

CABINET-REAR VIEW

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

Remove knobs from cabinet front, remove six screws holding cabinet back, remove back and disconnect antenna leads. Disconnect HV anode, CRT socket, ground leads and loosen deflection yoke.

Remove two screws holding VSS module to bracket and remove module from cabinet. Remove three screws holding transformer assembly to cabinet bottom and front and remove assembly from cabinet. Remove three screws holding tuner assembly to cabinet front, one screw holding switch

assembly to cabinet top and remove assemblies from cabinet. Remove three screws holding volume, contrast and black level assembly to cabinet front and remove assembly from cabinet. Slide main chassis out of cabinet and remove deflection yoke from CRT.

CRT REMOVAL

Follow "Chassis Removal" procedure and lay set facedown on a soft protective surface. Remove four screws holding CRT to cabinet front 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 2.5-amp fuse is used for low-voltage power-supply protection. (See photo, Cabinet-Rear View.)

A .7-amp fuse is used for AC line protection. (See photo, Cabinet-Rear View.)

A .8-amp fuse is used for VSS module circuit protection. (See photo, Cabinet-Rear View.)

VHF TUNER

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

UHF TUNER

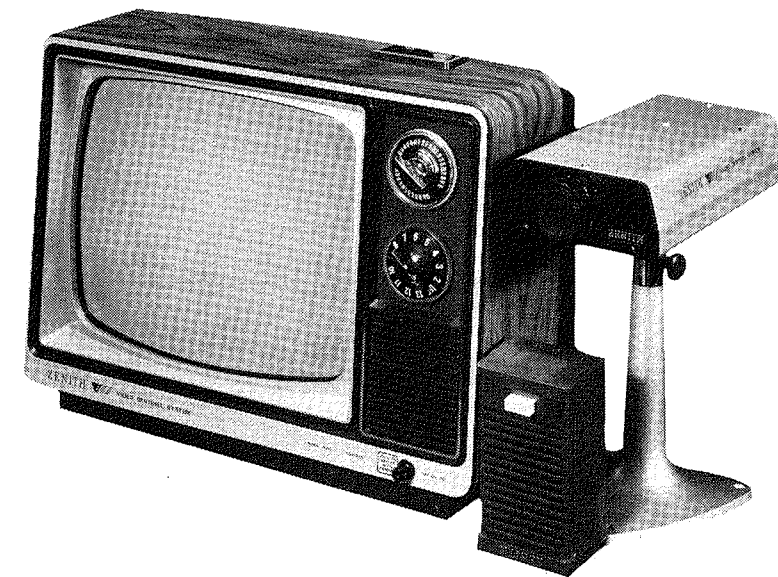
The UHF tuner employs a detent mechanism for channel selection. Fine tuning is adjusted by rotating the fine tuning knob.

HORIZONTAL OSCILLATOR

Adjustment of the horizontal hold is accomplished by the proper setting of the Horiz Hold Control (R519).

AGC

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



Model M620P

SAFETY PRECAUTIONS

See page 6.

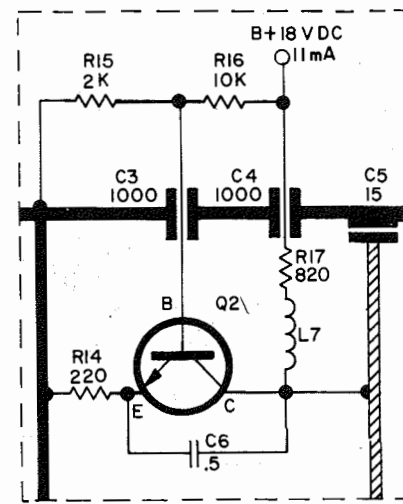
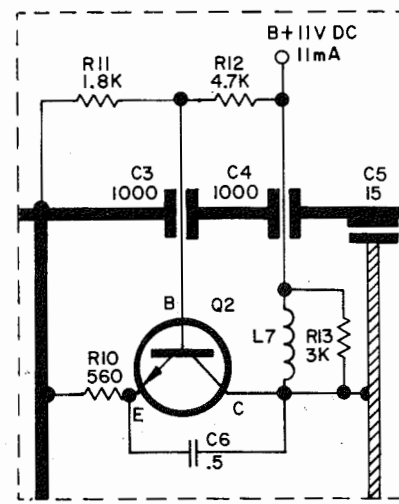
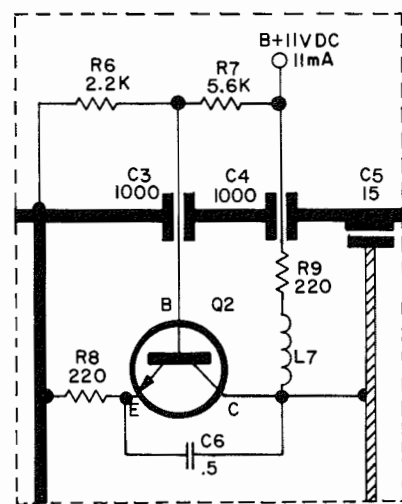
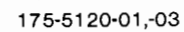
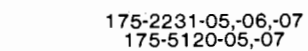
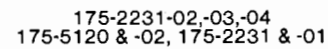
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HOWARD W. SAMS & CO., INC. Indianapolis, Indiana 46206

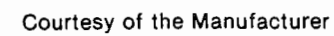
The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. 81PC01175

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Courtesy of the Manufacturer

UHF TUNER SCHEMATIC



VHF TUNER SCHEMATIC



DISASSEMBLY INSTRUCTION

Remove knobs from cabinet and screws holding cabinet back, disconnect antenna leads. Disconnect CRT socket, ground leads and yoke.

Remove two screws holding VSS and remove module from cabinet. Remove screws holding transformer assembly from bottom and front and remove assembly. Remove three screws holding cabinet to cabinet front, one screw

SERVICING IN THE FIELD

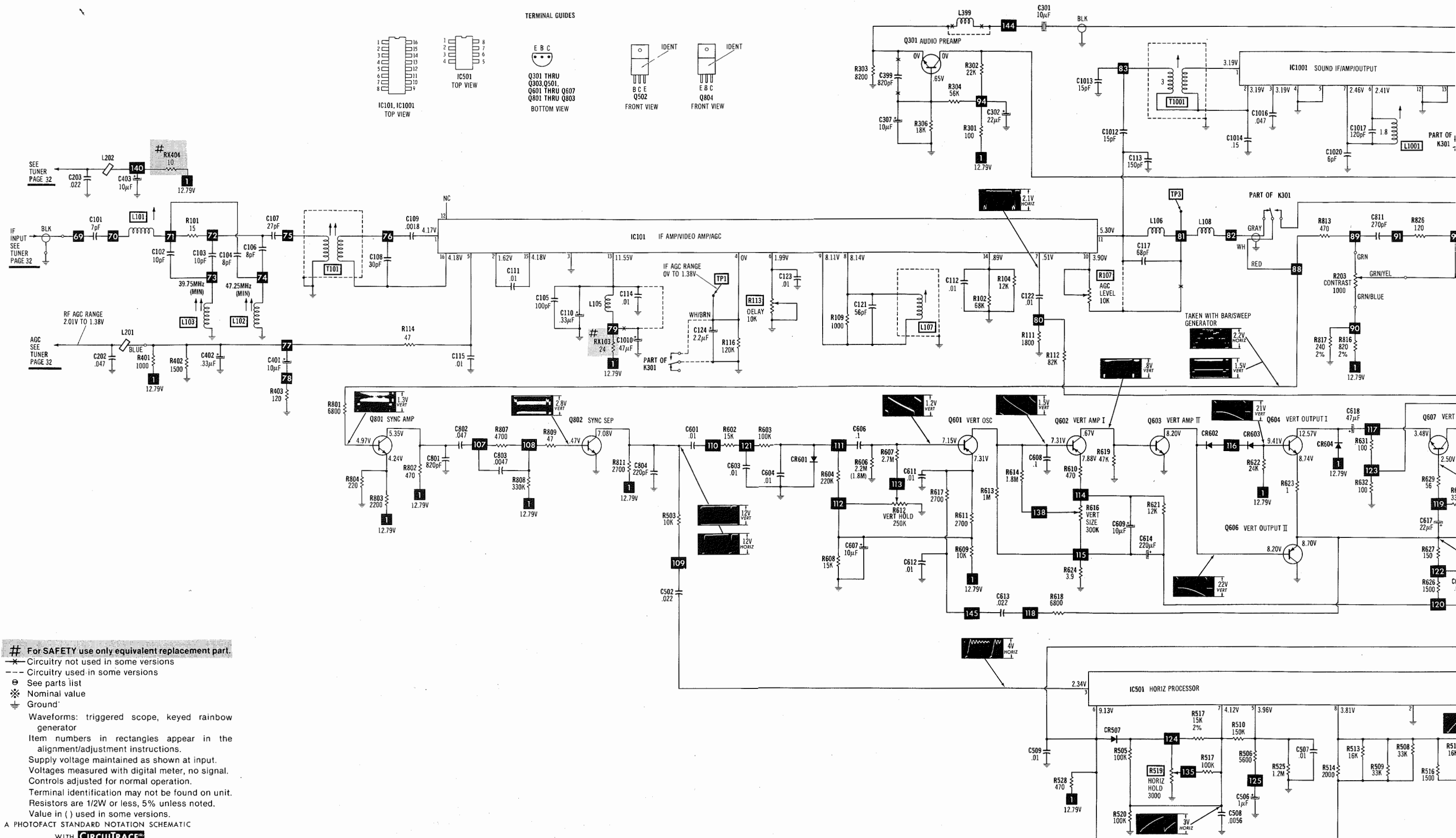
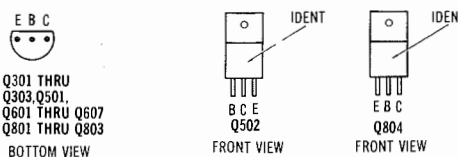
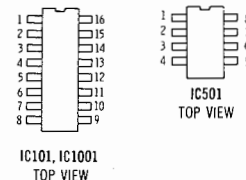
Implosion protection is an int
picture tube, cleaning accompl
removal.

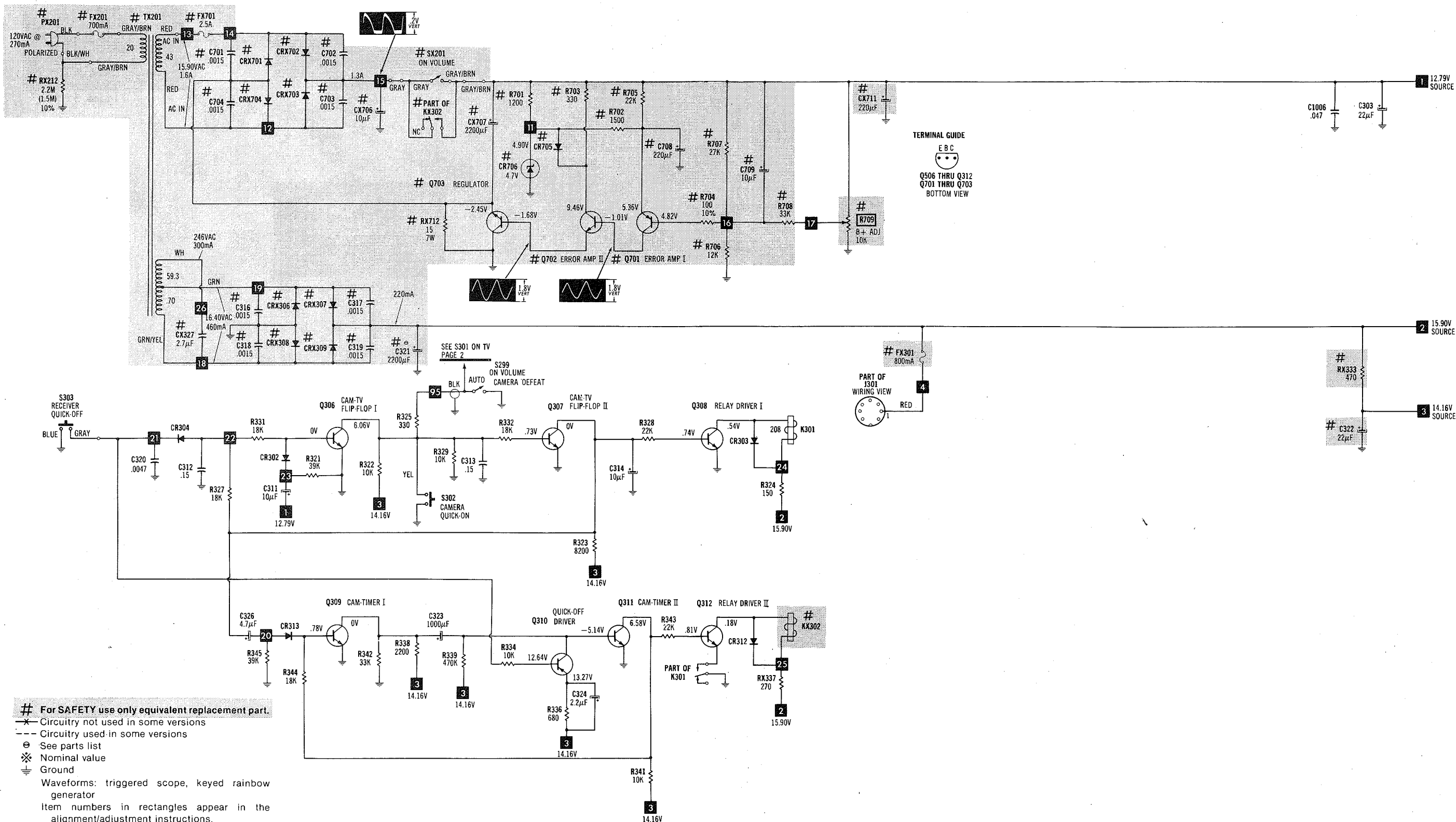
A 2.5-amp fuse is used for line supply protection. (See photo View.)

A .7-amp fuse is used for AC
(See photo, Cabinet-Rear View.)

A .8-amp fuse is used for VSS protection. (See photo, Cabin

TERMINAL GUIDES





ZENITH
CHASSIS 12MB11X

FOLDER 3

POWER SUPPLY

POWER SUPPLY

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
VHF Tuner IF Output Coil, L101, L102, L103, L107, L801, L1001, T101, T1001 9296, 9297, 9300

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 +1.35 volt bias to TP1.

VIDEO IF ALIGNMENT (SWEEP MARKER GENERATOR)

DIRECT PROBE FROM SWEEP/MARKER GENERATOR	SWEEP GENERATOR OUTPUT	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	REMARKS
To TP3 (C1)	To TP on VHF Tuner.	44MHz (10MHz Sweep)	39.75MHz 47.25MHz	Adjust L103 (Top and Bottom) for MINIMUM. Adjust L102 (Top and Bottom) for MINIMUM. See Figure 1.
"	"	"	45.75MHz Modulated	NOTE: Use a modulated 45.75MHz. marker for this adjustment. Adjust L107 for maximum. See Figure 3.
"	"	"	39.75MHz 42.17MHz 44.00MHz 45.75MHz 47.25MHz	Adjust VHF Tuner IF output Coil, L101, T101 (Top and Bottom) for maximum gain and symmetry of response. T101 (Bottom) affects 42.17MHz and 44.00MHz. T101 (Top) affects 44.00MHz and 45.75MHz. VHF Tuner IF Output Coil and L101 affect overall response. See Figure 2.

VIDEO IF ALIGNMENT (BAR SWEEP GENERATOR)

BAR SWEEP GENERATOR	SCOPE INPUT	REMARKS
To TP on VHF Tuner.	To TP3	Perform Video IF Adjustments per SWEEP/MARKER GENERATOR instructions above. See Figure 4.

4.5MHz 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 L801 for MINIMUM beat interference.

SOUND IF ALIGNMENT

Tune in a station and adjust L1001 and T1001 for maximum sound. Reduce signal strength at the antenna terminals until distortion appears. Continue to reduce the signal while aligning for undistorted output by adjusting L1001.

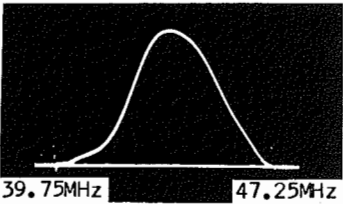


Figure 1

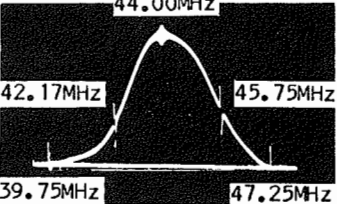


Figure 2

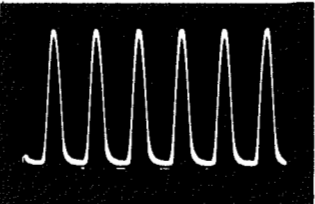


Figure 3

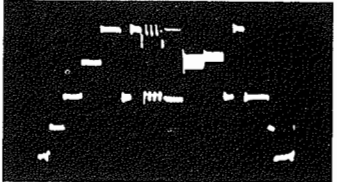
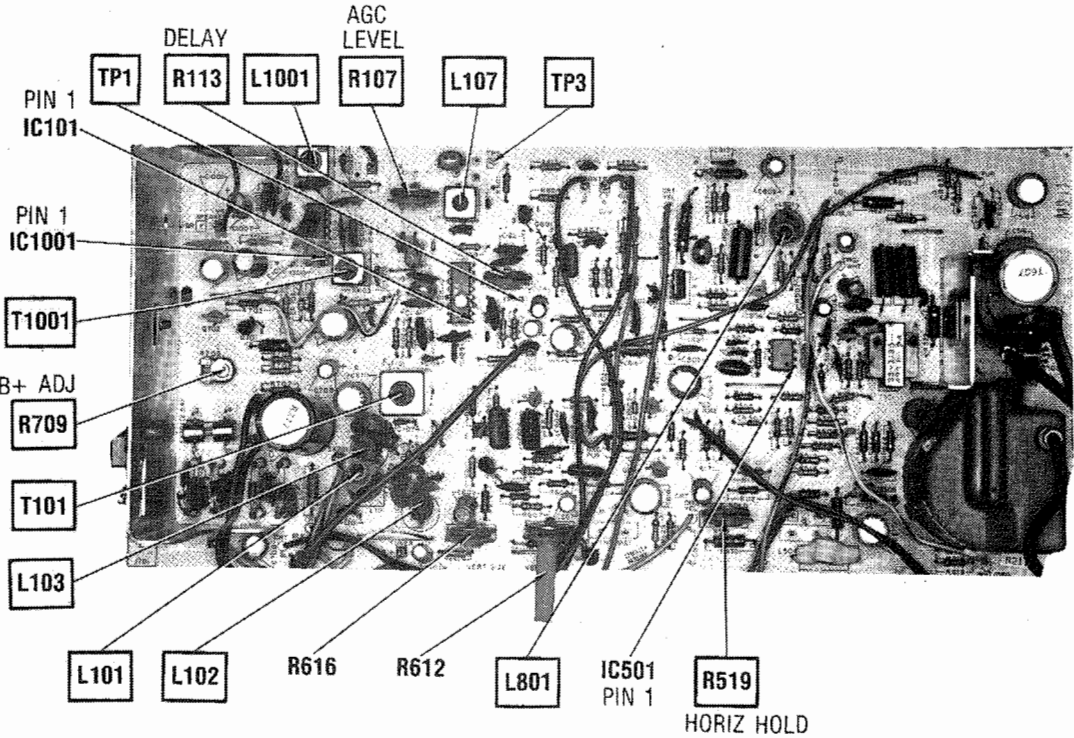


Figure 4



ZENITH
CHASSIS 12MB11X

FOLDER 3

MAIN BOARD

SAFETY PRECAUTIONS **PRODUCT SAFETY SERVICING GUIDELINES** **FOR ZENITH B & W TELEVISION RECEIVERS**

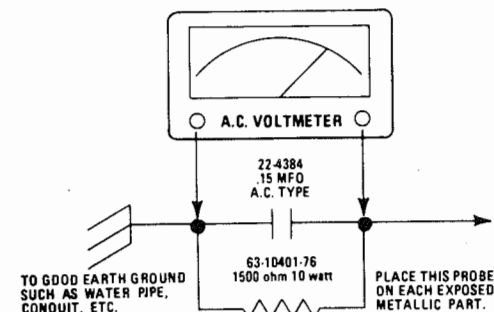
CAUTION: No modification of any circuit should be attempted. Service work should be performed only after you are thoroughly familiar with all of the following safety checks and servicing guidelines. To do otherwise increases the risk of potential hazards and injury to the user. **CAUTION: NEVER ATTEMPT TO SERVICE A 12KB4X, 19LB2X, 19MB1X, 22LB2X AND 22MB1X CHASSIS THAT IS CONNECTED DIRECTLY TO AN AC LINE. MAKE SURE IT IS CONNECTED THROUGH AN ISOLATION TRANSFORMER. NO MATTER WHICH NO MATTER WHICH WAY THE AC PLUG IS INSERTED, A POTENTIAL SHOCK HAZARD IS PRESENT AT CHASSIS GROUND UNLESS AN ISOLATION TRANSFORMER IS USED DURING SERVICING.** One side of the AC input is fused; so, there's a 50% chance of blowing a fuse, or a 50% chance of destroying components and/or test equipment if an isolation transformer is not used. Therefore, **DO NOT SERVICE WITHOUT AN ISOLATION TRANSFORMER.** The chassis consists of a single circuit board mounted horizontally in the bottom of the cabinet. All circuit parts are mounted on the board except the Tuners, Customer controls, CRT, Deflection Yoke and VSS module board and Power Transformer. The Horizontal Sweep Transformer is also mounted on the chassis circuit board. The board can be slid out of the cabinet without disconnecting and the TV receiver will operate with the board exposed. Screws are not required to hold the board in place. It slides into slots which are molded into the cabinet, and the cabinet back holds in in place.

SAFETY CHECKS

After the original service problem has been corrected, a check should be made of the following:

SUBJECT: FIRE & SHOCK HAZARD

1. Be sure that all components are positioned in such a way to avoid possibility of adjacent component shorts. This is especially important on those chassis which are transported to and from the repair shop.
2. Never release a repair unless all protective devices such as insulators, barriers, covers shields, strain reliefs, and other hardware have been reinstalled per original design.
3. Soldering must be inspected to uncover possible cold solder joints, frayed leads, damaged insulation (including AC cord), solder splashes or sharp solder points. Be certain to remove all loose foreign particles.
4. Check "across-the-line" capacitor and other components for physical evidence of damage or deterioration and replace if necessary. Follow original layout, lead length and dress.
5. No lead or component should touch a receiving tube or a resistor rated at 1 watt or more. Lead tension around protruding metal surfaces must be avoided.
6. All critical components (shaded on the schematic diagram and parts lists) such as: fuses, flameproof resistors, capacitors, etc., must be replaced with exact Zenith types. Do not use replacement components other than those specified or make unrecommended circuit modifications.
7. After re-assembly of the set always perform an AC leakage test on all exposed metallic parts of the cabinet, the channel selector knobs, antenna terminals, handle and screws to be sure the set is safe to operate without danger of electrical shock. **DO NOT USE A LINE ISOLATION TRANSFORMER DURING THIS TEST.** Use an AC voltmeter having 5000 ohms per volt or more sensitivity in the following manner: Connect a 1500 ohm 10 watt resistor (63-10401-76), paralleled by a 0.15 mfd., 150V AC type capacitor (22-4384) 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 1500 ohm resistor and 0.15 mfd. capacitor. Reverse the AC plug and repeat AC voltage measurements for each exposed metallic part. Voltage measured must not exceed 0.75 volts RMS. This corresponds to 0.5 milliamp AC. Any value exceeding this limit constitutes a potential shock hazard and must be corrected immediately.

SUBJECT: IMPLOSION PROTECTION

1. All Zenith picture tubes are equipped with an integral implosion protection system, but care should be taken to avoid damage during installation. Avoid scratching the tube.
2. Use only Zenith replacement tubes.

SUBJECT: X-RADIATION

1. Be sure procedures and instructions to all service personnel cover the subject of X-radiation. The only potential source of X-rays in current TV receivers is the picture tube. However, this tube does not emit X-rays when the HV is at the factory-specified level. It is only when the HV is excessive that X-radiation can be generated. The basic precaution which must be exercised is to keep the HV at the factory-recommended level. Refer to the X-ray Precaution Label which is located inside each television receiver for the correct high voltage. The proper value is also given in the applicable service manual. Operation at higher voltages may cause a failure of the picture tube or high voltage supply and, also, under certain circumstances, may produce radiation in excess of desirable levels.
2. Only Zenith specified CRT anode connectors must be used.
3. It is essential that the serviceman has available at all times an accurate high voltage meter. The calibration of this meter should be checked periodically against a reference standard, such as the one available at your distributor.
4. When the high voltage circuitry is operating properly there is no possibility of an X-radiation problem. Every time a monochrome chassis is serviced, the brightness should be run up and down while monitoring the high voltage with a meter to be certain that the high voltage does not exceed the specified value and that it is regulating correctly. We suggest that you and your service organization review test procedures so that voltage regulation is always checked as a standard servicing procedure, and that the reason for this prudent routine be clearly understood by everyone. It is important to record an accurate high voltage reading on each customer's invoice.
5. When trouble shooting and making test measurements in a receiver with a problem of excessive high voltage, avoid being unnecessarily close to the picture tube and the high voltage compartment. Do not operate the chassis longer than is necessary to locate the cause of excessive voltage.
6. In all earlier model receivers which used a high voltage rectifier vacuum tube, that tube should be replaced only with a Zenith recommended replacement type or a Zenith recommended solid state rectifier replacement. The high voltage compartment and all metal shields, where used, must be kept in place whenever the chassis is operating. If a shield is missing, it should be replaced at once as a standard servicing procedure.

SUBJECT: TIPS ON PROPER INSTALLATION

1. Never install any receiver in a closed-in recess, cubbyhole or closely fitting shelf space.
2. Never install receiver over, or close to a heat duct, or in the path of heated air flow.
3. Avoid conditions of high humidity such as: Outdoor patio installations where dew is a factor; near steam radiators where steam leakage is a factor.
4. Avoid placement where draperies may obstruct rear venting. Customer should also avoid use of decorative scarves or other coverings which might obstruct ventilation.
5. Wall and shelf mounted installations must use the factory approved mounting kit and mounting instructions.
6. A receiver mounted to a shelf or platform must retain its original feet or the equivalent thickness in spacers for adequate air flow from the bottom. Bolts or screws used for fasteners must not touch any parts or wiring. Perform leakage tests on customized installations.
7. Caution customers against the use of receiver on a sloping shelf or in a tilted position, unless properly secured.
8. In using a roll-about cart receiver, it should be stable in its mounting to the cart. Caution customer on trying to roll a cart with small casters across thresholds or deep pile carpets.
9. Caution customers against the use of a cart or stand that has not been "listed" by Underwriters' Laboratories, Inc. for use with their specific model of television receiver.

Courtesy of the Manufacturer

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, CRX701 Thru CRX704, CR705, CR706, Reg, Error Amp 1 & 2.

NO PIC, NO SOUND, HAS RASTER: Tuner, IF Amp (IC101).

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

NO PIC, HAS SOUND, NO RASTER: Video Output, CRT.

NO PIC, HAS SOUND, HAS RASTER: Video Output.

HAS PIC, NO SOUND: Sound IF/Amp/Output (IC1001).

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

SYNC

NO VERT SYNC: Vert Osc.
NO HORIZ SYNC: Horiz Processor.
NO VERT/HORIZ SYNC: Sync Amp/Sep.

SWEEP

NO RASTER, HAS SOUND: HV Rect (TX502), CRT.

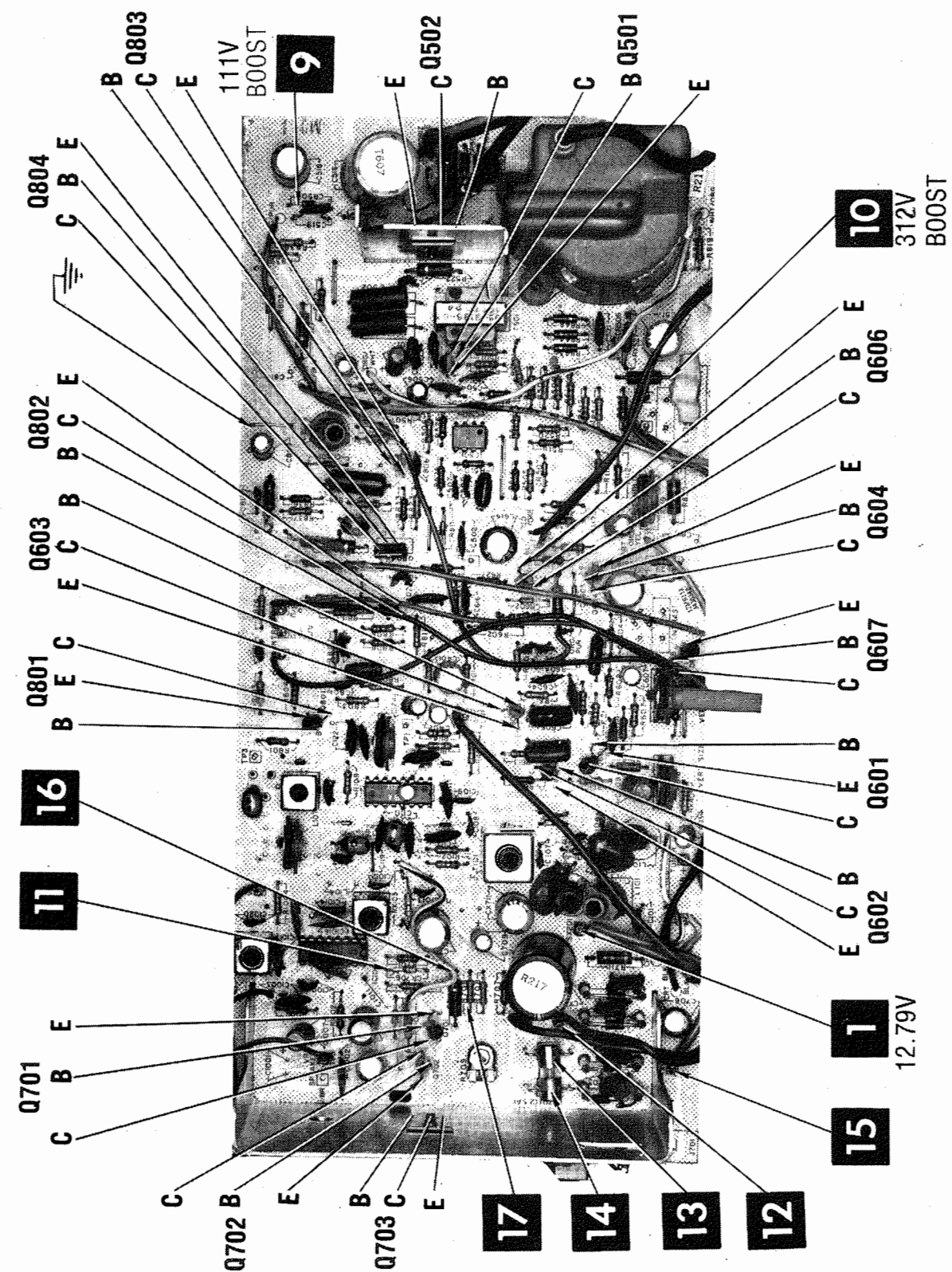
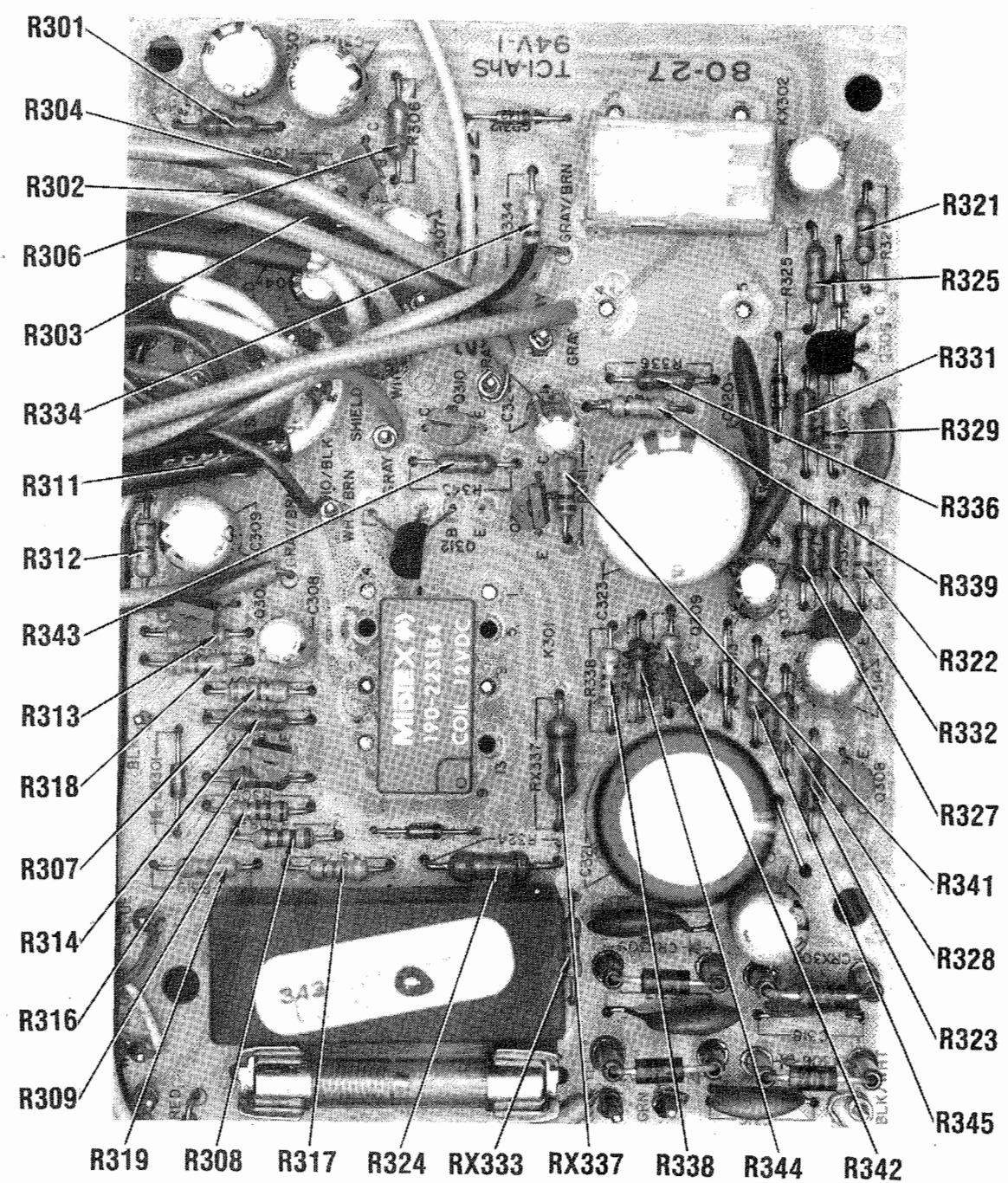
NO RASTER, NO SOUND: Horiz Processor/Driver/Output.

NO VERT DEFLECTION: Vert Osc/Amps/Outputs.

POOR VERT LIN OR FOLDOVER: Vert Amps/Outputs.

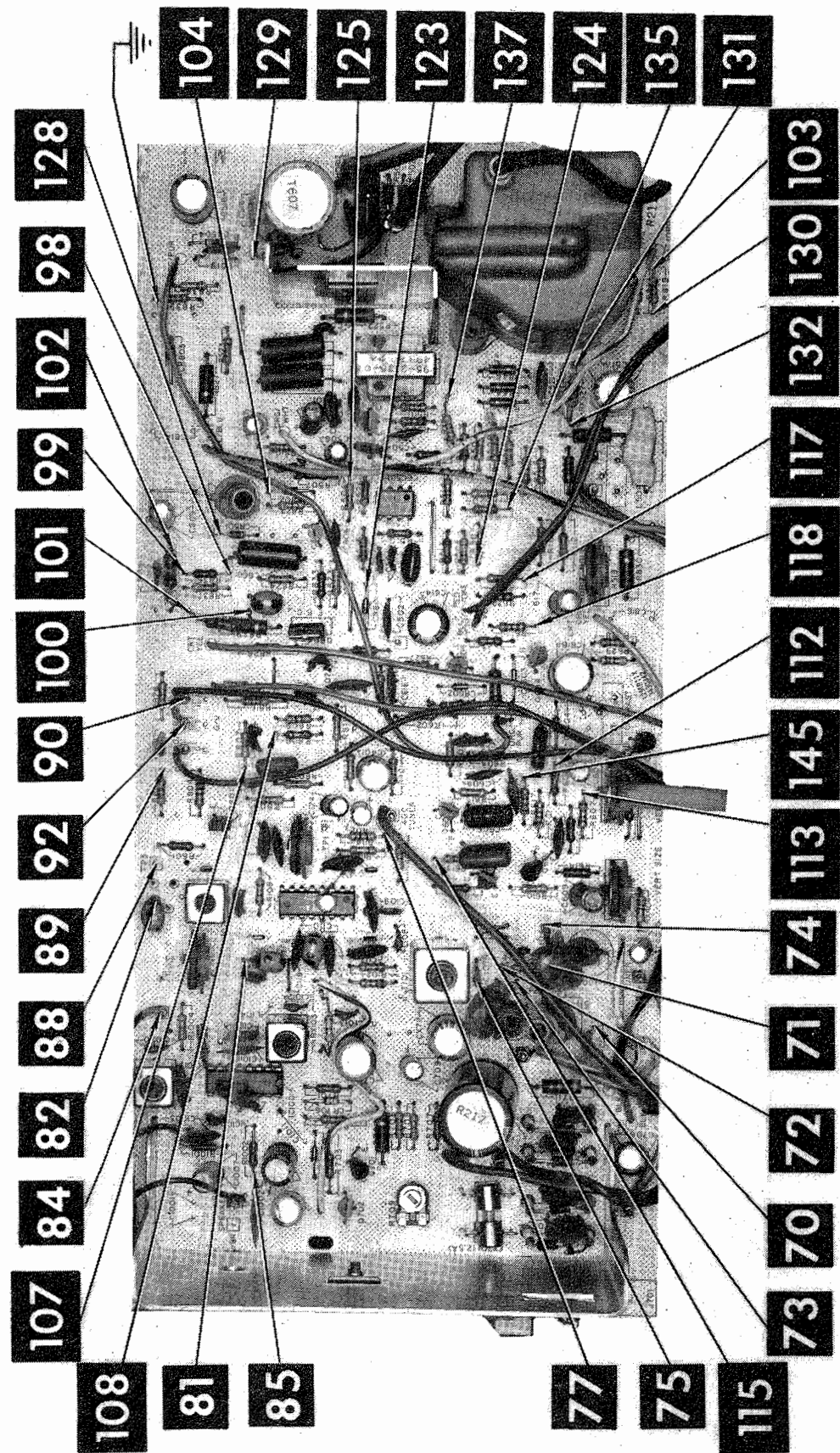
POOR HORIZ LIN OR FOLDOVER: Horiz Driver/Output.

NARROW PICTURE: Horiz Driver/Output.
VERT OFF FREQUENCY: Vert Osc.
HORIZ OFF FREQUENCY: Horiz Processor.



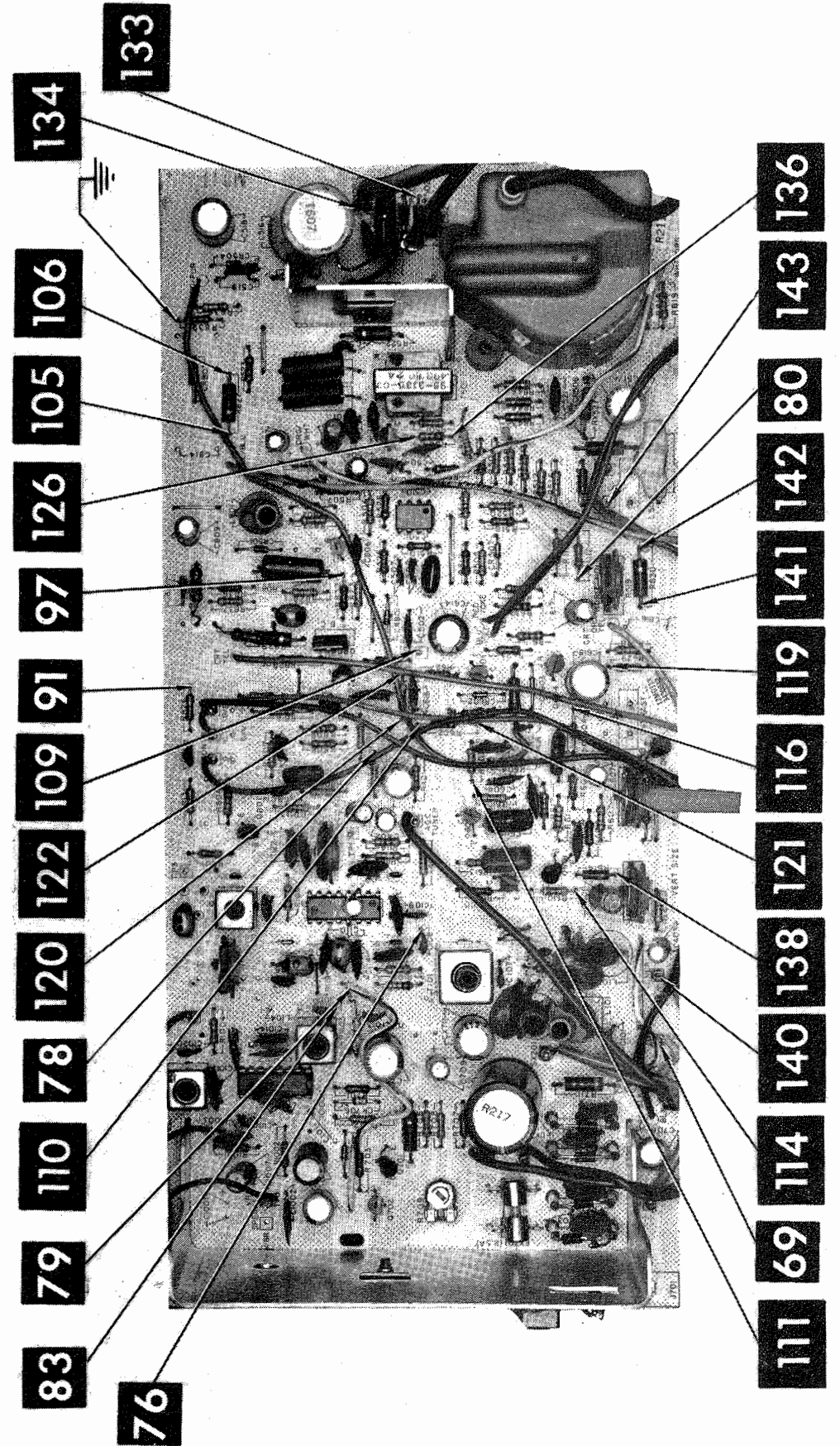
MAIN BOARD

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

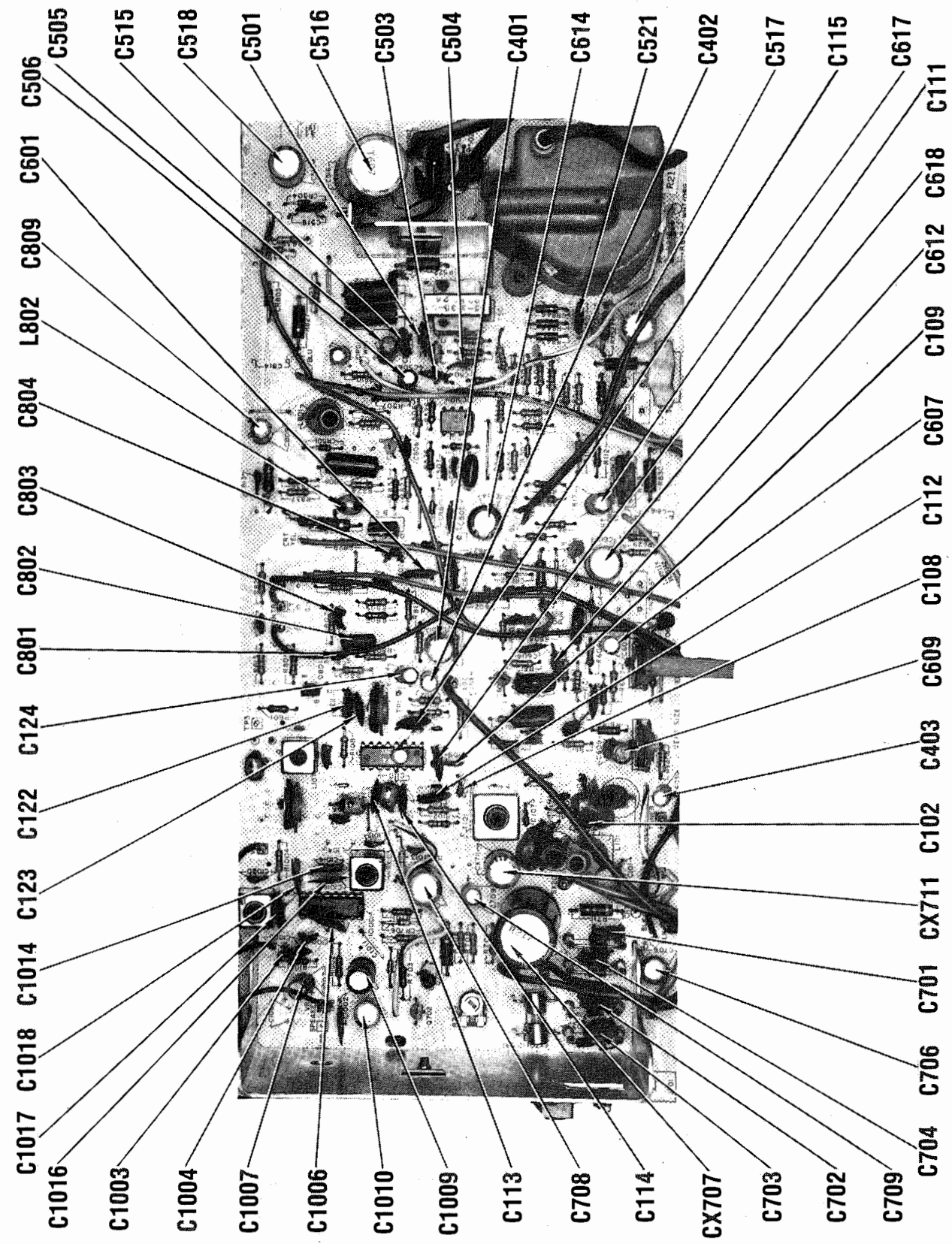
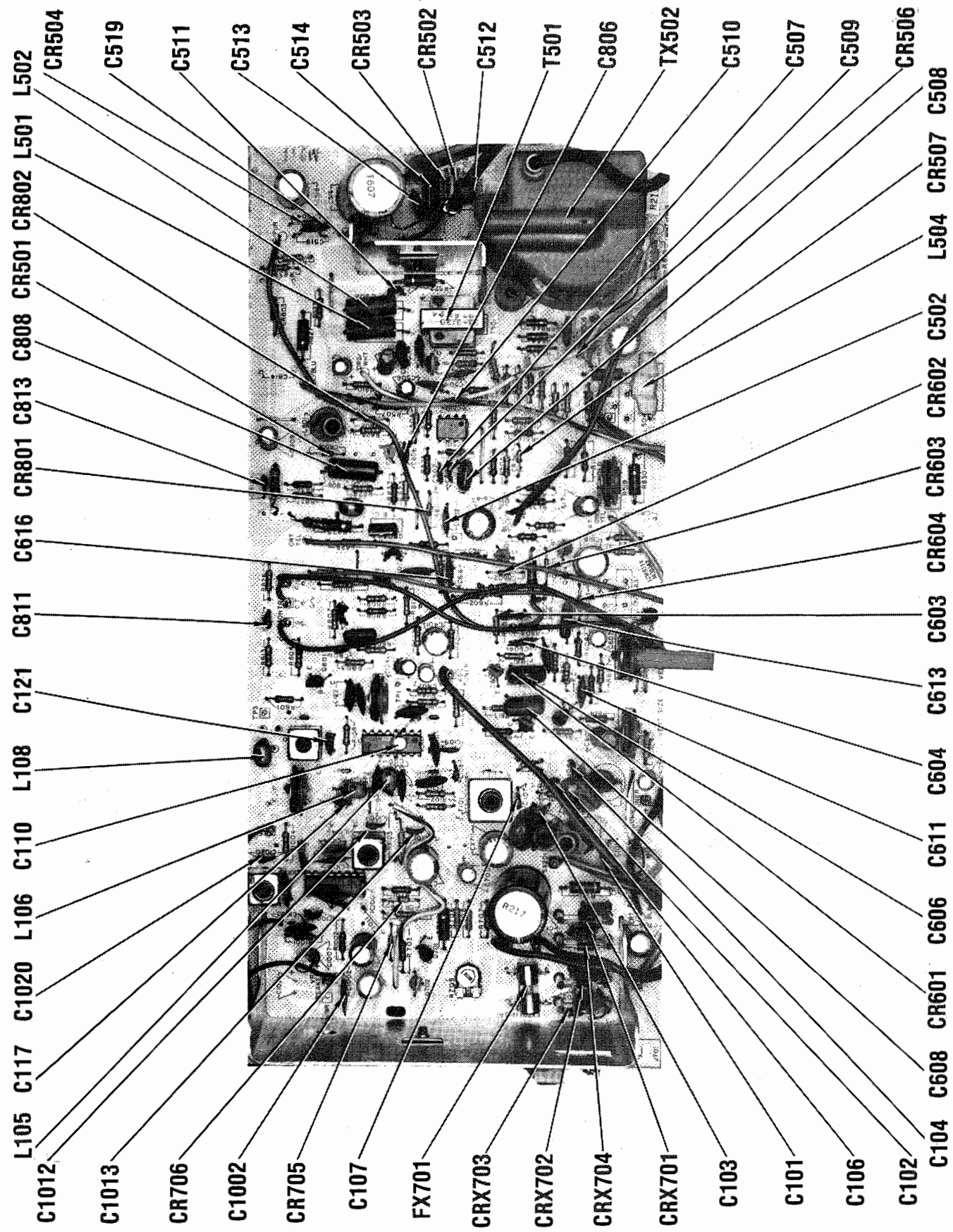


MAIN BOARD

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

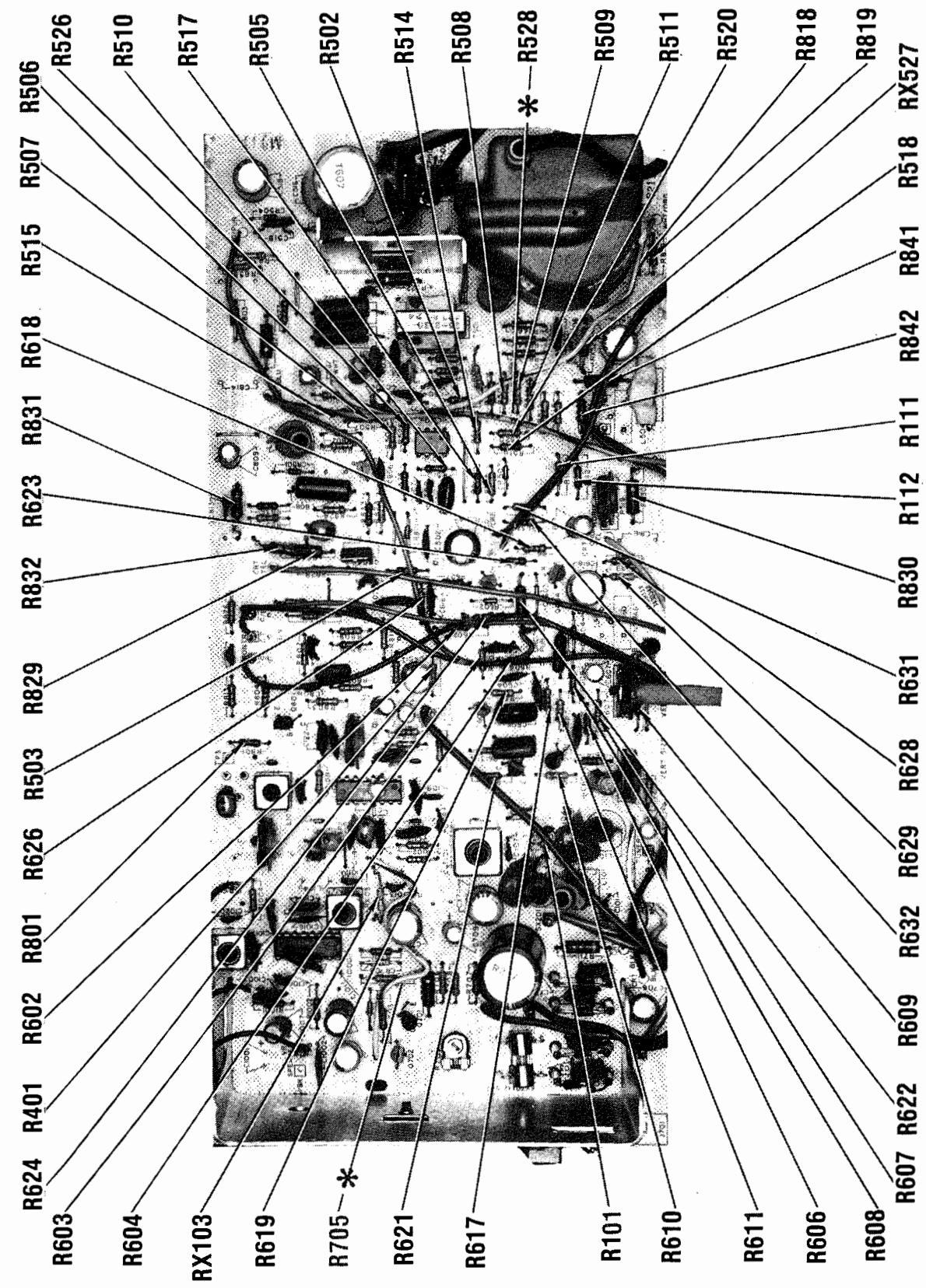
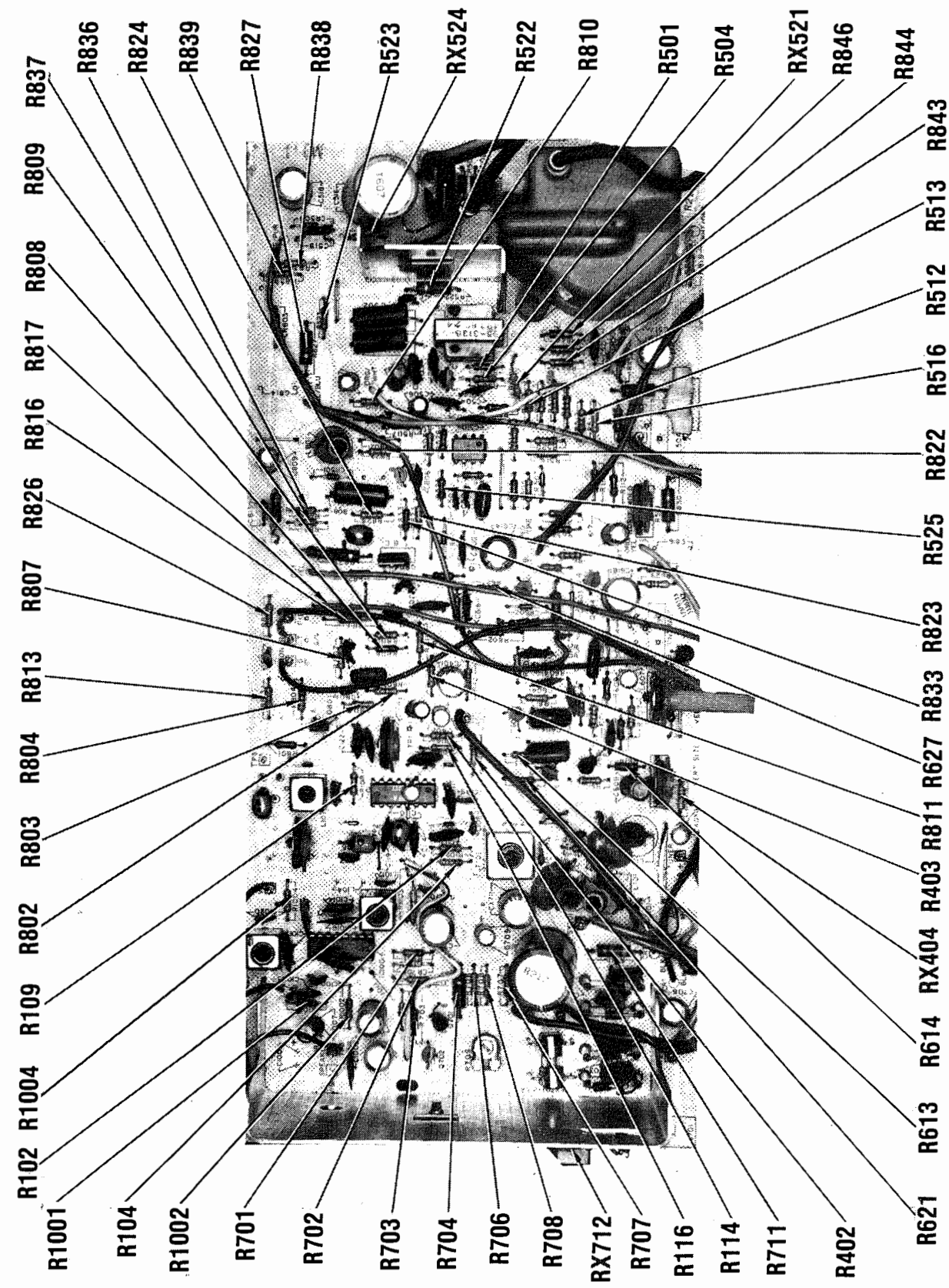


MAIN BOARD



MAIN BOARD

MAIN BOARD



* LOCATED ON OTHER SIDE OF BOARD

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.

SEMICONDUCTORS (Select replacement transistor for best results)

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.			
CR301		103-142-01	GE-300	TCG177	SK9091/177	EGG177	TM177	WEP1062/177	103-142-01	1N4935	
CR302		103-142-01	GE-300	TCG177	SK9091/177	EGG177	TM177	WEP1062/177	103-142-01	1N4935	
CR303		103-142-01	GE-300	TCG177	SK9091/177	EGG177	TM177	WEP1062/177	103-142-01	1N4935	
CR304		103-142-01	GE-300	TCG177	SK9091/177	EGG177	TM177	WEP1062/177	103-142-01	1N4935	
CR312		103-142-01	GE-300	TCG177	SK9091/177	EGG177	TM177	WEP1062/177	103-142-01	1N4935	
CR313		103-142-01	GE-300	TCG177	SK9091/177	EGG177	TM177	WEP1062/177	103-142-01	1N4935	
CR501		103-295-02	GE-533	TCG525	SK3925/525	EGG525	TM552	WEP177/525	103-295-02	1N4935	
CR502		103-261-02	GE-511	TCG552	SK9000/552	EGG552	TM552	WEP152/552	103-261-02	MR1-1400	
CR503		103-261-02	GE-511	TCG552	SK9000/552	EGG552	TM552	WEP152/552	103-261-02	MR1-1400	
CR504		103-295-02	GE-533	TCG525	SK3925/525	EGG525	TM552	WEP177/525	103-295-02	1N4935	
CR506		103-261-04	GE-511	TCG552	SK9000/552	EGG552	TM552	WEP152/552	103-261-04	MR1-1400	
CR507		103-142-01	GE-300	TCG177	SK9091/177	EGG177	TM177	WEP1062/177	103-142-01	1N4935	
CR601		103-142-01	GE-300	TCG177	SK9091/177	EGG177	TM177	WEP1062/177	103-142-01	1N4935	
CR602		103-142-01	GE-300	TCG177	SK9091/177	EGG177	TM177	WEP1062/177	103-142-01	1N4935	
CR603		103-142-01	GE-300	TCG177	SK9091/177	EGG177	TM177	WEP1062/177	103-142-01	1N4935	
CR604		103-142-01	GE-300	TCG177	SK9091/177	EGG177	TM177	WEP1062/177	103-142-01	1N4935	
CR705		103-142-01	GE-300	TCG177	SK9091/177	EGG177	TM177	WEP1062/177	103-142-01	1N4935	
CR706		103-279-09	GEZD-4.7	TCG5009A	SK3775/5009A	EGG5009A	TM5009A	WEP1409/5009	103-279-09	1N5230A	
CR801		103-142-01	GE-300	TCG177	SK9091/177	EGG177	TM177	WEP1062/177	103-142-01	1N4935	
CR802		103-142-01	GE-300	TCG177	SK9091/177	EGG177	TM177	WEP1062/177	103-142-01	1N4935	
CR803		103-261-02	GE-511	TCG552	SK9000/552	EGG552	TM552	WEP152/552	103-261-02	MR1-1400	
CRX306		103-261-04	GE-511	TCG552	SK9000/552	EGG552	TM552	WEP152/552	103-261-04	MR1-1400	
CRX307		103-261-04	GE-511	TCG552	SK9000/552	EGG552	TM552	WEP152/552	103-261-04	MR1-1400	
CRX308		103-261-04	GE-511	TCG552	SK9000/552	EGG552	TM552	WEP152/552	103-261-04	MR1-1400	
CRX309		103-261-04	GE-511	TCG552	SK9000/552	EGG552	TM552	WEP152/552	103-261-04	MR1-1400	
CRX701		103-261-04	GE-511	TCG552	SK9000/552	EGG552	TM552	WEP152/552	103-261-04	MR1-1400	
CRX702		103-261-04	GE-511	TCG552	SK9000/552	EGG552	TM552	WEP152/552	103-261-04	MR1-1400	
CRX703		103-261-04	GE-511	TCG552	SK9000/552	EGG552	TM552	WEP152/552	103-261-04	MR1-1400	
CRX704		103-261-04	GE-511	TCG552	SK9000/552	EGG552	TM552	WEP152/552	103-261-04	MR1-1400	
IC101		221-159							221-159		
IC501		221-141	GE1C-244	ECG815	SK3255/815	ECG815	TM815		221-141	MC1391P	
IC1001		221-158							221-158		
Q301		121-433	GE-20	TCG123AP	SK3854/123AP	ECG123AP	TM123AP	WEP736/123A	121-433	MPSA05	
Q302		121-895	GE-20	TCG123AP	SK3854/123AP	ECG123AP	TM123AP	WEP736/123A	121-895	MPSA05	
Q303		121-895	GE-20	TCG123AP	SK3854/123AP	ECG123AP	TM123AP	WEP736/123A	121-895	MPSA05	

MISCELLANEOUS ADJUSTMENTS

B+ ADJUSTMENT

Turn TV set on. Connect a DC meter to the junction of CRX702 and CRX703, low side to chassis ground. Adjust B+ Adjust Control (R709) for a reading of +12.5 to +12.6 volts DC.

HORIZONTAL HOLD ADJUSTMENT

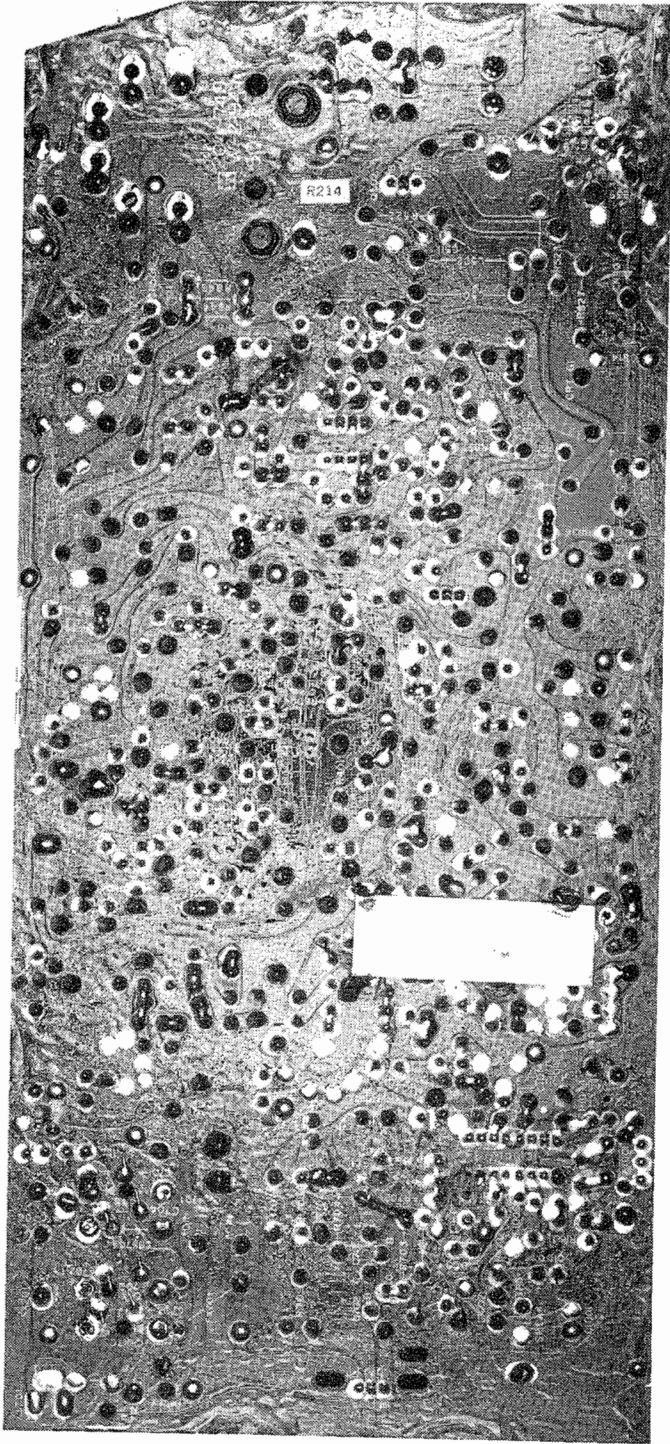
Tune in a TV station. Adjust Horizontal Hold Control (R519) to a point where it is virtually impossible to lose Horizontal Sync while switching from channel to channel.

AGC ADJUSTMENTS

Tune in a weak TV station, adjust AGC Delay Control (R113) until snow appears in the picture then turn in the opposite direction until the snow just disappears.

Tune in a strong TV station, adjust AGC Level Control (R107) for suitable contrast without overload.

SHIELD LOCATION



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.	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.				
Q306		121-975	GE-20	TCG123AP	SK3854/123AP	ECG123AP	TM123AP	WEP736/123A	121-975	MPSA05		
Q307		121-975	GE-20	TCG123AP	SK3854/123AP	ECG123AP	TM123AP	WEP736/123A	121-975	MPSA05		
Q308		121-975	GE-20	TCG123AP	SK3854/123AP	ECG123AP	TM123AP	WEP736/123A	121-975	MPSA05		
Q309		121-975	GE-20	TCG123AP	SK3854/123AP	ECG123AP	TM123AP	WEP736/123A	121-975	MPSA05		
Q310		121-699	GE-82	TCG159	SK3466/159	ECG159	TM159	WEP62/ 159	121-699	2N5401		
Q311		121-975	GE-20	TCG123AP	SK3854/123AP	ECG123AP	TM123AP	WEP736/123A	121-975	MPSA05		
Q312		121-975	GE-20	TCG123AP	SK3854/123AP	ECG123AP	TM123AP	WEP736/123A	121-975	MPSA05		
Q501		121-819	GE-86*	TCG108	SK3452/108+	ECG108	TM108	WEP56/108	121-819	MPS6543		
Q502		121-1028-01	GE-325	TCG379	SK3129	ECG379	TM379		121-1028-01			
Q601		121-699	GE-82	TCG159	SK3466/159	ECG159	TM159	WEP 62/ 159	121-699	2N5401		
Q602		121-699	GE-82	TCG159	SK3466/159	ECG159	TM159	WEP62/159	121-699	2N5401		
Q603		121-975	GE-20	TCG123AP	SK3854/123AP	ECG123AP	TM123AP	WEP736/123A	121-975	MPSA05		
Q604		121-819	GE-86 *	TCG108	SK3452/108+	ECG108	TM108	WEP56/108	121-819	MPS6543		
Q606		121-975	GE-21	TCG159	SK3466/159	ECG159	TM159	WEP564	121-975	2N5401		
Q607		121-819	GE-86*	TCG108	SK3452/108+	ECG108	TM108	WEP56/108	121-819	MPS6543		
Q701		121-699	GE-82	TCG159	SK3466/159	ECG159	TM159	WEP62/159	121-699	2N5401		
Q702		121-975	GE-20	TCG123AP	SK3854/123AP	ECG123AP	TM123AP	WEP736/123A	121-975	MPSA05		
Q703		121-992-01	GE-241	TCG196	SK3054/196	ECG196	TM196	WEP756/196	121-992-01	2N6045		
Q801		121-895	GE-20	TCG123AP	SK3854/123AP	ECG123AP	TM123AP	WEP736/123A	121-895	MPSA05		
Q802		121-895	GE-20	TCG123AP	SK3854/123AP	ECG123AP	TM123AP	WEP736/123A	121-895	MPSA05		
Q803		121-699-01	GE-82	TCG159	SK3466/159	ECG159	TM159	WEP62/159	121-699-01	2N5401		
Q804		121-990	GE-27	TCG171	SK3104A	ECG171	TM171	WEP702/171	121-990	MPSU10		
		121-1063	GE-27	TCG171	SK3104A	ECG171	TM171	WEP702/171	121-1063	MPSU10		

For SAFETY use only equivalent replacement part.
* Lead configuration may vary from original.
+ Rotate 180° to conform with original lead configuration.

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	REPLACEMENT DATA			
		MFR. PART No.	MALLORY PART No.	SPRAGUE PART No.	
				Q-LINE	GENERAL LINE
C110	.33 50V	22-7390-05	TDC334M050EL	QCP-2107-01	SD50-R339
C124	2.2 50V		VTT2R2A50	QCP-3114-01	EV-1617.1
	2.2 25V	22-7389-03	VTT2R2A50	QCP-3114-01	EV-1617.1
C201	47 NP 16V	22-7404-08 (1)	TCN1551*		TVAN-1206.1*
C301	10 NP 16V	22-7404-05	TCN5010A	QCP-4148-01	TVAN-1304.1
C302	22 25V	22-7152-05	VTT22D25	QCP-3137-01	EV-1424
C303	22 25V	22-7152-05	VTT22D25	QCP-3137-01	EV-1424
C305	47 16V	22-7151-07	VTT47D16	QCP-3154-01	EV-1226
C307	10 25V	22-7152-04	VTT10B25	QCP-3132-01	EV-1422
C308	1 NP 50V		TCN501A		TVAN-1560
	1 NP 25V	22-6693	TCN501A		TVAN-1200
C309	22 25V	22-7152-05	VTT22D25	QCP-3137-01	EV-1424
C311	10 25V	22-7152-04	VTT10B25	QCP-3132-01	EV-1422
C314	10 25V	22-7152-04	VTT10B25	QCP-3132-01	EV-1422
# C321	2200 25V	22-7152-13			EV-1380
# C322	22 25V	22-7152-05	VTT22D25	QCP-3137-01	EV-1424
C323	1000 16V		VTT1000M16	QCP-3195-01	EV-1261
	1000 25V	22-7152-12	VTT1000N25	QCP-3195-01	EV-1360
C324	2.2 50V		VTT2R2A50	QCP-3114-01	EV-1617.1
	2.2 25V	22-7389-03	VTT2R2A50	QCP-3114-01	EV-1617.1
C326	4.7 25V	22-7142-03	VTT4R7B50	QCP-3122-01	EV-1419
C401	10 16V	22-7456	VTT10B25	QCP-3128-01	EV-1222
C402	.33 50V	22-7390-05	TDC334M050EL	QCP-2107-01	SD50-R339
C403	10 16V	22-7151-04	VTT10B25	QCP-3128-01	EV-1222
C505	10 16V	22-7151-04	VTT10B25	QCP-3128-01	EV-1222
C506	1 50V	22-7153	VTT1A50	QCP-3107-01	EV-1615
C516	10 NP 25V	22-7313	TCN5010A	QCP-4148-01	TVAN-1304.1
# C517	220 16V	22-7151-09	VTT220H16	QCP-3175-01	EV-1240
# C518	4.7 160V	22-7674-01	TC50XB*		TVA-1544*
C607	10 16V	22-7151-04	VTT10B25	QCP-3128-01	EV-1222
C609	10 16V	22-7456-01	VTT10B25	QCP-3128-01	EV-1222
C614	220 16V	22-7579-06	VTT220H16	QCP-3175-01	EV-1240
C617	22 16V	22-7151-05	VTT22B16	QCP-3137-01	EV-1224
C618	47 25V	22-7152-07	VTT47E25	QCP-3154-01	EV-1426.1
# C708	220 10V	22-7150-09	VTT220H16	QCP-3175-01	EV-1240
# C709	10 16V	22-7151-04	VTT10B25	QCP-3128-01	EV-1222
C807	10 16V	22-7151-04	VTT10B25	QCP-3128-01	EV-1222
C809	1 160V	22-7674-02	TC56A*		TVA-1540*
C1007	22 16V	22-7151-05	VTT22B16	QCP-3137-01	EV-1224
C1009	47 16V	22-7151-07	VTT47D16	QCP-3154-01	EV-1226
C1010	47 16V	22-7151-07	VTT47D16	QCP-3154-01	EV-1226
# CX706	10 50V	22-7153-04			
# CX707	2200 25V	22-7152-13			EV-1380
# CX711	220 16V	22-7151-09	VTT220H16	QCP-3175-01	EV-1240

For SAFETY use only equivalent replacement part.
* Axial replacement for radial device.
(1) May be used in some versions.

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.

CABINETS & CABINET PARTS (When ordering specify model, chassis & color)

ITEM	PART No.	ITEM	PART No.
Cabinet Rear	A-8225-04	Knob, UHF Channel Select	A-8239
Cabinet Front	14-11335-12	Knob, UHF Finte Tuning	A-8235
Cabinet, Speaker	14-11398	Knob, Volume	46-9848
Dial Scale, UHF	A-8227	Knob, Brightness/Contrast	46-10296-01
Knob, VHF Fine Tuning	A-8232	Pushbutton,TV/Camera (2 req)	46-10328
Knob, VHF Channel Select	A-8230	Pushbutton, Talk	46-10328-01

WIRING DATA

High Voltage Lead	Use BELDEN No. 8869 (17 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
300-Ohm Antenna Lead-in	Use BELDEN No. 8230 or 8275
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 (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.

TRANSFORMER (Power)

ITEM No.	RATING			REPLACEMENT DATA		
				MFGR. PART No.	THORDARSON PART No.	TRIAD PART No.
	PRI.	SEC. 1	SEC. 2			
# TX201	120V AC @ .27A AC	15.9V AC @ 1.6A AC	246V AC @ .3A AC Tap @ 16.4V AC @ .22A DC	95-3481		

For SAFETY use only equivalent replacement part.

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		MFGR. PART No.	QUAM PART No.	
LS201	3 9/16" X 2 3/8" PM 32 Ohm	49-1259-06		

FUSE DEVICES

ITEM No.	DESCRIPTION	REPLACEMENT DATA				NOTES
		MFGR. PART No.		BUSS PART No.		
		DEVICE	HOLDER	DEVICE	HOLDER	
# FX201	.7A @ 125V Slow-Blow	136-116-16				# For SAFETY use only equivalent replacement part.
# FX301	.8A @ 250V Slow-Blow	136-116-18		MDL 8/10		
# FX701	2.5A @ 32V Fast-Acting	136-120-06		AGA 2-1/2		

MISCELLANEOUS

ITEM No.	PART NAME	MFGR. PART No.	NOTES
E202	Spark Gap	52-958-04	
E203	Spark Gap	52-958-04	
J301	Jack	78-2982	Camera 8 Pin
K301	Relay	195-110	Camera-TV
# KX302	Relay	195-106	On-Off
L201	Ferrite Bead	149-333	
L202	Ferrite Bead	149-333	
L501	Ferrite Bead	149-379	
L502	Ferrite Bead	149-379	
S301	Switch	85-1576	Talk
S302	Switch	(1)	Camera Quick Off
S303	Switch	(1)	Receiver Quick Off
SX201	Switch	(2)	TV On/Off
# SX202	Switch		Door Bell
# VX201	CRT	100-648	12VCAP4 or 12VCBP4
	Antenna	A-6961	UHF RUSSELL Replacement LIN-2H
	Antenna	1-139	VHF RUSSELL Replacement COM-8H
	Cord	11-325-11	AC Power
	Tuner	175-2231-04	UHF
	Tuner	175-1732-09	VHF

For SAFETY use only equivalent replacement part.

- (1) Part of S301.
(2) Part of RX202

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

ITEM No.	RATING	MFGR. PART No.	REPLACEMENT DATA	
			MALLORY PART No.	SPRAGUE PART No.
				Q-LINE GENERAL LINE
C101	7pF NPO 50V ±.25	22-7631-06A		
C102	10pF N150 50V ±.25	22-7631-09A	*	10TCP-Q10
C103	10pF N150 50V ±.25	22-7631-09A	*	10TCP-Q10
C104	8pF N150 50V ±.25	22-7631-07A	*	
C105	100 50V 10%		CNO310	10TCC-T10
C106	8pF N150 50V ±.25	22-7631-07A	*	
C107	27 N330 50V 5%	22-7639-18A	*	
C108	30 N330 50V 5%	22-7639-19A	*	
C109	.0018 50V 10%		GP218	10TS-D18
C111	.01 50V		MAG5011	
C112	.01 50V		MAG5011	
C113	150 NPO 50V 10%		CNO315	10TCC-T15
C114	.01 50V		MAG5011	
C115	.01 50V		MAG5011	
C117	68 NPO 50V 10%		CNO468	10TCC-Q68
C121	56 NPO 50V 10%		CNO456	10TCC-Q56
C122	.01 50V		MAG5011	
C123	.01 50V		MAG5011	
C202	.047 100V		EWFI1A147	1PB-S47
C203	.022 50V		TA125	TG-S25
C304	.015 50V		MAG50115	
C312	.15 12V		MAG12015	HY-365
	.15 10%		MAG12015	HY-365
C313	.15 12V		MAG12015	HY-365
	.15 10V		MAG12015	HY-365
# C316	.0015 500V 5%	22-7244		
# C317	.0015 500V 5%	22-7244		
# C318	.0015 500V 5%	22-7244		
# C319	.0015 500V 5%	22-7244		
C320	.0047 500V 10%	22-7440		10SS-D47
C399	820 50V			10TS-T82
C501	.01 50V		GP382	
C502	.022 50V		MAG5011	
C503	.022 50V		TA125	QCP-5217-01 TG-S25
C504	.022 50V		TA125	QCP-5217-01 TG-S25
C507	.01 50V		MAG5011	QCP-5217-01 TG-S25
C508	.0056 100V 10%		EWFI1A256	
C509	.01 50V		MAG5011	1PB-D56
C510	.001 500V		GP210	10TS-D10
C511	220 50V		CNO315	10TCC-T15
# C512	330 500V 10%	22-3255		
# C513	.001 500V	22-7433		
# C514	.027 200V 5%	22-7612		
C515	.001 500V			10TS-D10
C519	.0047 500V		GP210	QCP-5180-01 5GA-D47
# C521	.0047 500V		GP247	QCP-5180-01 5GA-D47
C601	.01 50V 10%		JE110	10TS-S10
C603	.01 50V 10%		JE110	10TS-S10
C604	.01 50V 10%		JE110	10TS-S10
C606	.1 50V 10%		EWFO5010	431P1049R5
C608	.1 50V 10%		EWFO5010	431P1049R5
C611	.01 50V 10%		JE110	10TS-S10
C612	.01 50V 10%		JE110	10TS-S10
C613	.022 50V 10%		M192P2239R8	192P2239R8
C616	.01 50V 10%		JE110	10TS-S10
# C701	.0015 500V 5%	22-7244		
# C702	.0015 500V 5%	22-7244		
# C703	.0015 500V 5%	22-7244		
# C704	.0015 500V 5%	22-7244		
C801	820 50V 10%		GP382	10TS-T82
C802	.047 50V 10%		EWFI1A147	1PB-S47
C803	.0047 50V		GP247	5GA-D47
C804	220 50V 10%		GP322	10TS-T22
C806	.0047 50V		GP247	5GA-D47
C808	.0015 100V 10%		EWFO5010	6PS-D15
C811	270 50V 10%			10TCC-T27
C813	820 50V 10%		GP382	10TS-T82

PARTS LIST AND DESCRIPTION (CONTINUED)

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

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CAPACITORS (cont)

ITEM No.	RATING	MFG. PART No.	REPLACEMENT DATA		
			MALLORY PART No.	SPRAGUE PART No.	
				Q-LINE	GENERAL LINE
C814	.0027 500V	22-7632-13A	GP227		10TS-D27
C816	.0027 500V		GP227		10TS-D27
C1002	.047 50V		MAG5015		
C1003	.01 50V		MAG5011		
C1004	220 50V 10%		GP322		10TS-T22
C1006	.047 50V		MAG5015		
C1012	15 N150 50V 10%		*		
C1013	15 N105 50V 10%		*		
C1014	.15 12V		MAG12015		HY-365
	.15 10V		MAG12015		HY-365
C1016	.047 50V	22-7631-05A	MAG5015		10TCC-T12
C1017	120 50V 5%		CN0312		
C1018	.047 50V		MAG5015		
C1020	6 N150 50V ±.25		*		
# CX327	2.7uF 400V 6%				

For SAFETY use only equivalent replacement part.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

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

ITEM No.	FUNCTION	RESISTANCE	REPLACEMENT DATA		
			MFG. PART No.	MALLORY PART No.	TRW PART No.
R107	AGC Level	10K	63-10521		
R113	AGC	10K	63-10521		
R203	Contrast	1000	63-10770-09		
R204	Black Level	2M	63-10770-08		
R519	Horiz Hold	3000	63-9228-05	MTC53L1	X201R502B
R612	Vert Hold	250K	63-10637-04		
R616	Vert Height (Size)	300K	63-10521-04	MTC55L1	X201R504B
# RX202	Volume/Camera Switch/Power Switch	40K	63-10853		
# RX709	B+ Adjust	10K	63-10817		

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		
		MFG. PART No.	SPRAGUE/ Q-LINE PART No.	WORKMAN PART No.
# R207	33K 1/2W 10% Carbon	63-1848		22-2257
# R210	12K 1/4W 5% Carbon Film	63-10235-98	RA-1235	22-1122
# R517	15K 1/4W 2% Carbon Film	63-10234	QUP-1252	22-2254
# R522	82 1/2W 10% Carbon	63-1740		22-2070
# R523	10K 1/4W 5% Carbon Film	63-10235-96	RA-1035	22-1120
# R701	1200 1/4W 5% Carbon Film	63-10235-74	RA-1225	22-1098
# R702	1500 1/4W 5% Carbon Film	63-10235-76	RA-2205	22-1100
# R703	330 1/4W 5% Carbon Film	63-10235-60	RA-3315	22-1084
# R704	100 1/2W 10% Carbon	63-1743		22-2229
# R705	22K 1/4W 5% Carbon Film	63-10236-04	RA-2235	22-1128
# R706	12K 1/4W 5% Carbon Film	63-10235-98	RA-1235	22-1122
# R707	27K 1/4W 5% Carbon Film	63-10236-06	RA-2735	22-1130
# R708	33K 1/4W 5% Carbon Film	63-10236-08	RA-3335	22-1132
# R711	9.1 1/2W 5% Carbon	63-7968-59		
R816	820 1/4W 2% Carbon Film	63-10233-70	QUP-1192	22-2240
R817	240 1/4W 2% Carbon Film	63-10233-57	QUP-1166	
R824	2400 1/4W 2% Carbon Film	63-10233-81	QUP-1214	
R837	270 1/4W 2% Carbon Film	63-10233-58	QUP-1168	22-2234
# RX103	24 1/4W 5% Carbon Film	63-10559-33	RA-2405	
# RX212	2.2M 1/2W 10% Carbon		QUP-2356	22-2176
#	1.5M 1/2W	63-10526	QUP-2348	22-2172
# RX333	470 1/4W 5% Carbon Film	63-10235-64	RA-4715	22-1088
# RX404	10 1/4W 5% Carbon Film	63-10559-24	RA-1005	22-1048
# RX521	6.8 1/4W 5% Carbon Film	63-10559-20	RA-6R85	22-1044
# RX524	10 1/4W 5% Carbon Film	63-10559-24	QUP-1100	22-1048
# RX527	100 1/2W 5% Metal Film	63-10585-48		
# RX712	15 7W 5% (Wirewound)	83-10449-52	244E1505	

For SAFETY use only equivalent replacement part.

COILS (RF-IF)

ITEM No.	FUNCTION	MFG. PART No.	ITEM No.	FUNCTION	MFG. PART No.
L101	Video IF Input	20-3117	L399	RF Choke	
L102	47.25MHz Trap	20-3619-03	L801	4.5MHz Trap	20-3405
L103	39.75MHz Trap	20-3619-03	L802	Peaking (150uH)	20-3887-26C
L105	RF Choke (3.3uH)	20-3887-06	L1001	Quadrature Coil	20-3755
L106	Peaking (18uH)	20-3887-15	T101	Video IF Input	95-2909-07
L107	Video IF	20-3937-04	T1001	Audio IF	95-3247
L108	RF Choke (2.2mH)	20-3887-04			

COILS & TRANSFORMERS (Sweep Circuits)

ITEM No.	FUNCTION	REPLACEMENT DATA			
		MFG. PART No.	OTHER IDENTIFICATION	THORDARSON PART No.	TRIAD PART No.
T501	Horiz Driver	95-3136-03			
# LX504	Choke	20-3954			
# TX202A	Yoke Horiz 113uH	95-3438			
# B	90° Vert 49mH				
# TX502	Horiz Output	95-3434			

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.

COILS & TRANSFORMERS (Sweep Circuits)

ITEM No.	FUNCTION	REPLACEMENT DATA			
		MFGR. PART No.	OTHER IDENTIFICATION	THORDARSON PART No.	TRIAD PART No.
L101	Choke Horiz (10mH)	820-1283			
L102	Horiz Linearity	820-1284			
	Yoke Horiz .95mH	895-1174			
	90° Vert 25.8mH				
T101	Horiz Output	895-1173			

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		MFGR. PART No.	QUAM PART No.	
LS202	3 1/2" X 2 3/8" PM 32 Ohm	49-1259-05		

MISCELLANEOUS

ITEM No.	PART NAME	MFGR. PART No.	NOTES
J101	Terminal	886-379	Male
J102	Jack	823-220	Monitor 8 Pin
J103	Jack	844-257	Audio
V100	Vidicon	900-347	Camera
Y101	Crystal	903-506	MX84N 31.5kHz
	Lens	971-131	16MM
	Socket	878-127	Vidicon

CABINETS & CABINET PARTS (When ordering specify model, chassis & color)

ITEM	PART No.
Cover-Top	824-619
Panel-Front	857-1842

ITEM	PART No.
Panel-Rear	857-1845
Plate-Bottom	857-1844

WIRING DATA

General-use Unshielded Hook-up Wire Use BELDEN No. 8528 (Solid) Available in 13 Colors
8522 (Stranded) Available in 13 Colors
Low-loss Shielded Lead (Interconnection) . Use BELDEN No. 8401 or 8421

SET 2011 FOLDER 3-A

PHOTOFACT® Folder

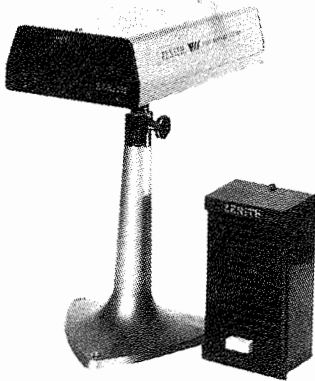
with CIRCUITRACE®

ZENITH
CHASSIS 12MB11X

For Supplier Address See PHOTOFACT Index

IMPORTANT FILING NOTICE

This PHOTOFACT Folder covers equipment used with the TV chassis covered in PHOTOFACT SET 2011 FOLDER 3. File this Folder with the TV Folder in the yellow filing jacket provided.



Model VSC-100 (Camera)

MISCELLANEOUS ADJUSTMENTS

CAMERA ADJUSTMENTS

NOTE: The TV must be in proper operating condition before performing camera adjustments.

Set all controls (Camera) to midrange.

To perform height, width and centering, place an 8 1/2" X 11" piece of paper, with center marked, 22" from Camera Lens. Adjust Horizontal Width (VR107), Vertical Size (VR105) and Centering (VR106) until target is overscanned and aimed at center of the paper.

To perform the following adjustments focus camera on objects in a well lighted room.

For gun alignment, begin with yoke tabs set to cancel (the rounded tab set adjacent to the square tab). Turn the Focus Control (VR109) back and forth thru best focus, observe the center of the picture, when gun alignment is correct, the picture center will appear stationary. If correction is necessary spread the tabs and rotate both rings while checking for a stationary picture. (The more the tabs are spread the larger the amount of correction).

Set ATC Control (VR101) fully counterclockwise. For Video Output Level, connect a scope to TP1 and adjust Target Voltage Control (VR108) for 80mV p-p. Connect scope to TP2 adjust Video Gain Control (VR103) for 1.3V p-p. Connect scope to TP3. Adjust Pedestal Level Control (VR104) for 2V p-p. Turn Beam Control (VR110) fully counterclockwise, then clockwise to a point which eliminates "flaming".

Check to see that the Image of a distant lamp is promptly eliminated when the lens is capped. Connect scope to Pin 8 of J102, check for 1.4V p-p. Repeat above procedure if necessary. Adjust Low Frequency Comp. control (VR102) for sharp image without overshoot.

CENTERING

MONITOR

Centering is accomplished by proper adjustment of two magnetic rings located on the yoke rear cover.

CAMERA

Vertical centering is accomplished by proper adjustment of the Vertical Centering Control (VR106). (See Placement Chart-Camera.)

WIDTH-CAMERA

The width may be varied by adjusting the width control (VR107). (See Placement Chart-Camera.)

FOCUS-CAMERA

The focus may be varied by a focus control (VR109). (See Placement Chart-Camera.)

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



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.

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DATE 8-81 SET 2011 FOLDER 3-A

ZENITH
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SET 2011 FOLDER 3-A

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)

REPLACEMENT DATA									
ITEM No.	TYPE No.	MFGR. PART No.	GENERAL ELECTRIC PART No.	NEW-TONE PART No.	RCA PART No.	ECG PART No.	THORDARSON PART No.	WORKMAN PART No.	ZENITH PART No.
Q105	2SC458C	921-1287	GE-210	TCG85	SK3124/289	ECG85	TM199	WEP458	921-1287
Q106	2SC458C	921-1287	GE-210	TCG85	SK3124/289	ECG85	TM199	WEP458	921-1287
Q107	MPSU07	921-1290	GE-226	TCG188	SK3199/188	ECG188	TM188	WEP858/188	921-1290
Q108	2SC458C	921-1287	GE-210	TCG85	SK3124/289	ECG85	TM199	WEP458	921-1287
Q109	2SC458C	921-1287	GE-210	TCG85	SK3124/289	ECG85	TM199	WEP458	921-1287
Q110	2N3703	921-1291	GE-82*	TCG159*	SK3466/159*	ECG159*	TM159*	WEP911/290	921-1291
Q111	2SC458C	921-1287	GE-210	TCG85	SK3124/289	ECG85	TM199	WEP458	921-1287
Q112		921-1290	GE-226	TCG188	SK3199/188	ECG188	TM188	WEP858/188	921-1290

*Lead configuration may vary from original.

*Rotate 180° to conform with original lead configuration.

ELECTROLYTIC CAPACITORS

REPLACEMENT DATA				
ITEM No.	RATING	MFGR. PART No.	MALLORY PART No.	
			Q-LINE	GENERAL LINE
C103	22 16V 20%	822-3398	TDC226M035GL	SD35-229
C104	1 35V 20%	822-3392	TDC105M035EL	SD35-19
C106	47 16V	822-3394	VTT47D16	EV-1226
C108	1 35V 20%	822-3392	TDC105M035EL	SD35-19
C109	33 16V	822-3400	VTT33D25	EV-1325
C110	10 16V	822-3401	VTT10B25	EV-1222
C111	220 16V	822-3386	VTT220H16	EV-1240
C112	100 16V	822-3389	VTT100E16	EV-1231
C113	1 35V 20%	822-3392	TDC105M035EL	SD35-19
C114	1 35V	(1)	TDC105M035EL	SD35-19
C115	33 16V	822-3400	VTT33D25	EV-1325
C116	100 16V	822-3389	VTT100E16	EV-1231
C117	22 16V 20%	822-3398	TDC226M035GL	SD35-229
C119	47 16V	822-3394	VTT47D16	EV-1226
C121	1 35V	822-3392	TDC105M035EL	SD35-19
C122	100 16V	822-3389	VTT100E16	EV-1231
C123	1000 10V	822-3402	VTT1000L10	EV-1161
C124	1 35V 20%	822-3392	TDC105M035EL	SD35-19
C127	1 35V 20%	822-3392	TDC105M035EL	SD35-19
C130	47 16V	822-3394	VTT47D16	EV-1226
C135	100 16V	822-3389	VTT100E16	EV-1231
C137	220 10V	822-3391	VTT220F10	EV-1140
C138	1 35V 20%	822-3392	TDC105M035EL	SD35-19

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 (cont)

ITEM No.	RATING	REPLACEMENT DATA			
		MFGR. PART No.	MALLORY PART No.	SPRAGUE PART No.	
C140	47 16V	822-3394	VTT47D16	QCP-3154-01	EV-1226
C150	100 50V	822-3481	TC3501D	QCP-4218-01	TVA-1310
C198	47 16V NP				TVAN-1206.1

(1) 0.1, 100V Mylar capacitor may be used in some versions.

CAPACITORS

ITEM No.	RATING	MFGR. PART No.	REPLACEMENT DATA	
			MALLORY PART No.	SPRAGUE PART No.
C101	.001 100V 10%	(1)	EW1A210	1PB-D10
C105	.022 100V 10%		EW1A122	1PB-S22
C107	22 50V 10%		CN0422	10TCC-Q22
C114	.1 100V 10%		EW1A010	1PB-P10
C118	.1 100V 10%		EW1A010	1PB-P10
C120	47 NPO 50V 10%		CN0447	10TCC-Q47
C125	47 NPO 50V 10%		CN0447	10TCC-Q47
C126	47 NPO 50V 10%		CN0447	10TCC-Q47
C128	.0047 100V 10%		EW1A247	1PB-D47
C129	150 50V 10%		CN0315	10TCC-T15
C131	.022 100V 5%			PP8-S22S
C132	.0015 100V 5%			PP6-D18S
C133	.0015 100V 5%			PP6-D18S
C134	.0015 100V 5%			PP6-D18S
C136	.001 100V 10%		EW1A210	1PB-D10
C139	.0022 100V 10%		EW1A210	6PS-D22
C141	.01 630V 10%		EW1A010	1PB-P10
C142	.0022 100V 5%		PVC1611	16PS-S10
C143	.001 100V 10%		EW1A210	6PS-D22
C144	.01 630V 10%		EW1A210	1PB-D10
C145	.033 630V 10%		PVC1613	16PS-S10
C146	.033 630V 10%		PVC1613	10PS-S33
C199	470 50V 10%	(1)	GP347	10TS-T47
	330 500V 10%		GP333	10TS-T33

(1) Used in some versions.

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

ITEM No.	FUNCTION	RESISTANCE	REPLACEMENT DATA		
			MFGR. PART No.	MALLORY PART No.	TRW PART No.
VR101	ATC	20K	863-3539	RVA0911H253	U260R253B
VR102	Low Freq Comp	10K	863-3540	RVA0911H103	U260R103B
VR103	Video Gain	470	863-3541	RVA0911H501	U260R501B
VR104	Pedestal	5000	863-3542	RVA0911H502	U260R502B
VR105	Vert Height (Size)	500K	863-3543	RVA0911H504	U260R504B
VR106	Vert Centering	5000	863-3542	RVA0911H502	U260R502B
VR107	Horiz Width	5000	863-3542	RVA0911H502	U260R502B
VR108	Target	1M	863-3544	RVA0911H105	U260R105B
VR109	Focus	1M	863-3544	RVA0911H105	U260R105B
VR110	Beam Voltage	1M	863-3544	RVA0911H105	U260R105B

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA		
		MFGR. PART No.	SPRAGUE/ Q-LINE PART No.	WORKMAN PART No.
R144	50 5% 10W WW	863-3546	247E5005	FR1015
R146	150 5% 10W WW		247E1515	
R147	130K 1% 1/4W Metal Film	863-3547		
R151	249K 1% 1/4W Metal Film	863-3548		
R152	5110 1% 1/4W Metal Film	863-3549		
TH101	13.3K 1% 1/4W Metal Film	863-3550		
	750 Cold NTC	863-3538		

PARTS LIST AND DESCRIPTION

(When ordering parts, state Model, Part Number, and

Replacement parts shown may be superseded by the
Have your local distributor check Sams COUNTER I

COILS & TRANSFORMERS I

ITEM No.	FUNCTION
L101	Choke Horiz (10mH)
L102	Horiz Linearity Yoke Horiz .95mH
T101	90° Vert 25.8mH Horiz Output

SPEAKER

ITEM No.	TYPE
LS202	3 1/2" X 2 3/8" PM 32 Ohm

MISCELLANEOUS

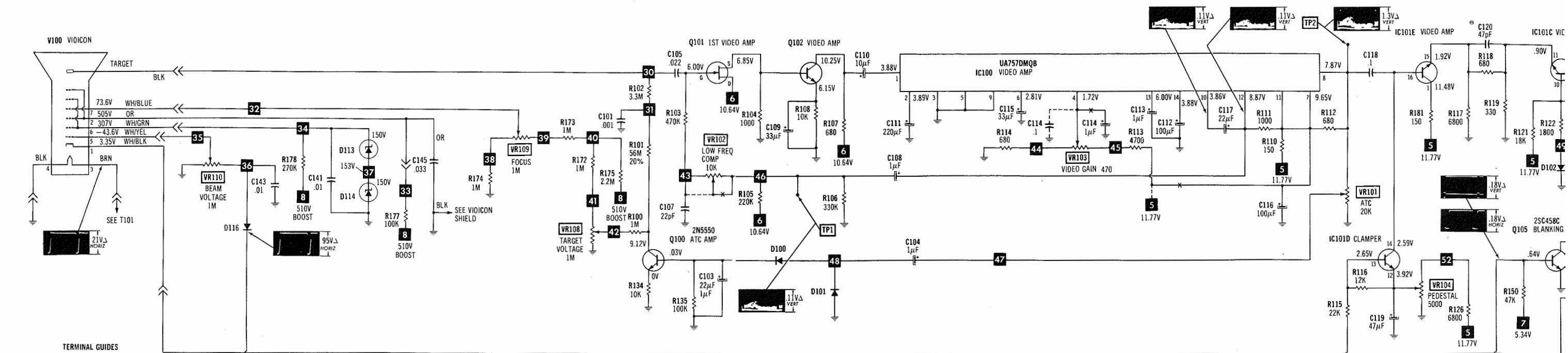
ITEM No.	PART NAME	
J101	Terminal	886-3
J102	Jack	823-2
J103	Jack	844-2
V100	Vidicon	900-3
Y101	Crystal	903-5
	Lens	971-1
	Socket	878-1

CABINETS & CABINET PART

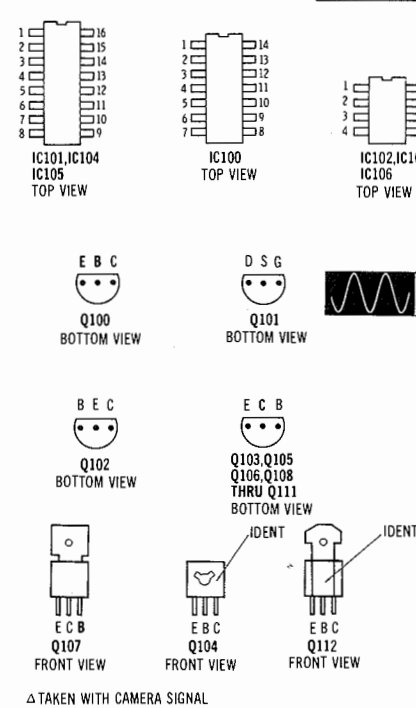
ITEM	
Cover-Top	82
Panel-Front	85

WIRING DATA

General-use Unshielded Hook-up WI
Low-loss Shielded Lead (Interconn



TERMINAL GUIDES



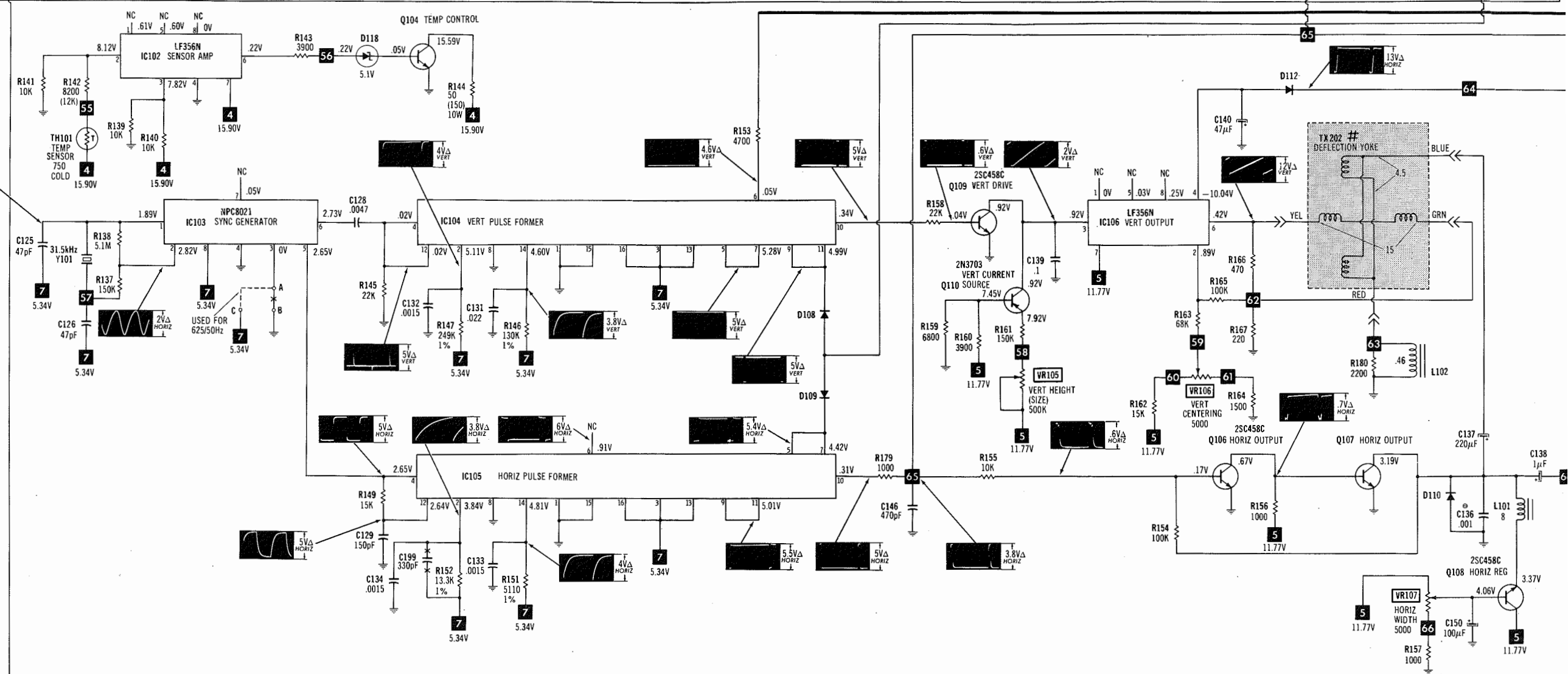
For SAFETY use only equivalent replacement part.

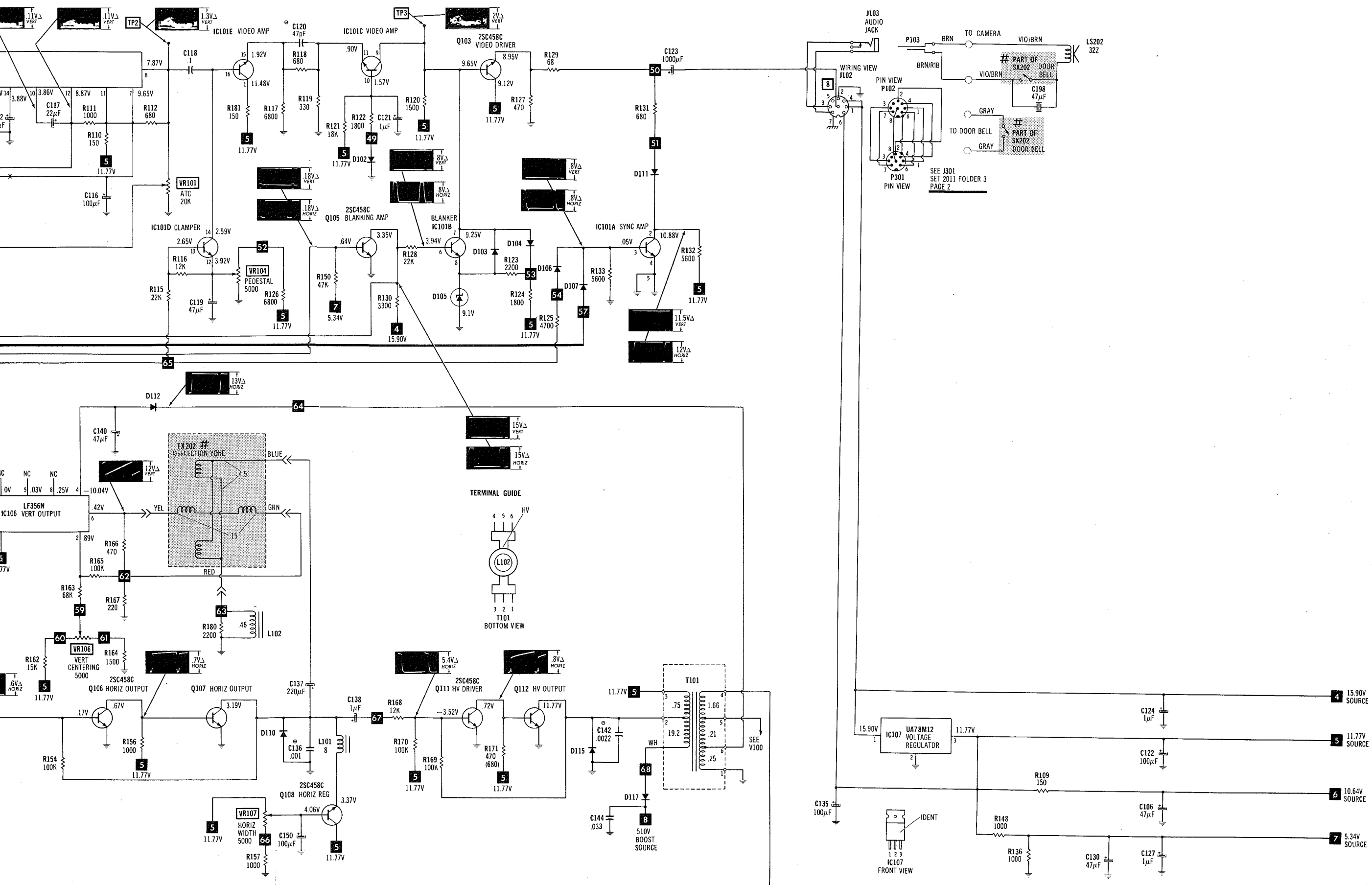
- Circuitry not used in some versions
- - - Circuitry used in some versions
- e See parts list
- ⊗ Nominal value
- ⊥ Ground
- Waveforms: triggered scope, keyed rainbow generator
- Item numbers in rectangles appear in the alignment/adjustment instructions.
- Supply voltage maintained as shown at input.
- 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 PHOTOFACT STANDARD NOTATION SCHEMATIC

WITH **CIRCUITACE™**

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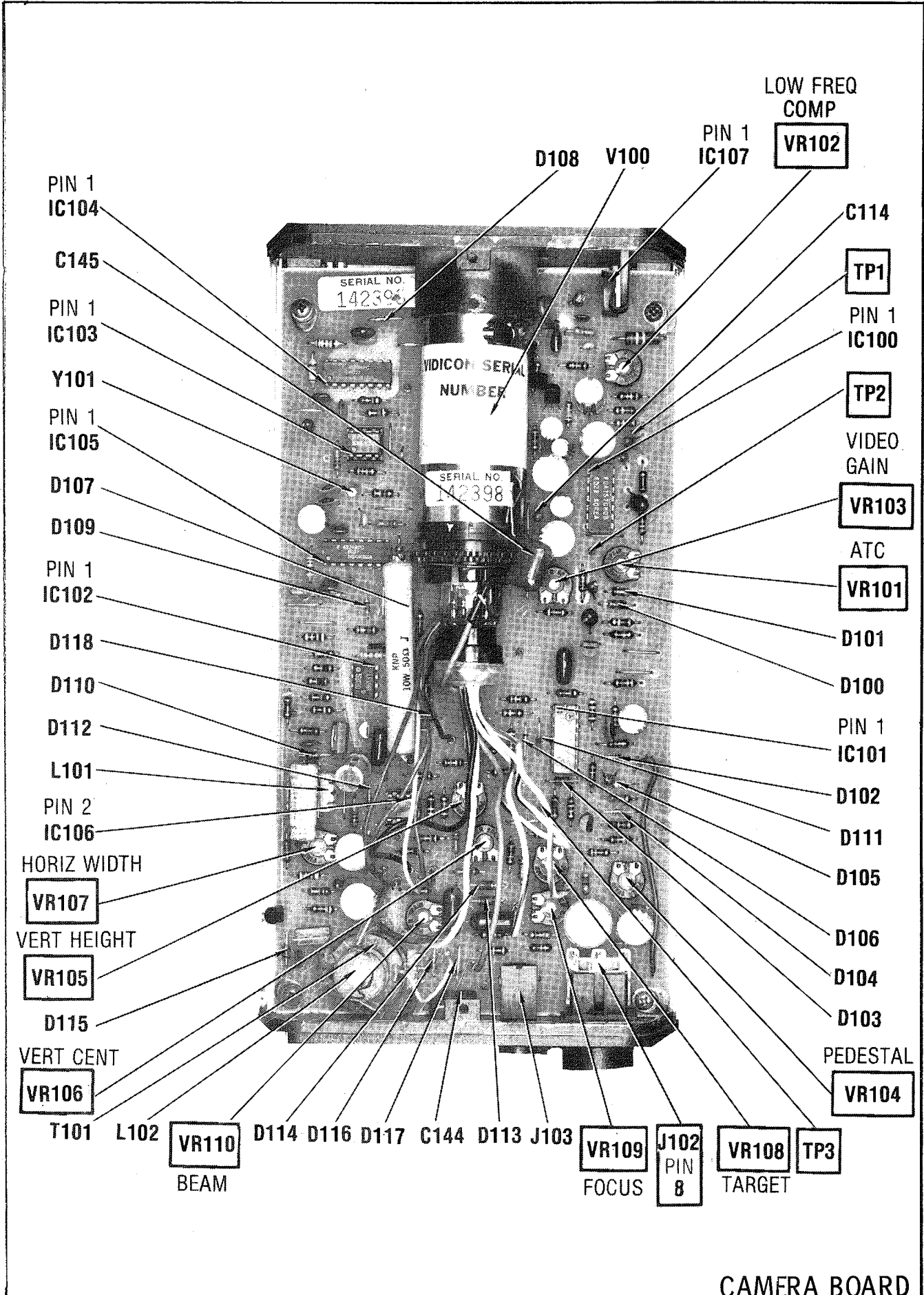


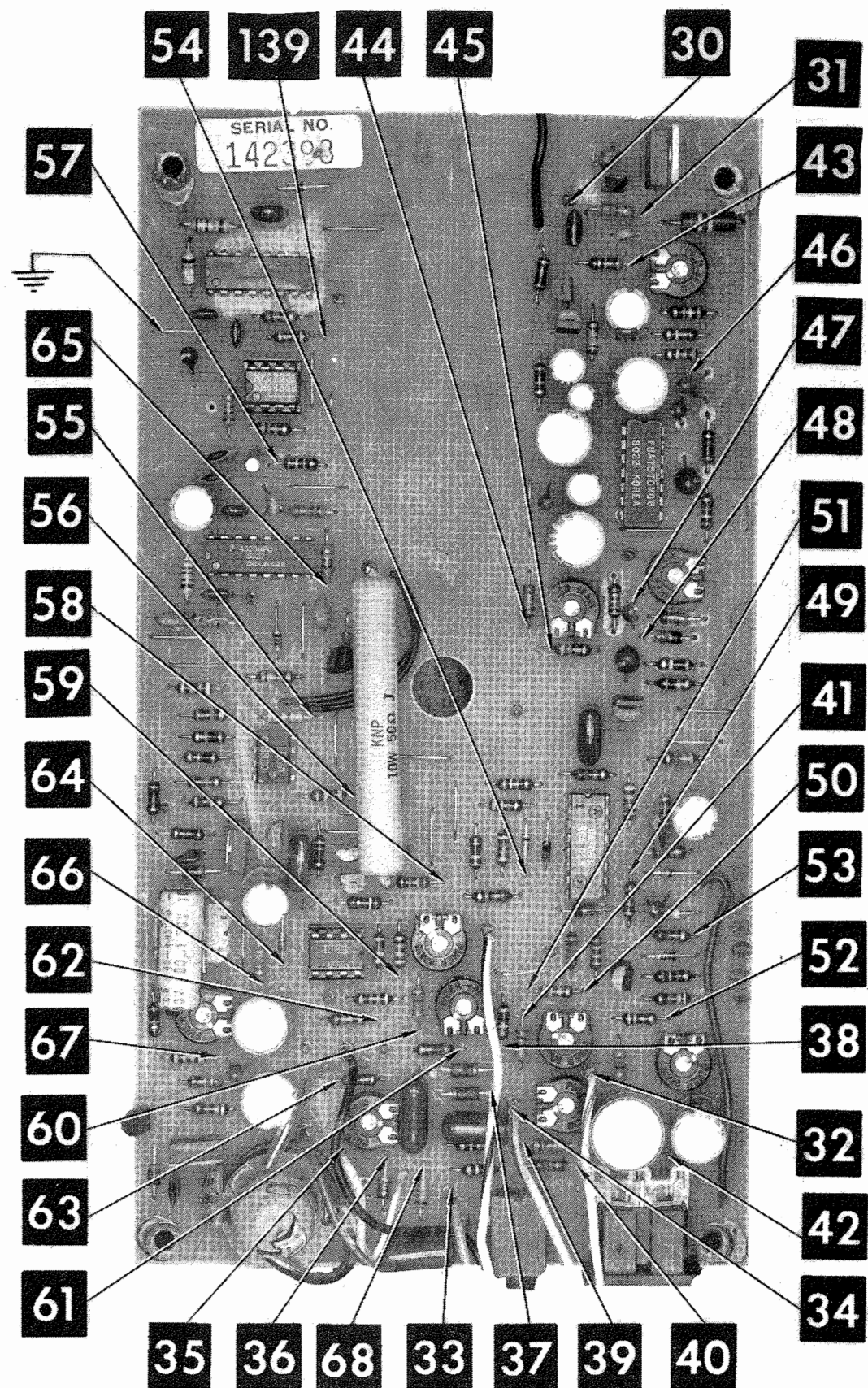
PARTS LIST AND DESCRIPTION

(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.

SEMICONDUCTORS (Select replacement transistor for best results)

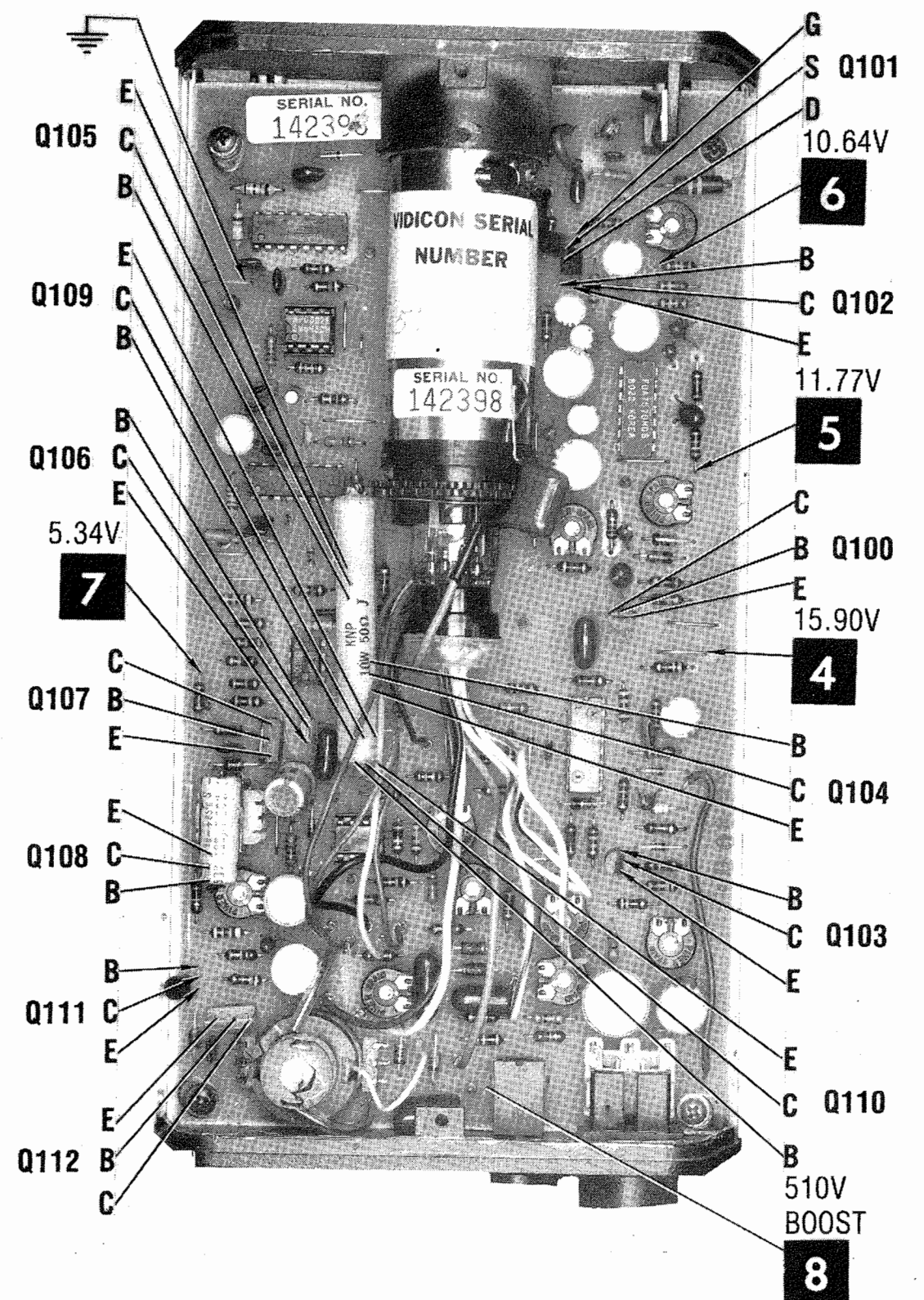
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			GENERAL ELECTRIC PART No.	NEW-TONE PART No.	RCA PART No.	ECG PART No.	THORDARSON PART No.	WORKMAN PART No.		
D100	1N34A	903-507	1N34AS	TCG109	SK3090/109	ECG109	TM109	WEP134/109	903-507	1N34A
D101	1N34A	903-507	1N34AS	TCG109	SK3090/109	ECG109	TM109	WEP134/109	903-507	1N34A
D102	1N914	903-508	GE-514	TCG519	SK3100/519	ECG519	TM519	WEP925/519	903-508	1N4935
D103	1N34A	903-507	1N34AS	TCG109	SK3090/109	ECG109	TM109	WEP134/109	903-507	1N34A
D104	1N914	903-508	GE-514	TCG519	SK3100/519	ECG519	TM519	WEP925/519	903-508	1N4935
D105	1N914	903-509	GEZD-9.1	TCG5018A	SK3784/5018A	ECG5018A	TM5018A	WEP1419/5018	903-509	1N5239A
D106	1N914	903-508	GE-514	TCG519	SK3100/519	ECG519	TM519	WEP925/519	903-508	1N4935
D107	1N914	903-508	GE-514	TCG519	SK3100/519	ECG519	TM519	WEP925/519	903-508	1N4935
D108	1N914	903-508	GE-514	TCG519	SK3100/519	ECG519	TM519	WEP925/519	903-508	1N4935
D109	1N914	903-508	GE-514	TCG519	SK3100/519	ECG519	TM519	WEP925/519	903-508	1N4935
D110	1N914	903-510	GE-504A	TCG116	SK3311	ECG116	TM116	WEP156	903-510	1N4005
D111	1N914	903-508	GE-514	TCG519	SK3100/519	ECG519	TM519	WEP925/519	903-508	1N4935
D112	1N914	903-508	GE-514	TCG519	SK3100/519	ECG519	TM519	WEP925/519	903-508	1N4935
D113	1EZ150D5	903-511	GEZD-150	TCG519	SK3350/5100A	ECG5100A	TM5100A	WEP1138/5100A	903-511	1M150ZS10
D114	1EZ150D5	903-511	GEZD-150	TCG519	SK3350/5100A	ECG5100A	TM5100A	WEP1138/5100A	903-511	1M150ZS10
D115	1N914	903-510	GE-504A	TCG116	SK3311	ECG116	TM116	WEP156	903-510	1N4005
D116	1N914	903-510	GE-504A	TCG116	SK3311	ECG116	TM116	WEP156	903-510	1N4005
D117	1N914	903-512	GE-504A	TCG116	SK3311	ECG116	TM116	WEP156	903-512	1N4005
D118	1N751A	903-513	GEZD-5.1	TCG5010A	SK3776/5010A	ECG5010A	TM5010A	WEP1411/5010	903-513	1N5231A
IC100	UA757DMQB	905-237							905-237	
IC101	OA3083	905-238			SK3695	ECG937M			905-238	
IC102	LF356N	905-239				ECG4528B			905-239	
IC103	NPC8021	905-240				ECG4528B			905-240	
IC104	4528BPC	905-241				ECG4528B			905-241	
IC105	4528BPC	950-241				ECG4528B			905-241	
IC106	LF356N	905-239				ECG937M			905-239	MC7812CT
IC107	UA78M12UC	905-242	GEVR-111	TCG966	SK3592/966	ECG966	TM966	WEP68/287	905-242	MPSA42
Q100	2N5550	921-1284	GE-222	TCG287	SK3275/194	ECG287	TM287	WEP920/312+	921-1284	2N5459
Q101	J309	921-1285	GE-FET-2	TCG312*	SK3116*	ECG312*	TM312*	WEP956/229	921-1285	MPSH34
Q102	MPSH32	921-1286	GE-17*	TCG229	SK3246/229+	ECG229	TM229		921-1286	
Q103	2SC458C	921-1287	GE-210	TCG85	SK3124/289	ECG85	TM199	WEP458	921-1287	2N4401*
Q104	JE108	921-1288	GE-57	TCG184	SK3190/184	ECG184	TM184	WEP880/184	921-1288	2N5191





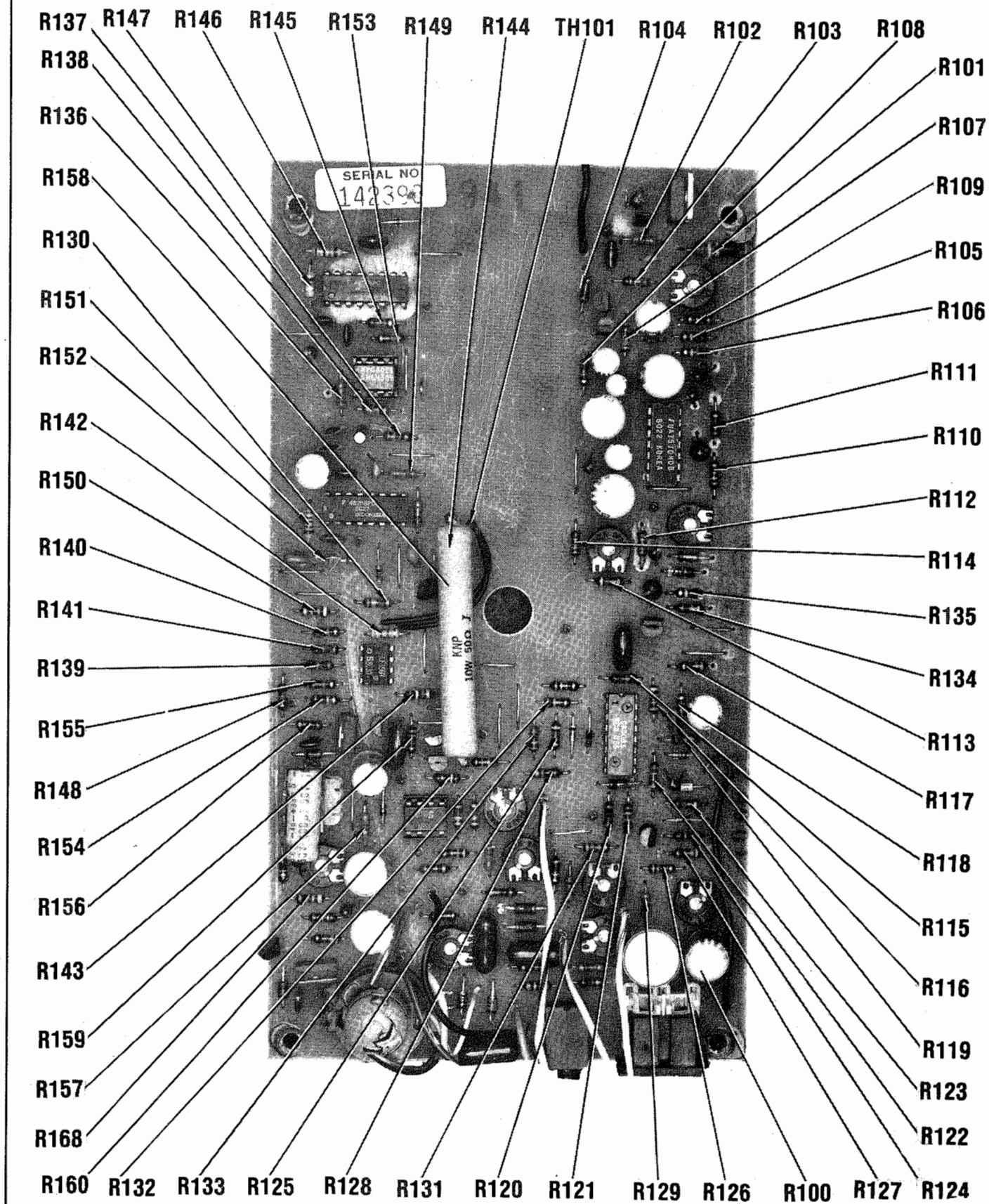
CAMERA BOARD

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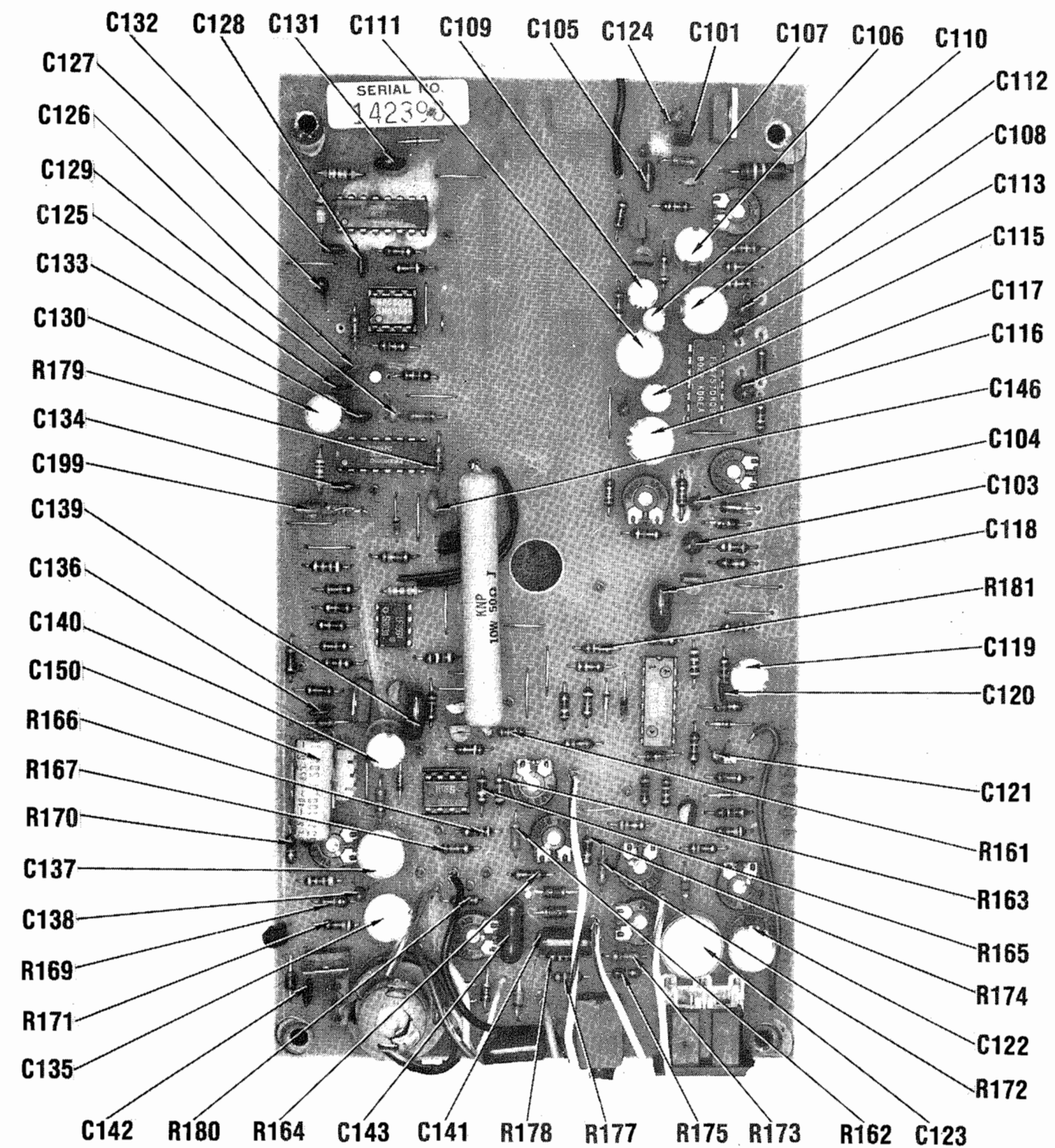


CAMERA BOARD

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CAMERA BOARD



CAMERA BOARD

ZENITH
CHASSIS 12MB11X

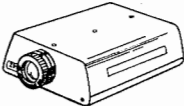
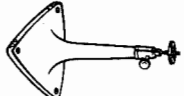
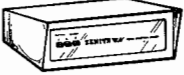
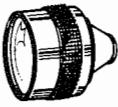
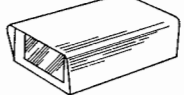





FOLDER 3-A

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		
IC100	9171	4654	0	883	0	4058	558	1166	0	9395	558	1546	1815	9230		
IC101	601	5957	5562	0	0	2995	1883	3367	1883	18K	320	2792	14K	INF		
													PIN 15	PIN 16		
													867	INF		
IC102	41K	5600	5600	0	41K	INF	5100	INF								
IC103	INF	INF	0	0	INF	INF	INF	578								
IC104	0	249K	578	22K	INF	1.2M(1)	INF	0	INF	INF	INF	22K	578	131K		
													PIN 15	PIN 16		
													0	578		
IC105	0	14K	578	INF	INF	INF	INF	0	INF	30K	INF	INF	578	5670		
													0	578		
IC106	75K	41K	INF	34K	75K	334	453	INF								
IC107	5500	0	453													
V100	8000	INF	FIL	FIL	640K	INF	680K									
ITEM	E	B	C		ITEM	E	B	C		ITEM	E	B	C			
Q100	10K	100K	1M		Q105	0	47K	8000		Q109	0	INF	INF			
Q101	S	G	D		Q106	0	38K	1433		Q110	295K	2618	INF			
Q102	1K	609K	476		Q107	0	1433	INF		Q111	0	49K	928			
Q103	10K	1K	1144		Q108	INF	1400	453		Q112	0	928	453			
Q104	470	1883	453													
	0	INF	4000													

(1) This reading will vary depending upon the condition of the electrolytic in the circuit.

ACCESSORIES

DESCRIPTION	ITEM	PART NUMBER	USAGE
Camera With Standard Lens		VSC-100	Camera is the same as original camera in Sentinel System. To be used for replacement of original and for additional camera installations.
Camera Mount		A-8930	Mount is the same as original mount in Sentinel System. To be used for replacement of original and for additional camera installations.
Camera Selector Box		ZLSW-2004	Switch box has 3 positions. To be used for additional camera installations. Maximum, 3 camera installations.
Wide Angle Lens Adapter		971-42	Adapter to convert standard lens to wide angle lens. To be used when wide angle picture is required. Increases view area by 100%.
Outdoor Weatherproof Housing		ZLOH-2005	Housing for camera to protect against rain, snow, sun and sub-zero temperatures.
Intercom Module (Doorbell Spk. Box)		849-135	Module is the same as original module in Sentinel System. To be used for replacement of original and for additional camera installations.
Standard 60 Ft. Camera Cable (M-M)		52-2445-03	Cable is same as original cable in Sentinel System male to male plug cable used between camera and TV or switch box. To be used for replacement of original and for additional camera installations.
Extension 30 Ft. Camera Cable (M-F) Extension 60 Ft. Camera Cable (M-F)		52-2445-01 52-2445-02	Extension cables, male to female plug. To be used between original video cable and TV or switch box.
Standard 25 Ft. Audio Cable		52-2444-01	Cable for doorbell to camera is same as original cable in Sentinel System. To be used for replacement of original and for additional camera installations.
Shielded 25 Ft. Audio Cable		852-248	Used when shielded cable is required to suppress AM interference.

Courtesy of the Manufacturer