A Textron Company

ALERT SERVICE BULLETIN 505-24-40

10 June 2024

MODEL AFFECTED: **505**

SUBJECT: **TAIL ROTOR SEGMENTED DRIVESHAFT ASSEMBLIES, ONE-TIME INSPECTION OF.**

HELICOPTERS AFFECTED: **Serial numbers 65011 through 65490, 65492 through 65498, 65500 through 65505, 65507, 65509 through 65511, 65514, 65515, 65517 through 65531, 65533, 65535, 65537, 65540 through 65542, 65548, 65549, 65551, 65553, 65554, 65556 through 65558, 65562 through 65565, 65567, 65571 through 65573, and 65578.**

[**Only** the helicopter serial numbers listed above **are affected** by this bulletin.]

COMPLIANCE: Within 100 flight hours or 90 days, whichever comes first, following the release date of this bulletin.

DESCRIPTION:

Bell has received reports of looseness of the splined adapters on the tail rotor segment driveshaft assembly. The investigation noted that the retaining nut holding the splined adapter to the driveshaft was found with less than the required torque.

This Alert Service Bulletin (ASB) is being released to require a one-time inspection and re-torque of the splined adapter retaining hardware.

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 3.0 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)
206-040-363-001	SPLINED ADAPTER	As Required (1)(2)
206-040-385-101	SHAFT ASSEMBLY	As Required (1)(2)
206-040-932-001	PLATE	As Required (1)(2)
NAS9926-4L	NUT	As Required (2)(3)

NOTES:

1. Only required if following inspection the part is found to be beyond allowable repair limits (Figure 2).
2. Quantity indicated is for one tail rotor segmented driveshaft assembly. Additional quantities may be required if more than one part is found beyond allowable repair limits.
3. Some segmented tail rotor driveshaft assemblies may have been delivered with MS21042L4 nuts. A replacement nut is only required if the nut is unserviceable and/or does not meet the minimum tare torque of 3.5 inch-pounds (0.4Nm)

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 *
2230-10536-00	TORQUE SEAL, LACQUER	1 OZ (1)(2)	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 than what has been delivered.
2. 2230-10536-00 torque seal lacquer (C-049) is color yellow, however other colors are available, at customer's option, as shown in BHT-ALL-SPM Standard Practice Manual, in Chapter 13 under (C-049).

SPECIAL TOOLS:

Dial indicator torque wrench.

WEIGHT AND BALANCE:

Not affected.

ELECTRICAL LOAD DATA:

Not affected.

REFERENCES:

505-MM, Maintenance Manual, Chapters 53 and 65.
BHT-ALL-SPM, Standard Practices Manual, Chapter 13.

PUBLICATIONS AFFECTED:

505-MM Maintenance Manual, Chapter 65.

ACCOMPLISHMENT INSTRUCTIONS:

1. Prepare the helicopter for maintenance.

2. Remove the exhaust fairing (DMC-505-A-53-40-05-00A-520A-A).

3. Remove forward driveshaft cover (DMC-505-A-53-50-02-00A-520A-A).

4. Remove mid driveshaft cover (DMC-505-A-53-50-03-00A-520A-A).

5. Remove aft driveshaft cover (DMC-505-A-53-50-04-00A-520A-A).

6. Remove aft driveshaft (6, Figure 1) (DMC-505-A-65-10-03-00A-520A-A).

7. Remove tail rotor segmented driveshaft assemblies (7 and 8) (DMC-505-A-65-10-05-00A-520A-A and DMC-505-A-65-10-07-00A-520A-A).

8. Check the tail rotor segmented driveshaft assembly splined adapters (4) for any noticeable radial or axial (fore and aft) play between the splined adapter (4) and the driveshaft (5) for all five locations (Figure 1, View A).

    a. If there is no radial or axial play noted, perform the following:

        (1) Remove any torque seal lacquer (C-049) that may be applied to nut (1) on all five of the tail rotor segmented driveshaft assemblies.

        (2) Unseat the nut (1) by loosening the nut by ½ to 1 turn (BHT-ALL-SPM, Chapter 2) at each of the five tail rotor segmented driveshaft assemblies.

        (3) Measure the tare torque of the nut (1) using a dial indicator torque wrench.

            (a) If the nut (1) tare torque meets the minimum tare torque of 3.5 inch-pounds (0.4 Nm), go to step 8.a.(4).

            (b) If the nut (1) tare torque is less than 3.5 inch-pounds (0.4 Nm), replace the nut with a serviceable nut and repeat step 8.a.(3).

        (4) Torque the nut (1) 30 to 50 inch-pounds (3.4 to 5.6 Nm) plus the tare torque measured in step 8.a.(3).

        (5) Apply torque seal lacquer (C-049) across threads of the stud of driveshaft (5), nut (1), washer (2), and plate (3). Go to step 9.

    b. If radial or axial play is noted, perform the following:

        (1) Disassemble the applicable tail rotor segmented driveshaft assembly (DMC-505-A-65-10-04-00A-530A-A).

            (a) Inspect splined adapter (4) and driveshaft (5) splines for allowable damage (Figure 2). Replace or repair parts as required.

        (2) Assemble the applicable tail rotor segmented driveshaft assembly with serviceable parts (DMC-505-A-65-10-04-00A-710A-A).

1. Measure the tare torque of the nut (1) using a dial indicator torque wrench.

   (i) If tare torque of the nut meets the minimum value of 3.5 inch-pounds (0.4 Nm), go to step 8.b.(2).2.

   (ii) If tare torque of the nut is less than 3.5 inch-pounds (0.4 Nm), replace the nut with a serviceable nut and repeat step 8.b.(2).1.

2. Torque the nut (1) 30 to 50 inch-pounds (3.4 to 5.6 Nm) plus the tare torque measured in step 8.b.(2).1.

3. Apply torque seal lacquer (C-049) across threads of the stud of driveshaft (5), nut (1), washer (2), and plate (3). Go to step 9.

9. Install tail rotor segmented driveshaft assemblies (7 and 8, Figure 1) (DMC-505-A-65-10-05-00A-720A-A and DMC-505-A-65-10-07-00A-720A-A).

10. Install aft driveshaft (6) (DMC-505-A-65-10-03-00A-720A-A).

11. Install aft driveshaft cover (DMC-505-A-53-50-04-00A-720A-A).

12. Install mid driveshaft cover (DMC-505-A-53-50-03-00A-720A-A).

13. Install forward driveshaft cover (DMC-505-A-53-50-02-00A-720A-A).

14. Install the exhaust fairing (DMC-505-A-53-40-05-00A-720A-A).

15. Make an entry in the helicopter logbook and historical service records indicating compliance with this Alert Service Bulletin.

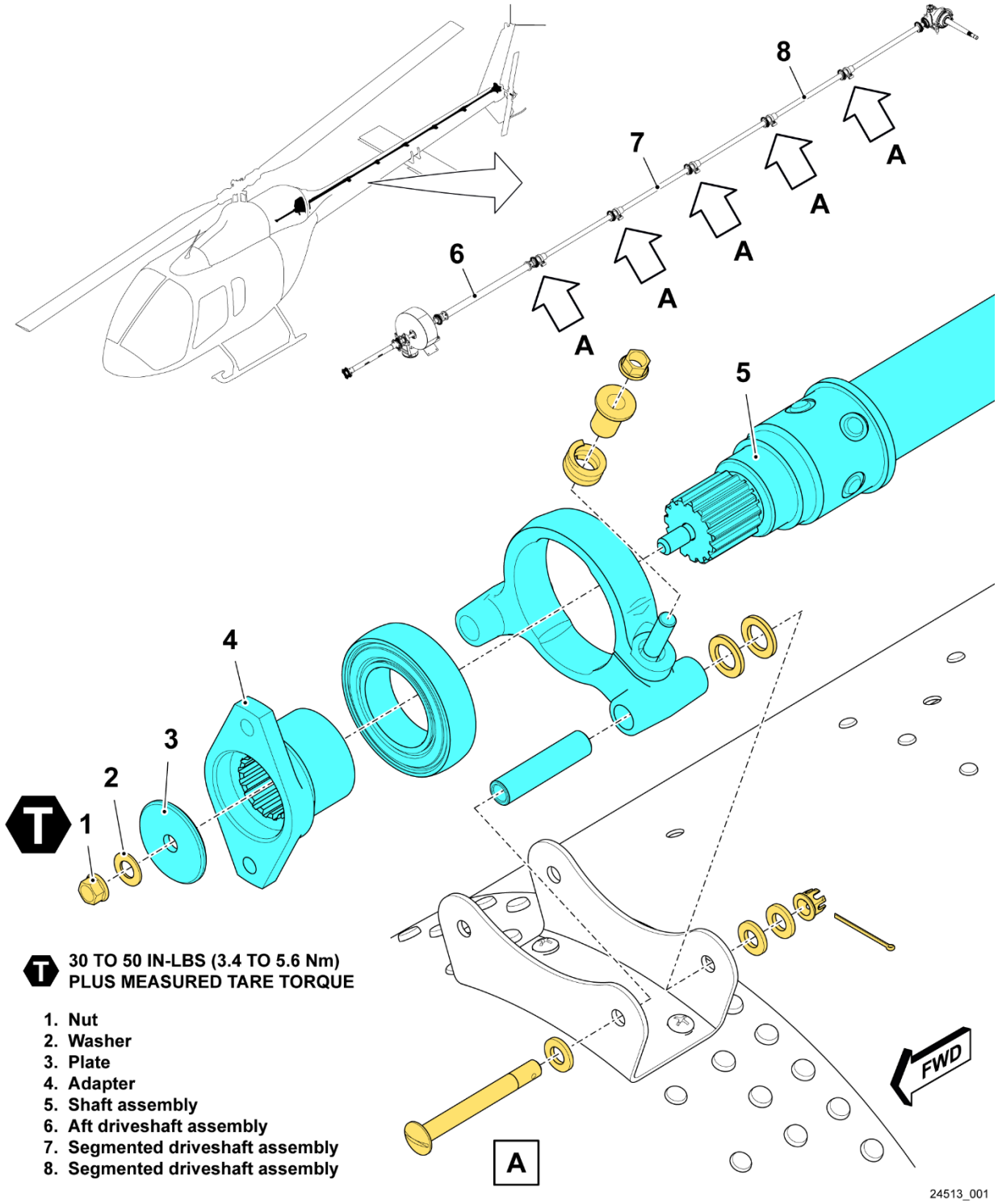
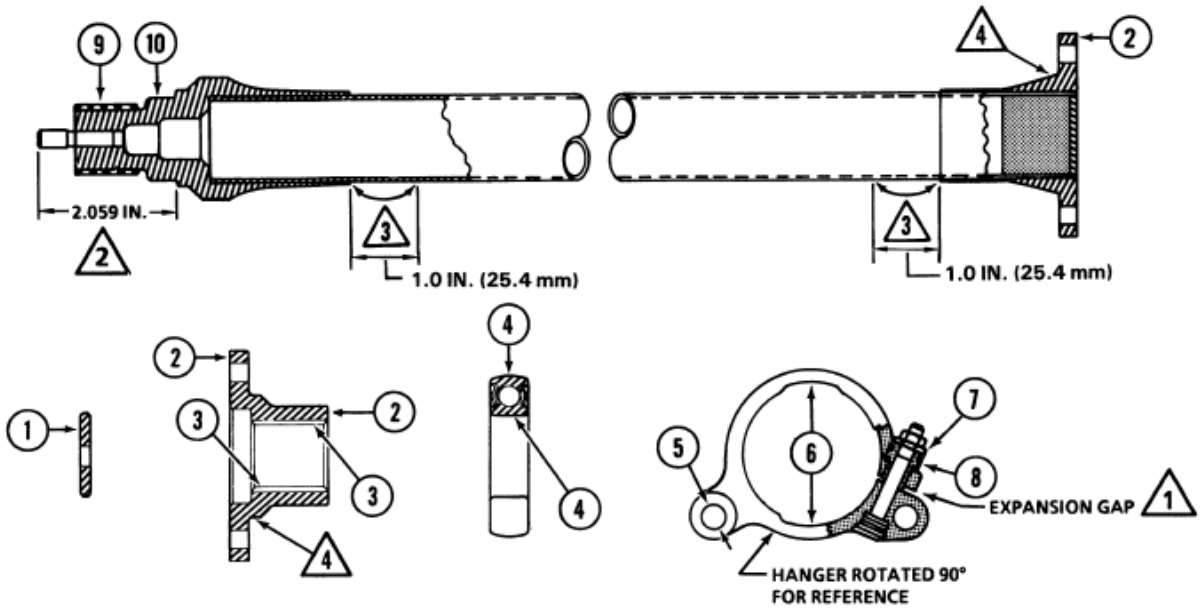


Figure 1 – Tail Rotor Segmented Driveshaft Assembly



NUMBER	DESCRIPTION	LOCATION	MINIMUM INCHES (millimeters)	MAXIMUM INCHES (millimeters)
1.	Washer — Adapter	Thickness	0.080 (2.032)	0.110 (2.794)
2.	Adapter — Coupling	Flange	—	0.004 (0.101)
3.	Adapter — Coupling (Between 0.1200 inch diameter pins.)	ID	—	0.7414 (18.8315)
4.	Bearing — Sealed	ID	1.1807 (45.8978)	1.1815 (30.0101)
		OD	2.1637 (54.9579)	2.1657 (55.0087)
5.	Hanger — Bushing Hole Bushing (Not Shown)	ID	0.3775 (9.5885)	0.3810 (9.6774)
		ID	0.2505 (6.3627)	0.2515 (6.3881)
		OD	0.3755 (9.5377)	0.3765 (9.5631)
6.	Hanger-Spherical Diameter	ID	2.1649 (54.9885)	2.1670 (55.0418)
7.	Spacer	Length	0.545 (13.843)	0.550 (13.970)
8.	Spring	Free Height	0.346 (8.788)	—
	Compression Load 60 ± 10 lbs (267 ± 44 N) (±0.010 inch) (±0.254 mm)	Test Height	0.255 (6.477)	—
	Compression Load 50 lbs (222 ± 44 N) (±0.010 inch) (±0.254 mm)	Working height	0.250 (6.350)	—
9.	Driveshaft — Splines (Over 0.1200 inch (3.048 mm) diameter pins)	OD	1.1070 (28.1778)	—
10.	Driveshaft — Bearing Seat	OD	1.1803 (29.9797)	1.1810 (29.9974)
	Seat (TIR) 3	—	—	0.003 (0.0762)
	Shoulder (TIR) 3	—	—	0.003 (0.0762)

NOTES

1. Before measuring inside spherical diameter of hanger set expansion gap at 0.0600 to 0.0605 inch (1.22 to 1.5367 mm).
2. Set new stud with primer and torque 50 to 95 inch-pounds (5.6570 to 10.73 Nm) with 2.059 inches (52.2986 mm) projection.
3. Mount driveshaft in Vee blocks between the two indicated area. Runout of bearing seat, bearing seat shoulder, and adapter flange are not to exceed specified limits.
4. Runout measurement of flanges to be taken 1.0 inch (25.4 mm) from centerline.

Figure 2 –Tail Rotor Segmented Driveshaft Assembly Wear Limits