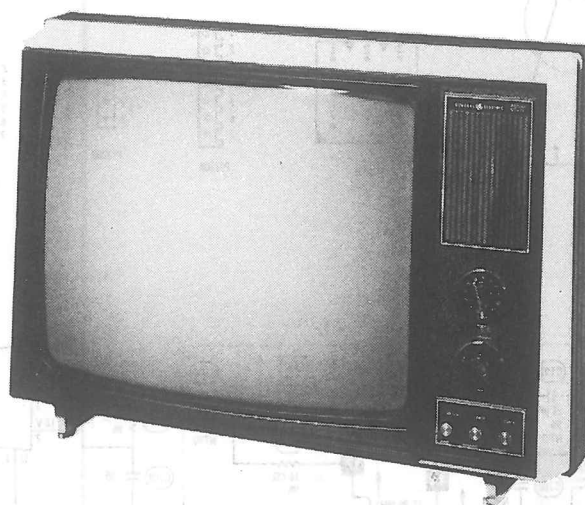


## PHOTOFACT® Folder

with CIRCUITRACE™

GENERAL ELECTRIC  
CHASSIS XA

For Supplier Address See PHOTOFACT Index



MODEL XA4216WD

GENERAL ELECTRIC  
CHASSIS XA

MODEL	CHASSIS
XA4201BG	XA
XA4216WD	XA
XA4317WD	XA
XA4325WD	XA
XA4804WD	XA
XA4824MP	XA
XA4834PN	XA

## SAFETY PRECAUTIONS

Make sure line voltage does not exceed rating of set.  
Check high-voltage regulation and adjust to correct value.

Be sure shields and rear cover are in place and secure.

Beware of shock from high voltage or AC line.  
Discharge high voltage to HV cage only.

Use extreme care when handling picture tube. Do not bump, scratch, or exert undue strain.

**CAUTION:** One side of AC line connected to chassis. Use isolation transformer for servicing.  
Make certain isolation networks are in place and exposed metal is safe to touch before returning set to customer.

GENERAL ELECTRIC  
CHASSIS XA

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## HOWARD W. SAMS &amp; CO., INC. Indianapolis, Indiana 46206

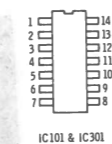
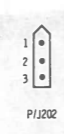
The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. 5PC1283

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DATE 6-75

SET 1491 FOLDER 2



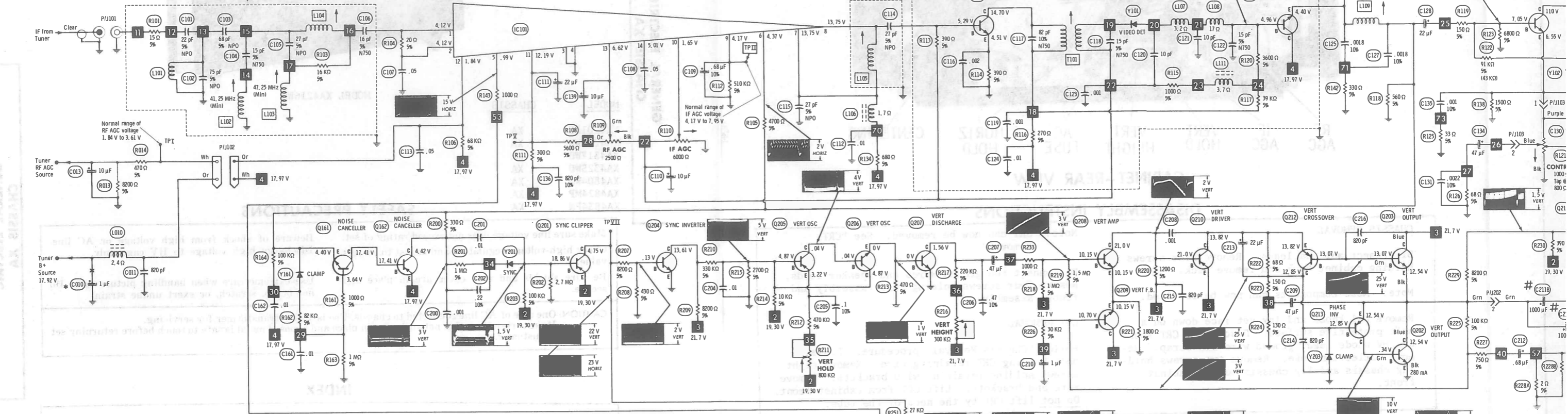


Q102, Q161, Q162, Q201, Q204, Q205, Q206, Q207, Q208, Q209, Q211, Q212, Q213, Q251

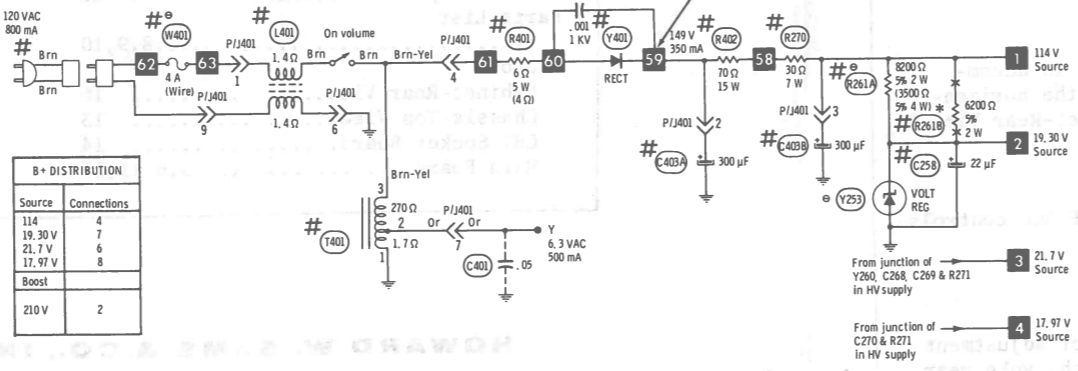
Terminal Guides

VIDEO IF AMP-AGC KEYING - RF/IF AGC-B+ REG

FM DEMOD-AUDIO PREAMP-B+ REG



# For SAFETY, replace only with equivalent part.  
Waveforms taken with color bar generator. Signal applied at 100% modulation.  
Coil/transformer resistance less than one ohm not given except for sweep items.  
Denotes ground. (Voltage reference unless otherwise indicated).  
- Indicates connection used in some versions.  
- Indicates connection not used in some versions.  
\* Omitted in some versions.  
e See parts list.  
Values shown in ( ) are used in some applications.  
Resistors are 1/2W or less, 10% or 20%, unless otherwise indicated.  
Supply voltage maintained at rated value for measurements.  
Voltage and resistance measured with VTVM or equivalent meter, no signal applied and controls adjusted for normal operation.  
Arrow on control indicates direction of advance.  
Numbers assigned to terminals may not be found on the unit.





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
V1	FIL	NC	120 K	0	NC	5000	150 K	FIL						
IC101	7000	7000	0	0	2600	5200	4200	4200	510 K	1800	4000	8000	4600	INF
IC301	INF	INF	0	0	4000	0	10 K	7500	5200	5200	INF	8500	8500	40 K
ITEM	E	B	C		ITEM	E	B	C		ITEM	E	B	C	
Q101	390	5000	4000		Q204	0	430	9000		Q211	8000	8400	1600	
Q102	560	8000	3700		Q205	1 M	2300	INF #		Q212	350	INF #	280	
Q103	560	6700	60 K		Q206	470	INF #	2300		Q213	16 K	280	INF #	
Q161	550	160 K	INF #		Q207	0	470	300 K		Q251	1000	750 K	9000	
Q162	3700	INF #	900		Q208	1800	600 K	5000		Q252	0	4700	12 K	
Q201	8000	160 K	8600		Q209	1800	120 K	3700		Q253	0	.2	11 K	
Q202	0	INF #	16 K		Q210	3700	5000	350		Q301	100	9000	12 K	
Q203	16 K	INF #	3700											

# Reading depends upon polarity of meter connections.

TROUBLESHOOTING CHECK CHART

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

SWEEP

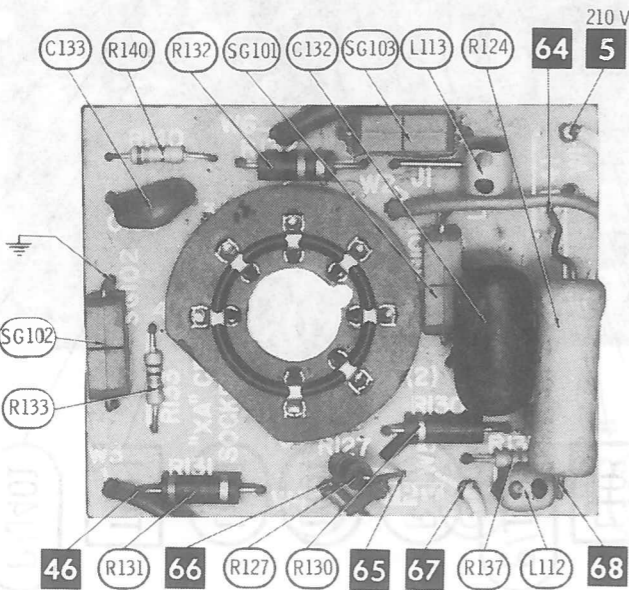
No raster, has sound: Horiz Osc/Shaping/Buffer/Output, Damper, HV Rect, CRT  
No vert deflection: Vert Osc/Discharge/Amp/FB/Driver/Crossover/Phase Inv/Output  
Poor vert lin or foldover: Vert Osc/Discharge/Amp/FB/Driver/Crossover/Phase Inv/Output  
Poor horiz lin or foldover: Horiz Output, Damper  
Narrow picture: LV Rect, Horiz Osc/Shaping/Buffer/Output, Damper  
Vert off freq: Vert Osc/Discharge  
Horiz off freq: Horiz Phase Det/Osc

PICTURE or SOUND

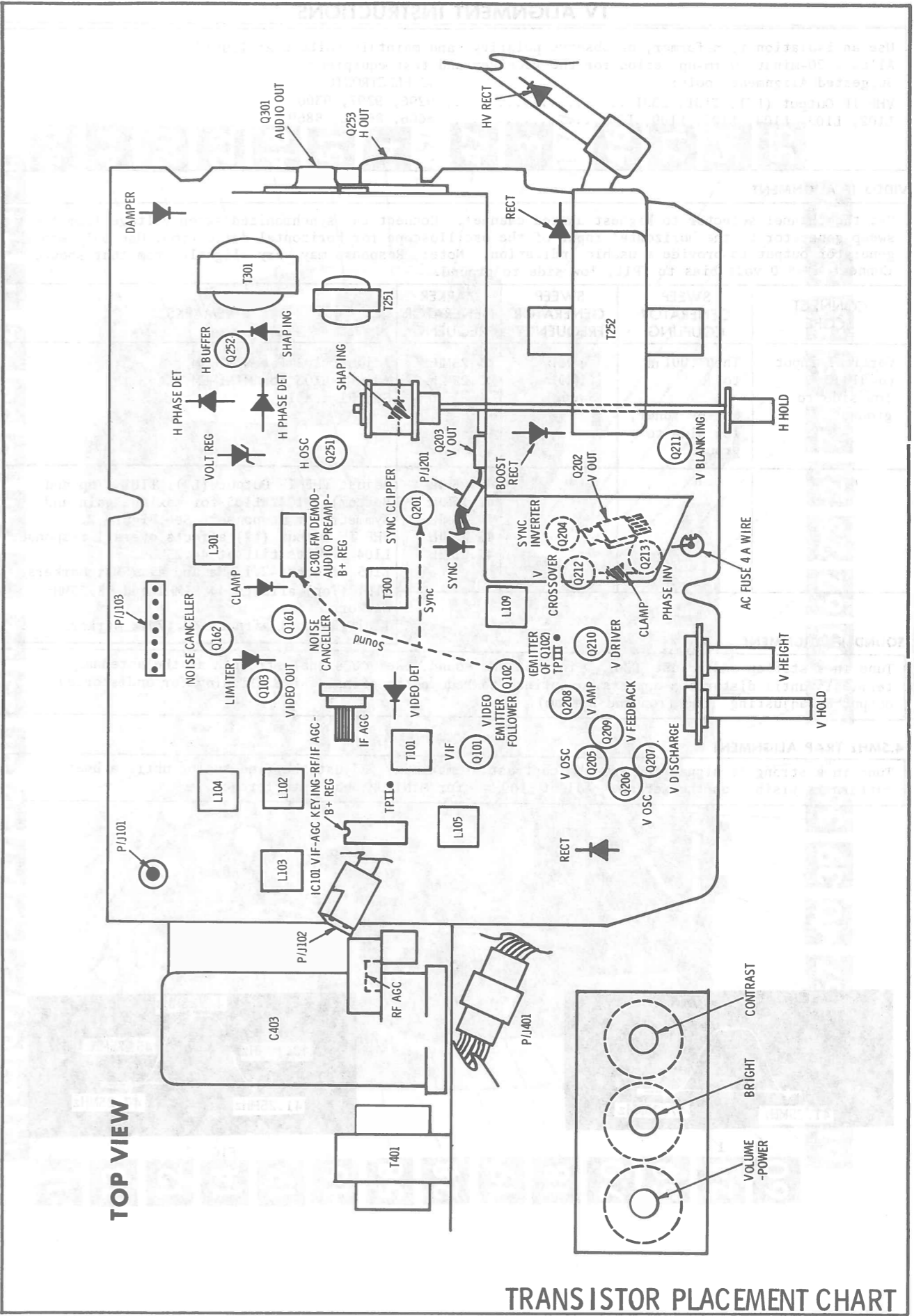
No pic, no sound, no raster: Fuse, LV Rect  
No pic, no sound, has raster: Video IFs, Tuner Mixer  
No pic, no sound, has snow: Tuner RF/Mixer/Osc  
No pic, has sound, no raster: Video Output, CRT  
No pic, has sound, has raster: Video Emitter Follower/Output  
Has pic, no sound: FM Demod, Audio Preamp/Output  
Overloaded picture: AGC, Video Det

SYNC

No vert sync: Sync Inv, Vert Osc  
No horiz sync: Horiz Phase Det/Osc  
No vert/horiz sync: Sync/Clipper



CRT SOCKET BOARD A Howard W. Sams CIRCUITRACE® Photo



TRANSISTOR PLACEMENT CHART

GENERAL ELECTRIC CHASSIS XA

FOLDER 2

TV ALIGNMENT INSTRUCTIONS

Use an isolation transformer, or observe polarity, and maintain voltage at 120VAC. Allow a 20-minute warm-up period for the receiver and test equipment. Suggested Alignment Tools: GC ELECTRONICS VHF IF Output (L7), T101, L301 ..... 9296, 9297, 9300 L102, L103, L104, L105, L109, T300 ..... 8606, 8606L, 8869

VIDEO IF ALIGNMENT

Set the channel selector to highest unused channel. Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection. Use only enough generator output to provide a usable indication. Note: Response may vary slightly from that shown. Connect a +8.0 volt bias to TP11, low side to ground.

CONNECT SCOPE	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	REMARKS
Vertical input to TP111, low side to ground.	Thru .001 uF to R on VHF tuner, low side to ground.	44MHz (10MHz Sweep)	41.25MHz 47.25MHz	Adjust L102 for MINIMUM. Adjust L103 for MINIMUM. See Figure 1.
"	"	"	41.25MHz 42.17MHz 44.25MHz 45.75MHz 47.25MHz	Adjust VHF IF Output (L7), T101 (Top and Bottom), L104, L105 for maximum gain and symmetry of response. See Figure 2. VHF IF Output (L7) affects overall response. L104 affects tilt at 44.25MHz. L105 affects 42.17MHz and 45.75MHz markers. T101 (Top) affects 44.25MHz and 45.75MHz markers. T101 (Bottom) affects 42.17MHz marker.

SOUND IF ALIGNMENT

Tune in a station and adjust L301 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 T300 (Top and Bottom).

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 L109 for MINIMUM beat interference.

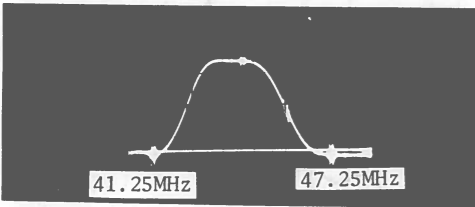


FIG. 1

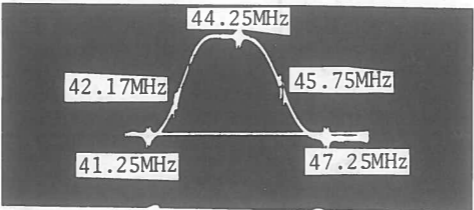
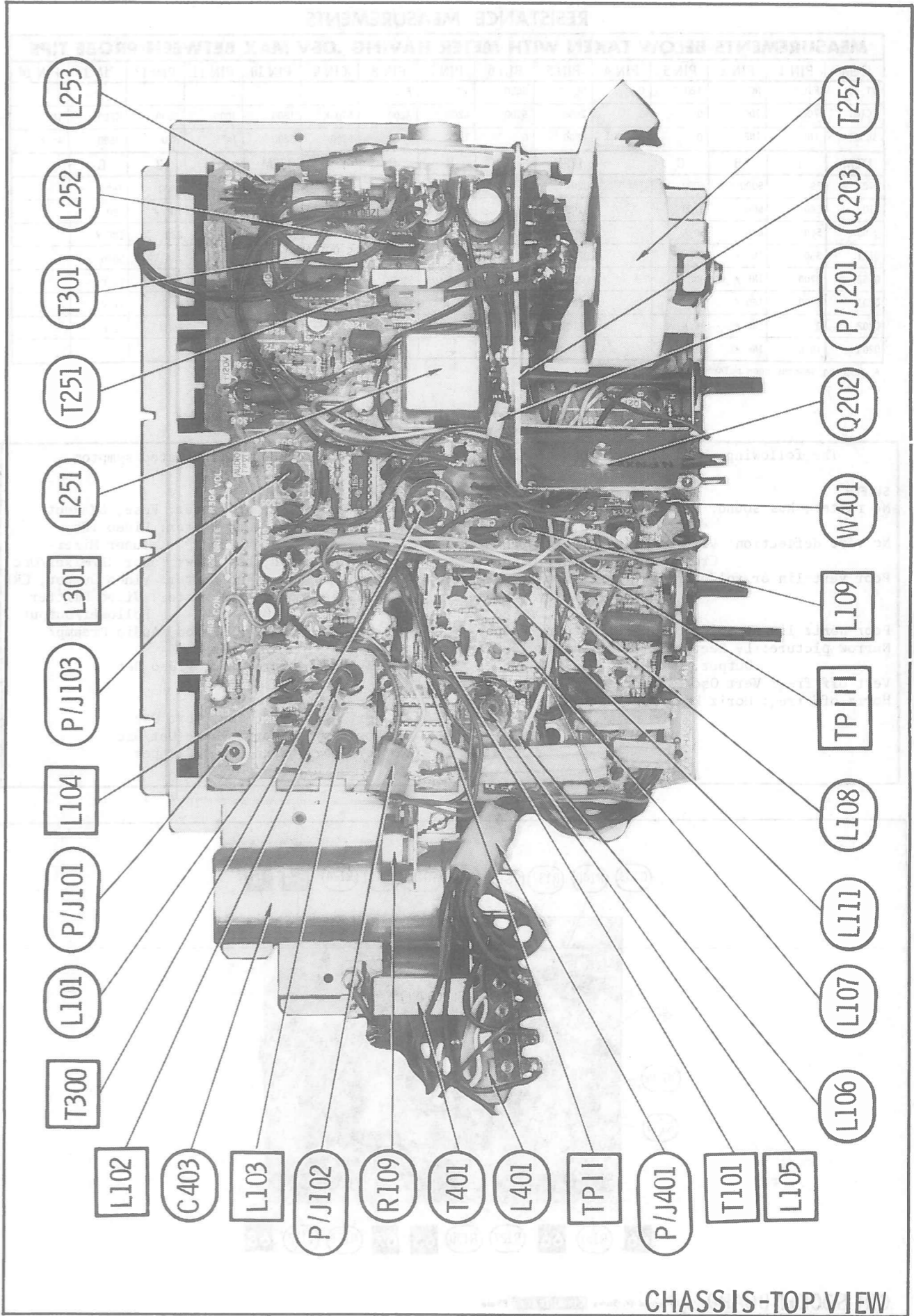
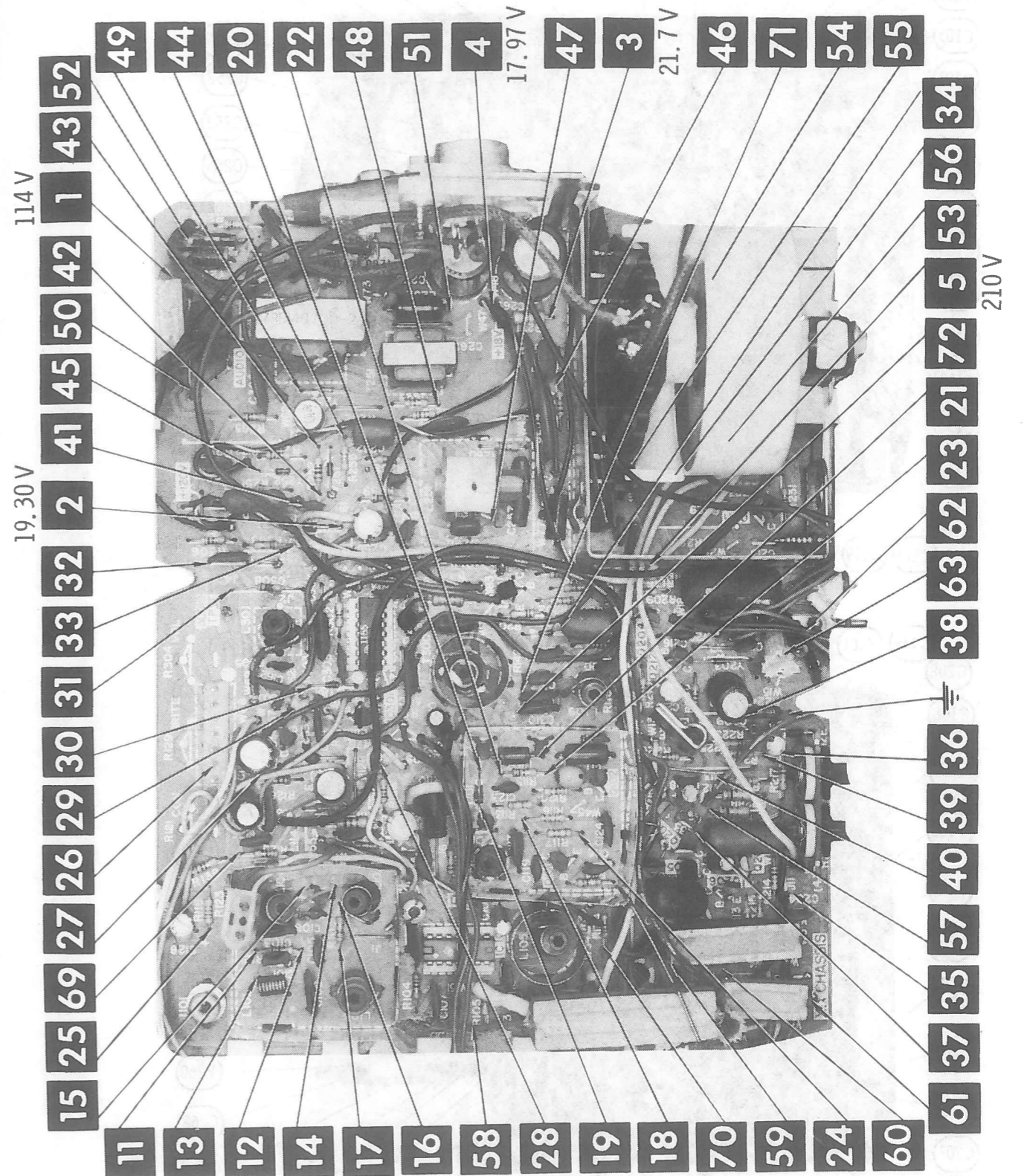
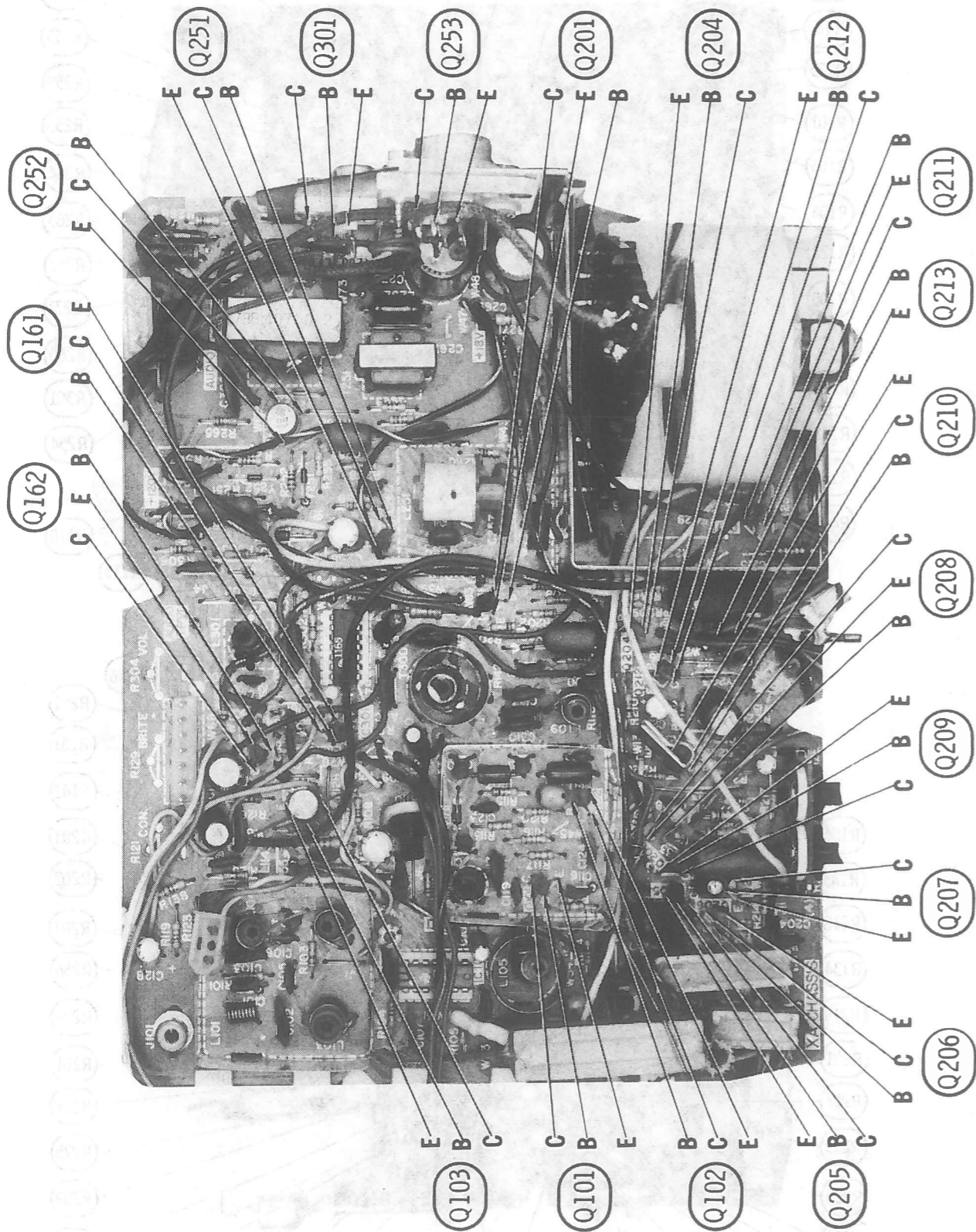


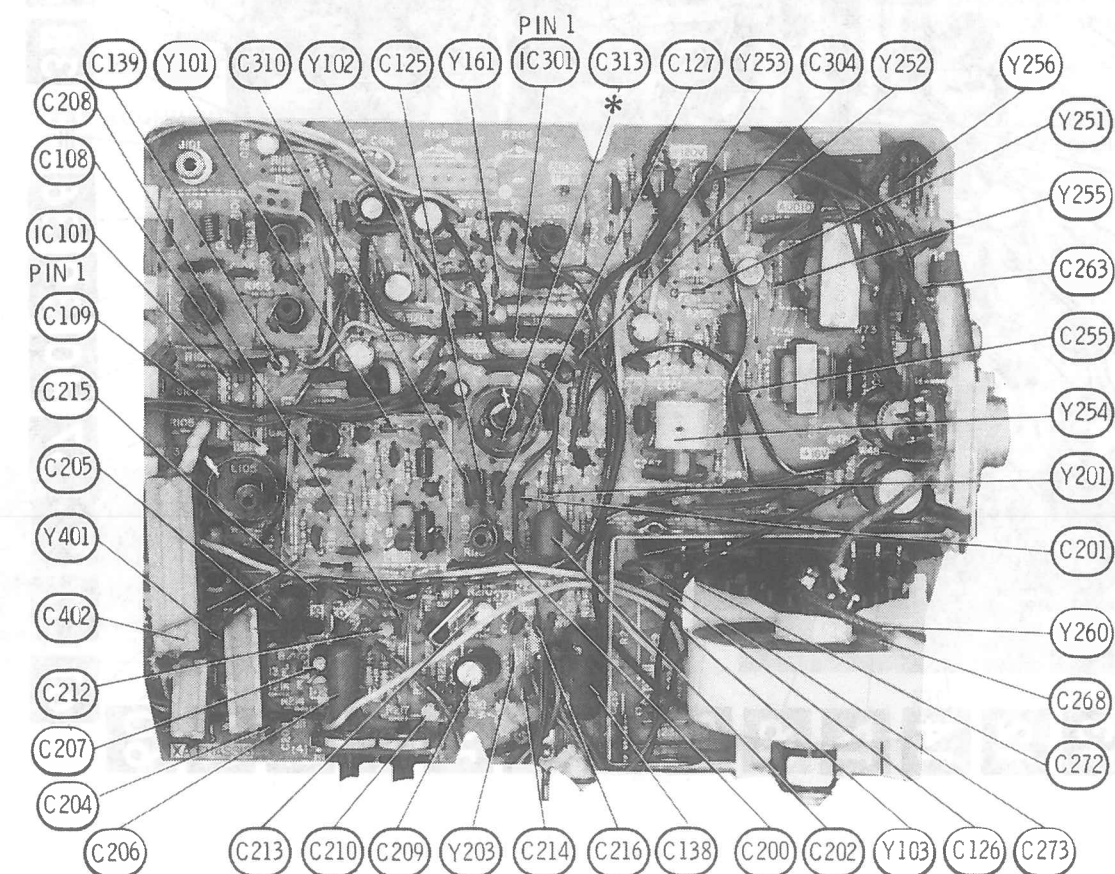
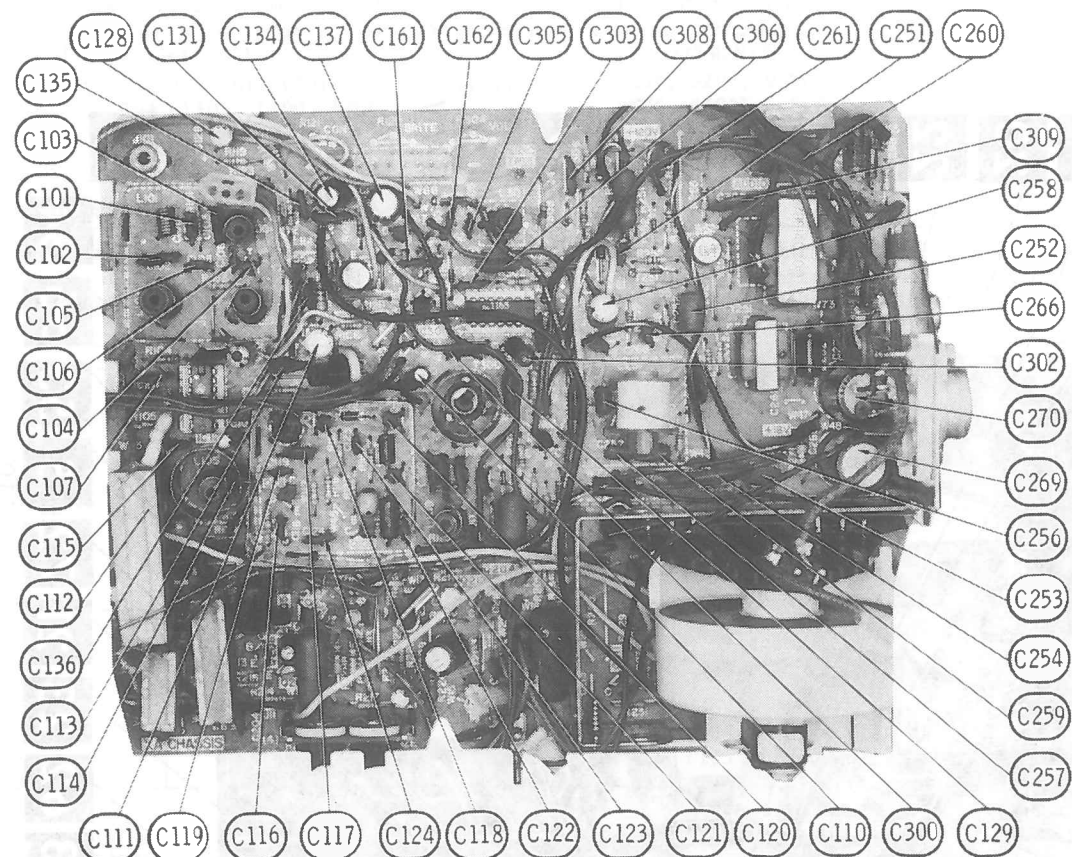
FIG. 2



CHASSIS-TOP VIEW

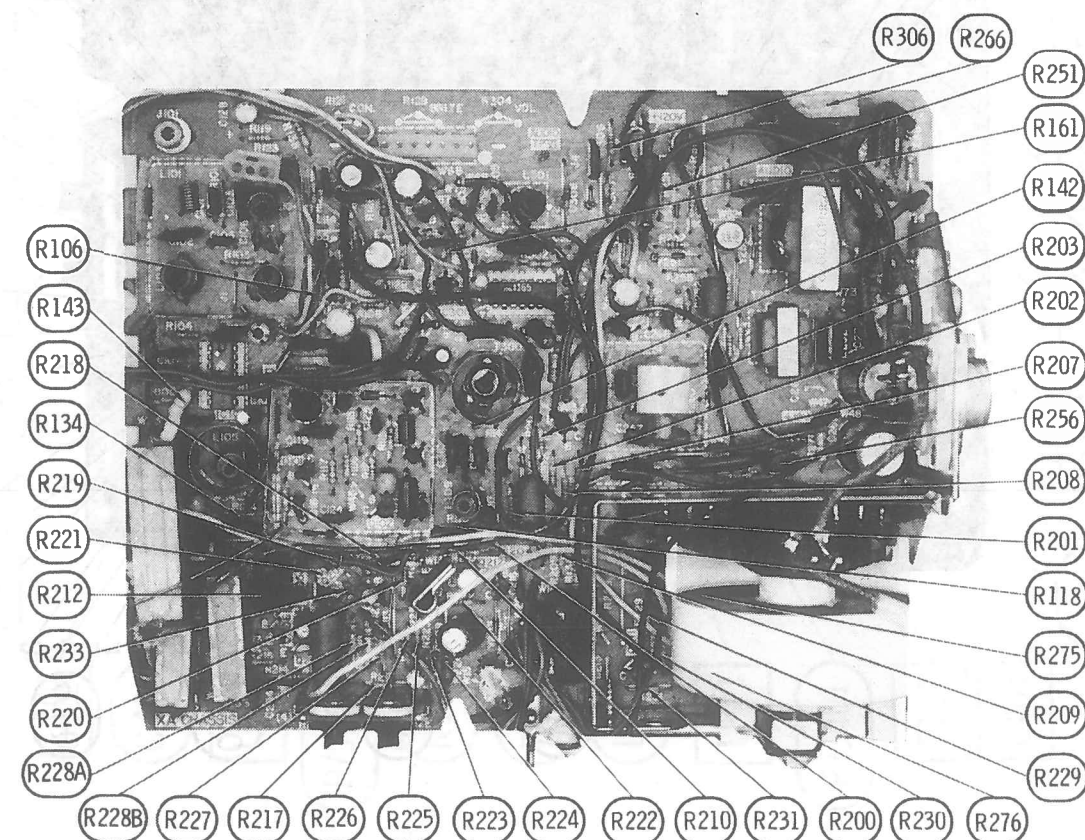
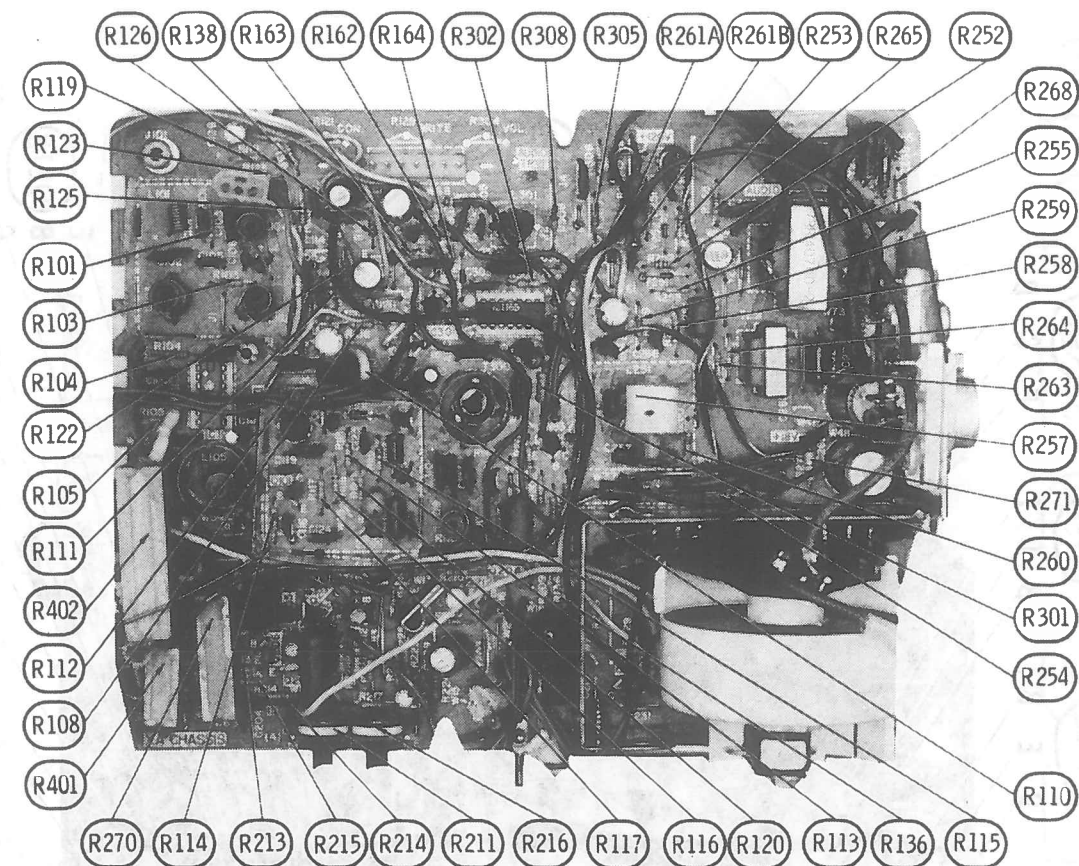
MAIN BOARD





\* LOCATED ON BOTTOM OF BOARD.

MAIN BOARD



MAIN BOARD

## 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.

## SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		MFGR. PART No.	QUAM PART No.	
LS301	4" PM, 8 ohms	ES95X5 #	4A128	

# For SAFETY, replace only with equivalent part.

## FUSE DEVICES

ITEM No.	DESCRIPTION	REPLACEMENT DATA					
		PART No.		BUSS PART No.		LITTELFUSE PART No.	
		DEVICE	HOLDER	DEVICE	HOLDER	DEVICE	HOLDER
W401	4A Fuse Wire	ES-10X20 #					

# For SAFETY, replace only with equivalent part.

## MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
SG101 SG103 SG107	VHF Antenna	ES83X12	Used in Models: XA4201BG, XA4216WD, XA4804WD
	VHF Antenna	ES83X17	Used in Models: XA4317WD, XA4325WD
	UHF Antenna	EP83X1	
	Spark Gap	ES41X4	
	Spark Gap	ES41X4	
	Spark Gap	ES41X4	
	Power Cord	EP66X1 #	
	Jack	ES8X26 #	Earphone Connector
	Socket	EP34X23 #	Transistor

# For SAFETY, replace only with equivalent part.

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

ITEM	PART No.	PART No.	PART No.	PART No.	PART No.
	MODEL XA4201BG	MODEL XA4216WD	MODEL XA4804WD	MODELS XA4824MP XA4834PN	MODEL XA4317WD
Cabinet Back	ES98X93	ES98X97	ES98X98	ES98X92	ES98X95
Knob, VHF Channel Selector	ES43X255	ES43X255	EP43X184	EP43X184	ES43X255
Knob, UHF Channel Selector	ES43X256	ES43X256	EP43X184	EP43X184	ES43X256
Knob, VHF/UHF Fine Tuning	ES43X210	ES43X210	ES43X250	ES43X250	ES43X210
Knob, Brightness/Contrast/On-Off-Volume	ES43X245	ES43X245	ES43X245	ES43X245	ES43X189
	MODEL XA4325WD				
Cabinet Back	ES98X88				
Knob, VHF Channel Selector	ES43X255				
Knob, UHF Channel Selector	ES43X256				
Knob, VHF/UHF Fine Tuning	ES43X210				
Knob, Brightness/Contrast/On-Off-Volume	ES43X189				

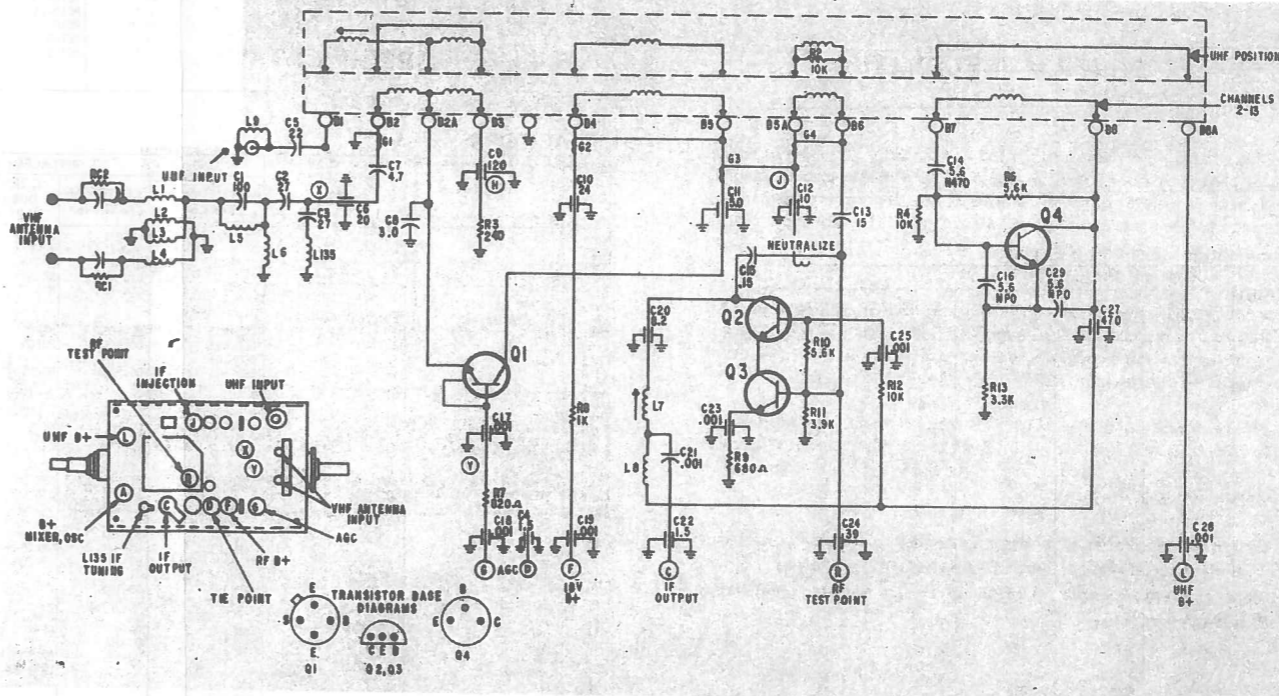
## WIRING DATA

High Voltage Lead	Use BELDEN No. 8868 (25 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 12 Colors
	8522 (Stranded) Available in 12 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

## VHF TUNERS

ES86X9 (19-inch models)

ES86X17 (22-inch models)



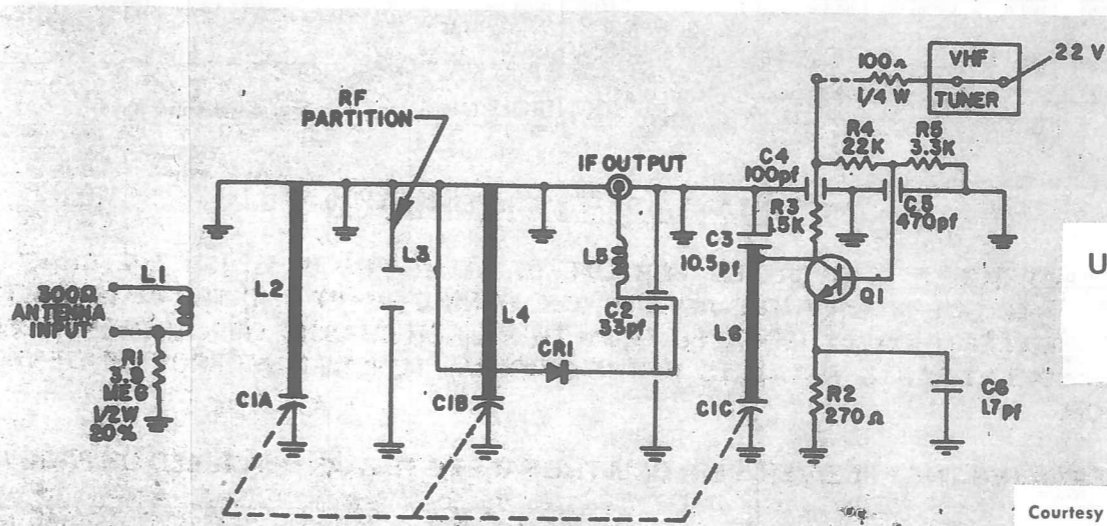
## SCHEMATIC DIAGRAM

## IMPORTANT – SAFETY INFORMATION

THE SUBJECT TUNER IS DESIGNED FOR USE IN RECEIVERS IN WHICH THE CHASSIS IS CONNECTED TO ONE SIDE OF THE AC LINE. THE TUNING SHAFT AND THE ANTENNA TERMINALS ARE ELECTRICALLY ISOLATED FROM THE TUNER CHASSIS. REPLACEMENT TUNERS OR REPLACEMENT PARTS INSTALLED IN THE ORIGINAL TUNERS MUST PROVIDE IDENTICAL ISOLATION.

PRODUCT SAFETY SHOULD BE CONSIDERED WHEN A COMPONENT REPLACEMENT IS MADE IN ANY AREA OF A RECEIVER. THE SHADED AREA OF THIS SCHEMATIC DIAGRAM AND THE PARTS LIST DESIGNATE COMPONENTS IN WHICH SAFETY CAN BE OF SPECIAL SIGNIFICANCE. IT IS PARTICULARLY RECOMMENDED THAT GENERAL ELECTRIC CATALOGED PARTS BE USED FOR COMPONENT REPLACEMENT IN THE SHADED AREAS OF THIS SCHEMATIC.

USE OF SUBSTITUTE REPLACEMENT PARTS WHICH DO NOT HAVE THE SAME SAFETY CHARACTERISTICS AS RECOMMENDED IN FACTORY SERVICE INFORMATION MAY CREATE SHOCK, FIRE OR OTHER HAZARDS.



## UHF TUNERS

ES85X14

ES85X16

## SCHEMATIC DIAGRAM

Courtesy of the Manufacturer

SET 1491 FOLDER 2

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

## PICTURE TUBE

# For SAFETY, replace only with equivalent part.

# For SAFETY, replace only with equivalent part.

- (1) Number on unit.
- (6) Matched pair.
- (7) Two required - select matched pair.
- (11) Assembly includes 2nd Anode lead and Cap;  
Manufacturer suggest ordering of H.V. Rect (E57X11) and Anode lead assembly (E58X28) separately.

[illegible]

# For SAFETY, replace only with equivalent part.

# For SAFETY, replace only with equivalent part.

# For SAFETY, replace only with equivalent part.

(5) Number on unit.

(7) To establish section identification of side-by-side controls, view controls with shaft ends facing you, terminals down. On 3-section controls, left-hand section is "A", middle section is "B", right-hand section is "C".  
On 2-section controls, left-hand section is "A", right-hand section is "B".

(18) Used in Models XA4B04MD, XA4B24MP, and XA4B34PN.

(19) Includes R211 and R216.

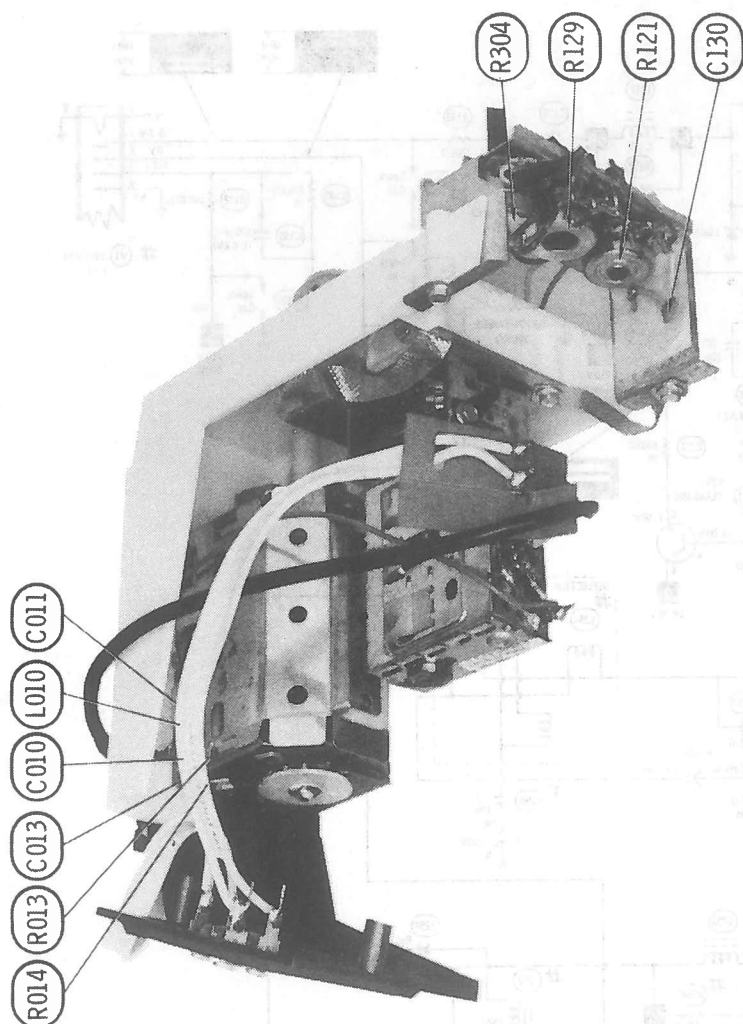
# For SAFETY, replace only with equivalent part.

- (1) Voltage Dependent Resistor.
- (2) Use in some versions.
- (3) 3500 5% 4W film is used in place of R261A and R261B in some versions.

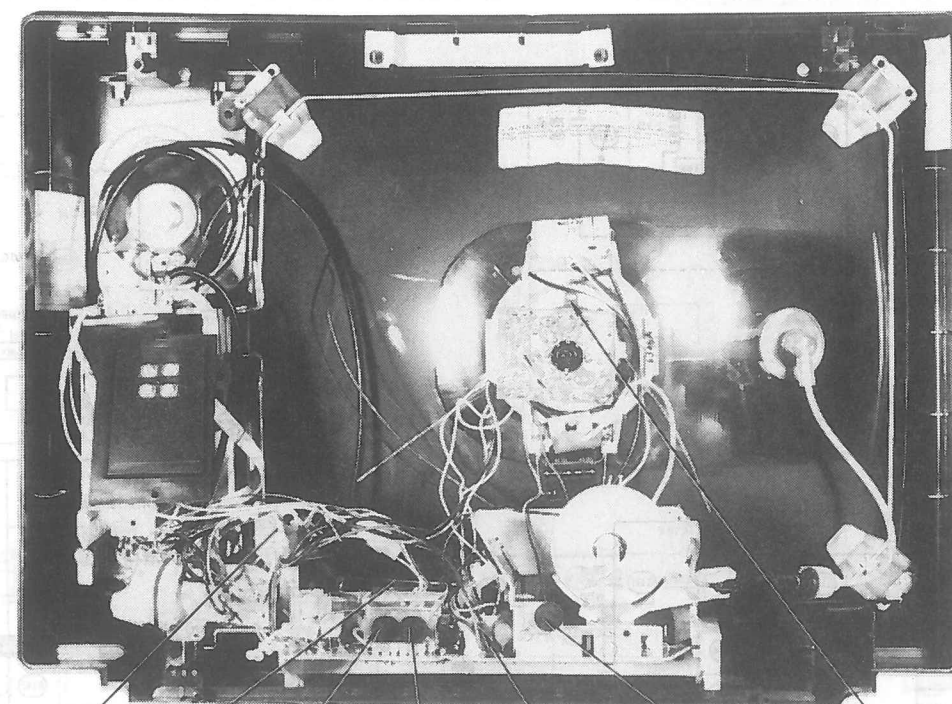
# For SAFETY, replace only with equivalent part.

# For SAFETY, replace only with equivalent part.  
(1) Used in Models XA4804WD, XA4824MP and XA4834PN  
(2) Part of Horizontal Output Transformer.

ITEM No.	IMPEDANCE		REPLACEMENT DATA				NOTES
	PRI.	SEC.	MFGR. PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T301	6300	8	ES64X13 # 73B140700-2 (1)				# For SAFETY, replace only with equivalent part. (1) Number on unit.



TUNER ASSEMBLY



CABINET-REAR VIEW

## DISASSEMBLY INSTRUCTIONS

### CHASSIS REMOVAL

Disconnect antenna leads. Remove nine screws holding cabinet back and remove back.

Note: Most components can now be serviced.

Remove all knobs and lay set face down on a soft protective surface. Disconnect CRT socket, HV anode lead, ground wire and strap. Remove deflection yoke. Remove two screws holding chassis and lay chassis beside cabinet front.

Note: CRT can now be removed. See "CRT Removal".

Disconnect two ground wires and speaker leads. Remove four screws holding tuner assembly and remove assembly.

### CRT REMOVAL

Follow "Chassis Removal" procedure. Loosen bolt holding CRT retaining wire. Remove eight screws holding retaining wire brackets. Remove wire and brackets. Lift CRT from cabinet front. Do not lift CRT by the neck of the tube.

## 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 4-amp wire 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 horizontal hold coil. (See photo, Cabinet-Rear View.)

### AGC

The AGC may be varied by RF and IF AGC controls. (See photo, Cabinet-Rear View.)

### CENTERING

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