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**For Trade Use Only**

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

## **SERVICE MANUAL**

*for*

**7 - VALVE  
A.C. MAINS-OPERATED STEREOPHONIC RADIOGRAM  
CHASSIS  
TYPE LI**

•

**THE GRAMOPHONE COMPANY LIMITED**  
(Incorporated in England)  
2 PARRAMATTA ROAD, HOMEBUSH

•

**PART No. 682-7221**



altering the effective cathode impedance to earth.

NOTE: It is only effective when the function switch is at "Sereo."

### A.F. AMPLIFIERS

The A.F. amplifier section consists of two identical units, each of which comprises volume control, preamplifier, tone controls, driver and output stages. Controls for both amplifiers are mechanically coupled. The heater and H.T. supplies are both taken from a common power unit.

The respective outputs of V3—L and V3—R are fed to the ganged bass and ganged treble controls which comprise a frequency conscious voltage divider network. The separate outputs are then applied to the grids of V4—L and V4—R, which are R—C coupled to their respective power output valves, V5 and V6.

### POWER OUTPUT STAGE

Transformers T1 and T2 provide correct matching, for the output stages, to 15 ohms loud-speaker loads. The split secondaries of each transformer are terminated to output socket SK2.

Speaker connections can be made in either one of the following ways:

- (1) Single Channel Operation for radio and monophonic record reproduction.

A section of the secondary of one transformer is connected in series with the corresponding secondary section of the other transformer to feed a common "Single channel" 15 ohm loud-speaker.

- (2) Two Speaker Operation for radio and stereophonic as well as monophonic record reproduction.

The whole secondary winding of each output transformer is connected to its own independent 15 ohm loud-speaker load.

For details of speaker connections pertaining to a particular model incorporating this chassis, reference should be made to the appropriate Model Data Sheet.

Portion of the voltage appearing across the secondary of each output transformer is applied to the cathode of the corresponding triode section of V4. This is fixed for all modes of operation on both amplifiers.

### HIGH TENSION SUPPLY

The power supply employs an indirectly heated full wave rectifier which directly supplies the plate circuit of the power amplifiers. The remaining H.T. circuits of the receiver are fed through resistance-capacitance filters.

## 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 always be connected across the voice coil terminals of the speaker to indicate when 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

Set receiver controls as follows:

Volume Control: Maximum.

Tone Control: Normal.

Function Selector to "Radio."

Tuning Control: Capacitor plates fully enmeshed.

- (1) Connect the output of the signal generator through a 0.1 mF. capacitor to the stator plates of the front section of the ganged capacitor.
- (2) Tune the signal generator to exactly 457.5 kc/s.
- (3) Adjust the I.F. transformer trimmer screws 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 the trimmer screws 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 the core into the coil until resonance is obtained.

## R.F. ALIGNMENT

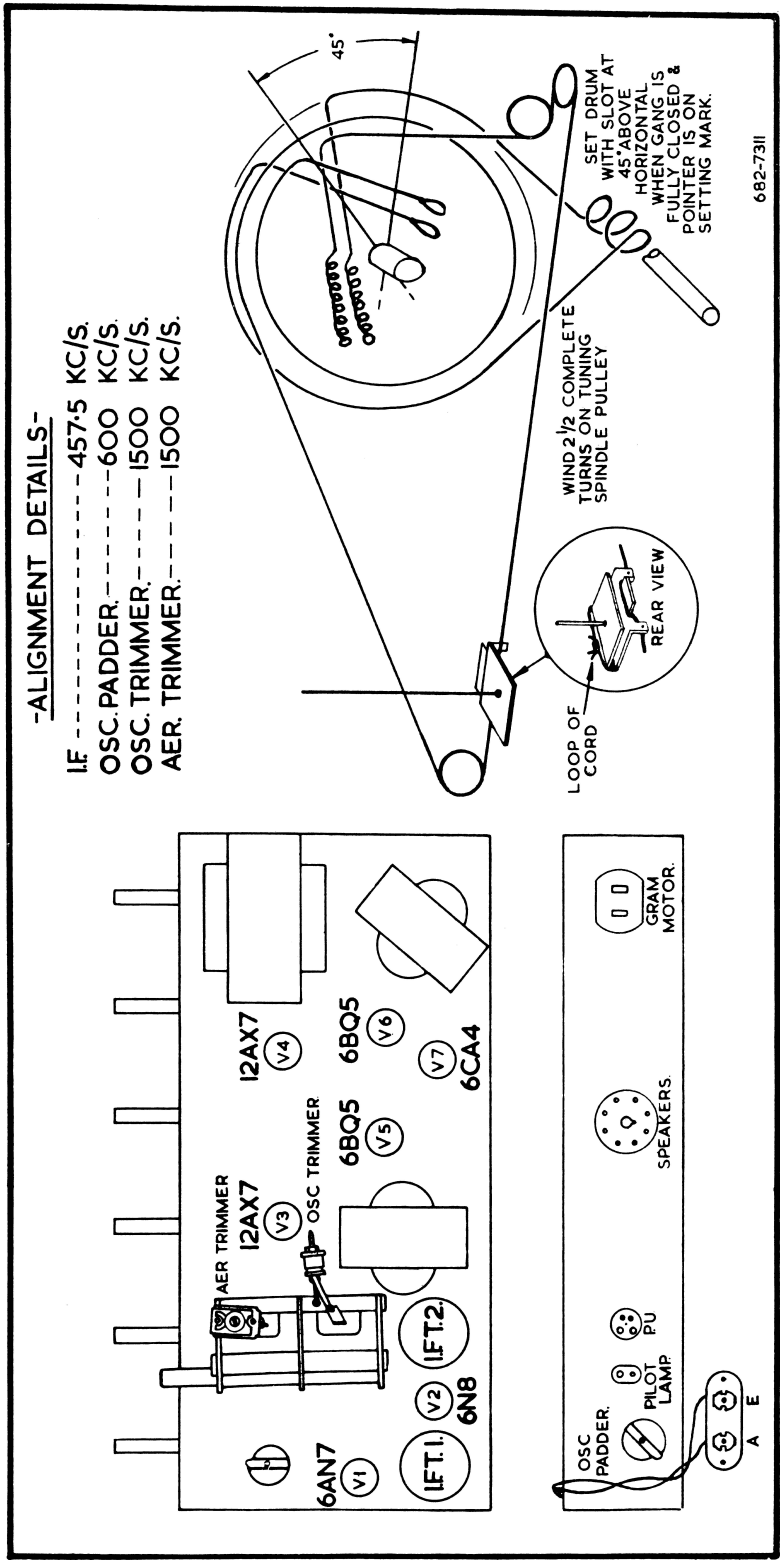
- (1) With the controls set as for I.F. alignment, connect the signal generator output leads in series with a 200 pF. capacitor to the aerial and earth terminals of the receiver.
- (2) Check that, when the ganged capacitor is fully closed, the pointer coincides with the setting marks at the extreme left-hand side of the dial scale.
- (3) Tune the signal generator and receiver to 600 kc/s. (The 600 kc/s calibration mark will be found above 4AT on the dial scale).
- (4) Whilst "rocking" the tuning control, adjust the medium - wave oscillator tuning bolt for maximum response.
- (5) Tune the signal generator to 1500 kc/s.
- (6) Adjust the tuning control until the pointer coincides with the 1500 kc/s calibration mark (near 3AK).
- (7) Adjust the oscillator and aerial trimmer capacitors in that order for maximum response.
- (8) Repeat operations (3) to (7) inclusive until correct alignment is obtained.

## ADDITIONAL DATA

Any further service information may be obtained by addressing an enquiry to "The Service Division, E.M.I. (Australia) Limited, 575 - 577 Parramatta Road, Leichhardt" (phone LM0291).

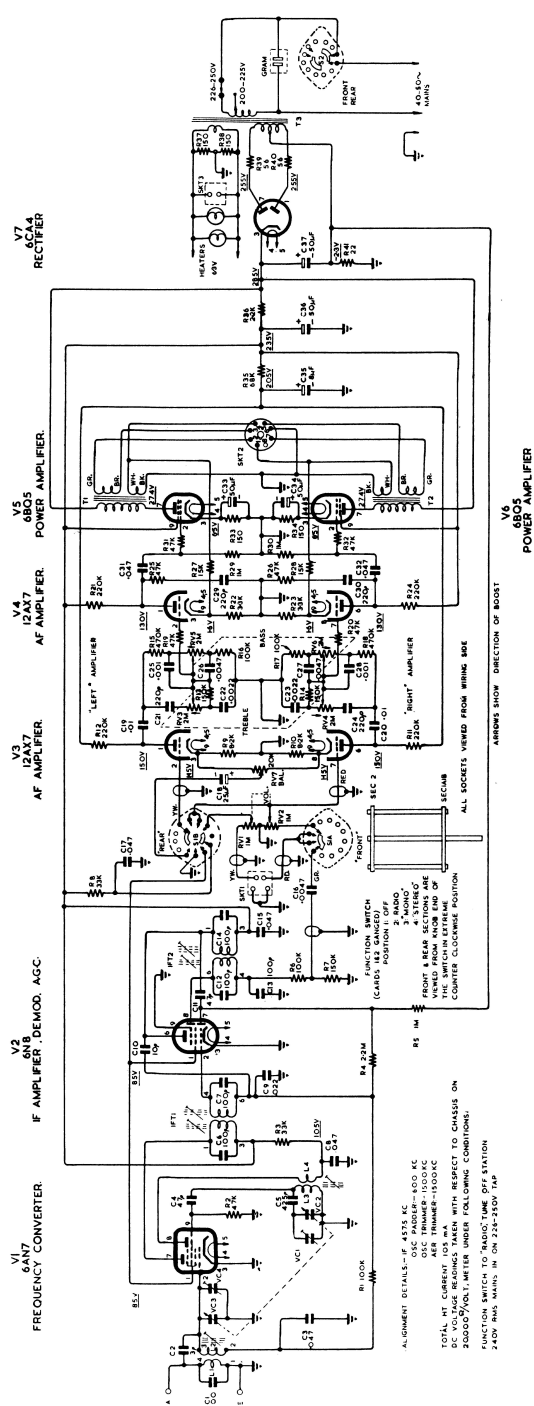
During the course of production of this chassis the Company reserves the right, without notice, to make any modifications or improvements in design which may be necessary to meet prevailing conditions.





CHASSIS DIAGRAM — VALVE LAYOUT AND DIAL CORDING

682-7311



## PARTS LIST

### RESISTORS

REF.	PART No.	DESCRIPTION	REF.	PART No.	DESCRIPTION
R1	740-0142	100,000 ohms $\pm 10\%$ $\frac{1}{2}$ watt	R21	742-0452	220,000 ohms $\pm 20\%$ 1 watt
R2	740-0582	47,000 ohms $\pm 20\%$ $\frac{1}{2}$ watt	R22	740-0052	3,300 ohms $\pm 10\%$ $\frac{1}{2}$ watt
R3	742-0382	33,000 ohms $\pm 20\%$ 1 watt	R23	740-0052	3,300 ohms $\pm 10\%$ $\frac{1}{2}$ watt
R4	740-0552	2.2 megohms $\pm 20\%$ $\frac{1}{2}$ watt	R24	742-0452	220,000 ohms $\pm 20\%$ 1 watt
R5	740-0532	1.0 megohm $\pm 20\%$ $\frac{1}{2}$ watt	R25	740-0582	47,000 ohms $\pm 20\%$ $\frac{1}{2}$ watt
R6	740-0142	100,000 ohms $\pm 10\%$ $\frac{1}{2}$ watt	R26	740-0582	47,000 ohms $\pm 20\%$ $\frac{1}{2}$ watt
R7	740-0152	150,000 ohms $\pm 10\%$ $\frac{1}{2}$ watt	R27	740-0092	15,000 ohms $\pm 10\%$ $\frac{1}{2}$ watt
R8	742-0382	33,000 ohms $\pm 20\%$ 1 watt	R28	740-0092	15,000 ohms $\pm 10\%$ $\frac{1}{2}$ watt
R9	740-0792	8,200 ohms $\pm 10\%$ $\frac{1}{2}$ watt	R29	740-0532	1.0 megohm $\pm 20\%$ $\frac{1}{2}$ watt
R10	740-0792	8,200 ohms $\pm 10\%$ $\frac{1}{2}$ watt	R30	740-0532	1.0 megohm $\pm 20\%$ $\frac{1}{2}$ watt
R11	742-0452	220,000 ohms $\pm 20\%$ 1 watt	R31	740-0582	47,000 ohms $\pm 20\%$ $\frac{1}{2}$ watt
R12	742-0452	220,000 ohms $\pm 20\%$ 1 watt	R32	740-0582	47,000 ohms $\pm 20\%$ $\frac{1}{2}$ watt
R13	740-0152	150,000 ohms $\pm 10\%$ $\frac{1}{2}$ watt	R33	746-0261	150 ohms $\pm 10\%$ $\frac{1}{2}$ watt
R14	740-0152	150,000 ohms $\pm 10\%$ $\frac{1}{2}$ watt	R34	746-0261	150 ohms $\pm 10\%$ $\frac{1}{2}$ watt
R15	740-0182	470,000 ohms $\pm 10\%$ $\frac{1}{2}$ watt	R35	740-0562	68,000 ohms $\pm 20\%$ $\frac{1}{2}$ watt
R16	740-0142	100,000 ohms $\pm 10\%$ $\frac{1}{2}$ watt	R36	749-0202	2,200 ohms $\pm 20\%$ 2 watt
R17	740-0142	100,000 ohms $\pm 10\%$ $\frac{1}{2}$ watt	R37	746-0261	150 ohms $\pm 10\%$ $\frac{1}{2}$ watt
R18	740-0182	470,000 ohms $\pm 10\%$ $\frac{1}{2}$ watt	R38	746-0261	150 ohms $\pm 10\%$ $\frac{1}{2}$ watt
R19	740-0582	47,000 ohms $\pm 20\%$ $\frac{1}{2}$ watt	R39	748-0131	56 ohms $\pm 20\%$ 1 watt
R20	740-0582	47,000 ohms $\pm 20\%$ $\frac{1}{2}$ watt	R40	748-0131	56 ohms $\pm 20\%$ 1 watt
			R41	746-0002	22 ohms $\pm 10\%$ $\frac{1}{2}$ watt

### CAPACITORS

REF.	PART No.	DESCRIPTION	REF.	PART No.	DESCRIPTION
C1	273-0931	100P $\pm 10\%$	C20	280-1371	0.01 $\pm 20\%$ 400V.
C2	526-1233	3P Lead—Capacitor	C21	273-0691	220P $\pm 10\%$
C3	279-1081	0.047 $\pm 20\%$ 200V.	C22	280-0291	0.0022 $\pm 10\%$ 200V.
C4	273-0541	47P $\pm 10\%$	C23	280-0291	0.0022 $\pm 10\%$ 200V.
C5	273-0111	425P $\pm 5\%$	C24	273-0691	220P $\pm 10\%$
C6	273-0331	100P $\pm 5\%$	C25	280-0251	0.001 $\pm 10\%$ 200V.
C7	273-0331	100P $\pm 5\%$	C26	280-0331	0.0047 $\pm 10\%$ 200V.
C8	279-1701	0.047 $\pm 20\%$ 400V.	C27	280-0331	0.0047 $\pm 10\%$ 200V.
C9	279-4661	0.022 $\pm 10\%$ 400V.	C28	280-0251	0.001 $\pm 10\%$ 200V.
C10	273-0011	10P $\pm 10\%$	C29	273-0691	220P $\pm 10\%$
C11	273-0541	47P $\pm 10\%$	C30	273-0691	220P $\pm 10\%$
C12	273-0331	100P $\pm 5\%$	C31	279-1701	0.047 $\pm 20\%$ 400V.
C13	273-0931	100P $\pm 10\%$	C32	279-1701	0.047 $\pm 20\%$ 400V.
C14	273-0331	100P $\pm 5\%$	C33	269-0171	50 mF 25 P.V.
C15	279-1701	0.047 $\pm 20\%$ 400V.	C34	269-0171	50 mF 25 P.V.
C16	279-1581	0.0047 $\pm 20\%$ 400V.	C35	269-0211	8 mF 350 P.V.
C17	279-1701	0.047 $\pm 20\%$ 400V.	C36	269-0471	50 mF 400 P.V.
C18	269-0221	25 mF 40 P.V.	C37	269-0471	50 mF 400 P.V.
C19	280-1371	0.01 $\pm 20\%$ 400V.			

### MISCELLANEOUS

REF.	PART No.	DESCRIPTION	REF.	PART No.	DESCRIPTION
L1-L2	253-0103	Coil M/W Aerial	S1-S2	855-0341	Switch, Function
L3-L4	257-0085	Coil M/W Oscillator	V1	932-0151	Valve, 6AN7
VC2-VC3	281-0022	Capacitors, 2-gang, Variable	V2	932-0201	Valve, 6N8
VC1	281-0031	Capacitor, Trimmer	V3	932-0401	Valve, 12AX7
VC4	281-0111	Capacitor, Trimmer	V4	932-0401	Valve, 12AX7
IFT1-IFT2	906-0062	Transformer, I.F. (1st and 2nd)	V5	932-1051	Valve, 6BQ5
T1-T2	905-0271	Transformer, Output	V6	932-1051	Valve, 6BQ5
T3	904-0231	Transformer, Power	V7	932-1041	Valve, 6CA4
RV1-RV2	677-0541	Volume Control, 2-gang, 1 Meg.		932-0391	Lamp, 6.3 volt, 0.25 amp., M.E.S.
RV3-RV4	677-0531	Treble Control, 2-gang, 2 Meg.		792-8011	Scale, Dial
RV5-RV6	677-0531	Bass Control, 2-gang, 2 Meg.		279-0011	Cord, Dial Drive
RV7	677-0551	Balance Control, 20,000 ohms		381-0073	Drum
				671-0341	Pointer Assembly
				840-0182	Spring—Pointer Drive
				840-0251	Spring—Pointer Drive



# TECHNICAL DATA SHEET

Date NO. 63

17th March, 1960.

Issued by Engineering Division,  
M.I. (Australia) Ltd.,  
2 Parramatta Rd.,  
Homebush...N.S.W.

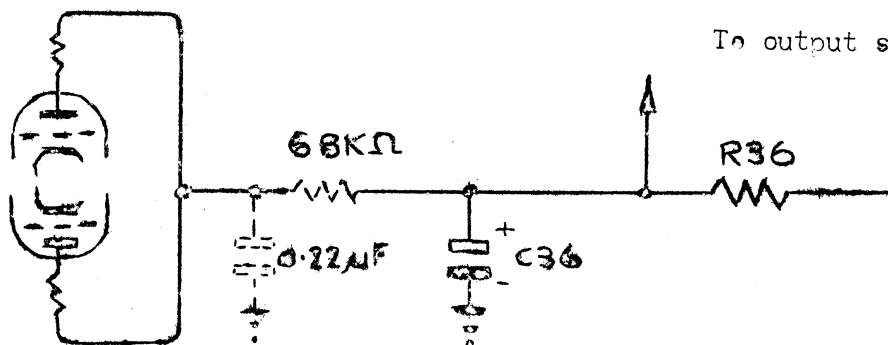
## MODEL L1

A circuit change has been made in the above model to reduce hum.

The change commenced with S/N02698 and consists of adding a filter section to the anodes of V4 as shown in the circuit below:

Modified Circuit (Additions shown dotted)

V4-12AX7



To output screen grids and tuner H.T.

Components added are:-

740-0562 resistor,  $68K\Omega \pm 20\% \frac{1}{2}W$ .

279-1781 condenser,  $0.22 \mu F \pm 20\% 400 V.W$ .