THE GLIDING FEDERATION OF AUSTRALIA

GFA AD/265

Issue 1

AIRWORTHINESS DIRECTIVE

CANCELLED 8/01/2019
REFER TYPE CERTIFICATE HOLDERS CURRENT DATA.

TYPE AFFECTED: Grob G 109 Powered Sailplane
All Serial numbers.

SUBJECT: Amendments to Flight Manual following service experience.

BACKGROUND: Grob TM 817-8 which forms part of this Airworthiness Directive details the procedure to bring the flight Manual up 14/11/82 edition standard.

REQUIRED ACTION: Replace existing manual pages with those attached, as soon as possible.

COMPLIANCE: The requirements of this Airworthiness Directive are mandatory. This Directive is issued pursuant to Air Navigation Regulations under the delegated authority of the Secretary of the Department of Aviation.

Issued by: M P Burns — Chief Technical Officer Airworthiness

Date 1/8/83

For and on behalf of: GLIDING FEDERATION OF AUSTRALIA

GROB TFE	Technical Information TM 817-8	GROB G 109

Subject: **Correction of the Flight Manual GROB G 109.**

Effectivity: **Motorglider GROB G 109 all serial numbers.**

Accomplishment: **Not later than March 31, 1983.**

Reason: **After considerable flight experience the take-off distances in the flight manual will be corrected. In addition further informations for powered flight operation will be made.**

Instructions: **To update the flight manual to revision state of 14.12.1982 the following pages have to be exchanged.**

Page 4 and 4a	(supersede issue of 22.10.1981): Revision list of 14.12.1982.
Page 11	(supersedes issue of 1.3.81): Colour markings of the oil temperature gage. Details to fuel.
Page 31	(supersedes issue of 1.3.82) and
Page 36a	(supersedes issue of 1.10.82): Use of the auxiliary fuel pump.
Page 41	(supersedes issue of 12.5.81): Details to the take-off distances.
Page 43	(supersedes issue of 1.3.81): Details about range and fuel flow.

Materials: **The exchange pages 4, 4a, 11, 31, 36a, 41 and 43 with date of issue 14.12.82 of the flight manual GROB G 109 have to be obtained from the manufacturer.**

Mattsies, Dec. 14, 1982

i.A. Dipl. Ing. H. Wilser

Wilser

Approved by LBA

28.

Datum	ersetzt Ausgabe vom	Bearbeitung		Seite

I. General

I. 1. Amendment list

No.	Page	Reference/ short title	Date	Signature
1	4,7,13,16, 19,23,24, 26a,41,42, 44	Increase of max. weight from 810 kg to 825 kg	12.05.81	
2	4,10,34,36a, 40	Supplements for the Flight Manual	1.10.81	
3	4,46a,47	Modified fuselage/ wing connections	22.10.81	
4	4,4a,11,31, 36a,41,43	Correction of the Flight Manual	14.12.82	

Pages included:

1	01.03.81
2	01.03.81
3	01.03.81
4	14.12.82
4a	14.12.82
5	01.03.81
6	01.03.81
7	12.05.81
8	01.03.81
9	01.03.81
10	01.10.81
11	14.12.82
12	01.03.81
13	12.05.81
14	01.03.81
15	01.03.81
16	12.05.81
17	01.03.81
18	01.03.81
19	12.05.81
20	01.03.81
21	01.03.81
22	01.03.81
23	12.05.81
24	12.05.81
25	01.03.81
26	01.03.81
26a	12.05.81
27	01.03.81
27a	01.03.81
28	01.03.81
29	01.03.81
30	01.03.81
30a	01.03.81
31	14.12.82
32	01.03.81
33	01.03.81
34	01.10.81
35	01.03.81
36	01.03.81
36a	14.12.82
37	01.03.81
38	01.03.81
39	01.03.81
40	01.10.81
41	14.12.82
42	12.05.81
42a	01.03.81
43	14.12.82
44	12.05.81
45	01.03.81
46	01.03.81
46a	22.10.81
47	22.10.81
48	01.03.81
49	01.03.81
50	01.03.81
51	01.03.81
51a	01.03.81
52	01.03.81
52a	01.03.81

Oil temperatures:

Max. Oiltemperatur (red line)		120° C
Cautionary range (yellow arc)		100° - 120° C
Operating range (green arc)		50° - 100° C
Minimum temperatur (red line)		50° C
Optimum operation temperatur	ca.	80° C

II. 4.4 Fuel:

Gasoline AVGAS 100 LL or
Automobile fuel premium (MOGAS min. grade ROZ 96,0 Octane)
Fuel additives may not be used.

Fuel capacity: 80 ltr. (17,6 imp.gal., 21,1 u.s.gal.) 56 kg (123
usuable: 78 ltr. (17,2 imp.gal., 20,6 u.s.gal.)

Note: Due to the installation position of the quantity meter, fuel quantity indications on the ground or flight are almost identical. At the "empty"-indication 4 ltrs. (0,9 imp.gal., 1,1 u.s.gal.) of fuel are remaining.
"Full" is indicated between 74 and 80 ltrs. (16,3 - 17,6 imp.gal., 19,6 - 21,1 u.s.gal.) total fuel. So initially the fuel indicator needle will not move after starting when the tank is completely filled.

II. 4.5 Cylinder-head temperatur:

Max. Cylinder-head temperatur (red line):
250° C, sensed at the hottest cylinder

III. 5. Starting the engine

1.	Prop. position	- "start" (pull the prop control knob back by 10 cm (4 in.))
2.	Choke	- pull with cold engine
3.	Throttle	- advance (2 cm (1 in.) out of idle
4.	Propeller	- free from persons and objects
5.	Main circuit breaker	- press
6.	Generator circuit breaker	- press
7.	Master switch	- on
8.	Auxiliary fuel pump	- on
9.	Electrical indications	- check (12 V Battery voltage)
10.	Ignition	- on
11.	Starter button	- press
12.	Radio and Nav.-equipment	- on after the engine is running

After the engine fires release starter button immediately and adjust throttle and choke so that the engine is running smoothly between 1000 and 1200 RPM.

Check the oilpressure; if no indication after 10 sec. shut off the engine.

Remark: The auxiliary fuel pump has to be switched on during take off, climb and landing.
During normal cruising the aux. fuel pump should be switched off.

If the engine does not fire after five starting procedures propably too much fuel was ingested and the spark plugs are wet.

Then:	1.	Ignition	- off
	2.	Choke	- in
	3.	Throttle	- full power
	4.	Rotate the prop about 10 times backwards manually	
	5.	Ignition	- on
	6.	Starter button	- press

III. 14. Landing

1. Airspeed	- reduce to minimum
2. Control stick	- smoothly pull back
3. Touchdown	- 3-point attitude
4. Airbrakes	- do not fully extend due to heavy breaking action.

- After touchdown keep the stick fully aft and reduce speed by operating the airbrakes in their extended position actuating the wheelbrakes.
- Maintain heading with rudder and the coupled tail-wheel

Maximum effective crosswind for takeoff and landing on wet and dry surfaces is 20 km/h (11Kts).

Note: Do not retract the airbrakes immediately after touchdown because unintentional floating will occur.

Engine shutdown:

1. Radios and navigation equipment	- off
2. Electrical switches	- off
3. Throttle	- idle (min. 2 min.
4. Ignition	- off
5. Auxiliary fuel pump	- off
6. Master switch	- off
7. Main circuit breaker	- pull
8. Generator circuit breaker (if with reset button)	- pull
9. Parking brake	- set

Note: When parking the airplane outside for a longer period (over night for ex.) wheel chocks have to be used due to possible decrease in braking action of the hydraulically actuated brakes. (See also page 49).

V. Performance datas

V. 1. Takeoff distance

All figures based on ICAO-standard atmosphere

ground roll	285 m (935 ft.)
Takeoff distance (15m; 50 ft. obstacle)	496 m (1627 ft.)
Liftoff speed	85 km/h (46 Kts)
Airspeed when crossing 15 m; 50 ft. obstacle	98 km/h (53 Kts)

	Field elev. MSL		Outside airtemperature °C / °F					
	m	ft	-10°C	14°F	0°C	32°F	+15°C	59°F	+30°C	86°F
Ground-roll m/ft	0	0	219	719	244	801	285	935	335	1099
	200	660	231	758	257	843	300	984	354	1161
	400	1310	242	794	269	883	315	1033	374	1227
	600	1970	253	830	283	928	331	1086	390	1280
	800	2620	267	876	299	981	347	1138	414	1358
Takeoff distance 15 m(50ft) obstacle m/ft	0	0	388	1273	432	1417	496	1627	594	1949
	200	660	409	1342	455	1493	525	1722	626	2054
	400	1310	430	1411	476	1562	552	1811	661	2169
	600	1970	448	1470	501	1644	583	1913	691	2267
	800	2620	473	1552	529	1736	613	2011	732	2402

Atmospheric moisture reduces the engine effect and enlarges the takeoff distance

All figures are based on a maximum weight of 825 kg = 1820 lbs., in Zero wind and from a dry, level, hard surface. For operating on a dry, level, grass surface increase distances by 7% of the "ground roll" figure.

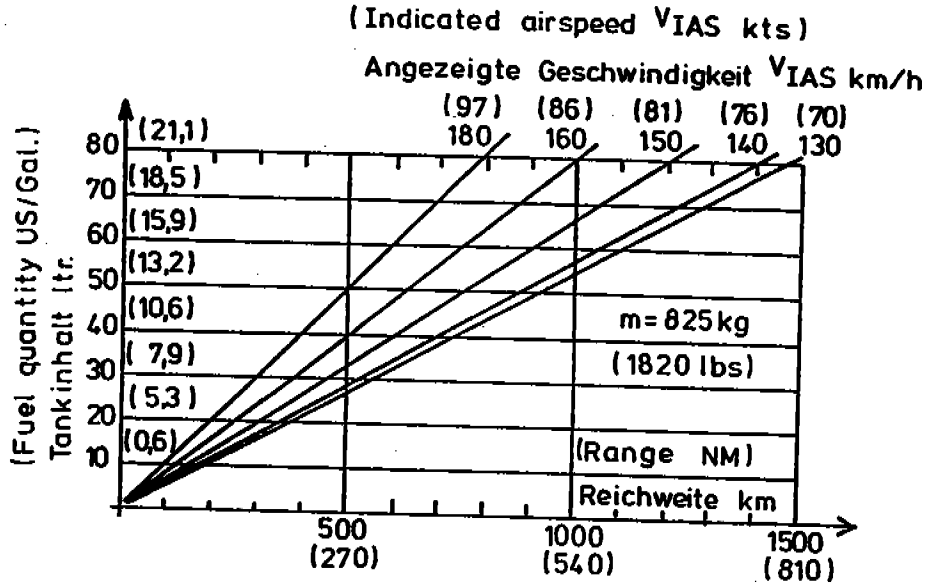
V. 2. Landing distance

All figures are based on ICAO-standard atmosphere

Landing roll	205 m (673 ft.)
Landing distance (50 ft. obstacle)	390 m (1280 ft.)
Approach speed	115 km/h (62 Kts.
Touchdown speed (depending on grossweight)	75 - 85 Km/h (41 - 46 Kts)

V. 7. Range

There is only little influence of the altitude to the range up to 1500 m (4920 ft.). The influence of the airspeed to the range is shown in the diagram. All datas shown are based on zero wind with no fuel reserve. Take off and climb are not considered.



Example: At 86 kts the range comes to 540 NM

V. 8. Fuel consumption

At 5000 ft MSL the following fuel flow exists:

Cruise	RPM	fuel flow
130 km/h (70 kts)	2100	7,5 ltr./h (1,6 imp. gal./h, 2,0 u.s. gal)
150 km/h (81 kts)	2550	12,5 ltr./h (2,7 imp. gal./h, 3,3 u.s. gal)
180 km/h (97 kts)	2850	19,0 ltr./h (4,2 imp. gal./h, 5,0 u.s. gal)
Full power	~3000	~20,0 ltr./h (4,4 imp. gal./h, 5,3 u.s. gal)

Note: All figures are based on good maintenance condition of the motorglider and its engine and average flying abilities of the pilot.