

## ELEVATOR - REMOVAL/INSTALLATION

### 1. General

- A. A mechanically actuated elevator is attached to the rear spar of the horizontal stabilizer via hinges and hinge bolts. The elevator provides pitch control for the airplane. Structurally, the elevator consists of two sections bolted together near the airplane centerline via torque tubes. The individual sections are made up of spars, ribs, and skins riveted together. A trim tab is attached to each elevator section trailing edge by piano-type hinges. A balance weight is located in the outboard end of each elevator section, forward of the hinge line, and is accessible through a removable cover.

### 2. Elevator Removal/Installation

- A. Remove Elevator (Refer to Figure 401).

- (1) Remove stinger by removing attaching screws.
- (2) If installed, disconnect tail navigation light wire at quick-disconnect. Refer to Chapter 33, Incandescent Navigation Lights - Maintenance Practices Stinger Navigation Light Removal/Installation.
- (3) Remove three bolts (20) attaching left torque tube (11), right torque tube (6), and adaptors (15) to pushrod arm assembly (25).
- (4) Disconnect elevator trim tab pushrods at trim tab horns (12), both sides. Retain pushrod clevis bushings, two each per side.  
**NOTE:** To prevent loss of trim tab control system rigging, safety-wire pushrods together on each side.
- (5) Roll elevator trim tab control wheel in cockpit to full nose-up position in order to withdraw elevator trim tab pushrods as far as possible into elevator.
- (6) Remove cotter pins (21) from nuts (22) at each outboard and inboard hinge location of both elevator section and remove nuts (22).
- (7) Support each elevator section and remove inboard hinge bolt (27) and outboard hinge bolt (29) from both sides.
- (8) Withdraw each elevator section from horizontal stabilizer, being careful not to damage elevator trim tab pushrods and torque tube flanges.

- B. Install Elevator (Refer to Figure 401).

- (1) Support each elevator section in turn and carefully guide torque tubes (6) and (12) into mating position with adaptors (15), while guiding elevator trim tab pushrods into elevator recesses forward of horns (12).  
**NOTE:** Instructions for fabricating an elevator attach bolt installation tool are shown on Figure 402. The tool may be used to securely hold elevator attach bolt when inserting it into elevator hinge. To use tool, insert head of bolt between clip and handle of tool.
- (2) Align holes in hinge bearings (17) with holes in hinge brackets (28) and install outboard hinge bolts (29) and then inboard hinge bolts (27).
- (3) Install three bolts (20) through aligned holes of torque tube flanges (11) and (6), adaptors (15), and arm assembly (25).
- (4) Install nuts (22) and washers on inboard and outboard hinge bolts (27) and (29), respectively. Safety nuts (22) with cotter pins (21).
- (5) Install elevator trim tab pushrod bushings through aligned holes in pushrod clevises and pushrod horns (12). Install pushrod bolts, washers, and nuts, and safety four nuts with cotter pins.
- (6) Connect tail navigation light wire at quick-disconnect and install stinger using attach screws.

### 3. Trim Tab Removal/Installation

- A. Remove Trim Tab (Refer to Figure 401)

- (1) Disconnect elevator trim tab pushrods at trim tab horns (12). Retain pushrod clevis bushings, two each per side.
- (2) Remove retaining screw (3) at elevator tip securing hinge pin (4) and remove hinge pin.
- (3) Remove trim tab (5).

- B. Install Trim Tab (Refer to Figure 401)

- (1) Align piano-type hinge halves of trim tab (5) with those of elevator trailing edge and install hinge pin (4).
- (2) Ensure hinge pin (4) has bottomed out in piano-type hinge and install retaining screw (3).

- (3) Align holes in trim tab pushrod clevises with holes in pushrod horn (12) and install push-rod clevis bushings, pushrod bolts, washers, and nuts. Safety nuts with cotter pins.

Figure 401 : Sheet 1 : Elevator Installation

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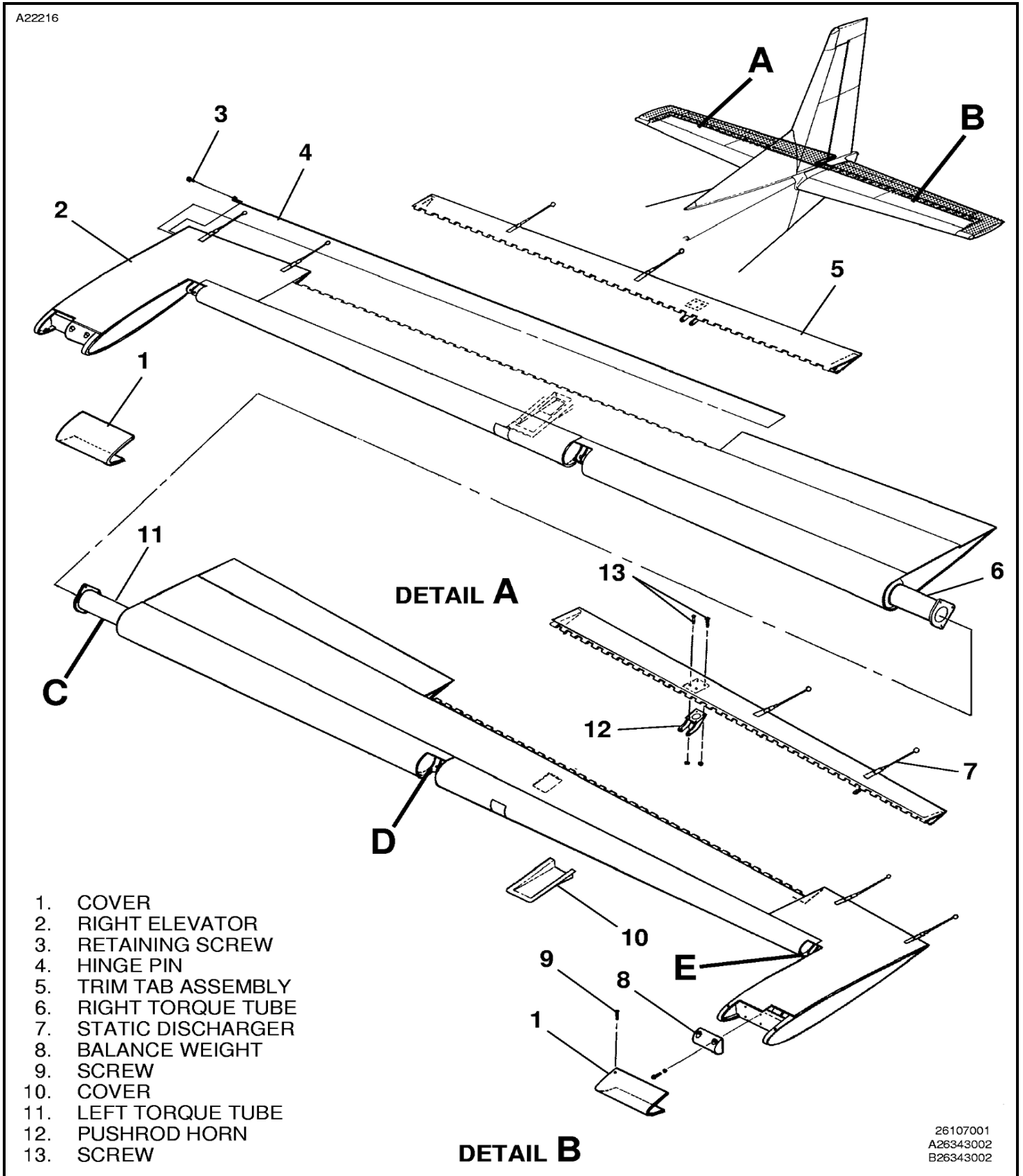
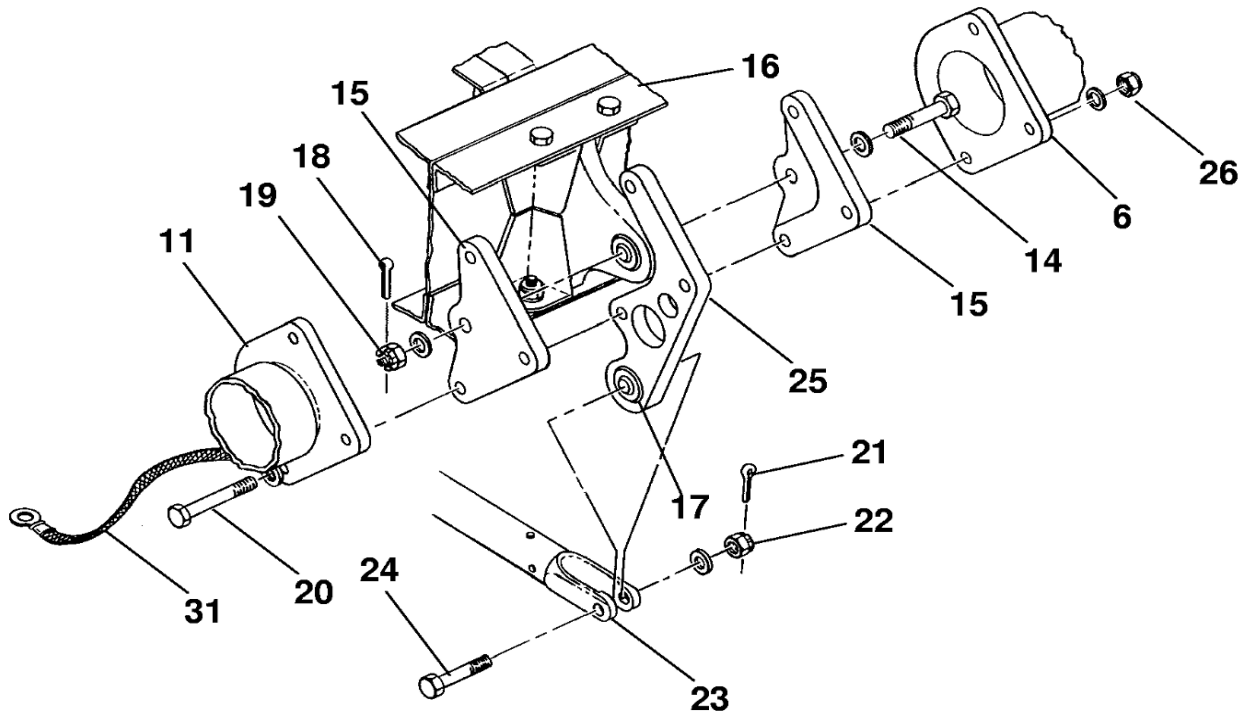
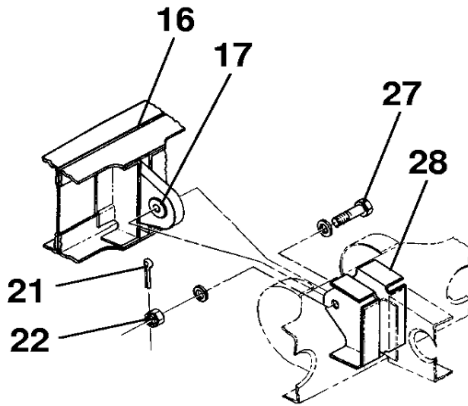


Figure 401 : Sheet 2 : Elevator Installation

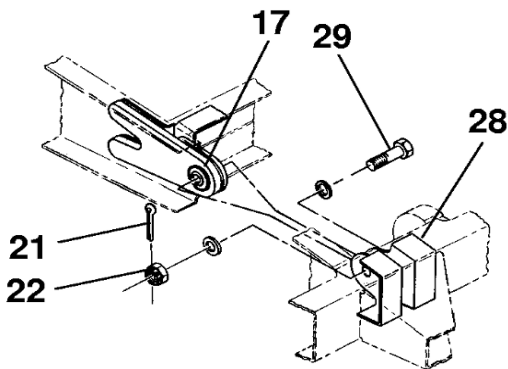
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**DETAIL C**



**DETAIL D**



**DETAIL E**

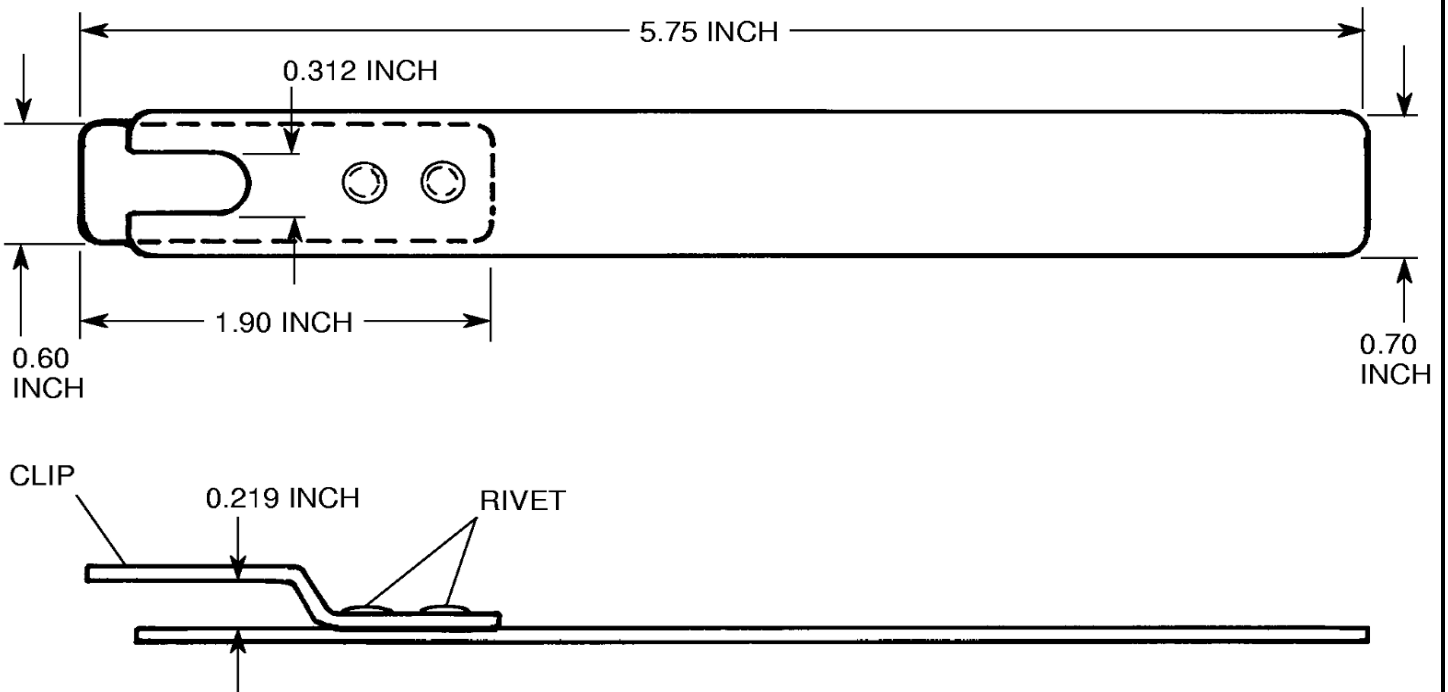
- 14. BOLT
- 15. ADAPTOR
- 16. STABILIZER REAR SPAR
- 17. HINGE BEARING
- 18. COTTER PIN
- 19. NUT
- 20. BOLT
- 21. COTTER PIN
- 22. NUT
- 23. PUSHROD CLEVIS
- 24. BOLT
- 25. PUSHROD ARM ASSEMBLY
- 26. NUT
- 27. INBOARD HINGE BOLT
- 28. HINGE BRACKET
- 29. OUTBOARD HINGE BOLT
- 30. SCREW
- 31. GROUND STRAP

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D26341001  
E26341002

Figure 402 : Sheet 1 : Elevator Bolt Installation Tool Fabrication

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MATERIAL: 0.063 INCH 2024 T3 ALUMINUM



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