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.
SPEAKER:
Permagnetic 5in. x 7in.
Voice Coil 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.

N.B.: A new chassis stamping will be used in production of this model from early 1956 onwards. For the purposes of this manual, it will be known as the "New Series Chassis." No circuit changes are involved, but minor changes to the parts list and chassis diagrams are to be noted. The chassis diagrams may be used to identify a New Series chassis.

CIRCUIT DESCRIPTION

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

FREQUENCY CHANGER

The aerial is coupled to the frequency changer valve by means of a high-efficiency iron-dust cored aerial transformer, L1-L2.

With the frequency changer valve, used as a pentagrid converter, a self-excited oscillator circuit employed incorporating a fixed padding capacity. Variable adjustments is provided by means of an iron-dust bolt for tuning the oscillator coil, L3.

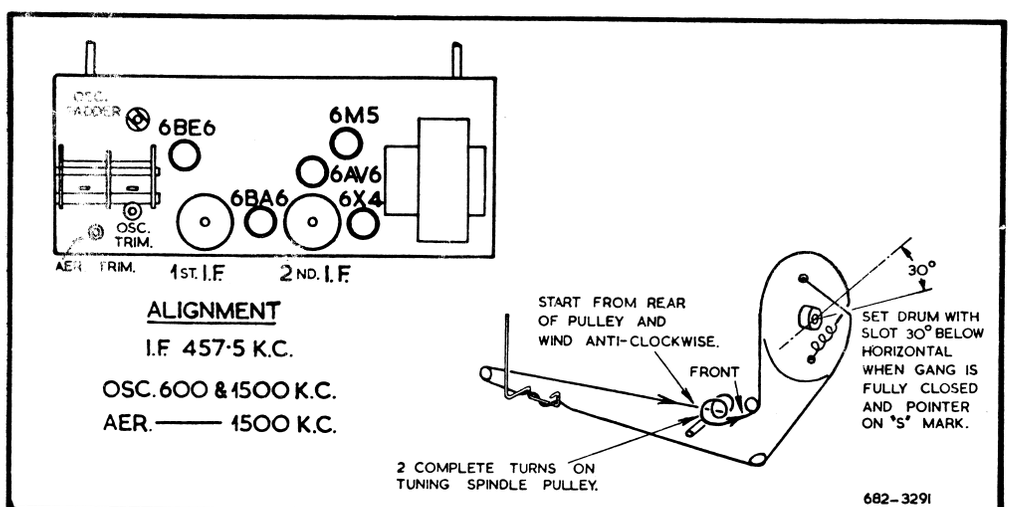
I.F. AMPLIFIER

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.

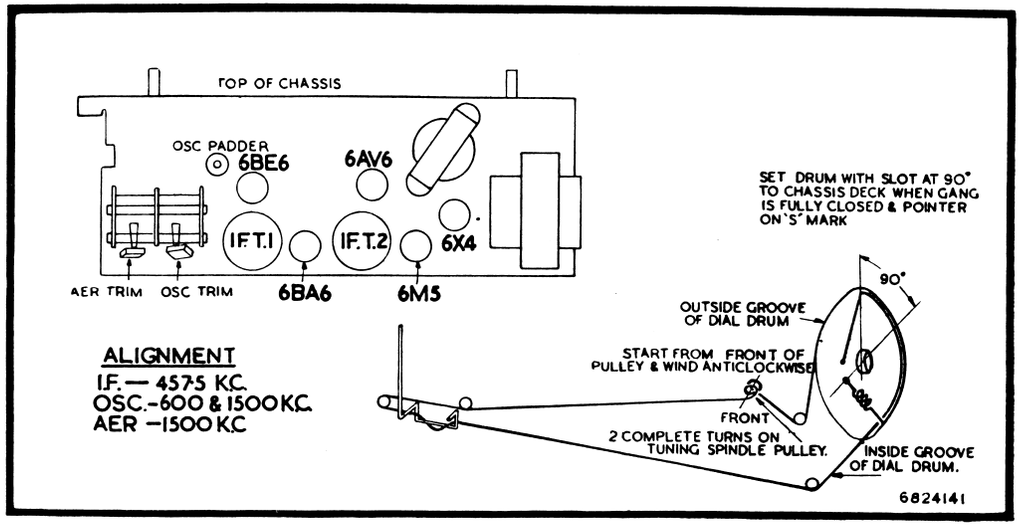
DEMOD., A.V.C. AND A.F. AMPLIFIER

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.



Chassis Diagram — Valve Layout and Dial Cording. Old Series Chassis.



Chassis Diagram — Valve Layout and Dial Cording. New Series Chassis.

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

AUDIO OUTPUT AMPLIFIER

The Beam 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. (Aust.) Pty. 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

NEW SERIES CHASSIS

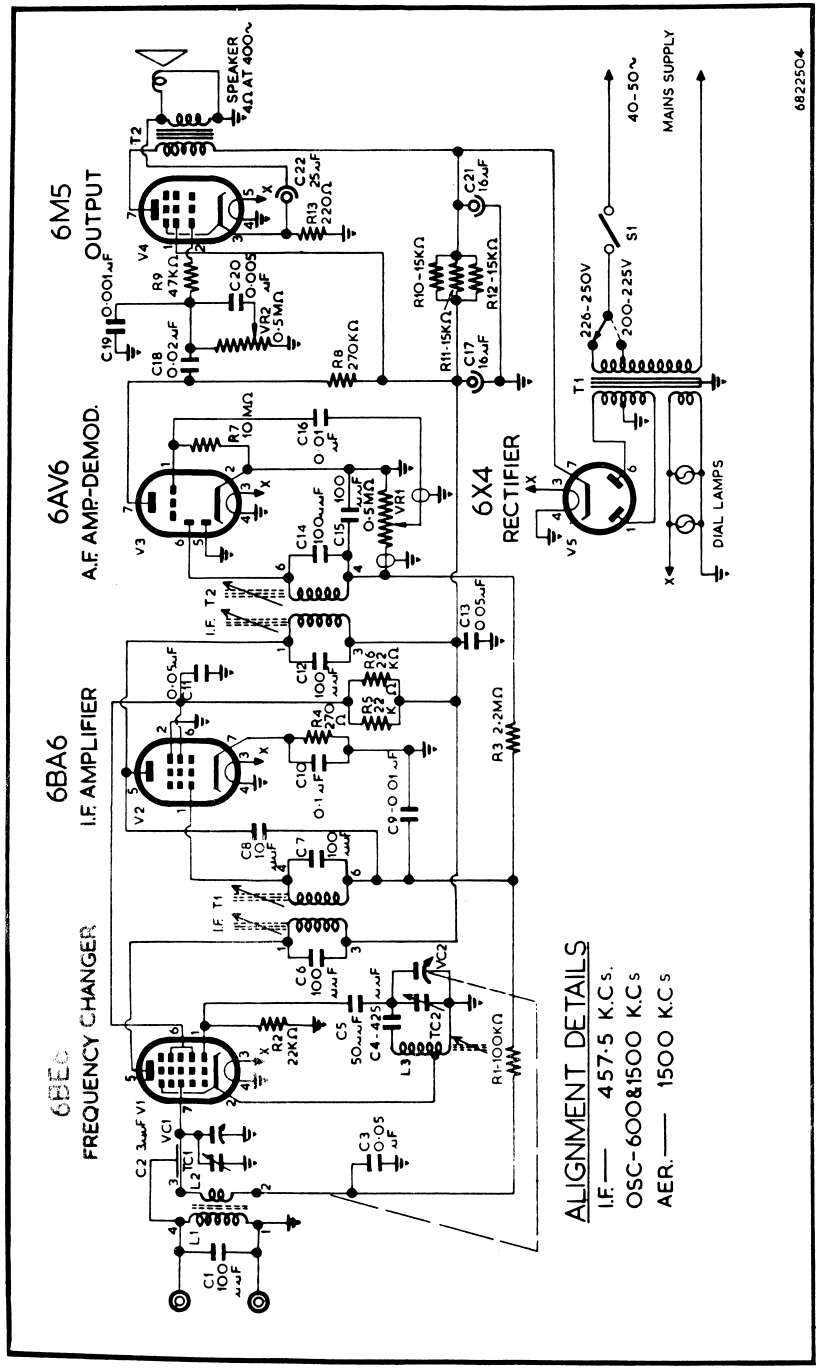
REF.	PART No.	DESCRIPTION	REF.	PART No.	DESCRIPTION
R1	7400142	100,000 ohms ± 10% ½ watt	R8	7400172	270,000 ohms ± 10% ½ watt
R2	7400102	22,000 ohms ± 10% ½ watt	R9	7400122	47,000 ohms ± 10% ½ watt
R3	7400202	2.2 megohms ± 10% ½ watt	R10	7420042	15,000 ohms ± 10% 1 watt
R4	7400292	270 ohms ± 10% ½ watt	R11	7420042	15,000 ohms ± 10% 1 watt
R5	7420052	22,000 ohms ± 10% 1 watt	R12	7420042	15,000 ohms ± 10% 1 watt
R6	7420052	22,000 ohms ± 10% 1 watt	R13	7400282	220 ohms ± 10% ½ watt
R7	7420232	10 megohms ± 10% 1 watt			

CAPACITORS

REF.	PART No.	DESCRIPTION	REF.	PART No.	DESCRIPTION
C1	2730051	100 mmF ± 10%	C12	2750041	100 mF ± 5%
C2	5261231	3 mmF ± 1 mmF	C13	2790131	.05 mF ± 20% 400V. wkg.
C3	2790121	.05 mF ± 20% 200V. wkg.	C14	2750041	100 mmF ± 5%
C4	2730111	425 pfd ± 5 pfd	C15	2730051	100 mmF ± 10%
C5	2730041	50 mmF ± 10%	C16	2790071	.01 mF ± 20% 600V. wkg.
C6	2750041	100 mmF ± 5%	C17 & C21	2690261	16 mF ± 16 mF 350 P.V.
C7	2750041	100 mmF ± 5%	C18	2790101	.02 mF ± 20% 600V. wkg.
C8	2730011	10 mmF ± 10%	C19	2730151	1,000 mmF ± 10%
C9	2790071	.01 mF ± 20% 600V. wkg.	C20	2790031	.005 mF ± 20% 600V. wkg.
C10	2790151	.1 mF ± 20% 200V. wkg.	C22	2690221	25 mF 40 P.V.
C11	2790131	.05 mF ± 20% 400V. wkg.			

MISCELLANEOUS

REF.	PART No.	DESCRIPTION	REF.	PART No.	DESCRIPTION
T1	9040005	Transformer, Mains		3810033	Drum
T2	9050027	Transformer, Output		2970011	Cord, Drive—4' 5" length
VC1 VC2	2810063	Capacitor, 2-Gang		8370091	Drive Spindle
VR1	6770024	Potentiometer, ½ megohm		8400111	Spring—Drum
VR2	6770024	Potentiometer, ½ megohm		7940341	Scale—Dial
S1	8550162	Switch, Single Pole		9320391	Lamps, 6.3 volt, 0.3 amp., M.E.S.
L1-L2	2530102	Coil, M/W Aerial		6710351	Pointer Assembly
L3-L4	2570106	Coil, M/W Oscillator		9320291	Valve 6M5
TC1	2810111	Capacitor—Trimmer Aerial		9320301	Valve 6X4
TC2	2810111	Capacitor—Trimmer Osc.		9320321	Valve 6AV6
IFT1	9060062	Transformer, 1st I.F.		9320331	Valve 6BA6
IFT2	9060062	Transformer, 2nd I.F.		9320341	Valve 6BE6
				8310059	5 x 7 Speaker.



CIRCUIT DIAGRAM — CHASSIS TYPE 62

— 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
			V1	6BE6	FREQUENCY CHANGER.			
—	—	0	HEATER					
6·3A.C.	300	—	HEATER		PLATE	185	2·0	INFIN
—	11	0·5Ω	CATHODE		SCREEN	95	8·0	INFIN.
—	0·31	20KΩ	OSC.GRID		CONTROL GRID	—	—	2·6MΩ
			V2	6BA6	I.F. AMPLIFIER.			
—	—	0	HEATER					
6·3A.C.	300	—	HEATER		PLATE	185	3·6	INFIN.
—	—	0	SUPPRESSOR		SCREEN	95	2·0	INFIN.
—	—	2·5 MΩ	CONTROL GRID		CATHODE	1·5	5·6	250Ω
			V3	6AV6	AUDIO AMPLIFIER–DEMODULATOR.			
—	—	—	HEATER					
6·3A.C.	300	—	HEATER		DIODE N°2	0	0	0·5MΩ
0	0·4	0	CATHODE		DIODE N°1	—	—	—
0	0	10MΩ	CONTROL GRID		PLATE	70	0·4	INFIN.
			V4	6M5	OUTPUT			
6·3 A.C.	710	—	HEATER					
—	—	—	HEATER		NO CONN.	—	—	—
5V	26	200Ω	CATHODE		PLATE	270	23	INFIN.
0	0	0·5MΩ	CONTROLGRID		NO CONN.	—	—	—
185	3	INFIN.	SCREEN		NO CONN	—	—	—
			V5	6X4	RECTIFIER.			
—	—	—	HEATER					
6·3A.C.	600	—	HEATER		NO CONN.	—	—	—
—	—	—	NO CONN.		PLATE N°2	240A.C.	—	360Ω
240A C	—	360Ω	PLATE N°1		CATHODE	280	—	INFIN.

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

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