

REVISION NOTICE
Bell Helicopter**TEXTRON**
A Subsidiary of Textron Inc.

DATE SEP 05, 2006

TO: **All Owners/Operators of Bell 407 Helicopters**

SUBJECT: **REVISION "B" TO ALERT SERVICE BULLETIN 407-04-63: (TAIL ROTOR DRIVESHAFT BEARING 407-340-339-101, REPLACEMENT OF)**

Revision "B" to this Alert service bulletin introduces the increase of the lubrication and the inspection interval from 100 hours to 300 hours of operation applicable to tail rotor driveshaft bearing 407-340-339-107.

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. 407-04-63

DATE FEB 10, 2004

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DATE SEP 05, 2006

REV B

MODEL AFFECTED: 407

SUBJECT: TAIL ROTOR DRIVESHAFT BEARING 407-340-339-101/-103, REPLACEMENT OF

HELICOPTERS AFFECTED: PART I and II

Model 407 helicopters serial number 53000 through 53579.

[Model 407 helicopters serial numbers 53580 and subsequent will have bearing 407-340-339-107 installed prior to delivery.]

PART III

Model 407 helicopters serial number 53000 through 53590.

[Model 407 helicopters serial numbers 53591 and subsequent will have decal 31-116-1 installed prior to delivery.]

-NOTE-

This Alert Service Bulletin cancels and supercedes following bulletins:

- ASB 407-01-44, Rev. C dated September 23, 2003,
- ASB 407-01-47, Rev B dated June 24, 2003,
- TB 407-03-43 dated September 22, 2003.

COMPLIANCE:

-CAUTION-

ASB 407-02-54 "OIL COOLER INLET AIRFLOW – IMPROVEMENTS TO" SHALL BE ACCOMPLISHED WHEN YOU INSTALL BEARING 407-340-339-107 ON THE OIL COOLER BLOWER ASSEMBLY.

PART I

OIL COOLER BLOWER

-NOTE-

- Bearing 406-040-339-ALL was previously removed per ASB 407-98-23. ASB 407-98-23 was superseded by ASB 407-01-44 Revision A.
- Bearing 407-340-339-103 was previously removed per ASB 407-01-44.

Replace bearings 407-340-339-101 as installed on the cooler blower assembly within the next 200 hours, but not later than May 31, 2004.

PART II

TAIL ROTOR DRIVESHAFT SEGMENTS

-NOTE-

Bearing 406-040-339-ALL remain on condition and may still be used on the tail rotor driveshaft segment and are not affected by the date in the COMPLIANCE section of this bulletin.

Replace the bearing assembly 407-340-339-101 and /-103 as installed on the segmented tail rotor driveshaft assemblies within the next 200 hours, but not later than May 31, 2004.

PART III

DECAL 31-116-1

For bearing 407-340-339-107 installed on affected helicopters, replace decal 31-112-2 by decal 31-116-1 within 50 flight-hours or 30 days whichever comes first.

DESCRIPTION:

Since original release of this ASB, Bell Helicopter has received two reports of driveshaft bearing failure of older bearing types, and has decided to revisit this subject. This Alert service bulletin is issued to accelerate the compliance date and to offer special retrofit policy price. Adequate Spares are currently on hand and Bell Helicopter wishes to encourage fleet wide retrofit of this improved bearing.

- Mandate the replacement of bearings 407-340-339-101 as installed on the oil cooler blower assembly and bearing 407-340-339-101/-103 as installed in the segmented tail rotor driveshaft assemblies with bearing 407-340-339-107 (PART I and II);
- Provide bearing replacement procedure (PART I and II);

-NOTE-

Inspection schedule and lubrication schedule can vary depending on the bearing location, the bearing part number, and on the accomplishment of the ASB 407-02-54 "OIL COOLER INLET AIRFLOW - IMPROVEMENTS TO".

-NOTE-

PART IV and PART V are required even when PART I and PART II of this bulletin are not implemented.

- Replace old warning lubrication decal 31-112-2 with new decal 31-116-1 that identify Mobil 28 as the only grease approved for the bearing 407-340-339-107 (PART III).
- Provide all bearings inspection schedule and procedure (PART IV);
- Clarify and expand on the bearing lubrication schedule and procedure (PART V).

APPROVAL:

The engineering design aspects of this bulletin are Transport Canada approved.

It is understood that accomplishment of AD2004-10-07 (a) (b) (c) of the compliance section has been previously completed. The installation of bearing P/N 407-340-339-107 as a replacement for bearing P/N 407-340-339-101/103 accomplishment per AD 2004-10-07 with the inspection procedures and lubrication schedules as indicated in Parts IV and V of ASB 407-04-63, Rev. B, is approved by the Manager, Safety Management Group, Rotorcraft Directorate, FAA, by letter dated 8/22/06, as an Alternate Means of Compliance (AMOC) to paragraph (b) of AD 2004-10-07, when the Oil Cooler Inlet Airflow Improvements are incorporated per Bell ASB 407-02-54. **B**

It is considered a terminating action for the 100 hour inspection of AD 2004-10-07 paragraph (b), for U.S. registered Bell Model 407 helicopters.

MANPOWER:

Approximately 4.0 man-hours are required to complete PART I of this bulletin.

Approximately 2.0 man-hours are required to complete PART II of this bulletin.

Approximately 0.5 man-hours are required to complete PART III of this bulletin.

No additional hours are required to complete PART IV and V of this bulletin if accomplished during normal maintenance.

Man-hours are based on hands-on time, and may vary with personnel and facilities-/available.

WARRANTY:

Owners/operators of 407 helicopter's who comply with the instructions outlined in this bulletin will receive a special warranty credit as follows: 407's or Spare parts that will be in warranty during the compliance period of this bulletin will receive 100% credit toward the purchase of the replacement -107 bearings. 407's that are past their warranty period will receive a 60% credit toward the replacement -107 bearings.

To receive this credit:

Purchase the required material from an approved BHTI supply source.
Comply with the instructions contained in this bulletin no later than May 31, 2004.
Submit a completed malfunction report to BHTI Warranty no later that 30 days after completion of this bulletin.

-NOTE-

Customers who fail to comply with the instructions in this bulletin by May 31, 2004 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.

PART I

<u>Part Number</u>	<u>Nomenclature</u>	<u>Quantity</u>
407-340-339-107	BEARING	2

31-116-1	DECAL	2
MS172209	LOCK WASHER	2

PART II

<u>Part Number</u>	<u>Nomenclature</u>	<u>Quantity</u>
407-340-339-107	BEARING	4
31-116-1	DECAL	4

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>Reference</u>
MOBIL 28	GREASE	C-001 (1)
MILC85285TY1,CLEAR	SEALER	C-245

NOTES:

(1) In this application only Mobil 28 per MIL-G-81322 is approved.

SPECIAL TOOLS:

None required

WEIGHT AND BALANCE:

Not affected

ELECTRICAL LOAD DATA:

Not affected

REFERENCES:

BHT-407-MM-5, Rev. 18, 18 August 2003

Chapter 53, Fuselage

BHT-407-MM-5, Rev. 18, 18 August 2003
Chapter 65, Tail rotor Drive

BHT-ALL-SPM, REISSUE, 23 May 2000
Chapter 13, Consumable Materials

PUBLICATIONS AFFECTED:

BHT-407-MM, Rev. 18, 18 August 2003
Chapter 11, Placards
Chapter 12, Servicing
Chapter 65, Tail Rotor Drive

BHT-407-IPB, Rev 3, 6 September 2002
Chapter 11, Placards
Chapter 65, Tail Rotor Drive

ASB 407-01-44, OIL COOLER BLOWER HANGER BEARING 407-340-339-103 –
REPLACEMENT OF, August 09, 2001

ASB 407-01-47, TAIL ROTOR DRIVESHAFT BEARING 406-040-339-ALL, 407-340-
339-101/-103 AND /-107, INSPECTION AND LUBRICATION OF, November 09, 2001

TB 407-03-43, BEARING 407-340-339-107 AND GREASE MOBIL 28 PER MIL-PRF-
81322, INTRODUCTION OF, September 22, 2003

ACCOMPLISHMENT INSTRUCTIONS:

PART I: Replacement of oil cooler blower bearings with 407-340-339-107

1. Make sure ASB 470-02-54 "OIL COOLER INLET AIRFLOW - IMPROVEMENTS TO" is accomplished.

-NOTE-

The bearing part number and serial number are stamped on the metal seal retainer. It is possible to identify the bearing part number with the bearing installed in the bearing hanger.

2. Remove both bearings 407-340-339-101 from the oil cooler blower hangers. Refer to BHT-407-MM-7, Chapter 65.

3. Install two bearings 407-340-339-107 in the oil cooler blower hangers. Refer to BHT-407-MM-7, Chapter 65.

WARNING

PRIOR TO LUBRICATION OF THE BEARING, VERIFY THE CONTENT OF GREASE DISPENSING EQUIPMENT. IF THERE IS PARTIAL SEPARATION OF THE LUBRICATION OIL FROM THE THICKENING AGENT, OIL MAY BE REMIXED THOROUGHLY WITH THE THICKENING AGENT TO RESTORE THE ORIGINAL LOAD CARRYING CAPABILITIES. IF THERE IS A LOSS OF LUBRICATING OIL FROM THE THICKENING AGENT, DISCARD THE ENTIRE CONTENTS OF THE GREASE DISPENSING EQUIPMENT AND REPLACE WITH A SUITABLE SUPPLY OF APPROVED LUBRICANT.

WHEN GREASING BEARING 407-340-339-107 (BEARING WITH ORANGE SEAL ELASTOMER) USE GREASE MOBIL 28 (C-001). MIXING GREASE MOBIL 28 (C-001) WITH ROYCO 13 (C-026) WILL DAMAGE THE BEARING. BEARING MUST BE SCRAPPED IF GREASES HAVE BEEN MIXED.

4. Lubricate the installed bearings with grease, Mobil 28 (MIL-PRF-81322) (PART V of this bulletin).
5. Install the decals 31-116-1 (Figure 1) and apply polyurethane paint sealer, MILC85285TY1,CLEAR (C-245) with a paint brush to protect the decals.
6. Do an operational test (BHT-407-MM-7, Chapter 65).
7. Install cowling (BHT-407-MM-7, Chapter 53).
8. Make an entry in the helicopter technical records to show that PART I of this Alert Service Bulletin is completed.

PART II: Replacement of segmented shaft bearing with 407-340-339-107

-NOTE-

Bearings 406-040-339-ALL remain on condition and may still be used on the tail rotor driveshaft segment and are not affected by the date in the COMPLIANCE section of this bulletin

1. Remove the segmented shaft bearing 407-340-339-101 or /-103 (BHT-407-MM-7, Chapter 65).
2. Install bearing, 407-340-339-107 (BHT-407-MM-7, Chapter 65).
3. Install decals 31-116-1 (Figure 2) and apply a paint sealer, MILC85285TY1,CLEAR (C-245) with a paint brush to protect the decals.

WARNING

PRIOR TO LUBRICATION OF THE BEARING, VERIFY THE CONTENT OF GREASE DISPENSING EQUIPMENT. IF THERE IS PARTIAL SEPARATION OF THE LUBRICATION OIL FROM THE THICKENING AGENT, OIL MAY BE REMIXED THOROUGHLY WITH THE THICKENING AGENT TO RESTORE THE ORIGINAL LOAD CARRYING CAPABILITIES. IF THERE IS A LOSS OF LUBRICATING OIL FROM THE THICKENING AGENT, DISCARD THE ENTIRE CONTENTS OF THE GREASE DISPENSING EQUIPMENT AND REPLACE WITH A SUITABLE SUPPLY OF APPROVED LUBRICANT.

WHEN GREASING BEARING 407-340-339-107 (BEARING WITH ORANGE SEAL ELASTOMER) USE GREASE MOBIL 28 (C-001). MIXING GREASE MOBIL 28 (C-001) WITH ROYCO 13 (C-026) PER MIL-G-25013 WILL DAMAGE THE BEARING. BEARING MUST BE SCRAPPED IF GREASES HAVE BEEN MIXED.

4. Lubricate the installed bearings with grease, Mobil 28 (MIL-PRF-81322) (PART V of this bulletin).
5. Do an operational test (BHT-407-MM-7, Chapter 65).
6. Make an entry in the helicopter Historical Service Record to show that PART II of this Alert Service Bulletin is completed.

PART III: Replacement of old warning lubrication decal 31-112-2 by new decal 31-116-1

1. Remove the tail rotor driveshaft and the aft fairing assembly (BHT-407-MM, Chapter 53).
2. Remove the warning lubrication decals 31-112-2 (NOTE 1, Figure 1 and 2).
3. Install decals 31-116-1 (Figure 1 and 2) and apply paint sealer, MILC85285TY1,CLEAR (C-245) with a paint brush to protect the decals.
4. Re-install the tail rotor driveshaft and the aft fairing assembly (BHT-407-MM, Chapter 53).
5. Make an entry in the helicopter Technical Records to show that PART III of this Alert Service Bulletin is completed

PART IV: Inspection procedures for bearings 406-040-339-ALL and 407-340-339-107

1. Refer to TABLE 1 for the oil cooler blower and segmented driveshaft inspection schedules.
2. Do the roughness check of the bearings installed on the oil cooler blower and segmented driveshaft as follows:

-NOTE-

It is not necessary to disconnect any shaft to do this check.

- a. Remove the cowling to get access to the oil cooler blower and segmented driveshaft hanger bearings.

CAUTION

DO NOT TOUCH HANGER BEARINGS IMMEDIATELY AFTER ENGINE SHUTDOWN. WAIT A SHORT PERIOD OF TIME, AND THEN EXERCISE CAUTION TO AVOID BURNS.

- b. Inspect for tears in the bearing seals. Bearings, 406-040-339-ALL, have a brown elastomer seal, 407-340-339-107, have an orange elastomer seal.

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- c. Rotate the main rotor to turn the tail rotor drive system. While it is turning, check for indication of bearing roughness at each hanger assembly supporting each segmented shaft. You can detect indications of abnormal roughness by feel, by placing your hand on the bearing hanger as the segmented shafts are turning.
- d. Examine for color change of the accumulated grease that has been expelled from around the seal during the operation:
 - 1) Bearings, 406-040-339-ALL and 407-340-339-107, use Mobil 28 (C-001) grease that is normally red-purple as it is injected in the bearing, but turns black when the bearing is damaged.
- e. Examine the grease for indication of visible metal particles.
- f. If no indication of roughness is detected, if the expelled grease has not turned black, if you see no metal in the expelled grease, and if the bearing seal is intact, the bearing is acceptable for return to service.
- g. If you detect, or suspect roughness of a bearing:
 - 1) For the oil cooler blower, disconnect the forward and aft short shaft and rotate the blower shaft manually to confirm the bearing roughness.
 - 2) For the segmented driveshaft, remove the affected segmented driveshaft and rotate the bearing manually to confirm the bearing roughness.
- h. If the bearing is rough, a seal is torn, the expelled grease has turned black, or if you see metal particles in the expelled grease, replace the affected bearing (Refer to BHT-407-MM-7, Chapter 65) and contact:

Bell Helicopter Textron
Product Support Engineering

Email: pselight@bellhelicopter.textron.com

Fax: 450-433-0272

Phone: USA 800-363-8023

Canada 800-361-9305

International (call collect) 450-437-2862

- 3. Make an entry in the helicopter Technical Records to show that PART IV of this Alert Service Bulletin is completed.

PART V: Lubrication procedure for bearing 406-040-339-ALL, 407-340-339-107.

1. Refer to TABLE 2 for the oil cooler blower and segmented driveshaft lubrication schedule.

WARNING

PRIOR TO LUBRICATION OF THE BEARING, VERIFY THE CONTENT OF GREASE DISPENSING EQUIPMENT. IF THERE IS PARTIAL SEPARATION OF THE LUBRICATION OIL FROM THE THICKENING AGENT, OIL MAY BE REMIXED THOROUGHLY WITH THE THICKENING AGENT TO RESTORE THE ORIGINAL LOAD CARRYING CAPABILITIES. IF THERE IS A LOSS OF LUBRICATING OIL FROM THE THICKENING AGENT, DISCARD THE ENTIRE CONTENTS OF THE GREASE DISPENSING EQUIPMENT AND REPLACE WITH A SUITABLE SUPPLY OF APPROVED LUBRICANT.

WHEN GREASING BEARING 406-040-339-ALL (BEARING WITH BROWN SEAL ELASTOMER) AND BEARING 407-340-339-107 (BEARING WITH ORANGE SEAL ELASTOMER) USE GREASE MOBIL 28 (C-001). IF YOU GREASE THE BEARING 406-040-339-ALL AND BEARING 407-340-339-107 WITH GREASE OTHER THAN MOBIL 28 PER MIL-PRF-81322, THE BEARING MUST BE SCRAPPED.

2. Lubricate the bearings 406-040-339-ALL and 407-340-339-107 with Mobil 28 grease (C-001) as follows:

-NOTE-

It is important to make sure that the correct amount of grease is injected in the bearings to eliminate possible over-greasing. A bearing that has been over-greased will run hotter initially and will run hotter for a longer period of time compared to a properly greased bearing. This can cause damage to the bearing components and deteriorate the grease lubricating agents.

- a. Use a lint free cloth and wipe away the dirt and the accumulated grease that has come out from around the seal lips during operation. Apply a light pressure so that the dirt and used grease is not forced back into the bearing.

CAUTION

DO NOT USE AN AIR OPERATED GREASE GUN.

-NOTE-

Prior to lubricate the bearings verify the grease lubricant for the separation of the lubricating oil from the thickening agent (IL GEN-03-93).

- b. Make sure the grease gun you use is thoroughly cleaned of contaminants or other greases.
- c. Use a lint free cloth and clean the hanger grease fitting.

CAUTION

DO NOT ROTATE THE TAIL ROTOR DRIVESHAFT WHEN GREASING THE BEARING. DO NOT ADD GREASE BEYOND WHAT IS DESCRIBED BELOW. OVER-GREASING IS DETRIMENTAL TO BEARING LIFE.

- d. Use a smooth low-pressure stroke and inject the grease into the grease fitting until the first sign of purging is seen. Cease further relubrication at this point.
 - e. Only after the greasing is completed, rotate the tail rotor drive shaft three to four turns. Do not add any additional grease to bearing.
 - f. Use a lint free cloth and clean the excess grease that has come out of the bearing seal plate lips. Apply a light pressure so that the expelled grease is not forced back into the bearing.
3. Make an entry in the helicopter Technical Records to show that PART V of this Alert Service Bulletin is completed.

TABLE 1. Oil cooler blower and segmented driveshaft bearings inspection schedules.

BEARING P/N	OIL COOLER BLOWER	SEGMENTED DRIVESHAFT
406-040-339-ALL	(1)	(2)
407-340-339-107	(3)(4)	(3)
<p>(1) Bearings 406-040-339-ALL shall not be installed at this location.</p> <p>(2) For inspection schedules, refer to the Table 4-2 in chapter 4 of BHT-407-MM.</p> <p>(3) For inspection schedules, refer to the PROGRESSIVE INSPECTION or AIRFRAME PERIODIC INSPECTION in chapter 5 of BHT-407-MM.</p> <p>(4) ASB 407-02-54 "OIL COOLER INLET AIRFLOW - IMPROVEMENTS TO" shall be accomplished prior to installation of bearing 407-340-339-107.</p>		

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TABLE 2. Oil cooler blower and segmented driveshaft bearing lubrication schedule.

BEARING P/N	OIL COOLER BLOWER	SEGMENTED DRIVESHAFT
406-040-339-ALL	(1)	(2)
407-340-339-107	(2)(3)	(2)
<p>(1) Bearings 406-040-339-ALL shall not be installed at this location.</p> <p>(2) For lubrication schedules, refer to the Table 12-2 in chapter 12 of BHT-407-MM.</p> <p>(3) ASB 407-02-54 "OIL COOLER INLET AIRFLOW - IMPROVEMENTS TO" shall be accomplished prior to installation of bearing 407-340-339-107.</p>		

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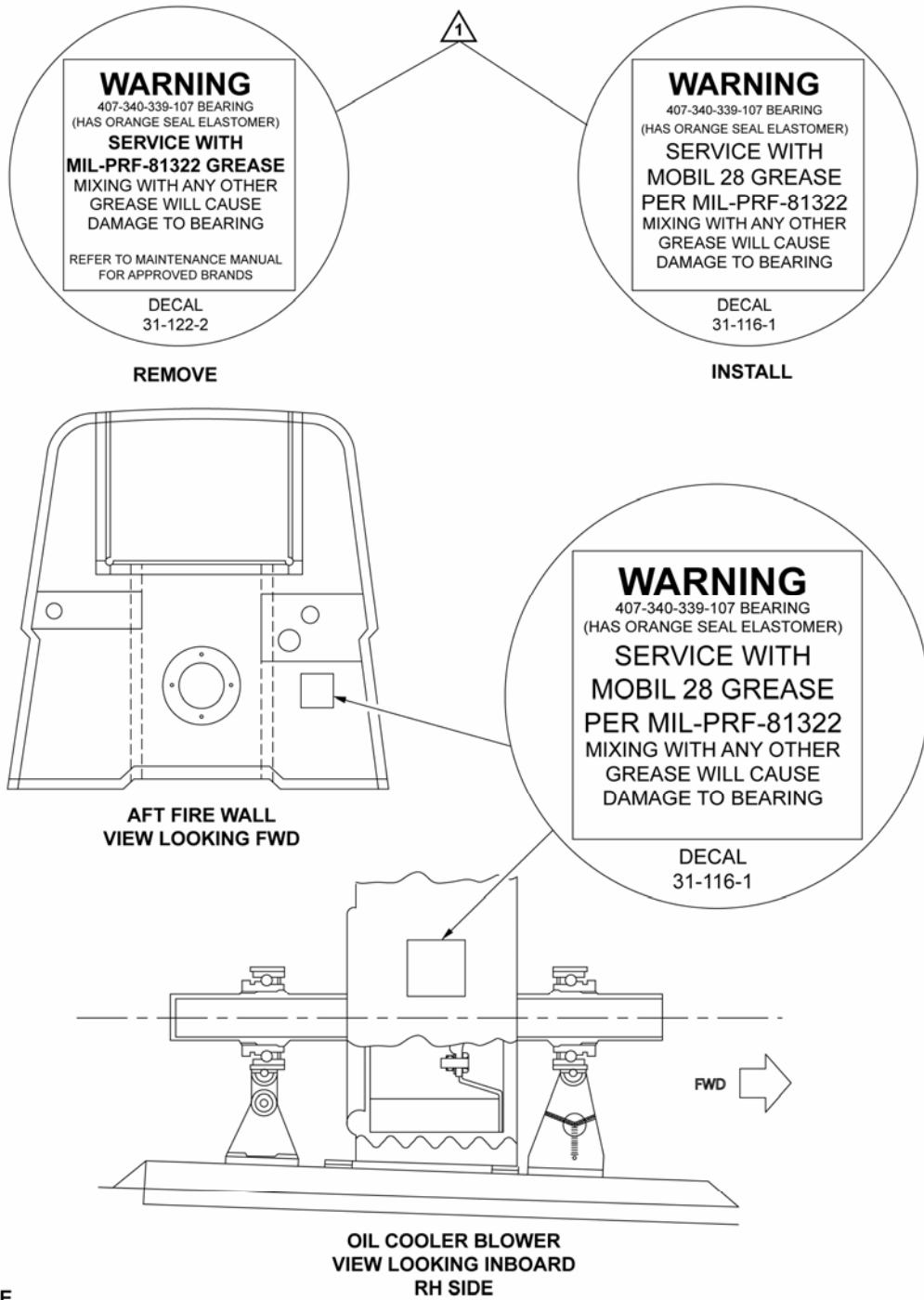
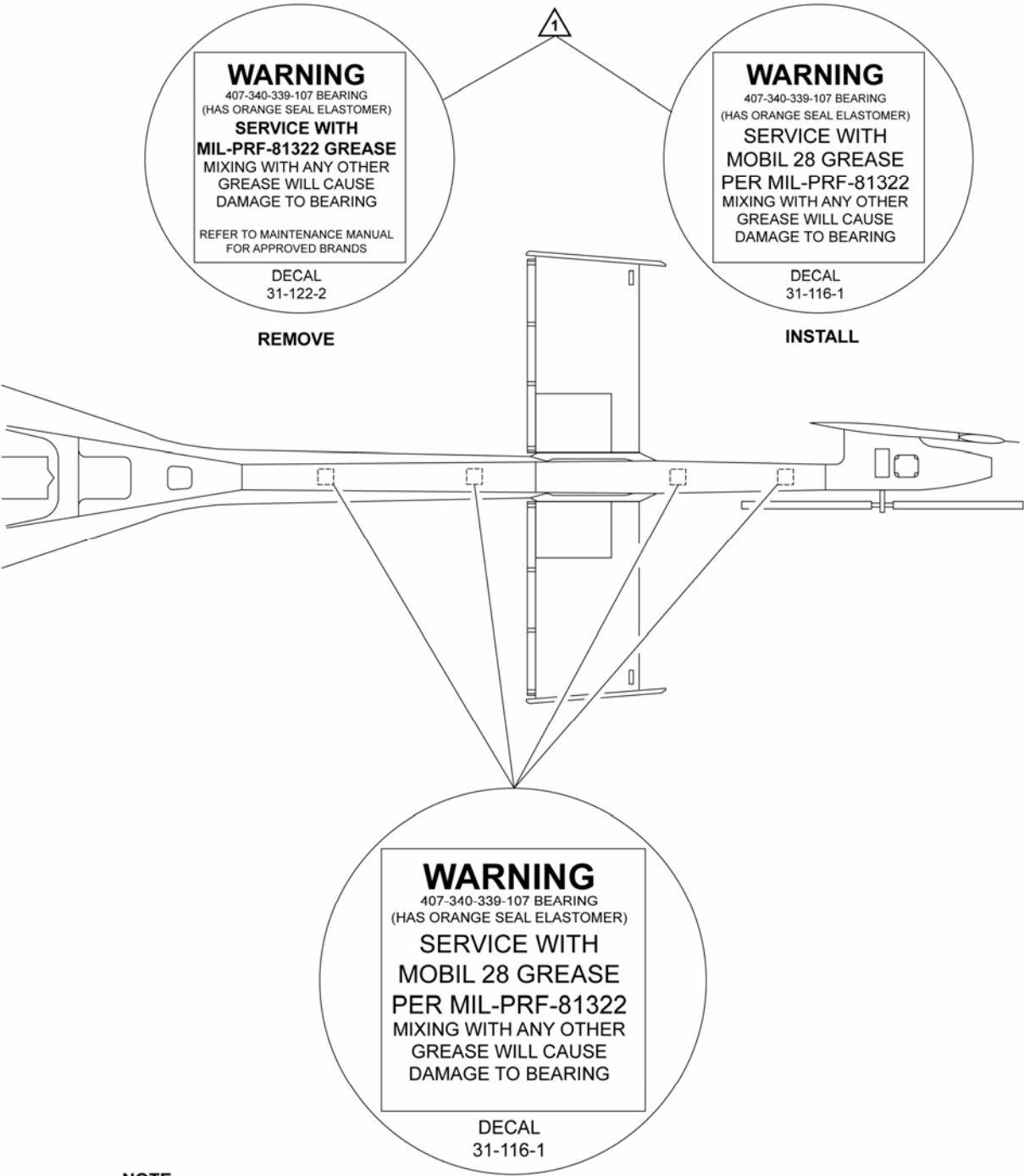


Figure 1. Decal location of blower area



NOTE

1 Decal 31-112-2 shall be replaced by decal 31-116-1.

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Figure 2. Decal location of tailboom area