A Textron Company

TECHNICAL BULLETIN 505-21-27

14 January 2021
Revision A, 13 March 2023

MODEL AFFECTED: **505**

SUBJECT: **RESTRAINT ASSEMBLY (LIVE PYLON), MODIFICATION AND REPAIR OF.**

HELICOPTERS AFFECTED: **Serial numbers 65011 and Subsequent.**

COMPLIANCE: At customer's option.

DESCRIPTION:

Bell has received reports of premature wear of the bearings MS14101-14 installed on the restraint assembly SLS-030-910-109. This Technical Bulletin introduces improved bearings 11-14277P that can be installed in the restraint assembly SLS-030-910-109 which at the same time changes the configuration and part number of the restraint assembly to SLS-030-910-115FM.

Operators complying with this technical bulletin will benefit from an increased detailed inspection interval of the restraint assembly. The 50-hour/1-year inspection requirement for the restraint assembly SLS-030-910-109 from the 505 maintenance planning information (505-MPI) DMC-505-A-05-41-00-05A-000A-A task 63-32-00-001 is no longer applicable. The 300-hour/1-year inspection requirement for the restraint assembly SLS-030-910-115 from the 505-MPI DMC-505-A-05-41-00-20A-000A-A task 63-32-00-005 becomes applicable.

Revision A of this Technical Bulletin; divides the accomplishment instructions in three parts to improve instructions clarity; changes the instructions for the upgrade from the SLS-030-910-109 to SLS-030-910-115FM; provides instructions to replace the 11-14277P bearings in the SLS-030-910-115 / -115FM restraint assembly; changes the product used to install the bearings from epoxy polyamide primer to anaerobic sealants; and increases the maximum bearing bore dimension tolerance for bearing installation.

Applicability of this bulletin to any spare part shall be determined prior to its installation on an affected helicopter.

APPROVAL:

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

CONTACT INFO:

For any questions regarding this bulletin, please contact:

Bell Product Support Engineering
Tel: 1-450-437-2862 / 1-800-363-8023 / productsupport@bellflight.com

MANPOWER:

Approximately 6 man-hours are required to complete this bulletin. This estimate is based on hands-on time and may vary with personnel and facilities available.

WARRANTY:

There is no warranty credit applicable for parts or labor associated with this bulletin.

MATERIAL:

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

Part Number	Nomenclature	Qty (Note)
11-14277P	Bearing	2
NAS1149E0863P	Washer	2

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 Supply Center.

Part Number	Nomenclature	Qty (Note)	Reference *
2010-05847-00	Anaerobic Sealant (Loctite 089/Grade AA)	50 CC (1)(2)	C-320
2010-00106-00	Anaerobic Sealant (Loctite 635)	50 CC (1)(2)	C-356
2010-05977-00	Anaerobic Sealant Primer (Loctite 7471/Grade T)	6 OZ (1)(2)	C-320
2010-00053-00	Anaerobic Sealant Primer (Loctite 7649/Grade N)	4.5 OZ (1)(2)	C-320
2230-00451-00	Epoxy Polyamide Primer	1 OZ (1)	C-204
2110-06257-00	Methyl-Ethyl-Ketone (MEK)	1 Gal (1)	C-309

5040-60115-00	Abrasive Pad	1 Roll (1)	C-407
CCCC0046	Cheesecloth	1 SQ FT (1)	C-486
2000-01976-00	Devcon 2-Ton	50 ML (1)	C-298
2100-00061-00	Acetone	1 Gal (1)	C-316
2110-00009-00	Drycleaning Solvent	5 Gal (1)	C-304
2230-10536-00	Torque Seal Lacquer	1 OZ (1)(3)	C-049

* C-XXX numbers refer to the consumables list in the BHT-ALL-SPM, Standard Practices Manual

NOTES:

1. Quantity indicated is the format that the product is delivered in. Actual quantity required to accomplish the instructions in this bulletin may be less.
2. Only specified anaerobic sealant or anaerobic sealant primer is acceptable.
3. The part number specified is for torque seal lacquer C-049 color yellow. Any alternate color of C-049 is acceptable.

SPECIAL TOOLS:

Part Number	**Nomenclature**
RST1017 (or Alternate)	Bearing Staking Tool
RKC4101-14DP (or Alternate)	Bearing Cutting Tool

Accomplishment of this Technical Bulletin requires work aids that can be manufactured by a local machine shop or locally using guidance from the Standard Practice Manual (BHT-ALL-SPM, Chapter 9). Work aids will be required to remove, install, and proof load the bearings.

WEIGHT AND BALANCE:

Not affected.

ELECTRICAL LOAD DATA:

Not affected.

REFERENCES:

BHT-505-MPI, Maintenance Plaining Information Chapter 5
BHT-505-IPB, Illustrated Parts Catalog Chapter 63
BHT-505-MM, Maintenance Manual Chapter 63
BHT-ALL-SPM, Standard Practices Manual Chapter 9

PUBLICATIONS AFFECTED:

BHT-505-IPB, Illustrated Parts Catalog Chapter 63
BHT-505-MM, Maintenance Manual Chapter 63

ACCOMPLISHMENT INSTRUCTIONS:

PART I: Modification of the staking and cutting tools

1. Prior to accomplishing the modification or repair of the restraint assembly, the staking and cutting tools must be modified.

   a. Modify the bearing staking tool as follow:

      (1) Remove the pilot of the staking tool (Figure 1, sheet 1 of 3).

      (2) Reduce the outside diameter of the pilot of the staking tool to 0.4960 to 0.4980 inch (12.598 to 12.649 mm). As an alternate, a bushing can be manufactured to fit the staking tool with an outside diameter of 0.4960 to 0.4980 inch (12.598 to 12.649 mm), inside diameter that fits the tool and a length of 0.5480 to 0.5490 inch (13.919 to 13.945 mm) (Figure 1, sheet 1 of 3).

      (3) Re-install modified pilot or manufactured bushing on the staking tool.

   b. Modify the bearing cutting tool as follow:

      (1) Remove the pilot of the cutting tool (Figure 1, sheet 2 of 3).

      (2) Reduce the diameter of the pilot of the cutting tool to a diameter of 0.4960 to 0.4980 inch (12.598 to 12.649 mm). As an alternate, a bushing can be manufactured to fit the cutting tool with an outside diameter of 0.4960 to 0.4980 inch (12.598 to 12.649 mm), inside diameter that fits the tool and same length as the pilot of the cutting tool (Figure 1, sheet 2 of 3).

      (3) Re-install modified pilot or manufactured bushing on the cutting tool.

      (4) As an alternate, a commercial cutting tool (hole saw) can be used with a bushing (Figure 1, sheet 3 of 3). The cutting tool outside diameter must be 1.5625 +0.0000 / -0.0005 inches (39.687 +0.000 / - 0.013 mm). The bushing must have an internal diameter that fits the pilot of the cutting tool and an outside diameter of 0.4960 to 0.4980 inch (12.598 to 12.649 mm). The bushing length must be the same length as the pilot of the cutting tool (Figure 1, sheet 2 of 3).

   c. Work aids will be required to remove, install, and proof load the bearings. Work aids should be manufactured by a local machine shop or locally using guidance from the Standard Practice Manual (BHT-ALL-SPM, Chapter 9).

PART II: Modification of the SLS-090-910-109 restraint assembly

1. If the restraint assembly is not installed on the helicopter, go to step 4.

2. Prepare the helicopter for maintenance.

3. Remove the restraint assembly from the helicopter (DMC-505-A-63-30-01-00A-520A-A).

4. Prepare the restraint assembly and tooling for the bearing replacement.

   a. Remove the two MS14101-14 bearings from the lower restraint assembly (BHT-ALL-SPM, Chapter 9, Paragraph 9-5), as follows;

CAUTION

Do not cut the roll staked lip completely to avoid damaging the lower restraint bearing bore and staking chamfer.

CAUTION

Ensure the support tools only contact the lower restraint assembly flat surfaces, otherwise the lower restraint assembly may be damaged.

   (1) Use the previously modified bearing cutting tool P/N RKC4101-14DP or alternate to carefully cut part of the roll staked lip, near its base, on the upper side of the MS14101-14 bearing before pressing the bearing out of the lower restraint assembly.

   (2) Use work aids to support each side of the bearing while cutting the lip and pressing the bearing out of the lower restraint assembly.

   b. Thoroughly clean the lower restraint assembly bearing bores with a clean cheesecloth (C-486) moistened with Acetone (C-316) or MEK (C-309).

   c. Inspect the lower restraint assembly bearing bores and surrounding areas for any damage that may have occurred while removing the bearings MS14101-14. If any damage is found, contact Bell Product Support Engineering (productsupport@bellflight.com) for damage limits.

   d. Install the two 11-14277P bearings in the lower restraint assembly. Install one bearing at a time as follows:

CAUTION

Extreme care must be exercised to avoid any contamination of bearing during all phases of handling and installation.

-NOTE-

Bore dimensions must be measured at a minimum of 4 locations and at different heights to determine the maximum dimension.

(1) Measure the bearing bores of the lower restraint assembly. The maximum allowable bore diameter is 1.5638 inch (39.72 mm). If any bore diameter measurements are beyond the acceptable limits go to step (2). If all bore diameter measurements are within acceptable limits go to step (3).

(2) Contact Product Support Engineering (productsupport@bellflight.com) for a possible expanded repair, providing the following information:

(a) In the subject line of the e-mail, include the restraint assembly part number and serial number and the Technical Bulletin number.

(b) Complete the structural repair request form found in the General Information Letter GEN-22-154 and attach it to the e-mail.

(3) If the maximum bore diameter measured is at or below 1.5628 inch (39.695 mm) go to step (4). If the maximum bore diameter measured is above 1.5628 inch (39.695 mm) but below the maximum allowable bore diameter of 1.5638 inch (39.72 mm) go to step (5).

-NOTE-

Anaerobic sealant primer (C-320, Loctite 7471/Grade T) cure time is 30 minutes. Anaerobic sealant primer (C-320, Loctite 7649/Grade N) cure time is 6 hours. Loctite 7471/Grade T can be used as an alternate to Loctite 7649/Grade N.

(4) Thoroughly clean the two 11-14277P bearings with a clean cheesecloth (C-486) moistened with Acetone (C-316) or MEK (C-309). Apply anaerobic sealant primer (C-320, Loctite 7649/Grade N) to the outside diameter of the bearing and to the mating bore of the restraint assembly. Wait two to three minutes. Apply the anaerobic sealant (C-320, Loctite 089/Grade AA) to the surfaces where the anaerobic sealant primer was applied. Avoid excessive application of sealant. Go to step (6).

(5) Thoroughly clean the two 11-14277P bearings with a clean cheesecloth (C-486) moistened with Acetone (C-316) or MEK (C-309). Apply anaerobic sealant primer (C-320, Loctite 7649/Grade N) to the outside diameter of the bearing and to the mating bore of the restraint assembly. Wait two to three minutes. Apply anaerobic sealant (C-320, Loctite 635) to the surfaces where the anaerobic sealant primer was applied. Avoid excessive application of sealant.

CAUTION

During bearing installation, make sure pressure is only applied to the outer race. Do not apply pressure to the inner race or spherical ball of the bearing or damage may occur.

(6) While the anaerobic sealant is wet, press the new bearing into the restraint assembly with the bearing removal and installation tool.

-NOTE-

The bearing can only be installed one way since one side of the bearing is manufactured with a shoulder (Figure 2, sheet 2 of 2). The shoulder side of the bearing must be installed against the chamfer in the bottom side of the bearing bore on the bottom side of the restraint assembly.

(a) The bearing must be pressed into the restraint until the shoulder of the bearing is completely seated against the chamfer of the restraint before being roll staked. Bearing staking should be done on the upper side of the restraint assembly only.

(7) Install the RST1017 roll staking tool in a hand-fed drill press. Set the spindle to a speed of 200 to 350 RPM.

CAUTION

Do not let the bearing overheat during staking (spinning). If it becomes uncomfortable to hold the bearing with bare hands, the bearing is damaged and must be replaced.

(8) After the press drill is started, roll stake the non-staked upper end of the bearing.

-NOTE-

The maximum gap allowed between the lip of the bearing and the chamfer of the hole after staking the bearing is 0.005 inch (0.127 mm) (Figure 4). To reduce the possibility of axial bearing displacement when performing the proof load after staking the bearing, the gap should be as close as possible to 0.000 inch (0.000 mm).

(a) Carefully apply a small quantity of oil to the area of staking and to the staking rollers immediately prior to staking. Do not let any oil go in the areas of the bearing where Loctite was applied, including the bearing bore chamfer.

(b) Apply a steady pressure to the lever of the drill press in 10-second intervals. This will allow the rollers to flow the metal out and move the outer race lip of the bearing onto the chamfer of the part.

(c) Clean any excess sealant and remove oil completely with a clean cheesecloth (C-486) moistened with dry-cleaning solvent (C-304).

(9) Examine the bearing for correct installation as follows:

(a) Make sure the gap between the chamfer of the lower restraint and the staked (rolled) lip of the bearing outer race is between 0.000 inch (0.000 mm) and 0.005 inch (0.127 mm) (Figure 4). As required, stake the bearing again to achieve a 0.000” to 0.005” bearing stake lip gap.

(b) Make sure there is no axial movement or looseness of the bearing outer race in the bore of the lower restraint.

(c) Wait 24 hours to allow the sealant to cure prior to proceeding with the proof load (step (10)).

(10) Proof load the bearing (both sides), after staking and sealant has fully cured, to 1000 lbs +100 lbs / -0 lbs (453.59 kg + 45.36 kg / - 0 kg). Load uniformly (360 degree) about and normal to (+/- 5 degree) lateral surface of outer race. Proof load the staked side of the bearing first. No permanent axial bearing displacement is allowed.

(11) Examine the bearing for smooth rotation and do a check of the no load rotational breakaway torque as follows:

-NOTE-

Bearing shall be rotated by hand a minimum of six revolutions, in the “X” Axis direction, before the breakaway torque is measured.

(a) Secure a bolt to the bearing inner race with nuts and washers. Measure the force required to rotate the bearing in the “X” axis with a dial indicator type torque wrench (Figure 3). Torque shall be 0.5 to 16 in-lbs (0.056 to 1.808 Nm).

(12) Following inspection, put a witness mark across the bearing outer race to lower restraint assembly at one location on each side of the bearing with torque seal lacquer (C-049) or alternate.

(13) Touch up area around staking groove with epoxy polyamide primer (C-204) to ensure no base metal is exposed.

5. Using a vibrating stylus (vibro-etcher), re-identify the lower restraint assembly to the part number SLS-030-913~~-109~~ -121 with the suffix “FM” to indicate “field modified” (Figure 2, sheet 2 of 2). The depth of the marking shall not exceed 0.005 inch (0.127mm). The serial number of a field modified part will not be altered or changed. Apply epoxy adhesive (C-298) on top of vibro-etched marking.

6. Using permanent ink marker, re-identify the restraint assembly and the historical service record of the restraint assembly to the part number SLS-030-910~~-109~~ -115 with the suffix “FM” to indicate “field modified” (Figure 2, sheet 2 of 2). The serial number of a field modified part will not be altered or changed. Apply clear epoxy adhesive (C-298) on top of permanent ink marking.

7. If the restraint assembly was not removed from the helicopter as instructed in step 3, go to step 10.

8. Install the restraint assembly on the helicopter (DMC-505-A-63-30-01-00A-720A-A and DMC-505-A-63-21-02-00A-720A-A).

-NOTE-

Since the 11-14277P bearing ball width is smaller than the original MS14101-14 bearing ball width, it is acceptable to use an additional washer NAS1149E0863P to reduce the gap between the restraint assembly and the lower truss lug. The washer NAS1149E0863P must be installed between the restraint assembly and the lower truss lug.

9. Make an amendment to the aircraft scheduled inspection listing to reflect the inspection requirement of the 505-MPI (chapter 5). The restraint assembly SLS-030-910-115 (DMC-505-A-05-41-00-20A-000A-A task 63-32-00-005) requirement is every 300-hours/1-year instead of every 50-hours/1-year which. The 50 hours/1year requirement is only applicable to the restraint assembly P/N SLS-030-910-109 (DMC-505-A-05-41-00-05A-000A-A task 63-32-00-001).

10. Make an entry in the helicopter logbook and historical service records indicating compliance with Part II of this Technical Bulletin.

PART III: Repair of the SLS-030-910-115 / -115FM restraint assembly

1. If the restraint assembly is not installed on the helicopter, go to step 4.

2. Prepare the helicopter for maintenance.

3. Remove the restraint assembly from the helicopter (DMC-505-A-63-30-01-00A-520A-A).

4. Prepare the restraint assembly and tooling for the bearing replacement.

   a. Remove the two 11-14277P bearings from the lower restraint assembly (BHT-ALL-SPM, Chapter 9, Paragraph 9-5) as follows:

CAUTION

Do not cut the roll staked lip completely to avoid damaging the lower restraint bearing bore and staking chamfer.

CAUTION

Ensure the support tools only contact the lower restraint assembly flat surfaces, otherwise the lower restraint assembly may be damaged.

   (1) Use the previously modified bearing cutting tool P/N RKC4101-14DP or alternate to carefully cut part of the roll staked lip, near its base, on the upper side of the 11-14277P bearing before pressing the bearing out of the lower restraint assembly.

   (2) Use work aids to support each side of the bearing while cutting the lip and pressing the bearing out of the lower restraint assembly.

   b. Thoroughly clean the lower restraint assembly bearing bores with a clean cheesecloth (C-486) moistened with Acetone (C-316) or MEK (C-309).

   c. Inspect the lower restraint assembly bearing bores and surrounding areas for any damage that may have occurred while removing the bearings 11-14277P. If any damage is found, contact Bell Product Support Engineering (productsupport@bellflight.com) for damage limits.

   d. Install the two new 11-14277P bearings in the lower restraint assembly. Install one bearing at a time as follows:

CAUTION

Extreme care must be exercised to avoid any contamination of bearing during all phases of handling and installation.

-NOTE-

Bore dimensions must be measured at a minimum of 4 locations and at different heights to determine the maximum dimension.

(1) Measure the bearing bores of the lower restraint assembly. The maximum allowable bore diameter is 1.5638 inch (39.72 mm). If any of the bore diameter measurements are beyond the acceptable limits go to step (2). If all bore diameter measurements are within acceptable limits go to step (3).

(2) Contact Product Support Engineering (productsupport@bellflight.com) for a possible expanded repair, providing the following information:

(a) In the subject line of the e-mail, include the restraint assembly part number and serial number and the Technical Bulletin number.

(b) Complete the structural repair request form found in the General Information Letter GEN-22-154 and attach it to the e-mail.

(3) If the maximum bore diameter measured is at or below 1.5628 inch (39.695 mm) go to step (4). If the maximum bore diameter measured is above 1.5628 inch (39.695 mm) but below the maximum allowable bore diameter of 1.5638 inch (39.72 mm) go to step (5).

-NOTE-

Anaerobic sealant primer (C-320, Loctite 7471/Grade T) cure time is 30 minutes. Anaerobic sealant primer (C-320, Loctite 7649/Grade N) cure time is 6 hours. Loctite 7471/Grade T can be used as an alternate to Loctite 7649/Grade N.

(4) Thoroughly clean the two 11-14277P bearings with a clean cheesecloth (C-486) moistened with Acetone (C-316) or MEK (C-309). Apply anaerobic sealant primer (C-320, Loctite 7649/Grade N) to the outside diameter of the bearing and to the mating bore of the restraint assembly. Wait two to three minutes. Apply the anaerobic sealant (C-320, Loctite 089/Grade AA) to the surfaces where the anaerobic sealant primer was applied. Avoid excessive application of sealant. Go to step (6).

(5) Thoroughly clean the two 11-14277P bearings with a clean cheesecloth (C-486) moistened with Acetone (C-316) or MEK (C-309). Apply anaerobic sealant primer (C-320, Loctite 7649/Grade N) to the outside diameter of the bearing and to the mating bore of the restraint assembly. Wait two to three minutes. Apply anaerobic sealant (C-320, Loctite 635) to the surfaces where the anaerobic sealant primer was applied. Avoid excessive application of sealant.

CAUTION

During bearing installation, make sure pressure is only applied to the outer race. Do not apply pressure to the inner race or spherical ball of the bearing or damage may occur.

(6) While the anaerobic sealant is wet, press the new bearing into the restraint assembly with the bearing removal and installation tool.

-NOTE-

The bearing can only be installed one way since one side of the bearing is manufactured with a shoulder (Figure 2, sheet 2 of 2). The shoulder side of the bearing must be installed against the chamfer in the bottom side of the bearing bore on the bottom side of the restraint assembly.

(a) The bearing must be pressed into the restraint until the shoulder of the bearing is completely seated on the restraint before being roll staked. Bearing staking should be done on the upper side of the restraint assembly.

(7) Install the RST1017 roll staking tool in a hand-fed drill press. Set the spindle to a speed of 200 to 350 RPM.

CAUTION

Do not let the bearing overheat during staking (spinning). If it becomes uncomfortable to hold the bearing with bare hands, the bearing is damaged and must be replaced.

(8) After the press drill is started, roll stake the non-staked upper end of the bearing.

-NOTE-

The maximum gap allowed between the lip of the bearing and the chamfer of the hole after staking the bearing is 0.005 inch (0.127 mm) (Figure 4). To reduce the possibility of axial bearing displacement when performing the proof load after staking the bearing, the gap should be as close as possible to 0.000 inch (0.000 mm).

(a) Carefully apply a small quantity of oil to the area of staking and to the staking rollers immediately prior to staking. Do not let any oil go in the areas of the bearing where Loctite was applied, including the bearing bore chamfer.

(b) Apply a steady pressure to the lever of the drill press in 10-second intervals. This will allow rollers to flow the metal out and move the outer race lip of the bearing onto the chamfer of the part.

(c) Clean any excess sealant and remove oil completely with a clean cheesecloth (C-486) moistened with dry-cleaning solvent (C-304).

(9) Examine the bearing for correct installation as follows:

(a) Make sure the gap between the chamfer of the lower restraint and the staked (rolled) lip of the bearing outer race is between 0.000 inch (0.000 mm) and 0.005 inch (0.127 mm) (Figure 4). As required, stake the bearing again to achieve a 0.000 inch and 0.005 inch bearing stake lip gap.

(b) Make sure there is no axial movement or looseness of the bearing outer race in the bore of the lower restraint.

(c) Wait 24 hours to allow the sealant to cure prior to proceed with the proof load (step (10)).

(10) Proof load the bearing (both sides), after staking and primer has fully cured, to 1000 lbs +100 lbs / -0 lbs (453.59 kg + 45.36 kg / - 0 kg). Load uniformly (360 degree) about and normal to (+/- 5 degree) lateral surface of outer race. Proof load the staked side of the bearing first. No permanent axial bearing displacement is allowed.

(11) Examine the bearing for smooth rotation and do a check of the no load rotational breakaway torque as follows:

-NOTE-

Bearing shall be rotated by hand a minimum of six revolutions in the “X” axis direction, before the breakaway torque is measured.

(a) Secure a bolt to the bearing inner race with nuts and washers. Measure the force required to rotate the bearing in the “X” axis with a dial indicator type torque wrench (Figure 3). Torque shall be 0.5 to 16 in-lbs (0.056 to 1.808 Nm).

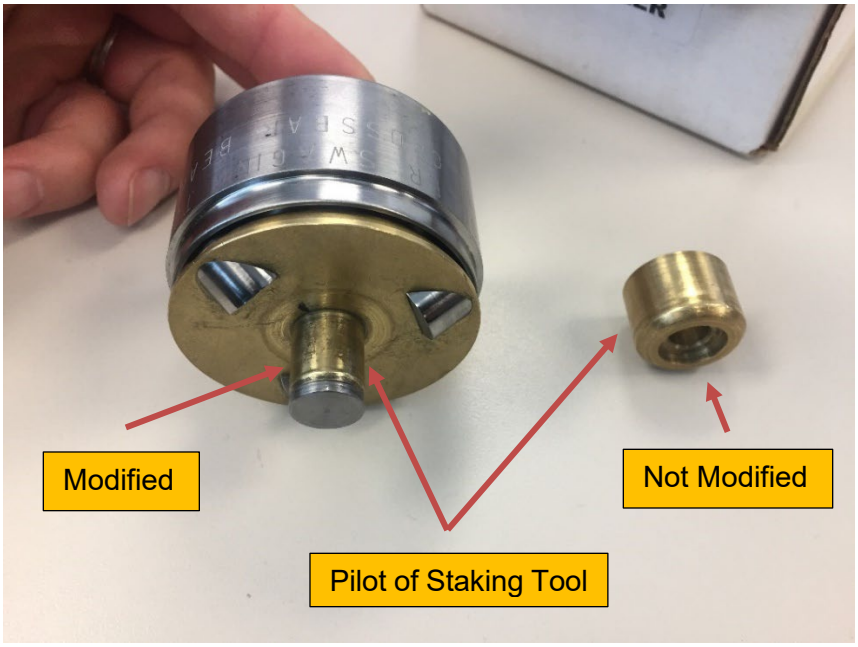
(12) Following inspection, put a witness mark across the bearing outer race to lower restraint assembly at one location on each side of the bearing with torque seal lacquer (C-049) or alternate.

(13) Touch up area around staking groove with epoxy polyamide primer (C-204) to ensure no base metal is exposed.

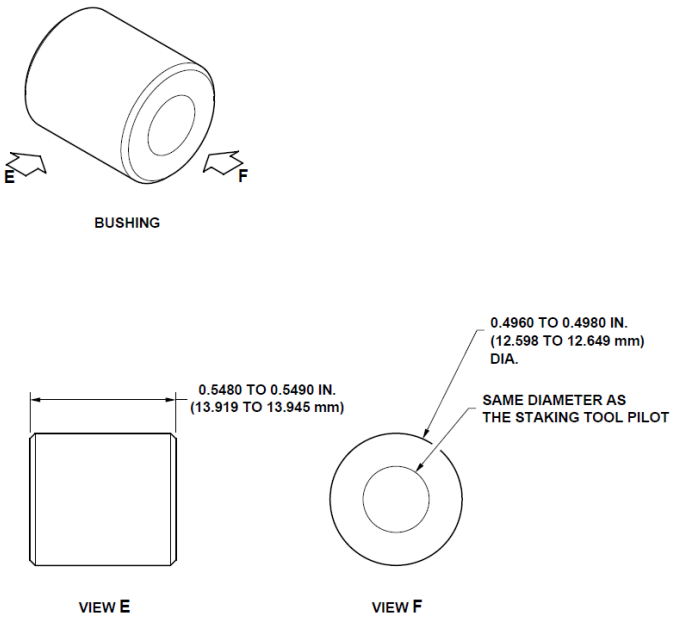
5. If the restraint assembly was not removed from the helicopter as instructed in Step 3, go to step 7.

6. Install the restraint assembly on the helicopter (DMC-505-A-63-30-01-00A-720A-A and DMC-505-A-63-21-02-00A-720A-A).

7. Make an entry in the helicopter logbook and historical service records indicating compliance with this Technical Bulletin.

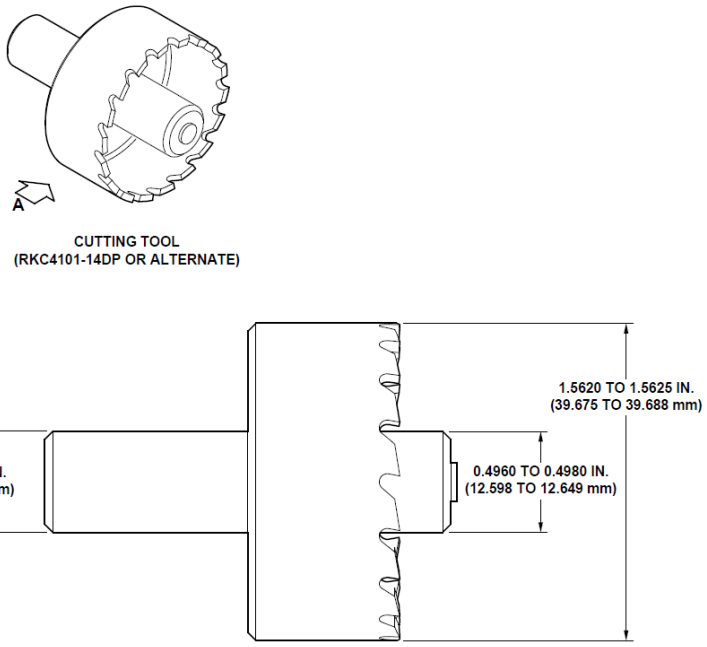


Staking Tool

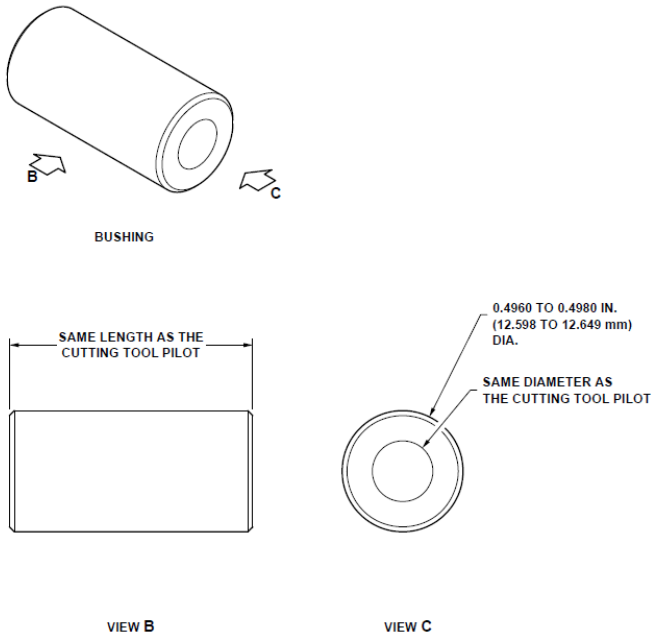


Staking Tool Bushing

FIGURE 1 – Bearing Staking and Removal Tools Modification (Sheet 1 of 3)

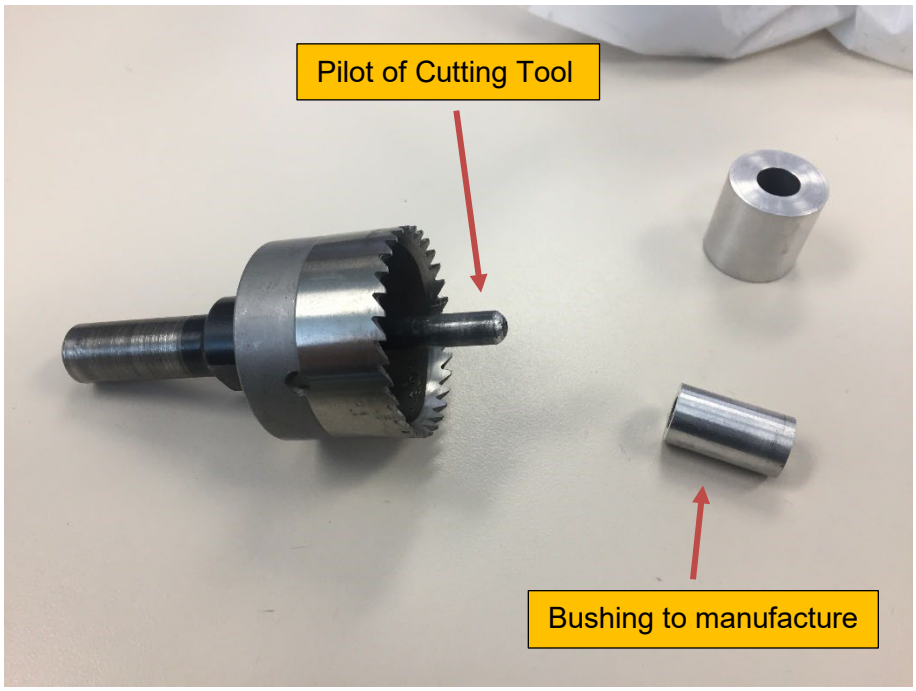


Cutting Tool



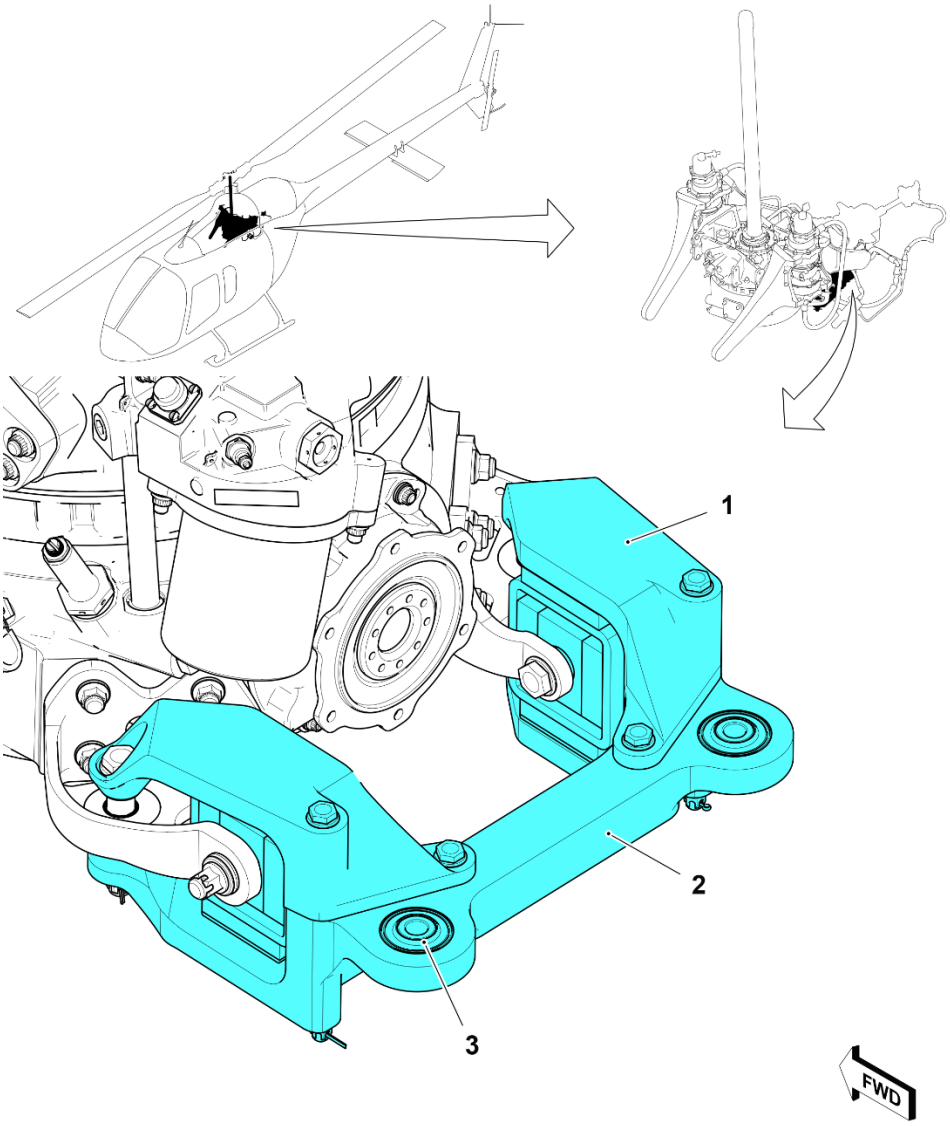
Cutting Tool Bushing

FIGURE 1 – Bearing Staking and Removal Tools (Sheet 2 of 3)



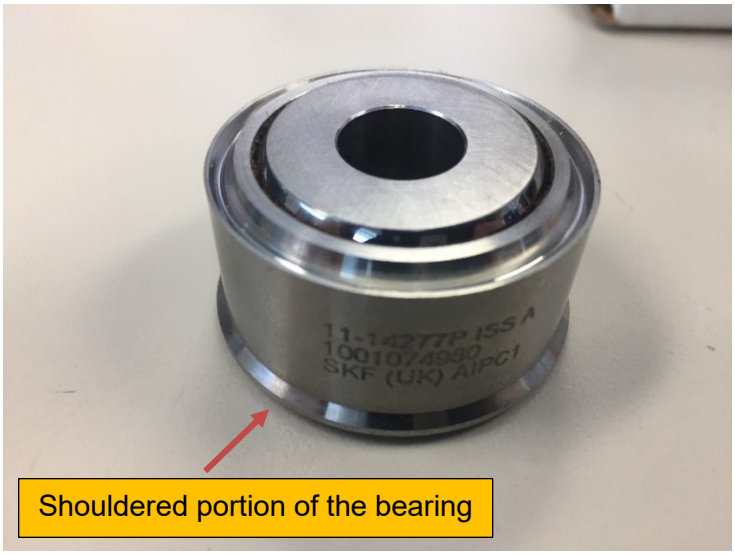
Alternate Commercial Cutting Tool with Bushing

FIGURE 1 – Bearing Staking and Removal Tools (Sheet 3 of 3)

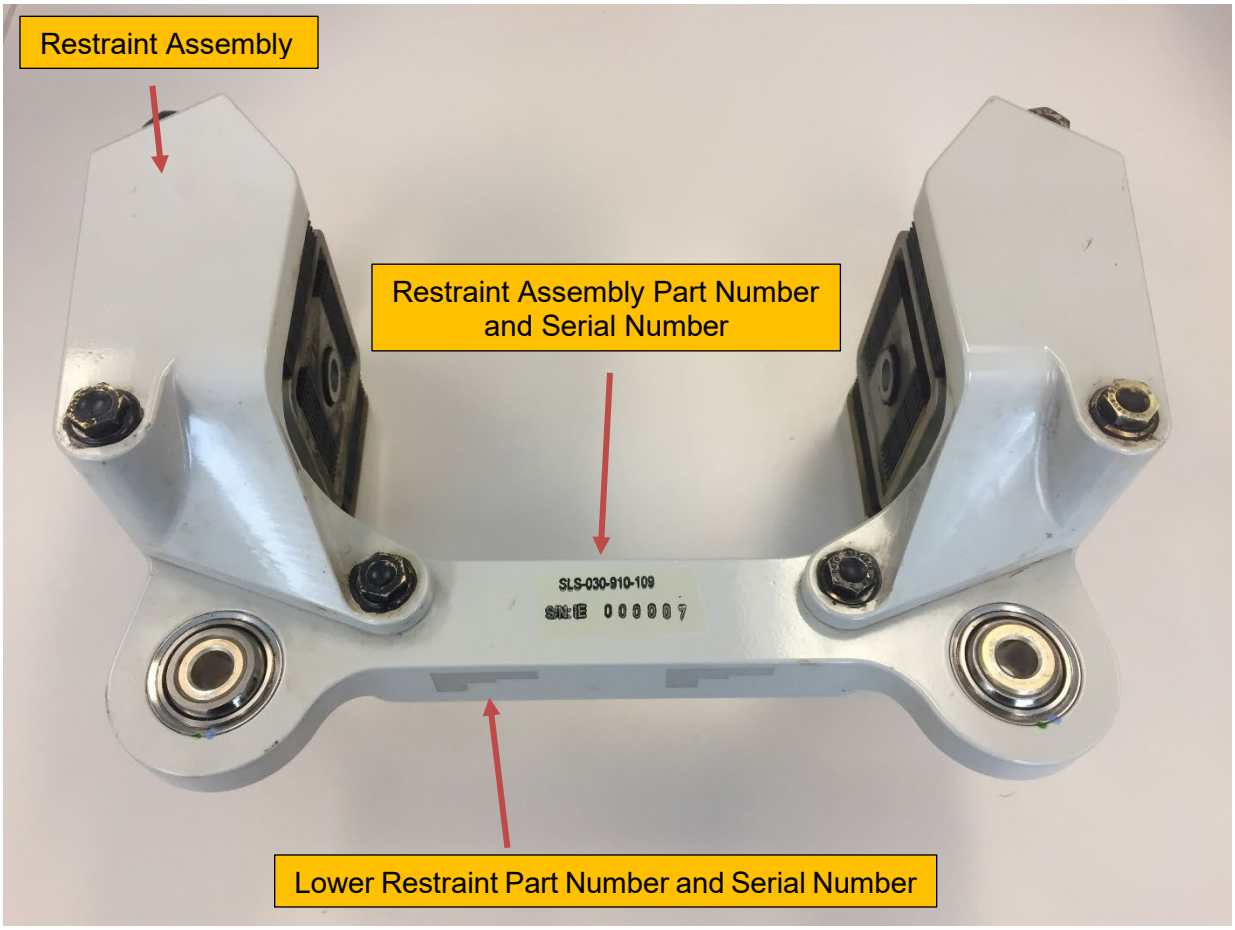


1. Restraint Assembly
2. Lower Restraint Assembly
3. Bearing

FIGURE 2 – Restraint Assembly and Bearing (Sheet 1 of 2)

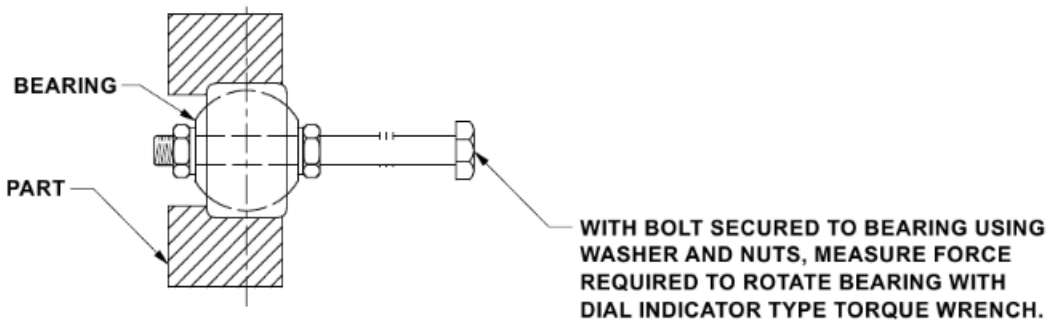


Bearing Part Number 11-14277P

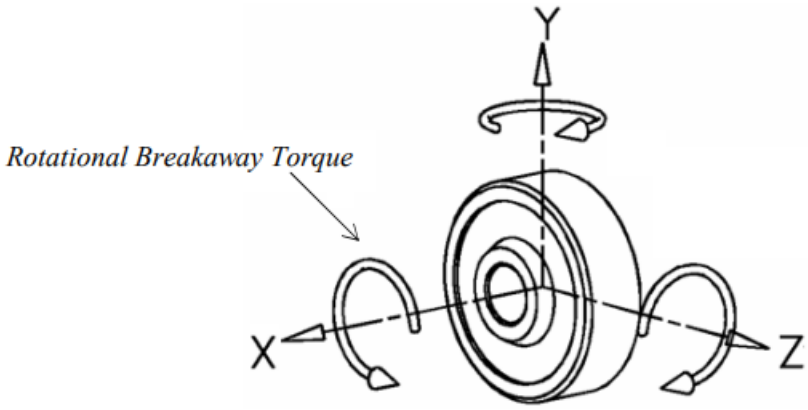


Restraint Assembly

FIGURE 2 – Restraint Assembly and Bearing (Sheet 2 of 2)



No Load Rotational Breakaway Torque



Axis of Rotation

FIGURE 3 – Bearing No Load Rotational Breakaway Torque Check

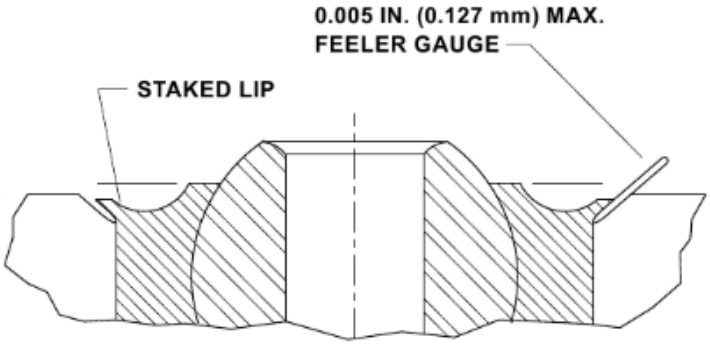


FIGURE 4 – Roll Staking Bearings