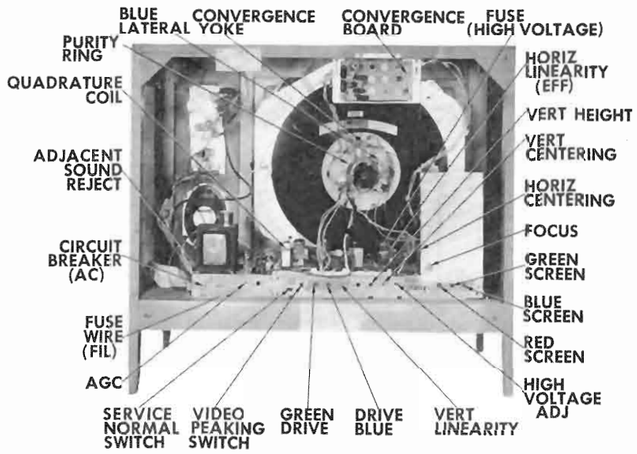


CABINET—REAR VIEW

DISASSEMBLY INSTRUCTIONS

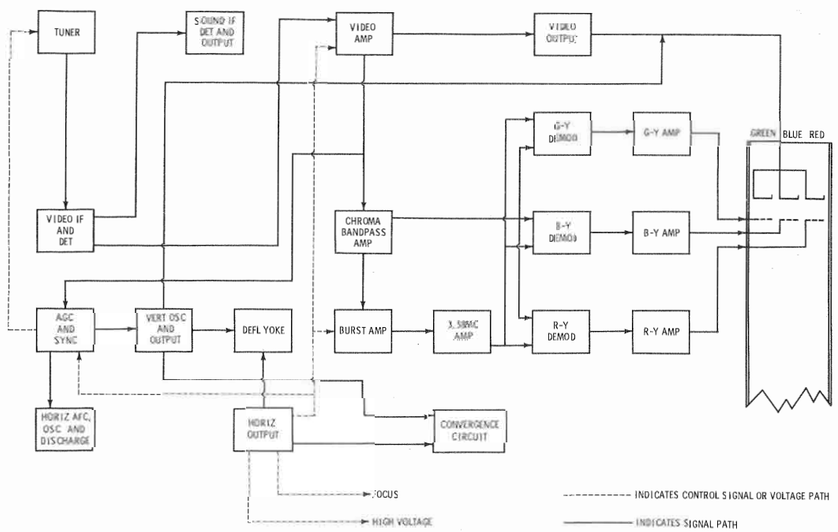
TV CHASSIS REMOVAL

1. Remove 9 screws holding back cover and remove back cover. On some models it may be necessary to disconnect antenna leads. Remove all knobs.
2. Disconnect yoke jacks, high voltage anode lead, picture tube socket, speaker leads, ground wire, convergence plug, and degaussing plug.
3. Remove 2 screws holding chassis and 6 screws holding tuner and controls.
4. Remove 2 screws holding antenna terminal. Lift out chassis and tuner.

NOTE: Most components may be serviced without removing chassis.

PICTURE TUBE REMOVAL

1. Follow "Chassis Removal" procedure. Lay set face down on a soft protective surface.
2. Remove 4 screws holding degaussing unit and lift out.
3. Remove 8 screws holding picture tube brackets and lift out picture tube. Do not lift out by the neck of the tube.



BLOCK DIAGRAM

PHOTOFACT® Folder with CIRCUITRACE®

GENERAL ELECTRIC CHASSIS CB-21" Version

GENERAL ELECTRIC CHASSIS CB-21" Version

MODEL M930BWD-A

TRADE NAME	General Electric	Models	Chassis
		M920BWD/-A, M930BWD/-A, M931BMD/-A, M932BMP/-A, M936BWD, M938BWD, M940BWD, M941BMP, M942BCL, M950BWD, M951BMP, M952BCL	CB-21" Version
SUPPLIER	For Current Address, see Annual Index.		
TYPE SET	Color Television Receiver		
TUBES	VHF: Eighteen, UHF: One Transistor, Video Amp.: One Transistor		
POWER SUPPLY	110-120 Volts AC, 60 Cycles	RATING	290 Watts, 3 Amps. @ 117 Volts AC
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.

A 3/8 Amp. fuse is used for horizontal sweep circuit protection. (See "Tube Placement Chart" for location.)

A 3½" length of fuse wire is used for filament protection. (For location, see F2 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 oscillator 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.)

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

Coarse adjustment of the horizontal hold is accomplished by the proper setting of the Horizontal Oscillator Coil, L46. (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

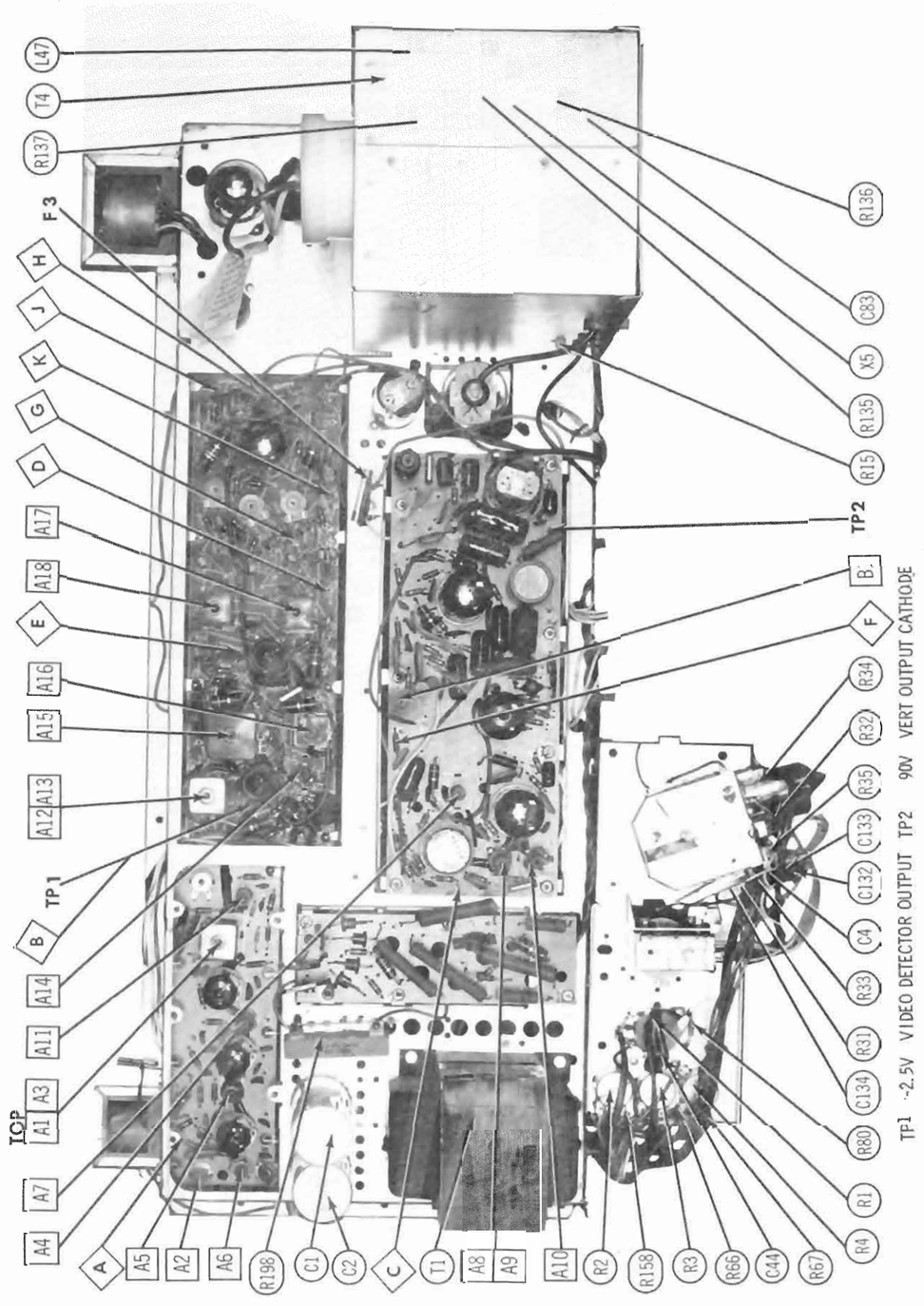
Centering is accomplished by 2 controls located on rear of chassis. (See "Cabinet - Rear View" photo.)

HOWARD W. SAMS & CO., INC. Indianapolis, Indiana 46206

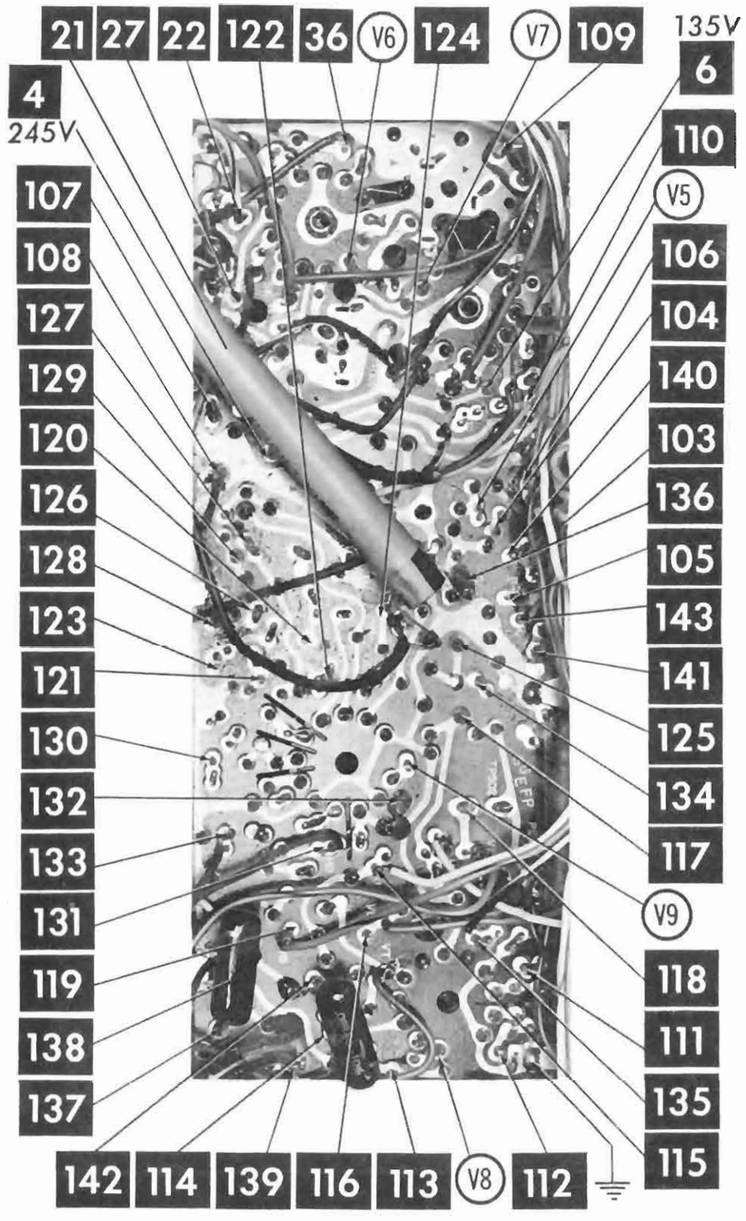
SET 843 FOLDER 1

A Howard W. Sams CIRCUITRACE Photo

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED



CHASSIS – BOTTOM VIEW



AUDIO, VIDEO OUTPUT, AGG, SYNC SEPARATOR, SWEEP BOARD

GENERAL ELECTRIC
CHASSIS CB-21" Version

FOLDER 1

PAGE 23

PAGE 24

PURI
RING
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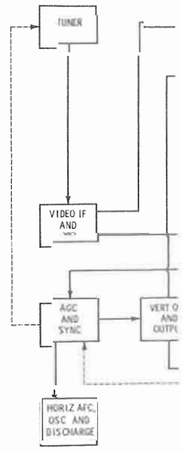
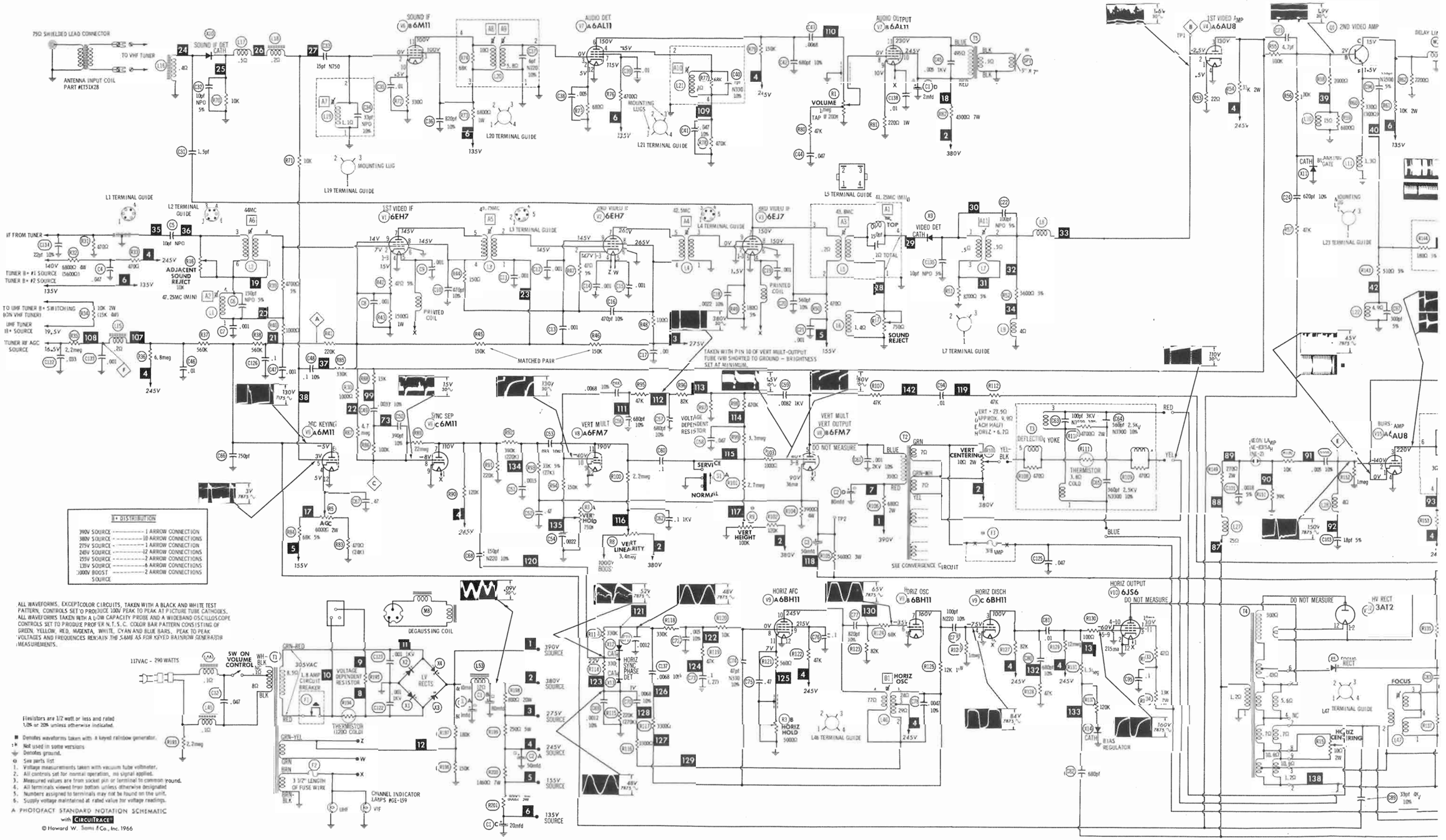
TV CHASSIS REMOVAL

1. Remove 9 screws holding bac
some models it may be necess
move all knobs.
2. Disconnect yoke jacks, high vo
speaker leads, ground wire, c
3. Remove 2 screws holding cha
controls.
4. Remove 2 screws holding ant
tuner.



PAGE 25


75Ω SHIELDED LEAD CONNECTOR
TO VHF TUNER
ANTENNA INPUT COIL PART #ET51X28
SOUND IF DET CATH
SOUND IF V6 6M11
AUDIO DET V7 6AL11
AUDIO OUTPUT V7 6AL11
VOLUME
L19 TERMINAL GUIDE
L20 TERMINAL GUIDE
L21 TERMINAL GUIDE
1ST VIDEO AMP V4 6AU8
2ND VIDEO AMP
L23 TERMINAL GUIDE
L1 TERMINAL GUIDE
L2 TERMINAL GUIDE
L3 TERMINAL GUIDE
L4 TERMINAL GUIDE
L5 TERMINAL GUIDE
L7 TERMINAL GUIDE
IF FROM TUNER
ADJACENT SOUND REJECT
47.25MC (MIN)
1ST VIDEO IF V1 6EH7
2ND VIDEO IF V2 6EH7
3RD VIDEO IF V3 6EJ7
PRINTED COIL
MATCHED PAIR
TAKEN WITH PIN 10 OF VERT MULT-OUTPUT TUBE (V8) SHORTED TO GROUND — BRIGHTNESS SET AT MINIMUM
VIDEO DET CATH
SOUND REJECT
TO UHF TUNER B+ SWITCHING (ON VHF TUNER)
UHF TUNER B+ SOURCE
TUNER RF AGC SOURCE
AGC KEYING V5 6M11
SYNC SEP V5 6M11
VERT MULT V8 6FM7
VERT MULT VERT OUTPUT V8 6FM7
DO NOT MEASURE
VOLTAGE DEPENDENT RESISTOR
SERVICE NORMAL
VERT CENTERING
VERT HOLD
VERT HEIGHT
VERT LINEARITY
SEE CONVERGENCE CIRCUIT
DEFLECTION YOKE
THERMISTOR
B+ DISTRIBUTION
390V SOURCE — 1 ARROW CONNECTION
380V SOURCE — 10 ARROW CONNECTIONS
275V SOURCE — 1 ARROW CONNECTION
245V SOURCE — 12 ARROW CONNECTIONS
155V SOURCE — 2 ARROW CONNECTIONS
135V SOURCE — 6 ARROW CONNECTIONS
1000V BOOST SOURCE — 2 ARROW CONNECTIONS
ALL WAVEFORMS, EXCEPT COLOR CIRCUITS, TAKEN WITH A BLACK AND WHITE TEST PATTERN. CONTROLS SET TO PRODUCE 100V PEAK TO PEAK AT PICTURE TUBE CATHODES. ALL WAVEFORMS TAKEN WITH A LOW CAPACITY PROBE AND A WIDEBAND OSCILLOSCOPE
CONTROLS SET TO PRODUCE PROPER N.T.S.C. COLOR BAR PATTERN CONSISTING OF GREEN, YELLOW, RED, MAGENTA, WHITE, CYAN AND BLUE BARS. PEAK TO PEAK VOLTAGES AND FREQUENCIES REMAIN THE SAME AS FOR KEYED RAINBOW GENERATOR MEASUREMENTS.
117VAC - 290 WATTS
SW ON VOLUME CONTROL
305VAC
CIRCUIT BREAKER
VOLTAGE DEPENDENT RESISTOR
THYRISTOR
LV RECTS
DEGAUSSING COIL
CHANNEL INDICATOR LAMPS #GE-159
HORIZ AFC V9 6BH11
HORIZ OSC V9 6BH11
HORIZ DISCH V9 6BH11
HORIZ OUTPUT V10 6JS6
DO NOT MEASURE
HV RECT V2 3A12
HORIZ SYNC PHASE DET
HORIZ HOLD
HORIZ OSC
B1A BIAS REGULATOR
L46 TERMINAL GUIDE
L47 TERMINAL GUIDE
HOR CENTERING
HOR LIN. COIL
FOCUS
BURST AMP V12 6AU8
1ST AUDIO AMP
2ND AUDIO AMP
Resistors are 1/2 watt or less and rated 10% or 20% unless otherwise indicated.
■ Denotes waveforms taken with a keyed rainbow generator.
Not used in some versions
Denotes ground.
See parts list
1. Voltage measurements taken with vacuum tube voltmeter.
2. All controls set for normal operation, no signal applied.
3. Measured values are from socket pin or terminal to common ground.
4. All terminals viewed from bottom unless otherwise designated
5. Numbers assigned to terminals may not be found on the unit.
6. Supply voltage maintained at rated value for voltage readings.
A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE®
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1ST VIDEO AMP V4 A6AU8

2ND VIDEO AMP

DELAY LINE M7

VIDEO OUTPUT V6 12HG7

BRIGHTNESS 250K

CONTRAST 5K TAP @ 275Ω

VIDEO PEAKING

BLANKING GATE

MOUNTING LUG

L23 TERMINAL GUIDE

CHROMA BANDPASS AMP V8 B 6AU8

TOP

COLOR CHROMA GAIN 500Ω

L24 TERMINAL GUIDE

TINT 5-60pf

NOTE: TINT CONTROL & ASSOCIATED COMPONENTS NOT USED IN "ENNIS SERIES" & LOWER.

L29 TERMINAL GUIDE

L30 TERMINAL GUIDE

3.58MC AMP V15 B 6AU8

BURST AMP V14 A 6AU8

NEON LAMP NE-83 5AH

3.58MC CRYSTAL M3

AFC

TINT 100K

G-Y DEMODULATOR

G-Y AMP V14 B 6AC10

G-Y DEMODULATOR

GREEN BALANCE 1500Ω

L31 TERMINAL GUIDE

IN SOME VERSIONS C113 AND C116 ARE 20pf FIXED CAPACITORS AND COILS L35 AND L37 ARE SLUG-TUNED.

B-Y DEMODULATOR

L32 TERMINAL GUIDE

BLUE BALANCE 1500Ω

B-Y DEMODULATOR

B-Y AMP V12 A 6AC10

R-Y DEMODULATOR

RED BALANCE 1500Ω

R-Y DEMODULATOR

R-Y AMP V16 C 6AC10

SPARK GAP

SERVICE

NORMAL

GREEN DRIVE 6000Ω

BLUE DRIVE 6000Ω

GREEN BLUE RED

PICTURE TUBE V16 21FJP22A

GREEN SCREEN

BLUE SCREEN

RED SCREEN 1.5meg

1000V BOOST

HORIZ OUTPUT V10 6JS6

DO NOT MEASURE

HV RECT V17 3AT2

HV REGULATOR V13 6EA4

TO PICTURE TUBE HV ANODE (24.7 25kV) 24.8KV

FOCUS

HIGH VOLTAGE ADJUST 500K

HO RIZ CENTERING

BOOST RECT

1000V BOOST SOURCE

SPARK GAP

DAMPER V11 6CG3

HORIZ LINEARITY (EFFICIENCY)

BIAS REGULATOR

T4 TERMINAL GUIDE

TIE POINT

SIX VERT OUTPUT CIRCUIT

L48 TERMINAL GUIDE

MOUNTING LUG

BLUE HORIZ LINES (TOP)

R-G VERT LINES (BOT)

R-G VERT LINES (TOP)

BLUE HORIZ LINES (BOT)

R-G HORIZ LINES (TOP)

BLUE HORIZ LINES (RIGHT)

BLUE HORIZ LINES (LEFT)

R-G HORIZ LINES (RIGHT)

R-G HORIZ LINES (LEFT)

R-G VERT LINES (LEFT)

L49 TERMINAL GUIDE

L50 TERMINAL GUIDE

L51 TERMINAL GUIDE

DO NOT MEASURE

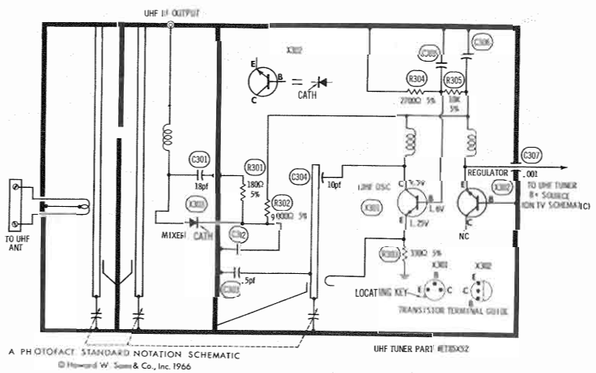
Corrected 10-31-67

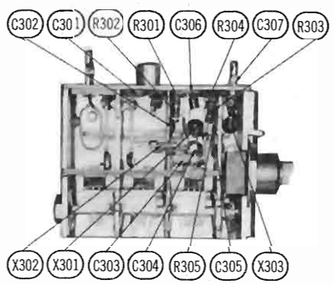
GENERAL ELECTRIC
CHASSIS CB-21" Version

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	1547Ω	220K	1547Ω	FIL	FIL	0Ω	197Ω ▲	197Ω ▲	1500Ω				
V2	6EH7	INF	75K	INF	FIL	FIL	0Ω	915Ω †	915Ω †	47Ω ▲				
V3	6EJ7	180Ω	0Ω	180Ω	FIL	FIL	0Ω	2995Ω †	2995Ω †	0Ω				
V4	6AU8	22Ω	1200Ω ●	30K †	FIL	FIL	180Ω	690Ω	3655Ω †	2565Ω †				
V5	12HG7	500Ω	130K	0Ω	FIL	FIL	FIL	5615Ω †	3100Ω †	0Ω				
V6	6M11	FIL	1.1Ω	9000Ω †	3820Ω	19K	660K †	63K †	3.8meg	0Ω	330Ω	9000Ω †	FIL	
V7	6AL11	FIL	680Ω	5.8Ω	470K	0Ω	151K †	8025Ω †	250K	220Ω	4315Ω †	4735Ω †	FIL	
V8	6FM7	FIL	NC	3.7meg	NC	1020Ω †	NC	2300Ω	NC	0Ω	540K	3meg ‡	FIL	
V9	6BH11	FIL	0Ω	83K †	1meg	0Ω	150K	13K †	1.1meg	48K †	1140Ω †	3600Ω	FIL	
V10	6JS6	FIL	0Ω	14K †	0Ω	2.4meg ●	NC	NC	NC	2.4meg ●	0Ω	14K †	FIL	TOP CAP 28.4Ω ‡
V11	6CG3	FIL	NC	NC	27Ω †	NC	NC	2.5meg	NC	NC	27Ω †	NC	FIL	
V12	3AT2	PINS 1 THRU 12 HAVE INFINITE RESISTANCE												TOP CAP 528.4Ω ‡
V13	6EA4	FIL	NC	NC	NC	1020Ω †	1.25meg	NC	NC	NC	NC	NC	FIL	TOP CAP INF
V14	6AC10	FIL	46K †	200Ω	200Ω	46K †	200Ω	2300Ω ●	0Ω	880Ω ●	46K †	2300Ω ●	FIL	
V15	6AU8	2Ω	1meg	11K †	FIL	FIL	180Ω	650Ω	25K †	2800Ω †				
V16	21FJP22A	FIL	148K †	350K †	5700Ω †	3800Ω †	148K †	425K †	NC	75meg	NC	420K †	148K †	
						Pin 13 4100Ω †	Pin 14 FIL							
V201	6HQ5	3.6meg	0Ω	FIL	FIL	10K †	0Ω	0Ω						
V202	6HB7	0Ω	220K	0Ω	FIL	FIL	4330Ω †	25K †	8000Ω †	3300Ω				
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	

● READING DEPENDS ON POLARITY OF METER CONNECTIONS
† MEASURED FROM OUTPUT OF X3 AND X4.
NC NO CONNECTION
▲ MEASURED FROM PIN 1 — 3 OF V2.
‡ MEASURED FROM PIN 7 OF V11.

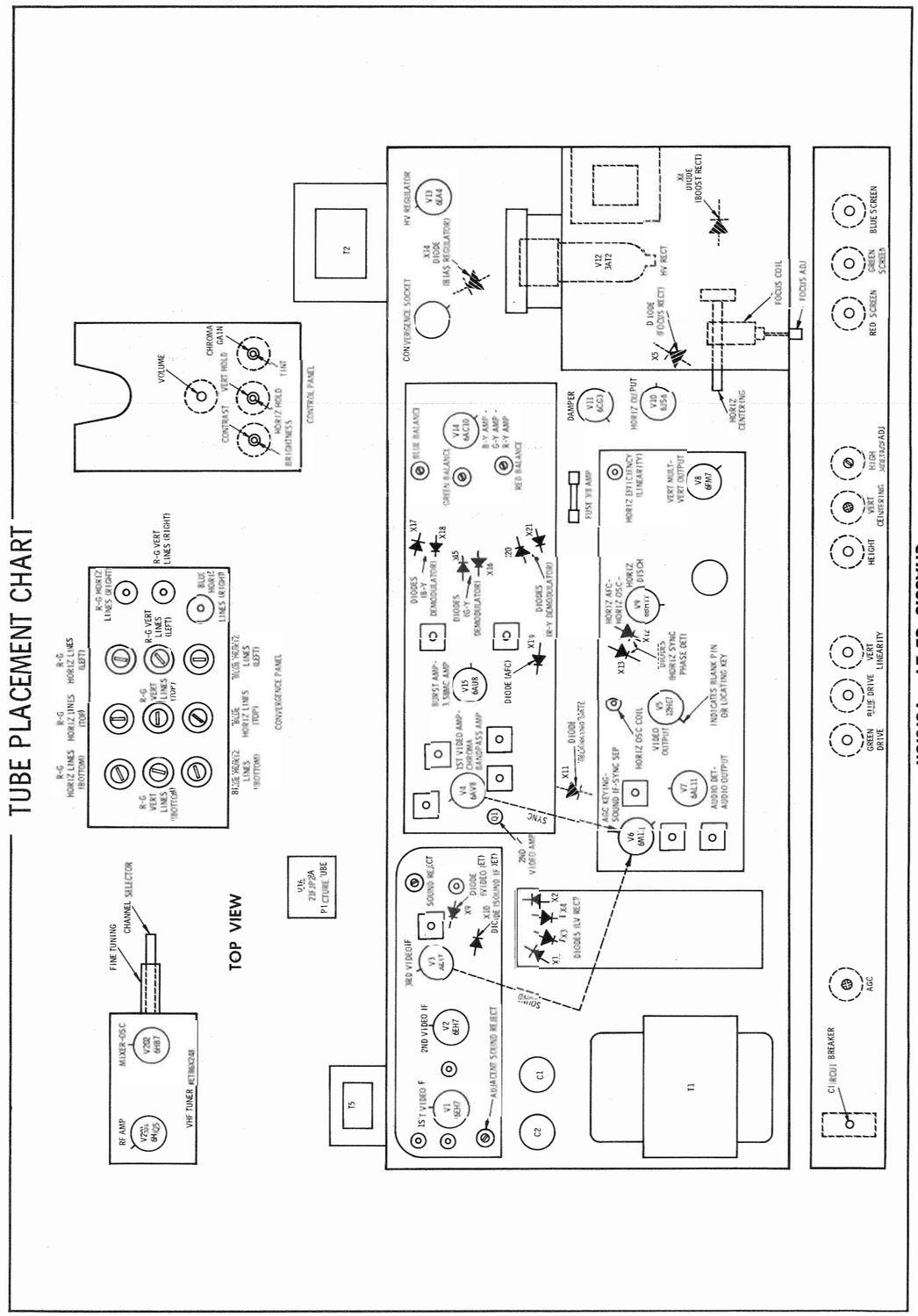




UHF TUNER ET85X52

GENERAL ELECTRIC CHASSIS CB-21" Version

TUBE PLACEMENT CHART



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 A10 ..... GENERAL CEMENT #8606, 8606L, 8869 ... WALSCO #2543, 2544, 2588
Mixer Plate Coil .. GENERAL CEMENT #9296, 9297, 9300 ..... WALSCO #2510, 2546, 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.	Connect high side to ungrounded tube shield over Mixer-Osc. Low side to ground.		41.25MC 47.25MC	A1, R16 A2, R17	Adjust for MINIMUM.
2.	Connect DC probe of a VTVM thru a 47K resistor to point Ⓑ. Common to ground.	Connect high side to ungrounded tube shield over Mixer-Osc. Low side to ground.		43.8MC 42.5MC 45.75MC 44MC	A3 A4 A5 A6, Mixer Plate Coil	Adjust for maximum.
3.	Connect vertical input of a scope to point Ⓑ. Low side to ground.	Connect high side to ungrounded tube shield over Mixer-Osc. Low side to ground.	44MC (10MC Sweep)	41.25MC 42.17MC 42.25MC 45MC 45.75MC 47.25MC		Adjust for maximum gain and symmetry of response with markers as shown in Figure 1. In order to obtain a proper response, it may be necessary to slightly retouch A3, A4, A5, A6 and Mixer Plate Coil.

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 A11 for MINIMUM beat interference.

SOUND IF ALIGNMENT

Tune in a TV station and adjust A10 for maximum undistorted sound. Start from fully-out position and tune to second peak. Reduce signal strength at antenna terminals until distortion appears. Continue to reduce signal while aligning for undistorted output by adjusting A7, A8, and A9. Use peak at top end of coil for A7. Use peak at open ends of coil for A8 and A9.

CHROMA BANDPASS ALIGNMENT

The following alignment will require the use of an RF Modulator (RCA WG304A or equivalent). Connect a -25 volt supply to point Ⓔ.
Connect -25 volts to point Ⓔ. Positive to all supplies to ground. Remove Horizontal Output Tube and connect a 2000Ω, 100 watt resistor from 390V Source to ground. Turn Color Intensity to maximum.

	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
4.	High side thru .1 mfd to grid of Bandpass Amp. Low side to ground.	3.58MC (3-5MC Sweep)	3.08MC 4.08MC		Vert. Amp. thru demodulator probe to point Ⓓ. Low side to ground.	A12, A13	Adjust for response curve similar to Fig. 2.
5.	High side of sweep gen. to video sweep input of RF modulator. High side of signal gen. to picture carrier input. Output of RF modulator to Mixer Grid test point on tuner. Low side to ground. Signal generator must be accurately set to 45.75MC.	3MC (6MC Sweep)	3.08MC 4.08MC		"	A14	Adjust for response curve similar to Fig. 3. If necessary, retouch A12 to flatten top of response.

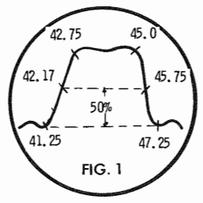


FIG. 1

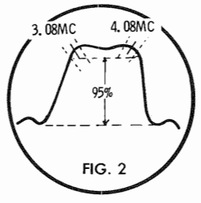


FIG. 2

SET MARKER AT EQUAL HEIGHTS

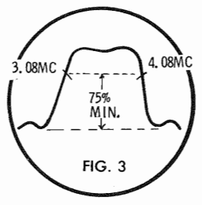


FIG. 3

MISCELLANEOUS ADJUSTMENTS

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Connect:
A 0-500 ma meter in series with cathode lead of Horizontal Output tube.
A .47 mfd capacitor across meter.
A 0-1500 microammeter in series with cathode lead of HV Regulator Tube.
A VTVM through a high voltage probe to picture tube anode connector.
A short from point Ⓒ to ground.

Tune in a TV station and adjust the horizontal hold to the center of its range. Adjust B1 until picture "drifts" slowly and sides are vertical. Remove short from point Ⓒ. Adjust the Horizontal Linearity (Efficiency) Coil for MINIMUM current in the horizontal output tube (210 ma optimum, 215 ma maximum current). Adjust the high voltage control for 26KV with MINIMUM brightness. Check current on microammeter. Current should be as close to 1500 microamps as possible with MINIMUM brightness. If 1500 microamps is not obtained, Horizontal Linearity Coil may be turned 1/4 turn clockwise. Check to see Horizontal output tube does not exceed 215 ma. If foldover occurs, readjust the Horizontal Linearity Coil clockwise to eliminate foldover. Check horizontal Output Tube current. (Current must not exceed 215 ma.)

Remove test equipment and return set to operating condition. Adjust Focus, Height, and Vertical Linearity controls.

AGC ADJUSTMENT

Tune in a strong TV station and advance AGC control until instability appears in picture (pulling, jitter, overload, etc.). Reduce the control to the point just below the instability and check all available stations for proper AGC action.

COLOR AFC ALIGNMENT

Set R20, R19, and R18 for mechanical center. Set the Color control counterclockwise. Preset Tint control. If Tint control is trimmer capacitor, turn fully clockwise, then rotate 90° counterclockwise. If Tint control is potentiometer, set to center of its range.

Connect a Color bar generator to antenna terminals and adjust for normal color reception. Connect DC probe of VTVM to point Ⓖ. Adjust A15, A16, and A17 for maximum DC on VTVM. Adjust A18 for MINIMUM DC at point Ⓖ. Repeat adjustments until no further improvement can be made. Remove VTVM.

COLOR AFC ALIGNMENT CONTINUED

R-Y Detector AC Balance: Alternately adjust A19 (C116) and R18 for MINIMUM AC voltage at pin 11 of V14.

B-Y Detector AC Balance: Alternately adjust A20 (C113) and R20 for MINIMUM AC voltage at pin 7 of V14.

R-Y Detector DC Balance: Adjust R18 for 0 volts DC at pin 11 of V14.
B-Y Detector DC Balance: Adjust R20 for 0 volts DC at pin 7 of V14.
G-Y Detector DC Balance: Adjust R19 for 0 volts DC at pin 9 of V14.

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 with a standard N.T.S.C. signal. Check the range of the Tint control. The bars should move 30° either side of proper signal. If necessary, retouch A17 for proper control (not more than one turn).

Check for proper waveform at G-Y and B-Y outputs (points Ⓚ and Ⓙ).

PURITY ADJUSTMENTS

Perform step 1 of Convergence Adjustments. If the picture tube appears to be magnetized, use a degaussing coil to demagnetize picture tube and brackets.

Connect the blue and green grids of the picture tube to ground through individual 100K resistors (points Ⓚ and Ⓙ). Loosen the deflection yoke and move it rearward until it is against the convergence assembly.

Adjust the tabs on the Purity magnet and rotate the assembly until a red spot appears at the center of the picture tube face. Slide the deflection yoke forward to obtain a uniform red over entire face of picture tube. A low power microscope is useful to observe the beam landings.

GREY SCALE ADJUSTMENTS

Tune in a black and white picture or a color picture with the color control set to MINIMUM. Turn the red, blue and green screen controls fully counterclockwise. Move Normal-Service switch to the "Service" position. Advance the screen controls one at a time until each produces a barely visible line on the screen. Return the Normal-Service switch to "Normal" position. Adjust the blue and green video drive controls to eliminate coloring in the dark and bright areas of the picture.

CONVERGENCE ADJUSTMENTS

Step	Control	Use to Converge (or Straighten)	Remarks
1.			Perform center dot convergence using convergence magnets. If more range is needed, reverse magnet holder in clip. See Fig. A.
2.	R-G Vertical lines (Top)	Red and Green vertical bars at top of screen.	Touch up both controls for best convergence from top to bottom along vertical center line. See Fig. B.
3.	R-G Vertical lines (Bottom)	Red and Green vertical lines at bottom of screen.	
4.	R-G Horizontal lines (Top)	Red and Green horizontal lines at top of screen.	Touch up both controls for best convergence of horizontal bars at top and bottom of screen. Fig. B.
5.	R-G Horizontal lines (Bottom)	Red and Green horizontal lines at bottom of screen.	
6.	Blue Horizontal lines (Top)	Blue horizontal lines at top of screen.	Touch up both controls for best convergence of horizontal bars along vertical center line. Fig. C.
7.	Blue Horizontal lines (Bottom)	Blue horizontal lines at bottom of screen.	
8.			Perform center dot convergence. Fig. A.
9.	Blue Horizontal lines (Left Side)	Blue horizontal line at left side of screen.	Touch up both controls for best convergence of horizontal blue line across center of screen. Fig. D.
10.	Blue Horizontal lines (Right Side)	Blue horizontal line at right side of screen.	
11.	R-G Vertical lines (Left Side)	Red and Green vertical lines at left side of screen.	Adjust for best convergence of red and green bars at left side of screen. Fig. E.
12.	R-G Vertical lines (Right Side)	Red and Green vertical lines at right side of screen.	Adjust for best convergence of red and green bars at right side of screen. Fig. E.
13.	R-G Horizontal lines (Left Side)	Red and Green horizontal lines at left side of screen.	Use to converge blue horizontal line with red and green line at left side of screen. Fig. E.
14.	R-G Horizontal lines (Right Side)	Red and Green horizontal lines at right side of screen.	Use to converge blue horizontal line with red and green line at right side of screen. Fig. E.

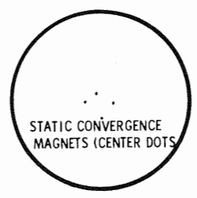


FIG. A

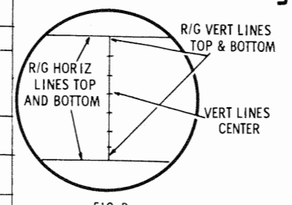


FIG. B
(RED & GREEN ONLY)

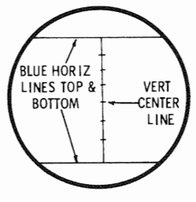


FIG. C
(BLUE BARS)

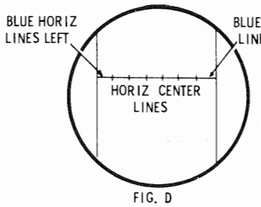


FIG. D
(BLUE BARS)

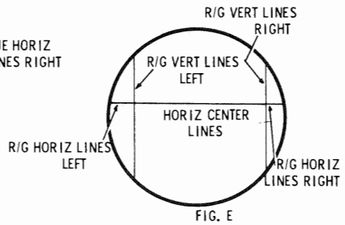
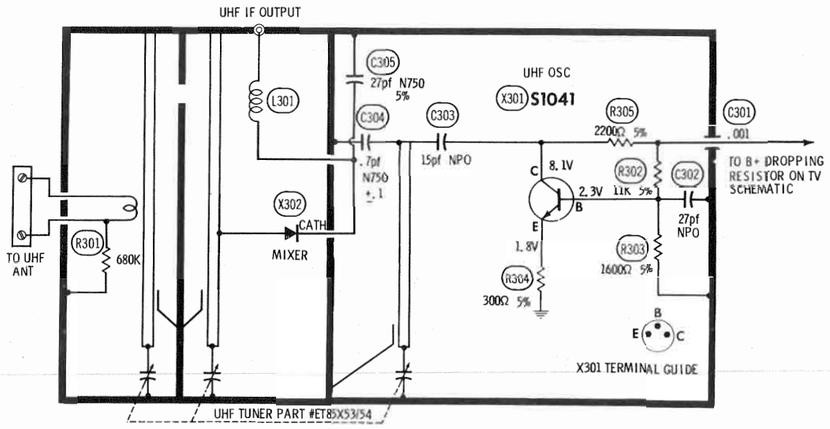
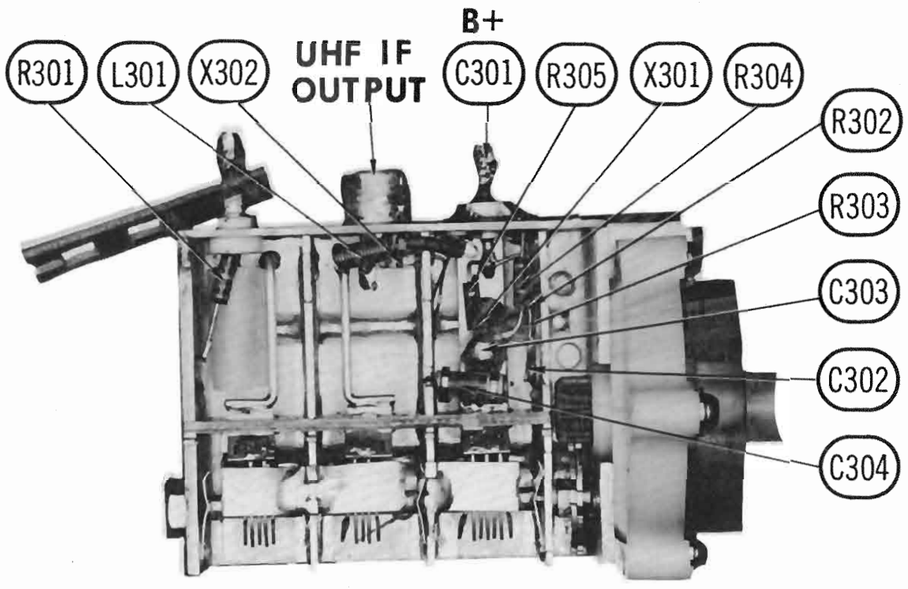


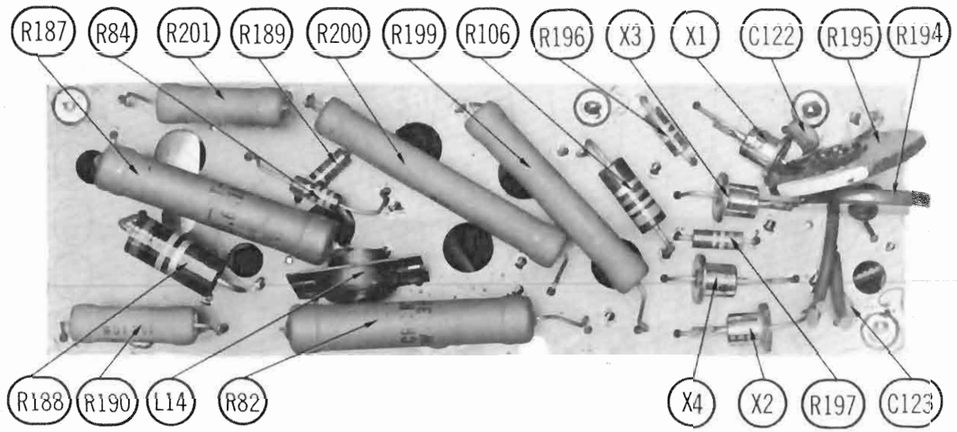
FIG. E

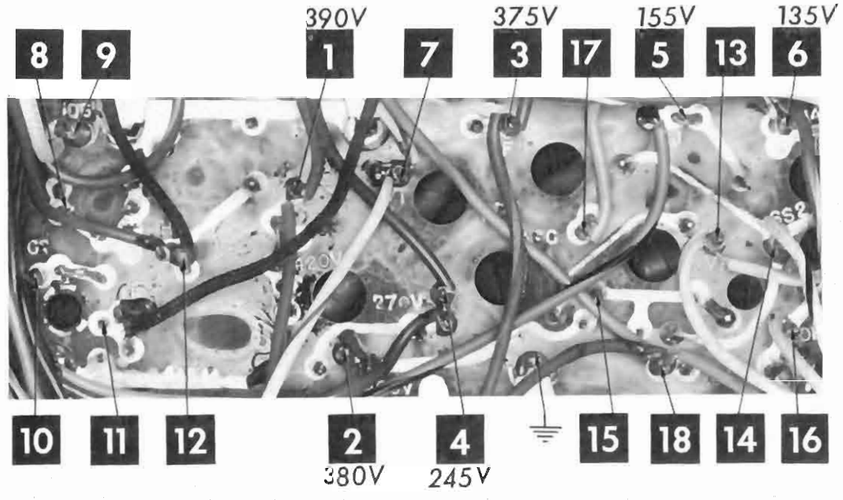


A PHOTOFACT STANDARD NOTATION SCHEMATIC



UHF TUNER ET85X54

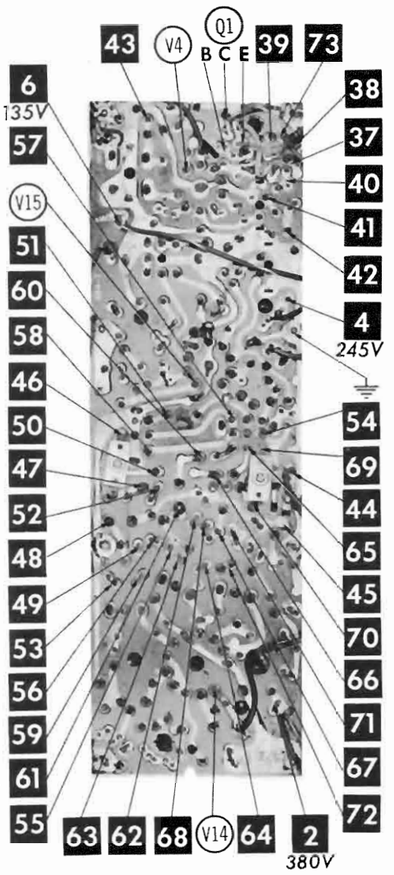


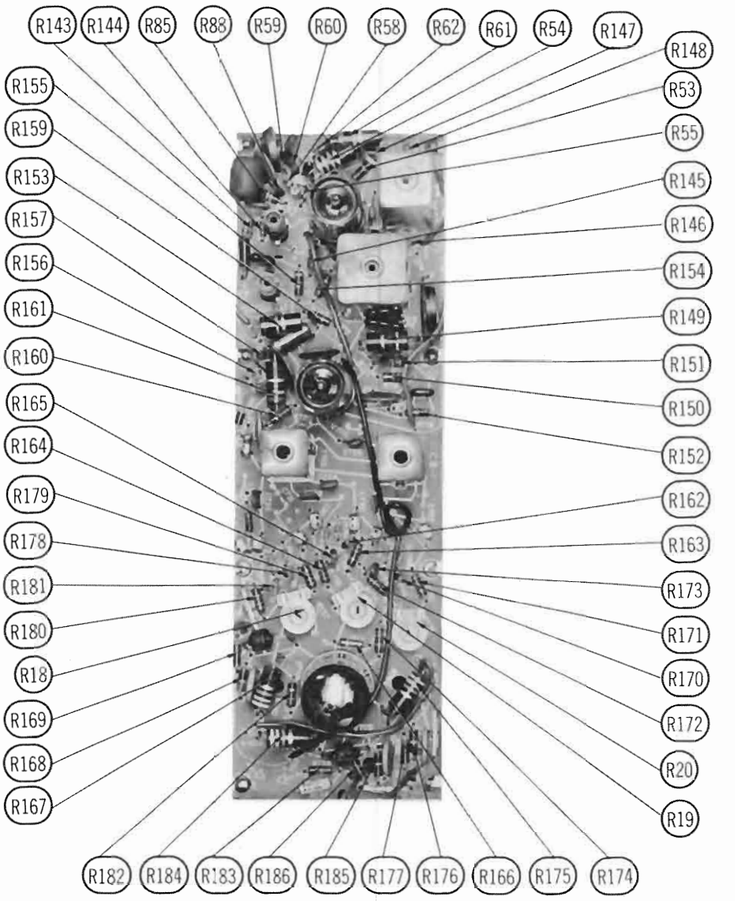


A Howard W. Sams CIRCUITRACE® Photo LV POWER SUPPLY BOARD

GENERAL ELECTRIC
CHASSIS CB-21" Version

FOLDER 1

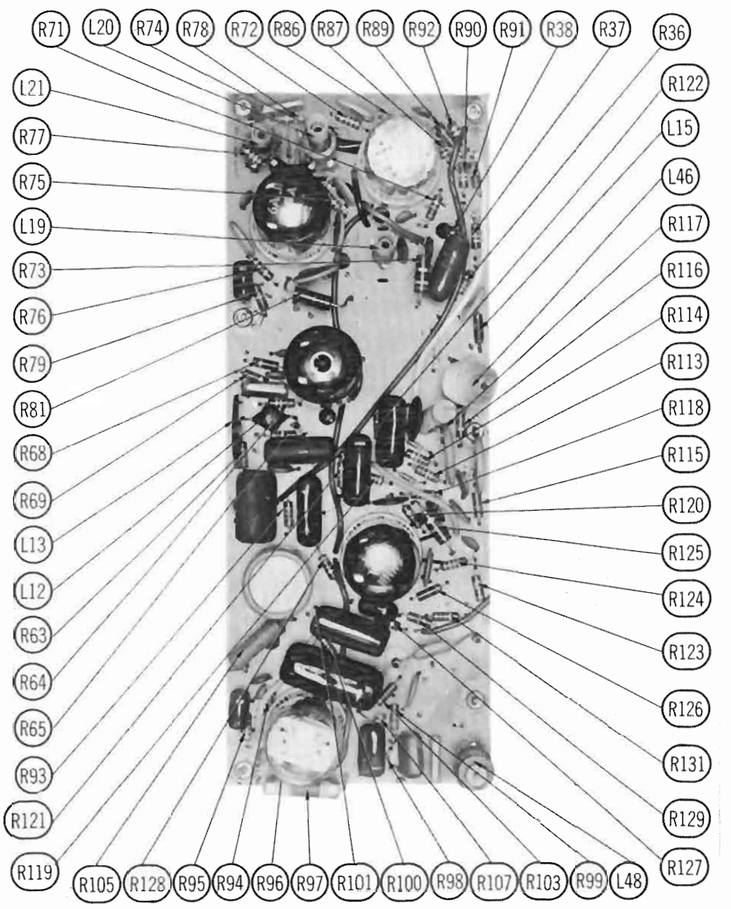


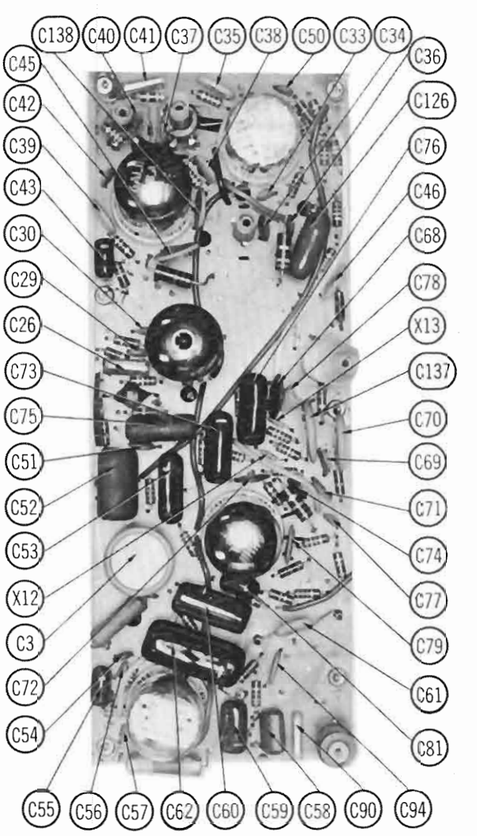


A Howard W. Sams CIRCUITRACE Photo

VIDEO AMP — COLOR CIRCUIT BOARD

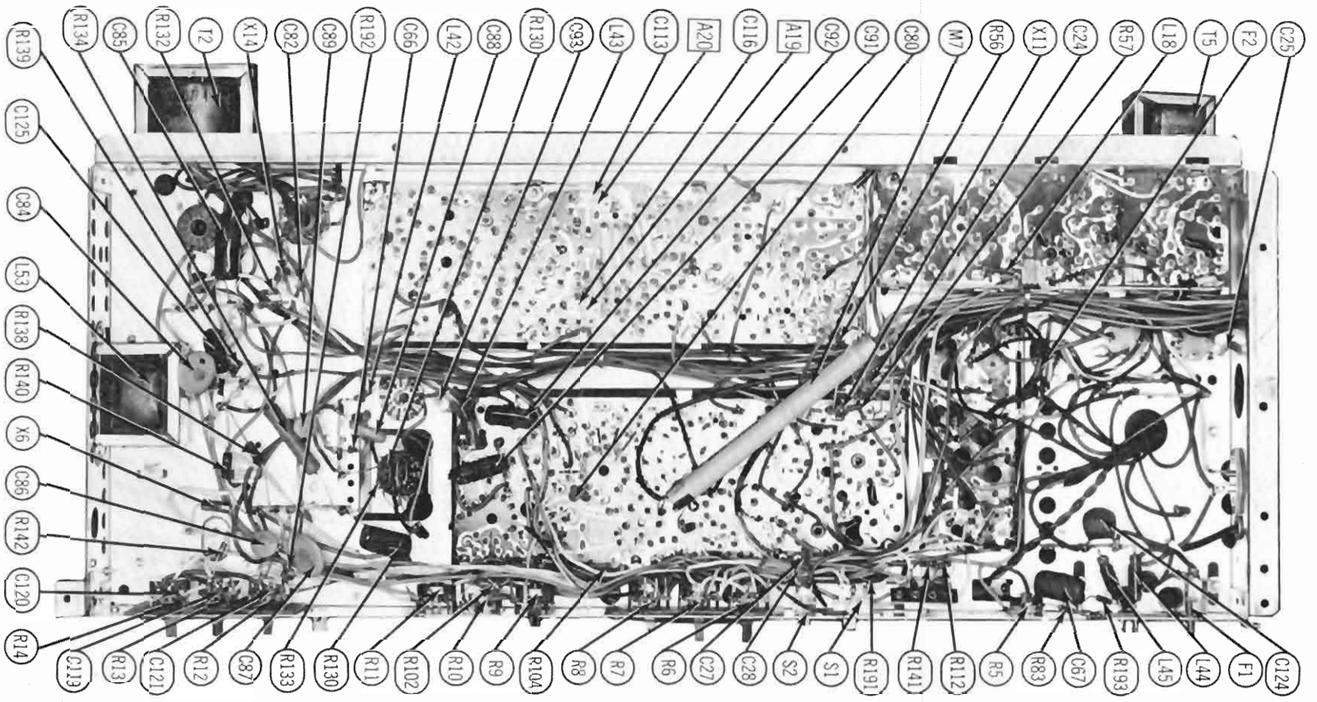
ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

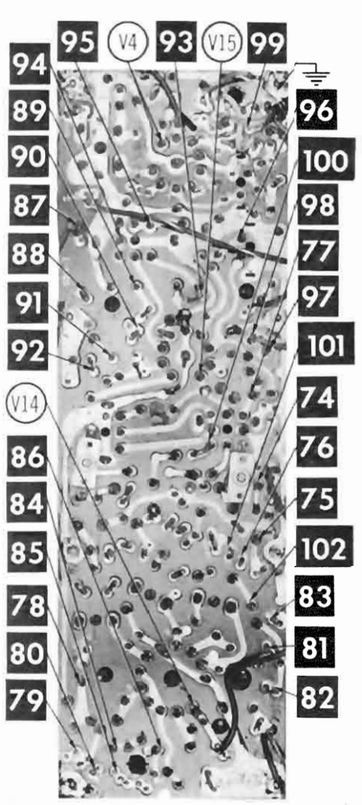


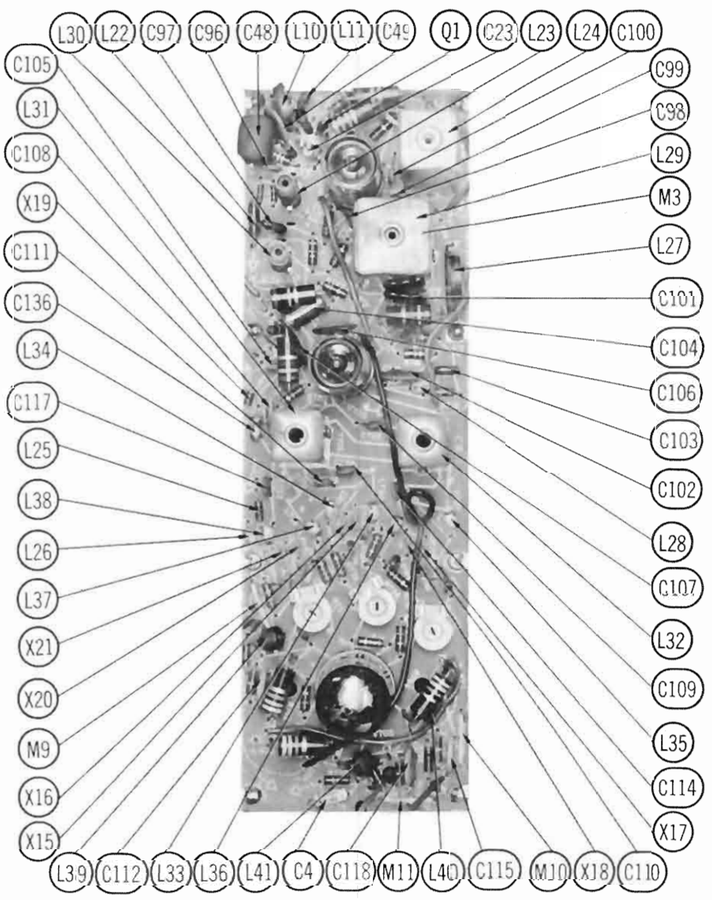


AUDIO, VIDEO OUTPUT, AGC, SYNC SEPARATOR, SWEEP BOARD

CHASSIS – BOTTOM VIEW







ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

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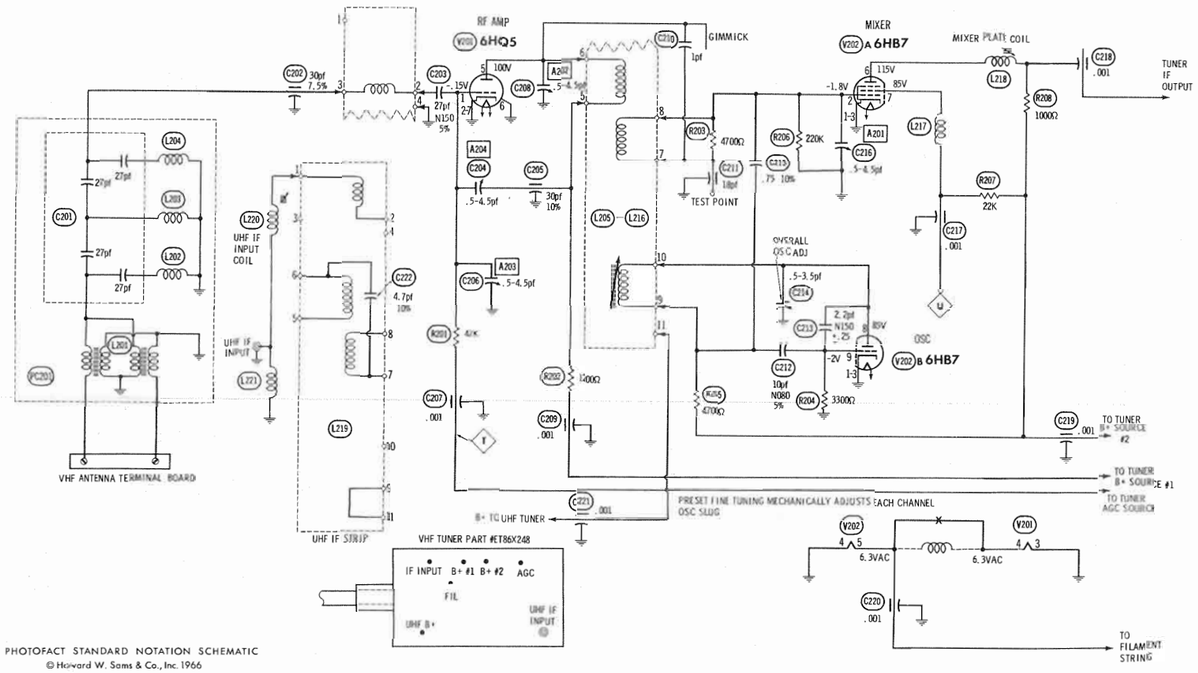
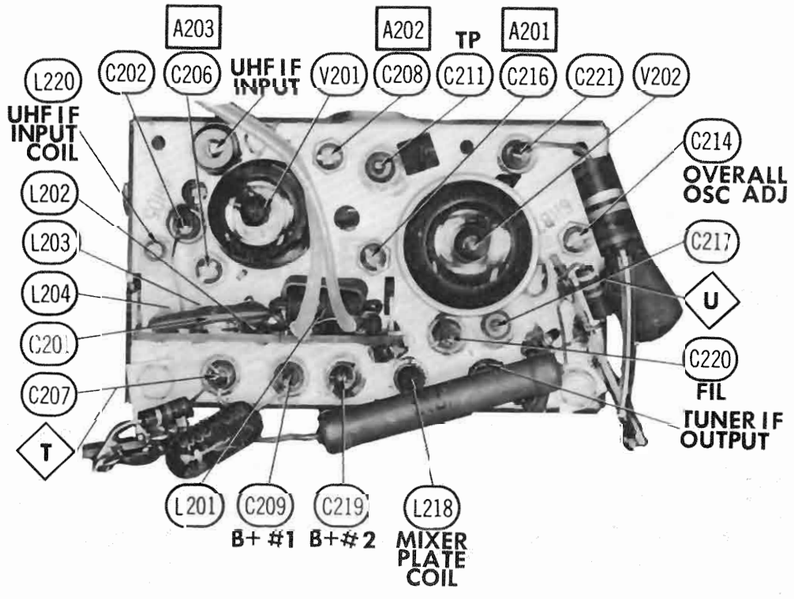
VIDEO AMP – COLOR CIRCUIT BOARD



A PHOTOFACT STANDARD NOTATION SCHEMATIC



VHF TUNER ALIGNMENT INSTRUCTIONS

OSCILLATOR ADJUSTMENTS TUNER ET86X221

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.

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 (T). 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	REMARKS TUNER ET86X221
1.	Across antenna terminals with 120Ω in each lead.	213MC	211.25MC 215.75MC	13	Vert. Input to Point (U), low side to ground	A201 A202	Expand or compress appropriate coils 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.	Gimmick	Increase bias to -15 volts and adjust for MINIMUM amplitude of response.
3.	"	See Chart	See Chart	12 thru 2	Vert. Input to Point (U), low side to ground.		Check all channels and make compromise adjustments by expanding or compressing appropriate coils if necessary.

OSCILLATOR ADJUSTMENTS TUNER ET86X248

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 (T). 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	REMARKS TUNER ET86X248
1.	Across antenna terminals with 120Ω in each lead.	213MC	211.25MC 215.75MC	13	Vert. Input to Point (U), 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 (U), low side to ground.		Decrease bias. Check response on all channels and make compromise adjustments of A201, A202 and A203 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

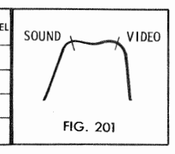
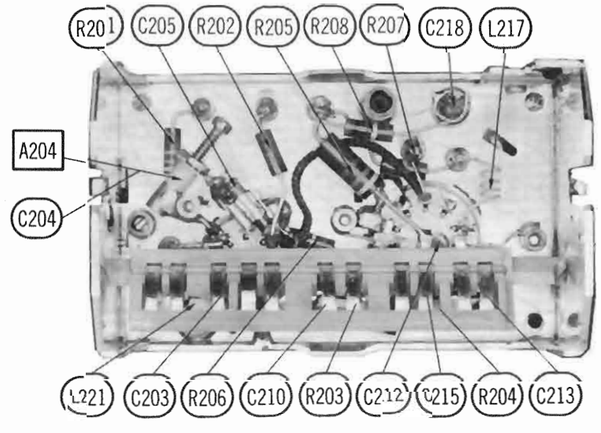


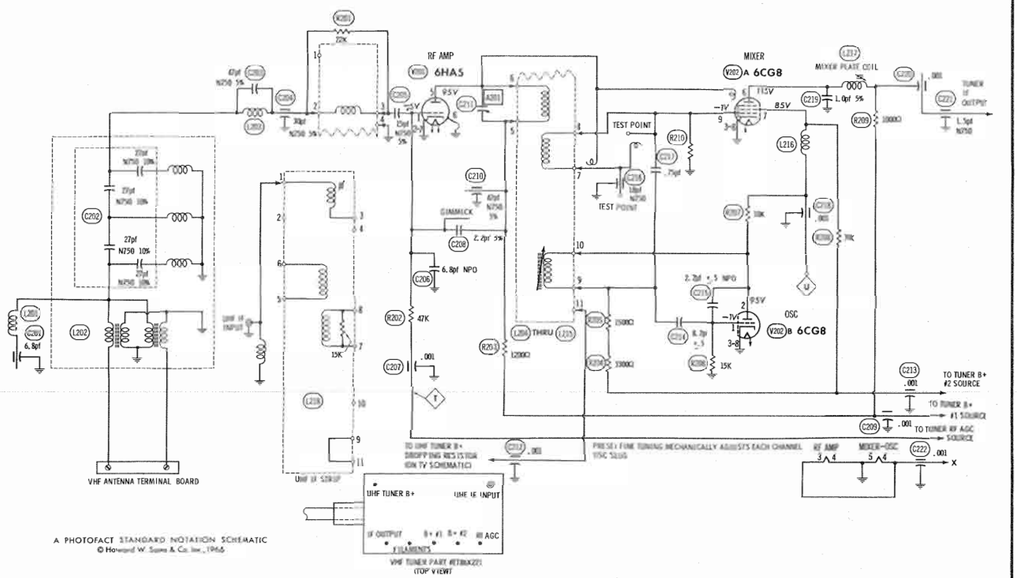
FIG. 201

UHF TUNER ALIGNMENT INSTRUCTIONS

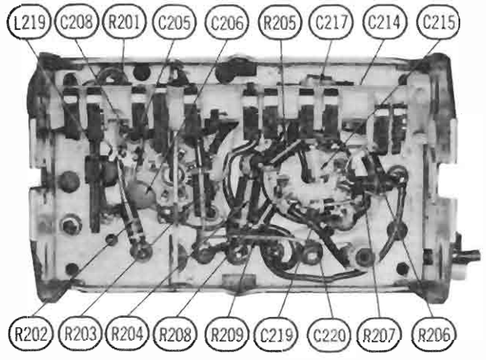
Tune to a UHF station and adjust UHF IF Input Coil for best picture and sound.

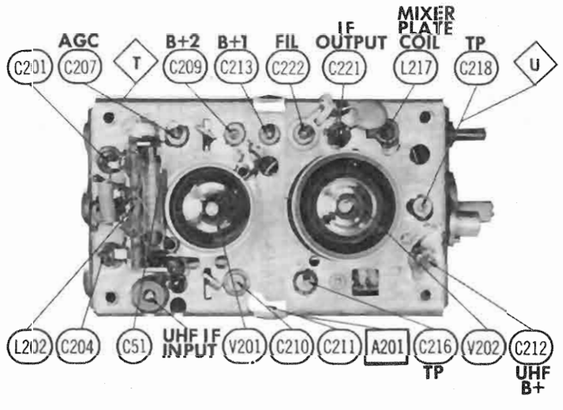


VHF TUNER ET86X248

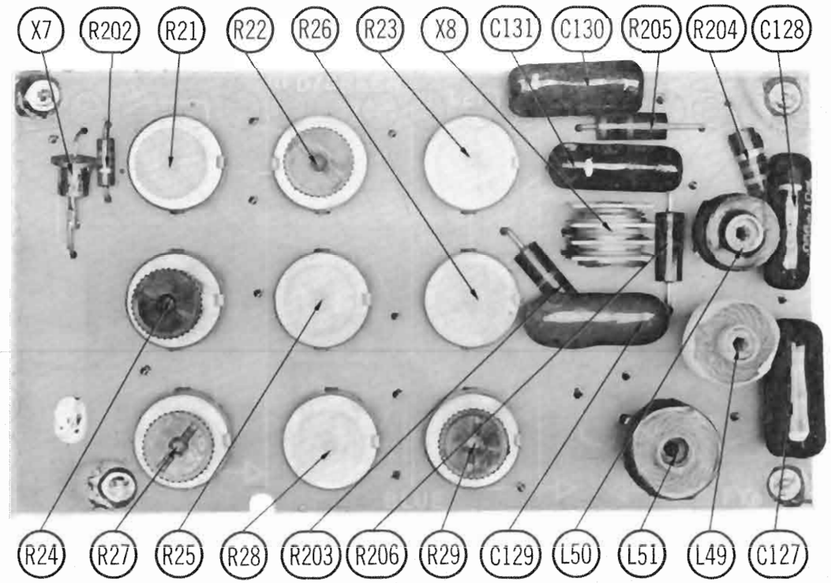


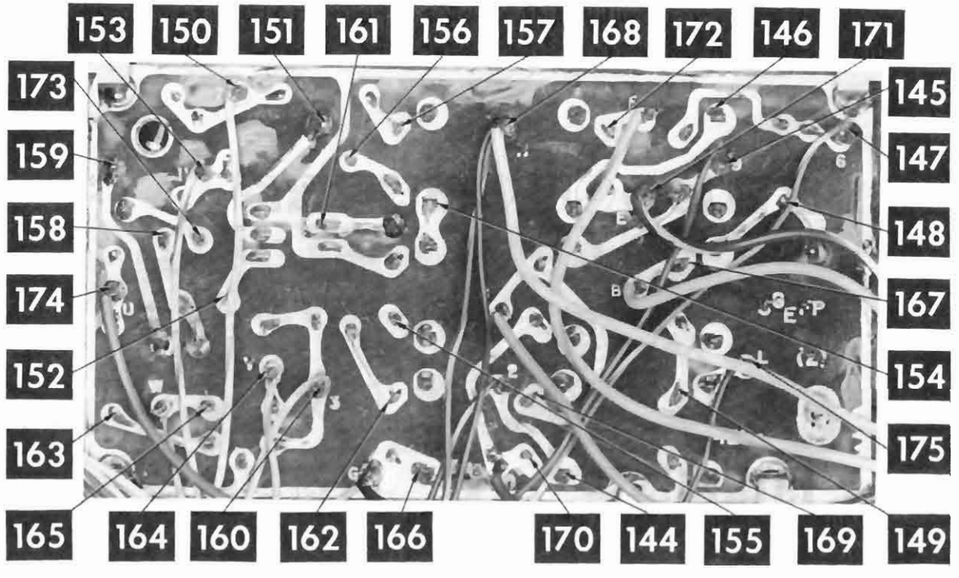
A PHOTOFACT STANDARD NOTATION SCHEMATIC



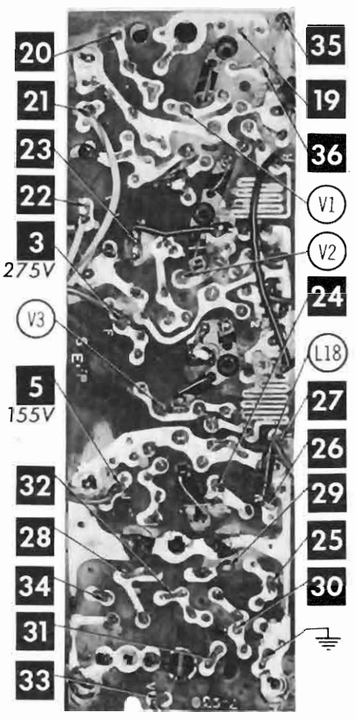


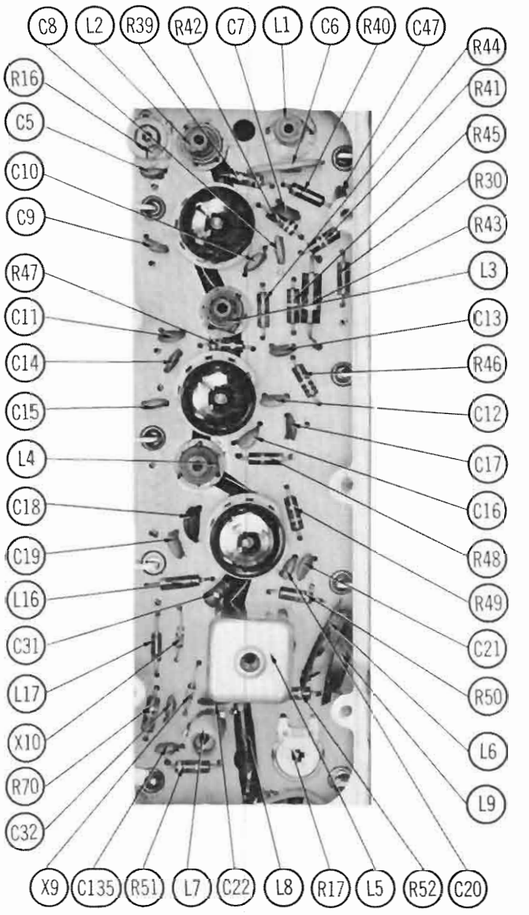
VHF TUNER ET86X221





A Howard W. Sams CIRCUITRACE Photo CONVERGENCE BOARD





A Howard W. Sams CIRCUITRACE® Photo

VIDEO PRINTED BOARD

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

VHF TUNER PARTS LIST

VHF TUNER ET86X221

TUBES

◆ AMPEREX ◆ GENERAL ELECTRIC ◆ RCA ◆ SYLVANIA ◆					
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V201	RF Amp.	6HA5	V202	Mixer - Osc.	6CG8A

CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA: AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C201	6.8 10%							
C202A	27 N750 10%			TCN-27			CN7427	10TCU-Q27
B	27 N750 10%			TCN-27			CN7427	10TCU-Q27
C	27 N750 10%			TCN-27			CN7427	10TCU-Q27
D	27 N750 10%			TCN-27			CN7427	10TCU-Q27
C203	47 N750 5%		N750-DI 47	DTN-47	CX601UJ470K	CCTN-470	CN7447	10TCU-Q47
C204	30 5%							
C205	15 N750 5%		N750-DI 15	DTN-15	CZ601UJ150J	CCTN-150	CN7415	10TCU-Q15
C206	6.8 NPO		NPO-DI 6.8	DTZ-6R8	CZ601CH6R8D	CCTO-6R8	CNO568	10TCC-V68
C207	.001		EF-001	MFT-1000		CCF-102	CT280A	
C208	2.2 5%		NPO-DI 2.2	DTZ-2R2	CZ601CJ2R2D	CCTO-2R2	CNO622	10TCC-V22
C209	.001		EF-001	MFT-1000		CCF-102	CT280A	
C210	47 N750 5%							
C211								
C212	.001		EF-001	MFT-1000		CCF-102	CT280A	
C213	.001		EF-001	MFT-1000		CCF-102	CT280A	
C214	8.2 ±.5		NPO-DI 8.2					10TCC-V82
C215	2.2 NPO ±.5		NPO-DI 2.2	DTZ-2R2	CZ601CG2R2D	CCTO-2R2	CNO622	10TCC-V22
C216	18 N750							
C217	.75pf 10%		NPO-DI 1.0	TCZ-1			CNO610	10TCC-V10
C218	.001		EF-001	MFT-1000		CCF-102	CT280A	
C219	1.0 5%		NPO-DI 1.0	TCZ-1			CNO610	10TCC-V10
C220	.001		EF-001	MFT-1000		CCF-102	CT280A	
C221	1.5 N750		NPO-DI 1.0	TCZ-1			CNO610	10TCC-V10
C222	.001		EF-001	MFT-1000		CCF-102	CT280A	

COILS (RF-IF)

ITEM No.	USE	G. E. PART No.	NOTES
L201	RF Choke		
L202	Ant. Input Ass'y	ET62X105	
A	Ant. Input		
B	RF Choke		
C	RF Choke		
D	RF Choke		
L203	RF Choke		
L204	Ant., RF, Mixer, Osc.	ET62X110	Chan. 2, IF Strip
L205	"	ET62X111	" 3 "
L206	"	ET62X112	" 4 "
L207	"	ET62X113	" 5 "
L208	"	ET62X114	" 6 "
L209	"	ET62X115	" 7 "
L210	"	ET62X116	" 8 "

ITEM No.	USE	G. E. PART No.	NOTES
L211	Ant., RF, Mixer, Osc.	ET62X117	Chan. 9, IF Strip
L212	"	ET62X118	" 10 "
L213	"	ET62X119	" 11 "
L214	"	ET62X120	" 12 "
L215	"	ET62X121	" 13 "
L216	RF Choke		
L217	Mixer Plate	ET36X728	
L218	Ant., RF, Mixer, Osc.	ET62X109	UHF IF Strip
L219	UHF IF Output	ET36X496	

UHF TUNER PARTS LIST

UHF TUNERS ET85X53, ET85X54

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA: DELCO PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	NOTES	G. E. PART No.
X301	S1041 ①	UHF Oscillator		GE-11		NPN ① Alternate 16GN	ET15X3

UHF TUNER PARTS LIST (cont)

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	MEASURED CURRENT	ORIGINAL Part or Type No.	RECTIFIERS & DIODES: GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	RECTIFIERS: MALLORY PART No.	RCA PART No.	SARKES TARZIAN PART No.
X302		ET16X14 (D3530)					

CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA: AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C301	.001		EF-001	MFT-1000		CCF-102	CT280A	
C302	27 NPO		DI-30	DD-300		CCD-300	GP430	10TS-Q30
C303	15 NPO		NPO-DI 15	DTZ-15	CZ601CG150J	CCTO-150	CNO415	10TCC-Q15
C304	0.7 N750 500V ±.1							
C305	27 N750 500V 5%		DTN-27			CCTN-270	CN7427	10TCU-Q27

COILS (RF-IF)

ITEM No.	USE	G. E. PART No.	NOTES
L301	RF Choke	ET36X827	

ITEM No.	USE	PART No.	NOTES

UHF TUNER PARTS LIST

UHF TUNER ET85X52

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA: DELCO PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	G.E. PART No.	NOTES
X301		UHF Osc.		GE-11		XT15X3	NPN

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	MEASURED CURRENT	ORIGINAL Part or Type No.	RECTIFIERS & DIODES: GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	RECTIFIERS: MALLORY PART No.	RCA PART No.	SARKES TARZIAN PART No.
X302		1N82AG	1N82A	1N82A			

CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA: AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C301	18			TCZ-18	CY601CG180K	CCTO-180	CNO418	10TCC-Q18
C302								
C303	.5pf			TCZ-R5				
C304	10pf		NPO-DI 10	DTZ-10	CZ601CG100K	CCTO-100	CNO410	10TCC-Q10
C305								
C306								
C307	.001		EF-001	MFT-1000		CCF-102	CT280A	

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

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.

COILS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA G. E. PART No.	MERIT PART No.	MILLER PART No.	STANCOR PART No.	THORDARSON MEISSNER PART No.	TRIAD PART No.	WORKMAN PART No.
L46	Horiz. Osc.	ET36X727						
L47	Focus	ET36X710		6350				TC-288
	Shaft, Focus Adjust	ET99X247						
L48	Horiz. Linearity (Effic.)	ET36X640		H-105				
L49	Dynamic Convergence Right R/G Vert. Lines (2, 8mh-6, 8mh)	ET36X553		6347				T149
L50	Dynamic Convergence Right R/G Horiz. Lines (1, 2mh-4, 6mh)	ET36X691		6348				
L51	Dynamic Convergence Right Blue Horiz. Line (Pri, 3, 8mh-9, 5mh) (Sec. 13mh-. 17mh)	ET36X555		H-102				
L52	Convergence Yoke							
A	Blue Section	ET36X557						
B	Green Section	ET36X557						
C	Red Section	ET36X557						

FILTER CHOKE

ITEM No.	RATINGS CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000~)	REPLACEMENT DATA G. E. PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	NOTES
L53	.43ADC	17Ω	.6 H	ET63X62	C-4133	C-2708	26C81	C-40X	

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	SEC. 1	SEC. 2	REPLACEMENT DATA G. E. PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	NOTES
T1	117VAC @ 3AAC	305VAC @ .46A DC	6.3VAC @ 2.3A AC	ET88X93					
		SEC. 3							
		6.3VAC @ 9AAC							

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA G. E. PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	NOTES
T2	Vert. Output	ET64X102 (126J377-4)	A-4140C	VO-700C	26S86	A-305X	①Remove two (2) 560Ω resistors from vert. damping network ②Remove two (2) 270Ω resistors from vert. damping network
T3	Yoke (Horiz=12mh) 70° (Vert. =40mh)	ET76X32 (P-126J717-4)	MDF-144C ①	DY-90AC ②	Y-107 ①	YC-300-1 ①	
T4	Horiz. Output	ET77X88					
	Pulse Winding Ass'y.	ET36X830					
	Core Half	ET12X108					

*COMPONENT CONNECTION DATA

ORIGINAL → / REPLACEMENT ↓	HV TRANSFORMER Original Connections	VERTICAL OUTPUT Original Connections	YOKE Original Connections
		Blue / Red / Green / Green/White / Yellow / Black/Red / Black/Green / Green/Red / Orange / Black/White / Red/White	1 3 4 5
MERIT	EXACT REPLACEMENT		1 3 4 5
STANCOR	EXACT REPLACEMENT		1 3 4 5
THORDARSON	EXACT REPLACEMENT		1 3 4 5
TRIAD	EXACT REPLACEMENT		1 3 4 5

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	SEC.	REPLACEMENT DATA G. E. PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	NOTES
T5	8000Ω	3-4Ω	ET64X97 (M128J421-3)	A-3020	A-8092	26S48	S-9Z	

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA G. E. PART No.	QUAM PART No.	NOTES
SP1	5" x 7" PM 3-4Ω	ET95X50 (M124J685-4)	57A1	Used in Models M930BWD/-A, M931BWD/-A, M932BMP/-A, M938/940BWD, M941BMP, M942BCL.
	4" PM 3-4Ω	ET95X21	4A2C	Used in Models M920BWD/-A.
	6" x 9" PM 3-4Ω	ET95X29		Used in Models M950BWD, M951BMP, M952BCL, M956BWD.

FUSE DEVICES

ITEM No.	TYPE	RATING	REPLACEMENT DATA PART No. FUSE	HOLDER	LITTELFUSE PART No. FUSE	HOLDER	BUSS PART No. FUSE	HOLDER
F1	Circuit Breaker	1.8 Amp.	ET10X50 (M124J917-4)		8151.75			
F2	3 1/2" length of Fuse Wire		ET10X33					
F3	3 AG P/T	3/8 Amp. @ 250V	ET10X11 ①		318.375		GJV 3/8	

① Used in Chassis Stamped EN152A, EN186A, B and EN186 and Higher.

MISCELLANEOUS

ITEM No.	PART NAME	G. E. PART No.	NOTES
M1	VHF Tuner	ET86X221	
	VHF Tuner	ET86X248, 266	
M2	UHF Tuner	ET85X52	
	UHF Tuner	ET85X54	
M3	Crystal	ET41X47	3.58MC Oscillator
M4	Magnet	ET42X37	Blue Lateral
M5	Magnet	ET42X38	Purity Ring
M6	Magnet	ET42X36	Convergence (3 Required)
M7	Delay Line	ET36X556	
M8	Degaussing Coil	ET36X764	
M9	Spark Gap		
M10	Spark Gap		
M11	Spark Gap		
S1	Switch	ET55X40	Normal-Service (DPDT - Slide)
S2	Switch	ET39X26	Video Peaking (3-Position Slide)

CABINETS & CABINET PARTS

(When Ordering Specify Model, Chassis & Color)

	MODELS M920BWD/-A	MODELS M930/931/932BWD/-A, M940BWD, M941BPM, M942BCL	MODELS M936/938/950BWD, M951BMP, M952BCL	
KNOBS	ET43X700	ET43X700		KNOBS
UHF Selector	ET43X700	ET43X700		UHF Selector
UHF Indicator	ET43X718	ET43X701		UHF Indicator
VHF Selector	ET43X742	ET43X641	ET43X639	VHF Selector
VHF Tuning	ET43X646	ET43X642	ET43X651	VHF Tuning
Volume	ET43X670	ET43X671	ET43X671	Volume
Dual Outer	ET43X674	ET43X675	ET43X675	Dual Outer
Secondary	ET43X672	ET43X673	ET43X673	Secondary
UHF Tuning	ET43X702	ET43X703		UHF Tuning
Safety Glass	ET94X110	ET94X110		Safety Glass
Mask	ET96X675	ET96X676	ET96X676	Mask

VHF TUNER PARTS LIST AND DESCRIPTION

VHF TUNER 86X248

TUBES

ITEM No.	USE	TYPE
V201	RF Amp.	6HQ5
V202	Mixer - Osc.	6HB7

CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C201A	27		DI-27	DD-270		CCD-270	GP427	10TS-Q27
B	27		DI-27	DD-270		CCD-270	GP427	10TS-Q27
C	27		DI-27	DD-270		CCD-270	GP427	10TS-Q27
D	27		DI-27	DD-270		CCD-270	GP427	10TS-Q27
C202	30 7.5%					*	*	10TCP-Q27
C203	27 500V N150 5%							
C204	.5-4.5							
C205	30 10%							
C206	.5-4.5							
C207	.001							
C208	.5-4.5							
C209	.001		EF-001	MFT-1000		CCF-102	CT280A	
C210	1		NPO-DI 1.0	TCZ-1			CNO510	10TCC-V10
C211	18							
C212	10 500V N080 5%					*		10TCN-Q10
C213	2.2 500V N150 ±.25					*	*	10TCP-V22
C214	.5-3.5							
C215	.75pf 500V 10%							
C216	.5-4.5							
C217	.001							
C218	.001 500V							
C219	.001							
C220	.001							
C221	.001							
C222	4.7 500V 10%		NPO-DI 4.7	DTZ-4R7		CCTO-4R7	CNO547	10TCC-V47

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

COILS (RF-IF)

ITEM No.	USE	G. E. PART No.	NOTES
L201	Balun		
L202	RF Choke		
L203	RF Choke		
L204	RF Choke		
L205	Ant., RF, Mixer Osc.	L-ET62X219	Chan. 2, IF Strip
L206	"	L-ET62X220	" 3 "
L207	"	L-ET62X221	" 4 "
L208	"	L-ET62X222	" 5 "
L209	"	L-ET62X223	" 6 "
L210	"	L-ET62X224	" 7 "
L211	"	L-ET62X225	" 8 "
L212	Ant., RF, Mixer Osc.	L-ET62X226	Chan. 9, IF Strip
L213	"	L-ET62X227	" 10 "
L214	"	L-ET62X228	" 11 "
L215	"	L-ET62X229	" 12 "
L216	"	L-ET62X230	" 13 "
L217	RF Choke		
L218	Mixer Plate	ET36X765	
L219	RF, Mixer, Osc.	L-ET62X218	UHF IF Strip
L220	UHF Input	ET36X766	
L221	RF Choke		

PARTS LIST AND DESCRIPTION

(When ordering parts, state Model, Part Number, and Description.)

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.

WIRING DATA

High Voltage Lead	Use BELDEN No.	8869 (17KV) or 8868 (25KV)
Shielded Hook-up Wire	Use BELDEN No.	8685 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No.	8530 (Solid) Available in 12 Colors 8524 (Stranded) Available in 12 Colors
Power Cord (Interlock Type)	Use BELDEN No.	8674 (Rubber) or 8895 (Plastic)
300Ω Tuner Input Lead	Use BELDEN No.	8225
300Ω Antenna Lead-in	Use BELDEN No.	8275 (Foam Core) or 8285 (Foam Jacketed)
Antenna Rotor Cable	Use BELDEN No.	8464 (Flat) or 8484 (Round) - 4 Conductor 8485 (Round) - 5 Conductor 8488 (Round) - 8 Conductor

TUBES

◆ AMPEREX ◆ GENERAL ELECTRIC ◆ RCA ◆ RAYTHEON ◆ SYLVANIA ◆						
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V201	RF Amp.	6HQ5	V8	Vert. Mult. - Vert. Output	6FM7
V202	Mixer - Osc.	6HB7	V9	Horiz. AFC - Horiz. Osc. - Horiz. Discharge	6BH11
V1	1st Video IF	6EH7	V10	Horiz. Output	6JS6
V2	2nd Video IF	6EH6	V11	Damper	6CG3
V3	3rd Video IF	6EJ7	V12	HV Rectifier	3AT2
V4	1st Video Amp. - Chroma Bandpass Amp.	6AU8	V13	HV Regulator	6SA4
V5	Video Output	12HG7	V14	B-Y Amp. - G-Y Amp. - R-Y Amp.	6AC10
V6	AGC Keying - Sound IF - Sync Separator	6M11	V15	Burst Amp. - 3.58MC Amp.	6AU8
V7	Audio Detector - Audio Output	6AL11			

PICTURE TUBE

ITEM No.	REPLACEMENT DATA G. E. PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	SYLVANIA PART No.	NOTES
V16	21FJP22A 21FBP22A	21FJP22A ①	21FJP22A ①	RE21FJP22 ② RE21FJP22A ②	① Aluminized ② Color Bright "85"

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA DELCO PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	NOTES	G. E. PART No.
Q301 Q1		UHF Oscillator Video Amp.	DS-74			NPN	ET15X27

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	MEASURED CURRENT	ORIGINAL Part or Type No.	RECTIFIERS & DIODES GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	RECTIFIERS MALLORY PART No.	RCA PART No.	SARKES TARZIAN PART No.
X1	.23A	ET57X30	GE-504A	SD600 or 10DB6A ①	1N1096 or FW600 ①	SK-3016 or SK-3017	F-6 or S-5959-2 ①
X2	.23A	ET57X30	GE-504A	SD600 or 10DB6A ①	1N1096 or FW600 ①	SK-3016 or SK-3017	F-6 or S-5959-2 ①
X3	.23A	ET57X30	GE-504A	SD600 or 10DB6A ①	1N1096 or FW600 ①	SK-3016 or SK-3017	F-6 or S-5959-2 ①
X4	.23A	ET57X30	GE-504A	SD600 or 10DB6A ①	1N1096 or FW600 ①	SK-3016 or SK-3017	F-6 or S-5959-2 ①
X5		ET57X32	GECR-1	61-8969			S-880
X6		ET57X31	GECR-2	61-8968			S-879
X7	.002A	ET57X30	GE-504A or GE-505	8D4 or 5A4-D	A50 or 1N536	SK-3016 or SK-3017	40C or F-4
X8A	.038A	ET57X33	GECR-3 ② or GE-505	8D4 or 5A4-D	A50 or 1N536	SK-3016 or SK-3017	S-5544 ② or 40C
B	.023A		GECR-3 ② or GE-505	8D4 or 5A4-D	A50 or 1N536	SK-3016 or SK-3017	S-5544 ② or 40C
C	.022A		GECR-3 ② or GE-505	8D4 or 5A4-D	A50 or 1N536	SK-3016 or SK-3017	S-5544 ② or 40C
X9		ET16X1	1N60	1N60			
X10		ET16X1	1N60	1N60			
X11		ET57X30	GE-504A or GE-505	8D4 or 5A4-D	A50 or 1N536	SK-3016 or SK-3017	40C or F-4
X12		ET16X11	1N60 or 6GC1 ③	1N60 or DD04 ③			
X13		ET16X11	1N60 or 6GC1 ③	1N60 or DD04 ③			
X14		ET57X30	GE-504A or GE-505	8D4 or 5A4-D	A50 or 1N536	SK-3016 or SK-3017	40C or F-4
X15		ET16X19 (1N636)	1N60	1N60			
X16		ET16X19 (1N636)	1N60	1N60			
X17		ET16X19 (1N636)	1N60	1N60			
X18		ET16X19 (1N636)	1N60	1N60			
X19		ET304X85 ④					
X20		ET16X19 (1N636)	1N60	1N60			
X21		ET16X19 (1N636)	1N60	1N60			

① A single unit replaces X1 thru X4.
② A single unit replaces X8A, B and C.
③ A single unit replaces X12 and X13.
④ Variable capacitor diode.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	G. E. PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	SPRAGUE PART No.
C1A	▪80	450	ET31X255		DD6890	XC3-36.1		TVL-4757.7
B	■80	450	(K-118J950-29)		BR16-250	QT1-1		
C	20	275						
D	▲2	450						
C2A	▪50	450	ET31X257	AFH4-108-35	DD0825.5	XC3-32	FP427.67	TVL-4714.6
B	20	50	(K-118J950-30)			QT1-15		
C	▲50	50						
D	80	450						
C3	50	150	ET31X258 (M124J857-31)	PRS1480	BR50-150	QT1-17	TC49	TVA-1414
C4	1	25	ET31X267 (K-132J806-4)	CRE600A	NLW1-50	MT1-1	TT25X1	TE-1200

CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA: AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C4	.047 400V		DBE4S47		DMF4S47	4DP-3-473	PVC4147	4PS-S47
C5	10 NPO		NPO-DI 10	DTZ-10	CZ601CG100J	CCTO-100	CNO410	10TCC-Q10
C6	150 NPO 5%		NPO-DI 150	DTZ-150		CCTO-150	CNO315	10TCC-T15
C7	.001		DI-1000	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10
C8	.001		DI-1000	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10
C9	.001		DI-1000	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10
C10	470 10%		DI-470	DD-471	JBZ601YP471K	CCD-471	GP347	10TS-T47
C11	.001		DI-1000	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10
C12	.001		DI-1000	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10
C13	.001		DI-1000	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10
C14	.001		DI-1000	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10
C15	.001		DI-1000	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10
C16	470 10%		DI-470	DD-471	JBZ601YP471K	CCD-471	GP347	10TS-T47
C17	.001		DI-1000	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10
C18	.0022 10%		DI-2200	DD-222	JBX601YP222K	CCD-222	GP222	10TS-D22
C19	.001		DI-1000	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10
C20	560 10%		DI-560	DD-561	JBY601YP561K	CCD-561	GP356	10TS-T56
C21	.001		DI-1000	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10
C22	100 NPO 5%		NPO-DI 100	DTZ-100	CV601CG101K	CCTO-101	CNO310	10TCC-T10
C23	4.7			DTZ-4R7		CCTO-4R7	CNO547	10TCC-V47
C24	620 10%		DD-601				GP369	10TS-T60
C25	.001		DI-1000	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10
C26	.1 100V		DBE2P1		DMF2P1	2DP-3-104	PVC201	2PS-P10
C27	.0022 10%		DI-2200	DD-222	JBX601YP222K	CCD-222	GP222	10TS-D22
C28	390		DI-390	DD-391		CCD-391	GP339	10TS-T39
C29	390 10%		DI-390	DD-391		CCD-391	GP339	10TS-T39
C30	680 10%		DI-680	DD-681	JBY601YP681K	CCD-681	GP368	10TS-T68
C31	1.5		NPO-DI 1.5	DTZ-1R5			CNO515	10TCC-V1R
C32	10 NPO 5%		NPO-DI 10	DTZ-10	CZ601CG100J	CCTO-100	CNO410	10TCC-Q10
C33	15 N750		N750-DI 15	DTN-15	CZ601UJ150J	CCTN-150	CN7415	10TCU-Q15
C34	33 NPO 10%		NPO-DI 33	DTZ-33	CS601CG330K	CCTO-330	CNO433	10TCC-Q33
C35	.01		DI-10000	DD-103	BYX601ZU103M	CCD-103	GP110	10TS-S10
C36	820 10%		DI-820	DD-821	JBY601YP821K	CCD-821	GP382	10TS-T82
C37	5 N220 10%	#ET18X530				*	*	10TCR-V56
C38	.005		DI-5000	DD-502	JBT601YP502K	CCD-502	GP250	10TS-D50
C39	.01		DI-10000	DD-103	BYX601ZU103M	CCD-103	GP110	10TS-S10
C40	7 N330 10%	#ET18X331				*	*	10TCS-V68
C41	.047 100V 10%		DBE2S47		DMF2S47	4DP-3-473	PVC2147	2PS-S47
C42	680 10%		DI-680	DD-681	JBY601YP681K	CCD-681	GP368	10TS-T68
C43	.0068 400V		DBE6D68	CPR-6800J	DMF6D68	6DP-1-682	PVC6268	6PS-D68
C44	.047	#ET22X139						HY-310
C45	.005 1KV		DI-5000	DD-502	JBT601YP502K	CCD-502	GP250	10TS-D50
C46	.01		DI-10000	DD-103	BYX601ZU103M	CCD-103	GP110	10TS-S10
C47	.001		DI-1000	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10
C48	.1 300V 10%		DBE4P1		DMF4P1	4DP-3-104	PVC601	4PS-P10
C49	.0033 10%		DI-3300	DD-332	JBV601YP332K	CCD-332	GP233	10TS-D33
C50	390 10%		DI-390	DD-391		CCD-391	GP339	10TS-T39
C51	.0015		DI-1500	DD-152		CCD-152	GP215	10TS-D15
C52	.47 200V		DBE2P47		DMF2P47	2DP-5-474	PVC2047	2PS-P47
C53	.033 600V 10%		DBE6S33		DMF6S33	6DP-2-333	PVC6133	6PS-S33
C54	.0022		DI-2200	DD-222	JBX601YP222K	CCD-222	GP222	10TS-D22
C55	.0068 400V 10%		DBE6D68	CPR-6800J	DMF6D68	6DP-1-682	PVC6268	6PS-D68
C56	680 10%		DI-680	DD-681	JBY601YP681K	CCD-681	GP368	10TS-T68
C57	680 10%		DI-680	DD-681	JBY601YP681K	CCD-681	GP368	10TS-T68
C58	.047 300V		DBE4S47		DMF4S47	4DP-3-473	PVC4147	4PS-S47
C59	.0082 1KV	#ET26X48				16DP-3-822		
C60	.1 600V		DBE6P1		DMF6P1	6DP-4-104	PVC601	6PS-P10
C61	.001 2KV 10%		HVD-30	DD30-102	HVY202XP102M	3CCD-102		30GA-D10
C62	.1 1KV		BE10P1		PKM10P1			
C63	100 N1500 3KV 10%					*	6HV-310	
C64	560 N3300 2.5KV 10%					*	*	
C65	560 N3300 2.5KV 10%					*	*	
C66	750		DI-750	DD-751		CCD-751	GP375	10TS-T75
C67	.47 100V		DBE4P22		DMF4P22	4DP-5-224	PVC4022	4PS-P22
C68	150 N220 10%	#ET18X536				*	*	10TCR-T15
C69	.0012 10%		DI-1200	DD-122G	JBS601YP122K	CCD-122	GP212	10TS-D12
C70	.0068 10%		DI-6800	DD-682	BYX601ZU682P	CCD-682	GP268	10TS-D68
C71	.0012		DI-1200	DD-122G	JBS601YP122K	CCD-122	GP212	10TS-D12
C72	.005 10%		DI-5000	DD-502	JBT601YP502K	CCD-502	GP250	10TS-D50
C73	.1 100V	(.27) †	DBE2P1		DMF2P1	2DP-3-104	PVC201	2PS-P10
C74	47 N330 10%			TCZ-47		*	*	10TCS-Q47
C75	.47 100V		DBE2P47		DMF2P47	2DP-5-474	PVC2047	2PS-P47
C76	.1 400V		DBE4P1		DMF4P1	4DP-3-104	PVC601	4PS-P10
C77	820 10%		DI-820	DD-821	JBY601YP821K	CCD-821	GP382	10TS-T82
C78	.0047 400V 10%		DBE4S47		DMF4S47	4DP-3-473	PVC4147	4PS-S47
C79	100 N220 10%	#ET18X567				*	*	10TCR-T10
C80	680 10%		DI-680	DD-681	JBY601YP681K	CCD-681	GP358	10TS-T68
C81	.01 400V		DBE6S1	CPR-10000J	DMF6S1	6DP-1-103	PVC611	6PS-S10
C82	680		DI-680	DD-681	JBY601YP681K	CCD-681	GP368	10TS-T68
C83	130 N2200 6KV	#ET18X458				*	*	
C84	.01 1.4KV			CI-103		ACT142ZU103P		UAC110 125L-S10
C85	.1 600V		DBE6P1		DMF6P1	6DP-4-104	PVC601	6PS-P10
C86	.01 1KV		DI-10000	DD-103	BYX601ZU103M	CCD-103	GP110	10TS-S10
C87	.01 1.4KV			CI-103		ACT142ZU103P		UAC110 125L-S10
C88	82 6KV 10%		HVD-60-82	DD60-820		6CCD-820		60GA-Q82
C89	33 4KV 10%		HVD-60-33	DD60-330		6CCD-330		60GA-Q33
C90	.022 200V 10%		DBE4S22		DMF4S22	4DP-2-223	PVC6122	4PS-S22
C91	.068 600V 10%		DBE6S68		DMF6S68	6DP-4-683	PVC6168	6PS-S68
C92	.068 600V 10%		DBE6S68		DMF6S68	6DP-4-683	PVC6168	6PS-S68
C93	22 N750 1KV		N750-DI 22	DTN-22	CZ601UJ220K	CCTN-220	CN7422	10TCU-Q22
C94	.01		DI-10000	DD-103	BYX601ZU103M	CCD-103	GP110	10TS-S10
C95	.1 600V		DBE6P1		DMF6P1	6DP-4-104	PVC601	6PS-P10
C96	110 N1500 5%	#ET18X580						
C97	300 5%		ADM-15-301	CPR-300J	CD15F301J500	DM-15-331	SX333	MS-333
C98	820							

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

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.

CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA: AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C99	330 5%		ADM-15-331	CPR-330J	CD15F331J500	DM-15-331	SX333	MS-333
C100	.001		DI-1000	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10
C101	.0018 5%		DBE6D18	CPR-180GJ	PKM6D18			6PS-D18
C102	.005 10%		DI-5000	DD-502	JBT601YP502K	CCD-502	GP250	10TS-D50
C103	18 5%		ADM-15-180		CD15C180J500	DM-15-180	SX418	MS-418
C104	.033 300V		DBE4S33		DMF4S33	4DP-2-333	PVC6133	4PS-S33
C105	.001		DI-1000	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10
C106	.005		DI-5000	DD-502	JBT601YP502K	CCD-502	GP250	10TS-D50
C107	.005		DI-5000	DD-502	JBT601YP502K	CCD-502	GP250	10TS-D50
C108	.01		DI-10000	DD-103	BYX601ZU103M	CCD-103	GP110	10TS-S10
C109	3.3 NPO		NPO-DI 3.0	DTZ-3R3		CCTO-3R3	CNO533	10TCC-V30
C110	20 NPO		NPO-DI 20	DTZ-20		CCTO-200	CNO420	10TCC-Q20
C111	20 NPO		NPO-DI 20	DTZ-20		CCTO-200	CNO420	10TCC-Q20
C112	.01		DI-10000	DD-103	BYX601ZU103M	CCD-103	GP110	10TS-S10
C113	12-50	#ET30X83						
C114	20 NPO		NPO-DI 20	DTZ-20		CCTO-200	CNO420	10TCC-Q20
C115	.01		DI-10000	DD-103	BYX601ZU103M	CCD-103	GP110	10TS-S10
C116	12-50	#ET30X83						
C117	20 NPO		NPO-DI 20	DTZ-20		CCTO-200	CNO420	10TCC-Q20
C118	.01		DI-10000	DD-103	BYX601ZU103M	CCD-103	GP110	10TS-S10
C119	.001 1KV		DI-1000	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10
C120	.001 1KV		DI-1000	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10
C121	.001 1KV		DI-1000	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10
C122	.001 1KV		DI-1000	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10
C123	.001 1KV		DI-1000	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10
C124	.047 600V		DBE6S47		DMF6S47	6DP-3-473	PVC6147	6PS-S47
C125	.047 600V		DBE6S47		DMF6S47	6DP-3-473	PVC6147	6PS-S47
C126	.1 200V		DBE2P1		DMF2P1	2DP-3-104	PVC201	2PS-P10
C127	.1 400V		DBE4P1		DMF4P1	4DP-3-104	PVC601	4PS-P10
C128	.056 400V 10%		DBE6S56		PKM4S56	4DP-3-563	PVC4056	4PS-S56
C129	.1 200V		DBE2P1		DMF2P1	2DP-3-104	PVC201	2PS-P10
C130	.12 200V 10%					2MPD-3-124		
C131	.082 200V 10%		DBE6S82		DPMS6S82	6DP-4-823		6PS-S82
C132	.033 200V		DBE4S33		DMF4S33	4DP-2-333	PVC6133	4PS-S33
C133	.001		DI-1000	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10
C134	22 10%		DI-22	DD-220		CCD-220	GP422	10TS-Q22
C135	10 5% NPO		NPO-DI 10	DTZ-10	CZ601CG100J	CCTO-100	CNO410	10TCC-Q10
C136	1.1 N750 ±1pf	#ET18X593						
C137	.0068 10%		DI-6800	DD-682	BYX601ZU682P	CCD-682	GP268	10TS-D68
C138	.01		DI-10000	DD-103	BYX601ZU103M	CCD-103	GP110	10TS-S10

* General Electric Part Number
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

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

ITEM No.	USE	RESISTANCE	REPLACEMENT DATA: G. E. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1	Volume/Switch	1meg, 200K Tap	ET49X372 (23B210040-1)	F12-1meg①, SP212, KR-8	C47SF-1meg①, RS-3/16	B13-137X①, SK8 or (PPQ13-137X① SK8) or (BU1, CF44T①, SS11, K) *	PP16T25①, D37 or (RUP16T254①, SL35)
R2A	Color (Chroma Gain)	500Ω	ET49X598	F1-500,		† QJ-2254	
B	Tint	100K	(23B210022-3)	R2-100K, FK010, RK104			
R3A	Vert. Hold	750K	ET49X576	F1-750K,		▲ QJ-2252	
B	Horiz. Hold	5000Ω	(23B210022-2)	R2-5000, FK010, RK104			
R4A	Contrast	368Ω, 175Ω Tap	ET49X577 (23B210022-1)	F51-750, R1-250K, FK010, RK104		■ QJ-2253	
B	Brightness	250K					
R5	AGC	6000Ω, 2W	ET49X435 (P126J365-3)	V-5000 or (WN-5000)	U39-5000 or (NPW-5000, UP-C-400, TT-2)	P115J502A or (W11-214, SK3) or (BU1, WF8, SS6) *	MR5000T or (VW5K) or (C6MP)
R6	Green Drive	6000Ω	ET49X470 (P126J484-11)	F1-7500, SNK104, AK-38	A47-7500-S, RN-3, TT-2	B11-115, TM4 or (BU11, CF8, SS6)*	HVC63L
R7	Blue Drive	6000Ω	ET49X469 (P126J484-12)	F1-7500, SNK104, AK-38	A47-7500-S, RN-3, TT-2	B11-115, TM4 or (BU11, CF8, SS6)* HLC-3	HVC63L
R8	Vert. Linearity	3.4meg	ET49X442 (P126J484-16)	F1-3meg, SNK104, AK-38			HVC355L
R9	Vert. Height	100K	ET49X436③ (P126J484-6)	F1-150K, SNK010	B47-150K-S or (NP-150K-S, UP-C-400, TT-2)	B11-328, TM4 or (BU11, CF72, SS6) *	RU1841, SL37, SN1000 or (UA1253L, SN1000) or (U415)
	Vert. Height	130K	ET49X606④	F1-150K, SNK010	B47-150K-S or (NP-150K-S, UP-C-400, TT-2)	B11-328, TM4 or (BU11, CF72, SS6) *	RU1841, SL37, SN1000 or (UA1253L, SN1000) or (U415)
R10	Vert. Centering	10Ω 2W	ET49X373 (P126J365-2)	V-10② or (WN-100)	U39-10② or (NPW-10, UP-C-400, TT-2)	P115R100A or (W11-010, SK5) or (BU1, WF16, SS6) *	MR10T or (C10P) or (VW10)
R11	High Voltage Adjust	500K	ET49X437 (P126J484-4)	TT-59 or (F1-500K, SNK010)	B47-500K-S	B11-133, TM4 or (BU11, CF16, SS6) *	PTA55L or (RU851L, SL37, SN281) or (UA851L, SN281)
R12	Red Screen	1.5meg	ET49X472 (P126J484-13)	F1-1.5meg, SNK104, AK-38		B11-138, TM4 or (BU11, CF18, SS6) *	HVC155L
R13	Green Screen	1.5meg	ET49X471 (P126J484-14)	F1-1.5meg, SNK104, AK-38		B11-138, TM4 or (BU11, CF18, SS6) *	HVC155L
R14	Blue Screen	1.5meg	ET49X473 (P126J484-15)	F1-1.5meg, SNK104, AK-38		B11-138, TM4 or (BU11, CF18, SS6) *	HVC155L
R15	Horiz. Centering	10Ω 2W	ET49X486 (P126J365-9)			BU1, WF16, SS6 *	MR10T, MRS1250
R16	Adjacent Sound Reject	10K	ET49X354				
R17	Sound Reject	750Ω	ET49X557 (M128J553-7)			U201R102B	MTC751L4
R18	Red Balance	1500Ω	ET49X571 (M128J554-10)				MTC152L4
R19	Green Balance	1500Ω	ET49X571 (M128J554-10)				MTC152L4
R20	Blue Balance	1500Ω	ET49X571 (M128J554-10)				MTC152L4

CONTROLS (cont)

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

ITEM No.	USE	RESISTANCE	REPLACEMENT DATA: G. E. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R21	R/G Horiz. Lines (Bottom)	150Ω 2W	ET49X360 (P126J365-8)	V-150	U39-150	110C150	MRC150P
R22	R/G Horiz. Lines (Top)	30Ω 2W	ET49X359 (P126J365-7)	V-30	U39-50	110C30	MRC30P
R23	R/G Horiz. Lines (Left Side)	60Ω 2W	ET49X358 (P126J365-5)	V-60	U39-75	110C60	MRC60P
R24	R/G Vert. Lines (Bottom)	120Ω 2W	ET49X357 (P126J365-6)	V-120	U39-125	110C120	MRC120P
R25	R/G Vert. Lines (Top)	60Ω 2W	ET49X358 (P126J365-5)	V-60	U39-75	110C60	MRC60P
R26	R/G Vert. Lines (Left Side)	60Ω 2W	ET49X358 (P126J365-5)	V-60	U39-75	110C60	MRC60P
R27	Blue Horiz. Lines (Bottom)	30Ω 2W	ET49X359 (P126J365-7)	V-30	U39-50	110C30	MRC30P
R28	Blue Horiz. Lines (Top)	60Ω 2W	ET49X358 (P126J365-5)	V-60	U39-75	110C60	MRC60P
R29	Blue Horiz. Lines (Left Side)	120Ω 2W	ET49X357 (P126J365-6)	V-120	U39-125	110C120	MRC120P

† "CONCENTRIKIT" Equivalent: K-5 Kit with Base Elements and Shafts: B11-103, P9-021 (Panel), B13-129, R11-106 (Rear).
▪ "CONCENTRIKIT" Equivalent: K-5 Kit with Base Elements and Shafts: B11-136, P9-021 (Panel), "SNAPTROL" Equivalent: BU4, CF64, CR51, SF52, SR67, DC1. B13-114, R11-108 (Rear).
■ "CONCENTRIKIT" Equivalent: K-5 Kit with Base Elements and Shafts: B17-103X, P9-021 (Panel), "SNAPTROL" Equivalent: BU4, CF48T, CR10, SF52, SR67, DC1. B11-130, R11-108 (Rear).
① Tie point incorporated in the original Volume/Switch control should be provided for in another manner.
② Insulate control from chassis and solder original center terminal lead to metal case of control.
③ Used in early production. Replace with Part #ET49X606 (130K).
④ Use in late production and as replacement for Part #ET49X436.

* "SNAPTROL"

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA: IRC PART No.	WORKMAN PART No.	G. E. PART No.
R32	6800Ω 5W		5G-6.8K	ET14X190
R34	15K 4W		5G-14K	ET14X145
R82	4300Ω 7W	PW10-4500	7G-4.3K	ET14X188
R97	V.D.R. † 1480V @ 15ma			ET14X179
R104	3900Ω 4W	PW5-3900	4G-3.9K	ET14X177
R105	5600Ω 3W		3G-5.6K	ET14X116
R111	Thermistor 3.8Ω Cold		FR-3.8	ET14X147
R134	13K 7W	PW10-12.5K	7G-14K	ET14X150
R136	66meg 6KV	MV-66M	66M	ET14X186

ITEM No.	RATING	REPLACEMENT DATA: IRC PART No.	WORKMAN PART No.	G. E. PART No.
R187	5600Ω 7W	PW10-6000	7G-5.6K	ET14X116
R190	39K 3W		4G-39K	
R194	Thermistor 120Ω Cold		FS-902	ET14X195
R195	V.D.R. †		FR-066	ET14X196
R198	800Ω 18W	2C-800	2W-SQ-800	ET14X189
R199	250Ω 5W	PW5-250	5W-SQ-250	
R200	1460Ω 7W	PW10-1500	10W-SQ-1500	ET14X204
R201	9000Ω 3W (2200Ω 3W)	PW5-800 PW5-2250	5W-SQ-800 5W-SQ-2.25K	

† Voltage Dependent Resistor

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA: G. E. PART No.	MEISSNER Part No.	MERIT PART No.	MILLER PART No.	WORKMAN PART No.
L1	47.25MC Trap	ET36X540				
L2	1st Video IF	ET61X125			7514-E	
L3	2nd Video IF	ET61X154			7511-W	
L4	3rd Video IF	ET61X155			7526	
L5	4th Video IF/ 4.5MC Trap	ET61X142			6037	
L6	RF Choke (12uh)	ET36X542	19-2016	BC-566	74F125AP	TA343
L7	4.5MC Trap	ET61X121			7142	TA264
L8	Peaking (36uh)	ET36X583	19-3036	TV-180	6176	T301
L9	Peaking (620uh)	ET36X693	19-2030	TV-205	6146	T326
L10	Peaking (330uh) 7%	ET36X134	19-3330	TV-200	6132	T319
L11	Peaking (33uh) 10%	ET36X806				TA319
L12	Peaking (72uh)	ET36X794 ②	19-3075 *		6172 *	T305 *
L13	Peaking (31uh) 7%	ET36X802	19-6033		72F135AP	T972
L14	Dual Peaking (340/140uh)	ET61X168			7600	
L15	RF Choke (5.6uh)	ET36X536	19-1008		74F566AP	T820
L16	RF Choke (12uh)	ET36X546	19-1010	BC-566	74F125AP	T985
L17	RF Choke (1.8uh)	ET36X541	19-1001	BC-562	74F186AP	TA819
L18	RF Choke (5.6uh)	ET36X536	19-1008		74F566AP	T820
L19	1st Sound IF	ET36X793			7118-W ▲	
L20	2nd Sound IF	ET61X164				
L21	Quadrature	ET36X61				
L22	Peaking (4.3uh)	ET36X796	19-1003	BC-564	74F396AP	T858
L23	Chroma Takeoff	ET36X795				
L24	Chroma Bandpass	ET61X140				
L25	RF Choke (5.6uh) 1%	ET36X536	19-1008		74F566AP	T820
L26	Peaking (100uh) 7%	ET36X433	19-2025	TV-194	72F104AP	T305
L27	Peaking (1.5mh)	ET36X797			(RU851L, SL37, SN281) or (UA851L, SN281)	
L28	Peaking (100uh) 7%	ET36X433	19-2025	TV-194	72F104AP	T305
L29	Burst Amp.	ET61X167				
L30	Crystal Tuning	ET36X798				
L31	B-Y Amp.	ET36X166				
L32	3.58MC Oscillator	ET61X176 ①				
L33	Peaking (100uh) 7%	ET36X433	19-2025	TV-194	72F104AP	T305
L34	Peaking (100uh) 7%	ET36X433	19-2025	TV-194	72F104AP	T305
L35	Peaking (100uh) 7%	ET36X433	19-2025	TV-194	72F104AP	T305
L36	Peaking (100uh) 7%	ET36X433	19-2025	TV-194	72F104AP	T305
L37	Peaking (100uh) 7%	ET36X433	19-2025	TV-194	72F104AP	T305
L38	Peaking (100uh) 7%	ET36X433	19-2025	TV-194	72F104AP	T305
L39	Peaking (2.6mh) 10%	ET36X799 ③				
L40	Peaking (2.6mh) 10%	ET36X799 ③				
L41	Peaking (2.6mh) 10%	ET36X799 ③				
L42	RF Choke (5.6uh) 10%	ET36X536	19-1008		74F566AP	T820
L43	RF Choke (5.6uh) 10%	ET36X536	19-1008		74F566AP	T820
L44	AC Line Choke (55uh)	ET36X805			5250	
L45	AC Line Choke (55uh)	ET36X805			5250	

① Part #ET61X165 is used in Chassis stamped (EN-105) or lower.
② Wound on 3300Ω Resistor.
③ Wound on 47K Resistor.

* Shunt with 3300Ω Resistor.
▲ Shunt with 56pf Capacitor.

GENERAL ELECTRIC CHASSIS CB-21" Version

FOLDER 1