

## Aviation Safety Bulletin

ASB No: 91-32/M

SEP, 2002

Subject :

Two DHC-8-311 aircraft experienced engine IFSD ( In Flight Shutdown ) subsequently within a period of one week.

Background :

One DHC-8-311 aircraft was involved in an event of No.1 engine In Flight Shutdown in its domestic flight on July 19, 2002. Subsequently, another DHC-8-311 encountered No. 2 engine IFSD in the same week on July 24, 2002.

The involved two engines were removed and shipped to P&WC service investigation group located in plant 5 Canada. It was speculated at the early stage that since the two engines were recently overhauled by P&WC in Singapore, overhauling was a related cause.

Preliminary fracture note issued by P&WC investigator indicated the tower shaft failure would be the cause for these two engines IFSD. Most significantly, the first engine IFSD was the consequence of the de-coupling of the accessory gearbox (AGB) drive when gear teeth distress occurred to the AGB upper bevel drive gears. #1 engine originated from the distress of the upper roller bearing; the second IFSD was the consequence of the fatigue fracture of the AGB drive spiral bevel tower shaft resulting in the accessory drive gear train disengagement.

Following engine replacements, these two aircraft were returned to service and the maintenance filled in Service Difficulty Reports in the first place.

Recommendation:

1. Continuously monitor the fleet engines, especially routine ECM function, and precautionary actions be taken if any anomaly is detected.
2. Temporarily stop handing engine maintenance over to P&WC Singapore as well as re-evaluate new engine overhaul facility as alternatives.
3. Review the engine maintenance outsourcing procedures, and consider dispatching the technical representative occasionally for the surveillance of the engine shop maintenance standard to ensure the conformity of the operational specifications.