

Chapter 1 FUSELAGE

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WARNING

Aircrew ejection seats are fitted to this aircraft. Before attempting to enter the cabin, ensure that the instructions detailed on the **LETHAL WARNING** marker card at the front of this Handbook have been complied with.

Introduction

1. This chapter contains a general description of the fuselage together with the lubrication and servicing information necessary to maintain it in an efficient condition. Illustrations showing the method of slinging, trestling, and dismantling it into its major components, are also included.

DESCRIPTION**General**

2. The fuselage is an all-metal monocoque structure, which is built in three main portions to facilitate manufacture, servicing and transportation. The front fuselage is provided with a detachable nose piece and houses the cabin, gun installation and radio equipment. The centre fuselage, which is constructed with the stub wings as an integral part, contains the engine and the forward and centre fuel tanks. The rear fuselage, which is constructed with the lower portion of the fin as an integral part and terminated by a detachable tail cone incorporating the

braking parachute housing, houses the engine jet pipe and carries the hydraulically operated air brake installation. The three major components of the fuselage are illustrated in figs. 2, 3, 4 and 5.

Nose piece and front fuselage (fig. 1 and 2)**Structure**

3. The detachable nose piece extends from the radome to frame 1C 'FWD'. It consists of a light-alloy skin supported by frames, and houses the radar scanning equipment and camera gun. A metal nose cone is fitted to the nose piece in lieu of the radome when Mod 1423 is embodied. The front fuselage continues from frame 1C 'AFT' to frame 18A, which forms the front frame of the forward transport joint. The structure consists of a number of frames and four longerons reinforced by a box-section keel member extending between frames 6 and 11, the whole assembly being covered with a metal skin. The nose wheel is pivoted to the keel member at frame 8, and when retracted is enclosed in the front fuselage by fairings. The cabin is housed between frames 6 and 14, while the gun installation is located under the cabin floor in mountings on frames 12 and 15. The radio bay is situated immediately forward of the front transport joint. A stowage for the starboard seat harness apron is situated on the starboard side between frames 4 and 5.

Cabin

4. The cabin, which is protected by heavy plating and provided with ejection seats, is enclosed by a windscreen and an electro-hydraulically operated hood. The hood opens upward, hinging on its rear edge, for entry and exit, and may also be jettisoned in an emergency. To enable the cabin to be pressurized, it is sealed from the remainder of the airframe by a floor extending from frame 6, which is a solid bulkhead, to a diaphragm at frame 14. Fitted on the floor are anchorage brackets for the leg restraining harnesses and seat fittings situated just behind frames 9 and 11 respectively. Above the floor the fuselage structure is enclosed to form side walls, and above these walls are shelves for controls and instruments. The instrument panels, together with the port and starboard side panels, are located at the forward end of the cabin, above the shelves, on a structure extending across the top of frame 8, which is stiffened by tubular struts and also carries the two gun sights, which are fitted on fixed mountings (*one above each instrument panel*).

Windscreen and hood

5. The windscreen consists of two flat bullet-proof centre panels and two curved side panels, all four of which are held in a cast light-alloy frame secured to the cabin decking. The centre panels each consist of two plates of glass between which is a layer of dry air to prevent misting, the air being maintained in a dry state by two silica-gel containers connected to inlets at the

bottom of each windscreen panel by rubber tubing. Each centre panel is fitted with a hydraulically operated windscreen wiper (Sect.3, Chap.6). The hood is moulded from two sheets of transparent plastic mounted in a frame consisting of front and rear arch members, a longitudinal roof member and two edge members at the sides. Spigots are fitted to the hood which locate in housing blocks on the longerons to ensure positive entry of the hood into its locks. Shims are available for adjustment of the housing blocks when fitting a replacement hood. Hook and roller locking assemblies are fitted, one to the front arch member and two on each side. The complete hood lifts upward, hinging on its rear arch member on a pivot point between frames 14 and 14A.

6. The hood is opened and closed by electro-hydraulic operated jacks located in the hood fairing. A switch, which is mounted with a hood lock indicator lamp at the centre of the instrument panels, controls these jacks through a solenoid-operated control valve. The operating jack (*housed in a channel between frames 14 and 16*) raises or lowers the hood on its hinges aft of frame 14 according to the position of the cabin control. The hood is retained in the fully open position by an internal mechanical lock in the jack. A jury strut is provided to support the hood during servicing operations. The hood is provided with a rubber seal which is automatically inflated when the hood is closed and deflated when the hood is opened, partial deflation occurring before the hood

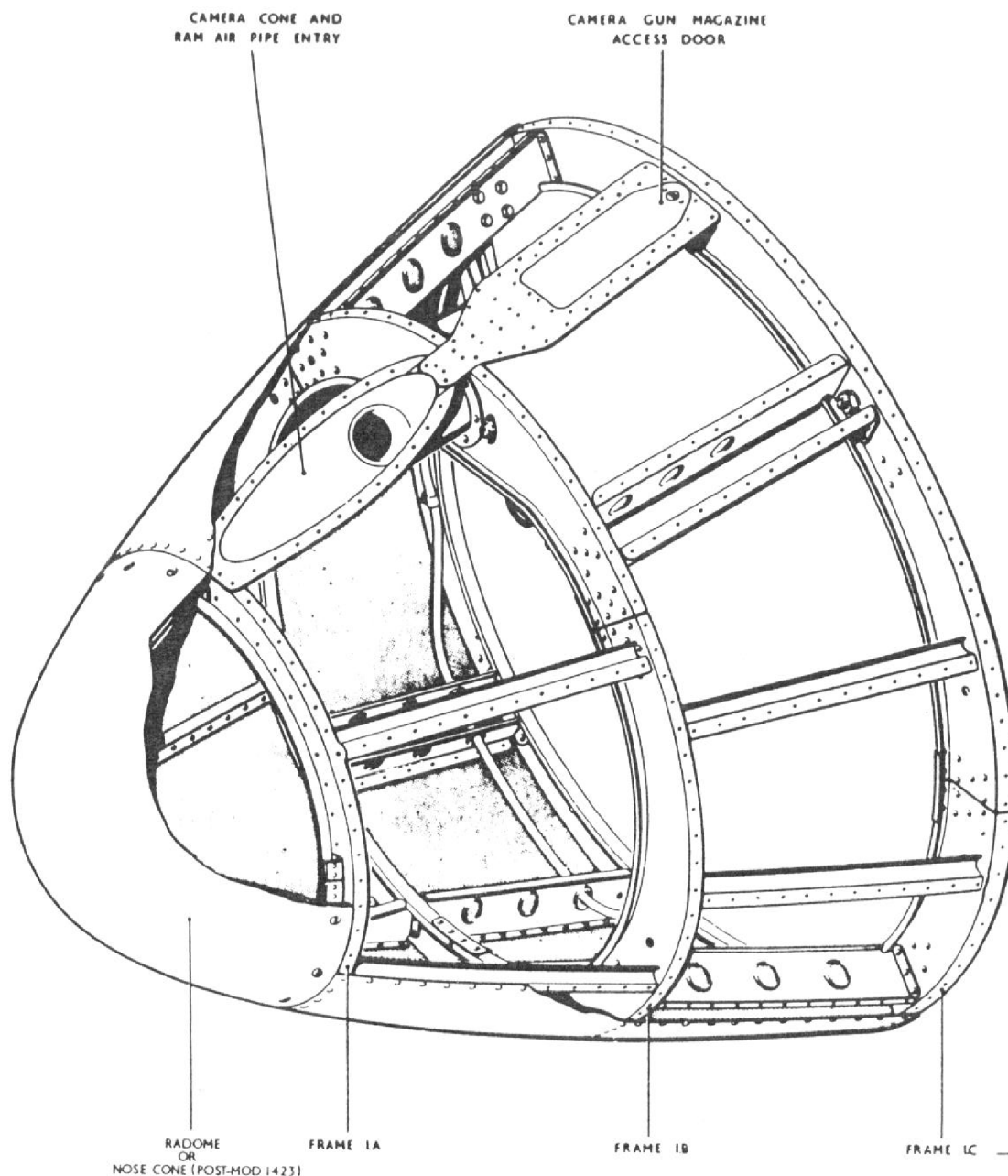


Fig. 1 Front fuselage nose piece

► (Mod 1423 added) ◀

actuation gear operates. A spring-loaded strut secured to the inside of the hood and positioned by the pilot makes provision for the hood to be partially opened during taxiing. To partially open the hood:—

- (1) Select hood open (*release switch after hood has opened approx. 6 in.*).
- (2) Pull the handle of the strut back and down to compress the spring and allow the strut to extend.
- (3) Select hood closed.

Note . . .

With the battery master switch ON it will be necessary to use the hood override switch during hood open selection.

To fully close the hood from the partially open position:—

- (1) Select hood open (*release switch after hood has opened a few inches*).
- (2) Pull the handle back and up to retract the strut.
- (3) Select hood closed.

Note . . .

When hood switch is moved to 'CLOSE', an electric horn starts to sound 3 to 5 seconds before the hood commences to close, the horn continues to sound until the switch is released.

In an emergency the hood may be jettisoned by pulling the jettison handle which projects upwards from a panel between the two seats. The operation of this handle releases the four hood locks securing the side members and the lock at the top centre of the forward arch, it also fires the hood gas gun, the gases from which operate pistons in the hood ejection cylinders which push the hood

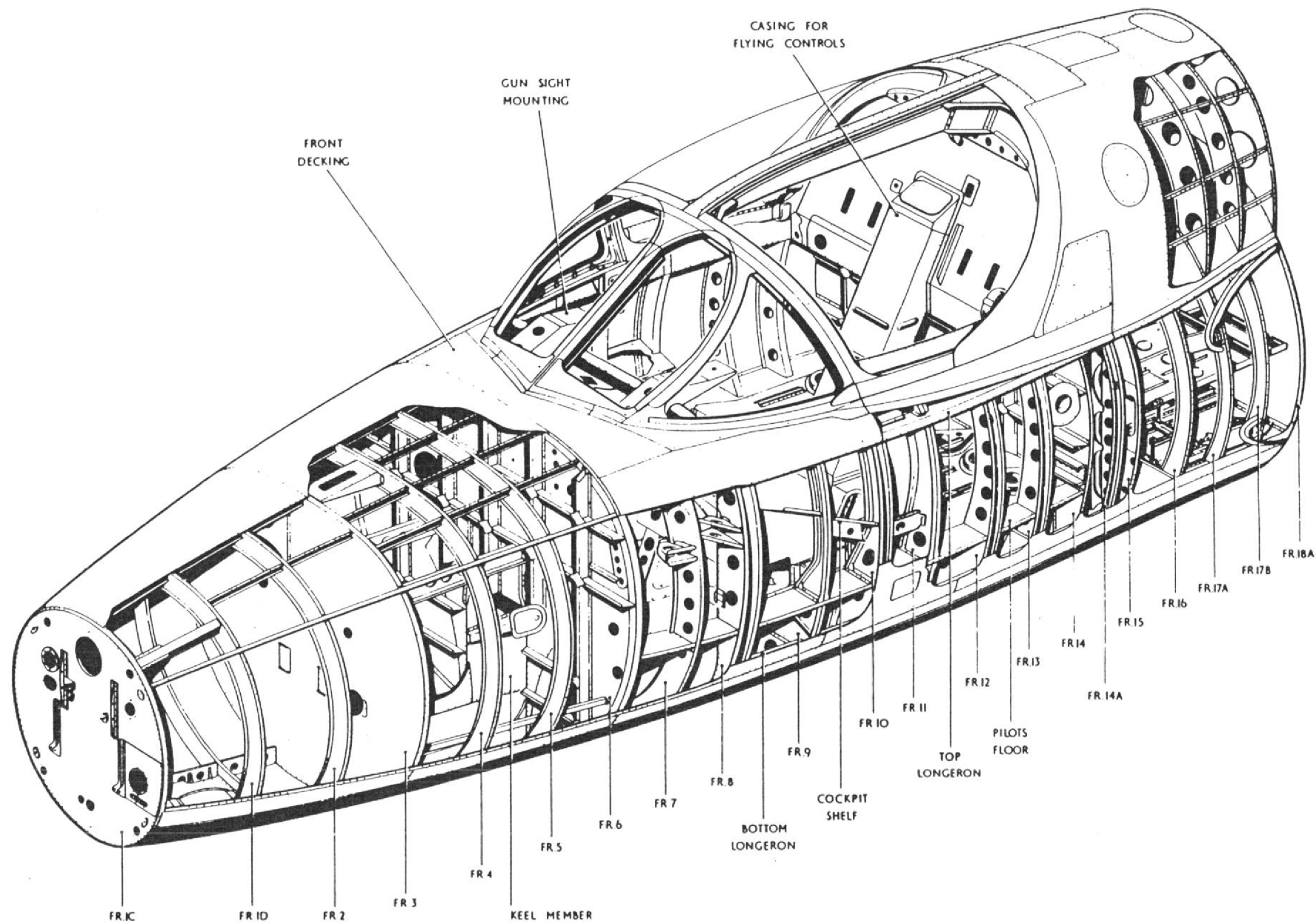


Fig. 2 Front fuselage

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upwards. In the event of the pilot being physically incapable of operating this control while the aircraft is on the ground there is an external release ring enclosed behind a transparent break-in panel on the port side of the fuselage below the hood, pulling the enclosed ring releases the locks and fires off the hood. To open the hood on the ground externally for normal servicing, an external switch is provided and is located in the nose wheel bay.

WARNING

This switch must not be operated until sufficient time has elapsed to allow the cabin pressure to dissipate.

Gun installation

7. The gun installation consists of one 30 mm. Aden gun, semi-buried into the starboard undersurface of the front fuselage, together with an ammunition box and an empty-case collector tank. The gun is covered by a fairing constructed in three removable sections located between frames 10 and 17B, the rear section being integral with the starboard armament and radio access door. The barrel of the gun lies along a blast trough extending forward in the front fuselage skin. The gun is electrically fired and controlled by a trigger on each of the control-column handgrips. For a full description of the gun installation, reference should be made to Sect. 7, Chap. 3.

Radio mountings

8. The radio equipment mounting structure is located on the port side of the radio bay between frames 15 and 18. For a full description of the radio installation, reference should be made to Sect. 6.

Forward transport joint fittings

9. The front and centre fuselage structures are assembled together at a butt joint formed by the flanges of frames 18A and 18B, which are bolted together, and by special attachments at the four longerons. These attachments consist of large threaded fittings, bolted to the front fuselage longerons, which extend aft through frame 18A to engage with special captive nuts carried on spigots projecting forward through frame 19 of the centre fuselage from fittings bolted to stringers C and H. The special nuts are locked to the spigots with nickel-alloy wire when assembled to the front fuselage fittings.

Centre fuselage and stub wings (fig 3 and 4)

Structure

10. The centre fuselage extends from frame 18B to frame 40A, both of these frames forming transport joints. It is a monocoque structure consisting of a number of frames and stringers covered with a light-alloy skin at the top of which is a spine member enclosing the flying controls. Frames 19, 25 and 32 are of heavier construction than that of the remaining frames and continue outward to form the nose, main and rear spars of the stub wings which are an integral part of the centre fuselage structure. The stub wing consists of these three spars, together with a number of ribs and diaphragms, which are covered externally by a light-alloy skin and internally by the air intake and boundary-layer ducting. The spars contain high-tensile steel fittings to which the outer wings are attached.

Fuel tank compartments

11. The structure between frames 19 to 25 and 26 to 32 of the centre fuselage is double-skinned and divided by diaphragms to form compartments between the spars in which the front and centre flexible bag type fuel tanks are supported. For a full description of the fuel tank installation, reference should be made to Sect. 4, Chap. 2.

Engine compartment

12. The engine is located between frames 31 and 46, being mounted at frames 34 and 40A, with the engine-driven accessories gearbox attached to the port side of frame 32. A light-alloy diaphragm at frame 37 engages with the engine to form a firewall and to divide the engine compartment into two zones for cooling purposes. For further details of the engine installation, reference should be made to Sect. 4, Chap. 1.

Rear transport joint fittings

13. The centre and rear fuselage structures are assembled together at frames 40A and 40B by special attachments at fifteen points around these frames. These attachments consist of large threaded fittings bolted to the stringers of the centre fuselage and extending aft through frame 40A to engage with special captive nuts carried on fittings bolted to the stringers of the rear fuselage, which project forward through frame 40B. When assembled, these special nuts are locked together with nickel-alloy wire and the gap between the two frames is covered by a fairing strap.

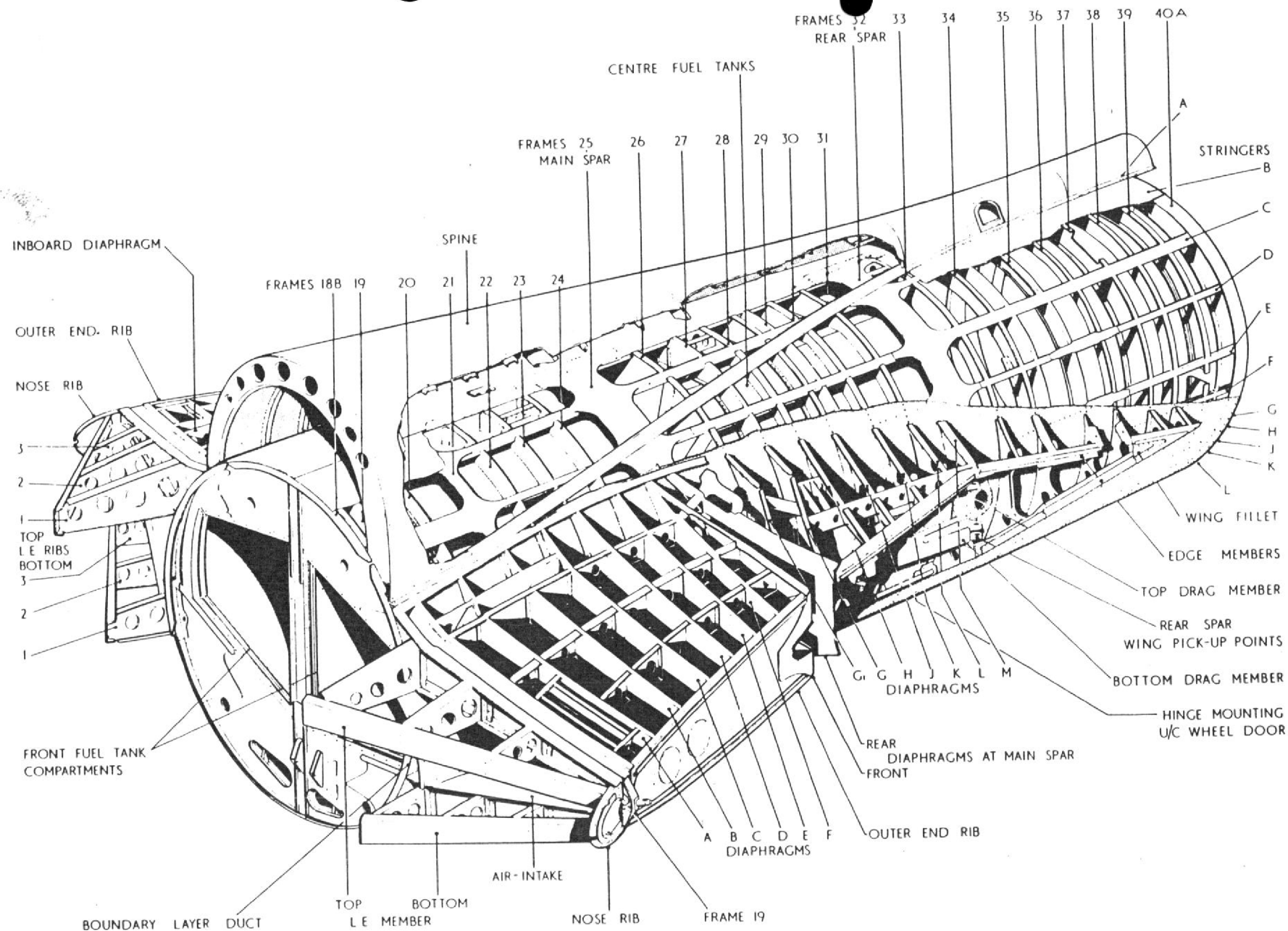


Fig. 3 Centre fuselage and stub wing (1)

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Rear fuselage and tail cone (fig. 5)

Structure

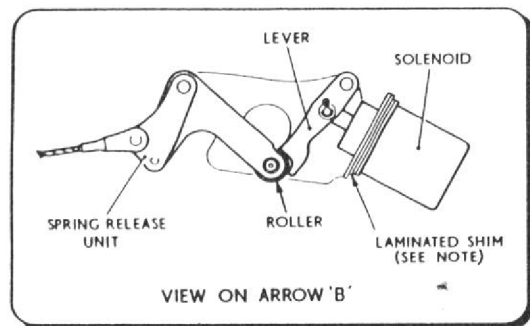
14. The rear fuselage extends from frame 40B, the rear transport joint, to frame 57. It consists of a number of frames and stringers covered with a light-alloy skin to form a monocoque structure, at the top of which is a spine member enclosing the flying controls. Frames 52 and 55 are of heavier construction than the remaining frames and extend upward to form the major framework of the lower fin structure, which is integral with the rear fuselage. The lower fin structure consists of the above-mentioned major frames together with a dorsal fin extending forward to the spine member with an anti-buffet fairing extending aft immediately below the rudder. The upper portion of the fin, which carries the rudder, is attached to the lower part by fittings incorporated at the top of frames 52 and 55, while the tailplane is pivoted on a fitting at frame 55 and anchored at the leading-edge to the tail plane actuator in the lower fin structure. A small bumper-block type tail-skid is attached to the bottom of frame 55 to take the loads should the tail strike the ground during take-off or landing. The bottom skin between frames 47 and 50 is cut away and the gap so formed is reinforced and boxed-in by side-members and a top skin to form a housing for the hydraulically-operated air brake jack. The jack is anchored by a bolt extending between fittings bolted to the aft ends of the side-members and extends forward into the housing to engage with the air brake flap, which is attached by two extending hinges to channel fittings located between frames 45 and 46 on each side of the aircraft. The tail cone, which is detachable, incorporates the braking-parachute housing, and is secured to the rear fuselage by four toggle fasteners together with locating spigots. It extends from frame 58 to frame 63 and consists of the braking-parachute housing, which is a fairing with two upward opening spring-loaded doors extending rearward over the top of the tail piece, surmounting a

structure of six frames, covered with a light-alloy skin stiffened by butt straps. The tail cone terminates in a stainless steel tail piece, a duct of which engages with the jet pipe.

Braking parachute installation

15. The braking parachute is housed in a stowage in the top of the tail cone and is streamed through two doors which are hinged to open outwards from the upper centre line of the fairing. These doors are operated by means of a spring-loaded release gear (fig. 3A) consisting of two telescopic spring box units which are located athwart the housing, together with a spring release unit. The inner end of the port telescopic unit is attached to the release unit, and the inner end of the starboard telescopic unit to a bracket attached to the housing. The outer ends of the telescopic units are attached to their respective door links by hinge pins so that, in effect, they form spring-loaded toggle action units to hold the doors open or closed, according to the operational position of the spring release unit. A lip on the starboard door forms a landing for the port door, which holds the starboard door in the closed position. The port door, when closed, is secured in that position by locks mounted one forward and the other aft on the housing. The doors are closed manually and, when closed, the port telescopic unit is held compressed by the release unit. The doors are opened upon the operation of the spring release unit, the actuation of which is initiated electrically by means of a control switch in the cabin. When this switch is placed to the STREAM position it energizes

a solenoid, the plunger of which is in connection with a lever of the release unit assembly. Once the solenoid is energized, the plunger retracts and pulls the lever which opens the front lock by means of a connecting link, and the rear lock by means of a Bowden cable. At the same time, the solenoid lever frees the release unit lever, thereby permitting the port telescopic unit to extend and open the port door, followed by the automatic extension of the starboard unit to open the starboard door as soon as the port door is clear of its landing on that door. A mechanical indicator rod on the front lock is in the 'up' position when the lock is closed, visual indication being obtained through a sighting hole in the door. Visual indication of the rear lock being closed can also be obtained through a sighting hole in the door, but no indicator rod is provided. The parachute is attached to the aircraft by means of a shackle which engages with an electro-mechanical release unit bolted to the aircraft structure. Operation of the release unit to jettison the parachute is effected by the control switch in the cabin when it is placed to JETTISON, but an electrical inter-connection in the form of a microswitch operated by the parachute doors ensures that it is impossible to jettison the parachute until it has been streamed. A parachute warning lamp, which is mounted on the centre anti-glare shield and controlled by a microswitch that is operated by the parachute door when open, illuminates to indicate that the parachute has streamed and remains illuminated after the parachute has been jettisoned. A test switch for servicing purposes is provided in the cabin. For further information on the electrical operation and circuit details, reference should be made to Sect. 5, Chap. 1. An illustration of the parachute installation will be found in Sect. (2, Chap. 2), which also gives detailed instructions for the assembly and removal of the parachute and the mechanical opening of the doors.



NOTE

THE LAMINATED SHIM IS FITTED BETWEEN THE SOLENOID AND MOUNTING BRACKET TO ENSURE CONTACT AT THE TWO POINTS SHOWN IN DETAIL 'A'

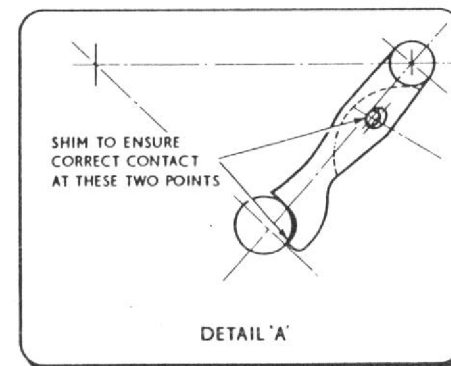
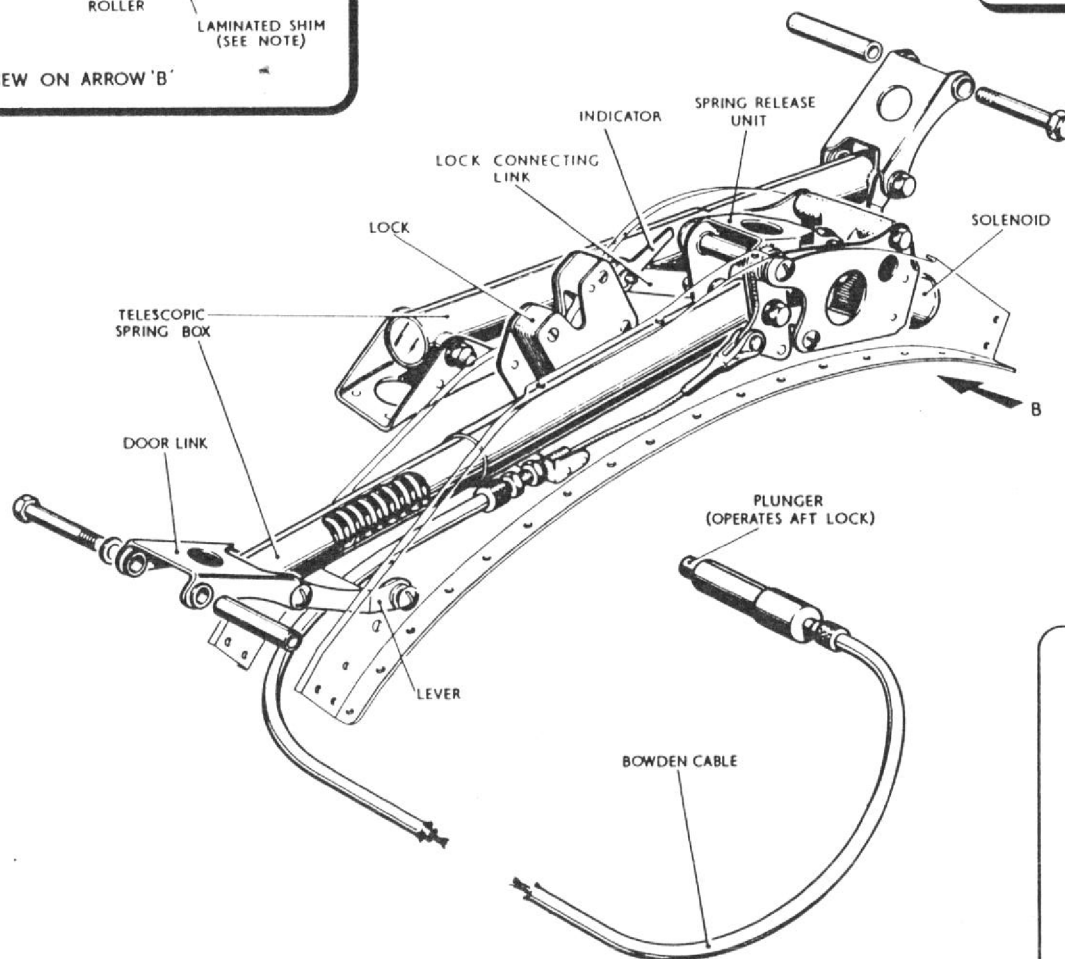


Fig. 3A Parachute door release gear

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Air brake flap

16. This structure consists of a series of curved formers attached to a channel-sectioned centre rib with a hinge rib on either side and a curved nosing at the forward end. The lower surface of the structure is completely covered with a light-alloy skin, but the upper surface is only covered at the forward and centre portions. Each hinge rib carries an arm of the extended hinges, which engage with fittings incorporated in the rear fuselage. The centre rib incorporates the anchorage fitting to which the operating jack is attached. The complete assembly is carried

under the rear fuselage on hinge fittings and is designed so that it embraces the fuselage when in the up position.

Jet pipe mounting

17. The jet pipe is rigidly secured to the engine at its forward end and extends aft to the duct incorporated in the tail piece of the tail cone. The pipe is supported at frame 55 by blocks, attached to each side of the pipe, which engage with adjustable mounting slides secured to the fuselage structure. These blocks move along the slides to allow for

expansion of the pipe. A rail incorporated at the top of the fuselage between frames 48 and 56 is provided to facilitate jet pipe assembly and removal, small rollers on the pipe running along this rail during these operations. For further details of the jet pipe installation, reference should be made to Sect. 4, Chap. 1.

SERVICING**General**

18. In general, the only servicing required to the fuselage itself is that described in para. 19. Otherwise the servicing is confined mainly to the systems and accessories which are contained in the fuselage and which are dealt with in their respective chapters.

19. A regular examination of the fuselage structure must be carried out to ensure that no damage, such as buckling of the skin, corrosion, or loose nuts, rivets, etc., has occurred. If any damage is found it must be rectified in accordance with authorised procedure before the next flight. It is also necessary to check that all the detachable access panels and hinged doors are securely locked and flush with the surrounding structure. This is very important, as many of these are stress-bearing panels, and the safety of the aircraft is dependent upon their correct fitment. Extreme care must therefore be taken to ensure that these panels are not damaged or distorted in any way during fitting or removal. The drain holes at the bottom of the fuselage aft of frames 37 to 40A, 50, 52, 53, 56 and in the tail cone should be inspected frequently to ensure freedom from obstruction. ▶

Note . . .

Any alteration in contour will give rise to a shock-wave, resulting in a vast increase in drag and corresponding loss in performance.

Nose piece attachment locking

20. To facilitate visual inspection of the nose-piece attachment locks, viewing apertures are provided in the lock levers, and the plain portion of each lock-hook is painted white.

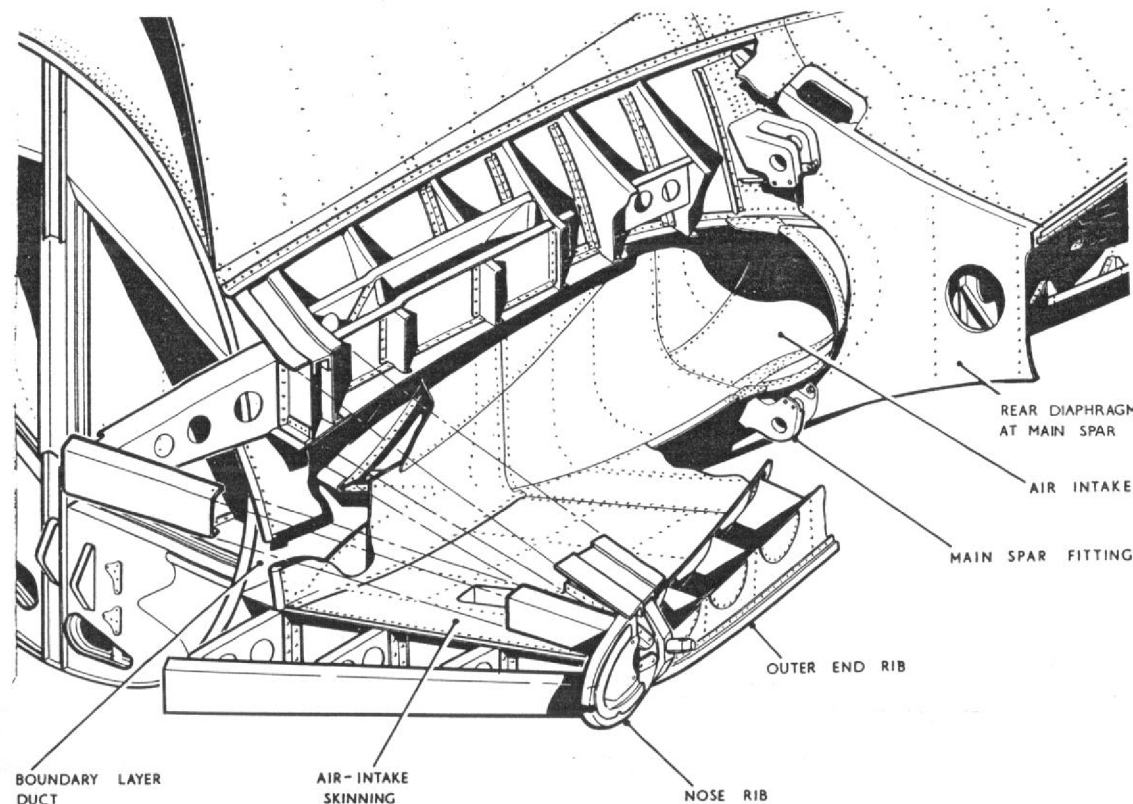


Fig. 4 Centre fuselage and stub wing (2)

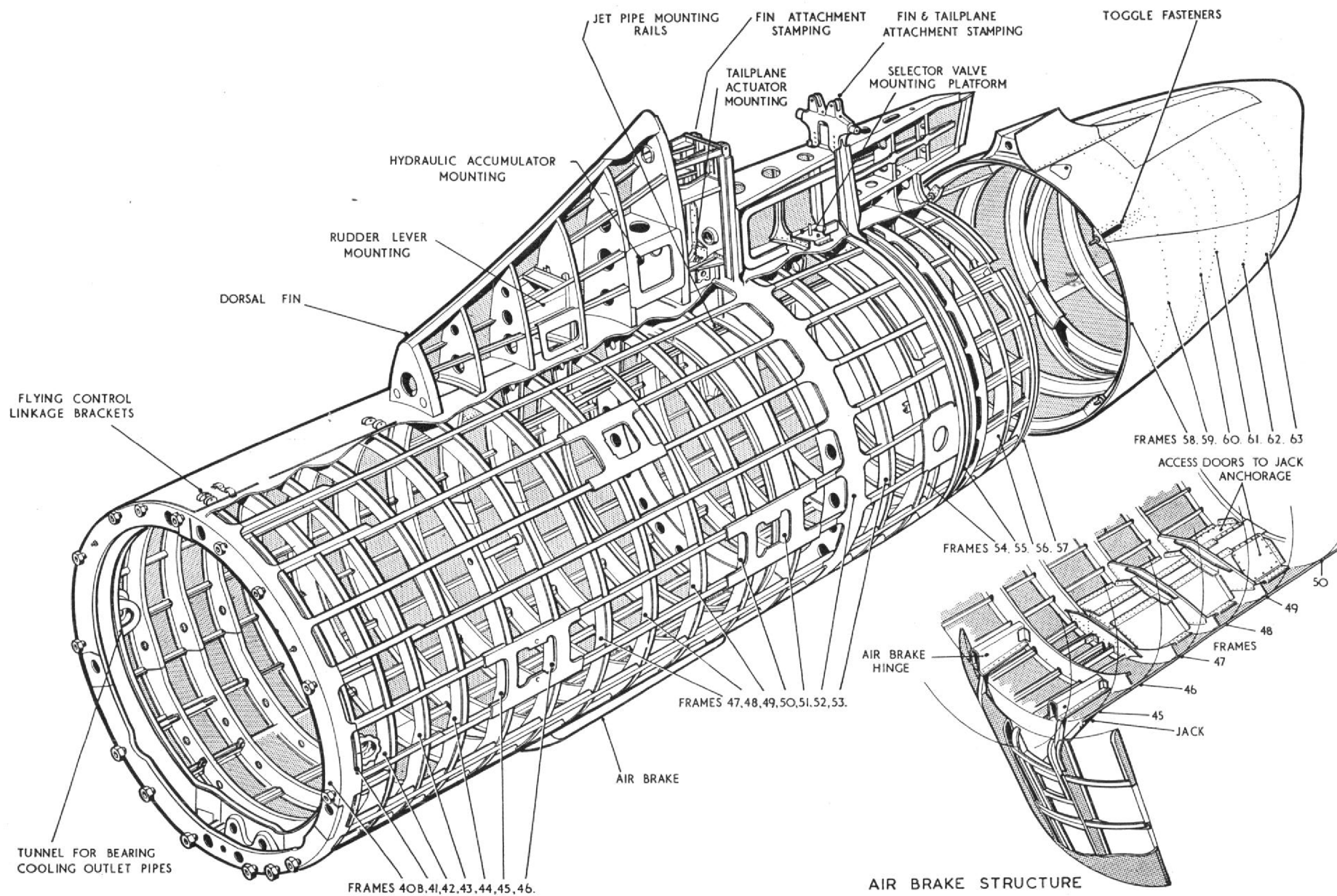


Fig.5. Rear fuselage

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REMOVAL AND ASSEMBLY

General

23. The separation of the fuselage at its transport joints and the removal of various components, together with the method of slinging and trestling, is described in the following paragraphs and shown in the illustrations contained in this chapter. In general, the assembly of the units is a reversal of the removal, but where there is any special feature peculiar to assembly, it is covered in the description.

Removal of nose piece (fig. 6)

24. The nose piece is a quickly detachable unit held in position by four fasteners and four locating dowels. To release the fasteners, gain access through the nose-wheel bay, remove the pip pin passing through the lever and latch, and move the latch in the direction of the arrow A to free the lever, which should then be pulled in the direction of arrow B, thus freeing the hook from the fork of the nose piece. The nose piece may now be withdrawn from the front fuselage. On initial assembly, the attachment nuts should be tightened so that they grip the rubber washer without compression. After assembly, a slight gap between the shoulder of the hook and trunnion should be apparent at point C when the lever is locked home; the attachment nuts should then be adjusted if necessary. After assembling the nose piece to the front fuselage, the four hooks (painted white) must be checked through the viewing aperture in the lever to ensure that they have been engaged correctly with the nose piece forks.

Removal of braking parachute

25. Before removing the tail cone the braking parachute must first be disconnected and removed as follows:—

- (1) Ensure that an electrical supply is available, then operate the parachute switch in the cabin to STREAM. The parachute doors must be restrained by hand pressure to ensure that they open under manual control.
- (2) Open the tail cone fillet door (thus switching off the electrical supply) and place the parachute switch to the

JETTISON/OFF position. Apply a load of at least 10 lb to the cable between the parachute and the release slip and shut the fillet door whilst this load is being applied. This will energize the electro-mechanical release unit.

Note . . .

As the E.M.R.U. used in the installation was initially designed as a bomb slip, it will be apparent that a load should always be acting on the jaws of the slip, when electrically energized to jettison, and the instruction to apply a load to the parachute cable when JETTISON is selected is therefore important. If an aircraft has landed with a candled parachute and has subsequently jettisoned it (or if jettison has been selected when the parachute canopy was deflated) it must be assumed that the slip has been energized without the necessary load being applied. In these cases the E.M.R.U. should be removed and examined for possible rotor deterioration

The parachute must be repacked before being replaced in the aircraft.

Note . . .

For refitment of the braking parachute reference should be made to Sect. 2, Chap. 2.

Removal and assembly of tail cone

26. The tail cone incorporating the braking parachute, is attached to the rear fuselage by four locating dowels and toggle fasteners. Before removing the tail cone, the braking parachute must first be removed. The procedure for the removal of the tail cone is as follows:—

Render the aircraft electrically safe, remove the access door on the port side of the tail cone and unscrew the electrical connection. Take the weight of the tail cone and remove the four toggle fasteners. The tail cone may now be removed.

To assemble the tail cone to the rear fuselage, proceed as follows:—

With the parachute doors open and the parachute removed, attach the tail cone by the four fasteners and re-fit the electrical connection. For refitment of the parachute and completion of the assembly, reference should be made to Sect. 2, Chap. 2.

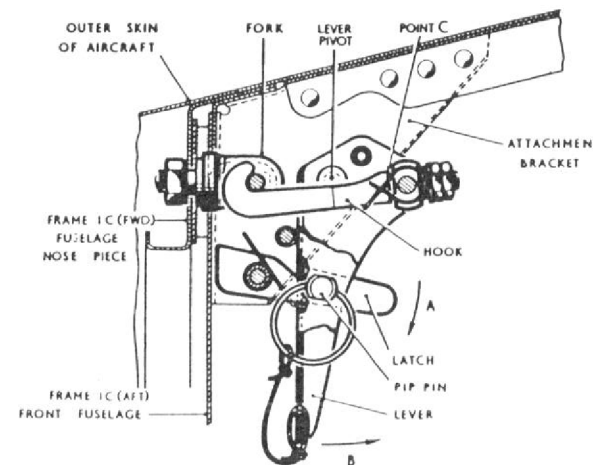


Fig. 6 Typical fastener for fuselage nose piece

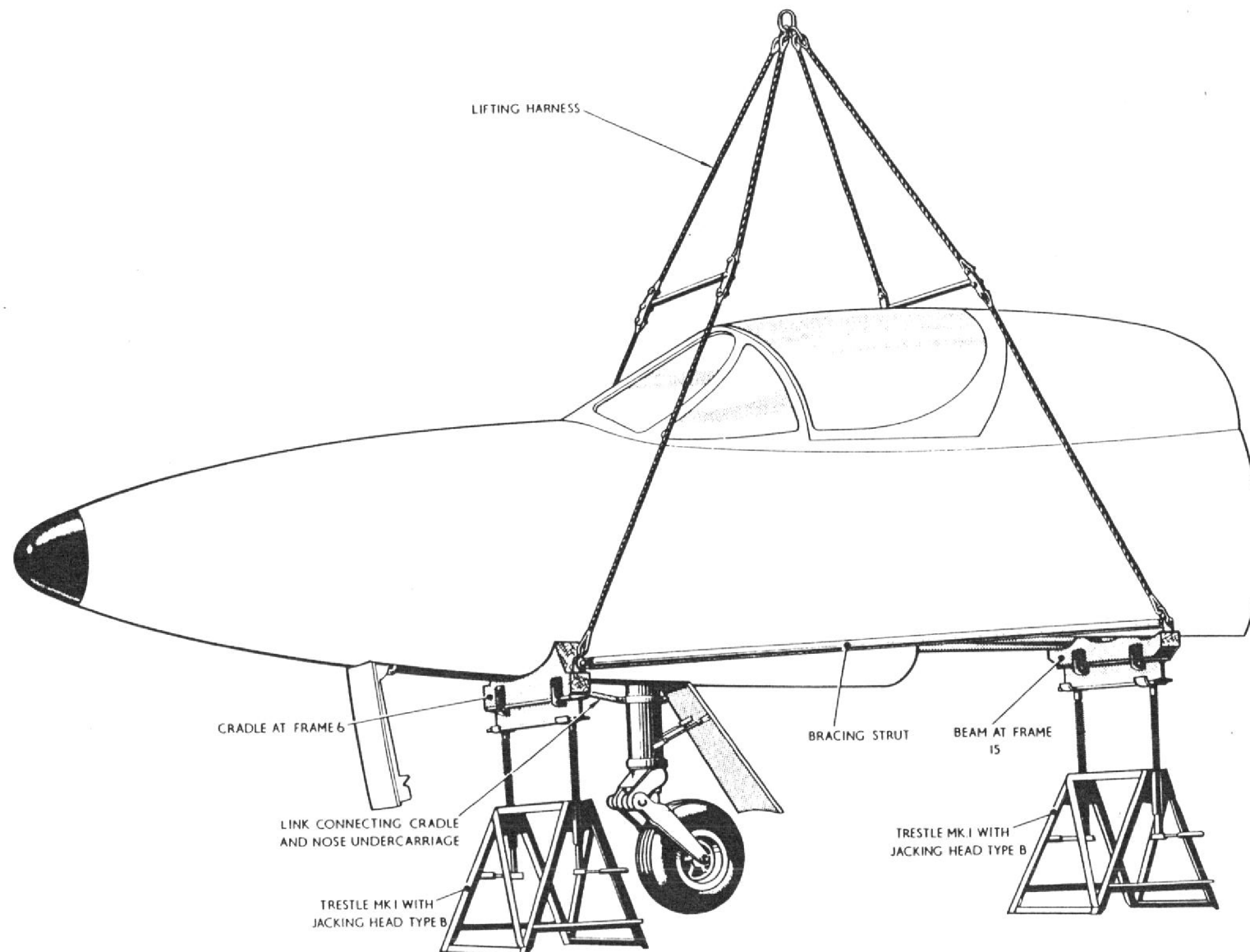


Fig. 7 Slinging and trestling front fuselage

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27. Removal of front fuselage

- (1) *Render the aircraft electrically safe (Sect. 5, Chap. 1)* and ensure that the armament safety plug is removed.
- (2) Remove the radio access panels, the gun bay access panels, and the gun fairings.
- (3) Remove the electrical accumulators, the gun barrels and the ammunition.
- (4) Jack and trestle the aircraft as shown in Sect. 2, Chap. 4 with the exception of the front fuselage jack, but with the addition of the trestling for the front fuselage (*fig. 7*) and the centre fuselage (*fig. 8*).
- (5) Remove the radio sets and mounting structure (*Sect. 6, Chap. 1 and 2*). Unclip and stow all radio cables and connectors which extend between the transport joints.
- (6) Unclip, disconnect and stow all electrical cables which extend between the two transport joints.
- (7) Dissipate the pressure in the hydraulic system and drain the system (*Sect. 3, Chap. 6*). Unscrew the unions of the pipes connecting the front and centre fuselage systems and remove the pipes. Blank off open ends of pipes to prevent the ingress of dirt, etc.
- (8) Remove the bonding leads, disconnect and remove the pipes of the pitôt installation between the front and centre fuselage. Blank off the open ends of the pipes to prevent the ingress of dirt, etc.
- (9) Disconnect the cable and break rod assemblies of the engine controls at the transport joints.
- (10) Remove the detachable hood fairing at the forward section of the spine and disconnect the three flying control tubes.

- (11) Uncouple the cabin pressurising pipes connecting the front and center portions of the fuselage.
- (12) Remove the stub wing fairings.
- (13) Remove the four forward external retaining nuts securing the stub wing nosing to the front fuselage.
- (14) Remove the four set screws and streamline spacers from the boundary layer ducts in the air intakes.
- (15) Attach the slinging gear and bracing struts to the front fuselage (*fig. 7*) and take the weight on the sling.
- (16) Remove the nuts and bolts attaching the front fuselage to the centre fuselage.
- (17) The front fuselage may now be swung clear, complete with trestles.

28. Removal of rear fuselage

- (1) *Render the aircraft electrically safe (Sect. 5, Chap. 1).*
- (2) Trestle the aircraft, except the rear fuselage (*as shown in Sect. 2, Chap. 4*), with the trolley under the rear fuselage (*fig. 9*) and trestles under the centre fuselage.
- (3) Pull out the spring loaded bearing cooling outlet pipe and turn to engage the retaining pin against the skin plating.
- (4) Pull out the engine drain pipe and turn anti-clockwise to engage in the retaining slot.
- (5) Remove the port and starboard access panels to the jet pipe coupling.

- (6) Unfasten the access doors on the engine casing and loosen the stirrup nut, raise the stirrup and slide the keeper plate downward to release. Close the access doors.
- (7) Remove the detachable spine above the rear transport joint and disconnect the flying control rods.
- (8) Disconnect the hydraulic couplings in the spine, blank off the open ends and stow in position.
- (9) Remove the rear transport joint butt strap.
- (10) Disconnect the electrical cables.
- (11) Disconnect the hydraulic couplings around the transport joint and the fuel filter de-icing pipe.
- (12) Ensure that the rear fuselage is adequately supported and unscrew the nuts securing the centre to the rear fuselage. The nuts should be undone in opposing pairs and not one by one all the way round.

The rear fuselage is now free from the engine and centre fuselage and may be carefully withdrawn.

Note . . .

Before assembly of the rear fuselage to the centre fuselage, the attachment spigots (Ref. 26FX/721, Part No. F181010) should be checked for tightness, using the special tool (Ref. 26FX/95223, Part No. B.200521). Any retightening of the spigots will necessitate re-peening of the spigot securing nut.

During assembly of the rear fuselage to the centre fuselage, ensure that the chains of the blanking caps for the hydraulic couplings pass under the trunnion bolt of the butt strap.

When fitting the butt strap at frame 40 ensure that the half-inch black mark on the butt strap and access panel is aligned with the two matching marks on the centre and rear sections of the fuselage.

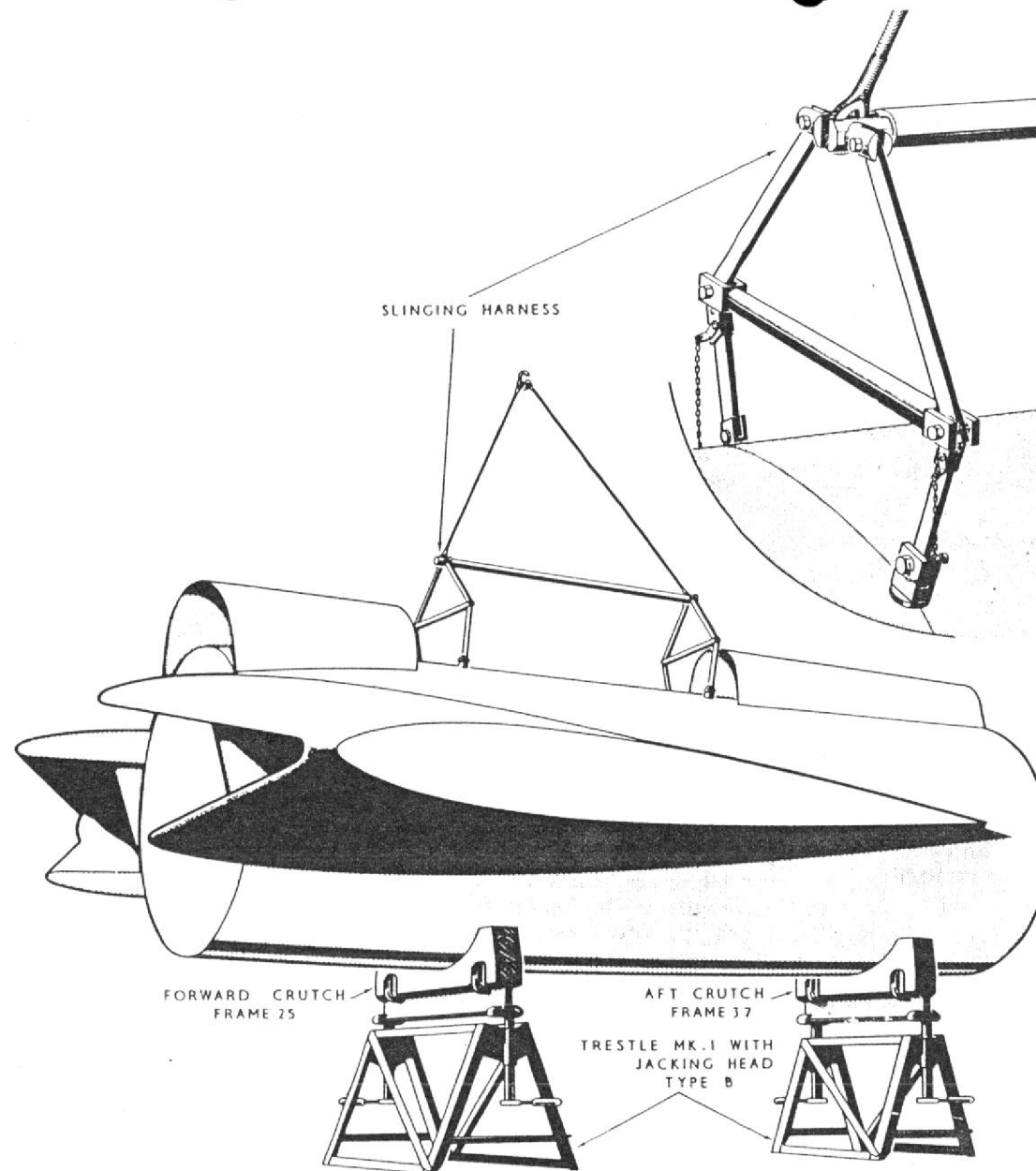
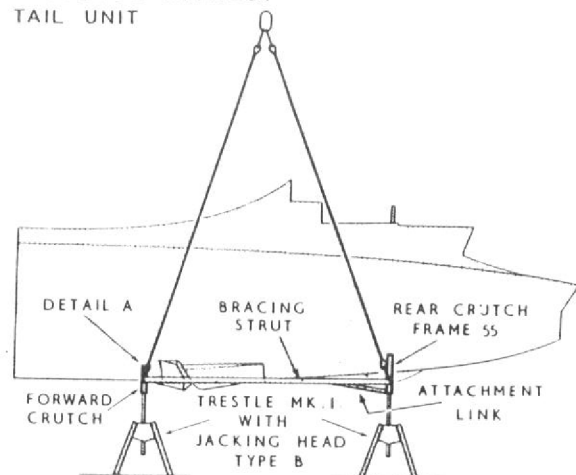
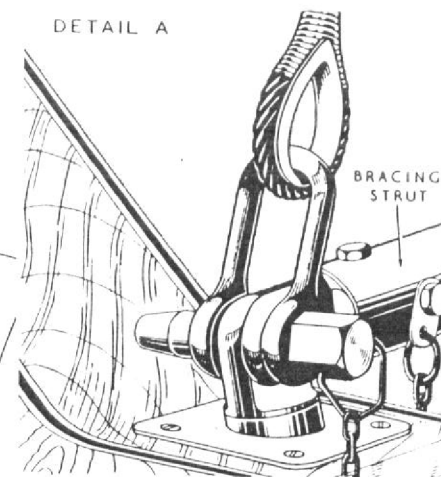


Fig. 8 Slinging and trestling centre fuselage

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SLINGING OF REAR
FUSELAGE WITHOUT
TAIL UNITSLINGING HARNESS
FOR REAR FUSELAGE
WITH TAIL UNIT

DETAIL A

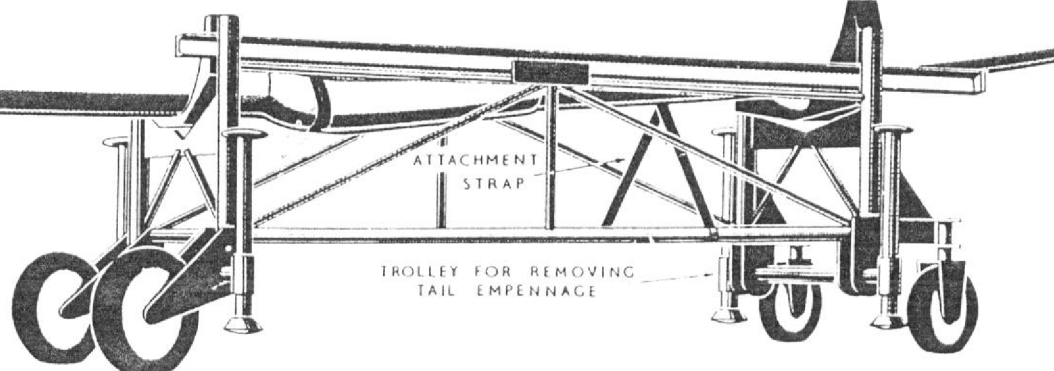


DETAIL B

DETAIL B



FR 54



DETAIL B

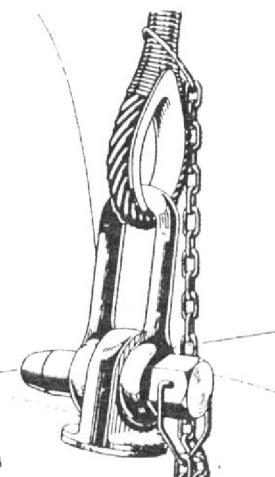


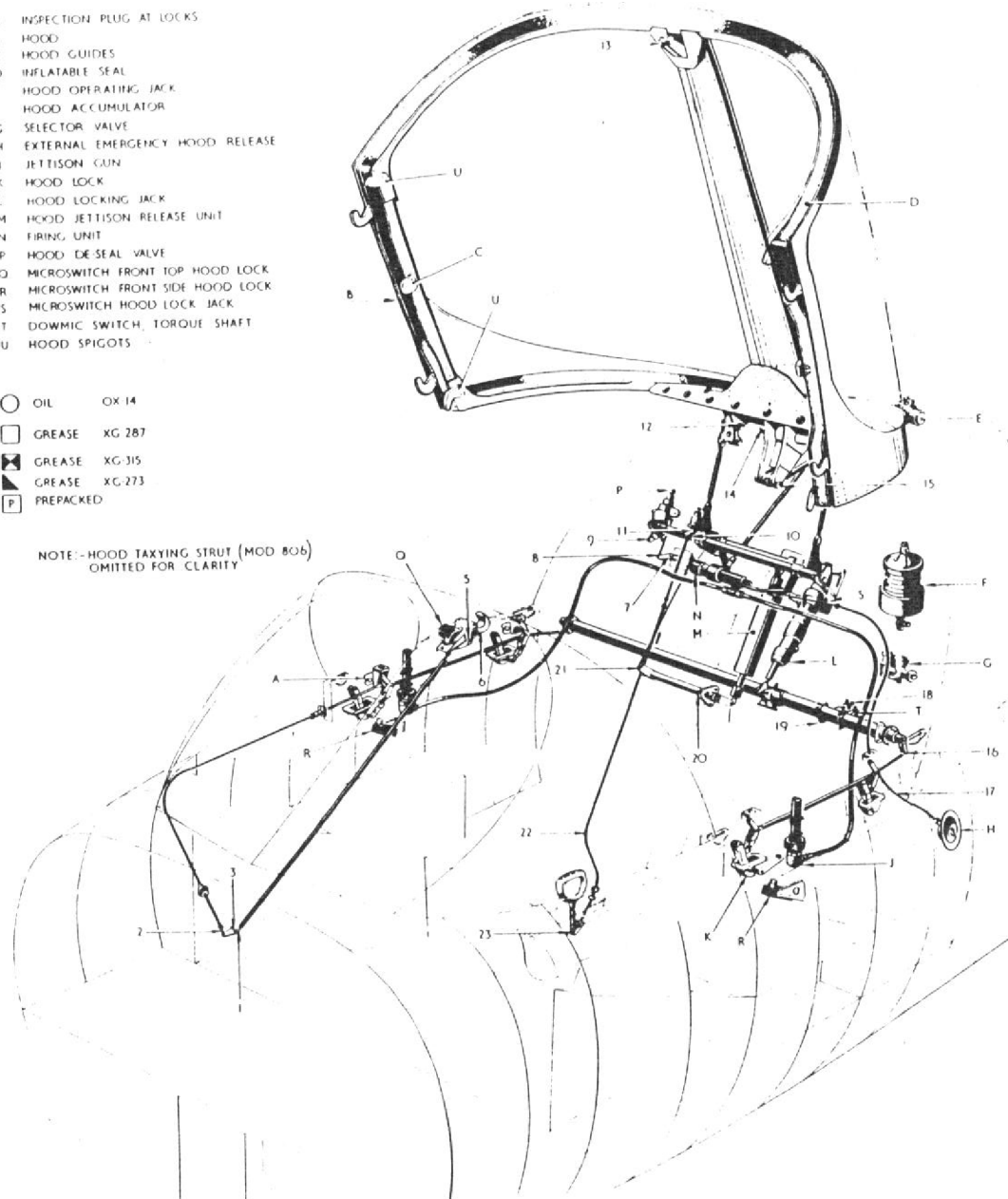
Fig. 9 Slinging and trestling rear fuselage

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- A INSPECTION PLUG AT LOCKS
- B HOOD
- C HOOD GUIDES
- D INFLATABLE SEAL
- E HOOD OPERATING JACK
- F HOOD ACCUMULATOR
- G SELECTOR VALVE
- H EXTERNAL EMERGENCY HOOD RELEASE
- J JETTISON GUN
- K HOOD LOCK
- L HOOD LOCKING JACK
- M HOOD JETTISON RELEASE UNIT
- N FIRING UNIT
- P HOOD DE SEAL VALVE
- Q MICROSWITCH FRONT TOP HOOD LOCK
- R MICROSWITCH FRONT SIDE HOOD LOCK
- S MICROSWITCH HOOD LOCK JACK
- T DOWNMIC SWITCH, TORQUE SHAFT
- U HOOD SPIGOTS

- OIL OX 14
- GREASE XG 287
- ⊠ GREASE XG 315
- ▴ GREASE XG 273
- ▢ PREPACKED

NOTE: HOOD TAXING STRUT (MOD 806)
OMITTED FOR CLARITY



LUBRICATION KEY TO FIG 10 AND 11

Nº	DESCRIPTION	Points per Assembly
1	CONNECTING ROD ATTACHMENT TO LEVER	1
2	TELEFLUX CONTROL ATTACHMENT TO LEVER	1
5	WINDSCREEN ARCH HOOD LOCK LEVERS	3
8	LEVER AND CONNECTING ROD ATTACHMENT	2
9	CONTROL ROD ATTACHMENT TO HOOD DE SEAL VALVE LEVER	2
10	CABLE ATTACHMENTS TO LEVERS ON CROSS SHAFT	1
15	LEVER ATTACHMENT TO CONNECTING ROD (PORT AND STARBD)	1
19	LEVER ATTACHMENT TO PLUNGER	1
21	FORKEND ATTACHMENT TO LEVER	1
23	HOOD RELEASE HANDLE LEVER	3
29	HOOD JETTISON LEVER ADJUSTABLE LINK (PORT)	2
33	HOOD JETTISON LEVER ADJUSTABLE LINK (STBD)	2
35	PIVOT POINTS ON PLUNGER LEVER	2
40	CONNECTING ROD TO JACK RELEASE LEVER	1
44	CONNECTING ROD TO HOOD JETTISON LEVER	1
49	LEVER ATTACHMENT TO RELEASE UNIT	1
52	ROD AND LEVER CONNECTIONS ON LOCK	4
3	LUBRICATOR BOLT ON LEVER	1
34	BEARING BRACKET HOOD JETTISON LEVER	1
6	HOOK, WINDSCREEN ARCH LOCK	1
11	DEPRESSURIZING VALVE PLUNGER	1
12	STABILIZER BRACKET ROLLERS (PORT & STARBD)	3
13	ROLLER ON HOOD	1
14	ROLLERS ON HOOD HINGE BRACKET	2
15	ROLLERS FOR OPERATING JACK	3
18	SEQUENCE VALVE PLUNGER	1
20	BEARING BRACKET (PORT & STBD)	1
27	CROSS SHAFT BEARING BRACKET (PORT)	1
28	TOP LEVER CONNECTION RELEASE UNIT	1
30	LATCH PIVOT	2
31	CROSS SHAFT BEARING BRACKET (STBD & CENTRE)	1
36	JACK RELEASE	1
37	ROLLER, JACK RELEASE LEVER	1
38	BEARING BRACKET JACK RELEASE SHAFT	1
39	BEARING BLOCK JACK RELEASE SHAFT	1
41	HOOD OPERATING JACK	2
43	PLUNGER	1
45	HOOD LOCKING JACK	1
47	LINK CONNECTING CROSS SHAFT AND LOCK RELEASE HANDLE	2
48	RELEASE UNIT	1
50	HOOD LOCKING JACK	1
51	BEARING BRACKET TORQUE SHAFT	1
53	LATCH ROLLER ON LOCK	1
7	HOOD DE-SEAL VALVE AND DEPRESSURIZING VALVE LEVERS	1
42	TORQUE SHAFT (PORT AND STBD GREASERS)	2
46	BEARING BLOCK HOOD JETTISON LEVERS	1
54	SHAFT FOR LOCK OPERATING LEVERS	1
17	CABLE	1
22	CABLE	1

Fig. 10 Hood locking and jettison details with lubrication (1)

4 Lubrication details corrected by

RESTRICTED

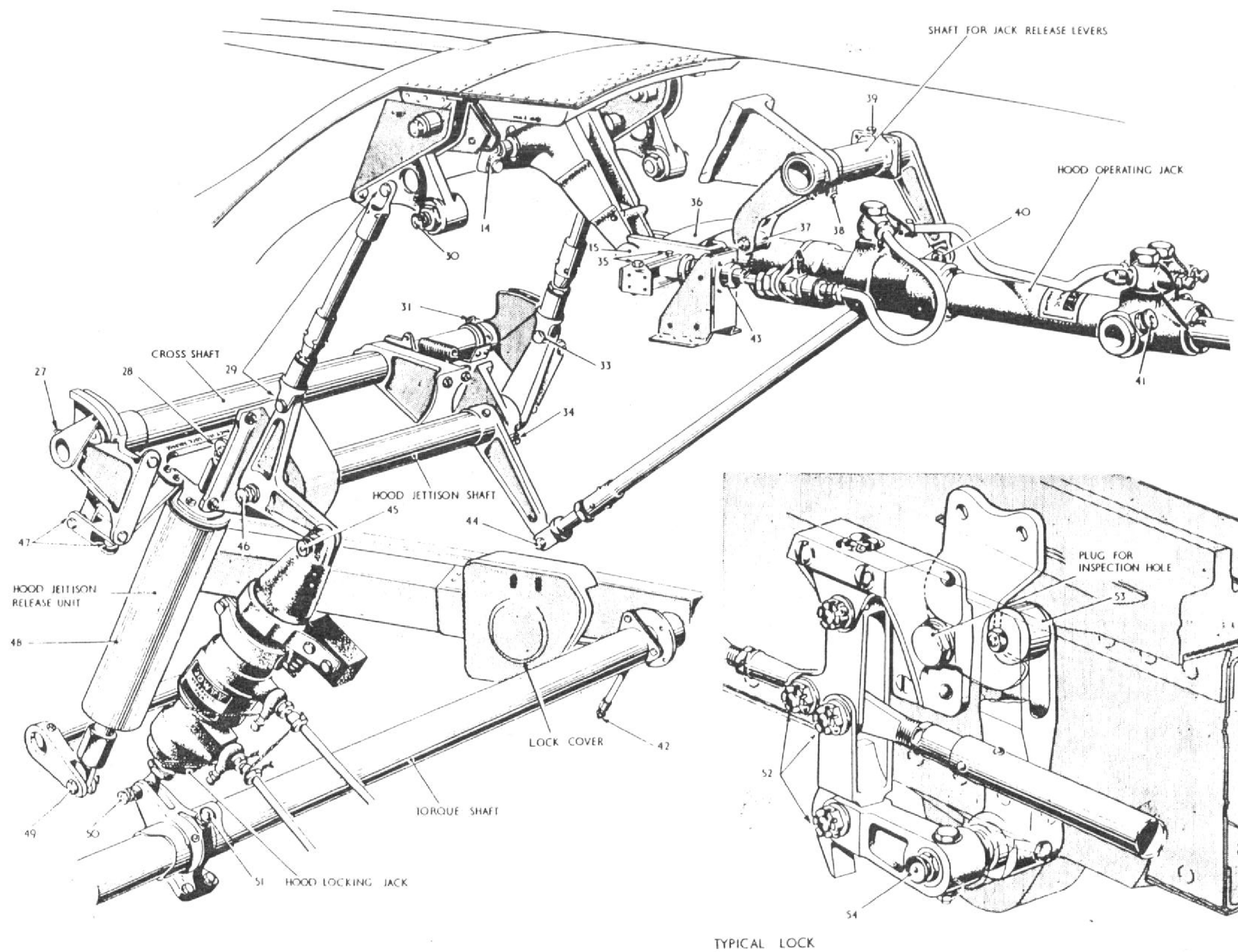


Fig. 11 Hood lock and jettison details with lubrication (2)

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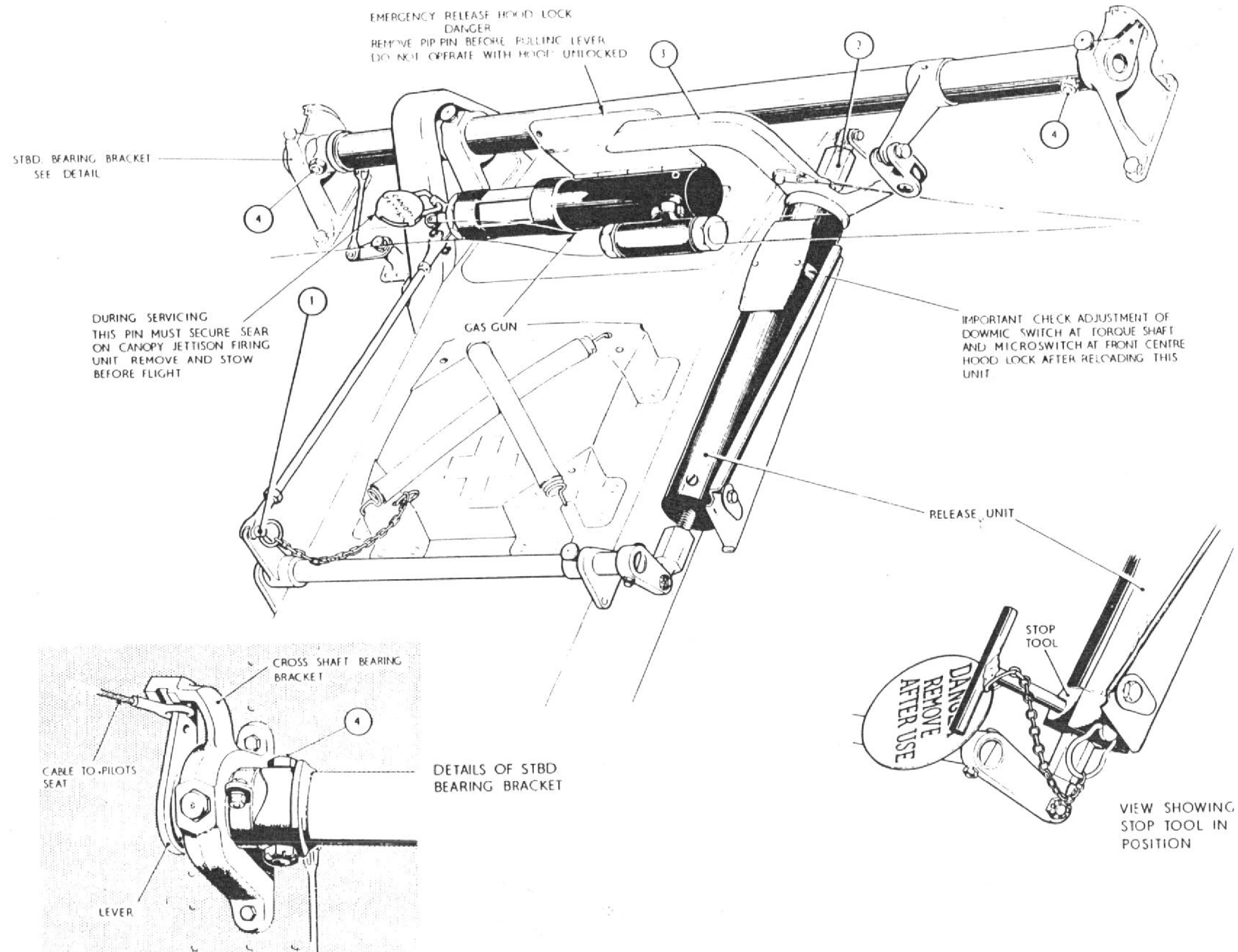


Fig.12 Hood jettison release unit and gas gun

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Removal of hood**WARNING**

The hood jettison mechanism must not be operated with the hood unlocked.

29. To remove the cabin hood, first ensure that the cabin is de-pressurized, then proceed as follows:—

- (1) Open the hood by operating manually the solenoid valve, access to which is obtained after removing the access door in the fairing aft of the hood on the port side of the aircraft, and using the hydraulic handpump to supply the necessary hydraulic pressure.
- (2) With the hood open, remove the pip pin (fig. 12, item 1) from the cross shaft lever. The pip pin is attached by a chain to the lower starboard retaining bracket of the first aid kit stowage.
- (3) With one person remaining in the cabin, close the hood by operating the solenoid valve manually. Ensure the hood is fully locked.
- (4) Operate the hood emergency release handle located under the guard (fig. 12, item 3): this action will open all locks and allow the hood to be lifted off.

The hood may also be removed when in the open position, by proceeding as follows:—

Commence with the hood open, then whilst lowering the hood restrain the hinged door aft of hood in the open position. When the hood is nearly closed but not locked, raise the arm of the hood jack hook, then manually raise the hood to the open position. Place a hood strut in position to hold the hood open. Remove the nut and bolt from the lower end of the connecting rods to the upper latches, move the latch hooks forward clear of the pivots. The hood may now be lifted clear of the aircraft.

Assembly of hood

30. To refit the cabin hood proceed as follows:—

- (1) Partially extend the hood operating jack.
- (2) With the front of the hood raised, fit the rollers on the hood into the housings and guide brackets on the fuselage. Lower the hood until the roller on the hinge bracket can be engaged with the hood operating jack fork end. Fit the jury strut to hold the hood open.
- (3) Move the upper rear latches to secure the hood and reconnect the connecting rods.
- (4) Reset the release unit as described in para. 31.
- (5) Remove the jury strut and lower the hood.

Note...

It is important that this procedure be followed to ensure that the hook release lever is above the roller on the rocker (fig. 20).

Resetting hood jettison release unit (fig. 12)

31. With the pin (1) removed and the release handle (3) in the unloaded position, rotate the upper coupling (2) in an anti-clockwise direction to move the 'H' nut into the 'H' shaped hole in the release handle lever. Continue rotation of the coupling until the outer face of the 'H' nut is flush with the outer face of the release handle lever. Lock the 'H' nut by moving the release handle (3) 45 deg. backward to the 'loaded' position — if the release handle will not move, rotate the coupling further in the same direction until the handle can be freely moved to lock the 'H' nut. No further rotation of the coupling in this direction is permissible.

WARNING

It is important that the release handle is retained in this 'loaded' position throughout the remainder of the re-setting operations to prevent accidental release and possible injury to personnel.

Load the unit by rotating the coupling (2) in a clockwise direction to the full extent of its travel, to fully compress the spring of the unit, then unscrew the coupling one half-turn.

Finally check the setting of the Downmic switch on the torque shaft and the microswitches on the hood locks.

To unload the unit hold the release handle (3) in the loaded position and turn the coupling (2) anti-clockwise to its full extent.

Fitting replacement hood**Notes...**

(1) The perspex covering of spare hoods have a protective coating of latex to prevent damage during storage and transit. This coating should be removed very carefully to avoid damage to the surface of the perspex. Tools or sharp instruments must not be used. Rubbing with the thumb will usually cause the coating to lift locally, the remainder may then be peeled off. In some cases of prolonged storage where the coating has become hard, the application of warm soapy water may prove beneficial or, in extreme cases, a small quantity of methylated spirits may be used.

(2) To ensure positive entry of the hood into its locks, housing blocks are bolted to the cockpit structure to receive spigots at the forward and rear corners of the hood. Lateral adjustment of the housing blocks is effected by shimming (fig.23A and para.45A).

32. When a replacement hood is being fitted the following minimum clearances must be obtained:—

- (1) The minimum clearance between the faces of each hook on the hood and the internal faces of the hood latch (fig. 11) must not be less than 0.005 in. This clearance may be obtained by adjusting the bearing blocks laterally.
- (2) With the hood in the flight position a minimum clearance of 0.050 in. must be obtained between the windscreen arch and the front arch of the hood; the hood rear arch and the diaphragm aft of the hood; the bottom of the hood and the top of the longeron. At these points the clearance may be obtained by filing the edge of the hood, care being taken not to damage the inflatable seal.

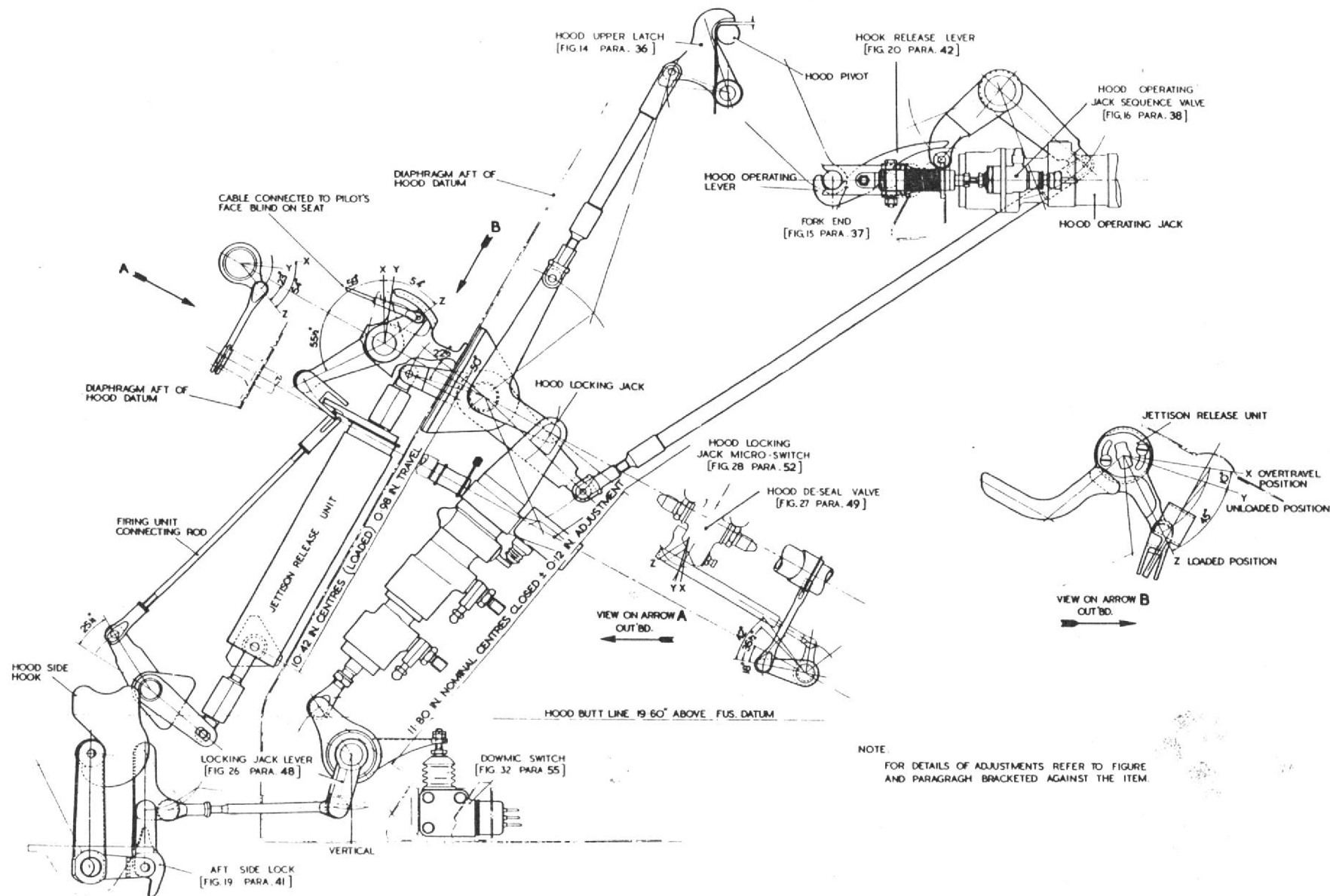


Fig. 12A Hood operating mechanism geometry

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Seat removal and replacement

33. Ejection seats must be removed and replaced in accordance with the relative equipment publication. These procedures involve the removal and subsequent refitment of the bolts (fig.12, item 4) securing the port and starboard levers to the hood jettison cross shaft. The removal of these bolts enables the levers to be turned to release the cables to the ejection seats without disturbing the setting of the hood jettison release unit.

CAUTION

As movement of the hood cross shaft can result in operation of the release unit, care must be taken to prevent the cross shaft from moving when the levers are turned either to release or refit the cables.

Hood cross shaft

33A. The canopy-jettison operating cable from the port seat connects to the lever item 27 in fig.11. On most aircraft this lever and the adjacent cross-shaft mounting bracket are drilled with $\frac{1}{4}$ in. diameter holes and the safety pin from the port seat face-blind firing handle may be inserted through these holes to provide a 'safe for servicing' feature. On the few aircraft where these holes are not provided they are to be drilled using the following procedure:—

- (1) Ensure the ejection seats are safe for servicing in accordance with current instructions.
- (2) Remove the pip pin (fig. 12, item 1) from the lower end of the gas gun sear tie rod and the cross lever.
- (3) Observing the **CAUTION** in para. 33, remove and retain the bolt and nut (fig. 12, item 4) securing the port lever to the hood jettison cross shaft, disconnect the cable and withdraw the lever.
- (4) Mark out and drill the lever as shown in fig. 12B. Where a tooling hole is present in the lever this is to be used as a pilot hole.

- (5) Refit the lever to the cross shaft, using the bolt and nut retained in sub-para.(3).
- (6) Using the hole drilled in the lever as a guide, drill the cross shaft bearing bracket as shown in fig.12C ensuring, by angling the drill if necessary, that the periphery of the hole does not break into the radius of the web.
- (7) Adjusting the holes as necessary, ensure that the port seat face-blind safety pin is a free fit in the holes.
- (8) Refit the port seat canopy-jettison cable to the lever and insert the port seat face-blind safety pin through the new holes.
- (9) Refit the pip pin to connect the lower end of the gas gun sear tie rod to the lever of the lower cross shaft.
- (10) Carry out the vital and independent checks in accordance with current regulations.

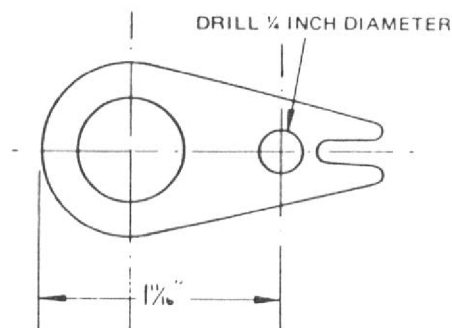


Fig.12B Cross shaft lever

ENSURE HOLE IS ON
FLAT BY DRILLING
AT AN ANGLE

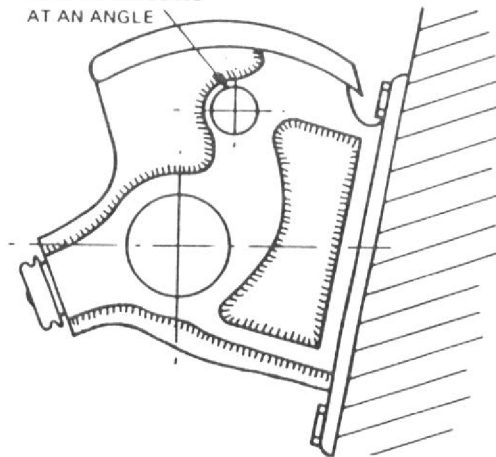


Fig.12C Cross shaft bearing bracket

Adjustment of hood and locking mechanism

34. The procedure for the various adjustments that are necessary on the hood, cockpit structure and hood operating mechanism is detailed in para.35 to 50 inclusive. All parts should be correctly lubricated (fig. 10 and 11) before carrying out any adjustment and on completion of each adjustment, the mechanism concerned should be checked for freedom of movement. If any one unit is considered to require adjustment, that unit must first be isolated by uncoupling those rods connecting it to adjacent units. Clearances of that unit should be re-checked in case the cause of maladjustment is due to errors in other units or in the connecting rods. On completion of the adjustment and after reconnection to the system, checks should be carried out to ensure that other components in the system have not been affected.

Note...

During all adjustments, with the exception of para. 35 and 36, packing (approx. 0.05 in.) must be in position between the forward ends of the hood side members and the longerons to bring the hood to the flight position.

Hood contact points—static position (fig. 13)

35. Adjust the shim under the bearing plate until the outer rollers on the hood hinge bracket make contact with the bearing plate. The bottom corner of the front arch member of the hood should be in contact with the top longeron.

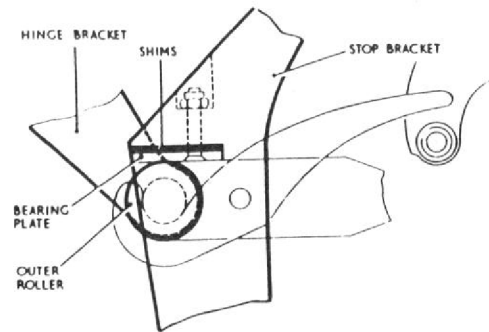


Fig. 13 Hood contact point—static position

Hood upper rear latches (fig. 14)

36. Adjust the connecting rods to the upper rear latches to bring the latch within 0.02 in. of the forward face of the special fitting at the hood pivot. The backlash should be taken up by pushing down on the lever at the top of the release unit.

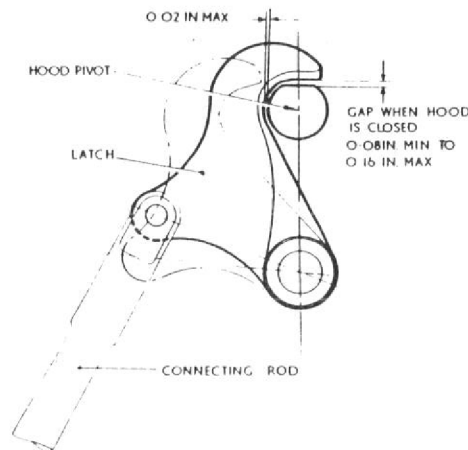


Fig. 14 Hood upper rear latches
Gap at top of hood pivot altered

Hood operating jack fork end (fig. 15)

37. With the hood in the flight position, adjust the fork end of the jack until it just touches the rear face of the centre roller on the hood hinge bracket.

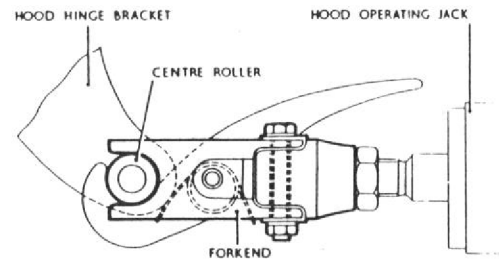


Fig. 15 Hood operating jack fork end

Hood operating jack sequence valve (fig. 16)

38. Adjust the hood operating jack sequence valve as follows:—

- (1) Ensure that the end fittings have been correctly adjusted (para. 37).
- (2) Close the adjusting screw to its minimum length (i.e. dimension 'X' to be approximately 0.30 in.). Apply full hydraulic pressure to ensure that the jack is fully bottomed (hood closed).
- (3) With lever 'A' against stop 'B' adjust the plunger screw until there is a gap of 0.06 in. to 0.08 in. between the contact face of the sequence valve body, as in scrap view in fig. 16.
- (4) Unscrew the adjusting screw a further four turns to ensure full compression of the sequence valve and lock with 22 s.w.g. stainless steel locking wire.

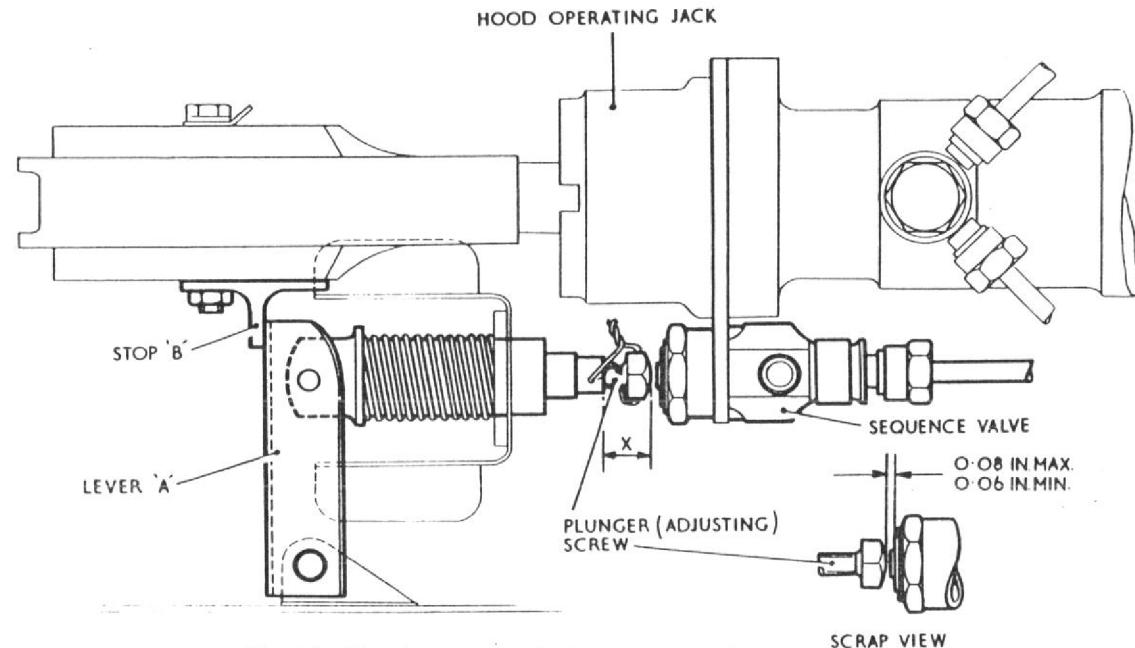
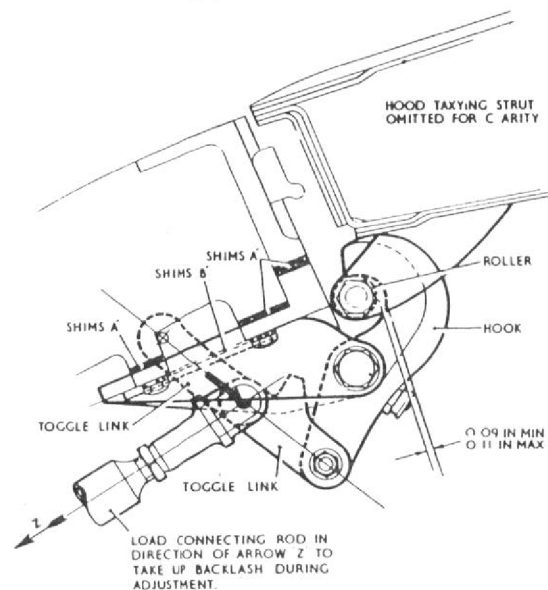


Fig. 16 Hood operating jack sequence valve

Front centre lock (fig. 17)

39. With the hood in the flight position (*i.e.* the hood in a fair line with the top of the windscreen arch) and with the hood jack in the fully retracted and locked position, check that the side lock rollers are all clear of the hooks, then :—

- (1) Disconnect the toggle links from the hook.
- (2) Adjust the three sets of shims 'A' fitted under the lock mounting so that the hook just makes contact with the top of the roller with a clearance of 0.09 in to 0.11 in. between the aft face of the roller and the hook.
- (3) Re-connect hook and toggle links.
- (4) Adjust the shims 'B' fitted under the toggle link mounting bracket to bring the toggle links into a straight line whilst maintaining the setting of the hook as in (2) above.

**Fig. 17 Front centre lock**

The backlash must be taken up by loading the connecting rod away from the lock during this adjustment.

- (5) Adjust the length of the connecting rod between the lock and the bell crank lever and the length of the Teleflex cables to hold the toggle links in this position.

A white arrow on the hook mounting bracket and a white dot on the bolt through the toggle links and connecting rod should line up when the adjustment of the front centre lock is correct, any re-adjustment of this lock will therefore necessitate the repainting of these markings.

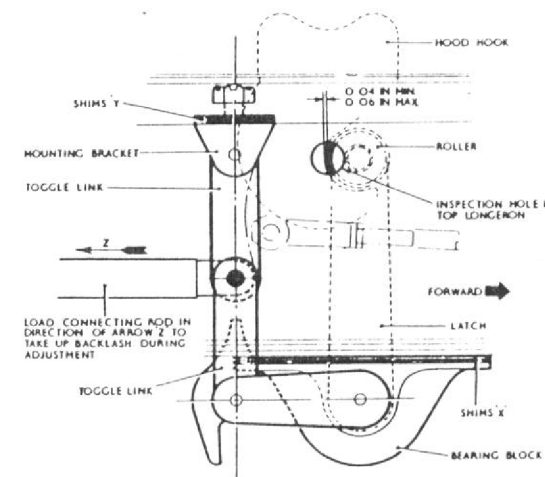
Forward side locks (fig. 18)

40. With the hood in the flight position and with the hood lock jack in the fully retracted and locked position.—

- (1) Disconnect the connecting rod at the toggle links and tip the links clear of the locks.
- (2) Adjust the shims 'X' at the bearing block mounting until the roller just makes contact with the hood hook. Care must be taken when replacing the bearing block mounting that the lock latch and roller is centered about the hood hooks. Elongated holes in the bearing block allow for this adjustment.
- (3) Re-connect the toggle links.

- (4) Adjust the shims 'Y' under the toggle link mounting bracket to bring the links within 0.020 in forward of a straight line when the clearance between the rear face of the roller and the front face of the hook is 0.04 in. to 0.06 in. (*This clearance can be checked through the inspection hole in the longeron*). Backlash to be taken up in an aft direction.
- (5) Adjust the length of the connecting rod between the forward and aft locks and the Teleflex cable to hold the toggle links in this position, care being taken not to mal-adjust the settings of the front centre lock or the aft side lock.

A white dot painted on the inspection window of the lock casings, should line up with the centre bolt of the toggle links, when looking square on the locks, when this setting is correct. Any re-adjustment of the setting will, therefore, necessitate repainting of this white dot. ($\frac{1}{4}$ " dia.)

**Fig. 18 Forward side lock**

Aft side locks (fig. 19)

41. With the hood in the flight position and the hood lock jack in the fully retracted and locked position :—

- (1) Disconnect the connecting rods at the toggle links and tie the links clear of the locks.

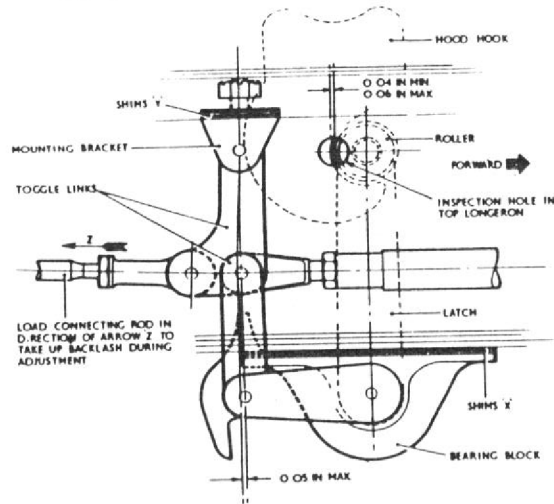


Fig. 19 Aft side lock

- (2) Adjust the shims 'X' at the bearing block mounting until the roller just makes contact with the hood hook. Care must be taken when replacing the bearing block mounting that the lock latch and roller is centralized about the hood hooks. Elongated holes in the bearing block allow for this adjustment.
- (3) Re-connect the toggle links.
- (4) Adjust the shims 'Y' fitted under the toggle link mounting bracket to bring the links within 0.05 in. aft of a straight line when the clearance between the rear face of the roller and the front face of the hook is 0.04 in. to 0.06 in. (This clearance can be checked through the inspection hole in the longeron). This adjustment must be carried out with all backlash taken up in an aft direction.

- (5) Adjust the length of the connecting rods to the rear locks to hold this setting, care being taken not to maladjust the setting of adjacent units.

WARNING

Should any item, such as harness webbing, be trapped between the hood and longeron when the hood is closed, a complete check must be made to ensure that the roller shafts on the side locks have not been distorted—see para. 40(2) and 41(2). It is not sufficient to check that the microswitch lights are operating correctly

Hood operating jack hook release lever (fig. 20)

42. With the hood fully closed, adjust the length of the connecting rod to the lever assembly for the hood operating jack hook release to give the following minimum clearances :—

- (1) 0.10 in. gap between the roller and the hood operating jack body.
- (2) 0.15 in. gap between the roller and the underside of the lever portion of the hook

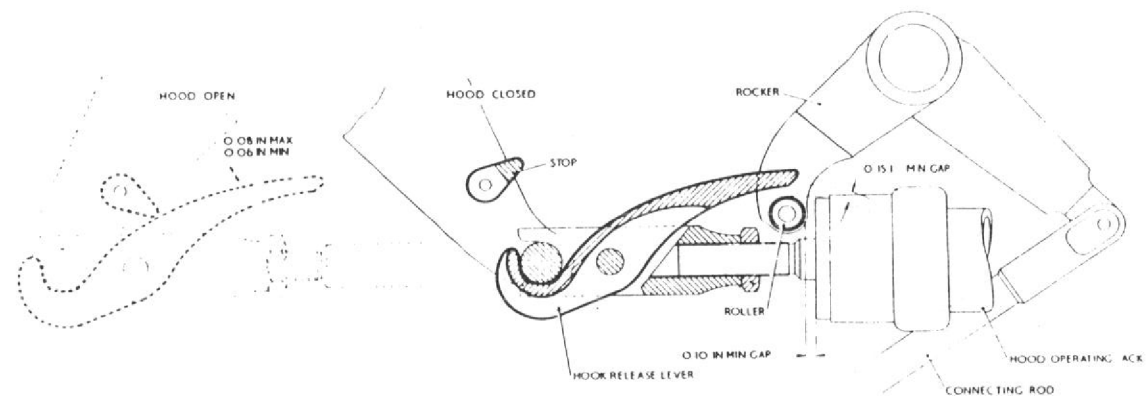


Fig. 20 Hood operating jack hook release lever

- (3) With the hood fully open (jack fully extended under hydraulic pressure of 3000 lb/in²) ensure that there is a clearance of 0.06 in. to 0.08 in. between the stop on the hinge bracket and the hook release lever.

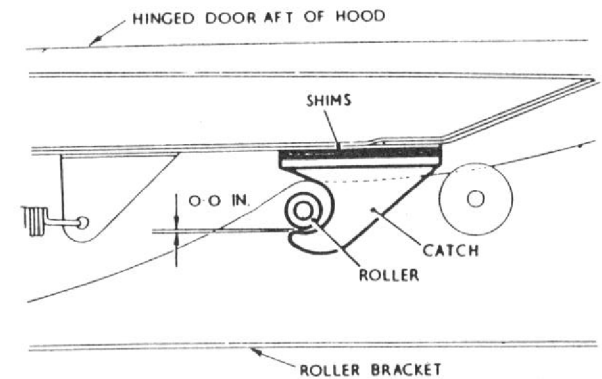


Fig. 21 Hood fairing door catches

Hood fairing door catches (fig. 21)

43. Adjust the shims under the catch of the fairing until a clearance of 0.01 in. is obtained between the upper surface of the catch and the underside of its securing roller.

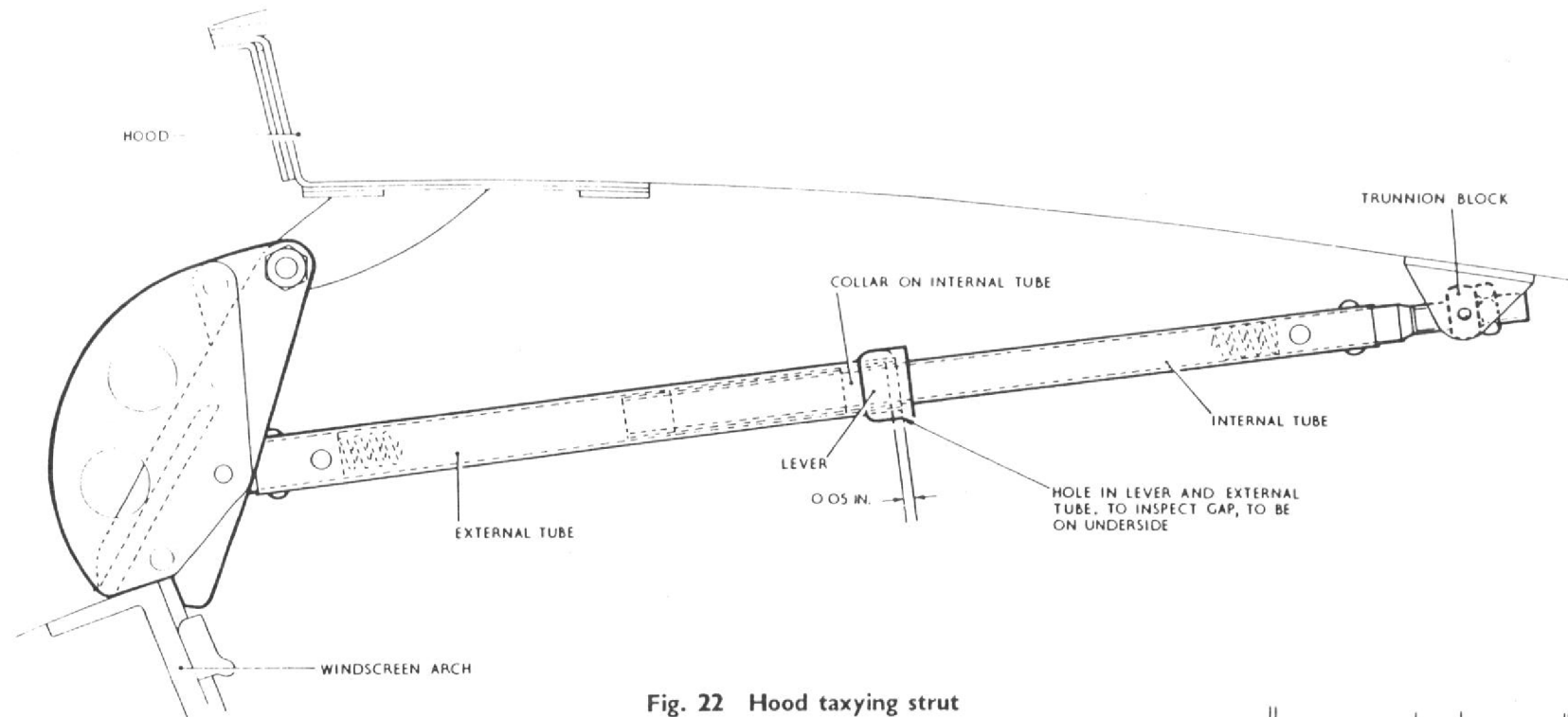


Fig. 22 Hood taxiing strut

Hood taxiing strut (fig. 22)

44. Adjust the hood taxiing strut as follows:—

- (1) With the hood open, unscrew the internal tube until the screwed end just protrudes through the trunnion block on the hood.
- (2) With the strut fully extended carefully lower the hood and guide the strut on to the windscreen arch.
- (3) With the hood jack fully pressurized to 3000 lb/in², screw the internal tube into the trunnion block until there is a gap of 0.05 in. between the end of the collar on the internal tube and the end of the external tube (i.e. the end of the collar is in line with the centre of the inspection hole).

- (4) Screw up the lock-nut on to the trunnion and wire lock.
- (5) Raise and lower the hood under full hydraulic power to check that no additional load is applied to the trunnion attachment angles.

Hood guides (fig. 23)

45. Adjust the shims between the guide and the hood until a clearance of 0.01 in. to 0.02 in. is obtained between the guide and the longeron. The bolt heads must be filed off flush with the nuts and locked by centre punch.

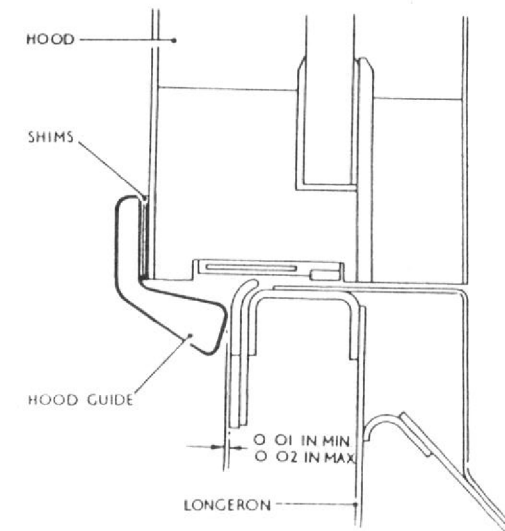
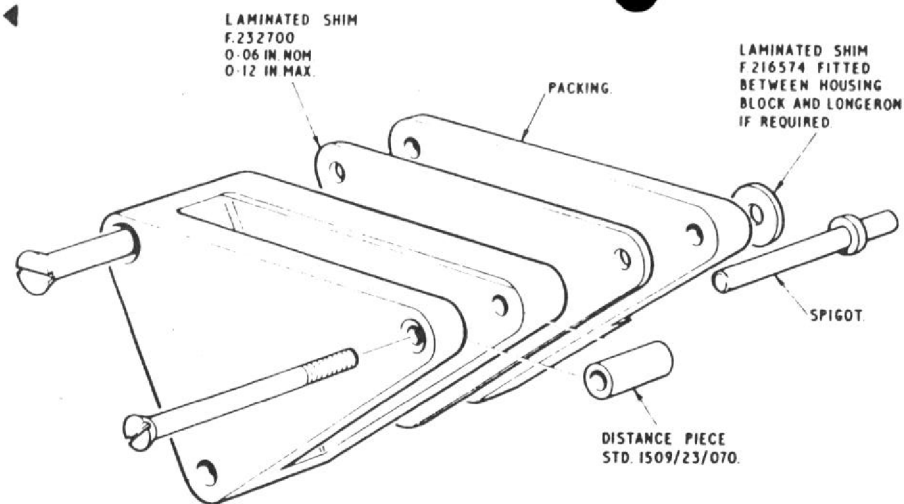
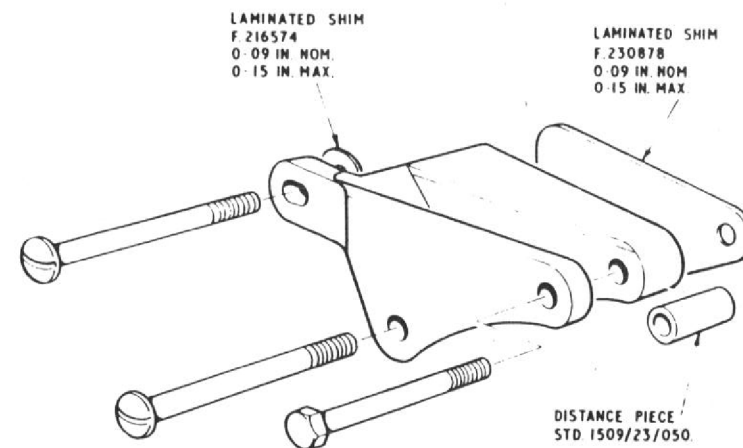


Fig. 23 Hood guides

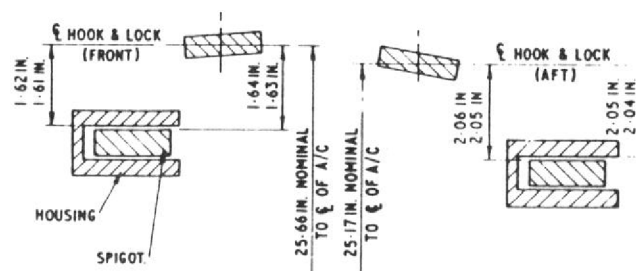
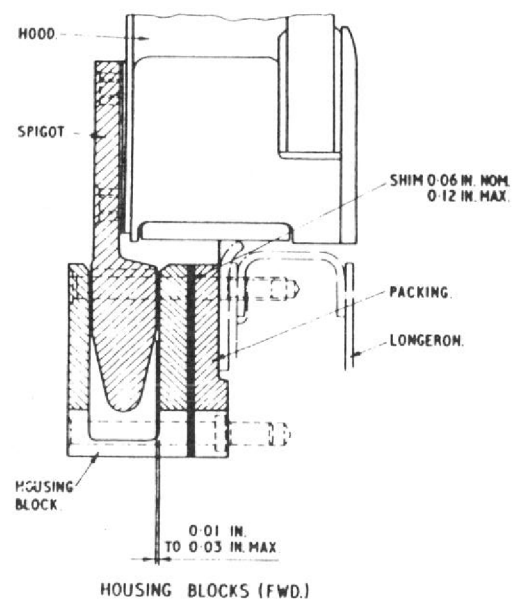


NOTE
LOCK BOLTS BY 3 CENTRE PUNCH
INDENTATIONS AROUND BOLT HEAD.

STBD. FORWARD HOUSING BLOCK ASSY.



STBD. AFT HOUSING BLOCK ASSY.



DIAGRAMMATIC VIEW SHOWING LATERAL
LOCATION OF SPIGOTS AND HOUSINGS

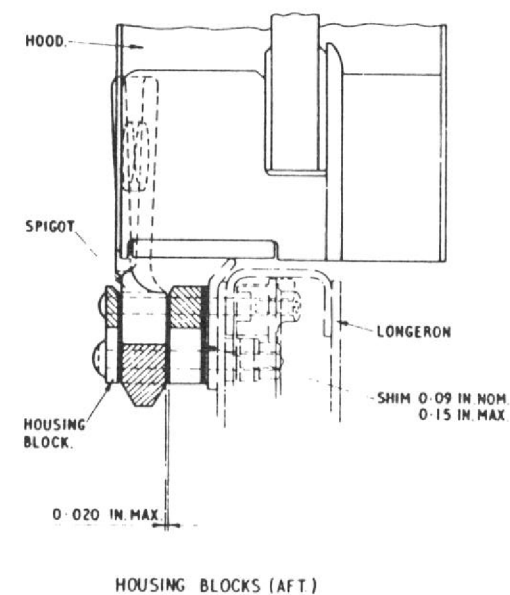


Fig.23A Hood locating spigots and housing blocks (post Mod.778)

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◀ Hood spigot housing blocks (fig.23A)

45A. Adjust the housing blocks as follows:—

- (1) Adjust the shims between the forward housing blocks and packing pieces until

a clearance of 0.01 in. to 0.03 in. is obtained between the spigot and housing block socket, outboard face. Lock bolts by 3 centre punch indentations around bolt head.

- (2) Adjust the shims between the aft housing blocks and longerons until a clearance of 0.02 in. max. is obtained between the spigot and housing block socket, outboard face. ▶

Hood up sequence valve—Depressurizing valve
(fig. 24)

46. Adjust the shims between the rear face of the valve mounting bracket and the valve to obtain a gap of 0.60 in. to 0.65 in. between the contact face of the plunger and the pip of the valve.

Hood seal pressurizing connection (fig. 25)

47. Adjust the connector on the hood to give a clearance of 0.09 in. to 0.10 in. between the flange of the hood connector and the face of the joint connector on the fuselage.

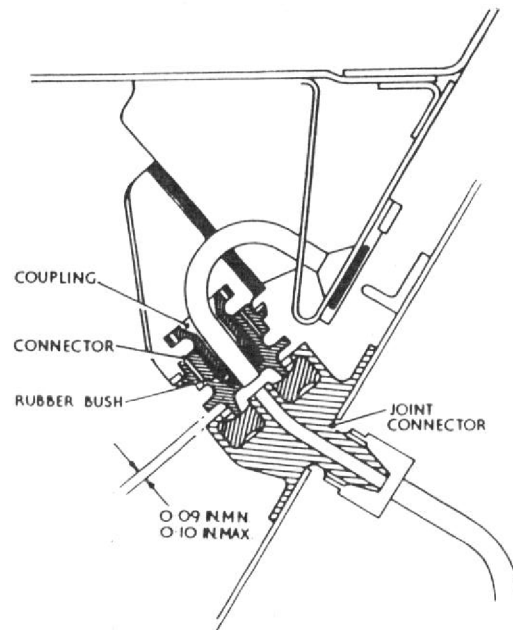


Fig. 25 Connection hood seal pressurizing

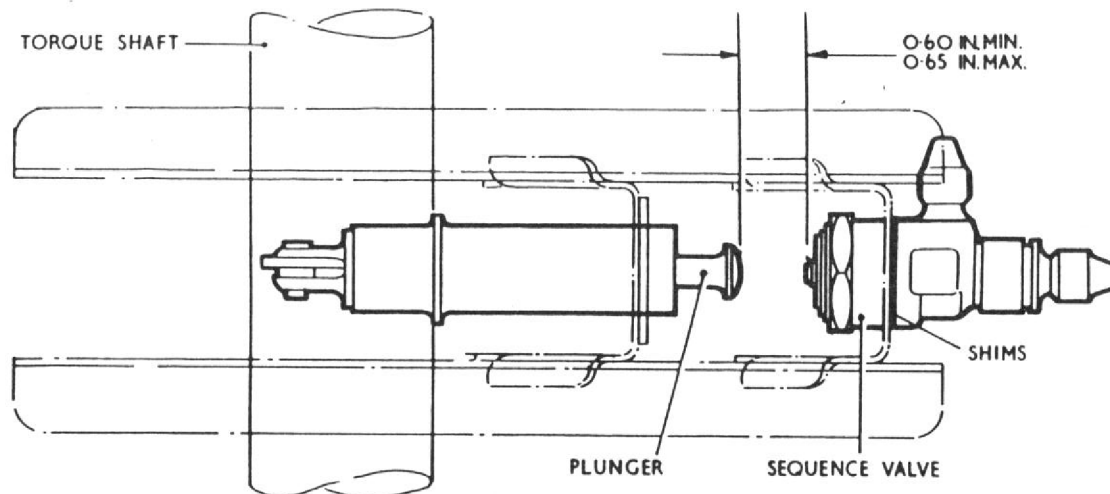


Fig. 24 Hood up sequence valve

Angular setting of locking jack lever on torque shaft
(fig. 26)

48. Adjust the angular setting of the locking jack lever on the torque shaft as follows:—

- (1) Ensure that the jettison release unit is correctly loaded.
- (2) Disconnect the rear connecting rod from each of the two rear locks and adjust the screwed eye end of the locking jack to obtain an angular setting of $35 \pm \frac{1}{2}$ deg. for the jack lever on the torque shaft.
- (3) Re-connect the rods to the rear locks, adjusting, as necessary, care being taken not to maladjust the settings of the locks.

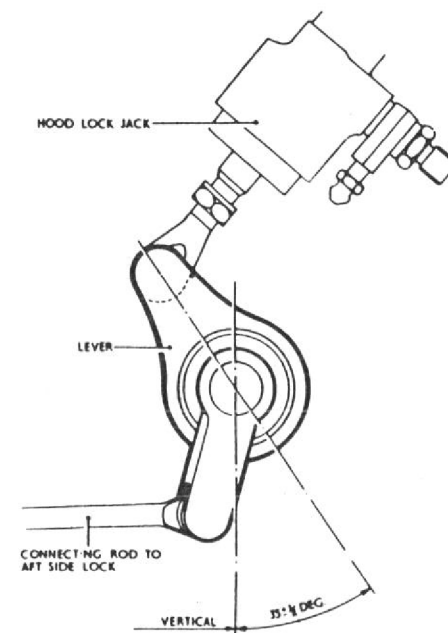


Fig. 26 Angular setting of locking jack lever on torque shaft

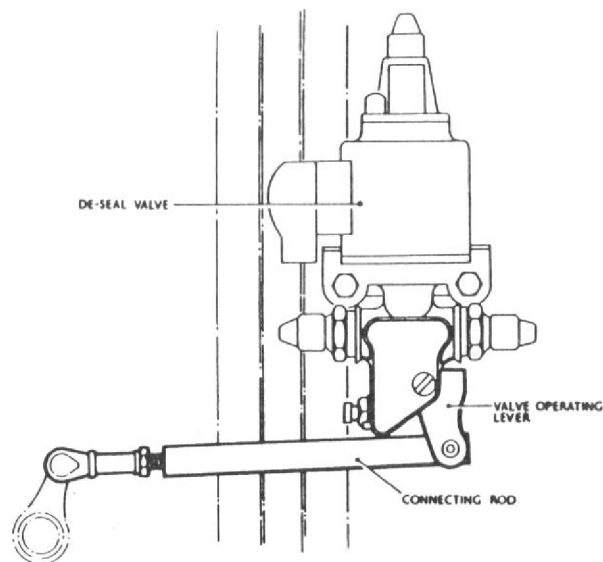


Fig. 27 De-seal valve connecting rod

De-seal valve connecting rod (fig. 27)

49. With the jettison gear mechanism at the 'full travel' position, adjust the connecting rod to the de-seal valve so that the valve lever just touches the stop.

Open circuit sequence valve (fig. 27A)

50. With the hood locks fully locked and the lock jack fully bottomed, adjust the screw of the operating plunger until there is a gap of 0.06–0.08 in. between the face of the sequence valve body and the contact face of the adjusting screw, as shown in scrap view in fig. 27A. Unscrew a further four turns to ensure the operation of the valve and lock the adjusting screw.

Adjustment of hood operating mechanism microswitches

51. The procedure for setting the various microswitches of the hood operating mechanism is detailed in para. 52 to 56 inclusive.

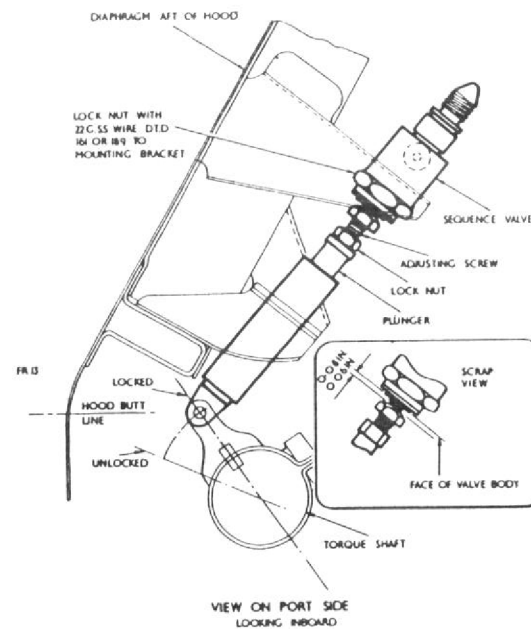


Fig. 27A Open circuit sequence valve

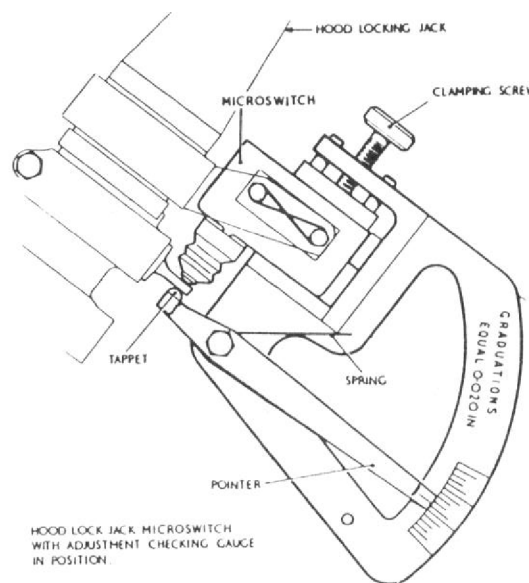


Fig. 28 Hood locking jack microswitch

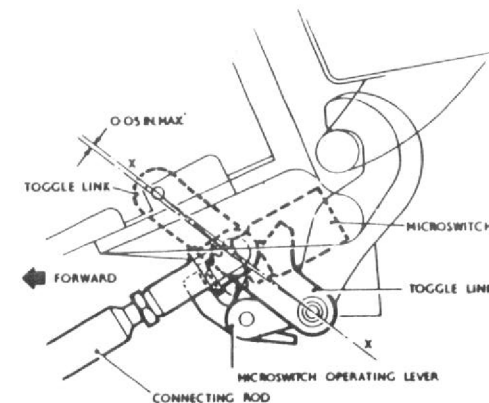


Fig. 29 Forward top centre lock microswitch

Note . . .

During all adjustments 0.05 in. temporary packing must be in position between the forward ends of the hood side members and the longerons.

Hood locking jack microswitch (fig. 28)

52. With the hood locking jack fully retracted and the internal locking sleeve of the jack fully engaged, adjust the serrated plate to give between 0.01 in. to 0.04 in. switch depression beyond the tripping point. Check the setting with the special gauge provided.

Forward top centre lock microswitch (fig. 29)

53. Adjust the position of the microswitch on the serrated plate so that the switch is just tripped to make contact when the toggle links 'X'—'X' are in a straight line. The switch must break contact before these links have reached an out of alignment figure of 0.05 in. maximum.

Note . . .

The movements of the toggle links mentioned in para. 53 and 54 may be made by slowly unwinding the upper coupling nut (fig. 12, item 2) of the hood jettison release unit. Ensure that the coupling nut is returned to the exact original position on completion of the adjustment. The green light in the cabin will come on when all microswitches have made contact and will go out when any one breaks contact.

Forward side lock microswitch (fig. 30 and 31)

54. The forward side lock microswitch should be adjusted as follows:—

(1) *Pre-mod. 813*

This switch should be assembled in the mean position of the serrated plate and adjustment made to the tappet screw so

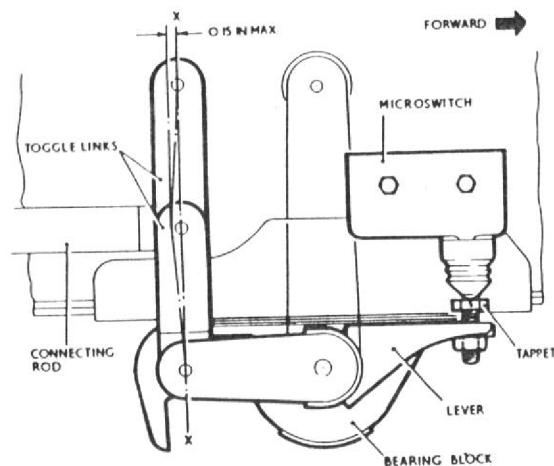


Fig. 30 Forward side lock microswitch (Pre-mod. 813)

that the switch is tripped to make contact when the links at 'X'-'X' are in a straight line and break contact before these links have moved 0.15 in. out of line.

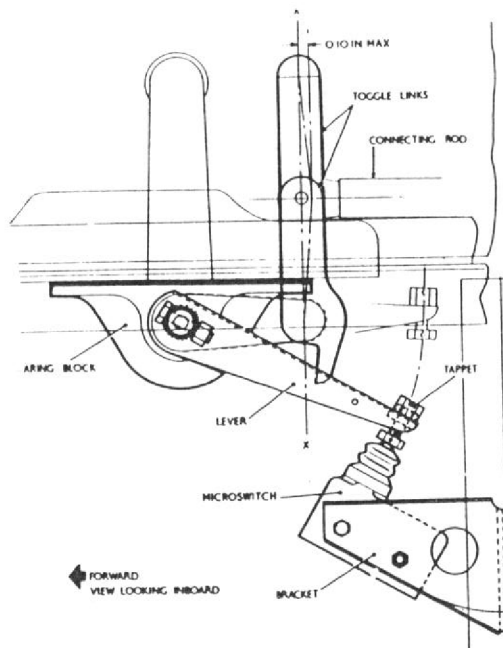


Fig. 31 Forward side lock microswitch (Mod. 813)

(2) *Mod. 813.*

The tappets should be adjusted so that the switches are tripped to make contact when the links at 'X'-'X' are in a straight line and break contact before the links have reached an out of alignment figure of 0.10 in. maximum.

Downmic switch—Torque shaft (fig. 32)

Note . . .

It is essential that the spring release unit is correctly loaded and adjusted before commencing adjustments to the Downmic switch and that full hydraulic pressure is used to hold the hood lock jack in the fully retracted position whilst adjustments are being made.

55. With the hood lock jack fully retracted and the internal mechanical lock in the jack fully locked, adjust the tappet until electrical contact is just made, unscrew the tappet one further turn beyond this point.

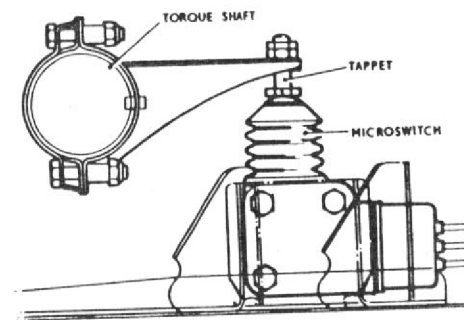


Fig. 32 Downmic switch—torque shaft

Microswitch aft of hood (fig. 33)

56. The procedure for setting the Hood 'Closed' microswitch is as follows:—

- (1) Ensure that the nut on the pivot bolt of the operating lever is fully tightened.
- (2) Check for complete freedom of movement of the lever without any tendency to bind.
- (3) If, with the pivot bolt nut fully tightened, the lever movement is restricted, proceed with operations (4) to (6) inclusive.
- (4) Remove the pivot bolt, lever, spring and distance tubes (*one long and two short*), taking care to prevent any falling into the cabin.
- (5) Reduce the length of one short distance tube by 0.02 in. to 0.03 in. and maintain a square end to the tube.

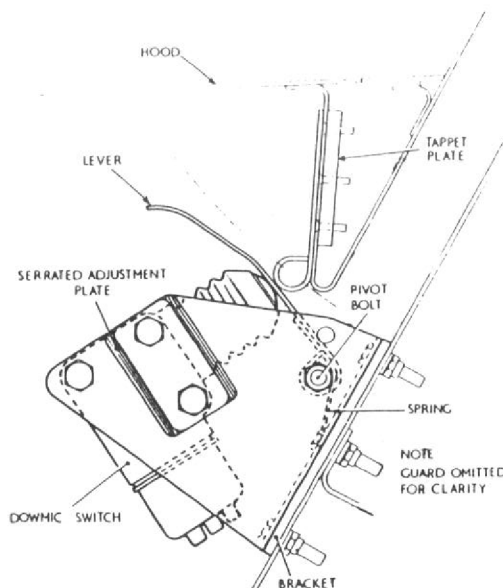


Fig. 33 Microswitch aft of hood

- (6) Reassemble, fully tighten pivot bolt nut and recheck for freedom of movement.

- (7) Adjust the position of the microswitch on the serrated plate to make contact when the hood is $3\frac{1}{2}$ in. open at the forward end. Check that the microswitch contact is broken when the forward end of the hood is opened to 5 in.

WARNING

It is important to ensure that the lever movement is free, to allow the microswitch to return to its normal position when the hood is opened. Should the microswitch be held in the depressed position, e.g. through seizure of the lever on its pivot bolt, with the hood open, the hood will close immediately the battery master switch is placed in the ON position, without any audio warning. This could result in serious injury to personnel.

All servicing of this assembly should be made with the battery master switch in the OFF position and the external supply disconnected.

Hood operation test

57. Following the fitment of a replacement hood or after any adjustments have been made, the operation of the hood mechanism must be checked as follows:—

With the aircraft trestled up, wheels clear of the ground, ejection seats fitted and hydraulic systems serviceable with fully charge accumulators:—

- (1) Unload ejection seats and hood jettison gun.
- (2) Connect a hydraulic ground servicing trolley.
- (3) Connect a 28 volt supply to the aircraft battery leads.
- (4) Connect a footpump to the hood seal inflation ground test connection.
- (5) Remove the plugs from the longeron inspection holes to permit the hood locks to be examined during the test.
- (6) With the hydraulic servicing trolley running to provide hydraulic pressure and with the battery master switch OFF, use the internal hood control switch to close the hood. Check that the warning horn sounds on selecting hood CLOSE and that, after 3 to 6 seconds delay, the hood starts to close. Check that the hood closes smoothly in 4 to 6 seconds and that the horn sounds throughout the movement. Check the hood fairing door and hood locks for correct operation and that the hood lock warning light shows green. Check that, when the control switch is released, the hood lock warning light goes out.
- (7) Select battery master switch ON and check that the cabin indicator lamp shows green with the hood locked shut and undercarriage down. Select undercarriage UP and check that the hood

lock warning light goes out. Hold the hood override switch to OPEN and check visually that the hood control valve shut solenoid is not energized. Select CLOSE on the internal switch and check visually that the shut solenoid is energized. Release the override and internal switches. Select undercarriage DOWN and check that the hood lock warning light shows green. Select master battery switch OFF.

- (8) Reduce the electrical supply to 24 volts.
- (9) Using the internal hood control switch to open the hood, check that there is a delay of 3 to 7 seconds on first opening the hood and that after this delay the hood opens smoothly in 4 to 7 seconds. Check the hood fairing door and hood locks for correct operation.
- (10) Increase electrical supply to 28 volts, select hood CLOSE and when the hood has closed inflate the hood seal. Check that the lock rollers are engaged with the hooks with the seal fully inflated to a pressure of 8 lb/in². Select battery master switch ON, select OPEN on the internal hood control switch and check that the seal deflates and that the hood remains locked shut. Check that the hood cannot be opened by the external switch with the battery master switch ON.
- (11) Select battery master switch OFF, inflate seal and check that the seal deflates on selecting OPEN on the external switch and that after a delay of 3 to 7 seconds the hood opens smoothly in 4 to 7 seconds. Check that the hood fairing door and hood locks operate correctly.
- (12) Close the hood by the internal switch and release the switch to stop the hood 4 to 5 in. open, measured at the top of the front arch. Move the battery master

switch to ON and check that the horn does not sound, that the hood closes and locks and that the hood locked warning light shows green.

- (13) Hold the hood override switch at OPEN and check that the hood opens and closes, using the internal switch. Partially open the hood, lower the hood taxiing strut manually and check the hood lowering and raising to ensure correct adjustment of the hood taxiing strut. Stow the taxiing strut and close the hood. Release the override and internal switches.
- (14) With the hydraulic ground test rig running at approximately 1200 rev/min operate the flying controls in power whilst operating the undercarriage, air-brake and flaps. Check that the hood remains locked shut and that there is no movement of the toggles.
- (15) Stop the hydraulic ground test rig and check that the hood remains locked. Move the battery master switch to OFF and check the operation of the hood on the hydraulic accumulator supply. Note the number of operations to exhaust the accumulator, with intervals of 2 minutes between operations. The hood should complete the cycle (unlock, open, shut and lock) twice and finally unlock before the accumulator is discharged.
- (16) Recharge the accumulator and check that the hood may be stopped smoothly in mid-movement.
- (17) Remove trestles and return the aircraft to its normal condition.

Note . . .

The operations of opening and closing the hood must not be repeated more than five times successively without allowing time for the delay switches to cool.

Hood jettison mechanism test

58. Wherever replacement components are fitted or any adjustments made to the hood jettison mechanism the mechanism should be tested, to ensure correct operation, as follows:—

- (1) Unload and cock the hood jettison gas gun and the guns of the ejection seats.
- (2) Ensure that the jettison release unit is correctly loaded.

Note . . .

To obviate the necessity of reloading the jettison release unit after each pull-off test, the stop tool (Ref. No. 26FX/20591) may be used, as illustrated in fig. 12, after the initial check on the full unlocking system. The release handle of the jettison unit must however, be reset after each test.

- (3) Release the guard from over the emergency release handle.
- (4) Close and lock the hood, inflate the hood seal and, using a spring balance, check the load required to operate the jettison handle at the rear of the centre console.

Note . . .

The load required to operate the jettison mechanism, except when using the emergency handle on the jettison release unit, is not to exceed 50 lb.

Check that the mechanism has operated correctly, viz.,

- (a) deflated the hood seal,
- (b) unlocked the hood locks,
- (c) moved the hood upper rear latches clear of the hood pivots.

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- (d) *the hood operating jack release hook has opened to release the hood operating lever from the operating jack,*
- (e) *the sear has been pulled from the jettison gas gun.*
- (5) Reset the mechanism and check that the hood locks are correctly engaged on closing the hood.
- (6) Remove the pip pin from the sear of the jettison gun, inflate the hood seal and check the load required to operate the handle of the jettison release unit, this must not exceed 8 lb.
- (7) Reset the mechanism, refit the pip pin, close the hood and check that the locks are correctly engaged.
- (8) Inflate the hood seal and using the external jettison control, check the load and the operation of the mechanism.
- (9) Reset the mechanism, close the hood and inflate the hood seal. Check the load and the operation of the mechanism, [sub-para. 4(a) to (e)] using the port seat blind handle. Check that the sear has been pulled from the port seat gun and that the cable from the seat has been freed from the cross shaft.
- (10) Repeat operations in sub-para. 9 with starboard seat blind.
- (11) Return the aircraft to its normal condition.

Testing hood jettison gas gun cylinders (fig. 34)

59. The hood jettison gas gun cylinders should be tested as follows:—

- (1) Unload the seat and hood firing units and remove the hood.
- (2) Remove the P.V.C. tape from over the cylinders.
- (3) Assemble the test union body to the firing unit, connect the test rig to the union body and couple up a low pressure trolley to the rig.
- (4) With the test rig release valve closed run the trolley to charge the air container fully and set the output control valve to give a pressure of 90 lb/in² in the output line.
- (5) Place a piece of hard wood across the cabin so that it lies over the top of the gas cylinders to restrain the pistons. Open the release valve of the rig quickly and check that both pistons rise in their cylinders. Shut off the air supply.
- (6) Release the air pressure and return pistons to their normal position.
- (7) Fit P.V.C. tape over the hood gas cylinders.
- (8) Remove the test equipment refit the hood, reload the firing units and replace the firing body and lock.
- (9) Replace the safety pins in the sears of the firing units.

Assembly of hood jettison gas cylinders

60. In order to ensure gas tightness at the bottom of the cylinders when replacing the hood jettison gas cylinders, screw the elbow at the bottom of the cylinder fully home and then unscrew, not more than one full turn, to obtain alignment with the pipe union nut.

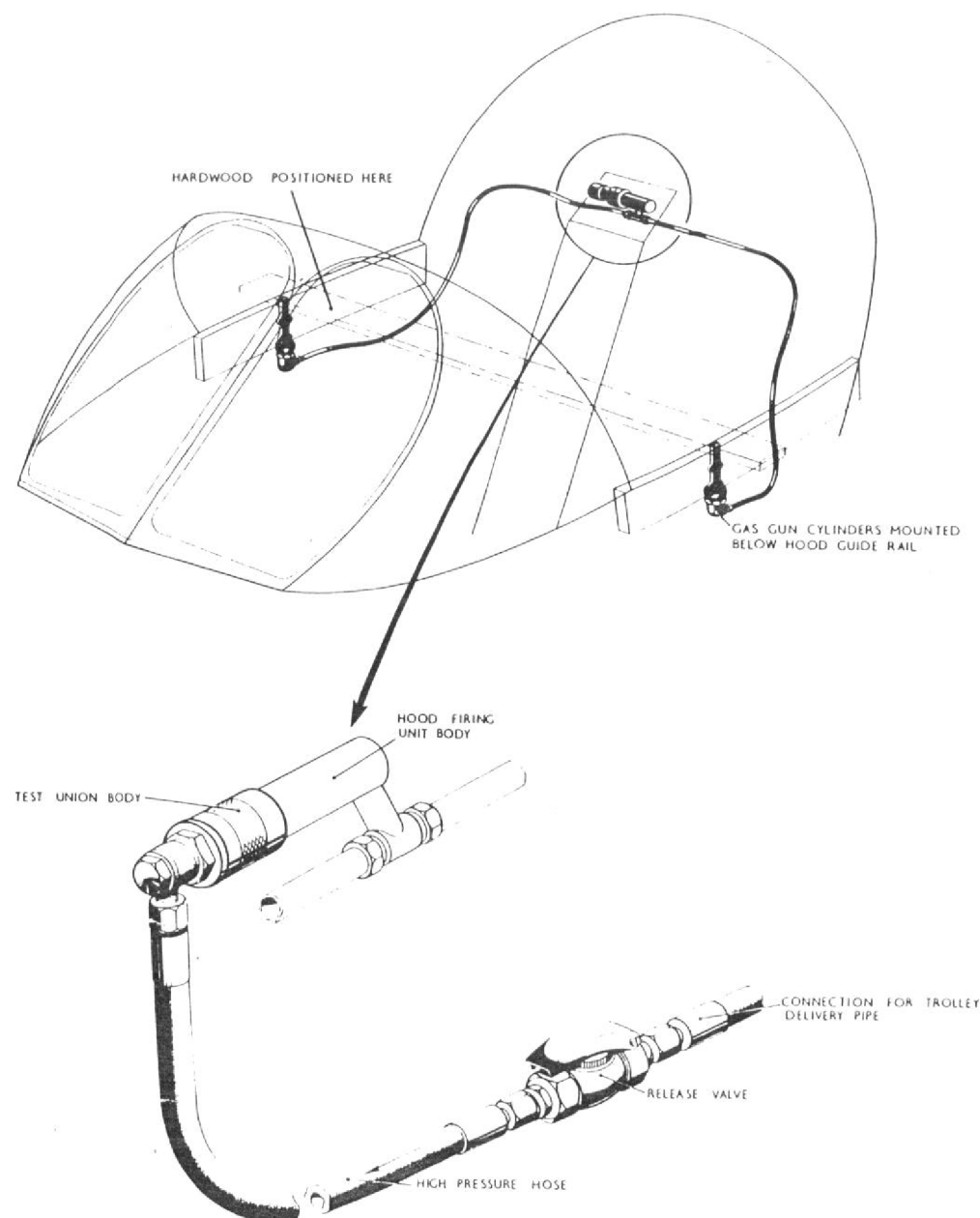


Fig. 34 Testing hood jettison gas gun cylinders

Adjustment of braking parachute microswitches

61. The braking parachute microswitches should be set as follows:—

(1) *Door microswitch*

With the door fully open set the microswitch to give a gap of 0.09 in. to 0.11 in. with the switch fully bottomed at the end of the override.

(2) *Fillet access door microswitch*

With the door closed set the microswitch to give a gap of 0.09 in. to 0.10 in. with the switch fully bottomed at the end of the override. (This will necessitate removal of the tail cone).

(3) *Door indicator microswitch*

With an Allen key slacken the clamp screw of the auxiliary actuator and move the roller arm away from the striker pad until it is up against the stop, taking care not to move the arm too far, otherwise the stop may be fractured. *The clamp screw should be slackened only enough to allow the roller arm to be moved away from the striker pad but retaining sufficient friction to allow the pad to be moved by the roller arm.* Attach a strip of metal 0.10 in. thick, with thin adhesive tape, to the underside of the striker arm and close the parachute doors gently thereby allowing the striker pad to depress the microswitch to its full override position, the final closure of the door causing the roller arm to slip on its pivot to its correct position. Open the parachute doors, tighten the clamp screw, remove the metal strip from the striker arm and carry out a functional check (Sect. 5, Chap. 1).

Assembly of guard over braking parachute door lock (Mod. 947)

62. If a new guard has to be fitted it is important that the door lock is adjusted to its highest position with the doors flush with the tail cone. The new guard is to be cut and filed to conform to the shape and fit of the guard being replaced. The filed edges of the guard are to be coated with varnish or shellac.

Lubrication of braking parachute door lock

63. Where any lock is suspected of being faulty in operation it should be dismantled and cleaned as in the case of undercarriage door locks (Sect. 3, Chap 5). On refitment, care should be taken to position the lock as mentioned in para. 62.

Removing air brake (fig. 3)

64. Remove the air brake as follows :—

- (1) Jack up the aircraft (*Sect. 2, Chap. 4*) and retract the undercarriage. After ensuring that the area below the air brake is free from obstruction, select 'air brake out' on the throttle twist grip, and operate the hydraulic handpump until the air brake is fully extended.
- (2) Select 'air brake in' to release the hydraulic pressure from the jack.
- (3) Ensure that the check chain is securely attached to the aircraft structure and to the jack body.
- (4) *Render the aircraft electrically safe (Sect. 5, Chap. 1).*
- (5) Remove the jet pipe (*Sect. 4, Chap. 1*).
- (6) Remove the split pin, slotted nut and washer from the pivot bolt (2) and withdraw the bolt.
- (7) Support the air brake, and from the inside of the rear fuselage, remove the two pivot bolts (1). The air brake can now be removed.

Removing windscreen

65. To remove the windscreen unit, proceed as follows:—

- (1) Render the aircraft electrically safe (*Sect. 5, Chap. 1*). Remove the gun-sights, port and starboard.
- (2) Release the silica-gel containers which are situated on the top surface of the J.B.2 electrical junction box. Release the cover over the containers by unfastening the securing wing nuts and replace cover. Extreme care must be taken in ensuring that the containers are retained in a practical position, safely secured to the windscreen structure, whilst the windscreen is being removed.

Note . . .

Under no circumstances are the containers to be disconnected from the windscreen panels.

- (3) Disconnect the electrical cables from the microswitch and the stand-by compass which are located on the starboard side of the hood locking mechanism. Remove the screws and clips holding the electrical cables to the windscreen arch and detach the cables from the windscreen. Disconnect the hood centre lock operating rod from the mechanism by removing the special bolt which is situated at the fork-end of the hood lock operating rod.
- (4) Unscrew the nuts which retain the starboard instrument panel to its spring mountings. Remove the panel and disconnect all the electrical cables supplying the instruments. Unscrew the nuts retaining the flying instruments panel to its spring mountings. Remove the panel and disconnect all the electrical cables supplying the instruments.
- (5) Remove the electrical sockets on the gunsight mounting bracket by unscrewing and removing the bolts.

- (6) The removal of the spray pipes should be effected as follows:—

- (a) Remove the bolt holding the port quarter light spray pipe to windscreen platform, then remove the clamp on the port side.
 - (b) Repeat the operation for the starboard quarter light spray pipe.
 - (c) Remove the bolt fixing the port front light spray pipe to the top surface of the J.B.2 electrical junction box. This pipe is secured by 2 bolts and one bracket screwed to the J.B.2 electrical junction box and the end of the spray pipe. Disconnect by removing the screw holding the bracket to the spray pipe. Do not remove the bracket from the J.B.2 electrical junction box.
 - (d) Repeat the operation for the starboard front light spray pipe.
 - (e) Remove the clamp and slide the port body spray pipe out of the sleeve joint which is situated at the rear of the starboard glare shield.
- (7) The port and starboard corner brackets are attached to the windscreen arch and the top longeron on each side. Remove the bolts securing the brackets to the top longerons.
 - (8) Dismantle and remove the radio switches and mounting plates.
 - (9) Release the air pressure in the hydraulic system by carefully removing the hydraulic reservoir cap.
 - (10) Dissipate any residual pressure in the hydraulic fluid by operating one of the systems.
 - (11) Disconnect the hydraulic pipes at the windscreen wiper motor and the control valve, taking care to collect the hydraulic oil in a suitable receptacle. Remove the pipes and blank off the motor and valve connections, and the ends of the pipes.

- (12) Remove the screws securing the wiper blade linkage cover plate to the wiper blade spigots, bracket on the parallel linkage studs, windscreen frame and fuselage skin. Remove the cover plate (*fig. 36*) and remove the washers Part No. F.236394.

- (13) Remove the split pins, nuts, and washers securing the parallel linkage to the wiper blade pivot spigots (*Sect. 3, Chap. 6, fig. 5*).
- (14) Remove the split pins, nuts, washers and bolts securing the motor links to the wiper motor rod and remove the actuating arm and wiper blade assemblies (*Sect. 3, Chap. 6, fig. 5*).
- (15) Remove the nuts, washers and bolts securing the wiper motor to the mounting on frame 6.

Referring to *fig. 36* proceed as follows:—

- (16) Remove the screws securing the front and side finishers and remove the finishers.
- (17) Remove the bolts and barrel nuts at location 15.
- (18) Remove the bolts at location 1 to 5 securing the windscreen to the port and starboard platforms.
- (19) Remove the bolts at locations 6, 7, 16, 17 and 18 securing the windscreen to the front platform.
- (20) Remove the existing bolts in the top of the windscreen frame, port and starboard. Fit an eyebolt and sling strop in place of each, using the existing nut and washer. Do not fit the sealing washers. Bolt the remaining sling strop through the lower front attachment point and into the barrel nuts provided.
- (21) Check to ensure that all retaining bolts have been removed, then with the hoist, carefully ease the windscreen from the platform, breaking the seal at the same time.

Bolt/Screw				Sealing Washer	Packing	Nut	Washer
Location	Part No.	Description	Qty.	Part No.	Sect. & Ref.	Part No.	Part No.
1	F.210638	Bolt, special	2	—	—	—	S.P.15G
2	A25/11C	Bolt, H.T.S., 2 B.A. \times 1.55 in.	4	A.G.S.1186-3	—	A.G.S./2001/C1	—
3	A25/4C	Bolt, H.T.S., 2 B.A. \times 0.85 in.	6	A.G.S.1186-3	—	A.G.S./2001/C1	S.P.15C
4	A25/5C	Bolt, H.T.S., 2 B.A. \times 0.95 in.	4	A.G.S.1186-3	—	A.G.S./2001/C1	S.P.15C
5	A25/1C	Bolt, H.T.S., 2 B.A. \times 0.55 in.	4	A.G.S.1186-3	—	A.G.S./2001/C1	S.P.15C
6	A25/5C	Bolt, H.T.S., 2 B.A. \times 0.95 in.	6	—	—	—	—
7	A25/4C	Bolt, H.T.S., 2 B.A. \times 0.85 in.	2	—	26FX/1327	—	—
8	Std.1700/22C	Screw, H.T.S., 2 B.A. \times 2.2 in.	2	A.G.S.1186-3	—	A.G.S./2001/C1	—
9	Std.1700/16C	Screw, H.T.S., 2 B.A. \times 1.6 in.	2	A.G.S.1186-3	—	A.G.S./2001/C1	—
10	Std.1702/5C	Screw, H.T.S., 2 B.A. \times 0.5 in.	12	—	—	—	—
11	Std.1700/5C	Screw, H.T.S., 2 B.A. \times 0.5 in.	2	—	—	—	—
12	Std.1700/1C	Screw, H.T.S., 2 B.A. \times 0.1 in.	32	—	—	—	—
13	Std.1700/5C	Screw, H.T.S., 2 B.A. \times 0.5 in.	4	—	—	—	—
14	Std.1700/1C	Screw, H.T.S., 2 B.A. \times 0.1 in.	9	—	—	—	—
15	A.S.1242/11C	Bolt, H.T.S., C/S 2 B.A. \times 1.55 in.	4	—	—	F.211028	—
16	A25/3C	Bolt, H.T.S., 2 B.A. \times 0.75 in.	14	—	—	—	S.P.15C
17	A25/6C	Bolt, H.T.S., 2 B.A. \times 1.05 in.	1	—	Make from 30B/1724	—	—
18	A25/5C	Bolt, H.T.S., 2 B.A. \times 0.95 in.	1	—	Make from 30B/1724	—	—
19	A.S.1242-22-C	Bolt, C/S, H.T.S., 2 B.A. \times 2.65 in.	2	—	—	—	—
20	A.S.1242-5-C	Bolt, C/S, H.T.S., 2 B.A. \times 0.95 in.	4	—	—	—	—
21	A.S.1242-1-C	Bolt, C/S, H.T.S., 2 B.A. \times 0.55 in.	2	—	—	—	—
22	Std.1700-22-E	Bolt, C/S, H.T.S., $\frac{1}{4}$ B.S.F. \times 2.2 in.	2	—	—	—	F.236394
23	A.S.1242-1-C	Bolt, C/S, H.T.S., 2 B.A. \times 0.55 in.	2	—	—	—	—

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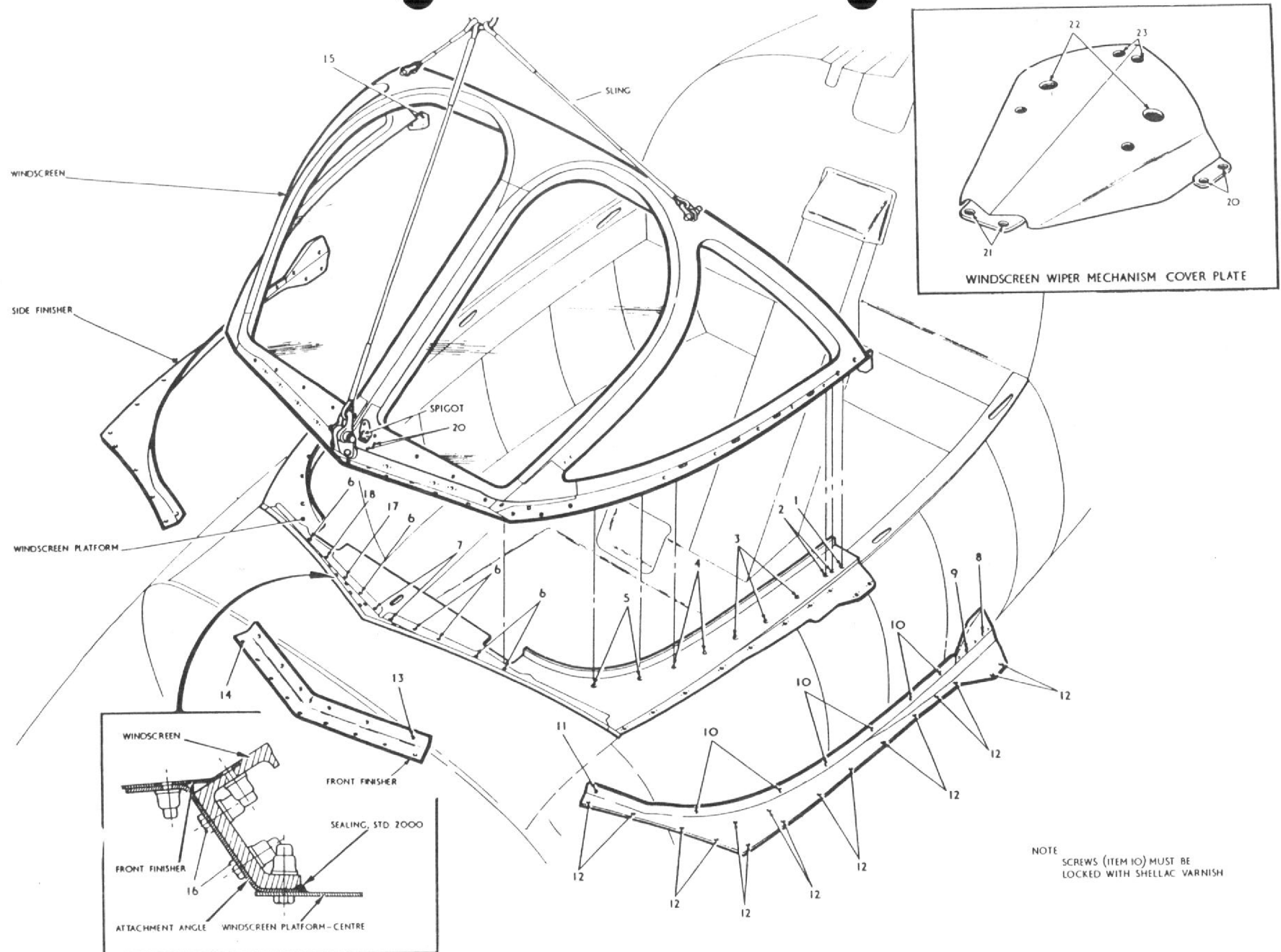


Fig. 36 Removal of windscreen

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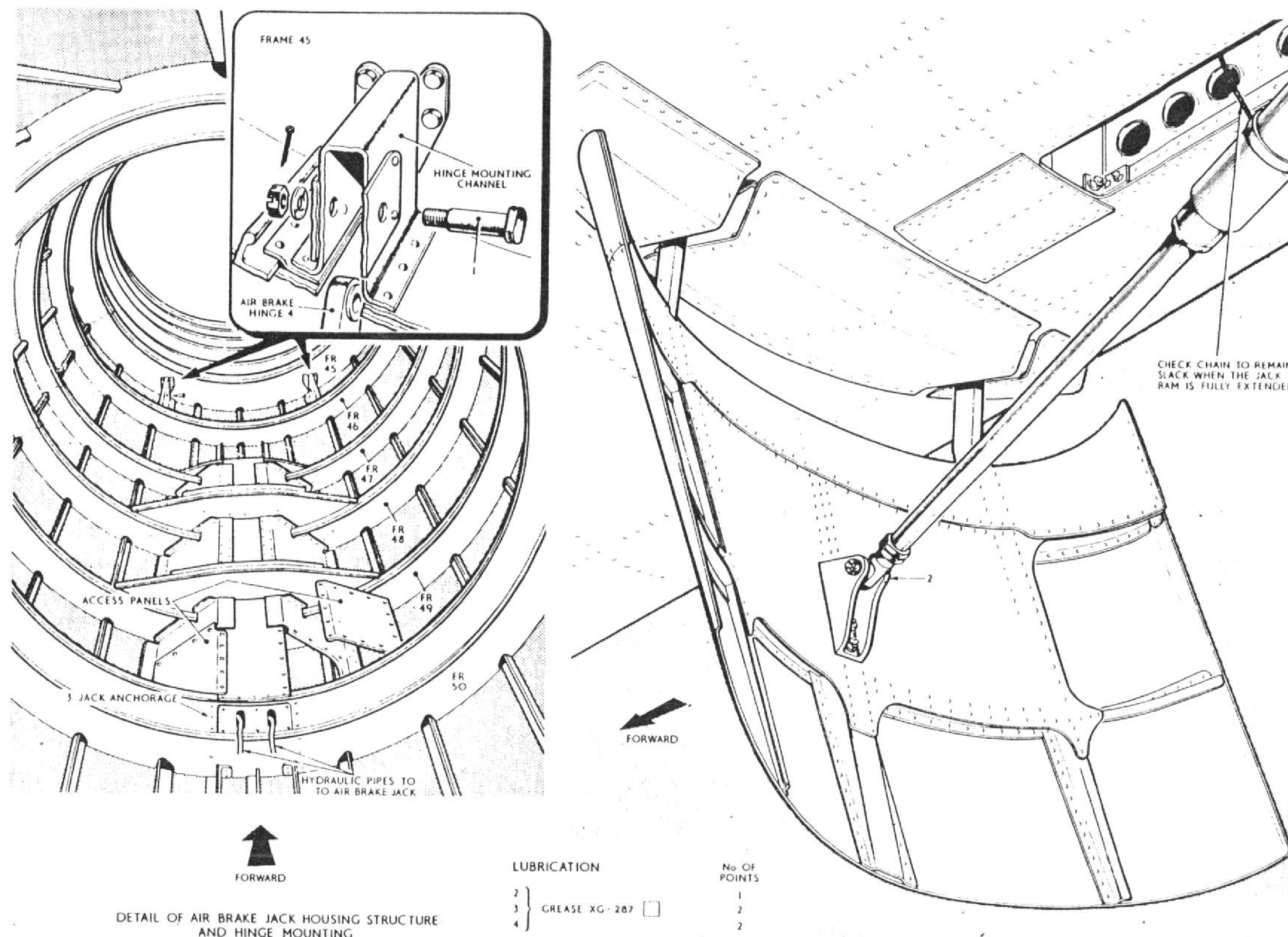


Fig. 35 Removing the air brake

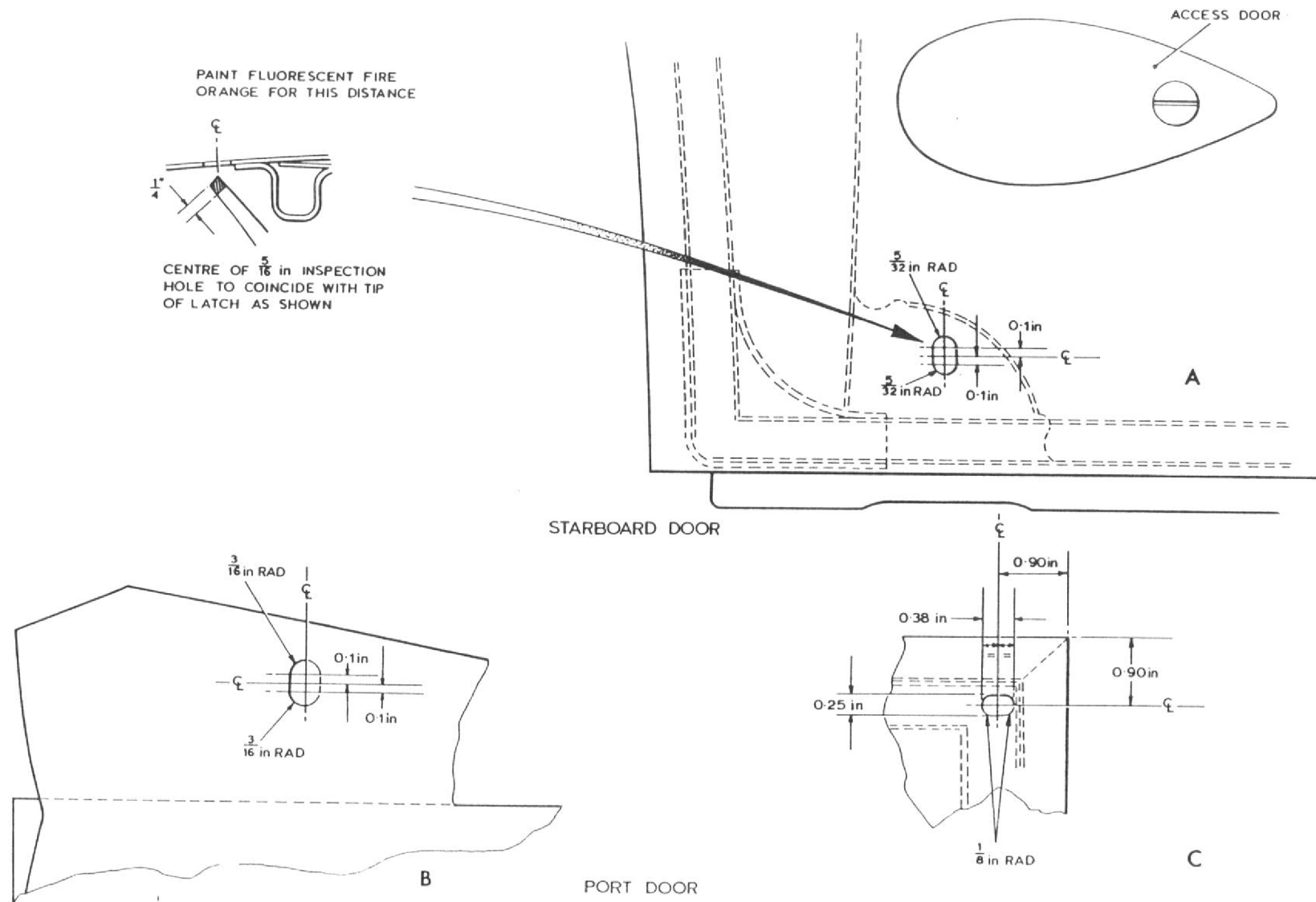


Fig.37 Brake parachute door sighting holes

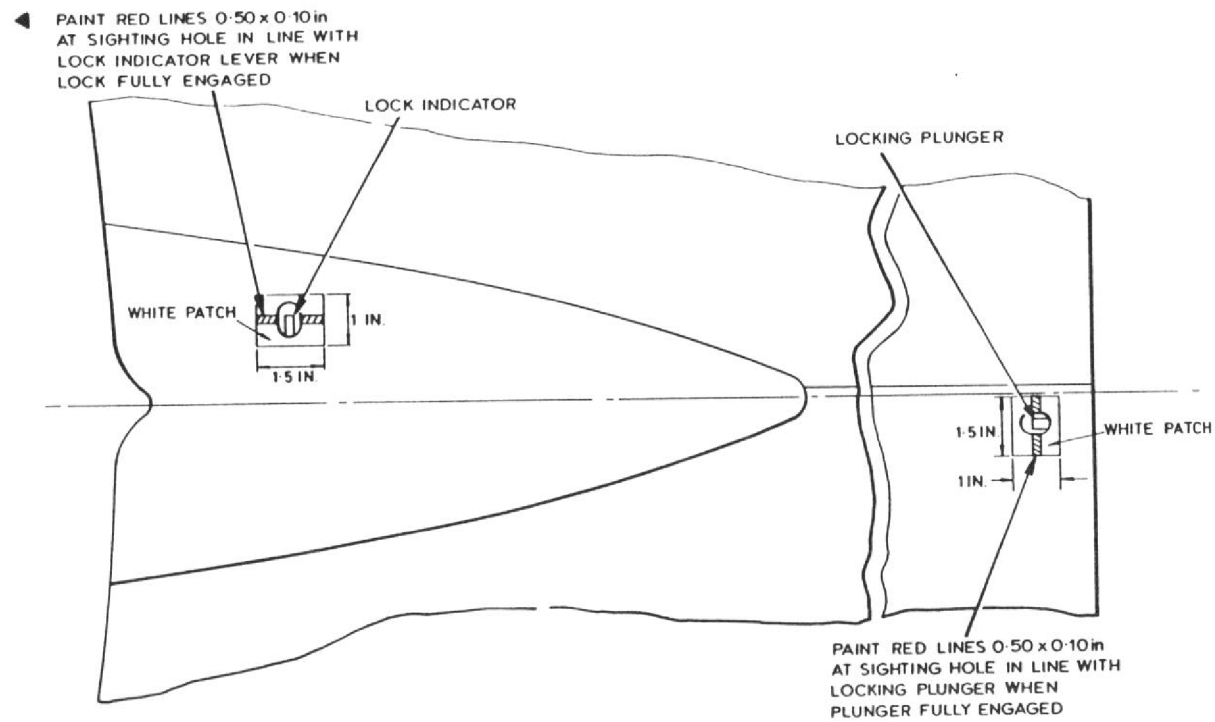


Fig.38 Lock indicator and plunger locked
alignment marks

Replacing the windscreen

66. The location of all bolts, screws, sealing washers and nuts is given in fig. 36 and it is important that the correct length of bolt or screw is used at each attachment. The procedure for replacing the windscreen is as follows:—

- (1) Attach the lifting sling to the windscreen frame as described in para. 65, sub-para. 20.
- (2) Ensure that all mating surfaces are clean and free from grease.
- (3) Lower the windscreen on to its platform and locate the windscreen by inserting 4 bolts of the correct length, 1 each at locations 2 and 5.

Note . . .

Ensure that a sealing washer is fitted under the head of the bolts as indicated in the Key to fig. 36.

- (4) Check that all other attachment holes are in alignment with the holes in the platform. Remove the sling and replace the bolts removed from the frame.
- (5) Fit all the attachment bolts, sealing washers, packing, nuts and washers in accordance with fig. 36. Tighten the windscreen down to the platform progressively all round.
- (6) Fit the bolts Part No. AS/1242/11C and special nuts Part No. F.211028 at locations 15 and tighten.

- (7) After tightening down the windscreen attachment bolts, seal the inside edges of the frame to the decking with 3M sealer E.C.750.
- (8) Fit the front and side finishers using screws listed in Key to fig. 36.
- (9) Allow 24 hours for the sealer to set and then carry out a cabin pressure test (Sect. 3, Chap. 8).
- (10) Refit the wiper motor, actuating arms, blades, washers and cover in the reverse order of para. 65, sub-para. 15 to 11 (Sect. 3, Chap. 6, fig. 5).
- (11) Charge all hydraulic accumulators (Sect. 2, Chap. 2) and top up the hydraulic reservoir.
- (12) Wet the windscreen with water, and prime and bleed the windscreen wiper motor and control valve (Sect. 3, Chap. 6), keeping the hydraulic reservoir topped up.
- (13) Refit all cables, clips etc., removed in para. 65, sub-para. 8 to 2.

Replacement of windscreen front panel

67. Before a windscreen front panel is replaced after removal, all traces of the old seal and adhesive must be removed and the frame thoroughly cleaned. Attach the seal with E.C.321, E.C.801 or Boscotex 4010 adhesive taking care to ensure that it sits correctly in the frame.

Note . . .

It is important that no sealing compound or jointing compound is permitted to come into contact with the Perspex or laminated glass. To obviate crazing due to contact with solvent vapour given off by the adhesive mask the perspex quarterlights. After replacement of panels, pressure test the cabin in accordance with the instructions given in Sect.3, Chap.8.

Examine the neoprene strips on the clamps for damage and cleanliness. Then fit the panel into the frame and secure in position by means of the clamp and clamp bolts. Fit new seals Part No. F.218465 on the bottom clamp bolts. Carefully progressively tighten the clamp bolts all around the panel. The outside of the panel must be flush with the outside of the frame structure within ± 0.030 in. The gap between the frame structure and the front edge of the outer lamination of the panel must be kept absolutely clear and, if necessary, the edge of the seal is to be cut back. Care is to be taken to ensure that the panel is not scored or scratched when cutting back the seal. Any defective barrel nuts or ferrules are to be replaced using E.C.801 adhesive and retained until set by the fitment of a temporary bolt. After fitment of a front panel or quarterlight a cabin pressure test must be carried out in accordance with Sect. 3, Chap. 8.

Replacement of windscreen quarterlight

68. The replacement of a windscreen quarterlight is similar to the procedure for a front panel (para. 67) except that all gaps between the outer edges of the quarterlight and the frame are to be filled with sealer E.C.801. The locking strips Ref. No. 26FX/9754 on the bottom clamp bolts should be renewed.

Replacement of parachute doors rear lock release cable

69. When fitting a new release cable carefully adjust the position of the plunger housing with shims Part No. F.220615 to ensure smooth and satisfactory engagement of the plunger.

Adjustment of brake parachute rear lock release cable (fig. 3A)

70. To adjust the brake parachute rear lock release cable proceed as follows:—

- (1) Remove the brake parachute as described in Sect. 3, Chap. 1.
- (2) Remove the guard over the front door lock and disconnect the door link from the port telescopic spring box. Lift the telescopic spring box to provide access.
- (3) Slacken the lock-nut on the release cable. With the release mechanism in the position at which the front lock is just about to release, adjust the cable until all slackness is just taken up and the plunger of the rear lock is flush with the front of its housing.
- (4) Tighten the lock nut on the adjuster, lower the telescopic spring box and reconnect to the door link.
- (5) 'Cock' the spring release unit as described in Sect. 2, Chap. 2, para. 29, sub-para. 4, and close the doors. Remove the access panel from the forward end of the starboard door and ensure, whilst restraining the doors manually, that when the spring release unit is depressed, the roller rides up the lever. This should release the front lock and

simultaneously withdraw the plunger of the rear lock, allowing the doors to open without obstruction.

- (6) Repeat (5) with a packed parachute (*do not remove the cord securing the drogue flaps*) in the compartment and also by selecting STREAM.
- (7) Refit the guard over the front lock.
- (8) Refit the brake parachute as described in Sect. 2, Chap. 2, para. 29.

Drilling sighting holes in replacement brake parachute doors

71. Replacement parachute doors are supplied without sighting holes for the door forward lock indicator and, in some cases, for the rear locking plunger. Holes are to be drilled and opened up, and the doors marked, to suit each individual aircraft. The procedure is as follows:—

- (1) Close the starboard door.
- (2) Ensure that the door forward lock indicator is fully up.
- (3) Mark the inside of the starboard door immediately above the tip of the indicator as shown in fig.37 in the scrap view at detail A.
- (4) Open the door and drill a 5/16 in. diameter hole at the position marked.
- (5) Close the starboard door.
- (6) Apply a thin coat of plasticine to the port door in the area above the 5/16 in. hole in the starboard door.

- (7) Close the port door down on to the starboard door to obtain an impression in the plasticine of the 5/16 in. hole.
- (8) Open both doors.
- (9) From the impression in the plasticine, find the centre for the hole in the port door and drill a 1/8 in. diameter pilot hole through the door and fairing, then open up this hole with a 3/8 in. diameter drill.
- (10) Open up the hole in the starboard door to the dimensions shown in fig.37 at detail A.
- (11) Open up the 5/16 in. hole in the port door to the dimensions shown in fig.37 at detail B.
- (12) At the rear end of the port door (if a hole does not already exist in the replacement door), drill a 1/4 in. diameter hole in the skin only and open this up to the dimensions shown in fig.37, detail C.
- (13) Through the hole made in operation (12), paint the inside of the channels with gloss white paint (using a brush).
- (14) Treat the edges of the holes with Alocrom 1200.
- (15) Paint the end 1/4 in. of the forward lock indicator with fluorescent fire orange paint (fig.37, scrap view in detail A).
- (16) Paint white patches on the port door skin, around each sighting hole, to the dimensions shown in fig.38.
- (17) Close both doors and lock, ensuring the lock and plunger are fully engaged (Sect.2, Chap.2, *Assembly of braking parachute*).
- (18) Paint red lines on the port door skin, at each sighting hole, as detailed in fig.38. ▶

Loose bolts in air intakes

72. The bolts securing the detachable panels in the air intakes (*fig.39*) are to be checked at regular intervals for tightness. Ensure that the panels are held firmly against the aircraft structure and that all bolt heads seat firmly on the panels (the bolts are not thread-bound).

73. The assembly of these attachments was affected by STI/Hunter/406. The incorporation of the STI cannot be physically checked without disassembly but if disassembly is necessary, because of defects or for any other reason, ensure that the following requirements are complied with:—

- (1) The bolts C screw into anchor nuts AGS 2008/C/1 mounted on the bottom leading edge members (*fig.3*). Check that 18 s.w.g. packing pieces are present between the anchor nuts and the structure; if not, remove the anchor nuts and make up packing pieces (shaped to suit) from L.72 aluminium alloy sheet and fit. Use rivets AS 164/306 (3/32 in. dia. x 3/8 in. long) for securing the anchor nuts, which are to be renewed.
- (2) Bolts A, B and C are not to be less than 0.6 in. long. If less than 0.6 in. long, replace with bolts STD 1700-2C.
- (3) Bolts D are to be STD 1700-1C fitted with nuts A 27-C-P, peened to lock. Tighten and re-peen if found loose.
- (4) Bolts E are to be A 25-2C fitted with washers SP 16-C.
- (5) All other bolts are to be STD 1700-1C.

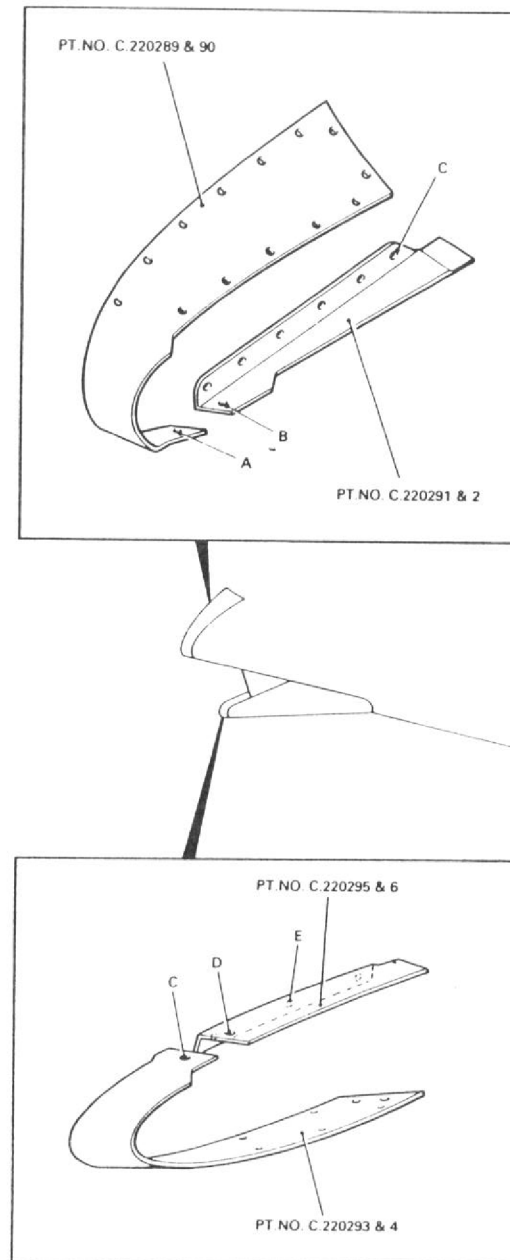


Fig.39 Panels in air intakes



KEY TO FIGS. 2 TO 10 (Removal of wings) Contd.

Partially retract the leg until the axle is approaching the end of the screwed rod. Ensure that this is in line with the hole through the axle and continue retracting the leg until the screwed rod passes through the hole in the centre of the axle. Secure the undercarriage leg in the retracted position by assembling the retaining plate, axle nut, and shaped washer and screwing up the nut 'A'.

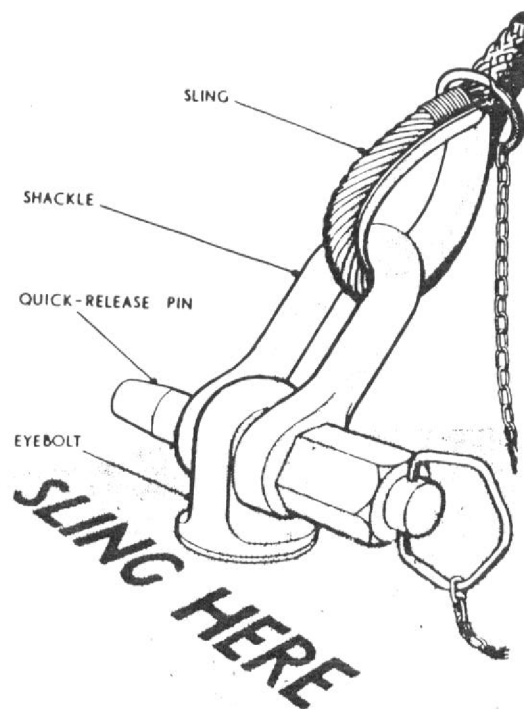


Fig. 9 Sling attachment

Disconnect the ground rig.

Remove the screwed plugs from the lifting sockets in the upper surface of the wing. Detach the eye-bolts from the sling, screw them into the wing lifting sockets and assemble the sling (fig. 9). Ensure that the sling cable marked "FORWARD" is fitted into the eye-bolt forward of the front spar. Remove the access panel (fig. 10) and withdraw the pin from the socket and spigot.

Take the weight of the wing from the trestles via the sling ensuring that the opposite wing not yet removed is correctly supported by its trestles.

Remove the split pins, slotted nuts and cup washers at the rear spar joints and withdraw the pins (3) fig. 5 using extractor (Ref. No. 26FX/95059).

Remove the split pins, slotted nuts and cup washers from the front spar joints and withdraw the pins using extractor (Ref. No. 26FX/95058).

Remove the split taper bushes from the front spar joints with bush extractor (Ref. No. 26FX/95140) and from the rear-spar joints with bush extractor (Ref. No. 26FX/95141).

The wing may now be slung clear and placed on cradles (Ref. No. 26FX/95022 and 26FX/95023) supported by U.J. trestles No. 6.

To prevent damage and injury to personnel, while the wing is being slung, it is recommended that the small trailing-edge fillet be removed by unscrewing the six counter-sunk screws and the two bolts securing it to the wing structure (this can only be done after the wing is detached from the centre section).

Note . . .

When reassembling the main planes to the aircraft, the pins and bushes securing the wings (port and starboard) at the front and rear spar pin joints, together with the joint faces and the spigot, pin and socket at the nosespar pin joint must be well lubricated with oil OX-14. It should be noted that the tolerances between the main plane front spigot and its socket are such that, on occasions a metallic noise may be heard when the aircraft is being manhandled. This is normal, although personnel should confirm that the noise is due to this cause and investigate any abnormal movement of the main plane.

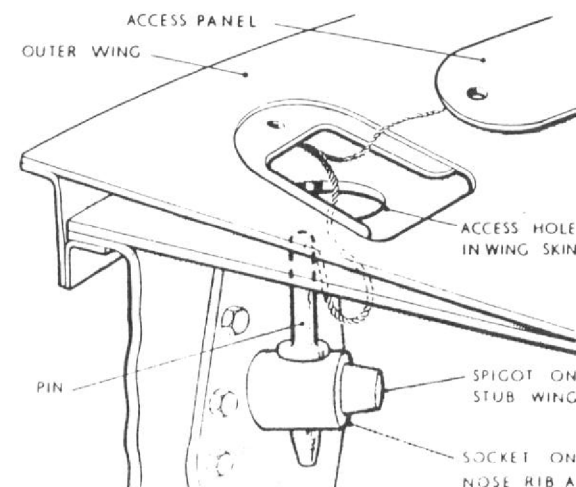


Fig. 10 Locating spigot and socket

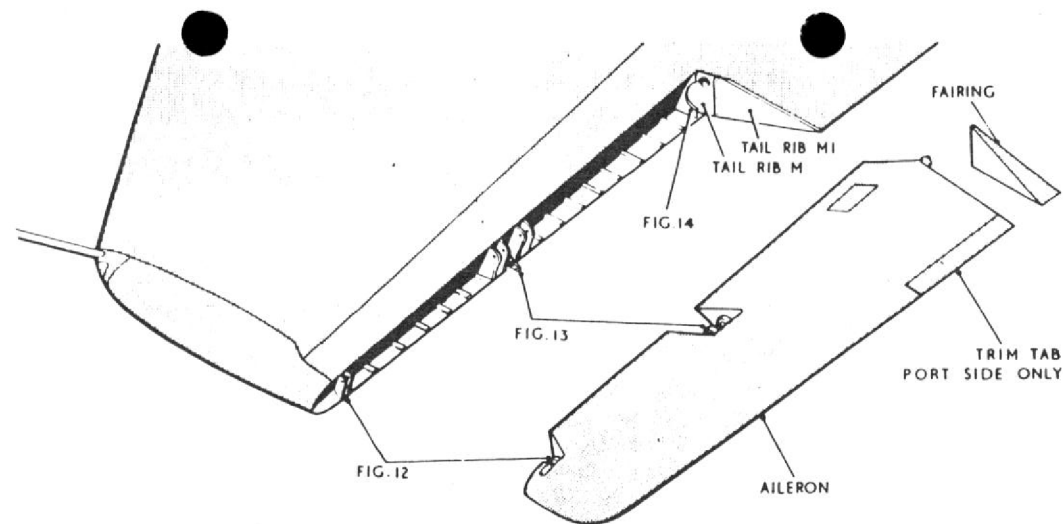


Fig. 11 Removing aileron

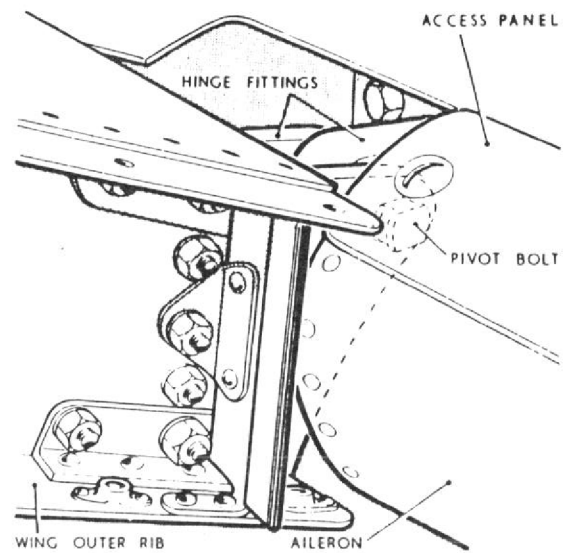


Fig. 12 Outer hinge

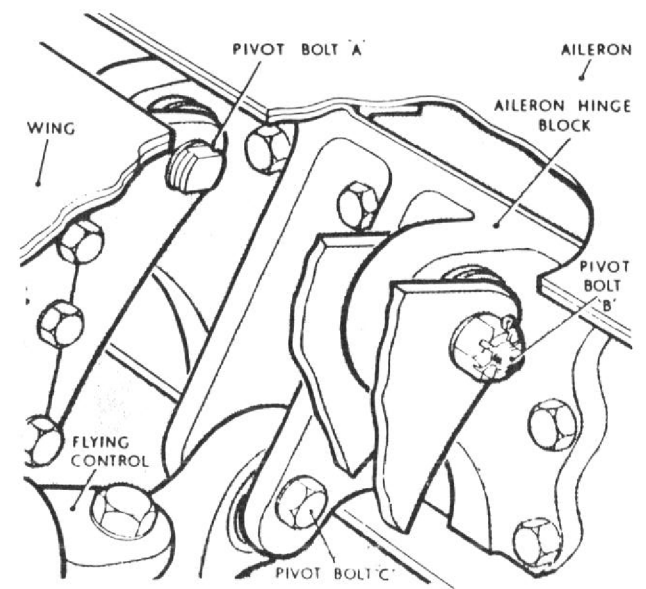


Fig. 13 Centre hinge

Aileron balance weight assembly—inspection

20A. At those periods detailed in the Aircraft Servicing Schedule the balance weights attached to the nose of the ailerons should be inspected for looseness as follows:—

- (1) Using a suitable probe, e.g. aluminium alloy strip $\frac{1}{8}$ in. \times 1 in. \times 12 in., and with the aid of a bright torch, inspect the ailerons, in situ, for slight movement of the nose balance weights by pushing on the edge of the balance weight skin adjacent to the attachment rivets. This inspection can be facilitated by moving the ailerons up and down to their fullest extent.
- (2) If any movement of the balance weights is noticed, remove the aileron and repair in accordance with instructions contained in Vol. 6.

Note . . .

Ailerons repaired under sub-para. (2) will have the modification plate on the aileron end rib marked in red paint "S.I./HUNTER/84", such ailerons need not be subsequently inspected in accordance with this paragraph.

Note . . .

Operations marked with an asterisk apply to the removal of the port aileron only.

Remove the fairing between the inboard end of the aileron and tail rib M1 (fig. 11) by unscrewing and removing the twelve counter-sunk screws.

*Lower the flaps to expose the access door in the port flap roof, between tail ribs L and M. Render the aircraft electrically safe (Sect. 5, Chap. 1). Remove the access door and release T.B.27 from its mounting and draw it and its cables through the access hole, remove the actuator and transmitter cables from the terminal block. Replace the terminal block temporarily on its mounting and re-fit the access door. Close the flaps with an electrical supply from the ground trolley.

Support the aileron in the neutral position and remove the split pin, slotted nut and washer from the pivot bolt 'C' (fig. 13) connecting the flying controls to the aileron hinge

KEY TO FIGS. 11 TO 14 (Removal of aileron)

block and remove the pivot bolt. From the aileron hinge block remove the split pins, slotted nuts and washers and withdraw the pivot bolts 'A' and 'B' (fig. 13) from the two centre hinges.

Lower the aileron as far as it will go and support it while in this position, thus exposing the access panel (fig. 12) in the top surface of the aileron, adjacent to and outboard of the outer hinge. Remove the panel after taking out the two screws. Remove the split pin, slotted nut and washer from the pivot bolt and withdraw it from the outer hinge fittings and out through the access hole.

The aileron may now be removed by raising it to the neutral position, swinging the outboard end rearwards sufficiently to separate the centre and outer hinge fittings and by lifting the outboard end. The inner hinge (fig. 14) will pivot with the spherical bush in the bearing bracket on tail rib M, when the hinge fittings have cleared one another, ease the inner hinge bearing out of the spherical bush.

*Before finally removing the port aileron pull the electrical supply leads, from the actuator and transmitter, through the duct on tail rib M.

Assembly

The assembly of the aileron, is, in general, a reversal of the above procedure. All bearings should be lubricated, including the spherical bush (for the aileron inner hinge) and its housing in tail rib M, with grease XG-287.

Note . . .

If either a port or starboard replacement aileron is fitted, the trimming tab on the port aileron must be adjusted after the test flight for the new components, in accordance with the instructions given in Sect. 3, Chap. 4 and the aircraft Servicing Form amended to record the new setting.

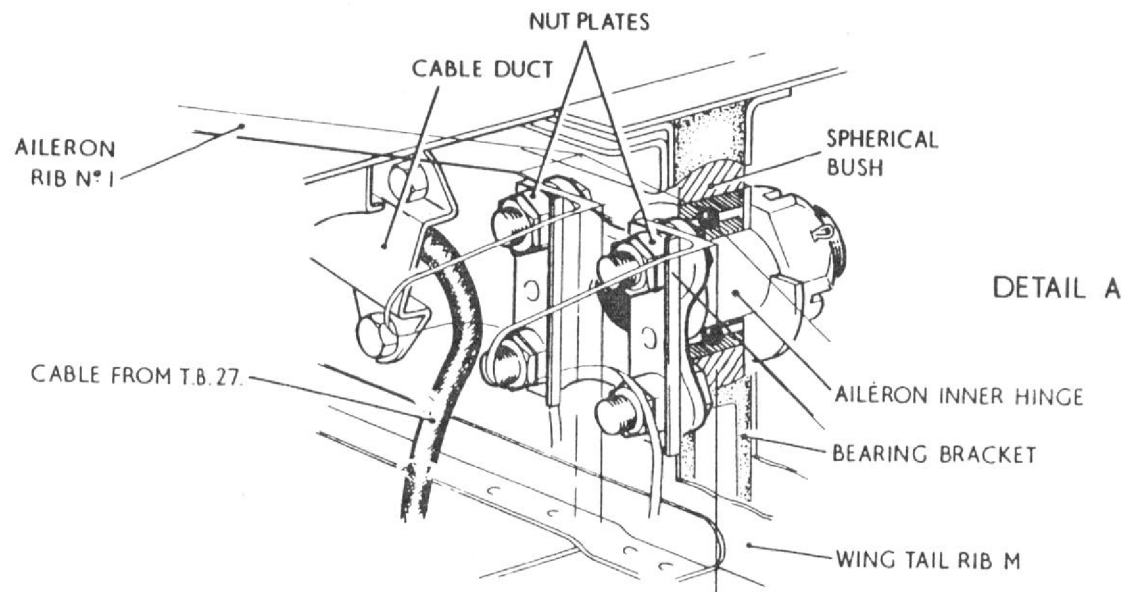


Fig.14 Inner Hinge

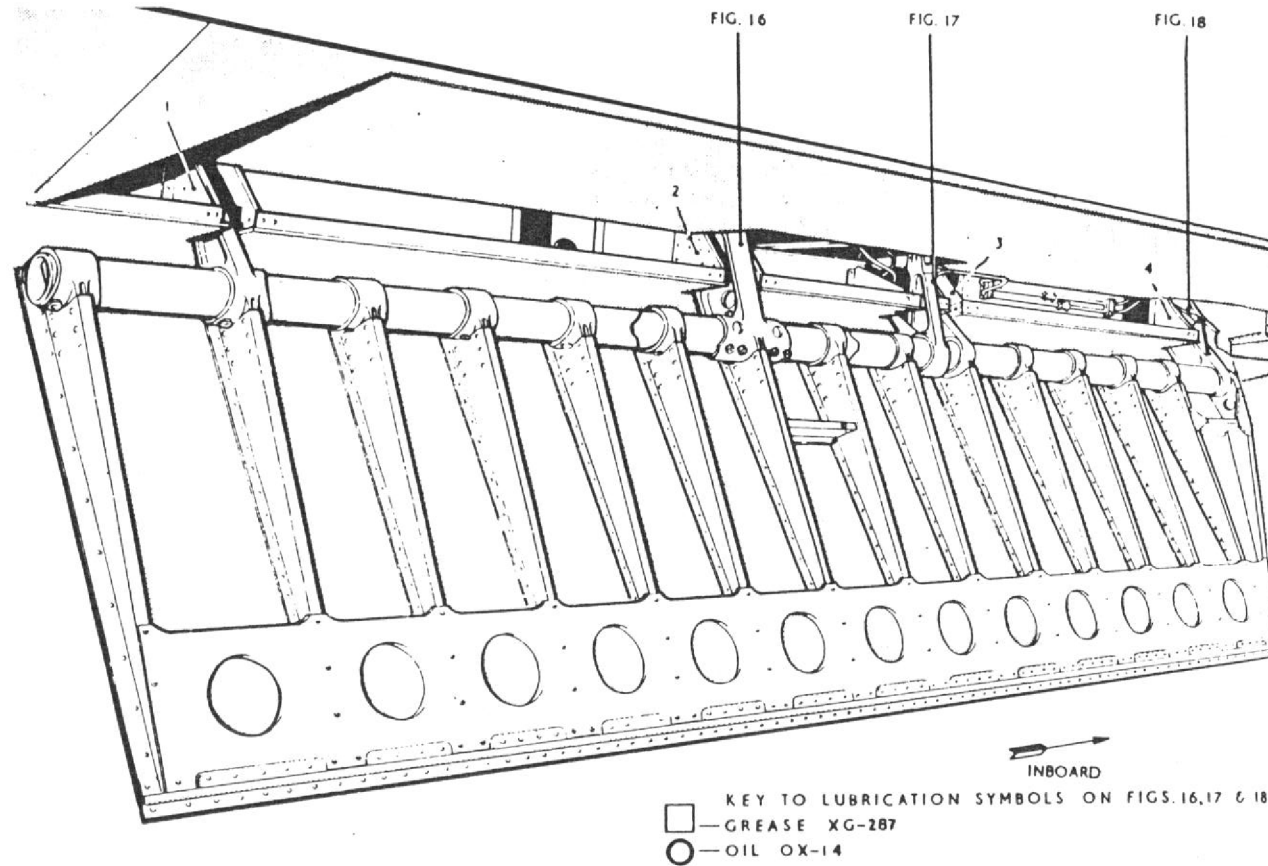


Fig. 15 Removing flaps
 ◀ Grease XG-287 introduced. ▶
 RESTRICTED

Note . . .

Removal of the port flap is dealt with in this text. The removal sequence of the starboard flap is similar but of opposite hand.

Lower the flaps to the maximum extended position (Sect. 3, Chap. 4).

Render the aircraft electrically safe (Sect. 5, Chap. 1).

Support the flap and remove the split pin, slotted nut, washer and bolt connecting the operating jack to the flap spar lever (fig. 16) and similarly at the synchronizing jack (fig. 17).

At the inboard end of the port flap spar remove the split pin, washer and pivot pin

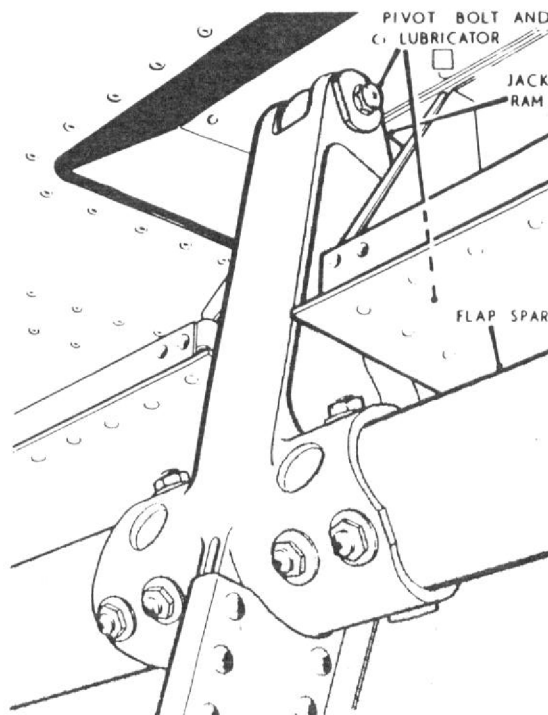


Fig. 16 Operating jack attachment

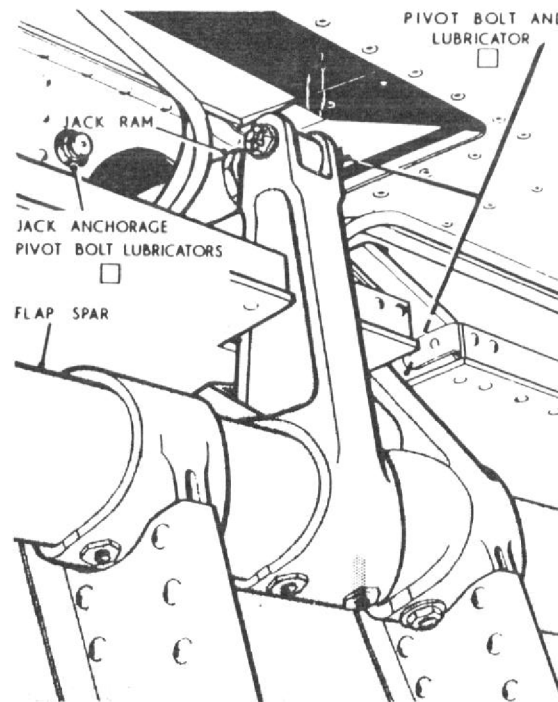
KEY TO FIGS. 15 TO 18 (Removal of flaps)

Fig. 17 Synchronizing jack attachment

from the control rod and lever (fig. 18).

At the four bearing brackets fig. 15 (1); (2); (3) and (4) remove the 2BA bolt from the locking plate, and remove the locking plate. Unscrew the pivot bolts and remove the flap. The sleeve must be removed from each bearing bracket and examined, together with the pivot bolts. Any sleeves or pivot bolts showing signs of appreciable scoring are to be renewed. Before assembly all sleeves and pivot bolts are to be thoroughly cleaned and lubricated with grease XG-287, particular attention being paid to freedom from obstruction in the oilways.

On assembly of the flap to the main plane ensure that the pivot bolts are fully tightened thus preventing sleeve rotation with flap movement.

Note . . .

Slackening off the pivot bolt to locate the locking plate is not permitted.

On completion of assembly lubricate all pivot bolts and flap jack attachment bolts. Operate the flaps and ensure that the grease exudes freely from both ends of the bearing between the flap hinge boss and the housings in the main plane structure.

Note . . .

Regular lubrication of the pivot bolts and flap jack attachment bolts is essential and is to be carried out at the correct periodicity.

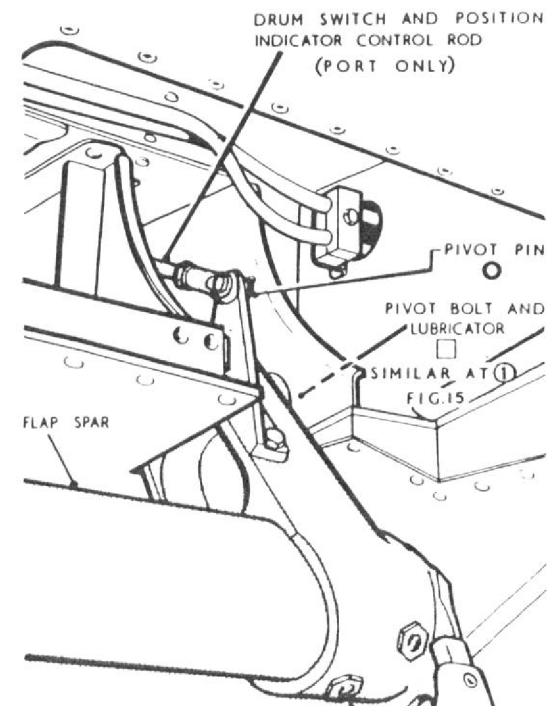


Fig. 18 Drum switch, etc., control rod attachment

KEY TO FIG. 19 (Removing wing tip and pressure head)

Unscrew and remove the countersunk screws securing the navigation light window and remove the window by sliding it along, and off, the pressure head.

Support the wing tip and detach it by removing the countersunk screws and withdraw the wing tip spigots out of the wing outer rib.

Render the aircraft electrically safe (*Sect. 5, Chap. 1*). Disconnect at T.B.22 the electrical supply leads from the pressure head, taking care not to disturb the leads from the navigation light at the same terminal block.

Disconnect the static and pressure pipes at the rear end of the pressure head, the unions being reached through the lightening holes in the wing outer rib.

Remove the two half clips from the mounting brackets on the pressure head mounting rib. Access to the clip on the rear mounting being gained through the lightening hole in the wing outer rib.

Withdraw the pressure head, complete with pipes and electrical supply lead, from the wing structure.

On re-assembly, check that the rubber seal on the port navigation light window is securely fixed to the fairing.

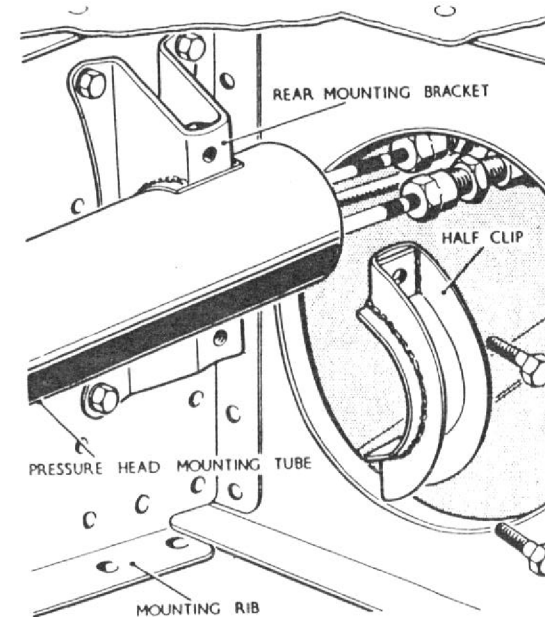
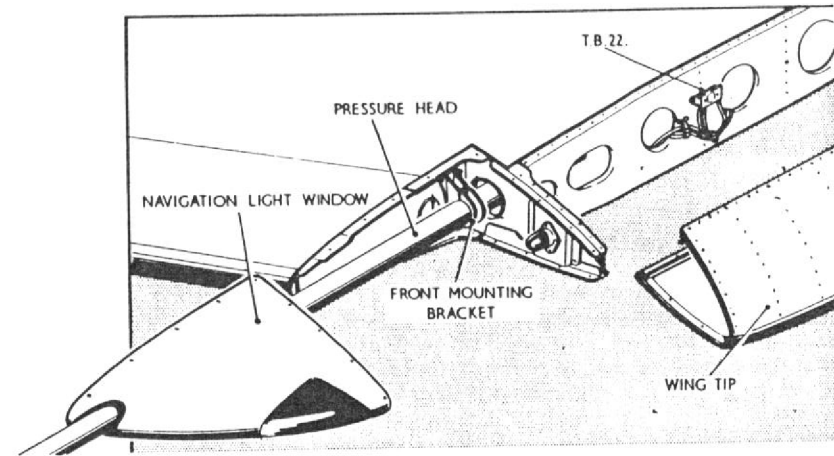


Fig. 19 Removing wing tip and pressure head

Fitting and removing inboard pylons (fig. 20)

21. The inboard pylons are fitted to the wings as follows:—

- (1) Remove access panel for pylon crutching from the top skin of the wing.
- (2) Remove the access panel at (4), and render the aircraft electrically safe (Sect. 5, Chap. 1).
- (3) Remove the inner and outer cover plates at (1) and (3) from the wing bottom skin.
- (4) Remove the cover plate at (2) from the wing bottom skin.
- (5) Ensure that the fuel and air valve in the pylon is free from foreign matter and that the valve is working freely. Assemble the pipes (if not already fitted) to the fuel and air valve, ensuring that the sealing rings are correctly positioned and secure pipe couplings with 22 s.w.g. non-corrodible locking wire.
- (6) Offer up the pylon to the wing, engaging the pipes, via access hole (2), with the by-pass valve in the wing.
- (7) Pass connector of electrical lead (5) from pylon through orifice (3) to connect with plug in wing.
- (8) Secure the pylon to the undersurface of the wing with the securing bolts (6), lightly lubricated with oil OX-14, and ensure that the bolts are tightened to a torque load of 200 lbf in. A minimum gap of 0.05 in. is to be obtained between

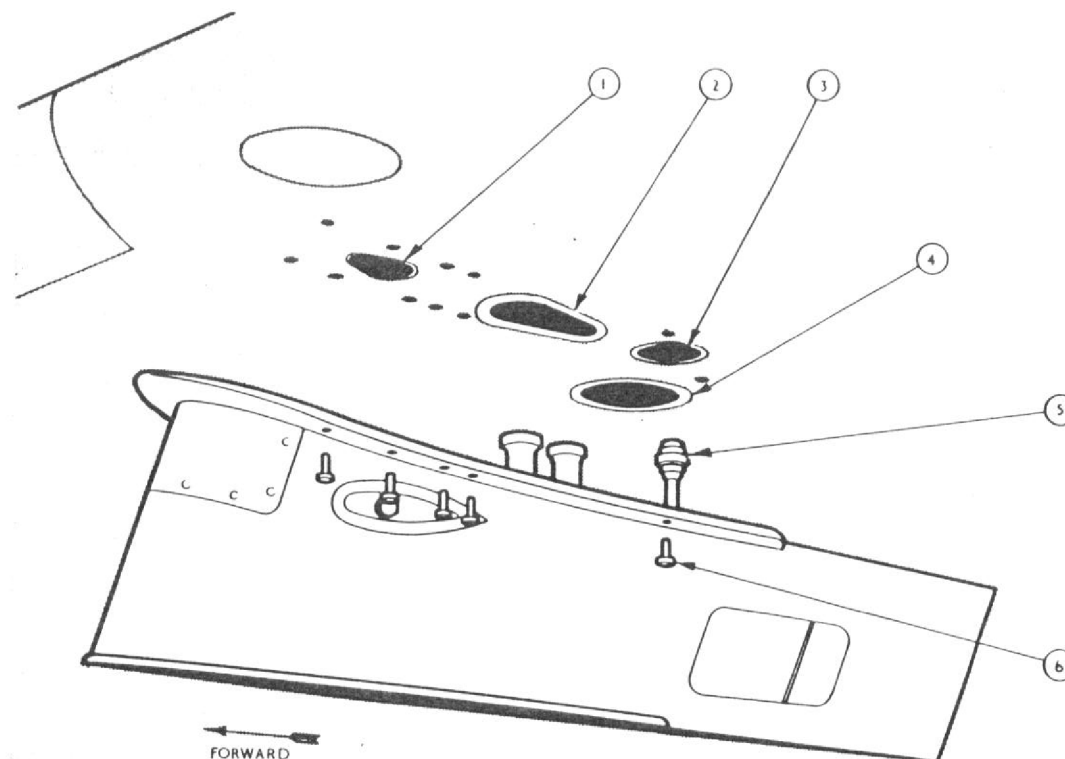


Fig. 20 Fitting inboard pylon

the wing skin and the top edge of the pylon rear fairing, by filing the edge of the fairing as necessary.

Note...

If Mod. 964 which introduces thicker pylon attachment nuts of stainless steel, is embodied on the wings, the special (longer) bolts, Part No. F.244905, which have a white marking, must be used for securing the pylon to the wing.

- (9) Crutch up the security bar (see note) and replace access panel for pylon crutching in the wing top skin.

Note...

When stores are not being carried on the pylons a security bar 0.5 in. dia. and 2.75 in. long (Part No. F.224996) must be clamped between the jaws of the release unit and drawn up (hand tight) to the sole plate of the pylon.

- (10) Carry out the electrical tests called for in Sect. 5, Chap. 1 and replace the access panel (4).

22. The removal of the pylons is, in general, a reversal of the fitting procedure, but after the pylons have been removed the cover plates at (1), (2) and (3) must be replaced.

Fitting and removing outboard pylons (fig. 21)

23. The outboard pylons are fitted to the wings as follows:—

- (1) Remove the access panel for pylon crutching from the fairing on the top skin of the wing.
- (2) Remove the access panel at (4), and render the aircraft electrically safe (Sect. 5, Chap. 1).
- (3) Remove the cover plate and clamp at (1) from the wing bottom skin.
- (4) Remove the cover plates at (2) and (3) from the wing bottom skin. Refit existing bolts at (3) using 2 B.A. nuts and washers (Ref. 28M/10328 and 28W/9419404 respectively).
- (5) Ensure that the fuel and air valve in the pylon is free from foreign matter and that the valve is working freely. Assemble the pipes (if not already fitted) to the fuel and air valve, ensuring that the sealing rings are correctly positioned and the pipe couplings locked with 22 s.w.g. non-corrodible locking wire.
- (6) Offer up the pylon to the wing, engaging the pipes, via access hole (2), with the by-pass valve in the wing.
- (7) Pass the ejector release cable (5) from the pylon, through orifice (3) and the wing, taking care to run and strap the cable well clear of the aileron control rods and place the breech cap connector, at the end of the cable, in its stowage in the wing fairing. Pass connector of electrical lead (6), from pylon, through orifice (3) to connect with plug in wing.
- (8) Secure the pylon to the undersurface of the wing with the securing bolts (7) and (8), lightly lubricated with oil OX-14, and ensure that the bolts are tightened to a

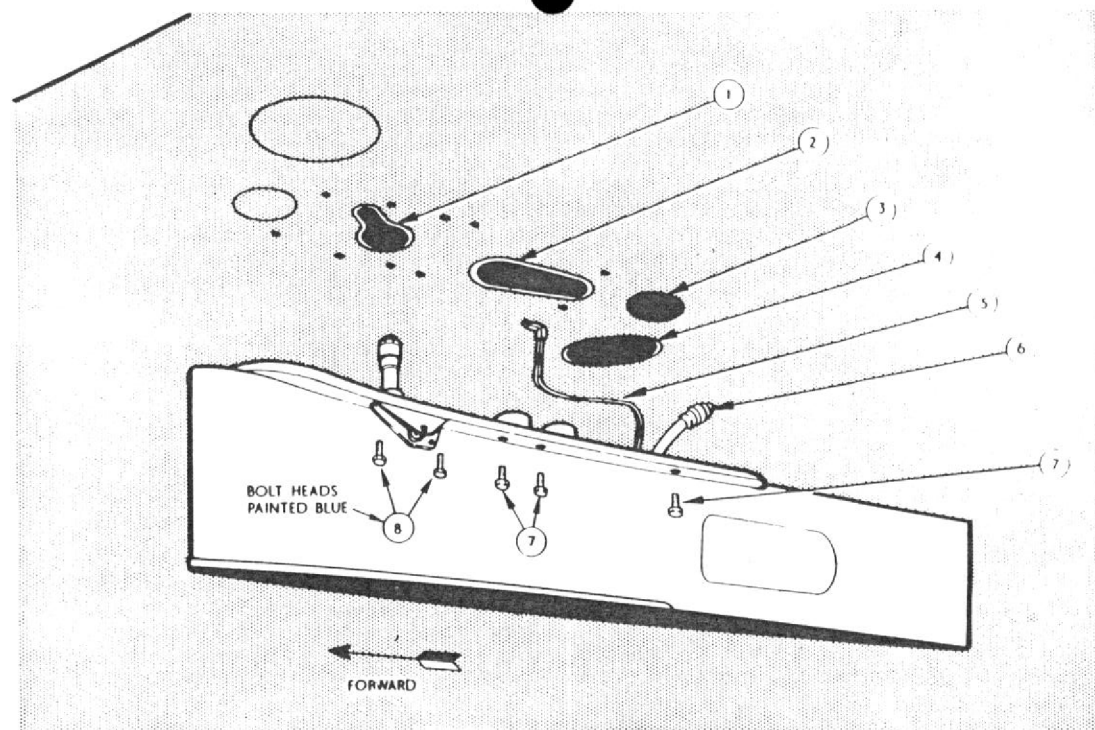


Fig. 21 Fitting outboard pylon

◀ torque load of 200 lbf in. A minimum gap of 0.05 in. is to be obtained between the wing skin and the top edge of the pylon rear fairing, by filing the edge of the fairing as necessary. ▶

Note...

If Mod. 964 (and Mod. 1064, if applicable), which introduces thicker pylon attachment nuts of stainless steel, is embodied on the wings, the special (longer) bolts, Part No. F.244905, which have a white marking, must be used for securing the pylon to the wing at positions marked (7).

- (9) Crutch up the cover plate (see note) and replace the access panel on the wing fairing.

Note...

To prevent swinging of the E.R.U. when stores are not being carried on the pylon, Cover Plate, Part No. B.235438, with Suspension Lug (Ref. 12A/2076 or 12A/2209) must be fitted to the underside of the pylon and crutched up with the torque wrench set to 20 lbf ft.

- (10) Carry out the electrical tests called for in Sect. 5, Chap. 1 and replace the access panel (4).

24. The removal of the pylons is, in general, a reversal of the fitting procedure, but after the pylons have been removed the cover plates at (1), (2) and (3) must be replaced.

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