Gearbox component failure to blame for latest EC225 ditching

Initial investigations into the 22 October ditching in the North Sea of a Eurocopter EC225 Super Puma show strong similarities to an earlier controlled ditching involving the same aircraft type in May this year, with the failure of a critical gearbox component again the trigger for the incident.

A special bulletin compiled by the UK's Air Accidents Investigation Branch says the aircraft, a 2007-built airframe (G-CHCN) operated by CHC Scotia, was put down 32nm (59km) southwest of Sumburgh in the Shetland Islands on a routine flight from Aberdeen with 17 passengers and two crew on board.

The bulletin says that the crew ditched the aircraft following a warning that the main gearbox lubrication system had failed. An attempt to operate the emergency system was met with a similar failure warning, it says.

The AAIB report notes that the 10 May incident, involving another EC225 (G-REDW), operated by Bond Offshore Helicopters, also featured the loss of the main gearbox lubrication system following a complete failure of the bevel gear vertical shaft and subsequent indications of failure in the back-up lubrication system.

However, the latest AAIB bulletin into the event, issued on 17 October, concluded that the emergency system had been operating

correctly but had given a "false warning" of failure. It had mandated Eurocopter to review the design of the system to ensure the system provides correct information to pilots.

A preliminary examination of the main gearbox on G-CHCN, showed, as with G-REDW, a 360° circumferential crack on the bevel gear vertical shaft, says the AAIB. This meant the gears that operate the main oil pump were no longer being driven.

An EASA airworthiness directive (AD) issued following the May ditching issued monitoring requirements on helicopters fitted with bevel gear vertical shafts of a certain age or serial number. However, it notes: "The vertical shaft fitted to G-CHCN was not within the applicability of the AD."

In fact, two Vibration Health Monitoring sensors - on the bevel gear and the oil pump wheels - had both shown exceedences of alert thresholds in the two sectors flown immediately prior to the critical journey on the day of the accident, says the report. However, as the airframe fell outside of the AD, the operator was not required to download the data at that time.
EASA and Eurocopter are reviewing the requirements to widen the applicability of the AD, the AAIB says.

The three main operators of helicopters in the North Sea - CHC, Bond and Bristow - all grounded their EC225 and AS332L fleets following the incident. As of 25 October the flight restriction was still in place.

Eurocopter says: "The current investigation will allow us to better understand the exact circumstances surrounding the incident and to provide our customers with the necessary information and explanations that will enable a resumption of safe operations."

http://www.flightglobal.com/news/articles/gearbox-component-failure-to-blame-for-latest-ec225-ditching-378077/