### **AERIAL OUTFIT AXN**

SUMMARY OF DATA

#### PURPOSE

Aerial Outfit AXN is a DF aerial designed for use in submarines. The rotatable aerial consists of a directional S,C,X and J band aerial for use with DF Outfit UA12.

### BRIEF DESCRIPTION

Aerial Outfit AXN comprises:

- 1. An aerial assembly consisting of:-
  - (a) An S and C band horn for DF Outfit UA12.
  - (b) An X and J band horn for DF Outfit UA12.

The aerial assembly is designed to have a low echoing area and the S-C and X-J horns are in azimuthal alignment and elevated 4.5° from the horizontal.

- A 29.5 ft hollow mast enclosing a central rotating torque tube which houses the aerial waveguide and cables.
- A base of mast crosshead which enclose the aerial drive motor, gearbox and synchros, and which also carries the receiver assembly. The hydraulically operated rams which raise and lower the mast are bolted to the crosshead.
- A drive section containing the motor, gearbox, synchro elements and rotating joint.
- 5. A receiver at the base of the mast containing the four receiver units (one for each band) which provide amplification and detection of the pulse/cw signals fed from the aerial. Travelling wave tube amplifiers are used for RF amplification. The video outputs of the receivers are fed to Outfit UA12. An rf test source is incorporated from which test signals may be injected into the receiver for system check purposes.
- An articulated sheath and interconnecting box provides the flexible connection between the Aerial Outfit and Ships Wiring.

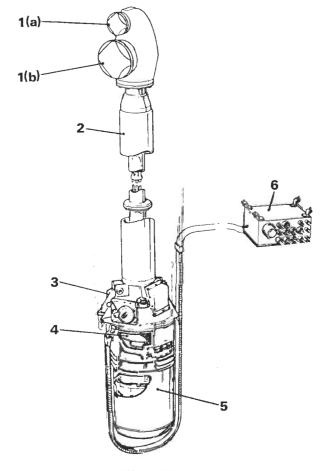
### FREQUENCY RANGE

2.5 - 18.0 GHz

## MAJOR UNITS

A D 60765	0 1 111 11 57	
AP 63765	Control Unit RF	
5895-99-972-5086	Interconnecting Unit	
5895-99-972-3044	Canister Receiver	
5895-99-972-3045	Receiver Unit	
5895-99-972-3046	Receiver Unit	
5895-99-972-3047	Receiver Unit	
5895-99-972-3227	Receiver Unit	
5985-99-537-3197	Antenna	
5985-99-537 <b>-</b> 1496	Wiring Harness	
5985-99-972-3040	Interconnecting Box	
5895-99-537-8124	Mast Section	
5985-99-972-3038	Motor, Gearbox and Crosshead	
5985-99-537-1497	Stabilised Track Set	
5985-99-972-3042	Waveguide Rotating Joint	
5985-AP 186364	Waveguide Size 16 Flexible	

NOTE: One of each fitted — additional units may be carried as 'onboard' spares.



AERIAL OUTFIT AXN

### **ELECTRICAL CHARACTERISTICS**

POLARISATION

Horizontal and Vertical

BEAM WIDTH (at half field strength)
S-C horn 26° horizontal and vertical
X-J horn 22° at 8.5 GHz ) Horizontal
) and
18° at 15.5 GHz ) Vertical

SCANNING SPEED

2 rpm in search with manual slew control.

#### POWER SUPPLY REQUIREMENTS

24 V dc (obtained from UA12 Power Supply Unit)
24 V dc (Ships Supply) for RF Control Unit Mast Raised Relays
115 V Hz for anti-condensation heaters
115 V 400 Hz for aerial synchros
Aerial drive obtained from Power Supply, Control Motor Gearbox (Part of UA12)

### PHYSICAL DATA

Overall Length (excluding canister and aerial) 9677.8 cm (31 ft 9 in.)

Diameter of Mast 25.4 cm (10 in.)

Weight 20411.55 Kg (4500 lb approx.)(complete assembly)

### ASSOCIATED TEST EQUIPMENT

CT540 CT538 CT541 CT555	Signal Generator (S band) Signal Generator (C band) Signal Generator (X band) Signal Generator (J band)	6625-99-972-4162 6625-99-972-3752 6625-99-972-4161 6625-99-972-5077
CT 556	Signal Generator (J band)	6625-99-972-5076
CT495	Power Meter (Microwave)	
CT433	Signal Generator (AF)	6625-99-943-6284
CT484	Oscilloscope	6625-99-580-6726
_	Digital Voltmeter	6625-99-953-5352
_	Adaptor Impedance Matching (for above)	5915-99-519-4707
_	Aerial Alignment Kit	5985-99-519-8545
_	Synchro and Null Indicator	6625-99-519-3499
CT497	Multimeter Model 7x	6625-99-943-1523
_	Extensions for Model 7X	AP 197307

A comprehensive set of base test equipment is required for maintenance consisting of CRETE equipment. Special Base Test Equipment and a Base EMR Installation. Full details are contained in BR 4953(5D) Chapter 1.

## **HANDBOOK**

CB 04953(2B) & (2C)

BR 4953(3)

BR 4953(4)

BR 4953(5A)

BR 4953(5C) (5D)

BR 4953(5E)

User Description and Operating Instructions
System Description

System Drawings

Unit Description

Maintenance and Repair

Components Lists

### **ESTABLISHMENT LIST**

S1873

# INSTALLATION SPECIFICATION

B981 (modified)