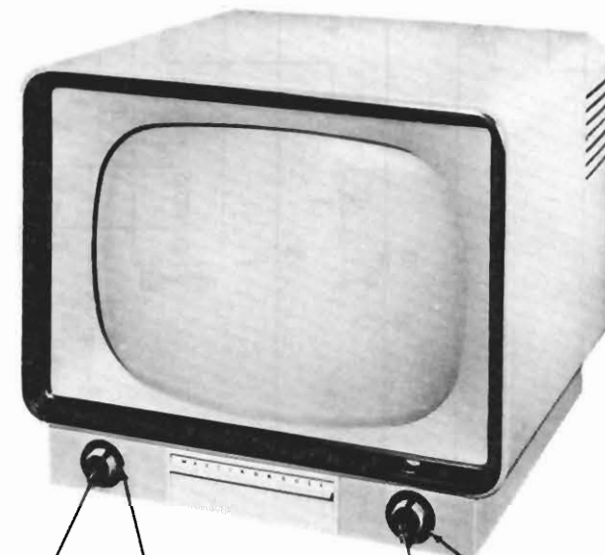


VIEW-RESISTOR IDENTIFICATION

PHOTOFACT* Folder



VOLUME CONTROL ON-OFF SWITCH
CONTRAST CONTROL
CHANNEL SELECTOR
FINE TUNING

WESTINGHOUSE MODEL H-827T21 (Ch. V-2263-15)

TRADE NAME	Westinghouse	MODELS	CHASSIS
		H-769T21	V-2263-12, -14
		H-770T21, A, H-771T21, A, H-786K21,	
		H-787K21, H-822K21, H-823K21	V-2263-12
		H-827T21, H-828T21, H-829T21	V-2263-12, -13, -14, -15
		H-830K21, H-831K21	V-2263-11, -12, -13, -14
		H-834K21, H-835K21	V-2263-22
		H-836T21	V-2263-35
		H-838K21, H-839K21	V-2263-15
		H-769TU21, H-770TU21, A, H-771TU21, A,	
		H-786KU21, H-787KU21, H-822KU21,	
		H-823KU21, H-838KU21, H-839KU21	V-2273-122
		H-827TU21, H-828TU21, H-829TU21	V-2273-122, -134
		H-830KU21, H-831KU21	V-2273-111, -122, -124, -132, -134
		H-834KU21, H-835KU21	V-2273-222
		H-836TU21	V-2273-322
MANUFACTURER	Westinghouse Electric Corp., Television & Radio Div., Metuchen, N.J.		
TYPE SET	Television Receiver		
TUBES	Twenty-two		
POWER SUPPLY	110-120 Volts AC-60 Cycles		
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)		
		RATING 1.82 Amp. @ 117 Volts AC	

INDEX

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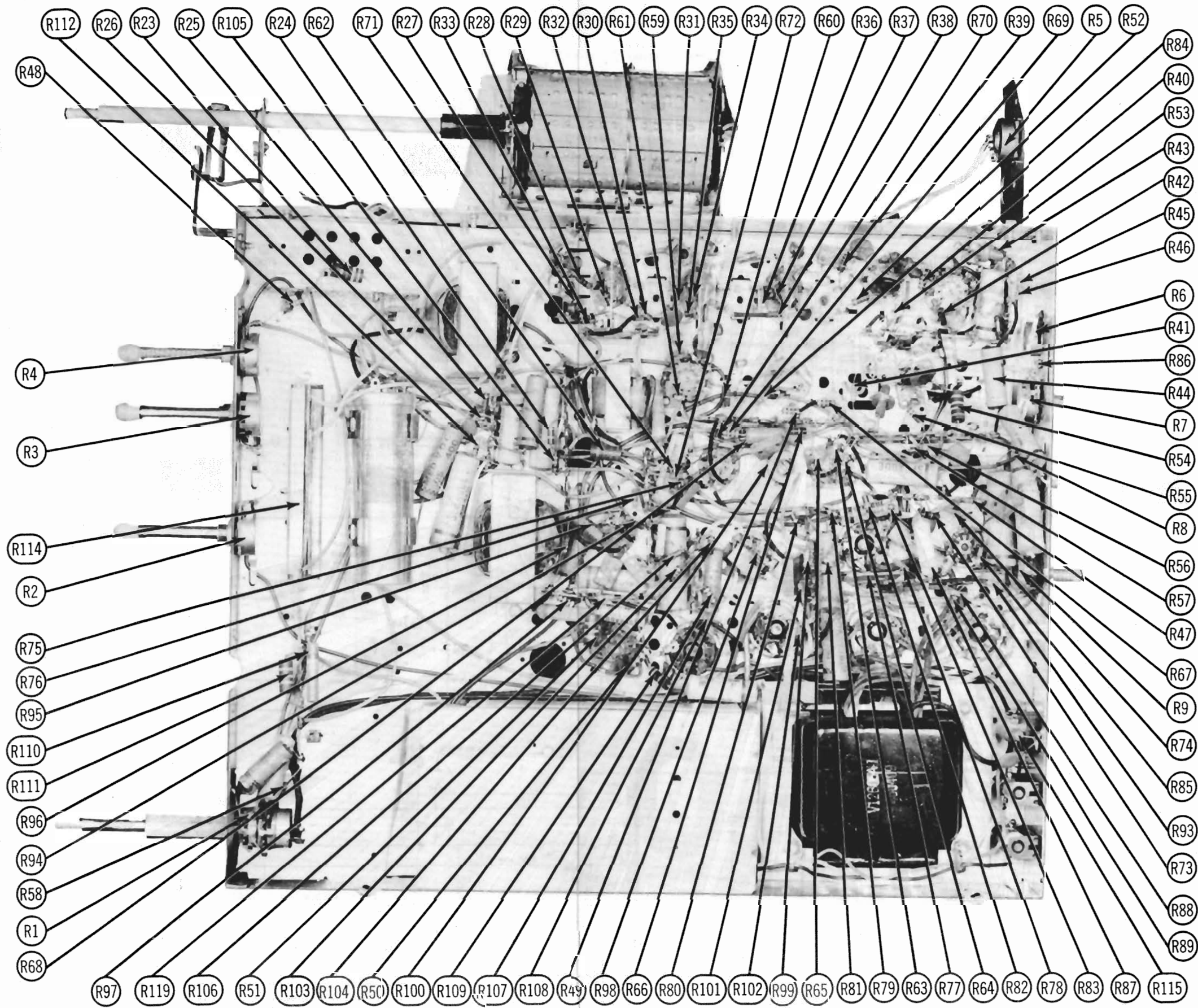
HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."

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WESTINGHOUSE MODELS H-769T21, H-769TU21, H-770T21A, H-770TU21A, H-771T21A, H-771TU21A, H-786K21, H-786KU21, H-787K21, H-787KU21, H-822K21, H-822KU21, H-823K21, H-823KU21, H-827T21, H-827TU21, H-828T21, H-828TU21, H-829T21, H-829TU21, H-830K21, H-830KU21, H-831K21, H-831KU21, H-834K21, H-834KU21, H-835K21, H-835KU21, H-836T21, H-836TU21, H-838K21, H-838KU21, H-839K21, H-839KU21, (Ch. V-2263-11, -12, -13, -14, -15, -22, -35, V-2273-111, -122, -124, -132, -134, -222, -322)



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

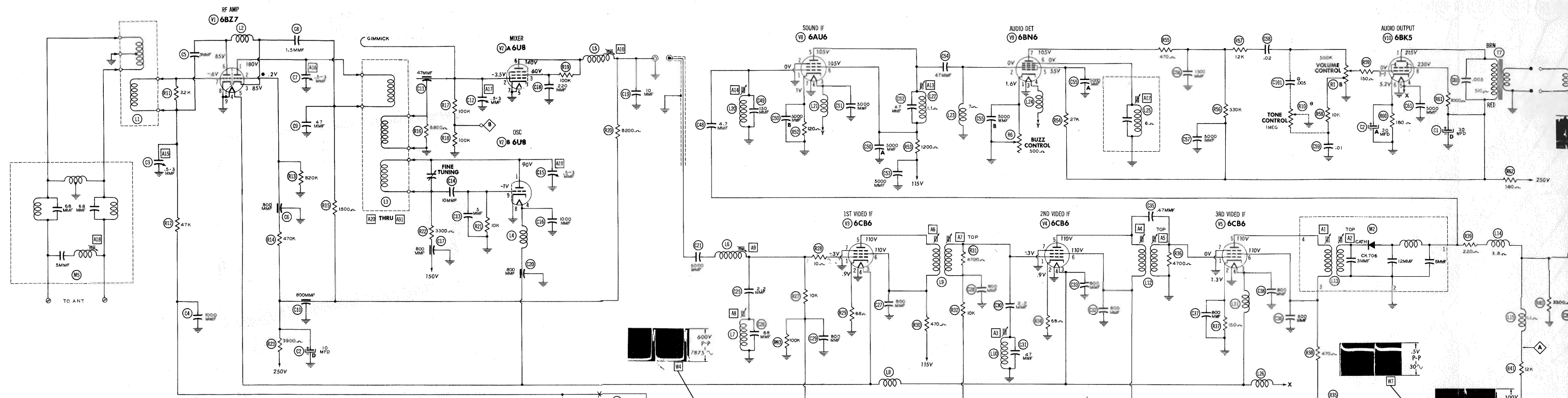
TRADE NAME W

MANUFACTURER W
TYPE SET T
TUBES T
POWER SUPPLY II
TUNING RANGE C

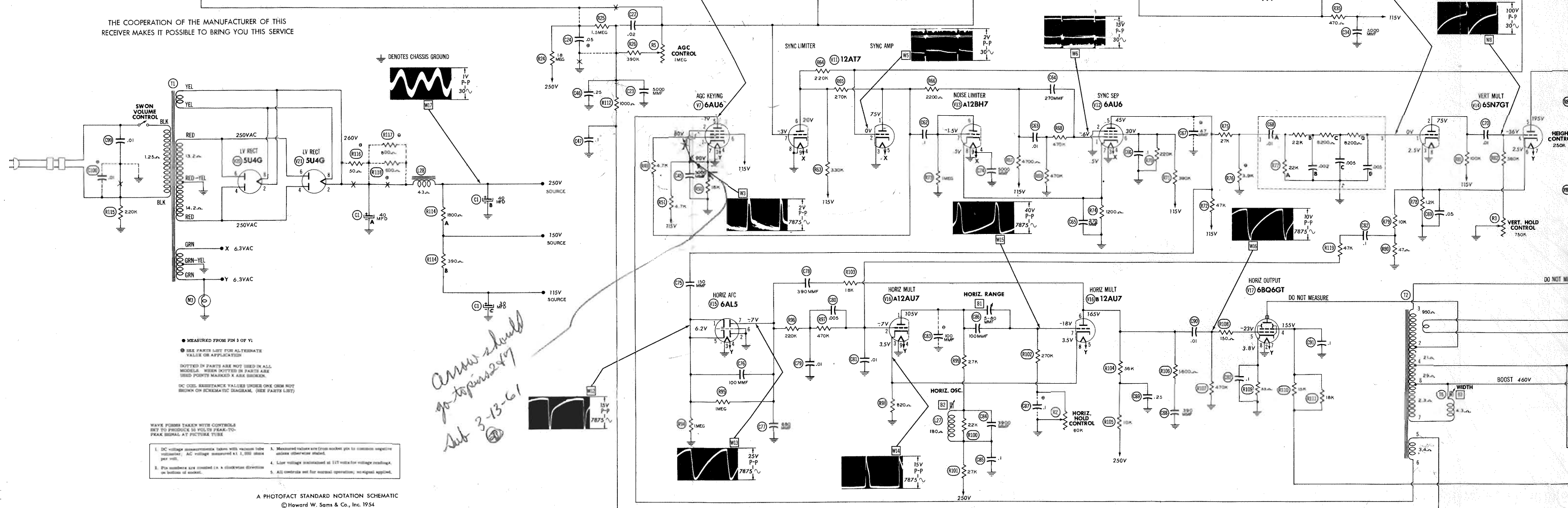
Alignment Instruction
Disassembly Instruction
Horizontal Sweep Circ
Parts List and Descri
Photographs
Cabinet-Rear View
Capacitor Identifi
Chassis Resistor
RF Tuner
Resistor Identific

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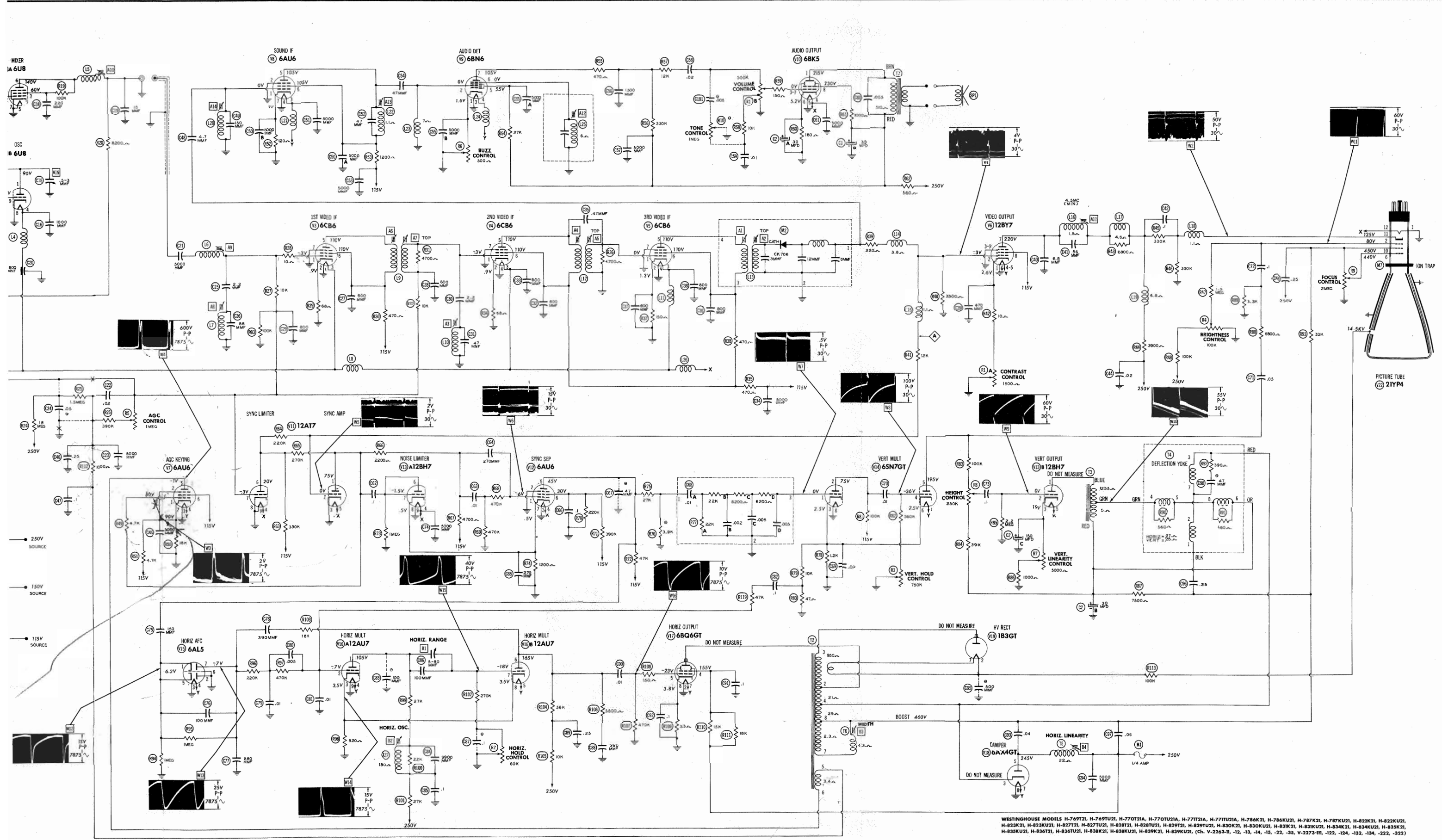
"The listing of any available re
case a recommendation, warr
as to the quality and suitability
parts have been compiled from
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"Reproduction or use, without



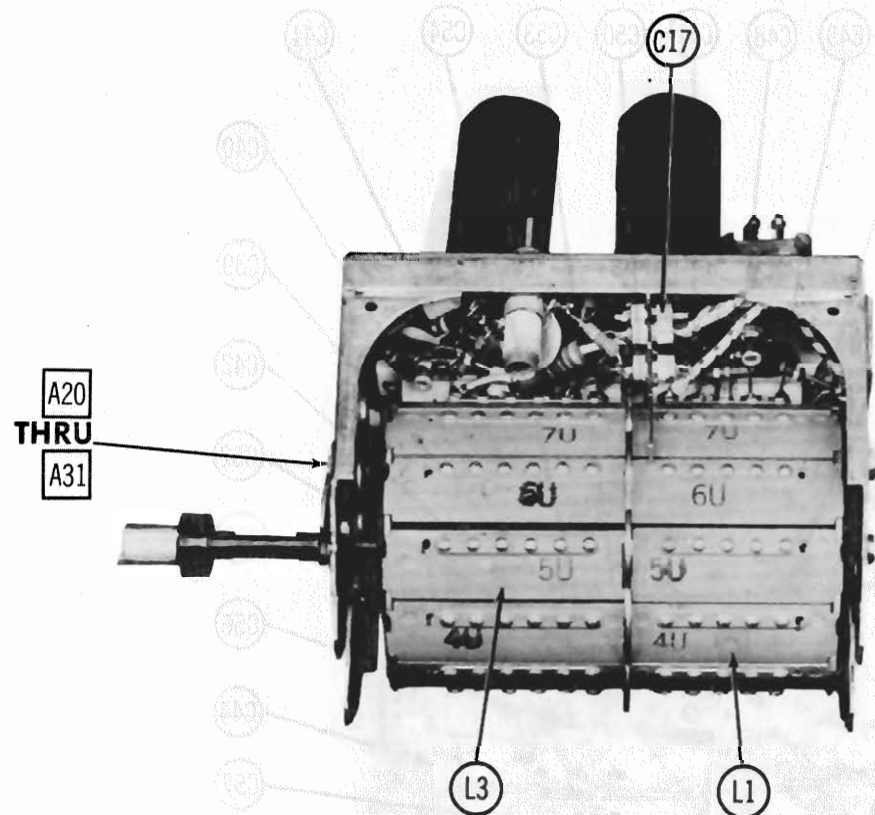
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE



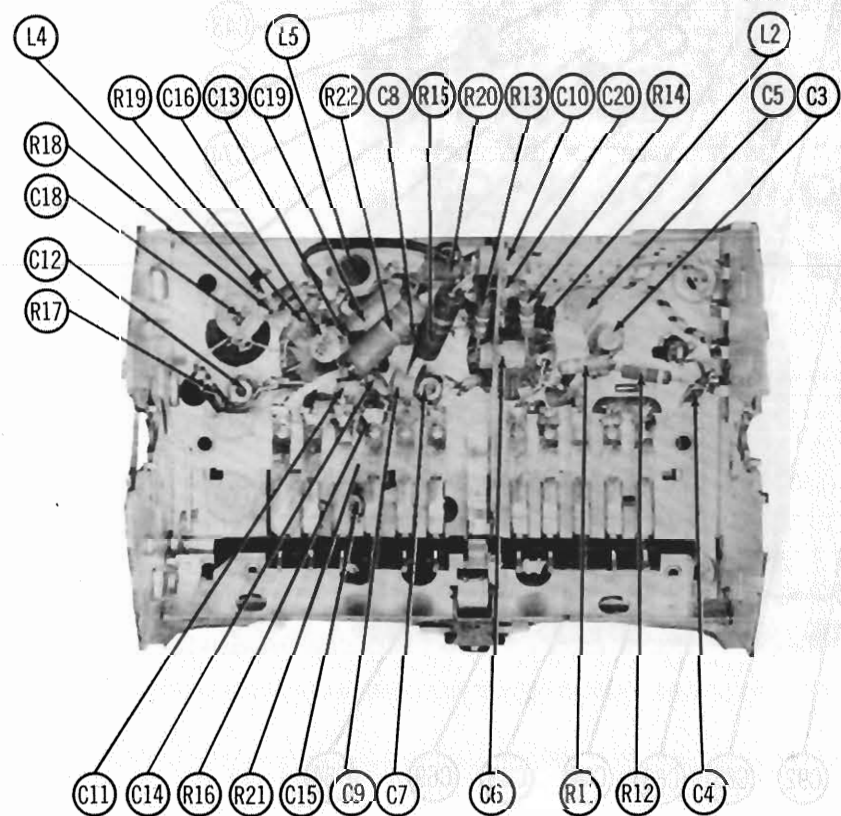
WESTINGHOUSE MODELS H-769T21, H-769U21, H-770T21A, H-770U21A, H-771T21A, H-771U21A, H-786K21, H-786U21, H-787K21, H-787U21, H-822K21, H-822U21, H-823K21, H-823U21, H-827T21, H-827U21, H-828T21, H-828U21, H-829T21, H-829U21, H-830K21, H-830U21, H-831K21, H-831U21, H-834K21, H-834U21, H-835K21, H-835U21, H-836T21, H-836U21, H-838K21, H-838U21, H-839K21, H-839U21, (Ch. V-2263-11, -12, -13, -14, -15, -22, -35, V-2273-11, -12, -13, -14, -15, -22, -35, -222, -223)



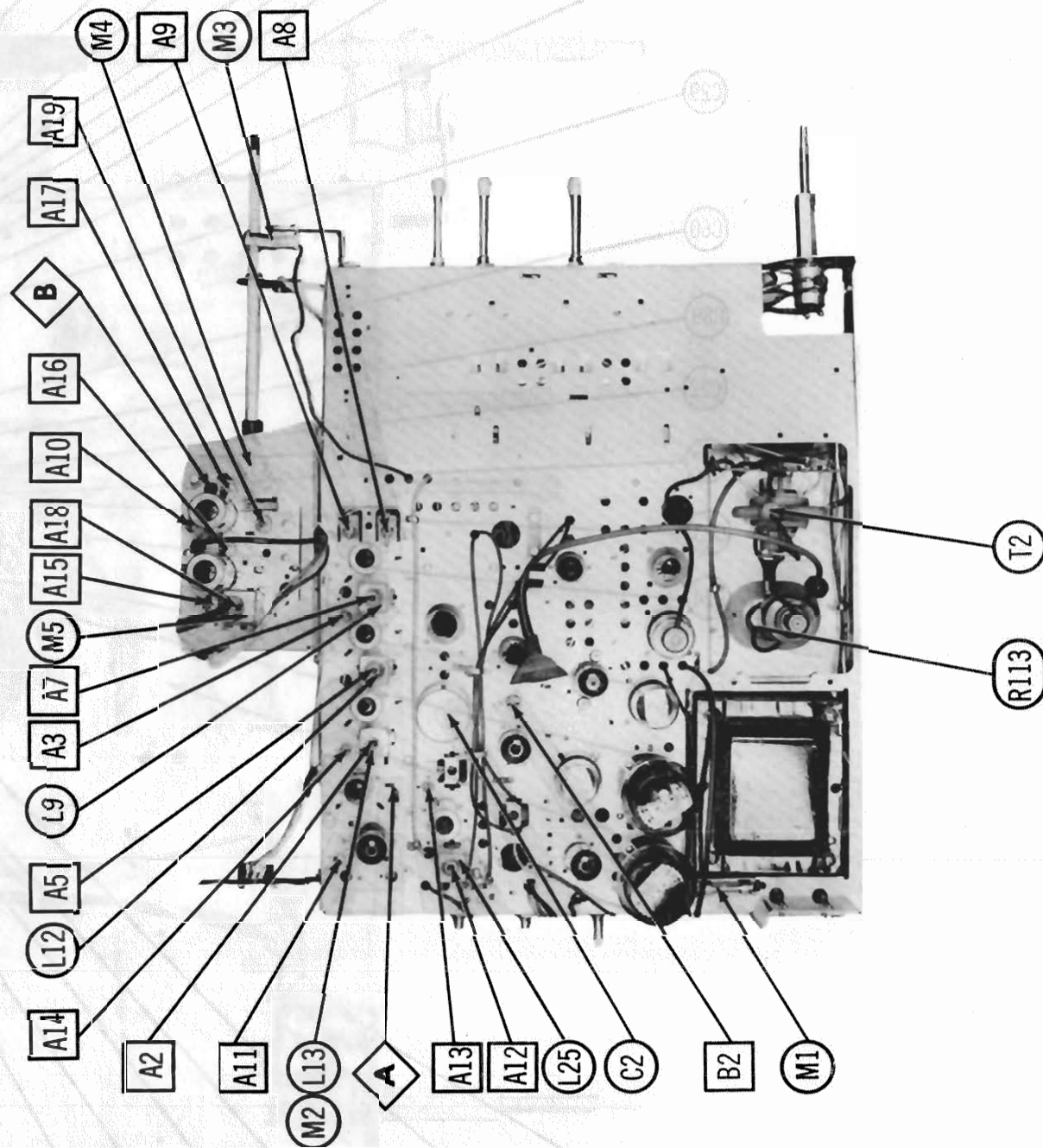
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RF TUNER-RIGHT SIDE



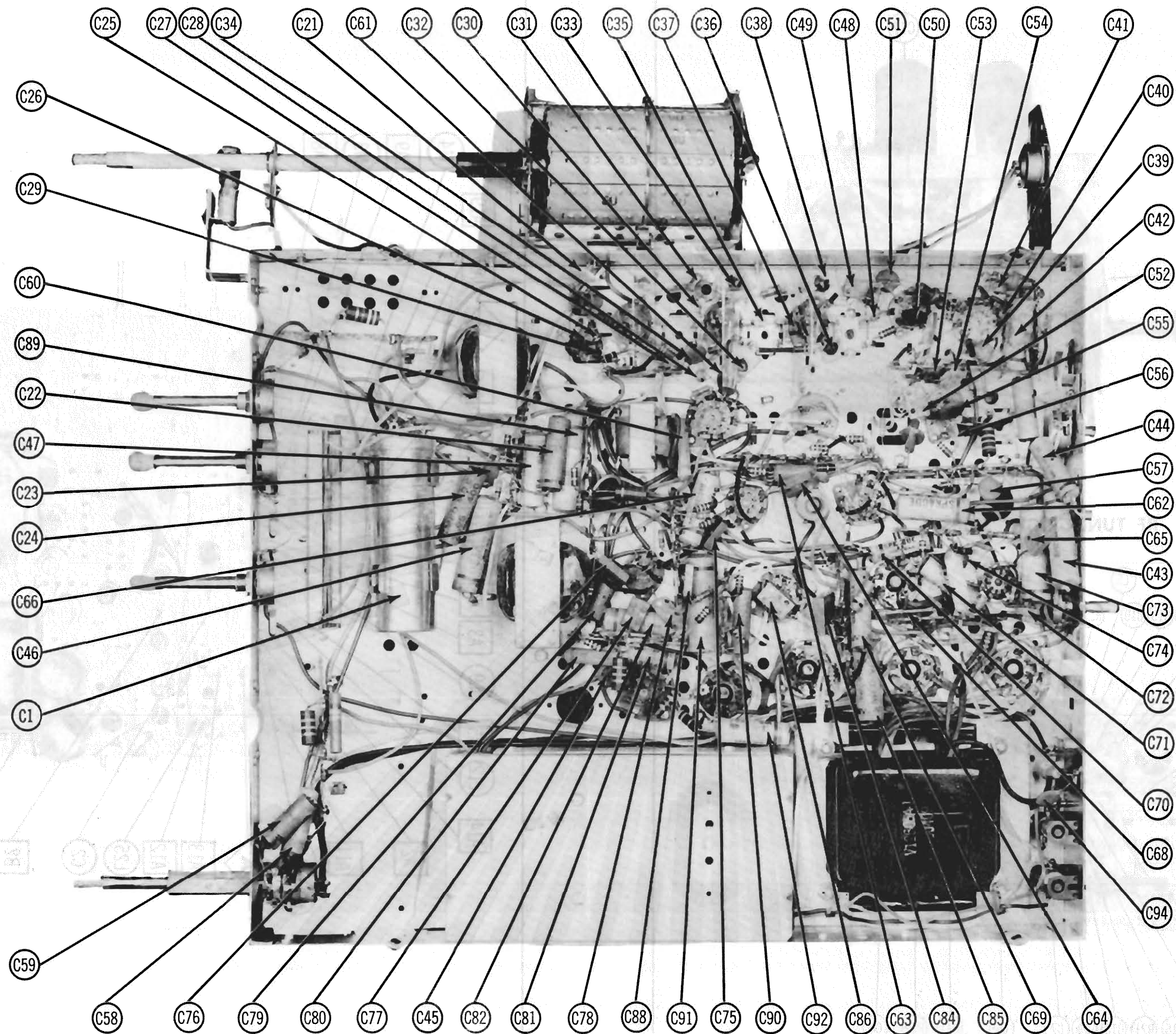
RF TUNER-BOTTOM VIEW



MAIN TOP VIEW

WESTINGHOUSE MODELS H-769T21, H-769T21A, H-770T21A, H-771T21A, H-771T21A, H-786K21, H-786K21A, H-787K21, H-787K21A, H-822K21, H-822K21A, H-823K21, H-823K21A, H-827T21, H-827T21A, H-828T21, H-828T21A, H-829T21, H-829T21A, H-830K21, H-830K21A, H-831K21, H-831K21A, H-834K21, H-834K21A, H-835K21, H-835K21A, H-836T21, H-836T21A, H-838K21, H-838K21A, H-839K21, H-839K21A, Ch. V-2263-11, -12, -13, -14, -15, -22, -35, V-2273-111, -122, -124, -132, -134, -222, -322

WESTINGHOUSE MODELS H-769T21, H-769T21A, H-770T21A, H-770T21A, H-771T21A, H-771T21A, H-786K21, H-786K21, H-787K21, H-787K21, H-822K21, H-822K21, H-823K21, H-823K21, H-827T21, H-827T21, H-827T21A, H-828T21, H-828T21, H-829T21, H-829T21, H-830K21, H-830K21, H-830K21, H-831K21, H-831K21, H-831K21, H-834K21, H-834K21, H-835K21, H-835K21, H-836T21, H-836T21, H-836T21A, H-838K21, H-838K21, H-839K21, H-839K21, (Ch. V-2263-11, -12, -13, -14, -15, -22, -35, V-2273-111, -122, -124, -132, -134, -222, -322)

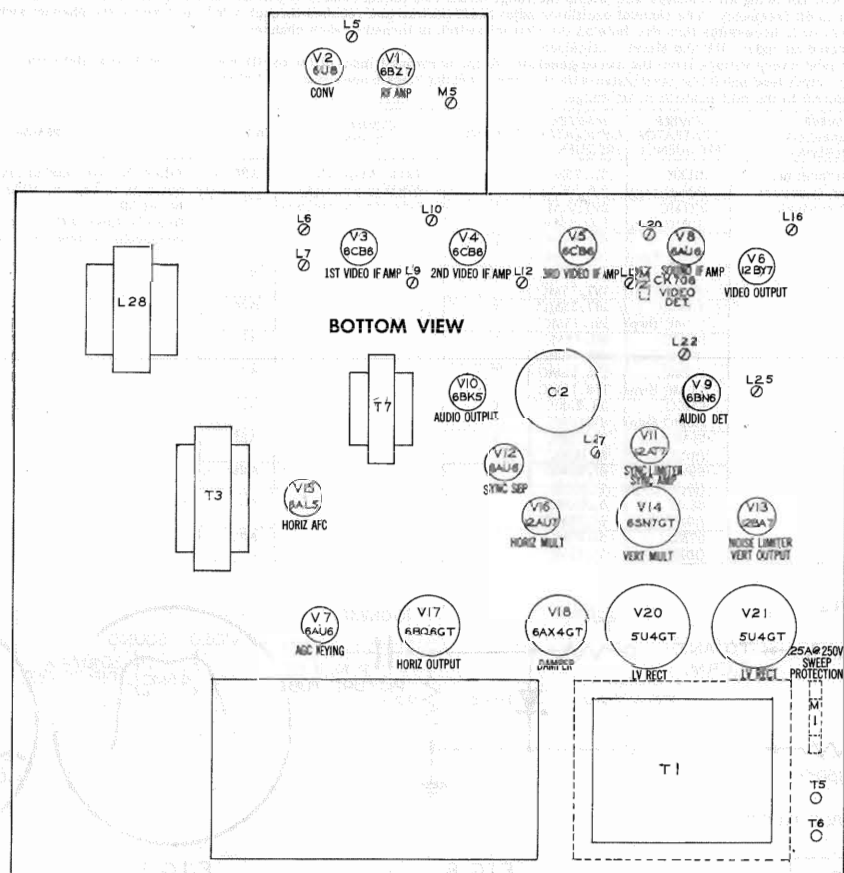


CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION

RESISTANCE MEASUREMENTS

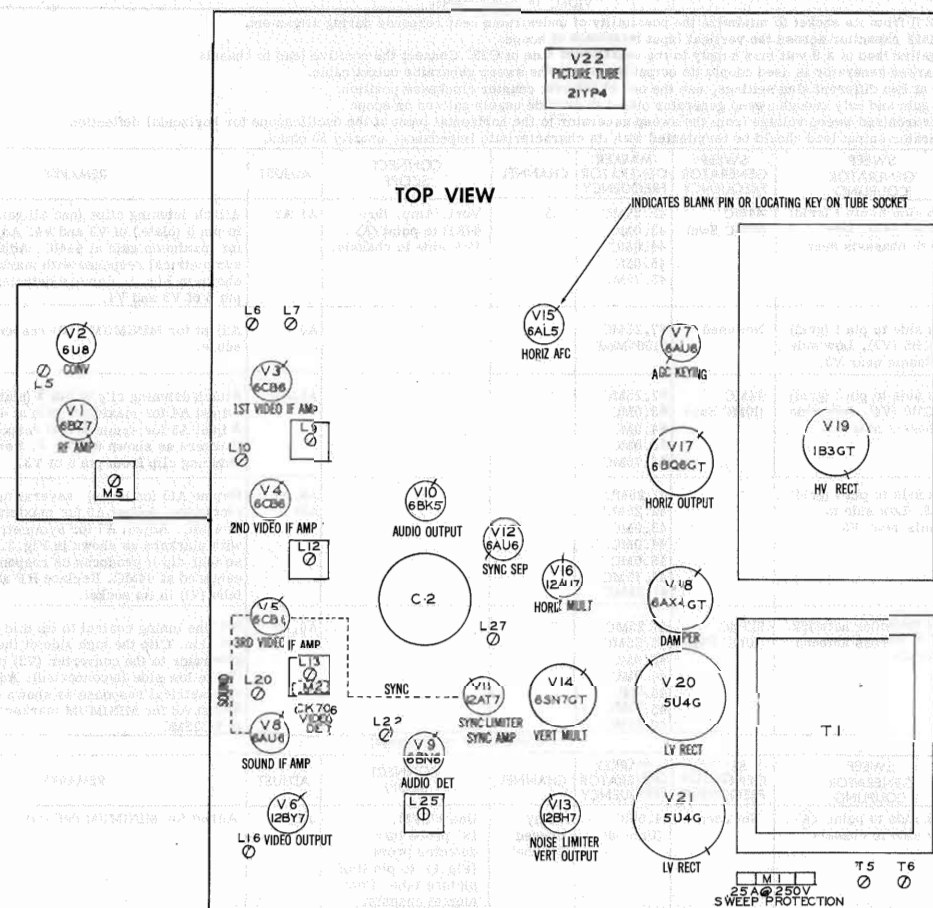
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BZ7	↑5.5KΩ	300KΩ	INF	0Ω	.1Ω	INF	147KΩ	0Ω	0Ω
V 2	6U8	↑5KΩ	200KΩ	↑12KΩ	0Ω	.1Ω	↑12KΩ	0Ω	0Ω	10KΩ
V 3	6CB6	110KΩ	88Ω	.1Ω	0Ω	↑2.8KΩ	↑2.8KΩ	0Ω		
V 4	6CB6	110KΩ	88Ω	.1Ω	0Ω	↑2.8KΩ	↑2.8KΩ	0Ω		
V 5	6CB6	.4Ω	150Ω	.1Ω	0Ω	↑2.8KΩ	↑2.8KΩ	0Ω		
V 6	12BY7	300Ω	3.3KΩ	0Ω	.1Ω	.1Ω	0Ω	↑3.9KΩ	↑2.2KΩ	0Ω
V 7	6AU6	↑15KΩ	↑7KΩ	0Ω	.1Ω	1.3Meg	↑2.5KΩ	↑7KΩ		
V 8	6AU6	.6Ω	0Ω	.1Ω	0Ω	↑3.4KΩ	↑3.4KΩ	120Ω		
V 9	6BN6	250Ω	7Ω	0Ω	.1Ω	↑27KΩ	6Ω	↑330KΩ		
V 10	6BK5	↑1KΩ	100KΩ	100KΩ	.1Ω	0Ω	180Ω	100KΩ	1.5KΩ	↑10.5KΩ
V 11	12AT7	↑10KΩ	15KΩ	0Ω	.1Ω	.1Ω	↑120KΩ	100KΩ	0Ω	0Ω
V 12	6AU6	1Meg	0Ω	0Ω	.1Ω	↑25KΩ	↑180KΩ	1.2KΩ		
V 13	12BH7	.10KΩ	2.2Meg	2KΩ	.1Ω	.1Ω	1Meg	1Meg	1.2KΩ	0Ω
V 14	6SN7GT	60KΩ	↑100KΩ	1KΩ	1Meg	.395KΩ	1KΩ	.1Ω	0Ω	
V 15	6AL5	1Meg	0Ω	0Ω	.1Ω	1Meg	0Ω	2Meg		
V 16	12AU7	↑54KΩ	2.7Meg	820Ω	.1Ω	.1Ω	↑56KΩ	400KΩ	820Ω	0Ω
V 17	6BQ6GT	INF	0Ω	30Ω	↑9KΩ	470KΩ	INF	.1Ω	33Ω	TOP CAP 21Ω
V 18	6AX4GT	INF	INF	1.2Meg	INF	↑65Ω	INF	.1Ω	0Ω	
V 19	1B3GT		PINS	1 - 8	HAVE	INF	RESISTANCE			TOP CAP 21Ω
V 20	5U4G	INF	20KΩ	INF	13Ω	INF	14Ω	INF	20KΩ	
V 21	5U4G	INF	20KΩ	INF	13Ω	INF	14Ω	INF	20KΩ	
V 22	21YP4	0Ω	1.5Meg	PIN 6 70KΩ	PIN 10 35KΩ	PIN 11 200KΩ	PIN 12 1Ω			

↑ MEASURED FROM PIN 8 OF V21
▲ MEASURED FROM PIN 3 OF V18



TUBE PLACEMENT CHART

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE

No raster, no sound - V20, V21

LOSS OF PICTURE OR SOUND

No pic, no sound, has raster - V2, V3, V4, V5

No pic, no sound, has snow - V1, V2, V3

No pic, has sound, has raster - V6, V22

Has pic, no sound - V8, V9, V10

Overloaded picture - V7

SYNC FAILURE

No vert. sync - V12, V14

No horiz. sync - V12, V15, V16

No vert. or horiz. sync - V11, V12, V13

SWEEP FAILURE

No raster, has sound - V16, V17, V18, V19, V22, Fuse (M1)

No vertical deflection - V13, V14

Poor vert. linearity or foldover - V13, V14

Poor horiz. linearity or foldover - V16, V17, V18

Narrow picture - V16, V17, V18, V19, V20, V21

Vert. off freq. - V12, V14

Horiz. off freq. - V12, V15, V16

WESTINGHOUSE MODELS H-769721, H-769721A, H-770721A, H-770721B, H-770721C, H-770721D, H-770721E, H-770721F, H-770721G, H-770721H, H-770721I, H-770721J, H-770721K, H-770721L, H-770721M, H-770721N, H-770721O, H-770721P, H-770721Q, H-770721R, H-770721S, H-770721T, H-770721U, H-770721V, H-770721W, H-770721X, H-770721Y, H-770721Z, H-770721AA, H-770721AB, H-770721AC, H-770721AD, H-770721AE, H-770721AF, H-770721AG, H-770721AH, H-770721AI, H-770721AJ, H-770721AK, H-770721AL, H-770721AM, H-770721AN, H-770721AO, H-770721AP, H-770721AQ, H-770721AR, H-770721AS, H-770721AT, H-770721AU, H-770721AV, H-770721AW, H-770721AX, H-770721AY, H-770721AZ, H-770721BA, H-770721BB, H-770721BC, H-770721BD, H-770721BE, H-770721BF, H-770721BG, H-770721BH, H-770721BI, H-770721BJ, H-770721BK, H-770721BL, H-770721BM, H-770721BN, H-770721BO, H-770721BP, H-770721BQ, H-770721BR, H-770721BS, H-770721BT, H-770721BU, H-770721BV, H-770721BW, H-770721BX, H-770721BY, H-770721BZ, H-770721CA, H-770721CB, H-770721CC, H-770721CD, H-770721CE, H-770721CF, H-770721CG, H-770721CH, H-770721CI, H-770721CJ, H-770721CK, H-770721CL, H-770721CM, H-770721CN, H-770721CO, H-770721CP, H-770721CQ, H-770721CR, H-770721CS, H-770721CT, H-770721CU, H-770721CV, H-770721CW, H-770721CX, H-770721CY, H-770721CZ, H-770721DA, H-770721DB, H-770721DC, H-770721DD, H-770721DE, H-770721DF, H-770721DG, H-770721DH, H-770721DI, H-770721DJ, H-770721DK, H-770721DL, H-770721DM, H-770721DN, H-770721DO, H-770721DP, H-770721DQ, H-770721DR, H-770721DS, H-770721DT, H-770721DU, H-770721DV, H-770721DW, H-770721DX, H-770721DY, H-770721DZ, H-770721EA, H-770721EB, H-770721EC, H-770721ED, H-770721EE, H-770721EF, H-770721EG, H-770721EH, H-770721EI, H-770721EJ, H-770721EK, H-770721EL, H-770721EM, H-770721EN, H-770721EO, H-770721EP, H-770721EQ, H-770721ER, H-770721ES, H-770721ET, H-770721EU, H-770721EV, H-770721EW, H-770721EX, H-770721EY, H-770721EZ, H-770721FA, H-770721FB, H-770721FC, H-770721FD, H-770721FE, H-770721FF, H-770721FG, H-770721FH, H-770721FI, H-770721FJ, H-770721FK, H-770721FL, H-770721FM, H-770721FN, H-770721FO, H-770721FP, H-770721FQ, H-770721FR, H-770721FS, H-770721FT, H-770721FU, H-770721FV, H-770721FW, H-770721FX, H-770721FY, H-770721FZ, H-770721GA, H-770721GB, H-770721GC, H-770721GD, H-770721GE, H-770721GF, H-770721GG, H-770721GH, H-770721GI, H-770721GJ, H-770721GK, H-770721GL, H-770721GM, H-770721GN, H-770721GO, H-770721GP, H-770721GQ, H-770721GR, H-770721GS, H-770721GT, H-770721GU, H-770721GV, H-770721GW, H-770721GX, H-770721GY, H-770721GZ, H-770721HA, H-770721HB, H-770721HC, H-770721HD, H-770721HE, H-770721HF, H-770721HG, H-770721HH, H-770721HI, H-770721HJ, H-770721HK, H-770721HL, H-770721HM, H-770721HN, H-770721HO, H-770721HP, H-770721HQ, H-770721HR, H-770721HS, H-770721HT, H-770721HU, H-770721HV, H-770721HW, H-770721HX, H-770721HY, H-770721HZ, H-770721IA, H-770721IB, H-770721IC, H-770721ID, H-770721IE, H-770721IF, H-770721IG, H-770721IH, H-770721II, H-770721IJ, H-770721IK, H-770721IL, H-770721IM, H-770721IN, H-770721IO, H-770721IP, H-770721IQ, H-770721IR, H-770721IS, H-770721IT, H-770721IU, H-770721IV, H-770721IW, H-770721IX, H-770721IY, H-770721IZ, H-770721JA, H-770721JB, H-770721JC, H-770721JD, H-770721JE, H-770721JF, H-770721JG, H-770721JH, H-770721JI, H-770721JJ, H-770721JK, H-770721JL, H-770721JM, H-770721JN, H-770721JO, H-770721JP, H-770721JQ, H-770721JR, H-770721JS, H-770721JT, H-770721JU, H-770721JV, H-770721JW, H-770721JX, H-770721JY, H-770721JZ, H-770721KA, H-770721KB, H-770721KC, H-770721KD, H-770721KE, H-770721KF, H-770721KG, H-770721KH, H-770721KI, H-770721KJ, H-770721KL, H-770721KM, H-770721KN, H-770721KO, H-770721KP, H-770721KQ, H-770721KR, H-770721KS, H-770721KT, H-770721KU, H-770721KV, H-770721KW, H-770721KX, H-770721KY, H-770721KZ, H-770721LA, H-770721LB, H-770721LC, H-770721LD, H-770721LE, H-770721LF, H-770721LG, H-770721LH, H-770721LI, H-770721LJ, H-770721LK, H-770721LL, H-770721LM, H-770721LN, H-770721LO, H-770721LP, H-770721LQ, H-770721LR, H-770721LS, H-770721LT, H-770721LU, H-770721LV, H-770721LW, H-770721LX, H-770721LY, H-770721LZ, H-770721MA, H-770721MB,

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage lead should be securely taped and kept away from the chassis. Do not remove the horizontal multivibrator tube (V16) to disable the high voltage.

VIDEO IF ALIGNMENT

Remove V1 (6BZ7) from its socket to minimize the possibility of undesirable beat response during alignment. Connect a 470MMF capacitor across the vertical input terminals of scope. Connect the negative lead of a 9 volt bias supply to the ungrounded side of C23. Connect the positive lead to chassis. If a separate marker generator is used couple its output loosely to the sweep generator output cable. If peaks appear at two different slug settings, use the one at farthest counter clockwise position. Use high scope gain and only enough sweep generator output to provide usable pattern on scope. Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection. The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1. Direct	High side to pin 1 (grid) of 6CB6 (V5). Low side to chassis near V5.	44MC (10MC Swp)	42.25MC 43.0MC 44.0MC 45.0MC 45.75MC	13	Vert. Amp. thru 47KΩ to point A. Low side to chassis.	A1, A2	Attach detuning clips (use alligator clips) to pin 5 (plate) of V3 and V4. Adjust A1 for maximum gain at 44MC. Adjust A2 for symmetrical response with markers as shown in Fig. 1. Remove detuning clips from pin 5 of V3 and V4.
2. "	High side to pin 1 (grid) of 6CB6 (V3). Low side to chassis near V3.	Not used	47.25MC (400V Mod)	"	"	A3	Adjust for MINIMUM 400V response on scope.
3. "	High side to pin 1 (grid) of 6CB6 (V4). Low side to chassis near V4.	44MC (10MC Swp)	42.25MC 43.0MC 44.0MC 45.0MC 45.75MC	"	"	A4, A5	Attach detuning clip to pin 5 (plate) of V3. Adjust A4 for maximum gain at 44MC. Adjust A5 for symmetrical response with markers as shown in Fig. 2. Remove detuning clip from pin 5 of V3.
4. "	High side to pin 1 (grid) of V3. Low side to chassis near V3.	"	41.25MC 42.25MC 43.0MC 44.0MC 45.0MC 45.75MC 47.25MC	"	"	A6, A7 A10	Detune A10 (on tuner) several turns counter clockwise. Adjust A6 for maximum response at 44MC. Adjust A7 for symmetrical response with markers as shown in Fig. 3. Adjust A10 so that dip it produces on response is centered at 44MC. Replace RF amplifier tube (V1) in its socket.
5. Fig. 5	Thru matching network (Fig. 5) across antenna terminals.	213MC (10MC Swp)	41.25MC 42.25MC 43.0MC 44.0MC 45.0MC 45.75MC 47.25MC	"	"	A8, A9	Set fine tuning control to its mid-range position. Clip the high side of the marker generator to the converter (V2) tube shield (leave low side disconnected). Adjust A8 for symmetrical response as shown in Fig. 4. Adjust A9 for MINIMUM marker amplitude at 41.25MC.

4.5MC TRAP ALIGNMENT

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6. .001MFD	High side to point A. Low side to chassis.	Not used	4.5MC (Unmod)	Any Unused Channel	Use VTVM. DC probe thru detector probe (Fig. 6) to pin 11 of picture tube. Common to chassis.	A11	Adjust for MINIMUM deflection.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60% modulation and 15KC sweep. Use 120V sawtooth voltage in scope for horizontal deflection.

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
7. .001MFD	High side to point A. Low side to chassis.	4.5MC (15KC Swp)	4.5MC	Any Unused Channel	Vert. Amp. across volume control	A12	Set generator to give a strong signal and adjust A12 for maximum response at 4.5MC.
8. "	"	"	"	"	"	A13, A14	Set generator to give minimum useful indication on scope. Adjust A13 and A14 for maximum response centered about 4.5MC. Retouch A12 for maximum response at 4.5 MC.
9. "	"	Not used	4.5MC (400V Mod)	"	"	R6	Starting with a very low signal input, gradually increase the level at the same time rotating the buzz control (R6) back and forth until the signal level reaches the point where the AM output on the scope dips to zero with a rise on each side as R6 is rotated. Set R6 for zero output at this signal level.

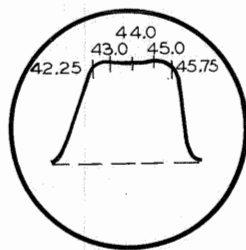


FIG. 1

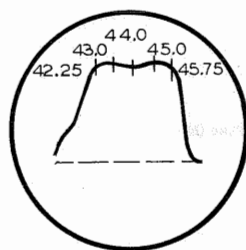


FIG. 2

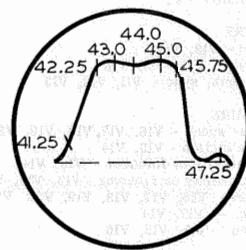


FIG. 3

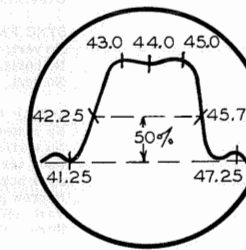


FIG. 4

ALIGNMENT INSTRUCTIONS (cont)

SOUND IF ALIGNMENT USING A TV SIGNAL

Tune the receiver to a TV station and connect an attenuator between receiver and antenna so that the signal input to receiver may be varied from weak to strong. Set the buzz control (R6) to its mid-range position. Apply a strong signal and adjust A12 for maximum program sound. If two widely separated peaks appear use the one with A12 furthest counter clockwise. If two peaks occur within a narrow range of adjustment, the signal strength being applied is too low, or the buzz control is improperly adjusted. Reduce the signal to its lowest useable level and adjust A12, A13 and A14 for maximum program sound. If two peaks appear at different slug settings use the one at farthest counter clockwise position. Readjust signal input to its lowest useable level and recheck setting of A13 and A14. Apply a very weak signal and adjust R6 for minimum noise. Do not leave R6 at maximum counter clockwise position.

RF AND MIXER ALIGNMENT FOR TUNER V-14170 USED IN CHASSIS V2203-10

Disconnect the white wire (AGC Bus) from tuner terminal "D". Connect the negative side of a 1.5 volt battery to terminal "D". Connect the positive side to chassis. Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection. The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms. The series resonant trap (A18) should be adjusted in the field whenever local interference on channel 2 is encountered.

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
10. Fig. 5	Thru matching network (Fig. 5) across antenna terminals.	207MC (12MC Swp)	205.25MC 206.75MC	12	Vert. Amp. thru 10KΩ to point B. Low side to tuner chassis.	A15, A16 A17	Adjust for response curve similar to Fig. 7 with markers above 90%.
11. "	"	213MC (12MC Swp) 201MC (12MC Swp) 195MC (12MC Swp) 189MC (12MC Swp) 183MC (12MC Swp) 177MC (12MC Swp) 171MC (12MC Swp) 165MC (12MC Swp) 159MC (12MC Swp) 153MC (12MC Swp) 147MC (12MC Swp) 141MC (12MC Swp) 135MC (12MC Swp) 129MC (12MC Swp) 123MC (12MC Swp) 117MC (12MC Swp) 111MC (12MC Swp) 105MC (12MC Swp) 99MC (12MC Swp) 93MC (12MC Swp) 87MC (12MC Swp) 81MC (12MC Swp) 75MC (12MC Swp) 69MC (12MC Swp) 63MC (12MC Swp) 57MC (12MC Swp)	211.25MC 215.75MC 199.25MC 203.75MC 193.25MC 197.75MC 187.25MC 191.75MC 181.25MC 185.75MC 175.25MC 179.75MC 169.25MC 173.75MC 163.25MC 167.75MC 157.25MC 161.75MC 151.25MC 155.75MC 145.25MC 149.75MC 139.25MC 143.75MC 133.25MC 137.75MC 127.25MC 131.75MC 121.25MC 125.75MC 115.25MC 119.75MC 109.25MC 113.75MC 103.25MC 107.75MC 97.25MC 101.75MC 91.25MC 95.75MC 85.25MC 89.75MC 79.25MC 83.75MC 73.25MC 77.75MC 67.25MC 71.75MC 61.25MC 65.75MC 55.25MC 59.75MC	13 11 10 9 8 7 6 5 4 3 2	"	If markers fall below 70% on any channel make compromise adjustment of A15, A16 and A17 with channel switch set to that channel, then check all other channels to see that they have not been seriously affected.	

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustments of the VHF Tuner Oscillator Circuit may be accomplished by removal of the Channel Selector and Fine Tuning knobs. The adjustments are accessible, one at a time, through the small hole in the cabinet just above the channel selector shaft.

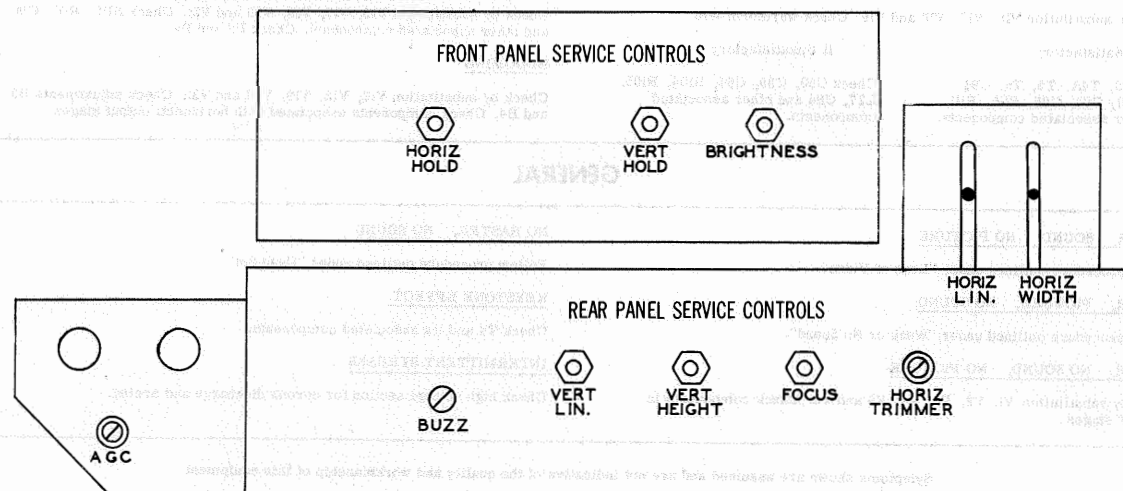
PICTURE TUBE SAFETY GLASS CLEANING

For picture tube safety Glass cleaning, it is necessary to remove chassis. (See disassembly instructions.)

PICTURE TUBE REMOVAL

For picture tube removal it is necessary to remove chassis. (See disassembly instructions.)

SERVICE ADJUSTMENT LOCATION



HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

For adjustment of the Horiz. Oscillator, it is necessary to remove the rear cover and supply power to set. Adjustment is located on top of chassis. Set the Horiz. Hold Control at the center of its range and adjust the Horiz. Osc. slug (L27) until, picture synchronizes horizontally. (For location see tube placement chart.)

SOUND IF DETECTOR BUZZ ADJUSTMENT

Buzz control is located on rear approx of chassis. If necessary, adjust slightly for minimum noise in receiver output. If results are unsatisfactory, see sound IF alignment using TV signal on Page 6.

FUSES

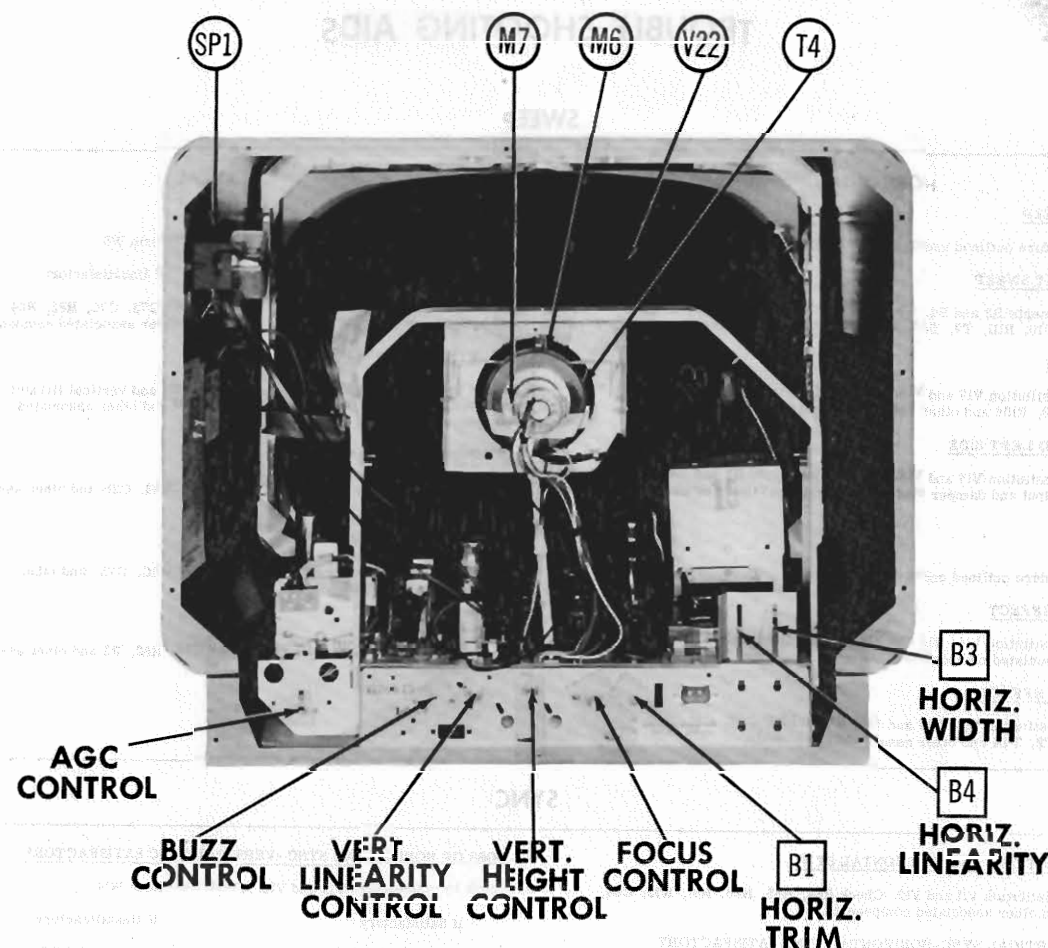
One fuse is used for Horiz. Sweep Circuit protection. For location see Tube Placement Chart.

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube, located flush against the deflection yoke. Rotate the two rings around the neck of the tube until the picture is properly centered.

DISASSEMBLY INSTRUCTIONS

1. Remove 4 push on type control knobs from front panel.
2. Remove 12 metal screws from rear cover. Unplug antenna lead from rear cover. Remove cover.
3. Disconnect speaker.
4. Remove 2 speaker nuts. Remove speaker.
5. Remove 6 chassis bolts. Remove chassis.



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

- (1) Set the horizontal hold control to its mid-range position.
- (2) Connect a short jumper across the horizontal oscillator coil (L27).
- (3) Connect the DC probe of VTVM to pin 2 (grid) of V16. Connect positive lead to chassis. Adjust horizontal range trimmer (B1) for zero volts on VTVM. If necessary, readjust horizontal hold control slightly to obtain zero reading on VTVM.
- (4) Remove jumper across L27 and adjust horizontal oscillator slug (B2) for zero reading on VTVM. Switch off channel and back again. Picture should pull into sync.

Adjust the horizontal width slug (B3) for a picture that is slightly wider than necessary to fill the picture mask horizontally.

Adjust the horizontal linearity slug (B4) for a picture that is symmetrical from left to right.

AGC CONTROL ADJUSTMENT

Permit the receiver to warm-up for at least five minutes and tune in the strongest signal in the area.

Rotate the AGC control clockwise until the picture begins to overload, or if the signal is weak, to the point where "snow" is more pronounced in the picture. Then rotate the control counter clockwise until the "snow" is at minimum with the best picture, or no sign of overload is visible.

It is suggested this control be set on the strongest signal within the area so overloading will not occur when switching from channel to channel.

WESTINGHOUSE MODELS H-769T21, H-769T22, H-770T1A, H-770T2A, H-771T2A, H-772T2A, H-773T2A, H-774T2A, H-775T2A, H-776T2A, H-777T2A, H-778T2A, H-779T2A, H-780T2A, H-781T2A, H-782T2A, H-783T2A, H-784T2A, H-785T2A, H-786T2A, H-787T2A, H-788T2A, H-789T2A, H-790T2A, H-791T2A, H-792T2A, H-793T2A, H-794T2A, H-795T2A, H-796T2A, H-797T2A, H-798T2A, H-799T2A, H-800T2A, H-801T2A, H-802T2A, H-803T2A, H-804T2A, H-805T2A, H-806T2A, H-807T2A, H-808T2A, H-809T2A, H-810T2A, H-811T2A, H-812T2A, H-813T2A, H-814T2A, H-815T2A, H-816T2A, H-817T2A, H-818T2A, H-819T2A, H-820T2A, H-821T2A, H-822T2A, H-823T2A, H-824T2A, H-825T2A, H-826T2A, H-827T2A, H-828T2A, H-829T2A, H-830T2A, H-831T2A, H-832T2A, H-833T2A, H-834T2A, H-835T2A, H-836T2A, H-837T2A, H-838T2A, H-839T2A, H-840T2A, H-841T2A, H-842T2A, H-843T2A, H-844T2A, H-845T2A, H-846T2A, H-847T2A, H-848T2A, H-849T2A, H-850T2A, H-851T2A, H-852T2A, H-853T2A, H-854T2A, H-855T2A, H-856T2A, H-857T2A, H-858T2A, H-859T2A, H-860T2A, H-861T2A, H-862T2A, H-863T2A, H-864T2A, H-865T2A, H-866T2A, H-867T2A, H-868T2A, H-869T2A, H-870T2A, H-871T2A, H-872T2A, H-873T2A, H-874T2A, H-875T2A, H-876T2A, H-877T2A, H-878T2A, H-879T2A, H-880T2A, H-881T2A, H-882T2A, H-883T2A, H-884T2A, H-885T2A, H-886T2A, H-887T2A, H-888T2A, H-889T2A, H-890T2A, H-891T2A, H-892T2A, H-893T2A, H-894T2A, H-895T2A, H-896T2A, H-897T2A, H-898T2A, H-899T2A, H-900T2A, H-901T2A, H-902T2A, H-903T2A, H-904T2A, H-905T2A, H-906T2A, H-907T2A, H-908T2A, H-909T2A, H-910T2A, H-911T2A, H-912T2A, H-913T2A, H-914T2A, H-915T2A, H-916T2A, H-917T2A, H-918T2A, H-919T2A, H-920T2A, H-921T2A, H-922T2A, H-923T2A, H-924T2A, H-925T2A, H-926T2A, H-927T2A, H-928T2A, H-929T2A, H-930T2A, H-931T2A, H-932T2A, H-933T2A, H-934T2A, H-935T2A, H-936T2A, H-937T2A, H-938T2A, H-939T2A, H-940T2A, H-941T2A, H-942T2A, H-943T2A, H-944T2A, H-945T2A, H-946T2A, H-947T2A, H-948T2A, H-949T2A, H-950T2A, H-951T2A, H-952T2A, H-953T2A, H-954T2A, H-955T2A, H-956T2A, H-957T2A, H-958T2A, H-959T2A, H-960T2A, H-961T2A, H-962T2A, H-963T2A, H-964T2A, H-965T2A, H-966T2A, H-967T2A, H-968T2A, H-969T2A, H-970T2A, H-971T2A, H-972T2A, H-973T2A, H-974T2A, H-975T2A, H-976T2A, H-977T2A, H-978T2A, H-979T2A, H-980T2A, H-981T2A, H-982T2A, H-983T2A, H-984T2A, H-985T2A, H-986T2A, H-987T2A, H-988T2A, H-989T2A, H-990T2A, H-991T2A, H-992T2A, H-993T2A, H-994T2A, H-995T2A, H-996T2A, H-997T2A, H-998T2A, H-999T2A, H-1000T2A.

TROUBLE SHOOTING AIDS

SWEEP

HORIZONTAL	VERTICAL
<p>LOSS OF SWEEP</p> <p>Follow procedure outlined under "Loss of High Voltage".</p> <p>INSUFFICIENT SWEEP</p> <p>Check adjustments B3 and B4. Check by substitution V17, V18, V20 and V21. Check R110, R111, T2, T4A, C89 and other associated components.</p> <p>DRIVE LINES</p> <p>Check by substitution V17 and V18. Check adjustments B3 and B4. Check T2, T4A, C88, R106 and other associated components.</p> <p>COMPRESSED LEFT SIDE</p> <p>Check by substitution V17 and V18. Check adjustments B3 and B4. Check horizontal output and damper stages for component failure or change of value.</p> <p>FOLDS</p> <p>Follow procedure outlined under "Drive Lines".</p> <p>PIE CRUST EFFECT</p> <p>Check by substitution V16, V17 and V18. Check C81 for open. Check L27 and other associated components.</p> <p>XMAS TREE EFFECT</p> <p>Check by substitution V16, V17 and V18. Check L27, C84, C86, R98, R106, C88, T2, T4A and other associated components.</p>	<p>LOSS OF SWEEP</p> <p>Check by substitution V14 and V13. Check waveform W9.</p> <p>If Satisfactory Check T3, T4B, R87 and other associated components.</p> <p>If Unsatisfactory Check C73, C70, R83, R84, R8 and other associated components.</p> <p>INSUFFICIENT SWEEP</p> <p>Check by substitution V14 and V13. Check height and vertical linearity controls for proper operation. Check T3, T4B and other associated components.</p> <p>COMPRESSED AT BOTTOM</p> <p>Check by substitution V14 and V13. Check R8, R84, C2B and other associated components.</p> <p>COMPRESSED AT TOP</p> <p>Check by substitution V14 and V13. Check R7, C2C, C73, and other associated components.</p> <p>FOLDS</p> <p>Check by substitution V14 and V13. Check C70, R82, R3 and other associated components.</p>

SYNC

<p>LOSS OF VERTICAL AND HORIZONTAL SYNC</p> <p>Check by substitution V11 and V12. Check R64, R65, R66, R71, R72, C64, C63, C66 and other associated components.</p> <p>LOSS OF VERTICAL SYNC-HORIZONTAL SYNC SATISFACTORY</p> <p>Check by substitution V14. Check waveform W7.</p> <p>If Satisfactory Check R81, R82, C70, R3, and other associated components.</p> <p>If Unsatisfactory Check vertical integrator network for component failure or change of value. Check video IF alignment for overloading.</p>	<p>LOSS OF HORIZONTAL SYNC-VERTICAL SYNC SATISFACTORY</p> <p>Check by substitution V15 and V16. Check waveform W14.</p> <p>If Satisfactory Check C83, C86, R102, R2, and other associated components.</p> <p>If Unsatisfactory Check horizontal AFC network for component failure or change of value.</p> <p>HORIZONTAL BENDING</p> <p>Check by substitution V7, V11, V12 and V15. Check horizontal AFC network.</p>
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VIDEO

<p>LOSS OF VIDEO</p> <p>Substitute V6. Check L14, L17, C41, C42, L18, picture tube and other associated components.</p> <p>SOUND BARS (4.5MC BEAT)</p> <p>Adjust tuner fine tuning for best sound and picture. Check adjustment A11. If still unsatisfactory, check video IF alignment.</p> <p>POOR CONTRAST</p> <p>Substitute V6. Check video detector network. Check picture tube and other associated components.</p>	<p>NEGATIVE PICTURE</p> <p>Substitute V6. Check L14, L17, L18, R45, R43, C41, C42, picture tube and other associated components.</p> <p>SMEAR</p> <p>Substitute V6. Check components associated with V6. Check video detector network. Check video IF alignment.</p> <p>WIDE BLACK BAR ACROSS PICTURE</p> <p>Check by substitution V1, V3, V4, V5 and V6 for heater to cathode leakage.</p>
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AUDIO

<p>WEAK OR NO SOUND</p> <p>Check by substitution V8, V9, and V10. Check stages V10 using audio signal generator. Apply audio signal across R1B.</p> <p>If Satisfactory Check audio detector and audio IF stages for component failure or change of value. Check audio IF alignment.</p> <p>If Unsatisfactory Check C60, C2A, R61, R60, T7, speaker and other associated components.</p>	<p>BUZZ</p> <p>Adjust tuner fine tuning for best sound and picture. Check adjustments R6 and A12 for minimum buzz. If still unsatisfactory, check Audio IF alignment.</p> <p>DISTORTED</p> <p>Follow procedure outlined under "Weak or No Sound".</p>
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TROUBLE SHOOTING AIDS (cont)

POWER

<p>DEAD SET</p> <p>If filaments fail to light, check AC interlock assembly. Check switch on volume control. Check T1. If filaments light, check V20 and V21. Check B+ filter and decoupling network.</p>	<p>SMALL AND/OR DIM PICTURE</p> <p>Check by substitution V20 and V21. Check B+ filter and decoupling network.</p>
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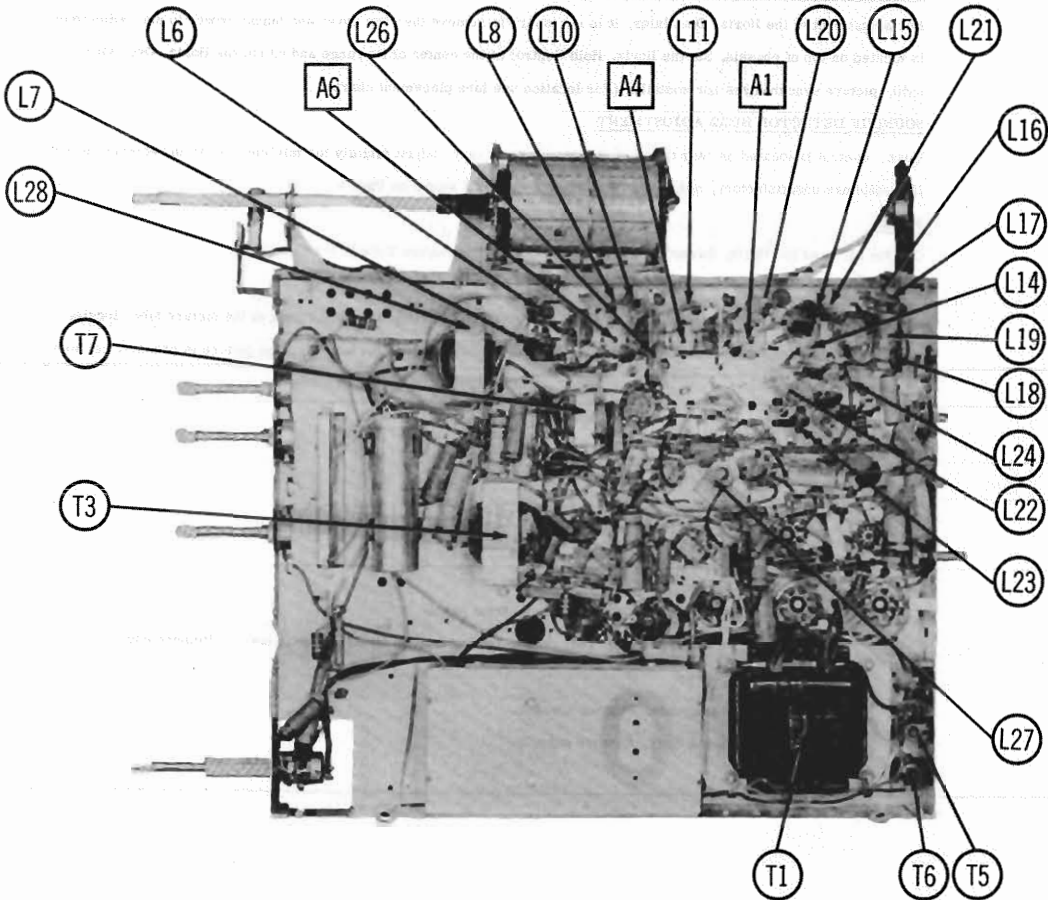
HIGH VOLTAGE

<p>LOSS OF HIGH VOLTAGE</p> <p>Check by substitution V16, V17, V18 and V19. Check waveform W16.</p> <p>If Satisfactory Check T2, T4A, T5, T6, C94, C93, C91, C97, C96, R110, R111 and other associated components.</p> <p>If Unsatisfactory Check C90, C89, C86, R104, R105, L27, C84 and other associated components.</p>	<p>INSUFFICIENT HIGH VOLTAGE</p> <p>Check by substitution V16, V17, V18, V20 and V21. Check R110, R111, C90 and other associated components. Check B3 and B4.</p> <p>BLOOMING</p> <p>Check by substitution V17, V18, V19, V20 and V21. Check adjustments B3 and B4. Check components associated with horizontal output stages.</p>
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GENERAL

<p>RASTER, SOUND, NO PICTURE</p> <p>Follow procedure outlined under "Loss of Video".</p> <p>RASTER, PICTURE, NO SOUND</p> <p>Follow procedure outlined under "Weak or No Sound".</p> <p>RASTER, NO SOUND, NO PICTURE</p> <p>Check by substitution V1, V2, V3, V4, V5 and V6. Check components in video IF stages.</p>	<p>NO RASTER, NO SOUND</p> <p>Follow procedure outlined under "Dead Set".</p> <p>KEYSTONE EFFECT</p> <p>Check T4 and its associated components.</p> <p>INTERMITTENT STREAKS</p> <p>Check high voltage section for corona discharge and arcing.</p>
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Symptoms shown are assumed and are not indicative of the quality and workmanship of this equipment.



CHASSIS BOTTOM VIEW-TRANS., INDUCTOR & ALIGN. IDENTIFICATION

WESTINGHOUSE MODELS H-7697U1, H-7697U21, H-7707U1A, H-7707U21A, H-7717U1A, H-7717U21A, H-786K21, H-786KU21, H-787K21, H-787KU21, H-822K21, H-822KU21, H-823K21, H-823KU21, H-827U21, H-827U21, H-828T21, H-828T21, H-829T21, H-829T21, H-830K21, H-830KU21, H-831K21, H-831KU21, H-834K21, H-834KU21, H-835K21, H-835KU21, H-836T21, H-836T21, H-838K21, H-838KU21, H-839K21, H-839KU21, (Ch. V-2263-II, -12, -13, -14, -15, -22, -35, V-2273-III, -122, -124, -132, -134, -222, -322)



A PROFOCT STANDARD NOTATION SCHEMATIC
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CHANNEL SELECTION SWITCH SHOWN IN CHANNEL 13 POSITION

VHF TUNER-SCHEMATIC



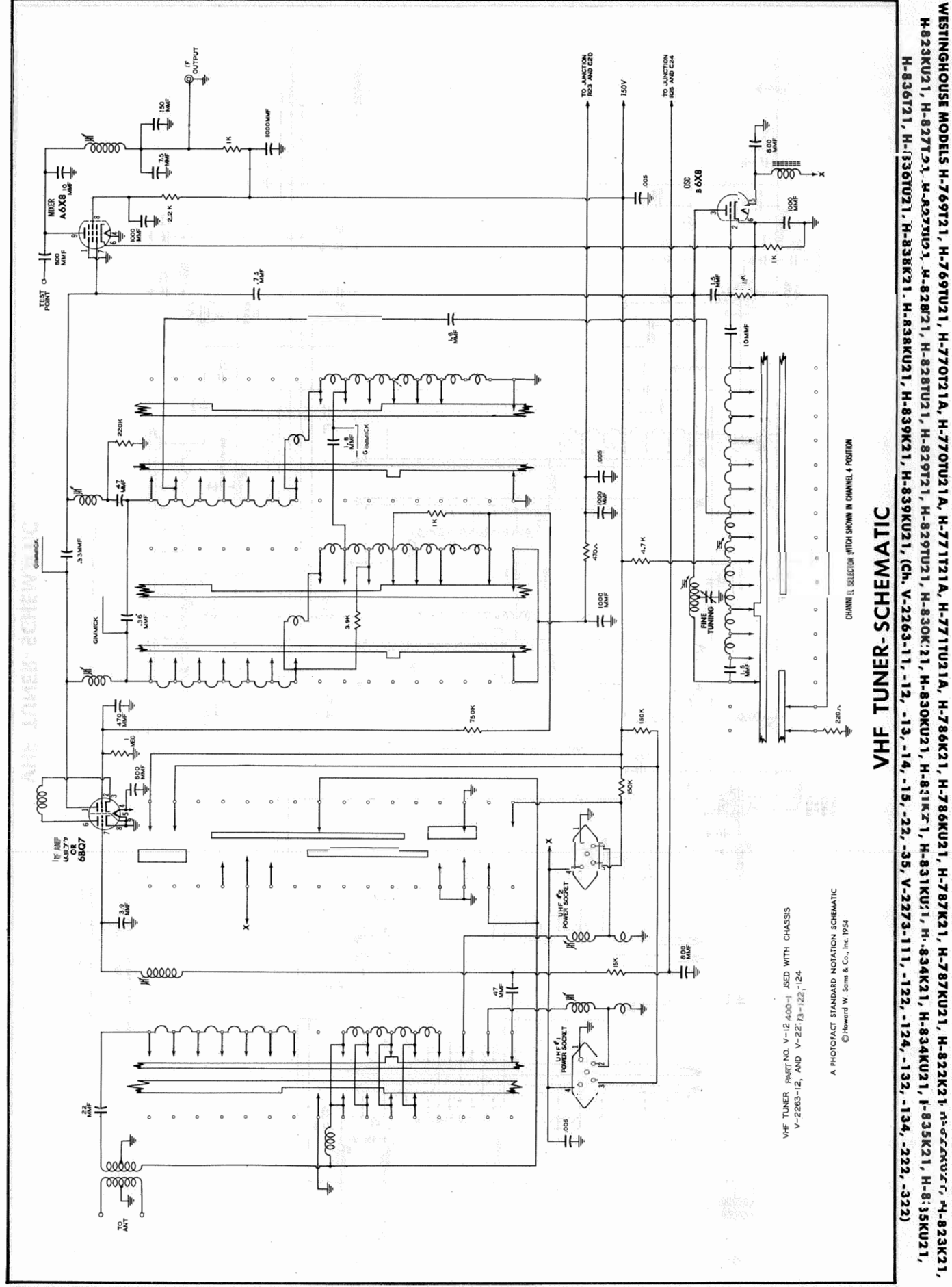
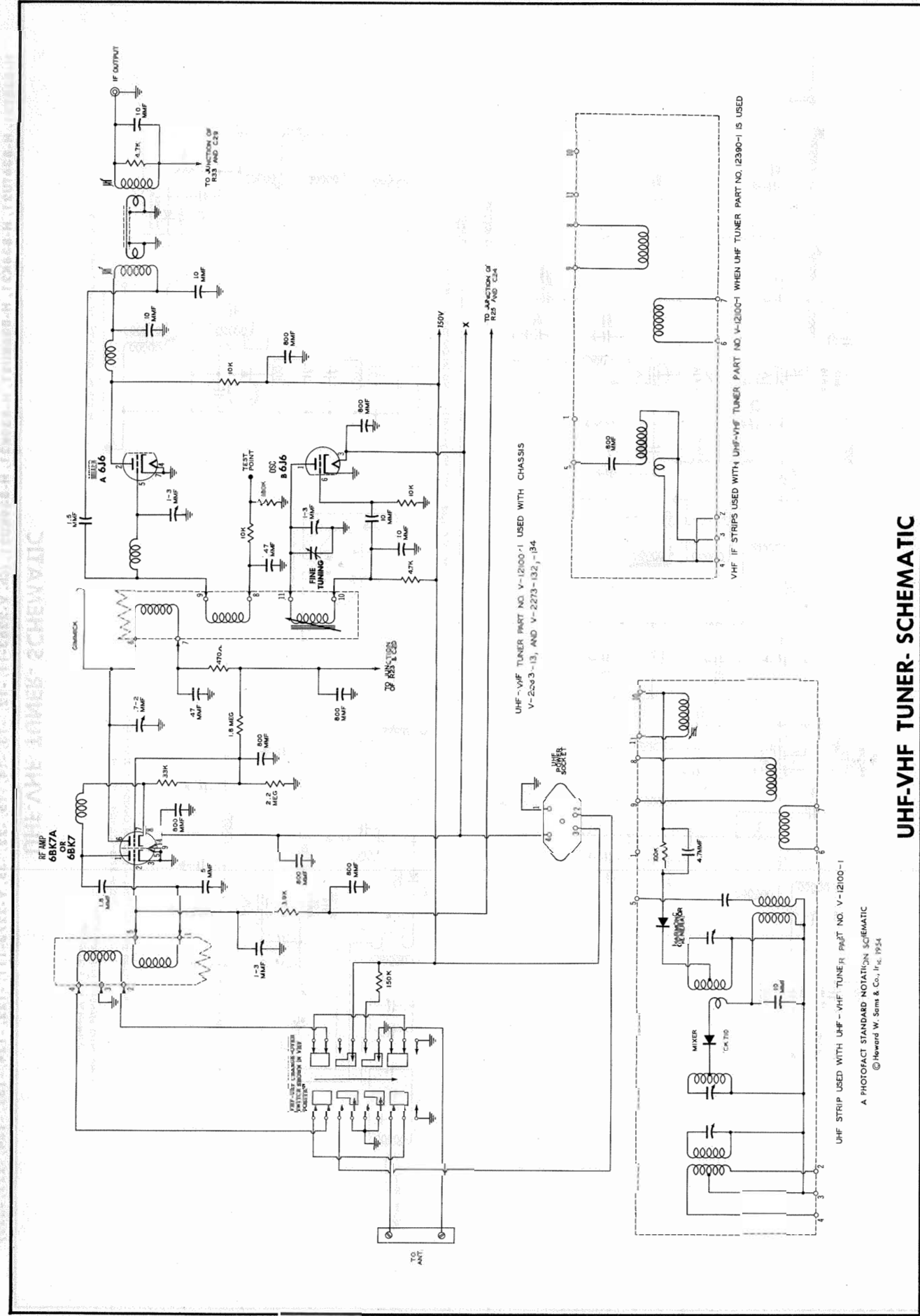
A PHOTOFACT STANDARD NOTATION SCHEMATIC

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UHF-VHF TUNER-SCHEMATIC

H-836T21, H-838K21, H-838KU21, H-839K21, H-839KU21, (Ch. V-2263-11, -12, -13, -14, -15, -22, -33, V-2273-111, -122, -124, -132, -134, -222, -322)



PARTS LIST AND DESCRIPTIONS (Continued)

COILS (cont)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	Westinghouse PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L19	Shunt Peaking Coil	8.8Ω		V-5902-5	19-3250	TV-185	6181	250 Microhenries
L20	1st Sound IF	.6Ω		V-9882-5	17-3400	TV-151	1470	
L21	Flt. Choke	0Ω		V-4886-2	19-1000		4602	1.1 Microhenries
L22	2nd Sound IF	1.1Ω		V-9882-2	17-3400	TV-151	1470	
L23	RF Choke	7Ω		V-9915-2	19-3300		4648	350 Microhenries
L24	Flt. Choke	0Ω		V-4886-2	19-1000		4602	1.1 Microhenries
L25	Quadrature Coil	6Ω		V-11396-1	17-1031		1470 -A	
L26	Flt. Choke	0Ω		V-4886-2	19-1000		4602	1.1 Microhenries
L27	Horiz. Osc.	108Ω		V-6764	19-1576	TV-163	6210	

* Use one winding only.
■ Detune trap.
▲ Drill mounting holes.

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA						
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 CY)	Westinghouse PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.	
L28	.260A	43Ω	1.3HY	V-6471J-3	C-3236 ①	C-2996 ①	C-23X	C5037 ①	26C44	

① Drill one new mounting hole.

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			Westinghouse PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG	1/4A 250V	V-6171-3	V-11960-1	312.250 (1/4A-3AG)	357001	AGC 1/4	4465

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		Westinghouse PART No.	SYLVANIA PART No.	FEDERAL PART No.	
M2	CK704	V-10016-1	IN80 or IN132	IN80 or IN64A	Video Detector

MISCELLANEOUS

ITEM No.	PART NAME	Westinghouse PART No.	NOTES
M3	Dial Light	V-12415-1	Bayonet #47
M4	Tuner	V-12100-1	VHF - Ch. V-2263-13, V-2273-132, -134
	Tuner	V-14170-1	VHF - Ch. V-2263-15, V-2263-39
	Tuner	V-11794-1	VHF - Ch. V-2273-111, V-2263-11
	Tuner	V-12400-1	VHF - Ch. V-2273-122, -124, -322, V-2263-12, -22
	Tuner	V-12325-1	UHF - Ch. V-2273-111
	Tuner	V-12390-1	UHF - Ch. V-2273-122, -132, -322
	Tuner	V-11972-1	UHF - Ch. V-2273-124, -134
M5	Filter Assy.	V-8751	Antenna Input (VHF)
M6	Centering Device		Part of yoke cover (See T4)
M7	Ion Trap	V-9784-5	
B1	Trimmer Cap.	V-11228-2	5-80MMF (Multivibrator trimmer)
	Cabinet	V-1337-10	Mahogany (Models H-830K21, H-830KU21)
	Cabinet	V-1337-11	Blonde (Models H-831K21, H-831KU21)
	Cabinet	V-1356-1	Mahogany (Models H-834K21, H-834KU21)
	Cabinet	V-1356-2	Blonde (Models H-835K21, H-835KU21)
	Cabinet	V-1448-1	Brown (Models H-827T21, H-827TU21)
	Cabinet	V-1448-2	Mahogany (Models H-828T21, H-828TU21)
	Cabinet	V-1448-3	Gray (Models H-829T21, H-829TU21)
	Cabinet	V-1308-16	Brown (Models H-836T21, H-836TU21)
	Cabinet	V-1358-10	Models H-769T21, H-769TU21
	Cabinet	V-1358-11	Mahogany (Models H-838K21, H-838KU21)
	Cabinet	V-1358-12	Blonde (Models H-839K21, H-839KU21)
	Cabinet	V-1339-10	Mahogany (Models H-822K21, H-822KU21)
	Cabinet	V-1339-11	Blonde (Models H-823K21, H-823KU21)
	Cabinet	V-1320-1	Mahogany (Models H-786K21, H-786KU21)
	Cabinet	V-1320-2	Blonde (Models H-787K21, H-787KU21)
	Cabinet	V-1309-10	Mahogany (Models H-770T21A, H-770TU21A)
	Cabinet	V-1309-11	Blonde (Models H-771T21A, H-771TU21A)
	Mask	V-11865-1	Models H-830K21, H-830KU21, H-831K21, H-831KU21, H-831KU21, H-786K21, H-786KU21, H-787K21, H-787KU21
	Mask	V-12487-1	Models H-828T21, H-828TU21, H-829T21, H-829TU21
	Mask	V-12487-2	Models H-827T21, H-827TU21
	Mask	V-11865-4	Models H-838K21, H-838KU21, H-839K21, H-839KU21
	Mask	V-11865-3	Models H-770T21A, H-770TU21A, H-771T21A, H-771TU21A, H-834K21, H-834KU21, H-835K21, H-835KU21, H-836K21, H-836KU21, H-822K21, H-822KU21, H-823K21, H-823KU21, H-824K21, H-824KU21, H-825K21, H-825KU21, H-826K21, H-826KU21, H-827K21, H-827KU21, H-828K21, H-828KU21, H-829K21, H-829KU21, H-830K21, H-830KU21, H-831K21, H-831KU21, H-832K21, H-832KU21, H-833K21, H-833KU21, H-834K21, H-834KU21, H-835K21, H-835KU21, H-836K21, H-836KU21, H-837K21, H-837KU21, H-838K21, H-838KU21, H-839K21, H-839KU21, H-840K21, H-840KU21, H-841K21, H-841KU21, H-842K21, H-842KU21, H-843K21, H-843KU21, H-844K21, H-844KU21, H-845K21, H-845KU21, H-846K21, H-846KU21, H-847K21, H-847KU21, H-848K21, H-848KU21, H-849K21, H-849KU21, H-850K21, H-850KU21, H-851K21, H-851KU21, H-852K21, H-852KU21, H-853K21, H-853KU21, H-854K21, H-854KU21, H-855K21, H-855KU21, H-856K21, H-856KU21, H-857K21, H-857KU21, H-858K21, H-858KU21, H-859K21, H-859KU21, H-860K21, H-860KU21, H-861K21, H-861KU21, H-862K21, H-862KU21, 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PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (cont)

ITEM No.	RATING CAP. VOLT	REPLACEMENT DATA						NOTES
		Westinghouse PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLOY PART No.	
C56	1500	R2CC02Y5Y152P	BPD-0015	DD-152	K071	801-0015	DC-5215	5HK-D15
C57	5000	V-5596-1	BPD-0005	DD-502	K071	801-0005	DC-5215	5HK-D15
C58	.02	RCPI0M6203M	P488-02	DF-203	CUB6S2	GP2-333-103	PT612	6TM-S2
C59	.01	RCPI0M6103M	P488-01	D6-103	CUB6S1	GP2-333-103	PT611	6TM-S1
C60	.005	RCPI0M6502M	P488-005	D6-502	CUB6D5	GP2-333-502	PT625	6TM-D5
C61	5000	V-5596-1	BPD-0005	DD-502	K080	811-005	DC-525	5HK-D5
C62	.1	RCPI0W4104M	P488-1	DF-104	CUB4P1	GP2-333-103	PT401	4TM-P1
C63	.01	RCPI0M6103M	P488-01	D6-103	CUB4S1	GP2-333-103	PT411	4TM-S1
C64	270	RCM02B271K	I469-0003		22R5T27		MCB241	MS-33
C65	270	RCM02B271K	I469-0003		22R5T27		MCB241	MS-33
C66	.1	RCPI0W4104M	P488-1	DF-104	CUB4P1	GP2-333-103	PT401	4TM-P1
C67	.47	RCM02B470K	I469-00005		22R5Q47		MCB225	MS-45
C68A	.01	V-11192-1	*PA-111	*PC-101		GP2-333-103	PT311	4TM-S1
C69	.005	RCPI0W4503M	P488-05	DF-503	CUB4S5	GP2-333-103	PT415	4TM-S5
C70	.01	RCPI0M6103M	P488-01	D6-103	CUB4S1	GP2-333-103	PT411	4TM-S1
C71	.05	RCPI0W4503K	P488-05	DF-503	CUB4S5	GP2-333-103	PT415	4TM-S5
C72	.1	RCPI0W4104M	P488-1	DF-104	CUB4P1	GP2-333-103	PT401	4TM-P1
C73	.1	RCPI0M6103M	P488-01	D6-103	CUB4S1	GP2-333-103	PT411	4TM-S1
C74	5000	V-5596-1	BPD-0005	DD-502	K080	811-005	DC-525	5HK-D5
C75	150	RCM02B151K	I469-00015		22R5T15		MCB241	MS-33
C76	150	RCM02B151K	I469-00015		22R5T15		MCB241	MS-33
C77	680	RCM02B681K	I479-0007		22R5T68		MCB241	MS-33
C78	390	RCM02B391K	I469-0004		22R5T39		MCB241	MS-33
C79	.01	RCPI0M6103M	P488-01	D6-103	CUB4S1	GP2-333-103	PT411	4TM-S1
C80	.005	RCPI0M6502M	P488-005	D6-502	CUB6D5	GP2-333-502	PT625	6TM-D5
C81	.01	RCPI0M6103M	P488-01	D6-103	CUB4S1	GP2-333-103	PT411	4TM-S1
C82	.1	RCPI0W4104M	P488-1	DF-104	CUB4P1	GP2-333-103	PT401	4TM-P1
C83	100	RCM02B101K	I469-0001		22R5T10		MCB235	MS-31
C84	3900	RCM02B391K	I469-0004		22R5T39		MCB241	MS-33
C85	.1	RCPI0W4104M	P488-1	DF-104	CUB4P1	GP2-333-103	PT401	4TM-P1
C86	100	RCM02B101K	I469-0001		22R5T10		MCB235	MS-31
C87	.1	RCPI0W4104M	P488-1	DF-104	CUB4P1	GP2-333-103	PT401	4TM-P1
C88	390	RCM02B391K	I469-0004		22R5T39		MCB241	MS-33
C89	.25	RCPI0W4254M	P488-25	D6-254	CUB4P25	GP2-333-103	PT4025	4TM-P25
C90	.01	RCPI0M6103M	P488-01	D6-103	CUB4S1	GP2-333-103	PT411	4TM-S1
C91	.1	RCPI0M6104M	P488-1	DF-104	CUB4P1	GP2-333-103	PT401	4TM-P1
C92	.1	RCPI0W4104M	P488-1	DF-104	CUB4P1	GP2-333-103	PT401	4TM-P1
C93	.04	RCPI0M4103M	P488-04	DF-104	CUB4P1	GP2-333-103	PT401	4TM-P1
C94	5000	V-5596-1	BPD-0005	DD-502	K080	811-005	DC-525	5HK-D5
C95	500	V-9901-3	HY20C	TV3-502	MMU30T5	413	HV30035A	20DK-T5
C96	.25	RCPI0M4254M	P488-25		CUB4P25		PT4025	4TM-P25
C97	.06	RCPI0M4903M	P488-06		CUB4S6		PT519	4TM-S6
C98	.43	V-9792-104307						
C99	.01	V-5040-15	6892X-01		CUB4S1		PT611	6TM-S1
C100	.01	V-5040-15	6892X-01		CUB4S1		PT611	6TM-S1
C101	.005	RCPI0M6502M	P488-005	D6-502	CUB6D5	GP2-333-502	PT625	6TM-D5

Note 1. Some models use .01MFD in this application (part number RCPI0M6103M).

Note 2. Not used in all models.

Note 3. Some models use 51MMF in this application (part number V-9792-105103).

Note 4. Used in Ch. V-2263-22 and V-2273-222.

* Items C68A, C68B, C68C, C68D, R77A, R77B, R77C, R77D are combined in one unit.

CONTROLS

ITEM No.	RATING RESIST- ANCE WATTS	REPLACEMENT DATA				INSTALLATION NOTES
		Westinghouse PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	
RIA	1500K	V-9877M-7	* QJ-519	RTV-455		Contrast-Panel Volume & switch-tapped @ 430KΩ-Rear
R2	60K	V-1153-3	Q11-125			Horiz. Hold
R3A	750K	V-1153-2	Q11-136	A47-2Meg-S	AB-69	Vert. Hold
B	Shaft	Not Req.	Not Req.	A47-100K-S	AK-4	Attach to R3A
R4A	100K	V-1153D-2	Q11-126			Brightness
B	Shaft	Not Req.	Not Req.	A47-100K-S	AK-4	Attach to R4A
R5	1 Meg	V-1227-2	Q11-138			AGC
R6	500K	V-11345-2		39-500		Buzz - wire wound
R7A	5000K	V-9461	Q11-114	A47-500K-S	AB-10	Vert. Linearity
B	Shaft	Not Req.	Not Req.	AK-4	AK-4	Attach to R7A
R8A	250K	V-9813-4	Q11-131	A47-250K-S	AB-50	Height
B	Shaft	Not Req.	Not Req.	AK-4	AK-4	Attach to R8A
R9A	2 Meg	V-989E-2	Q11-131	A47-2Meg-S	AB-75	Focus
B	Shaft	Not Req.	Not Req.	AK-4	AK-4	Attach to R9A
R10	1 Meg					Tone-Note

* CONCENTRIKIT EQUIVALENT KIT K-2 BASE ELEMENTS & SHAFTS B17-109 & P1-310 (Panel)

B18-133X & R2-329 (Rear) & SWITCH 76-1

Note - Used in chassis No. V-2263-22 only.

RESISTORS

ITEM No.	RATING OHMS WATT	REPLACEMENT DATA		NOTES
		Westinghouse PART No.	IRC PART No.	
R11	22K		BTS-22K	
R12	47K		BTS-47K	
R13	820K		BTS-820K	
R14	470K		BTS-470K	
R15	1500K		BTA-1500	
R16	6800K		BTS-6800	
R17	100K		BTS-100K	
R18	100K		BTS-100K	
R19	100K		BTS-100K	
R20	8200K		BTS-8200	
R21	10K		BTS-10K	
R22	330K		BTA-330K	
R23	3900K	RC40AE392K	BTS-3900	
R24	18 Meg	RC20AE1867	BTS-18 Meg	
R25	1.5 Meg	RC20AE1557	BTS-1.5 Meg	
R26	390K	RC20AE394K	BTS-390K	
R27	10K	V-9927-10	BTS-10K	

RESISTORS (cont)

ITEM No.	RATING OHMS WATT	REPLACEMENT DATA		NOTES
		Westinghouse PART No.	IRC PART No.	
R45	330K	RC20AE334K	BTS-330K	
R46	330K	RC20AE334K	BTS-330K	
R47	1.5 Meg	RC20AE155K	BTS-1.5 Meg	
R48	100K	RC20AE100K	BTS-100K	
R49	4700K	RC20AE472K	BTS-4700	
R50	18K	RC40AE183K	BTA-18K	
R51	4700K	RC30AE472K	BTA-4700	
R52	120K	RC20AE121	BTS-120	
R53	1200K	RC20AE122K	BTS-1200	
R54	27K	RC40AE273K	BTS-27K	
R55	470K	RC20AE471M	BTS-470	
R56	330K	RC20AE334K	BTS-330K	
R57	12K	RC20AE123K	BTS-12K	
R58	10K	RC20AE103M	BTS-10K	
R59	150K	RC20AE151M	BTS-150	
R60	180K	RC20AE181K	BTS-180	
R61	1000K	RC20AE102K	BTS-1000	
R62	560K	RC40AE561K	BTA-560	
R63	330K	RC20AE334K	BTS-330K	
R64	220K	RC20AE224K	BTS-220K	
R65	270K	RC20AE274K	BTS-270K	
R66	220K	RC20AE222K	BTS-220	
R67	4700K	RC20AE472K	BTS-4700	
R68	470K	RC20AE474K	BTS-470K	
R69	470K	RC20AE474K	BTS-470K	
R70	220K	RC20AE224K	BTS-220K	
R71	390K	RC20AE394K	BTS-390K	
R72	47K	RC20AE473K	BTS-47K	
R73	1 Meg	RC20AE105K	BTS-1 Meg	
R74	1200K	RC20AE122K	BTS-1200	
R75	27K	RC20AE273K	BTS-27K	
R76	3900K	BTS-3900		
R77A	22K	BTS-22K		
R77B	22K	BTS-22K		
R77C	22K	BTS-22K		
R77D	22K	BTS-22K		
R78	8200K	BTS-8200		
R79	1200K	BTS-1200		
R80	10K	BTS-10K		
R81	10K	BTS-10K		

Note 1. Some models may use a 6800K resistor in this application.

Note 2. Some models may use a 330K resistor in this application.

Note 3. Some models may use a single resistor in this application.

Note 4. Used in chassis No. V-2263-22 or V-2273-222 only.

* Items R77A, R77B, R77C, R77D, C68A, C68B, C68C, C68D are combined in one unit.

TRANSFORMER (POWER)

ITEM No.	RATING PRI. SEC. 1 SEC. 2	REPLACEMENT DATA					
		Westinghouse PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	RCA TYPE No.	Halldorson PART No.
T1	117V AC 1.2A 50VCT 280ADC 5VAC 6VCT 4.8A	V-12605A-1	P-8167 ④		J3-81BC ②		P9739 ③

① Parallel and phase 6, V 6A windings for Sec. # 3.

② Tape 6.3V 1.2A winding.

③ Parallel and phase 6, V 4A, and 8A windings for Sec. # 3.

④ Drill new mounting holes.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA					
		Westinghouse PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	RCA TYPE No.	Halldorson PART No.
T2	Horiz. Output Trans.	V-11548-3	A-8236 *	HVO-9 & MWC-1 ①	D-35 *	232T1 *	FB411 & RF800 * ①
T3	Vert. Output Trans.	V-10909-2	A-8141	A-3039	A-104K	228T1 *	Z1806
T4	Yoke-Horiz. (20MH)	V-12218-2	DY-11A ③	MDP-73 ③	Y-22-1 ③	222D1 ③	DF605 ③
T5	Vert. (38MH)	V-12218-1 ②					
T6	Horiz. Lin. Coil (1.6-MH)	V-11781-1	WC-8 ④	MWC-6 ④	WC-12 ④	213R1 ④	RF800 ④
T7	Width Coil (1.5-MH)	V-11791-1	WC-8 ④	MWC-6 ④	WC-12 ④	213R1 ④	WC-18 ④

① Drill new mounting holes.

② Alternate deflection yoke.

③ Use original yoke cover and positioning device.

④ Drill new mounting hole on original slider and core.

⑤ Connect to coded blue and green terminals.

⑥ Connect to terminals 3 and 4.

⑦ Do not use tap.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

ORIGINAL TERMINAL CONNECTIONS	Stancor Replacement Connections	Merit Replacement Connections	Triad Replacement Connections	RCA Replacement Connections	Halldorson Replacement Connections	Thordarson Replacement Connections
3	3	Hi-Volt Rect Plate Lead	Hi-Volt Rect Plate Lead	Hi-Volt Rect Plate Lead	Hi-Volt Rect Plate Lead	
2	2	9	10	10	9	
4	4	7	9 & T	8	See Note ⑨	
8	8	3	5	4	3	

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA (cont)

ORIGINAL TERMINAL CONNECTIONS	Stancor Replacement Connections	Merit Replacement Connections	Triad Replacement Connections	RCA Replacement Connections	Halldorson Replacement Connections	Thordarson Replacement Connections
7	7	1	3	3	1	
5	5	MWC-1 (Blue Term)	2	1	RF800 (Term #1)	
6	6	MWC-1 (Red Term)	1	2	RF800 (Term #2)	
8 & 7	8 & 7	MWC-1 (orange & black terms) 3 & 1	3 & 5	4 & 3	RF800 (Term #3 & #4) 3 & 1	

⑧ If AGC does not function properly, reverse secondary connections to width.

⑨ Connect damper cathode (clear lead) to terminal #8, connect yoke (red lead) to terminal #5.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI. SEC.
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