



# RADIO CORPORATION PTY. LTD.

DIVISION OF ELECTRONIC INDUSTRIES LTD.  
124-130 GRANT STREET, SOUTH MELBOURNE, S.C.A.

## TECHNICAL BULLETIN

### MANTEL MODEL "BNQ"

#### 5 VALVE SUPERHETERODYNE BROADCAST RECEIVER

##### FOR OPERATION FROM:

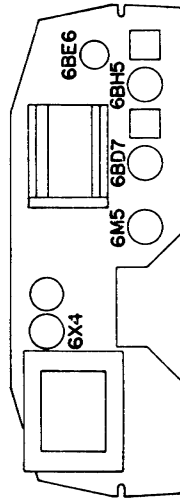
200-240 Volt 50 Cycle AC. Supply Mains (Power Trans. PT962)  
Trans. pri. taps-200V. mains and 230-240V. mains.  
230-250 Volt 40 Cycle AC. Supply Mains (Power Trans. PT983)  
Trans. pri. taps-230V. mains and 250V. mains.  
Power Consumption 40 Watts (approx.)

##### TUNING RANGE:

535-1640 Kc/s. ; 560.7-182.9 Metres.

##### THIS BULLETIN CONTAINS:

Alignment Instructions.  
Circuit Diagram.  
Component  
Connections for Transformers.  
Cleaning Agent for Cabinet.  
Valve Placement Diagram.



VALVE PLACEMENT DIAGRAM  
1236/279

##### ALIGNMENT PROCEDURE

##### EQUIPMENT

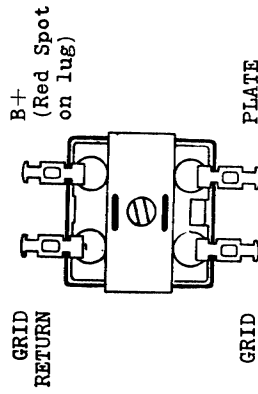
Signal Generator: Load Impedance: 7,000 ohms.  
Output Meter: Output Level: 50 Milliwatts.  
Mica Capacitor: 0.01MF (for I.F.T. alignment).  
Vol. Control: Max. Vol. fully clockwise.  
Intermed. Freq.: 455 Kc/s.  
Dummy Antenna: 200 MMF. Mica  
Capacitor. Input Voltage: 230 Volts 50 Cycle A.C.  
Type M195. input to trans.  
230V. pri. tap  
Tone Control: Treble position

##### CLEANING AGENT FOR PLASTIC CABINET:

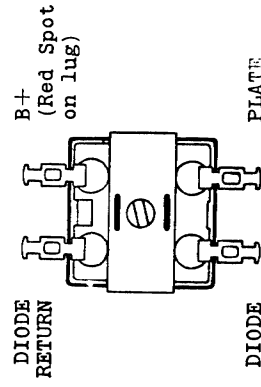
Do not polish the cabinet with an abrasive material or motor car polish, as permanent damage may result to the finish of the toughened polystyrene material of which the cabinet is made.

To restore the cabinet lustre, wipe the cabinet with a soft cloth dampened with water and lightly polish with PEFCO furniture polish.

##### 1st IF. TRANS.



##### 2nd IF. TRANS.



##### ANTENNA TRANS.:

Start of winding - furthest from mounting end - Antenna  
Finish of winding - nearest to mounting end - Signal grid.

##### OSCL. COIL:

Start of winding - furthest from mounting end - Junction of circuit Nos 9 and 14.  
Finish of winding - nearest to mounting end - Oscl. grid.

##### POWER TRANS. (PT962) 50 cycle.

PRI. Red lead-common. { leads  
Green lead-200V. { changed  
Black lead-230 & 240V. { to lugs

##### POWER TRANS. (PT983) 40 cycle.

PRI. Red lead-common. { leads  
Green lead-230V. { changed  
Black lead-250V. { to lugs  
HT. SEC. Yellow lead-start. { leads  
Blue lead-centre tap. { changed  
Yellow lead-finish. { to lugs  
LT. SEC. (two windings in parallel) LT. SEC. (two windings in parallel)  
Start and finish in winding wire. Start and finish in winding wire.

**DUMMY ANTENNA:**

The 200 MMF dummy antenna must not be connected to the free end of the 25 ft. antenna during alignment. The 200 MMF. dummy antenna must be connected to the antenna junction lug on the chassis. It is not necessary to have the 25 ft. antenna connected to the receiver during alignment; if it is connected, it should be rolled up into a small hank.

**I.F. TRANS. ALIGNMENT:**

Operation No.	Generator Connection	Generator Frequency	Dummy Antenna	Instructions
1.	Remove receiver chassis from cabinet as detailed on page 7.			
2.	To signal grid 455 Kc/s. of 6BH5 valve (pin No. 2).	0.01MF mica capacitor in series with generator.		Leave grid wire attached to valve socket. Turn perm. tuner so that iron cores are fully out of winding on coil formers. Peak 1st I.F. trans. pri. and sec. for max. output. Repeat operations Nos. 2 and 3.
3.	To signal grid 455 Kc/s. of 6BE6 valve (pin No. 7).	0.01MF mica capacitor in series with generator.		Leave grid wire attached to valve socket. Turn perm. tuner so that iron cores are fully out of winding on coil formers. Peak 1st I.F. trans. pri. and sec. for max. output. Repeat operations Nos. 2 and 3.

**B/CAST BAND ALIGNMENT:**

- Refit chassis to front section of cabinet.
- Refit control knobs and tuning pointer knob.
- DIAL POINTER SETTING**  
Turn tuning pointer-knob anti-clockwise until perm. tuner iron cores are out of windings on coil formers and the unit is hard against the stop. Loosen two grub screws in perm. tuner roller. Set centre of line on dial pointer to align with centre of end of travel spot on dial reading near 1700 Kc/s. Securely tighten the two grub screws.
- To antenna junction lug on chassis  
1000 Kc/s. 200 MMF mica capacitor in series with generator  
Turn tuning-knob and perm. tuner until centre of line on dial pointer aligns with centre of spot on dial reading at 1000 Kc/s. Peak osc. coil trimmer condenser then peak antenna trans. trim. cond. for max. output. Repeat osc. coil trim cond.

Tuning range after alignment 535 - 1640 Kc/s.  
5. Check logging at each end of the band then refit rear section of cabinet.  
**NOTE 1:** Both iron cores are pre-set at the factory to an exact dimension of 2.275" between the extreme end of the former protruding through the rubber grommet, and the end of the iron cores in the former, when the perm. tuner unit spindle is turned fully anti-clockwise and is hard against the stop. If incorrect logging and mis-alignment are to be avoided, no adjustment of the iron cores must be made to vary this dimension. Both iron cores must have the same colour identification spot on the end of the iron core.  
**NOTE 2:** Receivers with a perm. tuner unit fitted with iron cores having a blue spot on the end of the core must use dial reading part No. A103/835 and receivers with a perm. tuner unit with brown spot iron cores the dial reading must be part No. A103/855-1.

**MODEL-BNQ**  
IF : 455 Kc/s

VOLTAGES ON CIRCUIT ARE MEASURED BETWEEN POINTS INDICATED AND CHASSIS WITH A DC. VACUUM TUBE VOLTMETER 250V. 50 CYCLE AC INPUT TO POWER TRANS. 250-250V. PRT. TYP. WHEN MEASURING VOLTAGES IN HIGH IMPED. CIRCUITS - LOWER READINGS THAN THOSE SHOWN WILL BE OBTAINED - IF A T.K.W. IS NOT USED DEPENDING ON THE RESISTANCE OF THE METER. EG: 1000Ω/VOLT OR 20000Ω/VOLT

