CHAPTER 1 WIRELESS INSTALLATION

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Equipment employed

1. The Wireless Installation equipment employed in this aircraft is listed below, together with the relevant Air Publications to which reference should be made for a description and the necessary servicing required to maintain it in an efficient condition.

V.H.F. Installation	
Transmitter/receiver, Type 1985A *(set No. 1)*	*A.P.2528P, Vol 1*
Transmitter/receiver, Type 1986A *(set No. 2)*	
Mounting racks, Type 873/2	
Control unit, Type 382	
Mic-Tel socket, Type 359	
Aerial, Type 229	
Aerial junction box, Type 7089	
Relay unit, Type 125	
Relay box *(D.208212)*	*Hawker design*
Radio Compass Installation	
Radio compass unit, Type R101A-ARN-6	*AN16-30, ARN6-3*
Mounting rack, Type MT274-ARN-6	
Loop aerial, Type AS313-ARN-6	
Heading indicator, Type ID91-ARN-6	
Aerial rod, Type 403	
Control panel, Type C403A/A	
Tele-briefing Installation	*A.P.28769, Vol. 1*
Push-switch, Type 1290	*A.P.4343C, Vol. 1, Book 1, Sect. —*
Indicator lamp, Type A	*A.P.4343E, Vol. 1, Sect. 18*

DESCRIPTION

General

2. This Chapter contains a description of the wireless installation of this aircraft, including the servicing information necessary to maintain the equipment in an efficient condition. Information on the removal of the various components, together with illustrations showing the location and interconnection of the equipment are also included. The Wireless Installation consists of a twin 10-channel V.H.F. installation, with which is associated a tele-briefing installation. A radio compass installation is also provided and a system to give the pilot audio warning of loss of hydraulic pressure is also linked with the V.H.F. installation. The transmitter-receivers and associated equipment are carried in the radio bay in the front fuselage, being remotely operated by control units in the cabin. The V.H.F. installation employs one whip type aerial which projects from the bottom surface of the port outer wing. The radio compass uses an omni-directional aerial, which projects downwards through a hole

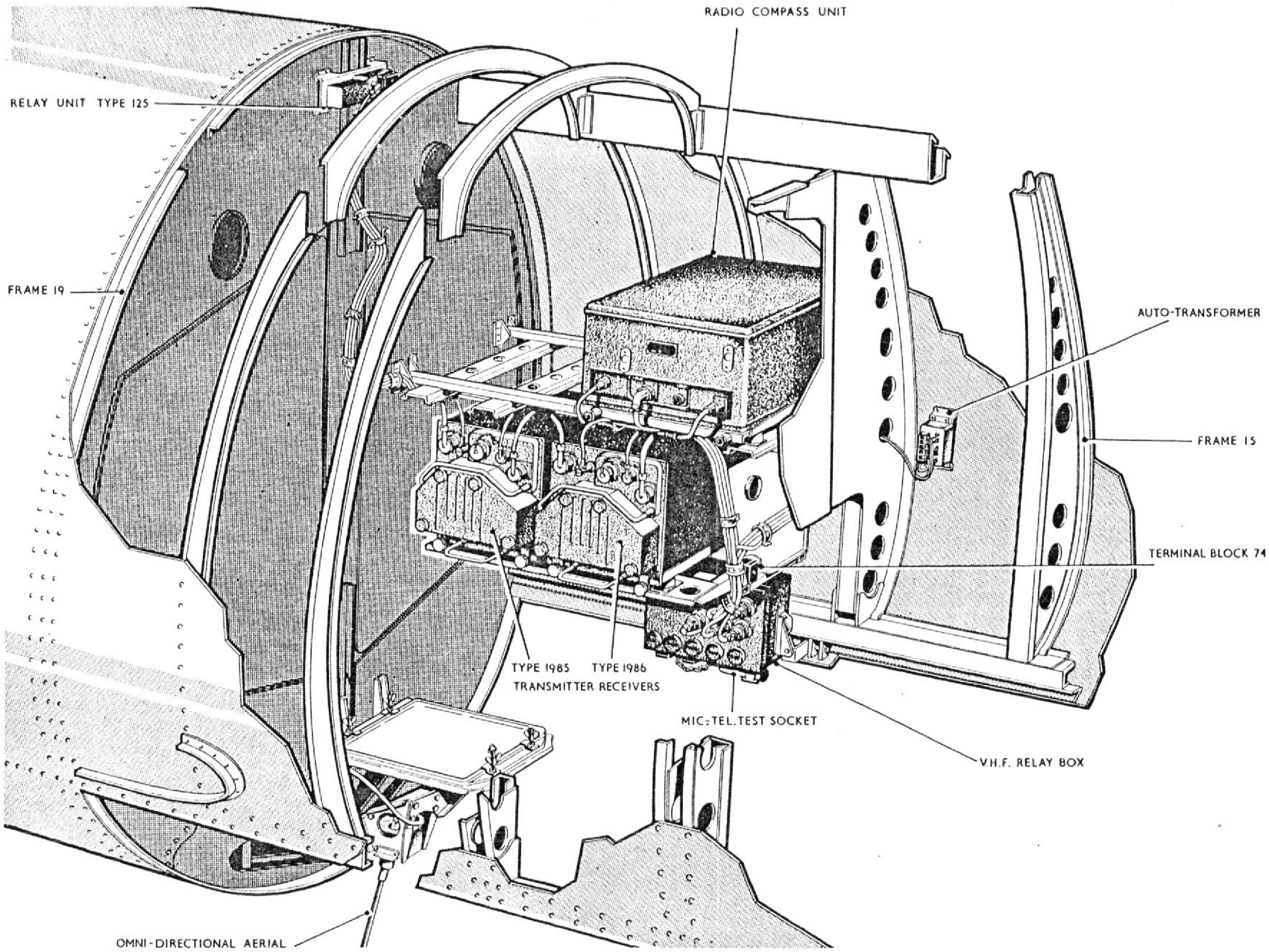

Fig. 1. Location (1)

in the radio bay access doors, and a loop aerial located in the cabin on the starboard side just aft of the pilot. When in use, the external tele-briefing cable engages with a plug located in the undersurface of the rear fuselage. The location of the wireless equipment is illustrated in figs. 1 and 2.

Radio Bay and mounting structure

3. The radio bay is located in the front fuselage and extends aft from frame 16 to the forward transport joint. Apart from the radio sets and their associated equipment, this bay also contains various components of the aircraft electrical system, for example, the electrical supply panel, generator control panel and the batteries. Access to the bay may be obtained by opening the access doors located in the undersurface of the front fuselage immediately in front of the forward transport joint.

4. The radio sets are carried in racks, which are supported on anti-vibration mountings secured to a structure extending along the port side of the radio bay. This mounting structure consists of a number of square tubes, which are bolted together through gusset plates and arranged so as to form two platforms located one above the other. The forward end of the structure is in the form of a diaphragm and the complete assembly is bolted to brackets on frames 16 and 19.

V.H.F. Installation

5. The transmitter-receivers are carried side by side in mounting racks on the bottom platform of the radio mounting structure *(described in para. 4)*. The 1985 transmitter-receiver is known as set No. 1 and is situated at the aft end of the mounting and the 1986 transmitter-receiver, known as set No. 2 is positioned at the forward end of the structure. Each transmitter-receiver is remotely controlled by a control unit, but a single press-to-transmit push-switch is used for both transmitter-receivers. Only one set is employed at any given time, this being selected by a set selector switch. Both remote control units and the set selector switch are situated on the cabin port shelf, while the press-to-transmit push-switch is incorporated in the throttle twist grip.

6. The supply to the sets, the mic.-tel., and press-to-transmit switching from one set to the other is accomplished by a number of relays contained, together with the supply fuses, in a quickly detachable box, known as the V.H.F. relay box; this is mounted on the fuselage bottom longeron below the radio mounting structure just aft of frame 16. A mic.-tel. socket, for use when adjusting the sets, is stowed in a spring clip at the bottom of this relay box. The switching of the aerial, mounted on a small access door in the undersurface of the port outer wing, from one set to the other is accomplished by an aerial changeover relay, which is controlled by the set selector switch and located on the forward face of frame 19 at the top of the radio bay. A mic.-tel. pull-out socket for the pilot's ejector seat connection is located on the port side of the flying control casing.

Tele-briefing Installation

7. The push-switch and indicator lamp for this tele-briefing installation are mounted on the forward end of the cabin port shelf. The external tele-briefing cable, when employed, is connected to a plug mounted on a spring-loaded access door situated between frames 53 and 54 in the underside of the rear fuselage. The control relays for this installation are contained in the V.H.F. relay box situated in the radio bay.

Radio Compass Installation

8. The radio compass installation, shows on an indicator the aircraft heading with relation to a ground radio station and also gives aural indication of modulated radio signals. It is used as an aid to navigation. The installation employs a radio compass unit, which is carried on a mounting rack situated on the forward portion of the top platform of the radio mounting structure in the radio bay. The compass unit employs two aerials, one being an omni-directional whip and the other a loop aerial. The omni-direction aerial is situated at the bottom of the front fuselage adjacent to the forward transport joint. It consists of an aerial rod held in a plastic base attached by brackets to the battery mounting structure in the radio bay. The aerial rod projects downwards through a hole in the radio access doors, being protected by a grommet where it passes through the doors. The loop aerial is carried on an adjustable mounting bracket attached to the structure at the top of the cabin on the starboard side just aft of the pilot's head.

9. The installation is remotely operated by a control panel, which is mounted on the cabin starboard shelf and illuminated by a lamp within the unit. The degree of illumination may be controlled by a lamp dimmer switch situated on a bracket attached to the cabin skin above the control panel. The heading indicator is located on the starboard side instrument panel.

Power supplies and operating frequencies

10. The electrical supply circuits for the radio installations and the operation of the control relays in the V.H.F. relay box are described in Sect. 5, Chap. 1, Group H.1. Information on the hydraulic failure audio warning system is given in Sect. 5, Chap. 2, Group 5A. The frequency range of the Type

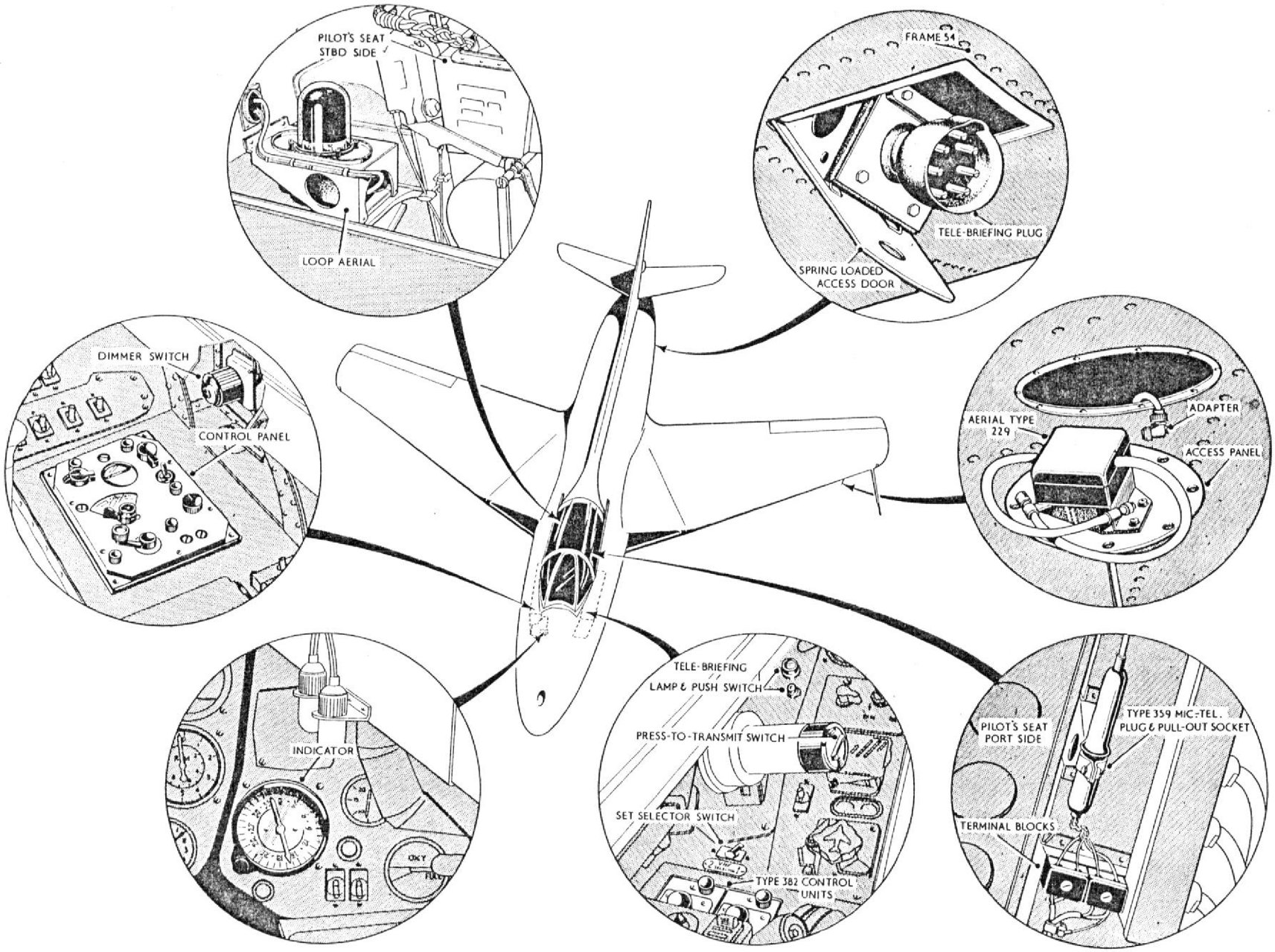

Fig. 2. Location (2)

1985 transmitter-receiver is from 100 to 125 Mc/s and that of the Type 1986 transmitter-receiver extends from 124·5 to 156 Mc/s, thus the V.H.F. installation offers twenty pre-set frequency channels, within this range, for selection by the remote control units. The radio compass installation will operate on any frequency between 100 to 1,750 kilocycles in four switched bands, and the audio signal is fed into the headset of the V.H.F. installation via an auto-transformer located between frames 15 and 16 on the port side of the gun package bay.

Interconnection

11. The various components of the installation are interconnected *(shown in fig. 3)* by a number of connectors, strapped and clipped to the aircraft structure. The connectors are of the metal-braided and non-braided type fitted with standard and miniature plugs and sockets, the metal-braided connectors being bonded where necessary by the clips holding them in position. A wiring diagram of the V.H.F. relay box is given in fig. 4.

OPERATION

V.H.F. Installation

12. The setting-up and operating instructions for this installation are given in the relevant Air Publication *(listed in para.1)*, but for guidance of servicing personnel a brief description of the operating procedure will be found in paras. 13 to 18.

13. The power supply to the installation, together with the aerial, mic.-tel. socket and the press-to-transmit push-switch are normally connected to set No. 1, but may be transferred to set No. 2 by operation of the set selector switch. As all the frequency channels are set up before flight, it is only necessary for the operator to know the relation between these frequency channels and the channel letter coding on the dials of the control units to enable him to select any one of the twenty frequency channels available.

14. With the set selector switch placed in set No. 1 position, rotation of the selector switch knob of No. 1 control unit from OFF to any one of the other ten positions will select No. 1 transmitter-receiver to the channel allocated for that particular position of the selector switch.

15. When switched on, the transmitter-receiver is automatically in the 'receive' condition, thus signals on the selected channel will be heard. When it is required to transmit on the selected channel the operator must depress the press-to-transmit push-switch situated in the throttle twist grip for as long as transmission is required. When the press-to-transmit push-switch is released, the transmitter-receiver will automatically return to the 'receive' condition.

16. When it is required to employ set No. 2, it is first necessary to place the set selector switch to set No. 2 position, as this operation energizes relays C, D and G in the V.H.F. relay box and the relay unit, which in turn transfer the power supply, aerial, mic.-tel. socket, and the press-to-transmit push-switch from set No. 1 to set No. 2.

17. Rotation of the selector switch knob of No. 2 control unit from OFF to any one of the other ten positions will now select No. 2 transmitter-receiver to the frequency channel allocated for that position of the control unit selector switch. This transmitter-receiver is also automatically set to receive and the press-to-transmit push-switch must be pressed for as long as transmission is required. When the push-switch is released, the set will automatically return to the 'receive' condition.

18. When the selector switch knob of the control unit for the set selected is rotated from OFF to any other position, the indicator dial will be illuminated by a lamp within the control unit. The degree of illumination may be controlled by a lamp dimmer control also situated on the control unit. In case of hydraulic pressure failure, the audio warning system, which is controlled by the hydraulic pressure indicator circuit *(described in Sect. 5, Chap. 2, Group 5A)* will come into operation irrespective of which transmitter-receiver is in use or whether it is switched to receive or transmit.

Tele-briefing Installation

19. When the tele-briefing socket at the end of the external cable is mated with the plug on the spring-loaded door in the underside of the rear fuselage, the tele-briefing relays in the V.H.F. relay box are energized. These relays automatically transfer the mic.-tel. sockets from the aircraft transmitter-receivers to the tele-briefing cable. This ensures that spurious responses are not present in the mic.-tel. circuits due to the attenuation by the receiver circuit when operating the tele-briefing installation. At the same time, the indicator lamp is illuminated to indicate that tele-briefing facilities are connected to the aircraft and that information can be received from the system.

20. When speaking over the system, the pilot must keep the tele-briefing push-switch depressed. This push-switch energizes a relay in the tele-briefing building and connects the pilot's microphone to the land line, via an amplifier also located in this building. At the same time, a lamp lights in the building to indicate that the microphones are in circuit. For further information on this system, reference should be made to the relevant Air Publication *(listed in para. 1)*.

Radio Compass Installation

21. The setting-up and operating instructions for this installation are given in detail in the relevant Air Publication *(listed para. 1)* to which reference should be made when information is required.

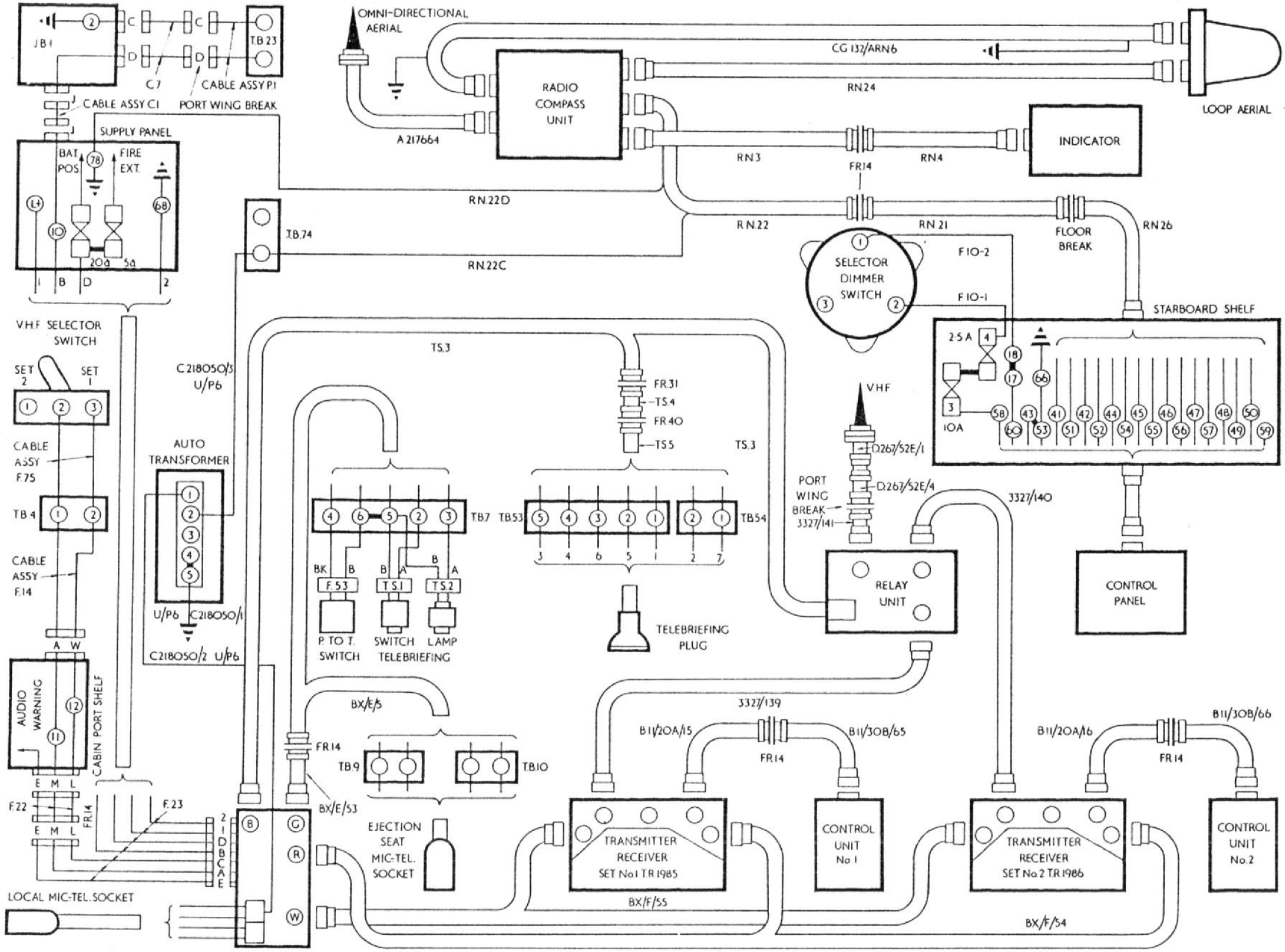

Fig. 3. Interconnection

SERVICING

General

22. Servicing of the wireless installation is fully covered in the relevant Air Publications *(listed in para 1)* but any units suspected of being unserviceable should be carefully checked *in situ* as described in the following paragraphs and if found to be faulty, removed from the aircraft and taken into the workshop for rectification action as necessary. The location of the components is illustrated in Figs. 1 and 2, the inter-connection in Fig. 3 and a wiring diagram of the power supplies will be found in Sect. 5, Chap. 1, Group H.1.

Power supplies

23. If a fault is reported in the wireless installation, the power supplies should first be checked, in conjunction with the appropriate routing and theoretical diagram *(Sect. 5, Chap. 1, Group H.1)* to ensure that the trouble is not situated in the aircraft electrical system. The voltage, both on and off load, must be tested and a check made to ensure that the connectors carrying the supply to the equipment are correctly mated.

Cables and connectors

24. Servicing of the cables and connectors consists of the standard continuity and insulation resistance tests, together with a periodical examination throughout their entire length for any signs of damage to, or deterioration of, the insulation. If any defects are found, the complete cable or connector must be replaced; the Part number references of the connectors are given in fig.3. All the clips securing the cables and connectors to the structure must be examined for signs of looseness and rectified as necessary to prevent chafing. Plug and socket connections must be checked to ensure that they are fitting properly and that the fixings are screwed fully home.

Mic.-tel. test socket

25. To eliminate the necessity of using the pilots mic.-tel. socket when adjusting the wireless installation and to enable the adjustments to be made from within the radio bay, a mic.-tel. test socket, connected in parallel with the pilots socket is provided. This test socket is stowed in a spring clip at the bottom of the V.H.F. relay box and is used in conjunction with a standard headset. It should be noted that, before using this test socket, it is necessary to place the set selector switch to the position corresponding to the transmitter-receiver being adjusted, and to select the required frequency channel by use of the associated control unit.

V.H.F. Installation

General

26. *In situ* servicing of this installation is confined to security and functional checks of the equipment, together with elementary fault-finding. All other operations, including any which demand the removal of covers, require the prior removal of the unit or units concerned to the workshop for servicing as described in the relevant Air Publication *(listed in para. 1)*.

Security check

27. The following checks should be carried out on the various units of the installation, to ensure that the equipment is properly installed and secure:—

(1) Check the tightness of the clamps holding the transmitter-receivers in their mounting racks.

(2) Check the security of the resilient mounts on the mounting racks and ensure that the fixed mounting structure is secure.

(3) Check that the set selector switch and control units are securely mounted.

(4) Check that the V.H.F. relay unit is securely mounted.

(5) Check the security of the aerial.

(6) Ensure that the V.H.F. relay box is securely mounted.

(7) Check that all the plugs and sockets are fitting properly and that the fixings are screwed firmly home.

(8) Check that the test mic.-tel. socket is secure in its clip and that any strain on the pilot's mic.-tel. socket is taken up by the check-cord and not by the cable attached to the socket.

Functional check

28. After the installation has been set-up in accordance with the instructions given in the relevant Air Publication *(listed in para. 1)*, the *in situ* functional check consists of ensuring that each transmitter-receiver and its associated control unit, relays, etc., are operating correctly. The recommended method is as follows:—

(1) Connect a standard microphone and telephone headset to the pilot's mic.-tel. socket.

(2) Place the set selector switch on the cabin port shelf to the No. 1 position.

(3) Switch on the transmitter-receiver by selecting, on No. 1 control unit, a suitable test frequency channel, as previously agreed with the control tower.

(4) If the transmitter-receiver is operating correctly, signals will be heard in the telephones.

Note . . .

It should be remembered that time must be allowed for the set to warm up before signals can be heard.

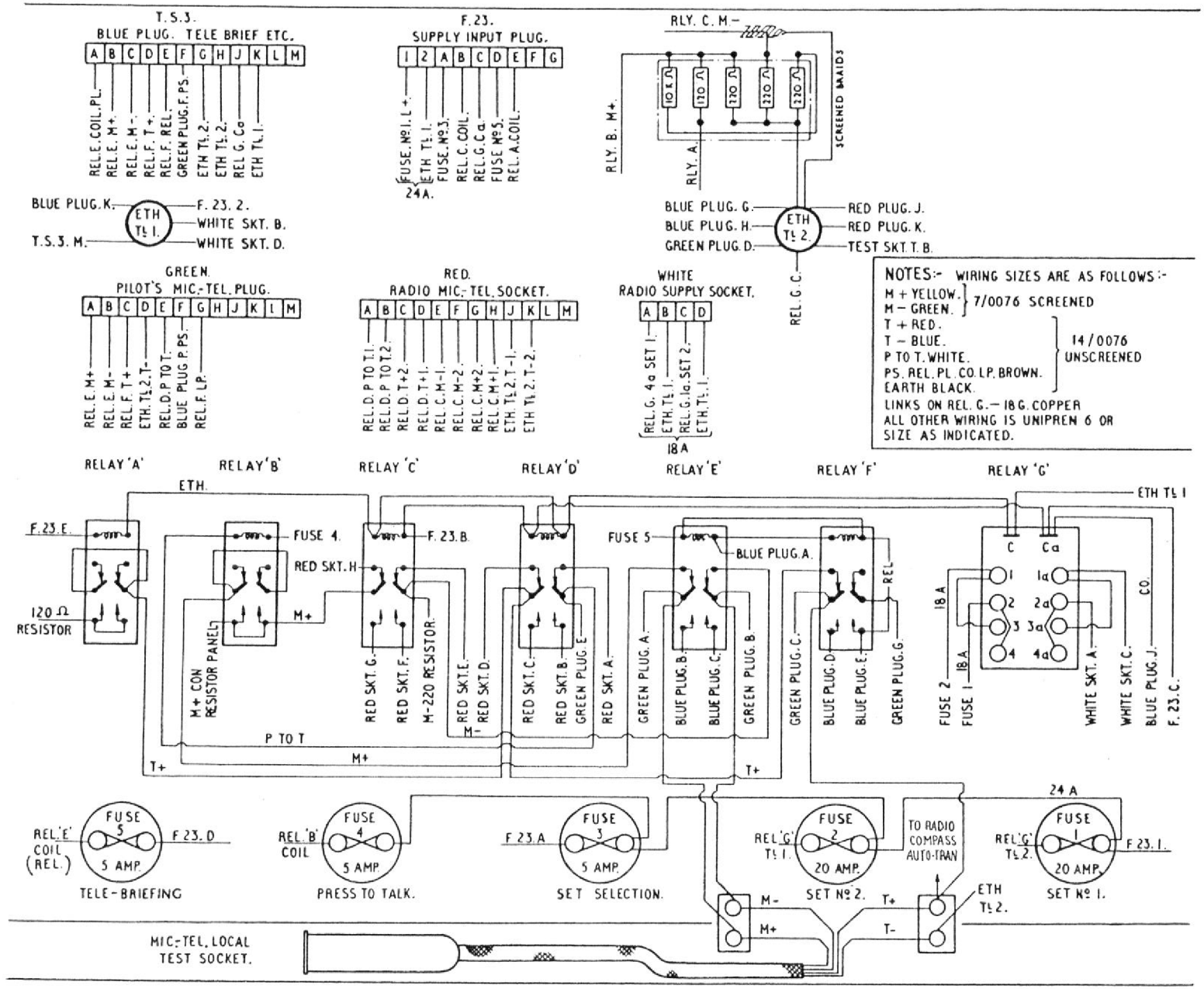

Fig. 4. Wiring of V.H.F. relay box

(5) Press the press-to-transmit push-switch in the throttle twist grip and check that the signals cease.

(6) Still pressing the press-to-transmit push-switch, call up the control tower in the normal manner and ask for a report of your transmission.

(7) To obtain this report, release the press-to-transmit push-switch and signals will again be heard.

(8) Place the set selector switch to the No. 2 position and check that the signals cease. Switch off No. 1 transmitter-receiver.

(9) Switch on Mk. 2 transmitter-receiver by selecting, on Mk. 2 control unit, a suitable test frequency channel, as previously agreed with the control tower.

(10) If No. 2 transmitter-receiver is operating correctly, signals will be heard on this frequency.

Note . . .

It should be remembered that time must be allowed for the set to warm up before signals can be heard.

(11) Repeat operations (5) to (7) to check that No. 2 transmitter-receiver is transmitting correctly.

(12) Place the set selector switch to the set No. 1 position and check that signals cease. Switch off No. 2 transmitter-receiver.

(13) When the test is completed, remove the microphone and telephones from the pilot's mic.-tel. socket.

Fault finding

29. If a fault is reported, a careful test should be made, *in situ*, in an attempt to locate the faulty unit. Before any other tests are made, the low tension source should be checked, the tightness of the connectors ensured and the voltage, both on and off load, tested. Any unit found to be faulty should be taken to the workshop for testing and repair. For full details of the fault finding and testing procedure, reference should be made to the relevant Air Publication *(listed in para. 1)*. If the radio relay box is found to be faulty, it should be removed from the aircraft and replaced with a fully serviceable item. The faulty box should then be taken to the workshop for testing and repair and then returned to store to be held as spare. When the aircraft is undergoing its Minor Servicing this box should be removed from the aircraft for a thorough check and adjustment to ensure that its operation is reliable in service.

Tele-briefing Installation

General

30. For a detailed description of the servicing necessary for the tele-briefing installation, reference should be made to the relevant Air Publication *(listed in para. 1)*.

Radio Compass Installation

General

31. *In situ* servicing of this installation is confined to security and functional checks of the equipment, together with elementary fault-finding. All other operations require the prior removal of the unit or units concerned to the workshop for servicing as described in the relevant Air Publication *(listed in para. 1)*.

Security check

32. The following checks must be carried out on the various units of the installation to ensure that the equipment is properly installed and secure:—

(1) Check the tightness of the clamps holding the radio compass unit in its mounting rack.

(2) Check the security of the resilient mounts on the mounting rack and ensure that the fixed mounting structure is secure.

(3) Check that the control panel and its lamp dimmer switch are securely mounted.

(4) Check that the indicator is securely mounted.

(5) Check the security of the aerials. Inspect the loop aerial housing for damage, replace if cracked.

(6) Check that all the plugs and sockets are fitting properly and that the fixings are secured firmly home.

Functional check

33. After the installation has been set-up in accordance with the instructions given in the relevant Air Publication *(listed in para. 1)*, the *in situ* functional check consists of ensuring that the radio compass unit and its associated components are operating correctly. The recommended method is as follows:—

(1) Connect a standard microphone and telephone headset to the pilot's mic.-tel. socket.

(2) Place the function switch to the ANT position.

(3) Place the LIGHTS switch to the HI and LO positions to check the operation of the lamps by noting the illumination of the dial and tuning meter. Check function of lamp dimmer switch and ensure that serviceable spare lamps are fitted.

(4) Tune through each band in turn and check the operation of the tuning meter, VOLUME control, CW-VOICE switch and band switch.

(5) Place the function switch to the LOOP position.

(6) Operate the LOOP L-R switch and observe the indicator for direction and speed of loop rotation, which is controlled by direction and amount of LOOP L-R switch rotation respectively. Check for smoothness of rotation at both high and low speeds, taking into consideration small variations resulting from deviation corrections.

(7) Tune in a station and check that, during 360 degrees rotation of the loop, two nulls are indicated. Nulls may be identified by reduction in volume of the audio signal and a dip, towards the left, of the tuning meter pointer.

(8) Place the function switch to the COMP position and tune in a station. Observe the indicator reading. Set the function switch to the LOOP position and operate the LOOP L-R switch until the indicator pointer is 175 degrees clockwise from the station bearing position. Turn the function switch back to the COMP position and observe the time it takes for the indicator pointer to return to the station bearing. This should be approximately 5 seconds for a moderately strong signal. Repeat this check, rotating the indicator pointer to a position 175 degrees counter-clockwise from the station bearing.

(9) Repeat operation (8) on each band using stations whose bearings are known. The indicator should show the correct station bearing with respect to the aircraft heading.

(10) Place the function switch to the ANT position, and with the installation tuned between stations, check for intermittent or noisy reception by jarring or vibrating the control box, transmitter-receiver and connecting cables.

(11) Switch off the installation by placing the function switch to the OFF position.

Fault-finding

34. If a fault is reported, a careful step-by-step test should be made, *in situ*, in an attempt to locate the faulty unit. Before any other tests are made, check the low tension source and the tightness of the connectors supplying the equipment. Any unit found to be faulty should then be taken to the workshop for testing repair. Full details of the recommended fault-finding and testing procedure will be found in the relevant Air Publication *(listed in para. 1)*.

Final check

35. After servicing the wireless installation, ensure that all the equipment is left switched off and that all access doors, removed to gain access to the equipment, are correctly replaced and secured.

REMOVAL AND ASSEMBLY

General

36. The recommended procedure for removing the majority of the components which comprise the wireless installation is given in the following paragraphs. The method of assembly is, in general, the reversal of the removal sequence, but when there is any special assembly feature it is covered by a note in the appropriate paragraphs. Before removing or replacing any component, the aircraft must be rendered electrically safe *(as described in Sect. 5, Chap. 1, Group A.1)*.

Transmitter-receivers 1985 and 1986

37. The recommended method of removing these transmitter-receivers is as follows:—

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

(2) Disconnect the connectors from transmitter-receiver 1986, fit approved caps and covers to the plugs and sockets. Stow the connectors clear of the set.

(3) Unscrew the two knurled screws at the front of the mounting tray and allow these to drop clear of the retaining catches on the set.

(4) Disengage the spigots at the rear of the transmitter-receiver from the mounting tray by using the handles to withdraw the set along the tray. Still using the handles, carefully remove the set from the aircraft.

(5) Repeat the above procedure for the removal of transmitter-receiver 1985.

Type 125 relay unit

38. To remove this relay proceed as follows:—

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

(2) Disconnect the two leads of cable assembly TS.3 from the terminal block on the relay unit.

(3) Disconnect the three connectors from the input and output sockets on the relay unit.

(4) The relay unit may now be removed by unscrewing the four screws securing the unit to the bracket on frame 19.

V.H.F. relay box

39. This box is designed for easy removal, being supported on quick-release mountings. The recommended method of removing the box is as follows:—

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

(2) Disconnect all the connectors from the relay box, fit approved caps and covers to the plugs and sockets and stow the connectors clear of the box.

(3) Remove the two bolts passing through the mounting lugs located one on each side of the box and release the box from its attachment brackets by withdrawing it downwards to disengage the locating hooks.

(4) The relay box may now be removed from the aircraft, complete with mic.-tel. test socket.

Type 229 aerial

40. The recommended method of removing this aerial, complete with the matching stub, is as follows:—

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

(2) Remove the ten countersunk-head screws from the periphery of the aerial access panel in the underside of the port outer wing.

(3) Withdraw the access panel and aerial downwards to gain access to the aerial connection adapter above the aerial unit and disconnect the aerial connector from the adapter.

(4) The access panel, complete with aerial unit, may now be removed by releasing the balloon cord.

(5) To remove the aerial unit from the panel it is necessary to release the mounting bracket by unscrewing the four stiffnuts from the bolts securing the bracket to the panel, taking care to retain the six washers. The aerial and mounting bracket may now be removed from the panel by withdrawing the aerial rod through the rubber grommet.

(6) To remove the aerial unit from the mounting bracket, unscrew the four stiffnuts from the bolts securing the aerial to the mounting bracket, taking care to retain the washers.

(7) If it is required to remove the connector and matching stub from the aerial, refer to the relevant Air Publication (*listed in para. 1*).

Note . . .

When assembling the aerial and mounting bracket to the access panel, care must be taken to ensure that the earthing straps are assembled between two washers under the nuts on the bolts securing the mounting bracket to the panel. Also ensure that the matching stub is assembled on the opposite side to the earthing straps and snugly coiled and clipped as found before removal. When assembling the access panel to the wing ensure that the mating surfaces are scraped clean to provide a good electrical contact.

Type 382 control units

41. To remove these control units, proceed as follows:—

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

(2) Unscrew the two screws securing the bomb and R.P. control box to the cabin port shelf and lift this box to gain access to the connectors assembled to the control units.

(3) Disconnect the connectors from the control units.

(4) The control units may now be removed by unscrewing the two screws and one bolt securing each unit.

Radio compass unit

42. The recommended method of removing this unit is as follows:—

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

(2) Disconnect the connectors and tuning shaft from the unit, fit approved caps and covers to the plugs and sockets. Stow the connectors and shafts clear of the unit.

(3) Unscrew the two locking knobs at the front of the mounting tray and allow these to drop clear of the retaining catches on the compass unit.

(4) Disengage the unit from the mounting tray by withdrawing it along the tray, using the handle at the front of the unit. Still using the handle, carefully remove the unit from the aircraft.

Omni-directional aerial

43. To remove this aerial, proceed as follows:—

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

(2) Gain access to the aerial by opening the radio bay access doors.

(3) Release the aerial connector from the aerial mounting bracket by removing the clip and disconnect the connector from the aerial rod by removing the nut and washer from the top of the rod.

(4) The aerial, complete with its base, may now be released from its mountings by removing the four bolts securing the base to the mounting brackets, taking care to retain all the washers and the distance piece for the water sediment drain pipe, which is attached by the top forward attachment bolt.

Note . . .

When re-assembling the aerial, ensure that the water sediment drain pipe is secured by its clip and distance tube on the top forward fixing bolt. Ensure that the local surfaces of the aerial connector, clip and mounting brackets are clean and making a good electrical contact.

Loop aerial

44. To remove this aerial, proceed as follows:—

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

(2) Gain access to the aerial by removing the sliding hood *(Sect. 3, Chap. 1).*

(3) Disconnect the aerial connector and electrical cable from the aerial unit.

(4) Remove the six nuts from the studs securing the aerial unit to its mounting bracket and disengage the aerial connector earth lead from below one of these nuts.

(5) Remove the aerial by withdrawing it upwards from the studs.

Note . . .

When re-assembling the aerial unit, ensure that the aerial connector earth lead is assembled under one of the attachment nuts.

Type 403A/A control panel

45. The recommended method of removing this control panel is as follows:—

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

(2) Release the cabin starboard shelf from the fixed structure *(Sect. 5, Chap. 1, Group A.2).* Raise the shelf sufficiently to obtain access to the rear of the control panel and to T.B.81, which is located on the rear undersurface of the shelf.

(3) Disconnect the tuning drive shaft from the rear of the control panel..

(4) Disconnect all the leads of the cable assembly attached to the control panel from T.B.81. Coil the cable back to the panel, releasing any clips and strapping as found necessary.

(5) Release the control panel from the shelf by removing the four attachment screws.

Radio mounting structure

46. The radio mounting structure extends from frame 16 to frame 19, being bolted to these two frames; thus, when breaking down the aircraft at the front transport joint *(as described in Sect. 3, Chap. 1)*, it is necessary to remove this structure. The recommended procedure is as follows:—

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

(2) Remove the gun-firing panel and the Type 200 inverter *(Sect. 5, Chap. 1, Group A.2).*

(3) Remove the V.H.F. transmitter-receivers *(para. 37).*

(4) Remove the radio compass unit *(para. 37).*

(5) Remove the I.F.F. transmitter-receiver *(Sect. 6, Chap. 2).*

(6) Remove the V.H.F. relay box *(para. 39).*

(7) Disconnect the leads from T.B.74.

(8) Stow all the disconnected cables clear of the mounting structure, releasing any clips and strapping as found necessary.

(9) Release all clips and strapping from the cables attached to the mounting structure to ensure that the removal of the structure will be unencumbered.

(10) Release the mounting structure from frames 16 and 19 by removing the nuts, bolts and washers securing it to the brackets on these frames. Remove the structure from the aircraft.