

CABINET-REAR VIEW

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

Remove knobs from cabinet front and rear, remove six screws holding cabinet back and remove back. Disconnect HV anode, CRT socket, deflection yoke connector, degaussing coil connector, speaker connector and ground leads. Remove one screw holding antenna terminal and rear control assembly to cabinet top and remove assembly from cabinet. Remove seven screws holding tuner assembly and control assembly to cabinet front and remove assemblies from cabinet. Release latch holding main chassis to cabinet bottom and slide chassis out of cabinet.

CRT REMOVAL

Follow "Chassis Removal" procedure and lay set facedown on a soft protective surface. Loosen and remove CRT neck assemblies, remove four nuts holding degaussing shield and CRT to cabinet front. Lift shield out of cabinet and lift CRT out of cabinet. Do not lift CRT by the neck.

SERVICING IN THE FIELD

CRT IMPLOSION PROTECTION AND CLEANING

Implosion protection is an integral part of the picture tube, cleaning accomplished without CRT removal.

FUSE DEVICES

A 1.2-amp fuse is used for low-voltage power-supply protection. (See photo, Cabinet - Rear View.)

A 3-amp fuse is used for AC line protection. (See photo, Cabinet - Rear View.)

VHF TUNER

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

UHF TUNER

The UHF tuner employs a detent mechanism for channel selection. Fine tuning is adjusted by rotating the fine tuning knob.

HORIZONTAL OSCILLATOR

Adjustment of the horizontal hold is accomplished by the proper setting of the horiz hold control. (See Placement Chart.)

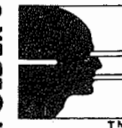
FOCUS

The focus may be varied by a focus control. (See photo, Cabinet - Rear View.)

AGC

The AGC may be varied by an AGC Delay Control. (See Placement Chart.)

SET 2050 FOLDER 3



PHOTOFACT® Folder

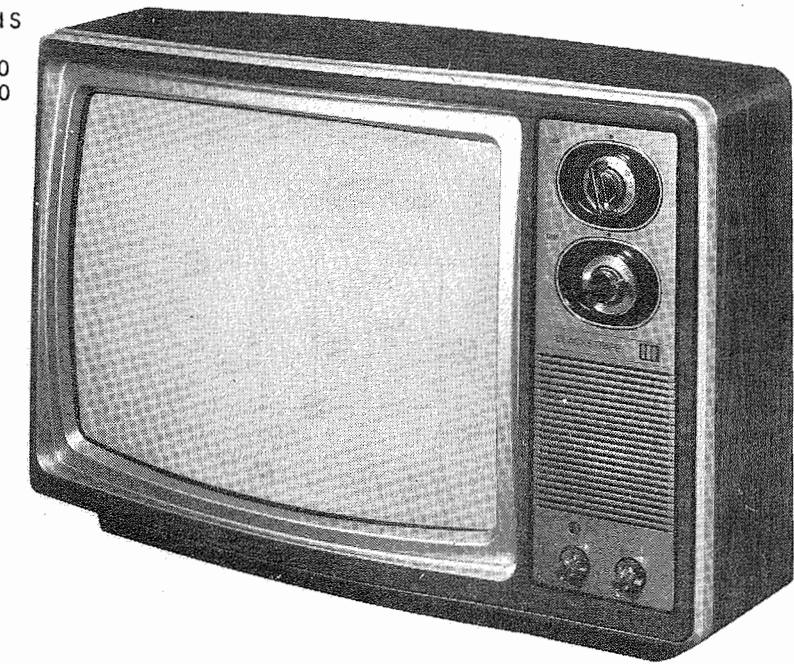
with **CIRCUITRACE™**

For Supplier Address See PHOTOFACT® Index

TOSHIBA MODELS
CA910, CA910C

COLOR TV

MODEL CHASSIS
CA910 TAC030
CA910C TAC060



Model CA910

SAFETY PRECAUTIONS

See page 4.

SERVICE INFORMATION

See page 29.

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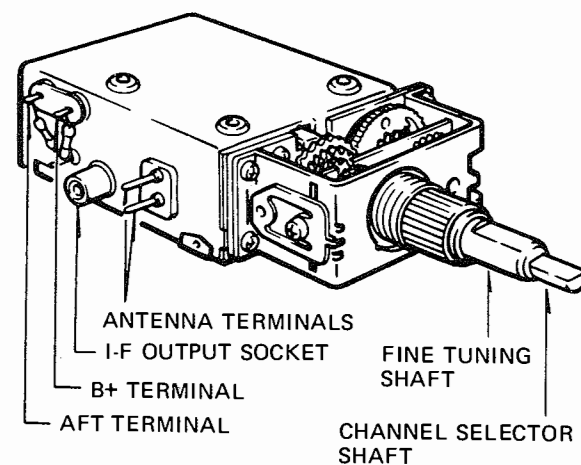
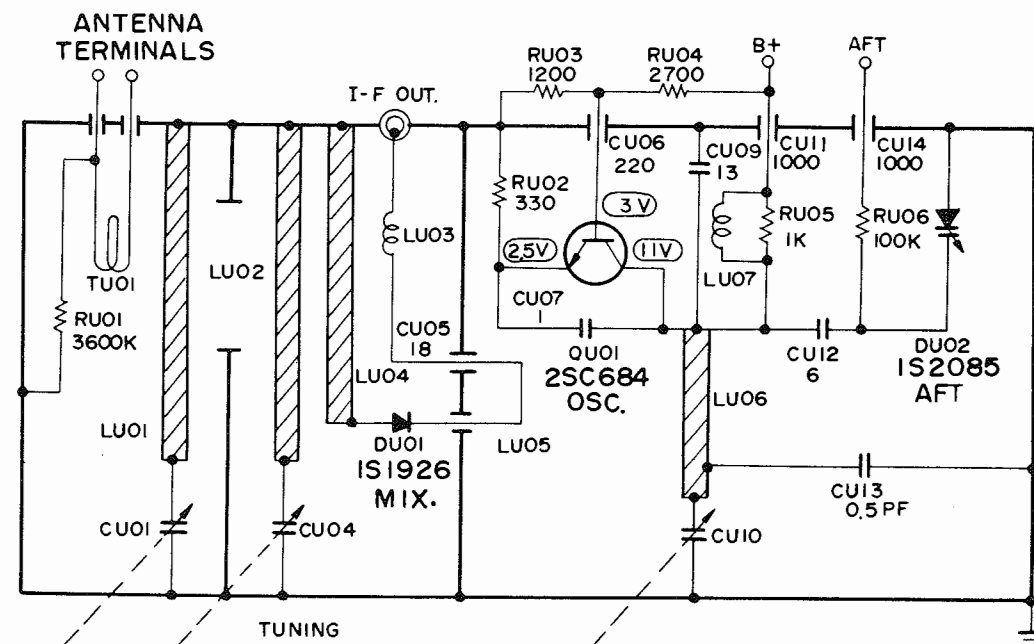


The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. 82PD01308

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WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION," "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE"

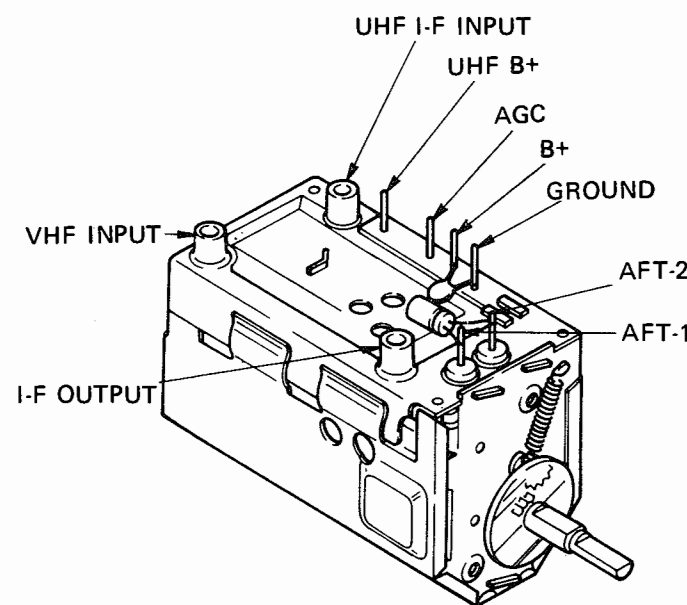
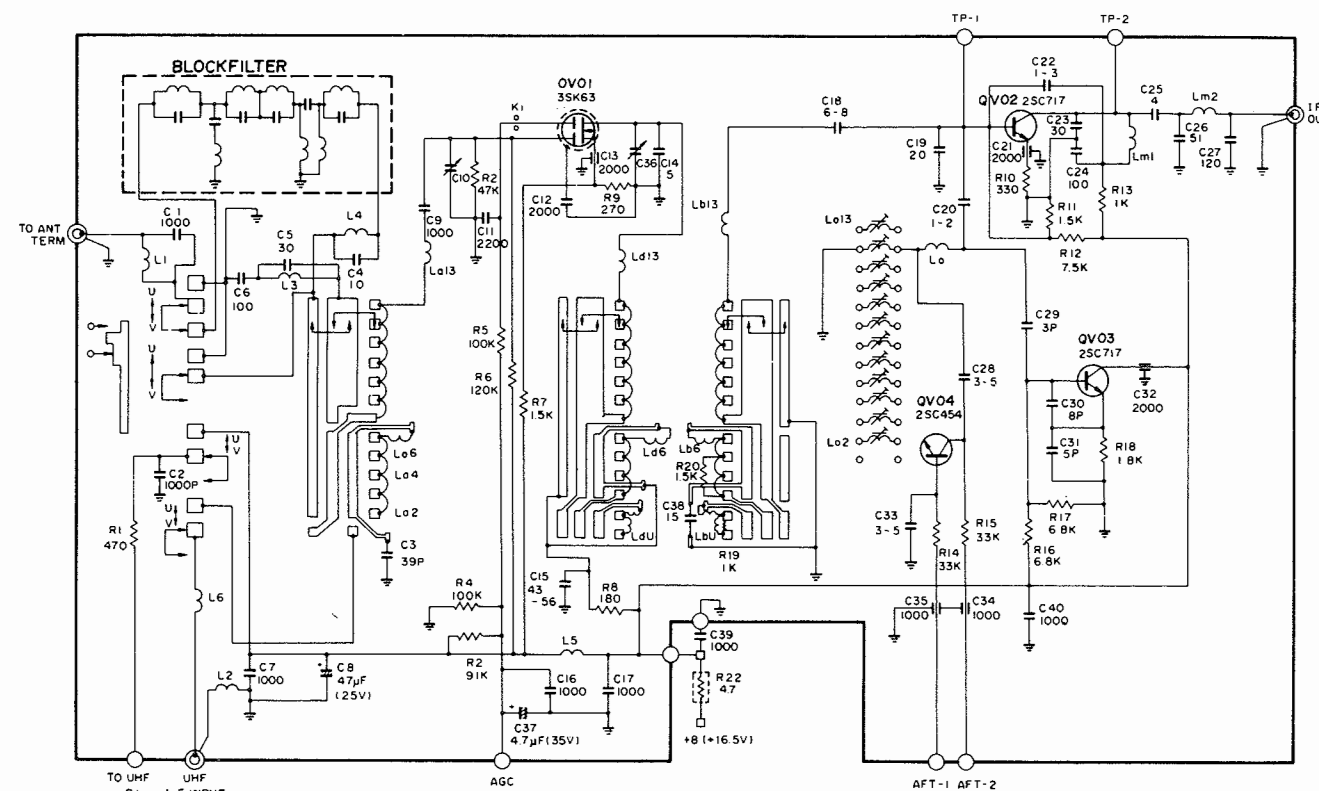
UHF TUNER INFORMATION UT351EAX1



UHF TUNER REPLACEMENT PARTS LIST

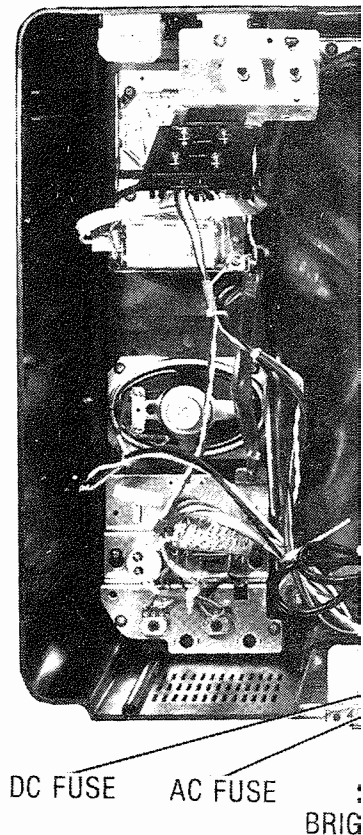
LOCATION NUMBER	PART NUMBER	DESCRIPTION
⚠ H001	23121951	UHF Tuner, UT351EAX1
QU01	23126620	NPN Transistor, 2SC684, OSC.
DU01	23115972	Diode, 1S1926, Mixer
DU02	23126622 or 23115971	Diode, 1S2085, AFT

VHF TUNER INFORMATION DL416M



VHF TUNER REPLACEMENT PARTS LIST

LOCATION NUMBER	PART NUMBER	DESCRIPTION
⚠ H002	23121881	VHF Tuner, DL416M
QV01	A6053001	MOS-FET, 3SK63, R-F Amp.
QV02	23114341	NPN Transistor, 2SC717, Mixer
QV03	23114341	NPN Transistor, 2SC717, OSC.
QV04	23114342	NPN Transistor, 2SC454, AFT



DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

Remove knobs from cabinet. Move six screws holding cabinet back. Disconnect HV anode, deflection yoke connector, degaussing coil connector, and ground screw holding antenna terminal assembly to cabinet top. Remove tuner assembly and control panel from front and remove assemblies. Release latch holding main chassis bottom and slide chassis out.

SERVICING IN THE FIELD

CRT IMPLSION PROTECTION AND PRECAUTIONS

Implosion protection is an important safety feature of the picture tube, cleaning according to instructions.

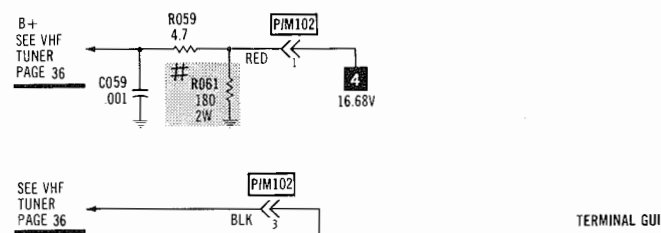
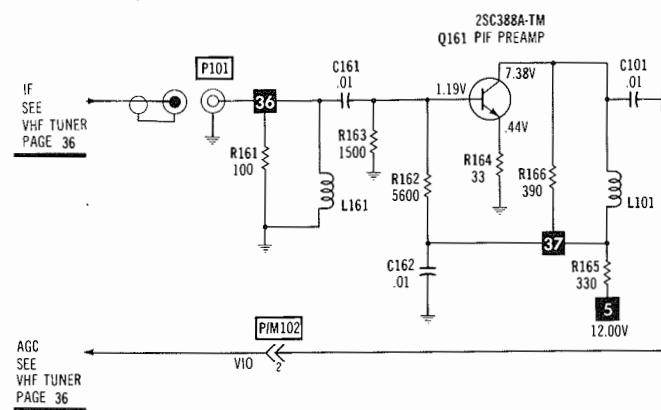
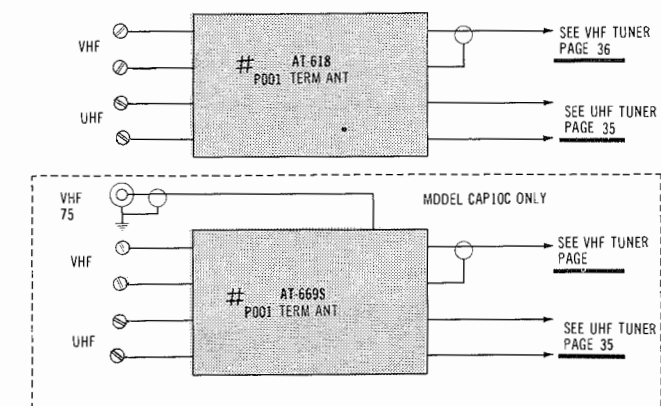
FUSE DEVICES

A 1.2-amp fuse is used for supply protection. (See photo, Cabinet - Rear View.)

A 3-amp fuse is used for line protection. (See photo, Cabinet - Rear View.)

VHF TUNER

The fine tuning mechanically adjusts the slug for adjustment (one turn).

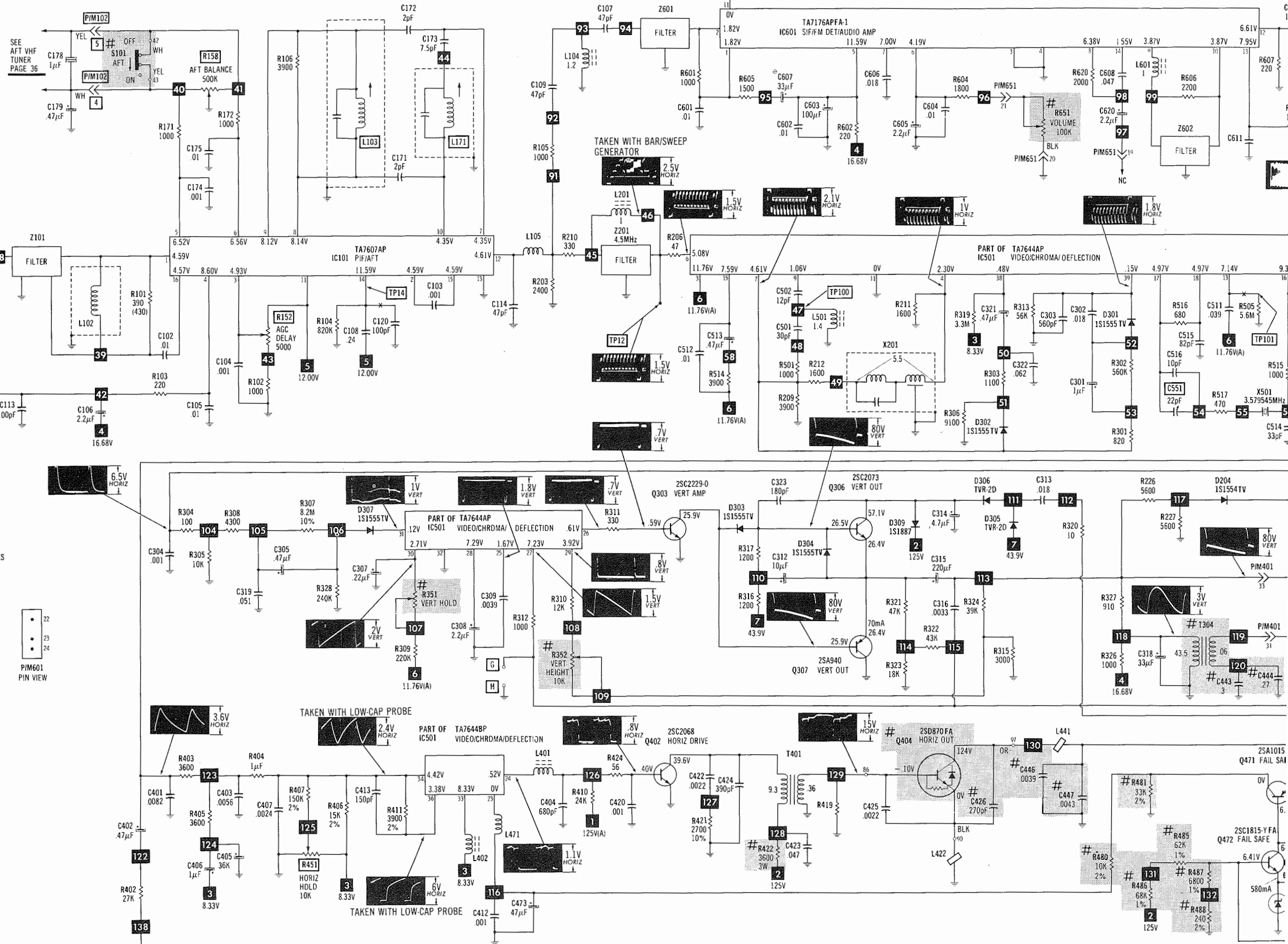


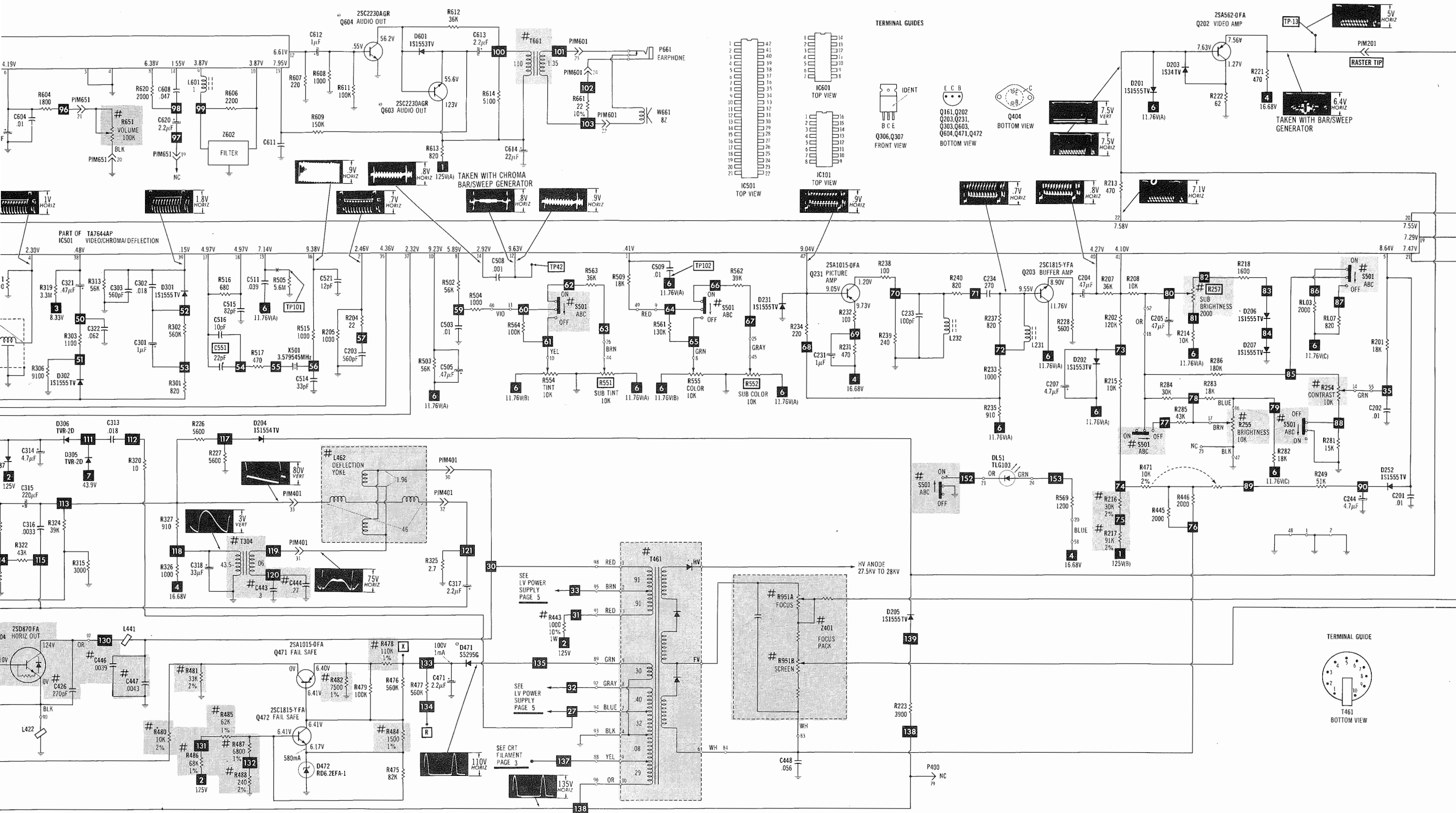
For SAFETY use only equivalent replacement part.

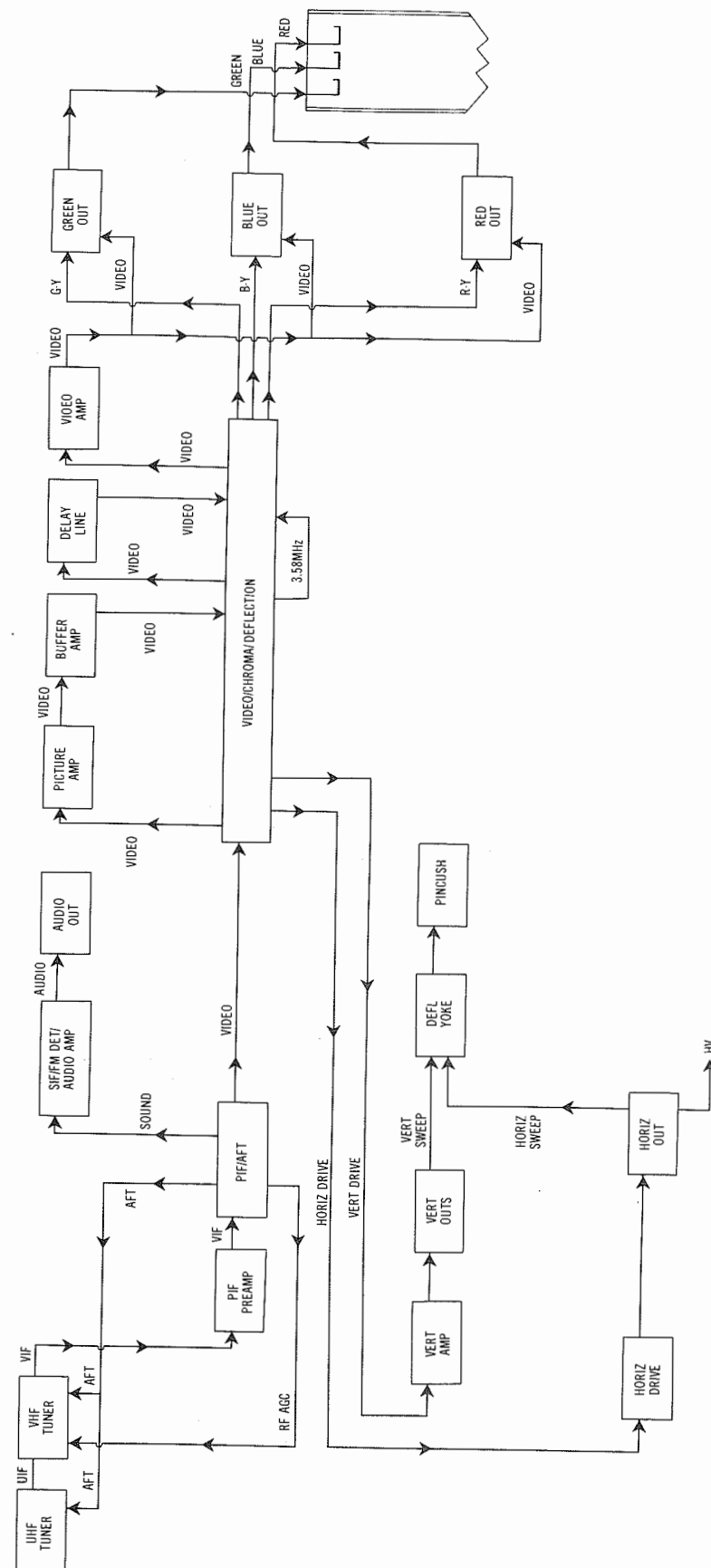
- Circuitry not used in some versions
- - - Circuitry used in some versions
- ⊖ See parts list
- ⊕ Ground
- ⚡ Taken with bar sweep generator.
- ⚡ Chassis

Waveforms: triggered scope, keyed rainbow generator
 Item numbers in rectangles appear in the alignment/adjustment instructions.
 Supply voltage maintained as shown at input.
 Voltages measured with digital meter, no signal.
 Controls adjusted for normal operation.
 Terminal identification may not be found on unit.
 Resistors are 1/2W or less, 5% unless noted.
 Value in () used in some versions.

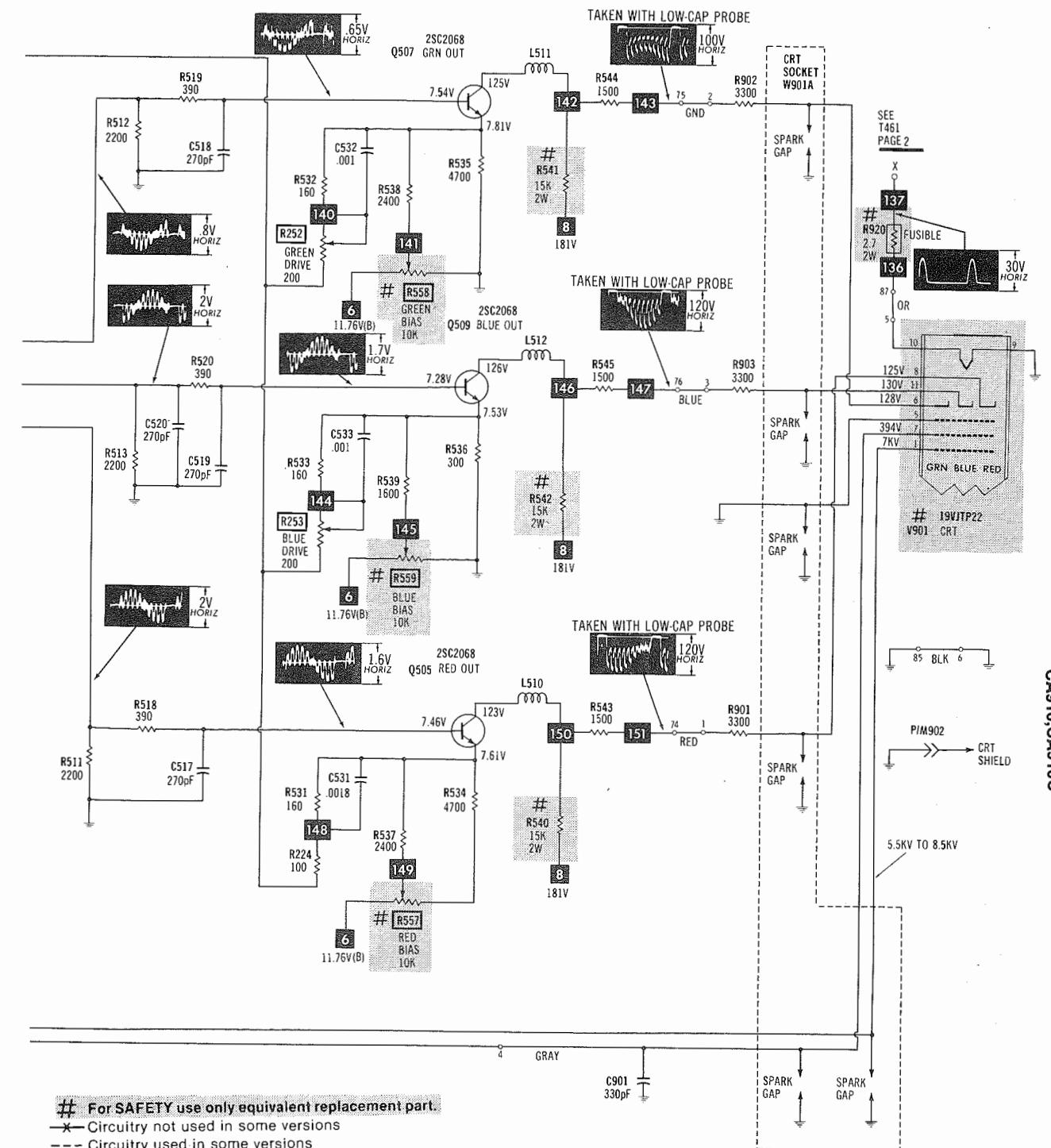
A PHOTOFAC STANDARD NOTATION SCHEMATIC
 WITH **CIRCUITRACE**
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BLOCK DIAGRAM



For SAFETY use only equivalent replacement part.

—X— Circuitry not used in some versions

--- Circuitry used in some versions

④ See par

✱ Nominal value

 Nominal
 Ground

Waveforms: triggered scope, keyed rainbow generator

Item numbers in rectangles appear in the alignment/adjustment instructions.

Supply voltage maintained as shown at input.

Voltages measured with digital meter, no signal.

Controls adjusted for normal operation.

Terminal identification may not be found on unit.

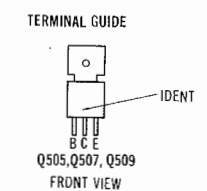
Resistors are 1/2W or less, 5% unless noted.

Value in () used in some versions.

A PHOTOFAC STANDARD NOTATION SCHEMATIC

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TOSHIBA MODELS
CA910 CA910C

FOLDER 3

SAFETY PRECAUTIONS

X-RAY RADIATION PRECAUTION

1. Excessive high voltage can produce potentially hazardous X-RAY RADIATION. To avoid such hazards, the high voltage must not be above the specified limit. The nominal value of the high voltage of this receiver is 28.7kv at zero beam current (minimum brightness) under a 120v AC power source. The high voltage must not, under any circumstances, exceed 30.4kv. Each time a receiver requires servicing, the high voltage should be checked following the HIGH VOLTAGE CHECK procedure. It is recommended the reading of the high voltage be recorded as a part of the service record. It is important to use an accurate and reliable high voltage meter.

2. This receiver is equipped with a Fail Safe (FS) circuit which prevents the receiver from producing an excessively high voltage even if the B + voltage increases abnormally. Each time the receiver is serviced, the FS circuit must be checked to determine that the circuit is properly functioning, following the FS CIRCUIT CHECK procedure.

3. The only source of X-RAY RADIATION in this TV receiver is the picture tube. For continued X-RAY RADIATION protection, the replacement tube must be exactly the same type tube as specified in the parts list.

4. Some parts in this receiver have special safety-related characteristics for X-RAY RADIATION protection. For continued safety, parts replacement should be undertaken only after referring to the PRODUCT SAFETY NOTICE below.

SAFETY PRECAUTION

WARNING: Service should not be attempted by anyone unfamiliar with the necessary precautions on this receiver. The following are the necessary precautions to be observed before servicing this chassis.

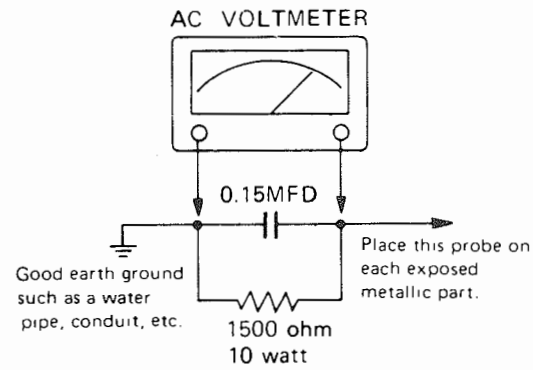
1. Since the chassis of this receiver is directly connected to the AC power line—(Hot chassis), an isolation transformer should be used during any dynamic service to avoid possible shock hazard.

2. Always discharge the picture tube anode to the CRT conductive coating before handling the picture tube. The picture tube is highly evacuated and if broken, glass fragments will be violently expelled. Use shatter proof goggles and keep picture tube away from the unprotected body while handling.

3. When replacing a chassis in the cabinet, always be certain that all the protective devices are put back in place, such as; non-metallic control knobs, insulating covers, shields, isolation resistor-capacitor network etc.

4. Before returning the set to the customer, always perform an AC leakage current check on the exposed metallic parts of the cabinet, such as antennas, terminals, screwheads, metal overlays, control shafts etc. to be sure the set is safe to operate without danger of electrical shock. Plug the AC line cord directly into a 120v AC outlet (do not use a line isolation transformer during this check). Use an AC voltmeter having 5000 ohms per volt or more sensitivity in the following manner:

Connect a 1500 ohm 10 watt resistor, paralleled by a 0.15 mfd, AC type capacitor, between a known good earth ground (water pipe, conduit, etc.) and the exposed metallic parts, one at a time. Measure the AC voltage across the combination of 1500 ohm resistor and 0.15 mfd capacitor. Reverse the AC plug at the AC outlet and repeat AC voltage measurements for each exposed metallic part. Voltage measured must not exceed 0.3 volts RMS. This corresponds to 0.2 milliamp. AC. Any value exceeding this limit constitutes a potential shock hazard and must be corrected immediately.



PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These characteristics are often passed unnoticed by a visual inspection and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this manual and its supplements; electrical components having such features are identified by shading on the schematic diagram. Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts which do not have the same safety characteristics as specified in the parts list may create shock, fire, X-ray radiation or other hazards.

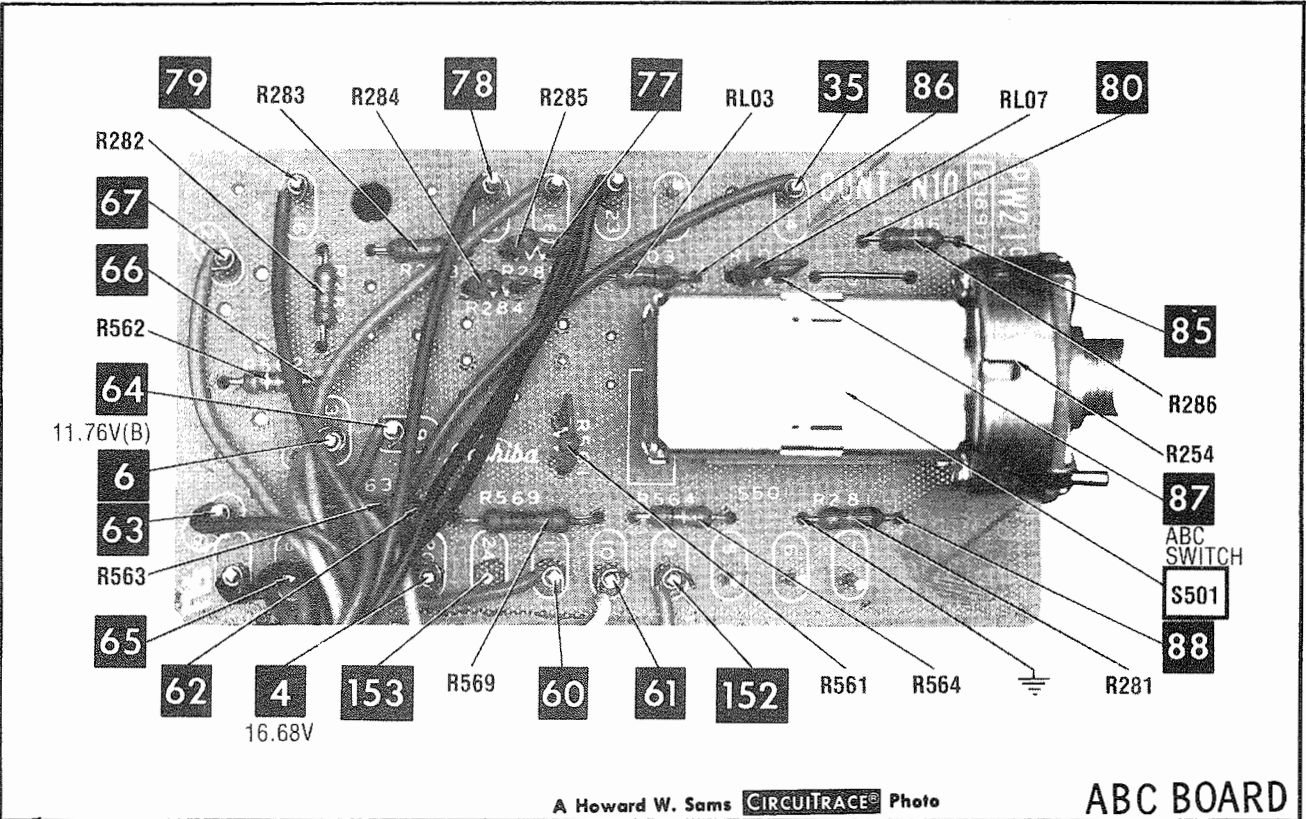
SERVICE NOTES

1. When replacing parts or circuit boards, clamp the lead wires to terminals before soldering. (Specially for Fail Safe Board.)

2. When replacing a high wattage resistor (oxide metal film resistor) on circuit board, keep the resistor 10mm (½ in.) away from circuit board.

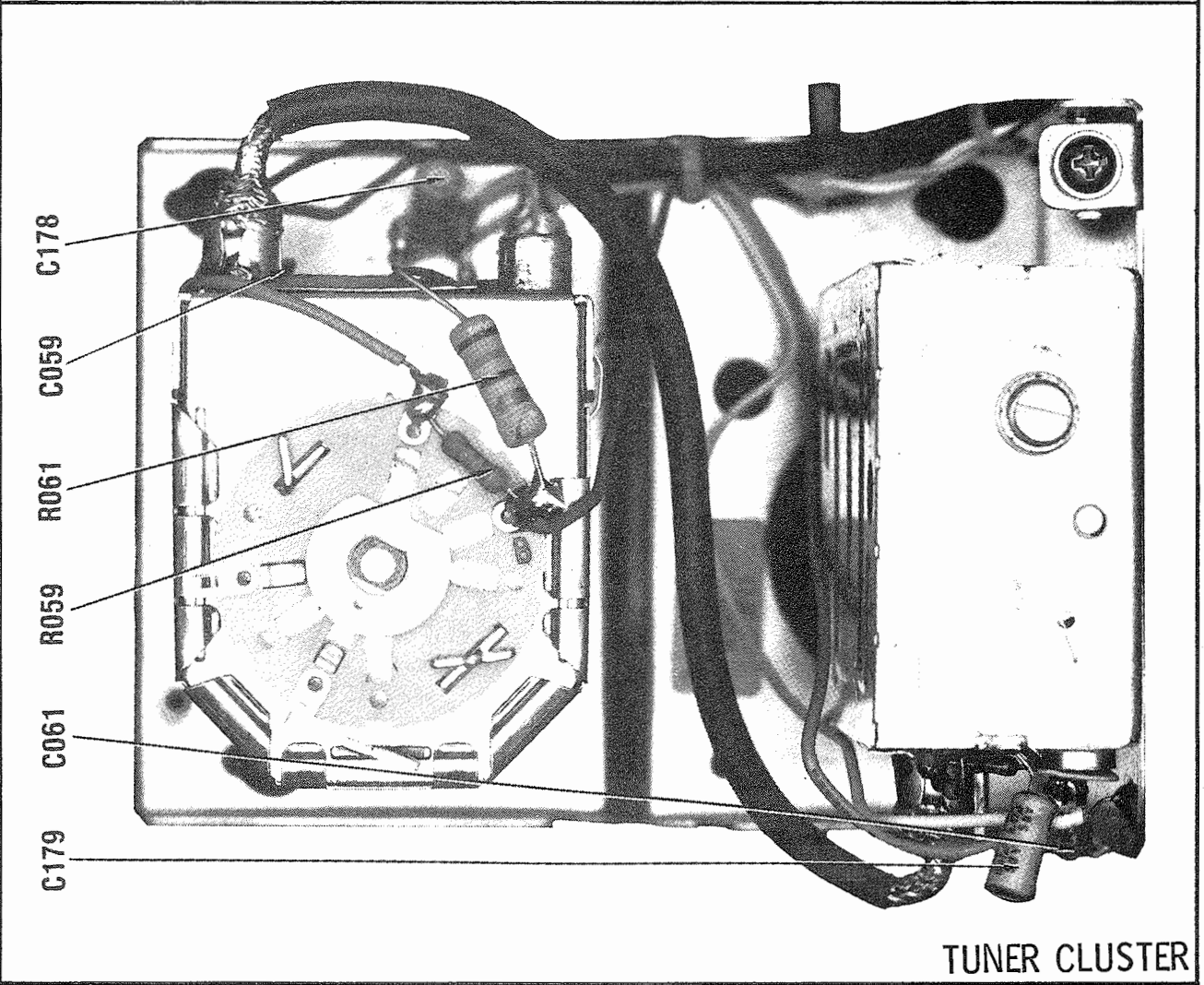
3. Keep wires away from high voltage or high temperature components.

Courtesy of the Manufacturer



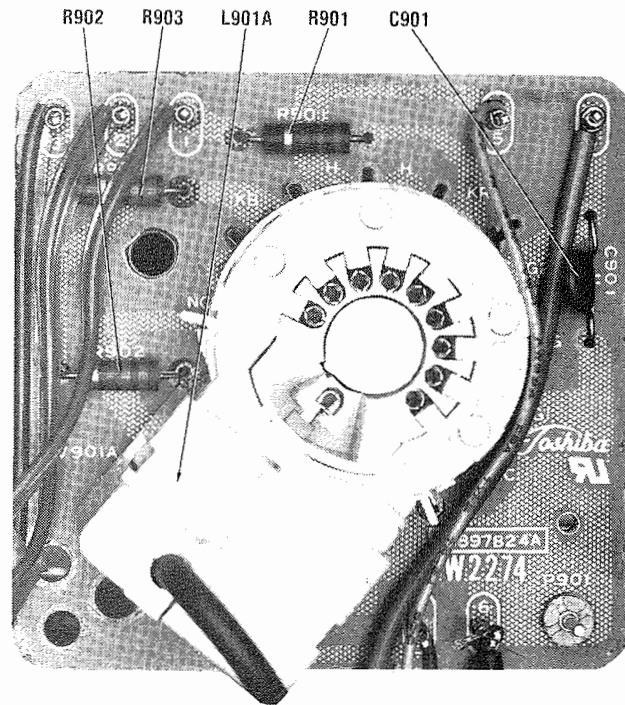
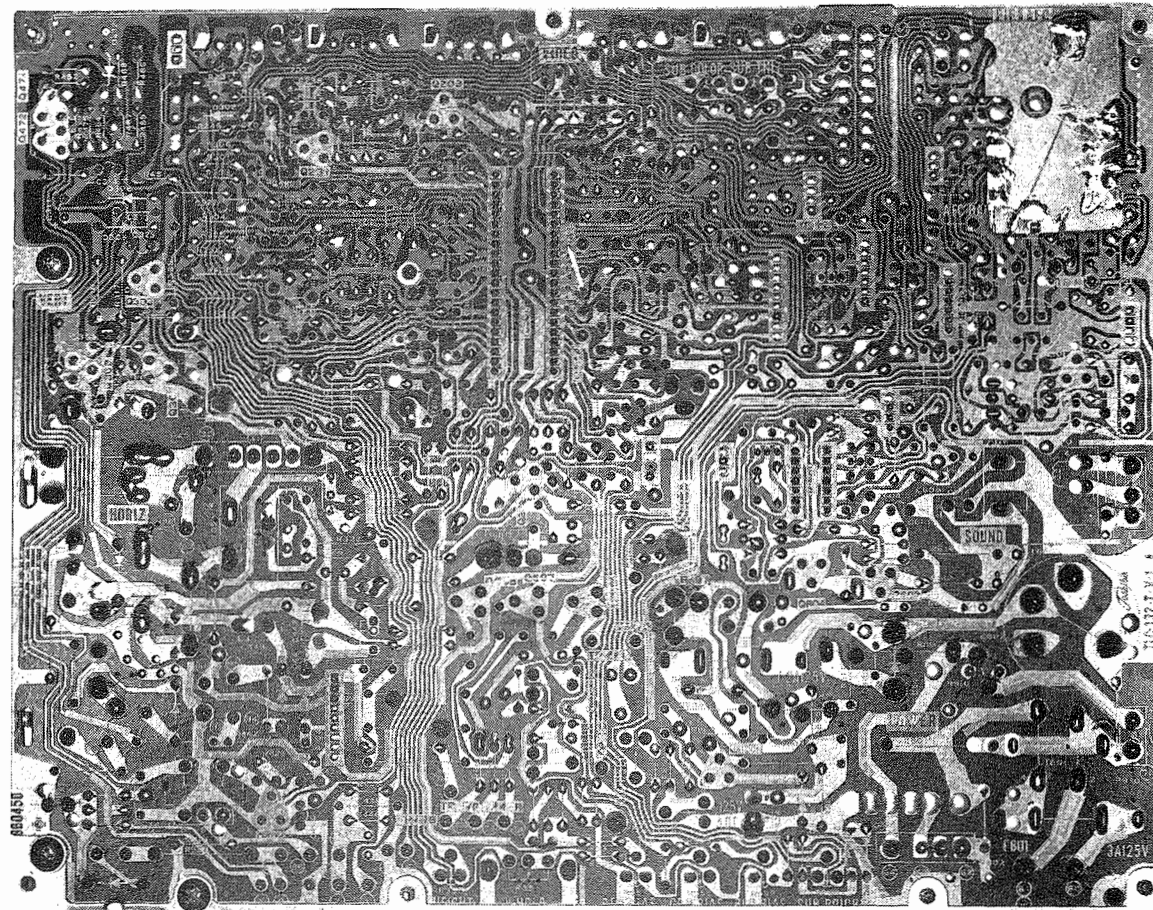
A Howard W. Sams CIRCUITRACE® Photo

ABC BOARD

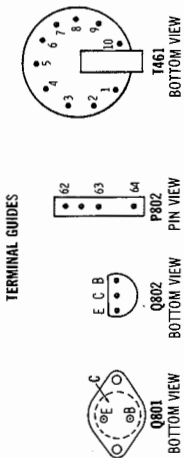
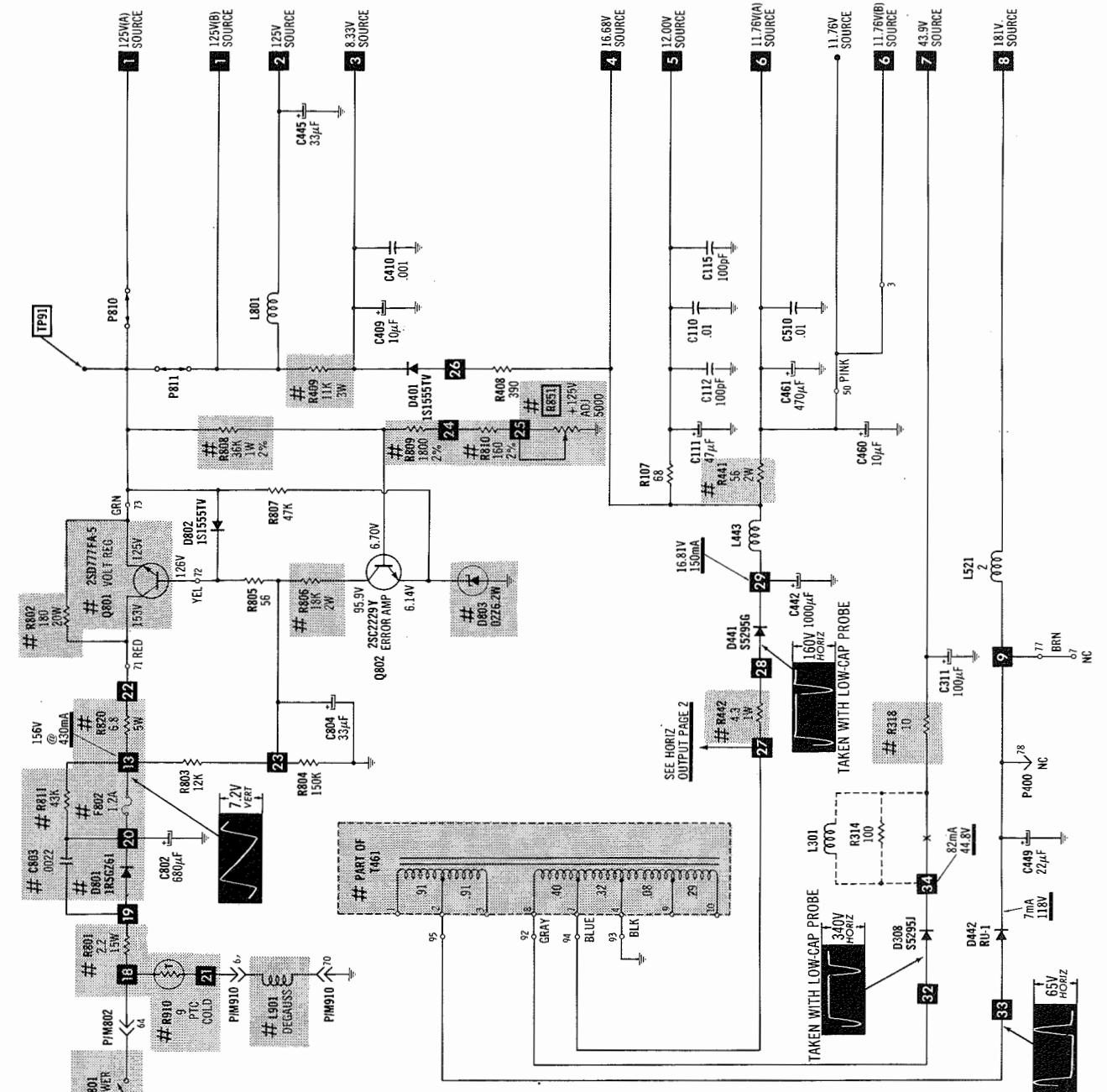


TOSHIBA MODELS
CA910, CA910C

FOLDER 3

A Howard W. Sams **CIRCUITRACE®** Photo

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SET 2050 FOLDER 3

For SAFETY use only equivalent replacement part.

For SAFETY use only equivalent replacement components.

— Circuitry not used in some versions

--- Circuitry used in

⑥ See parts list
※ Nominal value

	Nominal value	Ground

Waveforms: triggered scope, keyed rainbow generator

Item numbers in rectangles appear in the generator alignment/adjustment instructions.

alignment/adjustment instructions.
Supply voltage maintained as shown at input.

Voltages measured with digital meter, no signal.
Controls adjusted for normal operation.

Terminal identification may not be found on unit.

*Resistors are 1/2W or less, 5% unless noted.
Value in () used in some versions.

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TOSHIBA MODELS
CA910, CA910C

FOLDER 3

TV ALIGNMENT INSTRUCTIONS

Use an isolation transformer, or observe polarity, and maintain line voltage at 120VAC. Allow a 20-minute warm-up period for receiver and test equipment.
Suggested Alignment Tools: GC ELECTRONICS L103,L171.....9440

PRELIMINARY INSTRUCTIONS

Set the channel selector to the highest unused channel. Set scope sweep to external. Connect scope vertical input to scope vertical input on sweep/marker generator. Connect scope external horizontal input to scope horizontal input on sweep/marker generator. Ground test equipment to TV chassis unless specified otherwise. Use only enough generator output to provide a usable indication.
Note: Response may vary slightly from that shown.
Connect a +7.3 volt Bias to TP14.
Turn AGC Delay Control fully counterclockwise and disconnect P101 (IF Input).

VIDEO IF ALIGNMENT (SWEEP MARKER GENERATOR)

DIRECT PROBE FROM SWEEP/MARKER GENERATOR	SWEEP GENERATOR OUTPUT	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	REMARKS
To TP12	To P101 (IF Input on main P.C. Board	44MHz (10MHz Sweep)	45.75MHz	Adjust L103 to place 45.75MHz marker at maximum gain on response as shown. See Figure 1.

VIDEO IF ALIGNMENT (BAR SWEEP GENERATOR)

BAR SWEEP GENERATOR	SCOPE INPUT	REMARKS
To P101 (IF Input on main P.C. Board	To TP12	Perform Video IF Adjustment per SWEEP/MARKER GENERATOR Instructions above. See Figure 2.

AUTOMATIC FINE TUNING ALIGNMENT

Connect as explained in preliminary instructions unless specified otherwise. Perform AFC Balance first. Disconnect P102 and P101. Set AFT Switch to On position.				
DIRECT PROBE FROM SWEEP/MARKER GENERATOR	SWEEP GENERATOR OUTPUT	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	REMARKS
To Terminal 4 of P102.	To P101	44MHz (10MHz Sweep)	45.75MHz	Adjust L171 to place 45.75MHz marker at crossover. See Figure 3. NOTE: Readjust Bias to +7.3 volts.

AFC BALANCE ADJUSTMENT

Disconnect P102 and P101. Connect a +3 volt Bias to TP14. Connect a DC meter (negative) to terminal 4 and (positive) to terminal 5 of P102. Set AFT Switch to On position. Adjust AFT Balance Control (R158) for +0.2 volts on meter. When adjustment completed, remove meter.

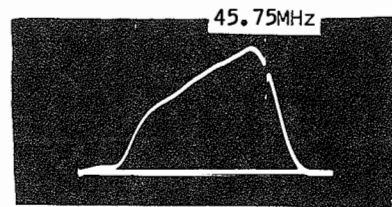


Figure 1

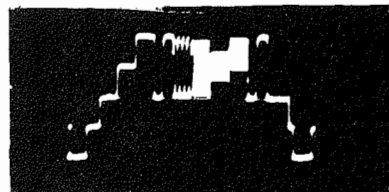


Figure 2

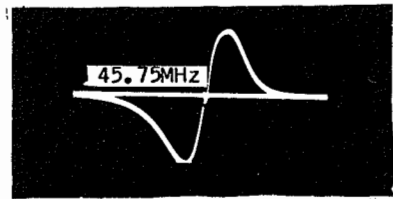
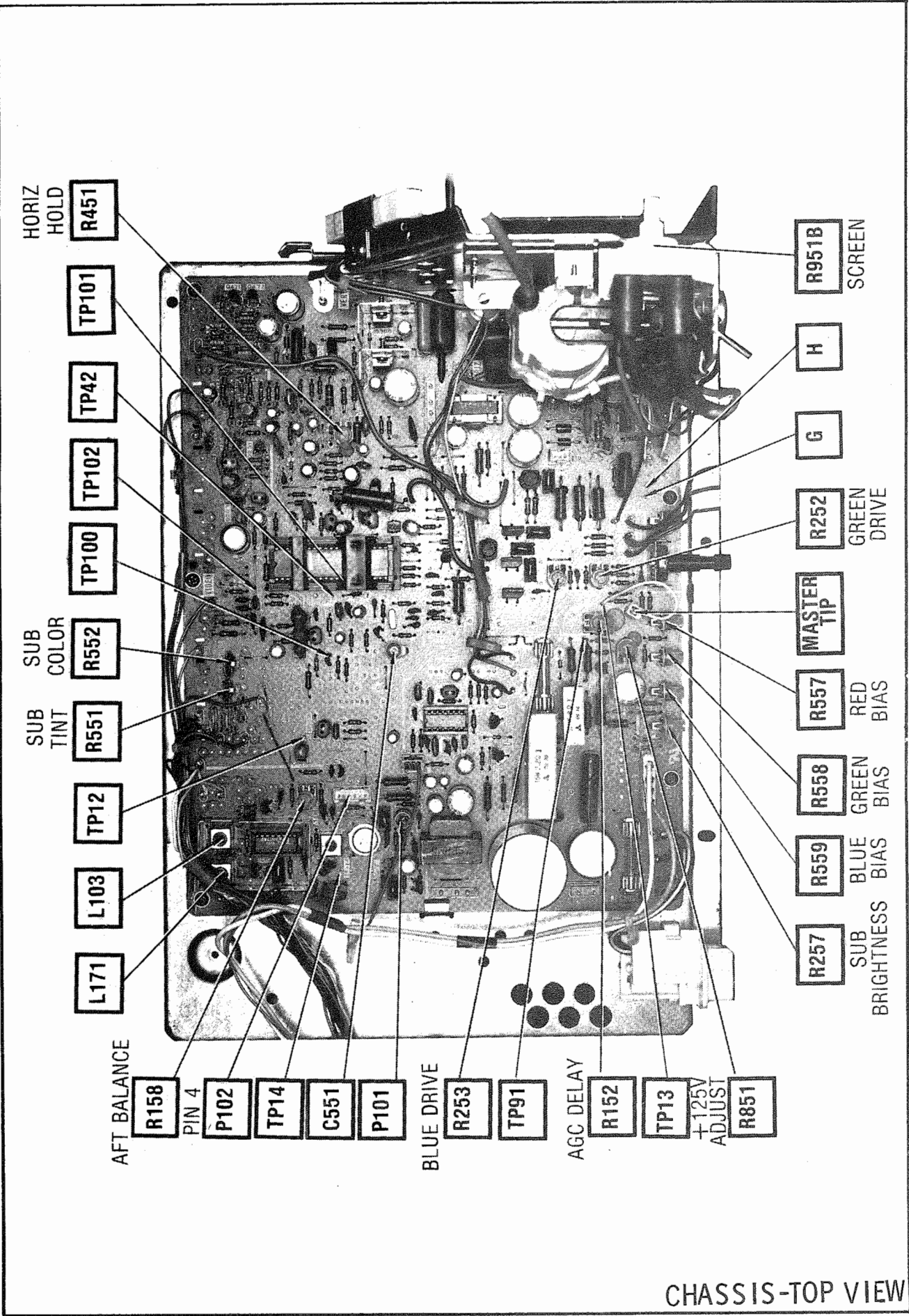


Figure 3



CHASSIS-TOP VIEW

RESISTANCE MEASUREMENTS

MEASUREMENTS BELOW TAKEN WITH METER HAVING .08V MAX BETWEEN PROBE TIPS														
ITEM	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5	PIN 6	PIN 7	PIN 8	PIN 9	PIN 10	PIN 11	PIN 12	PIN 13	PIN 14
IC101	10K	8057	1450	92K	7100	8284	14K	2400	2392	14K	363	2395	0	820K
													PIN 15	PIN 16
													7905	10K
IC501	34K	1009	138	1242	20K	2774	1755	40K	4369	56K	0	7474	INF	4890
	PIN 15	PIN 16	PIN 17	PIN 18	PIN 19	PIN 20	PIN 21	PIN 22	PIN 23	PIN 24	PIN 25	PIN 26	PIN 27	PIN 28
	INF	8388	1.7M	1.7M	2190	2200	2174	90K	43K	35K	13K	1010	63K	INF
	PIN 29	PIN 30	PIN 31	PIN 32	PIN 33	PIN 34	PIN 35	PIN 36	PIN 37	PIN 38	PIN 39	PIN 40	PIN 41	PIN 42
	19K	312K	INF	0	2760	16K	56K	20K	10K	INF	56K	53K	17K	1289
IC601	1NF	1NF	0	0	511	13K	7063	10K	5770	7945	INF	1790	5618	64K
V901	1NF	NC	INF	NC	0	FIL	FIL	INF	0	4M	NC	INF		
ITEM	E	B	C		ITEM	E	B	C		ITEM	E	B	C	
Q161	33	1194	621		Q307	70K	INF(1)	0		Q507	540	2982	INF	
Q202	410	91K	62		Q402	0	36K	11K		Q509	534	2996	INF	
Q203	5605	2064	138		Q404	0	.2	8033		Q603	61K	44K	8823	
Q231	674	1288	100		Q471	7211	47K	33K		Q604	0	1000	44K	
Q303	0	1343	INF(1)		Q472	48K	6468	47K		Q801	8033	20K	8233	
Q306	70K	INF(1)	INF(1)		Q505	553	2976	INF		Q802	58K	1972	38K	

(1) Reading depends upon polarity of meter connections.

TROUBLESHOOTING CHECK CHART

The following chart lists component failures most likely to produce the indicated symptom.

PICTURE or SOUND

NO PIC, NO SOUND, NO RASTER: Fuses,D801,Volt Reg,Error Amp.

NO PIC, NO SOUND, HAS RASTER: Tuner,PIF Preamp,PIF (IC101).

NO PIC, NO SOUND, HAS SNOW: Tuner,AGC (IC101).

NO PIC, HAS SOUND, NO RASTER: Video (IC501), Video Amp,CRT.

NO PIC, HAS SOUND, HAS RASTER: Video (IC501), Video Amp.

HAS PIC, NO SOUND: SIF/FM Det/Audio Amp (IC601),Audio Outputs.

OVERLOADED PICTURE: AGC (IC101).
LOW OR EXCESSIVE BRIGHTNESS: Video Amp.

RASTER

YELLOW (NO BLUE): Chroma (IC501),Blue Output, CRT.

CYAN (NO RED): Chroma (IC501),Red Output,CRT.
MAGENTA (NO GREEN): Chroma (IC501),Green Output,CRT.

SYNC

NO VERT SYNC: Deflection (IC501).
NO HORIZ SYNC: Deflection (IC501).
NO VERT/HORIZ SYNC: Sync (IC501).

SWEEP

NO RASTER, HAS SOUND: HV Rect Diode (T461), CRT.

NO RASTER, NO SOUND: Deflection (IC501),Horiz Drive/Output,Fail Safe.

NO VERT DEFLECTION: Deflection (IC501),Vert Amp/Outputs.

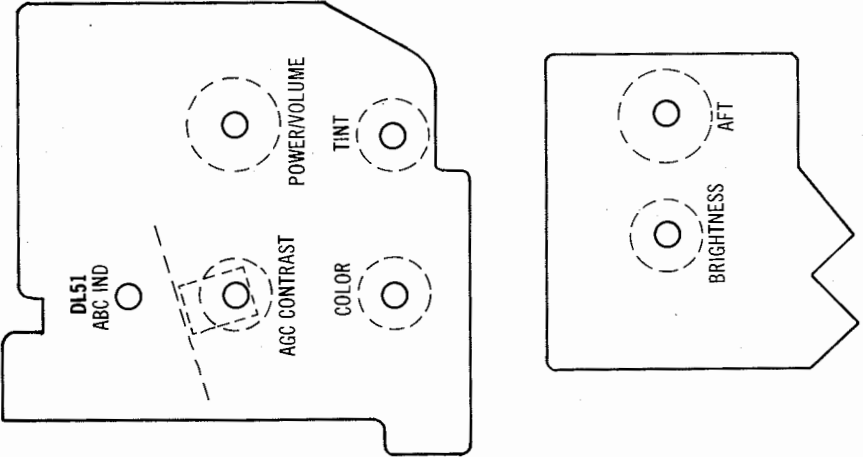
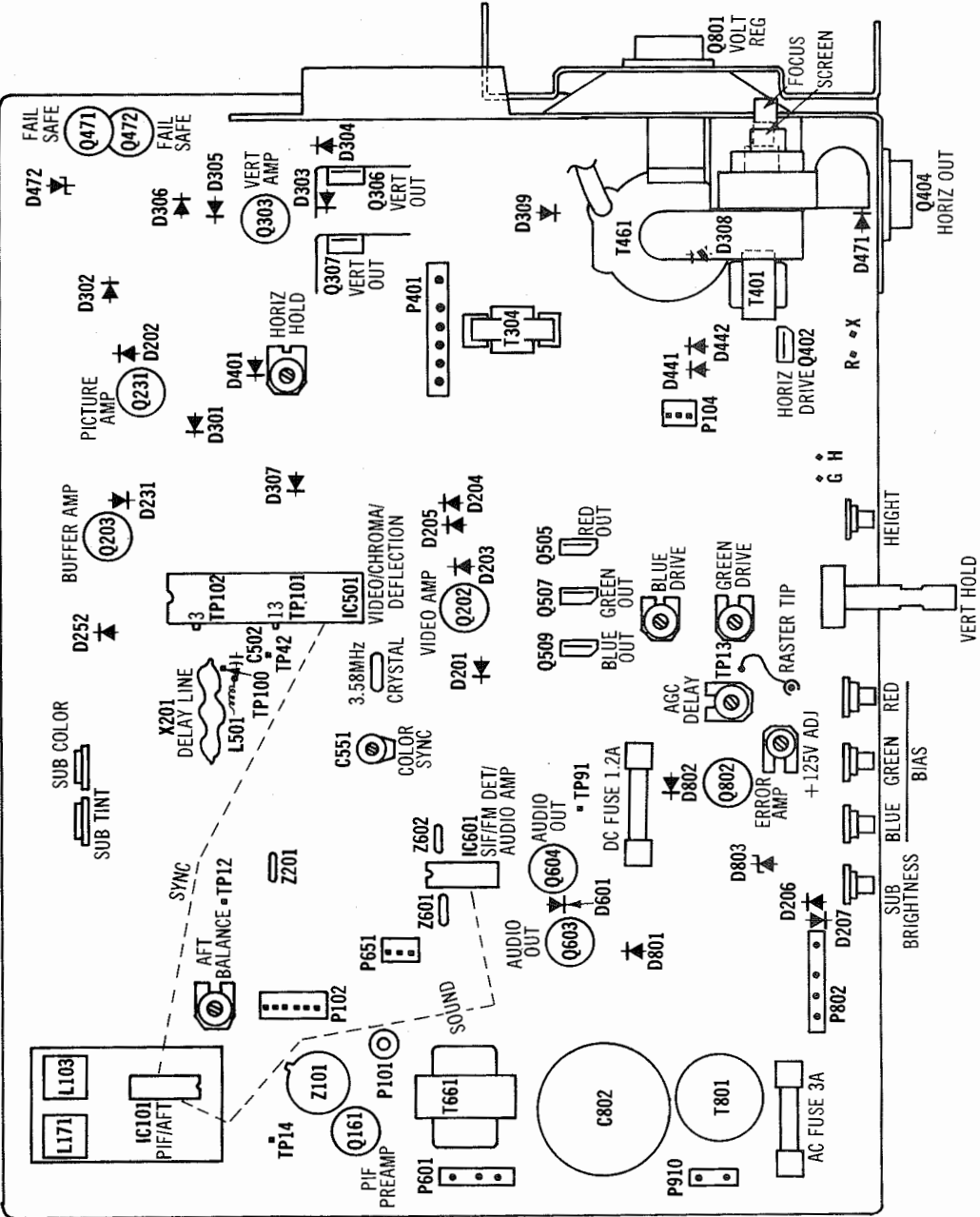
POOR VERT LIN OR FOLDOVER: Vert Amp/Outputs.
POOR HORIZ LIN OR FOLDOVER: Horiz Drive/Output.

NARROW PICTURE: Horiz Drive/Output.
VERT OFF FREQUENCY: Deflection (IC501).
HORIZ OFF FREQUENCY: Deflection (IC501).

COLOR (B/W operating normally)

NO COLOR: Chroma (IC501).
WEAK COLOR: Chroma (IC501).
NO COLOR SYNC: Chroma (IC501).
NO GREEN: Chroma (IC501),Green Output.
NO BLUE: Chroma (IC501),Blue Output.
NO RED: Chroma (IC501),Red Output.
INCORRECT HUE (TINT): Chroma (IC501).

TOP VIEW



PLACEMENT CHART

MISCELLANEOUS ADJUSTMENTS

B+ ADJUSTMENT

Tune in a station and adjust for a normal picture. Connect a DC meter to TP91, low side to ground. AC line voltage should be 120 volts.

Adjust 125V Adjust Control (R851) for 125 volts.

HIGH VOLTAGE CHECK

Connect a high voltage probe to the picture tube anode. Turn Contrast and Brightness to MINIMUM. High voltage should read 28.7KV.

NOTE: There is no high voltage adjustment on this chassis.

Check B+ 125 volt source and if necessary adjust 125V Adjust Control (R851) for proper high voltage. High voltage should not exceed 30.4KV.

AGC ADJUSTMENT

Tune in the strongest station available. Turn AGC Delay Control (R152) fully counterclockwise. Then turn clockwise until snow just disappears from the screen.

SUB COLOR AND SUB TINT ADJUSTMENT

Tune in a color program and place ABC Switch (S501) to On position. Set color and tint controls to mid-position.

Adjust Sub Color Control (R552) for natural color intensity.

Adjust Sub Tint Control (R551) for proper facial tones.

SUB BRIGHTNESS ADJUSTMENT

Tune in a color program and place ABC Switch (S501) to On. Set Contrast Control to maximum and Brightness Control to click position. Set Color and Tint Controls to midrange. Set Sub Brightness Control (R257) to midrange and let receiver warm-up for five minutes.

Advance Sub Brightness Control (R257) to a point just before picture starts to bloom. Check picture at all brightness levels and retouch Sub Brightness Control if necessary.

COLOR SYNC ADJUSTMENTS

Connect a Color Bar Generator to the antenna terminals and tune in a Color Bar Pattern. Allow a five minute warm-up time. Connect a .47uF capacitor from TP42 to test point 100 (junction of C501 and C502). Connect a 1000 ohm resistor from TP101 (junction of Pin 13 of IC501 and C511) to TP102, a +12 volt source line, (junction of Pin 3 of IC501 and C509). Set ABC Switch (S501) to Off position, Tint Control fully counterclockwise, Color Control to maximum and Contrast Control to MINIMUM. Adjust Color Sync Trimmer Capacitor (C551) until color bars stop or slowly drift across the screen. Remove test capacitor and resistor.

HORIZONTAL HOLD ADJUSTMENT

Tune in a station and adjust for a normal picture. Adjust Horizontal Hold Control (R451) to a point where it is virtually impossible to lose horizontal sync while switching from channel to channel.

GRAY SCALE ADJUSTMENT

Tune in a picture and set Color Control to MINIMUM. Set AGC Switch (S501) to Off position. Set Red (R557), Green (R558), and Blue (R559) Bias Controls to midrange. Set Green (R252) and Blue (R253) Drive Controls to midrange. Disconnect Raster Tip from TP13. Connect a jumper from terminal G to terminal H to produce a horizontal line. Rotate Screen Control (R951B) slowly clockwise until a second line appears. Turn the two Bias Controls corresponding to the colors of the lines on the screen until lines are just eliminated. Adjust the Screen Control (R951B) until a line just appears. Adjust the two Bias Controls to obtain a white line. Remove the jumper and reconnect the Raster Tip to TP13. Rotate Brightness and Contrast Controls to maximum. Adjust the Blue and Green Drive Controls for best white in high-light areas.

Check tracking at low and high brightness. If necessary retouch Bias Controls at low brightness and Drive Controls at high brightness.

PURITY ADJUSTMENT

NOTE: Before attempting any purity adjustments the receiver should be operated for at least fifteen minutes. Turn Contrast and Brightness Controls to maximum.

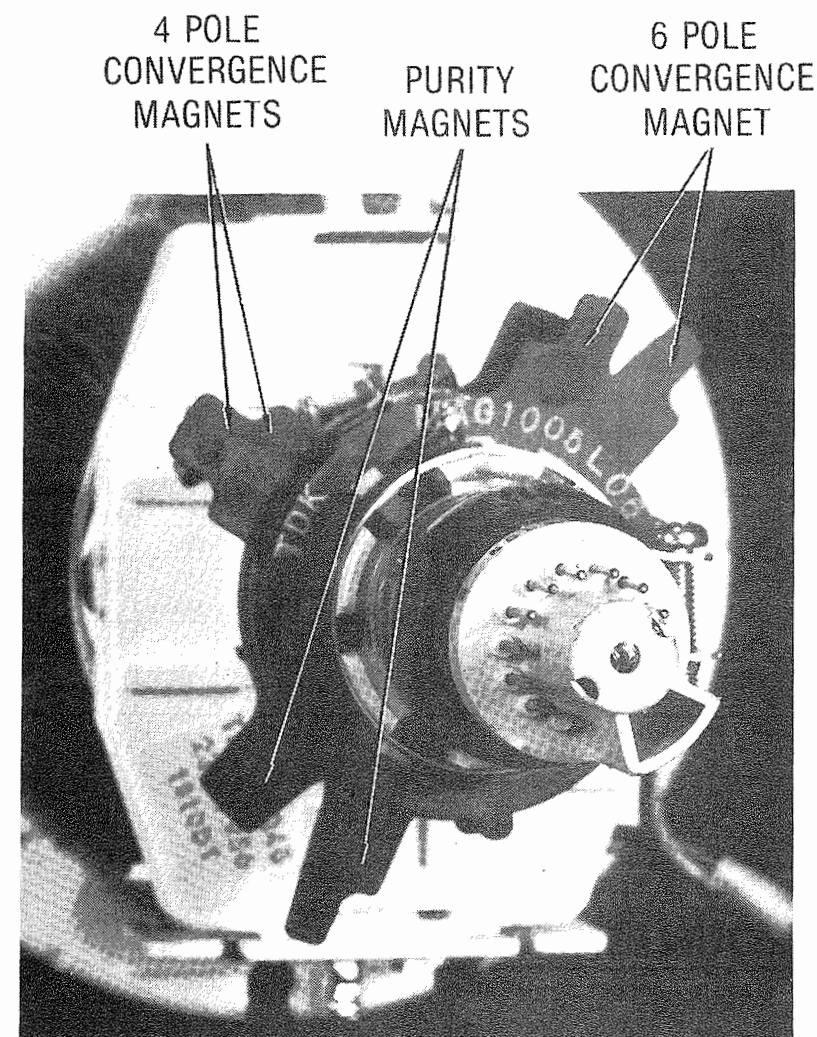
Use a degaussing Coil to demagnetize the picture tube. Adjust Red Bias Control (R557) and Blue Bias Control (R559) to obtain a green raster. Advance Green Bias Control (R558) if necessary.

Loosen the clamp screw holding the yoke and slide the yoke backward to obtain a vertical green band. Rotate and spread the tabs of the purity magnet until the green band is centered on the screen.

Move the yoke slowly forward until a uniform green screen is obtained.

CONVERGENCE ADJUSTMENTS

NOTE: Before attempting convergence adjustments the receiver should be operated for at least fifteen minutes. Connect a color-bar generator to the antenna terminals and tune in a crosshatch pattern. Adjust the tabs of the 4 pole magnets to converge the red and blue vertical and horizontal lines at the center of the screen. Adjust the tabs of the 6 pole magnets to converge the red, blue and green vertical and horizontal lines at the center of the screen. Remove the rubber wedges from the picture tube. Tilt the yoke vertically and horizontally to converge edges of screen. Apply adhesive to wedges and carefully replace on picture tube.



SERVICE INFORMATION

CRT NECK ASSEMBLY

FS CIRCUIT CHECK

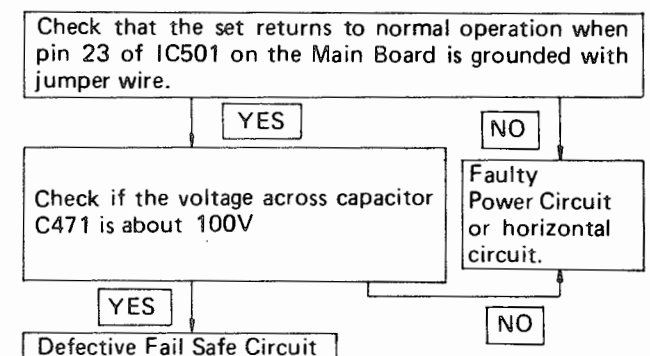
The Fail Safe (FS) circuit check is indispensable for the final check in the servicing. Checking should be done following the steps below.

1. Turn the power switch on and adjust customer controls for normal operation.
2. Temporarily short TP-R and TP-X on the Main Board (See figure 10) with a jumper wire. Raster and sound will disappear.
3. The receiver must remain in this state even after removing the jumper wire. This is the evidence that the FS circuit is functioning properly.
4. To obtain a picture again, temporarily turn the receiver off and allow the FS circuit more than 30 seconds to reset. Then turn the power switch on to produce a normal picture.

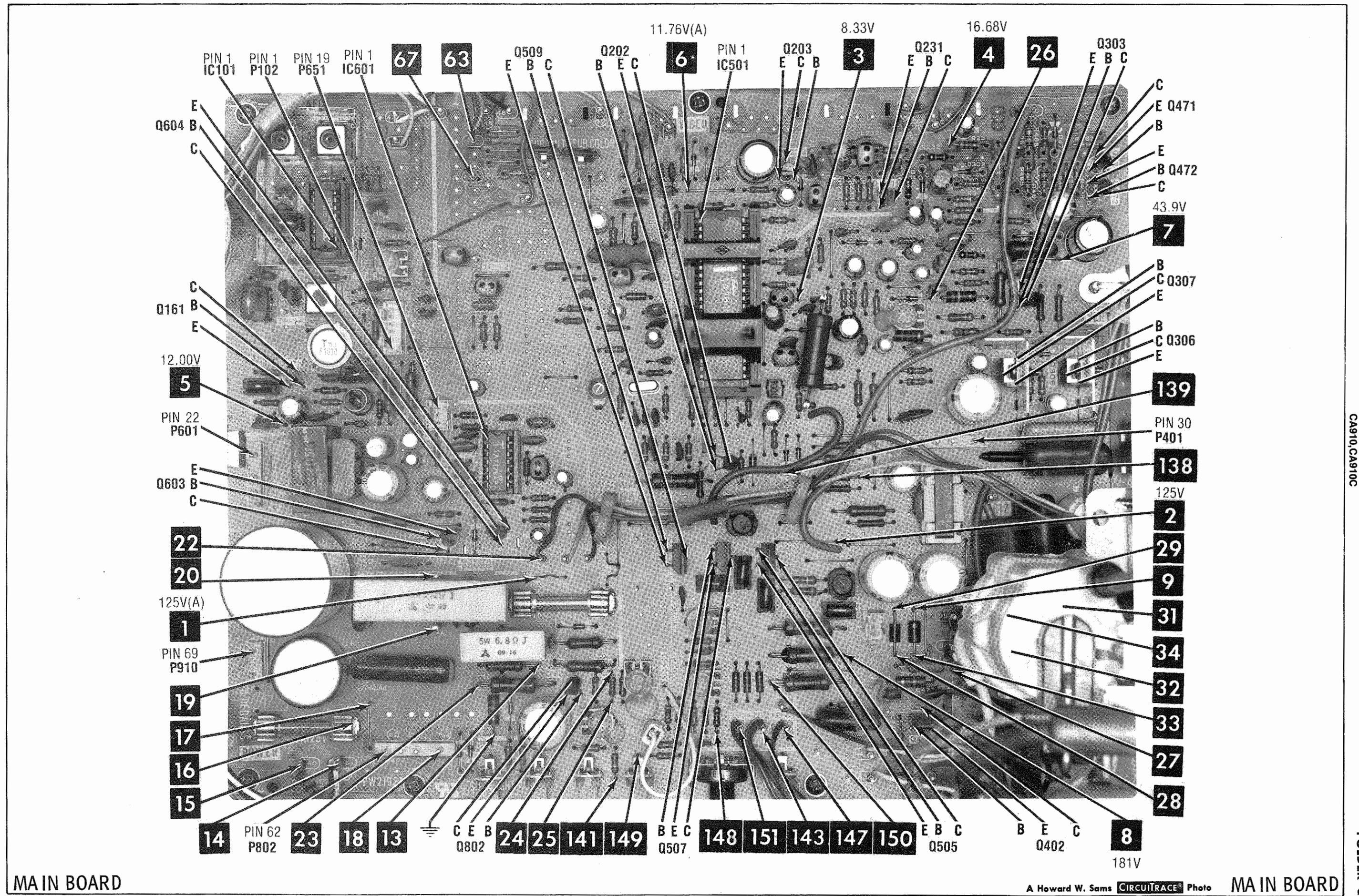
Fail Safe Circuit

The fail safe circuit samples horizontal pulses and B+ voltage. Should the B+ or high voltage rise above normal limits, the fail safe circuit activates and prevents excessive anode voltage from being developed.

Troubleshooting Guide for Fail Safe Circuit



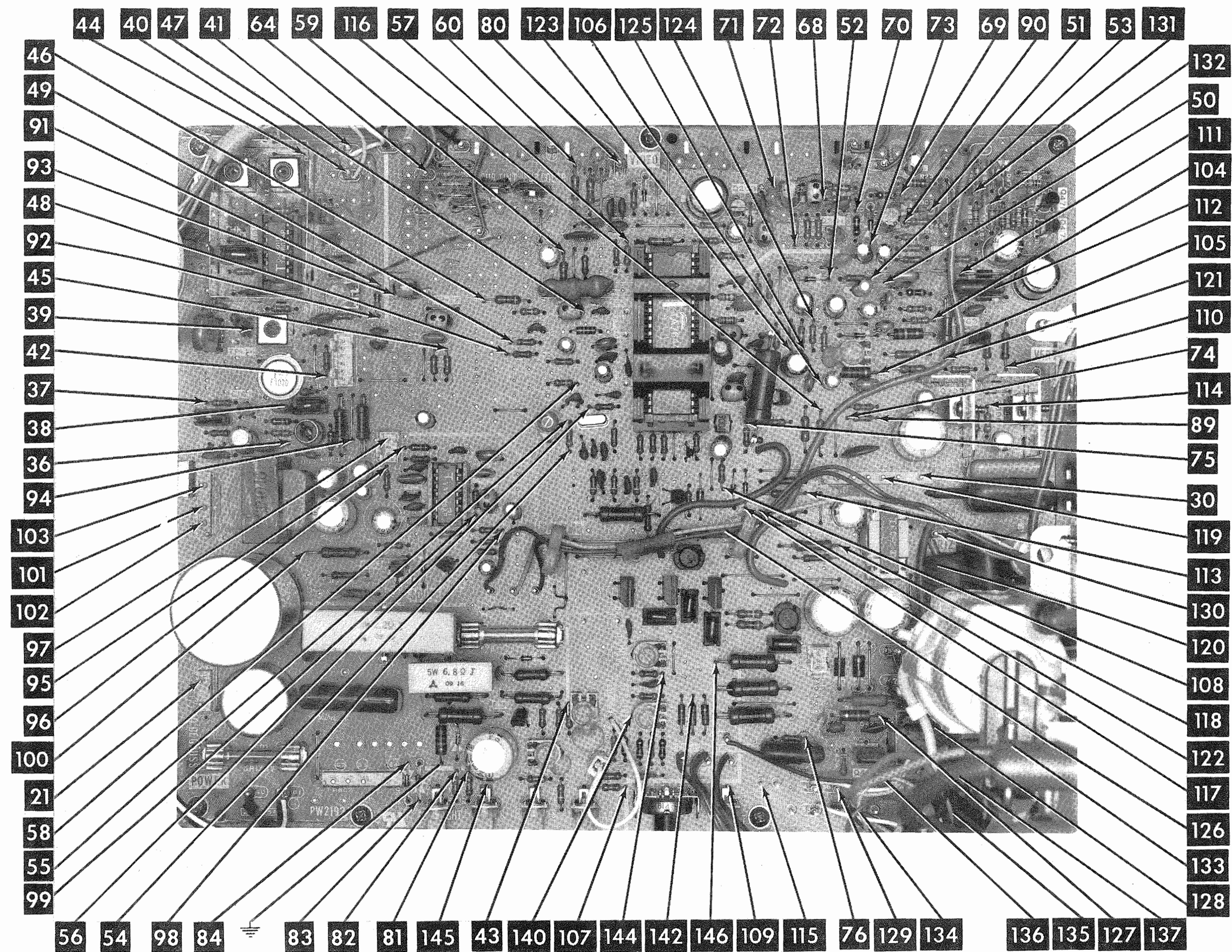
Courtesy of the Manufacturer



MAIN BOARD

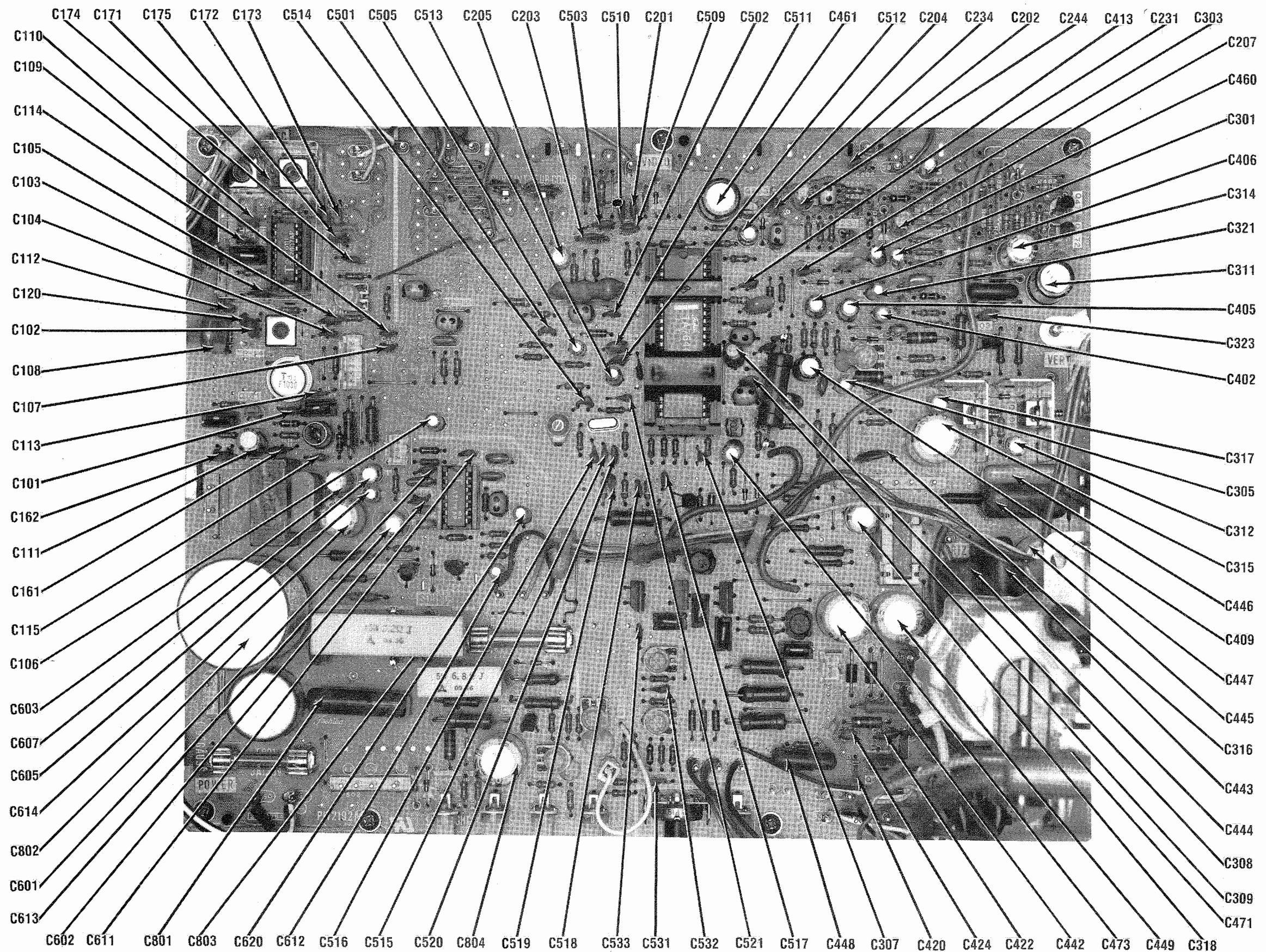
A Howard W. Sams CIRCUITRACE® Photo

MAIN BOARD



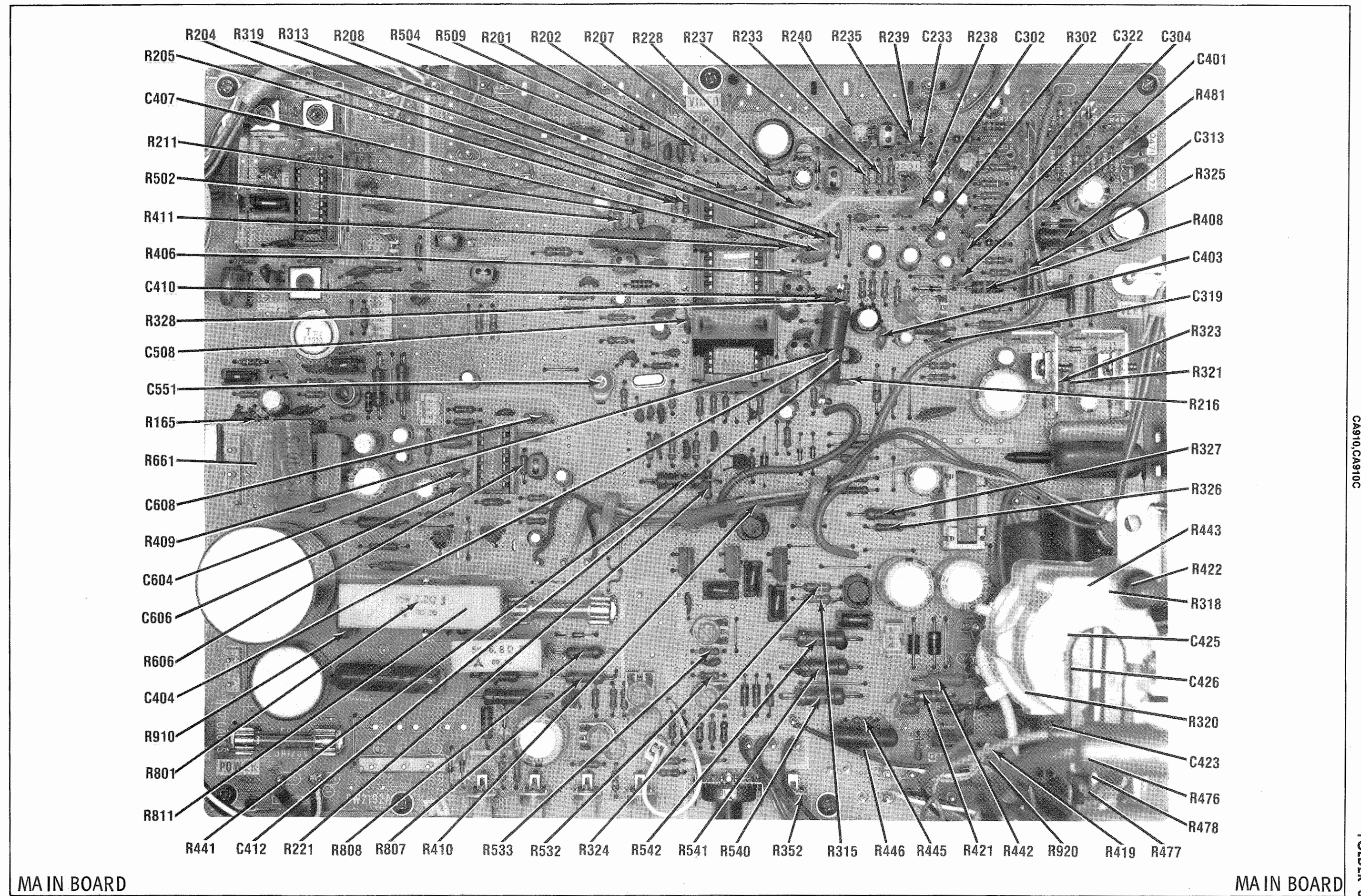
MAIN BOARD A Howard W. Sams CIRCUITRACE® Photo

MAIN BOARD



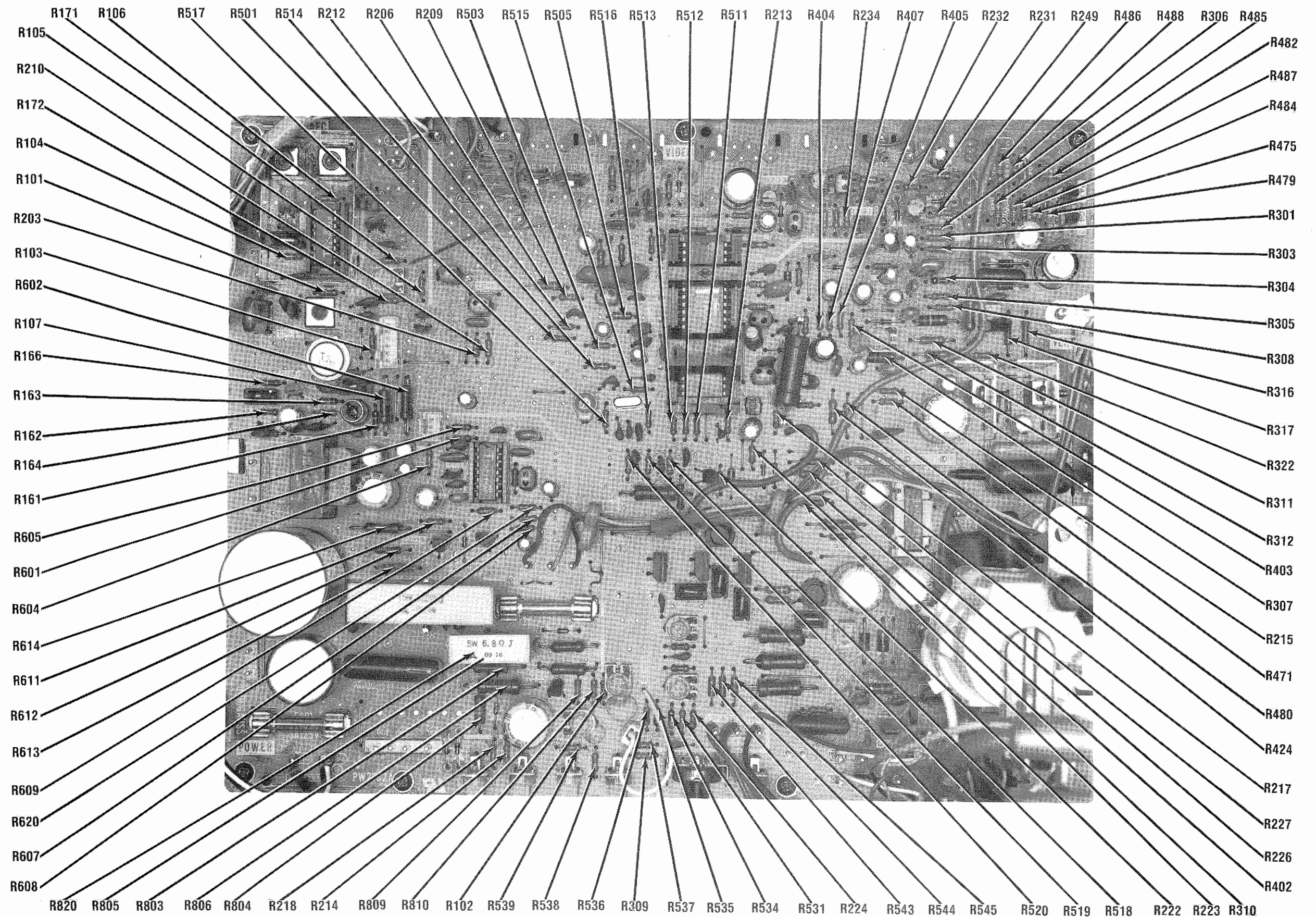
MAIN BOARD

MAIN BOARD



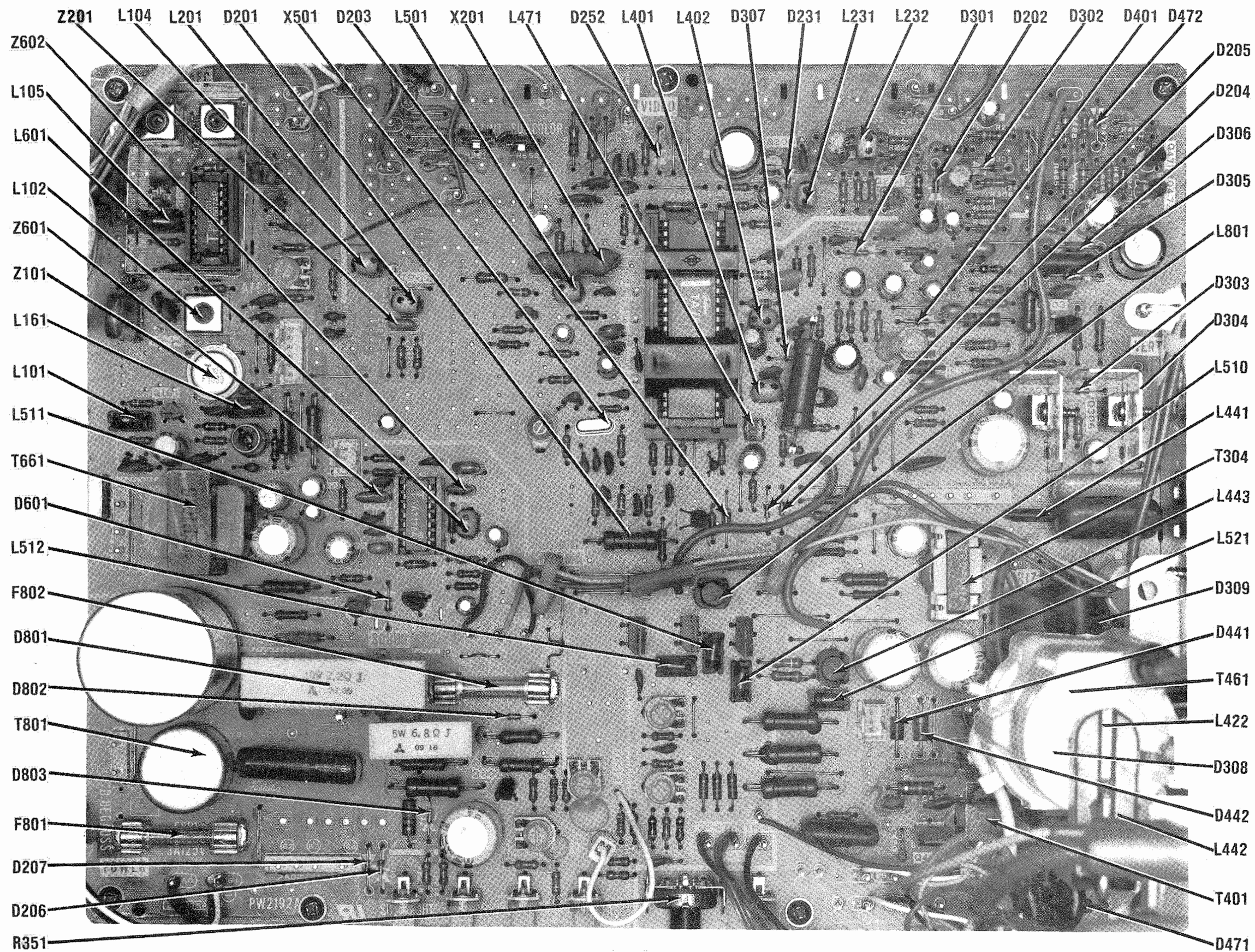
MAIN BOARD

MAIN BOARD



MAIN BOARD

MAIN BOARD



MAIN BOARD

MAIN BOARD

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

MISCELLANEOUS

For SAFETY use only equivalent replacement part.

ITEM	PART No.	ITEM	PART No.
Cabinet Front	23824190	Knob,VHF Channel Selector	23826538
Cabinet Back	23803105	Knob,AFT Switch	23826943
Control Panel	23886771	Knob,Brightness	23826944
UHF Dial	23833841	# Knob,Tint & Color	23826680
Knobs,Fine Tuning, UHF & VHF	23826648	Knob,Power/On-Off/ABC &	23826978
Knob,UHF Channel Selector	23826645	Contrast (2 Used)	

For SAFETY use only equivalent replacement part.

High voltage Lead	Use Belden No. 9865 (50 KV)
Shielded Hook-up Wire	Use Belden No. 8401 or 8421 (Single-Conductor)
	8208 (Two-Conductor)
General-use Unshielded Hook-up Wire	Use Belden No. 8528 (Solid) Available in 13 Colors
	8522 (Stranded) Available in 13 Colors
300-Ohm Tuner Input Lead	Use Belden No. 8225
75-Ohm Tuner Input Lead	Use Belden No. 8241
300-Ohm 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

PARTS LIST AND DESCRIPTION
(When ordering parts, state Model, Part Number, and Description.)

ITEM NO.	TYPE No.	MFR. PART No.	REPLACEMENT DATA							ZENITH PART No.	MOTOROLA PART No.
			GENERAL ELECTRIC PART No.	NEW-TONE PART No.	RCA PART No.	ECG PART No.	THORDARSON PART No.	WORKMAN PART No.			
D201	1S1555(TV)	A7246711	GE-300	TCG177	SK9091/177	ECG177	TM177	WEP1062/177	103-131	1N4935	
D202	1S1553(TV)	A7246602	GE-300	TCG177	SK9091/177	ECG177	TM177	WEP1062/177	103-131	1N4935	
D203	1S34(TV)	A7001957	1N34AS	TCG109	SK3087	ECG109	TM109	WEP134/109	103-Z9001	1N34A	
D204	1S1554(TV)	A7246653	GE-300	TCG177	SK9091/177	ECG177	TM177	WEP1062/177	103-131	1N4935	
D205	1S1555(TV)	A7246711	GE-300	TCG177	SK9091/177	ECG177	TM177	WEP1062/177	103-131	1N4935	
D206	1S1555(TV)	A7246711	GE-300	TCG177	SK9091/177	ECG177	TM177	WEP1062/177	103-131	1N4935	
D207	1S1555(TV)	A7246711	GE-300	TCG177	SK9091/177	ECG177	TM177	WEP1062/177	103-131	1N4935	
D231	1S1555(TV)	A7246711	GE-300	TCG177	SK9091/177	ECG177	TM177	WEP1062/177	103-131	1N4935	
D232	1S1555(TV)	A7246711	GE-300	TCG177	SK9091/177	ECG177	TM177	WEP1062/177	103-131	1N4935	
D301	1S1555(TV)	A7246711	GE-300	TCG177	SK9091/177	ECG177	TM177	WEP1062/177	103-131	1N4935	
D302	1S1555(TV)	A7246711	GE-300	TCG177	SK9091/177	ECG177	TM177	WEP1062/177	103-131	1N4935	
D303	1S1555(TV)	A7246711	GE-300	TCG177	SK9091/177	ECG177	TM177	WEP1062/177	103-131	1N4935	
D304	1S1555(TV)	A7246711	GE-300	TCG177	SK9091/177	ECG177	TM177	WEP1062/177	103-131	1N4935	
D305	TVR-2D	A7568475	GE-511	TCG552	SK9000/552	ECG552	TM552	WEP152/552	103-287	NR1-1400	
D306	TVR-2D	A7568475	GE-511	TCG552	SK9000/552	ECG552	TM552	WEP152/552	103-287	NR1-1400	
D307	1S1555(TV)	A7246711	GE-300	TCG177	SK9091/177	ECG177	TM177	WEP1062/177	103-131	1N4935	
D308	S5295J	A7978855	GE-511	TCG552	SK9000/552	ECG552	TM552	WEP152/552	103-287	NR1-1400	
D309	1S1887FA	A7568719	GE-504A	TCG116	SK3313/116	ECG116	TM116	WEP158/116	212-76-02	1N4005	
D401	1S1555(TV)	A7246711	GE-300	TCG177	SK9091/177	ECG177	TM177	WEP1062/177	103-131	1N4935	
D441	S5295G	A7978850	GE-511	TCG552	SK9000/552	ECG552	TM552	WEP152/552	103-287	NR1-1400	
D442	RU1	23115889	GE-511	TCG552	SK9000/552	ECG552	TM552	WEP152/552	103-287	NR1-1400	
D471	S5295G	A7978850	GE-511	TCG552	SK9000/552	ECG552	TM552	WEP152/552	103-287	NR1-1400	
D472	RU1	23115889	GE-511	TCG552	SK9000/552	ECG552	TM552	WEP152/552	103-287	NR1-1400	
D472	RD6, 2EFA-1	23115774	GE2D-6, 2	TCG5013A	SK3779/5013A	ECG5013A	TM5013A	WEP1414/5013	103-Z9008	1N5234A	
D601	1S1553(TV)	A7246602	GE-300	TCG177	SK9091/177	ECG177	TM177	WEP1062/177	103-131	1N4935	
D801	1S5Z61FA-1	A7580111	GE-510	TCG125	SK3081/125	ECG125	TM125	WEP170/125	212-Z9000	1N4007	
D802	1S1555(TV)	A7246711	GE-300	TCG177	SK9091/177	ECG177	TM177	WEP1062/177	103-131	1N4935	
D803	O2Z6, 2WFA-1	A7286120	GE2D-6, 2	TCG5013A	SK3779/5013A	ECG5013A	TM5013A</				

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.

SEMICONDUCTORS (Select replacement transistor for best results) (cont)

ITEM No.	TYPE No.	MFGR. PART No.	REPLACEMENT DATA							
			GENERAL ELECTRIC PART No.	NEW-TONE PART No.	RCA PART No.	ECG PART No.	THORDARSON PART No.	WORKMAN PART No.	ZENITH PART No.	MOTOROLA PART No.
IC601	TA7176AP FA-1	B0316451	GE1C-2	TCG712	SK3072/712	ECG712	TM712	WEP507/712	221-48	MC1358P
Q161	2SC388ATM FA	A6708871	GE-61*	TCG85	SK3132	ECG85	TM107	WEP535/107	121-722*	MPSH34*
Q202	2SA562-O 2SA562TM-OFA	A6509121	GE-65 GE-65	TCG290A TCG290A	SK3247/234 SK3247/234	ECG290A ECG290A	TM290 TM290	WEP911/290 WEP911/290	121-879* 121-879*	2N5087* 2N5087*
Q203	2SC1815YFA	A6317547	GE-62	TCG85	SK3245/199	ECG85	TM123AP*	WEP66/199	121-Z9065	MPSA05*
Q231	2SA1015-OFA	A6534021	GE-82*	TCG290A	SK3114/290	ECG290A	TM290	WEP911/290	121-Z9003*	2N4403*
Q303	2SC2229-O	A6324922	GE-222*	TCG399	SK3244	ECG399	TM287*	WEP68/287*	121-Z9045*	MPSA42*
Q306	2SC2073	A6319550		TCG375	SK3929	ECG375	TM375	WEP763/375	121-Z9106	MJE15030
Q307	2SA940	A6532320		TCG398	SK3930	ECG398	TM292	WEP781/292	121-Z9048	MJE15031
Q402	2SC2068FA-1	A6319403	GE-251	TCG376	SK3219	ECG376	TM198	WEP779/198	121-Z9028	TIP50
Q404	2SD870FA	A6848004		TCG89	SK9119/89	ECG89				
Q471	2SA1015-OFA	A6534021	GE-82*	TCG290A	SK3114/290	ECG290A	TM290	WEP911/290	121-Z9003*	2N4403*
Q472	2SC1815YFA	A6317547	GE-62	TCG85	SK3245/199	ECG85	TM123AP*	WEP66/199	121-Z9065	MPSA05*
Q505	2SC2068	A6319400	GE-251	TCG376	SK3219	ECG376	TM198	WEP779/198	121-Z9028	TIP50
Q507	2SC2068	A6319400	GE-251	TCG376	SK3219	ECG376	TM198	WEP779/198	121-Z9028	TIP50
Q509	2SC2068	A6319400	GE-251	TCG376	SK3219	ECG376	TM198	WEP779/198	121-Z9028	TIP50
Q603	2SC2230AGR	A6325070	GE-222*	TCG399	SK3866	ECG399	TM287*	WEP68/287*	121-Z9045*	MPSA42*
Q604	2SC2230AGY	A6325060	GE-222*	TCG399	SK3866	ECG399	TM287*	WEP68/287*	121-Z9045*	MPSA42*
	2SC2230AGR	A6325070	GE-222*	TCG399	SK3866	ECG399	TM287*	WEP68/287*	121-Z9045*	MPSA42*
Q801	2SC2230AY	A6325060	GE-222*	TCG399	SK3866	ECG399	TM287*	WEP68/287*	121-Z9045*	MPSA42*
	2SD777FA-5	A684606	GE-35	TCG162	SK3559/162	ECG162	TM162	WEP707/162	121-Z9018	MJ423
Q802	2SC2229Y	A6324842	GE-222*	TCG399	SK3244	ECG399	TM287*	WEP68/287*	121-Z9045*	MPSA42*

For SAFETY use only equivalent replacement part.
* Lead configuration may vary from original.

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 & TRANSFORMERS (Sweep Circuits)

ITEM No.	FUNCTION	REPLACEMENT DATA			
		MFGR. PART No.	OTHER IDENTIFICATION	THORDARSON PART No.	TRIAD PART No.
# L462	Yoke Horiz 1.76mH 90° Vert 90mH	23227956 23227957	TDY3204B TDY3204A		
# T304	Pincushion	23228987	TPC-2014		
T401	Horiz Driver	23224997	TLN-1027		
# T461	Horiz Output	23226564	TFB30488		

For SAFETY use only equivalent replacement part.

TRANSFORMER (Audio Output)

ITEM No.	IMPEDANCE		REPLACEMENT DATA			NOTES
	PRI.	SEC.	MFGR. PART No.	THORDARSON PART No.	TRIAD PART No.	
# T661	800 Ohms	8 Ohms	23216958(1)			(1) TSP1046 on Unit.

For SAFETY use only equivalent replacement part.

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		MFGR. PART No.	QUAM PART No.	
W661	2 9/16"X 4" PM 8 Ohms	23151990		

FUSE DEVICES

ITEM No.	DESCRIPTION	REPLACEMENT DATA				NOTES
		MFR. PART No.		BUSS PART No.		
		DEVICE	HOLDER	DEVICE	HOLDER	
# F801	3A @ 125V Slow-Blow	23144942	23165081	MDX3	1A1907-02	
# F802	1.2A @ 125V Slow-Blow	23144929	23165081	MDL1 2/10	1A1907-02	

For SAFETY use only equivalent replacement part.

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.

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA		
		MFGR. PART No.	SPRAGUE/ Q-LINE PART No.	WORKMAN PART No.
# R061	180 5% 2W Metal Oxide	24964181		22-4078
# R216	30K 2% 1/2W Carbon Film	24378303	QUP-1266	
# R217	91K 2% 1/2W Carbon Film	24378913	QUP-1290	
# R318	10 5% 1/2W Metal Oxide	24531100		
R406	15K 2% 1W Metal Oxide	24003900		22-3124
R407	150K 2% 1/4W Carbon Film	24378154	QUP-1300	
# R409	11K 5% 3W Metal Oxide	24965113		
R411	3900 2% 1/4W Metal Oxide	24003989		
# R422	3600 5% 3W Metal Oxide	24965362		22-4066
# R441	56 5% 2W Metal Oxide	24964560		
# R442	4.3 5% 1W Metal Oxide	24547439		22-3096
# R443	1000 10% 1W Metal Oxide	24993109		
R471	10K 2% 1/4W Carbon Film	24378103	QUP-1044	
# R478	110K 1% 1/4W Metal Oxide	24327114		
# R480	10K 2% Carbon Film			
# R481	33K 2% 1/4W Carbon Film	24378333	QUP-1268	
# R482	7500 1% 1/4W Metal Oxide	24327752		
# R484	1500 1% 1/4W Metal Oxide	24327152		
# R485	62K 1% 1/4W Metal Oxide	24327623		
# R486	68K 1% 1/4W Metal Oxide	24327683		
# R487	6800 1% 1/4W Metal Oxide	24327682		
# R488	240 2% 1/4W Carbon Film	24378241	QUP-1166	
# R540	15K 5% 2W Metal Oxide	24964153		22-4124
# R541	15K 5% 2W Metal Oxide	24964153		22-4124
# R542	15K 5% 2W Metal Oxide	24964153		22-4124
# R801	2.2 5% 15W WW	24007948		
# R802	180 5% 20W WW	24543181		
# R806	18K 5% 2W Metal Oxide	24964183		22-4126
# R808	36K 2% 1W Metal Oxide	24003998		
# R809	1800 2% 1/4W Metal Oxide	24378182		
# R810	160 2% 1/4W Carbon Film	24378161	QUP-1158	
# R820	6.8 5% 5W WW	24007952		FR605
# R910	9 Cold PTC	24000957		
# R920	2.7 5% 2W Fusible	24000960		

For SAFETY use only equivalent replacement part.

COILS (RF-IF)

ITEM No.	FUNCTION	MFGR. PART No.	ITEM No.	FUNCTION	MFGR. PART No.
L101	Video IF	23262951	L402	RF Choke	23284109
L102	Video IF	23262873	L443	RF Choke (100uH)	23221026
L103	Video IF	23262883	L471	RF Choke	23261026
L104	Sound IF	23283240	L501	RF Choke	23283300
L105	Peaking (2.3uH)	23261052	L510	Peaking (10uH)	23261053
L161	Video IF (.55uH)	23261980	L511	Peaking (10uH)	23261053
L171	AFT	23262882	L512	Peaking (10uH)	23261053
L201	4.5MHz Trap	23283150	L521	RF Choke	23252889
L231	RF Choke	23283121	L601	Sounf IF	23283130
L232	RF Choke	23283120	L801	RF Choke (100uH)	23221026
L301	RF Choke	23221999	# T801	Line Choke	23211983
L401	RF Choke	23284109	X201	Delay Line	23250979

For SAFETY use only equivalent replacement part.

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.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	MFGR. PART No.	REPLACEMENT DATA		NOTES
			SPRAGUE PART No.		
			Q-LINE	GENERAL LINE	
C106	2.2 50V	24636229	QCP-3114-01	EV-1617.1	
C111	47 16V	24633470	QCP-3154-01	EV-1226	
C178	1 25V NP	24085031		TVAN-1200	
C179	.47 50V	24636478	QCP-3103-01	EV-1610	
C204	.47 50V	24617999	QCP-3103-01	EV-1610	
C205	47 10V	24632470	QCP-3154-01	EV-1226	
C207	4.7 50V	24636479	QCP-3122-01	EV-1619.1	
C231	1 50V	24636010	QCP-3107-01	EV-1615	
C244	4.7 50V	24636479	QCP-3122-01	EV-1619.1	
C301	1 50V	24636010	QCP-3107-01	EV-1615	
C305	.47 50V	24636478	QCP-3103-01	EV-1610	
C307	.22 35V		QCP-2105-01	SD50-R229	
C308	2.2 50V	24617981	QCP-3114-01	EV-1617.1	
C311	100 50V	24636101	QCP-3168-01	EV-1530	
C312	10 35V	24635100	QCP-3132-01	EV-1622	
C314	4.7 160V	24640989		TVA-1544*	
C315	220 50V	24636221	QCP-3175-01	EV-1540	
C317	2.2 50V	24617997	QCP-3114-01	EV-1617.1	
C318	33 50V	24630999	QCP-3146-01	EV-1625.1	
C321	.47 50V	24636478	QCP-3103-01	EV-1610	
C402	.47 50V	24636478	QCP-3103-01	EV-1610	
C405	1 50V	24617993	QCP-3107-01	EV-1615	
C406	1 50V	24617993	QCP-3107-01	EV-1615	
C409	10 50V	24636100	QCP-3132-01	EV-1622	
C442	1000 25V	24634102	QCP-3195-01	EV-1360	
C445	33 160V	24640992			
C449	22 250V	24644220			
C460	10 16V	24633100	QCP-3128-01	EV-1222	
C461	470 16V	24633471	QCP-3184-01	EV-1251	
C471	2.2 315V	24645229			
C473	47 10V	24632470	QCP-3154-01	EV-1226	
C505	.47 50V	24636478	QCP-3103-01	EV-1610	
C513	.47 50V	24636478	QCP-3103-01	EV-1610	
C603	100 16V	24633101	QCP-3168-01	EV-1231	
C605	2.2 50V	24636229	QCP-3114-01	EV-1617.1	
C607	33 16V	24633330	QCP-3146-01	EV-1325	
	47 10V	24632470	QCP-3154-01	EV-1226	
C612	1 50V	24636010	QCP-3107-01	EV-1615	
C613	2.2 250V	24644229			
C614	22 160V	24642220			
C620	2.2 50V	24636229	QCP-3114-01	EV-1617.1	
C802	680 180V	24086993			
C804	33 160V	24642330			

* Axial replacement for radial device.

CAPACITORS

ITEM No.	RATING	MFGR. PART No.	REPLACEMENT DATA		
			SPRAGUE PART No.		
			Q-LINE	GENERAL LINE	
C059	.001 50V	24692244	QCP-5166-01	5GA-D10	
C101	.01 50V		QCP-5198-01	5GA-S10	
C102	.01 50V		QCP-5198-01	5GA-S10	
C103	.001 50V 10%			10TS-D10	
C104	.001 50V 10%			10TS-D10	
C105	.01 50V		QCP-5198-01	5GA-S10	
C107	47 50V 5%			10TCC-Q47	
C108	.24 50V 5%				
C109	47 50V 5%			10TCC-Q47	
C110	.01 50V		QCP-5198-01	5GA-S10	
C112	100 50V 10%			10TS-T10	
C113	100 50V 10%			10TS-T10	
C114	47 50V 5%			10TCC-Q47	

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	MFGR. PART No.	REPLACEMENT DATA	
			SPRAGUE PART No.	
			Q-LINE	GENERAL LINE
C115	100 50V 10%			10TS-T10
C120	100 50V 10%			10TS-T10
C161	.01 50V		QCP-5198-01	5GA-S10
C162	.01 50V		QCP-5198-01	5GA-S10
C171	2pF 50V ±.25	24436020		
C172	2pF 50V ±.25	24436020		
C173	7.5pF 50V ±.25	24436759		
C174	.001 50V 10%			10TS-T10
C175	.01 50V		QCP-5198-01	5GA-S10
C201	.01 50V		QCP-5198-01	5GA-S10
C202	.01 50V		QCP-5198-01	5GA-S10
C203	560 50V 5%	24436561		
C233	100 50V 5%			10TS-T10
C234	270 50V 5%			10TCC-T27
C302	.018 50V 10%			192P1839R8
C303	560 50V 10%			10TS-T56
C304	.001 50V 5%	24692102		
C309	.0039 50V 10%	24212392		10TSD39
C313	.018 200V 5%	24828183		
C316	.0033 500V 10%	24214332		10TSD33
C319	.051 50V 5%	24692513		PP8-S51S
C322	.062 50V 5%	24692623		PP4-S60S
C323	180 500V 10%			10TS-T18
C401	.0082 50V 5%	24692822		
		24867822		
C403	.0056 50V 5%	24692562		
		24867562		
C404	680 50V 10%			10TS-T68
C407	.0024 50V 5%	24598242		
C410	.001 50V 10%			10TS-D10
C412	.001 50V 10%			10TS-D10
C413	150 50V 5%			10TCC-T15
C420	.001 50V		QCP-5166-01	5GA-D10
C422	.0022 500V 10%			10TS-D22
C423	.047 250V 5%	24828473		PP8-S47
C424	390 500V 10%			10TS-T39
C425	.0022 50V 10%			10TS-D22
# C426	270 2KV 10%	24442271		
# C443	.3 200V 5%	24828304		
# C444	.27 200V 5%	24828274		
# C446	.0039 1.6KV 5%	24095990		PP16-D39
# C447	.0043 1.6KV 5%	24095997		
C448	.056 200V 10%			6PS-S56
C501	30 50V 5%	24436300		10TCCQ30
C502	12 50V 5%			10TCC-Q12
C503	.01 50V		QCP-5198-01	5GA-S10
C508	.001 50V 10%			10TS-D10
C509	.01 50V		QCP-5198-01	5GA-S10
C510	.01 50V		QCP-5198-01	5GA-S10
C511	.039 50V 5%	24867393		PP8-S39
		24962393		
C512	.01 50V		QCP-5198-01	5GA-S10
C514	33 50V 5%			10TCC-Q33
C515	82 50V 5%			10TCC-Q82
C516	10 50V 5%			10TCC-Q10
C517	270 50V 5%			10TCC-T27
C518	270 50V 5%			10TCC-T27
C519	270 50V 5%			10TCC-T27
C520	270 50V 5%			10TCC-T27
C521	12 50V 5%			10TCC-Q12
C531	.0018 50V 10%	24212182		10TSD20
C532	.001 50V 10%			10TS-D10
C533	.001 50V 10%			10TS-D10
C551	2.5-22pF Trimmer	24094927		
C601	.01 50V		QCP-5198-01	5GA-S10

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.
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CAPACITORS (cont)

ITEM No.	RATING	MFGR. PART No.	REPLACEMENT DATA	
			SPRAGUE PART No.	
			Q-LINE	GENERAL LINE
C602	.01 50V	195	QCP-5198-01	5GA-S10
C604	.01 50V	195	QCP-5198-01	5GA-S10
C606	.018 50V 5%	24692183		
C608	.047 50V 5%	24692473		
C611	.001 50V 10%			10TS-D10
# C801	.1 125V	24095991		
# C803	.0022 500V 10%	24214222		
C901	330 1KV 10%	162		10TS-T33

For SAFETY use only equivalent replacement part.

CONTROLS (All wattages 1/2 watt, or less, unless listed)

ITEM No.	FUNCTION	RESISTANCE	MFGR. PART No.	REPLACEMENT DATA	NOTES
				TRW PART No.	
R152	AGC Delay (Factory Sealed)	5000	24061784 or 24061808	RVA0911H502	U260R502B
R158	AFT Balance	500K	24061778 or 24061802	RVA0911H504	U260R504B
R252	Green Drive	200	24061788 or 24061812	MTC22L1(3)	X201R251B(3)
R253	Blue Drive	200	24061788 or 24061812	MTC22L1(3)	X201R251B(3)
# R254	Contrast/ABC Switch	10K	24061812		
# R255	Brightness	10K Detent @ 50%	24060760		
# R257	Sub Brightness	2000	24060759		
# R351	Vert Hold	200K	24061773 or 24061797		
# R352	Vert Height	10K	24061814		
R451	Horiz Hold (Factory Sealed)	10K	24061795	RVA0911H103	U260R103B
R551	Sub Tint	10K	24061783		
R552	Sub Color	10K	24061749	RVA0911V103	X260R103B
R554	Tint	10K	24061749	RVA0911V103	X260R103B
R555	Color	10K	24060170	RU14L,SL36,SL1500	BU1(1),CF9,SS6A
# R557	Red Bias	10K	24060170	RU14L,SL36,SL1500	BU1(1),CF9,SS6A
# R558	Green Bias	10K	24061771		
# R559	Blue Bias	10K	24061771		
# R651	Volume/Power Switch	100K Stop @ 30K	24056976		
# R851	+125 Volt B+	500	24061787		
# R951A	Focus		23115772(18)		
# R951B	Screen		TPA6011A(5)		

For SAFETY use only equivalent replacement part.

(1) Enlarge mounting hole.

(3) For horizontal mounting, bend the outside terminals to fit P.C. board.
Use jumper to connect center terminal to P.C board.

(5) Number on unit.

(18) Includes R951A and R951B.

Part of Focus Pack Z401.

TOSHIBA MODELS
CA910,CA910C

FOLDER 3