27

FLIGHT CONTROLS

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TABLE OF CONTENTS

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FLIGHT CONTROLS

DESCRIPTION AND OPERATION

1. GENERAL

The flight controls enable the pilot to control the aircraft about the three axes : roll, pitch and yaw, by actuating the control surfaces and the elevator trim tab by means of mechanical controls.

The flight controls consist of :

- the ailerons - refer to 57-60-00,
- the rudder - refer to 55-40-00,
- the elevator and tab - refer to 55-20-00,
- the wing flaps - refer to 57-50-00.

2. DESCRIPTION

A. **Roll control** - refer to 27-10-00

The ailerons provide lateral control of the aircraft about the roll axis and are mechanically controlled by the control wheel. The ailerons are interconnected with the rudder (TB 200 Std - TB 9 / TB 10 Opt).

B. **Yaw control** - refer to 27-20-00

The rudder provides vertical control of the aircraft about the yaw axis and is mechanically controlled by the rudder pedals. The rudder is interconnected with the nose gear via rods.

C. **Pitch control** - refer to 27-30-00

The elevator provides longitudinal control of the aircraft about the pitch axis and is mechanically controlled by the control wheel. Trim is provided by a mechanically-controlled automatic anti-tab.

D. **Wing flaps** - refer to 27-50-00

The wing flap control is an electro-mechanical control which enables the pilot to actuate the flaps during the take-off, approach or landing phases. The aircraft can be equipped with an electrical wing flap preselection ("RETRACTED", "TAKE-OFF", "LANDING") control (option).

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ROLL CONTROL

DESCRIPTION AND OPERATION

1. GENERAL

The control wheels actuate, via the pylon, a linkage of rods and bellcranks which in turn control the ailerons.

The roll control system consists of :

- a set of rods and bellcranks including :
  - . torque rod, equipped with a roll / yaw interconnection system (TB 200 Std - TB 9 / TB 10 Opt) - refer to 27-20-02,
  - . intermediate bellcranks,
  - . control rods,
  - . outboard bellcranks,
  - . input rods.
- the control wheel assembly - refer to 27-30-01,
- the pylon assembly- refer to 27-30-02,
- the ailerons - refer to 57-60-00.

The system can be interconnected with the autopilot (option) - refer to 22-10-00.

2. LOCATION (Figure 1)

COMPONENT	QTY	AREA	ACCESS DOOR	REFERENCE
Torque rod	1	210 / 230	218 / 236	27-10-00
Intermediate bellcrank	2	500 / 600	512 / 612	27-10-00
Outboard bellcrank	2	500 / 600	516 / 616	27-10-00
Input rod	2	500 / 600	516 / 616	27-10-00

3. DESCRIPTION

A. Torque rod

Located in the fuselage front section and crossing the cabin floor, the torque rod links and interconnects the control wheels / pylon assembly with the control rods. A lever is secured to its rear end ; the travel of the lever is limited by two adjustable stops, which are factory-adjusted, then -riveted to the cabin floor.

B. Intermediate bellcrank

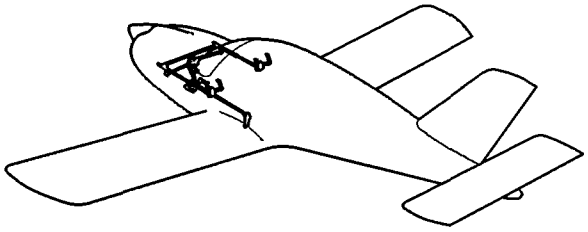
Located at the wing root, the intermediate bellcrank reverses motion at the wing spar feedthru. It is linked to the torque rod and to the outboard bellcrank by two non-adjustable control rods.

C. Outboard bellcrank

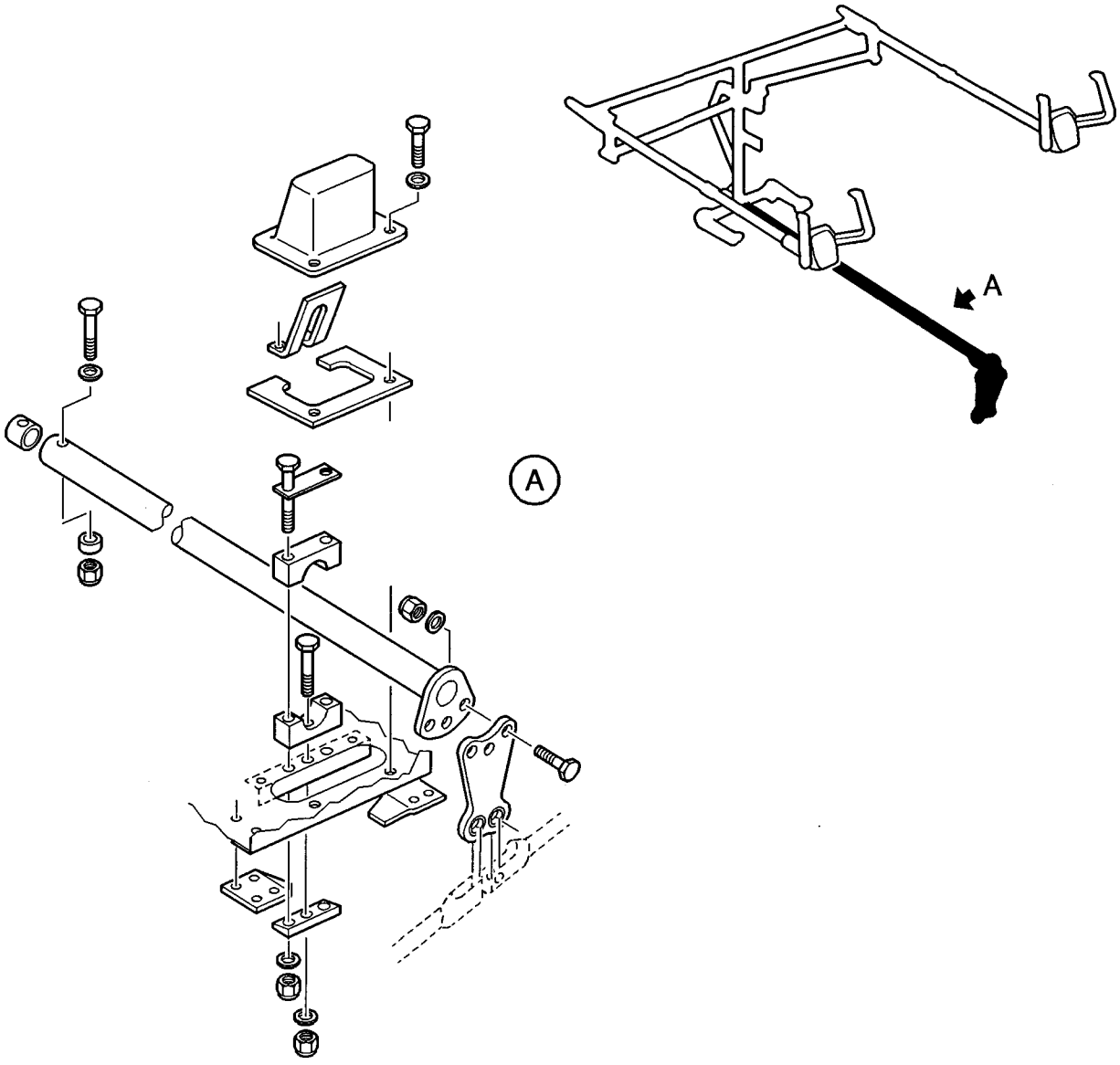
Located in the wings, forward of the aileron inboard end, the outboard bellcrank converts the side motion of the control rod into longitudinal motion of the input rod.

D. Input rod

Located in the aileron inboard section, the input rod links the outboard bellcrank to the aileron. The two adjustable ends of the rod enable aileron travel adjustment.



A - Torque rod



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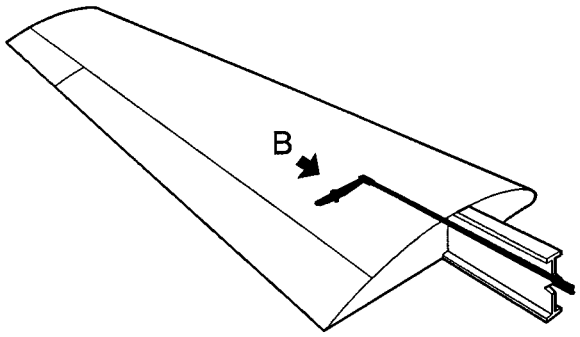
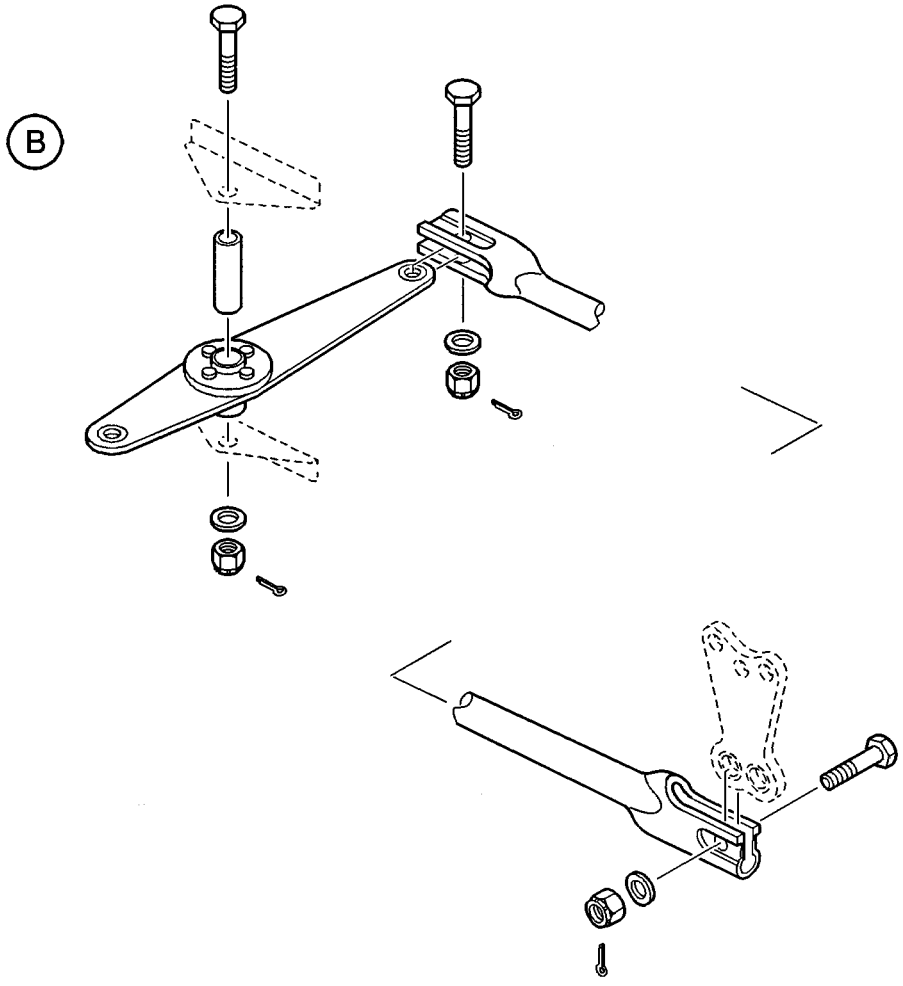
Roll control - Identification and location of components
Figure 1 (1 / 3)

B - Intermediate bellcrank





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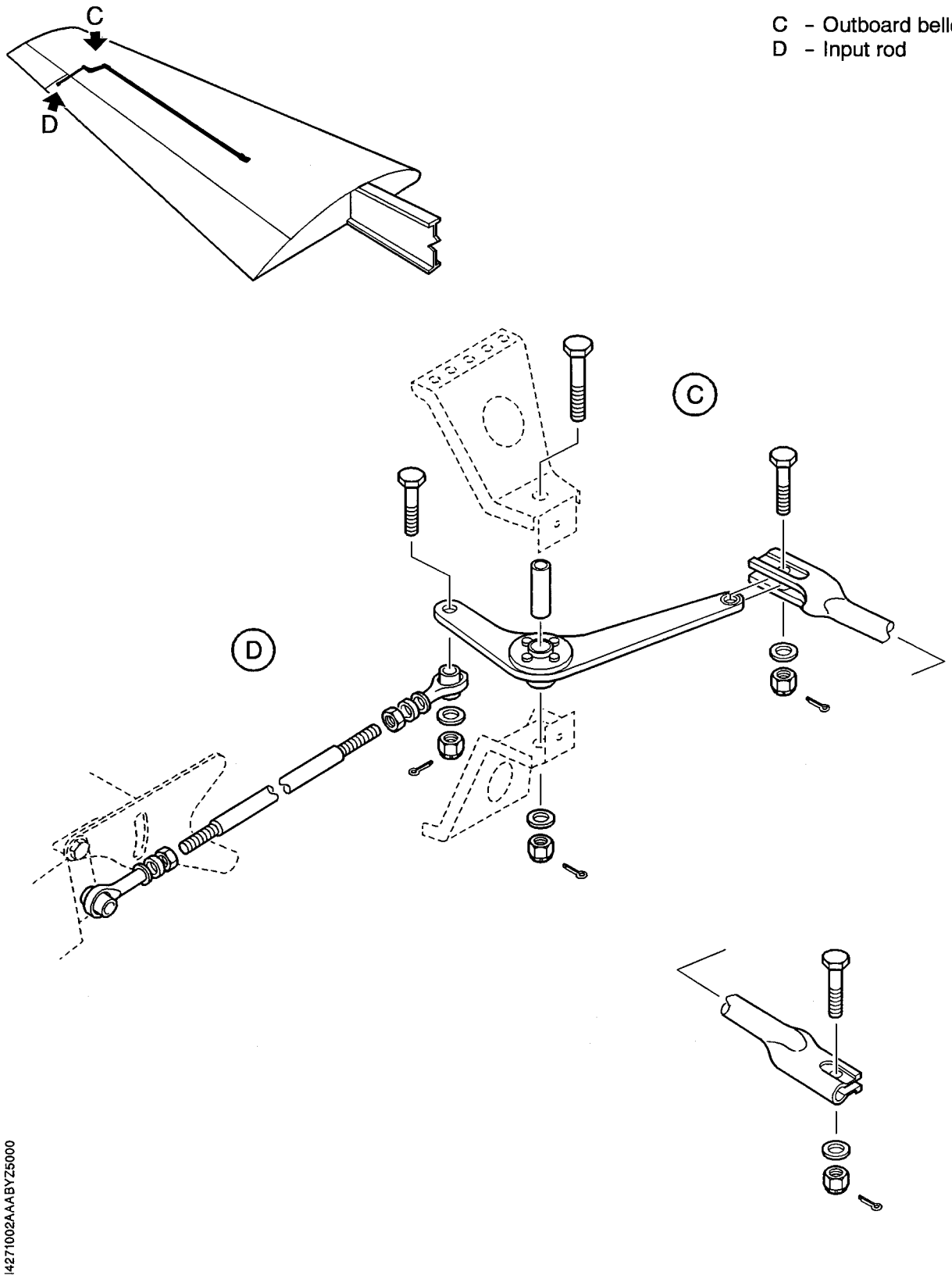
Roll control - Identification and location of components
Figure 1 (2 / 3)

C - Outboard bellcrank
D - Input rod



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Roll control - Identification and location of components
Figure 1 (3 / 3)

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ROLL CONTROL

MAINTENANCE PRACTICES

1. SERVICING

None

2. REMOVAL / INSTALLATION

None

3. ADJUSTMENT / TEST - ROLL CONTROL

A. Tools and consumable materials

- Clinometer (Qty 2)
- Hydraulic jacks
- Ruler 47 in (1.20 m)
- Clamps
- Aileron travel jig 8653 TB10 00000 (Qty 2)

NOTE 1 : Travel jigs are used only in Paragraph C. in replacement of clinometers and jacks.

NOTE 2 : Travel adjustment can be performed with a single jig or clinometer, but adjusting R.H. and L.H. ailerons simultaneously is time- and handling-saving.

B. Adjustment of ailerons without travel jig(s) (Figures 201, 203, 204 and 206)

NOTE : The adjustment of the roll control must be preceded by a check of slack values - see Paragraph 4.C.

1) Level the aircraft - refer to 08-10-00.
2) Remove the cowling under hull 218.
3) Align and hold both control wheels (1) in the neutral position with a ruler and clamps.
4) Check the alignment of ailerons (2) in relation to the trailing edge of the wing tips.
5) If necessary, perform the following operations to adjust input rod (3) :

CAUTION : MAKE SURE THE FLAP AREA IS CLEAR.

a) Extend the flaps.

b) Open main switch-breaker.

c) Install the warning sign prohibiting main switch-breaker operation.

WARNING

DO NOT OPERATE
MAINTENANCE WORK IN PROGRESS

d) Adjust input rod (3) - refer to 20-00-11.

e) Remove the warning sign prohibiting main switch-breaker operation.

f) Close main switch-breaker.

CAUTION : MAKE SURE THE FLAP AREA IS CLEAR.

g) Retract the flaps.

6) Position the clinometers on the ailerons and set 0° - refer to 20-00-13.

7) Remove the ruler and the clamps.

8) Rotate and hold control wheel (1) in maximum L.H. position, with torque rod (18) lever (34) to maximum travel.

9) Check the travel angles of L.H. and R.H. ailerons :

NOTE : The roll control system has been designed in such a way (one adjustable rod only) that when the 0° is set, the travel values must be within tolerances.

- L.H. aileron up : 15° ± 1°30'
- R.H. aileron down : 15° ± 1°30'

10) Fully rotate control wheel (1) in the opposite direction to the right and repeat step 9) for ailerons (2) reverse position.

11) If the travel cannot be adjusted to the required values, moderately grind (using a file) or replace faulty adjustable stop (36).

NOTE : Adjustable stops (36) are factory-adjusted, then -riveted to the cabin floor. It is extremely unlikely that they will require reworking.

12) Make sure all the tools and materials are removed and the work area is clean and free from debris.

13) Install the cowling under hull 218.

14) Lower the aircraft to ground and remove the jacks - refer to 07-10-00.

15) If the aircraft is equipped with the roll / yaw interconnection system, check rod adjustment - refer to 27-20-02.

C. Adjustment of ailerons with travel jig(s) (Figures 201A, 203, 204 and 206)

NOTE : The adjustment of the roll control must be preceded by a check of slack values - Paragraph 4.C.

1) Remove the cowling under hull 218.

2) Position travel jigs (4) 8653 TB10 00000 on the wings at the level of the rivets line of rib N10.

3) Align and hold both control wheels (1) in the neutral position with a ruler and clamps.

4) Make sure the ailerons are in neutral position (0°).

5) If necessary, perform the following operations to adjust input rod (3) :

CAUTION : MAKE SURE THE FLAP AREA IS CLEAR.

a) Extend the flaps.

b) Open main switch-breaker.

c) Install the warning sign prohibiting main switch-breaker operation.

WARNING

DO NOT OPERATE
MAINTENANCE WORK IN PROGRESS

d) Adjust input rod (3) - refer to 20-00-11.

e) Remove the warning sign prohibiting main switch-breaker operation.

f) Close main switch-breaker.

CAUTION : MAKE SURE THE FLAP AREA IS CLEAR.

g) Retract the flaps.

6) Remove the ruler and the clamps.

7) Rotate and hold control wheel (1) in maximum L.H. position, with torque rod (18) lever (34) to maximum travel.

8) Check the travel angles of L.H. and R.H. ailerons :

NOTE : The roll control system has been designed in such a way (one adjustable rod only) that when the 0° is set, the travel values must be within tolerances.

- L.H. aileron up : 15° ± 1°30'
- R.H. aileron down : 15° ± 1°30'

9) Fully rotate control wheel (1) in the opposite direction to the right and repeat step 8) for ailerons (2) reverse position.

10) If the travel cannot be adjusted to the required values, moderately grid (using a file) or replace faulty adjustable stop (36).

NOTE : Adjustable stops (36) are factory-adjusted, then -riveted to the cabin floor. It is extremely unlikely that they will require reworking.

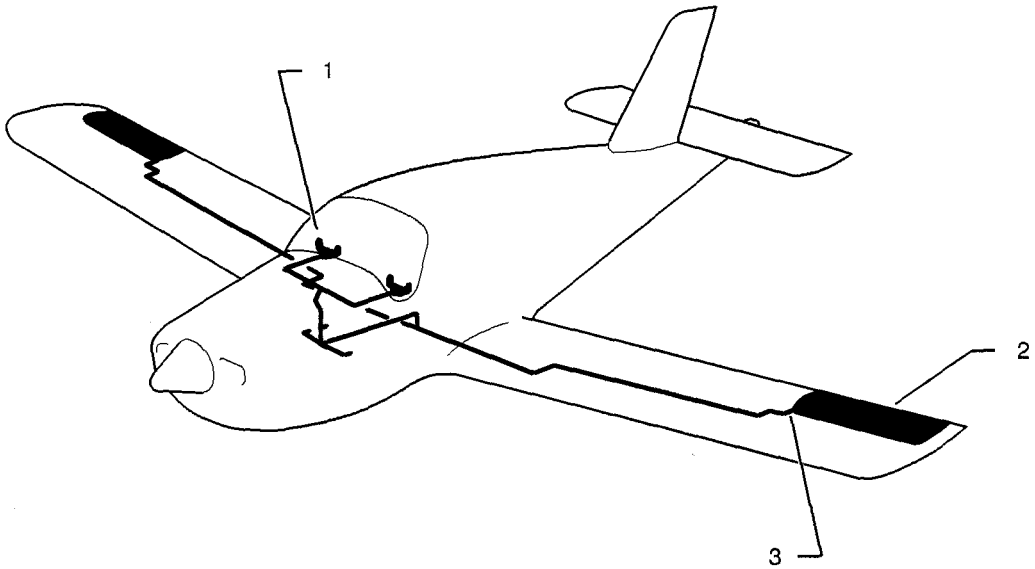
11) Remove travel jigs (4).

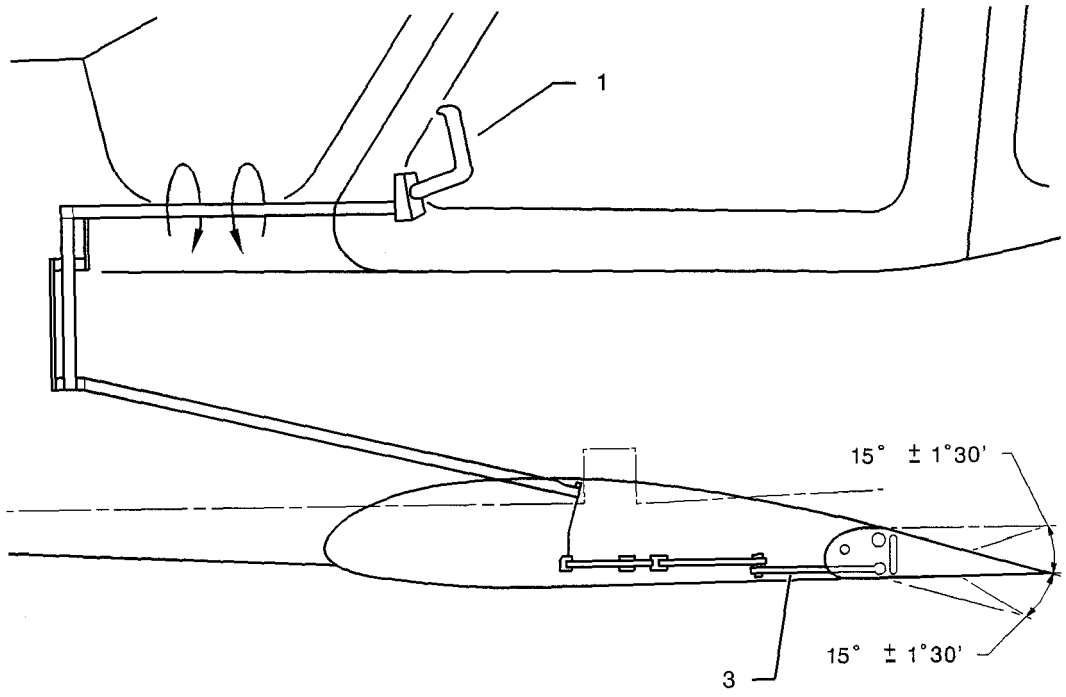
12) Make sure all the tools and materials are removed and the work area is clean and free from debris.

13) Install the cowling under hull 218.

14) If the aircraft is equipped with the roll / yaw interconnection system, check rod adjustment - refer to 27-20-02.

1 - Control wheel
2 - Aileron
3 - Input rod





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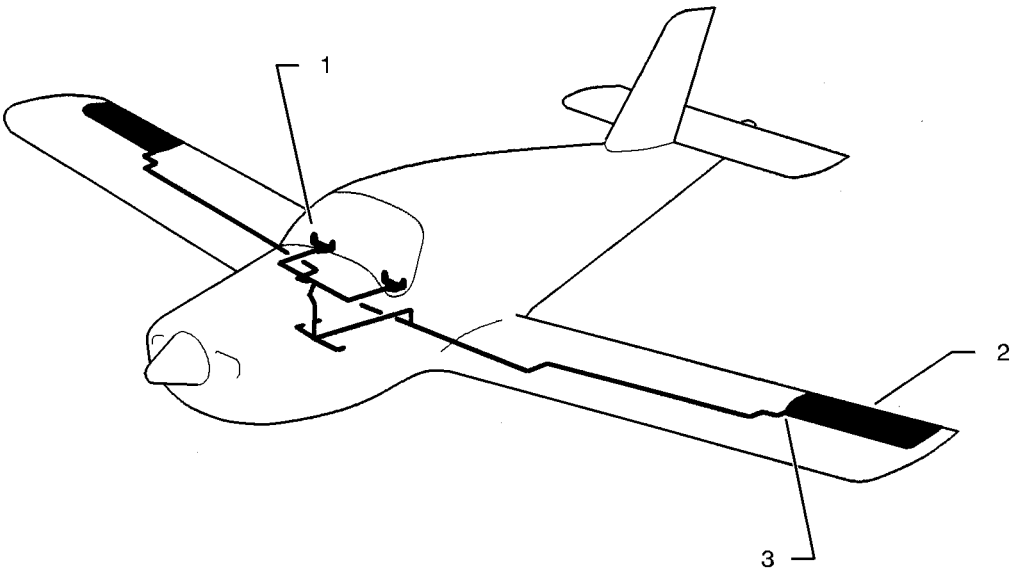
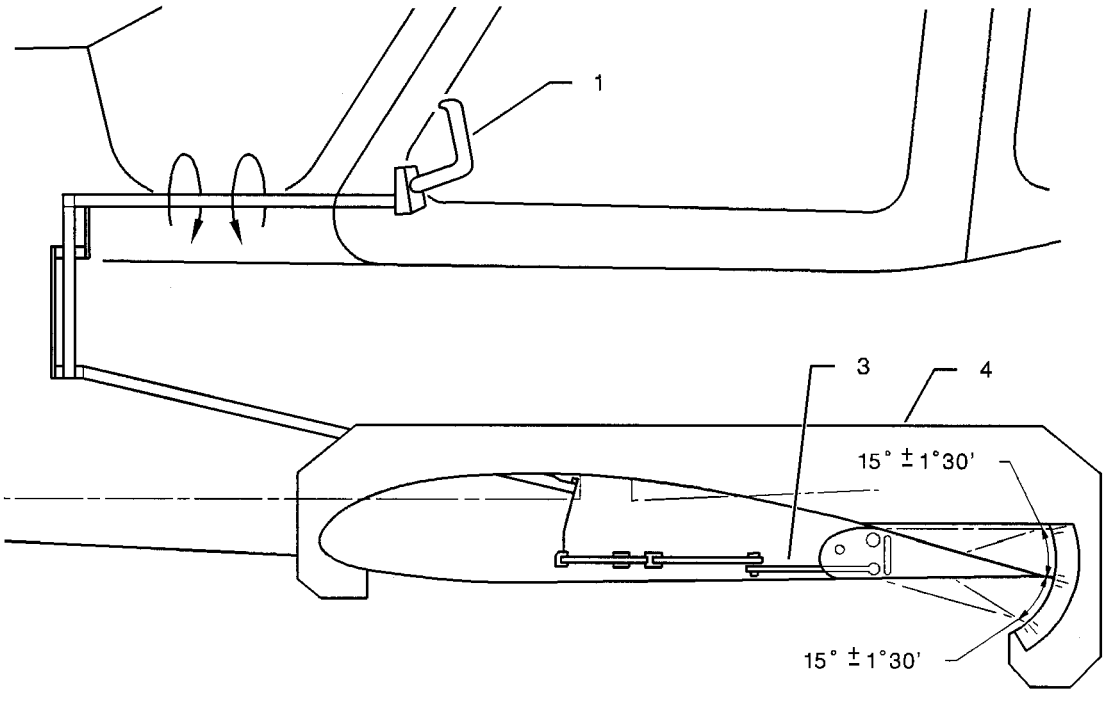
Roll control - Adjustment / Test
Figure 201 - Without travel jig(s)

1 - Control wheel
2 - Aileron
3 - Input rod
4 - Travel jig





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Roll control - Adjustment / Test
Figure 201A - With travel jig(s)

4. INSPECTION / CHECK - ROLL CONTROL

NOTE : This procedure is applicable to L.H. and R.H. installations. Information specific to R.H. installation are given in square brackets.

A. Tools and consumable materials

- Clinometer
- Cleaning agent (TB 11-002)
- Clean lintfree cloths
- Inside micrometer
- Grease (TB 04-004A)

B. Preliminary steps

1) Make sure the flaps are set to the "retracted" position.
2) Make sure that the main switch-breaker is open.
3) Install the warning sign prohibiting main switch-breaker operation.

WARNING

DO NOT OPERATE
MAINTENANCE WORK IN PROGRESS

4) Remove the cowling under hull 218.
5) Remove inspection doors 511, 512, 516, 611, 612 and 616.
6) Remove inspection doors 235L and 235R, 211L and 211R (if installed). Otherwise, remove the covers on the instrument panel front and tilt the panel.

C. Check of slack values (Figures 202, 203, 204 and 205, Tables 201 and 202)

1) Check the aileron-to-aileron slack - see Figure 202, Detail A.
   a) Hold one aileron aligned in neutral position with the flap.
   b) Measure the slack on the other aileron : max. permissible slack value, 0.157 in (4 mm).
   c) If the slack is out-of-tolerance, refer to step 4).
2) Check control wheel-to-aileron slack - see Figure 202, Detail B.
   a) Hold the control wheel in neutral position.
   b) Measure the aileron slack : max. permissible slack value, 0.236 in (6 mm).
   c) If the slack is out-of-tolerance, refer to step 6).
3) Check control wheel-to-control wheel slack - see Figure 202, Detail C.
   a) Hold one control wheel in neutral position.
   b) Measure the slack by actuating the other control wheel : max. permissible slack value, 0.196 in (5 mm).
   c) If the slack is out-of-tolerance, refer to step 5).

4) If aileron-to-aileron slack is out-of-tolerance, perform the following operations :

a) Mark and remove roll control rods and bellcranks.

b) Clean rods and bellcranks with a clean lintfree cloth soaked with cleaning agent (TB 11-002).

c) Measure the lateral slack between torque rod (18) and half-bearings (31) : max. permissible slack value, 0.02 in (0.5 mm).

d) Measure the slack of ball joints of input rod (49), bellcranks (45) and lever (34) : max. permissible slack value, 0.003 in (0.08 mm) per ball joint.

e) Perform a dimensional check of roll control supports, rods and bellcranks borings - see Table 201.

f) Replace the defective components or contact the manufacturer for repair.

g) Install roll control rods and bellcranks - refer to 20-00-11.

5) If control wheel-to-control wheel slack is out-of-tolerance, perform the following operations :

a) Remove pylon assy - refer to 27-30-02.

b) Clean pylon assy with a clean lintfree cloth soaked with cleaning agent (TB 11-002).

c) Perform a dimensional check of roll control pylon assy, torque rod and lever borings - see Table 202.

d) Remove upper rods (12) and (14) and measure the slack of ball joints : max. permissible slack value, 0.003 in (0.08 mm) per ball joint.

e) If the slack of ball joints is within the tolerances, remove the control wheels equipped with the gimbal joints.

f) Measure the slack of the gimbal joints : max. permissible slack value, 0.0078 in (0.2 mm) around the gimbal joints.

g) Replace the defective components or contact the manufacturer for repair.

h) Install control wheels, upper rods (12) and (14) and pylon assy - refer to 27-30-02.

6) If control wheel-to-aileron slack is out-of-tolerance, perform the following operations :

a) Perform steps 4) and 5).

b) Remove lower rod (23) and measure the slack of ball joints : max. permissible slack value, 0.003 in (0.08 mm) per ball joint. Replace if necessary.

c) If lower rod (23) is within the tolerances, remove torque rod (18) and measure the slack of the gimbal joint : max. permissible slack value, 0.0078 in (0.2 mm) around the gimbal joint. Replace if necessary.

D. Check of roll control in fuselage (Figures 203 and 204)

1) Inspect the control wheel assembly for :

- slack and friction points in roll control.

2) Inspect the pylon assembly for :

- cracks, distortions and corrosion,
- binding, slack and wear of the bearings, ball joints and gimbal joints,
- correct tightening of the attachment nuts of intermediate levers (13) and (17) and lower levers (20) and (22),

- correct tightening of nuts (16) attaching the gimbal joints to control wheel tubes,
- correct tightening of nut (19) attaching the gimbal joint to torque rod (18),
- cracks and slack on the taper pins attaching gimbal joints to upper levers (15),
- cracks and slack on the taper pin attaching the lower gimbal joint,
- correct safetying of the attachment nuts of upper rods (12) and (14) and lower rod (23) with cotter pins,
- correct safetying of attachment nuts (21) of lower levers (20) with cotter pins,
- correct safetying of nuts (11) attaching control wheel tube assemblies to the pylon with cotter pins.

3) Inspect torque rod (18) for :
   - cracks, buckling and corrosion,
   - cracks and distortions on attachment plate (33),
   - correct tightening of nuts (32) attaching lever (34) to attachment plate (33),
   - correct tightening of attachment nuts (35) of half-bearings (31),
   - binding, slack and wear of the ball joints of lever (34),
   - excessive slack [higher than 0.02 in (0.5 mm)] between torque rod (18) and half-bearings (31),
   - correct tightening of the attachment nuts of adjustable stops (36) and condition of the attachment rivet,
   - cracks and distortions on the contact surface between lever (34) and adjustable stops (36).

   NOTE : If the roll / yaw interconnection system is installed (TB 200 Std, TB 9 and TB 10 Opt), refer to chapter 27-20-02.

E. Check of roll control in wings (Figures 205 and 206)

1) Inspect rods (41) and (43) for :
   - cracks, buckling and corrosion,
   - correct safetying of nuts (42) of attachment bolts with cotter pins.

2) Inspect bellcranks (45) for :
   - distortions, cracks, corrosion, binding and slack,
   - correct safetying of attachment nuts (44) of hinge bolts with cotter pins,
   - slack and loose rivets on bellcranks (45) spacers (46).

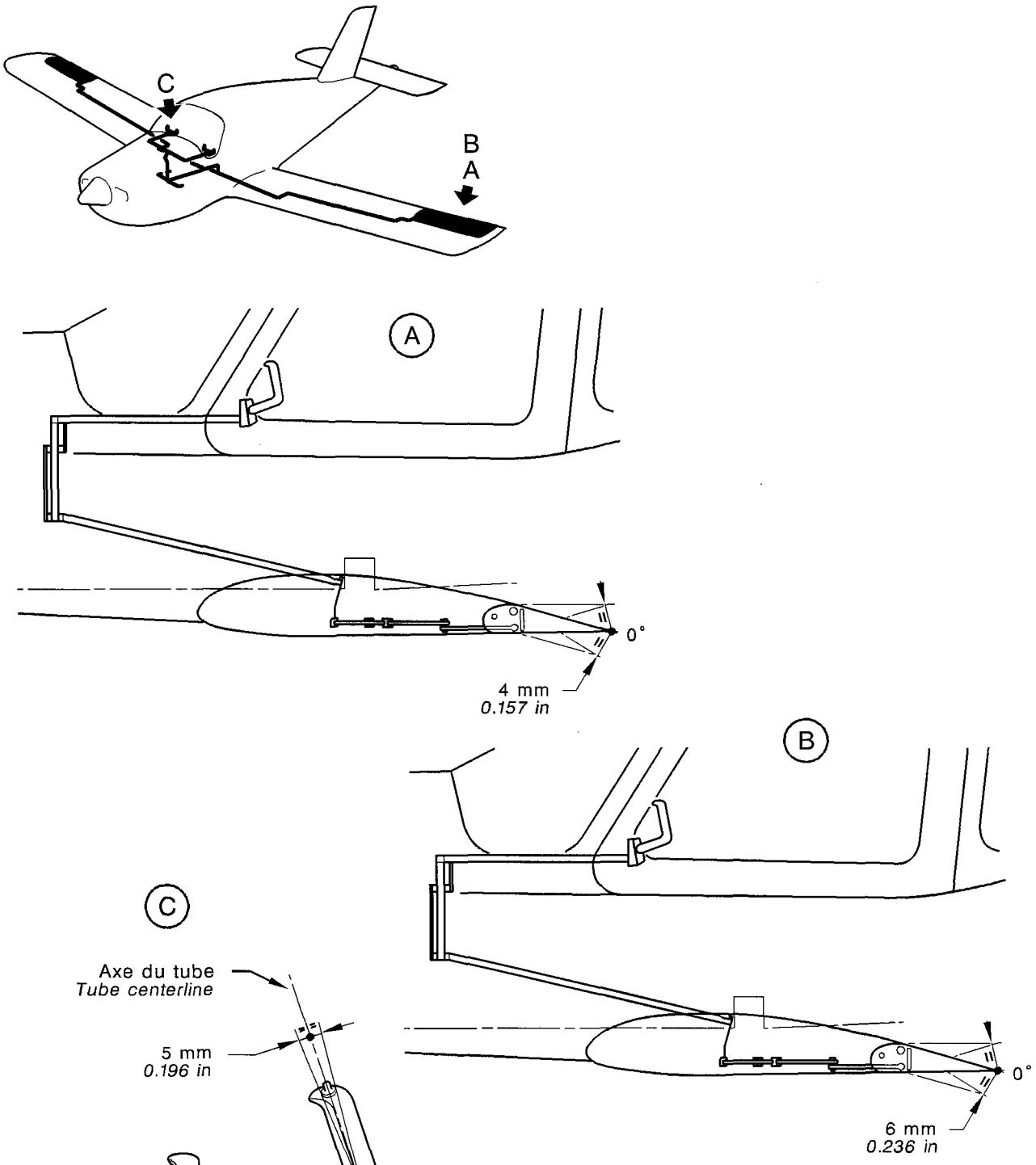
3) Inspect the brackets of bellcranks (45) for :
   - distortions, cracks, corrosion and loose rivets.

4) Inspect input rod (49) for :
   - slack, buckling, cracks, corrosion and binding,
   - correct safetying of the locking nuts of adjustable rod ends (48),
   - correct safetying of attachment nut (47) onto bellcrank (45) with a cotter pin,
   - correct safetying of bolt (55) to the aileron structure with lock plate (53).

5) Inspect arm assemblies (51) for :
   - distortions, cracks and corrosion,
   - security of arm assemblies (51) to the wings,
   - slack or binding of the ball joint,
   - correct safetying of aileron attachment bolts (54) with lock plates (53),
   - presence and correct tightening of stop screw (52) in the aperture of arm assy (51).

F. Final steps

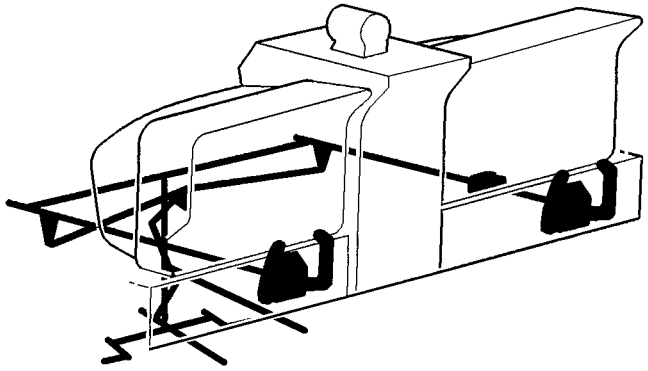
1) Make sure all the tools and materials are removed and the work area is clean and free from debris.
2) Install inspection doors 511, 512, 513, 611, 612 and 613.
3) Install the cowling under hull 218.
4) Install inspection doors 235L and 235R, 211L and 211R (if installed) or install the instrument panel covers, reposition and lock the instrument panel.
5) Remove the warning sign prohibiting main switch-breaker operation.



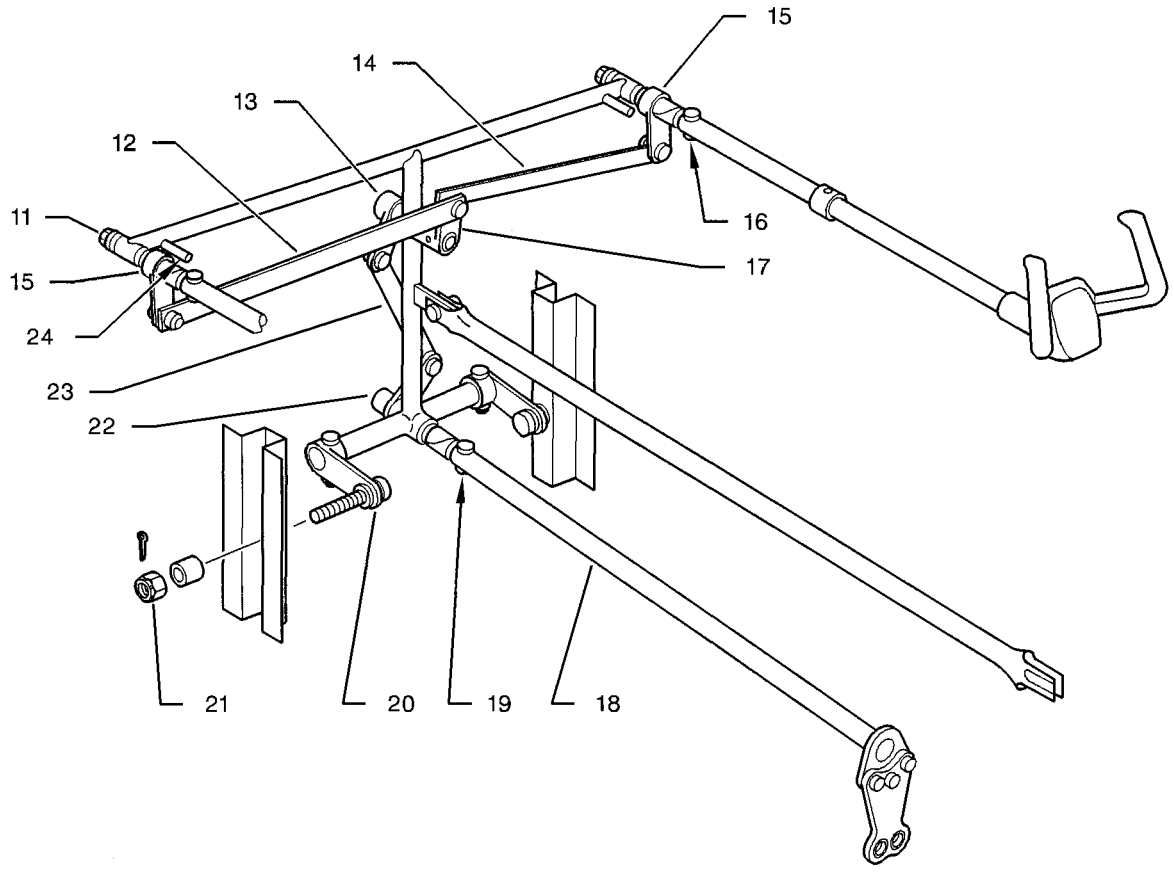
Nota : Détail A - Jeu d'aileron à aileron
Détail B - Jeu de volant à aileron
Détail C - Jeu de volant à volant

Note : Detail A - Aileron to aileron slack
Detail B - Control wheel to aileron slack
Detail C - Control wheel to control wheel slack

Check of slack values - Inspection / Check
Figure 202



11 - Nut
12 - Upper rod
13 - Intermediate lever
14 - Upper rod
15 - Upper lever
16 - Nut
17 - Intermediate lever
18 - Torque rod
19 - Nut
20 - Lower lever
21 - Nut
22 - Lower lever
23 - Lower rod
24 - Stop



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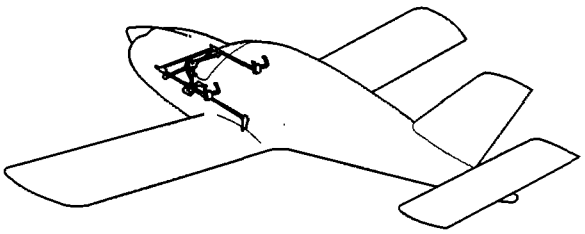
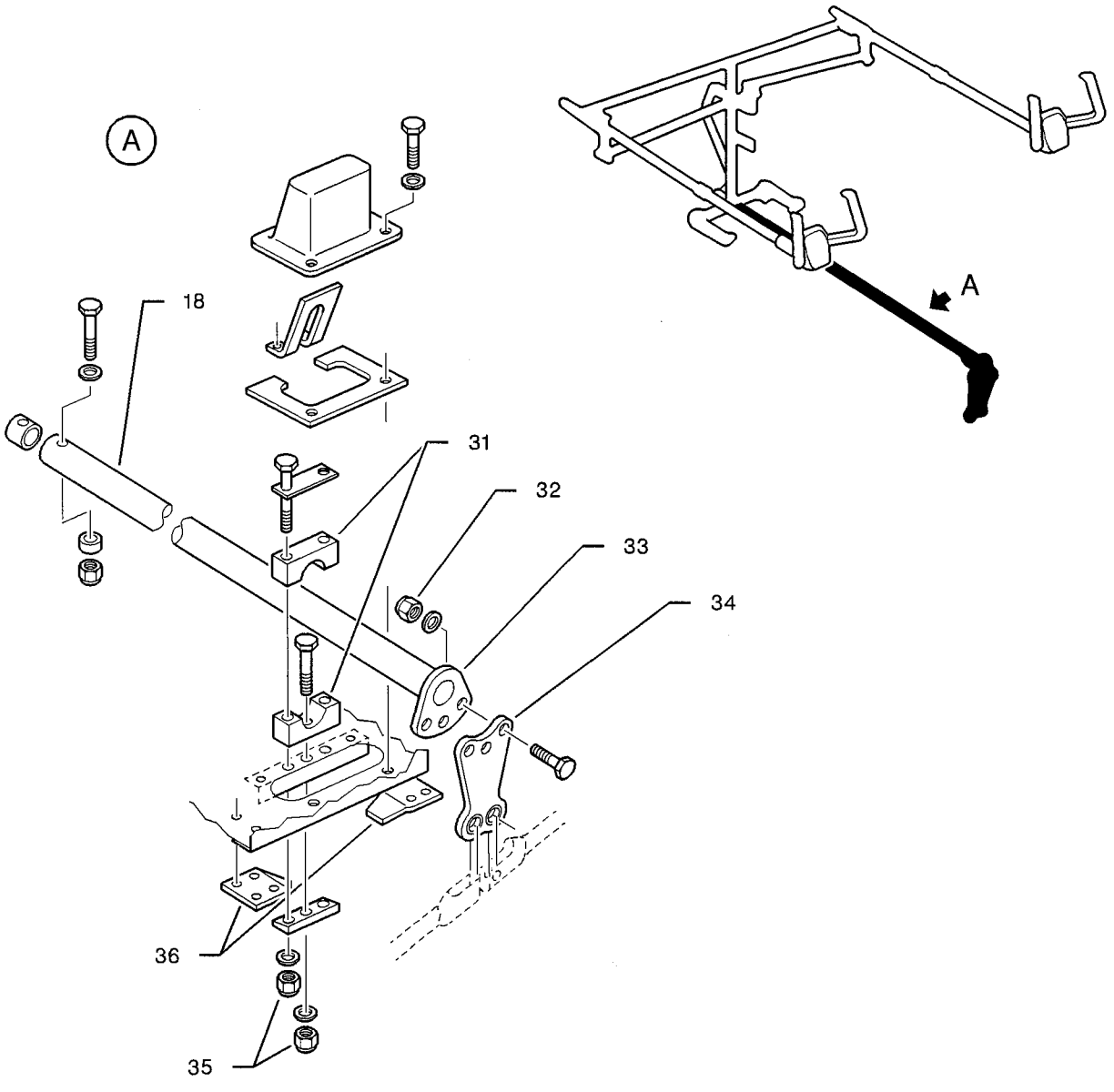
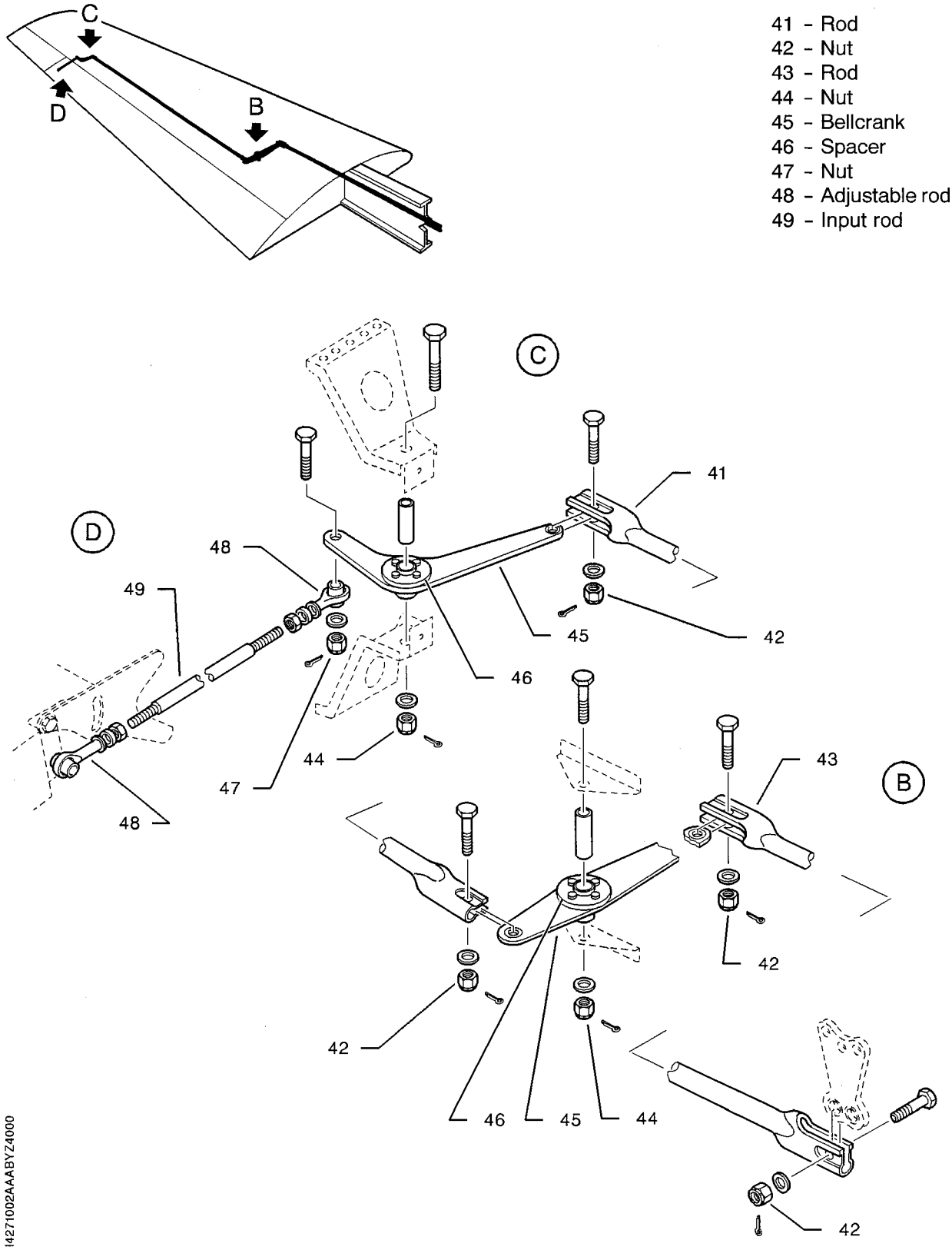
Roll control in fuselage - Inspection / Check
Figure 203



18 - Torque rod
31 - Half-bearing
32 - Nut
33 - Attachment plate
34 - Lever
35 - Nut
36 - Adjustable stop

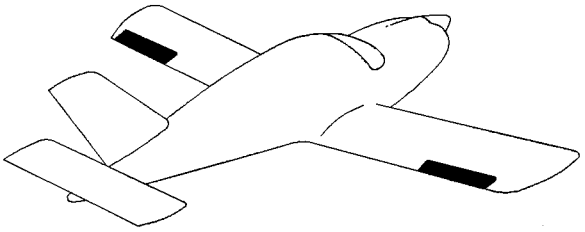


Roll control in fuselage - Inspection / Check
Figure 204

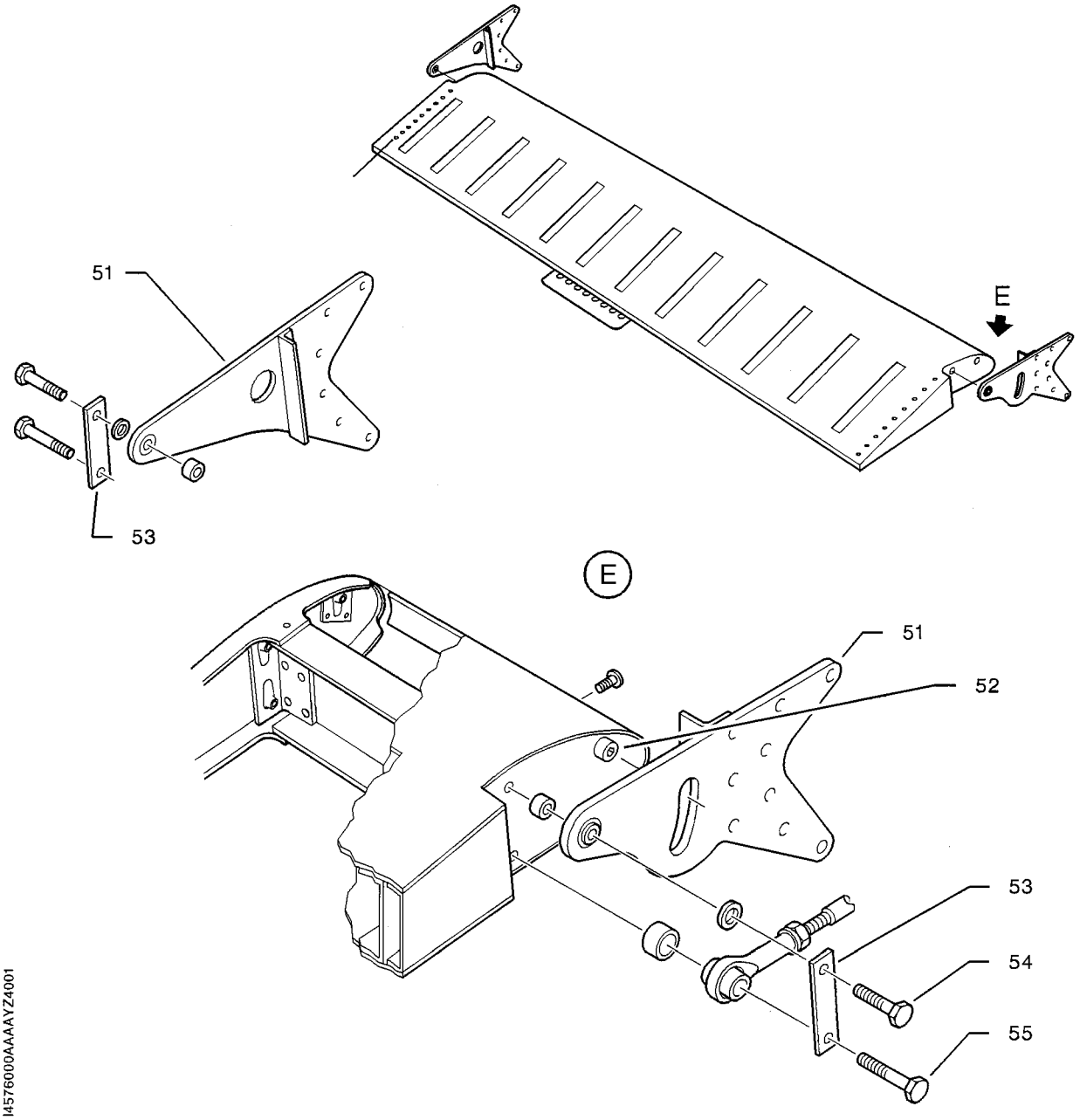


41 - Rod
42 - Nut
43 - Rod
44 - Nut
45 - Bellcrank
46 - Spacer
47 - Nut
48 - Adjustable rod end
49 - Input rod

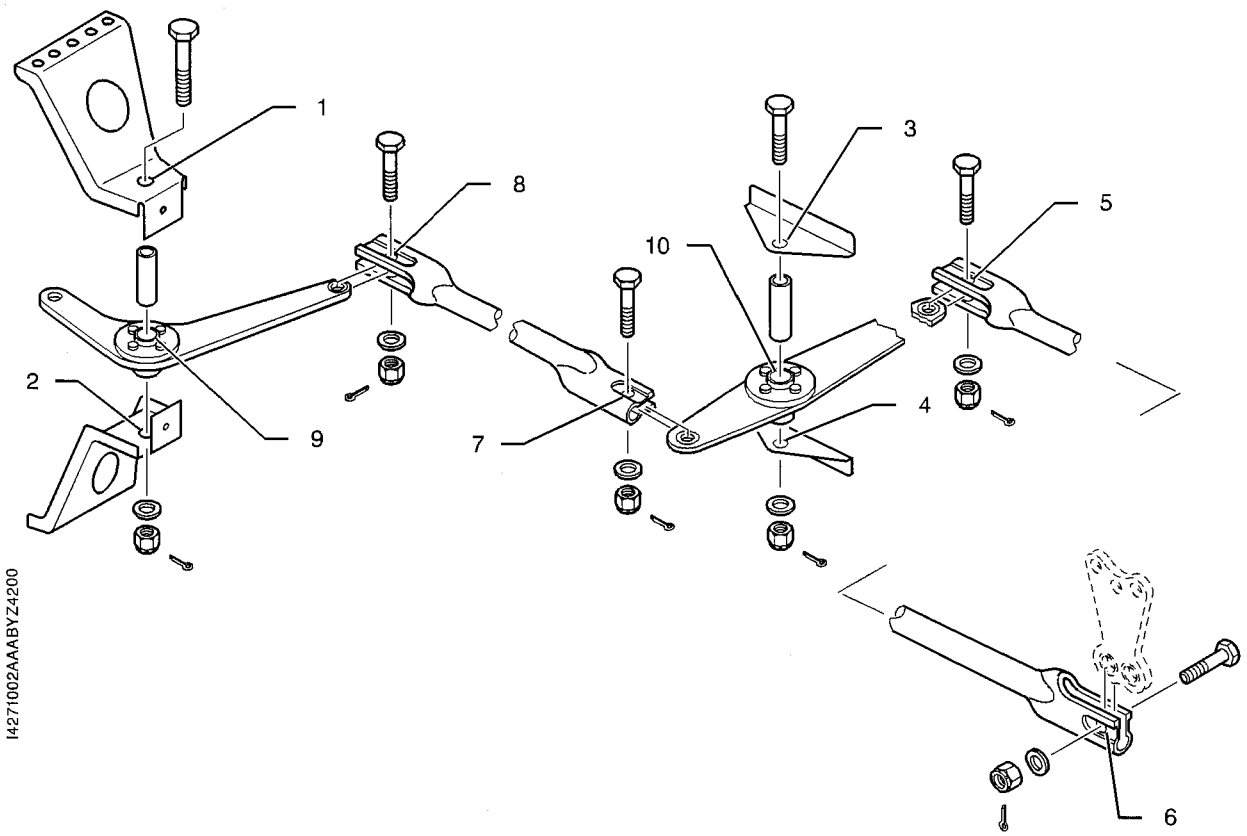
Roll control in wings - Inspection / Check
Figure 205



51 - Arm assy
52 - Stop screw
53 - Lock plate
54 - Bolt
55 - Bolt



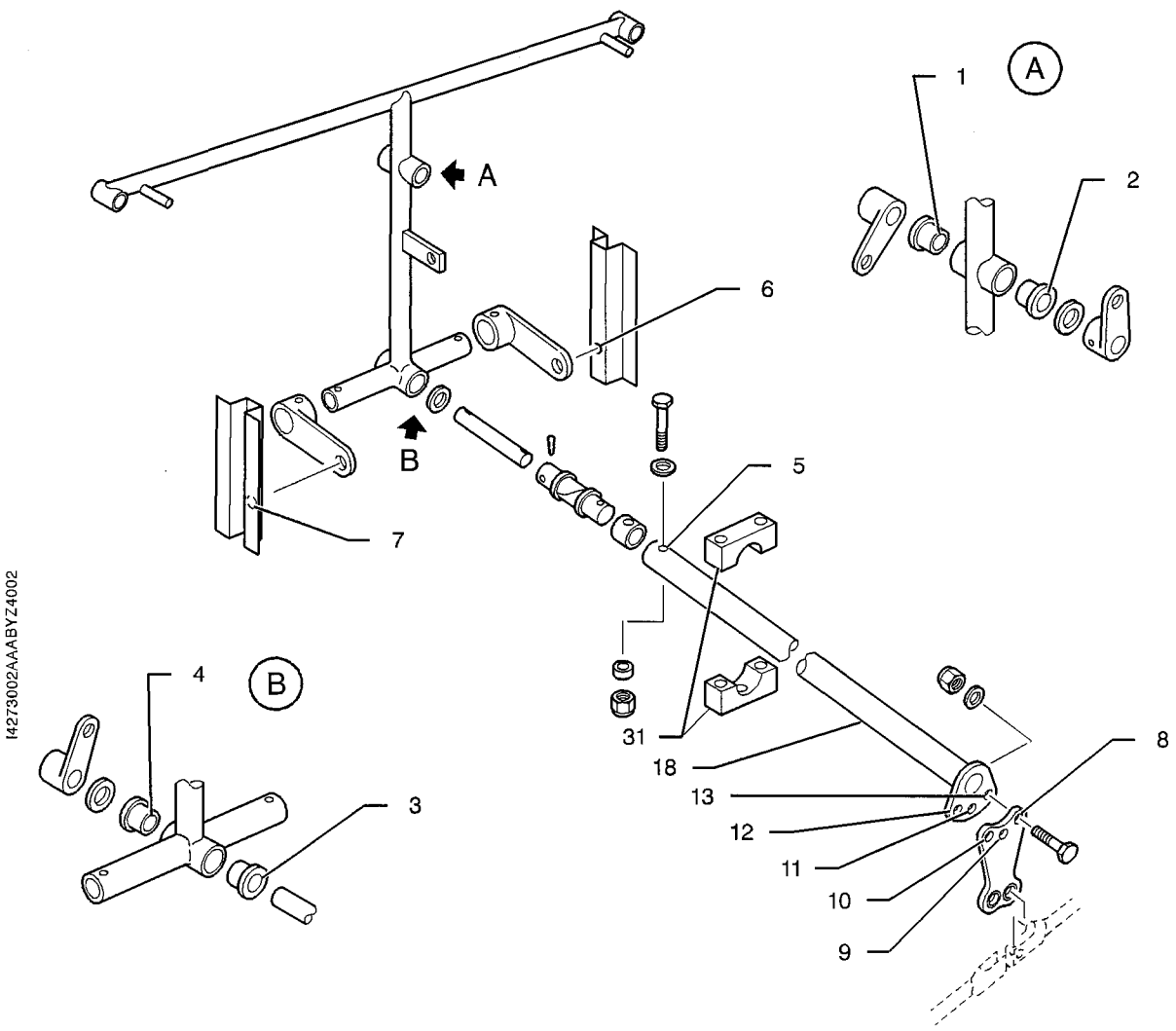
Roll control in wings - Inspection / Check
Figure 206



ITEM	THEORETICAL DIMENSION	MAXIMUM WEAR DIMENSION	L.H. WING	R.H. WING	DECISION ACTION
1	Dia. 0.2362/0.2391 in (6.0/6.075 mm)	Dia. 0.2409 in (6.120 mm)			
2					
3					
4					
5		Dia. * 0.2409 in (6.120 mm)			
6					
7					
8					
9	Dia. 0.3543/0.3551 in (9.0/9.022 mm)	Dia. 0.3566 in (9.058 mm)			
10					

(*) Maximum wear dimension without pitting marks.

Roll control bellcranks and rods
Table 201



ITEM	THEORETICAL DIMENSION	MAXIMUM WEAR DIMENSION *	BORING	DECISION ACTION
1	Dia. 0.6102/0.6109 in (15.5/15.518 mm)	Dia. 0.6119 in (15.543 mm)		
2				
3				
4				
5	Dia. 0.1968/0.1998 in (5.0/5.075 mm)	Dia. 0.2015 in (5.120 mm)		
6	Dia. 0.2362/0.244 in (6.0/6.2 mm)	/		
7				

Pylon assy
Table 202 (1/2)

ITEM	THEORETICAL DIMENSION	MAXIMUM WEAR DIMENSION *	BORING	DECISION ACTION
8	Dia. 0.198/0.1999 in (5.030/5.078 mm)	Dia. 0.2009 in (5.105 mm)		
9				
10				
11				
12				
13				

(*) Maximum wear dimension without elongation or scratches.

Maximum slack value between torque rod (18) and bearings (31) : 0.039 in (1 mm).

If boring (5) is out-of-tolerance, replace the torque rod assy with P/N TB10 27013004 - refer to 27-10-01 of Illustrated Parts Catalog.

Pylon assy
Table 202 (2/2)

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YAW CONTROL

DESCRIPTION AND OPERATION

1. GENERAL

The yaw control of the aircraft is provided by the rudder which is actuated and linked via control linkage to the pedals in the cockpit.

This rod-operated control is routed along the central section of the floor as far as frame C6, then into the rear section of the fuselage up to the control surface.

The yaw control system consists of :

- the rudder pedals,
- the roll / yaw interconnection system (option),
- the rods and levers,
- the input rod,
- the rudder - refer to 55-40-00.

2. LOCATION

COMPONENT	QTY	AREA	ACCESS DOOR	REFERENCE
Rudder pedals	2	250	235L, 235R	27-20-01
Roll / Yaw interconnection system	1	250	235L, 235R	27-20-02
Rods and levers	3	200	235L, 235R, 252, 253, 236, 218, 242	27-20-00
Input rod	1	220	242	27-20-00

3. DESCRIPTION

A. Rudder pedals (Figure 1)

Each front station is equipped with a rudder pedal assembly which enables rudder control via rods and levers. The rudder pedals also control the brakes - refer to 32-40-00 - and nose wheel steering - refer to 32-50-00.

B. Roll / Yaw interconnection system (Figure 2)

This double-acting actuator disengageable system actuates the ailerons when the rudder reaches a certain travel angle. The system automatically disengages when submitted to a force higher than 1504 lbf.in (+ 88 ; - 0) [170 N (+ 10 ; - 0)].

C. Rods and levers (Figure 3)

The levers hinged on supports common to the elevator control are located :

- aft of frame C3 (under the rear bench seatpan),
- forward of frame C7 (in the rear fuselage),
- forward of frame C9 (in the rear fuselage).

The rudder pedals and the levers are interconnected via non-adjustable control rods.

D. Input rod (Figure 3)

Located under the rudder, the input rod connects the control surface to the double lever located forward of frame C9. It is equipped with an adjustable yoke (on the double lever side).

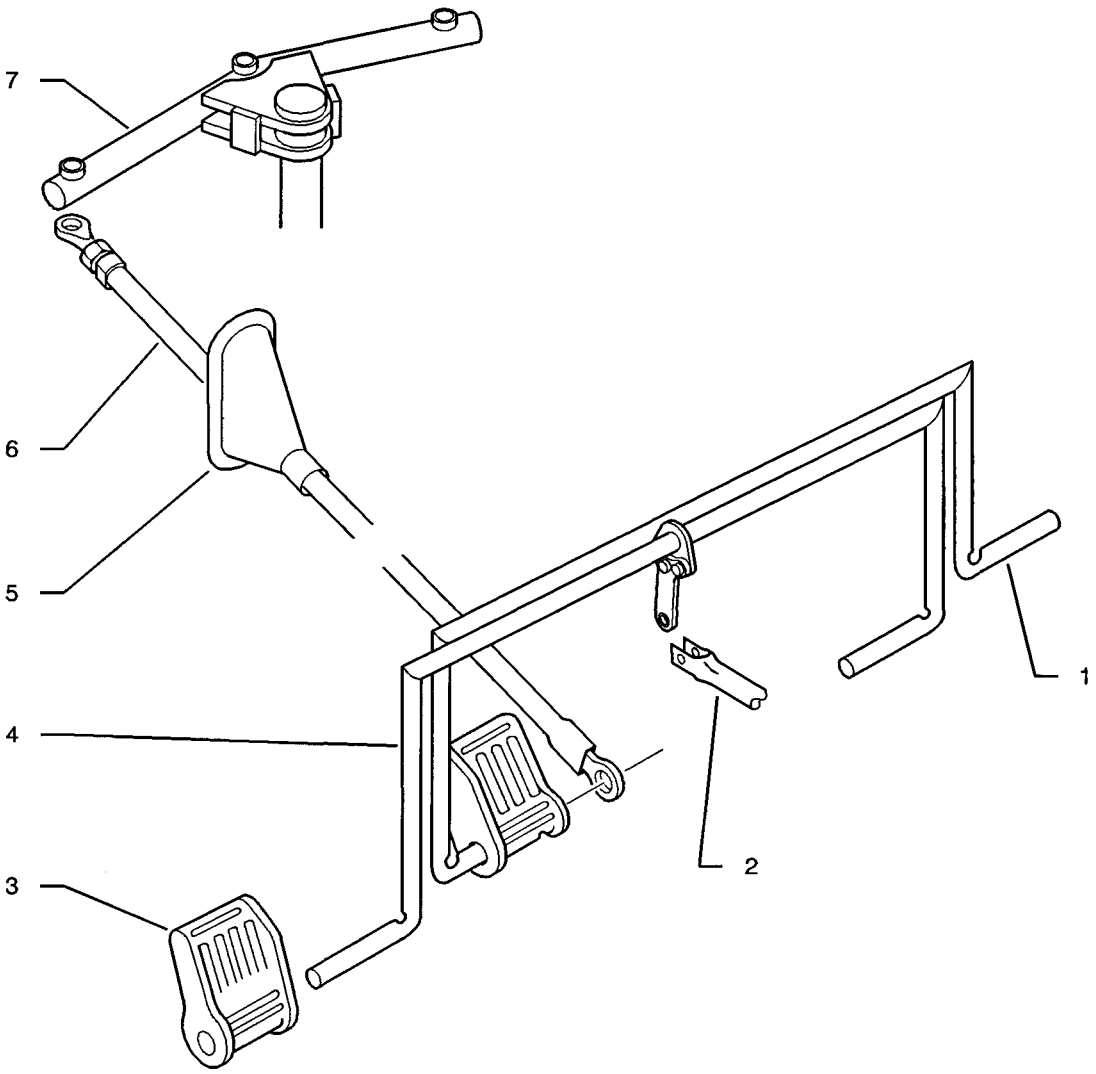
4. OPERATION

A. Roll / Yaw interconnection system (option) (Figure 2)

When a rudder pedal is moved, bellcrank (2) secured on rudder pedal (1) bar transfers the movement to free-moving actuator pin (10). After a certain travel distance, stop (9) or drive washer (13) contacts the upper or lower movable stop (12), which compresses spring (11). Since actuator (3) is integral with hinged support (8), it drives fixed support (6) and torque rod (4) by means of a ball (14) and calibrated spring (16) system.

When the force applied exceeds 1504 lbf.in (+ 88 ; - 0) [170 N (+ 10 ; - 0)], ball (14), which compresses calibrated spring (16) by means of spacer (15), leaves its housing on fixed support (6) and releases the spring.

1 - R.H. rudder pedal
2 - Rudder rod
3 - Brake pedal
4 - L.H. rudder pedal
5 - Firewall tightness bellows
6 - Nose gear interconnection rod
7 - Nose gear interconnection lever



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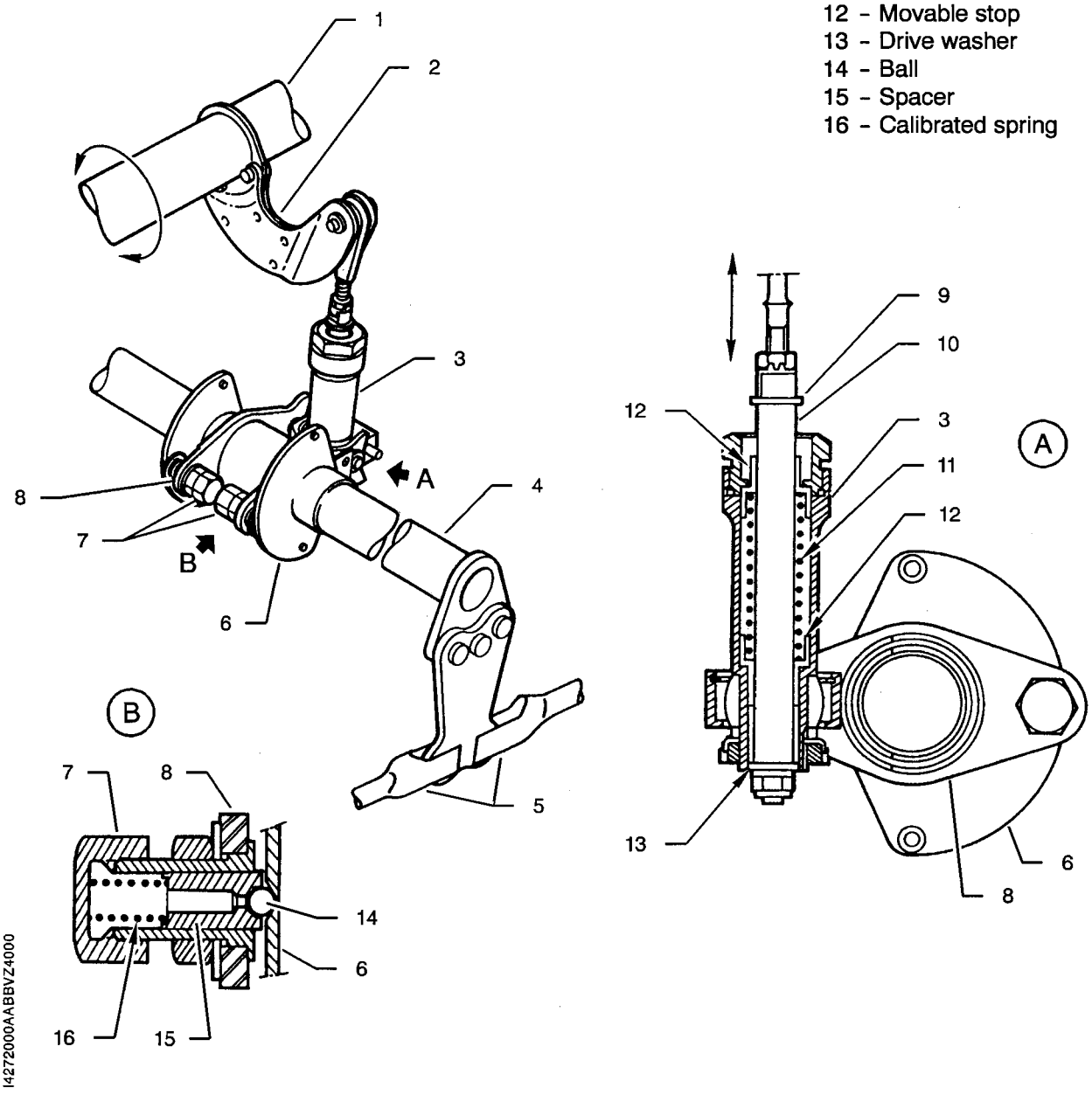
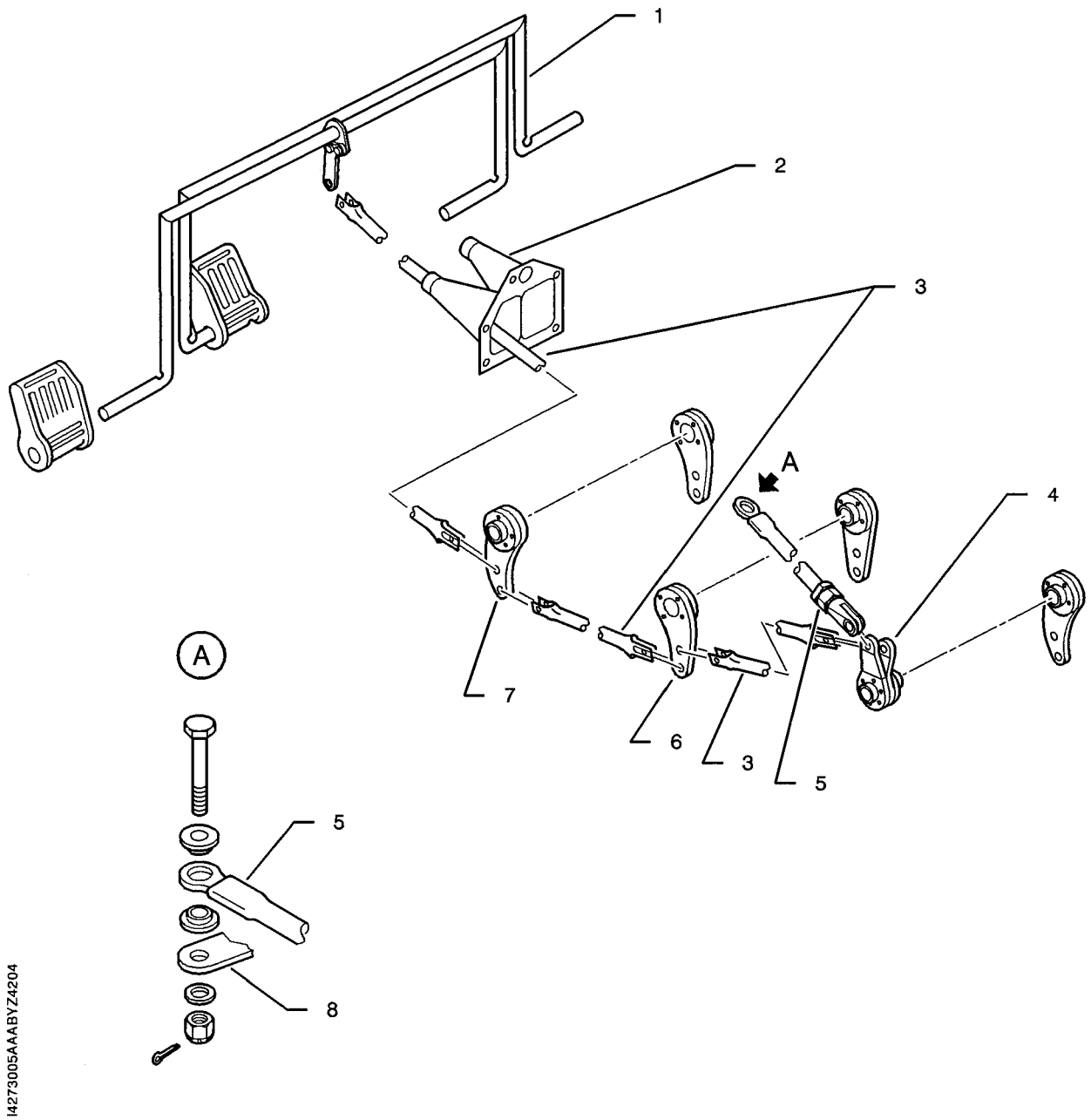
Yaw control - Rudder pedals
Figure 1

1 - Rudder pedals
2 - Bellcrank
3 - Actuator
4 - Torque rod (roll control)
5 - Control rods (roll control)
6 - Fixed support
7 - Cap
8 - Hinged support
9 - Stop
10 - Actuator pin
11 - Spring
12 - Movable stop
13 - Drive washer
14 - Ball
15 - Spacer
16 - Calibrated spring



Yaw control - Roll / Yaw interconnection system
Figure 2

1 - Rudder pedals
2 - Tightness bellows (frame C3)
3 - Control rod
4 - Double lever (frame C9)
5 - Input rod
6 - Lever (frame C7)
7 - Lever (frame C3)
8 - Rudder lever



Yaw control - Rods and levers
Figure 3

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YAW CONTROL

MAINTENANCE PRACTICES

1. SERVICING

None

2. REMOVAL / INSTALLATION

None

3. ADJUSTMENT / TEST - YAW CONTROL

A. Tools and consumable materials

- Hydraulic jack
- Rudder travel jig 8651 TB10 00000

NOTE 1 : The adjustment of the rudder linkage must be preceded by a check of the rudder rotational free play - refer to Paragraph 4.E.

NOTE 2 : The travel jig is used only in Paragraph C.

B. Adjustment of rudder without travel jig (Figure 201)

1) Remove engine cowlings 121 and 131 - refer to 71-10-01.
2) Jack up the front section of the aircraft so as to allow nose wheel (1) steering.
3) Set rudder pedals (4) to neutral position and make sure nose wheel (1) is aligned with the aircraft centerline and rudder (5) is in neutral position - refer to 32-50-00.

NOTE : The aircraft centerline is materialized by a rivets line on the rear fuselage.

4) Fully depress and hold L.H. rudder pedal.
5) Check that stop bolt (12) of interconnection lever (2) fully abuts against nose gear mount (3).
6) Make sure rudder (5) does not contact mechanical stop (13).
7) Make sure rudder (5) travel to the left in relation to the aircraft centerline (rivets line) is equal to 7.28 in ± 0.59 in (185 mm ± 15 mm) - see Detail B.
8) If necessary, adjust stop bolt (12) on interconnection lever (2), then repeat steps 6) and 7).
9) Fully depress and hold R.H. rudder pedal.
10) Check that stop bolt (11) of interconnection lever (2) fully abuts against nose gear mount (3).
11) Make sure rudder (5) does not contact mechanical stop (13).
12) Make sure rudder (5) travel to the right in relation to the aircraft centerline (rivets line) is equal to 7.28 in ± 0.59 in (185 mm ± 15 mm) - see Detail B.
13) If necessary, adjust stop bolt (11) on interconnection lever (2), then repeat steps 11) and 12).
14) Make sure all the tools and materials are removed and the work area is clean and free from debris.
15) Lower the aircraft onto the ground and remove the jack.
16) Install engine cowlings 121 and 131 - refer to 71-10-01.

C. Adjustment of rudder with travel jig (Figure 201A)

1) Remove engine cowlings 121 and 131 - refer to 71-10-01.

Post-MOD. 151

2) Remove dorsal fin 225.

All

3) Jack up the front section of the aircraft so as to allow nose wheel (1) steering.

4) Set rudder pedals (4) to neutral position and make sure nose wheel (1) is aligned with the aircraft centerline and rudder (8) is in neutral position - refer to 32-50-00.

CAUTION : EXERCISE SPECIAL CARE WHEN POSITIONING THE TOOL IN ORDER NOT TO DAMAGE THE INSTALLED ANTENNAS AND THE SKINS.

5) Position rudder travel jig (5) 8651 TB10 00000.

NOTE : Position and secure neutral setting support (6) according to the TB10 reference mark, with centering plate (7) in max. rear position.

6) Push centering plate (7) of travel jig (5) forward to check rudder (8) position.

7) Remove centering plate (7).

8) Fully depress and hold L.H. rudder pedal.

9) Check that stop bolt (12) of interconnection lever (2) fully abuts against nose gear mount (3).

10) Make sure rudder (8) does not contact mechanical stop (13).

11) On travel jig (5), check that travel angle equals 25° ± 2°.

12) If necessary, adjust stop bolt (12) on interconnection lever (2), then repeat steps 10) and 11).

13) Fully depress and hold R.H. rudder pedal.

14) Check that stop bolt (11) of interconnection lever (2) fully abuts against nose gear mount (3).

15) Make sure rudder (8) does not contact mechanical stop (13).

16) On travel jig (5), check that travel angle equals 25° ± 2°.

17) If necessary, adjust stop bolt (11) on interconnection lever (2), then repeat steps 15) and 16).

CAUTION : EXERCISE SPECIAL CARE WHEN REMOVING THE TOOL IN ORDER NOT TO DAMAGE THE INSTALLED ANTENNAS AND THE SKINS.

18) Remove travel jig (5).

19) Make sure all the tools and materials are removed and the work area is clean and free from debris.

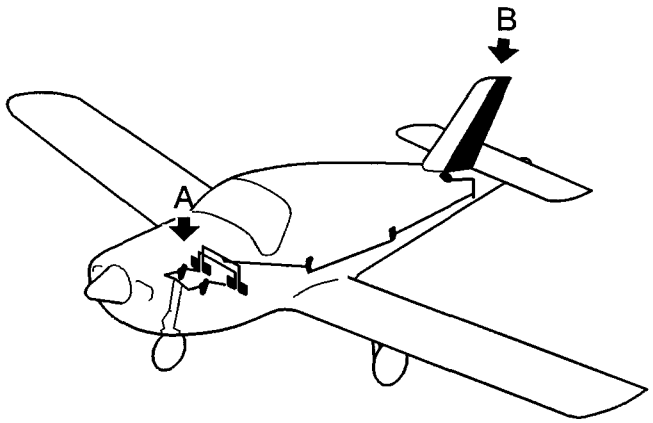
20) Lower the aircraft onto the ground and remove the jack.

Post-MOD. 151

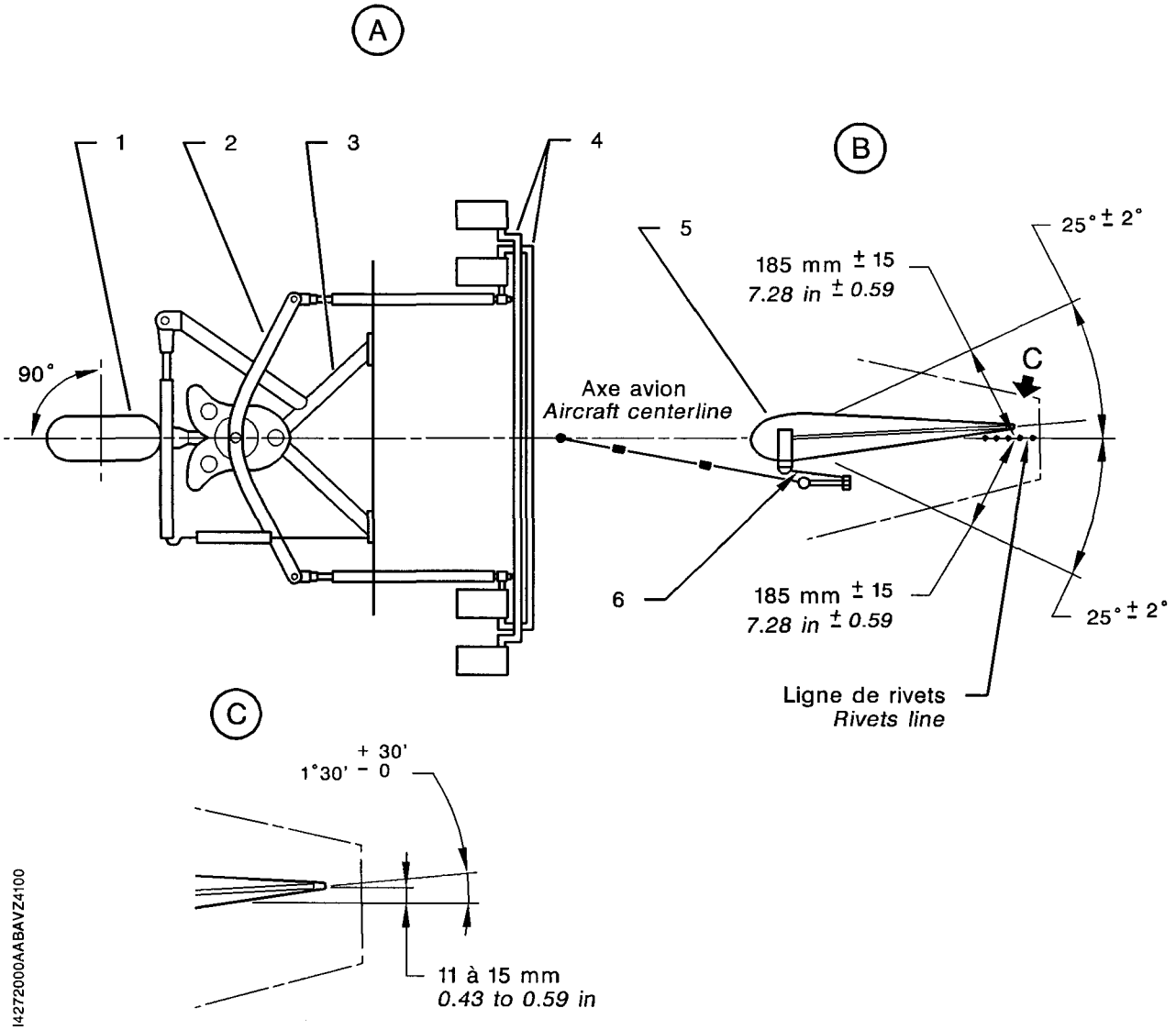
21) Install dorsal fin 225.

All

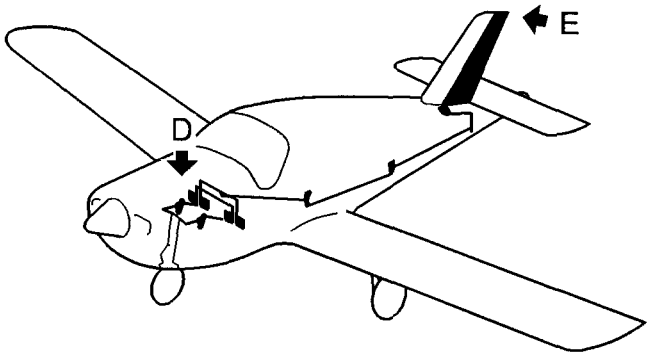
22) Install engine cowlings 121 and 131 - refer to 71-10-01.



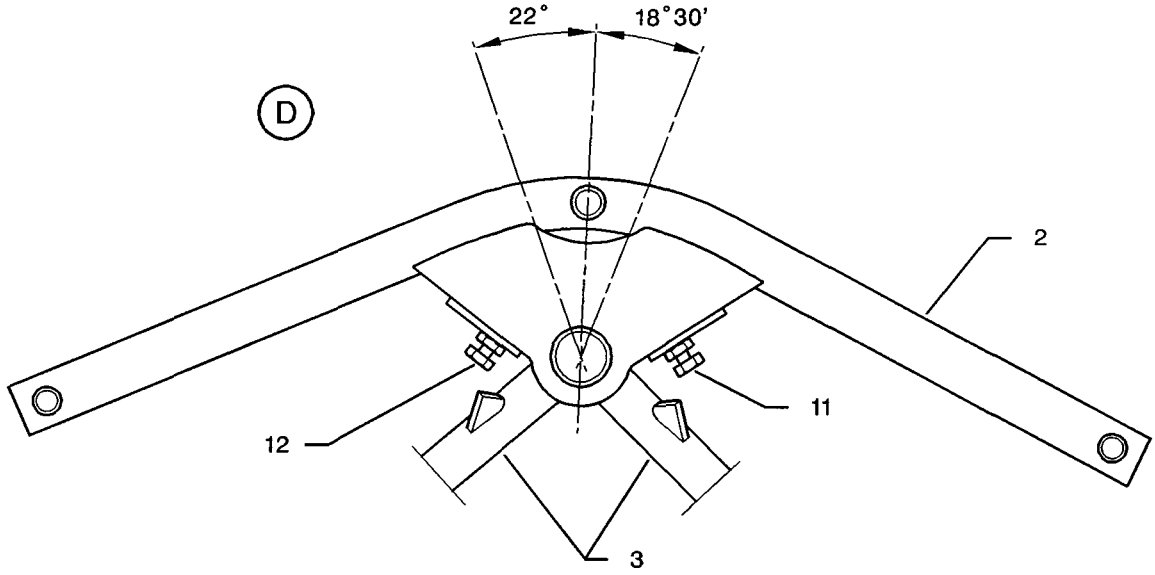
1 - Nose wheel
2 - Interconnection lever
3 - Nose gear mount
4 - Rudder pedals
5 - Rudder
6 - Input rod

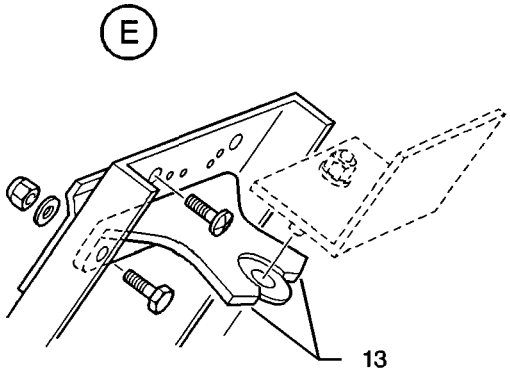


Yaw control - Adjustment / Test
Figure 201 (1 / 2) - Without travel jig



2 - Interconnection lever
3 - Nose gear mount
11 - Stop bolt
12 - Stop bolt
13 - Mechanical stop





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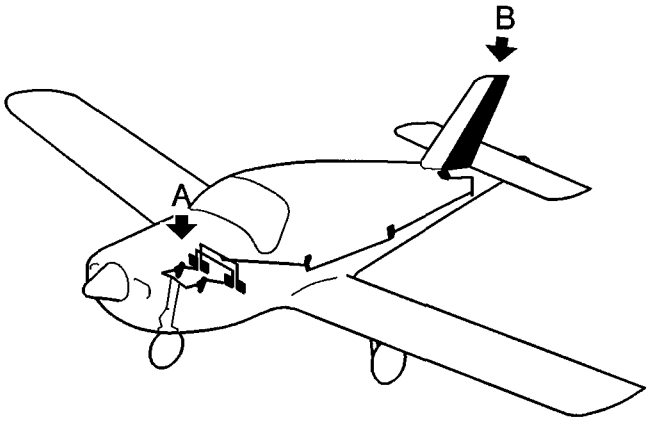
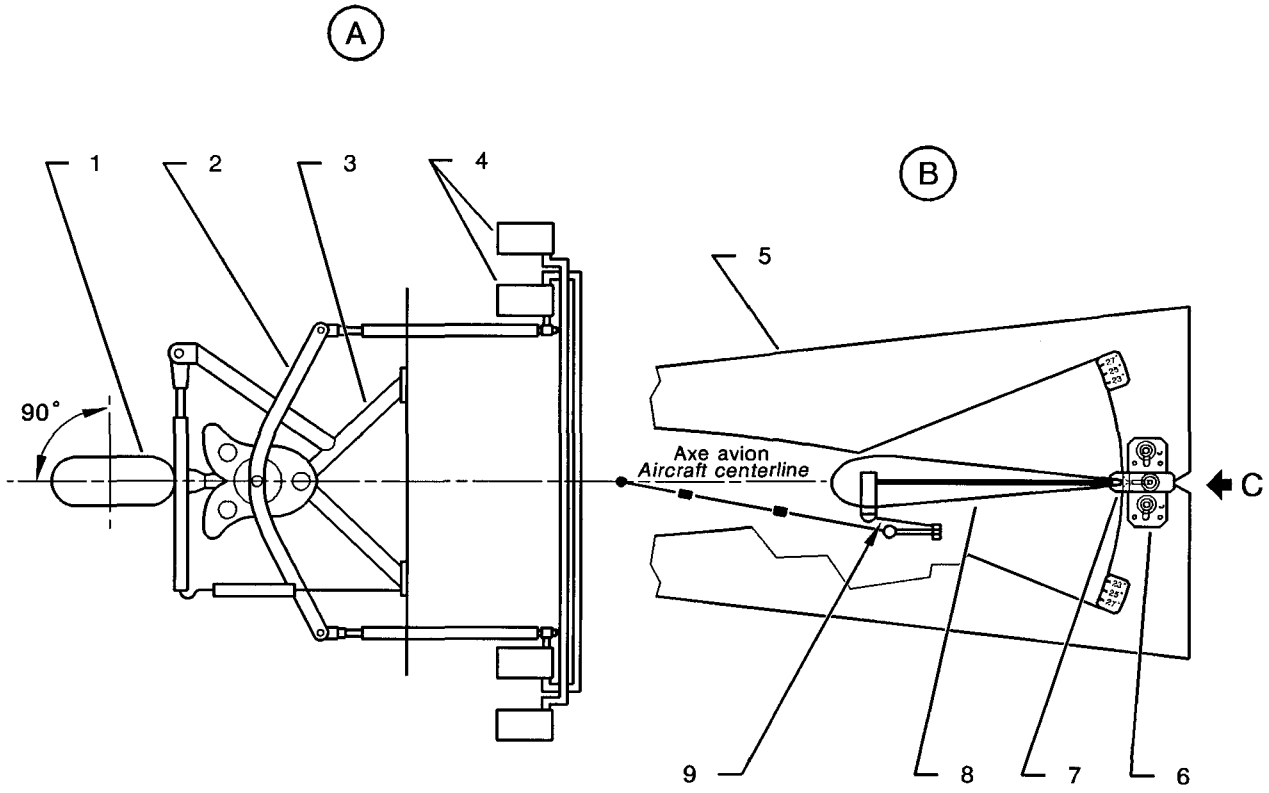
Yaw control - Adjustment / Test
Figure 201 (2 / 2) - Without travel jig



1 - Nose wheel
2 - Interconnection lever
3 - Nose gear mount
4 - Rudder pedals
5 - Travel jig
6 - Neutral setting support
7 - Centering plate
8 - Rudder
9 - Input rod



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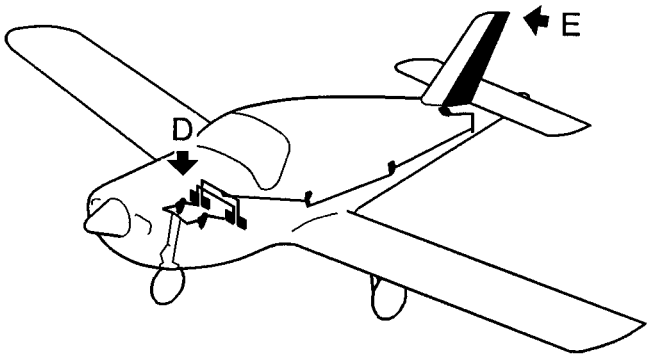
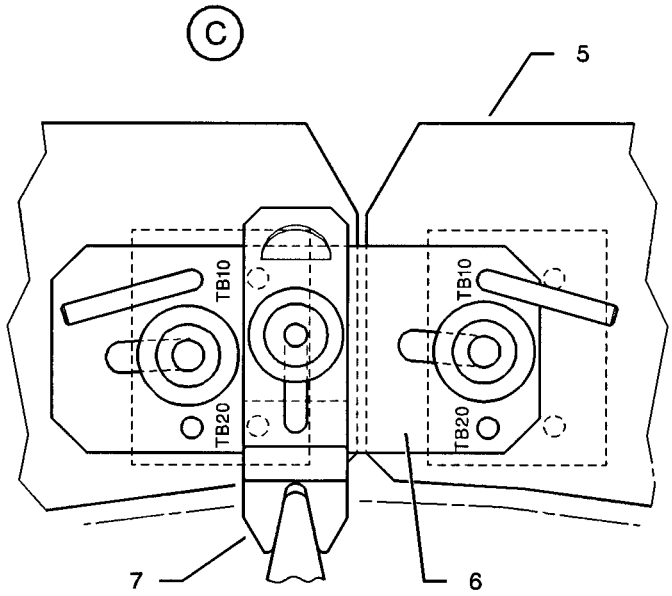
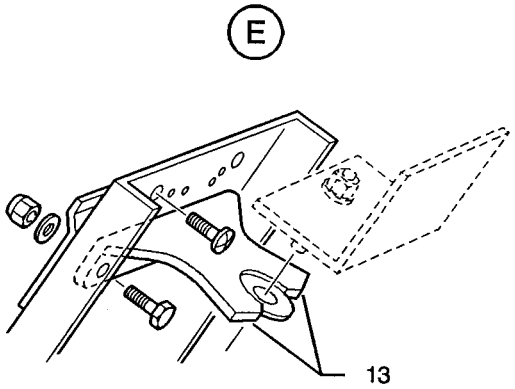
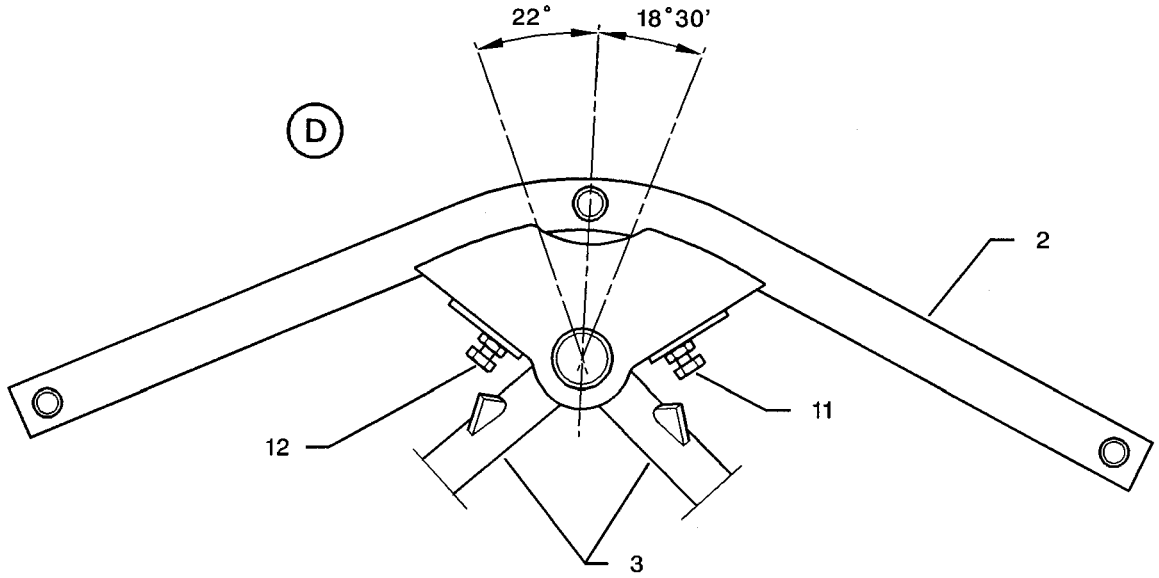
Yaw control - Adjustment / Test
Figure 201A (1 / 2) - With travel jig



2 - Interconnection lever
3 - Nose gear mount
5 - Travel jig
6 - Neutral setting support
7 - Centering plate
11 - Stop bolt
12 - Stop bolt
13 - Mechanical stop







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Yaw control - Adjustment / Test
Figure 201A (2 / 2) - With travel jig

4. INSPECTION / CHECK - YAW CONTROL

A. Tools and consumable materials

None

B. Preliminary steps

1) Make sure that the main switch-breaker is open.

2) Install the warning sign prohibiting main switch-breaker operation.

WARNING

DO NOT OPERATE
MAINTENANCE WORK IN PROGRESS

3) Remove engine cowlings - refer to 71-10-01.

4) Remove the cowling under hull 218.

5) Remove tail cone 222 - refer to 53-20-00.

6) Open baggage compartment door 219 and remove baggage compartment bottom door 242.

7) Remove inspection doors 235L and 235R.

C. Check of rudder control (Figure 202)

1) Inspect interconnection rods (6) for :

- slack, buckling, cracks, binding and corrosion,
- correct safetying of nuts (2) of attachment pins on rudder bars and of attachment bolts on nose gear interconnection lever with cotter pins,
- correct safetying of the jam nut of rod end assy (1).

2) Inspect rudder pedals for :

- cracks, distortions and corrosion,
- condition and security of pedals (3),
- condition and security of bellcrank (4),
- condition and security of bearings (5).

3) Inspect control rods (8) for :

- cracks, buckling and corrosion,
- correct safetying of nuts (14) of the attachment bolts with cotter pins.

4) Inspect levers (9) for :

- distortions, cracks, corrosion, binding and slack,
- correct safetying of attachment nuts (11) of the hinge pins with cotter pins,
- slack and loose rivets on spacers (7) of levers (9).

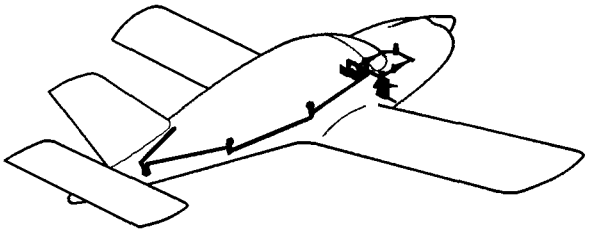
5) Inspect input rod (10) for :
   - slack, buckling, cracks, binding and corrosion,
   - condition of the attachment rivets of rod end assy,
   - correct tightening of the attachment nuts of the tapped end,
   - correct safetying of the jam nut of adjustable yoke end (13),
   - correct safetying of attachment nuts (12) of the input rod with cotter pins.

D. Final steps

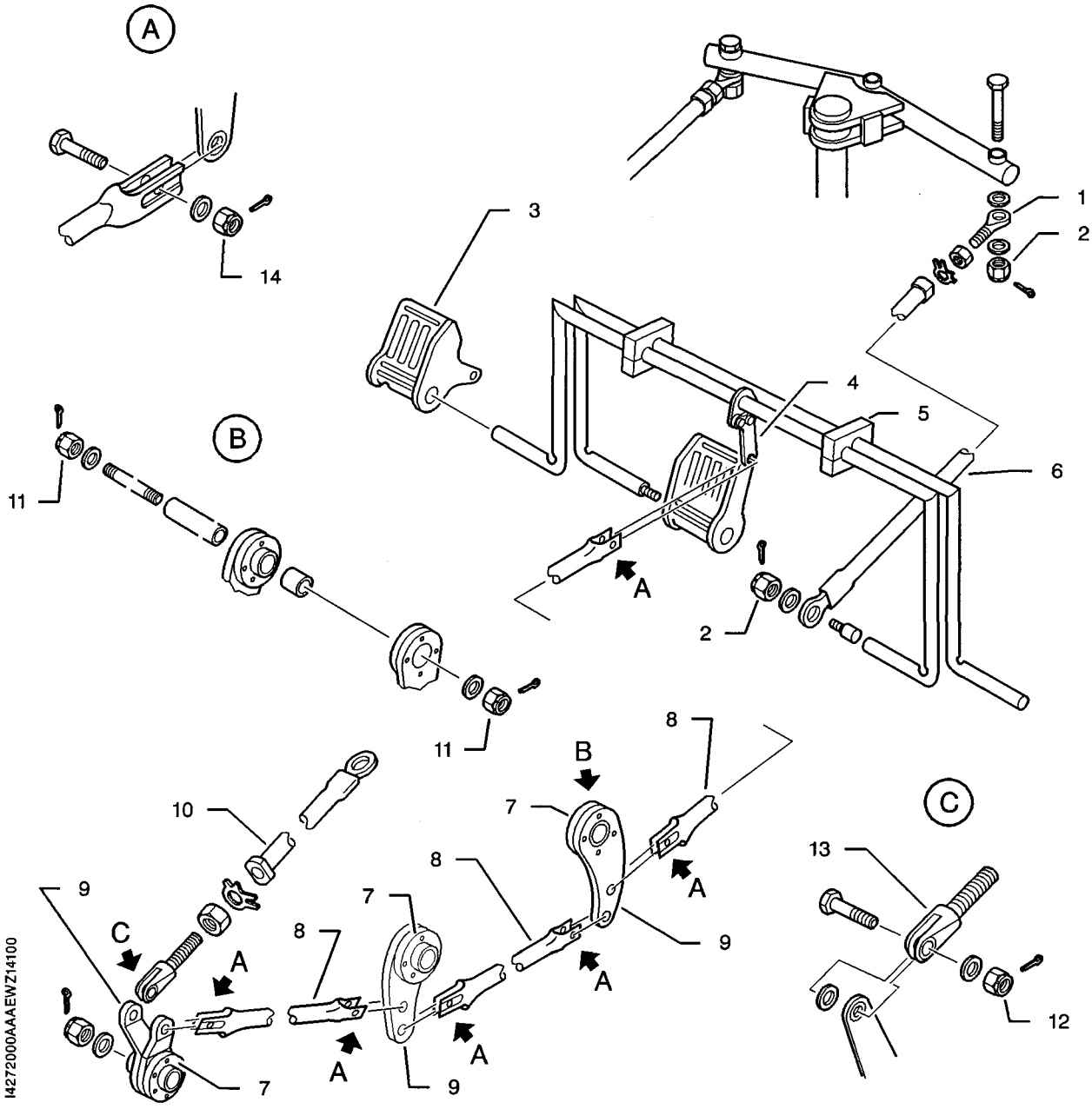
1) Make sure all the tools and materials are removed and the work area is clean and free from debris.
2) Install inspection doors 235L and 235R.
3) Install baggage compartment bottom door 242 and close baggage compartment door 219.
4) Install the cowling under hull 218.
5) Install engine cowlings - refer to 71-10-01.
6) Install tail cone 222 - refer to 53-20-00.
7) Remove the warning sign prohibiting main switch-breaker operation.

E. Check of rudder rotational free play

1) With the rudder pedals blocked, move the rudder and check the play at the lower rib, on the trailing edge. Max. acceptable play 0.32 in (8 mm).



1 - Rod end assy
2 - Nut
3 - Pedal
4 - Bellcrank
5 - Bearing
6 - Interconnection rod
7 - Spacer
8 - Control rod
9 - Lever
10 - Input rod
11 - Nut
12 - Nut
13 - Adjustable yoke end
14 - Nut



Yaw control - Inspection / Check
Figure 202

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RUDDER PEDALS

MAINTENANCE PRACTICES

1. SERVICING

None

2. REMOVAL / INSTALLATION - RUDDER PEDALS

A. Tools and consumable materials

- Grease (TB 04-004A)
- Adhesive tape (TB 08-919A)

B. Removal of rudder pedals (Figure 201)

1) Disconnect the battery - refer to 24-30-02.
2) Install the warning sign prohibiting main switch-breaker operation.

WARNING

DO NOT OPERATE
MAINTENANCE WORK IN PROGRESS

3) Remove the front seats - refer to 25-11-00.
4) Remove inspection doors 211L and 211R (if installed) and 235L and 235R.
5) If installed, remove the transponder and / or the ADF receiver - refer to 34-50-00.
6) Remove the visors and tilt R.H. and L.H. instrument panels.
7) Disconnect the leads from ground terminal block GS 23 (R.H. side).
8) Remove and discard cotter pins (21) ; remove washers (20) and disconnect brake rods (22).
9) If installed, remove the master cylinders from their support on R.H. station (without disconnecting the hoses).
10) Remove and discard cotter pins (18) ; remove nuts (17) and shouldered washers (16).

    NOTE : Mark the mounting direction of shouldered washer (16).

11) Disconnect interconnection rods (19) from the rudder pedals ; if installed, remove both setting washers.
12) If installed, disconnect the roll / yaw interconnection rod from the crank lever of the rudder bar - refer to 27-20-02.

    NOTE : Immobilize the rod to avoid disturbing its setting.

13) Remove and discard nuts (6) ; remove washers (5) and bolts (4) from lever (7).
14) Remove and discard nut (15) ; remove washer (14) and bolt (13).
15) Counter-drill the head of blind rivet (8), retain washer (9) and clamp (10).

S / N 1 - 274

CAUTION : FOR THE REAR ATTACHMENT OF THE RUDDER PEDAL R.H. SUPPORT, REMOVE NUT (2) AND WASHER (3) FROM INSIDE THE GLOVE COMPARTMENT. IF THE GLOVE COMPARTMENT IS NOT ACCESSIBLE, REMOVE LOCK BOLT UNDER THE CONTROL WHEEL SLIDING TUBE.

S / N 1 - 9999

16) While holding the rudder pedals, remove and discard nuts (2), remove washers (3) (or retaining plate) and lower half-bearings (1).

17) Disengage R.H. and L.H. rudder pedals from the pedestal.

18) Retain upper half-bearings (1) ; leave bolts (11) in position.

C. Installation of rudder pedals (Figures 201 and 202)

1) Lubricate bolts and hinge bolts with grease (TB 04-004A).

2) Position and tape upper half-bearings (1) on bolts (11). Use adhesive tape (TB 08-919A).

3) Position the front and rear rudder pedals through the pylon.

S / N 1 - 274

CAUTION : FOR THE REAR ATTACHMENT OF THE RUDDER PEDAL R.H. SUPPORT, NEW NUT (2) AND WASHER (3) MUST BE INSTALLED FROM INSIDE THE GLOVE COMPARTMENT.

S / N 1 - 9999

4) While holding the rudder pedals on upper half-bearings (1), install lower half-bearings (1).

5) Secure the lower half-bearings with washers (3) (or retaining plate) and new nuts (2).

S / N 1 - 274

CAUTION : IF THE GLOVE COMPARTMENT IS NOT ACCESSIBLE, INSTALL THE LOCK BOLT UNDER THE CONTROL WHEEL SLIDING TUBE.

S / N 1 - 9999

6) Secure the engine controls with clamp (10), washer (9) and a blind rivet (8).

7) Secure the engine controls with clamp (12), bolt (13), washer (14) and new nut (15).

8) If installed, connect the roll / yaw interconnection rod to the crank lever of the rudder pedal tube - refer to 27-20-02.

9) Secure lever (7) to the rear rudder bar with bolts (4), washers (5) and new nuts (6).

10) Secure interconnection rods (19) to rudder pedals with shouldered washers (16) (observe the mounting direction) and nuts (17) ; safety with new cotter pins (18).

NOTE : If removed, install the two setting washers before engaging interconnection rod (19).

11) Secure brake rods (22) at L.H. station pedals with washers (20) and new cotter pins (21).

12) If removed, secure the master cylinders onto their support.

NOTE : Ensure a 0.39 in to 0.78 in (1 to 2 mm) clearance between piston rod and control lever roller.

S / N 664, 710 - 9999 and S / N 1 - 663, 665 - 709 Post-Kit OPT10 913100

13) If interconnection rods (19) have been removed during rudder pedals removal, reinstall as follows :

- observe the mounting direction of bolts (31) and (32) - see Figure 202, Detail A,
- move the nose wheel / rudder interconnection system to check the clearance between bolts (31) and (32) and reinforcement plate (33) ; if necessary, rework the plate, min. clearance 0.2 in (5 mm) - see Figure 202, Detail B,
- move the nose wheel / rudder interconnection system and make sure interconnection rod (19) moves freely through bellows reinforcement plate (33) - see Figure 202, Detail C.

S / N 1 - 9999

14) Check the alignment of the rudder pedals - refer to Paragraph 4 - and the rudder - refer to 27-20-00.

15) If installed, check the adjustment of the roll / yaw interconnection system - refer to 27-20-02.

16) Make sure all the tools and materials are removed and the work area is clean and free from debris.

17) Connect the leads to ground terminal block GS 23 (R.H. side).

18) Raise R.H. and L.H. instrument panels and install the visors.

19) If removed, install the transponder and / or the ADF receiver - refer to 34-50-00.

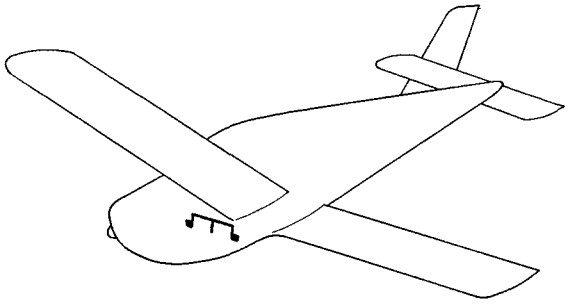
20) Connect the battery - refer to 24-30-02.

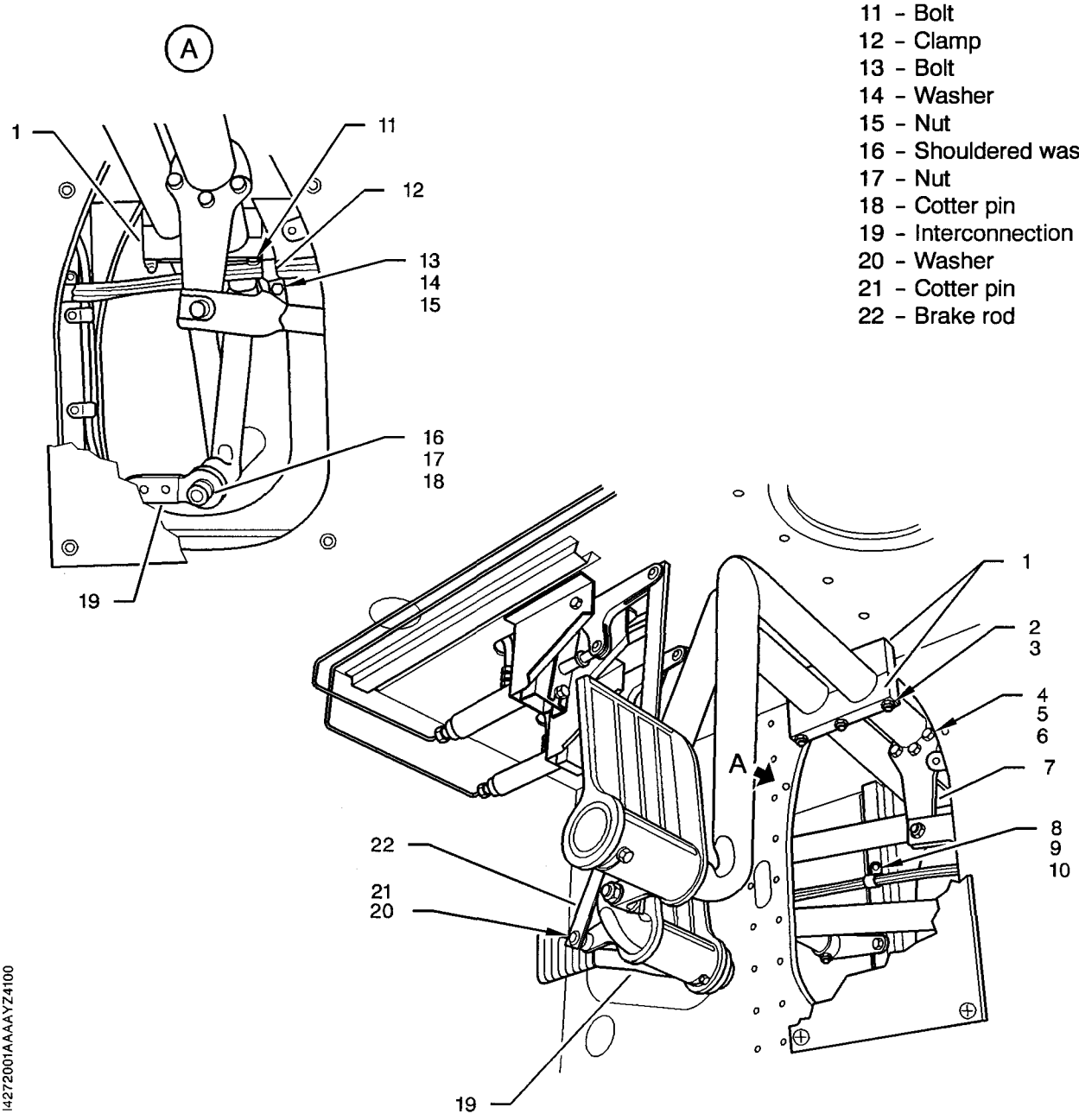
21) Install inspection doors 211L and 211R (if installed) and 235L and 235R.

22) Install the front seats - refer to 25-11-00.

23) Remove the warning sign prohibiting main switch-breaker operation.

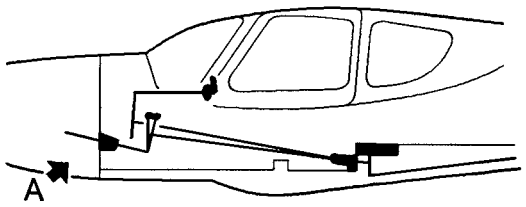
24) If the R.H. station is equipped with master cylinders, test the brakes while taxiing.



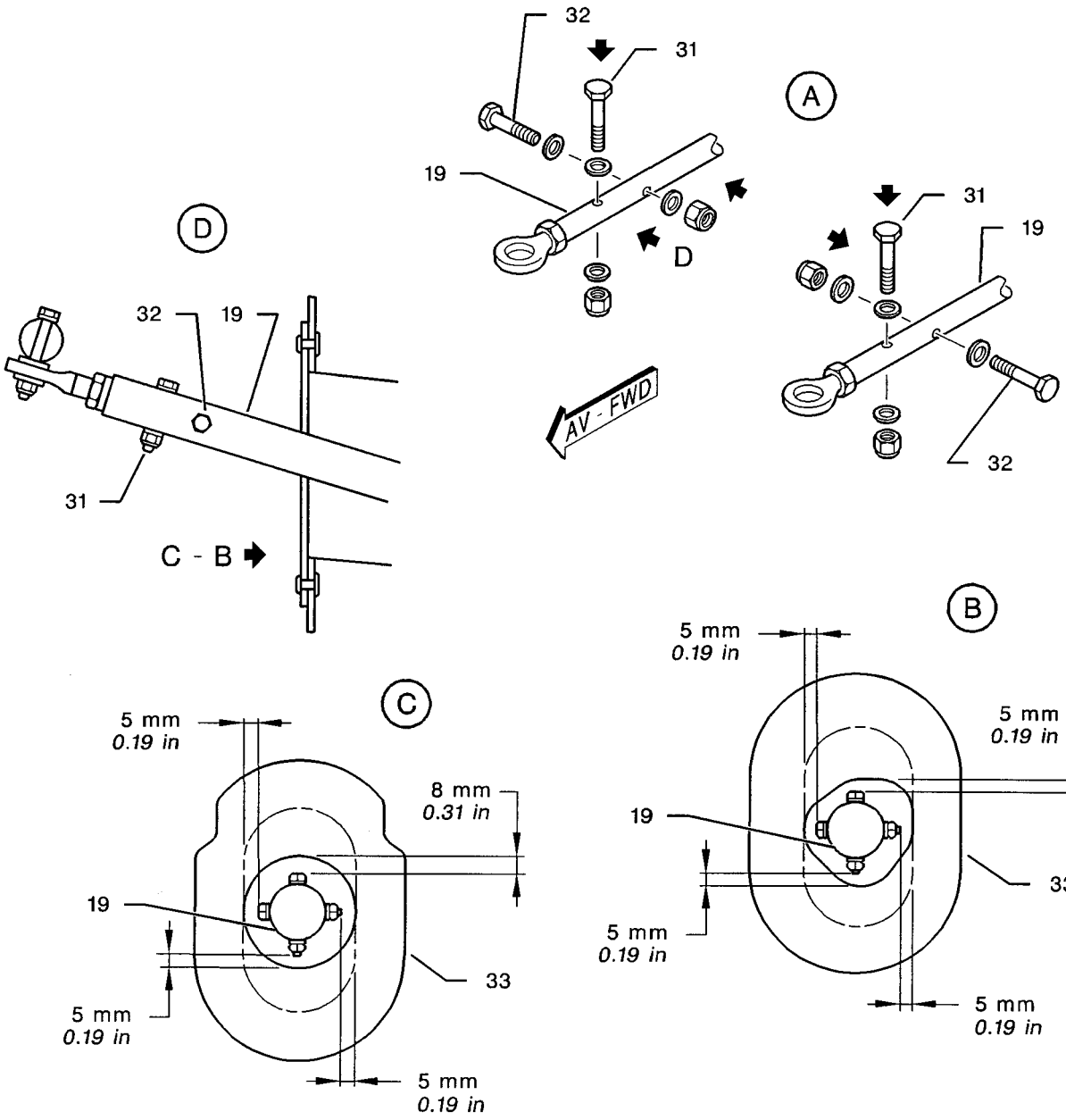


1 - Half-bearing
2 - Nut
3 - Washer
4 - Bolt
5 - Washer
6 - Nut
7 - Lever
8 - Blind rivet
9 - Washer
10 - Clamp
11 - Bolt
12 - Clamp
13 - Bolt
14 - Washer
15 - Nut
16 - Shouldered washer
17 - Nut
18 - Cotter pin
19 - Interconnection rod
20 - Washer
21 - Cotter pin
22 - Brake rod

Rudder pedals - Removal / Installation
Figure 201



19 - Interconnection rod
31 - Bolt
32 - Bolt
33 - Reinforcement plate



Interconnection rod - Removal / Installation
Figure 202

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Validity : S / N 1 - 9999

3. ADJUSTMENT / TEST

None

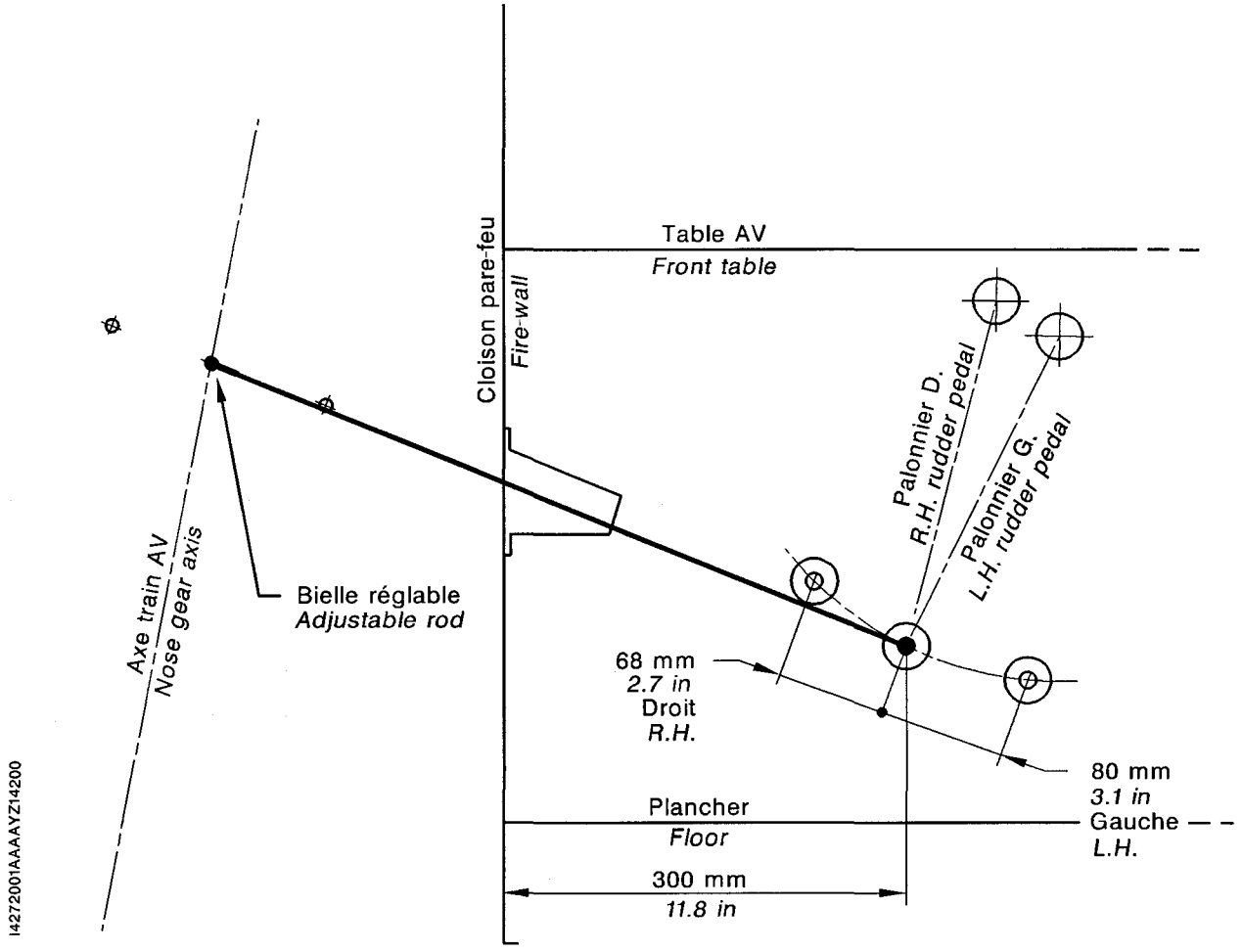
4. INSPECTION / CHECK - RUDDER PEDALS

A. Tools and consumable materials

None

B. Check of rudder pedals (Figure 203)

The installation of the rudder pedals must be followed by a check of their alignment and a systematic check of nose wheel alignment and rudder adjustment.



Rudder pedals - Inspection / Check
Figure 203

ROLL / YAW INTERCONNECTION SYSTEM

MAINTENANCE PRACTICES

1. SERVICING

None

2. REMOVAL / INSTALLATION - ROLL / YAW INTERCONNECTION SYSTEM

A. Tools and consumable materials

- Grease (TB 04-004A)
- Loctite (TB 08-013C)
- Cleaning agent (TB 11-003)
- Clean, lint-free cloths
- Stainless steel lockwire, dia. 0.02 in (0.6 mm)
- Hydraulic jack (Qty 1)

B. Removal of roll / yaw interconnection system mechanism (Figures 201 and 202)

1) Remove the front seats - refer to 25-11-00.
2) Remove inspection doors 235L and 235R.
3) Remove and discard cotter pin (8) ; remove clevis pin (4), washer(s) (2) and, if installed, spacers (31).
4) Remove screws (14) and stop plates (15).
5) Back off rings (21) and remove actuator assy.
6) On a work bench, remove and discard nut (23) ; retain drive washer (24).
7) Disengage actuator pin (6) assy.
8) Discard lockwire and remove cap (28), movable stops (26) and spring (27).
9) Clear lockwasher (12) tab ; remove nut (13), lockwasher (12), special washer (11) and support (10) of actuator housing (25).
10) Remove retaining ring (22) and ball joint (9) from support (10).

C. Installation of roll / yaw interconnection system mechanism (Figures 201, 202 and 203)

1) Use clean cloths moistened with cleaning agent (TB 11-003) to clean the different parts.
2) Inspect each part for wear, binding or distortions and replace if necessary.
3) Lubricate ball joint (9), support (10) pins, movable stops (26), spring (27), actuator pin (6) and rod end assy (3) ball joint with grease (TB 04-004A).
4) Position ball joint (9) into support (10) and install retaining ring (22).
5) Position actuator housing (25) onto support (10), install special washer (11), lockwasher (12) and nut (13) ; fold down lockwasher (12) tab.
6) Engage one movable stop (26), spring (27), the second movable stop (26) and screw cap (28) into actuator housing (25).

7) Lockwire the cap with stainless steel lockwire, dia. 0.02 in (0.6 mm).

8) Engage actuator pin (6) into actuator housing (25).

9) Install drive washer (24) (observe the mounting direction) - see Figure 203, Detail A - and a new nut (23).

10) If necessary, preset the actuator to 7.62 in (193.5 mm) - see Figure 203.

NOTE : In this case, loosen jam nut (7) and replace lockwasher (5) ; do not lock.

11) Position support (10) equipped with the actuator on hinged support (20) and engage rings (21) on pins.

12) Install stop plates (15) with screws (14) coated with Loctite (TB 08-013C).

13) Check the travel of the ailerons - refer to 27-10-00 - and the rudder - refer to 27-20-00.

14) Jack up the front section of the aircraft so as to clear nose wheel from ground.

15) Immobilize the ailerons and the rudder in neutral position.

NOTE : As a reminder, the neutral position of the rudder is at 1°30' to the right of the aircraft centerline.

16) Secure rod end assy (3) to bellcrank (1) according to the following cases :

a) Detail B.

- Rod end width 0.35 in (9 mm), bellcrank (1) width 0.35 in (9 mm), clevis pin length (under head) 0.86 in (22 mm), install with two washers (2).

b) Detail C.

- Rod end width 0.47 in (12 mm), bellcrank (1) width 0.47 in (12 mm), clevis pin length (under head) 0.94 in (24 mm), install with one washer (2).

c) Detail D.

- Rod end width 0.35 in (9 mm), bellcrank (1) width 0.47 in (12 mm), clevis pin length (under head) 0.94 in (24 mm), install with two spacers (31) and one washer (2).

17) Install a new cotter pin (8).

18) Screw actuator pin (6) into or out of rod end assy (3) via nut (23) to obtain a 0.4 in (10.2 mm) [max. 0.43 in (11 mm)] dimension between actuator pin (6) shoulder (41) and cap (28) - see Figure 203.

19) Adjust the roll / yaw interconnection system mechanism - refer to Paragraph 3.B.

20) Check the triggering force of disengagement mechanism (16) - refer to Paragraph 3.C.

21) Lock jam nut (7) and fold down lockwasher (5) tab.

22) Make sure all the tools and materials are removed and the work area is clean and free from debris.

23) Install inspection doors 235L and 235R.

24) Install the front seats - refer to 25-11-00.

25) Lower the aircraft onto the ground and remove the jack.

3. ADJUSTMENT / TEST - ROLL / YAW INTERCONNECTION SYSTEM

A. Tools and consumable materials

- Clinometer
- Spring scale 0 - 89 lbf.in (0 - 200 N.m), P/N ESO 563 or equivalent
- Hydraulic jack (Qty 1)
- Stainless steel lockwire, dia. 0.02 in (0.6 mm)

B. Adjustment of roll / yaw interconnection system mechanism (Figure 201)

NOTE : Anytime the roll or yaw control system is serviced, check the adjustment of the roll / yaw interconnection actuator. Readjust if necessary.

1) Jack up the front section of the aircraft so as to clear nose wheel from the ground.
2) Check the travel of the ailerons - refer to 27-10-00 - and the rudder - refer to 27-20-00.
3) Position the ailerons and the rudder in neutral position.
4) Slowly depress the rudder pedals. When the ailerons begin moving, note the position (left or right) of the rudder.
5) The ailerons must begin moving when the rudder is 17° or 5 in ± 0.3 in (126 mm ± 7.5 mm) to the left or to the right in relation to the aircraft centerline (materialized by the rivets line located on the rear fuselage).

   NOTE : The rudder neutral position corresponds to a travel of 1.5 to 2° or 0.43 to 0.59 in (11 to 15 mm) to the right in relation to the aircraft centerline.

6) Fully deflect the rudder to the right, then to the left and check the position of the ailerons (5° minimum) with the clinometer - refer to 20-00-13.
7) If the interconnection system does not correctly actuate the ailerons, screw actuator pin (6) into or out of rod end assy (3) - refer to Paragraph 2.

   NOTE : ½ turn of actuator pin (6) into rod end assy (3) corresponds to a rudder travel distance of approximately 0°30'.

CAUTION : DISENGAGEMENT MUST HAPPEN ONLY IF THE SYSTEM IS BLOCKED (INTERCONNECTION SYSTEM INPUT ROD).

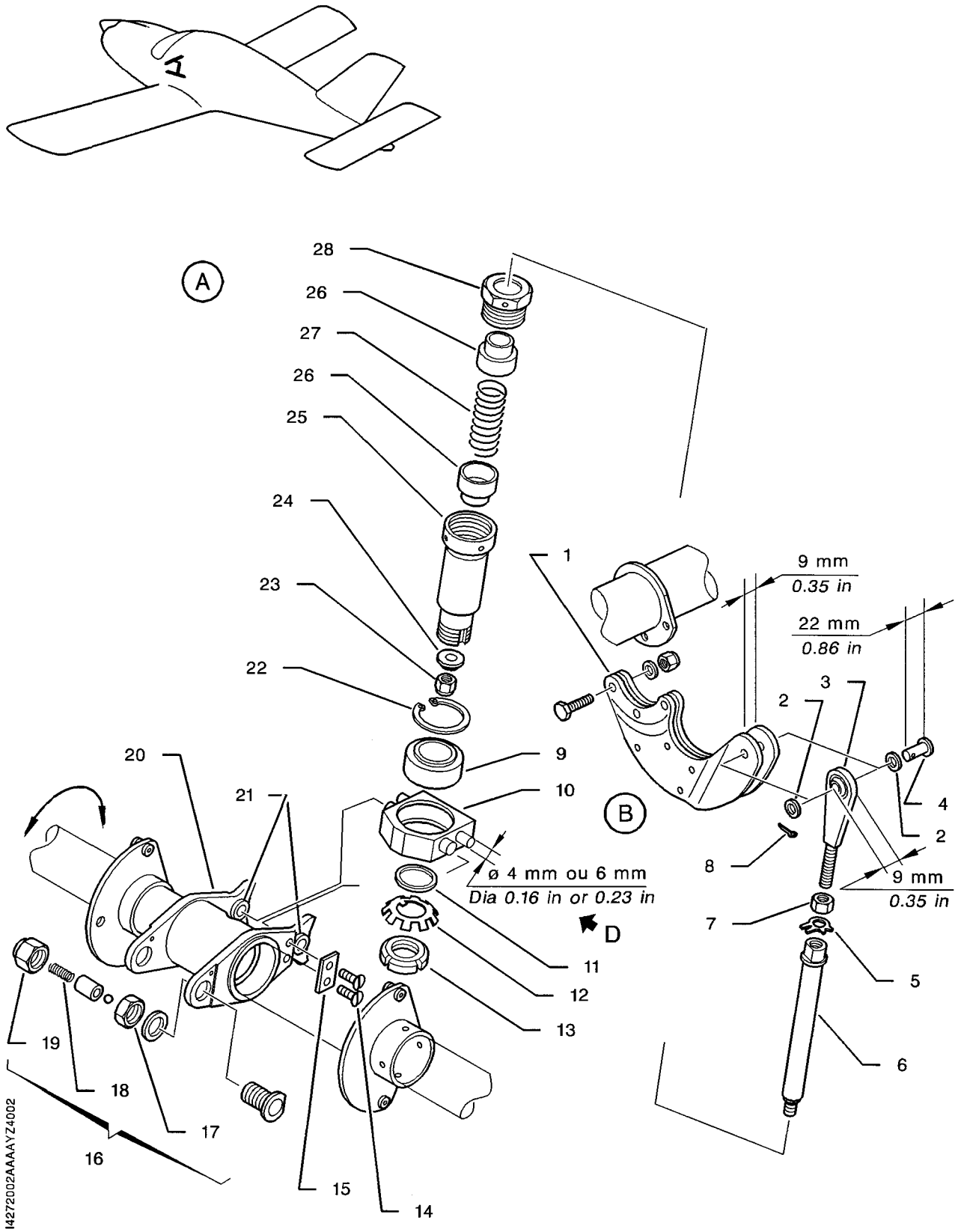
8) Fully deflect the rudder to the left, the ailerons to the right, then the rudder to the right and the ailerons to the left and make sure the system does not disengage.
9) If it does, adjust the disengagement mechanism triggering force - refer to Paragraph C.
10) Make sure all the tools and materials are removed and the work area is clean and free from debris.
11) Lower the aircraft onto the ground and remove the jack.

C. Adjustment of the disengagement mechanism triggering force on aircraft (Figure 201)

1) Jack up the front section of the aircraft so as to allow nose wheel steering.
2) Remove the front seats - refer to 25-11-00.
3) Remove inspection doors 235L and 235R.
4) Cut and discard lockwire of caps (19) and nuts (17).

1 - Bellcrank
2 - Washer
3 - Rod end assy
4 - Clevis pin
5 - Lockwasher
6 - Actuator pin
7 - Jam nut
8 - Cotter pin
9 - Ball joint
10 - Support
11 - Special washer
12 - Lockwasher
13 - Nut
14 - Screw
15 - Stop plate
16 - Disengagement mechanism
17 - Nut
18 - Spring
19 - Cap
20 - Hinged support
21 - Ring
22 - Retaining ring
23 - Nut
24 - Drive washer
25 - Actuator housing
26 - Movable stop
27 - Spring
28 - Cap

Roll / Yaw interconnection system - Removal / Installation
Key to Figure 201



Roll / yaw interconnection system - Removal / Installation
Figure 201

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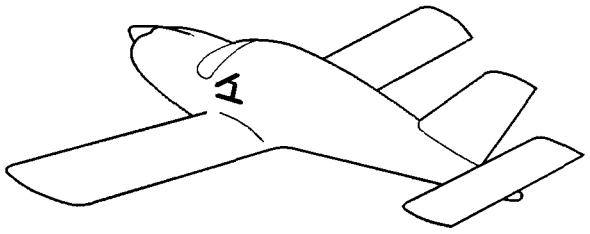
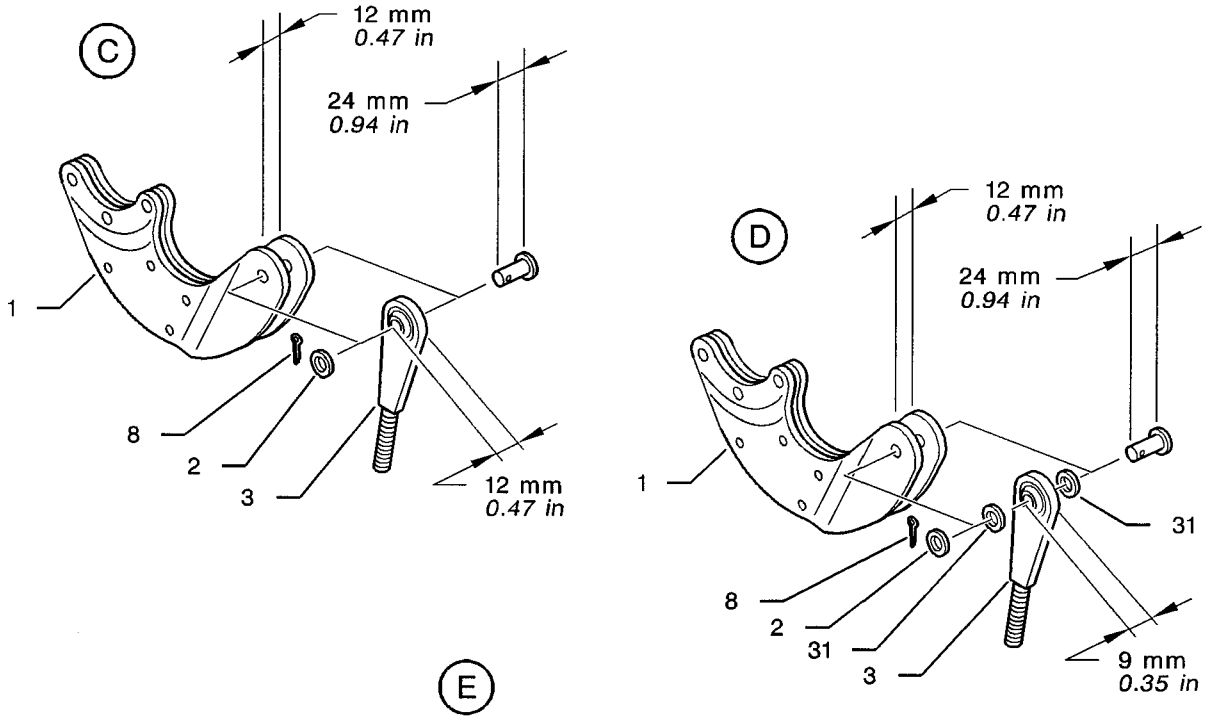
Validity : OPTION



1 - Bellcrank
2 - Washer
3 - Rod end assy
8 - Cotter pin
20 - Hinged support
31 - Spacer



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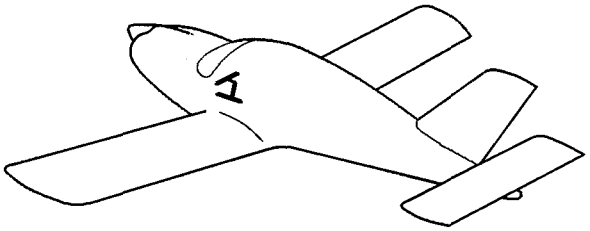
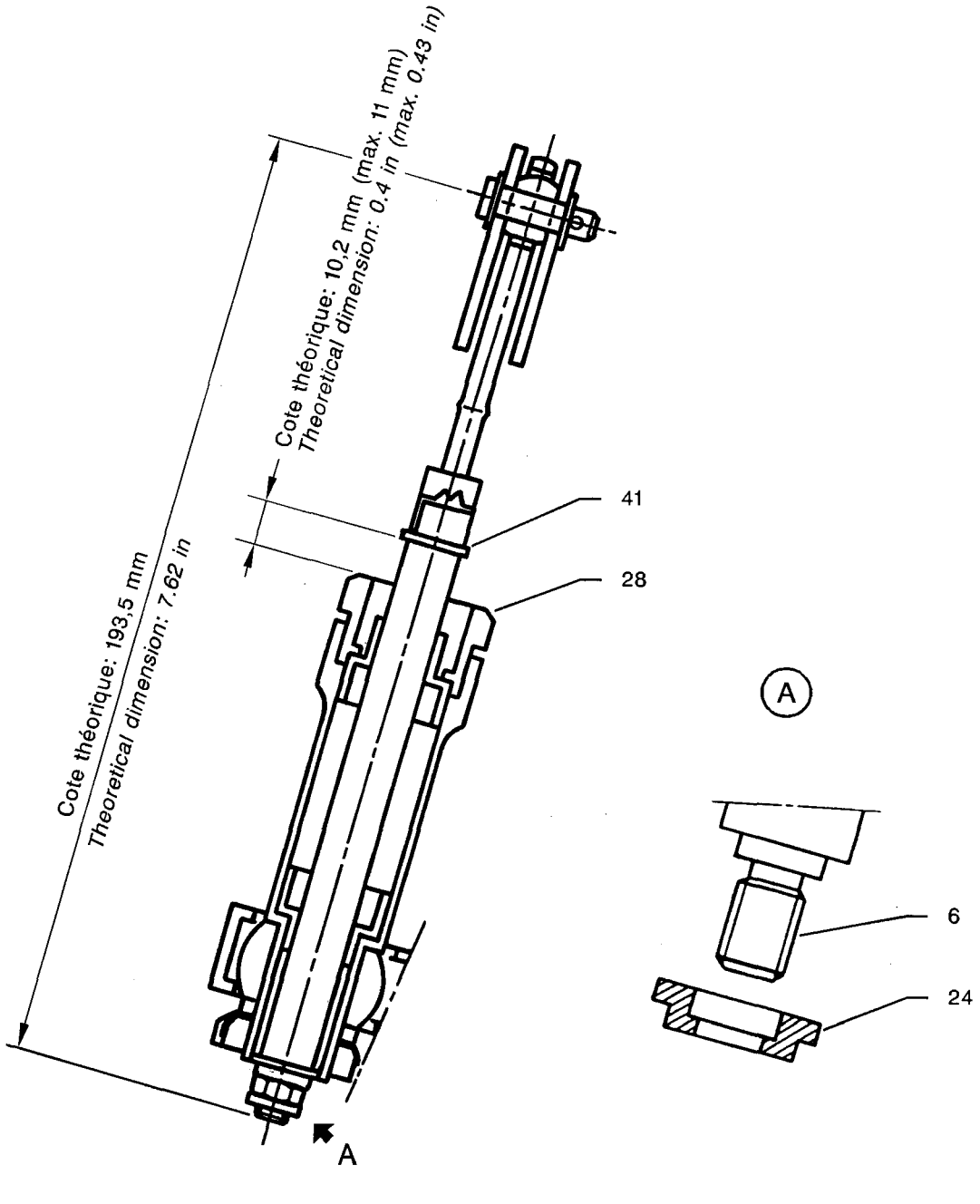
Roll / Yaw interconnection system - Removal / Installation
Figure 202

AAAA
Validity : OPTION



6 - Actuator pin
24 - Drive washer
28 - Cap
41 - Shoulder



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Roll / Yaw interconnection system
Figure 203

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Validity : OPTION

5) Unscrew one of the two caps (19), remove spring (18), then screw in cap (19).

6) Secure a tensile means to the rudder bar axis (at the attachment of the interconnection rod) and screw the spring scale.

7) Pull perpendicularly to the vertical rudder bar and make sure the mechanism triggering force is equal to 289 lbf.in (+ 44 ; - 0) [32.7 N.m (+ 5 ; - 0)].

8) Screw in or out cap (19) until the desired value is obtained.

9) Insert removed spring (18) and screw in cap (19), then repeat steps 7) and 8) for the second cap (19).

NOTE : The value to be obtained is multiplied by two, that is to say 578 lbf.in (+ 88 ; - 0) [65.4 N.m (+ 10 ; - 0)].

10) Lockwire nuts (17) and caps (19) on hinged support (20) with lockwire, dia. 0.02 in (0.6 mm).

11) Make sure all the tools and materials are removed and the work area is clean and free from debris.

12) Install inspection doors 235L and 235R.

13) Install the front seats - refer to 25-11-00.

14) Lower the aircraft onto the ground and remove the jack.

D. Adjustment of the disengagement mechanism triggering force on work bench (Figure 201)

1) Immobilize the torque rod between the jaws of a vice.

2) Using a spring scale secured to rod end assy (3), pull (actuator perpendicular to hinged support (20)) and make sure the triggering force is equal to 1504 lbf.in (+ 88 ; - 0) [170 N.m (+ 10 ; - 0)].

3) If necessary, recalibrate springs (18).

a) Cut and discard lockwire of caps (19) and nuts (17).

b) Unscrew one of the two caps (19), remove spring (18), then screw in cap (19).

c) Repeat step 2) and make sure the triggering force is equal to 752 lbf.in (+ 44 ; -0) [85 N.m (+ 5 ; - 0)].

d) If necessary, screw in or out cap (19) until the desired value is obtained.

e) Insert removed spring (18) and screw in cap (19), then repeat steps 2) and 3) d) for the second cap (19).

f) Lockwire nuts (17) and caps (19) on hinged support (20) with lockwire, dia. 0.02 in (0.6 mm).

PITCH CONTROL

DESCRIPTION AND OPERATION

1. GENERAL

The aircraft pitch control is ensured by a monobloc control surface actuated and linked via control linkage to the sliding tube control wheels located in the instrument panel of the cockpit. This rod-operated control is routed along the central section of the floor as far as frame C6, then into the rear section of the fuselage up to the control surface. The elevator trailing edge is equipped with an automatic anti-tab and is controlled as elevator trim tab by means of a ball control.

The pitch control system consists of :

- the control wheel assembly,
- the pylon assembly,
- the rods and levers,
- the input rod,
- the elevator trim tab control,
- the stall warning device,
- the elevator - refer to 55-20-01.

The system also uses the aural warning system - refer to 31-50-00.

2. LOCATION

COMPONENT	QTY	AREA	ACCESS DOOR	REFERENCE
Control wheel assembly	1	250	/	27-30-01
Pylon assembly	1	250	235L, 235R, 236	27-30-02
Rods and levers	3	200	235L, 235R, 252, 253, 236, 218, 242	27-30-00
Input rod	1	220	222	27-30-00
Elevator trim tab control	1	330	222	27-30-03
Stall warning device	1	510	/	27-30-04

3. DESCRIPTION

A. Control wheel assembly (Figure 1)

The control wheel assembly is the mechanical element which controls the elevator. The R.H. and L.H. control wheels are linked by a tube and rods.

B. Pylon assembly (Figure 1)

The pylon assembly is the system of rods and levers connecting the control wheels to the aileron and elevator control rods.

C. Rods and levers (Figure 2)

The levers hinged on the supports common to the rudder control are located :

- aft of frame C3 (under the rear bench seatpan),
- forward of frame C7 (in the rear fuselage),
- forward of frame C9 (in the rear fuselage).

The rudder pedals and the levers are interconnected via non-adjustable control rods.

D. Input rod (Figure 2)

Located at the level of frame C9, the input rod connects the elevator to the lever located forward of frame C9. It is equipped (on the elevator side) with an adjustable end.

E. Elevator trim tab control (Figure 3)

The elevator trim tab is located on the control surface trailing edge. It is controlled by a vertical control wheel mounted on the L.H. side of the pedestal.

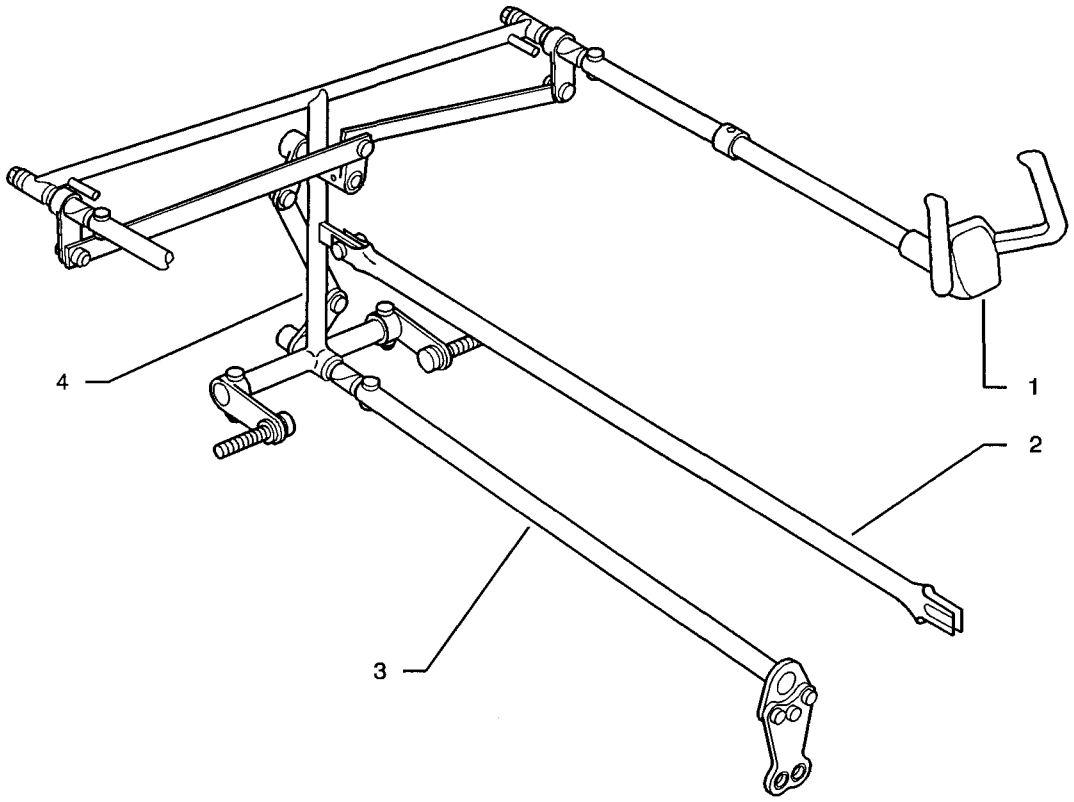
The control wheel actuates the tab via a ball control and an actuator. A pointer indicator, located close to the wheel, indicates the position of the tab.

The actuator is controlled by a rack equipped with a gear system actuating a worm screw. A T-lever connecting the worm screw to the input rod converts vertical motion into longitudinal motion. The input rod is linked to both half-tabs via two levers. This rod is equipped (on the tab side) with an adjustable end.

F. Stall warning device (Figure 3)

The aircraft is equipped with a vane-type stall warning detector mounted in the L.H. wing leading edge. The vane is electrically connected to an aural warning unit. The vane in the wing senses any variation in the air flow over the wing and triggers the warning unit (located under L.H. instrument panel), which then sounds a discontinuous tone in the buzzer on upper duct.

1 - Control wheel
2 - Elevator control rod
3 - Aileron control rod
4 - Pylon assembly



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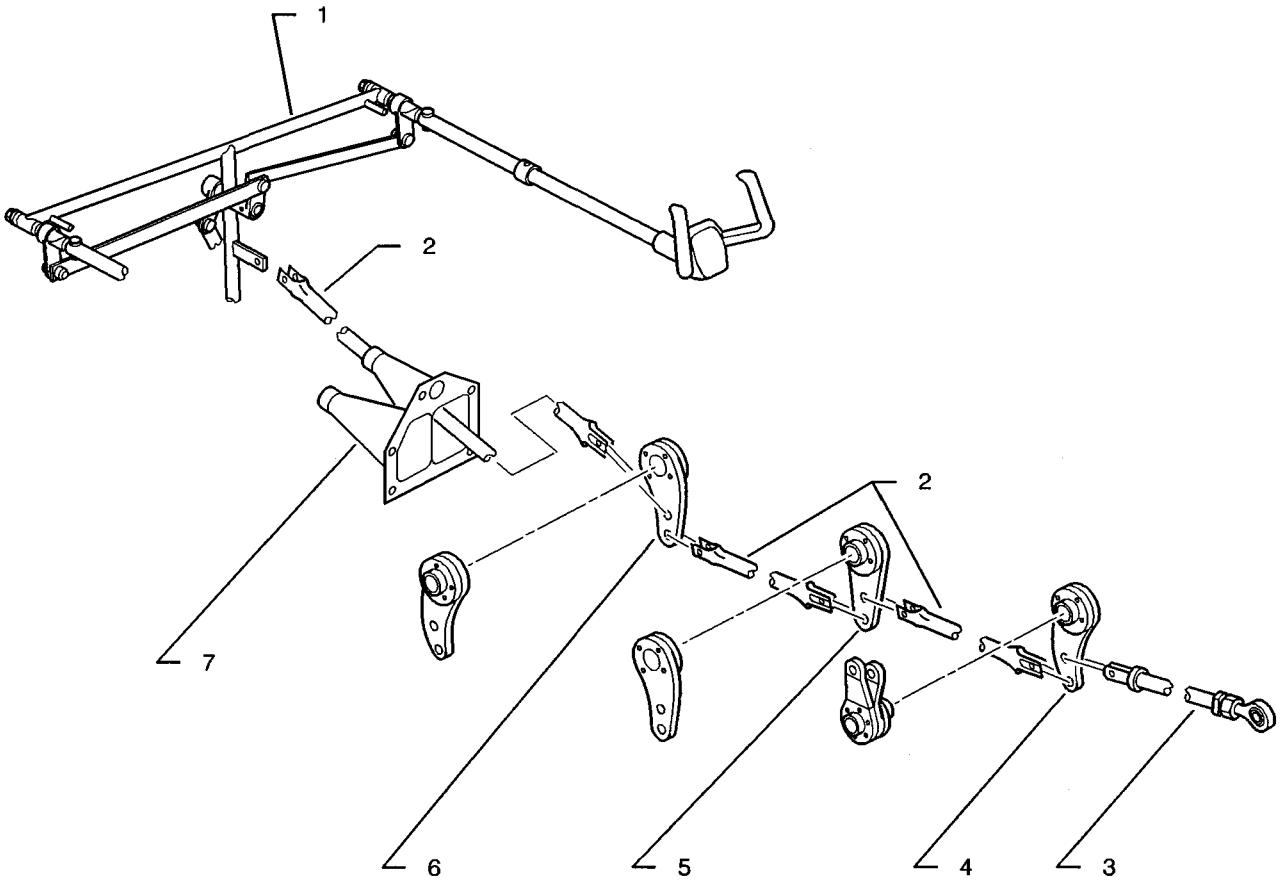
Pitch control - Control wheel and pylon assemblies
Figure 1

1 - Pylon
2 - Control rod
3 - Input rod
4 - Lever (frame C9)
5 - Lever (frame C7)
6 - Lever (frame C3)
7 - Tightness bellows (frame C3)



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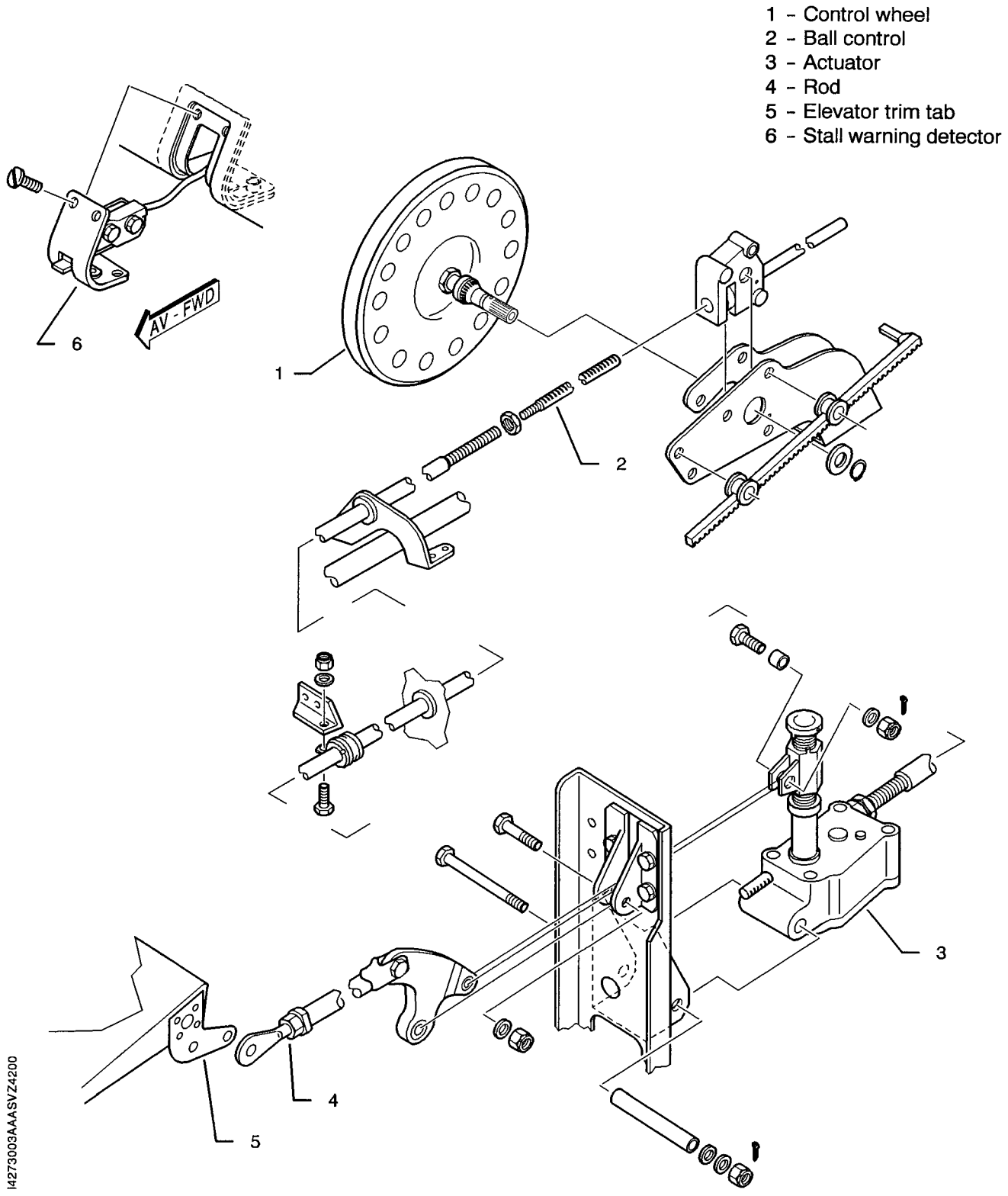
Pitch control - Rods and levers
Figure 2



Pitch control - Elevator trim tab control and stall warning device
Figure 3

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PITCH CONTROL

DESCRIPTION AND OPERATION

1. GENERAL

The aircraft pitch control is ensured by a monobloc control surface actuated and linked via control linkage to the sliding tube control wheels located in the instrument panel of the cockpit. This rod-operated control is routed along the central section of the floor as far as frame C6, then into the rear section of the fuselage up to the control surface. The elevator trailing edge is equipped with an automatic anti-tab and controlled as elevator trim tab by means of a cable control.

The pitch control system consists of :

- the control wheel assembly,
- the pylon assembly,
- the rods and levers,
- the input rod,
- the elevator trim tab control,
- the stall warning device,
- the elevator - refer to 55-20-01.

The system also uses the aural warning system - refer to 31-50-00.

TB 10 - TB 200

The system can be interconnected with the autopilot (option) - refer to 22-10-00.

2. LOCATION

COMPONENT	QTY	AREA	ACCESS DOOR	REFERENCE
Control wheel assembly	1	250	/	27-30-01
Pylon assembly	1	250	235L, 235R, 236	27-30-02
Rods and levers	3	200	235L, 235R, 252, 253, 236, 218, 242	27-30-00
Input rod	1	220	222	27-30-00
Elevator trim tab control	1	330	222	27-30-03
Stall warning device	1	510	/	27-30-04

3. DESCRIPTION

A. Control wheel assembly (Figure 1)

The control wheel assembly is the mechanical element which controls the elevator. The R.H. and L.H. control wheels are linked by a tube and rods.

B. Pylon assembly (Figure 1)

The pylon assembly is the system of rods and levers connecting the control wheels to the aileron and elevator control rods.

C. Rods and levers (Figure 2)

The levers hinged on the supports common to the rudder control are located :

- aft of frame C3 (under the rear bench seatpan),
- forward of frame C7 (in the rear fuselage),
- forward of frame C9 (in the rear fuselage).

The rudder pedals and the levers are interconnected via non-adjustable control rods.

D. Input rod (Figure 2)

Located at the level of frame C9, the input rod connects the elevator to the lever located forward of frame C9. It is equipped (on the elevator side) with an adjustable end.

E. Elevator trim tab control (Figure 3)

The elevator trim tab is located on the control surface trailing edge. It is controlled by a vertical control wheel mounted on the L.H. side of the pedestal.

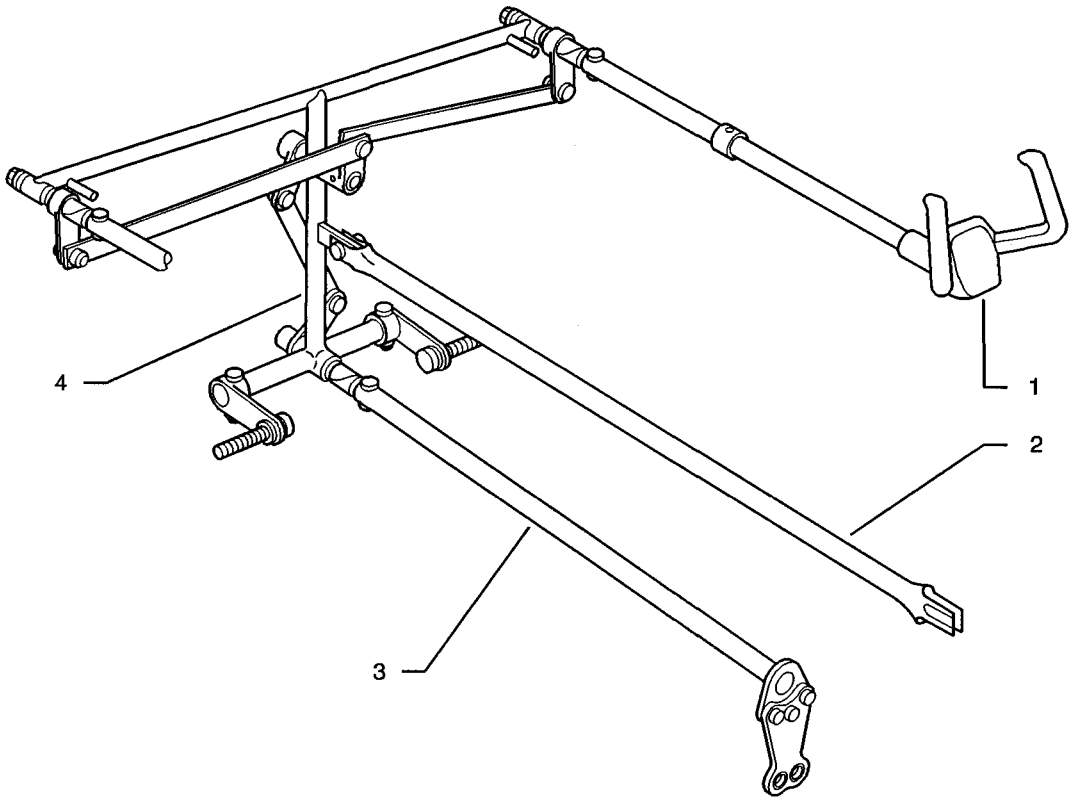
The control wheel actuates the tab via cables and an actuator. A pointer indicator, located close to the wheel, indicates the position of the tab.

The actuator is equipped with a reel around which the control cable is wound. The worm screw crossing the reel converts the reel rotative motion into vertical motion. A T-lever connecting the worm screw to the input rod converts vertical motion into longitudinal motion. The input rod is linked to both half-tabs by two levers. This rod is equipped (on tab side) with an adjustable end.

F. Stall warning device (Figure 3)

The aircraft is equipped with a vane-type stall warning detector mounted in the L.H. wing leading edge. The vane is electrically connected to an aural warning unit. The vane in the wing senses any variation in the air flow over the wing and triggers the warning unit which then sounds a discontinuous tone on the buzzer on upper duct.

1 - Control wheel
2 - Elevator control rod
3 - Aileron control rod
4 - Pylon assembly



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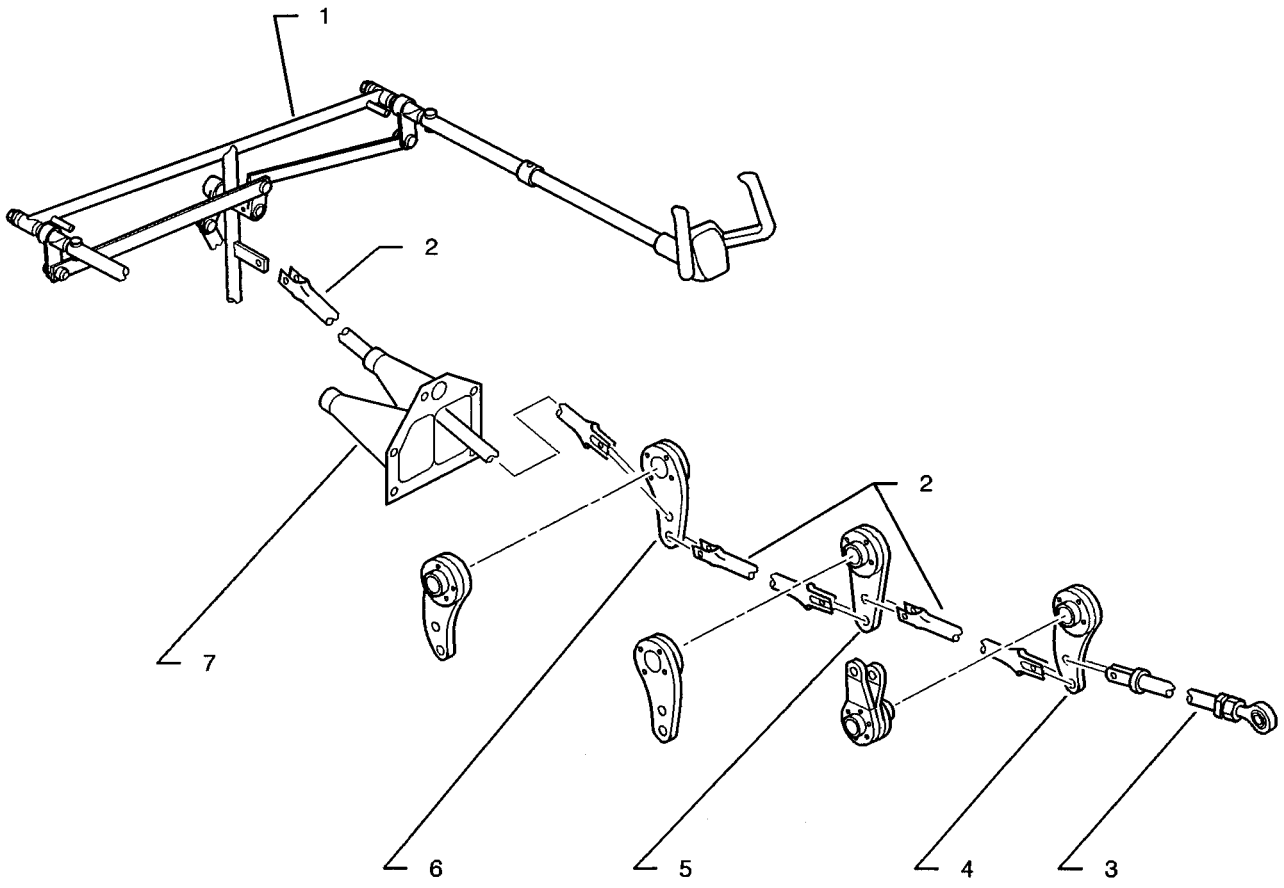
Pitch control - Control wheel and pylon assemblies
Figure 1

1 - Pylon
2 - Control rod
3 - Input rod
4 - Lever (frame C9)
5 - Lever (frame C7)
6 - Lever (frame C3)
7 - Tightness bellows (frame C3)



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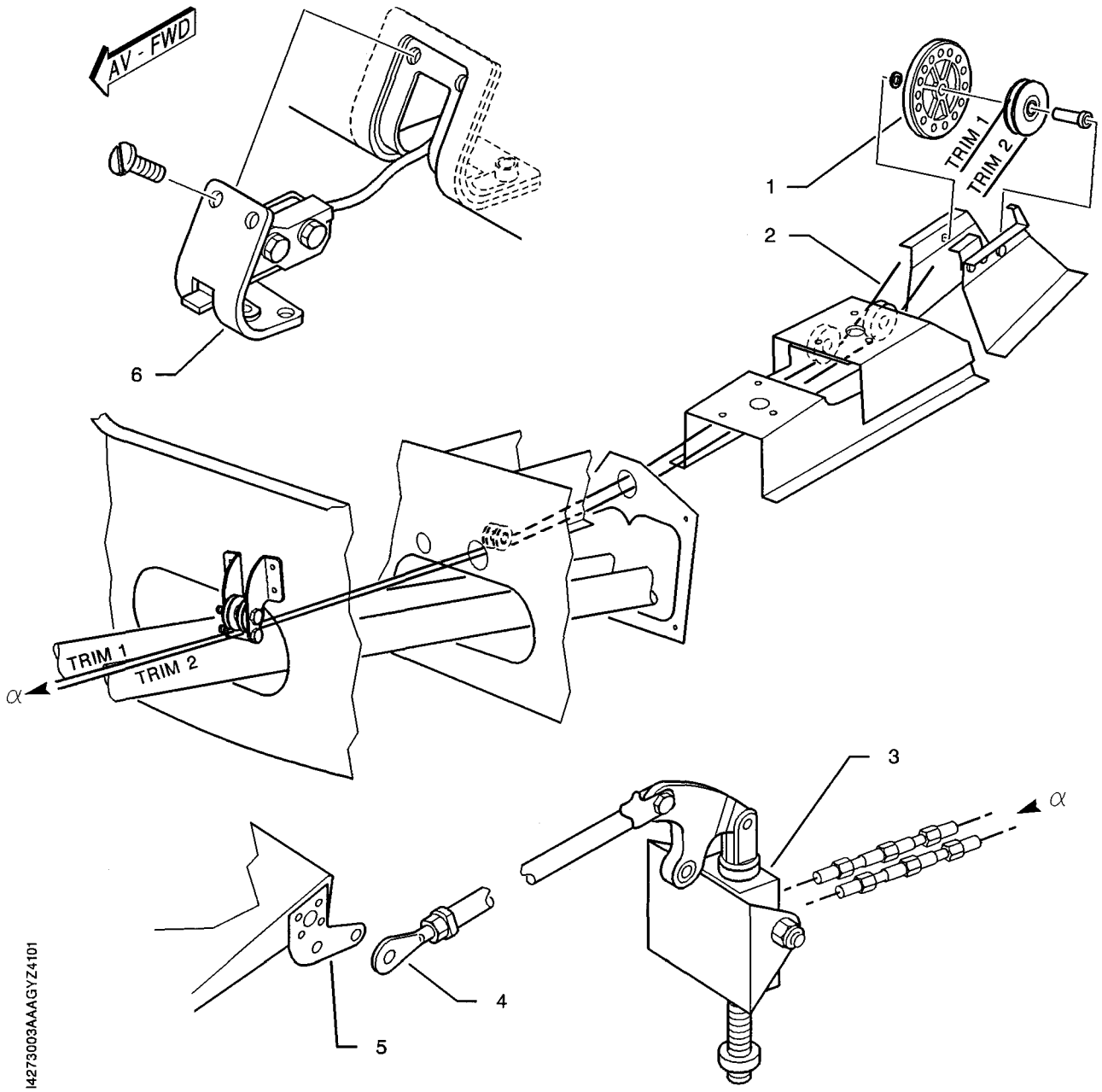
Pitch control - Rods and levers
Figure 2

1 - Control wheel
2 - Cable
3 - Actuator
4 - Rod
5 - Elevator trim tab
6 - Stall warning detector



Pitch control - Elevator trim tab control and stall warning device
Figure 3

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PITCH CONTROL

MAINTENANCE PRACTICES

1. SERVICING

None

2. REMOVAL / INSTALLATION

None

3. ADJUSTMENT / TEST - PITCH CONTROL

A. Tools and consumable materials

- Clinometer
- Ruler 19.7 in (0.50 m)
- Shim (7) 0.8 in x 2 in x 0.4 in ± 0.01 (20 mm x 50 mm x 10 mm ± 0.5)
- Shim (10) 1.6 in x 2 in x 0.4 in ± 0.01 (41 mm x 50 mm x 10 mm ± 0.5)
- Hydraulic jacks
- Elevator travel jig 8110 TB10 34000

NOTE 1 : The adjustment of the elevator linkage must be preceded by a check of the elevator rotational free play - refer to Paragraph 4.E.

NOTE 2 : The travel jig is used only in Paragraph C. in replacement of the clinometer.

B. Adjustment of elevator without travel jig (Figure 201)

1) Remove inspection doors 211L and 211R (if installed). Otherwise, remove the covers forward of the instrument panel and tilt the latter.
2) Remove tail cone 222 - refer to 53-20-00.
3) Level the aircraft - refer to 08-10-00.
4) On tube (1) of each control wheel (5), make sure “Nose down” stop (4) and “Nose up” stop (2) sleeves fully abut against guides (3).
5) If necessary, adjust input rod (11) - refer to 20-00-11.
6) Make sure the elevator is not mechanically abutting on support assemblies (14) (“Nose up” (13) and “Nose down” (12) stops).
7) If necessary, adjust input rod (11) - refer to 20-00-11.
8) Position a shim (7) on the elevator upper surface at 7.9 in (200 mm) from the leading edge.
9) Position a shim (10) on the elevator upper surface close to the anti-tab hinges at 23.7 in (600 mm) from the leading edge.
10) Place a ruler (8) on both shims and a clinometer (9) on the ruler ; set 0° - refer to 20-00-13.
11) Fully push and hold control wheel (5) in forward position.
12) Check the elevator downward travel angle (+ 2° ± 1°) with the clinometer - refer to 20-00-13.

13) If necessary, adjust input rod (11) - refer to 20-00-11.

14) Fully pull and hold control wheel (5) in rearward position.

15) Check the elevator upward travel angle (- 17° ± 1°).

16) If necessary, adjust input rod (11) - refer to 20-00-11.

17) If input rod (11) length has been modified, repeat steps 4) and 6).

18) Check the elevator trim tab travel - refer to 27-30-03.

19) Lower the aircraft to ground and remove the jacks - refer to 07-10-00.

20) Make sure all the tools and materials are removed and the work area is clean and free from debris.

21) Install inspection doors 211L and 211R (if installed) or reposition and lock the instrument panel, then install the covers.

22) Install tail cone 222 - refer to 53-20-00.

C. Adjustment of elevator with travel jig (Figure 201A)

1) If the adjustment of elevator needs to be corrected, remove inspection doors 211L and 211R (if installed). Otherwise, remove the covers forward of the instrument panel and tilt the latter.

2) Remove tail cone 222 - refer to 53-20-00.

3) Remove the sheath clip securing rear light wiring.

4) Pin travel jig (6) 8110 TB10 34000 on frame C9 through both pinning holes with elevator control rigging pin (8) and pin (9) and on the internal edge of the frame with attachment pin (7) ; install and tighten knurled nuts (10).

5) On tube (1) of each control wheel (5), make sure “Nose down” stop (4) and “Nose up” stop (2) sleeves fully abut against guides (3).

6) If necessary, adjust the elevator input rod - refer to 20-00-11.

7) Make sure the elevator is not mechanically abutting on support assemblies (18) (“Nose up” (16) and “Nose down” (17) stops).

8) If necessary, adjust the elevator input rod - refer to 20-00-11.

9) Fully push and hold control wheel (5) in forward position.

10) Position graduated section (13) against the elevator ; tighten knurled nut (14).

11) Make sure TB10 index (11) is within the tolerances of “Nose down” mark (12) (+ 2° ± 1°) ; if necessary, adjust the input rod - refer to 20-00-11.

12) Fully pull and hold control wheel (5) in rearward position.

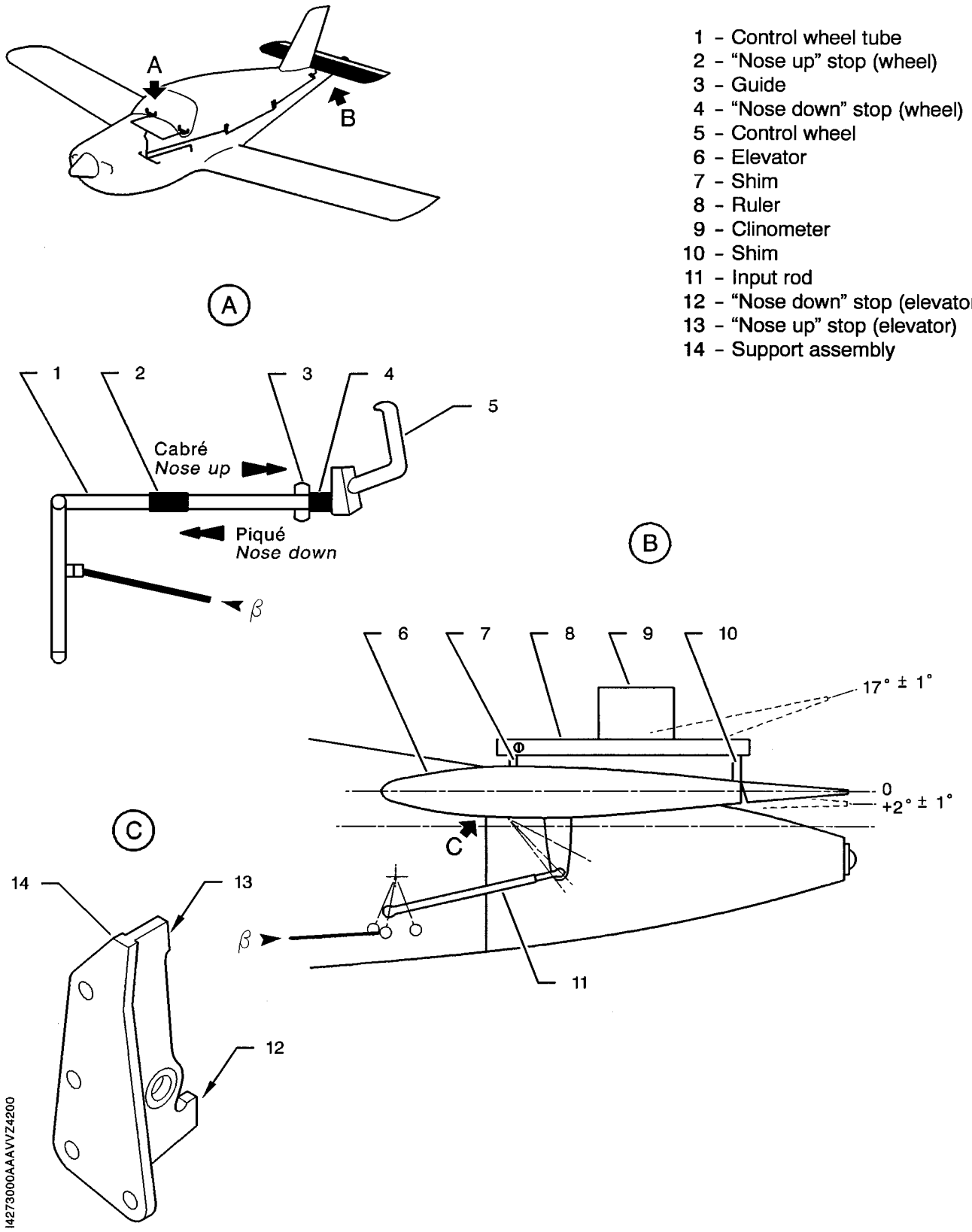
13) Position graduated section (13) against the elevator ; tighten knurled nut (14).

14) Make sure TB10 index (11) is within the tolerances of “Nose up” mark (15) (- 17° ± 1°) ; if necessary, adjust the input rod - refer to 20-00-11.

15) If the elevator input rod length has been modified, repeat steps 5) and 7).

16) Check the elevator trim tab travel - refer to 27-30-03.

17) Remove travel jig (6).



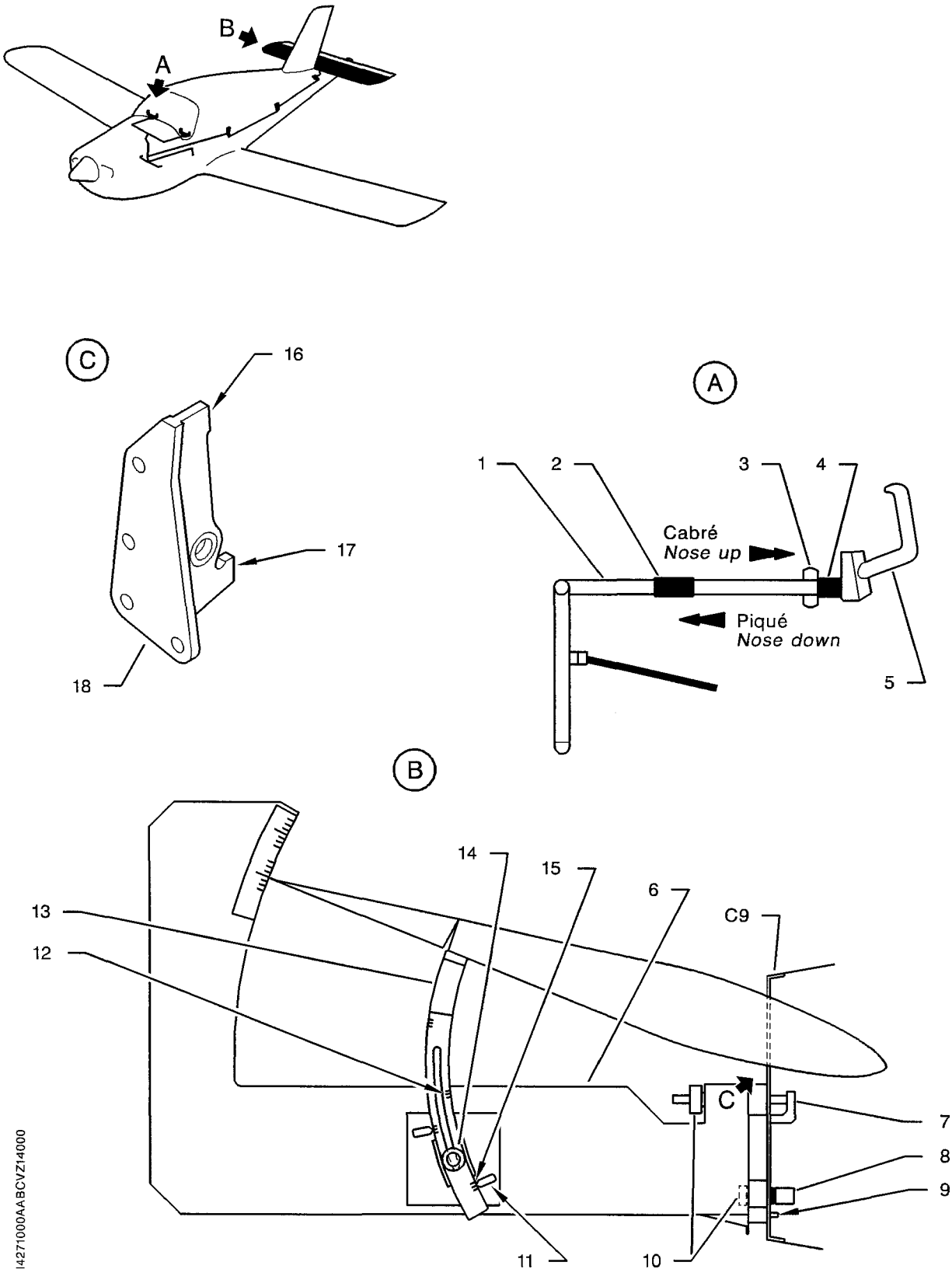
1 - Control wheel tube
2 - "Nose up" stop (wheel)
3 - Guide
4 - "Nose down" stop (wheel)
5 - Control wheel
6 - Elevator
7 - Shim
8 - Ruler
9 - Clinometer
10 - Shim
11 - Input rod
12 - "Nose down" stop (elevator)
13 - "Nose up" stop (elevator)
14 - Support assembly

Pitch control - Travel adjustment
Figure 201 - Without travel jig

AAAA
Validity : S / N 1 - 9999

1 - Control wheel tube
2 - "Nose up" stop (wheel)
3 - Guidance ball joint
4 - "Nose down" stop (wheel)
5 - Control wheel
6 - Travel jig
7 - Attachment pin
8 - Rigging pin
9 - Pin
10 - Knurled nut
11 - TB10 index
12 - "Nose down" mark
13 - Graduated section
14 - Knurled nut
15 - "Nose up" mark
16 - "Nose up" stop (elevator)
17 - "Nose down" stop (elevator)
18 - Support assembly

Pitch control - Travel adjustment
Key to Figure 201A - With travel jig



Pitch control - Travel adjustment
Figure 201A - With travel jig

18) Make sure all the tools and materials are removed and the work area is clean and free from debris.

19) Install inspection doors 211L and 211R (if installed) or reposition and lock the instrument panel, then install the covers.

20) Install the sheath clip securing rear light wiring.

21) Install tail cone 222 - refer to 53-20-00.

4. INSPECTION / CHECK - PITCH CONTROL

A. Tools and consumable materials

- Ruler 5.9 ft (180 cm)
- Clamps
- Dial gage

B. Preliminary steps

1) Make sure that the main switch-breaker is open.

2) Install the warning sign prohibiting main switch-breaker operation.

WARNING

DO NOT OPERATE
MAINTENANCE WORK IN PROGRESS

3) Remove the cowling under hull 218.

4) Remove tail cone 222 - refer to 53-20-00.

5) Open baggage compartment door 219 and remove baggage compartment bottom door 242.

6) Remove inspection doors 211L and 211R (if installed). Otherwise, remove the covers forward of the instrument panel and tilt the latter.

7) Remove inspection doors 235L and 235R.

C. Check of elevator control (Figure 202)

1) Inspect control wheel assembly for :
   - slack and friction points in pitch control,
   - security of "Nose up" (1) and "Nose down" (2) stops.

2) Inspect rods (3) for :
   - cracks, buckling and corrosion,
   - correct safetying of attachment bolts nuts (6) with cotter pins.

3) Inspect levers (7) for :
   - distortions, cracks, corrosion, binding and slack,
   - correct safetying of hinge pins attachment nuts (8) with cotter pins,

- slack and loose rivets on spacers (4) of levers (7).

4) Inspect the supports of levers (7) for :
   - distortions, cracks, corrosion and loose rivets,
   - correct tightening of nuts on frame C9.
5) Inspect input rod (5) for :
   - slack, buckling, cracks, binding and corrosion,

   S / N 1 - 663, 665 - 709 Pre- Kit OPT10 912700

   - the condition of attachment rivets of yoke (10) and tapped end (12).

   S / N 664, 710 - 9999 and S / N 1 - 663, 665 - 709 Post-Kit OPT10 912700

   - correct tightening of attachment nuts (11) of yoke (10) and tapped end (12).

   S / N 1 - 9999

   - correct safetying of nut (13) of adjustable rod end (14),
   - correct safetying of input rod (5) attachment nuts (9) with cotter pins.

D. Final steps

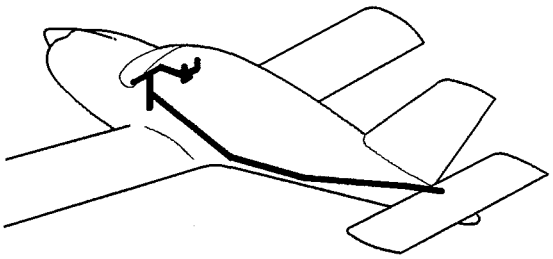
1) Make sure all the tools and materials are removed and the work area is clean and free from debris.
2) Install inspection doors 235L and 235R, 211L and 211R or install the covers of the instrument panel, then reposition and lock the instrument panel.
3) Install baggage compartment bottom door 242 and close baggage compartment door 219.
4) Install tail cone 222 - refer to 53-20-00.
5) Install the cowling under hull 218 and remove the warning sign prohibiting main switch-breaker operation.

E. Check of elevator rotational free play

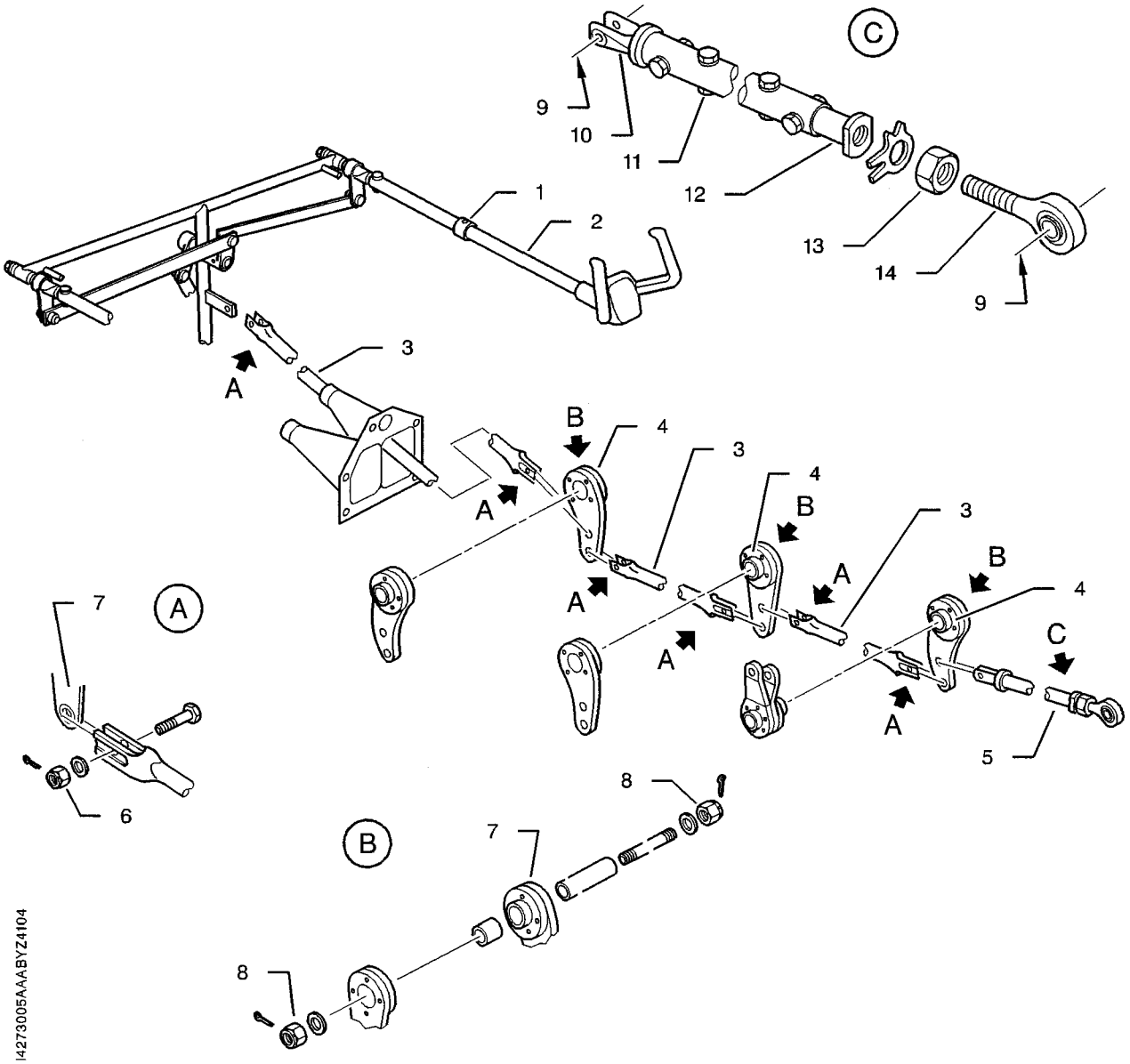
1) Using two screw clamps and wooden shims, immobilize the trailing edge of the elevator trim tab within the alignment of the elevator.

   NOTE : Position the screw clamps at approximately 7.9 in (20 cm) from R.H. and L.H. ends of the trim tab.

2) With the control wheel blocked, check the play at trailing edge level. It must not exceed 0.2 in (5 mm).



1 - "Nose up" stop
2 - "Nose down" stop
3 - Rod
4 - Spacer
5 - Input rod
6 - Nut
7 - Lever
8 - Nut
9 - Nut
10 - Yoke
11 - Nut
12 - Tapped end
13 - Nut
14 - Adjustable rod end



Elevator control - Inspection / Check
Figure 202

CONTROL WHEEL ASSEMBLY

MAINTENANCE PRACTICES

1. SERVICING

None

2. REMOVAL / INSTALLATION - CONTROL WHEELS

A. Tools and consumable materials

- Crimping pliers, P/N 47386
- Crimping pliers, P/N 654148-1
- Crimping pliers, P/N 90302-1
- Extraction tool, P/N 458994-1
- Extraction tool, P/N M 81969/1-02
- Insertion tool, P/N 91067-2
- Grease (TB 04-004A)
- Petrolatum (TB 04-003)
- Stainless steel lockwire, dia. 0.02 in (0.6 mm)
- Tie-wraps

B. Preliminary steps

1) Disconnect the battery - refer to 24-30-02.
2) Install the warning sign prohibiting main switch-breaker operation.

WARNING

DO NOT OPERATE
MAINTENANCE WORK IN PROGRESS

3) Remove inspection doors 211L and 211R.
4) Remove the visors and tilt R.H. and L.H. instrument panels.

C. Removal of control wheel without autopilot (Figure 201)

1) If control wheel (1) is equipped with the chronometer, disconnect the corresponding wires and remove it.
2) Remove bolts (5) and (11) ; clear cover (2).
3) If control wheel (1) is equipped with the map reading light switch, disconnect the contacts at light level. Remove the light, then mark and unsolder the wires at switch level.
4) If control wheel (1) is equipped with the push-to-talk pushbutton, mark and unsolder the wires at pushbutton level.
5) Remove and discard nut (13) ; remove washers (12) and (4) and bolt (3).

6) Disengage and carefully remove control wheel (1) from tube (6) while holding wiring.

D. Installation of control wheel without autopilot (Figure 201)

1) Check the wiring (if installed) and control wheel (1) for condition.
2) If installed, insert the wires of the switch, the map reading light, the chronometer and / or the push-to-tall pushbutton into control wheel (1).
3) Engage control wheel (1) onto tube (6), then secure with bolt (3), washers (4) and (12) and new nut (13).
4) If installed, solder the wires of the push-to-tall pushbutton and / or the map reading light switch, then connect the light.
5) Install cover (2) with bolts (5) and (11).
6) If installed, connect and install the chronometer.
7) Make sure all the tools and materials are removed and the work area is clean and free from debris.

E. Removal of control wheel with autopilot (Figure 201)

With KAP 100, 150 or KFC 150

1) If control wheel (1) is equipped with the chronometer, disconnect the corresponding wires and remove it.
2) Remove bolts (5) and (11) ; clear cover (2).
3) If control wheel (1) is equipped with the map reading light switch, disconnect the contacts at light level. Remove the light, then mark and unsolder the wires at switch level.
4) Cut and discard all the tie-wraps of the wiring harness from the control wheel to R20 connector.
5) Disconnect R20 connector and carefully mark the wires.
6) Disconnect the wires and cut off any splices flush.

NOTE : Splices must be removed due to the narrowness of the passage inside the tube.

7) Note the length of the wires equipped with splices and discard them.
8) Cut and discard the male contacts of the wires not equipped with splices.
9) Disconnect R003 connector, then mark and disconnect the wires.
10) Cut off and discard the male contacts.
11) Disconnect the wire from ground terminal block GS 23 and cut it down to the clip ; discard the clip and the sleeve.
12) Remove and discard nut (13) ; remove washers (12) and (4) and bolt (3).
13) Remove and discard nut (7) ; remove washer (8) and bolt (10) from "Nose up" stop (9).
14) Attach a length of lockwire, 79 in (2 m), to wiring end.

CAUTION : AUTOPILOT WIRING ONLY MUST BE REMOVED FROM THE CONTROL WHEEL SLIDING TUBE. MAKE SURE THE SECOND WIRING REMAINS IN POSITION.

15) Disengage control wheel (1) from tube (6) and carefully pull backward while easing the passage of A/P wiring through tube (6).

NOTE : If necessary, coat wiring sheath with petrolatum (TB 04-003) to ease the passage.

16) When tube (6) opening is sufficiently cleared, use a steel curved rod (or any other means) to remove the two springs retaining wiring assemblies inside the tube.

17) Progressively remove wiring from tube (6) while assisting its passage through the grommet.

18) Remove control wheel (1) equipped with A/P wiring, cut lockwire and leave it in place for reinstallation.

F. Installation of control wheel with autopilot (Figure 201)

1) Check the condition of the wiring and control wheel (1), then attach lockwire to the wiring and route wiring inside tube (6) by pulling it from the front.

NOTE : If necessary, coat wiring sheath with petrolatum (TB 04-003) to ease the passage.

2) Before positioning control wheel (1), correctly engage and position the two springs on either side of the control wheel tube locking hole.

3) If installed, insert the wires of the switch, the map reading light and the chronometer into control wheel (1).

4) Position and secure "Nose up" stop (9) with bolt (10), washer (8) and new nut (7). Exercise care not to pinch the wiring.

5) Engage and secure control wheel (1) onto tube (6) with bolt (3), washers (4) and (12) and new nut (13).

6) Cut and discard lockwire and make sure the grommet is correctly installed on the control wheel tube.

7) Recondition the wiring - refer to Section 6 of the Electrical Maintenance Manual or to Chapter 20-50-00 of the Wiring Manual.

8) Correctly route the wiring and install tie-wraps.

9) Connect R20 and R003 connectors and connect the wire to ground terminal block GS 23.

10) If installed, solder the wires of the map reading light switch and connect the light.

11) Install cover (2) with bolts (5) and (11).

12) If installed, connect and install the chronometer.

13) Perform an operational test of A/P control box- refer to Paragraph 3.

G. Final steps

1) Make sure all the tools and materials are removed and the work area is clean and free from debris.

2) Tilt the instrument panels and install the visors.

3) Install inspection doors 211L and 211R.

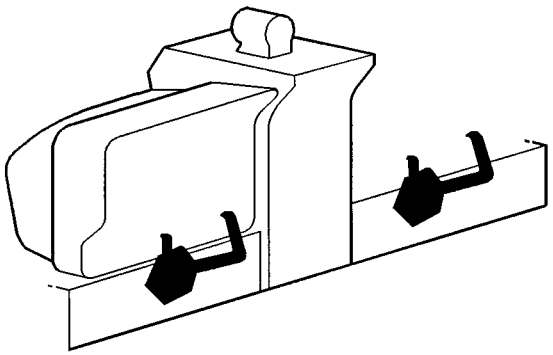
4) Connect the battery - refer to 24-30-02.

5) Remove the warning sign prohibiting main switch-breaker operation.

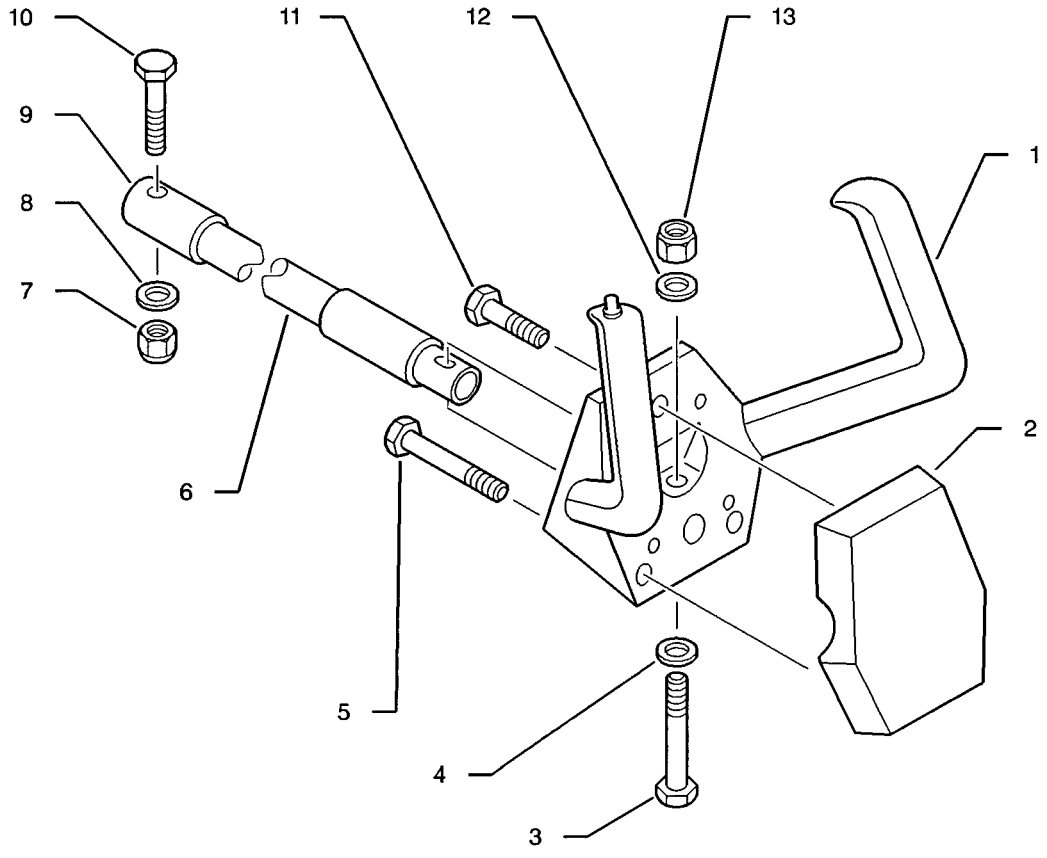
6) If the aircraft is equipped with a VHF communications system, perform an operational test of the push-to-talk pushbutton.

7) If installed, check the chronometer for operation.

8) If installed, check the map reading light for operation.



1 - Control wheel
2 - Cover
3 - Bolt
4 - Washer
5 - Bolt
6 - Tube
7 - Nut
8 - Washer
9 - "Nose up" stop
10 - Bolt
11 - Bolt
12 - Washer
13 - Nut



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Control wheel - Removal / Installation
Figure 201

3. ADJUSTMENT / TEST - CONTROL WHEELS

A. Tools and consumable materials

None

B. Operational test of A/P control box

1) Make sure "A/P", "TRIM" and "EHSI" (if installed) circuit breakers are closed.

2) Perform the following test :

ACTION	RESULT
(1) Close main switch-breaker.	(a) Energization of the aircraft electrical system.
(2) Make sure "A / P MASTER" switch is set to "OFF".	
(3) If installed, set "RADIO MASTER" switch to "ON".	
(4) If installed, set "EHSI MASTER" to "ON".	(a) Electronic horizontal situation indicator illuminates after a warm-up time lag.
(5) Set "COMPASS" switch to "ON". **NOTE : Allow a few minutes for the gyroscope of the directional gyro to reach its operating speed.**	(a) "HDG" warning annunciation on the electronic horizontal situation indicator goes off.
(6) Move the control wheel forth and then back.	(a) The control wheel must move without resistance.
(7) Set "A / P MASTER" switch to "ON".	
(8) Depress "TEST" button on A82 flight computer.	(a) All the annunciations on A82 flight computer come on ; "TRIM" annunciation flashes. (b) If installed, A81 altitude/vertical speed selector displays "88,800" and all the annunciations are on. (c) After approximately 5 seconds, all the annunciations go off, except "AP" annunciation which flashes during approximately 6 seconds. (d) A/P buzzer sounds for approximately 6 seconds.
(9) Move the control wheel forth and then back.	(a) The control wheel must move without resistance.

ACTION	RESULT
(10) Set the L.H. section of "TRIM UP/DN" dual inverter to "TRIM UP" and hold it in this position.	(a) The control wheel must not move.
(11) Move the control wheel forth and then back.	(a) Make sure the servo-actuator is engaged. (b) Check that the clutch of the servo-actuator can be overriden in both directions.
(12) Check steps (10) and (11) by setting the L.H. section of "TRIM UP/DN" dual inverter to "TRIM DN".	Same as (10)(a), (11)(a) and (11)(b).
(13) Release the L.H. section of "TRIM UP/DN" dual inverter.	
(14) Set the R.H. section of "TRIM UP/DN" dual inverter to "TRIM UP" and hold it in this position.	(a) The control wheel must not move.
(15) Move the control wheel forth and then back.	(a) The control wheel must move without resistance.
(16) Repeat steps (14) and (15) by setting the R.H. section of "TRIM UP/DN" dual inverter to "TRIM DN".	Same as (14)(a) and (15)(a).
(17) Simultaneously set both sections of "TRIM UP/DN" dual inverter to "TRIM UP" and then to "TRIM DN". While performing step (14), depress "AP DISC TRM INT" pushbutton.	(a) The control wheel moves in the same direction. (b) The control wheel must not move as long as pressure on the pushbutton is maintained.
(18) Release both sections of "TRIM UP/DN" dual inverter. KFC 150 **NOTE : First engage "FD" function on A82 flight computer.**	

ACTION	RESULT

S/N 1 - 9999

CAUTION : THE CONTROL WHEEL MAY BE PROGRESSIVELY DRIVEN TO STOP POSITION WHEN THE AUTOPILOT IS ENGAGED DEPENDING ON THE POSITION OF THE ATTITUDE DIRECTOR INDICATOR UPON DEENERGIZATION.

NOTE : Perform these operations quickly to avoid overloading the clutches of the servo-actuators when the control wheel reaches the stop.

(19) Briefly depress "AP ENG" button of A82 flight computer.	(a) The servo-actuators are engaged.
(20) Move the control wheel forth and back and from left to right.	(a) The controls operate, but offer a resistance.
(21) Depress and hold "CWS" pushbutton in this position while moving the control wheel forth and back and from left to right.	(a) The servo-actuators are disengaged ; the controls are free.
(22) Release "CWS" pushbutton.	(a) The servo-actuators are engaged.
(23) Depress "AP DISC TRM INT" pushbutton.	(a) "AP" annunciation on A82 flight computer flashes for approximately 5 seconds and goes off. (b) A/P buzzer sounds for approximately 6 seconds. (c) The servo-actuators are disengaged.
(24) Test the push-to-talk pushbutton with the VHF communications system, if installed.	
(25) Set "A / P MASTER" switch to "OFF".	
(26) If installed, set "RADIO MASTER" switch to "OFF".	
(27) If installed, set "COMPASS" switch to "OFF".	
(28) If installed, set "EHSI MASTER" switch to "OFF".	
(29) Open main switch-breaker.	

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PYLON ASSEMBLY

MAINTENANCE PRACTICES

1. SERVICING

None

2. REMOVAL / INSTALLATION - PYLON

A. Tools and consumable materials

- Grease (TB 04-004A)
- Blanking caps and plugs
- Tie-wraps

B. Removal of pylon (Figure 201)

1) If installed, remove inspection doors 211L and 211R. Otherwise, remove engine cowlings, then L.H. access door (and R.H. access door, if installed) on firewall.
2) Remove the front seats - refer to 25-11-00.
3) Remove inspection doors 235L and 235R.
4) Remove the visor, press on spring plate (23) under the front table and tilt L.H. instrument panel - see Detail A.

S / N 1 - 274 With R.H. instrument panel

5) If the glove compartment is not accessible, remove the lock bolt located under control wheel sliding tube (10).
6) Unscrew the instrument panel attachments located inside the glove compartment and remove the instrument panel.

S / N 275 - 9999 With R.H. instrument panel

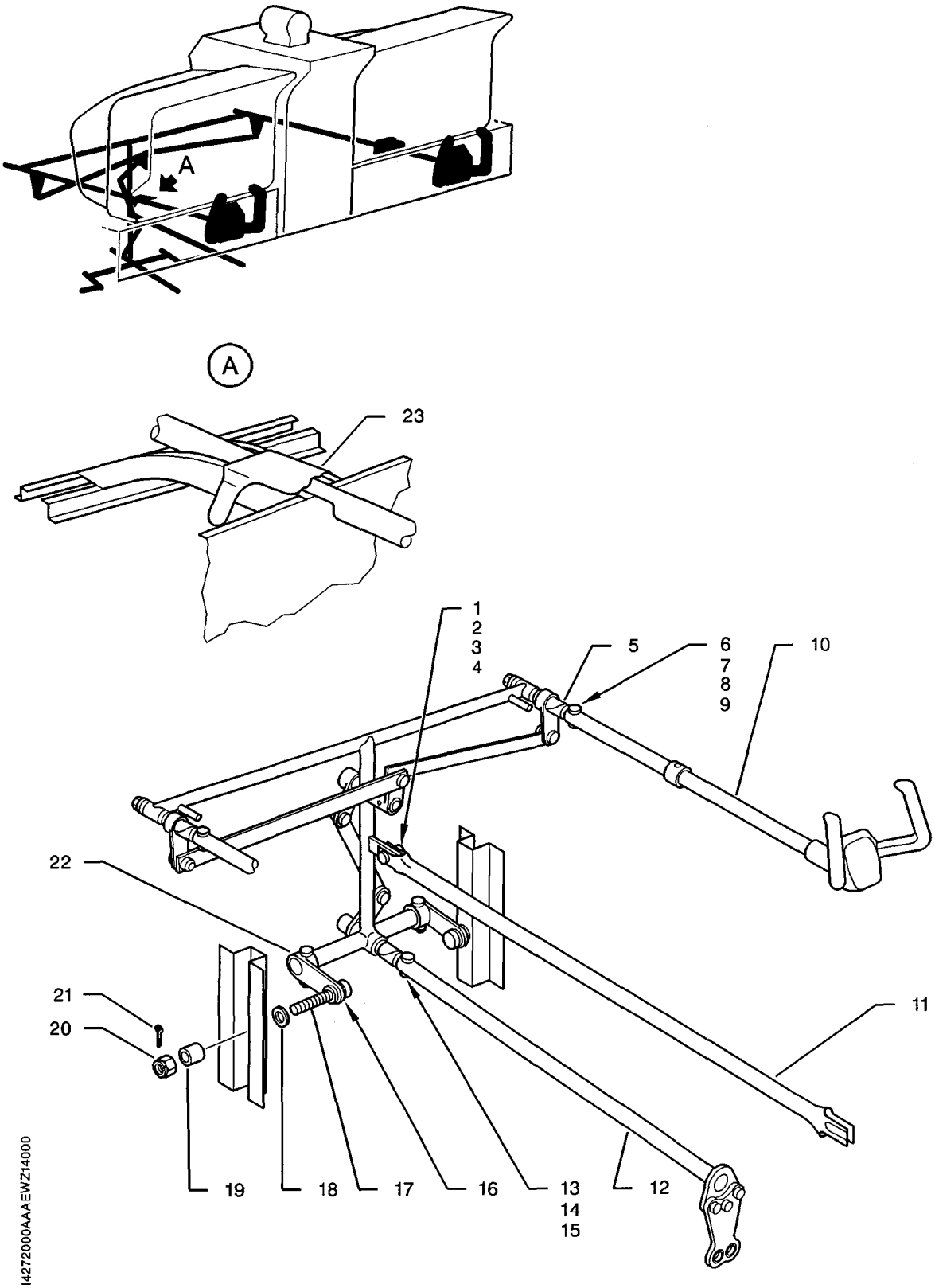
7) Remove the visor and tilt R.H. instrument panel.

S / N 1 - 9999

8) Remove the central console - refer to 31-10-02.
9) Cut and discard all the tie-wraps attached to the pylon.
10) Remove all the hoses and disconnect all the wire harnesses which may hinder the passage of the pylon upward during removal ; install blanking caps and plugs.
11) Remove any instrument or equipment which may be damaged when removing the pylon.
12) Remove and discard cotter pin (4) ; remove nut (3), washer (2) and bolt (1).
13) Disconnect elevator rod (11) from the pylon.
14) Remove and discard nut (9) ; remove bolt (6), thick washer (8) and washer (7).
15) Disconnect control wheel sliding tube (10) from gimbal joint (5).
16) Repeat steps 14) and 15) for the second control wheel.
17) Remove and discard nut (15) ; remove washer (14) and bolt (13).

1 - Bolt
2 - Washer
3 - Nut
4 - Cotter pin
5 - Gimbal joint
6 - Bolt
7 - Washer
8 - Thick washer
9 - Nut
10 - Control wheel sliding tube
11 - Elevator rod
12 - Torque rod
13 - Bolt
14 - Washer
15 - Nut
16 - Washer
17 - Bolt
18 - Washer
19 - Spacer
20 - Nut
21 - Cotter pin
22 - Hinge lever
23 - Spring plate

Pylon - Removal / Installation
Key to Figure 201



Pylon - Removal / Installation
Figure 201

18) Remove and discard cotter pins (21) ; remove nuts (20), spacers (19), washers (18) and (16) and bolts (17).

19) Push the pylon forward to clear torque rod (12) from gimbal joint.

20) Remove the pylon from above.

NOTE : If necessary, remove the hinge pins of the instrument panel(s) to gain more access.

C. Installation of pylon (Figure 201)

1) Inspect the pylon for condition, cracks, distortions, binding and corrosion.

2) Lubricate gimbal joints and bolts (1), (6), (13) and (17) with grease (TB 04-004A).

3) Position the pylon in its housing, connect torque rod (12) to gimbal joint and install bolt (13), washer (14) and new nut (15).

4) Center the pylon and install bolts (17) equipped with washers (16), washers (18), spacers (19) and nuts (20) ; safety with a new cotter pin (21).

5) Connect elevator rod (11) to the pylon and install bolt (1), washer (2) and nut (3) ; safety with a new cotter pin (4).

6) Connect control wheel sliding tube (10) to gimbal joint (5) and install bolt (6), washer (7), thick washer (8) and new nut (9).

7) Repeat step 6) for the second control wheel.

8) Make sure all the tools and materials are removed and the work area is clean and free from debris.

9) Reinstall any previously-removed instrument or equipment .

10) Remove blanking caps and plugs, connect all the hoses and the wire harnesses disconnected during removal.

11) Route the wire harnesses as they were prior to removal and attach them with new tie-wraps.

12) Make sure all the tools and materials are removed and the work area is clean and free from debris.

13) Install the central console - refer to 31-10-02.

14) Tilt and lock L.H. instrument panel, then install the visor.

S / N 1 - 274 With R.H. instrument panel

15) Position R.H. instrument panel and install the attachments from inside the glove compartment.

16) If the glove compartment is not accessible, install the lock bolt under control wheel sliding tube (10).

S / N 275 - 9999 With R.H. instrument panel

17) Tilt R.H. instrument panel and install the visor.

S / N 1 - 9999

18) If removed, install the hinge pins of the instrument panel(s).

19) Install inspection doors 235L and 235R.

20) Install the front seats- refer to 25-11-00.

21) If removed, install inspection doors 211L and 211R. Otherwise, install L.H. access door (and R.H. access door, if installed) on the firewall, then install engine cowlings.

22) Check the travel of the ailerons - refer to 27-10-00 - and the elevator - refer to 27-30-00.

ELEVATOR TRIM TAB CONTROL

REMOVAL / INSTALLATION

1. REMOVAL / INSTALLATION - ELEVATOR TRIM TAB BALL CONTROL

A. Tools and consumable materials

- Grease (TB 04-004A)
- Loctite (TB 08-013C)

B. Removal of ball control (Figure 401)

1) Make sure that the main switch-breaker is open.

2) Install the warning sign prohibiting main switch-breaker operation.

WARNING

DO NOT OPERATE
MAINTENANCE WORK IN PROGRESS

3) Remove tail cone 222 - refer to 53-20-00.

4) Remove baggage compartment bottom door 242.

5) Remove the central pedestal - refer to 25-14-00.

6) Remove the tunnel- refer to 25-15-00.

7) Remove the cowling under hull 218.

8) Remove retaining ring (10) and washer (11).

9) Clear control wheel (8) by pulling it to the left.

10) Unscrew nut (9) to clear the control backward.

11) Clear ball control (15) from frames C2 thru C6 and from brackets (16) and (19).

a) Remove and discard nuts (21) attaching clamps (1), (2) and (4).

b) Remove bolts (18), washers (20) and clamps (1), (2) and (4).

c) Clear grommets (3), (5), (6) and (7) from their housings.

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12) Remove bolts (46), washers (47), half-housings (44) and (45) and discard nuts (48).

All

13) Remove and discard cotter pin (32).

14) Remove bolt (29), washer (34), nut (33) and spacer (30).

15) Hold actuator nut (43) with adhesive tape or lockwire to avoid disturbing actuator (31) adjustment.

16) Remove and discard cotter pin (35).

17) While holding actuator (31), remove bolt (42), spacer (39), washers (37) and (38) and nut (36).

18) Remove the assembly by pulling ball control (15) rearward while checking that the control does not get jammed with grommets (3), (5), (6) and (7) at bracket (16) and at each frame (from C3 thru C8).

19) Remove the control / actuator assembly on a work bench.

C. Installation of ball control (Figure 401)

NOTE : Before installation, check and, if necessary, replace clamps (1), (2) and (4) and grommets (3), (5), (6) and (7). Install new nuts (21).

1) Insert control through frame C9 and make sure it is correctly routed at frames C8 and C7, clamps (1) and (2) ; at frame C6, grommet (3) ; at frame C5, clamp (4) ; at frames C4, C3 and C2, grommets (5), (6) and (7).

2) Position actuator (31) assembly equipped with spacer (39) onto bracket (40) ; install bolt (42) lubricated with grease (TB 04-004A), washers (37) and (38) and nut (36) ; safety with a new cotter pin (35).

3) Remove adhesive tape or lockwire from actuator nut (43) ; without disturbing its adjustment, connect it to lever (41) using bolt (29) lubricated with grease (TB 04-004A), spacer (30), washer (34) and nut (33) ; tighten and safety with a new cotter pin (32).

4) Install rack (13) on ball control (15) (if necessary) and check the presence of jam nut (14) on the control.

5) Slide nut (9) into housing (22) and position ball control (15) into housing (22), then screw nut (9) rearward.

NOTE : Insert rack (13) in housing (22), teeth directed upward.

6) While holding nut (9), lock jam nut (14) onto housing (22).

7) Set the elevator to - 3°.

8) Position - see Figure 401 (3 / 3) - rack (teeth directed downward) index (12) at 2.36 in (60 mm) from housing (22) axle and insert control wheel (8) coated with grease (TB 04-004A).

9) Install washer (11) and retaining ring (10).

10) Release the elevator.

11) Temporarily install the tunnel - refer to 25-15-00.

12) Check the travel of the elevator - refer to 27-30-00 - and the elevator trim tab - refer to 27-30-03, Page 601.

13) Make sure all the tools and materials are removed and the work area is clean and free from debris.

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14) Install and secure half-housings (44) and (45) with bolts (46), washers (47) and new nuts (48).

All

15) Install tail cone 222 - refer to 53-20-00.

16) Inspect clamps and grommets for security at frames C2 thru C8.

17) Install baggage compartment bottom door 242.

18) Install the central pedestal - refer to 25-14-00.

19) Complete the installation of the tunnel - refer to 25-15-00.

20) Install the cowling under hull 218.

21) Remove the warning sign prohibiting main switch-breaker operation.

D. Disassembly of rear rack / actuator (Figure 402)

1) Remove the actuator - refer to Paragraph B.
2) Place actuator housing (6) between the jaws of a vice (protected jaws, moderate clamping pressure), with actuator screw (16) in horizontal position.
3) Remove and discard cotter pin (10) ; remove nut (11) and washer (12).
4) Clear actuator screw assy (14) from housing (6).
5) Remove nuts (8), washers (7) and bolts (3) while holding cover plate (9) if the actuator housing is "cast" or cover plates (19) and (20) if the actuator housing is "machined" ; discard nuts (8).
6) Clear cover plate(s) (9) or (19) and (20) from housing.
7) Clear main sprocket shaft assy (5).

CAUTION : BALL CONTROL (15), JAM NUT (2) AND THE INSIDE OF CONTROL END FITTING (1) ARE LEFT-HAND THREADED.

8) Loosen jam nut (2) to unscrew control end fitting (1).
9) If necessary, unscrew rack (13), control end fitting (1) and jam nut (2) from ball control (15).
10) Clean and inspect the assembly including rack, actuator screw assy and actuator nut, sprockets for wear ; replace any defective part.

E. Assembly of rear rack / actuator (Figure 402)

1) Screw rack (13) onto ball control (15), ensure a clearance of approximately 0.04 in (1 mm).
2) Coat threads with Loctite (TB 08-013C), then screw control end fitting (1) onto housing (6).
3) Fully screw ball control (15) (L.H. threaded end) fitted with jam nut (2) onto control end fitting (1) ; lock jam nut onto end fitting while holding the control.
4) If housing (6) is machined, install and temporarily secure cover plate (20).
5) Move rack (13) to mid-travel.
6) Insert main sprocket shaft assy (5).
7) Lubricate actuator screw (16) / actuator nut (17) assembly with grease (TB 04-004A). Install the assembly while ensuring 4.72 in (120 mm) and 1.85 in (47.1 mm) dimensions.

NOTE : Each actuator screw (16) sprocket tooth shifts actuator nut (17) by 0.012 in. (0.3 mm).

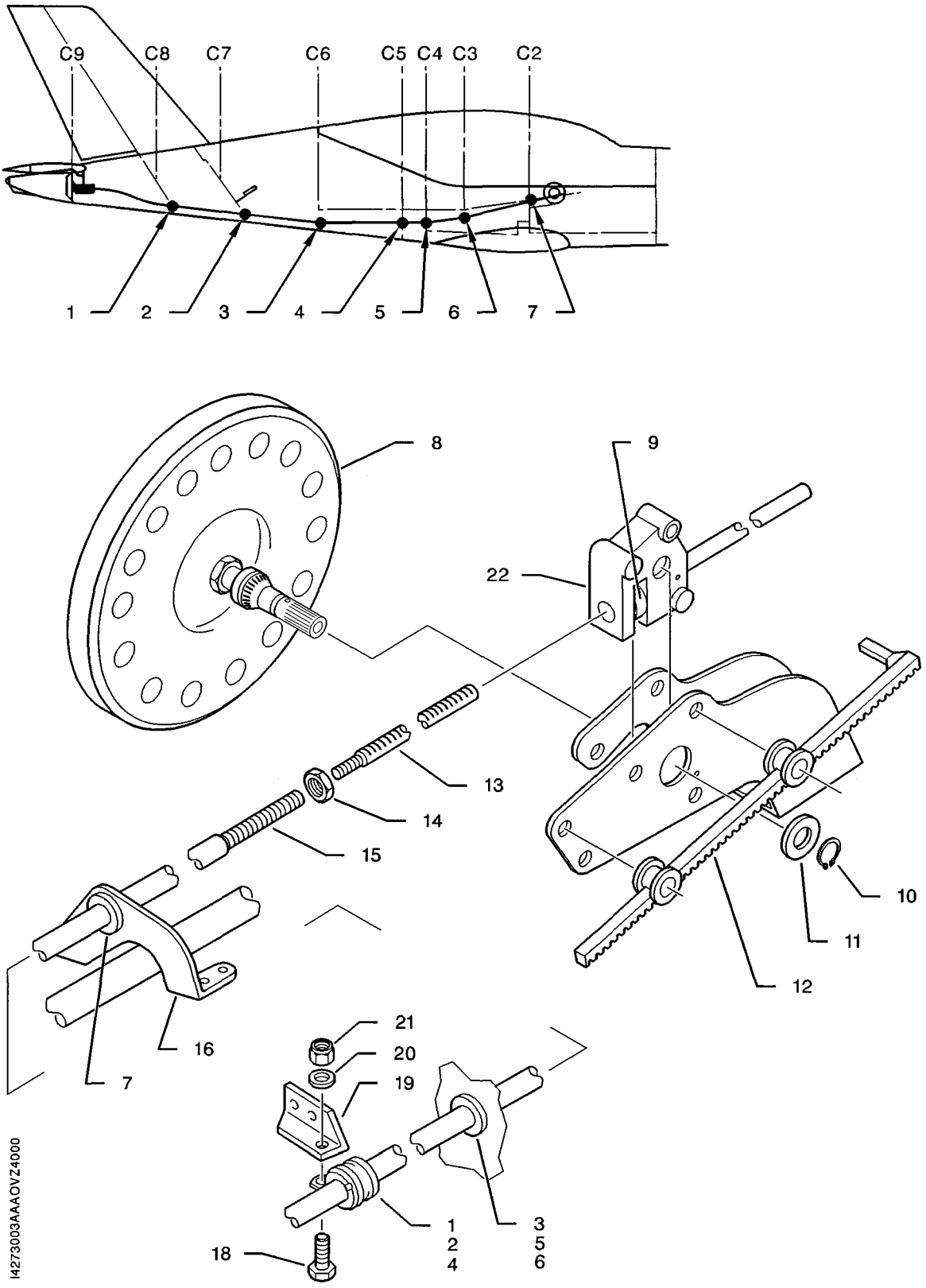
8) Prevent (temporarily) actuator nut (17) from rotating round actuator screw (16) by using adhesive tape or lockwire.
9) Fill housing (6) with grease (TB 04-004A) ; secure cover plate(s) (9) or (19) and (20) with bolts (3), washers (7) and new nuts (8).
10) Install washer (12), nut (11) and safety with a new cotter pin (10).

NOTE : As spares for actuator screw assy (14), matching actuator screw (16), actuator nut (17) and stop (18), although it seems demanding, is imperative to ensure interchangeability and accurate travel limits.

11) Apply more grease via lubricating port (4) ; install plug.
12) Install the actuator assembly - refer to Paragraph C.

1 - Clamp
2 - Clamp
3 - Grommet
4 - Clamp
5 - Grommet
6 - Grommet
7 - Grommet
8 - Control wheel
9 - Nut
10 - Retaining ring
11 - Washer
12 - Index
13 - Rack
14 - Jam nut
15 - Ball control
16 - Bracket
18 - Bolt
19 - Bracket
20 - Washer
21 - Nut
22 - Housing

Ball control - Removal / Installation
Key to Figure 401 (1 / 3)

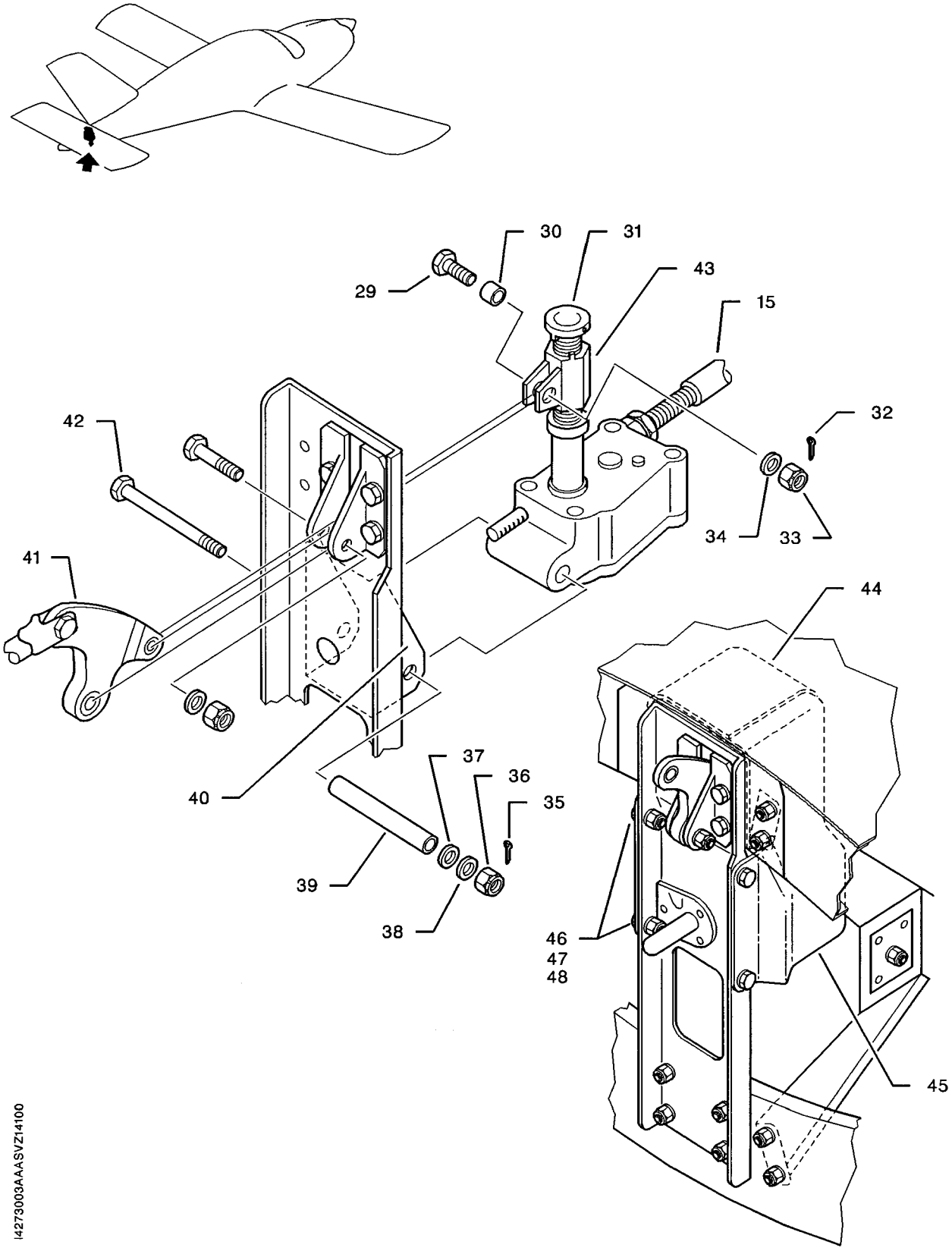


Ball control - Removal / Installation
Figure 401 (1 / 3)

AAAA
Validity : S / N 1 - 274

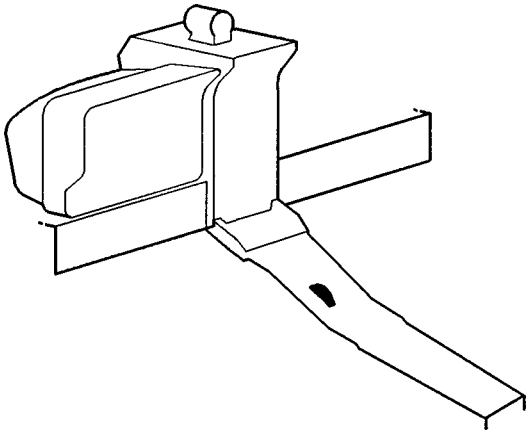
15 - Ball control
29 - Bolt
30 - Spacer
31 - Actuator
32 - Cotter pin
33 - Nut
34 - Washer
35 - Cotter pin
36 - Nut
37 - Washer
38 - Washer
39 - Spacer
40 - Bracket
41 - Lever
42 - Bolt
43 - Actuator nut
44 - Half-housing
45 - Half-housing
46 - Bolt
47 - Washer
48 - Nut

Ball control - Removal / Installation
Key to Figure 401 (2 / 3)

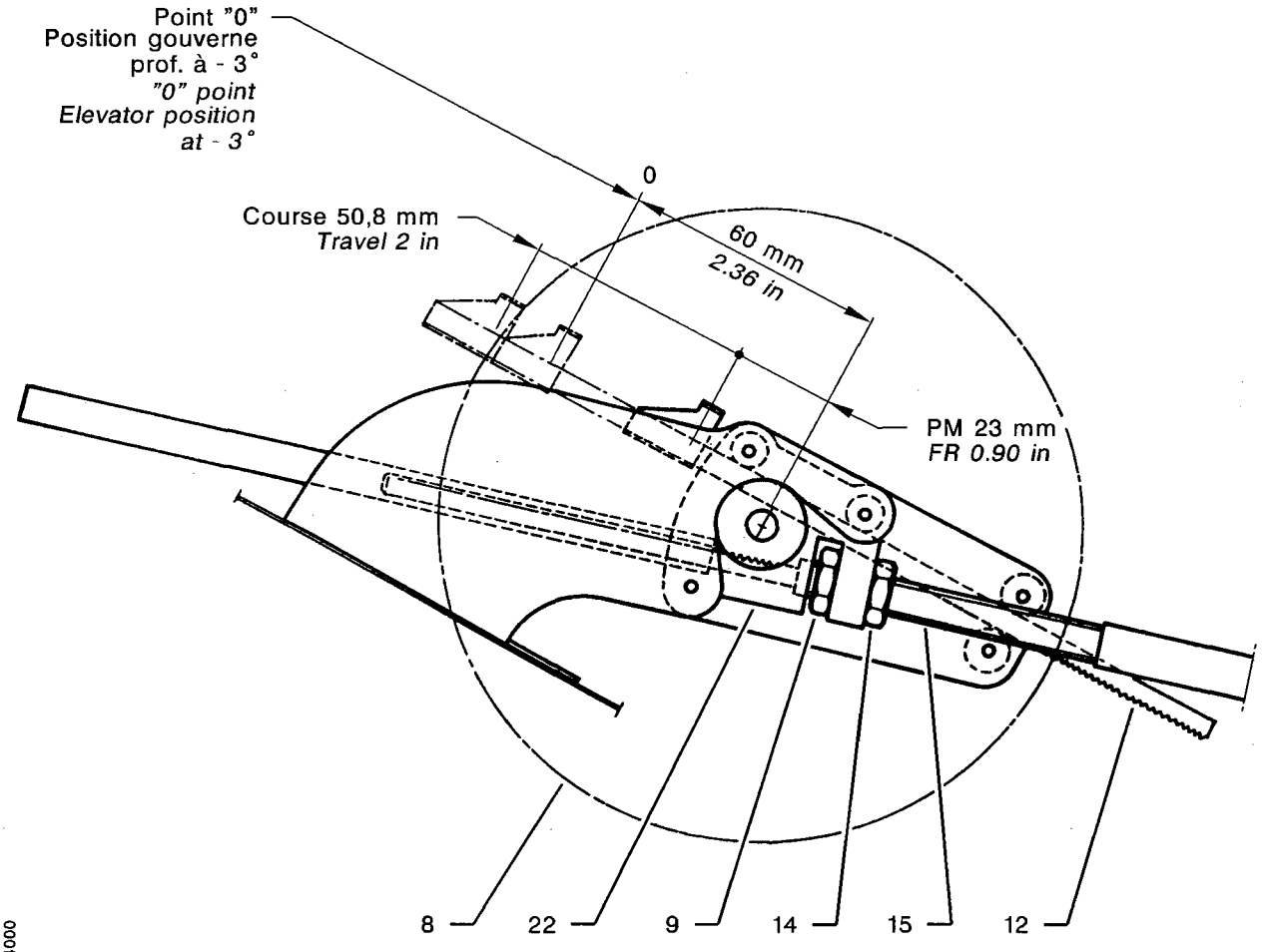


Ball control - Removal / Installation
Figure 401 (2 / 3)

AAAA
Validity : S / N 1 - 274



8 - Control wheel
9 - Nut
12 - Index
14 - Jam nut
15 - Ball control
22 - Housing



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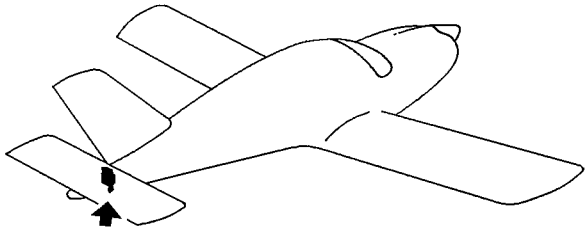
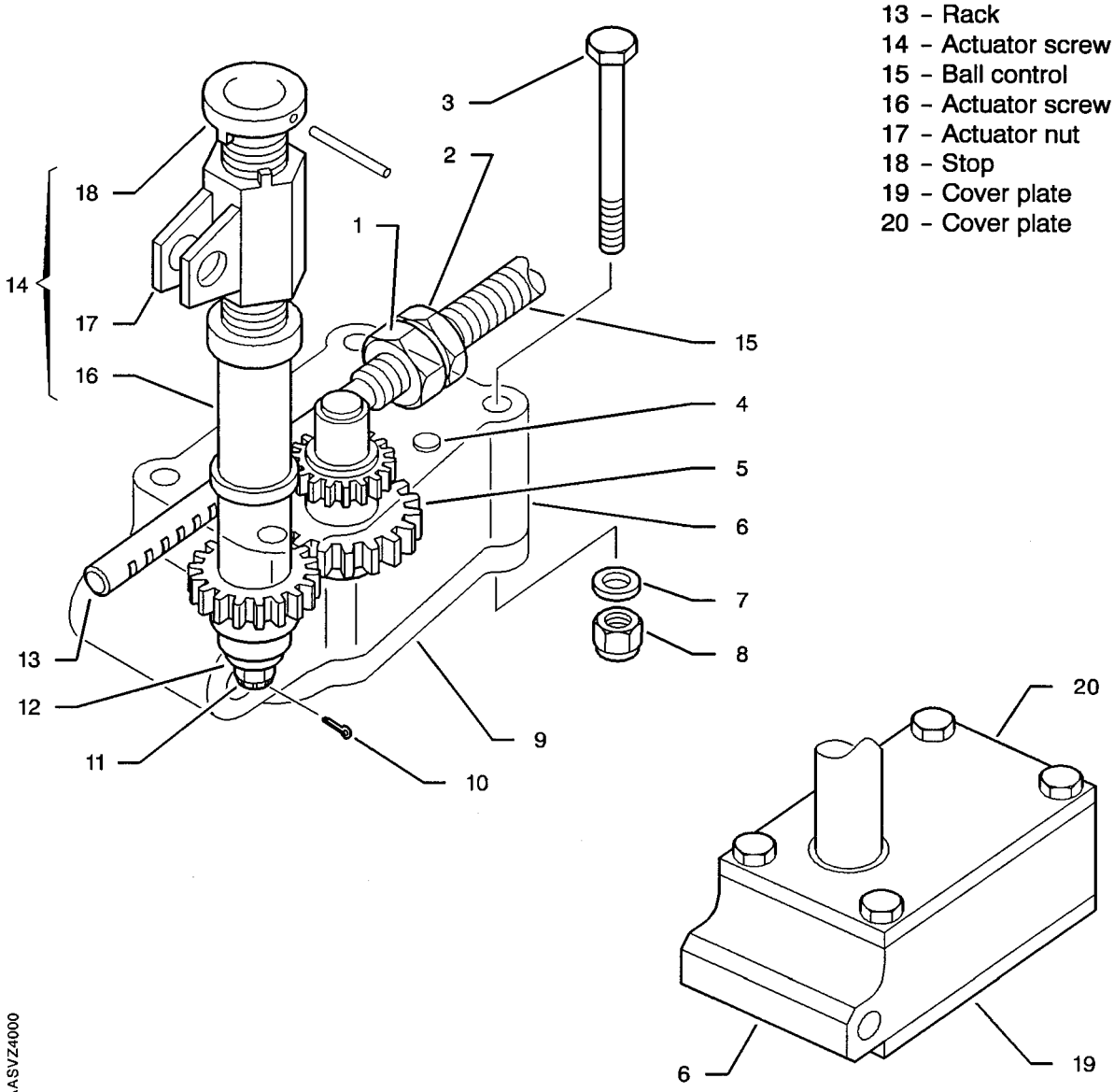
Ball control - Removal / Installation
Figure 401 (3 / 3)

AAAA
Validity : S / N 1 - 274



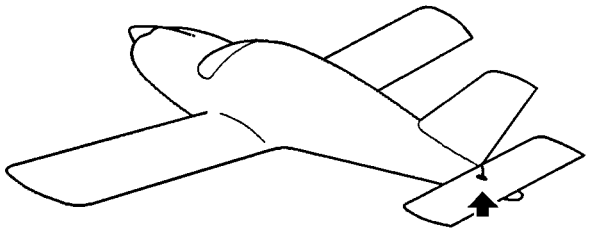
1 - Control end fitting
2 - Jam nut
3 - Bolt
4 - Lubricating port
5 - Main sprocket shaft assy
6 - Housing
7 - Washer
8 - Nut
9 - Cover plate
10 - Cotter pin
11 - Nut
12 - Washer
13 - Rack
14 - Actuator screw assy
15 - Ball control
16 - Actuator screw
17 - Actuator nut
18 - Stop
19 - Cover plate
20 - Cover plate



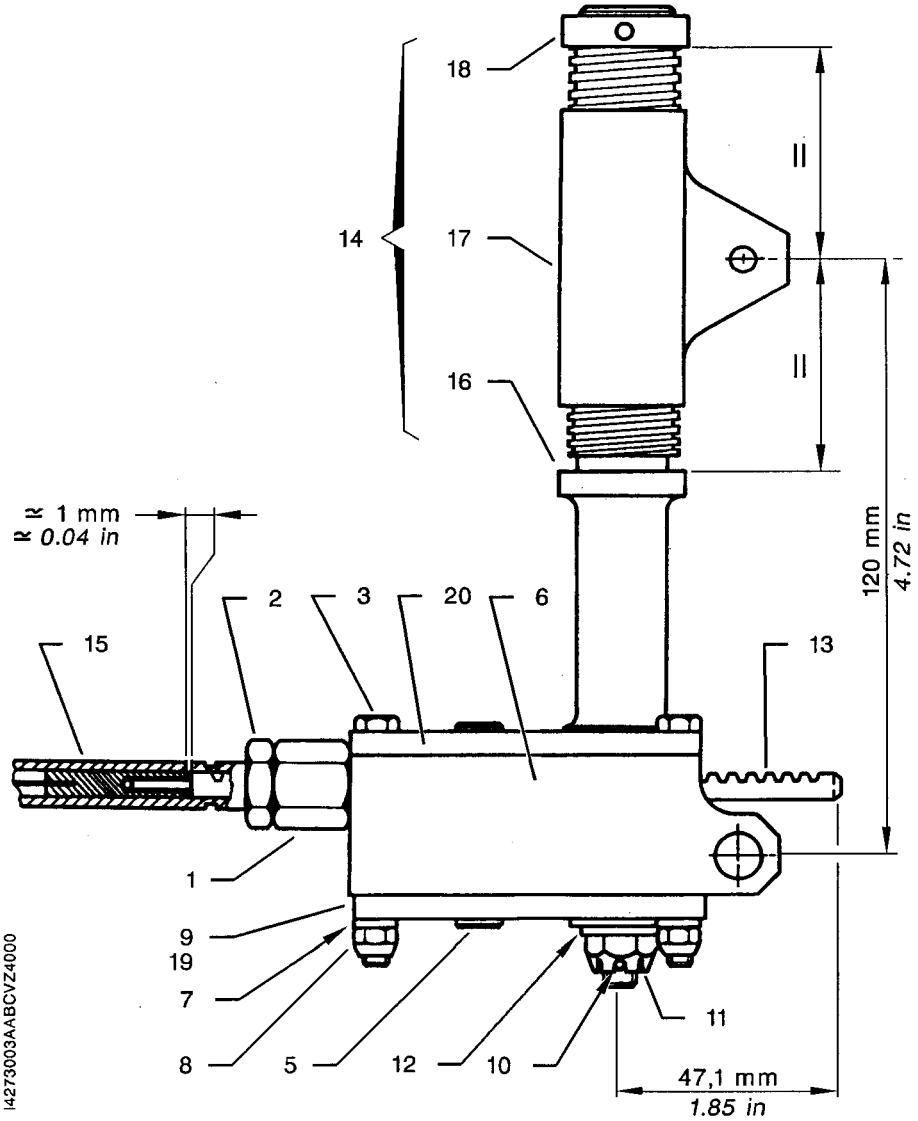
I4273003AAASVZ4000

Rack - Disassembly / Assembly
Figure 402 (1 / 2)

AAAA
Validity : S / N 1 - 274



1 - Control end fitting
2 - Jam nut
3 - Bolt
5 - Main sprocket shaft assy
6 - Housing
7 - Washer
8 - Nut
9 - Cover plate
10 - Cotter pin
11 - Nut
12 - Washer
13 - Rack
14 - Actuator screw assy
15 - Ball control
16 - Actuator screw
17 - Actuator nut
18 - Stop
19 - Cover plate
20 - Cover plate



Rack - Disassembly / Assembly
Figure 402 (2 / 2)

AAAA
Validity : S / N 1 - 274

ELEVATOR TRIM TAB CONTROL

REMOVAL / INSTALLATION

1. REMOVAL / INSTALLATION - ELEVATOR TRIM TAB CONTROL CABLES

A. Tools and consumable materials

- Immobilization tool T700A2799000009
- Cable clamp T700A2799000008 (Qty 3)
- Grease (TB 04-004A)
- Stainless steel lockwire, dia. 0.032 in (0.8 mm)

B. Preliminary steps (Figures 401, 402 and 404)

1) Make sure that the main switch-breaker is open.
2) Install the warning sign prohibiting main switch-breaker operation.

WARNING

DO NOT OPERATE
MAINTENANCE WORK IN PROGRESS

3) Remove the cowling under hull 218.
4) Remove tail cone 222 - refer to 53-20-00.

S / N 341 - 9999 and S / N 275 - 340 Post-Kit OPT10 908700

5) Remove trim tab actuator housing (37).

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6) Open baggage compartment door 219 and remove baggage compartment bottom door 242.
7) Remove the central pedestal - refer to 25-14-00.
8) Remove the tunnel - refer to 25-15-00.
9) If installed, remove the cover of the elevator trim tab front cable.
10) Position trim tab in neutral position with control wheel (16).
11) Position cable clamps (52) as close as possible to front reel (1) and rear reel (54).

C. Removal of front cable (Figures 401 and 402)

1) Remove and discard cotter pin (7) ; remove nut (6), washer (5), bolt (14) and "TRIM 2" pulley (8).
2) Remove and discard nuts (29) from cable guards.
3) Remove washers (28), bolts (25) and spacers (26).
4) Unlock and remove both turnbuckles (38) with immobilization tool (42).

With autopilot

5) Unlock and remove the turnbuckle of the intermediate cable.

6) Unwind front cable (27) from around the servo-actuator pulley.

S / N 275 - 587, 589 - 599, 601 - 609

7) Remove and discard cotter pin (18) ; remove nut (17), washer (15), bolt (3), spacer (2), control wheel (16) and front reel (1) equipped with front cable (27).

S / N 588, 600, 610 - 9999

7) Clear lockwasher (4) tab, remove bolt (3), lockwasher (4), spacer (2), washer (15), control wheel (16) and front reel (1) equipped with front cable (27).

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8) Inspect front cable (27) and pulleys for condition - refer to 20-00-07.

9) If necessary, remove "TRIM 1" pulleys (9), (11) and (13) and "TRIM 2" pulleys (10) and (12).

   a) Remove and discard cotter pins (19).

   b) Remove nuts (20), washers (21), bolts (24), pulleys and spacer (22) or spacers (23).

10) If necessary, remove the cable from front reel (1) - refer to Paragraph G.

D. Installation of front cable (Figures 401, 402 and 404)

1) If removed, install the cable around front reel (1) - refer to Paragraph H.

2) Inspect the interfaces for cleanliness and condition.

3) Lubricate bolts (3) and (14), spacer (2), "TRIM 2" pulley (8), front reel (1) and turnbuckles (38) with grease (TB 04-004A).

4) If removed, install "TRIM 1" pulleys (9), (11) and (13) and "TRIM 2" pulleys (10) and (12).

   a) Lubricate "TRIM 1" pulleys (9), (11) and (13), "TRIM 2" pulleys (10) and (12) and bolts (24) with grease (TB 04-004A).

   b) Position pulleys on their half-brackets with spacer (22) or spacers (23), bolt (24), washer (21) and nut (20).

   c) Safety with new cotter pins (19).

CAUTION : PLACE THE NEEDLE PIN IN THE CENTRAL GROOVE OF THE REEL.

4) Assemble front reel (1) equipped with front cable (27) and cable clamp (52), spacer (2), control wheel (16) and washer (15). Position the assembly in its housing.

S / N 275 - 587, 589 - 599, 601 - 609

5) Install bolt (3) and nut (17) ; safety with a new cotter pin (18).

S / N 588, 600, 610 - 9999

5) Install bolt (3) equipped with a new lockwasher (4) ; fold down lockwasher (4) tabs.

S / N 275 - 9999

6) Route "TRIM 1" and "TRIM 2" cables in the support, then through frame C3 up to the fuselage rear section.

NOTE : Make sure the cables do not cross, are not twisted and are correctly installed in the groove of the pulleys.

With autopilot

7) Wind front cable (27) round the servo-actuator pulley - refer to 22-10-00.

All

8) Lubricate the cable in the winding areas with grease (TB 04-004A).

9) Install turnbuckles (38) on the cables with immobilization tool (42).

10) Position spacers (26) on half-brackets ; install bolts (25), washers (28) and new nuts (29).

11) Position and secure "TRIM 2" pulley (8) with bolt (14), washer (5) and nut (6) ; safety with a new cotter pin (7).

12) Remove cable clamps (52).

13) Adjust the tension of the cables - refer to Page 501.

14) Lockwire turnbuckles (38).

15) Check the travel of the elevator trim tab - refer to Page 501.

E. Removal of rear cable (Figures 402, 403 and 404)

With autopilot

1) Install cable clamp (52) as close as possible (rearward) to the servo-actuator pulley.

All

2) Unlock and remove both turnbuckles (38) with immobilization tool (42).

3) Remove and discard cotter pin (35) ; remove nut (36), washer (34) and bolt (31).

4) Disconnect lever (33) from actuator and retain spacer (32).

5) Remove bolts (41), washers (40) and the actuator equipped with rear cable (39).

6) Inspect rear cable (39) (and intermediate cable, if installed) for condition - refer to 20-00-07.

7) If necessary, remove the cable from rear reel (54) - refer to Paragraph G.

F. Installation of rear cable (Figures 402, 403 and 404)

1) If removed, install the cable on rear reel (54) and adjust actuator rod (51) - refer to Paragraph I.

2) Lubricate lever (33), bolt (31) and turnbuckles (38) with grease (TB 04-004A).

3) Position support (59) equipped with actuator and rear cable (39) (and with intermediate cable, if installed) on frame C9 and install bolts (41) equipped with washers (40).

4) Engage lever (33) equipped with spacer (32) on actuator rod (51) and install bolt (31), washer (34) and nut (36).

5) Safety with a new cotter pin (35).

6) Install turnbuckles (38) on the cables with immobilization tool (42).

7) Remove cable clamps (52).

8) Adjust the tension of the cables - refer to Page 501.

9) Lockwire turnbuckles (38).

10) Check the travel of the elevator trim tab - refer to Page 501.

G. Disassembly of rear and front cables (Figures 401, 403 and 404)

1) Remove cable clamp (52) from rear reel (54).

2) Remove and discard cotter pin (57) ; remove nut (58) and washer (56).

3) Unscrew actuator rod (51) from rear reel (54).

Actuators without shims - see Figure 403, Detail B

4) Remove rear reel (54), then unwind and remove rear cable (39).

5) If necessary, remove and discard cotter pins (63), remove nuts (53), external washers (61) and spacers (60).

6) Push out bolts (62), remove support (59), washers (61) and bolts (62).

Actuators with shims - see Figure 403A, Detail B

4) Clear lockwasher (66) tabs, remove bolts (67), lockwashers (66), actuator bearings (68) and shim(s) (65) (if installed) ; discard lockwashers (66).

5) Remove rear reel (54), then unwind and remove rear cable (39).

6) If necessary, remove and discard cotter pins (63), remove nuts (53), external washers (61) and spacers (60).

7) Push out bolts (62), remove support (59), washers (61) and bolts (62).

Actuators Post-MOD. 148 - see Figure 403B, Detail B

4) Clear lockwasher (66) tabs, remove bolts (67), lockwashers (66), actuator bearings (68) and shim(s) (65) (if installed) ; discard lockwashers (66).

5) Remove and discard seals (69) from actuator bearings (68).

6) Remove rear reel (54), then unwind and remove rear cable (39).

7) If necessary, remove and discard cotter pins (63), remove nuts (53), external washers (61) and spacers (60).

8) Push out bolts (62), remove support (59), washers (61) and bolts (62).

All

9) Remove cable clamp (52) from front reel (1).

10) Unwind and remove front cable (27) from around front reel (1).

H. Assembly of front cable (Figures 401, 404 and 405)

NOTE : . Two operators are required to perform these operations.
. Cable "L.H. threaded" end fittings are identified by side notches on the 6 flats of the hexagonal nuts.
. Inspect cables and pulleys for condition - refer to 20-00-07.
. Lubricate the cables in the winding area with grease (TB 04-004A).

1) Wind front cable (27) [Length 28.26 ft (8615 mm)] around front reel (1) - see Figure 405, Detail D.

   a) Position front reel (1) as illustrated in Detail D, Figure 405, between the jaws of a vice (protected jaws) at moderate clamping pressure.

   b) Locate the middle of the cable and position the cable at this level in the front groove of the reel.

   c) 1st operator : hold the R.H. side of the cable ("L.H. threaded" end fitting).

   d) 2nd operator : take the L.H. side of the cable ("R.H. threaded" end fitting) and route it externally, then backward into L.H. side notch ; wind the cable (stretched tight) backward round the reel by 3 complete turns - see NOTE hereafter - up to the rear position and hold it in place, still stretched tight.

   e) 1st operator : engage the cable ("L.H. threaded" side) into R.H. side groove by backward winding ; at groove outlet, pass the cable (stretched tight) again into the pulley, perform 3 complete (clockwise) turns - see NOTE hereafter - up to the rear position and hold it in place, still stretched tight.

      NOTE : Cable turns on reels must be as snug as possible and must never overlap.

   f) Keep both cable ends stretched tight and block them in position using cable clamp (52) - see Figure 404 - located as close as possible to the reel.

2) Install front cable - refer to Paragraph D.

I. Installation of rear cable (Figures 401, 402, 403, 404 and 405)

NOTE : . Two operators are required to perform these operations.
. Cable "L.H. threaded" end fittings are identified by side notches on the 6 flats of the hexagonal nuts.
. Inspect cables and pulleys for condition - refer to 20-00-07.
. Lubricate the cables in the winding area with grease (TB 04-004A).

NOTE : As spares, matching of actuator rod (51) and of rear reel (54) is imperative to ensure interchangeability and accurate travel.

1) Wind rear cable (39) [Length 10.32 ft (3148 mm)] around rear reel (54) - see Figure 405, Detail E.

   a) Position the reel as illustrated in Detail E, Figure 405, between the jaws of a vice (protected jaws) at moderate clamping pressure.

   b) Locate the middle of the cable and position the cable at this level in the rear groove of the reel.

   c) 1st operator : hold the cable on the L.H. side in the groove.

   d) 2nd operator : take the R.H. side of the cable and route it externally forward, then into R.H. lower notch ; wind the cable (stretched tight) forward around the reel by 6 complete turns - see NOTE hereafter - up to the front position and hold it in place, still stretched tight.

   e) 1st operator : at rear groove outlet, engage the cable externally on the L.H. side, going forward into L.H. upper side groove ; wind the cable (stretched tight) forward around the reel by 6 complete turns - see NOTE hereafter - up to the front position and hold it in place, still stretched tight.

      NOTE : Cable turns on reels must be as snug as possible and must never overlap.

   f) Keep both cable ends stretched tight and block them in position using cable clamp (52) - see Figure 404 - located as close as possible to the reel.

2) Reinstall rear reel (54) equipped with rear cable (39) on actuator.

   a) Inspect the various components of the actuator for condition ; replace any defective parts.

Actuators without shims - see Figure 403, Detail B

b) If removed, install yoke (55) on support (59).

- Lubricate yoke (55) and bolts (62) with grease (TB 04-004A).
- Install yoke (55) on support (59) with bolts (62) and a washer (61) on each side - see Detail B.
- Center yoke (55) with spacers (60) ; install washers (61), nuts (53) and safety with two new cotter pins (63).

c) Position rear reel (54) generously lubricated with grease (TB 04-004A) in its housing, cable "L.H. threaded" end fitting directed forward on the L.H. side.

Actuators with shims - see Figure 403A, Detail B

b) If removed, install yoke (55) on support (59).

- Lubricate yoke (55) and bolts (62) and (67) with grease (TB 04-004A).
- Install yoke (55) on support (59) with bolts (62) and a washer (61) on each side - see Detail B.
- Center yoke (55) with spacers (60) ; install washers (61), nuts (53) and safety with two new cotter pins (63).

c) Position upper actuator bearing (68) onto yoke (55) while interposing shim (65) (if installed) and screw bolts (67) equipped with new lockwashers (66) over a few threads.

d) Position rear reel (54) generously lubricated with grease (TB 04-004A) in its housing, cable "L.H. threaded" end fitting directed forward on the L.H. side.

e) Screw bolts (67) of upper actuator bearing (68) until contact is achieved. Center rear reel (54) and install shim (65) (if installed) and the second actuator bearing (68) with bolts (67) equipped with new lockwashers (66).

f) Check the 0.004 in (0.1 mm) clearance - see Figure 403A, Detail B. Readjust if necessary.

g) Lock bolts (67) with lockwashers (66).

Actuators Post-MOD. 148 - see Figure 403B, Detail B

b) If removed, install yoke (55) on support (59).

- Lubricate yoke (55), new seals (69) and bolts (62) and (67) with grease TB 04-004A.
- Install yoke (55) on support (59) with bolts (62) and a washer (61) on each side - see Detail B.
- Center yoke (55) with spacers (60), install washers (61), nuts (53) and lock with two new cotter pins (63).

c) Position upper actuator bearing (68) onto yoke (55) while interposing shim (65) (if installed) and screw bolts (67) equipped with new lockwashers (66) over a few threads.

d) Position rear reel (54) generously lubricated with grease (TB 04-004A) in its housing, cable "L.H. threaded" end fitting directed forward on the L.H. side.

e) Screw bolts (67) of upper actuator bearing (68) until contact is achieved. Center rear reel (54) and install shim (65) (if installed) and the second actuator bearing (68) with bolts (67) equipped with new lockwashers (66).

f) Check the 0.004 in (0.1 mm) clearance - see Figure 403B, Detail B. Readjust if necessary.

g) Lock bolts (67) with lockwashers (66).

h) Install seals (69) in their housing, the thinnest section directed outwards - see Detail C, without twisting them.

All

i) Hold rear reel (54) and screw actuator rod (51) generously lubricated with grease (TB 04-004A) on rear reel (54) until a center-to-center distance equal to 2.65 in (67.2 mm) is obtained between bolts (31) and (62).

NOTE : Make sure the clearance between rear reel (54) and actuator rod (51) is equal to 0.0023 in (0.06 mm) max. - see Figure 403, Detail B.

j) Install washer (56) and fully screw nut (58). Do not install pin.

3) Adjust actuator rod (51) on aircraft.

a) Secure support (59) equipped with actuator on frame C9 using bolts (41) and washers (40).

b) If removed, install front cable (27) - refer to Paragraph D.

c) Using turnbuckles (38) and immobilization tool (42), connect rear cable (39) to front cable (27) (and to intermediate cable, if installed).

d) Temporarily pin lever (33) to actuator rod (51).

e) Temporarily pin the upper pedestal cover in order to display "NOSE DOWN" and "NOSE UP" markings.

f) Move control wheel (16) to "Nose down" position, the index facing "NOSE DOWN" marking.

g) If the actuator bottoms out before the index faces the marking, hold rear reel (54) and rotate actuator rod (51) in order to increase its travel.

h) Once "Nose down" position is obtained, make sure washer (56) fully bottoms out or at less than half a turn.

NOTE : Half a turn of actuator rod (51) corresponds to a travel of 0.08 in (2 mm) approximately.

i) Safety nut (58) with a new cotter pin (57).

j) Install rear cable - refer to Paragraph F.

J. Final steps (Figures 403, 404 and 405)

1) Make sure all the tools and materials are removed and the work area is clean and free from debris.

S / N 341 - 9999 and S / N 275 - 340 Post- Kit OPT10 908700

2) Install trim tab actuator housing (37).

S / N 275 - 9999

3) Install tail cone 222 - refer to 53-20-00.

4) Install the cowling under hull 218.

5) Install baggage compartment bottom door 242 and close baggage compartment door 219.

6) If removed, install the cover of the elevator trim tab front cable.

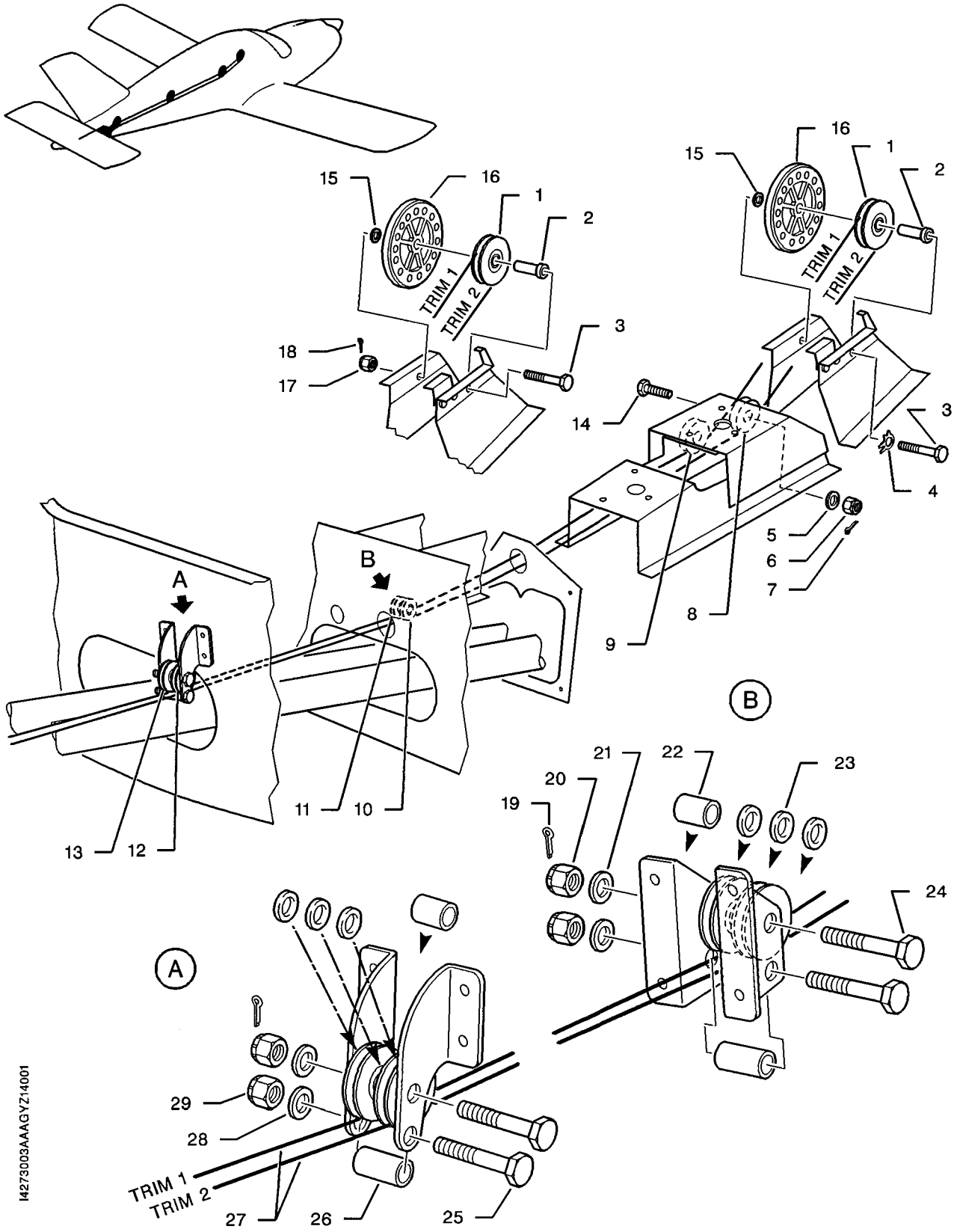
7) Install the tunnel - refer to 25-15-00.

8) Install the central pedestal - refer to 25-14-00.

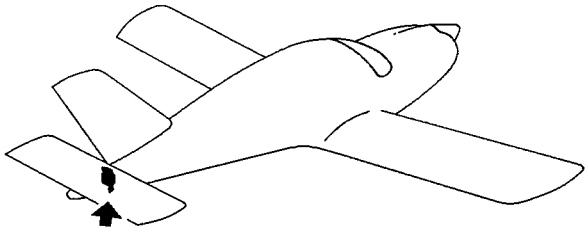
9) Remove the warning sign prohibiting main switch-breaker operation.

1 - Front reel
2 - Spacer
3 - Bolt
4 - Lockwasher
5 - Washer
6 - Nut
7 - Cotter pin
8 - "TRIM 2" pulley
9 - "TRIM 1" pulley
10 - "TRIM 2" pulley
11 - "TRIM 1" pulley
12 - "TRIM 2" pulley
13 - "TRIM 1" pulley
14 - Bolt
15 - Washer
16 - Control wheel
17 - Nut
18 - Cotter pin
19 - Cotter pin
20 - Nut
21 - Washer
22 - Spacer
23 - Spacer
24 - Bolt
25 - Bolt
26 - Spacer
27 - Front cable
28 - Washer
29 - Nut

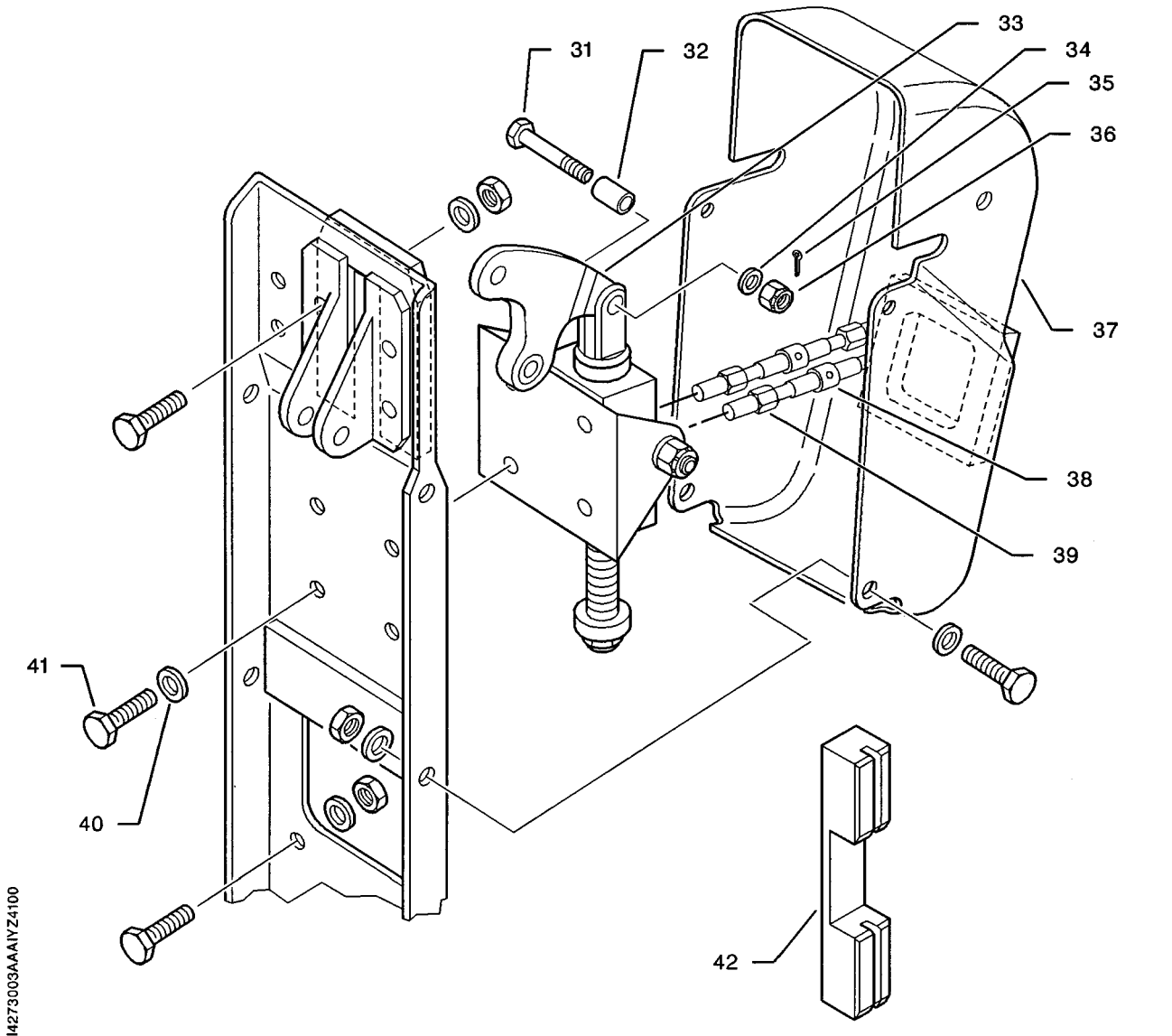
Elevator trim tab control cables - Removal / Installation
Key to Figure 401



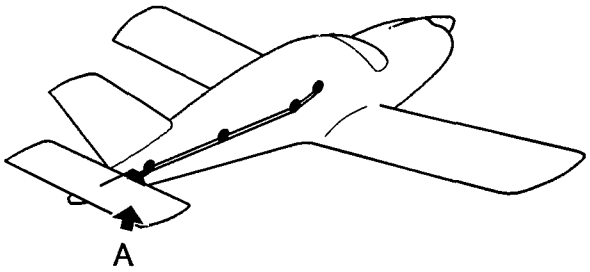
Elevator trim tab control cables - Removal / Installation
Figure 401



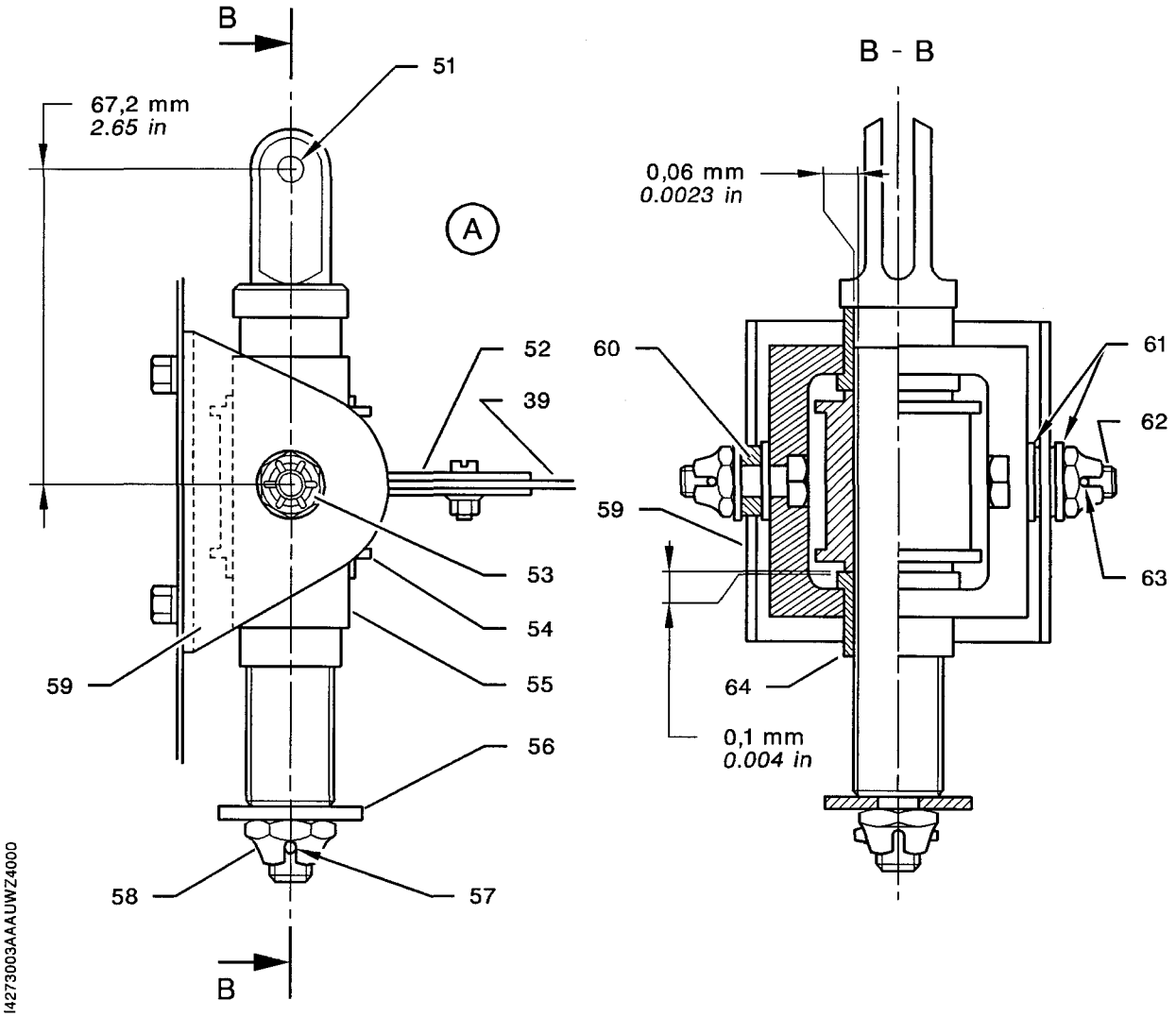
31 - Bolt
32 - Spacer
33 - Lever
34 - Washer
35 - Cotter pin
36 - Nut
37 - Housing
38 - Turnbuckle
39 - Rear cable
40 - Washer
41 - Bolt
42 - Immobilization tool



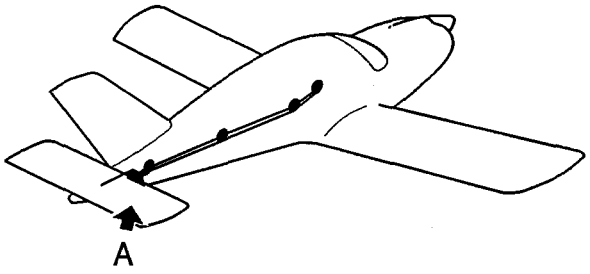
Elevator trim tab control cables - Removal / Installation
Figure 402



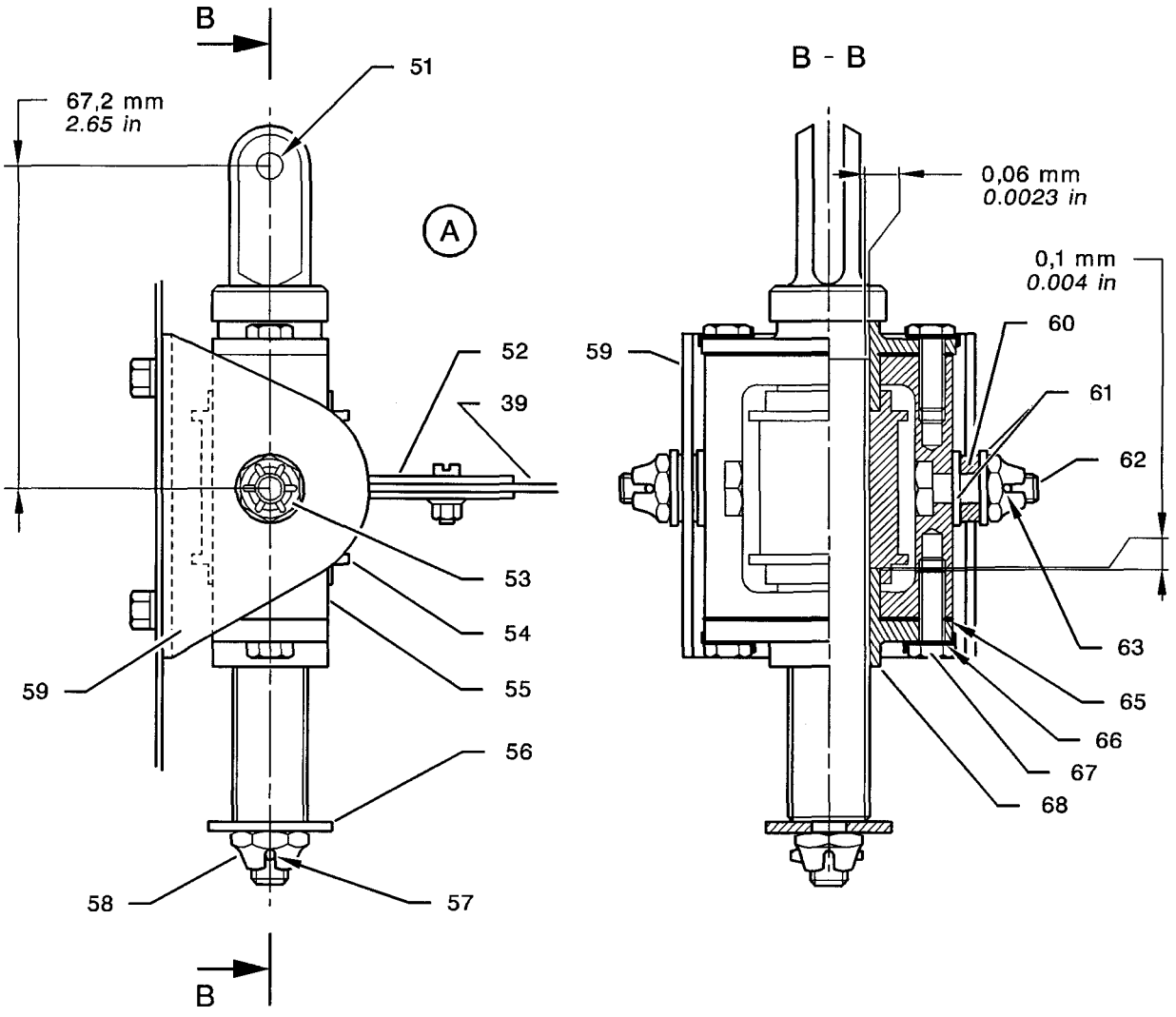
39 - Rear cable
51 - Actuator rod
52 - Cable clamp
53 - Nut
54 - Rear reel
55 - Yoke
56 - Washer
57 - Cotter pin
58 - Nut
59 - Support
60 - Spacer
61 - Washer
62 - Bolt
63 - Cotter pin
64 - Bushing



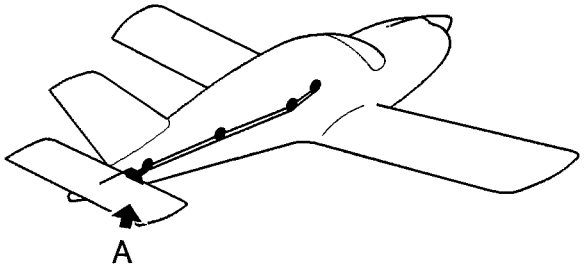
Elevator trim tab control cable - Removal / Installation
Figure 403 - Actuator without shims



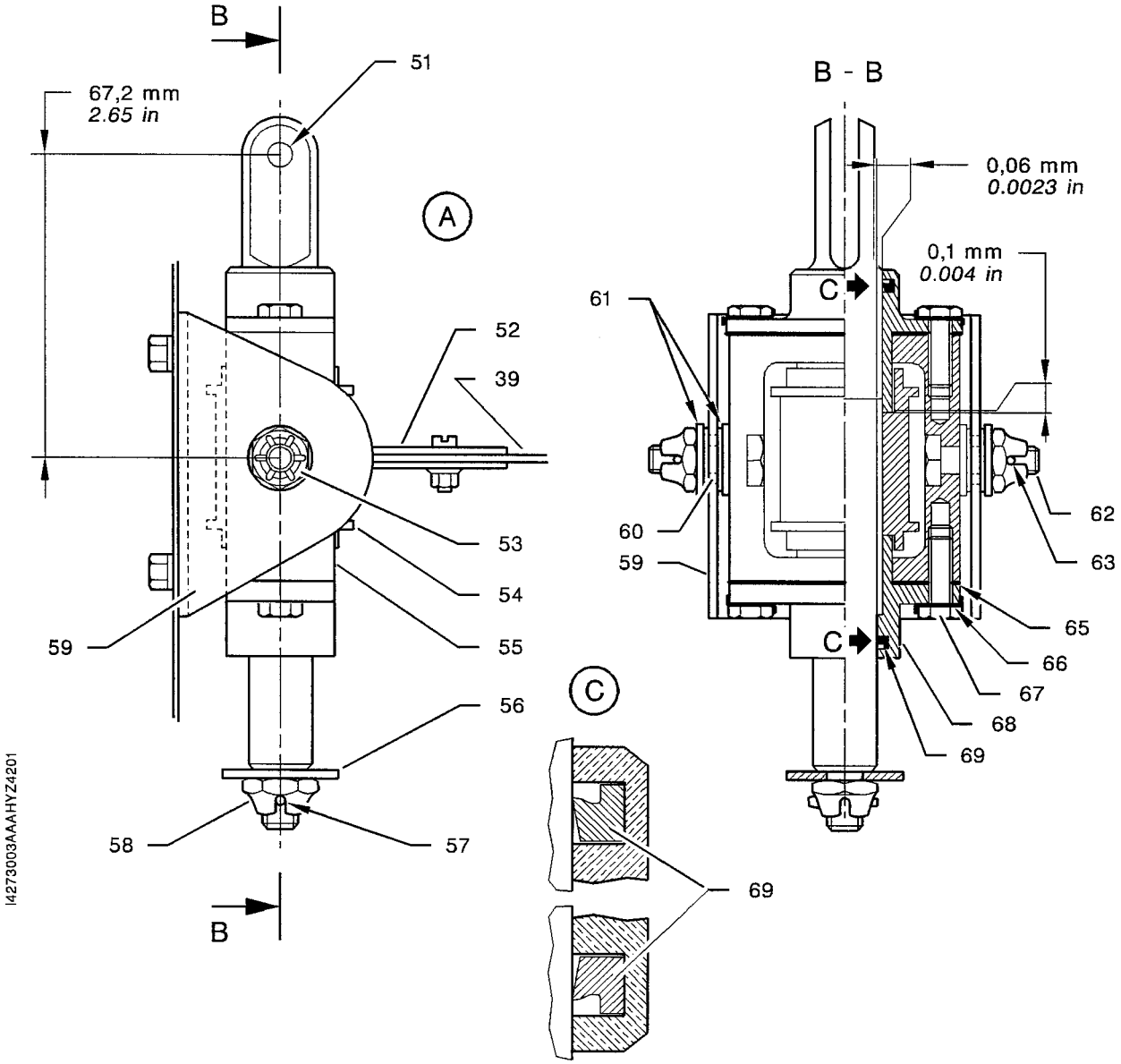
39 - Rear cable
51 - Actuator rod
52 - Cable clamp
53 - Nut
54 - Rear reel
55 - Yoke
56 - Washer
57 - Cotter pin
58 - Nut
59 - Support
60 - Spacer
61 - Washer
62 - Bolt
63 - Cotter pin
65 - Shim
66 - Lockwasher
67 - Bolt
68 - Actuator bearing



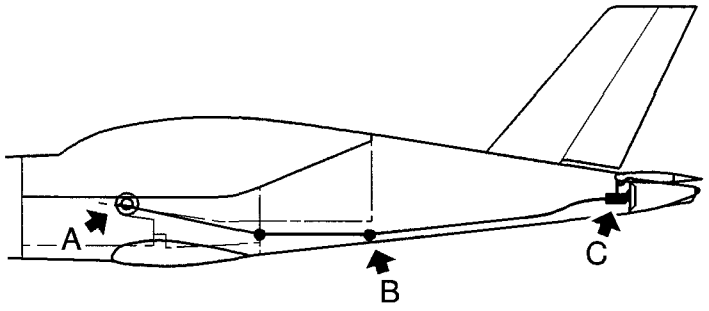
Elevator trim tab control cable - Removal / Installation
Figure 403A - Actuator with shims



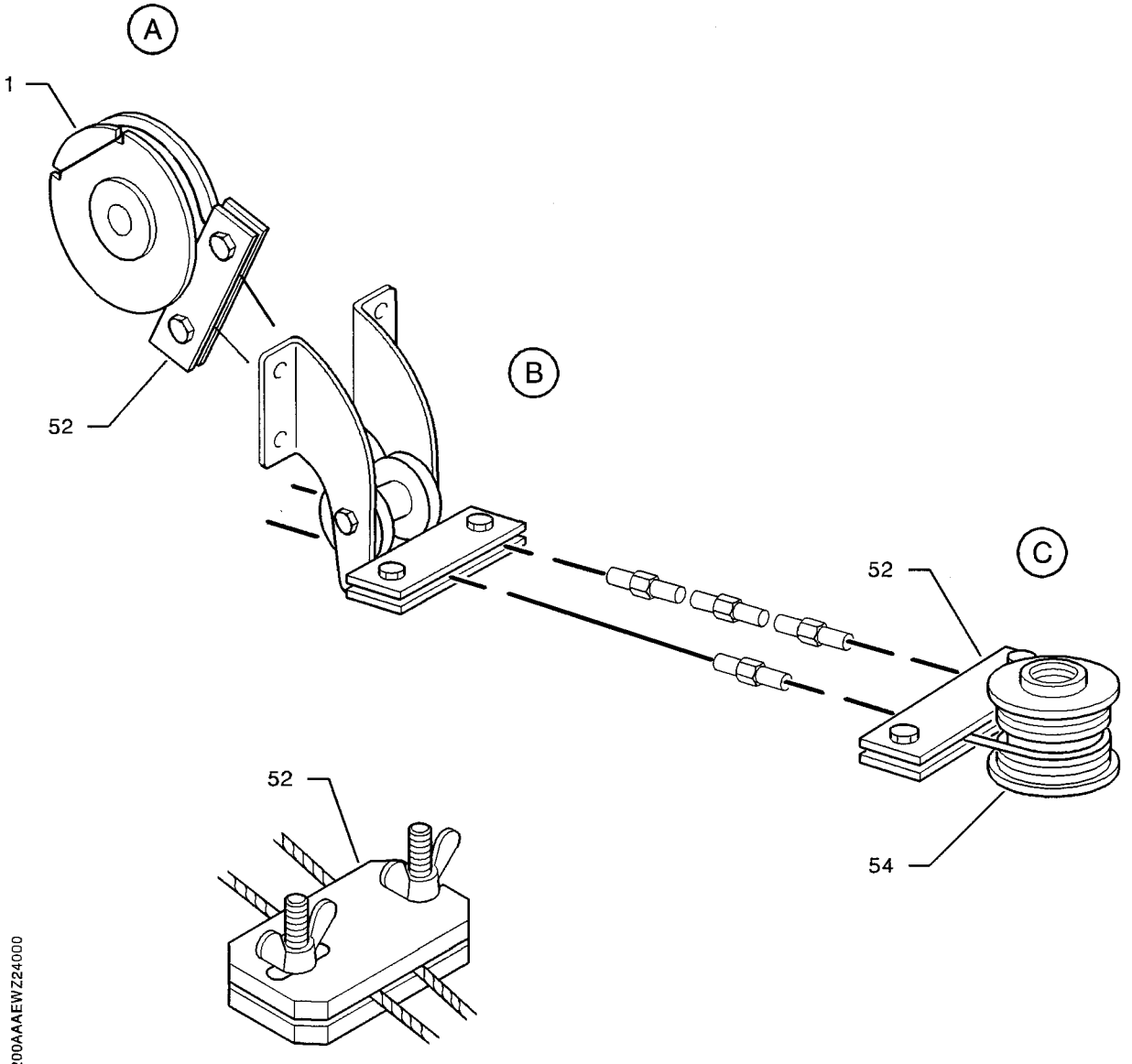
39 - Rear cable
51 - Actuator rod
52 - Cable clamp
53 - Nut
54 - Rear reel
55 - Yoke
56 - Washer
57 - Cotter pin
58 - Nut
59 - Support
60 - Spacer
61 - Washer
62 - Bolt
63 - Cotter pin
65 - Shim
66 - Lockwasher
67 - Bolt
68 - Actuator bearing
69 - Seal



Elevator trim tab control cable - Removal / Installation
Figure 403B - Actuator Post-MOD. 148



1 - Front reel
52 - Cable clamp
54 - Rear reel



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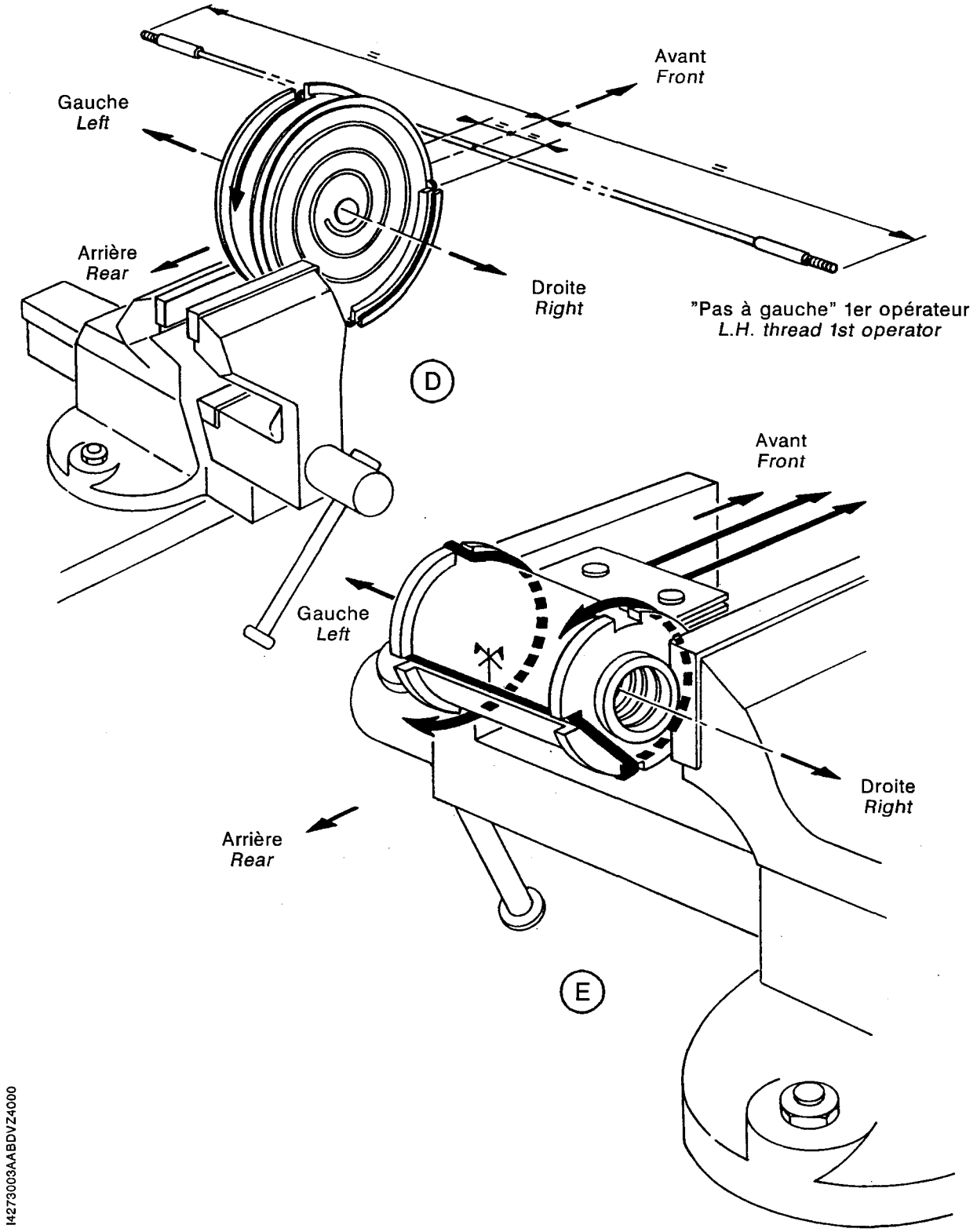
Elevator trim tab control cables - Disassembly / Assembly
Figure 404



Elevator trim tab control cables - Disassembly / Assembly
Figure 405

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ELEVATOR TRIM TAB CONTROL

ADJUSTMENT / TEST

1. ADJUSTMENT / TEST - ELEVATOR TRIM TAB

CAUTION : IF THE ELEVATOR TRIM TAB HAS BEEN REWORKED OR REPLACED, RE-BALANCE THE HORIZONTAL STABILIZER ASSEMBLY EQUIPPED WITH THE TRIM TAB - REFER TO 51-60-00.

A. Tools and consumable materials

- Clinometer
- Ruler
- Hydraulic jacks
- Elevator travel jig 8110 TB10 34000

NOTE : The travel jig is used only in Paragraph C. in replacement of the clinometer.

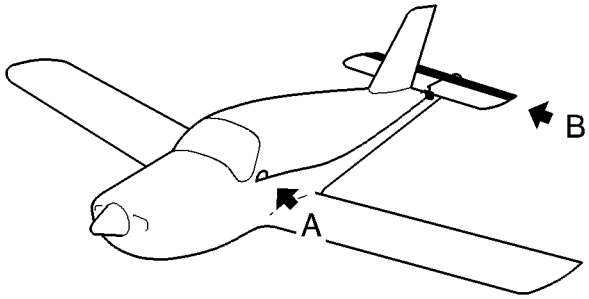
B. Adjustment of elevator trim tab without travel jig (Figure 501)

1) Level the aircraft - refer to 08-10-00.
2) Check the elevator travel - refer to 27-30-00. Read the exact value in “nose up” position with the clinometer - refer to 20-00-13.
3) Using the shims and the clinometer, position the elevator to 0° - refer to 27-30-00.
4) Attach the clinometer on trim tab (2) and set 0°.
5) Using a ruler, align trim tab (2) in relation to the elevator while maneuvering trim control wheel (1).
6) Position the elevator to full “nose up” position (-17° ± 1°).
7) Fully rotate trim control wheel (1) aft.
8) Check trim tab (2) angle in relation to “nose up” elevator axis using the clinometer which must indicate : 2°30’ (± 0°30’) more than the value read in step 2).
9) If necessary, adjust trim tab rod (3) - refer to 20-00-11.
10) Fully rotate trim control wheel (1) forward.
11) Check trim tab (2) angle in relation to “nose up” elevator axis using the clinometer which must indicate : 17° (± 1°30’) more than the value read in step 2).
12) If necessary, adjust trim tab rod (3) - refer to 20-00-11.
13) Repeat operations 8) to 12) until “nose up” and “nose down” tolerances are correct.
14) Remove the clinometer.
15) Lower the aircraft to ground and remove the jacks - refer to 07-10-00.

C. Adjustment of elevator trim tab with travel jig (Figure 501A)

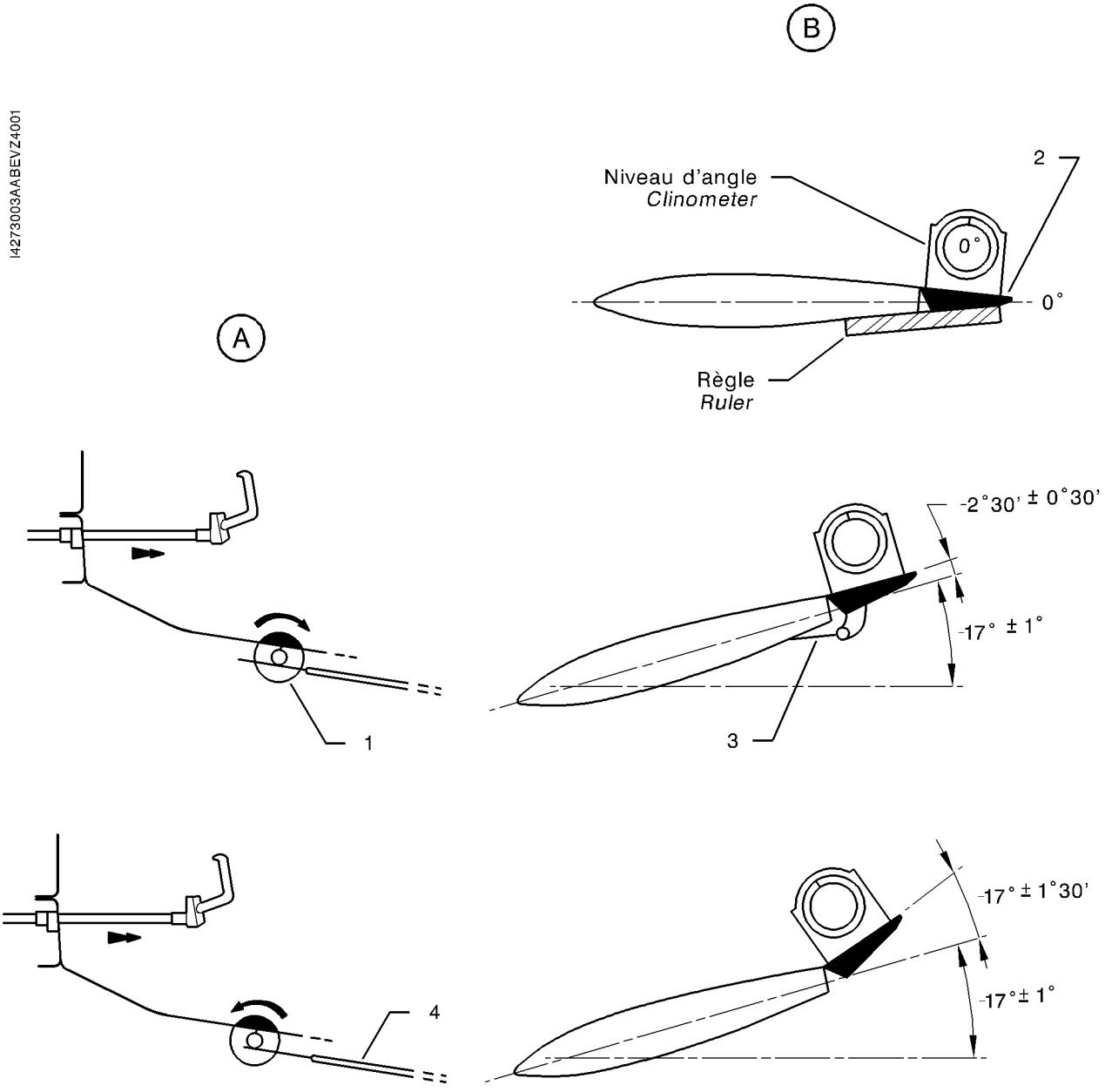
1) Remove tail cone 222 - refer to 53-20-00.
2) Remove the sheath clip securing the rear light wiring.

3) Pin travel jig (13), 8110 TB10 34000, on frame C9 through both pinning holes using rigging pin (6) and pin (7), and on the frame internal edge using attachment pin (5). Install and tighten knurled nuts (8).
4) Check the elevator travel - refer to 27-30-00.
5) Position the elevator to full "nose up" position. Position graduated sector (11) in contact with the elevator. Tighten knurled nut (10).
6) Fully rotate trim control wheel (1) aft.
7) Make sure trim tab (2) trailing edge is within the tolerances of "nose up" marking (12), 2°30' (± 0°30'). If necessary, adjust trim tab rod (3) - refer to 20-00-11.
8) Fully rotate trim control wheel (1) forward.
9) Make sure trim tab (2) trailing edge is within the tolerances of "nose down" marking (14), 17° (± 1°30'). If necessary, adjust trim tab rod (3) - refer to 20-00-11.
10) Repeat operations 7) to 9) until "nose up" and "nose down" tolerances are correct.
11) Remove travel jig (13).
12) Make sure all the tools and materials are removed and the work area is clean and free from debris.
13) Install the sheath clip securing the rear light wiring.
14) Install tail cone 222 - refer to 53-20-00.

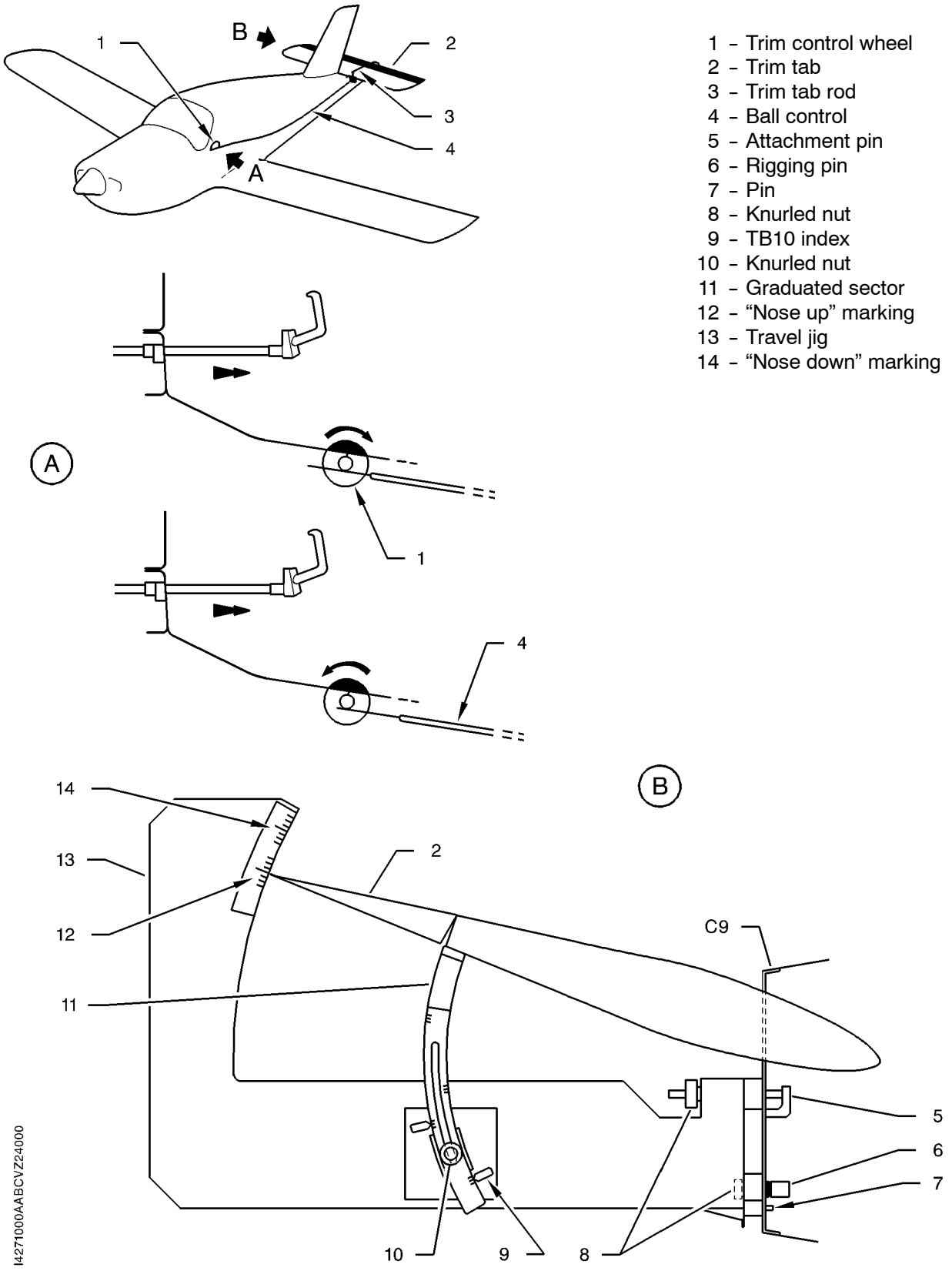


1 - Trim control wheel
2 - Trim tab
3 - Trim tab rod
4 - Ball control

I4273003AABEVZ4001



Elevator trim tab - Travel adjustment
Figure 501 - Without travel jig



1 - Trim control wheel
2 - Trim tab
3 - Trim tab rod
4 - Ball control
5 - Attachment pin
6 - Rigging pin
7 - Pin
8 - Knurled nut
9 - TB10 index
10 - Knurled nut
11 - Graduated sector
12 - “Nose up” marking
13 - Travel jig
14 - “Nose down” marking

Elevator trim tab - Travel adjustment
Figure 501A - With travel jig

ELEVATOR TRIM TAB CONTROL

ADJUSTMENT / TEST

1. ADJUSTMENT / TEST - ELEVATOR TRIM TAB

CAUTION : IF THE ELEVATOR TRIM TAB HAS BEEN REWORKED OR REPLACED, RE-BALANCE THE HORIZONTAL STABILIZER ASSEMBLY EQUIPPED WITH THE TRIM TAB - REFER TO 51-60-00.

A. Tools and consumable materials

- Clinometer
- Ruler
- Hydraulic jacks
- Elevator travel jig 8110 TB10 34000

NOTE : The travel jig is used only in Paragraph C. in replacement of the clinometer.

B. Adjustment of elevator trim tab without travel jig (Figure 501)

1) Level the aircraft - refer to 08-10-00.
2) Check the elevator travel - refer to 27-30-00. Read the exact value in “nose up” position with the clinometer - refer to 20-00-13.
3) Using the shims and the clinometer, position the elevator to 0° - refer to 27-30-00.
4) Attach the clinometer on trim tab (2) and set 0°.
5) Using a ruler, align trim tab (2) in relation to the elevator while maneuvering trim control wheel (1).
6) Position the elevator to full “nose up” position (-17° ± 1°).
7) Fully rotate trim control wheel (1) aft.
8) Check trim tab (2) angle in relation to “nose up” elevator axis using the clinometer which must indicate : 2°30’ (± 0°30’) more than the value read in step 2).
9) If necessary, adjust trim tab rod (3) - refer to 20-00-11.
10) Fully rotate trim control wheel (1) forward.
11) Check trim tab (2) angle in relation to “nose up” elevator axis using the clinometer which must indicate : 17° (± 1°30’) more than the value read in step 2).
12) If necessary, adjust trim tab rod (3) - refer to 20-00-11.
13) Repeat operations 8) to 12) until “nose up” and “nose down” tolerances are correct.
14) Remove the clinometer.
15) Lower the aircraft to ground and remove the jacks - refer to 07-10-00.

C. Adjustment of elevator trim tab with travel jig (Figure 501A)

1) Remove tail cone 222 - refer to 53-20-00.
2) Remove the sheath clip securing the rear light wiring.

3) Pin travel jig (13), 8110 TB10 34000, on frame C9 through both pinning holes using rigging pin (6) and pin (7), and on the frame internal edge using attachment pin (5). Install and tighten knurled nuts (8).

4) Check the elevator travel - refer to 27-30-00.

5) Position the elevator to full "nose up" position. Position graduated sector (11) in contact with the elevator. Tighten knurled nut (10).

6) Fully rotate trim control wheel (1) aft.

7) Make sure trim tab (2) trailing edge is within the tolerances of "nose up" marking (12), 2°30' (± 0°30'). If necessary, adjust trim tab rod (3) - refer to 20-00-11.

8) Fully rotate trim control wheel (1) forward.

9) Make sure trim tab (2) trailing edge is within the tolerances of "nose down" marking (14), 17° (± 1°30'). If necessary, adjust trim tab rod (3) - refer to 20-00-11.

10) Repeat operations 7) to 9) until "nose up" and "nose down" tolerances are correct.

11) Remove travel jig (13).

12) Make sure all the tools and materials are removed and the work area is clean and free from debris.

13) Install the sheath clip securing the rear light wiring.

14) Install tail cone 222 - refer to 53-20-00.

2. TENSION SETTING - ELEVATOR TRIM TAB CABLES (Figure 502 and Table 501)

A. Tools and consumable materials

- Immobilization tool T700A2799000009
- Tensiometer Z00.N6068707229
- Stainless steel lockwire, dia. 0.032 in (0.8 mm)

B. Procedure

1) Make sure that the main switch-breaker is open.

2) Open baggage compartment door 219 and remove baggage compartment bottom door 242.

3) Position the elevator in neutral position and align the trailing edge of the elevator trim tab with the trailing edge of the elevator.

4) Using the tensiometer, measure the tension of "TRIM 1" and "TRIM 2" cables in the rear section of the fuselage.

NOTE : Allow the aircraft temperature to stabilize for a period of four hours.

5) Take a reading of the ambient temperature and determine the tension of the cables - refer to Table 501.

6) Unsafety turnbuckles (3) and cable ends (2).

7) Hold cable ends (2) with immobilization tool (4). Screw in or out turnbuckles (3) in order to obtain the required tension on both cables.

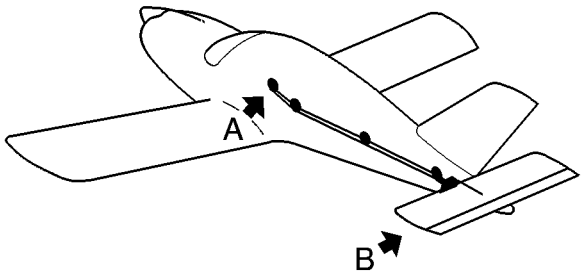
NOTE : Holding cable ends (2) prevents cable twisting.

8) Using trim control wheel (1), move the trim tab from stop to stop then check the tension of the cables again. Repeat the setting operations if necessary.

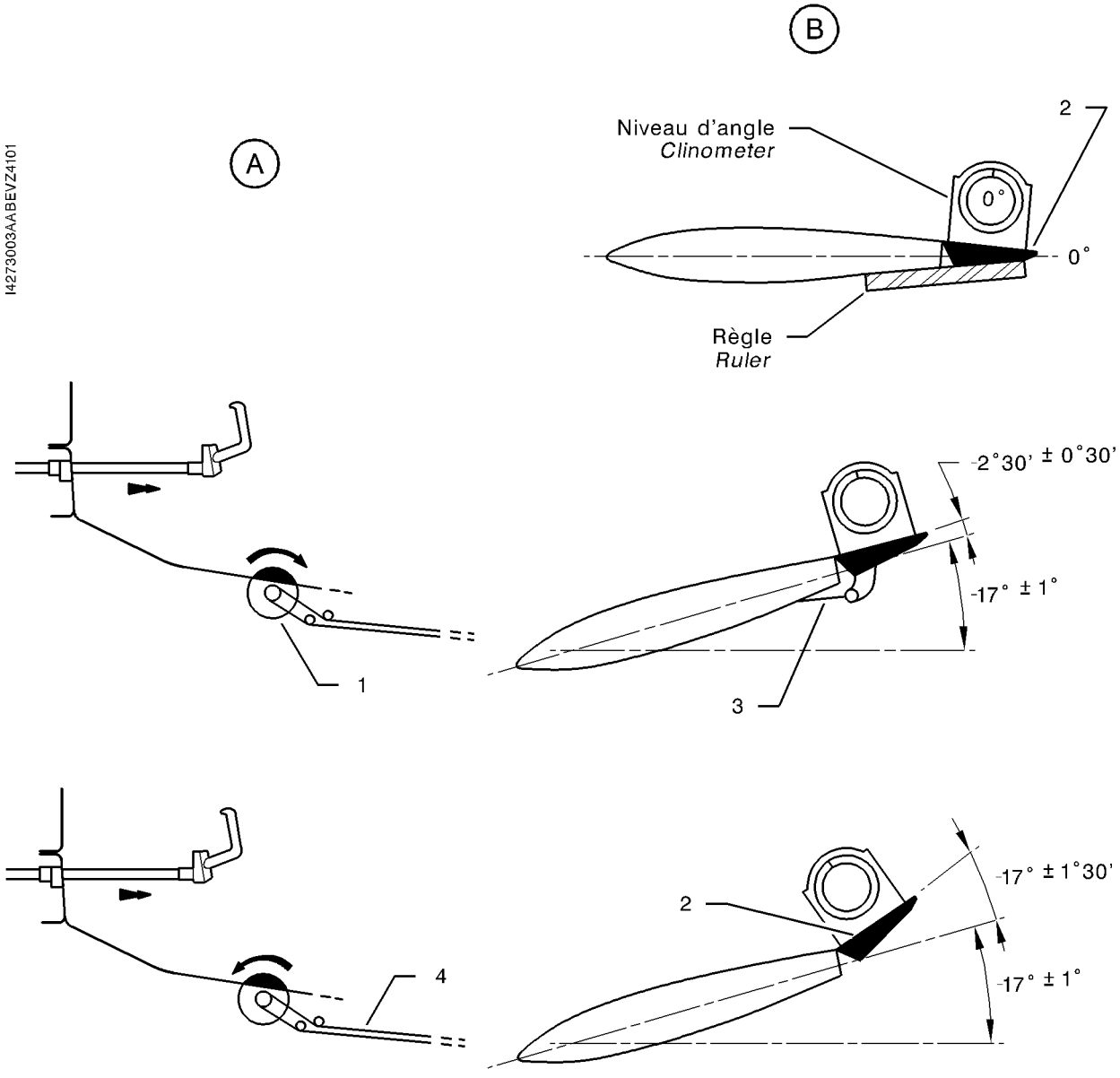
9) Check the travels of the trim tab – refer to Paragraph 1.

10) Make sure all the tools and materials are removed and the work area is clean and free from debris.

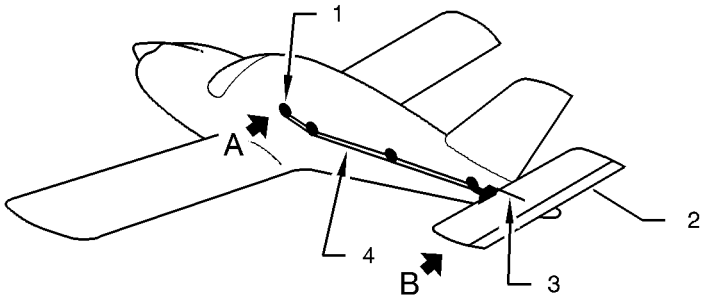
11) Install baggage compartment bottom door 242 and close baggage compartment door 219.



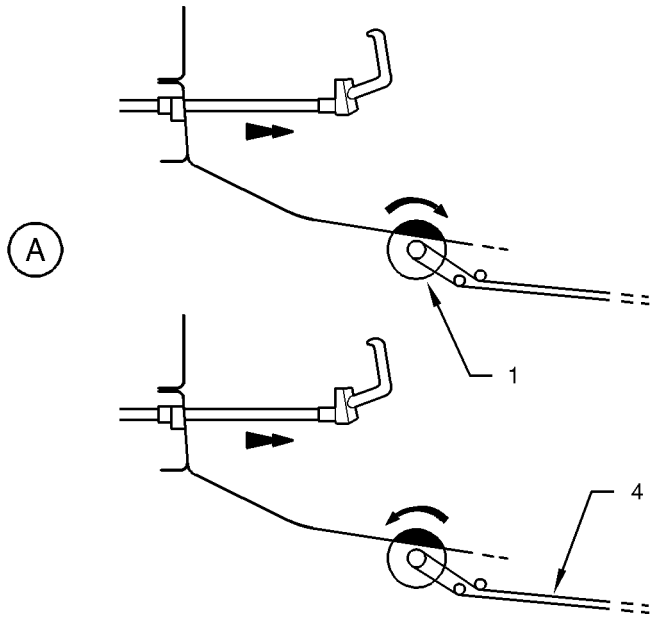
1 - Trim control wheel
2 - Trim tab
3 - Trim tab rod
4 - Cable control

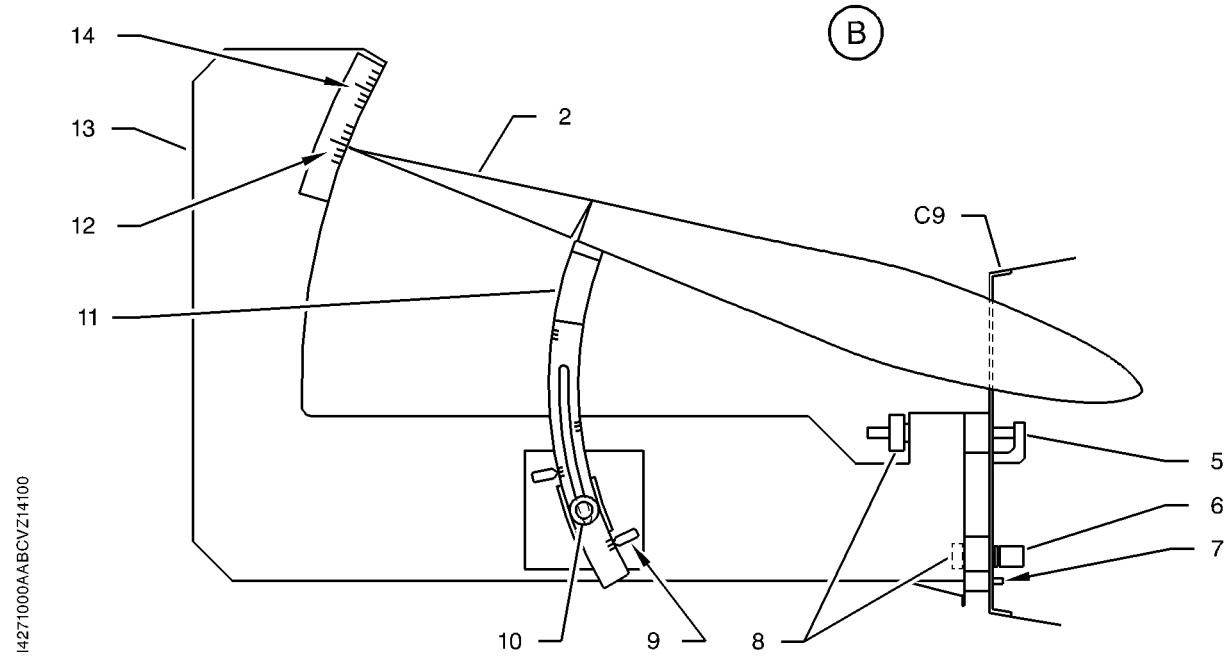


Elevator trim tab - Travel adjustment
Figure 501 - Without travel jig

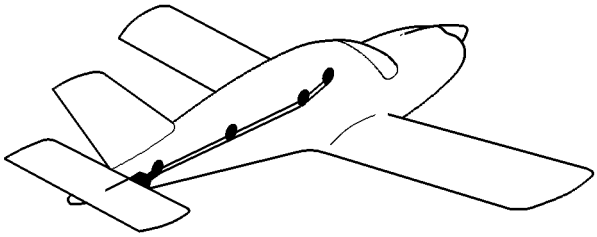


1 - Trim control wheel
2 - Trim tab
3 - Trim tab rod
4 - Cable control
5 - Attachment pin
6 - Rigging pin
7 - Pin
8 - Knurled nut
9 - TB10 index
10 - Knurled nut
11 - Graduated sector
12 - “Nose up” marking
13 - Travel jig
14 - “Nose down” marking

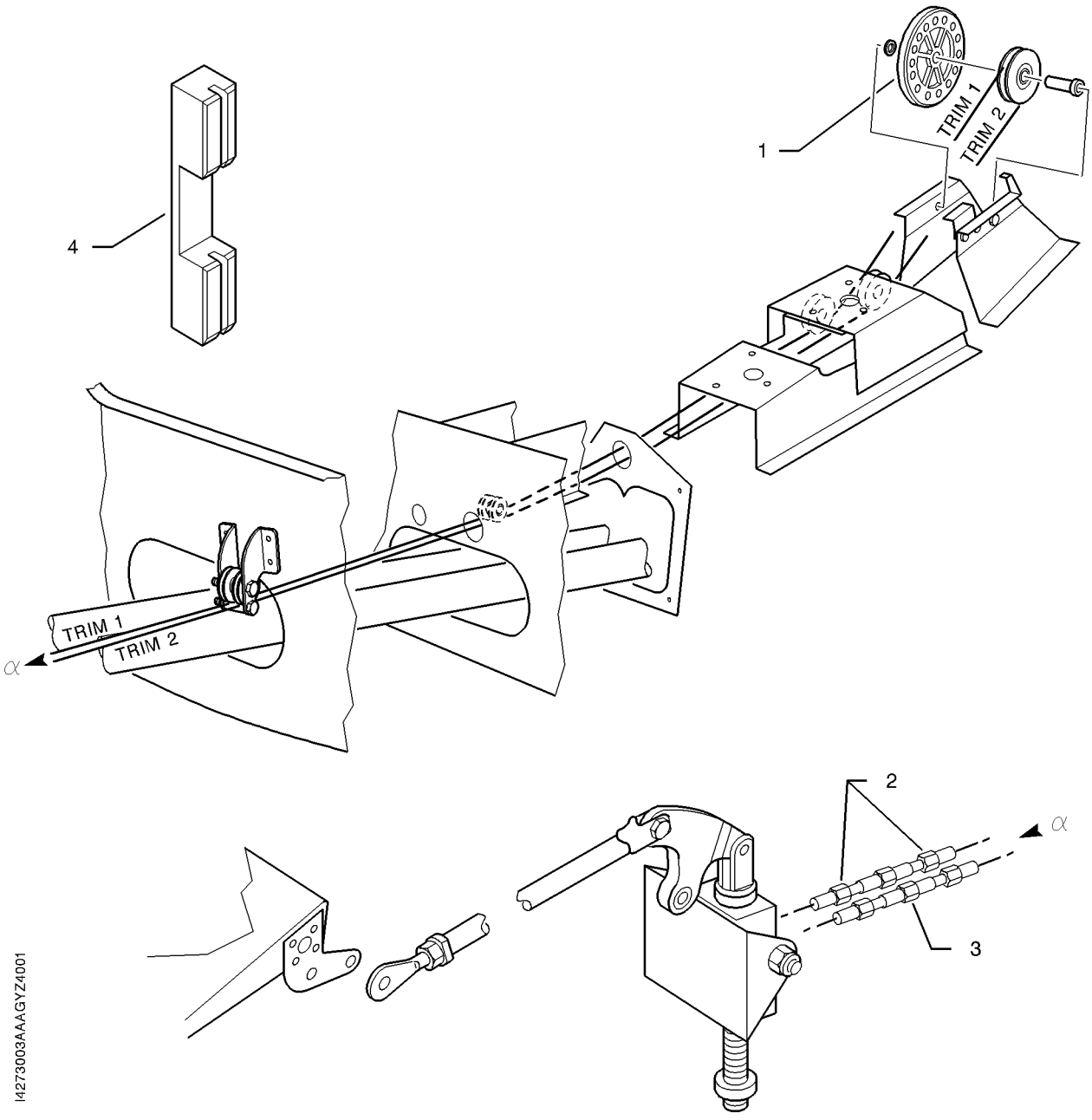




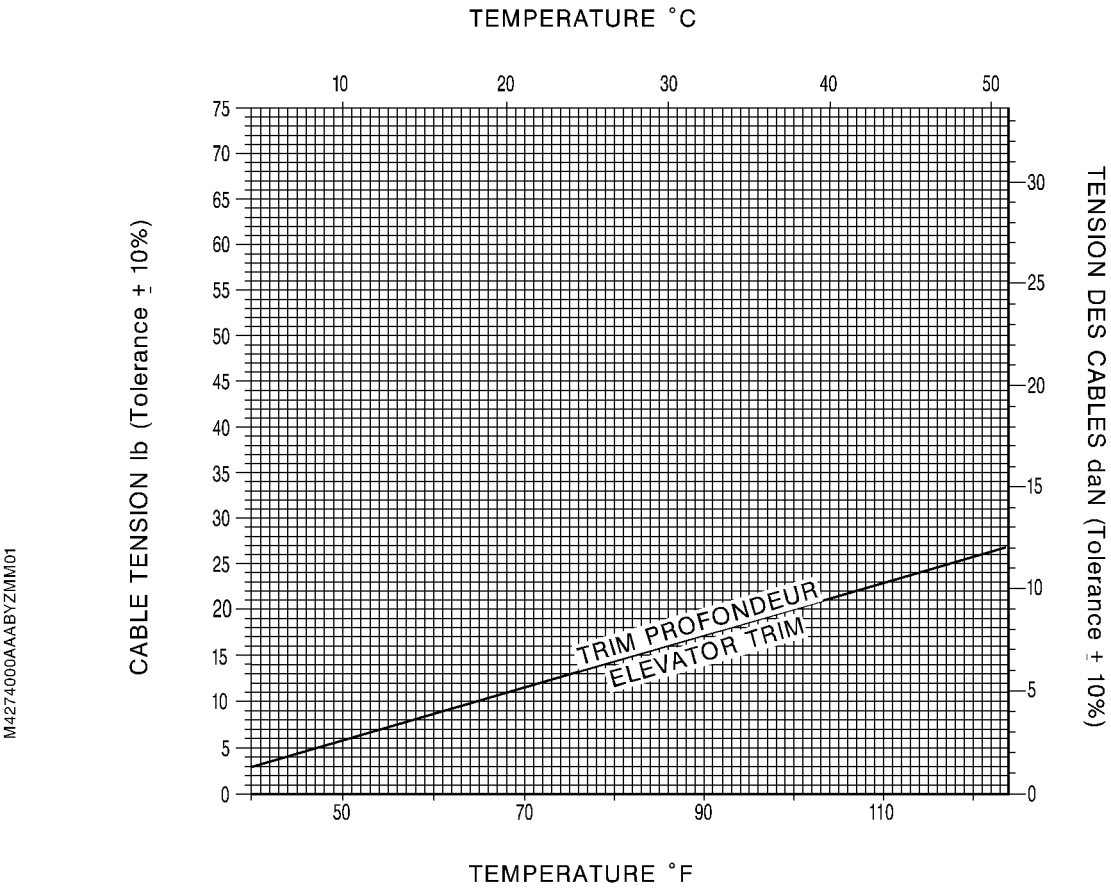
Elevator trim tab - Travel adjustment
Figure 501A - With travel jig



1 - Trim control wheel
2 - Cable end
3 - Turnbuckle
4 - Immobilization tool



Elevator trim tab cables - Tension setting
Figure 502



Elevator trim tab cables - Tension setting
Table 501

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ELEVATOR TRIM TAB CONTROL

INSPECTION / CHECK

1. CHECK OF ELEVATOR TRIM TAB CONTROL

A. Tools and consumable materials

None

B. Preliminary steps (Figure 601)

1) Make sure that the main switch-breaker is open.

2) Install the warning sign prohibiting main switch-breaker operation.

WARNING

DO NOT OPERATE
MAINTENANCE WORK IN PROGRESS

3) Remove the cowling under hull 218.

4) Remove tail cone 222 - refer to 53-20-00.

Post-Kit OPT10 907300

5) Remove half-housings (9) from the trim tab actuator.

All

6) Open baggage compartment door 219 and remove baggage compartment bottom door 242.

7) Remove the central pedestal - refer to 25-14-00.

8) Remove the tunnel - refer to 25-15-00.

C. Check of trim tab control (Figures 601, 602 and 603)

1) Check trim control wheel (1) for :

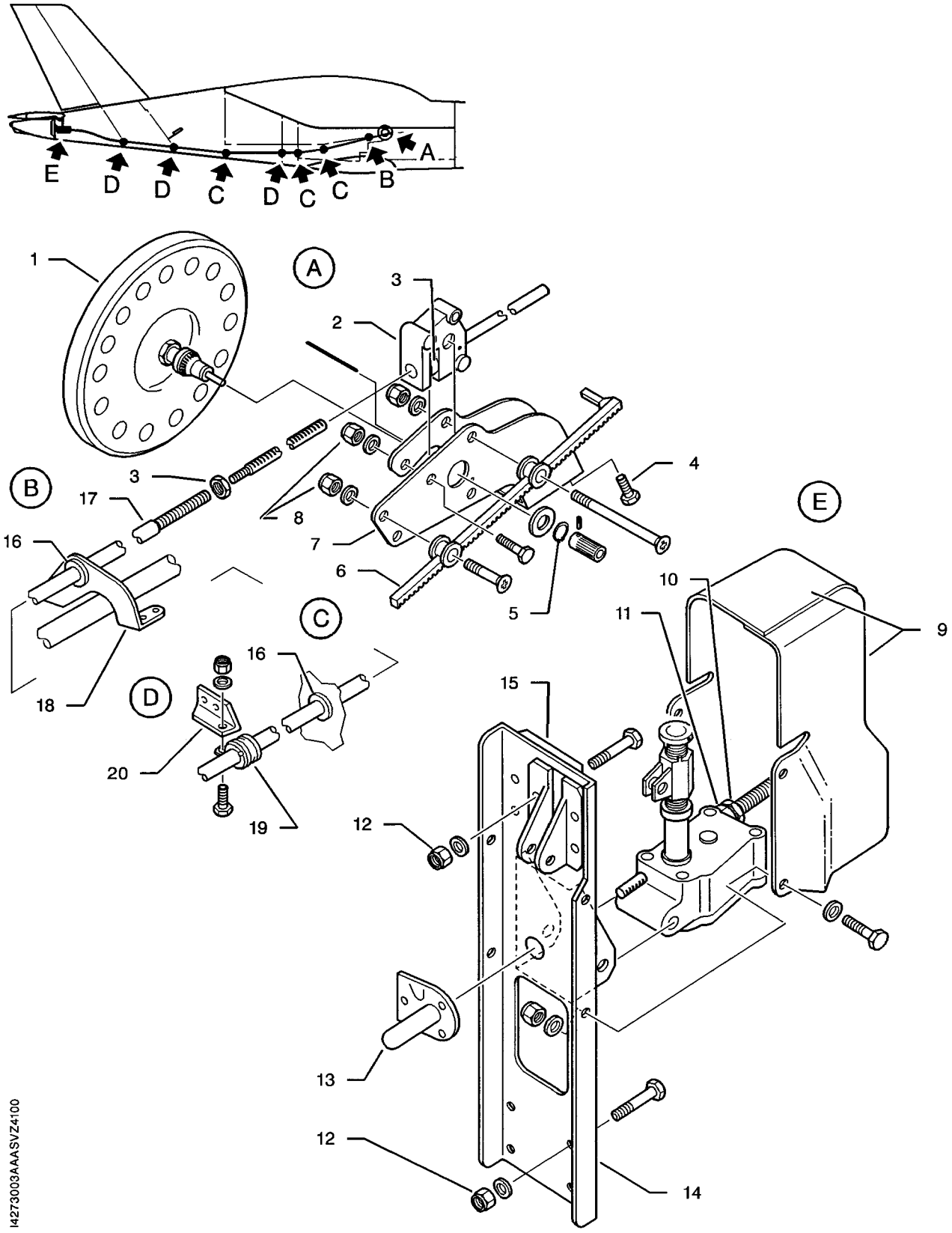
- presence of retaining ring (5) on the wheel axle,
- correct tightening of nuts (8) securing housing (2) and rack (6),
- correct tightening of adjusting nuts (3) on housing (2),
- correct tightening of bracket (7) attaching bolts (4) on the pedestal.

2) Check ball control (17) for :

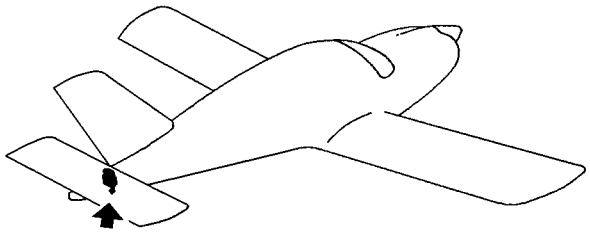
- control stress-free passage through the frames and on supports,
- condition of grommets (16) and riveted brackets (18) and (20),
- condition and tightening of clamps (19),
- correct tightening of locknut (10) and control end (11) on the actuator.

1 - Trim control wheel
2 - Housing
3 - Adjusting nut
4 - Bolt
5 - Retaining ring
6 - Rack
7 - Bracket
8 - Nut
9 - Half-housing
10 - Locknut
11 - Control end
12 - Nut
13 - Protective device
14 - Main support
15 - Sealing plate
16 - Grommet
17 - Ball control
18 - Bracket
19 - Clamp
20 - Bracket

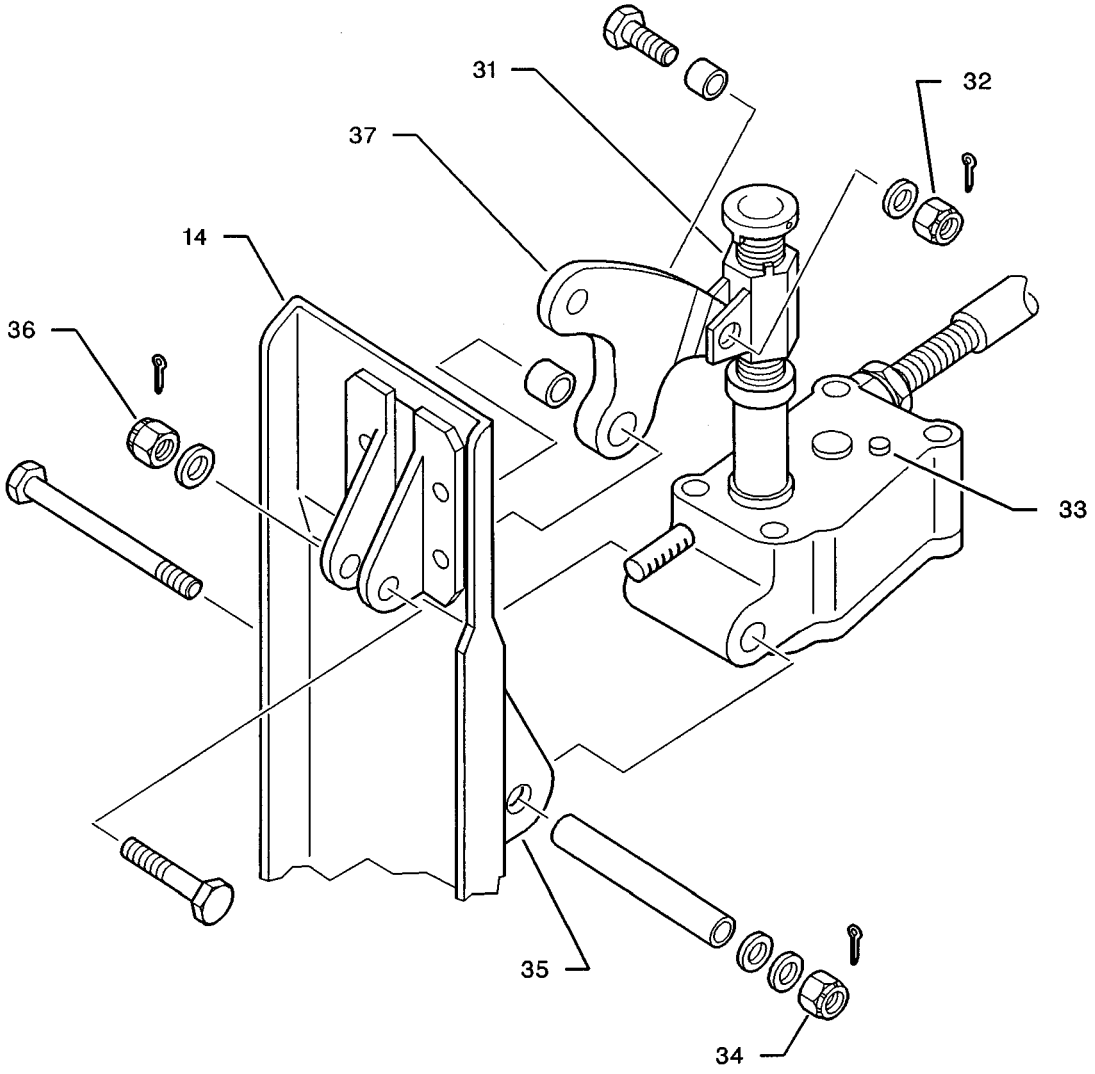
Elevator trim tab control - Inspection / Check
Key to Figure 601



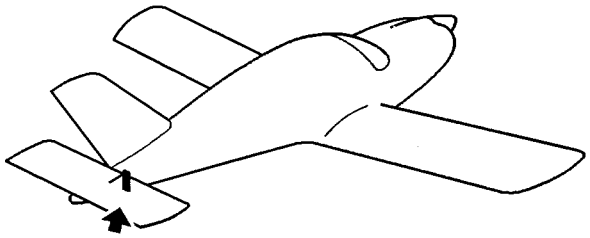
Elevator trim tab control - Inspection / Check
Figure 601



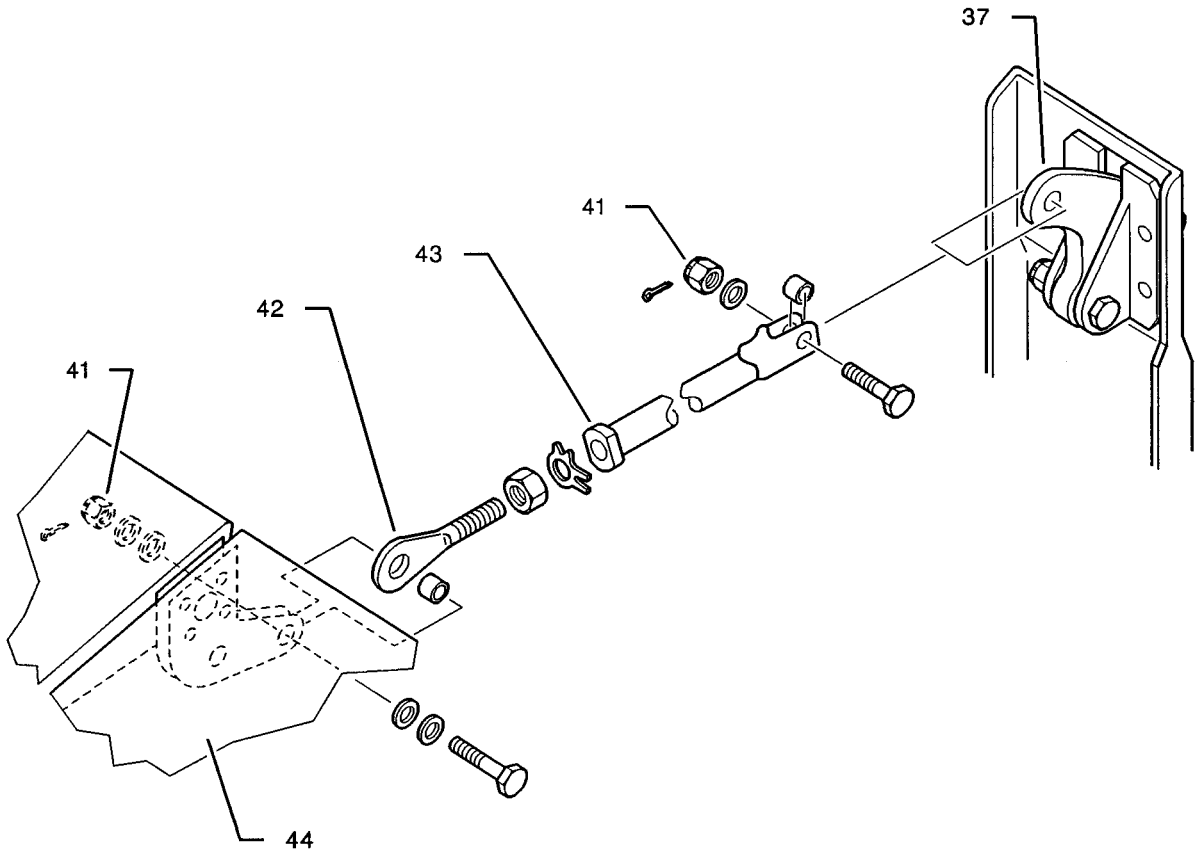
14 - Main support
31 - Actuator nut
32 - Nut
33 - Plug
34 - Nut
35 - Bracket
36 - Nut
37 - Lever



Elevator trim tab control - Inspection / Check
Figure 602



37 - Lever
41 - Nut
42 - Eye end
43 - Trim tab rod
44 - Elevator trim tab



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Elevator trim tab control - Inspection / Check
Figure 603

3) Check the elevator trim tab actuator for :
   - correct safetying of actuator attaching nut (34) on its bracket (35) with a cotter pin,
   - correct safetying of lever (37) attaching nut (32) on actuator nut (31) with a cotter pin.
4) Check main support (14) for :
   - distortions, cracks, evidence of corrosion and loose rivets,
   - correct tightening of main support (14) attaching nuts (12) on frame C9,
   - condition and attachment of protective device (13),
   - debond of sealing plate (15) on main support (14),
   - correct safetying of lever (37) attaching nut (36) on main support (14) with a cotter pin.
5) Check trim tab rod (43) for :
   - buckling, cracks and evidence of corrosion,
   - condition of attaching rivets of tapped end,
   - correct safetying of eye end (42) locknut with a lockwasher,
   - correct safetying of trim tab rod (43) attaching nuts (41) on lever (37) and on elevator trim tab (44) with cotter pins.

D. Final steps (Figure 602)

1) Make sure all the tools and materials are removed and the work area is clean and free from debris.

Post-Kit OPT10 907300

2) Install half-housings (9) of the trim tab actuator.

All

3) Install tail cone 222 - refer to 53-20-00.
4) Install baggage compartment bottom door 242 and close baggage compartment door 219.
5) Install the tunnel - refer to 25-15-00.
6) Install the central pedestal - refer to 25-14-00.
7) Remove the warning sign prohibiting main switch-breaker operation.
8) Install the cowling under hull 218.

ELEVATOR TRIM TAB CONTROL

INSPECTION / CHECK

1. CHECK OF ELEVATOR TRIM TAB CONTROL

A. Tools and consumable materials

None

B. Preliminary steps (Figure 602)

1) Make sure that the main switch-breaker is open.

2) Install the warning sign prohibiting main switch-breaker operation.

WARNING

DO NOT OPERATE
MAINTENANCE WORK IN PROGRESS

3) Remove the cowling under hull 218.

4) Remove tail cone 222 - refer to 53-20-00.

S / N 341 - 9999 and S / N 275 - 340 Post-Kit OPT10 908700

5) Remove cover (14) from trim tab actuator.

All

6) Open baggage compartment door 219 and remove baggage compartment bottom door 242.

7) Remove the central pedestal - refer to 25-14-00.

8) Remove the tunnel - refer to 25-15-00.

C. Check of trim tab control (Figures 601, 602 and 603)

1) Check trim control wheel (3) for :

S / N 275 - 587, 589 - 599, 601 - 609

- correct safetying of bolt (5) nut with a cotter pin,

S / N 588, 600, 610 - 9999

- correct safetying of bolt (5) with the lockwasher,

All

- correct winding of the cable on reel (4),
- condition of cable - refer to 20-00-07,
- correct tightening of cable-guard (6) attaching nuts.

2) Check pulleys (1) and (2) for :
   - condition - refer to 20-00-07,
   - correct safetying of bolts attaching nuts (8) with cotter pins,
   - correct tightening of cable-guard attaching nuts (7) on brackets (9).
3) Check pulley brackets (9) for :
   - cracks, evidence of corrosion and loose rivets.
4) Check safetying of turnbuckles (13).
5) Check elevator trim tab actuator for :
   - correct safetying of actuator attaching nuts (16) on its bracket (18) with cotter pins,
   - correct safetying of actuator rod nut (17) with a cotter pin,
   - correct safetying of lever (33) attaching nut (12) on actuator rod with a cotter pin.
6) Check main support (19) for :
   - correct tightening of attaching bolts (20) nuts of main support (19) on frame C9,
   - correct tightening of bracket (18) attaching bolts (22) on main support (19),
   - correct safetying of lever (33) attaching nut (32) on main support (19) with a cotter pin.
7) Check trim tab rod (34) for :
   - buckling, cracks and evidence of corrosion,
   - condition of attaching rivets of tapped end,
   - correct safetying of eye end (35) locknut with a lockwasher,
   - correct safetying of trim tab rod (34) attaching nuts (31) on lever (33) and on elevator trim tab (36) with cotter pins.
8) Check for debond of sealing plates (11) and (21) on main support (19) and blanking plate (15) on actuator cover (14).

D. Final steps (Figure 602)

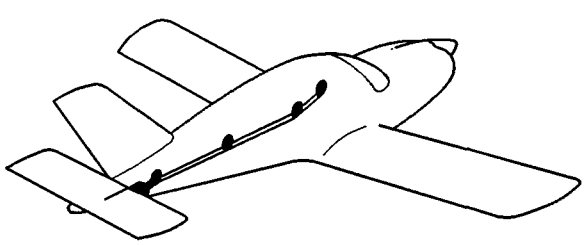
1) Make sure all the tools and materials are removed and the work area is clean and free from debris.

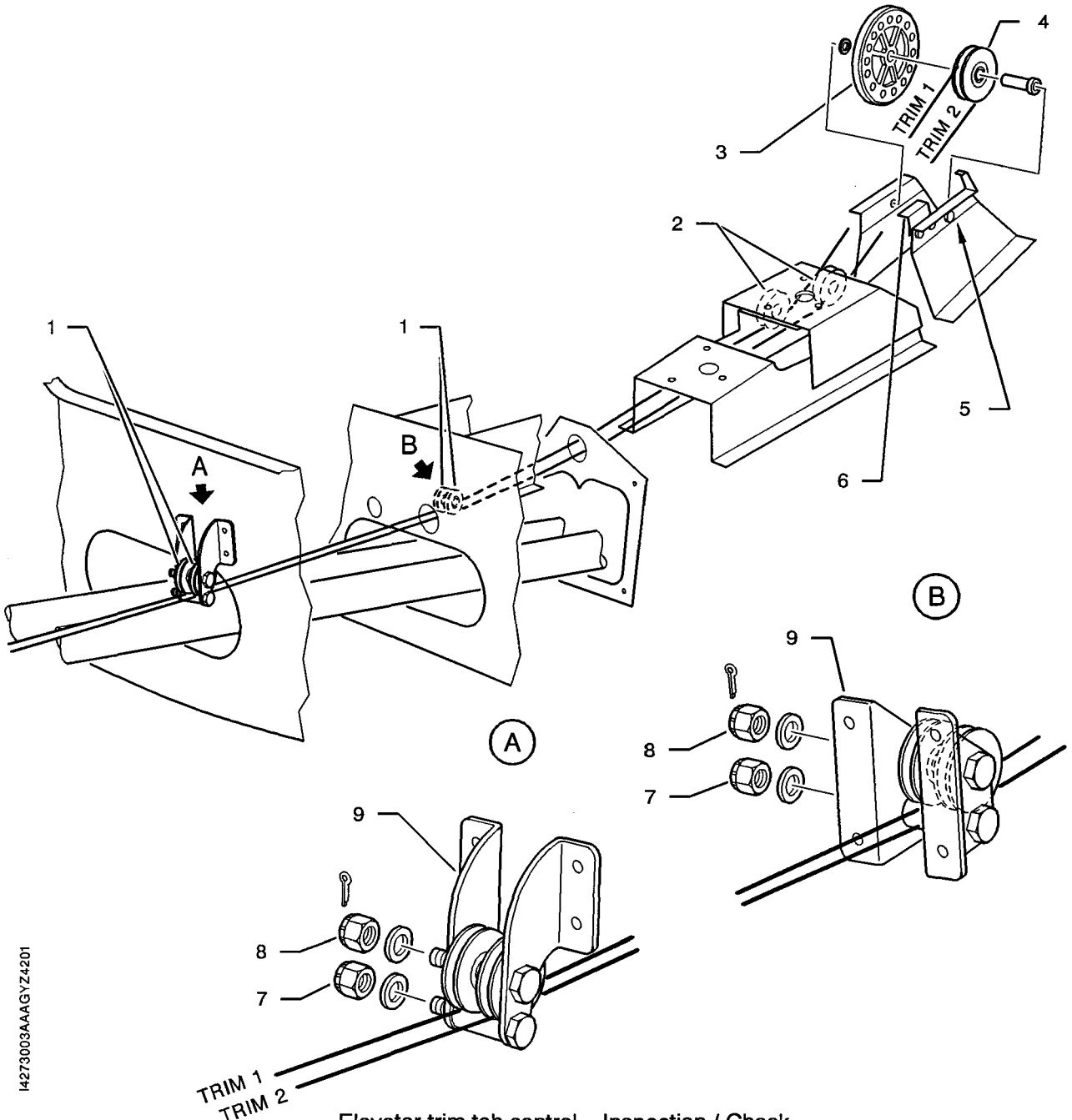
S / N 341 - 9999 and S / N 275-340 Post-Kit OPT10 908700

2) Install trim tab actuator cover (14).

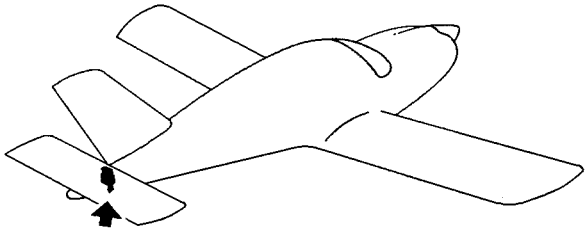
All

3) Install tail cone 222 - refer to 53-20-00.
4) Install baggage compartment bottom door 242 and close baggage compartment door 219.
5) Install the tunnel - refer to 25-15-00.
6) Install the central pedestal - refer to 25-14-00.
7) Remove the warning sign prohibiting main switch-breaker operation.
8) Install the cowling under hull 218.

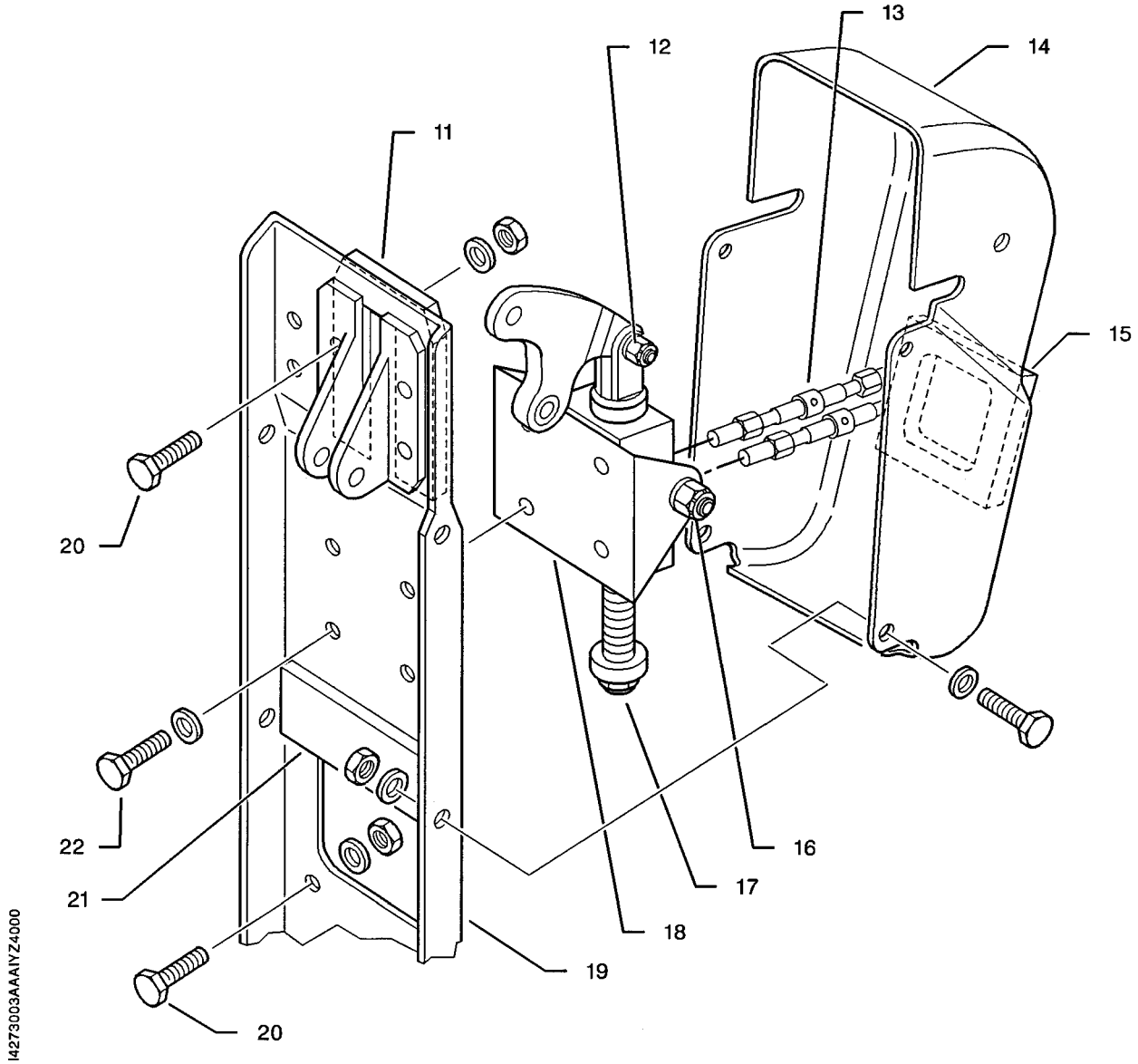




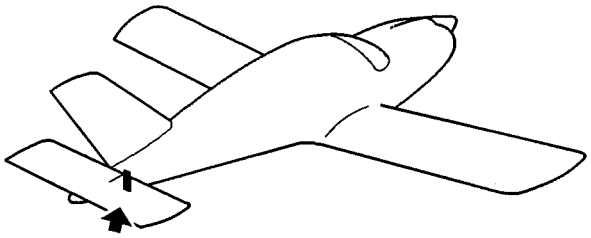
Elevator trim tab control - Inspection / Check
Figure 601



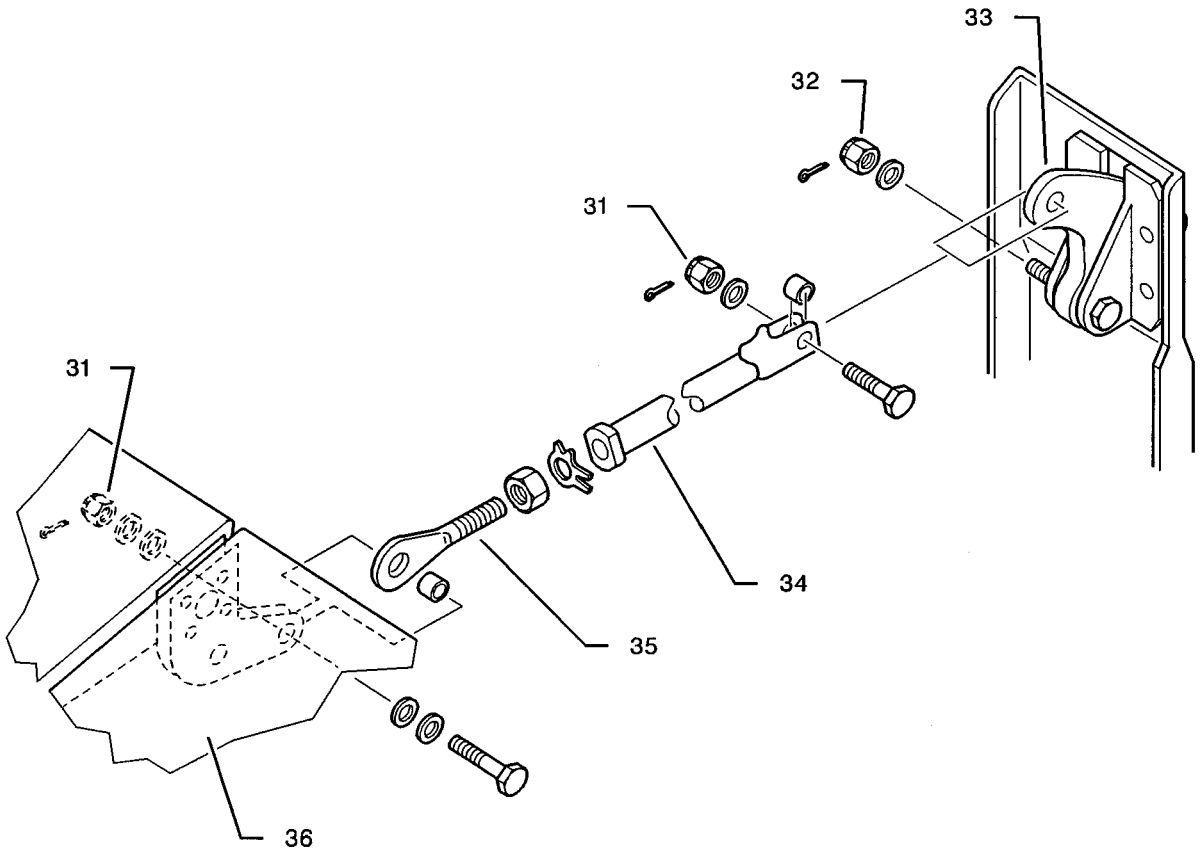
11 - Sealing plate
12 - Nut
13 - Turnbuckle
14 - Cover
15 - Blanking plate
16 - Nut
17 - Nut
18 - Bracket
19 - Main support
20 - Bolt
21 - Sealing plate
22 - Bolt



Elevator trim tab control - Inspection / Check
Figure 602



31 - Nut
32 - Nut
33 - Lever
34 - Trim tab rod
35 - Eye end
36 - Elevator trim tab



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Elevator trim tab control - Inspection / Check
Figure 603

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STALL WARNING DEVICE

MAINTENANCE PRACTICES

1. SERVICING

None

2. REMOVAL / INSTALLATION - STALL WARNING DEVICE (Figure 201)

A. Tools and consumable materials

None

B. Removal of stall warning device

S / N 1 - 274 (Details A and B)

1) Remove the inspection door located at the wing lower surface in warning device (3) or (7) axis, behind the spar.
2) Remove screw (1) or (5).
3) Clear the warning device and its bracket (2) or (6) from behind, disconnect electrical wires (4) or (8) to remove the warning device.

S / N 275 - 9999 (Detail C)

1) Remove screws (9).
2) Clear warning device (14) and its bracket (15) from the front, disconnect electrical wires (10) to remove the warning device.
3) If necessary, remove warning device (14) from bracket (15), retain bolts (11) and washers (12), discard nuts (13).

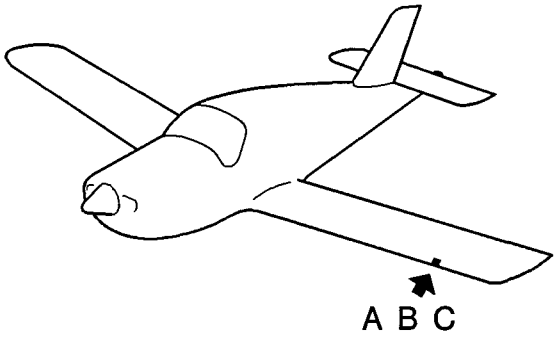
C. Installation of stall warning device

S / N 1 - 274 (Details A and B)

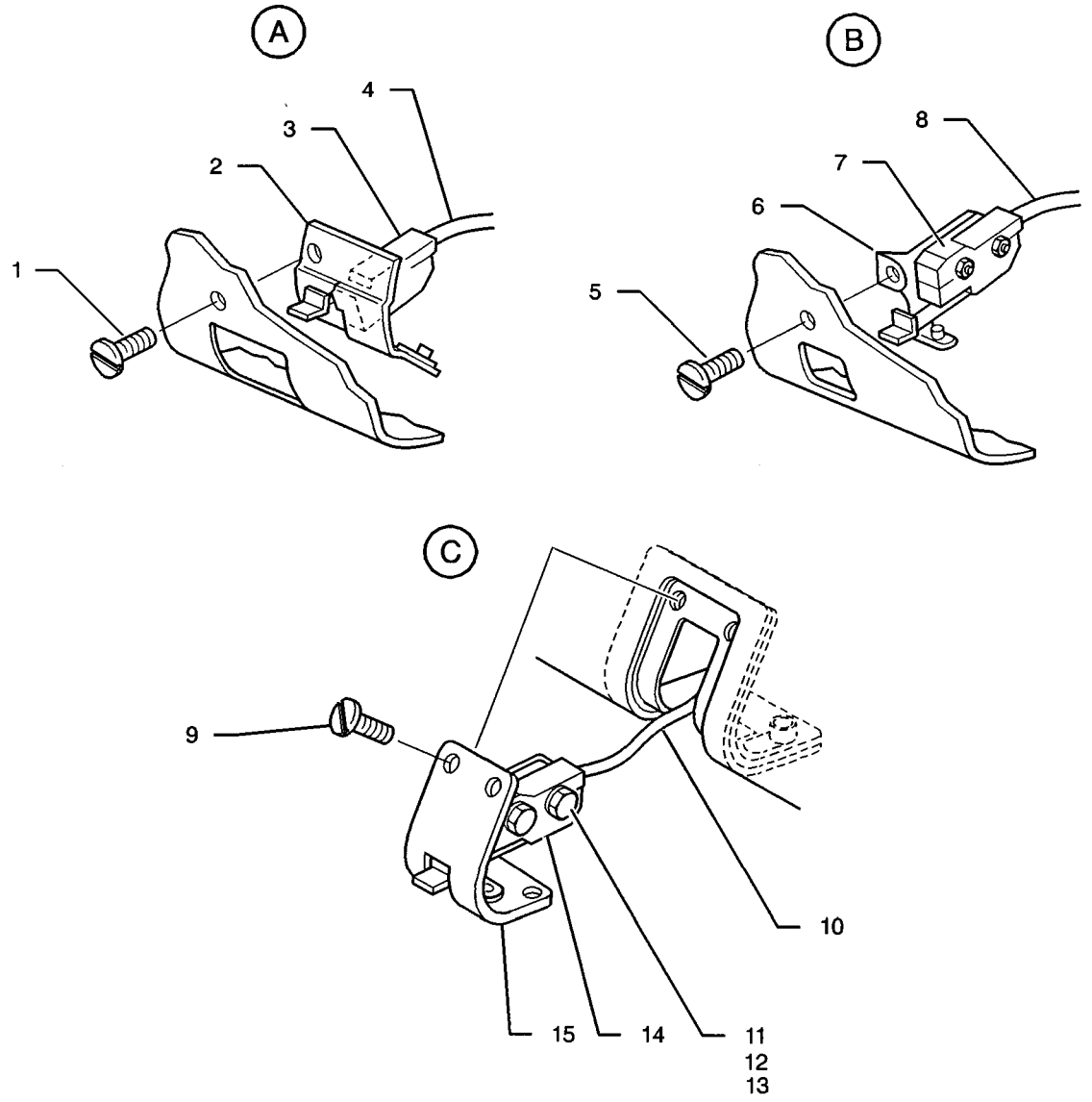
1) Through the inspection door, connect electrical wires (4) or (8) to warning device (3) or (7).
2) Insert the wire through the inspection door to install the warning device.
3) Screw in bracket (2) or (6) on the leading edge skin.
4) Check and adjust if necessary - refer to Paragraph 3.

S / N 275 - 9999 (Detail C)

1) If removed, install warning device (14) on bracket (15) using bolts (11), washers (12) and new nuts (13).
2) Through the leading edge notch, connect electrical wires (10) to warning device (14).
3) Insert the wire from the leading edge to install the warning device.
4) Screw in bracket (15) on the leading edge skin with screws (9).
5) Check and adjust if necessary - refer to Paragraph 3.



1 - Screw
2 - Bracket
3 - Warning device
4 - Electrical wire
5 - Screw
6 - Bracket
7 - Warning device
8 - Electrical wire
9 - Screw
10 - Electrical wire
11 - Bolt
12 - Washer
13 - Nut
14 - Warning device
15 - Bracket



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Stall warning device - Installation / Removal
Figure 201

3. ADJUSTMENT / TEST - STALL WARNING DEVICE

A. Tools and consumable materials

- Stall warning device travel jig 8110 TB10 61017100

B. Adjustment of stall warning device

Adjustment is done by bending the vane bracket blade located on L.H. wing leading edge :

- upwards, to increase stall speed,
- downwards, to decrease stall speed.

C. Test of stall warning device

1) Ground test without travel jig

   a) Close the main switch-breaker.

   b) Lift the stall warning device vane. The warning signal should sound when the vane is lifted by 0.118 in to 0.197 in (3 to 5 mm) with regard to the aperture in the wing.

2) Ground test with travel jig

   a) Close the main switch-breaker.

   b) Position the travel jig on the wing in line with the stall warning device.

   c) Lift the stall warning device vane. The warning signal should sound when the vane is aligned with the screen-printed marking.

3) Flight test

   a) In flight, the warning signal should sound at 5 to 10 kt above stall speed.

   b) Perform the tests at a sufficient altitude in the following configurations :

      - clean,
      - take-off,
      - landing.

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WING FLAPS (CONTROL)

DESCRIPTION AND OPERATION

1. GENERAL

The two flaps are connected and controlled by an electro-mechanical assembly.

The wing flap control consists of :

- flap actuator,
- wing flap control,
- relays,
- control linkage,
- wing flaps - refer to 57-50-00.

The system is electrically supplied by "BUS 1" bar.

2. LOCATION

COMPONENT	QTY	AREA	ACCESS DOOR	REFERENCE
Flap actuator	1	210	218	27-50-01
Wing flap control	1	250	252	27-50-02
Relays	2	210	218	27-50-00
Control linkage	/	210 500 / 600	218	27-50-00
Circuit breaker CB 34	1	230	232L	WM
Fuse	1	200	212L	WM

3. DESCRIPTION

A. Flap actuator (Figure 1)

The flaps are actuated by an actuator located below the fuselage. The actuator consists of a mechanical section which drives a longitudinal motion screw and an electric motor. This electro-mechanical assembly is secured under the cabin floor.

B. Wing flap control (Figures 2 and 3)

The wing flap control is located at the top of the pedestal.

This control consists of an inverter provided with a three-position plate allowing the pilot to extend or to retract the flaps. This plate controls :

S / N 1 - 764, 766 - 878 Pre-Kit OPT10 923700

- aft : flap extension (full down at 32°)
- forward : flap retraction (full up at 0°)

S / N 765, 879 - 9999 and S / N 1 - 764, 766 - 878 Post-Kit OPT10 923700

- aft : flap extension (full down at 25°30')
- forward : flap retraction (full up at 0°)

S / N 1 - 9999

NOTE : Flap extension or retraction is immediately stopped when the plate is released. In this case, the plate automatically returns to central position.

Pre-MOD. 127 or MOD. 144 (Detail A)

The selector assembly plate is force-fitted on the inverter lever. A protective device (if installed) prevents risks of impacts or unwanted actuation.

Post-MOD. 127 or MOD. 144 (Detail B)

The selector assembly plate is positioned on the inverter lever and is hinged on two bolts, through the protective device. The protective device prevents risks of impacts or unwanted actuation.

S / N 1 - 764, 766 - 878 Pre-Kit OPT10 923700

As an option, the aircraft can be equipped with preselection flaps with pre-set positions : "retracted" (0°) ; "take-off" (10°) and "landing" (32°).

S / N 765, 879 - 9999 and S / N 1 - 764, 766 - 878 Post-Kit OPT10 923700

As an option, the aircraft can be equipped with preselection flaps with pre-set positions : "retracted" (0°) ; "take-off" (10°) and "landing" (25°30').

S / N 1 - 9999

NOTE : The flap displacement continues up to the position selected through the plate. The control has no intermediate "OFF" position.

S / N 1 - 499, 501 - 547, 553, 556, 560 - 579 Pre-Kit OPT10 911600 (Detail E)

The selector assembly plate is secured by two bolts on the rotary switch pin.

A protective device prevents risks of impacts or unwanted actuation.

S / N 500, 548 - 552, 554, 555, 557 - 559, 580 - 9999 and S / N 1 - 499, 501 - 547, 553, 556, 560 - 579 Post-Kit OPT10 911600 (Detail F)

The selector assembly plate is positioned on the inverter lever and is hinged on two bolts, through the protective device. The protective device prevents risks of impacts or unwanted actuation.

S / N 1 - 9999

A pointer indicator is located on the left of the control.

This indicator, illuminated for night flights, allows the pilot to determine the flap position. The "retracted", "take-off" and "landing" positions are marked on the indicator. The latter receives information about the position of the flap torque arm through a potentiometer and a printed circuit.

S / N 1 - 560 Pre-Kit OPT10 912900 (Detail C)

The printed circuit is integrated into the indicator.

S / N 561 - 9999 and S / N 1 - 560 Post-Kit OPT10 912900 (Detail D)

The printed circuit is located on the internal L.H. side of the pedestal.

"AVIAC" flap actuator

The potentiometer is secured on the L.H. side of the actuator support.

"LPMI" flap actuator

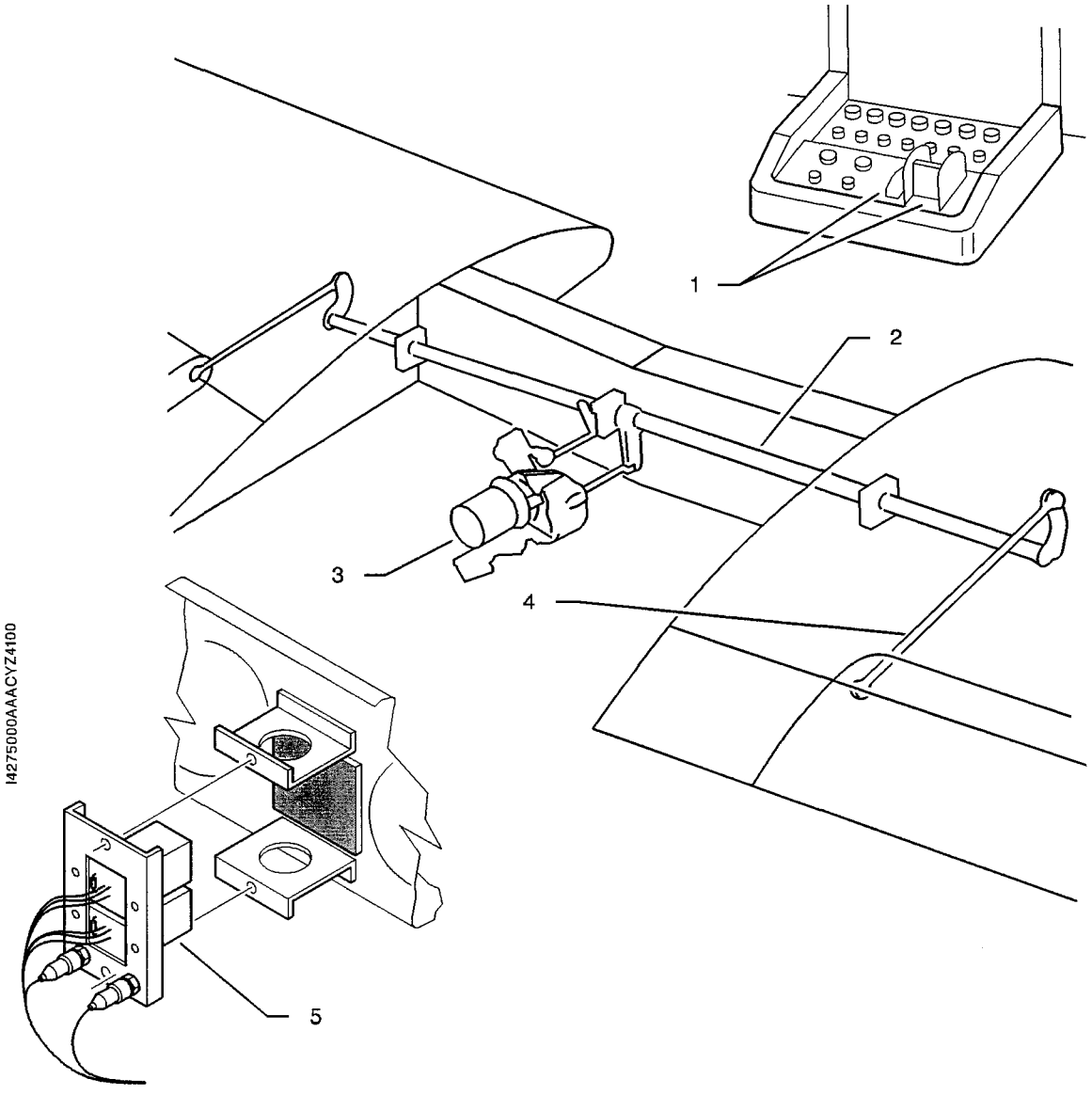
The potentiometer is integrated into the actuator.

C. Relays (Figure 1)

S / N 823 - 849, 888, 948 - 9999 and S / N 1 - 822, 850 - 887, 889 - 947 With preselection flaps

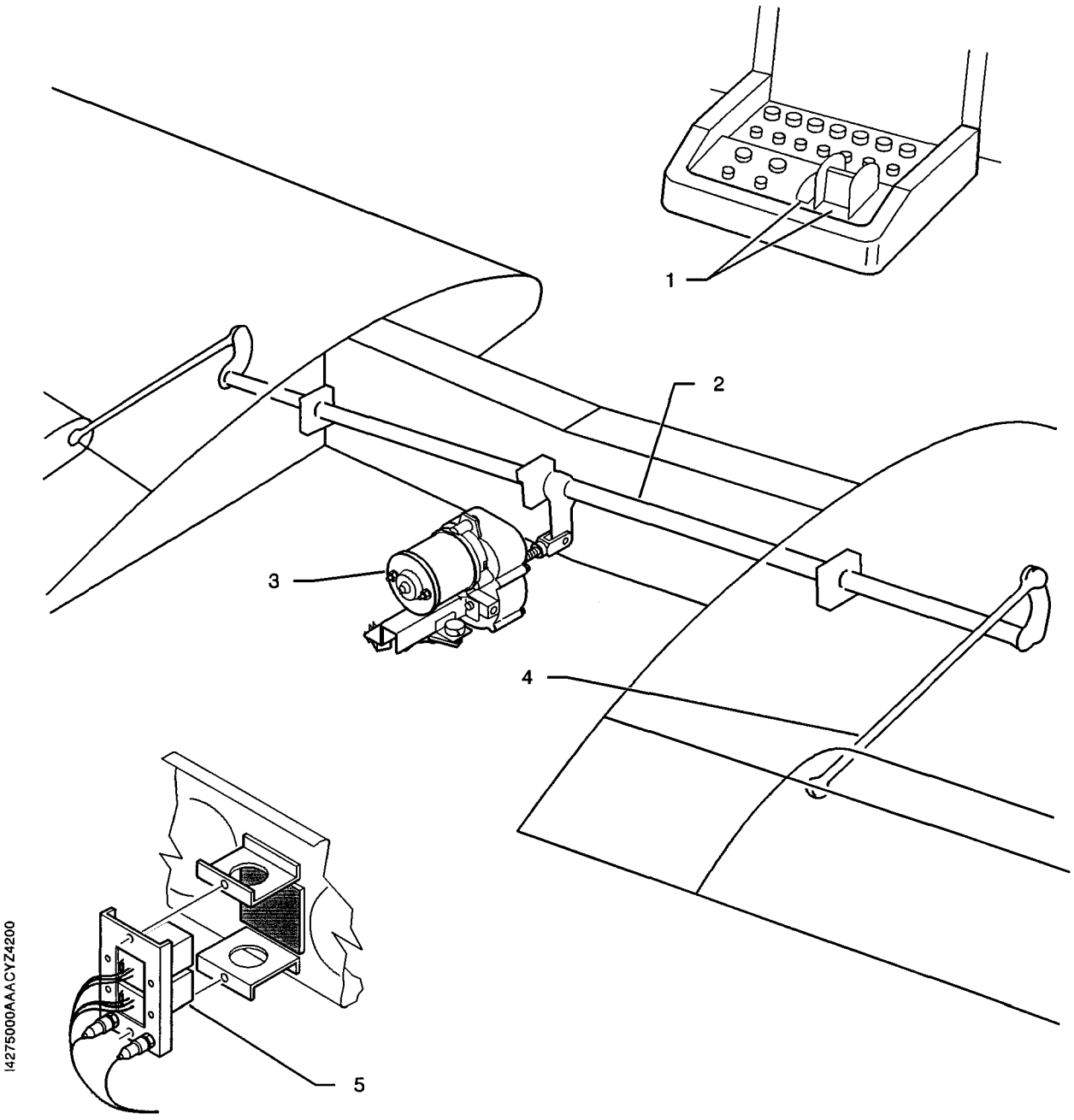
Two relays, located under the fuselage and secured on frame C3 rear face, circuit breaker CB 34, marked "FLAPS" (located on L.H. side circuit breaker panel) and a fuse (located on the fuse panel) protect the flap electrical circuit.

1 - Flap indicator and control
2 - Torque tube
3 - Flap actuator
4 - Input rod
5 - Relay

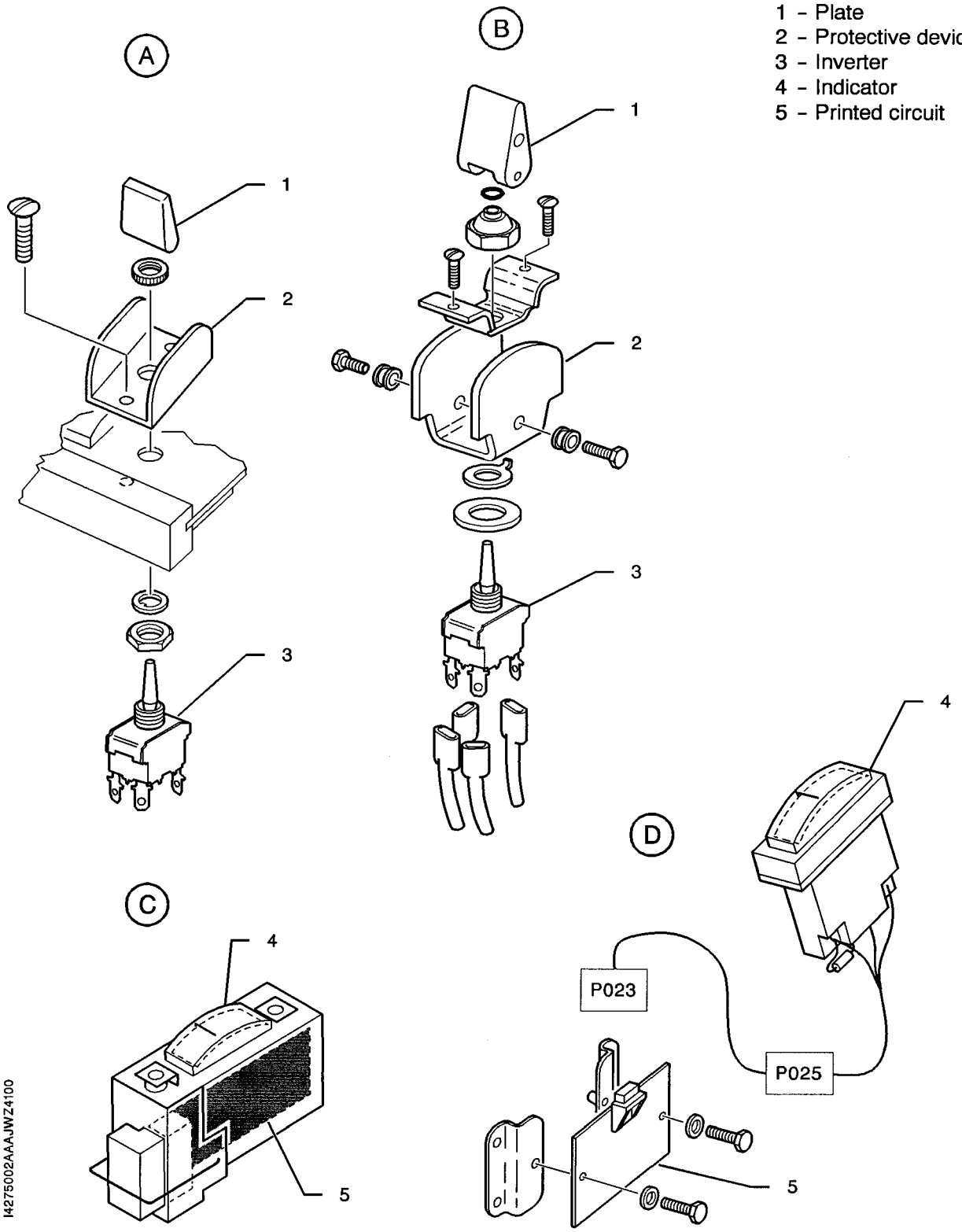


Wing flaps (control) - "AVIAC" flap actuator
Figure 1

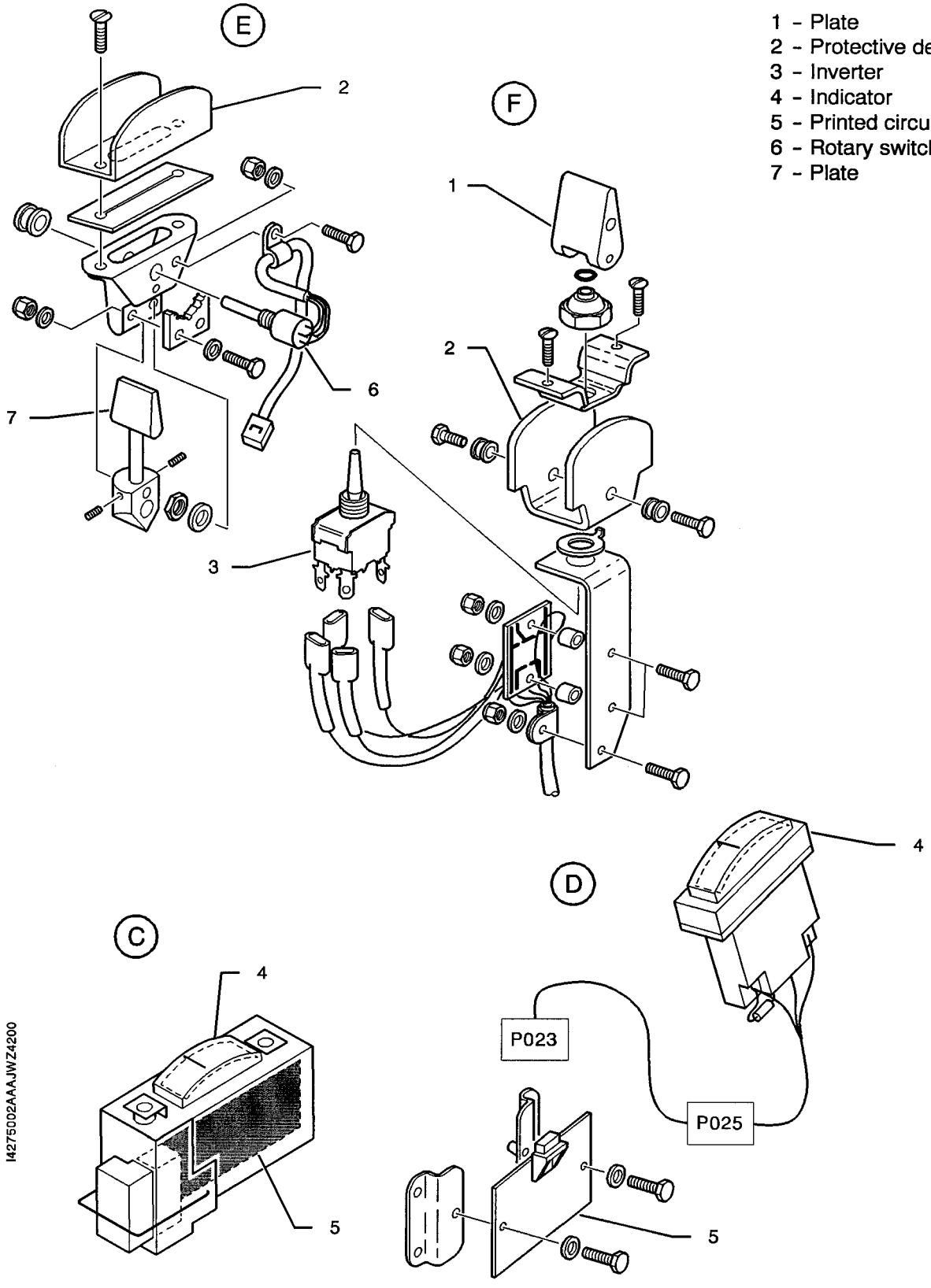
1 - Flap indicator and control
2 - Torque tube
3 - Flap actuator
4 - Input rod
5 - Relay



Wing flaps (control) - "LPMI" flap actuator
Figure 1A



Wing flaps (control) - Flap indicator and control
Figure 2



Wing flaps (control) - Preselection flap indicator and control (option)
Figure 3

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WING FLAPS (CONTROL)

DESCRIPTION AND OPERATION

1. GENERAL

The two flaps are connected and controlled by an electro-mechanical assembly.

The wing flap control consists of :

- flap actuator,
- wing flap control,
- relays,
- control linkage,
- wing flaps - refer to 57-50-00.

The system is electrically supplied by "BUS 1" bar.

2. LOCATION

COMPONENT	QTY	AREA	ACCESS DOOR	REFERENCE
Flap actuator	1	210	218	27-50-01
Wing flap control	1	250	252	27-50-02
Relays	2	210	218	27-50-00
Control linkage	/	210 500 / 600	218	27-50-00
Circuit breaker CB 34	1	230	232L	WM
Fuse	1	200	212L	WM

3. DESCRIPTION

A. Flap actuator (Figure 1)

The flaps are actuated by an actuator located below the fuselage. The actuator consists of a mechanical section which drives a longitudinal motion screw and an electric motor. This electro-mechanical assembly is secured under the cabin floor.

B. Wing flap control (Figures 2 and 3)

The wing flap control is located at the top of the pedestal.

This control consists of an inverter provided with a three-position plate allowing the pilot to extend or to retract the flaps. This plate controls :

- aft : flap extension (full down at 25°30')
- forward : flap retraction (full up at 0°)

NOTE : Flap extension or retraction is immediately stopped when the plate is released. In this case, the plate automatically returns to central position.

The selector assembly plate is positioned on the inverter lever and is hinged on two bolts, through the protective device. The protective device prevents risks of impacts or unwanted actuation.

With flap preselection (Detail C)

The aircraft can be equipped with preselection flaps with pre-set positions : "retracted" (0°) ; "take-off" (10°) and "landing" (25°30').

NOTE : The flap displacement continues up to the position selected through the plate. The control has no intermediate "OFF" position.

The selector assembly plate is positioned on the inverter lever and is hinged on two bolts, through the protective device. The protective device prevents risks of impacts or unwanted actuation.

S / N 1 - 9999

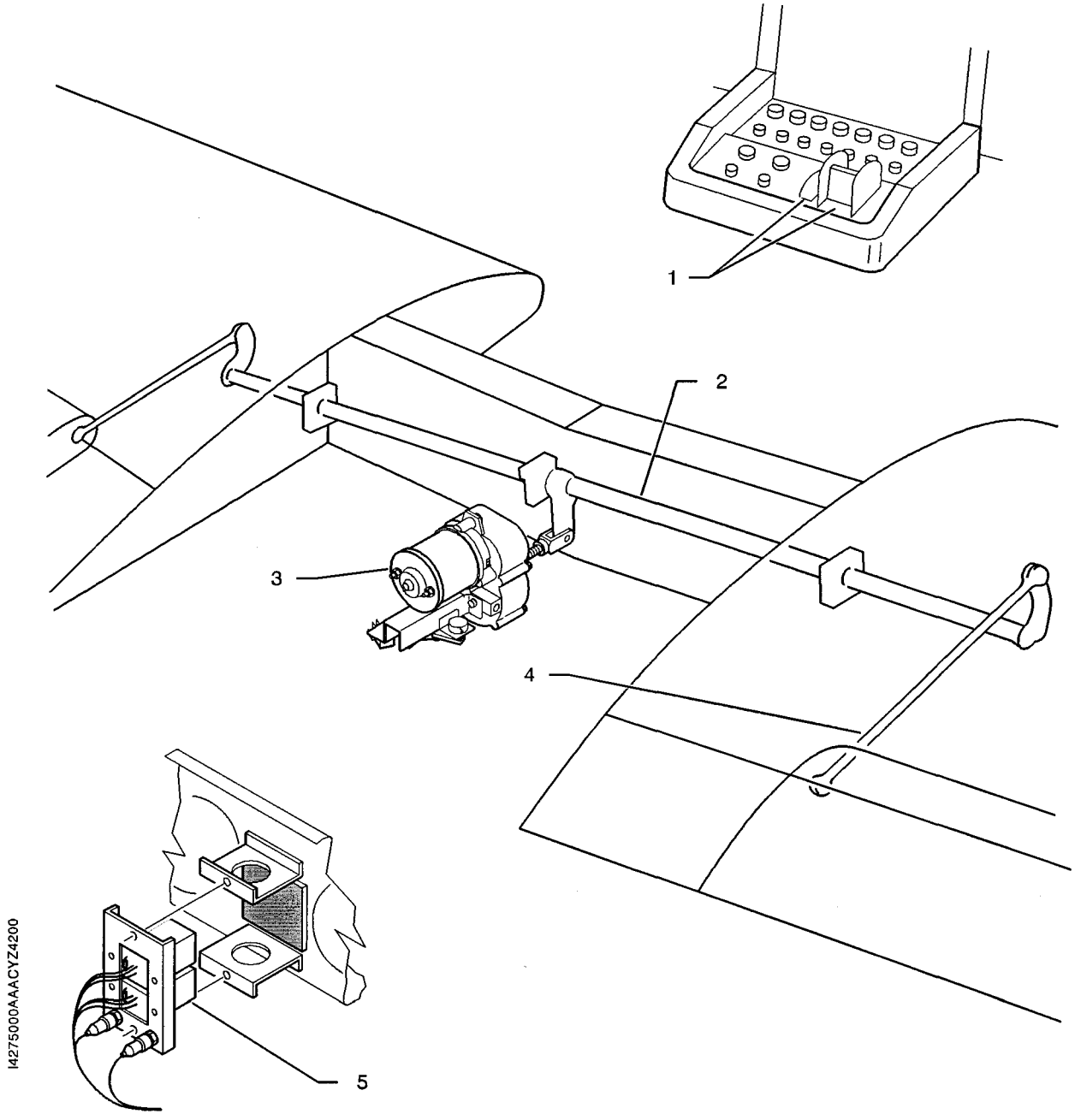
A pointer indicator is located on the left of the control.

This indicator, illuminated for night flights, allows the pilot to determine the flap position. The "retracted", "take-off" and "landing" positions are marked on the indicator. The latter receives information about the position of the flap torque arm through a potentiometer integrated into the actuator and a printed circuit. The latter is secured on the R.H. inspection door, located under the rear bench seatpan.

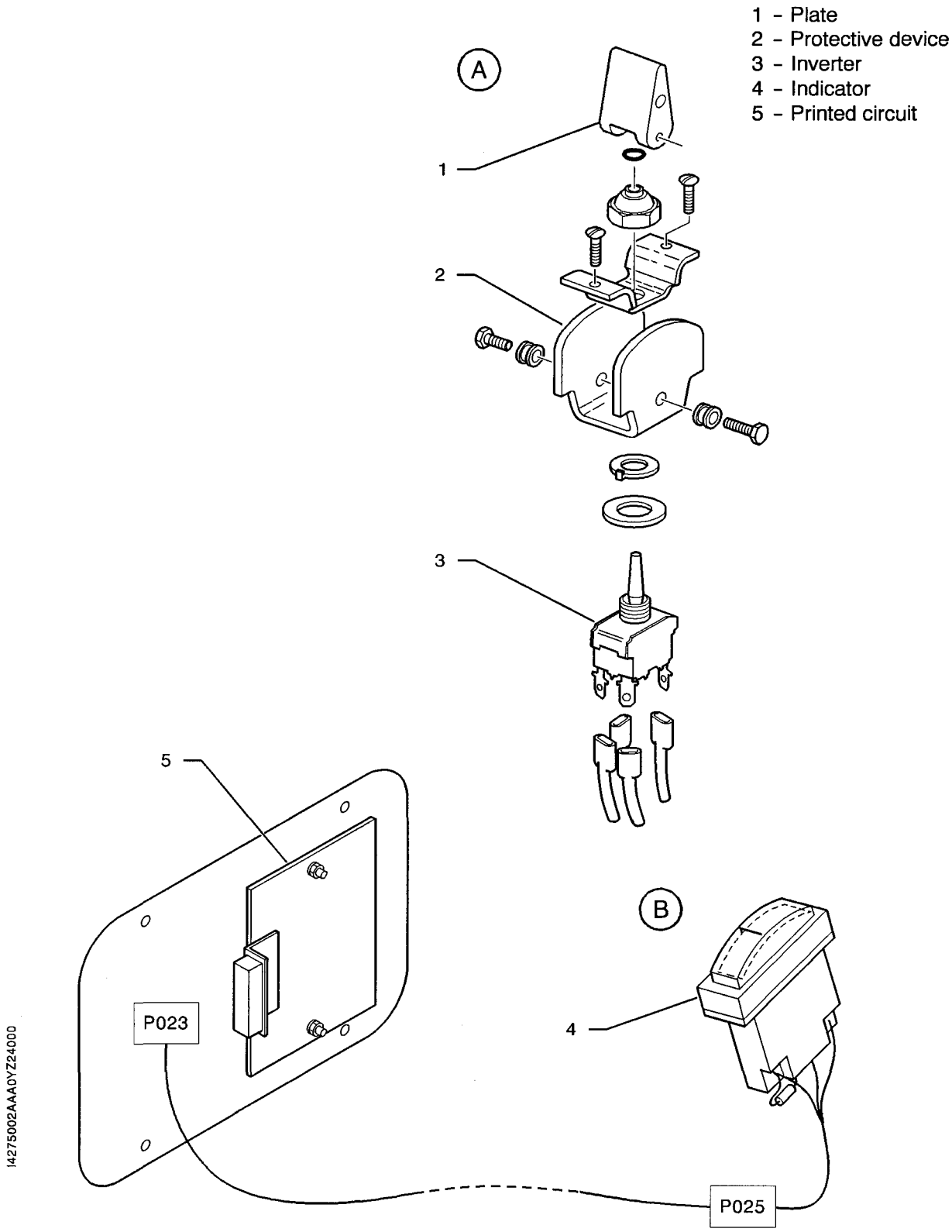
C. Relays (Figure 1)

Two relays, located under the fuselage and secured on frame C3 rear face, circuit breaker CB 34, marked "FLAPS" (located on L.H. side circuit breaker panel) and a fuse (located on the fuse panel) protect the flap electrical circuit.

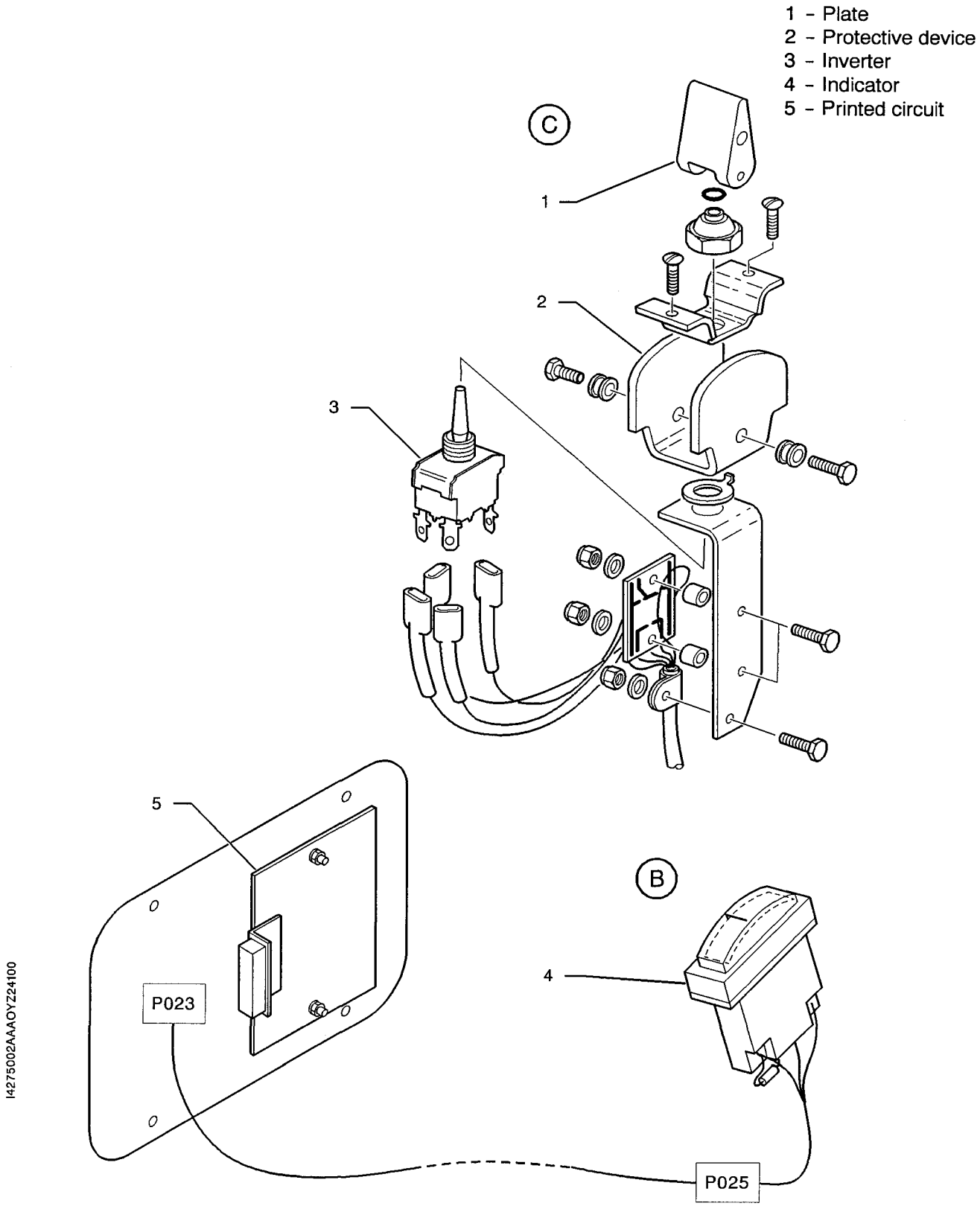
1 - Flap indicator and control
2 - Torque tube
3 - Flap actuator
4 - Input rod
5 - Relay



Wing flaps (control) - Flap actuator
Figure 1



Wing flaps (control) - Flap indicator and control
Figure 2



Wing flaps (control) - Preselection flap indicator and control (option)
Figure 3

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WING FLAPS (CONTROL)

ADJUSTMENT / TEST

1. ADJUSTMENT / TEST - WING FLAPS (CONTROL)

A. Tools and consumable materials

- Clinometer
- Loctite (TB 08-013C)
- Flap travel jig 8650 TB20 00000

NOTE : The travel jig is used only in Paragraph C.

B. Adjustment of wing flap travel without travel jig (Figures 501 and 502)

CAUTION : BEFORE EACH OPERATION, MAKE SURE THE FLAP AREA IS CLEAR.

1) Remove the cowling under hull 218.
2) Close main switch-breaker.
3) Using control switch (1), extend and retract the flaps.
4) Install the warning sign prohibiting main switch-breaker operation.

WARNING

DO NOT OPERATE
MAINTENANCE WORK IN PROGRESS

5) Check the alignment of the flaps in relation to the wing footstep area.
6) If the two flaps are not correctly aligned, extend the flaps, remove the concerned flap - refer to 57-50-00 and adjust input rod (3) - refer to 20-00-11.

NOTE : If the aircraft is equipped with a non-adjustable rod, the flap cannot be adjusted.

7) Retract the flaps and make sure flap actuator (4) stops when the flaps contact the footstep.

NOTE 1 : Check the protection tape bonded on footstep / flap interface for presence and condition ; replace if necessary - refer to 57-00-00.

NOTE 2 : To avoid damaging flap actuator (4), make sure the flap contacts the footstep without excessive stress.

8) If flap actuator (4) operates with excessive resistance or if the flaps do not contact the footsteps, extend the flaps, screw in or out the retracted limit-microswitch adjusting-screw, coated with loctite (TB 08-013C).

NOTE : The zero degree position is reached when the flap molds to the footstep contour.

9) Position clinometer (5) on the flap and set the zero degree position - refer to 20-00-13.
10) Extend the flaps.

S / N 1 - 764, 766 - 878 Pre-Kit OPT10 923700

11) Check flap position : 32° (+0°30' ; -1°).

S / N 765, 879 - 9999 and S / N 1 - 764, 766 - 878 Post-Kit OPT10 923700

11) Check flap position : 25°30' (+0°30' ; -1°).

S / N 1 - 9999

12) If the value is not obtained, retract the flaps, screw in or out the extended limit-microswitch adjusting-screw, coated with loctite (TB 08-013C). Repeat steps 10) and 11).

Without flap preselection

13) Using the clinometer, position the flaps to 10°.

14) Check the position of the pointer on the flap indicator. If necessary, adjust the position transmitter then the flap indicator - refer to 27-50-01.

With flap preselection

13) Actuate control switch (1) to set the flaps to "take-off" position.

14) Using the clinometer, check flap position : 11° ± 1°. If necessary, set the retracted intermediate microswitch - refer to 27-50-01.

15) Set control switch (1) to "retracted" position, then to "take-off" position.

16) Using the clinometer, check flap position : 10° ± 1° ; if necessary, adjust the extended intermediate microswitch - refer to 27-50-01.

17) Check the position of the pointer on the flap indicator for the three positions : "retracted", "take-off" and "landing".

18) If necessary, adjust the position transmitter then the flap indicator - refer to 27-50-01.

All

19) Make sure all the tools and materials are removed and the work area is clean and free from debris.

20) Install the cowling under hull 218.

21) Remove the warning sign prohibiting main switch-breaker operation.

22) Perform a test flight - refer to 05-30-00.

C. Adjustment of wing flap travel with travel jig (Figures 501A and 502A)

CAUTION : BEFORE EACH OPERATION, MAKE SURE THE FLAP AREA IS CLEAR.

1) Remove the cowling under hull 218.

2) Close main switch-breaker.

3) Using control switch (1), extend and retract the flaps.

4) Install the warning sign prohibiting main switch-breaker operation.

WARNING

DO NOT OPERATE
MAINTENANCE WORK IN PROGRESS

5) Position travel jig (5), 8650 TB20 00000, on the wing at rib N8 rivet line.

6) Check the alignment of the flaps in relation to the wing footstep area.

7) If the two flaps are not correctly aligned, extend the flaps, remove the concerned flap - refer to 57-50-00 and adjust input rod (3) - refer to 20-00-11.

NOTE : If the aircraft is equipped with a non-adjustable rod, the flap cannot be adjusted.

8) Retract the flaps and make sure that flap actuator (4) stops when the flaps contact the footstep.

NOTE 1 : Check the protection tape bonded on footstep / flap interface for presence and condition ; replace if necessary - refer to 57-00-00.

NOTE 2 : To avoid damaging flap actuator (4), make sure the flap contacts the footstep without excessive stress.

9) Check flap neutral position on travel jig (5).

10) If 0° is not obtained or if flap actuator (4) operates with excessive resistance, extend the flaps, screw in or out the retracted limit-microswitch adjusting-screw, coated with loctite (TB 08-013C).

NOTE : The zero degree position is reached when the flap molds to the footstep contour.

11) Extend the flaps.

S / N 1 - 764, 766 - 878 Pre-Kit OPT10 923700

12) Check flap position : 32° (+0°30' ; -1°).

S / N 765, 879 - 9999 and S / N 1 - 764, 766 - 878 Post-Kit OPT10 923700

12) Check flap position : 25°30' (+0°30' ; -1°).

S / N 1 - 9999

13) If the value is not obtained, retract the flaps, screw in or out the extended limit-microswitch adjusting-screw, coated with loctite (TB 08-013C). Repeat steps 11) and 12).

Without flap preselection

14) Position the flaps to 10° on travel jig (5).

15) Check the position of the pointer on the flap indicator. If necessary, set the position transmitter then the flap indicator - refer to 27-50-01.

With flap preselection

14) Actuate control switch (1) to set the flaps to "take-off" position.

15) Check flap position : 11° ± 1°. If necessary, set the retracted intermediate microswitch - refer to 27-50-01.

16) Set control switch (1) to "retracted" position, then to "take-off" position.

17) Check flap position : 10° ± 1°. If necessary, set the extended intermediate microswitch - refer to 27-50-01.

18) Check the position of the pointer on the flap indicator for the three positions : "retracted", "take-off" and "landing".

19) If necessary, adjust the position transmitter then the flap indicator - refer to 27-50-01.

All

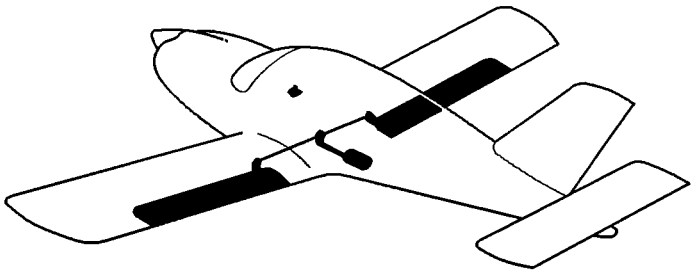
20) Remove travel jig (5).

21) Make sure all the tools and materials are removed and the work area is clean and free from debris.

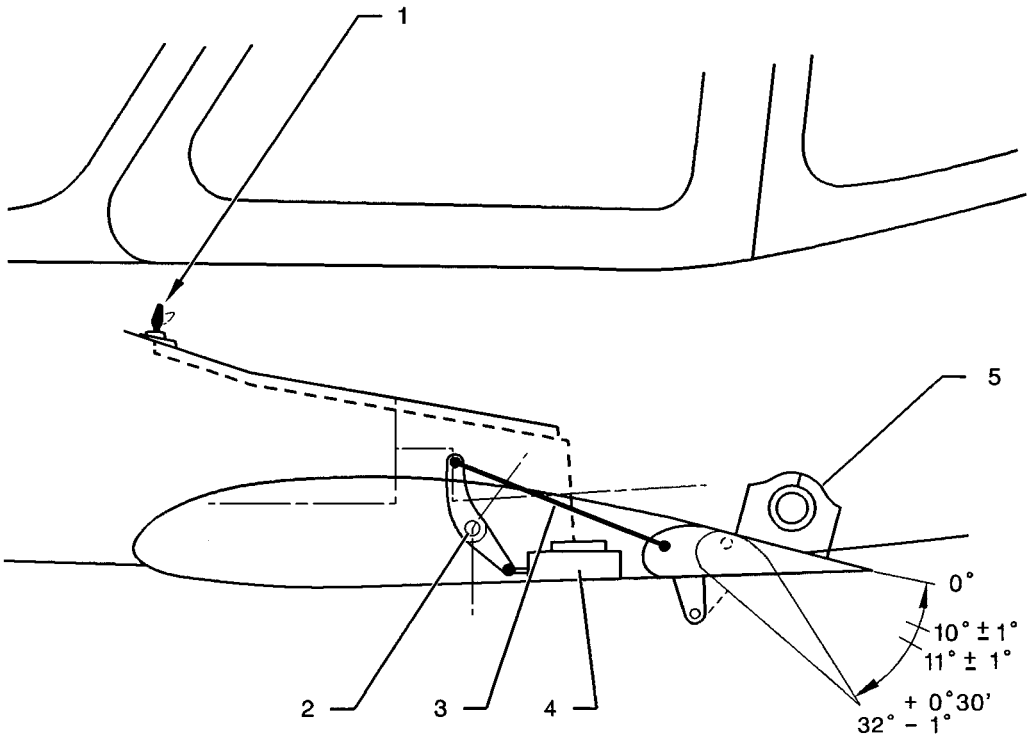
22) Install the cowling under hull 218.

23) Remove the warning sign prohibiting main switch-breaker operation.

24) Perform a test flight - refer to 05-30-00.



1 - Control switch
2 - Torque tube
3 - Input rod
4 - Flap actuator
5 - Clinometer



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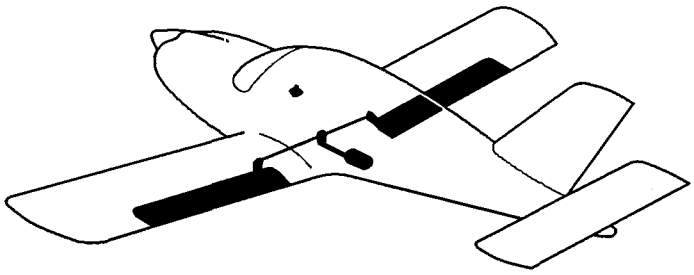
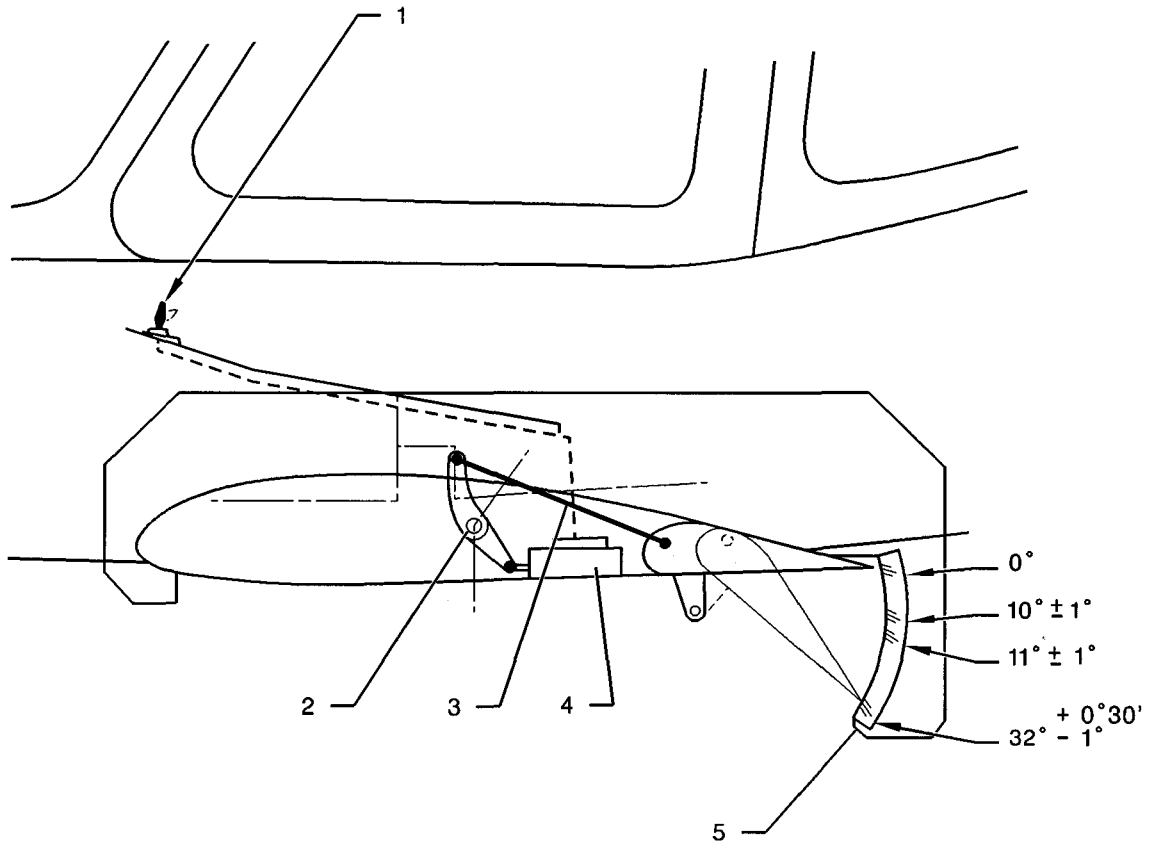
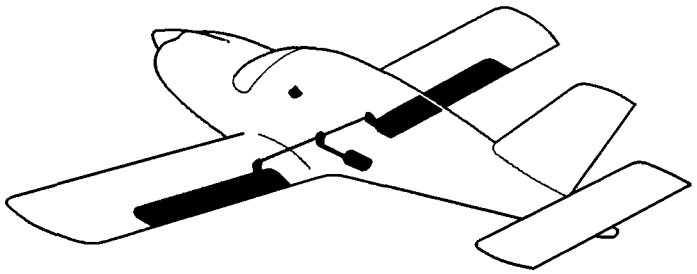
Wing flaps (control) - Travel adjustment
Figure 501 - Without travel jig
S / N 1 - 764, 766 - 878 Pre-Kit OPT10 923700



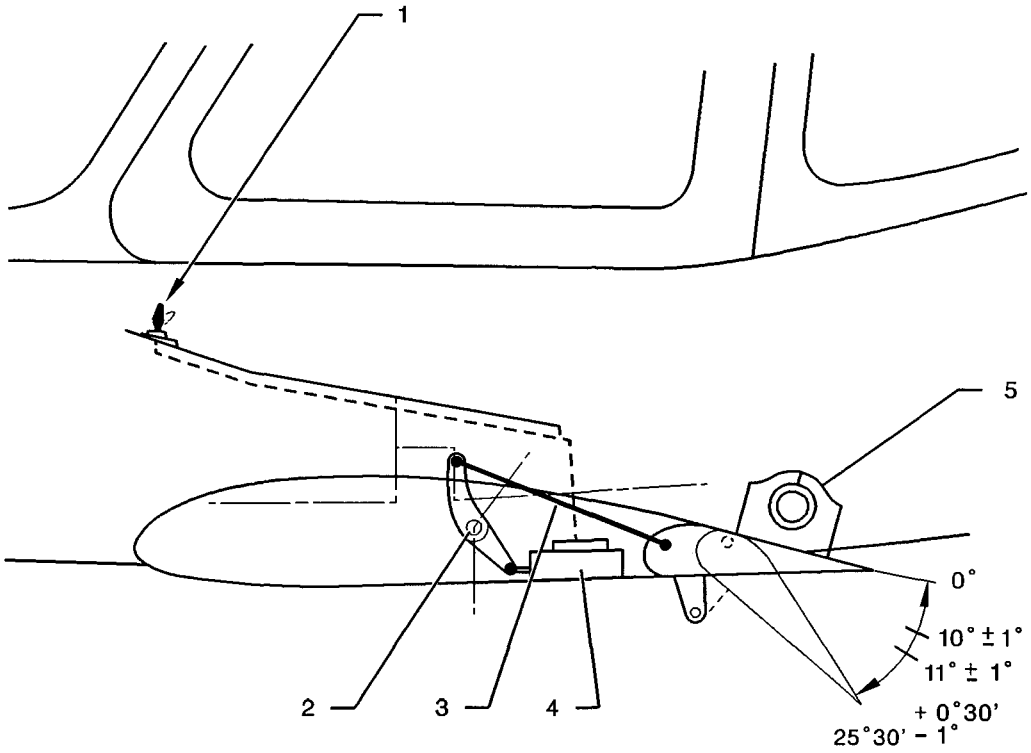
1 - Control switch
2 - Torque tube
3 - Input rod
4 - Flap actuator
5 - Travel jig



Wing flaps (control) - Travel adjustment
Figure 501A - With travel jig
S / N 1 - 764, 766 - 878 Pre-Kit OPT10 923700

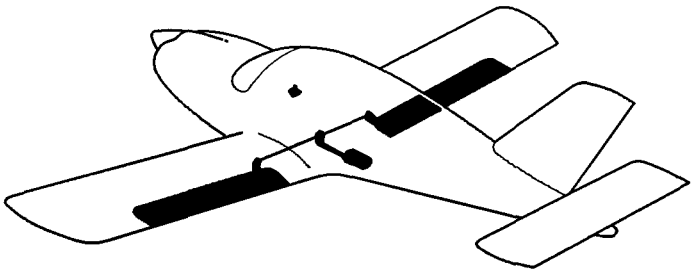


1 - Control switch
2 - Torque tube
3 - Input rod
4 - Flap actuator
5 - Clinometer

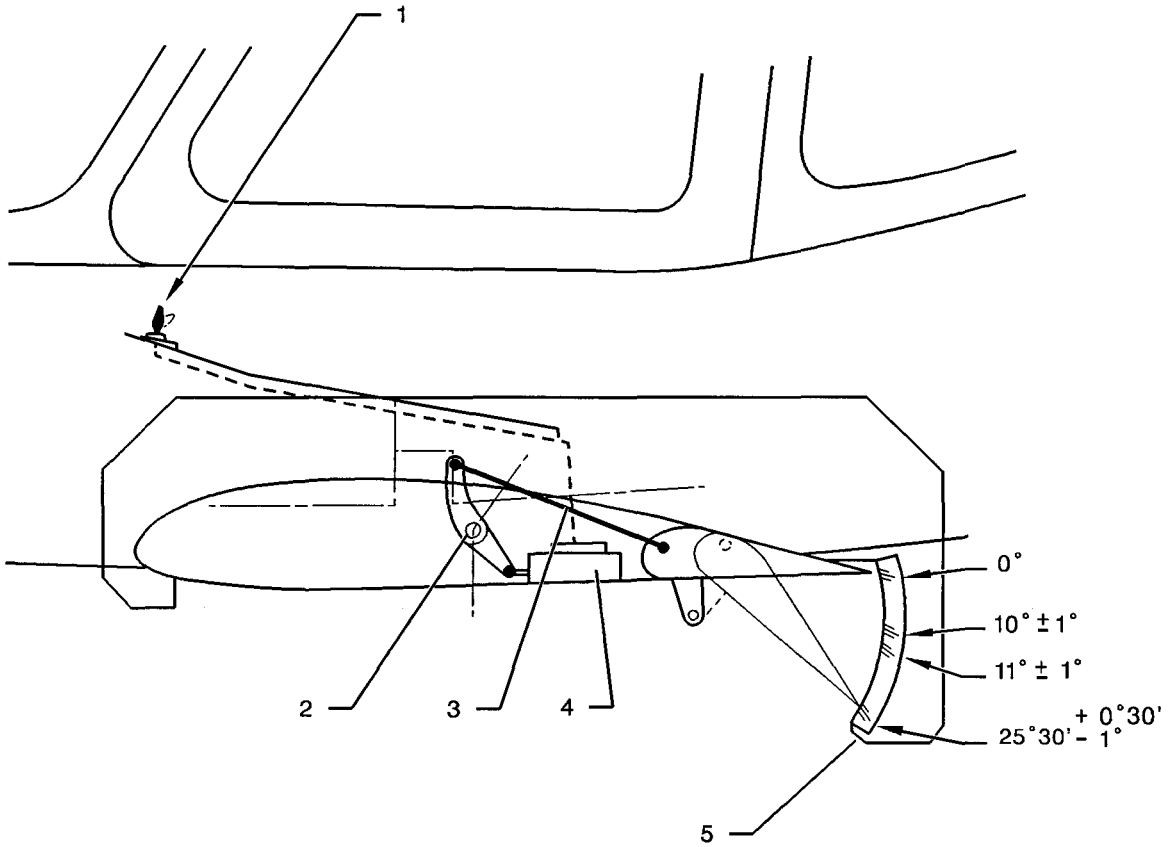


I4275001AAARUZ4200

Wing flaps (control) - Travel adjustment
Figure 502 - Without travel jig
S / N 765, 879 - 9999 and S / N 1 - 764, 766 - 878
Post-Kit OPT10 923700



1 - Control switch
2 - Torque tube
3 - Input rod
4 - Flap actuator
5 - Travel jig



Wing flaps (control) - Travel adjustment
Figure 502A - With travel jig
S / N 765, 879 - 9999 and S / N 1 - 764, 766 - 878
Post-Kit OPT10 923700

FLAP ACTUATOR

MAINTENANCE PRACTICES

1. SERVICING

None

2. REMOVAL / INSTALLATION - FLAP ACTUATOR

A. Tools and consumable materials

- Grease (TB 04-004A)

B. Removal of flap actuator (Figure 201)

1) Make sure that the main switch-breaker is open.

2) Install the warning sign prohibiting main switch-breaker operation.

WARNING

DO NOT OPERATE
MAINTENANCE WORK IN PROGRESS

3) Remove the cowling under hull 218.

4) Disconnect actuator (6) from lever (12). Retain bolt (1), washer (11) and nut (10). Discard cotter pin (9).

5) Identify, then disconnect wire (8) from electric motor (7) and the wires from the potentiometer and the retracted and extended limit microswitches.

6) Hold electric motor (7) / actuator (6) assembly and remove bolts (4), spacers (2) and washers (5). Discard lockplates (3).

7) Disengage and remove the flap actuator from supports.

C. Installation of flap actuator (Figure 201)

NOTE : When a new flap actuator is installed, round off the stop edges to minimize friction against the limit microswitch bracket.

1) Lubricate actuator (6) worm screw and bolt (1) with grease (TB 04-004A).

2) Position electric motor (7) / actuator (6) assembly on the support.

3) Secure electric motor (7) / actuator (6) assembly with bolts (4), new lockplates (3), spacers (2) and washers (5).

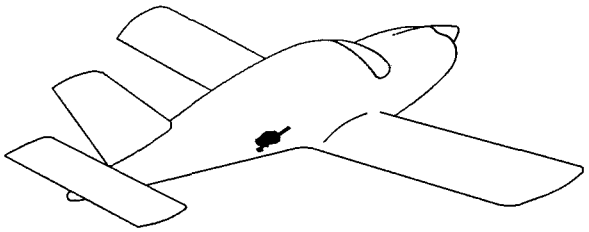
4) Connect wire (8) to electric motor (7) and the other wires, as identified during removal, to the potentiometer and the retracted and extended limit microswitches.

5) Connect actuator (6) to lever (12) using bolt (1), washer (11) and nut (10). Safety with a new cotter pin (9).

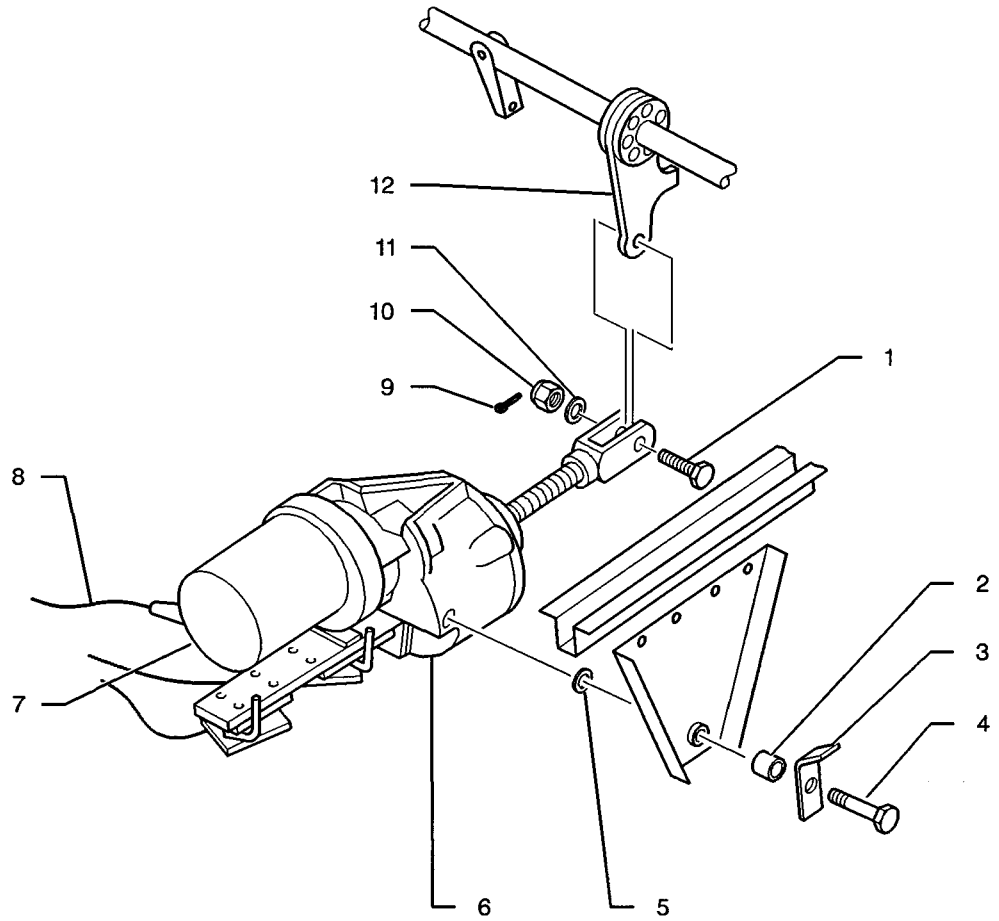
6) Make sure all the tools and materials are removed and the work area is clean and free from debris.

7) Close main switch-breaker.

8) Remove the warning sign prohibiting main switch-breaker operation.



1 - Bolt
2 - Spacer
3 - Lockplate
4 - Bolt
5 - Washer
6 - Actuator
7 - Electric motor
8 - Wiring
9 - Cotter pin
10 - Nut
11 - Washer
12 - Lever



I4275001AAAMWZ14200

Flap actuator - Removal / Installation
Figure 201

AAAA
Validity : "AVIAC" flap actuator

9) Extend and retract the flaps, then check the travels - refer to 27-50-00.

10) Install the cowling under hull 218.

D. Replacement of "AVIAC" flap actuator with a "LPMI" flap actuator - Refer to Paragraph 6. "REPAIR - FLAP ACTUATOR"

3. ADJUSTMENT / TEST - FLAP ACTUATOR

A. Tools and consumable materials

- Flap travel jig 8650 TB20 00000
- Clinometer

B. Adjustment of preselection flap intermediate microswitches (Figures 202 and 203)

1) Set the intermediate microswitches (I.MS.) to obtain 10° ± 1° flaps extended and 11° ± 1° flaps retracted.

2) The design location of the extended intermediate microswitch (E.I.MS.) (3) is 0.039 in (1 mm) closer to the cam. Set the microswitches so that the extended intermediate microswitch (E.I.MS.) (3) triggers before the retracted intermediate microswitch (R.I.MS.) (1) during flap extension.

NOTE : If necessary, adjust with screw(s) (2), depending on the type of assembly.

3) Similarly, the retracted intermediate microswitch (R.I.MS.) (1) will trigger before the extended intermediate microswitch (E.I.MS.) (3) during flap retraction.

4) The offset value between these microswitches must be determined by testing so that the flap actuator stops between the 2 microswitches in both directions of operation - see Figure 202.

5) To facilitate adjustments, tabs (4) of the microswitches must be initially folded - see Figure 203.

4. INSPECTION / CHECK - FLAP ACTUATOR

A. Tools and consumable materials

- Multimeter
- Varnish (TB 07-906)

B. Inspection / check of flap position transmitter potentiometer (Figure 204)

1) Install potentiometer (2) on bracket (3), connect the lugs.

2) Position spacer (4) on potentiometer (2) pin.

S / N 1 - 764, 766 - 878 Pre-Kit OPT10 923700

3) Connect link (1) to levers (5) and (6) [dimension "a" : 4.53 in (115 mm)].

S / N 765, 879 - 9999 Pre-MOD. 86 and S / N 1 - 764, 766 - 878 Post-Kit OPT10 923700

3) Connect link (1) to levers (5) and (6) [dimension "a" : 4.05 in (103 mm)].

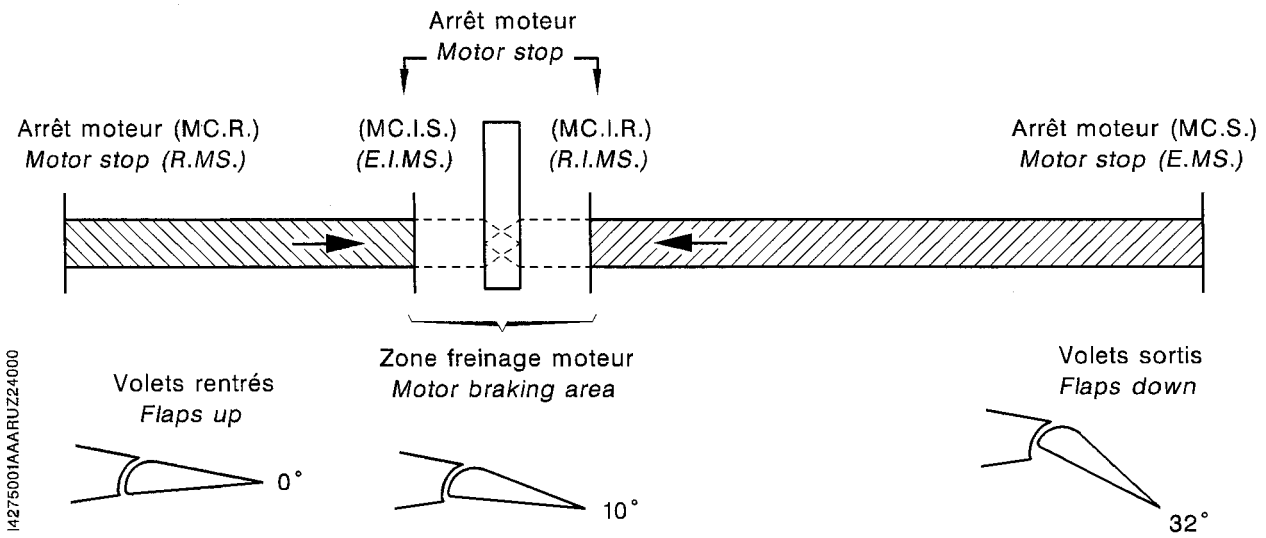
S / N 1 - 9999

4) Extend flaps to 10° ("take-off" position).

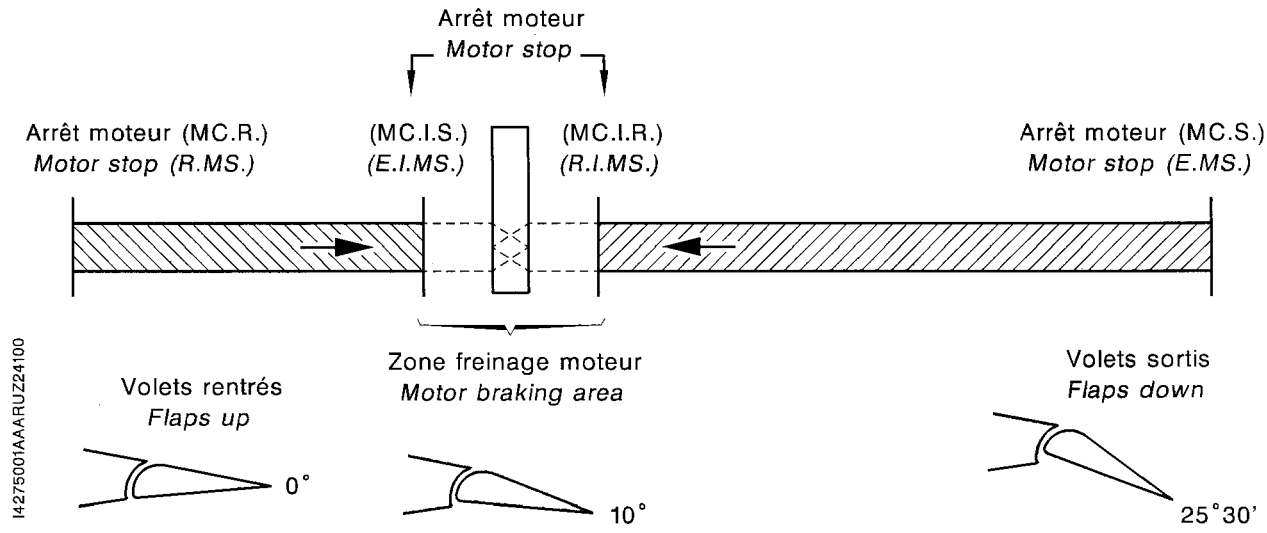
5) Engage lever (6) of potentiometer (2) on the pin resting on the spacer.

6) Set the potentiometer to 236 ± 5 Ohms.

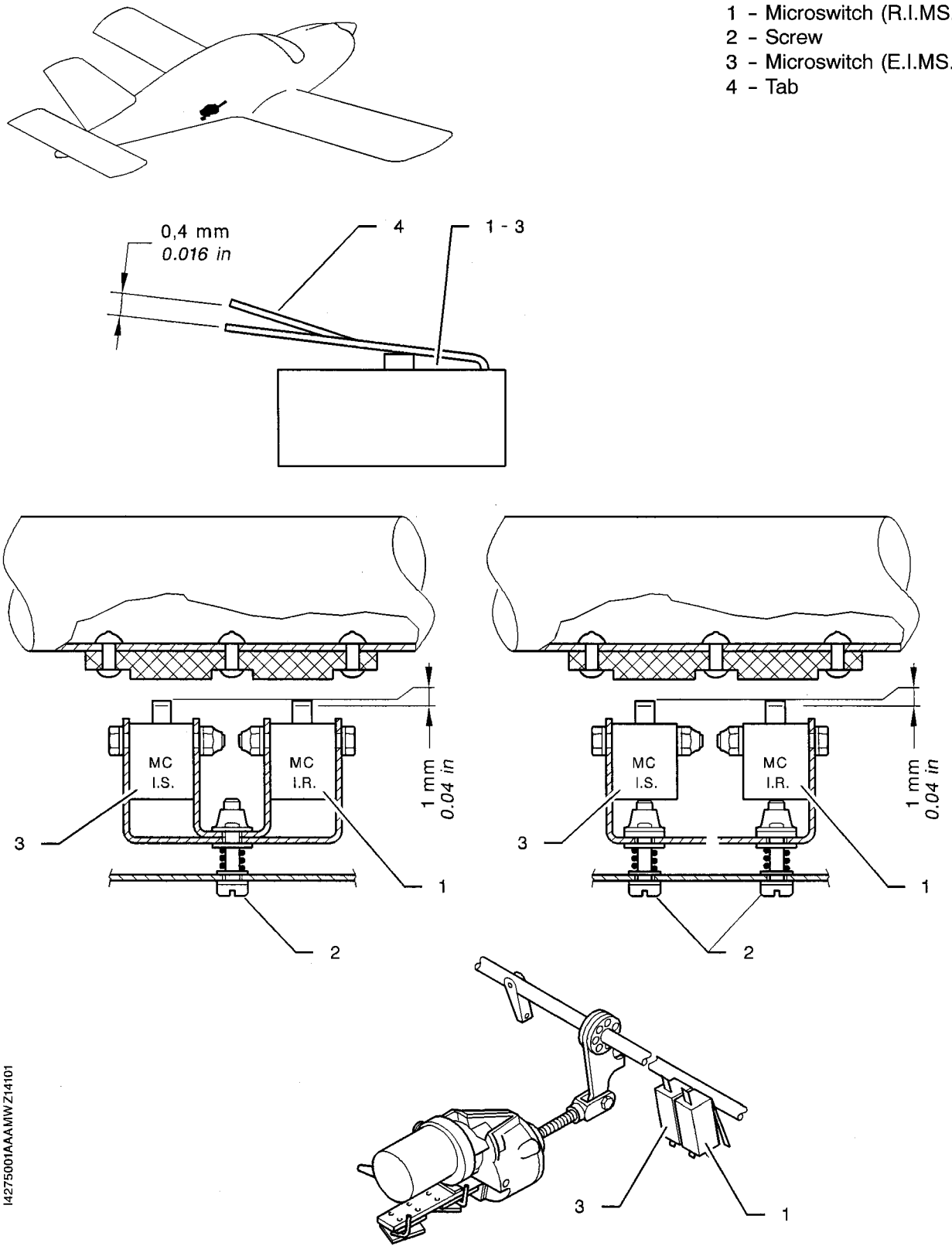
7) Tighten the lever moderately in this position.



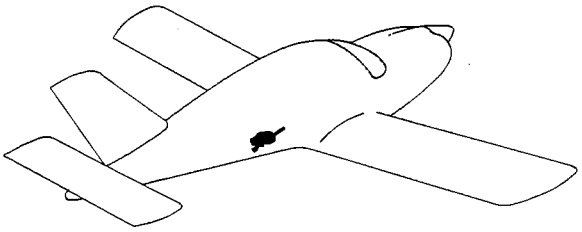
Preselection flap intermediate microswitches - Adjustment
Figure 202 - S / N 1 - 764, 766 - 878 Pre-Kit OPT10 923700



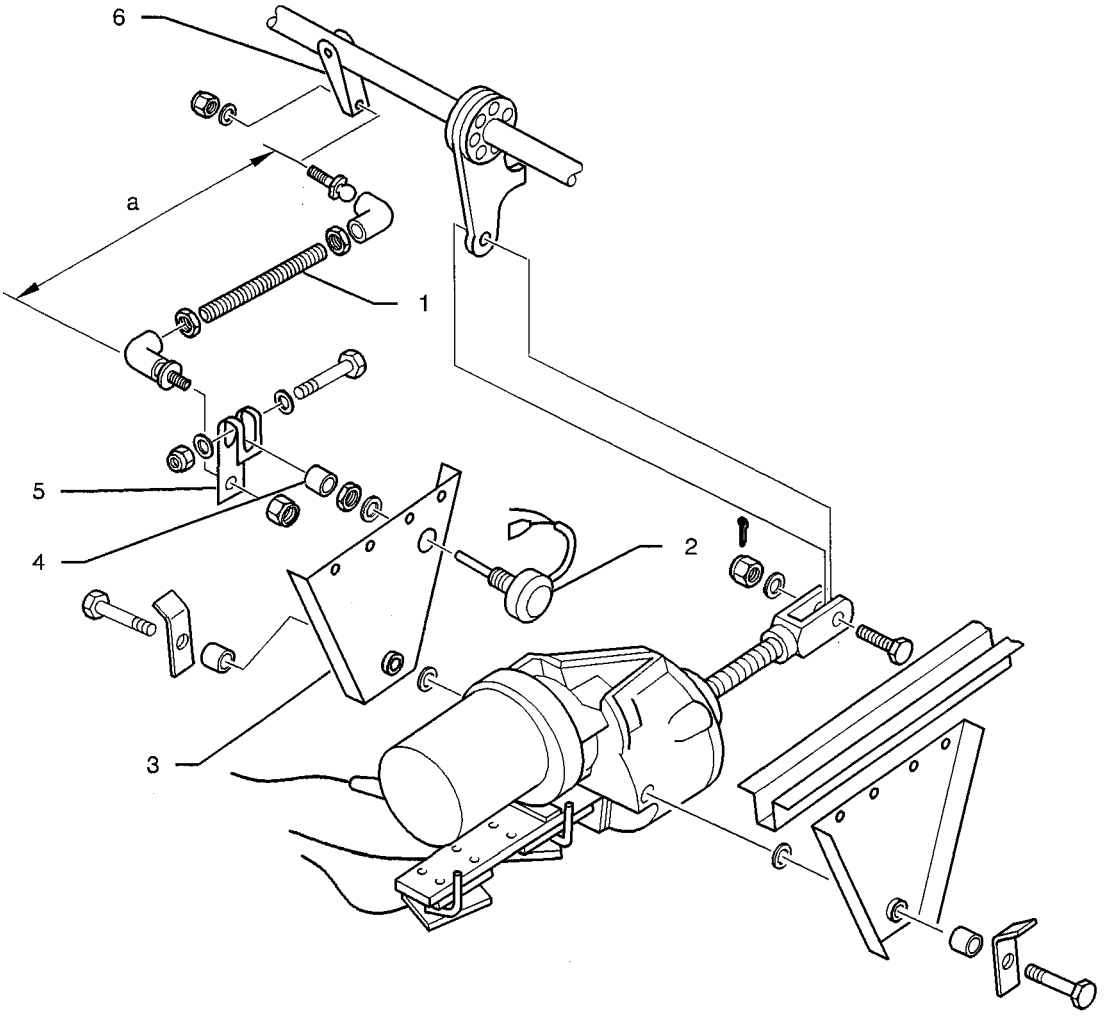
Preselection flap intermediate microswitches - Adjustment
Figure 202A - S / N 765, 879 - 9999 Pre-MOD. 86
S / N 1 - 764, 766 - 878 Post-Kit OPT10 923700



Preselection flap intermediate microswitches - Adjustment
Figure 203



1 - Link
2 - Potentiometer
3 - Bracket
4 - Spacer
5 - Lever
6 - Lever



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Flap position transmitter potentiometer - Inspection / Check
Figure 204

AAAA
Validity : "AVIAC" flap actuator

C. Inspection / check of flap indicator (Figure 205)

Flap indicator, P / N TB10 76045, valid for S / N 1 - 560 (Figure 205)

1) Select 290 to 295 Ohms and set to upper point through P2.
2) Select 86 to 92 Ohms and set to lower point through P1.
3) Repeat steps and reset P1 and P2 if necessary.
4) Lock the potentiometers with varnish (TB 07-906).

Printed circuit P / N TB20 61095, valid for S / N 1 - 822, 850 - 887, 889 - 947 (Figure 205A)

1) Supply contact 3 of P023 connector (1) at a voltage of 14 V.
2) Rx : adjustable resistor from 50 to 300 Ohms.
3) Indicator installed or materialized by a resistor : 5 KOhms ± 5 % - 1/2 W.
4) Measure voltage at test point 2, V = 2.57 V ± 0.03, adjust through P6.
5) R = 245 Ohms - Vs = 2.57 V ± 0.03 through P2.
6) Cancel D2 feed back line by adjusting the anode voltage to < 2 V through P5.
7) R = 300 Ohms - Vs = 1 V ± 0.03 through P4.
8) R = 245 Ohms, adjust the anode voltage to 2.57 V ± diode threshold.
9) R = 75 Ohms, adjust Vs = 5 V through P3.
10) Check the adjustments and repeat the steps, if necessary.
11) Lock the potentiometers with varnish (TB 07-906).

Printed circuit, P / N TB20 61231, valid for S / N 1 - 9999 (Figure 205B, Detail D)

Aircraft 14 V

1) Supply contact 3 of P023 connector (1) at a voltage of 14 V.

Aircraft 28 V

1) Supply contact 1 of P023 connector (1) at a voltage of 28 V.

All

2) Rx : adjustable resistor from 50 to 300 Ohms.
3) Indicator installed or materialized by a resistor : 5 KOhms ± 5 % - 1/2 W
4) Measure voltage at test point 2, V = 2.57 V ± 0.03, adjust through P6.
5) R = 245 Ohms - Vs = 2.57 V ± 0.03 through P2.
6) Cancel D2 feed back line by adjusting the anode voltage to < 2 V through P5.
7) R = 300 Ohms - Vs = 1 V ± 0.03 through P4.
8) R = 245 Ohms, adjust the anode voltage to 2.57 V ± diode threshold.
9) R = 75 Ohms, adjust Vs = 5 V through P3.
10) Check the adjustments and repeat the steps, if necessary.

11) Lock the potentiometers with varnish (TB 07-906).

Printed circuit, P / N TB20 61264, valid for S / N 1 - 9999 (Figure 205B, Detail E)

1) Connect the position transmitter potentiometer to contact 4:40 < Rx ≤ 300 (Rx : adjustable resistor).

2) Connect the indicator or the voltmeter to contact 5.

Aircraft 14 V

3) Supply contact 3 at a voltage of 14 V.

Aircraft 28 V

3) Supply contact 1 at a voltage of 28 V.

All

4) Extend the flaps to "take-off" position. Open SW1 microswitch and position the indicator pointer to the intermediate position by adjusting P2 to obtain Rx = 245 Ohms and Vs = 2.57 V ± 10 mV.

NOTE : The spot on the microswitch indicates that SW1 is "ON".

5) Retract the flaps and adjust the indicator by adjusting P4 to obtain Rx = 300 Ohms and Vs = 1 V ± 10 mV.

6) Position the flaps to the intermediate position. Close SW1 microswitch and, if necessary, adjust P5 to obtain a correct indication.

7) Position the flaps to "landing" position and adjust P3 to obtain Rx = 75 Ohms and Vs = 5 V ± 10 mV.

8) Lock the potentiometers with varnish (TB 07-906).

NOTE : P6 potentiometer must in no case be adjusted on aircraft. Varnish-lock P6 potentiometer in the laboratory.

5. CLEANING / PAINTING

None

6. REPAIR - FLAP ACTUATOR

A. Tools and consumable materials

- Alodine (TB 13-002)

B. Removal of "AVIAC" flap actuator (Figure 206)

1) Remove "AVIAC" flap actuator - refer to Paragraph 2.B.

2) Disconnect link (1) from lever (14). Discard nut (13) and washer (12).

3) Disconnect link (1) from lever (8). Discard nut (6) and link (1).

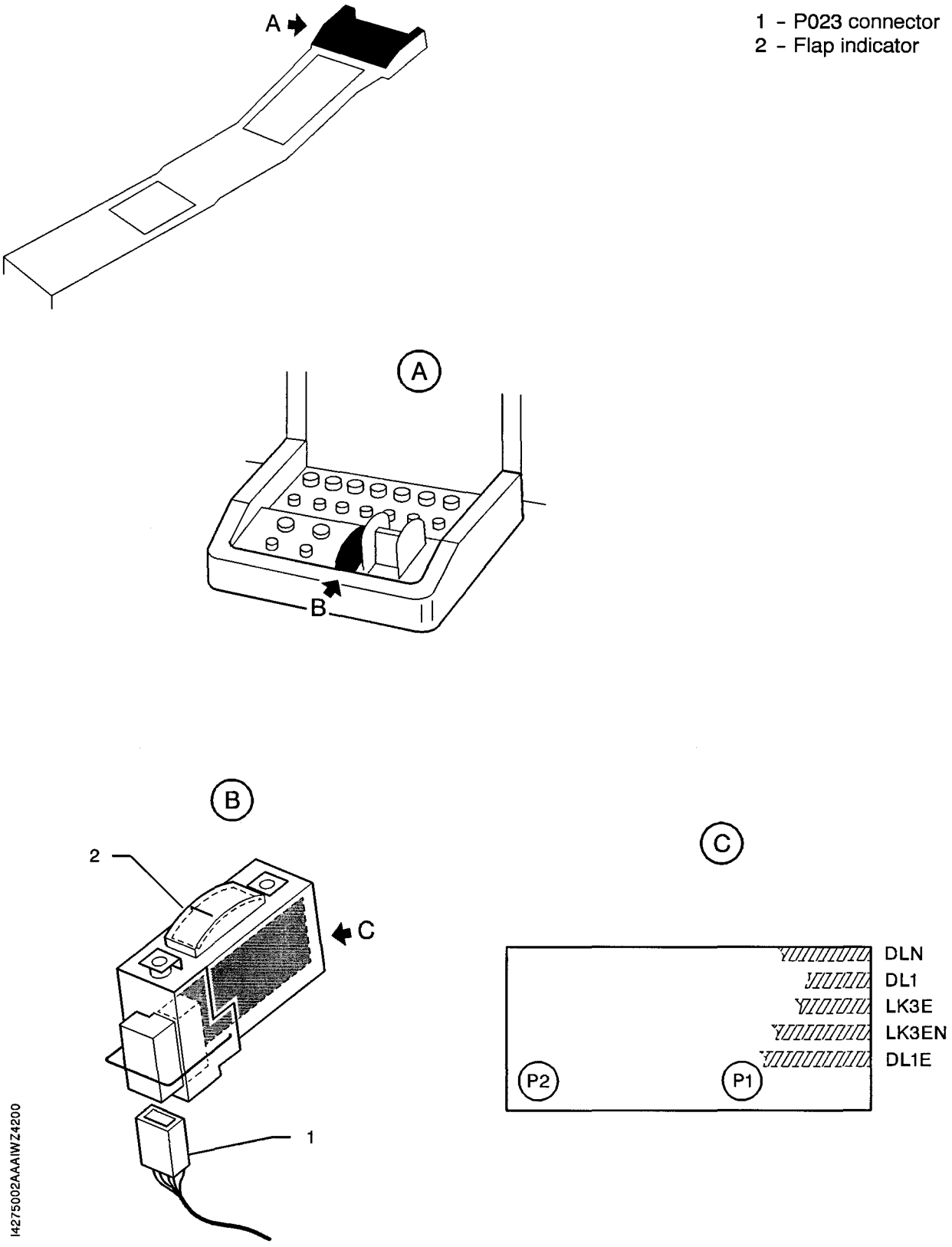
4) Remove and discard lever (8). Discard bolt (11), washer (10), nut (9) and spacer (7).

5) Remove and discard potentiometer (4). Discard nut (2) and washer (3).

NOTE : If lever (14) is discarded, protect the bare metal with alodine (TB 13-002) after the lever removal, plug the attachment holes with two rivets. If necessary, touch up the paint.

C. Installation of "LPMI" flap actuator

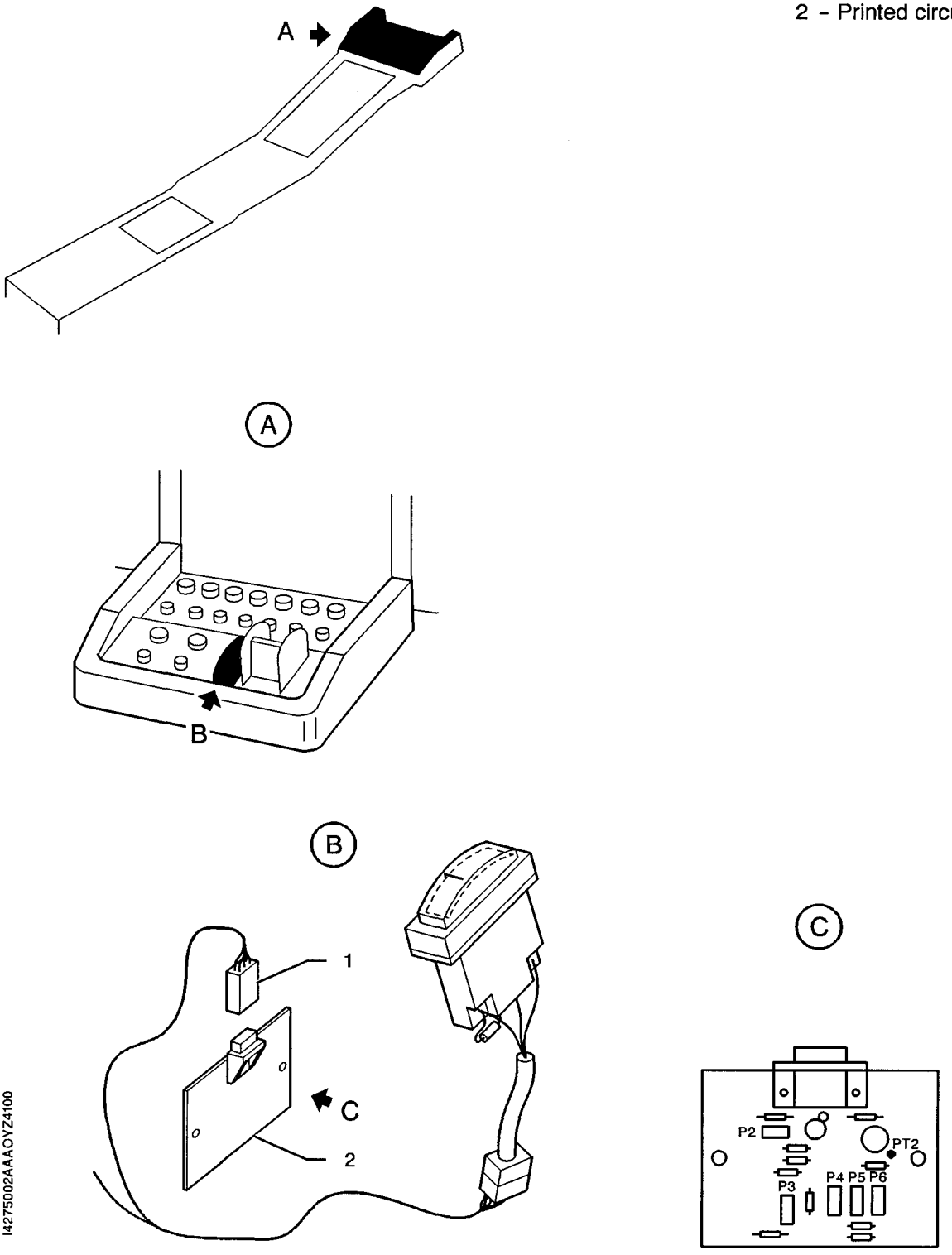
NOTE : For the installation and adjustment of "LPMI" flap actuator, refer to Chapter 27-50-01 (Validity : "LPMI" actuator).



Flap indicator - Inspection / Check
Figure 205 - S / N 1 - 560

AAAA
Validity : "AVIAC" flap actuator

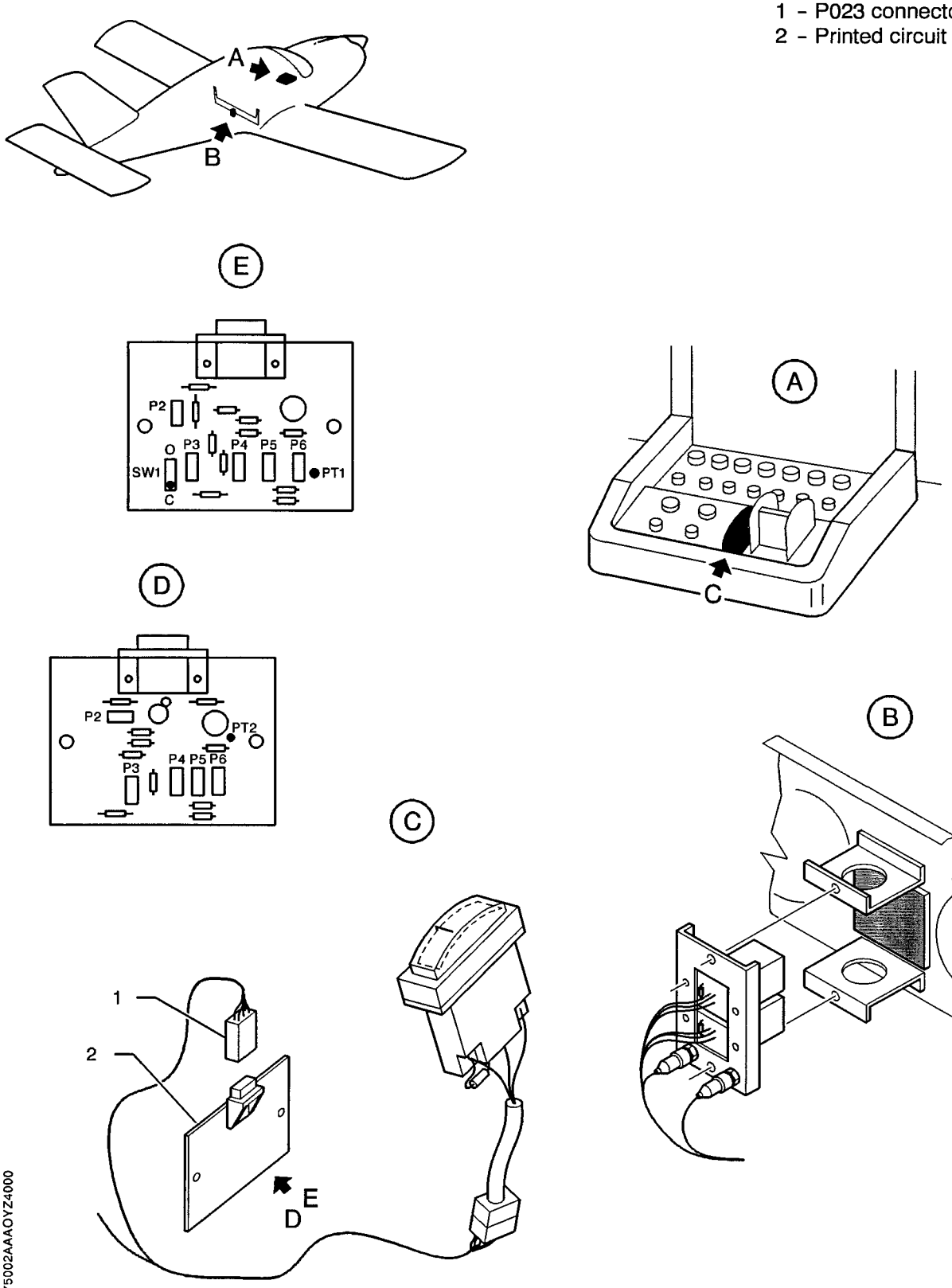
1 - P023 connector
2 - Printed circuit



Flap indicator - Inspection / Check
Figure 205A - S / N 1 - 822, 850 - 887, 889 - 947

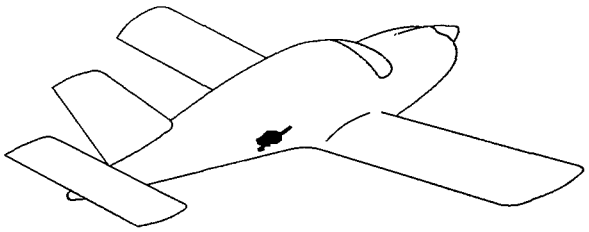
AAAA
Validity : "AVIAC" flap actuator

1 - P023 connector
2 - Printed circuit

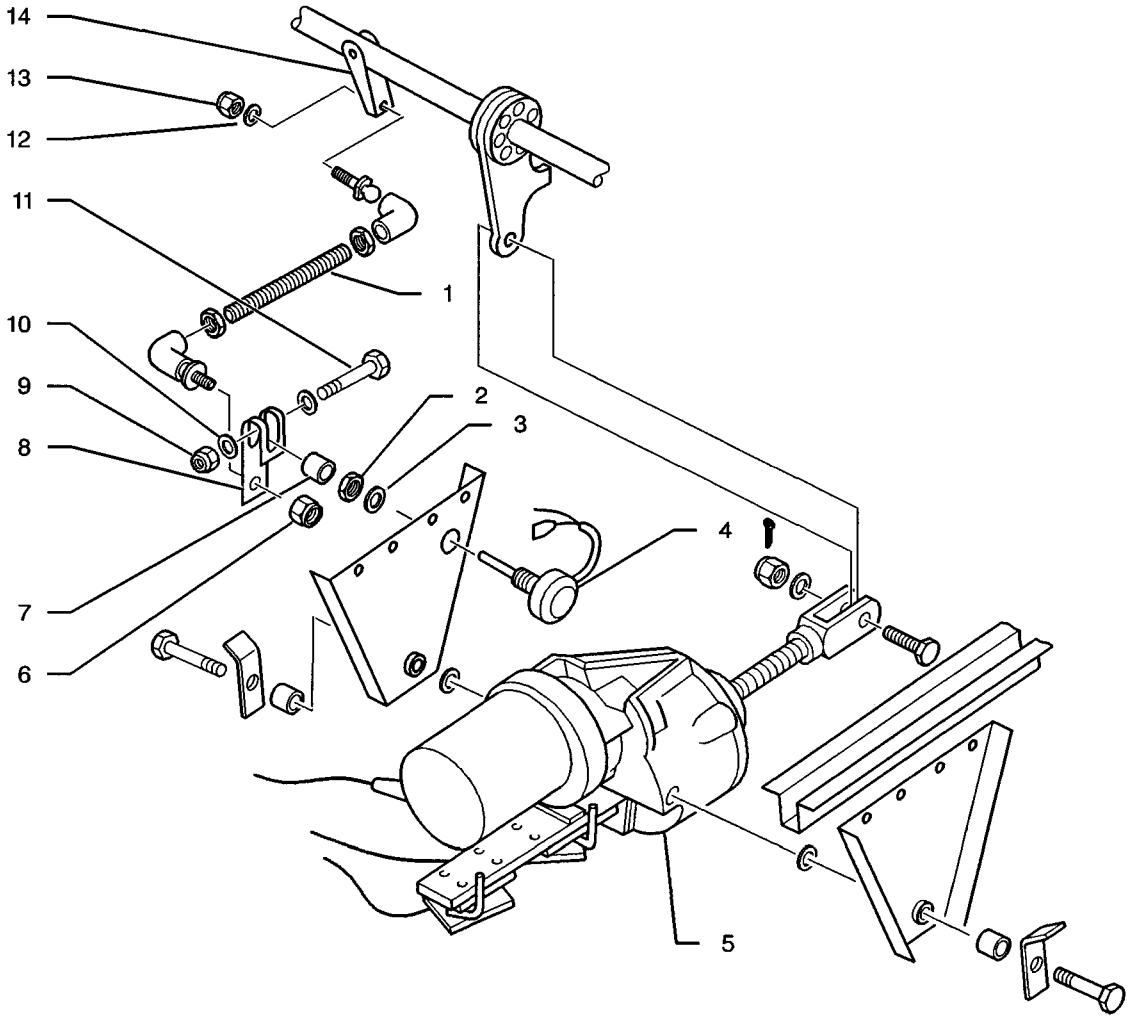


Flap indicator - Inspection / Check
Figure 205B - S / N 1 - 9999

AAAA
Validity : "AVIAC" flap actuator



1 - Link
2 - Nut
3 - Washer
4 - Potentiometer
5 - Flap actuator
6 - Nut
7 - Spacer
8 - Lever
9 - Nut
10 - Washer
11 - Bolt
12 - Washer
13 - Nut
14 - Lever



"AVIAC" flap actuator - Repair
Figure 206

FLAP ACTUATOR

MAINTENANCE PRACTICES

1. SERVICING

None

2. REMOVAL / INSTALLATION - FLAP ACTUATOR

A. Tools and consumable materials

- Grease (TB 04-004A)
- Lubricant (TB 06-900)

B. Removal of flap actuator (Figure 201)

1) Make sure that the main switch-breaker is open.
2) Install the warning sign prohibiting main switch-breaker operation.

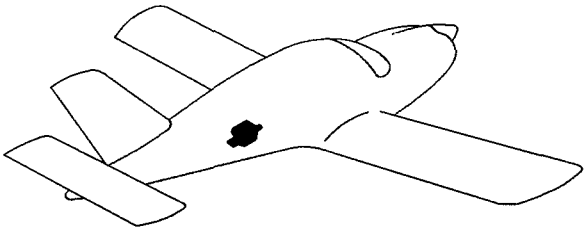
WARNING

DO NOT OPERATE
MAINTENANCE WORK IN PROGRESS

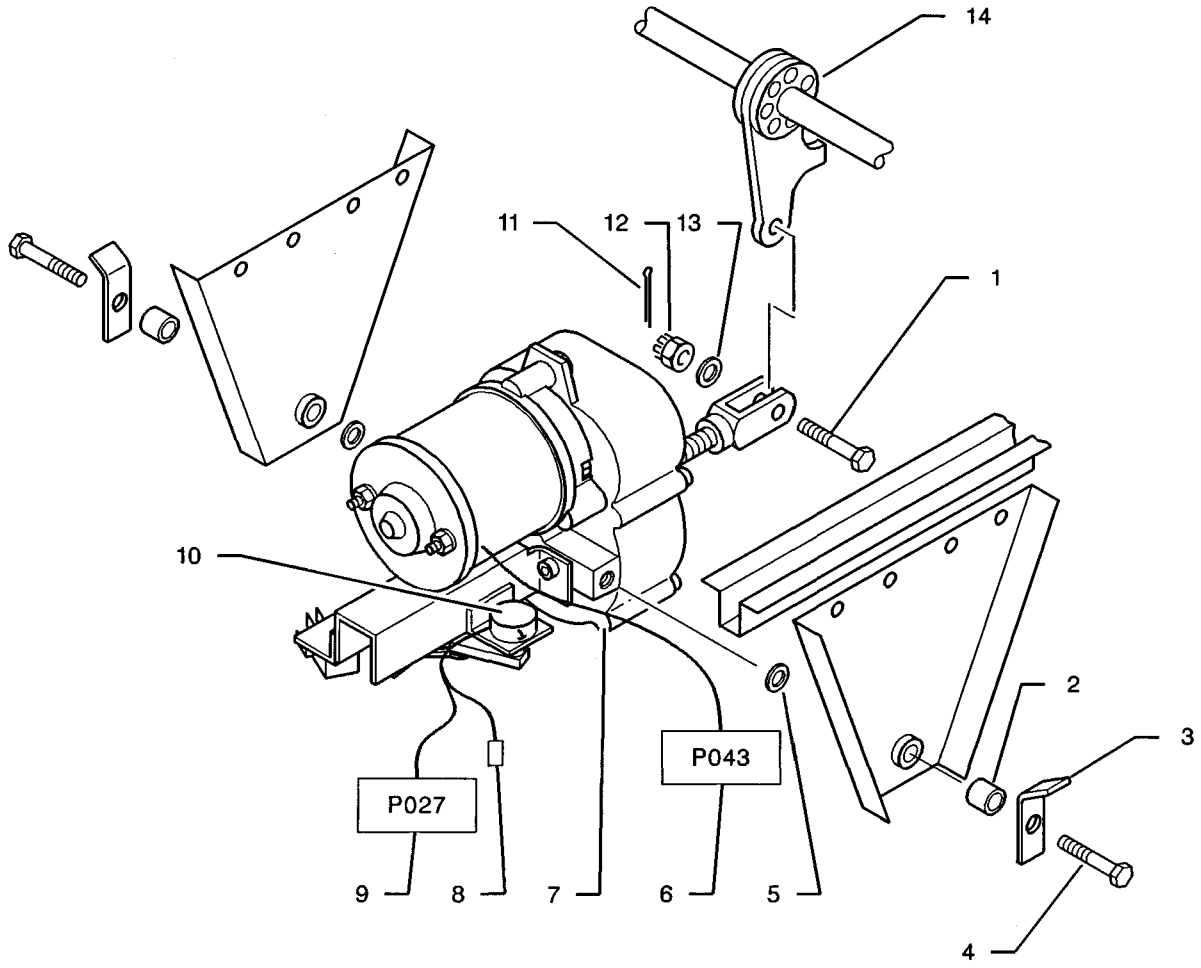
3) Remove the cowling under hull 218.
4) Identify, then disconnect P043 connector (6) from flap actuator (7), P027 connector (9) and grounding lead (8) from potentiometer (10) and wire from retracted and extended limit microswitches.
5) Remove and discard cotter pin (11), remove nut (12), washer (13) and bolt (1).
6) While holding the actuator, unsafety bolts (4), remove bolts (4), lockplates (3), spacers (2) and washers (5). Discard lockplates (3).
7) Disengage and remove flap actuator (7) from the supports.

C. Installation of flap actuator (Figure 201)

1) Lubricate flap actuator (7) worm screw with lubricant (TB 06-900) and bolt (1) with grease (TB 04-004A).
2) Engage bolts (4), new lockplates (3), spacers (2) and washers (5) on supports.
3) Position flap actuator (7) between the supports, tighten and safety bolts (4).
4) Engage lever (14) on the actuator, install bolt (1), washer (13), nut (12) and a new cotter pin (11).
5) Connect wire to retracted and extended limit microswitches (as identified during removal), P027 connector (9) and grounding lead (8) to potentiometer (10), P043 connector (6) to flap actuator (7).
6) Make sure all the tools and materials are removed and the work area is clean and free from debris.
7) Close main switch-breaker.



1 - Bolt
2 - Spacer
3 - Lockplate
4 - Bolt
5 - Washer
6 - P043 connector
7 - Flap actuator
8 - Grounding lead
9 - P027 connector
10 - Potentiometer
11 - Cotter pin
12 - Nut
13 - Washer
14 - Lever



I4275001AAAFVZ4101

Flap actuator - Removal / Installation
Figure 201

8) Remove the warning sign prohibiting main switch-breaker operation.

9) Extend and retract the flaps and check the travels - refer to 27-50-00.

10) Install the cowling under hull 218.

3. ADJUSTMENT / TEST - FLAP ACTUATOR

A. Tools and consumable materials

- Flap travel jig 8650 TB20 00000
- Clinometer

B. Adjustment of preselection flap intermediate microswitches (Figures 202 and 203)

1) Set the intermediate microswitches (I.MS.) to obtain 10° ± 1° flaps extended and 11° ± 1° flaps retracted.

2) The design location of the extended intermediate microswitch (E.I.MS.) (3) is 0.039 in (1 mm) closer to the cam. Set the microswitches so that the extended intermediate microswitch (E.I.MS.) (3) triggers before the retracted intermediate microswitch (R.I.MS.) (1) during flap extension.

NOTE : If necessary, adjust with screw(s) (2), depending on the type of assembly.

3) Similarly, the retracted intermediate microswitch (1) (R.I.MS.) will trigger before the extended intermediate microswitch (E.I.MS.) (3) during flap retraction.

4) The offset value between these microswitches must be determined by testing so that the flap actuator stops between the 2 microswitches in both directions of operation - see Figure 202.

5) To facilitate adjustments, tabs (4) of the microswitches must be initially folded - see Figure 203.

4. INSPECTION / CHECK - FLAP ACTUATOR

A. Tools and consumable materials

- Multimeter
- Varnish (TB 07-906)

B. Inspection / check of flap indicator (Figures 204 and 205)

1) Connect position transmitter potentiometer (1) to contact 4 : $40 < Rx \leq 300$ (Rx : adjustable resistor).

NOTE : Make sure that potentiometer (1) value lies within 40 and 300 ohms. If necessary, adjust potentiometer (1).

2) Connect the indicator or the voltmeter to contact 5.

3) Supply contact 1 at a voltage of 28 V.

4) Extend the flaps to "take-off" position. Open SW1 microswitch and position the indicator pointer in the intermediate position by adjusting P2 to obtain Rx = 245 Ohms and Vs = 2.57 V (± 10 mV).

5) Retract the flaps and adjust the indicator by adjusting P4 to obtain Rx = 300 Ohms et Vs = 1 V (± 10 mV).

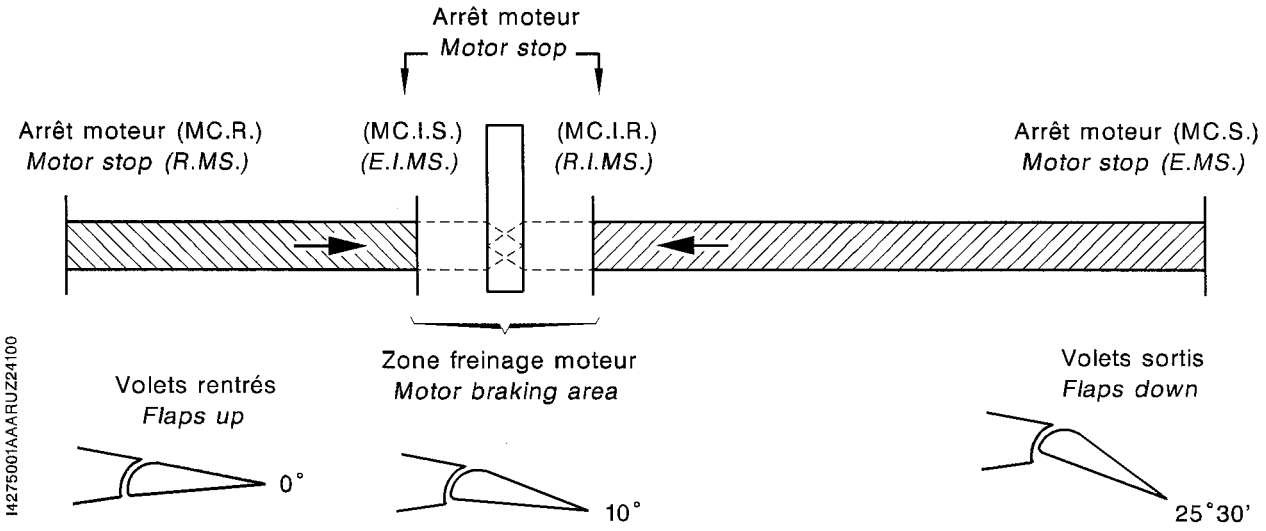
NOTE : The spot on the microswitch indicates that SW1 is "ON".

6) Position the flaps to the intermediate position. Close SW1 microswitch and, if necessary, adjust P5 to obtain a correct indication.

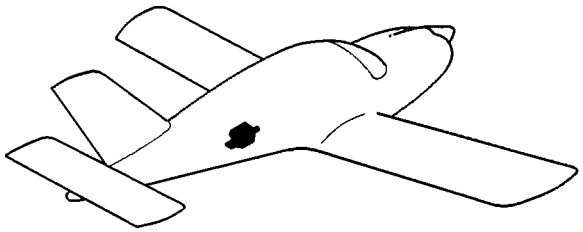
7) Position the flaps to "landing" position and adjust P3 to obtain Rx = 75 Ohms and Vs = 5 V (± 10 mV).

8) Lock the potentiometers with varnish (TB 07-906).

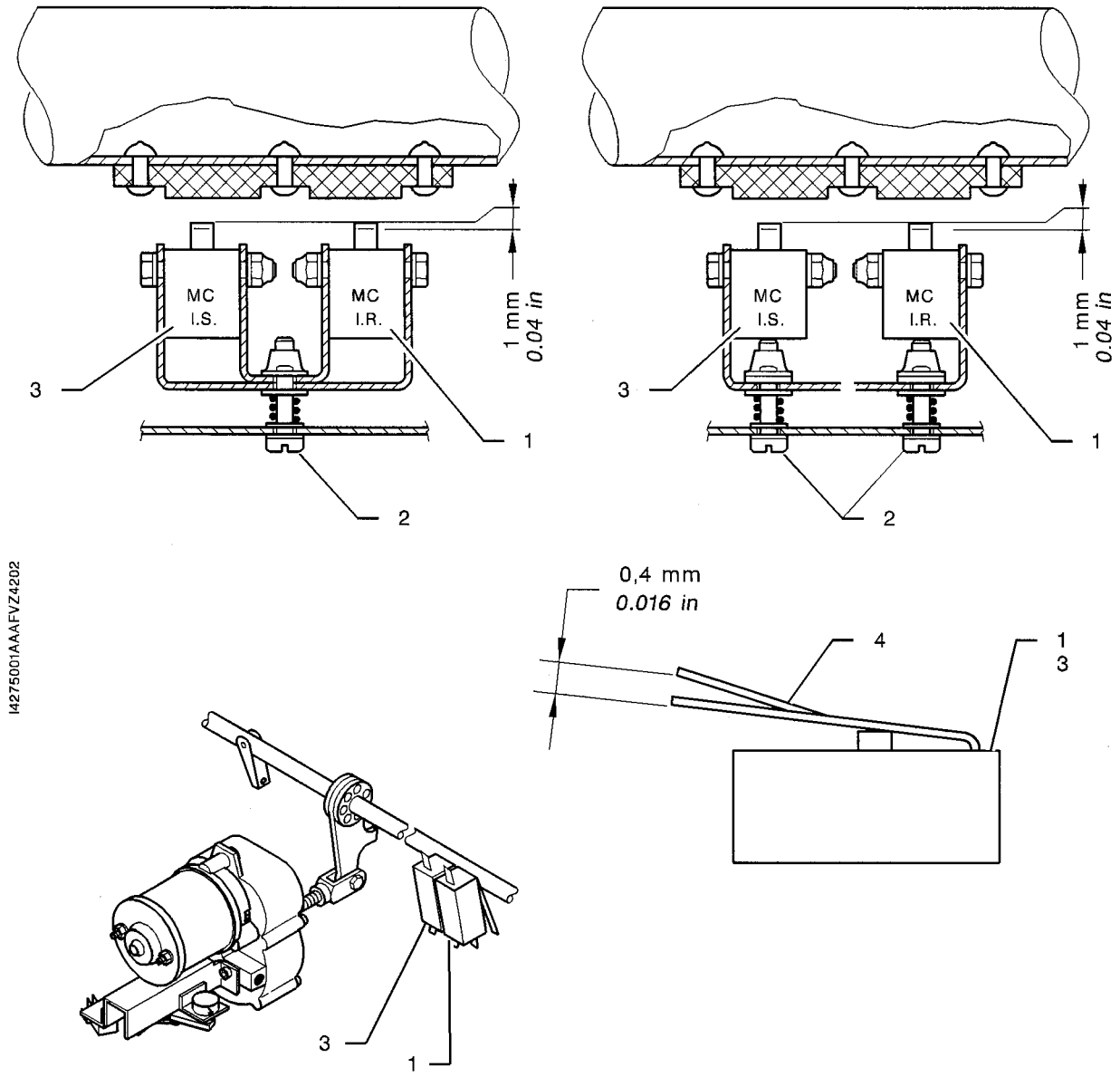
NOTE : P6 potentiometer must in no case be adjusted on aircraft. Varnish-lock P6 potentiometer in the laboratory.



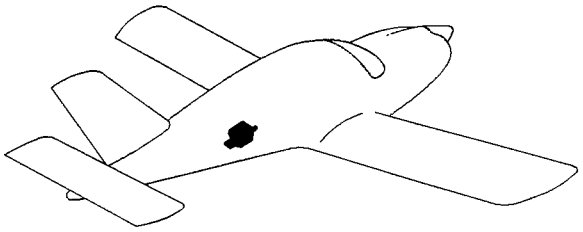
Preselection flap intermediate microswitches - Adjustment
Figure 202



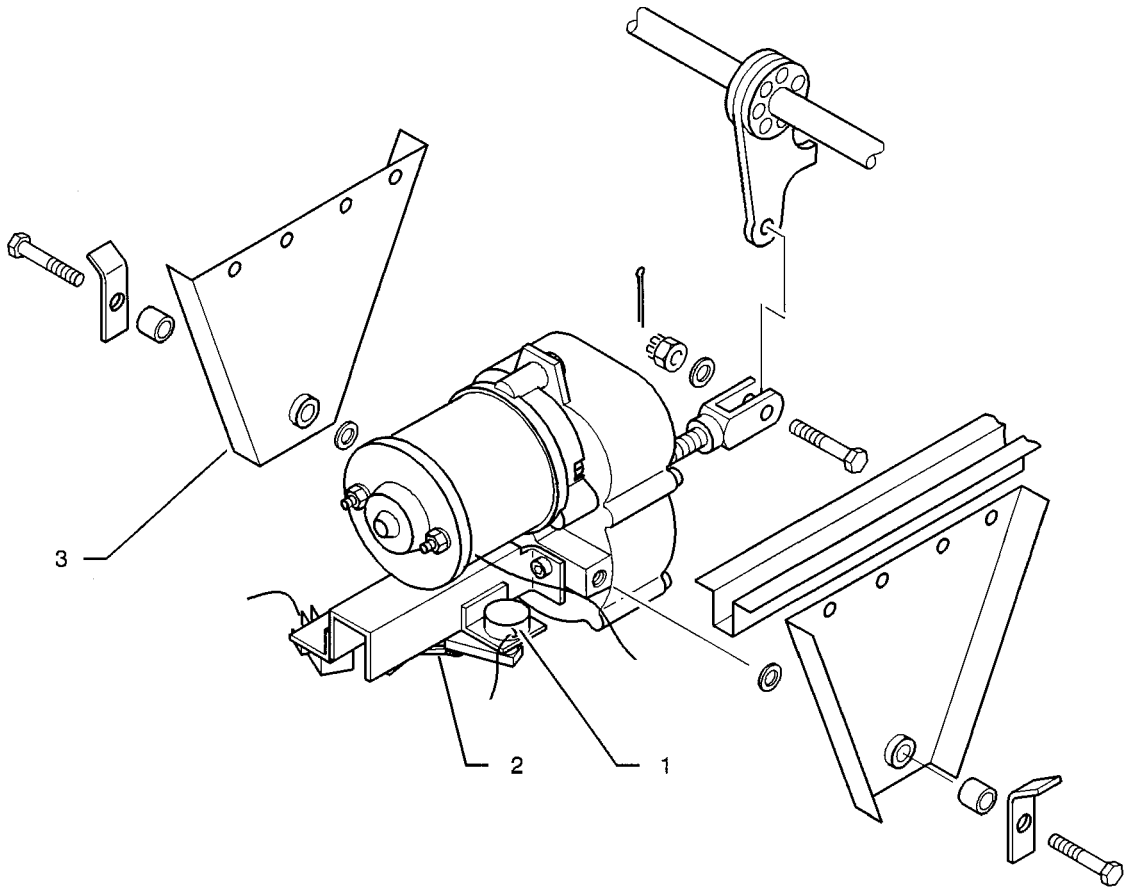
1 - Microswitch (R.I.MS.)
2 - Screw
3 - Microswitch (E.I.MS.)
4 - Tab



Preselection flap intermediate microswitches - Adjustment
Figure 203



1 - Potentiometer
2 - Link
3 - Support



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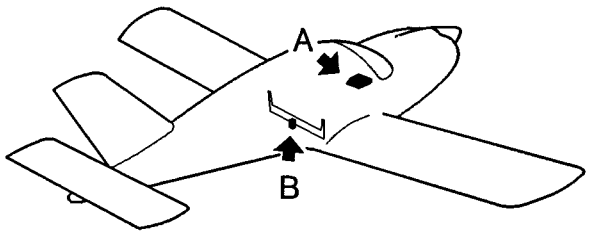
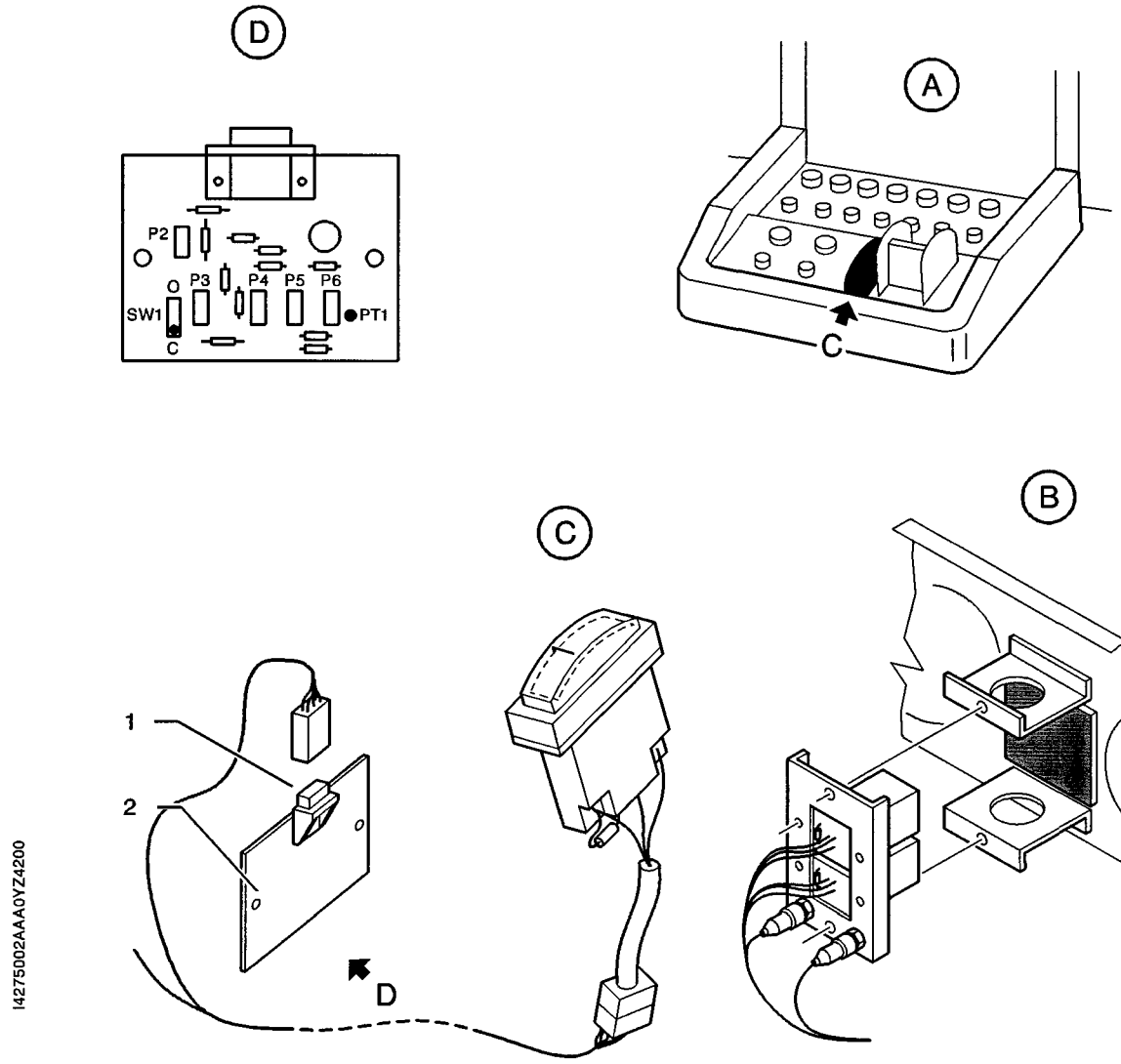
Flap position transmitter potentiometer - Inspection / Check
Figure 204

1 - P023 connector
2 - Printed circuit





Flap indicator - Inspection / Check
Figure 205

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WING FLAP CONTROL

REMOVAL / INSTALLATION

1. REMOVAL / INSTALLATION - WING FLAP CONTROL

A. Tools and consumable materials

- Petrolatum (TB 04-012)
- Loctite (TB 08-013)
- Adhesive tape (TB 08-919A)

B. Removal of wing flap control (Figures 201, 202 and 203)

1) Disconnect the battery - refer to 24-30-02.

S / N 1 - 587, 589 - 599, 601 - 609 Pre-MOD. 127 or MOD. 144 (Figure 201)

2) Remove plate (1), knurled nut (2) and nut (3).

3) Remove screws (6) and lift the console to clear inverter (5), mark the wire and inverter (5) direction.

4) Tape the wire outside the pedestal with adhesive tape (TB 08-919A).

5) Disconnect and remove inverter (5) equipped with tab washer (4) and nut (3).

S / N 588, 600, 610 - 1149 Pre-MOD. 127 or MOD. 144 (Figure 202)

Detail A

2) Remove plate (1), knurled nut (2) and nut (3).

Detail B

2) Remove plate (1), knurled nut (2), screws (9) and protective device (10).

S / N 1 - 9999

3) Remove screws (6), cup washers (8) and cover (7).

4) Remove bolts (11) and washers (12) securing central pedestal front support.

5) Lift front support, mark inverter (5) direction and wiring. Disconnect and remove inverter (5) equipped with tab washer (4) and nut (3).

6) Tape the wire outside the pedestal with adhesive tape (TB 08-919A).

S / N 1 - 9999 Post-MOD. 127 or MOD. 144 (Figure 203)

2) Remove screws (14) and clear inverter (5) assembly.

3) Mark and disconnect wire (18), tape the wire outside the pedestal with adhesive tape (TB 08-919A) and remove inverter (5) assembly.

4) If necessary, disassemble inverter (5) assembly.

a) Remove bolts (11) and grommets (12).

b) Remove plate (1) and O-ring (16).

c) Mark inverter (5) direction in relation to bracket (13) equipped with "FRONT" marking.

d) Remove nut (3) or sealed nut (15), bracket (13), protective device (10), tab washer (4) and washer (17) from inverter (5).

C. Installation of wing flap control (Figures 201, 202 and 203)

S / N 1 - 587, 589 - 599, 601 - 609 Pre-MOD. 127 or MOD. 144 (Figure 201)

1) Engage inverter (5) (as identified during removal) equipped with nut (3) and tab washer (4) on front support.

NOTE : Make sure the washer tab is correctly seated in its housing.

2) Install nut (3), knurled nut (2) and plate (1).

3) Connect the wire to inverter (5) (as identified during removal).

4) Make sure all the tools and materials are removed and the work area is clean and free from debris.

5) Position the console on the pedestal and install screws (6).

S / N 588, 600, 610 - 1149 Pre-MOD. 127 or MOD. 144 (Figure 202)

1) Engage inverter (5) (as identified during removal), equipped with nut (3) and tab washer (4) on the front support.

NOTE : Make sure the washer tab is correctly seated in its housing.

CAUTION : CORRECTLY SUPERIMPOSE THE TRAVEL PLANES OF INVERTER (5) LEVER AND PLATE (1) TO PRECLUDE STRESS.

Detail A

2) Install nut (3), knurled nut (2) and plate (1).

Detail B

CAUTION : THE PLATE / LEVER ASSEMBLY MUST MOVE FREELY WITHOUT INTERFERING WITH PROTECTIVE DEVICE WALLS.

2) Secure protective device (10) using screws (9), install knurled nut (2) and plate (1).

S / N 1 - 9999

3) Connect the wiring to inverter (5), as identified during removal.

4) Make sure all the tools and materials are removed and the work area is clean and free from debris.

5) Engage the front support in its housing and install bolts (11) and washers (12).

6) Install cover (7) using screws (6) and cup washers (8).

Post-MOD. 127 or MOD. 144 (Figure 203)

1) If disassembled, reassemble inverter (5).

a) Lubricate inverter (5) lever and bolt (11) smooth section with petrolatum (TB 04-012).

b) Install washer (17) and tab washer (4) on inverter (5).

c) Put a drop of loctite (TB 08-013) in plate (1) tappings and on inverter (5) thread.

d) Engage protective device (10) on inverter (5), in the correct direction in relation to tab washer (4).

CAUTION : CORRECTLY SUPERIMPOSE THE TRAVEL PLANES OF INVERTER (5) LEVER AND PLATE (1) TO PRECLUDE STRESS.
THE PLATE / LEVER ASSEMBLY MUST MOVE FREELY WITHOUT INTERFERING WITH PROTECTIVE DEVICE WALLS.

e) Install bracket (13), nut (3) or sealed nut (15), O-ring (16) (check condition, replace if necessary) and plate (1).

NOTE : Bracket (13) must be installed with "FRONT" label directed forward.

f) Install grommets (12) and bolts (11).

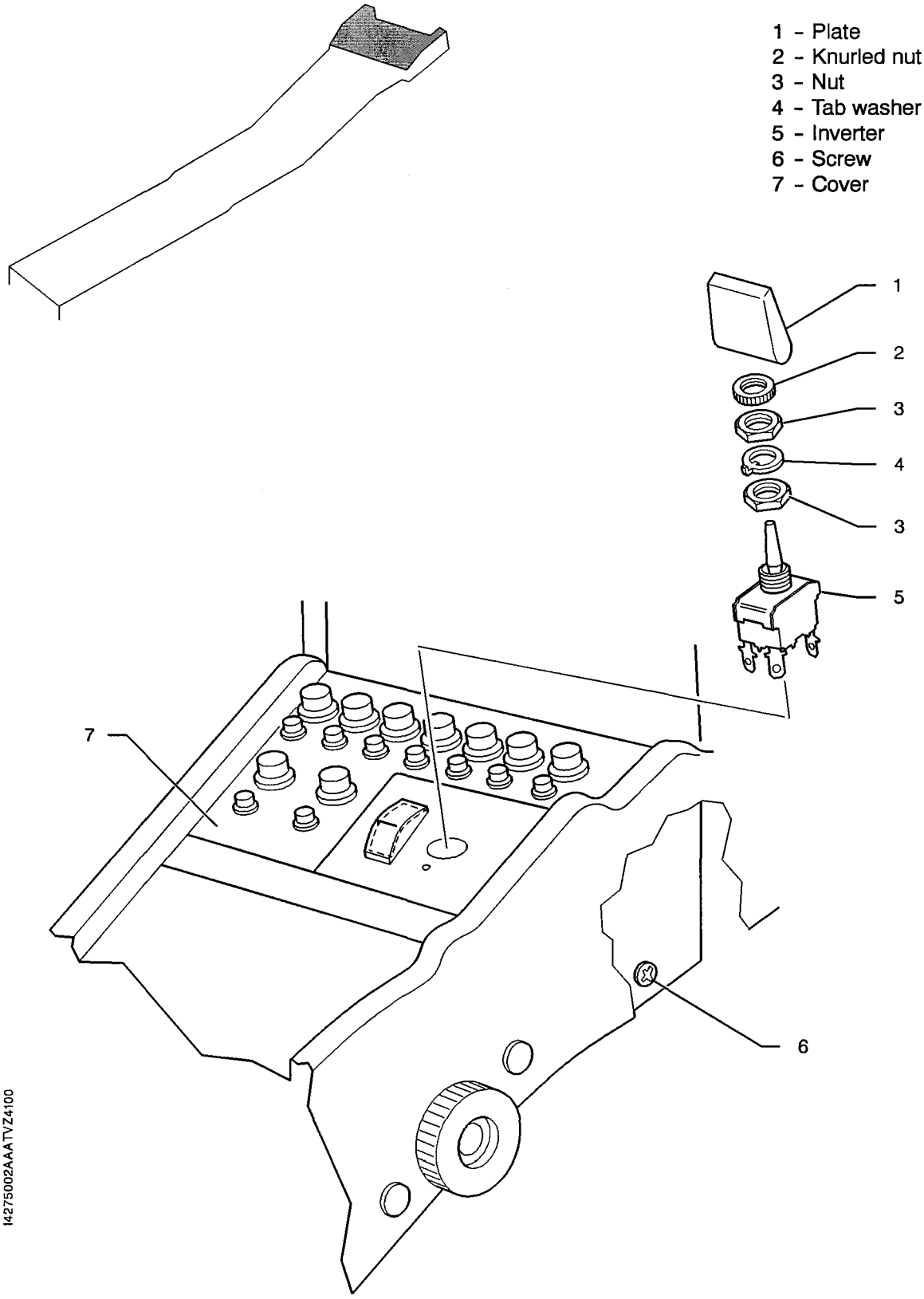
g) Make sure inverter (5), protective device (10) and plate (1) are correctly aligned without stress or friction.

2) Connect wire (18) to inverter (5), as identified during removal. Secure inverter with screws (14).

S / N 1 - 9999

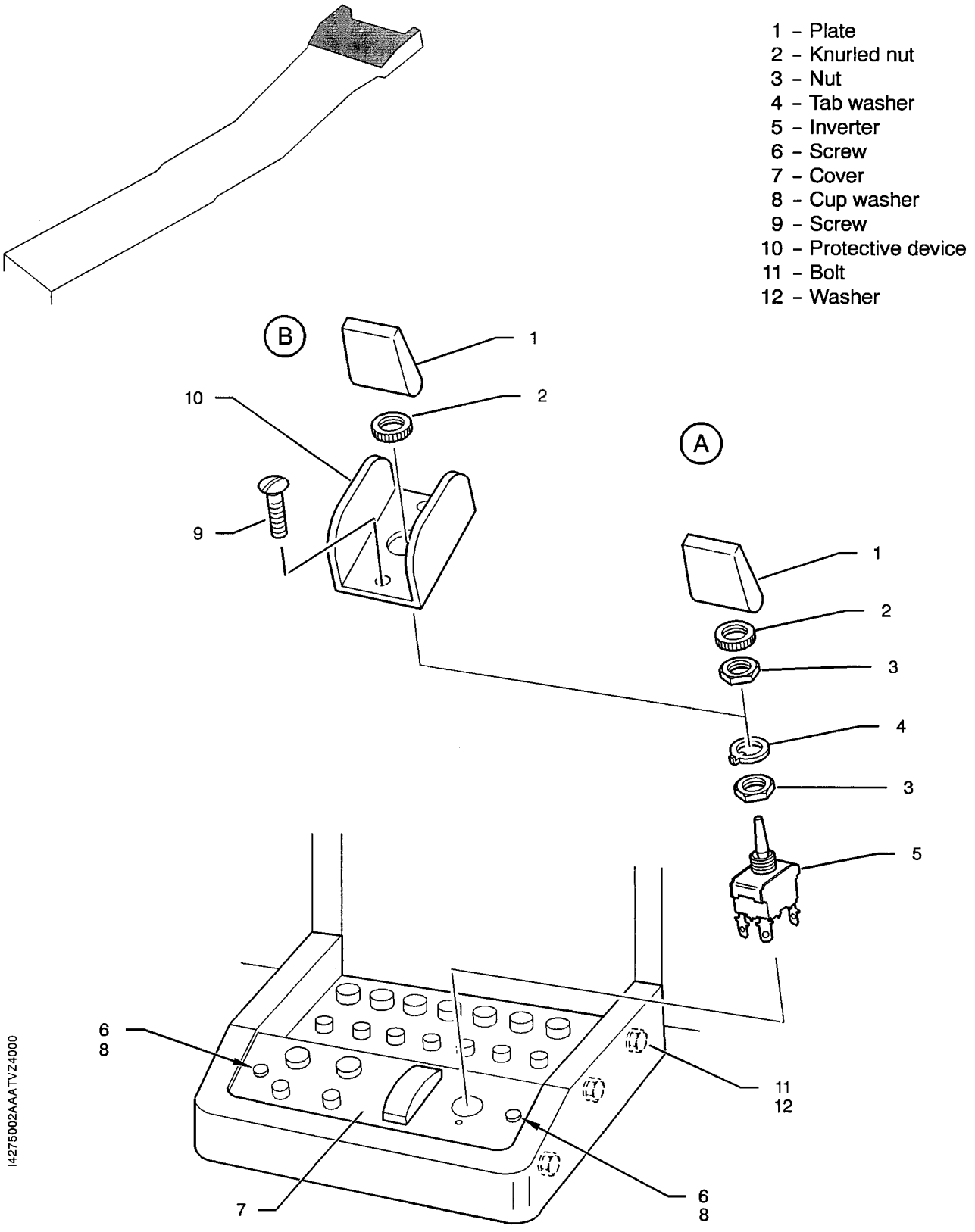
3) Connect the battery - refer to 24-30-02.

4) Extend and retract the flaps several times and check indicating - refer to 27-50-00.



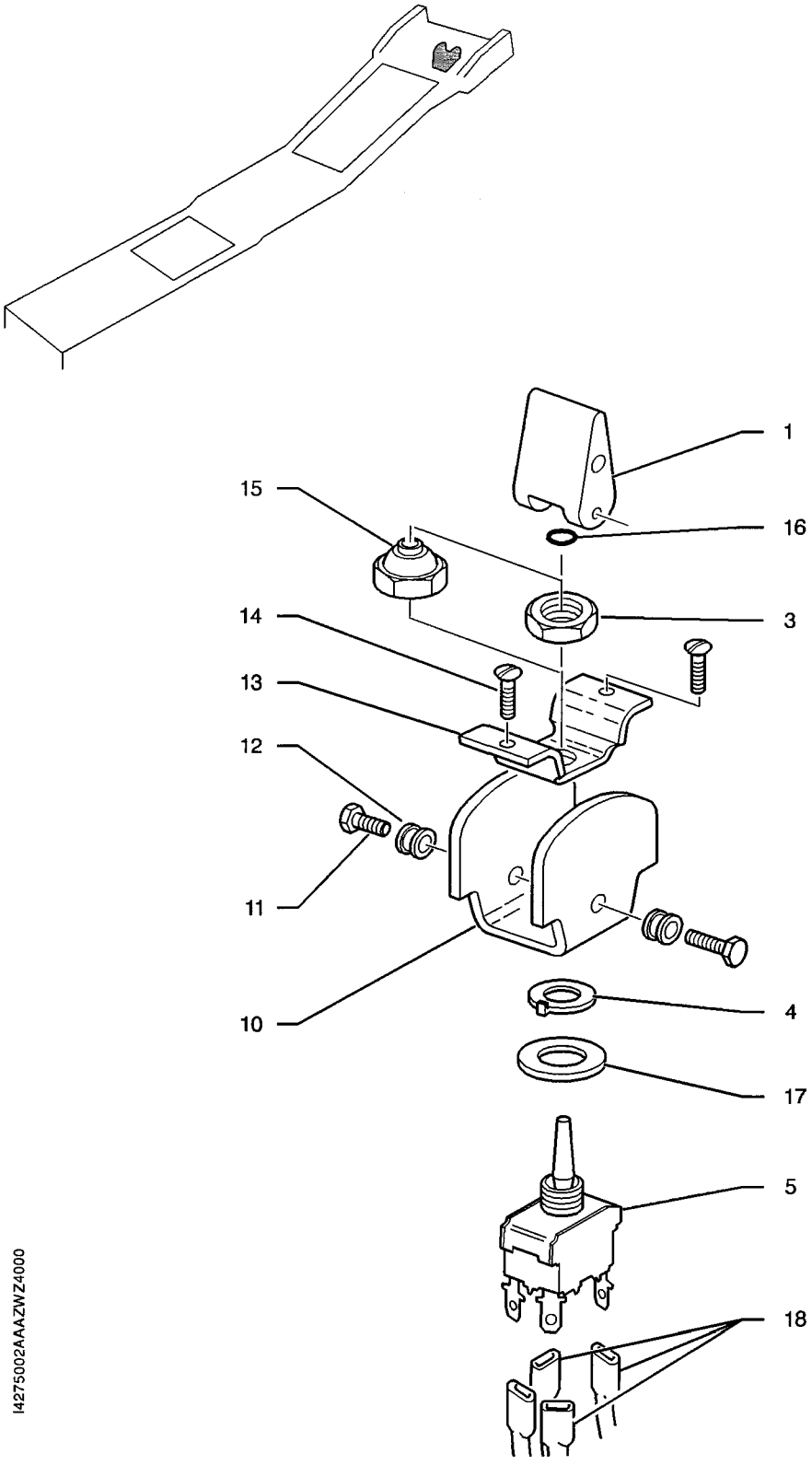
Wing flap control - Removal / Installation
Figure 201 - S / N 1 - 587, 589 - 599, 601 - 609 Pre-MOD. 127 or MOD. 144

AAAA
Validity : Without flap preselection



Wing flap control - Removal / Installation
Figure 202 - S / N 588, 600, 610 - 1149 Pre-MOD. 127 or MOD. 144

AAAA
Validity : Without flap preselection



1 - Plate
3 - Nut
4 - Tab washer
5 - Inverter
10 - Protective device
11 - Bolt
12 - Grommet
13 - Bracket
14 - Screw
15 - Sealed nut
16 - O-ring
17 - Washer
18 - Wiring

Wing flap control - Removal / Installation
Figure 203 - Post-MOD. 127 or MOD. 144

AAAA
Validity : Without flap preselection

WING FLAP CONTROL

REMOVAL / INSTALLATION

1. REMOVAL / INSTALLATION - WING FLAP CONTROL

A. Tools and consumable materials

- Oil (TB 03-900A)
- Petrolatum (TB 04-012)
- Varnish (TB 07-906)
- Loctite (TB 08-013)
- Adhesive tape (TB 08-919A)

S / N 1 - 499, 501 - 547, 553, 556, 560 - 579 Pre-Kit OPT10 911600

B. Removal of wing flap control (Figure 201)

1) Disconnect the battery - refer to 24-30-02.
2) Remove side pedestal covers - refer to 25-14-00.
3) Remove the flap indicator.
4) Remove screws (1), protective device (2) and dust-proof plate (3).
5) Rotate lower assembly (19) by 90° to disengage it downwards.
6) Disconnect connector (12) and retain lower assembly (19).
7) If necessary, disassemble lower assembly (19).
   a) Partially unscrew screws (15).
   b) Remove and discard nut (4), remove washer (5) and attaching bolt (6) from the wiring.
   c) Remove and discard nuts (17), remove washers (11), bolts (10) and pad (9).
   d) While unscrewing nut (14), remove rotary switch (7) from its housing, retain washer (13).
   e) Check grommet (18) condition. Replace if necessary.
   f) If rotary switch (7) has to be replaced, retain the wire equipped with connector (12) and clamp.

C. Installation of wing flap control (Figure 201)

1) If disassembled, reassemble lower assembly (19).
   a) Check condition of the components, especially condition of lower section of selector (16) and pad (9) notches. Replace if necessary.
   b) If rotary switch (7) is replaced, perform the following operations :
      - Shorten tabs (8) by 0.12 in (3 mm) to avoid contact with the side pedestal cover.
      - Connect the wires (as identified during removal) equipped with connector (12) and clamp.
   c) Slightly lubricate rotary switch (7) pin, selector (16) hinge pin hole and grommet (18) with oil (TB 03-900A).

d) Center selector (16), screw rotary switch (7) on its bracket using washer (13) and nut (14). Check grommet (18) correct positioning and tighten nut (14).

e) Position and attach pad (9) using bolts (10), washers (11) and new nuts (17).

f) Tighten screws (15) and safety with varnish (TB 07-906).

g) Attach the wiring using bolt (6), washer (5) and new nut (4).

2) Make sure rotary switch (7) contacts pad (9) on the three positions.

3) Position lower assembly (19) in the pedestal and connect connector (12).

4) Install dust-proof plate (3), protective device (2) and screws (1).

5) Install flap indicator.

6) Make sure all the tools and materials are removed and the work area is clean and free from debris.

7) Install the side pedestal covers - refer to 25-14-00.

8) Connect the battery - refer to 24-30-02.

9) Check the flap travels and indicating - refer to 27-50-00.

S / N 500, 548 - 552, 554, 555, 557 - 559, 580 - 9999 and S / N 1 - 499, 501 - 547, 553, 556, 560 - 579 Post-Kit OPT10 911600

D. Removal of wing flap control (Figure 201A)

1) Disconnect the battery - refer to 24-30-02.

2) Remove screws (4) and clear selector assembly (17).

3) Disconnect and tape the wire outside the pedestal with adhesive tape (TB 08-919A). Remove selector assembly (17).

4) If necessary, disassemble selector assembly (17).

a) Remove bolts (8) and grommets (7).

b) Remove plate (1) and O-ring (3).

c) Mark inverter (13) or (14) direction in relation to bracket (10).

Pre-MOD. 143 (Detail B)

d) Mark wires (11) on inverter (13) tabs and disconnect them.

Post-MOD. 143 (Detail C)

d) Mark wires (11) on inverter (14) tabs and disconnect them.

e) If inverter (14) has to be replaced, remove shunt (12).

All

f) Remove nut (16) or sealed nut (15), bracket (5), protective device (6), tab washer (9) and bracket (10) from inverter (13) or (14).

E. Installation of wing flap control (Figure 201A)

1) If disassembled, reassemble selector assembly (17).

   a) Lubricate inverter (13) or (14) lever and bolt (8) smooth section with petrolatum (TB 04-012).

   b) Check condition of components, replace if necessary.

   c) Engage inverter (13) or (14), as identified during removal, on bracket (10).

   d) Install tab washer (9), protective device (6) and bracket (5).

      NOTE : Make sure the washer tab is correctly seated in protective device (6) hole.

   e) Coat inverter (13) or (14) thread, plate (1) holes (2) with loctite (TB 08-013).

   CAUTION : CORRECTLY SUPERIMPOSE THE TRAVEL PLANES OF INVERTER LEVER AND PLATE (1) TO PRECLUDE STRESS.
   THE PLATE / LEVER ASSEMBLY MUST MOVE FREELY WITHOUT INTERFERING WITH PROTECTIVE DEVICE WALLS.

   f) Install nut (16) or sealed nut (15), O-ring (3) (check condition, replace if necessary) and plate (1).

   g) Install grommets (7) and bolts (8).

   h) Make sure inverter (13) or (14), protective device (6) and plate (1) are correctly aligned without stress or friction.

   i) Connect wires (11), as identified during removal, on inverter (13) or (14).

   Post-MOD. 143 (Detail C)

   j) If inverter (14) has been replaced, install shunt (12).

All

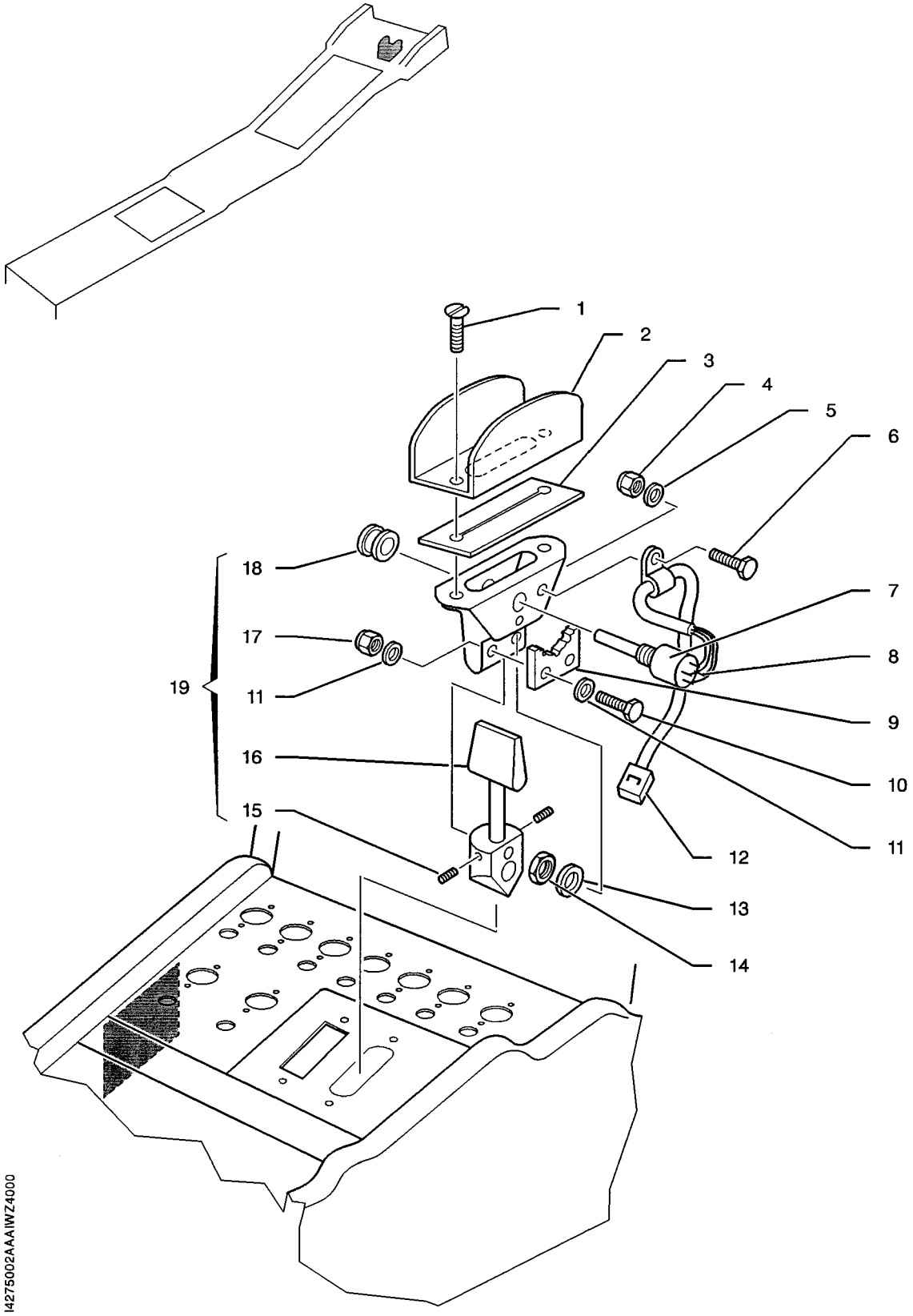
2) Connect and secure selector assembly (17) with screws (4).

3) Connect the battery - refer to 24-30-02.

4) Check the flap travels and indicating - refer to 27-50-00.

1 - Screw
2 - Protective device
3 - Dust-proof plate
4 - Nut
5 - Washer
6 - Bolt
7 - Rotary switch
8 - Tab
9 - Pad
10 - Bolt
11 - Washer
12 - Connector
13 - Washer
14 - Nut
15 - Screw
16 - Selector
17 - Nut
18 - Grommet
19 - Lower assembly

Wing flap control - Removal / Installation
Key to Figure 201 - S / N 1 - 499, 501 - 547, 553, 556, 560 - 579 Pre-Kit OPT10 911600

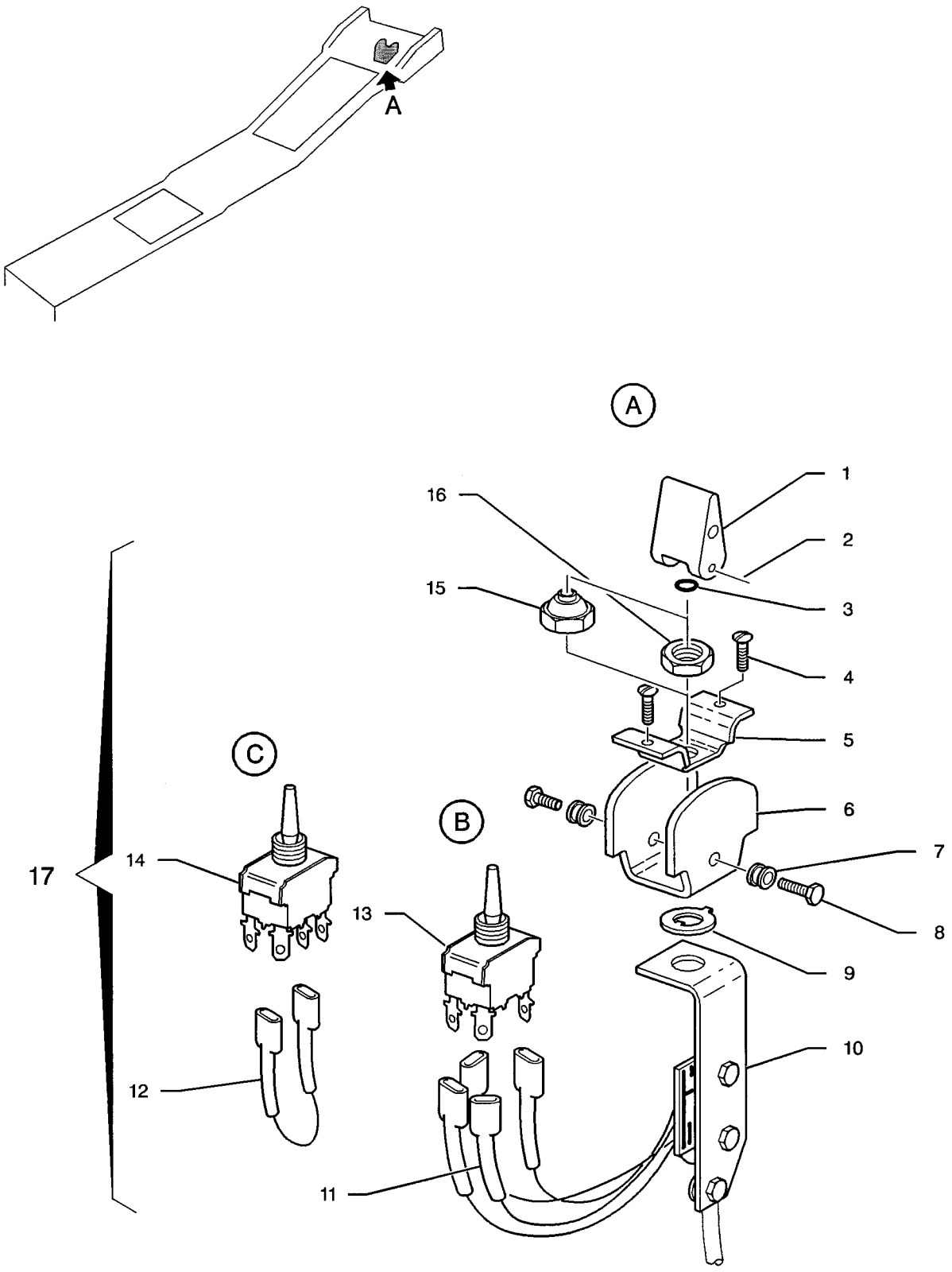


Wing flap control - Removal / Installation
Figure 201 - S / N 1 - 499, 501 - 547, 553, 556, 560 - 579 Pre-Kit OPT10 911600

ABAB
Validity : With flap preselection

1 - Plate
2 - Hole
3 - O-ring
4 - Screw
5 - Bracket
6 - Protective device
7 - Grommet
8 - Bolt
9 - Tab washer
10 - Bracket
11 - Wire
12 - Shunt
13 - Inverter
14 - Inverter
15 - Sealed nut
16 - Nut
17 - Selector assembly

Wing flap control - Removal / Installation
Key to Figure 201A - S / N 500, 548 - 552, 554, 555, 557 - 559, 580 - 9999 and S / N 1 - 499, 501 - 547, 553, 556, 560 - 579 Post-Kit OPT10 911600



Wing flap control - Removal / Installation
Figure 201A - S / N 500, 548 - 552, 554, 555, 557 - 559, 580 - 9999 and S / N 1 - 499, 501 - 547, 553, 556, 560 - 579 Post-Kit OPT10 911600

ABAB
Validity : With flap preselection

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