ADMIRALTY PATTERN S.S.116.

BOOK OF INSTRUCTIONS

FOR

TUNER-AMPLIFIERS B23 AND B23A.

CHAPTER I.

GENERAL DESCRIPTION.

1. DETAILS.

	B23.	B23A.
Date of design:-	1940	1942
Where used:-	D/F Outfits FA7 and FM7	D/F Outfit FM4.
Frequency Range:-	42 - 1000 kc/s.	15 - 570 kc/s.

Valves used:- (Positions progressing from bottom to top).

No.	Patt: No.	Valve.	Substitute.	Function.
(1)	W1531	NR81	6K7G or Marconi KTW63 (W1536)	1st. R/F
(2)	W1532	NR82	Marconi X65	2nd. R/F & Noise Suppressor.
(3)	W1531	NR81	6K7G or Marconi KTW63 (W1536)	3rd. R/F
(4)	W1531	NR81	6K7G or Marconi KTW63 (W1536)	4th. R/F
(5)	W1533	NR83	6J7G or Marconi KTZ63.	Detector
(6)	W1528	NR78	6C5G or 6J5G or Marconi L.63	B.F.O.
(7)	W1528	NR78	" " "	1st A/F
(8)	W1535	NR85	KT63 or 6F6G.	2nd A/F
(9)	W1528	NR78	6C5G or 6J5G	Sense.

Note:- Instructions for retrimming the B.F.O. circuit in the event of replacement of the Patt: W1528 NR78 valve (6) by one of another type such as the 6J5G or Osram L63, are given in Chapter III, paragraph 3.

2. GENERAL.

Tuner-Amplifiers B23 and B23A are D/F receivers designed to operate in conjunction with a Patt: 525 Radiogoniometer S27. The two models differ only in that the frequency range of the B23 is 42-1000 kc/s., while that of the B23A is 15-570 kc/s.. The frequency range is covered in five steps, by means of a range switch operating a turret drum containing the R/F and Beat Oscillator coils and trimming condensers. Tuning over each range is effected by means of a single tuning control operating a 6-ganged condenser.

The receiver comprises four stages of R/F amplification with tuned transformer coupling, and anode-bend detector, beat oscillator and two stages of A/F amplification. All six tuned circuits, including that of the beat oscillator, are matched and tuned by the 6-ganged tuning condenser. A pointer coupled to the tuning control travels over a scale calibrated in approximate frequencies. The scale is changed by the operation of the range switch to show the correct calibration for the range in use.

Volume control is effected by means of a knob controlling two ganged potentiometers, one of which alters the gain of the second, third and fourth R/F stages, while the other alters the A/F gain.

Arrangements for searching, sense-finding and zero sharpening are included in the receiver and in addition, a variable noise-suppressor for operation with an R.I.S. outfit in ships where this is fitted, is included in the second R/F stage.

3. MECHANICAL CONSTRUCTION.

The receiver is contained in a metal framework with detachable side and rear cover plates giving access to the majority of the components. The complete receiver is designed for rack mounting with its greatest length vertical. Access to the majority of the valves is obtained through a door on the left-hand side of the model, while the sense valve is accessible through a small door towards the bottom right-hand side of the model.

All the controls are mounted on the front panel of the receiver and are as follows:-

(i) Range Switch (12).
(ii) Tuning Control (13).
(iii) Aerial Switch (10).
(iv) Sense Input Control (20).
(v) Semi-circular Corrector (15).
(vi) Volume Control (61 & 116).
(vii) R.I.S. Control (45).
(viii) Beat Oscillator Switch (117).

The control knob of the R.I.S. control (45) is coloured RED and it is essential that this knob be kept in the "OFF" position when the R.I.S. equipment is not in operation or is not fitted; otherwise the receiver will suffer some reduction in efficiency.

Figures 1, 2, 3 and 4 show the appearance of the model; Figure 6 is a complete circuit diagram and Fig. 7 is a wiring diagram of the receiver.

(Note:- A pair of Patt: leads must be used to connect the Receiver B23/A to the Goniometer S27. These consist of Patt: 5107 Telcon cables, 10 ins. long).

FRONT

TUNER-AMPLIFIER B23/A

FRONT VIEW