

Chapter 5

A.R.I.5924

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Introduction

1. This chapter provides descriptive and

2. The A.R.I.5924 installation radiates interrogation pulses and receives reply and identification pulses from the A.R.I.5922 fitted in tanker aircraft. The information is displayed continuously on the cathode ray tube screen of an indicator unit. The trace provides range, heading, and identification information at distances up to a maximum of 100 nautical miles and a minimum of 400 yards.

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servicing information on the A.R.I. 5924. A location diagram of the main units is provided,

DESCRIPTION AND OPERATION

Main units

3. The main units of the installation are shown in fig.1 and described briefly in the paragraphs that follow. For more detailed information reference should be made to A.P.2914 AN, Vol.1.

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together with a routing chart of the installation.

◀ **NOTE . . .**
Mod.1707 removes A.R.I.5924 introduced by Mod.1009 and 1342. Text, illustrations and Routing chart left in for information only. ▶

T.R. unit, Type 6649

4. The T.R. unit is mounted below the second pilots' floor as shown in fig.1.

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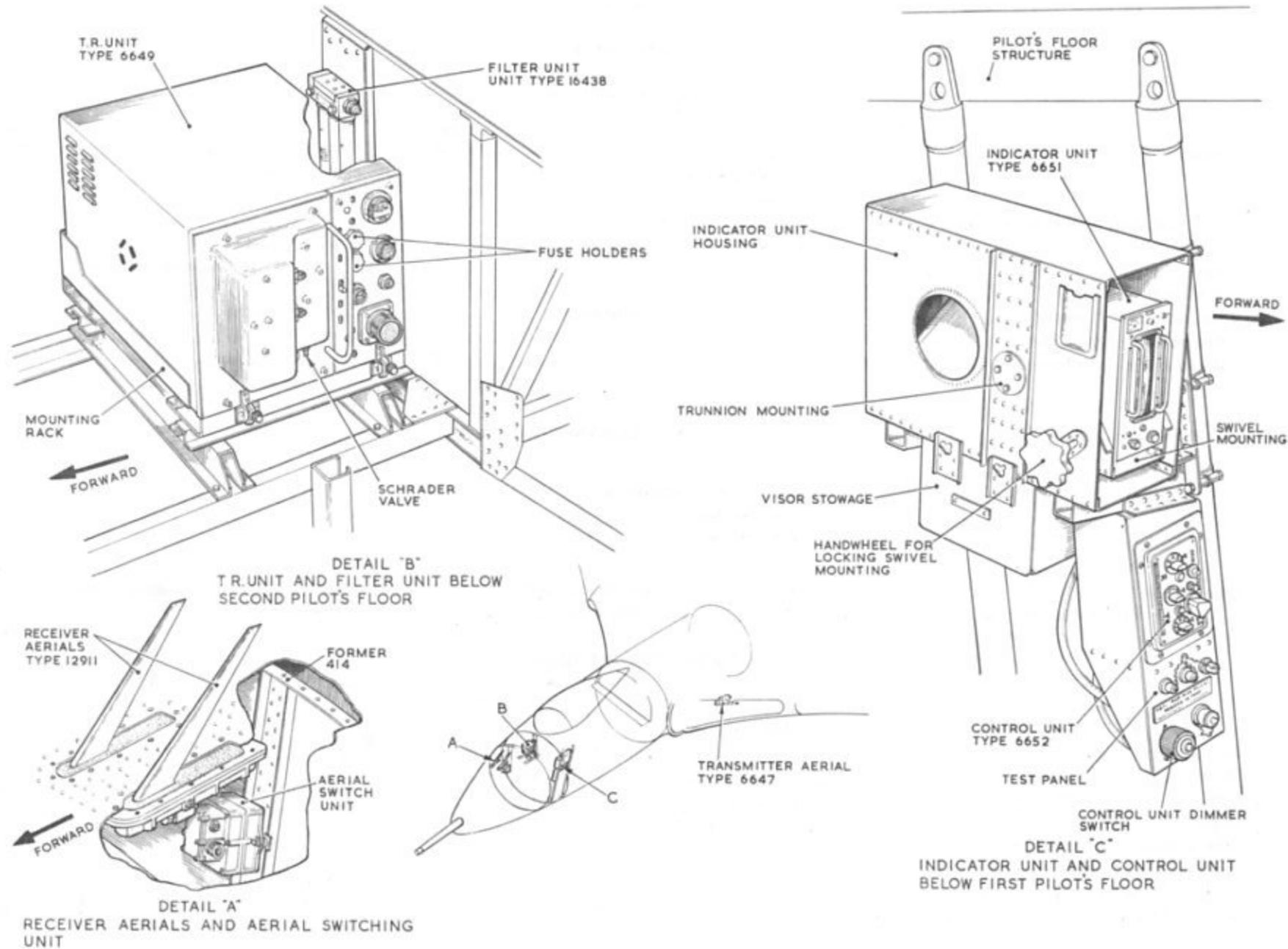


Fig.1 Location of components

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A receiver unit, transmitter unit, I.F. amplifying unit, video amplifier, sweep generator and power unit are housed in the unit and are readily detachable for servicing purposes. Corona discharge is prevented by housing the transmitter unit in a pressurised compartment which is charged from a valve on the front face of the unit. An internal blower is provided for cooling purposes.

5. The unit operates on a frequency band of 420-460 Mc/s and employs motor driven tuning to select any of the eight channels in the receiver and transmitter. Interconnection to other units is made by plugs and sockets on the front face of the unit.

Indicator unit, Type 6651

6. The indicator unit, Ref.No.10Q/16438, is secured to a swivel mounting on the port side of the aircraft, adjacent to the I.L.S. junction box. The unit houses a cathode ray tube and its associated power unit and has focus and brilliancy controls mounted on its front face. The trace is "read-off" against range scales which are presented on an edge-lit graticule. Graticule illumination is controlled by a knob on the control unit.

Control unit, Type 6652

7. The control unit, Ref.No.10L/16497, is mounted vertically on a panel

Precautions

14. Servicing personnel in particular are warned that a.c. and d.c. voltages in excess of 100-volts can be dangerous to the extent of causing personal injury, fatal

at the port side of the aircraft, immediately below the indicator unit. The unit provides remote control of the installation and has the following controls mounted on its front face:-

- Transmitter channel switch
- Receiver channel switch
- Function switch
- Manual code key
- Receiver gain control
- Graticule illumination control

The two latter controls, receiver gain and graticule illumination, are used in conjunction with the indicator unit.

Aerial switch unit, Type 16498

8. This unit is mounted in the nose of the aircraft on the forward face of former 414. When in use, the unit switches the receiver alternately to the port and starboard receiver aeriels.

Aeriels

9. Three aeriels are used with the complete installation, one is the transmitter aerial, the other two are receiver aeriels.

Transmitter aerial

10. The Type 6647 transmitter aerial is of modified shark fin design and is mounted on the underside of the aircraft centre section, as shown in fig.1.

Receiver aeriels

11. The two Type 12911 receiver aeriels are of modified shark fin design and are mounted side by side on top of the aircraft nose structure, as shown in fig.1.

Filter unit, Type 16438

12. This unit, Ref.No.10P/16256, is mounted adjacent to the T.R. unit, under the second pilots' floor. The unit works in conjunction with a similar unit in the A.R.I.18124/2 to prevent interference between the two installations. This second filter unit is brought into the A.R.I.18124/2 installation by Mod.1009, which introduces A.R.I.5924 into the aircraft.

Power supplies and control

13. The T.R. unit is fed with a 115-volt, single-phase, 400 c/s a.c. supply, from fuse 739R in panel 75P. A second 115-volt, single-phase 400 c/s a.c. supply is fed from fuse 739B to a test panel which forms part of the mounting for the control unit. Two 28-volt d.c. supplies, for the operation of small motors and relays, are fed to the T.R. unit from fuses 664 and 1166, the former in panel 3P, the latter in panel 4P. A third d.c. supply is fed from fuse 653, in panel 3P, to the control unit for panel lighting. The a.c. supply to the T.R. unit is controlled by the function switch on the control unit.

SERVICING

or otherwise. It is essential that the utmost attention be given to servicing instructions where matters of safety are concerned, and that maximum co-operation be maintained between trades mutually

concerned in servicing operations.

Installation

15. Detailed instructions for setting

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up, operating and servicing the installation will be found in A.P.2914AN, Vol.1. All components should be checked at regular intervals for security of attachment. Cables and connections should be examined for signs of damage and a check made to ensure that all plugs and sockets are correctly mated. Reference should be made to the appropriate routing chart before re-connecting any cables which may have been disconnected for servicing or removal of equipment.

Cabin equipment

18. The main units fitted in the cabin are all readily accessible and no special removal instructions are required.

Pressure check

16. At each inspection check the case pressure of the transmitter. It should not be less than 3 lbs. per sq. in. If below this figure the pressure should be raised to 4 or 5 lbs. per sq. in. using a pressurising pump Ref.No.4G/5435. On completion ensure that the cap of the Schrader valve is screwed back in position.

REMOVAL AND ASSEMBLY

Aerials

19. A servicing ladder Type D4 will be required to reach the aerials. Once the aerial securing screws have been removed the aerials may be lifted from the aircraft skin to disconnect the feeder cables.

Test panel

17. The test panel forms part of the mounting for the control unit and carries three aerial adaptors and a test socket for the 115-volt, 400 c/s a.c. supply. The adaptors are labelled TX AERIAL, PORT RX AERIAL, STARBOARD RX AERIAL and are used in conjunction with the test equipment described in A.P.2914 AN.

Aerial switch unit

20. This unit is mounted immediately behind the receiver aerials inside the nose of the aircraft. Access to the unit is gained by opening the port hole in the front pressure bulkhead. Three screws secure the unit to brackets fixed on former 414.

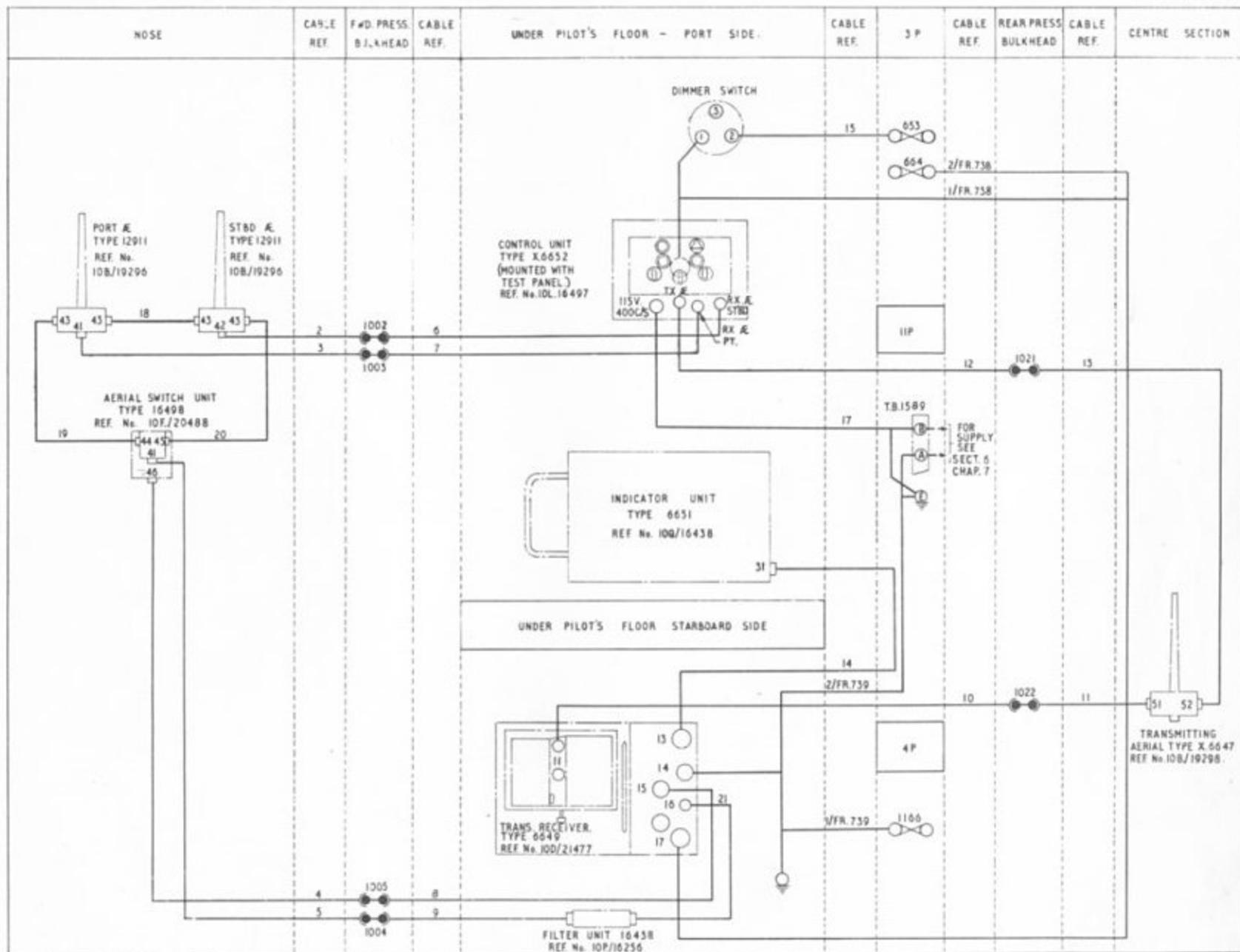


Fig.2 A.R.I. 5924



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