SUBJECT: FIELD INSPECTION AND REPAIR OF TAIL ROTOR TRANSMISSION MAIN HOUSING ASSEMBLY, PN 369A5401

MODELS AFFECTED: All Model 269 Series Helicopters

TIME OF COMPLIANCE: Shall be accomplished if erratic action of the foot pedals is isolated to station 272 aft boom bellcrank, or whenever the bellcrank is removed for maintenance.

PREFACE: This service notice provides procedures for inspecting and correcting an elongation of the bolt hole in the support arm portion of the main housing assembly of the tail rotor transmission caused by looseness of the bellcrank fulcrum bolt and nut. Elongation of the subject hole could affect control response sensitivity. If the condition were allowed to persist, it could lead to eventual separation of the bellcrank and support lug of the tail rotor gearbox main housing.

Reference

Model 269 Series Basic HMI; Reissued 1 April 1980

	PA-1207	AR	Egyption Lacquer Mfg. Co. P. O. Box 444 Newark, N.J. 07101
Methyl-ethyl ketone (MEK)	TT-M-261	AR	Comm
Demineralized water		AR	Comm
Marfak EP #1		AR	Mobil Oil Corp. P. O. Box 3311 Beaumont, Tex. 77704
Alvania EP #1		AR	Shell Oil Co. P. O. Box 2463 Houston, Tex. 77001
Sealing compound, corrosion preventive (MIL-S-81733, Type II-2)	PR1436-G, Class B-2 PR14226, Class B, PR1221	AR	Products Research and Chemical Corp. 543 San Fernando Rd. Glendale, Calif. 91203

TOOLS AND EQUIPMENT

	7/16 inch reamer, or	ANSI Standard	
	7/16 inch drill bit	ANSI Standard	
Bore gage	599-281-9999 Intermik Style A 0.275 to 0.350 in. (or equivalent)	1	Brown & Sharpe Mfg. Co. Precision Park Frenchtown Road North Kingstown, R.I. 02852

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PART 1 – MAIN HOUSING ASSEMBLY INSPECTION

a. Detach bellcrank assembly as follows:

1. Remove cotter pin, nut, washer, and tail rotor swash plate bellcrank pin attaching bellcrank to pitch control assembly.

2. Remove cotter pin, nut, washer, and bolt attaching bellcrank to main housing assembly.

3. Swing bellcrank out of the way.

b. Inspect hole in main housing assembly for out-of-roundness. If visual inspection is not adequate, insert bore gage. Hole diameter must measure 0.312 inch to 0.313 inch.

c. If hole is out of tolerance, proceed with part 2, repair procedures.

d. If hole is within tolerance, reattach bellcrank to pitch control assembly and to main housing assembly.

PART 2 – MAIN HOUSING ASSEMBLY REPAIR

a. Finish removal of bellcrank by removing cotter pin, nut washer, bushing, and bolt attaching bellcrank to tail rotor control rod assembly.

b. Remove tail rotor assembly. (Refer to Section 9, basic HMI.)

c. Cut lockwire, then loosen retaining nut at forward end of tail rotor drive shaft with spanner wrench. Loosening the nut allows disengagement of drive shaft from splined drive sleeve on main transmission input pinion shaft. (See Figure 1.)

CAUTION

Do not support transmission by coupling. Coupling is designed to handle torsional load only.

d. Remove four cotter pins, nuts, and washers from gearbox assembly. Pull transmission rearward off gearbox adapter studs. Draw shaft completely out of tail boom, and rest shaft and transmission on bench.

e. Cut lockwire and loosen shaft retaining nut at aft end of tail rotor driveshaft, and remove transmission from driveshaft. Unless other servicing of the transmission is to be performed, no further disassembly is necessary.

CAUTION

Do not clean magnesium with methanol (methyl alcohol or wood alcohol). Methanol is destructive to magnesium.

f. Wash oil and grease off transmission with MEK, or other mineral oil distillates, chlorinated solvents, or lacquer thinners, and air dry thoroughly.

g. Wrap machined surfaces, such as the splines, with protective tape or heavy paper. Apply tape over all crevices to prevent lodgment of metal chips or entry of contaminants into sheltered areas.

h. Install transmission assembly on milling machine, and mill 0.060 inch from boss of main housing assembly. (See Figure 2.)

i. Transfer transmission assembly to drill press or retool mill with 7/16 inch reamer or drill bit to correct elongated hole in support arm portion of main housing assembly.

j. Adjust transmission assembly so hole center in support arm will remain 2.065 to 2.055 inches and 4.695 inches from reference points shown in Figure 3.

k. Ream or drill 0.438 inch hole.

l. Remove transmission assembly from machining fixture, thoroughly wash oil and grease from all exposed magnesium surfaces, then dry.

m. Protect magnesium parts that have had protective coating removed as follows:

1. Prepare solution as follows:

(a) Chromic acid, 20 ounces per gallon.

(b) Ammonium sulphate, 14 ounces per gallon.

(c) Ammonium hydroxide, 12 fluid ounces per gallon.

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2. Maintain solution as follows:

(a) To increase pH, add ammonium hydroxide.

(b) To decrease pH, add chromic acid.

(c) When chromic acid content is too high, add sulfuric acid.

3. Apply solution as follows:

(a) Swab area to be touched up with clean cloth or soft brush dampened in cold solution for 10 to 30 minutes until desired color is produced.

(b) Desired color ranges from gold through yellow to brown.

(c) When desired color is obtained, rinse or swab part thoroughly in clean, room-temperature water. Dry parts and paint as required.

n. Fabricate aluminum bushing to comply with specifications provided in Figure 2.

o. Wash bushing with MEK, and dry thoroughly.

p. Immediately treat all surfaces of bushing with Turcoat Liquid Accelogold (this is a premixed, ready-to-use product conforming to military specification MIL-C-81706).

q. Allow bushing to develop a gold color, then rinse thoroughly with water and dry.

r. Coat bushing with zinc chromate primer, and while wet, insert it in newly enlarged hole in main housing assembly.

s. Seal peripheral faying edges of bushing with PR1436-6, class B-2; PR14226, class B; PR1221; or MIL-S-81733, type II-2 sealant per manufacturer's instructions.

t. Allow treated areas to dry thoroughly, then repaint with zinc chromate primer, then apply top coat to match surrounding area.

u. Reinstall tail rotor transmission as follows:

CAUTION

Do not support transmission by coupling. Coupling is designed to handle torsional load only.

1. Attach tail rotor driveshaft to tail rotor transmission input shaft by sliding internal splines of driveshaft aft fitting over input shaft and tightening driveshaft retaining nut.

2. Secure nut with lockwire.

3. Insert driveshaft forward end into tail boom and through tail boom damper assembly.

4. Move driveshaft forward, and place forward fitting over splined drive sleeve on main transmission input pinion shaft.

5. Hand-tighten drive shaft forward retaining nut.

6. Apply thin coat of zinc chromate primer on four studs of gearbox adapter and in four attachment holes of gearbox.

7. Mate transmission housing with gearbox adapter studs while primer is still wet, then secure with four nuts and washers. Torque nuts to 50 to 70 inch-pounds.

8. Using spanner wrench, tighten drive shaft retaining nut on belt drive transmission. Secure nut with lockwire.

9. Alternately lubricate both drive shaft and fitting grease cavities until full with grease.

NOTE

When either of the tail rotor drive shaft couplings is lubricated, the coupling at the other end of the shaft should also be lubricated. Lubricating both ends will preclude hydraulic preloading of the dome-shaped aluminum cups inside the grease cavity.

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v. Record compliance with this Service Information Notice in compliance Record of helicopter log book.

WEIGHT AND BALANCE DATA

Weight and balance not affected

FAA/DER APPROVED 16 April 1981

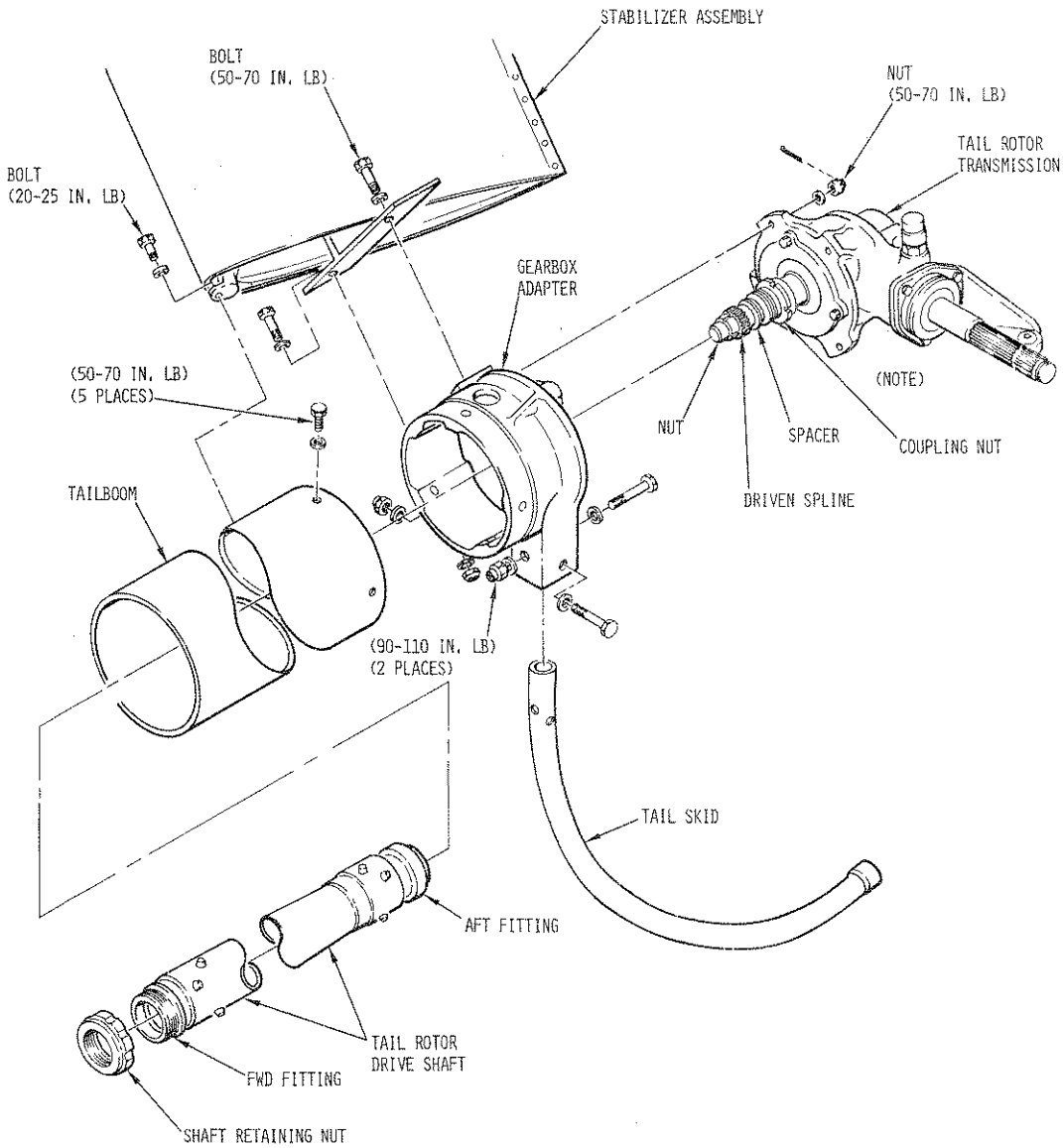

Figure 1. Tail Rotor Drive Assembly and Transmission

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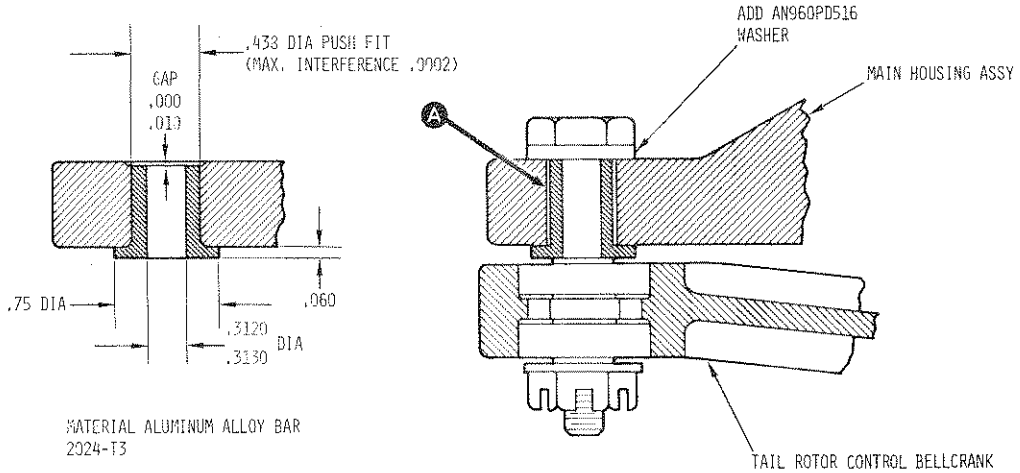

Figure 2. Repair Bushing Fabrication and Installation Details

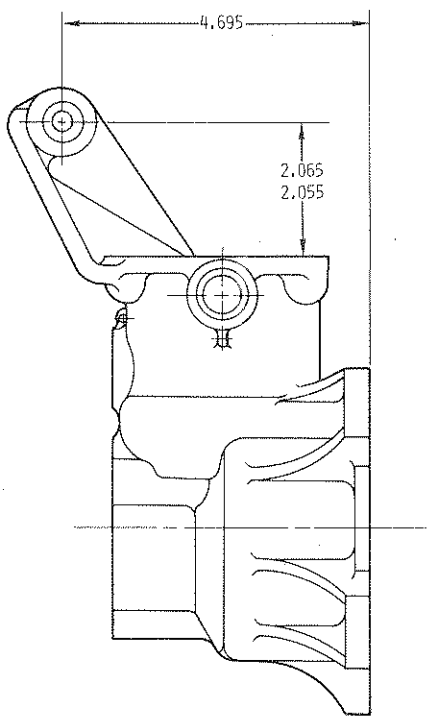

Figure 3. Main Housing Assembly Support Arm Hole Locating Diagram