	FLIGHT MA	ANUAL	
MORANE-SAULNIER M.S. 885	Revision 1	FEBRUARY 1962	
	MORANE-SAULNIER, 5 rue Volta	a PUTEAUX (Seine) FRANCE	
	AIRPLANE FLIG	HT MANUAL	
	M.S. 8	85	
	AIRPLANE SERIAL N	°	
Observance o	of the limitations listed in	section I is required by law.	
		\square	
	6		

This Manual must be kept in the airplane at all times.

Revision 11

LOG OF REVISIONS

Revision	Sheets affected	Description	Inserted on (date)	
1		First Revision	2. 1962	
2	1, 13, 19, 21, 21A	Use of 100/130 gasoline Additional performances data Various minor changes	4.12.1962	
3	2, 3, 6, 10, 11, 23, 24, 25, 26	New maximum weight New rear centering limit New load on rear seat Various minor changes	7.13.1962	
4	1, 3, 18A, 23, 36, 20A	New maximum weight & Center of gravity Various minor changes Directions for towing of gliders	9.27.1962	Delete 18A
5	2, 2A, 3, 9, 9A	Extension to UTILITY category Various minor changes	11. 1962	
6	b, c, 3A, 30 - 31	Directions for towing of gliders Directions for towing of banner	12. 1962	
7	1 - 9A 20 - 20A 21 - 21A 27	New engines specifications	4.1963	
8	16	Correction on paragraph Q Cold weather operation	1.1964	
9	2A-3-23-25	Increase of maximum weight	4.1971	
10	1	New fuel capacity (sight gage and electrical gage)	11.1972	
11	3	Updating Rear C.G. location 30 % instead of 28 %	05.1975	

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<u>SECTION I</u>

LIMITATIONS

The following limitations must be observed in the operation of the airplane equipped with a CONTINENTAL 0-300A, or $\rm B$ - $\rm C$ - $\rm D$ engine.

A.- Engine limits.

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Take-off and maximum continuous power 145 HP at 2 7000 rpm.

B.- <u>Fuel.</u>

1.- 80-87 minimum octane aviation gasoline The 100-130 octane aviation gasoline must be used of emergency and must be limited to 5 per cent of the total engine overhaul life.

Usable fuel : - 45 US gallons (170 litres) Electrical gage 47 US gallons (178 litres) Sight gage

2.- Oil - if outside air temperature below 40° F : SAE 20 if outside air temperature above 40° F : SAE 40

Capacity : 8 US quarts - do not fly with less than 4 quarts.

C.- <u>Propeller</u>.

One MAC CAULEY, Metal, fixed pitch propeller, model 1C172-MDM- or EM 7652 or 7656. The propeller 1C172 EM. must be used with 0-300 C/D engine Static r.p.m. maximum permissible throttle setting.

Not over 2400 , not under 2150

No additional tolerances permitted

Diameter : maximum 76 in. minimum allowable for repairs 74 in.

(No further reduction permitted).

D.- Power plant instruments.

Oil temperature	:	green arc red radial	89°F to 225°F 225°F	Normal range Maximum
Oil pressure (if installed)	:	green arc yellow arc red radial	30 - 45 psi 5 to 30 psi 5 and 45 psi	Normal range Caution range mini - maxi

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Fuel 1	pressure :	green arc red radial	2.1 to 5.8 p.s. at 4.4 and at 2.1 p.s.	i. : i. :	Normal range Maxi and mini
Tachor	neter :	green arc up t red radial at	to 2700 r.p.m. 2700 r.p.m.	:	Normal range Maximum

E.- <u>Airspeed limits</u>

Normal Category

Never exceed speed	2
Caution range	200
Normal operating range flaps up	89-
Normal operating range flaps down	80-
Max. flap extension speed	12
Max. design manoeuvering speed	1
Design cruising speed	20

	True indicated Airspeed					
	knots	mph	km/h			
red	135	156	250			
yell	108-135	125-156	200-250			
gree	48-108	55 - 125	89-200			
whit	43-76	50-87	80-120			
	76	87	120			
	104	120	193			
	108	125	200			

red radial yellow arc green arc white arc

Utility Category

	True indicated Airspeed		
	km/h	mph	knots
Never exceed speed	270	168	146
Caution range	200-270	125-168	108-146
Normal operating range flaps up	85-200	53-125	46-108
Normal operating range flaps down	75-120	47-87	40-76
Max. flap extension speed \ldots	120	87	76
Max. design manoeuvering speed	193	120	104
Design cruising speed	200	125	108

The static pressure installation having no error, the indicated airspeeds are equal to the true indicated airspeeds.

The airspeed indicator markings apply to the Normal Category.

F.- <u>Manœuvres</u>.

a/ All acrobatics manœuvres are prohibited in normal category.

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b/ The following manœuvres are only authorized in Utility category with the next recommended entry speeds (IAS).

	km/h	mph	kt
Chandelles IAS	240	149	130
Lazy eights IAS	220	137	119
Steep turn IAS	170	106	92
Stalls			

Intentional spins and inverted flight are prohibited

G.- <u>Design structural load factor</u> (limit).

Normal category

At a weight	of 1880 lb	positive = $+$ 3.8 négative = $-$ 1.5
	Utility	category

At a weight of 1700 lb

positive = +4.4negative = -1.8

NOTE : Use controls with caution above 200 km/h (125 mph) (108 knots)

H.- Maximum weight

Normal category	Utility category
1918 lb	1700 lb



Weight lower than 1500 lb. : 13 % to 30 % of M.A.C. (51.2 inches)



J.- <u>Placards.</u>

- <u>On instrument panel</u>

"THIS AIRPLANE MUST BE OPERATED AS A NORMAL OR UTILITY CATEGORY IN "COMPLIANCE WITH THE PLACARDS AND MARKINGS. ALL PLACARDS AND MARKINGS "APPLY TO OPERATING IN NORMAL CATEGORY." "FOR OPERATING IN UTILITY CATEGORY, REFER TO THE FLIGHT MANUAL.

ALL ACROBATIC MANGUVRES, INCLUDING SPINS, ARE PROHIBITED IN NORMAL CATEGORY.

- 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.

<u>Caution</u> : if full pulled this control stops the engine.

- Before rear seats.

"MAX. LOAD ON REAR SEAT : 240 lb (110 kg.)

- <u>On instrument panel.</u>

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

K.- <u>Glider towing.</u>

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See instructions Appendix A.

L.- <u>Banner towing.</u>

This operation is conducted under rules of Civil Air Regulation Part 8. - See instructions Appendix B.

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	SECTION II		
	NORMAL PROCEDURES		
BEFC	RE ENTERING THE AIRPLANE		
	Perform an <u>EXTERIOR INSPECTION</u> of t	the airplane	
I <u>Cabin</u>			
1 Ca 2 Ba 3 Iq 4 Fu 5 Fi	anopy opened attery master switch gnition switches uel quantity indicator light controls travel no abnormal noise.	<pre> off off check full</pre>	
II <u>Rear</u> I	FUSELAGE (right side)		
R	ight static pressure orifice	··· clean	
III. <u>-TAIL</u> I	PLANE		
St	abilizer and fin	••• check	
E	levator and rudder	•••• (travel (hinges (contro	free ls attachment
IV <u>Rear</u> I	FUSELAGE (left side)		
Le	eft static pressure orifice	clean	
V <u>LEFT</u>	WING		
F	laps	•••• (rails (roller	clean s checked
A	ileron	•••• (travel (hinges (contro	free 1 attachment
P	itot head	· · · clean	
Fi	uel tank filter cap and door	••• on and	secured
Le	eading edge slats	(intern (roller (al face clean s and supports checked

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Le VI - FRONT	eft main landing gear	(tire (shock (for p	pressure : 20 psi absorber : checked roper inflation
Er Er Pı Pı Ex Ca No	ngine oil level	<pre> check close clean (screw fixed fixed fixed (tire p (for p.)</pre>	d and secured - check for nicks s on for cracks and clean pressure : 20 psi absorber : checked roper inflation
VII. <u>-RIGHT</u>	WING		
Ri	ight main landing gear	•••• (tire) (shock (for p.	pressure : 20 psi absorber : checked roper inflation
Le	eading edge slats	· · · (inter (rolle	nal face : clean rs and supports : checked
Fu Ai	ael tank filler cap and door	•••• on and •••• (trave (hinged) (contro	d secured 1 free s ol attachment
F]	Lap	•••• (rails (rolle	clean rs checked

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A <u>BEFOR</u>	E STARTING THE ENGINE			
1 P	arking brakes		••• ap	plied on
2 S	eat belts	•••••	•• fa	sten
3 F	uel		•• ch	eck for intended autonomy
4 B	attery master switch		•• pu	sh off
5 G	enerator switch		on	(protection down)
6 I	gnition switch 1 and 2	••••••	of	f
7 C	arburetor heating control,	set to :	fu	ll in (cold)
8 M	ixture control, set to :.	••••••	fu	ll rich (full in)
9 E	levator trim tab		•• ne	utral
10 F	lap check		•• do	wn and up
B <u>Engin</u>	E STARTING			
1 B	attery master switch		•• pu	ll on
2 0	il pressure light		li	ghted
3 E	lectrical fuel booster pum Check fuel press	p	••• on	
4 U	se some engine priming by (if cold weather	throttle strokes c only)	••2	or 3
5 I	gnition switch		1	+ 2 on
6 T	hrottle		sl	ightly opened
7 S	tarter		•• pu	ll handle
8 E	ngine rpm for warm-up Do not exceed 80	00 rpm during the	•• 10 first m	00 then 1200 rpm inute
9 C	heck fuel pressure		•• 2.	5 – 5 psi
10 C	heck oil pressure : light	or pressure indic	•• of ator 30	f - 45 psi

	FLIGHT N	IANUAL	
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<u>CAUTION</u> A: stop engin	fter starting if the oil pre the engine and investigate. e damage.	essure does not incre Lack of oil pressure	ase within 30 seconds, e may cause serious
11 Fi	uel booster pump		off
12 Iq	gnition switch check	••••••	off and on $(1 + 2)$
13 Ra	adio (if installed)		test
C <u>TAXII</u>	NG		
1 Ca	anopy closed or slightly sl:	ided	locked
2 Pa	arking brakes		released
3 E.	levator control		pull rearward
-	Taxi slowly using the fligh wheel. Use brakes with smal actuation which will slow t	t controls, using bra l and short pressure he airplane.	akes to turn the nose instead of by a long
	Maintain the elevator contr the nose wheel.	ol rearward during ta	axi to remove load on
-	If the nose wheel falls in the same time.	a ground hole, avoid	to apply brakes in
	For taxiing a good rule of	thumb is :	
	"USE MINIMUM SPEED, 1	POWER, and BRAKES"	
D <u>ENGIN</u>	E GROUND TEST		
cinde	To avoid propeller tip abr rs or gravels.	asion, do not run up	the engine on loose
1 B:	rakes	••••••••	applied on
2 E.	levator control	•••••	rearward
3 0:	il temperature (Oil (Oil	grade SAE40 grade SAE20	89°F minimum 64°F minimum
4 Ca	arburetor heating control .		full in (cold)
5 Aj	pply full throttle		

	FLIG	HT MANUAL	
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6 Cl	neck max. engine rpm . w w	rith 52" propeller pitch rith 56" propeller pitch	2350 rpm) 2200 rpm) ± 50
7 Re	educe throttle for	•••••	2000 rpm
8 Er	ngine magnetos check		1 then 1 + 2
	maximum allowa	able rpm drop on either m	2 then 1 + 2 nagneto is 100 rpm
9 Cl	neck carburetor heating mean rpm drop	observed	pull on (warm) 75 rpm
E <u>BEFOR</u>	E TAKE OFF		
1 La	anding gear : brakes		released
2 Ma	agneto ignition switch .		on 1 + 2
3 Ca	arburetor heating		full in (cold)
4 M	ixture		full in (full rich)
5 F.	light controls		free
6 P:	ropeller		Ok
7 0:	il : pressure. temperatur	re	check (30-45 psi) mini. 89°F
8 F1	uel tank : cock quantity .		open checked
	take off with fuel pressure	less than 5 gallons is r (booster pump off)	not recommended 3 to 5 psi
9 F.	laps : usually . on small f		up first notch
10 Ca	anopy		closed & locked
11 E.	lectricity : master		on
12 A	ltimeter		set
13 EI	levator trim tab		set lightly nose up
14 Se	eat belts (pilot and pas	sengers)	fasten

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F <u>TAKE OF</u>	<u>FF</u>		
NORMAL	TAKE OFF		
1 Air	rplane straight on runway		
2 Nos	se wheel	•••••• strai	ght on
3 Ele	evator control	maintained	slightly rearward
4 Adv	vance throttle slowly to fu	all throttle	
5 Avc	oid dragging brakes during	ground run	
6 IAS	S = 40 mph		v some back wheel
7 IAS	$S = 60 \text{ mph} \dots \dots \dots$	••••••••••••••••••••••••••••••••••••••	off
8 Aft	ter take off	••••••••••••••••••• apply	y brakes
MINIMU	M GROUND RUN TAKE OFF		
1 Fla	aps fully deflected 30°		
2 App	ply full throttle, while he	olding brakes	
3 Rel	lease brakes – Run nose whe	eel down	
4 Lif	4 Lift up airplane at IAS = 70 km/h (44 mph) (38 kt)		
OBSTAC	LE CLEARANCE TAKE OFF		
1 Fla	aps fully deflected 30°		
2 App	ply full throttle, while he	olding brakes	
3 Rel	lease the brakes, let the a	airplane run on the 3 whee	ls
4 Lif acc	ft up at IAS = 70 km/h (44 celerate until 75 km/h (47	mph) (38 kt) and let the a mph) (41 kt) and pitch up	airplane at climb attitude.
dista	The table below shows for ance to clear the 50 feet :	example the ground run and for the different short ta	d the <u>minimum</u> ke-off procedures.
safet	See at page 20 the table f ty speed.	or normal take-off distand	ces at approved

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Take Off Diagram - Propeller M.C. 1C172 MDM or EM 7653

Standard atmosphere - Maximum weight - T = 15° C Zp = 0 m. Zero wind ft.

Duputati	Gross	Stal spe	ling eds	Flaps	Spee	eds	Roll	Total
Kuliway	weight	Power off	With power	degrees	at take off	over 50 feet	distance	distance
	lb.	mph	mph		mph	mph	m.	m.
Average grass	1880	56	51	0	51	51	425	900
" "	1880	54	48	- 8° - (first notch)	48	48	380	850
н н	1880	51	46	-30°- (full)	46	46	310	785

 $\underline{\text{NOTE}}$: short field take off performance at lowed speed.

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TAKE	OFF IN STRONG CROSS WIND				
	OFF IN STRONG CROSS WIND				
MZ	AXIMUM PERMISSIBLE CROSS WI	ND 90° COMPONENT : 20 kno	ots		
1 F	laps retracted	•••••••••••••••••			
2 A	pply full throttle				
3 U a	se sufficient aileron into irplane straight on runway.	the wind to maintain win	g level. Keep		
4 H	old nose wheel on ground 5-	-10 mph above normal take	off speed.		
5 T d	5 Take off abruptly to prevent airplane to settling back to runway while drifting.				
G <u>INITI</u>	AL CLIMB				
1 S	et initial climb attitude, (72-75 mph) (62-65 knots	slats extended at IAS =	115-120 km/h		
2 M	aintain full throttle and c	check with propeller pite with propeller pite	ch 52" rpm 2400) ch 56" rpm 2300)±50		
3 C	limb up to 300 ft.				
3bis- S	elect one of the two climb	schedule idicated below	(H)		
4 F	laps	••••••••••••••••••••••••••••••••••••••	v = retracted up altitude		
5 C	heck		(oil pressure (oil temperature (fuel pressure		
H <u>CLIMB</u>	1				
It is	possible to use two differ	rent climb schedules (fla	ps retracted)		
1 <u>C</u>	limb, slats opened				
B	<u>est rate of climb</u> slats ope	ened at IAS	s = 80 mph		
<u>T</u>	<u>he best angle of climb spee</u>	ed is	= 68 mph		
opera	It is prohibited to use the engine coo	he above climb schedule f oling is not sufficient.	for continuous		

2.- Climb, slats closed

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- -The best rate of climb speed is slats closed IAS = 87 mph
- -Close slats, levelling off momentarily to accelerate up to the complete closing of slats, about 97 mph.
- -Reduce throttle to avoid rpm. over 2700.
- -Set airplane attitude for IAS = 100 mph slats closed with full throttle, at 2350 to 2500 rpm. according propeller pitch (56" to 52").

-See rate of climb table sheet 20.

This type of climb must be used for normal purpose, to allow the engine cooling required conditions.

3.- <u>Time to climb</u> at gross weight from sea level to <u>4.-Ceiling</u>

Propeller pitch	52"	56"	
2000 ft.	2.5 mn	3 mn	1
4000 ft.	5 min	6 mn	
6000 ft.	8.5 mn	10.5 mn	
9000 ft.	16	20 mn	

Propeller pitch	52"	56"
absolute	15500	14000
service	13500	12000

I.- <u>CRUISING</u>

1.- See sheet 21 the performance table in level flight with the corresponding range and autonomy at various altitudes.

2.- Recommended cruising rpm. is :

2500 rpm under 1500 ft. 2600 to 2700 rpm above 3000 ft.

- 3.- This cruising engine rpm. may be use continuously without any abnormal fatigue for the engine, because the corresponding manifold pressure and power percentage are low. The engine asks really to be used at relatively high cruising rpm.
- 4.- It is recommended to use mixture control at <u>all altitudes</u> is cruising (even at sea level). Then the fuel consumption may be considerably reduced, the normal carburetor mixture being very rich.

To obtain the better mixture adjustement :

-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.

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Cautio	<u>on.</u> The mixture adjustment	must be done every time		
	<u>if engine rpm. cha</u>	nge exceeds 100 rpm.		
	<u>if airplane altitu</u>	<u>de change</u> exceeds 500 ft.		
	<u>if some carburetor</u>	<u>heat must</u> be used		
5 <u>Ca</u> fi ca pu	<u>arburetor icing</u> – In case light (rpm drop, manifold arburetor heating control ull off slightly the contr	of carburetor icing condit pressure increase) pull or for some minutes to releas col to obtain the better op	tions in cruising full heat the se the ice, then peration.	
	When you pull (is normally 100 - 150 rpm. noticeably (1 - 2 gallons,	on carburetor heating the . and the fuel consumption /hour)	engine rpm. drop increases	
CAUT	<u>'ION.</u> – It is very importan heating control <u>bef</u> position being ver	nt to pull on on full heat <u>fore</u> closing throttle, the ry favourable for icing con	ing the carburetor throttle closed nditions.	
NOTE	: In cold or wet atmosphe sensitivity to carbure in front of the carbure loss of 100 rpm in clin the above plate instal	ere, it is possible to red tor icing, installing the etor air intake. Note that mb and level flight is cur led.	uce the protection plate a corresponding rent practice with	
J <u>LET-D</u>	OWIN			
1 Se	et carburetor heating	pul	l on if necessary	
2 Se	et mixture control to \ldots	ful	l rich (full in)	
3 Er to	ngine rpm or preferabl c avoid too fast engine cc	••••••••••••••••••••••••••••••••••••••	ottle closed. 0 - 1800 rpm.	
A	djust engine rpm. to obtai	n desired let down rate at	cruising speed.	
K <u>BEFOR</u>	E LANDING			
1 Ch	neck again mixture control	••••••••••••••••••••••••••••••••••••••	l rich (full in)	
2 Ag	oply carburetor heating be	fore closing throttle		
3 Er	ngine	150	0 rpm.	

		ΜΛΝΠΙΛΤ	
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4 Re	educe speed at to open slats, m		- 75 mph. ude
5 La	ower flaps as required <u>onl</u> IAS = 65 - 70 mp	<u>y after</u> slats opened and m bh.	aintain
	Do not exceed IA	AS = 75 mph flaps down.	
6 T:	rim airplane with elevator	trim tab for glide	
<u>NOTE</u> : If f dur may	laps are lowered before sl ring the final landing at a be used currently but do	lats opened, the slats will about IAS = 55 mph. This t not provide the better la	l opened only ype of operation nding performance.
L APPRO	ACH		
1 Tł	nrottle		sed 800-900 rpm.
2 G	lide at IAS = 65 mph. sla IAS = 68 mph. sla IAS = 72 mph. sla IAS = 75 mph. sla	ts opened - flaps down 30° ts opened - flaps up 0° ts closed - flaps down 30° ts closed - flaps up 0°	
It a:	t is possible to decrease irplane does not land at g	the above gliding speed of ross weight.	3-4 mph when
3 T	rim tab ••••••••	••••• as 1	required
M <u>LANDI</u>	<u>NG</u>		
NORMA	L LANDING		
1 La	and the airplane. Landing	technique is conventional	
2 Ma wl	aintain elevator control f neel falls at IAS = 40 mph	ull rearward during ground 	l run. The nose
3 Ap	oply brakes	••••• as a	required.

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<u>GO-AROUND</u>

1.- Apply full throttle

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- 2.- <u>DO NOT FORGET TO PUSH</u> carburetor heating full in (cold)
- 3.- Retract flaps slowly and maintain IAS = 70 mph.

LANDING IN STRONG CROSS-WIND

Maximum permissible cross-wind 90 component : 20 knots

- 1.- Use minimum flaps setting for field lenght.
- 2.- Use low wing, crab, or combination method of drift correction.
- 3.- Land, set airplane straight on before touch down.

CAUTION LANDING

1.- Comply low rate of sink approach with

IAS = 55 mph. and 1500 rpm.

to obtain approximatively a 200 ft/min. rate of sink

2.- Land the airplane when it is very close to the ground and reduce throttle to land exactly on the intended point.

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N <u>AFTER</u>	LANDING		
1 Ra	aise flaps	•••••• up	
2 EI	levator trim tab	•••••••••	tral
3 Ca	arburetor heating	••••• pul	l in (cold)
0 <u>Engin</u> i	E STOP AT PARKING		
1 Pa	arking brakes	••••• app	lied on
2 Ma	agneto ignition check	••••••••••••••••••••••••••••••••••••••	, then 1 + 2
3 Le	et engine idling some time		
4 Tr	nrottle	••••• clo	sed
5. - St	op engine pulling the mixture cont	rol to	full lean position
6 At	ter the engine stop, turn off ignit	tion switches	
7 Ra	adio	••••••••••••••••••••••••••••••••••••••	
8 Ba	attery master switch	••••• pus	h off
9 Fi	nel tank cock	••••• clo	sed
10 Mi	xture control	ful	l in (full rich)
11 Ca	anopy	••••••••	ned

P.- HOT WEATHER OPERATION

Revision 8

If ambiant air temperature is high (over 86° F)

- 1.- Pay special attention to oil temperature (max. 225° F) and climb with the faster climb schedule, slats closed IAS = 80 mph.
- 2.- Avoid to use carburetor heating if not necessary specially during taxi
- 3.- Set on the electrical fuel booster pump during taxi, take-off, approach and landing to avoid any vapor lock possibility.

<u>CAUTION</u> - The max. permissible oil temperature is 225° F (107 °C) with SAE 40 and only 190° F (88° C) with SAE 20 oil grade.

Q. COLD WEATHER OPERATION

Take account of the rules for cold weather operation.

- Pull the propeller through several times by hand to "break loose" or limber" the oil, 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.- Pull starter and turn on ignition switches only after some turns.
- 4.- Warm up progressively, with carburetor heating on
- 5.- <u>In flight.</u> Avoid excessive manual leaning in cruising flight and use minimum carburetor heat required for smooth operation.
- $\underline{\rm NOTE}$:Install the obstruction plate in front of the crankcase air intake if ground temperature is lower than 0° C (32° F)

Taxi on iced renway use the aileron control.

- to case the ground turns, specially with use the next procedure.
- on tail wind operation, rudder and aileron controls must be coordinated
- on nose wind operation, rudder and aileron controls must be cross positioned.

CAUTION : use SAE 20 when O.A.T. < 40° F

R. <u>STALL</u>

The stalls are very safewith a small of null longitudinal pitch down movement. The airplane is perfectly controllable during all 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

Revision 1

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

These slats open 20 mph 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.

Normal IAS slats operation in straight flight, zero bank

at 1800 lbs gross weight.

Elena position	Opening	course	Closing course		
Flaps posicion	Start	End	Start	End	
Up 0°	78	65	84	96	
Down 30°	68	57	68	81	

The above IAS are listed for information purpose only and may change \pm 4 mph. 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 than in straight flight, id est at higher indicated airspeeds.

For example

If in straight flight the slats open to 70 mph. in accelerated flight with a load factor of 2 (60° bank turn) the slats will open at IAS = 70 $\sqrt{2}$ = 99 mph.

warning the pilot that in the last flight condition, the airplane is at the same distance of stall with 99 mph IAS than is straight flight with 70 mph IAS.

Flaps up at weight 1800 lbs.

Airplane bank degrees		0	20°	40°	60°
Load factor		1	1.03	1.3	2
Stall speed	mph	56	58	64	79
Slats mean operation speed	mph	68	70	78	97

T. <u>OPERATION ON ROUGH FIELD</u>

- 1.- Lift the nose wheel with elevator control maintained full rearward, during taxi and take off run.
- 2.- Taxi over loose gravels 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 developped and the gravel will be blown back of the propeller rather than pulled into it.
- 4.- When unavoided small dents appear in the propeller blades, they should be immediately corrected.
- 5.- On dusty airfield, avoid to taxi with carburetor heating pulled because in this condition the alternate carburetor provide unfiltered air to engine.

SECTION III

EMERGENCY PROCEDURE

A.- <u>Generator failure</u>.

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

B.- Engine fire in flight.

- 1.- Turn off fuel cock
- 2.- Apply full throttle

Revision 2

- 3.- After engine is stopped switch off magneto ignition
- 4.- Switch off master battery switch
 - generator switch radio

C.- <u>Emergency landing, engine stopped</u>, before landing.

1.- Switch off all electrical switches after engine stop

2.- Turn off fuel cock

The best airplane fineness ratio speed is : 87 mph IAS slats closed. The airplane flies about $\underline{13 \text{ times its}}$ actual altitude (flaps up and slats closed).

D.- Cross country landing engine operating.

Examine the intended landing field during some low altitude runs (IAS = 75 mph., 1600-1800 rpm. flaps up) and comply a caution approach as listed sheet 14.

- E .- Flight canopy opened.
 - 1) It is normally possible to fly with the canopy slided opened 2 3 inches about.
 - 2) In emergency, it is possible to fly with canopy opened half course, but the canopy is then maintained by one point only at its rear side. Avoid to fly with canopy widely slided over 80 mph. IAS. Do not slide rearward the canopy over 20 inches.

<u>Caution.</u> - 1) - Do not forget to lock the canopy when opened.

 Canopy opened the I.A.S. is 13 mph higher than the true indicated airspeed following the rough airflow on the static air vent on rear fuselage.

SECTION IV

PERFORMANCES

The next performances are give for the gross weight on horizontal paved runway, no wind with 1 C 172 MDM or EM 7656 propeller

PERFORMANCES The next performances are give for the gross weight on horizontal paved runway, no wind with 1 C 172 MDM or EM 7656 propeller										MORANE-SAULI M.S. 885
°C -20 -10 0 +10 +20 +30 +40										VIER
<u>Take-off distance (ft)</u> 1810 lb.	0	820	886	968	1050	1132	1214	1312		Re
Distance required to take off and climb 50 feet,	1640	951	1033	1115	1197	1280	1378	1476		VI
flaps up, full throttle, 2300 rpm	3280	1066	1148	1246	1345	1443	1558	1673		
Take-off speed : 60 mph	4920	1230	1328	1427	1542	1656	1788	1919		ă
Speed at 50 feet : 68 mph (IIAS)	6560	1394	1493	1624	1755	1886	2034	2198		
Landing distance (ft) weight 1720 lb	0	722	738	754	770	787	804	820		
Distance required to land over 50 feet obstacle	1640	804	820	836	853	869	886	902		-
and stop.	3280	869	886	902	918	935	951	968		E F
Flaps full down	4920	918	935	951	968	984	1000	1017		
Approach at : 62 mph (TIAS)	6560	1033	1050	1066	1082	1100	1115	1132		
Normal rate of climb (ft/min) Weight 1810 lb.	0	807	778	748	718	698	679	649		
Full throttle, flaps up	1640	699	669	649	630	610	590	571		
Best rate of climb speed 87 mph (TIAS)	3280	600	580	560	541	521	502	482		
at sea level	4920	512	492	472	452	433	413	394		
	6560	403	394	384	374	354	344	334		A
	8200	315	305	295	285	265	256	246		PRI
	9840	226	216	206	197	177	167	157		H
	11480	129	118	108	98	88	78	69		1963
	Angle	of bank	c 0	0	20°	40°	600			
Stalling speeds - Power off TIAS (mph) Gross weight 1810 lb	Flaps Flaps	up down	55	5 0	57 52	63 57	78 70			Shee
The power on stall speeds are 7 mph lower than on the above to	able.									et : 2

FLIGHT MANUAL

•• 20

The T.O. and landing ground run are very close to 60% the 50 ft. distances listed in the above table

SECTION IV MORANE-SAULNIER M.S. 885 PERFORMANCES The next performances are give for the gross weight on horizontal paved runway, no wind with 1 C 172 MDM or FM 7653 ٥C +10 +20 +30 -20 -10 +40Zp feet Take-off distance (ft) 1810 lb. Revision Distance required to take off and climb 50 feet, 1.378 flaps up, full throttle, 2375 rpm Take-off speed : 60 mph (TIAS) ~ 1 Speed at 50 feet : 68 mph Landing distance (ft) 1720 lb 7.38 Distance required to land over 50 feet obstacle 8.36 FLIGHT MANUAL and stop. Flaps full down Approach at : 62 mph (TIAS) Normal rate of climb (ft/min) 1810 lb. Full throttle, flaps up Best rate of climb speed 87 mph (TIAS) 32.80 at sea level APRIL 0° 20° Angle of bank 40° 60° Stalling speeds - Power off TIAS (mph) Flaps up Sheet Gross weight 1810 lb Flaps down •• The power on stall speeds are 7 mph lower than on the above table. \bowtie The T.O. and landing ground run are very close to 60% of the 50 ft. distances listed in the above table

MODANE CALINIED		FLIGHT MANUAL		
MORANE-SAULINIER				Sheet : 21
M.S. 00J	Revision 7		APRIL 1963	

CRUISE PERFORMANCES. (Propeller Mac CAULEY 1 C 172 - MDM or EM 7656)

No wind - no fuel reserve - with adequate mixture leaning)

(with full rich mixture add 15 % fuel consumption)

Altitude ft.	rpm	Percentage of max power %	Ground speed mph	Fuel consumption US gal/h	Autonomy h.mn	Range st.miles
	2600	86	132	10.3	4.21	575
	2500	79	128	9.4	4.48	611
1.640	2400	71	120	8.3	5.24	646
1640	2300	61	112	7.25	6.11	692
	2200	53	105	6.75	6.40	704
	2100	49	100	6.2	7.15	717
	2650	86	131	10.3	4.22	573
	2600	79	130	9.4	4.48	622
	2500	72	123	8.5	5.18	656
3280	2400	65	116	7.5	5.57	692
	2300	58	111	6.9	6.32	725
	2200	49	104	6.2	7.14	754
	2100	44	98	5.55	8.06	796
	2650	80	129	9.4	4.47	615
	2600	75	126	8.6	5.14	655
	2500	68	122	7.9	5.40	690
4920	2400	61	116	7.25	6.12	715
	2300	55	110	6.5	6.57	757
	2200	48	103	5.95	7.33	777
	2100	42	97	5.3	8.30	822
	2625	76	127	8.72	5.09	653
	2550	69	123	8.05	5.35	687
6560	2500	65	120	7.5	5.57	715
0500	2400	58	114	6.9	6.32	742
	2300	52	106	6.1	7.24	785
	2200	47	101	5.55	8.06	817
	2600	67	126	7.8	5.45	718
8200	2500	63	121	7.4	6.03	737
	2400	56	112	6.6	6.48	762
	2300	49	106	5.8	7.43	817
	2575	63	123	7.4	6.03	742
9840	2500	60	119	7.15	6.18	752
	2400	54	112	6.35	7.05	792
	2300	48	105	5.7	7.54	830

Maximum level flight speed, sea level, full throttle 134 mph at 2680 rpm.

· 21	
• 21	

CRUISE PERFORMANCES. (Propeller Mac CAULEY 1 C 172 - MDM or EM 7653)

No wind - no fuel reserve - with adequate mixture leaning)

(with full rich mixture add 15 % fuel consumption)

Altitude ft.	rpm	Percentage of max power %	Ground speed mph	Fuel consumption US gal/h	Autonomy h.mn	Range st.miles
	2700	89	132	11.1	4.03	535
	2650	86	131	10.3	4.21	569
	2550	79	126	9.4	4.48	602
1640	2450	71	118	8.3	5.24	636
	2350	61	110	7.25	6.11	685
	2250	53	103	6.75	6.40	691
	2150	49	98	6.2	7.15	701
	2700	86	130	10.3	4.22	565
	2650	79	128	9.4	4.48	612
	2550	72	121	8.5	5.18	648
3280	2450	65	115	7.5	5.57	690
	2350	58	109	6.9	6.32	712
	2250	49	103	6.2	7.14	744
	2150	44	96	5.55	8.06	783
	2700	80	128	9.4	4.47	610
	2600	75	124	8.6	5.14	648
	2550	68	120	7.9	5.40	680
4920	2450	61	114	7.25	6.12	703
	2350	55	108	6.5	6.57	746
	2250	48	101	5.95	7.33	766
	2150	42	95	5.3	8.30	808
	2675	76	126	8.72	5.09	646
	2600	69	121	8.05	5.35	676
6560	2550	65	118	7.5	5.57	706
0500	2450	58	112	6.9	6.32	730
	2350	52	105	6.1	7.24	770
	2250	47	99	5.55	8.06	802
	2650	67	124	7.8	5.45	716
8200	2550	63	119	7.4	6.03	730
0200	2450	56	110	6.6	6.48	749
	2300	49	104	5.8	7.43	802
	2625	63	121	7.4	6.03	735
9840	2550	60	117	7.15	6.18	743
	2450	54	110	6.35	7.05	780
	2350	48	103	5.7	7.54	815

Maximum level flight speed, sea level, full throttle 135 mph at 2750 rpm.



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

MORANE-SALILNIER		FLIGHT MANUAL				
M.S. 885	Revision 9		APRIL 1971	Sheet : 23		
Serial Nº	:					
Registratior	ı :					
	<u>Actual Weight</u>	Scale <u>Reading</u>	Net <u>Tare Weight</u> lbs	<u>Arm Moment</u> in. in.lbs		
Left Main w	heel reaction					
Right Main	wheel reaction					
Nose Wheel	reaction					
Total as we	ighed					
Add						
Less						
<u>Empty</u> weight	(actual)					
It is responsability 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.						
<u>Max. T.O. We</u> <u>Center of gr</u>	<u>eight</u> Take off Landing <u>cavity limits</u>) 1918 lb (

See sheet 3 in I.

MORANE-SAULNIER		FLIGHT	MANUAL		
M.S. 885	Revision 3			JULY 1962	Sheet : 24
<u>Useful load</u>	weights and mo	oments.			
inches lbs	The momen	ts are calcul	ated from the	front face o	of firewall with
	FUEL			<u>OIL</u>	
Two	22.5 US gallo	ons each tank	5		
<u>US. gallons</u>	<u>Weight</u>	<u>Moment</u>	<u>Quarts</u>	<u>Weight</u>	Moment
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			
	<u>OCCL</u>	JPANTS or BAGO	GAGES on the RE	CAR SEAT	
<u>Fr</u>	cont seats			<u>Rear seat</u>	<u>5</u>
Weight	Mc	ment	Weight		Moment
100		3728	20		1399
120	2	1474	40		2798

Weight	<u>Moment</u>	Weight	<u>Moment</u>	
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			
360	13421			
380	14166			
400	14912			
420	15657			
440	16403			
<u>NOTE_</u> :	The rear seat may be occup	ed by two persons provided :		
- the total weight on the rear seats is under 240 lbs - the rear seat is equiped with two safety belts				

- weight and C.G. are within limits.

	FLIGHT MANUAL			
MORANE-SAULNIER M.S. 885	Revision 9	APRIL 1971	Sheet : 25	
	SAMPLE LOADING CALC	ULATION		
		Weight	Moment	
Empty weight	••••••	• • •		
0il		15.2	295	
Fuel		240	10080	
Pilot and fr	ont passenger	330	12343	
Rear passeng	er	100	6996	
Baggages on	rear seat	10	700	
Total at tak	e-off	· • •		
Estimated fu	al used in flight			
Total at lan	ding			
<u>NOTE</u> : The t	otal weight at take-off and at	landing must not ex	ceed	
1918 the r	lb., and the total moment must l mext center of gravity table.	be between the limit	s of	

MORANE-S	AULNIER
M.S.	885

CENTER OF GRAVITY TABLE

Revision 4

Weight	Minimum moment	Maximum moment
lbs	in.lbs	in.lbs
1000	32523	40200
1020	33174	41004
1040	33824	41808
1060	34475	42612
1080	35125	43416
1100	35776	44220
1120	36426	45024
1140	37077	45828
1160	37727	46632
1180	38378	47436
1200	39028	48240
1220	39679	49044
1240	40329	49848
1260	40979	40652
1280	41630	51456
1300	42280	52260
1320	42931	53064
1340	43581	53868
1360	44232	54672
1380	44882	55476
1400	45533	56280
1420	46183	57084
1440	46834	57888
1460	47484	58692
1480	48135	59496
1500	48785	60300
1520	49517	61104
1540	50252	61908
1560	50988	62712
1580	51727	63516
1600	52467	64320
1620	53210	65124
1640	53951	65928
1660	54702	66732
1680	55452	67536
1700	56203	68340
1720	56961	69144
1740	57713	69948
1760	58475	70752
1780	59231	71556
1800	59998	72360
1820	60757	73164
1840	61153	73968
1860	62293	74772
1880	63074	/55/6

MORANE-SAULNIER M.S. 885		FR	FLIGHT MANUAL		
			Revision 7	APRIL 1963	Sheet : 27
	Serial N° :				
	Registra	ation	1 :		
	Date :				
			LIST of EQUIPMENT		
			X installed in airplar O not installed in air	re rplane	
				Weight	Distance aft
]		lbs	<u>ot datum</u> in.
	Х	One	Mac CAULEY propeller		
		1 C	172 MDM 7652 to 7656	30	- 40
			ou EM 7652 to 7656	29	
	Х	One	electrical fuel pump electropulse	25	- 2.2
	Х	One	starter Delco Remy	15.5	- 9.8
	Х	One	generator Delco Remy		
		ē	a) 20 amp/h.	10.2	- 9.8
		k	o) 35 amp/h.	16.2	- 9.8
	Х	Two	fuel tanks		
		ā	a) 22.5 gallons each.	27.7	41.7
	Х	Two	main wheel M.S. Dwg.		
		1	№ 44.0.002	5.1	50.4
	Х	Two	brakes assemblies M.S. Dwg.		
		1	№ 47.0.002	1.7	50.4
		Two regi	main wheel tires with llar tubes		
	Х	ā	a) DUNLOP 420x150	9.3	50.4
		k) KLEBER-COLOMBES		
	Х	Two	main shock absorbers ERAM		
		1	1° E 8400 d	3.8	49.2
]			

MORANE-SAULNIER M.S. 885		FLIGHT MANUAL			
		Revision 1	FEBRUARY 1962	Sheet : 28	
			Weight	Distance aft <u>of datum</u>	
			lbs	in.	
Х	One r	ose wheel M.S. Dwg. 45.0.001	2.4	- 15.7	
	One r. regul	ose wheel tire with ar tube			
Х	a)	DUNLOP 330x130	5.3	- 15.7	
	b)	KLEBER COLOMBES			
Х	One n	ose shock absorber ERAM			
	N°	E. 9085 d	3.7	- 14.6	
	One 1	2 volts battery			
Х	a)	SAUNIER 12 V. 25 A.h	22	93.3	
	b)	S.A.F.T.			
	One l	anding light N° 204.117	1.1	- 25.6	
	One a	nticollision light N° 204.101	1.6	200.7	
	Three	e navigation lights (N° 204.127 (N° 204.128	0.09 0.13	43.3 223.2	
С	Artif gyro	icial horizon and directional with vaccum device 77.1.046	6.1	27.6	
	Seat	belt Aiglon			
	fr	cont seats : quantity	0.7	39.3	
	r∈	ear seats : quantity	0.9	70.9	
	Harne	ess EFA 602			
	fr	cont seats : quantity	3	39.3	
	re	ear seats : quantity			

	FLIGHT MANUAL		
MORANE-SAULNIER M.S. 885	Revision 1	FEBRUARY 1962	Sheet : 29
Serial N° :			
Registration	. :		
Date :			
		<u>RADIO EQUIPMENT</u>	
	Communicación V.H.F.		
	- Set		
	- Ancenna		
	- CONCION DOX	2	
	- Sot		
	- Control box	7	
	Navigation V H F	2	
	- Set		
	- Antenna		
	- Control box	X	
1			

	FI	LIGHT MANUAL				
MORANE-SAULNIER M.S. 885	Revision 6	DECEMBER 1962	Sheet : 30			
	<u>APPENDIX - A -</u>					
GLIDER	TOWING					
	The next conditions m	must be completed for towing. :				
 A propeller 7652 is absolutely required The installation of a thermocouple on a cylinder head is recommended The special towing device fitted at the rear of the fuselage (see option Maximum glider T.O. weight : 1100 lb. (N° 22) Maximum airplane T.O. weight for towing : 1480 lb. 						
Glider	towing . In excess o	f the normal flight procedure.				
1 Te to	1 Test the work of the hook of the glider and of the airplane before each towing flight.					
2 At	tach the cable at air	plane and at the glider.				
3 Ru	n slowly the airplane	to stretch the cable.				
4 Apply full throttle quickly but smoothly Maximum RPM at zero speed : 2300						
5 Take off normally flaps up or at first notch. The first flap notch reduce the airplane attitude but does not improve the rate of climb.						
6 Climb at IAS = 62 - 68 mph along the weight of the glider Minimum IAS for towing = 56 mph. Do not exceed 525° F for the cylinder head temperature Check that leading edge slats are fully extended.						
7 After releasing the glider use the next descent configuration to av a too strong cooling of the engine RPM 2000-2200 IAS = 100 - 110 mph			guration to avoid			
8 Re in	lease cable on airfie strument panel.	ld pulling twice the control lo	ocated on			
9 La	nd normally.					
Level	flight towing					
No particuliar condition is required excepted that requried by the type of glider.						
Towing	<u>take off on rough ai</u>	rfield				
Use same procedure but take off with <u>full</u> flaps down to reduce run and close up the flaps slowly after take off.			n to reduce T.O.			

Г

M.S. 885	Revision 6	DECEMBER 1962	
		APPEND	<u>IX - B -</u>
BANNE	R TOWING		
	The next conditions m	ust be completed for towing :	
- A E - The - The - Max - Max	propeller 7652 is absol e installation of a the e special towing device x. 100 CD.S for the aer ximum airplane T.O. wei	utely required ermocouple on a cylinder head i e fitted at the rear of the fus to banenr : 120 ght for towing : 1480 lb.	s recommended elage (see option (N° 22)
Banne	<u>er towingIn</u> excess of	the normal flight procedure.	
1 T	est the work of the hoo	ok of the airplane.	
2 A	ttach the cable at airr	plane and at the banner.	
3 Pr ol	ut the banner on the gr btained a sufficient sp	cound ahead of the airplane wh beed before the banner is flying	ich must have ng
I: a	n case of hooking by "H irplane shall be of 100	Pick up", the demonstration spe) km/h (62 mph) (54 kt).	eed of the
4 Aj M	pply full throttle quid aximum RPM at zero spec	ckly but smoothly ed : 2300	
5 T T i	ake off normally flaps he first flap notch rec mprove the rate of clir	up or at first notch. Auce the airplane attitude but mb.	does not
6 C. M Do Cl	limb at IAS = 62 - 68 r inimum IAS for towing = o not exceed 525° F for heck that leading edge	mph. = 56 mph. : the cylinder head temperature slats are fully extended.	Э.
7 A a	fter releasing of the k void a too strong cool: RPM 2000-2200	banner use the next descent cor ang of the engine IAS = 100 - 110 mph	ifiguration to
Towin	g take off on rough ai:	rfield	
run a	Use same procedure bu nd close up the flaps :	t take off with <u>full</u> flaps dow slowly after take off.	n to reduce T.O.