



**"HIS MASTER'S VOICE"**  
**SERVICE MANUAL**  
**ADDENDUM**

*for*

**CHASSIS TYPES PL-PN**  
**(Series 3)**



*Manufactured and Distributed by*  
**E.M.I. (AUSTRALIA) LIMITED**  
*(Incorporated in N.S.W.)*  
**HOME BUSH - N.S.W.**



**Part No. 683-4591**

## INTRODUCTION

This service manual addendum should be read in conjunction with the service manual for chassis types PL and PN (Series 2) and is intended to cover the changes in chassis types PL and PN (Series 3).

Series 3 chassis differ from series 2 in the following respects:

- (1) The first and second I.F. stages are fitted with 6EH7 type valves, both controlled from the A.G.C. line. This improves A.G.C. control and gives better signal-to-noise ratio at intermediate signal strengths.
- (2) The 5.5 Mc/s sound trap has been changed to a "bridged-T" filter. This avoids a peak in the video amplifier at about 3 Mc/s. This results in a reduction in the "coarseness" of snow in fringe areas and avoids a tendency to show up noise grain on strong signals.
- (3) The audio output transformer has been changed to a new type with larger laminations to give better reliability.
- (4) In chassis type PL/3 only, the sound I.F. and limiter stages use silicon junction transistors type SE1001, in place of the two 6BX6 valves. The valves have been retained in chassis type PN/3. Note that the ratio detector transformer fitted to PL/3 has the secondary at the top of the can, with the primary at the bottom.

Sound I.F. alignment procedure has been changed on PL/3, details of which are given on the next page.

## VALVE COMPLEMENTS

MODELS PL/3—PN/3

V1	6ES8	R.F. Amplifier	MR6	M3	AGC Clamping Diode
V2	6HG8	Frequency Changer	MR6A	M3	Clamping Diode
V3	6EH7	1st I.F. Amplifier	MR7	0A605	Sync. Level Detector
V4	6EH7	2nd I.F. Amplifier	MR8	0A91	Noise Clipper
V5	6EJ7	3rd I.F. Amplifier	MR9	} 2/AA119	Ratio Detector (Matched Pair)
V6	6CK6	Video Amplifier	MR10		
V7	6DX8	Noise Inverter and AGC	MR11	M3	} Phase Discriminator
V8	6BA8	Sync. Separator	MR12	M3	
V9	*	Sound I.F. Amplifier	MR13	0A91	Pulse Clipper
V10	*	Sound Limiter	MR14	} BS1/1 or 0A610	Horizontal Blanking Clamp
V11	6GW8	Audio Driver and Output	†MR15		Remote Control HT Supply Rectifier
V12	6GV8	Vertical Output and Blocking Oscillator	†MR16	or 1N2859	Remote Control HT Supply Rectifier
V13	12AT7	Reactance Valve	†MR17	0A91	Clipper
V14	6DX8	Horizontal Oscillator and Driver	†Transistor	AC128	Remote Control Motor Relay Operating Switch
V15	6CM5	Horizontal Output			
V16	1S2	E.H.T. Rectifier			
V17	6AL3	Damper Diode			
MR1	0A90	Vision Detector			
MR2	AA119	Intercarrier Detector			
MR3	0A91	Beam Current Limiter			
MR4	0A210	} Mains Rectifier	*SE1001 Transistor on PL/3; 6BX6 Valve on PN/3		
MR5	0A210				
			†Used on PN/3 only		

## SOUND I.F. ALIGNMENT

The following equipment is necessary to carry out this procedure:—

- (i) A C.W. Oscillator accurately tuned to 5.5 Mc/s by a crystal controlled reference.
- (ii) A 20,000 ohm/volt meter (Model 7 AVO or similar type).
- (iii) A D.C. VTVM.
- (iv) A peak-to-peak detector as shown in figure 1.

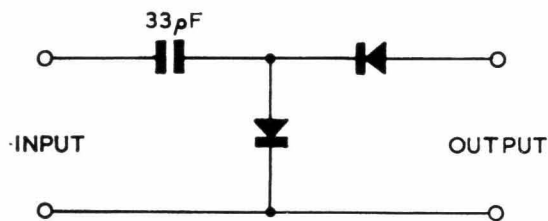


FIGURE 1 PEAK-TO-PEAK DETECTOR

### 5.5 Mc/S NULL TRAP (L41)

L41 is a trap, tuned to 5.5 Mc/s to stop this component from being fed into the video amplifier which would appear as an interfering pattern on the picture tube. Having been set in the factory however, it should not need re-tuning unless quite large circuit alterations have been made.

Should it be necessary to re-tune L41, the following procedure should be adopted:

- (1) Inject 5.5 Mc/s at approximately 100 mV between the junction of L28 and MR1 diode and earth.
- (2) Connect the peak-to-peak detector to pin 7 of the picture tube. Connect the output

of the detector to a multimeter, set to the 0-50 micro-amp range.

- (3) Adjust the core of L41 to give a minimum meter reading. Re-connect MR1 diode.

### SOUND I.F. TRANSFORMER IFT4 (PL/3 ONLY)

Connect the 5.5 Mc/s oscillator via an input probe as shown in Figure 2 to the junction of MR2 and L31. Connect a VTVM between the positive side of C88 and earth. Adjust both primary and secondary cores in IFT4 for maximum response. This adjustment may be carried out using an off air-signal, substituting for the oscillator.

### RATIO DETECTOR TRANSFORMER IFT5 (PL/3 ONLY)

With the oscillator and VTVM connected as above, adjust the primary core (bottom of coil) for maximum response.

The VTVM is now connected between the junction of C85 and C86 and earth. The secondary core (top of coil) is adjusted to give a reading of zero on the VTVM. These adjustments may also be carried out by using an off air signal as previously.

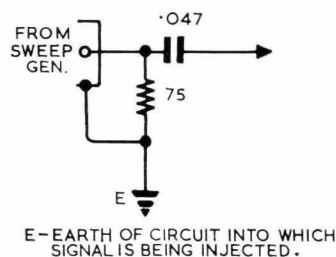
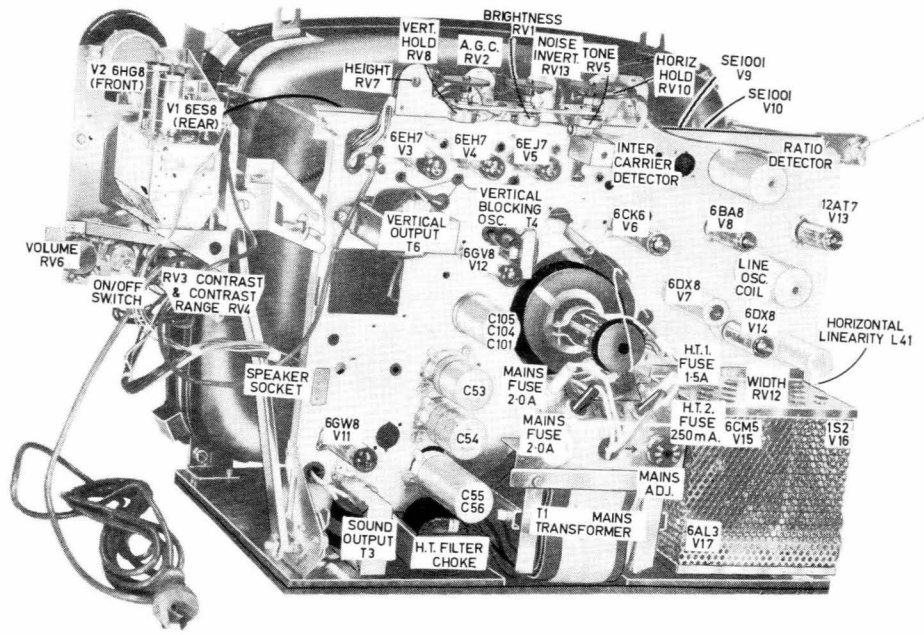
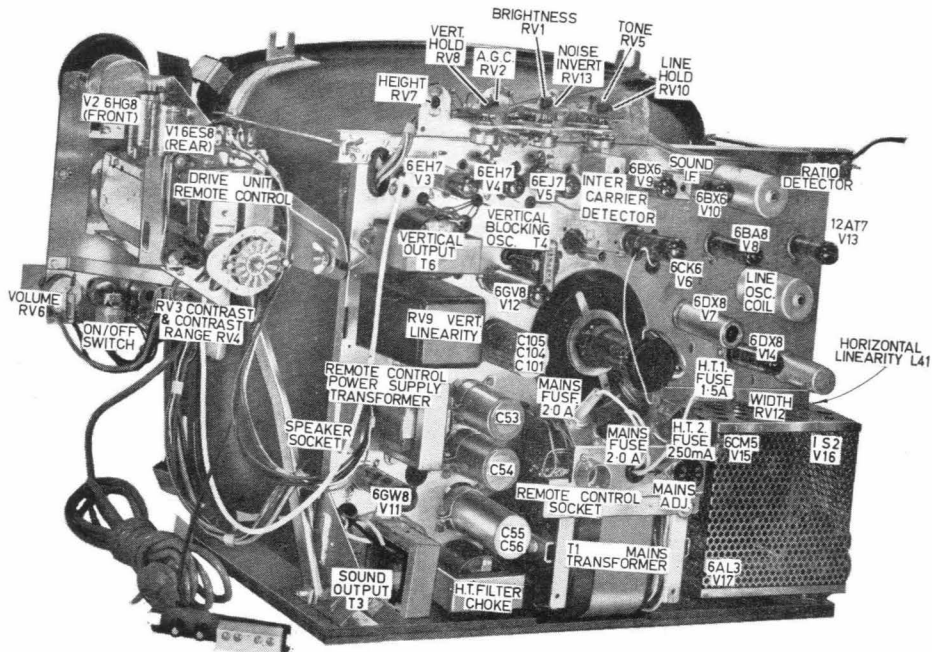


FIGURE 2



REAR VIEW — MODEL PL (SERIES 3)



REAR VIEW — MODEL PN (SERIES 3)  
REMOTE CONTROL

# PARTS LIST — CHASSIS PL/3 and PN/3

Parts are common to both models, except where indicated:—\* Used on PL/3 only. † Used on PN/3 only.

## RESISTORS

NOTE: All resistors are  $\frac{1}{2}$  watt rating and  $\pm 10\%$  tolerance, except where noted.

REF.	PART No.	DESCRIPTION	REF.	PART No.	DESCRIPTION
R21	740-0412	820 ohms	†R89	740-0082	10K
R22	740-0032	2.2K	*R90	750-0642	15K 4W Type PF4
R23	740-0983	22 ohms Morganite	†R90	749-0051	47K $\pm 20\%$ 2W
R24	740-0653	100 ohms Morganite	†R90a	740-0032	2.2K
R25	742-0512	2.2K 1W	R91		
R26	740-0102	22K	*R92	740-0092	15K
R27			†R92	740-0112	27K
R28	740-0412	820 ohms	*R93	740-0092	15K
R29	740-0653	100 ohms Morganite	†R93	740-0112	27K
R29a	740-0983	22 ohms Morganite	R94	740-0122	47K
R30	742-0512	2.2K 1W	*R95	740-0022	1K
R30a	740-0102	22K	†R95	740-0082	10K
R31	740-0412	820 ohms	*R96	740-0682	680 ohms
R31a	740-0062	3.9K	†R96	740-0082	10K
R32	740-0273	150 ohms Morganite	R97	740-0152	150K
R33	749-0342	1.5K 2W	R98	740-0152	150K
R34			R99	740-0702	56K
R35	740-0322	1.2K	R100	740-0532	1M $\pm 20\%$
*R35a	742-0992	300K $\pm 5\%$ 1W	R101	742-0022	4.7K 1W
†R35a	740-0092	15K	R102	742-0132	220K 1W
*R35b	740-0043	2.7K	R103	740-0052	3.3K
*R35c	740-0092	15K	R104	740-0292	270 ohms
R36	740-0732	12K	R105	740-1062	680K $\pm 20\%$
R37	740-0043	2.7K	R106	740-0392	330K
R38	740-0252	1.5K	R107		
R39	Part of	2.7K 1W. Former for	R108		
	259-1261	Equalising Coil	R109	740-0653	100 ohms Morganite
R40	740-0922	330 ohms	R110	740-0062	3.9K
R41	750-0582	2.7K $\pm 5\%$ 8W Metox	R111	742-0112	100K 1W
R42	740-0483	56 ohms Morganite	R112	740-0232	39K
R43	740-0182	470K	R112a	740-0142	100K
R44	740-0182	470K	R112b	740-0082	10K
*R45	740-0862	18K	R113	740-0082	10K
†R45	742-0192	1M 1W	R114	740-0082	10K
†R45a	740-0862	18K	R115	740-0082	10K
R46	740-0082	10K	R116	742-0172	470K 1W
R47	740-0072	4.7K	R117	742-0022	4.7K 1W
R48	740-0242	33K	R117a	742-0823	270 ohms 1W Morganite
*R49	742-0162	390K 1W	R118	740-0082	10K
†R49a	742-0642	180K 1W	R119	740-0232	39K
†R49b	742-0172	470 K 1W	R120	740-0202	2.2M
*R50	740-0122	47K	R121	740-0122	47K
†R50a	740-0382	6.8K	R122	740-0302	1.8K
†R50b	742-0122	150K 1W	R123	742-0823	270 ohms 1W Morganite
R51	750-0622	250 ohms $\pm 5\%$ 10W Cemcoat	R124	740-1043	27 ohms Morganite
R52	749-0142	1K $\pm 20\%$ 2W	R125	740-1043	27 ohms Morganite
R53			R126	740-0072	4.7K
R54	750-0632	8.2K $\pm 5\%$ 4W Metox	R127	742-0602	470 ohms 1W
*R54a	742-0872	5.6M 1W	R128	740-0082	10K
R55	742-0602	470K 1W	R128a	740-0852	560K
R56	742-0212	3.3M 1W	R129	740-0362	390K
R57	742-0722	3.9 M 1W	R130	740-0362	390K
R58	742-0072	3.9 M 1W	R131	740-0092	15K
‡R59	742-0192	1.2M 1W	R132	740-0142	109K
R60	749-0232	27K 2W	R133	740-0182	470K
R61	740-0122	47K	R134	742-0052	22K 1W
R61a	749-0372	3.9K 2W	R135	740-0082	10K
R62	740-0252	1.5K	R136	740-0122	47K
R63	740-0252	1.5K	R136a	740-0052	3.3K
R64	740-0082	10K	R137	742-0492	68K 1W
R65	740-0212	3.3M	R138	740-0232	39K
R66	740-0242	33K	R139	742-0892	2.2M 1W
R67	740-0132	82K	R140	742-0192	1M 1W
R68	740-0232	39K	R141	740-0022	1K
R69	740-0782	120K	R142	750-0362	2.7K 5W Type PW5
R70	740-0862	18K	R143	742-0192	1M 1W
R71	740-0082	10K	R144	749-0162	100K 2W
R72	740-0082	10K	R145	742-0172	470K 1W
R73	742-1052	56K 1W	R146	742-0492	68K 1W
R74	740-0092	15K	R147	742-0492	68K 1W
R75	742-0092	47K 1W	R148	Part of	
R76	740-0092	15K		908-0591	470 ohms 2W
R77	740-0202	2.2M	R149	Part of	
R78	740-0242	33K		908-0591	1 ohm Resistance Wire
R79	740-0202	2.2M	R150	740-0122	47K
R80	740-0082	10K	R151	742-0772	3.9M 1W
R81	742-0132	220K 1W	R152	750-0602	22 ohms 5W Type PW5
R82	740-0152	150K	R153	740-0092	15K
†R82a	742-0162	390K 1W	†R154	740-0653	100 ohms
R83			†R155	742-0512	2.2K 1W
R84			†R156	740-0092	15K
*R85	740-0653	160 ohms Morganite	†R157	742-0112	100K 1W
†R85	740-0293	270 ohms Morganite	†R158	740-0262	560 ohms
†R86	740-0022	1K	†R159	740-0412	820 ohms
†R87	740-0412	100K	†R160	749-0362	150 ohms
*R88	740-0022	1K			
†R88	740-0242	33K			
*R89	740-0262	560 ohms Morganite			

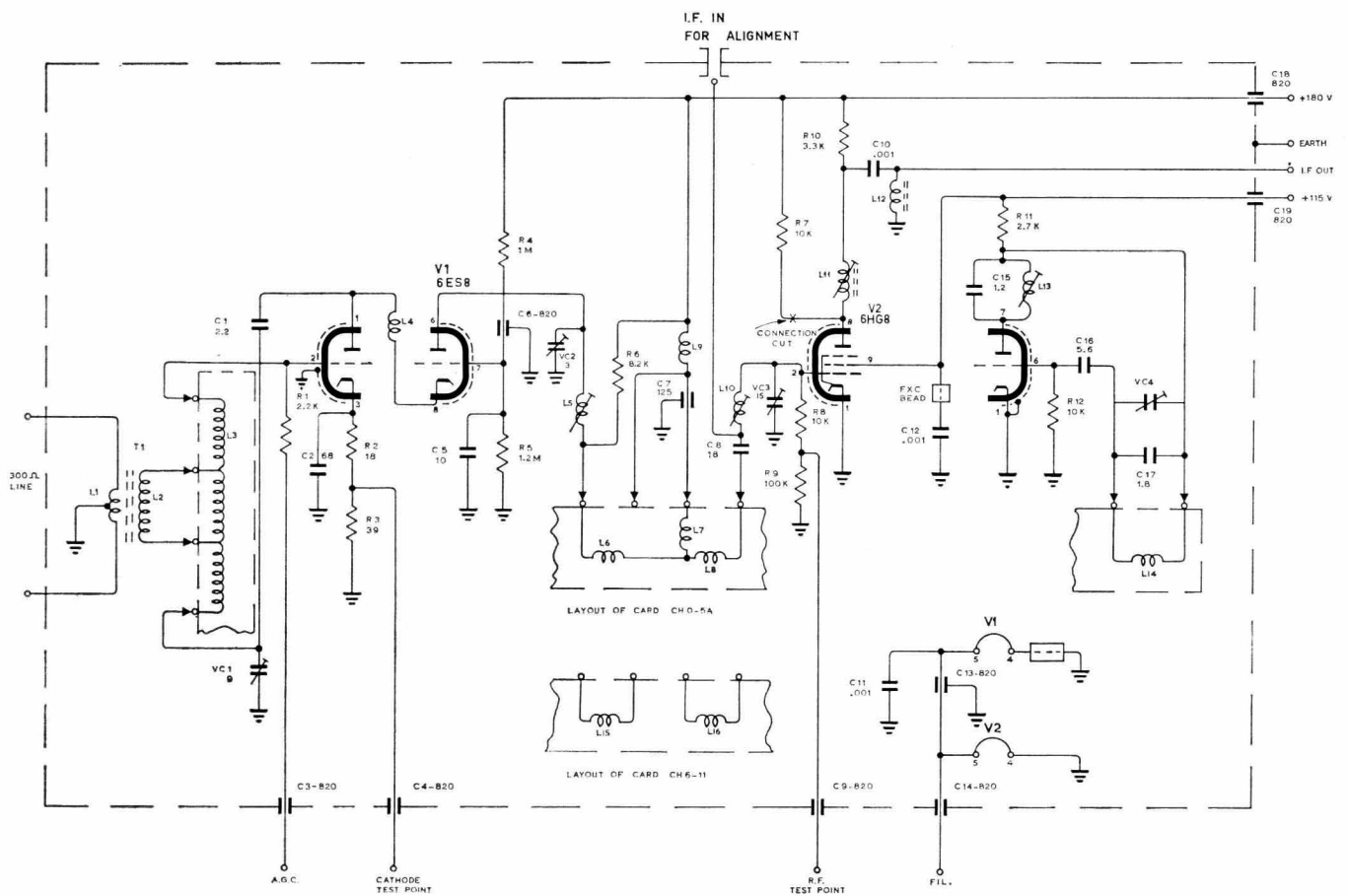
‡ Reads 2.2M on PL/3 circuit, correct on PN/3 circuit.

## PARTS LIST — CHASSIS PL/3 and PN/3 CAPACITORS

REF.	PART No.	DESCRIPTION	REF.	PART No.	DESCRIPTION
C20	271-1141	18 pF ± 10% NPO Ceramic	*C79	271-0351	33 pF ± 5% NPO Tube
C21	271-0911	.003 uF 500V Ceramic	†C79	271-0681	12 pF ± 5% NPO Disc
C22	271-0911	.003 uF 500V Ceramic	*C80	271-1131	.047 uF lead thru Ducon COC100
C23	271-0621	.001 uF lead thru Ducon CAC100			.047 uF lead thru Ducon CAC100
C24	273-0591	68 pF ± 2½% MS Mica	†C80	271-0471	6.8 pF ± ¼ pF NPO Disc
C25	271-0911	.003 uF 500V Ceramic	*C81	282-0281	.22 uF ± 10% 125V Polyester
C26	271-0731	.047 uF + 30% — 20% 25V Red Cap	†C81	271-0591	.0027 uF K2000 Disc
			*C82	271-1101	1.8 pF ± ¼ pF NPO Ceramic Bead
C27	271-0281	.022 uF 100V Disc Ceramic	†C82	271-0621	.001 uF lead thru Ducon CAC100
C28	271-0591	.0027 uF ± 20% K2000 Disc Ceramic	*C83	280-3191	470 pF ± 5% 125V Styroseal
C29	273-0591	68 pF ± 2½% MS Mica	†C83	271-0601	10 pF ± 5% NPO Disc
C29a	271-0621	.001 uF lead thru Ducon CAC100	†C83a	271-0911	.003 uF 500V Ceramic
C30	271-0911	.003 uF 500 V Ceramic	*C84	271-1121	47 pF ± 2½% NPO Disc
C30a	271-0281	.022 uF 100V Disc Ceramic	†C84	271-0771	100 pF ± 5% NPO Disc
C31	271-0731	.047 uF + 30% — 20% 25V Red Cap	*C85	280-3121	270 pF ± 10% 125V Styroseal
			†C85	280-1501	100 pF ± 5% 600V Styroseal
C32	271-0591	.0027 uF ± 20% K2000 Disc Ceramic	*C86	280-3121	270 pF ± 10% 125V Styroseal
			†C86	280-1501	100 pF ± 5% 600V Styroseal
C33	273-0591	68 pF ± 2½% MS Mica	C87	283-1501	.001 uF ± 10% 400V Polyester
C34	271-0911	.003 uF 500V Ceramic	C88	269-0781	4 uF 25VW Electro
C35	271-1021	.001 uF + 100% — 20% Type AZ Disc Ceramic	C89	283-1581	.0047 uF 400V Polyester
			C90	271-0961	560 pF + 100% — 10% K2000 Ceramic
C36	271-0911	.003 uF 500V Ceramic	C91	283-1121	.01 uF ± 10% 125V Polyester
C37	271-0591	.0027 uF ± 20% K2000 Disc Ceramic	C92	283-1121	.01 uF ± 10% 125V Polyester
			C93	269-1001	60 uF 300VW Electro Type ET5F
C38	273-0591	68 pF ± 2½% MS Mica	C94	269-0701	10 uF 12V Electro
C39	271-1091	12 pF ± 20% N330 Ceramic	C95	271-0181	15 pF ± 10% NPO Tube
C40	271-0121	5.6 pF NPO Ceramic	C96	283-1641	.015 uF ± 10% 400V Polyester
†C41	271-0311	27 pF ± 5% NPO Tube	C97		
C42	271-0941	8.2 pF ± ½ pF NPO Disc Ceramic	C98	269-0221	25 uF ± 25V Electro
			C99	283-1661	.002 uF ± 10% 400V Polyester
C42a	271-0951	47 pF ± 10% NPO Ceramic	C100	283-1541	.0022 uF ± 10% 400V Polyester
C42b	271-0951	47 pF ± 10% NPO Ceramic	C101	269-0981	50 uF 300V Electro with C104 and C105
C43	271-0621	.001 uF lead thru Ducon CAC100			.0022 uF ± 10% 400V Polyester
C44	271-0351	33 pF ± 5% NPO Tube	C102	283-1541	.0022 uF ± 10% 400V Polyester
C45			C103	283-1541	.0022 uF ± 10% 400V Polyester
C46			C104	269-0981	24 uF 300V Electro with C101 and C105
C47			C105	269-0981	100 uF 25V Electro with C101 and C104
C47a	283-1621	.1 uF ± 10% N330 Tube			.01 uF ± 10% 400V Polyester
C48	283-0201	.47 uF ± 10% 125V Polyester	C106	283-1621	.22 uF ± 10% 400 V Polyester
C49	283-1701	.047 uF ± 10% 400V Polyester	C107	283-1781	.22 uF ± 10% 400 V Polyester
C49a	283-1581	.0047 uF ± 10% 400V Polyester	C108	283-1361	1 uF ± 20% 125V Polyester
C50	283-1581	.0047 uF ± 10% 400V Polyester	C109	283-1721	.068 uF ± 10% 400V Polyester
C51	283-1721	.068 uF ± 10% 400V Polyester	C110	271-0951	47 pF ± 10% Ceramic Tube
*C52	269-0211	8 uF 300V Electro	C111	283-0201	.47 uF ± 10% 125V Polyester
*C52a	283-1581	.0047 uF ± 10% 400V Polyester	C112	271-0951	47 pF ± 10% Ceramic Tube
†C52a	269-0611	4 uF 300V Electro	C113	283-1681	.0047 uF ± 10% 400V Polyester
C53	269-0521	100 uF 150V Insulated Electro	C114	283-1681	.0047 uF ± 10% 400V Polyester
C54	269-0521	100 uF 150V Insulated Electro	C115	283-1621	.01 uF ± 10% 400 V Polyester
C55		{ 200 uF }	C116	283-1621	.01 uF ± 10% 400 V Polyester
		{ + }	C117	280-1851	680 pF ± 10% 600V Styroseal
C56	269-0901	{ 60 uF }	C118	271-0961	560 pF + 100% — 10% K2000 Ceramic
C57	271-0911	.003 uF 500V Ceramic			.003 uF 500V Ceramic
C58	271-0911	.003 uF 500V Ceramic	C119	271-0911	.047 uF ± 30% — 20% 25V Red Cap
*C58a	283-1781	.22 uF ± 10% 400V Polyester	C119a	271-0591	.047 uF ± 30% — 20% 25V Red Cap
C59	283-0121	.1 uF ± 10% 125V Polyester			
C60	283-1361	1.0 uF ± 20% 125V Polyester			
C61		{ 8 uF 100V Electro }	C120	271-0961	560 pF + 100% — 10% K2000 Ceramic
		{ + }			.0047 uF ± 10% 400V Polyester
C62	269-1081	{ 16 uF 300V Electro }	C121	283-1581	.003 uF 500V Ceramic
C63	283-1701	.047 uF ± 10% 400 V Polyester	C122	271-0911	220 pF ± 10% 2KV Ceramic Tube
C64	283-1281	.22 uF ± 10% 125V Polyester	C123	271-0991	220 pF ± 20% K2000 Ceramic
C65	271-1031	82 pF ± 20% N330 Ceramic Tube	C124	271-1001	.022 uF ± 20% 600V Polyester
C66	271-1041	4.7 pF ± 1 pF NPO Disc	C125	284-0661	
C67	271-1031	82 pF ± 20% N330 Ceramic Tube	C126		Part of
C68	269-0941	8 uF 100V Electro			330 pF ± 10% 5KVW Ceramic
C69	283-1621	.01 uF ± 10% 400V Polyester	C127	284-1281	.22 uF ± 20% 1000V Polyester
C70	283-1281	.22 uF ± 10% 125V Polyester	C128	271-0901	68 pF ± 20% 3KVW Ceramic Disc
C71	283-1201	.047 uF ± 10% 125V Polyester			.047 uF ± 10% 1000V Polyester
C72	283-1701	.047 uF ± 10% 400V Polyester	C129	284-2701	.056 uF ± 10% 1000V Polyester
C73			C130	284-1211	.22 uF ± 10% 400V Polyester
C74			C131	283-1781	.22 uF ± 10% 400V Polyester
C75			C132	271-1051	18 pF ± 10% 3KVW Ceramic Disc
C76	271-0731	.047 uF + 30% — 20% 25V Red Cap	†C133	271-0781	.035 uF 2KVW Double Disc Ceramic
*C77	271-0621	.001 uF lead thru Ducon CAC100	†C134	271-0781	.035 uF 2KVW Double Disc Ceramic
†C77	271-0591	.0027 uF G2000 Disc			25 uF 50VW Electro
*C78	271-0351	33 pF ± 5% NPO Tube	†C135	269-0781	10 uF 50VW Electro
†C78	271-0681	12 pF ± 5% NPO Disc	†C136	269-1091	

## COILS

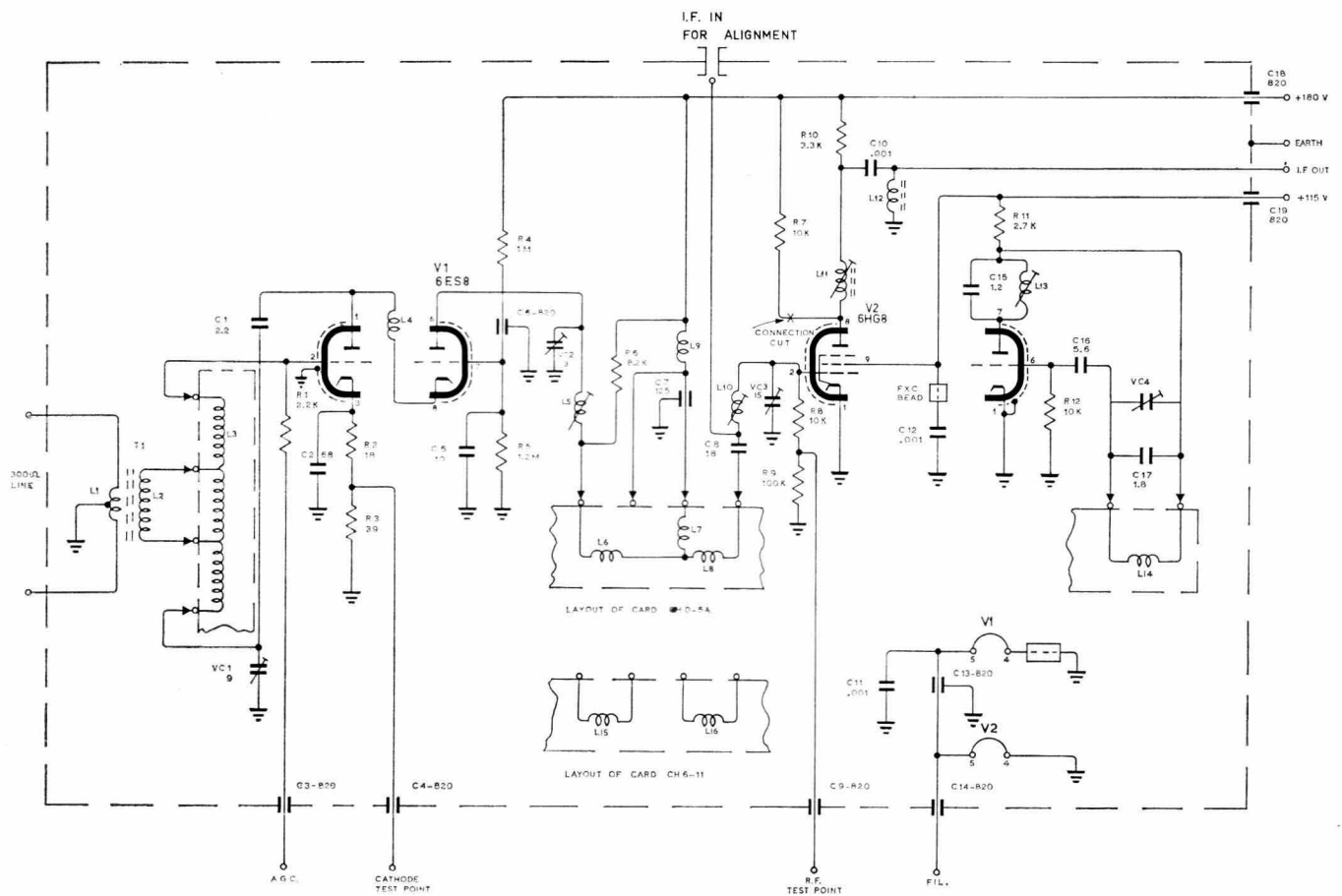
REF.	PART No.	DESCRIPTION	REF.	PART No.	DESCRIPTION
L21	259-1321	{ 1st IF Grid Coil }	L25	259-1401	{ 2nd IF Anode Coil }
L22		{ 28.375 Mc/s Trap }	L26		{ 31.375 Mc/s Trap }
L23		{ 1st IF Anode Coil }	L26a		Part of
L24	259-1391	{ 38.375 Mc/s Trap }	L27	259-1411	3rd IF Anode Coil



TUNER TYPE NT3011

**"H.M.V." CHASSIS TYPE PL**

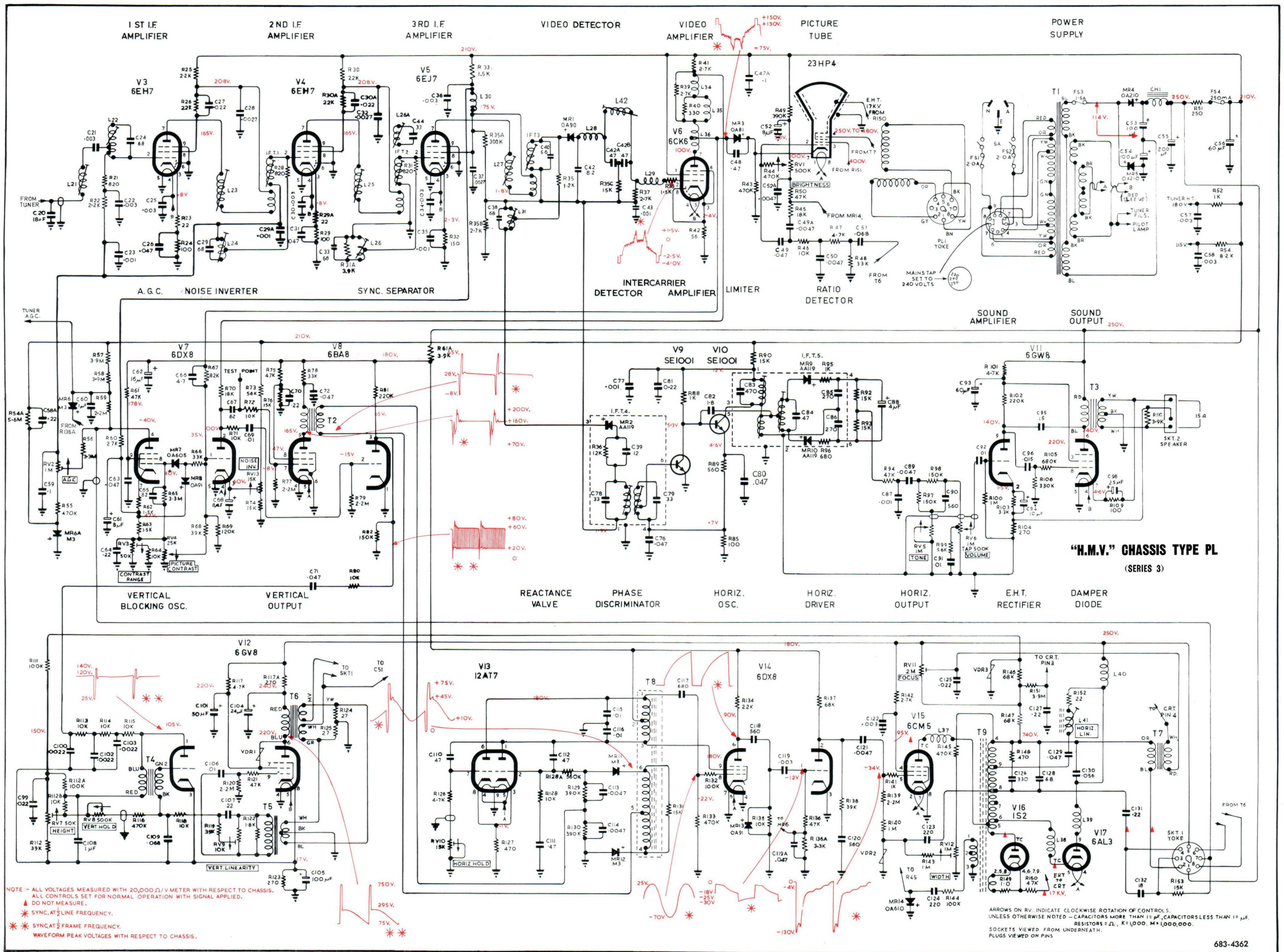
(SERIES 3)



TUNER TYPE NT3011

**“H.M.V.” CHASSIS TYPE PN**  
(SERIES 3)

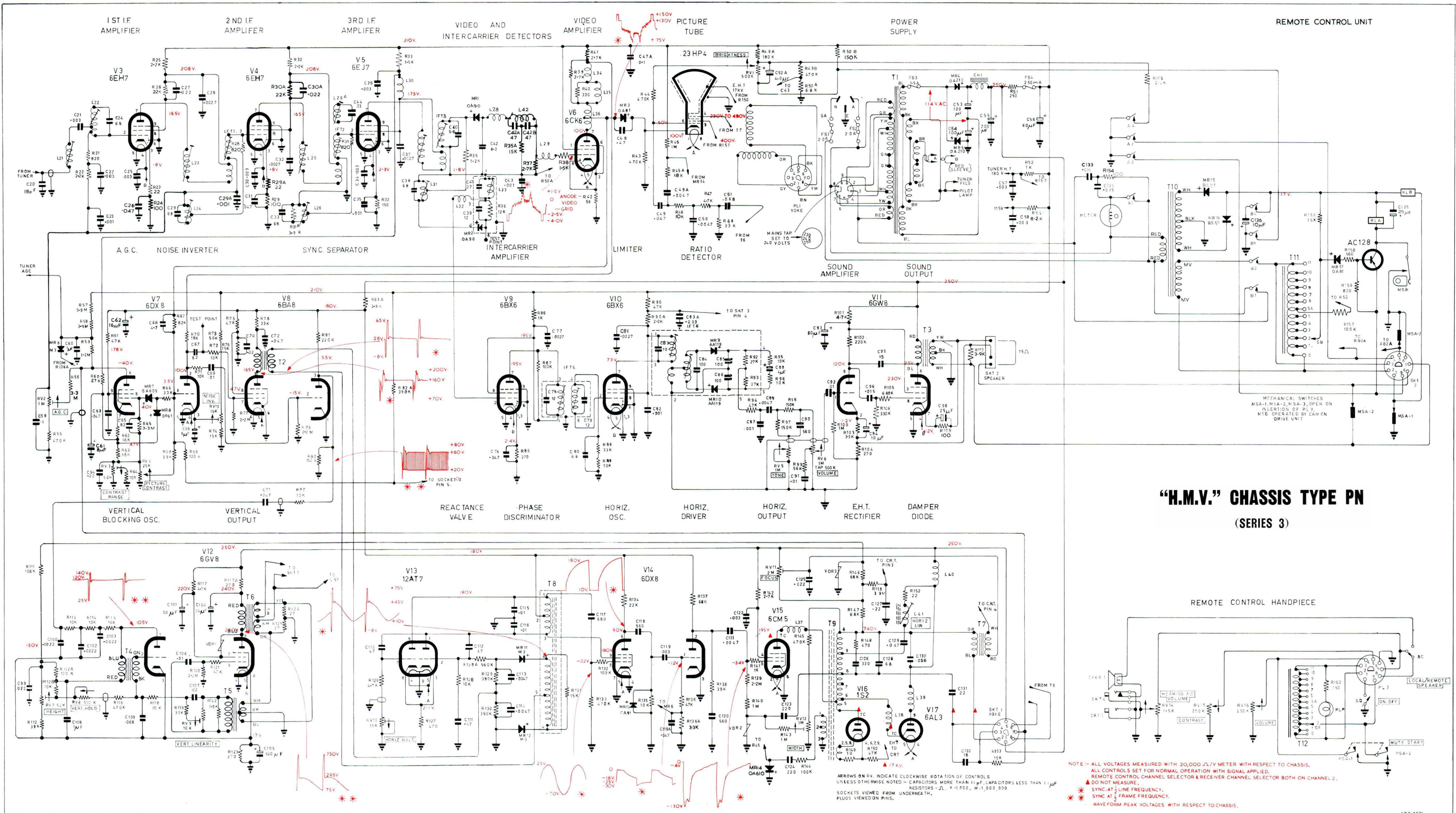




**"H.M.V." CHASSIS TYPE PL**  
(SERIES 3)

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 1/2 LINE FREQUENCY.  
 \* SYNC. AT 1/2 FRAME FREQUENCY.  
 WAVEFORM PEAK VOLTAGES WITH RESPECT TO CHASSIS.

ARROWS ON RV. INDICATE CLOCKWISE ROTATION OF CONTROLS.  
 UNLESS OTHERWISE NOTED - CAPACITORS MORE THAN 1 μF, CAPACITORS LESS THAN 1 μF.  
 RESISTORS = Ω, K=1,000, M=1,000,000.  
 SOCKETS VIEWED FROM UNDERNEATH.  
 PLUGS VIEWED ON PINS



**"H.M.V." CHASSIS TYPE PN**  
(SERIES 3)

NOTE: - ALL VOLTAGES MEASURED WITH 20,000 Ω/V METER WITH RESPECT TO CHASSIS,  
ALL CONTROLS SET FOR NORMAL OPERATION WITH SIGNAL APPLIED.  
REMOTE CONTROL CHANNEL SELECTOR & RECEIVER CHANNEL SELECTOR BOTH ON CHANNEL 2.  
DO NOT MEASURE.  
\* SYNC AT 1/2 LINE FREQUENCY.  
\* SYNC AT 1/4 FRAME FREQUENCY.  
\* WAVEFORM PEAK VOLTAGES WITH RESPECT TO CHASSIS.