Chapter 1 WIRELESS INSTALLATION

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Introduction

1. This chapter contains a description of the wireless equipment installed in this aircraft, including the servicing information necessary to maintain the installation 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. For a detailed description and technical information regarding the standard equipment used, reference should be made to the Air Publications listed in Table 1.

DESCRIPTION

General

2. The wireless equipment consists of an A.R.I.18064/1 twin 10-channel V.H.F. communication installation, with which is associated an A.R.I.18085 wide-band homing installation and an A.R.I.18012 tele-briefing system. A system to give the pilot audio warning of loss of hydraulic pressure is also linked with the installation. The transmitter-receivers and associated equipment are carried in the radio bay in the front fuselage, being remotely operated by control units situated in the cabin. The installation employs five whip aerials, one of which projects upwards through the top skin of each outer wing, another which projects downwards from below the front fuselage, while the remaining two project upwards from the centre fuselage, one on each side of the spine member. 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 fig. 1 and 2.

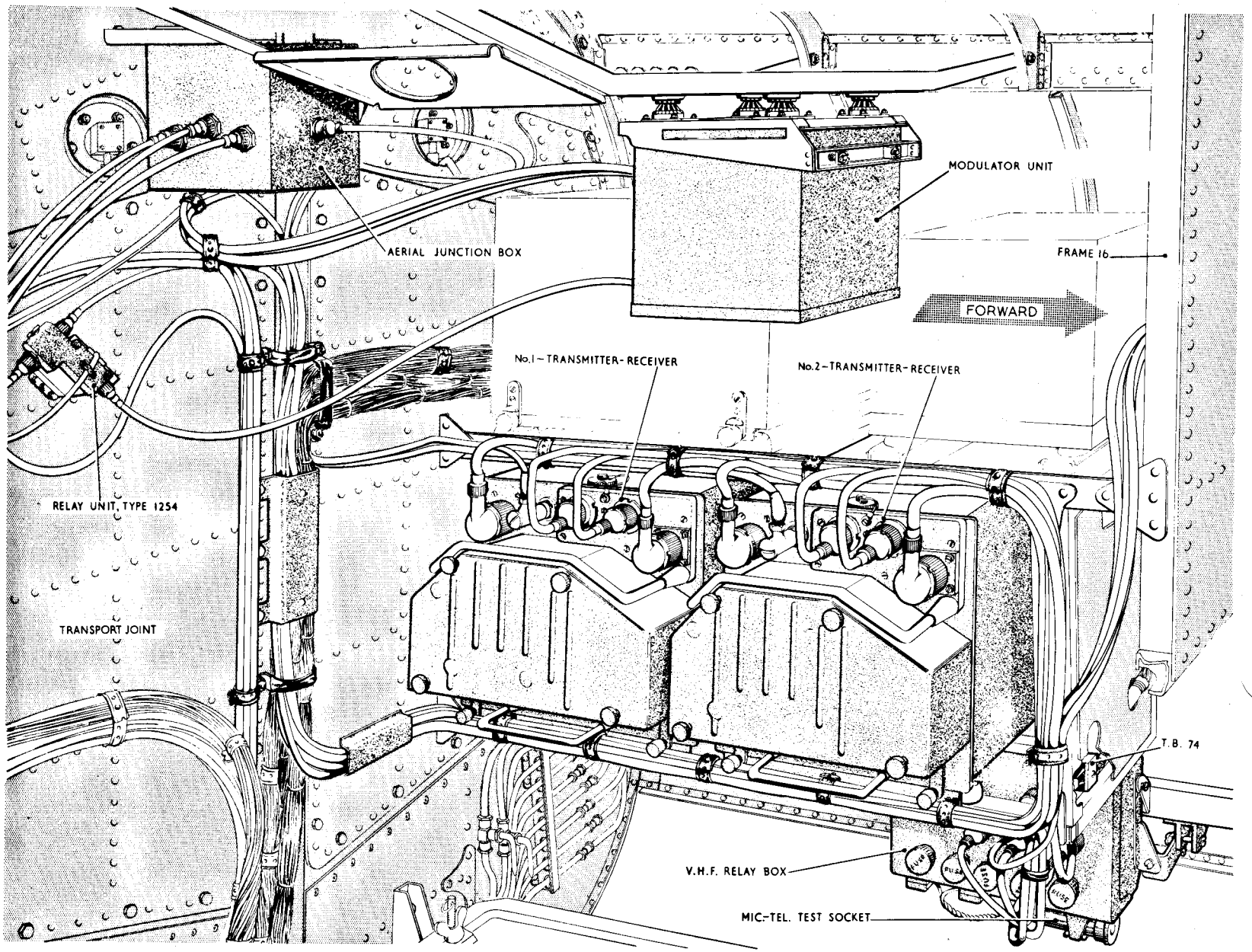

Fig. 1 Location (1)

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 electrical components, notably, the electrical supply panel, generator control panel, and the batteries. Access to the bay may be obtained by opening the access doors in the under-surface of the front fuselage immediately in front of the forward transport joint. The radio mounting structure is in two main parts, each supporting anti-vibration mounting racks for the transmitter-receivers and their associated equipment. The upper structure consists of two angle-sectioned beams with a platform carried between them. The complete assembly extends across the radio bay and is bolted to frames 17A and 17B. Another platform is attached to the starboard side of the beam bolted to frame 17B and extends aft to brackets on frame 19. The lower structure extends along the port side of the radio bay and consists of a number of square tubes, bolted together through gusset plates, and arranged so as to form two platforms, 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.

TABLE 1

Equipment type and Air Publication reference

Equipment Type	Air Publication
A.R.I.18064/1	
Transmitter-receiver, Type 1985/A (set No. 1) Transmitter-receiver, Type 1986/A (set No. 2) Mounting racks, Type 873/2 Control unit, Type 382 Mic.-tel. socket, Type 359 Aerial, Type 228 (set No. 1) Aerial, Type 229 (set No. 2)	A.P.2528P, Vol. 1
A.R.I.18085	
Modulator unit, Type 774 Mounting tray, Type 1034 Aerial junction box, Type 8079 Aerial relay unit, Type 1254 Homing indicator, Type 7 Control unit, Type 7746	A.P.2898D, Vol. 1
A.R.I.18012	
Telebriefing	A P.2876G, Vol. 1

A.R.I.18064/1

4. The transmitter-receivers are carried side by side in mounting racks on the bottom platform of the lower radio mounting structure, described in para. 3. The transmitter-receiver, known as set 1, is located at the aft end of the mounting, while that known as set 2, is at the forward end. Each transmitter-receiver is remotely controlled by a separate 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, 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. 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 No. 1 transmitter-receiver employs a aerial, mounted on a small access panel in the upper surface of the starboard outer wing, while the No. 2 transmitter-receiver uses an aerial mounted in a similar position on the port outer wing. A mic.-tel. pull-out socket for the pilot's ejector seat connection is located on the port side of the flying control casing.

A.R.I.18085

5. The modulator unit for this homing installation is fitted to a mounting tray bolted to a platform carried between the two beams of the upper radio mounting structure, described in para. 3. An aerial junction box is bolted to the platform extending from the aft member of this structure to frame 19. An aerial relay unit is bolted to the starboard side of the forward face of frame 19. The homing indicator is situated on the starboard side instrument panel. The installation is remotely controlled by a control unit, located

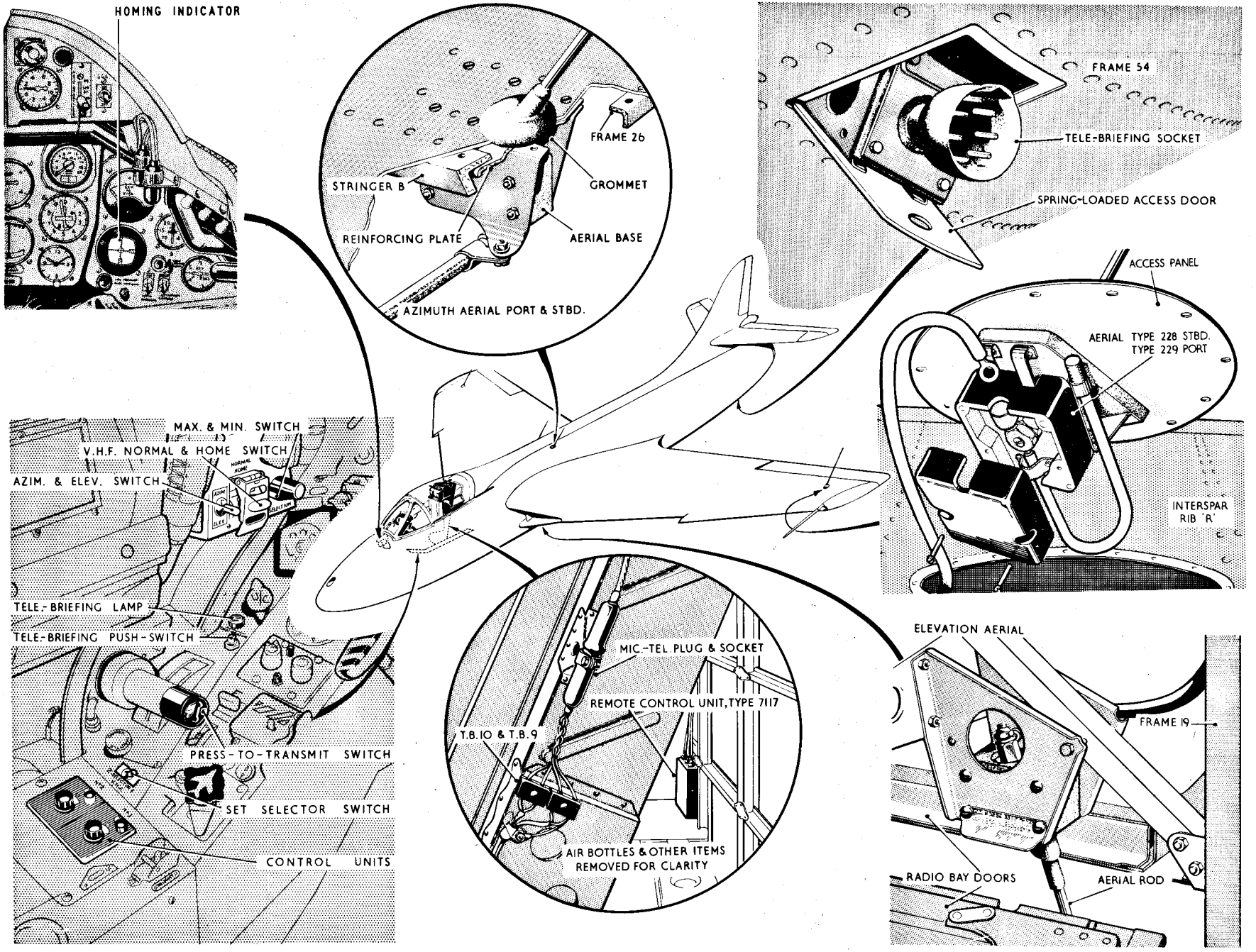

Fig.2. Equipment location (2.)

RESTRICTED

in the cabin on the starboard side of the forward face of frame 14 and by three switches carried on a mounting plate attached to the port lighting side screen in the cabin. One switch is marked V.H.F. NORMAL and HOME, and has a spring-loaded guard, another is marked AZIM and ELEV, while the third is marked MAX. and MIN. These latter two switches are not provided with guards. The two azimuth aerials are located at the top of the centre fuselage, one each side of the spine member in the region of frame 25. Each consists of a Type 408 aerial rod, held in a plastic base attached by side plates to the inside of the fuselage skin with the aerial rod projecting upwards through a grommet fitted in a hole in the skin. The elevation aerial is located at the bottom of the front fuselage, adjacent to the forward transport joint. It also consists of a Type 408 aerial rod held in a plastic base; this is attached by brackets to the battery mounting platform 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.

A.R.I.18012

6. A push-switch and indicator lamp for this telebriefing installation are mounted on the forward end of the cabin port shelf. The external telebriefing cable, when used, is connected to a plug mounted on a spring-loaded door in the undersurface of the rear fuselage between frames 53 and 54. The control relays for this installation are also contained in the V.H.F. relay box located in the radio bay.

7. The electrical supply circuit for the radio installation and the operation of the control relays in the V.H F. relay box are described in Sect. 5, Chap. 1, Group H.1, while information on the hydraulic pressure failure audio warning system is given in Sect. 5, Chap. 1, Group D 2. The frequency range of No. 1 transmitter-receiver is from 100 to 125 Mc/s, while that of No. 2 transmitter-receiver extends from 124·5 to 156 Mc/s, thus the installation offers twenty pre-set frequency channels, within this range, for selection by the remote control units.

Interconnection

8. The various components of the installations are interconnected as 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

A.R.I.18064/1

9. The setting-up and operation instructions for this installation are given in detail in A.P.2528P, Vol. 1, but for the guidance of servicing personnel, a brief description of the operating procedure, will be found in the following paragraphs.

10. The power supply to the installation, together with the 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.

11. With the set selector switch placed in set No. 1 position, rotation of the selector switch knob of No. 1 control unit, which is the inboard of the two control units located on the cabin port shelf, from OFF to any one of the other ten positions will switch on No. 1 transmitter-receiver and select the channel allocated for that particular position of the selector switch. 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, it is necessary for the operator to press 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.

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

13. 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. If the hydraulic pressure fails, the audio warning system, which is controlled by the hydraulic pressure indicator circuit, as described in Sect. 5, Chap. 1, Group D.2, will come into operation, irrespective of which transmitter-receiver is in use or whether it is switched to receive or transmit.

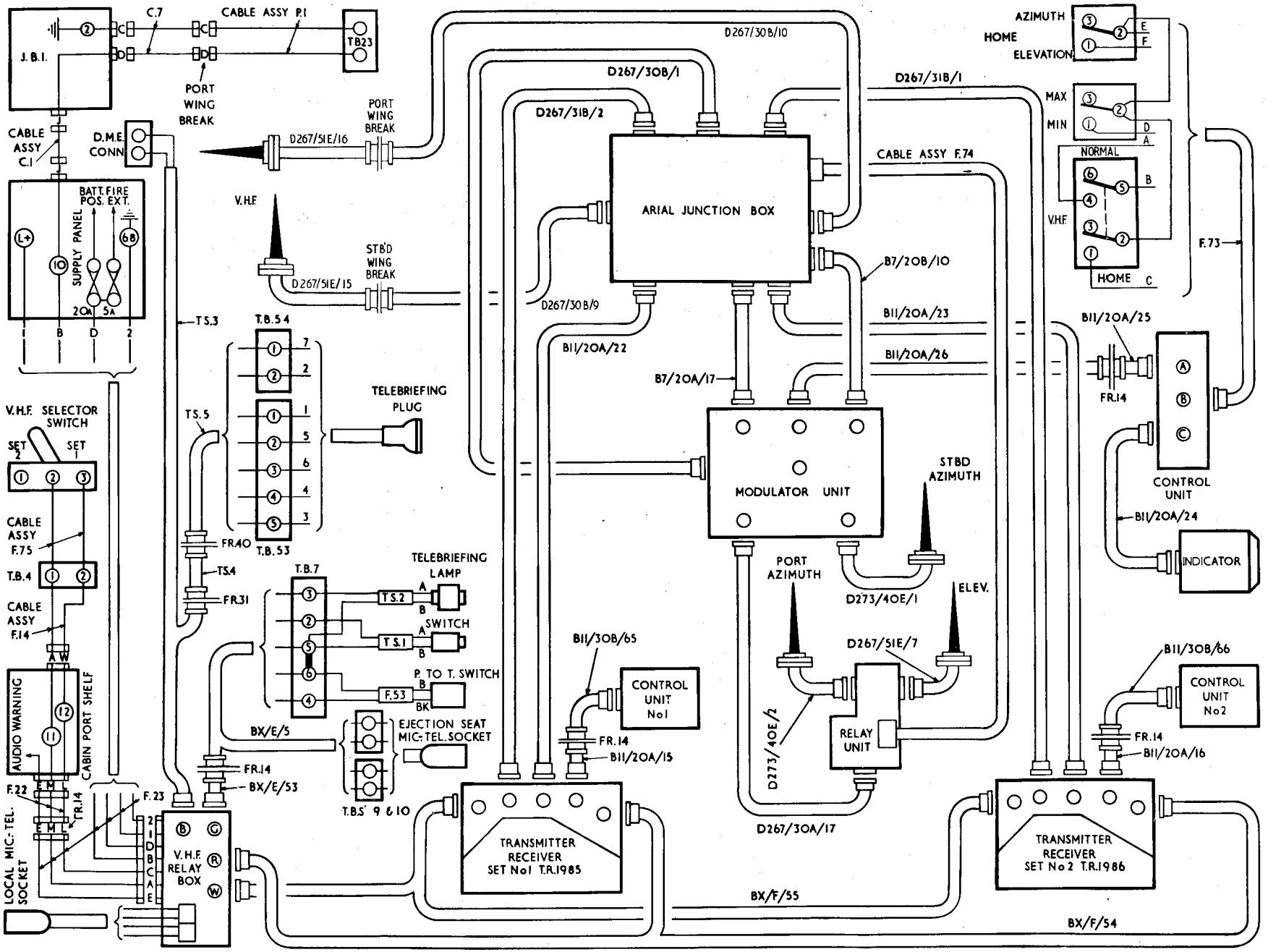

Fig.3 Interconnection

14. The foregoing paragraphs described the operation of the installation when used for normal communication purposes; that is, with the V.H.F.–NORMAL and HOME remote control switch of the A.R.I.18085 installation, set to the NORMAL position. When used in conjunction with A.R.I.18085, as described in the following paragraphs, the operation of the transmitter-receivers and the selection of the required frequency channel is similar to that already described. The exception is that the V.H.F.–NORMAL and HOME switch is set to HOME to enable the transmitter-receiver in use to supply the A.R.I.18085 installation and bring the homing indicator into operation.

A.R.I.18085

15. The setting-up and operating instructions for this installation are given in detail in A.P.2898D, Vol. 1; the following is merely a brief summary.

16. The power supply for this installation is derived from the particular V.H.F. transmitter-receiver with which it is used. It is a wide-band installation providing homing facilities in azimuth and elevation, but not simultaneously. The installation is remotely controlled by three two-way switches situated together in the cabin. One of these is a two-pole switch, marked V.H.F.–NORMAL and HOME, another is a single-pole switch marked AZIM and ELEV, while the third, also a single-pole switch, is marked MAX. and MIN.

17. With the V.H.F.–NORMAL and HOME remote control switch set to the NORMAL position and No. 1 V.H.F. transmitter-receiver switched ON, as described in para. 11, the power supplies and the L.F. signal output from No. 1 transmitter-receiver are connected to the modulator via the contacts of a de-energized relay in the aerial junction box. At the same time, the communication aerial is connected, via the contacts of another de-energized relay, to the transmitter-receiver, thus normal communication facilities are obtained.

18. With No. 1 transmitter-receiver still switched ON, the V.H.F.–NORMAL and HOME control switch set to HOME, and the AZIM and ELEV switch set to AZIM, the supplies to the modulator unit are completed and relays in the aerial junction box are energized to disconnect the communication aerial from the transmitter-receiver. The V.H.F. output from the modulator is also fed to No. 1 transmitter-receiver and the vertical pointer and its associated flag of the homing indicator together with the port azimuth aerial, are connected to the modulator. The starboard azimuth aerial is always connected to the modulator, thus the phase difference between the signals produced in these two aerials by the selected transmission will operate the installation and give azimuth homing facilities on the indicator.

19. When the AZIM and ELEV control switch is set to ELEV, the operation of the installation is similar to that described in para. 18. The exception is that the horizontal pointer and its associated flag in the homing indicator, together with the elevation aerial, are connected to the modulator. Also, the port azimuth aerial is disconnected from the modulator. The phase difference between the signals produced in the starboard azimuth and the elevation aerials by the selected transmission will now operate the installation and give elevation homing facilities on the indicator.

20. When No. 2 transmitter-receiver is switched ON, as described in para. 12, the operation of the installation is similar to that already described, but the power supplies and LF signal output from No. 2 transmitter-receiver are connected to the modulator and the output from the modulator is fed to No. 2 transmitter-receiver. The switch marked MAX. and MIN. controls the sensitivity of the homing indicator and should, therefore, be placed in the MAX. position when maximum sensitivity is required from the installation.

21. To use the transmitter-receivers for normal communication purposes, while the homing facilities are being used, the homing installation may be overridden by the depression of the press-to-transmit push-switch. Operation of this switch disconnects the supply to the modulator and reconnects the communication aerial to the transmitter-receiver in use.

A.R.I.18012

22. When the telebriefing 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 telebriefing relays E and F in the V.H.F. relay box are energized. These automatically transfer the pilot's mic.-tel. socket connection from the aircraft transmitter-receivers to the telebriefing cable. This ensures that spurious responses are not present in the pilot's mic.-tel. circuit due to the attenuation by the receiver circuit when operating the telebriefing installation. At the same time, the indicator lamp is lit, indicating to the pilot that telebriefing facilities are connected to the aircraft and that he can receive information from the system.

23. When speaking over the system, the pilot must keep the telebriefing push-switch pressed. This push-switch energizes a relay in the telebriefing building and connects the pilot's microphone to the landline, via the amplifier also located in this building. At the same time, a lamp lights in the building to indicate that the microphone is in circuit. For further information on this system, reference should be made to A.P.2876G, Vol. 1.

SERVICING

General

24. Servicing of the wireless installation is fully covered in the appropriate Air Publication quoted in Table 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 fig. 1 and 2, the interconnection in fig. 3 and a wiring diagram of the power supplies will be found in Sect. 5, Chap. 1.

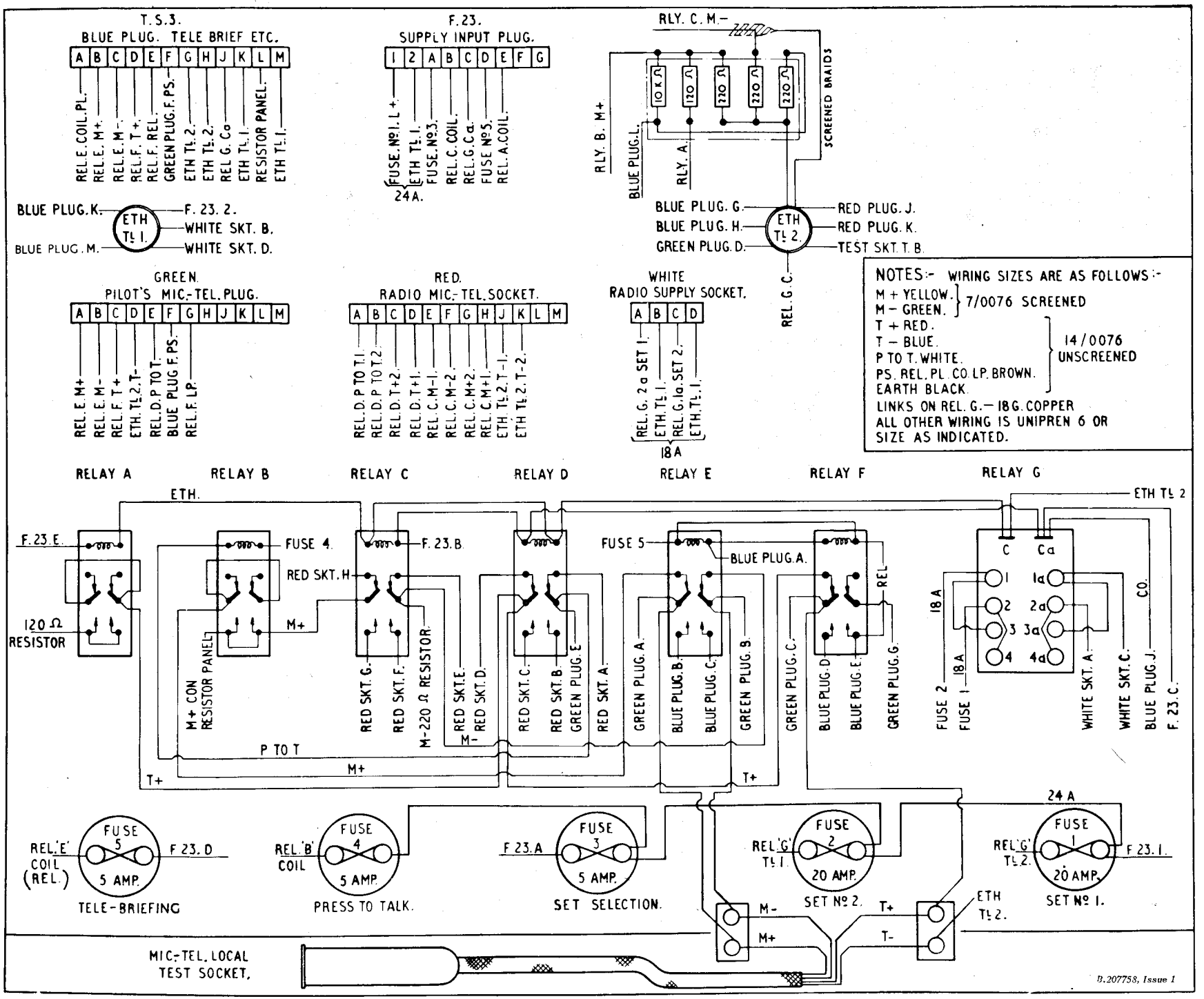

Fig.4 Wiring of V.H.F. relay box

Power supplies

25. If a fault is reported in the wireless installation, the power supplies should first be checked, in conjunction with the appropriate routeing and theoretical diagram in Sect. 5, Chap. 1, to ensure that the trouble is not 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 assembled.

Cables and connectors

26. 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 type 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

27. To eliminate the necessity of using the pilot's 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 pilot's 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. When using this test socket, it is first 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, before commencing operations.

A.R.I.18064/1

General

28. In-situ servicing of this installation is confined to security and functional checks of the equipment, together with elementary fault-finding. All other operations, excluding 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 A.P.2528P, Vol. 1.

Security check

29. 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 the security of the aerials.

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

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

(7) 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

30. After the installation has been set-up in accordance with the instructions given in A.P.2528P, Vol. 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 and ensure that the V.H.F.–NORMAL and HOME switch is in the NORMAL 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 . . .

Time must be allowed for the set to warm up before signals can be heard.

(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 No. 2 transmitter-receiver by selecting, on No. 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 . . .

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

31. If a fault is reported, an attempt should be made, in-situ, 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, should also be 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 A.P.2528P, Vol. 1. If the V.H.F. 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 a 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.

A.R.I.18085

General

32. Instructions for testing and aligning this installation, together with general servicing information are contained in A.P.2898D, Vol. 1. The installation should, however, be checked for security and an in-situ functional check made to ensure that it is operating correctly, as described in the following paragraphs.

Security check

33. To ensure that the equipment is properly installed, the following security checks should be carried out on the various units of the installation :—

(1) Check the security of the modulator unit and aerial junction box.

(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 homing indicator, control unit and remote control switches are securely mounted.

(4) Check that the aerial relay unit is securely mounted.

(5) Check the security of the aerials.

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

Functional check

34. With the installation set-up in accordance with the instructions in A.P.2898D, Vol. 1 the in-situ functional check is made to ensure that the equipment is operating correctly. An X.7049 test oscillator, operating at a frequency covered by a crystal in the associated transmitter-receiver being used in the test, should be used. 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 to the No. 1 position and the V.H.F.–NORMAL and HOME control switch to the NORMAL position.

(3) Switch on No. 1 transmitter-receiver by selecting on No. 1 control unit, the frequency channel covered by the test oscillator.

(4) With the test oscillator switched ON and situated at a distance not exceeding 40 ft. from the communication aerial, the modulated carrier of the oscillator should be heard in the telephones.

(5) Place the V.H.F.–NORMAL and HOME switch to the HOME position, the AZIM and ELEV switch to the AZIM position and check that the signals from the test oscillator cease. Also check that the flag at the bottom of the homing indicator disappears and that the vertical pointer of the indicator moves from its zero position, thus indicating correct azimuth operation of the installation.

(6) Place the AZIM and ELEV switch to the ELEV position. Check that the flag at the right-hand side of the homing indicator disappears and that the horizontal pointer moves from its zero position, thus indicating correct elevation operation of the installation.

(7) Press the press-to-transmit push-switch. Check that the pointer returns to the zero position and that the flag reappears, thus checking the operation of the transmitter overriding facilities.

(8) Place the V.H.F.–NORMAL and HOME switch to the NORMAL position, the set selector switch to the No. 2 position and repeat operations (3) to (7) using No. 2 transmitter-receiver.

Fault finding

35. Fault diagnosis for this installation is covered in A.P.2898D, Vol. 1. If a fault is reported, the low tension source should be checked, the tightness of the connectors ensured and the voltage, both on and off load, tested before any other checks are made. A careful, in-situ check should then

be made in an attempt to isolate the trouble, any faulty unit being taken to the workshop for testing and repair.

A.R.I.18012

General

36. For a detailed description of the servicing necessary for the telebriefing installation, reference should be made to A.P.2876G, Vol. 1.

Final check

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

REMOVAL AND ASSEMBLY

General

38. 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 paragraph. 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 No. 1 and No. 2

39. 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 five connectors from transmitter-receiver No. 2, 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 mounted 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 No. 1.

Modulator unit

40. To remove this unit, proceed as follows:—

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

(2) Disconnect the six connectors from the modulator unit, fit approved caps and covers to the plugs and sockets and stow the connectors clear of the modulator.

(3) Unscrew the two knurled screws at the aft end of the mounting tray and disengage these from the retaining catches on the modulator.

(4) Disengage the spigots at the forward end of the mounting tray from the modulator by withdrawing the unit along the tray.

(5) Carefully withdraw the modulator from the tray and remove it from the aircraft.

Aerial junction box

41. The recommended procedure for removing this junction box is as follows:—

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

(2) Disconnect the ten connectors from the aerial junction box, fit approved caps and covers to the plugs and sockets and stow the connectors clear of the unit.

(3) The junction box may now be removed from its mounting plate by withdrawing the four bolts, located two at each end of the unit.

Aerial relay unit

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

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

(2) Disconnect the leads of cable assembly F.74 from the terminal block on the relay unit and unclip this cable assembly from the unit.

(3) Disconnect the connectors from the aerial and modulator sockets on the relay unit.

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

V.H.F. relay box

43. The 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 the five 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 at each end 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.

Transmitter-receiver aerials

44. The recommended method of removing either of these aerials, complete with its matching stub, is as follows :—

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

(2) Remove the sixteen csk/hd. bolts from around the periphery of the aerial access panel in the top surface of the outer wing.

(3) Raise the access panel to gain access to the aerial bollard and remove the moulded cover from the bollard.

(4) Unscrew the top retaining nut from the end of the aerial rod, take off the two nuts securing the U-shaped bonding clip, and remove the aerial connector from the rod.

(5) The access panel, complete with aerial and matching stub may now be removed by releasing the balloon cord.

(6) 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, matching stub and mounting bracket may now be removed from the panel by withdrawing the aerial rod through the rubber grommet.

(7) 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.

Note . . .

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

Azimuth aerials

45. The recommended method of removing either of these aerials is as follows :—

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

(2) Gain access to the aerial by removing the access door in the centre fuselage adjacent to the aerial.

(3) At the aerial, release the connector from the aerial mounting side plates by removing the clip.

(4) Disconnect the aerial connector from the aerial rod by removing the nut, bolt and washer securing the connector to the aerial lug.

(5) The aerial may now be released from its mounting structure by removing the four bolts securing the aerial base to the side plates.

(6) The aerial, complete with base, may now be removed from the aircraft by withdrawing it downwards through the grommet and out of the access door.

Elevation aerial

46. The recommended method of removing this aerial is 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 the bonding springs, which are attached by the two bottom bolts.

Note . . .

When re-assembling the aerial, ensure that the fuel drain pipe is secured by the top aft fixing bolt and that the bonding springs are replaced correctly. Ensure that the bonding springs, aerial mounting brackets and the contact plates on the radio access doors are clean and making good electrical contact.

V.H.F. control units

47. 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.

Homing control unit

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

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

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

(3) The control unit may now be removed from the cabin by releasing the three screws securing it to the mounting brackets on frame 14.

Radio mounting structure

49. The lower 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 transmitter-receivers No. 1 and No. 2 (*para. 39*).

(4) Remove the D.M.E. and I.F.F. transmitter-receivers (*Sect. 6, Chap. 2*).

(5) Remove the V.H.F. relay box (*para. 43*).

(6) Disconnect the D.M.E. connector leads and the leads of cable assembly TS.3 from T.B.74.

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

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

(9) 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.

(10) The aft platform of the upper radio mounting structure, which supports the aerial junction box, is also attached to brackets on frame 19, thus the junction box must be removed and these attachments disconnected when breaking down the aircraft. It is not, however, necessary to remove the upper radio mounting structure.

LIST OF APPENDICES

APPENDIX 1 - MODIFICATION 968

LIST OF CONTENTS

LIST OF ILLUSTRATIONS

TABLE

TABLE 1

Equipment Type and Air Publication

Equipment Type	Air Publication
A.R.I.18124/1	
Transmitter-receiver, Type 5/ARC 52 Mounting tray, Type MT.1477/AR 52 Aerial McMichael (Blade Type) (pre.Mod.1384) Aerial, Chelton, Type 16–1 (post Mod.1384) Mic-tel. socket, Type 359 Control unit, Type C.1607/2	A.P.116D–0133–1
A.R.I.23057	
Transmitter-receiver, Type TR.10056 or MA or M.6 Mounting tray, Type 103 Whip aerial, Type 11789 Radio interference filter, Type 5915 99–97 0362	A.P.116D–0110–16
Standby battery (24V), Type Voltabloc No.19-Vo-7	A.P.113C–200 series
A.R.I.18012	
Telebriefing system	A.P.116N–0301–1

Introduction

1. This appendix contains a description of the radio equipment installed in aircraft that have had Mod. 968 incorporated. Information on the servicing necessary to maintain the installation in an efficient condition, and on the removal of the various components is included, together with illustrations showing the location and inter-connection of the equipment. For technical information and a detailed description of the standard equipment used, reference should be made to the Air Publications listed in Table 1.

DESCRIPTION

General

2. The wireless installation consists of a U.H.F. communication system (*A.R.I. 18124/1*) with which is associated a U.H.F. standby system (*A.R.I.23057*) and a tele-

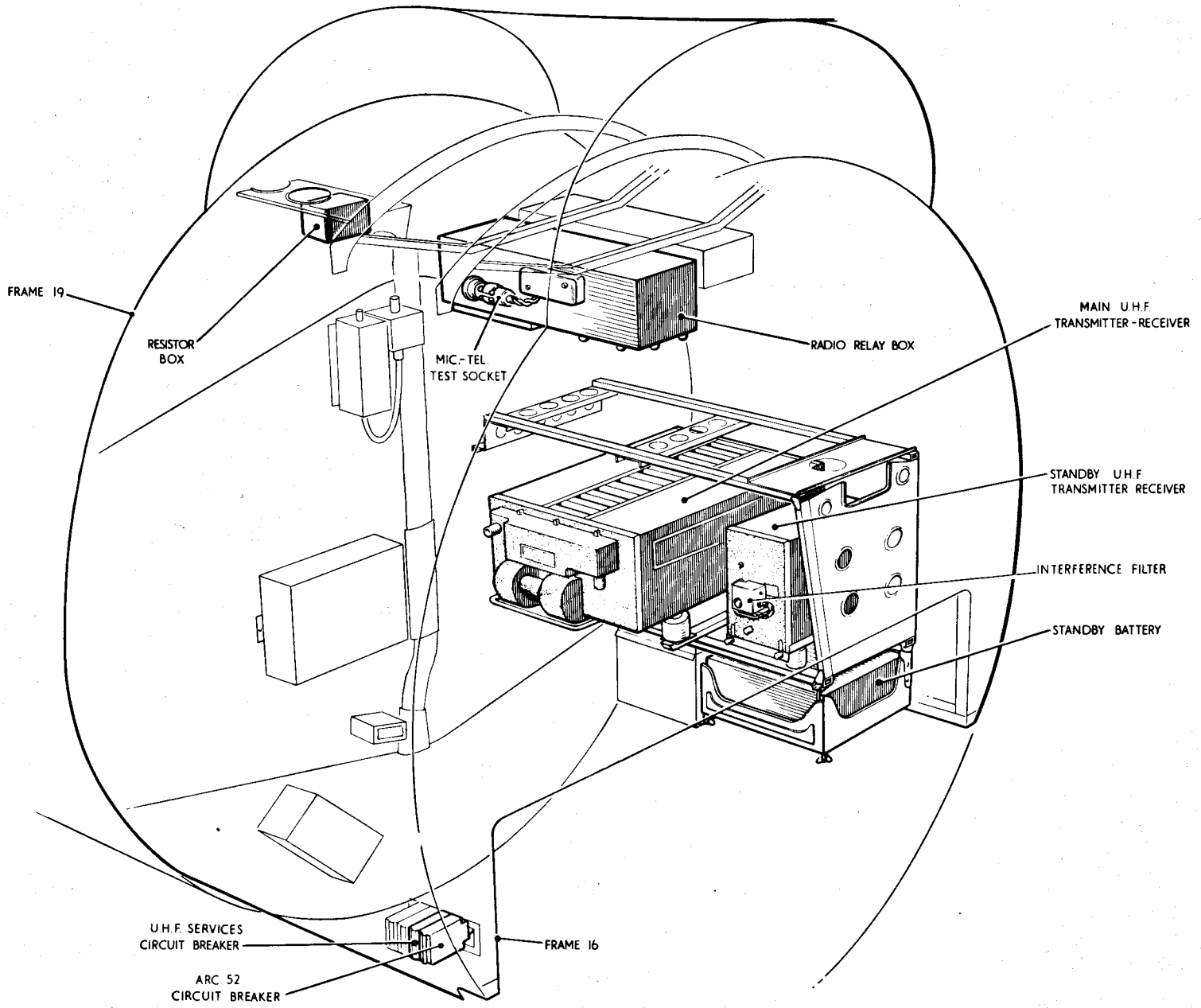

Fig. 1 Wireless installation – location (1)

T.P.(E)6488

briefing system (*A.R.I.18012*). A system to give the pilot audio warning of loss of hydraulic pressure is linked with the U.H.F. system. Most of the wireless equipment is carried in the radio bay in the front fuselage, being remotely controlled by switches and control units situated in the cabin. The location of all the wireless equipment is illustrated in fig. 1, 2 and 3.

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 electrical components, notably, the electrical supply panel, generator control panel and the batteries. Access to the bay may be obtained by opening the access doors in the undersurface of the front fuselage immediately in front of the forward transport joint.

4. The radio mounting structure is in two main parts, each carrying mounting plates and bearers for the transmitter-receivers and their associated equipment. The upper structure consists of two angle-sectioned beams with a platform carried between them. The complete assembly extends across the radio bay and is bolted to frames 17A and 17B. Another platform is attached to the starboard side of the beam bolted to frame 17B and extends aft to brackets on frame 19. The lower structure extends along the port side of the radio bay and consists of a number of square tubes, attached by gusset plates, and arranged to form two platforms, one above the other. The forward end of the structure is strengthened by a diaphragm and the complete assembly secured to brackets on frames 16 and 19.

A.R.I.18124/1

5. The multi-channel U.H.F. communication system (*A.R.I.18124/1*) uses a transmitter-receiver carried in a mounting tray situated at the aft end of the bottom platform of the lower mounting structure described in para. 4. The installation employs a blade type aerial which projects upwards from the starboard side of the hood fairing above 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 casings.

6. The installation is remotely controlled by a control unit, a press-to-transmit push-switch, a tone transmit On/Off switch, and a Normal/Standby set selector switch. The control unit, which incorporates two panel lamps to provide diffused illumination of the controls, is situated on the cabin port shelf. The press-to-transmit push-switch is incorporated in the throttle twist grip, and the On/Off tone transmission switch is situated on the cabin port shelf adjacent to its control unit. The Normal/Standby set selector switch, labelled U.H.F.–MAIN, S'BY and S'BY EMGY. BATT is also situated on the cabin port shelf, and, on pre-Mod 1438 aircraft, incorporates a ganged and guarded switch lever. Post-Mod 1438 aircraft are fitted with a set selector switch which incorporates a switch lever with a pull-to-unlock facility.

7. The installation is supplied through a circuit breaker, which is marked U.H.F. SERVICES and situated below the electrical supply panel in the radio bay. This circuit breaker is fed from the aircraft's d.c. electrical system and feeds the main transmitter-receiver, via a further circuit breaker which is marked ARC.52 and located adjacent to the U.H.F. services circuit breaker. Normal/Standby set selection, mic.-tel. and press-to-transmit switching is accomplished by a number of relays contained together with the circuit fuses, in a readily detachable box, known as the radio relay box. This box is mounted to the underside of the top radio mounting structure, described in para. 4. The box is used to integrate all the radio installations and carries the control relays and fuses for the U.H.F. standby set, telebriefing and hydraulic pressure failure audio warning installations. Two test sockets, one for the main and the other for the standby U.H.F. transmitter-receiver are also attached to this box. A mic.-tel. socket for use when adjusting the sets, is stowed in a spring clip on the radio relay box.

A.R.I.23057

8. The U.H.F. standby communication system (*A.R.I.23057*) is carried in case of failure of the aircraft's normal transmitter-receiver. It employs a pre-set, two channel transmitter-receiver, which is carried in a mounting tray situated just forward of the main U.H.F. transmitter-receiver on the bottom platform of the lower radio mounting structure. The installation uses a whip aerial, which projects downwards from between frames 9 and 10 on the starboard underside of the front fuselage.

9. The installation is supplied with power from the aircraft's main d.c. electrical system, but should this source fail, a 24 volt standby battery may be brought into service. The main d.c. supply is taken from a fuse in the radio relay box and is reduced to the value required by the installation by a resistor carried in a box attached to the platform on the starboard side of the upper radio mounting structure (*para. 4*). When the M.6 set is installed the power supply is taken through an interference filter mounted on the front of the set. The standby battery is carried in a readily detachable mounting crate attached to the forward undersurface of the lower radio mounting structure.

10. Switching from the main transmitter-receiver to the standby set and from the main d.c. supply to the standby battery is accomplished by operation of the Normal/Standby switch (*para. 6*). This switch also controls relays within the radio relay box (*para. 7*), which switch the pilot's mic.-tel. socket and the press-to-transmit push-switch to the standby set. Two channel working is provided for by a selector switch marked GUARD and ALTVE, which is mounted on a bracket attached to the port windscreen platform. This switch is normally set to the GUARD position, but may be set to ALTVE to select the alternative channel.

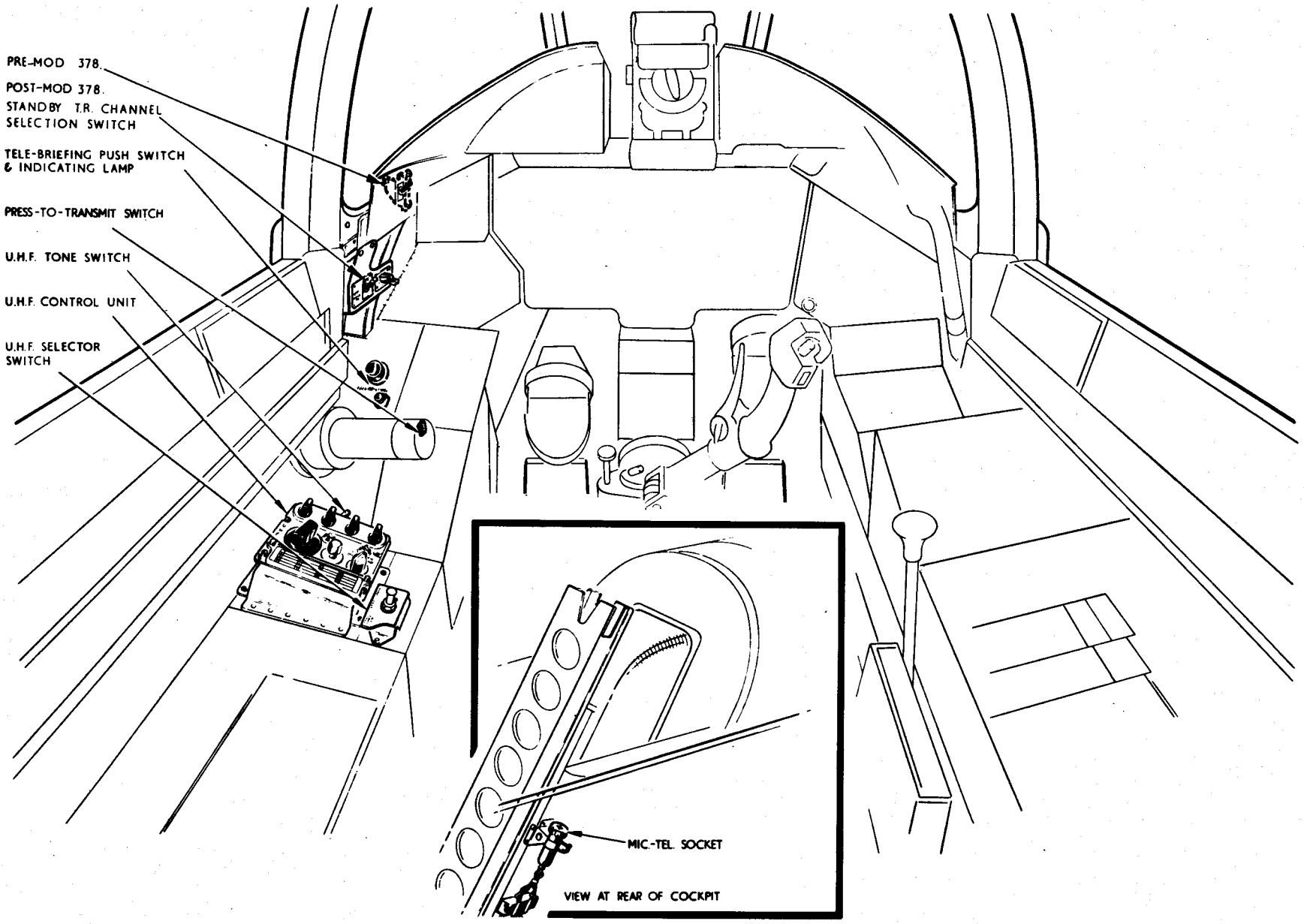

Fig. 2 Wireless installation – location (2)

▶ **(Mod 1438 added)** ◀

A.R.I.18012

11. A push-switch and an indicator lamp, for the telebriefing system (*A.R.I.18012*) are mounted on the forward end of the cabin port shelf. Provision for the connection of the telebriefing cable, is made by a plug mounted on a spring-loaded access door in the undersurface of the rear fuselage, between frames 53 and 54. The control relays and a fuse for this installation are contained in the radio relay box located in the radio bay.

Power supplies and operating frequencies

12. The electrical supply circuits for the radio installations and the operation of the control relays in the radio relay box are described in Sect. 5, Chap. 1, Group H.1. Information on the hydraulic pressure failure audio warning system is given in Sect. 5, Chap. 1, Group D.2. The frequency range of the main U.H.F. transmitter-receiver extends from 225·0 to 399·9 Mc/s and the installation provides for the automatic selection of any one of 19 pre-set frequency channels (*including the guard frequency*), and manual selection of any one of 1,750 frequency channels spaced 100 kc/s apart. The U.H.F. standby transmitter-receiver operates on a frequency of 243·0 Mc/s or on an alternative channel, spaced by 1 Mc/s above or below this frequency.

Interconnection

13. The various components of the wireless installations are interconnected as shown in fig. 4 by connectors, strapped and clipped to the aircraft's structure. These connectors are metal-braided and non-braided types 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 radio relay box is given in fig. 5.

OPERATION

General

14. For the guidance of servicing personnel, a brief description of the operating procedure for the various radio installations will be found in the following paragraphs.

A.R.I.18124/1

15. The setting-up and operating instructions for the A.R.I.18124/1 are given in detail in A.P.2531J, Vol. 1. All control of the installation is achieved by the use of the U.H.F. control unit, Normal/Standby set selector switch, tone switch and press-to-transmit push-switch. The installation is supplied from the aircraft's main d.c. electrical system and may be used whenever the aircraft's battery master switch is placed in the ON position.

16. The U.H.F. control unit incorporates all the operational controls and provides the following facilities :—

(1) *Function switch.* This is a four-position rotary switch engraved OFF, T/R, T/R + G and ADF. In the OFF position, the installation is inoperative as the power supply relay within the transmitter-receiver is not energized. In the T/R position, the power supply relay is energized and the main transmitter-receiver is switched on for operational purposes. With the switch in the T/R + G position, the guard receiver in addition to the main transmitter-receiver is available. On this aircraft, however, the facilities for ADF are not used.

(2) *Channel selector switch.* This is engraved CHAN and has 20 positions. Those positions numbered 1 to 18 are used to select the required pre-set frequency channels. The two remaining positions are annotated M and G. The M position is used to switch the frequency selection to manual control and the G position is normally set to guard frequency, thus enabling the main transmitter-receiver to be used on the guard frequency independently of the guard receiver. The frequencies of the pre-set channels are marked on an ivorine tablet below the channel selector switch.

(3) *Manual frequency control.* The MANUAL control consists of four control knobs, each of which is associated with numbers appearing in an aperture above each knob. The controls are manipulated to set the numbers to correspond with the required frequency channel, thus enabling any one of the 1,750 channels to be selected as required. This selection is overridden whenever the channel selector switch is moved from the M position.

(4) *Volume control.* This is a potentiometer, engraved VOLUME, and is used to adjust the level of the audio signal to the telephones.

17. The Normal/Standby set selector switch is a three-position toggle switch labelled U.H.F.–MAIN, S'BY and S'BY EMGY. BATT. The switch controls the change-over from the main transmitter-receiver to the standby set and also the switching of the standby set's power supply as follows :—

(1) When the switch is in the MAIN position, the pilot's mic.-tel. socket and press-to-transmit push-switch are connected to the main transmitter-receiver via the relays in the radio relay box.

(2) When the switch is in the S'BY position, the relays in the radio box switch the pilot's mic.-tel. socket and press-to-transmit push-switch to the standby transmitter-receiver. In this position of the switch, the standby set is supplied from the aircraft's main d.c. electrical system.

(3) When the switch is in the S'BY EMGY. BATT. position, the pilot's mic.-tel. socket and the press-to-transmit push-switch are still connected to the standby transmitter-receiver, but the aircraft's

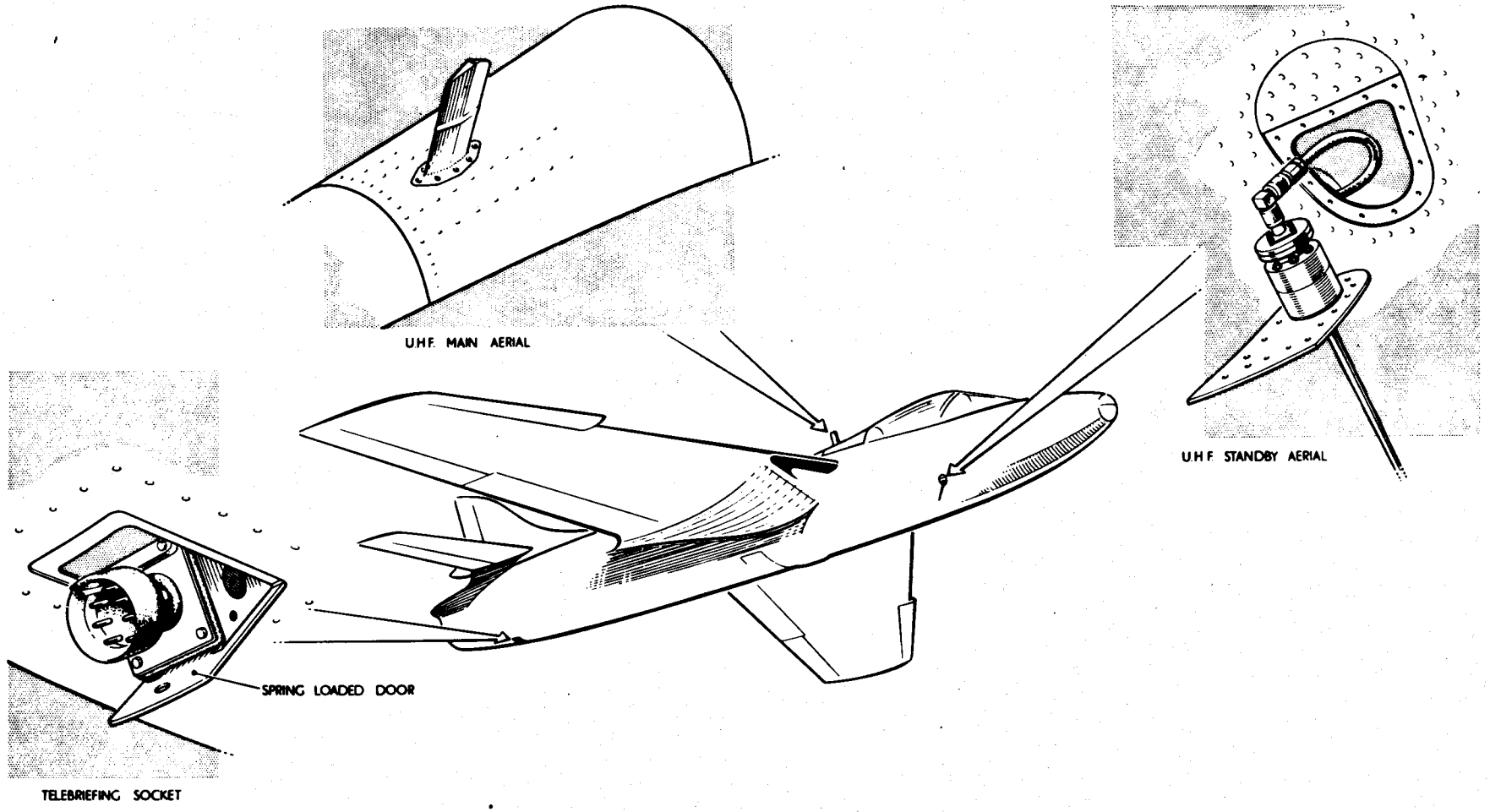

Fig.3 Wireless installation - location (3)

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main d.c. supply is isolated and the standby battery brought into service to supply the set.

18. The tone switch is a single pole, two-position toggle switch labelled TONE-OFF and ON. When this switch is in the ON position, the main transmitter is automatically tone modulated at between 920 c/s and 1120 c/s for direction finding or emergency purposes.

19. The press-to-transmit push-switch is a push-button incorporated in the throttle twist grip and is engraved PRESS-TO-TRANSMIT. It must not be confused with the air brake control switch, which is also fitted in the twist grip. The push-switch is used for both the main and standby transmitters, being switched to the set in use by relays within the radio relay box. When pressed, the switch makes the earth return for a switching relay within the transmitter-receiver in use, and this relay when energized, switches the set from receive to transmit.

20. By rotating the function switch from OFF to any one of the other three positions, the transmitter-receiver is switched on and warms up ready for operation. When switched on, the transmitter-receiver is automatically in the "receive" condition, thus signals on the frequency selected by the channel selector switch will be heard. The audio level of these signals may be adjusted by use of the volume control. To transmit on the selected channel, it is necessary for the operator to press the press-to-transmit push-switch for as long as transmission is required. Release of the press-to-transmit push-switch automatically restores the transmitter-receiver to the "receive" condition.

21. When the function switch is rotated to the T/R + G position, the guard receiver is brought into operation, and, if the channel selector switch is set to any channel other than G, watch can be maintained on both the guard and the frequency at which the main transmitter-receiver is being operated. Should it be necessary to operate the main receiver at the guard frequency, or to transmit and receive at this frequency, the function switch should be set to T/R and the channel selector switch set to G. The guard receiver is thereby cut off and the installation operated as described in para. 20.

A.R.I.23057

22. Operating and setting-up instructions for the A.R.I.23057 are given in detail in A.P.2531N, Vol. 1. The installation may be supplied either from the aircraft's main d.c. electrical system, or from the standby battery. The standby transmitter-receiver is brought into use and its power supply selected by operation of the U.H.F. Normal/Standby set selector switch (*para. 17*). and either the guard or alternative channel selected by the channel selector switch (*para. 10*). The set is switched from the "receive" to transmit condition by operation of the press-to-transmit push-switch (*para. 19*).

23. To prevent unnecessary discharge, the standby battery should only be brought into service if the aircraft's main d.c. electrical system fails.

A.R.I.18012

24. The operation of the A.R.I.18012 system is described in detail in A.P.2876G, Vol. 1. The system is brought into operation automatically, by relays within the radio relay box, whenever the external cable is connected with the aircraft's telebriefing plug. These relays transfer the pilot's mic-tel. socket from U.H.F. installation to the telebriefing cable, and, at the same time, the aircraft's telebriefing lamp is lit to indicate that briefing information may be received over the system.

25. When it is required to speak back over the system, the aircraft's telebriefing push-switch must be pressed. This action energizes a relay in the telebriefing building and connects the pilot's microphone to the landline, via an amplifier also located in this building. At the same time, a lamp lights in the building to indicate that the microphone is in circuit.

SERVICING

General

26. Servicing of the wireless equipment is covered in the appropriate Air Publications listed in Table 1, but any unit suspected of being unserviceable should be carefully checked in-situ, 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 fig. 1, 2 and 3, the interconnection is shown in fig. 4, and a wiring diagram of the power supplies will be found in Sect. 5, Chap. 1.

Power supplies

27. If a fault is reported in the wireless installation, the power supplies should be checked first, in conjunction with the appropriate routeing and theoretical diagram in Sect. 5, Chap. 1 to ensure that the trouble is not in the aircraft's 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 assembled.

Cables and connectors

28. 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 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. 4. All the clips securing the cables and connectors to the aircraft's structure must be examined for signs of looseness, and any insecure clips tightened as necessary to prevent chafing. Plug and socket connections must be checked to ensure that they are fitting properly, and that the fixings are are screwed fully home.

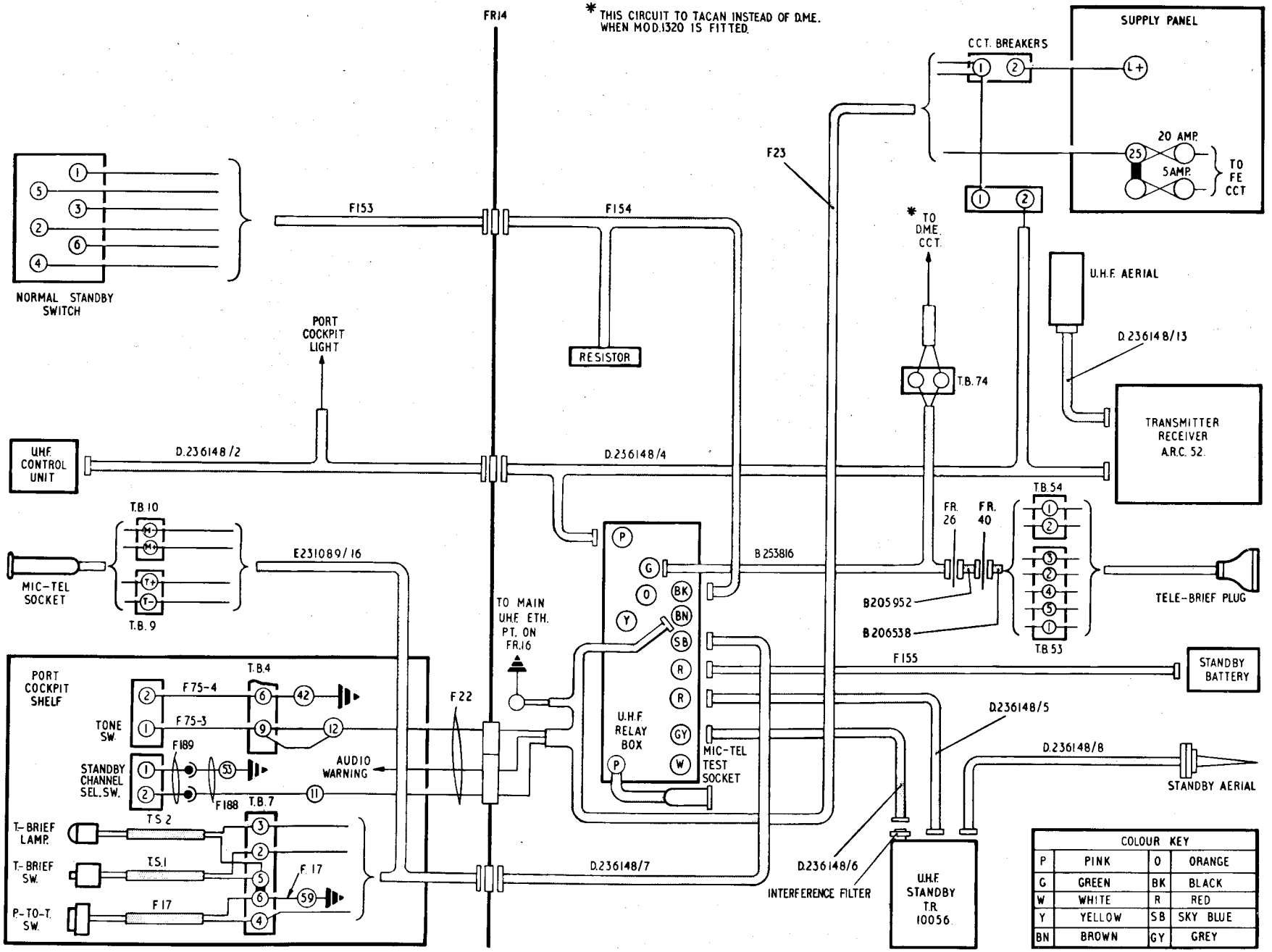

Fig. 4 Wireless installation - interconnection

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Security check

29. The following security checks must be made to ensure that all the wireless equipment is properly installed and secure :—

(1) Ensure that all the units are secure in their mounting racks and that the clamping devices are tightened sufficiently to prevent movement or vibration. Check that locking wire is fitted where necessary.

(2) Inspect all mounting bolts for security, ensure that the anti-vibration mounts are undamaged, and check that the fixed mounting structure is secure.

(3) Check that all the control units and switches are securely mounted. With electrical power switched off, operate all the controls and ensure that they are undamaged and serviceable.

(4) Check the security of all the aerials.

(5) Ensure that the radio relay box, and the standby battery crate are securely mounted.

(6) Examine all the plugs and sockets for correct mating and security.

(7) Check 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

30. To ensure that the wireless installation is set up and operating correctly, the functional checks given in the appropriate Air Publications listed in Table 1 must be made, using the test sets and equipment provided. To enable the U.H.F. installation to be ground tested and adjusted in-situ, two test sockets, one for the main and the other for the standby transmitter-receiver, are provided on the radio relay box in the radio bay. These test sockets are used in conjunction with the U.H.F. test set as described in the appropriate Air Publication. A mic.-tel. socket, wired in parallel with the pilot's socket, is provided for intercommunication use when adjusting the installation. This socket, which is used in conjunction with a standard headset, is stowed in a spring clip attached to the radio relay box.

Fault finding

31. If a fault is reported, an attempt should be made, in-situ, to locate the faulty unit. Before any other tests are made, the low tension source should be checked, the voltage, both on and off load, tested and the tightness of the connectors ensured. 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 Air Publications listed in Table 1.

32. If the radio relay box is found to be faulty, it should be removed from the aircraft for Bay servicing and replaced by a fully serviceable item. 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 it is fully serviceable.

Final check

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

REMOVAL AND ASSEMBLY

General

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

U.H.F. main transmitter-receiver

35. The recommended method of removing this transmitter-receiver is as follows :—

(1) Render the aircraft electrically safe as described in Sect. 5, Chap. 1, Group A.1.

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

(3) Remove the locking wire from the two wing-nuts at the front of the mounting tray and unscrew these nuts until they drop clear of the set.

(4) Disengage the rear of the transmitter-receiver from the spring loaded dowels on the mounting tray by using the handle to withdraw the set along the tray. Still using the handle, carefully remove the set from the aircraft.

U.H.F. main aerial

36. The method of removing this aerial is as follows :—

(1) Render the aircraft electrically safe as described in Sect. 5, Chap. 1, Group A.1.

(2) Remove the hood fairing sufficiently to gain access to the aerial connector, and, after disengaging the retaining spring from the aerial connector plug, disconnect the aerial connector from the aerial socket. Fit an approved cap and cover to the plug and socket.

(3) The aerial may now be removed from the hood fairing by removing the eight bolts, nuts and washers securing the aerial base to the mounting plate. The lugs holding the aerial connector plug retaining spring are also secured by two

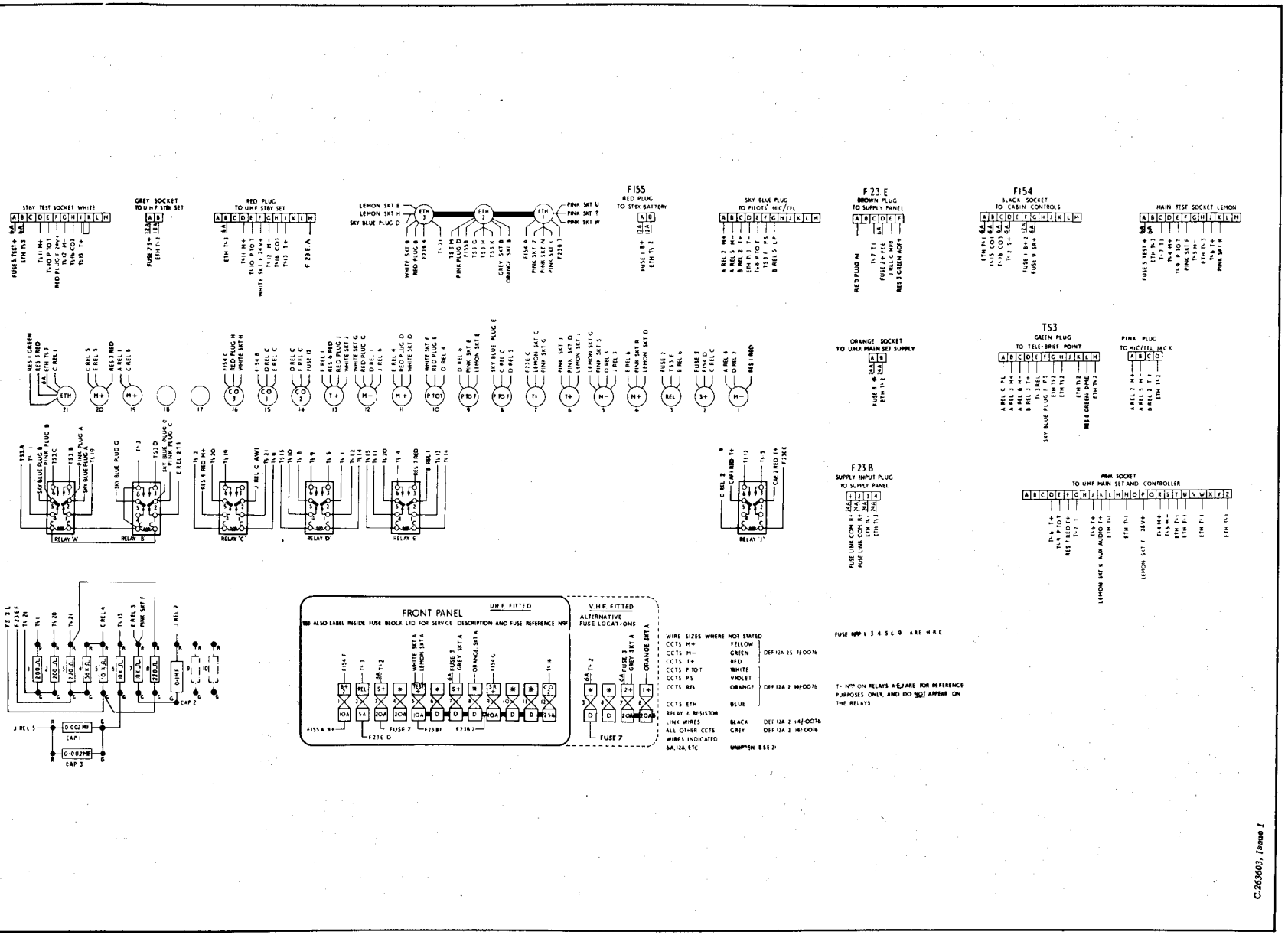

Fig.5 Wiring of U.H.F. radio relay box

RESTRICTED

of these bolts; care must be taken to retain these with the hood fairing when the aerial is removed.

Note . . .

When re-assembling the aerial, ensure good electrical bonding by checking that all mating surfaces are absolutely clean and making perfect contact. Ensure that the aerial connector retaining spring is re-fitted and seal the aperture around the aerial base with Bostik compound to prevent the entry of water.

U.H.F. control unit

37. To remove the U.H.F. control unit proceed as follows:—

(1) Render the aircraft electrically safe as described in Sect. 5, Chap. 2, Group A.1.

(2) Disengage the four Dzus fasteners securing the control unit and lift the unit out of its mounting.

(3) Disconnect the connector from the control unit and fit an approved cap and cover to the plug and socket.

(4) Remove the control unit from the aircraft.

Radio relay box

38. 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 as described in 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 on the right hand side of the box casing. Release the box from its attachment brackets by swinging it downwards and to starboard to disengage the locating hooks.

(4) Remove the box from the aircraft.

U.H.F. standby transmitter-receiver

39. To remove the standby transmitter-receiver, proceed as follows:—

(1) Render the aircraft electrically safe as described in Sect. 5, Chap. 1, Group A.1.

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

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

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

U.H.F. standby aerial

40. The recommended method of removing this aerial is as follows.

(1) Render the aircraft electrically safe as described in Sect. 5, Chap. 1, Group A.1.

(2) Remove the fourteen countersunk headed bolts from around the periphery of the aerial access panel in the starboard skin of the front fuselage.

(3) Withdraw the aerial and access panel sufficiently to gain access to the aerial connector and disconnect this connector from the aerial socket. Fit an approved cap and cover to the plug and socket.

(4) Remove the aerial from the access panel by unscrewing the five nuts from the bolts securing the aerial base to the access panel, taking care to retain the washers.

Note . . .

When re-assembling the aerial, ensure good electrical bonding by checking that all mating surfaces are absolutely clean. Pay particular attention to the door landing.

U.H.F. standby battery

41. The standby battery is carried in a crate which is readily detachable from the aircraft, and should be removed in its crate as follows:—

(1) Render the aircraft electrically safe as described in Sect. 5, Chap. 1, Group A.1.

(2) Disconnect the two leads of cable assembly F.155 from the terminals on the standby battery. Insulate the bare ends of these leads and stow clear of the battery.

(3) Remove the locking wire from the wing-nuts below the battery crate, and supporting the crate, slacken off the locating pads on the bottom of the crate.

(4) Swing the crate downwards and inboard to disengage the retaining hooks. Remove the crate and battery from the aircraft.

Note . . .

After re-assembly of the battery and crate, lock the wing-nuts to the lugs on the mounting crate with 22 s.w.g. stainless steel wire to Spec. 189 or 161.

Radio mounting structure

42. The lower radio mounting structure extends from frame 16 to frame 19, 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 as described in Sect. 5, Chap. 1, Group A.1.

(2) Remove the standby battery (*para. 41*).

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

(4) Remove the U.H.F. transmitter-receivers (*para. 35 and 39*).

(5) Remove the D.M.E. and I.F.F. transmitter-receivers together with the coder unit (*Sect. 6, Chap. 2*).

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

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

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

(9) Remove the lower radio mounting structure from the aircraft.

(10) The aft platform of the upper radio mounting structure, which supports terminal block No. 109 is also attached to brackets on frome 19, thus the cables to this terminal block must be disconnected and the platform released from frame 19 when breaking down the aircraft. It is not, however, necessary to remove the upper radio mounting structure.

Appendix 2 – Mod.1379

(A.R.I. 18012)

LIST OF CONTENTS

LIST OF ILLUSTRATIONS

Introduction

1. This modification which is associated with S.R.I.M.3821 describes the effect on the telebriefing installation A.R.I.18012 which is described in Chap.1, App.1, of this section.

2. Mod.1379 is essentially concerned with the Radio Supplies and Relay Box which is described in Sect.5, Chap.1, Group H.1, App.1.

DESCRIPTION

General

3. With the embodiment of Mod,1379 circuit switching to complete telebriefing communication ceases to be automatic when the telebriefing land line is connected. The energising circuits for the switching relays A, B and F are completed by momentarily depressing the cockpit T.B. push switch. The relay energising circuits are self retaining and the relays remain energised when the T.B. push switch is released. The cockpit T.B. indicator light is illuminated to indicate that the telebriefing interconnection is complete. Pilot to telebriefing control call-up is made by depressing the cockpit T.B. switch which completes the ground installation call-up indicator lamp circuit.

SERVICING

General

4. This modification has no effect on servicing which remains as described in Chap.1, App.1 of this section.

REMOVAL AND ASSEMBLY

General

5. This modification has no effect on removal and assembly which is described in Chap.1, App.1 of this section.

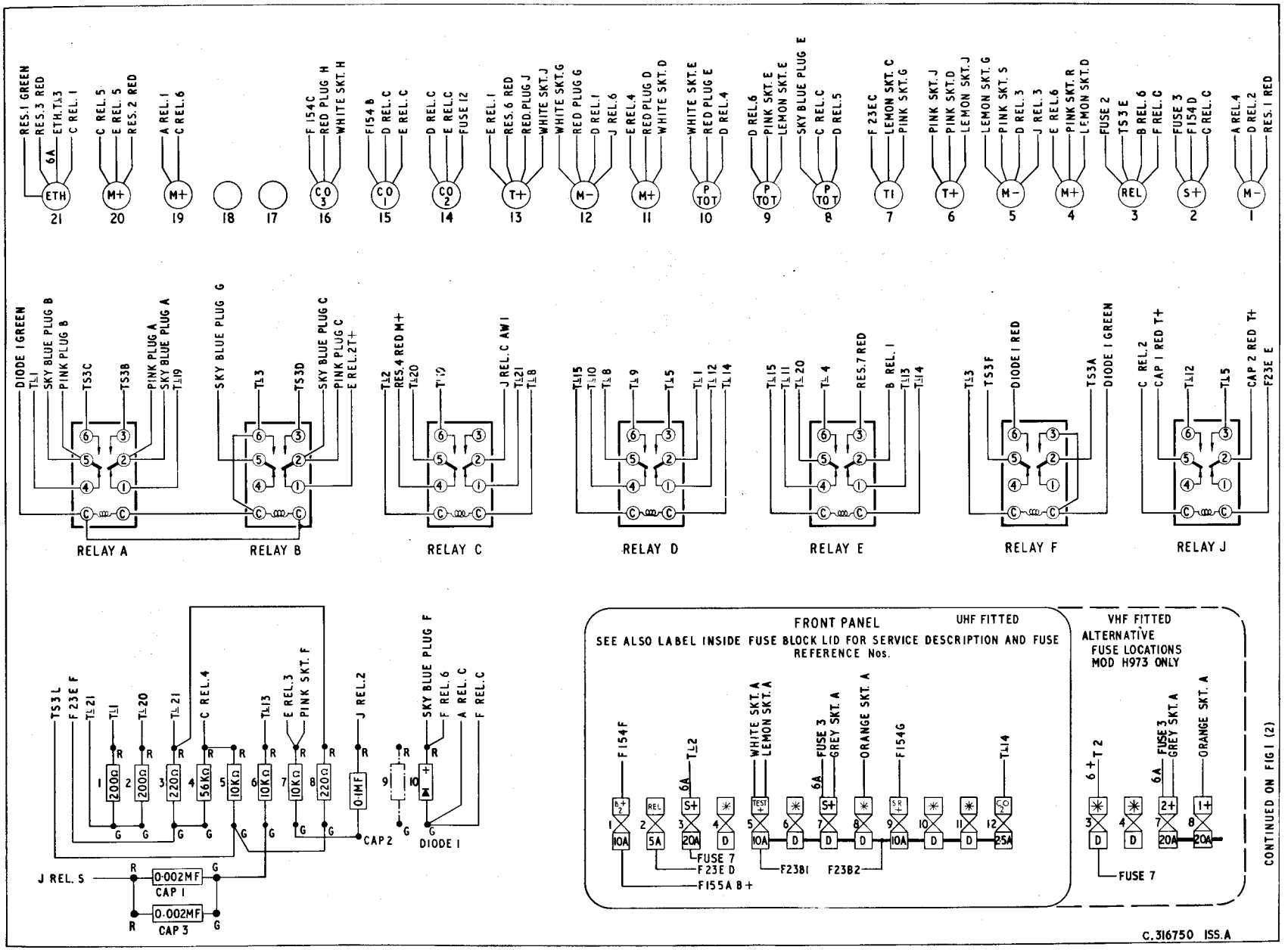

Fig. 1(1) Wiring of U.H.F. radio relay box

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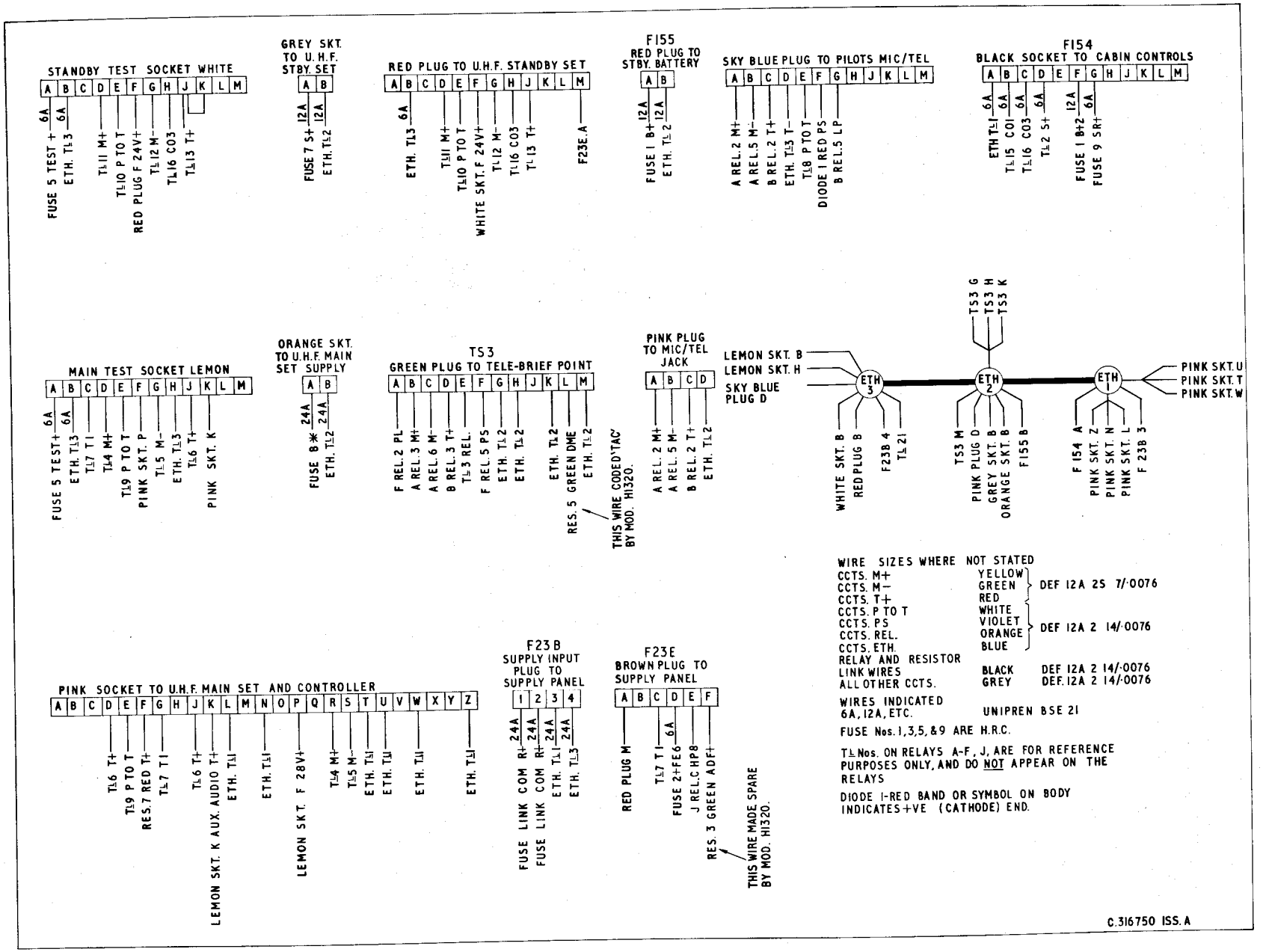

Fig. 1(2) Wiring of U.H.F. radio relay box