Manual amendments

Rev. No.	Page	Description	Date	Signature
1	2, 4, 23, 27	TN 348/9	Oct. 97	
2	2, 9, 17, 26	TN 348/15	Jan. 01	
3	2-4, 7, 11, 19, 23, 24, 37, 37a	Manual revision TN348/20	May 08	

Instructions for continued airworthiness

Note: Those manual pages which are similar for both the variant DG-500/20 ELAN and the type DG-500/22 ELAN are taken directly from the manual DG-500/22 ELAN without any change.
The special pages for variant DG-500/20 ELAN are marked in this list with /20 after the page no..

	Content	Page	LBA approved
0	**Airworthiness limitations**	4	May 08
1.	**System description and adjustment data**		**issued**
1.1	Wing and tailgroup setting data	5	July 90
1.2	Elevator control and trim system	6	" "
		7	May 08
1.3	Rudder control	8	Oct. 92
1.4	Aileron and wing flaps control	9	Jan. 01
		10/20	Febr. 95
		11	May 08
1.5	Airbrake control and wheel brake	12	July 90
1.6	Undercarriage	13	" "
		14	" "
1.7	Tow hooks	15	Oct. 92
1.8	Waterballast	16	July 90
1.9	Massbalance and weights of control surface	17/20	Jan 01
1.10	Fore and aft play of the wings	18	July 90
2.	**Inspections**		
2.1	Daily inspection	19/20	May 08
2.2	Regular inspections	19/20	May 08
2.3	Inspection after a heavy landing	20	Oct. 92
		21	July 90
		22	July 90
2.4	Inspection procedure for increase of service time	23	May 08
		24	May 08
3.	**Maintenance**		
3.1	General maintenance	25	Oct. 92
3.2	Maintenance of the airframe	26/20	Jan. 01
3.3	Greasing programme	26/20	" "
3.4	Damage of the airframe	27	Oct. 97
3.5	Hydraulic brake system	27	Oct. 97
4.	**Detailed instructions for assembly and servicing work**		
4.1	Replacement of the water ballast bags and servicing of the valves	28	July 90
4.2	Replacement of control cables	29	" "
4.3	Adjustment and servicing of the control circuit	29	" "
4.4	Removal and installation of the undercarriage	30	" "
		31	" "
4.5	Filling and bleeding the hydraulic disc wheel brake	32	" "
		33	" "

Instructions for continued airworthiness

	Content	Page	issued
5.	**Centre of gravity measurements-weighing**	34 35	July 90 " "
6.	**Instruments and accessories list**	36 37 37a	Oct. 92 May 08 May 08
7.	**List of special tools**	38	July 90

	Diagrams	**issued**
1	Elevator control circuit, trim	April 90
2	Rudder control circuit	" "
3	Aileron, wing flap and spoiler control circuits, fuselage side	" "
4	Aileron, wing flap and spoiler control circuits, wing side	" "
5	Tow hooks	" "
6	Waterballast system	" "
7	Landing gear, hydraulic wheel brake	June 93
8	Pitot/static system	April 90
9	Placards	" "

Enclosures

Equipment list	July 90
5EP34 Installation Dräger oxygen system	25.01.90
5EP30 Installation ELT	27.02.91
Instruction for inspection 500/20	Febr. 95
Questionnaire for TN 348/4	Oct. 94
Working instruction No. 1 for TN 348/4	Oct. 94
Working instruction No. 2 for TN 348/4	Oct. 94
5V18 Tool for airbrake adjustment	14.10.94

Instructions for continued airworthiness

0 Airworthiness limitations

0.1 Repairs:

Repair damaged wings, fuselage and tail surfaces prior to next flight.
Repairs outside the scope of DG Flugzeugbau DG-500/22 repair manual and major repairs must be accomplished at a certified repair station or a certified mechanic rated for composite aircraft structure work in accordance with DG Flugzeugbau repair methods.
Use only genuine spare parts.

0.2 Life time of the airframe

The maximum allowable operating time for composite sailplanes is 12000 flight hours. Therefore inspection according to sect. 2.4 of this manual has to be executed at 3000 h, 6000 h, 9000 h and every 1000 hours following thereafter.

0.3 Life time of components

a) The fabric straps of the safety harness have to be exchanged after 12 years.

b) The rubber cords in the elevator control system see sect. 1.2.6 and in the wing flap control system see sect. 1.4.6 have to be replaced at least every 5 years.

c) **Other components**
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.

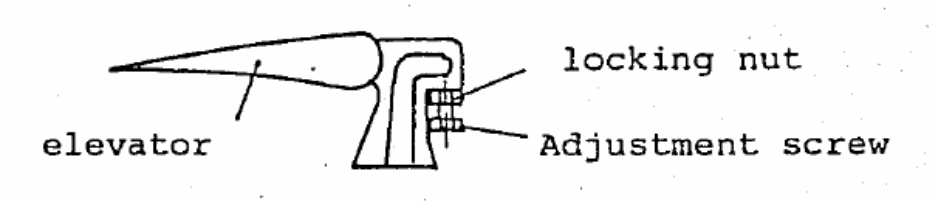
a) Operating Manual for Tow Releases
Series: E 85 Nose Tow Release
Date of Issue: March 1989

Operating Manual for Safety Tow Releases
Series: Europa G 88 Safety Tow Release
Date of Issue: February 1989

b) safety harness: instructions of the manufacturer

c) minimum instrumentation: instructions of the manufacturer

1.2.4 Any free play can be reduced by screwing in the adjustment screw on the automatic connector funnel.

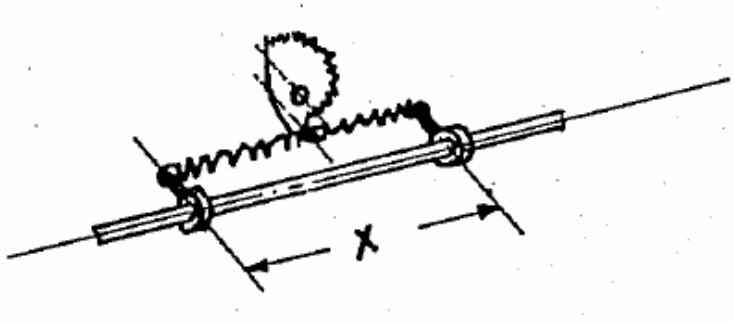


1.2.5 **Trim**

The trim mechanism should be adjusted so that with full forward (nose down) trim the control column is in the maximum forward position.

The tensioning of the trim mechanism springs is adjusted as shown in the sketch. x = 340 mm (13.4 in.)

The springs are located in the rear cockpit on the left hand side.



1.2.6 **Pilot force reducing rubbercord**

The rubber cord produces an elevator stick force in push direction. If the trim efficiency of your DG-500 in push direction is reduced, you have to inspect the rubber cord. The rubber cord is located on the left hand side behind the main bulkhead below the baggage compartment floor. The rubber cord runs from bellcrank 5St19 to a fork at the main bulkhead. The length of the rubber cord when loose should be 500 mm (19.7 in.).
If the cord is longer or worn it must be replaced. The cord must be replaced at least every 6 years.

then:
1. Adjust the control stick to neutral.
2. Adjust the wing flap handle to 0° flapsetting.
3. Adjust wing flaps and ailerons to zero.

Adjustment of the ailerons
Deflect aileron downwards. Then screw off the aileron control surface horn 5St3/2 (at the wing parting) by use of a 10 mm socket wrench.

Then loosen the counter nut at the rod end with a 10 mm open end wrench.
Adjustment is made by rotating the complete drive.

Note: Secure the bolts again with a small amount of Loctite 72 b (672) resp. Loctite 243.

Adjustment of the wing flaps
Adjust at the rod ends of the pushrods 5ST56 which run from the mixer shaft 5 St 60 to the wing flaps operating shaft 5St54.
4. Adjust the aileron stops. (See 1.4.3)
5. Check the flap deflections and adjust the stops if necessary. (See 1.4.3)

1.4.6 **Pilot force reducing rubber cord**
The rubber cord in the wing flap control system reduces the pilot forces when moving the flap into the positive positions. The cord is located on the left hand side behind the main bulkhead below the baggage compartment floor. The cord runs from a fork at the main bulkhead around a pulley at the rear main bulkhead to the spring at pushrod 5St74. The length of the rubber cord when loose should be 700 mm (27.5 in.) If the cord is longer or worn it must be replaced. It must be replaced at least every
6 years.

2. Inspections

2.1 Daily inspection

see flight manual section 4.3

2.2 Regular inspections

A **After 200 flight hours and during the annual inspection**
Check the rudder cables for wear especially around the S tubes on the rudder pedals. Worn rudder cables should be replaced (see section 4.2).
Check the sealing of the rudder (see section 1.3.5).

B **Annual inspection** (and 100hr inspection – only for USA)

- Execute all items of the daily inspection see flight manual section 4.3.
- Inspect all bolted connections and locking devices ie. locknuts, split pins etc.
- Check all metal parts for adequate greasing and rust prevention. (see section 3.3).
- Check the control surface deflections (see sections 1.2 up to 1.4).
- Check the free play in all control circuits (see section 1.2 up to 1.6)
- Check the fore and aft play of the wings (see section 1.10).
- Check the canopy emergency releases according to section 7.15 of the flight manual.
- Check the rubber cords in the control system (see sections 1.2.6, 1.4.6 and 1.7.5.
- Check the thickness of the wheel brake linings (see section 1.6.4).
- Check if the brake fluid has to be exchanged (see section 1.6.4).
- Check the airbrakes according to instructions for inspection 500/20 (encl. to this manual)
- **Tow hooks:** The operating and maintenance instructions for the release mechanisms, see sect. 0.4 of this maintenance manual have to be followed.
- **All-up weight and centre of gravity:** These should be checked at least every 4 years.

C **Every 3 months**
Check the tension of the lines of the waterbag attachment (see section 4.1).

D **Special inspections**
Tow hook:
After a wheel-up landing, the C.G. tow hook is to be cleaned and to be carefully checked for any damage.
C.G. weighing: After all work which may influence the C.G.

2.4 Inspection procedure for increase of service time

1. General

The results of fatigue tests of wingspan sections have demonstrated that the service time of GFRP/CFRP gliders and motorgliders may be limited to 12000 hours, if for each individual glider (in addition to the obligatory annual inspections) the airworthiness is demonstrated according to a special multi-step inspection program particularly with regard to the service life.

2. Dates

When the glider has reached a service time of 3000 hours, an inspection must be done in accordance with the inspection program mentioned under point 3. If the results of this inspection are positive or if any defects found have been duly repaired, the service time of the glider is extended by another 3000 hours to a total of 6000 hours (first step).

The above inspection program must be repeated when the glider has reached a service time of 6000 hours. If the results of this inspection are positive or if any defects found have been duly repaired, the service time of the glider is extended to 9000 hours (second step).

When the glider has reached a service time of 9000 h the above inspection program must be repeated. If the results of the inspection are still positive, or if any defects found have been duly repaired, the service time may be extended to a total of 10000 hours (third step).

Proceed analogous when reaching 10000 and 11000 hours (4. + 5. step).

3. Ask the manufacturer for the necessary inspection document.
   When you request the inspection document, the following data should be submitted: Model/Type, Registration, Serial Number and the operating hours at which the inspection will be performed. A charge will be made for the inspection document.

4. The inspection must only be done by the manufacturer or by a licensed repair station or inspector.

5. The results of the inspections have to be recorded in an inspection test report wherein comments are required for each inspection instruction. If the inspections are done outside the manufacturer's facilities, a copy of the records must be sent to the manufacturer for his evaluation and information

6.5 **VHF transceiver**

Manufacturer	Type	**Certification No.**
Dittel	FSG-40 S	10.911/45
	FSG-50	10.911/71
	FSG-60 M	10.911/72
	FSG-70,71 M	10.911/81
	FSG-90	10.911/98JTSO
	FSG 2T	LBA.0.10.911/103JTSO
Becker	AR 3201-(1)	10.911/76
	AR 2008/25 (A)	10.911/48
	AR 4201	JTSO-2C37 D, ED-23A
Filser	ATR 720 A	10.911/74
	ATR 720 C	10.911/83
	ATR 600	LBA.0.10.911/106JTSO
	ATR 500	LBA.0.10.911/113JTSO
	ATR 833	EASA.210.0193

or other instruments certified for aircraft use according to TSO or JTSO or ETSO standards may be installed.

Note: Only radios with diameter 58mm (2 ¼ in.) can be installed at the assigned place in the console below the instrument panel.

6.6 **Variometer**

Manufacturer	**Type**	**Certification No.**
Winter 5 St VM5 (dia.58 mm)		TS 10.230/14
	±5 m/sec Ident.No.5451	
	±1000 ft/min ident.No.5452	
	±10 knts Ident.No.5453	
Winter 5 StV5 (dia.80 mm)		TS 10.230/13
	±5 m/sec Ident.No.5251	
	±1000 ft/min Ident.No.5252	
	±10 knts Ident.No.5253	

6.7 **Turn and bank indicator**

Manufacturer	**Type**	**Certification No.**
Apparatebau Gauting	WZ-402/31 12 V	10.241/8

Instruments which are not part of the minimum equipment:

Transponders: Transponders certified for aircraft use according to TSO or JTSO or ETSO standards may be installed.

Other instruments and equipment (eg. variometers, gliding computers or flight data recorders):
Instruments and other equipment may be installed if they do not in themselves, or by their effect upon the sailplane, constitute a hazard to safe operation.

Caution: If additional instruments or equipment are to be installed after production of the glider, it must be assured that they will be installed in the places provided by the design. If installed in other places it must be assured that they are secured safely.
Electrical instruments and equipment must be connected via appropriately rated fuses, the power consumption of each single part should not exceed 3A.

After installation raise a new weight and balance report.