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**For Trade Use Only**

# **"HIS MASTER'S VOICE"**

## **SERVICE MANUAL**

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**FIVE - VALVE A.C. MAINS - OPERATED  
MEDIUM - WAVE CHASSIS  
TYPE 65**



THE GRAMOPHONE COMPANY LIMITED

*(Inc. in England)*

Homebush - - N.S.W.



**PART No. 683-0511**

## TECHNICAL SPECIFICATION

### POWER SUPPLY:

225 to 250 volts, 40 to 50 c.p.s.  
(Receiver only).

### CONSUMPTION:

33 watts.

### FREQUENCY RANGE:

540 Kc/s to 1600 Kc/s.

### I.F. FREQUENCY:

457.5 Kc/s.

### OUTPUT IMPEDANCE:

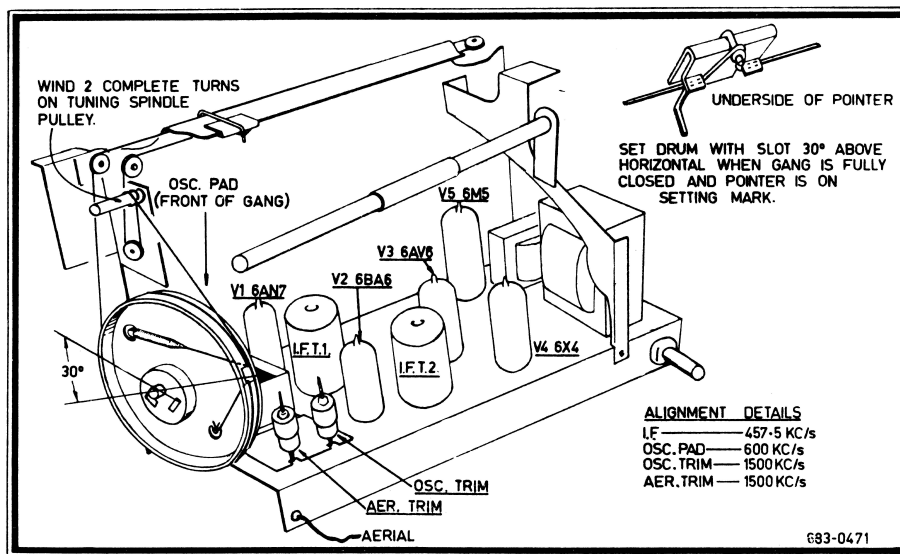
3.7 ohms at 400 c.p.s.

### VALVE COMPLEMENT:

6AN7 ..... Frequency Changer.  
6BA6 ..... I.F. Amplifier.  
6AV6 ..... A.V.C.-Demod.-Audio Amp.  
6M5 ..... Power.  
6X4 ..... Rectifier.

### DIAL LAMPS:

6.3 volt, 0.25 amp.



CHASSIS DIAGRAM — VALVE LAYOUT AND DIAL CORDING

## RECEIVER ALIGNMENT PROCEDURE

In any case where a component replacement has been made in either the tuned I.F. or R.F. circuits of a receiver, all circuits must be realigned. I.F. alignment should always precede R.F. alignment, and even if only one coil has been serviced, the whole of the realignment should be done in the order given. An output meter should be connected across the voice terminal of the speaker

to indicate that the circuits are tuned to resonance. In carrying out the following operations, it is important that the input to the receiver from the signal generator should be kept low and progressively reduced as the circuits are brought into line, so that the output meter reading does not exceed about 1 volt.

## I.F. ALIGNMENT

- (1) Rotate the volume control fully clockwise and fully enmesh the tuning capacitor vanes. Connect the output leads of a signal generator to the signal grid of the 6AN7 frequency changer valve through a 0.1 mf. capacitor.
- (2) Tune signal generator to exactly 457.5 Kc/s.
- (3) Adjust the I.F. transformer tuning cores for maximum reading on the output meter, commencing with the second I.F. transformer and following with the first.
- (4) Continue this alignment on each transformer in turn until no greater output can be obtained. It is necessary to repeat this procedure twice to ensure correct alignment.

NOTE: If tuning cores are screwed too far in, it may be possible to obtain a false peak, due to coupling effects between the iron cores. Start alignment of each individual transformer by first screwing its core well out, and then advancing core into the coil until resonance is obtained.

During the course of production of this receiver, the Company reserves the right, without notice, to make any modifications or improvements in design which may be necessary to meet prevailing conditions.

Information concerning changes, which is likely to be of benefit to retailers and servicemen, will be notified as far as possible by issuing a Technical Data Sheet.

## R.F. ALIGNMENT

- (1) With controls set as for I.F. alignment, connect signal generator output leads in series with a 200 mmF. capacitor to the aerial and earth terminals of the receiver.
- (2) Check that, when the gang capacitor is fully enmeshed, the pointer coincides with the setting line on the extreme right of the dial scale. If necessary, the pointer may be adjusted at the point where the drive cord is attached to the pointer carrier.
- (3) Tune signal generator to 600 Kc/s.
- (4) Rotate tuning knob until the pointer is exactly over the 600 Kc/s calibration mark (above 4AT), and adjust the padder screw for maximum response.
- (5) Tune signal generator to 1500 Kc/s.
- (6) Rotate tuning knob until the pointer coincides with the 1500 Kc/s calibration mark (above 3AK), and adjust the oscillator trimmer and aerial trimmer in turn for maximum response.
- (7) Repeat operations (3) to (6) inclusive for proper alignment.

# PARTS LIST

## RESISTORS

| REF. | PART No. | DESCRIPTION                               | REF. | PART No. | DESCRIPTION                               |
|------|----------|---|------|----------|---|
| R1   | 742-0982 | 1.2M ohms $\pm$ 10% 1 watt                | R10  | 742-0102 | 22,000 ohms $\pm$ 10% $\frac{1}{2}$ watt  |
| R2   | 742-0511 | 2,200 ohms $\pm$ 10% 1 watt               | R11  | 742-0232 | 10M ohms $\pm$ 10% $\frac{1}{2}$ watt     |
| R3   | 742-0102 | 22,000 ohms $\pm$ 10% $\frac{1}{2}$ watt  | R12  | 740-0273 | 150 ohms $\pm$ 10% $\frac{1}{2}$ watt     |
| R4   | 840-1142 | 5,600 ohms $\pm$ 10% $\frac{1}{2}$ watt   | R13  | 742-0452 | 220,000 ohms $\pm$ 20% 1 watt             |
| R5   | 740-0142 | 100,000 ohms $\pm$ 10% $\frac{1}{2}$ watt | R14  | 740-0622 | 470,000 ohms $\pm$ 20% $\frac{1}{2}$ watt |
| R6   | 742-0062 | 27,000 ohms $\pm$ 10% 1 watt              | R15  | 749-0292 | 10,000 ohms $\pm$ 10% 2 watt              |
| R7   | 840-0052 | 22,000 ohms $\pm$ 10% 1 watt              | R16  | 749-0292 | 10,000 ohms $\pm$ 10% 2 watt              |
| R8   | 740-0532 | 1.0M ohm $\pm$ 20% $\frac{1}{2}$ watt     | R17  | 748-0162 | 2 ohms $\pm$ 10% 1 watt                   |
| R9   | 740-0202 | 2.2M ohms $\pm$ 10% $\frac{1}{2}$ watt    |      |          |   |

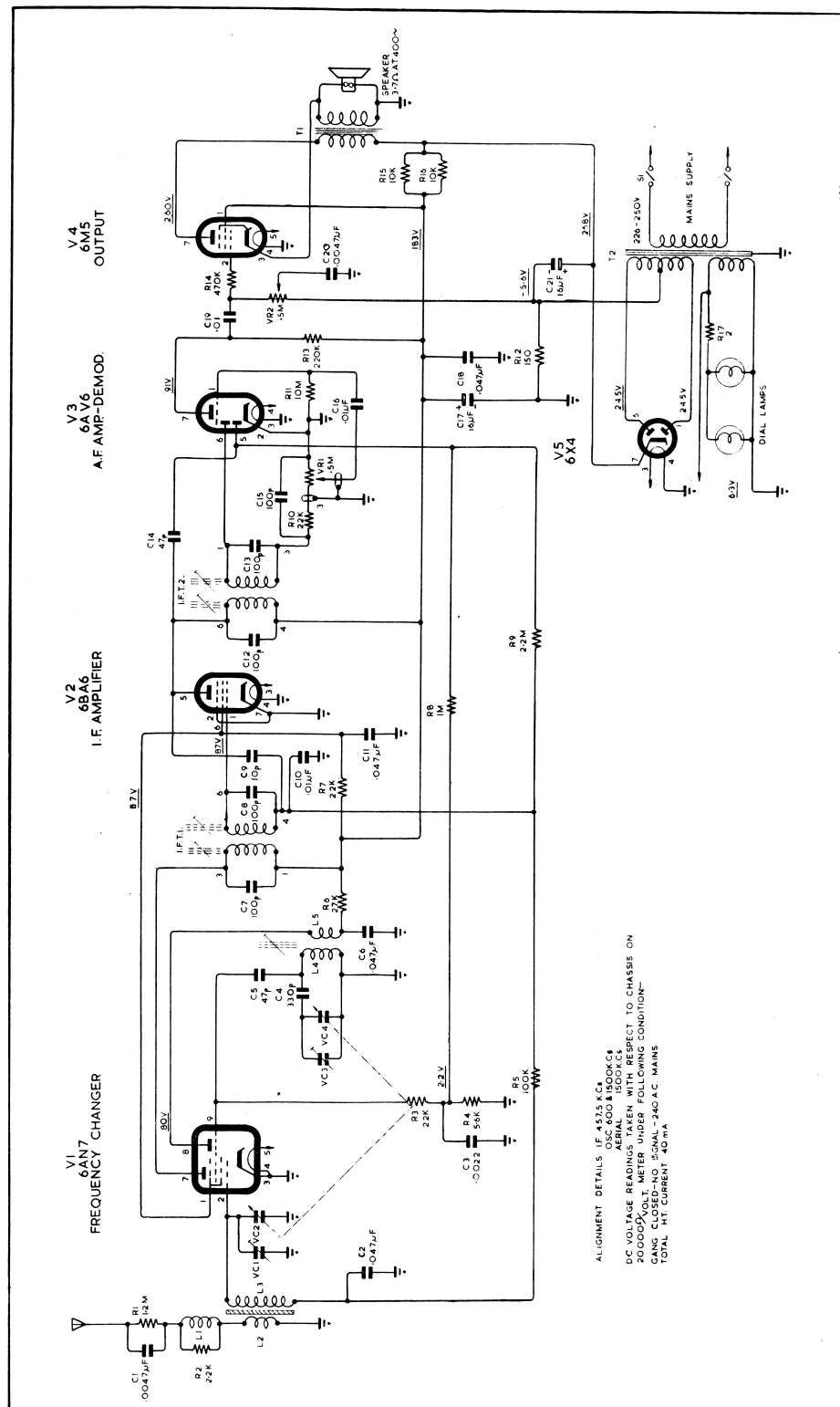
## CAPACITORS

| REF. | PART No. | DESCRIPTION               | REF. | PART No. | DESCRIPTION               |
|------|----------|---------------------------|------|----------|---------------------------|
| C1   | 271-0391 | 0.0047 mF Ceramic         | C12  | 275-0041 | 100 pF $\pm$ 5%           |
| C2   | 279-1081 | 0.047 mF $\pm$ 20% 200V.  | C13  | 275-0041 | 100 pF $\pm$ 5%           |
| C3   | 279-1541 | 0.0022 mF $\pm$ 20% 400V. | C14  | 273-0541 | 47 pF $\pm$ 10%           |
| C4   | 273-1071 | 330 pF $\pm$ 5 pF         | C15  | 273-0051 | 100 pF $\pm$ 10%          |
| C5   | 273-0541 | 47 pF $\pm$ 10%           | C16  | 280-1371 | 0.01 mF $\pm$ 20% 400V.   |
| C6   | 279-1701 | 0.047 mF $\pm$ 20% 400V.  | C17  | 269-0061 | 16 mF 300V. W.            |
| C7   | 275-0041 | 100 pF $\pm$ 5%           | C18  | 279-1701 | 0.047 mF $\pm$ 20% 400V.  |
| C8   | 275-0041 | 100 pF $\pm$ 5%           | C19  | 280-1371 | 0.01 mF $\pm$ 20% 400V.   |
| C9   | 273-0011 | 10 pF $\pm$ 10%           | C20  | 279-2081 | 0.0047 mF $\pm$ 20% 600V. |
| C10  | 279-4621 | 0.01 mF $\pm$ 10% 400V.   | C21  | 269-0061 | 16 mF 300V. W.            |
| C11  | 279-1701 | 0.047 mF $\pm$ 10% 400V.  |      |          |                           |

## MISCELLANEOUS

| REF.  | PART No. | DESCRIPTION                 | REF. | PART No. | DESCRIPTION             |
|-------|----------|-----------------------------|------|----------|-------------------------|
| L1    | 259-0712 | Coil, aerial loading        | SI   | 855-0421 | Switch, 2-pole          |
| L2-L3 | 253-0211 | Coil, aerial rod            |      | 381-0141 | Drum Dial               |
| L4-L5 | 257-0211 | Coil, oscillator            |      | 279-0011 | Cord Drive              |
| IFT.1 | 906-0063 | Transformer, I.F.           |      | 837-0451 | Spindle Assembly        |
| IFT.2 | 906-0063 | Transformer, I.F.           |      | 840-0251 | Spring—Drum             |
| T1    | 905-0381 | Transformer, Output         |      | 794-1181 | Scale—Dial              |
| T2    | 904-0321 | Transformer, Power          |      | 932-1171 | Lamp, 6.3V. 0.25A, B.C. |
| VC1   | 281-0031 | Capacitor, Trimmer          |      | 671-0541 | Pointer Assembly        |
| VC3   | 281-0031 | Capacitor, Trimmer          |      | 932-0151 | Valve 6AN7              |
| VC2-  |          |                             |      | 932-0331 | Valve 6BA6              |
| VC4   | 281-0221 | Capacitor, 2-gang, Variable |      | 932-0321 | Valve 6AV6              |
| VR1   | 677-0024 | Potentiometer, 0.5M         |      | 932-0291 | Valve 6M5               |
| VR2   | 677-0024 | Potentiometer, 0.5M         |      | 932-0301 | Valve 6X4               |
|       |          |                             |      | 831-0911 | Speaker                 |





CIRCUIT DIAGRAM — CHASSIS TYPE 65

## NOTES

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