

Maintenance alerts



Turbine engines

A RECENT TPE331-6 uncontained turbine failure in Australia has led CASA to issue an airworthiness directive for Honeywell TPE331-1,-2,-3,-5,-6 turbo-prop engines with turbine wheels installed that have been used in special use operations. Special use operations are defined as multiple take-offs and landings for each engine start/shutdown cycle.

Aircraft that could be affected include Air Tractor AT 301 conversions, Ayres S2R-G6, Rockwell S-2R conversions, Airparts FU-24 Stallions, Shorts SC7 Skyvans and de Havilland Canada DHC-2 conversions.

Investigation of the uncontained turbine failure found the second stage turbine wheel had fractured across the wheel web because of low cycle fatigue.

While the wheel had an accurately recorded 2034 engine cycles in service out of a published life limit of 5400 cycles, the engine had been involved in multiple

take-offs and landings between each engine start and shut down. With a revised cycle count, as detailed in SB TPE331-A72-2111, the failed wheel was found to have 17,085 cycles.

Maintainers are required to review aircraft and engine records to establish whether their installed turbine wheels could be affected. If so, they must calculate equivalent and total equivalent turbine wheel cycles based on the number of aircraft take-off and landings per engine cycle. Any turbine wheels that exceed the revised cycle count must be taken out of service.

If there are no records of the number of take-offs and landings per engine cycle before the effective date of the airworthiness directive, a ratio of six take-offs and landings per engine major cycle should be used to determine equivalent cycles and total equivalent cycles.

For more information, see AD/TPE331/60 "Cycle Life Counting – Special use Operations".

Aileron directive

CASA HAS issued an airworthiness directive for aileron control system bellcrank assembly in Pilatus Porter PC-6 series aeroplanes in accordance with Pilatus Aircraft Mandatory Service Bulletin No.27-001.

The directive affects Model PC-6 series aircraft with all manufacturer's serial numbers up to and including MSN 939.

The Swiss Federal Office for Civil Aviation (FOCA) received a report of increased friction in the aileron control system of a PC-6 aircraft. An investigation revealed that axial movement in certain aileron bellcrank assemblies can occur in the aileron control system, which could cause interference of the control cable attachment bolts with the adjacent structure. Deterioration of the bond between the surfaces of the bellcrank bearings and their housings caused the axial movement.

For more information, see AD/PC-6/49.