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14 August 2020

**RE: Titanium Autogyro (TAG) proposed modification for steel-rod rotors**

Dear ASRA Member,

1. On 18 July 2019 TAG Aviation Pty Ltd notified ASRA that they proposed to modify composite rotor blades fitted with internal steel balance rods, the type of rotor blade involved in the Orange (NSW) and Forrest Beach (W.A.) double fatalities.
2. The ASRA Board was required to determine compliance of the TAG proposed modification to steel-rod rotors with the ASRA Construction Standards. The ASRA Board contracted “The Aeronautical Design Service Pty Ltd” to undertake professional engineering analysis of the proposed TAG modification scheme.
3. The ASRA Board received two reports from Aeronautical Design Service as follows:
  - (a) Report 190729-1-00 Mass balance repair gyro rotor blade, 3 September 2019
  - (b) Report 190729-1-20 Mass balance repair gyro rotor blade, 16 March 2020

The second Aeronautical Design Service report was completed following additional information being provided by TAG Aviation to complete the analysis of compliance with the Construction Standard.

***The Aeronautical Design Service Pty Ltd issued a Statement of compliance with the ASRA Construction Standards for the proposed TAG modification scheme for steel-rod rotors.***

4. Subsequently, the ASRA Technical Manager raised several engineering issues in relation to the final report and compliance statement issued by The Aeronautical Design Service. These issues remain outstanding and are likely to remain un-resolved.

Assuming these outstanding issues raised by the ASRA Technical Manager could be resolved, the ASRA Board considered the possible implications of modified steel-rod rotor blades being returned to service. The following issues were given serious consideration:

- (i) the ASRA Board’s duty of care and responsibility to its members and non-member gyroplane passengers;
- (ii) two pending coronial inquests after the tragic loss of 4 ASRA members and the close examination of all actions taken by the ASRA Board during the coronial inquests;

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**Operations and Training Manager**

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- (iii) steel-rod rotors being implicated in two double fatalities, and the risk of any blade modification related airworthiness issue developing in the future, given that airworthiness is not controlled by ASRA;
  - (iv) the consensus view received from Australian steel-rod TAG owners not wanting to fly under modified rotor blades.
5. The ASRA Board decided that given these extraordinary circumstances, the most risk averse position is to be maintained. ***The ASRA Safety Directive grounding all steel-rod rotor blades will permanently remain in force in Australia.*** This grounding order will mandate the replacement of steel-rod rotors with rotors such as TAG lead shot rotors or other suitable rotors with a proven history of safe operation.
6. **SAFETY DIRECTIVE SD 2020.01** (replaces SD 2019.01)

Rotor blades manufactured by Composite Components Pty Ltd in Perth with serial numbers #20 to #90 (as supplied and fitted to Titanium Explorer gyroplanes manufactured by TAG Aviation Pty Ltd) manufactured with a 10mm diameter smooth steel balance rod and a 4mm smooth steel balance rod embedded within the leading edge are **permanently prohibited from flight in Australia.**

Steel-rod rotors with serial numbers #20 through #90 inclusive located in Australia are to be immediately removed from aircraft and permanently identified as follows:

- (i) painted with 3 eight-inch red "X"s on each upper and lower surface;
- (ii) the blade serial number is also to be permanently painted in red 8-inch numerals such as "#51" on the upper and lower surface of each blade;
- (iii) marked "DO NOT FLY" using a permanent marker.

ASRA will contact the owners of TAG steel-rod rotors in Australia to verify this process has been completed and to record image verification on the ASRA database.

Regards,

Jeff Blunt  
ASRA Operations Manager.