

## Chapter 4E FLYING CONTROLS - TAIL PLANE

(completely revised)

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## DESCRIPTION

## General information

1. The slab tail plane is moved by a twin screwjack powered flying-control unit (p.f.c.u.) powered by two hydraulic motors through a train of gears. Each motor is independent of the other, and is supplied from an accumulator in an independent hydraulic system, ensuring continued operation of the tail plane, although at a reduced rate, if one hydraulic system fails completely. Operation of the hydraulic motors - to satisfy trim-change, autopilot system, or normal tail-plane control demands - is controlled by a rod-and-lever system connected to the control column. For trimming, an electrically-operated actuator connected through a feel unit moves the control run. Autopilot system demands are imposed by an electro-hydraulic auto-stabilizer connected directly into the control run. Artificial feel is applied to the control run by a hydraulic-feel unit and springs connected to it.

**Feel unit, trim actuator, and auto-stabilizer actuator interconnection**  
(fig. 2)

2. A lever assembly, protected by a heat shield, between frames 49 and 50 on the starboard lower side of the fuselage, is the point at which artificial feel loading, trim changes and autopilot demands are applied to the control run. The autostabilizer actuator is accessible behind panel 62S, and the trim actuator behind panel 65.

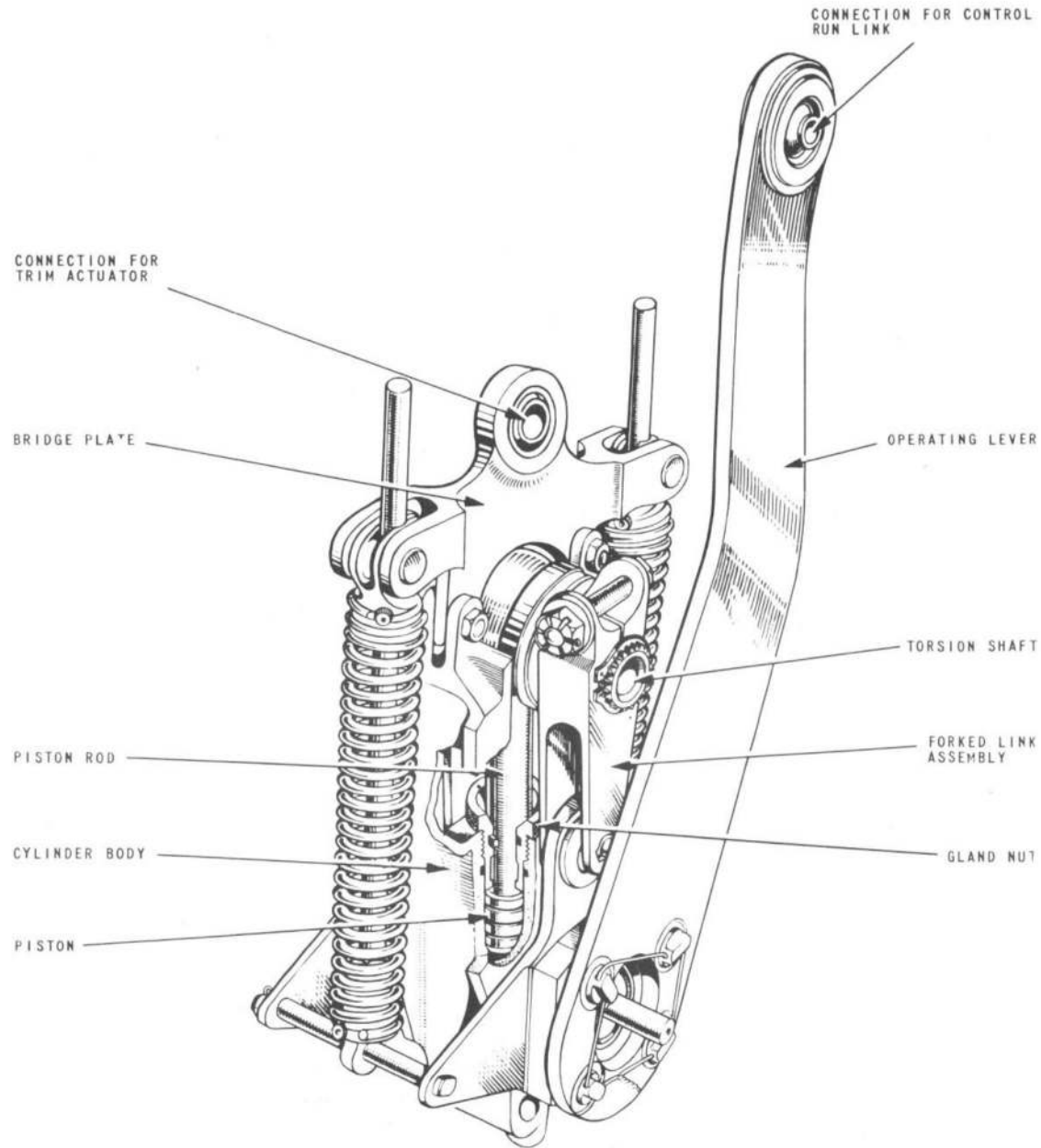


Fig. 1. Feel unit

**Artificial feel***Hydraulic feel*

3. Centring forces on the control column, simulating aerodynamic loading on the tail plane, are applied by the hydraulic feel unit. Subjected to metered hydraulic pressure from the feel simulator control unit (*Chap. 6*), the feel unit resists displacement of the control column to give a representative feel, above a fixed value base loading, relative to the speed and altitude of the aircraft.

*Spring feel*

4. The spring-feel unit consists of two opposed coil springs attached to the hydraulic-feel unit, and assists in providing centring forces and a sense of feel to the control column; it will continue to do so should hydraulic failure occur.

*Hydraulic-feel cancellation*

5. Hydraulic feel, on both tail-plane and rudder controls, can be cancelled by operation of the feel selector switch on the port instrument panel.

**Trimming**

6. Change of trim is effected by use of the four-position trim switch on the control column handle; e.g. a nose-down attitude is corrected by moving the switch aft to decrease the tail-plane incidence. Operation of the switch energizes a linear actuator connected to the feel unit. The body of the actuator pivots about its mounting bracket on frame 48 and the ram extension is connected to the feel unit body (*fig. 2*). Movement of the actuator ram displaces

the feel unit which pivots about its mounting to the aircraft structure, and, through the linkage to the lever in the control run, moves the control column and the control valves of the tail-plane motor. The disposition of the actuator and feel unit is such that, for a given linear movement of the ram from mid-setting, extension will produce a greater angular displacement of the feel unit lever arm than will retraction; the effect on the tail plane is that, measured from the rigging position, the nose-up trim range is greater than the nose-down range.

**Autostabilizer actuator**

7. This unit, supplied with hydraulic pressure from the services system and protected by an accumulator, is linked into the tail-plane control run to operate the control unit at the dictation of amplified electrical signals from the autopilot system. The body of the unit can pivot about its anchorage on frame 50, and the ram extension is connected to one of the twin arms of a cradle lever assembly (*fig. 2*). Linear movement of the ram displaces the cradle lever which pivots on its mounting and moves the main lever, which pivots about its connection to the control run from the cockpit. The effect on the control system differs from that of the trim actuator, in that the control column does not move with control surface movement.

**P. f. c. u.**

8. The p.f.c.u., located between frames 56 and 58, moves the tail planes (*Chap. 3*) identically and simultaneously in

response to control column, trimming or autopilot demands.

**SERVICING****WARNING**

The relevant safety precautions detailed on the LETHAL WARNING marker card must always be observed before entering the cockpit or performing any operations upon the aircraft.

*Lubrication (fig. 6)*

9. The key to the lubricant symbols, together with the designations, Ref.No. and N.A.T.O. code numbers of the lubricants, is on the reverse of the contents marker card at the front of this book. Ball bearings, throughout the system, are prepacked with grease and do not normally require attention; it is generally necessary to dismantle the assemblies to renew the lubricant, where oil is specified it is to be used sparingly. All control rods run dry in their roller guides and should not be lubricated.

**Tools and equipment**

10. For tools and equipment used in servicing, or removal and assembly operations, refer to Table 5.

**P. f. c. u. - oil replenishing**

11. The jacks and gearboxes are internally lubricated with oil OX-38, the screw housings of the former being automatically filled from the second-stage gearbox. The oil-filler, oil-level and oil-drain plugs of the gearboxes are accessible behind access panel 103. To replenish either gearbox, set the

TABLE 1 CONTROLS RIGGING

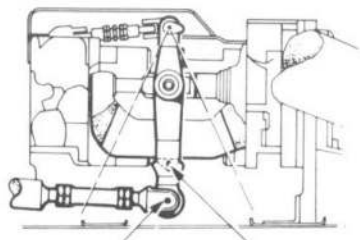
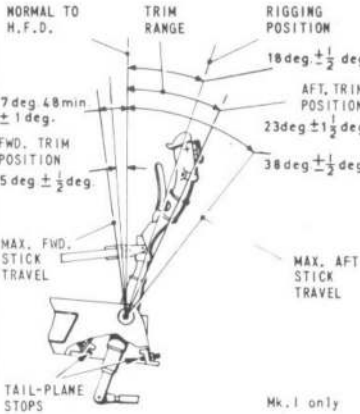
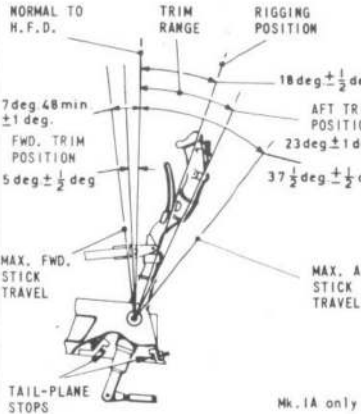
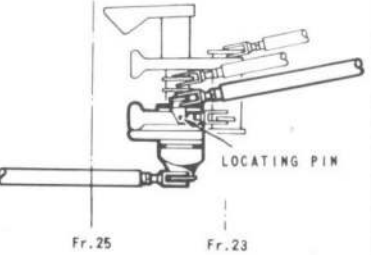
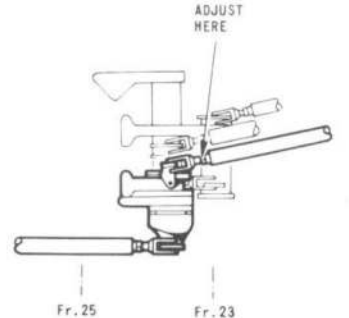
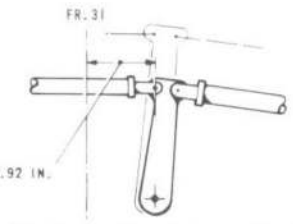
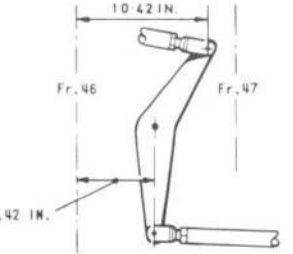
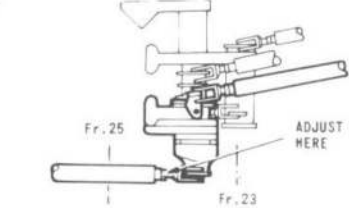
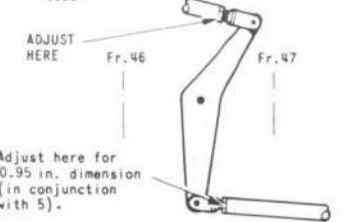
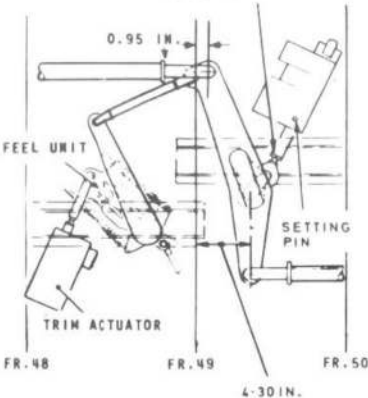
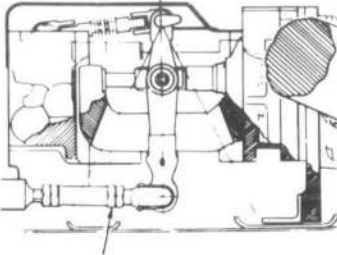
CHECKS	ADJUSTMENTS, IF NECESSARY	CHECKS	ADJUSTMENTS, IF NECESSARY
<p>1</p> <p>(A) Connect hydraulic servicing trolleys to controls and services systems. Connect an electrical servicing trolley.</p> <p>(B) Refer to para.17 for autostabilizer neutral setting.</p> <p>(C) Operate control column until all pressure is exhausted from tail-plane accumulators (rate not to exceed one stroke between stops in five seconds).</p> <p>(D) Set trim to neutral by cockpit indicator.</p> <p>(E) Disconnect control rod at p.f.c.u. input lever and fit rigging pin.</p> <p>(F) Fit neutral setting rig to control column.</p>	 <p>DISCONNECT HERE</p> <p>RIGGING PIN</p>	<p>2</p> <p>(A) Check that maximum movement of control column is available.</p> <p>(B) Set control column in rigging position.</p>  <p>NORMAL TO H.F.D.</p> <p>TRIM RANGE</p> <p>RIGGING POSITION</p> <p>18deg ± 1/2 deg.</p> <p>AFT. TRIM POSITION</p> <p>23deg ± 1/2 deg.</p> <p>38deg ± 1/2 deg.</p> <p>7deg 48min ± 1deg.</p> <p>FWD. TRIM POSITION</p> <p>5deg ± 1/2 deg.</p> <p>MAX. FWD. STICK TRAVEL</p> <p>MAX. AFT STICK TRAVEL</p> <p>TAIL-PLANE STOPS</p> <p>Mk. I only</p>	 <p>NORMAL TO H.F.D.</p> <p>TRIM RANGE</p> <p>RIGGING POSITION</p> <p>18deg ± 1/2 deg.</p> <p>AFT TRIM POSITION</p> <p>23deg ± 1deg.</p> <p>37 1/2 deg ± 1/2 deg.</p> <p>7deg 48min ± 1deg.</p> <p>FWD. TRIM POSITION</p> <p>5deg ± 1/2 deg.</p> <p>MAX. FWD. STICK TRAVEL</p> <p>MAX. AFT STICK TRAVEL</p> <p>TAIL-PLANE STOPS</p> <p>Mk. IA only</p>
<p>3</p> <p>Fit the locating pin at the vertical torque tube (Access panel 265).</p>  <p>LOCATING PIN</p> <p>Fr. 25</p> <p>Fr. 23</p>	<p>If pin will not enter, adjust the upper control rod at the torque tube.</p>  <p>ADJUST HERE</p> <p>Fr. 25</p> <p>Fr. 23</p>	 <p>FR. 31</p> <p>5.92 IN.</p> <p>(A) Check setting of lever at Fr.31-32.</p>  <p>10.42 IN.</p> <p>Fr. 46</p> <p>Fr. 47</p> <p>6.42 IN.</p> <p>(B) Check setting of lever at Fr.46-47.</p>	 <p>Fr. 25</p> <p>Fr. 23</p> <p>ADJUST HERE</p> <p>(A) If setting is incorrect, adjust control rod connected to lower lever on torque tube.</p>  <p>ADJUST HERE</p> <p>Fr. 46</p> <p>Fr. 47</p> <p>Adjust here for 0.95 in. dimension (in conjunction with 5).</p> <p>(B) If setting is incorrect adjust on upper control rod.</p> <p>1-8422-1</p>

TABLE 1 CONTROLS RIGGING CONTINUED

CHECKS	ADJUSTMENTS, IF NECESSARY	CHECKS	ADJUSTMENTS, IF NECESSARY
<p style="text-align: center;">5</p> <p>Check setting of lever at FR 49-50</p> <p style="text-align: center;">ADJUST HERE FOR 0.95 IN. DIMENSION</p>  <p style="text-align: center;">FR. 48      FR. 49      FR. 50</p> <p style="text-align: center;">4.30 IN.</p>	<p>If the setting is incorrect :-</p> <p>(A) Check piston of autostabilizer actuator (para.17).</p> <p>(B) Disconnect link to feel unit operating arm.</p> <p>(C) Adjust control rod at lever at Fr 46-47 to obtain 0.95in. dimension and length of autostabilizer ram to obtain 4.30in. dimension.</p> <p>Note...</p> <p>The setting pin must not be left in the autostabilizer actuator.</p>	<p style="text-align: center;">6</p> <p>With power in the controls systems :-</p> <p>(A) Check that tail plane input lever and autostabilizer are in neutral position using rigging and setting pins.</p> <p>(B) With tail plane incidence gauges, port and starboard, in position, check alignment of tail planes and set them in rigging position, i.e. -8deg.56min. <math>\pm \frac{1}{2}</math> deg.</p> <p>(C) Reconnect control rod to P.F.C.U. input lever.</p> <p>(D) Remove neutral setting rig and all rigging, locating and setting pins.</p> <p>(E) Screw in control column stop to give minimum movement fore-and-aft.</p>	<p>(B) If tail planes are out of alignment, re-mesh gears (para 24).</p> <p>(C) Adjust length of control rod if necessary.</p>  <p style="text-align: center;">ADJUST HERE</p>
<p style="text-align: center;">7</p> <p>With hydraulic pressure in controls and services systems, electrical power available, autostabilizer on (para.17) and feel selected ON :-</p> <p>(A) Trim tail plane to mid trim position.</p> <p>(B) Apply pitot pressure equivalent to 650 knots and move control column slowly forward, unscrewing control column stop until pointers on tailplane incidence gauges read +3deg. 10min <math>\pm \frac{1}{2}</math> deg.</p> <p>(C) Lock stop.</p> <p>(D) Reduce pitot pressure to 250 knots and move control column slowly aft, unscrewing stop until pointers on incidence gauges read -22deg 20min <math>\pm \frac{1}{2}</math> deg.</p> <p>(E) Lock stop.</p>	<p>No fouling or straining to take place during these checks and adjustments.</p> <p>Note...</p> <p>Slight lumpiness which may be felt at extremes of tail plane travel is acceptable.</p>	<p style="text-align: center;">8</p> <p>With conditions as in 7 :-</p> <p>(A) Apply pitot pressure equivalent to 650 knots.</p> <p>(B) Operate trim switch and check trim range which should be :-</p> <p style="margin-left: 40px;">Trim switch forward Tail plane angle +2 deg. <math>\pm \frac{1}{2}</math> deg.</p> <p style="margin-left: 40px;">Trim switch aft Tail plane angle -11 deg. 43 min. <math>\pm \frac{1}{2}</math> deg.</p> <p style="margin-left: 40px;">Remove servicing trolleys and incidence gauges. Inspect all limit stops, control rod adjusters and turnbarrels for correct locking and, where applicable, correct thread engagement.</p>	<p>If trim range is incorrect, move control column to neutral and disconnect trim actuator ram from feel unit body.</p> <p>Check that hydraulic pressure is sufficient to centre the feel unit.</p> <p>Adjust length of trim actuator ram and connect to feel unit body.</p>

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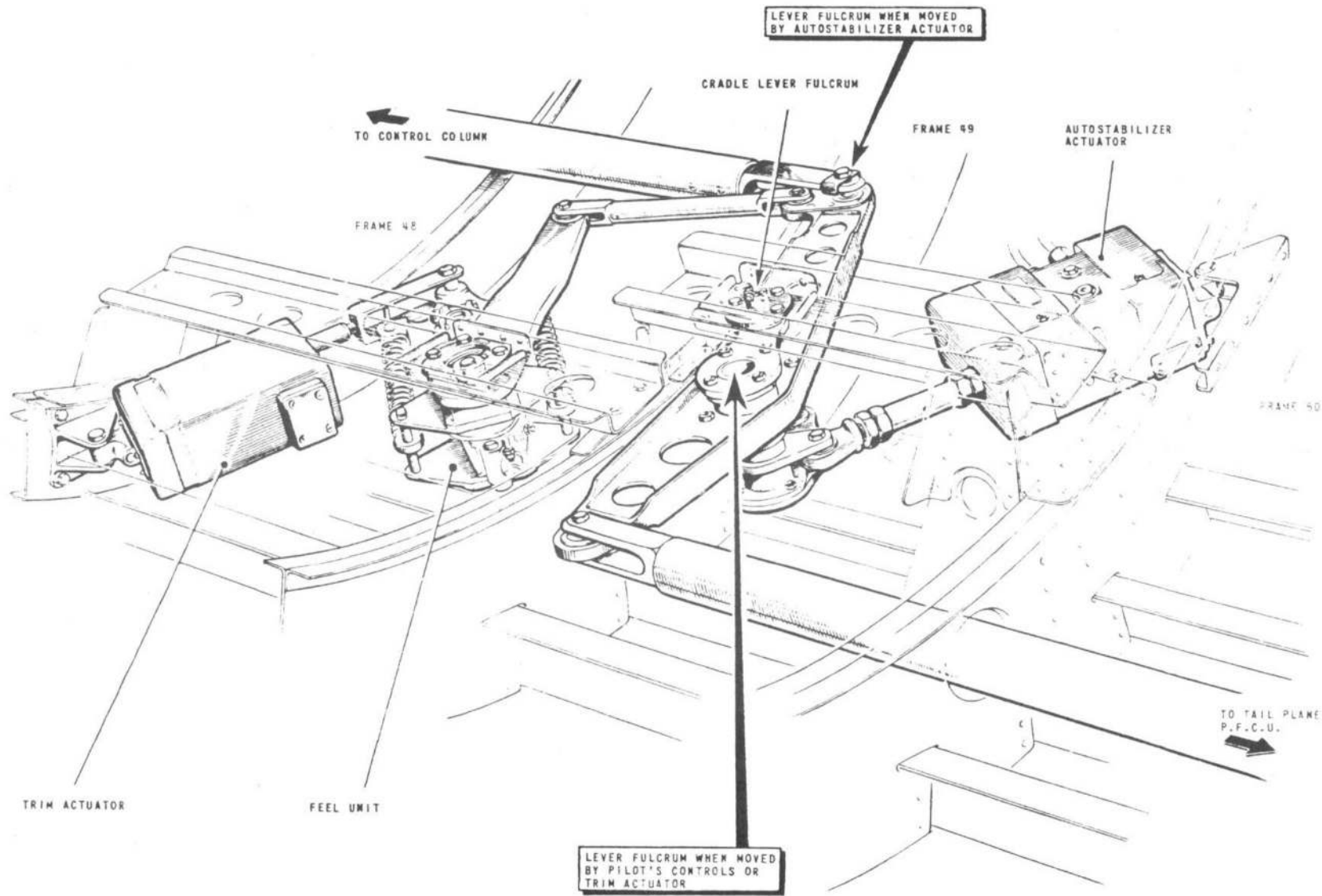


FIG. 2. FEEL UNIT AND AUTOSTABILIZER ACTUATOR - INSTALLATION

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jacks to mid-stroke, i.e. tail planes neutral. Remove the blanking caps from the appropriate filler and level plugs and, using fluid replenishing can Ref. No.4G/4864, connect the delivery hose to the filler plug, and fill the gear-box until oil flows from the level plug. Allow the surplus oil to drain out and then refit the blanking caps. A connector Ref.No.26DK/95038 is provided for use with a container to collect overflow or drain oil.

#### Controls rigging (Table 1)

##### Preparation

12. Prepare the aircraft by removing the appropriate access panels (Sect.2, Chap.4, Table 3), and, if necessary, the detachable floor panel No.21 (Sect.2, Chap.4, fig.7).

##### Servicing checks

13. For normal servicing checks refer to Table 1 and carry out checks 1 (E) and (F), 6(B), (C) and (D) - do not adjust stops - 7 and 8. If any of the conditions in Table 1 cannot be satisfied carry out the complete set of checks 1 to 8. Check for security, freedom of movement without noticeable backlash, lubrication and cleanliness.

##### Control run breakdowns

#### WARNING

In view of the possibility of fouts occurring in the control run if bolts are fitted incorrectly, particular attention is drawn to the fact that in some cases bolts are fitted inverted (fig.7 and 8).

14. If it is necessary to break down the control system, fit the neutral setting rig and/or rigging pins, where possible at points both sides of the breakdown area. Upon completion of the work carry out checks for fouling or straining, freedom of movement, range of movement and security.

##### Complete rigging checks

15. To carry out full rigging checks, refer to Table 1 and execute all the listed operations.

##### Trim range checks

16. For trim range checks refer to Table 1 and carry out checks and any necessary adjustments detailed in check 7.

#### Autostabilizer actuator - neutral setting

17. Before the tail-plane controls are rigged for neutral position, the autostabilizer actuator must be set in the neutral position (flight control system installed and serviceable) as follows:-

(1) Connect external a.c. and d.c. supplies.

(2) Set the following switches:-

F.C. system engage switch on control column handle	OFF
Pitch and roll/yaw switches on control unit	OFF
Instrument master switch	ON
Master switch on control unit	ON

(3) Remove the hydraulic system hand-pump handle from its stowage in the port wheel well, fit it to the pump (access panel 79P) and operate the pump to provide pressure for centring the actuator.

(4) Check for centre position, using a setting pin inserted through the hole in the body of the actuator. If the pin will not enter, the actuator is un-serviceable.

(5) Allow hydraulic pressure to exhaust itself before carrying out operation (6).

(6) Set the master switch on the controller and the instrument master switch to OFF.

#### Note...

1. Ensure that the setting pin is removed.

2. It is essential that the ground electrical supplies are connected and that the instrument and autopilot master switches remain ON throughout the tail-plane checks to ensure that the autostabilizer remains in neutral.

3. Care must be taken to ensure that no movement of controls occurs while personnel have their hands in the vicinity of the tail-plane actuator, also that the pitch and roll/yaw switches remain in the OFF position.

#### Functioning checks

##### Preparation

18. The checks detailed in para.19-21

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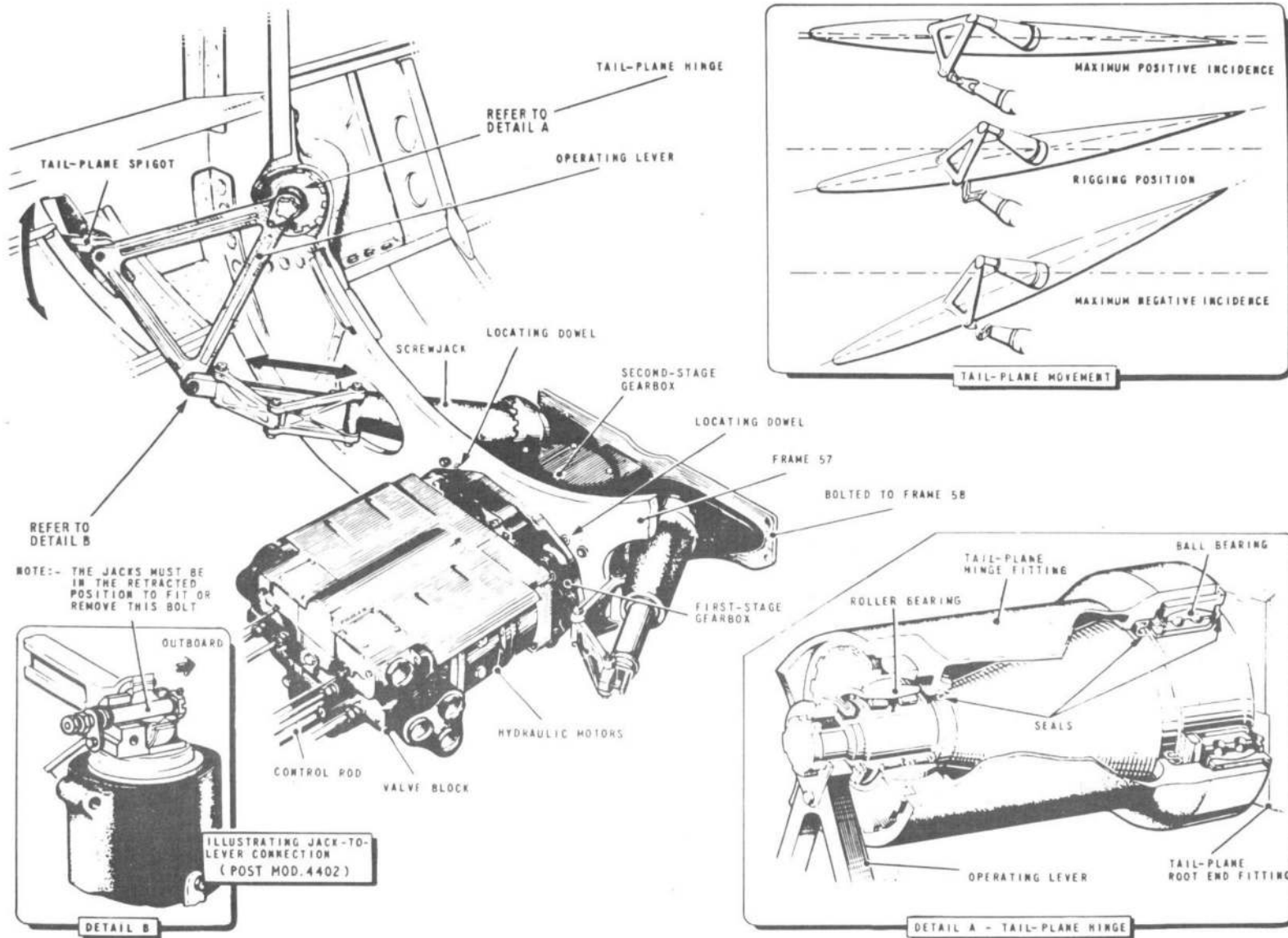


FIG.3. OPERATING MECHANISM

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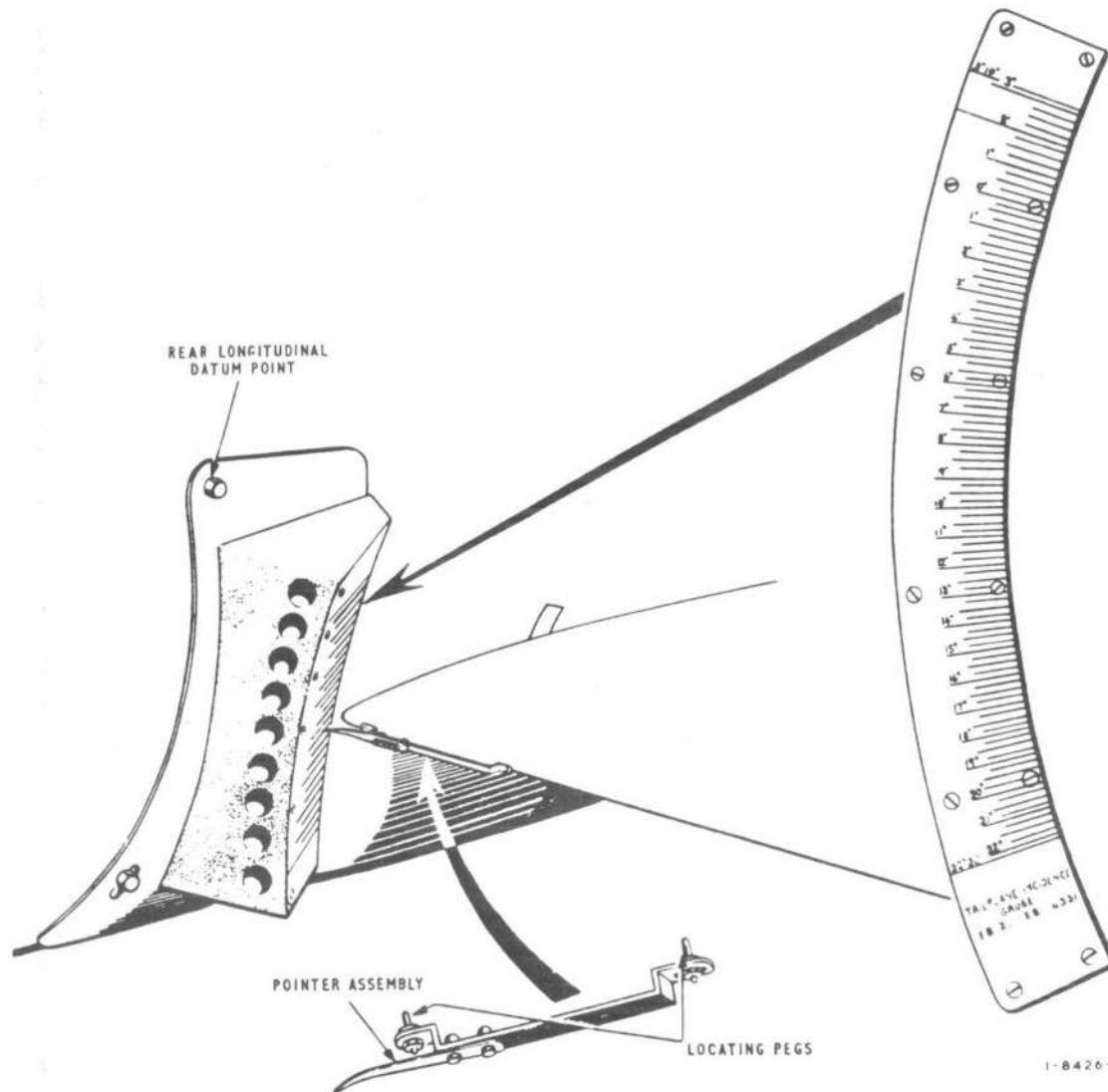


Fig. 4. Incidence gauge

◀ TITLE CHANGE ▶

may be carried out only after the controls system has been correctly rigged. The checks given in para.19, and the pressure test and accumulator capacity test given in Chap.6 must always be made after a replacement p.f.c.u. has been fitted, while the checks given in para. 19-21 must be carried out after a replacement feel unit has been fitted. Prepare the aircraft as follows:-

(1) Connect a hydraulic servicing trolley to the services and No.1 controls system ground test couplings (access panel 45P) and the No.2 controls system (access panel 67P), and an electrical servicing trolley to the ground servicing connection in the port wheel well.

(2) Fit a pitot-static test adapter to the pressure head and connect to a test rig by means of a rubber hose.

**Note...**

To ensure that 'feel' is selected correctly when required, the services system must be pressurized to a minimum pressure of 1300 lb/in<sup>2</sup>.

(3) Fit the neutral setting rig to the control column and, using an inclinometer, set the control column to the rigging position (Table 1), operating the trim switch if necessary.

*Smoothness, friction, and centring checks*  
**19.**

(1) Select 'feel' OFF (para.18 (2) note). Move the control column through its full range of movement and check

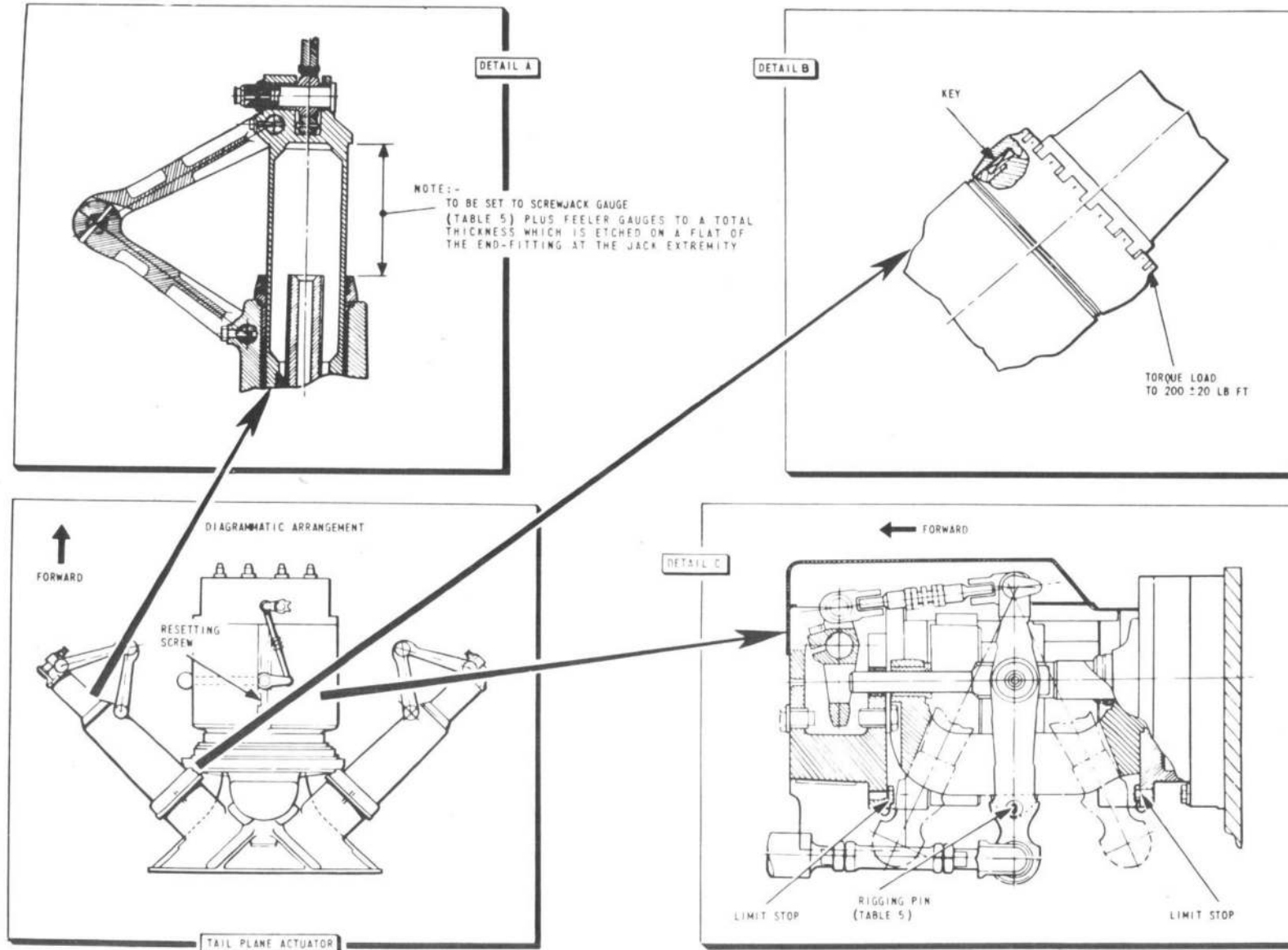


FIG. 5. P.F.C.U. SETTINGS

carefully that consistent smoothness is felt throughout the movement. The cause of any perceptible roughness must be traced and eliminated before proceeding with further checks.

**Note...**

*Sudden movement of the control column may cause judder when the aircraft is on trestles; this is acceptable in the trestled condition but not when the aircraft is on the ground.*

(2) Using a 4 lb x ½ oz tubular spring balance 15.5 in. from the control column pivot, slowly apply force and check that to initiate movement of the control surface, the force required does not exceed:-

Forward 16 oz                      Aft 15 oz

(3) Check for centring by displacing the control column to one extreme and allowing it to return, under restraint, towards neutral. Measure the final 'hands off' out-of-centre position. Repeat the check to the opposite extreme. The final out-of-centre position must not exceed 3 deg either side of neutral.

(4) With hydraulic power in the services system, select feel ON at zero knots (*para.18 (2) note*) and repeat instructions (1) and (3). The final out-of-centre positions must not exceed 3 deg either side of neutral.

**Feel spring check****20.**

(1) With hydraulic power connected to the No.1 or No.2 controls system and to

either of the ground couplings of the services system (*para.18*), select feel OFF (*para.18 (2) note*). Start the hydraulic servicing trolleys and trim the control column to the mid-trim position.

(2) Attach a 30 lb capacity spring balance to the control column 15.5 in. from the pivot point. Check that the forces required to displace the control column agree with the figures shown in Table 2.

**TABLE 2****Spring feel loads**

COLUMN ANGLE (deg)	SPRING FEEL LOADS (lb)
15 fwd.	6 ± 1
10 aft	6 ± 1
19½ aft	13 ± 2

**Note...**

*If 19½ deg is exceeded the control column may contact the forward stop and a false reading be obtained.*

**Feel performance check****21.**

(1) With hydraulic power connected to No.1 or No.2 controls system and to either of the services system ground couplings (*para.18*), trim the control column to the mid-trim position and select 'feel' ON at zero knots (*para.19 (4)*). Check that the forces required to displace the control column agree with the figures in Table 3. Refer to Note, *para.20 (2)*.

**TABLE 3****Total feel loads at zero knots I.A.S.**

COLUMN ANGLE (deg)	FEEL LOAD (lb)
15 fwd.	10 ± 2
10 aft	10 ± 2
19½ aft	23 ± 3

(3) Pressurize the pitot system to represent 500 knots I.A.S. and repeat (1). Feel forces should be as given in Table 4.

**TABLE 4****Total feel loads at 500 knots I.A.S.**

COLUMN ANGLE (deg)	FEEL LOAD (lb)
15 fwd.	35 ± 3
10 aft	35 ± 3

**REMOVAL AND ASSEMBLY****Note...**

*Bonding is to be correctly restored following breakdown of systems.*

**Tail plane**

*Removal and assembly*

**22.** For removal and assembly of the tail plane, refer to Chap.3.

**P. f. c. u.**

*Removal*

**23.** To remove the p.f.c.u.

(1) Remove the lower reheat jet pipe (*Sect.4, Chap.1*), the heat shield

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surrounding the control unit, panels 93 and 103, and the hydraulic pipe fair-leads on the debris guard.

(2) Release all hydraulic pressure from the No.1 and 2 controls system tail-plane accumulators (rate of operation of the control column not to exceed one stroke between limit stops in five seconds). Release the air pressure from the No.1 and 2 controls system hydraulic system reservoirs (access panel 64S).

(3) Disconnect the control run from the control unit input lever (*Table 1, detail 1*).

(4) Disconnect the hydraulic pipe unions to the valve block; blank the pipe unions and the valve block connections immediately each connection is broken.

(5) Remove the locking wire from the bolt heads securing the valve block, motors, and the first-stage gearbox assembly to frame 57. Support the unit, remove the bolts, and withdraw the unit forward to disengage the splined shaft.

(6) Remove the oil drain plug from the second-stage gearbox, and drain the lubricant into a suitable container.

(7) Using the spline key turn the gearbox shaft until the jacks are retracted, i.e. tail planes at negative incidence (this is necessary to obtain clearance for removing the bolts connecting the jacks to the tail-plane operating levers).

(8) Support the tail planes, and remove

the bolt connecting each jack to its associated lever.

(9) Remove the starboard screwjack from the second-stage gearbox. Use the torque spanner with an adapter to start the retaining collar.

(10) Support the unit, Fit a 4 B.A. bolt into the tapped hole of each locating dowel (front face of frame 57), and withdraw the dowels. Break the locking wire and remove the two support bolts from frame 57. Remove the locking wire and withdraw the bolts securing the unit to frame 58. Remove the unit by lifting and turning, to guide the port screwjack through the frame. Retain the shim removed from frame 58.

*Assembly (fig.5)*

24. If a replacement control unit is to be fitted, drain the oil from the second-stage gearbox, and remove the starboard jack.

(1) Position the second-stage gearbox between frames 57 and 58, and fit the shim, previously removed, between the unit and the forward face of frame 58. Insert the two locating dowels through frame 57 to pick up with the corresponding holes in the flange of the unit (the dowel heads must not stand proud of the frame counterbores). Bolt the unit to frame 58, and fit the two support bolts through frame 57. Wire-lock all bolt heads.

(2) Using the spline key, rotate the shaft to set the jack in neutral posi-

tion to the dimension given in fig.5, detail A. Check with the setting gauge.

(3) Set the starboard jack in neutral position to the same dimension. Assemble to the gearbox, fitting the key in the keyways formed in the jack body and the bevel gear housing; if the bevel gears do not mesh, adjust as follows:-

(a) Ease the jack from the gearbox, and gradually rotate the jack bevel clockwise until the gears can mesh. Refit to the gearbox, and measure the jack extension.

(b) Ease the jack from the gearbox, and rotate the jack bevel a full tooth counter-clockwise. Refit and again measure the jack extension.

(c) Compare the measurement obtained in (a) and (b) and set the jack to that nearest to the required dimension.

(4) Check that the key is fitted, and screw up the jack retaining collar until tight, but do not lock it.

(5) Using the spline key, wind the jacks to the retracted position (to provide for fitting the greaser bolt connecting the jack to the tail-plane operating lever). Connect the jack to the levers, bolt heads outboard.

(6) Wind the jacks to the neutral position (*detail A*), and check that both tail planes are at neutral position. If the tail planes are not in alignment, adjust as follows:-

(a) Unscrew the jack retaining

collar on the starboard jack, and ease the jack from the gearbox.

(b) Move the jack bevel gear one tooth in the direction required to retract or extend the jack, whichever is necessary.

(c) Refit the jack, fitting the key and tightening the retaining collar; check that the tail planes are now aligned.

(7) Using the torque spanner and adapter tighten the jack retaining collar to  $200 \pm 20$  lb ft (*detail B*). Wire-lock the collar to the jack body. Wire-lock the nuts at each jack connection to the operating lever, and fit the grease nipples.

(8) Fill the gearbox with oil OX-38 (*para.11*).

(9) Using the spline key, turn the tail planes through their full range, and check that:-

(a) The jack anti-torsion links do not fully extend when the tail planes are at maximum positive incidence.

(b) The jacks do not bottom when

the tail planes are at maximum negative incidence.

(10) Using the spline key, wind the tail planes until the port screwjack is extended to the dimensions given in fig. 5. detail A.

(11) Before assembling the first-stage gearbox, position the input lever on the resetting screw so that the rigging pin Ref.No.26DK/95459 can be fitted (*detail C*). Apply hydraulic pressure to centre the relay valves or prove that they are already centred.

(12) Install the first-stage gearbox assembly from above, taking care that the hydraulic pipes are not fouled or damaged. Mate the splined shafts, bolt the unit to the frame, and wire-lock the bolt heads.

(13) Connect the hydraulic couplings and refit the fairleads on the debris guard.

(14) Set the control column and the system levers in neutral position (*Table 1, detail 1*).

(15) Connect the control tube to the input lever of the first-stage gearbox

assembly, adjusting, if necessary, on the turnbarrel adjuster on the tube. Remove the rigging pin from the input lever.

(16) Check the nitrogen pressure in the tail-plane accumulators and pressurize the hydraulic fluid reservoirs (*Chap.6*). Connect a hydraulic servicing trolley to each of the controls hydraulic systems ground couplings (access panel 45P and 67P).

(17) Operate the hand pump on the trolleys sufficiently to check that the tail planes remain aligned with the neutral position on the rigging gauge; if movement does occur, correct the alignment by operating the hand pump again whilst carefully adjusting on the turnbarrel adjuster at the input lever.

(18) Check the hydraulic connections for leakage, and wire-lock them; lock the turnbarrel adjuster.

(19) Fulfil the instructions given in Table 1, details 5 and 6.

(20) Carry out the smoothness, friction and centring checks given in para.19, and the tail-plane operational and accumulator capacity checks (*Chap.6*).

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TABLE 5

## Tools and equipment

Ref.No.	Part No.	Description	Application/remarks
26DK/95063	EB2.88.2993	Key, spline	
26DK/95404	CH.116242/1	Gauge, screwjack	
1C/1201261		Spanner, torque, 150-450 lb ft	Tail-plane operating mechanism
27KC/2778	CH.105732	Adapter, torque spanner	Use with 1C/1201261
26DK/95459	CHA.91193	Pin, rigging	Tail-plane p.f.c.u.
26DK/95127	EB1.88.1093	Pin, locating	Control rigging
26DK/95134	CH.109215	Pin, setting	Autostabilizer setting
1H/118		Balance, spring, tubular, 0-4 lb	Tail plane control movement
1A/1275138		Balance, spring, 0-30 lb	
1A/1275140		Balance, spring, 0-200 lb	
26DK/95273	EB2.88.4779	Gauge, incidence, tail plane, port	
26DK/95274	EB2.88.4780	Gauge, incidence, tail plane, stbd.	
26DK/95503	EB2.88.7013	Rig, setting, control column and rudder bar	
4F/3603		Trolley, hydraulic servicing Mk.3	C/W No.1,2,3, and 4 conversion kits
4FE/3761 or			
4FE/4257		Trolley, electrical servicing	15kVA/10kW I.C.E. -driven
4FE/3786 or			
4FE/4258		Trolley, electrical servicing	15kVA/10kW, electrical-driven
6C/1042139		Sets, test, pitot static, Mk.3	
6C/4361161		Sets, test, pitot static, Mk.5	

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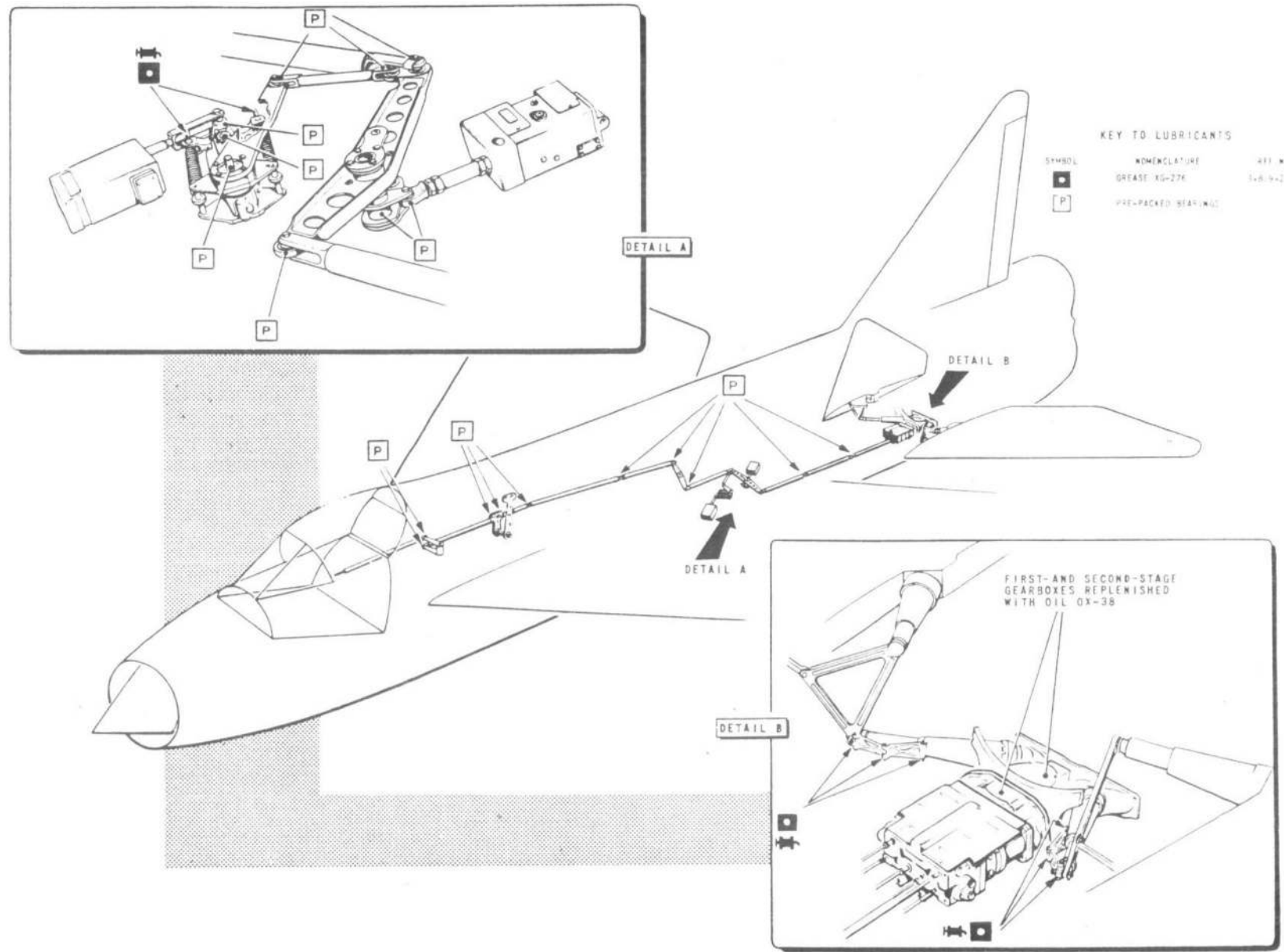


FIG. 6. LUBRICATION OF CONTROLS

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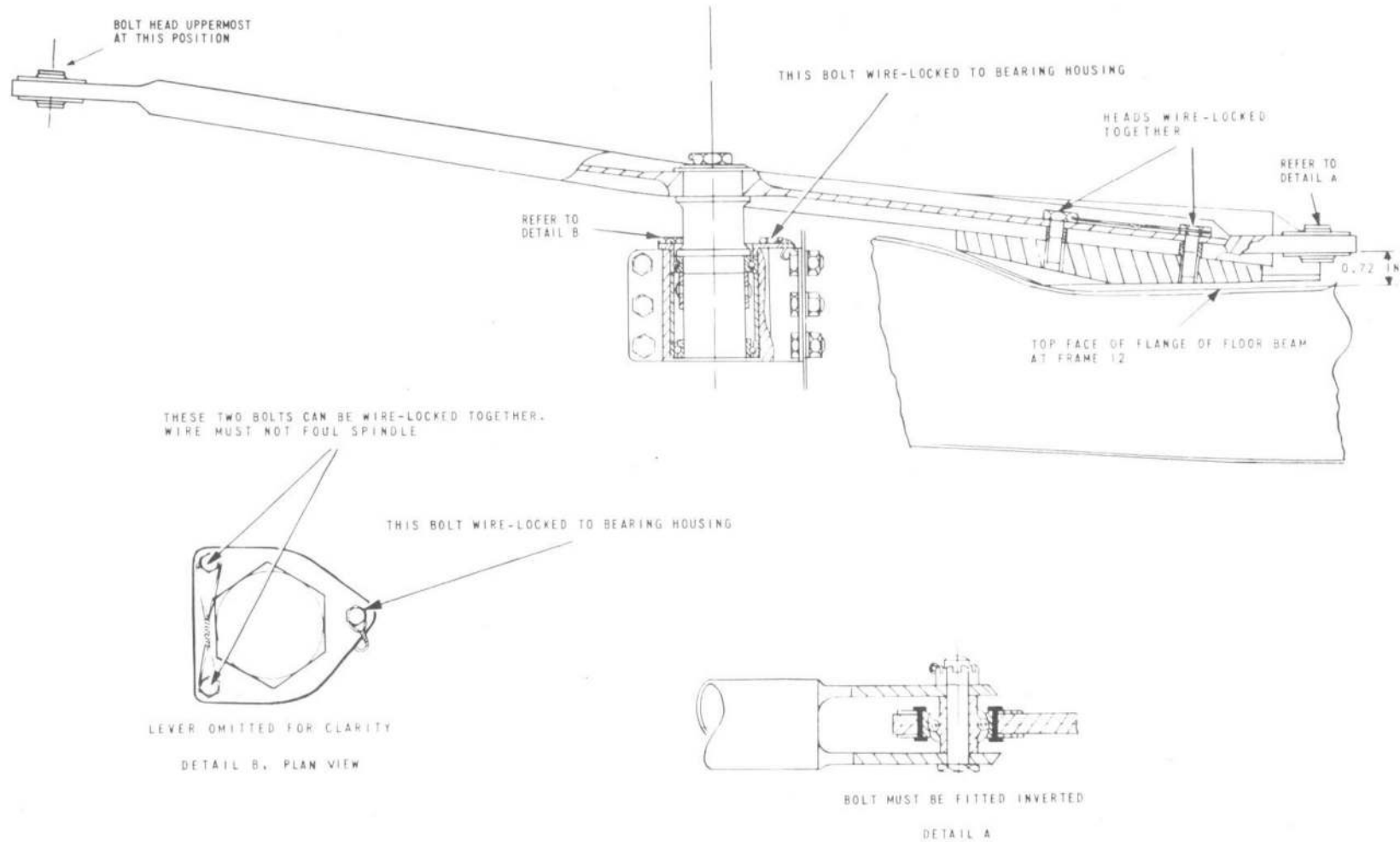


FIG.7. LEVER ASSEMBLY - FRAMES 11-12

◀ REVISED ANNOTATION ▶

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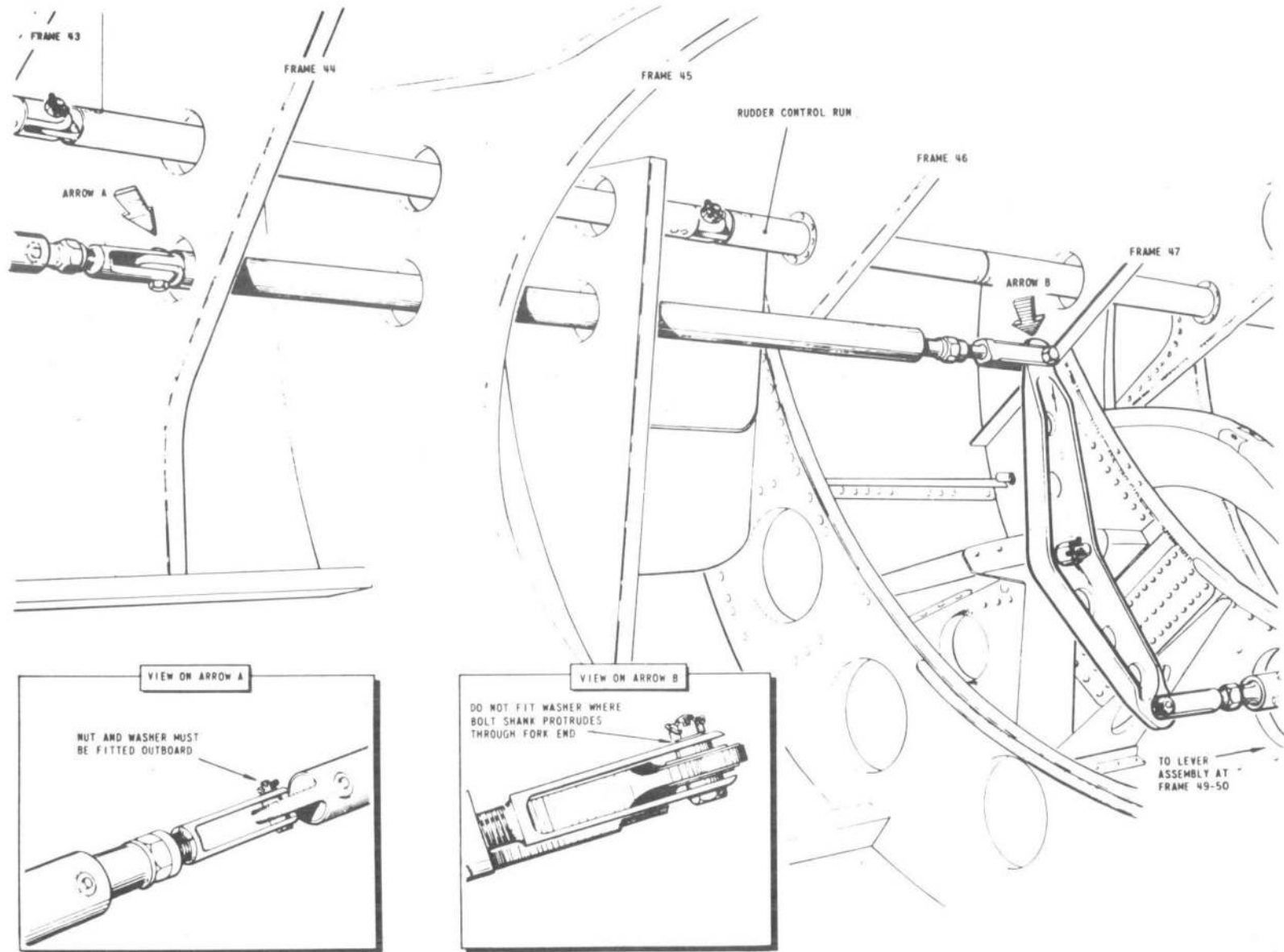


FIG. 8. LEVER-ROD ASSEMBLY - FRAMES 43-47



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