Safety Regulation Group
Safety Investigation and Data Department

Follow-up Action on Occurrence Report

ACCIDENT TO BOLKOW BO 105-DBS-4, G-DNLB, NEAR BROUGH OF BIRSAY, ORKNEYS ON 24 MAY 2002
(UNDERSLUNG LOAD CONTACTED TAIL ROTOR AND HELICOPTER CRASHED)

CAA FACTOR NUMBER	:	F28/2003
FACTOR PUBLICATION DATE	:	10 September 2003
OPERATOR	:	Bond Air Services
CAA OCCURRENCE NUMBER	:	2002/03334
AAIB REPORT	:	Bulletin 8/2003

SYNOPSIS

(From AAIB Report)

The helicopter was carrying out external load lifting operations from the Brough of Birsay island lighthouse off the north-west coast of the Island of Orkney to a site some two miles away on the main island. The pilot was very experienced in carrying out external load lifting and had transported a number of loads that morning without incident. On the accident flight the load was seen to become unstable and contact the tail rotor resulting in total loss of tail rotor thrust. The helicopter was seen to descend rapidly in a spiral to the right and impact the sea. The pilot was fatally injured during the impact and the helicopter sank almost immediately. Recommendations are made concerning the guidance available to load constructors and enhancing a pilot's chances of surviving a tail rotor strike.

FOLLOW UP ACTION

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

Recommendation 2003-37

In consultation with the helicopter industry, the Civil Aviation Authority should produce guidance for the preparation, construction and carriage of external loads. This guidance should include methods of improving the stability of loads that have poor or unpredictable flight characteristics.

CAA Response

The Civil Aviation Authority accepts this Recommendation.

The CAA, in consultation with the helicopter industry, will produce guidance for the preparation, construction and carriage of external loads and include methods of improving the stability of loads that have poor or unpredictable flight characteristics.

The subject was discussed at the inaugural meeting of the CAA/British Helicopter Advisory Board (BHAB) Onshore Liaison Committee meeting on 12 June 2003. The BHAB has agreed to draft guidelines on best practice for the preparation, construction and carriage of external loads. When agreed and accepted, this guide will form the basis

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of a revised CAA publication, CAP 426 (Helicopter Underslung Load Operations). It is expected that this revision to CAP 426 will be completed during 2004.

CAA Status - Open

Recommendation 2003-38

The Civil Aviation Authority should take forward a proposal to the appropriate helicopter manufacturers and type certification bodies that the flight characteristics of a helicopter following the loss of tail rotor effectiveness should be promulgated in every helicopter type's Flight Manual.

CAA Response

The CAA accepts this Recommendation.

In view of the imminent transfer of type certificate responsibility in European Union States from national aviation authorities to the European Aviation Safety Agency (EASA), the CAA will, by 31 March 2004, propose to EASA that it amend its standards to require helicopter manufacturers to promulgate, in every helicopter type's Flight Manual, the flight characteristics of the helicopter following the loss of tail rotor effectiveness.

CAA Status - Open

Recommendation 2003-39

The Civil Aviation Authority should consider providing a tail rotor failure safety information package to all helicopter pilots and operators to improve their awareness of the effects of the loss of tail rotor thrust.

CAA Response

The CAA accepts this Recommendation.

CAA has considered the provision of a tail rotor failure safety information package. The type specific variations of aircraft response to this failure condition point to the need for type-specific information to be provided. Only the aircraft manufacturers can achieve this with the required accuracy and completeness. To achieve this outcome, the CAA has submitted a proposal to the JAA Rotorcraft Steering Group for additional Advisory Material for FAR/JAR 27/29 such that 27.1585(a) and 29.1585(a) are interpreted to require that the latest analysis and validation techniques are utilised to provide improved Emergency Procedures for the tail rotor failure case.

CAA Status - Closed

Recommendation 2003-40

Eurocopter should review the 'Tail Rotor Drive Failure - Flight', emergency procedure included in the BO 105 rotorcraft flight manual. Specifically Eurocopter should consider the following aspects:

a. Whether the procedure regarding use of the collective lever and cyclic stick, in order to, 'if possible maintain level flight', is realistic since it may in fact de-stabilise the aircraft.
b. Emphasise the importance of carrying out a double engine emergency shut-down after a tail rotor failure in forward flight before attempting an autorotative forced landing.
c. Ensuring that all the actions required within the emergency drill are memory items.

CAA Response

This Recommendation is not addressed to the CAA.

CAA Status - Closed

Recommendation 2003-41

The Civil Aviation Authority should consider recommending two way radio communication between a pilot undertaking external load lifting operations and persons at the pick-up and drop points when another crew member is not available onboard the helicopter to monitor the behaviour of the external load.

CAA Response

The Civil Aviation Authority accepts this Recommendation.

The CAA has considered recommending two-way radio communication between a pilot undertaking external load lifting operations and persons at the pick-up and drop points when another crew member is not available onboard the helicopter to monitor the behaviour of the external load.

The CAA will advise operators of the safety benefits of radio communications and will recommend that they include a section in their Operations Manual, or other operating instructions, on the use of two-way radio communications with ground personnel when appropriate to the circumstances of the task. This will be achieved through a Flight Operations Department Communication (FODCOM) to be published by 31 October 2003.

CAA Status - Closed

Recommendation 2003-42

The Civil Aviation Authority should consider recommending the wearing of protective flying helmets for flight crews carrying out external load lifting operations.

CAA Response

The Civil Aviation Authority accepts this Recommendation.

The CAA will consider recommending the wearing of protective flying helmets for flight crews carrying out external load lifting operations.

The CAA, through the CAA/British Helicopter Advisory Board (BHAB) Onshore Liaison Committee, has begun dialogue with industry to develop this subject and agree a position.

CAA Status - Open