

D.F. OUTFIT FV10

SUMMARY OF DATA

PURPOSE

A V.H.F. Direction Finder giving continuous visual indication of bearing of any signal received. It is installed at Royal Naval Air Stations.

FREQUENCY RANGE

The equipment operates in any one of the three frequency bands.

- (a) 100 to 118 Mc/s (3 to 2.54 m)
- (b) 118 to 132 Mc/s (2.54 to 2.27 m)
- (c) 132 to 150 Mc/s (2.27 to 2 m)

MAJOR UNITS

The equipment consists of the following main sections:

(a) Patt. 67687 Main Desk Equipment, comprising

- 1. Patt. 67584 Oscillator Unit Des. 3
- 2. Patt. 67585 Oscillator Unit Des. 4
- 3. Patt. 67586 Spot Switching Unit
- 4. Patt. 67587 Audio Output Unit
- 5. Patt. 67588 Detector Unit (Diff.) Des. 2
- 6. Patt. 67589 Amplifier Unit L/F 76A
- 7. Patt. 67590 Receiver Unit 62A (2 off)
- 8. Patt. 67591 Rectifier Unit 63T
- 9. Patt. 67592 Rectifier Unit 63U
- 10. Patt. 67593 Rectifier Unit 63V
- 11. Patt. 67594 Rectifier Unit 63W
- 12. Patt. 67595 Rectifier Unit 63X
- 13. Patt. 67596 Monitor Unit Des. 14
- 14. Patt. 67597 Cathode Follower Unit 73E
- 15. Patt. 67598 Control Unit Des. 63
- 16. Patt. 67599 Switch Unit Des. 53
- 17. Patt. 67600 Relay Unit Des. 51
- 18. Patt. 67601 Filter Unit Des. 54
- 19. Patt. 67602 Amplifier Unit R/F 43B
- 20. Patt. 67604 Cabinet Des. 9
- 21. Patt. 67624 C.R.T. Unit Des. 3

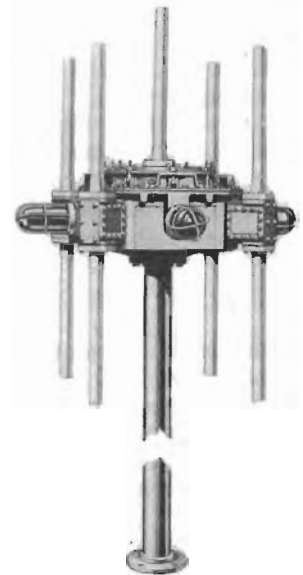
(b) Patt. 67613 Antenna Unit, Des. 1 comprising

- 22. Patt. 67615 Modulator Unit 57B (2 off)
- 23. Patt. 67614 Amplifier Unit R/F 43C
- 24. Patt. 67616 Band-pass Coupling Unit 100-120 Mc/s
- 25. Patt. 67620 Unipole (8 off)
- 26. Patt. 67619 Unipole (1 off)

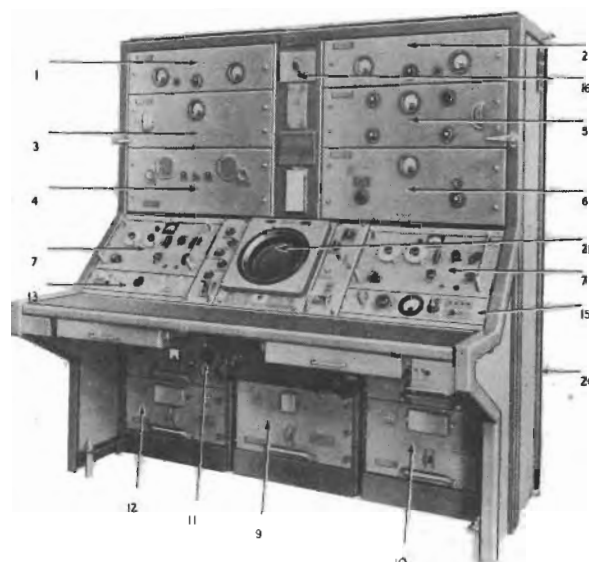
(c) Patt. 67632 Cabinet Assembly Des.24 comprising

- 27. Patt. 67622 Cabinet, Des. 10
- 28. Patt. 67623 Time Base Unit 72C
- 29. Patt. 67624 C.R.T. Unit Des. 3
- 30. Patt. 67625 Control Unit Des. 64
- 31. Patt. 67626 Control Unit Des. 65
- 32. Patt. 67627 Amplifier Unit L/F 76B
- 33. Patt. 67628 Amplifier Unit L/F 76C
- 34. Patt. 67629 Rectifier Unit 63Y
- 35. Patt. 67630 Rectifier Unit 63Z

(d) The "Slave" Remote Indicator is identical to the Master Remote Indicator, except that items 28 and 30 are omitted and replaced by blank panels.



FV10 ANTENNA UNIT
DES. 1



FV10 MAIN DESK EQUIPMENT

PHYSICAL DATA

	Height	Width	Depth	Weight
Antenna Unit	6' 6"	2' 1"	2' 1"	190 lb
Antenna Accessories	-	-	-	100 lb
Main D.F. Equipment	5' 11"	5' 7"	3' 8"	2240 lb
Master Remote Indicator	3' 8"	3' 7"	3' 11"	700 lb
"Slave" Remote Indicator	3' 8"	3' 7"	3' 11"	640 lb
Test Oscillator Unit	8 1/2"	1' 7"	1' 3"	30 lb

BRIEF DESCRIPTION

Simultaneous direction finding and traffic reception is provided on telephony and M.C.W. signals with alternative D.F. or traffic working on C.W. signals. Bearings are indicated automatically and without ambiguity by a single radial trace on a C.R.T. having a 6 in. diam. scale compensated to minimise antenna spacing (octanal) error. Two channel operation on any two frequencies in the band is provided, together with facilities for rapid switching of the D.F. service from a "standby" condition to one channel or the other. Audio signals on both channels are monitored simultaneously.

The equipment can be operated by local or remote control from points up to 20 miles from the D.F. station. A fixed, H-type Adcock antenna system is used and can be connected to the equipment by up to 200 ft of cable. A test oscillator feeding a dipole which is set up on a subcardinal point at the D.F. site provides a test signal which can be used to line up the equipment.

PERFORMANCE

With D.F. antenna at 25 ft above ground, normal operating range is approx. 125 miles with aircraft height of 10,000 ft radiating 5 watts.

POWER REQUIREMENTS AND CONSUMPTION

230V \pm 5% 50-60 c.p.s. single phase.	Slave Remote Indicator (each) 0.055 kW, 0.061 kVA.
Main Equipment 0.66 kW, 0.737 kVA.	Antenna Unit Heater (de-icing) 0.2 kW.
Master Remote Indicator 0.275 kW, 0.308 kVA.	Mast-head Obstruction Lighting 0.24 kW.

AERIAL SYSTEM

The Antenna Unit Des. 1 consists of two dipole pairs fixed at the four corners of the antenna box with a central sense aerial which can also be used for normal traffic requirements.

HANDBOOK

B.R.1955 (FV10)

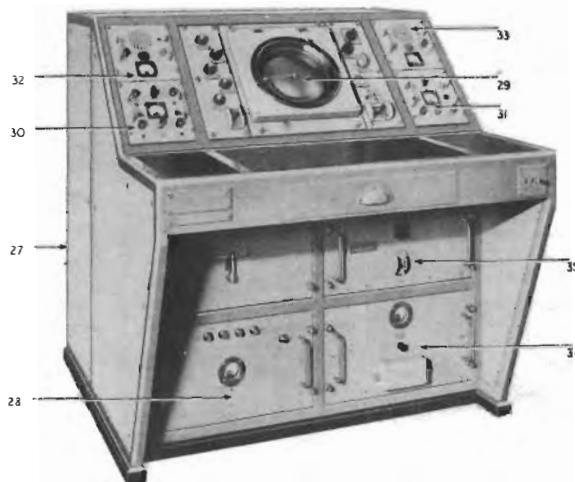
B.R.2001) (Receiver Unit 62A)
B.R.2001A)

ESTABLISHMENT LIST

E.1005

INSTALLATION SPECIFICATION

B.717



CABINET ASSEMBLY DES. 24
MASTER REMOTE INDICATOR

B.R. 2001

Handbook

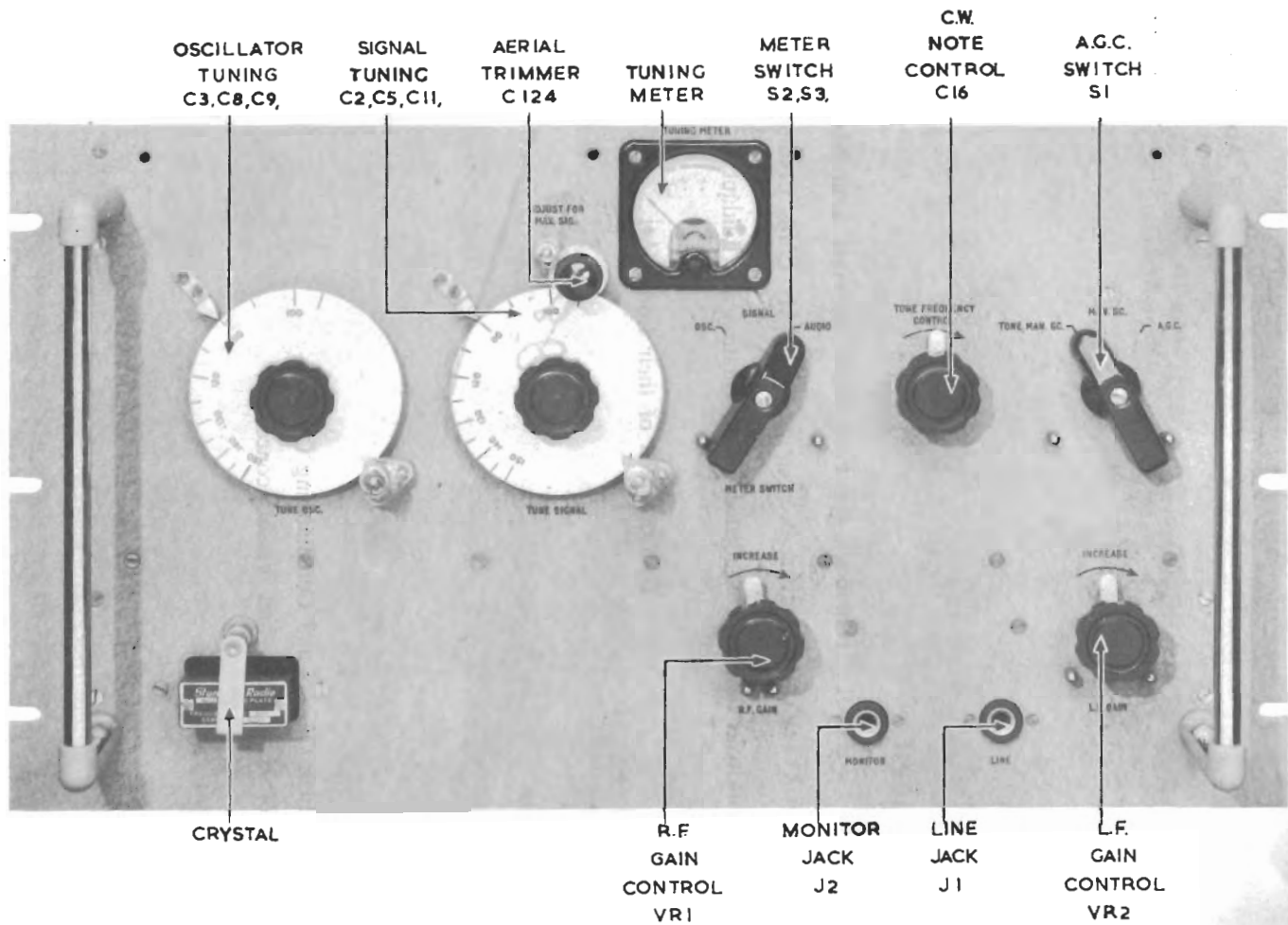
for

PATT. 67590 RECEIVER UNIT 62A

(V.H.F. D.F. OUTFITS FV10 & FV11)

1951

RECEIVER UNIT 62A, FRONT PANEL



TYPICAL PERFORMANCE

Frequency Range	100 to 156 Mc/s (1.92 to 3 metres).
Sensitivity and Signal/Noise Ratio	An input signal of 7 μ V modulated 30% at 1000 c/s gives an output of 30 mW into 600 ohms with a signal/noise ratio of 20db.
Frequency Stability	$\pm 0.01\%$ for an ambient temperature variation of $\pm 20^\circ\text{C}$ about a mean of 20°C .
Frequency Tolerance	$\pm 0.015\%$ for an ambient temperature variation of $\pm 20^\circ\text{C}$ about a mean of 20°C .
I.F. Selectivity	Bandwidth ± 25 kc/s for 6 db down. Bandwidth ± 90 kc/s for 60 db down.
Second Channel Suppression ...	Better than 70 db.
Spurious Crystal Harmonic Attenuation	Better than 70 db.
Muting	With an input of 3 μ V, the drop in noise is better than 20 db.
Power Supply and Consumption	A.C. single phase, 50 to 75 c/s, 190 to 250 volts, 40 watts (approx.)

Dimensions (Overall)

The receiver is designed for 19 inch rack mounting.

	<i>Length</i>	<i>Depth</i>	<i>Height</i>
Receiver Unit	19in (48.3 cm)	13 $\frac{5}{8}$ in (33.7 cm)	10 $\frac{1}{2}$ in (26.7 cm)
Power Unit	19in (48.3 cm)	13 $\frac{5}{8}$ in (33.7 cm)	7in (17.8 cm)

(Depth includes 2 $\frac{5}{8}$ in for handles and $\frac{3}{8}$ in for sockets. Allowance should be made for the projection of mating plugs).

HANDBOOK FOR

PATT. 67590 RECEIVER UNIT 62A

INTRODUCTION

1. Receiver Unit 62A is the name used by the Royal Navy for the V.H.F. Radio Receiver consisting of the Air Ministry type R.1392-B receiver modified for use with V.H.F. Direction Finding Outfits FV10 and FV11.

2. Details of the circuits, tuning and operation of the receiver are contained in Air Publication 2555F, Vol. 1, which is incorporated in this Handbook. Appendix 1 and diagram Fig. 12 give details of the modified receiver circuit; Fig. 6 of Air Publication 2555F has been removed. Routine maintenance, test procedures and fault symptoms for Receiver Unit 62A and VHF Wideband Amplifier are detailed in B.R.1955 (ADDM) and in B.R.1956 (ADDM).

3. Power Unit Type 234A, as described in A.P.2555F, is not used with Receiver Unit 62A in DF Outfits FV10 and FV11. Receiver power supply units are supplied as part of the D. F. Outfits.

References:- B. R. 1955, Handbook for VHF D. F. Outfit FV10 or
B. R. 1956, Handbook for VHF D. F. Outfit FV11.