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AN APPROPRIATE ENTRY SHOULD BE MADE IN THE AIRCRAFT LOG BOOK 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. 206L-94-99

DATE 10/14/94

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DATE 08-10-01

REV "B"

MODEL AFFECTED: 206L, 206L-1, 206L-3 AND 206L-4

SUBJECT: TRUNNION 206-011-120-103, AND MAST 206-040-535-001/-005/-101/-105, ASSIGNMENT OF RETIREMENT INDEX NUMBER (RIN) TO

HELICOPTERS AFFECTED: All Model 206L, 206L-1, 206L-3 and 206L-4 helicopters.

COMPLIANCE: Within 100 hours, but not later than February 28, 1995.

DESCRIPTION:

Bell Helicopter testing and analyses to determine the retirement life of the 206 main rotor mast and trunnion reveal sensitivity to power change events (torque events).

Originally, torque events were considered when determining the retirement lives. However, helicopter utilization and mission profiles have in some cases exceeded the number of torque events originally considered. This change in mission profile requires event counting to ensure that fatigue lives are not exceeded. This ASB assigns the mast and trunnion a Retirement Index Number (RIN). Refer to Information Letter GEN-94-54, which further discusses "RIN".

A torque event may be defined as a significant change in power setting. Two types of power setting changes may be encountered:

1. Ground-Air-Ground (GAG) events:
 - Start-Flight-Land-Shutdown
 - Start-Flight-Land-Flight-Land, etc... Shutdown (each Takeoff-Flight-Land counts as one torque event).

2. Repeated Heavy Lift event (RHL) or operations involving power change events such as: Water dropping from buckets or belly tanks, logging, spraying, ski lift service, sightseeing tours, or similar operations, (each Repeated Heavy Lift (RHL) power change counts as one torque event).

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To aid in understanding this bulletin examples are provided:

Example: During a day's operation a 206L operator performs the following:

- 1 event – Start helicopter and takeoff carrying crew to job site.
- 1 event – Land at job site and unload crews without shutting down and again takeoff.
- 6 events – Perform six lifts carrying external cargo to a remote site without landing. (Cargo loaded and unloaded from hover).
- 1 event – Land at job site and pick up crew without shutting down takeoff and return to home base.

- 9 events – Total event count for day's operation.

This bulletin assigns new service lives, including "RIN" values to main rotor trunnions 206-011-120-103 and masts 206-040-535-001/-005/-101/-105 as follows:

Trunnion:

Effective with this bulletin, retirement life of trunnion 206-011-120-103 **IS BASED SOLELY ON RETIREMENT INDEX NUMBER (RIN).**

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Refer to **ACCOMPLISHMENT INSTRUCTIONS** for RIN calculation applicable to in-service trunnions.

TABLE 1. TRUNNION AIRWORTHINESS LIMITATION SCHEDULE.

| PART NUMBER | NOMEMCLATURE | MAXIMUM RIN |
|--------------------|---------------------|--------------------|
| 206-011-120-103 | Main Rotor Trunnion | 24,000 |

Mast:

Effective with this bulletin, retirement life of masts 206-040-535-001/-005/-101 and 105 is now based on "**FLIGHT HOURS and RETIREMENT INDEX NUMBER (RIN)**" limitations, whichever occurs first.

TABLE 2. MAST AIRWORTHINESS LIMITATION SCHEDULE.

| PART NUMBER | NOMEMCLATURE | FLIGHT HOURS | MAXIMUM RIN |
|--------------------|---------------------|---------------------|--------------------|
| 206-040-535-001 | Mast | 1,200 Hours | 44,000 |
| 206-040-535-005 | Mast | 1,800 Hours | 44,000 |
| 206-040-535-101 | Mast | 5,000 Hours | 44,000 |
| 206-040-535-105 | Mast | 5,000 Hours | 44,000 |

APPROVAL:

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

MANPOWER:

Approximately ten (10) man-hours will be required to replace the trunnion and eight (8) man-hours to replace the mast if necessary. Man-hours are based on "hands-on" time. Elapsed time to accomplish the required task may vary due to manpower and facilities available to the operator. No additional man-hours are required if trunnion or mast replacement is accomplished during overhaul, or interim inspection.

MATERIAL:

The following part are required to replace time expired components and may be procured from your Bell Helicopter Supply Center.

| PART NUMBER | NOMENCLATURE | QTY |
|--------------------|---------------------|------------|
| 206-011-120-103 | Trunnion | 1 |
| 206-040-535-105 | Mast | 1 |

Additional material will be required if time expired components are replaced. Refer to applicable Illustrated Parts Breakdown and Component Repair and Overhaul Manual.

SPECIAL TOOLS:

Refer to appropriate Model 206L Series Component Repair and Overhaul Manual.

WEIGHT AND BALANCE:

Not affected.

ELECTRICAL LOAD DATA:

Not affected.

REFERENCES:

BHT Model 206L IPC, Rev. 1 – September 1, 1981; Chapter 65 and 66.
BHT-206L1-IPB, Reissued December 1, 1992; Chapters 62 and 63.
BHT-206L3-IPB, Reissued February 15, 1993; Chapters 62 and 63.
BHT-206L4-IPB, Issued October 2, 1992; Chapters 62 and 63.
BHT-206L-CR&O-1, Reissued June 18, 1993; Chapters 62 and 63.
BTH-206L4T-MM, Issued July 19, 1994.
BHT-206L4T-IPB, Issued July 20, 1994.
Information Letter, Gen-94-54.

PUBLICATIONS AFFECTED:

BHT-206L-MM-1, Rev. 20 – June 1, 1987; Chapter 4.
BHT-206L1-MM-1, Rev. 15 – June 1, 1987; Chapter 4.
BHT-206L3-MM-1, Volume 1, Rev. 1 – July 21, 1993; Chapter 4.
BHT-206L4-MM-1, Volume 1, Issued October 2, 1992; Chapter 4.
BHT-206L4T-MM, Issued July 19, 1994.

ACCOMPLISHMENT INSTRUCTIONS:

1. For trunnions and masts in service with an unknown number of torque events, assume parts have accumulated 10 “Torque Events” per flight hour and calculate accumulated RIN as follows:

Example: Assuming the trunnion or the mast has accumulated 700 flight hours:

$$700 \text{ hrs} \times 10 \text{ Torque Events/hr} = 7000 \text{ accumulated RIN}$$

2. For trunnions and masts in service with a known number of torque events, calculate accumulated RIN as follow:

Example: Assuming the trunnion or the mast has accumulated 700 flight hours and the number of torque events can be determined from the log of the helicopter;

| | | |
|------------------------------|-------------|------------------------|
| 200 hrs X 4 Torque Events/Hr | = 800 | Accumulated RIN |
| 100 hrs X 5 Torque Events/Hr | = 500 | Accumulated RIN |
| 400 hrs X 2 Torque Events/Hr | = 800 | Accumulated RIN |
| Total of: | 2100 | Accumulated RIN |

3. For trunnions with accumulated RIN established as per step 1. or 2., and for new trunnions, apply RIN adjustment as follows:

-NOTE-

Remove trunnion from service when the accumulated RIN equals the assigned Maximum RIN, (Refer to Table 1).

-NOTE-

Airworthiness life limitation based on flight hours is no longer applicable to the trunnion 206-011-120-103.

TABLE 3. APPLICABLE TRUNNION RETIREMENT INDEX NUMBER ADJUSTMENT

| MODEL | NOTE | TRUNNION RIN LIFE 206-011-120-103 |
|--------|---------|--------------------------------------|
| 206L | (1) | 24,000 |
| 206L-1 | (1) | 24,000 |
| 206L-3 | (1) (3) | 24,000 |
| 206L-4 | (2) | 24,000 |

NOTE (1): Accumulated RIN adjustment is one (1); for each torque event performed, the accumulated RIN of the trunnion shall be increased by one (1).

Example: Assuming the current recorded accumulated RIN is 7000; and during the next flight, six (6) Torque Events are counted; the new accumulated RIN total shall be calculated as follows:

| |
|---|
| Increase in accumulated RIN = 6 X 1 = 6 |
| 7000 Accumulated RIN |
| + 6 |
| <hr/> 7006 New accumulated RIN Total |

NOTE (2): Accumulated RIN adjustment is two (2). For each torque event performed, the accumulated RIN of the trunnion shall be increased by two (2).

Example: Assuming the current recorded accumulated RIN is 7000; and during the next flight, six (6) Torque Events are counted; the new accumulated RIN total shall be calculated as follows:

$$\text{Increase in accumulated RIN} = 6 \times 2 = 12$$

| | |
|------|---------------------------|
| 7000 | Accumulated RIN |
| + 12 | |
| 7012 | New accumulated RIN Total |

NOTE (3): Model 206L-3 with increased power operation kit installed as per Service Instruction SI 206-2039 will use one (1) for their accumulated RIN adjustment; for each torque event performed, the accumulated RIN of the trunnion shall be increased by one (1).

4. For masts with accumulated RIN established as per step 1. or 2., and for new masts, apply RIN adjustment as follows:

-NOTE-

Remove mast from service when the accumulated RIN equals the assigned **MAXIMUM (RIN) OR WHEN THE FLIGHT HOURS AIRWORTHINESS LIFE LIMIT IS REACHED**, whichever occurs first (Refer to Table 2 and Table 4).

TABLE 4. APPLICABLE RETIREMENT INDEX NUMBER ADJUSTMENT

| MODEL | NOTE | MAXIMUM RIN | APPLICABLE MASTS |
|--------|---------|-------------|--------------------------------|
| 206L | (1) | 44,000 | 206-040-535-001/-005/-101/-105 |
| 206L-1 | (1) | 44,000 | 206-040-535-001/-005/-101/105 |
| 206L-3 | (1) (3) | 44,000 | 206-040-535-101/-105 |
| 206L-4 | (2) | 44,000 | 206-040-535-105 |

NOTE (1): Accumulated RIN adjustment is one (1); for each torque event performed, the accumulated RIN of the mast shall be increased by one (1).

Example: Assuming the current recorded accumulated RIN is 7000; and during the next flight, six (6) Torque Events are counted; the new accumulated RIN total shall be calculated as follows:

$$\text{Increase in accumulated RIN} = 6 \times 1 = 6$$

$$\begin{array}{r} 7000 \text{ Accumulated RIN} \\ + 6 \\ \hline 7006 \text{ New accumulated RIN Total} \end{array}$$

NOTE (2): Accumulated RIN adjustment is two (2). For each torque event performed, the accumulated RIN of the trunnion shall be increased by two (2).

Example: Assuming the current recorded accumulated RIN is 7000; and during the next flight, six (6) Torque Events are counted; the new accumulated RIN total shall be calculated as follows:

$$\text{Increase in accumulated RIN} = 6 \times 2 = 12$$

$$\begin{array}{r} 7000 \text{ Accumulated RIN} \\ + 12 \\ \hline 7012 \text{ New accumulated RIN Total} \end{array}$$

NOTE (3): Model 206L-3 with increased power operation kit installed as per Service Instruction SI206-2039 will use one (1) for their accumulated RIN adjustment; for each torque event performed, the accumulated RIN of the trunnion shall be increased by one (1).

5. Refer to applicable Component Repair and Overhaul Manual for replacement instructions of the trunnion or mast.
6. Compute the torque events in the helicopter records. Annotate the trunnion and mast historical service cards to reflect new airworthiness service life.
7. It is recommended that the operator create a separate column in the Aircraft Flight Logbook to record the events performed on a daily basis. This would allow a quick reference to daily events in the same manner as daily hours flown.

If the operator wishes, the enclosed RIN Record may be attached of the Component Historical Service Records for RIN recording.