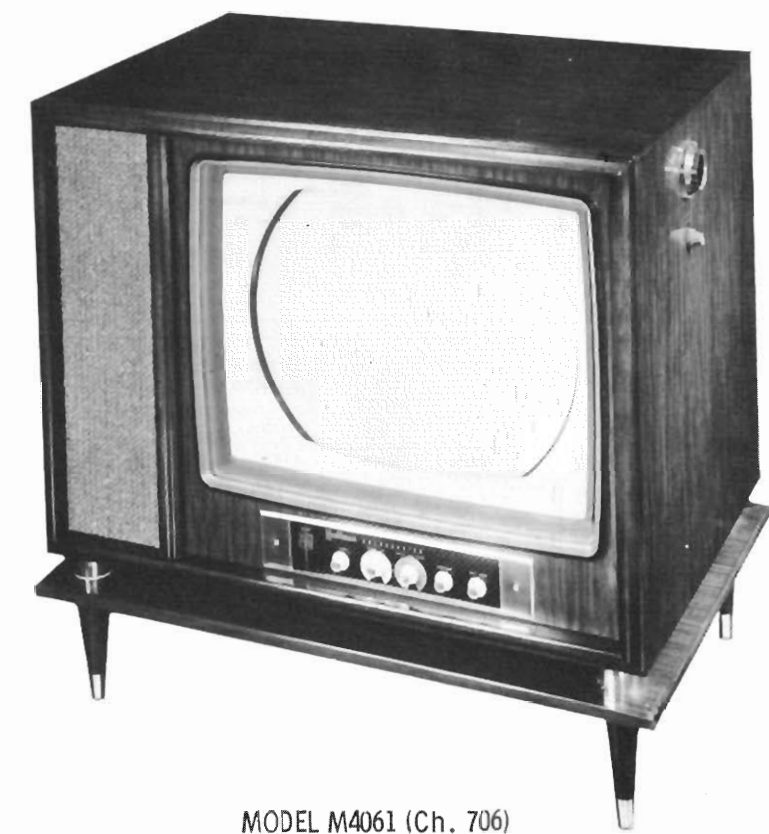


CABINET-REAR VIEW

DISASSEMBLY INSTRUCTIONS

- | | |
|---|---|
| <p>SAFETY GLASS AND MASK REMOVAL</p> <ol style="list-style-type: none"> 1. Remove 2 wood screws and 2 metal screws holding the rear cover. Remove the rear cover. 2. Remove 4 clips from inside the front of the cabinet holding the front trim. 3. At the top of the front control panel opening 2 hooks are accessible. Pull these hooks down to release the safety glass and trim. Remove the safety glass and trim. <p>CHASSIS REMOVAL</p> <ol style="list-style-type: none"> 1. Remove 5 push-on type knobs from the front and 4 from the side. 2. Remove 2 wood screws and 2 metal screws holding the rear cover. Remove the rear cover. 3. Remove 3 metal screws holding the on-off-volume and brightness control assembly. Remove the control. 4. Remove tuner plug, picture tube socket, convergence yoke plug, yoke plug, speaker leads and the HV connector from the HV rectifier socket. 5. Remove 4 chassis bolts from the bottom. 6. Remove the chassis. | <ol style="list-style-type: none"> 7. Remove 2 wood screws holding the antenna terminal board. 8. Remove 2 metal screws holding the tuner. 9. Remove the tuner. <p>PICTURE TUBE REMOVAL</p> <ol style="list-style-type: none"> 1. Remove the chassis. 2. Place cabinet face down on a pad. 3. Remove the blue lateral magnet, the purity magnet and the convergence yoke assembly. 4. Remove 4 hex nuts holding the picture tube mounting brackets to the front mask. Move the brackets upward and out through holes in the equalizing magnet assembly. 5. Remove the springs and rubber cushions under the brackets. 6. Remove the yoke and picture tube shield. 7. Remove the picture tube. 8. Remove the insulator ring from the picture tube flange and remove the HV clip. |
|---|---|



MODEL M4061 (Ch. 706)

TRADE NAME	Hoffman	MODELS	CHASSIS
		B2021, B4041, B4061, M2021, M4041, M4061, SP2021, SP4041, SP4061	706
		B2021U, B4041U, B4061U, M2021U, M4041U, M4061U, SP2021U, SP4041U, SP4061U	706U
MANUFACTURER	Hoffman Radio Corp., 6200 S. Avalon Blvd., Los Angeles 3, Calif.		
TYPE SET	Color Television Receiver		
TUBES	Thirty		
POWER SUPPLY	110-120 Volts AC, 60 Cycle	RATING	400 Watts, 3.9 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)		

INDEX

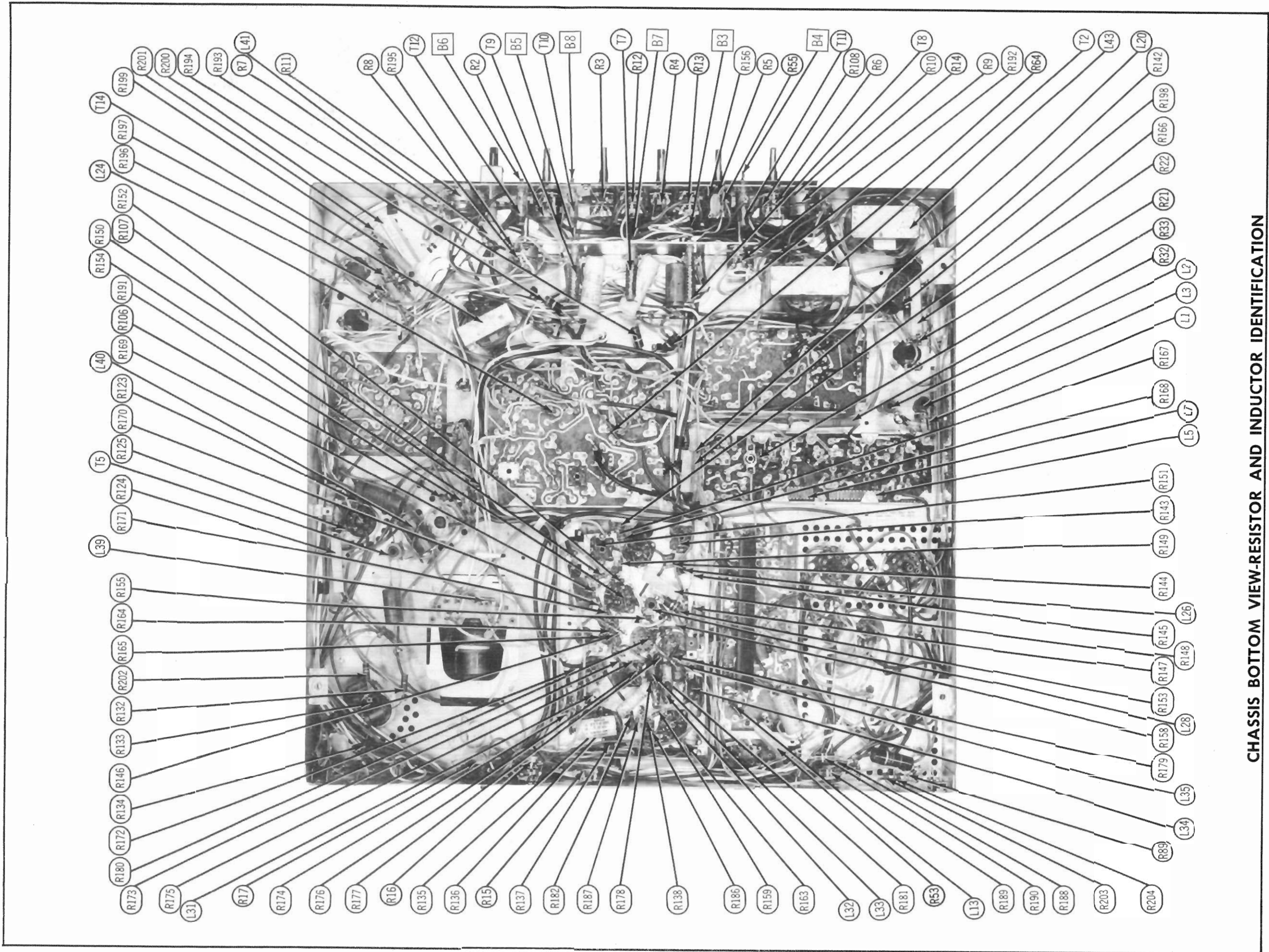
Alignment Instructions	6, 7	Photographs (Con't)	
Block Diagram	3	HV Compartment	17
Disassembly Instructions	25	Printed Boards	5, 8, 12, 17
Miscellaneous Adjustments	4, 5	Resistor & Inductor Identification	23, 24
Parts List and Descriptions	19 thru 22	Resistance Measurements	10
Photographs		Schematic (Alternate Tuner)	13
Cabinet-Rear View	25	Schematic (Tuner)	16
Capacitor & Alignment Identification	14, 15	Schematic (TV)	2
Chassis-Top View	9	Tube Placement Chart (Bottom View)	18
		Tube Placement Chart (Top View)	11

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 H39

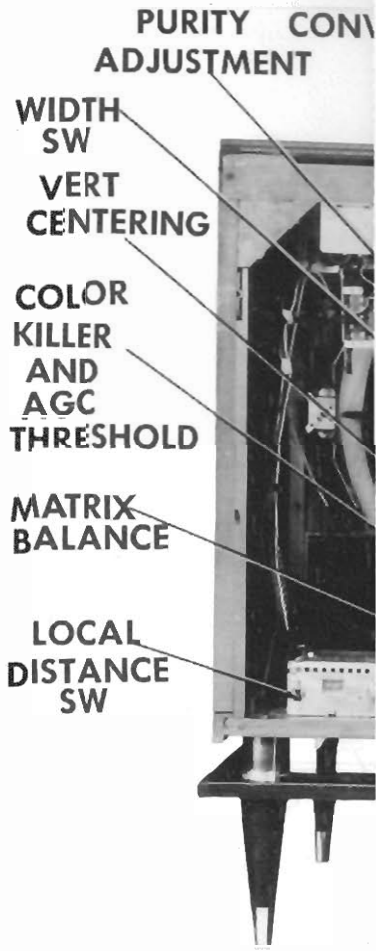
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HOFFMAN MODELS B2021, U, B4061, U, M2021, U, M4041, U, M4061, U, SP2021, U, SP4041, U, SP4061, U (Ch. 706, U)



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

FOLDER 3

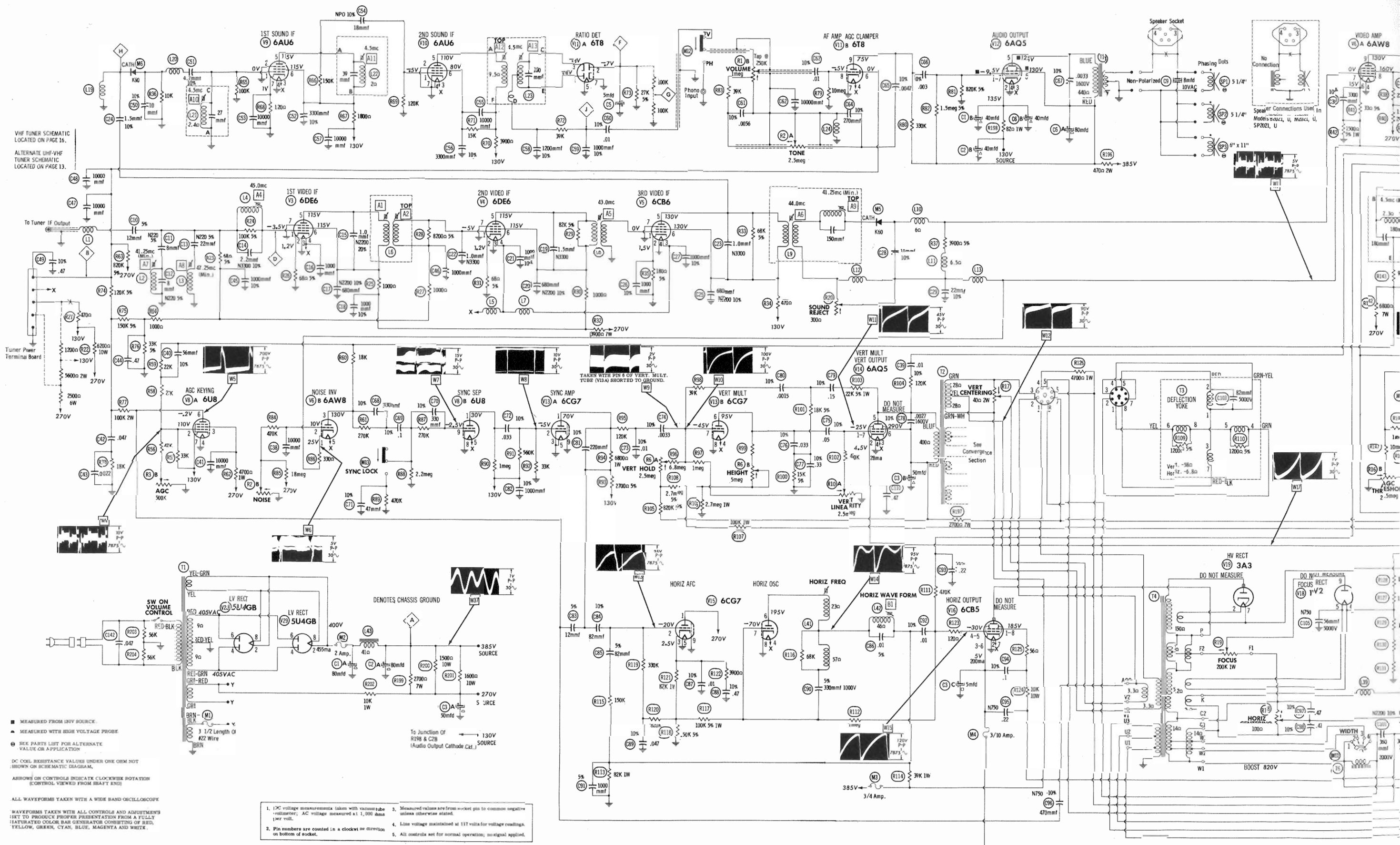


SAFETY GLASS AND MASK REMOVAL

1. Remove 2 wood screws and 2 metal clips from the rear cover. Remove the rear cover.
2. Remove 4 clips from inside the chassis holding the front trim.
3. At the top of the front control panel, push down the hooks to make the panel accessible. Push these hooks down and remove the safety glass and trim. Remove the safety glass and trim.

CHASSIS REMOVAL

1. Remove 5 push-on type knobs from the side.
2. Remove 2 wood screws and 2 metal clips from the rear cover. Remove the rear cover.
3. Remove 3 metal screws holding the brightness control assembly. Remove the brightness control assembly.
4. Remove tuner plug, picture tube yoke plug, yoke plug, speaker lead from the HV rectifier socket.
5. Remove 4 chassis bolts from the chassis.
6. Remove the chassis.



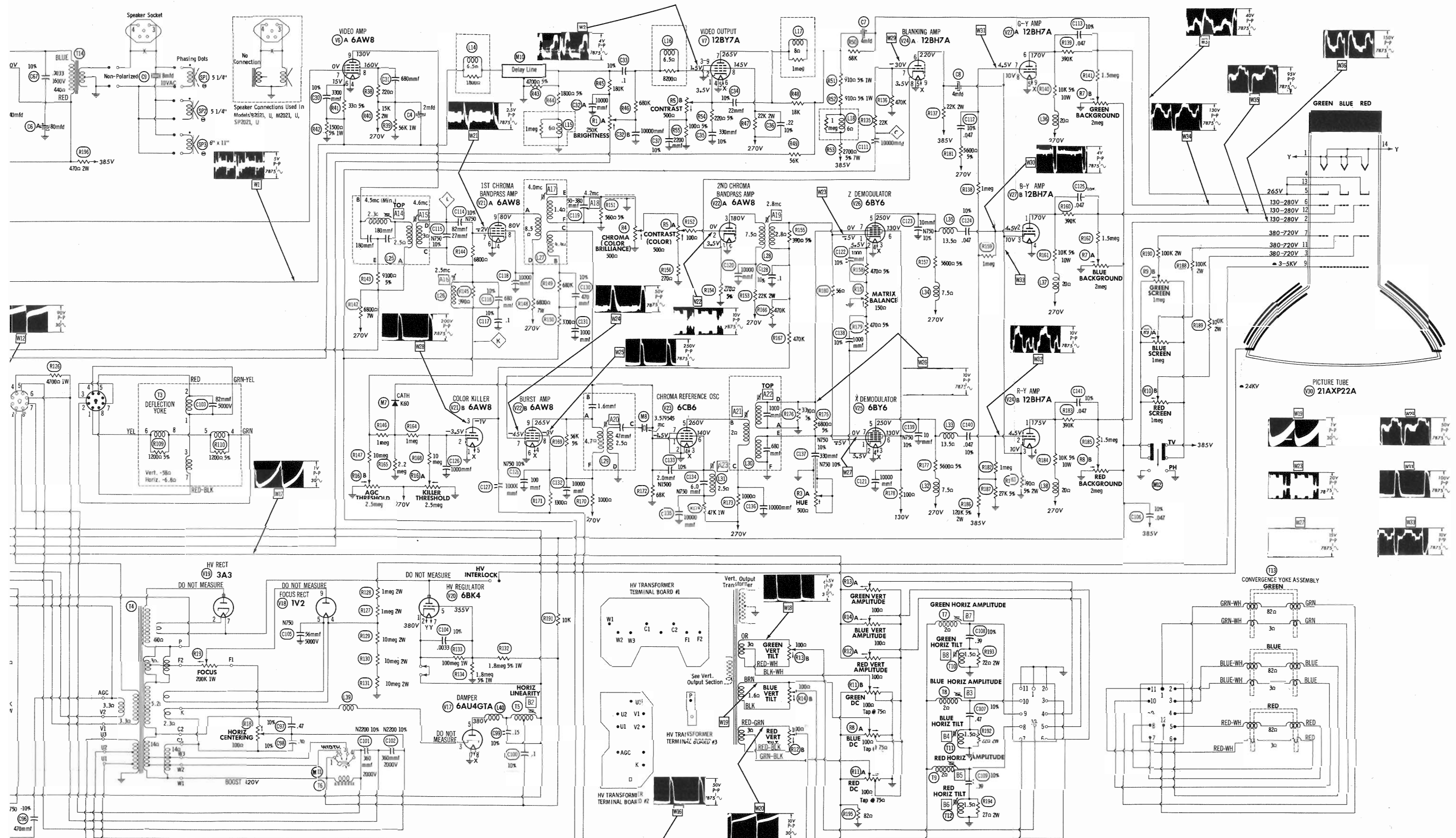
VHF TUNER SCHEMATIC LOCATED ON PAGE 16.
ALTERNATE UHF-VHF TUNER SCHEMATIC LOCATED ON PAGE 13.

Tuner Power Terminal Board

■ MEASURED FROM 120V SOURCE.
▲ MEASURED WITH HIGH VOLTAGE PROBE.
○ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION.
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM FRONT END).
ALL WAVEFORMS TAKEN WITH A WIDE BAND OSCILLOSCOPE.
WAVEFORMS TAKEN WITH ALL CONTROLS AND ADJUSTMENTS SET TO PRODUCE PROPER PRESENTATION FROM A FULLY SATURATED COLOR BAR GENERATOR CONSISTING OF RED, YELLOW, GREEN, CYAN, BLUE, MAGENTA AND WHITE.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltage measured at 1,000 ohms per volt.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation; no signal applied.

A PHOTOFAC STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

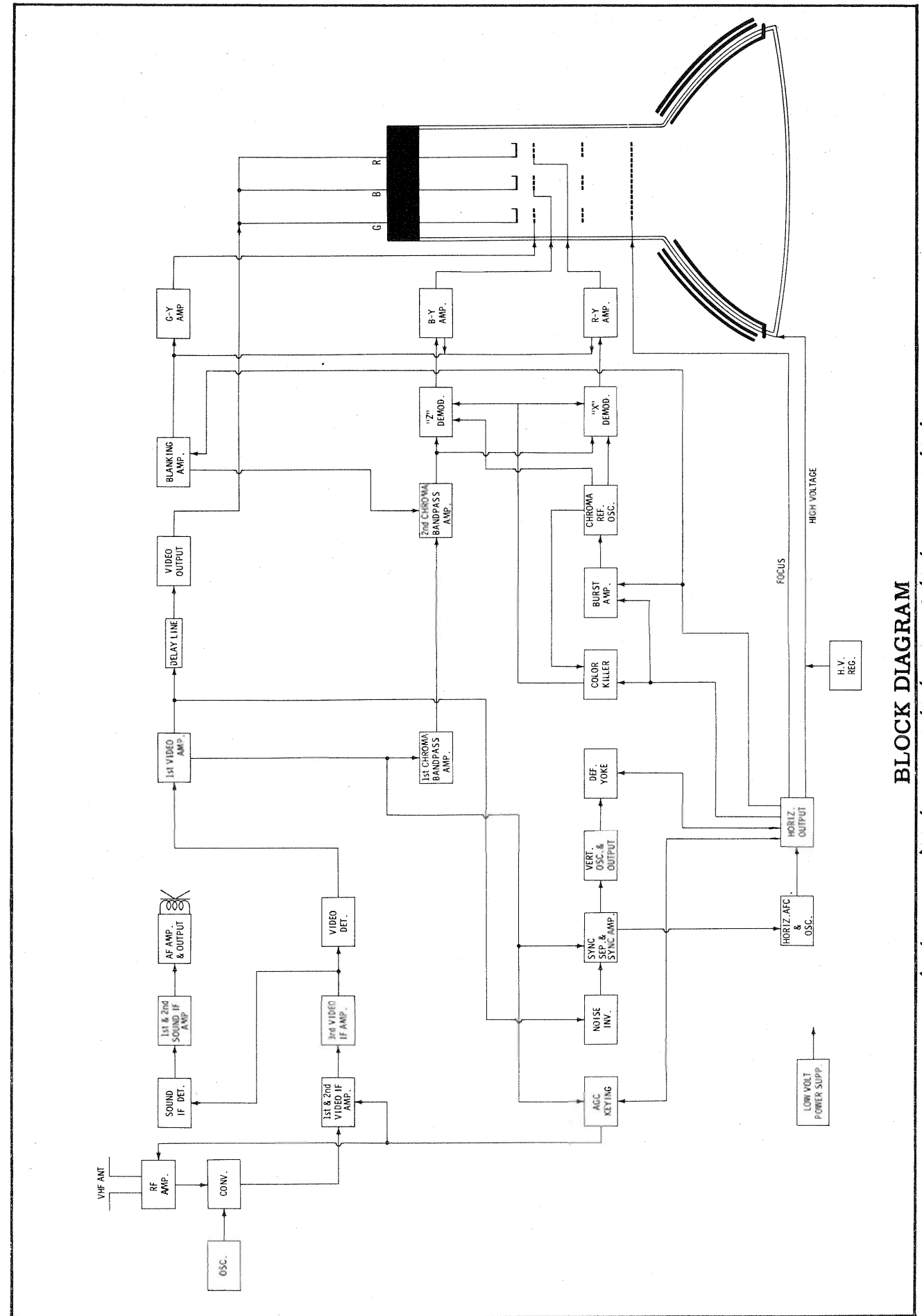


HOFFMAN MODELS B201, U, B4061, U, M2021, U, M4041, U, M4061, U, SP2021, U, SP4041, U, SP4061, U (Ch. 706, U)

RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BN4	0Ω	220K	0Ω	.1Ω	■ 1500Ω	0Ω	220K		
V2	6CG8	10K	■ 7500Ω	0Ω	0Ω	.1Ω	■ 1500Ω	■ 10K	0Ω	224K
V3	6DE6	34K	68Ω	0Ω	.1Ω	† 5300Ω	† 5300Ω	0Ω		
V4	6DE6	35K	68Ω	0Ω	.1Ω	† 5300Ω	† 5300Ω	0Ω		
V5	6CB6	.1Ω	180Ω	.1Ω	0Ω	■ 470Ω	■ 470Ω	0Ω		
V6	6AW8	1000Ω	• 1.1meg	† 24K	0Ω	.1Ω	750Ω	4500Ω	† 12K	† 7000Ω
V7	12BY7A	• 110Ω	780K	0Ω	0Ω	0Ω	.1Ω	† 4400Ω	† 22K	0Ω
V8	6U8	■ 1meg	■ 18K	† 5500Ω	0Ω	.1Ω	240K	¶	0Ω	2.5meg
V9	6AU6	2.4Ω	0Ω	.1Ω	0Ω	■ 1900Ω	■ 1900Ω	120Ω		
V10	6AU6	120K	0Ω	.1Ω	0Ω	■ 4000Ω	■ 19K	0Ω		
V11	6T8	1NF	27K	1NF	.1Ω	0Ω	† 220K	0Ω	10meg	† 330K
V12	6AQ5	500K	■ 82Ω	.1Ω	0Ω	† 950Ω	† 510Ω	500K		
V13	6CG7	■ 9500Ω	33K	0Ω	.1Ω	0Ω	• † 3.2meg	• 2.3meg	0Ω	0Ω
V14	6AQ5	• 1.9meg	• 50Ω	.1Ω	0Ω	† 3000Ω	† 2700Ω	• 1.9meg		
V15	6CG7	† 650Ω	1.3meg	230K	.1Ω	0Ω	† 28K	250K	0Ω	0Ω
V16	6CB5	† 10K	0Ω	• 27Ω	500K	500K	• 27Ω	.1Ω	† 10K	TOP CAP † 26Ω
V17	6AU4GTA	NC	NC	¶	NC	47Ω	NC	0Ω	.1Ω	
V18	1V2	NC	NC	NC	30meg	30meg	NC	NC	NC	† 40Ω
V19	3A3	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP † 450Ω
V20	6BK4	100K	† 10K	NC	NC	† 900K	NC	† 10K	NC	TOP CAP INF
V21	6AW8	0Ω	1.8meg	950K	0Ω	.1Ω	0Ω	1.4meg	† 7500Ω	† 7500Ω
V22	6AW8	270Ω	• 150Ω	† 22K	.1Ω	0Ω	† 22K	470K	270Ω	† 1500Ω
V23	6CB6	68K	0Ω	.1Ω	0Ω	† 1700Ω	† 47K	0Ω		
V24	12BH7A	† 10K	1meg	390Ω	0Ω	0Ω	† 22K	470K	270Ω	.1Ω
V25	6BY6	470K	• 550Ω	.1Ω	0Ω	† 6200Ω	■ 100Ω	.2Ω		
V26	6BY6	470K	• 550Ω	.1Ω	0Ω	† 6200Ω	■ 100Ω	.7Ω		
V27	12BH7A	† 10K	1meg	390Ω	0Ω	0Ω	† 10K	1meg	390Ω	.1Ω
V28	5U4GB	NC	¶	NC	9Ω	NC	9Ω	NC	¶	
V29	5U4GB	NC	¶	NC	9Ω	NC	9Ω	NC	¶	
V30	21AXP22A	30K	320K	† 100K	† 70K	† 70K	320K	† 100K	NC	32meg
		PIN 10	PIN 11	PIN 12	PIN 13	PIN 14				
		NC	† 330K	340K	† 70K	30K				

¶ THIS READING CAN VARY GREATLY, (10K MINIMUM), DUE TO THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.
 • THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
 ■ MEASURED FROM 130V SOURCE.
 † MEASURED FROM PIN 2 OF V29.
 ‡ MEASURED FROM PIN 3 OF V17.
 NC NO CONNECTION



HOFFMAN MODELS B2021, U, B4041, U, B4061, U, M2021, U, M4041, U, M4061, U, SP2021, U, SP4041, U, SP4061, U (Ch. 706, U)
 WARRINGTON KCO7B

MISCELLANEOUS ADJUSTMENTS

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Connect a 0-500MA meter across the horizontal output tube fuse holder (M4). Remove the fuse (M4).

Loosen the cover of the high voltage cage and slide back. Remove if necessary. Connect the VTVM thru the high voltage probe to the high voltage rectifier base ring. Connect the common lead to chassis.

Turn the set on and tune in a TV station.

Set the width switch (M11) on the rear of the high voltage cage to its center position.

If necessary, adjust the vertical hold control to synchronize the picture vertically. Adjust the horizontal hold to synchronize the picture horizontally. Using a low capacity probe, connect the vertical amplifier of the scope to terminal "J" of the horizontal oscillator printed board. Connect the low side to chassis. Adjust the horizontal waveform slug (B1) until the sharp peaks and the round peaks of the waveform on the scope are of equal amplitude as in Fig. 8; keep the picture in sync during this adjustment with the horizontal hold.

Rotation of the horizontal hold should cause the picture to lose sync at either end of its rotation. From counter clockwise position, the picture should pull into sync with between 1 and 3 bars present. The picture should remain in sync for three complete turns of the horizontal hold clockwise from the pull-in position.

The correct setting of the horizontal hold is one full turn counter clockwise from the point of pull-in at the clockwise position of the knob. Adjust horizontal linearity slug (B2) for MINIMUM current reading on the MA meter. This will give the best horizontal linearity. Adjust the height and vertical linearity controls for a 5/8" over scan, at the top and bottom of the screen, with a 117 volt line voltage. Adjust the focus control (R19) for proper focus. Check the high voltage regulator by inserting a 0-1000 microammeter in place of the test jumper in series with the cathode of the 6BK4 (V20). With a 20KV reading on the high voltage anode, a current reading of 800 microamps should be obtained. This indicates a beam power of 16 watts. (20,000 x .0008 = 16). If the calculation of the beam power shows less than 16 watts, adjust the horizontal linearity slug (B2) to increase the beam power. CAUTION: DO NOT adjust B2 to produce more than 220MA of current on the milliammeter connected across the fuse (M4).

PRELIMINARY CONVERGENCE ADJUSTMENTS

Connect the RF output of a dot generator to the antenna terminals.

STEP	ADJUST	REMARKS
1.	Red, blue and green horizontal and vertical amplitude controls.	Turn fully counter clockwise.
2.	Red, blue and green vertical tilt controls.	Set to mid-range.
3.	Check for correct position of convergence coil assembly, purity magnet and blue lateral magnet on neck of picture tube.	
4.	Red, blue and green DC controls and blue lateral magnet.	Adjust for white dot at center of screen.

PURITY ADJUSTMENTS

Switch channel selector to an unused channel. The front cabinet trim must be removed to adjust the equalizing magnets.

STEP	ADJUST	REMARKS
1.	Equalizing magnets (6).	Turn fully counter clockwise.
2.	Contrast control	Fully counter clockwise.
3.	Brightness control	Fully clockwise.
4.	Yoke (deflection)	Move as far back as possible.
5.	Blue and green screen controls	Fully counter clockwise.
6.	Red screen control	Fully clockwise.
7.	Purity magnets	Adjust by rotating either or both rings of purity magnets to produce a clean red area in the raster near the 8 o'clock position. The red area should be about one-half its diameter away from the edge of the screen.
8.	Yoke (deflection)	Position for best red screen with no neck shadow or extreme edge purity error on blue or green screen.
9.	Blue, green and red screen controls	Adjust for white raster.
10.	Equalizing magnets	If necessary, adjust individual magnets adjacent to contamination areas to produce a white raster.
11.	Check the purity of each color screen to make certain that purity has not been sacrificed for sake of uniformity when adjusting edge magnets.	

VERTICAL CONVERGENCE ADJUSTMENTS

Connect RF output of a dot generator to the antenna terminals and tune them in on the receiver.

STEP	ADJUST	REMARKS
1.	Recheck "Preliminary Convergence Adjustments".	
2.	Red, blue and green amplitude controls	Turn fully counter clockwise.
3.	Red, blue and green DC controls and blue lateral magnet.	Adjust to produce a white dot at the center of screen.
4.	Red and green vert. amplitude controls.	While observing center vertical row of dots, adjust to make red and green dots symmetrical about, or coincident with, the blue row of dots.
5.	Repeat Step 3, if necessary.	
6.	Red and green vert. tilt controls.	While observing the center vertical row of dots, adjust for maximum vertical convergence.
7.	Repeat Step 3, if necessary.	
8.	Blue vert. tilt and blue vert. amplitude controls.	Adjust to make blue dots equally spaced or coincident with the associated red and green dots along the vertical axis of the screen. (Observe the same center vertical row of dots as before).
9.	Repeat Step 3, if necessary.	
10.	The dots in the center vertical row should be nearly coincident at this time and form a vertical row of white dots. If necessary, repeat steps 4 thru 9.	

HORIZONTAL CONVERGENCE ADJUSTMENTS

STEP	ADJUST	REMARKS
1.	Blue horizontal amplitude slug (B3).	Turn fully counter clockwise.
2.	Blue horizontal tilt slug (B4).	Fully counter clockwise.
3.	Blue horizontal amplitude slug.	Turn to right until the blue dots have maximum downward displacement at the right side of the screen.
4.	Blue horizontal tilt slug.	Adjust until the center horizontal row of dots is straight.
5.	Red, blue and green DC controls and blue lateral magnet.	Adjust to produce a white dot at center of screen.
6.	Repeat steps 1 thru 4 using the red horizontal amplitude slug (B5) and red horizontal tilt (B6) adjusting red dots.	
7.	Repeat steps 1 thru 4 using the green horizontal amplitude slug (B7) and green horizontal tilt (B8) adjusting green dots.	
8.	Final touch-up of the convergence should now be made to obtain optimum convergence.	
9.	Red, blue and green horizontal amplitude and tilt slugs.	Touch-up to get best overall horizontal convergence.
10.	Red, blue and green vertical amplitude and tilt controls.	Touch-up for best overall vertical convergence.
11.	Repeat Step 5, if necessary.	

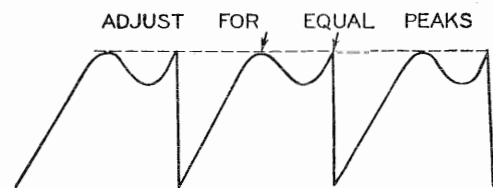
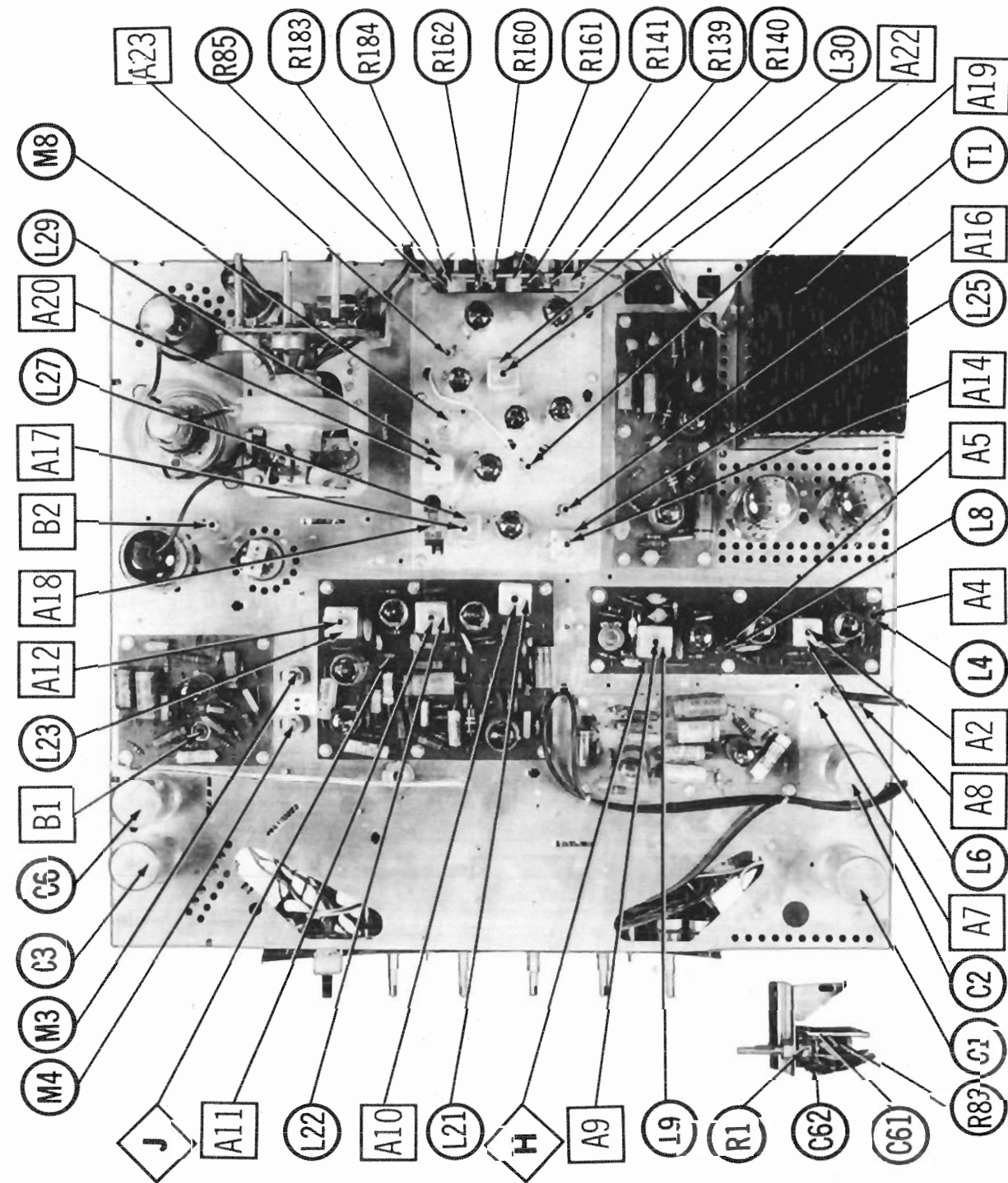


FIG. 8

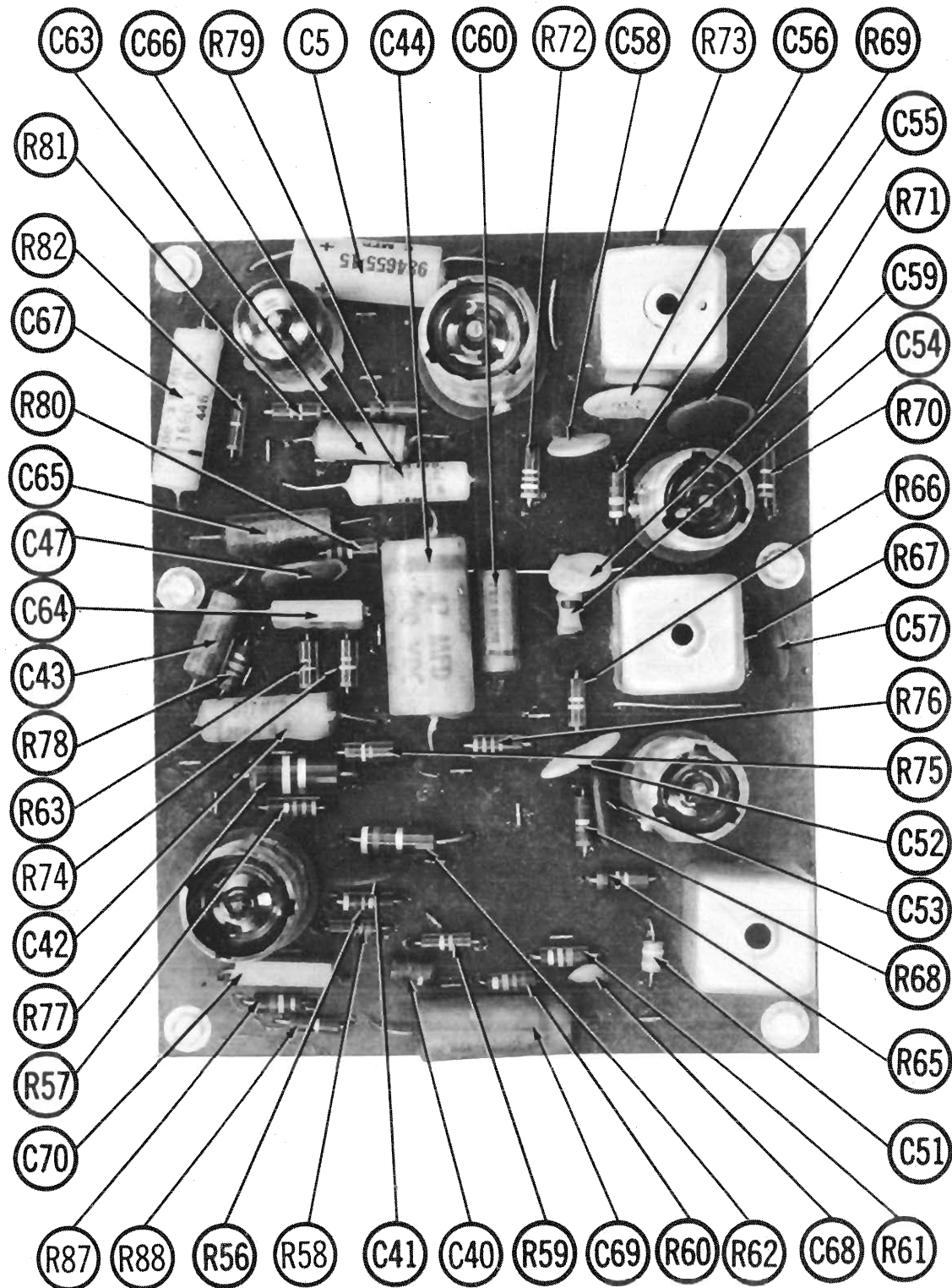


HOFFMAN MODELS B2021, U, B4041, U, B4061, U, M2021, U, M4041, U, M4061, U, SP2021, U, SP4041, U, SP4061, U (Ch. 706, U)
MAIN DOT SISSVHC

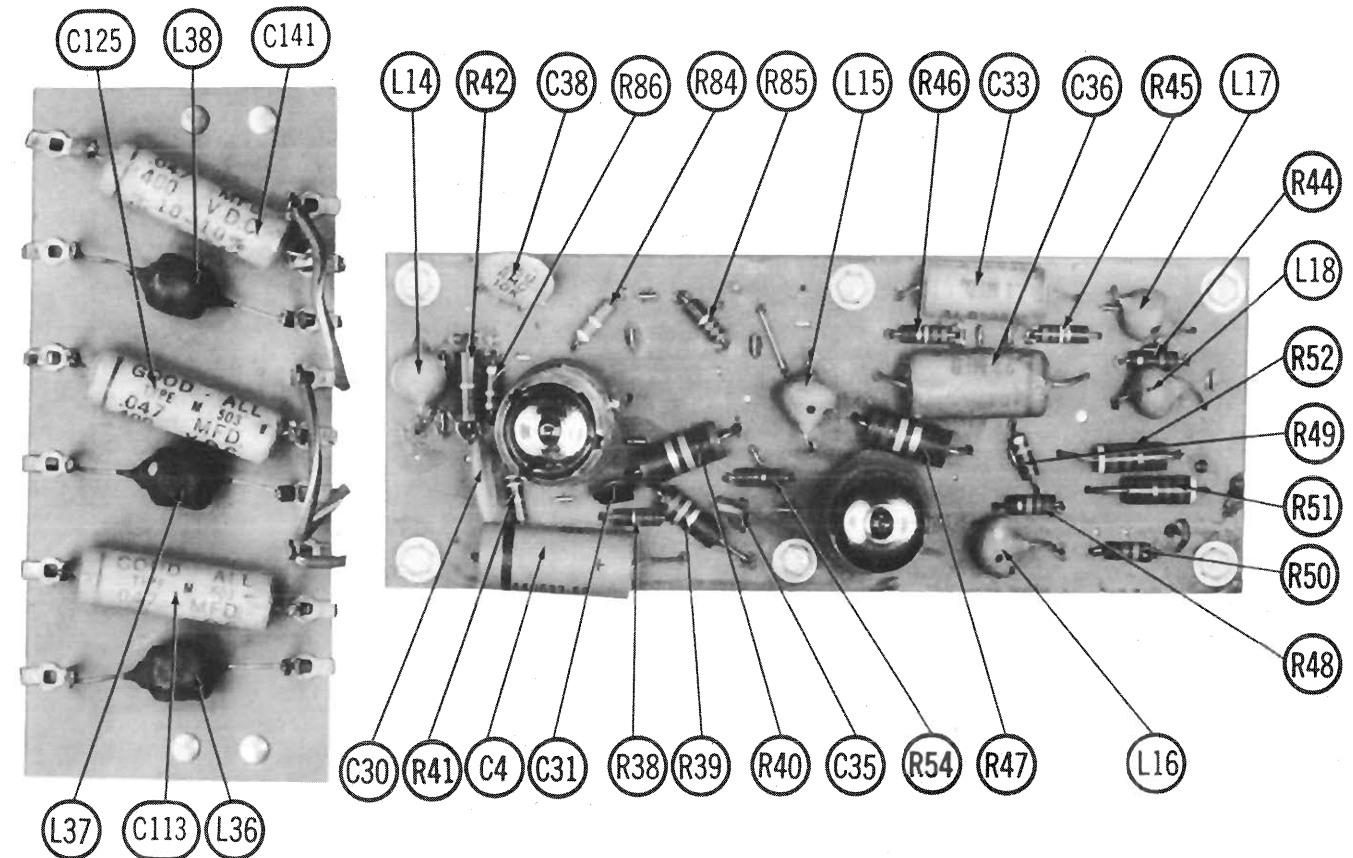
FOLDER 3

MISCELLANEOUS ADJUSTMENTS (cont.)

GRAY SCALE ADJUSTMENTS		
STEP	ADJUST	REMARKS
1.	Tune in a black and white signal, preferably with a test pattern.	
2.	Contrast control.	Fully clockwise.
3.	Red, blue and green screen and brightness controls.	Fully counter clockwise.
4.	Green and blue background controls.	Set at mid-range.
5.	Red background control.	Connect DC probe of VTVM pin 2 (grid) of picture tube and common to pin 4 (red cathode) of picture tube. Adjust red background control for -90 volts on VTVM.
6.	Brightness control.	With VTVM connected as above, adjust brightness control to reduce meter reading to -70 volts.
7.	Red, blue and green screen controls.	Adjust for gray picture at low level. DO NOT change brightness control setting during this adjustment. DO NOT change setting of red screen or red background controls after this point in procedure.
8.	At this point, one color will predominate when contrast and brightness controls are given normal settings. Depending on which color predominates the highlight areas, follow procedure of one the following paragraphs.	
	a. Green predominates highlights. Turn green background control SLIGHTLY counter clockwise making the picture magenta and while observing the lowlight areas, adjust the green screen control clockwise to obtain gray in the lowlight areas.	
	b. Blue predominates highlights. Turn blue background control SLIGHTLY counter clockwise making the picture yellow and while observing the lowlight areas, adjust the blue screen control clockwise to obtain gray in the lowlight areas.	
	c. Cyan (blue/green) predominates highlights. Turn the blue and green background controls SLIGHTLY counter clockwise making the picture red. Adjust blue and green screen controls to obtain gray in the lowlight areas.	
	d. Magenta predominates highlights. Turn green background control SLIGHTLY clockwise making picture green. Adjust green screen control counter clockwise to obtain gray in lowlight areas.	
	e. Yellow predominates highlights. Turn blue background control SLIGHTLY clockwise making the picture blue. Adjust the blue screen control counter clockwise to obtain gray in the lowlight areas.	
	f. Red predominates highlights. Turn blue and green background controls SLIGHTLY clockwise making the picture cyan. Adjust blue and green screen controls counter clockwise to obtain gray in lowlight areas.	
	Vary the brightness control through its entire range and observe all areas. No color should predominate in high or low brightness areas, at any setting of brightness control.	



SOUND PRINTED BOARD



VIDEO PRINTED BOARD
SET 385 FOLDER 3

HOFFMAN MODELS B2021, U, B4061, U, M2021, U, M4041, U, M4061, U, SP2021, U, SP4041, U, SP4061, U (Ch. 706, U)

FOLDER 3

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

The high voltage should be disabled by removing M3 (3/4 Amp. fuse). Connect a 2500Ω, 100 watt resistor from point Ⓢ to chassis. Turn AGC control (R3B) fully clockwise and the noise control (R2B) fully counter clockwise.

VIDEO IF ALIGNMENT

Remove the bottom shield from the video IF printed board. Connect the negative lead of a 9 volt bias supply to terminal "B" on the video IF printed board. Positive to chassis. Connect the negative lead of a 4 volt bias supply to point Ⓢ. Positive to chassis. Connect the negative lead of an 8 volt bias supply to point Ⓢ. Positive to chassis. Turn sound reject control (R20) to the center of its range. 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. Use only enough sweep generator output to provide a usable pattern on scope.

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1. 1500MMF	High side to point Ⓢ. Low side to chassis.	44MC (10MC Swp)	42.17MC 45.75MC	Between any two channels	Vert. Amp. thru detector (Fig. 1) to pin 5 (plate) of 6DE6 (V4). Low side to chassis.	A1, A2	Adjust for maximum gain and symmetry of response similar to Fig. 2 with markers as shown. A1 is used to position markers at 50% and A2 is used to rock the top of curve. Replace shield over IF printed board.
2. .005MFD	High side to point Ⓢ. Low side to chassis.	Not used	45.75MC	"	USE VTVM DC probe thru 10K to terminal "D" on video printed board. Common to terminal "C" on video printed board.	A3	Adjust for maximum deflection.
3. "	"	"	45.0MC	"	"	A4	"
4. "	"	"	43.0MC	"	"	A5	"
5. "	"	"	44.0MC	"	"	A6	"
6. "	"	"	41.25MC	"	"	A7	Adjust for MINIMUM deflection.
7. "	"	"	47.25MC	"	"	A8	"
8. "	"	"	41.25MC	"	"	A9, R20	Adjust for MINIMUM deflection. Use insulated tool for adjusting R20.
9. "	"	44MC (10MC Swp)	41.25MC 42.17MC 43.0MC 45.0MC 45.75MC 47.25MC	"	Vert. Amp. thru 10K to terminal "D" on the video printed board. Low side to chassis.		Check for response similar to Fig. 3 with markers as shown. If necessary, retouch A4 to control high frequency side of curve. Adjust A6 to rock curve for desired response.

SOUND IF ALIGNMENT

Connect bias as under "Video IF Alignment". Connect two matched 100K (±1%) resistors in series from point Ⓢ to chassis. The junction of these two resistors is alignment point Ⓢ as shown on the schematic.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
10. .01MFD	High side to point Ⓢ. Low side to chassis.	4.5MC (Unmod)	Between any two channels	DC probe to point Ⓢ. Common to chassis.	A10, A11, A12	Use only enough generator output to provide a usable indication on VTVM. Adjust for maximum deflection.
11. "	"	"	"	DC probe to point Ⓢ. Common to point Ⓢ.	A13	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

VHF OSCILLATOR ALIGNMENT

Set the fine tuning at the center of its range. The adjustments are accessible, one at a time, as the channel selector is rotated. Adjust for best picture and sound.

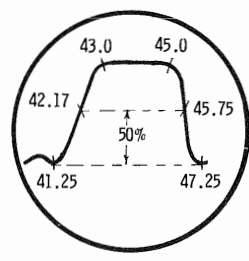
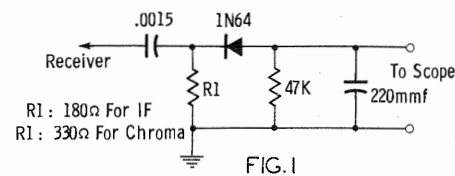


FIG. 3

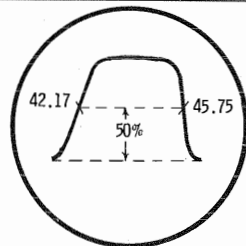


FIG. 2

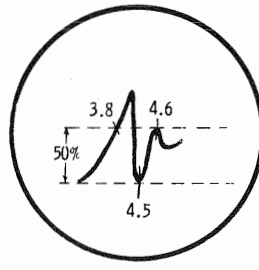


FIG. 4

ALIGNMENT INSTRUCTIONS (cont)

CHROMA ALIGNMENT

Turn killer threshold control (R16A) and the AGC threshold control (R16B) fully counter clockwise. Set matrix balance control (R15) at the center of its range. Turn the chroma (color brilliance) (R4) and contrast (R5) fully clockwise. Connect the negative lead of an 8 volt bias supply to point Ⓢ. Positive to chassis. Connect clip lead from pin 1 (grid) of 6CB6 (V23) to chassis to disable the chroma reference oscillator. Connect the negative lead of an 8 volt bias supply to point Ⓢ. Positive to chassis.

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
12. .05MFD	High side to terminal "D" on video printed board. Low side to chassis.	Not used	4.5MC	Between any two channels	USE VTVM DC probe thru detector (Fig. 1) to pin 5 (plate) of 6BY6 (V25). Common to chassis.	A14	Adjust for MINIMUM deflection.
13. "	"	"	4.6MC	"	"	A15	Adjust for maximum deflection.
14. "	"	"	2.5MC	"	"	A16	"
15. "	"	"	4.0MC	"	"	A17	"
16. "	"	"	4.2MC	"	"	A18	"
17. "	"	"	2.8MC	"	"	A19	"
18. "	"	4.0MC (8MC Swp)	3.8MC 4.5MC 4.6MC	"	Vert. Amp. thru detector to pin 9 (plate) of 6AW8 (V21). Low side to chassis.		Check for response curve similar to Fig. 4. If necessary, retouch A15 for desired response.
19. "	High side to point Ⓢ. Low side to chassis.	"	2.25MC 4.0MC	"	Vert. Amp. thru detector to pin 2 (grid) of 6AW8 (V22). Low side to chassis.	R4, R5	Adjust for curve just before overload. Curve should be similar to Fig. 5. If necessary, retouch A17 to place markers at knee of curve. Retouch A18 for equal peaks.
20. "	"	"	"	"	Vert. Amp. thru detector to pin 5 (plate) of 6BY6 (V25). Low side to chassis.		Check for response similar to Fig. 6. If necessary, retouch A19 for flat response. SLIGHT readjustment of A16 is permissible on the 2.25MC marker side of curve. SLIGHTLY retouch A17 to correctly position 4.0MC marker.

CHROMA PHASING ADJUSTMENTS

Remove all bias voltage sources and test equipment leads. Remove the 2500Ω, 100 watt resistor and replace the fuse back into its socket. Remove the ground from pin 1 of V23.

Connect a color bar generator to the antenna terminals and tune them in on the receiver. Connect the vertical amplifier of the scope to terminal "C" of the video printed board and the low side to chassis. Adjust the AGC control for 10 volts peak to peak signal on the scope. Move the vertical amplifier of the scope to terminal "B" of the video printed board. Adjust the noise control (R2B) to a point just before the sync pulses start to clip.

Connect the DC probe of the VTVM to pin 1 (grid) of the 6CB6 (V23). Common to chassis. Use negative scale. Adjust A20 for maximum deflection, approximately -6 volts.

Connect the DC probe of the VTVM thru detector (Fig. 1, change R1 to 100K) to terminal "D" of L30. Common to chassis. Adjust A21 for symmetrical swing of DC when the "Hue" control (R3A) is rocked back and forth. The reading obtained on the meter should be the same at both extreme settings of the hue control. The reading should be at minimum when the hue control is at mid-range. With the hue control set for MINIMUM reading, adjust A22 for maximum deflection and then A23 for MINIMUM deflection.

Connect the vertical amplifier of the scope to pin 2 (red grid) of the picture tube. Connect the low side to chassis. Retouch A20 for correct waveform of the R-Y signal as shown in Fig. 7. Move the vertical amplifier of the scope to pin 12 (blue grid) of the picture tube. If necessary, retouch A22 for proper B-Y waveform as shown in Fig. 7.

Move the scope connection back to pin 2 of the picture tube and adjust the hue control for proper R-Y waveform. Let the amplitude of the R-Y response curve represent 100%. Move the vertical amplifier of the scope to pin 12 (blue grid) of the picture tube. The amplitude of the pattern should be 60% of that at the red grid. If necessary, adjust the matrix balance control (R15) to make the amplitude at the blue grid 60%. Move the scope connection to pin 6 (green grid) of the picture tube. The amplitude of the waveform should be approximately 40.8% of the amplitude of the pattern on the red grid.

Connect the DC probe of the VTVM to point Ⓢ thru the detector probe. Common to chassis. Tune in a black and white signal and adjust the AGC threshold control (R16B) for -1 volt DC. Turn chroma (color brilliance) and contrast controls fully clockwise. Adjust killer threshold control (R16A) until color noise just disappears.

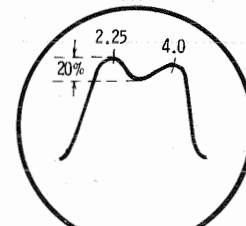


FIG. 5

B-Y

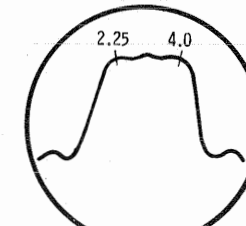


FIG. 6

R-Y

G-Y

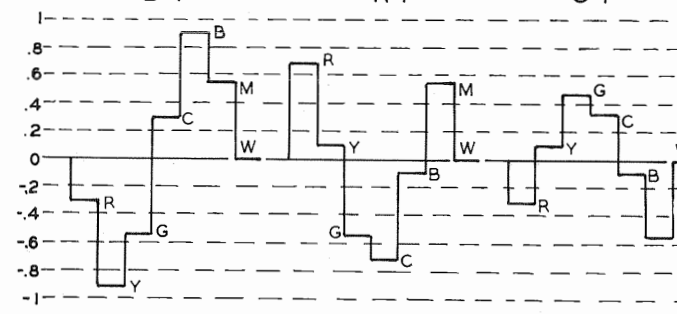
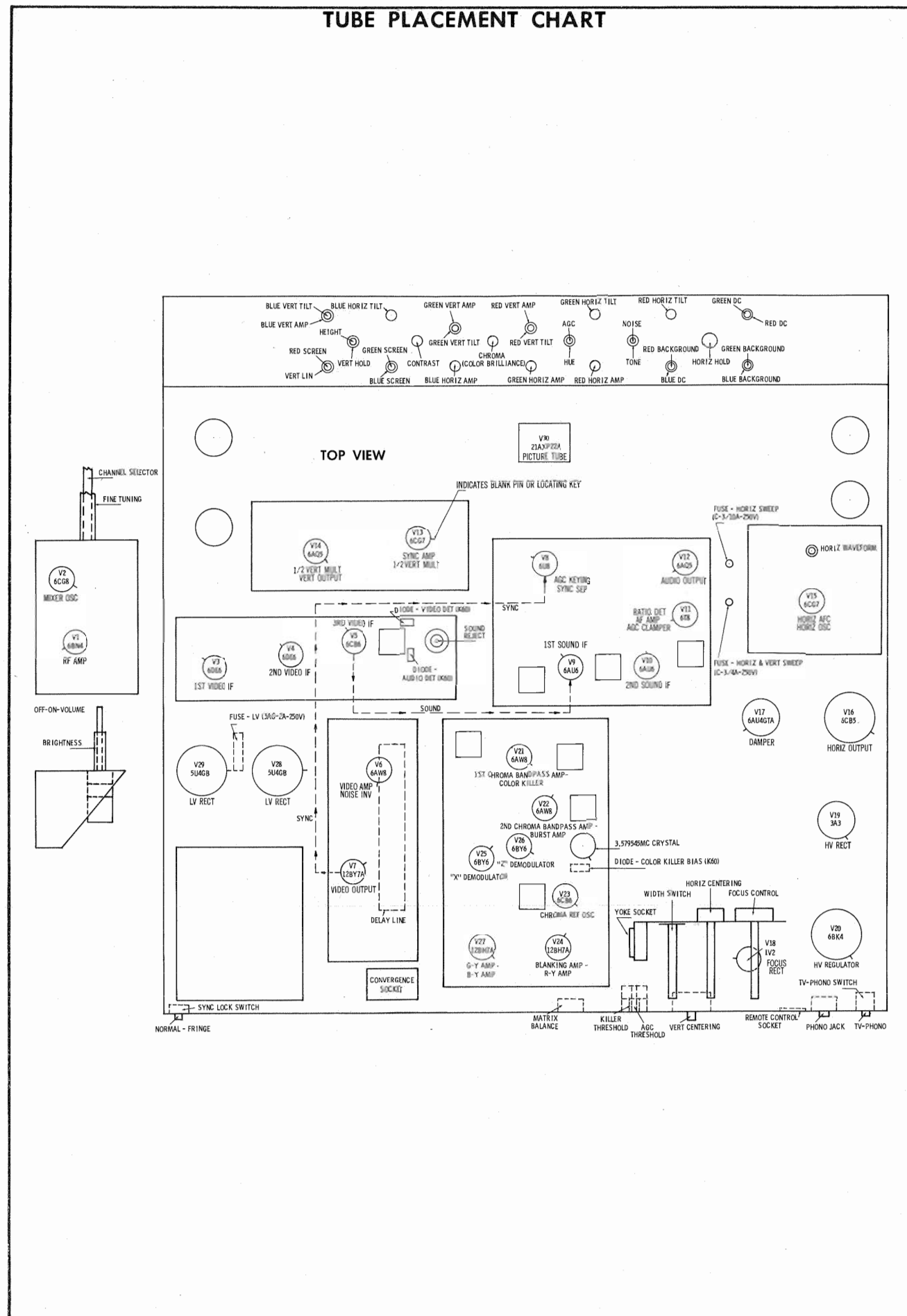
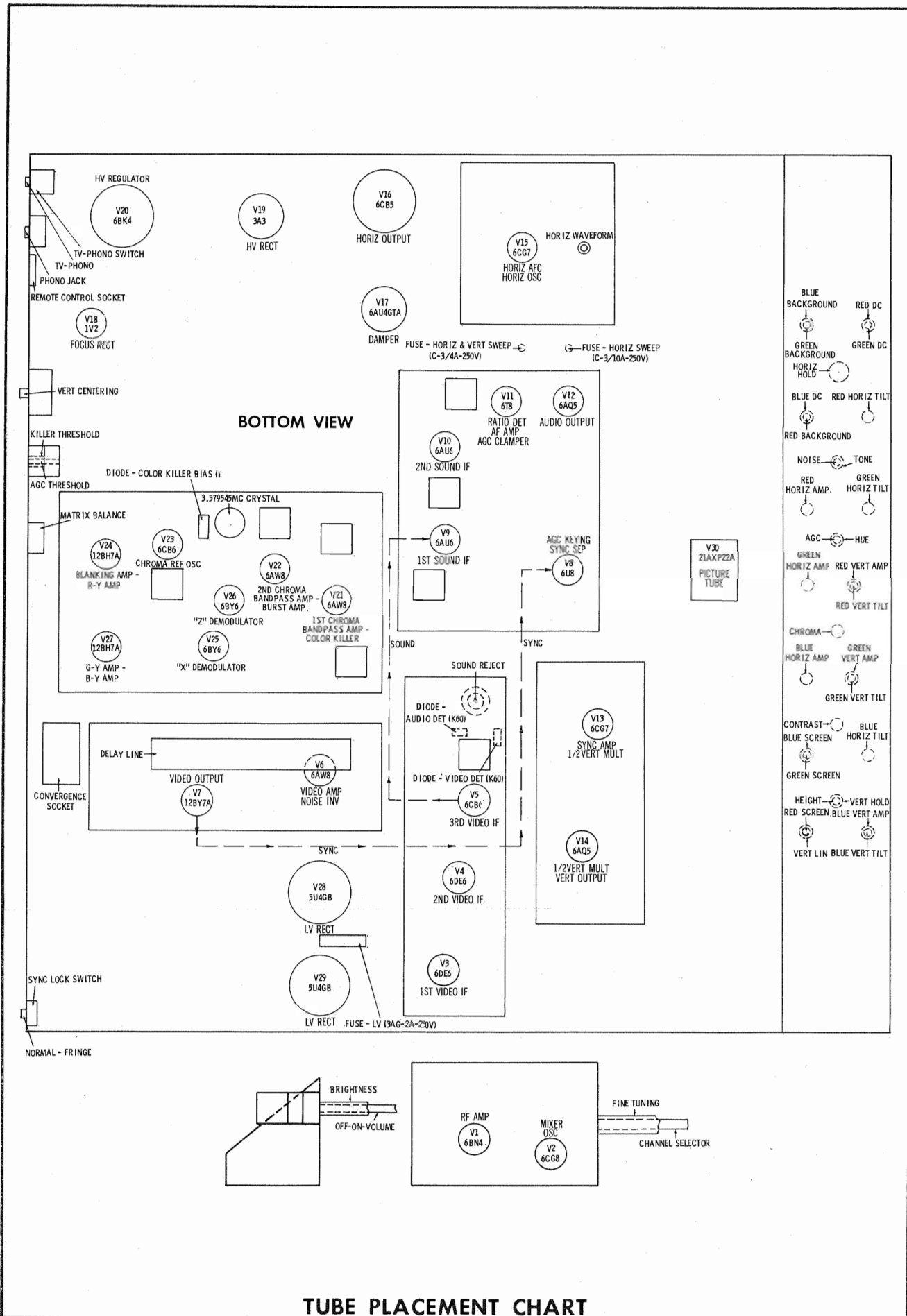
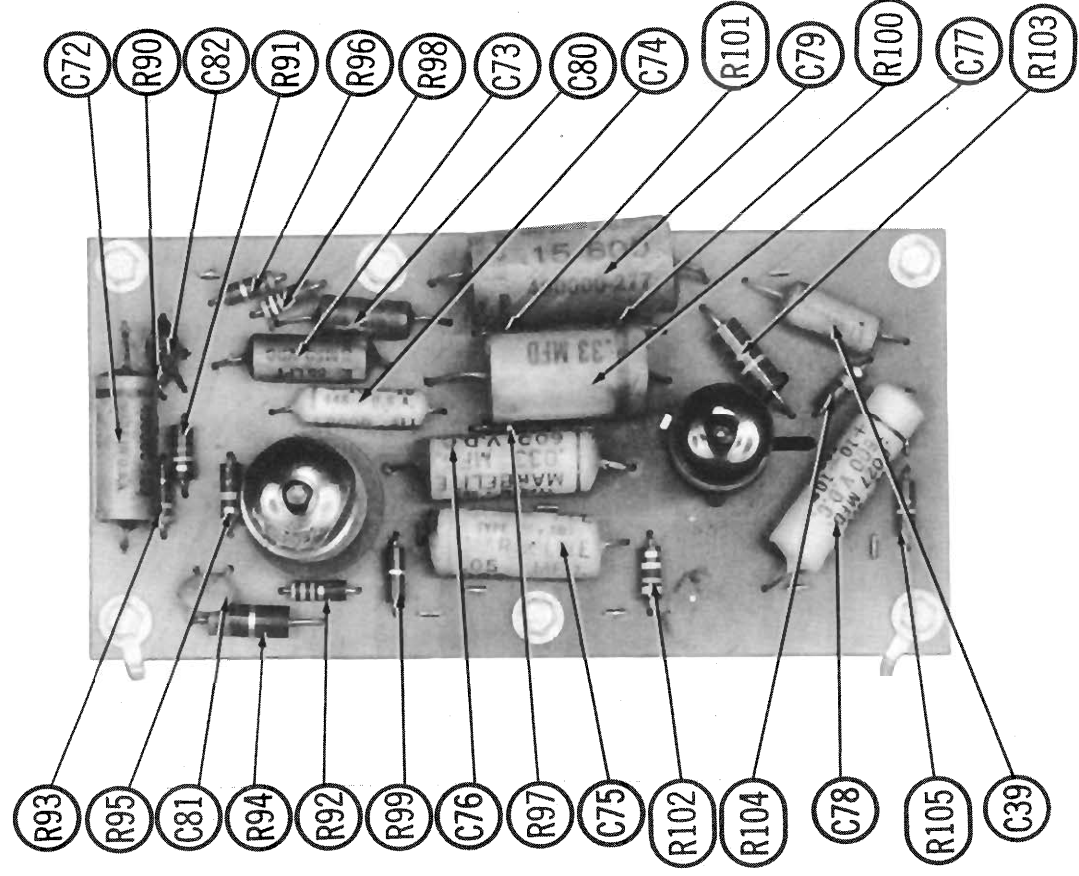


FIG. 7

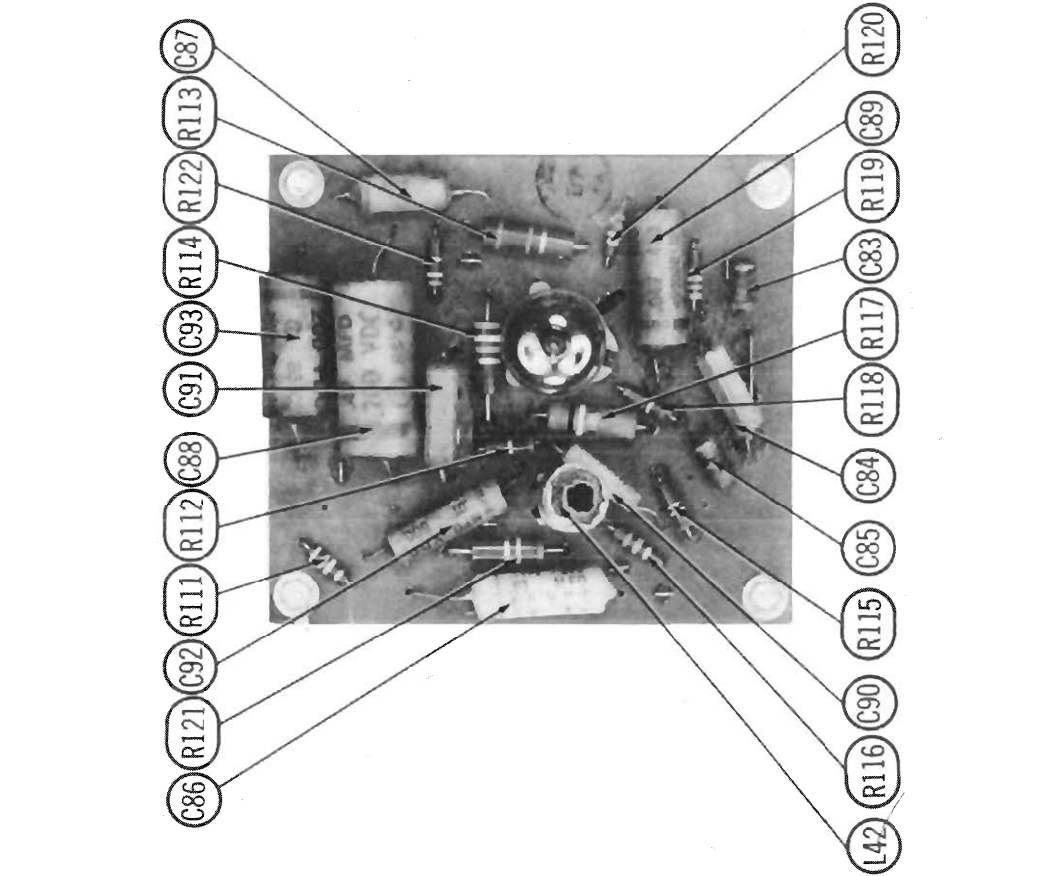
HOFFMAN MODELS B2021, U, B4061, U, M2021, U, M4041, U, M4061, U, SP2021, U, SP4041, U, SP4061, U (Ch. 706, U)



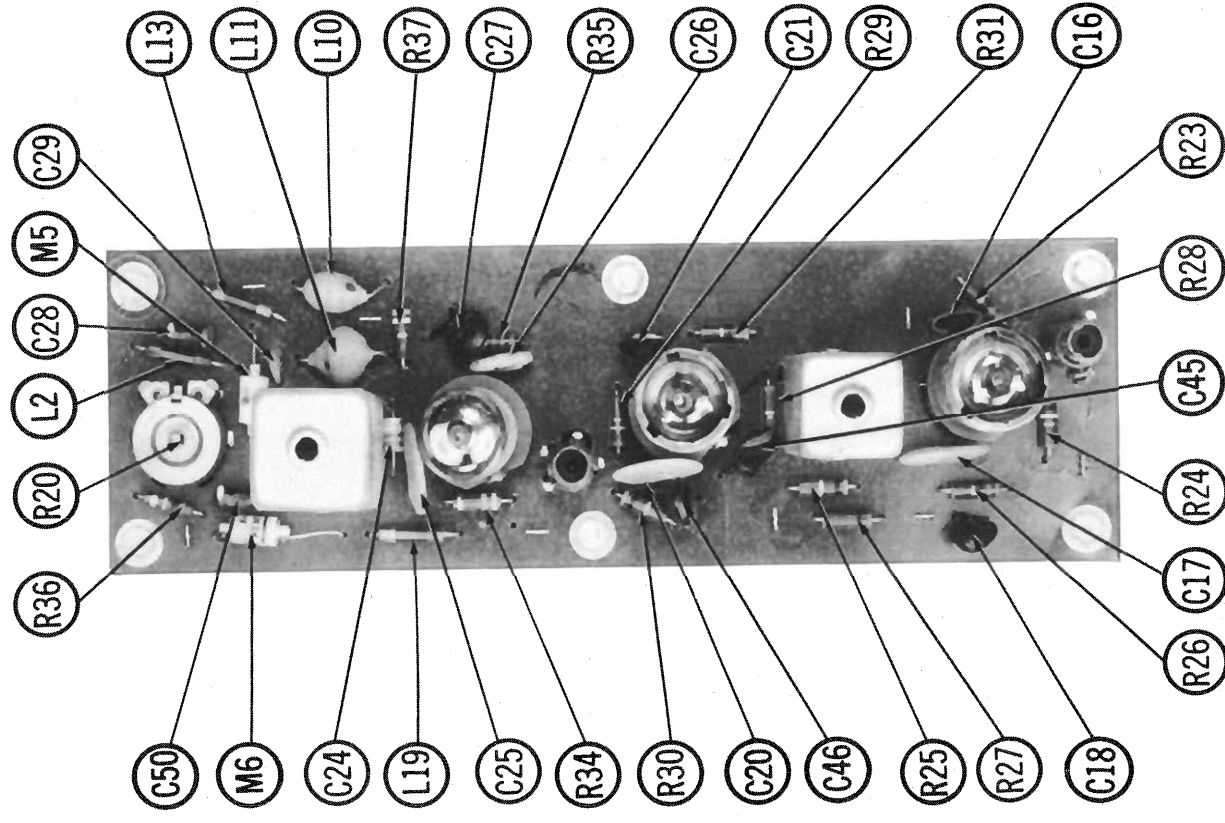
HOFFMAN MODELS B2021, U, B4041, U, B4061, U, M2021, U, M4041, U, M4061, U, SP2021, U, SP4041, U, SP4061, U (Ch. 706, U)



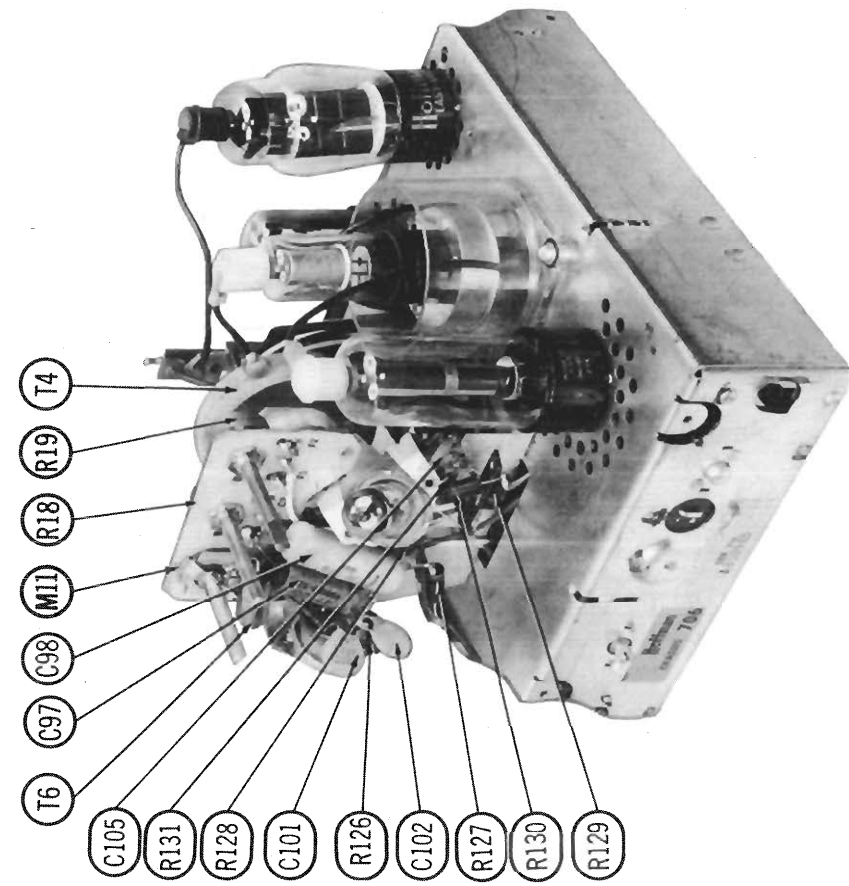
VERTICAL PRINTED BOARD



HORIZONTAL PRINTED BOARD

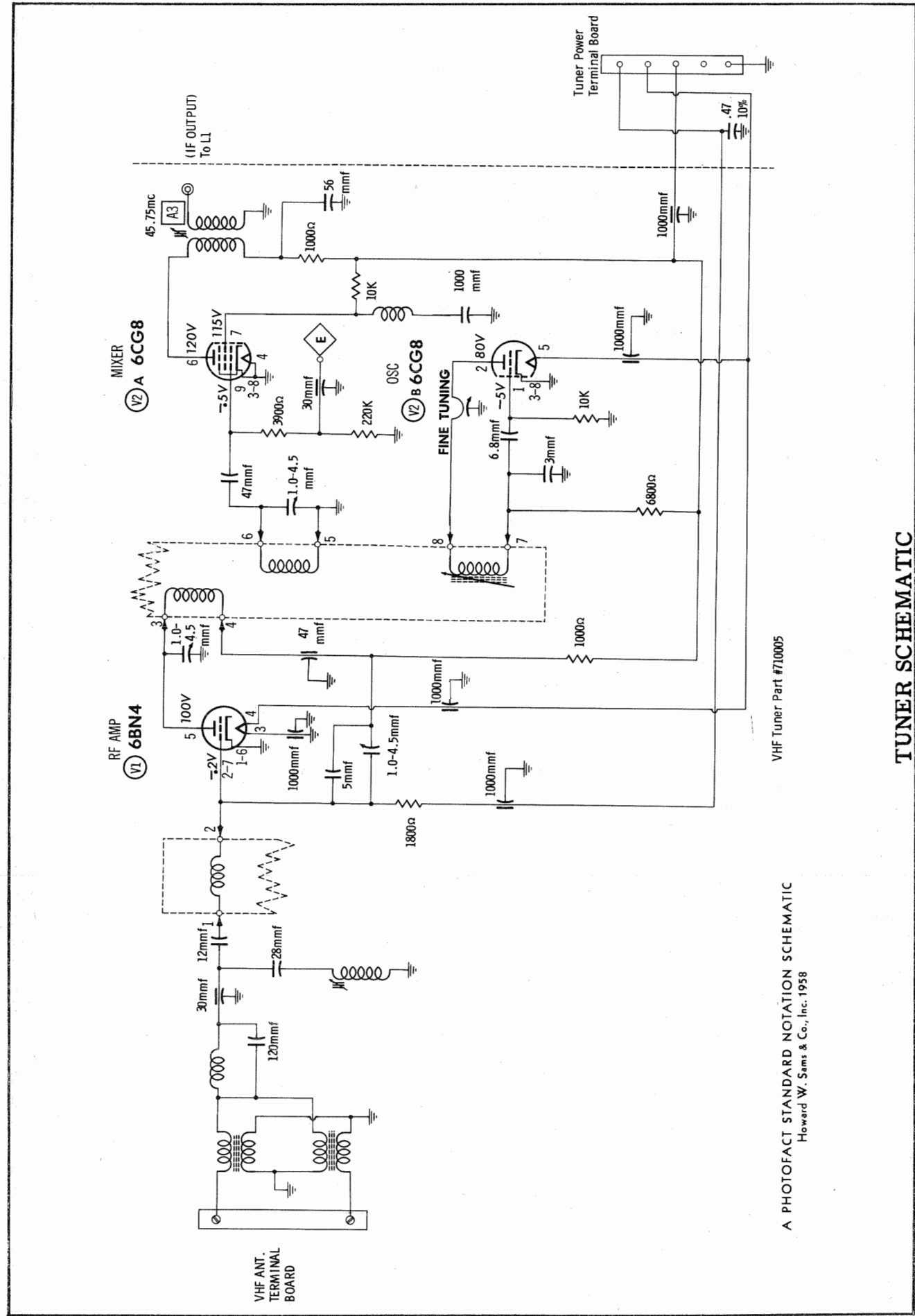


VIDEO IF PRINTED BOARD

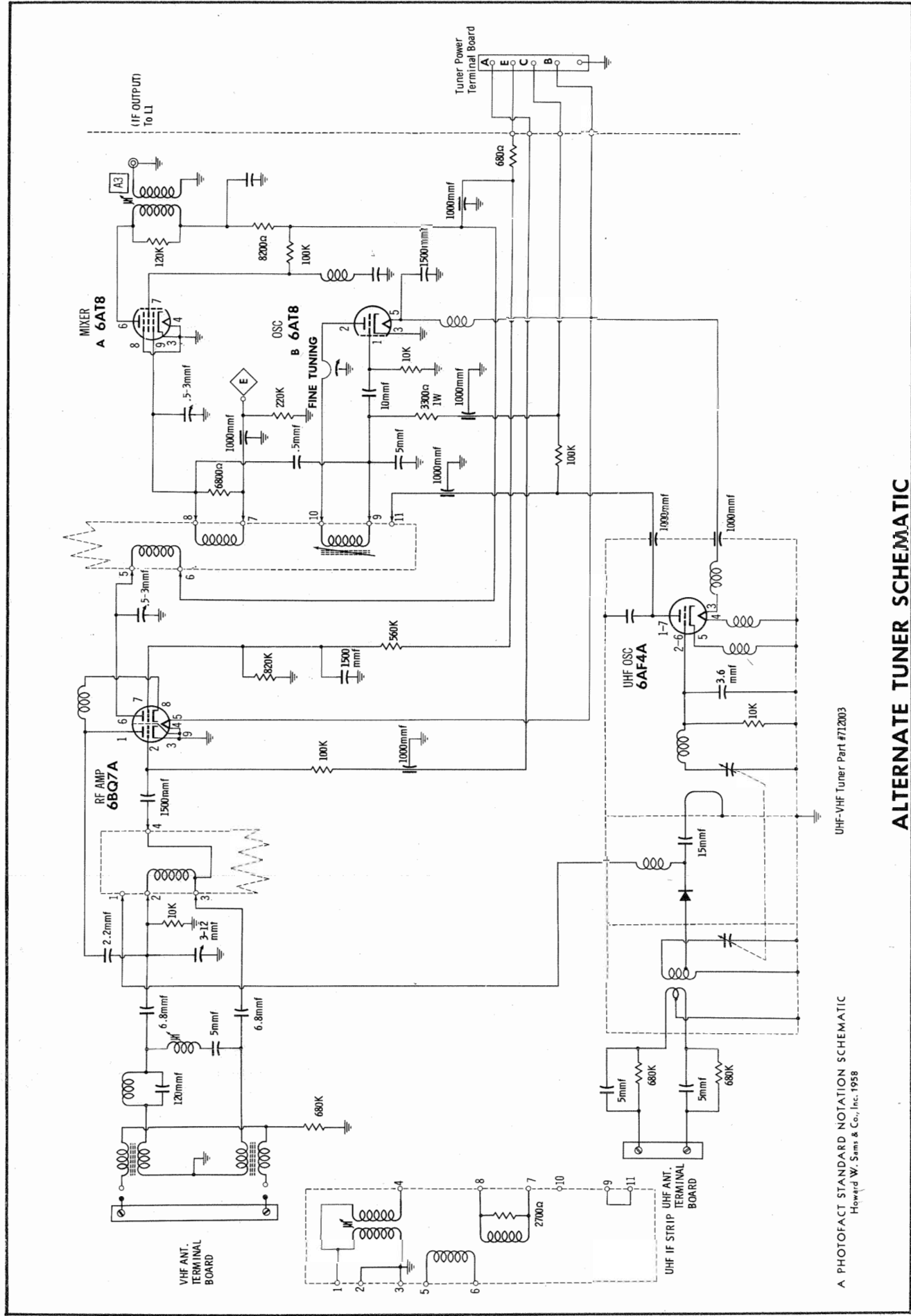


INNEENTMENT AV COMPARTMENT

HOFFMAN MODELS B2021, U, B4041, U, B4061, U, M2021, U, M4041, U,
M4061, U, SP2021, U, SP4041, U, SP4061, U (Ch. 706, U)



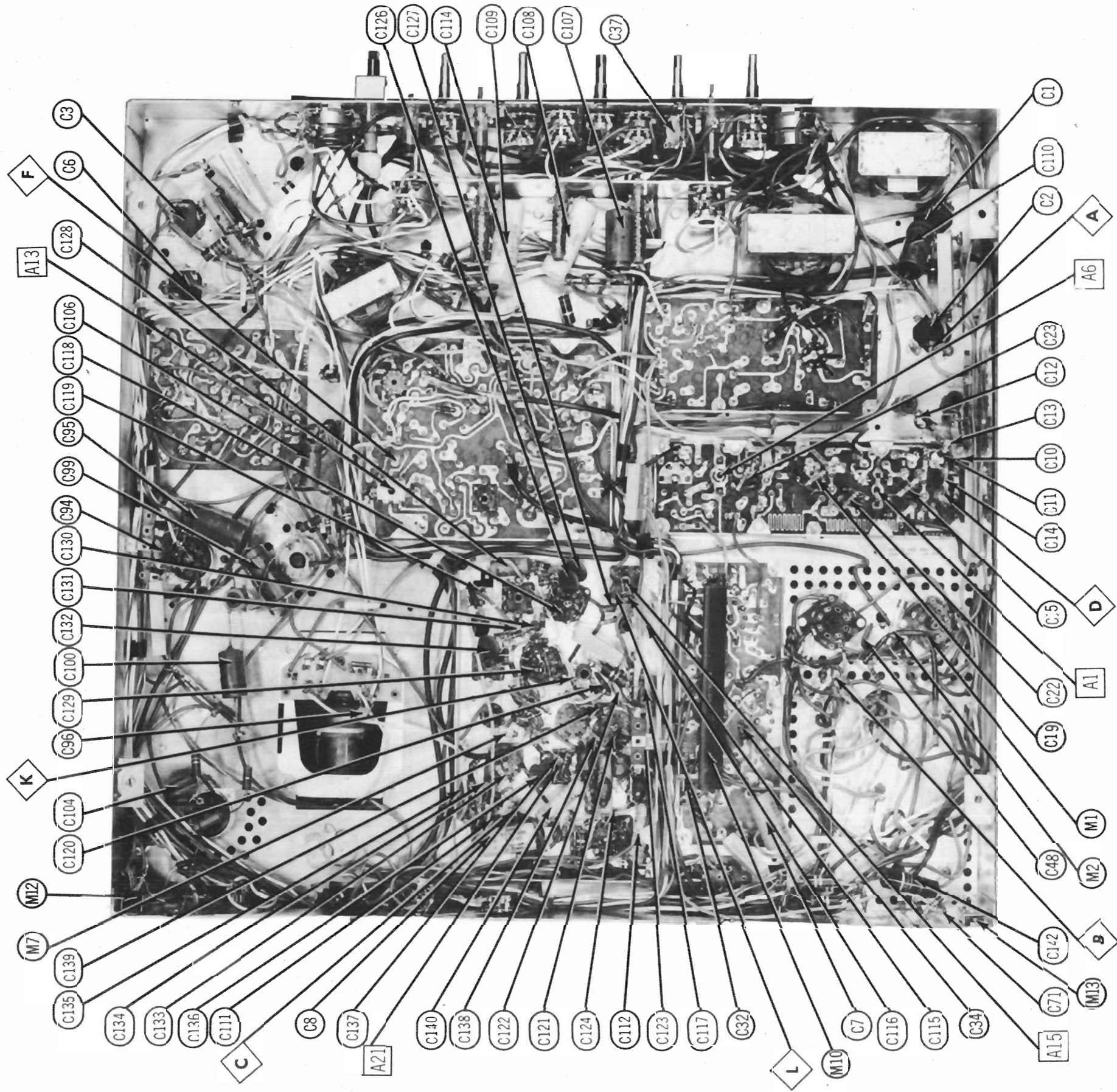
TUNER SCHEMATIC



HOFFMAN MODELS B2021, U, B4041, U, B4061, U, M2021, U, M4041, U,
M4061, U, SP2021, U, SP4041, U, SP4061, U (Ch. 706, U)

CITIZENS ELECTRONICS

HOFFMAN MODELS B2021, U, B4041, U, B4061, U, M2021, U, M4041, U,
M4061, U, SP2021, U, SP4041, U, SP4061, U (Ch. 706, U)
NOIICAFIINENI INEWNGITV DNV ROLICAPAPV-C-WEIA WOLLOV SISSVHD



CAPACITORS (cont)

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (cont)

Table of capacitor specifications including item number, rating, capacitance, and part numbers. Includes replacement data columns for various manufacturers like Hoffmann, Centralab, and Sprague.

Table of resistor specifications including item number, rating, resistance, and part numbers. Includes replacement data columns for Hoffmann, Centralab, and IRC.

Table of resistor specifications with additional columns for wattage and notes. Includes replacement data columns for Hoffmann and others.

RESISTORS
All wattages 1/2 watt, or less, unless otherwise listed.

Large table of resistor specifications with columns for item number, rating, resistance, and part numbers. Includes replacement data and installation notes.

TRANSFORMER (POWER)

Table of power transformer specifications including item number, rating, and various part numbers.

TRANSFORMERS (SWEEP CIRCUITS)

Table of sweep transformer specifications including item number, use, and various part numbers.

Includes resistors R107, R110 and capacitor C103.
Used red and blue terminals.

TRANSFORMER (AUDIO OUTPUT)

Table of audio transformer specifications including item number, impedance, and various part numbers.

SPEAKER

Table of speaker specifications including item number, type, and various part numbers.

COILS (RF-IF)

Table of RF-IF coil specifications including item number, use, and various part numbers.

CONTROLS

Table of control specifications including item number, rating, and various part numbers.

HOFFMAN MODELS B2021, U, B4061, U, M2021, U, M4041, U, M4061, U, SP2021, U, SP4041, U, SP4061, U (Ch. 706, U)

FOLDER 3