SERVICE MANUAL

TELEVISION CHASSIS TYPES **PS, PT, PU**

"HIS MASTER'S VOICE"

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E.M.I. (AUSTRALIA) LIMITED
(INCORPORATED IN N.S.W.)

6 PARRAMATTA ROAD
HOMEBUSH, N.S.W.

SPECIFICATIONS

POWER SUPPLY:
240, 250 volts, A.C., 50 c/s.

CONSUMPTION:
170 watts.

AERIAL INPUT:
300 ohms balanced.

INTERMEDIATE FREQUENCIES:
Vision Carrier: 36.875 Mc/s.
Sound Carrier: 31.375 Mc/s.

FUSES
Mains: 1.5 amp.
H.T.: 1.5 amp.

VALVE & DIODE COMPLEMENT

V1	6ES8	RF Amplifier
V2	6HG8	Frequency Changer
V3	6EH7	1st IF Amplifier
V4	6X9	2nd IF Amplifier and Noise Detector
V5	6Y9	Video Amplifier and AGC
V6	6V9	Sync. Separator and Amplifier
V7	6BX6	Limiter
V8	6GW8	Sound Amplifier and Output
V9	6GV8	Vertical Oscillator and Output
V10	6JW8	Reactance Valve and Horizontal Oscillator
V11	6CM5	Horizontal Output
V12	1S2	EHT Rectifier
V13	6AL3	Damper Diode
MR1	0A90	Video Detector
MR2	0A210	HT Rectifier
MR3	0A210	HT Rectifier
MR4	M3	AGC Clamp
MR5	AA119	Ratio Detector
MR6	AA119	Ratio Detector
MR7	BA100	Vertical Sync. Diode
MR8	OA202	Blanking Clamp
MR9	BA100	Phase Discriminator
MR10	BA100	Phase Discriminator

CAUTION

The normal B+ voltages in these receivers are dangerous. Use extreme caution when servicing. The high voltage at the picture tube anode (17,000 volts) will give an unpleasant shock but does not supply enough current to give a fatal shock. However, secondary human reactions to otherwise harmless shocks have been known to cause injury.

Always discharge the picture tube anode to the chassis or to its aquadag coating, before handling the tube. The picture tube is highly evacuated and, if broken, it may violently expel glass fragments. When handling the picture tube, always wear goggles.

PART No. 683-5301

DECEMBER, 1964.

DISMANTLING

PS AND PT CHASSIS

TO SWING DOWN CHASSIS

1. Slacken wing nuts at top of chassis and swing rods aside.
2. Slacken wing nut securing tuner bracket to main chassis and swing chassis down.

TO REMOVE TUNER

1. Swing chassis down.
2. Pull off channel selector knob.
3. Remove screw at left side of tuner.

Tuner may now be attached to chassis, by reinserting slot in tuner bracket under wing nut, and hooked section on tuner bracket, into special slot provided in chassis.

TO REMOVE CHASSIS AND TUNER FROM CABINET

1. Swing chassis down and remove tuner.
2. Fix tuner to chassis.
3. Unplug yoke, speaker and EHT leads.
4. Raise chassis to approximately 45° and withdraw from pivot brackets.

TO REMOVE **PS** CHASSIS AND CRT FROM CABINET

1. Pull off channel selector knob.
2. Unscrew the two self-tapping screws fixing the bottom of the escutcheon to the cabinet supports: Access to these screws is through holes provided in rubber feet.
3. Remove the two top CRT fixing screws.
4. Remove four screws fixing cabinet to base board.
5. Remove cabinet by drawing forward from the base board.

TO REMOVE **PT** CHASSIS AND CRT FROM CABINET

1. Swing chassis down.
2. Unplug speaker and disconnect earthing braid from right-hand chassis securing rod.
3. Remove two top CRT fixing screws and two screws securing chassis board to cabinet.
4. Return chassis to normal position and secure with wing nuts.
5. Remove screw at left-hand side of tuner.
6. Pull off channel selector knob.
7. Withdraw chassis and CRT from cabinet.

PU CHASSIS

TO SWING CHASSIS DOWN

1. Remove back.
2. Swing chassis down.

TO REMOVE TUNER

1. Pull off channel selector, picture, sound and set black knobs.
2. Slacken wing nut under tuner chassis assembly.
3. Unscrew captive screw at top of tuner bracket and withdraw tuner assembly.
4. Tuner may be hooked to left side of main chassis by dropping tongue on tuner bracket into slot provided. Slide tuner forward and tighten self-tapping screw.

TO REMOVE CHASSIS AND TUNER

1. Unplug yoke, picture tube, speaker and EHT leads.
2. Tilt chassis to approximately 45° and lift clear of pivots.

TO REMOVE PICTURE TUBE

1. Remove chassis and tuner as above.
2. Remove four screws securing picture tube and lift out.

ADJUSTMENTS

MAINS VOLTAGE. Before leaving the factory, the mains input is set to the 240-volt tap on the transformer. A 250-volt tap is also provided for use where necessary. To make the alteration, withdraw the plug and fuse on the black lead from the holder marked "240V" on the rear of the mains transformer. Remove rubber bung from "250V" fuse holder and insert the fuse and plug in this position. Insert rubber bung into "240V" socket.

HORIZONTAL HOLD. This is set at the factory and normally should not need further adjustment. However, after change of components it may be necessary to re-adjust. The procedure is as follows:

(1) Short between cathodes (+) of phase discriminator diodes MR9 and MR10.

(2) Adjust the horizontal hold potentiometer for +2 volts, using a VTVM across C85.

(3) Adjust the core of the horizontal oscillator coil, L33, for "floating" sync.

(4) Remove the short from diodes and remove incoming sync. by bridging R101.

(5) Adjust discriminator balance control RV9, for "floating" sync.

(6) Remove bridge from R101.

CONTRAST RANGE. This control may be adjusted by inserting a thin screwdriver into the shaft of the "Picture" control, after removing the knob.

Set the "Picture" control to the extreme anti-clockwise position. The "Set Black" control should be turned up to give sufficient brightness on the screen to be able to observe a weak picture. Adjust the "Contrast Range" control so that the picture just disappears, after going out of lock. Advance the control until the picture re-appears and just locks in. Re-set the "Set Black" control.

SET BLACK. To adjust the "Set Black" control, select the strongest signal. Turn "Picture" control fully anti-clockwise. Then adjust the brightness until **only** the darkest parts of the picture are black. The "Picture" control may then be advanced to raise the highlights of the picture to the required level.

A.G.C. The pre-set AGC control should be set, when necessary, to the weakest signal, i.e., that displaying the most "snow" or grey to white flecks in the picture. Adjust the control to the position which just reduces the snow to a minimum.

BOOST VOLTAGE. The boost voltage may be adjusted, where necessary, by means of the pre-set control adjacent to the line output transformer. Access to this control is easier from the reverse side of the chassis, when it has been swung down.

Reduce the picture tube beam current to zero, by means of the "Set Black" control. The voltage, measured **across** C109 (.047 uF) should be adjusted to 510 volts, which assures optimum picture width and EHT voltage. Re-set the "Set Black" control.

Note: Do not use a meter protected with silicon diodes, as this gives a rectifying effect and results in an incorrect reading.

FOCUS. The only time that focus adjustment may be necessary is after replacement of the picture tube. The focus potentiometer which is a strip pre-set type, is located on the edge of the chassis and adjacent to the EHT rectifier socket and is accessible when the chassis is swung down. Adjust for optimum overall focus across the picture tube face.

Note: Before adjusting either vertical or horizontal linearity, the picture shift magnets should be neutralised. To do this, the two magnets should be rotated with respect to each other. The neutralised setting is such that, when the complete assembly is rotated, it has little effect on the picture position.

After adjustment has been made for best linearity, the picture may need to be re-centred. The linearity should be re-touched where necessary.

VERTICAL LINEARITY. The vertical linearity pre-set potentiometer RV8, is located adjacent to the 6GV8 vertical oscillator and output valve. RV8 should be adjusted, in conjuncion with the vertical height control, for best linearity, using a pattern on the screen.

HORIZONTAL LINEARITY. The horizontal linearity coil is situated adjacent to the EHT rectifier, and may be adjusted from the side of the chassis.

The slug should be adjusted for best linearity, using a pattern on the screen. Two positions of the slug provide suitable conditions, but the position in which the slug is farthest out of the coil is the correct one. Re-adjustment of the boost control and interlocking adjustments may be necessary if the other position of the slug is used.

PICTURE CENTRING. The picture may be centred by rotating the two shift magnets on the tube neck, behind the deflection yoke. Rotate the centring magnet assembly to shift the picture in the required direction, and move one of the magnets with respect to the other, to change the strength of the field, and so the amount of picture shift.

PICTURE TILT. If the picture is not square with the edges of the mask, loosen the clamping ring on the deflection coils and rotate the assembly until the picture is squared up. Tighten the clamping ring and, if necessary, re-centre the picture.

SERVICE NOTE:

These receivers have a number of regulating devices, such as voltage dependent resistors and diodes, which are designed to correct departures from mean operating conditions.

In fault tracing, a certain amount of masking of the true cause occurs and defective parts or incorrect operation may be difficult to isolate.

Servicemen are therefore advised to consider carefully any substitution of components or diagnosis of faults, before making adjustments, and so avoid unnecessary complications in repairs.

SOUND I.F. ALIGNMENT

The following equipment is necessary:

(i) An RF Oscillator, capable of being set accurately to 5.5 Mc/s.

(ii) A 20,000 ohms/volt multimeter.

(iii) A peak-to-peak detector, as shown in Fig. 1.

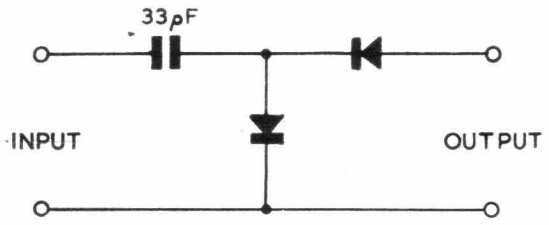


Fig. 1. Peak-to-Peak-Detector.

5.5 MC/S. TRAP (IFT3)

IFT3 is a combined 5.5 Mc/s null trap and sound take-off transformer. This is set at the factory and normally should not need further adjustment.

Should it be necessary to re-tune IFT3, the following method is recommended.

(1) Inject 5.5 Mc/s at approximately 100 mV, between the junction of L29 and MR1, and earth.

(2) Connect the input of the peak-to-peak detector to the CRT cathode, pin 7. Connect the output of the peak-to-peak detector to a multimeter, set to a low DC voltage range.

(3) Remove both cores from former. Screw in primary core (furthest from chassis) to give a minimum reading.

(4) Screw in secondary core until meter reading rises slightly, and then adjust primary core until a new minimum is obtained.

(5) Repeat adjustment of primary and secondary until meter reads zero.

RATIO DETECTOR TRANSFORMER (IFT4)

Connect the 5.5 Mc/s oscillator as in (1) above. Connect the multimeter between the junction of R67 and R68, and earth. Adjust the secondary core (nearest chassis) so that a positive or negative reading is obtained. Adjust the primary so that this reading shows a maximum. Then adjust the secondary for zero reading. This adjustment may also be done by using an off air signal.

VISION I.F. ALIGNMENT

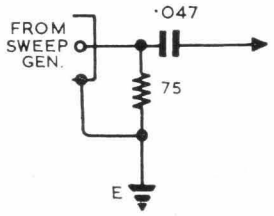
The following equipment is necessary:

(i) A sweep generator, covering the range 28 to 40 Mc/s.

(ii) A marker generator, covering the same range.

(iii) A C.R.O.

These instruments should be interconnected as described in the instructions supplied with the sweep generator. This generator should be terminated with a resistor equal to the output impedance, and connected to the receiver as shown in Fig. 2.



E-EARTH OF CIRCUIT INTO WHICH SIGNAL IS BEING INJECTED.

Fig. 2.

Because of the high gain of the receivers, care should be taken to ensure that all components replaced are on short leads and

placed in exactly the same position as the original part.

Care must also be taken to avoid feedback in interconnecting leads of the alignment equipment.

NOTE (1): Throughout the alignment, the display should be adjusted so that the response is accurately set between the reference level and the base line, from a signal of about 2 volts peak-to-peak. The output of the IF strip should be maintained at that level by varying the output from the sweep generator and not the gain of the display unit.

NOTE (2): Coupling between stages will not require adjusting, unless either IFT1 or IFT2 has been replaced.

NOTE (3): Cores in L21, L22, L24, L27, IFT1 and IFT2 are set in the position furthest from the chassis.

Cores in L20, L23 and L26 are set in position nearest the chassis.

OPERATION 1.

(a) Connect a bias supply of 9 volts across the IF AGC smoothing capacitor C51.

(b) Connect the display unit across C40a.

(c) Remove cores from L21, L24 and L27.

OPERATION 2.

(a) Using the termination network as shown in Fig. 2, connect sweep output between pin 3 of V4 and earth.

(b) Adjust the cores of L26 and IFT2 to obtain the response of Fig. 3, Stage 1.

(c) If IFT2 has been replaced, it will be necessary to adjust the coupling, by closing the spacing of the two windings of IFT2, until the desired bandwidth is achieved.

(d) If a dip appears in the response, remove it by adjusting the core in L23.

OPERATION 3.

(a) Remove the sweep from V4 and connect between pin 2 of V3, and earth.

(b) Adjust the cores of L23 and IFT1 to obtain the response of Fig. 3, Stage 2.

(c) If a dip appears in the response, remove it by adjusting the tuner IF core.

(d) If IFT1 has been replaced, it will be necessary to adjust the coupling, by closing the spacing of the two windings of IFT2, until the desired bandwidth is achieved.

OPERATION 4.

(a) Remove the sweep from V3 and connect it to the IF test point on tuner, located adjacent to V2. Switch tuner to the position between Channel 11 and 0.

(b) Adjust the core in L11 (IF output coil, adjacent to V2) and L20, to obtain the response of Fig. 3, Stage 3.

OPERATION 5.

(a) Insert a core in L24 and adjust to a minimum at 38.375 Mc/s. If necessary, adjust the spacing between L23 and L24, to ensure that the response at 38.375 Mc/s is at least 50 dB below peak response. To measure this, increase the sweep generator output by 30 dB. Re-set the base line with the vertical shift control if necessary, and the 20 dB will represent the 50 dB point required below the reference level.

(b) Adjust the core in L22 to read a minimum at 29.875 Mc/s.

(c) Insert a core in L27 and adjust until a small plateau appears in the response at 32.8 Mc/s.

(d) Insert a core in L21 and adjust the tuning and, if necessary, the spacing between L21 and L20, so that the response at 31.375 Mc/s is 22 dB below peak response. Fig. 3, Stage 4.

(e) Remove the bias supply and check that the response curve remains substantially unchanged.

(f) Seal the coils of L21, L24 and L27 with a light application of cellulose adhesive.

NOTE: The noise detector response as shown dotted in Fig. 3, Stage 4, automatically should be correct. However, if it is desired to check it, the following procedure should be adopted:

Leave the sweep connected as in Operation 4. Disconnect the display from across C40a and connect it between the junction of R58 and C52, and earth. Remove V5 and V6 from their sockets. The response as shown dotted in Fig. 3, Stage 4, should be obtained.

If the level is not the same as the IF response curve, the coupling between L26 and L27 should be adjusted, until this is obtained.

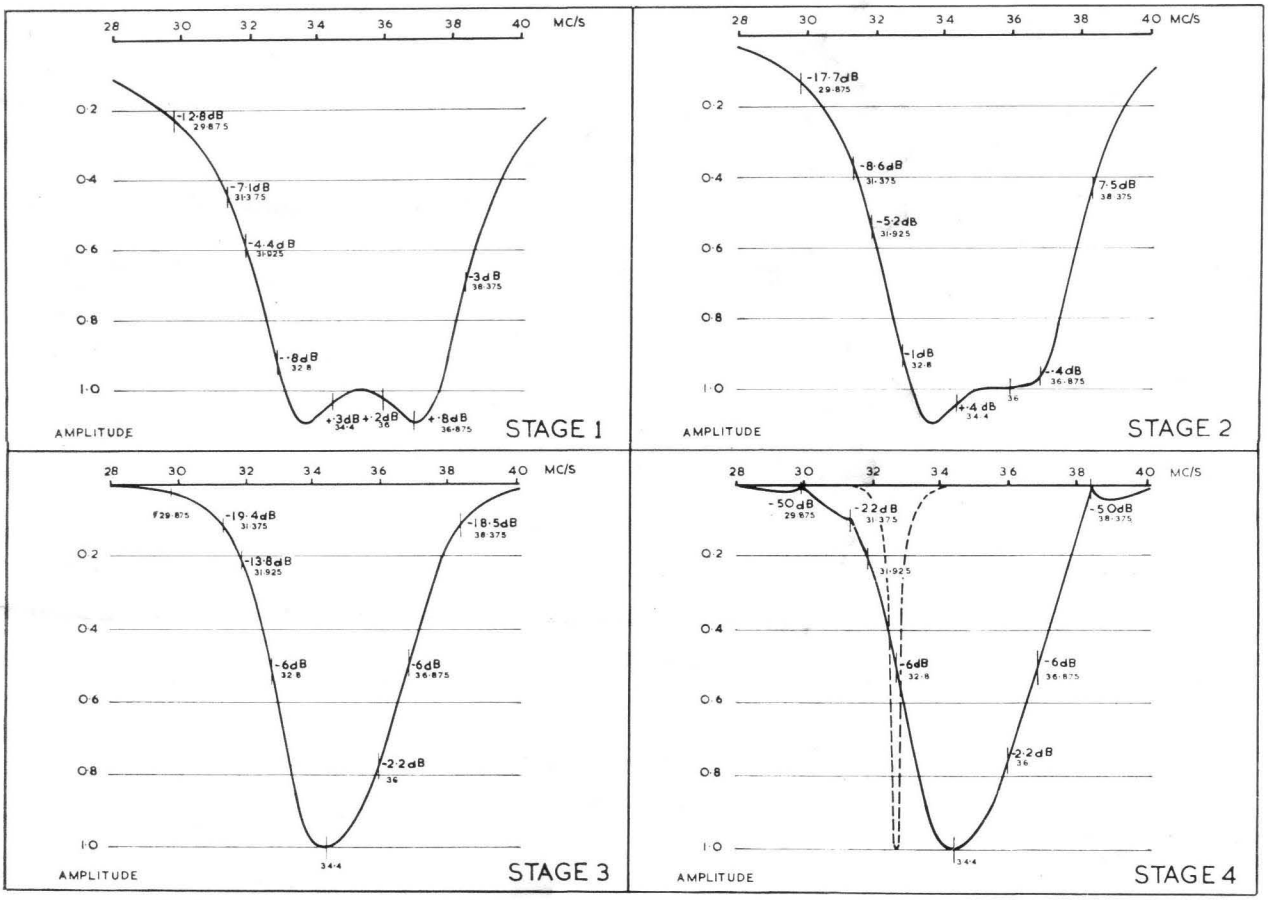
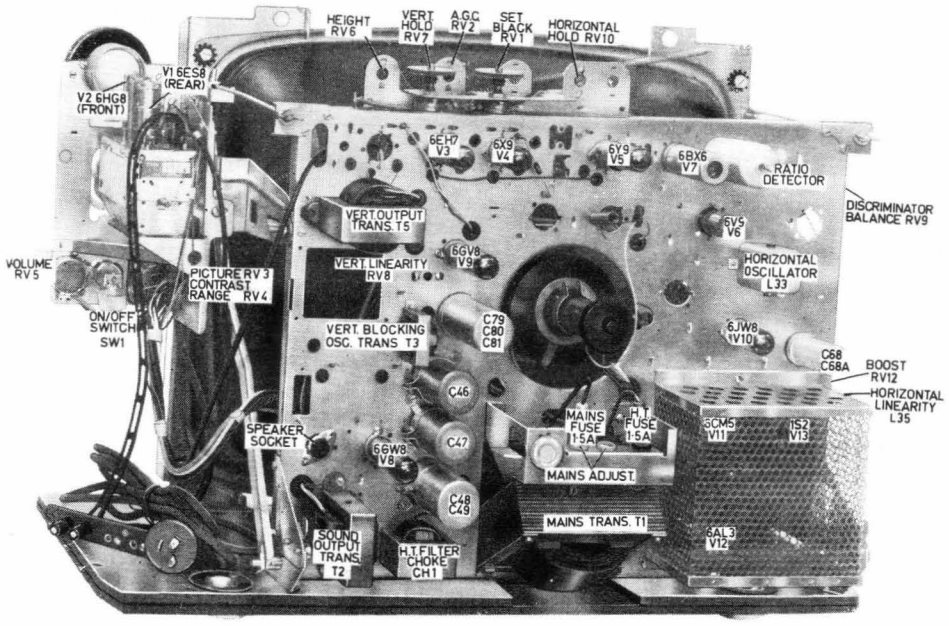
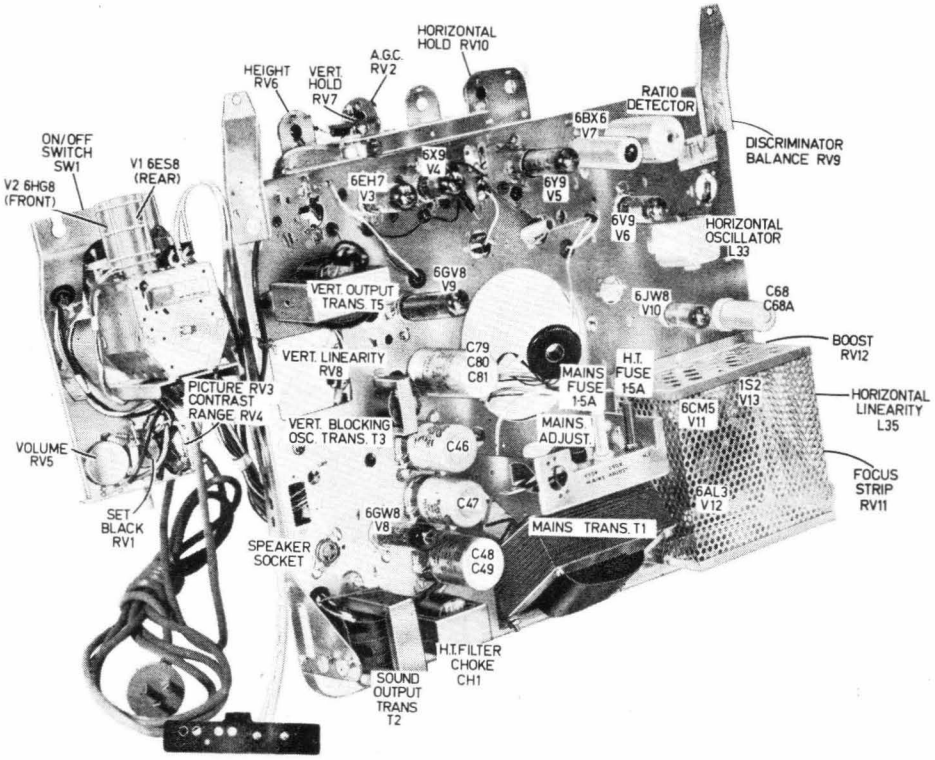


Fig. 3



REAR VIEW — MODELS PS & PT



REAR VIEW — MODEL PU

PARTS LIST . . . PS, PT, PU

RESISTORS

REF.	PART NO.	DESCRIPTION
R20	740-0322	1.2K 10% ½W
R21	749-0142	1K 20% 2W
R22	742-0302	6.8K 10% ½W
R23	740-0983	22 ohms 10% ½W Morganite
R24	740-0653	100 ohms 10% ½W Morganite
R25	742-0712	2.2K 20% 1W
R26	740-0102	22K 10% ½W
R27	740-0412	820 ohms 10% ½W
R28	740-0273	150 ohms 10% ½W Morganite
R29	740-0822	33K 20% ½W
R30	740-0792	8.2K 10% ½W
R31	742-0012	1.2K 10% 1W
R32	742-0712	2.2K 20% 1W
R33	740-0102	22K 10% ½W
R34	740-0862	18K 10% ½W
R35	740-0042	2.7K 10% ½W
R36	Part of 259-1261	2.7K 10% 1W. Former for Equalising Coil
R37	740-0572	1K 20% ½W
R38	740-0922	330 ohms 10% ½W
R39	750-0702	2.7K 5% PF7
R40	740-0773	39 ohms 10% ½W Morganite
R41	740-0122	47K 10% ½W
R42		
R43	740-0362	390K 10% ½W
R44	740-0622	470K 20% ½W
R45	740-0272	150 ohms 10% ½W
R46	740-0272	150 ohms 10% ½W
R47	750-0682	300 ohms 10% PW5
R48	740-0802	1.8M 10% ½W
R49	742-0592	2.2M 20% 1W
R50	742-0192	1M 10% 1W
R51	742-0732	1.8M 10% 1W
R52	742-0432	18K 10% 1W
R53	742-0062	27K 10% 1W
R54	740-0773	39 ohms 10% ½W Morganite
R55	742-0582	120K 10% 1W
R56	742-0392	47K 20% ½W
R57	740-0812	3.3K 20% ½W
R58	742-0592	2.2M 20% 1W
R59	740-0532	1M 20% ½W
R60	742-0352	1M 20% 1W
R61	742-0332	15K 20% 1W
R62	742-0372	22K 20% 1W
R63	740-0512	100K 20% ½W
R64	740-0822	33K 20% ½W
R65	740-0612	10K 20% ½W
R66	742-0392	47K 20% 1W
R67	740-0112	27K 10% ½W
R68	740-0122	27K 10% ½W
R69	740-0612	10K 20% ½W
R70	740-0612	10K 20% ½W
R71	740-0582	47K 20% ½W
R72	740-0702	56K 10% ½W
R73	742-0452	220K 20% 1W
R74	740-0252	1.5K 10% ½W
R75	740-0292	270 ohms 10% ½W

RESISTORS (Continued)

REF.	PART NO.	DESCRIPTION
R76	740-0512	100K 20% ½W
R77	740-0512	100K 20% ½W
R78	742-0802	4.7K 20% 1W
R79	740-0653	100 ohms 10% ½W Morganite
R80	740-0062	3.9K 10% ½W
R81	750-0062	3.9K 10% PF4
R82	742-0342	330K 20% 1W
R83	742-0142	270K 10% 1W
R84	742-0212	3.3M 10% 1W
R85	742-1122	750K 5% 1W
R86	740-0822	33K 20% ½W
R87	742-0592	2.2M 20% 1W
R88	740-0232	39K 10% ½W
R89	740-1422	4.7K 20% ½W
R90	740-0822	33K 20% ½W
R91	742-0592	2.2M 20% 1W
R92	742-0823	270 ohms 10% 1W Morganite
R93	740-0582	47K 20% ½W
R94	740-0032	2.2K 10% ½W
R95	742-0603	470 ohms 10% 1W
R96	740-0132	82K 10% ½W
R97	740-1243	6.8 ohms 10% ½W Morganite
R98	740-1243	6.8 ohms 10% ½W Morganite
R99	742-0352	1M 20% 1W
R100	742-0402	150K 20% 1W
R100a	740-0512	100K 20% ½W
R101	740-0242	33K 10% ½W
R102	742-0582	120K 10% 1W
R103	740-0322	1.2K 10% ½W
R104	740-0732	12K 10% ½W
R105	740-0142	100K 10% ½W
R106	740-0852	560K 10% ½W
R107	740-0852	560K 10% ½W
R108	742-0432	18K 10% 1W
R109	742-0372	22K 20% 1W
R110	740-0382	6.2K 10% ½W
R111	740-0592	22K 20% ½W
R112	742-0172	470K 10% 1W
R113	742-0072	33K 10% 1W
R114	740-0062	3.9K 10% ½W
R115	740-0102	22K 10% ½W
R116	742-0062	27K 10% 1W
R117	742-0072	33K 10% 1W
R118		
R119	742-0192	1M 10% 1W
R120	742-0192	1M 10% 1W
R121	750-0362	2.7K 10% PW5
R122	740-0572	1K 20% ½W
R123	742-0562	470K 20% 1W
R124	742-0562	470K 20% 1W
R125	742-0562	470K 20% 1W
R126	961-0921	0.5 ohm resistance wire
R127	742-0102	82K 10% 1W
R128	742-0102	82K 10% 1W
R129	742-0192	3.3M 20% 1W
R130	750-0602	22 ohms 10% PW5
R131	740-1043	27 ohms 10% ½W Morganite

PARTS LIST . . . PS, PT, PU

REF.	PART NO.	DESCRIPTION
		RESISTORS (Continued)
R132	740-0502	15K 20% ½W
		CAPACITORS
C20	271-1291	68pF 5% N330 Tube
C21	273-0591	68pF 2½% MS Mica
C22	271-0911	.003uF GMV 500V CTR
C23	271-0911	.003uF GMV 500V CTR
C24	271-0911	.003uF GMV 500V CTR
C25	271-0621	.001uF Lead Thru CAC 107
C26	271-0351	33pF 2½% NPO Tube
C27	271-0731	.047uF +80% —20% 25V Redcap
C28	271-0591	.0027uF 20% K2000 Disc
C29	273-0591	68pF 2½% MS Mica
C30	271-0281	.022uF GMV 100V Disc
C31	271-1221	82pF Lead Thru CAC 106
C32	271-1211	.001uF GMV Tube
C33	269-1131	10uF 16VW Electro
C34	271-0911	.003uF GMV 500V CTR
C35	273-0591	68pF 2½% MS Mica
C36	271-0591	.0027uF 20% K2000 Disc
C37	271-0941	8.2 pF ½pF NPO Disc
C38	283-1661	.022uF 10% 400V Polyester
C39	271-0621	.001uF Lead Thru CAC 107
C40	271-0941	8.2 pF ½pF NPO Disc
C40a	271-1061	15pF 10% N330 Tube
C41	271-0221	2.2pF ½pF NPO Bead
C42	283-1741	.1uF 10% 400V Polyester
C43	271-0311	27pF 5% NPO Tube 'A'
C44	269-1271	1uF 300VW Electro
C45	283-1701	.047uF 10% 400V Polyester
C46	269-0521	100uF 150VW Electro—EMG2024S
C47	269-0521	100uF 150VW Electro—EMG2024S
C48, C49	269-0901	200uF 275VW Electro / 60uF 275VW Electro — EMG1716M
C50	271-0871	.47uF +80% —20% 25V Redcap
C51	283-1181	.033uF 10% 125V Polyester
C52	283-1741	.1uF 10% 400V Polyester
C53	280-1791	220pF 10% 600V Styroseal
C54	271-0571	22pF 10% NPO Tube
C55	271-0571	8.2pF ½pF NPO Disc
C56	271-0591	.0027uF 20% K2000 Disc
C57	271-0801	10pF 5% NPO Disc
C58	271-0771	100pF 5% NPO Disc
C59	280-1501	100pF 5% 600V Styroseal
C60	280-1501	100pF 5% 600V Styroseal
C61	269-0781	4uF 25VW Electro
C62	283-1501	.001uF 10% 400V Polyester
C63	283-1581	.0047uF 10% 400V Polyester
C64	283-1121	.01uF 10% 125V Polyester
C65	269-1171	25uF 6.4VW Electro
C66	283-1701	.047uF 10% 400V Polyester
C67	271-1061	15pF 10% N330 Tube
C68, C68a	269-1161	8uF 250VW Electro / 16uF 250VW Electro — EBD381

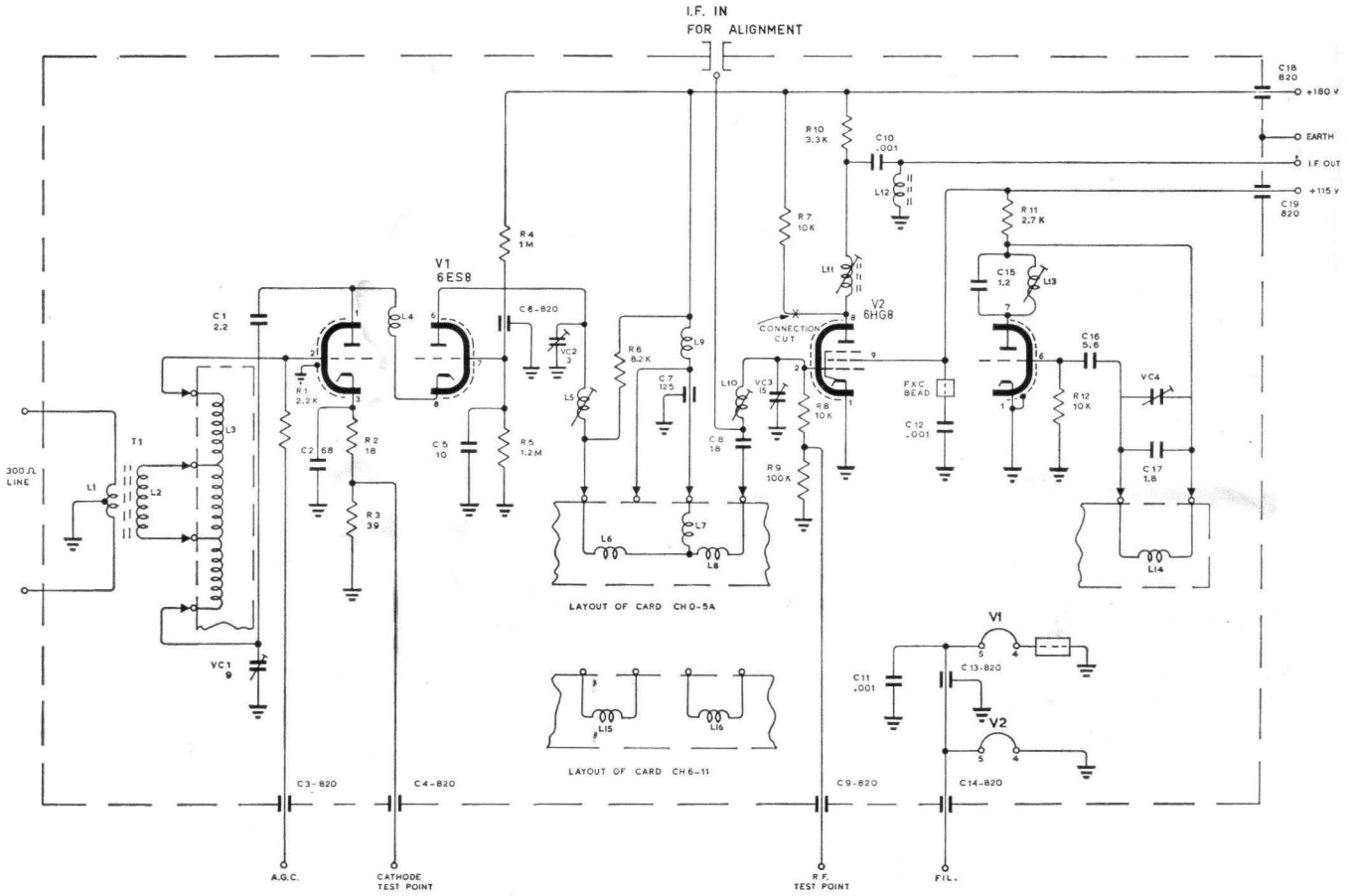
REF.	PART NO.	DESCRIPTION
		CAPACITORS (Continued)
C69	269-1171	25uF 6.4VW Electro
C70	269-1261	2uF 350VW Electro
C71	271-0911	.003uF GMV 500V CTR
C72	283-1721	.068uF 10% 400V Polyester
C73	271-1211	.001uF GMV Tube
C74	283-1721	.068uF 10% 500V Polyester
C75	283-1701	.047uF 10% 400V Polyester
C76	271-1211	.001uF GMV Tube
C77	271-1211	.001uF GMV Tube
C78	283-1261	.15uF 10% 125V Polyester
C79, C80, C81	269-0981	24uF 300VW Electro / 50uF 300VW Electro / 100uF 25VW Electro — ECT244
C82	283-1661	.022uF 10% 400V Polyester
C83	283-1581	.0047uF 10% 400V Polyester
C84	280-2041	220pF 20% 600V Styroseal
C85	269-0821	1uF 10VW Electro
C86	269-0821	1uF 10VW Electro
C87	280-3241	330pF 20% 125V Styroseal
C88	283-1601	.0068uF 10% 400V Polyester
C89	283-1601	.0068uF 10% 400V Polyester
C90	283-1241	.1uF 10% 125V Polyester
C91	271-0571	22pF 10% NPO Tube
C92	280-3221	68pF 20% 600V Styroseal
C93	283-1591	.0056uF 10% 400V Polyester
C94	283-1601	.0068uF 10% 400V Polyester
C95	280-3221	68pF 20% 600V Styroseal
C96	283-1141	.015uF 10% 125V Polyester
C97	283-1201	.047uF 10% 125V Polyester
C98	271-1241	820pF 20% K2000 Tube
C99	283-1501	.001uF 10% 400V Polyester
C100	271-0871	.47uF +80% —20% 25V Redcap
C101	283-1581	.0047uF 10% 400V Polyester
C102	271-0911	.003uF GMV 500V CTR
C103	271-0991	220pF 2KV Tube
C104	284-0661	.022uF 20% 600V Dipol
C105		68pF 3KV Tube (Ex MSP)
C106	284-1281	.22uF 20% 1000V Dipol
C107	271-0911	.003uF GMV 500V CTR
C108	284-2701	.047uF 10% 100V Dipol
C109	284-2701	.047uF 10% 100V Dipol
C110	271-0911	.003uF GMV 500V CTR
C111	283-1701	.047uF 10% 400V Polyester
C112	271-0911	.003uF GMV 500V CTR
C113	283-1771	.18uF 10% 400V Polyester
C114	271-1251	18pF 20% 3KV Disc
		POTENTIOMETERS
RV1	677-1103	500K Curve 'A'—Set Black Used on PS-PT only
RV1	677-1311	500K Curve 'A'—Set Black Used on PU only
RV2	677-0911	1M Curve 'A'—AGC
RV3, RV4	677-1231	50K Curve 'A' (front)—Contrast 25K Curve 'A' (rear)—Contrast Range Used on PS-PT only

PARTS LIST . . . PS, PT, PU

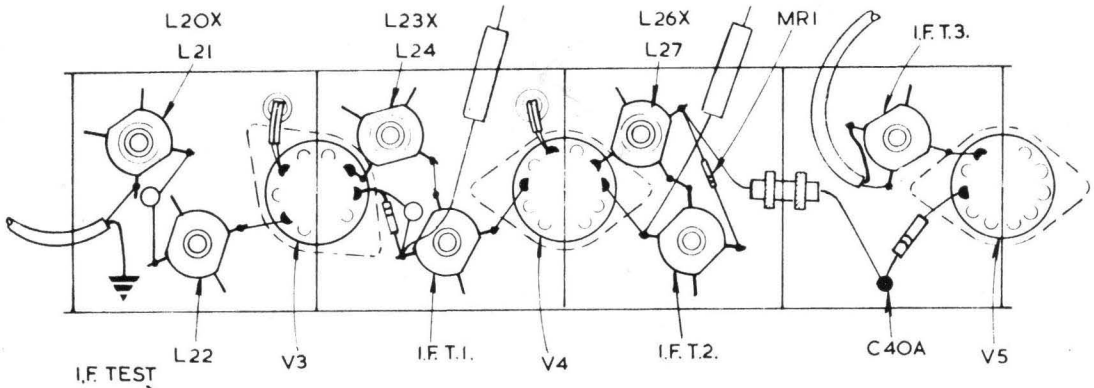
REF.	PART NO.	DESCRIPTION
		POTENTIOMETERS (Continued)
RV3, RV4	677-1301	50K Curve 'A' (front)—Contrast 25K Curve 'A' (rear)—Contrast Range Used on PU only
RV5	677-1091	1M Curve 'A' tapped 500K—Volume Used on PS-PT only
RV5	677-1321	1M Curve 'A' tapped 500K—Volume Used on PU only
RV6	677-0341	250K Curve 'A'—Height
RV7	677-1103	500K Curve 'A'—Vertical Hold
RV8	677-0511	10K Curve 'A'—Vertical Linearity
RV9	677-1122	15K Curve 'A'—Discriminator Balance
RV10	677-1241	100K Curve 'A'—Horizontal Hold
RV11	677-0891	2M Curve 'A' Strip—Focus
RV12	677-0911	1M Curve 'A'—Boost
		VALVES
V1	932-1161	6ES8 — RF Amplifier
V2	932-1921	6HG8 — Frequency Changer
V3	932-1211	6EH7 — 1st IF Amplifier
V4	932-2341	6X9 — 2nd IF Amplifier and Noise Detector
V5	932-2351	6Y9 — Video Amplifier and AGC
V6	932-2411	6V9 — Sync. Separator and Amplifier
V7	932-0521	6BX6 — Limiter
V8	932-1771	6GW8 — Audio Driver and Output
V9	932-2001	6GV8 — Vertical Oscillator & Output
V10	932-2371	6JW8 — Reactance Valve and Horizontal Oscillator
V11	932-0531	6CM5 — Horizontal Output
V12	932-0771	1S2 — EHT Rectifier
V13	932-1151	6AL3 — Damper Diode
		DIODES
MR1	932-0971	OA90 — Video Detector
MR2	932-1071	OA210 — HT Rectifier
MR3	932-1071	OA210 — HT Rectifier
MR4	932-0991	M3 — AGC Clamp
MR5, MR6	932-2081	2—AA119—Ratio Detector (Matched Pair)
MR7	932-2451	BA100 — Vertical Sync. Diode
MR8	932-2631	OA202 — Blanking Clamp
MR9	932-2451	BA100 — Phase Discriminator
MR10	932-2451	BA100 — Phase Discriminator
		COILS
L20, L21	259-1461	IF Input Coil 31.375 Mc/s. Trap
L22	259-1491	29.875 Mc/s. Trap

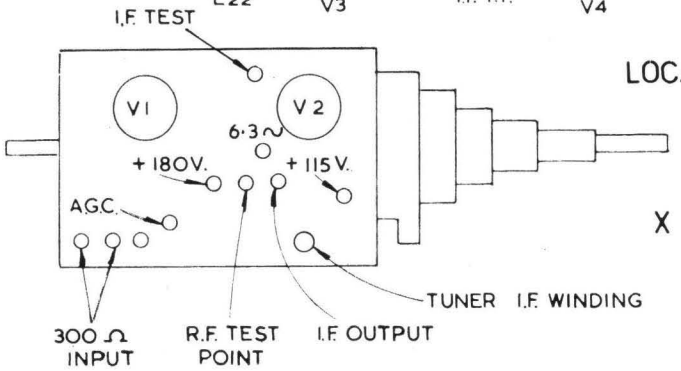
REF.	PART NO.	DESCRIPTION
		COILS (Continued)
L23, L24	259-1471	1st IF Anode Coil 38.375 Mc/s. Trap
L25	259-1431	Filter Choke
L26, L27	259-1481	2nd IF Anode Coil Noise Take-off Coil
L28		
L29	259-0955	Grid Peaking Choke
L30, L31	259-1261	Equalising Coil
L32	908-0801	Video Peaking Coil
L33	259-1541	Line Oscillator Coil
L34	259-0045	Anti-Parasitic Coil
L35	259-1251	Linearity Coil
L36	259-0045	Anti-Parasitic Coil
		TRANSFORMERS
T1	904-0451	Power Transformer
T2	905-0621	Sound Output Transformer
T3	908-0781	Vertical Oscillator Transformer
T4	908-0741	Vertical Feedback Transformer
T5	905-0601	Vertical Output Transformer
T6	908-0771	Horizontal Output Transformer
IFT1	906-0591	Vision IFT
IFT2	906-0711	Vision IFT
IFT3	906-0721	Sound IFT and 5.5 Mc/s. Trap
IFT4	906-0324	Ratio Detector Transformer
		MISCELLANEOUS
CH1	232-0351	HT Choke
VDR1	750-0711	Voltage Dependent Resistor Type E299DC/P342
VDR2	750-0691	Voltage Dependent Resistor Type E298ED/A262 Violet Spot
VDR3	750-0571	Voltage Dependent Resistor Type E298ZZ/06 Black End, Blue Spot
VDR4	750-0721	Voltage Dependent Resistor Type E299DD/P352
FS1	431-0081	Fuse 1.5 amp. Mains
FS2	431-0081	Fuse 1.5 amp. HT Secondary
Tuner	224-1512	Philips NT3011
SW1	855-0602	DP Push-Push On/Off Switch Used on PS-PT only
SW1	855-0682	DP Push-Push On/Off Switch Used on PU only
Lamp	932-1941	6.3V .25A Bayonet Cap
Yoke	259-1561	MSP 43663
CRT	932-2291	23ARP4 23" Shelbond

H. CLARK PTY. LTD.
Printers
MARRICKVILLE, N.S.W.



TUNER TYPE NT3011





LOCATION OF COILS FROM UNDERSIDE OF CHASSIS.

X INDICATES COIL NEAREST CHASSIS.

1ST I.F. AMPLIFIER
2ND I.F. AMPLIFIER & NOISE DETECTOR
VIDEO DETECTOR & AMPLIFIER
PICTURE TUBE
POWER SUPPLY
SYNC. SEPARATOR & AMPLIFIER
LIMITER
RATIO DETECTOR
SOUND AMPLIFIER & OUTPUT
VERTICAL BLOCKING OSCILLATOR & OUTPUT
REACT. VALVE
PHASE DISCRIM.
HORIZ. OSCILLATOR
HORIZONTAL OUTPUT
E.H.T. RECTIFIER
DAMPER DIODE

TO TUNER TYPE NT3011

V3 6EH7
V4 6X9
V5A ½6Y9
V5B ½6Y9
V6 6V9
V7 6BX6
V8 6GW8
V9 6GV8
V10 6JW8
V11 6CM5
V12 IS2
V13 6AL3

PICTURE CONTRAST
CONTRAST RANGE
VERT. LINEARITY
VERT HOLD
HEIGHT
HORIZ HOLD
DISCRIMINATOR BALANCE
FOCUS
BOOST
VOLUME
SET BLACK

T1
T2
T3
T4
T5
T6

PL1 YOKE
SKT 2 SPEAKER
SKT 1

ARROWS ON RV.. INDICATE CLOCKWISE ROTATION OF CONTROLS

UNLESS OTHERWISE NOTED:-
CAPACITORS MORE THAN 1= µF,
CAPACITORS LESS THAN 1=µµF,
RESISTORS = Ω, K=1,000, M=1,000,000.

SOCKETS VIEWED FROM UNDERNEATH

PLUGS VIEWED ON PINS

NOTE:- ALL VOLTAGES MEASURED WITH 20,000 Ω/V METER WITH RESPECT TO CHASSIS.

ALL CONTROLS SET FOR NORMAL OPERATION WITH SIGNAL APPLIED

▲ DO NOT MEASURE.

✳ SYNC. AT ½ LINE FREQUENCY.

✳✳ SYNC AT ½ FRAME FREQUENCY.

WAVEFORM PEAK VOLTAGES WITH RESPECT TO CHASSIS.