HUGHES SERVICE INFORMATION NOTICE

NOTICE NO. N-26
DATE August 22, 1967

SUBJECT: FIELD INSTALLATION - LOW TIP SPEED TAIL ROTOR ASSEMBLY

MODELS AFFECTED: Model 269A Helicopter Serial No's. 0011 and subsequent incorporating Configuration "C" and "D" equipment items, as noted in the Helicopter Configuration Table in the Owners Manual. All 269A-1, 269A-2 and 269B helicopters.

TIME OF COMPLIANCE: At owners and operators discretion.

PREFACE: The information given in this Service Information Notice includes a procedure for field installation of the low tip speed tail rotor assembly which provides an improved directional control system having (1) increased service life of components, (2) decreased rotational speed and tail rotor tip speed, (3) increased thickness of tail rotor blade lead edge abrasion strip, (4) lower noise level, and (5) generally improved handling characteristics.

FORM NO. 9578A HTC AD REV 11-67

Reference

269A/A-1 Handbook of Maintenance Instructions
TH55A Handbook of Maintenance Instructions Addendum
269B Handbook of Maintenance Instructions
Owners Manual for 269A, A-1, A-2, TH55A and 269B Helicopters

Special Tools

Rigging Tool - tail rotor 269A9204

Parts List

Nomenclature	P/N	Qty.	Mfg.
Kit, installation	M10011	1	HTC-AD

I. INSTALLATION - LOW TIP SPEED TAIL ROTOR DRIVE SHAFT AND TRANSMISSION. Install the tail rotor drive shaft and transmission as follows:

a. Remove existing tail rotor assembly, tail rotor transmission, tail rotor drive shaft, 7417 rod assembly, 6245 bell crank assembly, ~~right hand~~ rudder and 7329 bungee spring assembly located on right hand rudder control rod under cabin floor, right side, per HMI.

b. Install 6044 push rod assembly (1) on bellcrank at forward end of tail boom with bolt (2), washers (3), nut (4) and cotter pin (5). (See Figure 1)

NOTE

Check that bushing is installed in bellcrank before attaching push rod assembly.

c. Install gear box adapter (6) to aft end of tail boom with five bolts (7), washers (8) and safety wire (torque bolts to 50-70 in. lbs.).

NOTE

Paint 0.06 inch wide line two places (see Figure 2) to provide indexing mark for tail rotor drive shaft alignment.

d. Insert drive shaft (9) into boom through damper assembly.

e. Add small amount of grease to grease cup at aft end of drive shaft; install drive shaft on tail rotor transmission (10) and secure nut (11) with spanner wrench and safety wire.

f. Fill grease cup with heavy duty grease, per Lubrication Chart, Section II, HMI.

g. Position gear box assembly on four studs of gear box adapter and secure with four nuts (12), washers (13), and cotter pin (14).

h. Add small amount of grease to grease cup at forward end of drive shaft; secure drive shaft to main rotor belt drive transmission assembly and secure nut (15) with spanner wrench and safety wire.

i. Fill grease cup with heavy duty grease, per Lubrication Chart, Section II, HMI.

j. Install stabilizer assembly (16) and spacer plate (17) where required and secure to gear box adapter with bolts (18), washers (19), and nuts (20). Attach stabilizer to boom with bolt (21) and washer (22). Torque all bolts to 50-70 in. lbs.

k. Connect wire between boom and tail light.

l. Install skid assembly (23) on gear box adapter and secure with bolt (24), washers (25), and nut (26).

II. INSTALLATION - LOW TIP SPEED TAIL ROTOR ASSEMBLY. Install the low tip speed tail rotor assembly as follows: (Refer to Figure 1)

a. Pull beaded end of boot (27), out of groove at inboard end of drive fork assembly (28).

b. Position tail rotor assembly in line with transmission output shaft (29), rotating tail rotor assembly back and forth slightly, until internally splined hub of swashplate (30) inside pitch control assembly (31) engages spline of shaft.

c. Slide tail rotor assembly onto shaft, while positioning drive fork assembly so that splined hub of drive fork is concentric with splined shaft, and drive fork attach bolt is aligned with arms of swashplate. Position tail rotor assembly on shaft so that approximately two threads at end of shaft protrude beyond outboard face of splined hub on drive fork.

d. Slip new key washer (32) over threaded end of shaft; install nut (33), turning nut approximately two full turns on threaded end of shaft.

e. Slide tail rotor assembly outboard against nut.

f. Press boot against swashplate to expose groove in shaft.

g. Insert split rings (34) in groove of shaft with chamfered sides of split rings facing beveled seat in drive fork assembly.

h. While holding split rings in place, slide tail rotor assembly inboard, making certain that chamfered split rings are nested in beveled seat of drive fork. (Approximately 0.050 inch of split ring protrudes beyond drive fork)

i. Tighten nut to 230 inch pounds initial torque for flight test; reset torque to 160--190 inch pounds within 25 hours of operation. Bend tabs on key washers to lock nut and insert blade stop (36) on nut, pressing under cut groove in blade stop around knurled circumference of nut.

NOTE

Minimum clearance of 0.75 inch must be maintained between tail rotor and tail boom in maximum teetered position. Install 1812-3 or 1812-5 spacers (35) as required between locknut and blade stop.

j. Pull boot over end of pitch control assembly so that beaded end of boot slips into machined groove in pitch control assembly.

k. Pull boot over hub of drive fork assembly so that beaded end of boot slips into machined groove in drive fork.

l. Install 6042 bellcrank assembly (37) and secure aft end of 6044 push rod assembly (38) to bellcrank with bolts (39), washers (40), nut (41), and cotter pin (42).

NOTE

Check that bushing is installed in bellcrank before attaching push rod assembly. Torque bolt to 100-150 in. pounds; add washers as required.

m. Install pin (43) to bellcrank with washer (44), nut (45) and cotter pin (46); raise arm of bellcrank so that pin in bellcrank slips into bearing at lower surface of pitch control assembly.

n. While holding bellcrank up against lower surface of pitch control assembly, rotate bellcrank back and forth as required to align bearing in bellcrank with hole in boss at gearbox mounting flange.

o. Install bolt (47), washers (48), nut (49); tighten nut and install cotter pin (50).

III. RIGGING - TAIL ROTOR PITCH CONTROL PEDALS. Rigging of tail rotor pitch control pedals for low tip speed tail rotor installation is essentially the same as outlined in Section VI, HMI, with the following exceptions:

a. For low tip speed tail rotor installation, use special rigging tool, P/N 269A9204; insert tool between swashplate (30) and drive fork(28) above split rings(34).

b. With low tip speed tail rotor installation, measurement of collective blade movements shall be +25 degrees $\pm$ 1 degree thrust to right and -12 degrees $\pm$ 1 degree thrust to left.

c. At correct NEUTRAL setting, blade angle shall be 6.5 degrees $\pm$ degree at 75% radius point on each blade, measured from centerline of hub. Helicopter should be leveled longitudinally and laterally by normal means.

Weight & Balance Data

Net Increase:

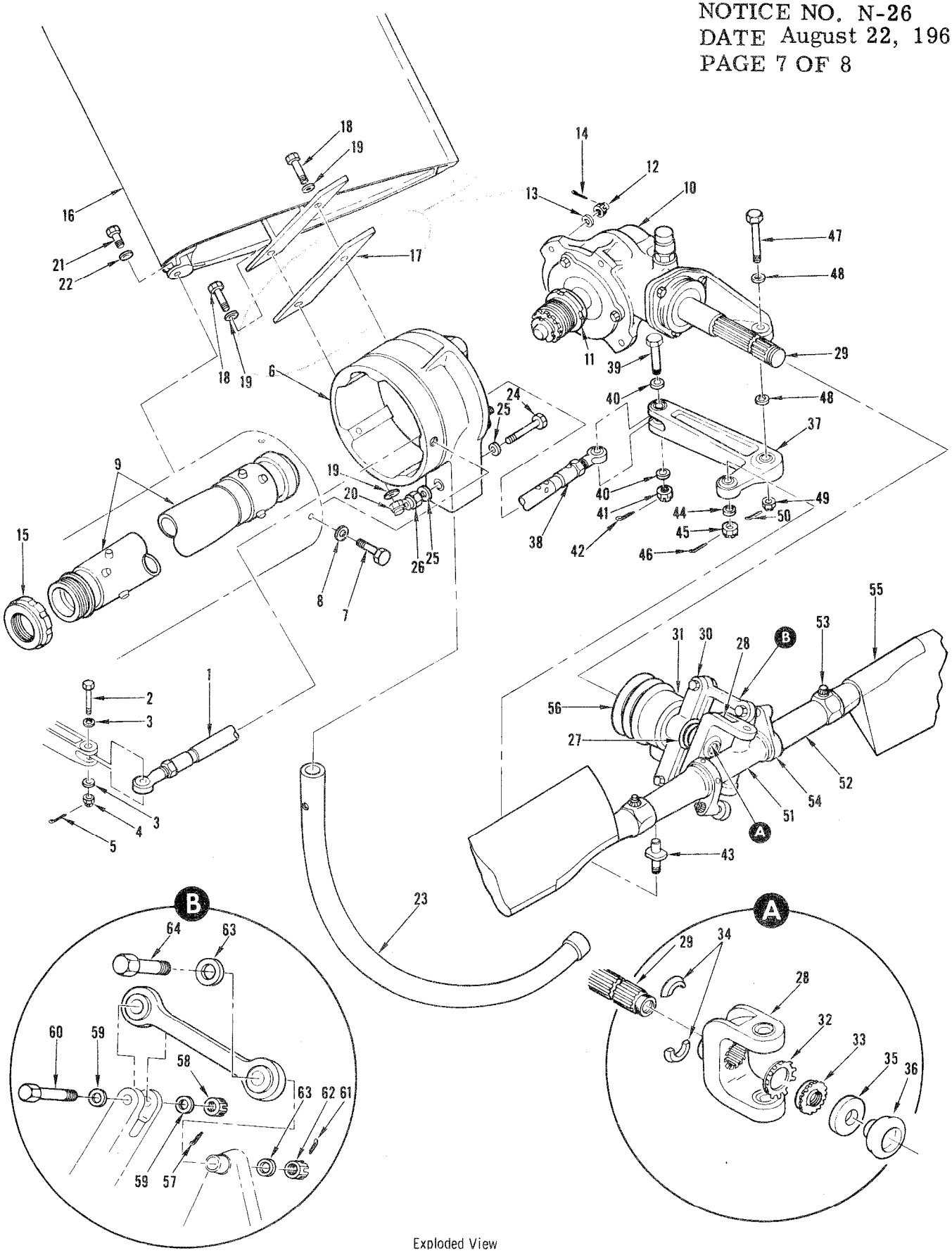
2.5 lbs at Station 271

NOTE

Refer to Service Information Letter L-16, which provides instructions for lubrication, maintenance, trouble-shooting, inspection and replacement procedures relating to the low tip speed tail rotor assembly after initial installation.

KEY TO FIGURE 1.

1. Rod Assembly - Forward End
2. Bolt
3. Washer
4. Nut
5. Cotter Pin
6. Gear Box Adapter
7. Bolt
8. Washer
9. Drive Shaft
10. Tail Rotor Transmission
11. Nut
12. Nut
13. Washer
14. Cotter Pin
15. Nut
16. Stabilizer Assembly
17. Spacer Plate
18. Bolt
19. Washer
20. Nut
21. Bolt
22. Washer
23. Skid Assembly
24. Bolt
25. Washer
26. Nut
27. Boot
28. Drive Fork Assembly
29. Transmission Output Shaft
30. Swashplate
31. Pitch Control Assembly
32. Key Washer
33. Nut
34. Split Ring
35. Spacer
36. Blade Stop
37. Bellcrank Assembly
38. Rod Assembly - Aft End
39. Bolt
40. Washer
41. Nut
42. Cotter Pin
43. Pin
44. Washer
45. Nut
46. Cotter Pin
47. Bolt
48. Washer
49. Nut
50. Cotter Pin
51. Hub
52. Spar
53. Attach Bolt
54. Pitch Control Arm Assembly
55. Abrasion Strip
56. Boot
57. Cotter Pin
58. Nut
59. Washer
60. Bolt
61. Cotter Pin
62. Nut
63. Washer
64. Bolt



Exploded View

Figure 5-12. Low Tip Speed Tail Rotor Assembly

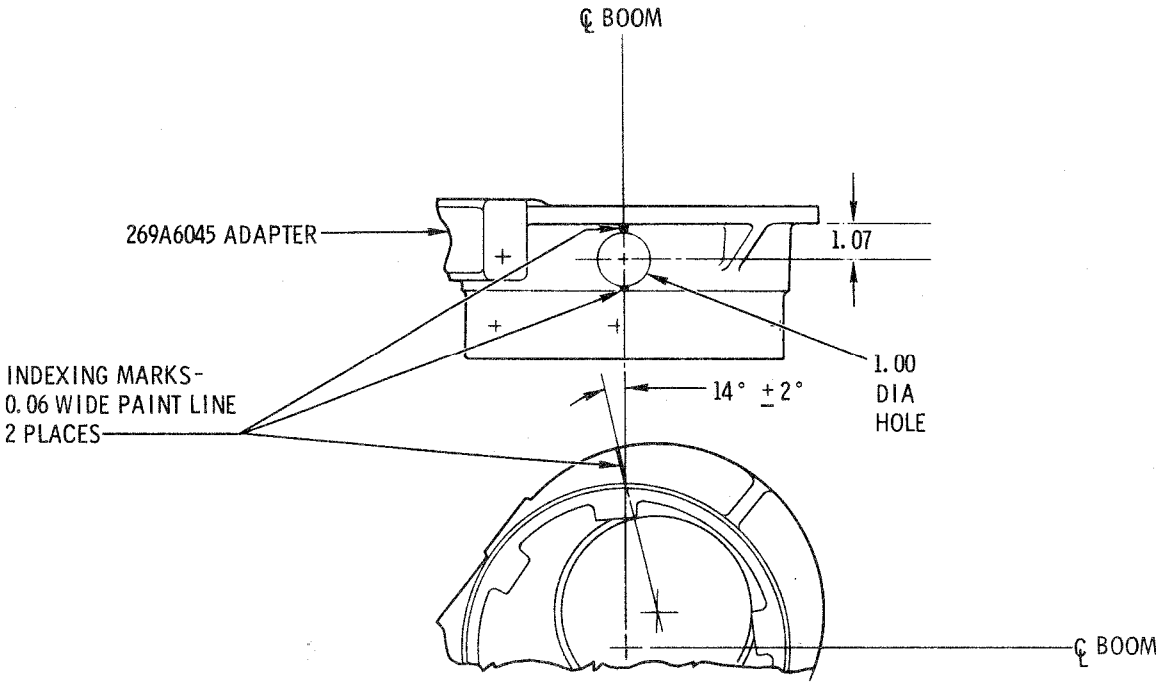


Figure 2. Indexing Mark – Tail Rotor Drive Shaft Alignment