Aerial Outfit AQS is used with Type 952 to provide long range warning of air and surface targets, with high bearing accuracy and without interruption of coverage throughout its very wide vertical cover. The display obtained is used for fighter direction and also for allocation, i.e., training the height-finding Aerial Outfit AQP of Type 953 on the required target.

**Beam-Width**

**Horizontal** - 2.5° (to half field strength)

**Vertical** - 15° (total angle swept) (to half field strength)

**Power Requirements**

110V. D.C. - 20 amps (60 amp peak)

20V. D.C. - 20 amp (including 5 amp for stabilizers)

200V. 1100 c.s./1 PS - 5 amp (including supply to the 200V/20V transformer in D.R.E.)

20V. 1100 c.s./1 PS - 7 amp (from the 200V/20V transformer in D.R.E.)

120V. 533 c.s./1 PS - 2.4 amp (15.6 amp for first 4 mins.)

30V. 50 c.s./1 PS - 5 amp.

**Major Units**

Aerial Outfit AQS comprises D.N.E., D.N.O. and D.E.E. Items as follows:

**D.E.E. Type**

1. Patt. 55177 Air Conditioning Unit Des. &
2. Patt. 56775 Waveguide size 'A' Matching Unit
3. Patt. 56077 Standing wave Ratio Indicator
4. Patt. 57950 Control Unit DM
5. Patt. 57600 Deck Plane Corrector
6. Patt. 59001 Waveguide size 'A' Flare Des. 15
7. Patt. 59052 Waveguide size 'A' Flare Des. 16
8. Patt. 56500 Aerial Unit Design 30
9. Patt. 65100 Analogue Stabilizer Corrector Des. 1
10. Patt. 65114 Waveguide size 'A' Joint
11. Patt. 65115 Waveguide size 'A' Joint Rotating Des. 2
12. Patt. 65116 Oil Pressure Generating Unit Des. 1
13. Patt. 65177 Oil Pressure Generating Unit Des. 2
14. Patt. 65116 Clutch Operating Unit Outfits AQS
15. Patt. 65125 Rotating Gear for Outfit AQS
16. Patt. 65123 Rotating Gear for Stabilizer Outfit AQS
17. Patt. 65204 Amplifier MS
18. Patt. 65250 Comparator Unit Des. 10
19. Patt. 66937 Indicator Bearing Tape Type
20. Patt. 66923 Waveguide Size 'A' Phase Changer

**D.N.O. Type**

1. Stabilizer Mk I
2. Stabilizer Mk II

**D.E.E. Type**

1. Natadrome set comprising:
   a. Natadrome Generator (D/R/C/U)
   b. Twin Natadrome Generator (DD/705/706)
   c. Natadrome Driving Motor (AF1/AEE)
2. Motor (roll along and roll across) AT1/2EX
3. Motor (training) 1/435EX
4. Auto Starter (30 amp D.E.E.) for Natadrome Set
5. R.P.C. Custer and Control Panel
6. Amplifiers ND45, ND49

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

* 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.
PHYSICAL DATA

Aerial Unit weighs approximately 7 tons.

Reflector Assembly measures 10' 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.

Post. 5750E Control Unit 2EM supplies local control of aerial training and Post. 5750E Control Unit ZOP supplying remote control, i.e. control from Radar Display Room.

HANDBOOK

B.4:2101(1)(2)(J)

ESTABLISHMENT LIST

E.64

INSTALLATION SPECIFICATION

B.671 (Key Diagrams)

B.672 (Aerial Outfit AS1)
PURPOSE

Aerial Outfit AKR replaces Aerial Outfit AQ2 as the aerial for Type 9532, converting the latter to Type 9532M 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 location, i.e., training the height finding aerial Outfit AQ2 of Type 953 on a selected target. Normally two Aerial Outfits AKR are fitted, one forward and one aft. Ships newly fitted are slight fleet carriers and A.D. frigates.

BEAM WIDTH

Vertical = 8° (to half field strength)  
Beam is "shaped" to produce constant height cover up to 30° angle of slant.

Horizontal = approximately 1°.

POWER REQUIREMENTS

220V D.C. = 20 amps.

26V D.C. = 15 amps max.

220V 1100 c/s single phase = 5 amps.

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

The above include supplies to Part 57590 Control Table 200.

MAJOR UNITS

Aerial Outfit AKR comprises D.B.E. and D.B.E. Items as follows:

(This is not a complete Parts List)

D.B.E. ITEMS

1. Part 53177 Air Conditioning Unit, Des. 4
2. Part 57590 Control Unit 200
3. Part 60256 Pedestal Unit 953
4. Part 60255 Aerial Feed Linear Array
5. Part 60257 Reflector Unit, Des. 12
6. Part 63190 Waveguide Size 10, matched termination 12

D.B.E. ITEMS

7. Part 63191 Waveguide Size 10, Elbow, flange, major 90°
8. Part 63192 Waveguide Size 10, connection, Des. 1
9. Part 63193 Waveguide Size 10, connection, Des. 2
10. Part 63194 Waveguide Lapper, Size A to Size 10
11. Part 63195 Waveguide Size A, connection, Des. 103
12. Part 66917 Indicating, Bearing, Type Type (2)

NOTE

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 AQ2 to which is added a fabricated mounting unit (Part 60255) for attachment of the aerial mast.

13. Metadyne Set comprising:

(a) Twin Metadyne Generator 975/750 (2=6)

(b) Metadyne driving motor AT125 (D.C. ships)
or

Metadyne driving motor AT125 (A.C. ships)

14. Motor, Training 10150 V

15. Starter for Metadyne Set

(a) Automatic back E.H.F. starter (for D.C. ships)

(b) Automatic direct starter (for A.C. ships)

16. Contactor Control Panel

17. Amplifier M469
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
- 9830 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 48B pedestal and is spaced to clear the turning circle of the Aerial Outfit 48B, 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. 57290 Control Unit 20M gives local control of aerial training and Patt. 57290 Control Unit (not supplied with Outfit 48B) permits remote control from B.M.A.

The speed of rotation is 0-7 R.P.M. (continuously variable). Owing to its large beam width in the vertical plane 'Null Along' and 'Null Across' stabilisation ('Level' and 'Cross Level' stabilisation) is unnecessary, but the 48B method of stabilisation in azimuth is retained in order to maintain synchronism with Type 560 when this aerial feeds into a common display system.

PUBLICATION

B.R. (9107) (1)(2) (3) and Addendum

ESTABLISHMENT LIST

E1090

INSTALLATION SPECIFICATION

B799