Subject: Inspection of the propeller mounting plate, use of unleaded fuel, manual revision

Effectivity: DG-500 M, all serial numbers

Accomplishment:		
	Instructions 1:	Prior to next flight.
	Instructions 2 and 5:	Prior to refuelling unleaded fuel, at latest by 01.10.97. Maintenance manual page 47 and diagr.11 must be exchanged prior to next 25h inspection.
	Instructions 3 and 4:	As desired.

Reason:

1. On an inspection cracks were found in the propeller mounting plate 5M2 (s. maintenance manual diagram 11) near to the bolts connecting the plate to attachment 5M4. Prior to the next flight the propeller mounting plate must be inspected for cracks in the affected area. This item is also added to the 25 hour inspection of the powerplant. In addition an aluminium plate 5M75 must be inserted between propeller mounting plate and washers to avoid undesirable stressing of the propeller mounting plate.

2. Because leaded fuel will soon not be available, tests have been executed to find out whether it can be replaced by unleaded fuel. It was most important to check if the GFRP fuel tank would be damaged by some components added in high portions to the unleaded fuel, especially MTBE. In addition the drainer valve sealing ring designed for aviation gasoline may be affected. All other parts of the fuel system are from automotive origins and are therefore suitable for unleaded fuel.
   The tests showed that the GFRP fuel tank tolerates unleaded automotive fuel of present quality as well as leaded automotive fuel used in the past. AVGAS 100 LL was also tested and proved to be the least aggressive fuel.
   The drainer valve sealing ring is not resistant to automotive fuel and must be replaced.
   Moreover the Bombardier-Rotax company confirmed in the meantime that, contrary to the manual, engines for motorgliders can be operated with unleaded automotive fuel with minimum 95 octane (RON).

3. When securing with Loctite, some items must be considered, which have not previously been included in the maintenance manual.

4. Manual revision.

Instructions:

1. The critical areas (at the lower end) of the propeller mounting plate must be inspected for cracks. To accomplish this first remove the bolts at the front face of the propeller mounting plate including washers, then clean the plate with a cloth. Now have a close look at the surrounding of the fixing bolts and the edges (s. sketch) using a magnifying glass (magnification min. 5x). Due to remains of lubricant soaked into the cracks they are easy to detect.

Because cracks might also start from impressions of the washers check this area very carefully. If cracks are detected or only suspected the propeller mounting plate must be replaced by a new part 5M2.
Moreover an aluminium plate 5M75 must be inserted between propeller mounting plate and washers for better stress distribution. Use longer bolts M12x30 DIN912-8.8zn instead of existing bolts to fix the propeller mounting plate.

2. Exchange of the drainer sealing ring for a sealing ring part no. 60504402.
To accomplish this empty the fuel tank: Therefore use the separate electric fuel pump system and empty the tank through the tank filler opening.
Note how far the drainer valve protrudes into the landing gear box, then remove the drainer valve using a 13 mm socket wrench. Press the drainer valve sleeve to direction "open" and dismantle the sealing ring using a pointed but not sharp edged tool. The new sealing ring can be installed without a tool: Put the ring over the flange edge, roll it down to the groove and check proper position of the sealing. Before reinstallation remove old sealing tape on the drainer's thread. Then roll up tightly minimum three windings with new sealing tape (winding direction clockwise when you look on the thread end). The sealing tape must not interfere with the sealing ring, after winding check operation of the drainer valve. When reinstalling the drainer valve take care to screw in deep enough to avoid interference with the landing gear. Refuel the fuel tank and check for leaks.

3. Instead of leaded automotive fuel with min. 96 octane (RON) as per flight manual

leaded and unleaded fuel with min. 95 octane (RON), e.g. “EURO-Super”, can also be used. Operating the engine with unleaded fuel “Super Plus” with 98 octane (RON) is not necessary and not recommended. If there is no unleaded fuel with 95 octane (RON) available (e.g. in USA) it is possible to mix unleaded fuel with min. 92 octane (RON) with AVGAS 100 LL, mixing ratio 50:50.
Empty the fuel tank for extended storage periods (more than 3 months). Don´t use this fuel in the motorglider again.

4. Study the new instructions for securing with Loctite. Check the lifetime of any Loctite in your posession.

5. Exchange the following manual pages against the new pages dated march 1997, marked TN 843/8. Regard the marked changes.

Flight manual	Maintenance manual
0.1, 0.3, 2.6	1, 3, 4, 47, 59, 92, diagr.11

Material: Manual pages, s. instruction 5
Plate 5M75
2 bolts M12x30 DIN912-8.8zn
Propeller mounting plate 5M2 (if necessary)
Drainer valve sealing ring part no.60504402
Sealing tape for drainer valve thread 0,1x12mm DIN DVGW, part no. 70000370

All parts are available from DG-Flugzeugbau GmbH

Weight and Balance: Not affected

Remarks: All instructions can be executed by the owner or another experienced person.
Accomplishment of all instructions must be entered into the aircraft logs by a licensed inspector.

Bruchsal 4, den 10.04.1997

LBA approved:
The German original of this TN has been approved by the LBA under the date of ..... and is signed by Mr. Fendt. The translation into english has been done by best knowledge and judgement.

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