D.F. OUTFIT FVII

SUMMARY OF DATA

PURPOSE

A V.H.F. Direction Finder giving continuous visual indication of bearing of any signal received. It is installed in aircraft carriers.

FREQUENCY RANGE

The equipment operates in the frequency band 100 to 156 Mc/s (3 to 1.92 m).

MAJOR UNITS

The equipment consists of the following main sections.

(a) Patt. 67688 Main Desk Equipment, comprising

1. Patt. 67590 Receiver Units 62A (2 off)
2. Patt. 67589 Amplifier Unit L/F 76A
3. Patt. 67765 Detector Unit (Differential) Des. 3
4. Patt. 67766 Spot Switching Unit Des. 2
5. Patt. 67603 C.R.T. Unit Des. 4
6. Patt. 67764 Cabinet Des. 11
7. Patt. 67600 Relay Unit Des. 51
8. Patt. 67599 Switch Unit Des. 53
9. Patt. 67769 Control Unit Des. 66
10. Patt. 67584 Oscillator Unit Des. 3
11. Patt. 67585 Oscillator Unit Des. 4
12. Patt. 67596 Monitor Unit Des. 14
13. Patt. 67594 Rectifier Unit 63W (2 off)
14. Patt. 67767 Audio-output Unit Des. 2
15. Patt. 67595 Rectifier Unit 63X
16. Patt. 67593 Rectifier Unit 63V
17. Patt. 67592 Rectifier Unit 63U
18. Patt. 67773 Cathode Follower Unit 73F
19. Patt. 67591 Rectifier Unit 63T
20. Patt. 67602 Amplifier Unit R/F 43B

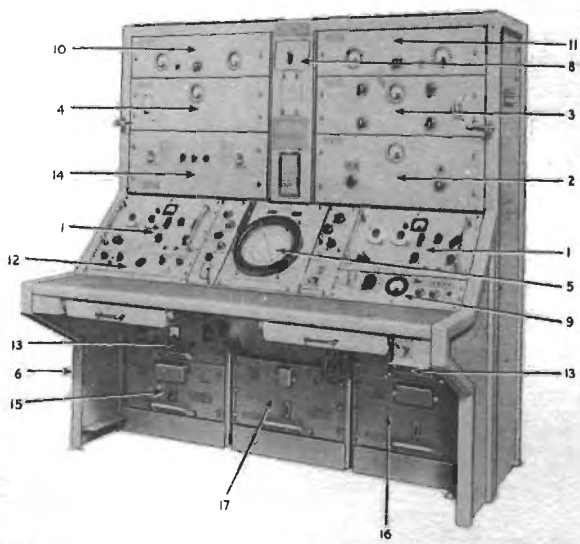
FV II ANTENNA UNIT
DES. 2

(b) Patt. 67617 Antenna Unit, Des. 2, comprising

21. Patt. 67615 Modulator Units 57B (2 off)
22. Patt. 67614 Amplifier Unit R/F 43C
23. Patt. 67616 Band-pass Coupling Unit, 100-156 Mc/s.
24. Patt. 67620 Unipoles (8 off)
25. Patt. 67619 Unipole

(c) Patt. 67631 Cabinet Assembly, Des. 25, comprising

26. Patt. 67626 Control Unit Des. 65
27. Patt. 67603 C.R.T. Unit Des. 4
28. Patt. 67690 Rectifier Unit, 63AA
29. Patt. 67770 Control Unit Des. 64
30. Patt. 67691 Cabinet, Des. 12



FV II MAIN DESK EQUIPMENT

PHYSICAL DATA

	Height	Width	Depth	Weight
Antenna Unit (including column)	6' 6"	2' 1"	2' 1"	185 lb
Main Desk Equipment	5' 11"	5' 7"	3' 8"	2240 lb
Master Remote Indicator (including mountings)	2' 8¾"	2' 0½"	2' 8"	340 lb
Test Oscillator Unit	8¾"	1' 7"	1' 3"	30 lb

BRIEF DESCRIPTION

The D.F. outfit FV11 is a V.H.F. automatic direction-finder for use on board ship, providing an instantaneous and continuous indication of the arrival of any signal received. Bearings relative to the ship's head are indicated automatically and without ambiguity by a single radial trace on a cathode-ray tube having a 6 in. diameter scale; a motor-driven gyro-repeater scale is fitted to enable readings of bearings relative to true North to be obtained. Simultaneous D.F. and traffic reception is provided on telephony and M.C.W. signals with alternative D.F. or traffic working on C.W. signals.

Two-channel operation on any two frequencies in the range 100 to 156 Mc/s is provided, together with facilities for rapid switching of the D.F. service from a "stand-by" condition to one channel or the other. Audio signals on both channels are monitored simultaneously.

PERFORMANCE

Similar to shore installation FV10.

POWER REQUIREMENTS AND CONSUMPTION

230V ± 5% 50-60 c.p.s. single phase.
Main Equipment 0.66 kW, 0.74 kVA.
Master Remote Indicator 0.10 kW, 0.11 kVA.
Slave Remote Indicator (each) 0.10 kW, 0.11 kVA.
Antenna Unit Heater (de-icing) 220V D.C. 0.2 kW (From Ship's D.C. Mains)

AERIAL SYSTEM

The Antenna Unit Des. 2 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. The mast on which the Antenna Unit is fitted may be raised or lowered as required.

HANDBOOK

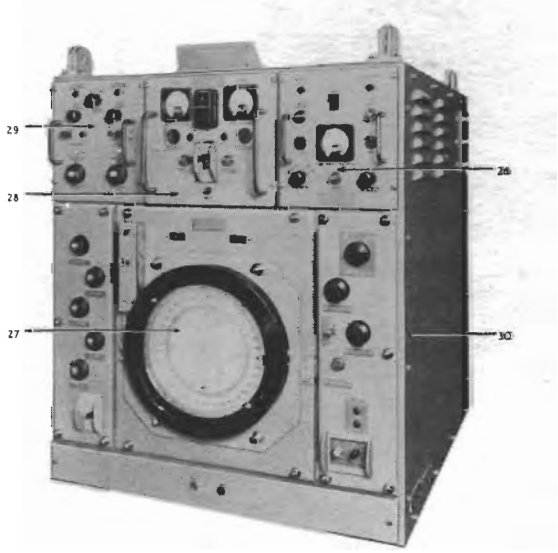
B.R.1956 (FV11). B.R.2001) B.R.2001(A)) (Receiver Unit 62A)

ESTABLISHMENT LIST

E.1012.

INSTALLATION SPECIFICATION

B.715.



FV11 CABINET ASSEMBLY DES. 25
MASTER REMOTE INDICATOR

B.R. 2001

Handbook

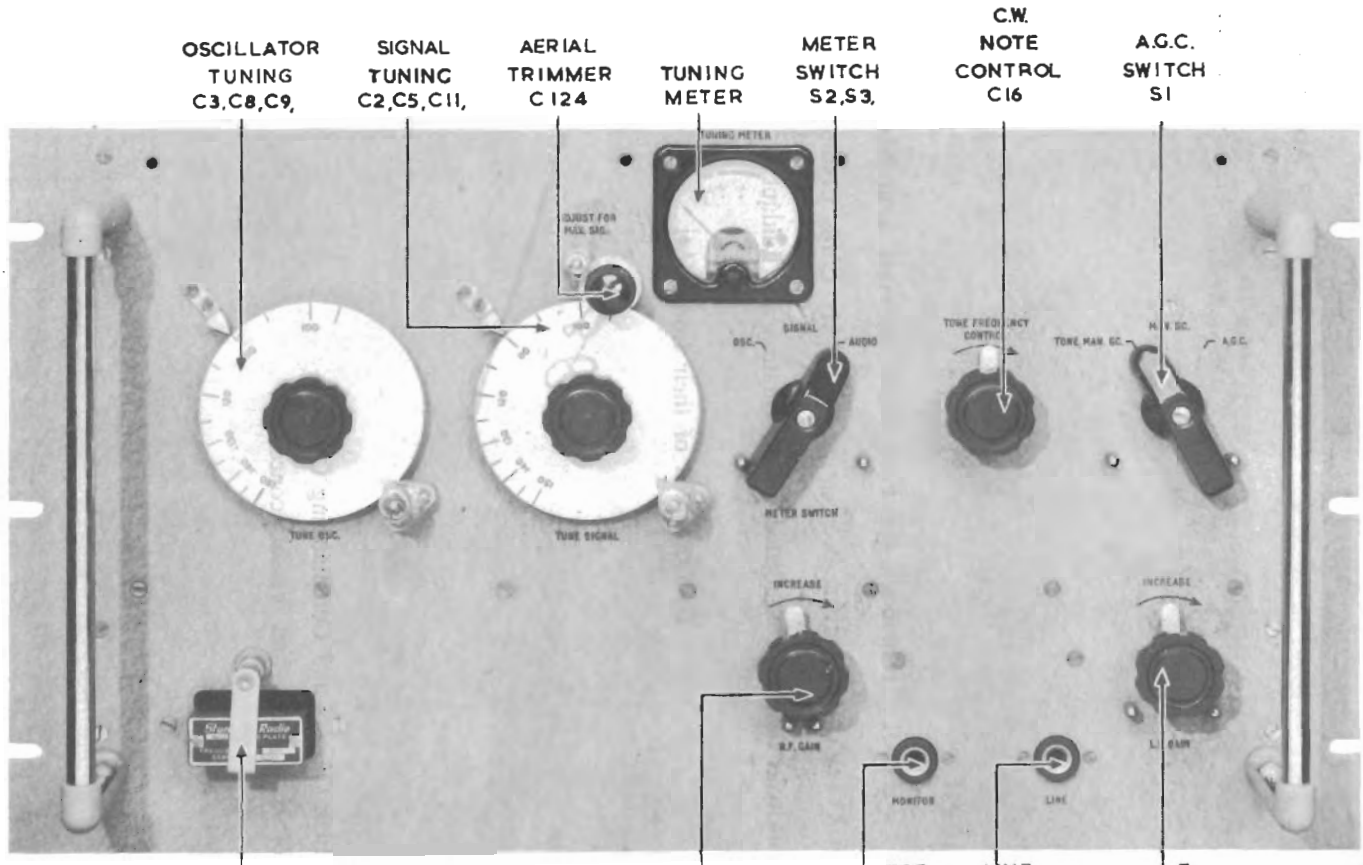
for

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 μV modulated 30% at 1000 c/s gives an output of 30 mW into 600 ohms with a signal/noise ratio of 20db.

Frequency Stability ... ... ±0·01% for an ambient temperature variation of ±20°C about a mean of 20°C.

Frequency Tolerance ... ... ±0·015% for an ambient temperature variation of ±20°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 μV, 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.

	Length	*Depth*	*Height*
Receiver Unit	19in (48·3 cm)	13⅝in (33·7 cm)	10½in (26·7 cm)
Power Unit	19in (48·3 cm)	13⅝in (33·7 cm)	7in (17·8 cm)

(Depth includes 2⅝in for handles and ⅝in 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 (ADM) and in B.R.1956 (ADM).

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.