

Chapter 13

A.R.I.18108/1 AND A.R.I.18103 (MASTER AND SECOND)

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Introduction

1. A.R.I.18108/1 forms the central part of the sonics installation, providing means of receiving, de-modulating and indicating both visually and aurally, signals from various types of sonobuoys. Two complete installations are contained in the aircraft, each installation being able to receive and indicate signals from two sonobuoys simultaneously. The "master" and "second" sonics equipment is shown in

fig.1 and the major components listed in Table 1. The two installations are functionally the same, utilising similar equipment. The system is fully described in A.P.116G-0101-1, but a brief description is contained in this chapter.

2. The feeds to the A.R.I.18101 are taken only from the second sonics installa-

tion, but both installations connect into the A.R.I.18208/1.

3. The A.R.I.18103 consists of a remote indicator, for repeating, on a counter, the range information from the indicator, Type 13232. Two remote indicators are fitted at the navigation station, one operating in conjunction with each A.R.I.18108 installation.

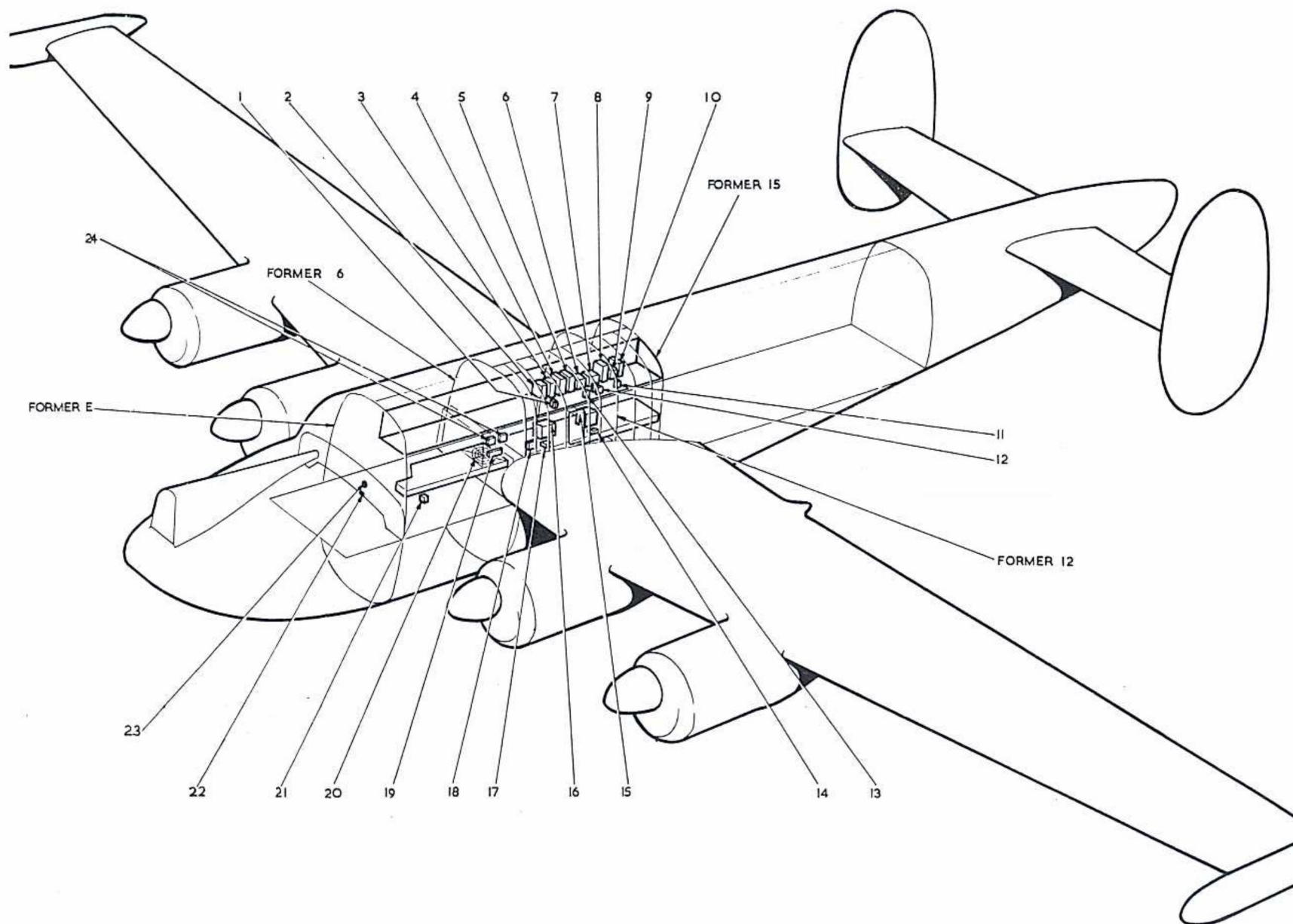


Fig.1 Location of equipment

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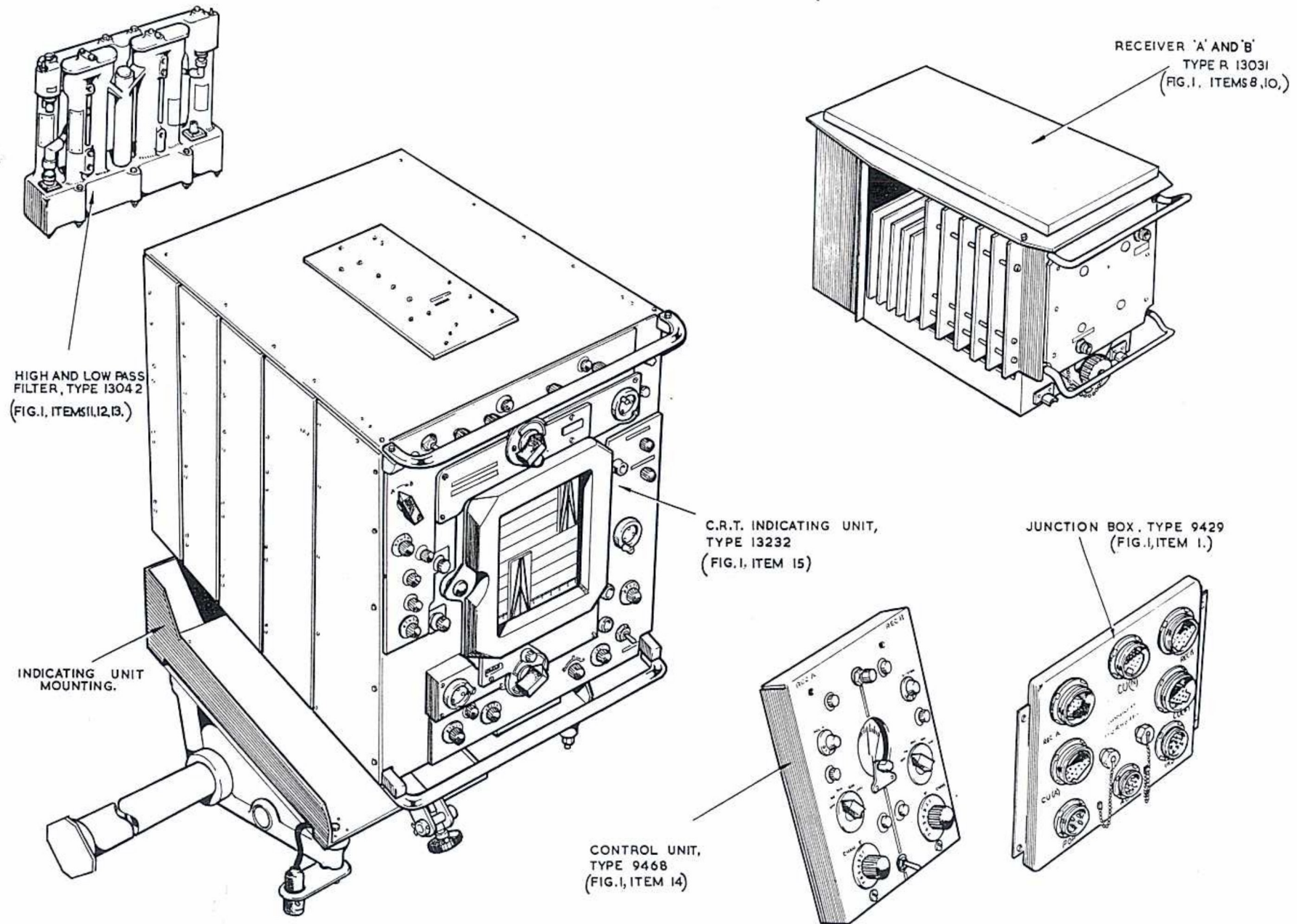


Fig. 3 Second sonics equipment

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being remotely controlled from the control unit, Type 9468. Although the receiver is primarily used for demodulating F.M. signals, an A.M. output is available for feeding into the A.R.I.18101.

11. The receiver comprises a main chassis and several sub-units mounted on the frame. Integral with the receiver is a power unit. Main connections to the unit are via a multi-pole plug on the rear face, mating into a socket on the back-plate of the receiver mounting. R.F.

connection is made via a plug on the front face of the receiver.

12. Two receivers, designated 'A' and 'B' are used on each installation, the "master" receivers being mounted between formers 9 and 10, and the "second" receivers between formers 11 and 13. All receivers are mounted on the radio shelf, and in each pair, receiver A is forward.

Amplifier

13. This unit serves as a pre-amplifier,

providing separate R.F. outputs for each of the two receivers from a single aerial input. The unit also contains calibration circuits for testing purposes.

14. The amplifier consists of three sub-units mounted on a main chassis. R.F. connections are made to the unit via three co-axial plugs on the front panel, the remaining connections being via a multi-pole plug on the rear face.

15. One amplifier is used on each installation, in conjunction with each pair of receivers. Both amplifiers are mounted on the navigator's radio shelf, the "master" amplifier between formers 10 and 11, and the "second" between formers 12 and 13.

Control unit

16. Control of the amplifier, both receivers, and the power supply switching for the indicator are from the remote control unit, Type 9468. Two identical sets of controls are on the facia of the controller, permitting both receivers to be operated simultaneously. A signal strength indicator is also provided, together with a switching control to meter either receiver. The controls are illuminated by integral panel lamps; a three position dimmer switch controlling the brilliance of the lamps.

17. Two control units, one for each installation are fitted.

Indicator

18. The indicator, Type 13232, consists of several sub modules and a double-beam cathode ray tube with a long persistence screen mounted on a main chassis. Supplies for the unit are fed from the power unit, Type 13378, control of the supplies being via the system switch on the control unit, Type 9468. The indicator, having two separate channels, can

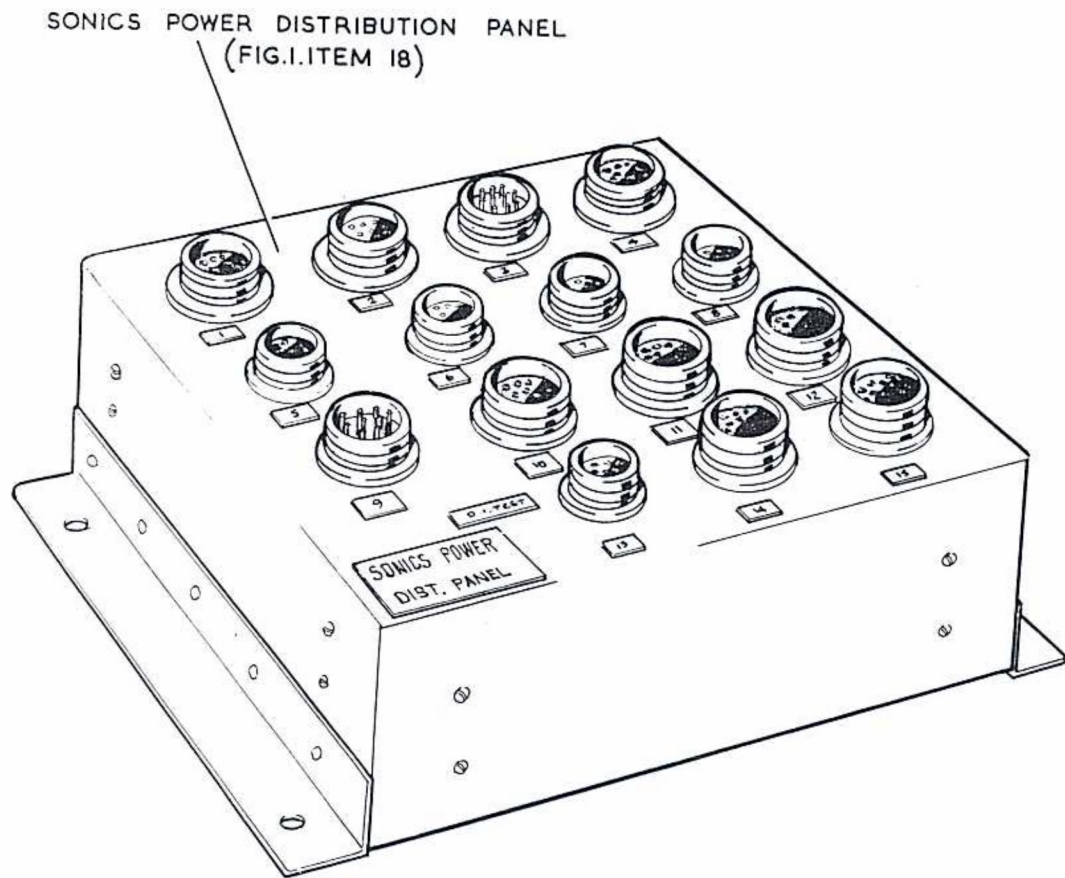


Fig.4 Power distribution panel

be used to operate in conjunction with the two receivers, thereby, simultaneously displaying information from two sonobuoys. This information can also be fed to the A.R.I.18208 for display on the plotting table.

19. Various controls are mounted on the fascia of the indicator, lamps being provided to illuminate the controls. Connections to the unit are via two multi-pole plugs on the rear face, which mate into sockets on the backplate of the receiver mounting.

20. Two indicators are fitted, one for each installation, as shown in fig.1. Both indicators connect into the A.R.I. 18208/1.

Power unit

21. H.T. voltage for the indicator is provided by the power unit, Type 13378. Connection to the unit is via an 18-pole plug on the rear face. A 12-pole socket is provided on the front panel of the power unit for test purposes.

22. Two power units are fitted, both

being mounted on the navigator's radio shelf between formers 8 and 9. The forward unit supplies the indicator in the "master" installation; the aft unit being in the "second" installation.

Junction box

23. The junction box, Type 9429, provides facilities for interconnecting the various units of the installation. Two pairs of relays in the unit, control the a.c. and d.c. power to the receivers "A" and "B". Sockets for connecting the A.R.I. 18108 are also fitted to the junction box.

24. Two junction boxes are fitted, one for each installation. Both boxes are fitted on bulkhead 9, below the top shelf; an access door being provided in the aft face of the bulkhead. The inboard box is for the "master" installation, the outboard box being for the "second" installation. Connections to the A.R.I.18101 homing installation are only made to the "second" sonics junction box.

A.R.I.18103

Indicator

25. The remote indicator, Type 7961, forming the A.R.I.18103, repeats in numerical form the range information displayed on the indicator, Type 13232. The counter is viewed through a polarized window, forming part of a hinged panel on the front face of the unit. Two festoon bulbs are fitted behind the hinged panel to illuminate the counter. The viewing window has two glass panels; one of which may be rotated. As the glass is polarized, by turning the outer glass relative to the inner, the amount of light passing through the window may be varied.

26. A short connecting lead terminating in a six-pole Mk.4 plug is permanently attached to the indicator. Connection to the unit is made by coupling the plug to a fixed coupler socket, forming a plug break adjacent to the indicator mounting.

27. Two indicators are fitted on the routine attack navigator's panel, (mounted fore and aft) being used with the "master" and "second" sonics installations respectively.

SERVICING

Precautions

28. Before any servicing is attempted, the warning notice and general precautions outlined in Chapter 1 of this section should be noted.

29. Full details of test equipment, together with servicing information is

included in the Publication listed in Table 1. Brief notes on servicing however, are included in the following paragraphs.

General instructions

30. At the appropriate inspection periods, the items of equipment should be examined for security of attachment,

damage, corrosion and bonding of mountings. The connectors should be examined for security and damage.

Power supplies

31. The single-phase a.c. and d.c. power supplies to the equipment may be conveniently checked at the fuse boxes in the radio power panel.

REMOVAL AND INSTALLATION

General instructions

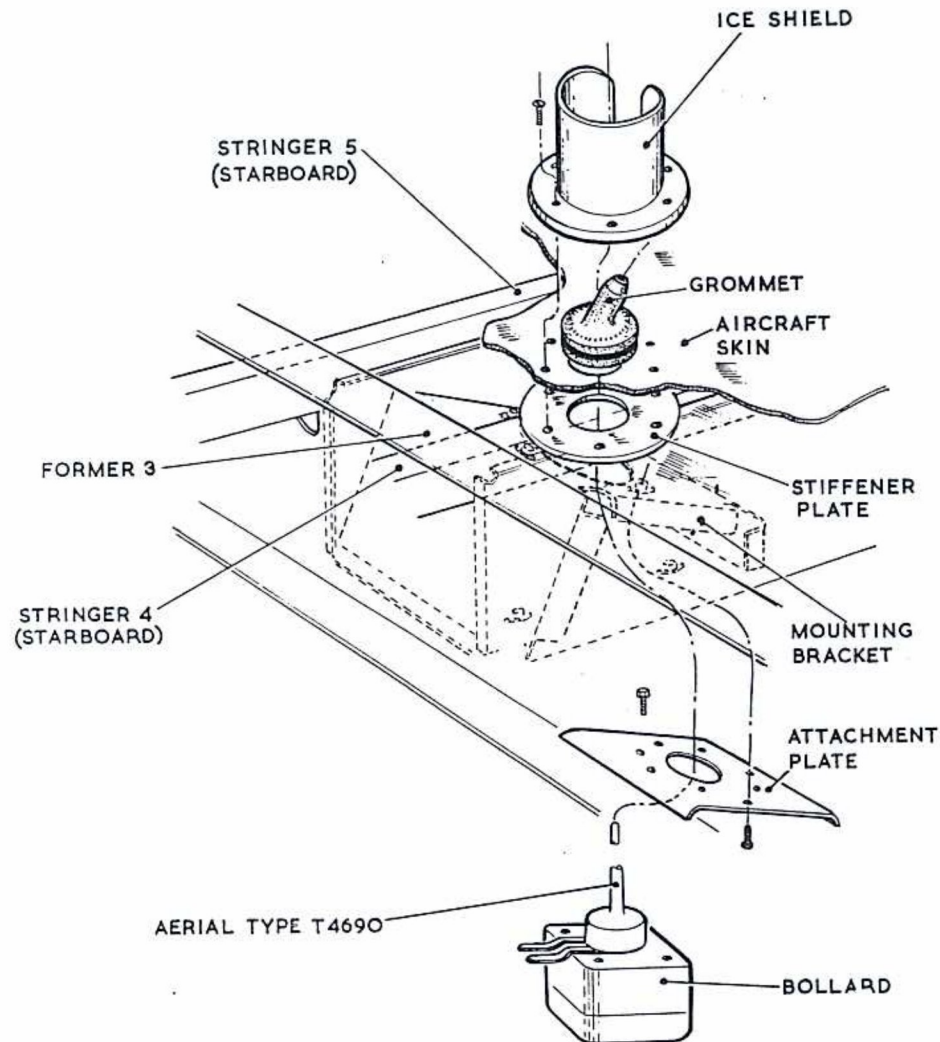
32. Before any attempt is made to remove equipment, the precautions and instructions outlined in Chapter 1 should be noted.

33. Removal of the majority of items is straightforward and detailed instructions are not considered necessary. The indicator, receiver and power unit weigh 45lbs., 18lbs. and 12lbs. respectively and require careful handling.

34. Where applicable, ensure that plug pins on the rear of the units are not damaged or distorted.

A.R.I.18103 Indicator

35. When the two sliding-type fasteners have been released, the unit may be easily removed from its mounting. With the unit drawn forward away from the navigator's panel, the plugbreak on the aft panel frame member is accessible.



NOTE...

THIS ILLUSTRATION SHOWS THE
STBD. AERIAL ASSEMBLY.
THE PORT AERIAL IS SIMILAR

Fig.5 Assembly of aerial

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TABLE 1

Major items of equipment

| Item | Type | Ref.No. | A.P.Reference |
|----------------------|-----------------------|---------------|---------------------|
| A.R.I. 18108/1 | | | |
| Receiver | R.13031 | 10D/21535 | |
| Indicator C.R.T. | 13232 | ◀ 10Q/16369 ▶ | |
| Power unit | 13378 | 10K/20754 | |
| Control unit | 9468 | ◀ 10D/16361 ▶ | ◀ A.P.116G-0101-1 ▶ |
| Amplifier | 11144 | 10U/17127 | |
| Filter unit | 13402 | 10P/13292 | |
| Junction box | 9429 | 10D/21536 | |
| ◀ Aerial | H.S.A. Part No. T4690 | - ▶ | - |
| A.R.I. 18103 | | | |
| Indicator electrical | 7961 | 10Q/97 | ◀ A.P.116G-0101-1 ▶ |

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TABLE 2

Connectors for A.R.I.18108/1 and A.R.I.18103 (Master)

| Item | Cable form | Connecting |
|----------|---|--|
| 2/T5673 | Equipment wire (Spec. D.E.F.12B) Type 2 23/.0076 22,off | Master indicator, Type 13232, B to Plug break (For No.1 indicator Type 7691) Master indicator, Type 13232, B to Plotting table IND-LOWER (Master) Master indicator, Type 13232, B to Master power unit, Type 13378 Sonics P.D.P. No.11 to Master power unit, Type 13378 |
| 3/T5673 | Miniature cable I.C. (Spec. D.E.F.10) 4 off Equipment wire (Spec. D.E.F.12B) Type 2, 23/.0076 12 off | Master indicator, Type 13232, A to Master junction box, Type 9429, IND. Master indicator, Type 13232, A to Plotting table IND.-UPPER (Master) |
| 4/T5673 | Miniature cable I.C. (Spec.D.E.F.10) 5 off Equipment wire (Spec. D.E.F.12B) Type 2, 23/.0076 18 off | Master receiver, Type 13031, B to Master junction box, Type 9429, REC B |
| 5/T5673 | Miniature cable I.C. (Spec. D.E.F.10) 5 off Equipment wire (Spec. D.E.F.12B) Type 2, 23/.0076 18 off | Master receiver, Type 13031, A to Master junction box, Type 9429, REC A |
| 6/T5673 | Equipment wire (Spec. D.E.F.10) Type 2, 23/.0076 6 off | ◀ Master amplifier, Type 11144 SK to Master junction box, Type 9429 A.U. ▶ |
| 7/T5673 | Uninyvin 16 4 off | Master junction box, Type 9429, P.D.P. to Sonics P.D.P.1 |
| 8/T5673 | Miniature cable I.C. (Spec. D.E.F.10) 4 off Equipment wire (Spec. D.E.F.12B) Type 2,23/.0076, 21 off | Master junction box, Type 9429, CU (A) to Master control unit, Type 9468A |
| 9/T5673 | Miniature cable I.C. (Spec. D.E.F.10) 4 off. Equipment wire (Spec. D.E.F.12B) Type 2, 23/.0076, 21 off | Master junction box, Type 9429, CU (B) to Master control unit, Type 9468 B |
| 10/T5673 | Uniradio 43 | ◀ Master amplifier, Type 11144, A.E.R. to Master filter unit Type 13402 |
| 11/T5673 | Uniradio 43 | Master filter unit, Type 13402 A.E. I.N. to Plug break No. 792 ▶ |
| 12/T5673 | Uniradio 43 | Plug break No. 792 to Master Sonics aerial (Fmr.21-22) |
| 13/T5673 | Uniradio 43 | Master amplifier, Type 11144, REC 2 to Master receiver B-RF |
| 14/T5673 | Uniradio 43 | Master amplifier, Type 11144, REC 1 to Master receiver A-RF |
| 15/T5673 | Uninyvinmetsheath 20, 2 off Uninyvin 20, 2 off | Master control unit, Type 9468, C to MASTER-SECOND change-over switch and T.Bs 477 and 711 |
| 16/T5673 | Uninyvinmetsheath 20, 2 off | T.B.477, T.B.711 to MASTER-SECOND change-over switch |

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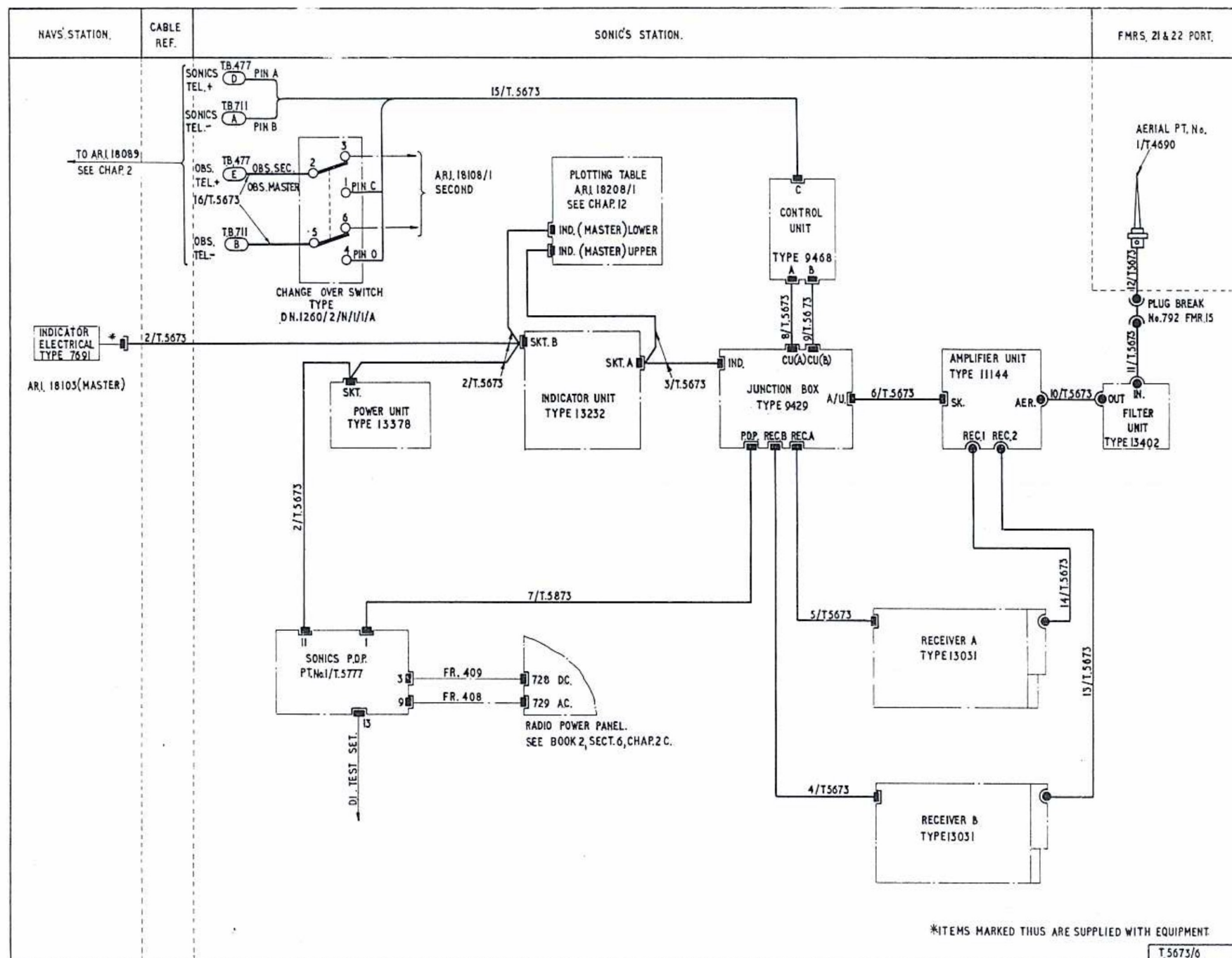


Fig. 6 A.R.I. 18108/1 and 18103 (Master)

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TABLE 3

Connectors for A.R.I.18108/1 and A.R.I.18103 (Second)

| Item No. | Cable form | Connecting |
|----------|--|--|
| 2/T5672 | Equipment wire (Spec. D.E.F.12B) Type 2, 23/.0076, 22 off | No.2 indicator, Type 13232, B to Plug break (For No.2 indicator, Type 7691) No.2 indicator, Type 13232, B to Plotting table IND-LOWER (Second) ◀ No.2 indicator, Type 13232, B to No.2 power unit, Type 13378 ▶ Sonics P.D.P. 10 to No.2 power unit, Type 13378 |
| 3/T5672 | Miniature cable I.C. (Spec.D.E.F.10) 4 off Equipment wire (Spec. D.E.F.12B) Type 2, 23/.0076, 12 off | No.2 indicator, Type 13232, A to No.2 junction box, Type 9429, IND No.2 indicator, Type 13232, A to Plotting table IND-UPPER (Second) |
| 4/T5672 | Miniature cable I.C. (Spec. D.E.F.10) Equipment wire (Spec. D.E.F. 12B) Type 2, 23/.0076, 18 off | No.2 receiver, Type 13031, B to No.2 junction box, Type 9429 REC B |
| 5/T5672 | Miniature cable I.C. (Spec. D.E.F.10) 5 off Equipment wire (Spec. D.E.F.12B) Type 2, 23/.0076, 18 off | No.2 receiver, Type 13031, A to No.2 junction box, Type 9429 REC A |
| 6/T5672 | Equipment wire (Spec. D.E.F.12B) Type 2, 23/.0076, 6 off | No.2 amplifier, Type 11144, SK to No.2 junction box, Type 9429, A.U. |
| 7/T5672 | Uninyvin 16, 4 off | No.2 junction box, Type 9429, P.D.P. to Sonics P.D.P. 2 |
| 8/T5672 | Miniature cable I.C. (Spec. D.E.F10) 4 off Equipment wire (Spec. D.E.F.12B) Type 2, 23/.0076, 21 off | No.2 junction box, Type 9429, CU (A) to No.2 control unit, Type 9468,A |
| 9/T5672 | Miniature cable I.C. (Spec. D.E.F.10) 4 off Equipment wire (Spec. D.E.F.12B) Type 2, 23/.0076, 21 off | No.2 junction box, Type 9429 C.U. (B) to No.2 control unit, Type 9468,B |
| 10/T5672 | Uniradio 43 | ◀ No.2 amplifier, Type 11144, A.E.R. to No.2 filter unit, Type 13402 OUT |
| 11/T5672 | Uniradio 43 | No.2 filter unit, Type 13402, IN to Plug break No. 791 ▶ |
| 12/T5672 | Uniradio 43 | Plug break No. 791 to No.2 Sonics aerial (Fmrs 3-4 stbd.) |
| 13/T5672 | Uninyvinmetsheath 20, 2 off Uninyvin 20, 2 off | No.2 control unit, Type 9468, C to MASTER-SECOND change-over switch (D.B.S.) and T.Bs 478 and 711 |

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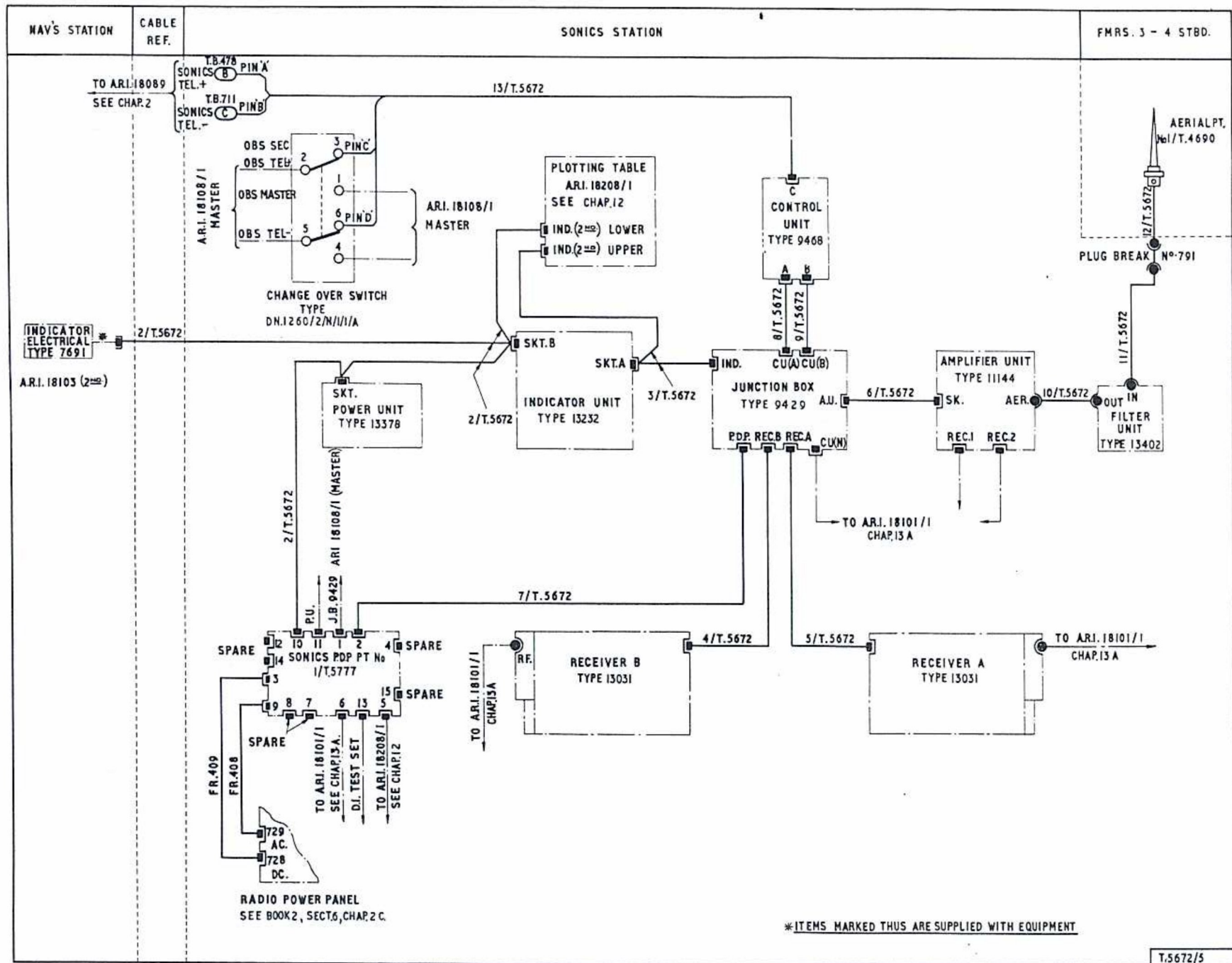


Fig. 7 A.R.I. 18108/1 and 18103 (Second)

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