PURPOSE
Transponders fitted to all ships (except submarines) which have Type 2550/2 to work in the Mark III I.F.F. system in conjunction with and in response to triggering pulses from an interrogator or another in the same frequency band. When triggered, Type 2537/2 responds with various coded signals as required for the purposes of (i) normal interrogation (ii) ship to ship identification (iii) homing.

FREQUENCY
(i) 157-167 Mc/s (except through every 2.8 seconds) for normal Mark III I.F.F.
(ii) A fixed frequency normally 162 Mc/s for ship to ship identification and beacon facilities.

WAVELENGTH
1.9 to 1.6 metres.

PEAK POWER OUTPUT
10 watts (a low power output of 1 watt is also available on an anti-D.F. measure).

PULSE REPETITION FREQUENCY
As triggered by interrogators or radar sets (limited only by a 300 microsecond period of quiescence between transmissions).

PULSE LENGTHS
(i) 5-10 microseconds (narrow)
(ii) 17-25 microseconds (wide)
(iii) 50 microseconds (distress).

BEAM-WIDTH
All round radiation and response.

POWER REQUIREMENTS & CONSUMPTION
(1) 15 volts.
(2) D.C. at 8 amps with a ripple content of less than 15% (ii) 180 volts.
500 c/s or 230 volts, 50 c/s at 70 watts is required for Test Set 74A.

HEAT DISSIPATION IN OFFICE
250 watts.

MAJOR UNITS

**Type 2550**
1. Patt. 904658 Receiver PMR
2. Patt. 904634 Rectifier Unit, Design 35 or Patt. 95604, Rectifier Unit, Design 55 or Patt. 57236 Rectifier Unit, Design 69
3. Patt. 90277 Code Selection Unit, Design 3
4. 1058/157 Control Unit, Assembly, Type 1

The above items are housed in a framework.

A.M. Ref. 1058/160 Test Set 74A

**Type 2550**
1. Patt. 904658 Receiver PMR
2. Patt. 904634 Rectifier Unit, Design 35 or Patt. 95604, Rectifier Unit, Design 55
3. Patt. 90277 Code Selection Unit, Design 3
4. 1058/157 Control Unit, Assembly, Type 1
5. Patt. 90661 Control Unit, Design 61
6. Patt. 55351 Cabinet, Design 3
7. A.M. Ref. 1058/160 Test Set 74A

Items 1 to 5 and 7 are housed in Unit 6.
PHYSICAL DATA

Type 253P is fitted in a framework of dimensions 3' x 1' 6" x 2' high and weighs 120 lb.

Type 253A is housed in a steel cabinet of dimensions 2' 11" x 2' 0" x 6' 14" high and weighs 650 lb (including Test Set 76A).

Aerial Outfit AOH weighs 50 lb.

Aerial Outfit ANT weighs 50 lb.

ASSOCIATED AERIAL

**Aerial Outfit AOH** (all ships except coastal craft) consisting of:

1. Patt. W5160 Dipole Unit
2. Patt. W5165 Transformer and Matching Unit
3. Patt. W5757 Aerial Umbrella, Design A

**Aerial Outfit ANT** (coastal craft only) consisting of:

1. Patt. W5757 Aerial Umbrella, Design A
2. Patt. 55518 Aerial Unit, Design 23

ASSOCIATED POWER SUPPLY OUTFIT

The necessary power is derived from Patt. W5020A Rectifier Unit, Design 35 or Patt. 5655A Rectifier Unit, Design 35 with 180A, 500 volts is available or Patt. 57750 Rectifier Unit, Design 66 when 250V, 50 A or 115V, 60 A is available. Where no A.C. supply is available but 110/220 V.D.C. is, Battery Outfit B18 will be used. Where no A.C. or D.C. supply is available Battery Outfit B3 will be used.

BRIEF DESCRIPTION

Types 253P and 253A are similar except that Type 253P is housed in a resilient steel cabinet. Type 253A is only fitted in conjunction with Type 96C. Both sets may be remotely controlled as required in the A.D.R./A.P.A. Room or B.P.R. up to a maximum of 120 feet of control cable.

The following facilities are given by Types 253P/AQ by the three operating buttons 'I', 'A' and 'B' on the Code Selection Unit. (a) I : Normal Park II I.F.P. responses i.e. sweeping through 157-187 Mc/s every 2.8 seconds. Six codes are available by selection and as each code consists of four transmissions (a combination of wide and narrow pulses) a complete code is transmitted once every 11.2 seconds. A special wide pulse is available for distress purposes.

(b) A : Alternate normal I.F.P. code (four narrow pulses of which any two are transmitted on Button A) for 5.6 seconds followed by 5.6 seconds of Identity Code on a fixed frequency of 182 Mc/s. This code consists of two letters which can be any combination of nine narrow, wide or blank pulses which are selected by means of the nine switch on the Code Selection Unit.

(c) B: Chopped response on the fixed frequency of 182 Mc/s. The response is mechanically interrupted for 40 milliseconds every 1/3 second to distinguish it from a normal code.

REMARKS

To limit mutual interference, the aerial for Type 253P/A should be sited at least 12 feet away from the nearest interrogator aerial on the ship.

Only one Test Set 76A is allowed per ship.

HANDBOOKS

**ESTABLISHMENT LISTS**

**INSTALLATION SPECIFICATIONS**