

COMMODERE 892 A.150

# FLIGHT MANUAL

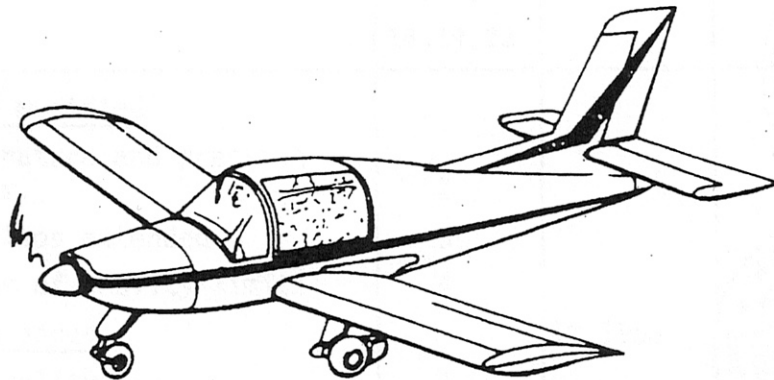
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COMMODORE 892 A.150  
FLIGHT MANUAL

TYPE CERTIFICAT : N° 22/1 Extension of 26/6/1964

AIRPLANE SERIAL N°

REGISTRATION :

This airplane must be operated in compliance with the limitations prescribed in Section I herein.

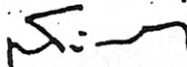






This Manual approved by Secrétariat Général à l'Aviation Civile (S.G.A.C.) must be kept in the Airplane at all times.



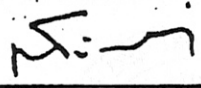
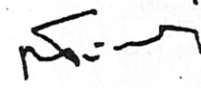



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**FLIGHT MANUAL**

LOG OF REVISION

Revision n°	Description	Sheets affected		VISA SGAC
		N°	Date	
1	First issue M.S. 892 - 150		July 1964	
2	Mac CAULEY propeller 1C172-MGM-7650 added	2,10,12 13,34,38 39,22	January 1965	
3	When and How to utilize Feed Pump	11,13,16 18,19,22	15.12.66	
4	<u>To be modified</u> Temperature and pression limits IAS flaps extended Center of gravity limits <u>To be added</u> Oil quality Fuel tank (consumption order) Locking of slats	2 3 4  1 15 22	12.1968	
4A	AUSTRALIAN Version	1.3.11.12. 13.14.15. 16.17.18. 19.20.21. 22.23.24. 27.28.29. 30.34.38. 39.		

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C O M M O D O R E 892 A-150  
F L I G H T M A N U A L

L O G O F R E V I S I O N

Revision n°	Description	Sheets affected		VISA SGAC
		N°	Date	
5	Modifies quantity usable fuel  - addect the reduced mass performances	c-d-1-1.1- 24-24.1- 27.1-29- 34-34.1- 15.1 23.1-23.2 23.3-23.4	3.69	
6	Indicate all values in english american and metrical measures	b.1 - 1 - 1.1 - 2 - 3 - 9 - 11-12-13 14-16-17 18-19-20 22-23-24 24.1-34- 34.1-38- 39	5.69	
7	Modify the flight conditions with open canopy	b1-22	10.1969	
8	Performances with SENSENICH propeller added	b.1 24.2 to 24.13	09.1970	
9	added Operating conditions 74 DM6 54 or 58 propeller	b.1 - C 3-4-5 34-34.1 38 -39	10.1970	
10	Miscellaneous revisions	b.1-1-1.1- 2.3-4-5-9-10 12-13-15- 15.1-16-17- 18-19-20- 21-22-23.1- 24-24.2- 24.3-24.4- 24.5-24.8- 24.9-24.10	03.1971	

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**COMMODORE 892 A.150**  
 FLIGHT MANUAL

LOG OF REVISIONS

Revision Nr	Description	Sheets affected		Visa DES TRANSPORTS MINISTÈRE DES TRANSPORTS Secrétariat Général à l'Aviation Civile
		Nr	Date	
11	Mod. Alternator use	b.1 - 9 18 - 34 - 34.1	9.1971	
12	Replace SENSENICH 74 DM6-58" Propeller by SENSENICH 74 DM6-56" Propeller	b.1 - 2 - 10 - 15 - 15.1-24.2- 24.3-24.4- 24.6- 34- 34.1- 38- 39	03.1972	
13	Added fuel capacity with sight gages and electrical gages	b.1 1	11.1972	
14	Utilization of the rear seat in three-seater accommoda- tion	b.1 c - 5	03.1975	

SOCATA  
**COMMODORE 892 A.150**  
**FLIGHT MANUAL**

SITUATION OF MANUAL

Page N°	Révision N°	Edition N°	Date	Page N°	Révision N°	Edition N°	Date
a	-	2	02.67	23.4	5	1	3.69
b.02	14	14	03.75	24	10	10	3.71
b.1	14	14	3.75	24.1	6	3	5.69
c	14	14	3.75	24.2	12	12	3.72
d	5	2	3.69	24.3	12	12	3.72
1	13	13	11.72	24.4	12	12	3.72
1.1	10	10	3.71	24.5	10	10	3.71
2	12	12	3.72	24.6	12	12	3.72
3	10	10	3.71	24.7	8	8	9.70
4	10	10	3.71	24.8	10	10	3.71
5	14	14	3.75	24.9	10	10	3.71
6	1	1	7.64	24.10	10	10	3.71
7	1	1	7.64	24.11	8	8	9.70
8	1	1	7.64	24.12	8	8	9.70
9	11	11	9.71	24.13	8	8	9.70
10	12	12	3.72	25	1	1	7.64
11	6	4	5.69	26	1	1	7.64
12	10	10	3.71	27	5	2	3.69
13	10	10	3.71	27.1	5	2	3.69
14	6	2	5.69	28	4A	1A	7.64
15	12	12	3.72	29	5	2	3.69
15.1	12	12	3.72	30	4A	1A	7.64
16	10	10	3.71	31	1	1	7.64
17	10	10	3.71	32	1	1	7.64
18	11	11	9.71	33	1	1	7.64
19	10	10	3.71	34	12	12	3.72
20	10	10	3.71	34.1	12	12	3.72
21	10	10	3.71	35	1	1	7.64
22	10	10	3.71	36	1	1	7.64
23	6	2	5.69	37	1	1	7.64
23.1	10	10	3.71	38	12	12	3.72
23.2	5	1	3.69	39	12	12	3.72
23.3	5	1	3.69				

SOGATA  
**COMMODORE 892 A.150**  
 FLIGHT MANUAL

TABLE OF CONTENTS

Sheet N°

<u>Section I</u>	<u>- Limitations</u> .....	1	
	A Engine limits .....	1	
	B Fuel .....	1	and 1.1
	C Propeller .....	2	
	D Power plant instruments .....	2	
	E Airspeed limits .....	3	
	F Operating conditions .....	3	
	G Manoeuvres .....	3	
	H Design structural load factor .....	4	
	I Maximum weight .....	4	
	J Center of gravity limits .....	4	
	K Loading limits .....	5	
	L Placards .....	5	
	M Glider towing .....	5	
	N Banner towing .....	5	
<u>Section II</u>	<u>- Normal procedures</u> .....	6	
	A Before starting the engine ..	9	
	B Engine starting .....	9	
	C Taxiing .....	10	
	D Engine ground test .....	10	
	E Before take-off .....	11	
	F Take-off .....	11	
	G Initial climb .....	12	
	H Climb .....	13	
	I Cruising .....	15	
	J Let down .....	16	
	K Before landing .....	16	
	L Approach .....	16	
	M Landing .....	17	
	N After landing .....	18	
	O Engine stop at parking .....	18	
	P Hot weather operation .....	18	
	Q Cold weather operation .....	18	
	R Stalls .....	19	
	S Wing leading edges slats operation .....	19	
	T Operation on rough field .....	21	



SOCATA  
COMMODORE 892.A.150  
FLIGHT MANUAL

	<u>sheet N°</u>
<u>Section III.</u> - <u>Emergency procedure</u> .....	22
A Generator failure .....	22
B Engine fire in flight .....	22
C Emergency landing. engine stopped .....	22
D Cross country landing engine operating .....	22
E Flight canopy opened .....	22
<u>Section IV.</u> - <u>Performances</u> .....	23
<u>Section V.</u> - <u>Weight and balance</u> .....	25
Actual weight .....	26
Useful load and moments .....	27 and 27.1
Sample loading calculation .....	31
Center of gravity table .....	32
Equipment list .....	34 and 34.1
<u>Section VI.</u> - <u>Glider towing</u> .....	38
<u>Section VII.</u> - <u>Banner towing</u> .....	39

SOGATA  
COMMODORE 892 A.150  
FLIGHT MANUAL

INTRODUCTION

This Flight Manual applies only to the particular aeroplane identified by registration marking and serial number on Page (1) and contains the airworthiness limitations and essential operating data for that aeroplane. For operating information not included in this Manual, reference should be made to the appropriate operations or manufacturer's manuals.

The Flight Manual shall be carried in the aeroplane on all flights. It is the responsibility of the pilot in command to be familiar with the contents of this Manual and to comply with all directions contained herein relating to the operation of the aeroplane.

Amendments will be issued by the Director-General as necessary and will take the form of replacement pages, with changes to the text indicated by a vertical line in the margin together with the amendment number. It is the owner's responsibility to incorporate in this Manual all such amendments, and to enter the date of incorporation and his signature on the appropriate Amendment Record Sheet.

The aeroplane has been certificated on the basis of the equipment fitted at the time of certification. Any changes in equipment are subject to approval by the Director-General.

No entries or endorsements may be to this Flight Manual except in the manner and by the persons authorized for the purpose by the Director-General

SOGATA  
COMMODORE 892.A.150  
FLIGHT MANUAL

DEFINITIONS

The following definitions shall apply throughout this Manual :

Airfield Pressure Height

The Airfield Pressure Height is that height registered at the surface of an aerodrome by an altimeter with the pressure sub-scale set to 1013.2 millibars.

I.A.S.

Indicated airspeed, which is the reading obtained from an airspeed indicator having no calibration error.

Take-off Safety Speed

The Take-off Safety Speed is a speed chosen to ensure that adequate control will exist under all conditions, including turbulence and sudden and complete engine failure, during the climb after take-off.

Approach Speed

The Approach Speed is a speed chosen to ensure that adequate control will exist under all conditions, including turbulence, to carry out a normal flare and touchdown.

Normal Operating Limit Speed (Maximum Structural Cruising Speed)

This speed shall not normally be exceeded. Operations above the Normal Operating Limit Speed shall be conducted with caution and only in smooth air.

Manoeuvring Speed.

Maximum for manoeuvres involving an approach to stall conditions or full applications of the primary flight controls.

SOCATA  
COMMODORE 892 A.150  
FLIGHT MANUAL

SECTION I  
LIMITATIONS

The following limitations must be observed in the operation of the airplane equipped with a LYCOMING O-320 E2A engine..

A - Engine limits

Take off and maximum continuous power 150 HP at 2700 rpm.

B - Fuel

1 - 80-87 minimum octane aviation gasoline

The 100-130 octane aviation gasoline may be normally used.

	Sight gage	Electrical gage
Total capacity	180 l - 39.6 Imp.gal.	184 l - 40.5 Imp.gal.
Usable capacity	178 l - 39.1 Imp.gal	170 L - 37.4 Imp.gal.

2 - Oil

Capacity max. 8 US quarts- 1,665 Imp. gal. - 7.6 liters.

Usable capacity : 6 US quarts - 1.25 Imp.gal - 5.7 liters.

SOCATA  
COMMODORE 892 A.150  
FLIGHT MANUAL

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The following limitations must be observed in the operation of the airplane equipped with a LYCOMING O-320 E2A engine.

A - Engine limits

Take-off and maximum continuous power 150 HP at 2700 rpm.

B - Fuel

1 - 80-87 minimum octane aviation gasoline

The 100-130 octane aviation gasoline may be normally used.

Total capacity : 235 liters - 62 US gal - 51,4 Imp gal.

Usable capacity : 220 liters - 58 US gal - 48,2 Imp gal.

2 - Oil

Capacity max. 8 US quarts - 1,665 Imp gal. - 7.6 liters.

Usable capacity : 6 US quarts - 1,25 Imp gal - 5.7 liters.

SOGATA  
COMMODORE 892 A.150  
FLIGHT MANUAL

C - Propeller

One Mac CAULEY, Metal, fixed pitch propeller,

Type 1C172-MGM-7652 or 7650 or SENSENICH : M74 DM-0-54 at 0-58  
(Old model designation) - OR 74 DM6 0-54 at 0-56 propeller (new model designation).

Diameter : maximum 76 inc. minimum allowable for repairs 74 in. for propeller MAC CAULEY  
Maximum 74 in minimum allowable for repairs 72 in to propeller SENSENICH  
(No further reduction permitted).

Static r.p.m. maximum throttle setting

2400 to 2500 rpm for propeller 0-54

2325 to 2425 rpm for propeller 0-56

2410 to 2510 rpm for propeller 7650

2360 to 2460 rpm for propeller 7652

D - Poxer plant Instruments

Oil temperature : green zone 40°C to 118°C Normal range 104 to 244°F  
red zone 118°C Maximum 244°F.

Oil pressure : green zone 4,2 - 6,3 bars Normal range 60 to 90 psi  
yellow zone 1,8 to 4,2 bars Caution range 26 to 60 psi  
red zone below 1,8 bar - 26 psi

Fuel pressure : green zone above 40 m bars 0,6 psi  
red zone below 40 m bars 0,6 psi.

Tachometer : red radial at 2700 rpm Maximum.

SOCATA  
**COMMODORE 892 A.150**  
 FLIGHT MANUAL

E. - Airspeed limits.

Utility category

	True indicated Airspeed			
	km/h	mph	knots	
Never exceed speed .....	290	180	156	red radial
Caution range .....	250-290	155-180	135-156	yellow arc
Normal operating range flaps up	100-250	62-155	54-135	green arc
Normal operating range flaps down	92-160	57-100	50- 86	white arc
Max. flap extension speed .....	160	100	86	
Manoeuvring speed .....	210	130	113	
Max structural cruising speed ..	250	155	135	
Max. speed rough air	240	149	130	

F. - Opérating conditions.

This airplane is approved for VFR and day flight

G. - Manoeuvres.

The following manoeuvres are authorized in Utility category with the next recommended entry airspeeds (IAS).

	km/h	mph	kts
Chandelles IAS .....	240	149	130
Lazy eights IAS .....	220	137	119
Steep turn IAS .....	175	109	94
Stalls .....			

Intentional spins and inverted flight are prohibited.





SOCATA  
COMMODORE 892 A.150

FLIGHT MANUAL

K - Loading limits

Maximum number of occupants

-Forward station ..... 2

-Rear station ..... 2

Maximum load in luggage compartment : 45 kg - 100 lb.

It is however allowed to carry a third passenger on the rear seat, on condition that :

-the weight of each does not exceed 60 kg (132 lb)

-the aircraft is modified in compliance with SOCATA-SERVICE n° 117

NOTA :

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

L - Placards

- On instrument panel

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

"ACROBATIC MANEUVERS ARE LIMITED TO THE FOLLOWING".

<u>MANEUVERS</u>	<u>MAX ENTRY SPEED</u>
- CHANDELLES	149 MPM - 130 kt
- LAZY EIGHTS	137 MPM - 119 kt
- STEEP TURNS	109 MPM - 94 kt
- STALL (EXCEPT WHIP)	Slow deceleration
- SPINS ARE PROHIBITED	

- Push-pull controls on left subpanel

"CARBURETOR HEATING, PULL TO HEAT" (Alternate air furnishes warmed air to carburetor).

"MIXTURE - PULL TO LEAN" - Use the mixture control at any altitude in cruising.

Caution : if full pulled this control stops the engine.

- Baggages box

"MAX. LOAD : 100 lb (45 kg) limited to 45 lb. (15 kg) if rear seats occupied.

- On instrument panel

- "NO SMOKING" if the airplane is not equipped with a cabin fire extinguisher.

- "PULL STOR and PUSH" to close cabin air ventilation if engine fire appears.

- Additional instruction plate in case of utilization of the rear seat in three-seater accommodation

"3 passengers on the rear seat :

Maxi weight of each 60 kg (132 lb)"

M - Glider towing

See instructions Section VI

N - Banner towing

This operation is conducted under rules of civil Air Regulation Part 8 - See instructions Section VII.

SOCATA  
COMMODORE 892 A.150  
FLIGHT MANUAL

SECTION II  
NORMAL PROCEDURES

BEFORE ENTERING THE AIRPLANE :

Perform an EXTERIOR INSPECTION of the airplane

I. - CABIN

- 1. - Canopy opened
- 2. - Battery master switch ..... off
- 3. - Ignition switches ..... off
- 4. - Fuel quantity indicator ..... check
- 5. - Flight controls travel ..... full  
no abnormal noise.

II. - REAR FUSELAGE (right side)

- Right static pressure orifice ..... clean

III. - TAIL PLANE.

- Stabilizer and fin ..... check
- Elevator and rudder ..... ( travel free  
( hinges  
( controls attachment

IV. - REAR FUSELAGE (left side)

- Left static pressure orifice ..... clean

V. - LEFT WING.

- Flaps ..... ( rails clean  
( rollers checked
- Aileron ..... ( travel free  
( hinges  
( control attachment
- Pilot head ..... clean
- Fuel tank filter cap and door ..... on and secured
- Leading edge slats ..... ( internal face clean  
( rollers and  
( supports checked

SOCATA  
COMMODORE 892 A.150  
FLIGHT MANUAL

Left main landing gear ..... (tire pressure : 26 psi  
( 1.8 bar  
( shock absorber : checked  
( for proper inflation

VI. - FRONT FUSELAGE.

Engine oil level ..... Check  
Engine cowlings ..... Closed and secured  
Propeller ..... Clean - check for nicks  
Propeller spinner ..... ( screws on  
( check for cracks  
Exhaust pipes ..... fixed  
Carburetor air intake and filter ..... free and clean  
Nose landing gear ..... ( tire pressure : 20 psi  
( 1.4 bar  
( shock absorber : checked  
( for proper inflation

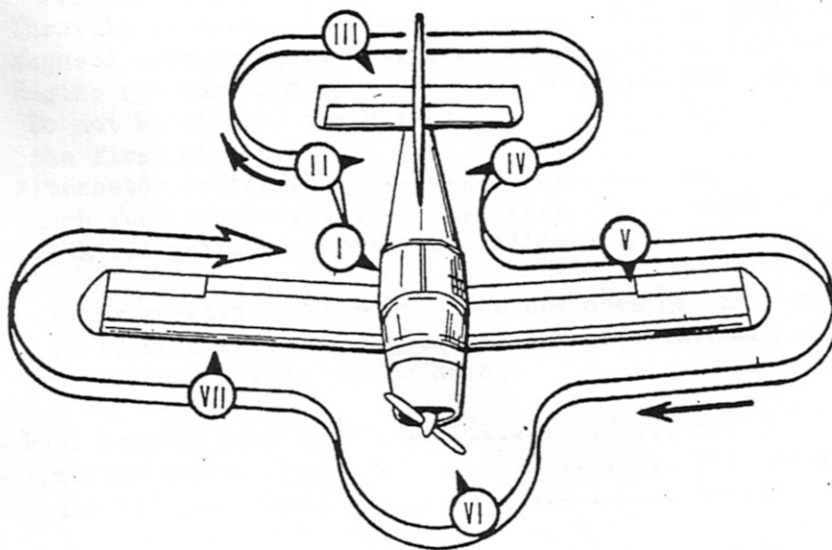
VII. - RIGHT WING.

Right main landing gear ..... (tire pressure : 26 psi  
( 1.8 bar  
( shock absorber : checked  
( for proper inflation  
Leading edge slats ..... ( internal face : clean  
( rollers and supports :  
( checked  
Fuel tank filler cap and door ..... on and secured

SOCATA  
COMMODORE 892 A.150  
FLIGHT MANUAL

Aileron ..... (travel free  
(hinges  
(control attachment

Flap ..... (rails clean  
(rollers checked



SOCATA  
COMMODORE 892 A.150  
FLIGHT MANUAL

A - BEFORE STARTING THE ENGINE

- 1 - Parking brakes ..... applied on
- 2 - Seat belts ..... fasten
- 3 - Fuel ..... check for intended autonomy
- 4 - Battery master switch ..... push off
- 5 - Alternator switch ..... off
- 6 - Magneto selector ..... off
- 7 - Carburetor heating control, set to ..... full in (cold)
- 8 - Mixture control. set to ..... full rich (full in)
- 9 - Elevator trim tab ..... neutral
- 10 - Flap check ..... down and up

B - ENGINE STARTING

- 1 - Battery master switch ..... pull on
- 2 - Electrical fuel booster pump ..... on  
Check fuel pressure rise
- 3 - Use some engine priming by  
throttle strokes ..... 2 or 3  
(if cold weather only).
- 4 - Throttle ..... slightly opened
- 5 - Magneto selector ..... on starter
- 6 - Engine rpm for warm-up ..... 800 then 1200 rpm.  
Do not exceed 800 rpm during  
the first minute.
- 7 - Alternator switch ..... on
- 8 - Check fuel pressure ..... above 40 m.bars - 0,6 psi
- 9 - Check oil pressure : pressure indicator ... 4-6 bars - 58-88 psi

CAUTION - After starting if the oil pressure does not increase within 30 seconds stop the engine and investigate. Lack of oil pressure may cause serious engine damage.

- 10 - Fuel booster pump ..... off
- 11 - Ignition switch check ..... off and on (1 + 2)
- 12 - Radio (if installed) ..... test.

Note : It is recommended not to warm up the engine more than 4 minutes.

SOCATA  
COMMODORE 892 A.150  
FLIGHT MANUAL

C - TAXIING

- 1 - Canopy closed or slightly slided .... locked
- 2 - Parking brakes ..... released
- 3 - Elevator control ..... pull rearward

- Taxi slowly using the flight controls, using brakes to turn the nose wheel. Use brakes with small and short pressure instead of by a long actuation which will slow the airplane.
- Maintain the elevator control rearward during taxi to remove load on the nose wheel.
- If the nose wheel falls in a undulations, avoid to apply brakes in the same time.
- For taxiing a good rule of thumb is :  
"USE MINIMUM SPEED, POWER, and BRAKES".

D - ENGINE GROUND TEST

To avoid propeller tip abrasion, do not run up the engine on loose cinders of gravel.

- 1 - Brakes ..... applied on
- 2 - Elevator control ..... rearward
- 3 - Oil temperature ..... 30°C minimum
- 4 - Carburetor heating control ..... full in (cold)
- 5 - Apply full throttle  
(only if engine was not operated since a long time)
- 6 - Check engine rpm. with 7652" propeller pitch 2360 to 2460 rpm  
" 7650" " " 2410 to 2510 rpm  
0-54 " " 2400 to 2500 rpm  
0-56 " " 2325 to 2425 rpm
- 7 - Reduce throttle for .....1800 rpm
- 8 - Engine magnetos check ..... 1 then 1 + 2  
2 then 1 + 2  
maximum allowable rpm. drop  
on either magneto is 125 Rpm.
- 9 - Check carburetor heating ..... pull on (warm)  
mean rpm. drop observed ..... 100 rpm.

SOGATA  
**COMMODORE 892 A.150**  
 FLIGHT MANUAL

**E. - BEFORE TAKE OFF.**

- |   |                            |
|---|----------------------------|
| 1. - Landing gear : brakes .....        | released                   |
| 2. - Magneto ignition switch .....      | on 1 + 2                   |
| 3. - Carburetor heating ... ..          | full in (cold)             |
| 4. - Mixture .....                      | full in (full rich)        |
| 5. - Flight controls .....              | free                       |
| 6. - Propeller .....                    | OK.                        |
| 7. - Oil : pressure .....               | 4 to 6 bars - 58 to 88 psi |
| temperature .....                       | mini. 30° C - 86° F        |
| 8. - Fuel tank : cock .....             | open                       |
| quantity .....                          | checked                    |
| take off with less than 5 gallons       |                            |
| is not recommended                      |                            |
| fuel pressure                           | above 40 m. bars - 0,6 psi |
| (boosters pump off)                     |                            |
| 9. - Flaps : usually .....              | up                         |
| on small fields .....                   | first notch                |
| 10. - Canopy .....                      | closed & locked            |
| 11. - Electricity : master .....        | on                         |
| 12. - Altimeter .....                   | set                        |
| 13. - Elevator trim tab .....           | set slightly               |
|   | nose up                    |
| 14. - Seat belts (pilot and passengers) | fasten                     |

**F. - TAKE-OFF**

**NORMAL TAKE-OFF**

- |  |                     |
|--|---------------------|
| 1. - Airplane straight on runway                 |                     |
| 2. - Nose wheel .....                            | straight on         |
| (run some feet)                                  |                     |
| 3. - Elevator control .....                      | maintained slightly |
|  | rearward            |
| 4. - Electrical pump .....                       | connected on        |
| 5. - Advance throttle slowly to full throttle    |                     |
| 6. - Avoid dragging brakes during ground run     |                     |
| 7. - Between IAS - 27 and 38 Kts. ...            | apply some back     |
| <sup>31 and 44 MPH - 50 and 70 km/h</sup>        |                     |
| pressure on elevator control to raise nose wheel |                     |
| 8. - IAS - 54 Kts. - 62 MPH - 100 km/h. .        | take off            |
| 9. - After take off .....                        | apply brakes        |





SOCATA  
 COMMODORE 892 A.150  
 FLIGHT MANUAL

H - CLIMB

It is possible to use two different climb schedules (flaps retracted).

1 - Climb, slats opened

Best rate of climb slats opened at

IAS = 70 kts - 81 MPH 130 km/h
-----------------------------------

The best angle of climb speed is

IAS = 62-65 kts - 71-75 MPH 115-120 km/h
---

Continuous climb, slats open under high climb ratio, the engine cooling is less effective.

2 - Climb, slats closed

- The best rate of climb speed is slats closed

IAS = 80 kts - 93 MPH 150 km/h
-----------------------------------

- Close slats, levelling off momentarily to accelerate up to the complete closing of slats, about 83 kts - 96 MPH - 155 km/h.

- Reduce throttle to avoid rpm. over 2700

- Set airplane attitude for

IAS = 80-83 kts 93-96 MPH-150-155 km/h
---

slats closed

with full throttle, at 2500 rpm for 7652 and 0-58 propeller

2550 rpm      7650      "

2600 rpm      0-54      "

This climb schedule is recommended in normal operation for a better engine cooling.

See rate of climb table on sheet 23.

3 - Time to climb at gross weight (2160 lb - 980 kg) from sea level

1650 ft.	2.55 min.
3300 ft.	6.35 min.
5000 ft.	11.20 min.
6600 ft.	17.50 min.
9900 ft.	39.55 min.

4 - Ceiling. to climb up to ceiling lean mixture over 8000 ft.

absolute	ft.	10800
service	ft.	9200

SOCATA  
**COMMODORE 892 A.150**  
 FLIGHT MANUAL

5. - Best rate of climb speed versus weight - flaps up For each weight IAS are given as follows kts in first column MPH in second column

Weight lb.		1550	1770	1990	2160
Vy	FO	62 71	66 76	69 79	72 83
	FF	67 77	72 83	77 88	81 93

IAS in Km/h

Weight kg.		700	800	900	980
Vy	FO	115	122	128	134
	FF	124	133	142	150

6. - Best angle speed versus weight - flaps up - For each weight IAS are given as follows kts in first column MPH in second column

Weight lb.		1550	1770	1990	2610
Vx	FO	52 60	56 64	60 69	63 73
	FF	63 73	67 77	71 82	74 86

IAS in km/h

Weight kg.		700	800	900	980
Vx in km/h	FO	96	103	111	117
	FF	117	124	132	138

NOTE : FO - Slats opened  
 FF : Slats closed

SOGATA  
COMMODORE 892 A.150  
FLIGHT MANUAL

I - CRUISING

- 1 - See sheet 24 the performance table in level flight with the corresponding range and autonomy at various altitudes.
- 2 - Recommended cruising rpm. is :  
under 1500 ft : 2500 rpm for 7652 or 0-54 propeller - 2400 rpm for 0-56 propeller.  
above 3000 ft : 2600 rpm for 7652 or 0-54 propeller - 2500 rpm for 0-56 propeller.
- 3 - This cruising engine rpm. may be use continuously, because the corresponding manifold pressure and power percentage are low.
- 4 - It is recommended to use mixture control at all altitudes is cruising. Then the fuel consumption may be considerably reduced. The normal carburetor mixture being very rich.

To obtain the better mixture adjustment.

- stabilise airplane speed and engine rpm.
- pull slowly the mixture control to lean up to obtain the max rpm.
- avoid to lean excessively because some engine troubles may appear.

Caution - The mixture adjustment must be done every time.

if engine rpm. change exceeds 100 rpm.

if airplane altitude change exceeds 500 ft.

if some carburetor heat must be used.

5 - Carburetor icing

In case of carburetor icing conditions in cruising flight (rpm. drop, manifold pressure increase) pull on full heat the carburetor heating control for some minutes to release the ice. Then pull off slightly the control to obtain the better operation.

When you pull on carburetor heating the engine rpm. drop is normally 100-150 rpm. and the fuel consumption increase noticeably (0.8 - 1.3 US gallon/hour 0.6 - 1.1 Imp gallons/hour - 3 - 5 litres/heure)

Caution - It is very important to pull on full heating the carburetor heating control before closing throttle, the throttle closed position being very favourable for icing conditions.

- 6 - Fuel tank -(consumption order) capacity 170 L.- 45 US Gal -37,4 Imp Gal

Consume the fuel of the first tank until 1/4. Pass on the second tank and consume until 0 is indicated, then com back on the first tank (an indication of a quarter on fuel gauge represents US gal.5,5. Imp Gal. 4,6 - allowing about 25 mn. of flight).

SOCATA  
COMMODORE 892 A.150  
FLIGHT MANUAL

I - CRUISING

- 1 - See sheet 24 the performance table in level flight with the corresponding range and autonomy at various altitudes.
- 2 - Recommended cruising rpm. is :  
under 1500 ft : 2500 rpm for 7652 or 0-54 propeller -  
                  2400 rpm for 0-56 propeller.  
above 3000 ft : 2600 rpm for 7652 or 0-54 propeller -  
                  2500 rpm for 0-56 propeller.
- 3 - This cruising engine rpm. may be use continuously. Because the corresponding manifold pressure and power percentage are low.
- 4 - It is recommended to use mixture control at all altitudes is cruising. Then the fuel consumption may be considerably reduced. The normal carburetor mixture being very rich.

To obtain the better mixture adjustment.

- stabilise airplane speed and engine rpm.
- pull slowly the mixture control to lean up to obtain the max. rpm
- avoid to lean excessively because some engine troubles may appears.

Caution - The mixture adjustment must be done every rime  
if engine rpm. change exceeds 100 rpm  
if airplane altitude change exceeds 500 ft  
if some carburetor heat must be used.

5 - Carburetor icing

In case of carburetor icing conditions in cruising flight (rpm.drop. manifold pressure increase) pull on full heat the carburetor heating control for some minutes to release the ice. then pull off slightly the control to obtain the better operation.

When you pull on carburetor heating the engine rpm. drop is normally 100-150 rpm. and the fuel consumption increase noticeably (0,6 - 1,1 Imp.gallons/hour - 3-5 litres/heure).

Caution - It is very important to pull on full heating the carburetor heating control before closing throttle the throttle closed position being very favourable for icing conditions.

6 - Fuel tank (consumption order) Capacity 220 L.-58 US gal-48,4 Imp.gal

Consume the fuel of the first tank until 1/4. Pass on the second tank and consume until 0 is indicated, then come back on the first tank, (an indication of a quarter on fuel gauge represents US gal. 7,2 - Imp. Gal 6 - allowing about 38 mn. of flight).

SOGATA  
COMMODORE 892 A.150  
FLIGHT MANUAL

J - LET DOWN

- 1 - Set carburator heating ..... pull on if necessary
- 2 - Set mixture control to ..... full rich (full in)
- 3 - Electrical Pump ..... on
- 4 - Engine rpm ..... throttle closed  
or preferably 1700 - 1800 rpm  
to avoid rapid engine cooling.

Adjust engine rpm to obtain desired let down rate at cruising speed.

K - BEFORE LANDING

- 1 - Check again mixture control ..... full rich (full in)
- 2 - Apply carburetor heating before closing throttle
- 3 - Engine ..... 1500 rpm
- 4 - Reduce speed at ..... 75 mph - 64 kt - 120 km/h  
maintaining airplane altitude.
- 5 - Lower flaps as required.
- 6 - Trim airplane with elevator trim tab for glide.

NOTE - The slats will open only during the final landing at about  
IAS - 55 mph - 48 kt - 90 km/h

L - APPROACH

- 1 - Throttle ..... closed 800 - 900 rpm.
- 2 - Glide at IAS = 75 mph 64 kt. 120 km/h slats opened - flaps down 30°  
IAS = 78 mph 67 kt. 125 km/h slats opened - flaps up 0°  
IAS = 81 mph 70 kt. 130 km/h slats closed - flaps down 30°  
IAS = 84 mph 73 kt. 135 km/h slats closed - flaps up 0°
- 3 - Trim tab ..... as required

S O C A T A  
COMMODORE 892 A.150  
FLIGHT MANUAL

M - LANDING

NORMAL LANDING

- 1 - Landing technique is conventional.
- 2 - Maintain elevator control full rearward during ground run. The nose wheel falls depending on C.G. location between  
IAS = 47 and 34 mph      41 and 30 kts      75 and 55 km/h.
- 3 - Apply brakes ..... as required.

GO AROUND

- 1 - Apply full throttle
- 2 - DO NOT FORGET TO PUSH carburetor heating : full in (cold)
- 3 - Retract flaps slowly and maintain IAS = 78 mph - 68 kts - 125 km/h

LANDING IN STRONG CROSS-WIND

Maximum demonstrated cross-wind 90 component :

20 knots (36 km/h)

- 1 - Use minimum flaps setting for field length.
- 2 - Use low wing, crab, or combination method of drift correction
- 3 - Landing straighten airplane on before touch down.

PRECAUTIONARY LANDING

- 1 - Use low rate of descent approach with  
IAS = 65 mph - 57 kts - 105 km/h and 1900 rpm  
to obtain approximately a 200 ft/min. rate of descent.
- 2 - Check the airplane when it is very close to the ground and reduce throttle to land exactly on the intended point.

SOGATA  
COMMODORE 892 A.150  
FLIGHT MANUAL

N - AFTER LANDING

- 1 - Raise flaps ..... up
- 2 - Elevator trim tab ..... neutral
- 3 - Carburetor heating ..... push in (cold)

O - ENGINE STOP AT PARKING

- 1 - Parking brakes ..... on
- 2 - Magneto ignition check ..... off then 1 + 2
- 3 - Electrical booster pump ..... switched off
- 4 - Let engine idle for some time ..... 800 - 900 rpm
- 5 - Throttle ..... closed
- 6 - Stop engine pulling the mixture control to full lean position
- 7 - Alternator switch ..... off
- 8 - After the engine stops turn off ignition switches
- 9 - Radio ..... off
- 10 - Battery master switch ..... push off
- 11 - Fuel tank cock ..... closed
- 12 - Mixture control ..... full in (full rich)
- 13 - Canopy ..... opened

P - HOT WEATHER OPERATION

If ambient air temperature is high (over 86°F - 30°C)

- 1 - Pay special attention to oil temperature (max. 225°F - 108°C) and climb with the faster climb schedule, slats closed  
IAS = 93 MPH - 80 kts - 150 kts.
- 2 - Do not use carburetor heating when not necessary especially during taxi.

Caution - The max. oil temperature is 244°F - 118°C with SAE 40 or 50.

Q - COLD WEATHER OPERATION

Take account of the rules for cold weather operation.

- 1 - Pull the propeller through several times by hand to break the oil seal, thus conserving battery energy.
- 2 - Prime the engine with the throttle, five to ten strokes, when the engine is being turned over by hand.
- 3 - Switch magneto-selector on starter position.

SOGATA  
COMMODORE 892 A.150  
FLIGHT MANUAL

- 4 - Warm up progressively with carburetor heating on.
- 5 - Avoid excessive manual leaning in cruising flight and use minimum carburetor heat required for smooth operation.

NOTE : Install the obstruction plate in front of the oil cooler air intake if ground temperature is lower than 32°F - 0° C.

When taxiing on icy runways use the aileron control to ease the ground turns.

- for tail wind operation, rudder and aileron controls must be coordinated
- for nose wind operation, rudder and aileron controls must be cross positioned.

CAUTION : use SAE 30 when O.A.T. lower than 32°F - 0°C - Max oil temperature : 108°C - 225°F  
use SAE 20 when O.A.T. lower than 10°F - 12°C -  
Max oil temperature : 99°C - 210°F.

R - STALLS

The stall are very safe with a small or null longitudinal pitch down movement. The airplane is perfectly controllable during the whole of the manoeuver, but the pull stick force is some what high.

- . . Avoid too long descents, throttle closed, stick full rearward in stall configuration to not fatigue the structure. See stall speeds on sheet 20.

S - WING LEADING EDGES SLATS OPERATION

The automatic leading edge slats give a good stall approach warning with an additional lift providing an exceptionally high wing maximum lift.

These slats open 19 MPH - 16kts - 30 km/h before the stall in straight flight. They are connected right and left and damped with special air dampers which avoid any strong displacement in rough air.



SOGATA  
**COMMODORE 892 A.150**  
 FLIGHT MANUAL

Normal IAS slats operation in straight flight, zero bank  
 at 2160 lb. (980 kg) gross weight. IAS in kts in first column, in  
 MPH in second column - in km/h in third column.

Flaps position	Opening course						Closing course					
	Start			End			Start			End		
Up 0°	68	78	126	62	71	115	77	88	142	87	100	162
Down 30°	63	72	116	58	67	108	64	73	118	70	81	130

The above IAS are listed for information purpose only and  
 may change + 3,1 mph  
 - 2,7 kts - 5 km/h. They are influenced by airplane weight  
 and power.

VERY IMPORTANT

In accelerated flight (turn or pull out) the slats open always  
 at the same wing angle of attack as in straight flight, but at higher  
 indicated airspeeds.

For example

If in straight flight the slats open at 65 kts. In accelerated  
 flight with a load factor of 2 (60° bank turn) the slats will open  
 at IAS =  $65 \sqrt{2} = 92$  kts - 105 MPH - 170 Km/h

warning the pilot that in the last flight condition, the airplane is  
 at the same distance of stall with 92 kts IAS than is straight flight  
 with 65 kts IAS.

Flaps up at weight 2160 lb. (980 kg)

Airplane bank degrees		0	20°	40°	60°
Load factor		1	1.06	1.3	2
Stall speed	Kts	52	54	60	74
	mph	61	64	71	87
	Km/h	97	101	112	137
Slats mean operation speed	Kts	60	62	69	85
	mph	71	73	80	100
	Km/h	112	116	128	158

SOGATA  
COMMODORE 892 A.150  
FLIGHT MANUAL

T. - OPERATION ON ROUGH FIELD.

- 1.- Lift the nose wheel with elevator control maintained full rearward, during taxi run.
- 2.- Taxi over loose gravel or cinders must be done at very low engine speed to avoid abrasion and stone damage to the propeller tips.
- 3.- When take off must be made over a gravel surface it is very important that the throttle be advanced slowly. This allows the airplane to start rolling before high rpm. is developed and the gravel will be blown back by the propeller rather than pulled into it
- 4.- When unavioded small dents appear in the propeller blades, they should be immediatly corrected.
- 5.- On dusty airfield, avoid taxying with carburetor heating on because in this conditions the alternate carburetor provide unfiltered air to engine.

U. - OIL RECOMMENDED VISCOSITY

Outside temperature

above 60°F (+ 15°C)	SAE 50
30 to 90°F (0 to + 32°C)	SAE 40
0 to 70°F (+ 15 to + 21°C)	SAE 30
below 10°F (- 12°C)	SAE 20

SOCATA  
COMMODORE 892 A.150  
FLIGHT MANUAL

SECTION III  
EMERGENCY PROCEDURE

A. - Generator failure

In case of generator failure or excessive ammeter current switch off the generator switch. The normal load is around 5 amp. in continuous operation but depend on electrical loading of the installation.

B. - Engine fire in flight

1 - Turn off fuel cock, and if necessary, cut off electrical pump

2 - Apply full throttle

3 - After engine is stopped switch off magneto ignition

4 - Switch off master battery switch  
generalto switch  
radio.

5 - Pull up the movable stop on the air conditioning control button and push to shut of the ventilation cock.

C - Emergency landing, engine stopped, before landing

1 - Switch off all electrical switches after engine stop

2 - Turn off fuel cock.

The best airplane fineness ratio speed is : 140 km/h - 76 kt - 87 MPH.  
IAS Slats closed. The airplane flies about 13 times its actual altitude (flaps up and slats closed).

D - Emergency landing engine operating

Examine the intended landing field during some low altitude runs (IAS = 120 km/h - 64 kt - 75 MPH, 1800 rpm. flaps up) and comply a caution approach as listed sheet 20.

E - Flight canopy opened

1 - Its is normally possible to fly with the canopy slided opened 3,75 inches about.

2 - In emergency or for special services it is possible to fly with canopy half opened , but the canopy is then maintained by one point only at is rear side. Do not exceed 180 km/h 97 kt - 112 MPH for an opening up to 0,50 m - 20". Do not in anycase exceed 150 km/h - 81 kt - 93 MPH with an open canopy of more than 0,50 m - 20".

Caution - 1. - Do not forget to lock the canopy when opened.

F - Self locking aff leading edge slats

In case of slats' self locking in "slats closed" position do not fly below 135 km/h - 73 kts - 84 MPH IAS.

Carry out a precautionary landing with caution approach at :

135 km/h - 73 kts - 84 MPH IAS      Flaps up

130 km/h - 70 kts - 81 MPH IAS      Flaps fully extended.

# SOGATA COMMODORE 892 A.150 FLIGHT MANUAL

## SECTION IV

### P E R F O R M A N C E S

The next performances are give for 2160 lb. gross weight on horizontal paved runway, no wind with  
1 C 172 MGM 7652 propeller,

	° C		+ 5	+ 15	+ 25	+ 35	+ 45
	Zp feet						
<b>Take-off distance (ft)</b>  Distance required to take off and climb 50 feet flaps up, full throttle, 2500 rpm. Take off speed : 54 kts - 62 MPH - 100 km/h Speed at 50 feet : 65 kts - 75 MPH - 120 km/h	0	950	1115	1200	1275	1360	1450
	1640	1115	1300	1375	1455	1555	1620
	3280	1275	1475	1555	1640	1715	1815
	4920	1475	1675	1755	1835	1915	2020
	6560	1675	1875	1955	2015	2130	2230
<b>Landing distance (ft)</b>  Distance required to land over 50 feet obstacle and stop. Flaps full down Approach at : 65 kts - 75 MPH - 120 km/h	0	770	835	870	900	935	965
	1640	855	920	950	985	1015	1050
	3280	935	1000	1030	1065	1100	1130
	4920	1015	1080	1115	1150	1180	1215
	6560	1100	1165	1200	1230	1265	1300
<b>Normal rate of climb (ft./min)</b>  Full throttle, flaps up (TIAS) Best rate of climb speed 81 kts. 93 MPH at sea level 2500 rpm. 150 km/h	0	748	670	630	590	551	512
	1640	610	541	512	472	443	413
	3280	511	453	413	374	344	315
	4920	394	344	315	285	256	236
	6560	276	236	216	197	177	157
	8200	167	148	128	108	100	88
	9840	40					

### Stalling speeds - Power off IAS

	Angle of bank					
	0°	20°	40°	60°	0°	20°
	60	63	70	85	52	54
MPH	56	58	64	79	49	50
					kts	
					97	101
					90	93
					km/h	112
					74	103
					69	127
					60°	137
					60°	127

The power on stall speeds are 54 kts. lower than on the above table (6,2 MPH - 10 km/h)

The T. O. and landing ground run are very close to 55%, the 50 ft. distances listed in the above table.

**SOGATA**  
**COMMODORE 892 A.150**  
**FLIGHT MANUAL**

**I - SERVICE CEILING CLIMBING TIME**

Standard atmosphere - Weight : 1697 lb  
 Full throttle

From SL to (in ft)	Time min. s	IAS			Mixture control	Slats
		Km/h	Kt	MPH		
1.640	1'46"	135	73	84	Full rich	closed
3.280	3'46"	135	73	84	Full rich	closed
4.921	6'03"	135	73	84	Full rich	closed
6.561	8'40"	130	70	80	optimum	closed
8.202	11'45"	120	65	75	optimum	opening
9.842	15'27"	110	59	68	optimum	open
11.482	20'05"	105	56	65	optimum	open
13.123	26'21"	105	56	65	optimum	open
14.763	36'10"	105	56	65	optimum	open
15.257	40'38"	105	56	65	optimum	open

**II - RATE OF CLIMB - Weight : 1697 lb**

For each temperature rate of climb are given as follows

- m/s in first second
- ft/min in second column

°C	- 20		0		+ 15		+ 30		+ 40	
ft °F	- 4		+ 32		+ 59		+ 86		+ 104	
0	5.69	1120	5.28	1039	5.00	984	4.75	935	4.60	906
1640	5.00	984	4.64	913	4.39	864	4.17	821	4.04	795
3280	4.36	858	4.05	797	3.84	756	3.65	719	3.53	695
4921	3.76	740	3.48	685	3.30	650	3.14	618	3.04	598
6561	3.20	630	2.97	585	2.82	555	2.68	528	2.59	510
8202	2.66	524	2.46	484	2.33	459	2.22	437	2.14	421
9842	2.12	417	1.96	386	1.86	366	1.77	348	1.71	337
11482	1.63	321	1.51	297	1.44	283	1.36	268	1.32	260
13123	1.14	224	1.05	207	1.00	197	0.95	187	0.92	181
14763	0.64	126	0.60	118	0.57	112	0.54	106	0.52	102

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**COMMODORE 892 A.150**  
 FLIGHT MANUAL

**III - LENGTH OF TAKE OFF RUN**

Weight 1650 lb

For each temperature length are given as follows

- m in first column
- ft in second column

**1° Flaps retracted**

Zft	°C	- 20		0		+ 15		+ 30		+ 40	
	°F	- 4	+ 32	+ 59	+ 86	+ 104					
0	116	384	136	446	151	496	167	548	179	587	
1000	126	417	149	486	163	538	181	594	194	636	
2000	139	456	162	532	181	594	198	650	213	700	
3000	157	505	179	587	199	653	219	718	235	771	
4000	170	557	209	686	217	719	227	794	260	853	
5000	188	617	219	718	243	797	269	882	288	945	

**2° Flaps extended 8°**

Zft	°C	- 20		0		+ 15		+ 30		+ 40	
	°F	- 4	+ 32	+ 59	+ 86	+ 104					
0	96	315	110	361	122	400	133	437	144	473	
1000	104	341	120	394	132	433	146	478	156	512	
2000	113	371	132	433	146	478	161	528	172	564	
3000	125	410	145	476	161	528	178	584	190	623	
4000	137	449	160	525	178	584	197	646	211	692	
5000	153	502	175	574	196	643	218	715	233	764	

**3° Flaps extended 30°**

Zft	°C	- 20		0		+ 15		+ 30		+ 40	
	°F	- 4	+ 32	+ 59	+ 86	+ 104					
0	106	348	118	387	132	433	146	479	156	512	
1000	112	367	128	420	144	473	158	518	169	555	
2000	122	400	141	463	159	522	174	571	187	614	
3000	135	443	154	507	175	574	192	630	206	676	
4000	149	488	172	564	193	633	212	695	227	745	
5000	167	545	190	626	213	698	233	766	252	826	

SOCATA  
COMMODORE 892 A.150  
FLIGHT MANUAL

IV - TAKE OFF DISTANCE

Weight 1550 lb

The take off distance es equal to the take off run plus climbing length at 50 ft.

For each temperture distance are given as follows

- m in first column
- ft in second column

1° Flaps retracted

°C	- 20		0		+ 15		+ 30		+ 40	
Zft °F	- 4		+ 32		+ 59		+ 86		+ 104	
0	227	745	259	850	285	935	312	1023	329	1082
1000	248	814	283	928	310	1017	340	1115	360	1182
2000	262	860	311	1020	342	1122	379	1245	394	1295
3000	302	992	343	1125	379	1246	414	1360	438	1438
4000	335	1102	381	1253	420	1380	457	1500	483	1582
5000	372	1223	423	1390	468	1535	509	1672	527	1730

2° Flaps extended 8°

°C	- 20		0		+ 15		+ 30		+ 40	
Zft °F	- 4		+ 32		+ 59		+ 86		+ 104	
0	204	670	232	762	253	831	278	913	293	962
1000	224	735	255	837	281	923	302	992	322	1058
2000	247	814	283	929	310	1018	333	1093	355	1165
3000	275	903	313	1028	342	1122	368	1207	393	1288
4000	304	998	345	1132	377	1240	406	1332	433	1423
5000	337	1105	382	1255	419	1375	452	1484	484	1588

3° Flaps extended 30°

°C	- 20		0		+ 15		+ 30		+ 40	
Zft °F	- 4		+ 32		+ 59		+ 86		+ 104	
0	223	732	254	833	278	912	304	995	320	1050
1000	243	797	276	905	304	995	330	1082	352	1155
2000	268	880	301	998	332	1089	362	1188	385	1266
3000	300	984	337	1105	368	1208	402	1320	427	1400
4000	333	1092	374	1225	410	1345	446	1463	472	1550
5000	372	1220	415	1362	459	1505	497	1630	528	1730

SOCATA  
**COMMODORE 892 A.150**  
 FLIGHT MANUAL

**V - LANDING RUN**

- Weight 1550 lb
- Flaps extended 30°

For each temperature landing run are given as follows

- m in first column
- ft in second column

°C	- 20		0		+ 15		+ 30		+ 40	
Zft °F	- 4		+ 32		+ 59		+ 86		+ 104	
0	85	280	91	300	98	320	104	340	107	350
1000	88	290	96	315	101	330	107	350	110	360
2000	91	300	99	325	106	345	110	360	114	375
3000	94	310	104	340	110	360	114	375	119	390
4000	99	325	107	350	113	370	119	390	123	405
5000	104	340	111	365	119	385	123	405	128	420

**VI - LANDING DISTANCE**

- Weight 1550 lb
- Flaps extended 30°

For each temperature landing distance are given as follows

- m in first column
- ft in second column

°C	- 20		0		+ 15		+ 30		+ 40	
Zft °F	- 4		+ 32		+ 59		+ 86		+ 104	
0	291	955	308	1010	320	1050	329	1080	341	1120
1000	299	980	316	1035	328	1075	338	1110	351	1150
2000	306	1005	325	1065	337	1105	347	1140	359	1180
3000	314	1030	332	1090	349	1145	358	1175	368	1210
4000	323	1060	341	1120	357	1170	368	1210	379	1245
5000	332	1090	351	1150	366	1200	379	1245	390	1280



SOCATA  
**COMMODORE 892 A.150**  
 FLIGHT MANUAL

CRUISE PERFORMANCES

(Propeller Mac CAULEY 1C172 - MGM - 7652)  
 Usuable fuel (45 US Gal 37 Imp. Gal - 170 liters)  
 No wind - no fuel reserve - with adequate mixture leaning  
 (with full rich mixture add 15 % fuel consumption)

Altitude ft.	rpm	Percentage of max power %	IAS			Ground speed			Fuel Consumption			Auto- nomy Hr.mn	Range		
			Kts	MPH	Km/h	Kts	MPH	Km/h	gal/h		l/h		miles st	n.	Km
									US	Imp					
1640	2700	85	109	126	205	109	126	203	11.9	9.9	45	3.47	482	418	775
	2600	77	103	119	192	103	119	192	9.2	7.6	35	4.51	581	505	935
	2500	70	97	112	181	97	112	181	8.4	7.0	32	5.18	600	521	965
	2400	63	92	106	171	92	106	171	7.8	6.4	29,5	5.45	611	532	985
	2300	55	86	100	160	86	100	160	6.6	5.5	25	6.48	675	586	1085
3280	2700	81	108	124	200	111	128	206	11.4	9.5	43	3.57	506	440	815
	2600	74	101	116	187	104	120	193	9.1	7.6	34,5	4.57	590	513	950
	2500	67	95	109	176	98	112	181	8.3	6.9	31,5	5.24	605	526	975
	2400	61	90	103	166	92	106	170	7.7	6.3	29	5.52	620	537	995
4920	2700	77	103	119	191	109	126	202	11.1	9.2	42	4.03	510	443	820
	2600	71	97	112	180	104	119	192	9.1	7.6	34,5	4.57	586	510	945
	2500	64	91	105	169	97	111	179	8.3	6.9	31,5	5.24	600	521	965
	2400	58	86	100	160	91	105	169	7.7	6.3	29	5.52	615	535	990
5600	2680	73	97	112	180	106	122	196	10.8	9.	41	4.09	507	440	815
	2600	68	94	108	174	103	118	190	9.2	7.6	35	4.51	575	499	925
	2500	62	88	102	164	97	111	179	8.3	6.9	31,5	5.24	600	521	965
	2400	56	83	95	153	90	104	167	7.7	6.3	29	5.52	610	529	980
8200	2620	68	91	105	168	101	117	188	10.3	8.6	39	4.21	510	443	820
	2500	60	85	98	157	95	109	176	8.3	6.9	31,5	5.24	590	513	950
	2400	53	79	91	146	88	101	163	7.7	6.3	29	5.52	595	516	955

Maximum level flight speed, sea level, full throttle 130 mph - 113 kts  
 - 210 Km/h at 2800 rpm.

SOGATA  
**COMMODORE 892.A.150**  
 FLIGHT MANUAL

CRUISE PERFORMANCES

(Propeller Mac CAULFEY 1C 172 - MGM - 7652)  
 Usuable fuel : (58 US - Gal - 48,4 Imp Gal - 220 liters)  
 No wind - no fuel reserve - with adequate mixture leaning  
 (with full rich mixture add 15 % fuel consumption)

Alti- tude  Ft.	rpm	Percen- tage of max power %	IAS			Ground speed			Fuel Consumption			Auto- nomy  hr.mn	Range		
			Kts	MPH	Km/h	Kts	MPH	Km/h	gal/h		l/h		miles		
									US	Imp			st	n.	Km
1640	2700	85	109	126	203	109	126	203	11.9	9.9	45	4.53	537	620	996
	2600	77	103	119	192	103	119	192	9.2	7.6	35	6.17	653	754	1213
	2500	70	97	112	181	97	112	181	8.4	7.0	32	6.52	673	776	1250
	2400	63	92	106	171	92	106	171	7.8	6.4	29,5	7.28	687	791	1274
	2300	55	86	100	160	86	100	160	6.6	5.5	25	8.48	757	880	1408
3280	2700	81	108	124	200	111	128	206	11.4	9.5	43	5.07	568	655	1054
	2600	74	101	116	187	104	120	193	9.1	7.6	34,5	6.22	662	764	1229
	2500	67	95	109	176	98	112	181	8.3	6.9	31,5	6.58	683	780	1264
	2400	61	90	103	166	92	106	170	7.7	6.3	29	7.35	697	804	1292
4920	2700	77	103	119	191	109	126	202	11.1	9.2	42	5.17	576	666	1057
	2600	71	97	112	180	104	119	192	9.1	7.6	34,5	6.22	662	758	1222
	2500	64	91	105	169	97	111	179	8.3	6.9	31,5	6.53	676	773	1250
	2400	58	86	100	160	91	105	169	7.7	6.3	29	7.35	690	796	1284
6560	2680	73	97	112	180	106	122	196	10.8	9.	41	5.22	569	655	1052
	2600	68	94	108	174	103	118	190	9.2	7.6	35	6.17	647	741	1194
	2500	62	88	102	164	97	111	179	8.3	6.9	31,5	6.58	676	773	1250
	2400	56	83	95	153	90	104	167	7.7	6.3	29	7.35	683	789	1269
8200	2620	68	91	105	168	101	117	188	10.3	8.6	39	6.09	621	720	1059
	2500	60	85	98	157	95	109	176	8.3	6.9	31,5	6.58	662	759	1229
	2400	53	79	91	146	88	101	163	7.7	6.3	29	7.35	667	766	1239

Maximum level flight speed, sea level, full throttle 130 mph - 113 kts  
 - 210 km/h at 2800 rpm.

SOGATA  
**COMMODORE 892 A.150**  
**FLIGHT MANUAL**

PERFORMANCES WITH 74 DM6 - 0-56 SENSENICH PROPELLER  
 or M 74 DM - 0-56

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1 - Rate of climb (flaps retracted)

Versus altitude and ambient temperature.

For each temperature rates of climb are given as follows :

- m/sec in first column
- ft/mn in second column.

1.1 - Weight 980 kg - 2160 lbs

Optimum speed 150 km/h - 81 kt - 93 MPH.

θ Zpft	°C °F		- 20 - 4		0 + 32		+ 15 + 59		+ 30 + 86		+ 40 +104	
	0	3.4	670	3.2	630	3	590	2.9	570	2.8	550	
2000	2.8	550	2.6	510	2.5	490	2.4	470	2.3	450		
4000	2.3	450	2.1	410	2	390	1.9	370	1.8	350		
6000	1.7	330	1.6	310	1.5	290	1.4	280	1.4	280		
8000	1.1	220	1	200	1	200	0.9	180	0.9	180		

1.2 - Weight 770 kg - 1697 lbs

Optimum speed 140 km/h - 76 kt - 87 MPH

θ Zpft	°C °F		- 20 - 4		0 + 32		+ 15 + 59		+ 30 + 86		+ 40 +104	
	0	4.8	940	4.4	870	4.2	830	4	790	3.9	770	
2000	4.1	810	3.8	750	3.6	710	3.4	670	3.3	650		
4000	3.5	690	3.2	630	3.1	610	2.9	570	2.8	550		
6000	2.9	570	2.7	530	2.5	490	2.4	470	2.3	450		
8000	2.3	450	2.1	410	2	390	1.9	370	1.8	350		

2 - Take off - Weight 980 kg - 2160 lbs

Versus altitude and ambient temperature

Flaps retracted - Take off speed : 102 km/h - 55 kt - 63 MPH.

Maximum recommended climbing speed : 120 km/h - 65 kt - 75 MPH.

For each temperature lengths are given as follows :

- m in first column.
- ft in second column.

SOCATA  
**COMMODORE 892 A.150**  
 FLIGHT MANUAL

2.1 - Length of take off run

θ °C Zpft °F	- 20		0		+ 15		+ 30		+ 40	
	- 4		+ 32		+ 59		+ 86		+104	
0	173	567	197	646	217	712	227	745	257	843
2000	208	682	240	787	265	869	280	918	315	1033
4000	252	827	292	958	325	1066	360	1181	385	1263
6000	300	984	347	1138	395	1296	427	1401	457	1499

2.2 - Take off distance

The take off distance is equal to the off run plus climbing length at 50 ft.

θ °C Zpft °F	- 20		0		+ 15		+ 30		+ 40	
	- 4		+ 32		+ 59		+ 86		+104	
0	382	1253	437	1433	488	1601	525	1722	555	1820
2000	490	1607	555	1820	607	1991	665	2132	705	2312
4000	640	2099	727	2385	795	2608	865	2837	915	3001
6000	862	2827	977	3204	1067	3500	1197	3926	1225	4018

3 - Take off - Weight 770 kg - 1697 lbs

Versus altitude and ambient temperature.

Flaps retracted - Take off speed 92 km/h - 50 kt - 57 MPH

Maximum recommended climbing speed : 120 km/h - 65 kt. - 75 MPH.

For each temperature lengths are given as follows :

- m in first column
- ft in second column

3.1 - Length of take off run

θ °C Zpft °F	- 20		0		+ 15		+ 30		+ 40	
	- 4		+ 32		+ 59		+ 86		+104	
0	115	377	132	433	140	459	155	508	172	564
2000	142	466	162	531	170	558	190	623	215	705
4000	170	558	197	646	207	679	232	761	260	853
6000	203	666	235	771	247	810	285	902	310	1017

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**COMMODORE 892 A.150**  
 FLIGHT MANUAL

3.2 - Take off distance

The take off distance is equal to the take off run plus climbing length at 50 ft.

θ °C Zpft °F	- 20		0		+ 15		+ 30		+ 40	
	- 4		+ 32		+ 59		+ 86		+ 104	
0	272	892	310	1017	340	1115	370	1214	392	1286
2000	337	1106	377	1237	412	1351	450	1476	477	1565
4000	407	1335	465	1525	507	1663	552	1811	587	1925
6000	507	1663	575	1886	630	2066	687	2253	725	2378

4 - Landing - Weight 980 kg - 2160 lbs

Versus altitude and ambient temperature.

Flaps extended 30° - Final speed : 120 km/h - 65 kt - 75 MPH.

For each temperature lengths are given as follows :

- m in first column
- ft in second column.

4.1 - Landing distance

The landing distance is equal to the landing run plus descent length from 50 ft.

θ °C Zpft °F	- 20		0		+ 15		+ 30		+ 40	
	- 4		+ 32		+ 59		+ 86		+ 104	
0	300	984	325	1066	340	1115	355	1165	365	1198
2000	315	1033	335	1099	355	1165	375	1230	385	1264
4000	330	1083	360	1181	380	1247	400	1312	410	1345
6000	355	1165	380	1247	400	1312	420	1378	430	1411

4.2 - Landing run

θ °C Zpft °F	- 20		0		+ 15		+ 30		+ 40	
	- 4		+ 32		+ 59		+ 86		+ 104	
0	130	427	140	459	145	476	150	492	155	509
2000	135	443	145	476	155	509	165	541	170	558
4000	145	476	160	525	170	558	180	591	185	667
6000	160	525	170	558	180	591	190	623	195	640

SUGATA  
**COMMODORE 892A.150**  
 FLIGHT MANUAL

5 - Landing - Weight 770 kg - 1697 lbs

Versus altitude and ambient temperature.

Flaps extended 30° - Final speed 106 km/h - 57 kt - 66 MPH

For each temperature lengths are given as follows :

- m in first column
- ft in second column.

5.1 - Landing distance

The landing distance is equal to the landing run plus descent length from 50 ft.

θ	°C		- 20		0		+ 15		+ 30		+ 40	
	Zpft	°F	- 4		+ 32		+ 59		+ 86		+ 113	
0	255	837	275	902	290	951	300	984	310	1017	325	1066
2000	270	886	295	968	305	1001	320	1050	340	1115	345	1127
4000	285	935	310	1017	320	1050	340	1115	355	1165	365	1194
6000	305	1001	325	1066	340	1115	355	1165	365	1194	375	1221

5.2 - Landing run

θ	°C		- 20		0		+ 15		+ 30		+ 40	
	Zpft	°F	- 4		+ 32		+ 59		+ 86		+ 113	
0	110	361	120	394	125	410	130	427	135	443	140	459
2000	120	394	130	427	135	443	140	459	145	476	150	492
4000	130	427	140	459	145	476	150	492	155	509	160	525
6000	140	459	150	492	155	509	160	525	165	541	170	557

SGCATA  
**COMMODORE 892 A.150**  
**FLIGHT MANUAL**

6 - Cruise performances

Weight : 980 kg - 2160 lbs - no wind - no fuel reserve - with adequate mixture leaning.

6.1 - Usuable fuel 170 liters - 45 US Gal. - 37 Imp. Gal

W = 75 % - 112.5 HP

Zp ft	N tr/mn	VI			Vp			Fuel consumption			Auto nomy h.mn	Range		
		km/h	kt	MPH	km/h	Kt	MPH	l/h	Gal/h			km	miles	
									US	Imp.			N	St
0	2400	187	101	116	185	100	115	33	8.71	7.23	5.09	965	521	600
2000	2470	184	102	114	186	101	116	34.5	9.11	7.56	4.55	925	499	575
4000	2530	181	98	112	190	103	118	36.5	9.64	7.99	4.39	890	480	553

W = 70 % - 105 HP

0	2330	180	97	112	178	96	111	30.5	8.05	6.68	5.34	1000	540	621
2000	2390	177	96	110	180	97	112	32	8.45	7.01	5.18	965	521	600
4000	2450	174	94	108	182	98	113	33.5	8.84	7.34	5.04	930	502	578
6000	2500	172	93	107	185	100	115	35.5	9.37	7.77	4.46	890	480	553
8000	2570	167	90	104	186	101	116	41.5	10.9	9.09	4.05	770	415	478

W = 65 % - 97,5 HP

0	2260	173	93	108	171	92	106	28.5	7.52	6.24	5.57	1030	556	640
2000	2320	170	92	107	173	93	108	30	7.92	6.57	5.39	990	534	615
4000	2370	167	90	104	175	94	109	31	8.18	6.79	5.28	965	521	600
6000	2420	164	88	102	177	96	110	32	8.45	7.01	5.18	950	513	590
8000	2470	161	87	100	179	97	111	35	9.24	7.67	4.51	875	472	544

Vp = Speed on the ground with zero wind.

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**COMMODORE 892 A.150**  
**FLIGHT MANUAL**

6.2 - Usuable fuel 220 liters - 58 US Gal - 48.4 Imp. Gal

W = 75 % - 112.5 HP

Zp ft	N	VI			Vp			Fuel consumption			Auto nomy h.mn	Range		
		tr/mn	km/h	kt	MPH	km/h	kt	MPH	l/h	Gal/h US		Imp.	km	miles N St
0	2400	190	103	118	188	101	117	33	8.71	7.23	6.39	1250	675	777
2000	2470	186	100	116	189	102	117	34.5	9.11	7.56	6.22	1200	648	746
4000	2530	183	99	114	192	104	119	36.5	9.64	7.99	6.01	1155	624	718
6000	2600	180	97	112	195	105	121	40.5	10.7	8.87	5.25	1055	570	656

W = 70 % - 105 HP

0	2330	182	98	113	180	97	112	30.5	8.05	6.68	7.12	1295	700	805
2000	2390	179	97	111	182	98	113	32	8.45	7.01	6.51	1245	673	774
4000	2450	176	95	109	184	99	114	33.5	8.84	7.34	6.33	1205	651	749
6000	2500	173	93	108	187	101	116	35.5	9.37	7.77	6.11	1155	624	718
8000	2570	170	92	106	189	102	117	41.5	10.9	9.09	5.18	1000	540	621

W = 65 % - 97.5 HP

0	2260	175	94	108	173	93	108	28.5	7.52	6.24	7.42	1330	718	826
2000	2320	172	93	107	175	94	109	30	7.92	6.57	7.19	1280	691	795
4000	2370	169	91	105	177	96	110	31	8.18	6.79	7.05	1250	675	777
6000	2420	166	90	103	179	97	111	32	8.45	7.01	6.52	1225	661	762
8000	2470	163	88	101	181	98	112	35	9.24	7.67	6.16	1135	612	706

Vp = Speed on the ground with zero wind.



SUCATA  
**COMMODORE 892A.150**  
 FLIGHT MANUAL

PERFORMANCES WITH 74 DM5 0-54 SENSENICH PROPELLER  
or M.74 DM 0.54

**1 - Rate of climb (Flaps retracted)**

Versus altitude and ambient temperature.

For each temperature rates of climb are given as follows :

- m/sec in first column
- ft/min in second column.

**1.1 - Weight 980 kg - 2160 lbs**

Optimum speed 150 km/h - 81 kt - 93 MPH

θ Zpft	°C		°F		+ 15		+ 30		+ 40	
	- 20	- 4	0	+ 32	+ 59	+ 86	+ 104			
0	3.75	738	3.48	685	3.30	650	3.14	618	3.04	598
2000	3.11	612	2.88	567	2.73	537	2.59	510	2.51	494
4000	2.48	488	2.30	453	2.18	429	2.07	408	2.01	396
6000	1.87	368	1.73	341	1.64	323	1.56	307	1.51	297
8000	1.26	248	1.17	230	1.11	219	1.05	207	1.02	201

**1.2 - Weight 770 kg - 1697 lbs**

Optimum speed 140 km/h - 76 kt - 87 MPH

θ Zpft	°C		°F		+ 15		+ 30		+ 40	
	- 20	- 4	0	+ 32	+ 59	+ 86	+ 104			
0	5.24	1032	4.85	955	4.60	906	4.37	860	4.23	833
2000	4.54	894	4.21	829	3.99	785	3.79	746	3.67	722
4000	3.87	762	3.59	707	3.40	669	3.23	636	3.13	616
6000	3.21	632	2.98	587	2.82	555	2.68	528	2.59	510
8000	2.56	504	2.37	467	2.25	443	2.14	421	2.07	408

**2 - Take off - Weight 980 kg - 2160 lbs**

Versus altitude and ambient temperature.

Flaps retracted - Take off speed 102 km/h - 55 kt - 63 MPH

Maximum recommended climbing speed 120 km/h - 65 kt - 75 MPH

For each temperature lengths are given as follows :

- m in first column
- ft in second column.

SUBAIR  
**COMMODORE 892A.150**  
**FLIGHT MANUAL**

**2.1 - Length of take off run**

θ Zpft	°C °F	- 20		0		+ 15		+ 30		+ 40	
		- 4		+ 32		+ 59		+ 86		+ 104	
0		170	558	195	640	215	705	235	771	255	837
2000		205	671	235	771	260	853	290	951	310	1017
4000		250	820	290	951	320	1050	355	1165	380	1247
6000		295	968	340	1115	380	1247	420	1378	450	1476

**2.2 - Take off distance**

The take off distance is equal to the take off run plus climbing length at 50 ft.

θ Zpft	°C °F	- 20		0		+ 15		+ 30		+ 40	
		- 4		+ 32		+ 59		+ 86		+ 104	
0		380	1247	430	1411	475	1558	515	1690	545	1788
2000		480	1575	545	1788	595	1952	650	2133	690	2264
4000		625	2051	710	2329	775	2543	845	2772	895	2936
6000		800	2625	905	2969	990	3248	1075	3527	1140	3740

**3 - Take off - Weight 770 kg - 1697 lbs**

Versus altitude and ambient temperature.

Flaps retracted - Take off speed 92 km/h - 50 kt - 57 MPH

Maximum recommended. climbing speed 120 km/h - 65 kt - 75 MPH

For each temperature length are given as follows :

- m in first column
- ft in second column.

**3.1 - Length of take off run**

θ Zpft	°C °F	- 20		0		+ 15		+ 30		+ 40	
		- 4		+ 32		+ 59		+ 86		+ 104	
0		115	377	130	427	145	476	160	525	170	558
2000		140	459	160	525	175	574	195	640	210	689
4000		165	541	195	640	215	705	240	787	255	837
6000		200	656	230	755	255	837	285	935	305	1001

SOGATA  
**COMMODORE 892A.150**  
 FLIGHT MANUAL

**3.2 - Take off distance**

The take off distance is equal to the take off run plus climbing length at 50 ft.

θ Zpft	°C °F		- 20 - 4		0 + 32		+ 15 + 59		+ 30 + 86		+ 40 + 104	
	0	270	886	305	1001	335	1099	365	1198	385	1263	
2000	325	1066	370	1214	405	1329	440	1444	470	1542		
4000	400	1312	455	1493	495	1624	540	1772	575	1886		
6000	495	1624	560	1837	615	2018	670	2198	710	2329		

**4 - Landing - Weight 980 kg - 2160 lbs**

Versus altitude and ambient temperature.

Flaps extended 30° - Final speed 120 km/h - 65 kt - 75 MPH

For each temperature lengths are given as follows :

- m in first column
- ft in second column

**4.1 - Landing distance**

The landing distance is equal to the landing run plus descent length from 50 ft.

θ Zpft	°C °F		- 20 - 4		0 + 32		+ 15 + 59		+ 30 + 86		+ 40 + 104	
	0	300	984	325	1066	340	1115	355	1165	365	1198	
2000	315	1033	335	1099	355	1165	375	1230	385	1264		
4000	330	1083	360	1181	380	1247	400	1312	410	1345		
6000	355	1165	380	1247	400	1312	420	1378	430	1411		

**4.2 - Landing run**

θ Zpft	°C °F		- 20 - 4		0 + 32		+ 15 + 59		+ 30 + 86		+ 40 + 104	
	0	130	427	140	459	145	476	150	492	155	509	
2000	135	443	145	476	155	509	165	541	170	558		
4000	145	476	160	525	170	558	180	591	185	607		
6000	160	525	170	558	180	591	190	623	195	640		

SOGATA  
**COMMODORE 892A.150**  
 FLIGHT MANUAL

5 - Landing - Weight 770 kg - 1697 lbs

Versus altitude and ambient temperature.

Flaps extended 30° - Final speed 106 km/h - 57 kt - 66 MPH.

For each temperature length are given as follows :

- m in first column
- ft in second column.

5.1 - Landing distance

The landing distance is equal to the landing run plus descent length from 50 ft.

θ Zpft	°C	- 20		0		+ 15		+ 30		+ 40	
	°F	- 4		+ 32		+ 59		+ 86		+ 104	
0	255	837	275	902	290	951	300	984	310	1017	
2000	270	886	295	968	305	1001	320	1050	325	1066	
4000	285	935	310	1017	320	1050	340	1115	345	1132	
6000	305	1001	325	1066	340	1115	355	1165	365	1198	

5.2 - Landing run

θ Zpft	°C	- 20		0		+ 15		+ 30		+ 40	
	°F	- 4		+ 32		+ 59		+ 86		+ 104	
0	110	361	120	394	125	410	130	427	135	443	
2000	120	394	130	427	135	443	140	459	145	476	
4000	130	427	140	459	145	476	155	509	160	525	
6000	140	459	150	492	155	509	165	541	170	558	

SOGATA  
**COMMODORE 892A.150**  
 FLIGHT MANUAL

6 - Cruise performances

Weight 980 kg - 2160 lbs - no wind - no fuel reserve with adequate mixture leaning.

6.1 - Usuable fuel 170 liters - 45 US Gal. - 37 Imp. Gal

W = 75 % - 112.5 HP

Zp ft	N	VI			Vp			Fuel consumption			Auto nomy h.mn	Range		
		tr/mn	km/h	kt	MPH	km/h	kt	MPH	l/h	Gal/h		km	miles	
									US	Imp.			N	St
0	2530	185	100	115	183	99	114	33	8.71	7.23	5.09	940	507	584
2000	2590	182	98	113	185	100	115	34.5	9.11	7.56	4.55	910	491	565
4000	2670	179	97	111	188	101	117	36.5	9.64	7.99	4.39	870	469	541

W = 70 % - 105 HP

0	2450	178	96	111	176	95	109	30.5	8.05	6.68	5.34	980	529	609
2000	2500	175	94	109	178	96	111	32	8.45	7.01	5.19	945	510	587
4000	2570	172	93	107	180	97	112	33.5	8.84	7.34	5.04	910	491	565
6000	2630	169	91	105	183	99	114	35.5	9.37	7.77	4.46	870	469	541
8000	2700	165	89	103	184	99	114	41.5	10.9	9.09	4.05	750	405	466

W = 65 % - 97.5 HP

0	2370	171	92	106	169	91	105	28.5	7.52	6.24	5.57	1005	542	624
2000	2420	168	91	104	171	92	106	30	7.92	6.57	5.39	965	521	599
4000	2470	165	89	103	173	93	108	31	8.18	6.79	5.28	945	510	587
6000	2520	162	87	101	175	94	109	32	8.45	7.01	5.18	925	499	574
8000	2600	159	86	99	177	95	110	35	9.24	7.67	4.51	855	461	531

SOGATA  
**COMMODORE 892A.150**  
 FLIGHT MANUAL

6.2 - Usuable fuel - 220 liters - 58 US Gal. - 48.4 Imp. Gal

W = 75 % - 112.5 HP

Zp ft	N	VI			Vp			Fuel consumption			Auto nomy h.mn.	Range		
		tr/mn	km/h	kt	MPH	km/h	kt	MPH	l/h	Gal/h		km	miles	
									US	Imp.			N	St
0	2530	185	100	115	183	99	114	33	8.71	7.23	6.40	1210	653	752
2000	2590	182	98	113	185	100	115	34.5	9.11	7.56	6.22	1175	634	730
4000	2670	179	97	111	188	101	117	36.5	9.64	7.99	6.01	1130	610	702

W = 70 % - 105 HP

0	2450	178	96	111	176	95	109	30.5	8.05	6.68	7.13	1270	685	789
2000	2500	175	94	109	178	96	111	32	8.45	7.01	6.52	1220	658	758
4000	2570	172	93	107	180	97	112	33.5	8.84	7.34	6.33	1180	637	733
6000	2630	169	91	105	183	99	114	35.5	9.37	7.77	6.11	1130	610	702
8000	2700	165	89	103	184	99	114	41.5	10.9	9.09	5.18	975	526	605

W = 65 % - 97.5 HP

0	2370	171	92	106	169	91	105	28.5	7.52	6.24	7.42	1300	701	808
2000	2520	168	91	104	171	92	106	30	7.92	6.57	7.19	1250	675	777
4000	2470	165	89	103	173	93	108	31	8.18	6.79	7.05	1225	661	761
6000	2520	162	87	101	175	94	109	32	8.45	7.01	6.52	1200	647	746
8000	2600	159	86	99	177	95	110	35	9.24	7.67	6.16	1100	594	684

SOGATA  
COMMODORE 892A.150  
FLIGHT MANUAL

SECTION V  
WEIGHT AND BALANCE

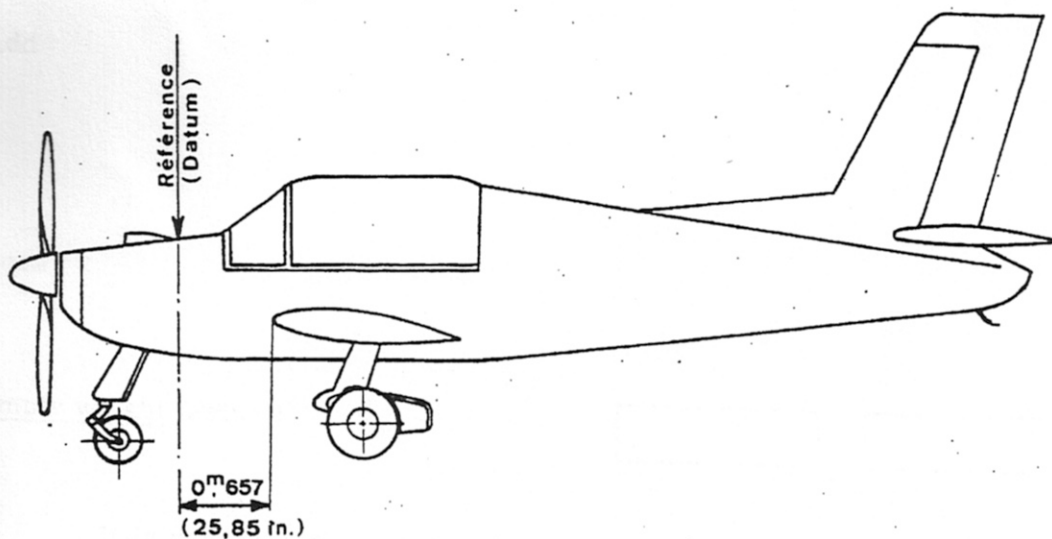
Serial N° :

Registration :

Computed by :

Checked by :

Date :



The longitudinal reference used in the actual manual is the firewall bulkhead located at 25.85 inches forward of wing theoretical leading edge.

SOGATA  
**COMMODORE 892A.150**  
 FLIGHT MANUAL

Serial N° :

Registration :

<u>Actual Weight</u>	<u>Scale Reading</u>	<u>Tare</u>	<u>Net Weight</u> lb.	<u>Arm</u> in.	<u>Moment</u> in.-lb.
Left Main wheel reaction					
Right Main wheel reaction					
Nose Wheel reaction					
Total as weighed					
 Add					
 Less					
 <u>Empty weight (actual)</u>					

It is responsibility of the airplane owner and pilot to insure that the airplane is properly loaded. The empty weight and c. g. are noted hereon for this airplane as delivered from the factory. If the airplane has been altered, refer to the latest approved classification report.

Max. T.O. Weight      Take off (      )  
                                  Landing (      ±160 lb (980 kg)      )

Center of gravity limits

See sheet 4 in Section I.



SOGATA  
**COMMODORE 892A.150**  
 FLIGHT MANUAL

Useful, load weights and moments:

The moments are calculated from the front face of firewall with inches. lb.

<u>FUEL</u>			<u>OIL</u>		
Two 18.7 Imp. gallons each tanks or 24.2					
<u>Imp. gallons</u>	<u>Weight</u>	<u>Moment</u>	<u>Imp. gallons</u>	<u>Weight</u>	<u>Moment</u>
	lbs	in. lbs		lbs	in lbs
5	35.85	1505	1.665	15.2	- 295.
10	71.7	3010			
15	107.55	4515			
20	143.4	6020			
25	179.25	7525			
30	215.1	9030			
35	250.95	10535			
40	286.80	12040			
45	322.65	13545			
49.7	356.35	14957			

BAGGAGE COMPARTMENT

<u>Weight</u>	<u>Moment</u>
lbs	in. lbs
10	963
20	1926
30	2889
40	3852
50	4815
60	5778
70	6741
80	7704
90	8667
100	9630

SOCATA  
**COMMODORE 892A.150**  
 FLIGHT MANUAL

Useful load weights and moments.

The moments are calculated from the front face of firewall with inches. lb.

<u>FUEL</u>			<u>OIL</u>		
Two 22.5 US gallons each tanks or 29 US.Gal.					
<u>US. gallons</u>	<u>Weight</u> lb.	<u>Moment</u> in.lbs	<u>Quarts</u>	<u>Weight</u> lb	<u>Moment</u> in.lbs
5	29.92	1257	1	1.9	- 37
10	59.84	2514	2	3.8	- 74
15	89.76	3770	3	5.7	- 111
20	119.68	5026	4	7.6	- 148
25	149.60	6283	5	9.5	- 185
30	179.52	7540	6	11.4	- 221
35	209.44	8796	7	13.3	- 258
40	239.36	10053	8	15.2	- 295
45	269.28	11310			
50	299.20	12567			
55	329.12	13824			
60	359.04	15081			

BAGGAGE COMPARTMENT

<u>Weight</u> lb	<u>Moment</u> in.lbs
10	963
20	1926
30	2889
40	3852
50	4815
60	5778
70	6741
80	7704
90	8667
100	9630

SOCATA  
**COMMODORE 892A.150**  
 FLIGHT MANUAL

LOAD on the REAR SEAT

<u>Front seats</u>		<u>Rear seats</u>	
<u>Weight</u> lbs	<u>Moment</u> in.lbs	<u>Weight</u> lbs	<u>Moment</u> in.lbs
100	3728	20	1399
120	4474	40	2798
140	5219	60	4198
160	5965	80	5597
180	6710	100	6996
200	7456	120	8395
220	8202	140	9794
240	8947	160	11194
260	9693	180	12593
280	10438	200	13992
300	11184	220	15391
320	11930	240	16790
340	12675	260	18190
360	13421	280	19590
380	14166	300	20990
400	14912	320	22390
420	15657	340	23790
440	16403		

# SOCATA COMMODORE 892A.150 FLIGHT MANUAL

## Useful load weights and moments.

The moments are calculated from the front face of firewall with metres-kilogrammes.

<u>FUEL</u>			<u>OIL</u>		
Two 85 litres each tanks or 110 "					
<u>Litres</u>	<u>Weight</u>	<u>Moment</u>	<u>Litres</u>	<u>Weight</u>	<u>Moment</u>
	Kg	m.kg		Kg	m.kg
10	7,2	7,68	1	0,9	- 0,43
20	14,4	15,36	2	1,8	- 0,86
30	21,6	23,05	3	2,7	- 1,29
40	28,8	30,73	4	3,6	- 1,72
50	36,-	38,41	5	4,5	- 2,15
60	43,2	46,09	6	5,4	- 2,58
70	50,4	53,77	7	6,3	- 3,01
80	57,6	61,46	8	7,2	- 3,44
90	64,8	69,14			
100	72,-	76,82			
110	79,2	84,50			
120	86,4	92,19			
130	93,6	99,87			
140	100,8	107,55			
150	108,-	115,24			
160	115,2	122,92			
170	122,4	130,60			
180	129,6	138,28			
190	136,8	145,96			
200	144,0	153,64			
210	151,2	161,32			
220	158,4	169,00			

<u>Weight</u>	<u>Moment</u>
Kg	m.kg
5	12,23
10	24,46
15	36,69
20	48,92
25	61,15
30	73,38
35	85,61
40	97,84
45	110,07

SOGATA  
**COMMODORE 892 A.150**  
 FLIGHT MANUAL

LOAD on the REAR SEAT

<u>Front seats</u>		<u>Rear seats</u>	
<u>Weight</u> kg	<u>Moment</u> m.kg	<u>Weight</u> kg	<u>Moment</u> m.kg
50	47.35	10	17.77
60	56.82	20	35.54
70	66.29	30	53.31
80	75.76	40	71.08
90	85.23	50	88.85
100	94.7	60	106.62
110	104.17	70	124.39
120	113.64	80	142.16
130	123.11	90	159.93
140	132.58	100	177.70
150	142.05	110	195.50
160	151.52	120	213.30
170	160.99	130	231.10
180	170.46	140	248.90
190	179.93	150	266.70
200	189.40	160	284.50

SOCATA  
 COMMODORE 892A.150  
 FLIGHT MANUAL

SAMPLE LOADING CALCULATION

	<u>Weight</u>		<u>Moment</u>	
	lb	kg	in. lb	m. kg
Empty weight				
Oil .....	15.2	7.2	- 295	- 3.44
Fuel .....	240	122.4	10080	130.60
Pilot and front passenger ....	330	150	12343	142.05
Rear passenger .....	100	70	6996	124.39
Baggages on rear seat .....	10	10	963	24.46
	-----	-----	-----	-----
Total at take-off .....				
Estimated fuel used in flight				
	-----	-----	-----	-----
Total at landing				

NOTE : The total weight at take-off and at landing must not exceed 2160 lb. and the total moment must be between the limits of the next center of gravity table.

SOCATA  
 COMMODORE 892A.150  
 FLIGHT MANUAL

CENTER OF GRAVITY TABLE

<u>Weight</u>	<u>Minimum moment</u>		<u>Maximum moment</u>		<u>Weight</u>	<u>Minimum moment</u>	<u>Maximum moment</u>
lb.	in.	lb.	in.	lb.	kg.	m. kg	m. kg
1000	32000		41150		550	447.15	575.85
1020	32640		41973		560	455.28	586.32
1040	33280		42796		570	463.41	596.79
1060	33920		43619		580	471.54	607.26
1080	34560		44442		590	479.67	617.73
1100	35200		45265		600	487.90	628.20
1120	35840		46088		610	496.03	638.67
1140	36480		46911		620	504.16	649.14
1160	37120		47734		630	512.29	659.61
1180	37760		48557		640	520.42	670.08
1200	38400		49380		650	528.55	680.55
1220	39040		50203		660	536.68	691.02
1240	39680		51026		670	544.81	701.49
1260	40320		51849		680	553.04	711.96
1280	40960		52672		690	561.17	722.43
1300	41600		53495		700	569.30	732.90
1320	42240		54318		710	577.43	743.37
1340	42880		55141		720	585.56	753.84
1360	43520		55964		730	593.69	764.31
1380	44160		56787		740	601.82	774.78
1400	44800		57610		750	609.95	785.25
1420	45440		58433		760	621.68	795.72
1440	46080		59256		770	633.71	806.19
1460	46720		60079		780	645.84	816.66
1480	47360		60902		790	658.07	827.13
1500	48000		61725		800	671.20	837.60
1520	48640		62548		810	683.64	848.07
1540	49280		63371		820	696.18	858.54
1560	49920		64194		830	708.82	869.01
1580	50560		65017		840	722.40	879.48
1600	51200		65840		850	735.25	889.95
1620	51840		66663		860	748.20	900.42
1640	52480		67486		870	761.25	910.89
1660	53120		68309		880	774.40	921.36

SOCATA  
 COMMODORE 892A.150  
 FLIGHT MANUAL

<u>Weight</u>	<u>Minimum moment</u>	<u>Maximum moment</u>	<u>Weight</u>	<u>Minimum moment</u>	<u>Maximum moment</u>
1680	54533	69132	890	787.65	931.83
1700	55012	69955	900	801.90	942.30
1720	55986	70778	910	815.36	952.77
1740	56932	71601	920	828.92	963.24
1760	57904	72424	930	842.58	973.71
1780	58918	73247	940	857.28	984.18
1800	59940	74070	950	871.15	994.65
1820	60933	74893	960	885.12	1005.12
1840	61934	75716	970	899.19	1015.59
1860	62979	76539	980	913.36	1026.06
1880	63995	77362	990	928.62	1036.53
1900	65037	78185	1000	943. -	1047.00
1920	66086	79008			
1940	67124	79831			
1960	68208	80654			
1980	69300	81477			
2000	70400	82300			
2020	71467	83123			
2040	72542	83946			
2060	73645	84769			
2080	74755	85592			
2100	75852	86415			
2120	76998	87238			
2140	78152	88061			
2160	79272	88884			
2180	80442	89707			
2200	81620	90530			



SOCATA  
**COMMODORE 892 A.150**  
 FLIGHT MANUAL

Serial N° :  
 Registration :  
 Date :

LIST OF EQUIPMENT

× Installed in airplane  
 0 Not installed in airplane

	<u>Weight</u>		<u>Distance aft of datum</u>	
	lb	kg	in	mm
× One Mac CAULEY propeller 1 C 172-MGM-7652 or 7650 or SENSENICH 74 DM6-54 or 56	30	13,500	-42	-1070
× One electrical fuel pump electropulse	2,5	1,140	- 2,2	- 55
× One starter Delco Remy	17,8	8,000	-31,4	- 800
× One generator Delco Remy 35 amp/h or One alternator 40 amp/h	16,6	7,500	-31,4	- 800
× Two fuel tanks a) 18,7 imp.gallons each. 22,5 US Gal. 170 liters	27,7	12,650	41,7	1060
× Two main wheel	12	5,500	50,4	1280
× Two brakes assemblies	1,7	0,750	50,4	1280
Two main wheel tires with regular tubes				
× a) DUNLOP 420 x 150	9,3	4,200	50,4	1280
b) KLEBER-COLOMBES				

SOGATA  
 COMMODORE 892 A.150  
 FLIGHT MANUAL

Serial N° :  
 Registration :  
 Date :

LIST OF EQUIPEMENT

- × Installed in airplane  
 0 Not installed in airplane

	<u>Weight</u>		<u>Distance aft of datum</u>	
	lb	kg	in	mm
× One Mac CAULEY propeller 1 C 172-MGM-7652 or 7650 or SENSENICH 75 DM6-54 or 56	30	13,500	-42	-1070
× One electrical fuel pump electropulse	2,5	1,140	- 2,2	- 55
× One starter Delco Remy	17,8	8,000	-31,4	- 800
× One generator Delco Remy 35 amp/h. or One alternator 40 amp/h.	16,6	7,500	-31,4	- 800
× Two fuel tanks of each a) 29 US.Gal. - 24,2 Imp. Gal 220 liters	35,9	16,300	41,7	1060
× Two main wheel	12	5,500	50,4	1280
× Two brakes assemblies	1,7	0,750	50,4	1280
Two main wheel tires with regular tubes				
× a) DUNLOP 420 x 150	9,3	4,200	50,4	1280
b) KLEBER-COLOMBES				

SOCATA  
**COMMODORE 892A.150**  
 FLIGHT MANUAL

		<u>Weight</u>		<u>Distance aft of datum</u>	
		lb.	kg.	in.	mm.
X	Two main shock absorbers ERAM	3.8		49.2	
			1.700		1250
X	One nose wheel M. S. Dwg.	2.4		- 16.1	
			1.070		- 410
	One nose wheel tire with regular tube				
X	a) DUNLOP 330 x 130	5.3		- 16.1	
			2.400		- 410
	b) KLEBER COLOMBES				
X	One nose shock absorber ERAM	3.7		- 15	
			1.700		- 380
	One 12 volts battery				
X	HAGEN 12 V. 32 A.h	29		- 3.1	
			13.000		- 80
	One landing light N° 204.117	1.1		- 25.6	
			0.500		- 700
	One anticollision light N° 204.101	1.6		200.7	
			0.720		5150
	Three navigation lights				
	(N° 204.127	0.09		43.3	
	(		0.040		1100
	(N° 204.128	0.13		223.2	
			0.060		5670
X	Artificial horizon and directional gyro with vacuum device	6.1		27.6	
			2.780		700

SOGATA  
**COMMODORE 892A.150**  
 FLIGHT MANUAL

	<u>Weight</u>		<u>Distance aft of datum</u>		
	lb.	kg.	in.	mm.	
Seat belt Aiglon					
X	Front seats : quantity 2	0.7 x 2	39.3		
				0.300 x 2	1000
X	Rear seats : quantity 2	0.9 x 2	70.9		
				0.400 x 2	1800
Harness EFA 602					
	Front seats : quantity	3	39.3		
	Rear seats : quantity			1.340	1000

SOCATA  
COMMODORE 892A.150  
FLIGHT MANUAL

Serial N° :

Registration :

Date :

RADIO EQUIPMENT

SOCATA  
COMMODORE 892 A.150  
FLIGHT MANUAL

SECTION VI

GLIDER TOWING

The next conditions must be completed for towing :

- Propeller 7650 or 7652 Mac CAULEY or 74 DM6-0 or M.74.DM.0.54 or 56 SENSENICH
- The installation of a thermocouple on a cylinder head is recommended
- The special towing device fitted at the rear of the fuselage (see option n° 2)
- Maximum glider T.O. weight : 1100 lb
- Maximum airplane T.O. weight for towing : 1680 lb.

Glider towing. In excess of the normal flight procedure

- 1.- Test the functioning of the hook of the glider and the airplane before each towing flight.
- 2.- Attach the cable at airplane and at the glider.
- 3.- Taxi the airplane slowly to stretch the cable.
- 4.- Apply full throttle quickly but smoothly  
Maximum RPM at zero speed : 2300 for 7652 propeller  
2350 for 7650 propeller
- 5.- Take off normally flaps up or at first notch.  
The first notch reduce the airplane attitude but does not improve the rate of climb.
- 6.- Climb at IAS = 62. 71 MPH - 54-62 kts - 100-115 km/h, along the weight of the glider  
Minimum IAS for towing = 62 mph - 54 kts - 100 km/h  
Do not exceed 500° F - 260° C for the cylinder head temperature  
Check that leading edge slats are fully extended.
- 7.- After releasing the glider use the following descent configuration to avoid a too rapid cooling of the engine  
RPM 2000 - 2000 IAS = 92 kts - 107 MPH - 170 km/h  
Avoid temperatures 150°C
- 8.- Release cable on airfield pulling the control located on instrument panel, twice.
- 9.- Land normally

Level flight towing.

No particular condition is required excepted that required by the type of glider.

Towing take off on rough airfield.

Use same procedure but take off with flaps fully down to reduce T.O. run and raise the flaps slowly after take off.

SOCATA  
COMMODORE 892 A.150  
FLIGHT MANUAL

SECTION VII

DANNER TOWING

The next conditions must be completed for towing :

- Propeller 7650 or 7652 MacCAULEY or 74.DM6.0 or M.74.DM.O.54 or 56 SENSENICH
- The installations of a thermocouple on a cylinder head is recommended
- The special towing device fitted at the rear of the fuselage (see option n° 22)
- Max. drag for the aero banner :  $(100 C_D \cdot S) = 120$  e.g. max drag 155 lb  
at 60 kts - 68 MPH - 110 km/h
- Maximum airplane T.O. weight for towing : 1680 lb.

Banner towing.- In excess of the normal flight procedure

- 1.- Test the functioning of the hook of the airplane
- 2.- Attach the cable a airplane and at the banner.
- 3.- Put the banner on the ground ahead of the airplane which must have obtained a sufficient speed before the banner is flying.  
In case of hooking by "Pick up", the demonstration speed of the airplane shall be of 100 km/h (62 mph) (54 kts).
- 4.- Apply full throttle quickly but smoothly  
Maximum RPM at zero speed : 2300 for 7652 propeller  
2350 for 7650 propeller
- 5.- Take off normally flaps up or a first notch.  
The first notch reduce the airplane attitude but does not improve the rate of climb.
- 6.- Climb at IAS = 54-62 kts - 62-71 MPH - 100-115 km/h  
Minimum IAS for towing = 54 kts - 62 MPH - 100 km/h  
Do not exceed 500° F. - 260°C for the cylinder head temperature.  
Check that leading edge slats are fully extended.
- 7.- After releasing the banner use the following descent configuration to avoid a too rapid cooling of the engine  
RPM 2000 - 2200 IAS = 92 kts - 107 MPH - 170 km/h

Towing take off on rough airfield.

Use same procedure but take off with flaps fully down to reduce T.O. run and raise the flaps slowly after take off.