

RF AGC DC FUSE VERT HOLD VERT SIZE AC FUSE HORIZ HOLD CENTERING

CABINET-REAR VIEW

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

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

NOTE: Most components can be serviced without chassis removal.

Remove all knobs and lay set face down on a soft protective surface. Disconnect CRT socket, HV anode lead, speaker wires, and ground wires.

Loosen and remove deflection yoke from CRT neck. Remove four screws holding tuner assembly and two screws holding chassis. Lift chassis and tuner assembly from cabinet front.

CRT REMOVAL

Follow "Chassis Removal" procedure. Loosen bolt holding CRT retaining wire. Remove eight screws holding retaining wire brackets. Remove retaining wire and brackets. Lift CRT from cabinet front. 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 .5-amp fuse is used for low-voltage power-supply protection. (See Placement Chart.)

A 2.5-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 coil. (See photo, Cabinet-Rear View.)

AGC

The AGC may be varied by an RF AGC Control.

CENTERING

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

SET 1832 FOLDER 3

TRUETONE MODELS GEC3019A-08
(24-3019-7), GEC3020A-08 (24-3020-5)

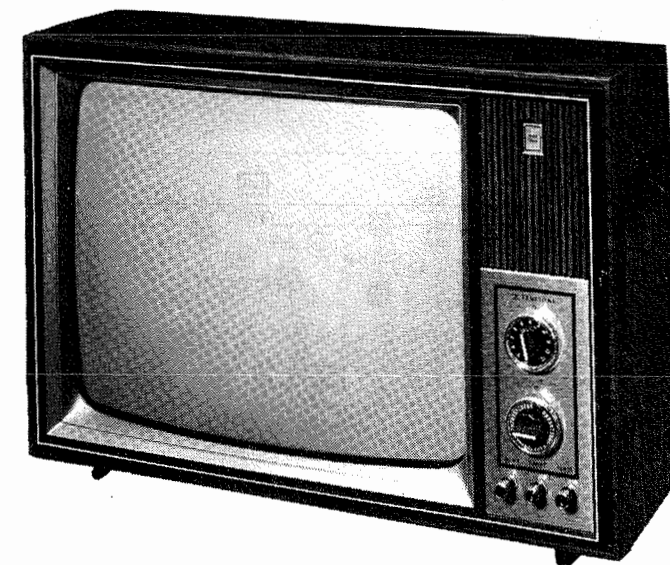
PHOTOFACT® Folder

with CIRCUITRACE™



For Supplier Address See PHOTOFACT Index

TRUETONE MODELS GEC3019A-08
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MODEL GEC3020A-08

SAFETY PRECAUTIONS

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

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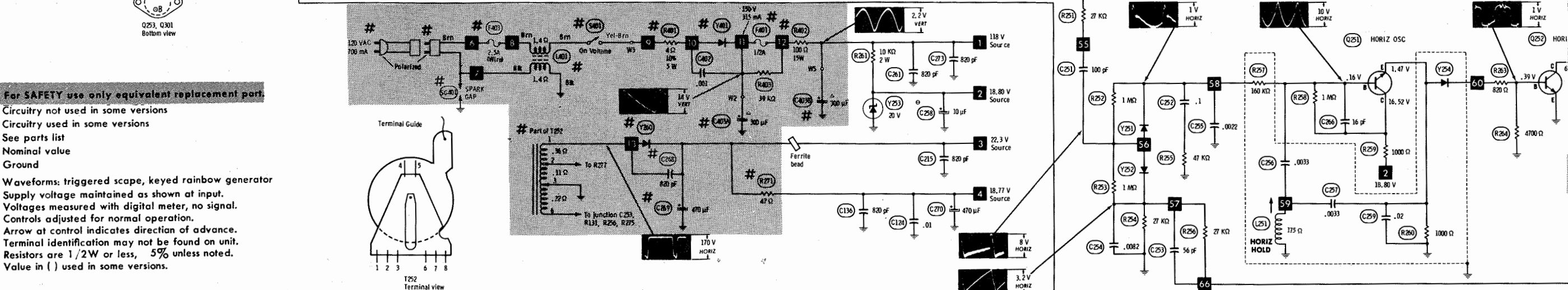
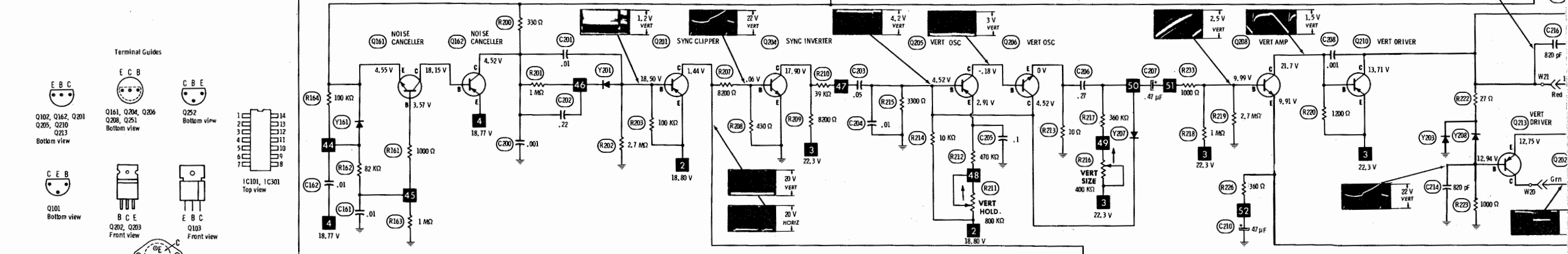
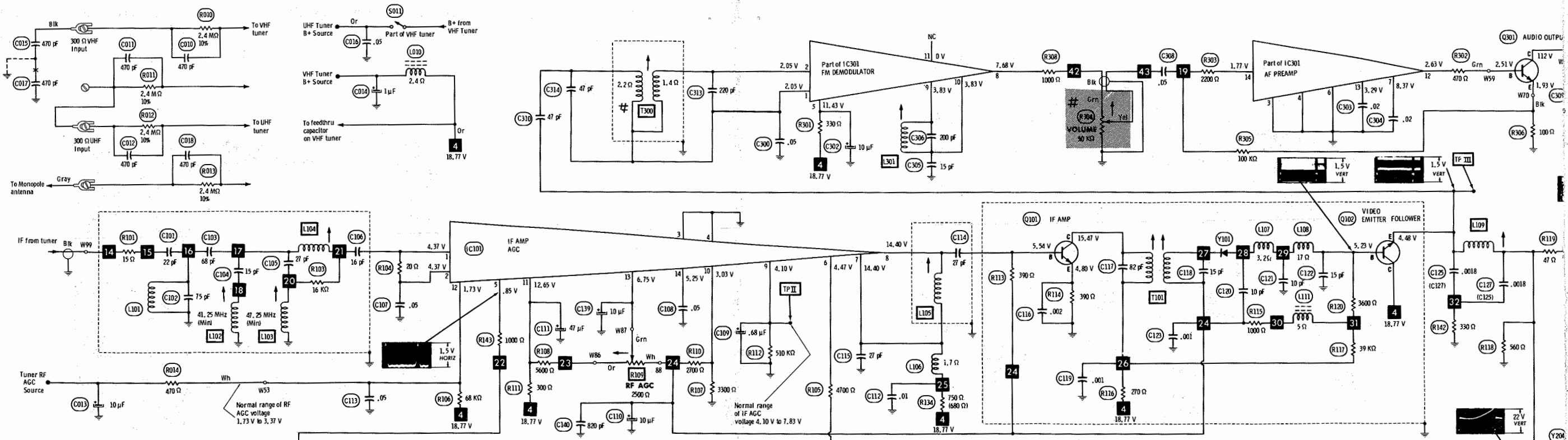
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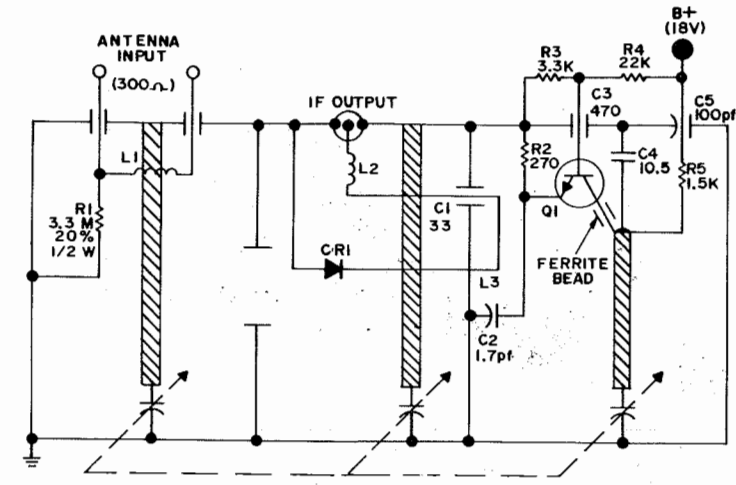
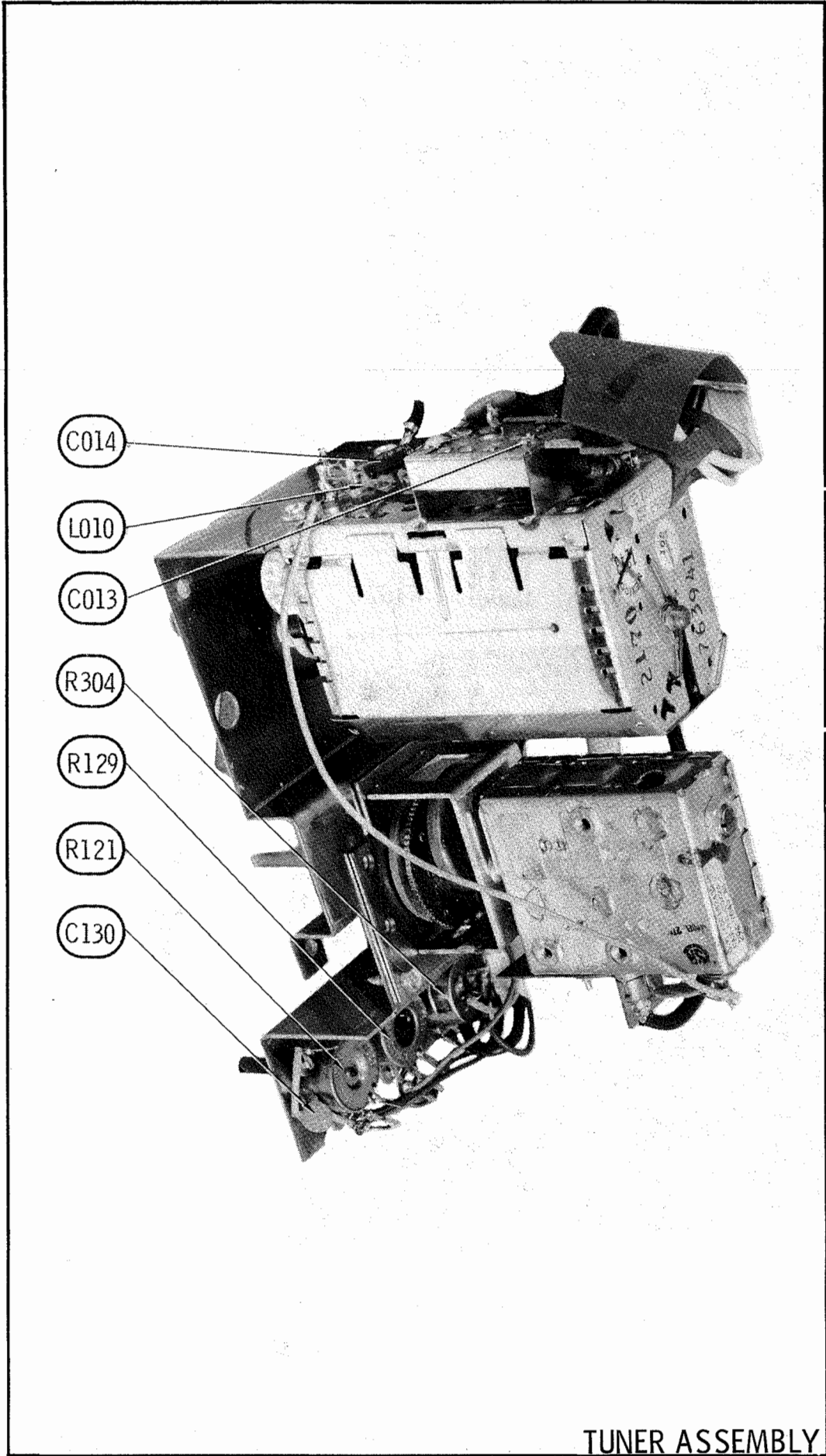
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SET 1832 FOLDER 3

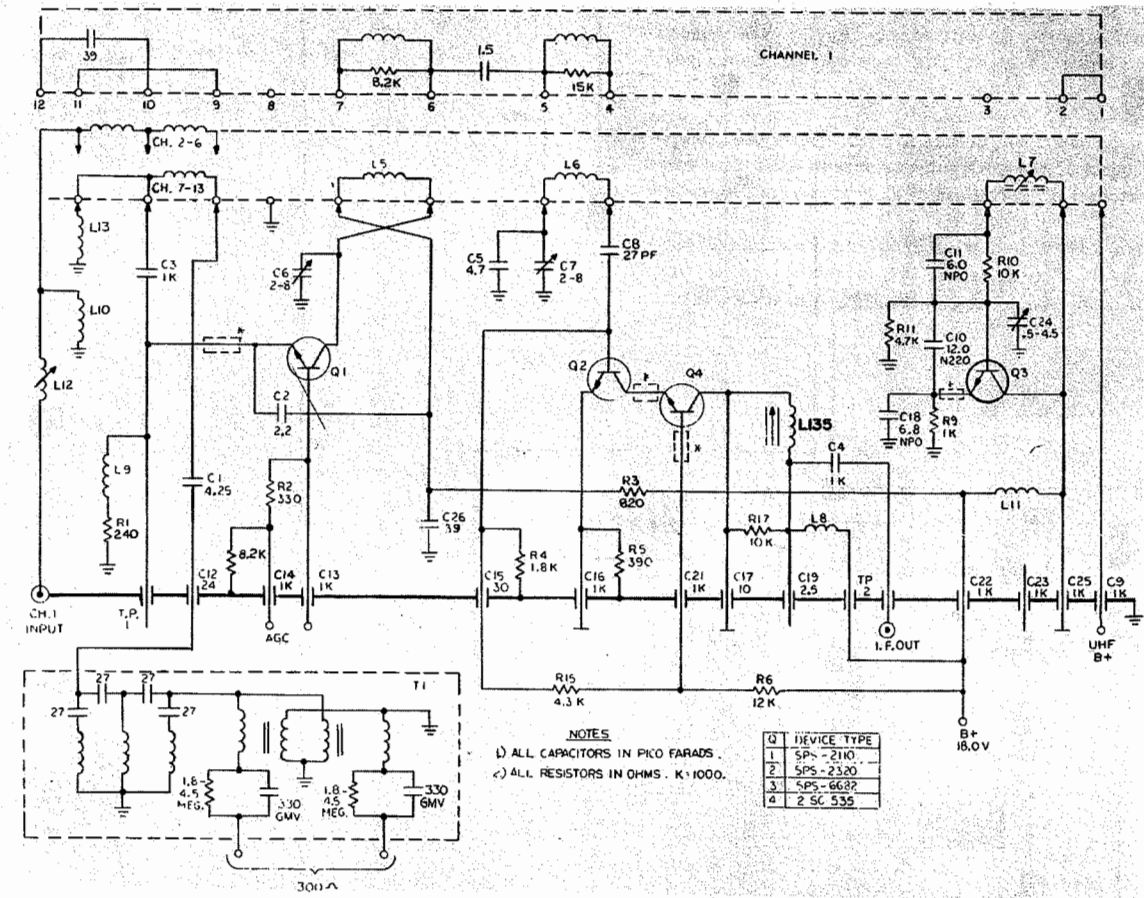


For SAFETY use only equivalent replacement parts.
 --- Circuitry not used in some versions
 --- Circuitry used in some versions
 @ See parts list
 * Nominal value
 = Ground

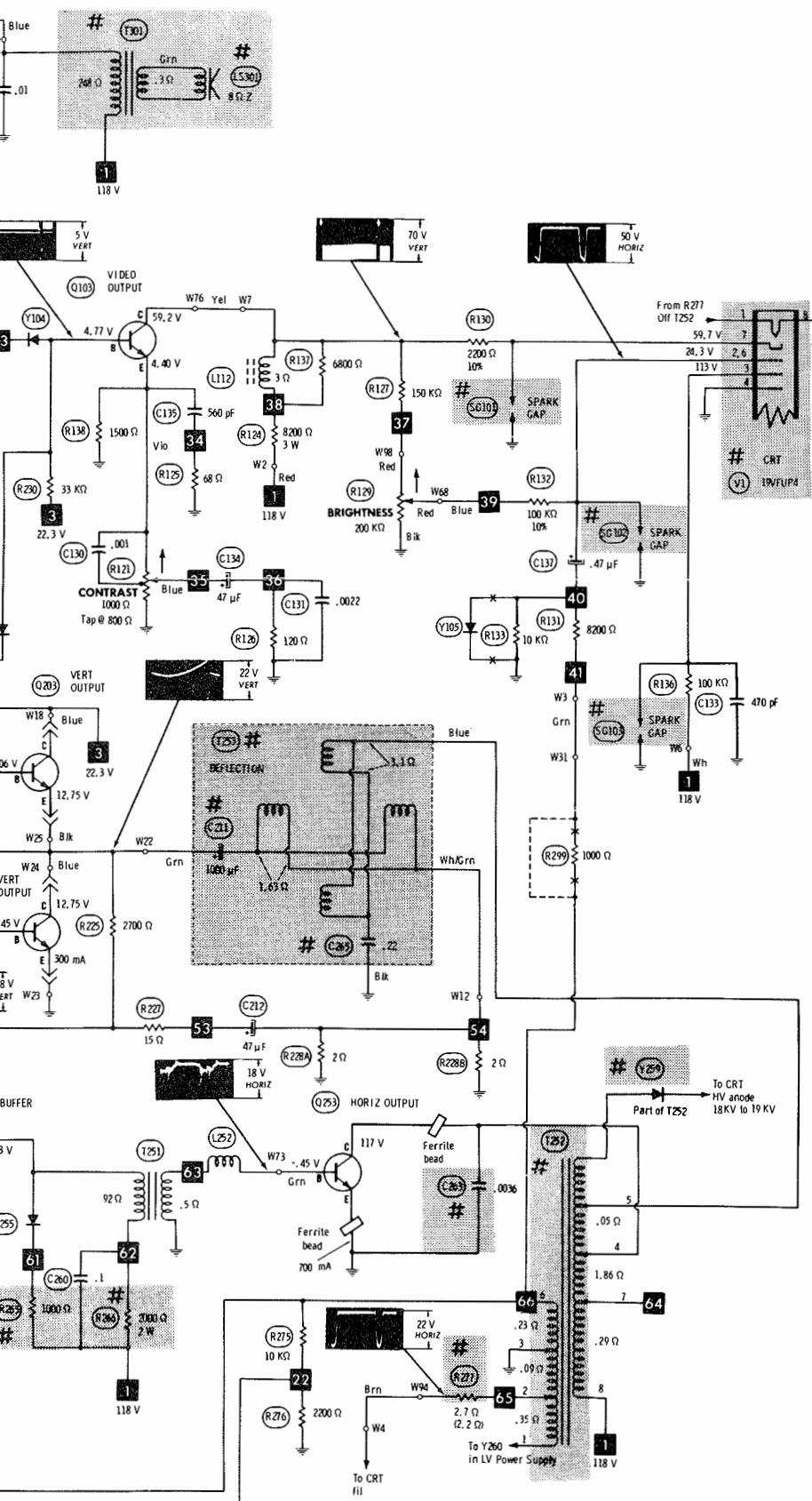
Waveforms: triggered scope, keyed rainbow generator
 Supply voltage maintained as shown at input.
 Voltages measured with digital meter, no signal.
 Controls adjusted for normal operation.
 Arrow at control indicates direction of advance.
 Terminal identification may not be found on unit.
 Resistors are 1/2W or less, 5% unless noted.
 Value in () used in some versions.



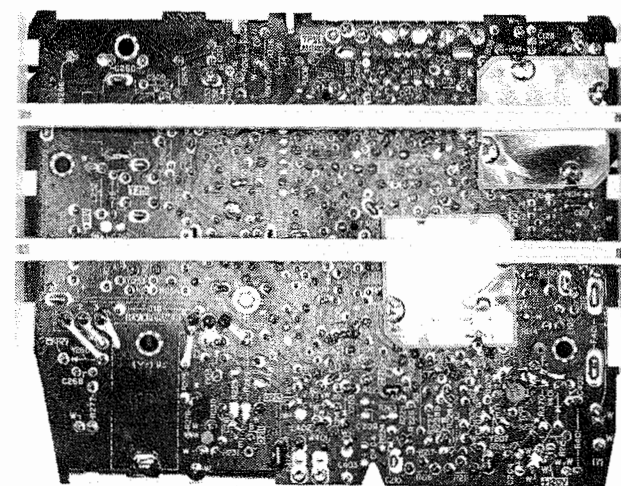
SCHEMATIC DIAGRAM



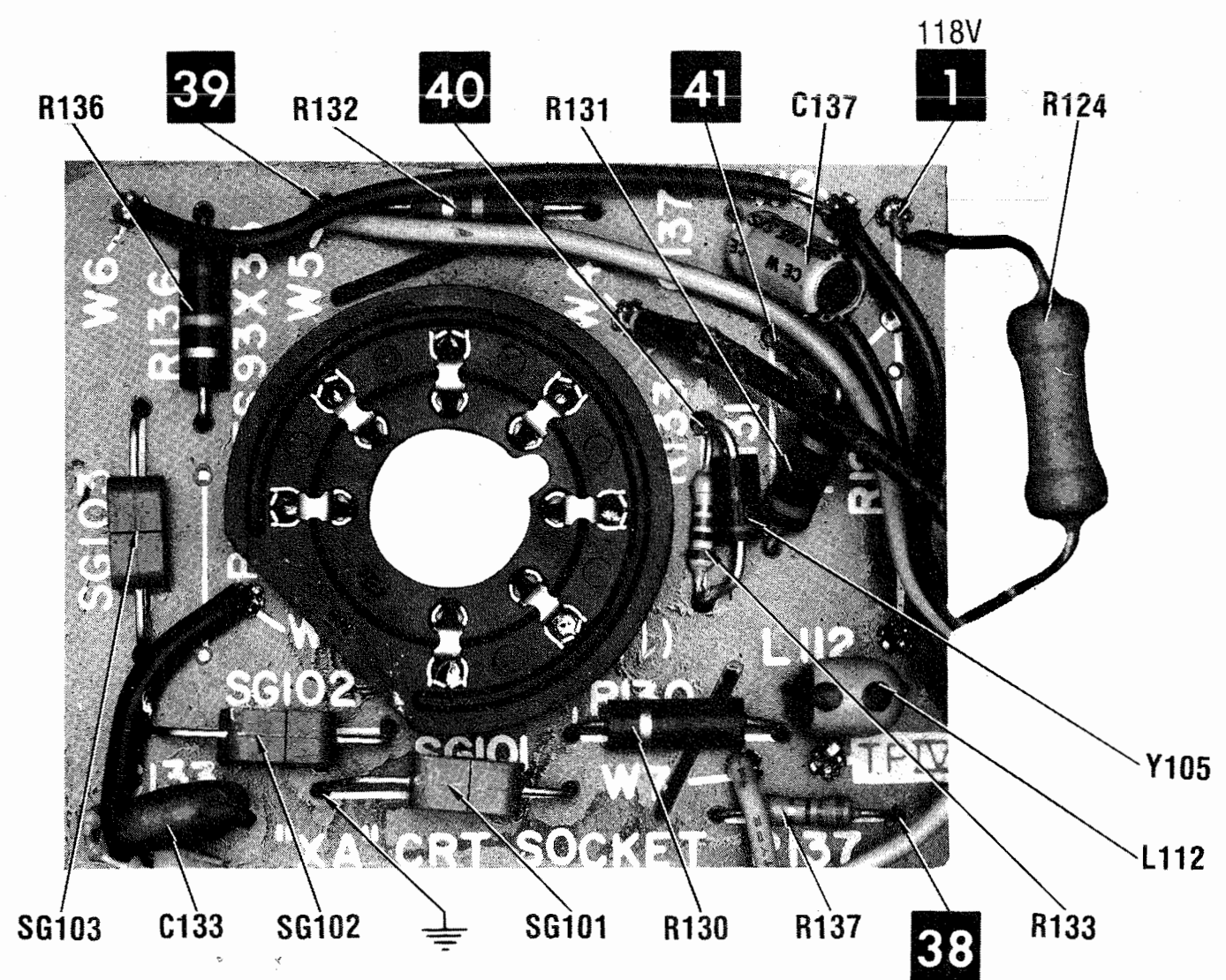
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(24-3019-7), GEC3020A-08 (24-3020-5)



MAIN BOARD-SHIELD LOCATION



A Howard W. Sams CIRCUI TRACE[®] Photo CRT SOCKET BOARD

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	220K	330K(1)	0	NC	220K	30K(1)	FIL						
IC101	8000	8000	0	0	2600	5200	3700	3700	510K	2700	3200	8000	4000	INF
IC301	INF	INF	0	0	3000	0	10K	8500	5500	5500	INF	11K	8500	56K
ITEM	E	B	C		ITEM	E	B	C		ITEM	E	B	C	
Q101	390	4000	3000		Q202	0	INF(2)	INF(2)		Q210	2800	4000	INF(2)	
Q102	560	7200	2800		Q203	INF(2)	INF(2)	2800		Q213	INF(2)	1000	INF(2)	
Q103	630	36K	20K(1)		Q204	0	430	11K		Q251	1000	720K	9000	
Q161	550	160K	INF(2)		Q205	700K	2800	INF(2)		Q252	0	4700	15K(1)	
Q162	2800	INF(2)	900		Q206	10	INF(2)	2800		Q253	0	1	13K(1)	
Q201	10K	110K	5800		Q208	INF(2)	471K	4000		Q301	100	11K	13K(1)	

(1) This reading will vary depending upon the condition of the electrolytic in the circuit.
(2) Reading depends upon polarity of meter connections.

TROUBLESHOOTING CHECK CHART

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

SWEEP

NO RASTER, HAS SOUND: Y259,CRT.
NO RASTER, NO SOUND: Horiz Osc/Buffer/Output,
Y254,Y255,Y260.

NO VERT DEFLECTION: Vert Osc/Amp/Driver/
Output,Y203,Y207.

POOR VERT LIN OR FOLDOVER: Vert Osc/Amp/
Driver/Output,Y203.

POOR HORIZ LIN OR FOLDOVER: Horiz Buffer/
Output,Y255.

NARROW PICTURE: Horiz Buffer/Output,Y254,
Y255,Y256.

VERT OFF FREQ: Sync Inverter,Vert Osc,Y207
HORIZ OFF FREQ: Horiz Osc,Y251,Y252.

SYNC

NO VERT SYNC: Sync Inverter,Vert Osc.

NO HORIZ SYNC: Horiz Osc,Y251,Y252.
NO VERT/HORIZ SYNC: Sync Clipper, Noise
Cancellers,Y201.

PICTURE or SOUND

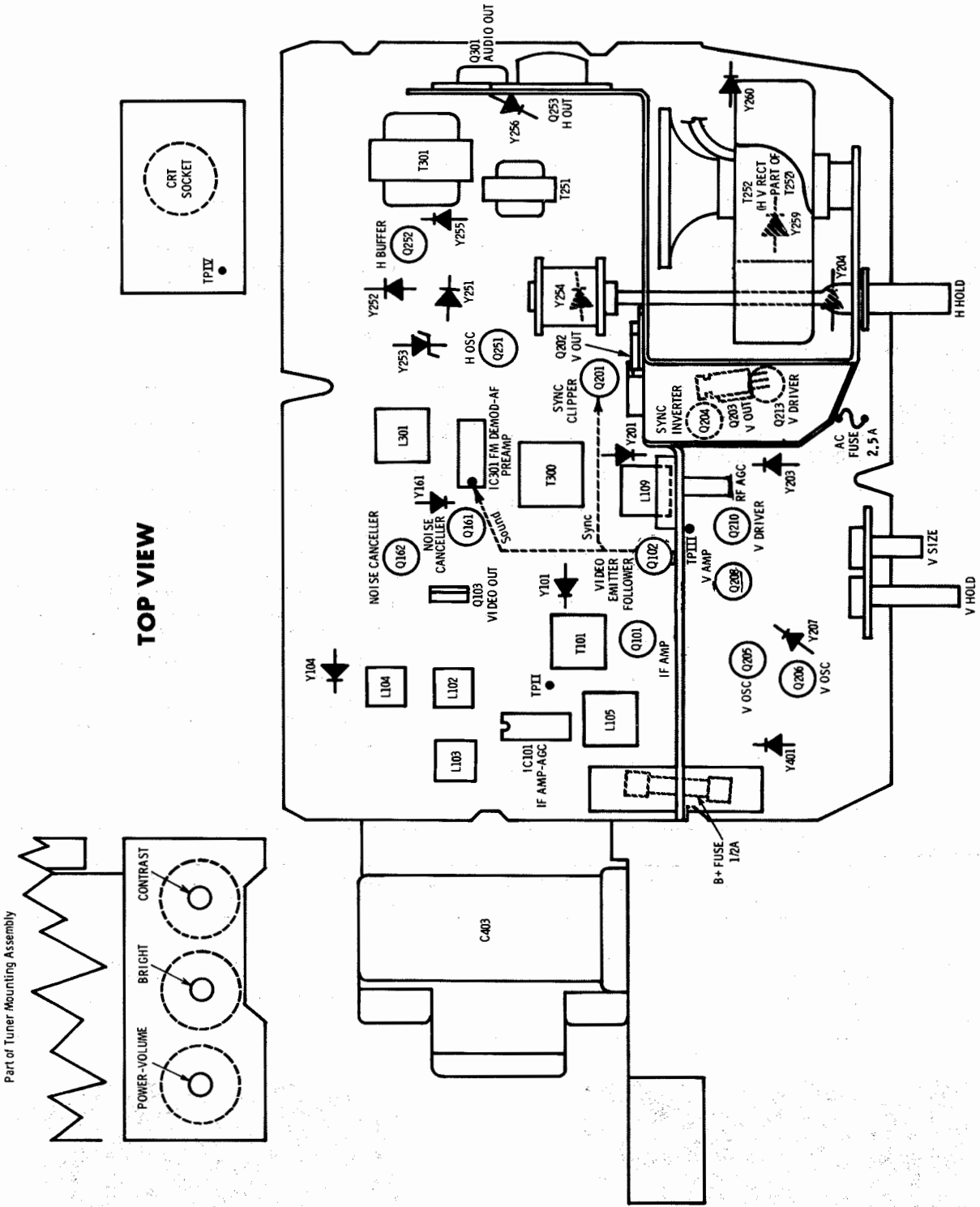
NO PIC, NO SOUND, NO RASTER: Fuses,Y401,Y253.
NO PIC, NO SOUND, HAS RASTER: Tuner,IF Amp-AGC,
IF Amp,Video Emitter Follower,Y101.

NO PIC, NO SOUND, HAS SNOW: Tuner,IF-Amp-AGC.
NO PIC, HAS SOUND, NO RASTER: Video Output,Y104,
Y204,CRT.

NO PIC, HAS SOUND, HAS RASTER: Video Emitter
Follower/Output,Y104.

HAS PIC, NO SOUND: FM Demodulator,AF Preamp,
Audio Output.

OVERLOADED PICTURE: IF Amp-AGC,Y101.



TRUEONE MODELS GEC3019A-08
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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

L102, L103, L104, L105, L109, T300 8606, 8606L, 8869
L301, T101, Tuner IF Output 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.

Turn Volume, Contrast, and RF AGC Controls fully counterclockwise.
Connect Base of Q161 to ground.
Connect a +7 Volt bias to TP11.

VIDEO IF ALIGNMENT

DIRECT PROBE FROM SWEEP/MARKER GENERATOR	SWEEP GENERATOR OUTPUT	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	REMARKS
To TP111	TP on VHF tuner.	44MHz (10MHz Sweep)	41.25MHz 47.25MHz	Adjust L102 for MINIMUM. Adjust L103 for MINIMUM. See Figure 1
"	"	"	41.25MHz 42.17MHz 44.00MHz 45.17MHz 47.25MHz	Adjust T101 (Top and Bot), L104, L105 and Tuner IF Output Coil for maximum gain and symmetry of response. T101 (Top and Bot) and L104 affects 44.00MHz. L105 affects 45.75MHz. Tuner IF Output affects overall response. See Figure 2.

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.

SOUND IF ALIGNMENT

Tune in a station and adjust T300 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 L301.

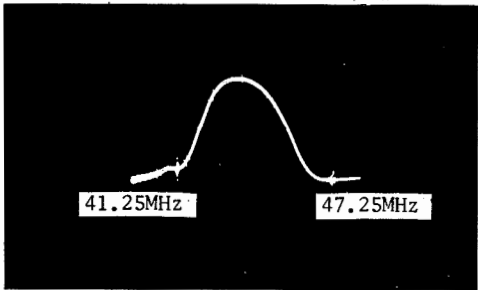


Fig. 1

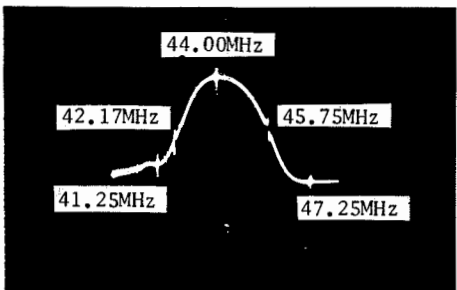
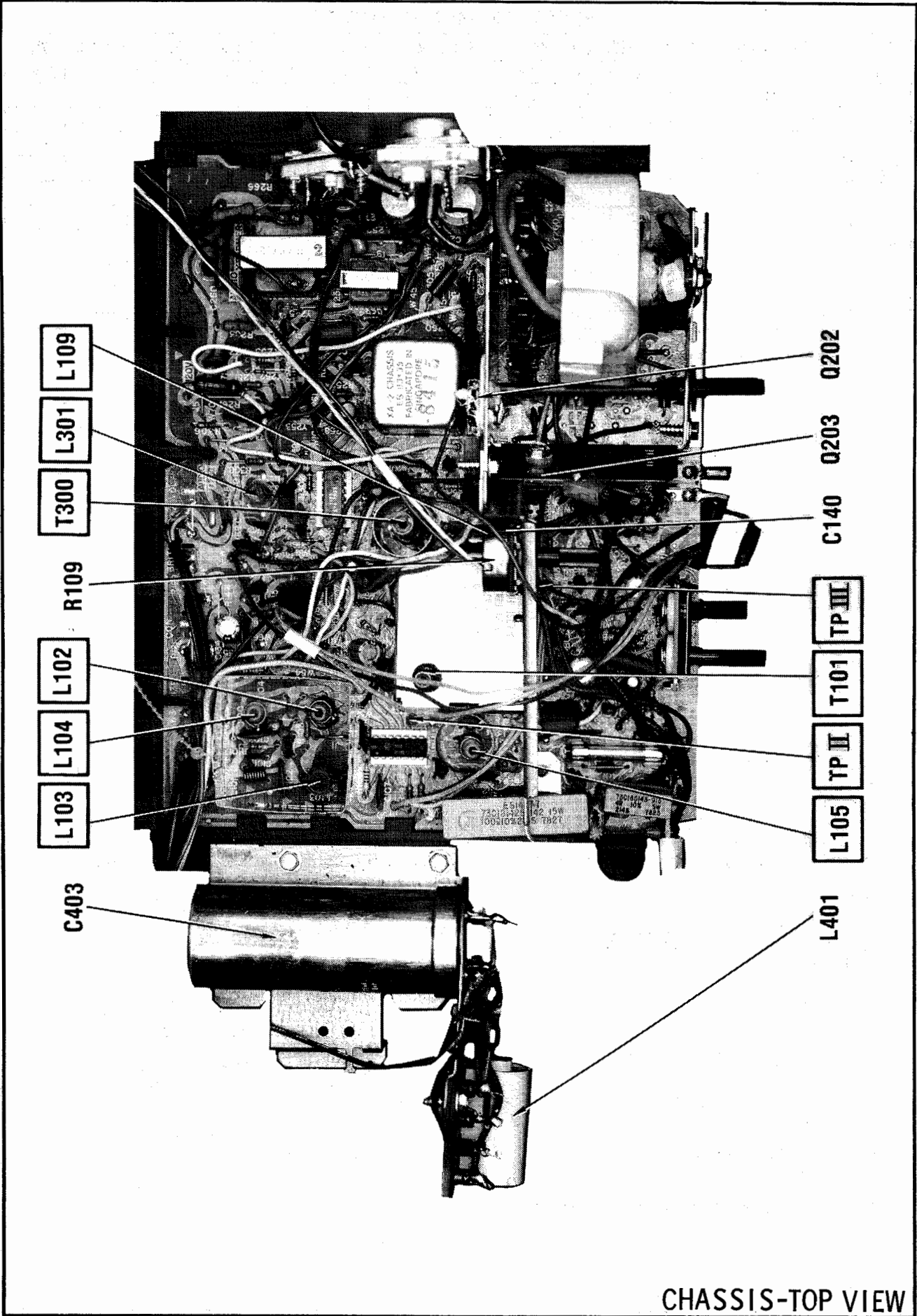
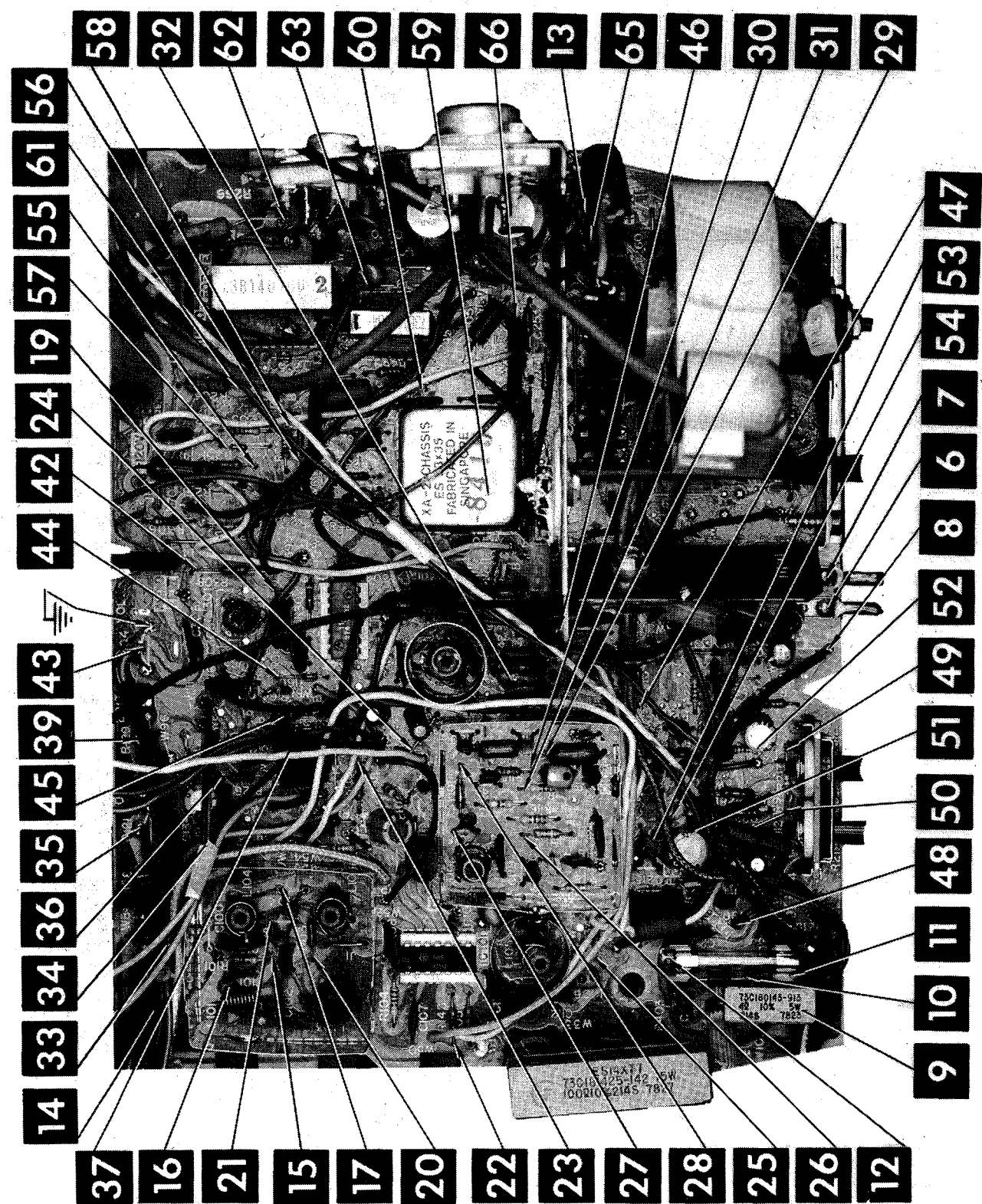
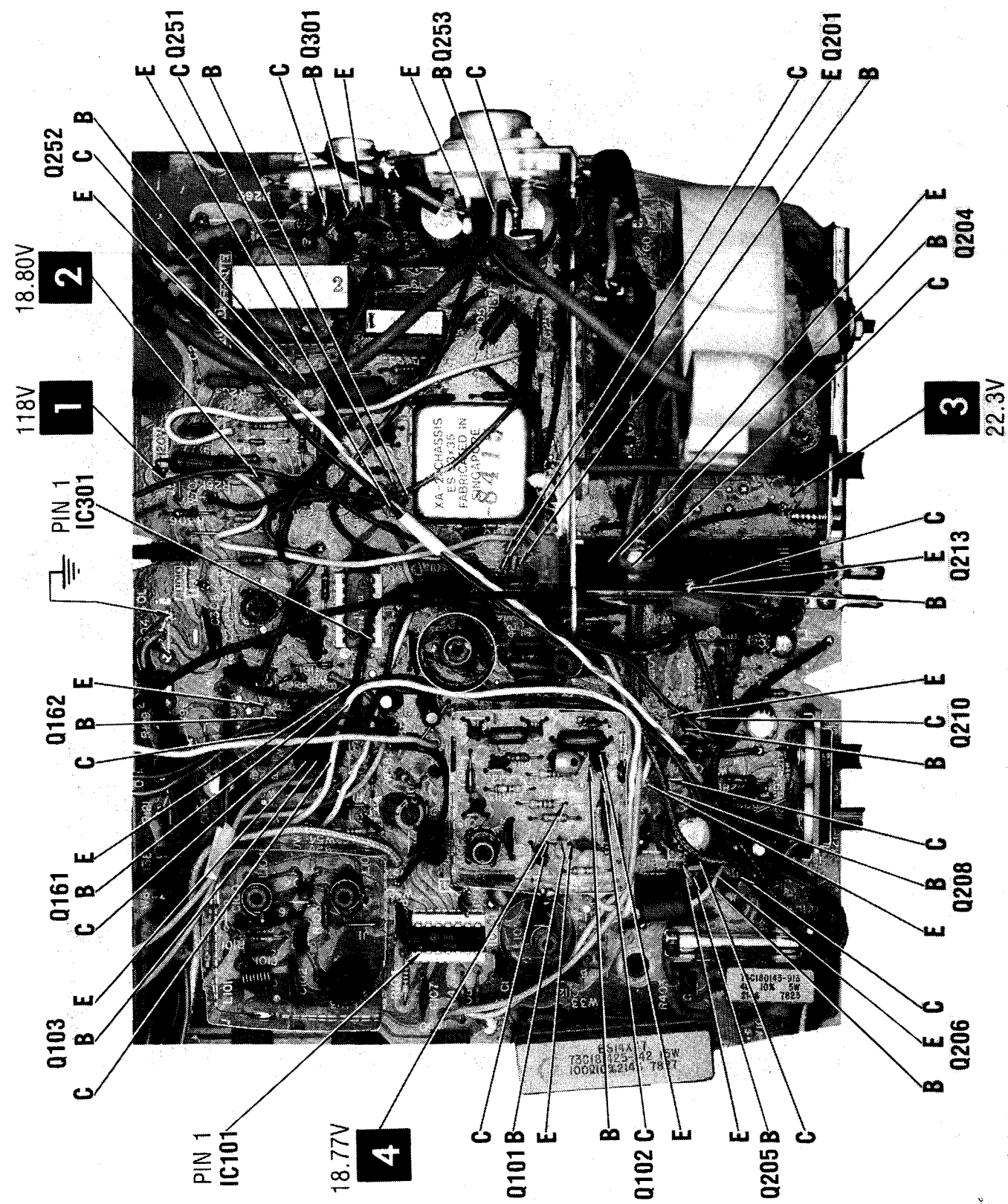


Fig. 2



TRUE-TONE MODELS GEC3019A-08
(24-3019-7), GEC3020A-08 (24-3020-5)

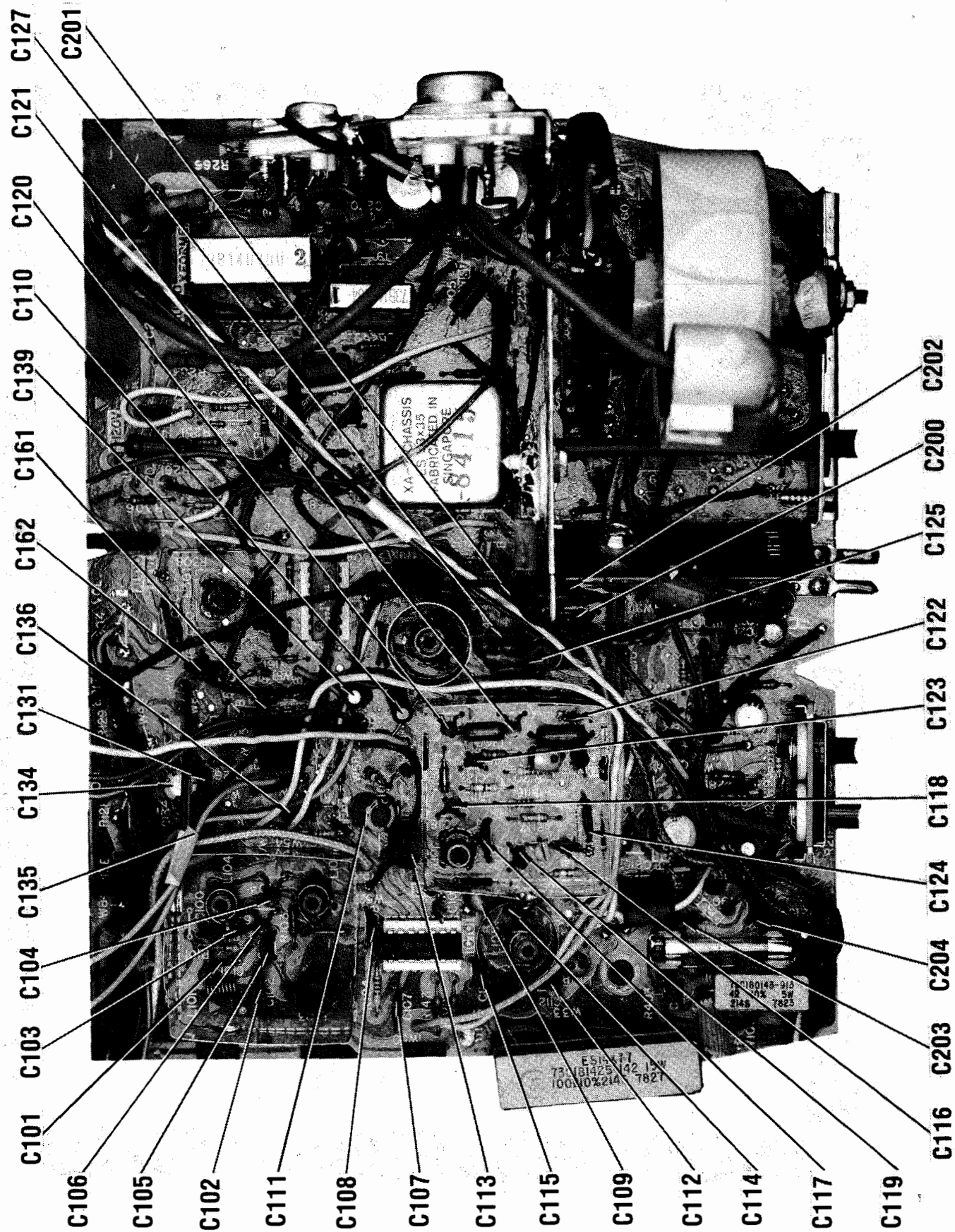
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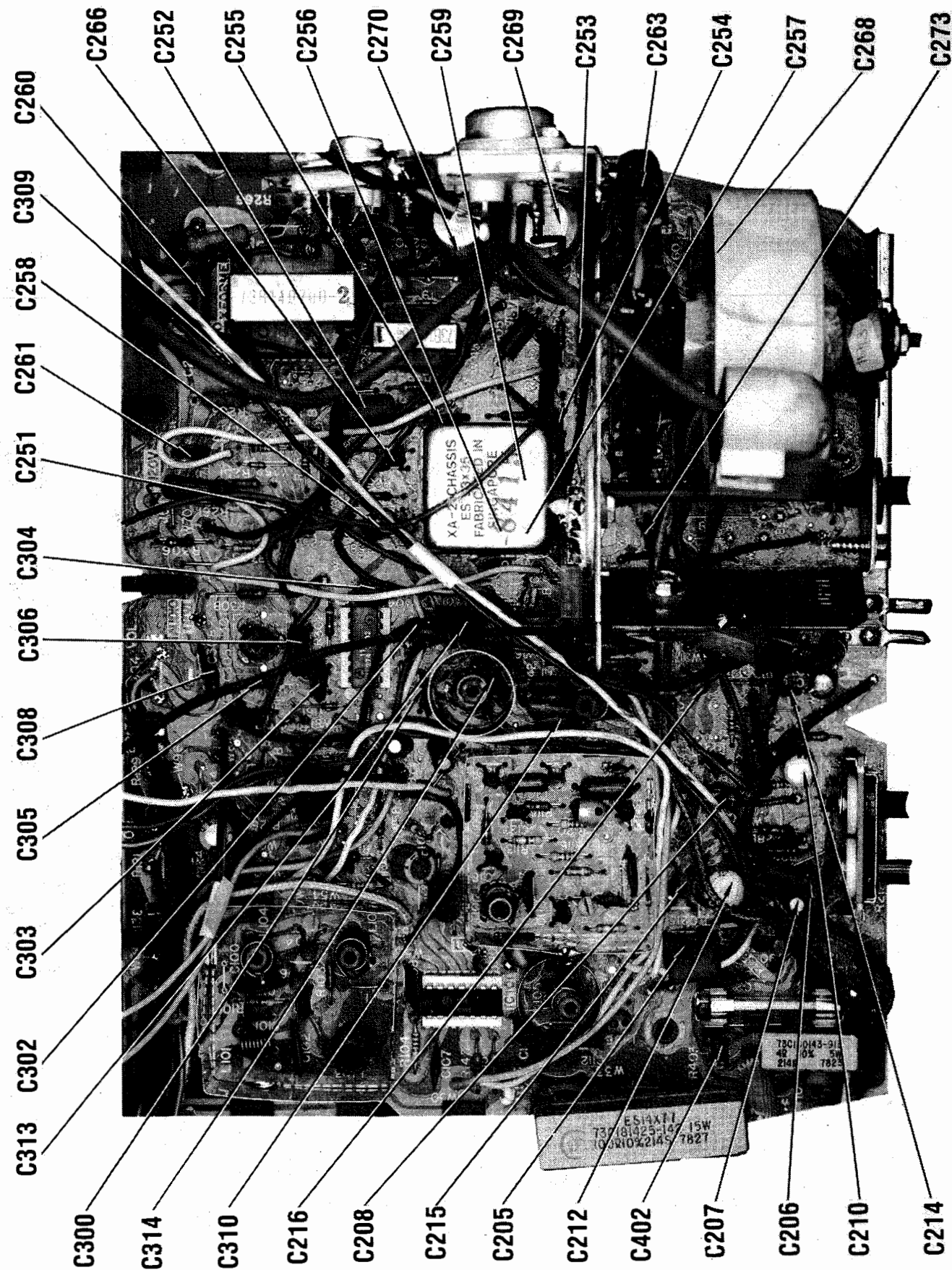
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FOLDER 3

MAIN BOARD



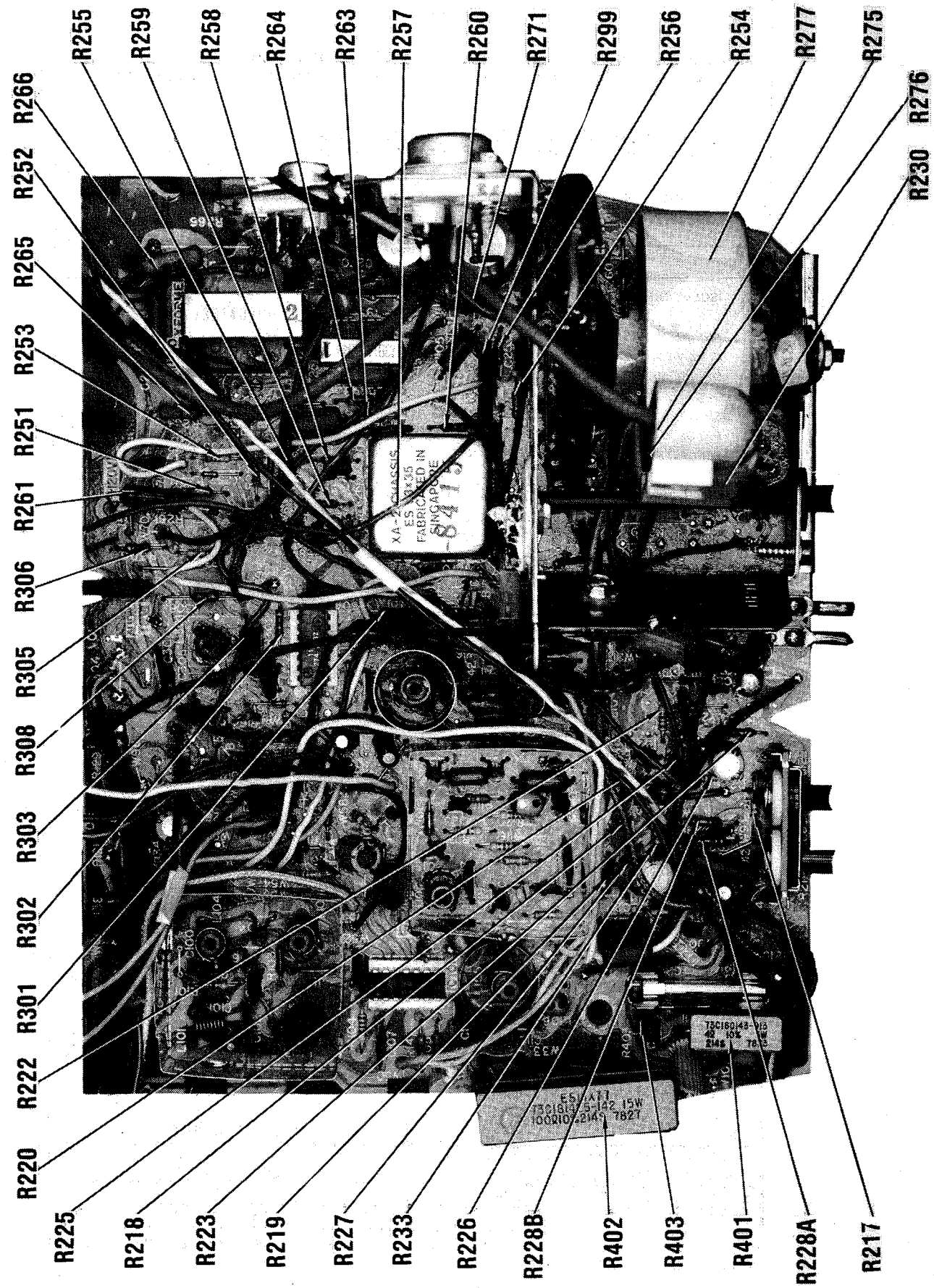
MAIN BOARD



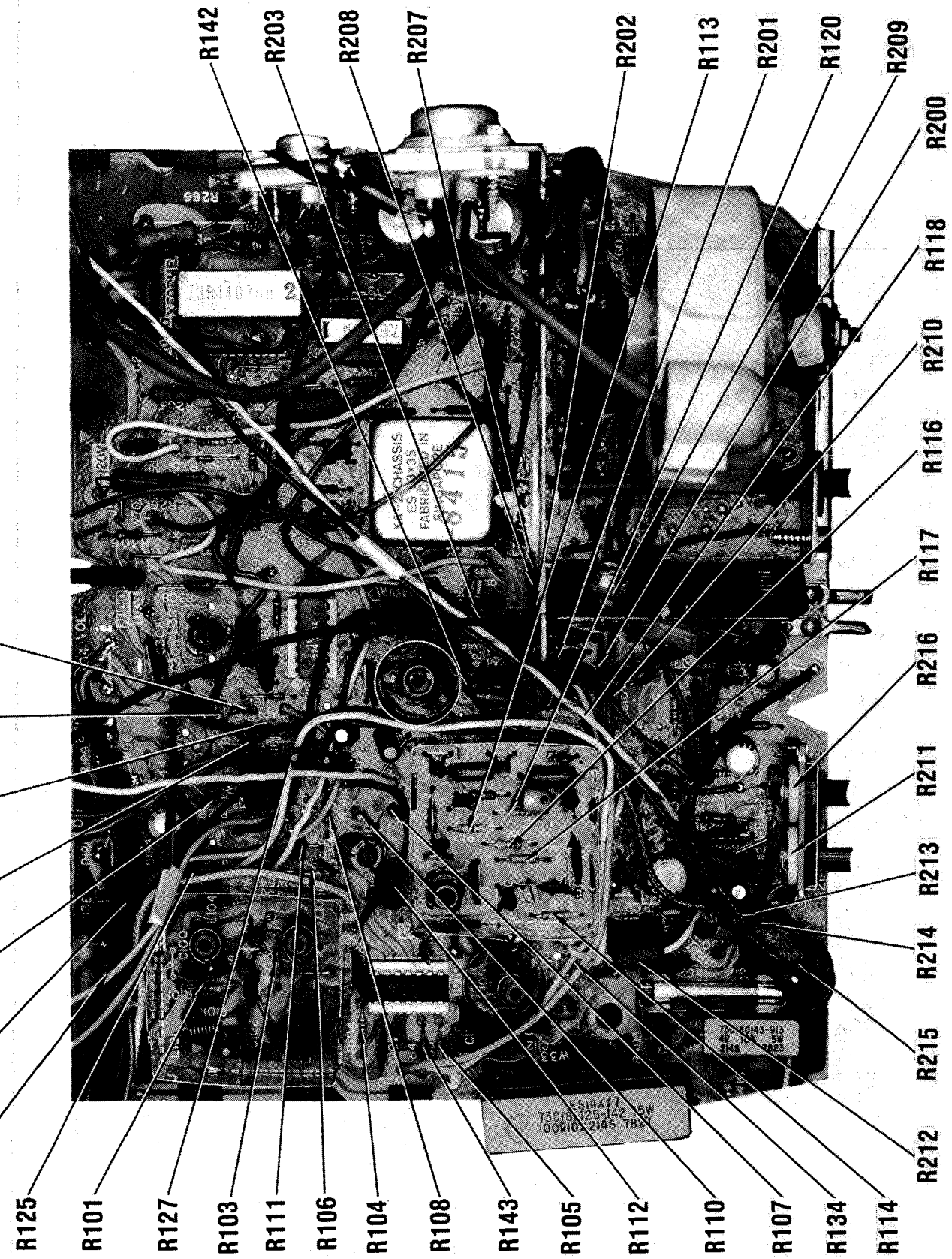
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(24-3019-7), GEC3020A-08 (24-3020-5)

FOLDER 3

MAIN BOARD



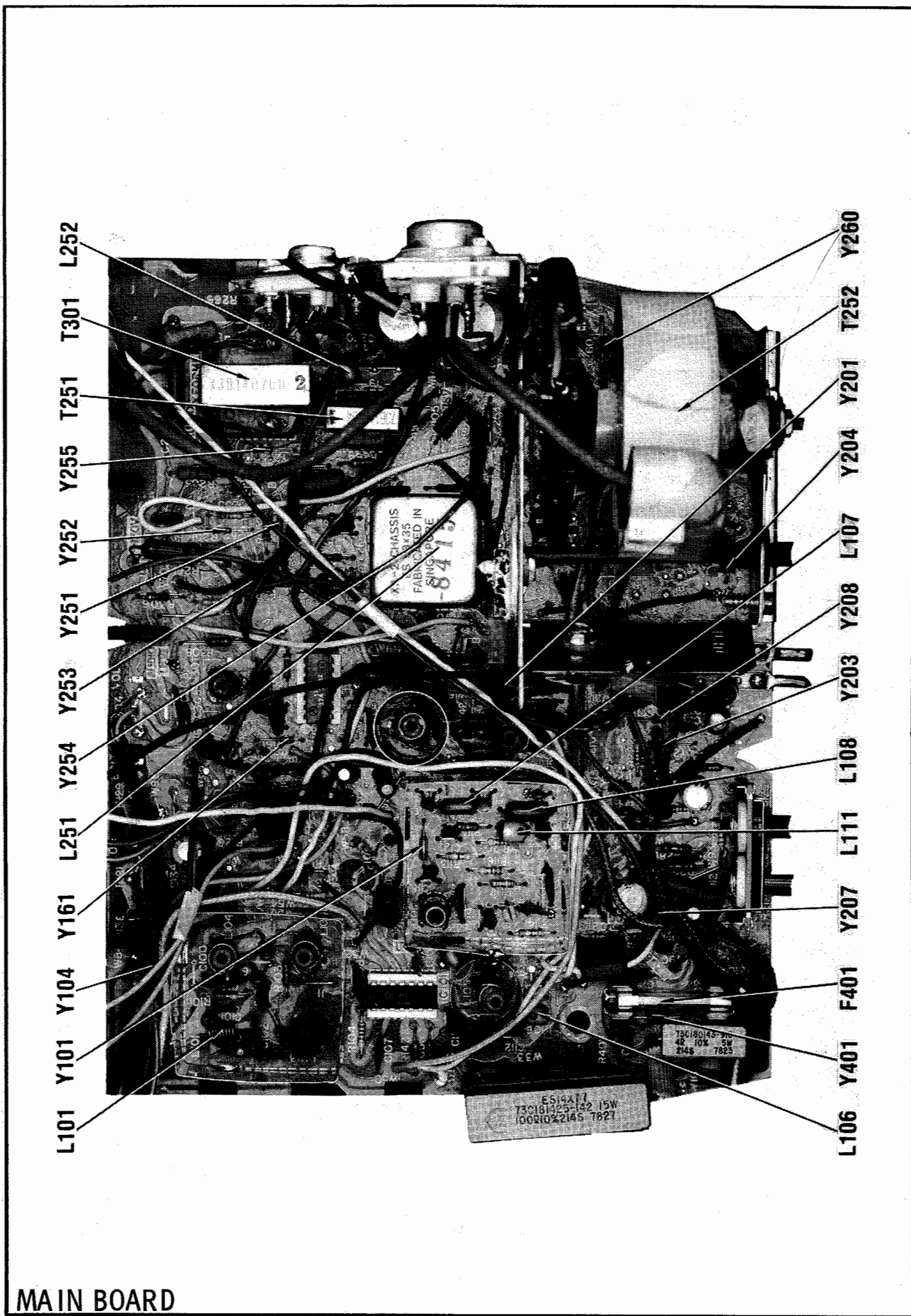
R119 R138 R126 R163 R161 R162 R164



MAIN BOARD

TRUE TONE MODELS GEC3019A-08
(24-3019-7), GEC3020A-08 (24-3020-5)

FOLDER 3



MAIN BOARD

SAFETY PRECAUTIONS

CAUTION – X-RAYS

AS PRECAUTIONS AGAINST EMISSION OF X-RAYS IN EXCESS OF THE FEDERAL STANDARD, NEVER APPLY POWER TO THE RECEIVER UNTIL THE FOLLOWING CONDITIONS HAVE BEEN VERIFIED:

1. THE LINE INPUT VOLTAGE DOES NOT EXCEED 128 VOLTS AC.
2. THE PICTURE TUBE IS THE FACTORY SPECIFIED TYPE ONLY.

FOR CONTINUED PROTECTION AGAINST X-RAYS, REPLACE R401, R402, AND C263 WITH THE EXACT CATALOGED REPLACEMENT PARTS ONLY.

THE CHASSIS OF THIS RECEIVER IS CONNECTED TO ONE SIDE OF THE A.C. LINE. USE AN ISOLATION TRANSFORMER TO POWER THE RECEIVER WHILE PERFORMING SERVICE.

THE RECEIVER IS EQUIPPED WITH A POLARIZED POWER CORD TO INSURE THAT THE CHASSIS IS ALWAYS CONNECTED TO THE GROUNDED SIDE OF THE A.C. LINE. DEFEATING THIS SAFETY DEVICE MAY CREATE A POTENTIAL HAZARD TO THE SERVICER AND THE USER.

SHATTER-PROOF SAFETY GLASSES SHOULD ALWAYS BE WORN WHEN WORKING AROUND AN EXPOSED PICTURE TUBE. BEFORE HANDLING THE TUBE, THOROUGHLY DISCHARGE THE SECOND ANODE TO THE OUTER AQUADAG COATING OF THE PICTURE TUBE.

IF THE RECEIVER BECOMES DAMAGED OR HAS TO BE DISASSEMBLED FOR ANY SERVICE (EVEN THE REMOVAL OF ONLY THE CABINET BACK) A SAFETY RESISTANCE TEST SHOULD BE PERFORMED.

1. INSPECT LEAD DRESS:

SAFETY TEST

- a. Wires should not be pinched by chassis, should not touch any power resistors.
 - b. Connections to the high voltage transformer, deflection yoke, damper diode (Y256), and damper capacitor (C263) should be securely soldered and have no sharp points.
 - c. The antenna leads should be securely soldered. The leads should not be dressed close to any high voltage point or AC line connection. The insulation to the antenna leads should not be damaged.
 - d. The AC wiring should be inspected for damaged insulation, frayed wires, pinched leads, and cold solder connections.
 - e. Inspect the AC line cord for damaged insulation.
2. WITH THE ON-OFF SWITCH IN THE OFF POSITION, CHECK FOR DC CONTINUITY (0 OHMS) FROM THE LARGE PIN ON THE POWER INTERLOCK TO CHASSIS GROUND.
 3. REASSEMBLE THE RECEIVER COMPLETELY WITH THE VHF RETRACTABLE ANTENNA CONNECTED TO THE VHF ANTENNA TERMINALS.
 4. DO NOT PLUG THE RECEIVER INTO A POWER OUTLET. CONNECT BOTH BLADES OF THE POWER PLUG TOGETHER AND PLACE THE ON-OFF SWITCH IN THE ON-POSITION.
 5. MEASURE BETWEEN THE SHORTED POWER PLUG AND THE FOLLOWING POINTS. READING SHOULD BE AS INDICATED.

TEST POINT	MIN. OHMS	MAX. OHMS
ANTENNA TERMINALS-UHF	600K	5.2 MEGS
ANTENNA TERMINALS-VHF	600K	5.2 MEGS
CABINET BACK SCREWS	OPEN CIRCUIT	
ALL METAL CONTROL OR CHANNEL SELECTOR SHAFTS (WITH KNOBS REMOVED)	OPEN CIRCUIT	
ALL NON-REMOVABLE METALLIC KNOBS, PUSH BUTTONS, EARPHONE JACKS, ETC.	OPEN CIRCUIT	
METAL ESCUTCHEONS AND OVERLAYS	OPEN CIRCUIT	
METAL HANDLES	OPEN CIRCUIT	

IF ANY READING IS OUTSIDE LIMITS SPECIFIED, THE CAUSE SHOULD BE IDENTIFIED AND CORRECTED BEFORE OPERATING THE RECEIVER.

Courtesy of the Manufacturer

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(24-3019-7), GEC3020A-08 (24-3020-5)

FOLDER 3

