

Maintenance Manual DG-808C

0 General

0.1 Manual amendments

No.	Page	Description	Date
1	0.3, 0.6, 0.10, 1.11, 8.2, diagrams 5a, 11d, 8EP210	ÄM 800-17-07 Fin tank valve and operating handle, Refuelling pump	April 2007
2	0.3, 0.4, 0.6, 0.7, 0.10, 0.12, 1.28, 1.29, 2.7, 3.3, 3.5, 3.11, 4.2, 4.8, 4.11, encl. 2 page 1, TN 4600-2-2 Solo	TN800/34 Manual revision	September 2007
3	0.6, 8.1, diagram 10	TN800/35 Extension-retraction unit, rear fork of spindle-drive	April 2009
4	0.3 ÷ 0.12, 1.3, 1.5, 1.6, 1.8, 1.10, 1.11, 1.14 ÷ 1.16, 1.24, 1.27, 1.29, 1.30, 2.1, 2.2, 2.6, 2.7, 3.1, 3.3 ÷ 3.11, 4.1 ÷ 4.3, 4.6 ÷ 4.11, 4.13, 4.15, 4.16, 4.18 ÷ 4.23, 4.25 ÷ 4.31, 5.1, 5.2, 6.1 ÷ 6.3, 7.2, 8.1 ÷ 8.4, 9.2, diagrams 1 ÷ 5, 5a, 8, 9, 10, 11, 11d, 12, 13, 13b, 14, 17, 14a removed, 8M110, 8E250, SI 69-10	TN800/41 Manual revision, Coolant pump Pierburg	May 2012
5	0.0, 0.1, 0.3 - 0.6, 0.11, 0.12, 2.1, 2.2, 3.7, 4.33, 8.1 - 8.3, diagrams 3, 9, 8E250h, 8E256b	manual revision, TN800/45	July 2017

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0.2 List of effective pages

Section	page	issued	replaced/	replaced/	replaced/
0	0.0	June 2005	July 2017		
	0.1	see manual amendments			
	0.2		"		
	0.3		"		
	0.4		"		
	0.5		"		
	0.6		"		
	0.7	June 2005	Sept. 2007	May 2012	
	0.8	"	May 2012		
	0.9	"	May 2012		
	0.10	"	Sept. 2007	May 2012	
	0.11	"	May 2012	July 2017	
	0.12	"	Sept. 2007	May 2012	July 2017
1	1.1	June 2005			
	1.2	"	May 2012		
	1.3	"	May 2012		
	1.4	"			
	1.5	"			
	1.6	"	May 2012		
	1.7	"			
	1.8	"	May 2012		
	1.9	"			
	1.10	"	May 2012		
	1.11	"	April 2007	May 2012	
	1.12	"			
	1.13	"			
	1.14	"	May 2012		
	1.15	"	May 2012		
	1.16	"	May 2012		
	1.17	"			
	1.18	"			
	1.19	"			
	1.20	"			
	1.21	"			
	1.22	"			
	1.23	"			
	1.24	"	May 2012		
	1.25	"			

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Section	page	issued	replaced/	replaced/	replaced/
	1.26	June 2005			
	1.27	"	May 2012		
	1.28	"	Sept. 2007		
	1.29	"	Sept. 2007	May 2012	
	1.30	May 2012			
2	2.1	June 2005	May 2012	July 2017	
	2.2	"	May 2012	July 2017	
	2.3	"			
	2.4	"			
	2.5	"	May 2012		
	2.6	"	May 2012		
	2.7	"	Sept. 2007		
3	3.1	June 2005	May 2012		
	3.2	"			
	3.3	"	Sept. 2007	May 2012	
	3.4	"	May 2012		
	3.5	"	Sept. 2007	May 2012	
	3.6	"	May 2012		
	3.7	"	May 2012	July 2017	
	3.8	"	May 2012		
	3.9	"	May 2012		
	3.10	"	May 2012		
	3.11	"	Sept. 2007	May 2012	
4	4.1	June 2005	May 2012		
	4.2	"	Sept. 2007	May 2012	
	4.3	"	May 2012		
	4.4	"			
	4.5	"			
	4.6	"	May 2012		
	4.7	"	May 2012		
	4.8	"	Sept. 2007	May 2012	
	4.9	"	May 2012		
	4.10	"	May 2012		
	4.11	"	Sept. 2007	May 2012	
	4.12	"			
	4.13	"	May 2012		
	4.14	"			
	4.15	"	May 2012		
	4.16	"	May 2012		

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

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diagram	issued	replaced/	replaced/	replaced/
1	June 2005	May 2012		
2	June 2005	May 2012		
3	Nov. 2004	May 2012	July 2017	
4	Nov. 1993	May 2012		
5	Nov. 2004	May 2012	valid up to ser. No. 8-372	
5a	April 07	May 2012	valid from ser. No. 8-373 on	
6	May 2005			
7a	August 2005			
7b	August 2005			
8	August 2005	May 2012		
9	August 2005	May 2012	July 2017	
10	August 2005	April 2009	May 2012	
11	Juni 2005	May 2012	valid up to ser. No. 8-372	
11c	June 1999			
11d	April 07	May 2012	valid from ser. No. 8-373 on	
12	June 2005	May 2012		
13	Febr. 1999	May 2012		
13a	May 2012			
14	Nov. 2004	May 2012		
14a	June 2005	May 2012	no more effective	
15	Nov. 2004			
16	Nov. 2004			
17	May 2012			
6EP27M	28.08.90			
8EP38	17.02.99			
8EP210	12.02.07			
8M110	23.10.02	5.07.11		
8M234	25.08.05			
8V96	19.12.94			
W40	30.11.99			
W51	20.11.96			
W57	10.09.99			
W59	18.06.02			
W60	25.10.04			
8E25	25.06.99			
8E210	15.05.97			
8E250	13.09.05	18.10.11	15.01.14	Valid from ser.no. 8-428 on without 431
8E256	24.06.05	15.01.14		Valid from ser.no. 8-428 on without 431
Encl. 1	June 2005			
Encl. 2	Sept. 2007			
TN 4600-2-2 Solo	Jan. 2007			
SI 69-10	14.05.10			

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 repairs of the airframe.

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 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 the variant DG-808C is 12000 flight hours. Therefore inspections according to section 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 equipment and 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) The **gasket for the drainer valve** (part No. 60504402) has to be exchanged after 6 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) **Drive belt** (part. No. 60504012):

Without optional BBSA friction/centrifugal clutch: The drive belt has to be exchanged after 50 engine hours.

With optional BBSA friction/centrifugal clutch: The drive belt has to be exchanged after 100 engine hours

- e) Limitation for drive belt rollers no more applicable.
- f) The **spark plugs** (part. No. 40050360) have to be exchanged after 25 engine hours.

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- 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) has to be exchanged after 4 years (types see section 1.6.4).

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-808C 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 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 1.2up 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.
- Only version Classic: 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 the fin ballast tank system according to section 1.8.3
- 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 26 of this manual.
- **Tow hooks:** The operating and maintenance instructions for the release mechanisms, see sect. 0.4 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.

Hole of the PC port:

After a landing where the fuselage nose has touched the ground 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., but at least every 4 years with the annual inspection.

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7. Check all fuel lines for any wear, kinks, tight fit and leaks. Check especially the fuel lines in the engine compartment, switch on the ignition to run the fuel pump.
8. Check the intake airfilter 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 airfilter 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
Remove the exhaust manifold.
For the lower bolts a shortened wrench is needed see section 7 item U.
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 Checking the Ignition unit

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 appr. 0.5 Ohm.
- 3) During ignition circuit check before take off the rpm goes down 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!

8 Partlist

In this list you will find only parts of the powerplant, the electrical system and control surface sealings and turbulators.

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
- 60507569 Fuel filter elbow or
- 60507571 MANN-fuel- filter 500009180 WK 31/2(10)
- 60500150 Gaskets for exhaust manifold (2 pieces needed)
- 60500142 Air intake filter
- 70002200 Oil for airfilters with cottonfabric K&N 99-05046

b) Spare parts

- 60510821 Spark plug connector Bosch 0356351032 1k Ω
- 45002085 Spark plug connector PVL 401222 5k Ω (alternative to Bosch)
- 60500127 Nut for spring coupling M 8 for exhaust muffler
- 60500128 Spring for spring coupling M 8
- 60502500 Starter motor: DENSO 128 000-1671 12 V
- 60500155 Gasket for coolant outlet
- 60504012 Drive belt Poly Chain PC 8MGT 2400-36 with smoothed back
- 59332050 Front bearing for upper pulley 32205B
- 59320320 Rear bearing for upper pulley 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
- 60000157 Gas spring for ext.-retr. drive S47/2 with Ultra-bush
- 60000182 Gas strut for muffler frame E1 E1-76-040-130/150N
- 60505007 Ext.-retr. spindledrive type Stross ATL10 modified with forks 8M230 and 8M333
- 60000330 Rubber mount at engine hinge axis Ultrabuchse 0118288
- 40872873 Brake pad for propellerbrake (glued to mounting bracket)
- 60001115 Clamps XO for 6mm bungee (bungee for retaining cable)
- 52130011 Securing washer DIN 432 zn 13 for main powerplant mounts

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Cooling system

- 60001201 Electric water pump Webasto U4810 modified (no longer available)
- 40863140 Replacement kit coolant pump Pierburg according to drawing 8R314, see TN 800/41 instruction 1.

Caution: Respect the changed coolant mixing ratio, see section 1.11.2!

- 60001209 Coolant pump Pierburg 02058.50.0 (spare part for 4086314, not for first exchange against type Webasto!)
- 60510565 Probe for coolant temperature TG 150/2
- 60504051 Radiator KTM VW 0095

Rubber mounts for radiator

- 60000275 2 pieces Rundlager Type B (upper mount)
- 60000262 1 piece Rundlager Type A (lower mount)
- 39001018 Service kit cooling system hoses

Fuel system

- 60507550 Drainer CAV 110 (1/8" NPT)

Warning: Replace the sealing ring of the drainer against partno. 60504402 prior to installation

- 60504402 Sealing ring for drainer CAV 110 (for automotive fuel)
- 60507561 Electric fuel pump Facet 40106
- 60507558 Refuelling pump KAVAN 12 V up to ser. no. 8-372
- 60507562 Refuelling pump Facet 60106 from ser. no. 8-373 on
- 60507571 MANN-fuel- filter 500009180 WK 31/2(10) for refuelling pump
- 40873071 Fuel distributor 8M307 with filter for primer valve and restriction for excess fuel line
- 60000527 Fuel cock KH 1072 T
- 60507607 Coupling for refuelling hose KL-006-0-SL007
- 60503070 Primer-valve IWP069
- 45001605 Full tank sensor ready assembled with wiring 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
- 60000102 Fuel hose PU hydrolyse and microbe-resistant 8x2x12
- 20092051 Metal shield for fuel hoses

Option wing fuel tanks with electro-magnetic valves

- 60507600 Coupling for fuel wing tanks (at fuselage) KL-006-0-SL009
- 60507601 Coupling for fuel wing tanks (at wing) KL-006-2-WR513
- 40872591 Electro-magnetic valve MA242-004V27SAH12/00SW

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8.2 Parts for the electrical system

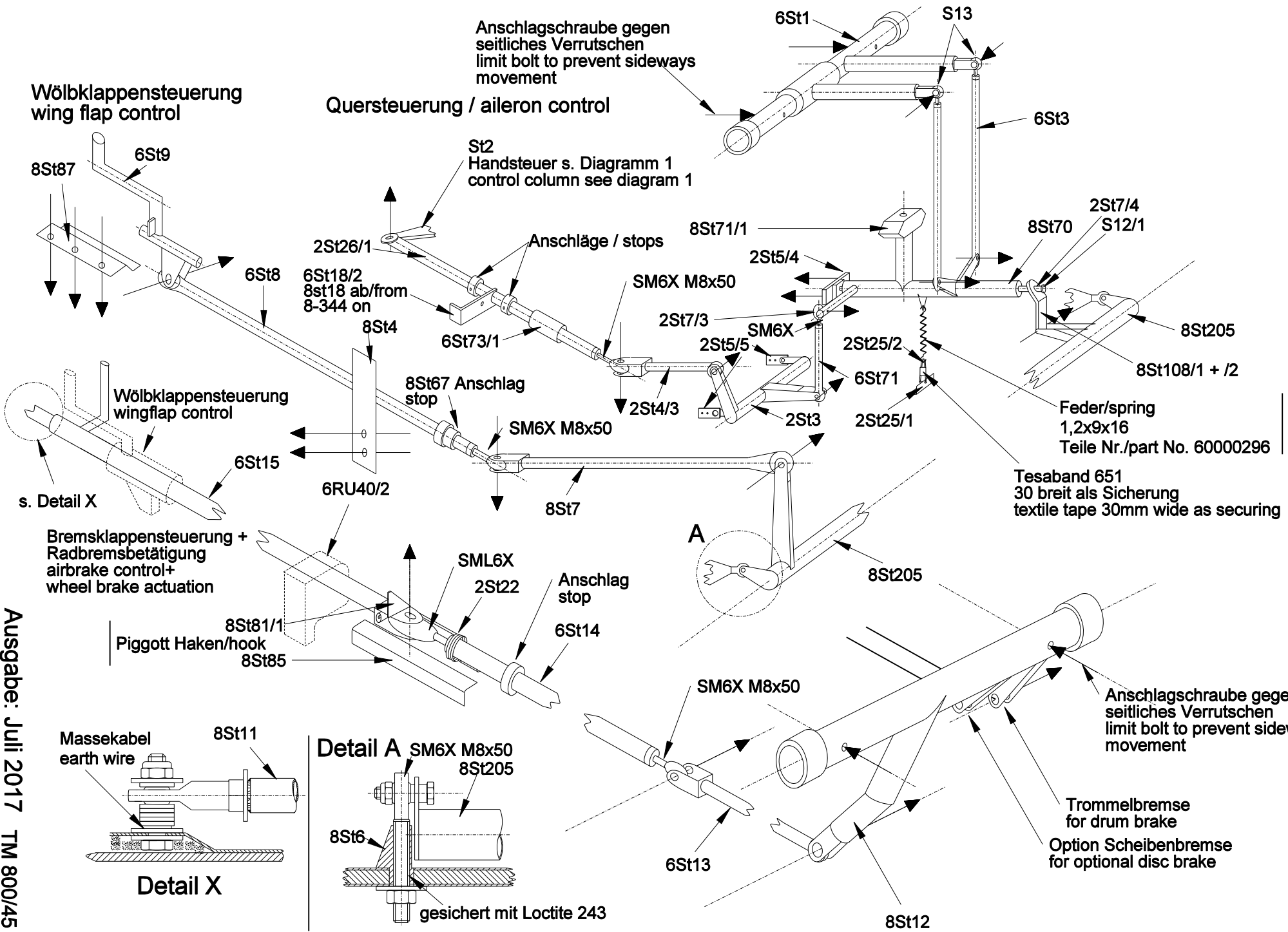
- 60510891 Battery 4E15 6V, 10 or 12Ah equipped with screw - terminals
- 40876200 DEI-NT-8E620
- 40876210 Control unit-NT 8E621

- 60510464 Limit-switch engine retracted and engine extended 164-574
alternatively SI2010-B2T20YR30,5m
- 60510506 Manual extension-retraction switch MTG 106 G
- 60510854 Key switch 3 Pos, 2 Pol KL09-1908KA (Master switch)
- 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 and for
refuelling pump

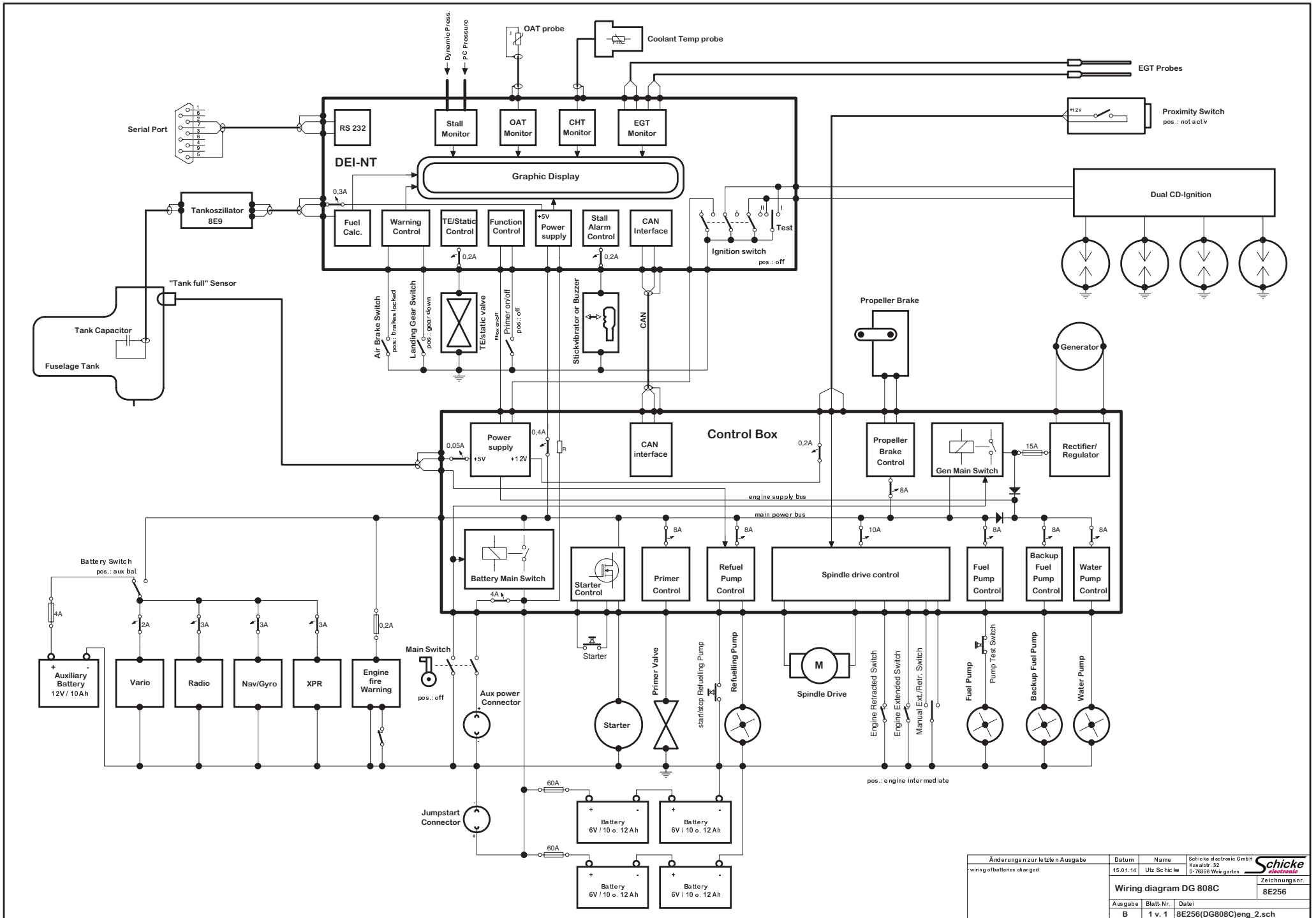
- 60510385 Circuit breaker ETA 2A
- 60510386 Circuit breaker ETA 3A
- 60510436 Fuse 535257 60 A for batteries
- 60510440 Fuse 250V 0.2A 5x20 m for fire warning light

- 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



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



Änderungen zur letzten Ausgabe - wiring of batteries changed	Datum 15.01.14	Name Utz Schicke	Schicke electronic GmbH Kraustr. 32 D-76356 Weingarten
Wiring diagram DG 808C			Zeichnungsnr. 8E256
Ausgabe B	Blatt Nr. 1 v. 1	Datei 8E256(DG808C)eng_2.sch	