**TYPE 242**

**SUMMARY OF DATA**

**PURPOSE**
Type 242 is fitted in conjunction with Type 291 and Type 275 to provide A-band interrogation working in the standard Mark 3 I.F. system.

**FREQUENCY**
Fixed frequency in the band 165-185 Mc/s (normally 179 or 182 Mc/s).

**WAVELENGTH**
1.8 to 1.6 metres (approximately).

**PEAK POWER OUTPUT**
1 kW.

**PULSE REPETITION FREQUENCY**
125 or 50 p.p.s.

**PULSE LENGTH**
6 microseconds.

**BEAM WIDTH**
Aerial Outfit ASD (with Type 291H, 265) all round radiation and reception.
Aerial Outfit ADW (with Type 275) - 60° (approximately) to half field strength.

**INTERMEDIATE FREQUENCY**
110 Mc/s.

**RECEIVER BAND WIDTH**
4 Mc/s to 6 dB down.

**POWER REQUIREMENTS**
180V 500 a.m.a., 200 watts (for office equipment).

The power supplies for Type 242 are normally obtained from the associated radar equipment.

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**MAJOR UNITS**

1. Patt. WA730A/B/M/ has Resonator Unit Des. A.
2. Patt. WA320A has Transmitter 7AD.
3. Patt. WA323A has Oscillator Unit for Transmitter 7AD only.
4. Patt. WA325A/B/M has Modulator and Mixer Unit Des. D (with Type 277F, 291F/DF or 291).
   or Patt. WA331A/B has Modulator and Mixer Unit Des. A (203/0/9/1A (remotely controlled), 277F/1A (with H.F. & J.F.)
5. Patt. W9500 has Switch Unit 2 pole 1 way (not with Types 274/7, 293).
6. Patt. W3870 has Performance Meter Des. 2.
7. Patt. W3870 has Framework, sprung, for three instruments (Type 275 only).

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**PHYSICAL DATA**

Total weight of office equipment - 130 lb.
Total weight of Aerial Outfit ASD (with Pedestal 193) - 50 lb.
Total weight of Aerial Outfit ADW (with Pedestal 194) - 100 lb.
Total weight of Aerial Outfit ASD - 30 lb.

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**ACCELERATED AERIALS**

Aerial Outfit ASD (Type 252 fitted with Variations of Type 286 and 291).
Aerial Outfit ADW (Type 252 fitted with Type 277F).
Aerial Outfit ADW (Type 252 fitted with Type 291 in ships where no Type 274/1/2 series or Type 276/7/293 series are
Aerial Outfit ADW (Type 252 Fitted with Type 275 except where fitted in R.M.H.).
ASSOCIATED TEST EQUIPMENT

Part No. 58659 Output Tester G.E.
A.M. Ref. No. 104/87 Powermeter 41319.
A.M. Ref. No. 107/90 Monitor, Type S5 (not when Part No. 68669, Oscilloscope, Miniature is supplied).
A.M. Ref. No. 107/90/5 Powermeter, Type 4165 (only to Depot and Repair Ships).

BRIEF DESCRIPTION

The P.R.F. of the main radar equipment is counted down (457 or 102) in the modulator which fires the interrogator transmitter and also a trace displaced from the radar trace on the "A" scan presentation. The interrogator signals are received by the responder unit and displayed on this trace as inverted signals along with the normal radar echoes. Coincidence of the interrogator pulse and the radar echo identifies the target. The associated airborne transponder is Type 253 series or Hart 3 R.P.F. when fitted in aircraft.

REMARKS

Installation layout depends on the parent radar equipment but the three main units should be mounted together and the lengths of the interconnecting coaxial leads should not exceed 3 ft.

HANDOOOKS

B.114/39 (Type 262)
B.1666 (Servicing Manual for Type 262)
B.1954 (Performance User Date Dec. 2)

ESTABLISHMENT LIST

E.334

INSTALLATION SPECIFICATIONS

B.18/31 (Type 262)
B.200 (Aerial Unit ASR)
B.175 (Aerial Unit ASR)
B.29 (Aerial Unit ASR)
TYPE 242M/P/Q

SUMMARY OF DATA

PURPOSE
Type 242M is an interrogator equipment used in conjunction with radar Type 277 series and Type 283.
Type 242P/Q is normally used with Types 960/962/983.

FREQUENCY
Fixed frequency in the band 159-159 kHz.

WAVELENGTH
1.5 to 1.5 metres (approximately).

PEAK POWER OUTPUT
8 or 10 kW.

PULSE REPEITION FREQUENCY
Submultiples of 300 p.s.i., with Types 277/293/962/983.
Submultiples of 150 p.s.i., with Type 960.

PULSE LENGTH
4 microseconds.

BEAMWIDTH
85° (to half field strength) for Aerial Outfits 4AS, 2AH and 2AM.

INTERMEDIATE FREQUENCY
11 MHz.

RECEIVER BANDWIDTH
4 MHz to 6 dB's down.

POWER REQUIREMENTS
19V 500 o.m.v. 500 watts (Type 242M/P office equipment)
19V 500 o.m.v. 250 watts (Type 242Q office equipment)
23V D.C. 101 watts (for aerial control)

Power supplies are usually obtained from the associated radar equipment.

MAJOR UNITS

1. Pattr. W4750A/B/C Response Unit, Des. 'A'.
2. Pattr. W4750A/B/C Monitor and Mixer Unit, Des. 'B', with Type 277/P (not remotely controlled), Types 293M (except where Indicator Outfits 291/2 are fitted)
3. or Pattr. W7553A/B Monitor and Mixer Unit, Des. 'B', with Type 293M/73 (remotely controlled), Type 277/P/Q with R.F.P., and Indicator Outfit 32A and Type 92H.

3. Pattr. W4055A Transmitter and pre-amplifier Unit, Des. 1
4. Pattr. W4050 Switch Unit, 2 pole 1 way
5. Pattr. 58574 Performance Meter, Des. 'I'.
1. Patt. 6073 Resonator Unit, Des. 7
2. Patt. 6072 Modulator and Mixer Unit, Des. 8
3. Patt. 6059A Transmitter and pre-amplifier Unit, Des. 1
4. Patt. 6059B Switch Unit, 2 pole 1 way (Type 620P only)
5. Patt. 6071 Switch Unit, Des. 31 (Type 620Q only)
6. Patt. 607D Performance Meter, Des. 2
7. Patt. 9883 Display Co-ordination Unit (Type 620Q only)
8. Patt. 6529A Cabinet, Des. 1 (Type 620Q only)

PHYSICAL DATA

Weight of Office Equipment

<table>
<thead>
<tr>
<th>Type 620P</th>
<th>Type 620Q (in cabinets)</th>
<th>Type 620P when fitted with Types 960/982</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>150 lb.</td>
<td>300 lb.</td>
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<tr>
<td></td>
<td>250 lb.</td>
<td>350 lb.</td>
</tr>
</tbody>
</table>

Dimensions of Cabinet, Des. 1 (A.P.6529A) (including resilient mounts)

<table>
<thead>
<tr>
<th>Weight</th>
<th>Width</th>
<th>Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>2' 7&quot;</td>
<td>2' 3&quot;</td>
<td>2' 2&quot;</td>
</tr>
</tbody>
</table>

ASSOCIATED AERIALS

- Aerial Outfit ABS (Type 620P with Types 276, 277, 293 and 972M)
- Aerial Outfit ABS (Type 620Q with Types 960, and 277P)
- Aerial Outfit ABS (Type 620Q with Types 982 and 983)

ASSOCIATED TEST EQUIPMENT

- Patt. 6529A Output Tester B.B.G.
- A.M. Ref. No. 102/49 Monitor, Type 25 (not when Patt. 6692A, Oscilloscope, miniature, is supplied).
- A.M. Ref. No. 102/49DC Voltmeter, Type 916/60 (only to Dept. and Repair Ships).

BRIEF DESCRIPTION

The operation of the Type 620P is similar to that of Type 620 (q.v.) with minor modifications. The new transmitter (Design 1) replacing transmitter Type 7AB, offers a choice of high or low power output (10 kW or 2 kW) with a variation of the frequency over a band approximately 50 kHz wide. A pre-amplifier is incorporated in the transmitter unit which increases the resonator range, and the 7FR switching arrangements are improved. The "resonator" and "modulator and mixer" units of Type 620P are changed to convert to Type 620P which is fitted in conjunction with radar Types 960/977. The new units enable 4-band interconnection to be displayed on the Display Outfit JMI in the R.B.A. Type 620Q is fitted with radar Types 960/982/983 and consists basically of Type 620P mounted in a cabinet and with a new switch unit which enables control of the Interrogator Aerial, gain control and G/C OFF switching to be carried out either from the Type 620Q in the Type 960 office or the JMI in the R.B.A.

REMARKS

As for Type 620.

HANDBOOKS

B.4.1435 (Type 620P)
B.4.1561 (Type 620P)
B.4.1635 (Type 620)
B.4.1953 (Performance Meter Des. 2)

ESTABLISHMENT LIST

E.534.

INSTALLATION SPECIFICATIONS

B.450 (Type 620P)
B.532 (Type 620Q)
B.473 (Aerial Outfit ABS)
B.525 (Aerial Outfit ABS and ABS)