

## Chapter 1      FUSELAGE

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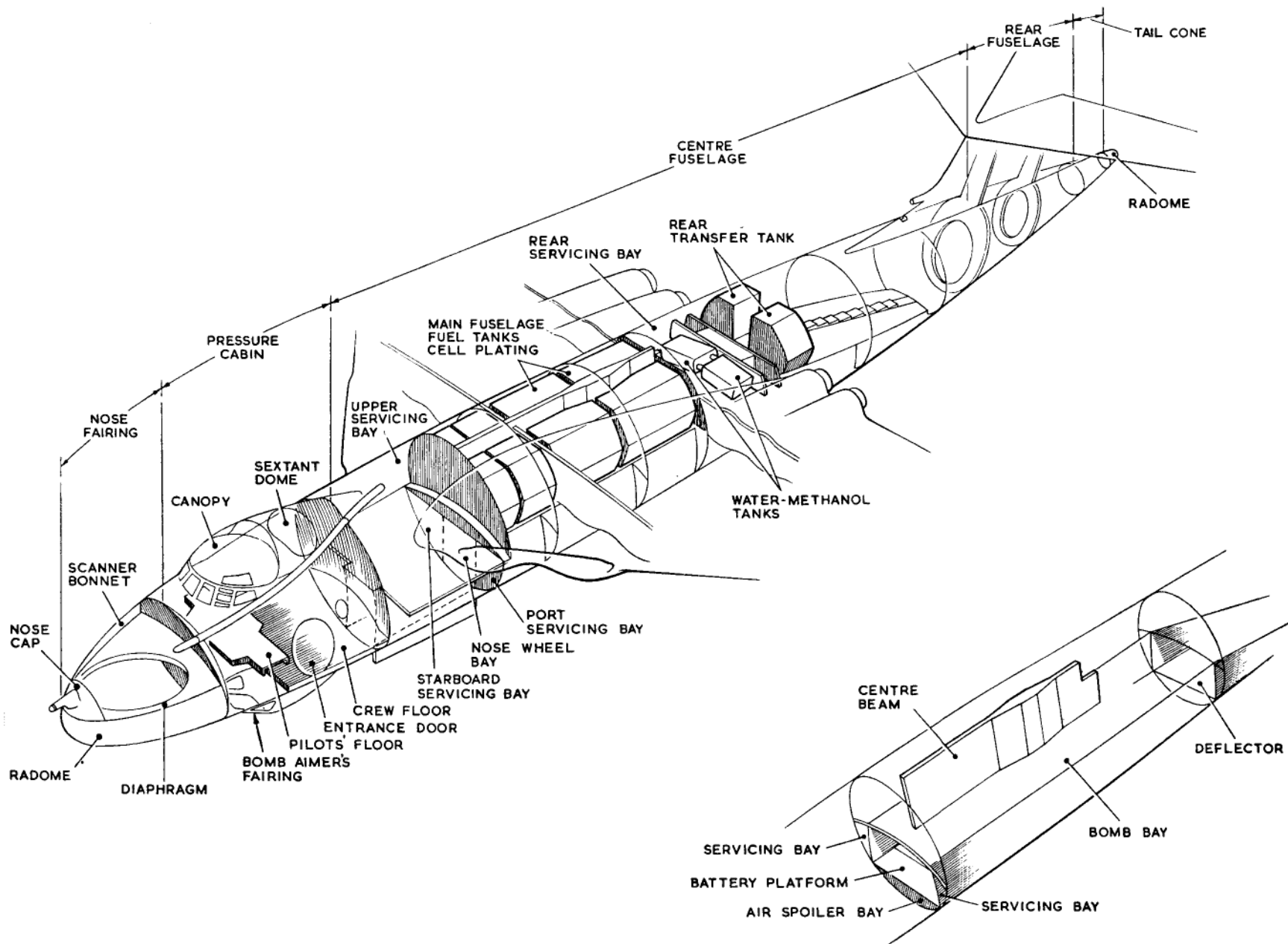


Fig. 1. Fuselage

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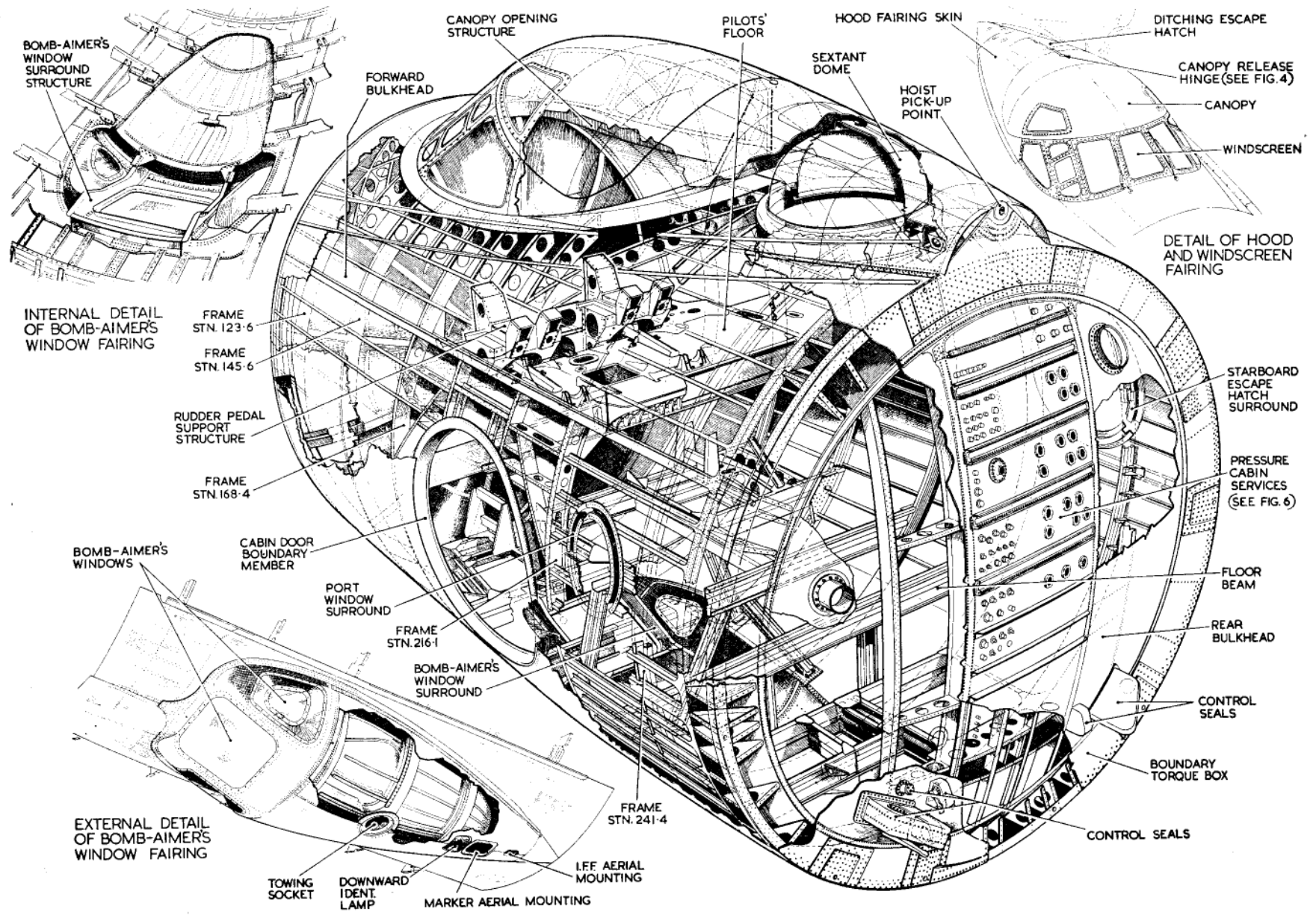


Fig. 2. Pressure cabin

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## DESCRIPTION

### General (fig. 1 and 8)

1. The fuselage is divided into four main sections, the nose fairing, pressure cabin, centre fuselage and rear fuselage; since the rear fuselage is virtually inseparable from the fin it is described in Chap 3. With the exception of the nose fairing the structure is of high-tensile light alloy stressed skin construction, flush riveted externally. It is of circular section throughout except for the slight blisters formed by the jettisonable cockpit canopy and the fairing round the bomb-aimer's window.

### Nose fairing

2. The nose fairing, which houses the H.2.S. radar equipment for A.R.I. 5910, consists of the lower portion or radome, the upper portion or scanner bannet, and the nose cap. The radome is a fabricated shell of Hycar, glass-cloth and neoprene bonded with nuron resin to form a double sandwich. The scanner bonnet is easily detachable and is of normal frame and stringer construction, covered with light alloy sheet. The scanner bonnet and radome are separated by a horizontal diaphragm to which they are secured and which supports the H.2.S. scanner unit spider mounting.

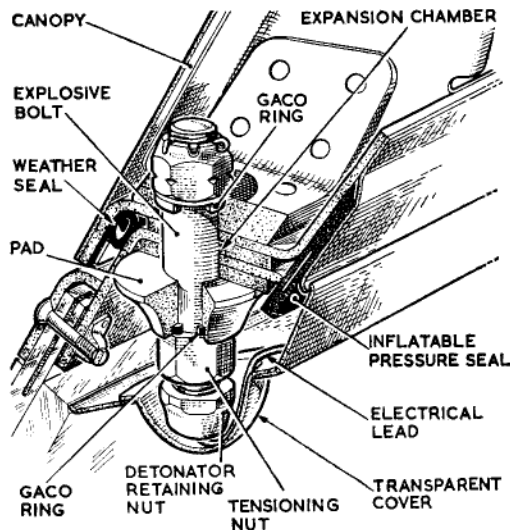


Fig. 3. Explosive bolt—pilot's canopy

When the scanner is removed, a tray is fitted to the spider to enable ballast weights to be carried (Sect. 2, Chap. 3). The nose cap consists of pressed alloy plate diaphragms covered with light alloy sheet. On B/PR Mk. 1 and B/K/PR Mk. 1 aircraft the nose cap takes the flight refuelling probe mountings and is faired to the stub probe.

### Pressure cabin (fig. 2)

3. The pressure cabin is the portion of the fuselage housing the crew, their controls and associated equipment; it is bonded at the front by a convex bulkhead and at the rear by a concave bulkhead. The skin plating is reinforced by closely-spaced longitudinal stringers of lipped Z-section and bulb angle, and supported on lipped channel-section open frames. The pressure cabin includes the jettisonable canopy, the sextant dome and the bomb-aimer's window and fairing. An elliptical door gives entry to the cabin on the port side and, with a hinged windshield, forms the emergency parachute exit for the crew (fig. 5). Two elliptical windows are provided, one each side of the cabin, the window on the starboard side being built into an emergency exit.

### Cabin floor

4. The cabin floor comprises lateral alloy channel-section members, braced with longitudinal members of a similar section, the whole being covered with ply panels. A hinged access door in the forward, centre portion of the floor gives entry to the bomb-aimer's station. In the rear centre portion, a removable panel in the floor gives access to the underfloor areas for servicing purposes. Rails for three crew seats are bolted to the cabin floor between Stn. 191 and 241.

### Pilot's floor

5. The pilot's floor, at the forward end of the pressure cabin, is raised above the cabin floor level. It is supported by a structure generally similar to that of the cabin floor, but is surfaced with alloy sheet. The rudder pedal support structure is integral with the floor structure. Various guards are provided between this floor and the crew floor to protect control rods and cables.

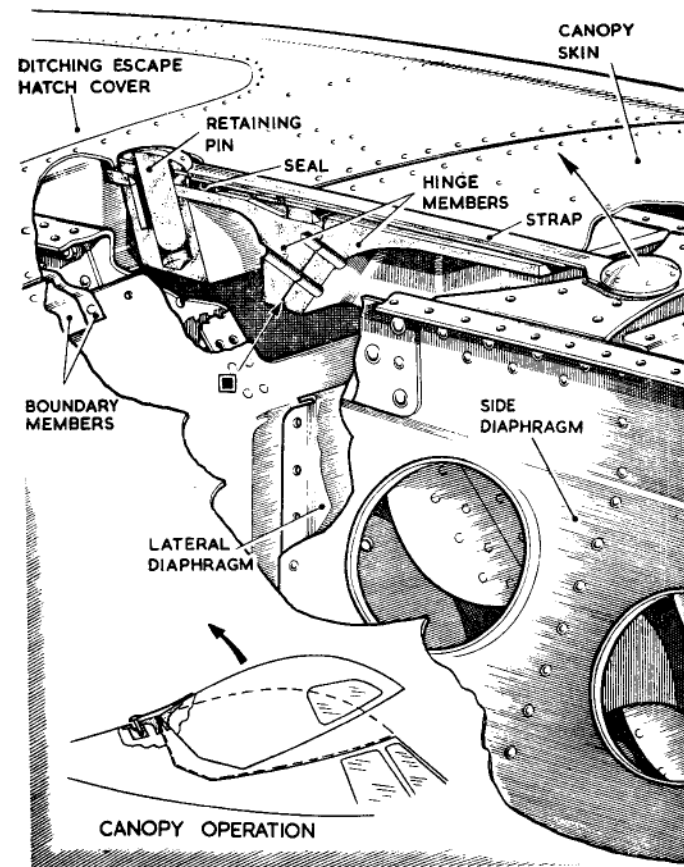


Fig. 4. Canopy release hinge

### Pilots' hooding and canopy

6. The hooding incorporates a multi-panelled windscreen, the panel facing each pilot being provided with a windscreen wiper and de-icing equipment. The panel immediately outboard of each pilot incorporates a direct-vision window. ◀ Post-Mod. 3016, the three element outer surfaces of the pilots' rear side windows are of tempered glass, the adjacent element edge gaps being filled with Thicol P.R. 1221 filleting compound, Ref. No. 33H/191 or 192. ▶ The jettisonable canopy is secured to the pilots' hooding

by 26 explosive bolts (fig. 3). In the canopy outer windows, the gaps between the edges of the perspex panels and the metal frames are filled with Thickol P.R.1422 sealing compound (Mod. 2964). Attached to the hood fairing at the rear of the canopy is the canopy release hinge (fig. 4). To operate the canopy jettison lever, mounted in a box with a spring-loaded cover on both port and starboard consoles, lift the cover and pull the lever upwards. The first part of the travel fires the explosive charges in the canopy bolts, the canopy is jettisoned, pivoting upwards and aft on the release hinge and flies off; the final travel disengages the control column from the elevator controls and throws the handwheel forward to its parked position.

7. If during the first part of travel the canopy fails to eject, microswitches (fed from an emergency battery) are operated and the charges in the canopy bolts are fired during the final travel of the lever. In the event of accidental jettisoning of the canopy, the holes for the new bolts should be bushed (A.P. 4377, Vol. 6). A detailed description of the explosive bolts is contained in A.P.1661F, Vol. 1, Sect. 6, Chap. 6.

#### WARNING . . .

**Detonators must not be handled during removal or replacement. They must be held only by their connecting wires. See also para. 49, sub-para. 12A.**

#### Main entrance door (fig. 5)

8. The door is at the port side of the pressure cabin. When closed the door is locked by eight bolts, four forward and four aft, which slide into housings in the door and are operated by a flush handle (fitted with a Yale lock) on the fuselage beneath and aft of the door, or by a handle in the crew compartment aft of the door, through a series of interconnected levers. ◀ It is essential that the outside door-operating handle is pulled out to the full extent and that it is kept in

this position *throughout the whole of its travel* from the open to the closed position and then finally pushed into the recess. ▶ The door is hinged at the top and swings outwards to open, being held open by a door stay which is stowed across the inside of the door when not in use. The door is sealed pneumatically, a seal round the door being inflated when the door is locked by the action of one of the aft bolts coming into contact with a switch shaft, which in turn opens the air valve on the inside of the door and releases air to the seal. Fitted also on the inside of the door, forward side, is a microswitch, connected to a magnetic indicator on the cabin port side and operated by another of the eight door-securing bolts. When the door is locked this bolt contacts a switch shaft, which trips the microswitch and operates the magnetic indicator, showing white when the door is open and black when it is closed.

9. In emergency the door can be jettisoned, the appropriate black and white striped handle being located aft and level with the top of the door, and connected to the eight securing bolts; the handle is also connected to the door hinge and the windshield release unit by Bowden cable. On operation, movement of the handle withdraws the bolts and hinge pins, and releases the windshield; simultaneously the hinge, connected to a bungee cord in tension moves clear of the windshield and the door is free.

#### Emergency exit windshield (fig. 5)

10. The windshield, semi-elliptical in shape, is of double-stressed skin construction and is pivoted at two points on the fuselage. The windshield is used in conjunction with the entrance door and comes into use when the door is jettisoned. Its purpose is to provide a windshield forward of the exit, to allow the crew to abandon the aircraft in flight. When the door is closed, the windshield is locked within the cabin by a spring-loaded catch on the cabin wall forward of the door, the catch being connected to the door jetti-

son handle by Bowden cable. Fitted to the forward edge of the windshield, and connected to the fuselage, is a tensioned bungee cord. Movement of the door jettison handle, in addition to releasing the door, also frees the windshield release, the tension of the cord pulling the windshield outwards. During this movement, a spring-loaded catch, in the cabin wall forward of the exit, is tripped and released to locate in the windshield when the "out" position is reached.

#### Sextant station

11. The sextant dome (Sect. 1, Chap. 3, fig. 5), mounted in the fairing aft of the pilot's canopy, is hemispherical in shape and constructed of light alloy sheet. The dome interior is lined with Hairlock and covered with Vynide to form a cushion. The dome can be released and removed to form a ditching exit, by compressing the release handles and pulling the dome inwards.

#### CENTRE FUSELAGE (fig. 7/1 and 7/2)

12. The centre fuselage extends from the pressure cabin to the rear fuselage, and includes the nose wheel bay with the servicing bays at each side, the upper and rear servicing bays, and the bomb bay with bomb doors and deflector. The fuselage tanks are housed above the bomb bay in a bay which is entirely enclosed and, when the tanks are in position, has no method of entry. Between Stn. 380 and 653 there is a vertical centre beam which distributes the loads of any stores that may be carried; it also houses five of the loading points, complete with hoist fittings, which provide trunnions for the load-retaining mechanisms when stores are carried. The two longerons are of lipped-channel section. The skin plating is reinforced by closely-spaced stringers; the master stringers No. 5, 16 and 27 are of top-hat section and the remainder of lipped Z-section. The stringer inner flanges are cleated to lipped channel-section frames. Heavier built-up frames are provided adjacent to the wing spar and tail unit attachments.

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**Centre beam inner plane attachments (fig. 10)**

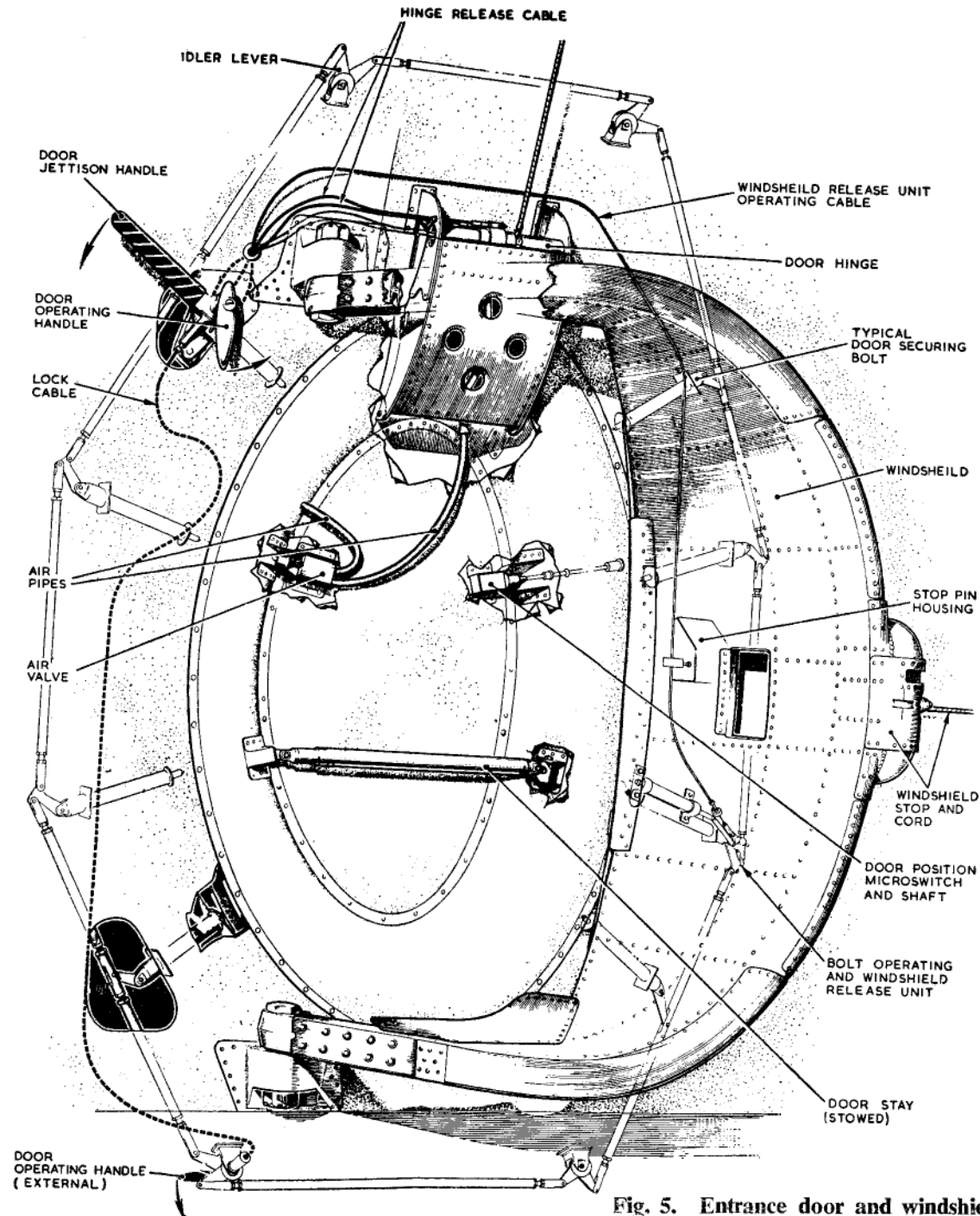
**13.** The inner planes are joined to the fuselage at Stn. 462 and 634. The port and starboard inner plane spar booms are each joined on the aircraft centre-line by a fork-and-tongue joint with three taper bolts. The two outer bolts pick up angle fittings on the centre beam, the other bolt picking up the beam itself; thus the inner plane spars are secured to the centre beam on the aircraft centre line. In addition, each bottom boom is attached by forged links to the adjacent bomb bay roof-and-side wall forged members, the links being joined to the boom by taper bolts.

**Nose wheel bay**

**14.** The nose wheel bay roof is formed by the underside of the upper servicing bay floor structure covered with alloy sheet. The bay side panels are of light-alloy sheet reinforced with vertical lipped channel section members. The following components are housed in the space between the wheel bay side walls and the fuselage skin, access panels being provided in this skin.

<i>Port side</i>	<i>Starboard side</i>
Hydraulic accumulators	Hydraulic pumps
Undercarriage lock switch	Hydraulic accumulators
Pressure system equipment	Air cylinders
De-icing pumps	Hydraulic equipment
Oxygen charging point	Hydraulic and air charging panel
	Nitrogen charging panel
	Nitrogen equipment

**15.** A braced V-shaped tubular structure is anchored at the nose undercarriage trunnion block mounting brackets, with its apex bolted to a bracket on the lower centre portion of the braced frame at Stn. 344-35 to the rear of the nose wheel bay. A vertical H-section member extends from each trunnion block mounting to a transverse channel bracket bolted to the roof of the bay at Stn. 302.5. A similar pair of members is taken from the trunnion block mounting to form an apex at a centre point on the transverse member. A box-sectioned beam carrying the down lock is housed at this apex in a



**Fig. 5. Entrance door and windshield**

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ball joint mounting and extends to the mounting bracket on the braced frame at Stn. 344-35.

#### *Nose wheel bay doors*

**16.** The nose wheel bay is provided with two outward-opening doors. Each door comprises channel section and Z-section boundary members connected by ribs, the whole being covered by inner and outer skin panels. The inner skin is dished locally to provide clearance for the nose wheel when retracted. Each door is attached by three hinges to the wheel bay boundary members, and is opened and closed by a universal-jointed strut connecting it to the nose wheel oleo strut.

#### **Upper servicing bay**

**17.** The upper servicing bay is situated above the nose wheel bay and extends from the pressure cabin rear bulkhead to Stn. 370. Entrance to this compartment is through a hinged hatch in the nose wheel bay roof, the hatch being fitted with a Yale lock. The bay accommodates the following equipment:—

- 112-volt generator control panels.
- 28-volt rotary transformer and control panels
- Type 350 inverters
- Main electrical distribution controls and fuses
- Fuselage fire extinguishers
- Pressurization flood flow intercooler
- Hydraulic tank
- Various radio and N.B.S. units
- Dinghy
- Oxygen and nitrogen cylinders

#### **Rear servicing bay**

**18.** The rear servicing bay extends from the rear spar to the rear transfer tanks. Entrance

to the bay is through a hatch in either the bomb bay roof or the main fuselage to the rear of the deflector; a stepped catwalk is provided along the slope of the deflector bay roof. The bay accommodates the following equipment:—

- Aileron power unit and electrical control panel
- Air brake gearbox and electrical control panel
- Flap gearbox and electrical control panel
- Bomb release and fuzing electrical equipment
- Fuselage fuel system vent system valves
- Water methanol tanks, pumps and filters

**19.** The centre fuselage rear portion, aft of the rear transfer tank, provides fixtures and fittings for the following major items:—

- Flying control rod idle levers
- Flying control artificial feel units, and trim gear
- Rudder/elevator power control unit
- A.R.I.5851 units
- T.4 bomb sight air bottles
- V.H.F. sets

#### **Bomb bay (fig. 11)**

##### *B Mk. 1 aircraft*

**20.** The bomb carrying structure is bridge-shaped in section, the curved roof and bay walls forming the arch of the bridge. Between the walls and the fuselage skin are servicing bays in which the fuel system, flying controls, electrical ducts and air system pipes are run; removable panels in the side walls provide access to these bays.◀To provide for the accommodation of additional cables, the fuselage cable ducts post-Mod. 2859 are in-

creased in size between Stn. 390 and 653.▶ Along the aircraft centre line, between the bomb bay roof and the fuselage top, from Stn. 380 to 653 approx., is a built-up shallow box structure known as the centre beam. This beam distributes the loads of any stores that may be carried (*para.* 12). On No. 6 load point the load is distributed via a transverse box structure between Stn. 712 and 734. Removable access panels for each hoist tunnel are provided on the fuselage top.

**21.** At the forward end and extending across the bomb bay is the shelf which provides fittings for the batteries and their control panels, and carries the isolation switches for ground-safety control of the bomb doors. At the same end, attached to the roof, are two sets of rails (one port and one starboard) for supporting the "window" magazines and fittings for the hoisting ladder. The "window" chutes are fixed through the bomb bay side walls to the fuselage skin between Stn.370 and 400. "Window" chute extensions (Mod. 2803) project into the airstream, ensuring a clean ejection of "window" and preventing particles fouling the various intakes, etc. There are adapters (Mod. 2486) on the bulkhead at Stn. 370 for the bomb bay ground conditioning gear hoses.

**22.** In the roof, crutch pads are provided for bomb carriers (5-store, 1,000 lb., Mk. 1, 2 and 3) at hoist Stn. 2, 3 and 5, fittings for carrier adapters (5-store, 1,000 lb.) being provided at hoist Stn. 1, 4 and 6. At Stn. 521 and 608 are the fittings for removable crutches for the crutch pads of 10,000 lb. stores. At Stn. 509 and 596 there are fittings for snatch plug units and latch plate attachments for a 10,000 lb. M.C. store, the latter being on the aircraft centre line; fittings for the lanyard pack attachment for this store are provided on the aircraft centre line between Stn. 673 and 693. For the No. 1 and No. 2 bomb control panel roles, fittings for the carrier removable crutches are provided at Stn. 550 and 600 on aircraft post-Mod. 2612, 2645, 2646 and 2725. In addition to

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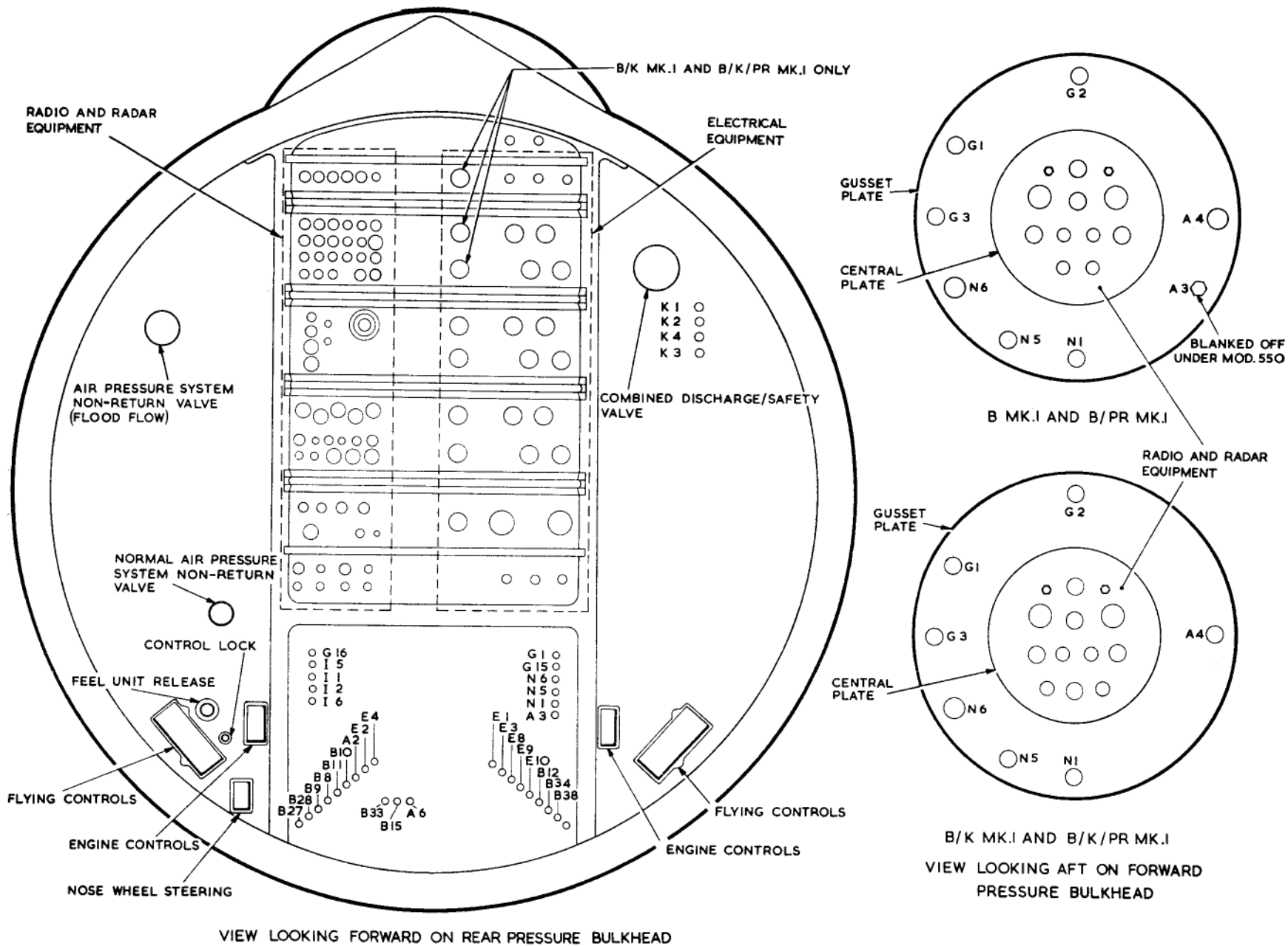


Fig. 6. Pressure cabin services

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**Key to Fig. 6 (Pressure cabin services)****PNEUMATIC SYSTEM**

- A2 REDUCING VALVE TO DOOR SEAL AND CANOPY
- A3 SCANNER PRESSURIZING CYLINDER TO REGULATOR
- A4 SCANNER PRESSURIZING REGULATOR TO DISTRIBUTOR
- A6 T4 BOMB, AIR SUPPLY "ON/OFF" VALVE TO REDUCING VALVE

**HYDRAULIC SYSTEM**

- B8 BRAKE CONTROL VALVE TO PORT BRAKE
- B9 BRAKE CONTROL VALVE TO PORT BRAKE
- B10 BRAKE CONTROL VALVE TO STBD. BRAKE
- B11 BRAKE CONTROL VALVE TO STBD. BRAKE
- B12 BRAKE MOTOR RETURN TO TANK
- B15 PRESSURE FROM CUT-OUT VALVE OR ACCUMULATOR A
- B27 PRESSURE FROM CUT-OUT VALVE OR ACCUMULATOR B
- B28 PRESSURE FROM CUT-OUT VALVE OR ACCUMULATOR D
- B33 PRESSURE FROM ACCUMULATOR C
- B34 PRESSURE LIMITER TO PORT A OF BRAKE MOTOR
- B38 PRESSURE LIMITER TO PORT B OF BRAKE MOTOR

**PITOT AND STATIC SYSTEM**

- E1 STARBOARD PRESSURE HEAD TO INSTRUMENTS
- E2 PORT PRESSURE HEAD TO INSTRUMENTS

- E3 STARBOARD PRESSURE HEAD TO INSTRUMENTS
- E4 PORT PRESSURE HEAD TO INSTRUMENTS
- E8 4-WAY COCK TO V.G. RECORDER (PITOT)
- E9 4-WAY COCK TO V.G. RECORDER (STATIC)
- E10 4-WAY COCK VENT TO ATMOSPHERE

} STATIC

**OXYGEN SYSTEM**

- G1 CHARGING VALVE TO CYLINDERS
- G2 CYLINDERS TO SHUT-OFF VALVE, PORT
- G3 CYLINDERS TO SHUT-OFF VALVE, STBD.
- G15 CYLINDERS TO SHUT-OFF VALVE, STBD.
- G16 CYLINDERS TO SHUT-OFF VALVE, PORT

**DE-ICING SYSTEM**

- I1 TANK TO PUMPS A AND C
- I2 PUMPS A AND B TO RESTRICTER TEE
- I5 TANK TO PUMP C
- I6 PUMP C TO RESTRICTER TEE

**CABIN PRESSURE CONTROL**

- K1 CONTROL UNIT TO VALVE
- K2 COMBINED VALVE AND MANUAL VALVE TO SOLENOID VALVE
- K3 T-PIECE TO SAFETY VALVE CONTROLLER
- K4 SOLENOID VALVES TO CABIN EXTERIOR

**NITROGEN SYSTEM**

- N1 CHARGING VALVE TO CYLINDERS
- N5 CYLINDERS TO SHUT-OFF VALVE, FRONT FUSELAGE
- N6 CYLINDERS TO SHUT-OFF VALVE, REAR FUSELAGE

the above fittings for the various stores, there are brackets along the length of the bomb bay roof for the associated electrical connections. The bomb bay access door is located in the roof between Stn. 813 and 833.

**B/PR Mk. 1 aircraft**

23. In addition to the fittings described in para. 20 to 22, crutch fittings for the camera crate are provided at Stn. 539.4 and 655.5,

and for the flash crate (Night role) at Stn. 746.5 and 793. Provision is made for an additional hoist point (No. 7) for hoisting and retaining the flash crate (Sect. 2, Chap. 5, App. 2). The hatches for the oblique cameras, together with fittings for the camera mountings, are provided in the side walls at Stn. 783; also at the rear of the bomb bay, low down on the side walls, are attachment fittings for the rear fairing (Day role). At the bomb bay forward end, fittings are provided for carriage of the bomb bay tank together with all associated piping and electrical connections.

**B/K Mk. 1 aircraft**

24. In addition to the fittings described in para. 20 to 22, fittings for the H.D.U. support H-beam are provided at No. 6 hoist position, and fittings for fuel and hot air piping, the fairing and H.D.U. deflector are located in the bomb bay roof. To prevent damage to the bomb-bay doors and deflector when the refuelling drogue is let out or drawn in, Mod. 2730 provides for rubbing pads to be secured to the bomb-bay door inner walls and a rubbing strip to the deflector forward edge. On the manhole covers of the bomb bay tank, No. 3 cells, and rear transfer tank, there is provision for fitting turbo-pumps. At the bomb bay forward end, fittings are provided for carriage of the bomb bay tank together with all associated piping and electrical connections. ◀ Post-Mod.2960, fixed fittings (comprising lugs at Stn.390.5 and 498.28, crutch pads at Stn.537.48 and fork brackets at Stn.622) are provided for the suspension of a 4000 lb. freight pannier, hoist beam and auxiliary tank fairing.▶

**B/K/PR Mk. 1 aircraft**

25. In addition to the fittings described in para. 20 and 22, this aircraft embodies the fittings for the PR and Tanker/receiver roles described in para. 23 and 24.

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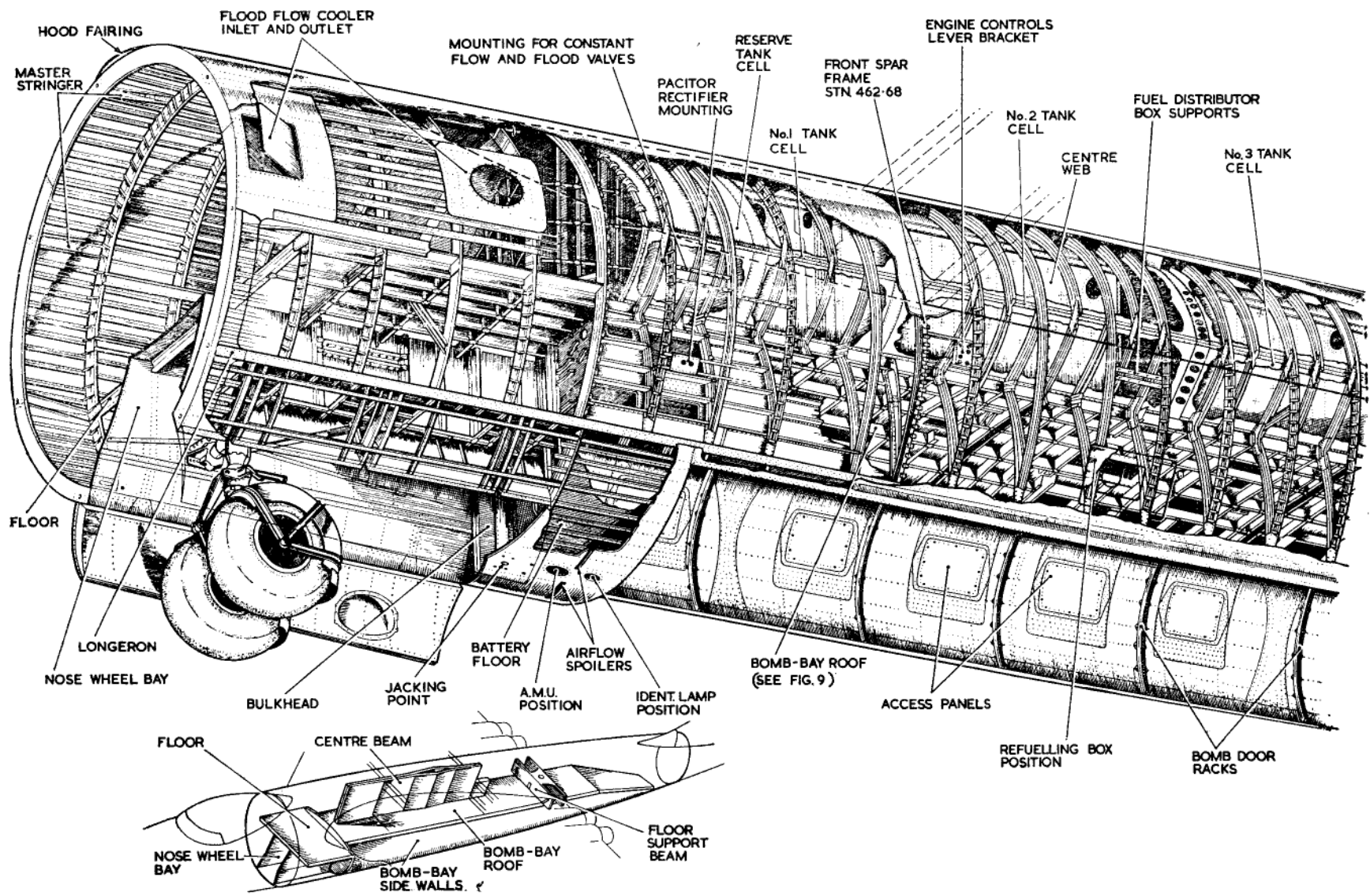


Fig. 7/1. Centre fuselage—front structure

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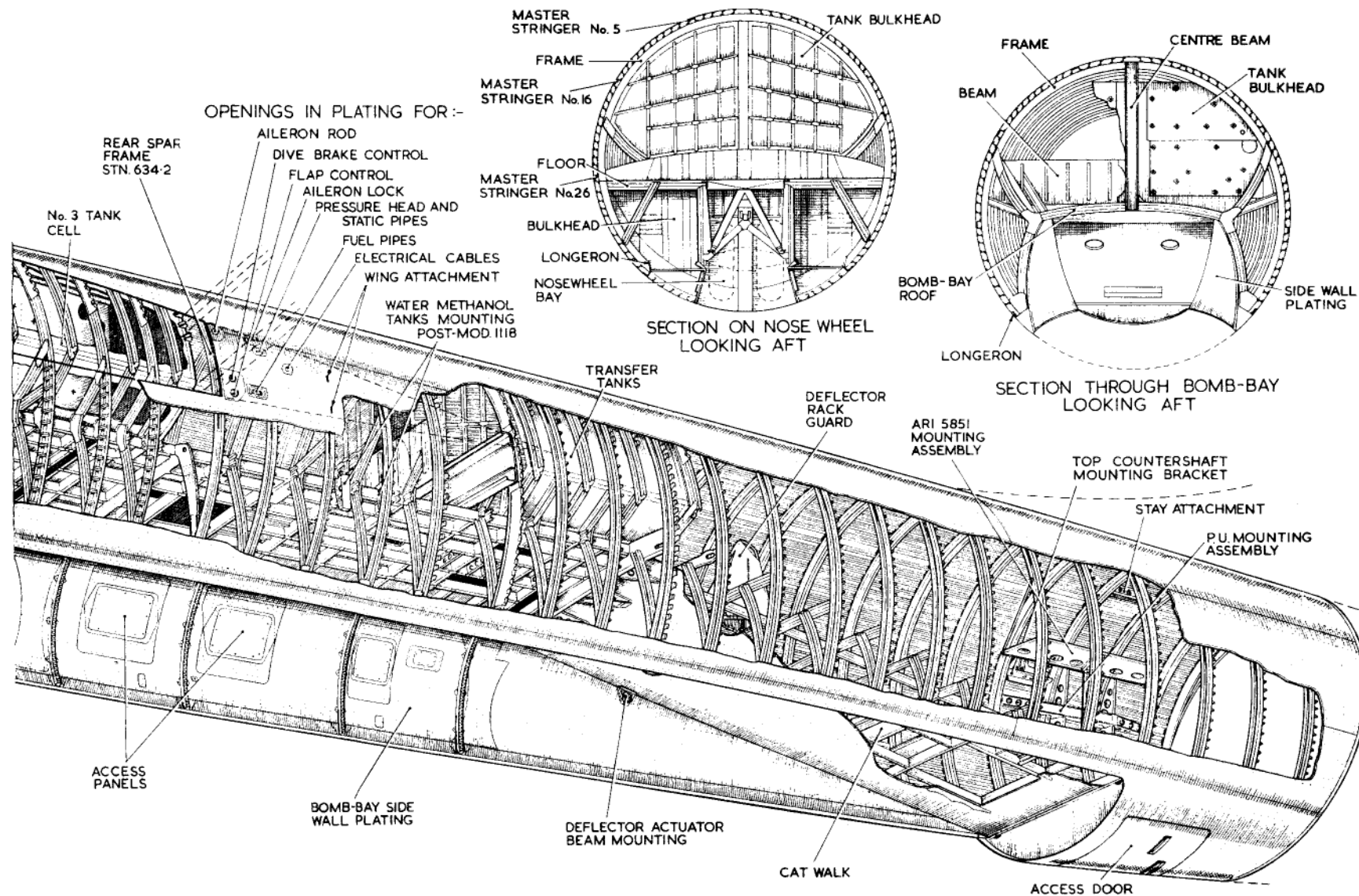


Fig. 7/2. Centre fuselage—rear structure

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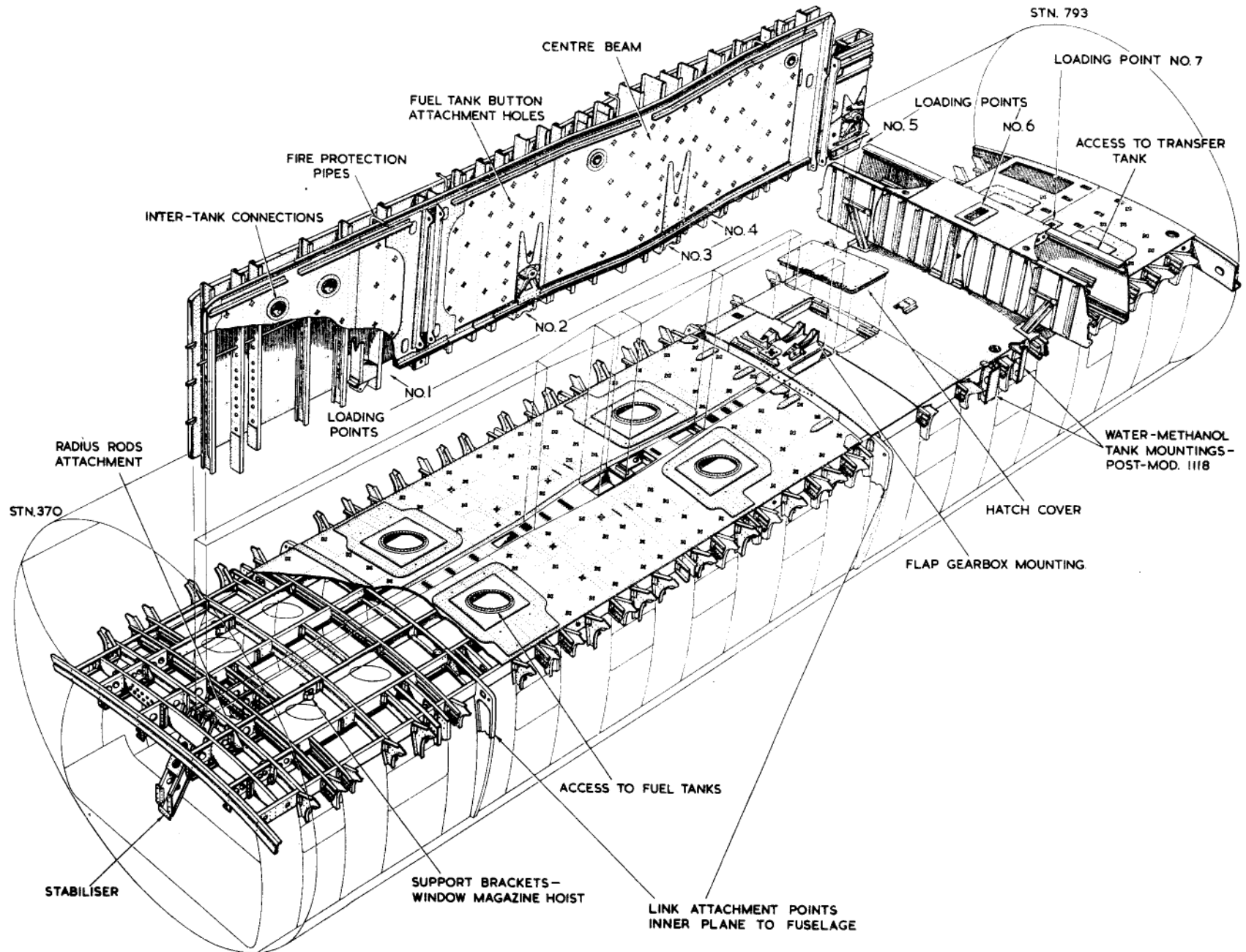


Fig. 9. Bomb bay roof and fuselage centre beam

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end are three switches: a doors SAFE switch, with TRIP and NORMAL positions, enabling the complete door control system to be rendered inoperative in either the OPEN or CLOSED condition; the two door isolator switches with ISOLATE and NORMAL positions, each for port and starboard doors. The latter switches isolate the associated door in the OPEN position only, i.e., they prevent the doors being closed but not from being opened. An indicator lamp adjacent to the trip switch shows green when the door control is tripped.

**WARNING . . .**

(1) The doors SAFE switch and ISOLATOR switches DO NOT prevent operation of the doors by the BOMB JETTISON switch.

(2) After completion of servicing in the bomb bay servicing bays, ensure that the BOMB DOORS switch in the cabin is at OPEN before selecting NORMAL on the door isolator and doors safe switches, otherwise the doors may close on the operator.

29. The door isolator switches enable access to be obtained to the servicing bay at either side of the bomb bay, without having to lower the doors to the "open-servicing" position (fig. 12). Since with the bomb doors open, they completely cover the side wall access panels, to obtain access through the starboard bomb bay side wall it will be necessary to proceed as follows:—

- (1) Open the bomb door.
- (2) Trip the port door in the open position by selecting ISOLATE on the appropriate isolator switch.
- (3) Select bomb doors CLOSED; only the starboard door will close.
- (4) Select the doors safe switch to TRIP (green lamp on); this leaves the port door open so that access can be gained to the starboard equipment bay via the hatches in the starboard wall.

**Note . . .**

To gain access to the port equipment bay proceed as above, but using the opposite switches.

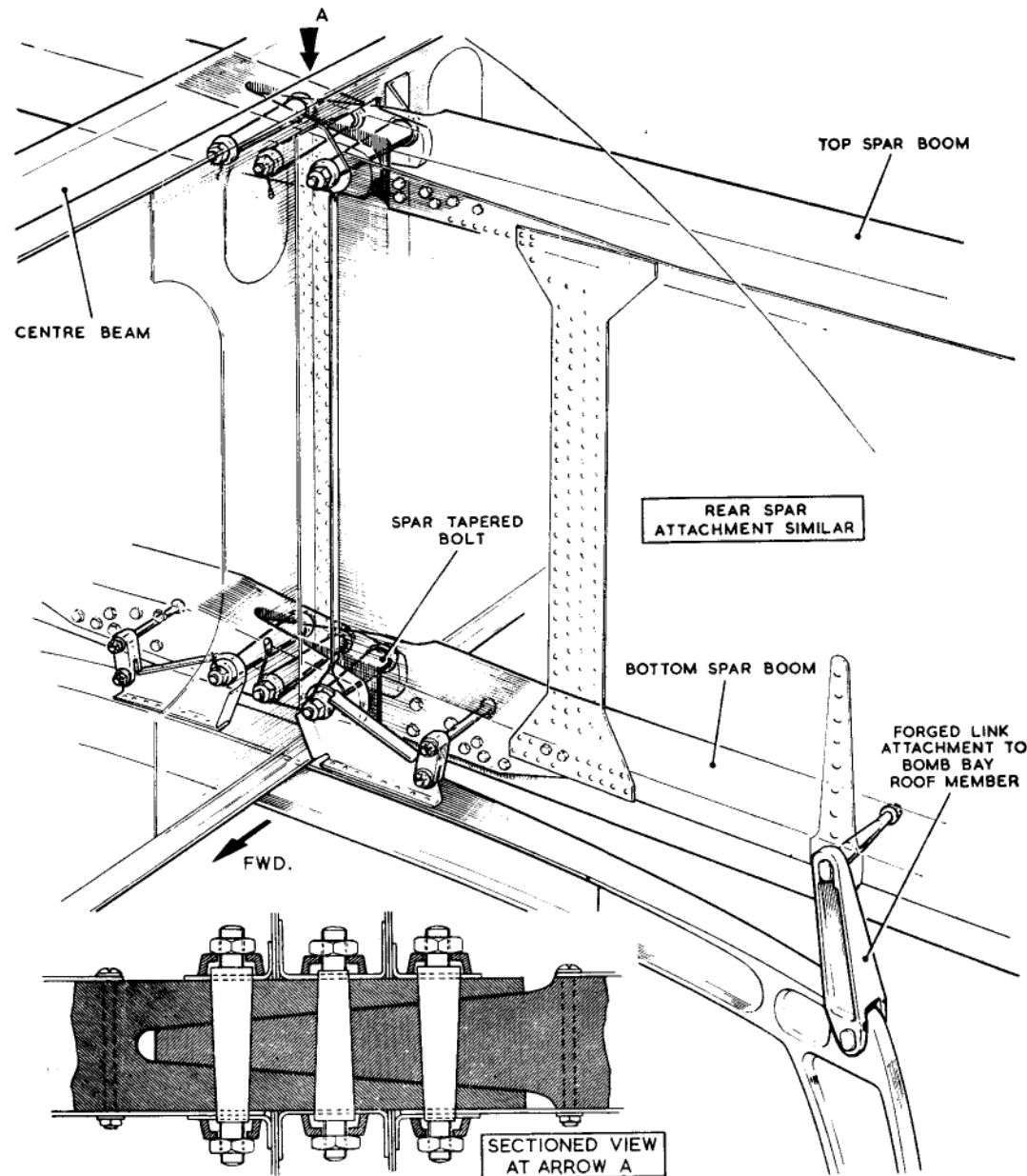


Fig. 10. Attachment of inner plane front spar to fuselage

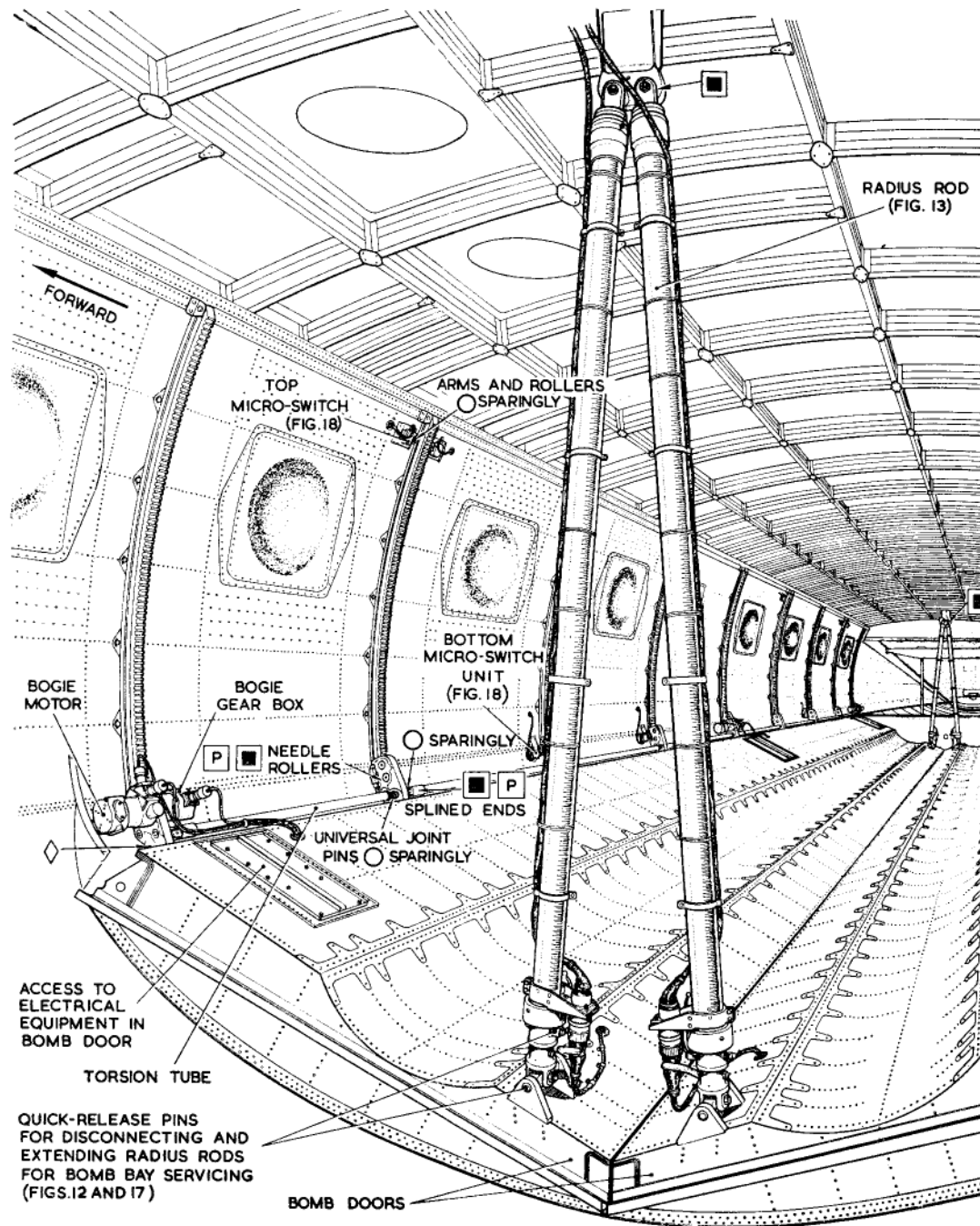


Fig. 11. Bomb bay

**Deflector (fig. 15).**

30. The deflector, situated aft of the bomb bay and extending from Stn. 793 to 973, hinges about two pip pins at its rear end. It is constructed of plate diaphragm ribs, and flanged channel-section members, the whole being covered with light alloy sheet on the outer side only. Mounted centrally at the rear end of the deflector is a di-electric screen constructed of glass cloth bonded with Neuron resin.

**Deflector operating mechanism (fig. 16)**

31. The deflector is raised or lowered by two racks, one each side, which are attached to the deflector main beams. These racks are toothed on two sides and pass through pinion housings which are mounted on trunnions within the cross beam.

32. The crossbeam is a box-like structure freely supported at each end by a trunnion mounting. Housed in the beam are two electric motors, each incorporating a slipping clutch; the motors drive a reduction gearbox from which torque shafts transmit motion to the pinions engaging the racks.

33. When the deflector is in the raised position the racks extend into the fuselage through holes in the fuselage floor, guards being provided to protect them. Micro-switches mounted on the pinion housings switch off the motors when the racks have travelled fully up or down. The slipping clutches prevent the motors being overloaded when the stops on the racks have been reached.

**Airflow spoilers (fig. 20)**

34. Two retractable spoilers are fitted transversely one at each side of the fuselage immediately in front of the bomb bay; they are operated by an IN-OUT switch on the second navigator's panel at the radio crate in the cabin. The spoilers are normally in the raised position inside the fuselage and are lowered only when the bomb doors are open

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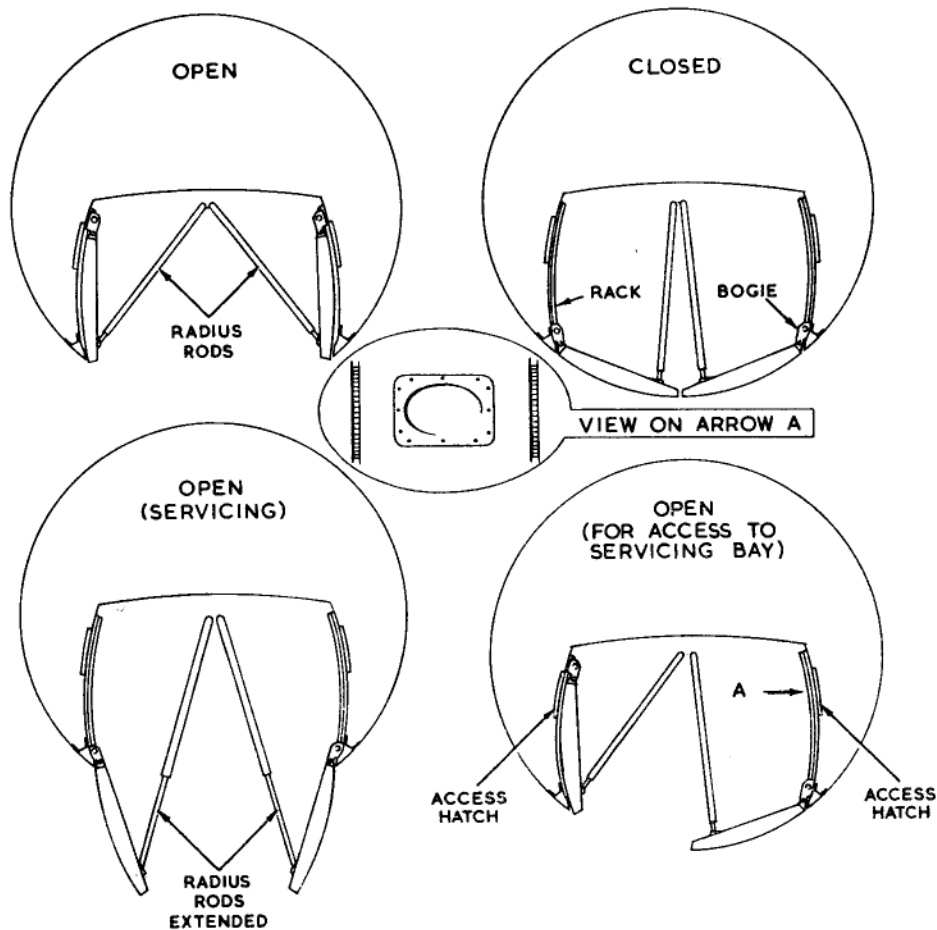


Fig. 12. Bomb door operation

prior to the release of certain stores. Each spoiler, running on roller bearing guides, consists of a cast aluminium flap, the upper end of its aft face being connected by two

operating arms to an actuating shaft mounted in brackets attached to longitudinal members. Each flap inboard lever is connected to an electric actuator having a 3-in. stroke.

### SERVICING

#### Checking and adjusting the nose wheel doors

35. The doors must be adjusted to fit snug and tight in the closed position, with the aircraft supported at the main jacking points. Proceed as follows:—

- (1) With the wheels down and the doors open, disconnect the doors from the operating rods.

- (2) Retract the nose wheels.

(3) Holding the starboard door up tight against the front and rear stops, adjust the door operating rod by turning the fork-end until the securing bolt slips into place.

- (4) Shorten the rod by a final half-turn of the fork-end.

- (5) Mark the setting and disconnect.
- (6) Repeat operations (3), (4) and (5) on the port door.
- (7) Lower the nose wheels and reconnect the door struts.

#### Resetting of windshield mechanism

36. After testing the windshield release mechanism, reset the mechanism under the position indicated by the arrow on the instruction plate and slacken the cable before returning the door jettison handle to its original position.

#### Bomb door settings

37. The bogie slippers should not act as stops with the bomb doors in the open position. The final position of the doors when open, is controlled by the combined adjustment of the microswitch cams and the radius rod lengths. The cams control early or late cut off of bogie motors, and should be adjusted to give the conditions shown in fig. 17, diagram A.

#### Note . . .

*Tests must be made on both NORMAL and JETTISON circuits.*

#### Bomb door checks and adjustments

38. The method of checking and adjusting bomb doors is as follows:—

- (1) Connect the 112-volt and 28-volt external supplies (*Sect. 2, Chap. 2*).
- (2) Make a current consumption check in accordance with Vol. 5, Book 3, Part 1, S.P.292. Check the serviceability of the H.R.C. fuses before refitting.
- (3) Operate the doors to the open position, trip and isolate the starboard door.

#### Notes . . .

(a) *Microswitch operation should be determined by using a lamp and battery.*

(b) *Each microswitch should be set to operate when the switch lever/*

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roller is at mid-position on the cam. In addition the microswitch and its operating lever stop pin must not bottom when the roller is resting on the straight parallel portion of the cam block (Sect. 5, Chap. 2, Group 8, fig. 19).

(c) Each microswitch compression should be between 0.06 and 0.14 in.

(d) Should the switch operating-lever stop pin bottom, the guide slot in the bracket (fig. 18, detail A and C) should be elongated sufficiently to provide a small clearance between the pin and the bracket.

(e) Should a microswitch bottom when all adjustment has been utilized, it is permissible to slot the switch attachment holes in the bracket to provide a working clearance.

#### Bomb doors open

**38A.** (1) With the exception of the normal up-limit cam block at the rear of the port door, make temporary adjustments to the remaining six upper cam blocks Pt. No. 66057-583 and 70657-191 to give a late cut-off, i.e., the cam blocks must be pushed down. At the rack forward of the centre drive motors, measure the gap between the rack slipper block and the rubber stop at the end of the rack slipper guide channel; this should be  $0.10 \pm 0.05$  in. (fig. 18, detail D). If necessary adjust the rear normal up-limit switch cam block until this dimension is obtained.

(2) Ensure that "toe-out" of the port door is satisfactory (fig. 17, diagram A). Check the gap between the door and the structure side wall; if the lower gap is less than that at the top the radius rods must be foreshortened to correct this. The gap at the bottom may exceed that at the top by  $\frac{1}{4}$  in. max. but the gap at the bottom must never be smaller than that at the top.

(3) Disconnect the external 112-volt supply and ensure that the pilot's 96-volt battery switch is selected OFF. Select bomb doors ISOLATE, port and stbd., and bomb doors CLOSE. Select port isolate switch to NORMAL and, with three men manually restraining the door, allow it to lower (close) 3 in. approx. and switch to ISOLATE. Select bomb doors OPEN and manually move the port door towards the open position until the rear normal up-limit switch just operates (para. 38, Note (a) and (b)). When the switch operates, the bomb door brakes will be applied automatically and the door will remain in this position except for a possible slight fall due to backlash in the mechanism.

(4) Disconnect the external 28-volt supply and ensure that the pilot's 24-volt switch is selected OFF.

(5) Adjust the six remaining micro-switch assemblies at the top of the port door racks (sub-para. (1)) by resetting the cam blocks to suit the following conditions:—

(a) The forward normal up-limit switch to operate simultaneously with the rear normal up-limit switch, noting that the forward switch must not operate before the rear but can be delayed up to a maximum of one serration of the adjustable cam block.

(b) The bomb normal supply switch to operate up to and not more than two serrations of the adjustable cam block *in advance* of the rear normal up-limit microswitch.

(c) The bomb gear/door interlock No. 2 switch to operate up to and not more than two serrations of the adjustable cam block *in advance* of the rear normal up-limit switch.

(d) The rear jettison up-limit switch to operate simultaneously with the rear normal up-limit switch.

(e) The forward jettison up-limit switch to operate simultaneously with the rear jettison up-limit switch. The forward up-limit switch must not operate in advance of the rear up-limit switch, but can be delayed by up to a maximum of one serration of the adjustable cam block.

(f) The bomb jettison supply switch to operate up to and not more than two serrations of the adjustable cam block *in advance* of the rear jettison up-limit switch.

(6) Finally check the door closed switches which are operated by double-acting adjustable cam blocks (fig. 18, detail C) to ensure that the roller is resting on the straight parallel portion of the block. If it is not, the adjustment made in operation (5) (c) must be varied slightly to give maximum advance.

(7) Ensure that all items disturbed are secure and correctly locked.

(8) Having ensured that the power supplies and switch operations are correct for the checking and setting procedure for the starboard door, make similar checks to this door as detailed above.

(9) On completion of checks and adjustments as detailed in operation (1) to (8), test both normal and jettison release circuits (Sect. 5, Chap. 2).▶

#### Bomb doors closed

**39.** (1) Set the microswitch to give the earliest cut off (fig. 18).

(2) Measure the gaps between the lower slippers and the rack stops on all racks as follows:—  
With the doors half open, place a gauge (fig. 17, diagram B) in the bottom of the rack slot, and pencil a line on the rack, level with the top of the gauge shown in fig. 17, diagram C. The gauge length

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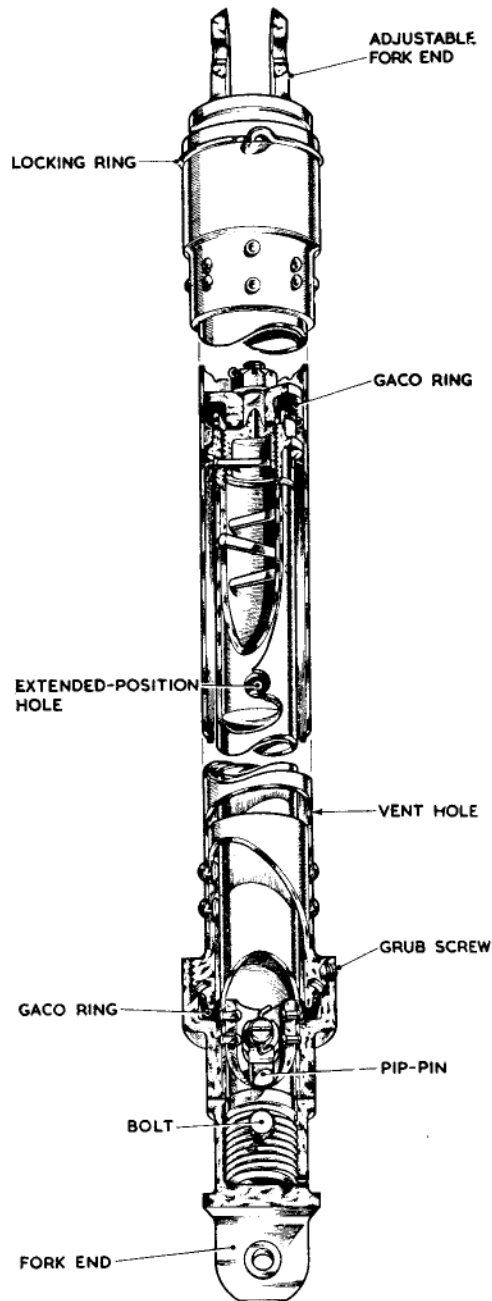


Fig. 13. Bomb door radius rod

corresponds to the overall length of both slippers in the bogie; thus taking each door in turn, the gap between the lower slipper and the end of the rack slot, with the doors in the closed position, may be determined by measuring the distance between the top of the upper slipper and the pencil line.

(3) Note the minimum gap at each door.

(4) Taking each door separately, set the microswitch cams to cut off later by an amount equal to the minimum gap measured on that door.

**Note . . .**

*The pitch of the serrations on the cam setting is 0.08 in. and it is permissible to adjust to the nearest serration in excess of the gap.*

(5) Close the bomb doors and check that a good seal is obtained between the doors at the aircraft centre line, at the fuselage side walls and at the forward ends of the bomb doors. With the bomb doors closed, a good visual indication of correct setting is by checking the gap between the doors (*fig. 17, diagram D*).

**Note . . .**

*Tests must be made on both the NORMAL and JETTISON circuits.*

**WARNING . . .**

**On completion of tests using the BOMB JETTISON switch, ensure that the switch guard is replaced together with its safety pin.**

**Bomb bay deflector settings and adjustments**  
(*fig. 19*)

**40.** The deflector operating racks have the following features to enable the correct settings for the open and closed positions of the deflector to be obtained.

(1) An adjustable eye at the rack lower end for rack length adjustment and setting in the closed position.

(2) Also at the rack lower end an adjustable stop which controls the extreme open position of the deflector.

(3) A fixed stop at the rack upper end.

(4) At the rack lower end, an adjustable microswitch cam which controls the early or late cut-off of the motor on the opening traverse.

(5) At the rack upper end, an adjustable microswitch cam which controls the early or late cut-off of the motor on the closing traverse.

**Note . . .**

*The stops, items (2) and (3), engage slippers assembled on the rack gearboxes.*

**Initial setting of deflector**

**41.** This setting should be carried out with free racks and the bomb doors closed, the latter having been previously set to the instructions laid down in para. 37 to 39.

(1) Place approx. 250 lb. ballast on the deflector, with the torque shafts between the racks disconnected and the upper rack stops 0.1 to 0.12 in. from the upper slippers on the gearboxes, adjust the rack lengths so that the rubber seals at the junction of the bomb doors and the deflector are compressed 0.15 in. all round, and the sidewall seals are good (*fig. 19, diagram A*).

**Note . . .**

*Insert a 12 s.w.g. strip between the stop and the slipper for the above operation.*

(2) Adjust the upper microswitch cam to give the *earliest* possible cut off, i.e. 0.9 in. gap between stop and slipper.

(3) Remove the ballast and raise the deflector to the open position, leaving 0.35 in. gap (*fig. 19, diagram B*) between the deflector bulkhead top edge and the fuselage beam, and ensure that both bulkhead and sidewall sealing rubbers are compressed approximately 0.15 in. all round.

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(4) With the deflector still in this position pencil two lines on each rack at the upper slippers (fig. 15, diagram C).

(5) Lower the deflector and disconnect the racks from the deflector (do not disturb the rack length adjustment). Push the racks up, and with the lower pencil line aligning with the top of the upper slippers, adjust the stops at the rack lower ends so that contact is made with the lower slippers. Lock the stops in this position with the locknuts provided (fig. 19, diagram D). A 0.1 in. gap between the stop and slipper for initial setting of the open position is thus assured.

(6) Lower the racks until the upper pencil line aligns with the top of the upper slipper blocks and adjust the lower micro-switch cams to give cut-off at this position. All initial settings are then complete and the racks may be reconnected to the deflector, and the torque shafts to the gearboxes.

#### Power operation of deflector

42. To check the power operation of the deflector proceed as follows:—

*Test 1.*—Raise the deflector, using the port motor only.

**Note . . .**

*It is important that with the deflector raised to the open position under the power of only one motor, the same conditions shown in fig. 19, diagram B, are obtained. Tests must be made on both the NORMAL and JETTISON circuits.*

**WARNING . . .**

**On completion of tests using the BOMB JETTISON switch, ensure that its guard is replaced together with the safety pin.**

*Test 2.*—Repeat as above but with only the starboard motor running.

**Note . . .**

*If, on the opening traverse, one motor is cutting off earlier than the other, the bottom microswitch cam for that motor should be reset to achieve synchronization.*

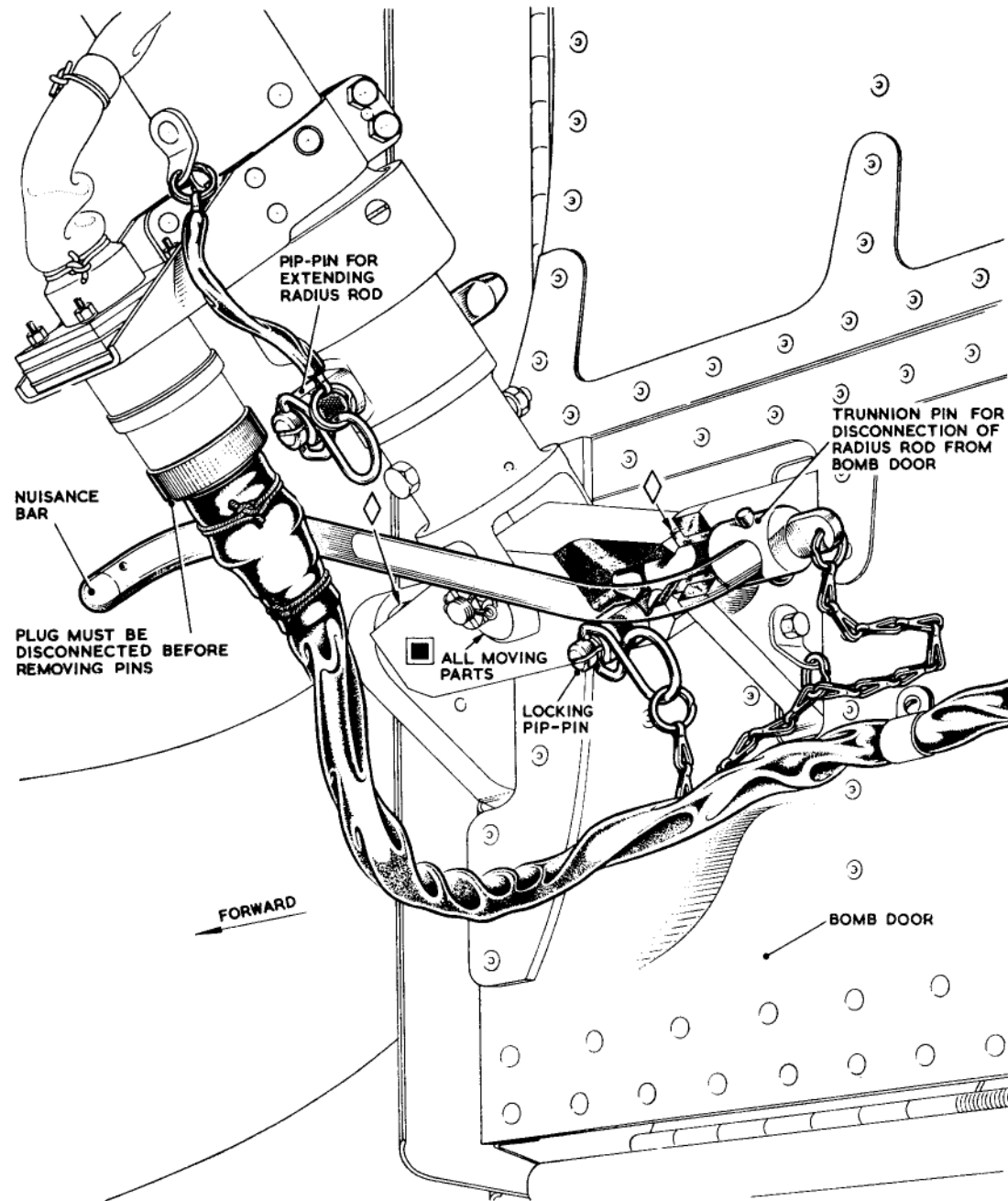


Fig. 14. Bomb door radius rod attachment

**Deflector open and closed positions**

43. With both motors operating, and the deflector powered to the closed position in conjunction with the bomb doors closed (these doors having been previously set to the instructions laid down in para. 37 to 39),

**General**

44. For the recommended methods of slinging the fuselage in various conditions refer to Sect. 2, Chap. 4.

*Removal of scanner bonnet*

45. Proceed as follows:—

- (1) With trestles on each side, obtain access through the hatch in the scanner bonnet starboard side.
- (2) Disconnect the cooling intake duct, the air line for the pressurizing bottle, and the scanner unit electrical connections.
- (3) On B/K Mk. 1 and B/K/PR Mk. 1 aircraft, withdraw the refuelling system vent pipes for the port and starboard forward louvres. Drain the probe piping, disconnect the refuelling pipe brackets and remove the refuelling piping.
- (4) Disconnect the servicing lamp and switch wiring at the connector block on the diaphragm starboard side, aft.
- (5) Attach the sling, Ref. No. 26SR/95128, to the two sling points in the scanner bonnet.
- (6) With the tool, Ref. No. 26SR/9534, release the bonnet-to-structure sheer pins and fasteners; using the screw-driver end of the tool, rotate each shear pin about a half-turn either way when the pin will

check that all the seals are good around the fuselage sidewalls and at the junction of the deflector and bomb doors. Continuity of profile between the deflector and bomb doors must be maintained, and it may be necessary to make a slight final adjustment to the microswitch cams to give a later

cut-off on closing traverse, thus taking the deflector hard down on to the bomb doors. Care must be taken to avoid making the cut-off later than is necessary. Using both motors, operate the deflector to the open position and again check all seals.

**REMOVAL AND ASSEMBLY**

spring out, exposing the mushroom head. Wind the tool handle until its extractor end is clear of the shroud. Place the end over the shear-pin head and wind the tool handle until the shear pin disengages.

- (7) With an operator at each side of the bonnet, lift by means of the hand holes provided and move forward approx. 8 in.
- (8) Remove the eyebolt from its stowage on the davit and screw hard home into the existing hole in the bulkhead starboard side, and turn back the davit to align with the hole in the diaphragm.
- (9) Engage the davit, Ref. No. 26SR/95127, with the eyebolt, drop the ball foot into the hole in the diaphragm, and attach the hoist to the davit outermost eye fitting.
- (10) With an operator on the starboard trestle, attach the hoist lug to the bonnet sling and lift until the bonnet is clear of the structure.
- (11) Rotate the davit until the bonnet is clear of the aircraft, and lower to the ground.
- (12) Remove the davit from the aircraft.

*Removal of radome and diaphragm*

46. Proceed as follows:—

- (1) Remove the H.2.S scanner unit. For details refer to Book 3, Sect. 5, Chap. 7, Group 3.

- (2) Place the sling, Ref. No. 26SR/95278, round the radome and hook the four attachment points to the radome spreader, Ref. No. 26SR/95277.

- (3) Using a crane or lifting device, attach the spreader lifting eye to the crane lifting hook and take the weight of the radome.

- (4) On B/K Mk. 1 and B/K/PR Mk. 1 aircraft, disconnect the probe fuel drain pipe at the bulkhead.

- (5) Disconnect the drain pipe for the scanner cooling, release and suitably stow the electrical cables.

- (6) Remove the four bolts securing each side of the diaphragm to the bulkhead.

- (7) Remove the 2 B.A. screws securing the bulkhead lower half to the radome.

- (8) The radome complete with diaphragm is then free; lower on to a suitable trestle.

**Note . . .**

*Mats., Ref. No. 4G/5417 and 5418, are provided for protecting the radome when removed.*

**Removal of pressure cabin**

47. For details of removal and installation of the pressure cabin see A.P. 4377, Vol. 6, Part 2, Leaflet B.1/1.

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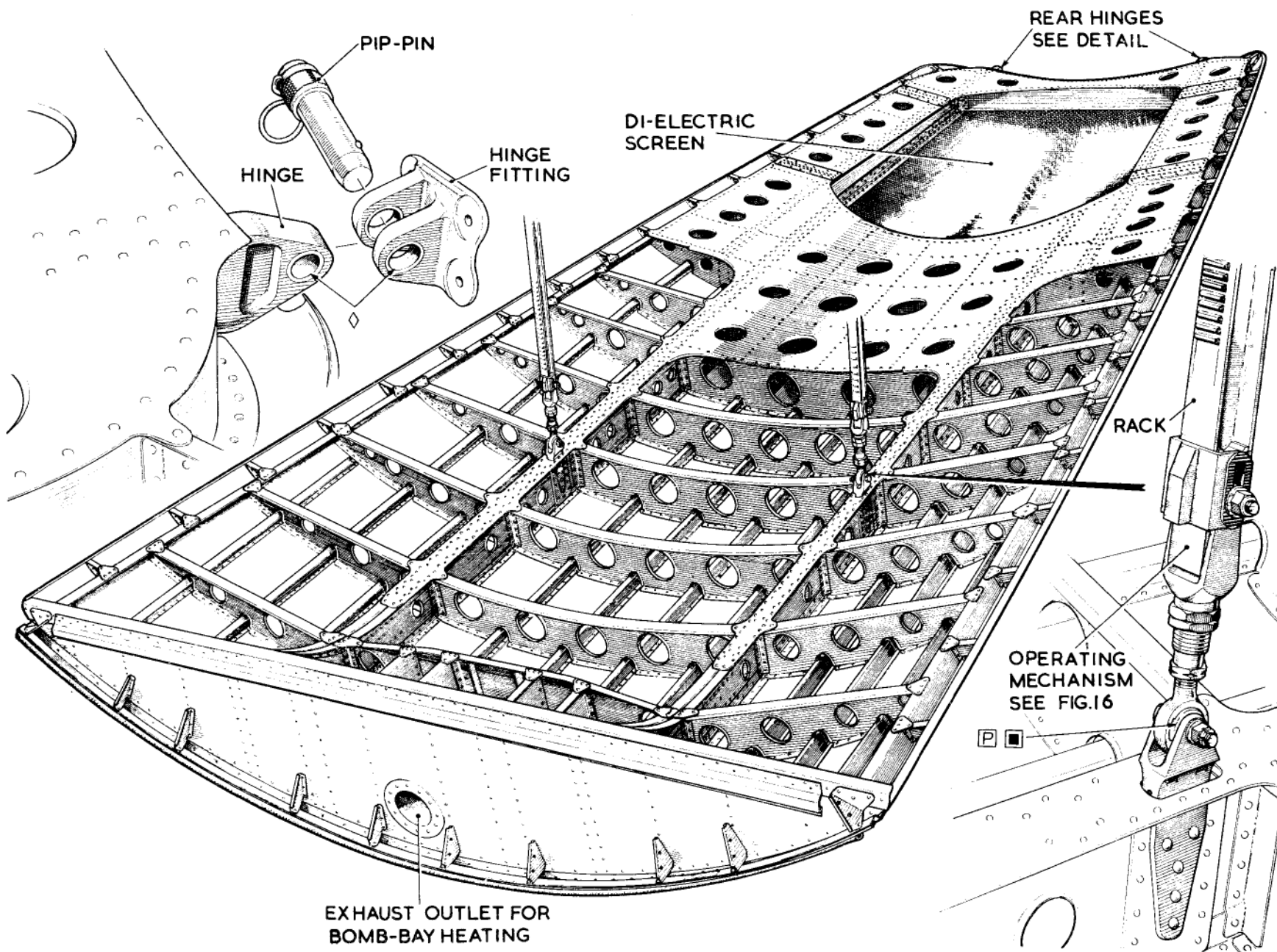


Fig. 15. Deflector

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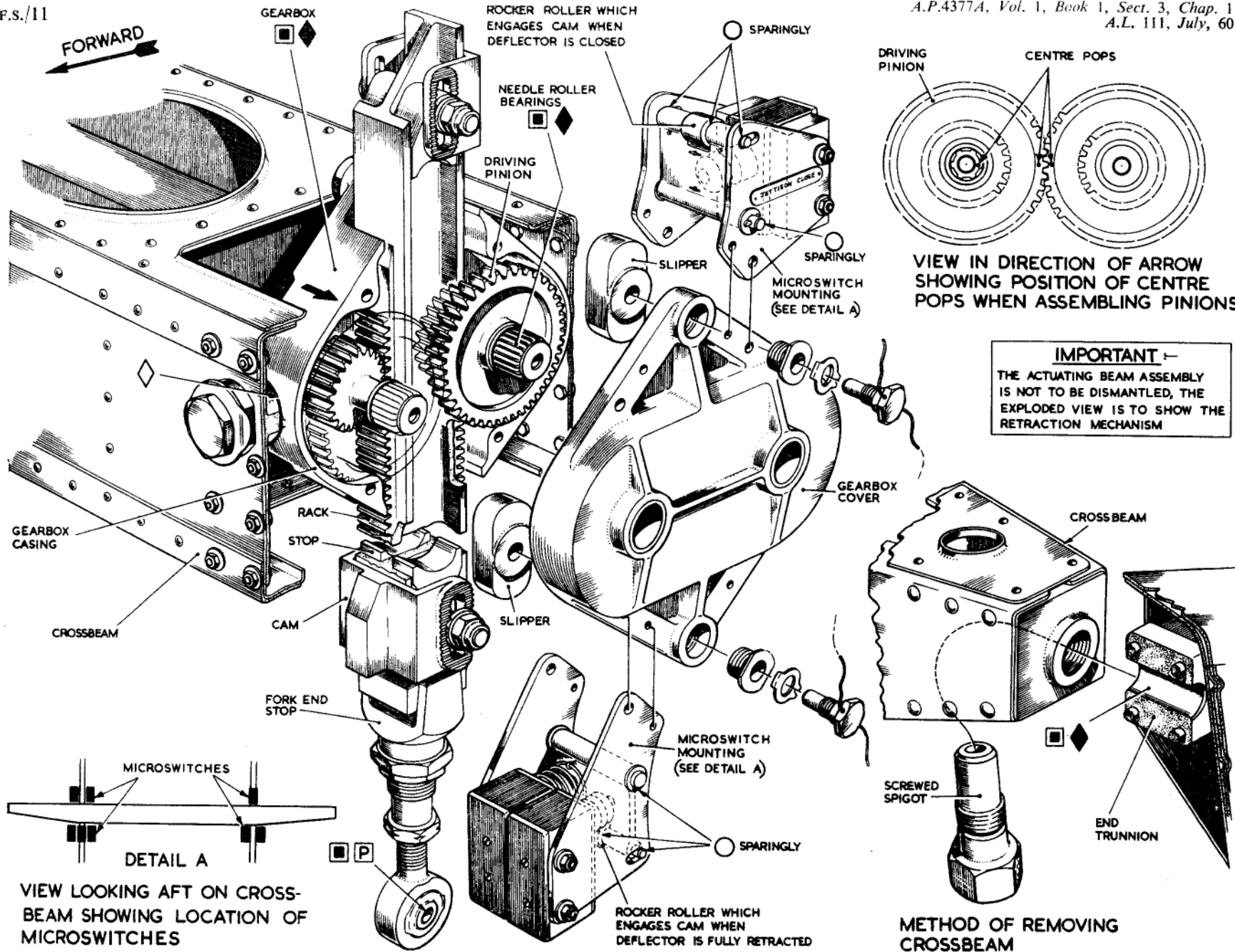


Fig. 16. Deflector operating mechanism, port

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## Removal of canopy

48. Proceed as follows:—

- (1) Disconnect the electrical plug connecting the detonator leads to the resistance box, remove the two 10-amp. fuses from the 3-way fuse box, and disconnect the 24-volt emergency load detonator batteries.
- (2) Release the Dzus fasteners, remove the panels complete with detonator caps from the cabin wall and disconnect the detonator electrical leads at the junction boxes.
- (3) Unscrew the retaining nuts (*fig. 3*) from the explosive bolts and withdraw the detonators.

### WARNING . . .

**Detonators must not be handled during removal or replacement; they must be held only by their connecting leads.**

- (4) Release from its attachments the fuel panel above the windscreen; the electrical wiring need not be disconnected, but the panel must be stowed clear of the canopy, and supported to avoid straining the electrical connections.
- (5) Disconnect the canopy window de-icing and de-misting pipes by pulling the pipes from the rubber connecting sleeves at the rear of the cabin.
- (6) Disconnect the air pipe to the canopy seal.
- (7) Remove the pressure seal retaining strip and the pressure seal.
- (8) Remove the weather seal retaining strip and the weather seal.
- (9) Remove the screws securing the port and starboard outer canopy windows, and remove the windows.
- (10) Remove the split pins and castellated nuts from the explosive bolts.
- (11) Withdraw the 26 explosive bolts and label them to ensure that they are subsequently replaced in the same positions.
- (12) Lift the canopy rear strap and remove the rear hinge pin (*fig. 4*).
- (13) Remove the canopy.

## Refitting the canopy

49. Proceed as follows:—

- (1) Mate the canopy with the cabin sill by raising the canopy forward end approximately 18 in. above the sill, locating the canopy rear strap pin (*fig. 4*) and springing the strap into position in the cabin fitting.
- (2) Lower the canopy on to the cabin sill. Referring to A.P. 4377, Vol. 6, Part 2, Leaflet B.1/2, *fig. 1*, for the bolt positions, fit the explosive bolts as follows:—
- (3) Position the No. 13 port and starboard bolts and lightly tighten.
- (4) Position the No. 12 port and starboard bolts and lightly tighten, check and tighten the No. 13 bolts.
- (5) Position the No. 11 port and starboard bolts and lightly tighten, return to No. 13 and No. 12, check and tighten.
- (6) Continue positioning port and starboard pairs of bolts, returning to No. 13 and No. 12, etc., each time and check tightening in pairs forward until all thirteen pairs of bolts are in position and tight.
- (7) Lock the explosive bolts by split pins.
- (8) Replace the pressure and weather seals and their retaining plates.
- (9) Fit the port and starboard outer canopy windows and replace the screws.
- (10) Connect the de-icing, de-misting and air pressure seal pipes.
- (11) Replace the fuel panel.
- (12) Fit detonators to the explosive bolts, tighten each tensioning nut (*fig. 3*) to a torque load of 300 lb. in. and wire lock.

### Note . . .

*Heed the warning given in para. 48(3).*

(12A) Before fitting the electrical detonators No. 108 to the explosive bolts the operator should touch the structure with both hands to disperse personal "static"; the lead ends should then be twisted together as a safety precaution and the label around each detonator must be removed. After a detonator has been fitted to an explosive bolt it should be checked

for freedom of movement by gently pulling the leads and allowing the detonator to return gently to its fully-home position under the influence of the retaining spring. DO NOT allow the detonator to move under spring pressure alone.

- (13) Lightly tighten the detonator retaining nuts with a *small* spanner.
- (14) Connect the detonator wiring to the junction boxes.
- (15) Replace the panels complete with detonator caps, and secure with the Dzus fasteners.

### WARNING . . .

**At each detonator change, the tensioning nut must be checked for tightness and, if loose, tightened to a torque load of 300 lb. in., the detonator retaining nuts then being lightly tightened with a *small* spanner.**

## Removal of sextant dome

50. Proceed as follows:—

- (1) Disconnect the electrical leads at the sextant station.
- (2) Squeeze together the two pairs of handles on the back-rest tubes, thus releasing the locking pins from the locks on the dome housing, and pull the dome inwards.

## Refitting the sextant dome

51. Proceed as follows:—

- (1) Lift the sextant dome into the dome surround, and position it so that the locking pins align with the locks.
- (2) Squeeze the two pairs of handles, and push the dome upwards until the dome shoulder locates on the rubber seal; at the same time an operator is required on top of the fuselage, to guide the four points of the dome top hinged cover into their locating holes.
- (3) Push the dome well home and release the handles; the pins will locate in the locks.
- (4) Connect the electrical leads.

### Note . . .

*When the cabin is pressurized, the pressure in the cabin forces the dome upwards against the seals, completing the sealing.*

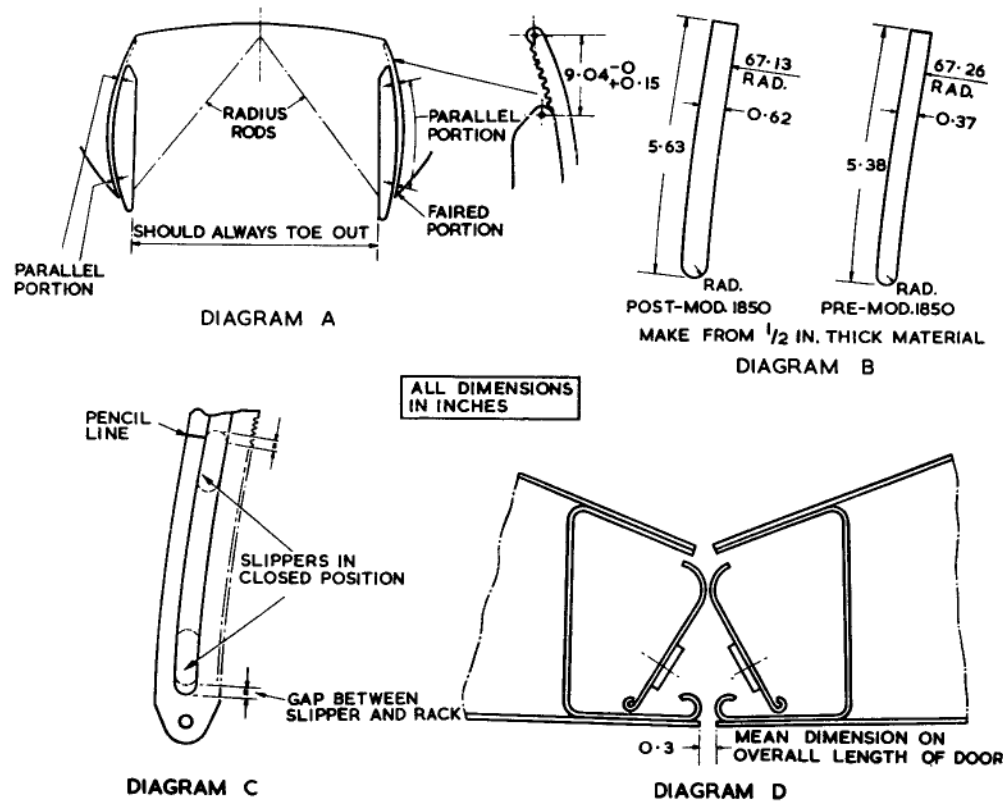


Fig. 17. Bomb door settings

**Removal of cabin entrance door (fig. 5)**

52. Proceed as follows:—

- (1) Release the windshield operating cord at the forward attachment bracket.
- (2) Withdraw the 2-pin quick-release plug to disconnect the door warning circuit.
- (3) At the cock on top of the radio crate port side, turn off the air supply to the door seal.
- (4) Disconnect the air pipe at the rubber sleeve connection.
- (5) Disconnect the Bowden cables from the hinge-pins operating lever.
- (6) With an operator outside to steady

the door, turn the operating handle inside the cabin to withdraw the eight door-securing bolts.

- (7) Turn the hinge pin levers to withdraw the two hinge pins holding the door. The door is then free and can be removed.

**Refitting the cabin entrance door**

53. To refit the entrance door the sequence of operations is the reverse of that given in para. 52.

**Adjustment of entrance door bolts (fig. 5)**

54. With the door open, turn the door handle to the locked position. Check that

the protrusion of each of the eight securing bolts is 1.1 in.; any variation from this dimension necessitates removing the covers of the door-operating mechanism, and adjusting by either shortening or lengthening the appropriate rods until the bolt protrusions are correct.

Note . . .

*After adjusting connecting rods, the protrusion of all eight bolts should be rechecked.*

55. To adjust the setting of the air valve, close the door and turn the door handle to the locked position. Unscrew the nut locking the switch shaft pad, and screw the pad into the position so that, with the switch shaft spring compressed, it opens the air valve. Turn the door handle to the open position and check that the switch shaft has moved back clear of the valve, and the valve is closed. Lock the plunger in position by tightening the locknut.

56. To adjust the setting of the door microswitch, open the door and turn the door handle to the open position. Check that the magnetic indicator in the cabin is showing white, then close the door and put the door handle in the locked position; adjust the pad on the switch shaft so that, with its spring compressed, it pushes against the microswitch until the circuit is broken, and the indicator in the cabin shows black. Again put the door handle in the open position and check that the switch shaft spring has reasserted itself and the plunger is clear of the microswitch, and that the indicator is showing white. Lock the plunger in position by tightening the locknut.

**Removal of deflector**

57. In removing the deflector it is important that the following procedure is adopted.

- (1) Select bomb doors OPEN on the switch in the cabin.
- (2) Select ISOLATE on the isolator switch for the port door only. The two isolator

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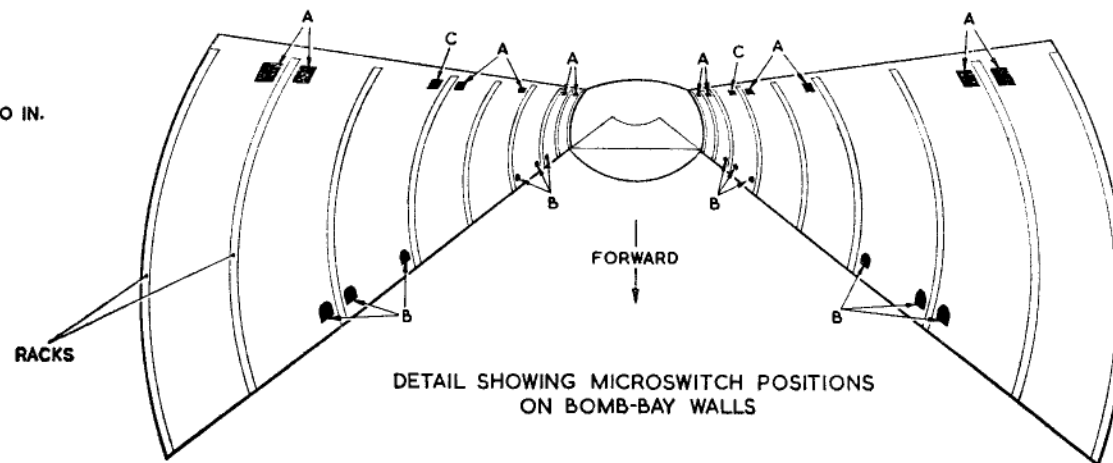
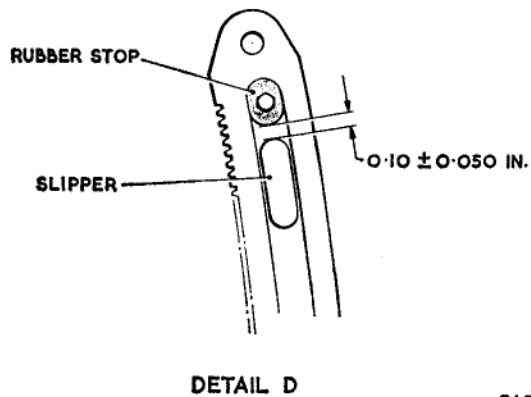
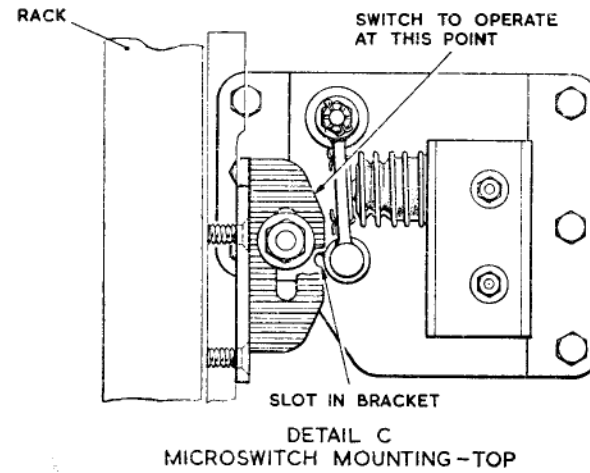
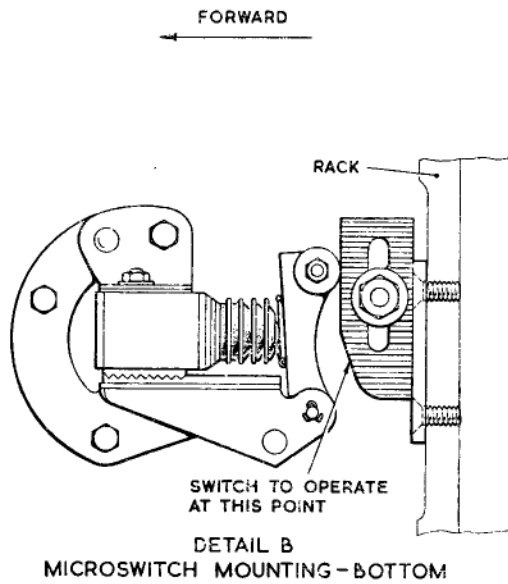
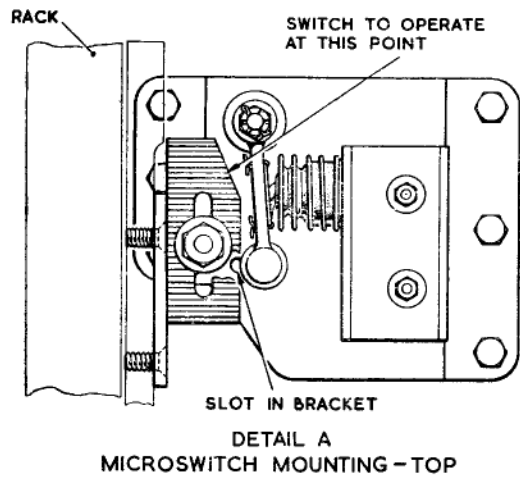


Fig. 18. Bomb door microswitch units

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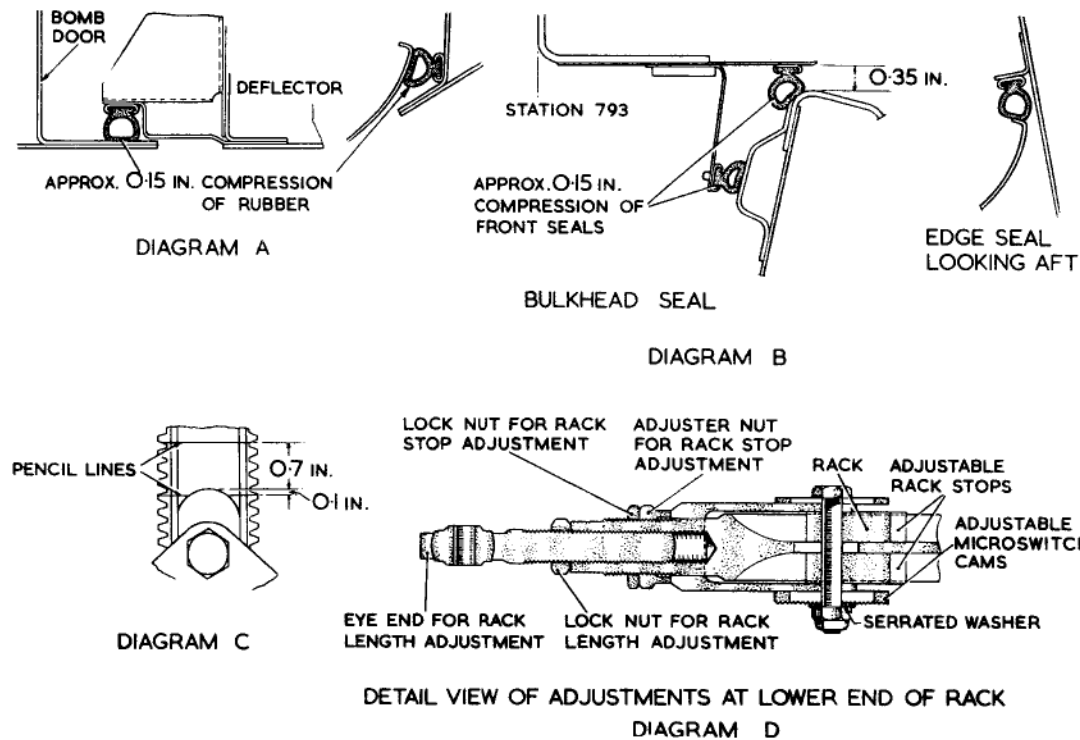


Fig. 19. Deflector settings

switches and the doors SAFE switch are on the panel at the bomb bay forward end, and the selector to isolate the port door ensures that only the starboard door will lower when bomb doors CLOSE is selected.

(3) Select bomb doors CLOSE and move the doors SAFE switch to TRIP. Disconnect the plugs and the starboard door radius rods (fig. 13) and let the door swing free.

(4) Return the doors SAFE switch to NORMAL and select bomb doors OPEN. Return the port door isolator switch to NORMAL and select bomb doors CLOSE.

(5) Move the doors SAFE switch to TRIP, disconnect the port door plugs and radius rods (fig. 13) and let the door swing free.

(6) Suitably trestle the deflector to take its weight when the hinge pins are later withdrawn.

#### Note . . .

*At this point it is necessary for a man to enter the fuselage over the deflector, through the aperture at the end of the bomb bay, to carry out the following operation.*

(7) Remove the two bolts securing the racks to the deflector.

(8) Return the isolator and door SAFE switches to NORMAL, select bomb doors OPEN and switch off when the deflector racks are about halfway up; put the door SAFE switch to TRIP and the isolator switches to ISOLATE.

(9) Detach the di-electric screen from the deflector by removing the peripheral screws.

(10) Reach through the screen aperture and remove the pip pins from the deflector hinges.

(11) The deflector is then free and can be removed.

(12) Refit the di-electric screen to the deflector.

#### Removal of crossbeam (deflector previously removed)

58. It is first essential to support the crossbeam, either manually or by a trestle, then unscrew and withdraw the screwed spigots (fig. 16) from the trunnions, the beam then being free for removal.

#### Assembly of crossbeam and racks before assembly in fuselage

59. If the crossbeam has been stripped for overhaul, the following reassembly and adjustment procedure must be adhered to:—

(1) Assemble the rotary actuator in the crossbeam, with the drive towards the rear of the aircraft. When bolting the actuator mounting clamp in position, ensure that the actuator housing spigot locates in the clamp bracket; wire-lock the bolts when the actuator has been finally secured.

(2) Slide the torque shaft on the rotary actuator splines and leave hanging.

(3) Assemble the gearbox to the crossbeam (fig. 16), secure by the two bolts and lock washers provided and lock the bolts by lapping over the lock washers.

(4) Remove the top stop and cam plate from the racks and slide the racks through the gearbox casing, care being taken to ensure that the racks start on corresponding teeth in the gearbox. For this purpose

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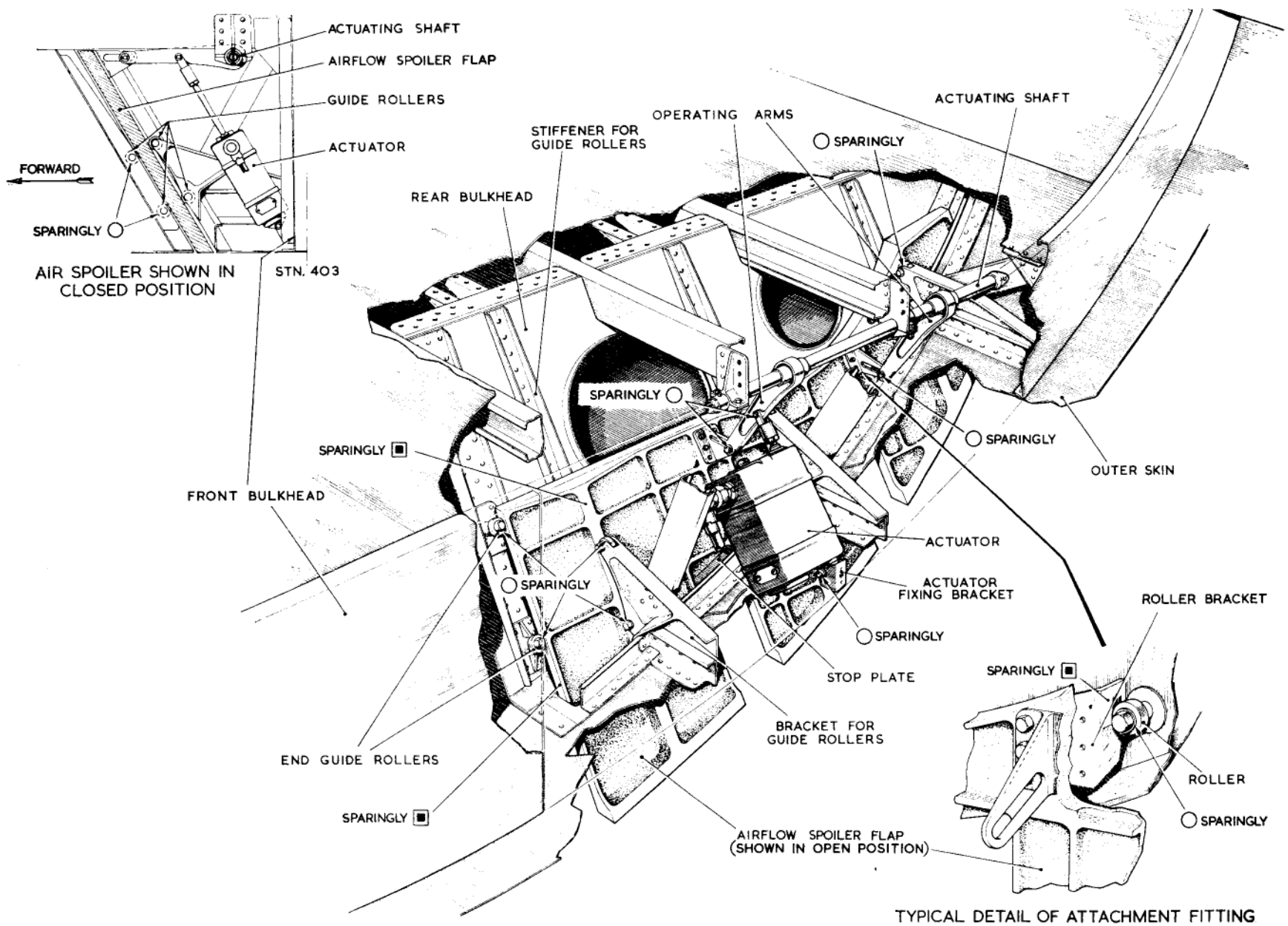


Fig. 20. Airflow spoilers, starboard

centre pop marks are provided as a guide on the end of each driving shaft and on the two pinions.

(5) Refit the stops and cams removed in operation (4).

(6) Lower the racks through the pinion housings until a gap of 0.10 in. approx. is obtained between the top stop on the rack and the corresponding surface on the slipper; a piece of 12 s.w.g. material can be used to obtain this gap. Make a pencil mark on the rack for subsequent reference (para. 60, operation (6)).

(7) Couple the torque shaft to the gearbox with the clevis pin, and lock.

(8) Loosen the bolt holding the cam in position on the rack stop, and lower the cam plate as far as possible. Re-tighten the bolt.

#### Assembly of crossbeam and deflector to fuselage

60. With the bomb doors hanging free (para. 57), the crossbeam and deflector should be assembled to the fuselage in the following order:—

(1) Lift the crossbeam into position in the fuselage and insert the screwed spigots to locate in the side wall trunnions (fig. 16). Tighten and wire-lock.

(2) Disconnect the torque tubes, raise the racks to approximately the deflector OPEN position and secure them.

(3) Detach the di-electric screen from the deflector by removing the peripheral screws.

(4) Lift the deflector through the bomb bay into its position resting on the fuselage seals; place a trestle under the deflector.

(5) Reach through the di-electric screen aperture and insert the deflector hinge pins in position.

(6) Return the racks to the pencilled position (para. 59, operation (6)).

(7) Adjust each rack eye-end to come approximately 0.15 in. below the mating point on the deflector. Lock in this position.

(8) Connect the deflector lugs to the rack eye-ends.

(9) Adjust the stops at the rack lower ends until the deflector, when raised to its full extent, depresses the seals 0.15 in. The cam plates must be at their highest position to ensure the earliest possible cut-off of current to the motor.

(10) Couple the torque tubes to the driving pinion with the clevis pins. Lock the clevis pins with split pins.

(11) Check that the door SAFE switch is at TRIP and the isolator switches are at ISOLATE, then connect up the electrical wiring.

(12) Remove the trestle.

(13) Fit the di-electric screen removed in operation (3).

#### Removal of bomb doors

61. As the doors are operated only one at a time, select ISOLATE on the appropriate isolator switch for the bomb door not being worked upon. Ensure that all personnel and equipment are clear, then proceed as follows:—

(1) From the controls in the cabin, select bomb doors OPEN.

(2) Select ISOLATE on the port door isolator switch, the isolator switches being mounted on the panel at the bomb bay forward end.

(3) Select bomb doors CLOSED and put the door safe switch, at the forward end of the bomb-bay, to TRIP (green light comes on). Place suitable trestles under the starboard door.

(4) Remove the Breeze plugs from the sockets on the starboard radius rods and the motorized bogies.

(5) Remove the quick-release pins from the fork ends attaching the radius rods to the door (fig. 14).

(6) Remove the split pin, nuts and screwed pins connecting the doors to the bogie fittings; the door is then free and should be removed from the area.

(7) Care must be taken to retain the distance pieces fitted at the centre motorized bogie; these are fitted to locate the door fore and aft.

(8) Return the isolator and doors SAFE switches to NORMAL; the port door will immediately close. Repeat operations (4) to (7) to remove the port door, after re-selecting the doors SAFE switch to TRIP.

#### Assembly of bomb doors

62. To assemble the bomb doors to the fuselage, the procedure is the reverse of that laid down in para. 61, care being taken to assemble the distance pieces at the centre motorized bogie hinge.

#### Removal of bomb door bogies and racks

63. Only in exceptional circumstances will the bogies be removed from the racks. In the ordinary course of events, should either the rack or the bogie mechanism become unserviceable they must be returned to stores as one unit. When removing a rack from the bomb-bay wall proceed as follows:—

(1) Disconnect the torque tubes (fig. 11) from each side of the rack.

(2) Remove the top ten bolts, five each side, securing the rack directly to the bomb-bay wall.

(3) Should the rack to be removed be fitted with a motorized bogie, the latter must be raised from its position at the

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bottom of the rack. To do so, plug a 28-volt supply into the 3-pin socket in the bogie (negative to pin A and positive to pin B); this will release the brake, and the bogie can be pushed to a position clear of the remaining attachment bolts.

- (4) Disconnect the power supply.
- (5) Remove the two remaining bolts holding the rack direct to the wall.
- (6) Remove the bottom attachment bolt.
- (7) Remove the top attachment pin; the rack without bogie is then free.

(8) When removing the rack from the bomb-bay wall, care must be taken to note and mark the position of each shim. It is essential that these shims are replaced in the same positions when mounting a new rack.

(9) To remove a rack fitted with a motorless bogie, the above procedure will be adopted except that the 28-volt supply is not required.

#### **Assembly of bomb door bogies and racks**

**64.** To assemble the bomb door bogies and

racks, the procedure is the reverse of that given in para. 63, care being taken to replace the shims in their correct positions.

#### **Removal of nose wheel doors**

**65.** With the aircraft resting on the main and nose wheels, proceed as follows:—

- (1) Disconnect the actuating rod from each door by removing the securing bolt. The doors should then hang free.
- (2) Remove the bolts from the door hinges.



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