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single-engine **SERVICE LETTER**

MARKETING DIVISION • CESSNA AIRCRAFT COMPANY
WICHITA, KANSAS 67201 • CABLE ADDRESS / CESSCO WICHITA

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SUBJECT: ELEVATOR TRIM TAB ACTUATING SYSTEM MAINTENANCE

AIRCRAFT AFFECTED: All single engine aircraft incorporating
elevator trim tab systems.

REASON FOR LETTER:

It is important that the elevator trim tab actuating systems used on Cessna single engine aircraft be serviced periodically because of the effect these systems have on the overall operation of the elevator. Areas of importance are ---

1. The amount of free-play which can result from wear is to be kept at a minimum.
2. All component parts are to be periodically cleaned, inspected and lubricated.

To assist Service personnel in maintaining elevator trim tab actuating systems on in-service aircraft the inspection and servicing requirements contained in the aircraft Service Manual have been expanded as shown below.

ACTION REQUIRED:

1. At each 100 hours of operation perform the elevator trim tab system free-play inspection as outlined in the attached instructions (Paragraph A).
2. At each 1000 hours of operation (or every 3 years, whichever occurs first), remove the tab actuator, inspect the components and relubricate according to the procedures given in the attached instructions.

NOTE

Aircraft which currently have 1000 hours or greater time in service must accomplish item #2 above within the next 100 hours of operation.

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PARTS INFORMATION:

Part number information for the component parts of the actuating system is shown in the applicable aircraft parts catalog.

Detailed parts for the trim tab actuator assembly are shown in FIGURE 3 of the attached servicing instructions. All parts are available through the Cessna Dealer Organization at the prices shown.

REMARKS:

These new inspection and servicing requirements will be added to all Service Manuals at the next revision.

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THE CESSNA AIRCRAFT COMPANY

ELEVATOR TRIM TAB ACTUATOR SERVICING PROCEDURES

A. TRIM TAB FREE-PLAY INSPECTION

1. Place elevators and trim tab in neutral position.
2. Using moderate pressure, move trim tab trailing edge up and down by hand to check free-play.
 - a. Free-play tolerances are established in Advisory Circular AC43.13-1, paragraph 42 and the procedure below is based upon those recommendations.
 - b. (Refer to Figure 1). Total free-play (dimension B) at the tab trailing edge must be less than 2.5% of the tab chord, (dimension A). Both dimension A & B are to be measured at the same station as the tab push-pull horn. Dimension A will also be measured perpendicular to the tab hinge line.

Example: $A \times .025 = B$. For a trim tab measuring 6" the maximum free-play would be $6" \times .025 = 0.15"$ maximum.

3. If the trim tab free-play is less than allowable, the system is within prescribed limits.

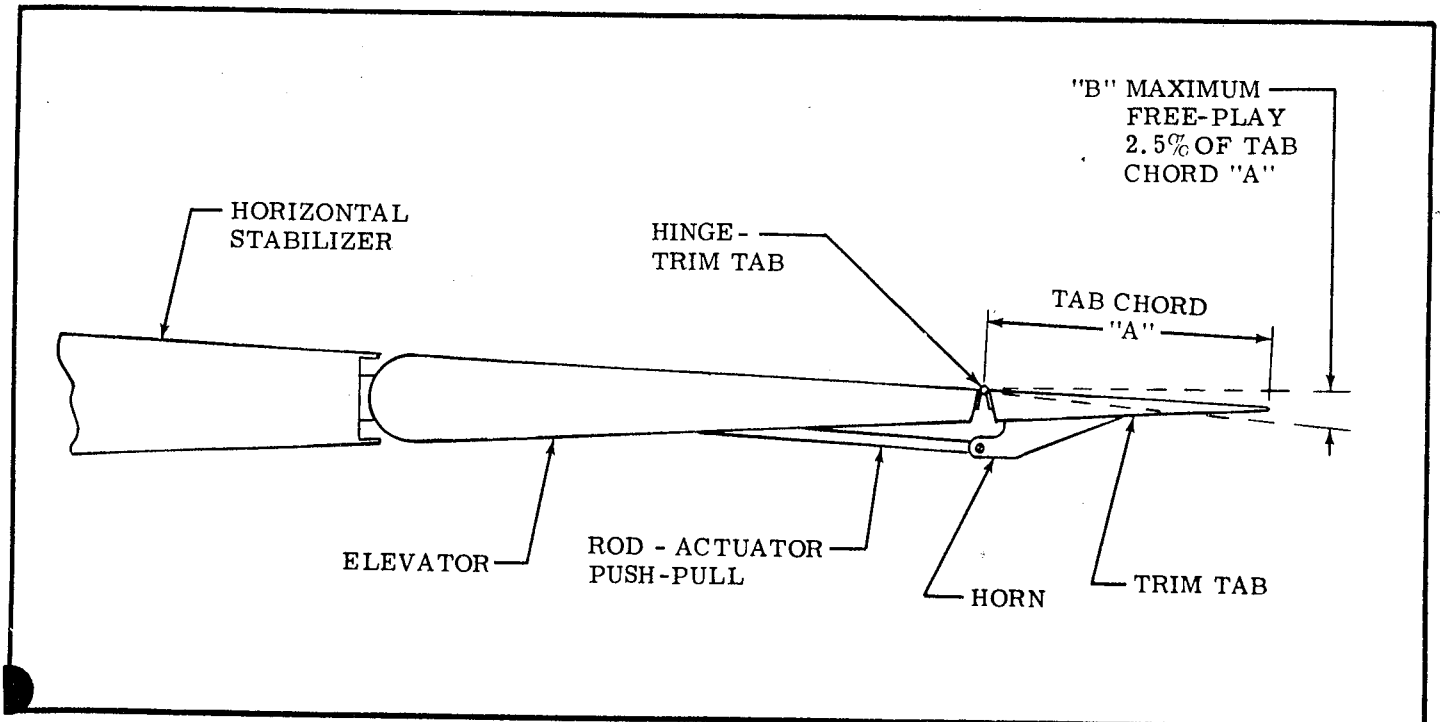


Figure 1. Trim Tab Free-Play Geometry.

A. TRIM TAB FREE-PLAY INSPECTION (Contd.)

4. If trim tab free-play is greater than maximum allowable, check the following items for looseness while moving the trim tab up and down:
 - (a) Check push-pull tube to trim tab horn assembly attachment for looseness while moving the trim tab up and down:
 - (b) Check push-pull tube to actuator assembly threaded rod-end attachment for looseness.
 - (c) Check actuator assembly threaded rod end for looseness in the actuator assembly with push-pull tube disconnected.
 - (d) If looseness is apparent while checking steps 5a and 5b above, repair by installing new parts.
 - (e) If looseness is apparent while checking step 5c above, repair in accordance with paragraph B below or replace the actuator assembly.

B. ELEVATOR TRIM TAB ACTUATOR REPAIR

1. ACTUATOR REMOVAL. (Refer to Figure 2)

- a. Refer to the Applicable Cessna Service Manual as a guide to this procedure.
 - (1) Secure a stand under tail tie-down ring as a support when working inside tailcone.
 - (2) Remove baggage compartment aft wall to gain access to cable and turnbuckle.
 - (3) Remove safety wire from turnbuckle and relieve tension.
 - (4) Remove access covers as required to gain access to actuator and push-pull tube. Disconnect push-pull tube from actuator rod end (6).
 - (5) Remove chain guard (2 or 18), where applicable, and disengage chain from actuator sprocket (14 or 19).
 - (6) Remove hardware securing actuator in accordance to service manual procedure and carefully remove actuator from aircraft.

2. ACTUATOR DISASSEMBLY. (Refer to Figure 2)

- a. Disassemble actuator as follows:
 - (1) Using suitable punch and hammer, remove GROOV-PINS (11 or 16) securing sprocket (14 or 19) to screw (10). Remove sprocket from screw. Where applicable remove collar (17).
 - (2) Unscrew threaded rod end (6) and remove rod end from actuator.

2. ACTUATOR DISASSEMBLY (Contd.)

- (3) Drive out GROOV-PINS (9) securing bearings (7 & 15) in housing (3 or 20).
- (4) Lightly tap screw (10) at sprocket end to remove bearing (7), O-ring (8) and collar (12).
- (5) Lightly tap screw (10) toward sprocket end to remove bearing (15) and collar (12).

NOTE

It is not necessary to remove retaining rings (4).

3. CLEANING INSPECTION AND REPAIR. (Refer to Figure 2)

- a. Clean all component parts as follows:

NOTE

DO NOT remove sealed bearing (5) from threaded rod end (6) unless replacement is necessary. DO NOT clean bearing (5) when cleaning rod end.

- (1) Wash all component parts, except bearing (5), in Stoddard solvent or equivalent.
- b. Inspection of components as follows:
 - (1) Inspect all parts for obvious indications of damage such as stripped threads, cracks, deep nicks and dents.
 - (2) Inspect bearings (7 & 15), screw (10) and threaded rod end (6) for excessive wear and scoring.
 - (3) Check minimum and maximum diameter allowances as follows:

BEARING (15)		
INSIDE DIA.	0.373" MIN.	0.380" MAX.
BEARING (7)		
INSIDE DIA.		
SMALL DIA.	0.248" MIN.	0.253" MAX.
LARGE DIA.	0.373" MIN.	0.380" MAX.
ROD END (6)		
OUTSIDE DIA.		
(SHANK)	0.242" MIN.	0.246" MAX.
SCREW (10)		
OUTSIDE DIA.	0.367" MIN.	0.370" MAX.
(AT BEARING SURFACES)		

NOTE

Relative linear movement between internal threaded screw (10) and bearing (7) should be 0.004" to 0.010" at room temperature.

- (4) Check threaded rod end (6) and screw (10) for damaged threads or foreign particles that may impair smooth operations.
- (5) Check sprocket (14 or 19) for broken, chipped and/or worn teeth.
- (6) Check bearing (5) for smoothness of operation.

c. Actuator Repair.

- (1) DO NOT attempt to repair damaged or worn parts of the actuator assembly. Discard all defective parts and install new parts during reassembly.

4. ACTUATOR REASSEMBLY. (Refer to Figure 2)

a. Reassemble the actuator as follows:

NOTE

Discard the following existing parts and install new parts during reassembly.

- (a) GROOV-PINS (9) & (11 or 16)
- (b) O-ring (8)
- (c) Nuts (13) (where applicable)

- (1) During reassembly, lubricate collars (12), screw (10) and threaded rod end (6) with MIL-G-21164C High & Low Temperature Grease (Molybdenum Disulfide Grease).
- (2) Install collar (12) and bearing (15) on screw (10).
- (3) Where applicable install collar (17) on screw (10). Press sprocket (14) into end of screw (10), align pin holes and install new GROOV-PINS (11 or 16).
- (4) Insert screw (10) into housing (3 or 20), making sure same end of housing is toward sprocket as when disassembled. Press bearing (15) into housing until bearing is flush with housing end.
- (5) If new bearing (15) is installed they must be drilled on assembly as they are not pre-drilled. Using a 1/16" (.0625) drill bit, carefully drill bearing so bit will emerge from hole on opposite side of housing (3). DO NOT ENLARGE HOLES IN HOUSING.
- (6) Press new GROOV-PINS into pinholes.
- (7) Install collar (12), new O-ring (8) and bearing (7) on screw (10) at opposite end of housing (3). Press bearing in flush with end of housing.
- (8) If new bearing (7) is installed refer to step (5).

- (9) Press new GROOV-PINS into pin holes.
- (10) If a new bearing (5) is required, a new bearing may be pressed into the rod end boss. Be sure force bears against the outer race of bearing.
- (11) Screw threaded rod end (6) into screw (10).

5. OPERATIONAL CHECKOUT.

- a. Test actuator assembly by rotating sprocket (14) with fingers while holding threaded rod end (6). The threaded rod end should travel in and out smoothly with no indication of binding.
- b. Reinstall actuator assembly by reversing steps in paragraph 1. section B of this procedure.
- c. Rig trim tab system in accordance with applicable Cessna Service Manual.
- d. Replace access covers and any other items removed to gain access and rig system.
- e. Recheck trim tab free-play.

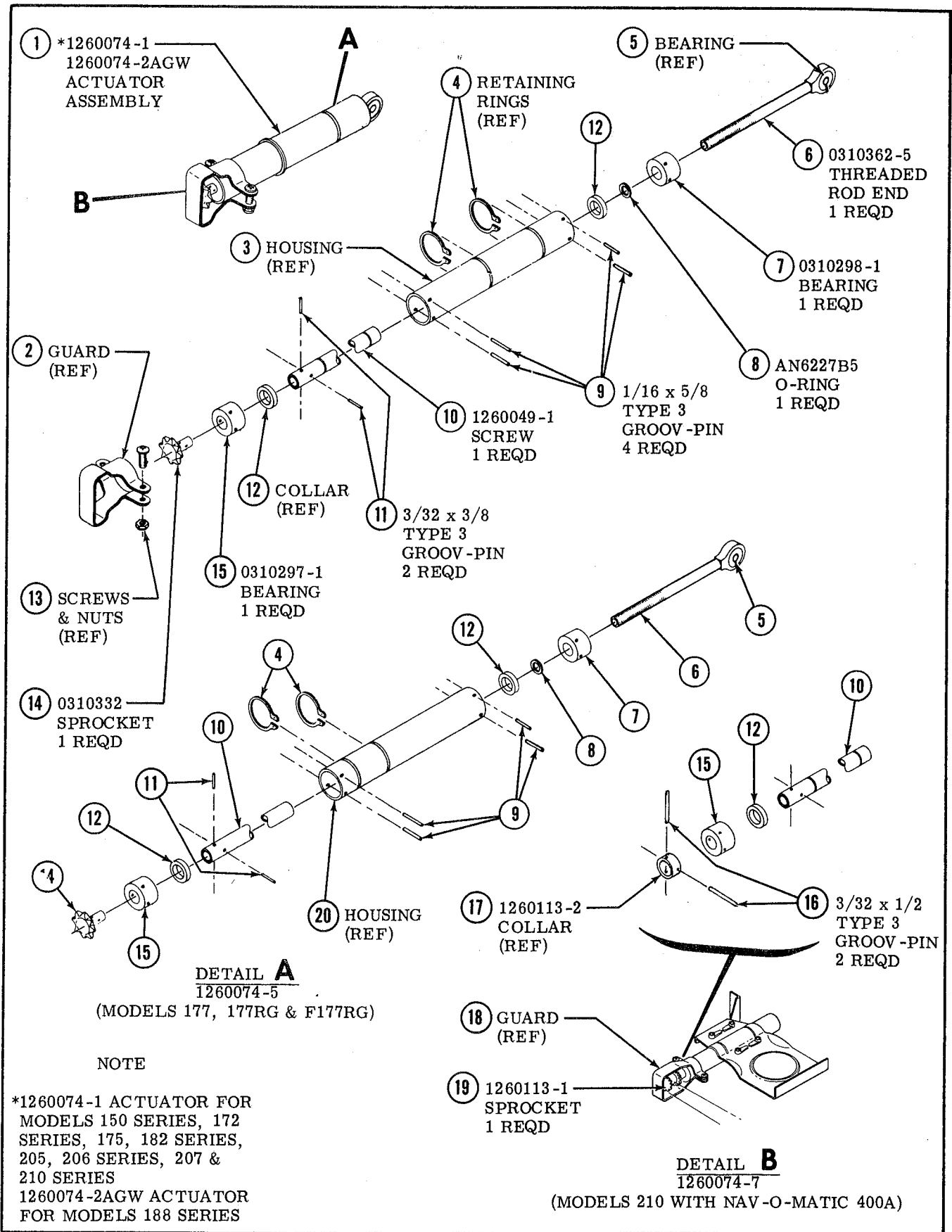
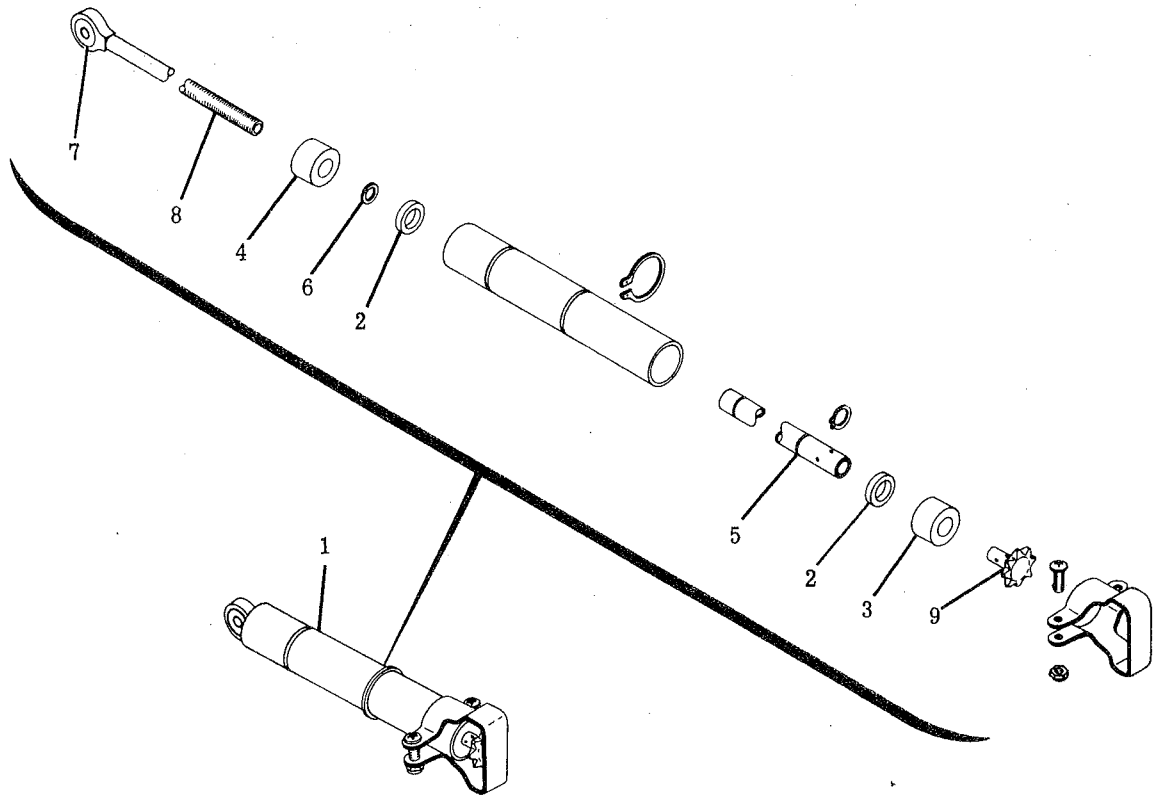


Figure 2. Elevator Trim Tab Actuator.



ITEM	PART NUMBER	DESCRIPTION	QUANTITY	UNIT PRICE
1	1260074-1	Actuator	1	\$58.00 (S)
	1260074-2	Actuator	1	\$59.80 (S)
	1260074-5	Actuator	1	\$59.40 (S)
2	0310295	Collar	2	\$.98 (S)
3	0310297-1	Bearing	1	\$.27 (S)
4	0310298-1	Bearing	1	\$.38 (S)
5	1260049-1	Screw	1	\$ 8.39 (S)
6	AN6227B5	Packing	1	\$.47 (S)
7	PN3A	Bearing	1	\$ 2.54 (S)
8	0310362-5	Screw Assy.	1	\$26.10 (S)
9	0310332	Sprocket	1	\$ 2.34 (S)

Figure 3. Elevator Trim Tab Actuator Components.