

CHAPTER 4

ARI-18076

(Completely revised)

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DESCRIPTION

Introduction

1. The ARI consists of the following major units located as shown in fig.1 to 3.

Transmitters No.1, 2 and 3 Type 9420	10D/20525 or 10D/9552466
Control unit, Type 9422	10L/16346
Power units, No.1, 2 and 3, Type 9421	10K/19874
Aerials, No.1, 2 and 3	

1a. The following modifications are included in this chapter:-

Mod.1869 - To reinforce the aft counter-poise plate in the area of the M53 aerial mounting plate.

Mod.2368 - To make provision for the alternative mounting of the M54

aerial assembly by introducing forward counter-poise plate 1F/11649.

Mod.2461 - To make provision for the mounting of M55 aerials in lieu of M53 and M54 aerials.

Transmitters

2. There are up to three transmitters of cylindrical construction (canister) fitted as follows:-

Transmitter No.1 - Starboard side, between formers 487.5 and 22.5.

Transmitter No.2 - Port side, between formers 487.5 and 22.15.

Transmitter No.3 - Port side, between formers 46.75 and 22.25.

Cooling system

3. The integral cooling for the transmitters contains two independent closed loops. There is a heat exchanger for each loop. A pump circulates water/glycol through one loop, the heat exchanger and back to the pump. The second cooling loop circulates a mixture of air and nitrogen assisted by a fan. A Schrader valve is fitted to permit pressurization of the transmitter with nitrogen at 5 lbf/in².

Power unit

4. There are three power units of

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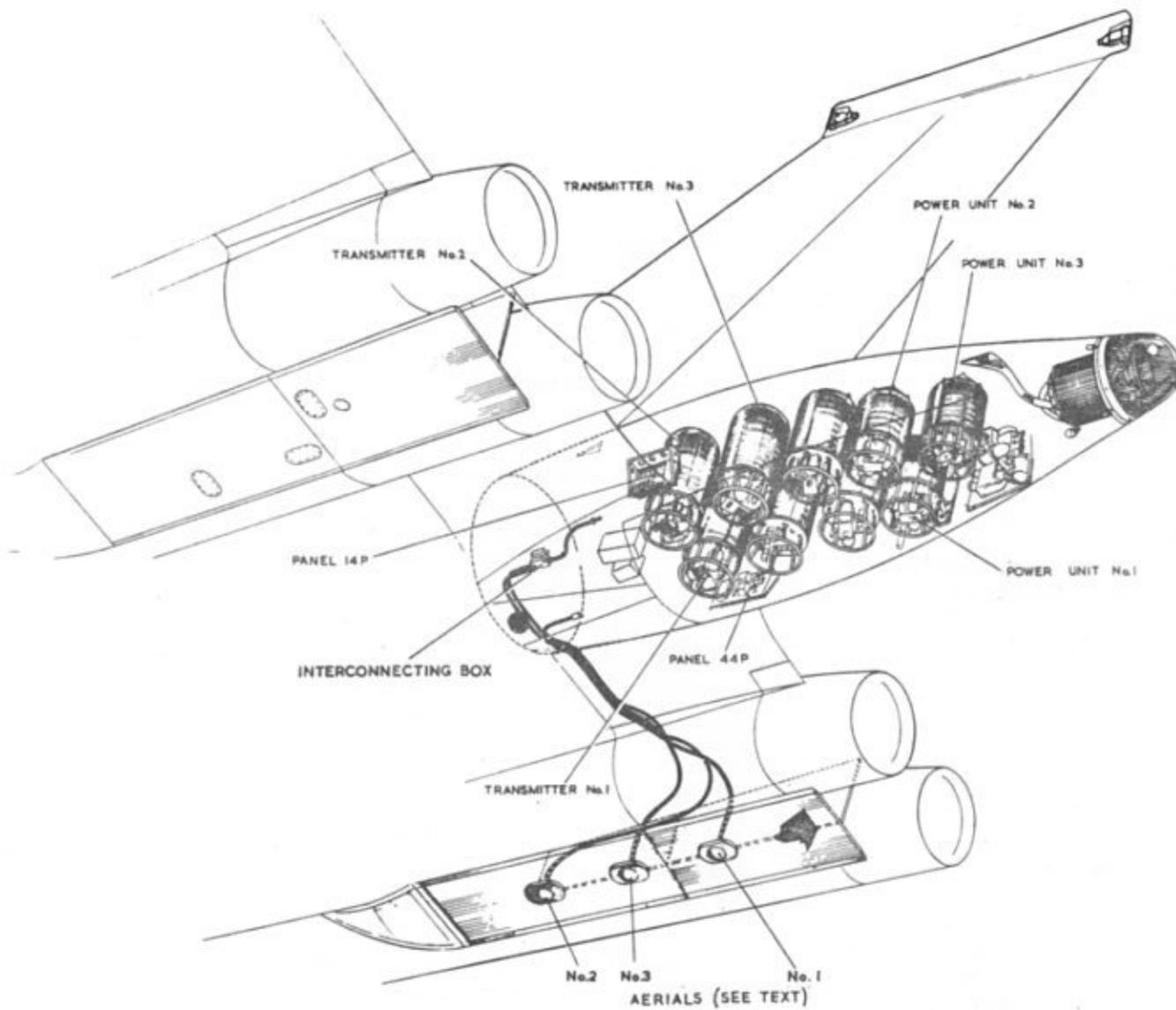


Fig.1 Location of transmitters, power units and aerials

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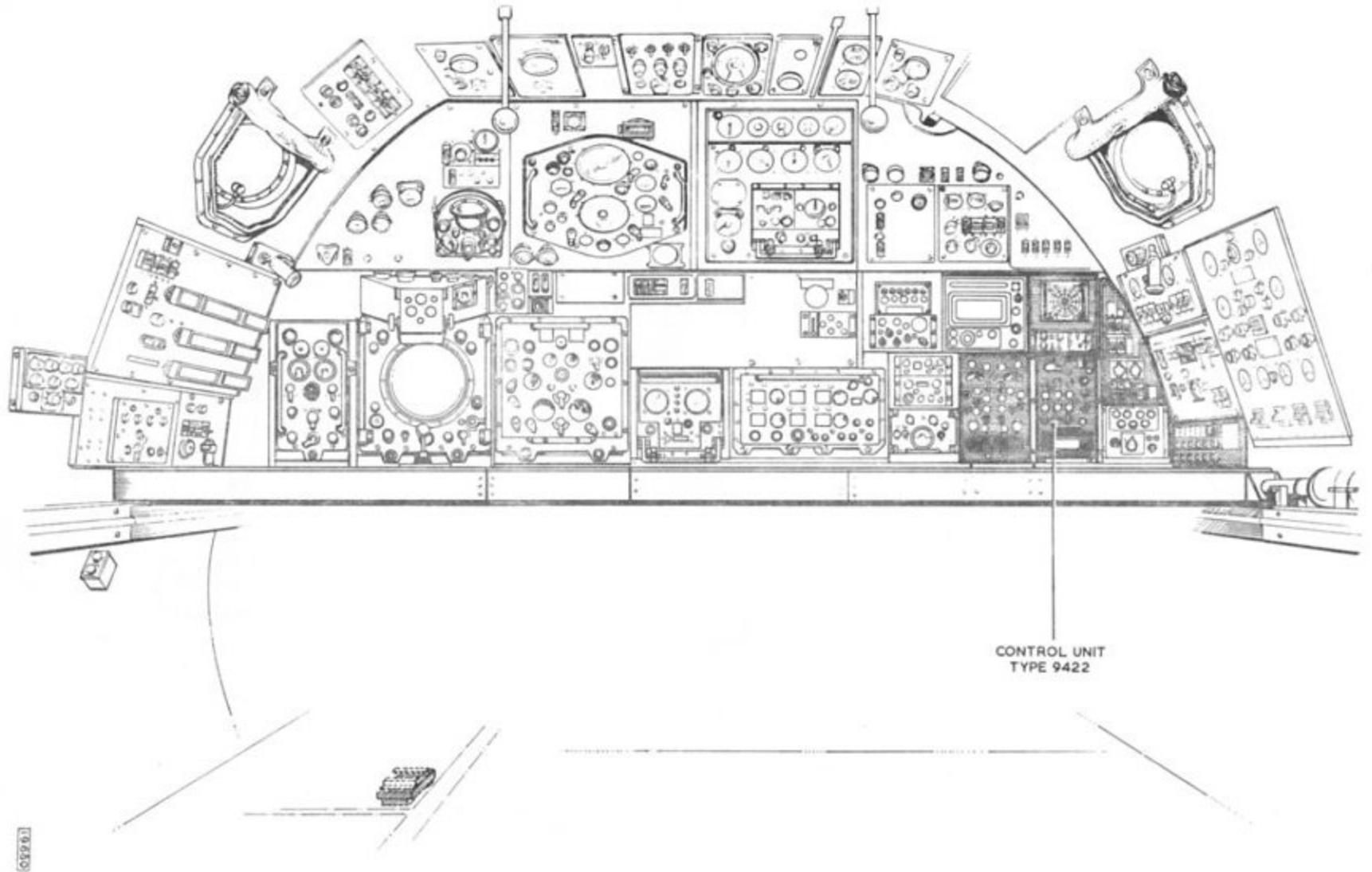


Fig. 2 Crew station equipment

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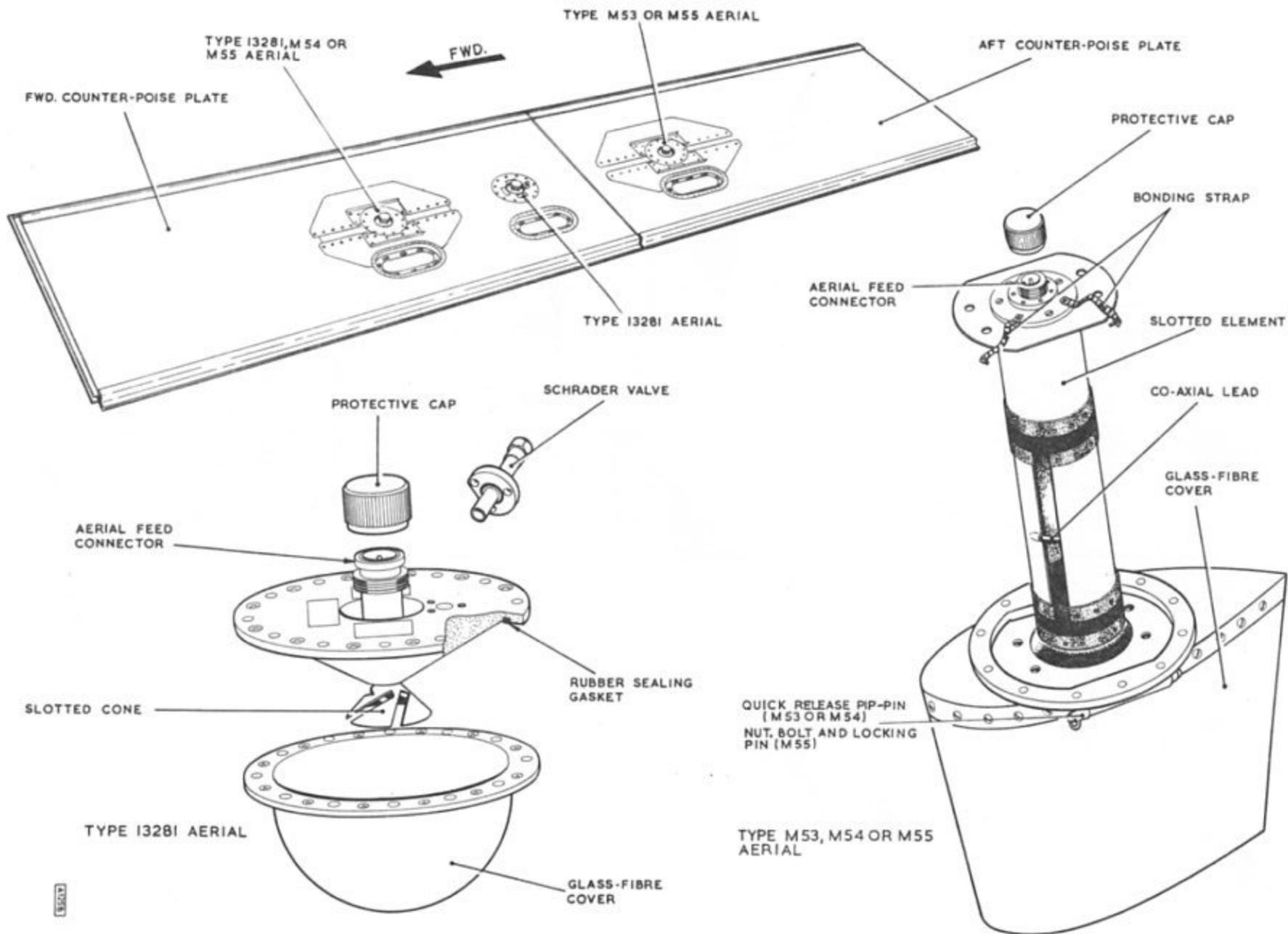


Fig.3 Assembly of aerals
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cylindrical construction very similar to the transmitters (para 2). They are fitted as follows:-

Power unit No.1 – Starboard side, between formers 71.25 and 95.75.

Power unit No.2 – Port side, between formers 71.25 and 95.75.

Power unit No.3 – Port side, between formers 95.75 and 120.25.

Pressurization

5. Each power unit is pressurized with nitrogen and is provided with a heat exchanger which is connected to the EW cooling systems in a similar manner to the transmitters (para.4). Each power unit supplies a stabilized EHT to a transmitter and is switched on by the control unit at the crew station (fig.4).

Cooling

6. The internal cooling system contains two independent closed loops and heat generated is lost to a closed-loop silicon oil or air cooling system.

7. A circulating air system is included to allow for heat dissipation generated by the EHT rectifiers, resistors and other heat producing components not cooled by the oil system.

Control unit

8. The control unit controls the three transmitters (fig.4). A UNIT SELECTION

switch selects the desired transmitter and power unit.

9. The switches RUN-UP and STANDBY (the latter in positions 2 and 3 only) have dual functions. The amber ON lamp is extinguished when the RUN-UP switch is depressed, the STANDBY switch, associated with each transmitter will return that unit (when transmitting) to the standby condition.

Aerials

10. Three aerials are mounted on two

counter-poise plates on the structure between No.3 and No.4 engine jet pipes on the lower surface. Fig.3 shows the location and the types of aerial (M53, M54, M55 and 13281) that may be fitted.

Power supplies

11. The 200-volt 3-phase supplies for the ARI are covered in Sect.6, Chap.22 of this publication.

12. Full setting up and operational instructions will be found in SD 116F-0102-1.

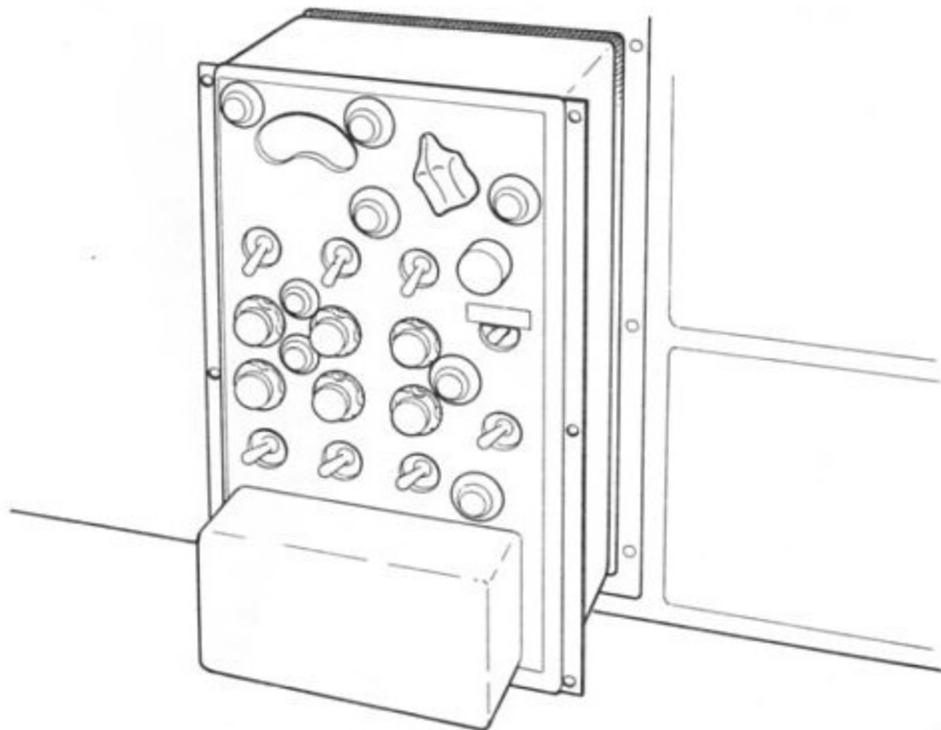


Fig.4 Control unit, Type 9422

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TABLE 1

Connectors for A.R.I.18076

Part No.	Cable form	Connecting between
2/T4507	Miniature 25C	Control unit and RPB plug 878
3/T4507	Miniature 25C	Control unit and RPB plug 879
4/T4507	Miniature 25C	Control unit and RPB plug 880
5/T4507	Miniature 25C	RPB plug 878 and plug break 895
6/T4507	Miniature 25C	RPB plug 879 and plug break 896
7/T4507	Miniature 25C	RPB plug 880 and plug break 897
8/T4507	Uniradio 77	Transmitter No.1 and plug break 898
11/T4507	Type 1024	Plug break 909 and aerial No.1
12/T4507	Type 1024	Plug break 908 and aerial No.3
13/T4507	Type 1024	Plug break 907 and aerial No.2
14/T4507	Miniature 12C	No.1 transmitter and No.1 power unit
15/T4507	Uniradio 67	No.1 transmitter and No.1 power unit
16/T4507	Miniature 12C	No.2 transmitter and No.2 power unit
17/T4507	Uniradio 67	No.2 transmitter and No.2 power unit
18/T4507	Miniature 12C	No.3 transmitter and No.3 power unit
19/T4507	Uniradio 67	No.3 transmitter and No.3 power unit
23/T4507	Uniradio 63	Plug break 898 and plug break 909
24/T4507	Uniradio 63	Plug break 899 and plug break 908
25/T4507	Uniradio 63	Plug break 900 and plug break 907
29/T4507	Miniature 25C	Plug break 895 and No.1 transmitter
30/T4507	Miniature 25C	Plug break 896 and No.2 transmitter
31/T4507	Miniature 25C	Plug break 877 and No.3 transmitter
32/T4507	Miniature 2C	Control unit and TB 1042
33/T4507	Uniradio 77	Plug break 899 and No.3 transmitter
34/T4507	Uniradio 77	Plug break 907 and No.2 transmitter
FR499/T3434	Unipren 12 (3 cores)	Power unit No.1 and panel 14P
FR500/T3434	Unipren 12 (3 cores)	Power unit No.2 and panel 14P
FR501/T3434	Unipren 12 (3 cores)	Power unit No.3 and panel 14P
FR502/T3434	Unipren 12 (3 cores)	Transmitter No.2 and panel 14P
FR503/T3434	Unipren 12 (3 cores)	Transmitter No.3 and panel 14P
FR504/T3434	Unipren 12 (3 cores)	Transmitter No.1 and panel 14P

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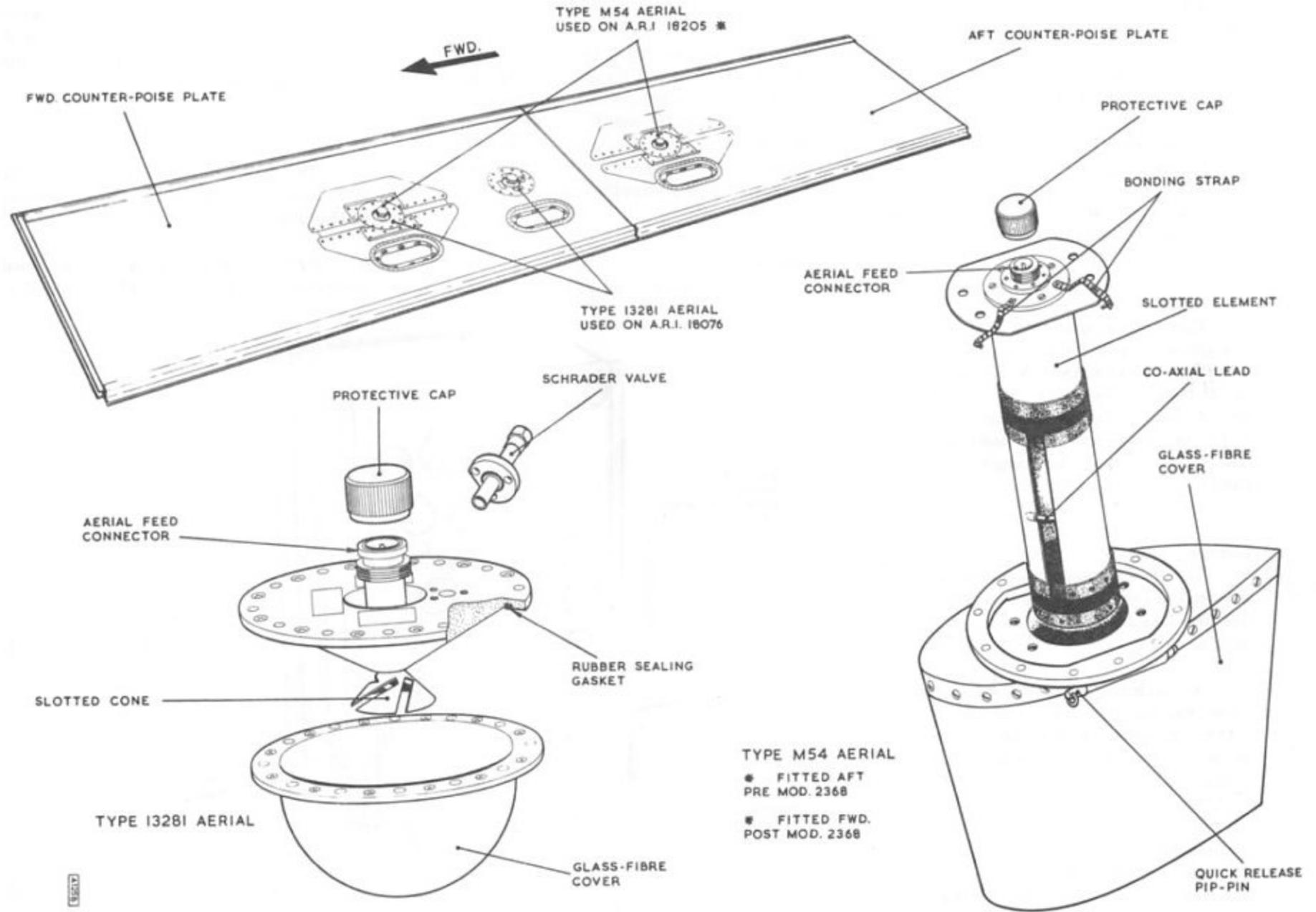


Fig.2 Assembly of aerals

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cylindrical construction very similar to the transmitters (para 2). They are fitted as follows:-

Power unit No.1 - Starboard side, between formers 71.25 and 95.75.

Power unit No.2 - Port side, between formers 71.25 and 95.75.

Power unit No.3 - Port side, between formers 95.75 and 120.25.

Pressurization

5. Each power unit is pressurized with nitrogen and is provided with a heat exchanger which is connected to the E.W. cooling systems in a similar manner to the transmitters (para.4). Each power unit supplies a stabilized E.H.T. to a transmitter and is switched on by the control unit at the navigator's station (fig.3).

Cooling

6. The internal cooling system contains two independent closed loops and heat generated is lost to a closed-loop silicon oil or air cooling system.

7. A circulating air system is included to allow for heat dissipation generated by the E.H.T. rectifiers, resistors and other heat producing components not cooled by the oil system.

Control unit

8. The control unit is fitted at the navigator's station and controls the three transmitters (fig.3). A UNIT SELECTION

switch selects the desired transmitter and power unit.

9. The switches RUN-UP and STANDBY (the latter in positions 2 and 3 only) have dual functions. The amber ON lamp is extinguished when the RUN-UP switch is depressed, the STANDBY switch, associated with each transmitter will return that unit (when transmitting) to the standby condition.

Aerials

10. Three aerials are mounted on two

counter-poise plates on the structure between No.3 and 4 engine jet pipes on the lower surface. Each aerial is enclosed in a 7 inch diameter aperture covered by a glass-fibre dome as illustrated in fig.2.

Power supplies

11. The 200-volt 3-phase supplies for the A.R.I. are covered in Sect.6, Chap.22 of this publication.

12. Full setting up and operational instructions will be found in S.D.116F-0102-1.

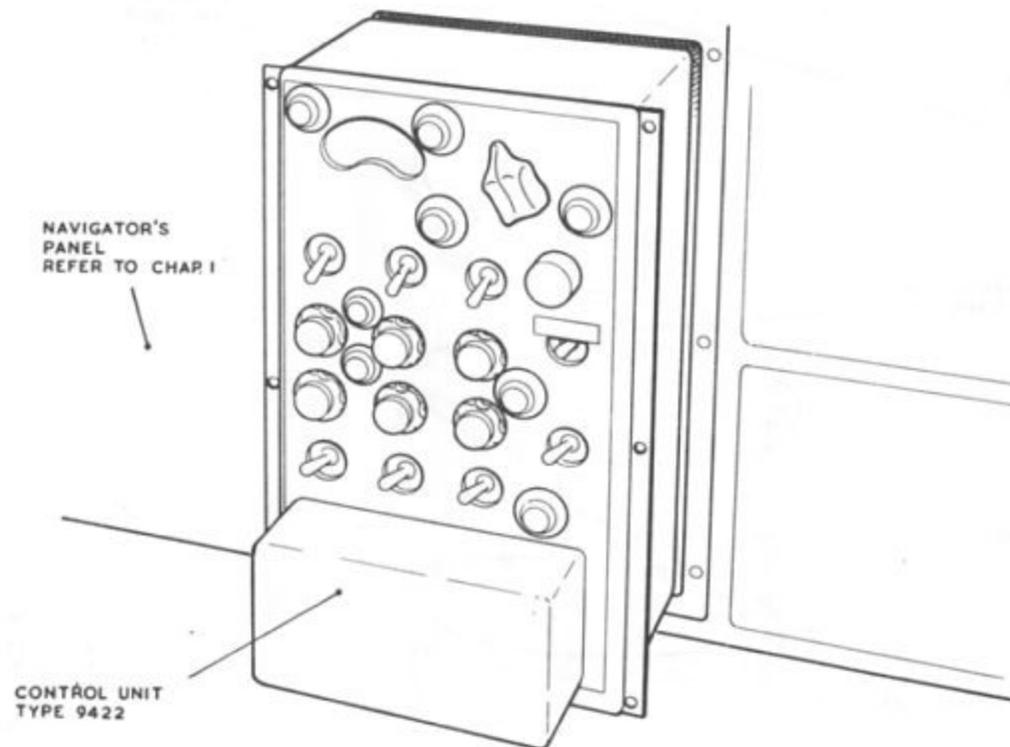


Fig. 3 Navigation station - control unit

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TABLE 1

Connectors for A.R.I.18076

Part No.	Cable form	Connecting between
2/T4507	Miniature 25C	Control unit and R.P.B. plug 878
3/T4507	Miniature 25C	Control unit and R.P.B. plug 879
4/T4507	Miniature 25C	Control unit and R.P.B. plug 880
5/T4507	Miniature 25C	R.P.B. plug 878 and plug break 895
6/T4507	Miniature 25C	R.P.B. plug 879 and plug break 896
7/T4507	Miniature 25C	R.P.B. plug 880 and plug break 897
8/T4507	Uniradio 77	Transmitter No.1 and plug break 898
11/T4507	Type 1024	Plug break 909 and aerial No.1
12/T4507	Type 1024	Plug break 908 and aerial No.3
13/T4507	Type 1024	Plug break 907 and aerial No.2
14/T4507	Miniature 12C	No.1 transmitter and No.1 power unit
15/T4507	Uniradio 67	No.1 transmitter and No.1 power unit
16/T4507	Miniature 12C	No.2 transmitter and No.2 power unit
17/T4507	Uniradio 67	No.2 transmitter and No.2 power unit
18/T4507	Miniature 12C	No.3 transmitter and No.3 power unit
19/T4507	Uniradio 67	No.3 transmitter and No.3 power unit
23/T4507	Uniradio 63	Plug break 898 and plug break 909
24/T4507	Uniradio 63	Plug break 899 and plug break 908
25/T4507	Uniradio 63	Plug break 900 and plug break 907
29/T4507	Miniature 25C	Plug break 895 and No.1 transmitter
30/T4507	Miniature 25C	Plug break 896 and No.2 transmitter
31/T4507	Miniature 25C	Plug break 877 and No.3 transmitter
32/T4507	Miniature 2C	Control unit and T.B.1042
33/T4507	Uniradio 77	Plug break 899 and No.3 transmitter
34/T4507	Uniradio 77	Plug break 907 and No.2 transmitter
FR499/T3434	Unipren 12 (3 cores)	Power unit No.1 and panel 14P
FR500/T3434	Unipren 12 (3 cores)	Power unit No.2 and panel 14P
FR501/T3434	Unipren 12 (3 cores)	Power unit No.3 and panel 14P
FR502/T3434	Unipren 12 (3 cores)	Transmitter No.2 and panel 14P
FR503/T3434	Unipren 12 (3 cores)	Transmitter No.3 and panel 14P
FR504/T3434	Unipren 12 (3 cores)	Transmitter No.1 and panel 14P

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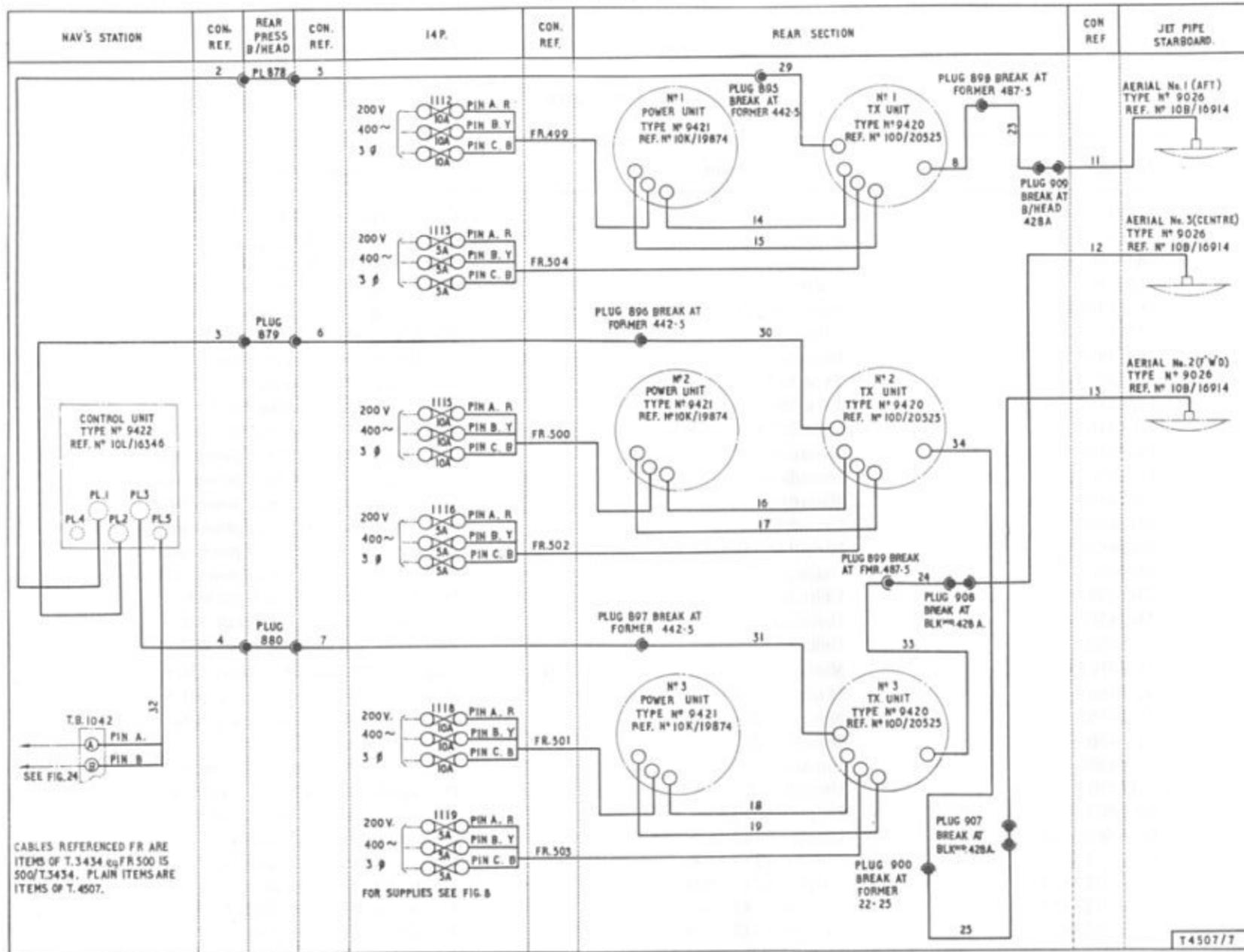


Fig. 4 Routing chart for A.R.I. 18076

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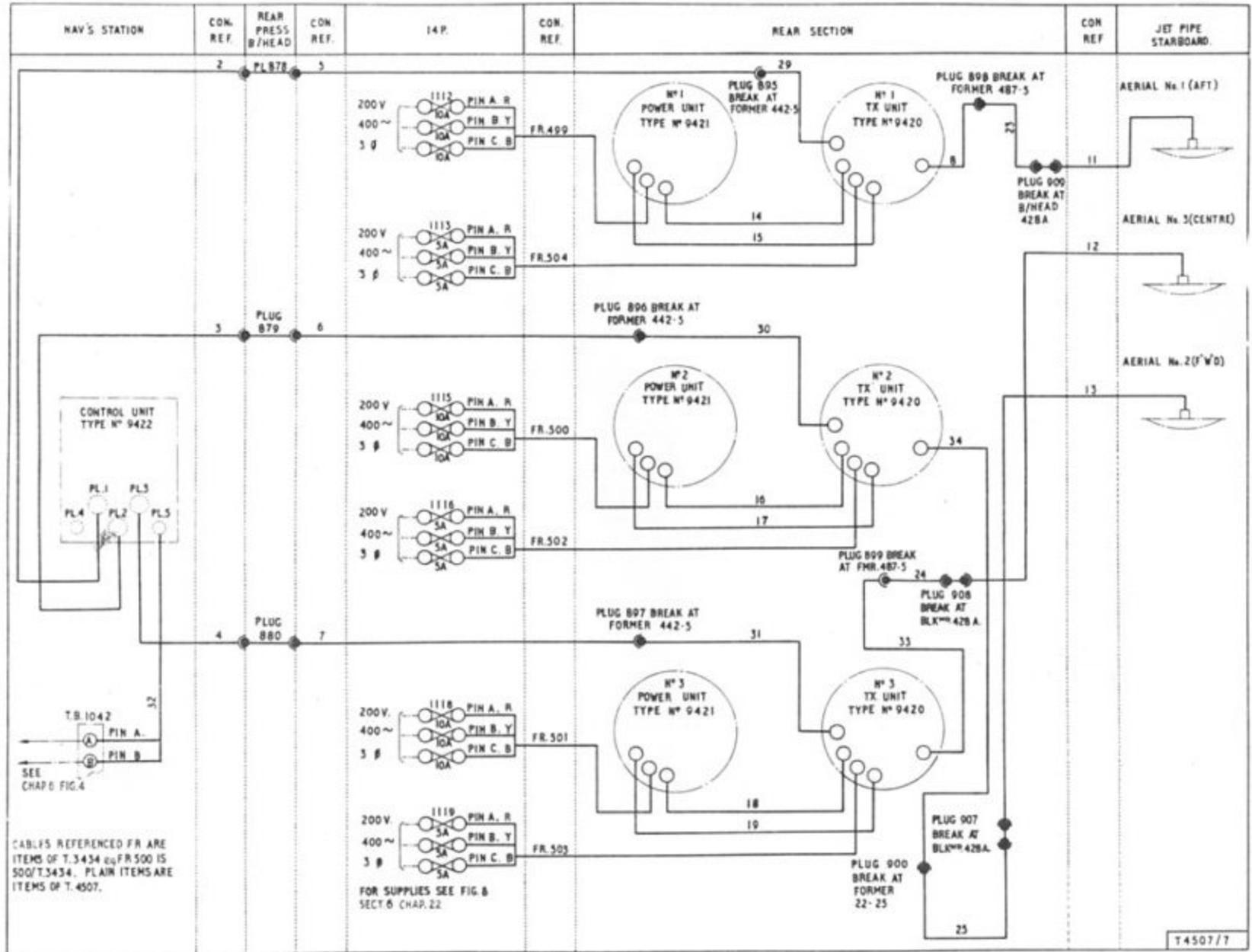
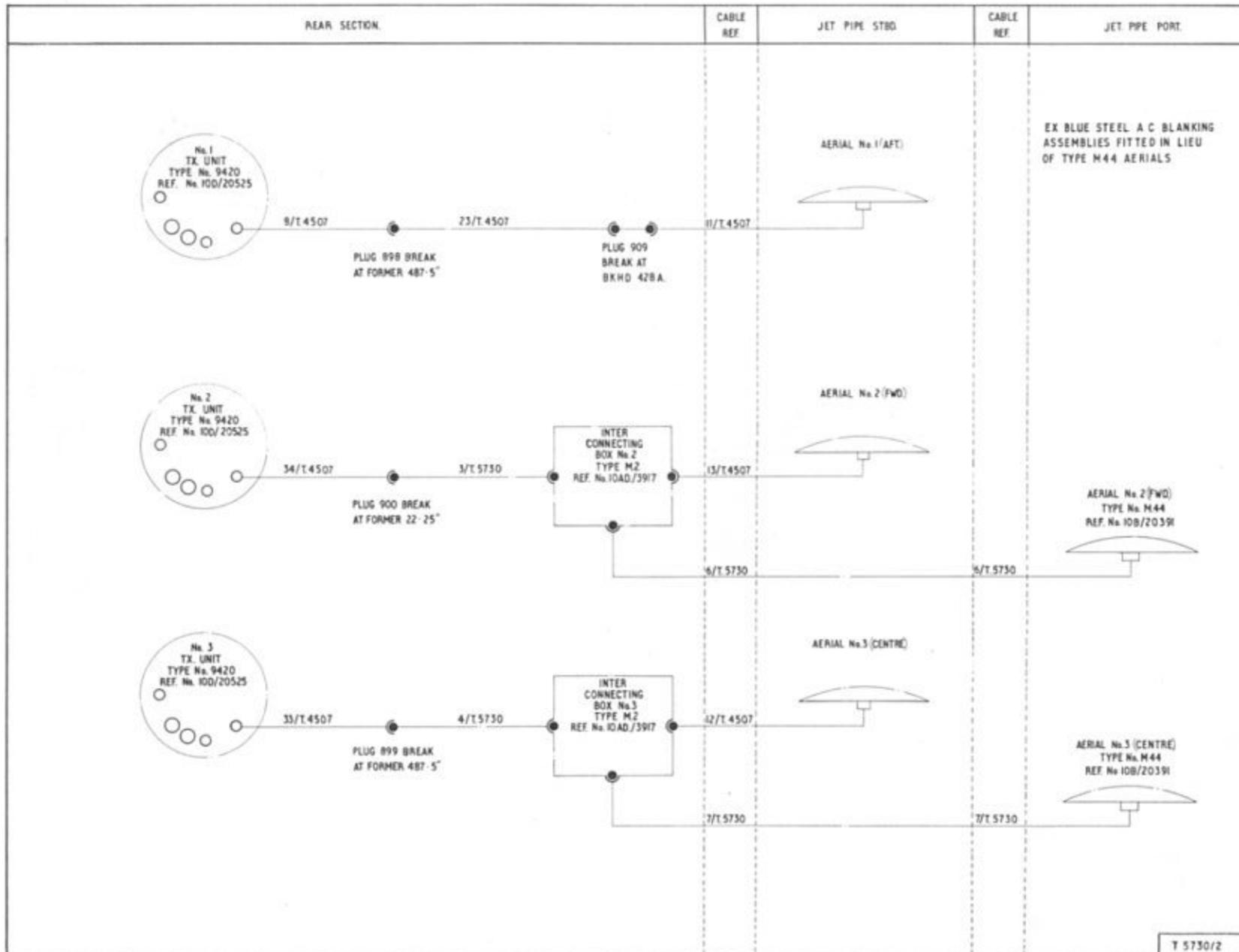


Fig. 5 Routing chart for A.R.I. 18076

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Fig.6 Routing chart for A.R.I 18076 Post Mod.870 and 1471

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