EADS SOCATA

socata
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Rally Club MS 880B

Reg: EI-AUE S/N: 1359

Flight Manual

This document is not approved by the IAA

MIDLAND AVIATION

AERONAUTICAL ENGINEERS

Abbeyshrule Airfield
Co Longford
Ireland
Tel/fax 044 57468

AIRCRAFT WEIGHING REPORT

Aircraft Type: MS 880B **Ser/N0 1359** **Reg. EI-AUE** **Job Ref 090002**

NIL FUEL AIRCRAFT LEVEL CONFIGERATION

NOSE WHEEL	–	220 LBS
LEFT HAND MAIN WHEEL	=	470 LBS
RIGHT HAND MAIN WHEEL	–	450 LBS
TOTAL EMPTY WEIGHT	=	1140 LBS

Formula for A/C $\frac{\text{D-FXL}}{\text{W}}$

$= \frac{48 - 220 \times 66.25}{1140}$

CENTRE OF GRAVITY POSITION = 35 . 2IN AFT OF DATUM LINE

SIGNED David Breton AUTHORITY ME/250687Q DATE 6/9/2000

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flight manual

ms 880 b

RALLYE CLUB MS 880B

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FLIGHT MANUAL

FOR AIRCRAFT

RALLYE CLUB MS. 880B

Manufacturer : SOCATA Groupe AEROSPATIALE
Usine d'OSSUN
Boite Postale n° 38
65001 - TARBES (FRANCE)

Télex : 52828
Tél. : (62) 93.97.30

Type certificate n° 43 du 26.10.1961

Serial number ..... Registration number .....

Sections 2, 3 and 4 (pages 2.01 to 2.05, 3.01 to 3.04, 4.01 to 4.13, 5.18) approved by "SECRETARIAT GENERAL A L'AVIATION CIVILE (S.G.A.C.)".

Approval of S.G.A.C.

ce manuel de vol est la traduction en langue anglaise du manuel de vol français approuvé

1972.

This aircraft should be used while observing the "operating limitations specified in this Flight Manual".

THIS DOCUMENT MUST BE KEPT PERMANENTLY ABOARD THE AIRCRAFT.

SOCATA
MS.880 B FLIGHT MANUAL

LIST OF AMENDMENTS

EDITION N°	DESCRIPTION	REVISED PAGES N°	REVISED PAGES DATE	VISA SGAC
1	Re-issued on reduced size		05.1972	
2	.Instrument panel Adding of throttle control on left side . Air conditionning system Suppression of arrous item 5 .Electrical system -Suppression of 50.A fuse and PP2 cable -New electrical diagram -Fuse item 3 is 1A instead of 0,63 A. Marking Tachometer and fuel pressure gage	1.2.00 1.4.00 1.4.02 1.6.00 1.6.01 1.7.00 1.7.01 1.8.00 1.8.01 2.05	02.1973	

MS.880B FLIGHT MANUAL

LIST OF AMENDMENTS

EDITION N°	DESCRIPTION	REVISED PAGES N°	REVISED PAGES DATE	VISA SGAC
2	Up dating of paragraph 5.4 Adding of Note 2	5.12 5.18	02.1973	MINISTERE DES TRANSPORTS — VISA SGAC — P.O. — Secrétariat Général
3	- Table of contents - New wing tips - Read 32021 ft instead of 31.529 ft - Up dating - Adding of "optional" large tanks - Instrument panel : - Adding of wing flaps electrical control and elevator trim tab control - Up dating - New electrical diagrams - Generation, starting, ignition - Fuel and engine control	0.1.01 1.1.00 1.1.01 1.1.03 1.2.00 1.2.01 1.6.00 1.6.01 1.7.00 1.7.01	03.1973	MINISTERE DES TRANSPORTS — P.O. — Secrétariat Général à l'Aviation Civile

MS.880B FLIGHT MANUAL

LIST OF AMENDEMENTS

EDITION N°	DESCRIPTION	REVISED PAGES N°	REVISED PAGES DATE	VISA SGAC
3	- Wing flaps electrical Control - Various équipment - Changing of chapter number electrical protection system and airspeed indicating system. - Up dating of option large tanks - Drawing change - Up dating, performances paragraphs 5.1.1 - 5.1.2 - 5.2.1 - 5.2.2 -	1.8.00 1.8.01 1.9.00 1.9.01 1.10.00 1.10.01 1.10.02 1.10.03 1.11.00 1.11.01 2.02 4.04 5.03 5.05 5.07 5.09	03.1973	P.O.

EDITION N°	DESCRIPTION	REVISED PAGES N°	REVISED PAGES DATE	VISA S G A C
4	- Up dating . read 9,740 m 31.85 ft instead of 9,760 m - 32.021 ft. . read 6,975 m - 22.87 ft instead of 6,95 m - 22.80ft - Instrument panel Removing of instruments on the LH instrument panel - Up dating of fuel system - Chapter 2.9.2 changing of fuel pressure jauge marking	1.1.00 1.1.01 1.2.00 1.3.00 1.3.01 2.05	08.1973	MINISTERE DES TRANSPORTS P.O. Secrétariat Général à l'Aviation Civile
5	- Content - Up dating : Fuel grade 80/87 or AVGAS 100 L and capacity	0.1.04 1.1.03	03.1974	MINISTERE DES TRANSPORTS P.O. Secrétariat Général à l'Aviation Civile

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LIST OF AMENDMENTS
SOCATA

EDITION N°	DESCRIPTION	REVISED PAGES N°	REVISED PAGES DATE	VISA S.G.A.C.
5	- Tire - Instrument panel - Electrical diagram - New wording chapter 2.3 - Adding of note in chapter 2.4 - Up-dating of chapter :5.5 and 6.1 - Adding : Take-off after landing in the country Up-dating : 6.5.1	1.1.02 1.2.00 1.2.01 1.9.00 1.9.01 2.01 2.02 5.18 6.01 6.03 6.04	03.1974	MINISTERE DES TRANSPORTS P.O. Secrétariat Général à l'Aviation Civile

EDITION N°	DESCRIPTION	REVISED PAGES N°	REVISED PAGES DATE	VISA S.G.A.C.
6	-Contents -Updating of tires -Read Lockheed HD.12 instead of Nr 5 -Updating of instrument panel -New electrical diagram : Wing flaps electrical control -Updating : electrical circuit of various equipment -Updating : electrical protection system -Text updating of chapters 3.4 - 3.5 - 6.6 -Updating of flaps : paragraphs 4.3.1 - 4.3.2 -Updating of chart. chapter 6.1 -Updating chapter 6.5.2	0.1.02 0.1.04 1.1.02 1.2.00 1.8.00 1.8.01 1.9.00 1.10.00 to 1.10.03 3.01 3.02 6.03 4.05 4.07 6.01 6.03	09.1974	MINISTERE DES TRANSPORTS Secrétariat Général à l'Aviation Civile

EDITION N°	DESCRIPTION	REVISED PAGES N°	REVISED PAGES DATE	VISA S.G.A.C.
7	-Read 31.95 ft instead of 31.85 ft -Updating of tires -Updating of instrument panel -Updating Rear CG location 30 % instead of 29 % -Text updating of chapter 4.6 -Magneto selection difference Read 100 RPM instead of 175 RPM	1.1.00 1.1.01 1.1.02 1.2.01 2.01 4.03 4.08 4.09	03.1975	MINISTERE DES TRANSPORTS Secrétariat Général à l'Aviation Civile
8	-Updating .Fuel - Oil .Electrical circuit of various equipment Adding item 13 - 18	1.1.02 1.1.03 1.9.00 1.9.01	01.1976	MINISTERE DES TRANSPORTS Secrétariat Général à l'Aviation Civile

EDITION N°	DESCRIPTION	REVISED PAGES N°	REVISED PAGES DATE	VISA S.G.A.C.
8	.Electrical protection system- Adding item 9 -Updating : .Limit speed (IAS) .CG location .Paragraph 3.11.2 .Take-off : Read N= 2650 RPM ± 50 instead of N= 2520 RPM $^{+0}_{-40}$	1.10.00 1.10.01 1.10.02 2.01 2.02 3.03 4.09	01.1976	MINISTÈRE DES TRANSPORTS Secrétariat Général à l'Aviation Civile
9	-Adding paragraph : 3.16 (Spins) .Updating : Contents Paragraph 2.7.5	0.1.02 2.03 3.05	04.1976	MINISTÈRE DES TRANSPORTS Secrétariat Général à l'Aviation Civile

EDITION N°	DESCRIPTION	REVISED PAGES N°	REVISED PAGES DATE	VISA D.G.A.C.
10	-Updating : .Read Aeroshell fluid 4 instead of Lockheed HD.12 .Instrument panel .Electrical diagram -Updating : Paragraph. 4.4.1	1.1.02 1.2.01 1.7.00 4.07	10.1976	
11	-Updating : .Instrument panel -Adding : overvoltage relay -Connection of the rate of climb indicator on the static pressure system	1.2.00 1.2.01 1.6.00/01 1.11.00 1.11.01	05.1977	

LIST OF AMENDMENTS

EDITION N°	DESCRIPTION	REVISED PAGES N°	REVISED PAGES DATE	VISA D.G.A.C.
12	Adding : NIGHT VFR .Updating : Contents .Paragraph : 1.10 and 2.7.1 .Adding : Section 7	0.1.04 1.10.01 1.10.03 2.03	04.1978	P.O.

Cigar lighter

Heated pitot tube

Battery

Starter

Instrument panel lighting

Emergency instrument panel lighting

Day-night damper

A.C.Excitation generator

Navigation lights

Anti-collision light

Turn and bank indicator

Fuel gauge

Landing light

Lighting rhéostat

Emergency lighting rheostat

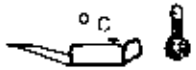
Fuel pump


Fuel cock


Electric flaps


Starting injection

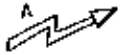

Pencil location



Oil temperature

Oil pressure

Fuel pressure



Ammeter

0.4 - LIST OF ABBREVIATIONS

A	: Ampere
°C	: Degree celsius (centigrade)
°F	: " FAHRENHEIT
ft	: Foot
Imp.gal	: Imperial gallon
US.gal	: U.S. gallon
HP	: Horse Power
in.Hg	: Inch of mercury
kg	: Kilogramme
km/h	: Kilometer per hour
kt	: Knot (1 nautical mile - 1852 m per hour)
l	: Litre
lb	: Pound
M	: Weight
MPH	: Mile per hour (statute mile - 1609 m per hour)
m	: Metre
m.bar	: Millibar
m/s	: Metre per second
PA	: Manifold pressure
psi	: Pound per square inch (lb/in^2)
RPM	: Revolution per minute
US quart	: 1/4 of US gallon
V	: Volt
VA	: Maneuver speed
VC	: Calibrated airspeed
Vc	: Design cruising speed
Vfe	: Flap extended speed
VI	: Indicated airspeed (I.A.S)
Vne	: Never exceed speed
Vno	: Normal operating limit speed
Vp	: Ground speed
W	: Watt
Zp	: Pressure altitude

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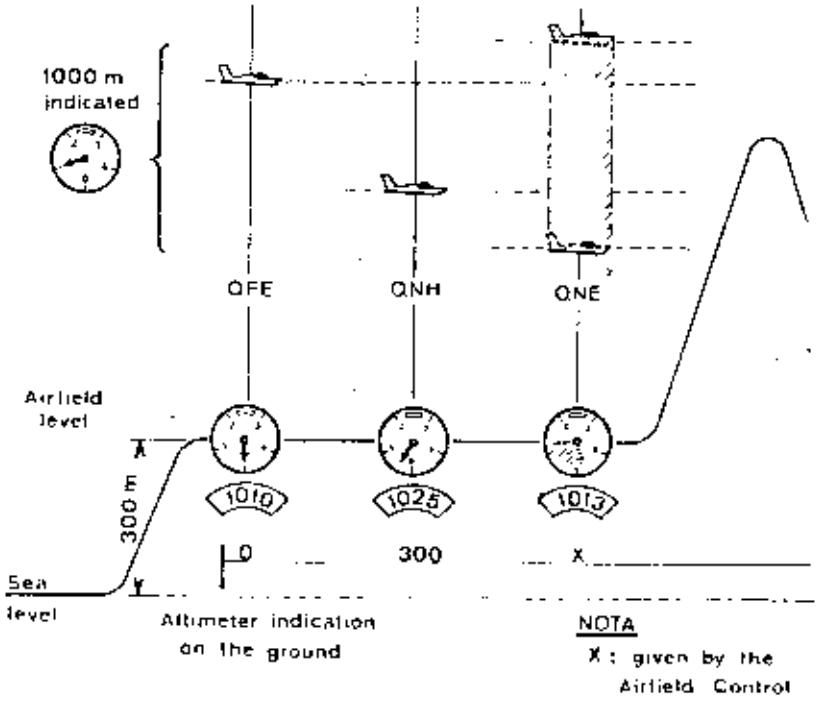
0.5 - USE OF THE ALTIMETER

The altimeter is an instrument which measures the atmospheric pressure (absolute pressure). It is graduated in terms of altitude as compared to the pressure altitude of the typical atmosphere.

Since airfields are located at various altitudes and the atmospheric pressure varies in time for a same location, the altimeter is provided with an adjusting knob for resetting the pointers.

A window displays the pressure value corresponding to this setting.

Several altitude settings are used



Q F E SETTING AT AIRFIELD LEVEL PRESSURE

The indicated height on ground is zero
In local flight ; the altimeter indicates continuously the pressure altitude relative to airfield.

Q N H SETTING AT THE PRESSURE CORRESPONDING TO THE READING OF ACTUAL AIRFIELD ALTITUDE -(temperature corrections excepted).

The indicated altitude on ground is close to the value given on the map.
In order to obtain the height above ground in flight, the altitude of the local area, given on the map, should be substracted from the altimeter reading.
Since the pressures vary in space, QNH, is applicable within a certain area only.
The local Controlling Authorities give the local QNH.

Q N E LOCAL ALTITUDE CORRESPONDING TO THE STANDARD PRESSURE SETTING - 1013,2 mb (29.92 in.Hg)

This altitude value (given by the airfield controler) may be quite different from the actual airfield altitude.
The setting to 1013.2 is used in airfield paths only in the case where the airfield altitude is such that the QFE or QNH setting is not possible Then, the controller gives the altitude to be read on the altimeter at airfield level.
The setting to 1013.2 mb is used for flying at a level conforming to regulation or ATC instruction.
It allows vertical separation to be provided relative to other aircraft set to the same reference.

0.6 TYPICAL ATMOSPHERE

The mass of air surrounding the earth may be characterized in each point by three parameters : pressure, temperature and humidity.

Variation of these parameters as a function of the geometrical altitude (height above selected reference average sea level) defines the atmosphere.

The typical or standard atmosphere given in the table hereafter, is the reference atmosphere. It correspond approximately to the average of the values measured in temperate zones.

The table hereafter gives the following data as a function of the altitude in m and ft :

- pressure in m.bar (p)
- temperature in CENTIGRADE (°C) and FAHRENEIT (°F) degrees.
- Coefficient by which calibrated airspeed VC should be multiplied to obtain true airspeed ($\frac{1}{\sqrt{\sigma}}$)

Refer to section V. - LEVEL FLIGHT PERFORMANCES, for determining VC Speed from indicated airspeed VI (I.A.S)

Z ft	P m.bar	°C	°F	$\frac{1}{\sqrt{\sigma}}$
0	1 013.25	+ 15.00	+ 59.00	1.0000
2.000	942.10	+ 11.00	+ 51.80	1.0294
4.000	875.03	+ 7.07	+ 44.86	1.0612
6.000	811.88	+ 3.11	+ 37.57	1.0938
8.000	752.47	- 0.86	+ 33.80	1.1280
10.000	696.65	- 4.80	+ 23.35	1.1638
12.000	644.21	- 8.80	+ 16.20	1.2012
14.000	595.00	- 12.70	+ 9.20	1.2405
16.000	549.16	- 16.68	+ 2.00	1.2815
18.000	505.98	- 20.66	- 5.20	1.3247
20.000	465.59	- 24.63	- 13.50	1.3700

0.7 - CORRESPONDENCE BETWEEN UNITS

Distance
The nautical mile is the average lenght of the sexagesimal minute of earth latitude.
1 NAUTTICAL MILE = 1852 meters

Pressures
Units used :
Bar - pieze (pz) - inch of mercury (in.Hg) pound per square inch (lb/in^2-psi)

	bar	pz	in.Hg	lb/in^2 psi	kg/cm^2
bar	1	100	29.5	14.5	1.0197
pz	0.01	1	0.295	0.145	0.010197
in.Hg	0.03386	3.386	1	0.49117	0.03453
lb/in^2 psi	0.06894	6.894	2.0359	1	0.0703
kg/cm^2	0.098067	98.067	28.958	14.2233	1

Example : 1 p.s.i. : 6.894 pz

Power
Units used :
Watt (w)-french horse power (CV)-Britsh horse power (HP)

	W	CV	HP
W	1	0.001359	0.001341
CV	735.49	1	0.9863
HP	745.69	1.01387	1

Capacities

Units used :

Litre (l) - Imperial gallon (Imp.gal) US gallon (US.gal).

	l	Imp.gal	U.S.gal.
l	1	0.219	0.264
Imp.gal	4.546	1	1.201
US.gal	3.785	0.833	1

Angular velocities

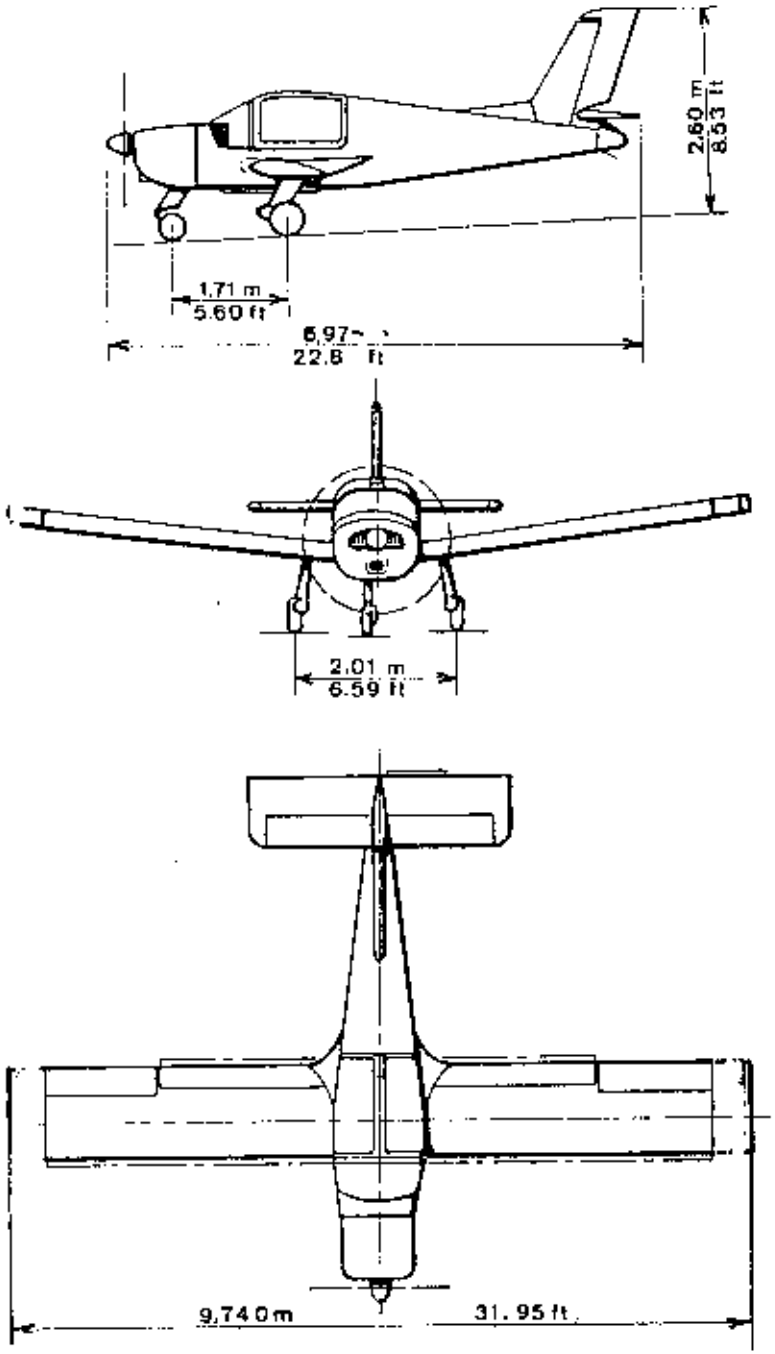
Units used :

Revolution per minute (RPM) radian per second (rd.s)

1 RPM = 0.1047 rd.s
1 rd/s = 9.549 RPM

SECTION I

DESCRIPTION



SECTION 1
DESCRIPTION

1.1 - General characteristics

Single engine, low cantilever wing aircraft, made entirely of metal.

1.1.1 - Airframe (Theoretical dimensions)

Overall dimensions
- Maximum span 9.740 m - 31.95 ft
- Total length 6.97 m - 22.87 ft
- Total height 2.60 m - 8.53 ft
- Propeller ground clearance, aircraft in line of flight, forward tire deflated, shock strut retracted.
- MAC CAULEY propeller 0.125 m - 5 in

Wings
- Aspect ratio 7,5
- Dihedral 7°
- Wing area 12,28 m^2 - 132.18 sq.ft
- Aerodynamic chord 1.3 m - 4.265 ft
- Slotted leading edge, interconnected over the whole span.

Ailerons
- Slotted type
- Mean span 1,49 m_2 - 4.9 ft
- Unit surface 0.78 m^2 - 8.36 sq.ft

Wing flaps
- Recoil and slotted type
- Mean span 2.30 m_2 - 7.64 ft
- Unit surface 1.2 m^2 -12.91 sq.ft

Horizontal stabilizer
- Non adjustable stabilizer
- Span 3.672 m_2 - 12.04 ft
- Surface 1.65 m^2 - 17.76 sq.ft
- Balance horn control surface
- Surface 1.83 m^2 - 19.70 sq.ft

- Controlled tab	
- Surface	0.070 m2 - 0.75 sq.ft
Vertical stabilizer	
- Surface of fin	0.88 m2 - 9.48 sq.ft
- Balance horn control surface	
- Surface	0.51 m2 - 5.5 sq ft
Landing gear	
- Fixed tricycle type	
- Track	2.01 m - 6.59 ft
- Wheel base	1.71 m - 5.60 ft
- Nose gear tire	5.00.4 . 6PR
- Inflating pressure	1.4 bars - 20.3 psi
- Main gear tires	
- Disc type brakes	
- Tire	15x6.00.6 - 4 PR
- Inflating pressure	1.8 bar- 26.1 psi

-Shock struts
Oleopneumatic, telescopic type

- Brakes
Hydraulic, differential type
Fluid : Aeroshell Fluid 4 - Specif. AIR 3520 DTD 585

1.1.2 - Engine	
- Make	CONTINENTAL
- Type	O-200-A
- Number of cylinders	4
- Power	100 HP - 75 Kw

1.1.3 - Propeller
- Make MAC CAULEY
- Model 1A. 101 DCM 6948
- Diameter 1.75 - 69"
- Min.diameter 1.70 m - 67 inches

1.1.4 - Fuel (For CONTINENTAL O.200.A engine or ROLLS-ROYCE RR.O.200.A engine)

Fuel grade : 80/87 or AVGAS 100 L (According to Service Bulletins ROLLS-ROYCE T 220/1 - T 229)

Total capacity (maximum)
105 L - 27.8 US Gal - 23.1 Imp.Gal. or
(optional) 184 L- 48.6 US GAL - 40.4 Imp.Gal.

Minimum usable capacity (warranted)
96 L - 25.4 US.Gal - 21.1 Imp.Gal. or
170 L - 45 US Gal - 37.40Imp.Gal.

Unusable capacity
4,2 L - 1,10 US Gal - 0.92 Imp.Gal.

1.1.5 - Oil for CONTINENTAL O.200.A engine or ROLLS-ROYCE RR.O.200.A engine.

During the first 50 operating hours : pure mineral oil.
After the first 50 operating hours : dispersing oil.

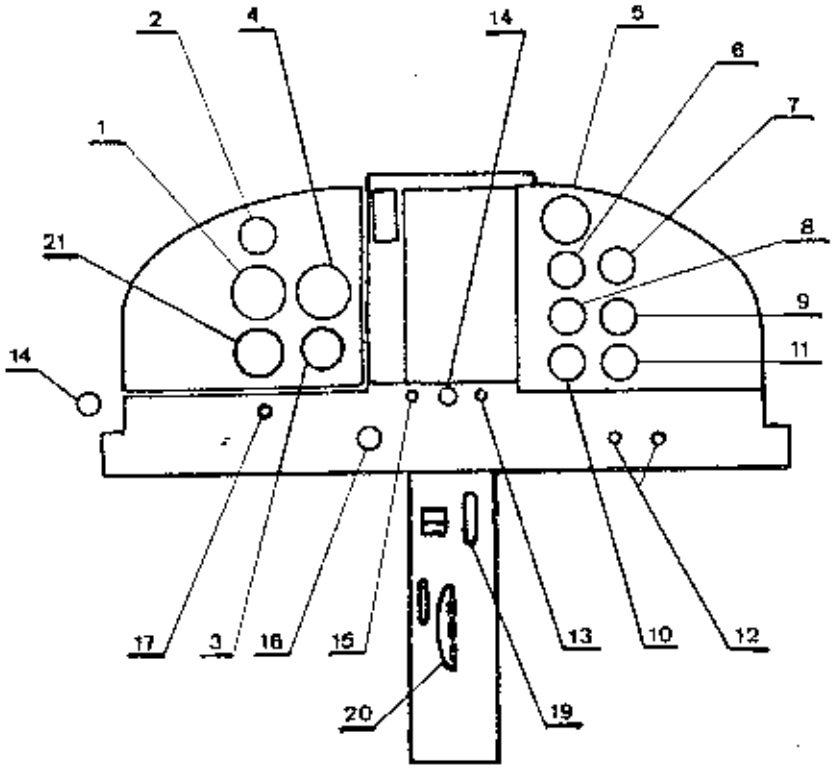
- Grade

Under	+ 5° C (40° F)	SAE 20
Above	+ 5° C (40° F)	SAE 40
Above	+15° C (59° F)	SAE 50

- Total engine capacity :
4,7 L - 1,24 US Gal - 1.03 Imp.Gal or
5,7 L - 1.51 US Gal - 1.25 Imp.Gal (when spec. CES 1108 engines are installed)

- Usable capacity
3 L - 0.79 US Gal - 0,66 Imp.Gal or
4 L - 1.05 US Gal - 0.88 Imp.Gal (when Spec. CES 1108 engine are installed)

- System capacity :
5,2 L - 1.37 US Gal - 1.114 Imp.Gal or
6,2 L - 1.64 US Gal - 1.36 Imp.Gal (when Spec. CES 1108 engines are installed)



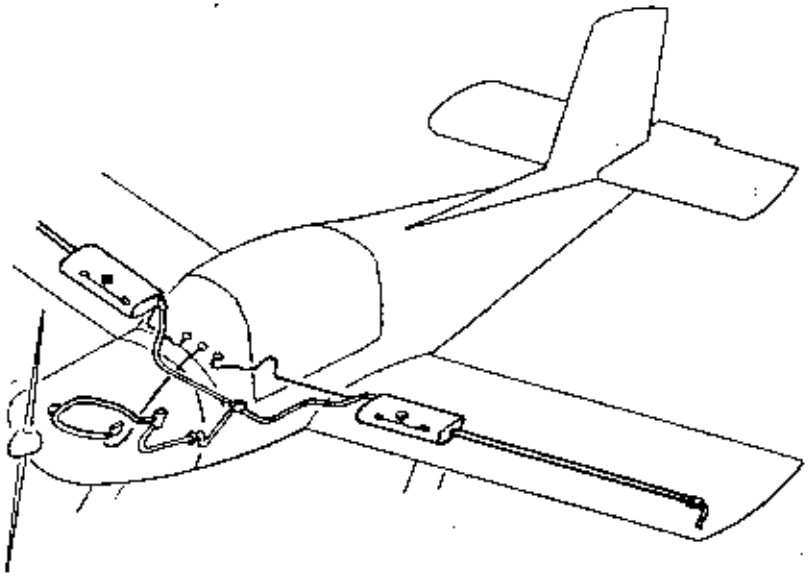
1.2 - Instrument panel

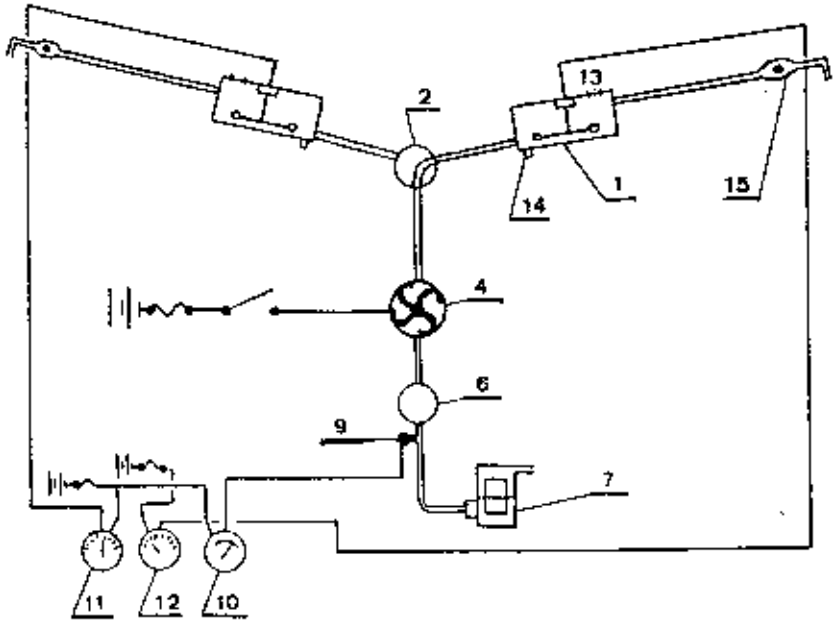
The instrument panel consists of a LH shock mounted board, à RH board and a lower strip.

This panel accommodates the following standard instruments.

ITEM

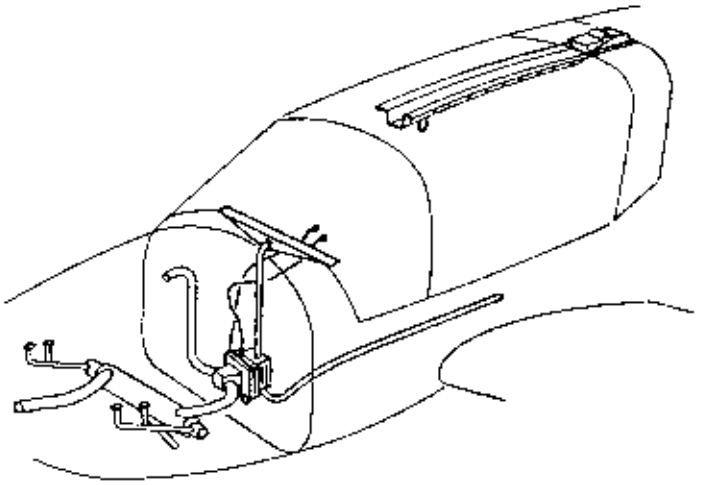
1 - Airspeed indicator
2 - Compass
3 - Rate of climb indicator
4 - Altimeter
5 - Tachometer indicator
6 - Oil pressure gage
7 - Oil temperature indicator
8 - Fuel pressure gage
9 - Ammeter
10 - Left level indicator
11 - Right level indicator
12 - Air conditioning controls
13 - Mixture control
14 - Throttle control
15 - Carburettor heating control
16 - Magneto selector
17 - Switch for manual starting up of the emergency marker (optional)
19 - Wing flaps electric control
20 - Trim tab control
21 - Bank indicator





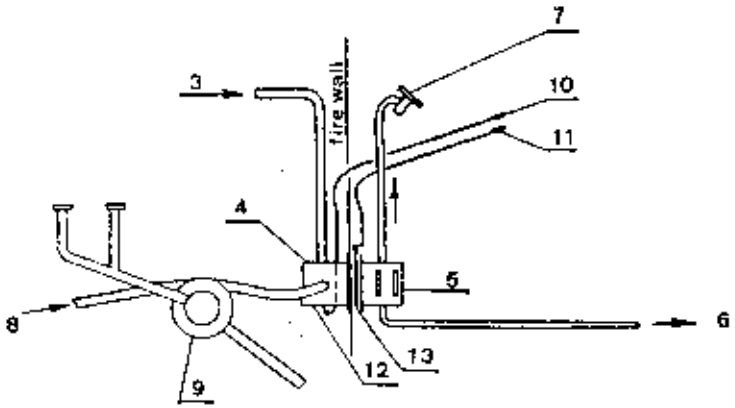
1.3 - Fuel system

The fuel is contained within two tanks (1) made of AG5 alloy, each one located in a wing spar box.
Each tank is connected to a 3 way, 3 position (left, closed, right) cock (2) through a pipe. This cock is actuated by means of a knob located in the cabin, on the front floor.
A pipe feeds the fuel from the cock to the electrical booster pump (4) fitted with a filter. From the booster pump, the fuel is fed to the engine-driven pump (6).
An electrical sensor (9) located between carburettor (7) and engine-driven pump outlet, transmits the fuel pressure data to an indicator (10) located on the right hand board.
Each tank is provided with one float-type transmitter which allows the available fuel quantity to be known at all times.
The level indicators (11,12) are located on the right hand board.
Each tank is provided with a filling neck (13), a bleed and drain block (14) located on the wing lower surface and a venting device consisting of a tube fitted with a check-valve (15) opening on the wing lower surface.



Top part ventilation

Bottom part ventilation



1.4 - Air conditioning system

- Cold air

Ventilation of the top part of the cabin is ensured through a series of apertures provided in the upper spar of the canopy and supplied by the flap (1) the control for which (2) is located close to the canopy opening control.
Ventilation of the bottom part of the cabin is ensured by an air intake (3) located under the upper cowling, which is connected to a duct feeding cool air to mixer distributor (4). The latter allows distribution of air to be made at pilot and forward passenger's feet (5) and, optionally, at rear passenger's feet (6) and windshield (7).

- Hot air

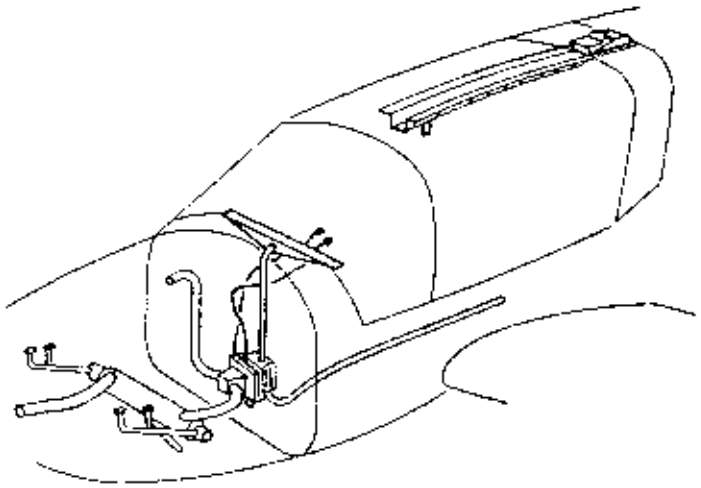
Air is picked off at point (8) and heated in the dual wall exchange manifold (9) and then fed to mixer distributor (4) from where it is distributed in the same way as cool air.

Air conditioning controls

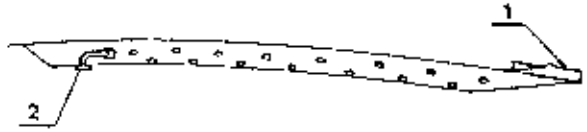
The right sector of the instrument panel strip is fitted with two pull knobs (10 and 11) each one actuating a sheathed cable. One cable controls mixture flap (12) and the other controls the cabin air inlet flap (13), both flaps being installed in the mixer distributor.
The left knob (10) marked "1" allows adjustment of the hot air delivery to the cabin. The right knob (11) marked "2" allows adjusting the mixed air flow.

Hot air setting

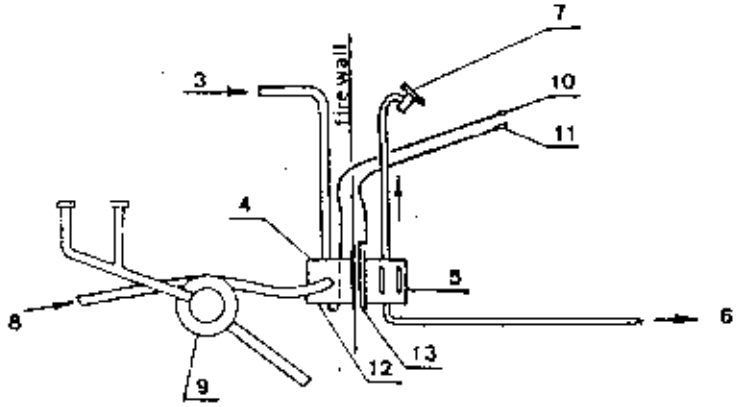
The pull knob "1" is pushed towards the instrument panel. The pull knob "2" is pulled towards the pilot.



Top part ventilation



Bottom part ventilation



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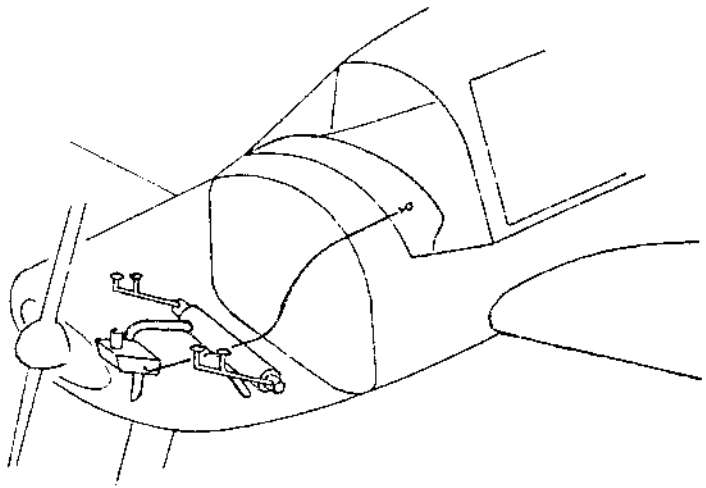
Cool air setting

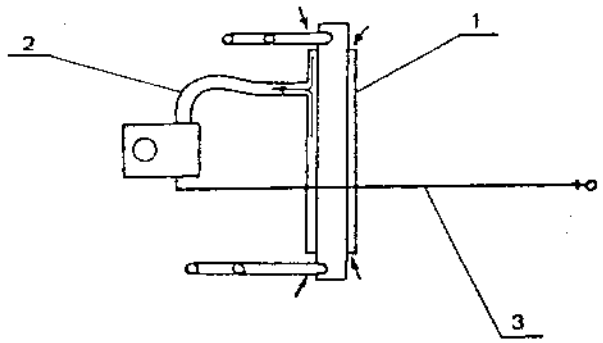
The pull knob "1" and "2" are pulled towards the pilot.

All ventilation stop

The pull knob "1" and "2" are pushed towards the instrument panel while removing the stop.

In case of fire in the engine compartment, the pull knobs will be in "all ventilation stop position" in order to avoid ingress of smoke inside the cabin.

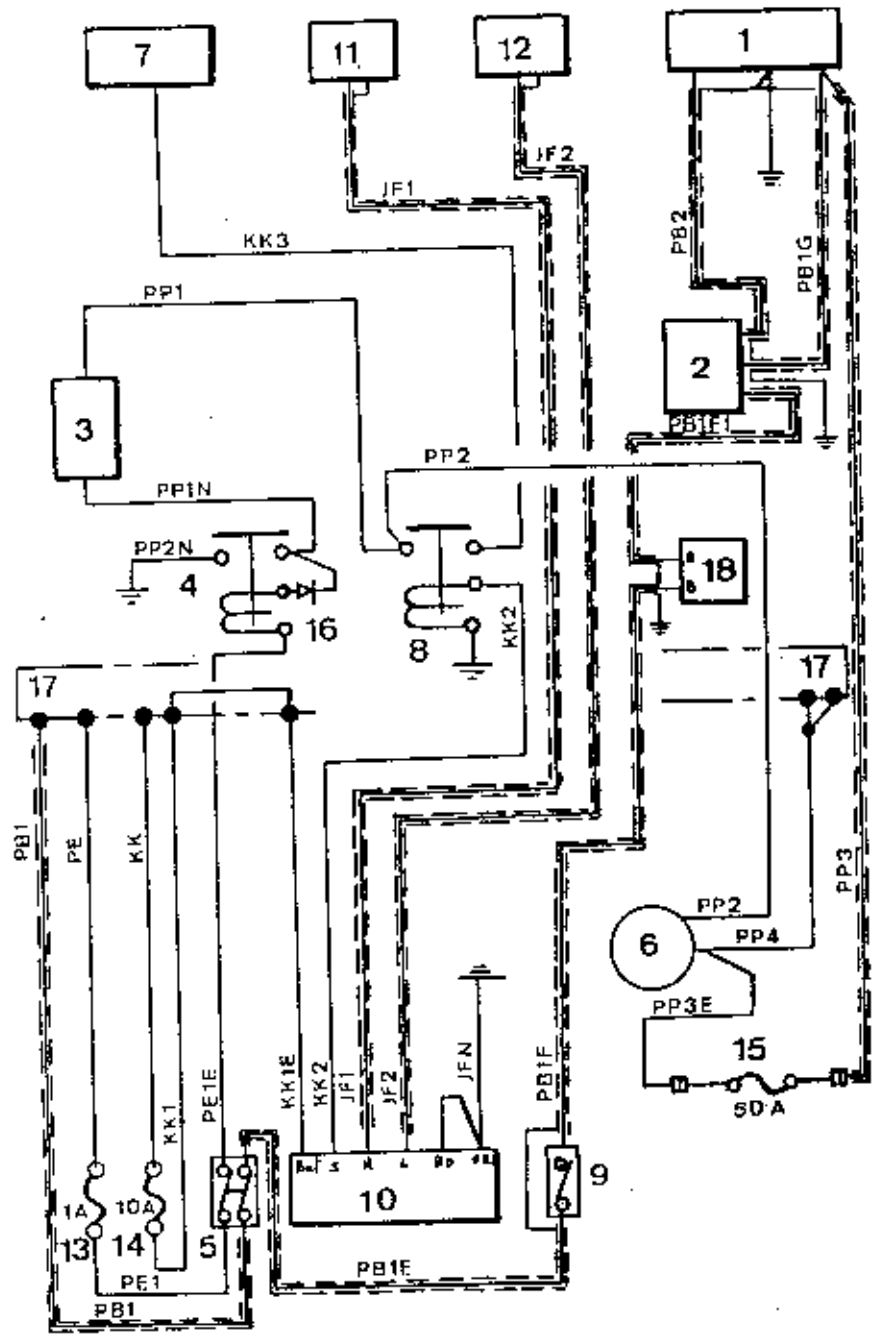




1.5 - Carburettor heating system

Air admitted through an unfiltered aperture provided in the dual wall of the exchanger manifold (1) is fed to the carburettor through pipe (2).

The hot air flow is adjusted by means of the carburettor heating pull knob (3).



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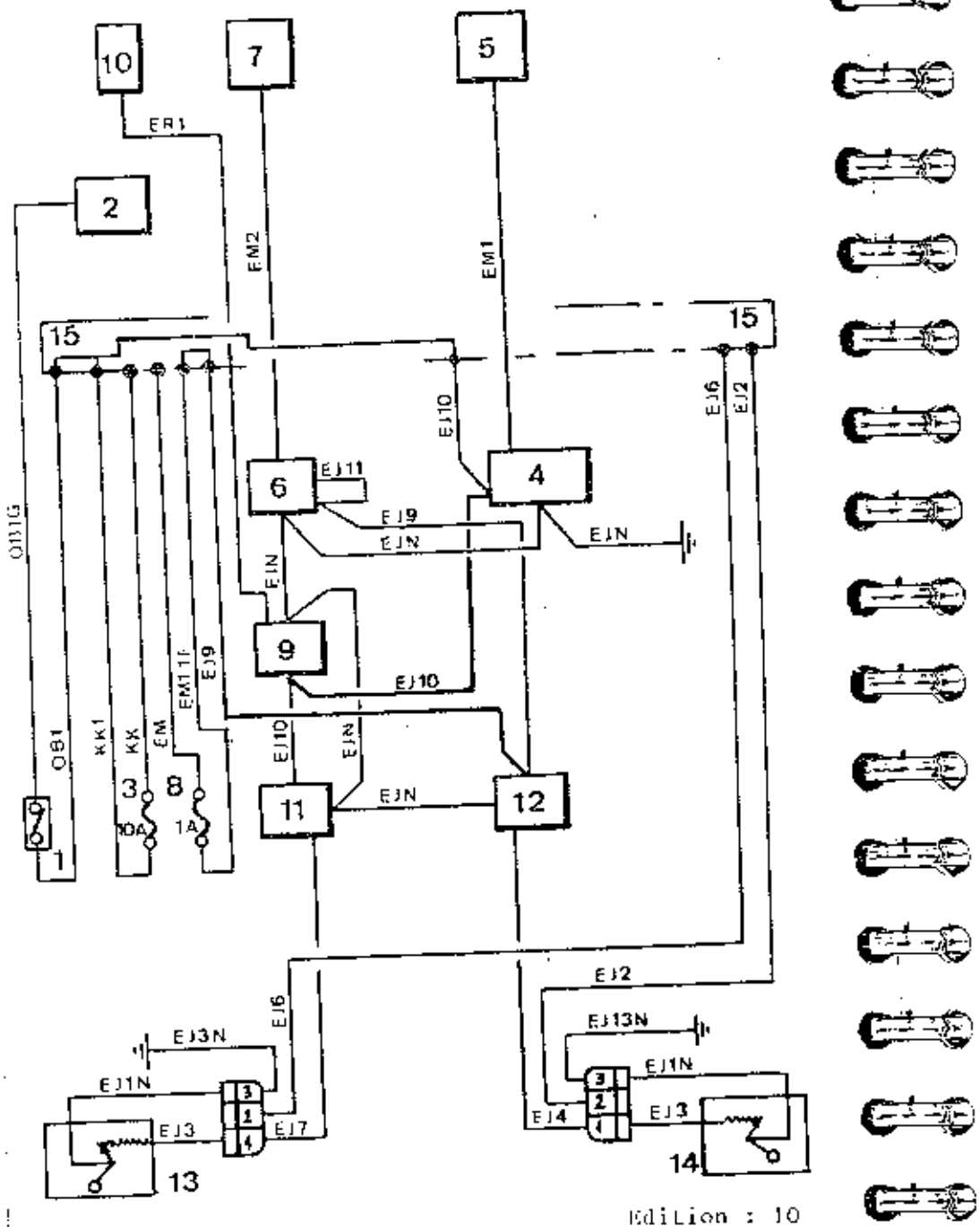
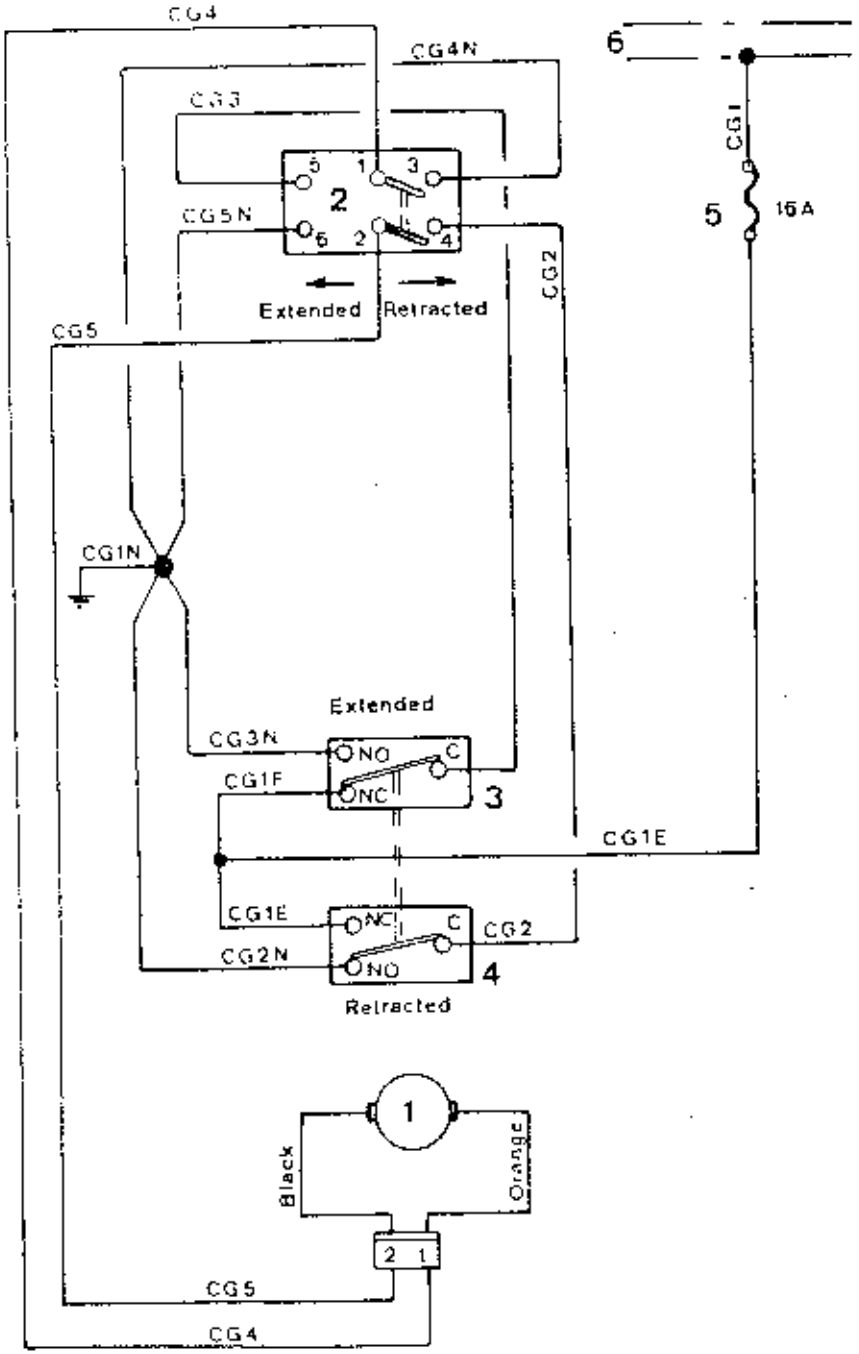


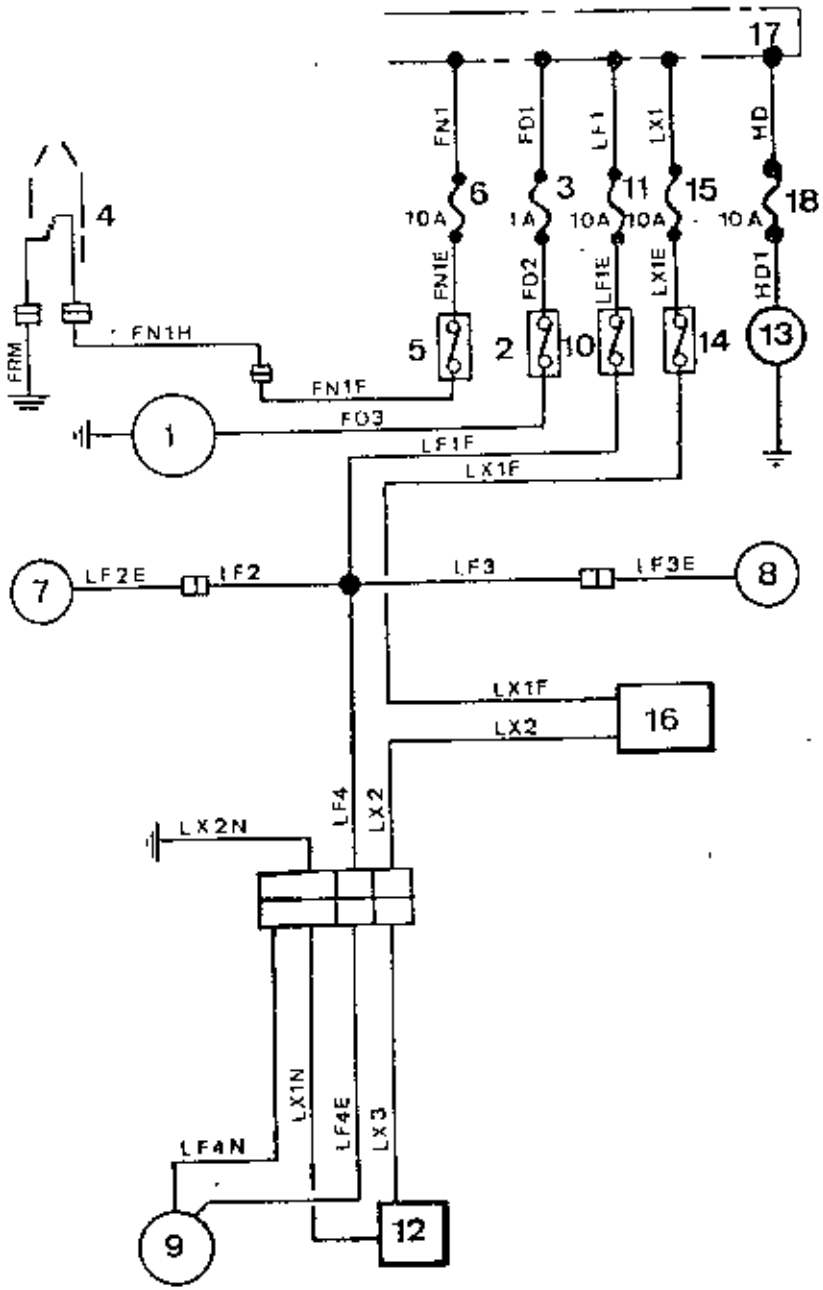
1.7 - Fuel and engine control electrical circuit

1 - Fuel pump switch
2 - Fuel pump
3 - 10 A Fuel pump fuse
4 - Oil temperature indicator
5 - Oil temperature sensor
6 - Oil pressure indicator
7 - Oil pressure transmitter
8 - 1 A Oil pressure fuse
9 - Fuel pressure indicator
10 - Fuel pressure transmitter
11 - Left level indicator
12 - Right level indicator
13 - Left fuel level transmitter
14 - Right fuel level transmitter
15 - Terminal strip



1.8 - Wing Flaps electric control circuit

1 - Wing flaps actuator
2 - Selector switch
3 - End of travel microswitch "extended"
4 - End of travel microswitch "retracted"
5 - 16 A Fuse
6 - Terminal strip



1.9 - Electrical circuit of various equipment

The equipments hereunder are mounted optionally.

1 - Turn and bank indicator
2 - Turn and bank indicator switch
3 - 1A Fuse
4 - Heated ram air inlet
5 - Ram air inlet heating switch
6 - 10 A Fuse
7 - Left navigation light
8 - Right navigation light
9 - Rear navigation light
10 - Navigation light switch
11 - 10 A Fuse
12 - Anti-collision light
13 - Cigar lighter
14 - Anti-collision light switch
15 - 10 A Fuse
16 - Flashing light power supply
17 - Terminal strip
18 - 10 A Fuse

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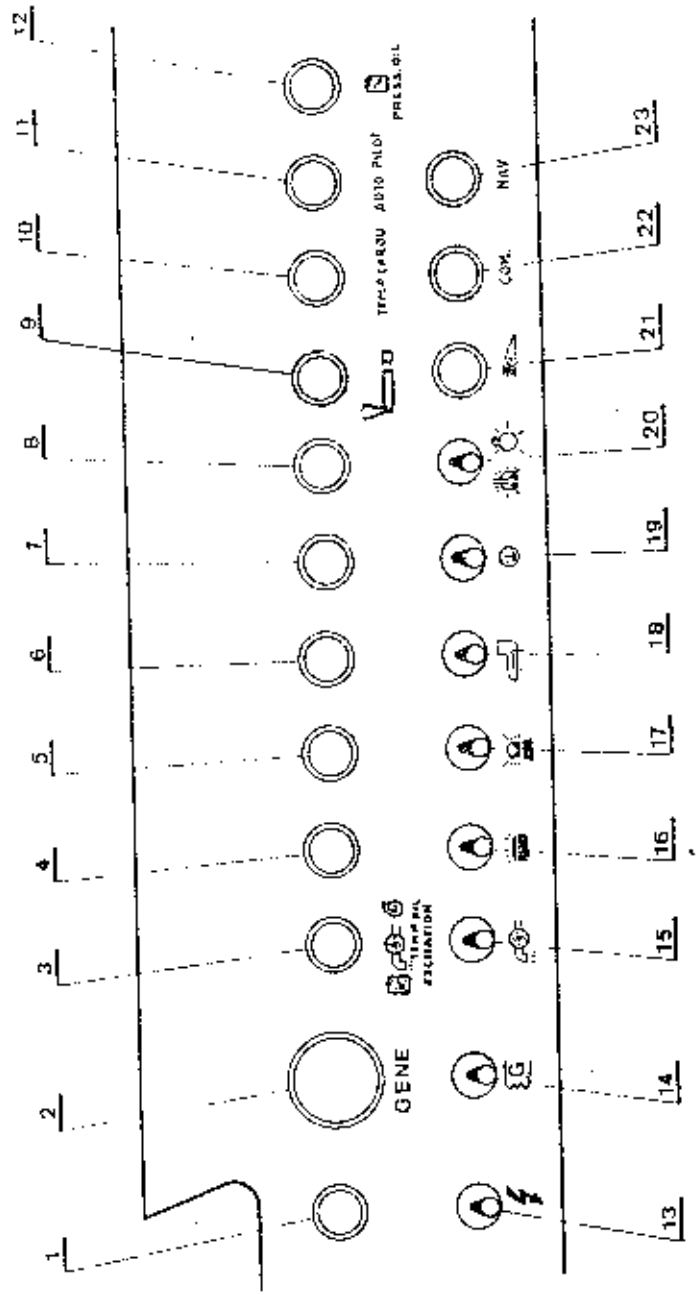
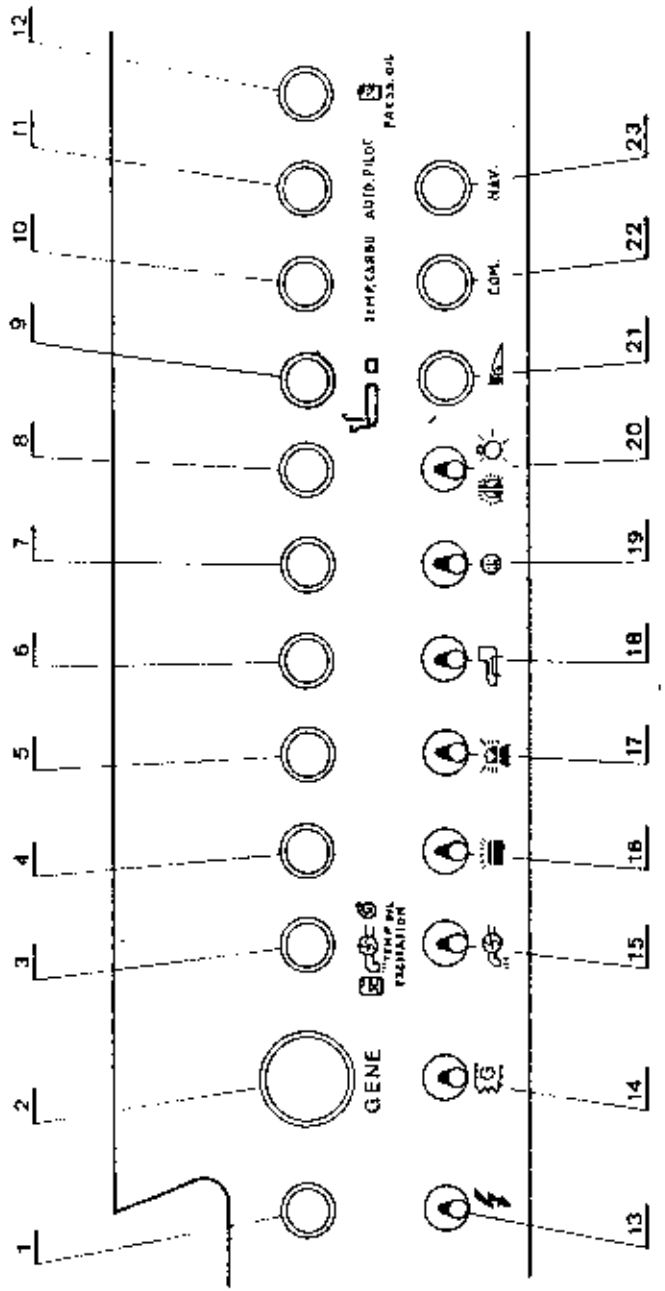


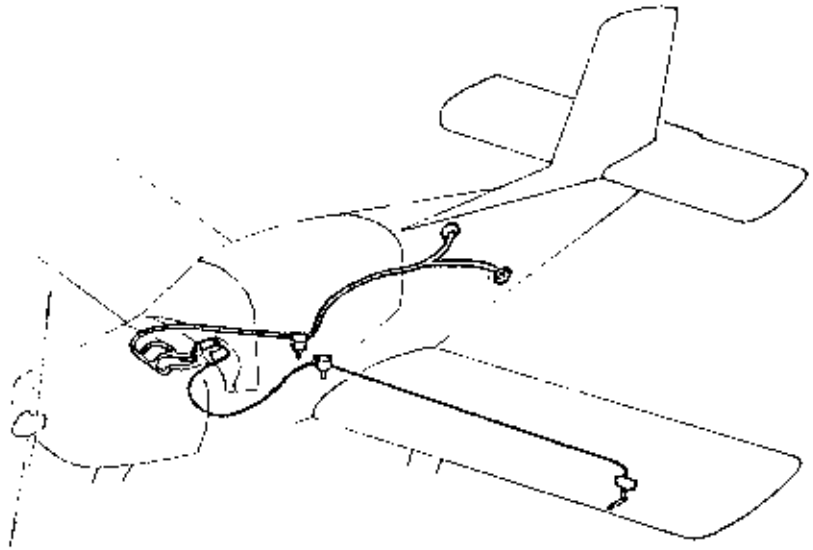
1.10 - Electrical protection system

Electrical protection is ensured by fuses located on the instrument panel strip, each one being provided for one or several systems. The list hereunder gives the rating of the fuse together with the protected circuit (S).

1 - 1A Fuse - Battery relay
2 - 50A Fuse - AC generator
3 - 10A Fuse - Fuel pump circuit
Fuel pressure light circuit
Excitation "
Starter "
Oil temperature "
LH Fuel content indicator circuit.
4 - 15 A Fuse - (Optional)
Landing light circuit
5 - 10A Fuse - Anti-collision light circuit (optional)
6 - 10A Fuse - Pitot heating circuit (optional)
7 - 1A Fuse - (Optional)
Turn and bank indicator circuit
8 - 10A Fuse - (Optional)
Navigation lights and instrument panel lighting circuits
9 - 10A Fuse - (Optional)
Cigar lighter
10 - 1A Fuse - (Optional)
Thermo-carburettor circuit
11 - 5A Fuse - (Optional)
For automatic pilot system or for alternator energization (night VFR)

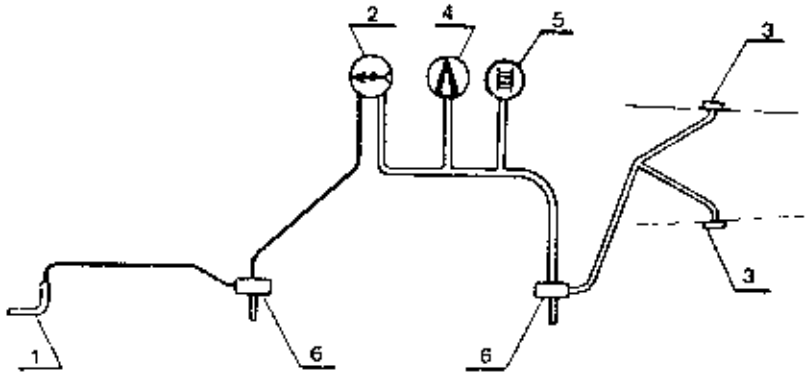


12 - 1 A Fuse
Oil pressure circuit
"RH fuel content indicator "circuit"
13 - Battery switch
14 - Excitation switch
15 - Fuel pump switch
16 - Landing light switch (optional)
17 - Anti-collision light switch (optional)
18 - Heated pitot switch (optional)
19 - Turn and bank indicator switch (optional)
20 - Instrument panel lighting and navigation lights switch (optional)
21 - 16A Fuse -
Wing flaps electric control circuit
22 - 5A Fuse - (Optional)
Communication circuit
23 - 5A Fuse (Optional)
Navigation circuit.



Static system ——————

Dynamic system ——————



SOCATA
MS.880 B FLIGHT MANUAL

1.11 - Airspeed indicating system

A ram air inlet (1) installed on the lower surface of the left wing supplies dynamic pressure to airspeed indicator (2).

Two static ports (3) located on each side of the rear fuselage section, feed airspeed indicator (2), altimeter (4) and rate of climb indicator (5) with static pressure.
Both systems are provided with bleeders (6) located at the lower part of the fuselage and accessible from outside.

SECTION 2
LIMITATIONS

MS.880B aircraft was certified for "Utility" category on october 26-1961 in accordance with AIR 2052 Regulation, with the limits given hereafter.

2.1 - Limit speeds I.A.S

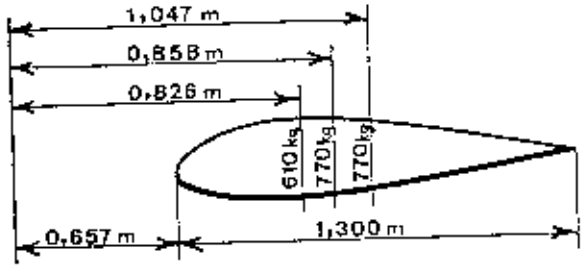
	U		
	km/h	kt	MPH
Vne - Never exceed speed	270	145	168
Vno - Maximum cruise speed depending on structure strength	200	108	125
VA - Maximum control surface deflection up to	193	104	120
Vfe - Limit speed with flaps operating or extended	140	76	87

2.2 - Maximum weight

Permissible at take-off	770kg - 1700 lb
Permissible at landing	770kg - 1700 lb

2.3 - C.G. limits

C.G.location datum : forward face of firewall.



Rear CG location is limited to 1.047 m -41.22 inche Forward CG location depends on the weight and on the category of use.It varies linearly between the following limits.

610 Kg - 1344 lb = 0.826 m - 32.52 in.
770 Kg - 1700 lb = 0.858 m - 33.78 in.

Leveling Fuselage centerline horizontal (canopy slides horizontal)

2.4 - Loading limits

Maximum number of occupants
Forward station 2
Rear station 2 (with 2 seat belts)

NOTA : Maximum weight at rear seats :
105 l. fuel tanks - 110 kg - 240 lb
184 l. fuel tanks - 100 kg - 221 lb

In the case of maxi weight at rear seats, the quantity of fuel susceptible of being embarked must be in compliance with the two following conditions :
1°/ not to be lower than 15 l (3.3 Imp.Gal- 4 US.Gal) that is to say 1/2 H of flight.
2°/ to be such as the authorized maxi weight of 770 kg - 1700 lb is not overtaken.

ex. empty weight 477 kg - 1052 lb
forward passengers 154 kg - 340 lb
maxi weight at rear seats 110 kg - 243 lb
TOTAL ... 741 kg - 1635 lb

Fuel : 770 - 741 = 29 kg (40 l.)
1700 lb-1635 lb= 65 lb (8.8gal.Imp-10.56 US.gal)

NOTE : The empty weight must include the non usable fuel staying in tanks and pipes (about 7 lb). The empty weight is the one which appears in the last weight and balance sheet.

2.5 - Engine limitations

Continuous duty of starter	30 sec.
Maximum continuous rating	2750 RPM
Maximum rating at take-off	2750 RPM

Oil - Maximum temperature 107°C - 224,6°F
Normal pressure 2.1 to 4,2 bars
Minimum pressure at reduced RPM - 0.7 bar.

Fuel - Normal pressure 150 to 400 m.bar

2.6 - Propeller limitations

MAC CAULEY 1.A.101.DCM.6948 propeller
maximum rating : 2750 RPM.

2.7 - Limits of use in flight

2.7.1 - VFR flights

This aircraft may be operated in day VFR flight or in night VFR flight.

2.7.2 - Icing conditions

Flight is prohibited in icing conditions

2.7.3 - Demonstrated cross-wind

Maximum component at 90° : 20 kt.

2.7.4 - Limit load design factor at maximum weight

Category	U
n	+ 4,4 - 1.8

2.7.5 - Spins and inverted flight

VOLUNTARY SPINS AND INVERTED FLIGHT ARE PROHIBITED

2.8 - Maneuvres permitted in "Utility" category

Maneuvre	Recommended initial speed
Steep turn	170 km/h- 92 kt- 106 MPH
Chandelle	240 km/h-130 kt- 149 MPH
Lazy eight	220 km/h-119 kt- 137 MPH

2.9 - Instruction plates and markings on instruments

2.9.1 - Instrument plate

- INSTRUCTION PLATE -

This airplane must be operated as a Utility category airplane in compliance with the operating limitations stated in the from of placards, markings, and manuals. Acrobating maneuvers are limited to the following :

Maneuver	Max. Entry Speed	
Lazy eight	137 MPH	119 kt
Chandelle	149 MPH	130 kt
Steep turns	106 MPH	92 kt
Stall (except whip)	Slow deceleration	

Spins are prohibited

Maximum weight	1700 lb	
Flight maneuvering load factor (flaps up)	+ 4.4 - 1.8	
Never exceed speed (I.A.S)	168 MPH	145 kt
Maneuvering speed (I.A.S)	120 MPH	104 kt
Maximum speed rough air (I.A.S)	125 MPH	108 kt
Maximum speed flaps extended (I.A.S)	87 MPH	76 kt

2.9.2 - Markings on instruments

Tachometer
- Green sector 600 to 2750 RPM
- Red line at 2750 RPM

Oil thermometer
- Green sector from 40°C (104° F) to 107°C (225° F) -Normal Area
- Red line at 107°C (225°F)-Maxi

Oil pressure gage
Red sector from 0 to 0.7 bar
Yellow sector from 0.7 to 2.1 bars
Green sector from 2.1 to 4.2 bars

Fuel pressure gage
- Red sector under 150 mbar
- Green sector above 150 mbar

Airspeed indicator
White sector from 75 to 140 km/h (41 to 75kt)
Green sector from 85 to 200 km/h (46 to 108 kt)
Yellow sector from 200 to 270 km/h (108 to 146 kt)
Red line at 270 km/h (146 kt)

SECTION 3
EMERGENCY PROCEDURES

3.1 - Engine failure at take-off

Reduce RPM to minimum. Brake carefully, while pulling the control column fully rearward.

3.2 - Engine failure after take-off

Make use of available power to assist in reaching selected landing ground ahead.
When sure that the selected ground can be reached , extend the flaps fully.
Speed should not drop under.
Vl = 100 km/h - 54 kt - 62 MPH
Before touch-down :
- cut-off magneto switch
- cut-off main switch
- close fuel cock

CAUTION : DO NOT ATTEMPT TO TURN
The altitude drop and the increase in stalling speed resulting from a turn may cause an untimely touch-down in a hazardous attitude.

3.3 - Engine failure in flight

CHECK
-Fuel pressure. Switch on the booster pump
-Fuel level indicators
-Fuel cock open on the tank with the highest level.
-Mixture on full rich (pushed)

Fly the aircraft to the best lift-to-drag ratio speed 140 km/h - 76 kt - 87 MPH with retracted flaps. The aircraft flies over 10 times approx its altitude (with no wind).

3.4 - Forced landing with an engine failure

-Fuel cock closed
-Set to full RPM
-Magneto switch cut-off
-Ifradio installation isprovided, send distress signals.

BEFORE LANDING

- All electrical contacts	Off
- Seat belts	fastened
- Canopy	unlocked (not open)
- Speed	100/110km/h-54/59 kt
	62 kt 68 MPH
- Flaps in final approach	extended 30°
- Main switch	off

- Flare out just before touch-down
- On ground, maintain control column fully rearward.

3.5-Precautionary landing

- Observe the landing area by flying over several times at low speed if necessary. VI = 120 km/h - 65 kt - 75 MPH.
- Proceed to a careful approach, with flaps extended 30° VI = 95 km/h - 51 kt - 60 MPH.
- Main switch ..... off
- Flare out just before touch-down while setting throttle control to minimum RPM.

3.6-Engine fire

- Fuel shut-off cock	closed
- Booster pump	off
- Throttle control to full RPM	
- Ventilation control	"shut-off"
- After engine stopping.	
- Magneto switch	off
- Main switch	off
- Generator field switch	off

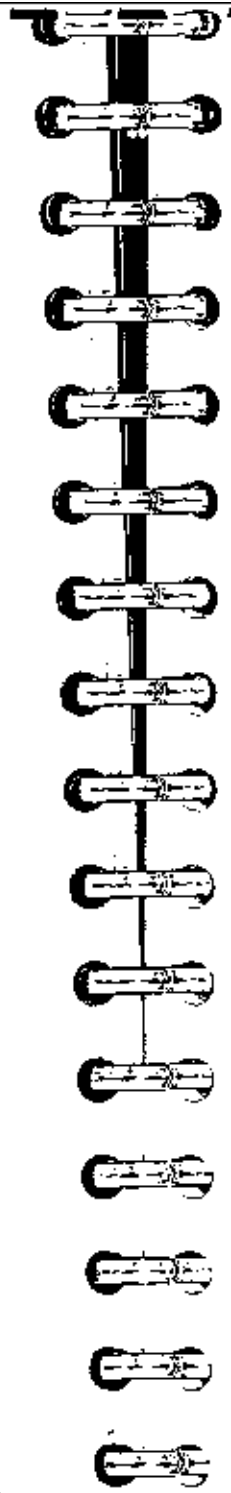
CAUTION : NO ATTEMPT SHOULD BE MADE TO RE-START THE ENGINE AFTER A FIRE WAS INITIATED.

3.7-Electrical fire

- Extinguish the fire using all means available (extinguisher supplied on option)
- In order to evacuate smoke, open fully the ventilation and if necessary open the canopy by 10 cm 0.4 in at VI ⩽ 150 km/h-81kt-93 MPH.

In case of electric fire : Switch off generator excitation. Set main switch off

3.8-Vibrations



Vibrations can generally be initiated by bad condition of spark plugs, or by carburettor icing or by a mixture too rich.
Adjust the mixture. In all other cases, land at the earliest opportunity in order to check the cause. Check oil pressure and temperature.

3.9 - Fuel supply failure

Should a fuel pressure loss occur :
- Switch on booster pump
- Select the tank with the highest level.

In case of RPM drop at full throttle, due to exhaustion of fuel in one tank, decrease RPM to half value approximately in order to ensure quick pick-up on the other tank. Switch to the other tank while booster pump is operating. Increase RPM as soon as the fuel pressure rises.

3.10 - Oil supply failure

In case of oil pressure drop, check the oil temperature.
If excessively high (maxi 107°C-224.6°F)
- Decrease power
- Proceed to the airfield while taking all measures for a possible landing in the country.

3.11 - Icing

3.11.1 - Airframe

Since the airframe is not provided with de-icing devices, the icing area should be left as quick as possible.
Ice on the windshieldcan be removed more rapidly by setting the air conditioning system on fully hot position.

3.11.2 - Carburettor

In case of icing indication (RPM drop, manifold pressure drop, slight vibrations) pull out fully the carburettor heating control for a moment in order to remove the ice and, then, push in the control progressively to the cold position. If the aircraft is fitted with a carburettor air thermometer (option 88), maintain the indicated temperature within sector located between +5°C and +20°C (41°F and 68°F)

NOTE : Pulling the carburettor heating control may cause the RPM to drop by 100 RPM, the manifold pressure to drop by 30 to 50 m/bar, and may increase the vibration level. After the carburettor heating is adjusted it is mandatory to adjust the mixture to suppress the vibrations. The use of carburettor heating increases appreciably the hourly fuel consumption.

3.12 - Electrical generation failure

Check the discharge indication on the ammeter
Check the fuse and replace it if required.

IF THE DISCHARGE STILL REMAINS

- Switch off generator field supply
- Switch off all electrical equipment not essential for proceeding with the flight.

3.13 - Electrical circuit failure

Failure of electrical equipment : pressure, temperature and fuel level indicators.
Check the fuses panel, when a fuse is blown, replace the fuse with a new one of same rating provided in the fuse box located above the panel.

3.14 - Airspeed indicating system failure

In the case of erroneous indications in flight, carry out the approach at an airspeed at which the LE slats begin to open. On ground, bleed the systems and check pitot tubes and static ports for cleanliness. Check the systems for leaks prior to checking the instruments.

3.15 - Locking of L.E slats

Should the L.E. slats lock in closed position, do not fly under VI = 120 km/h-65kt-75MPH.

Proceed to careful landing with the following approach configuration :
VI = 120 km/h-65 kt-75 MPH, flaps retracted
VI = 115 km/h-62 kt -71 MPH, flaps extended 30°.

3.16 - Involuntary spins

It is mandatory to apply the spin recovery procedure as soon as the pilot is noticing that the aircraft enters into spinning and this, at the latest, before the aircraft has carried out a complete turn.

RECOVERY SPIN PROCEDURE

Rapidly and simultaneously deflect :

- elevator control quite in nose-down pitch range (see note)
- rudder control fully against,
- ailerons at neutral position -

Maintain the three controls in these positions until the spin has stopped.

As soon as the rotation has stopped : rudder control at neutral position and recovery carefully.

NOTE : The elevator is the most important control surface for the spin recovery.

SECTION IV
NORMAL PROCEDURES

4.1 - Preparing for flight

4.1.1 - Determining the weight and C.G. location
(Use of the graph)

1°) Preparation
On the graph, scribe a cross at point MO corresponding to the weight and C.G. location of the aircraft, as mentioned on Inspection Register (weighing and C.G. location report).

2°) Determining C.G. location
When plotting the vectors, make sure that the moment curve is correctly placed by checking the parallelism of weight reference lines.
At the point corresponding to the weight and C.G. location of the empty aircraft MO, set point O of "pilots" vector and draw a line which length corresponds to the added weight.
From the new point obtained draw the "passengers" vector and then proceed in the same way for "luggage" and "fuel" vectors.
The end of this drawing allows reading the weight and C.G. location of the aircraft.
In no case should the last "fuel" vector" cross the shaded areas.

Sample drawn on the graph		
Weight of empty aircraft	475 kg -	1047 lb
C.G. location	865 mm -	34 in
Pilot and forward passenger	154 kg -	340 lb
Rear Passengers	77 kg -	170 lb
Fuel	64 kg -	141 lb
This yields : Total weight	770 kg -	1700 lb
Resulting C.G. location	989 mm -	39 in

3°) - Additional fixed weights
When adding weights, the C.G. location changes, and then it is advisable to determine its new value and to localize it on the graph by proceeding as follows :

On the moment curve, localize on the reference axis point B corresponding to the position of the weight installed in the aircraft.

From point A, draw a line which crosses point B.

On this line, plot point C corresponding to the installed weight as read on rear passengers scale.

Drawing vector BC on the graph from point MO, gives the new empty C.G. location MI.

Example drawn on the graph.

Weight of 20 kg-44 lb installed within the area of the rear seat.

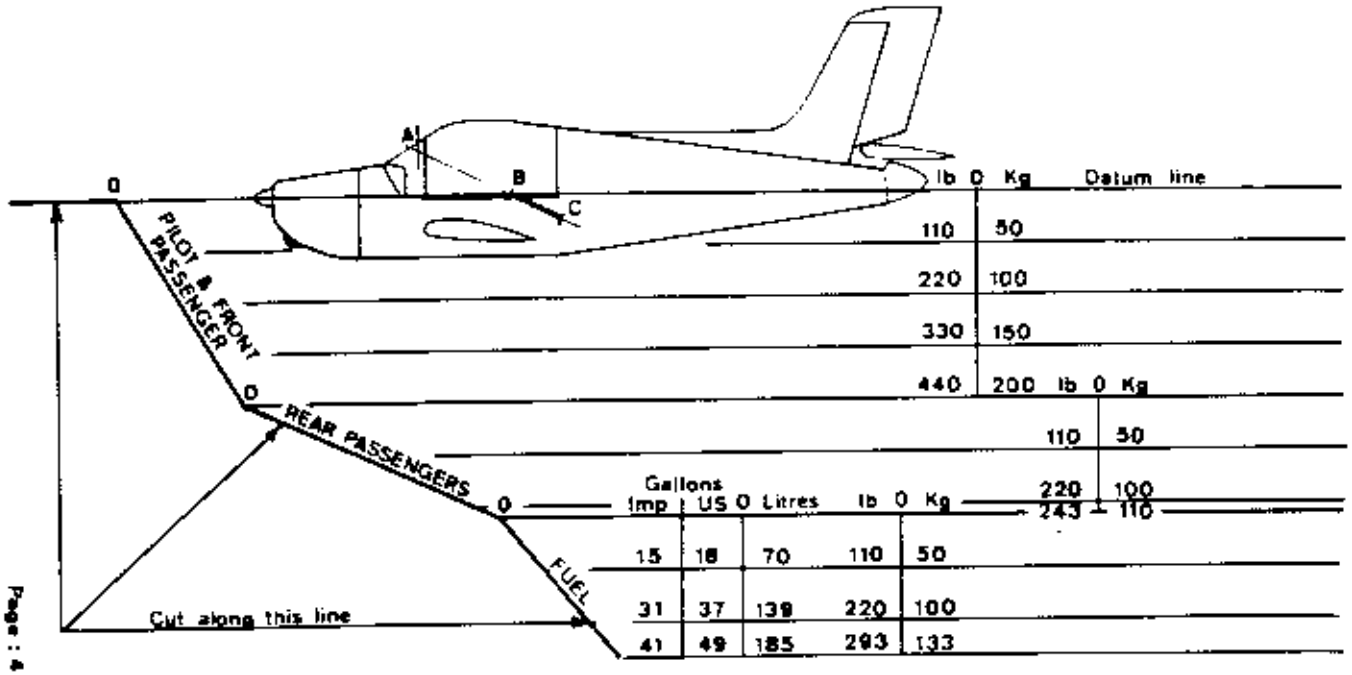
4°) - Limit weights and C.G. (refer to section 2)

Loading is correct provided the resulting point giving the weight and C.G. location is located within the non-shaded area.

NOTE

Correct loading of the aircraft is the responsibility of the pilot. The latter must check that C.G. location does not move beyond the limits due to fuel consumption during flight.

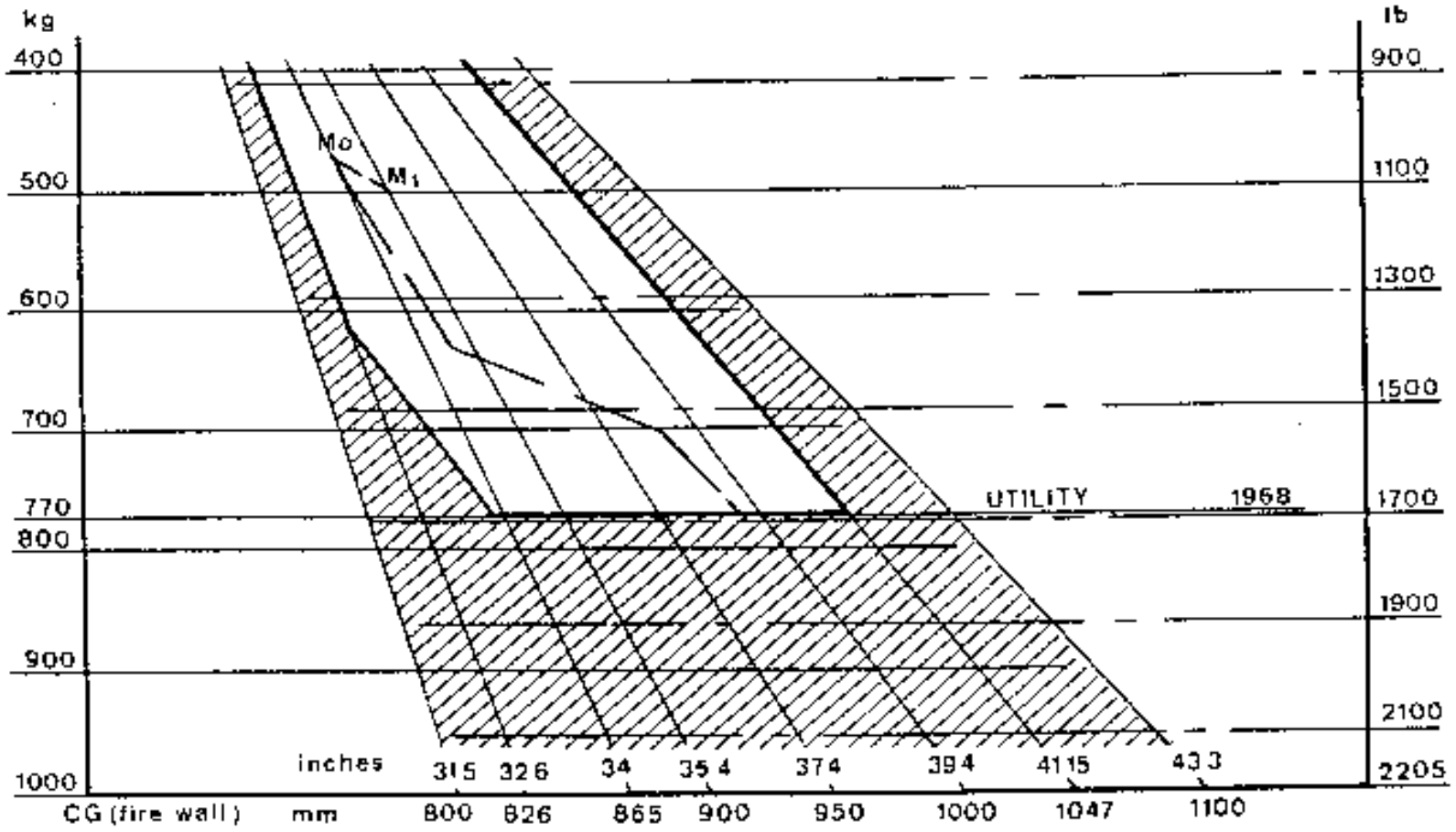
ADDITIONAL MOVABLE AND FIXED WEIGHTS



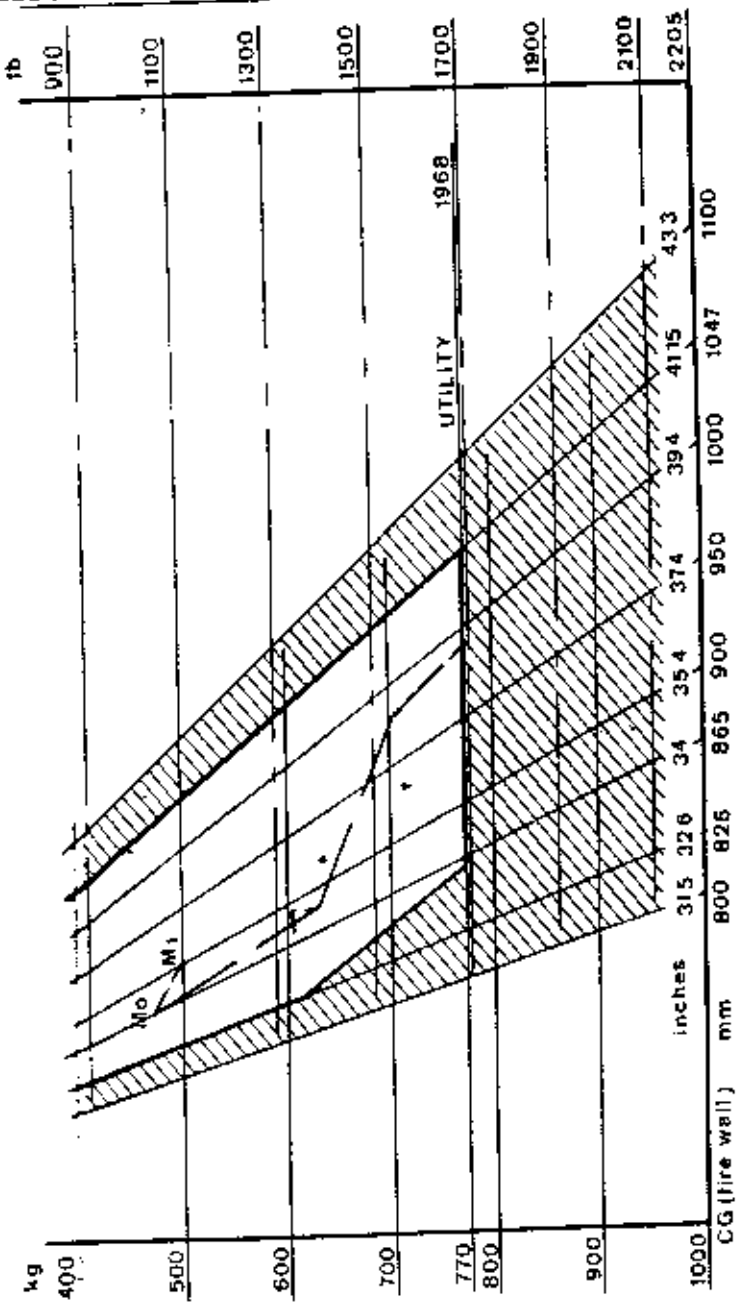
MOMENT CURVE
RALLYE MS.880B

4.1.2 CG location Graph

Refer to weight and loading info for EI-AUE at the start of the Document



4.1.2 - CG location graph

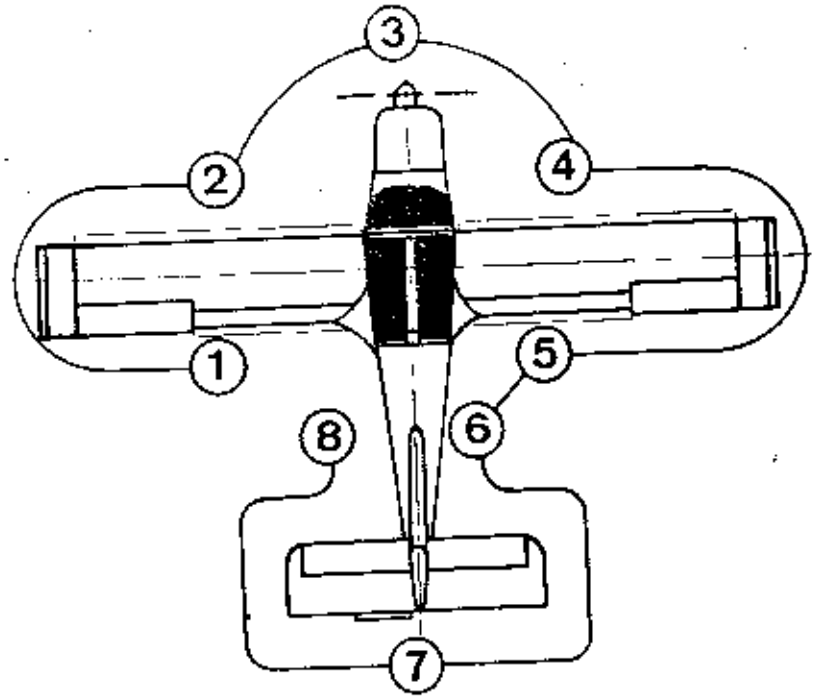


4.2 - Handling on ground

A towing fork supplied in the aircraft kit fits onto the nose gear, and allows handling the aircraft on ground.

For ground operation it is forbidden to push on the movable surfaces : L.E. slats, flaps, ailerons, empennage, propeller etc...

On flat ground one operator can move the aircraft using the towing fork.



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Example drawn on the graph.

Weight of 20 kg-44 lb installed within the area of the rear seat.

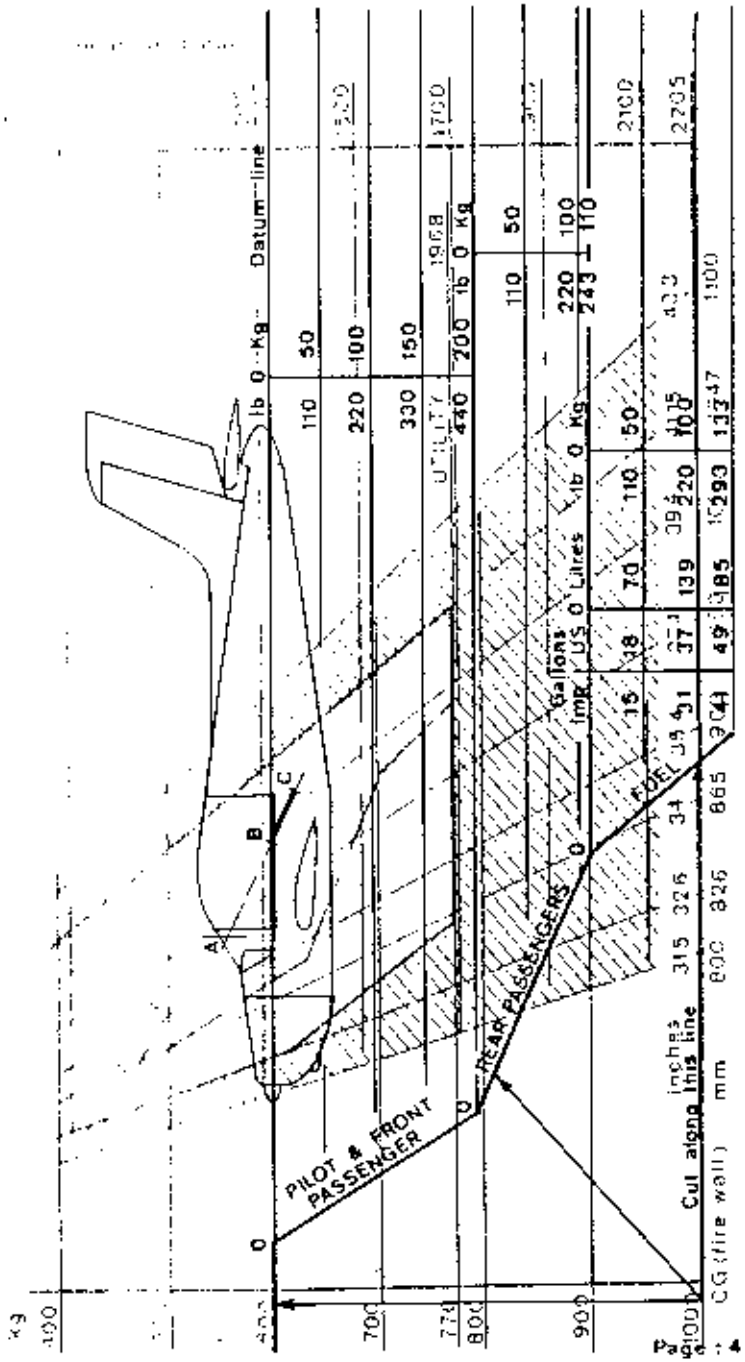
4°) - Limit weights and C.G. (refer to section 2)

Loading is correct provided the resulting point giving the weight and C.G. location is located within the non-shaded area.

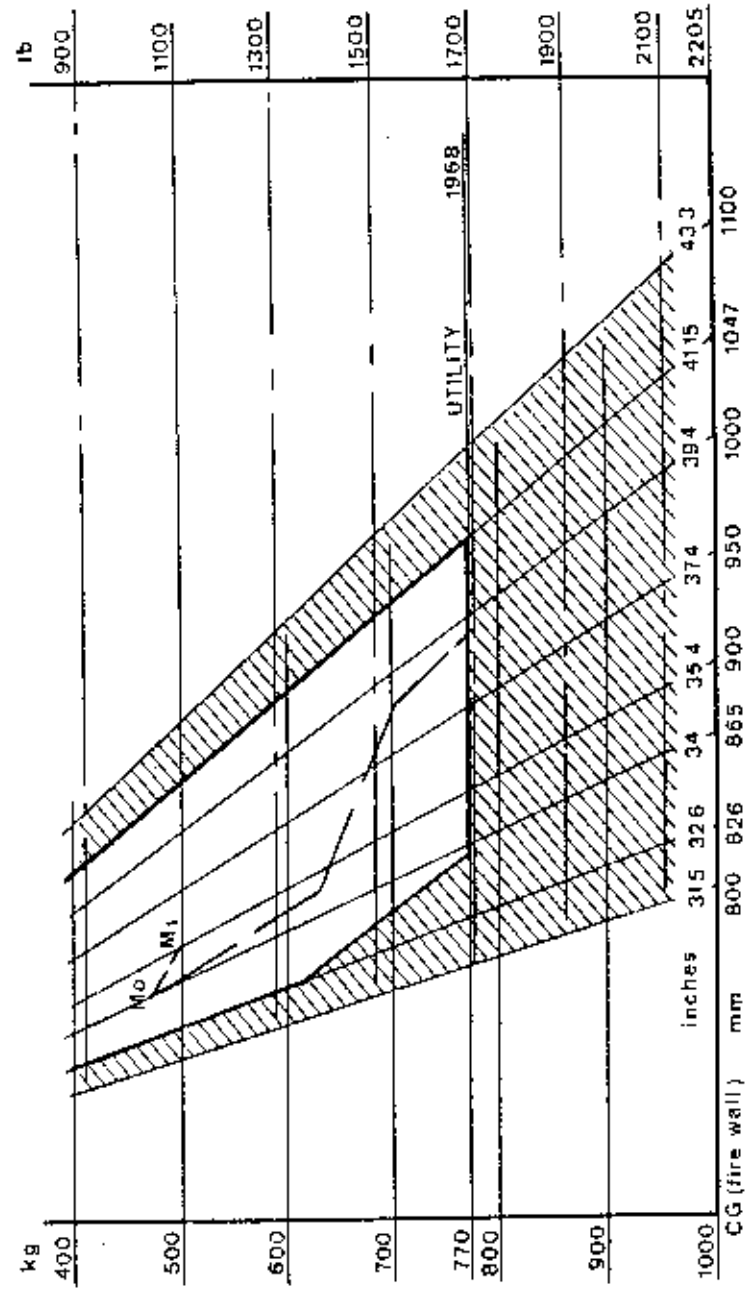
NOTE

Correct loading of the aircraft is the responsibility of the pilot. The latter must check that C.G. location does not move beyond the limits due to fuel consumption during flight.

ADDITIONAL MOVABLE AND FIXED WEIGHTS



4.1.2 CG location graph



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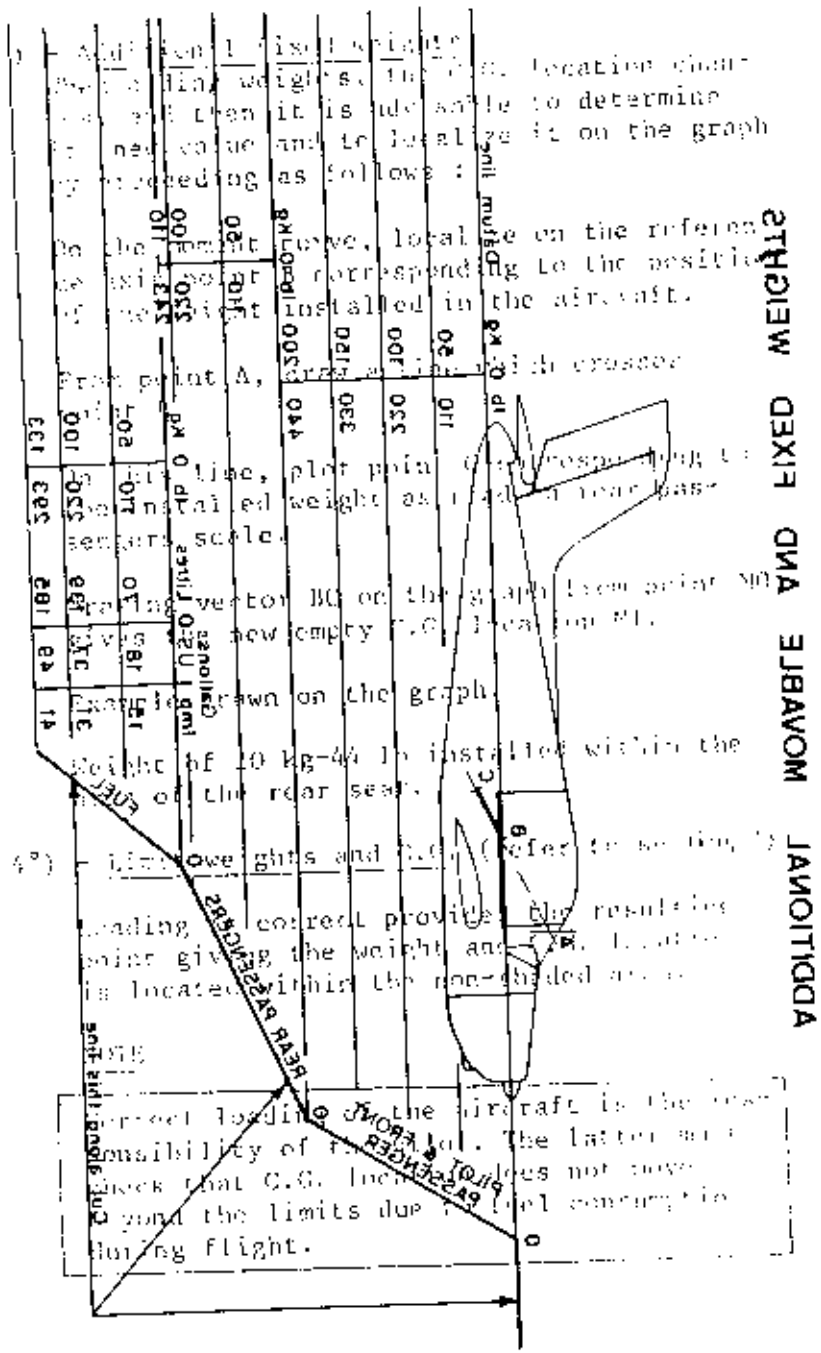
ADDITIONAL MOVABLE AND FIXED WEIGHTS



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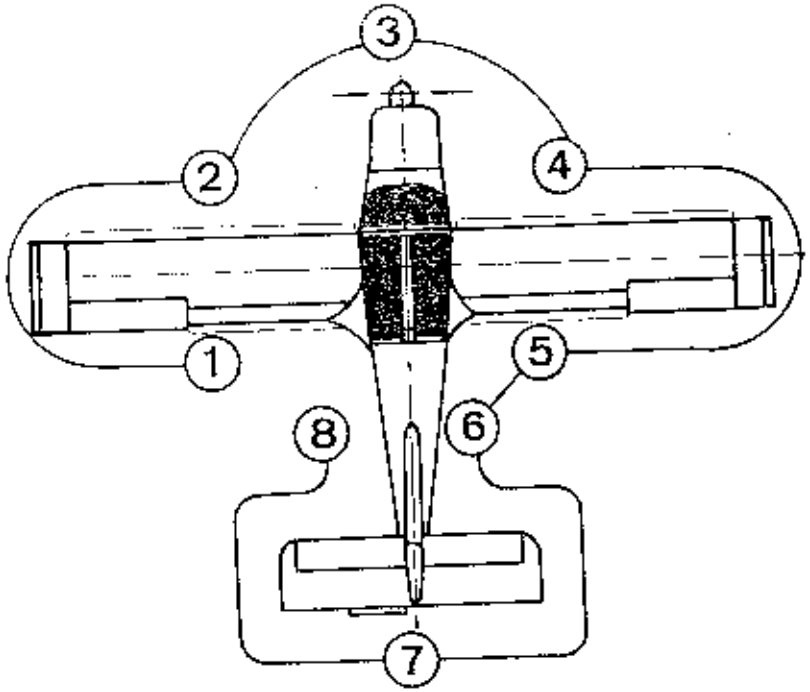

4.3 - Checking before flight

4.3.1 - External check

Cabin

Canopy open	normal sliding
Flaps	extended
Magneto selector	set to Off
Flight controls	unlocked
Main switch	stop
Tabs	neutral position

Carry-out the check by turning clockwise around the aircraft starting form the left side of the cabin.

(1) Left wing

Ailerons	Controls	)
Flaps	Hinges	) checked
	Deflections	)
	Plays	)

Ram air inlet	clean, not clogged
Fuel tank	level checked
Fuel tank plug and door	installed, locked
Bleeding	carried out
L.E. slats	clean internal surface rollers and arms installed and locked, normal motion.

(2) Mains left landing gear

Tire	inflated
Fairing	good condition, normal position (shock absorber in good condition)

(3) Forward fuselage section

Windshield	clean
Oil level	checked, door locked
Cowlings	closed and locked, no trace of leak
Propeller	clean, good condition

Propeller nose cone	no play
Air intakes	clean, not clogged
Nose landing gear	
Tire	inflated
Fairing	good condition normal position, (shock absorber correct)
Towing fork	removed
Exhaust pipe	secured
④ **Right main landing gear**	
Tire	inflated
Fairing	good condition, normal postion, (shock absorber correct)
⑤ **Right wing**	
L.E. slats	clean internal surface, rollers and arms installed and locked, normal motion
Bleeding	carried out
Fuel tank	level checked
Fuel tank plug and door	installed, locked
Aileron Controls)	
Flaps Hinges)	
Deflections)	checked
Plays)	
⑥ **Rear right fuselage section**	
Static port	clean, not clogged
⑦ **Tail unit**	
Horizontal and vertical stabilizers	checked
Elevators, rudder	hinges, deflections and plays : checked
Controlled tab	neutral position
⑧ **Rear left fuselage section**	
Static port	clean, not clogged

4.3.2 - Internal checking of the cabin

Canopy	locking checked, then close and lock.
Parking brake	applied
Seat belts	fastened
Flight controls	free on 3 axes, no play, no excessive friction
Tabs	checked at neutral positio
Flaps	retracted

4.4 - Starting the engine

A.C.generator excitation	off
Magneto selector	set to off
Booster pump	stop
Carburettor heating	set to cold

4.4.1 - Normal procedure

Mixture	full rich
Main switch	on
Fuel level indicators	checked
Fuel cock	open
Booster pump	on
Injection	2 to 3 times
Throttle control	pushed forwards by 2 cm (~1 in)
Surroundings	cleared
Starter	operated for 30 sec. max.
Magneto selector	on 1+2 after starting
Oil pressure	slow rising

4.4.2 - Hot engine procedure

Same as under 4.4.1 except no injection needed.

4.4.3 - Cold weather procedure

Same as under 4.4.1 except after starting, the engine rating is maintained by successive injections up to 900 to 1000 RPM. If the engine is cranked by hand, check that :

- Chocks are installed
- Magnetos are foff (selector set to off)

CAUTION : TO AVOID DAMAGING THE BATTERY, NEVER OPERATE THE STARTER MORE THAN 30 SECONDS. BEFORE PROCEEDING TO THE NEXT START, ALLOW ONE MINUTE AT LEAST TO ELAPSE. NEVER OPERATE THE STARTER UNTIL THE PROPELLER HAS REACHED A COMPLETE STOP.
NOTE : CHECK OIL PRESSURE AS SOON AS THE ENGINE OPERATES. IF PRESSURE IS NIL AFTER 15 OR 20 SECONDS, STOP THE ENGINE AND CHECK THE CAUSE.

4.4.4 - Starting failure

The starting failure may result from an excess of fuel due to repeated injections which yield black smoke and back-fire. Proceed as follows :

Mixture control	fully lean
Throttle control	fully open
Starter	operated during a few seconds.

Then proceed normally without injections

4.5 - After the engine has started

Rating	between 800 and 1000 RPM
A.C. generator excitation	ON
Booster pump	Off
Fuel cock	checked on both tanks
Turn and bank indicator	operating
Ammeter	green sector

4.6 - Taxiing

Parking brake	released
Elevator control	fully brackward.

Taxi slowly while using the rudder
if the rudder efficiency is not sufficient, use the brakes through short successive impulses since a prolonged action would result in slowing down the aircraft.
NOTE : Should a wheel run in a ground hole, avoid braking at the same time.

4.7 - Maneuvering point

4.7.1 - Ground run

Parking brake	applied
Control column	rear sector
Fuel pressure	green sector
Oil pressure	green sector
Oil temperature	green sector
Mixture	full rich
Carburettor heating	set to cold
Magneto selection	100 RPM drop. Difference
N = 1700 RPM	between magnetos 50 RPM.

NOTE : When temperature is below 0°C - 32°F the carburetted air temperature should be maintained to 15°C-59°F approximately during magneto selection in order to avoid abnormal RPM drops. (Thermometer : optional)

4.7.2 - Before take-off

Seat belts	checked
Canopy	closed, locked
Flight controls	free
Tabs	neutral position
Flaps	retracted
Magneto selectors	set to 1 + 2
Carburettor heating	set to cold
Mixture	full rich
Fuel cock	open
Booster pump	operating
Fuel pressure	green sector
Oil pressure	green sector
Oil temperature	green sector
Altimeter	reset

4.8 - Take-off

Parking brake	released

Align the aircraft
Set progressively to full throttle N=2650 RPM±50
Avoid braking during rolling

Lift off nose wheel	60 km/h-32 kt- 37 MPH.
Take-off cleanly	VI - 95 km/h-51 kt-59 MPH

Brake	
Climb to 300 ft	VI = 120 km/h-65 kt-75 MPH approx.
Booster pump	Off
	CORRECT PRESSURE

4.9 - Climb

4.9.1 - Normal climb with L.E. slats retracted

Increase speed until slats close
Proceed with optimum climb speed.
VOM = 135 km/h-73 kt-84 MPH
4 MPH every 5000 ft.
Maintain full manifold pressure and 2750 RPM maximum. CHeck the temperatures.

4.9.2 - Maximum slope climb with L. E. slats extended

The best path slope is obtained for VI = 95 km/h-51 kt-59 MPH.

NOTE : This type of climbing is to be used exceptionally since engine cooling is not so efficient.

4.10 - Cruise

For setting RPM and cruise performances refer to section 5.

USE OF FUEL

Maintain 1/4 of fuel content in one tank, as read on the indicator, before exhausting the second tank. Switch back to the first tank. (1/4) as read on the gauge corresponds to 12 1-2.64 Imp.gall 3.16 US.gall. i.e. approximately 30 mn of cruise flight.

NOTE Before switching from one tank to the other, set the booster pump into operation :

Use of mixture control

Since satisfactory engine performance is closely related to mixture setting, adjustments must be carried out very carefully. Maintain mixture control on "full rich position for take-off, rated maximum continuous, climb and cruise powers above 75%.

However, during take-off from high elevation airport or during climbs, roughness or loss of power may result from over-richness. In such a case, adjust mixture control only enough to obtain snooth operation not for economy.
Rough operation due to over-rich fuel/air mixture is most likely to be encountered in carburetted direct drive engines at altitude above 5000 ft.

Always enrich mixture before increasing power

To lean the mixture, pull progressively the mixture control until a slight increase of RPM is observed, followed by a decrease.
Then, push slightly the control for adjusting at an optimum RPM.

NOTE : Take care not to lean the mixture excessively to avoid resulting detonations and overheating of the engine.

4.11 - Descent

4.11.1 - Fast descent

Power must be adjusted to obtain the desired slope.
Every 1500 ft, carry out a slow increase of RPM to avoid a too important cooling down of the engine and to clean the spark plugs.

4.11.2 - Approach

Mixture control	full rich
Booster pump	on
Fuel cock	open on the tank of highest level
Flaps extended	as required VI maxi 140 km/h - 76 kt - 87 MPH
Carburettor heating	adjusted
Final turn	VI = 120 km/h- 65 kt- 75 MPH.
Final approach -Flaps retracted	VI = 110 km/h - 60 kt- 68 MPH
-Flaps extended 30°	VI = 105 km/h- 57 kt- 65 MPH.

4.12 - Landing

4.12.1 - Normal landing

Flare at maximum L.E. slats open automatically
Touch-down VI = 85/90 km/h-46/49 kt 53/56 MPH approx.
Maintain control colum backward until the nose wheel contacts the ground between 55km/h-30kt 34 MPH and 65km/h-35kt-40 MPH, depending on C.G. location.
Eventually : apply the brakes.

4.12.2 - Go-around

Throttle control	full RPM
Carburettor heating	full cold
Maintain	VI= 110km/h-60kt-68 MPH.

Retract the flaps slowly while taking the normal climb slope at VI = 135km/h-73kt-84 MPH.

4.13 - After landing

Booster pump	Off
Flaps	retracted
Tabs	neutral position
Carburettor heating	full cold

4.14 - Stopping

Parking brakes	applied
Electrical equipment	energized
Magneto cut-off test	at idle, cut-off then set to 1 + 2
Reduced RPM	N = 800/1000 RPM
Mixture control	Fully "leaned out"

After engine stopping :
- magneto selector set to off
- A.C. generator excitation off
- Main switch off
- Fuel cock closed

5.1 - Take-off performances

Take-off performances are given at the weight of 770 kg-1700 lb and 610 kg-1341 lb

5.1.1 - Take-off at the weight of 770kg-1700 lb

Flaps retracted

Take-off speed : 90 km/h-49kt-56 MPH

Rolling distance in meters					
Zp ft \ θ°C °F	- 20 - 4	0 + 32	+ 15 + 59	+ 30 + 86	+ 40 +104
0	130	155	170	190	200
2000	160	185	205	225	240
4000	190	225	245	275	295
6000	235	270	300	335	355
8000	290	335	375	-	-

Speed when crossing the 15 meters obstacle
VI =110km/h-59kt - 68 MPH

Zp ft \ θ°C °F	- 20 - 4	0 + 32	+ 15 + 59	+ 30 + 86	+ 40 +104
0	315	360	400	445	475
2000	385	450	500	560	600
4000	490	575	650	740	810
6000	645	775	925	1070	1200
8000	935	1225	1540	-	-

Take-off speed : VI = 90 Km/h - 49 Kt-56 MPH

Rolling distances in feet					
Zp Ft \ θ °C °F	- 20 -4	0 +32	+15 +59	+30 +86	+ 40 +104
0	427	508	558	623	656
2000	525	606	672	738	787
4000	623	738	804	902	968
6000	770	886	984	1100	1165
8000	951	1100	1230	-	-

Speed when crossing the 50 feet obstacle
VI = 110 Km/h - 59 kt - 68 MPH

Distances in feet for crossing the 50 feet obstacle					
Zp ft \ θ °C °F	- 20 -4	0 + 32	+15 +59	+30 +86	+40 +104
0	1033	1180	1310	1460	1560
2000	1265	1475	1640	1835	1970
4000	1610	1885	2130	2430	2660
6000	2115	2540	3035	3510	3935
8000	3065	3350	5050	-	-

5.1.2 - Take-off at the weight of 610 kg - 1344 lb
Flaps retracted
Take-Off speed : VI = 75 km/h-40 kt-47 MPH

Rolling distances in meters					
Zp Ft \ θ°C / °F	- 20 / - 4	0 / + 32	+ 15 / + 59	+ 30 / + 86	+ 40 / + 104
0	85	100	110	120	130
2000	105	120	130	145	155
4000	125	145	160	175	190
6000	150	175	195	215	230
8000	190	220	240	265	285

Speed when crossing the 15 meters obstacle
VI = 90 km/h-49 kt-56 MPH.

Distances in meters for crossing the 15 meters obstacle					
Zp ft \ θ°C / °F	- 20 / - 4	0 / + 32	+ 15 / + 59	+ 30 / + 86	+ 40 / + 104
0	225	255	280	305	325
2000	270	310	335	370	395
4000	330	375	415	460	490
6000	405	470	525	585	630
8000	525	620	700	785	865

Take-off speed : VI = 75 Km/h - 40 kt - 47MPH

Rolling distances in feet					
Zp ft \ θ °C / °F	-20 / -4	0 / +32	+15 / +59	+30 / +86	+40 / +104
0	279	328	361	394	426
2000	344	394	426	476	508
4000	410	476	525	574	623
6000	492	574	640	705	754
8000	623	722	787	868	935

Speed when crossing the 50 feet obstacle

VI = 90 Km/h - 49 Kt - 56 MPH

Distances in feet for crossing the 50 feet obstacle					
Zp ft \ θ °C / °F	-20 / -4	0 / + 32	+15 / +59	+30 / +86	+40 / +104
0	738	836	918	1000	1065
2000	886	1020	1100	1215	1300
4000	1085	1230	1360	1510	1610
6000	1330	1540	1720	1920	2070
8000	1725	2030	2300	2570	2840

5.2 - LANDING PERFORMANCES

Landing performances are given for weights of 770 kg - 1700 lb and 610 kg - 1344 lb.

5.2.1 - Landing at the weight of 770 kg - 1700

Flaps extended : 30°

Final speed of : VI = 100 km/h-55 kt-64 MPH

Distance in meters from crossing the 15 m obstacle to complete stop.

Zp ft \ θ°C / °F	- 20 / - 4	0 / + 32	+ 15 / + 59	+ 30 / + 86	+ 40 / + 104
0	250	265	275	285	290
2000	265	280	290	300	305
4000	280	295	305	315	325
6000	295	310	325	335	340
8000	310	330	340	-	-

Rolling length in meters

Zp ft \ θ°C / °F	- 20 / - 4	0 / + 32	+ 15 / + 59	+ 30 / + 86	+ 40 / + 104
0	100	110	115	120	125
2000	110	115	125	130	135
4000	115	125	135	140	145
6000	125	135	145	150	155
8000	135	145	155	-	-

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Final speed : VI = 100 Km/h - 55 kt - 64 MPH

Distance in feet from crossing the 50 feet obstacle to complete stop

Zp ft \ θ °C / °F	-20 / -4	0 / +32	+15 / +59	+30 / +86	+40 / +104
0	820	870	902	935	952
2000	870	918	952	984	1000
4000	918	968	1000	1033	1066
6000	968	1017	1066	1100	1115
8000	1017	1083	1115	-	-

Rolling length in feet

Zp ft \ θ °C / °F	-20 / -4	0 / +32	+15 / +59	+30 / +86	+40 / +104
0	328	361	377	394	410
2000	361	377	410	426	443
4000	377	410	443	459	476
6000	410	443	476	492	509
8000	443	476	509	-	-

5.2.2 - Landing at the weight of 610 kg - 1344 lb
Flaps extended : 30°
Final speed of : VI = 100 km/h-55 kt-64 MPH

Distance in meters from crossing the 15 meters obstacle to complete stop

Zp ft \ θ°C / °F	- 20 / - 4	0 / + 32	+ 15 / + 59	+ 30 / + 86	+ 40 / + 104
0	210	220	230	240	245
2000	220	235	240	250	255
4000	235	245	255	265	270
6000	245	260	270	280	285
8000	260	275	285	295	305

Rolling length in meters

Zp ft \ θ°C / °F	- 20 / - 4	0 / + 32	+ 15 / + 59	+ 30 / + 86	+ 40 / + 104
0	85	90	95	100	105
2000	90	95	100	105	110
4000	95	105	110	115	120
6000	105	110	120	125	130
8000	110	120	130	135	140

Final speed : VI = 100 Km/h - 55 kt - 64 MPH -

Distance in feet from crossing the 50feet obstacle to complete stop

Zp ft \ °C / °F	-20 / -4	0 / +32	+15 / +59	+30 / +86	+40 / +104
0	688	722	755	787	804
2000	722	771	787	820	836
4000	771	804	836	869	886
6000	804	853	886	919	935
8000	853	902	935	968	1000

Rolling length in feet

Zp ft \ °C / °F	-20 / -4	0 / +32	+15 / +59	+30 / +86	+40 / +104
0	279	295	312	328	344
2000	295	312	328	344	361
4000	312	344	361	377	394
6000	344	361	394	410	426
8000	361	394	426	443	459

5.3 - Rates of climb

5.3.1 - Rates of climb at the weight of 770 kg-

Flaps retracted

Optimum climb speed : VI = 135 km/h-73 kt-84 MPH.

Rates of climb in m/s.					
Zp ft \ θ°C / °F	- 20 / - 4	0 / + 32	+ 15 / + 59	+ 30 / + 86	+ 40 / + 104
0	3.25	3.00	2.75	2.55	2.50
2000	2.55	2.30	2.10	1.85	1.75
4000	2.00	1.75	1.55	1.35	1.20
6000	1.50	1.15	1.05	0.85	0.75
8000	1.05	0.75	0.60	-	-

Rates of climb in ft/mn					
Zp ft \ θ°C / °F	- 20 / - 4	0 / + 32	+ 15 / + 59	+ 30 / + 86	+ 40 / + 104
0	640	590	542	502	473
2000	502	453	414	364	345
4000	396	345	305	266	236
6000	295	226	207	167	147
8000	207	147	118	-	-

5.3.2 - Rates of climb at the weight of 610 kg 1344 lb

Flaps retracted

Optimum climb speed : VI = 125 km/h-68 kt 78 MPH

Rates of climb in m/s					
Zp ft \ θ°C / °F	- 20 / - 4	0 / + 32	+ 15 / + 59	+ 30 / + 86	+ 40 / + 104
0	4.90	4.55	4.30	4.05	3.90
2000	4.25	3.90	3.70	3.45	3.30
4000	3.60	3.30	3.10	2.85	2.70
6000	3.00	2.70	2.50	2.25	2.15
8000	2.35	2.05	1.85	1.70	1.55

Rates of climb in ft/mn					
Zp ft \ θ°C / °F	- 20 / - 4	0 / + 32	+ 15 / + 59	+ 30 / + 86	+ 40 / + 104
0	965	895	846	797	768
2000	837	768	728	679	650
4000	710	650	610	561	531
6000	590	531	492	443	422
8000	463	403	364	335	305

5.4 - Performances in level flight

At the weight of 770 kg - 1700 lb

5.4.1 - With 96 l usable fuel capacity

21.12 Imp.gal - 25.4 US.gal.

Z ft	N tr/mn	PA m.bar	VI km/h	Vp km/h	Cons. l/h	Range h.mn	km
W 75 % - 75 HP							
0	2550	825	166	166	22.5	4.15	700
2000	2610	805	164	169	23	4.10	700
4000	2680	785	161	171	23.5	4.05	700
6000	2740	760	158	173	24	4	690
8000							
W 70 % - 70 HP							
0	2490	795	160	160	21.5	4.27	710
2000	2540	775	158	162	21.5	4.27	720
4000	2600	755	155	164	22	4.27	715
6000	2670	735	152	166	22.5	4.15	705
8000	2740	715	149	168	23	4.10	700
W 65 % - 65 HP							
0	2430	765	154	154	20.5	4.40	720
2000	2470	750	151	155	20.5	4.40	725
4000	2520	730	148	157	21	4.33	715
6000	2580	710	145	158	21	4.33	720
8000	2660	695	141	159	21.5	4.27	710

In statute miles and US. gallons

Z ft	N RPM	PA M.bar	VI MPH	Vp MPH	Cons. G/h	RANGE h.mn	st.M
W 75 % - 75 HP							
0	2550	825	103	103	5.94	4.15	435
2000	2610	805	102	105	6.07	4.10	435
4000	2680	785	100	106	6.20	4.05	435
6000	2740	760	98	107	6.34	4	4.30
8000							
W 70 % - 70 HP							
0	2490	795	100	100	5.68	4.27	440
2000	2540	775	99	101	5.68	4.27	447
4000	2600	755	96	102	5.81	4.21	445
6000	2670	735	94	103	5.94	4.15	438
8000	2740	715	93	104	6.07	4.10	435
W 65 % - 65 HP							
0	2430	765	96	96	5.41	4.40	448
2000	2470	750	94	96	5.41	4.40	451
4000	2520	730	92	98	5.55	4.33	445
6000	2580	710	90	98	5.55	4.33	448
8000	2660	695	88	99	5.68	4.27	442

In nautical miles and Imperial gallons

W 75 % - 75 HP							
Z ft	N RPM	PA m.bar	VI kt	Vp kt	Cons. G/h	RANGE h.mn	N.M.
0	2550	825	90	90	4.95	4.15	378
2000	2610	805	89	91	5.06	4.10	378
4000	2680	785	87	92	5.17	4.05	378
6000	2740	760	85	93	5.28	4	373
8000							

W 70 % - 70 HP							
0	2490	795	86	86	4.73	4.27	383
2000	2540	775	85	87	4.73	4.27	389
4000	2600	755	84	89	4.84	4.21	386
6000	2670	735	82	90	4.95	4.15	381
8000	2740	715	80	91	5.06	4.10	378

W 65 % - 65 HP							
0	2430	765	83	83	4.51	4.40	389
2000	2470	750	82	84	4.51	4.40	392
4000	2520	730	80	85	4.62	4.33	386
6000	2580	710	78	85	4.62	4.33	389
8000	2660	695	76	86	4.73	4.27	384

5.4.2 - With 170 l usable fuel capacity
In km/h and l/h 37.40 Imp.gal 45 US.gal

W 75 % - 75 HP							
Z ft	N tr/mn	PA m.bar	VI	Vp	Cons	RANGE h.mn	km
0	2550	825	166	166	22.5	7.33	1250
2000	2610	805	164	169	23	7.23	1245
4000	2680	785	161	171	23.5	7.14	1230
6000	2740	760	158	173	24	7.05	1220
8000							

W 70 % - 70 HP							
0	2490	795	160	160	21.5	7.54	1260
2000	2540	775	158	162	21.5	7.54	1275
4000	2600	755	155	164	22	7.43	1265
6000	2670	735	152	166	22.5	7.33	1250
8000	2740	715	149	168	23	7.24	1240

W 65 % - 65 HP							
0	2430	765	154	154	20.5	8.18	1270
2000	2470	750	151	155	20.5	8.18	1280
4000	2520	730	148	157	21	8.06	1270
6000	2580	710	145	158	21	8.06	1280
8000	2660	695	141	159	21.5	7.54	1255

In statute miles and US.gallons

W 75 % - 75 HP							
Z ft	N RPM	PA m.bar	Vi MPH	Vp MPH	Cons. G.h	RANGE h.mn	st.M.
0	2550	825	103	103	5.94	7.33	777
2000	2610	805	102	105	6.07	7.23	774
4000	2680	785	100	106	6.20	7.14	765
6000	2740	760	98	107	6.34	7.05	758
8000							

W 70 % - 70 HP							
0	2490	795	100	100	5.68	7.54	783
2000	2540	775	99	101	5.68	7.54	792
4000	2600	755	96	102	5.81	7.43	786
6000	2670	735	94	103	5.94	7.33	777
8000	2740	715	93	104	6.07	7.24	771

W 65 % - 65 HP							
0	2430	765	96	96	5.41	8.18	790
2000	2470	750	94	96	5.41	8.18	796
4000	2520	730	92	98	5.55	8.06	790
6000	2580	710	90	98	5.55	8.06	796
8000	2660	695	88	99	5.68	7.54	780

In nautical miles and Imperial gallons

W 75 % - 75 HP							
Z ft	N RPM	PA m.bar	VI kt	Vp kt	Cons. G.h	RANGE h.mn	N.M
0	2550	825	90	90	4.95	7.33	675
2000	2610	805	89	91	5.06	7.23	673
4000	2680	785	87	92	5.17	7.14	665
6000	2740	760	85	93	5.28	7.05	659
8000							

W 70 % - 65 HP							
0	2490	765	83	83	4.73	7.54	681
2000	2540	775	85	87	4.73	7.54	689
4000	2600	755	84	89	4.84	7.43	684
6000	2670	735	82	90	4.95	7.33	675
8000	2740	715	80	91	5.06	7.24	670

W 65 % - 65 HP							
0	2430	765	83	83	4.51	8.18	686
2000	2470	750	82	84	4.51	8.18	692
4000	2520	730	80	85	4.62	8.06	686
6000	2580	710	78	85	4.62	8.06	692
8000	2660	695	76	86	4.73	7.54	678

NOTE 1 : Vp ground speed with zero wind
Vc indicated AIR speed (VI or IAS) corrected by the airspeed indicating system calibration.

NOTE 2 : The ranges and crossing distances shown on the previous tables agree with complete use of fuel at the indicated altitude, ignoring take-off, climb, etc...

5.5 - Airspeed indicating system calibration
Taking into account the airspeed indicator tolerances :

$Vc \simeq VI$

Stalling speeds (IAS) for a weight of 770kg - 1700 lb at reduced RPM

Flaps	BANK								
	0°			30°			45°		
	Km/h	Kt	MPH	Km/h	kt	MPH	Km/h	Kt	MPH
0°	85	46	53	92	50	57	101	54	63
30°	75	40	47	81	44	50	89	48	55

Demonstrated cross-wind

Maximum component at 90° : 20 kt

SECTION 6
SPECIAL MANEUVERS AND OPERATIONS

6.1 - Stalling

CAUTION :
NEVER TRY STALLING NEAR THE GROUND.

Stalling with reduced RPM is restricted by the elevator control stop, the aircraft falling flat. Stalling with high RPM is characterized by a very nose high attitude.

With rear C.G. location, a transversal instability (a wing dropping over the other-) may occur when the elevator control is close to its stop.

The aerodynamic warning is weak at reduced RPM but stronger at high power. Control may be regained immediately by easing the stick forward ; the altitude loss is small in all cases, and is minimum if RPM is immediately increased.

Stalling speeds (IAS) for a weight of 770 kg-1700 lb at reduced RPM

	BANK								
Flaps	0°			30°			45°		
	km/h	kt	MPH	km/h	kt	MPH	km/h	kt	MPH
0°	85	46	53	92	50	57	101	54	63
30°	75	40	47	81	44	50	89	48	55

NOTE : Values obtained with high RPM are lower by 10 km/h-5 kt-6 MPH.than those given in the table hereabove.

6.2 - Flight with cross-wind
Maximal component - 20 kt - at 90°

6.2.1 - Take-off
Aileron control actuated toward wind direction.
Maintain the aircraft along the axis using the rudder.
Maintain nose wheel on ground up to VI = 100 km/h-54kt-62 MPH.
Take-off cleanly in order to avoid touch-down with drift

6.2.2 - Landing
Flaps extended to the minimum possible depending on the ground condition.
Make a crab angle approach or with the wing dropping in the wind direction.
Flare by placing the aircraft along the axis before touch-down.
When on ground keep the nose wheel down maintain the aircraft along the axis using rudder pedals and then the brakes.
Roll while actuating the control column towards wind direction.

6.3 - Flight in turbulent air

Maximum speed	200km/h-108kt-125 MPH
Recommended speed	180km/h- 97kt-112 MPH

Check that pilot's and passenger's seat belts are sufficiently fastened.

6.4 - Use in cold weather
When outside temperature on ground is under 0°C 32°F and since starting is more difficult due to the poor vaporization of fuel, it is advisable, after starting, to help the engine running by making successive injections until it reaches 900 to 1000 RPM.
(see oil grade under 1.1.5).

6.5 - Operation on short runways

6.5.1 - Take-off
Set progressively to full RPM while the brakes are applied.
Extend the flaps at the beginning of take-off run.

As soon as the aircraft lifts off set VI=115 km/h-62kt-71MPH. Then retract the flaps progressively while reaching the climbing speed.

6.5.2 - Landing
Proceed to a flat approach with powered engine VI = 90km/h - 49kt - 56 MPH. flaps extended to 30° just before touch down, fully reduce the RPM and flare at maximum. Maintain nose wheel as high as possible.
Use the brakes only when nose wheel is on ground.

6.6 - Take-off after a forced landing
For taking off after landing in the country (see paragraph 3.5) only one pilot may be on board with a limited capacity of fuel.
With 1hr30min. of range the MS.880 B will have an approximative weight of 585 kg - 1290 lb -
Then the take-off procedure is :
- Set progressively to full RPM while brakes are applied.
- Extend full flaps after the beginning of the take-off run
- Take-off cleanly at VI = 73km/h - 45 MPH - 39 kt.
- Set VI = 77 km/h - 48 MPH - 42 kt - to retra flaps.
- Take the maximum gradient climb : VI=95/100 km/h - 59/62 MPH - 51/54 kt.

6.7 - Flight with open canopy

Normal flight is possible with the canopy open by 3,5 cm 1 in.approximately.

In case of emergency procedure or during special operations, the canopy can be opened more than 10 cm, but in this case it is secured by a single point at the upper rear part.

For an opening of 0.50 m - 20 in. never exceed 150 km/h - 81 kt - 93 MPH.

In no case should the speed exceed 130 km/h - 70 kt - 81 MPH when the canopy is open more than 0,50 m - 20 in.

NOTE : Never forget to lock the canopy even in open position.

SECTION 7

NIGHT VFR EQUIPMENT

This section includes only the descriptions, limitations, normal and emergency procedures in addition to those of the MS.880 B aircraft in its standard definition.

Sections 7.2 - 7.3 - 7.4 - 7.5
Pages 7.2.01 - 7.3.01 to 7.3.03 - 7.4.01 to 7.4.0
7.5.01 to 7.5.02
approved by "DIRECTION GENERALE DE L'AVIATION CIVILE" (D.G.A.C.)

Approval

Ce manuel est la traduction en langue anglaise du manuel de vol français approuvé

P.D.G. Robert
05.06.78

This document must be embodied in section 7 of the MS 880 B airplane flight manual

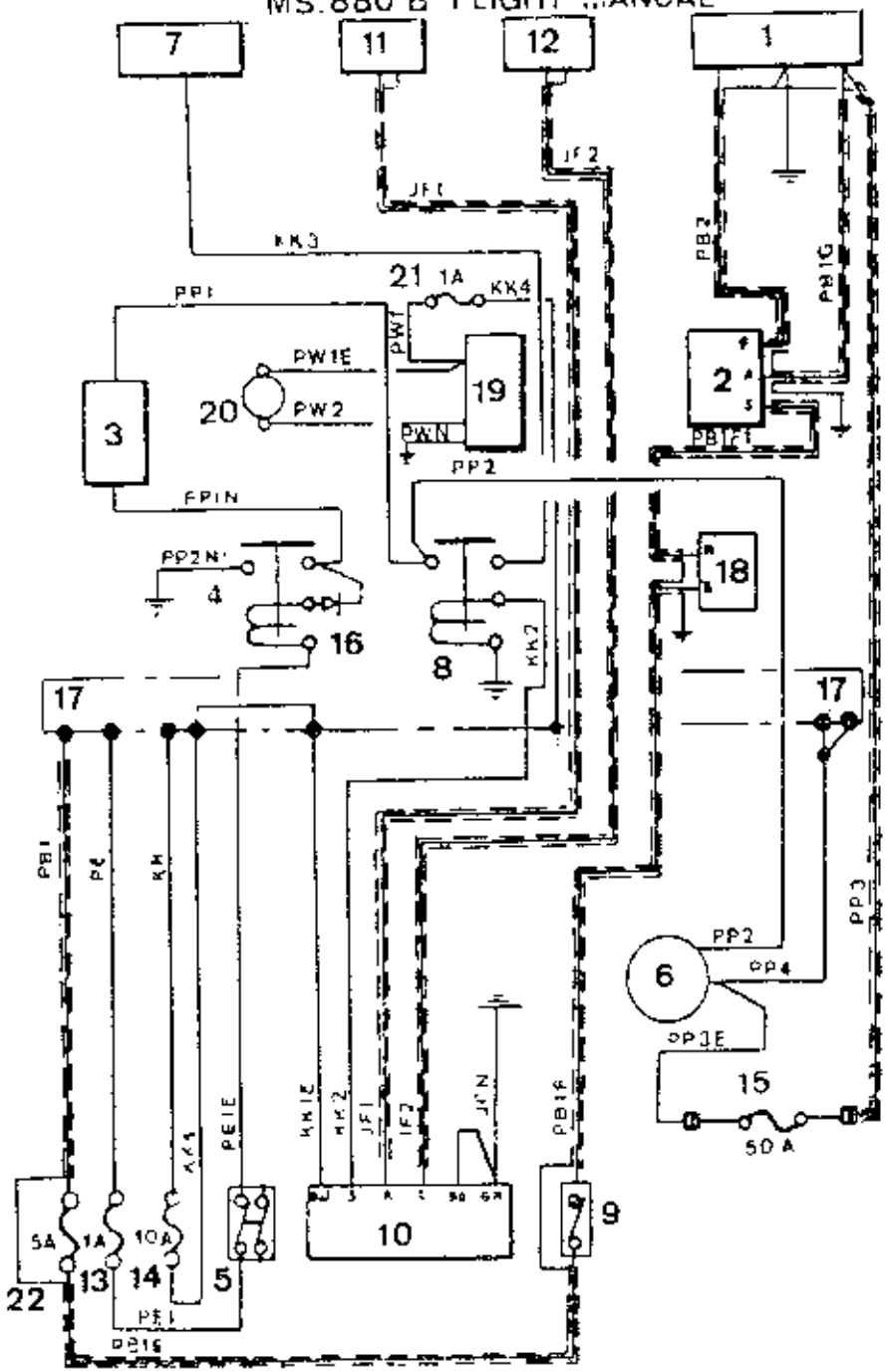
CONTENTS

7.1 - DESCRIPTION

7.1.1 - List of regular and mandatory equipment allowing the aircraft to be used in night flight

The column "installation" indicates whether the equipment is mounted in standard version or in night flight option.

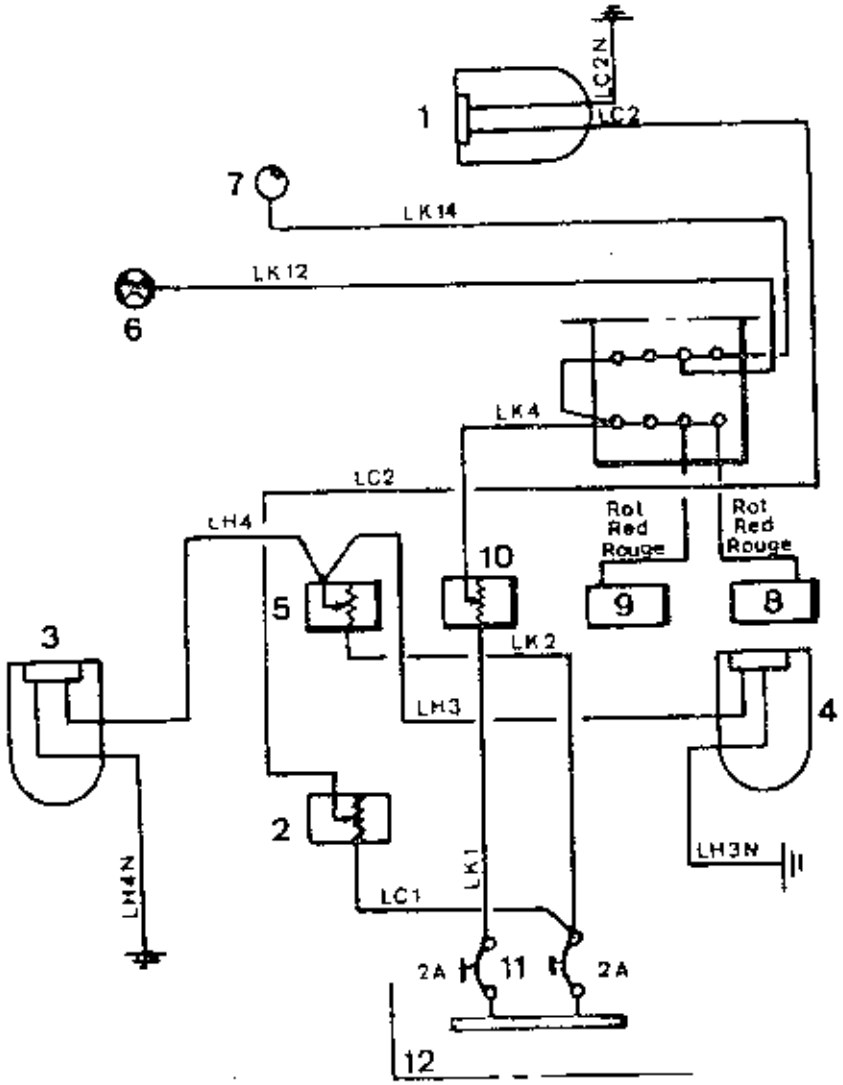
Equipment	Night Flight	Installation
RADIO-NAVIGATION		
VHF - category 2	yes	option
VOR/LOC - category 2	yes	option
Radio-compas - category 2	yes	option
NAVIGATION EQUIPMENT		
Artificial horizon(gyroscopic)	yes	option
Turn and bank indicator	yes	option
Gyroscopic directional indicator	yes	option
Operating indicator of gyroscopic apparatuses	yes	option
Rate of climb indicator	yes	std.
Anti-collision light	yes	opt.
Spare fuses	yes	opt.
Position lights	yes	opt.
Landing and taxiing lights	yes	opt.
Adjustable cabin lighting	yes	opt.
Flash light	Set of equipment	
Night V.F.R. plate	yes	opt.



7.1.2 - Generation, starting and ignition circuit

The 14 V - 60 Amp. current is supplied by an a.c. generator and rectifier unit.

1 - A.C. generator
2 - Voltage regulator
3 - Battery : 18 AH. 12 V.
4 - Battery relay
5 - Battery switch
6 - Ammeter
7 - Starter
8 - Starting relay
9 - "Generator field" control switch
10 - Magneto selector
11 - L.H. magneto
12 - R.H. magneto
13 - 1.A Battery relay fuse
14 - 10 A. Starter fuse
15 - 50 A. AC Generator fuse
16 - Diode
17- Junction box
18 - Overvoltage relay
19 - A.C. Generator flow voltage detector
20 - Generator warning light
21 - Fuse 1 A.
22 - 5 A. Energization fuse



7.1.3 - Lighting system

Instrument panel

1 - Upper floodlight
2 - Upper floodlight rheostat
3 - LH Floodlight
4 - RH Floodlight
5 - LH and RH floodlight rheostat
6 - Lighted compass
7 - Tachometer indicator lighting
8 - VHF lighting
9 - Radio-compass or VOR lighting
10 - Rheostat for items 6-7-8-9.
11 - 2 A. circuit breaker
12 - Terminal strip

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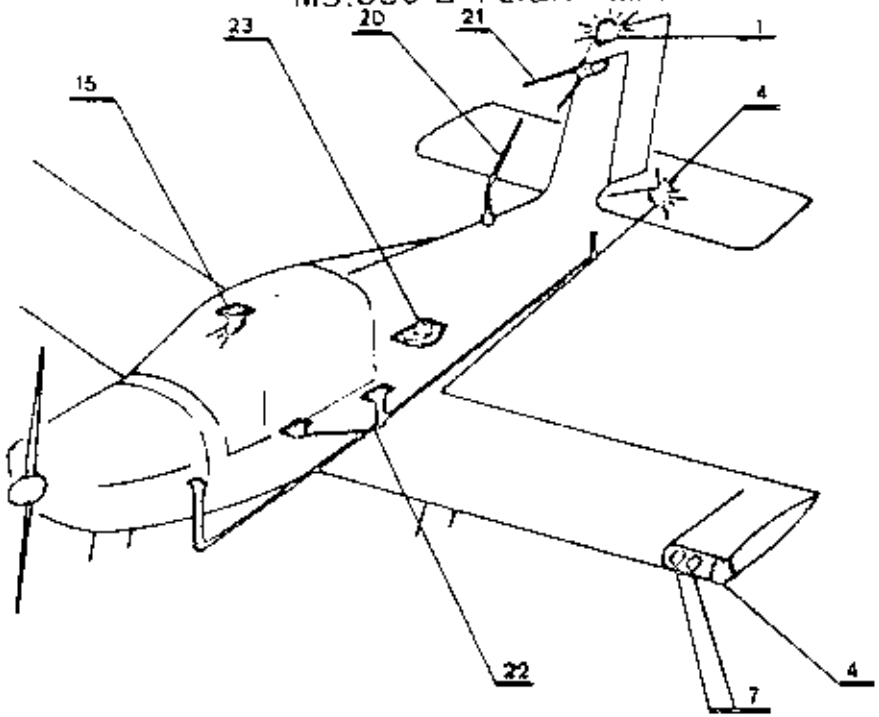
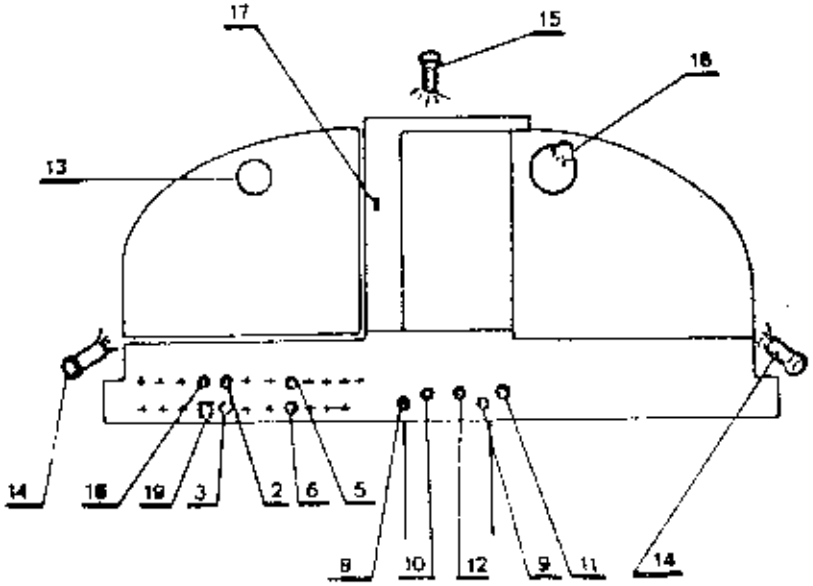


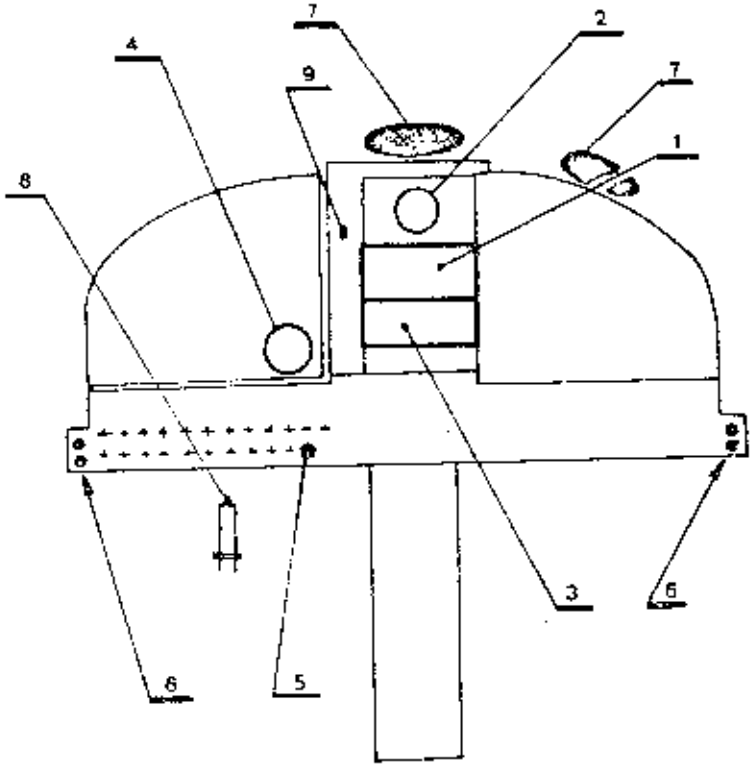


7.1.4 - Lighting devices

1 - Anti-collision light
2 - Anti-collision light fuse
3 - Anti-collision switch
4 - Navigation lights
5 - Navigation lights fuse
6 - Navigation lights switch
7 - Landing light and taxiing light
8 - Circuit breaker of LH, RH and upper floodlight.
9 - Circuit breaker of radio, instruments tachometer and compass lighting
10 - LH and RH floodlight lighting rheostat
11 - Rheostat of radio instruments tachometer and compass lighting
12 - Upper floodlight lighting rheostat
13 - Lighted compass
14 - Lighting floodlight
15 - Upper floodlight
16 - Tachometer lighting
17 - Day-night damper (landing and taxiing light)
18 - LH and RH landing light fuse
19 - LH and RH landing light switches

7.1.5 - Antenna

20 - VHF.1 antenna
21 - VOR or (item 22 and 23)
22 - Radio-compass-sense antenna
23 - Radio-compass-Loop antenna



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7.1.6 - Radio-navigation equipment on instrument panel

The central area of the instrument panel is provided to accomodate communication and navigation equipment the power supply of which is provided in standard installation on the terminal strip. The antenna feeders are initially installed.

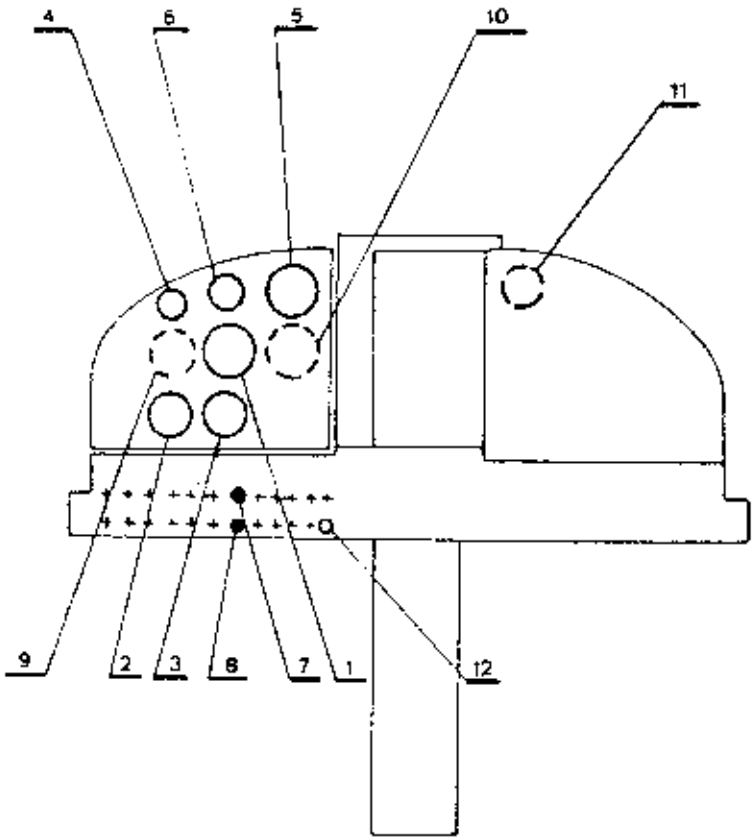
VHF installation includes the "noise suppression" installation optionally provided.

The installation comprises :

1 - Radio compass
2 - Radio-compass indicator
3 - VHF
4 - Receiver indicator VOR/LOC
5 - Radio-navigation fuse
6 - Microphones and headset jacks
7 - Londspeaker
8 - Push-to-talk switch
9 - Selector switch headset-loudspeaker

NOTA - The radio-compass reception on the londspeaker is obtained through V.H.F.

In night VFR equipment definition, one installs either the radio-compass and the indicator or the VOR/LOC.



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7.1.7 - Navigation equipment on the instrument panel

1 - Gyroscopic artificial horizon
2 - Turn and bank indicator
3 - Gyroscopic directional indicator
4 - Operating indicator of gyroscopic apparatuses
5 - Rate of climb indicator
6 - Compass
7 - Turn and bank indicator fuse
8 - Turn and bank indicator switch

NOTE - The following instruments represented in broken lines, do not belong to the definition list of night VFR. They are installed in production line on the aircraft in the position which is shown opposite.

9 - Airspeed indicator
10 - Altimeter
11 - Tachometer indicator

7.1.8 - Control equipment of alternator output voltage

12 - Generator warning light

7.2 - LIMITATIONS

The limitations of the aircraft equipped for night VFR flight are similar to those of the standard aircraft set forth in section 2 of this flight manual.

INSTRUCTION PLATE

This plate is secured on the central upper part of the instrument panel.

FLIGHT CONDITIONS : DAY AND NIGHT V.F.R.
Icing conditions : Not allowed

7.3 - EMERGENCY PROCEDURES

These procedures complete those of standard aircraft described in section 3.

7.3.1 - Normal lighting failure

Check engagement of normal lighting circuit-breakers.

7.3.2 - Landing light or taxi light failure

Although LH light is provides for taxiing and RH light for landing, it is essay to proceded with either light.

7.3.3 - Alternator failure

The alternator failure is indicated by the lighting up to the red warning light.
Intermittent lighting up of the warning light in the landing phase with reduced throttle is not a case of failure.

1-Check the charge indication of the ammeter :
If the discharge still remains, carry out operation "D".

2-Check and replace is necessary the alternator fuse, the energization fuse :
If one of the fuses blows out again (overvoltage) carry out operation "D".

3-The two above points being checked, switch off generator field supply by means of the excitation switch - Put again the swith in position "on". If the red warning light remains lighted up (possible failure of the voltage regulator) carry out operation "D".

-Operation "P"-
-Switch off generator field supply
-Remove the alternator fuse
-Switch off all electrical equipment which are not essential for proceeding with the flight
-From this moment till the landing and the engine stop the battery is able to operate within 30 minutes. However during this time it will be possible to use only following equipment :

-1 landing light
-3 cabin floodlights
-1 VHF
-1 VOR or radio compas
-Anti-collision light
-Navigation light
-Turn and bank indicator

7.3.4 - Battery failure

If the ammeter gives an abnormal indication :

Check the battery fuse. If it is blown, replace it.

-If the failure still remains :
-Disconnect the fuse
-Switch off the anti-collision light
-Switch off one after the other the electrical equipment which are not essential for proceeding with the flight.

Avoid brutal variations of engine rating.
At landing, light-up only one landing light.

7.3.5 -Total electrical failure

Check switches and fuses of battery and alternator.
-If the only battery fuse is blown :
.switch one after the other the electrical equipment which are not essential for proceeding with the flight.
.replace the battery fuse.

-If the fuses and the switchs are operating :
.remove the battery and alternator fuses
.switch off one after the other electrical equipment if it is necessary
.utilize the emergency flash light
.proceed to the landing.

7.3.6 - Electrical fire

-Set main switch off
-Disconnect battery and alternator fuses.

If there is no change for the better :

After checking of systems, it is possible to connect again the battery system alone or the battery and alternator systems. The alternator system can only be effective again if the battery system is engaged.

Therefore, it is important to switch-off the generator field excitation in the last extremity.

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7.4 - Normal procedures for night flight

These procedures complete those of the aircraft in standard equipment.

7.4.1 - First steps

Study the meteorology in order to avoid flying in dangerous conditions (minima, icing..
Make sure that the fuel level is adequate for complying with regulations.

7.4.2 - Before flight

May be undertaken or continued by night.

-Check the operation of the anti-collision light.
-Check the operation of the navigation light
-Of the lighting
-Check the operation of the landing and taxiing lights
-Check the operation of the day-night selector switch

An emergency electric flash-light must be present in the cabin.

7.4.3 - Taxiing

-Check the operation of gyroscopic instruments by making alternate turns.
-Horizon : set the miniature airplane figure horizontally
-Directional : correct rotation
-Turn and bank indicator : proper direction
During the night, preferably use only the LH landing light (Wide beam of rays).

7.4.4 - Before take-off

-Check instruments vacuum
-Test of V.H.F.
-Test of VOR/LOC or radio-compass
-By night and in moist weather, set the air conditioning to "full hot".

7.4.5 - Path course

Directional and horizon bar setting. By night, lighting-up of RH landing light.

NOTE -
Take-off by night may be carried out indifferently with RH light or with the two lights.

7.4.6 - Take-off

-Take-off cleanly at VI=95 km/h-59 MPH-51 kt
-Always maintain the rate of climb indicator positive.
-By night, switch off landing lights at the end of the runway.

7.4.7 - Climb and cruise

The performances of the aircraft equipped for night VFR are similar to those of the standard aircraft shown in the section 5 of this flight manual.

7.4.8 - Landing

By night, it is better to use the RH landing light (long range) or the two lights simultaneously.

Landing is easy with either light.

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7.5 - UTILIZATION OF EQUIPMENT

7.5.1 - Radio-transmission

The emission may be carried out either by "Flexible boom microphone" (push-to-talk switch on the control stick) or by hand microphone or by headset microphone.
Do not connect two headset microphones in parallele.

7.5.2 - Reception

The loudspeaker is the main equipment. The headset is considered as a stand-by equipment. A reversing switch allows the reception to be selected on the loudspeaker or on the headset microphone. On headset, all the receptions are simultaneous.

7.5.3 - VOR/LOC or ADF

The reception is carried out on VHF auxiliary input.

7.5.4 - Lighting

The integrated lighting (radio, tachometer, compass) is controlled by a cutting off rheostat.
The lighting of the two LH and RH floodlights is controlled by a cutting off rheostat
The lighting of the upper floodlight map reader is controlled by a cutting off rheostat.

7.5.5 - Landing and taxi-lights

The landing light are controlled by a switch including a warning light.

The L.H. light beam is wide and makes the taxiing easy.
The R.H. light has a long range and will be preferably used at take-off and landing.
The simultaneous utilization is possible in every case.

7.5.6 - Day-night damper

The luminous signal light intensity is set by means of the day-night damper.