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	

Content **Page** **LBA approved**

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 behind the page no..

0	Airworthiness limitations	4	Oct. 97
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	Oct. 92
1.3	Rudder control	8	" "
1.4	Aileron and wing flaps control	9	Jan. 01
		10/20	Febr.95
		11	Oct. 92
1.5	Airbrake control and wheel brake	12	" "
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	Febr.95
2.2	Regular inspections	"	" "
2.3	Inspection after a heavy landing	20	Oct. 92
		21	July 90
		22	" "
2.4	Inspection procedure for increase of service time	23	Oct. 97
		24	July 90
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

3. **Maintenance**

3.2 **Maintenance of the airframe**

The sailplane is service free except for the care of the surfaces (see sect. 3.1) and greasing and oiling of the control system and all pins (see sect. 3.3).

After a landing in a soft field, the undercarriage box and tow hook should be thoroughly cleaned.

3.3 **Greasing and oiling**

A The contact surfaces of the canopies to the fuselage are to be rubbed with colourless floor-polish (canopy and fuselage side) to reduce grating noise in flight. Polish at the beginning of the flight season and then every month.

B Once a year your DG-500/20 should be carefully checked and all bearings, including control surface hinges, should be cleaned and greased if necessary. The various greasing points are as follows:

- Aileron drive connections at the inboard aileron.
- Airbrake drive connection - in airbrake box, also grease the brake paddle pivots.
- Remove the access panels on the left hand cockpit walls and grease all the pushrod guides, but not those with Teflon linings, note see below.
- Remove the baggage compartment floors and open the baggage compartment rear cover to grease all bearings.
- Open the access panels (2 in the front and 2 in the rear cockpit). In the rear cockpit you have to remove the height adjustable seat pan first. Grease all accessible bearings (ball bearings and rod ends with universal bearings)
- Remove the control column covers and grease all the bearings associated with the control columns.
- Grease the rudder pedal adjustment slide.
- Oil all hinge points on the undercarriage in the undercarriage box.
- Clean and grease all control surfaces hinges.
- Clean and grease the control hook ups for wing flaps, ailerons, airbrakes and elevator control.
- Clean and grease all pins and bushes of the wing and tailplane attachment.

Note: The greases we recommend are lithium based pressure-resistant anti-corrosion greases or lithium-soap greases (multi-purpose greases for rolling element bearings).

Note: The sliding guides of the following parts are made from Teflon and should not be greased:

Landing gear controlhandle 5FW39 on 5St68/2, Airbrake control handle 5St69 on 5St68/1 and wingflaps handle 5St72 on 5 St68/2.

If these parts have been greased inadvertently you have to disassemble the parts and to clean them completely with Acetone.

1.4 **Aileron and wing flap control**

1.4.1 **Control circuit** (see diagrams 3 and 4)

A spring at the mixer shaft 5St60 provides additional aileron return force at positive wing flap settings.

1.4.2 **Deflections and tolerances**

Aileron deflections:

up	20° ± 1°	64 ± 3 mm (2.52 ± 0.12 in.)
down	10° ± 1°	32 ± 3 mm (1.26 ± 0.12 in.)

measured at 182 mm (7.17 in.) from hinge axis (at the aileron root), wing flap setting 0°.

Wing flap deflections:

- 10°	- 40 ± 3 mm	(1.57 ± 0.12 in.)
L = + 15°	+ 59 ± 3 mm	(2.32 ± 0.12 in.)

measured at 228 mm (9.0 in.) from hinge axis against the fixed part at the wing root. At flap setting 0° the wingflaps have to be adjusted against the fixed part at the wing root with 0 ± 1 mm (0 ± 0.04 in.).

1.4.3 **Stops**

The aileron stops are located at the rear control column and can be adjusted with two 10 mm open-end wrenches.

The stop for positive wingflap setting is located under the removable left-hand side panel of the rear seat on the pushrod of the wingflap handle 5St73.

The sleeve which is riveted to the rod must stop at the main bulkhead in landing setting. Adjustment is by adjusting the rear pushrod 5St74 against 5St73.

The stop for negative setting (front) is located in the front cockpit on the inner guiding tube 5ST68/2 of the front wingflap handle 5St72.

Adjustment by placing shims with inside diameter 12 mm (0.47 in.) between 5ST72 and the sleeve which is riveted to 5St68/2.

1.9 Massbalance and weights of control surfaces

After repairs or repainting the control surfaces weights and moments should not exceed the following limits.

Control Surface	Weight kg (lbs.) min.	Weight kg (lbs.) max.	Moment kg cm (lbs.in.) min.	Moment kg cm (lbs.in.) max.	Spring balance reading see instructions below kg (lbs.) min.	Spring balance reading see instructions below kg (lbs.) max.
Rudder	4.4	5.1	7	10	0.350	0.500
(with massbalance)	(9.7)	(11.2)	(6.08)	(8.68)	(0.77)	(1.1)
Elevator	4.3	5.1	13	15.25	0.572	0.672
(without pushrod)	(9.5)	(11.2)	(11.28)	(13.24)	(1.26)	(1.48)
Wing flaps	5.9	8.0	22.24	27.56	1.049	1.300
	(13.0)	(17.6)	(19.30)	(23.92)	(2.312)	(2.865)
Inboard ailerons	0.8	1.1	2.95	4	0.162	0.220
	(1.76)	(2.43)	(2.56)	(3.47)	(0.357)	(0.485)
Outboard ailerons	3.24	4.4	2.76	5.00	0.199	0.360
	(7.14)	(9.70)	(2.40)	(4.34)	(0.439)	(0.793)

Note: Before any changes to the massbalance weights are made, contact the DG Flugzeugbau factory.

Method for determining control surface moments

Rudder

Disconnect rudder cables, lay the fuselage on its side so that the fin is horizontal. Attach (by tape) a spring balance to the lower end of the rudder 200 mm (7.9 in.) behind the hinge axis.

All other control surfaces

Remove the control surface and hang it friction free on two hinge points.

Control surface	measuring point	behind hinge axis mm	behind hinge axis (in.)
Elevator	center	227	(8.94)
Wingflap	1. hinge outboard from root	212	(8.35)
Inboard aileron	root	182	(7.17)
Outboard aileron	2. hinge	139	(5.47)