Safety Regulation Group
Safety Information and Data Department

Follow-up Action on Occurrence Report

ACCIDENT TO SIKORSKY S76A+, G-BJVX, NEAR THE LEMAN 49/26 FOXTROT NORTH SEA PLATFORM ON 16 JULY 2002

(FATAL HELICOPTER CRASH IN NORTH SEA)

CAA FACTOR NUMBER	:	F8/2005
FACTOR PUBLICATION DATE	:	28 February 2005
OPERATOR	:	Bristow Helicopters Ltd
CAA OCCURRENCE NUMBER	:	2002/04900
AAIB REPORT	:	AAR 1/2005

SYNOPSIS

(From AAIB Report)

The aircraft operator's base at Norwich operates S-76 helicopters in support of offshore oil and gas operations in the southern North Sea. On the evening of the accident the aircraft departed Norwich to complete a scheduled flight consisting of six sectors in the southern North Sea offshore gas fields. The first four sectors were completed without incident but whilst en-route between the Clipper, an offshore production platform, and the Global Santa Fe Monarch, a drilling rig, the aircraft suffered a catastrophic structural failure. The helicopter's main rotor assembly separated almost immediately and the fuselage fell to the surface about 0.8 nm north-west of the Global Santa Fe Monarch which at the time was attached to the Leman 49/26 Foxtrot platform, a normally unmanned installation. Witnesses reported hearing a single or double muffled bang or boom, and seeing the aircraft fall into the sea. The fuselage disintegrated on impact and the majority of the structure sank. Fast rescue craft launched from the Putford Achilles, a multipurpose standby vessel, arrived at the scene of the accident within a few minutes. There were no survivors amongst the nine passengers and two crew.

The investigation identified the following causal factors:

i. A manufacturing anomaly created an area of reduced insulation between a main rotor blade's spar and one section of its two-piece leading edge erosion cover.

ii. The affected blade had been struck by lighting.

iii. Electrical energy from the lightning strike exploited the manufacturing anomaly and caused microstructural damage that was not detectable when the blade was returned to its manufacturer for assessment.

iv. The blade was repaired before being returned to service and a fatigue crack in the spar originated from the microstructural damage.

v. An opaque protective patch applied to the erosion cover's scarf joint hid exterior symptoms of the developing spar crack that appeared before the accident.

vi. The helicopter's proprietary onboard Health and Usage Monitoring System (IHUMS) did not provide sufficient warning of impending blade failure in time to avert the accident.

vii. There were no in-flight symptoms of impending blade failure that the pilots should have recognised.

Six safety recommendations have been made.

FOLLOW UP ACTION

The six Safety Recommendations, made by the AAIB following their investigation, are reproduced below, together with the CAA's responses.

Recommendation 2002-25

It is recommended that The Federal Aviation Administration mandates appropriate action to ensure the continued airworthiness of Sikorsky S-76 main rotor blades which have either:

A two-piece leading edge titanium sheath (erosion strip).
Or
Have suffered a lighting strike.

CAA Response

This Recommendation is not addressed to the CAA.

The FAA airworthiness directive (FAA AD 202-15-51E) was promulgated on 26 July 2002. This airworthiness directive has been applied to all UK operators.

CAA Status - Closed

Recommendation 2004-37

The Sikorsky Aircraft Corporation should, within Repair Procedure No 6, clearly specify a durable transparent patch material for covering cracks in the leading edge erosion covers of S-76 main rotor blades.

CAA Response

This Recommendation is not addressed to the CAA.

CAA Status - Closed

Recommendation 2004-38

The Sikorsky Aircraft Corporation should ensure that new cracks in the leading edge erosion covers of S-76 main rotor blades are frequently monitored for growth by an appropriately qualified person and for a suitable period to ensure that the crack is not symptomatic of a deeper flaw within the blade.

CAA Response

This Recommendation is not addressed to the CAA.

CAA Status - Closed

Recommendation 2004-39

The Sikorsky Aircraft Corporation should amend the S-76 Pre-flight Check and 50-Hour Inspection procedures to include a search for cracks in the upper and lower skins of main rotor blades. The procedures should prompt investigation of the underlying reason(s) for such cracks before the next flight.

CAA Response

This Recommendation is not addressed to the CAA.

CAA Status - Closed

Recommendation 2004-40

It is recommended to the European Aviation Safety Agency and to the US Federal Aviation Administration that their Airworthiness Requirements for helicopters should ensure that any future design of main rotor blade that incorporates a hollow metal spar should be designed from the outset to incorporate an automatic onboard crack detection system covering spar areas which cannot readily be inspected and are not damage tolerant.

CAA Response

This Recommendation is not addressed to the CAA.

CAA Status - Closed

Recommendation 2004-41

The UK Offshore Operators Association should amend its guidelines to include a responsibility on offshore installation operators to ensure that, for all flights between manned offshore installations, radio operators of such installations establish positive contact with the destination installation immediately after the departure of a helicopter and convey the relevant flight details such as persons on board and estimated time of arrival.

CAA Response

This Recommendation is not addressed to the CAA.

CAA Status - Closed