Chapter 6 A.R.I.5816

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Introduction

1. This installation is a radar navigational aid which enables the aircraft to find its location from position-fixing signals radiated by ground transmitters. The main operating units mount in standard S.B.A.C. racks fitted with resilient mountings. At the rear of each mounting is fitted a junction box providing the connections for the unit concerned, the unit locating into the junction box by spigots projecting from the unit's rear face. The units and junction boxes are related as follows:-

Indicator mates into junction box, Type 359A.

Waveform generator mates into junction box, Type 360A.

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Receiver mates into junction box, Type 361A.

Fig.

2. The main items of equipment are listed in Table 1, whilst the connectors are detailed in Table. 2. The installation is fully described in the publication listed in Table 1, but a brief description is contained in the following paragraphs.

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Fig. I. Details of A.R.I. 5816.

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DESCRIPTION AND OPERATION

Power supplies

3. The equipment operates from two sources of electrical power as follows:-

- (1) 28-volt d.c. from the aircraft main bus-bars.
- (2) 115-volt, 1600 c/s, single phase a.c., from the No.7 inverter, Type 201B.

4. The supply is connected to the equipment via a double-pole switch, identified 'GEE', on the radio power panel at the master sonics station. Prior to switching 'ON', however, ensure that the No.7 inverter has been running for at least 30 seconds. For further information on the supply circuits, including routeing charts, reference should be made to Sect.6, Chap.2A, 2B and 2C of this publication.

Receiver

5. The receiver, mounted in the navigator's top shelf cupboard aft of former 2, is a standard type of high gain wide band superheterodyne which operates in the range of 20 Mc/s to 90 Mc/s. The components are mounted in three separate and easily removable sub-chassis. Channel selection is made by a motordriven, R.F. selector switch, which is controlled by a switch on the indicator. A numerical indicator mounted behind a window on the front of the receiver shows the channel selected.

6. The receiver is ventilated by means of a Vokes filter and a d.c. blower motor fitted to the front panel.

Waveform generator

7. The waveform generator mounted on the navigator's top shelf, forward of the receiver, contains the power pack providing the H.T. for the whole equip-



Note re S.R.I.M. 3348 added

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ment. The strobe timer, strobe generator and trace separation circuits are also assembled in this unit. An air filter and d.c. blower motor are fitted to the front panel. The complete assembly is enclosed in a dust cover which is fastened by an Oddi - fastener socket.

Indicator

8. The indicator is mounted on the front spar and angled to face the routine attack navigator. The unit employs a 3-inch cathode ray tube and contains the associated power supply, timebase and video circuits. Also contained in the indicator assembly are the six crystals controlling the P.R.F. of the equipment and the strobe timer switch unit which operates

Precautions

12. Before any servicing is attempted, the general servicing precautions outlined in Chap.1 should be noted.

General

13. The various units of the installation should be examined at the appropriate inspection periods for security of attachment, corrosion, damage and bonding of the mountings. Cable assemblies should

Precautions

16. Prior to the removal of any item of equipment the precautions and general

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the circuits in the waveform generator.

9. All controls for operating the equipment are fitted on the front panel of the indicator assembly. A detachable moulding is fitted across the centre of the panel to accommodate the dial lamps which illuminate the indicator dials of the strobe switch unit.

Aerial system

10. The whip aerial and motorised loading unit mounted on the upper fuselage at former 3, stringer 3-4 port, provide for the wide frequency coverage of the installation. The body of the loading unit consists of a turret containing R.F. matching .coils and is mounted to an

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be checked for tightness of connection at the equipment concerned.

Fault finding

14. Fault finding in the aircraft is limited to the diagnosis of faulty units. Where substitution of a new unit or junction box does not eliminate the fault, the associated connectors are suspect and should be checked accordingly. Fault location tables contained in Part 3 of the publication listed in Table 1, enable assembly geared to a miniature d.c. motor. A selector switch and relay, which are also part of the assembly, provide the necessary controls. Details of the assembly are shown in fig.2.

Junction box

11. The junction box, Type 399, mounted on bulkhead B inside the top shelf compartment, forms a link between the channel switching circuits of the main equipment and the aerial loading unit. By arranging the connection of flying leads on to certain tags, any range on the loading unit can be selected on any channel switch position. Also passing through the junction box is the circuit for the loading unit tuning motor.

circuit tracing to be carried out with the minimum of difficulty.

Power supplies

15. The single-phase a.c. and the d.c. supplies to the equipment may be conveniently checked at the radio power panel fuseboxes at the master sonics station. For routeing charts of the supply and control circuits reference should be made to Book 2, Sect.6, Chap.2A, 2B and 2C of this publication.

REMOVAL AND INSTALLATION

instructions outlined in Chapter 1 should be noted.

17. The removal of the various units is straightforward and detailed instructions are not considered necessary.

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A.P.101B-1703-1B3, Sect.9, Chap. A.L.22, Nov.67

TABLE 1

Major items of equipment

	Unit	Туре	Ref.No.		A.P. Reference
5	Indicator	26	10Q/16058		
	Receiver	R.3673	10D/16876		
	Waveform generator	72	10V/16045		
	Junction box	359A	10D/18543		
	Junction box	361A	10D/18545		A.P.2557M, Vol.1
	Junction box	360A	10D/18544	7 14	
	Junction box	399	10D/18894		
	Loading unit (motorised)	◀ 65 (61,S.R.I.M.3348)	10B/20301		
	Aerial	H.S.A.Pt.No.1/T6151	-)	4	-

TABLE 2

Connectors for A.R.I.5816

Item No.	Cable form	Connecting		
2/T5667	Miniature cable 18J (Spec.D.E.F.10)	Waveform generator 'Yellow' to indicator 'Yellow'		
3/T5667	Miniature cable 25G (Spec.D.E.F.10)	Receiver 'Red' to indicator 'Red'		
4/T5667	Miniature cable 12C (Spec.D.E.F.10)	Junction box 399 to receiver		
5/T5667	Miniature cable 18J (Spec.D.E.F.10)	Waveform generator 'Blue' to receiver 'Blue'		
6/T5667	Miniature cable 2C (Spec.D.E.F.10)	Junction box 399 to radio power panel, skt.726		
7/T5667	Miniature cable 4C (Spec.D.E.F.10)	Waveform generator to radio power panel skt.725		
8/T5667	Uniradio 43	Receiver to aerial loading unit		
9/T5667	Miniature cable 12C (Spec.D.E.F.10)	Junction box 399 to aerial loading unit		

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