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INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

MAINTENANCE MANUAL

for the

MOTORGLIDER

DG-500MB

Commercial designation ***DG-505MB***

Model: DG-500MB

Data Sheet No.: EASA A.233

Factory Serial No.: _____

Year of Construction: _____

Registration No.: _____

Maintenance manual DG-500MB

Manual amendments

No.	Page	Description	Date
10	0, 1a, 2 - 5, 48, 52, 92, diagram 14	Fuel hoses TN500/10	Oktober 2016
11	1a, 2 - 6, 10, 13, 17, 21, 23, 24, 37, 38, 42-51, 69, 91, 93, diagrams 9, 12	Manual revision, TN500/11	July 2017
	0, 1a, 2, 4, 6, 34, 37, 92	TN500/13 Canopy lock, rear locking rods, manual revision	July 2019

Maintenance manual DG-500MB

1

Section	Content	Page	approved
0	Airworthiness limitations	5	July 2017
		6	July 2019
1.	System description and adjustment data		issued
1.1	Wing and tailplane setting data	7	Nov. 98
1.2	Elevator control and trim system	8	" "
	" "	9	" "
1.3	Rudder control	10	July 2017
1.4	Aileron and wing flaps control	11	Jan. 01
	" "	12	Nov. 98
	" "	13	July 2017
1.5	Airbrake control and wheel brake	14	Nov. 98
1.6	Undercarriage	15	" "
	" "	16	Sept. 11
1.7	Tow hooks	17	July 2017
1.8	Water ballast system	18	Nov. 98
1.9	Massbalance and weights of control surfaces	19	Jan. 01
1.10	Fore and aft play of the wings	20	Nov. 98
1.11	Power plant	21	July 2017
	" "	22	Nov. 98
	" "	23	July 2017
1.12	Retraction-extension mechanism	24	July 2017
1.13	Fuel system	25	March 04
	" "	26	July 02
	" "	27	" "
	" "	28	" "
	" "	29	Nov. 98
1.14	Electrical system	30	July 02
	" "	31	" "
	" "	32	" "
	" "	33	" "
	" "	34	July 2019
	" "	35	Nov. 98
	" "	36	" "
1.15	Canopy operating handles	36a	July 02
2.	Inspections		
2.1	Daily inspection	37	July 2019
2.2	Regular inspections	37	July 2017
	" "	38	July 2017
2.3	Inspection after a heavy landing	39	Nov. 98
	" "	40	Sept. 11
	" "	41	Sept. 11
2.4	Inspection procedure for increase of service	42	July 2017

Maintenance manual DG-500MB

Section	Content	Page	issued
5	Weight and balance	86	Nov. 98
	" "	87	" "
6.	Instrumentation and accessories list	88	" "
	" "	89	May 08
	" "	89a	May 08
7.	List of special tools	90	Nov. 98
8.	Partslist	91	July 2017
	" "	92	July 2019
	" "	93	July 2017
Diagrams			issued
1	Elevator control , trim		April 90
2	Rudder control		" "
3	Controls in the fuselage (aileron, wing flaps and airbrakes)		" "
4	Controls in the wings (aileron, wing flaps and airbrakes)		" "
5	Tow releases		" "
6	Water ballast system		" "
7a	Landing gear, hydraulic wheel brake (wheels from ser. No. 52002 on and ser. No. 51833)		July 11
8	Systems for static and total pressure		April 90
9	Placards		July 2017
10	Steerable nose wheel		April 90
11	Powerplant		Sept. 98
12	Cooling system		July 2017
13b	Extension-retraction mechanism		June 03
14	Fuel system		October 2016
14a	Installation of the fuel filter		Sept. 98
15	Propellerbrake		" "
16	Engine door control		" "
17	Retaining cable		" "
18	Retaining cable		March 04
Enclosures			issued
	Equipment list	(94)	Nov. 98
	Checklist for checks and maintenance work	(95)	Nov. 98
	5EP31 Installation Dräger oxygen system		08.10.90
	5EP50 Installation ELT ACK		07.12.98
	5E101 Wiring scheme issue I		25.06.03
	5E102 Wiring plan DIN A 1 (in aircraft log) or		2.07.03
	5E102 Wiring plan DIN A 1 together with		02.02.99
	5E218 Amendment to the wiring plan 5E102		25.06.03
	Instructions for inspection 500/20		July 1995
	Questionnaire for TN 348/4		" "
	Working instruction No. 1 for TN 348/4		Oct. 1994
	Working instruction No. 2 for TN 348/4		" "
	5V18 Tool for airbrake adjustment		14.10.94
	Drawing W40		30.11.99
	Drawing W51		20.11.96
	Drawing W57		10.09.99
	Drawing 8E210		22.05.97
	Drawing 5M110		23.10.02
	Enclosure 1 Instructions for transponder Installation		Jan. 06
	Working instruction No. 1 for TN348/20 issue 3, headrest securing ropes		22.10.08
Issued: July 2019 TN500/13			4

Maintenance manual DG-500MB

Instructions for continued airworthiness

- j) **Flexible fuel bags in the wings (option)**
These have to be exchanged after 10 years.

Note: The **brake fluid of the wheel brake** has to be exchanged after 4 years (types see section 1.6.4).

Note: All **other components** like tow hook, wheels, gas struts, control system parts, bolts, pins etc. have no life time limitation, but should be replaced when worn, damaged or disqualified by excessive corrosion.

0.4 Service time, maintenance documents

Follow the instructions of the respective manufacturer.

- a) Operating Manual for Tow Releases
Series: E 85 Nose Tow Release
latest approved version

Operating Manual for Safety Tow Releases
Series: Europa G 88 Safety Tow Release
latest approved version
- b) Safety harness: instructions of the manufacturer latest approved version.
Approved types see section 6.3.
- c) Minimum instrumentation: instructions of the manufacturer.
Approved types see section 6.1, 6.2 and 6.4.
- d) Engine: Manual for Solo 2625 02 latest approved version
- e) Propeller: Technoflug Operation and maintenance manual No. P3 latest approved version

0.5 Power plant trouble shooting

Please find a checklist in the DG-500MB flight manual sect. 8.8.

Maintenance manual DG-500MB

1.14.13 **Circuit breakers and fuses**

1. In the console of the front instrument panel:
 - a) circuit breaker 10 A for the generator and the control unit
 - b) circuit breaker 2 A for the electric variometer
 - c) circuit breaker 3 A for the radio
 - d) circuit breaker 3 A spare for turn- and bank indicator or horizon
 - e) circuit breaker 4 A for the 12 V socket
 - f) circuit breaker 5 A for the DEI, secures also the first fuel pump and the coolant-pump (only when operated via the battery)
 - g) circuit breaker 15 A for the engine extension - retraction motor
2. The battery main fuses are located in the left hand side console of the rear cockpit: 2 pieces 60 A.
3. Fuse 250V 0.2A 5x20 m for the fire warning light located in the wiring near the master switch.
4. In the control unit (located in the lower end of the rear instrument column):
 - a) Fuse 250V 2A 5x20 m for the second fuel pump installed in the housing of the control unit.
 - b) Resettable fuses inside the control unit for the following circuits: proximity switch (0,2A) and coolant pump (4A) for power supply from the generator.

1.14.14 **Position switches** for the powerplant see sect. 1.12.5 and 1.12.6.

1.14.15 **Proximity switch**

The proximity switch at the engine receives the switching pulses by the steel pins located at the upper drive belt pulley (see drawing 5M110 enclosed to this manual).

The proximity switch effects the following functions:

1. Activation of the retraction mechanism and indication in the DEI
2. Pulses for the RPM measurement
3. Electric propeller brake

The switch must be adjusted so that the propeller can't hit the engine door during retraction. If the switch is moved (distance reduced) the range will be enlarged.

If the distance is too large, the RPM measurement won't work correctly. For a new adjustment start with a distance of 1.4 – 1.6mm (.055 – 0.063 in.). It is absolutely essential to secure the switch with the 4 counter nuts and Loctite 243, as damage to the switch will stop the RPM measurement and the retraction-extension control unit. With a defective proximity switch (short circuit) or with the generator circuit breaker popped out **000** will be displayed on the DEI.

Maintenance manual DG-500MB

2. Inspections

2.1 Daily inspection

see flight manual DG-500MB

2.2 Regular inspections

A) Annual inspection (and 100hr inspection – only for USA)

- Execute all items of the daily inspection (see flight manual section 4.3). Check especially the headrest securing ropes in the rear cockpit according to “Working instruction No. 1 for TN348/20 issue 3” (attached to this manual) for correct assembly and for wear.
- Check the rudder cables for wear especially around the “S” tubes on the rudder pedals. Worn rudder cables should be replaced (see sect.4.2).
- Check the sealing of the rudder (see sect.1.3.5).
- Inspect all bolted connections and locking devices ie. locknuts, split pins etc.
- Check all metal parts for adequate greasing and rust prevention. (see sect. 3.3).
- Check the control surface deflections (see sect. 1.2 - 1.4).
- Check the free play in all control circuits (see sect. 1.2 - 1.6) and the fore and aft play of the wings (see sect. 1.10).
- Check the canopy emergency releases according to sect. 7.15 of the flight manual.
- Check the tension of the lines of the waterbag attachment (see sect. 4.1.).
- Check the rubber cords in the control system (see sect. 1.2.6, 1.4.6 and 1.7.5).
- Check the thickness of the wheel brake linings and the thickness of the wheel brake disc (see section 1.6.1.4).
- Check if the brake fluid has to be exchanged (see sect. 1.6.4).
- Check the airbrakes according to "Instructions for inspection 500/20" (at the end of this manual).
- Check the friction brake of the throttle control (see sect. 1.11.8).
Check if the powerplant has been serviced according to section 3.5.1
- Check the torque of the propeller bolts see sect. 3.5.1 item 25 of this manual.
- Check the friction of the canopy operating handles see section 1.15.
- Check if the rear locking rods of front and rear canopy are screwed in tightly. To accomplish this close the locking mechanism with canopy open and try to rotate the locking rod clockwise using small pipe pliers and a piece of abrasive paper 240 grid around the rod to protect the rod from damage.

Maintenance manual DG-500MB

60000330 Rubber mount at engine hinge axis Ultrabuchse 0118288

For the fuel system

60507550 Drainer CAV 110 (1/8" NPT)

Warning: Replace the sealing ring of the drainer against partno. 60504402 prior to installation

60504402 Sealing ring for drainer CAV 110 (for automotive fuel)

39001004 Service kit fuel lines incl. gasket for the drainer valve

40872880 Filter for primer valve

60000527 Fuel cock KH 1078TI/A

60507604 Coupling KL-006-2-SL009 for fuel filler hose (without optional permanently installed fuel pump system)

60507600 Coupling KL-006-0-SL009 for fuel wing tanks (at fuselage) and for fuel filler hose (with optional permanently installed fuel pump system)

60507601 Coupling KL-006-2-WR513 for fuel wing tanks (at wing)

40675291 Pressure switch in fuel system 901.10 ready to install

60510471 Membrane for pressure switch in fuel system

60510472 Cover cap for pressure switch in fuel system

For the cooling system

60510565 Probe for coolant temperature TG 150/2

39001019 Service kit cooling system hoses

Rubber mounts for radiator

60000275 2 pieces Rundlager Type B (upper mount)

60000262 1 piece Rundlager Type A (lower mount)