

**CABINET-REAR VIEW**

**DISASSEMBLY INSTRUCTIONS**

**CHASSIS REMOVAL**

1. Remove rear cover (10 screws) and remove 10 knobs from front of cabinet.
2. Disconnect picture tube socket, anode lead, yoke, antenna leads, convergence panel, and grounds from control panels to picture tube mounting frame.
3. Remove speaker panel by releasing catch accessible from bottom of cabinet through hole under speaker. This also provides access to convergence panel.
4. Remove control panel held by 2 screws and tuner assembly held by 4 screws.

5. Remove 4 bolts from bottom of cabinet and remove chassis.

**PICTURE TUBE REMOVAL**

1. Remove chassis and lay cabinet face down on a soft protective surface.
2. Remove 6 screws from side and bottom mounting plates.
3. Remove picture tube and mounting assembly and place face down on a soft surface.
4. Mark relationship of mounting band to knobs on picture tube, loosen bolt, and remove mounting band.

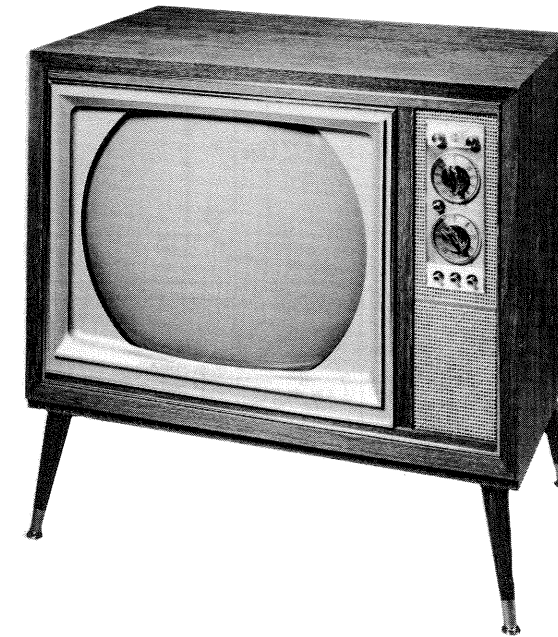
SET 739 FOLDER 3

PHOTOFACT® Folder



MOTOROLA  
CHASSIS VTS / WTS-907

**MOTOROLA  
CHASSIS VTS / WTS-907**



*Master File*

MODEL 21CT220AW

TRADE NAME	MOTOROLA	MODELS	CHASSIS
Code A-00, B-04 thru B-06	21CT220AW, 21CK222AM/AW, 21CK223AS, 21CK224AM/AW, 21CK225AM/AW, 21CK226AD, 21CK227AS, 21CK228AF ..... 21CT210A.....		WTS-907 VTS-907
SUPPLIER	For current address, see Master Index.		
TYPE SET	Color Television Receiver		
TUBES	VHF: Twenty-Eight, UHF: One Transistor		
POWER SUPPLY	110-120 Volts AC, 60 Cycles	RATING	335 Watts, 3.4 Amps. @ 117 Volts
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)		

**SERVICING IN THE FIELD**

**SAFETY GLASS**

The safety glass is an integral part of the picture tube.

**FUSE OR FUSE DEVICE**

A 1" length of fuse wire is used for low voltage power supply protection. (See M1, "Chassis-Top View" for location.)

A 1" length of fuse wire is used for filament protection. (For location, see M2 in photo "Chassis - Bottom View".)

A Circuit Breaker is used for low voltage power supply protection and may be reset by depressing the reset button. (See "Tube Placement Chart" for location.)

**VHF OSCILLATOR ADJUSTMENT**

The fine tuning mechanically engages osc. slug for adjustment (one slug for each channel).

**AGC**

The AGC may be varied by means of an AGC Control. (See "Tube Placement Chart" for location.)

**SYNC STABILITY**

Sync stability may be varied by means of a Noise Gate Control. (See "Tube Placement Chart" for location.)

**HORIZONTAL OSCILLATOR FIELD ADJUSTMENT**

The Horizontal Oscillator Slug is used for the horizontal hold. (See "Tube Placement Chart" for location.)

**FOCUS**

The focus may be varied by means of a Focus Coil. (See "Tube Placement Chart" for location.)

**CENTERING**

Centering is accomplished by Horizontal and Vertical Centering Controls located on yoke rear cover.

**HOWARD W. SAMS & CO., INC. Indianapolis 6, 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. NB033

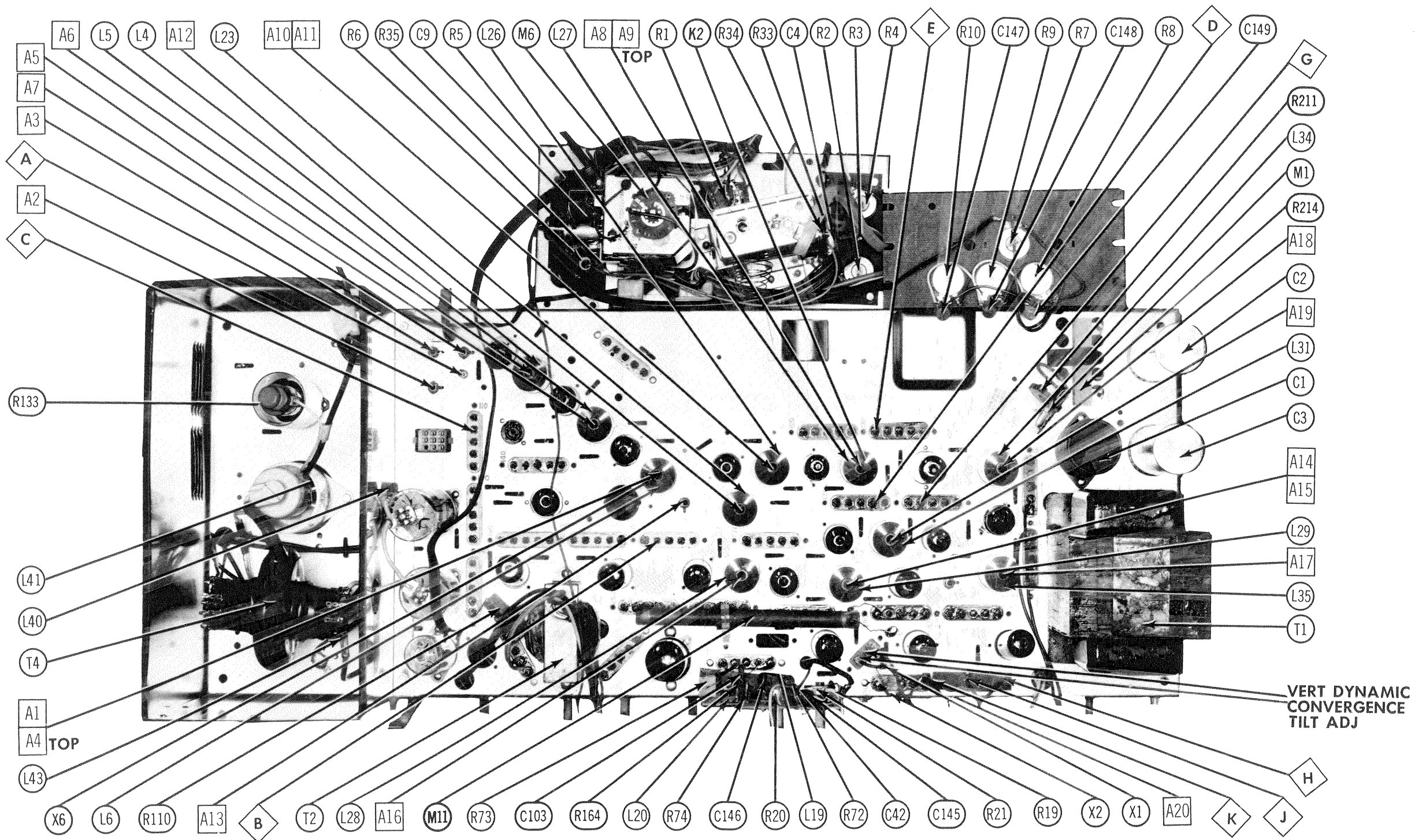
Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1965 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U. S. of America

DATE 2 -65

SET 739 FOLDER 3

MOTOROLA  
CHASSIS VTS / WTS-907

SET 739 FOLDER 3

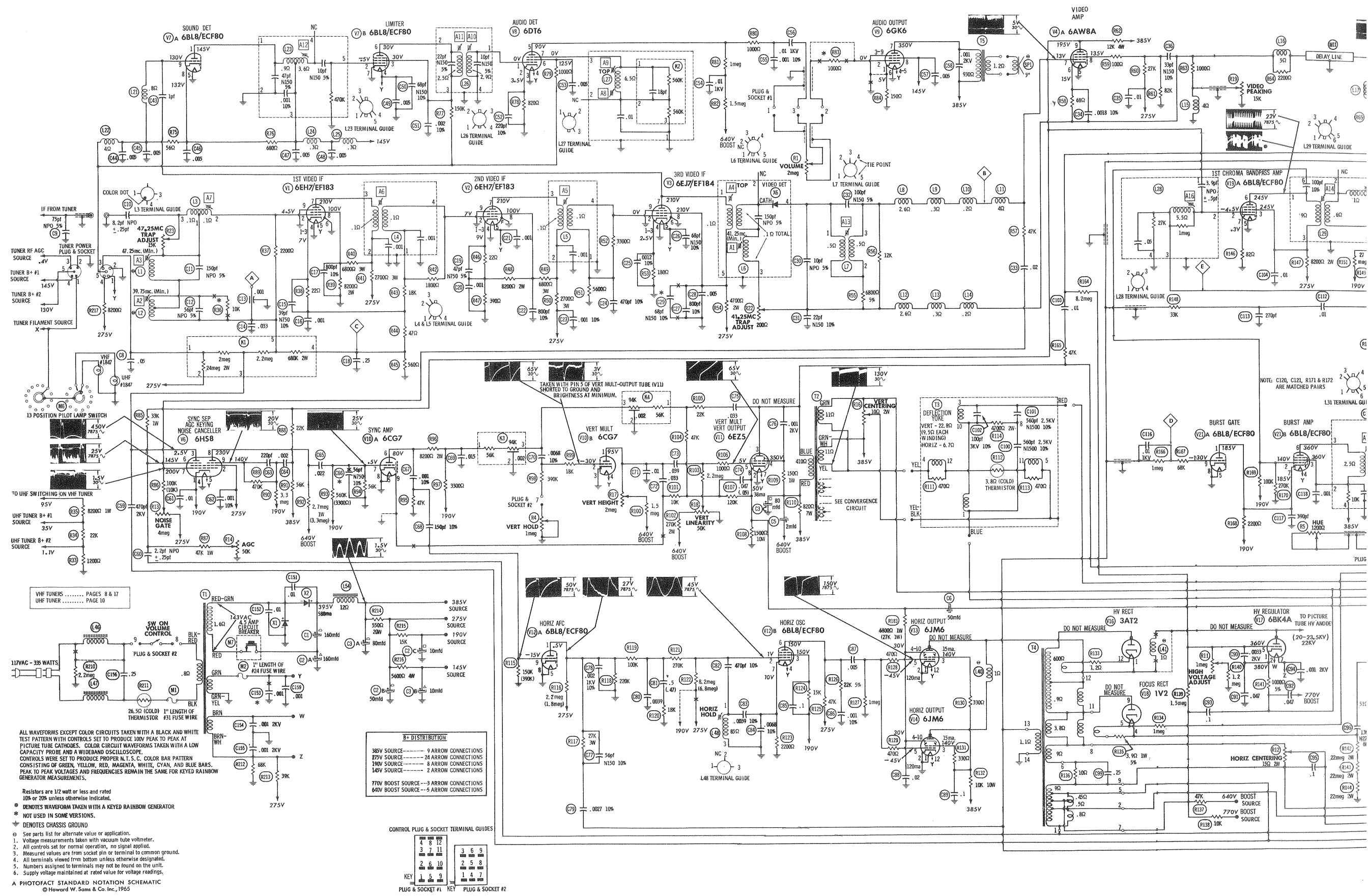


MOTOROLA  
CHASSIS VTS/WTS-907

FOLDER 3

CHASSIS-TOP VIEW

- CHASSIS REMOVAL**
1. Remove rear cover (10 screws) and cabinet.
  2. Disconnect picture tube socket, an convergence panel, and grounds from mounting frame.
  3. Remove speaker panel by releasing cabinet through hole under speaker convergence panel.
  4. Remove control panel held by 2 screws.









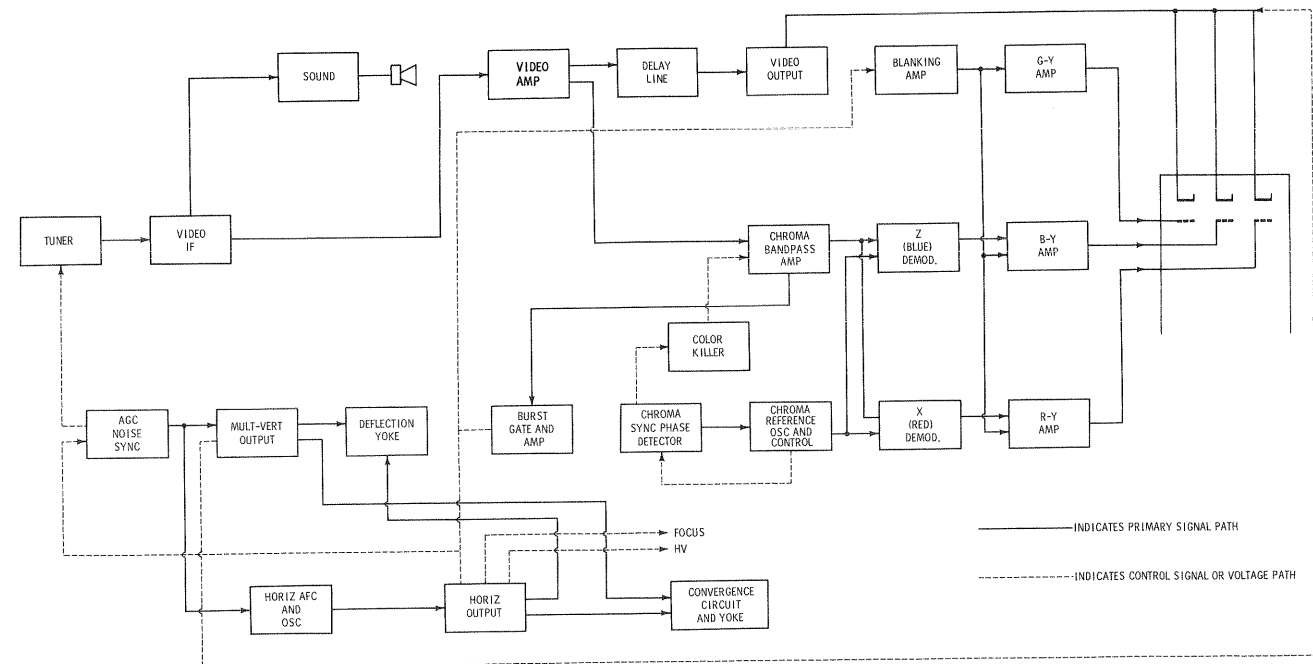
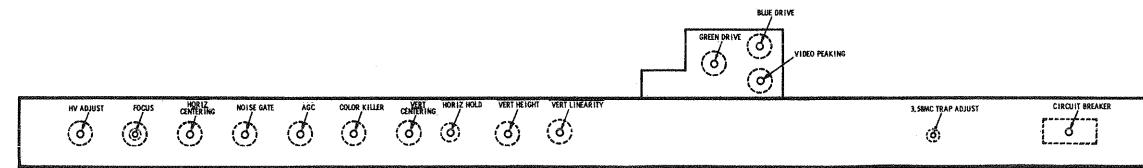
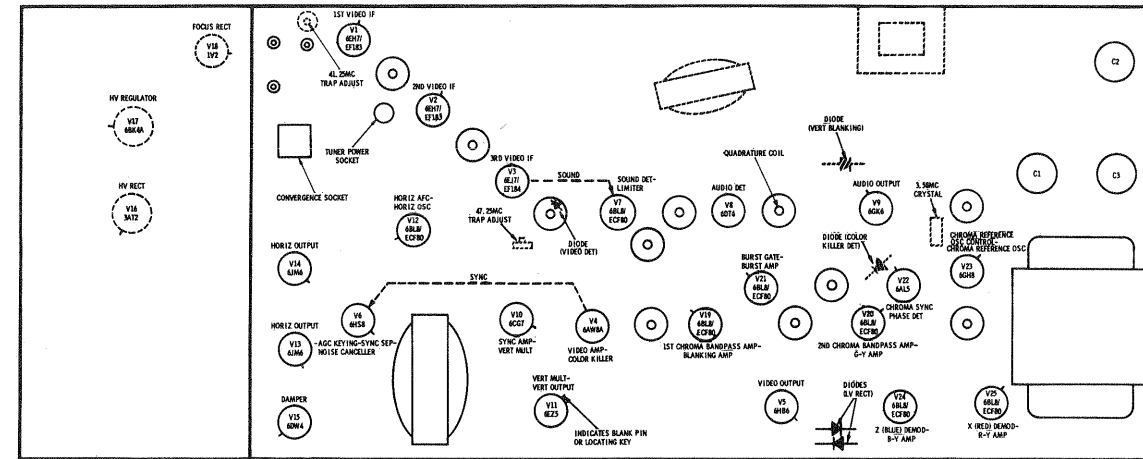
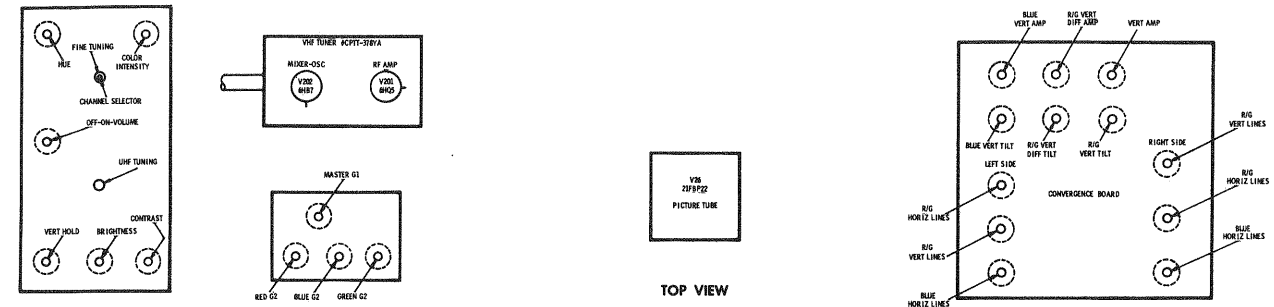
## RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9	Pin 10	Pin 11	Pin 12	
V1	6EH7 EF183	640Ω	700K	640Ω	FIL	FIL	0Ω	†3200Ω	†3200Ω	0Ω				
V2	6EH7 EF183	400Ω	19K	400Ω	FIL	FIL	0Ω	†3200Ω	†6400Ω	0Ω				
V3	6EJ7 EF184	180Ω	5600Ω	180Ω	FIL	FIL	0Ω	†5300Ω	†5300Ω	0Ω				
V4	6AW8A	1000Ω	770K	†650K	FIL	FIL	700Ω	* 1200Ω	†22K	†10K				
V5	6HB6	5000Ω	550K	0Ω	FIL	FIL	†6200Ω	†4500Ω	NC	NC				
V6	6HS8	†15K	†560Ω	2.8meg	FIL	FIL	†30K	†1.3meg	†3.3meg	†3.7meg				
V7	6BL8 ECF80	†1610Ω	470K	†156K	FIL	FIL	†156K	0Ω	†6900Ω	†6900Ω				
V8	6DT6	2.9Ω	820Ω	FIL	FIL	‡2.5meg	†8000Ω	560K						
V9	6GK6	150Ω	50K	0Ω	FIL	FIL	NC	†940Ω	†6100Ω	NC				
V10	6CG7	‡2.8meg	860K	0Ω	FIL	FIL	†23K	55K	0Ω	120K				
V11	6EZ5	TP	FIL	†1250Ω	†1000Ω	2.8meg	TP	FIL	1500Ω					
V12	6BL8 ECF80	220K	550K	†30K	FIL	FIL	†47K	2200Ω	0Ω	150K				
V13	6JM6	FIL	0Ω	†10K	†10K	1meg	NC	TP	NC	TP	NC	NC	FIL	
V14	6JM6	FIL	0Ω	†10K	NC	1meg	NC	TP	NC	TP	†10K	NC	FIL	
V15	6DW4	NC	†24Ω	TP	FIL	FIL	NC	NC	NC	260K				
V16	3AT2	PINS 1 THRU 12 HAVE INFINITE RESISTANCE											Top Cap ‡22Ω	
V17	6BK4A	†1000Ω	FIL	NC	NC	800K	NC	FIL	NC	Top Cap ‡ INF				
V18	1V2	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								‡ 21Ω				
V19	6BL8 ECF80	†39K	900K	†8700Ω	FIL	FIL	†8700Ω	82Ω	390Ω	220K				
V20	6BL8 ECF80	†14K	500K	†10K	FIL	FIL	†21K	390Ω	390Ω	1meg				
V21	6BL8 ECF80	†17K	84K	†10K	FIL	FIL	†10K	†17K	0Ω	1meg				
V22	6AL5	1.5meg	1.6meg	FIL	FIL	220Ω	0Ω	220Ω						
V23	6GH8	†24K	47K	†50K	FIL	FIL	†8700Ω	0V	680Ω	1.6meg				
V24	6BL8 ECF80	†14K	3.3Ω	†4400Ω	FIL	FIL	†4400Ω	1000Ω	390Ω	1meg				
V25	6BL8 ECF80	†17K	3.3Ω	†4400Ω	FIL	FIL	†4400Ω	1000Ω	390Ω	1meg				
V26	21FBP22	FIL	†165K	†90Ω	†3900Ω	†4200Ω	†165K	†900K	NC	‡90meg	NC	†850K	†170K	
V201	6HQ5	4.6meg	0Ω	FIL	FIL	†10K	0Ω	0Ω						
V202	6HB7	0Ω	220K	0Ω	FIL	FIL	†7000Ω	†28K	†11K	3300Ω				

† MEASURED FROM OUTPUT X2. ‡ MEASURED FROM PIN 9 OF V15  
 \* READING DEPENDS ON POLARITY OF METER CONNECTIONS.  
 TP TIE POINT  
 NC NO CONNECTION

TUBE PLACEMENT CHART  
BOTTOM VIEW PAGE 20

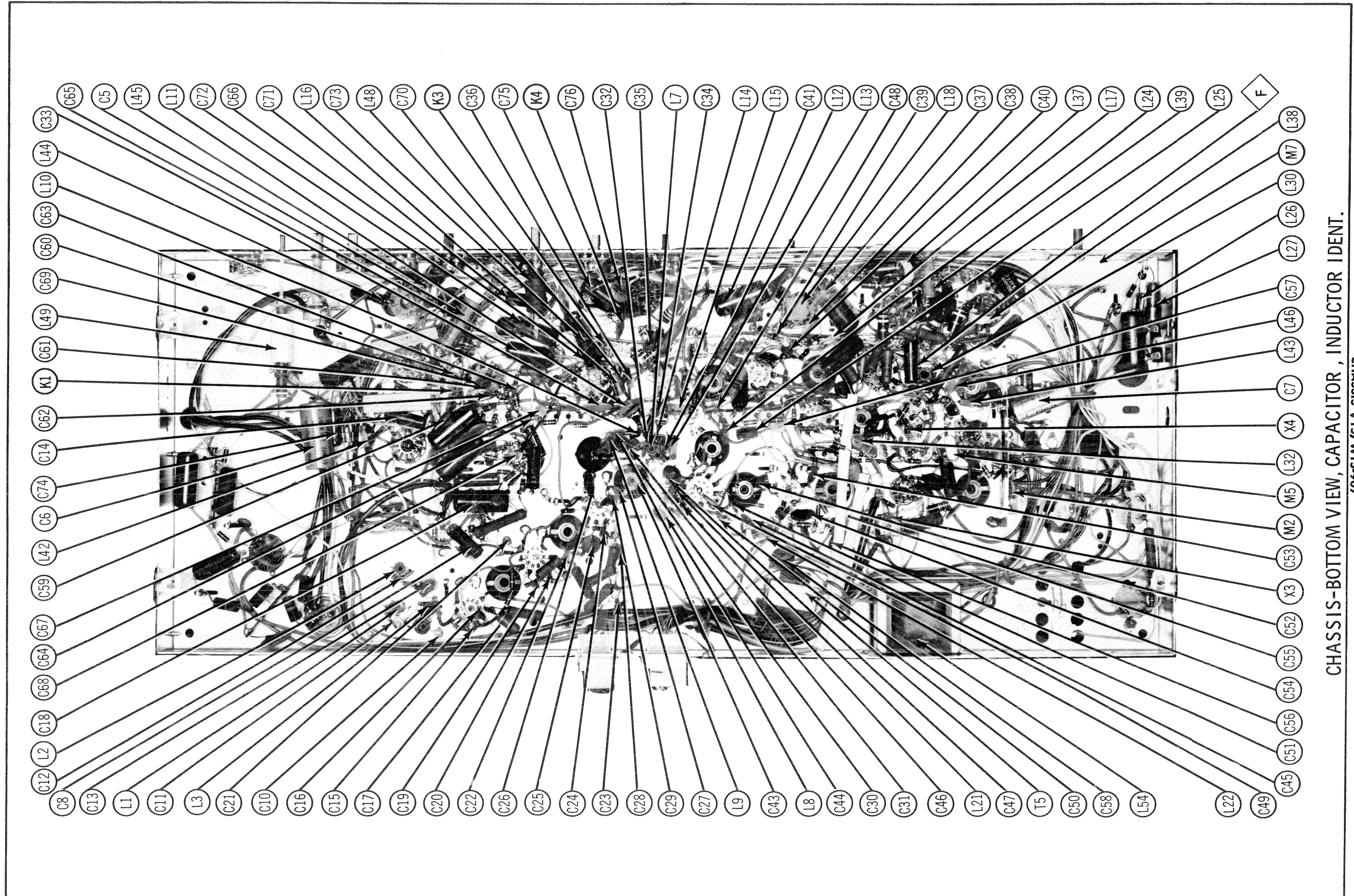
## TUBE PLACEMENT CHART



**BLOCK DIAGRAM**  
SET 739 FOLDER 3

MOTOROLA  
CHASSIS VTS / WTS-907

FOLDER 3



CHASSIS-BOTTOM VIEW, CAPACITOR, INDUCTOR IDENT.

MOTOROLA  
CHASSIS VTS/WTS-907

FOLDER 3





# ALIGNMENT INSTRUCTIONS

Use an isolation transformer and maintain voltage at 117 volts. Allow a 20-minute warm-up period for the receiver and test equipment.  
**Suggested Alignment Tools:** A1 thru A19 ..... GENERAL CEMENT #8606, 8869, 9302 ... WALSCO #2511, 2543, 2588  
 Mixer Plate Coil .. GENERAL CEMENT #9296, 9300, 9302 ... WALSCO #2510, 2511, 2547

## VIDEO IF ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection. Use only enough generator output to provide a usable indication. Note: Response may vary slightly from those shown. Connect a variable bias supply to the IF AGC line (point Ⓢ) and adjust to obtain a response curve which shows no indication of overload. Disable Oscillator section of Mixer-Osc. Set the Channel Selector to any non-interfering channel.

INDICATOR	GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	ADJUST	REMARKS
1.	Connect DC probe of a VTVM thru a 47K resistor to point Ⓢ. Common to ground.		41.25MC 39.75MC 47.25MC	A1 A2 A3	Adjust for MINIMUM.
2.	Connect vertical input of a scope to point Ⓢ. Low side to ground.		41.25MC 41.7MC 42.2MC 44.5MC 45.75MC	A1, A4 & R22	Adjust A4 to place 41.7MC, 44.5MC and 45.75MC markers as shown in Fig. 1. Adjust A1 to place 41.25MC markers as shown in Fig. 1. Adjust R22 for maximum amplitude of response, then adjust clockwise for MINIMUM separation between 41.25MC Trap Dip and Scope Base Line.
3.	Connect vertical input of a scope to point Ⓢ. Low side to ground.	44MC (10MC Sweep)	42.2MC 47.25MC	A5, A6	Adjust A5 to place 42.2MC marker and A6 to place 45.75MC markers as shown in Fig. 2.
4.	Connect vertical input of a scope to point Ⓢ. Low side to ground.	44MC (10MC Sweep)		A7 & Mixer Plate Coil	Adjust for maximum gain and symmetry of response with markers as shown in Fig. 3. Adjust R23 for MINIMUM separation between 47.25MC Trap and Scope Base Line. It may be necessary to slightly retouch A5 and A6. Check proper placement of Trap notch. It may be necessary to retouch A1, A2, A3, R23 and R22.

## 4.5 MC TRAP ALIGNMENT

- Tune in a strong TV signal and set the Contrast at maximum. Adjust the Fine Tuning until a beat pattern is visible on the screen. Adjust A13 for MINIMUM beat interference.

## SOUND IF ALIGNMENT

- Tune in a station and adjust A8 for maximum sound. Reduce signal strength at the antenna terminals until distortion appears. Continue to reduce signal while aligning for undistorted output by adjusting A8, A10, A11, and A12. A9 is preset at top end of coil. If slug has been moved from this position, preset at top end of coil, then proceed with Sound IF Alignment.

## CHROMA BANDPASS ALIGNMENT

Remove the two Horizontal Output Tubes. Connect 4.5VDC between Points Ⓢ and Ⓢ. Negative lead to Ⓢ, positive to Ⓢ. Connect -45VDC to Point Ⓢ and -1.5VDC to Point Ⓢ with positive of both supplies to ground. Convergence Panel Plug disconnected. Contrast control set at MINIMUM and Color Intensity control set to mid-point. The following alignment will require the use of a RF Modulator (RCA WG-304 or Equivalent) for Signal Injection.

SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
High side thru .1mfd to Pin 2 (grid) of Bandpass Amp. (V19), low side to ground.	3MC (0-5MC)	3.1MC 4.1MC		Vert. Amp. thru Demodulator Probe to Point Ⓢ, Pin 2, V25, low side to ground.	A14, A15	Adjust for response curve similar to Fig. 4.
High side of Sweep Gen. to Video Sweep Input of RF Demodulator, high side of Signal Gen. (set @ 45.75MC) to picture carrier input. Output of RF Modulator to Mixer Grid Test Point on Tuner, low side to ground.	Sweep Generator to 3MC (6MC Sweep)			"	A16	Adjust for response curve similar to Fig. 5.

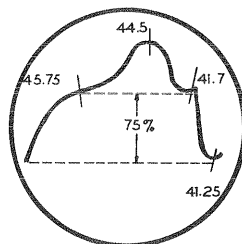


FIG. 1

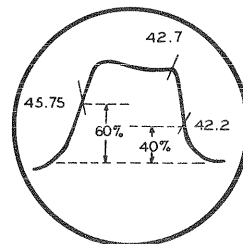


FIG. 2

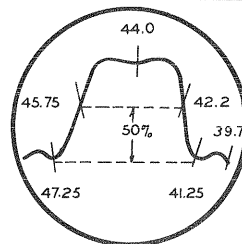


FIG. 3

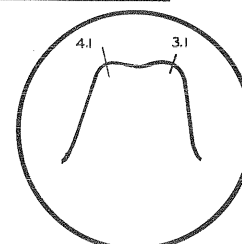


FIG. 4

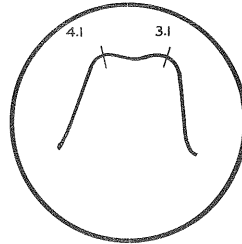


FIG. 5

## HIGH VOLTAGE ADJUSTMENT

Tune in a TV station and allow a 15-minute warm-up period. Turn the Brightness control to MINIMUM fully counterclockwise. Connect a VTVM thru a 30KV or higher voltage probe to picture tube anode lead. Adjust the High Voltage Adjust control for 24KV.

## ALTERNATE HIGH VOLTAGE ADJUSTMENT

Connect a VTVM across R141, Cathode resistor of V17 (HV Regulator tube). Turn Brightness to MINIMUM fully counterclockwise. Adjust High Voltage Adjustment control to produce 1.2VDC. Adjust Focus, Height, Vertical Linearity, and Vertical and Horizontal Centering.

## HORIZONTAL HOLD

Set all controls for normal operation. Adjust the Horizontal Hold (Horizontal Horizontal Oscillator Coil Slug) until the picture is in proper horizontal sync and remains so when switching from channel to channel.

## AGC

Tune in a TV station and adjust controls for best picture and sound. Turn the AGC control, R14, counterclockwise (when viewed from rear of receiver) until picture becomes unstable (rolls down or slips, etc.). Then turn control clockwise until the picture returns to normal. Check all channels. If any are unstable, continue turning control clockwise until the picture is normal in all channels.

## NOISE GATE CONTROL

Tune in a TV station and set all controls for normal operation. Turn the Noise Gate Control, R13, counterclockwise (when viewed from rear of receiver) until picture becomes unstable (rolls down or slips, etc.). Then turn control clockwise until the picture returns to normal. Check all channels. If any are unstable, continue turning control clockwise until the picture is normal in all channels.

## PURITY ADJUSTMENTS

Connect a crosshatch generator to antenna terminals. Remove decorative panel, located directly under front control panel, to gain access to G1, G2 and Convergence controls. Panel is removed by reaching behind the panel from underneath side of cabinet and opening the panel latch. Demagnetize receiver using degaussing coil around the front and all sides of the picture tube.

Perform Step 1 of the Convergence Adjustments. Set the Contrast control to MINIMUM and the Brightness control just below the point where blooming occurs. Turn the Blue and Green G2 controls to MINIMUM. Turn the Red G2 control to maximum. Move the yoke as far back as possible without hitting the Convergence Assembly. Adjust the tabs on the Purity Magnet and rotate the assembly until a Red spot appears at the center of the screen. Move the yoke forward and position for best overall Red screen. Check Purity of Blue and Green.

# MISCELLANEOUS ADJUSTMENTS

## BACKGROUND ADJUSTMENTS

Set the Contrast control to MINIMUM. Set all G2 controls to maximum fully clockwise. Set G1 control to MINIMUM fully counterclockwise. Turn the Brightness control until the raster is just visible. Observe color of the raster. Reduce the G2 controls of the predominant colors until a gray raster is obtained. Leave the G2 control of the weakest at maximum fully clockwise. Adjust G1 control clockwise until the horizontal raster size decreases 1/4". Turn Brightness control to normal maximum brightness. If any color is dominant, touch up Video Drive controls to produce a white raster. Turn Brightness control to a low level brightness. If necessary, touch up G2 controls for a white raster. It may be necessary to go back and forth several times from normal to low brightness for best tracking.

## COLOR AFC ALIGNMENT

Set the Color Killer Threshold control to maximum clockwise and Hue control to the center of its range.

Connect a color bar generator to the antenna terminals. Adjust receiver for normal color reception. Short pin 2 of Burst Amp. (V21) to ground.

Connect DC Probe of VTVM through 47K resistor to pin 1 of Phase Detector (V22). If no reading is obtained, oscillator is not operating. Adjust A18 to start oscillator, then adjust A17 for maximum. Remove the short from pin 2 of Burst Amp. Adjust A19 for maximum deflection on VTVM. Make sure the oscillator is running and locked in.

Short point Ⓢ to ground. Remove VTVM. Adjust A18 until color bars stand still or drift slowly. Remove the short from point Ⓢ and check to see that the color bars will sync with a low level input signal. If necessary, retouch A18 for best hold.

Connect the Vertical Input of a Scope to point Ⓢ. Check for proper waveform with the color bar generator being used. See waveform on schematic for pattern obtained from a standard NTSC signal. Check the range of the Hue control. The bars should move 30° either side of proper signal. If necessary, retouch A19 for proper range of control.

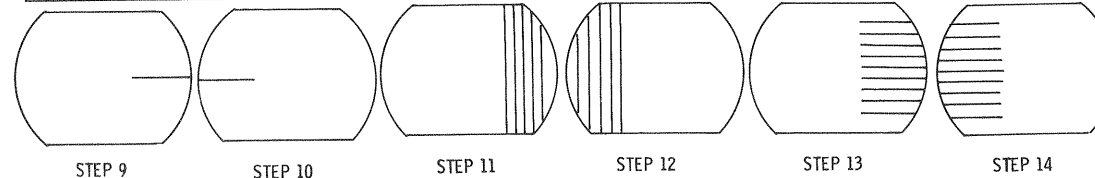
Check for proper waveform at G-Y and B-Y outputs (points Ⓢ and Ⓢ). Tune in a weak signal or reduce the signal at the antenna terminals to obtain a snowy picture. Adjust the Killer Threshold control to eliminate the color in the snow. Check with a color signal to make sure the Killer is not eliminating picture coloring.

## 3.58MC TRAP ALIGNMENT

Tune in a TV signal and set Color Intensity control fully counterclockwise. Connect a scope thru a low capacity probe to pin 6, V21 (Burst Amp.). Turn scope gain as high as possible. Adjust A20 (3.58MC Trap) for MINIMUM high frequency response.

## CONVERGENCE ADJUSTMENTS

Step	Control	Use to Converge (or Straighten)	Remarks
1.			Perform Center Dot Convergence using the three disc magnets and the Blue Lateral Magnet.
2.	R-G Vert. Tilt	Red & Green Vertical Bars at top of screen.	Touch up both controls for best convergence from top to bottom along Vertical center line.
3.	R-G Vert. Amp.	Red & Green Vertical Bars at bottom of screen.	
4.	R-G Diff. Tilt	Red & Green Horizontal Bars at top of screen.	Touch up both controls for best convergence of Horizontal Bars along Vertical center line.
5.	R-G Diff. Amp.	Red & Green Horizontal Bars at bottom of screen.	
6.	Blue Vert. Tilt	Blue Horizontal Bars at top of screen.	Touch up both controls for best convergence of Horizontal Bars along Vertical center line.
7.	Blue Vert. Amp.	Blue Horizontal Bars at bottom of screen.	
8.			Perform Center Dot Static Convergence.
9.	Blue Horiz. Lines (Right Side)	Blue Horizontal Bars at Right Side of screen.	Touch up both controls for best convergence along Horizontal center line.
10.	Blue Horiz. Lines (Left Side)	Blue Horizontal Bars at Left Side of screen.	
11.	R-G Vert. Lines (Right Side)	Red & Green Vertical Bars Right Side of screen.	Turn Blue G2 Control counterclockwise, leaving Red and Green fields on screen. Touch up both controls for best convergence of Vertical lines.
12.	R-G Vert. Lines (Left Side)	Red & Green Vertical Bars Left Side of screen.	
13.	R-G Horiz. Lines (Right Side)	Red & Green Horizontal Bars Right Side of screen.	Touch up both controls for best convergence of Red and Green Bars. It may be necessary to touch up Steps 11 and 12 to compensate for any interaction.
14.	R-G Horiz. Lines (Left Side)	Red & Green Horizontal Bars Left Side of screen.	
15.			Turn up G2 control. Readjust Blue Horizontal Lines Right side and Blue Horizontal Lines Left side to converge with the Red and Green Lines. Due to interaction it may be necessary to retouch Steps 13 and 14. The G2 controls should now be reset for a white background.



STEP 9

STEP 10

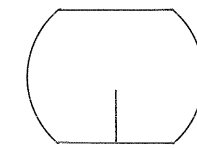
STEP 11

STEP 12

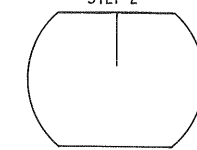
STEP 13

STEP 14

STEP 8



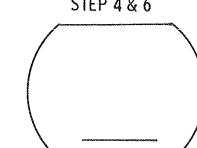
STEP 2



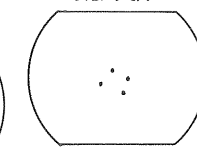
STEP 3



STEP 4 & 6

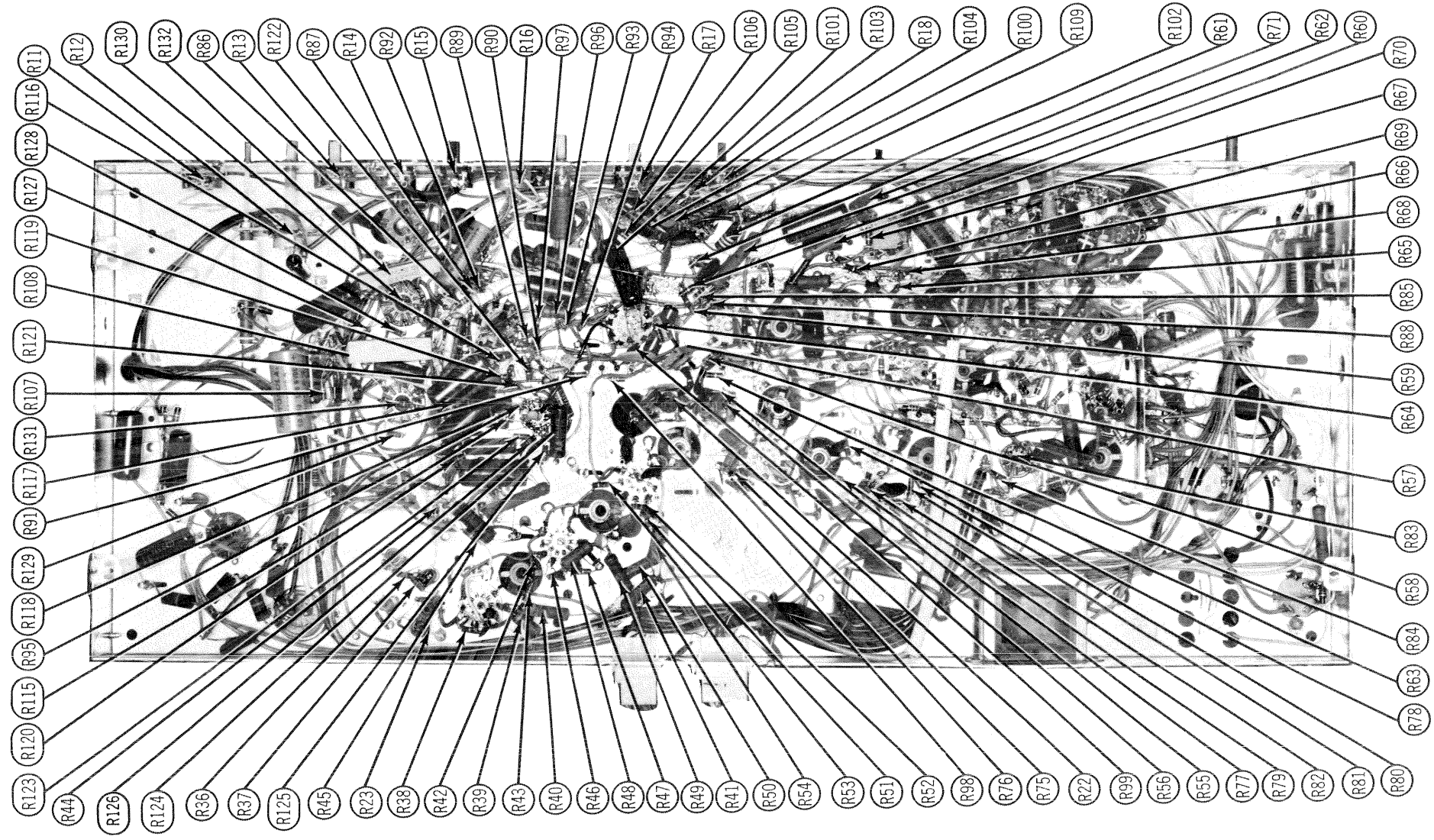


STEP 5 & 7

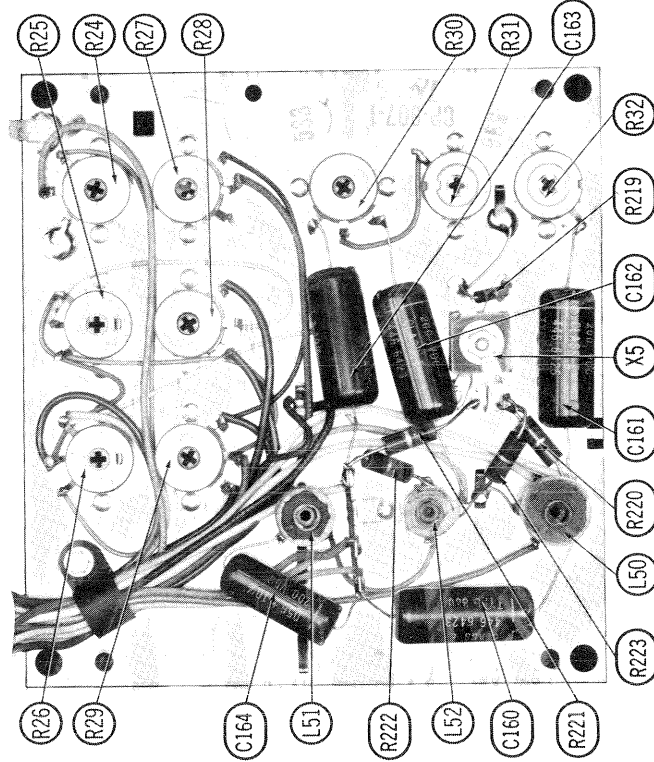


MOTOROLA CHASSIS VTS/WTS-907

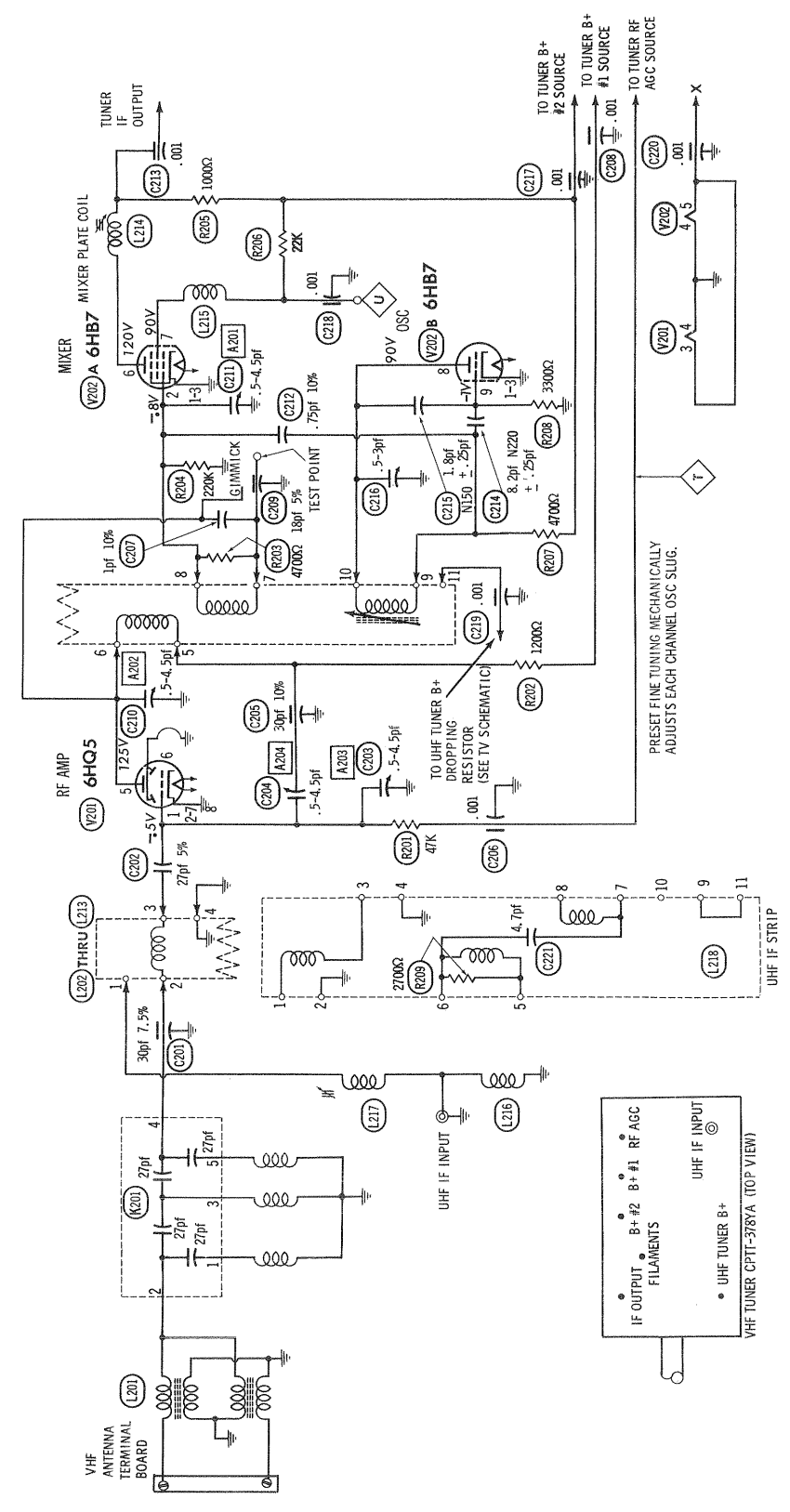
FOLDER 3



CHASSIS-BOTTOM VIEW, RESISTOR IDENT.

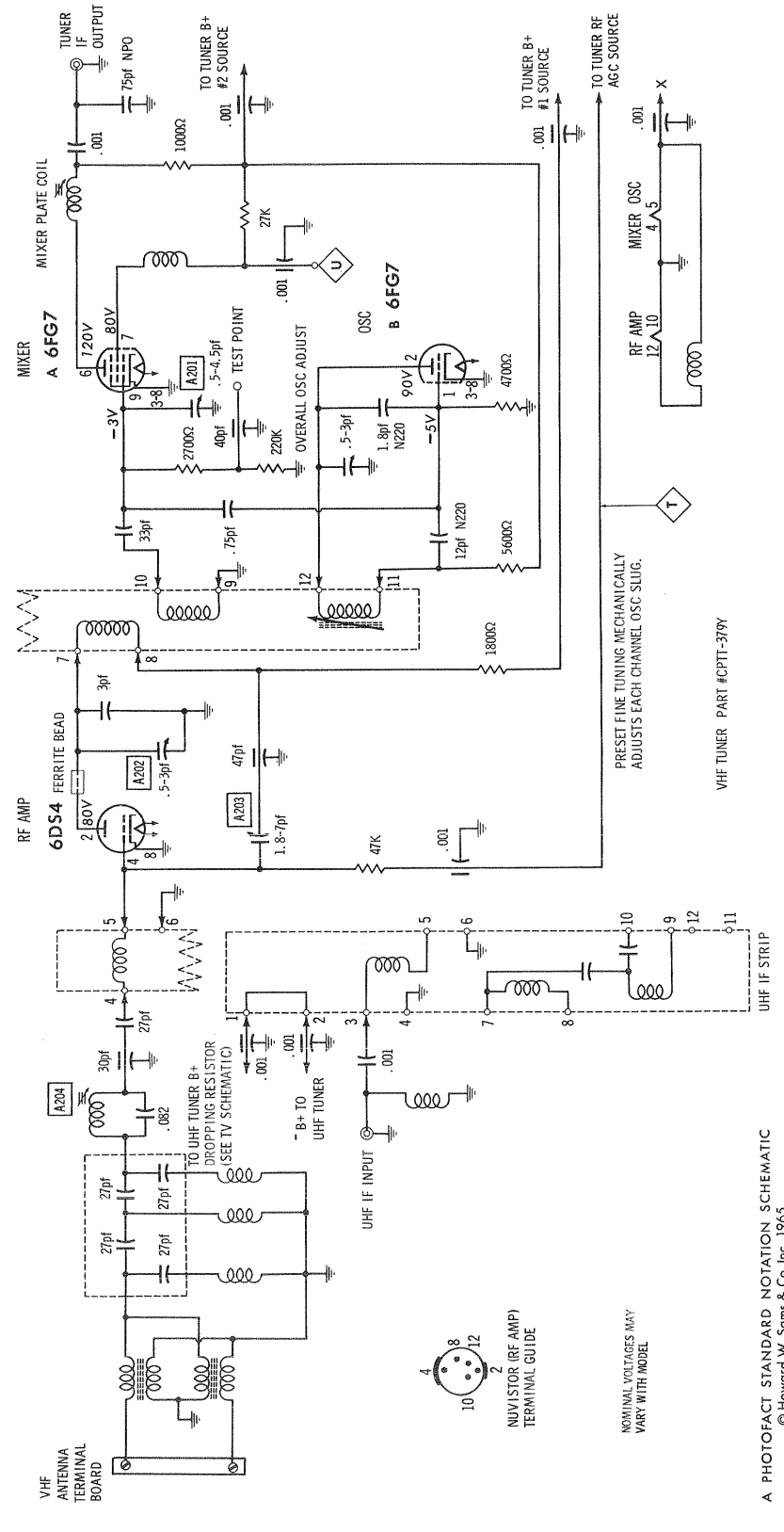


MOTOROLA  
CHASSIS VTS/WTS-907  
CONVERGENCE PANEL



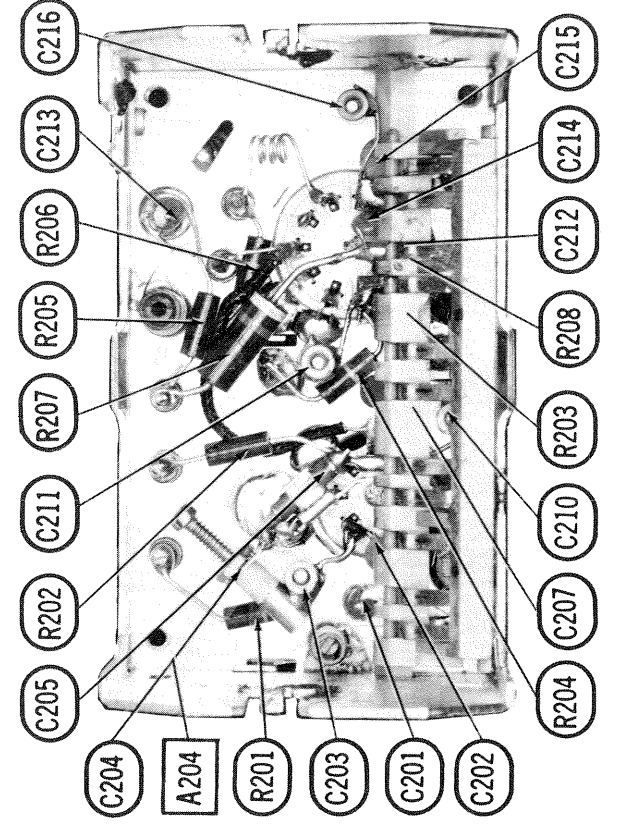
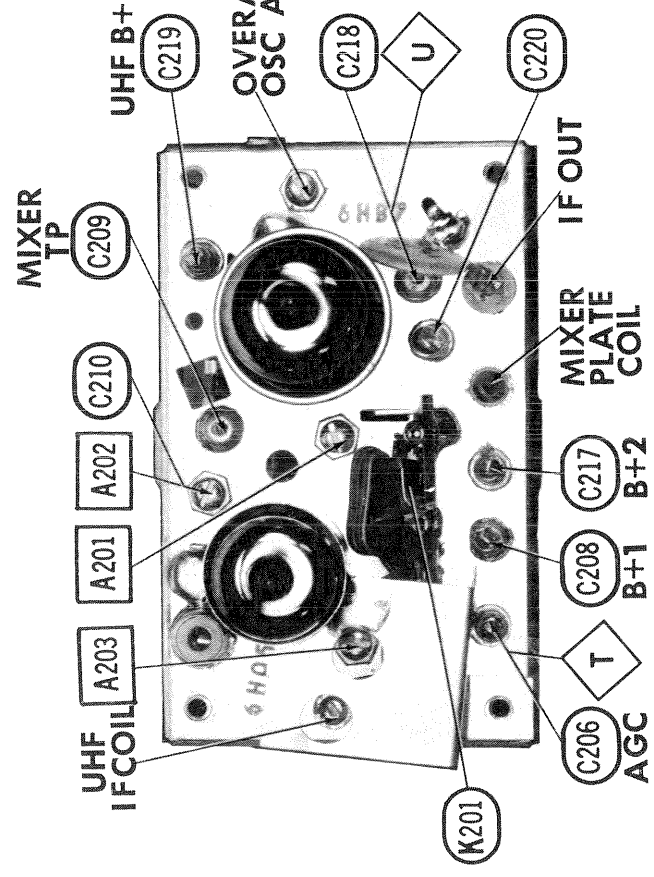
A PHOTOFACT STANDARD NOTATION SCHEMATIC  
© Howard W. Sams & Co. Inc., 1965

13 POSITION TURRET-TYPE VHF TUNER CPTT-378YA



A PHOTOFACT STANDARD NOTATION SCHEMATIC  
© Howard W. Sams & Co. Inc., 1965

13 POSITION TURRET-TYPE VHF TUNER CPTT-379

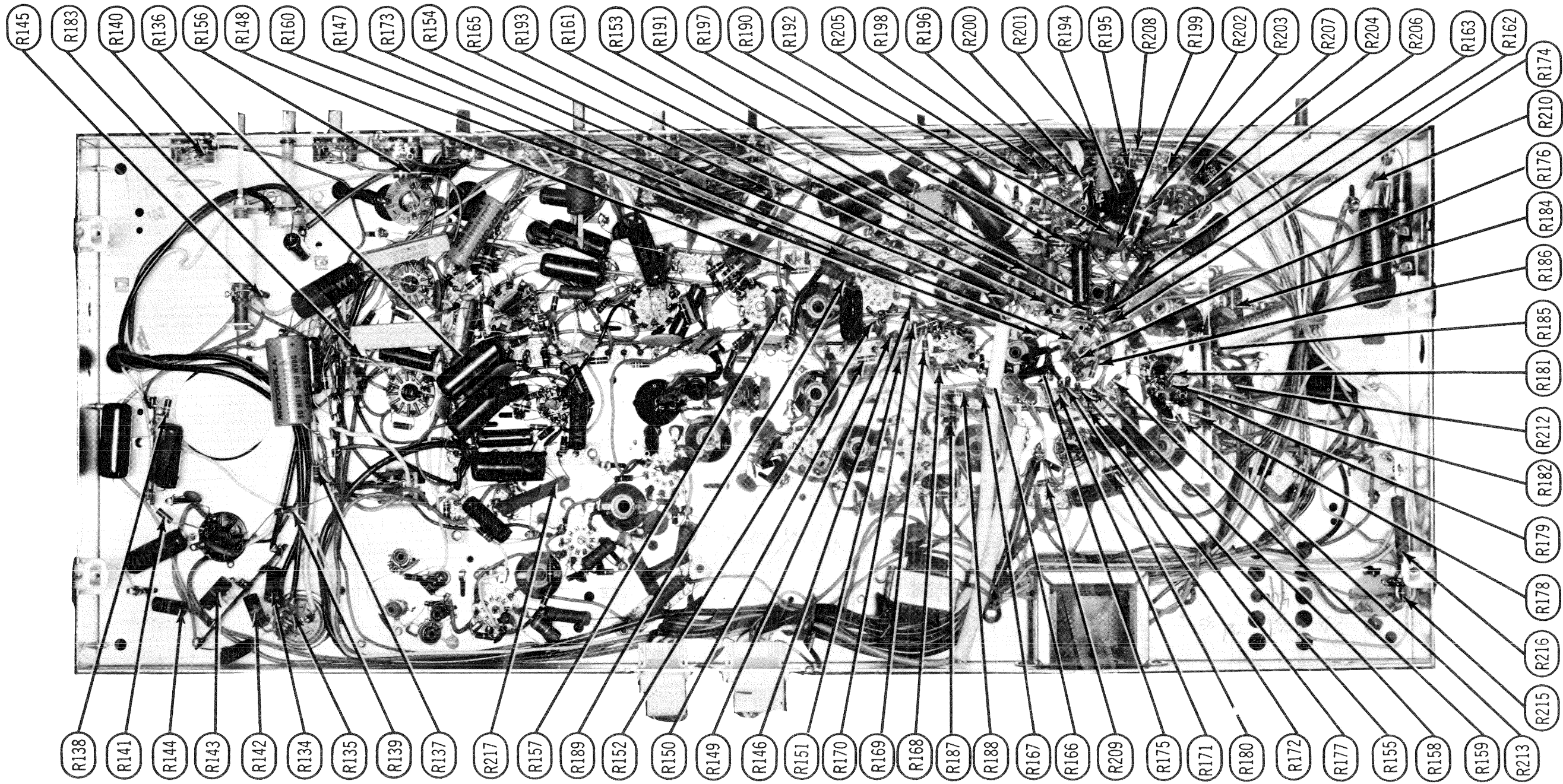


VHF TUNER CPTT-378YA

MOTOROLA  
CHASSIS VTS / WTS-907

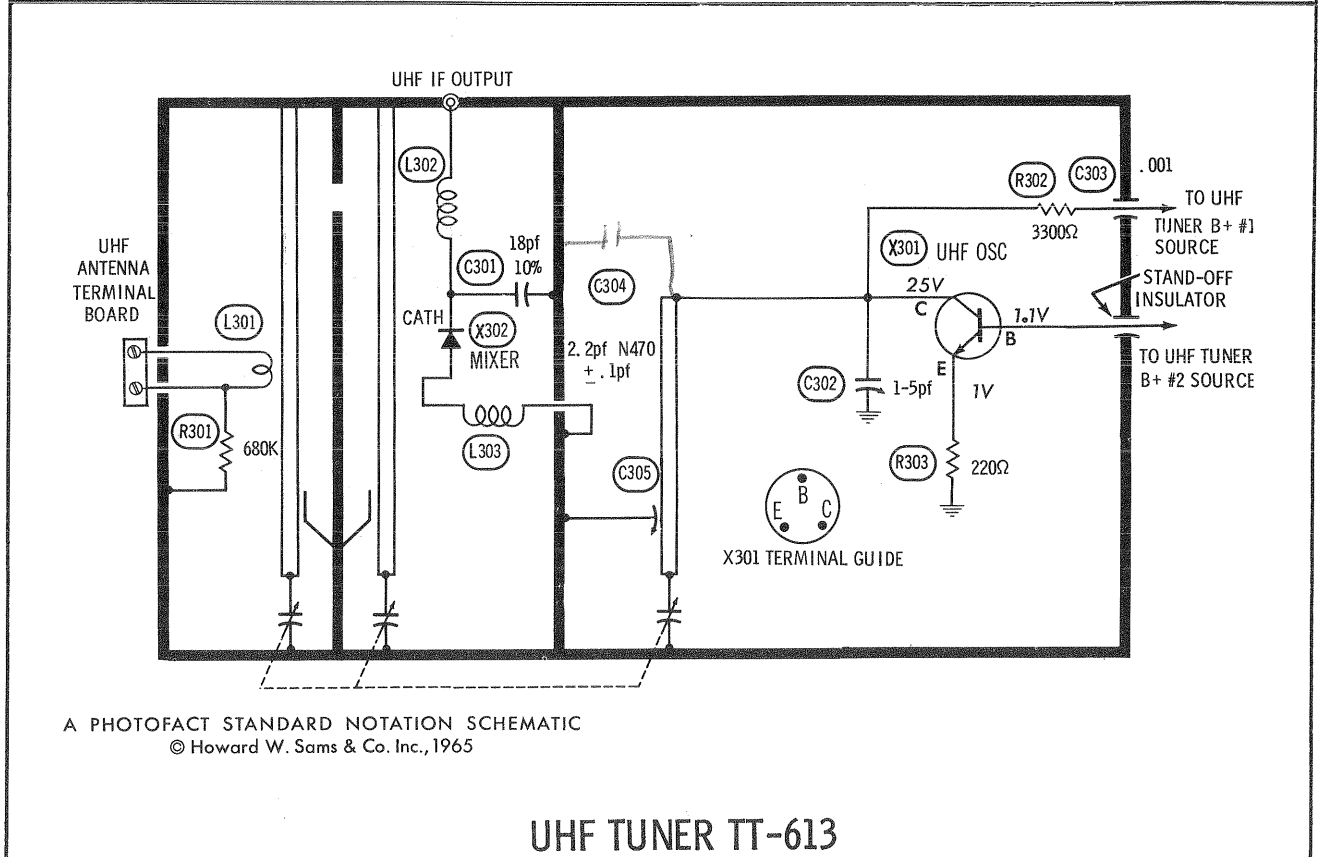
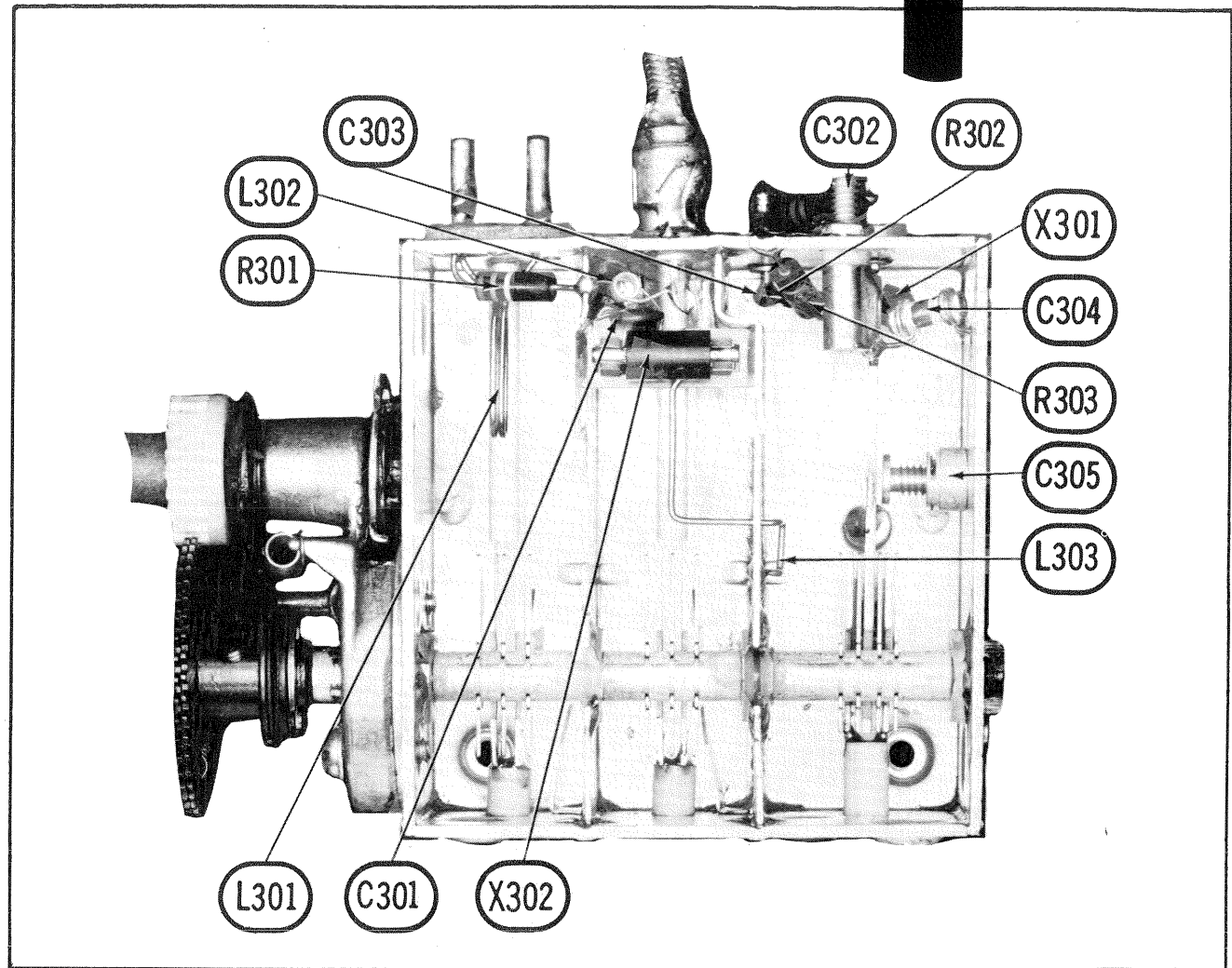
FOLDER 3





CHASSIS-BOTTOM VIEW, RESISTOR IDENT.

MOTOROLA  
CHASSIS VTS/WTS-907



## VHF TUNER ALIGNMENT INSTRUCTIONS

Suggested Alignment Tools: A201 thru A204 ... GENERAL CEMENT #8868, 8987, 9089 ... WALSCO #2531-X, 2541, 2587

### OSCILLATOR ADJUSTMENTS

The oscillator for each channel is preset by means of the fine tuning control. Adjust fine tuning for best picture and sound on each channel. If any channel cannot be properly tuned in with the fine tuning, adjust overall oscillator adjustment and recheck all available channels.

### RF AND MIXER ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection. Use 10MC sweep unless otherwise noted. Connect a variable bias to the RF AGC line at point  $\diamond$ . Adjust bias to obtain response curve which shows no indication of overloading.

SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	TUNER CPTT-378YA REMARKS
1. Across antenna terminals with 120Ω in each lead.	213MC	211.25MC 215.75MC	13	Vert. Input to Point $\diamond$ , low side to ground	A201, A202, A203	Adjust for maximum gain and symmetry of response similar to Fig. 201 with markers as shown.
2. "	195MC	193.25MC 197.75MC	10	Across Video Det. load resistor.	A204	Increase bias to -15 volts and adjust for MINIMUM amplitude of response.
3. "	See Chart	See Chart	12 thru 2	Vert. Input to Point $\diamond$ , low side to ground.		Decrease bias. Check response on all channels and make compromise adjustments of A201, A202, A203 if required.

SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	TUNER CPTT-379Y REMARKS
1. Across antenna terminals with 120Ω in each lead.	213MC	211.25MC 215.75MC	13	Vert. Input to Point $\diamond$ , low side to ground	A201, A202	Adjust for maximum gain and symmetry of response similar to Fig. 201 with markers as shown.
2. "	195MC	193.25MC 197.75MC	10	Across Video Det. load resistor.	A203	Increase bias to -15 volts and adjust for MINIMUM amplitude of response.
3. "	See Chart	See Chart	12 thru 2	Vert. Input to Point $\diamond$ , low side to ground.		Decrease bias. Check response on all channels and make compromise adjustments of A201 and A202 if required.

### CHANNEL & FREQUENCY CHART

SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL
57MC	55.25MC 59.75MC	2	85MC	83.25MC 87.75MC	6	195MC	193.25MC 197.75MC	10
63MC	61.25MC 65.75MC	3	177MC	175.25MC 179.75MC	7	201MC	199.25MC 203.75MC	11
69MC	67.25MC 71.75MC	4	183MC	181.25MC 185.75MC	8	207MC	205.25MC 209.75MC	12
79MC	77.25MC 81.75MC	5	189MC	187.25MC 191.75MC	9	213MC	211.25MC 215.75MC	13

FIG. 201

Tune in a UHF station and adjust UHF IF Input Coil for best picture and sound.

### UHF TUNER PARTS LIST AND DESCRIPTION

#### TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES
			DELCO PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	
X301		UHF Oscillator				NPN, Part #48P65123A67

#### POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	MEASURED CURRENT	ORIGINAL Part or Type No.	RECTIFIERS				DIODES
			GENERAL ELECTRIC PART No.	MALLORY PART No.	RCA PART No.	SARKES TARZIAN PART No.	GENERAL ELECTRIC PART No.
X302		48C742970					1N82A

#### FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENDO PART No.	MALLORY PART No.	SPRAGUE PART No.
C301	18 10%		DI-18	DD-181	LA10Q18-SL	CCD-180	GP418	10TS-Q18
C302	1-5			829-6		CV-3	CT552	
C303	.001		EF-001	MFT-1000		CCF-102	CT280A	
C304	2.2 N470 ±.1pf	#21R134242						
C305								

\* Not normally in distributor's stock. Available thru distributor on order to manufacturer.  
# Motorola Part Number

#### COILS (RF-IF)

ITEM No.	USE	MOTOROLA PART No.	NOTES	ITEM No.	USE	MOTOROLA PART No.	NOTES
L301	Antenna	24P65112A08		L303	Oscillator		
L302	UHF IF	24P65112A11					

MOTOROLA CHASSIS VTS/WTS-907

FOLDER 3





**FIXED CAPACITORS (cont)**

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCOPART PART No.	MALLORY PART No.	SPRAGUE PART No.
C40	.001 10%		DI-1000	DD-102	JB6D1	CCD-102	GP210	10TS-D10
C41	.22 400V		P488N-22	DD-102	PM4P22	4DP-5-224	PVC4022	4TM-P22
C42	.001 10%	#21R115952	BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C43	1pF		BPD-005	DD-502	BYA10D5	CCD-502	B250	5HK-D50
C44	.005		BPD-005	DD-502	BYA10D5	CCD-502	B250	5HK-D50
C45	.005		BPD-005	DD-502	BYA10D5	CCD-502	B250	5HK-D50
C46	.005		BPD-005	DD-502	BYA10D5	CCD-502	B250	5HK-D50
C47	.005		BPD-005	DD-502	BYA10D5	CCD-502	B250	5HK-D50
C48	.005		BPD-005	DD-502	BYA10D5	CCD-502	B250	5HK-D50
C49	.005		BPD-005	DD-502	BYA10D5	CCD-502	B250	5HK-D50
C50	68 N150 10%	#21S131238	DI-2000	CF-202	JB6D2	CCD-202	JF220	10TS-Q68
C51	.002 10%		DI-220	DD-221	LA10T22-S3	CCD-202	GP322	10TS-T22
C52	220 10%		DI-220	DD-221	LA10T22-S3	CCD-202	GP322	10TS-T22
C53	.005		BPD-005	DD-502	BYA10D5	CCD-502	B250	5HK-D50
C54	.01 1KV		BPD-01	DD-102	BYA10S1	CCD-102	B110	5HK-S10
C55	.001 10%		DI-1000	DD-102	JB6D1	CCD-102	GP210	10TS-D10
C56	.01 1KV		BPD-01	DD-102	BYA10S1	CCD-102	B110	5HK-S10
C57	.005		BPD-005	DD-502	BYA10D5	CCD-502	B250	5HK-D50
C58	.001 2KV		HVD-30-1000	DD30-102	HVB20D1	3CCD-102	2HV210	BL-D10
C59	470 2KV		HVD-30-470	DD30-471	HVB20T47	3CCD-471	2HV347	30GA-T47
C60	2.2 NPO ±.25pF		TCZ-2R2				CNO522	10TCC-V22
C61	.01		BPD-01	DD-102	BYA10S1	CCD-102	B110	5HK-S10
C62	.001 10%		DI-1000	DD-102	JB6D1	CCD-102	GP210	10TS-D10
C63	220		P688N-1	DF-104	BYA10S1	CCD-202	GEM501	6TM-P10
C64	.002		BPD-002	DD-202	BYA10D2	GEM6122	B220	5HK-D20
C65	.022 600V		P688N-022	DD-203	BYA10D2	GEM6122	B220	5HK-D20
C66	56 N750 10%		TCN-56				CCTN-56	10TCU-Q56
C67	.001 10%		DI-1000	DD-102	JB6D1	CCD-102	GP210	10TS-D10
C68	150 10%		DI-150	DD-151	LA10T15-S3	CCD-151	GP315	10TS-T15
C69	.015		BPD-015	DD-153	BYA10S15	CCD-153	GP115	5HK-S15
C70	.0068 400V 10%		BEPD68	CPR-6800J	WFMF468	PVC4268	PVC4268	6TM-D68
C71	.01 600V		P688N-01		PM6S1	GEM6133	GEM6133	6TM-S10
C72	.033 600V		P688N-033		PM6S33	GEM6133	GEM6133	6TM-S33
C73	.039 600V		BES639		PM6S39	PVC6139	PVC6139	6PS-S39
C74	.047 200V	(.05) †	P288N-047	DD-503	PM2847	4DP-3-473	GEM2147	2TM-947
C75	.033 600V		P688N-033		PM6S33	GEM6133	GEM6133	6TM-S33
C76	.001 2KV		HVD-30-1000	DD30-102	HVB20D1	3CCD-102	2HV210	BL-D10
C77	56 N150 10%		DI-2000	CF-202	JB6D2	CCD-202	JF220	10TS-Q68
C78	.002 1KV 10%		DI-2700					
C79	.0027 10%		DI-3900					
C80	.0039 100V	(.47) †	P288N-5	DD-392	LA10D39-C4	CCD-392	GP239	10TS-D39
C81	5 10%		DI-470	DD-471	JB6T47	CCD-471	GP347	10TS-T47
C82	470 10%		CPR-3900J		PM2P5	6DP-1-392	PVC6239	MS-239
C83	.0039 400V		CPR-6800J		PKM4D39	6DP-1-682	PVC4268	MS-268
C84	.0068 400V 10%		PKM2P1	DF-104	PKM2P1	2DP-3-104	GEM201	2TM-P10
C85	.1 200V		DI-1000	DD-102	JB6D1	CCD-102	GP210	10TS-D10
C86	.001 10%		BPD-005	DD-502	BYA10D5	CCD-502	B250	5HK-D50
C87	.005		BPD-02	DD-203	BYA6S2	CCD-203	B120	5HK-S20
C88	.02		P688N-1	DF-104	PM6P1	GEM601	GEM601	6TM-P10
C89	.1 600V		HVD-30-3300	DD30-332	PM6P1	30GA-D33	2HV233	BL-D33
C90	.0033 2KV		P688N-047	DD-503	PM6S47	GEM6147	GEM6147	6TM-S47
C91	.047 600V		P688N-047	DD-503	PM6S47	GEM6147	GEM6147	6TM-S47
C92	.047 600V		P688N-1	DF-104	PM6P1	GEM601	GEM601	6TM-P10
C93	.1 600V		HVD-30-1000	DD30-102	HVB20D1	3CCD-102	2HV210	BL-D10
C94	.001 2KV		P288N-1	DF-104	PKM2P1	2DP-3-104	GEM201	2TM-P10
C95	.1 200V	#21S132262	BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C96	130 6KV N2200		P488N-25		PM4P25	4DP-5-254	GEM4025	4TM-P25
C97	.001	#21S180A55	BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C98	22 2KV N150 10%		P488N-25		PM4P25	4DP-5-254	GEM4025	4TM-P25
C99	.25 400V							
C100	560 2.5KV N1500 10%	#21R132866						
C101	560 2.5KV N1500 10%	#21R132866						
C102	100 3KV 10%	#21R121424						
C103	.01		BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C104	.01		BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C105	.005		BPD-005	DD-502	BYA10D5	CCD-502	B250	5HK-D50
C106	.047 600V		P688N-047	DD-503	PM6S47	GEM6147	GEM6147	6TM-S47
C107	.005		BPD-005	DD-502	BYA10D5	CCD-502	B250	5HK-D50
C108	800 10%		DI-820	DD-801	JB6T8	CCD-801	GP382	10TS-T80
C109	.02	(.015) †	BPD-02	DD-203	BYA6S2	CCD-203	B120	5HK-S20
C110	12 N150 10%	#21S121462						
C111	.01		BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C112	.01		BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C113	.01		DI-270	DD-271	LA10Q27-C4	CCD-271	GP327	10TS-Q27
C114	.01		BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C115	.05 100V		TTD-05	DF-503	PM285	1DP-2-503	TA150	TH-S50
C116	.01 1KV		BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C117	390		DI-390	DD-391	LA10T39-C4	CCD-391	GP339	5GA-T39
C118	.001		BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C119	82 NPO 5%		DTZ-82				CNO482	10TCC-Q82
C120	330 500V 5%		ADM-15-331	CPR-330J	CD15F331J	DM-19-331J	MS-333	MS-333
C121	330 500V 5%		ADM-15-331	CPR-330J	CD15F331J	DM-19-331J	MS-333	MS-333
C122	.01		BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C123	.1 100V		P288N-1	TTD-1	WFMF1P1	IDP-3-104	PVC101	2TM-P10
C124	3.9 NPO ±.5pF	#21S122455						
C125	.01		BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C126	.01		BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C127	.05 400V		P488N-05	DF-503	PM485	4TM-503	GEM415	4TM-S50
C128	220 500V 10%		ADM-15-221	CPR-220J	CD15F221K	DM-19-221K	CNO322	MS-322
C129	56 N150 10%							
C130	.01		BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C131	270 500V 5%		ADM-15-271	CPR-271J	CD15F271J	DM-19-271J	MS-277	MS-277
C132	.01		BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C133	560 10%		DI-560	CE-561	JB6T56	CCD-561	JF356	10TS-T56
C134	470 1KV		BPD-00047	DD-471	BYA10T47	4DP-3-104	GEM401	4TM-P10
C135	.1 400V		P488N-1	DF-104	PM4P1	4DP-3-104	GEM401	4TM-P10
C136	.01 600V		P688N-01		PM6S1	GEM611	GEM611	6TM-S10
C137	5.6 N150 ±.5pF	#21S129194						
C138	.1 400V		P488N-1	DF-104	PM4P1	4DP-3-104	GEM401	4TM-P10
C139	.01 600V		P688N-01		PM6S1	GEM611	GEM611	6TM-S10
C140	.1 400V		P488N-1	DF-104	PM4P1	4DP-3-104	GEM401	4TM-P10
C141	33 N750		N750-DI 33	DTN-33	C10Q33U	CCTN-330	CN7433	10TCU-Q33
C142	82 N750 10%		N750-DI 82	DTN-82		CCTN-820	CN7482	10TCU-Q82
C143	.01 600V		P688N-01		PM6S1	GEM611	GEM611	6TM-S10
C144	.1 400V		P488N-1	DF-104	PM4P1	4DP-3-104	GEM401	4TM-P10
C145	.1 50V		P288N-1	CK-104	WFMF1P1	IDP-2-104	PVC101	2TM-P10
C146	.1 50V		P288N-1	CK-104	WFMF1P1	IDP-2-104	PVC101	2TM-P10
C147	.001 2KV		HVD-30-1000	DD30-102	HVB20D1	3CCD-102	2HV210	BL-D10
C148	.001 2KV		HVD-30-1000	DD30-102	HVB20D1	3CCD-102	2HV210	BL-D10
C149	.001 2KV		HVD-30-1000	DD30-102	HVB20D1	3CCD-102	2HV210	BL-D10
C150	680 3KV		HVD-30-680	DD30-681	HVB20D1	3CCD-681	2HV368	30GA-T68
C151	.01		BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C152	.01		BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C153	.001	①	BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10

**PARTS LIST AND DESCRIPTION (CONTINUED)**

Replacement parts shown may be superseded by the availability of newly introduced replacements. Have your local distributor check Sams COUNTER FACTS for the most up-to-date replacement.

**FIXED CAPACITORS (cont)**

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCOPART PART No.	MALLORY PART No.	SPRAGUE PART No.
C154	.001 2KV		HVD-30-1000	DD30-102	HVB20D1	3CCD-102	2HV210	BL-D10
C155	.001 2KV		HVD-30-1000	DD30-102	HVB20D1	3CCD-102	2HV210	BL-D10
C156	.25 600V		P688N-25	DD-102	JB6D1	CCD-102	GP210	10TS-D10
C157	.001 10%		DI-1000	DD-102	JB6D1	CCD-102	GP210	10TS-D10
C158	33 N750		10TCU-Q68					
C159	.001		BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C160	.1 200V 10%		BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C161	.082 200V 1							