SERVICE BULLETIN

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

1. PLANNING INFORMATION

A. MODELS AFFECTED:

All 500C Model 369H Series Helicopters

B. 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.

C. TIME OF COMPLIANCE:

Shall be accomplished if erratic action of the foot pedals is isolated to station 282 aft boom bellcrank, or whenever the bellcrank is removed for maintenance.

D. FAA APPROVAL:

FAA/DER APPROVED 16 April 1981

E. WEIGHT AND BALANCE:

Weight and balance not affected

F. REFERENCE:

500 Model 369H Series Helicopter Basic HMI Issued 10 October 1972, Revision No.8 December 1980.

G. PARTS LIST:

REPLACEMENT PARTS/SUPPLIES			
Nomenclature	**Part No.**	**Qty.**	**Source**
Cotter pin	MS24665–153	3	Commercial
Lockwire	RM000625	AR	Commercial
Washer	AN960PD516	1	Commercial

SERVICE BULLETIN

H. MATERIALS:

MATERIALS			
Nomenclature	**Part No.**	**Qty.**	**Source**
Cadpak (MIL–B–131D, Class 1	T131	AR	Cadillac Products, Inc. 7000 E. 15 Mile Road Sterling Heights, Mich. 48077
Bar, rod, or tube stock	Aluminum, 2024–T3	AR	Comm
Turcoat Liquid Accelogold (MIL–C–81706)		AR	AR Turco Products Div., Purex Corp 24600 S. Main St. Carson, Calif. 90749
Chromic acid	O–C–303	AR	Comm
Ammonium sulphate	(reagent grade)	AR	Comm
Ammonium hydroxide	(reagent grade)	AR	Comm
Sulphuric acid	O–S–809	AR	Comm
Primer coating, zinc chromate, low–moisture–sensitive (TT–P–1757)	908–L–02110	AR	Glidden–Durkee Div., SCM Corp. 900 Union Commerce Bldg. Cleveland, Ohio 44115
	164–2–1164–2–1	AR	Finch Paint & Chemical Subsidiary of USM Corp. 20846 S. Normandie Ave. Torrance, Calif. 90502
	PA– 12 07	AR	Egyption Lacquer Mfg. Co. PO Box 444 Newark, N.J. 07101
Methyl–ethyl ketone {MEK)	TT–M–261	AR	Comm
Demineralized water		AR	Comm
Mobil grease (MIL–G–81322)	#28	AR	Mobil Oil Corp. 150 E. 42nd Street New York, N.Y. 10017
Aeroshell Grease	#22	AR	Shell Oil Co. 1 Shell Plaza P.O. Box 2463 Houston, Tx 77001

MATERIALS (Cont.)			
Nomenclature	**Part No.**	**Qty.**	**Source**
Royco (MIL–G–25760)	60R	AR	Royal Lubricants Co., Inc. River Road P. O. Box 298 East Hanover, N.J. 07936
Kopr – Kote (MIL–A–907)		AR	Jet–Lube, Inc. P.O. Box 21258 Houston, Texas 77026
Anti–Seize Compound (MIL–A–907)		AR	Locktite Corp. 705 N. Mountain Road Newington, Conn. 06111
Royco	#37	AR	Royal Lubricants Co., Inc. River Road
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
		AR	
		AR	

I. TOOLS AND EQUIPMENT:

TOOLS AND EQUIPMENT	
Nomenclature	**Source**
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)	Brown & Sharpe Mfg. Co. Precision Park Frenchtown Road North Kingstown, R.I. 02852

SERVICE BULLETIN

2. PROCEDURE

PART 1 –MAIN HOUSING ASSEMBLY INSPECTION

a. Detach bellcrank as follows:

1. Remove cotter pin, nut, washers, bearings, and bolt attaching bellcrank to tail rotor gearbox main housing. Be prepared to receive bearing if it falls away.

2. Swing bellcrank aside.,

b. Inspect hole in main housing 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 still within tolerance, reattach bellcrank to pitch control assembly and to gearbox main housing.

PART 2 – MAIN HOUSING ASSEMBLY REPAIR

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

NOTE: The tail rotor drive shaft and the tail rotor transmission must be removed as a unit.

b. Remove tail rotor assembly. (Refer to Section 8, Basic HMI.)

c. Remove (or open) tail rotor drive shaft access doors (refer to Section 2, Basic HMI). (See Figure 1.)

d. Remove three bolts and washers securing tail rotor drive shaft to output shaft coupling on main transmission.

e. Disconnect chip detector wire from tail rotor transmission.

f. Remove four nuts and washers attaching tail rotor transmission to tailboom.

CAUTION To prevent damage to the transmission input shaft coupling during and after shaft removal, provide level support for both transmission and tail rotor drive shaft. Weight of these items might buckle the coupling diaphram.

g. Obtain personnel assistance in guiding shaft through damper. Remove tail rotor transmission and tail rotor drive shaft as an assembly. Slowly and carefully slide assembly aft until drive shaft clears tailboom.

CAUTION Do not carry or otherwise support transmission by use of the coupling. Use care with removal tools to prevent scratching of the coupling diaphragms.

h. Support assembly along its entire length, remove three coupling bolts and washers, and remove drive shaft from tail rotor transmission. 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.

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

j. Wrap splines and cover chip detector stud with Cadpack T131 barrier material, or suitable substitute. Apply tape over all crevices to prevent lodgment of metal chips or entry of contaminants into sheltered areas.

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

l. 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.

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

n. Ream or drill 0.438 inch hole.

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

p. 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.

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.

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

r. Wash bushing with MEK, and dry thoroughly.

s. 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).

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

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

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

SERVICE BULLETIN

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

x. Reinstall tail rotor drive shaft and transmission per instructions in paragraph 9-60, Basic HMI.

y. Record compliance with this Service Information Notice in Compliance Record of the helicopter log book.

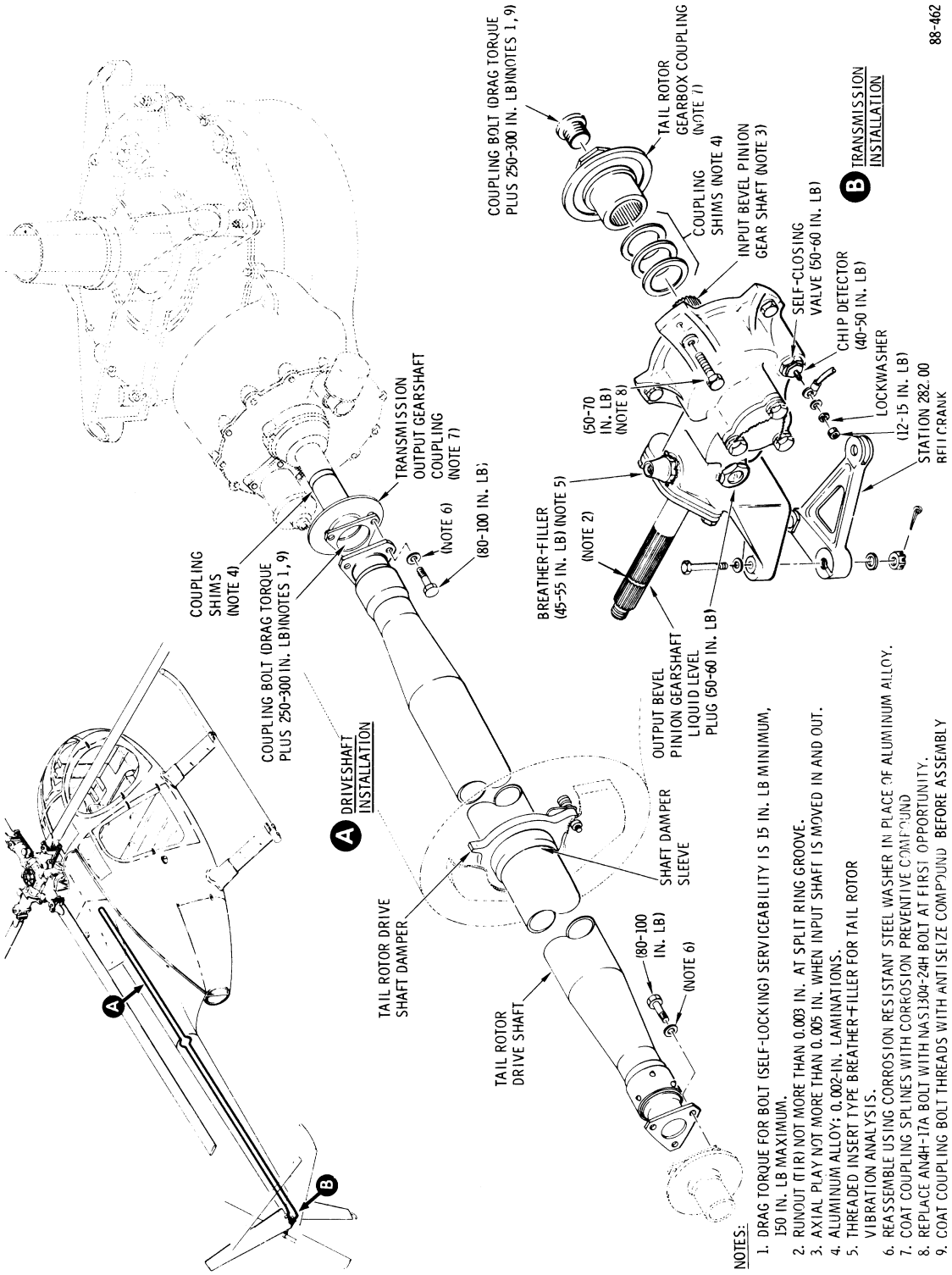

Figure 1. Tail Rotor Transmission and Drive Shaft Essential Components

SERVICE BULLETIN

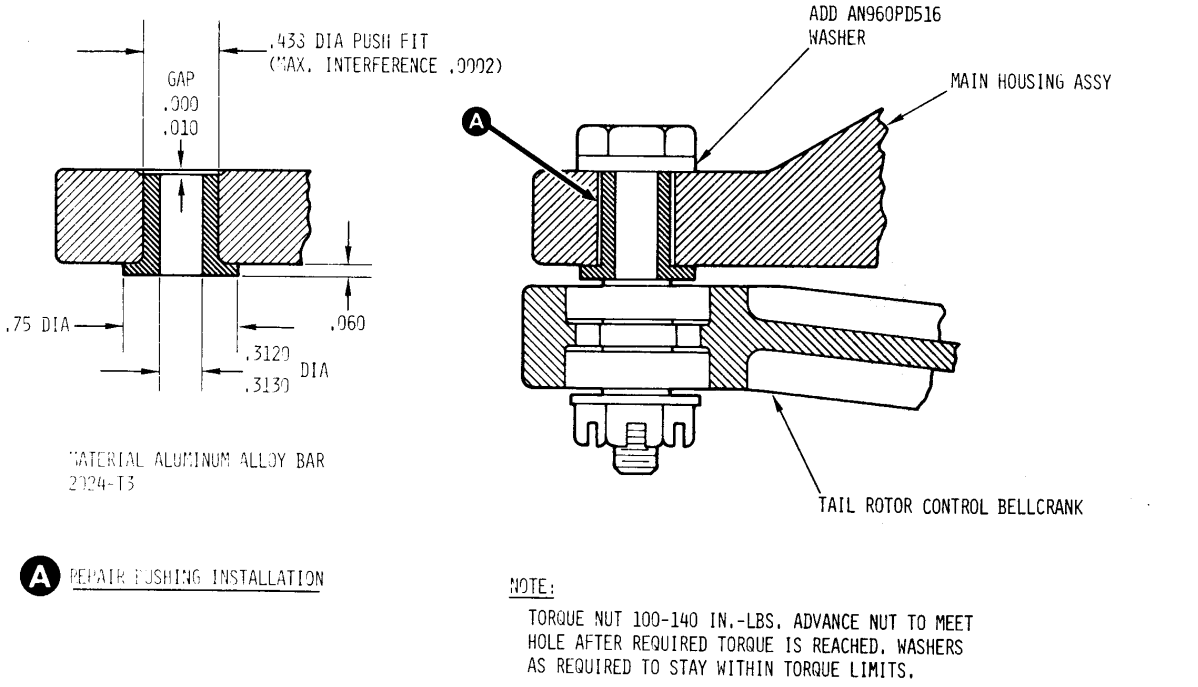

Figure 2. Repair Bushing Fabrication and Installation Details

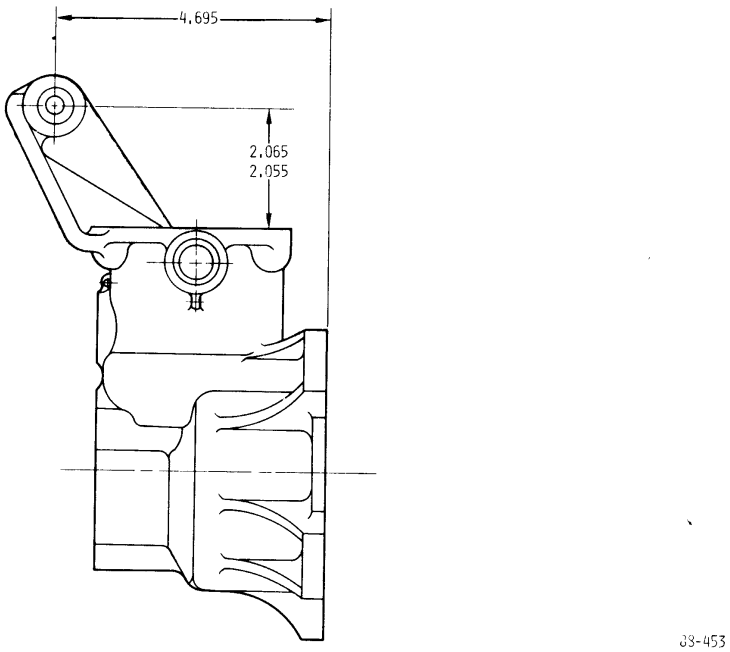

Figure 3. Main Housing Assenbly Support Arm Hole Center Locating Diagram