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REPUBLIC OF SOUTH AFRICA

CIVIL AVIATION AUTHORITY

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AIC
61-12
08-10-24

AIRWORTHINESS

MAINTENANCE

INSPECTION OF ALL AIRCRAFT PISTON ENGINES FITTED TO AIRCRAFT BELOW 5 700 KG FOLLOWING PROPELLER STRIKES

- ☞ Indicates changes.
- ☞ This AIC replaces AIC 61-12 dated 04-04-12 in total.
- 1. This information is included in the latest approved maintenance schedule as laid out in SA-CATS-GMR 43.02.8(5)(c) with specific reference to propeller strikes. Engine over speeds are catered for in the engine and propeller overhaul manuals respectively.
- 2. **ENGINE SHOCK LOAD OR SUDDEN STOPPAGE INSPECTION**
- 3. Following any propeller strike, whether rotating or as prescribed in the manufacturer's recommendations, a complete propeller and engine disassembly and shock load inspection is mandatory and must be accomplished prior to further flight.
- 4. **DEFINITION OF PROPELLER STRIKES**

Any incident, whether or not the engine is operating, that requires repairs to be effected to the propeller requiring the removal of the propeller from the engine other than minor dressing of the blades, is considered a propeller strike.
- 5. **PROPELLER STRIKE INSPECTIONS**

After a propeller strike, all propeller, engine and applicable exhaust-driven Class II products such as, but not restricted to, magnetos, propeller governors, alternators, generators, hydraulic pumps, turbochargers, fuel pumps and vacuum pumps for which there are overhaul instructions available, shall be inspected internally and externally in accordance with the manufacturer's requirements. This is done to ensure continued safe operation of the propeller, engine and component parts. Where no manufacturer's procedures exist that specify that the inspection should be done at shock load, the component shall be overhauled.

Turbo chargers may be inspected externally by means of a visual inspection. The internal inspection of the housing must be checked for scrape marks and the rotating parts such as the impeller checked, for freedom of rotation and binding.
- 6. All McCauley and Woodward propeller governors shall be overhauled at the time of a shock load inspection as per the manufacturer's requirements.
- 6.1 All Hartzell propeller governors shall be disassembled and inspected as per the applicable maintenance manual. If inspection reveals any damage, the component is to be repaired accordingly.
- 7. It is a requirement of this Authority that in the following instances, the engine shall be completely overhauled:
 - 7.1 where the engine has been subjected to significant external heat, e.g. fire;
 - 7.2 when the engine has been submerged in water;
 - 7.3 when the engine has suffered substantial damage; and
 - 7.4 when an engine has exceeded the manufacturer's time between overhauls.

8. *It is required by this Authority that all the latest manufacturer's recommendations, mandatory service bulletins and other relevant documentation be adhered to.*
9. *Notwithstanding the foregoing, the Commissioner has ruled that the following shall be replaced when executing a propeller strike inspection:*
 - 9.1 *All gaskets, seals, locking devices and induction as well as cylinder oil return hoses where applicable;*
 - 9.2 *All crankshaft bearing inserts (main and connecting rods), and reduction gear shaft bearing inserts where applicable;*
 - 9.3 *All connecting rod, bolts and nuts;*
 - 9.4 *All counterweight retention parts (for counterweight-equipped engines);*
 - 9.5 *All piston rings;*
 - 9.6 *All magneto and generator-drive cushions;*
 - 9.7 *All stressed bolts such as:*
 - 9.7.1 *All shock-absorbing rubbers (magneto and alternator drives);*
 - 9.7.2 *Camshaft gear-attaching bolts;*
 - 9.7.3 *Crankshaft alternator drive gear-attachment bolts (where applicable);*
 - 9.7.4 *Stationary drive gear bolts (reduction gear train); and*
 - 9.7.5 *All other parts that do not meet the manufacturer's service limit requirements, as well as incorrect or unapproved parts.*
10. *All engine mounting rubbers must be replaced on an ongoing basis.*
11. *All engine mounting(s) and attachments shall be x-ray, magnaflux or dye-penetrant inspected and replaced as required.*
12. *All details of work done and replacements made and/or repairs done shall be reflected in the Certificate Related to Maintenance (CRMA), a copy of which shall be submitted to the SACAA for record purposes.*
13. *An alternate means of compliance, ensuring an acceptable level of safety, may be submitted for possible approval by the Commissioner.*

