

TECHNICAL SPECIFICATION

POWER SUPPLY:

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

CONSUMPTION:

36 watts.

FREQUENCY RANGE:

540 Kc/s to 1600 Kc/s.

I.F. FREQUENCY:

457.5 Kc/s.

OUTPUT IMPEDANCE:

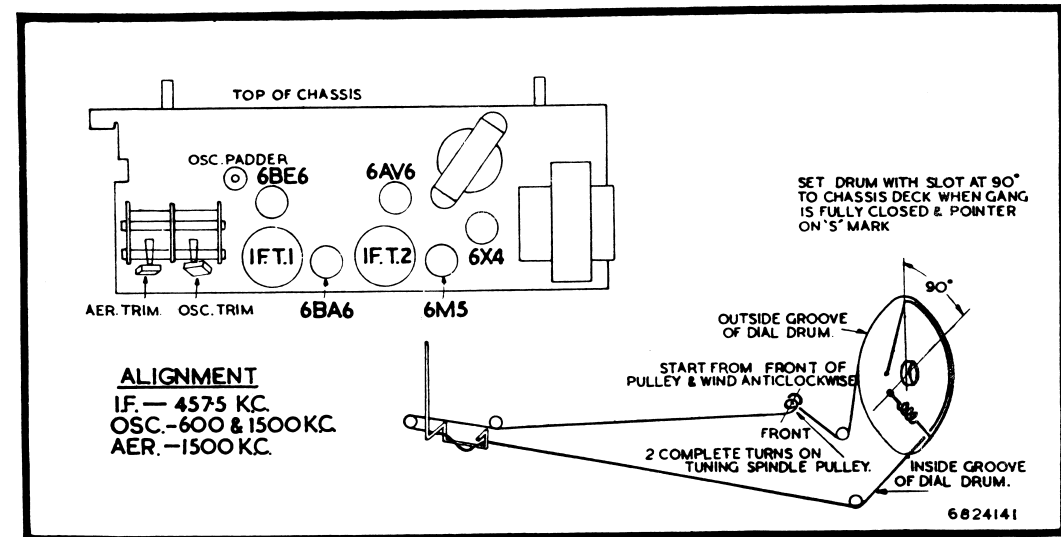
4 ohms at 400 c.p.s.

VALVE COMPLEMENT:

6BE6 Frequency Changer
6BA6 I.F. Amplifier.
6AV6 A.V.C.-Demod.-Audio Amp.
6M5 Power
6X4 Rectifier

DIAL LAMPS:

6.3 volt, 0.3 amp.



Chassis Diagram — Valve Layout and Dial Cording

CIRCUIT DESCRIPTION

This chassis is a 5-valve A.C. mains-operated superheterodyne receiver for medium-wave reception.

FREQUENCY CHANGER

Signal voltage developed in the self-contained ferrite rod aerial L3, is fed to the grid of the frequency changer valve.

Loading coil L1, provides means for connection of an external aerial to the aerial coupling winding L2.

The frequency changer valve is used as a pentagrid converter with self excited oscillator. The oscillator circuit employs a fixed padding capacitor with variable padding provided by means of the iron dust core in coil L4.

I.F. AMPLIFIER

The frequency changer valve is transformer-coupled to a remote cut-off pentode, V2. This valve is, in turn, transformer-coupled to the demodulator diode section of the duo-diode triode valve, V3. Both I.F. transformers have fixed tuning capacitors, and permeability tuning is provided by means of iron-dust tuning bolts.

DEMOD., A.V.C. AND A.F. AMPLIFIER

Simple A.V.C. is used to obtain A.V.C. potentials for the frequency changer and I.F. amplifier.

The demodulated signal across the diode load VR1, is applied to the grid of the triode section of V3.

The audio amplifier is resistance-capacity-coupled to the grid of the beam power output valve, V4.

AUDIO OUTPUT AMPLIFIER

The Power Output valve, V4, is transformer-coupled to the loudspeaker. Inverse feedback is provided by feeding voltage from the voice coil via C22 to the cathode of the 6M5 output valve.

H.T. SUPPLY

The power supply employs an indirectly-heated-type high-vacuum valve, V5, as a full-wave rectifier. Unfiltered high tension voltage is fed to the power output valve plate circuit, whilst the remaining receiver circuits are supplied with H.T. through a resistance-capacity filter.

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 terminals 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 grid of the 6BE6 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.

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 left of the dial scale. If necessary, the pointer must 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 (below 5DR), and adjust the oscillator trimmer and aerial trimmer in turn for maximum response.

- (7) Repeat operations (3) to (6) inclusive for proper alignment.

Any further service information may be obtained by addressing an inquiry to the "Service Division, E.M.I. (Australia) Limited, 575-577 Parramatta Road, Leichhardt" (phone LM1491).

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.

PARTS LIST

RESISTORS

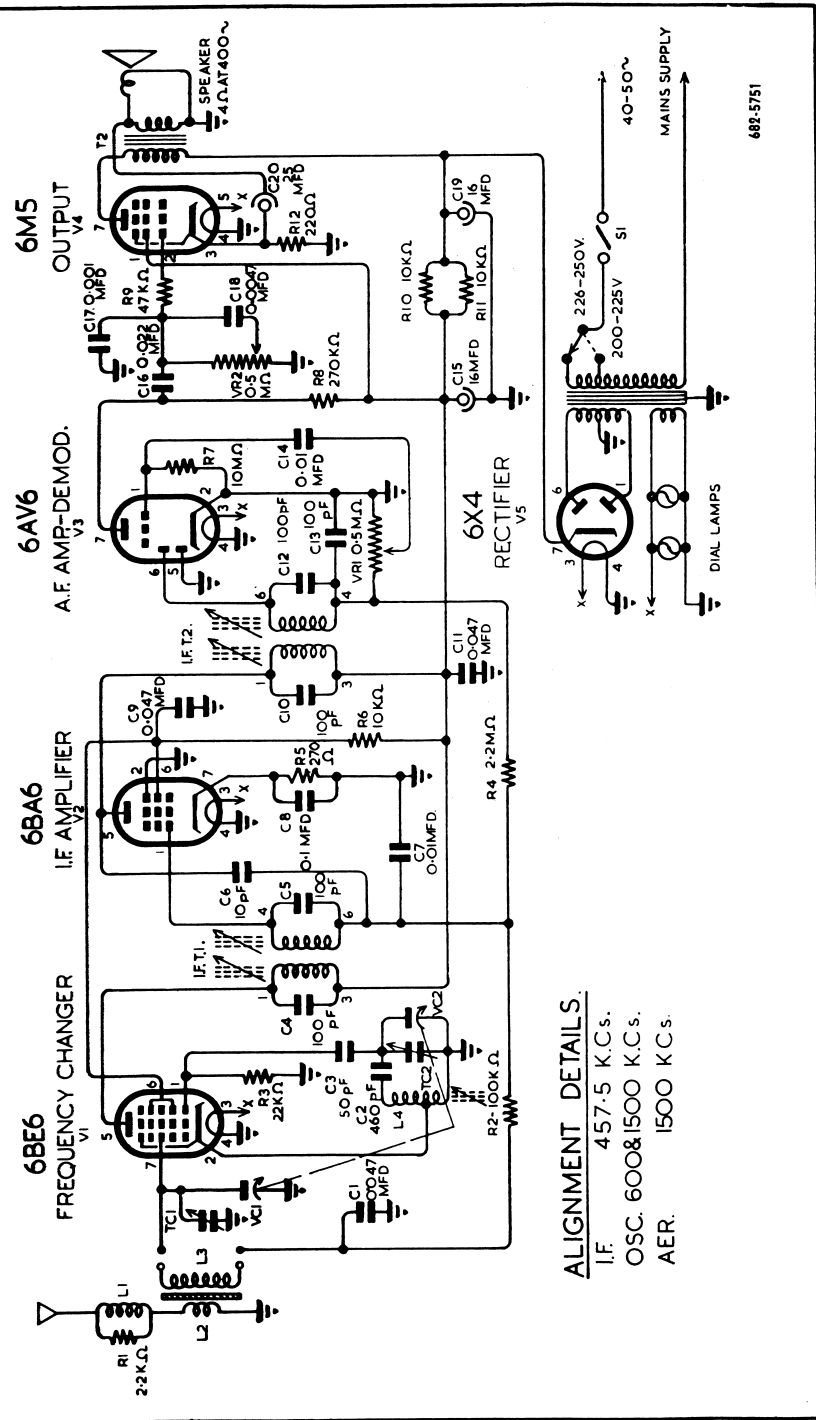
REF.	PART No.	DESCRIPTION	REF.	PART No.	DESCRIPTION
R1	7420511	2,200 ohms \pm 10% 1 watt	R7	7420232	10 megohms \pm 10% 1 watt
R2	7400142	100,000 ohms \pm 10% $\frac{1}{2}$ watt	R8	7400172	270,000 ohms \pm 10% $\frac{1}{2}$ watt
R3	7400102	22,000 ohms \pm 10% $\frac{1}{2}$ watt	R9	7400122	47,000 ohms \pm 10% $\frac{1}{2}$ watt
R4	7400202	2.2 megohms \pm 10% $\frac{1}{2}$ watt	R10	7420031	10,000 ohms \pm 10% 1 watt
R5	7400292	270 ohms \pm 10% $\frac{1}{2}$ watt	R11	7420031	10,000 ohms \pm 10% 1 watt
R6	7420031	10,000 ohms \pm 10% 1 watt	R12	7400282	220 ohms \pm 10% $\frac{1}{2}$ watt

CAPACITORS

REF.	PART No.	DESCRIPTION	REF.	PART No.	DESCRIPTION
C1	2791081	0.047 mF \pm 20% 200V wkg	C11	2791701	0.047 mF \pm 20% 400V wkg
C2	2730301	460 pF \pm 5 pF	C12	2750041	100 pF \pm 5%
C3	2730041	50 pF \pm 10%	C13	2730051	100 pF \pm 10%
C4	2750041	100 pF \pm 5%	C14	2792121	0.01 mF \pm 20% 600V wkg
C5	2750041	100 pF \pm 5%	C15 & C19	2690261	16 mF + 16 mF 350 P.V.
C6	2730011	10 pF \pm 10%	C16	2792161	0.022 mF \pm 20% 600V wkg
C7	2792121	0.01 mF \pm 20% 600V wkg	C17	2730151	1,000 pF \pm 10%
C8	2791121	0.1 mF \pm 20% 200V wkg	C18	2792081	0.0047 mF \pm 20% 600V wkg
C9	2791701	0.047 mF \pm 20% 400V wkg	C20	2690221	25 mF 40 P.V.
C10	2750041	100 pF \pm 5%			

MISCELLANEOUS

REF.	PART No.	DESCRIPTION	REF.	PART No.	DESCRIPTION
T1	9040005	Transformer, Mains		3810111	Drum
T2	9050027	Transformer, Output		2790011	Cord, Drive—4' 5" length
VCI				8370092	Drive Spindle
VC2	2810063	Capacitor, 2-Gang		8400111	Spring—Drum
VR1	6770024	Potentiometer, 0.5 megohm		7940671	Scale—Dial
VR2	6770024	Potentiometer, 0.5 megohm		9320391	Lamps, 6.3 volt, 0.3 amp, M.E.S.
S1	8550162	Switch, Single Pole		6710351	Pointer Assembly
L1-R1	2590711	Loading Coil Ass'y	VI	9320341	Valve 6BE6
L2-L3	2530171	Rod Aerial Ass'y	V2	9320331	Valve 6BA6
L4	2570106	Coil, M/W Oscillator	V3	9320321	Valve 6AV6
TC1	2810111	Capacitor, Trimmer Aerial	V4	9320291	Valve 6M5
TC2	2810111	Capacitor, Trimmer Osc.	V5	9320301	Valve 6X4
IFT1	9060062	Transformer, 1st I.F.		8310059	5" x 7" Speaker
IFT2	9060062	Transformer, 2nd I.F.			



ALIGNMENT DETAILS.
 I.F. 457.5 K.C.s.
 OSC. 600 & 1500 K.C.s.
 AER. 1500 K.C.s.

CIRCUIT DIAGRAM — CHASSIS TYPE 64

— VOLTAGE TABLE. —

- VOLTAGES AND CURRENTS ARE WITH THE RECEIVER OPERATING ON AVERAGE MAINS VOLTAGE, AND TUNED TO A POINT OF NO RECEPTION ON THE BROADCAST BAND.
- VOLTAGE READINGS TAKEN WITH METER RESISTANCE OF 1,000 OHMS PER VOLT.
- VOLTAGE AND CURRENT READINGS WITHIN ± 15 %.
- RESISTANCE READINGS ARE APPROXIMATE.

VOLTS TO CHASSIS	CURRENT M. A.	RESISTANCE TO CHASSIS	VALVE ELECTRODE	BOTTOM VIEW OF VALVE SOCKET	VALVE ELECTRODE	VOLTS TO CHASSIS	CURRENT M. A.	RESISTANCE TO CHASSIS
V 1 6BE6 FREQUENCY CHANGER.								
—	—	0	HEATER		—	—	—	—
6.3 A.C.	300	—	HEATER		PLATE	185	2.0	INFIN.
—	11	0.5 Ω	CATHODE		SCREEN	95	8.0	INFIN.
—	0.31	20K Ω	OSC. GRID		CONTROL GRID	—	—	2.6 M Ω
V 2 6BA6 I.F. AMPLIFIER.								
—	—	0	HEATER		—	—	—	—
6.3 A.C.	300	—	HEATER		PLATE	185	3.6	INFIN.
—	—	0	SUPPRESSOR		SCREEN	95	2.0	INFIN.
—	—	2.5 M Ω	CONTROL GRID		CATHODE	1.5	5.6	250 Ω
V 3 6AV6 AUDIO AMPLIFIER-DEMODULATOR.								
—	—	—	HEATER		—	—	—	—
6.3 A.C.	300	—	HEATER		DIODE N° 2	0	0	0.5 M Ω
0	0.4	0	CATHODE		DIODE N° 1	—	—	—
0	0	10M Ω	CONTROL GRID		PLATE	70	0.4	INFIN.
V 4 6M5 OUTPUT								
6.3 A.C.	710	—	HEATER		—	—	—	—
—	—	—	HEATER		NO CONN.	—	—	—
5V	26	200 Ω	CATHODE		PLATE	270	2.3	INFIN.
0	0	0.5 M Ω	CONTROL GRID		NO CONN.	—	—	—
185	3	INFIN.	SCREEN		NO CONN.	—	—	—
V 5 6X4 RECTIFIER.								
—	—	—	HEATER		—	—	—	—
6.3 A.C.	600	—	HEATER		NO CONN.	—	—	—
—	—	—	NO CONN.		PLATE N° 2	240 A.C.	—	360 Ω
240 A.C.	—	360 Ω	PLATE N° 1		CATHODE	280	—	INFIN.

REMARKS:- TOTAL H.T. CURRENT 42 M.A.