

UNITED STATES DEPARTMENT OF THE INTERIOR AVIATION MANAGEMENT

TECH BULLETIN

INSPECTION

July 16, 2004

NUMBER: 04-03
DISTRIBUTION: DOI Aviation Management Approved Inspectors
SUBJECT: Inadvertent Cargo Hook Releases and Cable Adjustment

A check of SAFECOM “hook releases” within the last 18 months (January 2003 to June 2004) revealed 90 occurrences involving numerous types of helicopters. Five SAFECOMs received in the last 45 days pertain to inadvertent hook releases with the AS350 helicopter.

A defined search of AS350, SA 316, and SA315 helicopters (all using a similar type suspension swing for the cargo hook) from May 7, 2004, to June 21, 2004, resulted in eight SAFECOMs.

The Eurocopter AS350 parts manual lists three different (aft) manual release cables all approved for the aircraft serial number. The manual doesn’t list any use codes for different configurations.

Most AS350s were originally equipped with a Siren cargo hook, which has the release cable connected to the front of the hook and requires use of the shorter cable (p/n AS22-19). When installing a Breeze-Eastern or Onboard Systems hook, which has the release cable connected to the rear of the hook, the longer cable (p/n AS22-18 or 704A31-813-010) is required.

Research of the hook manufacturer’s (Onboard Systems) data shows there are three different cargo hooks approved for the AS350 series helicopters. Each hook or hook kit has an owners manual, installation manual, and flight manual (FM) supplement as part of the supplemental type certificate (STC) approval.

The information contained in these manuals is very specific as to the rigging procedures, aft manual release cable part number usage, and inspection/testing for inadvertent hook release. The SA315 system and manuals are very similar.

Onboard Systems does not, at this time, have any approved hooks or provisions for the SA316 helicopter.

(continued)

Conclusions:

1. The owners and installation manuals are not being utilized for configuration and rigging procedures and, in some cases, are not available to mechanics in the field.
2. The flight manual supplements are not being inserted into the FM.
3. The correct length (p/n) manual release cables are not being installed.
4. Rigging dimensions for manual release cable to cargo hook internal connection are not being followed.
5. The most strain (tension) is placed on the manual release cable when the swing/hook assembly is in the most forward right-hand or left-hand position, and the aircraft is just starting a low speed right or left turn with the load on the hook.
6. A hook load of 200+ pounds will move the swing/hook farther forward left or right than can be duplicated by the hand on the ground.

Inspections: All Helicopters and Cargo Hooks

1. Verify that owners manuals, installation manuals, and flight manual supplements are with the aircraft and are appropriate to the equipment installed.
2. Perform normal visual and manual inspections.
3. Remove any bungee cords that interfere with full swing/hook or assembly movement in any direction. Determine which direction the hook assembly needs to travel to produce the greatest tension (pulling) on the manual release cable and electrical connector wires.
4. Move the hook assembly the maximum direction of cable tension. Any tension (pulling) or cable tightening of manual release cable or electrical wires indicates that the rigging is not correct.
5. Move the hook assembly to the extreme opposite direction and check for any binding or fouling of the manual release cable or electrical wires. Verify that the manual cable and electrical connectors are tight, cannot be loosened by hand, and are safetied if applicable.
6. Verify that the manual releases operate smoothly and easily and that they can be returned to the locked position without binding. The manual releases must have free travel (minimum 1/2"+) from locked to release positions. This check should be done in both extreme positions listed above.

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