

WESTINGHOUSE
MODEL H-840CK15 (Ch. V-2284-15)

TRADE NAME	Westinghouse Model H-840CK15 (Ch. V-2284-15)	
MANUFACTURER	Westinghouse Electric Corp., Television & Radio Div., Metuchen, N.J.	
TYPE SET	Color Television Receiver	
TUBES	Forty-four	
POWER SUPPLY	110-120 Volts AC-60 Cycles	RATING 4.35 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)	

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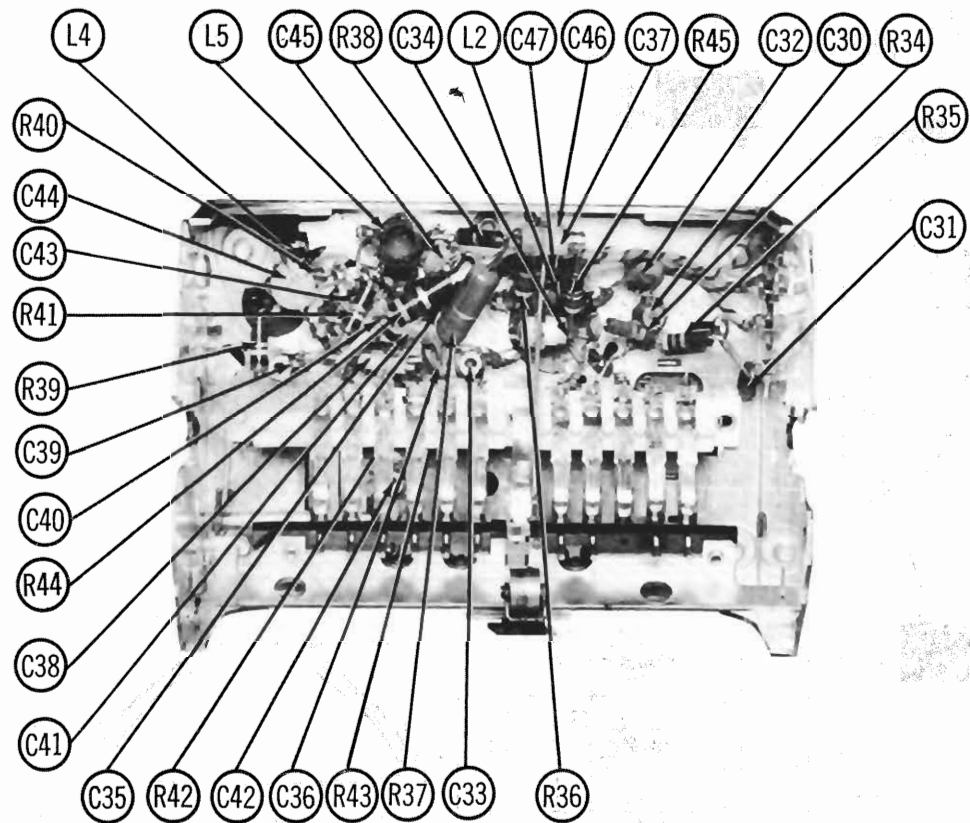
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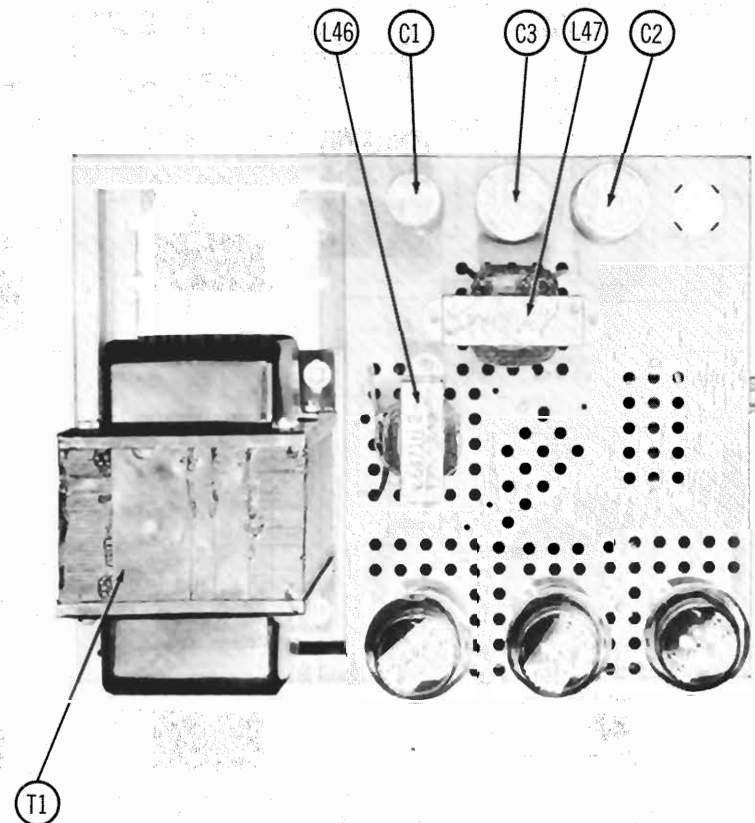
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SET 259

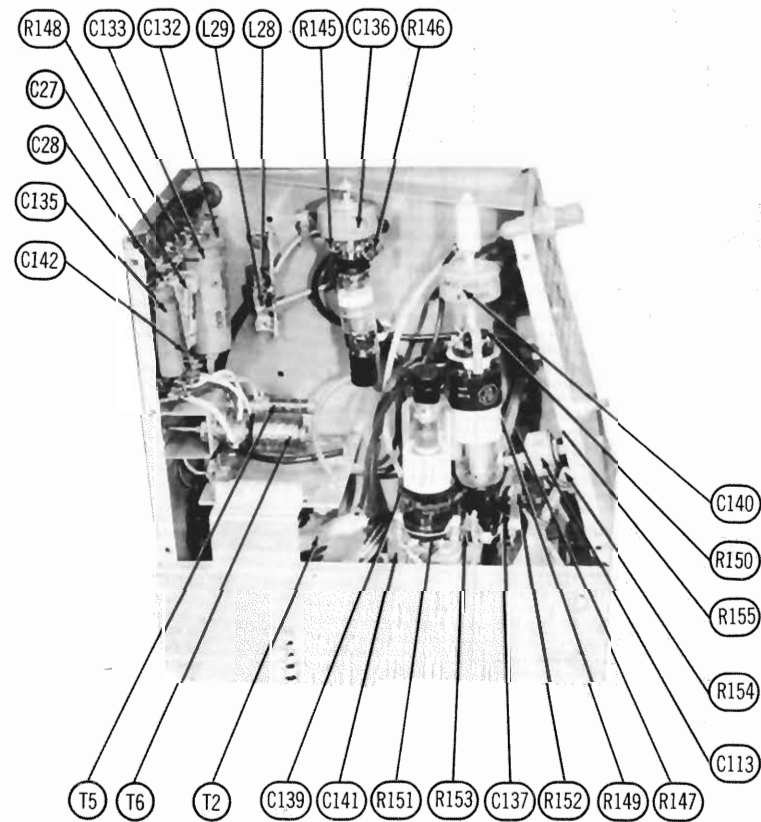
FOLDER 15



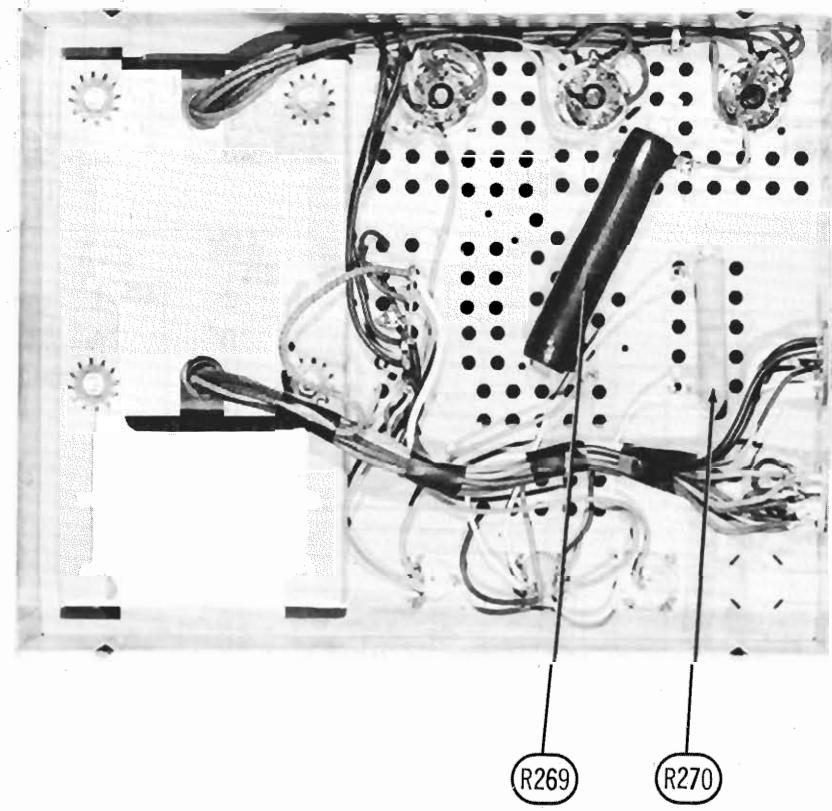
RF TUNER-BOTTOM VIEW



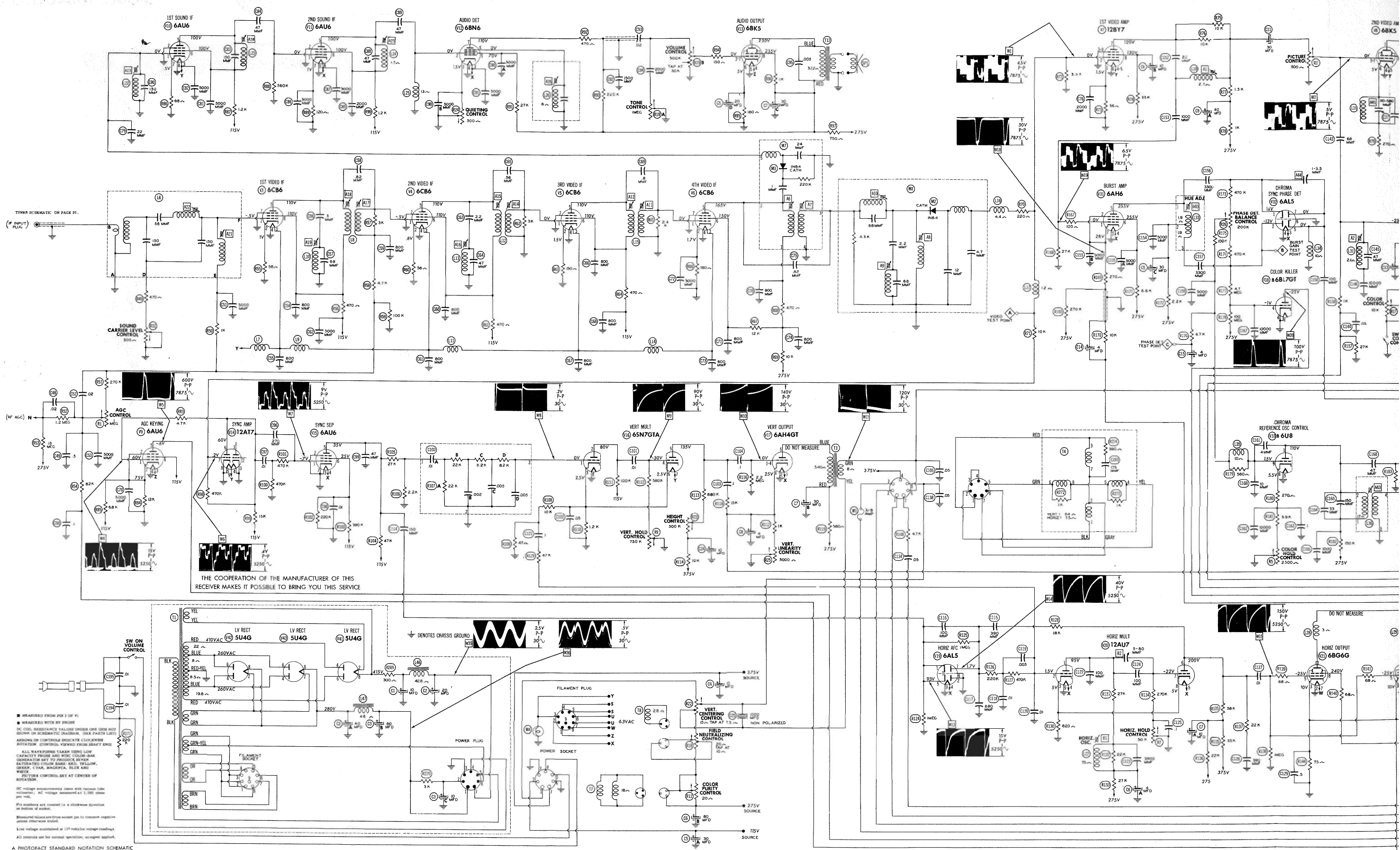
POWER SUPPLY CHASSIS-TOP VIEW



HIGH VOLTAGE COMPARTMENT



POWER SUPPLY CHASSIS-BOTTOM VIEW

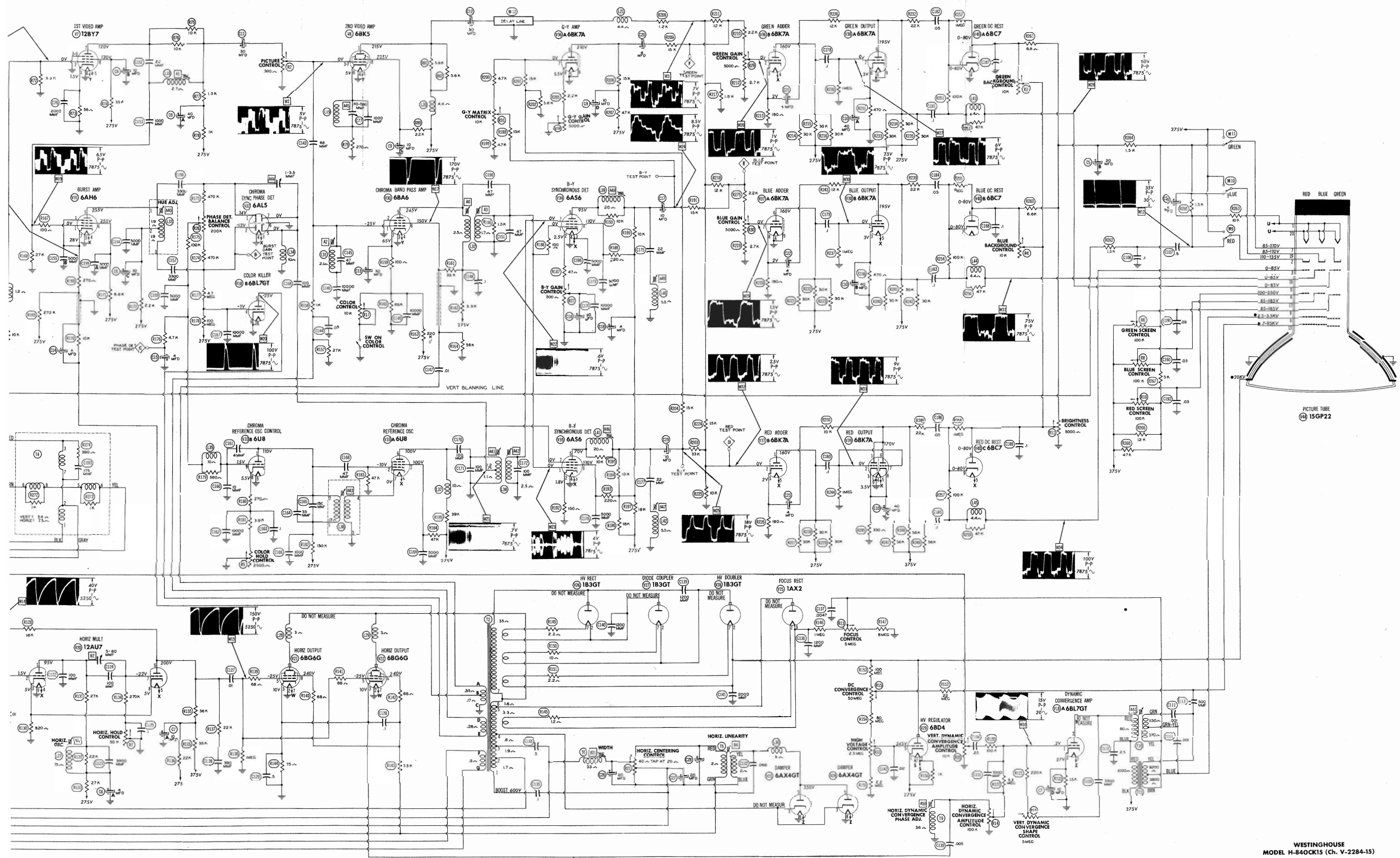


TUNER SCHEMATIC ON PAGE 20.

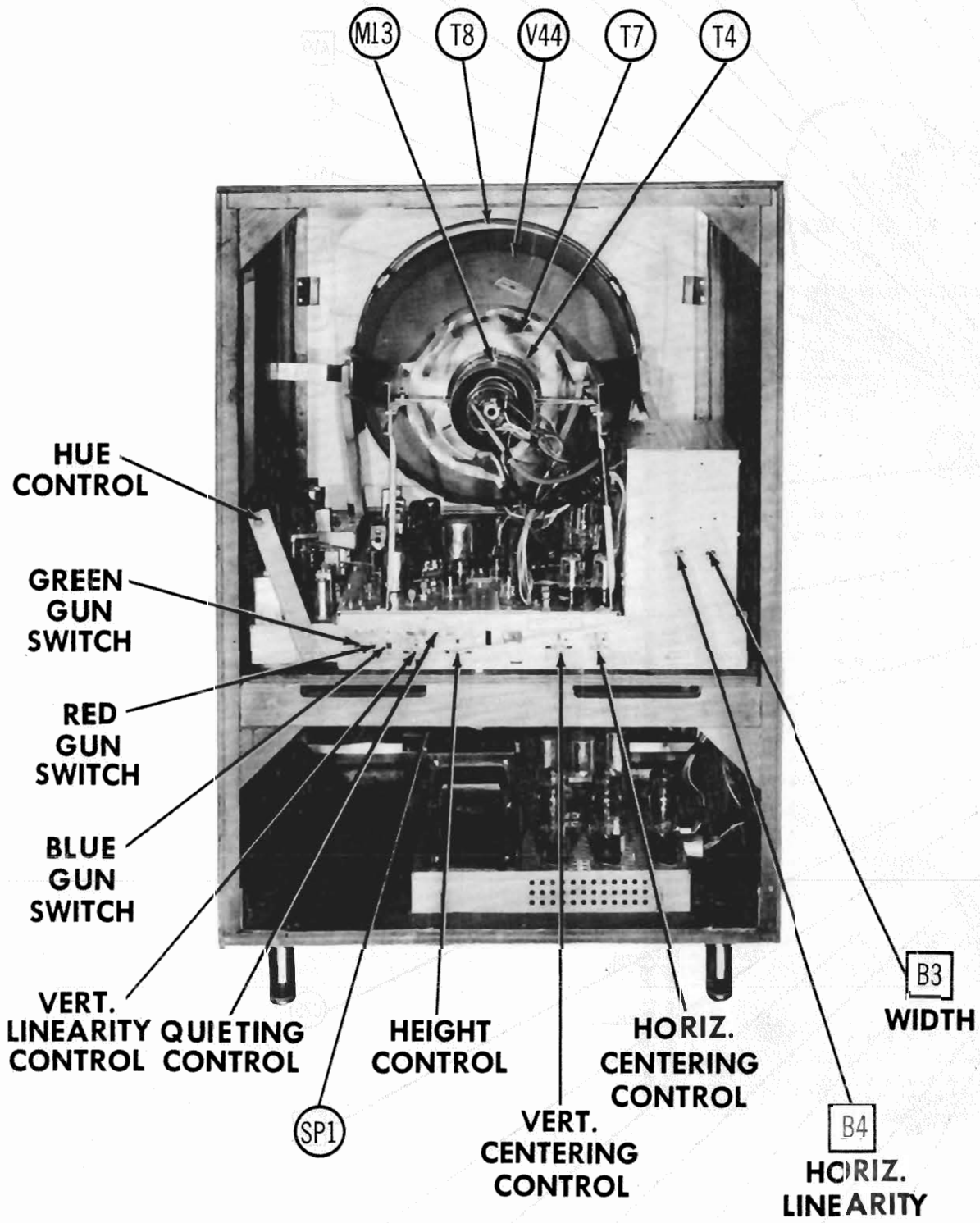
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

- MEASURED FROM PIN 3 OF V1
- DC VOL. RESISTANCE VALUES GIVEN ARE NOT GIVEN ON SCHEMATIC DRAWING. CHECK FACTOR LABELS APPROXIMATELY INDICATE CLOCKWISE ROTATION. CONTROL VALUES GIVEN FROM SCHEMATIC DRAWING.
- ALL WAVEFORMS TAKEN USING LOW CAPACITY PROBES AND WERE COLOR-BAR SIGNALS SET TO PRODUCE DEVIANT SATURATED COLOR BARS: RED, YELLOW, GREEN, CYAN, MAGENTA, BLUE AND WHITE.
- PICTURE CONTROLS SET AT CENTER OF ROTATION.
- DC voltage measurements taken with vacuum tube pin voltmeter. AC voltage measured at 1,000 ohms per volt.
- Pin numbers are quoted in a clockwise direction on bottom of socket.
- Dimensioned values are from socket pin to nearest negative unless otherwise stated.
- Low voltage indicated at 177 indicates voltage readings.
- All controls set for normal operation, except as noted.

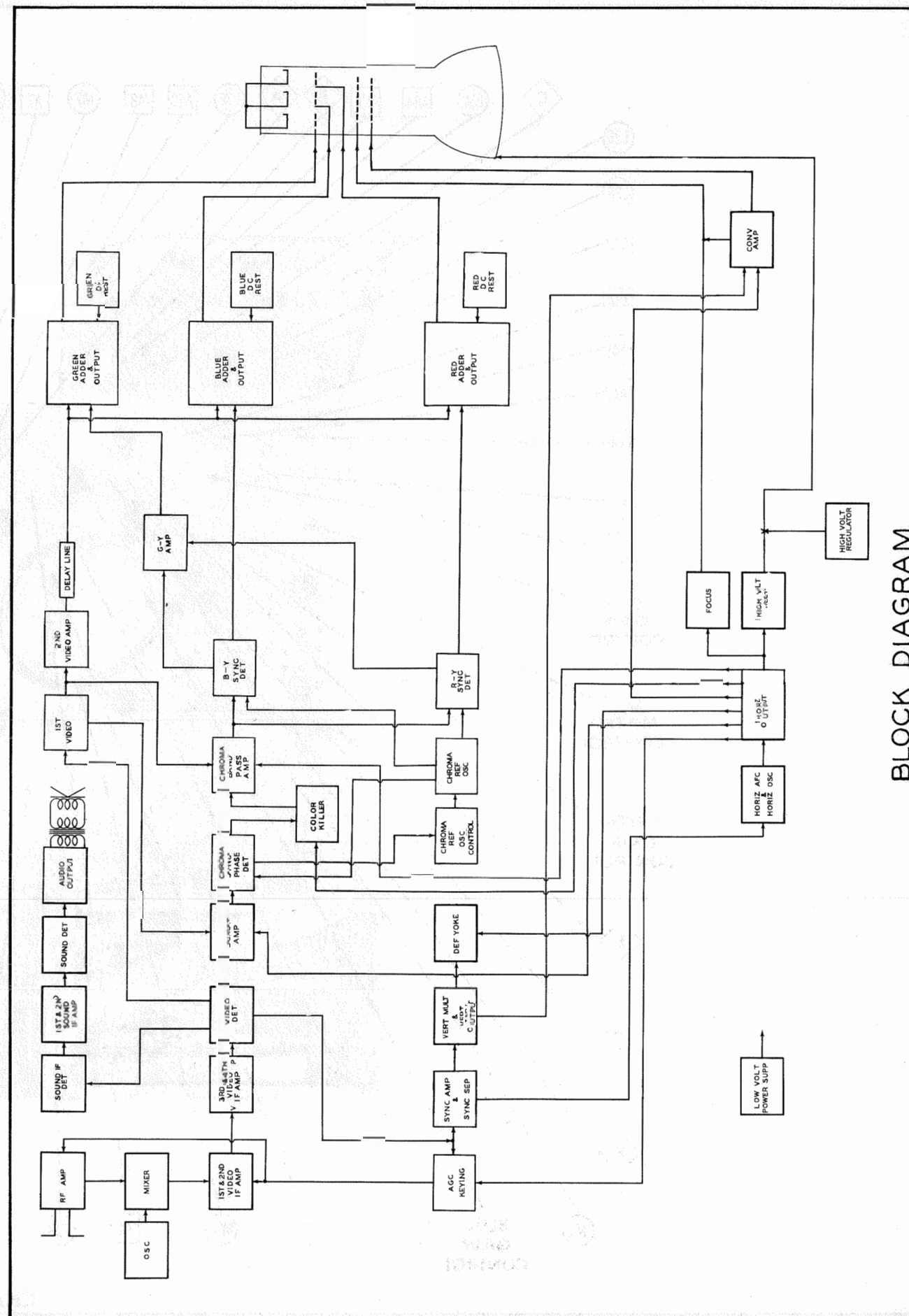
A PHOTOFAC STANDARD NOTATION SCHEMATIC
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MODEL H-840CK15 (Ch. V-2284-15)

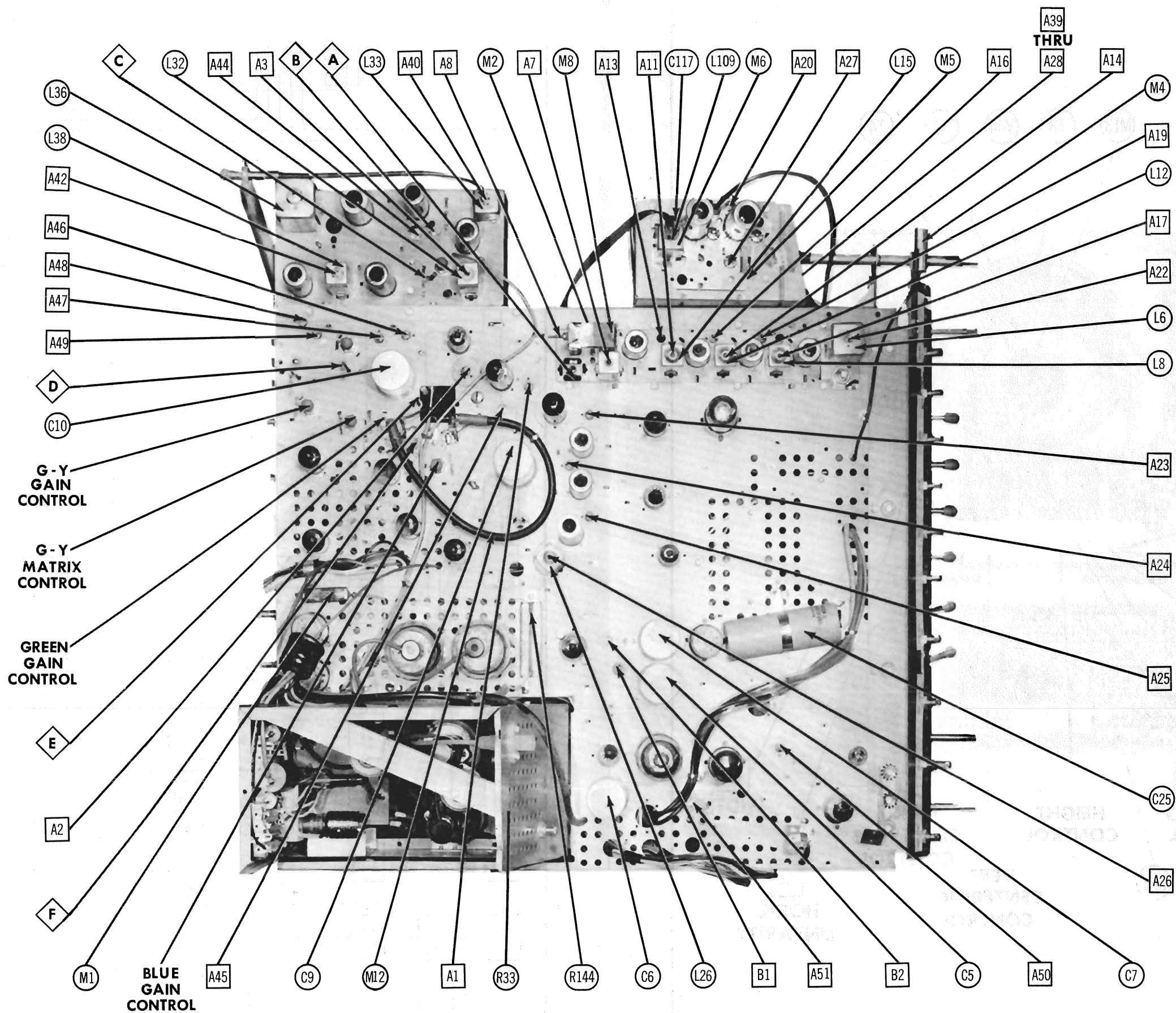


CABINET-REAR VIEW



SET 259 FOLDER 15

WESTINGHOUSE
MODEL H-840CK15 (Ch. V-2284-15)
BLOCK DIAGRAM



CHASSIS TOP VIEW

WESTINGHOUSE
 MODEL H-840CK15 (Ch. V-2284-15)

ALIGNMENT INSTRUCTIONS (cont)

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
22. .001MFD	High side to point \odot . Low side to chassis.	2.5MC (5MC Swp)	3.05MC 3.58MC 4.05MC	"	Vert. Amp. thru detector probe (Fig. 8) to point \odot . Low side to chassis.	A45	Adjust for MINIMUM 3.58MC marker response as in Fig. 6. Replace V41 in its socket. Remove jumper from pin 7 of V33A to chassis. Remove jumper from junction of R165 and R169 to chassis.

SYNCHRONOUS DETECTOR FILTER ALIGNMENT

Remove V7 (12BY7) from its socket.
Connect a jumper from Pin 7 (cathode) of 6U8 (V33A) to chassis.

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
23. .01MFD	High side to pin 1 (grid) of V35 (6DB6 or 6AS6) Low side to chassis.	0.5MC (1MC Swp)	0.5MC	Any	Vert. Amp. thru detector probe (Fig. 8) to point \odot . Low side to chassis.	A46	Remove V34 (6DB6 or 6AS6) from its socket. Adjust for response similar to Fig. 16. Replace V34 in its socket.
24. "	"	2.5MC (5MC Swp)	3.58MC	"	"	A47	Adjust for MINIMUM response at 3.58MC.
25. "	"	0.5MC (1MC Swp)	0.5MC	"	Vert. Amp. thru detector probe (Fig. 8) to point \odot . Low side to chassis.	A48	Remove V35 (6DB6 or 6AS6) from its socket. Adjust for response similar to Fig. 16.
26. "	"	2.5MC (5MC Swp)	3.58MC	"	"	A49	Adjust for MINIMUM response at 3.58MC. Replace V35 and V7 in their sockets. Remove jumper from pin 7 of V33A to chassis.

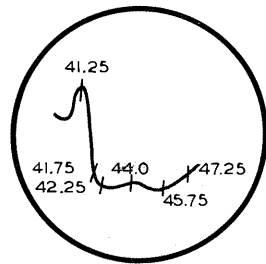


FIG. 9

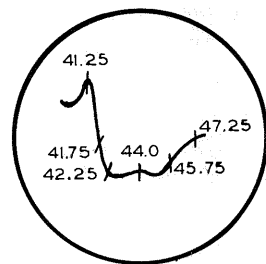


FIG. 10

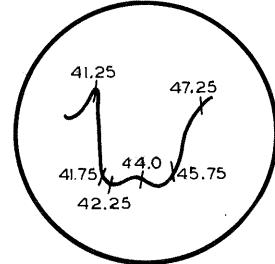


FIG. 11

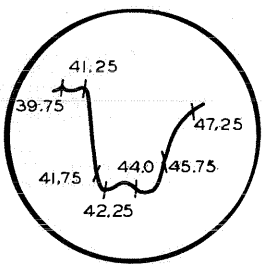


FIG. 12

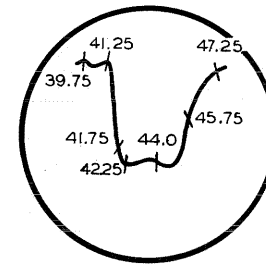


FIG. 13

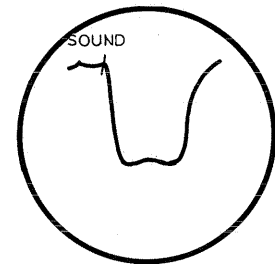
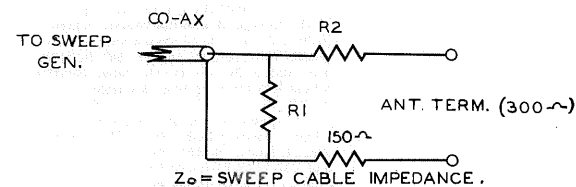


FIG. 14



Z_0	R1	R2
56 \sim	56 \sim	120 \sim
72 \sim	82 \sim	110 \sim

FIG. 15

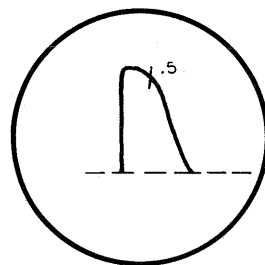
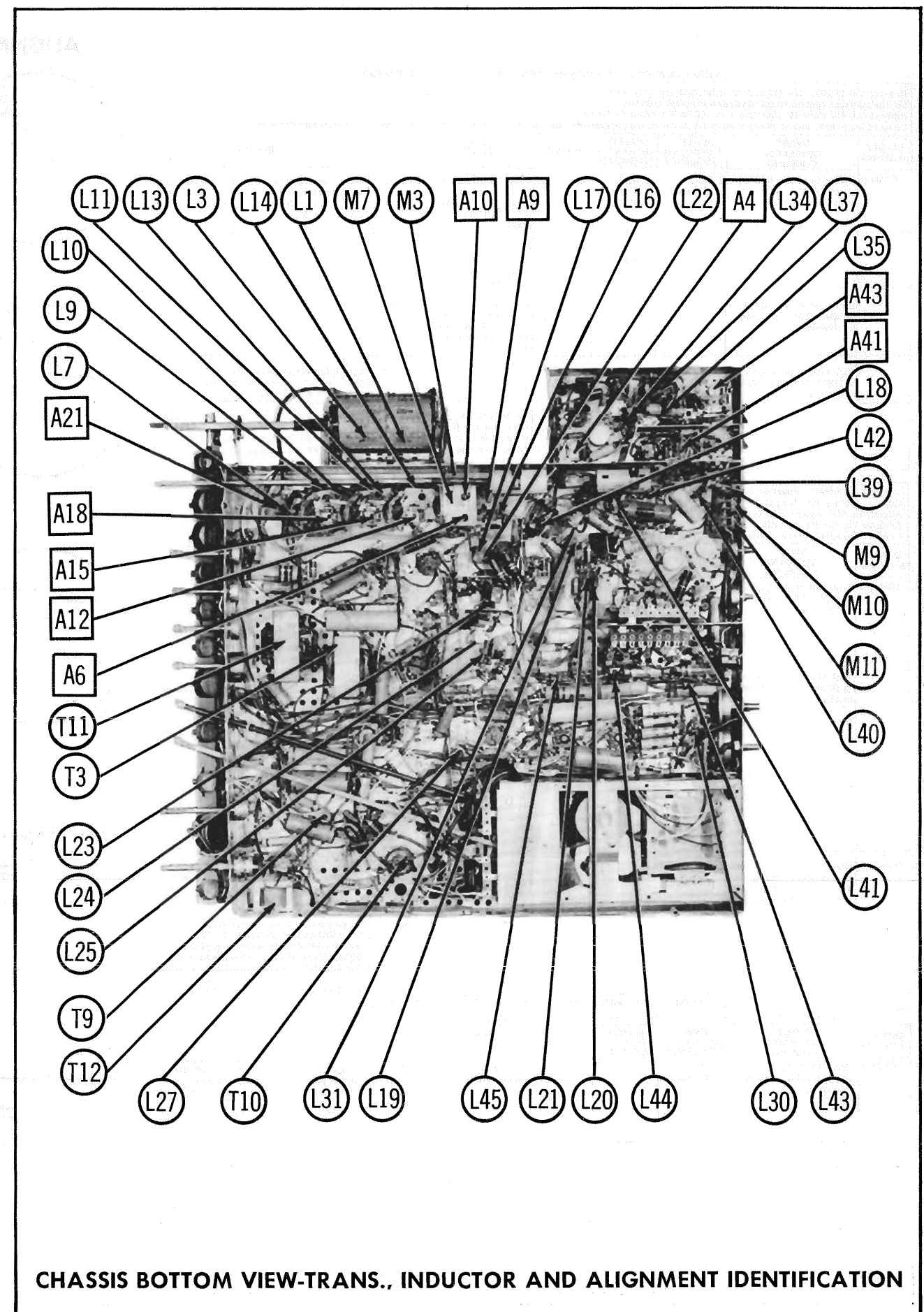


FIG. 16



CHASSIS BOTTOM VIEW-TRANS., INDUCTOR AND ALIGNMENT IDENTIFICATION

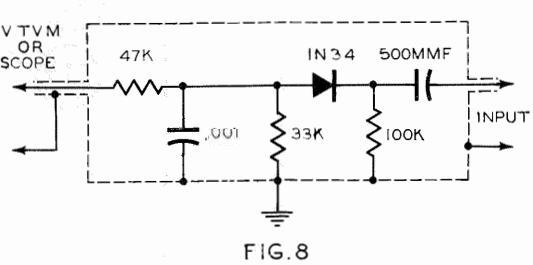
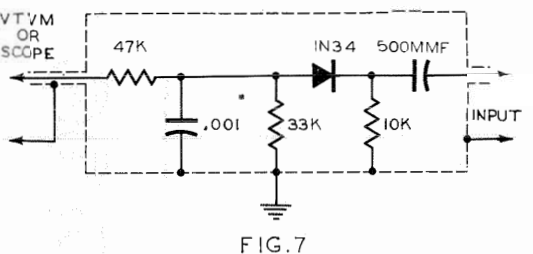
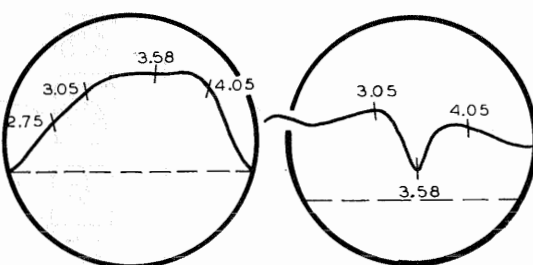
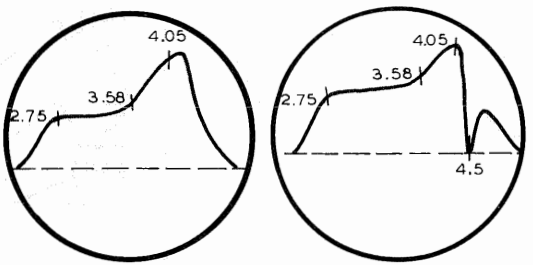
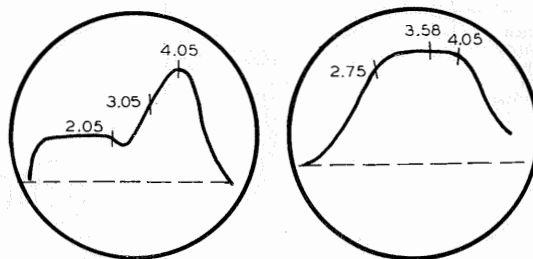
WESTINGHOUSE
MODEL H-840CK15 (Ch. V-22284-15)

ALIGNMENT INSTRUCTIONS

VIDEO AMPLIFIER AND CHROMA BAND PASS AMPLIFIER ALIGNMENT

Remove V41 (5U4G), the 410 volt rectifier tube from its socket.
Set the contrast control to its maximum contrast position.
Remove the 4th video IF amplifier tube (6CB6/V6) from its socket.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1. .005MFD	High side to pin 2 (grid) of 12BY7 (V7). Low side to chassis.	2.5MC (5MC Swp)	2.05MC 3.05MC 4.05MC	Any	Vert. Amp. thru detector probe (Fig. 7) to pin 3 or 7 of 6BK5 (V8). Low side to chassis.	A1	Short out 4.5MC sound trap (not used in all sets) in cathode circuit of first video amp 12BY7 (V7). Adjust A1 for peaked response similar to Fig. 1.
2. "	"	"	2.75MC 3.58MC 4.05MC	"	Vert. Amp. thru detector (Fig. 8) to pin 1 (grid) of 6BA6 (V30). Low side to chassis.	A2	Adjust for response similar to Fig. 2.
3. "	High side to pin 1 (grid) of 6BA6 (V30). Low side to chassis.	"	"	"	Vert. Amp. thru detector (Fig. 7) to pin 1 (grid) of 6DB6/6AS6 (V35). Low side to chassis.	A3, A4	Adjust for response similar to Fig. 3.
4. "	High side to pin 2 (grid) of 12BY7 (V7). Low side to chassis.	"	"	"	"	"	Check for response similar to Fig. 3. Remove short across 4.5MC sound trap in cathode circuit of V7.
5. "	"	Not used	4.5MC (Unmod)	"	Use VTVM. DC probe thru detector (Fig. 7) to pin 3 or 7 of 6BK5 (V8). Common to chassis.	A5	If set has 4.5MC sound trap coil in cathode circuit of first video amp (V7), adjust the coil slug (A5) for MINIMUM deflection. Replace V6 in its socket.



SOUND IF ALIGNMENT USING A TV SIGNAL

Replace V41 (5U4G) and V2 (6BQ7A or 6BZ7) in their sockets.
Tune the receiver to a TV station and connect an attenuator between receiver and antenna so that the signal input to the receiver can be varied from weak to strong. If a suitable attenuator is not available, disconnect the antenna lead-in and stray feed the signal into the receiver by placing the lead-in near the antenna terminals. Adjust A23, A24 and A25 for maximum program sound. If peaks appear at two different slug settings use the one at farthest counter clockwise position.
Reduce input signal to lowest useable level and recheck settings of A23, A24 and A25.
Apply a strong signal and adjust A26 for maximum program sound. If two widely separated peaks appear use the one with A26 farthest counter clockwise.
If two peaks appear within a narrow range of adjustment, the signal strength being applied is too low or the quieting control (R24) is improperly adjusted. Apply a weak signal and adjust R24 for minimum noise. Normal adjustment should occur near the mid-range setting of R24.

OSCILLATOR ALIGNMENT

Complete oscillator alignment may not be necessary. If the oscillator seems to be off frequency approximately the same amount for a majority of the channels it may be possible to correct them in one step using A27. It should be noted that this is an all channel oscillator circuit adjustment and should not be used to correct for any individual channel.
If adjustment of A27 will not bring all channels well within the range of the fine tuning control it will be necessary to adjust the channel strip adjustment for each channel that is off frequency.
The channel oscillator adjustment screws are reached through a hole just to the right of the channel switch shaft. The correct adjustment screw is accessible through this hole as the channel switch is turned to each channel.
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.
Set the fine tuning control to the mid-position of its range.

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
15. Fig. 15	Across antenna terminals thru matching pad (Fig. 15)	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. amp. thru 47KΩ to point (X) . Low side to chassis.	A28	Adjust to place sound marker in trap notch as in Fig. 14.
		207MC (10MC Swp)	205.25MC 209.75MC	12		A29	
		201MC (10MC Swp)	199.25MC 203.75MC	11		A30	
		195MC (10MC Swp)	193.25MC 197.75MC	10		A31	
		189MC (10MC Swp)	187.25MC 191.75MC	9		A32	
		183MC (10MC Swp)	181.25MC 185.75MC	8		A33	
		177MC (10MC Swp)	175.25MC 179.75MC	7		A34	
		171MC (10MC Swp)	169.25MC 173.75MC	6		A35	
		165MC (10MC Swp)	163.25MC 167.75MC	5		A36	
		159MC (10MC Swp)	157.25MC 161.75MC	4		A37	
		153MC (10MC Swp)	151.25MC 155.75MC	3		A38	
		147MC (10MC Swp)	145.25MC 149.75MC	2		A39	

RF AND MIXER ALIGNMENT

The RF and mixer portion of this receiver has been properly aligned at the factory and is very stable.
Alignment of this portion should not be required in the field.

3.58MC SUB CARRIER ALIGNMENT

Disable the chroma reference oscillator (V33A) by shorting Pin 7 (cathode) to chassis with a short jumper.
Disable the color killer by removing V41 (5U4G) from its socket.
Connect the junction of R165 and R169 (270KΩ and 270Ω in cathode circuit of V31) to chassis with a short jumper.
The generator used should provide a 3.58MC signal with crystal accuracy.

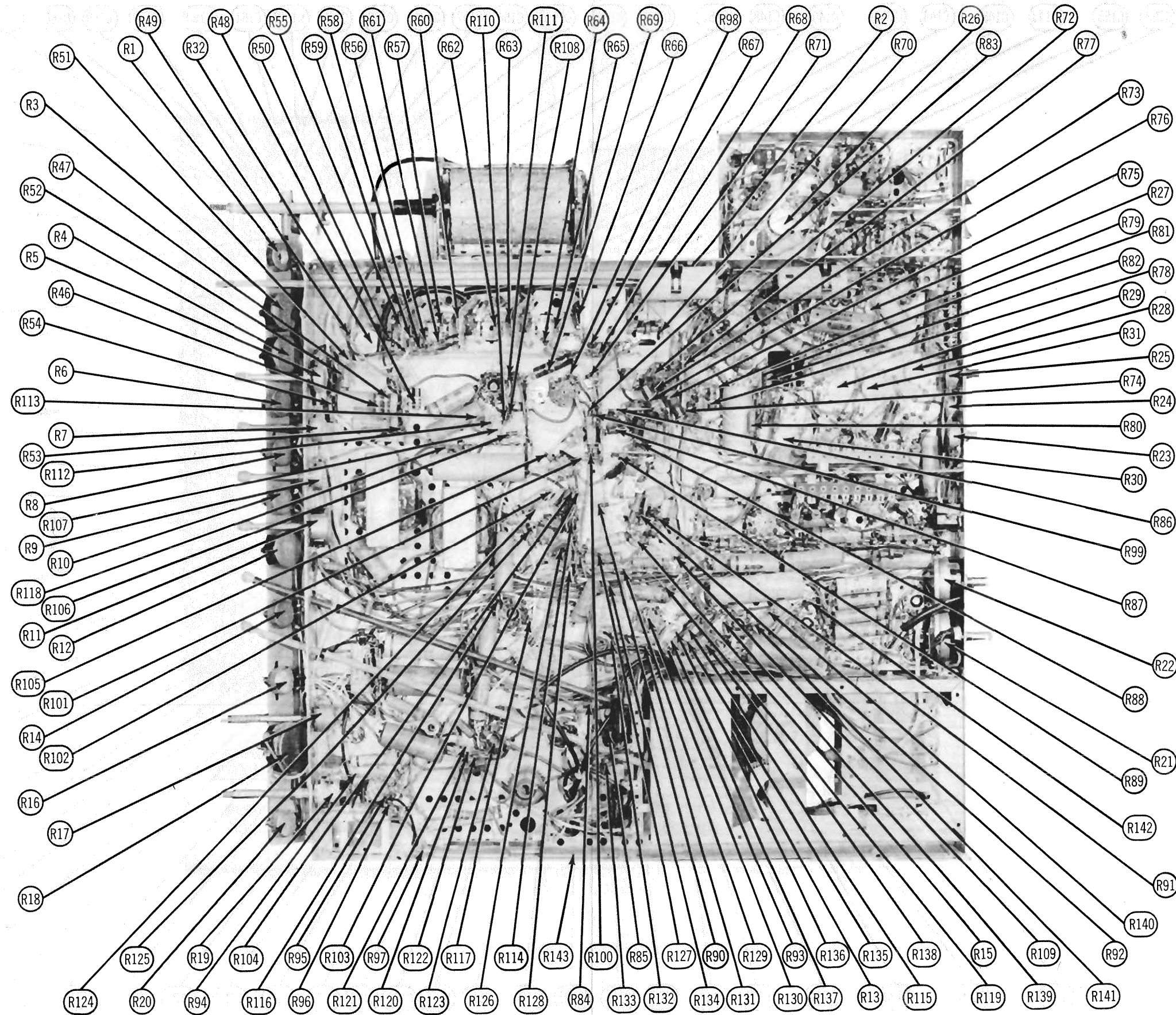
DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
16. .005MFD	High side to pin 1 (grid) of 6AH6 (V31). Low side to chassis.	Not used	3.58MC (400VMod)	Any	Vert. Amp. thru detector probe (Fig. 8) to point (X) . Low side to chassis.	A40	Attenuate generator output to provide 1 volt of signal input to V31. Adjust for maximum 400% indication on scope.
17. "	"	"	3.58MC (Unmod)	"	Use VTVM. DC probe to point (X) . Common to chassis.	R26A	Adjust R26A for zero deflection on VTVM. To check setting of R26A turn control clockwise then counter clockwise. A positive and negative reading should be obtained on either side of correct setting.
18. "	High side to pin 2 (grid) of 6U8 (V33A). Low side to chassis.	"	3.58MC (400VMod)	"	Vert. Amp. thru detector probe (Fig. 8) to pin 7 (grid) of 6AS6 (or 6DB6) (V35). Low side to chassis.	A41	Attenuate generator output to provide 1 volt signal input to V33A. Adjust for maximum 400% indication on scope.
19. "	"	"	"	"	Vert. Amp. thru detector probe (Fig. 8) to pin 7 (grid) of 6AS6 (or 6DB6) (V34). Low side to chassis.	A42	Adjust for maximum 400% indication on scope. Remove jumper from pin 7 of V33A to chassis.
20. "	High side to pin 1 (grid) of 6AS6 (or 6DB6) (V35). Low side to chassis.	"	3.58MC (Unmod)	"	Not used	A43	Connect a .01MFD capacitor from pin 5 of V35 to high side of the volume control (R19B). Remove band pass amplifier tube (6BA6/V30) from its socket. Set the color hold control (R5) to its mid-range position. Adjust A43 for zero beat in speaker. NOTE: Check by turning color hold control (R5) clockwise and counter clockwise for a high frequency beat. Reset R5 for zero beat. Remove .01MFD capacitor from pin 5 of V35 to high side of R19B. Replace V30 in its socket.
21. .001MFD	High side to pin 1 (grid) of 6BA6 (V30). Low side to chassis.	Not used	3.58MC (Unmod)	Any	DC probe to point (X) . Common to chassis.	A44	Reconnect jumper from pin 7 (cathode) of 6U8 (V33A) to chassis. Attenuate generator output for 1 volt input to V30. Set VTVM to zero center on 10 volt scale. Leave color hold control (R5) in its approximate mid-range position determined in step 20. Adjust A44 for zero (if zero reading cannot be reached adjust for as near a zero reading as possible).

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
12. .001MFD	High side to pin 1 (grid) of 6AU6 (V10). Low side to chassis.	4.5MC (15K Swp)	4.5MC	Any	Vert. Amp. across volume control.	A23, A24, A25	Attenuate generator output for MINIMUM useful indication on scope. Adjust for maximum response centered about 4.5MC.
13. "	"	"	"	"	"	A26	Set generator to give a strong signal and adjust A26 for maximum response at 4.5MC.
14. "	"	Not used	4.5MC (400VMod)	"	"	R24	Starting with a very low signal input gradually increase the level, at the same time rotating the quieting control (R24) 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 R24 is rotated. Set R24 for zero output at this signal level.

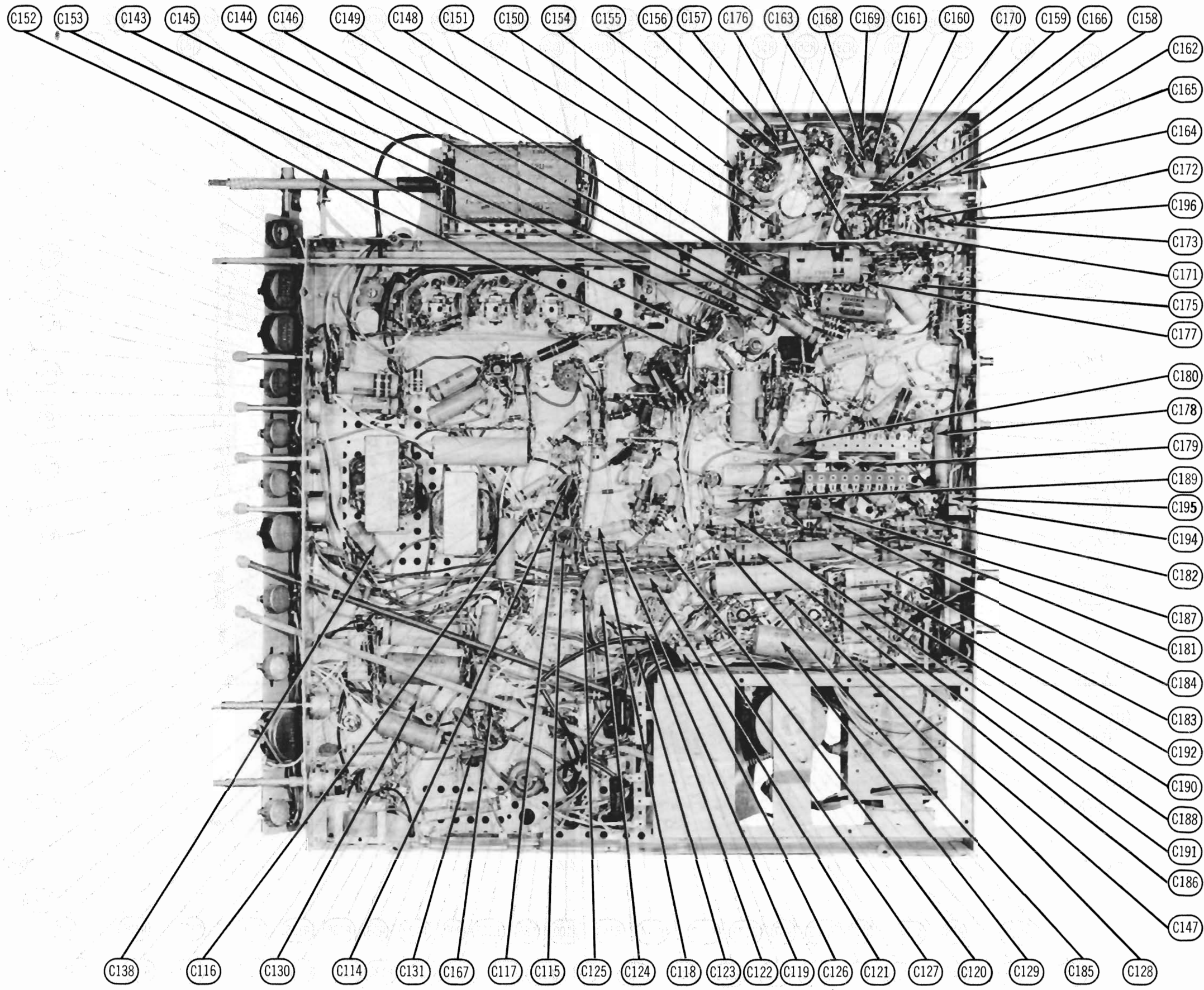
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MODEL H-840CK15 (Ch. V-2284-15)



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION (R1 THRU R143)

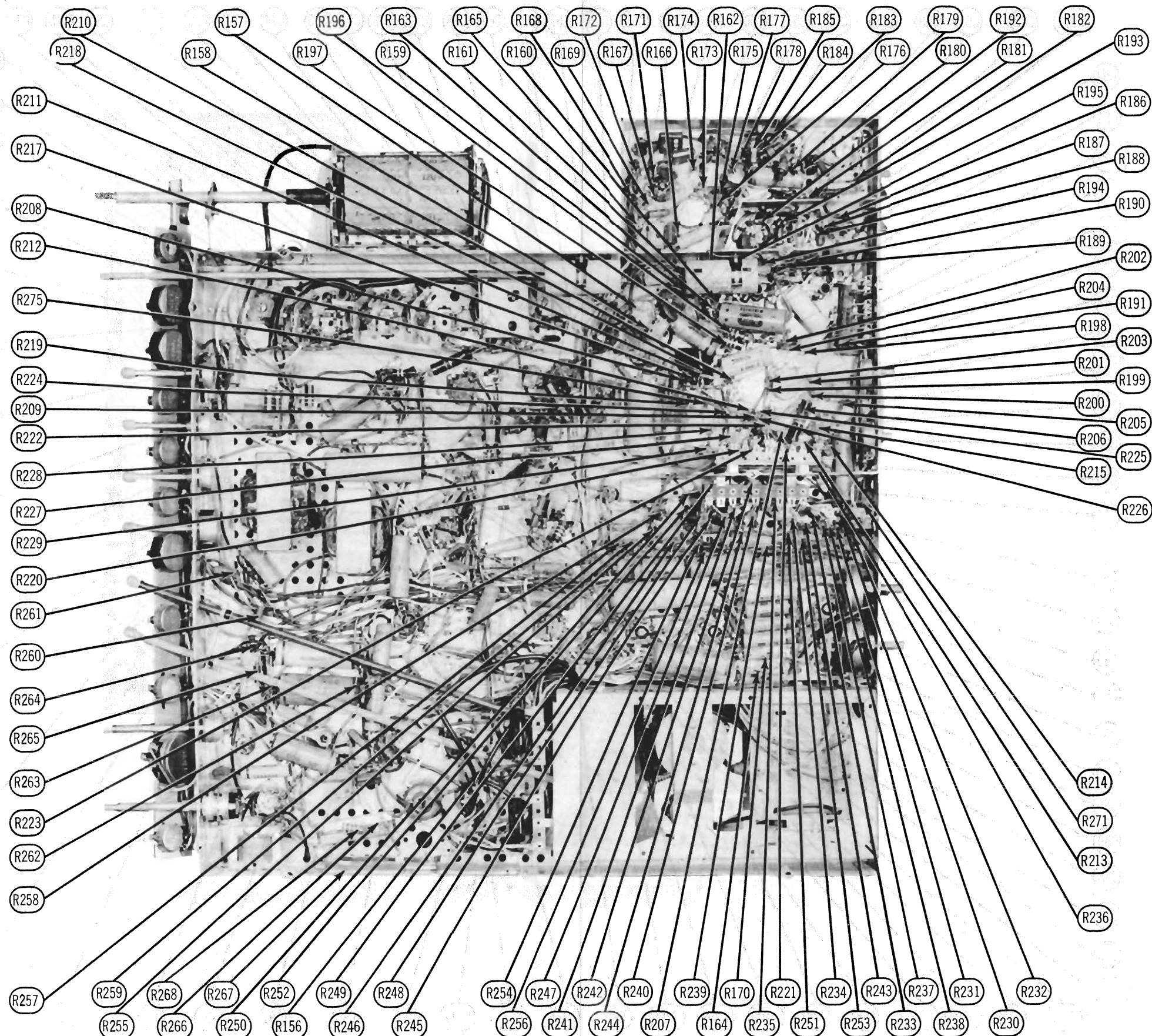
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MODEL H-840CK15 (Ch. V-2284-15)

SET 259 FOLDER 15



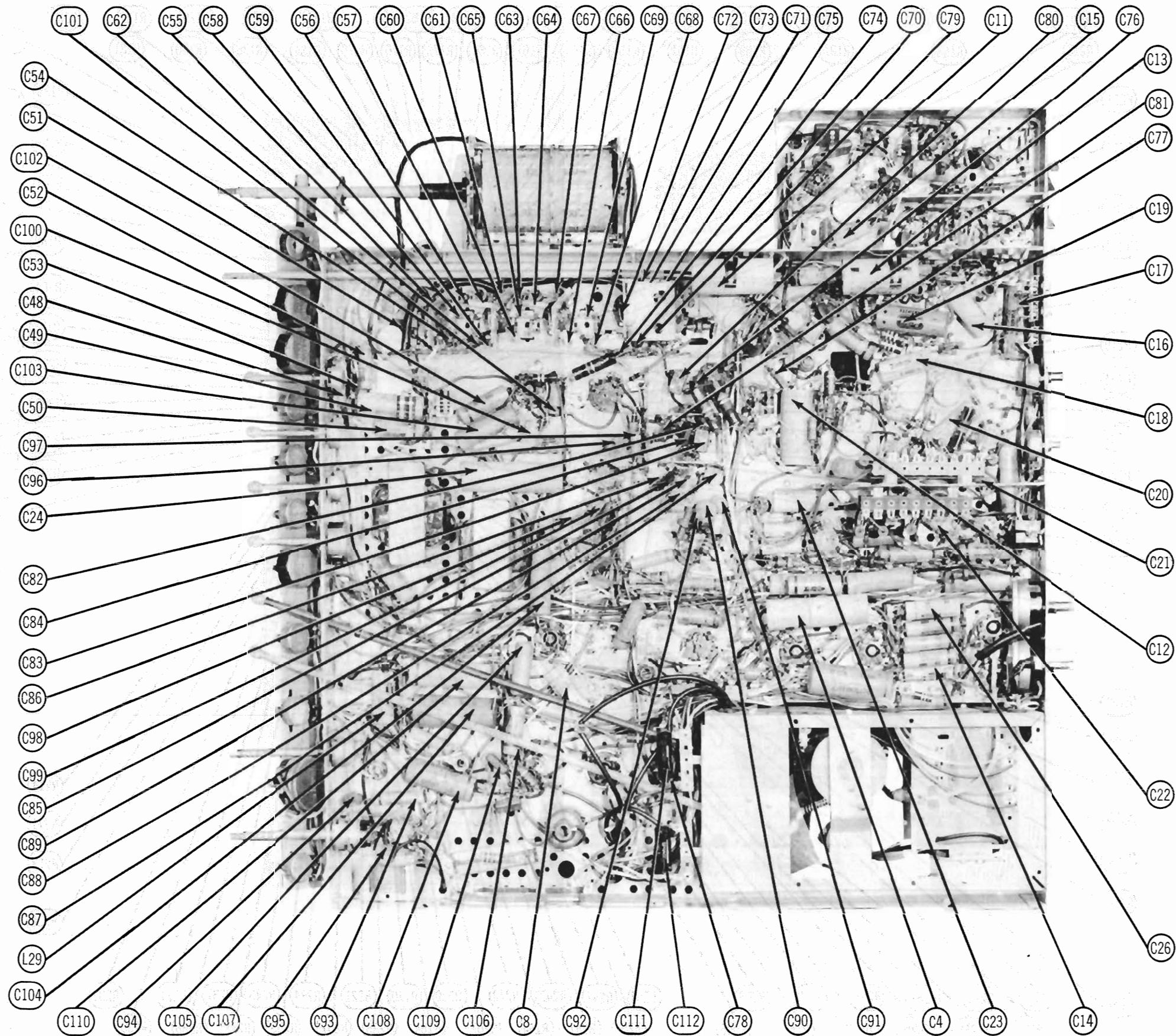
CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION (C114 THRU C196)

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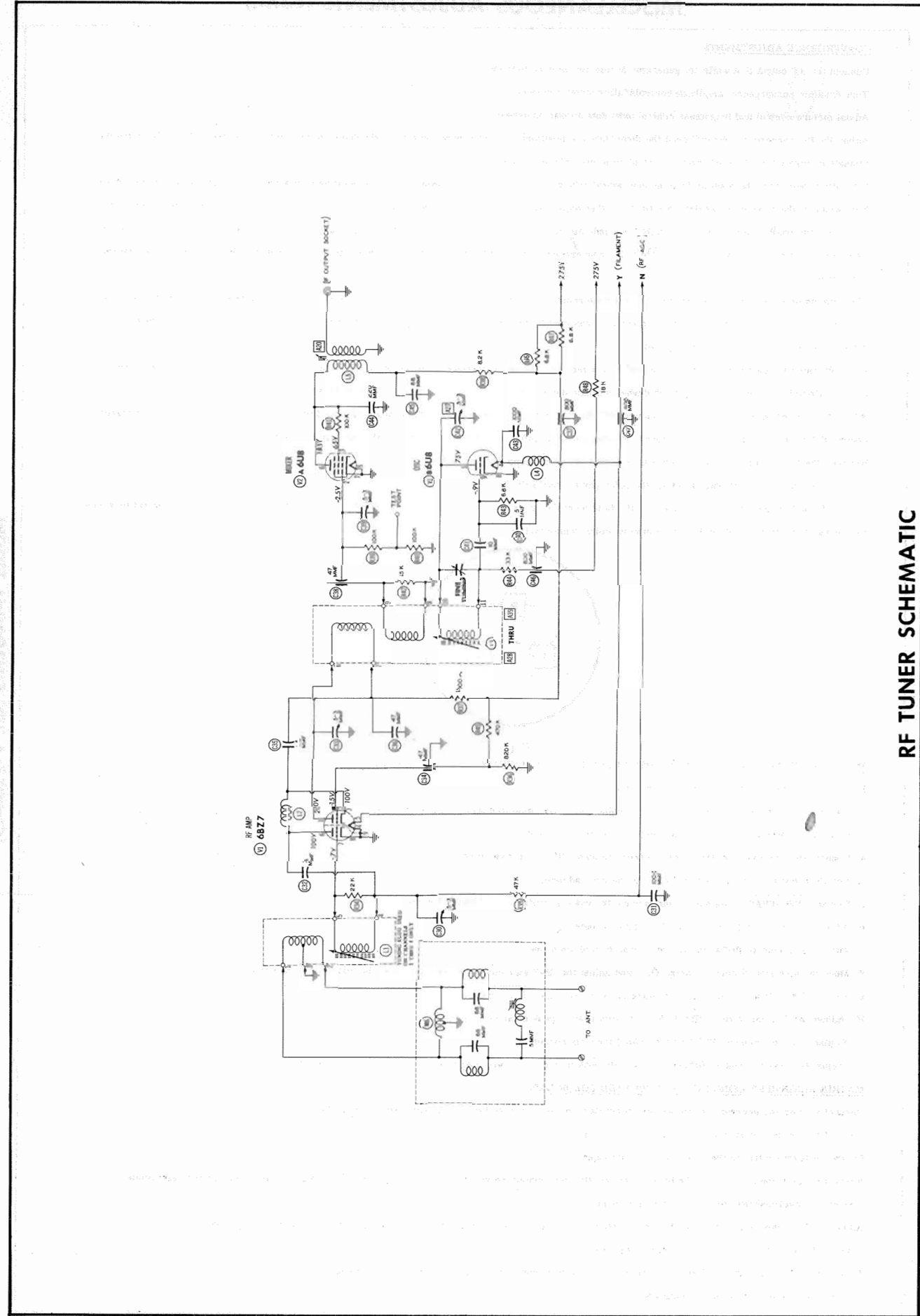
CHASSIS-BOTTOM VIEW-RESISTOR IDENTIFICATION (R157 THRU R268)

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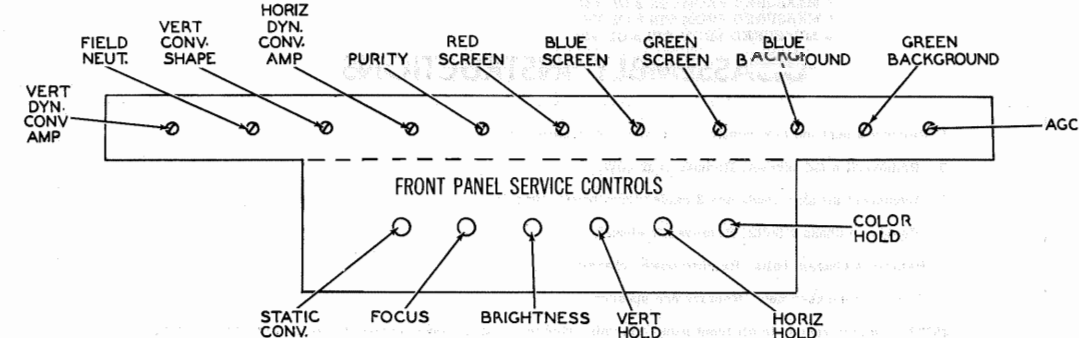
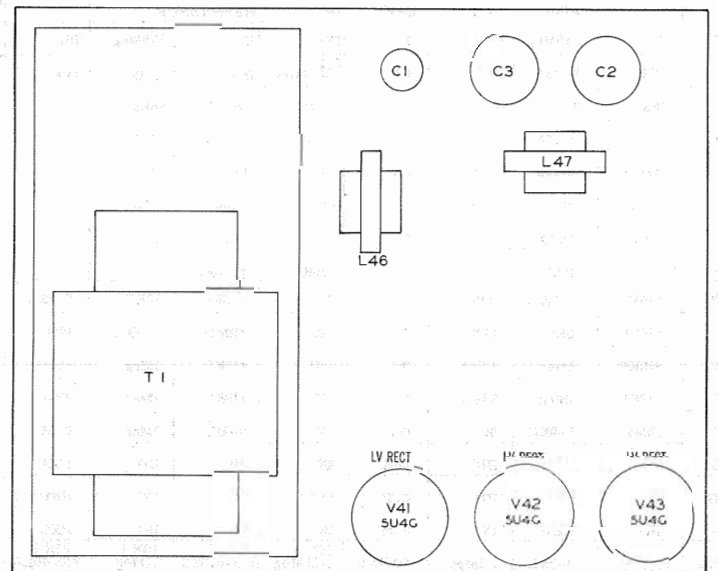
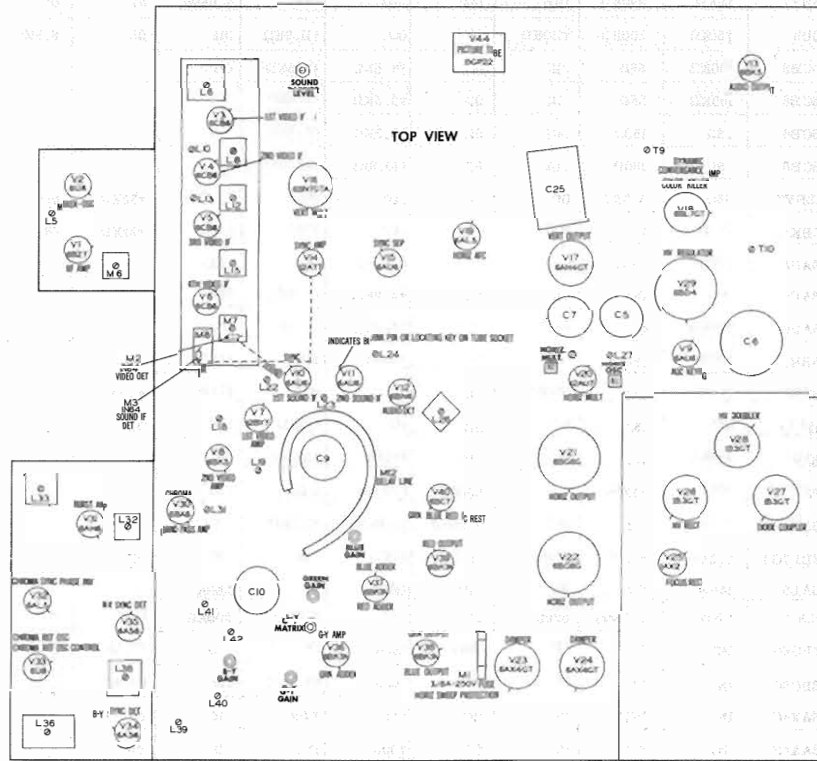
CHASSIS-BOTTOM VIEW-CAPACITOR IDENTIFICATION (C 4 THRU C112)

WESTINGHOUSE
 MODEL H-840K15 (Ch. V-2284-15)



RF TUNER SCHEMATIC

TUBE PLACEMENT CHART



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	↑5KΩ	280KΩ	INF	0Ω	.1Ω	INF	2.6Meg	0Ω	0Ω
V 2	6U8	↑51KΩ	200KΩ	↑110KΩ	.1Ω	0Ω	↑11.7KΩ	0Ω	0Ω	6.8KΩ
V 3	6CB6	100KΩ	56Ω	.1Ω	0Ω	↑3.5KΩ	↑3.5KΩ	0Ω		
V 4	6CB6	105KΩ	56Ω	.1Ω	0Ω	↑3.5KΩ	↑3.5KΩ	0Ω		
V 5	6CB6	.5Ω	150Ω	.1Ω	0Ω	↑3.5KΩ	↑3.5KΩ	0Ω		
V 6	6CB6	.5Ω	180Ω	.1Ω	0Ω	↑10.6KΩ	↑22.5KΩ	0Ω		
V 7	12BY7	56Ω	3.3KΩ	0Ω	.1Ω	.1Ω	0Ω	↑7.6KΩ	↑33KΩ	0Ω
V 8	6BK5	↑2.9KΩ	INF	500Ω	0Ω	.1Ω	270Ω	500Ω	↑22KΩ	INF
V 9	6AU6	↑20KΩ	↑8KΩ	.1Ω	0Ω	1.4Meg	↑3KΩ	↑8KΩ		
V 10	6AU6	.6Ω	0Ω	.1Ω	0Ω	↑4.2KΩ	↑4.2KΩ	68Ω		
V 11	6AU6	560KΩ	0Ω	0Ω	.1Ω	↑4.2KΩ	↑4.2KΩ	120Ω		
V 12	6BN6	500Ω	13Ω	.1Ω	0Ω	↑28KΩ	6Ω	↑220KΩ		
V 13	6BK5	↑1.2KΩ	INF	500KΩ	.1Ω	0Ω	180Ω	500KΩ	↑1.9KΩ	INF
V 14	12AT7	INF	INF	0Ω	0Ω	0Ω	↑18KΩ	13KΩ	0Ω	.1Ω
V 15	6AU6	940KΩ	0Ω	0Ω	.1Ω	↑25KΩ	↑180KΩ	0Ω		
V 16	6SN7GT	60KΩ	↑100KΩ	1.1KΩ	800KΩ	↑950KΩ	1.1KΩ	.1Ω	0Ω	
V 17	6AH4GT	2.2Meg	0Ω	INF	2.2Meg	↑1.2KΩ	↑1.2KΩ	.1Ω	2KΩ	
V 18	6BL7GT	3.3Meg	↑1.5KΩ	105KΩ	↑5.3Meg	27KΩ	0Ω	.1Ω	0Ω	
V 19	6AL5	1Meg	0Ω	0Ω	.1Ω	1Meg	0Ω	2Meg		
V 20	12AU7	↑54KΩ	2.7Meg	820Ω	.1Ω	.1Ω	↑78KΩ	300KΩ	820Ω	0Ω
V 21	6BG6G	INF	0Ω	75Ω	1Meg	1Meg	INF	.1Ω	↑7.9KΩ	TOP CAP ↑.8Ω
V 22	6BG6G	INF	0Ω	75Ω	INF	1Meg	↑7.8KΩ	.1Ω	↑7.9KΩ	TOP CAP ↑.8Ω
V 23	6AX4GT	INF	INF	INF	INF	↑90Ω	↑400Ω	.1Ω	0Ω	
V 24	6AX4GT	INF	INF	INF	INF	↑90Ω	INF	.1Ω	0Ω	
V 25	1AX2	INF	16Meg	INF	INF	INF	INF	INF	INF	14Meg TOP CAP ↑.3Ω
V 26	1B3GT	PINS 1 - 8 HAVE INF RESISTANCE								TOP CAP ↑.4Ω
V 27	1B3GT	PINS 1 - 8 HAVE INF RESISTANCE								TOP CAP INF
V 28	1B3GT	INF	235Meg	INF	INF	INF	INF	235Meg	INF	TOP CAP INF
V 29	6BD4GT	↑130Ω	↑1.1KΩ	INF	INF	2.2- 4.7Meg	INF	↑1.1KΩ	INF	TOP CAP 235Meg
V 30	6BA6	28KΩ	0Ω	0Ω	.1Ω	↑3.4KΩ	↑36KΩ	68KΩ		
V 31	6AH6	27KΩ	10.3KΩ	0Ω	.1Ω	↑2.3KΩ	↑6.9K	10.3KΩ		
V 32	6AL5	4Meg	4Meg	.1Ω	0Ω	10Ω	0Ω	10Ω		
V 33	6U8	↑150KΩ	47KΩ	↑47KΩ	.1Ω	0Ω	↑39KΩ	.7Ω	5KΩ	3.5Meg
V 34	6AS6	100Ω	550Ω	.1Ω	0Ω	↑19KΩ	↑9.3KΩ	2.5Ω		
V 35	6AS6	1.7Ω	150Ω	.1Ω	0Ω	↑19KΩ	↑9.3KΩ	1.1Ω		
V 36	6BK7	↑10KΩ	7.7KΩ	180Ω	.1Ω	0Ω	↑20KΩ	10KΩ	7.2KΩ	0Ω
V 37	6BK7	↑10KΩ	6KΩ	180Ω	0Ω	.1Ω	↑10KΩ	2.7KΩ	180Ω	0Ω
V 38	6BK7	↑10KΩ	1Meg	470Ω	0Ω	.1Ω	↑10KΩ	1Meg	470Ω	0Ω
V 39	6BK7	↑19KΩ	1Meg	330Ω	0Ω	.1Ω	↑19KΩ	1Meg	330Ω	0Ω
V 40	6BC7	1Meg	0-9KΩ	0Ω	0Ω	.1Ω	0-9KΩ	1Meg	0-5KΩ	1Meg
V 41	5U4G	INF	17KΩ	INF	28Ω	INF	30Ω	INF	17KΩ	
V 42	5U4G	INF	11KΩ	INF	8.5Ω	INF	8Ω	INF	11KΩ	
V 43	5U4G	INF	11KΩ	INF	8.5Ω	INF	8Ω	INF	11KΩ	
V 44	15GP22	13-18KΩ	3-8KΩ	1.1Meg	↑0-7KΩ	PIN 6 8-13Meg	PIN 7 1.5-6.5KΩ	PIN 8 1.1Meg	PIN 9 ↑10-40KΩ	PIN 13 107-157Meg

↑ MEASURED FROM PIN 8 OF V43
 † MEASURED FROM PIN 8 OF V42
 ▲ MEASURED FROM PIN 3 OF V24

DISASSEMBLY INSTRUCTIONS

1. Remove 6 push-on type control knobs from front panel.
2. Remove 11 wood screws. Remove rear cover.
3. Disconnect speaker leads and 2 cables from power chassis.
4. Remove 6 chassis bolts. Remove TV chassis.
5. Remove 4 chassis bolts. Remove power chassis.
6. Remove 4 speaker nuts. Remove one speaker.

NOTE: To gain access to all front panel controls, remove 2 small wood screws at opening of control door.

MISCELLANEOUS ADJUSTMENTS (cont.)

CONVERGENCE ADJUSTMENTS

Connect the RF output of a white dot generator across the antenna terminals.

Turn dynamic convergence amplitude controls fully counter clockwise.

Adjust picture control and brightness control until dots appear on screen.

Adjust the DC convergence control until the three dots are positioned in a triangular pattern in the center of the raster (It is possible to invert the dot triangle by turning the DC convergence control from one extreme to the other.

If the dot group cannot be made to form an equilateral triangle similar to Fig. 17, adjust the beam positioning magnets on the neck of the picture tube.

Note which of the three dots requires positioning, then adjust positioning magnet (small threaded screw with knurled nut) corresponding to that color to correct the position of that dot. The solid lines indicate direction of dot movement when associated beam positioning magnet is adjusted. The dashed lines indicate direction of dot movement due to DC convergence control adjustment. Minimum adjustment of the magnets is desirable due to interaction on other beams.

Minimum adjustment is that point nearest the extreme counter clockwise position where correct beam positioning is obtained. If indications are that only one dot is out of line and the associated magnets has insufficient range of adjustment remove the magnet from the neck shield and re-insert the opposite end of the magnet in the neck shield.

After obtaining the equilateral triangle, complete convergence should be obtained at the center of the raster by adjustment of the DC convergence control. Complete convergence is indicated when a single dot with no color fringing around its edge is obtained.

Adjust the vertical dynamic convergence control (R20A), the vertical dynamic convergence shape control (R16A), the horizontal dynamic convergence control (R14A) and the horizontal convergence phasing coil slug (A50) for best convergence at the edges of the raster.

Readjust the DC convergence control for best convergence at the center of the raster.

Check color purity. If necessary readjust the color purity control (R12).

Switch off the blue and green guns and adjust the field neutralizing control (R18) for a pure red raster. Varying R18 will show color contamination around the edges of the raster. Adjust R18 for minimum color contamination.

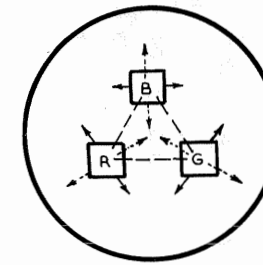


FIG. 17

MATRIX ADJUSTMENTS (USED ONLY WHEN COLOR BAR SIGNAL GENERATOR IS NOT AVAILABLE)

1. Switch the channel selector to an unused channel.
2. Connect the high side of signal generator to point ⓐ. Low side to chassis. Adjust generator to provide a 1 volt 100KC signal at point ⓐ.
3. Remove the band pass amplifier tube (6BA6/V30) from its socket.
4. Connect the vertical amplifier of oscilloscope to point ⓑ. Low side to chassis. Adjust picture control for 1 volt peak to peak on scope. Do not alter setting of picture control after it has been adjusted.
5. Replace V30 (6BA6) in its socket and remove the video amplifier tube (6BK5 / V8) from its socket.
6. Adjust the generator for a 1 volt, 3.4MC, signal at point ⓐ.
7. Adjust color control (R17A) for 1.2 volts peak to peak on scope.
8. Move the high side of scope to point ⓒ and adjust the B-Y gain control (R27A) for 1.4 volts peak to peak on scope.
9. Remove V34 (6DB6 or 6AS6) from its socket. Move the high side of scope to point ⓓ.
10. Adjust the G-Y gain control (R28A) for 0.6 volts peak to peak on scope.
11. Replace V34 and remove V35 (6DB6 or 6AS6) from its socket.
12. Adjust G-Y matrix control (R31A) for 0.4 volts peak to peak on scope. Replace V35 and V8 in their sockets.

MATRIX ALIGNMENT USING FULLY SATURATED COLOR BARS

Connect a color bar generator to the antenna terminals, or use a transmitted signal composed of color bars.

Connect the vertical input lead of an oscilloscope to the red test point.

Set the contrast control to the mid-position of its range.

Adjust the color control until all the bars on the oscilloscope containing red are of equal amplitude. All other bars should be at zero amplitude.

Connect the oscilloscope input lead to blue test point.

Adjust the B-Y gain control until all the bars containing blue are of equal amplitude, all other bars should be at zero amplitude.

Connect the oscilloscope input lead to green test point.

Adjust the G-Y matrix and G-Y gain controls until all the bars containing green are of equal amplitude.

All other bars should be at zero amplitude.

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MISCELLANEOUS ADJUSTMENTS

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

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

When necessary the horizontal oscillator coil may be adjusted as follows:

Short out the horizontal oscillator coil, L27, with a short jumper. Set the horizontal hold control to its mid-range position. Connect the DC probe of a VTVM to the junction of R109 and C121. Connect the common lead to chassis. Adjust the horizontal multivibrator trimmer (B2) for zero reading on VTVM. If zero can be approached but not quite reached it may be necessary to re-set the horizontal hold control slightly to one side of mid-range so that zero reading can be obtained on VTVM.

Remove the jumper from across the horizontal oscillator coil.

Adjust the horizontal oscillator slug (B1) for zero reading on VTVM.

Adjust the width slug (B3) for a picture 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.

HIGH VOLTAGE REGULATOR ADJUSTMENT

Place the high voltage probe (used with VTVM) on pin 7 of the 1B3 output rectifier (V28) and adjust the high voltage control (R33) for 20KV output.

Check the setting of R33 by varying the brightness from minimum brightness to maximum brightness. If more than a slight change in high voltage occurs slightly readjust R33A and recheck as above.

COLOR PURITY ADJUSTMENT

Switch the channel selector to an unused channel.

Switch to "off" position the blue and green gun cathode switches (on rear chassis apron).

Loosen the yoke assembly and slide the unit back approximately 3 inches.

Simultaneously adjust the color-purity control (R12) and rotate the purity coil rotation adjustment to obtain the most uniform red in the center area of the tube face.

Slide the deflection yoke forward until the entire screen area is uniformly red. Check to see that no neck shadows are present then secure the yoke in this position by retightening the screws. If necessary, adjust the field neutralizing control (R18) to obtain better purity around the edges of the raster.

Check the blue purity by switching off the red gun and switching on the blue gun. Check the green purity by switching off the blue gun and switching on the green gun.

BLACK AND WHITE BALANCE ADJUSTMENTS

The following adjustments are necessary to produce a white raster without large area color contamination in a black and white picture. Increasing or decreasing the brightness should result in no change in black and white balance under normal operating conditions.

Turn the color control (R17A) fully counter clockwise.

Turn the picture control (R2A) fully counter clockwise.

Turn the brightness control (R11) fully clockwise.

Adjust the red, blue and green screen controls for a bright gray raster. NOTE: The red, blue, and green screen controls (front panel) should not be set too high (clockwise) or color will dominate the raster. Other indications of incorrect settings of these controls are:

- Low red screen control setting produces a greenish blue raster.
- Low blue screen control setting produces a yellowish white raster.
- Low green screen control setting produces a purple raster.

With brightness control fully clockwise, turn picture control clockwise until a picture begins to appear.

Turn the blue and green gain controls clockwise until white appears on the high-brightness highlights in the picture.

Reduce the brightness by turning the brightness control counter clockwise. Adjust blue and green background controls until equal grays are obtained in the picture. NOTE: Rotation of the green background control should cause the background to vary from purple to green. Rotation of the blue background control should cause the background to vary from blue to yellow.

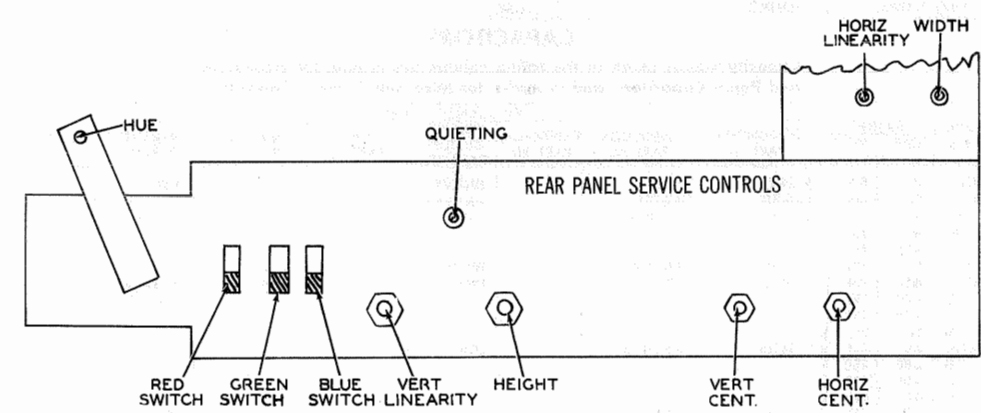
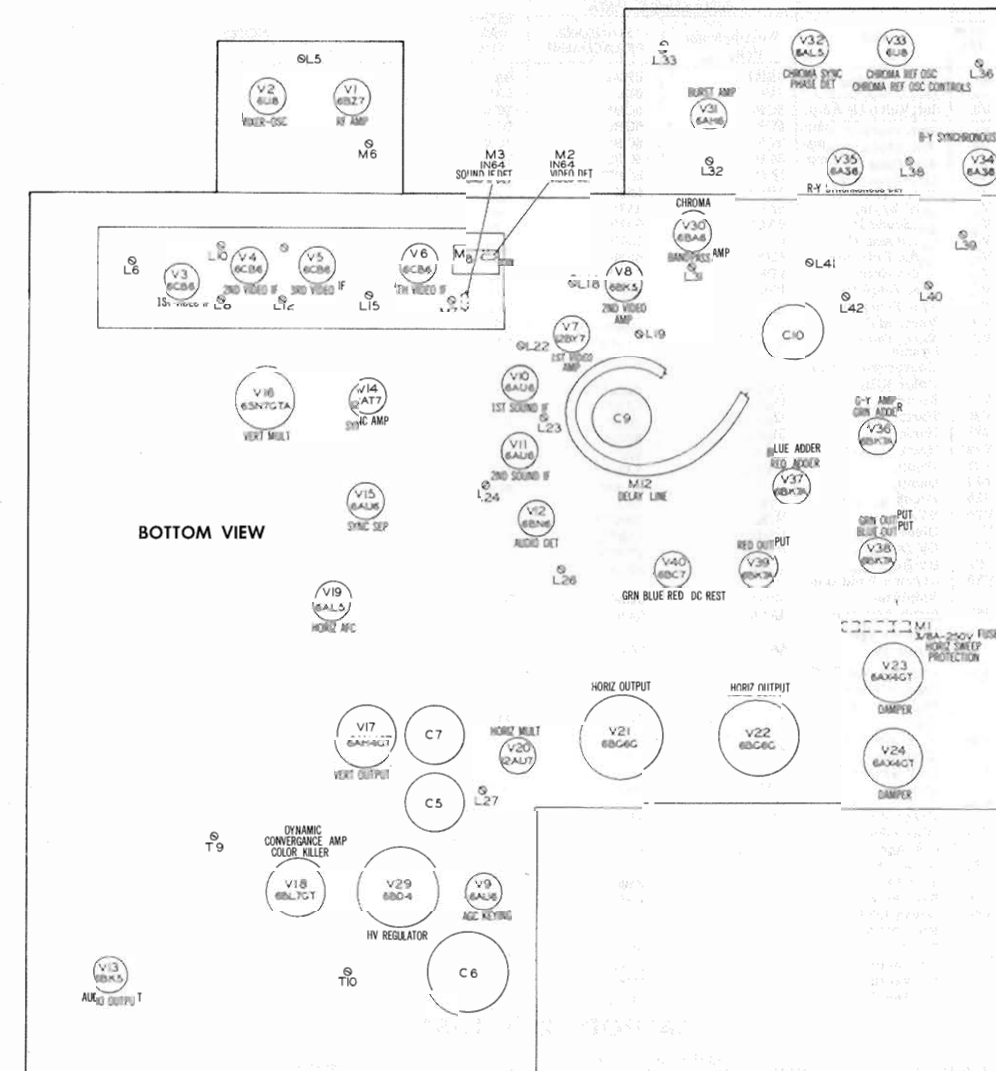
Check above procedure by varying brightness control over the normal viewing range. The white or gray should not change color. If a color change is noted the entire procedure should be repeated.

HORIZONTAL DYNAMIC CONVERGENCE ADJUSTMENT

Set the vertical dynamic convergence control (R20A) fully counter clockwise. Set the horizontal dynamic convergence control (R14A) fully clockwise.

Connect the vertical amplifier of an oscilloscope thru a 500MMF / 20KV capacitor to the junction of C111 and C113 and adjust the horizontal dynamic convergence output transformer slug (A51) for maximum response on scope.

TUBE PLACEMENT CHART



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PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (cont)

Table with columns: ITEM No., RATING, CAP., VOLT, REPLACEMENT DATA (Westinghouse, AEROVOX, CENTRALAB, CORNELL-DUBILER, ERIE, MALLORY, SPRAGUE), NOTES. Lists various capacitor types and their specifications.

Note 1. Non-polarized unit. Replace with same type. Items C100A, C100B, C100C, C100D, R107A, R107C, R107D are combined in one unit.

CONTROLS

Table with columns: ITEM No., RATING, RESISTANCE, WATTS, REPLACEMENT DATA (Westinghouse, CLAROSTAT, CENTRALAB, MALLORY), INSTALLATION NOTES. Lists control components like potentiometers and switches.

CONTROLS (cont)

Table with columns: ITEM No., RATING, RESISTANCE, WATTS, REPLACEMENT DATA (Westinghouse, IRC, CLAROSTAT, CENTRALAB, MALLORY), INSTALLATION NOTES. Continuation of controls parts list.

* CONCENTRIK EQUIVALENT KIT K-2 BASE ELEMENTS & SHAFTS B13-137& P1-220 (Panel) B16-193X & R14-308 (Rear) SWITCH 76-1.

RESISTORS

Table with columns: ITEM No., RATING, OHMS, WATT, REPLACEMENT DATA (Westinghouse, IRC), NOTES. Lists various resistor types and values.

RESISTORS (cont)

Table with columns: ITEM No., RATING, OHMS, WATT, REPLACEMENT DATA (Westinghouse, IRC), NOTES. Continuation of resistor parts list.

* Items R107A, R107B, R107C, R107D, C100A, C100B, C100C, C100D are combined in one unit.

TRANSFORMER (POWER)

Table with columns: ITEM No., RATING, PRI, SEC 1, SEC 2, REPLACEMENT DATA (Westinghouse, Slancor, Merit, Triad, RCA, Halldorson, Thordarson). Lists power transformer specifications.

TRANSFORMERS (SWEEP CIRCUITS)

Table with columns: ITEM No., USE, REPLACEMENT DATA (Westinghouse, Slancor, Merit, Triad, RCA, Halldorson, Thordarson). Lists sweep circuit transformer specifications.

(CONT'D ON NEXT PAGE)

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