

Chapter 1

FUSELAGE

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WARNING

An aircrew ejection seat is fitted to this aircraft. Before attempting to enter the cabin, therefore, ensure that the instructions given on the Lethal Warning Marker Card at the beginning of this volume have been carried out. In the interests of safety this is very important.

F.S./1

Introduction

1. This chapter describes the fuselage, together with the necessary lubrication and servicing information. Illustrations showing the method of slinging and trestling, and dismantling the fuselage 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 and transport. The front fuselage is provided

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with a detachable nose piece and houses the cabin, armament package 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, houses the engine jet pipe and carries the hydraulically-operated air brake installation. The three major components of the fuselage are illustrated in fig.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 3A, it consists of a light alloy skin supported by frames, and houses the radar scanning equipment and camera gun. The front fuselage continues from frame 3 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-sectioned 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 armament package is located between frames 15 and 17A with the gun barrels projecting forward under the cabin floor. The radio bay is situated immediately forward of the transport joint.

Cabin

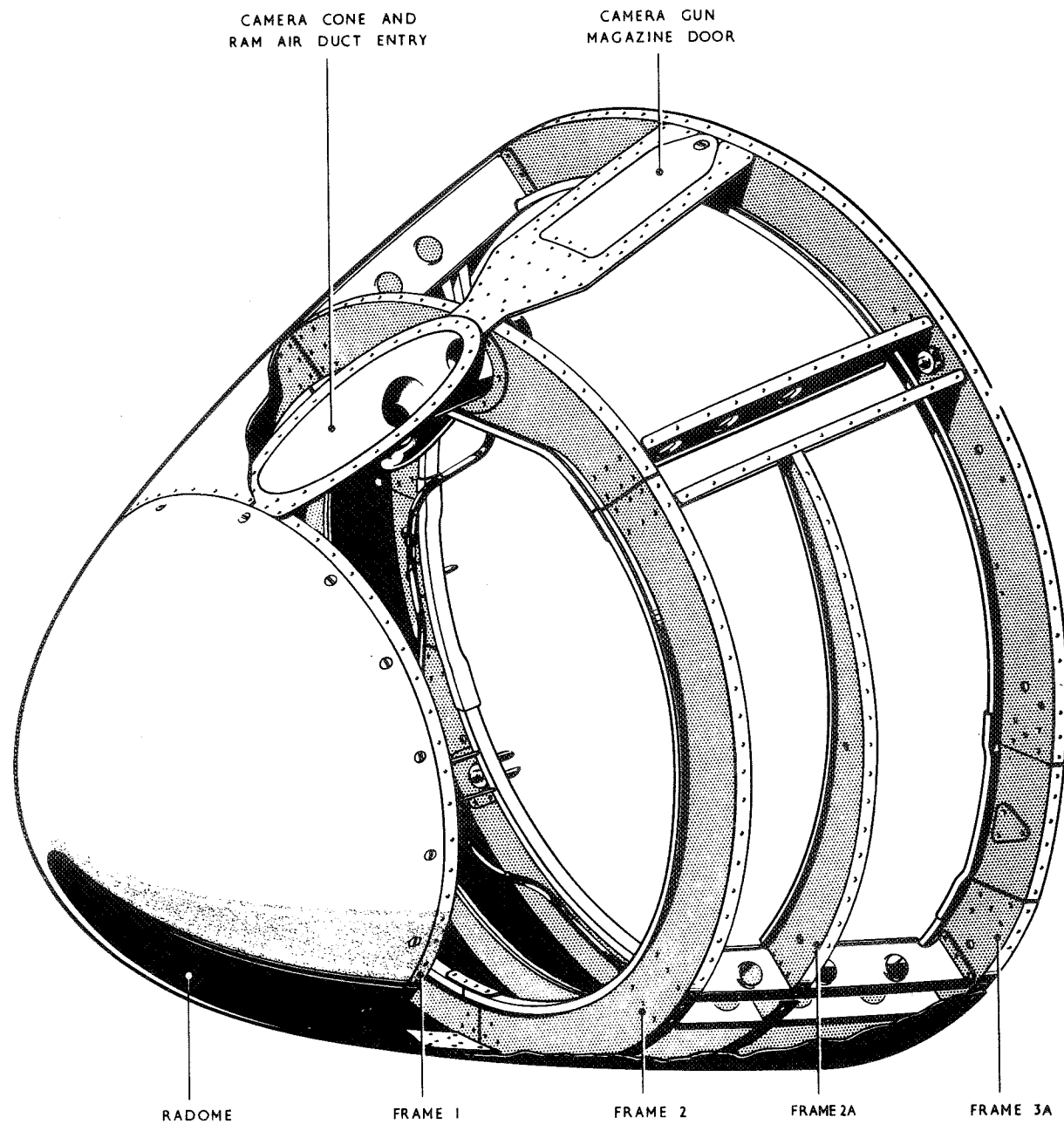
4. The cabin, which is protected by heavy plating and provided with an ejection seat, is enclosed by a windscreen and an electrically-operated hood. The hood slides rearwards for entry and exit, and may also be jettisoned in an emergency. To enable the cabin to be pressurized, it is sealed from the remainder of the airframe by a floor extending from frame 6, which is a solid bulkhead, to a diaphragm at frame 14. Above the floor the fuselage structure is enclosed to form side walls, and above these walls are shelves for controls and

instruments. The centre instrument panel together with the port and starboard side panels are located at the forward end of the cabin, above the shelves, on a structure which also carries the gun sight. This structure extends across the top of frame 8 and is stiffened by two tubular struts projecting forwards to frame 7. The gun sight is carried on a retractable mounting located above the centre instrument panel.

Windscreen and hood

5. The windscreen consists of a flat bulletproof centre panel and two curved transparent side panels, all three of which are held in a cast light-alloy frame secured to the cabin decking. The centre panel consists 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 a silica gel container, mounted on the forward face of frame 8 on the starboard side, and connected to a valve on the bottom of the windscreen by a plastic tube. An adjustable rear view mirror is attached to the top of the windscreen frame. The hood is moulded

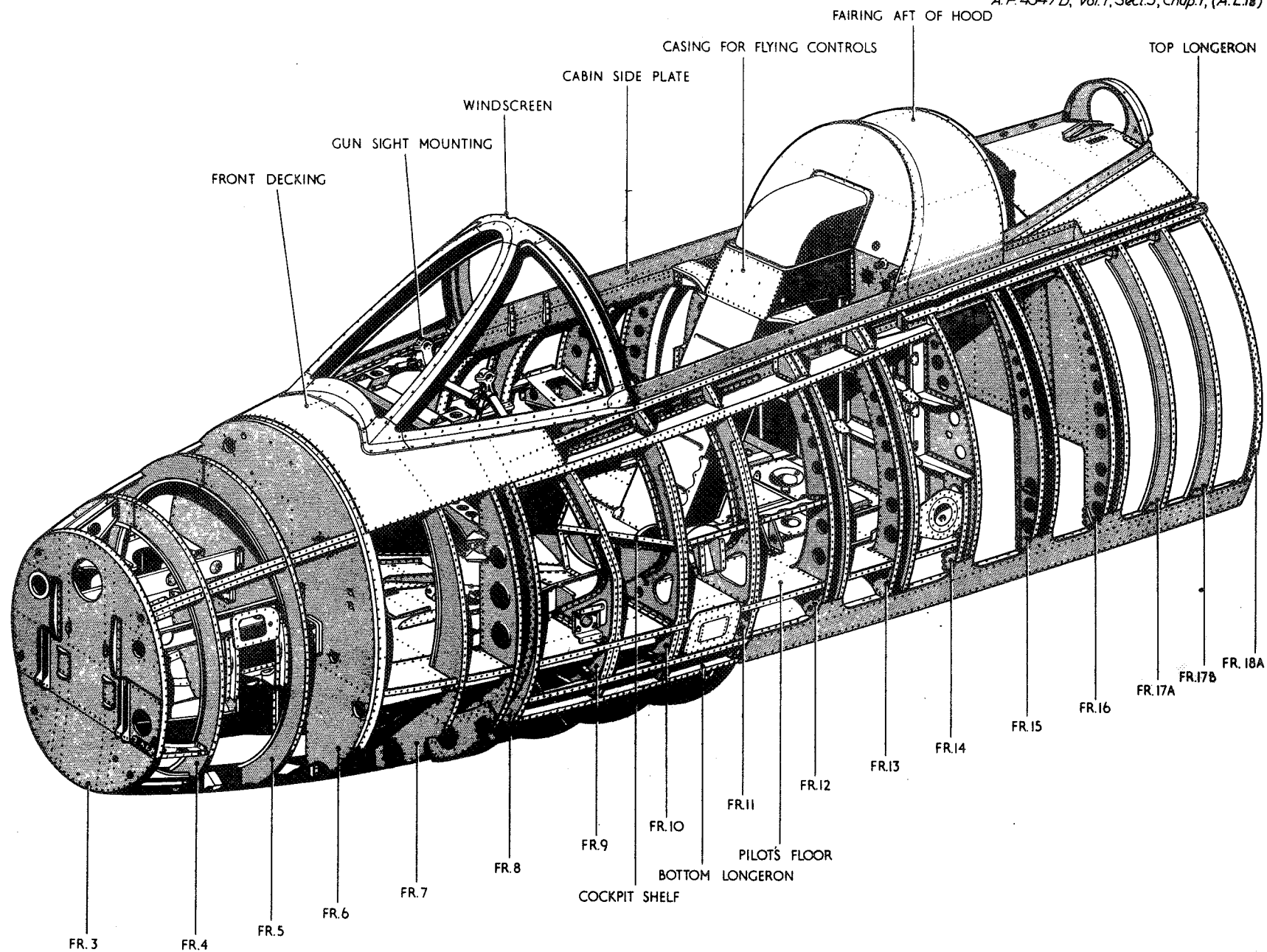
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Fig.1 Front fuselage nose piece

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Fig. 2. Front fuselage
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from a single sheet of transparent plastic mounted in a frame consisting of a steel arch member at the forward end and two edge members at the sides. A rack and roller assembly is bolted to each edge member, and the complete hood slides in rails attached to the structure by locks, located just aft of frame 10 and forward of frame 13, and by a pivot point just aft of frame 16.

6. The hood is opened and closed by an electric actuator, which rotates a cross shaft carrying pinions engaging with racks on each side of the hood. The actuator is operated by a control box and integral clutch lever, situated on the port side of the cabin just forward of frame 10. The lever is provided to disengage the actuator clutch and at the same time deflate the hood seal to enable the hood to be moved by hand. In an emergency the hood may be jettisoned by pulling a control handle, which projects from below the port shelf, or 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 in the port side of the fuselage below the cabin. Operation of either control releases a spring-loaded servo unit, situated at the top of the forward face of frame 14, by a lever and cable system. As the servo unit is released it actuates a system of levers and rods, which connect with the locks holding the hood side members, and the locks are opened, so jettisoning the hood. At the same time the hood seal valve is opened by a mechanical interconnection with the lever and cable system, thus deflating the hood seal. Operation of the cabin control handle automatically retracts the gun sight, should this be in the combat position, by a micro switch controlled electrical interconnection.

Armament package

7. The armament package consists of a removable structure which carries four 30 mm. Aden guns together with their ammunition. The package is provided with guide spigots at the forward end which engage with brackets attached to the bottom longerons,

and is supported by six spherical ended mounting spigots, three on each side, which project downwards from the bottom longerons, to engage with sockets integral with the package. The mountings are locked by rack operated pins, which pass through holes in the mounting spigots and sockets, the locking mechanisms being located on each side at the forward end of the package and operated by a special removable key. The forward portions of the gun barrels, which are detachable from the package, are staggered and extend forward under the cabin floor to blast tubes in the underside of the fuselage struc-

ture. The guns are electrically-fired and controlled by a trigger on the control column handgrip. For a full description of the armament installation, reference should be made to Sect. 7, Chap. 3 of this volume.

Radio mountings

8. The radio equipment mounting structure is located on the port side of the radio bay between frames 16 and 19, frame 19 being part of the centre fuselage. The structure consists of a number of square tubes arranged to form two platforms on which the anti-vibration mounting racks for the D.M.E.,

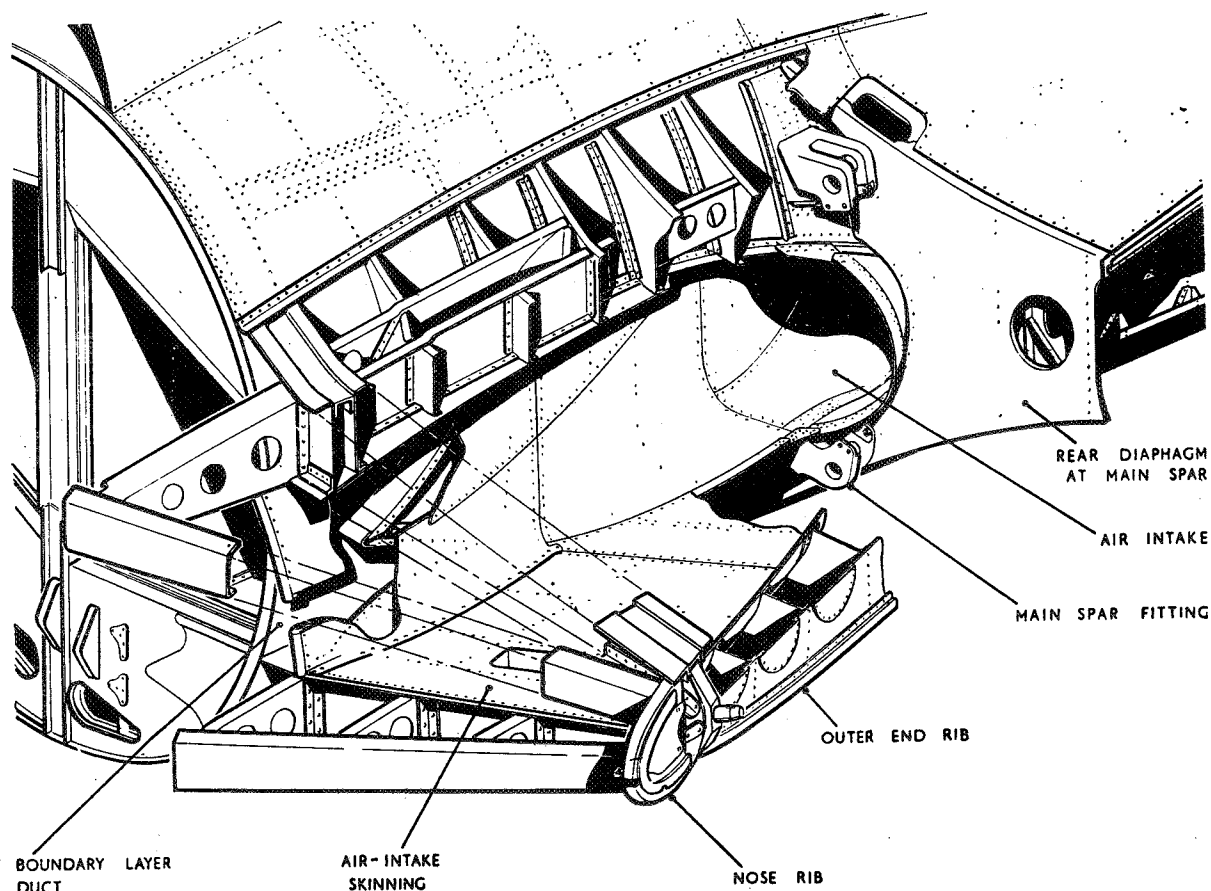


Fig. 4. Centre fuselage and stub wing (2)

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I.F.F. and V.H.F. transmitter-receivers are attached. For a full description of the radio installation, reference should be made to Sect. 6 of this volume.

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 forwards 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 to 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 of this volume.

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 of this volume.

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.

Rear fuselage and tail cone (fig. 5)

Structure

14. The rear fuselage extends from frame 40B (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 upwards 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 major frames together with a dorsal fin extending forward to the spine member and an anti-buffet fairing extending aft 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 tail plane is pivoted on a fitting at frame 55 and anchored at the leading edge to the tail plane actuator in the lower fin structure (Sect. 3, Chap. 3). 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 landing or take-off. The bottom skin between frames 47 to 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 hydraulic air brake jack. The jack is anchored on a bolt extending between fittings bolted to the aft ends of the side members and extends forward in 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, is secured to the rear fuselage by four toggle fasteners, together with locating spigots. It extends from frame 58 to 63 and consists of six frames and a tail piece, covered with a light-alloy skin stiffened by butt straps. The tail piece incorporates a stainless steel duct, which engages with the jet pipe. A small tail fairing is incorporated at the top between frames 58 and 61.

Air brake flap

15. 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 its upper surface is only covered at the forward and centre portion. 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 as described in para. 14 and is designed so that it embraces the fuselage when in the up position.

Jet pipe mounting

16. 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

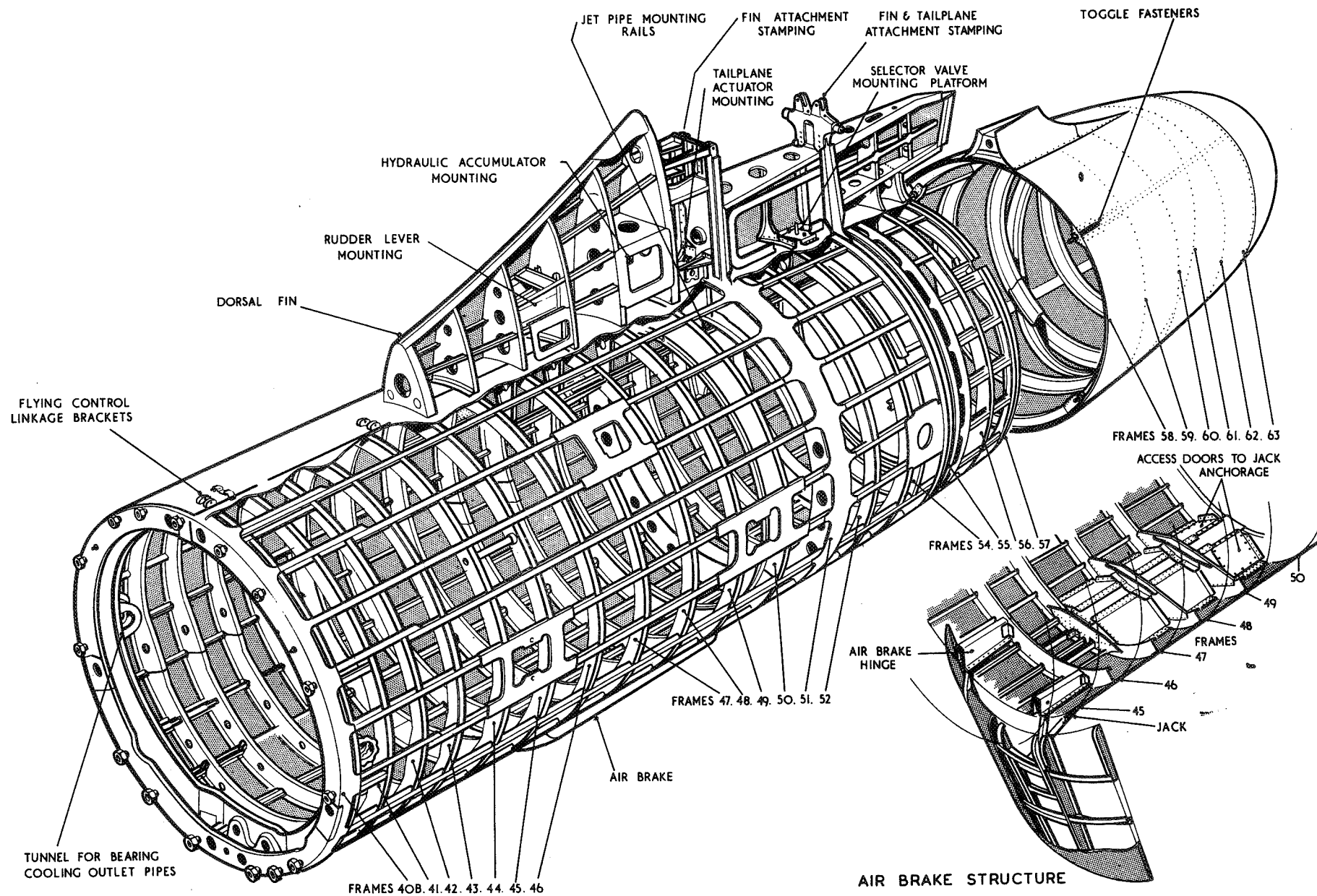


FIG.5 REAR FUSELAGE

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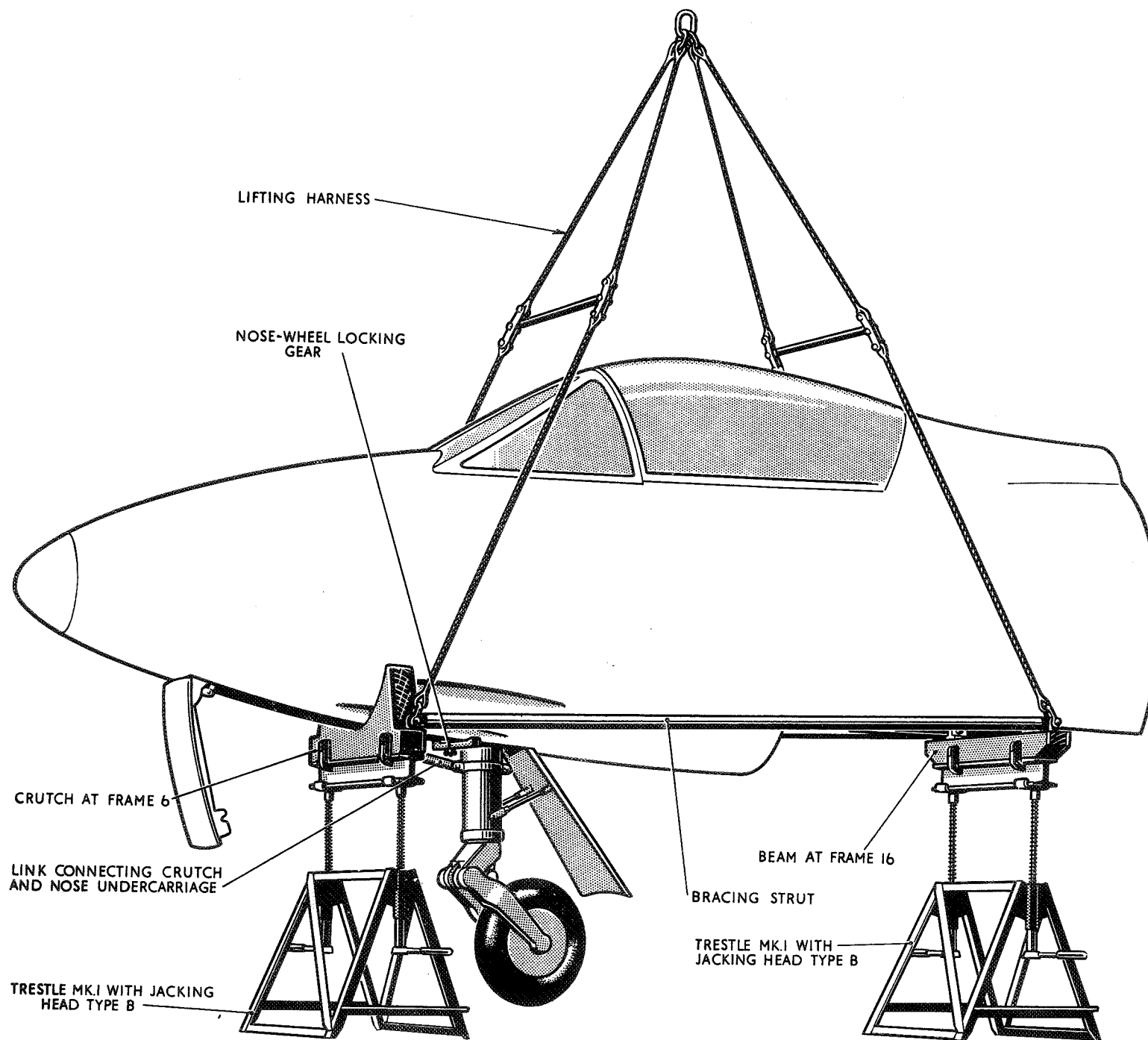


FIG. 6 SLINGING AND TRESTLING FRONT FUSELAGE
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to allow for expansion of the pipe. A rail incorporated at the top of the fuselage between frames 48 and 56 is provided to facilitate jet pipe assembly and removal, small rollers on the pipe running along this rail during these operations. For further details of the jet pipe installation, reference should be made to Sect. 4, Chap. 1 of this volume.

SERVICING

General

17. In general, the only servicing required to the fuselage itself is that described in para. 18 below. 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.

18. 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, always be taken, during fitting or removal, to ensure that they are not damaged or distorted in any way.

◀ Nose piece attachment locking

18A. To facilitate visual inspection of the nose piece attachment locks, viewing apertures are provided in the lock levers, and the plain portions of the lock hooks are painted white. ▶

Note . . .

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

Testing and adjusting hood jettison mechanism
19. The method of testing and adjusting the hood jettison mechanism is contained in the key to the illustrations showing the procedure for the removal of the hood (fig. 13 and 14) of this chapter.

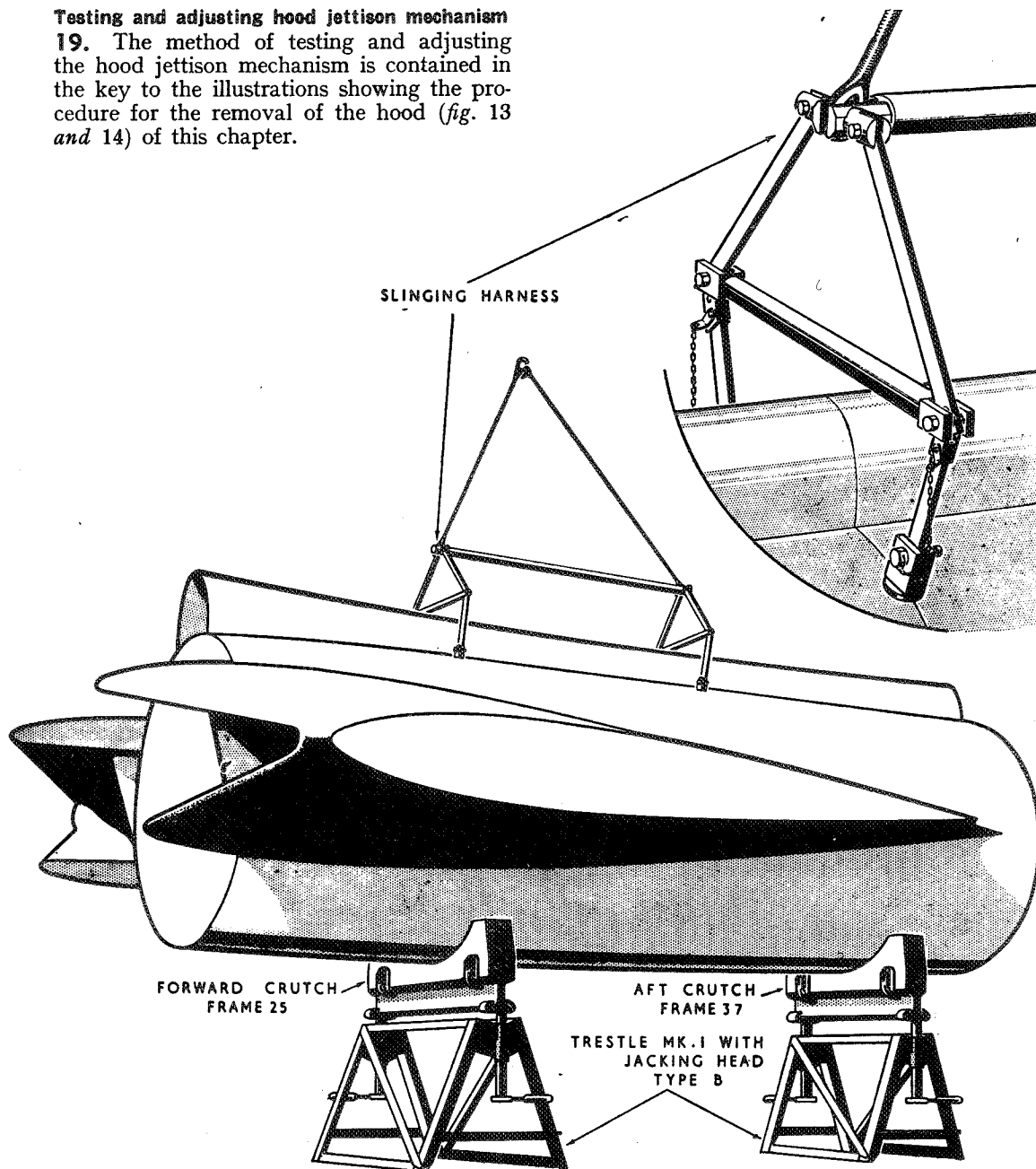
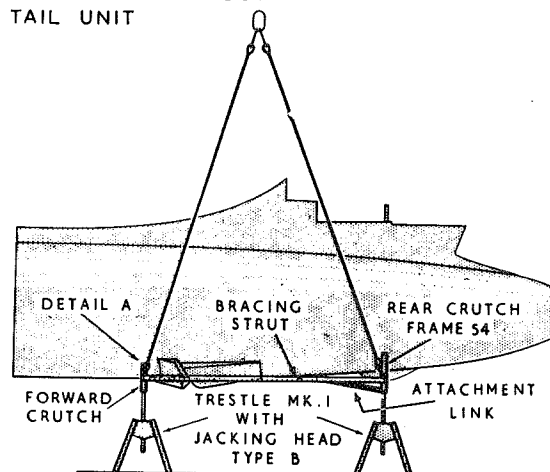


Fig. 7. Slinging and trestling centre fuselage

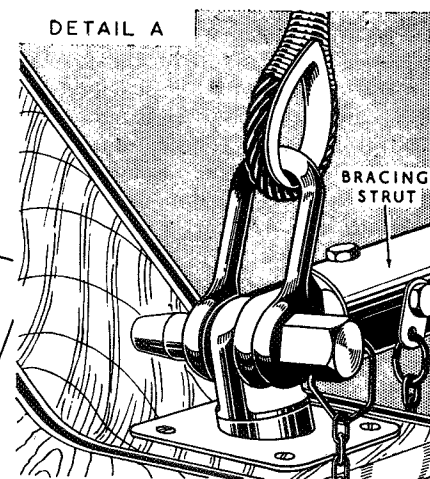
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SLINGING OF REAR
FUSELAGE WITHOUT
TAIL UNIT



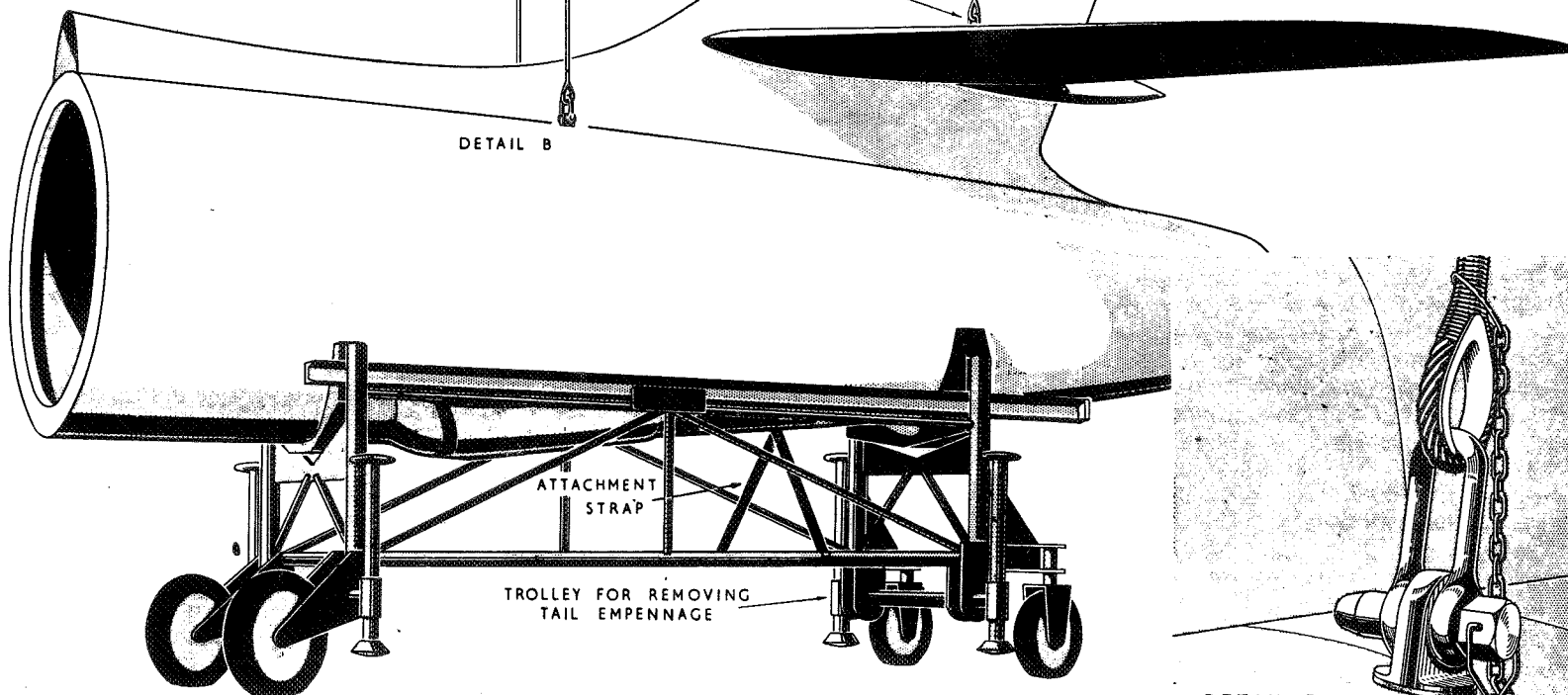
SLINGING HARNESS
FOR REAR FUSELAGE
WITH TAIL UNIT

DETAIL A



DETAIL B

DETAIL B



DETAIL B

Fig. 8. Slinging and trestling rear fuselage

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Windscreen dry-air sandwich

20. The procedure for examining the air drier of the windscreen dry-air sandwich installation is contained in Sect. 2, Chap. 2 of this volume.

Lubrication

21. The lubrication points for the fuselage and the sliding hood, together with the types of lubricant to be used, are given on fig. 13 of this chapter.

REMOVAL AND ASSEMBLY**General**

22. The separation of the fuselage at its transport joints and the removal of various components, together with the method of slinging and trestling, is 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 assembly feature it is covered in the key to the illustration.

Removal of nose piece (fig. 9)

23. 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.

Removal of tail cone

24. The tail cone is attached to the rear fuselage by four locating dowels and toggle fasteners, and to remove this unit it is only necessary to unlock the fasteners and withdraw the cone rearwards.

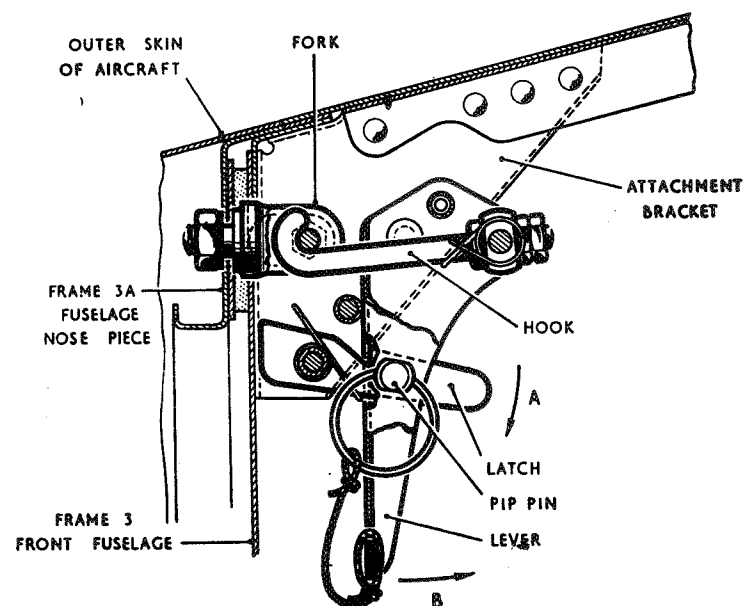


Fig. 9. Typical fastener for fuselage nose piece

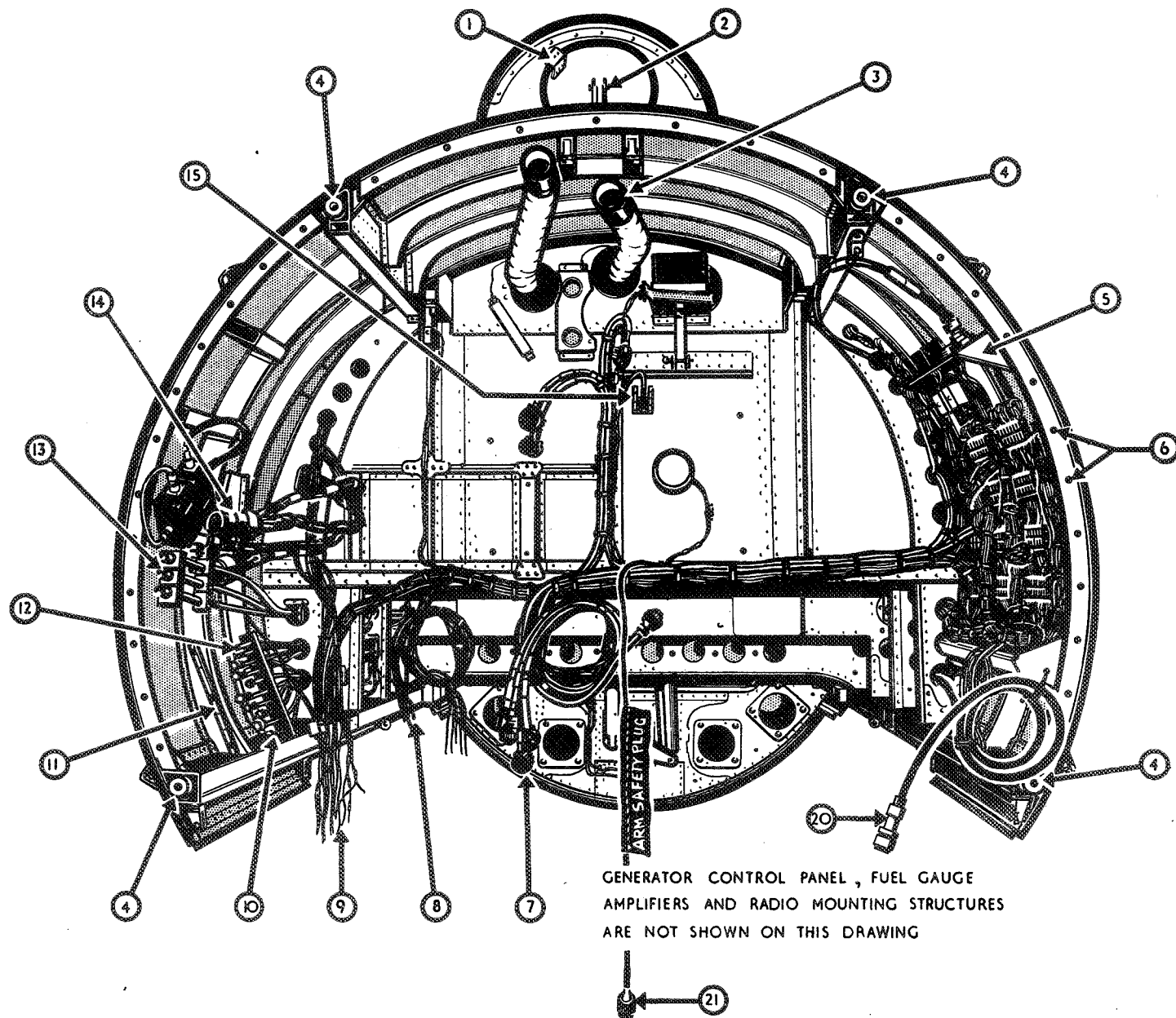


Fig. 10. Removing front fuselage (1)

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KEY TO FIG. 10 AND 11 — REMOVAL OF FRONT FROM CENTRE FUSELAGE

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

Remove the gun package (*Sect. 7, Chap. 3*).

Jack and trestle the aircraft as shown in *Sect. 2, Chap. 4, fig. 4*, with the exception of the front fuselage jack, but with the addition of the trestling for the front fuselage (*fig. 6*) and the centre fuselage (*fig. 8*).

Remove the aircraft batteries (*Sect. 2, Chap. 2*).

Remove radio and mounting structure (*Sect. 6, Chap. 1 and 2*).

Unclip and stow all radio cables and connectors which extend between the transport joints. The details are as follows:—

Front fuselage (*fig. 10*)

Item (9) which includes two F.21 and one F.23 cables, Type 200 inverter connector B22/20C/1.

Item (8) F.47 and F.48 cables, three connectors Type B14/20B/2, B2/40F/1 and B8/10A/2 from the D.M.E. junction box.

Item (7) two V.H.F. control connectors and three I.F.F. control connectors.

Disconnect armament safety plug (21) from socket (15) and leave hanging with pennant on front fuselage.

Centre fuselage (*fig. 11*)

Item (17) three V.H.F. control connectors.

Electrics

Disconnect cables C16, C18, and C20 from cables F16, F18, and F20 at the bracket on the port side of frame 17 (*fig. 10*). Unclip and stow C16, C18, and C20 with the centre fuselage (17). Remove F16, F18, and F20 from the same bracket; unclip and stow with the front fuselage (14) (*fig. 10*).

Disconnect the compass cable G.C.3 from G.C.2 at the top of the supply panel (5) (*fig. 10*). Unclip and stow with centre fuselage (5) (*fig. 11*).

Disconnect cables C1, C2, and C4 from the plugs at the bottom of the supply panel and stow with centre fuselage at (18).

Disconnect cables C5, C37, and C38 from the generator control panel, unclip and stow with centre fuselage (18).

Disconnect cables CA30, CA62, CA125, and CA140 from the fuel gauge connector boxes, unclip and stow with the centre fuselage (17).

Disconnect the jet pipe temperature cable (22) from the terminal block on the supply panel.

Disconnect cable A7 (20) (*fig. 10*) from armament J.B1 (19) (*fig. 11*), centre fuselage. Unclip and stow with front fuselage.

Hydraulics

Disperse pressure in the system and drain (*Sect. 3, Chap. 6*).

Remove the centre cleat from the bracket (11) (*fig. 10*), together with the aft cleat adjacent to the transport joint.

Remove the locking wire and unscrew the eight unions (10) on the front fuselage and the locking wire and eight unions on the centre fuselage.

Remove the centre portions of the pipes.

Blank off the pipe ends to prevent the ingress of dirt and swarf.

Pressure head pipes

Remove the locking wire and the two unions (12) on the pressure air pipes at both the front fuselage and the centre fuselage, removing the centre portion of the pipes.

Blank off the pipe ends to prevent the ingress of dirt and swarf.

Engine controls

Unscrew and disconnect the three Teleflex controls (13) after removing the twelve 2 BA bolts and anchor nuts from the Teleflex (13) control covers, remove the covers from the fuselage brackets.

Flying controls

Remove the detachable hood fairing at the forward section of the spine (*Sect. 2, Chap. 4, fig. 2*) by removing the attachment screws. Break down the flying controls (2) by removing the six bolts and split pins.

Unclip, as necessary, the I.F.F. aerial connection and withdraw it through a hole in the top of the fuselage under the spine, just forward of the transport joint. Disconnect the cable at bracket (1) (*fig. 10*), coil and stow with the centre fuselage.

Disconnect the union (16) on the air conditioning pipe.

Uncouple the hot and cold pipes (3) of the cabin heating system by removing the bonding tabs and clips. These pipes should be tied up to support their weight to avoid breakage at the forward end.

Remove the wing stub fairings.

Remove the four forward external retaining nuts and split pins securing the stub wing nosing to the front fuselage.

Remove the four screws, streamline distance pieces and anchor nuts from the boundary layer ducts in the air intakes.

Attach the slinging gear and bracing struts to the front fuselage (*fig. 6*) and take the weight.

Remove the 31 split pins and nuts (6) attaching the front fuselage to the centre fuselage.

Remove the 18 s.w.g. locking wire and unscrew the four longeron bolts (4) by using a cranked spanner.

The front fuselage may now be slung clear, complete with trestles.

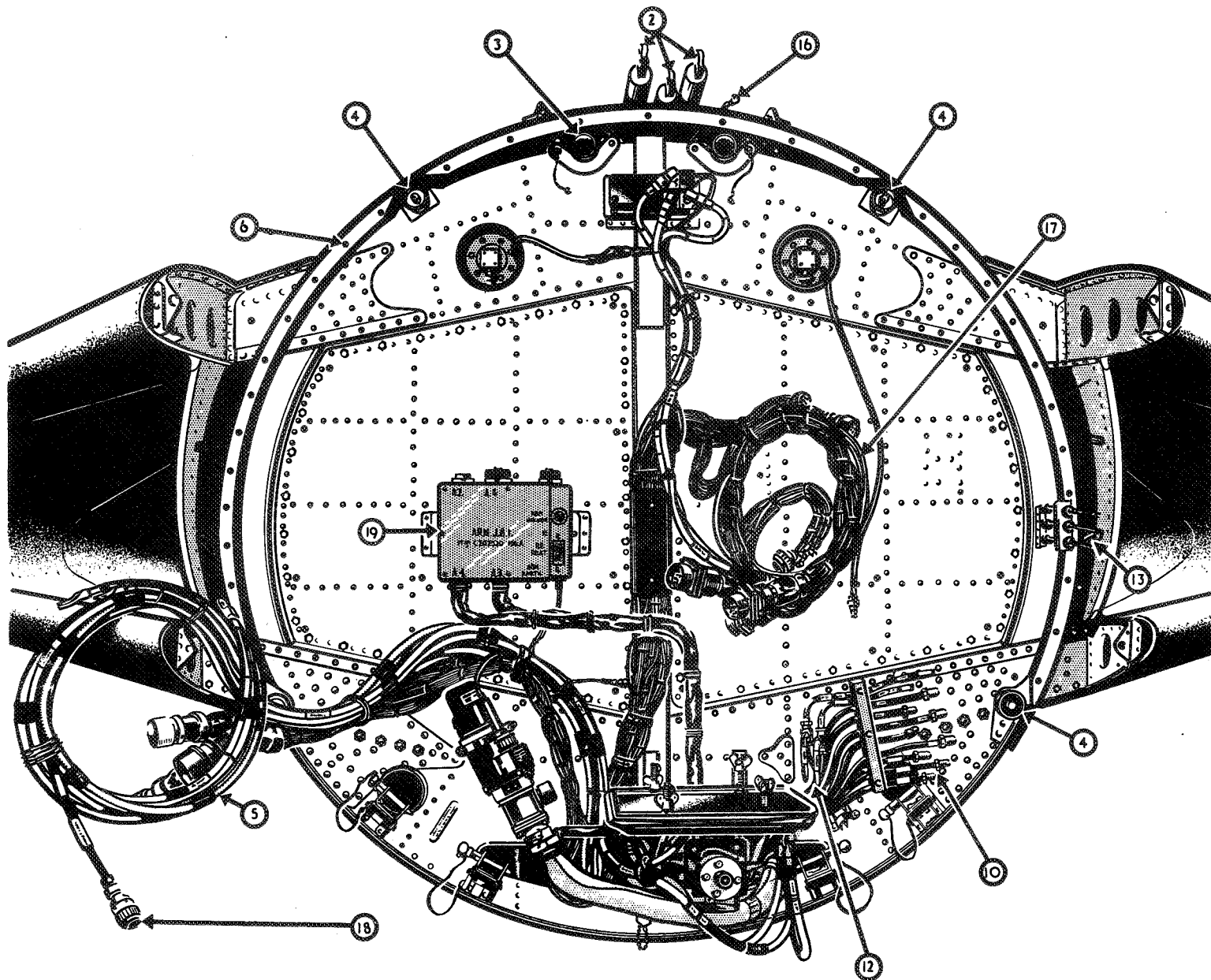


Fig. 11. Removing front fuselage (2)

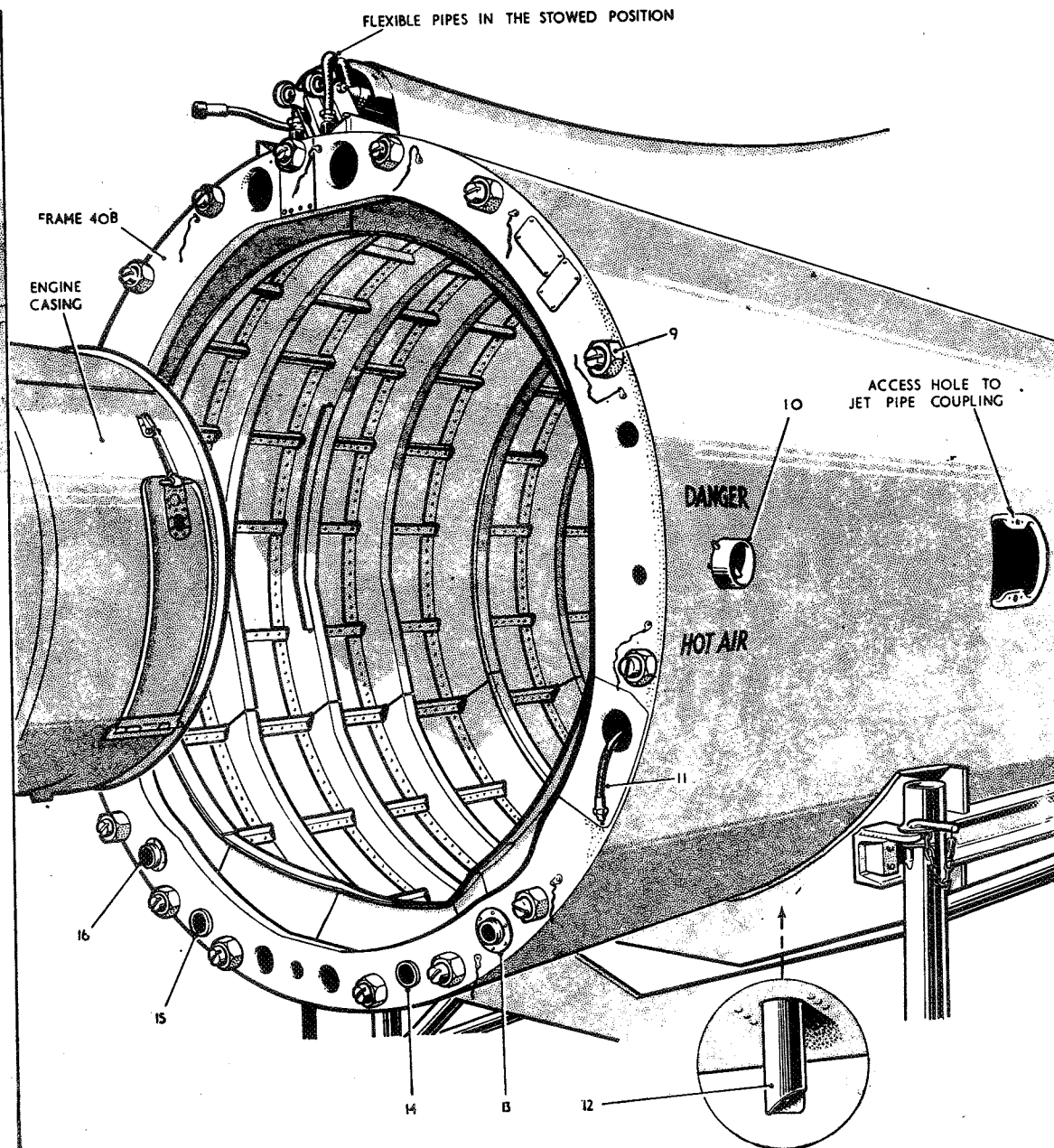
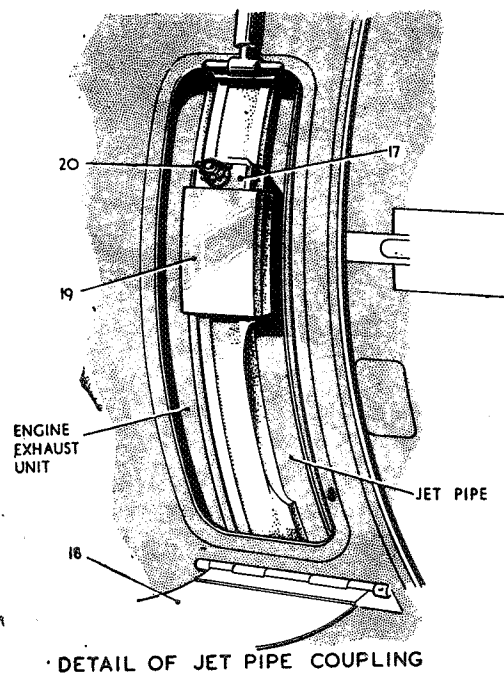
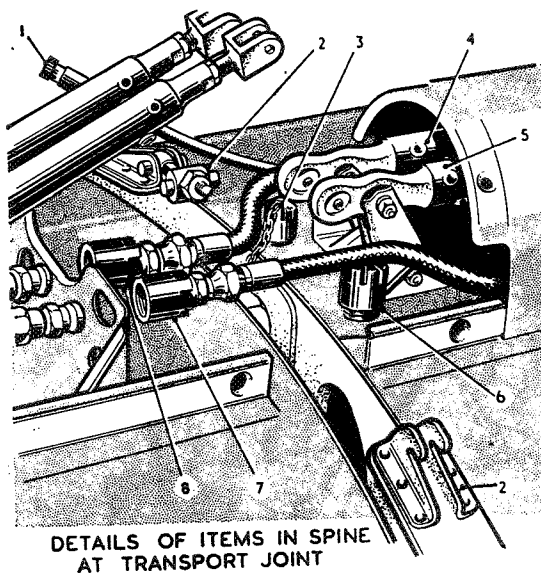


Fig. 12. Removing rear fuselage

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KEY TO FIG. 12—REMOVAL OF REAR FUSELAGE

Trestle the aircraft, except the rear fuselage, as shown in Sect. 2, Chap. 4, fig. 4, ►◄ and with the trolley under the rear fuselage (fig. 8).

Render the aircraft electrically safe as described in Sect. 5, Chap. 1.

If the tail unit is to be removed, refer to Sect. 3, Chap. 3.

Pull out the spring-loaded bearing cooling outlet pipe (10) and turn to engage the retaining pin against the skin plating.

Pull out the engine drain pipe (12) and turn anti-clockwise to engage in retaining slot.

Remove the port and starboard access doors to the jet pipe coupling. Unfasten the access doors (18) on the engine casing and loosen the stirrup nut (20), raise the stirrup (17) and slide the keeper plate (19) downwards to release.

Close the access doors (18).
Lash the air brake flap securely to the fuselage.

Remove the detachable spine above the rear transport joint.

Disconnect the flying control rods (4) and (5).

Disconnect the hydraulic self-sealing couplings (7) and (8). Remove the blanking caps (3) and (6) from their stowage points on the rear fuselage.

Stow the couplings (7) and (8) on the points from which the blanking caps have been removed. Assemble the blanking caps on the couplings in the centre fuselage.

Remove the rear transport joint butt strap (2).

Disconnect the aerial cable coupling (1) in the spine.

Disconnect the electric cables (13), (14), (15) and (16) in the lower part of the transport joint.

Disconnect the hydraulic self-sealing couplings (11), port and starboard.

Check to ensure that the rear fuselage is adequately supported. Unscrew the nuts (9) securing the centre and rear fuselage. The nuts should be undone in opposite pairs and not one by one all the way round.

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

ASSEMBLY

When assembling the rear fuselage, ensure that the chains of the blanking caps (3) and (6) pass under the trunnion bolt of the butt strap (1).

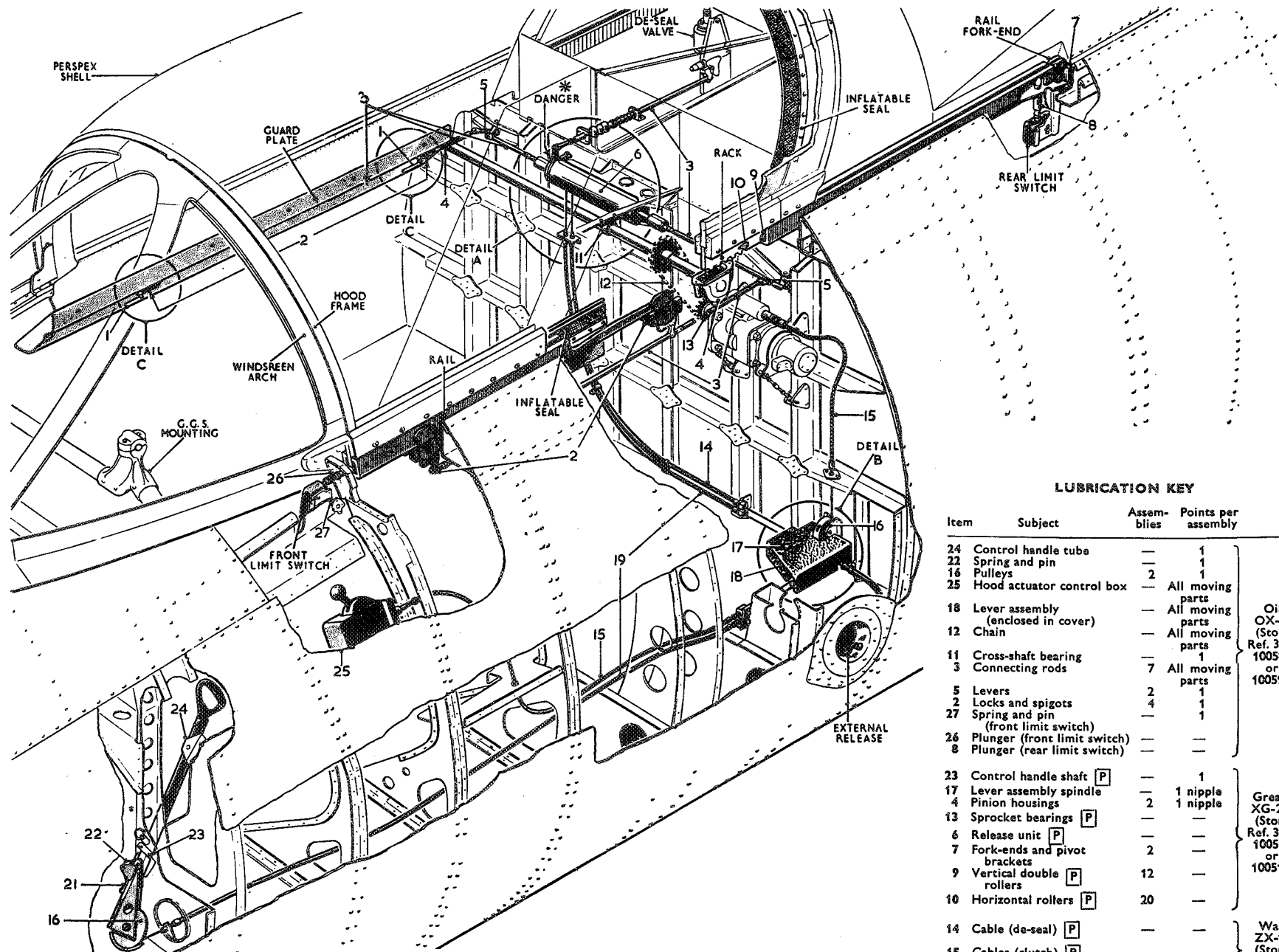


Fig. 13. Sliding hood, jettison mechanism and controls (1)

LUBRICATION KEY

Item	Subject	Assemblies	Points per assembly	
24	Control handle tube	—	1	
22	Spring and pin	—	1	
16	Pulleys	2	1	
25	Hood actuator control box	—	All moving parts	
18	Lever assembly (enclosed in cover)	—	All moving parts	
12	Chain	—	All moving parts	
11	Cross-shaft bearing	—	1	
3	Connecting rods	7	All moving parts	
5	Levers	2	1	
2	Locks and spigots	4	1	
27	Spring and pin (front limit switch)	—	1	
26	Plunger (front limit switch)	—	—	
8	Plunger (rear limit switch)	—	—	
23	Control handle shaft [P]	—	1	
17	Lever assembly spindle	—	1 nipple	
4	Pinion housings	2	1 nipple	
13	Sprocket bearings [P]	—	—	
6	Release unit [P]	—	—	
7	Fork-ends and pivot brackets	2	—	
9	Vertical double rollers [P]	12	—	
10	Horizontal rollers [P]	20	—	
14	Cable (de-seal) [P]	—	—	
15	Cables (clutch) [P]	—	—	
19	Cables (jettison) [P]	—	—	

Oil
OX-14
(Stores
Ref. 34B/
100589
or
100590)

Grease
XG-275
(Stores
Ref. 34B/
100512
or
100513)

Wax
ZX-12
(Stores
Ref. 34B/
100527)

[P] = Prepacked.

RESTRICTED

KEY TO FIG.13 and 14 - REMOVING THE SLIDING HOOD
(Completely revised)

WARNING

Before entering the aircraft refer to the **LETHAL WARNING MARKER CARD** at the beginning of this volume.

REMOVAL

To remove the sliding hood, together with the hood rails and without operating the hood jettison mechanism, proceed as follows:-

- (1) Render the aircraft electrically safe in accordance with the instructions given in Section 5, Chapter 1, Group A.1, and check that the hood gun has been unloaded.
- (2) Move the port and starboard inter-connecting rods aft by using the hood lock opening tool (Part No.A.236181) as shown in fig.17, thus causing the hood locks to open fully.
- (3) Without handling the perspex shell, and taking care not to allow the hood to run on its rails, and not to damage the seals or rail housings, raise the hood and rails at the forward end through approximately 25 deg. to disengage the rail fork ends from the rear pivot brackets. Lift the hood and rails clear of the structure.

HOOD LOCK ADJUSTMENT

The hood locks should be adjusted as follows:-

- (1) Remove the guard plates covering the connecting rod between the locks.
- (2) Ensure that all four locks are in the **LOCKED** position.
- (3) Remove the four pins and disconnect the connecting rods to the locks carefully lowering the rods from the locked levers.

Note . . .

The rods remain in the aircraft, total removal being prevented by the hood gas gun and piping.

- (4) Check that the front and rear locks are fully locked and free from foreign matter. The locks can be examined by shining a light downwards into the lock recess while operating the lock from open to shut several times. With the lock in the open position the contact face of the hook can be seen and this must be scrupulously clean. It will be appreciated that any small particle of swarf etc., lodging on this face will prevent the sear lever from full engagement giving a false impression of the **LOCKED** condition (fig.14).
- (5) Without moving the front and rear locks from their locked position, check

that the centres of the holes in the connecting rods, between the front and rear locks, pick up the holes in the lock levers. There must be no movement of the locks during this check. It may be necessary to adjust the pin centres of the connecting rod to enable the pins to be inserted without moving the lock levers.

- (6) Replace the two guard plates and secure with the mushroom head bolts.

Note . . .

One of these bolts on port and starboard pick up the indicator plate.

- (7) Check that the black line on the indicator plate lines up with the centre mark on the head of the pin in the forward locks (fig.14, detail C). The indicator plate should be adjusted if required, to meet this condition.

Note . . .

It is most essential that the lock lever is not moved during this operation. It may be necessary, when fitting a new indicator plate, to re-set the tip of the plate slightly to lie about .040 in. from the head of the pin. The point should also be trimmed back, if need be, so that the appearance of the indicator pointer and pin is in accordance with figure.

*The above checks, when carried out, will ensure that with both locks in the **LOCKED** position, the forward lock indicator can be regarded as the master control for both locks being safe.*

ASSEMBLY

The hood should be assembled to the aircraft as follows:-

- (1) Check that the lubrication (fig.13) of the hood rollers, rack, lock spigots, fork ends and pivot brackets has been satisfactorily effected.

Note . . .

Ensure that the seals are in position on the hood lock spigots and the metal discs and sealing tapes on the gas gun cylinders before attempting to fit the hood.

- (2) Ensure that the hood rails are correctly engaged at the rear end as far aft as possible before lowering the assembly to engage the rail spigots in the locks, thus eliminating the possibility of damage to the lock housings.

KEY TO FIG.13 and 14 (Continued)

- (3) When the hood/rail assembly has been lowered to the aircraft, and before closing the locks, de-clutch the hood motor and move the hood to the forward position. Lift the hood slightly at the rear end, so that the racks on the hood are clear of the drive pinions, then push the hood forward to contact the windscreen frame. This will ensure that when the hood is lowered again the rack on each side will engage correctly with pinions and will not be one tooth out on one side, as can happen if this procedure is not adopted.
- (4) Move the hood to the rear position again and (without handling the perspex shell) press down the hood rails at the forward locks. Check that the locks are fully engaged by exam-

ination of the indicator at the front pins. The mark in the centre of the pin must line up with the line on the indicator plate. It may be necessary to apply a sharp blow to the hood rails over the front and rear locks to obtain the correctly LOCKED position.

HOOD WINDING ADJUSTMENTS

Adjust the tappet bolt (26) so that the sliding hood comes to reset within 0.03 in. max. of the hood fully forward position when power operated. Push the hood rearward until the tail end of the rack meets the inner face of the rail fork-end, then move the hood forward leaving a gap of 0.35 in. to 0.50 in. and set the rear limit switch to just contact the plunger (8) and tighten the switch in place.

Finally, check the functioning of the electrically-operated hood winding system.

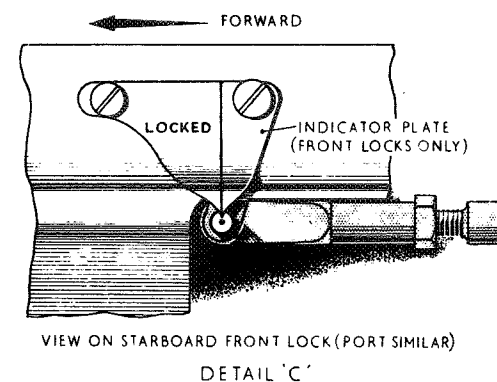
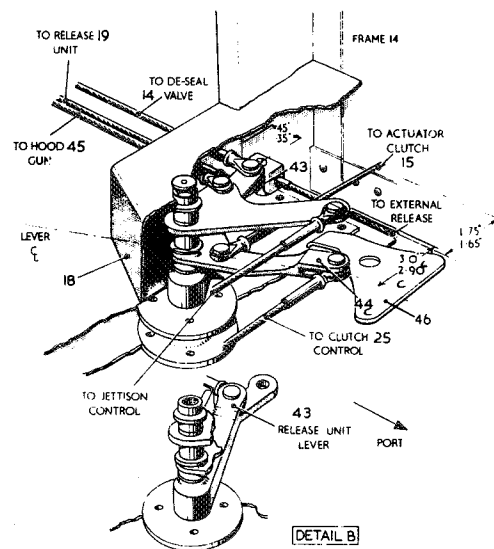
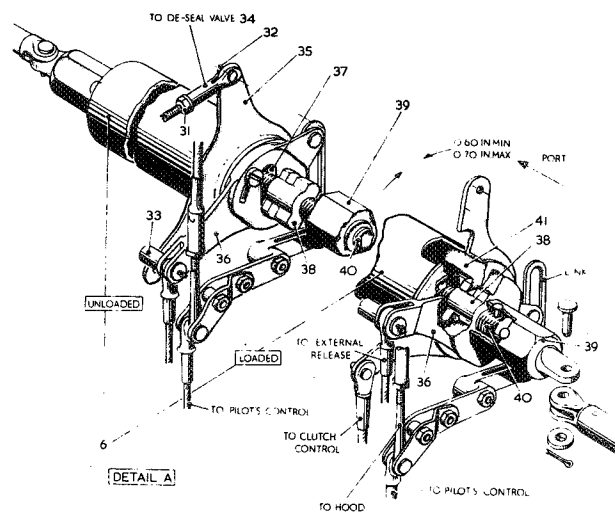


Fig.14 Sliding hood, jettison mechanism and controls (2)

RESTRICTED

KEY TO FIG.13 and 14 (Continued)

(item 46, detail B) and pull the external release cable back into the fuselage. Check that the aircraft is electrically safe (Sect.5, Chap.1, Group A.1.), and that the hood gun has been unloaded.

WARNING

The release unit (6) shown in both loaded and unloaded positions in fig.14, detail A, is loaded when the painted red line on the lever and on the body of the release unit correspond, i.e., when the spindle (40) is fully extended to the port side and the jettison lever (36) has moved upwards a minimum of 25 deg. from the unloaded position.

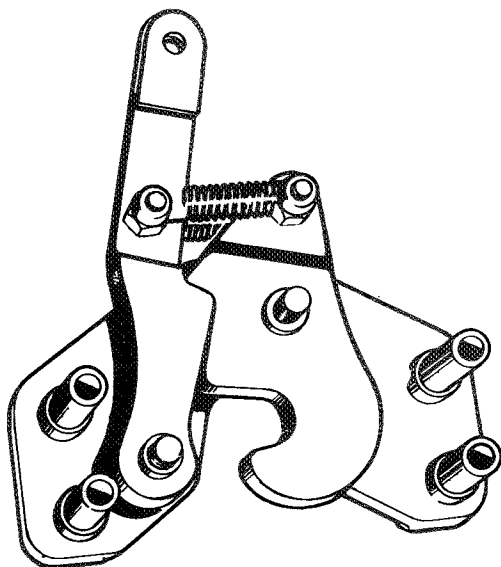


Fig. 15 Hood lock in closed position

RESETTING HOOD
JETTISON MECHANISM

Note . . .

When the jettison mechanism is set, the use of either the pilot's jettison control (24) or the external release automatically operates the release unit (6) and deflates the hood seal. (On aircraft Pre Mod.378, the pilot's control (24) also retracts the gyro gun sight).

Lift the thumb latch (21) and return the pilot's control handle (24) to its socket.

Check that the gyro gun sight switch (22) and its operating lever (aircraft Pre-Mod.378 only) are correctly set. Depress the plate

F.S./11

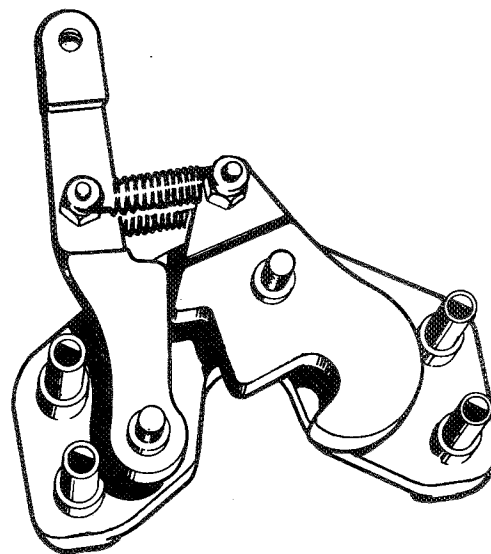


Fig.16 Hood lock in open position

RESTRICTED

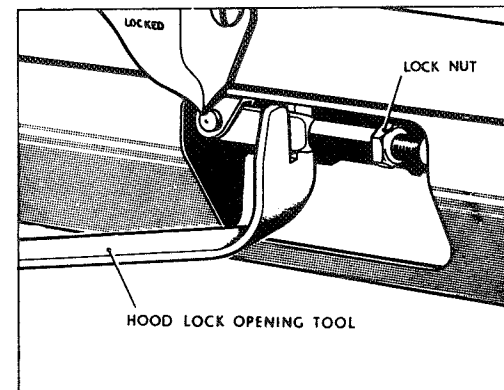


Fig.17 Hood lock opening tool

After ensuring that the release unit is not loaded, check that the connecting rod (34) has a free travel of 0.60 in. to 0.70 in. and if re-adjustment is necessary, proceed as follows:-

Remove pin (32).

With the de-seal lever (35) touching the jettison lever striking pin (33) in the unloaded position, push the connecting rod (34) fully rearwards and align it with the de-seal lever (35). Shorten the rod by one turn and re-insert the pin (32), then tighten the lock-nut (31). Finally check that the free travel required has been obtained.

Rotate the coupling (39) until the release nut (38) enter the 'H' hole (37) and is

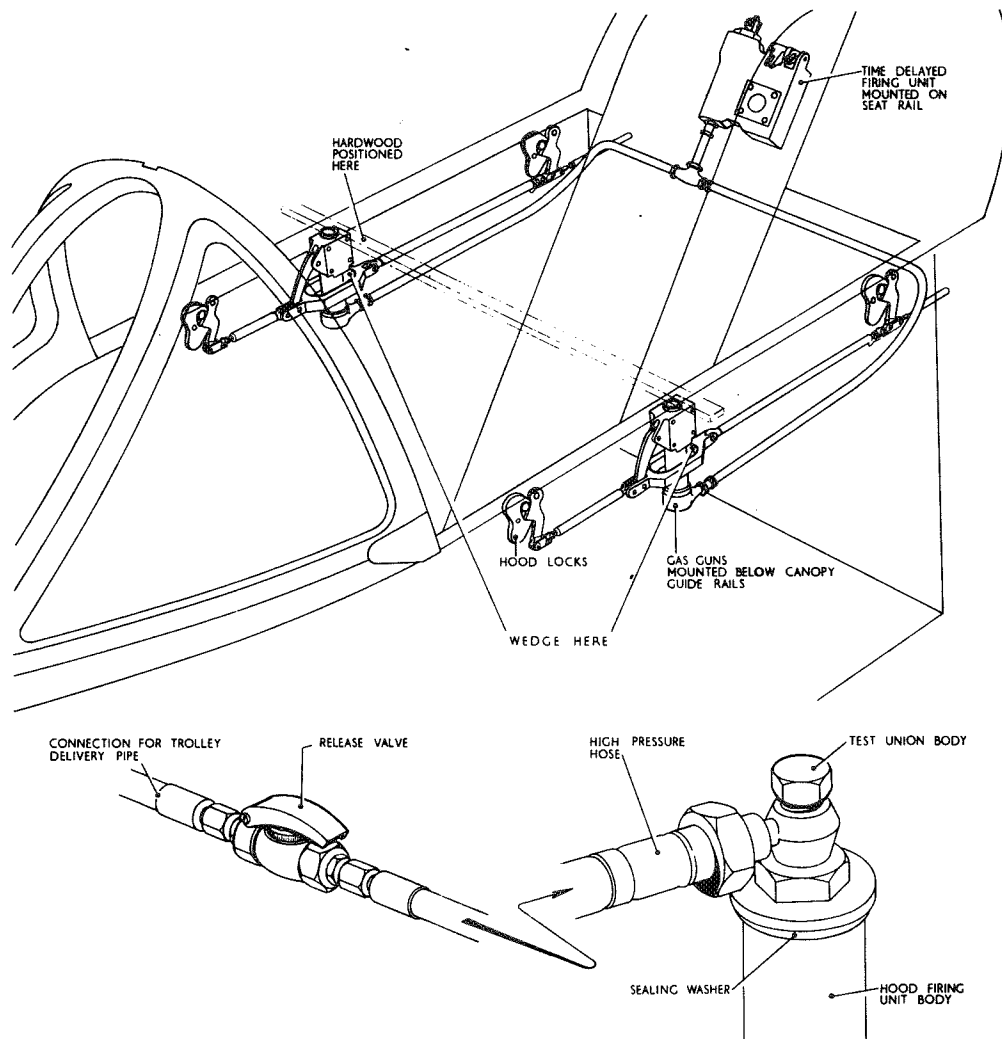


Fig.18 Testing hood jettison mechanism

flush with the outer face of the lever (36). If the lever (36) will not now turn to the loaded position, rotate the coupling further until the lever can be freely moved to the loaded position. No further rotation of the coupling in this direction is permissible. Lock the release nut (38) into the end plug (41) by pushing the lever (36) upwards a minimum of 25 deg. (see below).

Note . . .

It is important that this lever (36) is retained in this position throughout the resetting operations to prevent accidental release and possible injury.

Load the unit by rotating the coupling (39) clockwise to the full extent of its travel, then slacken off half a turn.

Remove the cover (18) detail B and check the setting of the levers (43) and (44) as follows:-

With the lever (43) detail B set 0.45 in. to 0.35 in. from the face of the port outboard stiffener on frame 14, check for adjustment of the clutch cables (15) and the de-seal cable (14), fig.13. The minimum travel of 25 deg. on lever (36) referred to above, is to be obtained with cable (19) adjusted so that the release unit is released just before the pin on shackle of external release at lever (43) enters the hole in the catch plate (46).

With the lever (44), set with the centre of the pin securing the clutch control cable to the lever set 3.0 in. to 2.90 in. from face of frame 14, check for adjustment of the two jettison cables (19), fig.13.

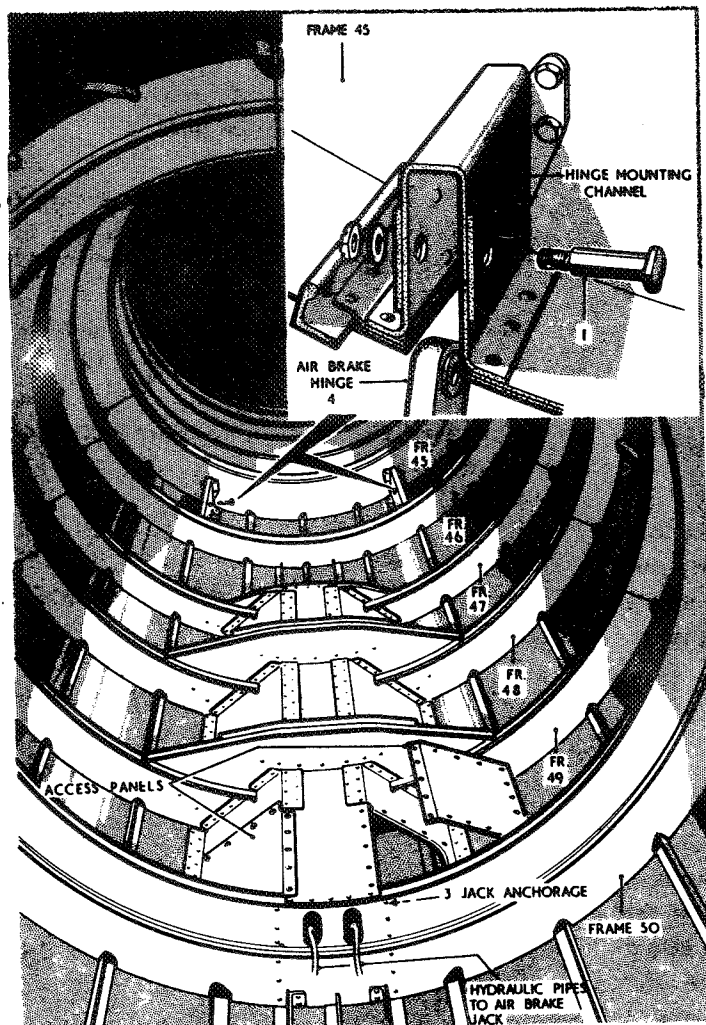
Replace cover (18).

Check that the centre marks on the lock sear pins detail C are in the locked position i.e. in line with the black lines on the indicator plates.

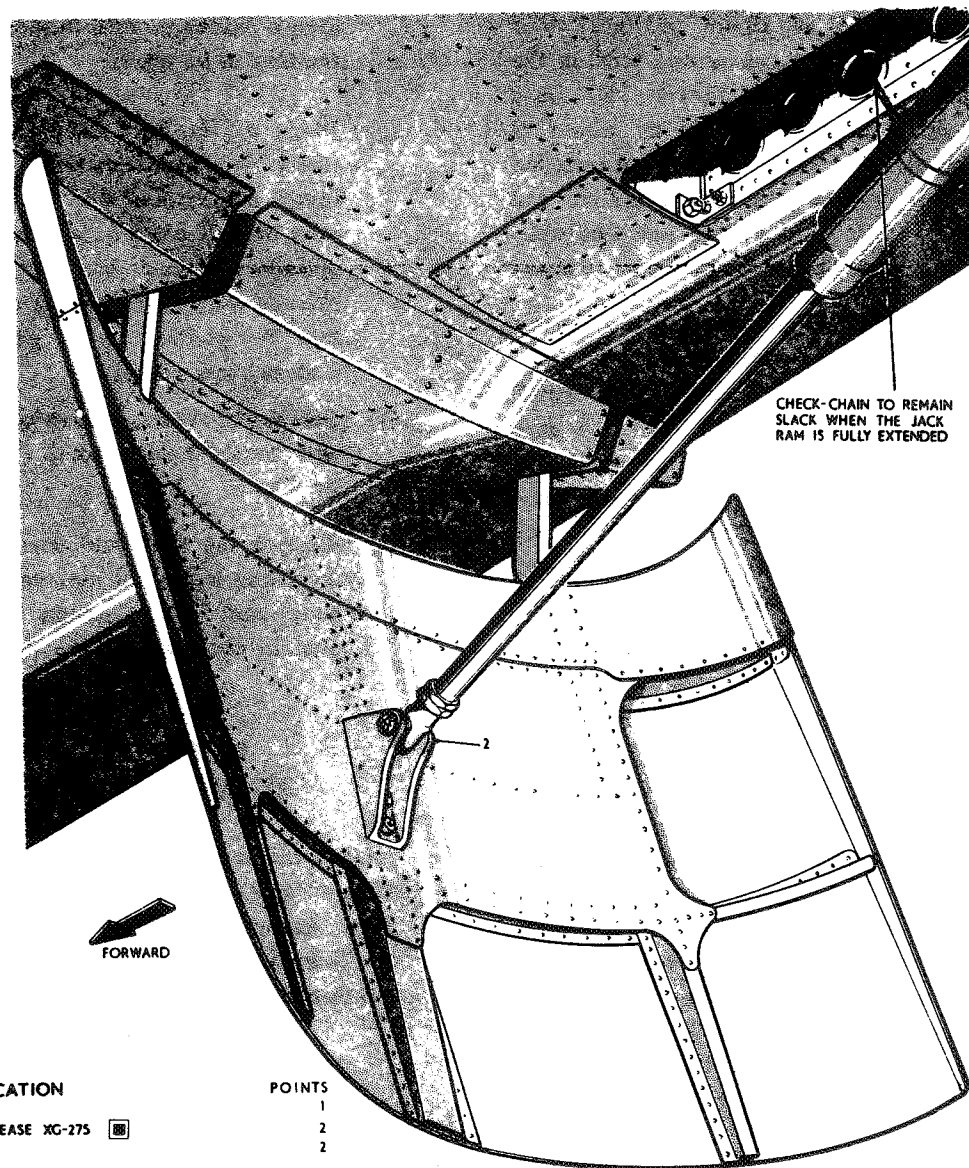
TESTING HOOD JETTISON MECHANISM (fig.18)

The hood jettison mechanism should be tested as follows:-

- (1) Check that the safety pins are fitted into the sears of the hood and seat firing units.
- (2) Unload the hood and seat firing units.
- (3) Move the port and starboard inter-connecting rods fully aft by using the



DETAIL OF AIR BRAKE JACK HOUSING STRUCTURE
AND HINGE MOUNTING



LUBRICATION
2 }
3 } GREASE XG-275 ☐
4 }

POINTS
1
2
2

hood lock opening tool (Part No. A.236181) as shown in fig.17, and hold the inter-connecting rods in the fully-aft position (*beyond the hood lock opening position*) by means of a piece of wood wedged between the rear of the gas gun cylinders and connecting rod yokes, port and star-board, as indicated in fig.18. Without

handling the perspex shell, and taking care to ensure that the hood is not permitted to run on its rails (*to avoid damaging the inflatable seals or rail housings*), raise the hood and rails at the forward end approximately 25 degrees, to disengage the rail fork-ends from the pivot brackets, and lift the hood complete with rails clear of the structure.

- (4) Assemble the test union body (*fig.18*) and washer in place of the firing body on the hood firing unit. Connect the test rig to the union and couple up a low-pressure trolley, Mk.2 to the rig.
- (5) With the test rig release valve closed, run the trolley equipment to charge the trolley air container fully and set

the output pressure control valve to give a pressure of 90 lb. per sq.in. in the line to be used.

- (6) Place a 2 in. by 1 in. piece of hard-wood, of approximately 3 feet in length across the cabin so that it lies over the pistons of the hood gas gun cylinders, then quickly open the release valve on the rig and check that the pistons of the gas gun cylinders have extended.
- (7) Release pressure, remove wood wedges and return the pistons to their normal position.
- (8) Remove the test equipment. Re-load the firing units and replace the firing body and lock. Replace the safety pins in the sears of the firing units.

KEY TO FIG.19 REMOVING AIR BRAKE

Jack up the aircraft as described in 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.

Select 'air brake in' to release the hydraulic pressure from the jack.

Ensure that the check chain is securely attached to the aircraft structure and to the jack body.

Render the aircraft electrically safe as described in Sect.5, Chap.1.

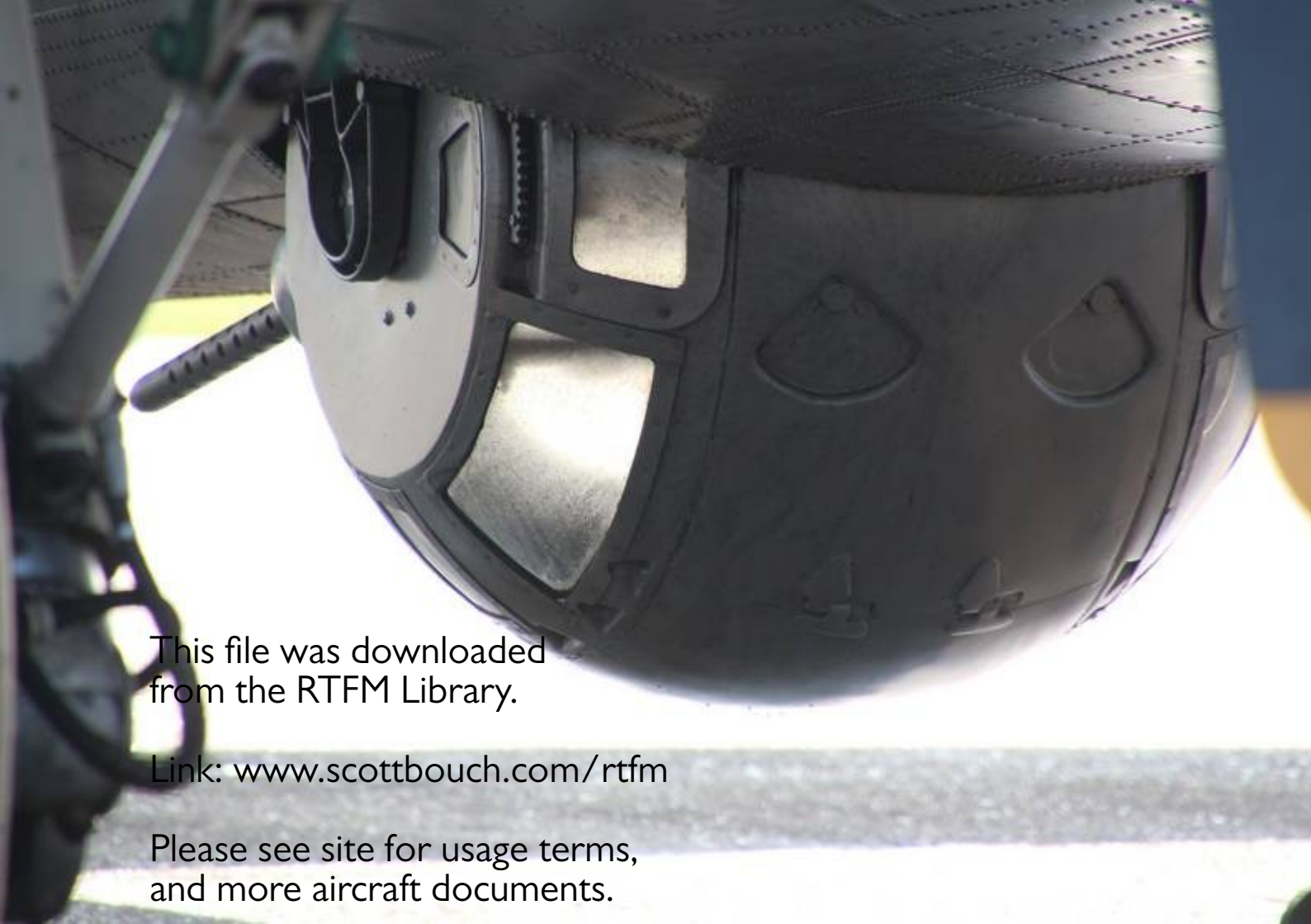
Remove the jet pipe as described in Sect.4, Chap.1.

Remove the split pin, slotted nut and washer from the pivot bolt (2) and withdraw the bolt.

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.

ASSEMBLY

After assembly, adjust the jack as described in Sect.3, Chap.4.

A close-up, low-angle shot of the underside of an aircraft, focusing on the nose and cockpit area. The image shows the dark, metallic skin of the fuselage with visible rivets. The cockpit canopy is prominent, with its frame and various access panels. A bright light source from the left creates a strong glare on the lower part of the canopy and the fuselage. The background is a bright, overexposed area, likely the ground or sky.

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