DG Aviation GmbH

MAINTENANCE MANUAL
FOR THE MOTORGLIDER

DG-1001M

TYPE:	DG-1000
VARIANT:	DG-1000M
TC Data Sheet No.:	EASA.A.072
Issued:	October 2010



Owner:

Ser. No.:

Registration:

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No.	Page	Description	Date
11	0.2, 0.5, 0.6, 6.1, diagrams 7 + 20	Drive belt tensioning bolt, manual revision TN1000/40	September 2018
12	0.1, 0.7, Enclosure 1 page 2 and diagram 2a	Rudder control operated by hand TN1000/36 Revision 1	January 2019
13	0.2, 0.6, 0.12, diagram 13, diagram 16A	TN1000/43, fuel injection system	September 2019
14	0.2, 0.7, enclosure 3 incl. diagram 2b	TN1000/36 Revision 2 Manual rudder control	May 2020
15	Title, 0.2 - 0.4, 0.6, 0.7, 0.12, 0.14, 1.3, 1.10, 1.12, 1.24, 2.6, 8.1, 8.3, 8.4, diagrams 5, 7, 12, 12a, drawing 10R146	TN1000/45 Manual revision	October 2021

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0.2 List of effective pages

Section	page	issued	replaced	replaced	replaced
0	Title	October 2010	October 2021		
	0.1	"	See list of amendments		
	0.2	"	See list of amendments		
	0.3	"	See list of amendments		
	0.4	"	See list of amendments		
	0.5	"	See list of amendments		
	0.6	"	See list of amendments		
	0.7	"	See list of amendments		
	0.8	"	October 2012	July 2017	
	0.9	"	October 2012		
	0.10	"			
	0.11	"	July 2014		
	0.12	"	October 2012	October 2021	
	0.13	"	October 2012	July 2014	July 2017
	0.14	"	October 2012	July 2014	July 2017
			October 2021		
	0.15		July 2017		
	1.1	October 2010			
	1.2	"	October 2012		
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	1.4	"	July 2014		
	1.5	"	October 2012		
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	1.7	"			
	1.8	"	October 2012		
	1.9	"	October 2012		
	1.10.	"	October 2012	July 2014	October 2021
	1.11	"	October 2012	July 2015	
	1.12	"	October 2012	October 2021	
	1.13	"			
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	1.15	"			
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	1.20	"	October 2012		
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	1.24	October 2010	October 2012	October 2021	
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	1.28	"	July 2015		
	1.29	October 2010			
	1.30	"			
	1.31	"	October 2012		
	1.32	"			
	1.33	"	October 2012		
	1.34	"	October 2012		
	1.35	"			
2	2.1	October 2010	October 2012	July 2017	
	2.2	"	October 2012	July 2017	
	2.3	"	October 2012		
	2.4	"	October 2012		
	2.5	"			
	2.6	"	October 2012	July 2017	October 2021
3	3.1	October 2010	October 2012		
	3.2	"	October 2012		
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	3.4	"	October 2012		
	3.5	"	October 2012	July 2017	
	3.6	"	October 2012		
	3.7	"	October 2012	March 2016	Febr. 2018
	3.8	"	July 2015		

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	8.4	"	October 2012	October 2021	
	8.5	July 2014			
9	9.1	October 2010			
	9.2	"			
	9.3	"			
	9.4	"			
	9.5	"			
	9.6	"			

Diagram	issued	replaced	replaced	replaced	replaced
1	October 10				
2	October 10	October 2012	March 2016		
2a	August 18				
3	June 05	October 2012			
4	Nov. 01				
5	October 10	October 2021			
6	October 10				
7	October 10	October 2012 October 2021	Dec. 2017	March 2018	Sept. 2018
8	October 10				
9	October 10				
10	October 10	July 2017			
11	October 10				
12	October 10	July 2017	October 2021		
12a	August 18	October 2021			
13	October 10	Sept. 2019			
14	October 10	July 2017			
15	October 10	October 2012	Dec. 2017		
16	October 10	October 2012	July 2015		
16A	Sept. 2019				
17	October 10				
18	October 10				
19	October 10				

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21	October 10				
22	October 10				
23	October 10	October 2012	July 2017		
24	October 10				
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27	October 10				

Enclosures		issued	replaced	replaced
5EP31	Installation plan Dräger oxygen system	5.02.90		
10E4	Wiring plan electrically operated main landing gear	28.09.10		
10E202	Wiring plan DINA1 (in aircraft log)	29.07.10 1.06.2016 Issue H	28.09.12 issue C With coolant pump Pierburg	22.01.15 issue G with fuel pressure regulator Bosch
5V18	Tool for airbrake adjustment	14.10.94		
W51	Hook spanner for upper drive belt pulley bearings	20.11.96		
W59	Test adapter	18.06.02		
W66	Tool to check drive belt tension	17.09.10		
Z181	Installation of aerial for transponder in vertical fin DG-1000	18.04.08		
Z193	406 MHZ ELT antenna BD3 installation 2-seaters	4.11.09		
SI 67/07 /	Service Info Ballast box in the fin / foam rubber rings	5.11.2007		
	Inspection instruction No. 1 for TN1000/30	March 2016		
Encl. 1	Rudder control operated by hand TN1000/36	August 2018	January 2019	May 2020
10R146	Installation of 3L oxygen cylinders	9.08.19		

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diagrams

1	Elevator control, trim
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2a	Rudder control with rudder control operated by hand
3	Controls in the fuselage (Aileron and spoiler controls)
4	Controls in the wings (Aileron and spoiler controls)
5	Tow releases
6	Water ballast system
7	Main landing gear, hydraulic wheel brake, installation in the LG box, page 1
8	Main landing gear, hydraulic wheel brake, installation in the LG box, page 2
9	Main landing gear control
10	Tail wheel
11	Systems for static and total pressure
12	Placards
12a	Placards with rudder control operated by hand
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15	Propeller stopper
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16A	Fuel system from M36, according to TN1000/43
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5EP31	Installation plan Dräger oxygen system
10E4	Wiring plan electrically operated main landing gear
10E202	Wiring plan DINA1 (in aircraft log)
5V18	Tool for airbrake adjustment
W51	Hook spanner for upper drive belt pulley bearings
W59	Test adapter (for coolant pump check)
W66	Tool to check drive belt tension
Z181	Installation of aerial for transponder in vertical fin DG-1000
Z193	406 MHZ ELT antenna BD3 installation 2-seaters
SI 67/07	Service Info Ballast box in the fin, foam rings
Encl. 1	Rudder control operated by hand TN1000/36
10R146	Installation of 3L oxygen cylinders

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0.4 Airworthiness limitations

0.4.1 Repairs

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

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 motorgliders was proofed for 12000 flight hours.

The initial life time for the DG-1000M is 3000 flight hours.

Extension of the life time to 12000 hours can only be achieved by implementing a comprehensive inspection program for the aircraft to be carried out in accordance with data that has been approved by an applicable aviation authority, see section 2.4 of this manual.

Only for USA

Note: *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.*

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0.5 Further service information

0.5.1 Life time of equipment and components

Use only genuine spare parts. For part. No.'s of all parts please refer to section 8.
Note: You will find detailed instructions for replacement of the life limited parts (if applicable) in section 4 of this manual.
After exchanging life limited parts change the "Summary of operating hours" for your motorglider by entering the replacement dates of the exchanged parts.

a) The following components of the power plant have to be replaced every 400 engine hours.
   1. All nuts and bolts on the engine, parts-kit with reference list and instructions part no. 39001028
   2. The bearings in the upper drive belt pulley, part no. 59332050 and 59320320
b) The **gasket for the drainer valve** has to be exchanged every 6 years, part no. 60504402.
c) The **coolant hoses ,** part no. 39001029) have to be exchanged every 6 years.
d) All **flexible fuel lines** have to be exchanged every 6 years (part no.s 48000009 and 48000092).
e) The **drive belts** have to be exchanged every 100 engine hours, part no. 60510831).
f) The **spark plugs** have to be exchanged every 100 engine hours, part no.40050360.
g) 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 every 12 years, approved types see section 6.3.
h) The **rubber cord** in the elevator control system see section 1.2.6 has to be replaced at least every 6 years, part no. 39001040.

0.5.2 Service times for other than life limited parts

The **coolant ha**s to be exchanged every 6 years (type see section 2.12.2).

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

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.

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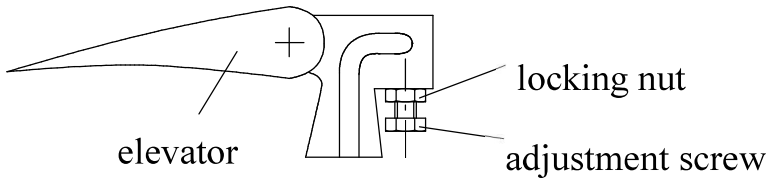
1.2.3 Elevator stops

The elevator stops are located at the rear control column and can be adjusted with a 10 mm open end wrench.

1.2.4 Elevator control circuit free play

With the elevator held fixed in the zero position, the free play at the top of the control column can be ± 2 mm (± 0.08 in.). Within the automatic elevator connection there should be no free play noticeable in the zero position when the elevator is moved at its trailing edge.

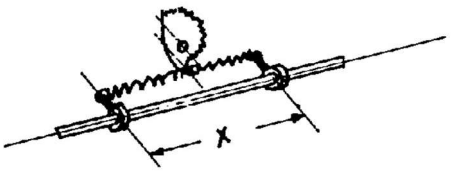
Any free play can be reduced by screwing in the adjustment screw on the automatic connector funnel.



1.2.5 Trim

Re-adjustment

The trim mechanism should be adjusted so that with full forward (nose down) trim the control column is pulled by the trim springs into it's maximum forward position with a force P of approx. 30 N (6.6 lbs.).
The force P is to be measured with a spring balance at the upper end of the control stick. Read the force, when the stick just starts to move.



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.

The correct adjustment should be verified in flight and corrected if necessary.
Trimming should be possible up to 200 – 220 km/h (108 - 119 kts.).

Note: If the DG-1000M can be trimmed up to higher speeds it is likely that the trim is not sufficient in circling flight.

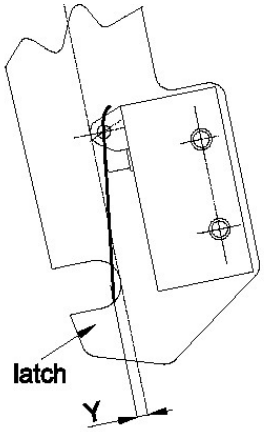
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4. Retract the landing gear a small amount, extend again and check if the lower green control light starts shining. If not, the arm was bent too far.
5. If the adjustment is correct, retract the landing gear and extend via the emergency system. Check if the lower green control light starts shining. If not, the arm was bent too far. After adjustment repeat the check according to item 2.

b) Limit switch landing gear retracted

The spindle drive must be shut off in the retracted position when the bolt at the left drag strut 10FW102 engages in the notch of the left latch on shaft 10FW109 and activates the limit switch which is mounted to the latch.

Check: Activate the limit switch. The distance Y shall be 2 - 3 mm (0.08 – 0.12 in.) when the switch is activated. If necessary adjust the switch by bending its arm.



c) Limit switch gas strut (emergency extension system)

d) This switch (position 12 in diagram 9) is mounted to the upper end of the gas-strut at bracket 10FW120. When resetting the gas strut the spindle drive must be stopped by the limit switch before the gas strut becomes completely compressed. To accomplish this the distance X in diagram 9 (from counter nut up to gas strut body) must be minimum 8 mm (0.32 in.). If necessary shift the limit switch. To accomplish this the switch must be dissembled and the holes in the bracket must be elongated.

e) Switch emergency extension system (optional with TN1000/19, standard from ser.no. 10-157 on)

This switch (position 20 in diagram 9) activates higher current for the spindle drive via the LG control unit to reset the gas-strut as long as one of the emergency extension handles is pulled. The switch is mounted to a bracket 10FW143 which is mounted to the bracket 10FW120 see item c). The switch is activated by the deblocking lever in the upper gas-strut end. In case the spindle drive doesn't have enough power to reset the gas-strut check the function of the switch. To accomplish this disconnect the 2 wires from the switch. With one of the emergency extension handles pulled the resistance between these 2 terminals must be zero. If necessary adjust the switch by bending its arm.

1.6.1.3 Free play

Free play between bell crank 10FW108 and shaft 10FW91 is not allowed. If there is any free play tighten the two bolts M8x45 inside the landing gear box with a 13 mm open-end wrench. If there is still some free play, the bolts should be removed and the holes drilled out and reamed to diameter 10 H7. M10 x 45 LN9037 bolts should then be installed.

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1.7 Tow hooks

1.7.1 Tow release circuit

see diagram 5

1.7.2 Adjustment

Check if both tow releases open fully.
Adjustment is done at the connection of pushrod 10R162 to bellcrank 10R161 in the rear cockpit. The adjustable seat shell and the cover 10RU170 must be removed to accomplish the adjustment..

1.7.3 Damages

The ring muzzle of the C.G. hook should not be bent or ground down and should move easily. If the muzzle is damaged, the tow release has to be exchanged and repaired by the manufacturer (Tost).

1.7.4 Removing the tow hooks

1.7.4.1 C.G. tow hook:

Remove the cover (front side of rear seat).
Remove the mounting bolts and the actuating lever. Don't remove the bolt which carries the actuating lever.
Move the tow hook some mm in an upward direction (use a piece of hard wood and a hammer). Then pull it out in forward and upward direction.

1.7.4.2 Nose tow hook:

Remove the control cable from lever 5R2/1.
Remove the tow hook with the fittings 5R3/2 and 3.

1.7.5 Rubber cords

To keep the actuating cables tight there is a rubber cord at both of the cables in the compartment below the foot of the rear instrument panel behind the main battery.
From ser.No. 10-276 on the rubber cords have been replaced by 2 tension springs.
Replace the rubber cords if worn.
To accomplish this you have to detach and swivel the foot of the rear instrument panel to the back.

For further information refer to the operating and maintenance instructions for the release mechanism, see section 0.4.4 a).

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1.15 Electrical system

Caution: Before doing any work on the electrical system, isolate the power supply by switching off the main switch. The battery should also be disconnected before working at the control unit. This is done by disconnecting the fuse for the main battery (located in a recess in the floor behind the foot of the rear instrument console).

In addition the plugs from the wiring leading to control unit and DEI-NT must be sealed with tape when they are removed from the control unit or from the DEI-NT.

1.15.1 Layout

see wiring plan enclosed with this manual.
Type of parts see section 8.1.2.4.

1.15.2 Batteries

1.15.2.1 Main battery

The installed battery is a sealed maintenance free battery 12V/18Ah with screwed terminals. The battery is installed in the lower part of the rear instrument console.
Type see section 8.1.2.4.
Recharging is via the 12 V sockets in the front and rear cockpit. Therefore switch on the main switch to the first position (charging). You don't need to remove the battery for charging.

1.15.2.2 Additional batteries

Wiring with plugs BSK12 for additional batteries in baggage compartment and fin are standard equipment.

Caution plugs BSK12: The screws to fix the wires in the plugs must be tightened and secured with securing paint.

a) An additional battery Z73 12V/7Ah with holder Z72 or Z01 12V/10Ah with holder Z200 may be installed in the baggage compartment.
   In this case a battery selector switch must be installed in the front instrument panel.
b) A battery Z110 (12 V, min. 12 Ah, mass 5.5 kg, 12.1 lbs.) may be installed in the battery box in the fin.
   The wiring for this battery is in parallel to the battery in the baggage compartment.

1.15.2.3 All batteries

Caution: Use only automatic chargers suitable for sealed liquid acid batteries. To charge the batteries to their max. capacity a charger with a max. output voltage of 14.4 V is required (most chargers supply only 13.8 V). A suitable charger part No. Z 08 is supplied by DG Aviation.
Note: Don't charge longer than for 1 week.

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2.4 Inspection procedure for increase of service time

1. **General**

   The results of fatigue tests of wingspar 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. DG Aviation will develop an inspection program to be executed at 3000 h, 6000 h, 9000h, and every 1000 hours thereafter up to the 12000 hour limit. This program will be approved by the aviation authorities and will be available for purchase from DG Aviation.
   When you request the inspection program, 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 program.

4. The inspection must only be done 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 DG Aviation facilities, a copy of the records must be sent to DG Aviation for evaluation and information.

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8 Partlist

Please find the part no's of the control-system parts and of the metal fittings of the powerplant in the following diagrams.

Note: The number at the left hand side is the DG part no.. Please use these numbers for ordering any parts.

8.1 Parts for the powerplant

8.1.1 Parts necessary for the 25 hours inspection

60500150 Gaskets for exhaust manifold (2 pieces needed)
60500185 Air intake filter K&N RU2760
70002200 Oil for airfilters with cottonfabric K&N 99-05046
60000377 Copper sealing ring 10x14x0,8 DIN 7603 A

8.1.2 Spare parts

8.1.2.1 Power plant and extension retraction system

40050360 Spark plug S36 (Bosch W5AC electrode gap 0.5 mm) with screw cap fastened to the thread by crimping, marked with a red dot of paint on the insulator
60510821 Spark plug connector Bosch 0356351032 1kΩ, no more available
4502085 Spark plug connector PVL (alternative to Bosch)
4502085 Spark plug connector Champion (alternative to Bosch)
60500155 Gasket for coolant outlet
60500127 Nut for spring coupling M8 for exhaust muffler
60500128 Spring for spring coupling M8
60000337 Spring for propeller stopper
41071730 Starter motor: 10M173DENSO 128 000-1671 12 V modified
60510831 V-drive belt Optibelt Super X-Power XPZ 2540 Ld (5 pieces needed)
40871711 Drive belt roller 10M101
59332050 Front bearing for upper pulley 32205 B
59320320 Rear bearing for upper pulley 320/32 X
52200054 Securing washer 20 DIN462 for upper pulley front bearing
30002028 Special grease for upper pulley bearings SKF LGMT3
39001028 Exchange kit nuts and bolts for 400 h overhaul
60000157 Gas strut for ext.-retr. drive S47/2 with Ultra-bush
60504045 Ext.-retr. spindledrive type Stross BSA10 RN1 C205
60504043 Ext.-retr. spindledrive type Stross BSA10 RN1 C205 assembled with fork 10M170 and flange 8M230/2
60000219 Rubber mount at engine hinge axis in engine mount: Ultra-bush 0118055.60
41071170 Front engine shock mount 10M117
60504014 Rear engine mount Lord J-3608-1 Shock mount
60001115 Clamps XO for 6mm bungee (bungee for retaining cable)
52130011 Securing washer 13 DIN432-St zn for powerplant main hinges
60000338 Rubber buffer 3917210000 (engine tilt limit stop)

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60507526 Fuel hose 15 x 23 mm fabric braided (at fuel pump)
30092051 Metal braiding inner dia. 8 mm

60000377 Copper sealing ring 10x14x0,8 DIN 7603 A for service port

8.1.2.4 Parts for the electrical system

60510899 Main battery: Odyssey PC625 12V/18Ah
41076003 DEI-NT- DG-1000M
41076004 DEI-NT-DG-1000M second unit (rear cockpit)
41076005 Control unit-NT-DG-1000M
41076006 Engine control unit ECU Trijekt-Plus T101 Solo No. 23 00 886
41076007 Controler for emergency system Solo No. 23 00 896

41075210 Engine speed sensor (normal system+emergency system) Bosch 0261210147 assembled with wiring and plugs
60510836 Throttle valve sensor: Bosch 0 280 122 201
60510837 Probe for coolant temperature Bosch 0 281 002 209
60510669 Intake air sensor Epcos B57881S212F
41075204 Proximity switch ready assembled with wiring and plug
41075211 Voltage converter 10E211 for coolant pump Pierburg

60510834 Ignition coil Solo No. 23 00 883

60510832 Regulator Ducati 34407011
60504044 Voltage reducing module for generator/regulator
60510202 Condensor for generator/regulator 100.000µF/40V

60510464 Limit-switch engine retracted and engine extended 164-574, alternatively SI2010-B2T20YR30,5m
60510506 Manual extension-retraction switch MTG 106 G
60510465 Black cap for switch MTG206S
60510483 Switch for emergency engine control: APEM 5636 MA
60510466 Red cap for APEM 5636 MA

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 01191017003 80 A for battery

60510796 Socket BSB 12 (in main bulkhead)
60510797 Plug BSK12 for socket BSB 12

From ser. No. 10-225 on:

60510880 Socket XLR 3-pole NC3FD-LX-BAG
60510881 Plug XLR 3-pole NC3MX-BAG (for socket XLR

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8.2 Control surface sealings and turbulators

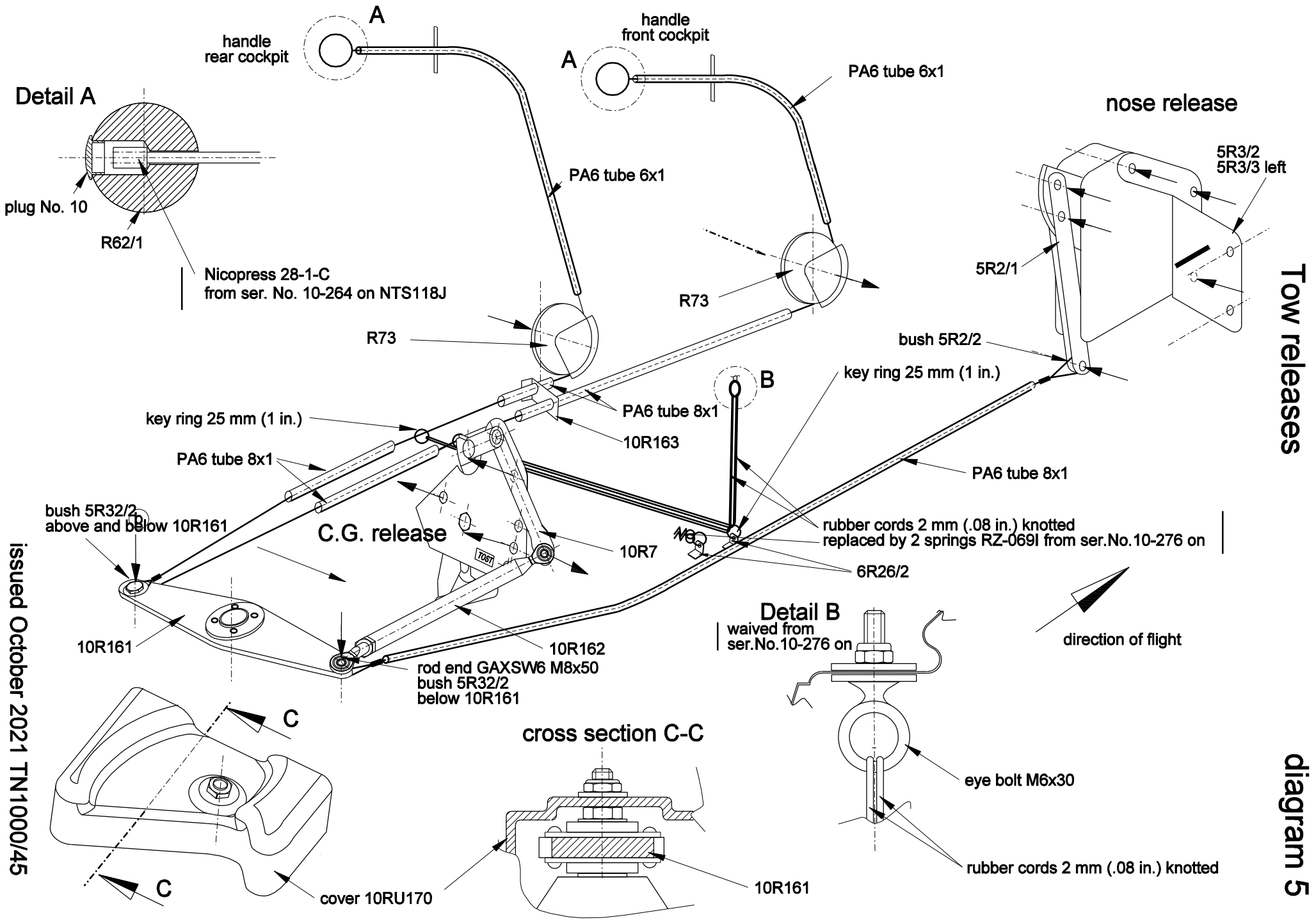
25.4 mm= 1 in., 1 m = 3.2809 ft.

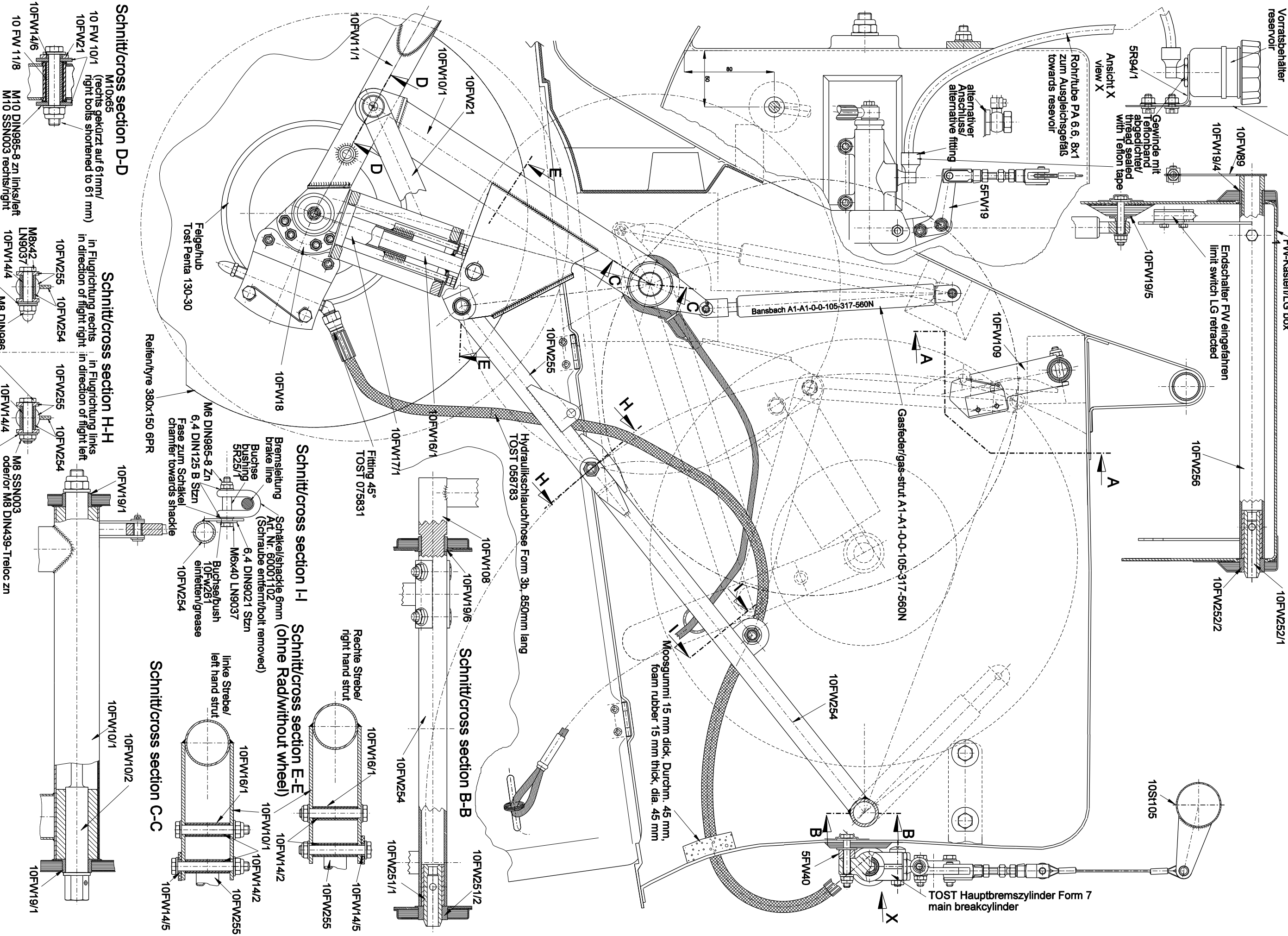
1. Wings - upper surface
   30003125 Mylar sealing 0.19 x 22 mm without glue, curved
   70000253 Tesafix No. 4965, 9 mm wide, 50 m roll glue film
   70000229 Tesafilm 4104 white, 19 mm wide, 66 m roll PVC tape
2. Wings - lower surface
   30003300 Noppenband 10m roll (dimple turbulator tape)
3. Ailerons (sliding surface and internal sealing)
   30003136 Teflon-glass fabric 0.08 x 38 mm, 33 m roll selfadhesive
   70000229 Tesafilm 4104 white, 19 mm wide, 66 m roll PVC tape
4. Horizontal tailplane
   30003129 Zig-zag turbulatortape 60 degree 0.4 mm thick
   30003125 Upper surface: Mylar sealing 0.19 x 22 mm without glue, curved
   30003124 Lower surface: Mylar sealing 0.19 x 22 mm without glue, flat
   70000253 Tesafix No. 4965, 9 mm wide, 50 m roll glue film
   70000229 Tesafilm 4104 white, 19 mm wide, 66 m roll PVC tape
5. Vertical tailplane
   30003142 Zig-zag turbulatortape 60 degree 0.8 mm thick
   30003128 Mylar sealing 0.19 x 30 mm without adhesive, curved, leading edge scarfed
   70000253 Tesafix No. 4965, 9 mm wide, 50 m roll glue film
   70000229 Tesafilm 4104 white, 19 mm wide, 66 m roll PVC tape
   70000295 Internal sealing: 3M Scotch V-seal weatherstrip Cat.Nr.2101 5.2 m roll

8.3 Parts for landing gear

60000322 Gasstrut A1-A1-0-0-105-317-560N (for LG- retraction)
60000072 Mainwheel assembled Tost No.: 055536+665681+065995, 5" "Scheibenbremsrad Penta 130-30"
60000139 Lockable gas strut K0V2P-3-200-647-004/460N
41041400 Spindle drive completely assembled
60510463 Limit switch 164-(LG retracted)
60510464 Limit switch 164-574 (LG extended)
41040008 Limit switch XGG2-88-S20Z1 (gas strut)
60510506 Manual extension-retraction switch MTG 106 G (LG up, down)
60510375 Press button 12G2904 with cap 12G2910 black (LG up)
60510865 Switch 1006.1511 **(optional with TN1000/19, standard from ser.no. 10-157 on)**

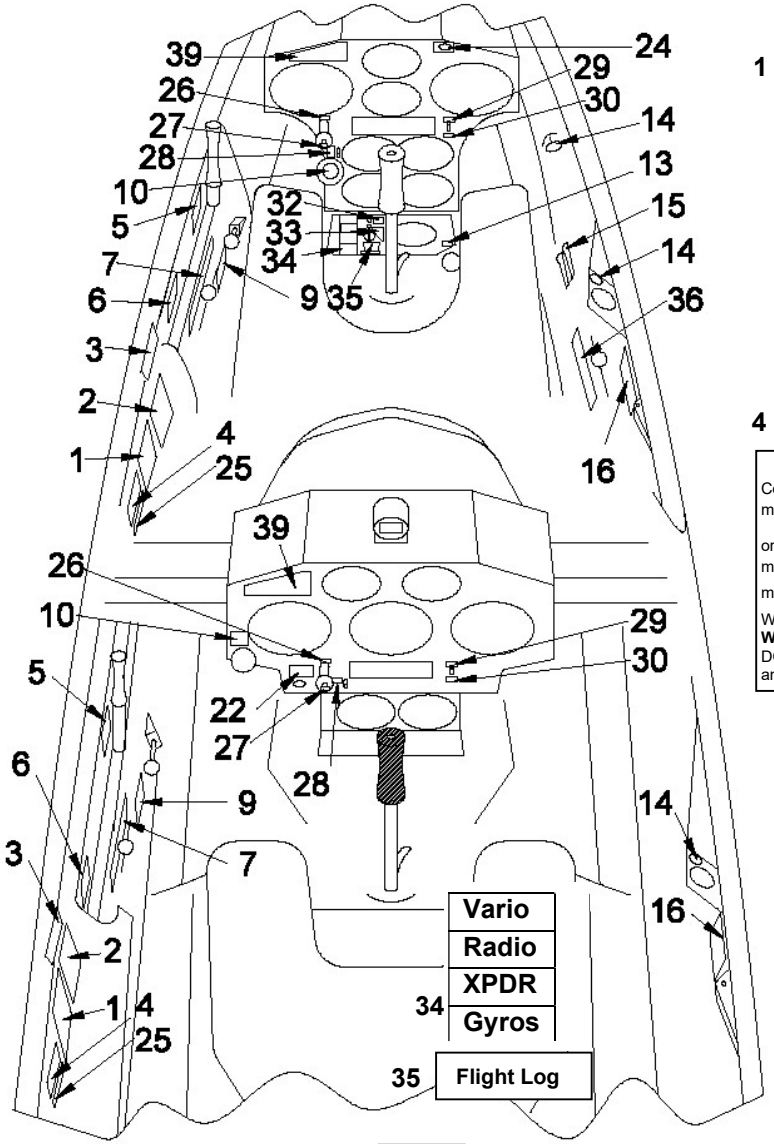
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Manual valid with the up-to-date cover page only


Tow releases
diagram 5
issued October 2021 TN1000/45
Detail A
plug No. 10
R62/1
Nicopress 28-1-C
from ser. No. 10-264 on NTS118J
handle
rear cockpit
A
handle
front cockpit
A
PA6 tube 6x1
PA6 tube 6x1
R73
R73
nose release
5R3/2
5R3/3 left
5R2/1
bush 5R2/2
key ring 25 mm (1 in.)
B
PA6 tube 8x1
10R163
key ring 25 mm (1 in.)
PA6 tube 8x1
PA6 tube 8x1
bush 5R32/2
above and below 10R161
C.G. release
10R7
rubber cords 2 mm (.08 in.) knotted
replaced by 2 springs RZ-069I from ser.No.10-276 on
6R26/2
Detail B
waived from
ser.No.10-276 on
direction of flight
10R161
10R162
rod end GAXSW6 M8x50
bush 5R32/2
below 10R161
C
C
cover 10RU170
cross section C-C
10R161
eye bolt M6x30
rubber cords 2 mm (.08 in.) knotted



Hauptfahrwerk, hydraulische Radbremse, Einbau im Fahrwerkskasten, Blatt 1 Ausgabe: Oktober 2021 TM1000/45 Diagramm 7
Main landing gear, hydraulic wheel brake, installation in the LG box, page 1 issued October 2021 TN1000/45 diagram 7

Placards DG-1000M



1

DG Aviation GmbH
Type: DG – 1000M Serial No.: 10- M
Year of construction:

Maximum airspeeds	km/h	kts.
Winch launching	150	81
Aero-tow	185	100
Manoeuvring V_A	185	100
Rough air	185	100
Maximum speed V_{NE}	270	146
Powerplant extended	185	100
Powerplant extension-retraction	100	54

Approved aerobatic manoeuvres, approved up to a max. mass of 683 kg /1506 lbs:
Pos. Loop, Chandelle, Spin, Stall turn

Maximum mass: 790 kg /1742 lbs.

4

Loading chart

Cockpit load	front seat		rear seat		(Parachute
maximum	110 kg	242 lbs.	90 kg	198 lbs.	included)
or maximum	105 kg	231 lbs.	105 kg	231 lbs.	
minimum	kg	lbs.	/	/	without fin battery
minimum	kg	lbs.	/	/	With fin battery

With lower pilot weight necessary ballast must be added.
Warning: To keep from exceeding the forward C.G. limits when flying the DG-1000M two-seated, heavy pilots must compensate the mass of the front and the rear pilot according to AFM section 6.8.7.

0.1.1.1 Pre-flight Check

1. Lead ballast (for under weight pilot)?
2. Parachute worn properly?
3. Safety harness buckled?
4. Front seat: pedals adjusted?
   Rear seat: seating height adjusted?
5. All controls and knobs in reach?
6. Altimeter?
7. Dive brakes cycled and locked?
8. Positive control check ? (One person at the control surfaces).
9. Trim ballast box in the fin, correct amount filled in? Locking device completely engaged?
10. Battery in the fin? Loading chart regarded?
11. Trim?

In addition for self launching

12. Fuel level?
13. Fuel cock open?
14. Canopy open, propeller circle clear?
15. After engine start close and lock both canopies.
16. Check max. engine RPM, min. 5900RPM.
17. Check both ignition circuits (4000 RPM)
18. Check emergency system (4000 RPM)

2

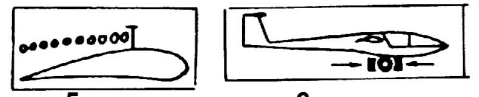
Senden transmit **22**

Ballastkasten Seitenflosse
Mindestzuladung im vorderen Sitz **24**

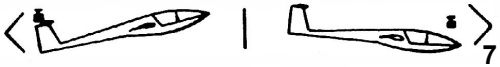
kg Kasten leer — kg Kasten befüllt

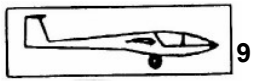
Altitude in [m]	0-3000	4000	5000	6000	7000	8000
V_{NE} IAS km/h	270	256	243	230	217	205
Altitude in [ft]	0-10000	13000	16000	20000	23000	26000
V_{NE} IAS kts.	146	138	131	124	117	111

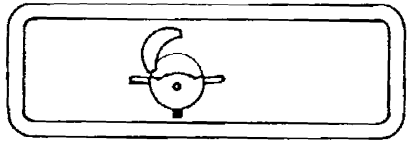
25

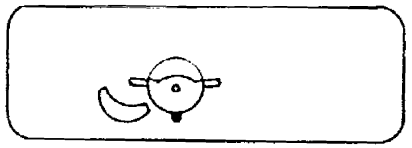

5

6


7


9


3


16

Bauteil Nr.:

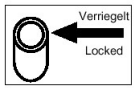
part No. of components at all components

Typ:	DG-1000M
W.Nr.	

Fire proof placard at main bulkhead

Gepäck max. 15 kg
baggage max. 33 lbs.

at main bulkhead



at cover plate of fin ballast box

Reifendruck 3 bar
Tyre pressure 43.5 psi

at right wheel door front

Sollbruchstelle 10000 N
rated load 2200 lbs.

Drainer ↑

at right wheel door rear

Reifendruck 4 bar
Tyre pressure 58 psi

above tailwheel right

Bemsflüssigkeit
----
min.
brake fluid
DOT 3 / DOT 4

on break fluid reservoir

Warning:
Rigging of the horizontal tailplane is only permitted with nose down trim-setting

fin upper left hand side

26 Throttle
27 Starter
28 man. ↕
29 normal
30 emergency
32 intern / off / extern
33 charging / main / on

36 auf open — Brandhahn — zu closed fuel cock

39 placards landing gear see diagram 24

Benzin min. 95 Okt. 50:1 Zweitaktöl 40 l
petrol min. 95 ROZ. two stroke oil

on top of main bulkhead left hand side and at fuel filler (Option)


14


15


10

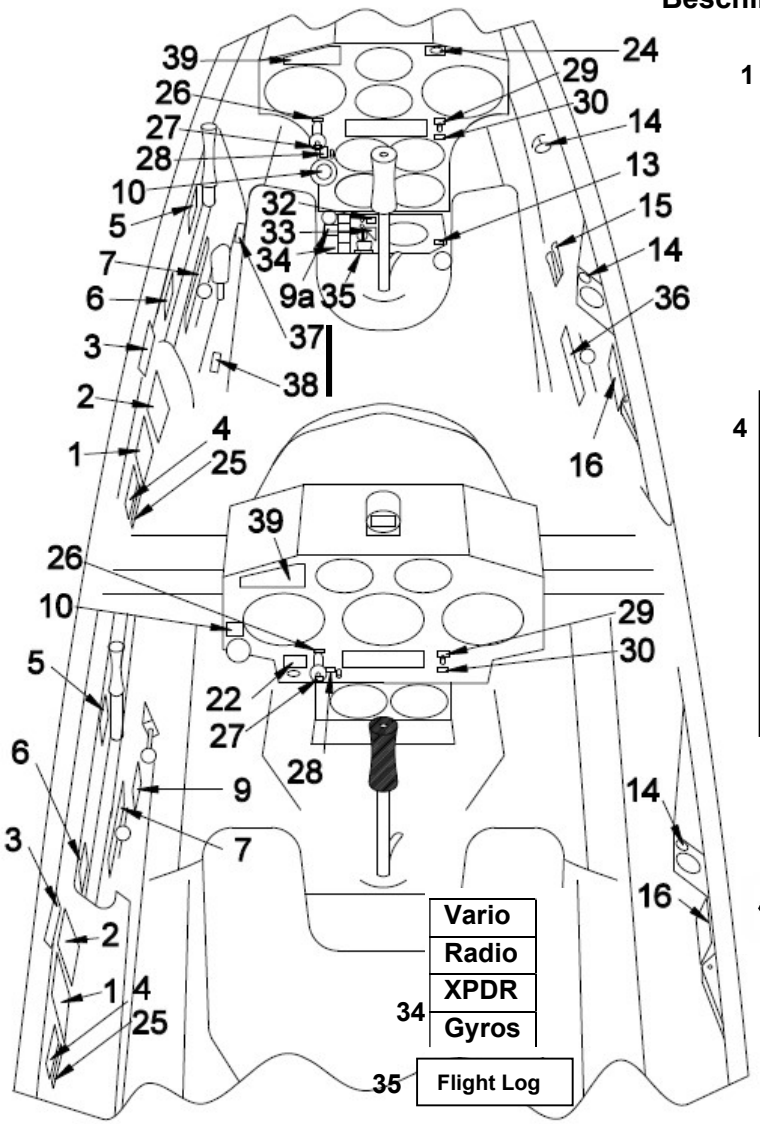

13

Tankpumpe
Refueling pump

on top of main bulkhead left hand side

diagram 12
issued October 2021
TN1000/45

Beschilderung DG-1000M mit optionaler Handsteuerung des Seitenruders



1

DG Aviation GmbH
Muster: DG–1000M Werk-Nr.: 10- M Baujahr:

Zugelassen für	bis km/h
Windenstart	150
Flugzeugschlepp	185
Manövergeschwindigkeit V_A	185
Flug bei starker Turbulenz	185
Höchstgeschwindigkeit V_{NE}	270
Mit ausgefahrenem Triebwerk	185
Zum Ein-und Ausfahren des Triebwerkes	100

Kunstflugfiguren (zugelassen bis max. Masse 683 kg):
Pos. Looping, Chandelle, Trudeln, Turn

Höchstmasse: 790 kg

4

Trimmplan

Zuladung im	vorderen	hinteren	Sitz	(Fallschirm mitgerechnet)
maximal	110	90	kg	
oder max.	105	105	kg	
minimal		/	kg	ohne Batterie in der Seitenflosse
minimal		/	kg	mit Batterie in der Seitenflosse

Leichtere Führer müssen die fehlende Masse durch Ballast ergänzen.
Warnung: Um die vordere Schwerpunktlage einzuhalten, dürfen schwere Piloten die DG-1000M doppelsitzig nur betreiben, wenn Sie die Masse von vorderem und hinterem Piloten siehe FHB Abschnitt 6.8.7 austrimmen.

Vorflugkontrolle
1. Trimmgewichte?
2. Fallschirm richtig angelegt?
3. Richtig und fest angeschnallt?
4. Vorderer Sitz: Pedale in bequemer Sitzposition?
   Hinterer Sitz: Sitzhöhe richtig eingestellt?
5. Alle Bedienhebel und Instrumente gut erreichbar?
6. Höhenmesser?
7. Bremsklappen gängig und verriegelt?
8. Ruderprobe? (Dabei Ruder von einem Helfer festhalten)
9. Trimmballastkasten in der Seitenflosse, richtige Ballastmenge eingefüllt?
   Verriegelung des Deckels vollständig eingerastet?
10. Batterie in Seitenflosse? Beladeplan beachtet?
11. Trimmung?

Zusätzlich bei Eigenstart
12. Kraftstoffmenge?
13. Brandhahn offen?
14. Haube offen: Propellerkreis frei?
15. Nach dem Anlassen beide Hauben schließen.
16. Startdrehzahl prüfen, min. 5900 RPM.
17. Beide Zündkreise prüfen (4000 RPM), max. Abfall 300 RPM.
18. Notsystem prüfen (4000 RPM).
19. Startstrecke frei?

2

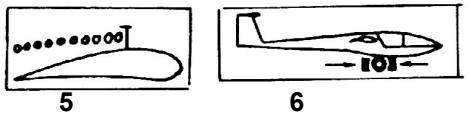
Senden
transmit **22**

Ballastkasten Seitenflosse
Mindestzuladung im vorderen Sitz

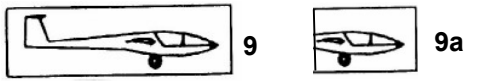
kg	kg	
Kasten leer	Kasten befüllt	**24**

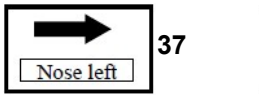
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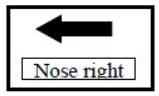
Flughöhe m	0-3000	4000	5000	6000	7000	8000
V_{NE} IAS km/h	270	256	243	230	217	205

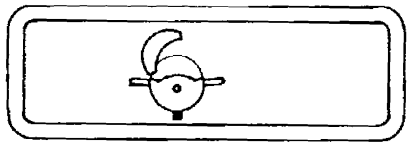

5 6

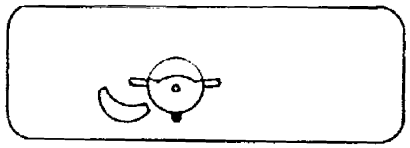

7


9 9a


Nose left **37**


Nose right **38**


3


16


14


15


10

13

Bauteil Nr.:

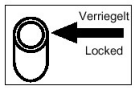
Bauteil Nr. auf allen Bauteilen

Typ:	DG-1000M
W.Nr.	

feuerfestes Typenschild am Hauptspant

Gepäck max. 15 kg
baggage max. 33 lbs.

am Hauptspant



am Deckel des Ballastkastens

Reifendruck	3 bar
Tyre pressure	43.5 psi

rechts auf der Fahrwerksklappe vorn

Sollbruchstelle	10000 N
rated load	2200 lbs.

Drainer

rechts auf der Fahrwerksklappe hinten

Reifendruck	4 bar
Tyre pressure	58 psi

rechts über dem Spornrad

	Bemsflüssigkeit
---- min.	**brake fluid**
	DOT 3 / DOT 4

auf dem Bremsflüssigkeitsbehälter

Warnung:
Montage des Höhenleitwerkes nur zulässig bei Trimmstellung kopflastig!

Seitenflosse oben links

Tankpumpe
Refueling pump

auf dem Hauptspant oben links

26 Throttle
27 Starter
28 man.
29 normal
30 emergency
32 intern / off / extern
33 charging / main / on

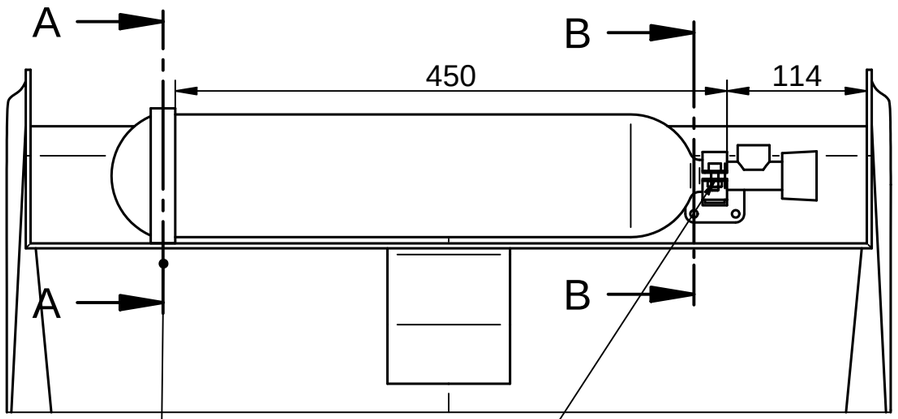
36 auf open — Brandhahn — zu closed fuel cock

39 Placards Fahrwerk siehe Diagramm 24

Benzin min. 95 Okt. 50:1 Zweitaktöl 40 l
petrol min. 95 ROZ. two stroke oil

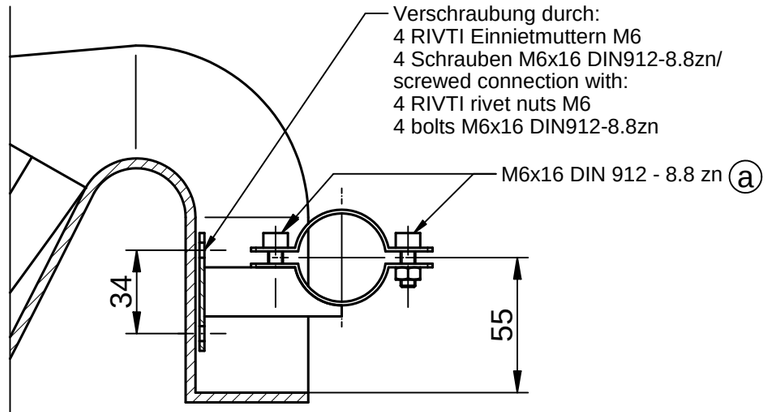
auf dem Hauptspant oben links und am Tankstutzen (Option)

Diagramm 12a
Ausgabe Oktober 2021
TM100045



Halterung für
Sauerstoffflasche Z37/
holder for oxygen cylinder

Halterung für
Sauerstoffflasche Z36/
holder for oxygen cylinder



Schnitt B-B

Montage Gepäckraum/Installation in baggage compartment

Montage Fußraum (Blickrichtung entgegesetzt Flugrichtung)/ Installation behind pilots feet (view against direction of flieght)

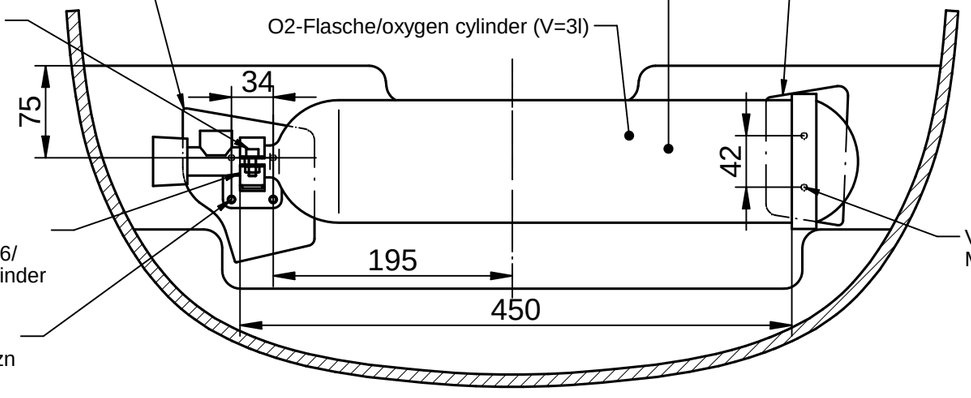
5Ru105 bei W.Nr. 10-264, 10-265, 10-267, 10-269, 10-270 und ab W.Nr. 10-275 in 10Ru32/2 integriert/ 5Ru105 for ser.No. 10-264, 10-265, 10-267, 10-269, 10-270 and from ser.No. 10-275 on integrated in 10Ru32/2

Halterung für Sauerstoffflasche Z37/ holder for oxygen cylinder

5Ru104 bei W.Nr. 10-264, 10-265, 10-267, 10-269, 10-270 und ab W.Nr. 10-275 in 10Ru32/3 integriert/ 5Ru104 for ser.No. 10-264, 10-265, 10-267, 10-269, 10-270 and from ser.No. 10-275 on integrated in 10Ru32/3

4x M6x16 DIN 912 - 8.8 zn ⓐ

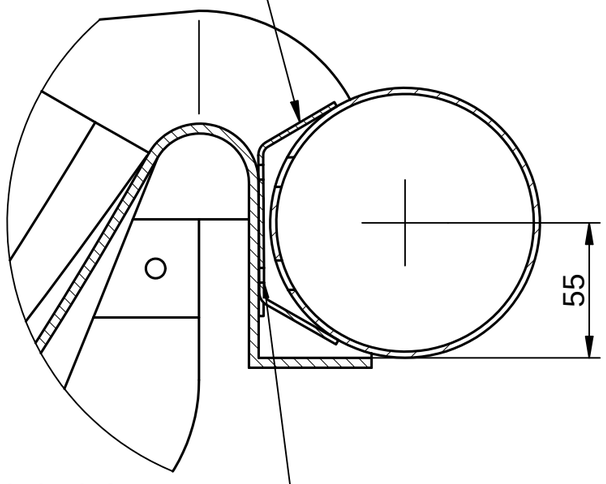
O2-Flasche/oxygen cylinder (V=3l)



Halterung für
Sauerstoffflasche Z36/
holder for oxygen cylinder

Verschraubt mit 4x
M6x16 DIN 912 -8.8zn
ⓐ

Verschraubt mit 2x
M6x16 DIN 912 -8.8zn
ⓐ



Ansicht/view A

Halterung Z36 ausgeblendet
holder Z36 not shown

Verschraubung durch:
2 RIVTI Einnietmuttern M6
2 Schrauben M6x16 DIN912-8.8zn/
screwed connection with:
2 RIVTI rivet nuts M6
2 bolts M6x16 DIN912-8.8zn

Rev.	Change Description	S/N	Date	Name
a	Verschraubung hinzugefügt		09.08.19	Schenk

	Date	Name
Design	09.01.19	Breidenbach
Checked	26.09.19	
Approved		

Scale: 1:x

General Tolerance according to: BA1
Welding according to: SA1

Einbau Sauerstoffflaschen 3L/
Installation of 3L oxygen cylinders

Next Assembly:

DG Flugzeugbau GmbH
76646 Bruchsal
Otto-Lilienthal-Weg 2

10R146

Solid Edge

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