

TECHNICAL BULLETIN
Bell Helicopter **TEXTRON**

A Subsidiary of Textron Inc.

No. 214ST-00-164

Date 11-27-00

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MODEL AFFECTED: 214ST

SUBJECT: INTRODUCTION OF NEW COMBINING
GEARBOX ASSEMBLY GENERATOR PAD SEAL,
P/N 209-340-265-103

HELICOPTERS AFFECTED: Model 214ST helicopters.

COMPLIANCE: At customer's option

DESCRIPTION:

A new combining gearbox generator pad oil seal, P/N 209-340-265-103, has been developed to replace the existing P/N 214-040-841-101 seal. The new seal differs from the old one in that it features a case which is totally enclosed in elastomer to retard oil leakage between the seal case outer diameter and the gearbox mating bore. Additionally, the new seal utilizes helical ribs adjacent to the primary sealing lip to minimize oil leakage at the generator's rotating shaft.

Installation/removal procedures for the new seal are slightly different from the old seal and two new special tools have been developed which allow the wear sleeve to be replaced without major disassembly of the gearbox. The revised seal installation procedures and instructions for use of the special tools are provided in the accompanying ACCOMPLISHMENT INSTRUCTIONS.

APPROVAL:

The engineering design aspects of this bulletin are FAA/DER approved.

MANPOWER:

Approximately 2.0 man-hours are required to complete this bulletin. Man-hours are based on hands-on time, and may vary with personnel and facilities available.

MATERIALS:**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>
209-340-265-103	Seal	2
214-040-955-109	Lockwasher	2
214-040-814-105	Wear Sleeve	2
M83248/1-154	Packing	2
M83248/1-210	Packing	2

Consumable Material:

The following material is required to accomplish this bulletin, however this material is considered consumable (bench stock) material and may not require ordering depending on the operators 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>
ACETONE GALLON	Acetone	1	C-316
MIL-G-81322 8OZ	Grease	1	C-001
PD680	Solvent	1	C-304

SPECIAL TOOLS:

T102121-101 Puller Assembly - Wear sleeve Removal
 T102122-101 Pusher Assembly - Wear sleeve Installation
 T103153-105 External Spline Wrench
 T103154-107 Generator Drive Nut Wrench Assembly

WEIGHT AND BALANCE:

Not Affected

ELECTRICAL LOAD DATA:

Not affected

REFERENCES:

BHT-214ST-IPB Illustrated Parts Breakdown
BHT-214ST-CR&O Component Repair and Overhaul

PUBLICATIONS AFFECTED:

BHT-214ST-IPB Illustrated Parts Breakdown
BHT-214ST-CR&O Component Repair and Overhaul

ACCOMPLISHMENT INSTRUCTIONS:1. Seal and Wear Sleeve Removal -

- a. Remove generator in accordance with the 214ST Maintenance Manual, Chapter 63.
- b. Refer to Figure 1. Remove retaining ring (Item 1), adapter (Item 2), and packing (Item 3). Discard packing.
- c. Press old seal (Item 4) from adapter (Item 2). Discard seal.

- NOTE -

Sealant is not used for installation of the new P/N 209-340-265-103 Seal.

- d. Remove any sealant residue from adapter using plastic scraper or other suitable non-metallic tool and a clean cloth moistened with acetone (C-316).
- e. Remove retaining ring (Item 5) and lockwasher (Item 6). Discard lockwasher.
- f. Install P/N T103153-105 external spline wrench to engage internal spline of clutch shaft (Item 9). Install P/N T103154-107 wrench assembly onto nut (Item 7).
- g. Using suitable wrenches, hold T103153-105 to prevent shaft rotation and loosen and remove nut (Item 7).
- h. Refer to Figure 2. Position P/N T102121-101 puller assembly with -107 Plug inside bore of clutch shaft. Install two-piece -109 Clamp over wear sleeve and -105 nut ensuring shoulders of -109 Clamp engage inboard end of wear sleeve and outboard face of -105 Nut. Install -115 sleeve over clamp. Using suitable wrenches, hold -105 nut to prevent rotation and rotate -117 Bolt clockwise to remove wear sleeve. Discard wear sleeve.

- i. Using a clean cloth moistened with dry cleaning solvent (C-304), wipe clean the clutch shaft surface from which the wear sleeve was removed.

2. Wear Sleeve and Seal Installation -

- a. Refer to Figure 2. Prepare P/N T102122-101 Pusher Assembly and new P/N 209-340-265-103 Wear Sleeve for installation as follows:
 - 1) Rotate -107 Bolt counterclockwise until -103 Guide bottoms against inner face of the -109 Bridge.
 - 2) Carefully place new wear sleeve in -103 Guide.
 - 3) Thread -109 Bridge onto the clutch shaft until contact is made with the shaft shoulder. **Hand tighten only.**
 - 4) Rotate -107 Bolt clockwise **by hand** until wear sleeve contacts end of clutch shaft.
 - 5) Viewing through slots in -109 Bridge, ensure wear sleeve is correctly aligned with clutch shaft and has remained seated in -103 Guide.
- b. Using suitable wrenches, hold -109 Bridge to prevent rotation and rotate -107 Bolt clockwise to push wear sleeve onto clutch shaft until -103 Guide bottoms against end of clutch shaft. Outboard end of wear sleeve will have been positioned flush with outboard end of clutch shaft when -103 Guide bottomed out. Rotate -107 Bolt counterclockwise **by hand** to withdraw -103 Guide from wear sleeve, then remove pusher assembly.

CAUTION

Do not scratch or otherwise damage wear sleeve in following operations.

- NOTE -

Items removed to gain access to the seal and wear sleeve which are not to be replaced as part of this procedure, must be subjected to a serviceability inspection. Items found to be not serviceable must be replaced prior to reassembly. Refer to 214ST maintenance publications.

- c. Refer to Figure 1. Install nut (Item 7) on clutch shaft (Item 9). Install T103153-105 External Spline Wrench to engage internal spline of clutch shaft. Position P/N T103154-107 Wrench Assembly onto nut. Using suitable wrenches, hold T103153-105 to prevent shaft rotation and torque nut 80 to 100 foot-pounds. Remove tools and install new Item 6 Lockwasher and reinstall Item 5 Retaining Ring.

- NOTE -

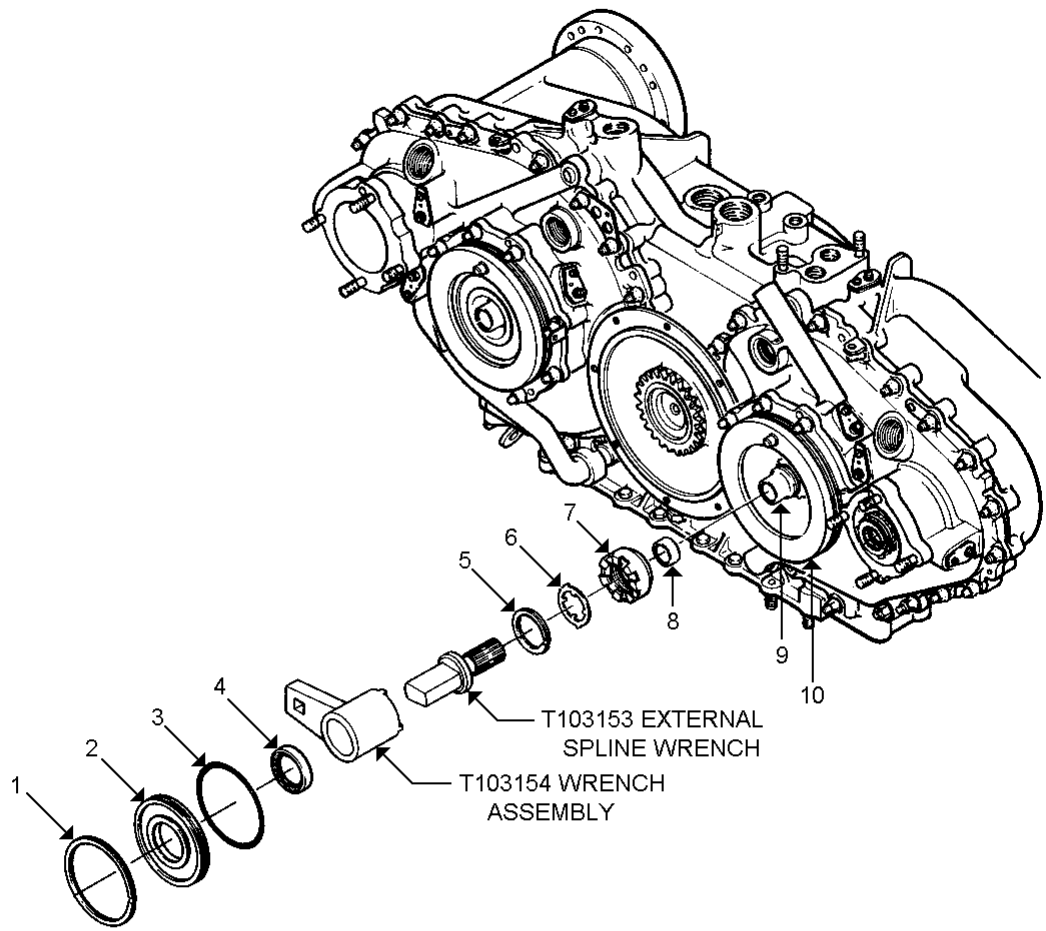
Sealant is not used for installation of the new P/N 209-340-265-103 Seal.

- d. Apply a light coat of combining gearbox lubricating oil to outer case diameter of new P/N 209-340-265-103 Seal.

CAUTION

Do not bend seal case during installation.

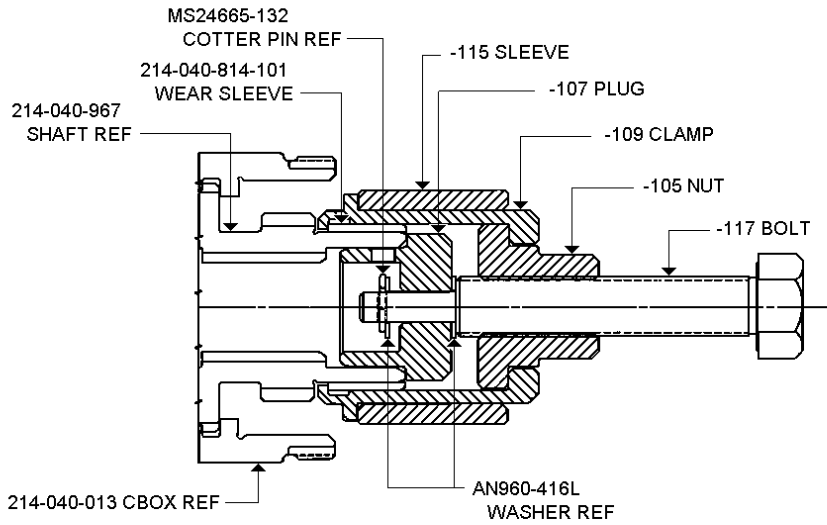
- e. Using a circular, flat work aid, slightly smaller than the seal bore of the P/N 214-040-963-101 Adapter, install seal with the part numbered side against shoulder in bore of adapter.
- f. Fill annular groove between lips of seal 50% to 60% full with clean grease (C-001)
- g. Apply a liberal coating of combining gearbox lubricating oil to the outer sealing surface of wear sleeve (P/N 214-040-814-105).
- h. Lubricate new Packing (Item 3) with combining gearbox lubricating oil and install on adapter (Item 2). Install adapter with seal over the wear sleeve into the generator mounting adapter (Item 10), and install retaining ring (Item 1).
- i. Reinstall generator in accordance with Chapter 63 of the 214ST Maintenance Manual using a new P/N M83248/1-210 Packing on the generator shaft.



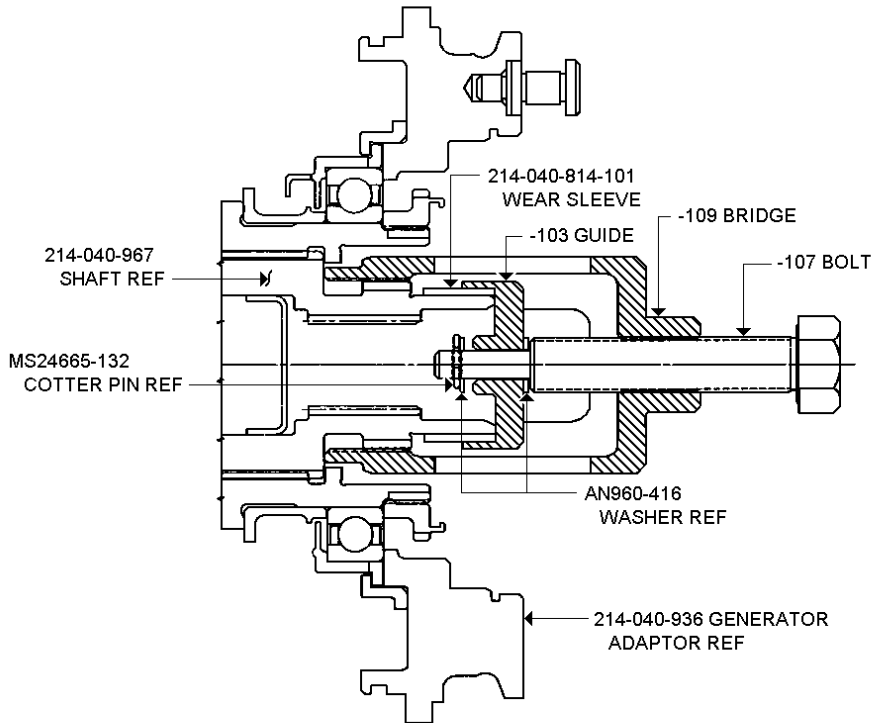
* 214-040-841-101 SEAL IS SUPERSEDED BY
209-340-265-103

- 1. M27426-3194B RETAINING RING
- 2. 214-040-963-101 ADAPTER
- 3. M83248/1-154 PACKING
- 4. 214-040-841-101 SEAL*
- 5. M27426-3147C RETAINING RING
- 6. 214-040-955-109 LOCKWASHER
- 7. 214-040-968-103 NUT
- 8. 214-040-814-105 WEAR SLEEVE
- 9. 214-040-967-101 CLUTCH SHAFT
- 10. 214-040-936-105 GENERATOR ADAPTER

FIGURE 1



T102121-101 PULLER ASSEMBLY
WEAR SLEEVE REMOVAL



T102122-101 PUSHER ASSEMBLY
WEAR SLEEVE INSTALLATION

FIGURE 2