occupants must not exceed two, including pilot.

The pilot must sit in the left hand seat.

LOADING

- (a) The lashing restraints on seat tracks must be positioned 450 mm from main door rear stanchion.
- (b) Freight must be contained in packing of adequate construction and must comply with the Air Navigation Regulations.
- (c) Freight must be blocked by means of adequate securing devices fastened to the attachment points already existing on the floor in the cargo compartment. Lashing restraints can withstand the following loads in any direction:

LASHING RESTRAINT	MAXIMUM ALLOWABLE LOAD (kg/lb)	REF.
A	696/1534	Fig. 1
B	1100/2425	"
C	1669/3679	"
D	1800/3968	"

NOTE

It is the responsibility of the aircraft operator to show compliance, with the foregoing, in accordance with the responsible authorities airworthiness regulations

WEIGHT AND BALANCE

- (a) The maximum freight load for each cargo net must not exceed 316 kg (697 lb).
- (b) Do not exceed the maximum distributed load limit while loading freight on board (977 kg/sq.mt. - 200 lb/sq.ft).
- (c) The new basic empty weight and the relevant center of gravity after seat removal and cargo net installation must be calculated using the weight and balance chart contained in Vulcanair Service Bulletin No.77 and recorded in the weight and balance record Chart in figure 6-4 of the basic A.F.M., or other equivalent form kept by the operator as allowed by the applicable operational regulations.

The same applies if the floor carpets are removed and/or floor protection boards are used under the freight, taking the actual weights and average C.G. values into account.

- (d) It is the responsibility of the pilot and aircraft owner to make sure that the airplane is properly loaded and within the approved weight and balance limits.

PLACARD

On the cabin wall in the baggage compartment:

LIMITATIONS FOR THE CARGO VERSION

Maximum load in the freight compartment	316 kg (697 lb)
Maximum distributed load on the floor	977 kg/mq (200 lb/sqft)
Freight compartment volume	1.50 mc (53 cuft)

SECTION 3 - EMERGENCY PROCEDURE

Not Applicable.

SECTION 4 - NORMAL PROCEDURES

PREFLIGHT CHECK

- (a) Check cargo nets, tie-down restraints and seat tracks and relevant fittings for condition.
- (b) Check tie-down restraints for proper location and fastening.
- (c) Check freight for proper and symmetrical stowage and tie-down.
- (d) Check cargo net for proper tension by using the adjustable buckles.
- (e) Ventilating air ducts in the cargo compartment must be closed.

SECTION 5 - PERFORMANCE

No Change

SECTION 6 - WEIGHT AND BALANCE

LOADING PROCEDURE

The airplane must be loaded following the procedures and limitations reported herein and in Section 2 of the ENAC Approved Airplane Flight Manual.

- (a) The cargo net length must be adjusted to the freight dimensions by using the adjustable buckles.
- (b) The freight must be placed symmetrically with respect to the airplane roll axis and must be fully contained within the cargo net, using adequate packing and securing it on the floor.

- (c) The distance between the longitudinal lashing restraints on the floorboard and the main door rear stanchion must be 450 mm.
- (d) The cargo net pre-loading must be sufficient to guarantee total freight blockage.

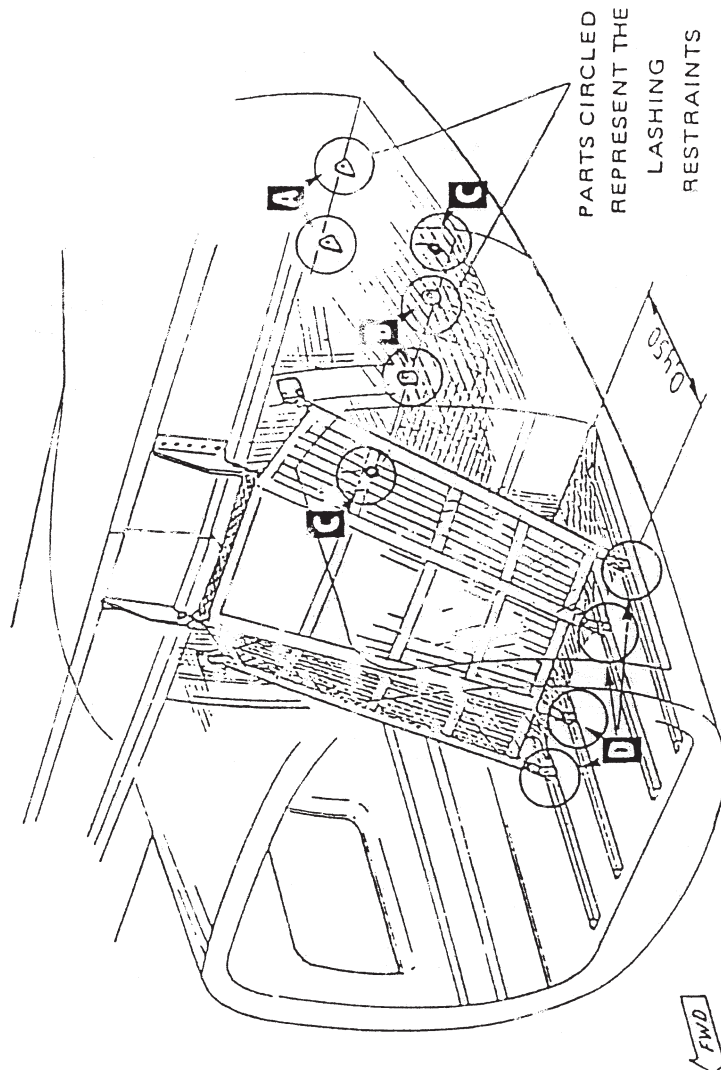


Figure 1
CARGO NET - INSTALLATION

SUPPLEMENT N

**INCREASE
IN
MAXIMUM TAKE-OFF WEIGHT
TO
2084 Kg**

**(For aircraft equipped with kit P/N 68/051
as described in S.B. 79)**

1. GENERAL

This Supplement must be attached to the RAI approved Flight Manual when the aircraft is equipped with the kit P/N 68/051 and operated to the increased Maximum take-off weight of 2084 Kg (4594 lb).

The information contained herein supplements the Basic Flight Manual. For limitation, procedures, performance data not contained in this Supplement, consult the Basic RAI Approved Flight Manual. The limitations and information in this Supplement must be considered to override the RAI approved Flight manual where there is any conflict between the supplement and manual.

2. OPERATING LIMITATIONS

2.1 AIRSPEED LIMITATIONS

SPEED	KCAS	KIAS
<i>Design Manoeuvring Speed (VA)</i> - Do not make full or abrupt control movements above this speed		
1500 Kg. (3307 lb)	112	116
2084 Kg. (4594 lb)	132	137

NOTE

Linear interpolation may be used for intermediate gross weights.

Maximum Flaps Extended Speed (VFE)

— Do Not exceed this speed at the given flap setting

15° flap.	152	161
35° Kg.	103	111

Air Minimum Control Speed (VMCA) — Lowest Airspeed at which the airplane is controllable with one engine operation.

58 62

Never Exceed Speed (VNE) — Do not exceed this speed in any operation.

194 201

Maximum Structural Cruising speed, (VNO)

Do not exceed this speed except in smooth air and then with caution.

154 160.

2.2 AIRSPEED INDICATOR MARKINGS

MARKINGS	KIAS
White Arc (Flaps Extended 35°)	62 to 111
Radial Red Line (Air Minimum Control Speed)	62
Radial Blue Line (Best Rate of Climb Speed- Single Engine)	92
Green Arc (Normal Operating Range)	69 to 160
Yellow Arc (Caution Range)	160 to 201
Red Radial (Maximum Speed for all operation)	201

2.3 WEIGHT LIMITS

It is the responsibility of the airplane owner and pilot to ensure that the airplane is properly loaded. Maximum allowable weights are listed below. Refer to Section 6 "Weight and Balance" for loading instructions.

	Kg	Lb
(a) Maximum Ramp Weight	2100	4630
(b) Maximum Takeoff Weight	2084	4594
(c) Maximum Landing Weight	1980	4365
(d) Maximum Zero Fuel Weight	1890	4167
(e) Maximum Weight in Baggage Compartment	180	400

2.4 CENTER OF GRAVITY LIMITS

(Refer to Figure N2-1)

(a) Rearward Limits:

- 0.481 m (18.92 inches) aft of datum at all weights.

(b) Forward Limits:

- 0.325 m (12.80 inches) aft of datum at Ramp Weight of 2100 Kg (4630 pounds).
- 0.328 m (12.60 inches) aft of datum at Maximum Takeoff Weight of 2084 Kg (4594 pounds).
- 0.230 m (9.06 inches) aft of datum at 1600 Kg (3704 pounds) or less.

NOTES

Straight line variation between points indicated.

The datum line is located at wing leading edge.

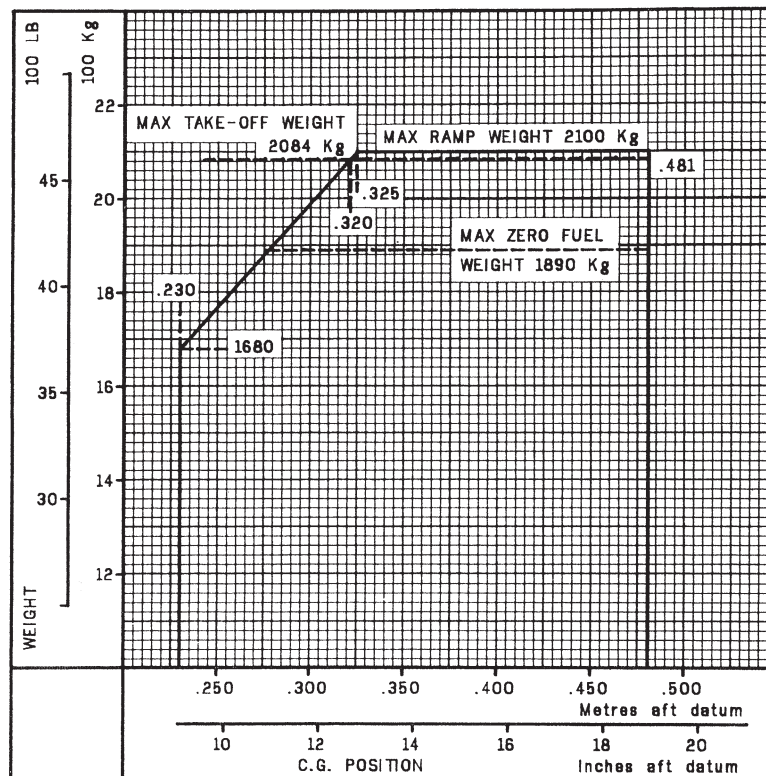


Figure N2-1
AIRCRAFT WEIGHTS VS. CENTRE OF GRAVITY

2.5 FLIGHT MANOEUVRING LOAD FACTOR LIMITS

- | | |
|---------------------------------------|------------|
| (a) Positive Load Factor (Flaps Up) | 3.74 g's |
| (b) Negative Load Factor (Flaps Up) | — 1.50 g's |
| (c) Positive Load Factor (Flaps Down) | 2.00 g's |

NOTE

No inverted manoeuvres approved

2.6 PLACARDS

On overhead panel:

OPERATIONAL LIMITS

THIS AIRCRAFT MUST BE OPERATED AS A NORMAL CATEGORY AIRCRAFT IN COMPLIANCE WITH THE OPERATING LIMITATIONS STATED IN THE FORM OF PLACARDS, MARKINGS AND MANUALS. NO AEROBATIC MANOEUVRES, INCLUDING SPINS, APPROVED.

MINIMUM SINGLE ENGINE CONTROL SPEED	62 KIAS
MAXIMUM FLAP EXTENDED SPEED (15° FLAP)	161 KIAS
MAXIMUM FLAP EXTENDED SPEED (35° FLAP)	111 KIAS
MAXIMUM MANOEUVRING SPEED	137 KIAS

3. EMERGENCY PROCEDURES

The procedures and informations provided in the Section 3 of the basic Flight Manual are not changed, with the exception of some airspeeds significant for the safe operation of the aircraft, changed as follows:

- | | |
|---|---------|
| (a) Minimum Control Speed | 62 KIAS |
| (b) One engine inoperative best angle-of-climb speed | 80 KIAS |
| (c) One engine inoperative best rate-of-climb speed | 92 KIAS |
| (d) For training, minimum recommended one engine inoperative speed | 80 KIAS |
| (e) Take-off rotation speed at M.T.O.W.,
(for lower weights refer to pag. 10.33) | 71 KIAS |
| (f) Single engine Approach Speed | 92 KIAS |

4. NORMAL PROCEDURES

The same procedures recommended in the Basic Flight Manual should be accomplished, with the exception that the airspeeds for the safe operation of the aircraft are modified as follows:

(a) Maximum Structural Cruising Speed	160 KIAS
(b) Design Manoeuvring Speed	
1500 Kg (3307 lb)	116 KIAS
2089 Kg (4594 lb)	137 KIAS
(c) Maximum Flap Extended Speed	
15° flaps (Approach)	161 KIAS
35° flaps	111 KIAS
(d) Best Rate of Climb Speed	92 KIAS
(e) Best Angle of Climb Speed	80 KIAS
(f) Final Approach Speed	78 KIAS
(g) For training, One Engine inoperative Speed	80 KIAS

4.1 NOISE ABATEMENT

An increased emphasis on improving the quality for our environment requires effort on the part of the pilots to minimize the effect of the airplane noise on the public.

The noise level, determined according to FAR36 (ICAO Annexe 16) regulations for the P68C at maximum continuous power is 77.7 dB (A). In conformity with above regulations, the maximum noise level permitted for the P68C is 80 dB (A) at highest power in the normal operating range.

NOTE

No determination has been made by the Federal Aviation Administration that the noise levels of this airplane are or should be acceptable or unacceptable for operation at, into or out of any airport.

The C. of A. of P68C S/N has been issued with noise certification statement according to above regulations.

5. PERFORMANCE**5.1 STALL SPEED**

(Figure N5-1)

(a) Associated Conditions:

(1) Throttles

(2) Centre of Gravity

IDLE

Most Forward

NOTE

Maximum altitude loss in a conventional stall is 400 feet.

Maximum altitude loss in a one engine inoperative stall is 150 feet.

Maximum pitch angle experienced during one engine inoperative stall is 30°.

WEIGHT Kg (Pounds)	FLAP	ANGLE OF BANK							
		0°		20°		40°		65°	
		KIAS	KCAS	KIAS	KCAS	KIAS	KCAS	KIAS	KCAS
2084 (4594)	0°	69	68	71	70	80	78	99	96
	15°	65	61	68	63	75	70	92	86
	35°	62	57	64	59	71	65	88	81
2000 (4409)	0°	68	67	70	69	78	76	97	94
	15°	64	60	67	62	73	68	91	85
	35°	61	56	63	58	70	64	85	79
1900 (4189)	0°	66	65	68	67	76	74	94	92
	15°	62	58	64	60	72	67	88	82
	35°	59	54	61	56	68	62	83	77
1800 (3969)	0°	64	63	66	65	74	72	91	89
	15°	61	57	62	58	70	65	86	80
	35°	58	53	60	55	67	61	81	75
1700 (3748)	0°	62	61	64	63	72	70	89	87
	15°	59	55	61	57	68	63	84	78
	35°	56	51	58	53	65	59	79	73
1600 (3527)	0°	61	60	62	61	69	68	86	84
	15°	57	53	59	55	66	61	82	76
	35°	55	50	57	52	63	57	77	71

REV. 8

R.A.I. Approval No. 277978/SCMA

DATE: DECEMBER 23, 1991

5.2 TAKE-OFF DISTANCE OVER 50 FT

(Figure N5-2)

(a) Associated Conditions

- | | |
|-------------------------------------|---|
| (1) Power | 2700 RPM, Full throttle,
before brake release. |
| (2) Flaps | 15 degrees |
| (3) Level, Hard Surface, Dry Runway | |
| (4) Take-off Speeds | IAS as tabulated
(Assumes zero instrument error) |

WEIGHT (Kg)	TAKE-OFF SPEEDS	
	LIFT-OFF	SCREEN
2084	71	79
1900	68	76
1800	65	73
1700	64	71
1600	64	71

(b) Example

- | | |
|---------------------------------|------------------|
| (1) Pressure Altitude | 1000 ft |
| (2) Outside Air Temperature | 23°C |
| (3) Airplane Weight | 1810 Kg |
| (4) Wind | 8 Kts - headwind |
| (5) Total Distance (over 50 ft) | 277 mt. |

NOTE

- The Ground Run is approx. 60% of T.O. Distance.
- Increase Ground Run 25% when operating from a grass surface.

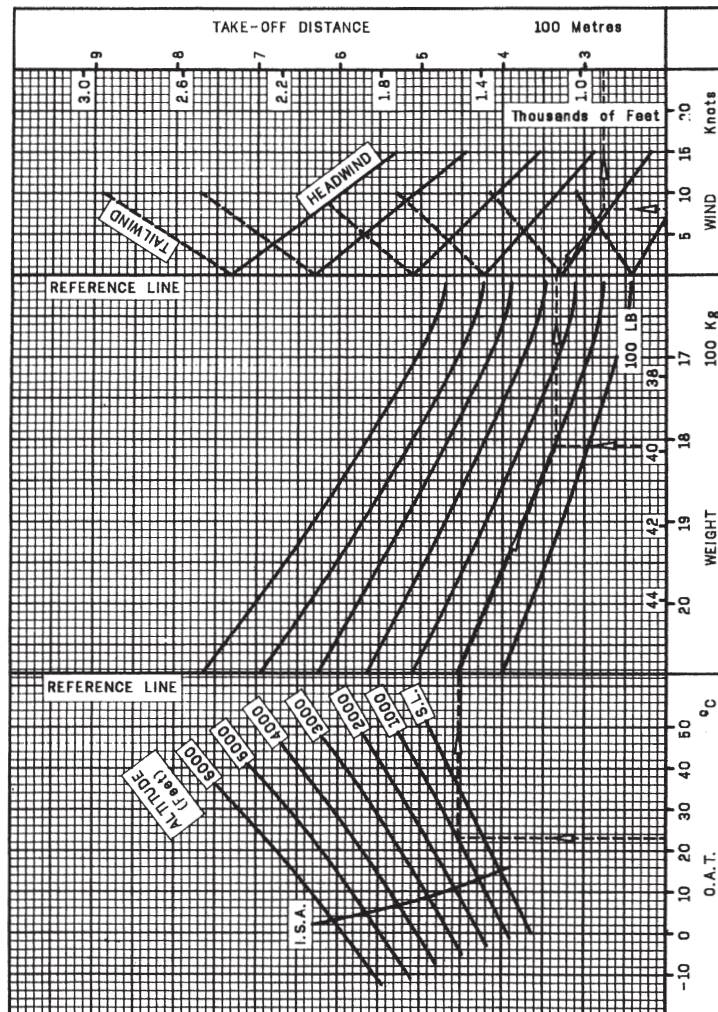


Figure N5-2
TAKE-OFF DISTANCE 50 FT

5.3 TWIN ENGINE CLIMB - MAXIMUM CLIMB

(Figure N5-3)

(a) Associated Conditions

- | | |
|------------------------------|--|
| (1) Power | 2700 RPM; Full Throttle |
| (2) Mixture | FULL RICH up to 5000 ft;
at higher altitude LEAN for smooth
operation. Do not exceed 435°F (224°C) |
| (3) Flaps | UP |
| (4) Best Rate-of-Climb Speed | 92 KIAS |

(b) Example

- | | |
|-----------------------------|-------------------|
| (1) Pressure Altitude | 1000 ft |
| (2) Outside Air Temperature | 23°C (ISA + 10°C) |
| (3) Airplane Weight | 2020 Kg |
| (4) Rate of Climb | 1200 fpm |

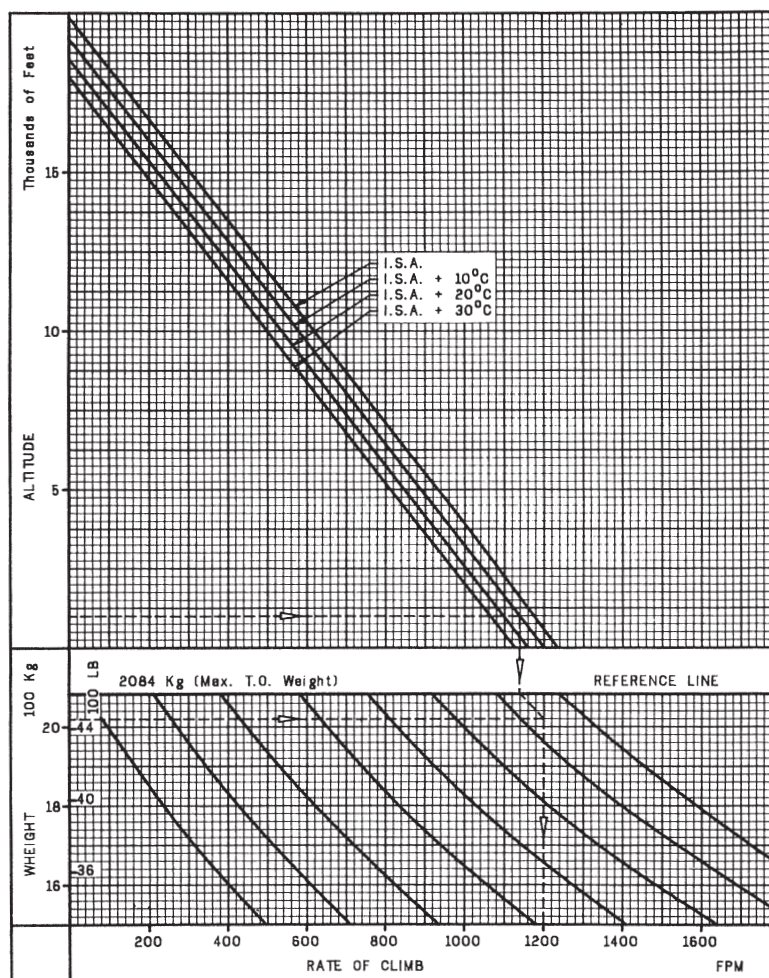


Figure N5-3
TWIN ENGINE CLIMB - MAXIMUM CLIMB

5.4 ONE ENGINE INOPERATIVE CLIMB

(Figure N5-4)

(a) Associated Conditions

- | | |
|------------------------------|-------------------------|
| (1) Power | 2700 RPM; Full Throttle |
| (2) Mixture | FULL RICH |
| (3) Flaps | UP |
| (4) Best Rate-of-Climb Speed | 92 KIAS |

(b) Example

- | | |
|-----------------------------|-------------------|
| (1) Pressure Altitude | 1000 ft |
| (2) Outside Air Temperature | 23°C (ISA + 10°C) |
| (3) Airplane Weight | 2020 Kg |
| (4) Rate of Climb | 180 fpm |

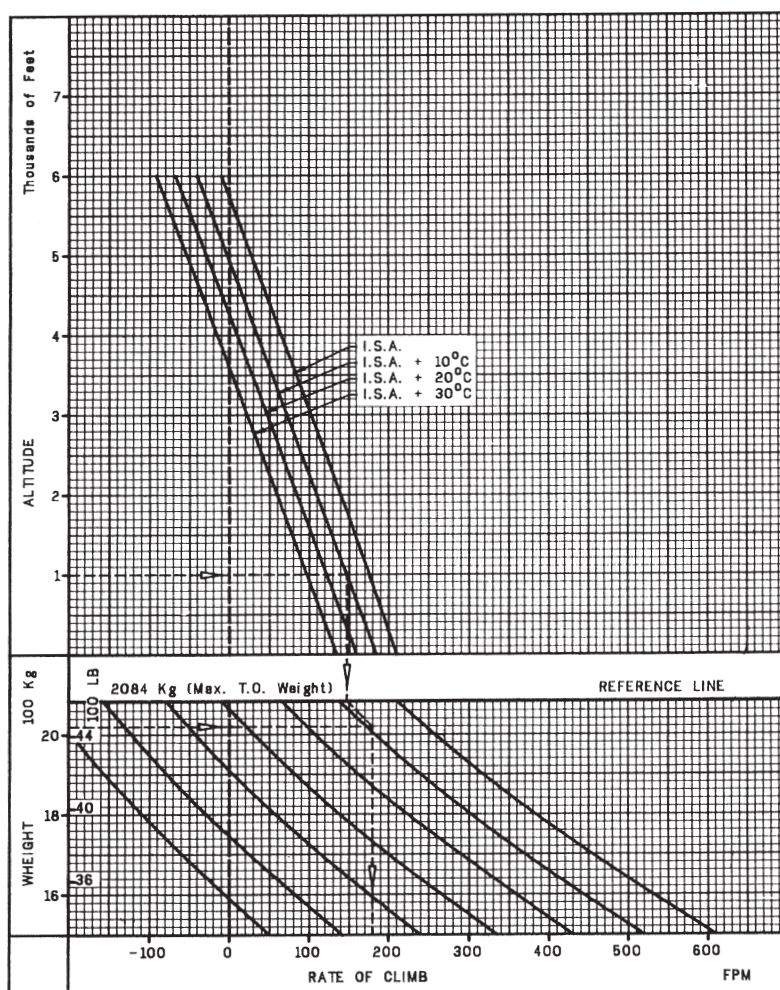


Figure N5-4
 ONE ENGINE INOPERATIVE CLIMB

5.5 TWIN ENGINE CLIMB - CRUISE CLIMB

(Figure N5-5)

(a) Associated Condition

- | | |
|------------------------------|--|
| (1) Power | 2450 RPM; 25" Hg up to 4000 ft
2450 RPM; Full Throttle above 4000 ft. |
| (2) Mixture | LEAN for smooth operations.
Do not exceed 435°F (224°C) |
| (3) Flaps | UP |
| (4) Best Rate-of-Climb Speed | 92 KIAS |

(b) Example

- | | |
|-----------------------------|-------------------|
| (1) Pressure Altitude | 1000 ft |
| (2) Outside Air temperature | 23°C (ISA + 10°C) |
| (3) Airplane Weight | 2020 Kg |
| (4) Rate of Climb | 820 fpm |

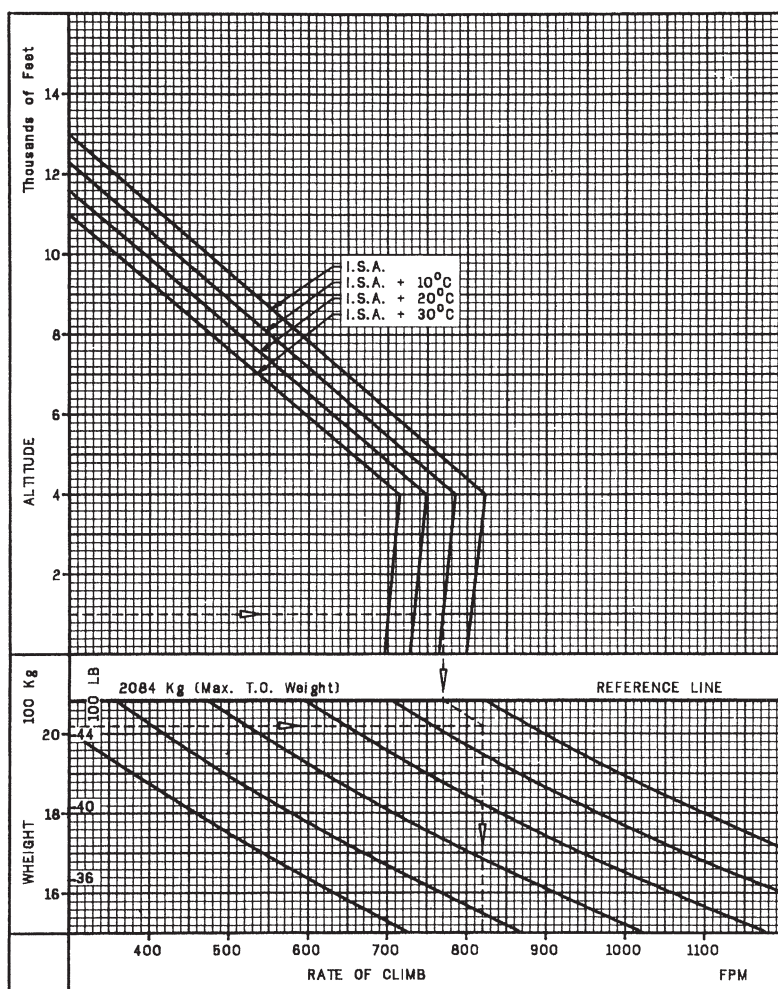


Figure N5-5
TWIN ENGINE CLIMB - CRUISE CLIMB

5.6 BALKED LANDING CLIMB

(Figure N5-6)

(a) Associated Conditions

- | | |
|------------------------------|--|
| (1) Power | 2700 RPM; Full Throttle |
| (2) Mixture | FULL RICH up to 5000 ft;
at higher altitude LEAN for smooth
operations. Do not exceed
435°F (224°C) |
| (3) Flaps | 35° |
| (4) Best Rate-of-Climb Speed | 78 KIAS |

(b) Example

- | | |
|-----------------------------|-------------------|
| (1) Pressure Altitude | 1000 ft |
| (2) Outside Air temperature | 23°C (ISA + 10°C) |
| (3) Airplane Weight | 1808 Kg |
| (4) Rate of Climb | 990 fpm |

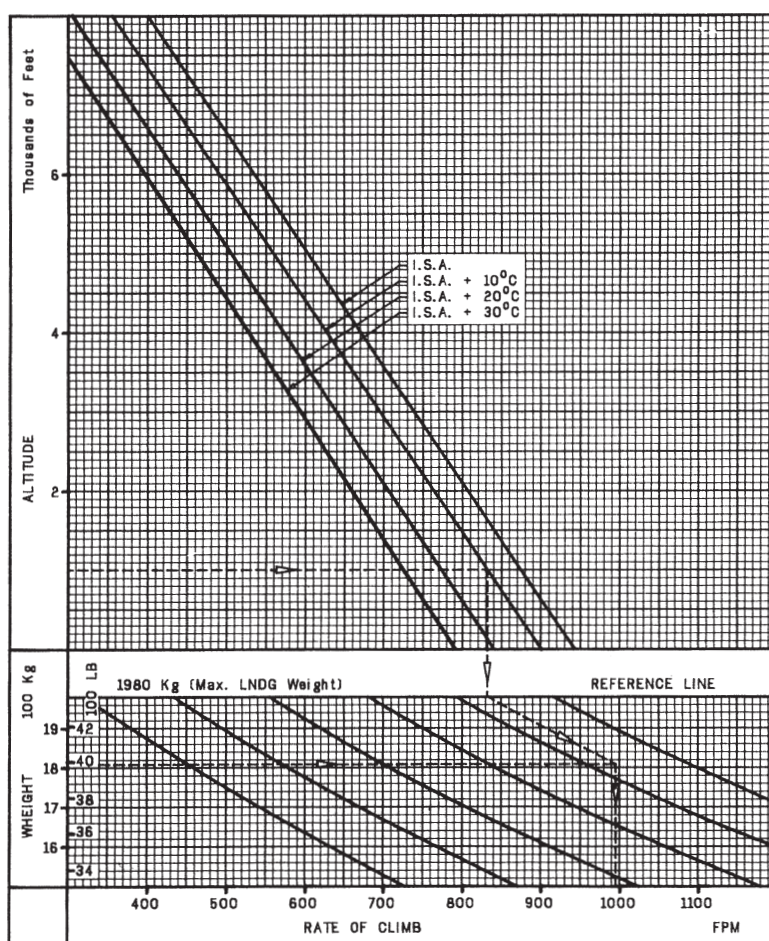


Figure N5-6
 BALKED LANDING CLIMB

5.7 TIME AND FUEL TO CLIMB - MAX. CLIMB

(Figure N5-7)

(a) Associated Conditions

- | | |
|------------------------------|--|
| (1) Power | 2700 RPM; Full Throttle |
| (2) Mixture | FULL RICH up to 5000 ft;
at higher altitude LEAN for smooth
operations. Do not exceed
435°F (224°C) |
| (3) Flaps | UP |
| (4) Best Rate-of-Climb Speed | 92 KIAS |

(b) Example

- | | |
|-------------------------------------|-------------------|
| (1) Pressure Altitude | 8000 ft |
| (2) Outside Air temperature | 19°C (ISA + 20°C) |
| (3) Airplane Weight | 2020 Kg |
| (4) Time to climb to 8000 ft | 8.8 minutes |
| (5) Fuel burned to Climb to 8000 ft | 10.8 Kg |

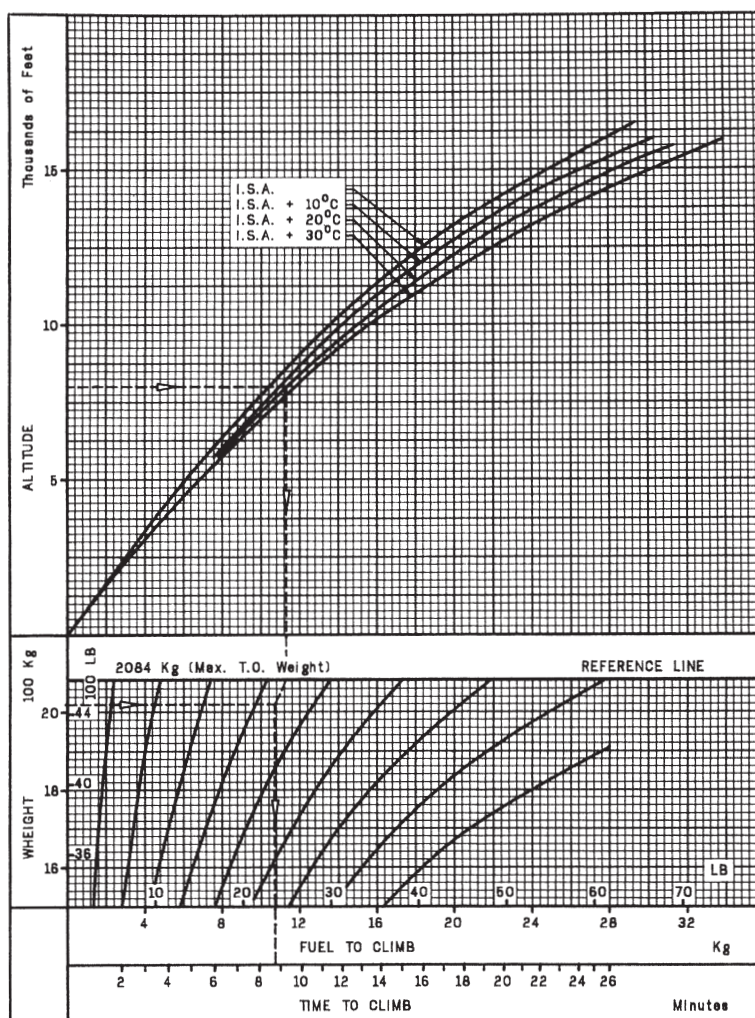


Figure N5-7
 TIME AND FUEL TO CLIMB - MAXIMUM CLIMB

5.8 DISTANCE TO CLIMB - MAX. CLIMB

(Figure N5-8)

(a) Associated Conditions

- | | |
|------------------------------|---|
| (1) Power | 2700 RPM; Full Throttle |
| (2) Mixture | FULL RICH up to 5000 ft;
at higher altitude LEAN for smooth
operations. Do not exceed 435°F (224°C) |
| (3) Flaps | UP |
| (4) Best Rate-of-Climb Speed | 92 KIAS |

(b) Example

- | | |
|----------------------------------|-------------------|
| (1) Pressure Altitude | 8000 ft |
| (2) Outside Air temperature | 19°C (ISA + 20°C) |
| (3) Airplane Weight | 2020 Kg |
| (4) Distance to Climb to 8000 ft | 33.5 Km |

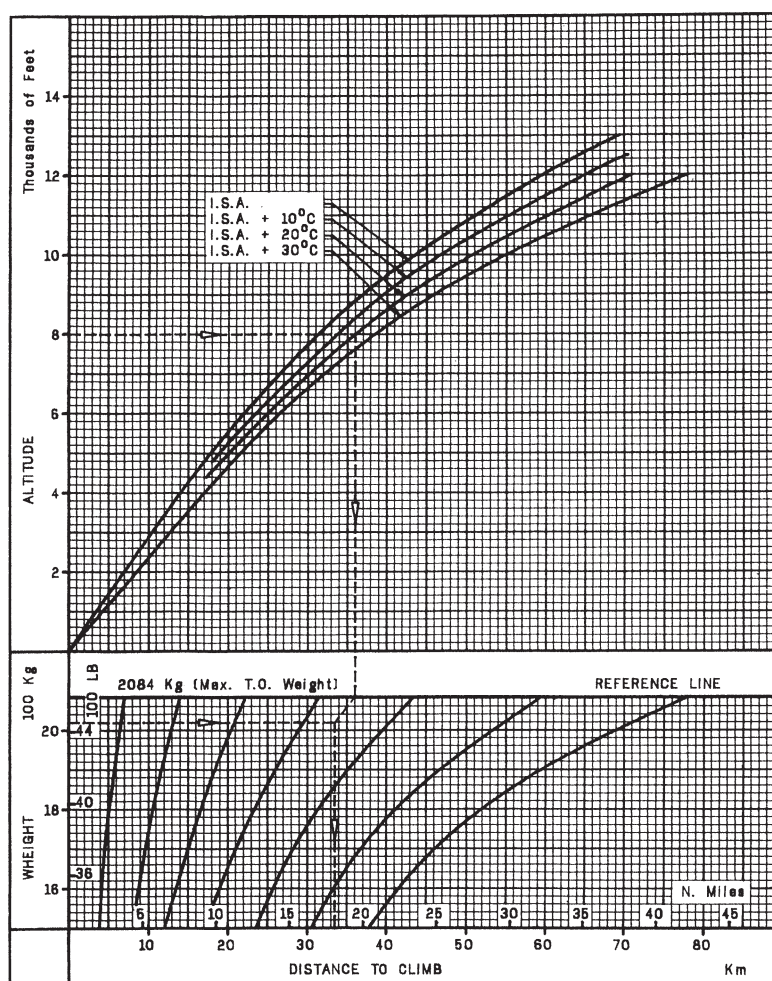


Figure N5-8
 DISTANCE TO CLIMB - MAXIMUM CLIMB

5.9 TIME AND FUEL TO CLIMB - CRUISE CLIMB

(Figure N5-9)

(a) Associated Conditions

- | | |
|------------------------------|--|
| (1) Power | 2450 RPM; 25 Hg up to 4000 ft
2450 RPM; Full Throttle above 4000 ft |
| (2) Mixture | LEAN for smooth operations.
Do not exceed 435°F (224°C) |
| (3) Flaps | UP |
| (4) Best Rate-of-Climb Speed | 92 KIAS |

(b) Example

- | | |
|-------------------------------------|-------------------|
| (1) Pressure Altitude | 8000 ft |
| (2) Outside Air temperature | 19°C (ISA + 20°C) |
| (3) Airplane Weight | 2020 lbs |
| (4) Time to climb to 8000 ft | 11.5 minutes |
| (5) Fuel burned to Climb to 8000 ft | 10.6 Kg |

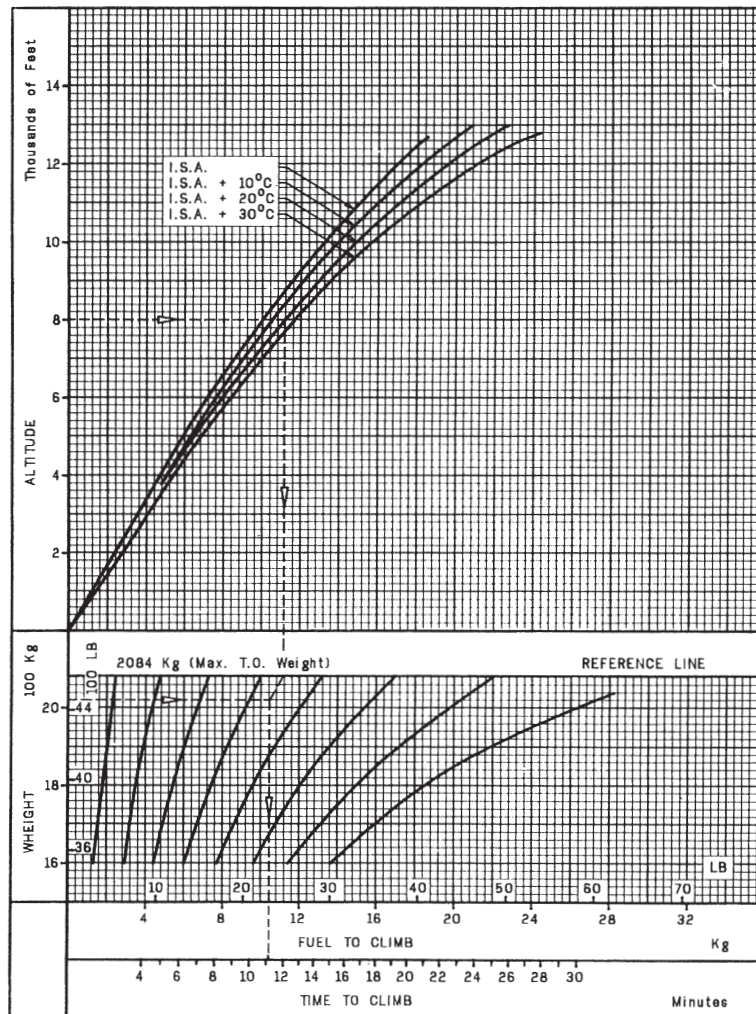


Figure N5-9
 TIME AND FUEL TO CLIMB - CRUISE CLIMB

5.10 DISTANCE TO CLIM - CRUISE CLIMB

(Figure N5-10)

(a) Associated Conditions

- | | |
|------------------------------|---|
| (1) Power | 2450 RPM; 25" Hg up to 4000 ft
2450 RPM; Full Throttle above 4000 ft |
| (2) Mixture | LEAN for smooth operations.
Do not exceed 435°F (224°C) |
| (3) Flaps | UP |
| (4) Best Rate-of-Climb Speed | 92 KIAS |

(b) Example

- | | |
|----------------------------------|-------------------|
| (1) Pressure Altitude | 8000 ft |
| (2) Outside Air temperature | 19°C (ISA + 20°C) |
| (3) Airplane Weight | 2020 lbs |
| (4) Distance to climb to 8000 ft | 26 Km |

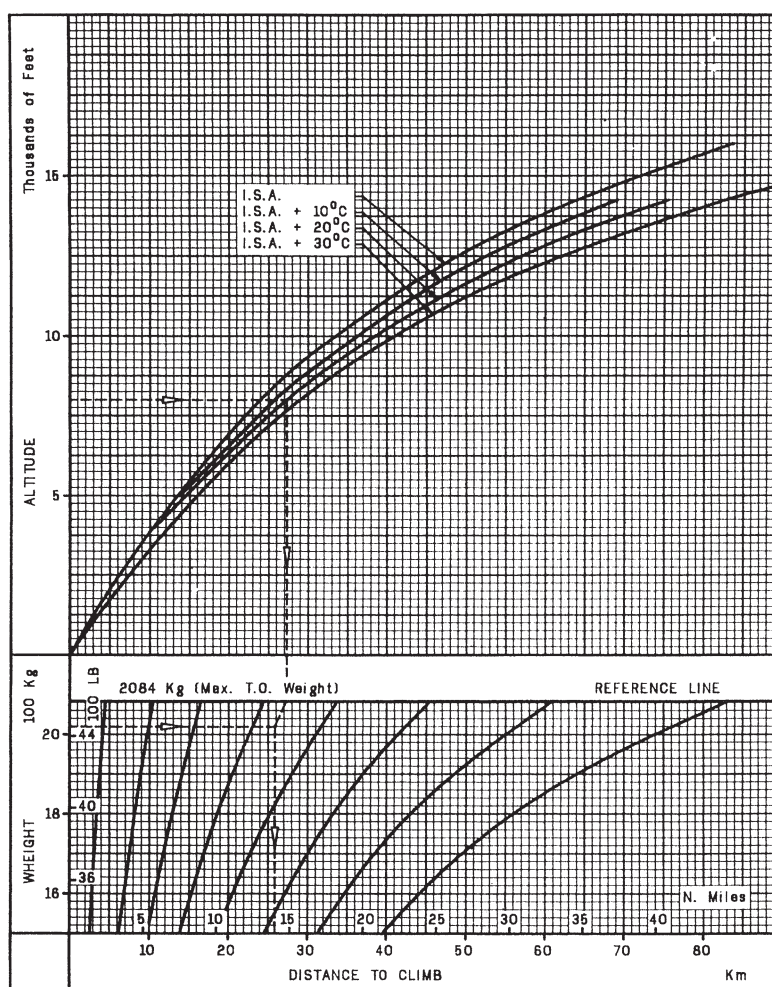


Figure N5-10
 DISTANCE TO CLIMB - CRUISE CLIMB

5.11 RANGE PROFILE

(Figure N5-11)

(a) Associated Conditions

- | | |
|--------------------------|------------------------------|
| (1) Airplane Weight | 2084 Kg, before engine start |
| (2) Initial Fuel Loading | 520 lt (375 Kg) (See Note) |
| (3) Mixture | Best Economy |
| (4) Ambient Conditions | I.S.A., no wind |

NOTE

Range includes start, taxi, climb, descent at 1000 fpm and 45 minutes reserve fuel at 45% power.

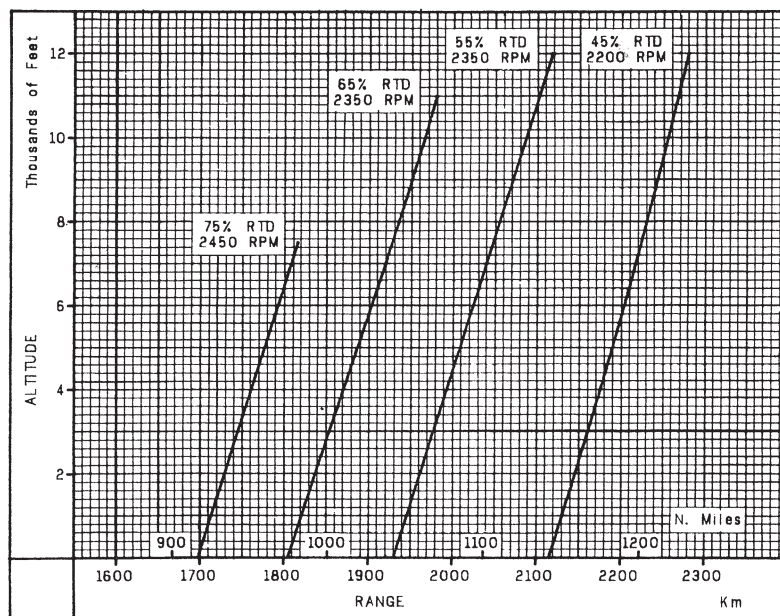


Figure N5-11
RANGE PROFILE

5.12 LANDING DISTANCE OVER 50 FT

(Figure N5-12)

(a) Associated Conditions

- | | |
|-------------------------------------|--|
| (1) Flaps | 35° |
| (2) Level, hard surface, dry runway | |
| (3) Maximum effective braking | |
| (4) Power | FLT. IDLE at 50 ft
above ground level |
| (5) Screen Speed | Refer to following table. |

WEIGHT (Kg)	SCREEN SPEED (KIAS)
1980	78
1900	76
1800	75
1700	73
1600	71
1500	69

(b) Example

- | | |
|-----------------------------|----------------|
| (1) Pressure Altitude | 2000 ft |
| (2) Outside Air Temperature | 23°C |
| (3) Airplane Weight | 1808 Kg |
| (4) Wind | 8 Kts-headwind |
| (5) Total Landing Distance | 510 mt |

NOTE

- The Ground Run is approximately 40% of the total Landing Distance.
- Increase Ground Run 20% when operating from a grass surface.

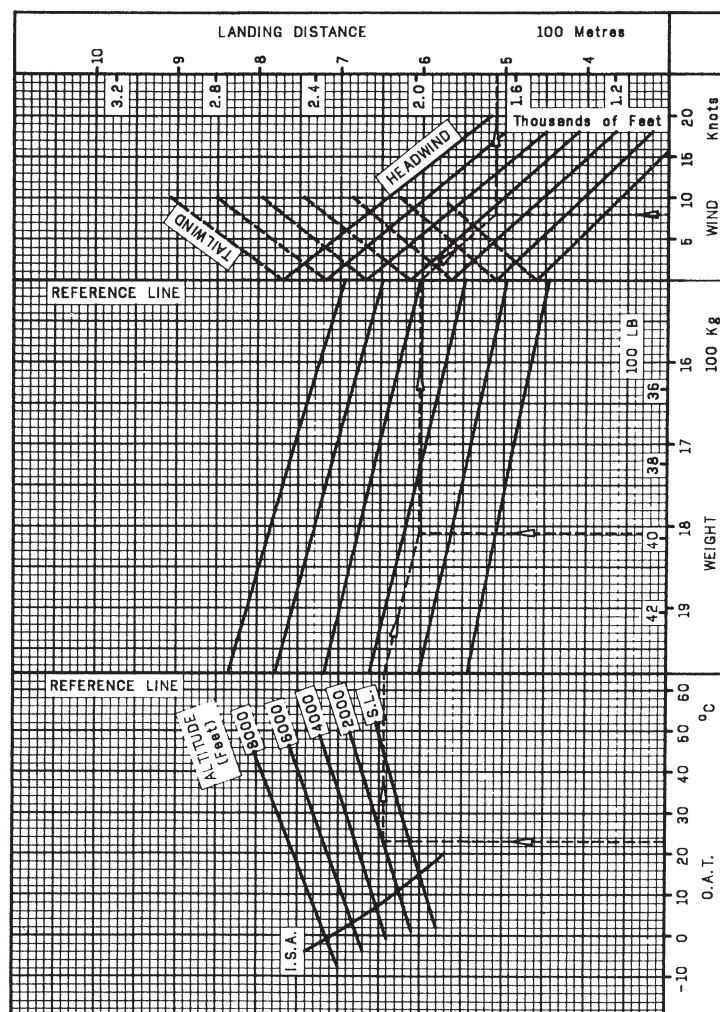


Figure N5-12
LANDING DISTANCE

6. WEIGHT AND BALANCE

6.1 GENERAL

When the kit P/N 68-051 is installed, the weight and balance changes are negligible. Refer to figure 6-2 of the basic Flight manual for the Basic Empty Weight.

6.2 WEIGHT AND BALANCE DATA RECORD

To determine the Useful Load, complete the figure N6-1 of this Supplement.

6.3 WEIGHT AND BALANCE DETERMINATION FOR FLIGHT

Refer to figure N6-2 of this Supplement to check if the loading meets the weight and balance requirements.

Airplane Serial Number

Registration Number

Date

AIRPLANE ACTUAL BASIC EMPTY WEIGHT

ITEM	Weight x C.G. Arm = Moment (Aft of Datum)
Basic Empty Weight *	(If not on board
Optional Equipment	when factory weighed)
Actual Basic Empty Weight	

- * The basic empty weight includes full 7.5 litres oil capacity, full brake fluid, and 18 litres of unusable fuel STD.

**AIRPLANE USEFUL LOAD
NORMAL CATEGORY OPERATION**

(Max Ramp Weight) — (Actual Basic Empty Weight) = Useful load

(4630 lbs) - (..... lbs) = lbs

(2100 kg) - (..... kg) = kg

THIS ACTUAL BASIC EMPTY WEIGHT, C.G. AND USEFUL LOAD
ARE FOR THE AIRPLANE AS DELIVERED FROM THE FACTORY.
REFER TO WEIGHT AND BALANCE RECORD WHEN
ALTERATIONS HAVE BEEN MADE.

Figure N6-1
WEIGHT AND BALANCE DATA FORM

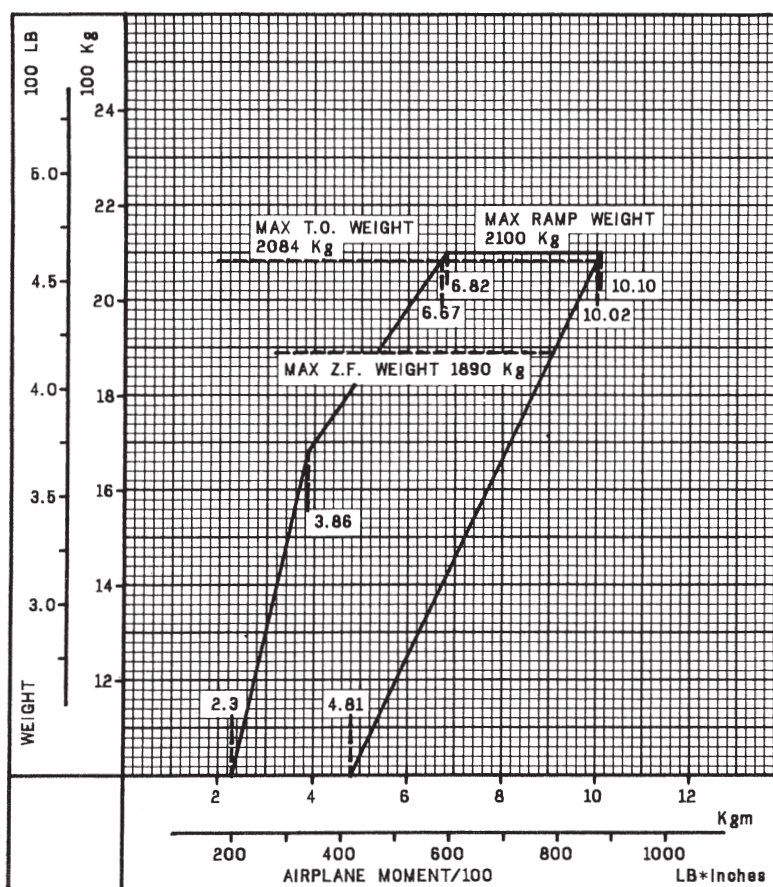


Figure N6-2
 WEIGHT MOMENT ENVELOPE

**SUPPLEMENT P
DIGIFLO DIGITAL
FUEL MANAGEMENT SYSTEM
(AS PER MODIF. MOD.P68/07)**

SECTION 1 - GENERAL

This supplement must be attached to the ENAC/R.A.I. Approved Airplane Flight Manual when the DIGIFLO Digital Fuel Management System is installed as per modification MOD.P68/07. The information contained herein supplements the basic approved Airplane Flight Manual. For limitations, procedures and performance information not contained in this supplement consult the basic approved Airplane Flight Manual. Wherever conflicts arise between information in this supplement and the approved Flight Manual, the information herein must take precedence.

DESCRIPTION

The DIGIFLO Digital Fuel Management System is a no-maintenance 3 1/8" indicator that provides fuel flow, fuel remaining, fuel used and time remaining data with an accuracy of $\pm 2\%$. The solid state microprocessor based instrument processes the pulses generated by the fuel flow transducer. Fuel flow is continuously displayed in the lower windows. Time remaining, fuel used and fuel remaining are continuously computed, and either displayed or stored for later display in the upper window. When shut down, remaining fuel quantity is stored in a non-volatile memory. Time remaining calculations are based on fuel remaining and actual fuel flow, therefore power reduction or leaning will result in an increased time remaining indication. Should the time remaining at any given power setting drop below 45 minutes, the "Time Remaining" display digits will flash. During initial programming, the total usable fuel as defined in the basic Flight Manual is entered into system memory for recall whenever maximum fuel load is embarked.

The fuel flow transducer mounted in the fuel line measures fuel flow and generates electrical pulses directly proportional to that flow. The transducer is of fail-safe design; rotor lock will not interrupt fuel flow to the engine.

The indicator is illustrated in Fig. 1 and the initial programming procedure is laid down in the subsequent paragraphs.

REV. 15

E.N.A.C. Approval No. 00/2023/MAE

DATE: JULY 10, 2000

Page 1 of 6

OPERATION

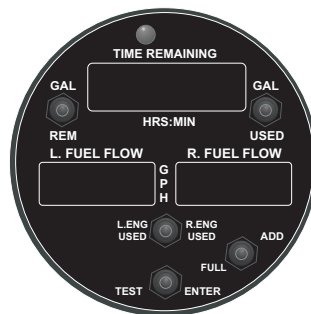


Fig. 1 DIGIFLO Indicator

INITIAL PROGRAMMING

Apply power to the unit, move lower right toggle switch to the “FULL” position and hold **throughout the entire procedure**.

Press both “FUEL REM” and “FUEL USED” buttons simultaneously. The system will count down for 15 seconds. Count is displayed in the lower left window.

The lower left window will display “FUL”. The full fuel quantity (lbs, gallons, etc.) will be shown in the upper window. Release “FUEL REM” and “FUEL USED” buttons, but maintain switch in “FULL” position.

To increase the fuel indication in the upper window, press the “FUEL REM” button. To decrease, press “FUEL USED”. Update speed is proportional to the length of time the button is pressed (longer/faster).

When the correct full usable fuel load for the aircraft is reached, press the “ENTER” button to store the value as full fuel. The “FUL” indication will disappear and the unit will return to the operate mode. Release the “FULL” switch. Press “TEST” to run the diagnostic check. If successful, the unit will display “GOOD” and the newly entered max fuel load will be displayed during the test.

SECTION 2 - OPERATING LIMITATIONS

There are no changes to Aircraft Operating Limitations when this instrument is installed.

WARNING

DIGIFLO is a Fuel Flow Measuring system NOT a quantity sensing device.

It CANNOT DETERMINE the amount of usable FUEL in the tanks, therefore it is imperative that an accurate figure of usable fuel on board be entered into the system to ensure accurate readings.

TEST FUNCTION

The Test Function allows the pilot to check for software and hardware malfunctions. Pressing the “ENTER/TEST” button will cause all digits to sequentially display 8 for ten seconds. If the test is successful, the word “GOOD” will be displayed in the top window. (If unsuccessful, the word “bAd” will be displayed, and the unit is to be considered unserviceable until corrective action is taken). This is followed by:

The flow transducer K-Factor setting appearing in the left flow window and display units (gallons, lbs or litres) in the upper window.

Maximum usable fuel setting in the upper window and “FUL” displayed in the left window.

Software basic N° and revision level in the lower windows.

NOTE

Using the “TEST” function while engines are running will cause the computer to lose 13 seconds of fuel count.

SECTION 3 - EMERGENCY PROCEDURES

ELECTRICAL SYSTEM FAILURE

The instrument will cease to function in case of electrical power failure. After power is restored, the left window will resume accurate fuel flow reading but Time Remaining, Fuel Used and Fuel Remaining figures will not be accurate unless the duration of the power failure is known and fuel consumption during failure is calculated and subtracted from the Fuel Remaining figure.

SECTION 4 - NORMAL PROCEDURES

BEFORE TAKEOFF

FULL TANKS

Where full fuel has been embarked, move the toggle switch to “FULL” and hold. The maximum usable fuel figure will be displayed in the upper window. If correct, press “ENTER” and return switch to the centre position.

Verify by moving the toggle switch to “FUEL REM”. Total usable fuel will be displayed.

PARTIAL FUEL

Move toggle switch to the “ADD” position and hold.
Press “FUEL REM” to increment the fuel added figure. When correct amount is reached, release the “FUEL REM” button. If the correct figure is exceeded, press “FUEL USED” to decrease.

Press “ENTER” when reading is correct. Return the “ADD” switch to the centre position. The computer will sum the fuel added and the fuel remaining, and use the total as the new fuel remaining.

Verify by pressing the “FUEL REM” button; current usable fuel will be displayed in the upper window.

FUEL REMAINING ENTRY ERRORS

Carry out the following procedure:

Press and hold "FUEL USED" and simultaneously press "ENTER/TEST".

Fuel used will be reset and fuel remaining will appear and remain displayed for 4 seconds, before decreasing. When the correct figure is reached (the longer the button is pressed the faster the display decrements), release both "FUEL USED" and "ENTER" buttons. To avoid repeating the 4 second pause while decrementing, do not release the "FUEL USED" button; use the "ENTER" button to control decrement speed.

IN FLIGHT OPERATION

Fuel Flow is continuously displayed in the lower windows. The upper window displays Time Remaining (in hours and minutes), or Fuel Remaining or Fuel Used (depending on which button is depressed).

Fuel Used may be reset at any time by pressing the "FUEL USED" button and momentarily pressing the "ENTER/TEST" button less than 4 seconds. If this button is pressed for longer than 4 seconds, the computer will start to decrement the Fuel Remaining figure.

The decimal points on every digit mean that the display reads in thousandths.

WARNING

**Time Remaining display will flash whenever
endurance drops below 45 minutes.**

**Dash lines indicate that there are over ten (10)
hours of flight time remaining.**

SECTION 5 - PERFORMANCE

There is no change to aircraft performance when this instrument is installed.

SECTION 6 - WEIGHT AND BALANCE-EQUIPMENT LIST

Negligible.

Weight and balance information relative to the DIGIFLO Digital Fuel Management System is included in Section 6 (paragraph 6.5 - Equipment List, Item E13) of the approved Airplane Flight Manual.

SUPPLEMENT Q

GARMIN GMA 340 AUDIO PANEL (AS PER MODIF. MOD.P68/12)

SECTION 1 - GENERAL

This supplement must be attached to the ENAC/R.A.I. Approved Airplane Flight Manual when the Garmin GMA 340 Audio Panel is installed as per modification MOD.P68/12.

The information contained herein supplements the basic approved Airplane Flight Manual. For limitations, procedures and performance information not contained in this supplement consult the basic approved Airplane Flight Manual. Wherever conflict arises between information in this supplement and the approved Flight Manual, the information herein must take precedence.

DESCRIPTION

The Garmin GMA 340 Audio Panel consists of a single rack-mounted unit with LED push-button selection of both NAV and COM audio. The unit also includes a dual sensitivity Marker Beacon receiver with lamps, and a six-position intercom.

All operating controls are mounted on the front of the audio panel. Controls are identified in Fig. 1.

The GMA 340 Audio Panel provides an intuitive interface for essential audio switching functions. Single button activation of COM microphone and audio for up to three transceivers simplifies cockpit workload, and a fail-safe circuit connects the pilot's headset and microphone directly to COM 1 should power be interrupted or the unit be inadvertently switched off.

A split COM transceiver function enables the pilot to transmit and receive on COM 1 while the co-pilot transmits and receives on COM 2.

OPERATION

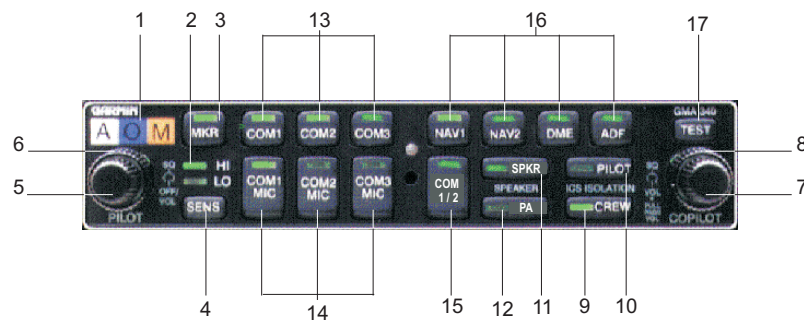


FIG. 1

1. MARKER BEACON LAMPS
2. MARKER BEACON RECEIVER SENSITIVITY LED's
3. MARKER BEACON RECEIVER AUDIO SELECT/MUTE
4. MARKER BEACON RECEIVER SENSITIVITY SELECT
5. UNIT ON/OFF, PILOT ICS VOLUME
6. PILOT ICS VOICE ACTIVATED (VOX) SQUELCH LEVEL
7. COPILOT/PAX ICS VOLUME (PULL FOR PAX VOLUME)
8. COPILOT/PAX VOX INTERCOM SQUELCH LEVEL
9. CREW ISOLATION INTERCOM MODE BUTTON
10. PILOT ISOLATION INTERCOM MODE BUTTON
11. PASSENGER ADDRESS FUNCTION BUTTON
12. SPEAKER FUNCTION BUTTON
13. TRANSCEIVER AUDIO SELECTOR (COM 1, 2, 3) BUTTONS
14. TRANSMITTER (AUDIO/MIC) SELECTION BUTTONS
15. SPLIT COM BUTTON
16. AIRCRAFT RADIO AUDIO SELECTION BUTTONS (NAV 1, 2, DME, ADF)
17. ANNUNCIATOR TEST BUTTON

On, Off and Fail-Safe Operation

The Audio panel is powered off when the left (small) knob is rotated fully counter clockwise into the detent. To turn the unit on, rotate the knob clockwise past the click (detent) position. The knob then assumes the function of pilot ICS volume control. A fail-safe circuit connects the pilot's headset and microphone directly to COM 1 in case of a power down.

Lighting

Button and Annunciator LED and Marker Beacon Lamp intensity are controlled automatically by the built-in photocell in the centre of the front panel.

Transceivers

NOTE

Audio Level is controlled by the selected COM radio volume controls.

Selection of either COM 1, COM 2, or COM 3 (if installed) for both MIC and Audio source is accomplished by pressing either COM 1 MIC, COM 2 MIC, or COM 3 MIC (14). Active COM audio is always heard in the headphones.

In addition, each audio source may be independently selected by pressing one of the COM buttons (13). Selected in this way, they remain active as audio sources regardless of which transceiver has been selected for microphone use. Keying a microphone causes the active transceiver MIC button LED to blink approximately once per second to indicate that the radio is transmitting.

Split COM

The COM 1/2 button (15) activates the split COM function. When this mode is active COM 1 is dedicated to the pilot for MIC/Audio while COM 2 is dedicated to the co-pilot for MIC/Audio. In this mode, simultaneous transmissions are possible over separate radios. Both pilots can still listen to COM 3, NAV 1, NAV 2, DME, ADF and MKR as selected. Pushing the button a second time cancels split COM mode.

When in split COM mode, the co-pilot may make PA announcements while the pilot continues using COM 1. Pressing the PA button (11) with split COM mode activated outputs the pilot's mic to the cabin speaker. A second press of the PA button returns the co-pilot to normal split COM operation.

Aircraft Radios and Navigation

Pressing NAV 1, NAV 2, DME, ADF (16) or MKR (3) selects that particular audio source. Audio level is controlled by the selected radio volume control.

Speaker Output

Pressing the SPKR button (11) outputs aircraft radios to the cabin speaker. Speaker output is muted when a COM microphone is keyed.

PA Function

Pushing the PA button activates PA mode. This function outputs pilot and/or co-pilot microphone audio to the cabin speaker. If the SPKR button is also active, any selected speaker audio is muted while the microphone is keyed. PA function does not depend on SPKR being previously active.

Intercom System (ICS)

Intercom volume and squelch (VOX) levels are adjusted using the following front panel knobs:

LEFT SMALL (5)	Unit ON/OFF, Pilot ICS volume
LEFT LARGE (6)	Pilot ICS mic VOX squelch level. CW rotation increases the VOX level necessary to break squelch. Full CCW is "HOT MIC" position
RIGHT SMALL (7)	IN Position - Co-pilot ICS volume OUT Position - Passenger ICS volume
RIGHT LARGE (8)	Co-pilot and passenger ICS mic VOX squelch level. CW rotation increases the VOX level necessary to break squelch. Full CCW is the "HOT MIC" position

All mic inputs have dedicated VOX circuits to ensure that only the active microphone(s) is/are heard when squelch is broken.

Three intercom modes are available: PILOT, CREW, and ALL. Select ICS mode by pressing the PILOT or CREW buttons. The ALL mode is active when neither PILOT or CREW LED's are lit. Press CREW button to change from PILOT to CREW mode, and PILOT button to change from CREW to PILOT mode. Active isolation mode is indicated by an illuminated LED.

PILOT Mode	Isolates, and dedicates the aircraft radios exclusively to the pilot. Co-pilot and passengers share communication but cannot communicate with the pilot or hear aircraft radios
CREW Mode	Places Pilot and Co-pilot on a common ICS And aircraft radio channel. Passengers can communicate with each other but cannot communicate with either pilot or hear the aircraft radios.
ALL Mode	Full intercom communication and aircraft radios may be heard by all.

Marker Beacon Receiver

The Marker Beacon is used as part of an ILS approach, and in some instances to identify an airway. In addition to the normal Marker Beacon functions, the GMA 340 provides an audio muting function. When the aircraft passes over a 75MHz marker beacon transmitter, the lamps (1) illuminate and the associated keytone is heard (when MKR audio is selected).

Marker Beacon controls are located on the left hand side of the front panel. The SENS button (4) selects either high or low sensitivity and the relative LED (2) will illuminate. Marker audio is initially selected by pressing the MKR/mute button (3). If no signal is received, a second press will deselect the the marker audio. If the button is pressed while a signal is being received the signal will mute but not deselect. The button LED will remain lit to indicate selection and when the marker signal is no longer received the audio will be automatically un-muted. In the muted state, pressing the MKR/mute button will deselect marker audio and the button LED will extinguish. Marker lamps operate independently of any audio selection.

SECTION 2 - OPERATING LIMITATIONS

There are no changes to the airplane limitations when this avionics equipment is installed.

The GMA 340 Audio Panel is subject to the following operating limitations:

ALTITUDE

Maximum Operating Altitude is 50,000 Ft.

TEMPERATURE RANGE

Operating temperature range for the Audio Panel is -20° C (-4° F) to +55° C (+131° F).

SECTION 3 - EMERGENCY PROCEDURES

There are no changes to the airplane emergency procedures when this avionic equipment is installed.

SECTION 4 - NORMAL PROCEDURES

Turn on the unit by rotating the left hand small knob clockwise past the detent. Select mic and audio sources and set volume and squelch levels as required.

SECTION 5 - PERFORMANCE

There is no change to airplane performance when this avionic equipment is installed.

SECTION 6 - EQUIPMENT LIST WEIGHT AND BALANCE

The installation of the GMA 340 Audio Panel is included in the weight and balance information presented in Section 6 (Equipment List, item K16a) of the approved Airplane Flight Manual.

This page intentionally left blank

SUPPLEMENT R

GARMIN GTX 320 TRANSPONDER (AS PER MODIF. MOD.P68/13)

SECTION 1 - GENERAL

This supplement must be attached to the ENAC/R.A.I. Approved Airplane Flight Manual when the Garmin GTX 320 Transponder is installed as per modification MOD.P68/13.

The information contained herein supplements the basic approved Airplane Flight Manual. For limitations, procedures and performance information not contained in this supplement consult the basic approved Airplane Flight Manual. Wherever conflict arises between information in this supplement and the approved Flight Manual, the information herein must take precedence.

DESCRIPTION

The Garmin GTX 320 Transponder is a rack mounted radio transmitter and receiver unit which operates on radar frequencies. The transponder receives a ground radar interrogation signal on a frequency of 1030 MHz to which it replies with a coded response on a frequency of 1090 MHz. The transponder reply may be any one of 4,096 codes which differ in the position and number of transmitted pulses, and allows ground-based ATC radar to display aircraft identification, altitude, and ground speed. The unit is also equipped with an IDENT function that displays a Special Position Identification (SPI) pulse for approximately 20 seconds on the controller's scope..

Transponder range is limited to "line of sight". Low altitude or antenna shielding by the aircraft itself may result in reduced range. Climbing to a higher altitude, or ensuring that antenna shielding is limited to abnormal flight attitudes can improve range performance.

All operating controls are mounted on the front of the transponder. Controls are identified in Fig.1.

OPERATION

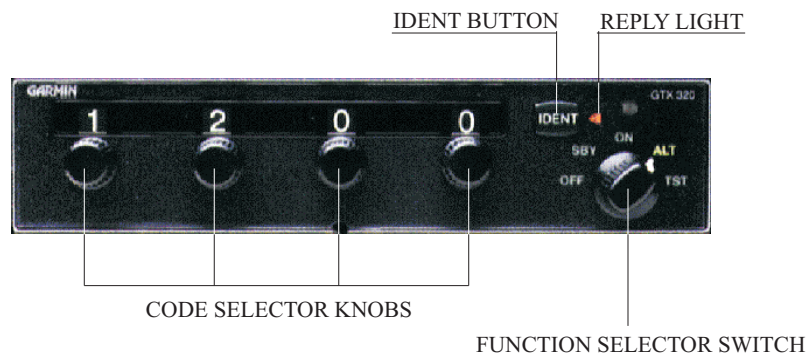


FIG. 1

FUNCTION SELECTOR SWITCH

A five- position rotary switch. The five positions are:

OFF	Turns OFF all power to the transponder (Unit should be OFF before engine start)
SBY	Transponder ON, but will not reply to ground interrogations
ON	Transponder placed in MODE A (identification mode). Transponder will reply to MODE C altitude interrogations with signals that do not contain altitude information.
ALT	Activates the <i>transponder to altitude digitizer</i> circuitry in order to reply to ATC identification and altitude interrogations with the standard pressure altitude of 1013.32 mB (29.92 in. Hg.).
TST	Tests the reply light. This position is spring loaded, and must be held momentarily. When released, the knob returns to the ALT position

The transponder is active whenever the Function Selector knob is in the ON or ALT position. Select one of these positions as late as is practical before takeoff, and switch to OFF or SBY after completing the landing roll (unless a switch to SBY is requested earlier by ATC).

CODE SELECTOR KNOBS

Four eight position switches numbered from 0 to 7, providing 4,096 possible active identification codes.

The selected code should be as directed by ATC or in accordance with instructions for IFR flight or rules applicable to transponder utilisation for VFR flight.

When making routine code changes, care should be taken not to inadvertently select the following codes which trigger alarms at automated ground facilities:

7500 - Hijack (Assigned by ATC only after notification by the pilot that the aircraft is subject to unlawful interference)

7600 - Loss of Communications

7700 - Emergency (All SSR sites are ready to receive this code at all times)

Pay attention for example, when changing from code 2700 to code 7200. Switch first to 2200 then to 7200 as opposed to 7700 then 7200.

This procedure applies to nondiscrete code 7500 and all discrete 7600 and 7700 series codes (7600-7677, 7700-7777).

The aircraft transponder code is used to enhance ATC tracking capabilities, therefore do not turn the transponder to SBY when making code changes.

See the Airman's Information Manual (or equivalent) for a detailed explanation of identification codes.

IDENT BUTTON

Used whenever an ATC controller requests "SQUAWK IDENT".

Momentarily press and release the IDENT button to activate the Special Position Identification pulse that will appear on the controller's scope for approximately 20 seconds to identify your transponder return from other aircraft on the display.

REPLY LIGHT

The REPLY LIGHT illuminates each time the transponder replies to a ground radar interrogation. It also remains lit during the IDENT time interval.

SECTION 2 - OPERATING LIMITATIONS

There are no changes to the airplane limitations when this avionic equipment is installed.

The GTX 320 transponder is subject to the following operating limitations:

ALTITUDE

Maximum Operating Altitude is 50,000 Ft.

TEMPERATURE RANGE

Continuous Operation temperature range for the transponder is -20° C (-4° F) to +55° C (+131° F).

SECTION 3 - EMERGENCY PROCEDURES

There are no changes to the airplane emergency procedures when this avionic equipment is installed.

SECTION 4 - NORMAL PROCEDURES

Turn the Function Selector knob to the ON or ALT position. Select one of these positions as late as is practical before takeoff, and switch to OFF or SBY after completing the landing roll (unless a switch to SBY is requested earlier by ATC).

SECTION 5 - PERFORMANCE

There is no change to airplane performance when this avionic equipment is installed.

SECTION 6 - EQUIPMENT LIST WEIGHT AND BALANCE

The installation of the GTX 320 Audio Panel is included in the weight and balance information presented in Section 6 (Equipment List, item K16b) of the approved Airplane Flight Manual.

This page intentionally left blank

SUPPLEMENT S

GARMIN GNS 430 VHF COMMUNICATIONS TRANSCEIVER VOR/ILS RECEIVER/GPS RECEIVER (AS PER MODIF. MOD.P68/14)

SECTION 1 - GENERAL

This supplement must be attached to the ENAC/R.A.I. Approved Airplane Flight Manual when the Garmin GNS 430 System is installed as per modification MOD.P68/14.

The information contained herein supplements the basic approved Airplane Flight Manual. For limitations, procedures and performance information not contained in this supplement consult the basic approved Airplane Flight Manual. Wherever conflict arises between information in this supplement and the approved Flight Manual, the information herein must take precedence.

DESCRIPTION

The Garmin GNS 430 System is a fully integrated panel-mounted unit which contains a VHF Communications Transceiver, a VOR/ILS Receiver and a Global Positioning System (GPS) Navigation computer.

System components include a GPS antenna, GPS receiver, VHF VOR/LOC/GS antenna, VOR/ILS receiver, VHF COMM antenna and a VHF Communications transceiver.

The GPS receiver is to be used for supplemental navigation in IFR En-Route and for Non-Precision Approaches.

NOTE

The GNS 430 VHF Radios installed in this aircraft are set to operate with a frequency spacing of **25 KHz**. Should it be necessary to operate the radios using the alternative frequency spacing of **8.33 KHz**, change the AUX group Setup 2 settings as described on page 153 of the GARMIN GNS 430 Pilot's Guide and Reference.

DESCRIPTION (CONT.)

Providing the Garmin GNS 430 GPS receiver is receiving adequate signals, it has been demonstrated capable of, and has been shown to meet the accuracy specifications for:

- VFR/IFR en-route, terminal and non-precision instrument approaches (GPS, Loran - C, VOR, VOR-DME, TACAN, NDB, NDB-DME) operations.

GPS navigation is accomplished using the WGS-84 (NAD-83) co-ordinate reference datum (a World Geodetic Survey carried out in 1984 that established an accurately plotted ellipsoid upon which all GPS positions are based). The resulting Navigational data is based upon use of only the Global Positioning System (GPS) operated by the United States of America.

GPS OPERATIONAL CONDITIONS

EN-ROUTE	TERMINAL
Traditional approved IFR navigation equipment will need to be available to continue the flight when integrity is lost. Integrity may be provided by RAIM or equivalent	Traditional approved IFR navigation equipment will need to be available to continue the flight when integrity is lost. Integrity may be provided by RAIM or equivalent

For application of these conditions:

- A) The ground-based aids along the route to be flown, or ground based aids for RNAV- Routes must be operational;
- B) Aircraft equipment, other than GPS, suitable for the route to be flown, must be serviceable.

OPERATION

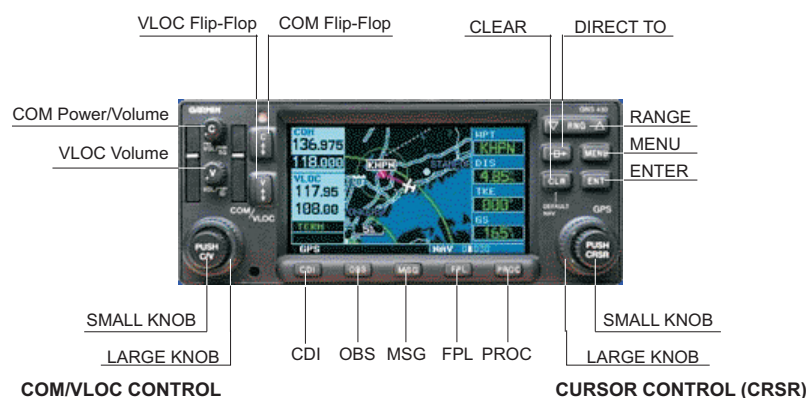


FIG. 1

	Unit power and communications radio volume. Press to disable automatic squelch.
	VOR/Localiser frequency audio volume. Press to enable/disable the ident tone.
	Tunes MHz value of the standby frequency for either the COM transceiver or VLOC receiver, whichever is currently selected by the tuning cursor.
	Tunes kHz value of the standby frequency for either the COM transceiver or VLOC receiver, as selected by the tuning cursor. Press to toggle tuning cursor between COM and VLOC frequency fields.
	Transfers between active and standby COM frequencies. Press and hold to select the emergency channel (121.500 Mhz).
	Transfers between active and standby VLOC frequencies (makes selected standby active).



Selects desired map scale. Use UP arrow to zoom out to a larger displayed area and the DOWN arrow to zoom into a smaller area.



Direct To establishes a direct course to a selected waypoint.



Displays a context-sensitive list of options.
The list allows the user to access additional features or to Make settings changes to the currently displayed page.



Clears information or cancels an entry. Press and hold to visualise the Default Navigation Page.



Approves an operation or completes data entry.



Selects between various page groups (NAV, WPT, AUX, or NRST). Allows cursor movement around the page.



Selects between the pages within one of the above groups. Press momentarily to enable the on-screen cursor which allows data entry or option selection to be made.



Selects which Navigation source (GPS or VLOC) outputs to the HSI or CDI.



Selects automatic or manual waypoint sequencing. Press to select OBS mode which retains the current "active to" waypoint as the navigation source (prevents sequencing). Press again to resume normal waypoint sequencing. Course may be set from the OBS page or with the external selector.



Allows creation/editing/activation/inversion of flight plans. Also accesses approaches, departures, and arrivals.



Selects/removes approaches, departures and arrivals from a flight plan. Available procedures for departure and arrival airport are offered automatically, or may be selected as Desired.

SECTION 2 - OPERATING LIMITATIONS

There are no changes to the airplane limitations when this avionic equipment is installed.

The GNS 430 System is subject to the following operating limitations:

1. The GARMIN GNS 430 Pilot's Guide, P/N 190-00140-00 Rev. A dated October 1998 (or a later appropriate revision) must be immediately available to the flight crew whenever navigation is predicated on the use of the system.
2. The GNS 430 system must utilise the following or later FAA approved software versions:

SUB-SYSTEM	SOFTWARE VERSION
MAIN	2.00
GPS	2.00
COMM	1.22
VOR/LOC	1.25
G/S	2.00

The Main software version is displayed on the self-test page for 5 seconds immediately after system power up. Remaining software versions may be verified on the AUX group sub-page 2, "SOFTWARE/DATABASE VER".

3. IFR en-route and terminal navigation predicated upon the GNS 430 GPS receiver is prohibited unless both database currency and selected waypoint accuracy are verified by reference to current approved data.
4. Instrument approach/departure navigation must be accomplished in accordance with approved procedures retrieved from the GPS equipment database. The GPS equipment database must incorporate the current update cycle and the coding must support the officially published SID/STAR. When flying SID/STAR's, the procedure established by the State of the aerodrome has to be authorised/published by that State for the use of GPS. The State of operator/registry (as applicable) must have authorised the use of multi-sensor equipment using GPS as one sensor, or GPS class A1 equipment for the purpose of flying non-precision approaches.

LIMITATIONS (CONT:)

- A) Instrument approaches must be conducted in the approach mode and Receiver Autonomous Integrity Monitoring (RAIM) must be available at the final approach fix. The database information must be presented to the crew in the order shown on the published non-precision approach plate. The published procedure must be identified as a GPS approach.
 - B) Accomplishment of ILS, LOC, LOC-BC, LDA, SDF, MLS or any other type of approach not approved for GPS overlay is not authorised.
 - C) Use of the GNS 430 VOR/ILS receiver to fly approaches not approved for GPS require VOR/ILS navigation to be displayed on the external indicator.
 - D) If no destination alternate is required, at least one non-GPS based approach must be available at the destination airport. When an alternate airport is required by applicable operating rules, it must be served by an approach based on other than GPS or LORAN-C navigation, the aircraft must be equipped to use that navigation aid, and the required navigation aid must be operational. RAIM or equivalent must be available at the expected time of arrival. A missed approach procedure based on traditional navigation must be available.
 - E) VNAV information may be utilised for advisory information only. Use of VNAV information for Instrument Approach Procedures does not Guarantee Step-Down Fix altitude protection, or arrival at approach minimums in normal position to land.
5. The aircraft must have other approved navigation equipment installed and operating appropriate to the route of flight. Associated ground based aids along the route must be operational.
6. GPS positional data is referenced to the WGS-84 or NAD-83 geodetic datums. When flying through airspace where these references are not applicable to published charts, GPS navigation information shall be used in an advisory capacity only, and navigation must be carried out by using published charts referenced to the correct datum.

The following units must be 'default' in the GNS 430 "SETUP 1" menu:

Navigation Units (dis, spd)	nm kt	Nautical Miles and Knots
Altitude Units (alt, vs)	ft fpm	Feet and Feet per Minute
Geodetic Data (map datum)	WGS-84	WGS-84
Positional Units (posn)	deg-min	Degrees, Minutes

SECTION 3 - EMERGENCY PROCEDURES

ABNORMAL PROCEDURES

1. If GNS 430 navigation data is unavailable or invalid, utilise operational navigation equipment as required.
2. If “RAIM POSITION WARNING” message is displayed, the system will flag, and GPS positional based guidance will no longer be provided. The crew should revert to the GNS 430 VOR/ILS receiver.
3. If “RAIM IS NOT AVAILABLE” message is displayed in the En-Route, Terminal, or Initial Approach phase of flight, continue to navigate using GPS or revert to an alternate means of navigation appropriate to the route and phase of flight. Where navigation is continued using the GPS receiver, positional information must be verified every 15 minutes by data originating from another IFR approved navigation system.
4. If “RAIM IS NOT AVAILABLE” message is displayed while on the Final Approach segment, GPS navigation will continue for up to 5 minutes with approach CDI sensitivity (0.3 NM). After 5 minutes the system will flag and no longer provide course guidance with approach sensitivity. Missed approach course guidance may still be available with 1 NM CDI sensitivity by executing the missed approach.
5. In an in-flight emergency situation, pressing and holding the Comm transfer button for 2 seconds will select the emergency frequency of 121.500 MHz into the “Active” frequency window.

SECTION 4 - NORMAL PROCEDURES

1. Normal operating procedures are described in the GARMIN GNS 430 Pilot's Guide, P/N 190-00140-00 Rev. A, dated October 1998 (or a later appropriate Revision).
2. **APPROACH MODE SEQUENCING**
 - a) Use the PROC key to select the desired approach.
 - b) Choose the IAF from the transitions window and select "Load?" If carrying out an ILS approach, the ILS frequency is automatically placed in the VLOC window standby field. Use the VLOC flip-flop key to place it in the active frequency field as required.
 - c) Within 30NM range the GNS 430 will automatically switch from En-Route (ENR) mode to Terminal (TERM) mode, and the default nav page CDI scale will transition from a full-scale deflection of 5.0 NM to 1.0 NM.
 - d) Adequate way point alert messages (NEXT DTK 330°) will appear in the lower right corner of the screen. As the distance to the waypoint in the distance field approaches zero, the waypoint alert will be replaced by a turn advisory (TURN TO 330°).
 - e) Procedural turns are advised by the "START PROC TRN" message.
 - f) For ILS approaches, once established on the inbound approach course to the FAF, CDI coupling will automatically switch from GPS to VLOC if the ILS frequency has been activated, and 0.30nm will appear in the lower right message window signifying a CDI scale transition from 1.0 NM to 0.3 NM. At 2.0 NM from the FAF, the GPS receiver will switch from Terminal mode (TERM) to Approach (APR) mode.
 - g) As the FAF is crossed, the next indicated waypoint is the MAP. As the MAP is approached, "APPRCHING WPT" appears in the bottom right corner of the screen. As the MAP is crossed, a "FROM" indication is displayed on the external CDI.
3. The GNS 430 RAIM prediction capability ensures that available satellite geometry will allow the receiver to calculate a position to within 2NM during the En-Route phase, within 1NM for the Terminal phase, and within 0.3 NM during a non-precision approach. If RAIM is not available when crossing the FAF, an INTEG annunciation is generated and a missed approach must be flown.

SECTION 4 - NORMAL PROCEDURES (CONT.)

4. SYSTEM ANNUNCIATORS

The GNS 430 system annunciators are integrated into the LCD display. The following is a description of the main annunciators that indicate system or navigation status. For all other annunciators, refer to the GNS 430 Pilot's Guide and Reference.

WAYPOINT ANNUNCIATORS

Appear in the lower right of the screen, momentarily replacing the PAGE GROUP information.

NEXT DTK ###° :	Warns of an impending course change with heading;
TURN TO ###° :	Supplies turn point and heading indication;
START PROC TRN:	Indicates start of procedural turn;
APPROCHING WPT:	Warns of waypoint approach.

MESSAGE ANNUNCIATOR

System messages are indicated by a flashing MSG annunciator immediately above the MSG key on the front panel. For all possible messages refer to the appropriate section in the GNS 430 Pilot's Guide and Reference.

APPROACH ANNUNCIATOR

The approach annunciator APR appears in the upper of the two windows immediately below the VLOC frequency window, as do the:

NAVIGATION (PHASE OF FLIGHT) ANNUNCIATORS

ENR :	Signifies En-Route navigation phase;
TERM:	Signifies entry into Terminal manoeuvring phase;

INTEGRITY (RAIM) WARNINGS

Appear in the lower of the two windows below the VLOC frequency window.

INTEG:	Receiver Integrity warning;
WARN:	No calculated position available.

NAVIGATION SOURCE ANNUNCIATOR

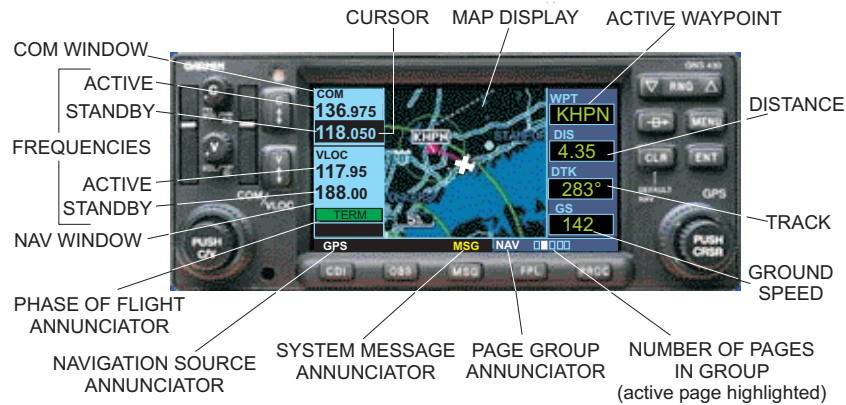
Immediately above the CDI key on the front panel.

VLOC:	Navigation source is VOR/LOC receiver;
GPS:	Navigation source is GPS receiver.

SECTION 4 - NORMAL PROCEDURES (CONT.)

PILOT'S DISPLAY

GNS 430 navigation data is transferred to the pilot's HSI. Data source is either GPS or VLOC as annunciated on the display above the front panel CDI button.



A typical GNS 430 map page appears in the above illustration. The system annunciators are an integral part of the display, and appear above the control keys on the front panel. Approach and waypoint/track annunciation appears in the lower right of the display, momentarily replacing annunciation of the active page group and relative number of pages. The system message annunciator flashes above the MSG key until the key is pressed, after which a dedicated message page opens. Receiver integrity (RAIM) warnings appear in the bottom left hand window under the phase of flight annunciator. For detailed information on other navigation pages and the data they contain, refer to the GNS 430 Pilot's Guide and Reference.

AUTOPILOT/FLIGHT DIRECTOR OPERATION

GNS 430 steering information may be coupled to the autopilot/flight director by engaging the autopilot or flight director in NAV or APP mode.

When the autopilot/flight director is using GNS 430 course information and the course pointer is not automatically driven to the desired track, the HSI course pointer must be manually set to the desired track (DTK) indicated on the GNS 430. For detailed autopilot/flight director operational instructions, refer to the appropriate supplement in the ENAC approved Flight Manual.

CROSSFILL OPERATIONS

A flightplan crossfill capability exists for the dual GNS 430 installation. Refer to the GNS 430 Pilot's Guide for detailed crossfill operating instructions.

AUTOMATIC LOCALISER COURSE CAPTURE

The automatic localiser course capture feature is enabled by default. This feature provides a method for system navigation data present on external indicators to be switched automatically from GPS guidance to Localiser/Glideslope guidance at the course intercept point on a localiser at which GPS derived course deviation equals localiser derived course deviation. If an offset from the final approach course is being flown, it is possible that the automatic GPS/Localiser/GS guidance switch will not occur. It is the pilot's responsibility to ensure that correct system navigation data is present on the external indicator before continuing a localiser based approach beyond the final approach fix.

SECTION 5 - PERFORMANCE

There is no change to airplane performance when this equipment is installed.

SECTION 6 - EQUIPMENT LIST WEIGHT AND BALANCE

The GNS 430 installation is included in the weight and balance information presented in Section 6 (Equipment List, item K16c) of the approved Airplane Flight Manual.

This page intentionally left blank

SUPPLEMENT U

BENDIX/KING RDR 2000 COLOR WEATHER RADAR (AS PER MODIF. MOD.P68/16)

SECTION 1 - GENERAL

This supplement must be attached to the R.A.I. Approved Airplane Flight Manual when the Bendix/King RDR 2000 Color Weather Radar is installed as per modification MOD.P68/16. The information contained herein supplements the information in the basic approved Airplane Flight manual. For Limitations, procedures and performance information not contained in this supplement consult the basic R.A.I. Approved Airplane Flight Manual. Wherever conflict arises between information in this supplement and the approved Flight Manual, the information herein must take precedence.

DESCRIPTION

The RDR 2000 Color Weather Radar system consists of a nose mounted receiver-transmitter and stabilized 10-inch, X-Band radar antenna, and a panel mounted radar indicator. All operating controls are mounted on the front panel of the radar indicator and operating controls and functions are described in fig. 1 and 2.

The RDR 2000 Color Weather Radar system is designed to detect significant enroute formations up to a distance of 190 nautical miles (when set to maximum range) to preclude undesired penetration of heavy weather and its usually associated turbulence. The antenna is fully stabilized to compensate for up to +/- 25° of aircraft pitch and roll.

The indicator provides a four colour weather display, showing four separate levels of rainfall intensity in green, yellow, red and magenta.

Evenly spaced blue segmented concentric range arcs, blue alphanumerics and an amber antenna tilt angle readout is also provided.

In addition to its primary purpose of weather mapping, a ground mapping mode permits displaying prominent topographical features such as lakes, bays, islands, shore lines and urban areas.

In the MAP mode the magenta color is not used.

WARNING

This system generates microwave radiation in the WX/WXA, MAP and VP operating modes. Improper use, or exposure, may cause serious bodily injury.

DO NOT OPERATE UNTIL YOU HAVE READ AND CAREFULLY FOLLOWED ALL SAFETY PRECAUTIONS AND INSTRUCTIONS CALLED OUT IN SECTION 4 (NORMAL PROCEDURES) OF THIS SUPPLEMENT.

Users of this equipment are strongly urged to familiarize themselves with FAA Advisory Circular AC N° 00-24B (1-20-83), subject: "Thunderstorms".

OPERATING CONTROLS AND DISPLAY FEATURES

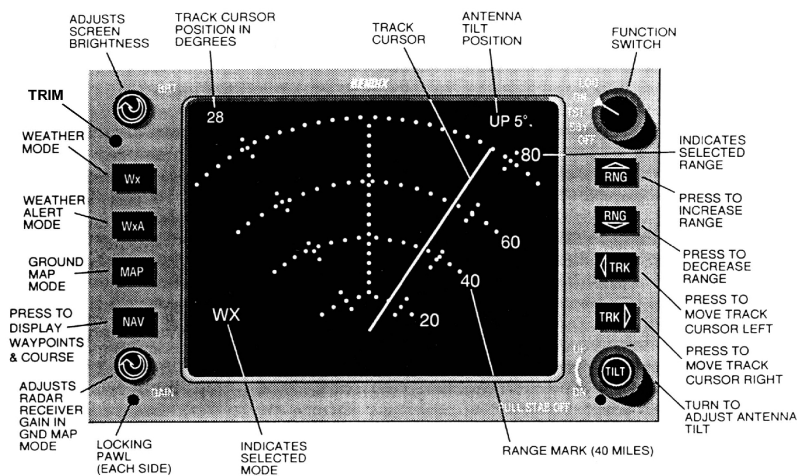


FIG. 1

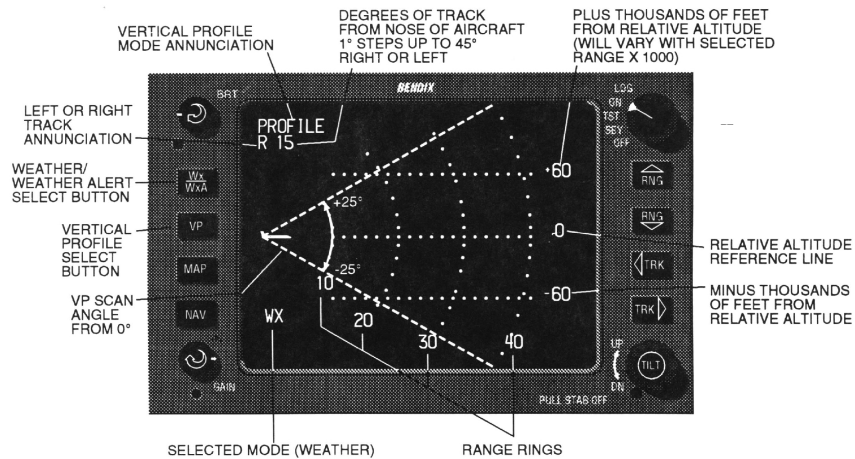


FIG. 2



BRT control

Adjust brightness of the display for varying cockpit light conditions.



Wx pushbutton

Selects the weather mode (Wx) when pressed. Wx appears in display. Weather compensation not active.



WxA pushbutton

Selects the weather mode (Wx) when pressed. Wx appears in display. Weather compensation not active.



Wx/WxA pushbutton

Toggles between Weather Alert mode in units with Vertical Profile option.



VP pushbutton

Selects and deselects the Vertical Profile mode of operation on units containing this option.



MAP pushbutton

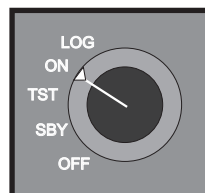
Selects ground mapping mode (MAP) when pressed. MAP appears in the display. Red color is not used in the MAP mode.



NAV pushbutton

Selects Navigation mode and displays preprogrammed waypoints when system is used with optional radar graphics unit and Flight Management System.

Function selector

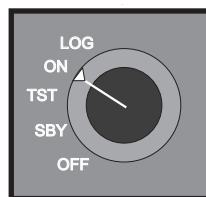


1. OFF position removes primary power from the system.
2. SBY (standby) position places system in the standby condition during warm-up period and when the system is not in use. The screen is blank with word STBY displayed in the lower left corner. NAV mode may be selected while in standby. No transmission exists in the SBY condition.
3. TST (test) position selects test function to determine operability of the system. A test pattern is displayed and 80 mile range is

Automatically selected, but can be Changed. No transmission exists In the TST condition.

4. ON position selects the condition for normal operation. Radar transmission exists in the ON position The Wx mode and 80 mile range are automatically selected when turned on.
5. LOG position is used only when a Bendix/King IU 2023 series radar graphics unit is installed with a compatible long range navigation system. This mode lists the latitudes and longitudes of selected waypoints, selected VOR frequencies and bearings and distances to waypoints. No radar transmission occurs in this mode.

TILT control



Turn the knob to adjust antenna tilt. Adjusts the antenna to move the radar beam up to a maximum of +15° above the horizontal or to a maximum of -15° below the horizontal position. The horizontal position is indicated as 0° on the control. The tilt angle is displayed in the upper right corner of the indicator.

TILT control

Pulling this knob out disables stabilization. If the system is in a non-stabilized installation, “STAB OFF” will appear in the upper left corner of the screen.



RANGE increase
pushbutton

Clears the display and advances the indicator to the next higher range each time the pushbutton is pressed (eg: 20 to 40, 40 to 80, etc.), until 240 mile range is reached. The range selected is displayed in the upper right corner on the last range mark, and the distance to each of the other range mark circles is displayed along the right edge of the circles (arcs).



RANGE decrease
pushbutton

Clears the display and places the indicator in the next lower range each time the pushbutton is pressed (eg: 40 to 20), until the minimum range of 10 mile is reached at the outmost range mark ring.



TRACK left
pushbutton

Moves azimuth line to the left in 1° steps until 45° is displayed when button is pushed. Also, used to select the vertical “slice” to be displayed when in Vertical Profile mode on units with this option and increments in 2° steps after each horizontal scan.



TRACK right
pushbutton

Moves azimuth line to the right in 1° steps until 45° is displayed when button is pushed. Also, used to select the vertical “slice” to be displayed when in Vertical Profile mode on units with this option and increments in 2° steps after each horizontal scan.



GAIN control

Varies the radar receiver gain when in the MAP mode. Gain and STC are preset in TEST function and in the Wx, WxA and VP modes.

ROLL TRIM

Adjust for a mechanical error of 2° or less if the radar sensor is not mounted parallel to the wings. If the error is greater than 2°, the radar sensor must be removed and mechanically aligned as close to 0° as possible.

SECTION 2 - OPERATING LIMITATIONS

There is no change to the airplane limitations when this avionic equipment is installed.

SECTION 3 - EMERGENCY PROCEDURES

There is no change to the airplane emergency procedures when this avionic equipment is installed.

SECTION 4 - NORMAL PROCEDURES

PRIOR TO FLIGHT

WARNING

The radar system generates microwave radiation and improper use, or exposure, may cause serious bodily injury.

DO NOT OPERATE THIS EQUIPMENT UNTIL YOU HAVE READ AND CAREFULLY FOLLOWED THE FOLLOWING SAFETY PRECAUTIONS AND INSTRUCTIONS.

SAFETY PRECAUTIONS AND INSTRUCTIONS TO BE FOLLOWED PRIOR TO RADAR OPERATIONS ON THE GROUND:

1. Do not turn on, or operate radar within 15 feet of ground personnel or containers holding flammable or explosive material.
2. Do not turn on, or operate radar during refueling operations.

PREFLIGHT CHECKS PRIOR TO ENERGIZING RADAR

WARNING

IN ORDER TO PREVENT POSSIBLE SERIOUS BODILY INJURY TO GROUND PERSONNEL OR IGNITION OF FLAMMABLE OR EXPLOSIVE MATERIALS, THE FOLLOWING TESTS MUST BE ACCOMPLISHED WITH THE FUNCTION SELECTOR SWITCH ALWAYS IN THE TEST (TST) MODE OF OPERATION.

1. Function selector Switch - SBY (stanby) position and after 30 seconds select test (TST) position.
2. Antenna TILT control - Set to +5°.
3. BRT Control - Adjust to mid-range.
4. Indicator test display - Check TEST PATTERN with the following:
 - A. After 7 to 8 seconds, four equally spaced blue range marks should be visible, the word TEST and the number "80" should appear and be visible in blue displays in opposite corners of the display.
 - B. No video noise distortion should appear on the display.
 - C. There are four colored bands appearing on the indicator.
 - D. Starting with the closest band to the origin, the bands will be green, yellow, red and magenta.

NOTE

The width of the best pattern bands is not critical, nor is the position of the bands relative to the range marks.

- E. The update action may be observed as a small "ripple" moving along the another magenta band, indicating that the antenna is scanning.
5. WxA Mode Selector pushbutton - Select WxA position and observe that magenta band alternates from magenta to black approximately once per second.
6. Function Selector Switch - SBY position.

PREFLIGHT CHECKS WITH RADAR ENERGIZED

WARNING

IN ORDER TO PREVENT POSSIBLE BODILY INJURY TO GROUND PERSONNEL OR IGNITION OF FLAMMABLE OR EXPLOSIVE MATERIALS THE AIRPLANE MUST BE TAXIED WITH THE FUNCTION SWITCH IN THE OFF, SBY, OR TST POSITIONS ONLY TO A "CLEAR-AHEAD" AREA WHERE METAL BUILDING, AIRCRAFT, GROUND PERSONNEL, ETC. ARE NOT IN LINE-OF-SIGHT OF THE RADAR UNIT.

OBSERVE THE SAFETY PRECAUTIONS AND INSTRUCTIONS AT THE START OF SECTION 4 PRIOR TO PERFORMING THE FOLLOWING CHECKS WITH THE RADAR UNIT ENERGIZED.

1. Ensure safety precautions have been observed.
2. Function selector Switch - ON position. The indicator will automatically be in the weather (WX) mode.
3. RNG (Range) Selector Push button - 80-20 range.
4. Antenna Tilt Control - +5° to minimize ground return.
5. BRT Control - Adjust as required.
6. Antenna Tilt Control - TILT UP (+ degrees) and DOWN (- degrees) in small increments.
7. Function Selector Switch - SBY position for taxi maneuvers.

OPERATIONAL NOTES **FALSE RETURN DISPLAY**

1. Ground radar stations or other airborne weather radars may occasionally cause interference with the presentation of the return.

The effect of this interference is to create one or more radial bands of false signal or noise extending from the bottom center outward to the outer range scale.

These effects are usually of short duration and are dependent on the airplane's position and range from the ground station, the signal strength, and other factor.

HIGH ALTITUDE OPERATION

1. There is no change to radar performance up to maximum aircraft altitude.

OPERATING ALTITUDE LIMITS

1. Operating temperature limits for the IN182A indicator is -20° C (-4° F) to 55° C (-131° F).

EFFECT OF SOME SUNGLASSES ON THE RADAR DISPLAY

1. The IN182A color indicator utilizes a special filter to assure optimum video contrast to the pilot in the presence of high cockpit ambient light. Some sunglasses may interfere with effectiveness of this filter.

To check for this cock yuor head to one side while viewing the display and note any dramatic change in brilliance.

If brilliance decreases sharply, some compromise such as removing or changing sunglasses should be effected.

TURN - OFF PROCEDURES (on the ground)

1. The ART2000 Antenna/receiver/trasmmitter will tilt the antenna down, for increased radar receiver protection, when the indicator is switched to SBY and OFF position.

Always turn the indicator function switch to SBY or OFF before disengaging the master switchin the aircraft. The system will power-down in about 5 seconds after switched to the OFF position, to allow time for the antenna to move the down position (-25°).

GROUND MAPPING DISPLAYS

1. The display resulting from ground resembles an ordinary pilotage chart. Cities, open ground and bodies of water are distinguished by the intensity of the signals that they reflect back to the signal source.

Cities usually provide the most intense reflections and appear red on the display.

Open ground and water provide progressively less intense reflections and appear as yellow and green. Calm bodies of water provide very weak signal

returns, and are usually not displayed, while very rough water provides a stronger return signal and will usually appear as green color.
The magenta level does not appear in the ground mapping mode.

NORMAL OPERATIONS WEATHER DETECTION

1. Function selector Switch - ON position (allow 30 seconds warm-up)

NOTE

The indicator will automatically be in the weather (Wx) mode when
Function Selector switch is placed in the ON position.

2. Mode Selector Pushbuttons - Select and press as desired.
Wx - Weather.
WxA - Weather Alert.
3. BRT Control - Adjust as required for ambient light conditions.
4. Antenna Tilt control - $+5^{\circ}$ to $+8^{\circ}$ (approximately minimum angle relative to horizon without ground return).
5. RNG (Range) Selector Pushbuttons - Select desired range.
6. Aircraft - MAINTAIN SPEED and HEADING to assure an accurate picture of relative motion of storm in next step.
7. TRK (Track) Selector Pushbutton - Select as desired. Press and hold the track button until the cursor reaches the desired position and then release the pushbutton.

As the button is held down the line will move in 1° steps. The track cursor stops moving and the position (in degrees away from the aircraft heading) is displayed in yellow numbers to the upper left corner of the screen. If neither button has been pressed for 15 seconds, the track line will disappear.

8. VP (Vertical Profile) Selector Pushbutton - Press the VP button with the system in Wx or WxA mode.

A short period of time will elapse before the vertical picture is “painted”. This is because the radar continues to scan normally after the VP is pressed, until it reaches the selected azimuth position.

Press the track buttons to change vertical scan position with the track line in 2° steps at the end of each horizontal scan.

Push the Wx/WxA button to return to the horizontal weather scan.

GROUND MAPPING

NOTE

Ground mapping is a secondary feature of this radar which should only be used after the operator is very familiar with this equipment.

1. Function Selector Switch - ON position (allow 30 seconds warm-up)
2. RNG (Range) Selector Pushbuttons - select desired range.
3. MAP Mode Selector Pushbutton - Press. Set GAIN as desired for clearest ground mapping interpretation.
4. BRT Control - Adjust as required.
5. Antenna TILT Control - ADJUST for clearest display.

WARNING

The RDR2000 radar system performs only the functions of weather detection and ground mapping.

IT WAS NOT DESIGNED FOR GROUND PROXIMITY WARNING OR COLLISION AVOIDANCE AND THEREFORE SHOULD NEVER BE USED OR RELIED UPON FOR THESE PURPOSES.

SECTION 5 - PERFORMANCE

There is no change to the airplane performance when this avionic equipment is installed.

SECTION 6 - EQUIPMENT LIST WEIGHT AND BALANCE

The installation of the RDR 2000 color weather radar is included in the weight and balance information presented in Section 6 (Equipment List, item K17) of the approved Airplane Flight Manual.

This page intentionally left blank

SUPPLEMENT W/1
MAXIMUM ZERO FUEL WEIGHT INCREASE
(As per change No. MOD.P68/124)

SECTION 1 - GENERAL

This Supplement must be attached to ENAC approved Aircraft Flight Manual when the aircraft operates with a Maximum Zero Fuel Weight of 1967 kg. as per change No. MOD. P68/124.

The information contained herein supplements the basic approved Aircraft Flight Manual. For limitations, procedures and performance not contained in this supplement consult the basic approved Aircraft Flight Manual. Wherever conflict arises between information enclosed herein and the approved Flight Manual, the information in this supplement must take precedence.

1.7 WEIGHTS

	lb	kg
(d) Maximum Zero Fuel Weight	4336	1967

SECTION 2 OPERATING LIMITATIONS

2.7 WEIGHT LIMITS

	kg	lb
(d) Maximum Zero Fuel Weight	1967	4336

2.8 CENTER OF GRAVITY LIMITS

(Refer to Figure 2-1)

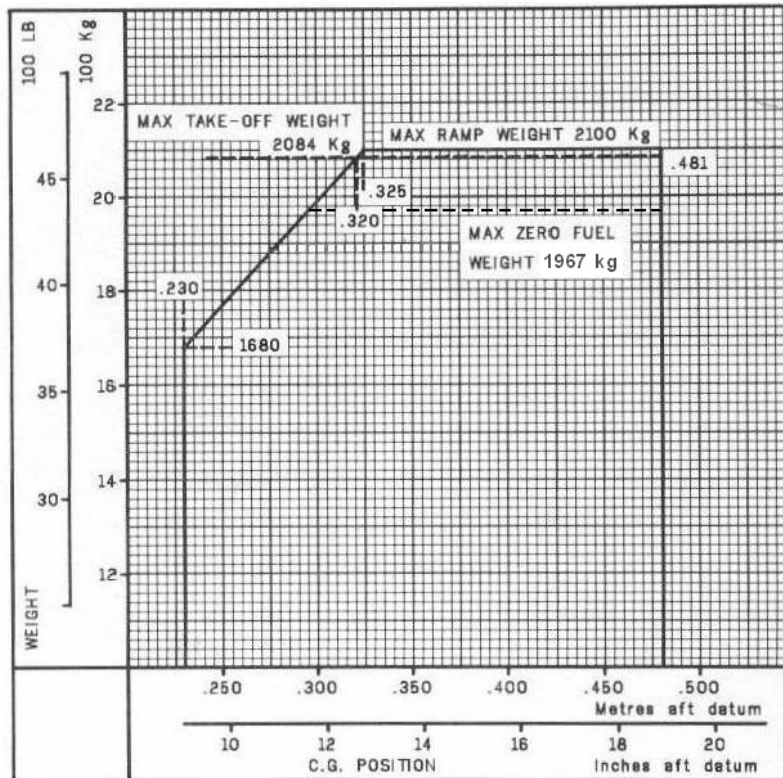


Figure 2-1
AIRCRAFT WEIGHTS VS CENTRE OF GRAVITY

SECTION 3 - EMERGENCY PROCEDURES

NO CHANGE.

SECTION 4 - NORMAL PROCEDURES

NO CHANGE.

SECTION 5 - PERFORMANCE

NO CHANGE.

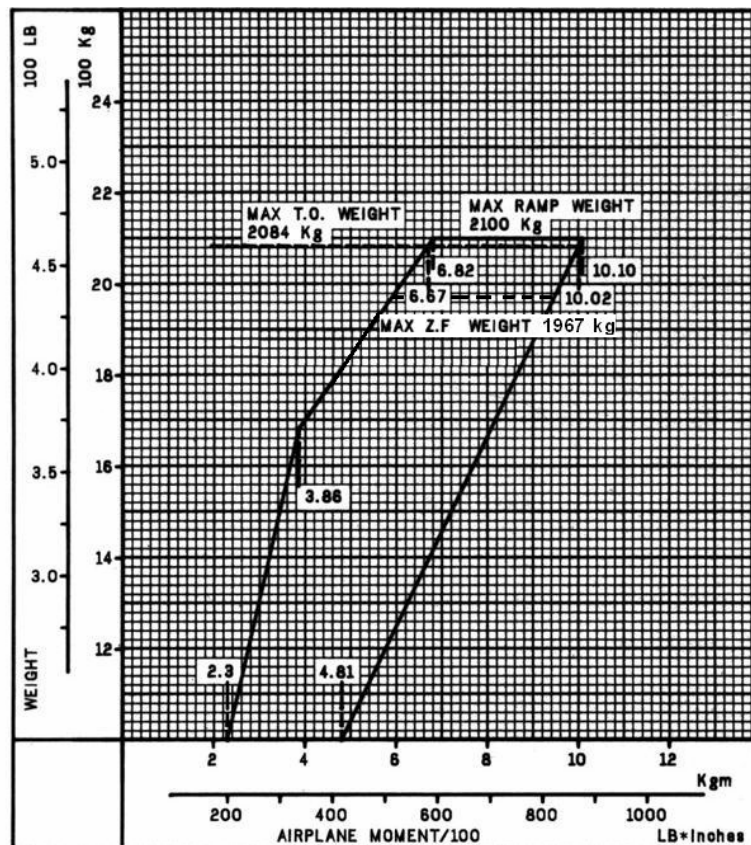
SECTION 6 - WEIGHT AND BALANCE**6.4 WEIGHT AND BALANCE DETERMINATION FOR FLIGHT**

Figure 6-5
WEIGHT MOMENT ENVELOPE

SECTION 7 - DESCRIPTION AND OPERATION

NO CHANGE.