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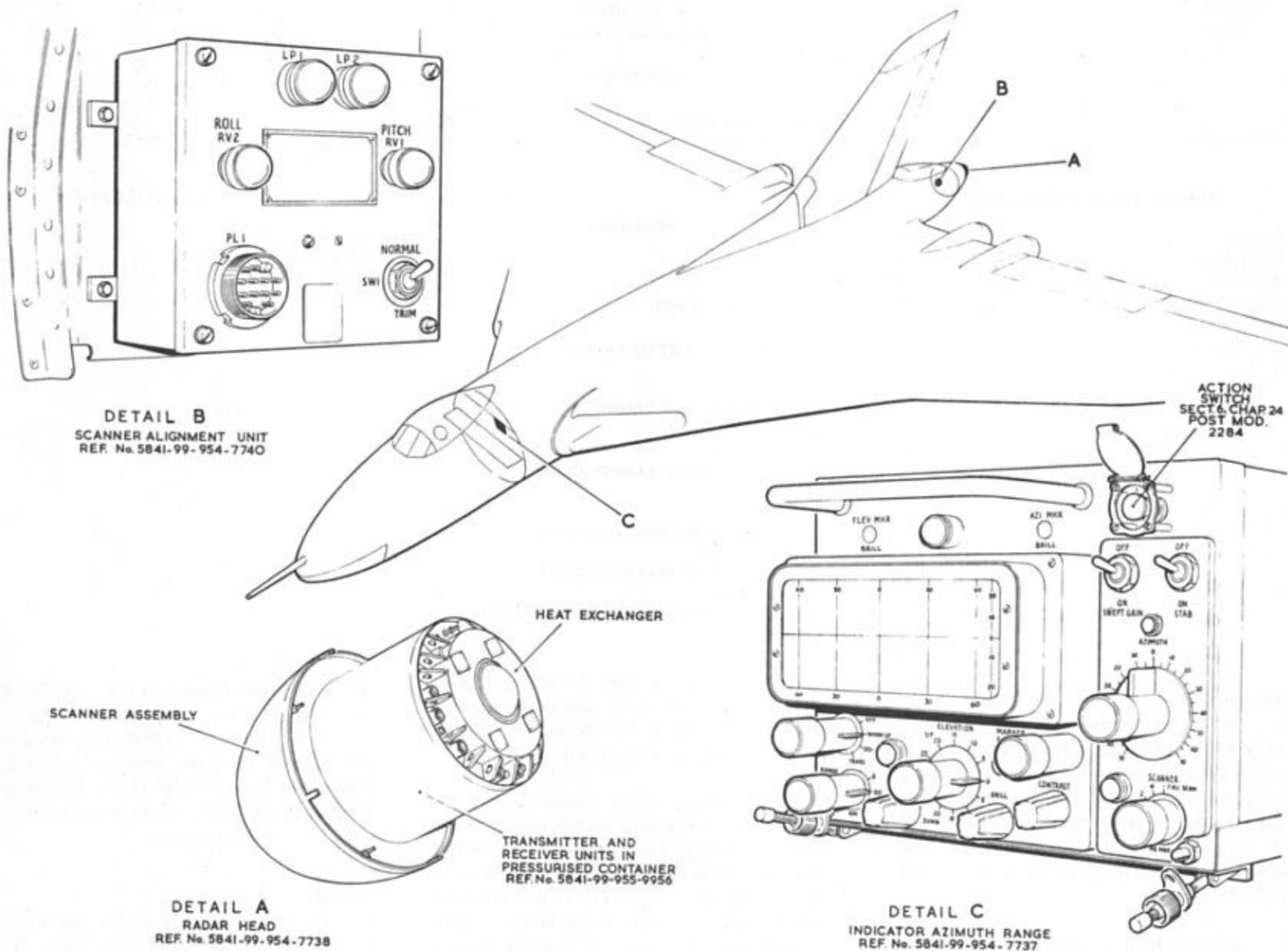


Fig. 1. Location of A.R.I. 5952 equipment.

← Mod. 2284 added →

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control of the A.E.O. and consists of the following major components:-

Radar head	1
Indicator, azimuth-range	1
Scanner alignment unit	1

Radar head

6. The radar head is mounted at the extreme end of the rear fuselage structure, the radome covering the scanner forming the tail cone of the fuselage as shown in fig.1. The head consists of a pressurized cylindrical canister in which is mounted the scanner assembly, together with the transmitting and receiving units.

7. Pressurization of the canister is provided by nitrogen bottles mounted adjacent to the radar head. The pressure first inflates the radome sealing ring and seals the unit, and then pressurizes the remainder of the unit via a differential valve. The set is automatically switched off if the pressure falls below 13.5 lb/in².

8. The canister is cooled through the medium of a heat exchanger, which is supplied with a flow of ram air regulated by a thermostatically-controlled electrically-actuated valve. The mechanical aspect of the pressurization and cooling system will be found in Sect.3, Chap.16 and the electrical circuit for the cooling system is in Sect.6, Chap.22 of this publication.

Indicator, Azimuth range

9. The indicator is installed on an anti-vibration tray on the navigator's panel at the A.E.O's station. The unit contains operational controls and a display C.R.T. A rotary switch provides for the selection of warm up, stand-by or transmit condition of the circuits in the radar head. The C.R.T. display provides location and distance indication via calibrated azimuth and elevation markers using two time base speeds to give the following ranges:-

0	-	6 N.M.
0	-	20 N.M.

Diffused lighting of the various dials on the front panel is controlled by a twin gang dimmer switch located on the A.E.O's radio switch panel.

10. The indicator unit has forced air cooling. The rear panel contains a heat exchanger section and a blower which exhausts air from the unit. An indicator lamp on the front panel will be illuminated when the radar head pressure is greater than 18.5 p.s.i.a. and will be extinguished for lower pressures.

Scanner alignment unit

11. This unit provides adjustment to correct for the residual error in the alignment of the radar head to the vertical reference. The roll and pitch adjustments are effected by two potentiometers in association with two indicator lamps. The unit is mounted in the rear fuselage.

Vertical reference

12. The vertical reference is derived from the standby horizon gyro, Mk.5A, fitted to the first pilot's panel, for the stabilization of the C.R.T. scan in pitch and roll axes. A stabilized supply is connected to the pitch and roll potentiometers belonging to the horizon gyro. Signals representing the attitude of the aircraft in pitch and roll are picked off via the potentiometer sliders and used to stabilize the C.R.T. scan pattern on the control unit. The Mk.5A horizon gyro is dealt with in Sect.7, Chap.2.

Power supplies

13. The 28-volt d.c. and 200-volt, 3-phase, 400 HZ a.c. supplies required for the A.R.I. are fed from the following fuses:-

(1) 28 volt d.c.

Service	Fuse	Rating	Location
Indicator dial	548	5A	4P
Lighting	655	5A	3P
Cooling circuit	459	5A	26P
200 volt relay	630 706	7.5A	48P

(2) 200-volt, 3-phase, 400 HZ a.c.

Service	Fuse	Rating	Location
	103R	10A	60P
Radar head	103B	10A	60P
circuits	103Y	10A	60P

Further information on the associated supplies is contained in Sect.6, Chap.22 of this publication.

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SERVICING

maintained between trades actually concerned in servicing operations.

Installation

16. The setting up, operating and servicing instructions for the A.R.I. and its components are contained in A.P.114M-0100-1. The security of all components should be checked regularly. All connectors, plugs, sockets and terminal blocks should be examined for damage and ingress of dirt and moisture.

Pressurization system

17. In conjunction with the servicing of the system as laid down in -4 of this publication,

the following periodic check should be carried out on the radar head. With a suitable pressure gauge, check at the TEST valve on the heat exchanger that the pressure of the radar head is 20 p.s.i.a. above the radar head pressure and therefore a pressure of 23 p.s.i.a. should be indicated when the pressure gauge is connected to the DEFLATE SEALS valve located on the heat exchanger.

Power supplies

18. Using a ground power supply trolley, Ref.No.4G/4221, check with a suitable test meter, at the disconnected radar head supply plug PLA, that the A.C. supply is 200-volts at pins A to J and the d.c. supply is 28-volts at pins K and M.

REMOVAL AND INSTALLATION

Radar head

22. The radar head incorporating the radar unit, heat exchanger, mounting ring and radome is removed and installed as a complete unit. The following items of equipment are required.

Item	Ref. No.
Minihoist 5 cwt.	4GC/5703
Handle (9 in)	4GC/5743
Extension tube (36 in)	4GC/5443
Hook, cable end	4GC/5429
Servicing Giraffe, Type AA, Mk.2	4G/5461
Jib	4G/5708
Platforms, Mk.2	4G/5628
Sling assemblies	10S/17399
Road transportation trolley	4F/1924

Trolley, radar servicing	10S/17400
Ring assembly	10S/17398

23. Ensure that all electrical power supplies are switched off, then proceed as follows:-

- (1) Close the line valve on the pressure reducing panel, to shut off the nitrogen supply to the radar head.
- (2) Disconnect the air hose from the radar head.
- (3) Disconnect the cable connector (plug H) from the temperature sensing unit fitted to the heat exchanger air port.

Post Mod.2230

14. On Post Mod.2230 aircraft, three cable assemblies 2/T7682, 3/T7682 and 4T/7682 are introduced to enable A.R.I.5919 equipment to be used in conjunction with A.R.I.5952 connector assemblies (Table 1).

Precautions

15. 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 injury, fatal 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

General

19. Access to the components is straightforward, but the following points should be observed. Where it is necessary to remove or replace any components isolate the relevant power supplies and secure all loose connectors to the adjacent aircraft structure to prevent damage.

Indicator, Azimuth range

20. To remove the indicator unit release the two knurled screws on the front panel and slide the unit forward and out of its antivibration tray.

Scanner alignment unit

21. The unit may be removed from the inside of the aircraft tail section by disconnecting the socket connector (PL1) and removing four bolts.

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- (4) Disconnect the five cable connectors marked A, B, C, E and J from the radar head.
- (5) Disconnect the four quick-release clamps, which attach the cooling air manifolds to the adapter fitted to the air ports of the heat exchanger.
- (6) Remove the screws indicated by arrows stencilled on the radome.
- (7) Fit the sling assemblies, Ref.No.10S/17399.
- (8) Attach the minihoist equipment to the slinging link on the arm of the lifting attachment. It should be noted that the link should be fitted to the third hole from the end of the arm.
- (9) Slightly tension the hoist, then release the four fasteners securing the radar head to the fuselage.
- (10) Lower the radar head assembly and secure it to the ring assembly, Ref.No.10S/17398, which is fitted to the servicing trolley Ref.No.10S/17400. It should be noted that for field use, the servicing trolley is mounted on the transportation trolley, Ref.No.4F/1924.

To install the radar head to the aircraft reverse the above procedures.

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TABLE 1

Connectors for A.R.I.5952

H.S.A. Part No.	Cableform	Connecting
2/T.6451	Equipment wire, Type 2, 25-core	R.P.B. plug 881 to Plug 915
3/T.6451	Equipment wire, Type 2, 12-core	R.P.B. plug 189 to Plug 916
4/T.7451	Equipment wire, Type 2, 25-core	Plug 915 to Radar head plug C
5/T.6451	Equipment wire, Type 2, 12-core	Plug 916 to Radar head plug B
7/T.6451	Miniature 12C	Radar head plug J to Scanner alignment unit
	Equipment wire, Type 2, 18-core	R.P.B. plug 881 to Indicator control unit
	Equipment wire, Type 2, (screened 3-core twisted)	R.P.B. plug 881 to Plug break 235
10/T.6451	Equipment wire, Type 2, 12-core	R.P.B. plug 189 to Indicator control unit
	Uninyvin 20, 1-core	T.B.1735(A) to Indicator control unit
	Uninyvin 20, 2-core	T.B.1045(A) and (B) to Indicator control unit
FR510	Unipren 6	T.B.1041(B) to Earth
FR531	Unipren 6, 3-core twisted	Relay 630 to T.B.1039(A) and T.B.1040(A)
FR545	Unipren 6	T.B.1041(A) to T.B.1321(A)
FR674	Unipren 6, 2-core	T.B.681(B) and (F) to Dimmer switches
FR675	Unipren 6, 2-core	T.B.1045(A) and (B) to Dimmer switches
FR853	Uninyvin 20, 12-core	Radar head plug A to T.B.1039, 1040 and 1041
FR854	Uninyvin 20	T.B.1039(C) to Earth
FR886	Nyvin 20	T.B.1735(A) to Relay 822(X1)

NOTE . . .

Connector assembly 2/T.7682, between the Indicator control unit and 10/T.6451 and connector assemblies 3/T.7682 and 4/T.7682, between the Radar head and 4/T.6451 and 5/T.6451 respectively, are fitted to permit the A.R.I.5919 to be used with A.R.I.5952 connector assemblies when Mod.2230 is embodied.(fig.3).

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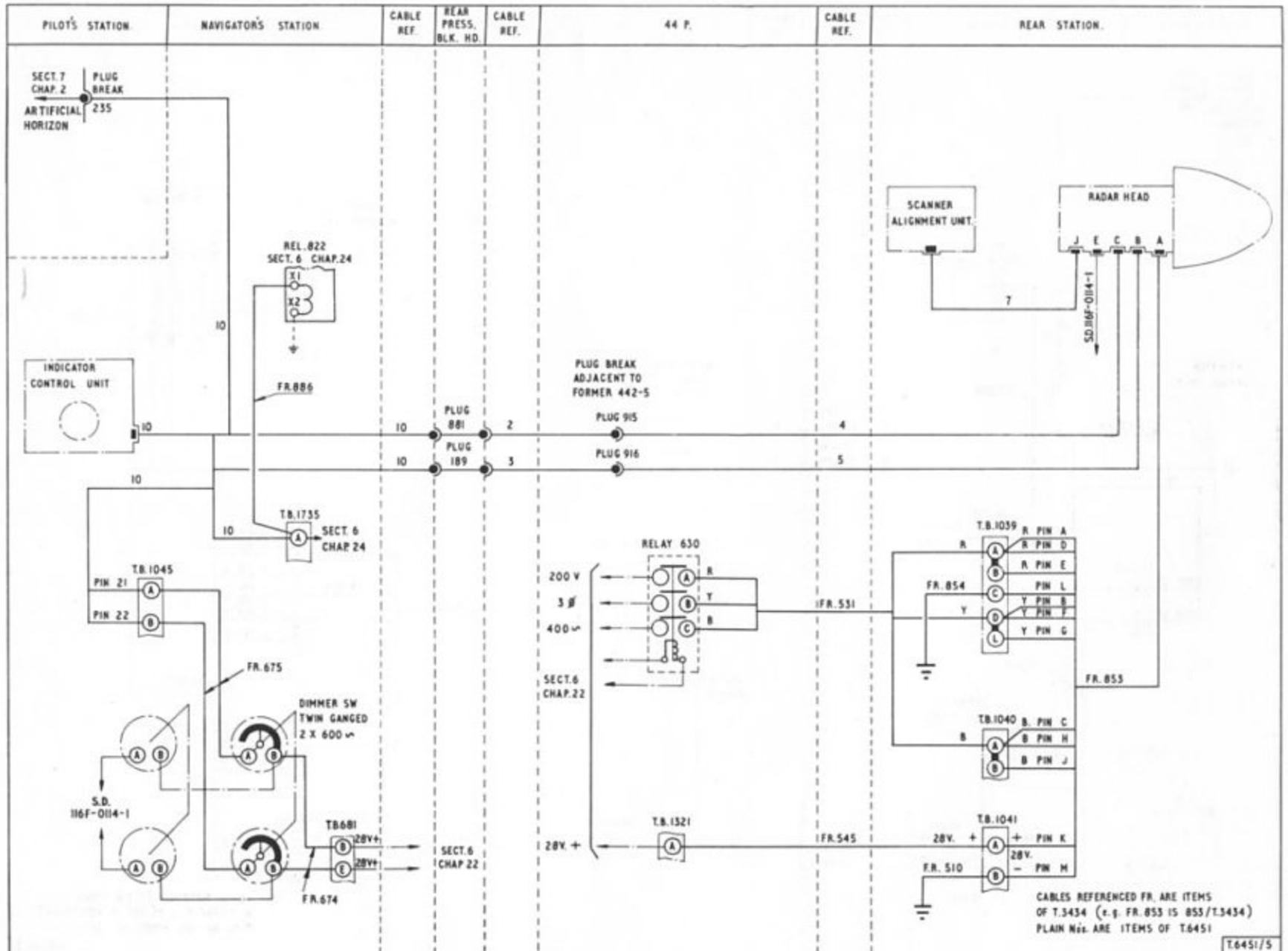
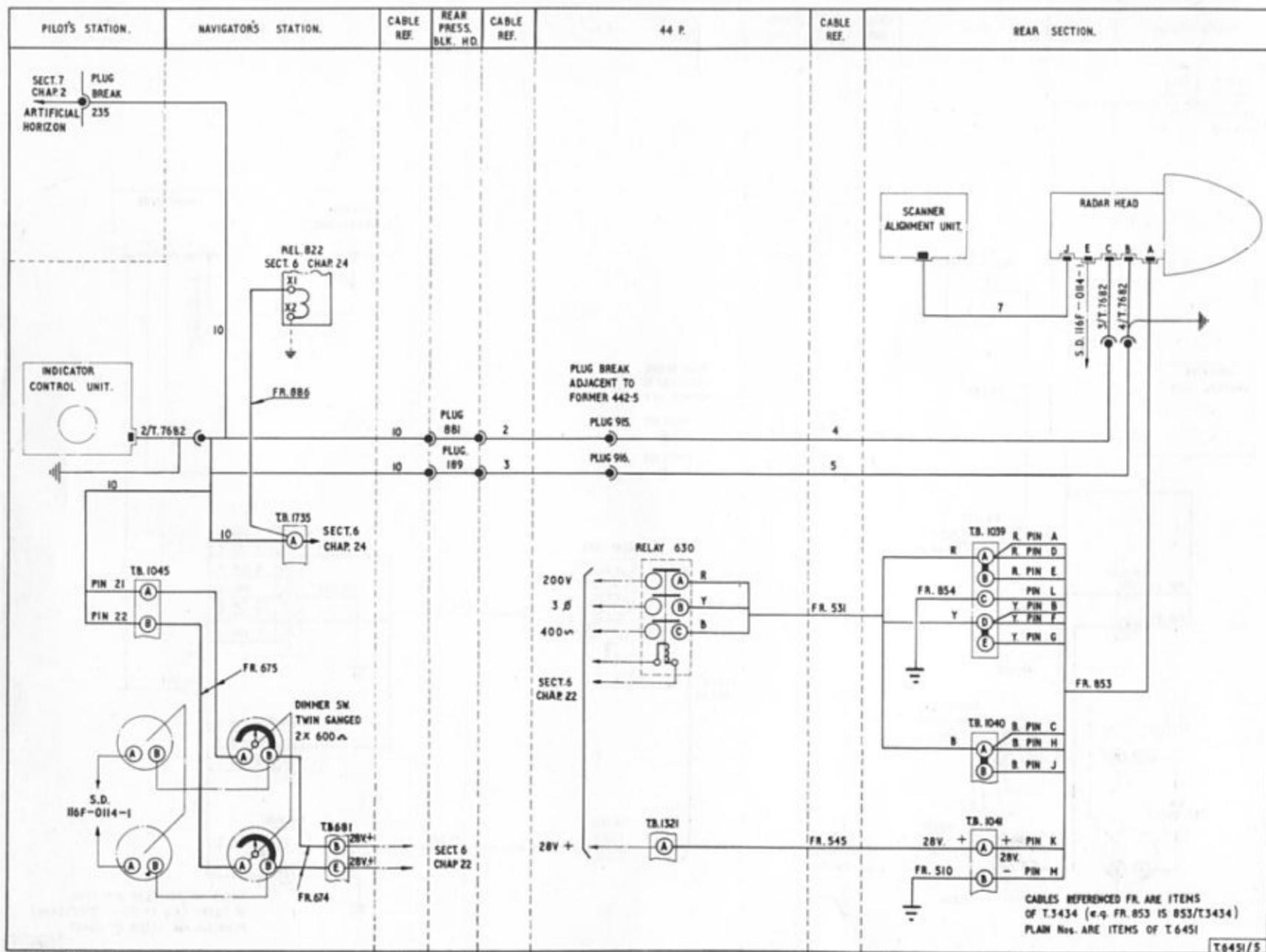


Fig.2 A.R.I. 5952 (Post Mod 2173, 2177 Pre Mod 2230)

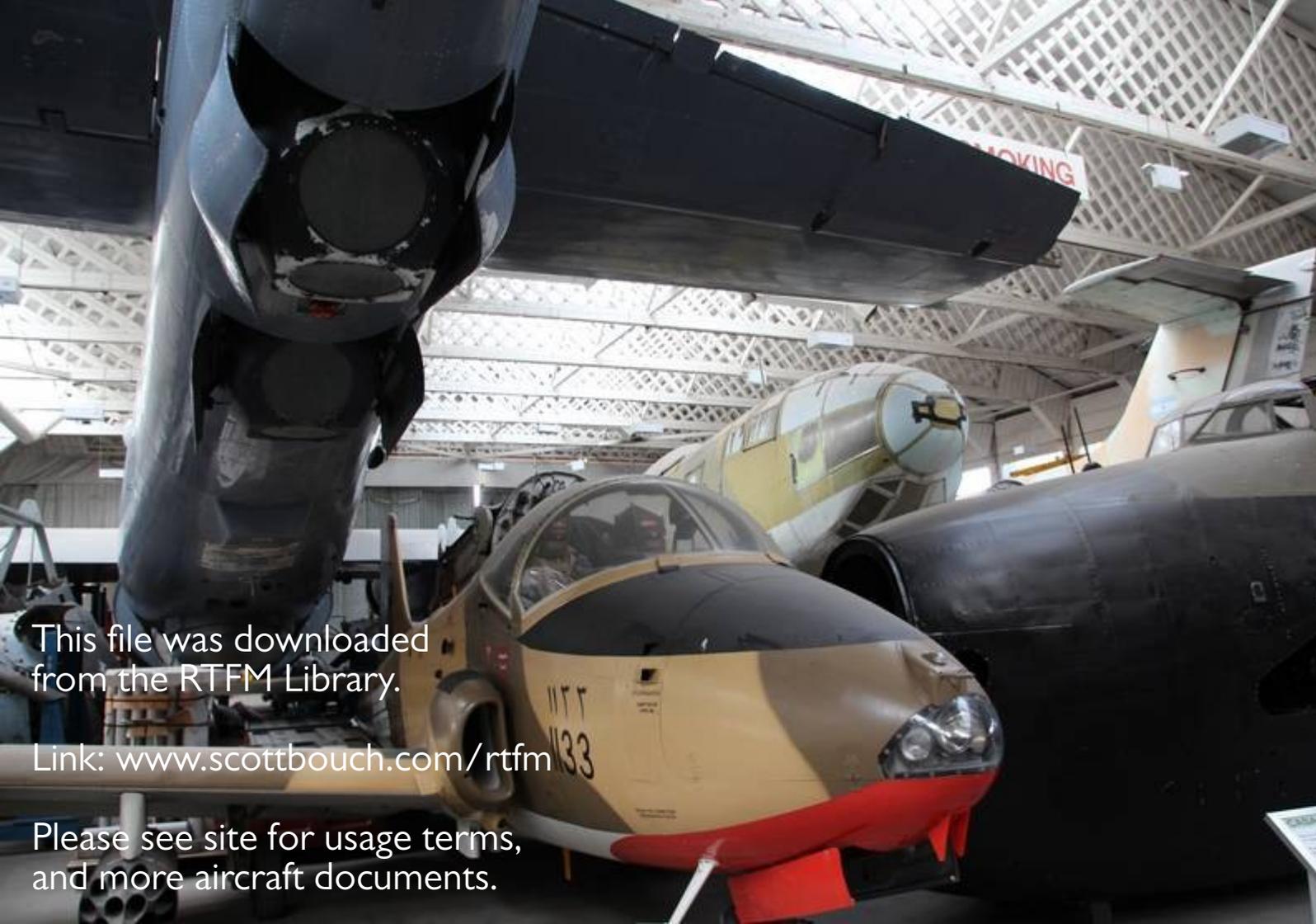
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176675 580 9,74 H.S.A. 1354

Fig. 3 A.R.I 5952 Post Mod 2173, 2177, 2230 and 2284

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