

**ALERT SERVICE BULLETIN
REVISION NOTICE**



DATE Dec 18, 2009

TO: All Owners/Operators of Bell 427 Helicopters

**SUBJECT: REVISION "A" TO ALERT SERVICE BULLETIN 427-06-15:
VERTICAL FIN TO TAIL ROTOR GEARBOX SUPPORT ATTACHMENT
HARDWARE REPLACEMENT OF.**

Revision A of this bulletin requires a vertical fin to gearbox support attaching hardware change along with a one time inspection of the fin and the gearbox support required to detect possible damage associated with reported condition. The bulletin also requires clean-up of the vertical fin and tail rotor gearbox support bolt holes to allow vertical fin attaching bolts installation without any restriction.

In addition, this bulletin introduces a vertical fin attachment hardware torque check 1 to 5 hours following each installation and every 150 hours of operation thereafter.

Considering the extensive number of changes included in this revision, the bulletin was completely revised and does not include change bars.

AN APPROPRIATE ENTRY SHOULD BE MADE IN THE AIRCRAFT LOGBOOK UPON ACCOMPLISHMENT
IF OWNERSHIP OF AIRCRAFT HAS CHANGED PLEASE FORWARD TO NEW OWNER

ALERT SERVICE BULLETIN
Bell Helicopter **TEXTRON**

A Subsidiary of Textron Inc.

NO. 427- 06-15

DATE DEC 14, 2006

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DATE Dec 18- 09

REV A

MODEL AFFECTED: 427

SUBJECT: VERTICAL FIN TO TAIL ROTOR GEARBOX
SUPPORT ATTACHMENT HARDWARE
REPLACEMENT OF.

HELICOPTERS AFFECTED: Model 427 helicopters serial number 56001
through 56078, 58001 and 58002.

Model 427 helicopters serial numbers 56079 and
subsequent and 58003 and subsequent will have the
intent of this bulletin accomplished prior to delivery.

COMPLIANCE: **Part I:** Attachment hardware replacement and
inspection of vertical fin and tail rotor gearbox support
at the next scheduled 50 hour inspection but no later
31 March 2010

Part II: Verification of vertical fin attachment
hardware torque 1 to 5 hours following each
installation and every 150 hours of operation
thereafter.

DESCRIPTION:

Bell Helicopter has received reports of loose vertical fin found during scheduled inspection. Investigation revealed that the current vertical fin attachment hardware may not provide adequate clamp up. This condition, also referred to as "shank-out condition" is caused by use of a bolt / washer combination which allows the nut to bind on the imperfect threads on the bolt before the correct clamp up is obtained.

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Since the release of the original bulletin, Bell Helicopter has received additional reports of broken bolts and loose vertical fin found during scheduled inspection. The loss of torque of the attaching hardware is attributed to possible incorrect hardware installation and torque application.

Revision A of this bulletin requires a vertical fin to gearbox support hardware change along with a one time inspection of the fin and the gearbox support required to detect possible damage associated with reported condition. The bulletin also requires clean-up of the vertical fin and gearbox support bolt holes to provide installation of vertical fin attaching bolts without any restriction.

In addition, this bulletin introduces a vertical fin attachment hardware torque check 1 to 5 hours following each installation and every 150 hours of operation thereafter.

APPROVAL:

The engineering design aspects of this bulletin are Transport Canada Civil Aviation (TCCA) approved.

MANPOWER:

Approximately 5.0 man-hours are required to complete this bulletin. Man-hours are based on hands-on time, and may vary with personnel and facilities available.

WARRANTY:

Owners / Operators of Bell 427 Helicopters who comply with the instructions in this Bulletin will be eligible to receive a credit for the replacement parts outlined under the required material section.

To receive this credit:

- Purchase the required parts from an approved BHTI supply source.
- Comply with the instructions contained in this bulletin no later than March 31, 2010
- Submit a completed malfunction report to BHTI Warranty no later than 30 days after completion of this bulletin.

- NOTE-

Customers who fail to comply with the instruction in this bulletin, after March 31, 2010 are not eligible for the special warranty credit provisions listed above.

MATERIAL:

Required Material:

The following material is required for the accomplishment of this bulletin and may be obtained through your Bell Helicopter Textron Supply Center.

<u>Part Number</u>	<u>Nomenclature</u>	<u>Quantity</u>
NAS 6604-30 (Note 1)	Bolt	4
140-009D18C48	Washer	4
MS 21042L4	Nut	4
NAS 1149DO432K	Washer	4
NAS 1149DO463K	Washer	20

Note 1: If the tail rotor gearbox support bore(s) have been repaired by the addition of bushing(s), in order to prevent the presence of bolt threads within the bushing(s) inside diameter, vertical fin attaching bolt(s) P/N NAS-6604-32 will have to be ordered in lieu of bolt(s) P/N NAS 6604-30.

Consumable Material:

The following material is required to accomplish this bulletin, but may not require ordering, depending on the operator's consumable material stock levels. This material may be obtained through your Bell Helicopter Textron Supply Center.

<u>Part Number</u>	<u>Nomenclature</u>	<u>Quantity</u>	<u>Reference</u>
CA1000 6OZ (NOTE 1)	Compound	6 OZ	C-586

NOTE 1: Mastinox 6856K (C-128) may be used as an alternate. Mastinox is available from Bell Helicopter Supply Centers under P/N: XMAS6856K/160CTG or from any Aviation Supplies stores.

SPECIAL TOOLS:

None required

WEIGHT AND BALANCE:

Not affected

ELECTRICAL LOAD DATA:

Not affected

REFERENCES:

BHT-427-MM, Chapter 5
BHT-427-MM, Chapter 53
BHT-427-IPB, Chapter 53

PUBLICATIONS AFFECTED:

BHT-427-MM, Chapter 5
BHT-427-MM, Chapter 53
BHT-427-IPB, Chapter 53

ACCOMPLISHMENT INSTRUCTIONS:

PART I: Attachment hardware replacement and inspection of vertical fin and tail rotor gearbox support

1. Remove vertical fin. Refer to BHT-427-MM chapter 53-00-00 paragraph 53-49. Discard all hardware.
2. Visually inspect inboard and outboard surfaces of the vertical fin for cracks, elongated bolt holes, fretting, distortion, and corrosion paying special attention to the area where it contacts the tail rotor gearbox support. Refer to Figure 1 for inspection area. If any damage is detected, contact Product Support Engineering.
3. Visually inspect all four (4) attachment legs of the tail rotor gearbox support for cracks, fretting, bolt holes damage, threads marks, elongation and corrosion. Refer to Figure 2 for details. If any damage is detected, contact Product Support Engineering.
4. In order to obtain a better alignment between the vertical fin and tail rotor gearbox support and facilitate the installation of the retaining bolts, perform the following steps:
 - A) Using a reamer, open up all four (4) tail rotor gearbox support bolt holes to a dimension of 0.253 to 0.256 inch. Following bolt holes clean-up, deburr all holes and edges, remove debris and loose material. Apply chemical film material (C-100) BHT-ALL-SPM) on all bare metal surfaces. Do not apply primer to bolt holes.
 - B) Using a reamer, open up all four (4) vertical fin bolt holes to a dimension of 0.256 to 0.260 inch. Following bolt holes clean-up, deburr all holes and edges, remove debris and loose material. Apply chemical film material (C-100) BHT-ALL-SPM) on all bare metal surfaces. Do not apply primer to bolt holes.

-NOTE-

Do not apply paint to the primed areas where the vertical fin makes contact with tail rotor gearbox support.

-NOTE-

Install NAS1149D0463K washers as required under the nut so that no less than one thread and no more than three threads extend through the nut.

One washer NAS1149DO432K per attachment point can be used to better adjust the total stack-up thickness. If installed this thinner washer must be positioned against the tail rotor gearbox support.

-NOTE-

A minimum quantity of one (1) washer NAS1149DO463K is required between the tail rotor gearbox support and the retaining nut.

-NOTE-

Compound P/N CA1000 (C-586) or Mastinox 6856K (C-128) must be used on attaching hardware for installation of the vertical fin

-NOTE-

If the tail rotor gearbox support bore(s) have been repaired by the addition of bushing(s), in order to prevent the presence of bolt threads within the bushing(s) inside diameter, vertical fin attaching bolt(s) P/N NAS-6604-32 will have to be ordered in lieu of bolt(s) P/N NAS 6604-30.

5. Using new attaching hardware, reinstall vertical fin in accordance with instructions listed in Chapter 53 of BHT-427-MM Revision 12, dated 20 October 2009.
6. Annotate the helicopter records to reflect compliance with Part I of this bulletin.

PART II: SPECIAL AND SCHEDULED INSPECTIONS

SPECIAL INSPECTIONS

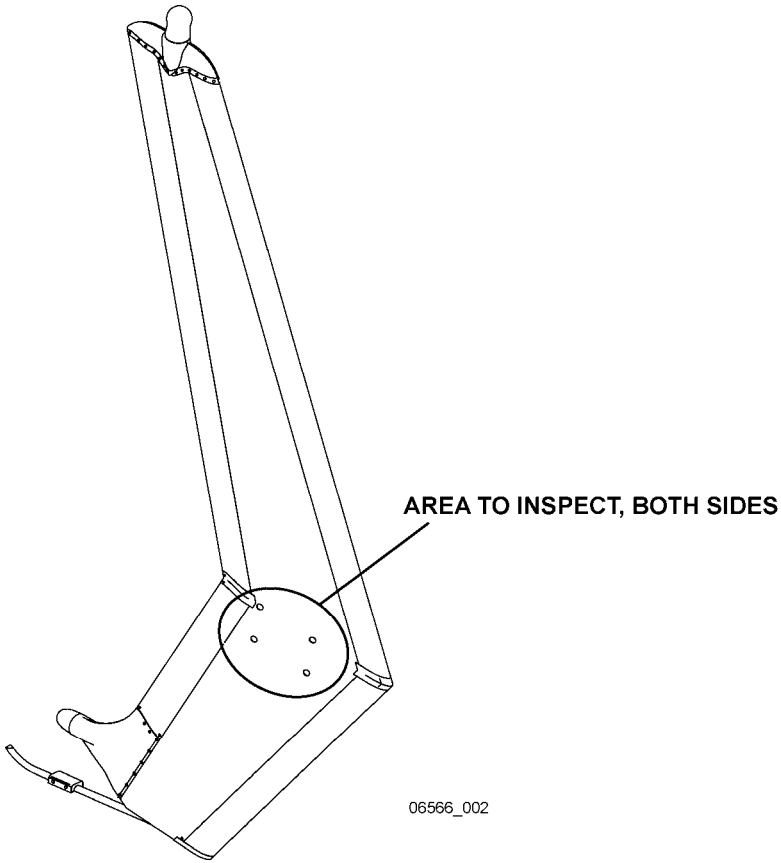
1 to 5 flight hours following vertical fin installation

- 1) Verify torque of vertical fin attachment bolts. Refer to Chapter 5 of BHT-427-MM, Revision 12, dated 20 October 2009. Apply highest value of specified torque range in the tightening direction to the bolt head while retaining the nut. Note that torque check must be repeated every 1 to 5 hours until torque is stabilized.

SCHEDULED INSPECTIONS

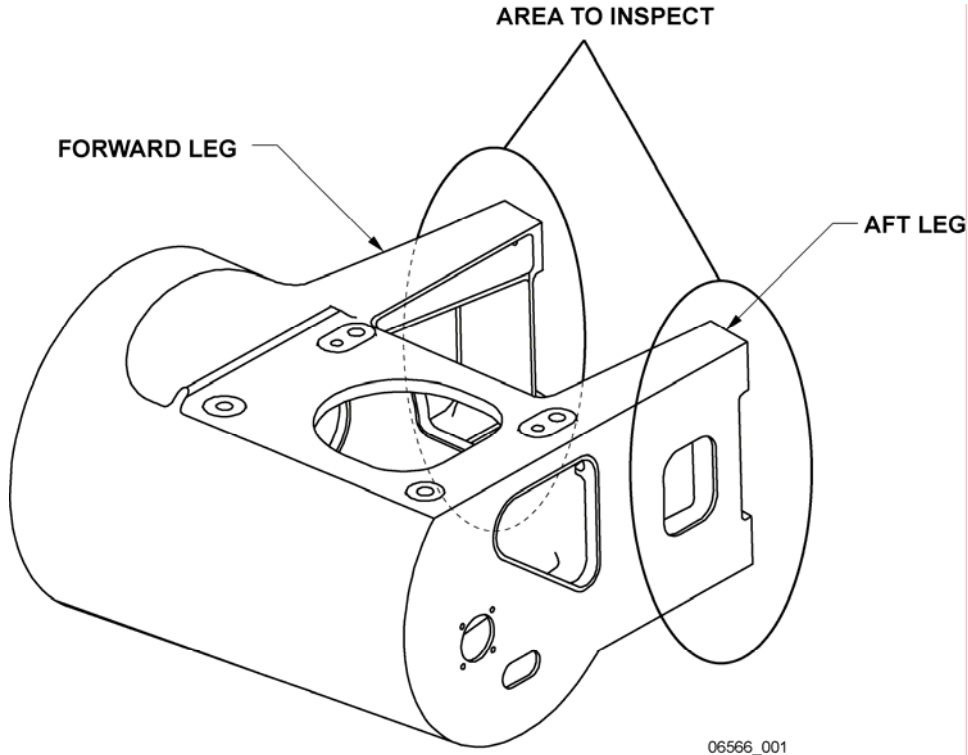
150 flight hours

- 1) Verify torque of vertical fin attachment bolts. Refer to Chapter 5 of BHT-427-MM, Revision 12, dated 20 October 2009. Apply torque in the tightening direction to the bolt head while retaining the nut.
 - a) If the lowest value of the specified torque range is reached without bolt movement, increase the torque to the highest value of specified torque range.
 - b) If the bolt moves below the lowest value of specified torque range, remove the vertical fin to visually inspect inboard and outboard surfaces of the vertical fin and all four (4) attachment legs of the tail rotor gearbox support for cracks, elongated bolt holes, fretting, distortion, and corrosion. Discard all bolts and nuts.



Vertical fin inspection area

Figure 1



Tail rotor gearbox support inspection area

Figure 2