0 General

0.1 Manual amendments

Note: Changes 1- 23 are not listed

No.	Page	Description	Date
24	all	New standardized format of the initial maintenance manual of Variant DG-800B	May 2012
25	0.11 ÷ 0.14, 1.2, 1.4, 1.5, 1.7 ÷ 1.11, 1.13 ÷ 1.16, 1.18, 1.26, 1.27, 1.30, 2.1, 2.2, 2.4, 2.5, 3.1 ÷ 3.6, 3.8 ÷ 3.10, 4.1 ÷ 4.3, 4.7 ÷4.11, 4.13, 4.15, 4.16, 4.19 ÷ 4.23, 4.25, 4.26, 4.28 ÷ 4.31, 4.38, 5.1, 5.2, 6.1 ÷ 6.3, 7.2, 8.1 ÷ 8.5, 9.2, diagrams 1 ÷ 6, 7, 7a, 8, 9, 10a,10b, 11, 11a, 11b, 11d, 12a, 13b, 14 (14a removed), 15, 17, 8M210, W59, SI 69-10	Manual revision, Coolant pump Pierburg Primervalve IWP069 TN800/41	May 2012
26	0.1, 0.3 - 0.7, 0.12, 0.13, 3.6, 3.10, 8.2, 8.3, diagrams 11, 11a, 11b, 11d, working instruction No. 1 for TN 800-44	Fuel hoses TN800/44	October 2016
27	0.1, 0.3 - 0.6, 0.13, 0.14, 2.1, 2.2, 3.6, 4.36, 4.41, 8.1, 8.4, diagrams 3, 9	manual revision TN800/45	July 2017

0.2 List of effective pages

Section	page	issued	replaced/	replaced/	replaced/
0	0.0	May 2012			
	0.1	see manual amendments			
	0.2	"			
	0.3	"			
	0.4	"			
	0.5	"			
	0.6	"			
	0.7	"			
	0.8	May 2012			
	0.9	"			
	0.10	"			
	0.11	"			
	0.12	"	October 2016		
	0.13	"	October 2016	July 2017	
	0.14	"	July 2017		
1	1.1	May 2012			
	1.2	"			
	1.3	"			
	1.4	"			
	1.5	"			
	1.6	"			
	1.7	"			
	1.8	"			
	1.9	"			
	1.10	"			
	1.11	"			
	1.12	"			
	1.13	"			
	1.14	"			
	1.15	"			
	1.16	"			
	1.17	"			
	1.18	"			
	1.19	"			
	1.20	"			
	1.21	"			
	1.22	"			
	1.23	"			
	1.24	"			

0.2 List of effective pages (continued)

Section	page	issued	replaced/	replaced/	replaced/
	1.25	May 2012			
	1.26	"			
	1.27	"			
	1.28	"			
	1.29	"			
	1.30				
2	2.1	May 2012	July 2017		
	2.2	"	July 2017		
	2.3	"			
	2.4	"			
	2.5	"			
	2.6	"			
3	3.1	May 2012			
	3.2	"			
	3.3	"			
	3.4	"			
	3.5	"			
	3.6	"	October 2016	July 2017	
	3.7	"			
	3.8	"			
	3.9	"			
	3.10	"	October 2016		
4	4.1	May 2012			
	4.2	"			
	4.3	"			
	4.4	"			
	4.5	"			
	4.6	"			
	4.7	"			
	4.8	"			
	4.9	"			
	4.10	"			
	4.11	"			
	4.12	"			
	4.13	"			
	4.14	"			
	4.15	"			
	4.16	"			

0.2 List of effective pages (continued)

Section	page	issued	replaced/	replaced/	replaced/
	4.17	May 2012			
	4.18	"			
	4.19	"			
	4.20	"			
	4.21	"			
	4.22	"			
	4.23	"			
	4.24	"			
	4.25	"			
	4.26	"			
	4.27	"			
	4.28	"			
	4.29	"			
	4.30	"			
	4.31	"			
	4.32	"			
	4.33	"			
	4.34	"			
	4.35	"			
	4.36	"	July 2017		
	4.37	"			
	4.38	"			
	4.39	"			
	4.40	"			
	4.41	"	July 2017		
	4.42	"			
5	5.1	May 2012			
	5.2	"			
6	6.1	May 2012			
	6.2	"			
	6.3	"			
7	7.1	May 2012			
	7.2	"			
8	8.1	June 2005	July 2017		
	8.2	"	October 2016		
	8.3	"	October 2016		
	8.4	"	July 2017		
	8.5	"			
9	9.1	May 2012			
	9.2	"			

0.2 List of effective pages (continued)

diagram	issued	replaced/	replaced/	replaced/
1	May 2012			
2	May 2012			
3	May 2012	July 2017		
4	May 2012			
5	May 2012			
6	Mai 2005			
7	May 2012			
7a	May 2012			
8	May 2012			
9	May 2012	July 2017		
10a	May 2012			
10b	May 2012			
11	May 2012	October 2016		
11a	May 2012	October 2016		
11b	May 2012	October 2016		
11c	Juni 2005			
11d	May 2012	October 2016		
12	Dez. 1997			
12a	May 2012			
13	Febr. 1999			
13a	Dez. 1997			
13b	May 2012			
14	May 2012			
15	May 2012			
17	May 2012			

0.4 Airworthiness limitations

0.4.1 Repairs

Repair or replace damaged parts prior to next flight. Follow the instructions of the DG-800B repair manual for all airframe repairs.
Repairs exceeding those as defined as minor damage in the DG-800B repair manual section 2 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 parts for all repairs.

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 the variant DG-800B is 12000 flight hours. Therefore inspections according to sect. 2.4 of this manual have to be executed at 3000 h, 6000 h, 9000 h and every 1000 hours following thereafter.

0.4.3 Life time of of equipment components

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

a) The following components of the power plant have to be replaced after 400 engine hours.
   1. All nuts and bolts on the engine (part No. 39001025)
   2. The bearings of the upper drive belt pulley (part No. 59332050 and 59320320)
b) All flexible fuel lines (part. No. 39001009 resp. 10 resp. 11) and the gasket for the drainer valve (part No. 60504402) have to be exchanged after 6 years.
   TN 800/44: When instructions 2 and 3 of this TN have been accomplished the life time of the flexible fuel lines is 10 years.
c) The **coolant hoses** (part no. 39001017 resp. 18) have to be exchanged after 6 years.

Note: The **coolant** (type see section 1.11.2) has to be exchanged after 6 years.

d) The **drive belt** (part. No. 60504012) has to be exchanged after 50 engine hours.
e) The **spark plugs** (part. No. 40050360) have to be exchanged after 25 engine hours.

f) 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.

g) **Flexible fuel bags in the wings (option)**
Type Uniroyal (rubber): these will have to be exchanged after 10 years.
Type HFK (plastic): see Mounting and testing instructions for HFK TLF.

Note: The **brake fluid of the wheel brake** (Option disc brake) has to be exchanged after 4 years (types see section1.6.3).
Note: All **other components** like tow hook, wheels, gas struts, control system parts, bolts, pins etc. have no life time limitation, but should be replaced when worn, damaged or disqualified by excessive corrosion.

0.4.4 Service time, maintenance documents of equipment and components

Follow the instructions of the respective manufacturer:

a) Operating Manual for Safety Tow Releases Series: Europa G 88 Safety Tow Release
latest approved version.

And if installed:
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 6.3.

c) Minimum instrumentation: instructions of the manufacturer.
Approved types see section 6.1, 6.2 and 6.4.

d) Engine: Manual of the engine manufacturer latest approved version.

e) Propeller: Technoflug Operation and maintenance manual No. P3 latest approved version.

0.4.5 Power plant trouble shooting

Please find a checklist in the DG-800B flight manual section 8.8.

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.

2 Inspections

2.1 Daily inspection

see flight manual DG-800B section 4.3..

2.2 Regular inspections

A Annual inspection

- 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 sealings 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 1.4).
- Check the free play in all control circuits (see section 1.2 up to 1.6)
- Check the fore and aft play of the wings (see section 1.10).
- Check the canopy emergency releases according to section 7.16 of the flight manual.
- Check the tension of the lines of the waterbag attachment (see section 4.1.).
- Landing gear: Check if the bolted connection between actuating lever and rear upper fork is tightened?
- Check all accessible drain and ventilation holes if clogged, especially on the lower fuselage side (see diagram 17).
- Check if the powerplant has been serviced according to section 3.5.1.
- Check the friction brake of the throttle control (see sect. 1.11.8). Check the torque of the propeller bolts see sect. 3.5.1 item 25 of this manual.
- **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 annual inspection.

2.2 cont.

B) Special inspections

Tow hook:

After a wheel up landing, the tow hook mechanism is to be carefully checked for any damage.

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

C.G. weighing:

After all work which may influence the C.G., but at least every 4 years with the annual inspection.

C) Wing fuel bags, every 5 years

Check for external wear and execute pressure check with 0.15 bar (2.2 psi), tanks installed in the wings.

7. Check all fuel lines for any wear, fissures, kinks, tight fit and leaks. For the check switch on the ignition to run the electric fuel pump to demonstrate operating fuel pressure.
8. Check the air intake filter of the carburettor 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 filter every 25 hours. Also new filters must be sprayed with filter oil.

8.a With the air intake filter still removed check visually the screws of the throttle valve and of the choke valve (if existent) for tight fit.

9. Check all cables and associated levers and the propellerbrake (see sect. 1.11.8 and 1.11.9). Replace levers and pins of the brake in case of excessive free play. Replace cables when worn.
10. Clean engine and radiator
11. Check cooling system for leaks, refill coolant if necessary, check antifreeze (data see section 1.11.2). Check the radiator and its mounting. Check the coolant hoses
    To check the water pump, switch on the ignition. You should hear a buzz.

12. Cylinder and pistons
    For the lower bolts a shortened wrench is needed see section 7 item T.
    Check the cylinders and pistons via the exhaust ports for seizing marks, for carbon remains and for sticking piston rings. Press against the piston rings with a suitable tool (e.g. small flat end screw driver). The rings must be movable. Black remains on the outside of the pistons below the rings indicate sticking or damaged piston rings, this is not acceptable.
    Illuminate the combustion chamber, check for combustion deposits and for cracks in the cylinder coating especially at the inlet and transfer ports. Use a torch and mirror for these checks. If seizing marks or cracks are detected the engine must not be used. Excessive combustion deposits have to be removed With sticking piston rings the cylinders must be removed.
    Take out the piston rings and clean the grooves and the rings or replace the rings. Remove also any combustion deposits inside the pistons.

Caution: Necessary repair work including removal of combustion deposits must be accomplished at a certified repair station or by a certified mechanic rated for such engine work.

4.20.2 Checking the Ignition unit type Ducati

1. **Ducati-magneto generator Type P12W150 part no. 43171402 12V/150W with electronic boxes Ducati part no. 432372500**
   The engine has 2 independent ignition circuits. It is equipped with a DUCATI electronic C.D. ignition unit with magneto generator for supplying the electrical system of the aircraft. The ignition unit is adjusted by the engine manufacturer and requires no servicing. In case of trouble execute the following procedures:

2. **The engine does not start or suddenly stops** without running out of fuel. This means, that both ignition circuits are defective.
   a) If the starter turns at less than 500 rpm, there are no sparks at the spark plugs. Therefore the battery must be charged enough to reach this rpm (normal starting rpm with well charged battery is approx. 600 rpm).
   b) Shorting cables must not be in contact with ground or with each other when the ignition switch is in on position. For checking gain access to the connector plugs at the ignition electronic boxes by removing Ty-raps and heatshrink tubing. Check the resistances between wire 301 (right) and ground (engine block) and wire 302 (left) and ground (plugs disconnected).
      The resistance must be infinite (ignition on) and zero (ignition off)
   c) Checking the generator coil: Disconnect the engine main plug and measure the resistance between wires 491 and 501. It should be approx. 0.5 Ohm.

3. **During ignition circuit check before take off the RPM drops** significantly or the engine stops. For checking gain access to the connector plugs at the ignition electronic boxes by removing Ty-raps and heatshrink tubing.
   a) Swap the connector plugs at the ignition boxes from one box to the other. Therefore you need extension wires see drawing 8E210 (enclosed to this manual). If the malfunction now changes to the other circuit, one of the boxes is defective. Detect the faulty one by mutual disconnection of the plugs.
      Stop the engine before disconnecting a plug from a box.

Caution: Don’t mix up the wires!

B) Calibration to the type of fuel in use

1. Automatic calibration: When the tank is filled via the electric fuel pump system Z02/2 or via a permanently installed refueling pump (Option) see flight manual sect.4.2.3, then the calibration is done automatically when the fuel pump is switched off by the pressure-switch. To achieve maximum accuracy it is necessary to rest the fuselage so that no air-bubble remains in the front section of the tank.
2. Manual calibration: Fill the tank to its maximum (avoid air-bubble in the front section). Switch on the DEI while keeping the upper "clock"-pushbutton depressed.
   The DEI will display E and return to normal operation mode after some seconds.

Note: If the display will show OL after calibration, the calibration with tank empty is not correct and must be repeated, see A).

4.23 Further DEI calibrations

4.23.1 Calibration of the starter motor speed to turn the propeller into retraction position

The speed can be adjusted on the ground or in flight. The speed shall be adjusted so that the propeller is turned very slowly when flying at VY= 90 km/h (48 kts.). With faster rotation the propeller will be kicked back by the engine compression when reaching the retraction position. The adjustment is to be made in the DEI braking program. To enter the braking program you have to switch off the ignition with the engine extended. The propeller shouldn’t be in the vertical position. The DEI will show **---** on the centre display. Press together the lower button of the engine time counter and the switch T and B to the left. The DEI will show SP on the left display and a number on the centre display which stands for the starter motor speed. Normal value is 4 . The value can be changed with the switch T and B. Pressing this switch to the right will increase the number and the speed. Press the upper button of the engine time counter to return to normal operation mode.

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.

8.1 Parts for the powerplant

a) necessary for the 25 hours inspection

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
60507570	Fuel filter straight or
60507569	Fuel filter 90° elbow
60500150	Gaskets for exhaust manifold (2 pieces needed)
60500142	Airfilter
70002200	Oil for airfilters with cottonfabric K&N 99-05046

b) **Spare parts**

60510821	Spark plug connector Bosch 0356351032 1kΩ
45002085	Spark plug connector PVL401222 5kΩ (alternative to Bosch)
60500127	Nut for spring coupling M8 for exhaust muffler
60500128	Spring for spring coupling M8
60502500	Starter motor: DENSO 128 000-1671 12 V
or	DENSO 12 000-1679 12 V
60500155	Gasket for coolant outlet
60504012	Drive belt Poly Chain PC 8MGT 2400-36
59332050	Front bearing for upper pulley 32205B
59320320	Rear " " " " 320/32X
52200054	Securing washer 20 DIN462 for upper pulley front bearing
30002028	Special grease for upper pulley bearings SKF LGMT3
39001025	Exchange kit nuts and bolts for 400 h overhaul
60000183	Gas spring for ext.-retr. drive S47/1
60000182	Gas strut for muffler frame E1 E1-76-040-130/150N
40871990	Ext.-retr. spindledrive type Magnetic GST 2011-200-01 or
60505002	Ext.-retr. spindledrive type Stross ELT 10 modified
60504021	Rubber mount at engine hinge axis Megi ring 785000 **up to serial no. 8-117**
60000330	Rubber mount at engine hinge axis Ultrabuchse 0118288 **from serial no. 8-118 on**

with TN873/19, standard from ser.no. 8-195 on:

60510482 Manual extension-retraction switch APEM-637 H/2
60510483 Switch to switch over from automatic to manual extension-retraction APEM 5636 MA

from ser. no. 8-219 on:

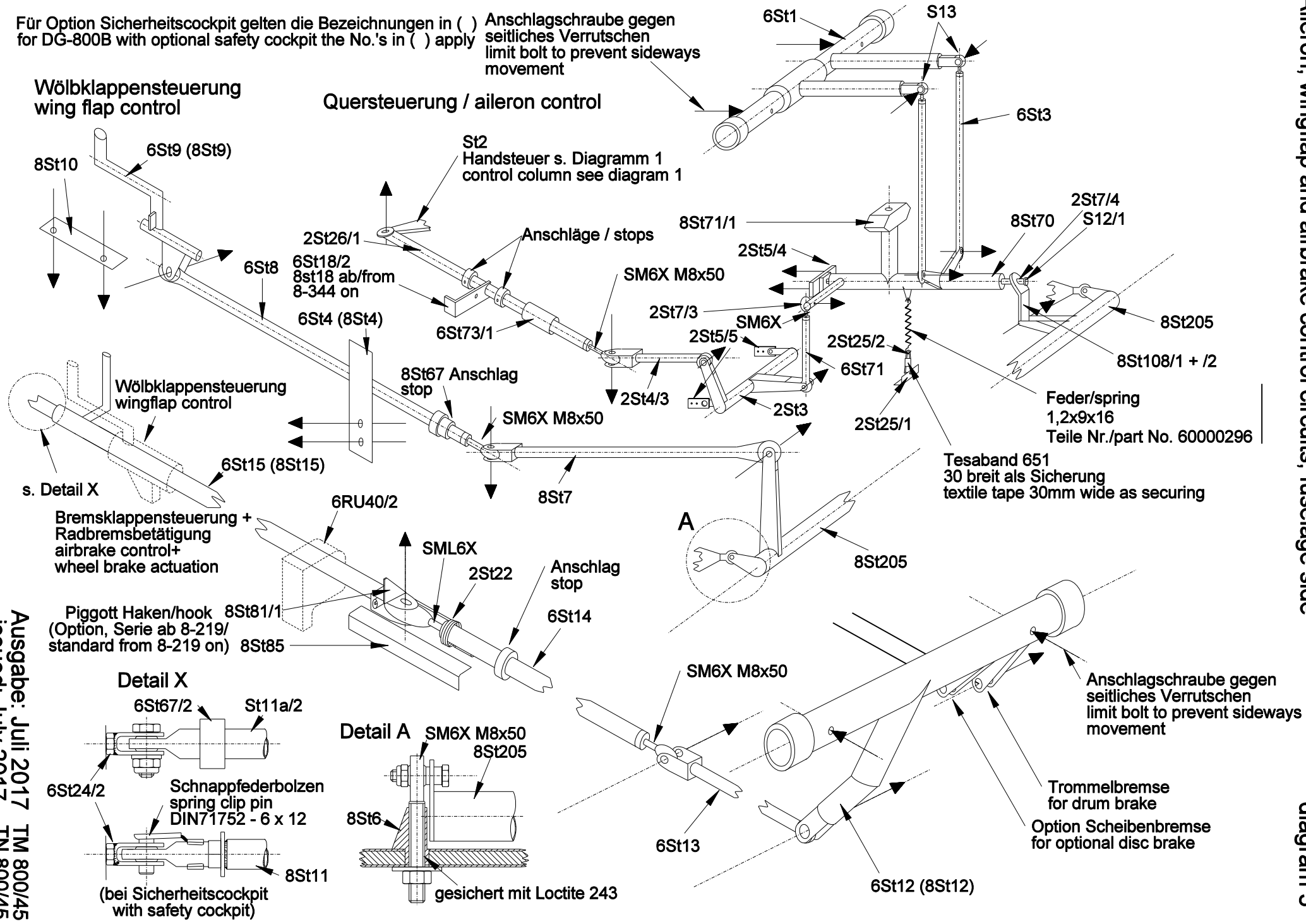
60510506 Manual extension-retraction switch MTG 106 G

60510357 Switch for electric propeller brake **(up to ser. No. 8-218)**
60510813 Master switch Bosch 0341001001
60510812 Key for master switch
60510478 Engine master switch 631 H/2 15A
60510370 Press-button SECME 07 17801 21 for starter **up to ser. no. 8-344**
60510372 Press-button DJET 07.17502.21 for starter **from ser. no. 8-345**, also used as push to talk switch
60510375 Press-button 12G2904 for test of second fuel pump **from ser.no. 8-103 on** and for refuelling pump **(Option)**

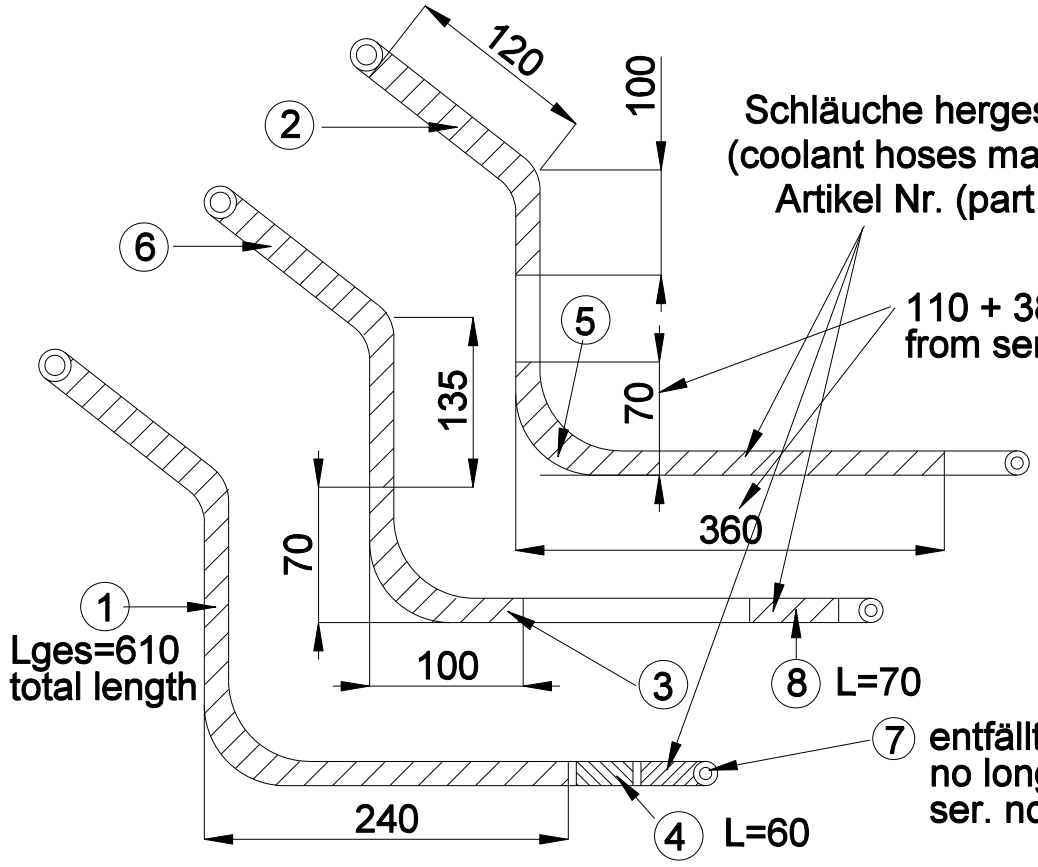
60510392 Circuit breaker Klixon 7277-2-10A for spindle-drive Magnetic GST 2011
60510391 Circuit breaker Klixon 7277-2-15A for spindle-drive Stross ELT 10
60510391 **From ser.no. 8-150 on** Circuit breaker Klixon 7277-2-4A
60510385 Circuit breaker ETA 2A
60510386 Circuit breaker ETA 3A
60510387 Circuit breaker ETA 4A
60510384 Circuit breaker ETA 5A **not applicable from ser.no. 8-150 on**
60510388 Circuit breaker ETA 10A
60510436 Fuse 535257 60 A for batteries
60510440 Fuse 250V 0.2A 5x20 m for fire warning light
60510419 **From serial no. 8-103 on**: Fuse 250V 2A 5x20 m for second fuel pump, **not applicable from ser.no. 8-219 on**
60510550 Proximity switch
40871350 Proximity switch ready assembled with wiring and plug
60510796 Socket BSB 12 (in main bulkhead)
60510797 plug BSK12 for socket BSB 12

Quer-, Wölbklappen- und Bremsklappensteuerung im Rumpf DG-800B
Aileron, wingflap and airbrake control circuits, fuselage side

Diagramm 3
diagram 3

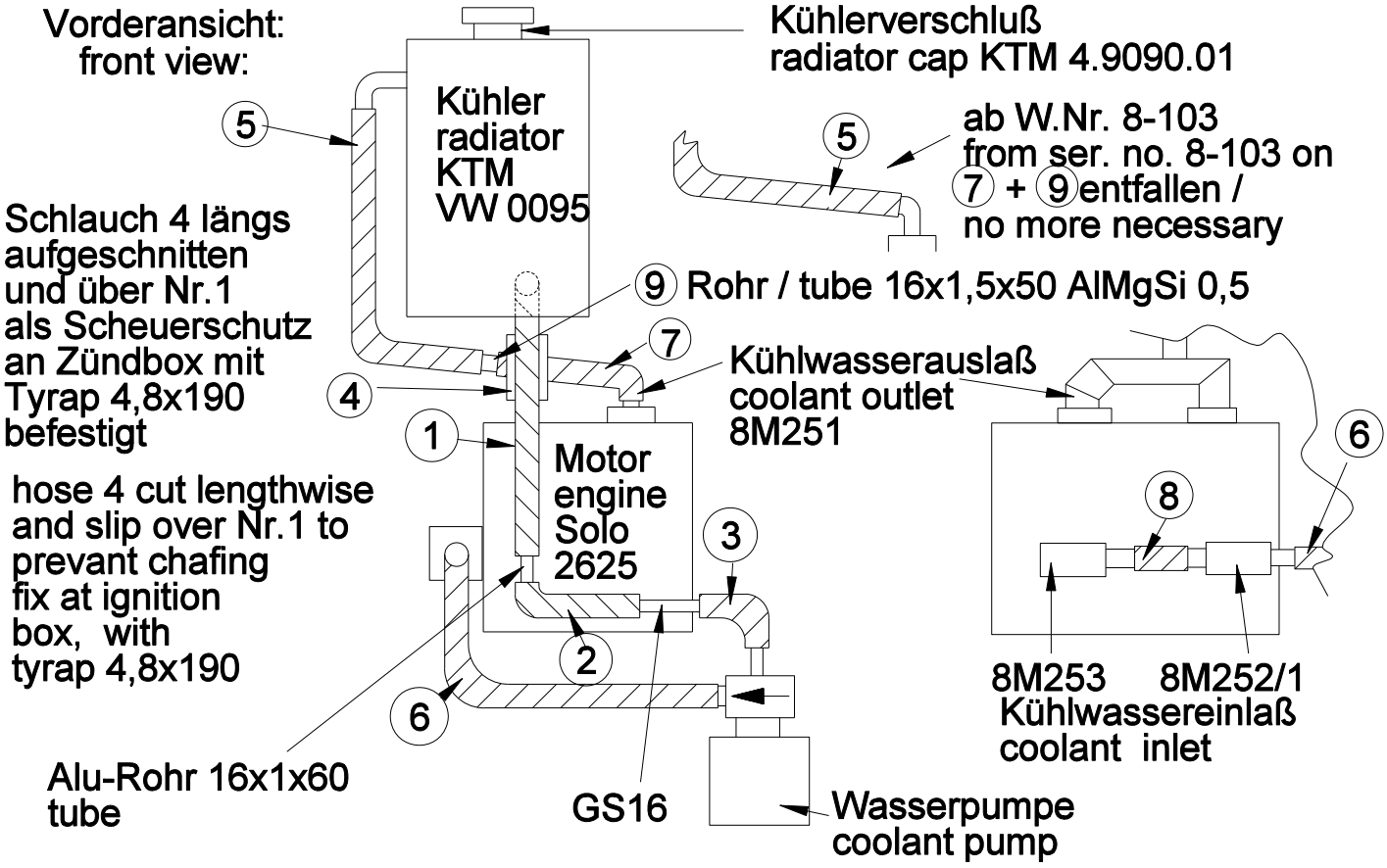


Ausgabe: Juli 2017 TM 800/45
issued: July 2017 TN 800/45



Schläuche hergestellt aus 3 Stück:
(coolant hoses made from 3 pieces:)
Artikel Nr. (part No.) 60504053

110 + 380 ab W.Nr. 8-103
from ser. no. 8-103 on



Anmerkung: Wenn ein neues Teil 8M251 eingebaut wird, gelten die angaben ab W.Nr. 103 /
Note: in case a new part 8M251 is installed, the data from 8-103 on is valid