

Maintenance Manual DG-1000T

No.	Page	Description	Date
12	0.2 ÷ 0.9, 0.9a, 0.10 ÷ 0.12, 1.2, 1.5, 1.11, 1.14, 1.15, 1.27 ÷ 1.29, 1.33, 2.1, 2.4 ÷ 2.6, 3.3, 4.8, 5.1, 6.1, 6.2, 6.4, 8.3, 9.2, diagr. 1, 9, 11, encl. 4 pages 1, 2, 2a, 3, Z193, SI 67-07, remove 5EP50	Manual revision TN1000/18	February 2011
13	0.6, diagrams 8 and 9	Wheel brake TN1000/21	July 2011
14	0.2 ÷ 0.7, 0.10 ÷ 0.12, 1.3, 1.5, 1.11, 1.16, 1.29, 1.30, 2.1, 2.6, 3.1, 4.6, 4.10, 4.12, 4.13, 4.19, 4.20, 6.1, 7.1, 8.2, 8.3, diagrams: 2, 3, 9, Enclosure 4 pages: 4, 7	Manual revision TN 1000/24, New type 12V sockets and plugs, Changes due to TN 4603-14 of the Solo company (Exchange of the axle of the upper drive belt pulley on pages 4.19 and 4.20)	October 2014
15	0.2, 0.3 - 0.6, 0.9a, 0.11, 1.18, 3.5, 3.8, 4.20, 4.20a, 4.26, 4.28, 8.1 – 8.3 diagram 13, diagram 15, diagram 15a	Propeller adapter ring with elastomeric damper TN 1000/26 Alternative mechanical fuel pump TN 1000/28	August 2015
16	0.2 -0.6, 0.11, 0.12, 2.1, 2.2, 3.7, 6.3, 8.2, 8.3, diagram 2	Manual revision TN1000/32	July 2017

0.2 List of effective pages

Section	page	issued	replaced/	replaced/	replaced/	
0	0.0	June 2005	January 2007			
	0.1	see manual amendments				
	0.2		"			
	0.3		"			
	0.4		"			
	0.5		"			
	0.6		"			
	0.7	June 2005	January 2007	Febr. 2011	Oct. 2014	
	0.8	"		Febr. 2011		
	0.9	"		Febr. 2011		
	0.9a	Febr. 2011		August 2015		
	0.10			Febr. 2008	March 2008	Oct. 2008
				Nov. 2008	Febr. 2011	Oct. 2014
	0.11	"		Febr. 2011	Oct. 2014	August 2015
0.12			July 2017			
			January 2007	Febr. 2011	Oct. 2014	
1	1.1	June 2005	January 2007			
	1.2	"	Febr. 2011			
	1.3	"	Oct. 2014			
	1.4	"				
	1.5	"	Febr. 2011	Oct. 2014		
	1.6	"				
	1.7	"				
	1.8	"				
	1.9	"		Febr. 2008		
	1.10	"		Febr. 2008		
	1.11	"		Febr. 2011	Oct. 2014	
	1.12	"				
	1.13	"				
	1.14	"		March 2008	Febr. 2011	
	1.15	"		Febr. 2011		
	1.16	"		Oct. 2014		
	1.17	"				
	1.18	"		August 2015		
	1.19	"		March 2008		
	1.20	"				
	1.21	"				
	1.22	"		October 2006		
	1.23	"		October 2006		
	1.24	"				

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Section	page	issued	replaced/	replaced/	replaced/
	1.25	"			
	1.26	"			
	1.27	"	Febr. 2011		
	1.28	"	Febr. 2011		
	1.29	"	Febr. 2011	Oct. 2014	
	1.30	"	Oct. 2014		
	1.31	"	May 2008		
	1.32	"			
	1.33	"	Febr. 2011		
2	2.1	June 2005	March 2008 July 2017	Febr. 2011	Oct. 2014
	2.2	"	July 2017		
	2.3	"			
	2.4	"	Febr. 2011		
	2.5	"	Febr. 2011		
	2.6	"	May 2008	Febr. 2011	Oct. 2014
3	3.1	June 2005	Oct. 2014		
	3.2	"			
	3.3	"	Febr. 2011		
	3.4	"			
	3.5	"	August 2015		
	3.6	"			
	3.7	"	July 2017		
	3.8	"	August 2015		
	3.9	"			
4	4.1	June 2005			
	4.2	"	January 2007		
	4.3	"			
	4.4	"			
	4.5	"			
	4.6	"	Oct. 2014		
	4.7	"	Febr. 2008		
	4.8	"	Febr. 2008	Oct. 2008	Febr. 2011
	4.9	"	Febr. 2008	Oct. 2008	
	4.10	June 2005	Oct. 2014		
	4.11	"			
	4.12	"	Oct. 2014		

0.2 List of effective pages (continued)

Section	page	issued	replaced/	replaced/	replaced/
	4.13	"	Oct. 2014		
	4.14	"			
	4.15	"			
	4.16	"	January 2007		
	4.17	"	January 2007		
	4.18	"	May 2008		
	4.19	"	Oct. 2014		
	4.20	"	Oct. 2014	August 2015	
	4.20a	August 2015			
	2.21	"	January 2007		
	4.22	"			
	4.23	"			
	4.24	"			
	4.25	"			
	4.26	"	August 2015		
	4.27	"			
	4.28	"	January 2007	August 2015	
	4.29	"			
	4.30	"			
	4.31	"			
5	5.1	June 2005	Febr. 2011		
	5.2	"			
6	6.1	June 2005	Febr. 2011	Oct. 2014	
	6.2	"	May 2008	Febr. 2011	
	6.3	"	July 2017		
	6.4	"	Febr. 2011		
7	7.1	June 2005	Oct. 2014		
8	8.1	June 2005	January 2007	August 2015	
	8.2	"	Dec. 2006	January 2007	Oct. 2014
			August 2015	July 2017	
	8.3	"	May 2008	Febr. 2011	Oct. 2014
			August 2015	July 2017	
	8.4	"	January 2007		
9	9.1	June 2005			
	9.2	"	Febr. 2011		

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0.2 List of effective pages (continued)

diagram	issued	replaced/	replaced/	replaced/
1	May 2004	Oct. 2010		
2	Nov. 2001	Oct. 2014	July 2017	
3	June 2005	Oct. 2014		
4	Nov. 2001			
5	Nov. 2001	January 2007		
6	Nov. 2001	January 2007	March 2008	Not valid for 10-101, and from 10-128 on
6a	March 2008			
7	Nov. 2004			
7a	Oct. 2008			
8	Nov. 2001	January 2007	July 2011	
9	June 2005	January 2007 Oct. 2014	Febr. 2011	July 2011
10	May. 2005	January 2007		
11	June 2005	Febr. 2011		
12	Sept. 2003	January 2007		
13	June 2005	August 2015		
14	June 2005	October 2007		
15	June 2005	January 2007	August 2015	
15a	Oct. 2006	Dec. 2006	January 2007	August 2015
16	June 2005	May 2008		
17	Febr. 2008			
18	Febr. 2008			
19	March 2008			
20	Nov. 2008			
21	Nov. 2008	Oct. 2010		
22	Nov. 2008			
5EP34	25.01.90			
5V18	14.10.94			
10FW2	05.10.99			
10E4 issue A	28.10.08			
10E4 issue E	8.10.10			
10E102	14.09.05	5.12.05	26.01.06	
10E103	24.06.05			
Encl. 1	June 2005			
Encl. 2	June 2005	Page 1 January 2007	Pages 2, 3 May 2008	
Encl. 3	March 2008			
Encl. 4	Nov. 2008	Page 2, 2a , 7 Oct. 2010	1, 2, 2a, 3 Febr. 2011	4, 7 Oct. 2014
SI 67-07	5.11.2007			
Z193	4.11.2009			

0.4 Airworthiness limitations

0.4.1 Repairs

Repair or replace damaged parts prior to next flight. Follow the instructions of the DG-1000 repair manual for repairs of the airframe. Repairs outside the scope of DG-1000 repair manual and major repairs must be accomplished at a certified repair station or by a certified mechanic rated for composite aircraft structure work in accordance with DG repair methods.

Use only genuine spare parts.

For all aircraft under EASA regulations the following applies: According to part 21, subpart M to accomplish major repairs an approved repair instruction is required, see also TN DG-G-01 “Approved repair methods according to EU Commission Regulation 1702/2003 part 21, subpart M”

0.4.2 Life time of the airframe

The maximum allowable operating time for German composite sailplanes and motor gliders was proofed for 12000 flight hours. The initial life time for the DG-1000T is 3000 flight hours and may be increased by inspections according to section 2.4 of this manual to 6000 h, 9000 h, 10000 h, 11000 h and 12000 h.

0.4.3 Life time of components

Use only genuine spare parts. For part. No.'s of all parts please refer to section 8.

- a) The **gasket for the drainer valve** has to be exchanged after 6 years, part no. 60504402.
- b) The **spark plugs** have to be exchanged after 25 engine hours, part no.40050360.
- c) The **fabric straps of the safety harness** have to be exchanged according to the instructions of the respective manufacturer. If no limitations are given, exchange after 12 years, approved types see section 6.
- d) The **rubber cord** in the elevator control system see section 1.2.6 has to be replaced at least every 6 years, part no. 30091131.
- e) The adapter ring with elastic damping element 10M067 for the propeller (introduced with TN1000/26) has to be exchanged after 50 engine hours or 5 years, whichever comes first.
- f) The eccentric axle of the reduction gear (propeller axle) Solo part no. 2031211-V2 has to be replaced after 50 engine hours

Note: The **brake fluid of the wheel brake** has to be exchanged after 4 years (types see section 1.6.2).

Note:All **other components** like propeller, 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.

0.4.4 Service time, maintenance documents

Follow the instructions of the respective manufacturer:

- a) Operating Manual for Safety Tow Releases
Series: Europa G 88 Safety Tow Release
latest approved version
Operating Manual for Tow Releases
Series: E 85 Nose Tow Release
latest approved version
- b) Safety harness: instructions of the manufacturer latest approved version.
Approved types see section 6.
- c) Minimum instrumentation: instructions of the manufacturer, approved instruments see sections 6.
- d) Engine: Manual for the engine SOLO Type 2350 C, latest approved version.
- e) Operating- and Service Instructions for propeller DG-P001 latest approved version.

Note only for USA: The Airworthiness Limitations section is FAA approved and specifies maintenance required under Secs. 43.16 and 91.403 of the Federal Aviation Regulation unless an alternative program has been FAA approved. |

2 Inspections

2.1 Daily inspection

see flight manual section 4.3

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 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 seals of the rudder (see section 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 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 1.11).
- Check the canopy emergency releases according to section 7.14 of the flight manual.
- Check the tension of the lines of the waterbag attachment (see section 4.1).
- Check the rubber cords in the control system (see sections 1.2.6 and 1.7.5).
- Check the thickness of the wheel brake linings and of the brake disc (see section 1.6.4).
- Check if the brake fluid has to be exchanged (see section 1.6.4).
- Check the airbrakes according to section 4.4.
- Check the fin ballast tank system according to section 1.8.2.
- Check the fin ballast box according to section 1.9.
- Check the friction of the canopy opening handles (canopies removed from fuselage): A force of 10 – 20N (2.2 up to 4.4 lbs.) should be required at the end of the handle. If the force is too low tighten the hinge bolt of the handle accordingly.
- Check if the powerplant has been serviced according to section 3.6.1.
- Check the friction brake of the throttle control (see section 1.12.8).
Option: throttle handle in rear cockpit TN1000/15:
Check of friction brake not applicable, not installed.
- Check the torque of the propeller bolts (see section 3.6.1 item 23).
- **Tow hooks:** The operating and maintenance instructions for the release mechanisms, see sect. 0.4.4 of this maintenance manual have to be followed.
- **All-up weight and centre of gravity:** These should be checked at least every 4 years during the yearly inspection.

A Special inspections

C.G. Tow hook:

After a wheel-up landing, the C.G. tow hook is to be cleaned and to be carefully checked for any damage.

Fuselage nose:

After a landing where the fuselage nose has touched the ground, the nose tow hook is to be cleaned and to be checked for correct functioning.

Clean the hole of the PC port (necessary for the stall warning) located behind the fuselage nose on the lower surface.

C.G. weighing: After all work which may influence the C.G.

8. Check the intake air filters of the carburettors for excessive dirt and wear, wash with pure petroleum spirit and blow compressed air in reverse direction through the filter. Spray the outside with oil for filters with cotton fabric, reinstall the filter.
We recommend exchange of the filters every 25 hours. Also new filters must be sprayed with filter oil.
- 8.a With the airfilters still removed check visually the screws of the throttle and choke valves for tight fit.
9. Clean the engine.
10. Check the muffler for cracks and ensure mounting is secure.
11. Check all engine nuts and bolts with a torque wrench (see sect. 1.12.10).
12. Check the rubber engine mounts, especially for cracks. Therefore apply strong pressure to the engine in forward, backward and sideways direction.
13. Check and grease the starter motor gear shaft (don't grease the starter motor gear) Check starter motor for tight mounting. There should be no excessive radial free play of the starter motor gear axle. With too much free play the starter must be exchanged.
14. Clean the starter ring gear and check for damage. Check if the starter ring gear was bent forwards by the starter motor.
15. Check the drive belts for wear and correct tension (see sect. 4.10.1). If a drive belts shows signs of wear the drive belt must be replaced.
16. Clean the spindle drive, function check. Check the connection of the spindle drive to the powerplant.
17. Check the propeller stopper for wear and function, check especially the rubber buffer for wear.
18. Check all the hinges on the engine compartment doors for proper fit and any cracks, tears etc. Check if hinge pins and the engine door spring are secured properly.
19. Oil all hinge points of the powerplant
20. Check the time taken to extend the power plant. If it takes longer than described under sect.1.13.2 the gas strut has to be replaced.

Variometer

Manufacturer	Type	Certification No.
Winter	5 StVM5 (diam. 58)	TS 10.230/14
	± 5 m/s Ident.No. 5451	
	±1000 ft/min Ident.No. 5452	
	± 10 kts Ident.No. 5453	
Winter	5 STV 5 (diam. 80)	TS 10.230/13
	± 5 m/s Ident.No. 5251	
	±1000 ft/min Ident.No. 5252	
	± 10 kts Ident.No. 5253	

Turn and bank indicator

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

Accelerometer

(for Category A Aerobatics)

Accelerometer capable of retaining max. and min. g-values with markings red radial lines at +7g and -5g.

Manufacturer	Type	Certification No.
Falcon Gauge	GM5 10-2	MIL-A-5885 C
AOA	BM 470-RL/L	MIL-A-5885 A

Outside air temperature gauge

incorporated in the DEI-NT see below

Engine instrumentation

(RPM, fuel, CHT, voltmeter, engine elapsed time, outside air temperature

Manufacturer	Type
DG Flugzeugbau	DEI-NT-DG-1000T

8.2 Parts for fuel system

60507550 Drainer CAV 110 (1/8" NPT)

Warning: Replace the seal ring of the drainer against part no. 60504402 prior to installation

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

60507560 Electric fuel pump Facet 40105

60507558 Refuelling pump KAVAN 12 V up to ser. no. T28

60507562 Refuelling pump Facet 60106 from ser. no. T29 on

60500164 Mechanical fuel pump Bing 8080 (no more available)

60500257 Mechanical fuel pump Mikuni DF44-18 from ser. no. T57 on and as spare part (for installation follow TN1000/28)

60507571 MANN-fuel- filter 500009180 WK 31/2(10) for refuelling pump

41070521 Fuel distributor 10M52/1 with filter for primer valve and restriction for excess fuel line

60000527 Fuel cock KH 1072 T

60507609 Coupling for fuel filler hose KL-006-0 WR513

60503070 Primer-valve IWP069

45001576 Full tank sensor with wiring, plug and gasket 60507547

60507547 Gasket O-ring 10 x 2,5 80FPM610 for full tank sensor

60000103 Fuel hose PU hydrolyse and microbe-resistant 6x1,5x9 mm

60000102 Fuel hose PU hydrolyse and microbe-resistant 8x2x12 mm

8.3 Parts for the electrical system

- 60510898 Battery 12V 17Ah
- 41076000 DEI-NT-DG1000T
- 41076020 DEI-NT-DG1000T second unit (rear cockpit)
- 41076010 Control unit-NT 10E601

- 60510815 Limit switch 164-025 05 for positions engine extended and for stopping the engine
- 60510463 Limit switch for propeller-stopper 164-564
- 60510464 Limit-switch engine retracted and engine extended 164-574, alternatively SI2010-B2T20YR30,5m
- 60510484 Manual extension-retraction switch MTG 206 S
- 60510859 Key switch 3 Pos, 2 Pol KL09-1908KA with wiring (Master switch)
- 60510362 Switch STA 106 E (selector intern-extern)
- 60510372 Press-button DJET 07.17502.21 for starter
- 60510375 Press-button 12G2904 for refuelling pump

- 60510385 Circuit breaker ETA 2A
- 60510386 Circuit breaker ETA 3A

- 60510437 Fuse 80 A for main battery
- 60510434 Fuse socket for main battery fuse 80 A

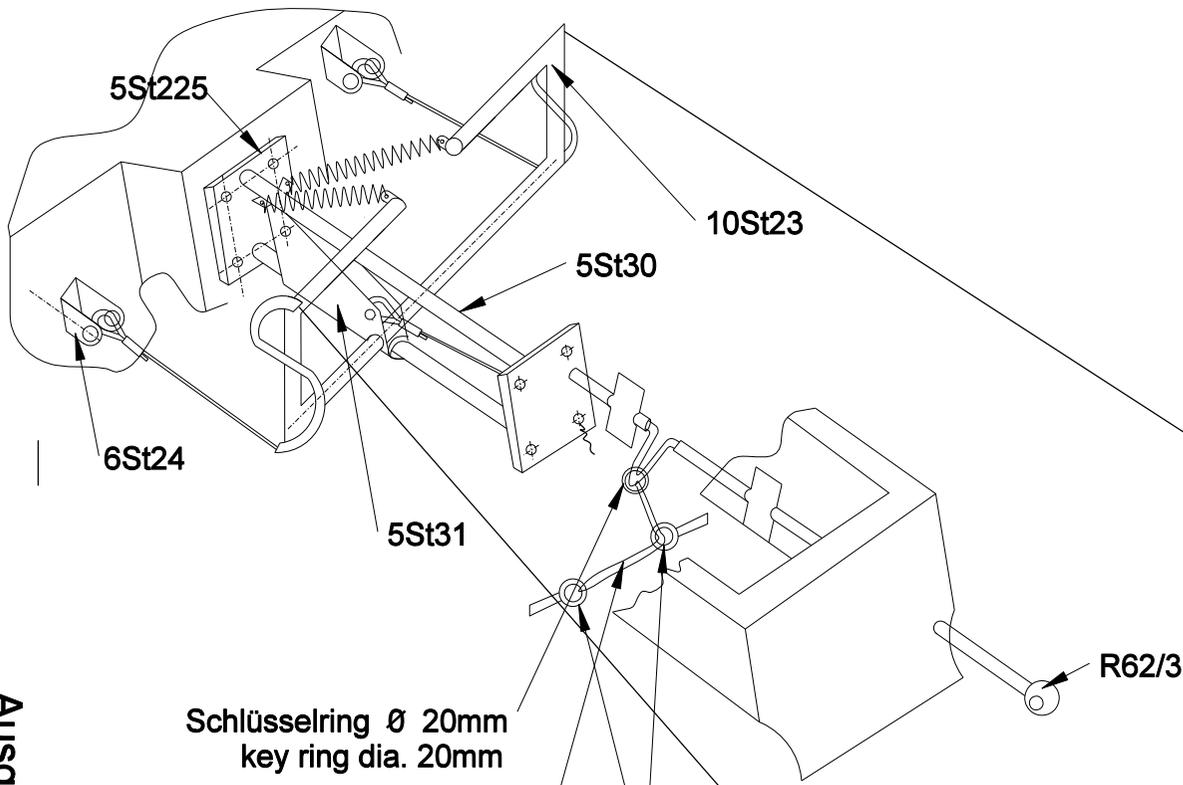
- 60510550 Proximity switch
- 41075000 Proximity switch 10E107 ready assembled with wiring and plug
- 10002317 Preh plug for 12V sockets

From ser. No. 10-120 on:

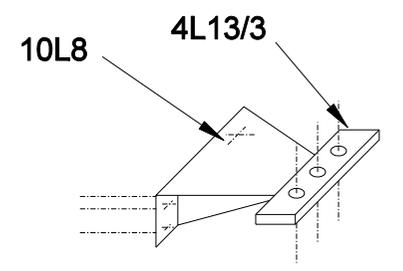
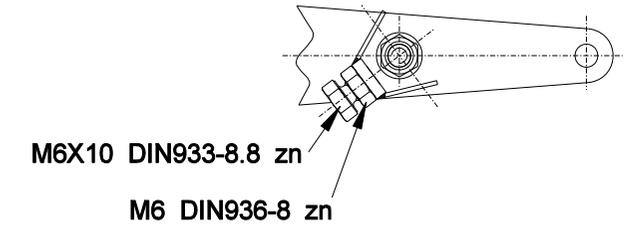
- 60510796 Socket BSB12 (in main bulkhead)
- 60510797 Plug BSK12 (for socket BSB12)

From ser. No. 10-202 on:

- 60510880 Socket XLR 3-pole NC3FD-LX-BAG (in main bulkhead)
- 60510881 Plug XLR 3-pole NC3MX-BAG (for socket XLR)



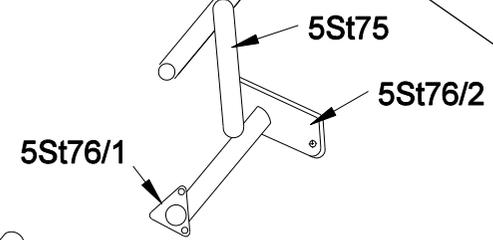
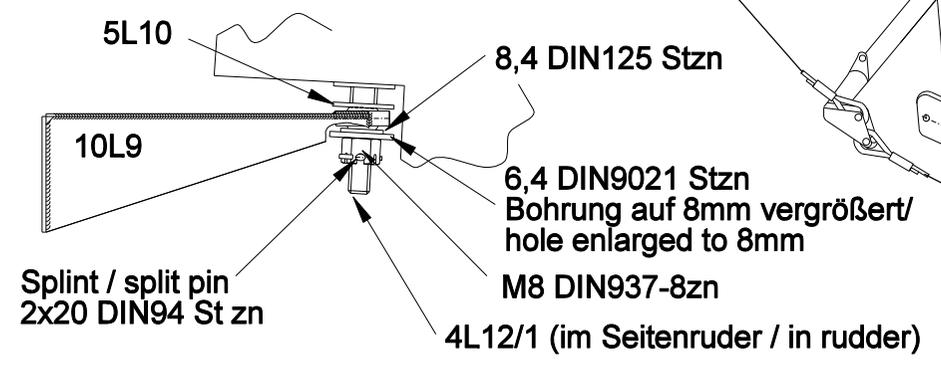
Ansicht/view X



Seitensteuerung
rudder control

- Schlüsselring Ø 20mm
key ring dia. 20mm
- Gummiseil Ø 2 L=410mm
rubber cord dia. 2mm length 410mm
- Ringschraube/eye bolt
M6-PH 370630

Detail A



Anschlag siehe Ansicht X
stop see view X

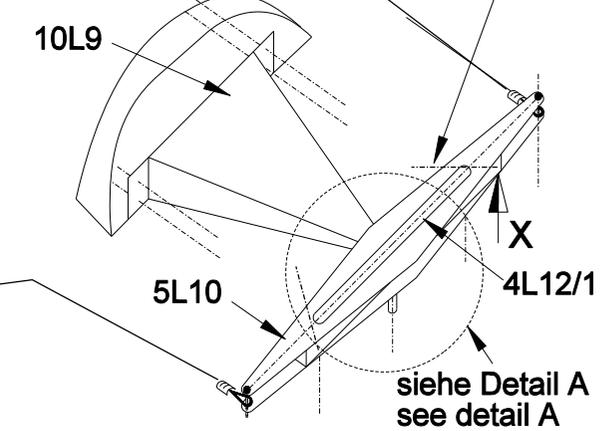


Diagramm 2
diagram 2