

AIRWORTHINESS ADVICE NOTICE

TYPE AFFECTED: DG 500 / DG 1000 series gliders.

SUBJECT: Serious deterioration of airbrake arm ball bearings due to water ingress as a result of water collecting in the dive brake box.

BACKGROUND: DG 500 glider VH-VMF serial number 5E251X80 was exhibiting increasing freeplay in the chordwise direction at the inner airbrake arms where the swinging arm attaches to the airbrake paddle. The problem was evident on both wings; freeplay with the airbrakes fully extended was of the order of 3 to 4 millimeters. The problem had become steadily worse over the period of a year. Removal of the swinging arm assembly revealed the problem as shown in the attached photograph. There was severe corrosion in the pivot arm ball bearings due to water ingress past the plastic face seal to the point where in places the bearing cage was nonexistent. The inner surface of the tubes which form the tunnels into which the bearings are pressed also showed corrosion.

It is reported that on one occasion this DG500 had spent one week parked outside with the airbrake boxes collecting and holding rainwater.

A second report has been submitted detailing the same defect on another DG500 sailplane. The bearings reportedly also being submerged in water. Operators of DG500 and DG1000 need to be very aware of this potential for damage. The design of the airbrake box is such that any water entering the airbrake box will pool in the inboard end and submerge the bearings. There is no water drain located on the inboard end.

MAINTENANCE TIPS: Check the airbrake assemblies for excessive fore and aft play at both the inner and outer airbrake arms with the airbrakes fully extended. There should be minimal or zero play. If excess movement is evident then suspect that water ingress has damaged the ball bearings within the pivot arm which necessitates removal of the pivot arm assemblies and bearing replacement. This can only be achieved by cutting a hole in the wing lower surface aft of the dive brake box at a location that facilitates removal of the pivot bolt via the use of a socket drive. The pivot bolt nut is secured forward

SIGNED:



EXECUTIVE MANAGER AIRWORTHINESS

For and on behalf of:

**THE GLIDING FEDERATION
OF AUSTRALIA**

of the airbrake box by resin and flock. It may be necessary to remove excess cotton flock and resin from the exposed threaded end of the bolt which might otherwise prevent removal of the bolt. This may necessitate making a carefully located hole in the forward face of the airbrake box. With VH-VMF there was no issue with such excess resin & flock, and both bolts undid with firm torque OK.

Warning, if the pivot assembly is severely corroded then it may prove difficult to remove the bolt intact. The bearings can be readily removed from the lever arm assembly. Replace any corroded bearings, remove any corrosion evident on the spacer sleeve and bearing tunnel tube and paint with Stits epoxy chromate primer. Re assemble the airbrake actuating arms into the glider. Repair the inspection openings made in the wing lower surface observing the repair procedures and materials specified in the manufacturer's manuals.



Damaged Dive Brake Pivot Arm Bearing and Corroded Spacer Tube Removed from DG 500 Glider VH-VMF