Chapter 2
RADAR INSTALLATION

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A list of Appendices is given at the end of this chapter.

Introduction

1. This chapter describes the radar equipment installed in this aircraft, including the necessary servicing information required 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 on the equipment used, reference should be made to the Air Publications listed in Table 1.

DESCRIPTION

General

2. The radar equipment consists of an A.R.I.23013 (*D.M.E.*) navigation aid, an A.R.I.5848 (*I.F.F.*) installation and an A.R.I.5820 radar ranging installation. The transmitter-receivers of the D.M.E. and I.F.F. installations are carried on a radio mounting structure extending between frames 16 and 19 on the port side of the radio bay in the front fuselage (*Sect. 6, Chap. 1*). The radar head of the radar ranging installation is located in the nose

of the aircraft, while the ranging unit is situated just forward of frame 6 in the front fuselage. All the installations are remotely operated by control units situated in the cabin and the location of the radar equipment is illustrated in fig. 1 and 2.

Note . . .

The A.R.I.23013 and A.R.I.5820 equipments are removed when Mod. 1320 is embodied.

A.R.I.23013

3. This is a Rebecca Mk. 8 interrogator-responser installation, which operates in conjunction with a ground transponder and shows on a meter the range and heading of the aircraft with relation to the ground transponder. It is used as an aid to navigation. The installation employs a Type 8193 transmitter-receiver, complete with a Type 8196 junction box, which are both clamped into a sliding S.B.A.C. mounting rack located at the forward end of the top platform of the radio mounting structure in the radio bay. The transmitter-receiver uses separate Type 91 aerials for transmission and reception. The transmitting aerial projects downwards from the engine starter access door on the underside of the centre fuselage, while the receiving aerial projects from the engine access door also on the underside of the centre fuselage. The installation also employs two direction finding aerials, which are located one in each air intake. The receiving aerial and the port air intake aerial are connected to the transmitter-receiver via a Type 514 aerial switch unit mounted on the rear face of frame 16 adjacent to the transmitter-receiver. The installation is remotely operated by a Type 8197 control unit situated on the cabin starboard shelf and the range and heading meter is mounted on the starboard instrument panel.

4. The installation operates on a choice of eight spot frequencies between 200 to 235 Mc/s. The selection of the spot frequencies is made by turning switches in the control unit. The transmitter and receiver frequencies are selected so that the transmitter and receiver are not working at the same frequency. This arrangement reduces the possibility of errors from ground reflection. The electrical supply circuit of the installation is described in Sect. 5, Chap. 1, Group H.1.

A.R.I.5848

5. This is a Mk. 10 I.F.F. installation, the basic purpose of which is to enable the aircraft automatically to identify itself as friendly when challenged by appropriately equipped air, sea and ground forces. The installation embodies a Type 4585 transmitter-receiver, which is carried on a shock-absorber type mounting rack located at the aft end of the top platform of the radio mounting structure in the radio bay. The installation uses two Type 100B aerials, each of which is automatically connected, in turn, to the transmitter-receiver by a Type 6850 aerial switch unit. One aerial is situated on the top of the front fuselage just forward of the windscreen and the other is mounted between frames 22 and 23 on the underside of the centre fuselage. The aerial switch is mounted on a plate attached to the aft face of frame 16 on the port side of the aircraft, adjacent to the D.M.E. transmitter-receiver, in the radio bay.

6. The installation is remotely operated by a single-pole ON-OFF I.F.F. master switch, an I.P. switch and a Type 927 control unit, which are all located on the cabin starboard shelf. The installation employs a coder unit, which is mounted on a mounting tray fitted with anti-vibration mountings to a carrier attached to frame 16 in the radio bay. The coder is operated by a coder control panel situated on the cabin starboard shelf adjacent to the Type 927 control unit.

7. The power supply for the installation is obtained from a Type 200 inverter and its associated Type 38 control panel, which are both mounted on the underside of the radio mounting structure in the radio bay. The inverter, obtains its d.c. supply from a circuit breaker mounted below the aircraft's electrical supply panel on the starboard side of the radio bay. The inverter is switched on by the I.F.F. master switch and its output is taken to the transmitter-receiver via a Type G.2 suppressor and fuse. The suppressor and fuse are mounted together on the forward

TABLE 1

Equipment type and Air Publication reference

Equipment Type	Air Publication
A.R.I.23013	A.P.2914A.G
A.R.I.5848	A.P.2887N
A.R.I.5820	A.P.2917E

face of the starboard fuel tank access door on frame 19.

8. To enable the upper or lower aerial to be selected for test purposes, a single-pole change-over switch marked UPPER, LOWER and FLIGHT is provided in the radio bay. The switch is mounted on a bracket attached to the forward face of frame 19, below the starboard fuel tank access door.

Note . . .

This switch is fitted with a spring-loaded safety cover to retain it in the FLIGHT *position.*

9. The installation operates in the 950 to 1150 Mc/s. band and uses a different frequency channel for transmission and reception. The power supplies are described in Section 5, Chap. 1, Group H.1.

A.R.I.5820

10. This is a radar ranging installation for use in conjunction with the gyro gun sight, which is described in Sect. 5, Chap. 2, Group 4. The ranging installation employs a Type 2 radar head and a Type X.1219 ranging unit, which are interconnected by a junction box. The radar head is carried on a mounting structure extending forwards from frame 3 in the nose of the aircraft, while the ranging unit is located between frames 4 and 6 on a mounting structure at the top of the nose wheel bay. The junction box is bolted to the rear face of frame 3 on the starboard side below the ranging unit. The power supply for the installation is obtained from No. 2 inverter in the alternating current supplies circuit (*Group E.1 of Section 5, Chapter 1*) and from a Type 206 inverter. This inverter is mounted on two bearers extending across the top of the nose wheel bay between frames 5 and 6, just above the ranging unit. The inverter is protected from an overload by a fuse carried in a fuse-holder mounted on the inverter's control panel mounting bracket. The control panel is mounted on a carrier attached to the port side of frame 5 and the forward face of frame 6.

11. The equipment is switched on by a switch located on the forward portion of the cabin port shelf and a magnetic indicator adjacent to the switch is provided to show when the installation is operating. Two lamps, mounted on the starboard side of the gyro gun sight, are provided to indicate when the radar has locked-on to a target and when the aircraft is within the correct firing range. A target reject switch is located on frame 9 above the cabin port shelf.

12. The radar ranging and gyro sight are interconnected by Type 4493 and 4497 junction boxes, which are located on the port side of frames 5 and 7 respectively. A radar presentation switch, which is connected into the installation via the Type 4497 junction box, is mounted on a bracket attached to the windscreen port platform below the lighting screen.

13. To enable the installation to be checked for correct operation, test sockets with shorting plugs are provided. The test sockets are located on the rear face of frame 3. The radar head and ranging unit are cooled by the circulation of spent air taken from the cabin pressurization system (*Section 3, Chapter 8*) before final discharge to atmosphere. The Type 206 inverter is cooled by air from the camera ram air duct, situated in the nose of the aircraft. A connection, for the introduction of cooling air when ground testing the installation, is provided in the port side of the front fuselage skin. The electrical supply circuit of the installation is described in Group H.1 of Section 5, Chapter 1 of this volume. When the radar head and ranging unit are not installed, special ballast weights (*para. 61*) must be fitted in lieu.

Interconnection

14. The various components of each radar installation are interconnected, as shown in fig. 3 by a number of connectors strapped and clipped to the aircraft structure. These connectors are of the metal-braided and non-braided type fitted with standard and miniature plug and socket type breakdown points.

OPERATION

General

15. For the guidance of servicing personnel a brief description of the operating

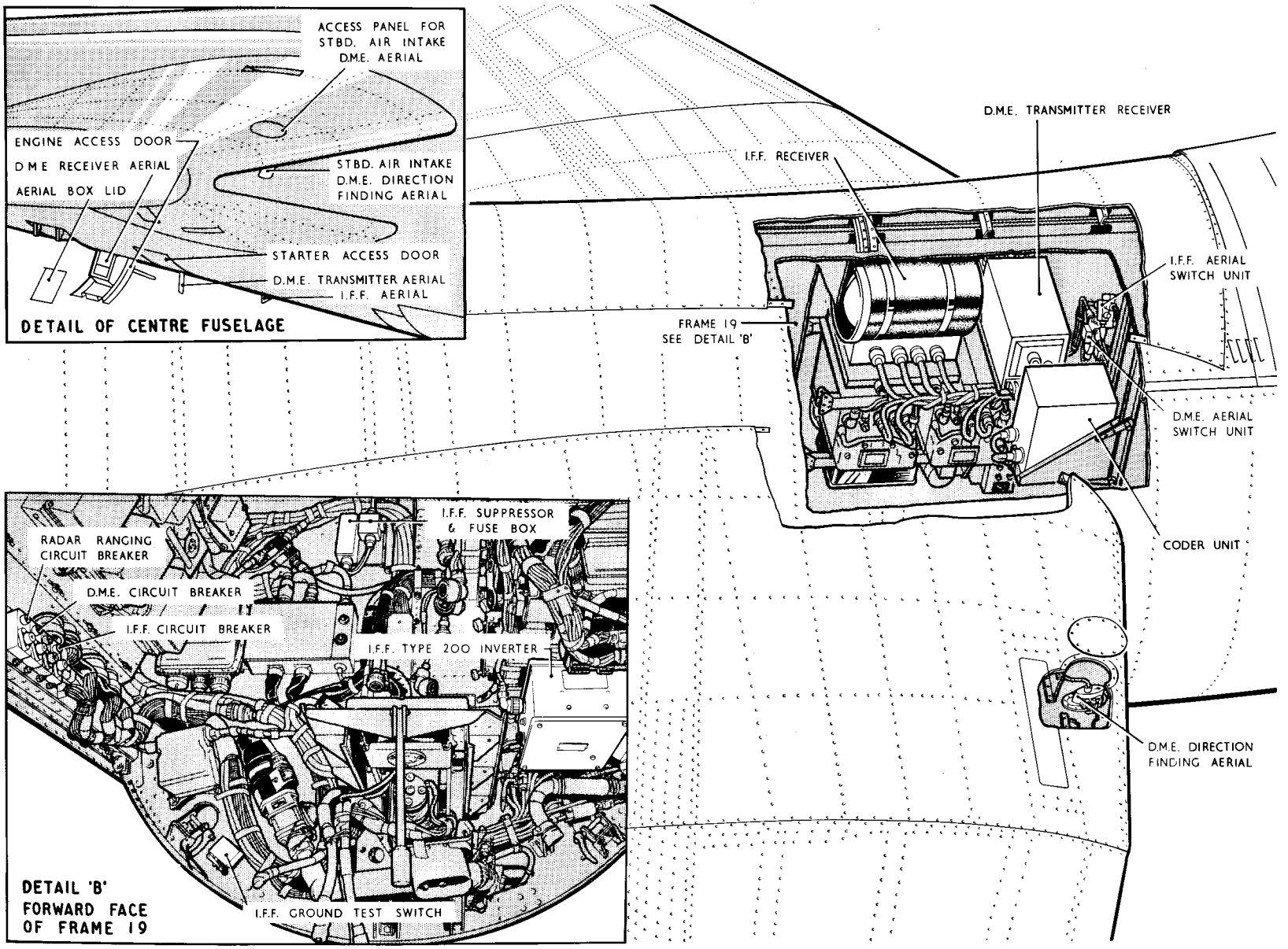
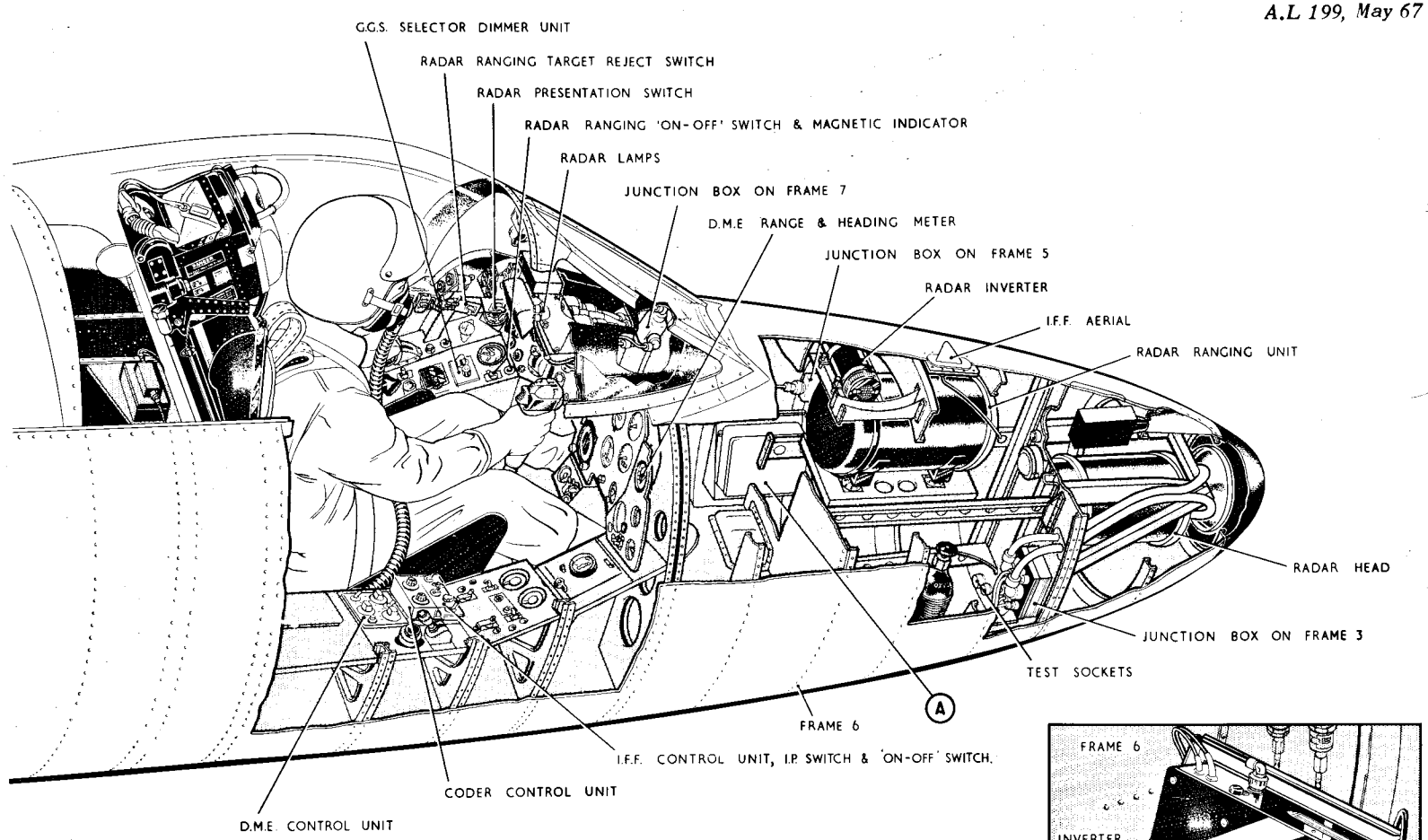


Fig. 1 Radar installation - location (1)



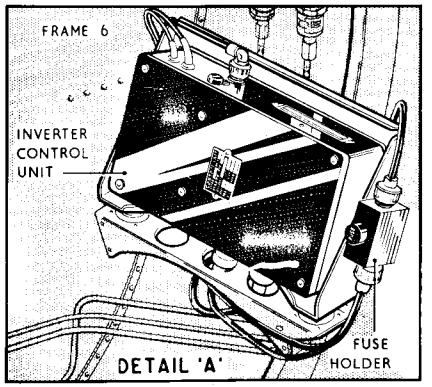


Fig. 2 Radar installation - location (2)

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procedure for the various radar installations installed in this aircraft, will be found in the following paragraphs.

A.R.I.23013

16. The setting-up and operating instructions for this installation are given in detail in A.P.2914AG, Vol.1, but for those who are less concerned with the technical details the following summary is given.

17. The installation has two modes of operation, the first is searching for a transponder and the other is locked to a transponder. The first is indicated by the range pointer of the range and heading meter taking 17 seconds to rise slowly from zero to 200 nautical miles; when the full scale has been swept, the pointer returns quickly to zero and a new sweep commences. When the equipment is switched to the 20 mile position, the search period is only three seconds. The second mode of operation is indicated by the word ON showing in the window of the range and heading meter; simultaneously the sweeping action of the range pointer will change to one which is locked to the range at which interrogation takes place. After the equipment is locked to a transponder, the range shown by the meter will vary in accordance with the range variations of the aircraft from the transponder.

18. Each transponder radiates a code pulse for identification by the pilot and if he finds that the code signal is not that of the transponder on which he means to home, he can release the equipment from the locked to transponder state by depressing the stroke release push-switch on the control unit. The installation will then return to the searching condition.

19. All control of the installation is achieved by use of a Type 8197 control unit situated on the cabin starboard shelf and the range and heading meter located on the starboard side of the centre instrument panel. The control unit contains six separate switches as follows:-

(1) Function and range switch, marked OFF - SB - 200 - 20 - BAT - BAH.

(2) Transmitter tuning switch, marked TX.

(3) Receiver tuning switch, marked RX.

(4) Code switch, marked CODE ON-OFF.

(5) Aerial selector switch, marked O/R-H.

(6) Stroke release push-switch, marked STROBE.

20. The function and range switch is a six position rotary switch, which selects the following operating conditions:-

(1) OFF - all power switched off.

(2) SB - standby switching; power is applied to all valve heaters, frequency changing motor circuits, aerial switching relay and the strobe lock indicator.

(3) 200 - long range operating position; searching takes place over a range of 200 nautical miles, each search sweep taking 17 seconds.

(4) 20 - short range operating position; searching takes place over a range of 20 nautical miles, each search sweep taking 3 seconds.

(5) BAT - in this position the equipment is ready for operation with any B.A.B.S. Mk.4 beacon, the frequencies of which are selected with the transmitter-receiver selectors.

(6) BAH - A second B.A.B.S. operating position is provided for use with the B.A.B.S. beacon sited at the aircrafts' home station. The frequencies of the home B.A.B.S. beacon are pre-tuned in the equipment, so that a fully clockwise turn of the function switch will override the transmitter and receiver tuning positions and automatically tune to the home B.A.B.S. beacon.

Note . . .

Selection of the BAT and BAH positions automatically connects the omi-directional aerial to the equipment, overriding the setting of the aerial selector switch (para.23).

21. The transmitter tuning switch selects any one of eight spot interrogator channels which are identified by the letters A to H and the receiver tuning switch likewise selects any one of eight spot responder channels, which are identified by the numbers 1 to 8.

22. The code switch is an ON - OFF toggle switch which when in the ON position, allows coding signals from a transponder to which the responder has been locked to be fed into the pilot's headset circuit.

23. The aerial selector switch is a two-position toggle switch. In the O/R *(omni-range)* position the omni-directional aerial is in use. It is used for B.A.B.S. approaches but does not have to be selected for this purpose with the aerial selector switch, since positioning the main function switch to BAH or BAT automatically selects the omni-directional receiving aerial. In the H *(homing)* position, switching between the directional aerials takes place at a rate of 20 times per second and the heading indicator shows any deviation from a true course laid on the transponder.

24. The strobe release push-switch releases the locking circuit and allows the equipment to fall back into the searching mode. If there is no other beacon within the reception range, the meter will continue to search up to maximum, fall to zero and then search to the original range indicated when the equipment will again lock to the beacon.

25. When homing, the heading pointer in the meter will show a zero reading when the aircraft is heading both towards or away from the transponder. To resolve this ambiguity, the aircraft should make a right-hand turn. If the aircraft is heading towards the transponder, the meter pointer will deviate to the left; if the aircraft is heading away from the transponder, the pointer will deviate to the right. If the aircraft makes a left-hand turn, the meter indications will be reversed.

A.R.I.5848

26. The setting-up and operational instructions for this installation are given in full detail in A.P.2887N, to which reference should be made when information is required.

A.R.I.5820

27. The setting-up and operating instructions for this installation are given in full detail in A.P.2917E, but for those who do not require this amount of detail, the following brief summary is given.

28. The installation operates in conjunction with the gyro gun sight to provide continuous range information of a target within the limits of the radar beam from the nose of the aircraft.

29. The installation is switched on by an ON-OFF switch marked G.G.S., RADAR RANGE and a magnetic indicator, which is marked RADAR SUPP.IND., is located adjacent to this ON-OFF switch to indicate when the installation is being supplied and is ready for operation. The gyro gun sight supply is independent of the radar ranging installation and the sight must be switched on separately by means of the gun sight master switch. It must also be noted that the ranging installation will only control the range mechanism of the gun sight when the gun sight selector-dimmer control unit is set to the G or G and F positions. The throttle twist grip, used for a manual range control of the gun sight, will normally override the ranging installation when set to the minimum range position.

30. An ON-OFF switch marked RADAR PRESENTATION is also provided to disconnect the ranging installation from the range mechanism of the gun sight to counteract the effect of a target using "window". If a target uses "window" within the range of the gun sight, it is possible that the radar equipment will lock-on the "window". In these circumstances it will be impossible to retain control of the sight by means of the twist grip because the range of the "window" will always be shorter than that of the target. When the radar presentation switch is set to the OFF position, the radar equipment operates normally, but the output from the cathode-follower is disconnected from the gun sight and manual range control of the sight may be accomplished by means of the twist grip in the usual manner.

31. When following a target, the radar equipment will lock-on to it when it is within a range of 1,500 yards and within the beam. This is indicated by the lighting of a green lamp mounted on the sighting head of the gun sight. When the range decreases to within firing range, as adjusted when setting up the installation, the orange lamp on the sighting head will light to indicate that the guns should be fired.

32. The installation is provided with a spring loaded target reject switch marked IN and OUT. This switch is used to check that the installation has locked-on to the

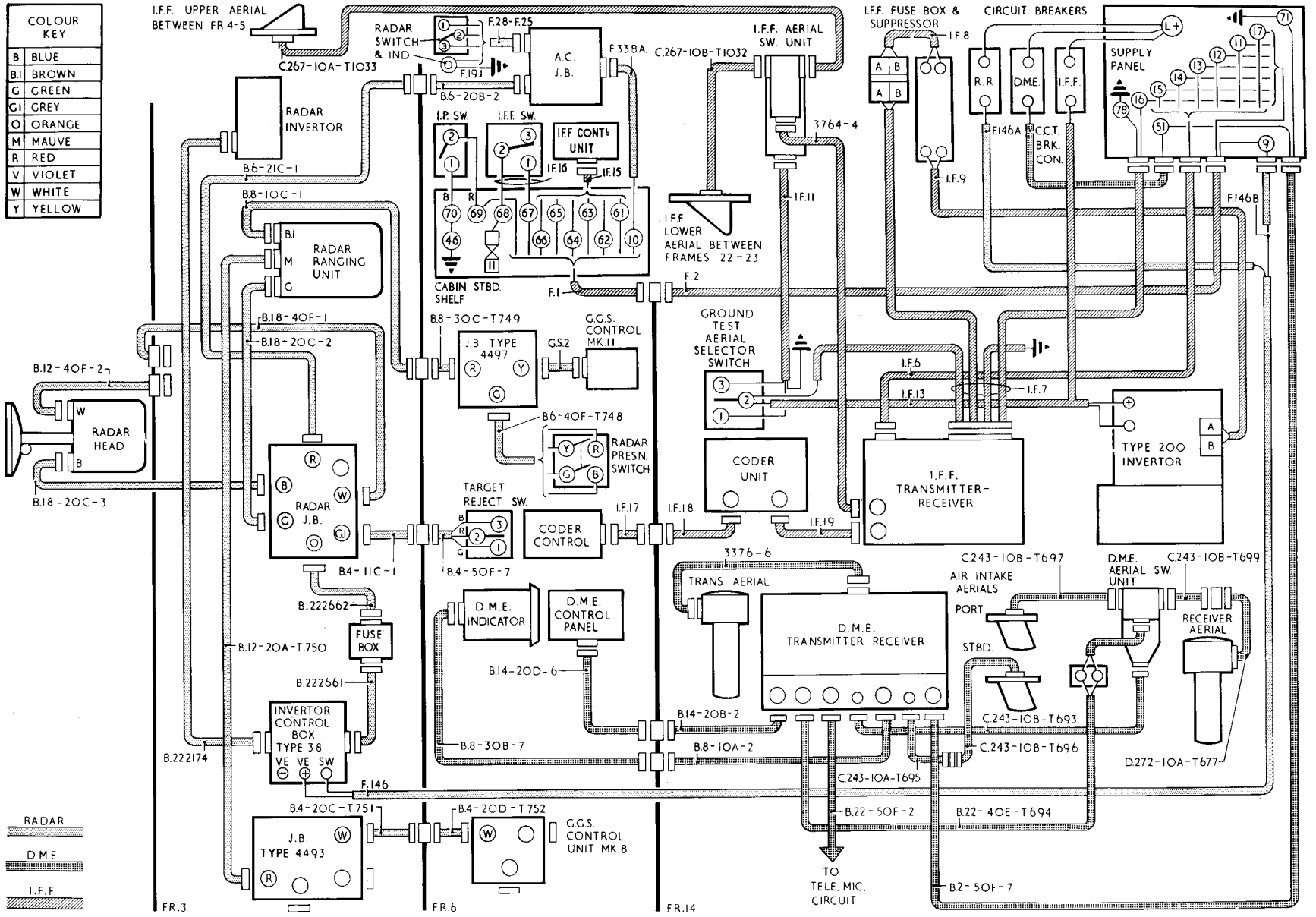

Fig.3 Radar installation - interconnection

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desired target and to unlock the installation from an unwanted target, ground reflection or cloud with a large water content. When the switch is moved to the IN position, the strobe circuits in the ranging unit are moved inwards in range from the unwanted target and then continue to search inwards regardless of whether the switch is released or not. If they do not encounter another target before reaching minimum range they are flashed out to maximum range and the normal search cycle continues. When the switch is operated to the OUT position, the strobes are moved outwards in range and continue to search outwards to maximum range. The strobes will remain at maximum range as long as the switch is held, but when it is released, the strobes will resume the normal inwards search.

33. The test switch marked NORMAL and TEST is provided to enable the radar ranging installation to be supplied during ground servicing without energizing any of the other a.c. operated equipment. When this switch is placed in the TEST position, relays in the a.c. supplies circuit are energized to isolate the a.c. operated instruments and enable No.2 inverter to supply the radar ranging installation. When the servicing is completed, the test switch must be returned to the NORMAL position.

SERVICING

General

34. Servicing of the radar installation is fully covered in the relevant Air Publications for the equipment concerned. Any units 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 radar equipment is illustrated in fig.1 and 2, the interconnection in fig.3, while wiring diagrams of the power supplies will be found in Group H.1 of Section 5, Chapter 1 of this volume.

Power supply

35. If a fault is reported in the radar installations, the power supply should first be checked, in conjunction with the routing and theoretical diagrams given in Group H.1 of Section 5, Chapter 1 of this volume, to ensure that the trouble is not located 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

36. Servicing of cables and connectors consists of the standard continuity and insulation resistance tests and of a periodical examination throughout their entire length for any signs of damage or deterioration of the insulation. If any signs of these defects are found, the complete cable or connector must be replaced. All the clips and straps securing the connectors to the structure must also be examined for signs of looseness and rectified as necessary to prevent chafing. All the plug and socket connections must be checked to ensure that they are fitted properly and that the fixings are tightened securely.

A.R.I.23013

37. For a detailed description of the servicing necessary to maintain this installation in an efficient condition, together with information on testing and fault diagnosis, reference should be made to A.P.2914AG, Vol.1. The test sets to be used and the ancillary equipment required are also quoted in this publication.

A.R.I.5848

38. A detailed description of the servicing necessary to maintain this installation in an efficient condition, together with information on testing and fault diagnosis will be found in A.P.2887N, Vol.1. The test sets to be used and the ancillary equipment required are also quoted in this publication.

A.R.I.5820

39. The necessary servicing information for this installation is contained in A.P.2917E, Vol.1 together with the test sets and ancillary equipment required.

Final check

40. After servicing the radar installations, ensure that the equipment is left switched OFF and that all access doors, and panels, removed to gain access, are correctly replaced and secured.

REMOVAL AND ASSEMBLY

General

41. The recommended procedure for removing the majority of the components comprising the radar installation is given

in the following paragraphs. The method of assembly is, in general, the reverse 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's electrical system must be rendered safe,as described in Group A.1 of Section 5, Chapter 1 of this volume.

A.R.I.23013 Transmitter-receiver, complete with junction box

42. The recommended method of removing this transmitter-receiver and junction box is as follows:-

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

(2) Disconnect the two connectors from the transmitter-receiver and the seven connectors from the junction box. Fit approved caps and covers to the plugs and sockets and stow the connectors clear of the units.

(3) Remove the two pip-pins from the mounting channels and using the handle on the transmitter-receiver, withdraw the transmitter-receiver, junction box and mounting rack carefully along the mounting channels until clear of the fixed mounting structure. Remove the assembly from the aircraft.

(4) If required, the transmitter-receiver may be removed without disturbing the junction box and mounting rack. The method is as follows:-

(5) Disengage the two connectors from the transmitter-receiver and disconnect the two locking devices securing the set to the mounting rack.

(6) Using the handle on the transmitter-receiver, pull the set inboard sharply in order to disengage the junction box connecting plug and still using the handle, carefully withdraw the set from the mounting rack and remove it from the aircraft.

Control unit, Type 8197

43. The recommended procedure for removing this unit is as follows:-

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

(2) Remove the four screws securing the control unit mounting frame to the cabin starboard shelf.

(3) Raise the control unit and mounting frame to gain access to the plug and socket connection. Disconnect this connection and fit approved caps and covers to the plug and socket.

(4) The control unit and mounting frame may now be removed from the aircraft. To remove the control unit from the mounting frame it is only necessary to remove the four screws attaching the unit to the frame.

Type 91 aerials

44. The procedure for removing either of these aerials is as follows:-

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

(2) Open the engine starter access door for the removal of the transmitter aerial or the engine access door for the removal of the receiver aerial.

(3) Gain access to the aerial bollard by removing the cover plate from the inside of the access door.

(4) Remove the moulded cover from the aerial bollard by unscrewing the four retaining nuts.

(5) Disconnect the aerial connector from the top of the aerial rod and release the aerial connector from the aerial bollard by removing the two nuts securing the strap and saddle block.

(6) The aerial may now be removed from the access door by unscrewing the eight screws securing the aerial bollard to the door structure.

Note . . .

When assembling the aerial to the access door, ensure that an effective electrical contact is made between the aerial connector saddle collar and attachment screws.

Direction finding 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) Remove the aerial access door from the top leading edge of the stub wing.

(3) Disconnect the aerial connector from the plug and socket assembly adjacent to the aerial mounting.

(4) Unlock the two wing nuts on the eye bolts securing the aerial fitting to the air intake skin.

(5) Slacken off the wing nuts, disengage the eye bolts from the aerial fitting and remove the aerial, complete with connector through the access hole in the top skin of the stub wing.

Note . . .

When assembling the aerial, ensure that an effective electrical contact is obtained between the aerial mounting flange and air intake skin. Also ensure that the wing nuts are locked with 22 s.w.g. non-corrodible wire to Spec.D.T.D.189 or 161.

Aerial switch unit

46. To remove this switch unit, proceed as follows:-

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

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

(3) Disconnect the two leads attached to the switch unit from the terminal block adjacent to the unit.

(4) The switch unit may now be removed from the aircraft by releasing the two nuts and bolts securing it in position.

A.R.I.5848 receiver

47. To remove this receiver proceed as follows:-

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

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

(3) Unscrew and disengage the two knurled catches securing the receiver to the mounting rack and pull the receiver inboard to release the two retaining spigots at the rear of the receiver.

(4) Remove the receiver from the aircraft.

Inverter Type 200

48. The recommended method of removing this component is covered in the removal of the gun firing panel as described in Section 5, Chapter 1, Group A.2 of this volume.

◀ **Aerials, Type 100A or 100B** ▶

49. The recommended method of removing these aerials is as follows:-

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

(2) Gain access to the aerial and disconnect the aerial connector from the socket at the base of the aerial unit.

(3) Remove the nuts and washers from the screws securing the aerial to the fuselage structure and withdraw the aerial into the fuselage taking care to retain the sealing washer and bonding strips.

(4) Remove the aerial from the aircraft.

Note . . .

When assembling the aerial, ensure that the bonding strips are replaced on the attachment screws before the sealing washer is fitted. When the aerial is in position, bend the bonding strips around the aerial base and place them under the nuts and washers on the screws securing the aerial in position.

Aerial switch unit, Type 6850

50. To remove the switch unit, first render the aircraft electrically safe and then remove all the connectors from the unit. Fit approved caps and covers to the plugs and sockets and stow the connectors clear of the unit. The unit may now be removed by unscrewing the three bolts securing it to the mounting plate.

Coder unit

51. The recommended procedure for removing this unit is as follows:-

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

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

(3) Unscrew the knurled screw and disengage the clamping plate holding the unit to the mounting rack and remove the unit from the mounting tray.

Coder control unit

52. The recommended procedure for removing this unit is as follows:-

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

(2) Remove the four screws securing the unit to the mounting angles attached to the cabin starboard shelf.

(3) Raise the control unit from the mounting angles to gain access to the plug and socket connection. Disconnect this connection and fit an approved cap and cover to the plug and socket.

(4) The control unit may now be removed from the aircraft.

A.R.I.5848 master switch

53. The recommended method for removing this switch is as follows:-

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

(2) Remove the coder control unit as described in paragraph 52.

(3) Remove the two screws securing the switch to the mounting angle and lower the switch to clear the angle, extracting it through the aperture previously occupied by the coder control unit.

(4) Disconnect the cables from the back of the switch and insulate their bare connections with adhesive tape. The switch may now be removed from the aircraft.

Control unit, Type 927

54. The recommended method of removal of this unit is as follows:-

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

(2) Remove the coder control unit as described in paragraph 52.

(3) Remove the I.F.F. master switch as described in paragraph 53.

(4) Unscrew the four screws securing the two mounting angles and Type 927 control unit to the cabin starboard shelf.

(5) Raise the assembly clear of the shelf in order to gain access to the connector. Disconnect the connector and fit an approved cap and cover to the plug and socket.

(6) Unscrew the two screws and two bolts securing the two mounting angles to the control unit and stow them in a safe place. The control unit may now be removed from the aircraft.

I.P. switch

55. The recommended procedure for removing this switch is as follows:-

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

(2) Remove the two screws securing the switch to the mounting bracket.

(3) Disconnect the cables from the back of the switch and insulate their bare connections with adhesive tape. The switch may now be removed from the aircraft.

Radar head, Type 2

56. The recommended method for removing this component is as follows:-

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

(2) Gain access to the radar head by removing the nose piece *(Sect.3, Chap.1).*

(3) Disconnect the two connectors at the radar head. Fit approved caps and covers to the plugs and sockets and stow the connectors clear of the unit.

(4) Disconnect the cooling air pipe from the port side of the radar head. Mask off the end of the air pipe and the

entry into the radar head to prevent the ingress of foreign matter.

(5) Disengage the two catch assemblies retaining the radar head in its mounting rails and remove the component from the aircraft by carefully withdrawing it forward along the rails until it is clear of the structure.

◀ **Note . . .**

The wing nuts of the catch assemblies should only be slackened sufficiently to allow the button to swing clear. Do not detach completely. On re-assembly, care must be taken to ensure that the wing nuts are tightened only to "finger tightness" to prevent shearing of attachment studs. ▶

Radar unit X.1219

57. To remove this unit proceed as follows:-

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

(2) Gain access to the nose wheel bay and disconnect the two connectors from the forward end of the ranging unit. Fit approved caps and covers to the plugs and sockets and stow the connectors clear of the unit.

(3) Disconnect the cooling pipe from the port side of the ranging unit. Mask off the end of the air pipe and the entry into the ranging unit to prevent the ingress of foreign matter.

(4) Taking the weight of the unit, withdraw the spring-loaded catch pins securing the mounting tray to the mounting beam. Still supporting the tray and ranging unit, allow them to swing down, under control, to their full extent.

(5) To remove the ranging unit from its mounting tray, support the unit and disengage the two catch assemblies retaining it in the tray. Carefully withdraw the unit from the tray and remove it from the aircraft.

Junction box, Type 370

58. The recommended procedure for removing the radar junction box is as follows:-

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

(2) Gain access to the nose wheel bay and disconnect the seven connectors from the junction box. Fit approved caps and covers to the plugs and sockets and stow the connectors clear of the junction box.

(3) The junction box may now be removed from the structure by removing the four bolts securing it to the rear face of frame 3, taking care to retain the washers.

Inverter, Type 206

59. The recommended method for the removal of this unit is as follows:-

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

(2) Gain access to the nose wheel bay and remove the ranging unit as described in paragraph 56. Disconnect the cooling air pipe from the port side of the inverter. Mask off the end of the pipe and the entry into the inverter to prevent ingress of foreign matter.

(3) Disconnect the connector and fit an approved cap and cover to the plug and socket and stow the connector clear of the inverter.

(4) Unscrew the four nuts and bolts clamping the four saddle clips, encircling the inverter, to the mounting structure. Remove the bonding strip and stow it clear of the inverter. The inverter may now be removed from the aircraft.

Note . . .

On re-assembly of the mounting brackets and inverter, ensure that the bonding wire is replaced in position under saddle clamp.

Control unit, Type 38

60. The recommended method for removing this unit is as follows:-

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

(2) Gain access to the nose wheel bay and disconnect the connectors from the control unit. Fit approved caps and covers to the plugs and sockets and stow the connectors clear of the unit.

(3) Unscrew the four bolts securing the control unit to its mounting carrier. The control unit may now be removed from the aircraft.

Radar Ballast

61. Ballast weights representing the radar head Ref. No.26FX/3964 (Mod. H.21) and the ranging unit Ref.No. 26FX/3963 (Mod. H.21) or Ref. No. 26FX/8599 (Mod.637), are supplied to special order only for fitment when this radar equipment is not installed. These weights incorporate stowage points for the electrical cables and cooling air pipes and are carried on the mounting structures normally used by the radar equipment. The assembly of the weights is similar to that for the radar equipment, which is the reversal of the removal instructions given in paragraphs 55 and 56 of this chapter, with the exception that the retaining catches, which normally engage with the radar equipment, should in the case of the ballast weights, pass through the holes in the forward plates of each weight and engage with the chamfered portion at the lower edge of each hole.

D.M.E. Ballast

62. A ballast weight *(Ref.No.26FX/5227)* representing the D.M.E. set is supplied to special order only *(Mod.246)* for fitment when the aircraft is flown without this set fitted. The weight, which is carried on the mounting rack normally used by the set, is assembled to the rack in a similar manner to that of the set. When the weight is assembled, the thumb nuts and the clamps on the mounting must be tightened securely and wire-locked and the connectors, which are normally assembled to the set, must be suitably taped and stowed.