

# AUSTRALIAN SPORT ROTORCRAFT ASSOCIATION

## AIRWORTHINESS ALERT



ABN 53 412 417 012

**No. AA 2008.01**

**Date: 1 January 2008**

**Subject: RAF 2000 and Derivatives - Control Tube**

### **Background.**

The pilot of a RAF 2000 reported difficulty in controlling the gyroplane citing turbulence and crosswinds for the difficulty. Post-accident investigation of the wreckage and discussions with the pilot confirmed that the control difficulty was actually caused by a "lockup" of the lateral control system. The pilot stated that he had experienced binding of the lateral controls in the past and had sought the assistance of an ASRA Technical Adviser to inspect the system. Inspection of the visible parts of the control system failed to reveal any anomalies and as there was full and free control movement in all directions on the ground, the gyroplane was declared serviceable.

The control tube is located beneath the seat tank of the original RAF 2000, attached to the keel by means of locating plates and Stainless Steel rivets and cannot be inspected without removing the seat tank, an onerous task. When this item was removed from the accident gyroplane it exhibited significant signs of rust that had formed and accumulated on the lateral control tube causing it to bind in the neoprene plastic bush that is an integral part of the system. It is probable that distortion of the end cap of the control tube during manufacture allowed moisture to enter into the tube thus propagating the formation of rust. It was also noted that the rivet holes in the locating plates had elongated through in service working that also allowed uncommanded movement and possible jamming of the control tube system. It is probable that in time, the elongations would have penetrated to the edge of the locating plates allowing the control tube to float freely with dire consequences.

### **Recommendation.**

Although the direct cause of the control binding could not be positively established, it is strongly recommended that the seat tanks of RAF 2000 gyroplanes and their derivatives are removed and the control tube is thoroughly inspected to ensure that there is no distortion of the outer tube that may allow moisture to penetrate into the interior of the tube. Where there is doubt as to the integrity of the control tube assembly, it is to be discarded and replaced with a serviceable component. Furthermore, where there is evidence that the rivets attaching the control tube to the keel have loosened in service, an alternative mounting method must be devised and applied.

Upon completion, the work must be inspected by a suitably qualified ASRA Technical Adviser, or a person approved by the Operations Manager and the Gyroplane Log Book annotated accordingly and signed by the person who carried out the inspection.

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ASRA Operations Manager

