

25-hour-inspection of a DG-800B (Solo):

Illustrations for the Maintenance Manual DG-800B -pp. 43:

Preface

These illustrations only serve as supplementary informations and may not be updated when the Maintenance Manual changes. They can't be considered as replacement for the instructions in the Maintenance Manual of your aircraft!

Also there can be deviations from the pictures shown here in certain serial numbers (e.g. optional equipment)!

Authoritative for all work is always the current issue of the Maintenance Manual which belongs to **your** aircraft!

This document will be helpful for DG-500MB owners also, but take care as the Maintenance Manual of the DG-500MB has some differences which are the authoritative documentation!

3.5.1 25 hour inspection

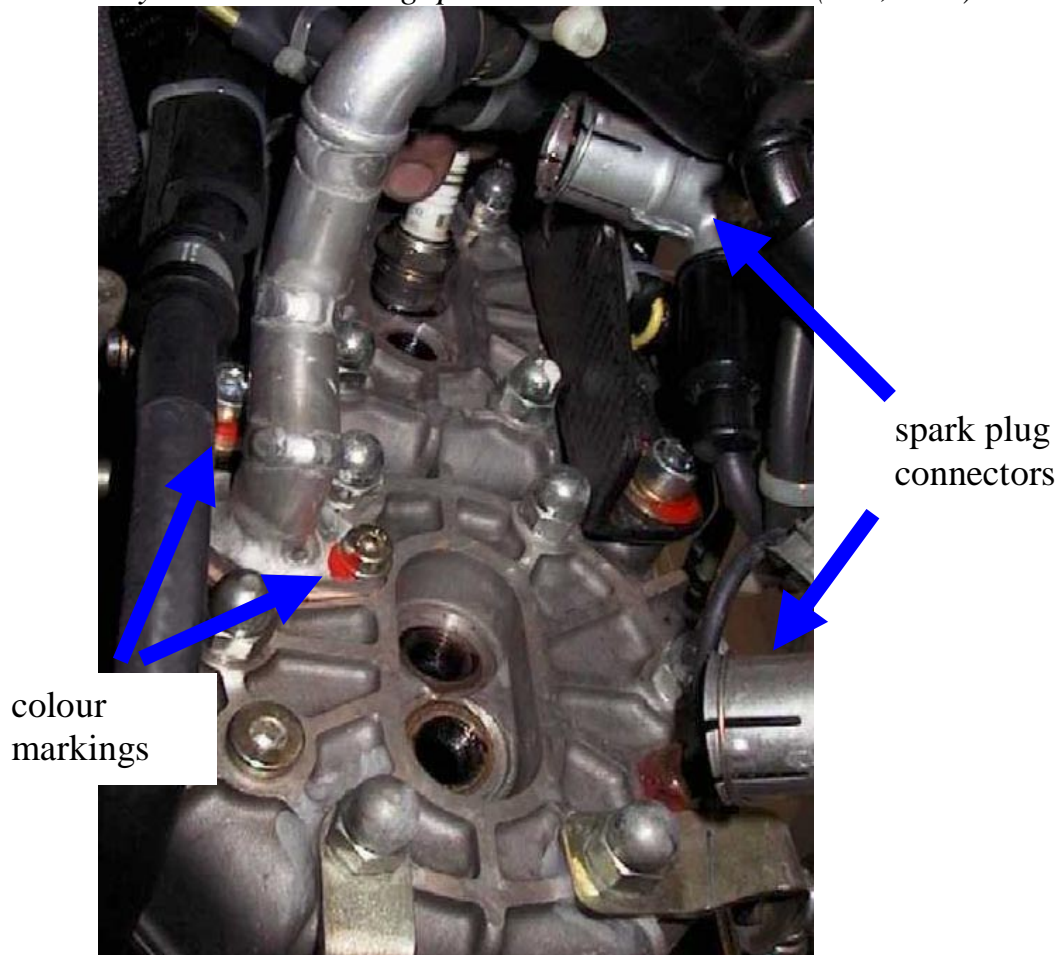
The following checks and maintenance work should be done every 25 hours engine time. Items 1, 2, 3, 10, 13 and 25 should be executed at least 1 year after the last 25 hour inspection, preferably with the annual inspection. In your aircraft log you will find stickers on which you can enter the next maintenance 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.

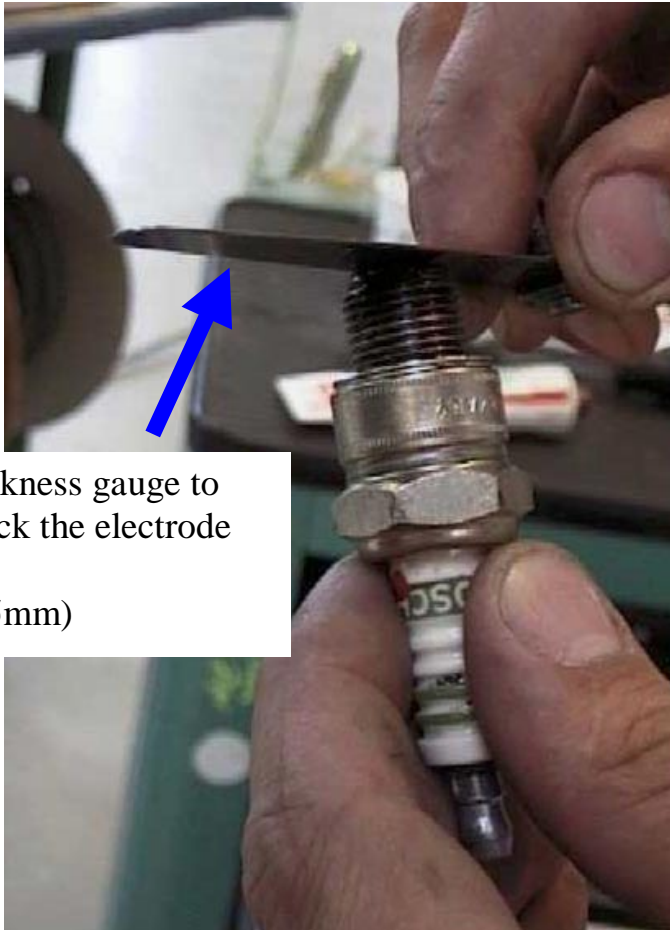
1. General visual inspection.

Loose connections, dripping oil/fuel or collant, loose screws, wear, stability of the engine assembly when extended, proper operation of the exhaust coupling, condition of colour markings, etc.

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. *Pay attention to the gap between the electrodes (= 0,5mm).*

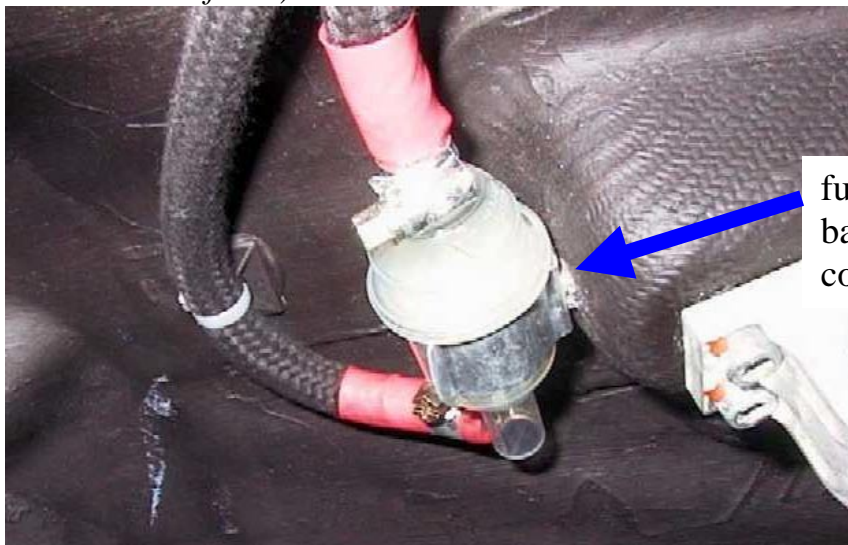




thickness gauge to
check the electrode
gap
(0,5mm)

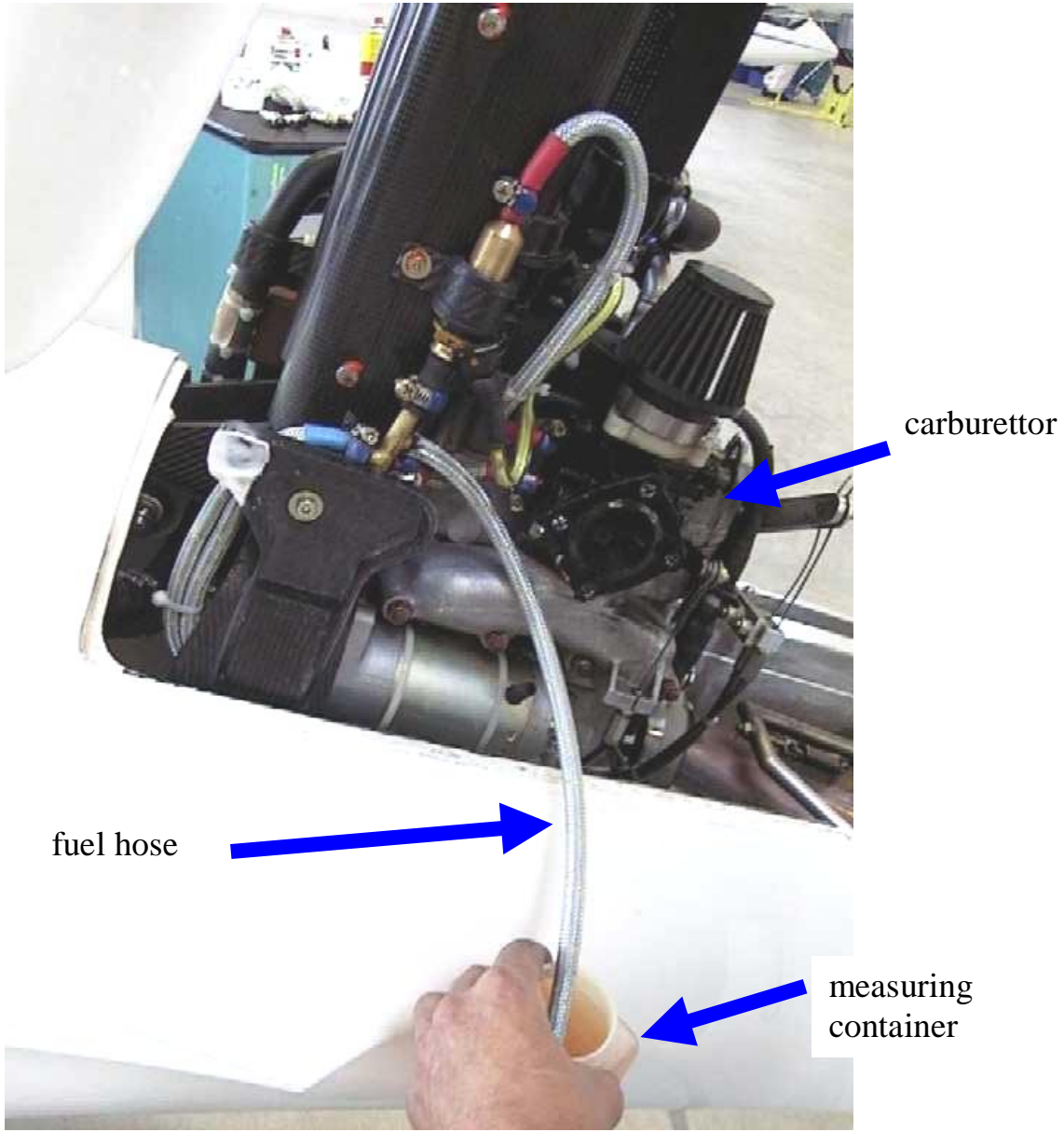
The spark plugs have to be thightend using a torque wrench!

3. Exchange the fuel filter. Filter types see section 8. Paper filters should under no circumstances be used. Assembly see diagram 11c.
Observe the direction of the fuel flow through the filter (marked with an arrow on the filter)!

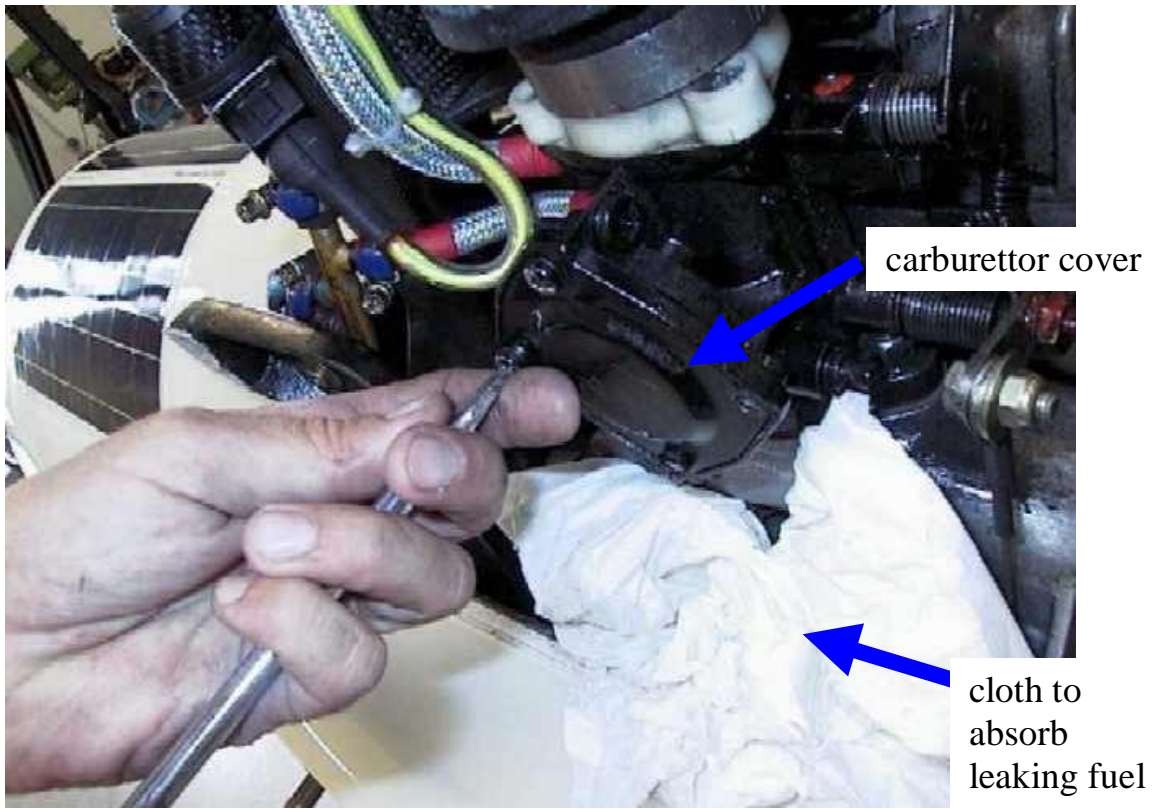


fuel filter in the
baggage
compartment

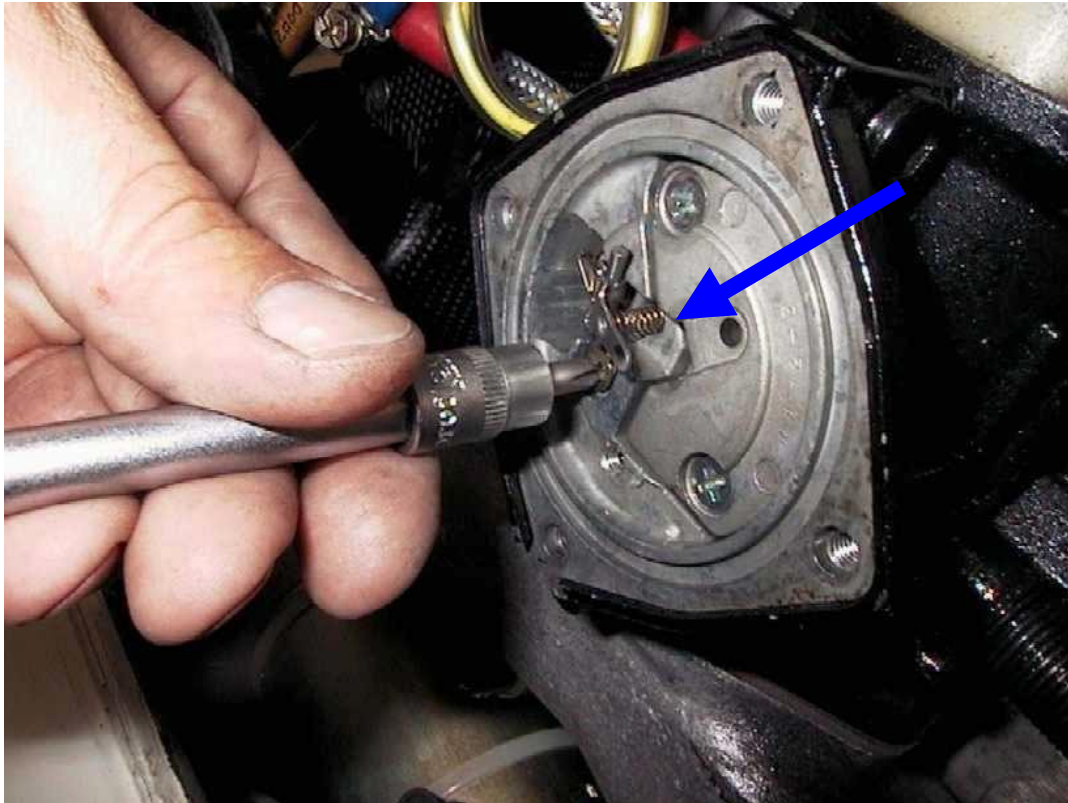
4. Measure fuel flow (see sect. 1.13.3). Disconnect the hose at the T-junction behind the rear carburettor. Hold the hose into a measuring container. Switch on the electric fuel pump with the ignition switch. Determine the time for supplying 1 litre of fuel. For the measurement a minimum of 10 l of fuel should be in the fuselage tank. Note down the value, max. time is 90 seconds for 1 litre.



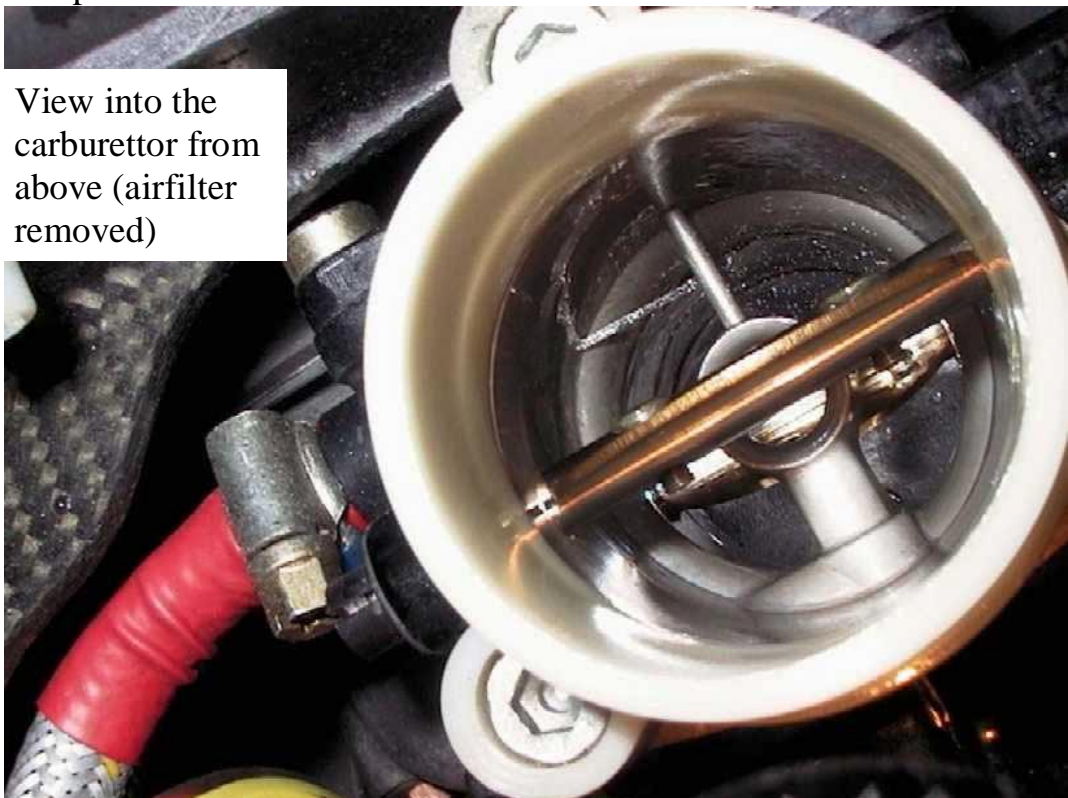
5. Remove the carburettor cover and membrane.



Remove the needle valve.



Flush the carburettor by switching on the fuel pump. The fuel must spout out as a powerful stream.



View into the carburettor from above (airfilter removed)

If a large amount of fuel leaks out of the carburettor when you remove the membrane this is a sign that:

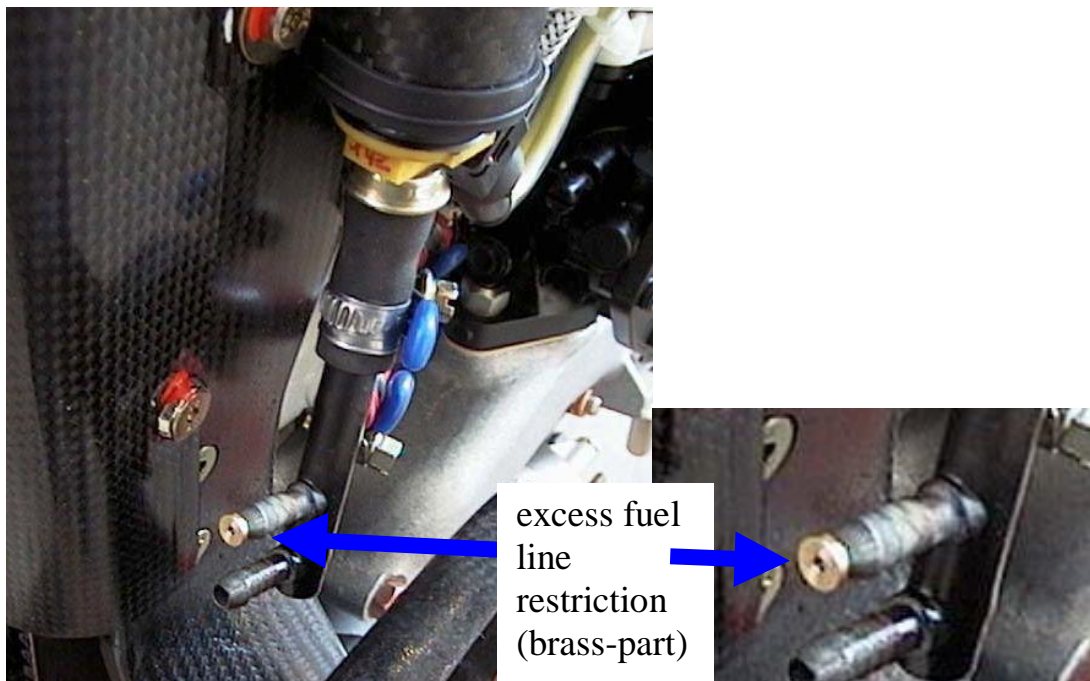
- a) a dirt particle prevents the needle valve from closing completely.
- b) the main nozzle is clogged (dirty), so that the engine can't receive the full amount of fuel. In this case you have to disassemble the main nozzle and to clean its chamber, see section 1.13.7 2a), b).
- c) Check the connection 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.

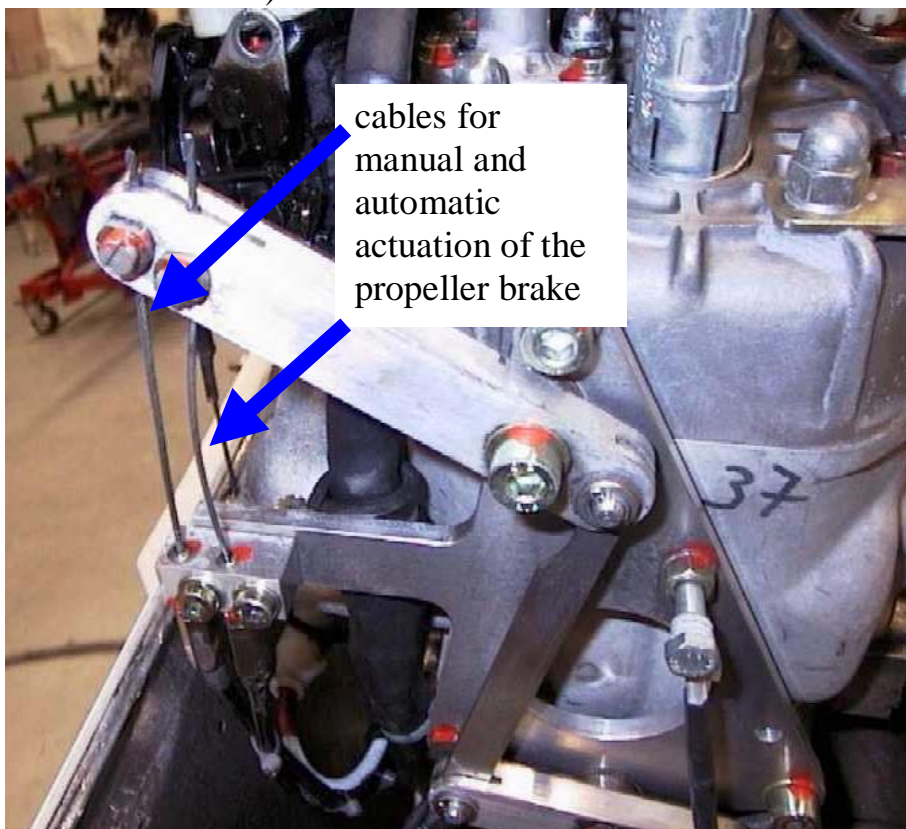
7. Check all fuel lines for any wear, kinks, tight fit and leaks.

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.

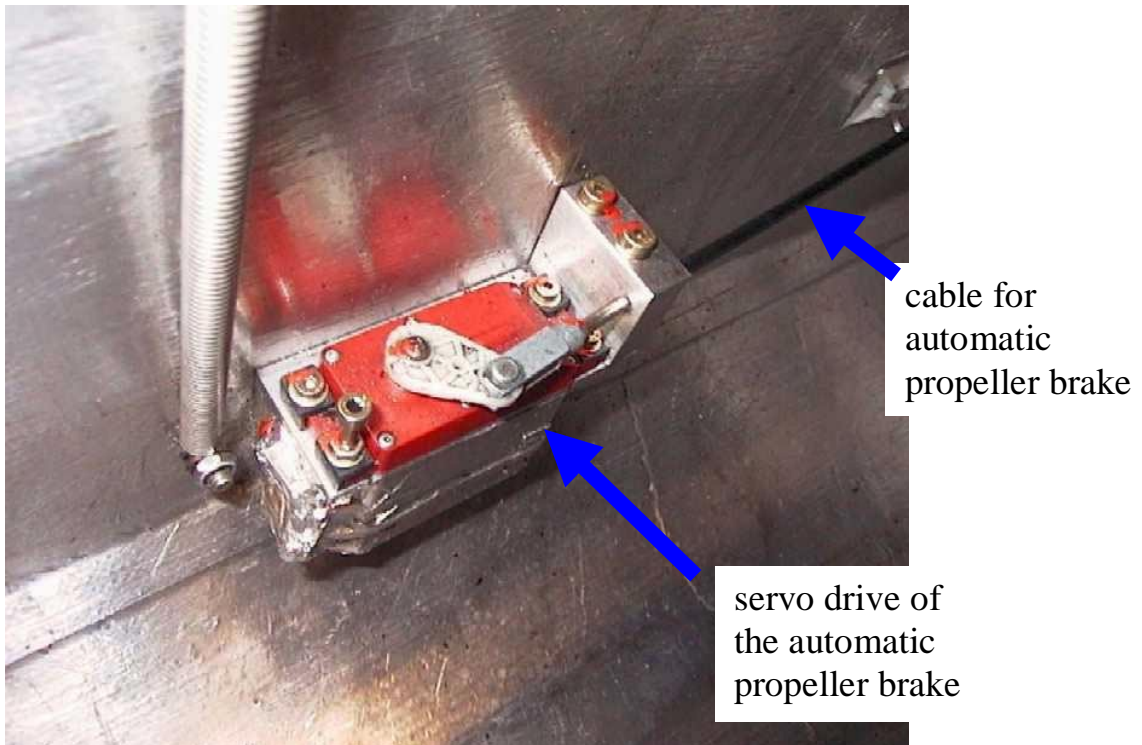


airfilter
(is fastened on
the white socket
below by a hose
clamp)

9. Check all cables and associated levers and the propellerbrake (see sect. 1.11.8 and 1.11.9).



cables for
manual and
automatic
actuation of the
propeller brake



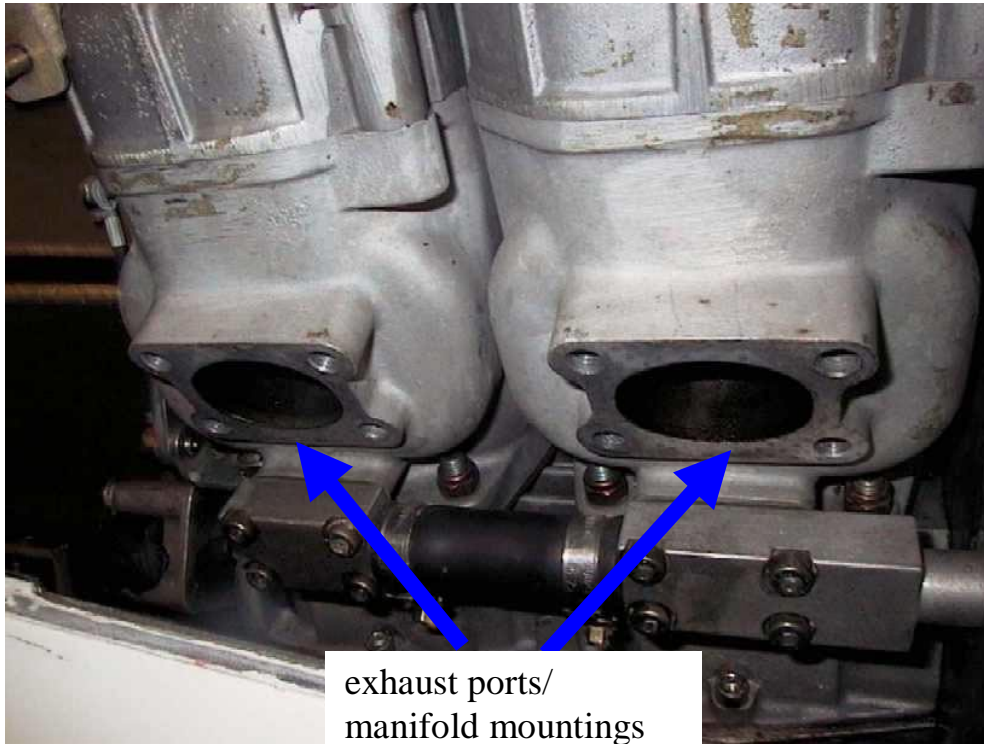
Replace levers and pins of the brake in case of excessive free play. Replace cables when worn.



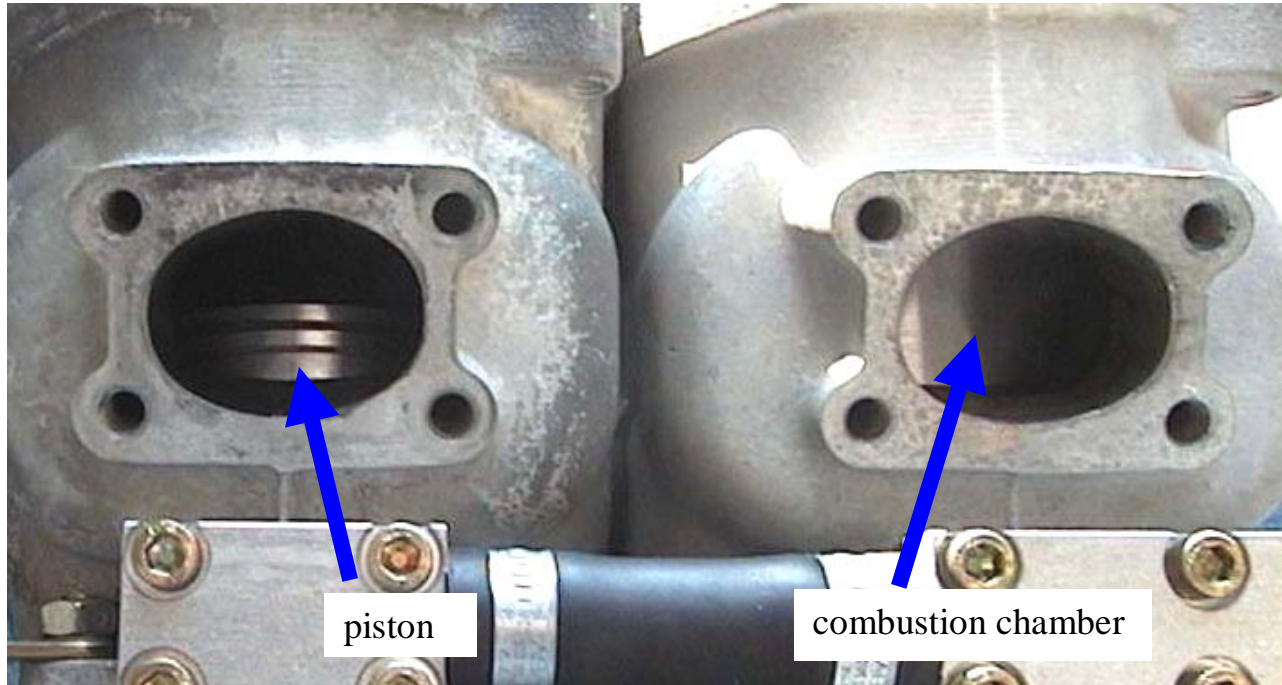
10. Clean engine and radiator.

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.



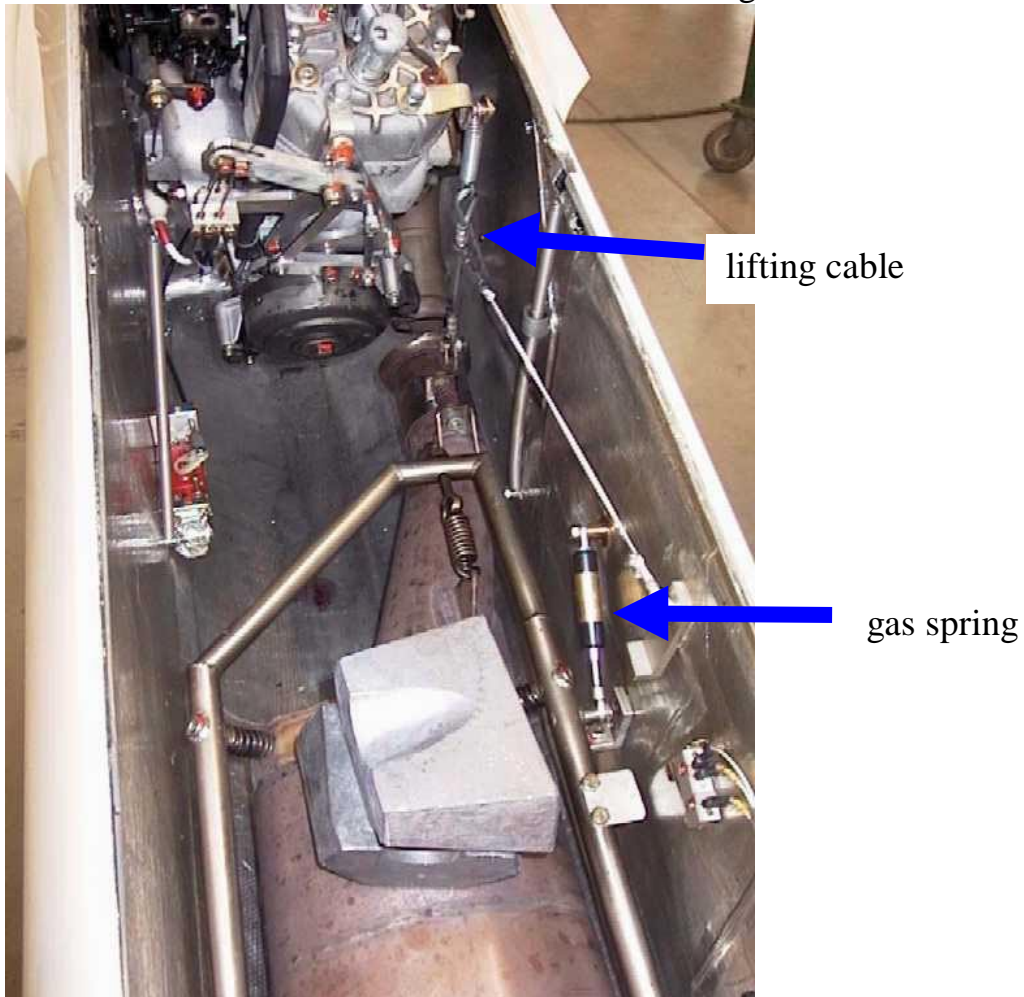
b) Check the cylinders and pistons via the exhaust ports for seizing marks, for carbon remains and for sticking piston rings. Press against the piston rings with a suitable tool. The rings must be movable. Black remains on the outside of the pistons below the rings indicate sticking or damaged piston rings, this is not acceptable. Illuminate the combustion chamber and check for combustion deposits.



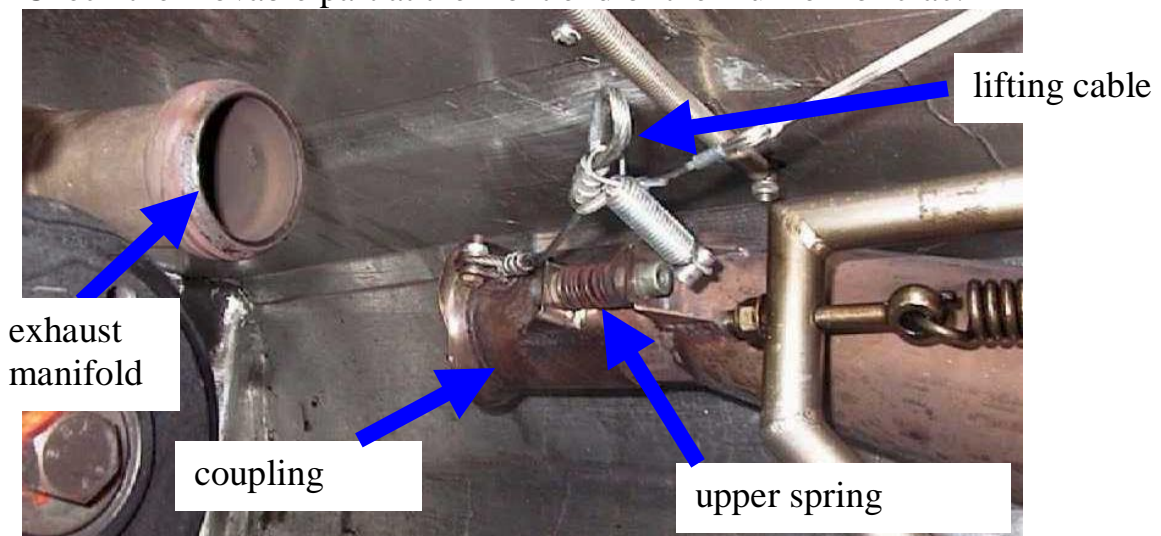
Use a torch and mirror for these checks. If seizing marks are detected the engine must not be used. Excessive combustion deposits have to be removed. With sticking piston rings the cylinders must be removed. Take out the piston rings and clean the grooves and the rings or replace the rings. Remove also 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 crack.



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.

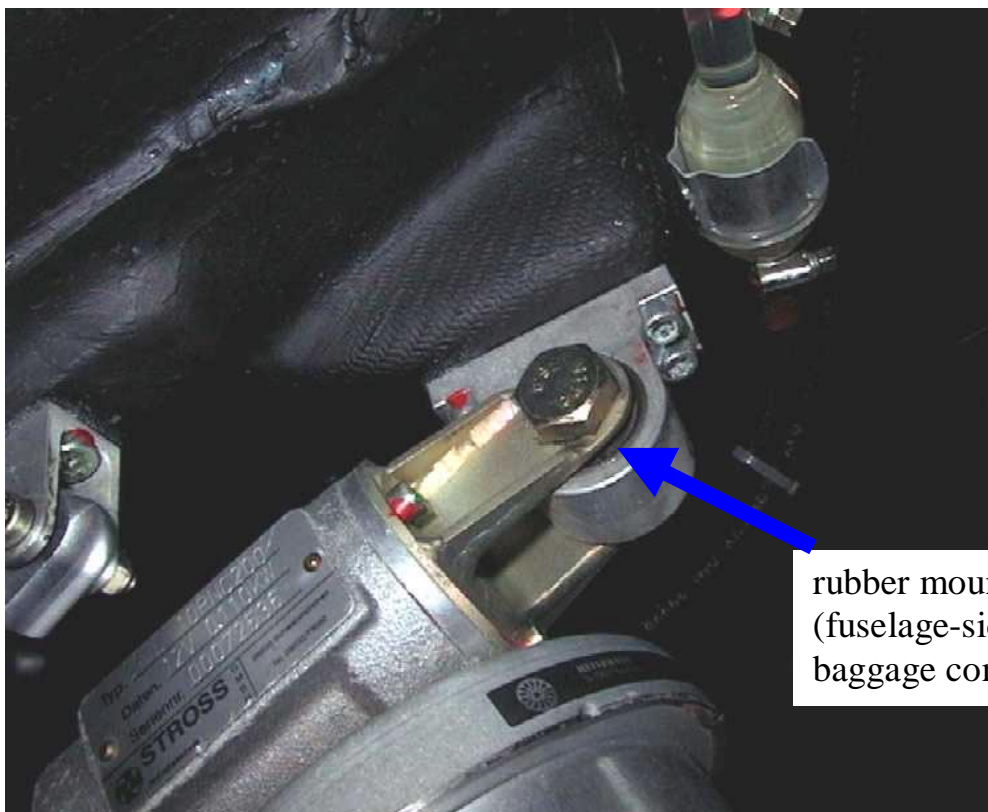
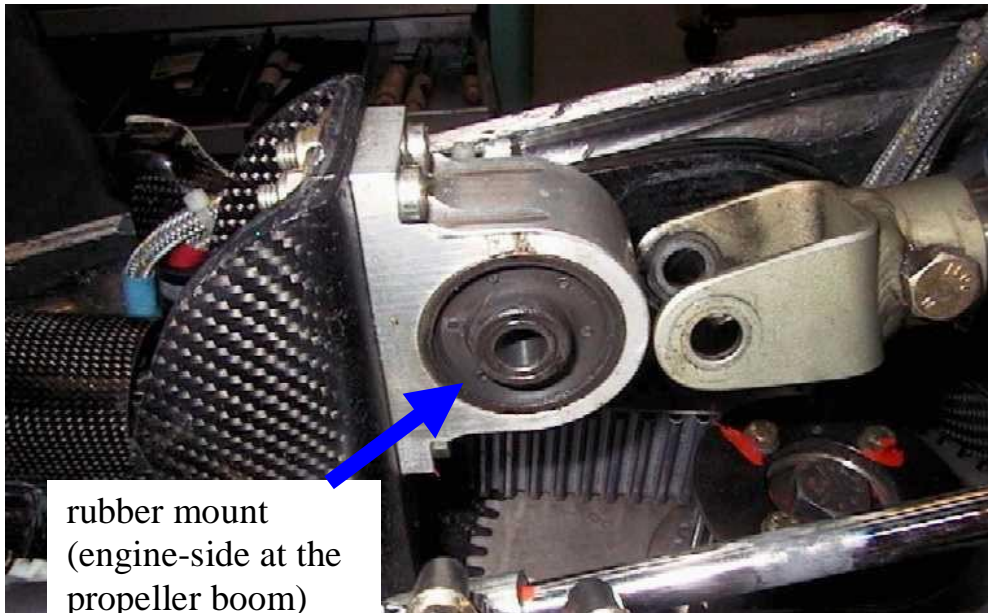
In operating position the distance should be approx. 1 mm (0.04 in.) smaller than when disengaged. If the difference should be less than 0.5 mm (0.02 in.) you have to adjust to 1mm using the nut on the eyebolt. By this procedure you will pull the muffler forwards in its frame.

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.

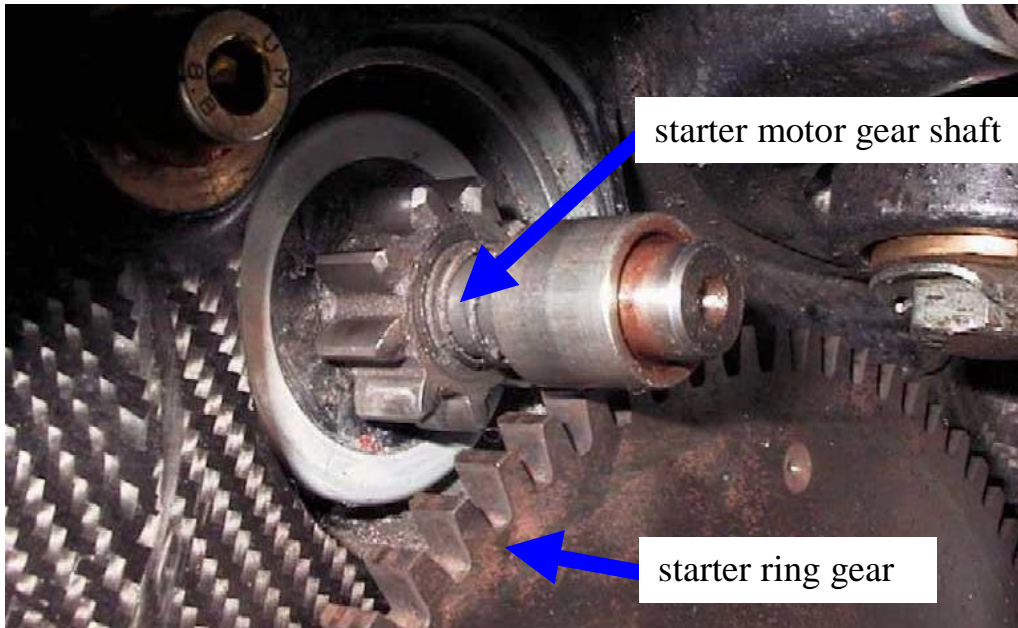
14. Check all engine nuts and bolts with a torque wrench (see sect. 1.11.10).

15. Check the rubber engine mounts, especially for cracks. Therefore apply strong pressure to the propeller mount in forward, backward and sideways direction.

Replace the screws mounted in the rubber if necessary. Especially look at the rubber mounts at the fuselage-fixed and engine-fixed mountings of the spindle drive if there is any wear.



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.



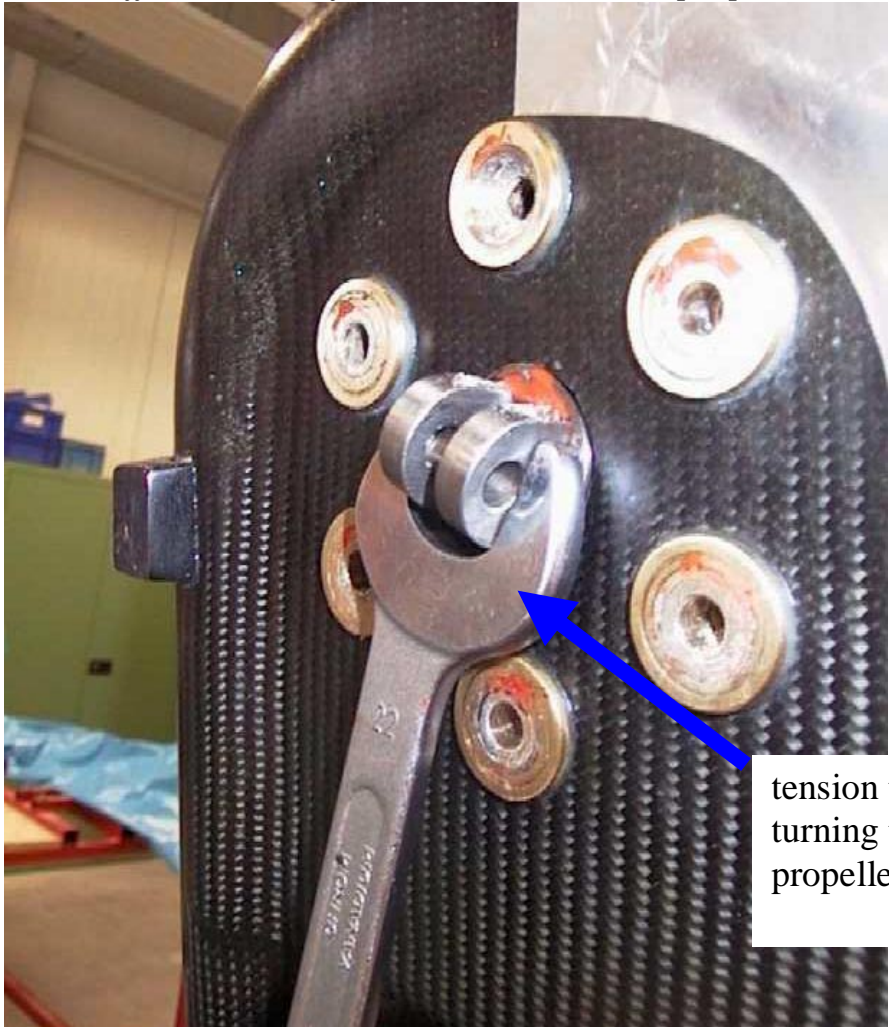
17. Clean the starter ring gear and check for damage. Check if the starter ring gear was bent forwards by the starter motor. There should be approx. 1mm (.04 in.) clearance between starter ring gear and drive belt.
18. Remove the fairings which protect the drive belt. Check the drive belt for wear and tension (see sect. 1.11.5).





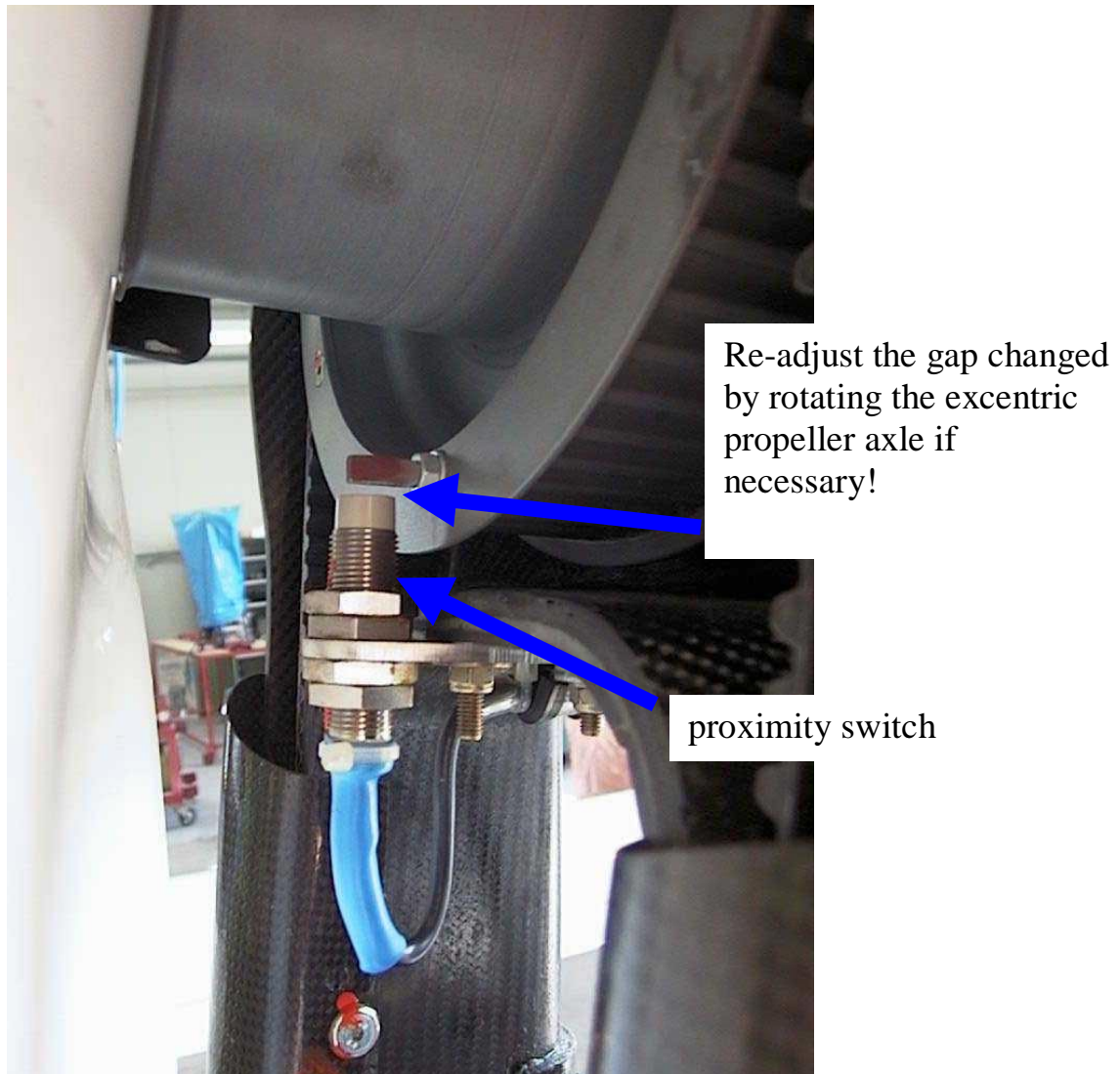
spring scale to measure the applied force

- . 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. *If the tension of the drive belt is not sufficient the adjustment is done at the propeller bearing.*



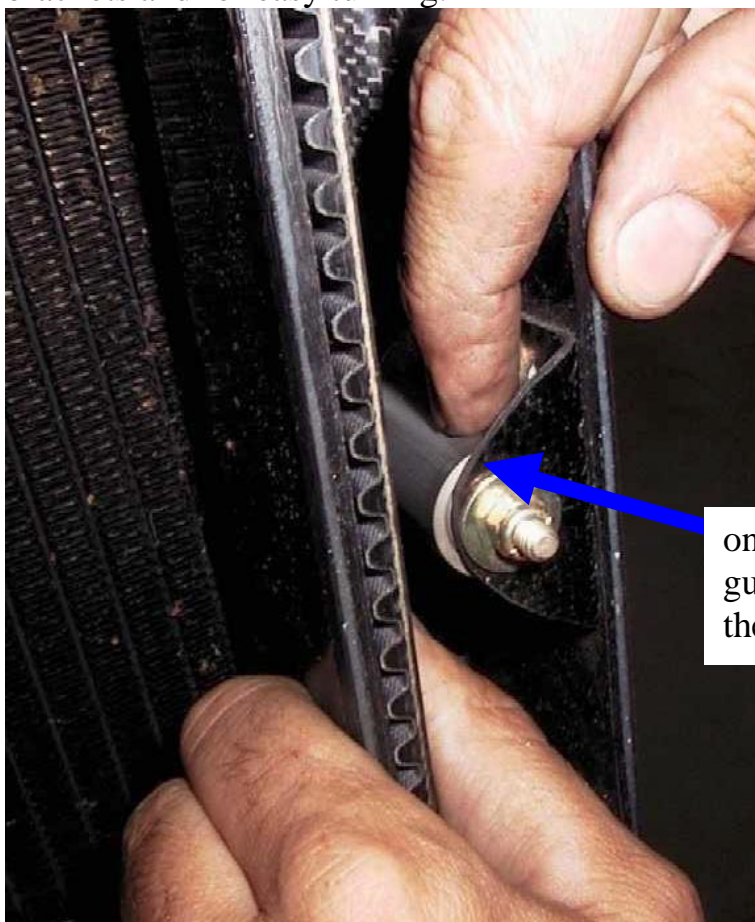
tension the drive belt by turning the eccentric propeller axle!

It's important to adjust the proximity switch afterwards.



Observe the service time of the drive belt, see section 0.3.

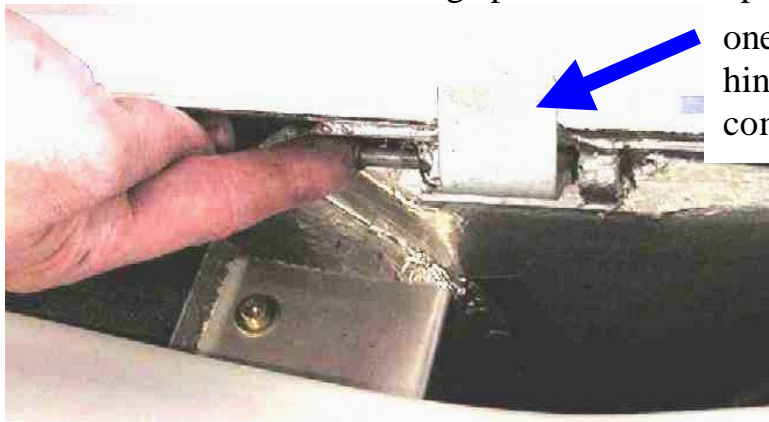
Check the 6 rollers which guide the drive belt for tight fit to their mounting brackets and for easy turning.



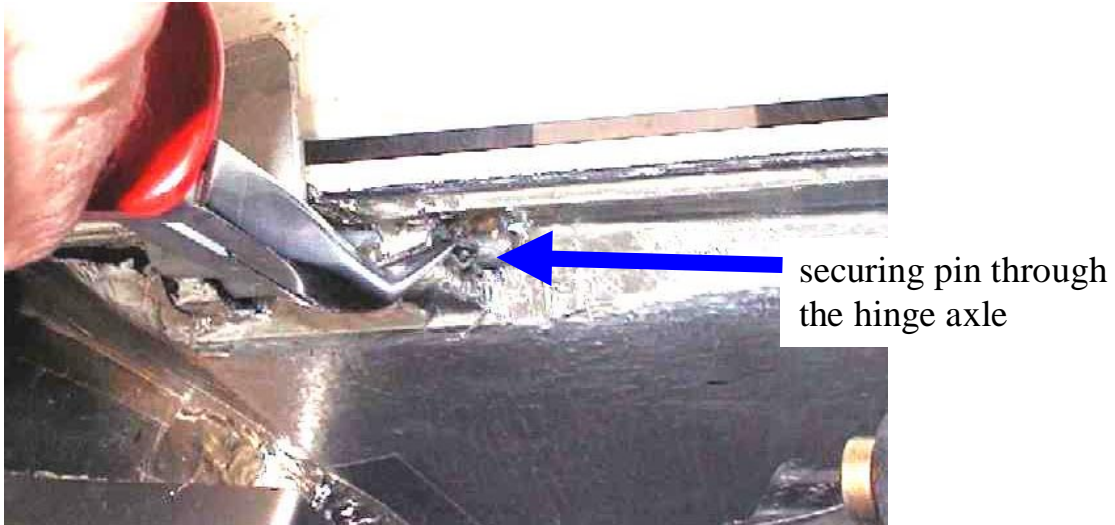
one of the six
guiding rollers of
the drive belt

If there is any significant friction in their bearings, the rollers have to be replaced.

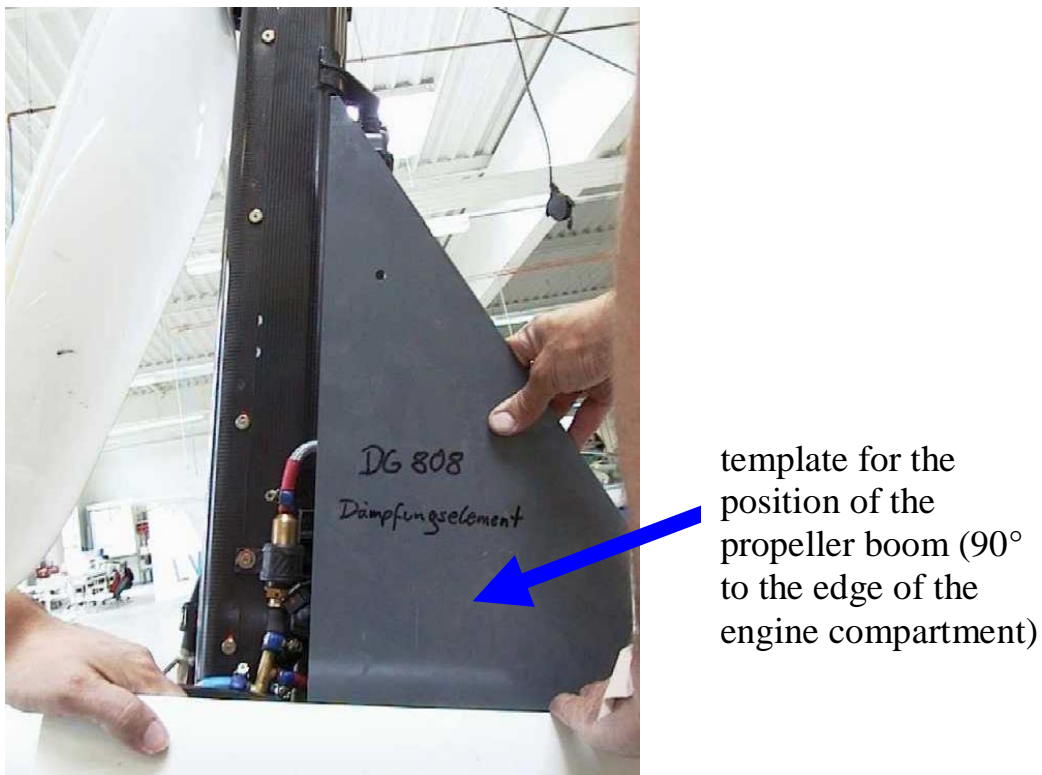
19. Clean the spindle drive.
20. Check all the hinges on the engine compartment doors for proper fit and any cracks, tears etc. Check if hinge pins are secured properly.



one of the four
hinges of the engine
compartment doors



21. Oil all hinge points of the powerplant.
22. 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.
23. 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,



lock wire

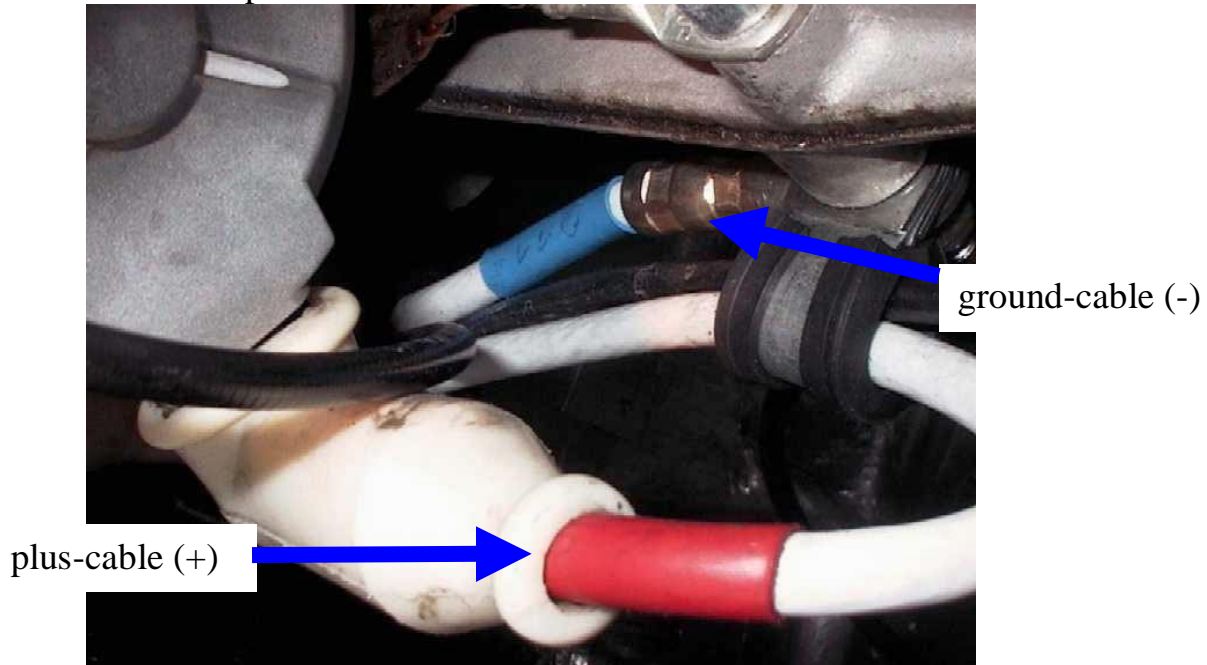
loosen the propeller bolts and retorque them with a torque wrench, torque value see sect. 1.11.10.



torque wrench

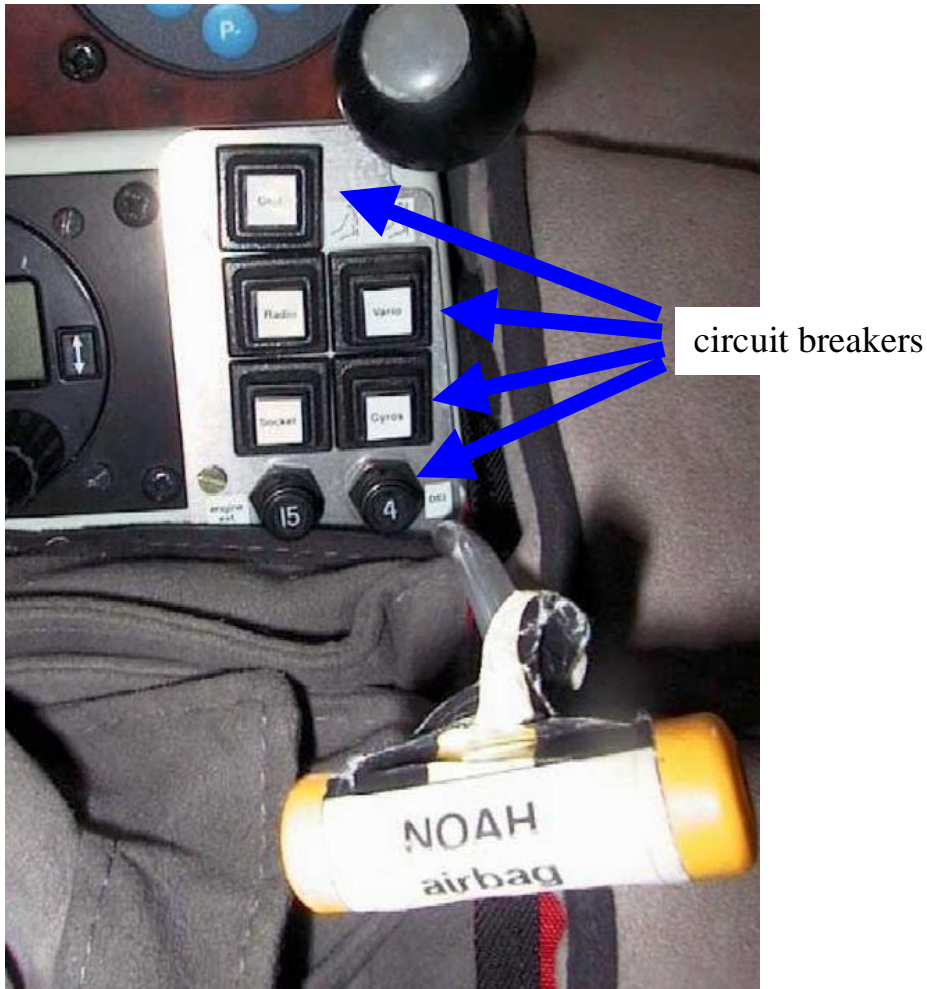
Resecure again with lockwire.

26. Check the propeller blades for any damage. (*cracks, dents, impacts (by small stones etc.), missing gel coat, blisters, soft spots, etc.*
A damaged edge protection should be replaced by a new one, to retain the propeller performance.)
27. Check all electric cables and connectors. Check the terminals especially of the starter positive and earth wire for cracks.

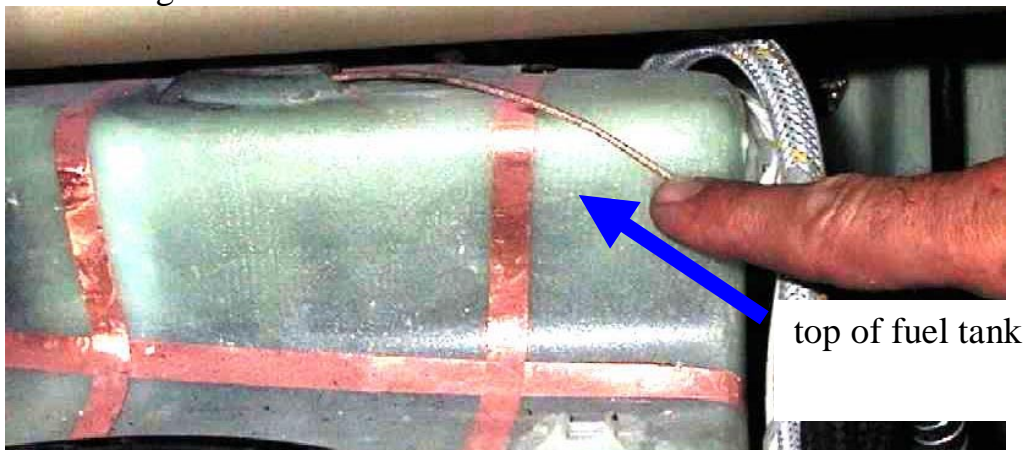


Note: The critical spots may be covered by heat shrink tubing.

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. 33. Check EGT's (only with optional EGT probes) EGT should be $640^{\circ}\text{C} + 10^{\circ}\text{C}$ 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.