A.P.4267F, Vol.1, Book 3, Sect.8, Chap.12 A.L.5, June 66

Chapter 12

A.R.I. 18208/1

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Introduction

1. This installation is a display system for bearings received simultaneously from three sonobuoys. Three lines representing the bearings are projected on to a navigational chart. An arrow indicating the

position and heading of the aircraft can be projected on to the same chart by a ground position indicator.

2. The optical plotting system is fully

described in A.P.4818G, Vol.1, but a brief description is included in this chapter. For information on the ground position indicator, reference should be made to A.P.1275B, Vol.1, Sect.16 and to Sect.7, Chap.3 of this handbook.

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Introduction ...

Power supplies

Control unit ...

Switch unit ...

Plotting table

DESCRIPTION AND OPERATION

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Projector monitor signal lights ...

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Fig.1 - Plotting table assembly

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DESCRIPTION AND OPERATION

Power supplies

3. The A.R.I.18208/1 is connected to socket No.5 on the sonics power distribution panel (Chap.13), and is supplied with 115-volt, single phase a.c. and 28-volt d.c.

Plotting table

4. The plotting table is mounted between formers 4 and 6 at the routine attack navigator's station. The working surface of the table is toughened glass, with a steel shelf approximately 6½ inches below. Provision is made for mounting the associated control units, transformer and junction box in the side and back edge members of the table. A mounting platform for a G.P.I. Mk.1C is supported above the table on three cranked tubes. The table is suspended on eight anti-vibration mountings, four at the base of the table and four at the top of the G.P.I. platform.

5. Four clips are provided at the corners of the table to hold a navigational chart over the glass screen. A plastic cover, stowed under the top shelf near the table, is provided to cover the glass top when the table is not in use.

Control unit

6. The control unit, mounted in the aft side member of the table, contains the power supply control switches and fuses for the installation. The lamp switch and fuses are in the single phase a.c. input to the table, and the MAGS switch and fuse are in the 28-volt d.c. input. Stowage for three spare fuses is provided. 7. On the side of the unit is a screwdriver access hole to the transformer tapping switch, labelled 80V - 115V. Because the installation is connected to a 115-volt supply, this switch must be set to 115V position.

8. Connections to the control unit are made by six Mk.4 plugs and sockets on the base of the unit.

Switch unit

9. This unit, mounted inboard of the control unit, contains switches for controlling the projectors. Three projectors are used in conjunction with four receivers (A.R.I.18108/1 - Chap.13), so a change-over switch is provided to connect projector A to receiver A in either the master or second sonics installation.

10. The lamps in the three projectors, together with the projector monitor signal lights, may be controlled by the three push switches on the switch unit, or by the push switches at the master and second sonics stations.

11. Connections to the unit are made by a Mk.4 socket on the base of the unit.

Projector monitor signal lights

12. Two signal lights at each sonics operator's station inform him when the outputs from the receivers under his control are being monitored on the plotting table. A push switch adjacent to each signal light enables the operator to switch off the projector lamp, should the necessity arise.

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Projector units

13. The three projectors rest on the steel shelf below the glass screen of the plotting table. An optical system in each projector focuses the light from a double-filament lamp on a graticule and projects the image of a dot and a fine line on the glass screen and the navigational chart above it. The graticule is geared to an M type receiver motor and may be rotated under the influence of signals from the A.R.I.18108/1 receiver. This has the effect of rotating the line about the dot on the chart. Once graticule has been synchronized the with a bearing cursor on the A.R.I.18108 indicator, the line projected on the chart represents bearings originating from the dot.

14. The projectors are identified by the letters A, B and B1 and each projects its identification letter on the chart in addition to the dot and line.

15. When in use, the projectors are held firm on the steel shelf by internal electromagnets. The supply to the magnets is controlled by the MAGS switch in the control unit. Stowage positions for the projectors are provided at the outboard edge of the shelf.

16. A short connecting lead, terminating in a twelve-pole Mk.4 plug, is permanently attached to each projector. Connection to the plotting table is made by coupler sockets at the outboard edge of the table. The orientation of the keyways in the sockets ensures that each projector can be coupled only to its own socket.

Transformer

17. The transformer is mounted centrally on the edge member of the plotting table. The 115-volt input is reduced to 12 volts for supplying the lamps in the projector units.

Junction box

18. The junction box is mounted on the forward edge member of the plotting table and serves as an interconnecting point for the various circuits of the installation.

SERVICING

Precautions

19. The warning notice and general precautions outlined in Chapter 1 of this section should be noted before any servicing is attempted.

20. Heavy objects must not be placed on the plotting table or damage may be caused to the table or its mountings. When the table is not in use, the plastic cover should be fitted to protect the glass surface.

21. It is essential that the transformer tapping switch on the control unit is set

to the 115V position.

General instructions

22. At the appropriate servicing periods, the components should be examined for security of attachment, continuity of bonding, corrosion and damage. The connectors should be examined for security and damage. Detailed servicing instructions are contained in A.P.4819G.

23. When it is required to test the A.R.I.18208 functionally, it is essential that both A.R.I. 18108/1 are complete

and serviceable.

Projectors

24. When testing the projectors, both filaments of each lamp should be checked. To avoid overheating, the projector lamps should not be switched ON unless the projectors are firmly held to the steel shelf by their electro-magnets.

Power supplies

25. The a.c. and d.c. supplies to the installation may be conveniently checked at the fuse boxes in the radio power panel.

REMOVAL AND INSTALLATION

Precautions

26. Before any attempt is made to remove equipment, the general precautions and instructions outlined in Chapter 1 should be noted.

Plotting table

27. If the plotting table is to be removed,

the following procedure should be adopted:-

- Disconnect the fluorescent lighting dimmer switch, located on the aft support tube.
- (2) Disconnect and remove the G.P.I. from its mounting.

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- (3) Remove the strapping from the outboard support tube to release the fluorescent lighting wiring.
- (4) Remove the fluorescent lamp mounting bracket from the outboard tube by releasing the clamps. The lamp mounting should be safely stowed.

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IND. (MASTER) UPPER P.D.P. IND. (2 ND) UPPER

(6) Disconnect the cables from the following plugs and sockets on the junction box:-

> PROJ. MON. (MASTER) PROJ. MON. (2 ND) IND. (MASTER) LOWER IND. (2 ND) LOWER

(7) Release the cables disconnected in operations (5) and (6) from the two clips below the outboard edge of the table. Replace the clips to retain the remaining cables, which are part of the plotting table.

- (8) Ensure that the projectors are firmly in their stowages.
- (9) Remove the eight bolts securing the table and the G.P.I. mounting to the eight anti-vibration mountings. The complete table may now be removed. This must be done with care, as the table weighs approximately 70 lb.
- (10) Stow all disconnected cables and fittings to prevent damage.

28. If a new table is to be fitted, the following additional work must be done:-

 Remove the fluorescent lighting dimmer switch from the aft support tube by releasing the clamps. Fit the dimmer switch in a similar position on the new table. (2) Remove the two clips referred to in para.27(7) and fit them in similar positions on the new table. Fit the clips removed from the new table to the old table.

29. The procedure for fitting a plotting table is the reverse of that for removal.

Control unit

30. If it is necessary to remove the control unit from the table, disconnect the cables on the underside of the unit. Loosen the two green coloured screws on the top of the unit and withdraw it from the table.

WARNING ...

When fitting a control unit, ensure that the transformer tapping switch is set at 115V.

Switch unit

31. The removal of this unit is similar to that of the control unit.

TABLE 1

Major items of equipment

Equipment	Туре	Ref. No.	A.P. Reference
Plotting table	-	10AQ/848	
Control unit	M.63	10L/18669	
Switch unit	M.7	10F/21399	
Transformer	-	10K/24500	A.P.116G-0401-1 & 6
Junction box	-	10D/23717	
Projector unit A	7158	10D/22519	
Projector unit B	7159	10D/22520	
Projector unit B1	-	10D/23715)

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TABLE 2

	Connectors	for /	4.R.I.	1820	08/1
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Item No.	Cable form	Connecting
2/T.5679	Miniature cable 4C (DEF.10), 1 off	Plotting table P.D.P. to Sonics P.D.P.
3/T.5679	Uninyvin 22, 8 off	Plotting table PROJ. MON. (MASTER) to master sonics signal lights
4/T.5679	Uninyvin 22, 8 off	Plotting table PROJ. MON. (2ND) to second sonics signal lights

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Fig.2. A.R.I. 18208/1

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