

Bell Helicopter **TEXTRON**

A Subsidiary of Textron, Inc.

December 22, 2000

TO: All Owners/Operators of Bell 214ST Helicopters

**SUBJECT: REVISION "C" TO TECHNICAL BULLETIN 214ST-90-110:
COMBINING GEARBOX ASSEMBLY P/N 214-040-013,
CONFIGURATION CHANGE AND UPGRADE**

Technical Bulletin 214ST-90-110 dated 2-16-90 has been revised to include:

- 1) Additional configuration
- 2) Add combining gearbox installation requirements
- 3) Revise and update configuration notes and references

TECHNICAL BULLETIN

Bell Helicopter **TEXTRON**

A Subsidiary of Textron Inc.

No. 214ST-90-110

Date 2-16-90

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DATE 12-22-2000
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MODEL AFFECTED: 214ST

SUBJECT: COMBINING GEARBOX ASSEMBLY P/N 214-040-013, CONFIGURATION CHANGE AND UPGRADE

HELICOPTERS AFFECTED: Model 214ST Helicopters s/n 28101 through 28200.

COMPLIANCE: At Customer's Option

DESCRIPTION:

This bulletin provides information to operators that have a requirement to upgrade the combining gearbox assembly to the latest configuration. The helicopter certified design and spare parts configuration at time of delivery were as follows:

<u>Helicopter Serial No.</u>	<u>Combining Gearbox Assembly</u>
28101-28122	214-040-013-103
Spare Configuration for -103	214-040-013-107
28123-28149	214-040-013-109
28150-28200	214-040-013-111
Spare Configuration	214-040-013-113
28201-Sub and Spares	214-040-013-115

The use of an earlier dash number combining gearbox assembly on a later helicopter serial number is not authorized and places the helicopter out of conformance with approved FAA type design. The use of a later dash number combining gearbox assembly on an earlier helicopter serial number is restricted and subject to the installation requirements noted in Part II of the ACCOMPLISHMENT INSTRUCTIONS of this bulletin.

Tables 1 and 2 lists the components that comprise the combining gearbox assembly dash number configuration differences. A dash number identification change on the combining gearbox assembly data plate is required when upgrading an assembly configuration. Historical records must be annotated with the new part numbers and retirement times, as applicable.

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APPROVAL:

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

MANPOWER:

No man-hour requirements are stated, as the length of time for upgrade will vary with the upgrade required. Upgrades at time of overhaul should result in no addition to man-hour requirements normally incurred.

MATERIALS:

Reference ACCOMPLISHMENT INSTRUCTIONS. Standard replacement parts for overhaul are not included unless they are affected by a configuration difference. Materials will be available through your Bell Helicopter Supply Center.

SPECIAL TOOLS:

Refer to Model 214ST Component Repair and Overhaul Manual, Chapter 63.

WEIGHT AND BALANCE:

Upgrade to the P/N 214-040-013-109, -111, or -113 configurations will affect helicopter weight and balance. Refer to T.B. 214ST-85-53, weight and balance section.

Upgrade to the P/N 214-040-013-115 configuration will affect helicopter weight and balance. Refer to T.B. 214ST-97-151, weight and balance section.

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ELECTRICAL LOAD DATA:

Not affected

REFERENCES:

BHT-214ST-IPB Illustrated Parts Breakdown

BHT-214ST-CR&O Component Repair and Overhaul

T.B. 214ST-85-51, dated 5-2-85, "Improved Oil Pressure Transmitter, P/N 222-375
-077-111, Introduction Of."

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- T.B. 214ST-85-53, dated 5-23-85, "Combining Gearbox Assembly, P/N 214-040-013 -109, Installation of" (Retrofit Kit P/N 214-704-504-101).
- T.B. 214ST-91-122, dated 2-19-91, "Introduction of New Oil Sight Glass For Combining Gearbox".
- T.B. 214ST-97-151, dated 1-31-97, "Combining Gearbox Assembly, P/N 214-040-013-115, Installation of" (Retrofit Kit P/N 214-704-217-101).
- T.B. 214ST-00-164, dated 11-27-00, "Introduction of New Combining Gearbox Assembly Generator Pad Seal, P/N 209-340-265-103".

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PUBLICATIONS AFFECTED:

None affected

ACCOMPLISHMENT INSTRUCTIONS:

PART I - Configuration Upgrade

1. Disassemble, inspect, and assemble the combining gearbox assembly in accordance with Chapter 63 of BHT-214ST-CR&O.
2. Upgrading the combining gearbox assembly to a later configuration will require incorporating parts as shown in Tables 1 and 2. Parts listed are only those that differ from one configuration to another or which are affected by spare parts replacements. All parts that are to be retained in service shall be submitted to normal overhaul inspections to determine serviceability.
3. The upgraded combining gearbox assembly must have the data plate and historical service record card reidentified to the new part number. The suffix "FM" will be added after the part dash number to indicate "Field Modified". Using a vibrating stylus, line through existing part dash number and mark new dash number + FM adjacent to original dash number. **The serial number of a field modified part will not be altered or changed.**

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Example: Upgrade the Model 214ST combining gearbox assembly P/N 214-040-013-103 to the -115 configuration. Reidentify combining gearbox assembly data plate and historical service record to new part number: 214-040-013-~~103~~-115FM

Retain existing serial number.

4. Upgrade of combining gearbox P/N 214-040-013-103/-107 to the -109/-111/-113 configuration requires modification of the housing set P/N 214-040-991-101. This modification is required prior to installation of the one-piece drive shaft P/N 209-040-910-103, in accordance with T.B. 214ST-85-53. Contact BHT Product Support

Engineering for information on housing modification. Modified combining gearbox assemblies will have their data plates marked to reflect installation of Retrofit Kit P/N 214-704-504-101 and will be functionally identical to the 109/-111/-113 gearboxes.

5. Upgrade of combining gearbox P/N 214-040-013-103/-107 to the -115 configuration will automatically include conversion to the one-piece drive shaft by virtue of parts replacement.

PART II - Installation Requirements

1. 214-040-013-103/-107 combining gearbox assemblies are only eligible for installation on 214ST helicopters s/n 28101 through 28122.
2. 214ST helicopters s/n 28101 through 28122 must comply with T.B. 214ST-85-53 (Retrofit Kit P/N 214-704-504-101) concurrent with installation of 214-040-013-109, -111, or -113 combining gearbox assemblies.
3. 214ST helicopters s/n 28101 through 28200 must comply with T.B. 214ST-97-151 (Retrofit Kit P/N 214-704-217-101) at installation of the 214-040-013-115 combining gearbox assembly.

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TABLE 1. MODEL 214ST COMBINING GEARBOX CONFIGURATIONS

<u>PART NUMBER</u>	<u>NOMENCLATURE</u>	<u>CONFIGURATION/QUANTITY</u>						<u>NOTES</u>
214-040-013	Combining Gearbox	-103						(1)(2)
			-107					(1)(2)
				-109				(2)
					-111			(2)
						-113		(2)
							-115	
214-040-990-103	Shaft	2	2					
209-040-910-103	Shaft			2	2	2	2	(3)
214-040-974-101	Jet Assy No. 15	2	2					
209-040-915-101	Jet Assy No. 15			2	2	2	2	(3)
214-040-770-101	Retainer	2	2					
209-040-917-101	Retainer, Input Shaft			2	2			(3)(4)
209-040-917-103	Retainer, Input Shaft				2	2	2	(5)
209-040-918-101	Dam, Oil			2	2	2	2	(3)
214-040-024-101	Clutch Assy	2						(6)
214-040-024-103	Clutch Assy		2	2	2	2		(7)
214-040-024-105	Clutch Assy							(8)
214-040-024-107	Clutch Assy						2	(9)
214-040-841-101	Seal, Generator Pad	2	2	2	2	2	2	(10)
214-040-935-105	Cover Assy	2	2					
214-040-935-109	Cover Assy			2	2	2	2	(3)

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TABLE 1. MODEL 214ST COMBINING GEARBOX CONFIGURATIONS CONTINUED

<u>PART NUMBER</u>	<u>NOMENCLATURE</u>	<u>CONFIGURATION/QUANTITY</u>						<u>NOTES</u>
		-103	-107	-109	-111	-113	-115	
214-040-013	Combining Gearbox							
214-040-938-101	Manifold Assy	1	1					(11)
214-040-938-105	Manifold Assy	1		1	1	1	1	(12)
214-040-940-107	Pinion, Input Drive	2	2					(13)
214-040-940-109	Pinion, Input Drive			2	2	2		(14)
214-040-940-111	Pinion, Input Drive						2	
214-040-942-105	Pinion, Collector	2	2	2	2	2		(15)
214-040-942-107	Pinion, Collector							(16)
214-040-942-109	Pinion, Collector						2	
214-040-943-105	Gear, Collector	1	1	1				(17)
214-040-943-107	Gear, Collector				1	1		(18)
214-040-943-109	Gear, Collector							(19)
214-040-943-111	Gear, Collector						1	
214-040-991-101	Housing Set	1	1					(20)
214-040-991-105	Housing Set			1	1	1		(21)
214-040-991-107	Housing Set							(22)
214-040-991-109	Housing Set						1	
214-060-151-101	Fitting, Bipod	1	1	1	1	1		(23)
214-060-151-103	Fitting, Bipod						1	

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TABLE 1. MODEL 214ST COMBINING GEARBOX CONFIGURATIONS CONTINUED

<u>PART NUMBER</u>	<u>NOMENCLATURE</u>	<u>CONFIGURATION/QUANTITY</u>						<u>NOTES</u>
		-103	-107	-109	-111	-113	-115	
214-040-013	Combining Gearbox							
214-060-160-101	Fitting, Tripod	1	1	1	1	1		(24)
214-060-160-103	Fitting, Tripod							(25)
214-060-160-105	Fitting, Tripod						1	
222-375-019-005	Transmitter	1	1	1				(26)
222-375-077-111	Transmitter				1	1	1	
M27426-3176C	Ring, Retainer			2	2	2	2	(3)
M83248/1-152	Packing			2	2	2	2	(3)
MS51957-15	Screw	6	6	6	6	6		
MS35275-216	Screw						6	
NAS620-4	Washer						6	
S247-2B	Sight Glass	1	1	1	1			(27)
S247-8	Sight Glass					1	1	(28)
15804-1	Gasket					1	1	

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TABLE 2. MODEL 214ST COMBINING GEARBOX CLUTCH ASSY CONFIGURATIONS

<u>PART NUMBER</u>	<u>NOMENCLATURE</u>	<u>CONFIGURATION/QUANTITY</u>			<u>NOTES</u>
214-040-024	Clutch Assy	-101			
			-103		
				-105	
					-107
214-040-844-101	Retainer Assy	1			(29)
214-040-844-103	Retainer Assy				(30)
214-040-844-109	Retainer Assy		1	1	1
214-040-941-105	Gear	1	1		(31)
214-040-941-107	Gear				(32)
214-040-941-109	Gear				(33)
214-040-941-111	Gear			1	(33)
214-040-941-113	Gear				1

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NOTES

- (1) Refer to TB 214ST-85-53 when upgrading to -109, -111, or -113 configuration.
- (2) Refer to TB 214ST-97-151 when upgrading to -115 configuration.
- (3) Part of Retrofit Kit P/N 214-704-504-101; reference TB 214ST-85-53.
- (4) Effective S/N 28150 thru 28167 for P/N 214-040-013-111. Superseded by P/N 209-040-917-103.
- (5) Effective S/N 28168 and subsequent for P/N 214-040-013-111.
- (6) Superseded by P/N 214-040-024-103. Refer to Table 2.
- (7) Superseded by P/N 214-040-024-105. Refer to Table 2.
- (8) Superseded by P/N 214-040-024-107. Refer to Table 2.
- (9) Refer to Table 2.
- (10) Superseded by P/N 209-340-265-103. Reference TB 214ST-00-164.
- (11) Effective S/N 28101 thru 28108 for P/N 214-040-013-103. Superseded by P/N 214-040-938-105.
- (12) Effective S/N 28109 thru 28122 for P/N 214-040-013-103.
- (13) Superseded by P/N 214-040-940-109. (14)
- (14) Superseded by P/N 214-040-940-111.
- (15) Superseded by P/N 214-040-942-107. (16)
- (16) Superseded by P/N 214-040-942-109 for P/N 214-040-013-109, -111, & -113 only.
- (17) Superseded by P/N 214-040-943-107. (18)
- (18) Superseded by P/N 214-040-943-109. (19)
- (19) Superseded by P/N 214-040-943-111
- (20) Upgrade to the P/N 214-040-013-109, -111, or -113 configuration requires modification of the P/N 214-040-991-101 prior to incorporation of TB 214ST-85-53. Contact BHT PSE for information.
- (21) P/N 214-040-991-107 Housing Set may be used as an alternate.
- (22) Alternate for P/N 214-040-991-105.
- (23) Superseded by P/N 214-060-151-103.
- (24) Superseded by P/N 214-060-160-103. (25)
- (25) Superseded by P/N 214-060-160-105
- (26) Superseded by P/N 222-375-077-111; reference TB 214ST-85-51.
- (27) Superseded by P/N S247-8 sight gage and P/N 15804-1 Gasket as a unit; reference TB 214ST-91-122.
- (28) Use with P/N 15804-1 Gasket.
- (29) Superseded by P/N 214-040-844-103. (30)
- (30) Superseded by P/N 214-040-844-109.
- (31) Superseded by P/N 214-040-941-107. (32)
- (32) Superseded by P/N 214-040-941-109. (33)
- (33) Superseded by P/N 214-040-941-113.

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