

7.4 - FLIGHT CONTROLS

Flight controls consist of roll, pitch and rudder controls, as well as roll trim tab, pitch trim tab and rudder trim tab controls.

NOTE :

During airplane parking, it is recommended to lock flight controls (see Figure 8.6.2)

ROLL (Figure 7.4.1)

The roll control is activated by an assembly of rods and cables which links control wheels with the ailerons and the spoilers.

Aileron displacement is combined with that of spoilers, located at upper surface of each wing forward of flaps.

The spoiler rises from wing upper surface profile, when the aileron is deflected upwards and remains in wing profile, when the aileron is deflected downwards.

Control wheel movement is transmitted through rods to fuselage roll lever located under the floor. The movement is then transmitted through cables to the spoiler mechanism and from the spoiler mechanism to wing roll lever which activates the aileron through a rod.

A rudder / roll combination spring-type system induces roll deflection at the time of pedals movement and vice versa.

ROLL TRIM (Figure 7.4.2)

The roll trim is controlled by a trim tab attached at trailing edge of the L.H. aileron. The trim tab is connected through two links to an electric actuator located in the aileron. A trim switch located on pedestal controls the roll trim tab maneuver.

Roll trim tab electrical circuit is protected by the "AIL-TRIM" circuit breaker.

- 1) Pedestal assembly
- 2) Control wheels
- 3) Fuselage roll lever
- 4) Spoiler
- 5) Aileron
- 6) Aileron control in wing
- 7) Spoiler control

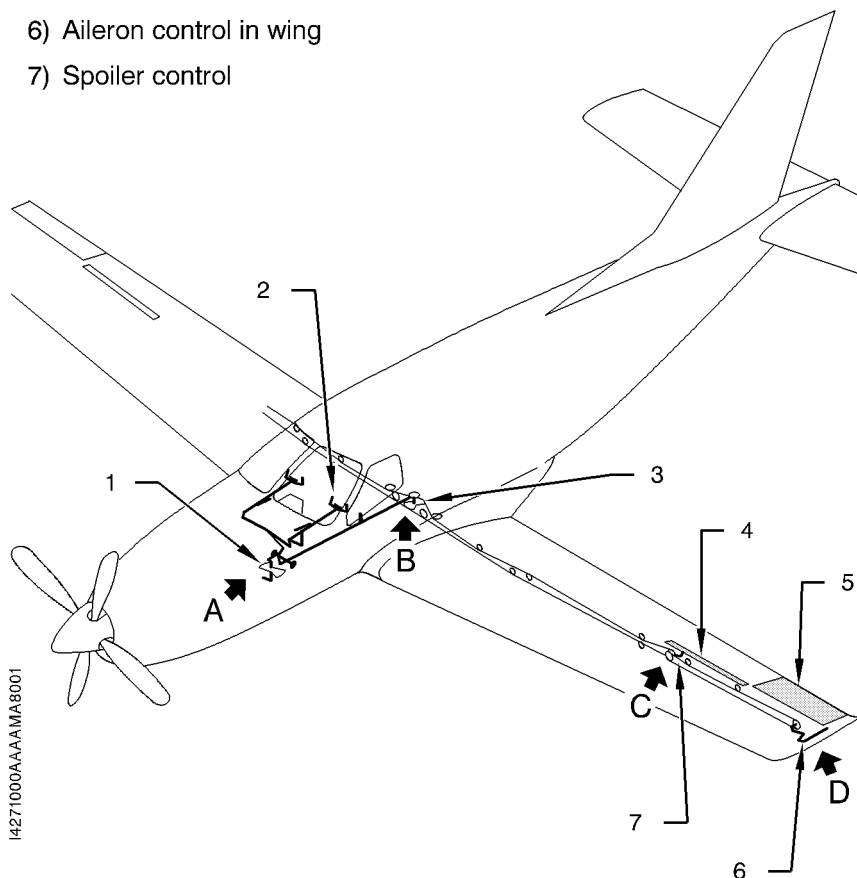
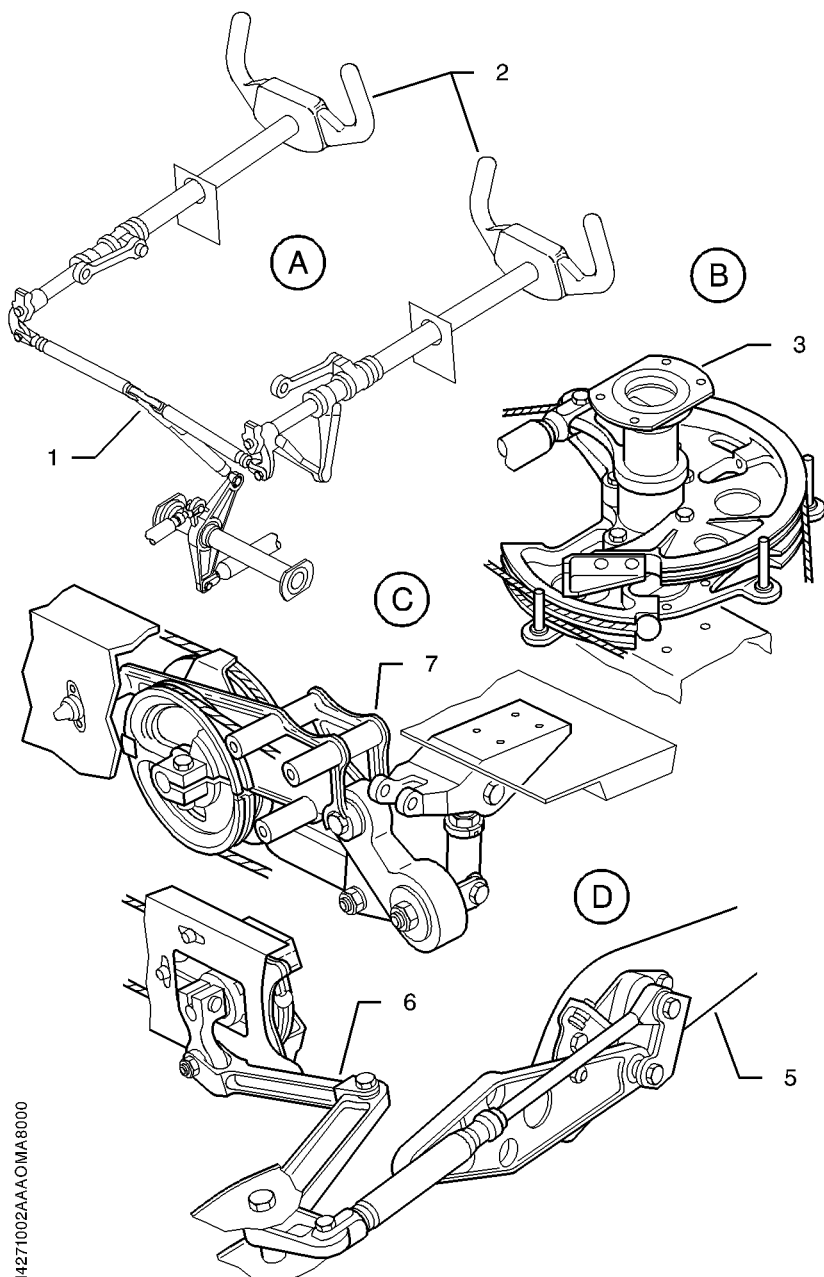


Figure 7.4.1 (1/2) - ROLL



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Figure 7.4.1 (2/2) - ROLL

- 1) Roll trim tab
- 2) Aileron
- 3) Adjustable rods
- 4) Actuator
- 5) Trim tab control wiring
- 6) Aileron trim tab position indicator
- 7) Trim switch on pedestal console

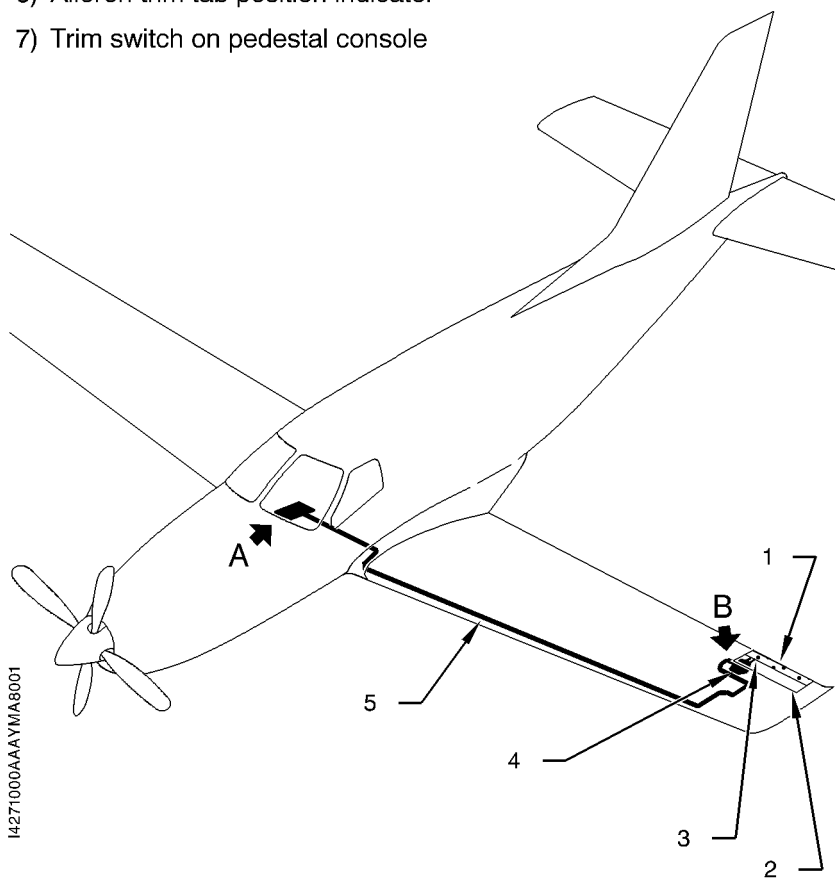


Figure 7.4.2 (1/2) - LATERAL TRIM

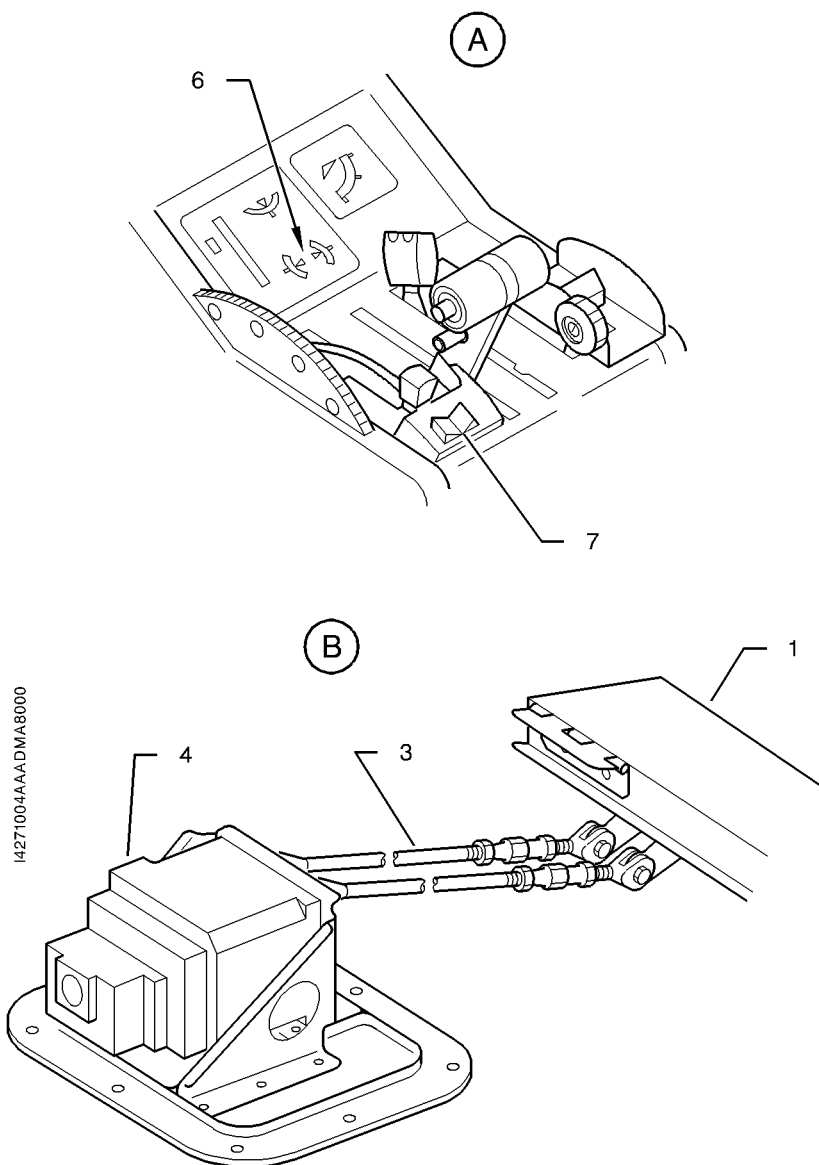


Figure 7.4.2 (2/2) - LATERAL TRIM

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ELEVATOR (Figure 7.4.3)

Both elevators are activated simultaneously by the same control. Each control surface is hinged at three points to the rear part of horizontal stabilizer.

The control wheel controls the two elevators through rods, bearings and bellcranks.

A spring actuator creates a "nose-down" artificial force which allows a better static stability.

Each control surface is provided with an automatic anti-tab (automaticity about 0.3), which is also used as trim tab.

PITCH TRIM (Figure 7.4.4)

The pitch trim is accomplished through the two anti-tabs located on left and right elevators.

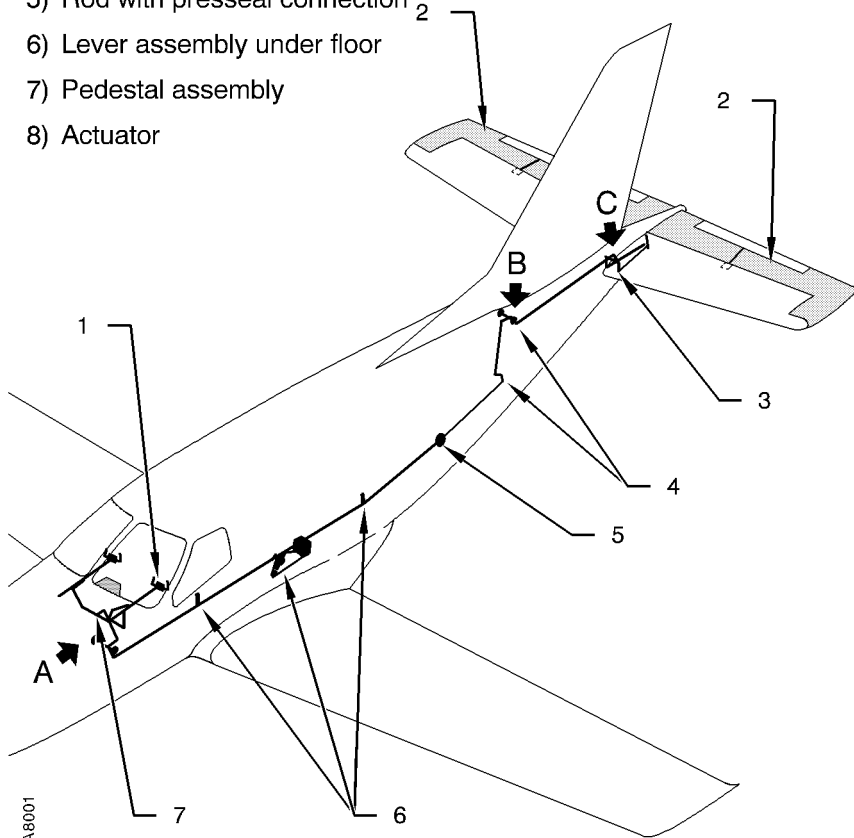
The trim tab can be controlled electrically or manually. It is activated through cables and a chain on two screw jacks attached to the horizontal empennage.

The electrical control consists of a switch located on the pilot control wheel and a servo-motor attached under the pedestal.

The electrical circuit for pitch trims is protected by the "PITCH TRIM" circuit breaker.

Manual control wheel is installed vertically on left side of pedestal console.

- 1) Control wheel assembly
- 2) Elevators
- 3) Lever assembly, fuselage rear part
- 4) Elevator bellcrank
- 5) Rod with presseal connection
- 6) Lever assembly under floor
- 7) Pedestal assembly
- 8) Actuator



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Figure 7.4.3 (1/2) - ELEVATOR

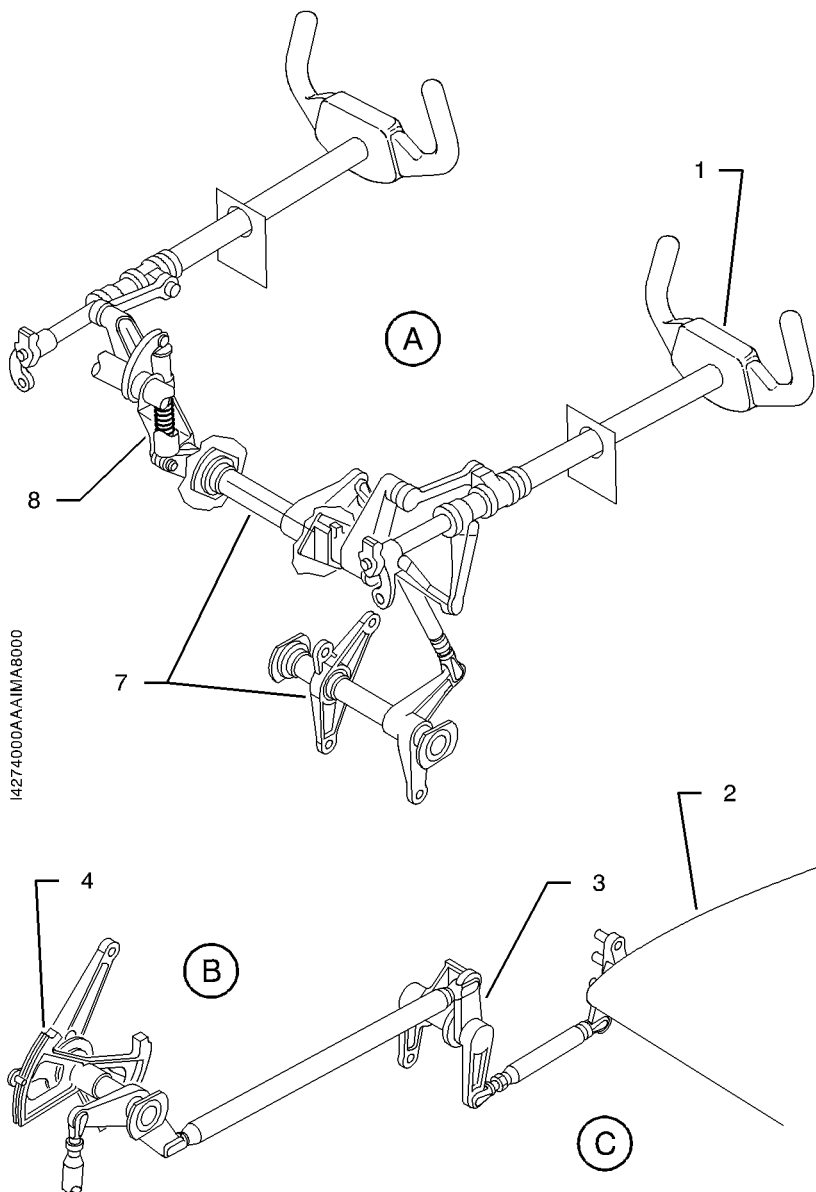
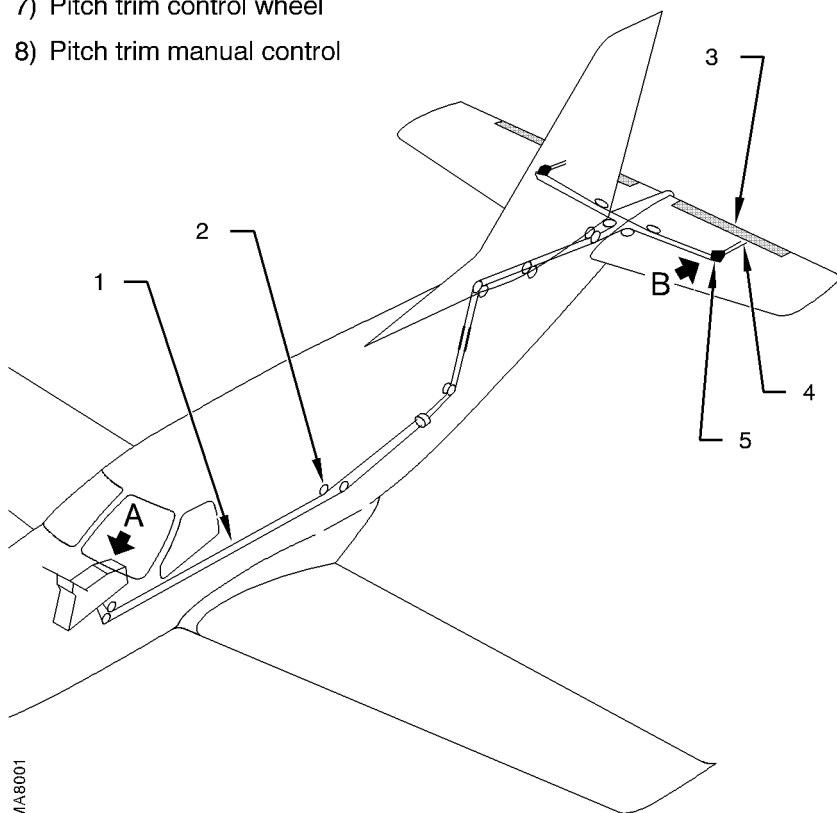


Figure 7.4.3 (2/2) - ELEVATOR

- 1) Cables
- 2) Pulleys
- 3) Pitch trim tabs
- 4) Actuating rods
- 5) Actuator
- 6) Pitch trim tab position indicator
- 7) Pitch trim control wheel
- 8) Pitch trim manual control



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Figure 7.4.4 (1/2) - PITCH TRIM

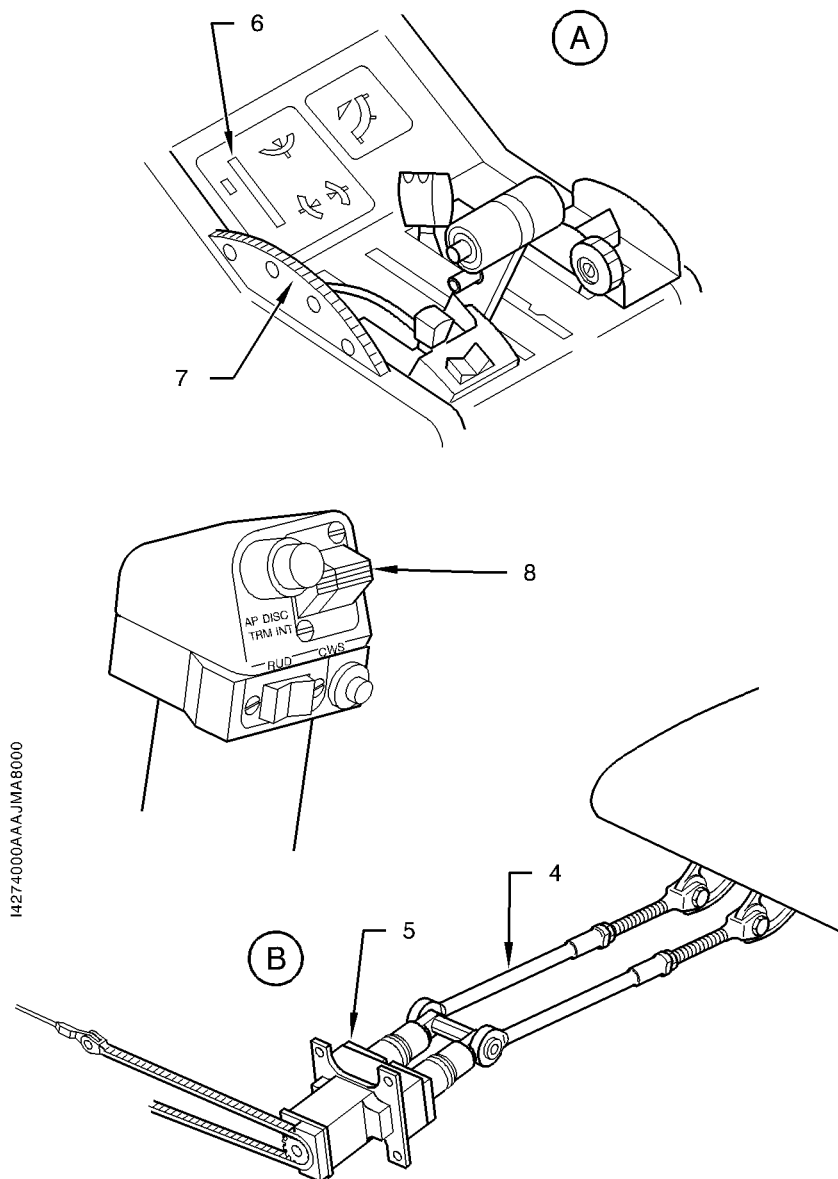


Figure 7.4.4 (2/2) - PITCH TRIM

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RUDDER (Figure 7.4.5)

The rudder is hinged on three fittings attached to the vertical stabilizer rear spar.

Cables and a rod comprise the rudder pedals / rudder linkage.

Pilot and R.H. station rudder pedal positions are adjustable at each station. The rudder pedal adjustment mechanism (for piloting comfort purposes) includes a manual control located against the external bulkhead beneath the instrument panel and a locking device on the rudder pedals. This ball locking device allows selecting six different positions.

When landing gear is down, rudder pedals are linked to nose gear steering system.

Spring system of rudder / roll combination induces aileron deflection at the time of pedal displacement and vice versa.

RUDDER TRIM (Figure 7.4.6)

A trim tab hinged at two points located at rudder trailing edge provides rudder trim.

Trim tab is linked by two rods to an electric actuator attached to rudder. It is controlled by "RUD" switch (L / R) located on pilot control wheel.

Electrical circuit of rudder trim tab is protected by "RUD TRIM" circuit breaker.

- 1) Roll / rudder combination bellcrank installation
- 2) Rudder pedals assembly
- 3) Control cables
- 4) Pulleys
- 5) Rudder lever assembly
- 6) Rod
- 7) Rudder
- 8) Nose gear steering rod

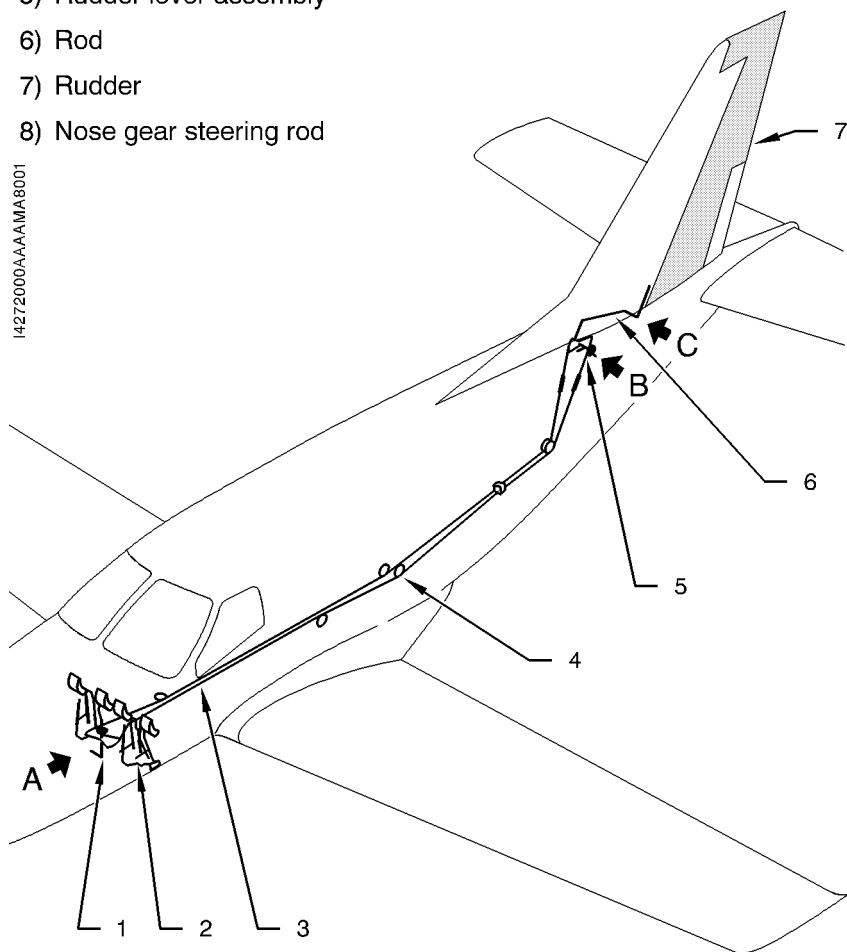


Figure 7.4.5 (1/2) - RUDDER

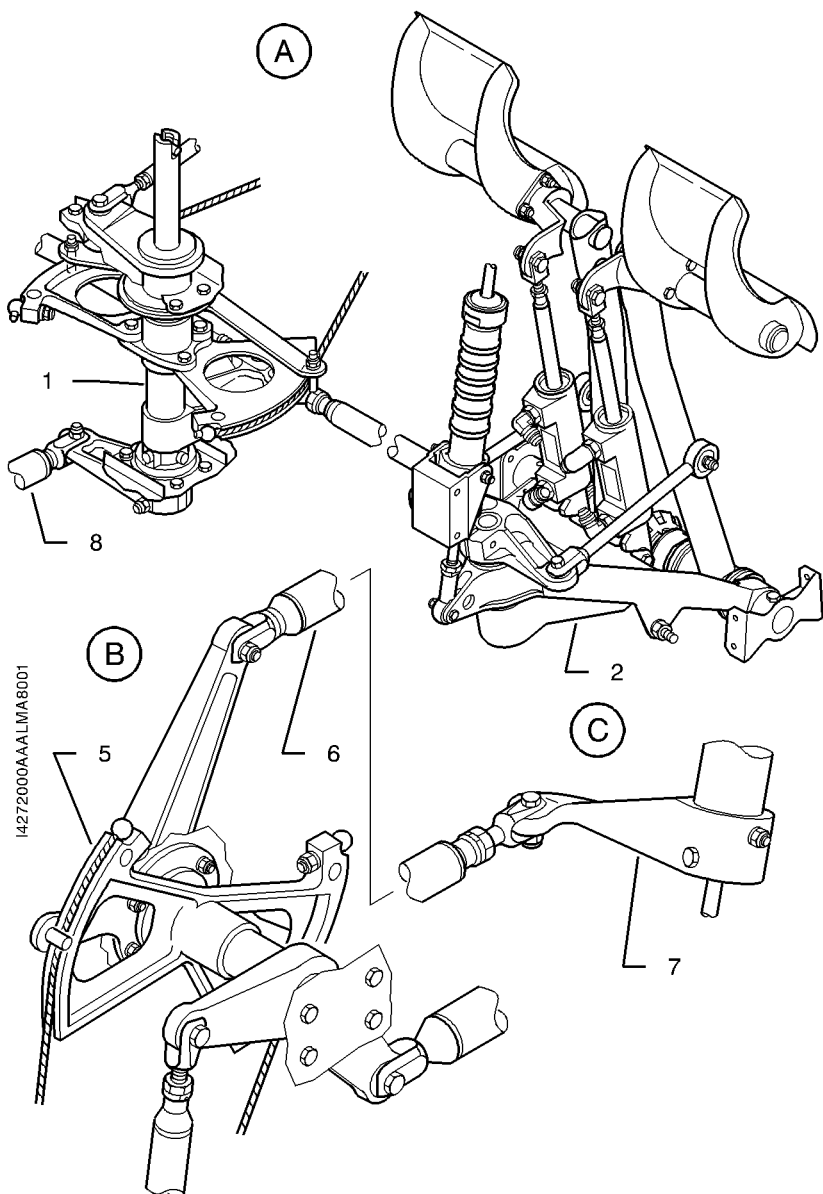


Figure 7.4.5 (2/2) - RUDDER

- 1) Trim switch on control wheel
- 2) Actuator
- 3) Rudder trim tab
- 4) Rods
- 5) Rudder trim control wiring
- 6) Rudder trim tab position indicator

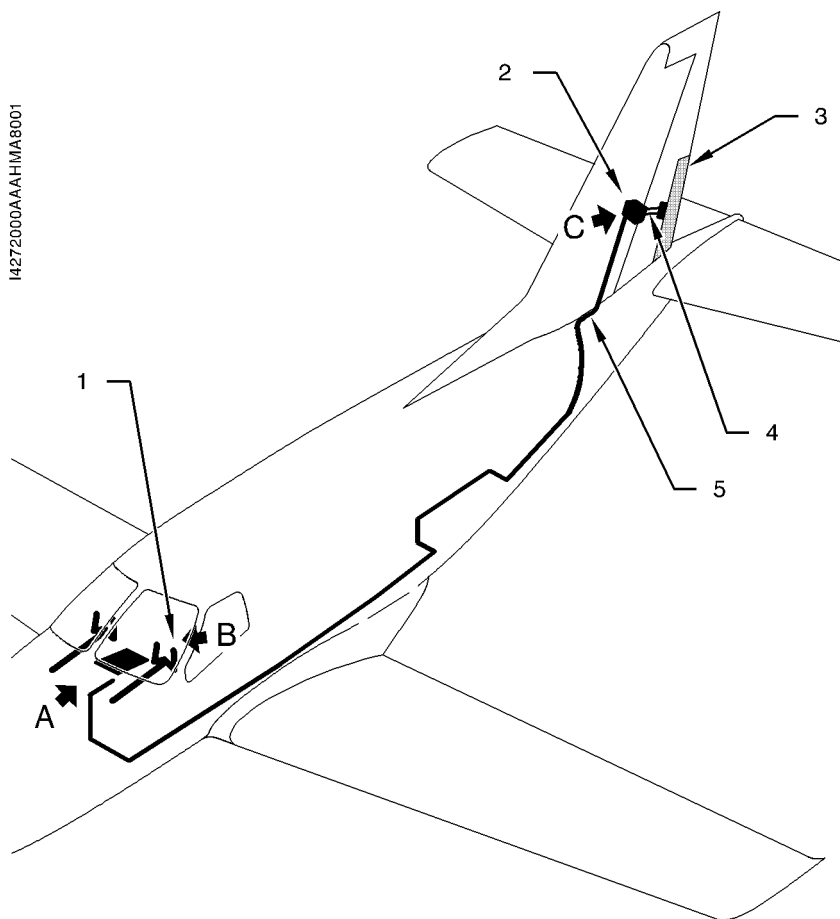


Figure 7.4.6 (1/2) - RUDDER TRIM

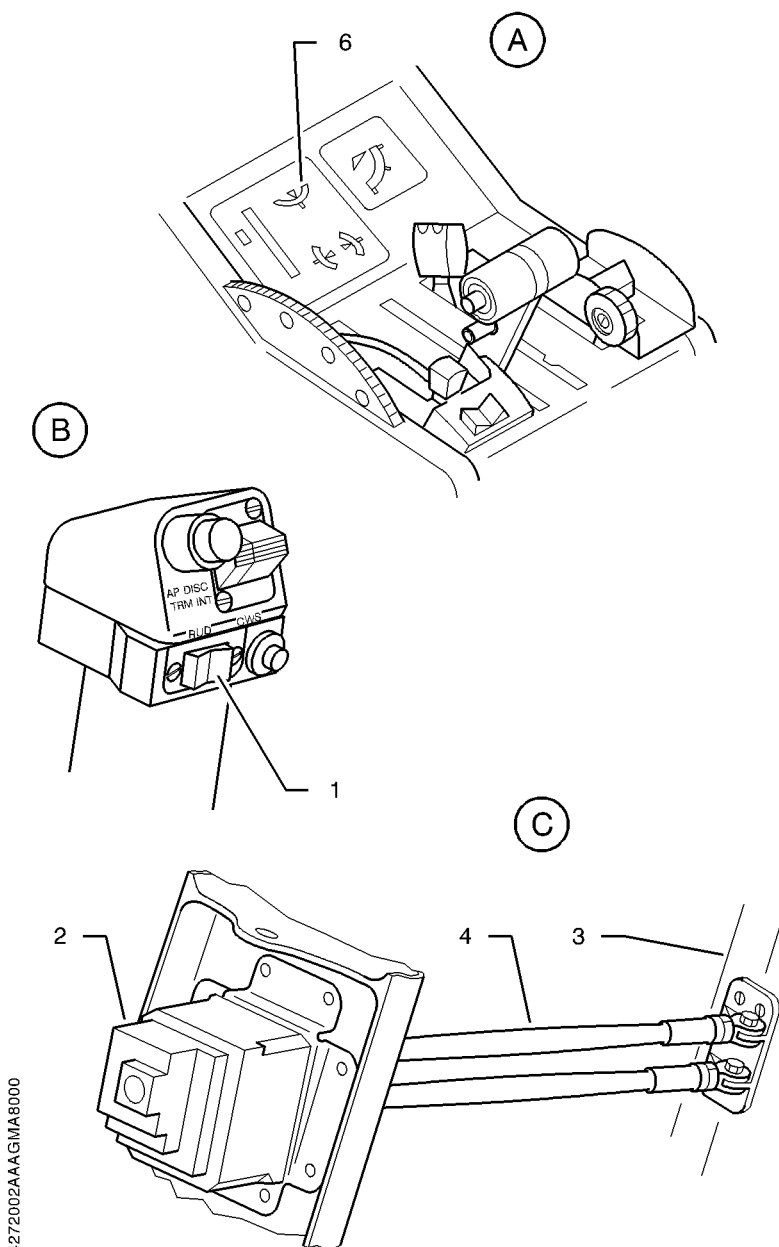


Figure 7.4.6 (2/2) - RUDDER TRIM

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