

Subject: Flight and Maintenance Manuals

Effectivity: **Sailplane LS4-b, serial numbers between 4830 and 41054.**

Accomplishment: Until next annual inspection.

Reason: Update/Exchange of manual pages:

- a) By moving wing water ballast bags outward and reducing the maximum amount, the maximum weight of non-lifting parts can be increased.
- b) See TB 4047 for increase procedure and possible retrofit.
- c) Increase of structural life limit to max. 12000 hours.

- Material and Instructions:
1. Update/Exchange the following pages of manuals:
Flight Manual Edition 1992 (Without tail fin tank):
0-1, 0-2, 2-4, 4-7, 4-8a, 4-9a (Rev. 3)
Maintenance Manual Edition 1992: 0-1, 0-2, 2-3, 2-4a, 2-5a, 5-1, 5-2, 5-3 (Rev. 1)

Flight Manual Edition 1995 (With tail fin tank):
0-1, 0-2, 2-4, 4-7 to 4-9, 4-10a, 4-11a (Rev. SF2)
Maintenance Manual Edition 1995: 0-2, 0-3, 2-3, 2-4a, 2-5a, 5-1, 5-2, 5-3 (Rev. SF2)
 2. Procedure for use of increased Cockpit Load see TB 4047.

Weight and Balance: Not affected.

Remarks: Accomplishment by operator.

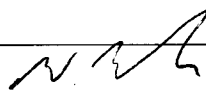
Accomplishment must be entered into logbook and TB-AD-Accomplishment List in Maintenance Manual and be signed by inspector.

LBA-approved:

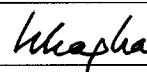
27. AUG. 2003

Prepared:
18. Dez. 02




Verified:



0.1 Log of Revisions

Any revision of the present manual, except actual weighing data, must be recorded in the following table and in case of approved Sections endorsed by the responsible airworthiness authority.

The new or amended text in the revised page will be indicated by a black vertical line in the left hand margin, and the revision No. and the date will be shown on the bottom left hand of the page.

Rev. No.	Pages affected	Date of Issue	LBA-Approval Signature	Date of Approval	Date of Insertion	Signature
SF1	0-1, 0-2, 4-6, 4-12	Oct. 1999 (TB 4043)	sign. Beckmann LBA	04.Nov. 1999		
SF2	0-1, 0-2, 2-4, 4-7 to 4-9, 4-10a, 4-11a	Dec. 2002 (TB 4046)		27. AUG. 2003		

Edition: Dec. 2002

Revision – SF2 (TB 4046)

Page 0-1

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Fussgüter 2002

0.2 List of Effective Pages

Chapter	Page	Date	Chapter	Page	Date
0	Title page	Jan. 1995	4	4-14	Jan. 1995
	0-1	<i>Dec. 2002 (TB 4046)</i>		4-15	Oct. 1999 (TB 4043)
	0-2	<i>Dec. 2002 (TB 4046)</i>			
	0-3	Jan. 1995			
1	1-1	Jan. 1995	5	5-1	Jan. 1995
	1-2	Jan. 1995		5-2	Jan. 1995
2	2-1	Jan. 1995	6	6-1	Jan. 1995
	2-2	Jan. 1995		6-2	Jan. 1995
	2-3	Jan. 1995	7		
	2-4	<i>Dec. 2002 (TB 4046)</i>		7-1	Jan. 1995
	2-5	Jan. 1995		7-2	Jan. 1995
	2-6	Jan. 1995		7-3	Jan. 1995
	2-7	Jan. 1995		7-4	Jan. 1995
	2-8	Jan. 1995		7-5	Jan. 1995
3	3-1	Jan. 1995	8	8-1	Jan. 1995
	3-2	Jan. 1995		8-2	Jan. 1995
	3-3	Jan. 1995		8-3	Jan. 1995
	3-4	Jan. 1995		8-4	Jan. 1995
	3-5	Jan. 1995		8-5	Jan. 1995
4	4-1	Jan. 1995		9	9-1
	4-2	Jan. 1995			
	4-3	Jan. 1995			
	4-4	Jan. 1995			
	4-5	Jan. 1995			
	4-6	Oct. 1999 (TB 4043)			
	4-7	<i>Dec. 2002 (TB 4046)</i>			
	4-8	<i>Dec. 2002 (TB 4046)</i>			
	4-9	<i>Dec. 2002 (TB 4046)</i>			
	4-10	Jan. 1995			
	4-10a	<i>Dec. 2002 (TB 4046)</i>			
	4-11	Jan. 1995			
	4-11a	<i>Dec. 2002 (TB 4046)</i>			
4-12	Jan. 1995				
4-13	Jan. 1995				

2.4 Mass (Weight)

<u>Maximum take-off mass including water ballast</u>	525 kg	1157 lbs
<u>Maximum mass without water ballast</u>	407 kg	897 lbs
Maximum landing mass.....	525 kg	1157 lbs
<u>Maximum mass of non-lifting parts</u>	230 to 247 kg	507 to 545 lbs
When water bags are removed or marked		
“V112” at the root rib.....	250 to 267 kg	551 to 589 lbs

Value must be determined according to table in Maintenance Manual, chapter 2, related to empty mass and empty mass C.G. position. The term “non-lifting” parts includes the following:

- Fuselage (with permanently installed instruments, canopy and main pins)
- Cockpit load
- Horizontal tail

Tail fin water ballast and tail fin battery do not count for “non-lifting” parts, but for maximum all-up weight.

<u>Wing water ballast</u> depending on loading conditions		
and ballast bags size.....	max. 100 kg	220 lbs
or. 160 kg	353 lbs

Loading instructions see pages 4-7 to 4-11a

Tail fin water ballast (depending on wing water ballast)

Without tail fin battery box.....	maximum 5 kg	11 lbs
With tail fin battery box.....	maximum 3.5 kg	7.7 lbs

Loading instructions see page 4-12

<u>Maximum mass in Baggage Compartment</u>	max. 5.0 kg	11 lbs
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Loading instructions see page 4-7

<u>Maximum mass of all instrument panel installations</u>	max. 6.7 kg	14.8 lbs
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Warning: If C.G. weighing had been performed with a vertical tail fin battery –see entry on page 6-1/2 -, then the battery must ALWAYS be carried in the vertical tail fin !

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4.5.6 Trim System

- (a) Trim lever and trim-locking lever are separate
- (b) Trim-locking lever is at control stick
- (c) Pull locking lever to free trim knob at left cockpit side
- (d) With the trim knob:
 - (1) Elevator stick force can be trimmed to zero
 - (2) Desired speed can be trimmed
 - (3) Release locking lever after trimming to fix trim setting
 - (4) Indication of trim setting shown by position of trim knob relative to neutral mark

Warning: *Elevator trim system must not be used for compensation of minimum cockpit load deficiency. (see below)*

4.5.7 Baggage Compartment

Baggage compartment should be used for soft and light materials which would not obstruct the pilot after deceleration or injure the pilot in crash landings. **Maximum baggage 5 kg (11 lbs).** Baggage compartment load counts for useful load and must therefore be included, when checking loading conditions.

For permanent installation of batteries, barographs, ELT etc. see Maintenance Manual chapter 11.

4.5.8 Balancing of Pilot Weight**Balancing of pilots with insufficient weight**

3 trim weights can be fitted to a threaded rod in front of rudder pedals and secured by knurled nut.

1 trim-weight of 2.45 kg <5.5 lbs> compensates 5 kg <11 lbs> of pilot weight

Balancing of heavy pilots, who want to fly with rearward C.G. positions

- (a) For 10 kg <22 lbs> of pilot weight above **Minimum Cockpit Load with empty tail fin tank** 1.5 litres <0.4 US gallons, 0.33 Imp. gallons> of water may be filled into the tail fin tank.
- (b) When using wing water ballast, this balancing method may be restricted due to amount of wing water used and tail fin tank version, see also page 4-12.
- (c) When discharging water ballast, this trim condition can not be kept due to quicker discharge of tail fin water ballast.

4.5.9 Water Ballast

- (a) Use clear water without any additives.
- (b) Increase tyre pressure to 4 bar < 58 psi>, when using full water ballast.
- (c) Wing tanks together hold about 160 Litres <42.3 US gallons, 35.2 Imp. gallons>.
- (d) Optionally tanks of about 100 Litres <26.4 US gallons, 22 Imp. gallons> may be fitted.
*To use the **maximum possible value of Cockpit Load**, tanks can according to TB 4047 either be moved outward and reduced or be taken out completely.*
- (e) For size of ballast tanks see entry on page 6-1/2
- (f) One tank and one valve per wing, operated by pushrod at root rib.
- (g) Use as clean water as possible to avoid damage of sealing rings by foreign matter.
- (h) Maximum permissible water ballast depends on loading conditions, see pages 4-10 to 4-12 for water ballast loading instructions.
- (i) **Filling sequence:** always tail tank first, then wing tanks.

Filling Sequence:

- (a) Open dump valves by shifting lever on right cockpit rim backwards.
 - (b) When the tail fin tank is going to be used, **fill tail fin tank first:**
 - (1) connect tube of tail fin funnel with wire meshing to dumping tube just inside lower right rudder cut-out with rudder deflected to the left and place funnel on top of the rudder.
 - (2) Fill tail fin tank via funnel in relation to intended wing water amount, see tables page 4-10 to 4-12.
 - (3) **Markings** on inside of translucent right rudder gap seal **correspond to 0.5 Litres <0.13 US gallons, 0.11 Imp. gallons> steps, equivalent to 0.5 kg <1.1 lbs>.**
 - (4) Use water level in funnel tube relative to markings to determine correct amount in relation to wing amount.
 - (5) The upper red marking corresponds to maximum amount of tail fin water ballast, 5 Litres <1.32 US gallons, 1.1 Imp. gallons>
3,5 to 4,1 Litres <0.92 to 1.08 US gal., 0.77 to 0.9 Imp.gal.> for the combination of tail fin tank with tail fin battery box
 - (6) Close dump valve by shifting cockpit lever on right cockpit rim forward and remove funnel from rudder. For filling of wing tanks, the cockpit lever must stay in the closed position.
 - (c) Open left wing valve from baggage compartment using knurled nut:
 - (1) Turn knurled nut about 10 turns counterclockwise
 - (2) Suck residual air from left water bag through dump orifice on under side of wing:
 - (a) Use filling tube without funnel.
 - (b) Close left valve before terminating sucking, to avoid air entering into bag again.
 - (c) Residual air may reduce amount of water.
- Warning:** residual air may create undue pressure during high altitude flights above 3000 m (10000 ft).
- Warning:** **never use more than 0.1 bar of water pressure (funnel max. 1 m <3.3 ft> above wing) because of possible damage of structure.**
- (d) Lay left wing down for filling.
 - (1) Connect funnel to dump orifice on under side of left wing – fill half of desired total amount of water using funnel
 - (2) For maximum amount of wing water ballast see pages 4-10 to 4-11.
 - (e) When left wing and tail fin tank are filled, close dump valve of left wing by turning knurled nut in baggage compartment in clockwise direction to stop.

4.5.9 Water Ballast continued

- (f) Open right wing valve from baggage compartment:
 - (1) Turn knurled nut about 10 turns anticlockwise.
- (g) After sucking residual air out, use helper to hold right wing down and fill as described for left wing.
- (h) Close right wing valve from baggage compartment using knurled nut:
 - (1) Turn clockwise to stop.
- (i) See also Icing Conditions in Emergency Procedures, chapter 3.
- (j) Use of water ballast limited to non-freezing conditions, see also Flight Manual page 2-6.

Warning: *When amount of water ballast in wings is not equal, this may favour ground loop tendencies during take off.*

Warning: *Check proper dumping, tail fin system must start dumping together with wing system to avoid C.G. shifting backwards.*

Dumping:

- (a) Cockpit lever rearward = all tanks open
- (b) Discharge time approx. 4 minutes, i.e. for 160 Litres (42.3 US gallons, 35.2 Imp. gallons) about 40 Litres (10.6 US gallons, 8.8 Imp. gallons) per minute.
- (c) If aileron stick force is needed to maintain level flight after about 3 minutes of dumping, this may indicate unequal dumping.
- (d) To avoid ground looping in case of unequal dumping apply aileron in the direction as noticed before shortly after touchdown.

Warning: *Check thermometer (if tail tank is fitted) regularly during flight. Dump water at +5° Centigrade (41° F) outside temperature to ensure proper dumping before tail fin valve freezes solid.*

4.5.9.a1 Maximum Water Ballast (wing tank only, no tail tank used)

Bags according to TB 4047 moved outward and reduced in volume, marking "V112" at root ribs.

Maximum approved capacity: about 56 kg <123.5 lbs> per wing
 = total of **112 kg <247 lbs>**

Maximum tail tank capacity: without battery box **5.0 kg <11 lbs>**
 with battery box **3.5 kg <7.7 lbs>**

Tables on pages 4-11/4-11a show maximum possible wing water ballast mass. in relation to empty weight and cockpit load (Pilot + parachute + equipment) Baggage and temporary equipment reduce maximum water ballast weight accordingly.

When the tail fin tank is used, see ballast loading instructions, pages 4-11 to 4-12.

Cockpit Load (Pilot + Parachute + equipment) [kg]	Empty Mass [kg]									
	240	245	250	255	260	265	270	275	280	285
70	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>
75	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>
80	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>
85	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>
90	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>
95	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>
100	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>
105	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>
110	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>

Example: When empty weight is 265 kg <584 lbs> and pilot and parachute weight is 110 kg <242 lbs>, maximum permissible total water ballast weight is 112 kg <247 lbs>.

Cockpit Load (Pilot + parachute + equipment) [lbs]	Empty Mass [lbs]									
	529	540	551	562	573	584	595	606	617	628
154	<u>247</u>	<u>247</u>	<u>247</u>	<u>247</u>	<u>247</u>	<u>247</u>	<u>247</u>	<u>247</u>	<u>247</u>	<u>247</u>
165	<u>247</u>	<u>247</u>	<u>247</u>	<u>247</u>	<u>247</u>	<u>247</u>	<u>247</u>	<u>247</u>	<u>247</u>	<u>247</u>
176	<u>247</u>	<u>247</u>	<u>247</u>	<u>247</u>	<u>247</u>	<u>247</u>	<u>247</u>	<u>247</u>	<u>247</u>	<u>247</u>
187	<u>247</u>	<u>247</u>	<u>247</u>	<u>247</u>	<u>247</u>	<u>247</u>	<u>247</u>	<u>247</u>	<u>247</u>	<u>247</u>
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209	<u>247</u>	<u>247</u>	<u>247</u>	<u>247</u>	<u>247</u>	<u>247</u>	<u>247</u>	<u>247</u>	<u>247</u>	<u>247</u>
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242	<u>247</u>	<u>247</u>	<u>247</u>	<u>247</u>	<u>247</u>	<u>247</u>	<u>247</u>	<u>247</u>	<u>247</u>	<u>247</u>

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4.5.9.b Maximum Water Ballast

(Loading instructions for wing and tail fin tank in use)

Bags according to TB 4047 moved outward and reduced in volume, marking "V112" at root ribs.

Maximum approved capacity: about 56 kg <123.5 lbs> per wing
= total of **112 kg <247 lbs>**

Maximum tail tank capacity: without battery box **5.0 kg <11 lbs>**
with battery box **3.5 kg <7.7 lbs>**

Tables provides maximum water ballast mass in wing (when using wing and tail fin tank) related to empty weight and cockpit load (Pilot + parachute + temporary equipment + baggage). For permissible tail fin ballast amount see table page 4-12.


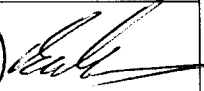
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	240	245	250	255	260	265	270	275	280	285
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75	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>
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90	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>
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105	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>	<u>112</u>
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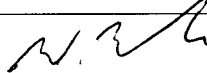
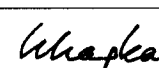
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Log of Revisions

No.	Pages affected	Description	LBA-Approval Signature / Date
SF1	0-2, 0-3, 14-13	Annual inspection checklist updated with page 14-3 (TB 4043)	LBA
SF2	0-2, 0-3, 2-3, 2-4a, 2-5a, 5-1, 5-2, 5-3	Update for possible increase of non-lifting parts weight Increase of life limit to 12000 h Tow hook time limit waived by manufacturer (TB 4046)	  27. AUG. 2003

Erstellt: 18.12.02 	Geprüft: 	Complies:
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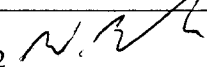
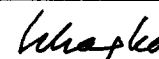
Pages included

Chapter	Page	Date	Chapter	Page	Date	
0	0-1	Jan. 1995	6	6-1	Jan. 1995	
	0-2	Dec. 2002 (TB 4046)		6-2	Jan. 1995	
	0-3	Dec. 2002 (TB 4046)		6-3	Jan. 1995	
	0-4	Jan. 1995	8	8-1	Jan. 1995	
	0-5	Jan. 1995		8-2	Jan. 1995	
1	1-1	Jan. 1995	9	9-1	Jan. 1995	
	1-1a	Jan. 1995		10	10-1	Jan. 1995
	1-2	Jan. 1995	10-2		Jan. 1995	
	1-3	Jan. 1995	10-3		Jan. 1995	
	1-4	Jan. 1995	11		11-1	Jan. 1995
	1-5	Jan. 1995			11-2	Jan. 1995
	1-6	Jan. 1995			12	12-1
	1-7	Jan. 1995		12-2		Jan. 1995
1-8	Jan. 1995	13		13-1	Jan. 1995	
2	2-1			Jan. 1995	13-2	Jan. 1995
	2-2	Jan. 1995		14	14-1	Jan. 1995
	2-3	Dec. 2002 (TB 4046)			14-1a	Jan. 1995
	2-4	Jan. 1995	14-2		Jan. 1995	
	2-4a	Dec. 2002 (TB 4046)	14-3		Jan. 1995	
	2-5	Jan. 1995	14-4		Jan. 1995	
	2-5a	Dec. 2002 (TB 4046)	14-5		Jan. 1995	
	2-6	Jan. 1995	14-6		Jan. 1995	
	2-7	Jan. 1995	14-7		Jan. 1995	
	2-8	Jan. 1995	14-8	Jan. 1995		
2-9	Jan. 1995	14-9	Jan. 1995			
2-10	Jan. 1995	14-10	Jan. 1995			
3	3-1	Jan. 1995	14-11	Jan. 1995		
	3-2	Jan. 1995	14-12	Jan. 1995		
	3-3	Jan. 1995	14-13	Oct. 1999 (TB 4043)		
4	4-1	Jan. 1995	15	15-1	Jan. 1995	
	4-2	Jan. 1995		5	5-1	Dec. 2002 (TB 4046)
	4-3	Jan. 1995	5-2		Dec. 2002 (TB 4046)	
	4-4	Jan. 1995	5-3		Dec. 2002 (TB 4046)	
	4-5	Jan. 1995				
	4-6	Jan. 1995				
	4-7	Jan. 1995				
	4-8	Jan. 1995				
	4-9	Jan. 1995				
	4-10	Jan. 1995				

Edition: Dec. 2002

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Erstellt: 18.12.02 	Geprüft: 	Complies:
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Calculation of Loading Limits continued

Examples for calculation of loading limits:

See also Maintenance Manual page 14-4, form Weighing Report

1) Minimum Cockpit Load (tail fin tank empty, with tail fin battery)

For empty weight 255 kg <562 lbs> and empty weight C.G. position 665 mm <26.181 in> Minimum Cockpit Load according to table pages 2-6/7 or 2-8/10 is 75 kg <165 lbs>
Limit value 680 mm <26.772 in> greater than calc. value 665 mm <26.181 in>

2) Minimum Cockpit Load (tail fin tank 3.5 kg <7.7 lbs> full, with tail fin battery)

For empty weight 258.5 kg <570 lbs>, new empty weight C.G. position 714 mm <28.110 in>, Minimum Cockpit Load according to table pages 2-6/7 or 2-8/10 is 90 kg <198 lbs>
Limit value 732 mm <28.819 in> greater than calc. value 714 mm <28.110 in>

Minimum Cockpit Load (tail fin tank 5.0 kg <11 lbs> full, with tail fin battery)

For empty weight 260 kg <573 lbs>, new empty weight C.G. position 734 mm <28.898 in>, Minimum Cockpit Load according to table pages 2-6/7 or 2-8/10 is 95 kg <209 lbs>
Limit value 749 mm <29.488 in> greater than calc. value 734 mm <28.898 in>

3) Maximum Weight of Non-lifting Parts

Maximum non-lifting parts weight at empty weight 255 kg <562 lbs> and empty weight C.G. position 665 mm <26.181 in> is according to table pages 2-4/5 (Normal water ballast bags)..... 234 kg <516 lbs>
table pages 2-4a/5a (TB 4047, "V112") 254 kg <560 lbs>

4) Maximum permissible Cockpit Load *Wing water bags*

Fuselage with complete equipment,	Normal	TB 4047, "V112"
battery, canopy and main pins	130.6 kg <288 lbs>	<u>130.6</u> kg <288 lbs>
Horizontal tail	6.3 kg < 14 lbs>	<u>6.3</u> kg < 14 lbs>
Cockpit Load (maximum 110 kg <242 lbs>)	97 kg <214 lbs>	<u>110</u> kg <242 lbs>

Weight of Non-lifting Parts 233.9 kg <516 lbs> 246.9 kg <544 lbs>

Maximum Cockpit Load (max. 110 kg <242 lbs>) 97 kg <214 lbs>... 110 kg <242 lbs>

Maximum all-up mass 525 kg <1157 lbs>

Entry in Flight Manual, page 6-2, for both examples above:

Empty Weight	C.G. position	Max. Cockpit Load	Minimum Cockpit Load <i>WITH Tail Tank</i>		Permanently fitted Ballast Mass		Battery in tail fin YES/NO	Tail Tank Volume	Wing Tank-Volume	Date / Inspector
			full	empty	forward	aft				
[kg]	[mm]	[kg]	[kg]	[kg]	[kg]	[kg]		[Ltr]	[Ltr]	
255	665	97	95	75	0	0	NO	5.0	160	19.Dec.2002 GS
255	665	110	95	75	0	0	NO	5.0	"V112"	19.Dec.2002 GS

The small difference between Maximum Cockpit Load of 97 kg <214 lbs> and Minimum Cockpit Load of 95 kg <209 lbs> with tail fin tank full (here entered for 5.0 Litre tank) indicates, that before each take off a functional check for the tail fin tank valve is required. If passage cannot be verified while blowing air through the valve, then perhaps water is still in the tank and therefore the high Minimum Cockpit Load value.

Erstellt: 18.12.02	Geprüft: <i>W. K. P.</i>	Complies:
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Calculation of Maximum Weight of Non-Lifting Parts

Valid for Water bags "V112"

Maximum weight of non-lifting parts of 255 kg <562 lbs> must be reduced in relation to empty weight at 15 m span and empty weight C.G. position Xs according to table below (For lbs/inch values see following page).

Example: For empty weight C.G. position of **665** mm <26.181 in> and empty weight of **255** kg

<562 lbs> the permissible weight of non-lifting parts is **254** kg <560 lbs>.

Empty Weight G <kg>	Empty Weight C.G. position Xs <mm>											
	from 560 to 579	from 580 to 599	from 600 to 619	from 620 to 639	from 640 to 659	from 660 to 679	from 680 to 699	from 700 to 719	from 720 to 739	from 740 to 759	from 760 to 779	from 780 to 799
245 -246	250	250	250	251	252	253	254	256	257	258	259	260
246 -247	250	250	250	251	252	253	254	256	257	258	259	261
247 -248	250	250	250	251	252	253	255	256	257	258	259	261
248 -249	250	250	250	251	252	253	255	256	257	258	260	261
249 -250	250	250	250	251	252	254	255	256	257	258	260	261
250 -251	250	250	250	251	252	254	255	256	257	259	260	261
251 -252	250	250	250	251	253	254	255	256	257	259	260	261
252 -253	250	250	250	251	253	254	255	256	258	259	260	261
253 -254	250	250	250	251	253	254	255	256	258	259	260	261
254 -255	250	250	250	252	253	254	255	257	258	259	260	262
255 -256	250	250	250	252	253	254	255	257	258	259	260	262
256 -257	250	250	250	252	253	254	256	257	258	259	261	262
257 -258	250	250	251	252	253	254	256	257	258	259	261	262
258 -259	250	250	251	252	253	255	256	257	258	260	261	262
259 -260	250	250	251	252	253	255	256	257	258	260	261	262
260 -261	250	250	251	252	253	255	256	257	259	260	261	262
261 -262	250	250	251	252	254	255	256	257	259	260	261	263
262 -263	250	250	251	252	254	255	256	258	259	260	261	263
263 -264	250	250	251	252	254	255	256	258	259	260	262	263
264 -265	250	250	251	253	254	255	256	258	259	260	262	263
265 -266	250	250	251	253	254	255	257	258	259	260	262	263
266 -267	250	250	251	253	254	255	257	258	259	261	262	263
267 -268	250	250	252	253	254	255	257	258	259	261	262	263
268 -269	250	250	252	253	254	256	257	258	260	261	262	264
269 -270	250	250	252	253	254	256	257	258	260	261	262	264
270 -271	250	250	252	253	254	256	257	258	260	261	262	264
271 -272	250	251	252	253	255	256	257	259	260	261	263	264
272 -273	250	251	252	253	255	256	257	259	260	261	263	264
273 -274	250	251	252	253	255	256	257	259	260	262	263	264
274 -275	250	251	252	254	255	256	258	259	260	262	263	264
275 -276	250	251	252	254	255	256	258	259	260	262	263	264
276 -277	250	251	252	254	255	256	258	259	261	262	263	265
277 -278	250	251	252	254	255	257	258	259	261	262	263	265
278 -279	250	251	253	254	255	257	258	259	261	262	264	265
279 -280	250	251	253	254	255	257	258	260	261	262	264	265
280 -281	250	251	253	254	255	257	258	260	261	262	264	265
281 -282	250	251	253	254	256	257	258	260	261	263	264	265
282 -282	250	252	253	254	256	257	258	260	261	263	264	265
282 -284	250	252	253	254	256	257	259	260	261	263	264	266
284 -285	250	252	253	254	256	257	259	260	262	263	264	266

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Calculation of Maximum Weight of Non-Lifting Parts

Valid for Water bags "V112"

Maximum weight of non-lifting parts of 562 lbs <255 kg> must be reduced in relation to empty weight and empty weight C.G. position Xs according to table below (For kg/mm values see preceding page).

Example: For empty weight C.G. position of **26.181** in <665 mm> and empty weight of **562** lbs <255 kg> the permissible weight of non-lifting parts is **560** lbs <254 kg>.

Empty Weight G <lbs>	Empty Weight C.G. position Xs <in>											
	from 22.047 to 22.795	from 22.835 to 23.583	From 23.622 to 24.370	from 24.409 to 25.157	from 25.197 to 25.945	from 25.984 to 26.732	from 26.772 to 27.520	from 27.559 to 28.307	from 28.346 to 29.094	from 29.134 to 29.882	from 29.921 to 30.669	from 30.709 to 31.457
540 -542	551	551	551	553	556	558	560	564	567	569	571	573
542 -545	551	551	551	553	556	558	560	564	567	569	571	575
545 -547	551	551	551	553	556	558	562	564	567	569	571	575
547 -549	551	551	551	553	556	558	562	564	567	569	573	575
549 -551	551	551	551	553	556	560	562	564	567	569	573	575
551 -553	551	551	551	553	556	560	562	564	567	571	573	575
553 -556	551	551	551	553	558	560	562	564	567	571	573	575
556 -558	551	551	551	553	558	560	562	564	569	571	573	575
558 -560	551	551	551	553	558	560	562	564	569	571	573	575
560 -562	551	551	551	556	558	560	562	567	569	571	573	578
562 -564	551	551	551	556	558	560	562	567	569	571	573	578
564 -557	551	551	551	556	558	560	564	567	569	571	575	578
557 -569	551	551	553	556	558	560	564	567	569	571	575	578
569 -571	551	551	553	556	558	562	564	567	569	573	575	578
571 -573	551	551	553	556	558	562	564	567	569	573	575	578
573 -575	551	551	553	556	558	562	564	567	571	573	575	578
575 -578	551	551	553	556	560	562	564	567	571	573	575	580
578 -580	551	551	553	556	560	562	564	569	571	573	575	580
580 -582	551	551	553	556	560	562	564	569	571	573	578	580
582 -584	551	551	553	558	560	562	564	569	571	573	578	580
584 -586	551	551	553	558	560	562	567	569	571	573	578	580
586 -589	551	551	553	558	560	562	567	569	571	575	578	580
589 -591	551	551	556	558	560	562	567	569	571	575	578	580
591 -593	551	551	556	558	560	564	567	569	573	575	578	582
593 -595	551	551	556	558	560	564	567	569	573	575	578	582
595 -597	551	551	556	558	560	564	567	569	573	575	578	582
597 -600	551	553	556	558	562	564	567	571	573	575	580	582
600 -602	551	553	556	558	562	564	567	571	573	575	580	582
602 -604	551	553	556	558	562	564	567	571	573	578	580	582
604 -606	551	553	556	560	562	564	569	571	573	578	580	582
606 -608	551	553	556	560	562	564	569	571	573	578	580	582
608 -611	551	553	556	560	562	564	569	571	575	578	580	584
611 -613	551	553	556	560	562	257	569	571	575	578	580	584
613 -615	551	553	558	560	562	567	569	571	575	578	582	584
615 -617	551	553	558	560	562	567	569	573	575	578	582	584
617 -619	551	553	558	560	562	567	569	573	575	578	582	584
619 -622	551	553	558	560	564	567	569	573	575	580	582	584
622 -624	551	556	558	560	564	567	569	573	575	580	582	584
624 -626	551	556	558	560	564	567	571	573	575	580	582	586
626 -628	551	556	558	560	564	567	571	573	578	580	582	596

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5.1 TIME BETWEEN OVERHAUL (TBO)

- | | | | |
|--------------|---------|---------------|--------------------------|
| 1. C.G. hook | TOST | Europa G 73: | 2000 take-offs)* |
| | or TOST | Europa G 72 | |
| | or TOST | Europa G 88 | |
| 2. Nose hook | TOST | E 75 or E 72: | 2000 take-offs)* |
| | or TOST | E 85 | |

)* See also Maintenance- and Operating Instructions of manufacturers.

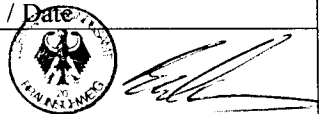
5.2 AIRWORTHINESS LIMITATIONS SECTION

This Airworthiness Limitations Section is LBA-approved.

LBA-approved:



5.3 LOG OF REVISIONS FOR AIRWORTHINESS LIMITATIONS SECTION

No.	Pages affected	Description	LBA-Approval Signature / Date
1 (SF 2)	5-1, 5-2 5-3	Structural life limit increased Schroth safety harness added	 27. AUG. 2003

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Erstellt: 18.12.02	Geprüft: <i>Whapka</i>	Complies:
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5.5 INSPECTION SEQUENCE TO INCREASE SERVICE LIFE

1. General

Results of supplementary serviceability tests at main spar booms for wings proved, that service life of GRP sailplanes may be increased to 12.000 hours if airworthiness of each single sailplane (in addition to annual inspections) is checked according to a special multi-step inspection programme.

2. Schedule

When the sailplane has reached 3000 hours service life an inspection according to the programme mentioned under 3. Must be carried out. If the result of the inspection is positive or found defects repaired properly, the service life of this sailplane will be increased by 3000 hours to 6000 hours (1. Step).

The inspection routine should be repeated when reaching 6000 hours. With a positive result or found defects repaired properly, service life will be increased by another 3000 hours to 9000 hours (2. Step).

The inspection routine should be repeated when reaching 9000 hours. With a positive result or found defects repaired properly, service life will be increased by 1000 hours each to 10000 hours (3. Step), 11000 hours (4. Step) and 12000 hours (5. Step).

3. The valid **Inspection Programme** should be requested from the manufacturer stating serial number and service time.
4. Inspections should be carried out at the manufacturer or an adequately licenced repair shop.
5. Results of inspections must be recorded in an inspection report, commenting to each inspection step. If inspections are not carried out at the manufacturer, a copy of the report must be sent to them for analysis.
6. This inspection does not affect annual inspections.

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