SECTION 6
CHAPTER 1

WIRELESS INSTALLATION

Note - *A detailed list of contents appears at the beginning of the Chapter*

Chapter 1

WIRELESS INSTALLATION

Revised to include Mods.1309 and 1376

LIST OF CONTENTS

TABLE

LIST OF ILLUSTRATIONS

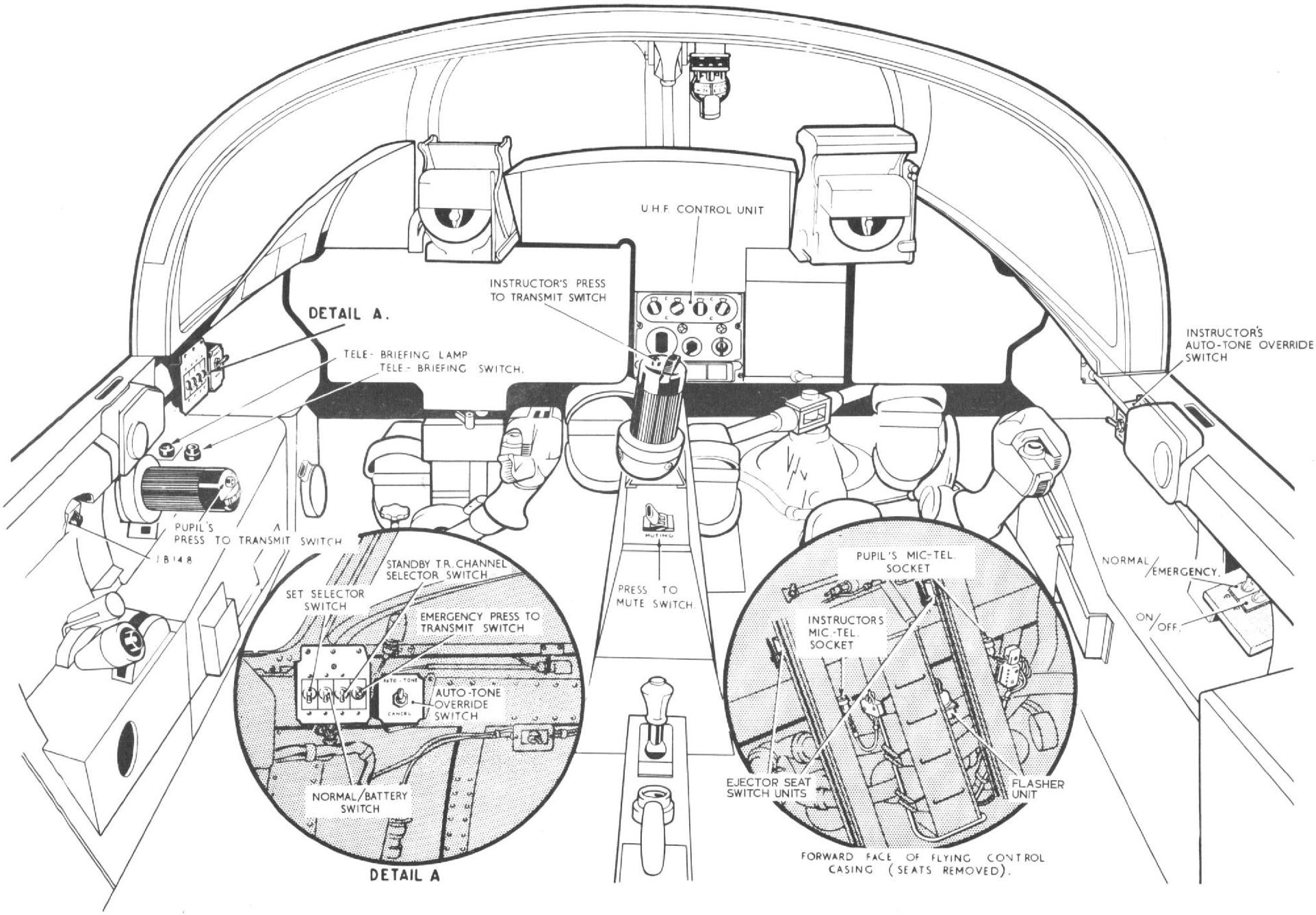

Fig. 1 Wireless installation – location (1)

T.P.(E)23355

Introduction

1. This chapter contains a description of the aircraft's wireless installation and also includes information on the servicing necessary to maintain the installation in an efficient condition, with recommended procedures for removing the equipment from the aircraft. Complete descriptions, and servicing information on the equipment used is given in Table 1.

TABLE 1

Equipment used and Air Publication reference

Equipment Type	Air Publication
Main U.H.F. – A.R.I.18124/1	
Transmitter-receiver, Type T.R.5/A.R.C.52	
Mounting tray, Type M.T.1477/A.R.C.52	
Control unit, Type C.1607/A.R.C.52	
Blade aerials, Type Derveau (pre Mod.1384)	A.P.116D–0133–1
Aerial, Chelton, Type 16–1 (Mod.1384)	
Aerial relay unit, Type 1741	
Mic.-tel. sockets, Type 359	
Beacon junction box, Type 148	A.P.116B–0304–1
Radio-relay box	H.S.A. design
Standby U.H.F. - A.R.I.23057	
Transmitter-receiver, Type M.4	
Mounting tray, Type 1031	A.P.116D–0110–16
Whip aerial, Type 11789	
Radio interference filter, Type 5915–99–97–0362	
Standby battery, Type Voltabloc	A.P.113C–0200 series
Intercommunication	
Amplifier, Type A.1961	
Mounting tray, Type 936	A.P.116N–0105–1
Junction box, Type 154	
Tele-briefing – A.R.I.18012	A.P.116N–0301–1

DESCRIPTION

General

2. The wireless equipment includes an A.R.I.18124/1 main U.H.F. installation, and an A.R.I.23057 standby U.H.F. installation, with an A.1961 intercommunication amplifier and an A.R.I.18012 tele-briefing system. These installations are interconnected as illustrated in fig.4, 5 and 6. From the aircraft's Tacan installation *(Sect.6, Chap.2)* coded identification signals can be fed to the intercom system by means of a beacon junction box, and provision is also made for an audio signal to be produced in the telephones to give warning of loss of hydraulic pressure.

Power supplies

3. The power supplies for the installations are taken from the aircraft's supply panel *(Sect.5, Chap.1, Group A.1)* and are protected by two circuit breakers mounted below the panel and labelled respectively RADIO SUPPLIES, and A.R.C.52. The RADIO SUPPLIES circuit breaker *(fig.5)* feeds the fuse busbars in the radio relay box *(para.13)* and also feeds the A.R.C.52 circuit breaker, which supplies the main transmitter-receiver; the supply being routed to the set via an interconnection box which is mounted on the underside of the radio mounting structure. In the event of failure of the aircraft's electrical supply, the standby transmitter-receiver can be supplied from an emergency battery which is situated on

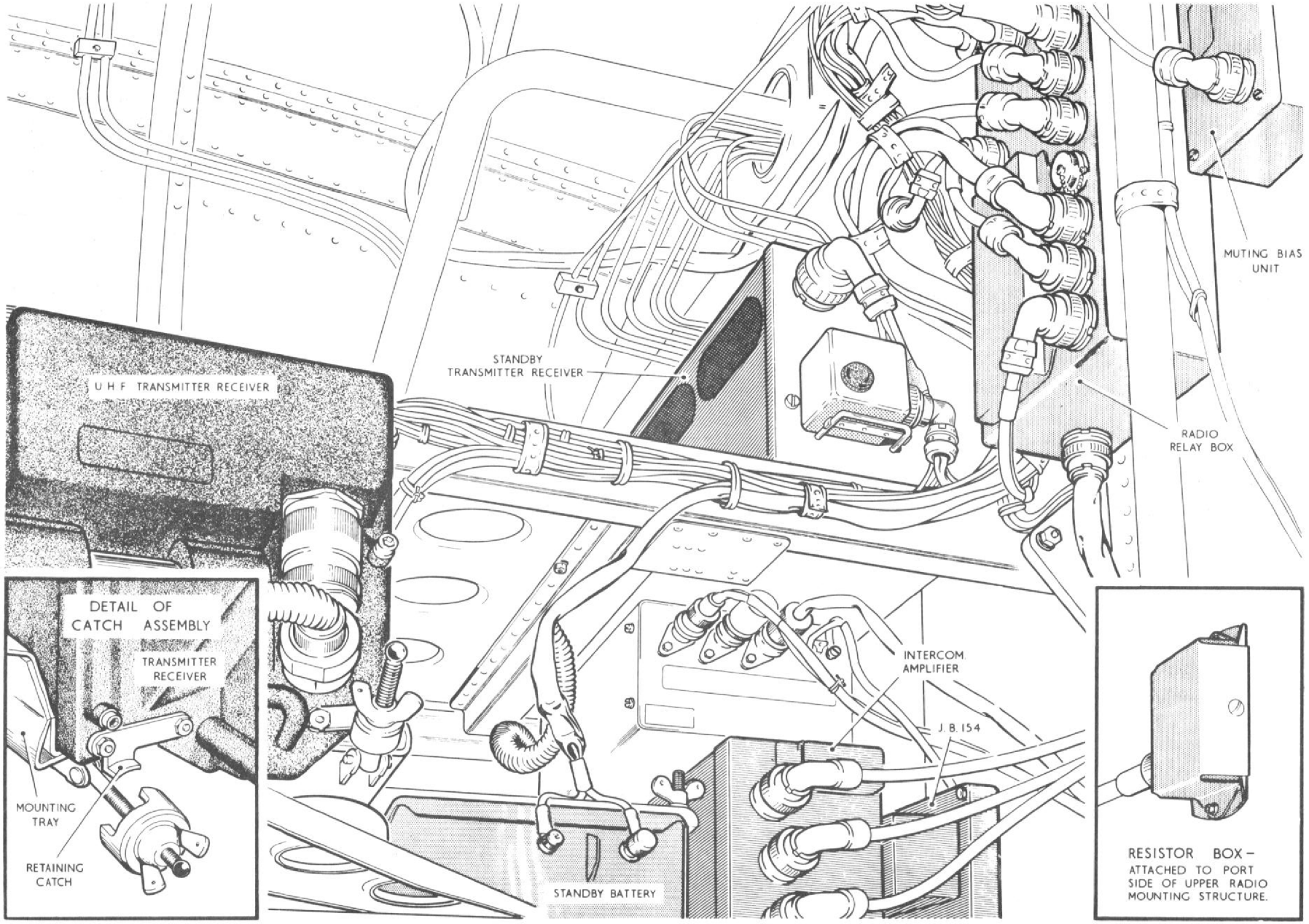

Fig. 2 Wireless installation – location (2)

the floor of the radio bay. The radio supplies circuits are described and illustrated in Sect.5, Chap.1, Group H.1.

Operating frequencies

4. The main U.H.F. transmitter-receiver operates over the frequency band 225.0 MHz to 399.9 MHz and may be set to operate on any one of the 1750 channels within this range. Provision is made to enable any eighteen of the frequencies to be pre-set. In addition, the equipment incorporates a fixed tuned guard receiver operating in the frequency range of 238 MHz to 248 MHz. The guard receiver is normally tuned to the frequency 243 MHz. The standby transmitter-receiver operates in the frequency range 238 MHz to 248 MHz but is normally used as a single-frequency equipment operating at the 243 MHz frequency. Facilities are included to permit an additional channel to be used at a frequency between 242 MHz and 244 MHz.

Radio bay and mounting structure

5. The radio bay, to which access is gained via doors in the aircraft's under-surface, extends aft from frame 15 to the forward transport joint. In addition to radio equipment, the equipment in the bay also includes the supply and generator control panels, and the batteries. The radio mounting structure extends along the port side of the radio bay, and consists of two platforms, one above the other, each of which supports anti-vibration racks for the transmitter-receivers and their associated equipment.

A.R.I.18124/1 - U.H.F. main

6. The A.R.I.18124/1 is a multi-channel U.H.F. communication installation using a transmitter-receiver carried in a mounting tray secured at the aft end of the lower mounting platform in the radio bay. The transmitter-receiver is held in the mounting tray by two spring-loaded dowels at the rear, and at the front by two wing nut fasteners that engage with clips on the transmitter-receiver front panel. The transmitter-receiver is pressurized, and contains its own cooling facilities, which permit its use in ambient temperatures between -55 deg.C and +55 deg.C.

7. A power unit on the transmitter-receiver incorporates a rotary transformer *(dynamotor)* which provides the different voltages required to operate the equipment. The dynamotor is controlled by an ON/OFF relay, whose contacts are connected to the aircraft supply, and whose coil is energized by operation of the function switch on the U.H.F. control unit *(para.14)*. A test socket for the transmitter-receiver is incorporated in the interconnection box *(para.3)*.

8. The installation operates through a single blade type aerial which projects upwards from the hood fairing between frames 17 and 18.

9. The transmitter-receiver is controlled by a control unit *(para.14)* mounted below the centre instrument panel, and by Press-to-transmit switches which are incorporated in each of the throttle handle twist grips. Other controls include a Press-to-mute switch mounted on the centre console, and an Emergency Press-to-transmit switch mounted on the port windscreen platform switch bracket. Also on this bracket is a two-position switch marked A.R.C.52, and STANDBY. The normal position of this switch is at A.R.C.52. In this position the switch completes the energizing circuit for two switching relays C and D, in the radio relay box *(para.13)* whose contacts connect the crew's mic.-tel. and Press-to-transmit lines to the main transmitter-receiver. In the STANDBY position, the switching relays are not energized, and their contacts connect the lines to the standby transmitter-receiver.

10. Operation of either throttle twist grip Press-to-transmit switch changes the set from the 'receive' to the 'transmit' condition. It effects this by completing an earth return, and thereby energizing a relay in the transmitter-receiver which switches the set to 'transmit'. The Emergency Press-to-transmit switch achieves the same effect by energizing a relay in

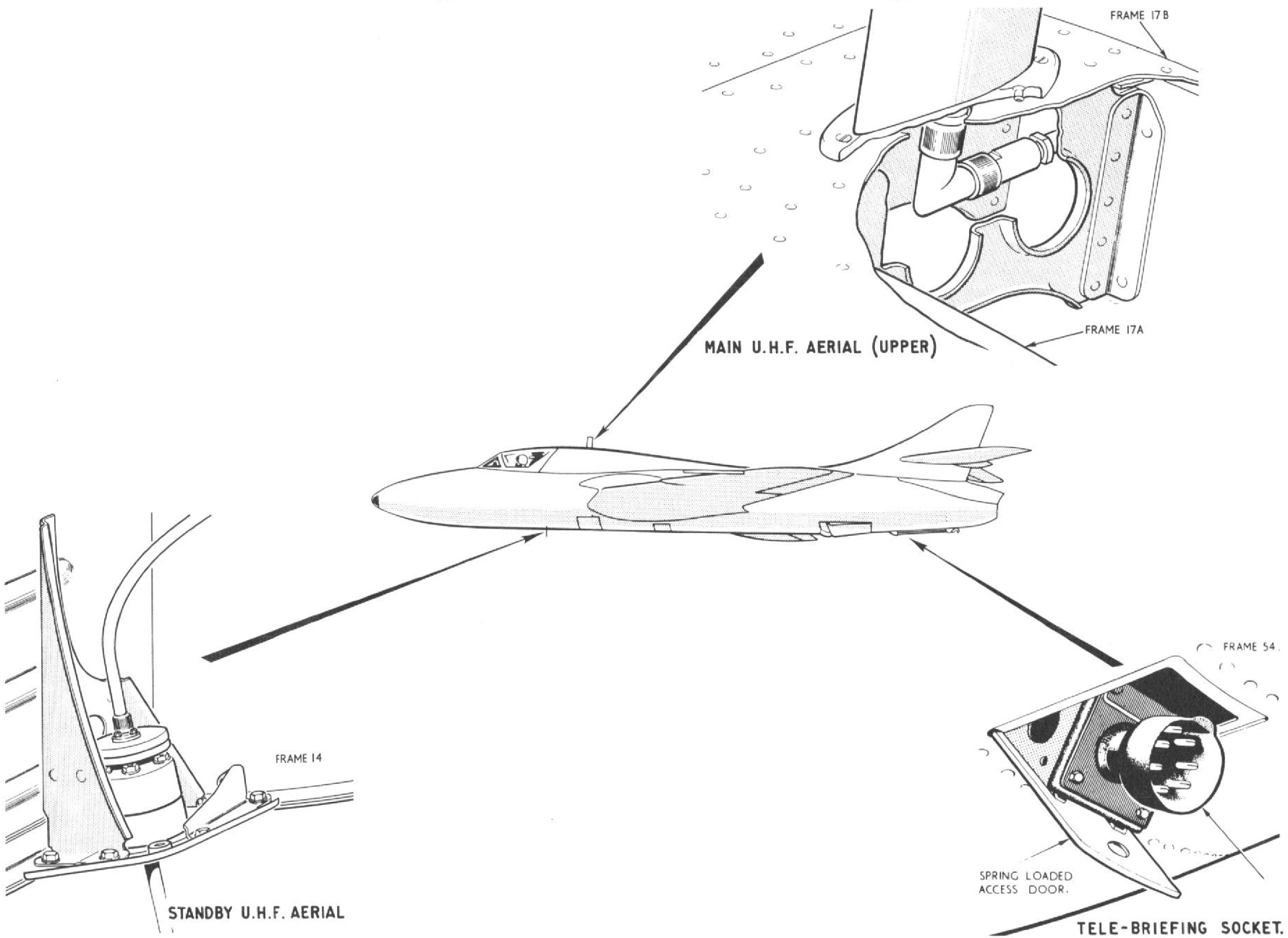

Fig. 3 Wireless installation – location (3)

the radio relay box whose contacts provide an alternative earth return for the transmitter-receiver relay. The Press-to-mute switch is used to connect a muting bias unit to the receiver circuit, thereby eliminating unwanted signals from the telephones and thus enabling the instructor and pupil to communicate without interference. The muting bias unit is attached to the underside of the top radio mounting platform *(fig.2)*. For connecting the crew's headsets, two mic.-tel. pull-out sockets are clamped one on each ejection seat gun, behind the seats.

11. The automatic tone transmission facility on ejection of either or both seats from the aircraft is initiated by ejector seat switch units, which are mounted, one on each seat top mounting link, and operated, when the seats are ejected, by spring-loaded lever mechanisms attached to the hood diaphragm. The tone is generated by a resistor-capacitor feed-back loop between the microphone and telephone circuits and the transmission is automatically pulsed on and off by the operation of a special flasher unit carried on a mounting bracket attached to the port side of the flying control casing in the cabin. Override switches which are marked AUTO-TONE CANCEL, are located in the cabin to enable either crew member to cancel the transmission if able to return the aircraft to base. The Instructor's switch is located on a bracket attached to the cabin side above the starboard shelf and the Pupil's switch is situated on a bracket adjacent to the U.H.F. radio control switches.

Beacon junction box

12. The beacon junction box is mounted adjacent to frame 10, on the port side of the cabin. The switch control on the box has three positions: R.T., MIX, and BEAC. In the R.T. position, the crew's telephones are connected to the transmitter-receiver in use. In the MIX position, the telephones are connected to the transmitter-receiver and also to the output from the Tacan installation *(Sect.6, Chap.2)*, so that signals from both the U.H.F. and Tacan receivers will be heard. In the BEAC position, only signals from the Tacan installation will be heard.

Radio relay box

13. The radio relay box is attached to the aft face of frame 15 in the radio bay by a quick-release mounting. The box houses the radio supply fuses and most of the relays that interconnect the radio circuits with the intercommunication and tele-briefing systems. All the fuses in the box except No.1 and No.2 are supplied from the RADIO SUPPLIES circuit breaker. No.1 fuse is supplied from the emergency battery. No.2 fuse is supplied from the essential load line *(Sect.5, Chap.1, Group B.1)*. The equipment in the box includes a resistor/capacitor element, which, with two of the relays, provides an audio warning signal in the telephones in the event of loss of hydraulic pressure. The operation of this, and of the other relays in the box is described in Sect.5, Chap.1, Group H.1. A test socket for the standby transmitter-receiver is incorporated in the relay box, which also has a mic.-tel. test socket held in a spring clip outside the box.

U.H.F. control unit

14. The U.H.F. control unit, which controls the main transmitter-receiver, carries on its front panel the following controls:-

(1) **Function switch.** This has four positions to permit selection of one of the following services:-

OFF	
T/R	In this position the equipment is switched on for normal use.
T/R + G	As for T/R but with the guard receiver on, in addition to the main receiver.
ADF	This position is for use when the equipment is used in conjunction with homing equipment.

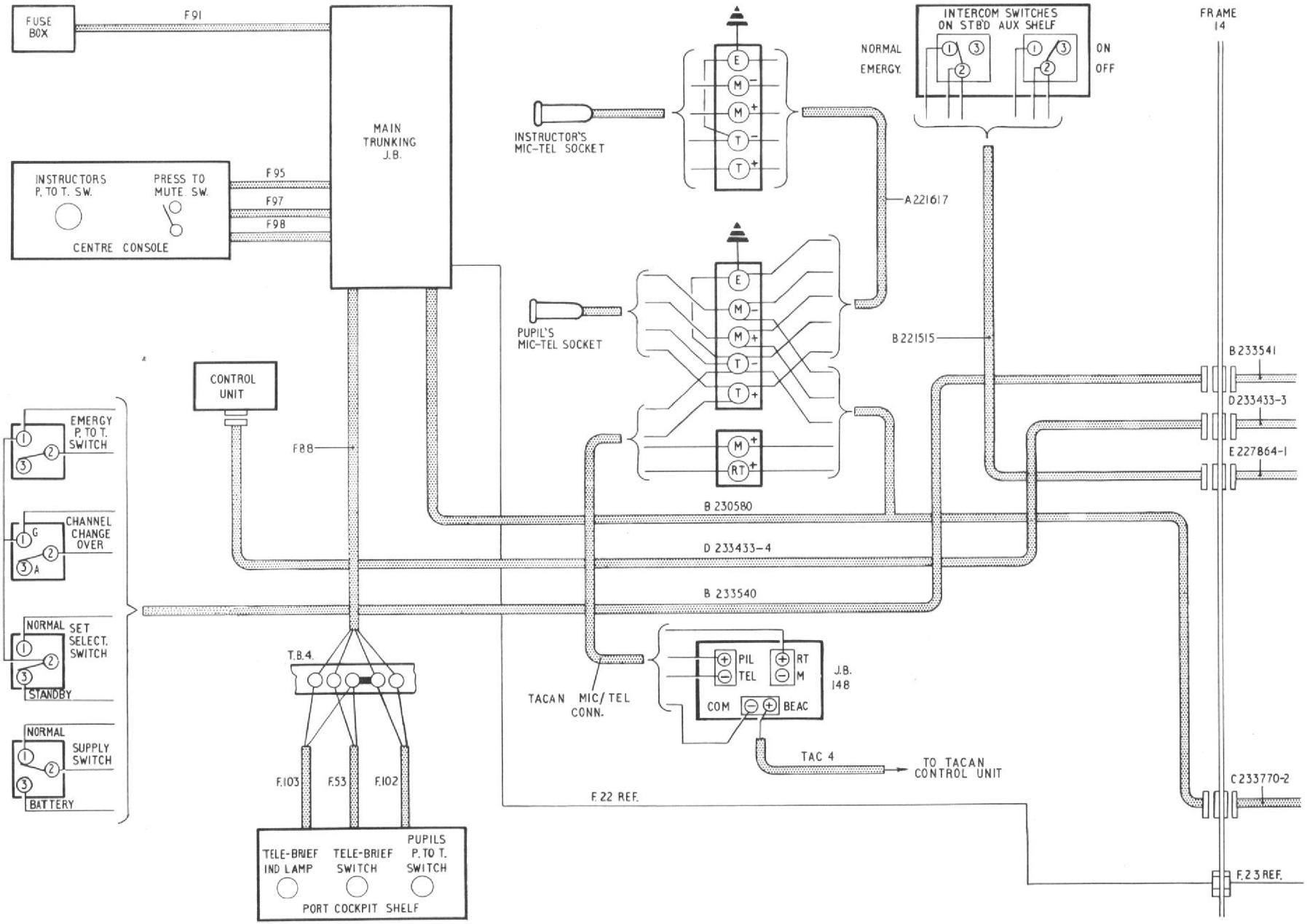

Fig. 4 Wireless installation – interconnection (1)

T.P.(E)23361

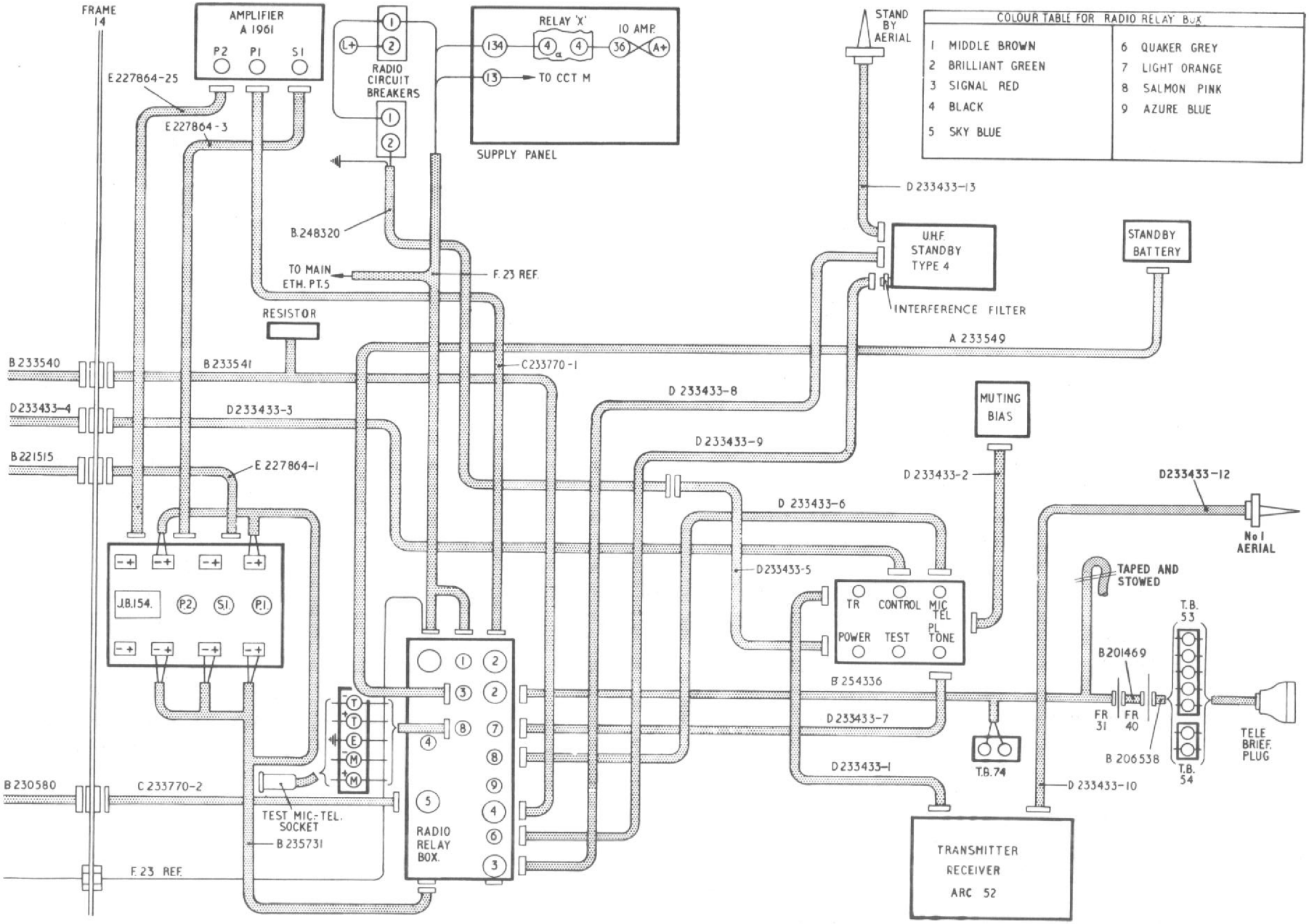

Fig.5 Wireless installation – interconnection (2)

(2) **Channel selector (CHAN) switch.** This has 20 positions. Those numbered 1 to 18 provide facilities for selecting the required pre-set frequency channel. The two remaining positions are:-

M This position transfers the selection of the frequency to MANUAL control.

G This position is normally set up to the same frequency as the guard receiver and thus enables the main transmitter-receiver to be used on this frequency.

(3) MANUAL. There are four MANUAL switches corresponding to the hundreds, tens, units and decimals of the frequency in megacycles per second. Thus any one of the 1750 channels in the frequency range may be selected.

(4) VOL. This is the volume control which is used to adjust the level of the audio signals in the telephones.

A.R.I.23057 - U.H.F. standby

15. The A.R.I.23057 is a U.H.F. standby communication installation for use in the event of failure of the main installation. It employs a pre-set two channel transmitter-receiver, carried in a mounting tray which is secured on four anti-vibration mountings at the forward end of the top radio mounting platform. The transmitter-receiver chassis is fitted with two spring-loaded dowels which locate into two holes at the rear of the mounting tray. At the front of the tray, two bolts carry knurled nut fasteners which engage with projections on the front of the transmitter-receiver and secure the latter in position. The installation uses a whip aerial which projects from a mounting plate bolted to the access door between frames 12 and 14 on the port undersurface of the front fuselage.

16. The standby transmitter-receiver normally operates on a supply derived from the RADIO SUPPLIES circuit breaker via fuse No.9 in the radio relay box. A plug-in resistor located in the radio bay reduces the supply voltage to 24 volts. When the Type M.6 transmitter-receiver is installed, the power supply is taken through an interference filter *(Mod.1226)* to limit interference caused by the converter in the set. The filter is secured by spring-tension clips to the front of the set. This supply is wired to a change-over switch marked NORMAL, and EMERGENCY BATTERY, which, in the NORMAL position connects the transmitter-receiver to the aircraft supply. When the switch is in the EMERGENCY BATTERY position, it connects the transmitter-receiver to the emergency battery supply, via fuse No.1 in the radio relay box. The change-over switch is mounted on the port windscreen platform switch bracket. Also on this bracket is the channel change-over switch, which is marked GUARD, and A, *(A representing an alternative channel).*

17. The set is brought into operation by use of the A.R.C./52 - STANDBY change-over switch *(para.9)* which, in the STANDBY position completes an earth return for the coil of a power relay in the transmitter-receiver which switches the power on to the equipment. At the same time, putting the switch to the STANDBY position disconnects the earth return from the coils of the switching relays in the radio relay box. In the de-energized condition, the contacts of these relays connect the mic.-tel. lines to the standby transmitter-receiver. When switched on, the set is in the 'receive' condition; it can be switched to 'transmit' by use of either of the throttle twist grip Press-to-transmit switches, or the Emergency Press to-transmit switch *(para.10).*

Intercom. amplifier

18. The intercom. amplifier is carried in a mounting tray which is bolted to the floor of the radio bay, just forward of the emergency battery. The amplifier is supplied from a fuse in the radio relay box, the supply being connected to the coil and contacts of a power relay in the amplifier unit. For connecting the crew's mic.-tel. lines to the amplifier and to the transmitter-receiver in use, the lines are routed via the contacts of two relays contained in a junction box, which is mounted on the aft face of frame 15, adjacent to the amplifier. These relays, known as the transmitting relay and the normal/emergency relay, are supplied with power from the amplifier power relay. The transmitting relay functions to connect the microphone lines to the transmitter-receiver or to contacts on the normal/emergency relay; the normal/emergency relay functions to connect the microphone lines and the telephone line either to the transmitter-receiver, or to the amplifier.

19. A change-over switch marked NORMAL, and EMERGENCY, controls the amplifier power relay; both these switches are mounted on a small shelf between frames 10 and 11, above the cabin starboard shelf. With the ON/OFF switch to ON, the amplifier power relay is energized, supplying the amplifier equipment, and also making the supply available to the coils of the two relays. With the NORMAL/EMERGENCY switch to NORMAL, the normal/emergency relay is energized, and its contacts connect the mic.-tel. lines to the amplifier. The telephone line from the transmitter-receiver is wired to the amplifier input, hence the crew can communicate, and also hear any incoming signals via the amplifier.

20. The energizing circuit of the transmitting relay is completed by operation of either of the main Press-to-transmit switches, or by the Emergency Press-to-transmit switch. When the relay is energized, its contacts connect the crew's microphone lines to the transmitter-receiver in use. In the event of the amplifier becoming defective, the NORMAL/EMERGENCY switch can be put to the EMERGENCY position, thereby de-energizing the normal/emergency relay, and thus connecting the mic.-tel. lines direct to the transmitter-receiver. The crew can then communicate via the latter's audio-frequency stages.

ARI 18012 – tele-briefing

21. This installation provides direct land line communication between aircraft and control tower and the aircraft is provided with a multi-pin plug in the underside of the fuselage aft of frame 53 for land line connection. Supply for the installation is from the essential load line via relay X (*Group B.1*) and fuse 2 in the radio relay box. When the appropriate actions are taken by the pilot, the above supply will energize the tele-briefing relays in the radio relay box and transfer his headset telephone and microphone lines from normal UHF communications to the tele-briefing land line cable to the control tower. Once initial contact is made on the land line, the pilot's headrest is locked on to tele-briefing and remains so until the land line is disconnected or the aircraft power supply switched off.

22. To operate the installation, a press-to-speak (*P to S*) push-switch and an indicating lamp are provided at the forward end of the cabin port shelf. Depressing the push-switch completes an earth return line for the coils of relays A, G and H in the radio relay box. Once energized, a hold-on circuit for the relays is completed via contacts 3-2 of relay A and pins 2 and 4 of the tele-briefing plug at frame 53. A circuit through the indicator lamp is also made via contacts 6-5 of relay G and the indicator will remain illuminated so long as the tele-briefing relays are energized.

Operation

General

23. When the battery master switch is ON, the power supply is available, via the RADIO SUPPLIES and A.R.C./52 circuit breakers, at the power relay in the main transmitters-receivers and also at the fuses in the radio relay box. Thus, supplies are also available at the respective power supply relays in the standby transmitter-receiver, and intercom amplifier.

H.H.F. – main

24. With the A.R.C./52 - STANDBY selector switch in its normal position i.e. at A.R.C./52, the two switching relays in the radio relay box are energized, thus connecting the crew's mic.-tel. and Press-to-transmit lines to the main transmitter-receiver. The set is brought into operation by use of the U.H.F. control unit, i.e. by putting the function switch to position T/R, the power relay in the transmitter-receiver is energized, passing supplies to the equipment, which warms up ready for operation.

25. Channel selection can be made either automatically, by putting the twenty-position CHAN selector to the number corresponding with that of one of the pre-set channels, or manually, by setting the four manual control knobs to indicate the frequency of the channel required. With the intercom. ON/OFF switch to ON, and the NORMAL/EMERGENCY switch to NORMAL, the intercom amplifier and the Normal/Emergency relay will be energized, and the latter will connect the crew's microphone lines to the input of the amplifier, and the telephone line to its output. The telephone output of the transmitter-receiver is connected to the amplifier input. Hence, any signals received on the selected channel pass via the intercom amplifier and the beacon junction box to the crew's headsets. With the switch on the beacon junction box at the position T/R, only the output of the intercom. amplifier will be heard in the telephones. With the

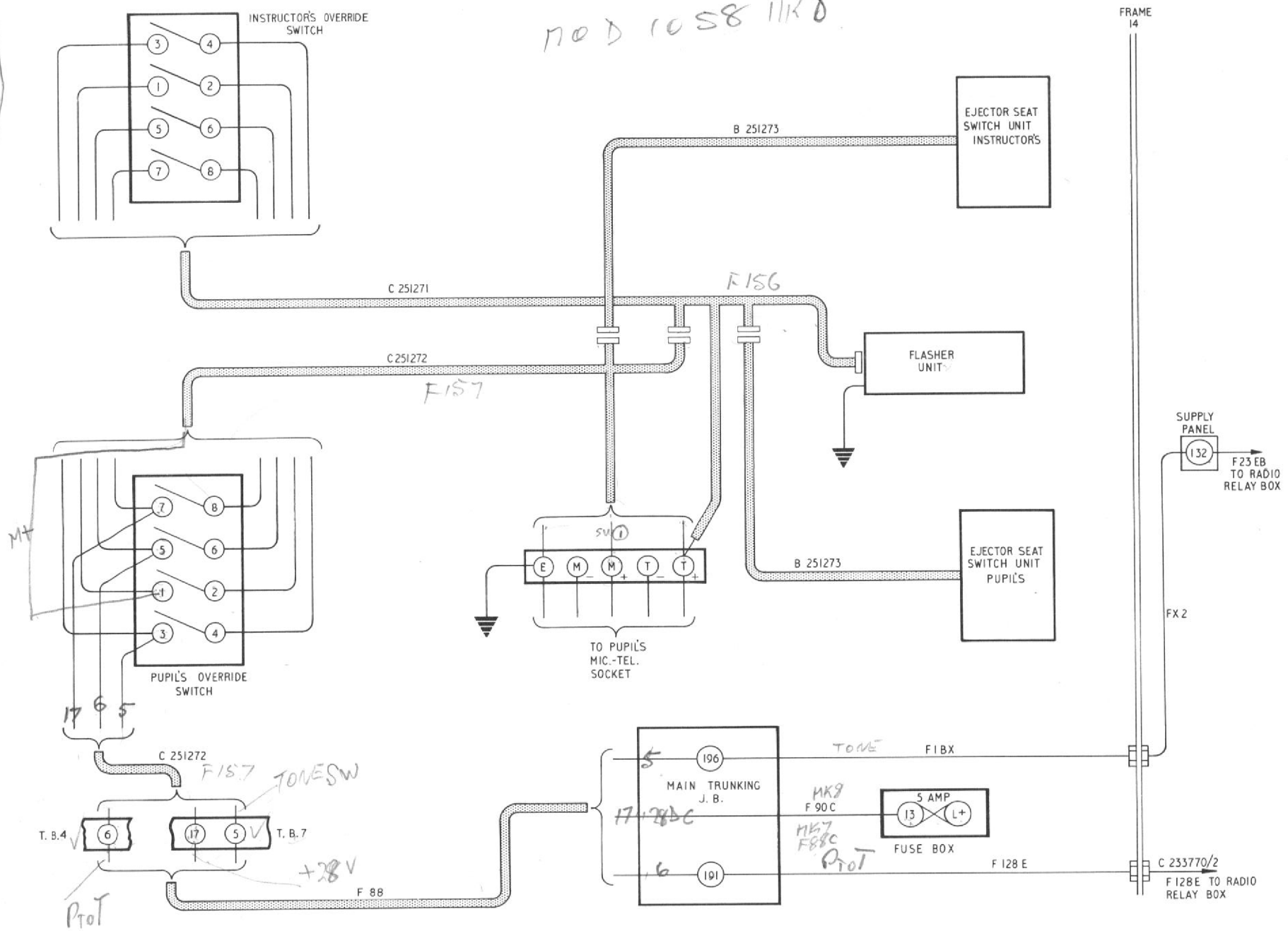

Fig. 6 Wireless installation – interconnection (Auto-tone)

junction box switch at the MIX position, any signal output from the Tacan installation *(Sect.6, Chap.2)* will also be heard.

26. To transmit, operation of either of the main Press-to-transmit switches provides an earth return by which the transmitting relay in the intercom. junction box, and the switching relay in the transmitter receiver are energized. The switching relay switches the set to the 'transmit' condition, and the transmitting relay connects the crew's microphone lines to the transmitter-receiver; the telephone line remaining connected as before, to the amplifier output. Operation of the Emergency Press-to-transmit switch similarly provides an earth return; in this instance the effect is to energize a relay E in the radio relay box, in which a contact completes an alternative earth return for the switching relay and also for the transmitting relay in the intercom. junction box.

U.H.F. – standby

27. The standby transmitter-receiver is brought into use by putting the A.R.C./52-STANDBY selector switch to the STANDBY position. By this operation the switch disconnects the earth return from the coils of the switching relays in the radio relay box and connects it to the coil of the power relay in the transmitter-receiver. Thus the power relay switches the transmitter-receiver on, and the contacts of the de-energized switching relays in the radio relay box connect the crew's mic.-tel. and Press-to-transmit lines to the standby transmitter-receiver. The latter, in the 'receive' condition, and tuned to either the GUARD or A channel *(according to the position of the channel change-over switch)* will receive any signals being transmitted on the selected channel, and also, Tacan signals may be received, as described in paragraph 25.

28. The intercom, facility can be used as already described, and switching the set from 'receive' to 'transmit' is effected as described *(para.26)*, except that for energizing the switching relay in the transmitter-receiver, the earth return is completed by a contact on a radio relay box relay F, which is energized by operation of the Press-to-transmit switch. Operation of the Emergency Press-to-transmit switch provides an earth return whereby the transmitter-receiver switching relay, and the radio relay box relay E are energized; a contact on the latter completes an earth return by which the transmitting relay in the intercom. junction box is energized.

29. In the event of a power supply failure, the standby transmitter-receiver can be supplied from the emergency battery by putting the NORMAL/EMERGENCY BATTERY switch to EMERGENCY BATTERY, thereby connecting the battery supply to the set, which will function as before. In these conditions, i.e. with the intercom. amplifier and its associated relays de-energized, the relay contacts connect the mic.-tel. lines to the transmitter-receiver, and the crew can communicate via the audio-frequency stages of the set. Switching from 'receive' to 'transmit' is effected by use of the Emergency Press-to-transmit switch, which completes an earth return, thereby energizing the switching relay in the transmitter-receiver.

Tele-briefing

30. To operate this system the control tower land line is plugged into the tele-briefing connector at frame 53, then, to transfer the headset mic. and tel. lines from UHF to tele-briefing it is necessary to depress the tele-briefing push-switch. Completion of the circuit is indicated by illumination of the tele-briefing indicator. No further action is necessary by the pilot to receive messages but to transmit he must first depress the push-switch and hold it depressed while transmitting as this action is necessary to energize the microphone relay in the control tower. Once the tele-briefing circuit is completed between aircraft and control tower, the pilot's headset remains locked on to this circuit until the land line is disconnected from the aircraft.

SERVICING

General

31. Servicing of the wireless equipment is covered in the 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 given in fig.4,5 and 6 and a wiring diagram of the power supplies and radio relay box will be found in Sect.5, Chap. 1, Group H.1.

Power supplies

32. If a fault is reported in the wireless installation, the power supplies should first be checked, in conjunction with the routeing and theoretical diagrams in Sect. 5, Chap.1, Group H.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

33. Servicing of the cables and connectors consists of the standard continuity and insulation resistance tests, together with periodical examinations throughout the entire length for signs of damage to, or deterioration of the insulation. If defects are found, the complete cable or connector must be replaced. The Part Number reference of the connectors are given in fig.4 and 5. 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 tightened securely.

Mic.-tel. test socket

34. To eliminate the necessity of using the cabin mic.-tel., sockets 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 cabin sockets and stowed in a spring clip on the outside of the radio relay box, 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.

Security check

35. 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 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 are securely mounted.

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

(7) Check that any strain on the Instructor's and Pupil's mic.-tel. sockets is taken up by the check-cords, and not by the cables attached to the sockets.

Functional check

36. To ensure that the wireless installation is set up and operating correctly, the functional checks given in the Air Publications listed in para.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, test sockets are provided on the radio relay box and the interconnecting box respectively, in the radio bay. The test sockets are used in conjunction with the U.H.F. test set as described in the appropriate Air Publication.

Fault finding

37. 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.

38. 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

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

REMOVAL AND ASSEMBLY

General

40. 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 a 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

41. 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 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 them until they are clear of the retaining catches on 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

42. 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 disconnect it 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.

Note . . .

When re-assembling the aerial, ensure good electrical bonding by checking that the mating surfaces are absolutely clean and making perfect contact. Seal the aperture around the aerial base with Bostik compound to prevent entry of water.

U.H.F. control unit

43. To remove this control unit proceed as follows:-

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

(2) Disengage the four Dzus fasteners on the face of the control unit. Withdraw the unit from the instrument panel.

(3) Disconnect the connector from the forward face of the control unit, and remove the unit from the aircraft.

Radio relay box

44. 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 and earth lead 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 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.

Note . . .

On assembly of the box ensure that the earth lead is re-fitted.

U.H.F. standby transmitter-receiver

45. 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 three 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

46. 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 seven countersunk-headed bolts from around the periphery of the aerial mounting plate in the port undersurface of the front fuselage.

(3) Withdraw the aerial and mounting plate 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 mounting plate by unscrewing the five nuts from the bolts securing the aerial base to the mounting plate, 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 mounting plate landing.

U.H.F. standby battery

47. The standby battery, which is held in place on the lower platform of the radio mounting structure by two clamping bars, should be removed as follows:-

(1) Render the aircraft electrically safe 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 and slacken off the nuts until the clamping bars can be swung clear of the battery case.

(4) Remove the battery from the aircraft.

Note . . .

After re-assembly and securing the battery with the clamping bars, lock the

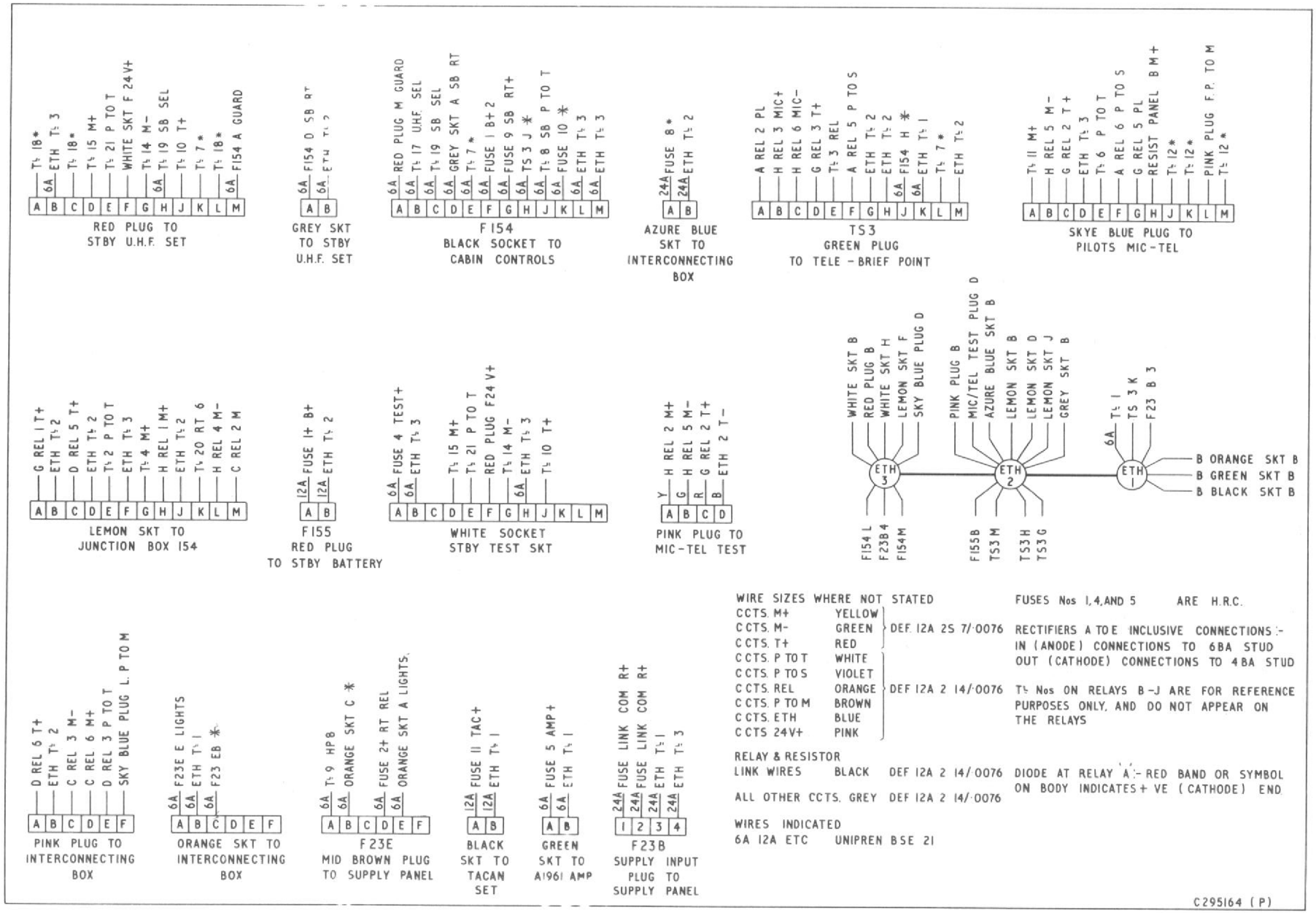

Fig.7 Radio relay box wiring (sheet 1)

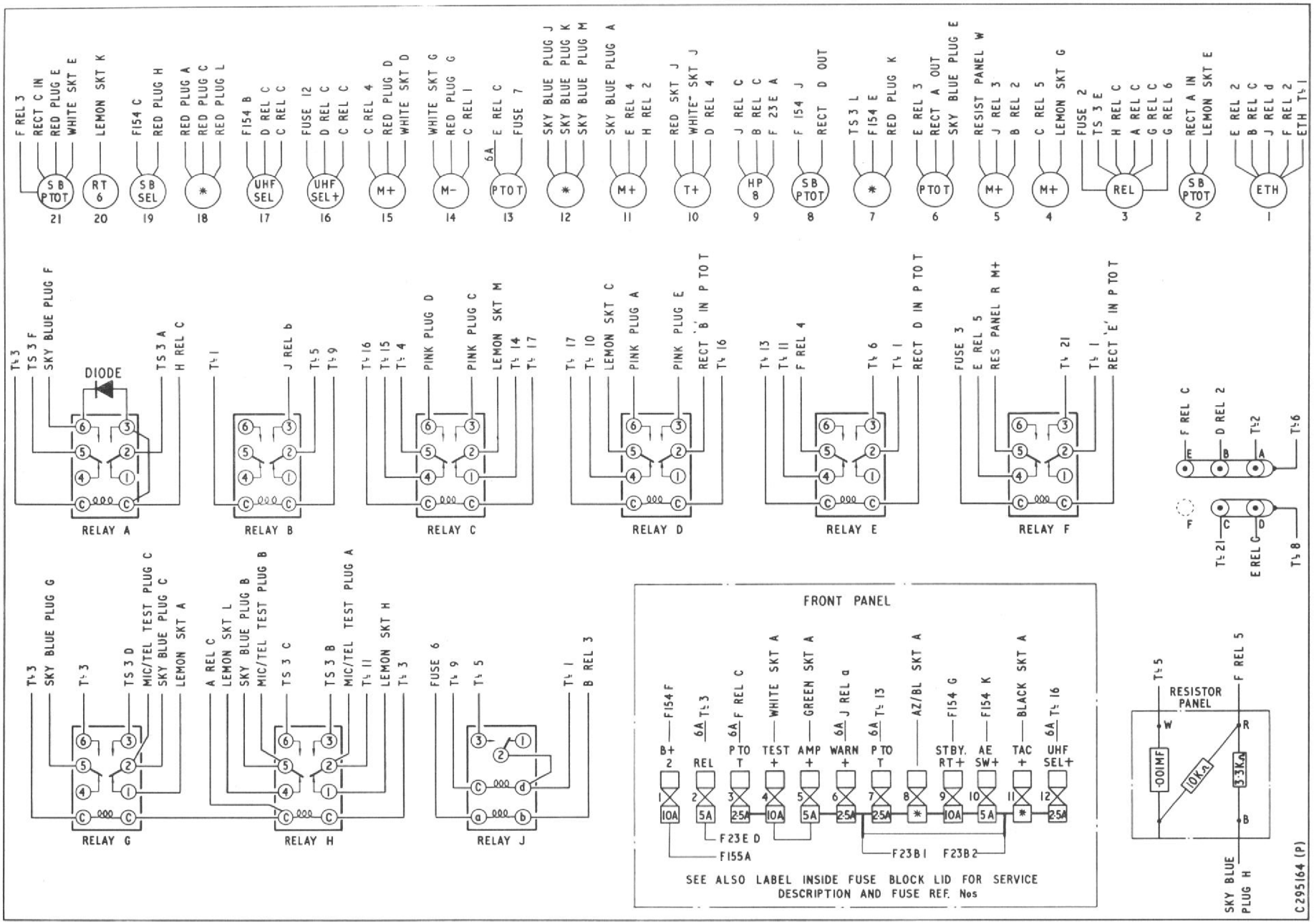

Fig.8 Radio relay box wiring (sheet 2)

wing-nuts with 22 s.w.g. stainless steel wire to Spec. 189 or 161.

Interconnecting box

48. To remove the interconnecting box proceed as follows:-

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

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

(3) Remove the box from the aircraft by releasing the four nuts, bolts and washers which secure the box to the mounting platform.

Intercom. amplifier

49. To remove this amplifier, proceed as follows:-

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

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

(3) Unscrew the retaining clamp screw on the mounting tray, which grips the transport handle of the amplifier. Disengage the handle and fold it upwards clear of the mounting tray.

(4) Disengage the spigots at the rear of the amplifier from the mounting tray by using the handle to withdraw the amplifier from the tray. Still using the handle, carefully remove the amplifier from the aircraft.

Intercom. junction box

50. The method of removing this junction box is as follows:-

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

(2) Gain access to the junction box by removing the Intercom. amplifier unit *(para.52).*

(3) Disconnect all the connectors from the plugs, sockets and terminal blocks on the junction box. Fit approved caps and covers to the plugs and sockets, insulate the bared ends of the connector leads and stow the connectors clear of the box.

(4) Release the cable clip from the lower inboard corner of the box by removing the nut from the bolt securing the unit to its mounting lugs. Replace this nut.

(5) The junction box may now be released from frame 15 by removing the four nuts, bolts and washers securing the box mounting lugs to the frame.

Note . . .

When re-assembling the junction box to the frame, check that the local surfaces of the frame and the top outboard mounting lug are clean to ensure a good electrical contact. Also ensure that the earth leads are re-assembled at this point.

Muting bias unit

51. The method of removing this unit is as follows:-

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

(2) Disconnect the connector from the top of the unit, fit an approved cap and cover to the plug and socket and stow the connector clear of the unit.

(3) Release the unit from the mounting platform by unscrewing and removing the four nuts, bolts and washers securing the unit to the platform.

Beacon junction box

52. The method of removing this junction box is as follows:-

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

(2) Release the junction box from its mounting plate by unscrewing and removing the two bolts securing the box to the mounting plate.

(3) Disconnect the leads of the Tacan mic.-tel., cable assembly from the terminal blocks on the junction box. Insulate the bared ends of the cable and stow.

(4) Remove the box from the aircraft.

Radio mounting structure

53. When breaking down the aircraft at the front transport joint as described in Book 1, Sect.3, Chap.1, it is necessary to remove the fixing bolt securing the top radio mounting platform to the channel on frame 19. Before this is done, the two U.H.F. transmitter-receivers should be removed *(para.41 and 45)* together with the standby battery *(para.47)* to prevent them from being damaged while the aircraft is being dismantled.