

## AERIAL OUTFIT AQS

## SUMMARY OF DATA

## PURPOSE

Aerial Outfit AQS is used with Type 982 to provide long range warning of air and surface targets, with high bearing accuracy and without any interruption of coverage throughout its very wide vertical cover. The display obtained is used for fighter direction and also for azication, i.e. training the height-finding Aerial Outfit AQT of Type 983 on the required target.

## BEAM-WIDTH

Horizontal -  $2.2^{\circ}$  (to half field strength)

Vertical -  $19^{\circ}$  (Total angle swept)(to half field strength)

## POWER REQUIREMENTS

110V. D.C. - 20 amps (60 amps peak)  
 24V. D.C. - 20 amps (including 5 amps for stabilisers)  
 200V. 1100 c/s. 1 PH - 5 amps (including supply to the 200/20V transformer in Distn. Board)  
 20V. 1100 c/s. 1 PH - 7 amps (from the 200/20V transformer in Distn. Board)  
 120V. 333 c/s. 3 PH - 2.4 amps (13.6 amps for first 4 mins.)  
 50V. 50 c/s. 3 PH - 5 amps.

## MAJOR UNITS

Aerial Outfit AQS comprises D.R.E., D.N.O. and D.E.E. items as follows:-

D.R.E. ITEMS

- |  |  |
|--|--|
| 1. Patt. 53177 Air Conditioning Unit Des. 4        | 11. Patt. 65115 Waveguide size 'A' Joint Rotating Des. 2 |
| 2. Patt. 56773 Waveguide size 'A' Matching Unit    | 12. Patt. 65116 Oil Pressure Generating Unit Des. 1      |
| 3. Patt. 56807 Standing Wave Ratio Indicator       | 13. Patt. 65117 Oil Pressure Generating Unit Des. 2      |
| 4. Patt. 57592 Control Unit 20M                    | 14. Patt. 65118 Clutch Operating Unit Outfits AQS/T      |
| 5. Patt. 57600 Deck Plane Corrector                | 15. Patt. 65125 Hoisting Gear for Outfit AQS             |
| 6. Patt. 59051 Waveguide size 'A' flare Des. 15    | 16. Patt. 65126 Hoisting Gear for Stabiliser Outfit AQS  |
| 7. Patt. 59052 Waveguide size 'A' flare Des. 16    | 17. Patt. 65294 Amplifier W5                             |
| 8. Patt. 65100 Aerial Unit Design 30               | 18. Patt. 66439 Contactor Unit Des. 10                   |
| 9. Patt. 65108 Azimuth Stabiliser Corrector Des. 1 | 19. Patt. 66917 Indicator Bearing Tape Type              |
| 10. Patt. 65114 Waveguide size 'A' Joint           | 20. Patt. 66923 Waveguide Size 'A' Phase Changer         |

Items 2, 3, 6, 7, 9, 10, 11, 12, 13, 14, 18 and 20 are components of Item 8.  
 Item 17 is a component of Item 5.

\* Only one Patt. 57600 Deck Plane Corrector is allowed per Ship irrespective of number of Outfits AQS and AQT fitted. The deck plane corrector is omitted when AQS is fitted by itself.

D.N.O. ITEMS

- |                      |                       |
|----------------------|-----------------------|
| 1. Stabiliser M Mk I | 2. Stabiliser M Mk II |
|----------------------|-----------------------|

D.E.E. ITEMS

- |   |   |
|---|---|
| 1. Metadyne Set comprising:-<br>(a) Metadyne Generator (MD/74CW)<br>(b) Twin Metadyne Generator (MD75G/74G)<br>(c) Metadyne Driving Motor (AY115AT) | 3. Motor (Training) 1419ABX                         |
| 2. Motor (Roll along and Roll across) AY118BZ   | 4. Auto Starter (30 amps B.E.M.F.) for Metadyne Set |
|   | 5. R.P.C. Contactor Control Panel                   |
|   | 6. Amplifiers MD45, MD49                            |

Item 1 (D.N.O.), Item 2 (D.E.E.) and Item 3 (D.E.E.) are components of Item 8 (D.R.E.)



AERIAL OUTFIT AQS

## PHYSICAL DATA

Aerial Unit weighs approximately 7 tons.

Reflector Assembly measures 12' x 5' x 3'.

## BRIEF DESCRIPTION

The aerial comprises of a stack of three vertically mounted reflectors and the array being triaxially stabilised to 6 minutes of arc, with a training speed continuously variable to maximum 7 revs. per minute.

Patt. 57592 Control Unit 20M supplies local control of aerial training and Patt. 57858 Control Unit 20P supplying remote control, i.e. control from Radar Display Room.

## HANDBOOK

B.R.2107(1)(2)(3)

## ESTABLISHMENT LIST

E.854

## INSTALLATION SPECIFICATION

B.671 (Key Diagrams)

B.672 (Aerial Outfit AQS)

## AERIAL OUTFIT AKR.

## SUMMARY OF DATA

## PURPOSE

Aerial Outfit AKR replaces Aerial Outfit AQS as the aerial for Type 982, converting the latter to Type 982M when certain additional modifications to the receiver and metadyne units are included. It provides long range air and surface warning with high bearing accuracy. The display obtained is used for aircraft direction and also for azication, i.e. training the height finding Aerial Outfit AQT of Type 983 on a selected target. Normally two Aerial Outfits AKR are fitted, one forward and one aft. Ships normally fitted are light fleet carriers and A.D. frigates.

## BEAM WIDTH

Vertical -  $8\frac{1}{2}^{\circ}$  (to half field strength)  
Beam is "shaped" to produce constant height cover up to  $30^{\circ}$  angle of sight.

Horizontal - approximately  $1^{\circ}$ .

## POWER REQUIREMENTS

220V D.C. - 20 amps.

24V D.C. - 15 amps max.

200V 1100 c/s single phase - 5 amps.

50V 50 c/s three phase - 5 amps.

The above include supplies to Patt. 57592 Control Table 20M.

## MAJOR UNITS

Aerial Outfit AKR comprises D.R.E. and D.E.E. items as follows:-  
(This is not a complete Parts List)

## D.R.E. ITEMS

- |   |   |
|---|---|
| 1. Patt. 53177 Air Conditioning Unit, Des. 4          | 7. Patt. 63191 Waveguide Size 10, elbow, flange, major $90^{\circ}$ |
| 2. Patt. 57592 Control Unit 20M                       | 8. Patt. 63192 Waveguide Size 10, connection, Des. 1                |
| 3. Patt. 62254 Pedestal Unit 58E                      | 9. Patt. 63193 Waveguide Size 10, connection, Des. 2                |
| 4. Patt. 62256 Aerial Feed Linear Array               | 10. Patt. 63194 Waveguide taper, Size A to Size 10                  |
| 5. Patt. 62257 Reflector Unit, Des. 12                | 11. Patt. 63195 Waveguide Size A, connection, Des. 103              |
| 6. Patt. 63190 Waveguide Size 10, matched termination | 12. Patt. 66917 Indicator, Bearing, Tape Type (2)                   |

## D.E.E. ITEMS

13. Metadyne Set comprising:-
- (a) Twin Metadyne Generator MD75/74-G
  - (b) Metadyne driving motor AY115AT (D.C. ships)  
or Metadyne driving motor AY128Z (A.C. ships)
14. Motor, Training 1419ASX.
15. Starter for Metadyne Set
- (a) Automatic back E.M.F. starter (for D.C. ships)
  - (b) Automatic direct starter (for A.C. ships)
16. Contactor Control Panel
17. Amplifier MD49

## NOTES

1. Item 11 is to be supplied only when Aerial Outfit AKR is mounted on extension mast.
2. Item 3 is the pedestal of Aerial Outfit AQS to which is added a fabricated mounting unit (Patt. 62255) for attachment of the aerial mast.



AERIAL OUTFIT AKR

## PHYSICAL DATA

Weight of Aerial Reflector and Feed	- 850 lb
Weight of Support Mast and Working Platform	- depends on height which varies with site, with a maximum of 1200 lb for 16 ft 6 in.
Weight of Pedestal Unit 58E	- 5830 lb
Span of Aerial	- 26 ft.6 ins. (turning circle)
Height of Reflector	- 3 ft. (approx.)

## BRIEF DESCRIPTION

The aerial comprises an S-band cylindrical reflector of spaced rods, all made in light alloy, illuminated by a slotted waveguide system running parallel with the axis of the reflector and fed from one end. The reflector cross section differs slightly from a parabola, in order to provide constant height cover.

The whole is mounted on the original Aerial Outfit AQS pedestal and is spaced to clear the turning circle of the Aerial Outfit AQT, where necessary, by an extension mast, which is supplied as a dockyard or contractor's item to suit each ship.

Both the reflector and the waveguide feeder systems are made in three units, a centre section, left and right hand sections, to facilitate storage and shipment.

Patt. 57592 Control Unit 20M gives local control of aerial training and Patt. 57858 Control Unit (not supplied with Outfit AQR) permits remote control from the R.D.R.

The speed of rotation is 0-7 R.P.M. (continuously variable). Owing to its large beam width in the vertical plane "Roll Along" and "Roll Across" stabilisation ("Level" and "Cross Level" stabilisation) is unnecessary, but the AQS method of stabilisation in azimuth is retained in order to maintain synchronism with Type 960 when this aerial feeds into a common display system.

## HANDBOOK

B.R.2107(1)(2)(3) and Addendum

## ESTABLISHMENT LIST

E1090

## INSTALLATION SPECIFICATION

B789