

SUMMARY OF DATA

PURPOSE

A radio search and D/F equipment fitted in surface vessels to determine the bearing and characteristics of an intercepted radar, with facilities for continued operation in the presence of own-ship or other strong local radar transmissions.

TYPE OF RECEPTION

Pulsed r.f. signals from target radar.

FREQUENCY RANGE

2500-11 500 MHz depending on associated aerial outfit (see below).

BRIEF DESCRIPTION

The Radio Search and D/F Outfit UA3 is the office equipment used to display the bearing of a radar and to determine its characteristics. The associated Aerial Outfits are AYC, AYD and AYE. Each aerial outfit covers a specific frequency band and has four horn collectors, one mounted on each of the Port, Starboard, Fore and Aft bearings. Signal rectification takes place in the aerial outfit, the video frequency signals being passed to the office equipment by coaxial cable. Selection of the required outfit is made by a 3-way INPUT SELECTOR SWITCH on the Switching and R.I.S. Unit and the video signals are then amplified in the Port, Starboard, Fore and Aft v.f. amplifier chassis which are located in the main Amplifier and Display Unit. The wide-band v.f. amplifiers are followed by output stages which drive the deflection plates of a C.R.T. to produce a radial trace indicating the bearing of the intercepted radar. The video output chassis also mixes the signals from the individual channels and amplifies the composite signal for pulse brightening and audio indication. The audio signal enables an experienced operator to identify the type of radar under observation; this is fed via an audio output chassis to a specially designed headset with split earphones so that the operator can listen to radar signals and superimposed speech from an external voice channel simultaneously. Own-ship or strong local radars above a preset signal level, initiate blanking pulses in the Switching and R.I.S. Unit and these operate gating circuits in the video output chassis to prevent masking of weaker target signals. The Amplifier and Display Unit also includes a built-in generator which simulates a received signal on any octantal relative bearing, a bearing indicator dial is fitted in front of the C.R.T. and, when fed with 'M' type compass transmission, indicates the true bearing of the intercepted radar.



AMPLIFIER AND DISPLAY UNIT WITH SWITCHING AND R.I.S. UNIT

ELECTRICAL PERFORMANCE

Amplifier and Display Unit

Input impedance to V.F. Amplifiers 75 ohms
 Input Level 5 μ V Peak (minimum)
 Output Level 12 V Peak (maximum)
 Overall Gain of V.F. Amplifier 106 dB \pm 3 dB
 Frequency Response to 20 dB down 60-90 kHz to 1.2 MHz
 Audio Line Impedance 600 ohms

Switching and R.I.S. Unit

Input Impedance 75 ohms
 Minimum Level of Sync from Own-ship to Operate Blanking 6 V (+ve or -ve) 0.1 μ sec duration
 Minimum Output Level \pm 1.5 V peak across inputs to Output Chassis
 Output Pulse Length 20 μ sec
 Output Pulse Rise-time Less than 0.4 μ sec
 Cross-talk between Quadrantal Channels Lower than -30 dB

MAJOR UNITS

Pattern No.	Description	Physical Data			
		Height	Width	Depth	Weight
AP 71472	Amplifier and Display Unit, Des. 4	19 in.	13½ in.	18½ in.	117 lb
AP 62625	Rectifier Unit 63BX, 300 V	11½ in.	13½ in.	14 in.	61 lb
AP 71474	Switching and R.I.S. Unit	6 in.	8½ in.	17 in.	13½ lb
AP 71473	Rectifier Unit 63EQ, 300 V	6 in.	5½ in.	10½ in.	11½ lb

POWER SUPPLY AND CONSUMPTION

Amplifier and Display Unit 115-230 V, 50-60 Hz, 1 Ø, 250 W

Switching and R.I.S. Unit 110-250 V, 50-60 Hz, 1 Ø, 70 W

HEAT DISSIPATION

Amplifier and Display Unit 250 W (The Display Unit can be air-cooled by exhaust from main trunking)

Switching and R.I.S. Unit 70 W (Natural ventilation)

ASSOCIATED AERIAL OUTFITS

Aerial Outfit AYC 2500-4100 MHz

Aerial Outfit AYD 4100-7000 MHz

Aerial Outfit AYE 7000-11 500 MHz

ASSOCIATED TEST EQUIPMENT

Patt. 61640 Test Set Des. 15 (For AYC)

Patt. 63369 Test Set Des. 19 (For AYD)

Patt. 64261 Test Set Des. 21 (For AYE)

Patt. 61695 Test Set Des. 18 (Video Test Set)

HANDBOOKS

BR 2349 (Radio Search and D/F Outfit UA3)

BR 2354(1) (Aerial Outfits AYC/D/E)

ESTABLISHMENT LIST

L1231

INSTALLATION SPECIFICATIONS

3861 Radio Search and D/F Outfit UA3

3806 and Addm. Aerial Outfits AYC, AYD, AYE