

TITLE

FLIGHT CONTROLS - ELEVATOR TRIM-TAB PUSH-PULL TUBE HARDWARE REPLACEMENT

EFFECTIVITY

The following Cessna Aircraft Models (all serial numbers):

310 thru 310R, E310H, E310J, 310J-1, T310P thru T310R

320 thru 320F, 320-1

335

340, 340A

401 thru 401B

402 thru 402C

411, 411A

414, 414A

421 thru 421C

REASON

To replace the hardware securing the elevator trim tab push-pull tube to the elevator trim tab actuator and the elevator trim tab horn.

DESCRIPTION

This service bulletin provides instructions to replace the hardware connecting the elevator trim tab push-pull tube to the elevator trim actuator and elevator trim tab.

COMPLIANCE

MANDATORY. This service bulletin must be accomplished at the next 100-hour or 12-month (annual-type) inspection, whichever occurs first.

NOTE: A general visual inspection for correct installation and security of the elevator trim tab push-pull tube connecting hardware and an inspection for tab deflection (free play) shall be completed during each subsequent 100-hour or 12-month (annual) type inspection after the accomplishment of this service bulletin. The general visual inspection should check all elevator trim actuator and elevator trim tab horn to push-pull tube connection hardware for condition, corrosion, cracking, security, cotter pin installation for proper safety, and the elevator and elevator trim system for uninterrupted, proper operation through the full travel of the elevator and elevator trim tab surfaces (pitch up/pitch down and nose up/nose down trim respectively). Perform the elevator trim tab deflection (free play) check per the applicable maintenance or service manual.

A service bulletin published by Cessna Aircraft Company may be recorded as "completed" in an aircraft log only when the following requirements are satisfied:

- 1) The mechanic must complete all of the instructions in the service bulletin, including the intent therein.
- 2) The mechanic must correctly use and install all applicable parts supplied with the service bulletin kit. Only with written authorization from Cessna Aircraft Company can substitute parts or rebuilt parts be used to replace new parts.

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MEB-27-02
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- 3) The mechanic or airplane owner must use the technical data in the service bulletin only as approved and published.
- 4) The mechanic or airplane owner must apply the information in the service bulletin only to aircraft serial numbers identified in the "Effectivity" section of the bulletin.
- 5) The mechanic or airplane owner must use maintenance practices that are identified as acceptable standard practices in the aviation industry and governmental regulations.

No individual or corporate organization other than Cessna Aircraft Company is authorized to make or apply any changes to a Cessna-issued service bulletin, service letter, or flight manual supplement without prior written consent from Cessna Aircraft Company.

APPROVAL

Cessna received FAA approval for the technical data in this publication that changes the airplane type design.

WEIGHT AND BALANCE INFORMATION

Negligible

REFERENCES

FAA Advisory Circular AC43.13-1B

Applicable Cessna Model Maintenance or Service Manual

PUBLICATIONS AFFECTED

Applicable Cessna Model Illustrated Parts Catalog

ACCOMPLISHMENT INSTRUCTIONS

1. Prepare the airplane for maintenance.
 - A. Make sure that the airplane is electrically grounded.
 - B. Make sure that all switches are in the OFF/NORM position.
 - C. Disconnect electrical power from the airplane.
 - (1) Disconnect the airplane battery.
 - (2) Disconnect external electrical power.
 - D. Attach maintenance warning tags to the control columns and elevator trim wheel that have **"DO NOT MOVE ELEVATOR TRIM TAB MAINTENANCE IN PROGRESS"** written on them.
2. (Refer to Figure 1, Sheet 1 and Sheet 2.) Get access to the connecting hardware for the elevator trim tab actuator rod end to push-pull tube and the push-pull tube to elevator trim tab horn.
3. (Refer to Figure 1, Sheet 1 and Sheet 2.) Remove the nut, washer and bolt from the elevator trim tab actuator to push-pull tube connection.
 - A. Discard the removed hardware.

CAUTION: Use of the correct cotter pin, part number MS24665-132, is critical in this installation. Use of a different cotter pin could result in the hardware becoming loose. Cotter pins must not be reused.

NOTE: Any fit problems may be correctable by cleaning out the debris in the internal hole surface of the bearing and/or the clevis or by replacement of the rod or bearing if corrosion or damage dictates the parts cannot be used as is.

4. (Refer to Figure 1, Sheet 1 and Sheet 2.) Install the NAS464P3-8 Bolt, NAS1149F0332P Washer, MS17826-3 Nut and MS24665-132 Cotter Pin in the elevator trim tab actuator rod end to push-pull tube connection as follows:
NOTE: The bolt grip length may be adjusted to the next longer grip length (NAS464P3-9) to permit proper installation of the castellated nut and cotter pin. This may require extra washers (NAS1149F0316P and/or NAS1149F0332P) for proper alignment of the castellated nut cotter pin slot and the cotter pin hole in the bolt.
NOTE: It is permissible to substitute the NAS464P3-X bolt with a NAS6203-X bolt.
 - A. (Refer to Figure 1, Sheet 1 and Sheet 2.) Install the NAS464P3-8 Bolt in the elevator trim tab actuator rod end to push-pull tube connection in the orientation (i.e., bolt head inboard or outboard) which yields the greatest clearance with the spar web cut-out and any other structures.
NOTE: It is permissible to substitute the NAS464P3-X bolt with a NAS6203-X bolt.
 - B. Install the NAS1149F0332P Washer and MS17826-3 Nut onto the NAS464P3-8 Bolt.
 - C. Torque the MS17826-3 Nut 12 Inch-Pounds, if a castellation of the nut does not align with the cotter pin hole in the bolt, continue tightening to the next alignment position up to 20 Inch-Pounds.
 - D. Make sure a minimum of one full bolt thread is protruding from the castellated nut.
 - E. Install the MS24665-132 Cotter Pin.
5. (Refer to Figure 1, Sheet 1 and Sheet 2.) Remove the nut, washer and bolt from the elevator trim actuator push-pull tube to elevator trim tab horn.
 - A. Discard the removed hardware.
CAUTION: Use of the correct cotter pin, part number MS24665-132, is critical in this installation. Use of a different cotter pin could result in the hardware becoming loose. Cotter pins must not be reused.
NOTE: Any fit problems may be correctable by cleaning out the debris in the internal hole surface of the bearing and/or the clevis or by replacement of the rod or bearing if corrosion or damage dictates the parts cannot be used as is.
6. (Refer to Figure 1, Sheet 1 and Sheet 2.) Install the NAS464P3-8 Bolt, NAS1149F0332P Washer, MS17826-3 Nut and MS24665-132 Cotter Pin in the elevator trim tab actuator push-pull tube to elevator trim tab horn connection as follows:
NOTE: The bolt grip length may be adjusted to the next longer grip length (NAS464P3-9) to permit proper installation of the castellated nut and cotter pin. This may require extra washers (NAS1149F0316P and/or NAS1149F0332P) for proper alignment of the castellated nut cotter pin slot and the cotter pin hole in the bolt.
NOTE: It is permissible to substitute the NAS464P3-X bolt with a NAS6203-X bolt.
 - A. (Refer to Figure 1, Sheet 1 and Sheet 2.) Install the NAS464P3-8 Bolt in the push-pull tube to elevator trim tab horn.
NOTE: It is permissible to substitute the NAS464P3-X bolt with a NAS6203-X bolt.
 - B. Install the NAS1149F0332P Washer and MS17826-3 Nut onto the NAS464P3-8 Bolt.
 - C. Torque the MS17826-3 Nut 12 Inch-Pounds, if a castellation of the nut does not align with the cotter pin hole in the bolt, continue tightening to the next alignment position up to 20 Inch-Pounds.
 - D. Make sure a minimum of one full bolt thread is protruding from the castellated nut.
 - E. Install the MS24665-132 Cotter Pin.
7. Check the elevator and elevator trim system for uninterrupted, proper operation through the full travel of the elevator and elevator trim tab surfaces (pitch up/pitch down and nose up/nose down respectively).

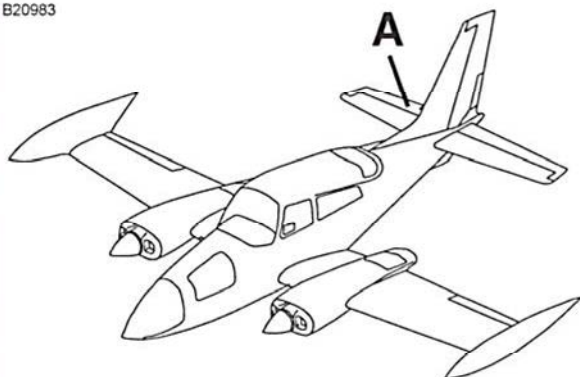
WARNING: If there is any increased friction or interference felt during full yoke travel from full pitch up through full pitch down, and full elevator trim travel from full nose up through full nose down do not proceed any further until the source of the interference or increased friction has been determined and resolved.

8. Make sure the elevator trim tab deflection (free-play) is within the limits specified in the applicable Maintenance or Service Manual and adjust as necessary. (Refer to the applicable Maintenance or Service Manual.)
 9. Make sure the elevator trim tab rigging is within the limits specified in the applicable Service/Maintenance Manual and adjust as necessary. (Refer to the applicable Maintenance or Service Manual.)
 10. Operate the elevator trim tab through the full travel of nose up and nose down and while the elevator trim tab and elevator are moving, do a general visual inspection that there is no interference between any of the areas that follow:
 - between the elevator trim tab actuator rod end to elevator trim tab actuator push-pull tube bolt head and the elevator spar web material
 - between the elevator trim tab horn to elevator trim tab actuator push-pull tube bolt head or nut and the cutout in the lower elevator skin
 - between any other connection hardware and the elevator spar web material
 - between any other connection hardware and the cutout in the spar web
 - between any other connection hardware and the cutout in the elevator skin
 - between any moveable parts and other potential interference
- A. If there is not sufficient clearance or if there is interference at the elevator front spar web, record the orientation of the elevator trim tab actuator rod end to elevator trim tab actuator push-pull tube bolt head and other connection hardware.
- (1) (Refer to Figure 1, Sheet 1 and Sheet 2.) Disconnect the elevator trim tab actuator rod end to elevator trim tab actuator push-pull tube connecting hardware.
 - (a) Discard the cotter pin.
 - (2) (Refer to Figure 1, Sheet 1 and Sheet 2.) Install the NAS464P3-8 Bolt in the elevator trim tab actuator rod end to push-pull tube connection in the orientation opposite to how it was removed.

NOTE: It is permissible to substitute the NAS464P3-X bolt with a NAS6203-X bolt.
 - (3) (Refer to Figure 1, Sheet 1 and Sheet 2.) Install the previously removed Washer(s) and MS17826-3 Nut onto the NAS464P3-8 Bolt.
 - (4) Torque the MS17826-3 Nut 12 Inch-Pounds, if a castellation of the nut does not align with the cotter pin hole in the bolt, continue tightening to the next alignment position up to 20 Inch-Pounds.
 - (5) Make sure a minimum of one full bolt thread is protruding from the castellated nut.
 - (6) (Refer to Figure 1, Sheet 1 and Sheet 2.) Install the MS24665-132 Cotter Pin.
- B. (If adjustments to the hardware were made.) Operate the elevator trim tab through the full travel of nose up and nose down and while the elevator trim tab and elevator are moving, do a general visual inspection that there is no interference between any of the areas that follow:
- between the elevator trim tab actuator rod end to elevator trim tab actuator push-pull tube bolt head and the elevator spar web material
 - between the elevator trim tab horn to elevator trim tab actuator push-pull tube bolt head or nut and the cutout in the lower elevator skin
 - between any other connection hardware and the elevator spar web material
 - between any other connection hardware and the cutout in the spar web
 - between any other connection hardware and the cutout in the elevator skin

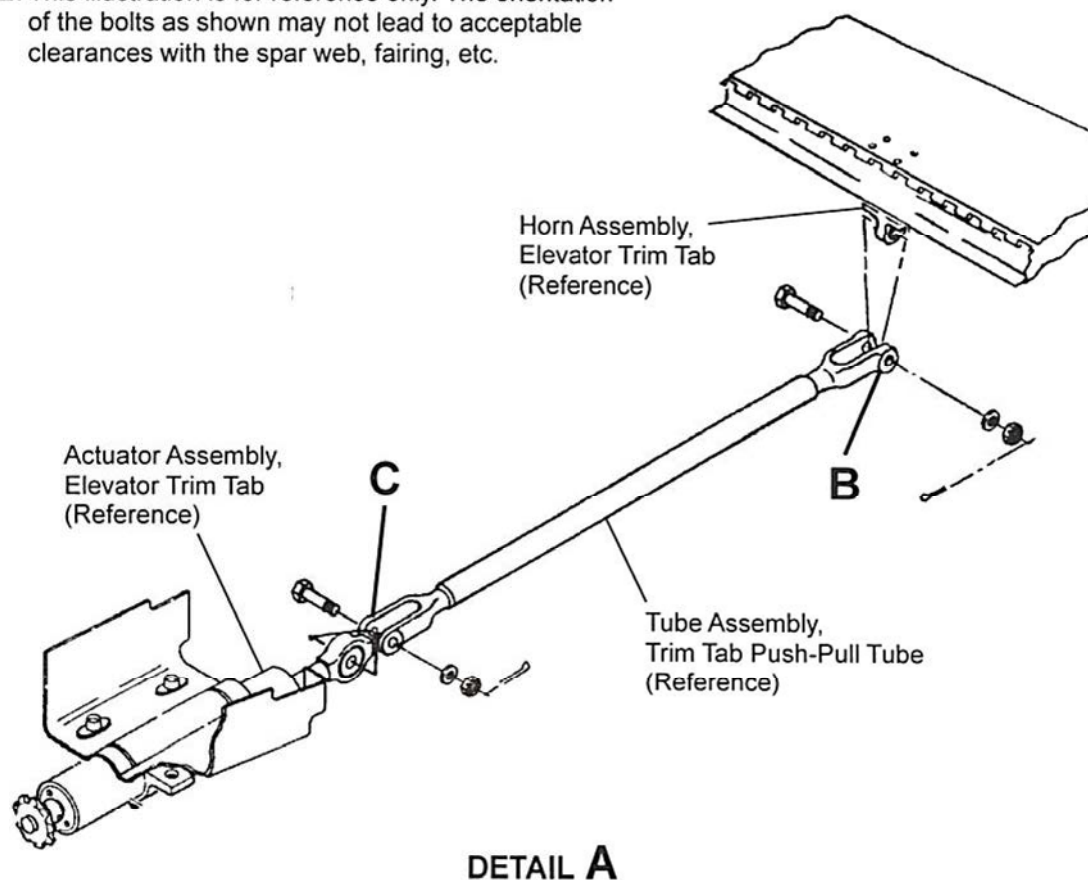
- between any moveable parts and other potential interference
 - (1) If interference still exists between the elevator trim tab actuator rod end to elevator trim tab actuator push-pull tube hardware and the elevator spar web material, spar web cutout or other material, contact Textron Aviation for further direction.
11. Make sure there is uninterrupted, with no interference, full travel of the elevator control system and the elevator trim system in the pitch up, pitch down and nose up, nose down travels.
 12. Make sure all hardware removed in Steps 3 and 5 is discarded.
 13. Remove the maintenance warning tags and connect the airplane battery.
 14. Make an entry in the airplane logbook that states compliance and method of compliance with this service bulletin.

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NOTE: Model 310R shown, location for trim tab push-pull tube similar on other models.

NOTE: This illustration is for reference only. The orientation of the bolts as shown may not lead to acceptable clearances with the spar web, fairing, etc.

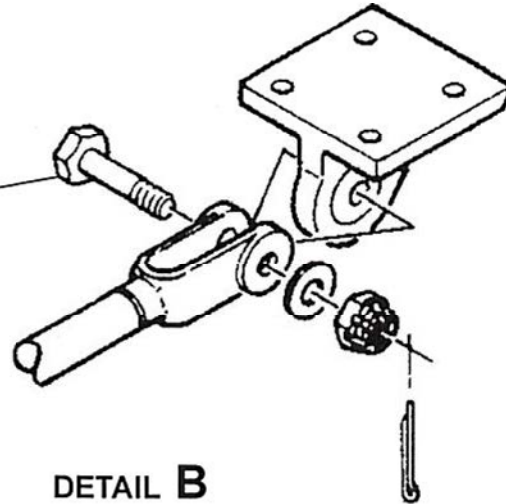


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Figure 1. Elevator Trim-Tab Push-Pull Tube Hardware (Sheet 1)

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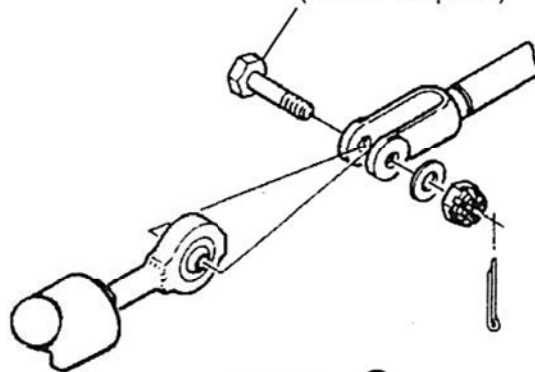
NAS464P3-8 or
NAS464P3-9
Bolt
(1 Required)
NAS1149F0332P
and/or
NAS1149F0316P
Washer
(1 or More as Required)
MS17826-3
Nut
MS24665-132
Cotter Pin
(1 Each Required)



DETAIL B

NOTE: This illustration is for reference only.
The orientation of the bolts as shown may
not lead to acceptable clearances with
the spar web, fairing, etc.

NAS464P3-8 or
NAS464P3-9
Bolt
(1 Required)
NAS1149F0332P
and/or
NAS1149F0316P
Washer
(1 or More as Required)
MS17826-3
Nut
MS24665-132
Cotter Pin
(1 Each Required)



DETAIL C

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Figure 1. Elevator Trim-Tab Push-Pull Tube Hardware (Sheet 2)

MATERIAL INFORMATION

Order the kit below to install this modification.

NEW P/N	QUAN- TITY	KEY WORD	OLD P/N	INSTRUCTIONS/ DISPOSITION
MEB-27-02	1	Kit, consisting of the following parts:		
NAS464P3-8	2	Bolt	Same	Discard Old, Install New
■ NAS464P3-9	2	Bolt	Same	If longer grip-length is needed
■ NAS1149F0316P	2	Washer	Same	Install as needed for correct cotter pin alignment
■ NAS1149F0332P	6	Washer	Same	Discard Old, Install New as needed for correct cotter pin alignment
MS17826-3	2	Nut	Same	Discard Old, Install New
MS24665-132	2	Cotter Pin	Same	Discard Old, Install New

NOTE: It is permissible to substitute the NAS464P3-X bolt with a NAS6203-X bolts.