



RADIO CORPORATION PTY. LTD.

DIVISION OF ELECTRONIC INDUSTRIES LTD.

126-130 GRANT STREET, SOUTH MELBOURNE, S.C.A.

TECHNICAL BULLETIN

Bulletin: NM-1.
File: Receivers AC.
29-10-52.
Page 1.

TABLEGRAM MODEL—"NM"

An Automatic 3 Speed Record Changer (78, 45, 33½ r.p.m.) and a 5 Valve Superheterodyne Broadcast Receiver.

FOR OPERATION FROM:—

200-250 Volts 50 Cycle AC. Supply Mains.
Power Trans. Primary Mains Taps: 200-220V. and 221-250V.

POWER CONSUMPTION:—

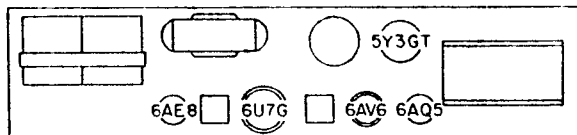
Radio Operation:—55 Watts.—approx.
Gramo Operation:—75 Watts.—approx.

TUNING RANGE:—

535-1610 Kc/s. - 560.7-186.3 Metres.

THIS BULLETIN CONTAINS:—

1. Alignment Instructions.
2. Circuit Diagram.
3. Component Parts List.
4. Connections for IF. and RF. Transformers.
5. Dial Drive Cording Diagram.
6. Valve Placement Diagram.



VALVE PLACEMENT DIAGRAM 910/279

ALIGNMENT PROCEDURE

| EQUIPMENT | ALIGNMENT CONDITIONS |
|--|--|
| Signal Generator: | Load Impedence: 5,000 ohms. |
| Output Meter: | Output Level: 50 Milliwatts. |
| Mica Capacitor: 0.01MF. (for IF. trans. alignment) | Vol. Control: Max. Vol. fully clockwise. |
| Dummy Antenna: 200MMF. Mica Capacitor | Intermed. Freq.: 455 Kc/s. |
| | Input Voltage: 230 Volts 50 Cycle AC. input to trans. 221-250 volt pri. tap. |
| Alignment Tools: Type M195 and PM581. | Tone Control: Treble position. |

| Opera- tion No. | Generator Connection | Generator Frequency | Dummy Antenna | Instructions |
|-----------------|---|---------------------|---|--|
| 1. | To control grid of 6U7G valve | 455 Kc/s. | 0.01MF. Mica capacitor in series with generator | Remove chassis from cabinet. Leave grid cap on valve. Peak 2nd I.F. trans. pri. and sec. for max. output. |
| 2. | To control grid of 6AE8 valve (pin No. 2) | 455 Kc/s. | 0.01MF. Mica capacitor in series with generator | Turn cond. gang plates fully out of mesh. Leave grid wire attached to valve socket. Peak 1st I.F. trans. pri. and sec. for max. output. Repeat operations No. 1 and 2. |
| 3. | | | | the centre of the dial pointer to align with the dial reading near 540 Kc/s. |
| 4. | Fully mesh the cond. gang plates. | | Set the centre of the end of travel mark on | |
| 5. | To antenna lead from receiver | 600 Kc/s. | 200MMF. Mica capacitor in series with generator | Turn cond. gang and dial pointer until centre of dial pointer aligns with centre of 600Kc/s. spot on dial reading. Leave the gang and pointer set in this position and peak the oscl. coil inductance trim (iron core) for max. output. |
| 6. | To antenna lead from receiver | 1400 Kc/s. | 200MMF. Mica capacitor in series with generator | Turn cond. gang and dial pointer until centre of dial pointer aligns with centre of 1400Kc/s. spot on dial reading. Adjust oscl. coil trim condenser for logging and peak antenna trans. trim. condenser for max. output. |
| 7. | To antenna lead from receiver | 600 Kc/s. | 200MMF. Mica capacitor in series with generator | Turn cond. gang and dial pointer until centre of dial pointer aligns with centre of 600Kc/s. spot on dial reading. Leave the gang and pointer set in this position. Re-peak oscl. coil ind. trim. (iron core) and then peak the antenna trans. ind. trim. (iron core) for max. output. Do not rock the gang or dial pointer to and fro through the signal while adjusting or move them until after the inductance trimmer (iron core) of both of these transformers has been peaked for max. output. |
| 8. | To antenna lead from receiver | 1400 Kc/s. | 200MMF. Mica capacitor in series with generator | Turn cond. gang and dial pointer until centre of dial pointer aligns with centre of 1400Kc/s. spot on dial reading. Adjust oscl. coil trim condenser for logging and repeak antenna trans. trim. condenser for max. output. |

Tuning range after alignment: 535-1610 Kc/s.

| Circuit No. | Description | Tol. ± | Rating | Part No. |
|-------------|--|--------|----------|-------------------------|
| 1. | .1 MF Paper Condenser | 20% | 400V DCW | PC103 |
| 2. | .1 MF " " | 20% | 400V DCW | PC103 |
| 3. | .1 MF " " | 20% | 200V DCW | PC218 |
| 4. | .05 MF " " | 20% | 400V DCW | PC109 |
| 5. | .05 MF " " | 20% | 200V DCW | PC102 |
| 6. | .05 MF " " | 20% | 200V DCW | PC102 |
| 7. | .05 MF " " | 20% | 200V DCW | PC102 |
| 8. | .03 MF " " | 20% | 200V DCW | PC303 |
| 9. | .02 MF " " | 20% | 400V DCW | PC111 |
| 10. | .02 MF " " | 20% | 400V DCW | PC111 |
| 11. | .002 MF " " | 20% | 600V DCW | PC112 |
| 12. | .001 MF Mica Condenser | 10% | 1000 VT | PC108 |
| 13. | .00046 MF " " | 2½% | 1000 VT | PC728 |
| 14. | .0003 MF " " | 10% | 1000 VT | PC212 |
| 15. | .00025 MF " " | 10% | 1000 VT | PC126 |
| 16. | .0001 MF " " | 10% | 1000 VT | PC110 |
| 17. | .0001 MF " " | 10% | 1000 VT | PC110 |
| 18. | .0001 MF " " | 10% | 1000 VT | PC571 |
| 19. | .00005 MF " " | 10% | 1000 VT | PC141 |
| 20. | 8 MMF Silvered Mica Cond. (Part of ant. trans. circuit 53) | | | PC832 |
| 21. | 0-30MMF W.W. Trimmer | | | PC663 |
| 22. | 1.5-18 MMF Trimmer | | | PC737 |
| 23. | 2 Gang Varb. Cond. | | | PC636 |
| 24. | 16 MF E'lytic Cond. | 20% | 525PV | Composite type PC760 |
| 25. | 16 MF " " | 20% | 525PV | |
| 26. | 25 MF " " | 20% | 40 PV | |
| 27. | 10 megohm Carbon Resistor | 10% | 1W | PR236 |
| 28. | 3 " " " | 10% | ½W | PR282 |
| 29. | 1.75 " " " | 10% | ½W | PR248 |
| 30. | .5 megohm " " " | 10% | ½W | PR245 |
| 31. | .25 " " " | 10% | ½W | PR249 |
| 32. | .25 " " " | 10% | 1W | PR496 |
| 33. | 100,000 ohm " " " | 10% | 1W | PR165 |
| 34. | 60,000 ohm " " " | 10% | 1W | PR415 |
| 35. | 50,000 ohm " " " | 10% | ½W | PR160 |
| 36. | 50,000 ohm " " " | 10% | ½W | PR160 |
| 37. | 50,000 ohm " " " | 10% | ½W | PR160 |
| 38. | 30,000 ohm " " " | 10% | ½W | PR151 |
| 39. | 20,000 ohm " " " | 10% | 1W | PR171 |
| 40. | 5,000 ohm " " " | 10% | ½W | PR250 |
| 41. | 2,000 ohm " " " | 10% | ½W | PR253 |
| 42. | 2,000 ohm " " " | 10% | ½W | PR253 |
| 43. | 300 ohm Wire Wound Resistor | 10% | ½W | PR258 |
| 44. | 300 ohm " " " | 10% | 1W | PR122 |
| 45. | 200 ohm " " " | 10% | ½W | PR176 |
| 46. | 50 ohm " " " | 10% | ½W | PR280 |
| 47. | 25 ohm " " " | 10% | ½W | PR281 |
| 48. | 100,000 ohm Carbon Potentiometer | 20% | | PR720 |
| 49. | .5 megohm Carbon Potentiometer, tapped at 40 K. ohms. DP. ST. switch attached | 20% | | PR671 |
| 50. | No. 1 I.F. Trans., 455 Kc/s. | | | PT869 |
| 51. | No. 2 I.F. Trans., 455 Kc/s. | | | PT869 |
| 52. | Osc. Trans. | | | PT860 |

| Circuit No. | Description | Tol. ± | Rating | Part No. |
|-------------|---|----------|---|------------|
| 53. | Antenna Trans. | | | PT905 |
| 54. | {Power Transformer, 200-250 volt, 50 cycle | | | PT807 |
| | {Power Transformer, 200-260 volt, 40 cycle | | | PT809 |
| 55. | Speaker Input Trans. 5,000-3.7 ohms Imper., code No. KBG112 | | | PT848 |
| 56. | Choke 14H. 60 Ma. 520 ohms DC resist. | | | PT806 |
| 57. | 6" Permag. Speaker type 6H | | | K166 |
| 58. | Gramo/Radio Switch 1D 2P 2 way | | | S176 |
| 59. | Dial Lamp 6-8V. 0.25 amp. Min. Screw Base T3 $\frac{1}{4}$ Bulb | | | PM678 |
| 60. | ON/OFF Switch - part of vol. control circuit No. 49 | | | |
| 61. | Motor ON/OFF Switch - part of record changer circuit No. 62 | | | |
| 62. | Record Changer - Garrard type RC72A, 3 speed, Turnover type crystal cartridge 200-250V. 50 cycle operation | | | M283 |
| | Replacement turnover type head (includes needles) | | | 229/524 |
| | 40 cycle Drive Bush | | | 228/524 |
| 62. | Record Changer - Collaro type 3RC521, 3 speed Turnover type crystal cartridge, 200-250V. 50 cycle operation | | | M292 |
| | Replacement turnover type head (includes needles) | | | 230/524 |
| | 40 Cycle Drive Bush | | | 231/524 |
| | Special Grub-Screw for 40 cycle drive bush | | | 194/415 |
| | 7 pin Socket | | | A104/58 |
| 8 | " " | | | PM532 |
| 9 | " " | | | 279/250 |
| | Valve Shield - 6U7G | | | PM217 |
| | Valve Shield Earth Contact (6U7G) | | | 22/30C |
| | Spindle Bearing Spring on Switch Spindle | | | 24/754-1 |
| | Dial Pulley, $\frac{3}{4}$ " dia. | 17/87 | Dial Pulley, $\frac{5}{8}$ " dia., wood | 13/613 |
| | Pulley Stud | 18/87 | Dial Pointer Assy. | A103/763 |
| | Brass Bush Gang Mtg. | 93/53-1 | Tuning Spindle Assy. | A116/698-1 |
| | Rubber Grommet Gang Mtg. | 64/30A | Valve Shield - 6AV6 | 38/635 |
| | Dial Reading | 34/763 | Clip - I.F. Trans. Mtg. | 7/670 |
| | Lamp Socket Assy. | A105/661 | Clip - Osc. Coil Mtg. | 6/622 |
| | Switch Coupling Crank | 8/627 | Astor Badge | 295/250 |
| | Switch Spindle Extension | 3/758-2 | Astor Badge Transfer | 274/250 |
| | Lid Hinge Assy. | A102/763 | Dial Drum Assy. | A102/617 |
| | Cab. Mount Foot Assy. | A138/30C | Knob Springs (4) | 22/755 |
| | | | Cabinet Base Assy. | A114/763 |

STYLING

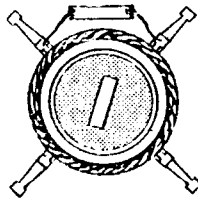
MAHOGANY CABINET

WALNUT CABINET

| | MAHOGANY CABINET | | WALNUT CABINET |
|-------------|------------------|----------|----------------|
| Cabinet | 201/81-2 | Mahogany | 203/81-1 |
| Lid | 204/81-2 | " | 204/81-1 |
| Grille | 210/81-1 | Ivory | 210/81-1 |
| Tone Knob | 178/81-2 | Mahogany | 178/81 |
| Gramo Knob | 178/81-2 | " | 178/81 |
| Volume Knob | 228/81-4 | " | 228/81-1 |
| Tuning Knob | 228/81-5 | " | 228/81-2 |

ANTENNA TRANS.

GRID
(Green Spot
under lug)



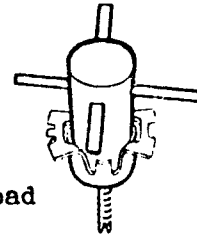
AVC.

ANTENNA

CHASSIS

OSCL. COIL

GRID
(Blue Spot
under lug)



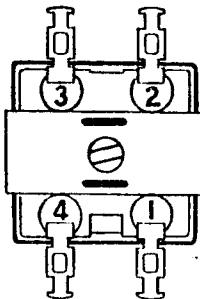
OSCL. PLATE
COND.

SERIES PAD

Series pad

1st IF. TRANS.

GRID



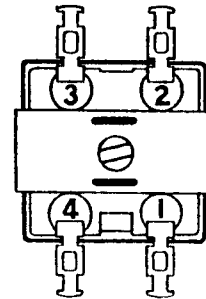
GRID
RETURN
AVC.

PLATE
(Red Spot
on Lug)

B+

2nd IF. TRANS.

DIODE
RETURN



B+
(Red Spot
on lug)

DIODE

PLATE

6AN7 VALVE

A type 6AN7 valve will be used in place of the type 6AE8 valve in the first production run of the Model "NM" receiver. No circuit component changes are required when using a 6AN7 valve. The wiring connections to the valve socket are different as detailed below. The type 6AE8 valve will burn out if it is plugged into a socket wired for a type 6AN7 valve.

6AN7

| | |
|------------|---------------------|
| Pin No. 1. | Hexode Screen |
| " No. 2. | Hexode Control Grid |
| " No. 3. | Cathode |
| " No. 4. | Heater |
| " No. 5. | Heater |
| " No. 6. | No Connection |
| " No. 7. | Hexode Plate |
| " No. 8. | Triode (oscl) Plate |
| " No. 9. | Triode (oscl) Grid |

6AE8

| |
|---------------------|
| Hexode Screen |
| Hexode Control Grid |
| Cathode |
| Heater |
| Heater |
| Hexode Plate |
| Triode (oscl) Grid |
| Triode (oscl) Plate |
| No connection |

CORDING OF DIAL DRIVE

Length of cord required is 5 ft. 6 ins., which includes about 8 ins. to spare for tying to tension spring.

Cord Part No 34/754.

Tension Spring Part No. 27/87.

