

Manual amendments

No.	Page	Description	Date	Signature
15	2, 4, 4a, 21, 29, 93, 8E201, 8E203, 8E218 up to ser.no. 8-194, 8E205 issue H from ser.no. 8-195 on	TN 873/19 powerplant control extension-retraction switch unit (retrofit, standard from ser.no. 8-195 on)	May 2000	
16	4, diagram 5	AM 800-12-00 Tow hooks / only for aerotow (Option)	Sept. 2000	
17	3, 4, 54, 94	TN 873/21 Dimple-tape-turbulators on the lower wing surfaces (retrofit, standard from ser.no. 8-219 on)	Dec. 2000	
18	2, 4, 4a, 10, 14, 24, 28-30, 93, diagrams 2a, 7a, 11b, 12a 8E206, 8E205 issue I	AM 800/13/00 Vertical tailplane, steerable tailwheel, powerplant incl. electrics from ser.no. 8-219 on	Dec. 2000	
19	2, 3, 4, 4a, 7, 16, 43-46a, 49, 73, 76, 86, 91, enclosure 96, diagram 10a, drawing W40:	TN 873/23 Manual revision	Febr. 2001	

Issued: see last item

1a

Content	Page	LBA approved
0	Airworthiness limitations	5 Nov. 97 6 Nov. 97
1. System description and adjustment data	Page	issued
1.1	Wing and tailgroup setting data	7 Febr. 01
1.2	Elevator control and trim system	8 Nov. 97 9 Nov. 97
1.3	Rudder control	10 Dec. 00
1.4	Aileron and wing flaps control	11 March 99 12 Nov. 97
1.5	Airbrake control and wheel brake	13 Oct. 99
1.6	Undercarriage	14 Dec. 00
1.7	Tow hooks	15 Nov. 97
1.8	Waterballast system	15 Nov. 97
1.9	Massbalance and weights of control surface	16 Febr. 01
1.10	Fore and aft play of the wings	17 Nov. 97
1.11	Power plant	18 Febr. 99 19 Febr. 99 20 Dec. 97
1.12	Retraction-extension mechanism	21 Nov. 97 22 Febr. 99
1.13	Fuel system	23 " " 24 Dec. 00 25 Febr. 99 26 Nov. 97
1.14	Electrical system	27 Febr. 99 28 Dec. 00 29 Dec. 00 30 Dec. 00 31 Nov. 99 32 Nov. 97
2. Inspections		
2.1	Daily inspection	33 Nov. 97
2.2	Regular inspections	33 " " 34 " "
2.3	Inspection after a heavy landing	35 " " 36 " " 37 " "
2.4	Inspection procedure for increase of service time	38 " " 39 " "
2.5	Inspection procedures	39 " "

Issued: February2001 TN 873/23

2

Content	Page	issued
3. Maintenance		
3.1 General maintenance	40	Nov. 97
3.2 Maintenance of the airframe	41	March 99
3.3 Greasing programme	41	" "
3.4 Damage of the airframe	42	Nov. 97
3.5 Maintenance of the powerplant	43	Febr. 01
" " " "	44	Febr. 01
" " " "	45	Febr. 01
" " " "	46	Febr. 01
" " " "	46a	Febr. 01
" " " "	47	Nov. 97
4. Detailed instructions for assembly and servicing work		
4.1 Replacement of the water ballast bags and servicing of the valves	48	Nov. 97
4.2 Replacement of control cables	49	Febr. 01
4.3 Adjustment and servicing of the control circuit	49	" "
4.4 Removal and installation of the undercarriage	50	Nov. 97
4.5 Fixing excessive free play of the canopy	51	" "
4.6 Removal a. installation of the flaperons	52	" "
4.7 Working instructions for heat-shrinktubing	53	" "
4.8 Securing with Loctite	53	" "
4.9 Controlsurface seals and turbulators	54	Dec. 00
" " " " " "	55	Nov. 97
4.10 Exchange of the wing fuel tanks	56	" "
4.11 Mounting a. tensioning of the drive belt	57	Sept. 99
" " " " " "	58	" "
4.12 Replacing the bearings of the propeller shaft	59	Nov. 97
	60	" "
4.13 Replacement of the engine extension gasstrut	61	June 99
4.14 Replacement of the engine retaining cable	62	Nov. 97
4.15 Filling and bleeding the cooling system	63	Febr. 99
4.16 Removal and installation of the engine	64	Nov. 97
" " " " " "	65	" "
" " " " " "	66	" "
" " " " " "	67	Febr. 99
" " " " " "	68	Febr. 99
" " " " " "	69	" "
4.17 Removal and assembly of the engine doors	70	Nov. 97
4.18 Securing the propeller bolts	71	" "
4.19 Checking the ignition unit type ISKRA	72	" "
" " " " " "	73	Febr. 01
" " " " " "	74	Nov. 97

Issued: February 2001 TN 873/23

3

Content	Page	issued
4.20 Checking the ignition unit type Ducati	75	Nov. 97
" " " " "	76	Febr. 01
" " " " "	77	Nov. 97
4.21 Section not effective	(78)	
	(79)	
4.22 Calibration of the fuel display in the DEI	80	Nov. 97
	81	" "
4.23 Further DEI calibrations	81	" "
" " "	82	" "
4.24 Determ. of the moments of the flaperons	83	" "
4.25 Internal sealing of control surfaces	84	" "
4.26 Filling and bleeding of the hydraulic disc brake (option)	85	Oct. 99
	85a	" "
5. Weight and balance weighing	86	Febr. 01
	87	Nov. 97
6. Instruments and accessories list	88	" "
" " " "	89	" "
7. List of special tools	90	Febr. 99
8. Partslist	91	Febr. 01
" " " "	92	June 99
" " " "	93	Dec. 00
" " " "	94	Nov. 97

Diagrams

	issued
1 Elevator control circuit, trim	May 99
2 Rudder control circuit, landing gear	Nov. 97
2a " " from ser.no. 8-131 on	Dec. 00
3 Aileron, wing flap and spoiler control circuits, fuselage side	March 99
4 Flaperon and spoiler control circuits, wing side	Nov. 93
5 Tow hooks, waterballast system	March 99
6 Pitot static system	Nov. 93
7 Placards	Dec. 97
7a Placards from ser.no. 8-219 on	Dec. 00
8 Powerplant	Dec. 97
9 Cooling system	Dec. 97
10a Extension-retraction mechanism type Stross	Feb. 01
10b Extension-retraction mechanism type Magnetic	Nov. 96
11 Fuel system	" "
11a Fuel system from ser.no. 8-103 on	Dec. 97
11b Fuel system from ser.no. 8-155 on	Dec. 00
11c Installation of the fuel filter	June 99
12 Tailwheel	Dec. 97
12a Tailwheel from ser.no. 8-219 on	Dec. 00
13 Propellerbrake	Febr. 99
13a Propellerbrake with band-brake	Dec. 97
14 Engine doors and retaining cable	Nov. 96

Issued: February 2001 TN 873/23

4

Enclosures		issued
Equipment list	95	Nov. 97
Checklists for maintenance work	96	Febr. 01
8EP25	Installation landing gear doors	17.06.97
6EP27M	Installation Dräger oxygen system	28.08.90
8EP35	Installation wing fuel bags	12.10.93
8EP38	Installation ELT ACK	17.02.99
8EP46	wing fuel tank system fuselage side with electromagnetic valves	10.05.99
8M110	Drawing assembly upper drive belt pulley	04.02.98
8V96	Holder for determination of flaperon moments	19.12.94
W40	Puller assy. for lower drive belt pulley	30.11.99
W51	Drawing Hook spanner for bearings	20.11.96
W57	Tool for measuring the drive belt tension	10.09.99
8E25	Wiring plan wing fuel tank system fuselage side with electromagnetic valves	25.06.99
8E27	Wiring plan permanently installed refuelling pump	02.11.99
8E201	Wiring scheme without TN 873/19	20.11.96
	with TN 873/19	23.05.00
8E202	Wiring plan DIN A 1 (in aircraft log)	
	Ignition ISKRA	20.11.96
8E203	Wiring scheme from ser.no. 8-103 on without TN 873/19	21.01.98
	with TN 873/19	23.05.00
8E204	Wiring plan DIN A 1 (in aircraft log)	
	Ignition DUCATI	15.05.97
8E205	Wiring plan DIN A 1 (in aircraft log)	
	from ser.no. 8-103 up to ser.no. 8-194	06.10.97
8E205	Wiring plan DIN A 1 (in aircraft log)	
	issue H from ser.no. 8-195 on	30.04.00
8E205	Wiring plan DIN A 1 (in aircraft log)	
	issue I from ser.no. 8-219 on	25.10.00
8E206	Wiring scheme from ser.no. 8-219 on	25.10.00
8E210	Extension wires for checking the ignition electronic boxes	15.05.97
8E218	Addition to wiring plan TN 873/19 up to ser.no. 8-194	10.05.00

1. System description and adjustment data

1.1 Wing and tailplane setting data

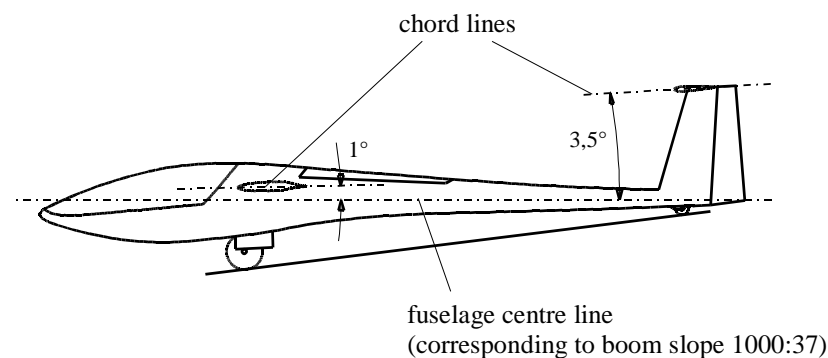
Wing:

Sweep Back (Leading edge):
 $0 \pm 3 \text{ mm} (\pm 0.12 \text{ in.})$ at wing taper change

Dihedral (Leading edge line):
 $2.5^\circ = 196 \text{ mm} (7.72 \text{ in.})$
 at the wing contour break ($y = 4,5 \text{ m}$)

Angles of Incidence:
 Wing: -1° measured at wing flap setting -10° .

Horizontal tailplane: -3.5°



Wing oscillation frequency: appr.:

160/min. 15 m with winglets
 130/min 18 m without parting
 124/min. 18 m with parting and winglets

Aircraft should rest on both wheels during frequency measurements.

1.9 Massbalance and weights of control surfaces

After repairs or repainting the control surfaces weights and moments should not exceed the following limits.

Control Surface	Weight		Moment		Spring balance reading see instructions below	
	kg (lbs.)	min.	kg cm (lbs.in.)	min.	kg (lbs.)	min.
Rudder (light version)	2.45 (5.40)	2.05 (4.52)	4.50 (3.91)	3.12 (2.71)	0.225 (0.495)	0.156 (0.343)
Rudder (heavy version)	2.95 (6.50)	2.55 (5.62)	3.57 (3.10)	1.93 (1.68)	0.179 (0.365)	0.097 (0.214)
Elevator (without pushrod)	1.52 (3.35)	1.20 (2.65)	3.92 (3.40)	3.08 (2.67)	0.293 (0.646)	0.230 (0.507)
without wing parting Flaperon	5.71 (12.59)	3.60 (7.94)	11.22 (9.74)	9.27 (8.05)	0.920 (2.029)	0.760 (1.676)
with wing parting Flaperon (inboard wing)	5.14 (11.33)	3.50 (7.72)	10.61 (9.21)	8.66 (7.52)	0.870 (1.919)	0.710 (1.566)
Flaperon (wing tip)	0.57 (1.26)	0.40 (0.88)	0.69 (0.60)	0.55 (0.48)	0.105 (0.231)	0.083 (0.183)

Note: Before any changes to the massbalance weights are made, contact the DG factory.

Method for determining control surface moments Rudder

Disconnect rudder cables, lay the fuselage on its side so that the fin is horizontal. Attach (by .tape) a spring balance to the lower end of the rudder 200 mm (7.9 in.) behind the hinge axis.

Elevator Hang the elevator friction free on its hinge points (pushrod disconnected) and attach the spring balance to the trailing edge in the middle 134 mm (5.3 in.) behind the hinge axis.

Flaperons (inboard wings)

Hang the flaperon friction free on its hinge points (pushrods disconnected) and attach the spring balance at the inboard end 122 mm (4.8 in.) behind the hinge axis.

Caution: Use the procedure described in sect. 4.24.

Flaperon (wing tips)

see inboard wing, at 66 mm (2.6 in.) at the parting.

3.5 Servicing the Engine

Caution: If you don't operate the engine for periods longer than 2 months you must preserve your engine according to the instructions in the engine manual. The same applies for any overseas transportation.

3.5.1 25 hour inspection

The following checks and maintenance work should be done every 25 hours engine time. Items 1, 2, 3, 10, 13 and 25 should be executed at least 1 year after the last 25 hour inspection, preferably with the annual inspection. In your aircraft log you will find stickers on which you can enter the next maintenance dates. Fix these stickers in a visible place in the cockpit, preferably on the right side console. Checklists for this maintenance work are in the enclosures of this manual. Please complete the checklist when executing the inspection and file it in the aircraft log.

1. General visual inspection.
2. Change spark plugs.
Check if the spark plug connectors have a tight fit on the spark plugs after you have exchanged the spark plugs. If not, the connector must be replaced.
3. Exchange the fuel filter. Filter types see sect. 8. Paper filters should under **no** circumstances be used. Assembly see diagram 11c.
4. Measure fuel flow (see sect. 1.13.3). Disconnect the hose at the T-junction behind the rear carburettor. Hold the hose into a measuring container. Switch on the electric fuel pump with the ignition switch. Determine the time for supplying 1 litre of fuel. For the measurement a minimum of 10 l of fuel should be in the fuselage tank. Note down the value, max. time is 90 seconds for 1 litre.
5. Remove the carburettor cover and membrane, remove the needle valve, flush the carburettor by switching on the fuel pump. The fuel must spout out as a powerful stream. If a large amount of fuel leaks out of the carburettor when you remove the membrane this is a sign that:
 - a) a dirt particle prevents the needle valve from closing completely.
 - b) the main nozzle is clogged (dirty), so that the engine can't receive the full amount of fuel. In this case you have to disassemble the main nozzle and to clean its chamber, see sect. 1.13.7 2a), b).
 - c) Check the connection of the throttle cable for damage and wear.

6.a) Check the filter of the primer valve. The filter is installed in the hose connector below the primer valve. Loosen the hose clamps and take out the connector. Flow fuel through the filter in reverse direction and check that as the fuel comes out of the filter any dirt is removed. Reinstall the connector.

From ser. no. 8-155 on: In addition flow fuel in reverse direction through that outlet of the multiple-connector where the excess fuel line restriction is installed.

b) Check the function of the primer valve and nozzle (engine must be cold). Switch the primer switch in auto position. Remove the air intake filter.

Up to ser. no. 8-130: Disassemble the positive wire from the starter motor and insulate the wire.

From ser. no. 8-131 on: Press switch 45 (in the DEI) to the left and switch on the DEI, then switch on the ignition. Now the DEI must show **P** on the centre display and fuel must be injected via the nozzle into the intake manifold of the carburettor.

All serial no.'s: Test only for 2-3 seconds, otherwise you may flood the engine. Check the hose which connects the primer valve to the carburettor for any damage.

Leak test of the primer valve: with the ignition on (fuel pump running) fuel must not be injected.

7. Check all fuel lines for any wear, kinks, tight fit and leaks.
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.
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. Check the radiator and its mounting. To check the water pump, switch on the ignition. You should hear a buzz.
- 12.a) Remove the exhaust manifold.
 - b) 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. 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 and check for combustion deposits.

Use a torch and mirror for these checks. If seizing marks 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 rated for such engine work.

13. Check the muffler for cracks and ensure mounting is secure. Check especially the cable which lifts the muffler during engine extension. Check the movable part at the front end of the muffler for cracks. Check the exhaust manifold (already removed) for cracks. Reinstall the exhaust manifold, therefore remove any remains of the gaskets, install new gaskets. Check the function of the gas-spring at the muffler frame. Therefore retract the engine until the muffler pops downwards. The gas-spring must press the mufflerframe securely to its lower stop. Check the length of the cable which lifts the muffler. To accomplish this extend the engine and press the muffler body in a downward direction at its front end with a force of approx. 5 daN (11 lbs.). If the cable is too long or if the spring in the cable has been permanently stretched, the muffler will interfere with the exhaust manifold. Check the spring pressure at the coupling of exhaust manifold to muffler. To accomplish this, measure the distance between the brackets for the spring couplings at the muffler pipe and at the movable part of the muffler in disengaged and in operating position.

Up to ser.no. 8-194: Extend the powerplant to its operating position via the ignition switch. As soon as the extension stops, lift the red cover of the manual extension switch and switch off the ignition.

From ser. no. 8-195 on: Extend the engine via the manual switch to the fully extended position.

In operating position the distance should be approx. 1 mm (0.04 in.) smaller than when disengaged. If the difference should be less than 0.5 mm (0.02 in.) you have to adjust to 1mm using the nut on the eyebolt. By this procedure you will pull the muffler forwards in its frame.

Note: With new manifold and/or new movable part the difference should be adjusted to 2 – 3 mm (0.04 – 0.12 in.) to allow breaking in of the parts.

14. Check all engine nuts and bolts with a torque wrench (see sect. 1.11.10).
15. Check the rubber engine mounts, especially for cracks. Therefore apply strong pressure to the propeller mount in forward, backward and sideways direction.
16. 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.
17. Clean the starter ring gear and check for damage. Check if the starter ring gear was bent forwards by the starter motor. There should be approx. 1mm (.04 in.) clearance between starter ring gear and drive belt.
18. Remove the fairings which protect the drive belt. Check the drive belt for wear and tension (see sect. 1.11.5). If the drive belt shows signs of wear or if there are cracks/tears at the base of the belt teeth, the drive belt must be replaced. Check the 6 rollers which guide the drive belt for tight fit to their mounting brackets and for easy turning. If there is any significant friction in their bearings, the rollers have to be replaced.
19. Clean the spindle drive.
20. Check all the hinges on the engine compartment doors for proper fit and any cracks, tears etc. Check if hinge pins are secured properly.
21. Oil all hinge points of the powerplant
21. Check the time taken to extend the power plant. If it takes longer than described under sect.1.12.3 the gas strut has to be replaced.
22. Check the engine retaining cable for wear and kinks. Check the engine position with the retaining cable fully tensioned according to sect. 1.12.4. If the cable is too long it has to be adjusted at the adjustment screw in the rear end of the engine bay.
24. Check the main bearings of the upper pulley for any free play.
25. Check the tension of the propeller bolts: remove the lockwire, loosen the propeller bolts and retorquing them with a torque wrench, torque value see sect. 1.11.10. Resecure again with lockwire.
26. Check the propeller blades for any damage.
27. Check all electric cables and connectors. Check the terminals especially of the starter positive and earth wire for cracks.
Note: The critical spots may be covered by heat shrink tubing.
28. Check the whole electrical system wiring, ensure all equipment is secure and all connections are OK. Check proper functioning of all systems and fuses/circuit breakers.

29. Check the automatic fuel tank calibration: Fill the tank with an electric pump until the pressure switch switches off the pump (see AFM sect. 4.2.3.3a and b). Remove the tank filler cap and check if the tank is completely filled. If not, use a calibrated container to fill the tank up to the upper end of the GFRP pipe stub. If you can refill more than 2 litres, the pressure switch must be exchanged.

Ground test run:

Warning: Never run the engine without the wings assembled.

30. If needed adjust the idle RPM (see sect. 1.13.7).
31. Check the magnetos - at 3000 RPM, drop should not be more than 300 RPM.
32. Check max. engine RPM - 5800 RPM minimum.
33. Check EGT's (only with optional EGT probes) EGT should be $640^{\circ}\text{C} \pm 10^{\circ}\text{C}$ at full power and engine warmed up.
34. **From serial no. 8-103 on:** With engine running at full power press the test button for 10 seconds to switch off the first fuel pump. The engine must run with the same speed with the fuel supplied by the second pump.

4.2 Replacement of control circuit cables

The following cable connections are approved:

3.2 mm dia. cable according to LN 9374 or 1/8" MIL-W-1511A with Nicopress-sleeves 28-3-M Copper and tool No. 51-M850 or 63-V-XPM or 64-CGMP where the M groove is to be used. The above applies to the rudder cables, the tow release cable and the engine retaining cable.

The cable for the rudder pedal adjustment is 1.6 mm dia. LN 9374 or 1/16" MIL-W-1511 A with Nicopress-sleeves 28-1C Copper and the C groove for tool 64-CGMP should be used. The same type of cable is used for the control cables of throttle and manual propeller brake in Bowden outers with 2.6 mm inside diameter

Attachment of the Nicopress sleeves should only be done using the respective tool. All the procedures and checks noted by the tool manufacturers should be followed.

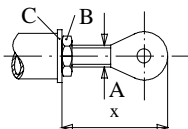
Please refer to aircraft inspection and repair FAA AC 43.13-1 A.

Note: Instead of cable MIL-W-1511 A the newer MIL-W-83420 may be used.

Note: For the electric propellerbrake a Bowdencable 1.5 mm 19 x 0.31 with Bowden outer with Teflon liner 2.5 mm inside diameter should be used instead of the material mentioned above.

4.3 Adjustment and servicing of the control circuit

- a) In all cases, new self locking nuts DIN 985-8.8 zn or LN 9348 should be used.
- b) Bolts which are not secured with locking nuts have to be secured with Loctite 243. Before installing the bolt clean the thread and the inside thread see section 4.8. Apply only 1 drop of Loctite on the bolt thread. Too much Loctite may cause damage when you try to loosen the bolt again.
- c) With all adjustment work, it should be ensured that the rod ends are not screwed out too far from the pushrod - see sketch below for allowable max. distances for the two sizes used.



A	max. of x	
	mm	inch
M 6	36	1.4
M 8	60	2.36

Note: All lock nuts (B) are secured by a spring washer (C) DIN 6798 I. Be careful not to loose that washer!

2. If the malfunction remains on the same circuit, then carry on according to the following instructions:

- 2.1 Check the shorting cables see above.
- 2.2 Checking the ignition coils and the dual magneto ignition. Disconnect the engine main plug and disconnect the connector plugs from the electronic boxes see 1. And measure the resistance:

item	pin nos.	resistance (Ohm)
ignition coil 1	78 and ground (right)	appr. 0.4
ignition coil 2	79 and ground (left)	appr. 0.4
dual magneto circuit 1	77 and ground	appr. 125
ignition circuit 2	76 and ground	appr. 125

With other values identify the defective part by the wire numbering see wiring plan 8E202.

3. 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.

Warning: Starting and operating the engine with spark plug connectors taken off can damage the ignition electronic boxes. Check for spark only with spark plugs fitted to the connectors and spark plug bodies having ground connection.

4) Generator

- a) If the red generator control light shines although the engine is running:
 - Check the 10 A circuit breaker Gen.. If it has popped out this may be caused by: Short circuit in the battery or defective regulator (in the control unit) or bad contacts in the circuit breaker. Switch the circuit breaker on and off several times to eliminate the contact problems.
 - Check the generator. Disconnect the plug (37 poles) from the control unit 8E103. Measure the resistance between pins 34 and 37 with the engine stopped. It should be appr. 0.5 Ohm. Measure the resistance between pin 34 or 37 and ground. It should be infinite.

2. If the malfunction remains on the same circuit, then carry on according to the following instructions:

2.1 Check the shorting cables see above.

2.2 Checking the ignition, trigger and charging coils
Disconnect the connector plugs from the electronic boxes see 1. and measure the resistance:

item	pin nos.	resistance (Ohm)
primary ignition coil 1	76 and 77 (right)	appr. 300
primary ignition coil 2	79 and 80 (left)	appr. 300
trigger coil 1	75 and ground (right)	appr. 170
trigger coil 2	78 and ground (left)	appr. 170

With other values identify the defective part by the wire numbering see wiring plan 8E204.

2.3 Checking the air gap between trigger coils and actuators (metal plates on the magneto housing) with a gauge. The gap must be 0.45 – 0.55 mm (0.018in. –0.022in.) wide

3. 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.

Warning: Starting and operating the engine with spark plug connectors taken off can damage the ignition electronic boxes. Check for spark only with spark plugs fitted to the connectors and spark plug bodies having ground connection.

4) **Generator**

1. If the red generator control light shines although the engine is running:

- Check the 10 A circuit breaker Gen.. If it has popped out this may be caused by: Short circuit in the battery or defective regulator (in the control unit) or bad contacts in the circuit breaker. Switch the circuit breaker on and off several times to eliminate the contact problems.
- Check the generator. Disconnect the plug (37 poles) from the control unit 8E103. Measure the resistance between pins 34 and 37 with the engine stopped. It should be appr. 0.5 Ohm. Measure the resistance between pin 34 or 37 and ground. It should be infinite.

5. **Weight and balance**

Method of weighing your aircraft:

1. Assemble the glider completely with gear down.
2. Place scales under the tailwheel.
3. The fuselage must be levelled so that the top of the aft fuselage boom has a tail-down slope of 1000 : 37.
4. Empty water ballast tanks and the fuel tank.
5. Read weight of tail wheel: W 2
6. Be certain the wings are level and hold so that no load is brought up.
7. Measure the distance between perpendiculars through points a and b.(See figure, next page).

Note: The distance a may change with different masses due to deflection of the landing gear.

Note: The total mass M may be determined by determining the weight W1 (M= W1+W) or by determining and adding the weights of all single components.

Using the empty mass and the values determined above, calculate the C.G. as follows:

C.G. empty XSE: $XSE = W2E \cdot b / ME + a$

ME = empty mass
W2E = load on tailwheel (empty)

The empty weight includes all accessories but excludes pilot and parachute. Remove loose objects from the cockpit.

C.G. in flight XSF: $XSF = W2F \cdot b / MF + a$

MF = flight mass
W2F = load on tailwheel (flight mass)

The flight mass includes empty weight items plus pilot, parachute, and all items needed in flight (barograph, camera, cushions, etc.). In addition, the rudder pedals and seat back should be adjusted as in flight.

8. **Partlist**

In this list you will find only parts of the powerplant and the electrical system.

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

60510806 Spark plugs Bosch W5AC electrode gap 0.5 mm

Caution: The removable cap must be secured with a little bit of Loctite 638 on the thread prior to installation

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 Entrada IN straight CH27

60507569 Fuel filter Entrada IN 90° elbow CH28

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

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
or DENSO 12 000-1679 12 V

60500155 Gasket for coolant outlet

60504012 Drive belt Poly Chain GT 8 M 2400-36

59332050 Front bearing for upper pulley 32205B

59320320 Rear " " " " 320/32X

52200054 Securing washer 20 DIN 462 for upper pulley front bearing

30002028 Special grease for upper pulley bearings SKF LGMT3

39001026 Exchange kit nuts and bolts for 400 h overhaul

60000183 Gas spring for ext.-retr. drive A8 B1 Z-3-230-381/900N

60000182 Gas strut for muffler frame
E1 E1-76-040-130/150N

60507561 Electric fuel pump Facet 40106

60001200 Electric water pump Webasto U4810

60504051 Radiator KTM VW 0095

40871990 Extension-retraction spindledrive type
Magnetic GST 2011-200-01 or

60505000 Extension-retraction spindledrive type Stross ELT 10

40872873 Brake pad for propellerbrake (glued to mounting bracket)

40050350 Screw nipple S35 (throttle cable to carburettor) (not applicable from ser.no. 8-219 on)

Checklist for checks and maintenance work according to page 43 – 46a, sect. 3.5.1 of the maintenance manual

h	25	50	75	100	125	150	175	200	225	250	275	300
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												
26												
27												
28												
29												
30												
31												
32												
33												
executed by												
place												
date												
engine hrs												
signature												

Each item shall be signed off or the data which was determined shall be entered.

The list is valid for the engine hour range:.....h -h

DG-800 B Ser.no. 8-.....B.....