

SUMMARY OF DATA

PURPOSE

Type 277P/Q provides facilities for height-finding and surface warning  
Type 293P/Q provides facilities for close range air and surface warning, with special application to Target Indication.

FREQUENCY

2940 Mc/s - 3060 Mc/s (9.8 cms - 10.2 cms)

PULSE LENGTH

0.7 or 1.9 microseconds

POWER OUTPUT

400 kW (peak)

INTERMEDIATE

FREQUENCY 13.5 Mc/s

PULSE REPETITION  
FREQUENCY

500 pulses per second

RECEIVER

BANDWIDTH 4 Mc/s, 1 Mc/s or 0.5 Mc/s

BEAM WIDTH

Type 277P with Aerial Outfit AUK	4.5° horizontal	Type 293P with Aerial Outfit AQR	2.6° horizontal
	4.5° vertical		30° vertical
Type 277Q with Aerial Outfit ANU	4.5° horizontal	Type 293Q with Aerial Outfit ANB	2.0° horizontal
	2.5° vertical		35° vertical

All beam widths are at half field strength.

POWER REQUIREMENTS

230V 50 c/s 3 ph.  
180V 500 c/s  
220V D.C.

24V D.C.  
50V 50 c/s 3 ph.

HEAT DISSIPATION

4.5 kW (approx.)

MAJOR UNITS

(a) Transmitter and Modulator

1. Patt. 66501B Panel 3CC Rectifying and Modulating
2. Patt. 66502A Trigger Unit Des. 10
3. Patt. W5287A Wavemonitor G86
4. Patt. W6177 Transmitter 9T
5. Patt. W7556 Soundproof Cabinet for Blower
6. Patt. W9253 Blower

(c) Test Equipment

17. Patt. 53915 Wavemeter C93
18. Patt. 56807 Standing Wave Ratio Indicator Des. 4
19. Patt. 66584 Meter Unit Field Strength (Waveguide)
20. Patt. 66765 Spectrometer Cavity Resonator Unit
21. Patt. 66766 Spectrometer Display Unit
22. Patt. 66848 Signal Generator Noise
23. Patt. 60980 S.W.R. Indicator Multi-neon

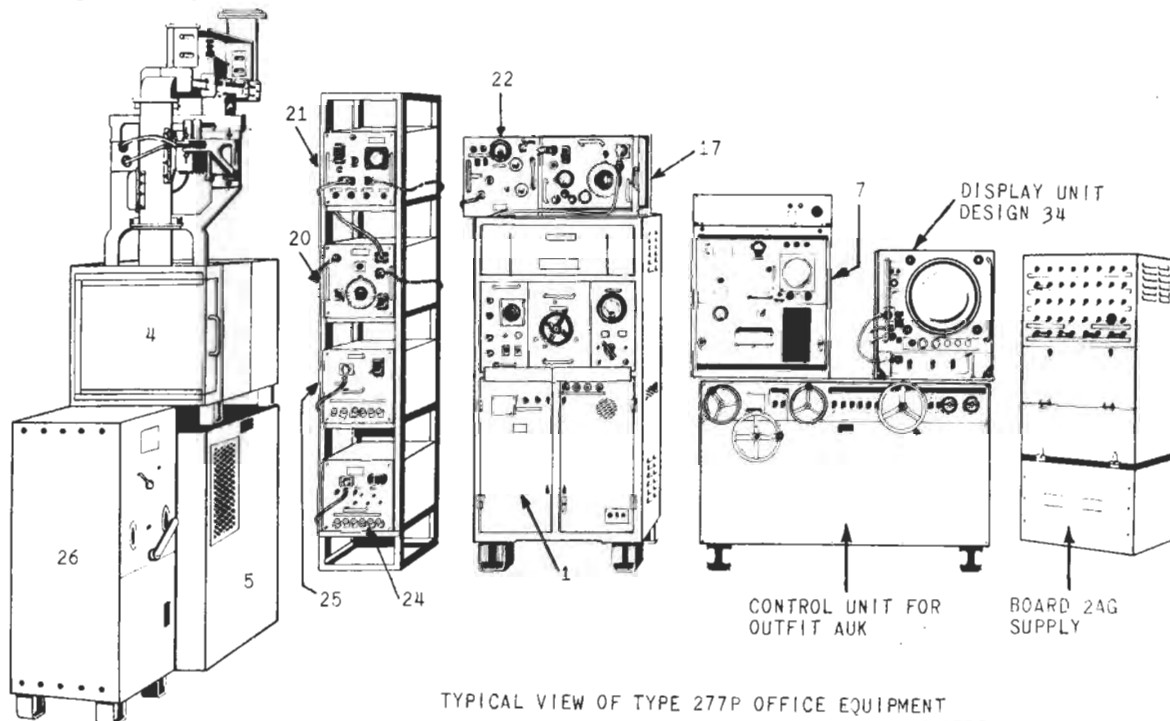
(b) Receiver Outfit CEL

7. Patt. 58363 Panel L53 (Receiving)
8. Patt. 58222 Frequency Changer Unit Des. 6
9. Patt. 58234 Cathode Ray Unit Des. 36
10. Patt. 58396 I.F. Amplifier Des. 7
11. Patt. 58397 Cathode Follower Unit Des. 12
12. Patt. 58399 Control Unit Des. 37
13. Patt. 58395 Oscillator G225
14. Patt. 58400 Meter Unit Des. 4
15. Patt. 57496 I.F. Amplifier Des. 5
16. Patt. 6811A Rectifier Unit S.E.6

(d) Miscellaneous Equipment

24. Patt. 53198 Cathode Follower Unit 6 way
25. Patt. 53197 Cathode Follower Unit Des. 5
26. Patt. W8828/A Air Conditioning Unit Des. S.E.2
27. Patt. 58679 Board 2AR Changeover Des. 2
28. Patt. W9199 Matching Unit Adjustable Des. A
29. Patt. 56773 Aerial Matching Unit

**NOTE.** Test Equipment Items 20 and 21 are designed to replace Item 17, but are only issued for Types 293P/Q. Types 277P/Q will retain Item 17.



TYPICAL VIEW OF TYPE 277P OFFICE EQUIPMENT

# ASSOCIATED POWER SUPPLY OUTFITS

	Frigates		Destroyers and Above	
	(a)	(b)	(a)	(b)
Type 277P/Q - DUC	DPF		DUG or DUE	DPL
Type 293P/Q - DUG	DPB		DUG or DUE	DPB
Types 277P/Q - DUH and 293P/Q	(a) 180V 500 c/s	(b) 230V 50 c/s 3 ph.		

Ships fitted with Type 960	
(a)	(b)
DVH	From D.E.E. sources
DVH	

## ASSOCIATED AERIAL OUTFITS

Type 277P - Aerial Outfit AUK    Type 277Q - Aerial Outfit ANU  
 Type 293P - Aerial Outfit AQR    Type 293Q - Aerial Outfit ANS  
 (See separate Summary of Data Sheets)

## PHYSICAL DATA

### Type 277P/Q

Weight of office equipment (Destroyers) 22½ cwt  
 Weight of office equipment (Cruisers) 26½ cwt  
 Dimensions of office - 11 ft x 7 ft divided into two sections  
 (a) 6 ft x 7 ft containing Receiving equipment  
 (b) 5 ft x 7 ft containing Transmitting equipment

### Type 293P/Q

Weight of office equipment (Destroyers) 25 cwt  
 Weight of office equipment (Cruisers) 23 cwt  
 Weight of Amplidyne Generator and Starter (293Q) 3 cwt  
 Dimension of office - 12 ft x 8 ft divided into two sections  
 (a) 7 ft x 8 ft containing Receiving equipment  
 (b) 7 ft x 8 ft containing Transmitting equipment  
 The Amplidyne Generator fitted with Type 293Q is 2 ft 11 ins. long, 14½ ins. wide and 1 ft 11 ins. high and is sited outside but adjacent to Type 293Q office.

## TEACHER OUTFIT

Teacher Outfit HRL

## BRIEF DESCRIPTION

Types 277P/Q, 293P/Q are similar in all respects except for their aerial systems. Types 277P/Q are intended for accurate height-finding of targets indicated on other sets, the operation of height-finding being carried out, normally, on a Height Position Indicator. When a H.P.I. is not fitted or in an emergency an approximation can be obtained by elevating the aerial for maximum echo. Types 293P/Q are used for Target Indication, the bearing accuracy of these sets being very high. They can also be used, when fitted with Display Outfit JN, to train Types 277P/Q on to any target for height finding.

The radar office, besides containing the modulator, transmitter and receiver panels also contains a display outfit and aerial control unit although these are not normally used for operational purposes, control being from the R.D.R. Thus the office can be used as an emergency operating position except for height-finding as no H.P.I. is fitted in the Type 277P/Q office.

## HANDBOOK

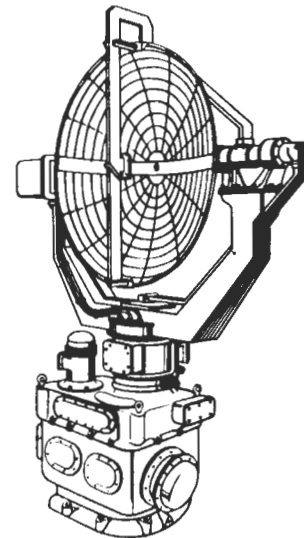
## ESTABLISHMENT LIST

## INSTALLATION SPECIFICATION

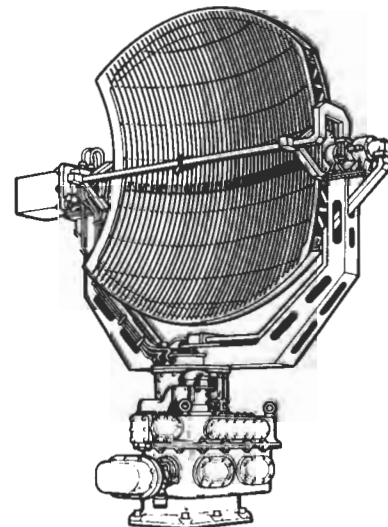
BR 2106 (1) (2)  
~~BR 1620(4) (2)~~

E529 Types 277P/Q, 293P/Q

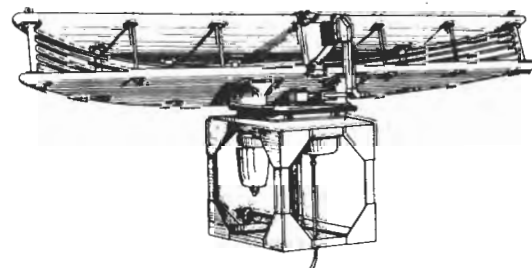
B626 Type 277P    B659 Type 277Q  
 B721 Type 293P    B721 Type 293Q



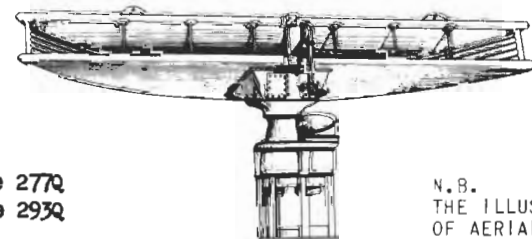
AERIAL OUTFIT AUK



AERIAL OUTFIT ANU



AERIAL OUTFIT AQR



AERIAL OUTFIT ANS

N.B.  
 THE ILLUSTRATIONS  
 OF AERIALS ARE  
 NOT TO SCALE