

For Supplier Address See PHOTOFACT® Index

**EMERSON
MODEL ECR-221****EMERSON
MODEL ECR-221****SAFETY PRECAUTIONS**

See page 3.

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SAMS™**Howard W. Sams & Co., Inc.**

4300 West 62nd Street, P.O. Box 7092, Indianapolis, Indiana 46206 U.S.A.

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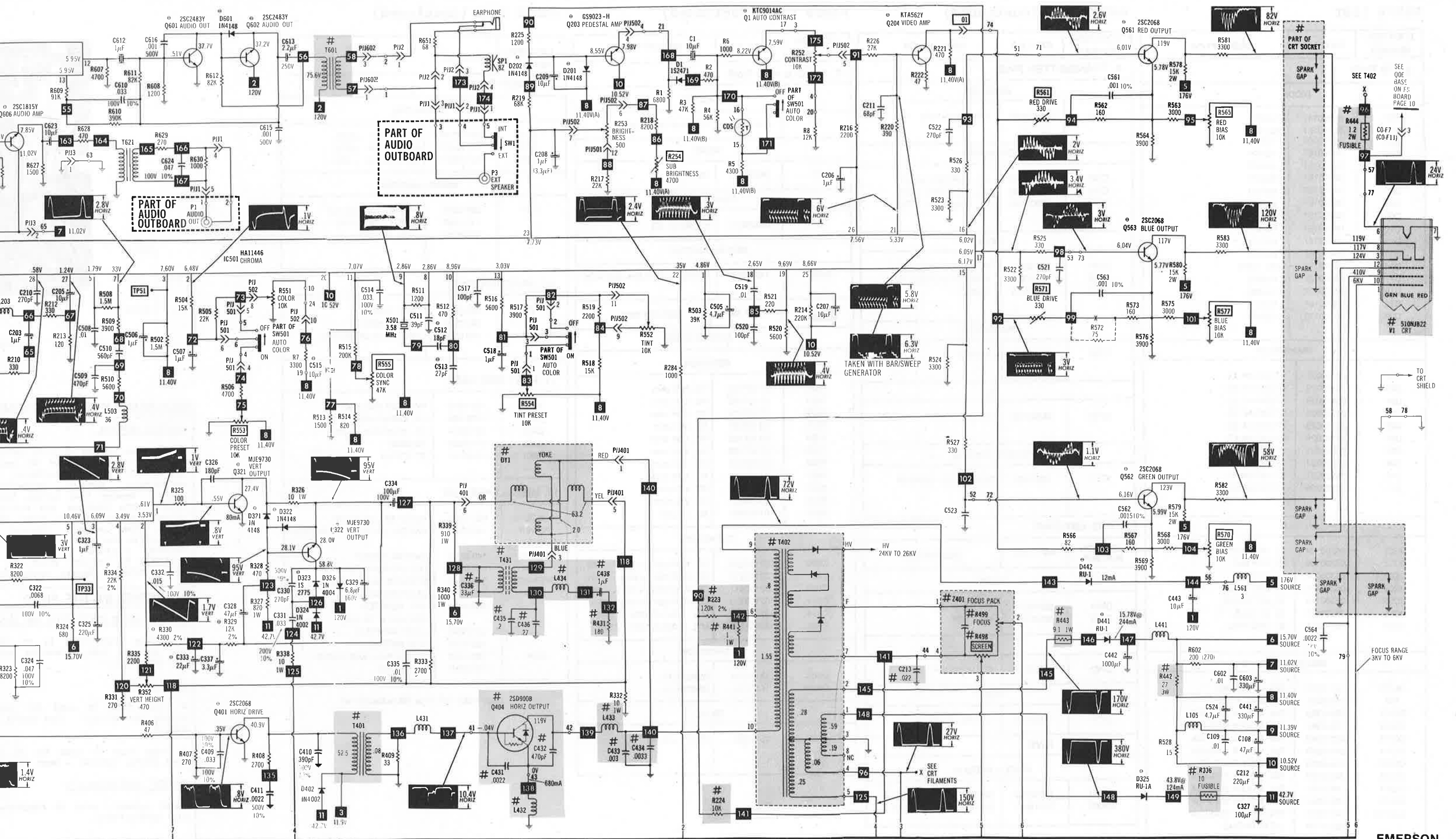
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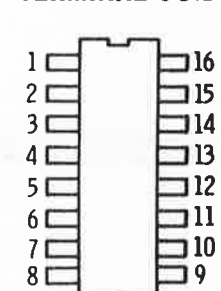
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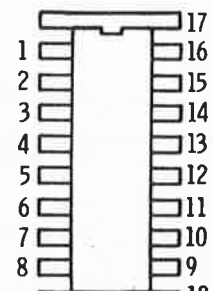




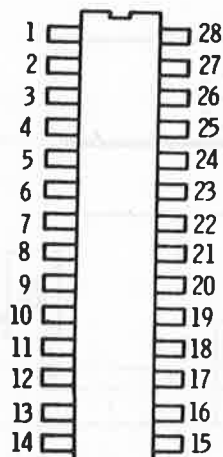
TERMINAL GUIDES



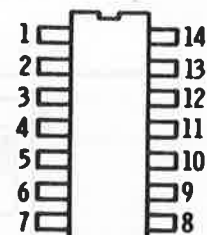
IC101
TOP VIEW



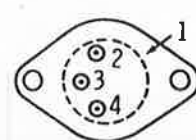
IC401
TOP VIEW



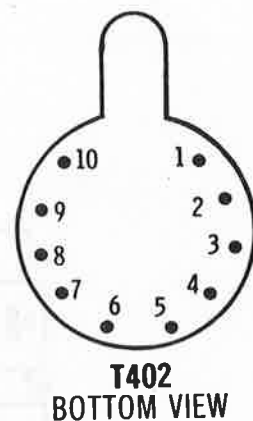
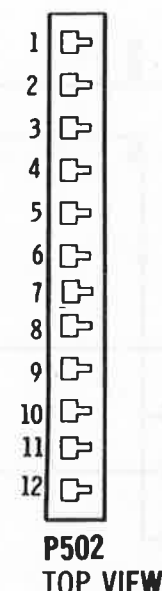
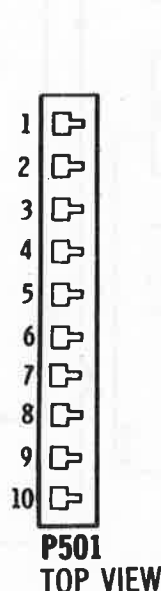
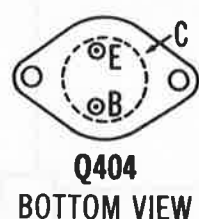
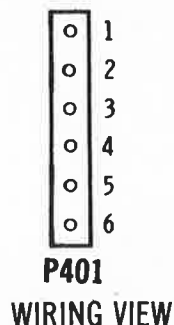
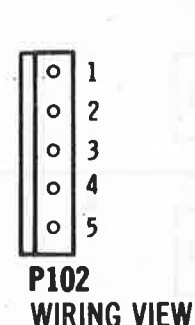
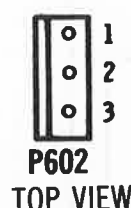
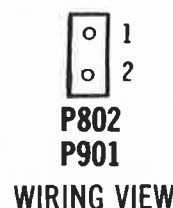
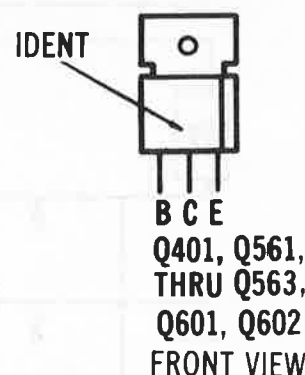
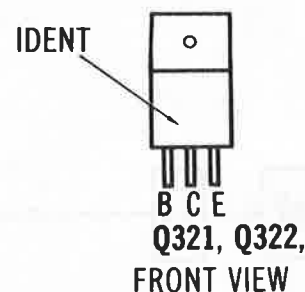
IC501
TOP VIEW



IC601
TOP VIEW



IC801
BOTTOM VIEW



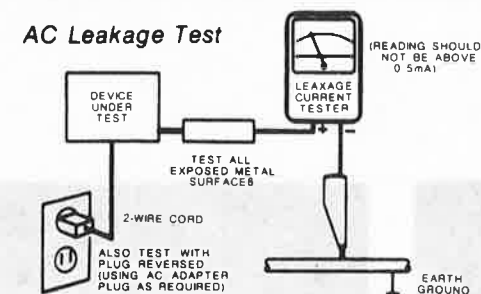
TERMINAL GUIDES

SAFETY PRECAUTIONS

- Before returning an instrument to the customer, always make a safety check of the entire instrument, including, but not limited to, the following items:
 - Be sure that no built-in protective devices are defective and/or have been defeated during servicing. (1) Protective shields are provided on this chassis to protect both the technician and the customer. Correctly replace all missing protective shields, including any removed for servicing convenience. (2) When reinstalling the chassis and/or other assembly in the cabinet, be sure to put back in place all protective devices, including, but not limited to, nonmetallic control knobs, insulating fishpapers, adjustment and compartment covers/shields, and isolation resistor/capacitor networks. **Do not operate this instrument or permit it to be operated without all protective devices correctly installed and functioning.**
 - Be sure that there are no cabinet openings through which an adult or child might be able to insert their fingers and contact a hazardous voltage. Such openings include, but are not limited to, (1) spacing between the picture tube and the cabinet mask, (2) excessively wide cabinet ventilation slots, and (3) an improperly fitted and/or incorrectly secured cabinet back cover.
 - Antenna Cold Check** — With the instrument AC plug removed from any AC source, connect an electrical jumper across the two AC plug prongs. Place the instrument AC switch in the on position. Connect one lead of an ohmmeter to the AC plug prongs tied together and touch the other ohmmeter lead in turn to each tuner antenna input exposed terminal screw and, if applicable, to the coaxial connector. If the measured resistance is less than 1.0 megohm or greater than 5.2 megohm, an abnormality exists that must be corrected before the instrument is returned to the customer. Repeat this test with the instrument AC switch in the off position.
 - Leakage Current Hot Check** — With the instrument completely reassembled, plug the AC line cord directly into a 120V AC outlet. (Do not use an isolation transformer during this test.) Use a leakage current tester or a metering system that complies with American National Standards Institute (ANSI) C101.1 *Leakage Current for Appliances* and Underwriters Laboratories (UL) 1410, (50.7). With the instrument AC switch first in the on position and then in the off position, measure from a known earth ground (metal waterpipe, conduit, etc.) to all exposed metal parts of the instrument (antennas, handle bracket, metal cabinet, screwheads, metallic overlays, control shafts, etc.), especially any exposed metal parts that offer an electrical return path to the chassis. Any current measured must not exceed 0.5 milliamp. Reverse the instrument power cord plug in the outlet and repeat test.

ANY MEASUREMENTS NOT WITHIN THE LIMITS SPECIFIED HEREIN INDICATE A POTENTIAL SHOCK HAZARD THAT MUST BE ELIMINATED BEFORE RETURNING THE INSTRUMENT TO THE CUSTOMER.

AC Leakage Test



- X-Radiation and High Voltage Limits** — Because the picture tube is the primary potential source of X-radiation in solid-state TV receivers, it is specially constructed to prohibit X-radiation emissions. For continued X-radiation protection, the replacement picture tube must be the same type as the original. Also, because the picture tube shields and mounting hardware perform an X-radiation protection function, they must be correctly in place. High voltage must be measured each time servicing is performed that involves B+, horizontal deflection or high voltage. Correct operation of the X-radiation protection circuits also must be reconfirmed each time they are ser-

vised. (X-radiation protection circuits also may be called "horizontal disable" or "hold-down.") Read and apply the high voltage limits and, if the chassis is so equipped, the X-radiation protection circuit specifications given on instrument labels and in the *Product Safety & X-radiation*

Warning note on the service data chassis schematic: High voltage is maintained within specified limits by close-tolerance safety-related components; adjustments in the high-voltage circuit. If high voltage exceeds specified limits, check each component specified on the chassis schematic and take corrective action.

- Read and comply with all caution and safety-related notes on or inside the receiver cabinet, on the receiver chassis, or on the picture tube.
- Design Alteration Warning** — Do not alter or add to the mechanical or electrical design of this TV receiver. Design alterations and additions, including, but not limited to, circuit modifications and the addition of items such as auxiliary audio and/or video output connections, might alter the safety characteristics of this receiver and create a hazard to the user. Any design alterations or additions will void the manufacturer's warranty and will make you, the servicer, responsible for personal injury or property damage resulting therefrom.
- Picture Tube Implosion Protection Warning** — The picture tube in this receiver employs integral implosion protection. For continued implosion protection, replace the picture tube only with one of the same type number. Do not remove, install, or otherwise handle the picture tube in any manner without first putting on shatterproof goggles equipped with side shields. People not so equipped must be kept safely away while picture tubes are handled. Keep the picture tube away from your body. Do not handle the picture tube by its neck. Some "in-line" picture tubes are equipped with a permanently attached deflection yoke, because of potential hazard, do not try to remove such "permanently attached" yokes from the picture tube.
- Hot Chassis Warning** — a. Some TV receiver chassis are electrically connected directly to one conductor of the AC power cord and may be safely serviced without an isolation transformer only if the AC power plug is inserted so that the chassis is connected to the ground side of the AC power source. To confirm that the AC power plug is inserted correctly, with an AC voltmeter measure between the chassis and a known earth ground. If a voltage reading in excess of 1.0V is obtained, remove and reinsert the AC power plug in the opposite polarity and again measure the voltage potential between the chassis and a known earth ground. b. Some TV receiver chassis normally have 85V AC (RMS) between chassis and earth ground regardless of the AC plug polarity. These chassis can be safely serviced only with an isolation transformer inserted in the power line between the receiver and the AC power source, for both personnel and test equipment protection. c. Some TV receiver chassis have a secondary ground system in addition to the main chassis ground. This secondary ground system is not isolated from the AC power line. The two ground systems are electrically separated by insulating material that must not be defeated or altered.
- Observe original lead dress. Take extra care to assure correct lead dress in the following areas: a. near sharp edges, b. near thermally hot parts — be sure that leads and components do not touch thermally hot parts, c. the AC supply, d. high voltage, and e. antenna wiring. Always inspect in all areas for pinched, out-of-place, or frayed wiring. Do not change spacing between components, and between components and the printed-circuit board. Check AC power cord for damage.
- Components, parts, and/or wiring that appear to have overheated or are otherwise damaged should be replaced with components, parts, or wiring that meet original specifications. Additionally, determine the cause of overheating and/or damage and, if necessary, take corrective action to remove any potential safety hazard.

Courtesy of the Manufacturer

TV ALIGNMENT INSTRUCTIONS

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

PRELIMINARY INSTRUCTIONS

Set the channel selector to the highest unused channel. Set scope sweep to external.
Connect scope vertical input to scope vertical input on sweep/marker generator. Connect
scope external horizontal input to scope horizontal input on sweep/marker generator.
Ground test equipment to TV chassis unless specified otherwise. Use only enough generator
output to provide a usable indication.
Note: Response may vary slightly from that shown.
Connect a +4.20V Bias to TP11.

VIDEO IF ALIGNMENT (SWEEP MARKER GENERATOR)

DIRECT PROBE FROM SWEEP/MARKER GENERATOR	SWEEP GENERATOR OUTPUT	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	REMARKS
To TP12	To TP on Tuner	44MHz (10MHz Sweep)	41.25MHz 42.17MHz 44.00MHz 45.75MHz	Adjust L103 and IF Output Coil (Tuner) for Maximum gain and symmetry of response. See Figure 1.

VIDEO IF ALIGNMENT (BAR SWEEP GENERATOR)

BAR SWEEP GENERATOR	SCOPE INPUT	REMARKS
To Antenna Terminals	To TP12	Perform Video IF Adjustments per SWEEP/MARKER GENERATOR instructions above. See Figure 2.

AUTOMATIC FINE TUNING ALIGNMENT

Connect as explained in preliminary Instructions unless specified otherwise.
Set Auto Switch to On.

DIRECT PROBE FROM SWEEP/MARKER GENERATOR	SWEEP GENERATOR OUTPUT	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	REMARKS
To TP14	To TP on Tuner	44MHz (10MHz Sweep)	45.75MHz	Adjust L171 for Maximum gain and symmetry of response. See Figure 3.

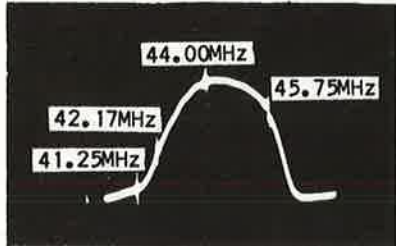


Figure 1



Figure 2

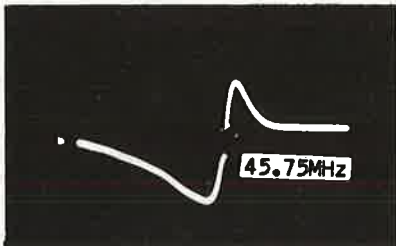
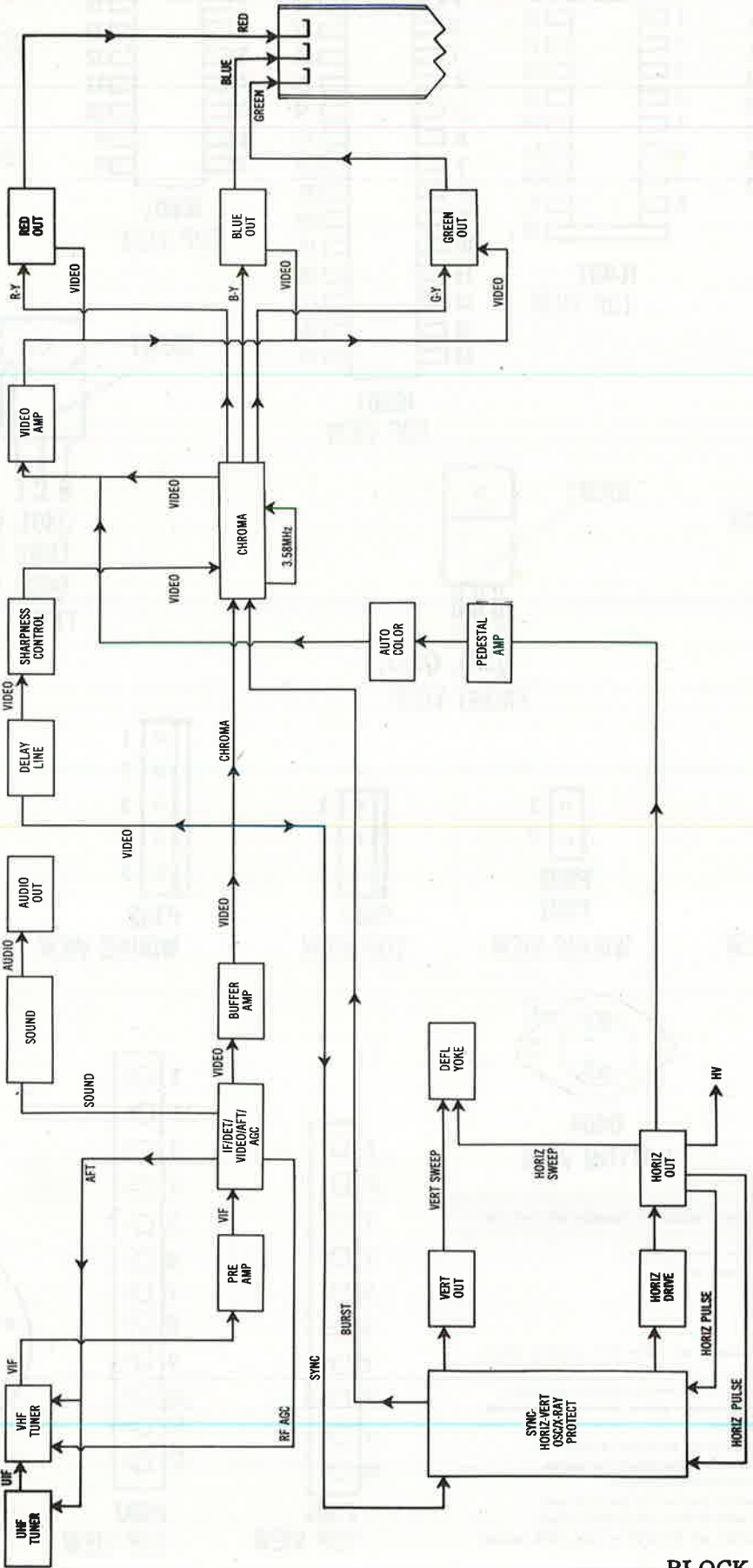


Figure 3



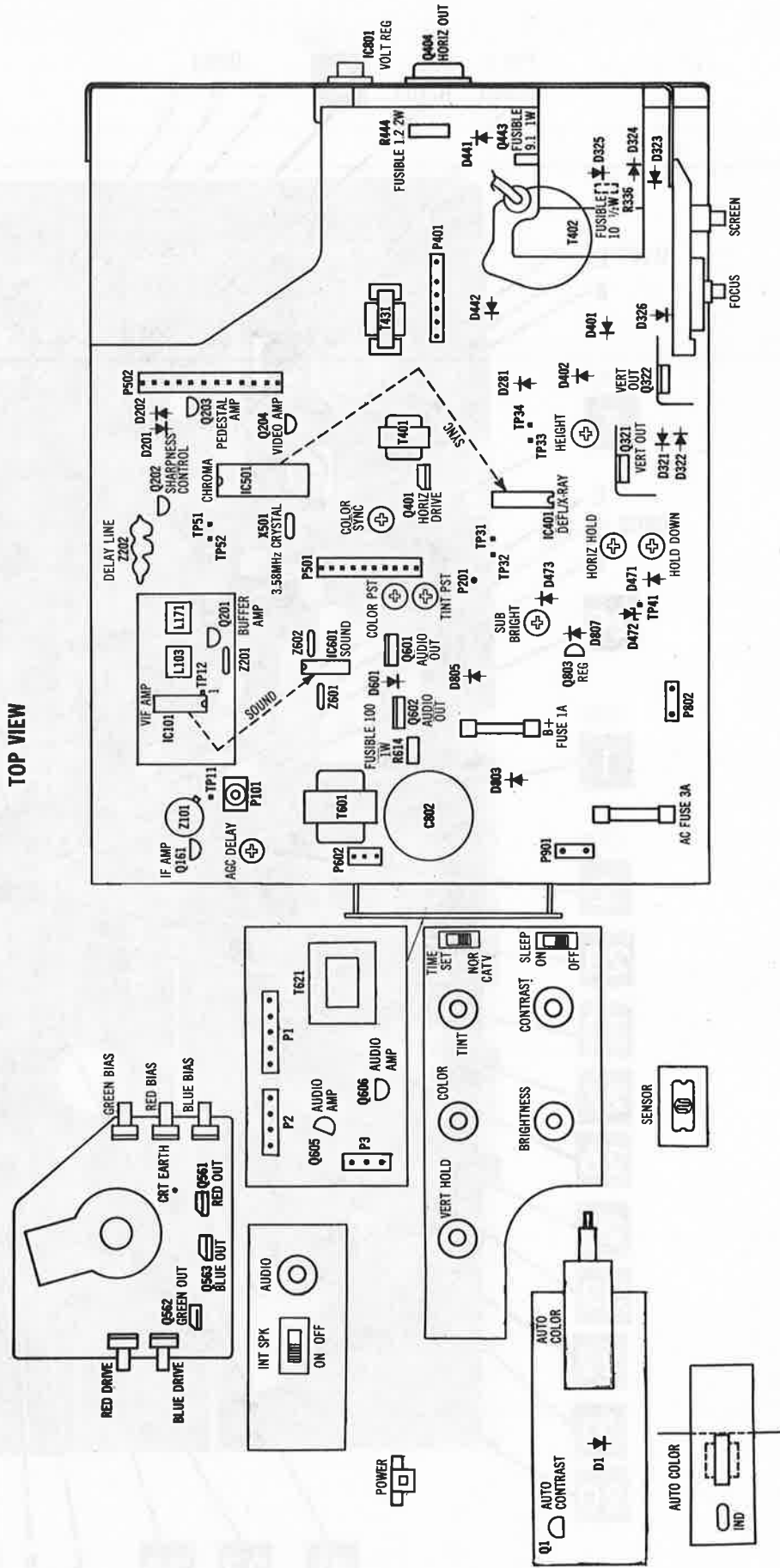
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FOLDER 1

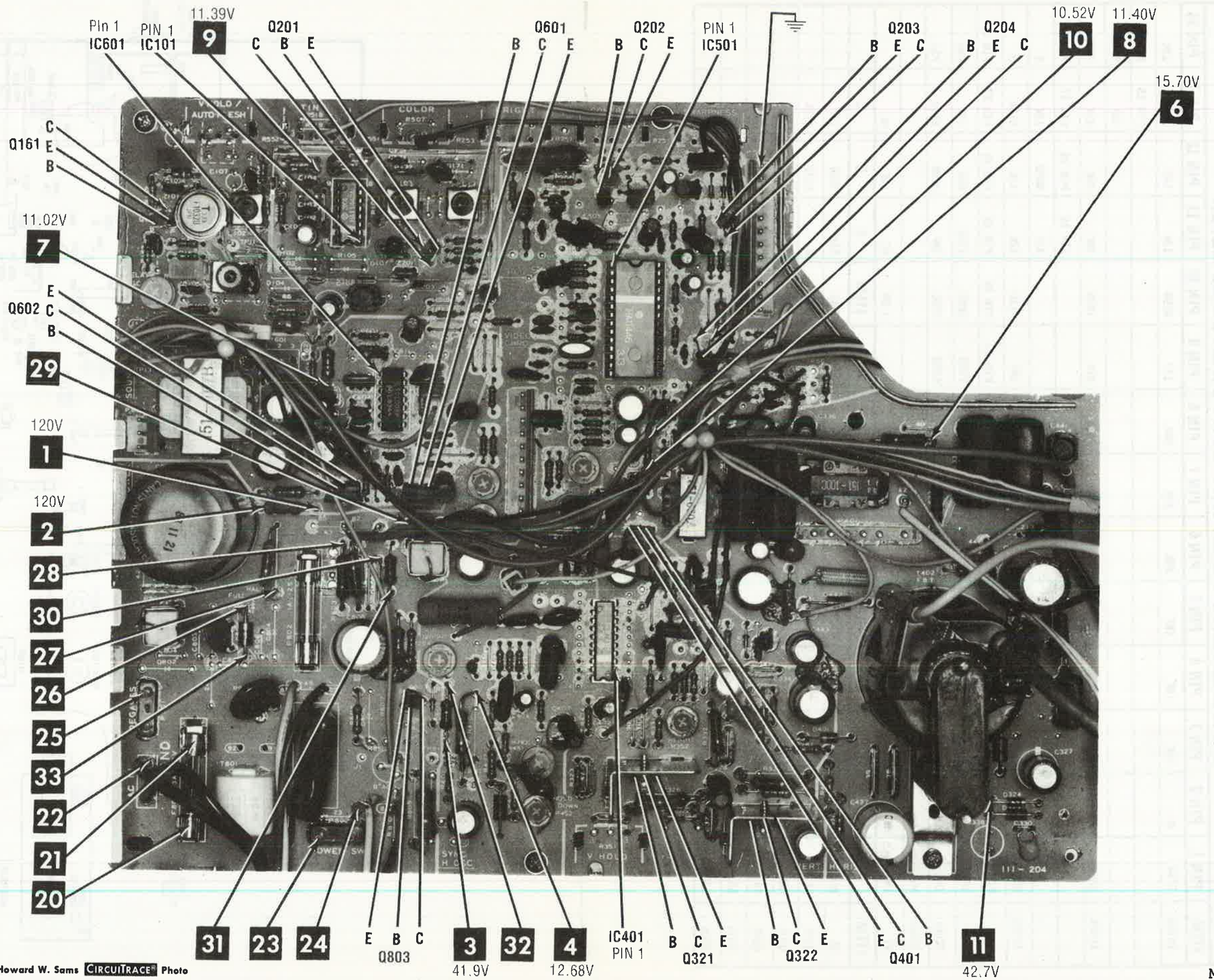
BLOCK DIAGRAM

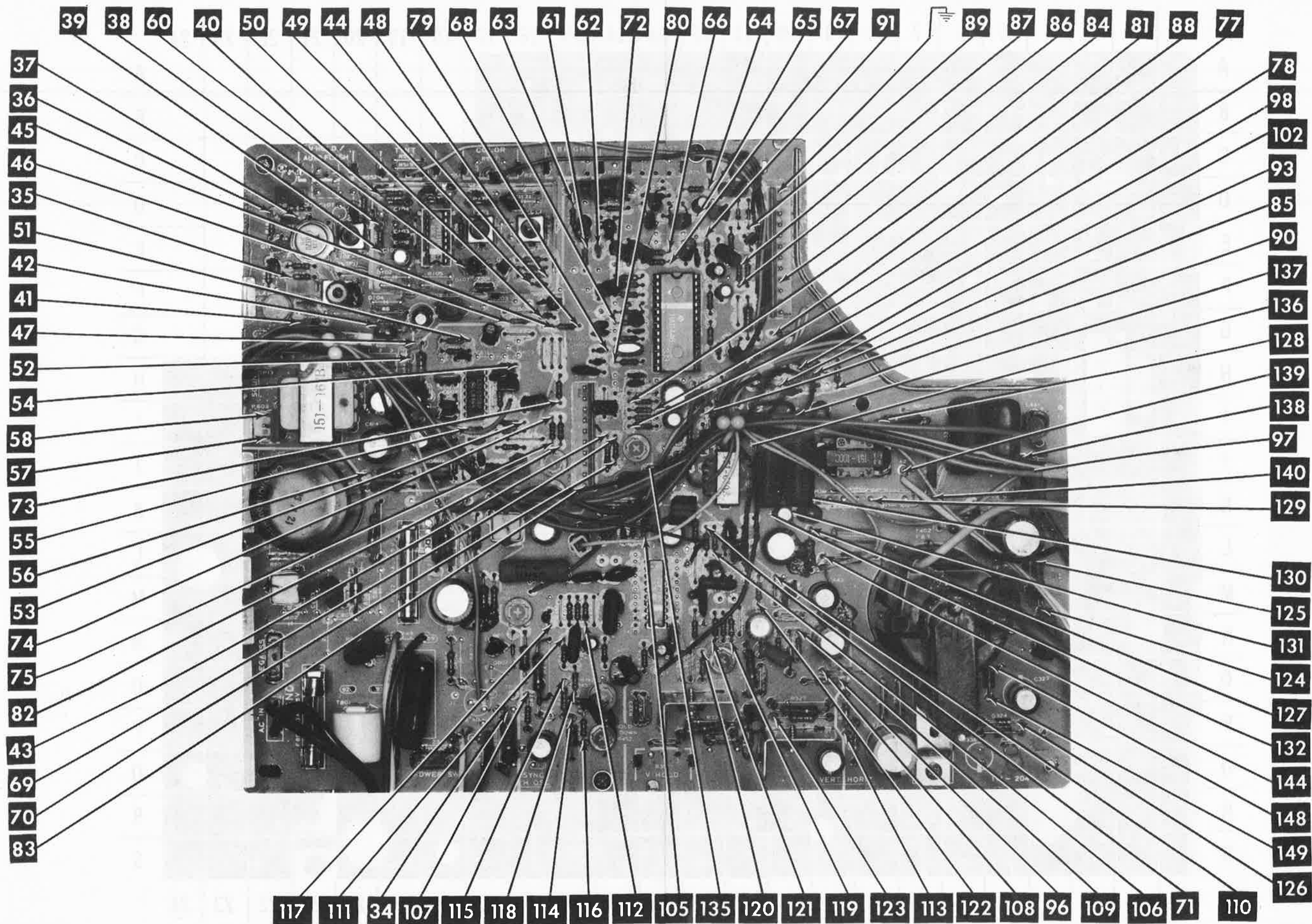
RESISTANCE MEASUREMENTS

MEASUREMENTS TAKEN WITH LOW POWER OHMS METER														
ITEM	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5	PIN 6	PIN 7	PIN 8	PIN 9	PIN 10	PIN 11	PIN 12	PIN 13	PIN 14
IC101	1794	0	25K	INF	INF	25K	27K	26K	177	8190	13K	14K	14K	13K
													PIN 15	PIN 16
													INF	9440
IC401	3280	2320	INF	22K	786	3260	44K	3220	81K	1276	INF	88K	21K	7940
											PIN 15	PIN 16	PIN 17	PIN 18
											317	4650	12K	0
IC501	39K	20K	1.5M	5240	INF	0	INF	15K	14K	7110	12K	12K	5130	0
	PIN 15	PIN 16	PIN 17	PIN 18	PIN 19	PIN 20	PIN 21	PIN 22	PIN 23	PIN 24	PIN 25	PIN 26	PIN 27	PIN 28
	3260	3280	3280	6900	3840	186	33K	3010	7390	6289	218K	555	12K	788
IC601	INF	INF	0	0	437	15K	8510	INF	6550	8700	INF	3290	5990	73K
IC801	40K	40K	0V	43K										
V1	INF	NC	INF	NC	NC	FIL	FIL	INF	0	5.5M	NC	INF	NC	
ITEM	E	B	C		ITEM	E	B	C		ITEM	E	B	C	
Q1	8460	9950	200		Q321	0	3360	19K		Q563	518	3610	INF	
Q161	22	845	471		Q322	19K	INF	INF		Q601	0	1172	122K	
Q201	289	1917	176		Q401	0	263	9710		Q602	70K	122K	40K	
Q202	443	757	177		Q404	0	.1	40K		Q605	1390	24K	3800	
Q203	5420	152K	186		Q561	518	3610	INF		Q606	1500	3660	463	
Q204	378	32K	47		Q562	518	3610	INF		Q803	1.8M	33K	41K	



PLACEMENT CHART



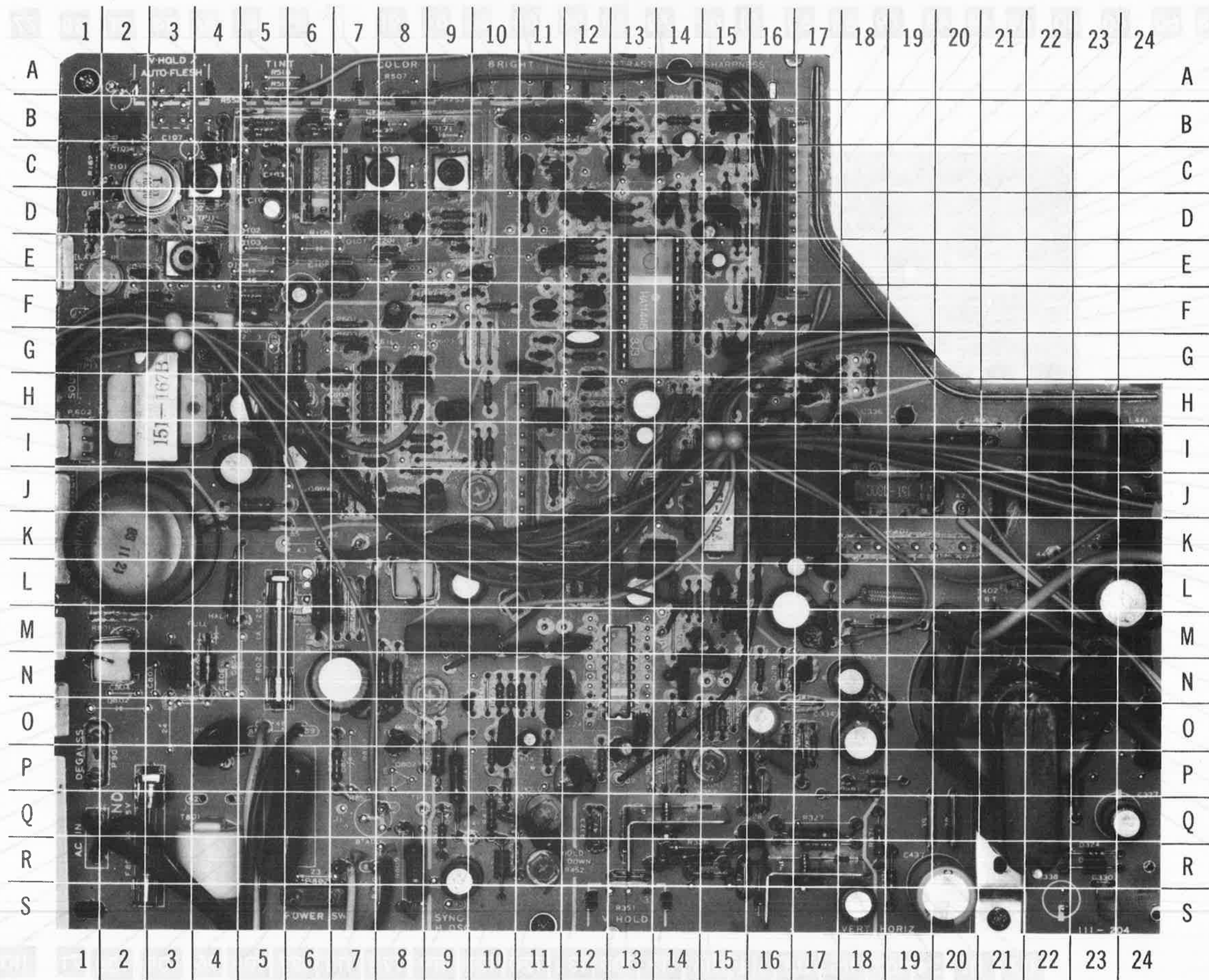


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FOLDER 1

MAIN BOARD

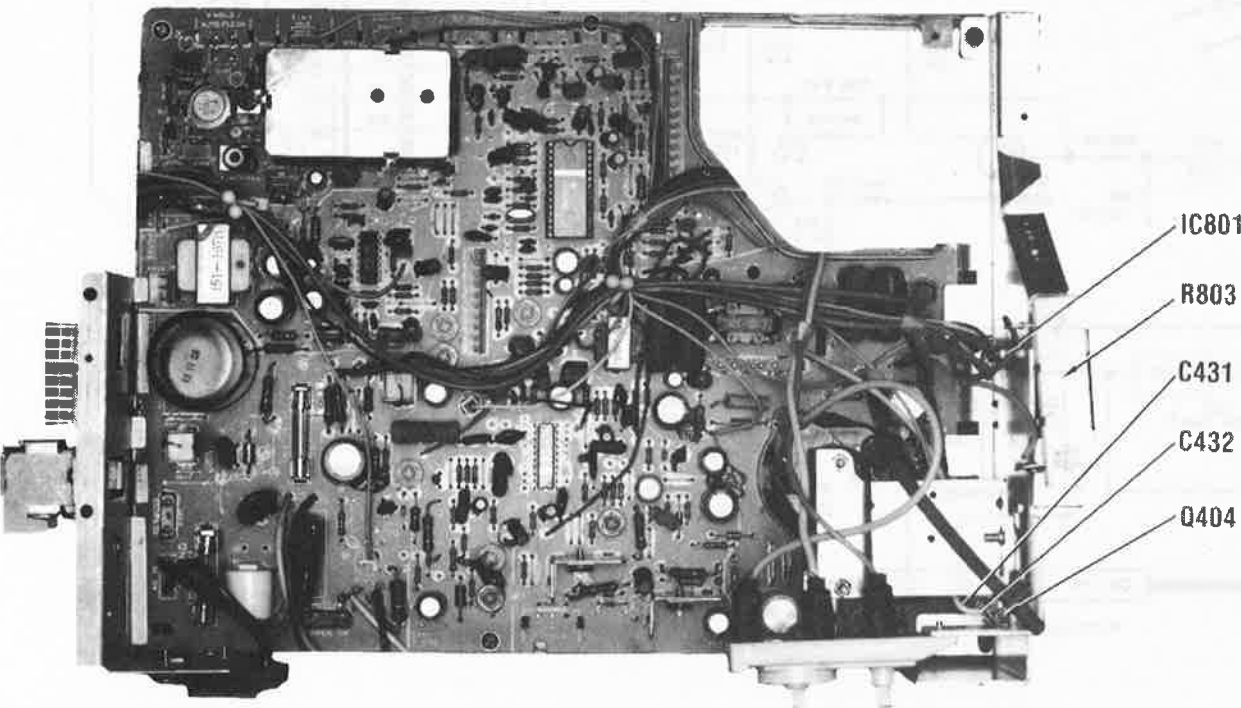
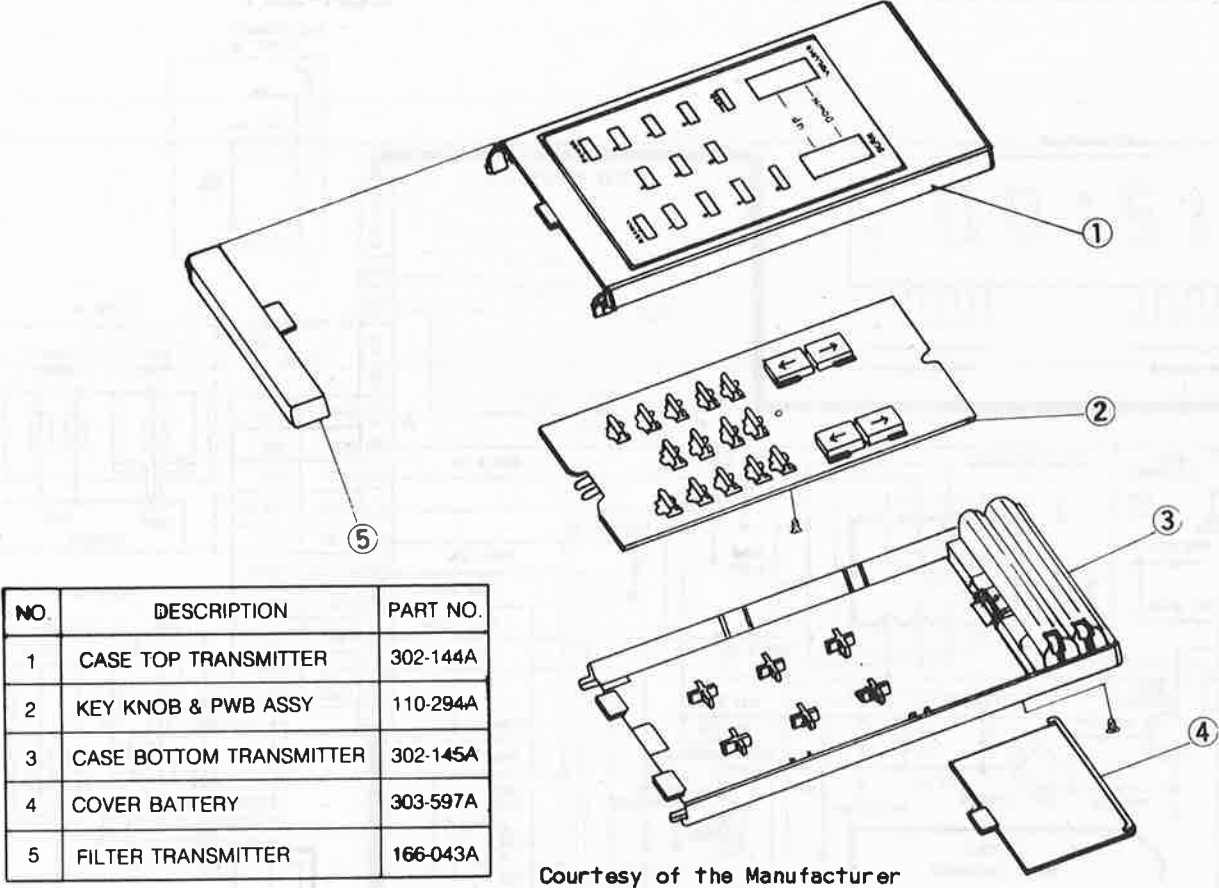
MAIN BOARD



MAIN BOARD

A Howard W. Sams GRIDTRACE™ Photo

TRANSMITTER CASE EXPLODED VIEW



CHASSIS-TOP VIEW

MAIN BOARD-GridTrace LOCATION GUIDE

C101	C-2	C508	F-12	L432	I-24	R304	L-14	R555	J-12
C102	D-5	C509	F-11	L433	J-21	R305	L-14	R601	F-7
C103	C-5	C510	F-11	L434	L-17	R321	O-15	R602	G-6
C104	C-5	C511	F-12	L441	I-24	R322	M-15	R603	G-7
C105	E-2	C512	G-11	L501	C-11	R323	Q-12	R604	G-5
C106	D-5	C513	G-11	L503	K-12	R324	L-14	R605	H-8
C108	F-6	C514	G-11	P201	L-10	R325	O-14	R606	I-8
C109	B-6	C515	I-13	P/J101	E-3	R326	R-14	R607	I-8
C110	F-10	C516	G-12	P/J401	K-20	R327	Q-17	R608	J-8
C111	E-9	C517	H-12	P/J501	K-11	R328	R-17	R609	I-7
C161	D-1	C518	H-11	P/J502	B-16	R329	O-16	R610	J-7
C162	C-4	C519	H-14	P/J602	I-1	R330	N-16	R611	J-7
C171	B-7	C520	I-14	P/J802	S-6	R331	P-14	R612	J-5
C172	B-9	C521	G-17	P/J901	O-1	R332	P-16	R614	K-5
C203	B-14	C522	H-17	Q161	D-2	R333	M-17	R801	N-2
C204	B-15	C523	H-17	Q201	D-8	R334	O-15	R802	L-8
C205	D-14	C524	C-11	Q202	C-13	R335	O-14	R804	L-6
C206	D-15	C601	G-7	Q203	C-16	R336	Q-22	R805	P-7
C207	E-15	C602	H-7	Q204	G-15	R338	N-24	R806	L-7
C208	D-15	C603	H-5	Q321	Q-14	R339	I-19	R809	R-8
C209	C-15	C604	H-7	Q322	R-17	R340	I-20	R811	N-8
C210	D-14	C605	H-6	Q401	K-14	R352	P-15	R812	N-8
C211	G-15	C606	I-7	Q601	J-8	R401	Q-9	R813	L-7
C212	H-13	C607	F-8	Q602	J-6	R402	P-10	R814	P-9
C213	K-23	C608	H-9	Q803	O-8	R403	N-10	R815	L-4
C281	N-17	C609	G-8	R101	C-5	R404	N-11	R901	O-4
C301	L-12	C610	I-6	R102	F-5	R405	P-11	T401	J-15
C302	L-13	C612	J-9	R103	F-3	R406	N-10	T402	O-22
C303	M-15	C613	I-6	R107	B-5	R407	L-15	T431	J-19
C304	M-14	C614	I-4	R108	B-4	R408	J-13	T601	H-3
C322	N-15	C615	I-7	R109	C-7	R409	J-16	T801	R-4
C323	N-14	C616	J-8	R110	D-9	R410	P-9	TP11	D-3
C324	O-13	C801	Q-5	R151	E-1	R431	J-17	TP12	E-9
C325	L-13	C802	K-2	R161	D-2	R441	L-19	TP14	F-3
C326	R-14	C805	N-3	R162	C-1	R442	M-9	TP31	M-11
C327	Q-24	C808	N-7	R163	D-1	R443	O-23	TP32	M-11
C328	R-16	D201	C-15	R164	D-2	R444	K-24	TP33	N-15
C329	S-18	D202	C-16	R165	B-5	R451	Q-11	TP34	N-15
C330	S-23	D281	N-16	R166	B-2	R452	R-11	TP41	Q-10
C331	O-24	D321	R-15	R171	B-6	R471	R-18	TP51	D-12
C332	N-14	D322	R-15	R172	B-8	R472	Q-10	TP52	D-12
C333	O-16	D323	R-23	R173	F-9	R473	R-11	TP81	Q-8
C334	O-18	D324	R-23	R174	F-10	R474	P-12	X501	G-12
C335	N-17	D325	P-23	R201	D-9	R475	P-10	Z101	C-3
C336	I-18	D326	R-19	R202	D-8	R501	D-11	Z201	E-8
C337	P-16	D401	P-18	R204	D-9	R502	E-12	Z202	B-11
C401	M-12	D402	P-17	R207	C-10	R503	E-12	Z601	H-7
C402	M-11	D441	M-24	R208	C-12	R504	E-12	Z602	H-8
C403	Q-10	D442	M-19	R209	B-13	R505	H-10		
C404	Q-11	D471	R-10	R210	C-13	R506	I-10		
C405	N-11	D472	Q-9	R211	B-14	R508	F-12		
C406	N-12	D473	O-9	R212	D-13	R509	F-12		
C407	P-12	D601	J-7	R213	D-13	R510	J-12		
C408	P-12	D803	N-4	R214	E-14	R511	F-12		
C409	L-15	D805	M-7	R216	D-14	R512	G-12		
C410	K-13	D807	P-8	R217	F-17	R513	H-12		
C411	K-13	F801	R-3	R218	D-15	R514	I-12		
C412	L-17	F802	M-5	R219	C-15	R515	I-12		
C433	I-22	IC101	C-6	R220	F-14	R516	H-12		
C434	I-23	IC401	N-13	R221	F-15	R517	I-10		
C435	J-16	IC501	F-13	R222	G-16	R518	D-16		
C436	J-17	IC601	H-7	R223	L-22	R519	F-16		
C437	S-20	L101	B-2	R224	L-22	R520	H-14		
C438	L-17	L102	C-4	R225	G-18	R521	H-14		
C441	L-9	L103	C-8	R226	D-15	R522	H-15		
C442	L-24	L104	E-10	R254	N-9	R523	H-15		
C443	N-18	L105	E-7	R281	P-18	R524	H-15		
C471	R-9	L161	E-2	R282	O-17	R525	G-16		
C472	P-13	L171	C-9	R283	L-15	R526	G-16		
C501	C-11	L172	F-5	R284	I-14	R527	H-16		
C502	D-11	L201	D-7	R285	L-16	R528	I-14		
C505	D-12	L202	B-11	R301	L-11	R541	J-11		
C506	D-12	L203	C-13	R302	L-12	R553	J-10		
C507	E-11	L431	I-16	R303	L-12	R554	K-10		

EMERSON
MODEL ECR-221

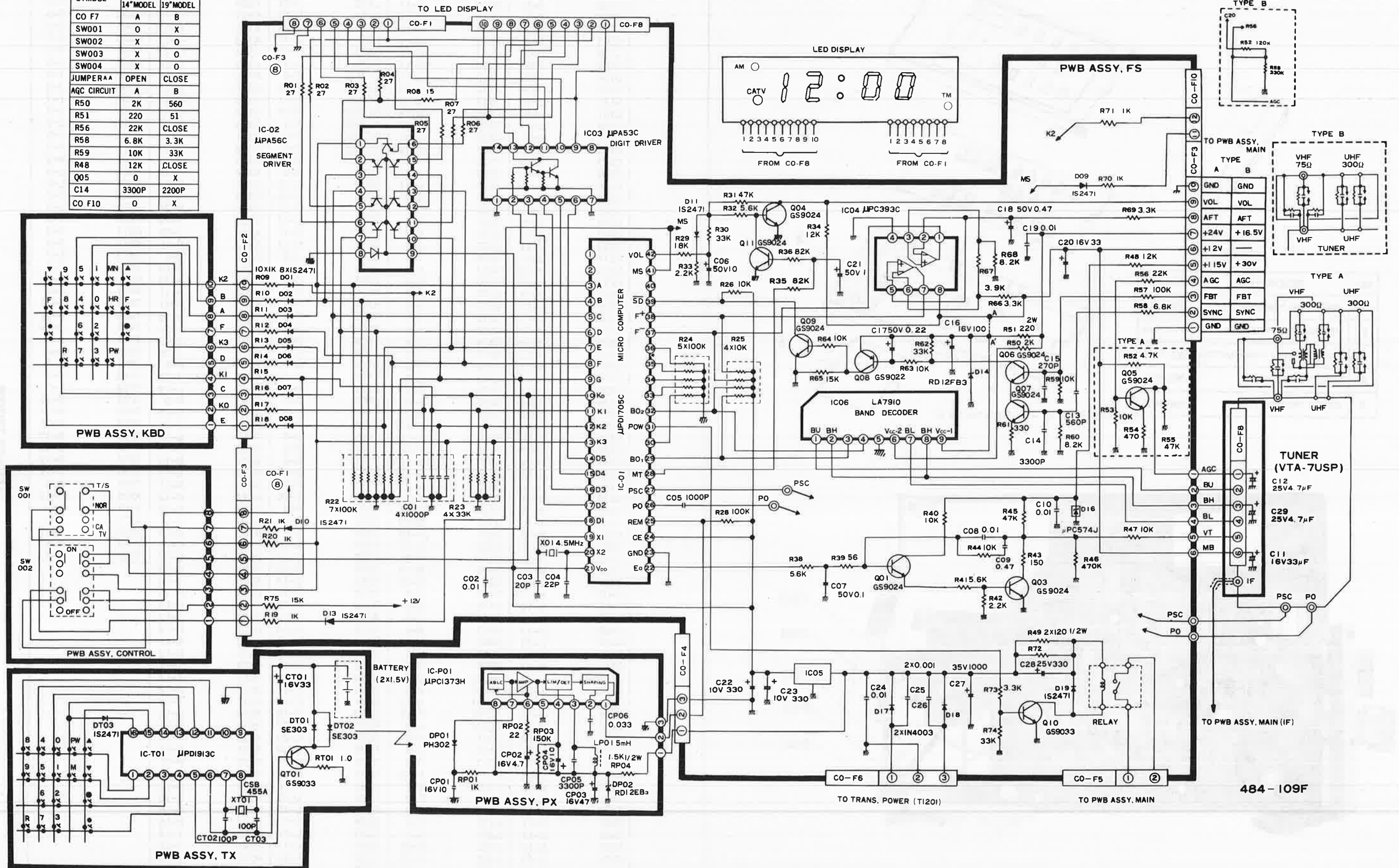
FOLDER 1

FREQUENCY SYNTHESIZER TUNING SYSTEM SCHEMATIC DIAGRAM

ECR-221

CONVERSION TABLE

SYMBOL	TYPE A 14" MODEL	TYPE B 19" MODEL
CO F7	A	B
SW001	O	X
SW002	X	O
SW003	X	O
SW004	X	O
JUMPER A	OPEN	CLOSE
AGC CIRCUIT	A	B
R50	2K	560
R51	220	51
R56	22K	CLOSE
R58	6.8K	3.3K
R59	10K	33K
R48	12K	CLOSE
Q05	O	X
C14	3300P	2200P
CO F10	O	X



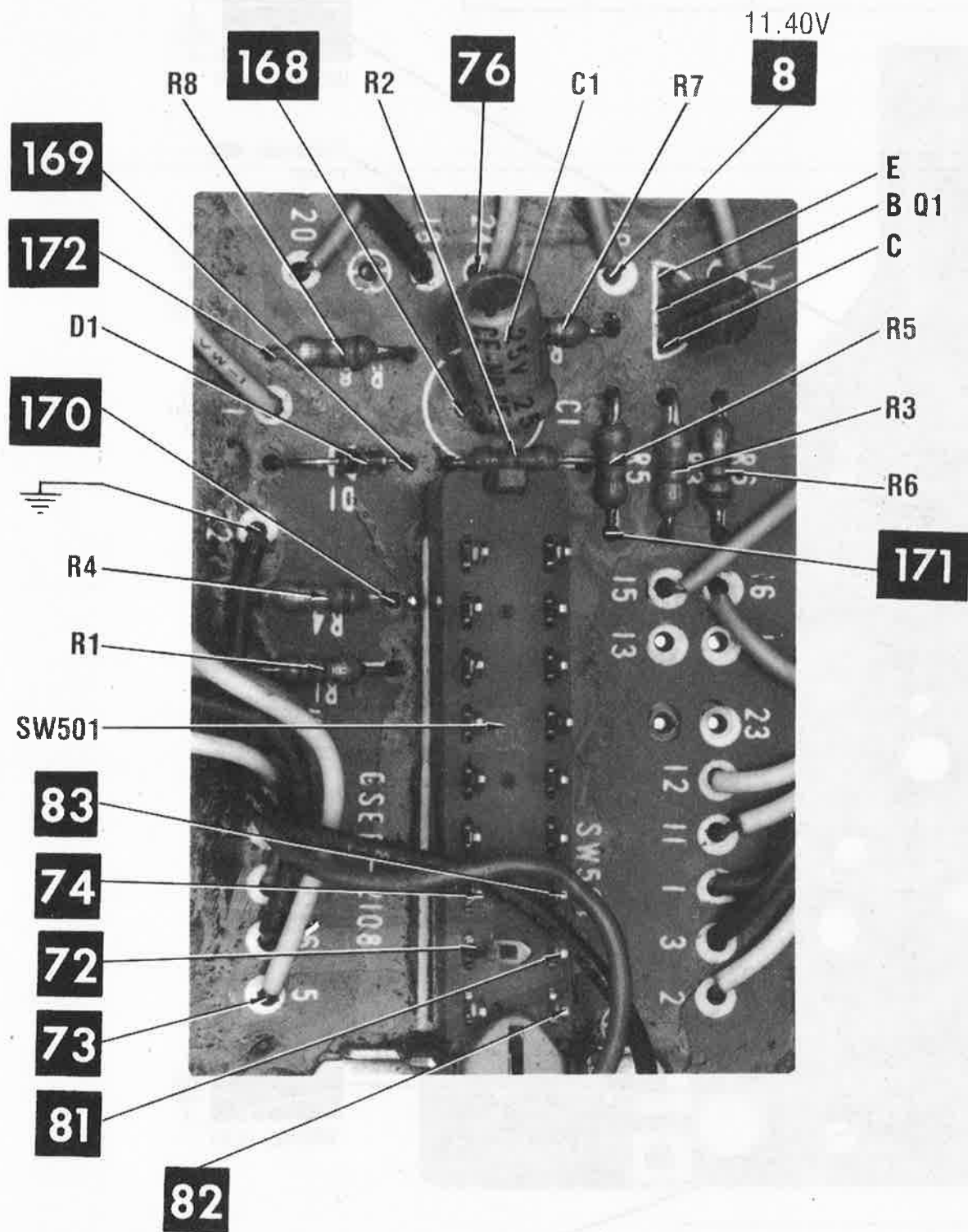
EMERSON
MODEL ECR-221

FOLDER 1

Courtesy of the Manufacturer

TUNER CONTROL

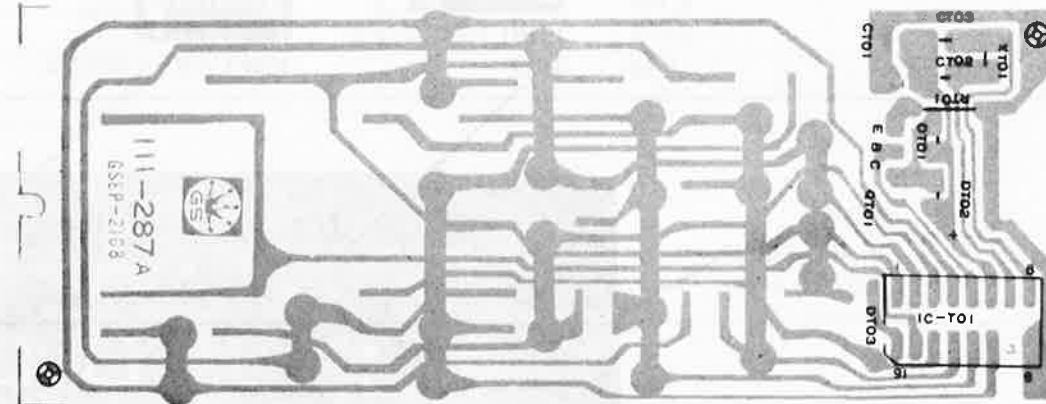
TUNER CONTROL



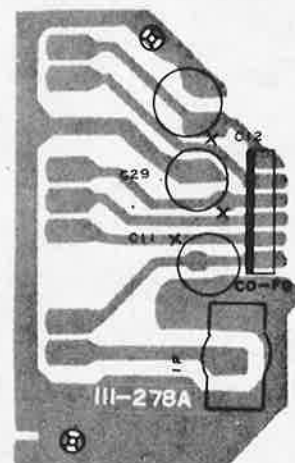
AUTO BOARD

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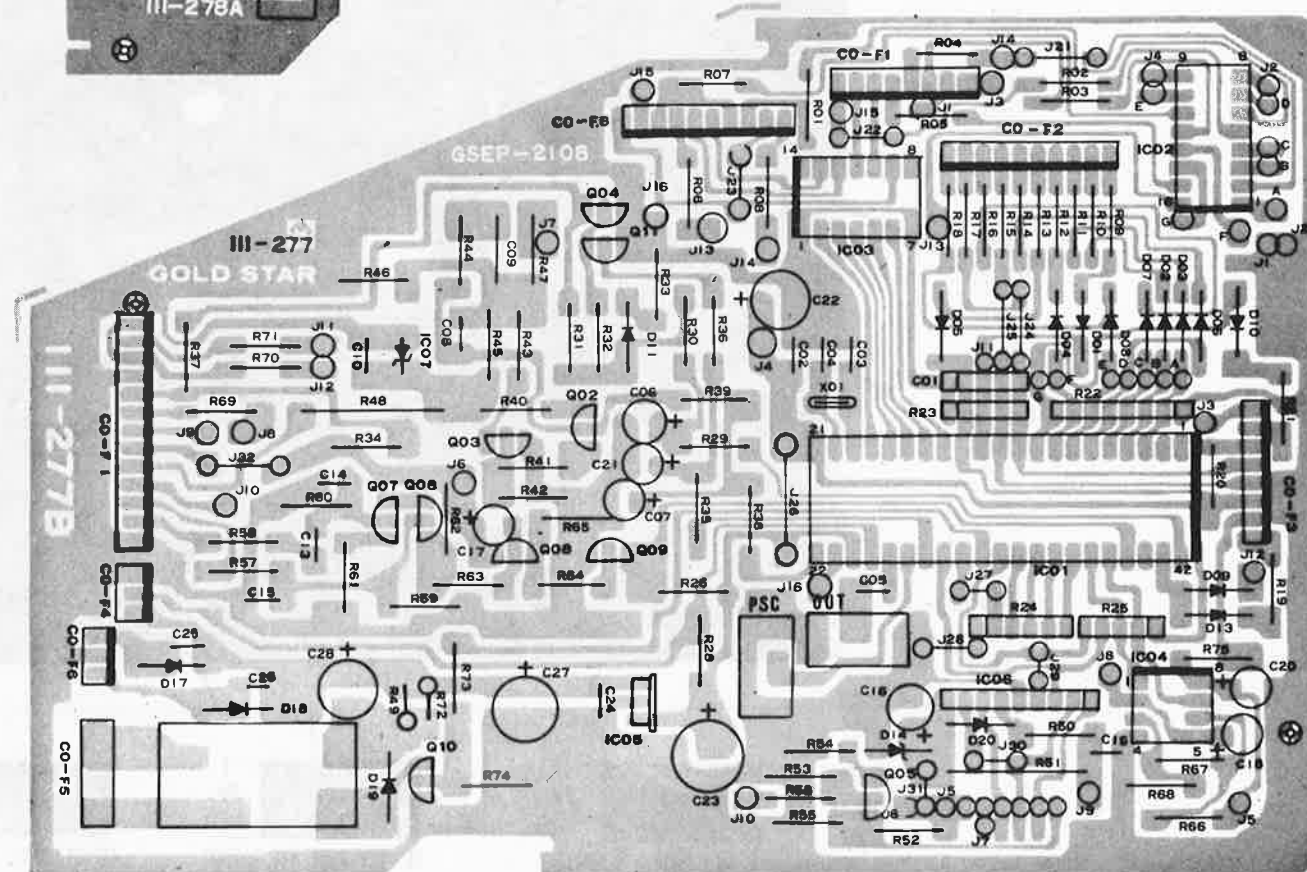
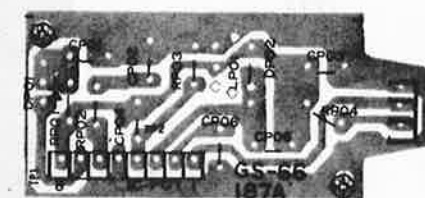
REMOTE TRANSMITTER BOARD



TUNER BOARD

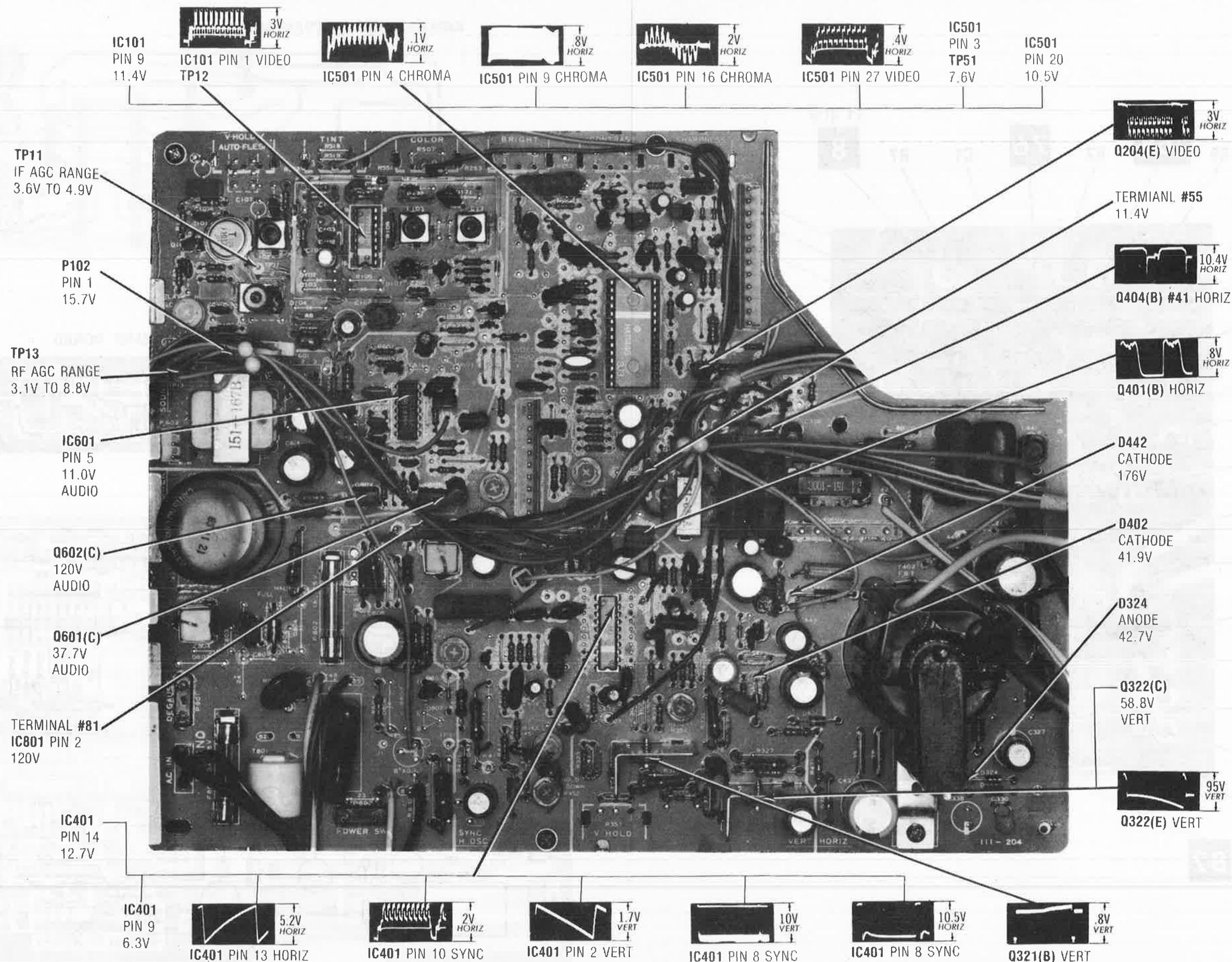


PREAMP BOARD



Courtesy of the Manufacturer

FREQUENCY SYNTHESIZER BOARD



MISCELLANEOUS ADJUSTMENTS

HORIZONTAL HOLD ADJUSTMENT

Tune in a picture and set Horizontal Hold Control (R451) to midrange. Connect a jumper from TP31 to TP32. Adjust Horizontal Hold Control until picture stops or slowly floats across the screen. Remove jumper and check for proper operation on all channels.

AGC DELAY ADJUSTMENT

Tune in a strong station. Turn AGC Delay Control (R151) fully counterclockwise to obtain snow. Then slowly turn clockwise until snow just disappears.

AUTO COLOR ADJUSTMENT

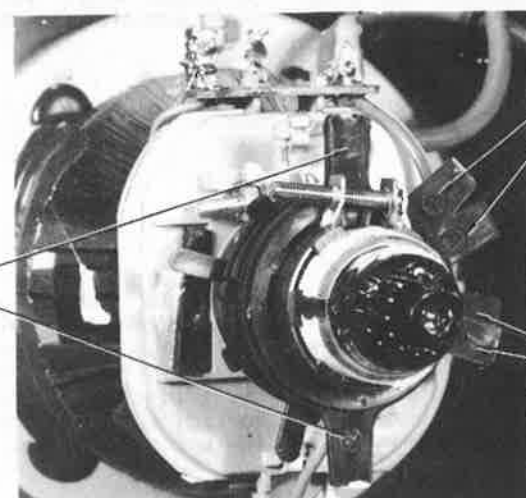
Tune in a color program and set Auto Color Switch to Off. Adjust all controls for a normal color picture. Set the Auto Color Switch to On. Adjust Color Preset Control (R553) for proper color saturation and Tint Preset Control (R554) for normal skin tones. Repeat procedure if necessary.

SUB BRIGHTNESS ADJUSTMENT

Tune in an active station and set Brightness Control to Maximum. Adjust Sub Brightness Control (R254) to a point just before the picture starts to bloom.

CONVERGENCE ADJUSTMENT

Connect a color bar generator to the antenna terminals and tune in a dot pattern. Adjust 4-Pole Magnets to converge the red and blue dots at the center of the screen. Adjust 6-Pole Magnets to converge the Red/Blue dots over the green dots at the center of the screen. Tune in a crosshatch pattern. Remove the rubber wedges between the deflection yoke and CRT. Tilt the deflection yoke up or down to converge the vertical lines at the top and bottom of the screen and the horizontal lines at the right and left sides of the screen. Tilt the deflection yoke to the right or left to converge the horizontal lines at the top and bottom of the screen and the vertical lines at the right and left sides of the screen. Repeat convergence procedure if necessary to obtain the best overall convergence. Replace the rubber wedges.



COLOR TEMPERATURE ADJUSTMENT

Tune in a station. Set Color Control to MINIMUM and Auto Color Switch to Off. Set Contrast and Brightness Controls to midrange. Set Red (R561) and Blue (R571) Drive Controls and Sub Brightness Control (R524) to midrange. Set Red (R565), Green (R570) and Blue (R577) Bias Controls to MINIMUM. Disconnect Raster Tip (P201) and connect a jumper from TP33 to TP34. Turn Screen Control fully counterclockwise and then slowly turn clockwise until a line of one color just appears. Do not adjust the Bias Control for this color. Adjust the two remaining Bias Controls to produce a low level white. Remove jumper from TP33 to TP34 and reconnect Raster Tip (P201). Adjust Brightness and Contrast Controls for best picture. Adjust Red and Blue Drive Controls for best white in the highlight areas of the picture.

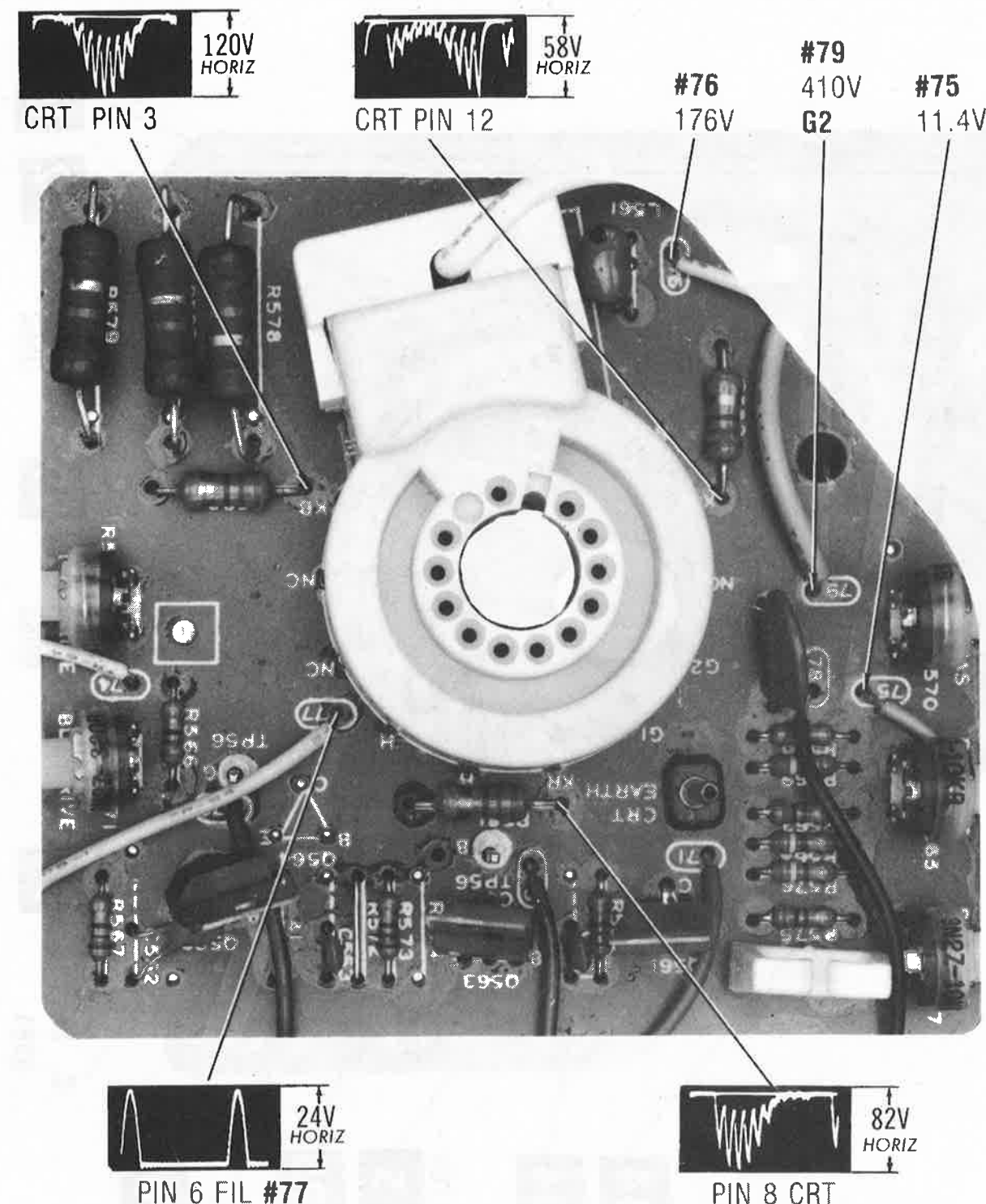
NOTE: Readjust Sub Brightness Control after Color Temperature Adjustment is completed.

COLOR PURITY ADJUSTMENT

Disconnect antenna and set Brightness and Contrast Controls to Maximum. Adjust Blue (R571) and Red (R561) Drive Controls to MINIMUM. Adjust Red (R565) and Blue (R577) Bias Controls to MINIMUM. Adjust Green Bias Control (R570) and Screen Control to obtain a green raster. Use a degaussing coil to demagnetize the CRT and mounting brackets. Loosen the clamp holding the deflection yoke and move yoke back against the purity magnet. Adjust the purity tabs to place the green band in the center of the screen. Move the deflection yoke forward to obtain a uniform green raster. Tighten yoke clamp.

COLOR SYNC ADJUSTMENT

Connect a color bar generator to the antenna terminals and tune in a color bar pattern. Place Auto Color Switch to Off. Set Color Control to Maximum and Tint Control to midrange. Connect a .1uF Capacitor from TP51 to TP52. Adjust Color Sync Control (R555) until colors stop or slowly drift. Remove .1uF Capacitor and check on all channels for proper color sync.



EMERSON
MODEL ECR-221

FOLDER 1

CRT NECK ASSEMBLY

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CRT BOARD

SET 2305 FOLDER 1

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TEST JIG HOOKUP

FUNCTION	Chek-A-Color ADAPTER NO.	RCA / TeleMatic ADAPTER NO.	ZENITH ADAPTER NO.
CRT YOKE YOKE SETTING	D244 D4134 (1) YP1,B208,V508/V509 100mH Toward Chassis	10J647 10J719 Horiz 1.9, Vert 34 VFS-3950 Focus Voltage Supply	

PIN 1	PIN 3	PIN 5	PIN 6
RED	BLUE	ORANGE	YELLOW

(P.C. BOARD)

TROUBLESHOOTING

POWER SUPPLY

Check AC Fuse (F801), If Fuse F801 is open, check Diode D803, Electrolytic C802, Voltage Regulator IC (IC801) and associated circuitry. Replace defective parts. Check for a short to ground from TP81. If there is no short, apply 120V AC and check for 157V at Fuse (F802). If Fuse F802 is open, check IC801, Voltage Regulator Transistor (Q803) and the Horizontal Output Transistor (Q404). Check the circuitry that supplies 120V B+ source. Replace defective parts and apply AC power. Check for 120V at TP81 and 41.2V at the cathode of Diode D807. Check B+ sources from the Horizontal Output Transformer (T402). Check for 176V at the cathode of Diode D442, 15.78V at the cathode of Diode D441, 43.8V at the cathode of Diode D325 and for 11.40V at the positive end of Electrolytic C441. To troubleshoot the horizontal circuit, refer to the "Horizontal" section of this Troubleshooting guide.

HORIZONTAL

Check the voltage at pin 16 of the Deflection/X-Ray IC (IC401). If the voltage is .60V or more indication the fail-safe is activated. Check for 119V at the collector of the Horizontal Output Transistor (Q404). If the voltage is absent, check for 120V at both sides of Resistor R441. If Resistor R441 is open, check Transistor Q404 and Horizontal Output Transformer (T402). If the voltage is present, check for a horizontal waveform at the base of Transistor Q404. If the waveform is not present, inject a horizontal signal at the base of Transistor Q404. If high voltage returns, check the Horizontal Drive Transistor (Q401), Horizontal Drive Transformer (T401), pins 13, 14, 15 and 16 of IC401 and associated circuitry. If the high voltage doesn't return, check voltages, waveforms and components associated with Transistor Q404, Transformer T402, Side Pin Cushion Transformer (T431), Deflection Yoke and associated circuitry. The high voltage rectifier is part of the Horizontal

Output Transformer assembly, It may be defective. Check B+ sources developed from Transformer T402 which can cause loading of the horizontal circuit. Check B+ sources rectified by Diodes D325, D441 and D442. Poor horizontal linearity or foldover can be caused by the condition of Capacitors C410, C411, C431, C432, C433, C434, C435 and C436 and associated circuitry.

Voltages taken with fail-safe circuit activated.

Collector of Q404	161V
Collector of Q401	48.0V
Pin 16 of IC401	1.10V

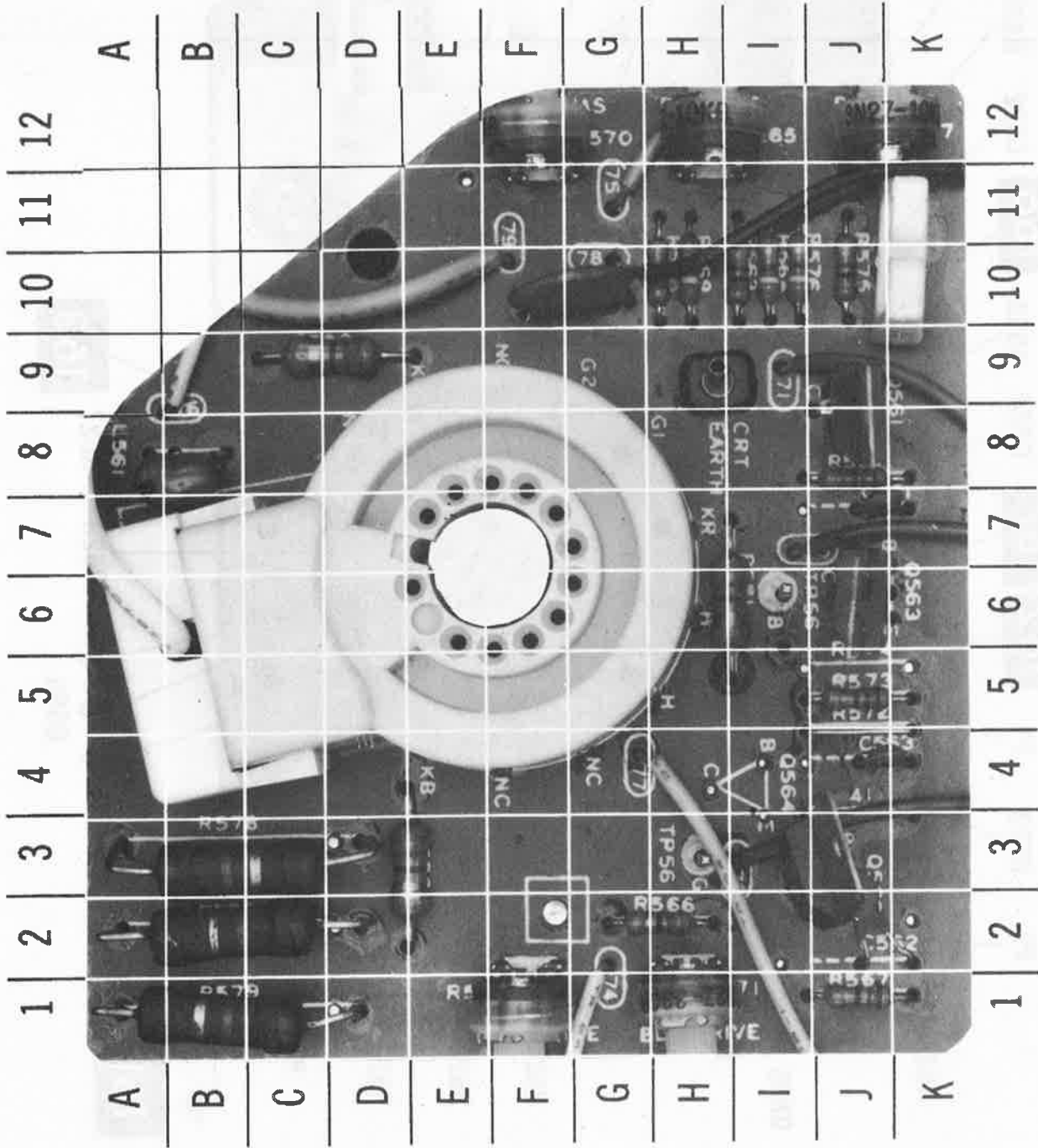
IF-AGC

Inject an IF signal at the IF Input (P101) and check for picture information on the CRT. If a picture is present, check Tuner and Tuner AGC. If a picture is not present, check for a video waveform at TP12. If the proper video waveform is present, refer to the "Video" section of this Troubleshooting guide. If there is no video waveform at TP12, apply AGC bias at TP11, if video returns, troubleshoot AGC circuit. Defective AGC circuit can cause an overloaded picture, excessive snow or loss of picture and sound. See Voltage Chart for AGC voltages with signal. If there is no video with AGC bias applied at TP11, inject the IF signal at pin 13 of the VIF IC (IC101). If video returns, troubleshoot the IF Amp Transistor (Q161), SAW Filter (Z101) and associated circuitry. If the video is still absent, check IC101 and associated circuitry.

NOTE: Voltages taken while using a Keyed-Rainbow generator.

IC101				
PIN 10	PIN 15	PIN 16	PIN 6	PIN 8
6.42V	4.82V	4.15V	4.38V	6.46V

CRT BOARD GridTrace LOCATION GUIDE	J-7 J-2 J-4 G-10 B-8 J-8 J-3 J-6 F-1 J-8 I-10 I-10 I-12 H-2 J-1 H-10 F-12 H-1 J-5 J-10 I-10 J-12 B-3 B-1 B-2 I-6 D-9 E-3
C561 C562 C563 C564 L561 Q561 Q562 Q563 R561 R562 R563 R564 R565 R566 R567 R568 R569 R570 R571 R573 R575 R576 R577 R578 R579 R580 R581 R582 R583	



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MODEL ECR-221

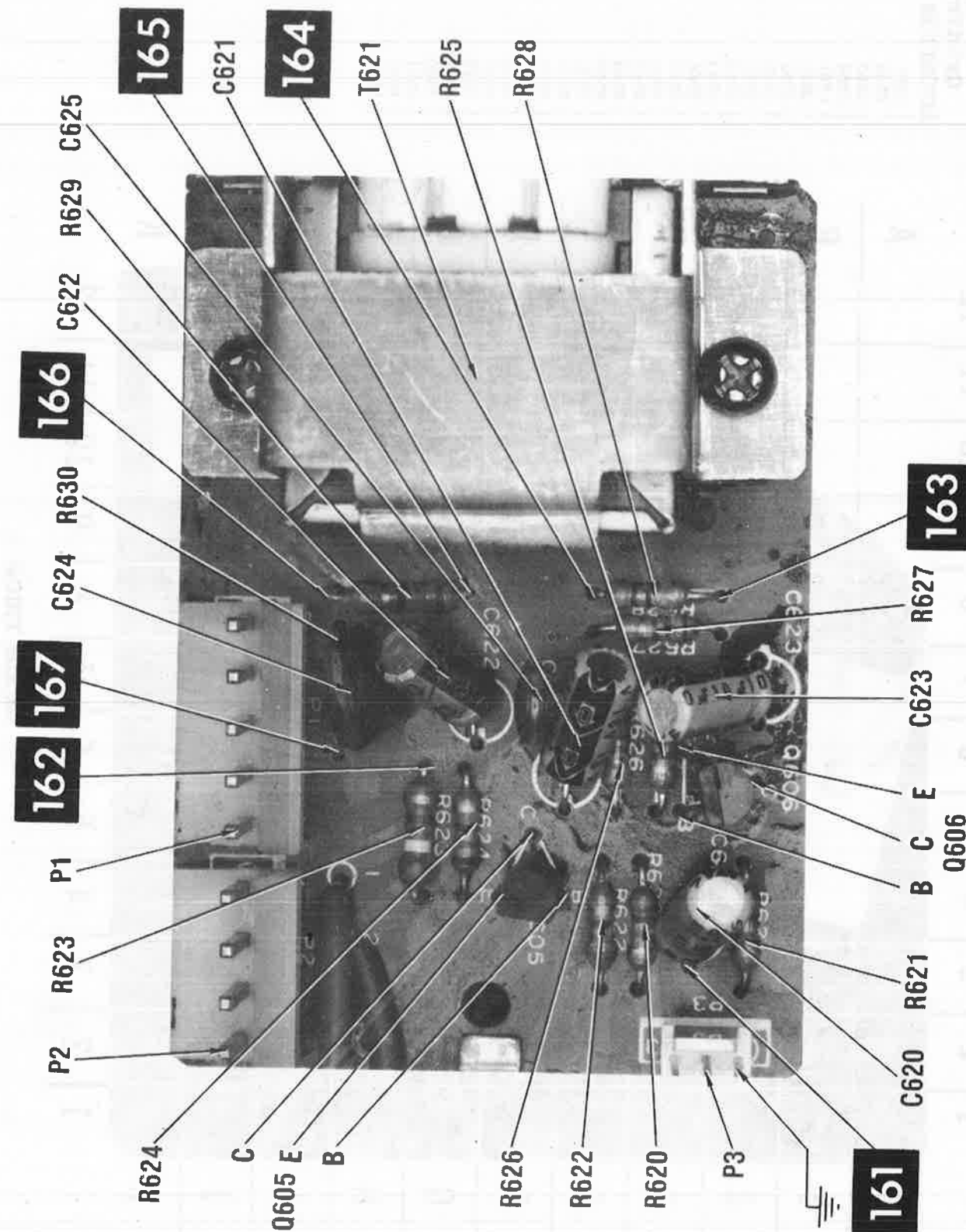
FOLDER 1

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CRT BOARD

SET 2305 FOLDER 1

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**TROUBLESHOOTING AID**

Note: Waveforms taken with triggered scope, Keyed-Rainbow generator. Schematic voltages measured with digital meter, no signal. Controls adjusted for normal operation.

PICTURE or SOUND

NO PIC, NO SOUND, NO RASTER: Check AC power supply and sources generated from Horizontal Output Transformer (T402). Refer to "Troubleshooting" Power Supply and Horizontal circuits.

NO PIC, NO SOUND, HAS RASTER: Check IF-AGC and source voltages from Horizontal Output Transformer (T402). Refer to "Troubleshooting" IF-AGC and Horizontal circuits.

NO PIC, HAS SOUND, NO RASTER: Check Horizontal Output Transformer (T402) sources and Video circuit. Refer to "Troubleshooting" Horizontal and Video circuits.

NO PIC, HAS SOUND, HAS RASTER: Refer to "Troubleshooting" Video circuit.

HAS PIC, NO SOUND: Refer to "Troubleshooting" Audio circuit.

OVERLOADED PICTURE: Refer to "Troubleshooting" IF-AGC circuit.

LOW OR EXCESSIVE BRIGHTNESS: Check Video and Luminance circuits. Refer to "Troubleshooting" Video circuit.

SWEEP

NO RASTER, HAS SOUND: Check HV rectifier, Part of Horizontal Output Transformer (T402). Refer to "Troubleshooting" Horizontal circuit.

NO RASTER, NO SOUND: Refer to "Troubleshooting" Horizontal circuit.

NO VERT DEFLECTION: Refer to "Troubleshooting" Vertical circuit.

POOR VERT LIN OR FOLDOVER: Refer to "Troubleshooting" Vertical circuit.

POOR HORIZ LIN OR FOLDOVER: Refer to "Troubleshooting" Horizontal circuit.

NARROW PICTURE: Refer to "Troubleshooting" Horizontal circuit.

VERT OFF FREQUENCY: Refer to "Troubleshooting" Vertical circuit.

HORIZ OFF FREQUENCY: Refer to "Troubleshooting" Horizontal circuit.

SYNC

NO VERT/HORIZ SYNC: Refer to "Troubleshooting" Sync circuit.

RASTER

YELLOW (NO BLUE): Check Chroma and Blue Output circuits. Refer to "Troubleshooting" Raster circuit.

CYAN (NO RED): Check Chroma and Red Output circuits. Refer to "Troubleshooting" Raster circuit.

MAGENTA (NO GREEN): Check Chroma and Green Output circuits. Refer to "Troubleshooting" Raster circuit.

COLOR (B/W operating normally)

NO COLOR: Refer to "Troubleshooting" Chroma circuit.

WEAK COLOR: Refer to "Troubleshooting" Chroma circuit.

NO COLOR SYNC: Refer to "Troubleshooting" Chroma circuit.

NO GREEN: Check Chroma and Green Output circuits. Refer to "Troubleshooting" Raster circuit.

NO BLUE: Check Chroma and Blue Output circuits. Refer to "Troubleshooting" Raster circuit.

NO RED: Check Chroma and Red Output circuits. Refer to "Troubleshooting" Raster circuit.

INCORRECT HUE (TINT): Refer to "Troubleshooting" Chroma circuit.

PARTS LIST AND DESCRIPTION (Continued)

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

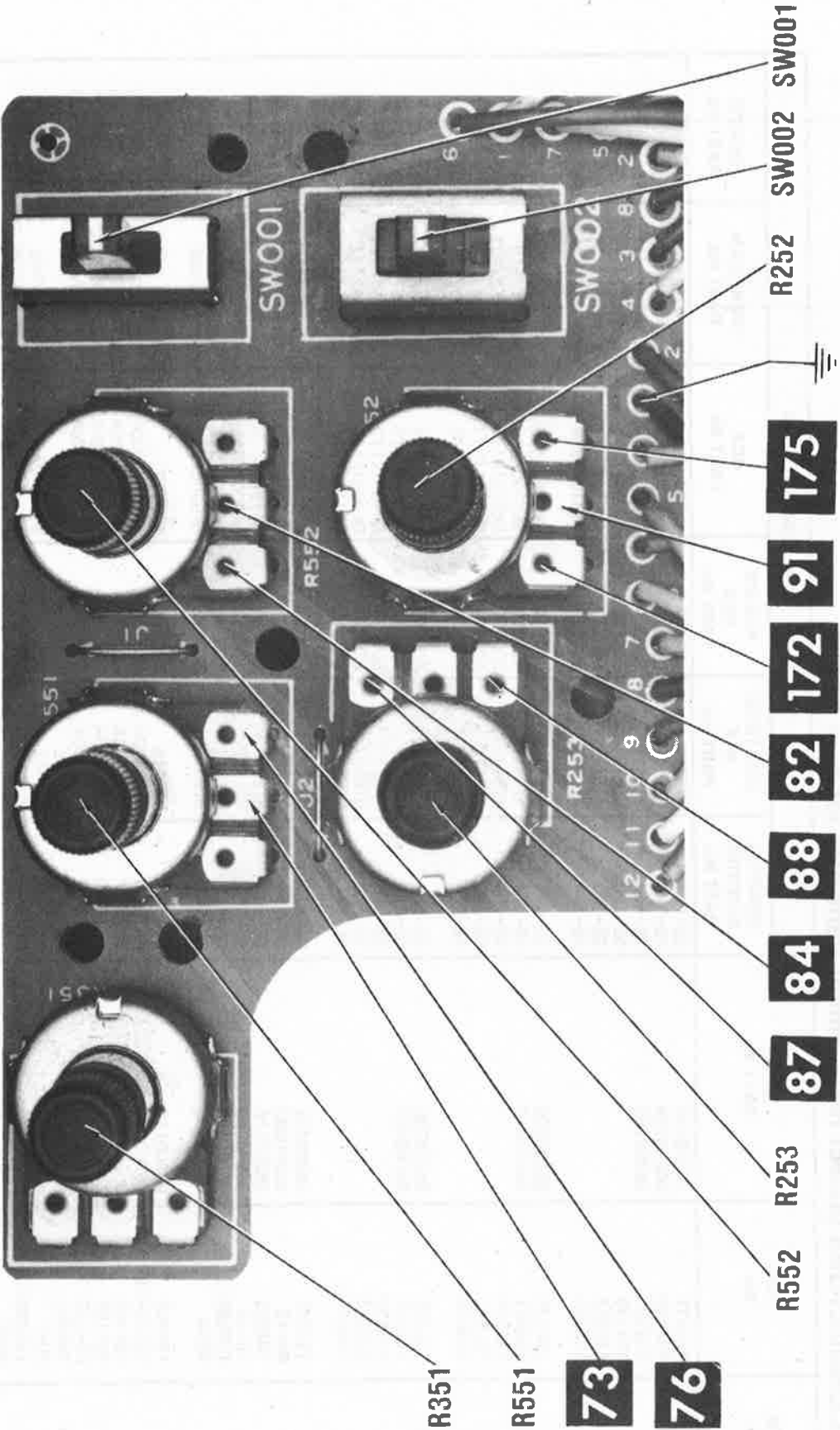
MISCELLANEOUS

ITEM No.	PART NAME	MFGR. PART No.	NOTES
CR1	Component Combination		Antenna Isolation
CR2	Component Combination		Antenna Isolation
CR3	Component Combination		Antenna Isolation
# L901	Degaussing Coil	150-139P	
# P800	Cord		AC Power
PL501	LED	162-041A	Audio Color Indicator (Green)
RL101	Relay	141-005B	
SW001	Switch		Time Set/Nor-CATV
SW002	Switch		Sleep On/Off
SW1	Switch		Speaker (Int. - Ext.)
# SW501	Switch	140-034F	Auto Color
SW802	Switch	140-075C	On/Off Power
X501	Crystal	156-001C	3.58MHz Oscillator
Z101	Filter	166-013C	SAW
	Filter	166-013D	SAW
# Z201	Filter	166-031A	Ceramic, 4.5MHz Trap
Z401	Focus Pack	180-133B	
		180-245A	
Z601	Filter	166-003A	Ceramic, 4.5MHz Trap
Z602	Filter	166-016A	
	Antenna	132-004A	UHF, RUSSELL Replacement Antenna - LIN-2H
	Antenna	132-021A	VHF, RUSSELL Replacement Assembly - POR-12H
	Antenna		VHF, RUSSELL Replacement Rod SIM-4H
#	CRT	510NJB22	
	Socket	381-054A	CRT
	UHF/VHF Tuner	113-120A	PTS Part Number 113-120A
		VTA-7USPK	PTS Part Number VTA-7USPK

For SAFETY use only equivalent replacement part.

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

ITEM	PART No.	ITEM	PART No.
TV CABINET PARTS		REMOTE TRANSMITTER CASE	
Cabinet Front Assembly	300-362A	Case, Top Section	302-144A
Cabinet Back Assembly	3030-544A	Case, Bottom Section	302-145A
Control Door Assembly	315-066B	Battery Cover	303-597A
		End Cap	166-043A



EMERSON
MODEL ECR-221

FOLDER 1

PARTS LIST AND DESCRIPTION

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

SEMICONDUCTORS (Select replacement transistor for best results)

ITEM No.	TYPE No.	MFR. PART No.	REPLACEMENT DATA						WORKMAN PART No.	ZENITH PART No.
			GENERAL ELECTRIC PART No.	NEW-TONE NTE PART No.	PHILIPS ECG PART No.	RCA PART No.				
D1 D201, 2	1S2471	06200150	GE-514	NTE519	ECG519	SK3100/519	WEP925/519	103-131		
	1N4148	06200226	GE-514	NTE519	ECG519	SK3100/519	WEP925/519	103-131		
	1S2471	06200167	GE-514	NTE519	ECG519	SK3100/519	WEP925/519	103-131		
	1S1555		GE-300	NTE177	ECG177	SK9091/177	WEP1062/177	103-131		
	1S1553		GE-300	NTE177	ECG177	SK9091/177	WEP1062/177	103-131		
	1S2076		GE-514	NTE519	ECG519	SK3100/519	WEP925/519	103-131		
D281	1N4148	06200226	GE-514	NTE519	ECG519	SK3100/519	WEP925/519	103-131		
	1S2471	06200167	GE-514	NTE519	ECG519	SK3100/519	WEP925/519	103-131		
	1S1555		GE-300	NTE177	ECG177	SK9091/177	WEP1062/177	103-131		
	1S1553		GE-300	NTE177	ECG177	SK9091/177	WEP1062/177	103-131		
	1S2076		GE-514	NTE519	ECG519	SK3100/519	WEP925/519	103-131		
			GE-514	NTE519	ECG519	SK3100/519	WEP925/519	103-131		
D321, 2	1N4148	06200226	GE-514	NTE519	ECG519	SK3100/519	WEP925/519	103-131		
	1S2471	06200167	GE-514	NTE519	ECG519	SK3100/519	WEP925/519	103-131		
	1S1555		GE-300	NTE177	ECG177	SK9091/177	WEP1062/177	103-131		
	1S1553		GE-300	NTE177	ECG177	SK9091/177	WEP1062/177	103-131		
	1S2076		GE-514	NTE519	ECG519	SK3100/519	WEP925/519	103-131		
			GE-514	NTE519	ECG519	SK3100/519	WEP925/519	103-131		
D323	1S2775	06200181	GE-511	NTE552	ECG552	SK5002	WEP172/506	103-287		
	RH-1Z	06200202	GE-511	NTE552	ECG552	SK5002	WEP172/506	103-287		
	1N4002	06200118	GE-504A	NTE116	ECG116	SK3311	WEP155	212-76-02		
	RU-1A	06200203	GE-511	NTE552	ECG552	SK9000/552	WEP172/506	103-287		
	1S52951, J	06200182	GE-511	NTE552	ECG552	SK9000/552	WEP172/506	103-287		
	V09G	06200230	GE-511	NTE552	ECG552	SK9000/552	WEP172/506	103-287		
D326 D401	1N4004	06200119	GE-504A	NTE116	ECG116	SK3312	WEP157	212-76-02		
	EQ401-11S	06200206	GEZD-11	NTE5020A	ECG5020A	SK11A/5020A	WEP1421/5020	103-279-20		
	RD11EE	06200228	GEZD-11	NTE5020A	ECG5020A	SK11A/5020A	WEP1421/5020	103-279-20		
	RD11EB		GEZD-11	NTE5020A	ECG5020A	SK11A/5020A	WEP1421/5020	103-279-20		
	HZ-11C	06200149	GEZD-11	NTE5020A	ECG5020A	SK11A/5020A	WEP1421/5020	103-279-20		
	1N4002	06200118	GE-504A	NTE116	ECG116	SK3311	WEP155	212-76-02		
D402 D441	RU-1	06200183	GE-511	NTE552	ECG552	SK9000/552	WEP172/506	103-287		
	1S5295G		GE-511	NTE552	ECG552	SK9000/552	WEP172/506	103-287		
	V09E	06200231	GE-511	NTE552	ECG552	SK9000/552	WEP172/506	103-287		
	RU-1		GE-511	NTE552	ECG552	SK9000/552	WEP172/506	103-287		
	RU-1V	06200189	GE-511	NTE552	ECG552	SK9000/552	WEP172/506	103-287		
	UF-1		GE-511	NTE552	ECG552	SK9000/552	WEP172/506	103-287		
D442	V09G	06200232	GE-511	NTE552	ECG552	SK9000/552	WEP172/506	103-287		
	V09G	06200230	GE-511	NTE552	ECG552	SK9000/552	WEP172/506	103-287		
	S1B01-01	06200207	GE-504A	NTE116	ECG116	SK3311	WEP156	212-76-02		
	W03B	06200229	GE-504A	NTE116	ECG116	SK3311	WEP156	212-76-02		
			GE-504A	NTE116	ECG116	SK3311	WEP156	212-76-02		
			GE-504A	NTE116	ECG116	SK3311	WEP156	212-76-02		

PARTS LIST AND DESCRIPTION (Continued)

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

TRANSFORMER (Audio Output)

ITEM No.	IMPEDANCE		REPLACEMENT DATA		NOTES
	PRI.	SEC.	MFGR. PART No.	THORDARSON PART No.	
# T601	551	8	151-167A 151-167B (1)		

For SAFETY use only equivalent replacement part.
(1) Number on unit.

TRANSFORMER (Audio Interstage)

ITEM No.	RESISTANCE		REPLACEMENT DATA		NOTES
	PRI.	SEC.	MFGR. PART No.	THORDARSON PART No.	
	T621	45.0 29.3 TURNS RATIO 1: 1	151-185A		

TRANSFORMER (Power)

ITEM No.	RATING			REPLACEMENT DATA		
	PRI.	SEC. 1	SEC. 2	MFGR. PART No.	THORDARSON PART No.	NOTES
T1201	120V AC @ 28mA	13.01V AC @ 128mA	13.15V AC @ 63mA	151-156B (1)		

(1) Number on unit.

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		MFGR. PART No.	QUAM PART No.	
SP1	4" PM 8 Ohms	120-014A	4A05Z8	

FUSE DEVICES

ITEM NO.	DESCRIPTION	MFGR. PART NO.		NOTES
		DEVICE	HOLDER	
# F801	3A @ 125V Fast-Acting	131-018A		
# F802	1A @ 125V Fast-Acting	131-018B		

For SAFETY use only equivalent replacement part.

PARTS LIST AND DESCRIPTION (Continued)

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

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA		
		MFGR. PART No.	NEW-TONE PART No.	WORKMAN PART No.
CDS R103	LDR 12K 2% 1/8W Carbon Film 12K 5% 1/8W Carbon Film	06510001		
R223	120K 2% 1/2W Carbon Film	01157123		
R224	10K 5% 1/4W Carbon Film	01153147	HW412	
R225	1200 5% 1/8W Carbon Film	01151121	QW310	22-1120
R329	12K 2% 1/8W Carbon Film	01157099		
R330	4300 2% 1/8W Carbon Film	01156123		
R334	22K 2% 1/8W Carbon Film	01156112		
R336	10 5% 1/2W Fusible	01156129		
R431	180 5% 1/2W Carbon Film	180-059G		
R441	1 5% 1W Metal Film	01154079	HW118	22-2078
R442	27 5% 3W Metal Oxide	01509025	1W1D0	
R443	9.1 5% 1W Fusible	180-108A		
R444	1.2 5% 2W Fusible	180-119A	F1W9D1	
R471	5.6 5% 1/4W Carbon Film	180-119C	F2W1D2	
R472	1000 5% 1/4W Carbon Film	01151043	QW5D6	22-1042
R473	560 5% 1/8W Carbon Film	01151097	QW210	22-1096
R474	4700 5% 1/8W Carbon Film	01157091		
R614	100 5% 1W Fusible	01157113		
R801	1 5% 7W WW	180-059N	F1W110	
R802	2.2 5% 7W WW	180-104A		
R803	220 5% 25W WW	180-104B	25W122	
R804	12K 5% 1W Metal Oxide	180-100D	1W312	22-3122
R805	470K 5% 1/4W Carbon Film	01314123	QW447	22-1160
R806	33 5% 1/2W Metal Oxide	01151161	HW033	
R815	47K 5% 1/W Metal Oxide	01328061		
R901	7 Cold PTC	01314137		
		163-007A		FR605

For SAFETY use only equivalent replacement part.

COILS (RF-IF)

ITEM No.	FUNCTION	MFGR. PART No.	ITEM No.	FUNCTION	MFGR. PART No.
L101	RF Choke (.55uH)	150-167A	L432	RF Choke	125-022B
L102	Video IF	150-220B	L433	RF Choke	125-022B
L103	Video IF	150-164B	L434	Horiz Linearity (68uH)	150-1096
L104	RF Choke (24uH)	150-109A	L441	RF Choke (100uH)	150-166A
L105	RF Choke (100uH)	150-166A	L501	RF Choke	150-109V
L161	RF Choke (.55uH)	150-167A	L503	Peaking	150-091B
L171	AFT	150-164B	L561	RF Choke	04030075
L172	Peaking (5.6uH)	150-109G	T801	Line Filter	150-151A
L201	Peaking (15uH)	150-109N			150-151B
L202	RF Choke	150-109U			150-151C
L203	Peaking (47uH)	150-109J			150-245A
L431	RF Choke	125-022B	Z202	Delay Line	

For SAFETY use only equivalent replacement part.

COILS & TRANSFORMERS (Sweep Circuits)

ITEM No.	FUNCTION	REPLACEMENT DATA		
		MFGR. PART No.	OTHER IDENTIFICATION	THORDARSON PART No.
DY1	Yoke Horiz 1.9mH 90° Vert 122mH	153-022A (1)		
T401	Horiz Driver	151-060A		
T402	Horiz Output	154-040A (1)		
		154-030A	MSH-S301	
		154-033A	MSH-S361G/8	
T431	Pincushion	151-100C		

For SAFETY use only equivalent replacement part.
 (1) Number on unit.

PARTS LIST AND DESCRIPTION (Continued)

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

SEMICONDUCTORS (Select replacement transistor for best results)

ITEM No.	TYPE No.	MFGR. PART No.	REPLACEMENT DATA					
			GENERAL ELECTRIC PART No.	NEW-TONE NTE PART No.	PHILIPS ECG PART No.	RCA PART No.	WORKMAN PART No.	ZENITH PART No.
D472	HZ11B-2L RD11EB2 1N4148 1S2471 1S2076 1S1553	06200233 06200177 06200226 06200167	GEZD-11	NTE5020A	ECG5020A	SK11A/5020A	WEP1421/5020	103-279-20
			GEZD-11	NTE5020A	ECG5020A	SK11A/5020A	WEP1421/5020	103-279-20
			GE-514	NTE519	ECG519	SK3100/519	WEP925/519	103-131
			GE-514	NTE519	ECG519	SK3100/519	WEP925/519	103-131
			GE-514	NTE519	ECG519	SK3100/519	WEP925/519	103-131
D601	1S2076 1S1553	06200167	GE-300	NTE177	ECG177	SK9091/177	WEP1062/177	103-131
			GE-511	NTE552	ECG552	SK9000/552	WEP172/506	103-287
			GE-511	NTE552	ECG552	SK5006	WEP172/506	103-287
			GE-514	NTE519	ECG519	SK3100/519	WEP925/519	103-131
			GE-514	NTE519	ECG519	SK3100/519	WEP925/519	103-131
D805	1S2471 1S2076 1S1553	06200226 06200167	GE-514	NTE519	ECG519	SK3100/519	WEP925/519	103-131
			GE-514	NTE519	ECG519	SK3100/519	WEP925/519	103-131
			GE-514	NTE519	ECG519	SK3100/519	WEP925/519	103-131
			GE-300	NTE177	ECG177	SK9091/177	WEP1062/177	103-131
			GE-514	NTE519	ECG519	SK3100/519	WEP925/519	103-131
D807	1N4148 1S2471 1S1555 1S1553 1S2076	06200226 06200167	GE-514	NTE519	ECG519	SK3100/519	WEP925/519	103-131
			GE-514	NTE519	ECG519	SK3100/519	WEP925/519	103-131
			GE-300	NTE177	ECG177	SK9091/177	WEP1062/177	103-131
			GE-300	NTE177	ECG177	SK9091/177	WEP1062/177	103-131
			GE-514	NTE519	ECG519	SK3100/519	WEP925/519	103-131
IC101 IC401	HA11440A HA11423	06300113 06300090	GE-514	NTE519	ECG519	SK3100/519	WEP925/519	103-131
			GE-514	NTE519	ECG519	SK3100/519	WEP925/519	103-131
			GE-300	NTE177	ECG177	SK9091/177	WEP1062/177	103-131
			GE-300	NTE177	ECG177	SK9091/177	WEP1062/177	103-131
			GE-514	NTE519	ECG519	SK3100/519	WEP925/519	103-131
IC501 IC601	HA11446 LSC1008P GL-3201	06300115 06300009 167-019A	GE-514	NTE519	ECG519	SK3100/519	WEP925/519	103-131
			GE-514	NTE519	ECG519	SK3100/519	WEP925/519	103-131
			GE-300	NTE177	ECG177	SK9091/177	WEP1062/177	103-131
			GE-300	NTE177	ECG177	SK9091/177	WEP1062/177	103-131
			GE-514	NTE519	ECG519	SK3100/519	WEP925/519	103-131
IC801	STR383 EXT954-20C	06300111 06300116	GE-514	NTE519	ECG519	SK3100/519	WEP925/519	103-131
			GE-514	NTE519	ECG519	SK3100/519	WEP925/519	103-131
			GE-300	NTE177	ECG177	SK9091/177	WEP1062/177	103-131
			GE-300	NTE177	ECG177	SK9091/177	WEP1062/177	103-131
			GE-514	NTE519	ECG519	SK3100/519	WEP925/519	103-131
Q1	KTC9014AC KTC9014A,C 2SC388A	06300115 06300009 167-019A	GE-514	NTE519	ECG519	SK3100/519	WEP925/519	103-131
			GE-514	NTE519	ECG519	SK3100/519	WEP925/519	103-131
			GE-300	NTE177	ECG177	SK9091/177	WEP1062/177	103-131
			GE-300	NTE177	ECG177	SK9091/177	WEP1062/177	103-131
			GE-514	NTE519	ECG519	SK3100/519	WEP925/519	103-131
Q161	2SC1906 KTC388A	06300111 06300116	GE-514	NTE519	ECG519	SK3100/519	WEP925/519	103-131
			GE-514	NTE519	ECG519	SK3100/519	WEP925/519	103-131
			GE-300	NTE177	ECG177	SK9091/177	WEP1062/177	103-131
			GE-300	NTE177	ECG177	SK9091/177	WEP1062/177	103-131
			GE-514	NTE519	ECG519	SK3100/519	WEP925/519	103-131
Q201 thru Q203	GS9023-H KTC1815-O,Y KTC1815GR 2SC458B,C GS9023,H 2SC458-O,Y,GR	161-016H 06120168/9 06120170 06120005/6 06120008	GE-123AP	NTE123AP	ECG123AP	SK3854/123AP	WEP736/123A	121-Z9000A
			GE-123AP	NTE123AP	ECG123AP	SK3854/123AP	WEP736/123A	121-Z9000A
			GE-61*	NTE85	ECG85	SK3132	WEP535/107	121-722*
			GE-86	NTE107	ECG107	SK3293/107	WEP923/316*	121-522*
			GE-210	NTE85	ECG85	SK3132	WEP910/289	921-1114
Q201 thru Q203	GS9023-H KTC1815-O,Y KTC1815GR 2SC458B,C GS9023,H 2SC458-O,Y,GR	161-016H 06120168/9 06120170 06120005/6 06120008	GE-123AP	NTE123AP	ECG123AP	SK3854/123AP	WEP736/123A	121-Z9000A
			GE-210	NTE85	ECG85	SK3245/199	WEP910/289	921-1114
			GE-210	NTE85	ECG85	SK3245/199	WEP910/289	921-1114
			GE-210	NTE85	ECG85	SK3124A/289A	WEP910/289	121-972*
			GE-123AP	NTE123AP	ECG123AP	SK3854/123AP	WEP736/123A	121-Z9000A
Q201 thru Q203	GS9023-H KTC1815-O,Y KTC1815GR 2SC458B,C GS9023,H 2SC458-O,Y,GR	161-016H 06120168/9 06120170 06120005/6 06120008	GE-123AP	NTE123AP	ECG123AP	SK3854/123AP	WEP736/123A	121-Z9000A
			GE-210	NTE85	ECG85	SK3245/199	WEP910/289	921-1114
			GE-210	NTE85	ECG85	SK3245/199	WEP910/289	921-1114
			GE-210	NTE85	ECG85	SK3124A/289A	WEP910/289	121-972*
			GE-123AP	NTE123AP	ECG123AP	SK3854/123AP	WEP736/123A	121-Z9000A
Q201 thru Q203	GS9023-H KTC1815-O,Y KTC1815GR 2SC458B,C GS9023,H 2SC458-O,Y,GR	161-016H 06120168/9 06120170 06120005/6 06120008	GE-123AP	NTE123AP	ECG123AP	SK3854/123AP	WEP736/123A	121-Z9000A
			GE-210	NTE85	ECG85	SK3245/199	WEP910/289	921-1114
			GE-210	NTE85	ECG85	SK3245/199	WEP910/289	921-1114
			GE-210	NTE85	ECG85	SK3124A/289A	WEP910/289	121-972*
			GE-123AP	NTE123AP	ECG123AP	SK3854/123AP	WEP736/123A	121-Z9000A
Q201 thru Q203	GS9023-H KTC1815-O,Y KTC1815GR 2SC458B,C GS9023,H 2SC458-O,Y,GR	161-016H 06120168/9 06120170 06120005/6 06120008	GE-123AP	NTE123AP	ECG123AP	SK3854/123AP	WEP736/123A	121-Z9000A
			GE-210	NTE85	ECG85	SK3245/199	WEP910/289	921-1114
			GE-210	NTE85	ECG85	SK3245/199	WEP910/289	921-1114
			GE-210	NTE85	ECG85	SK3124A/289A	WEP910/289	121-972*
			GE-123AP	NTE123AP	ECG123AP	SK3854/123AP	WEP736/123A	121-Z9000A
Q201 thru Q203	GS9023-H KTC1815-O,Y KTC1815GR 2SC458B,C GS9023,H 2SC458-O,Y,GR	161-016H 06120168/9 06120170 06120005/6 06120008	GE-123AP	NTE123AP	ECG123AP	SK3854/123AP	WEP736/123A	121-Z9000A
			GE-210	NTE85	ECG85	SK3245/199	WEP910/289	921-1114
			GE-210	NTE85	ECG85	SK3245/199	WEP910/289	921-1114
			GE-210	NTE85	ECG85	SK3124A/289A	WEP910/289	121-972*
			GE-123AP	NTE123AP	ECG123AP	SK3854/123AP	WEP736/123A	121-Z9000A
Q201 thru Q203	GS9023-H KTC1815-O,Y KTC1815GR 2SC458B,C GS9023,H 2SC458-O,Y,GR	161-016H 06120168/9 06120170 06120005/6 06120008	GE-123AP	NTE123AP	ECG123AP	SK3854/123AP	WEP736/123A	121-Z9000A
			GE-210	NTE85	ECG85	SK3245/199	WEP910/289	921-1114
			GE-210	NTE85	ECG85	SK3245/199	WEP910/289	921-1114
			GE-210	NTE85	ECG85	SK3124A/289A	WEP910/289	121-972*
			GE-123AP	NTE123AP	ECG123AP	SK3854/123AP	WEP736/123A	121-Z9000A
Q201 thru Q203	GS9023-H KTC1815-O,Y KTC1815GR 2SC458B,C GS9023,H 2SC458-O,Y,GR	161-016H 06120168/9 06120170 06120005/6 06120008	GE-123AP	NTE123AP	ECG123AP	SK3854/123AP	WEP736/123A	121-Z9000A
			GE-210	NTE85	ECG85	SK3245/199	WEP910/289	921-1114
			GE-210	NTE85	ECG85	SK3245/199	WEP910/289	921-1114
			GE-210	NTE85	ECG85	SK3124A/289A	WEP910/289	121-972*
			GE-123AP	NTE123AP	ECG123AP	SK3854/123AP	WEP736/123A	121-Z9000A
Q201 thru Q203	GS9023-H KTC1815-O,Y KTC1815GR 2SC458B,C GS9023,H 2SC458-O,Y,GR	161-016H 06120168/9 06120170 06120005/6 06120008	GE-123AP	NTE123AP	ECG123AP	SK3854/123AP	WEP736/123A	121-Z9000A
			GE-210	NTE85	ECG85	SK3245/199	WEP910/289	921-1114
			GE-210	NTE85	ECG85	SK3245/199	WEP910/289	921-1114
			GE-210	NTE85	ECG85	SK3124A/289A	WEP910/289	121-972*
			GE-123AP	NTE123AP	ECG123AP	SK3854/123AP	WEP736/123A	121-Z9000A
Q201 thru Q203	GS9023-H KTC1815-O,Y KTC1815GR 2SC458B,C GS9023,H 2SC458-O,Y,GR	161-016H 06120168/9 06120170 06120005/6 06120008	GE-123AP	NTE123AP	ECG123AP	SK3854/123AP	WEP736/123A	121-Z9000A
			GE-210	NTE85	ECG85	SK3245/199	WEP910/289	921-1114
			GE-210	NTE85	ECG85	SK3245/199	WEP910/289	921-1114
			GE-210	NTE85	ECG85	SK3124A/289A	WEP910/289	121-972*
			GE-123AP	NTE123AP	ECG123AP	SK3854/123AP	WEP736/123A	121-Z9000A
Q201 thru Q203	GS9023-H KTC1815-O,Y KTC1815GR 2SC458B,C GS9023,H 2SC458-O,Y,GR	161-016H 06120168/9 06120170 06120005/6 06120008	GE-123AP	NTE123AP	ECG123AP	SK3854/123AP	WEP736/123A	121-Z9000A
			GE-210	NTE85	ECG85	SK3245/199	WEP910/289	921-1114
			GE-210	NTE85	ECG85	SK3245/199	WEP910/289	921-1114
			GE-210	NTE85	ECG85	SK3124A/289A	WEP910/289	121-972*
			GE-123AP	NTE123AP	ECG123AP	SK3854/123AP	WEP736/123A	121-Z9000A
Q201 thru Q203	GS9023-H KTC1815-O,Y KTC1815GR 2SC458B,C GS9023,H 2SC458-O,Y,GR	161-016H 06120168/9 06120170 06120005/6 06120008	GE-123AP	NTE123AP	ECG123AP	SK3854/123AP	WEP736/123A	121-Z9000A
			GE-210	NTE85	ECG85	SK3245/199	WEP910/289	921-1114
			GE-210	NTE85	ECG85	SK3245/199	WEP910/289	921-1114
			GE-210	NTE85	ECG85	SK3124A/289A	WEP910/289	121-972*
			GE-123AP	NTE123AP	ECG123AP	SK3854/123AP	WEP736/123A	121-Z9000A
Q201 thru Q203	GS9023-H KTC1815-O,Y KTC1815GR 2SC458B,C GS9023,H 2SC458-O,Y,GR	161-016H 06120168/9 06120170 06120005/6 06120008	GE-123AP	NTE123AP	ECG123AP	SK3854/123AP	WEP736/123A	121-Z9000A
			GE-210	NTE85	ECG85	SK3245/199	WEP910/289	921-1114
			GE-210	NTE85	ECG85	SK3245/199	WEP910/289	921-1114
			GE-210	NTE85	ECG85	SK3124A/289A	WEP910/289	121-972*
			GE-123AP	NTE123AP	ECG123AP	SK3854/123AP	WEP736/123A	121-Z9000A
Q201 thru Q203	GS9023-H KTC1815-O,Y KTC1815GR 2SC458B,C GS9023,H 2SC458-O,Y,GR	161-016H 06120168/9 06120170 06120005/6 06120008	GE-123AP	NTE123AP	ECG123AP	SK3854/123AP	WEP736/123A	121-Z9000A
			GE-210	NTE85	ECG85	SK3245/199	WEP910/289	921-1114
			GE-210	NTE85	ECG85	SK3245/199	WEP910/289	921-1114
			GE-210	NTE85	ECG85	SK3124A/289A	WEP910/289	121-972*
			GE-123AP	NTE123AP	ECG123AP	SK3854/123AP	WEP736/123A	121-Z9000A
Q201 thru Q203	GS9023-H KTC1815-O,Y KTC1815GR 2SC458B,C GS9023,H 2SC458-O,Y,GR	161-016H 06120168/9 06120170 06120005/6 06120008	GE-123AP	NTE123AP	ECG123AP	SK3854/123AP	WEP736/123A	121-Z9000A
			GE-210	NTE85	ECG85	SK3245/199	WEP910/289	921-1114
			GE-210	NTE85	ECG85	SK3245/199	WEP910/289	921-1114
			GE-210	NTE85	ECG85	SK3124A/289A	WEP910/289	121-972*
			GE-123AP	NTE123AP	ECG123AP	SK3854/123AP	WEP736/123A	121-Z9000A
Q201 thru Q203	GS9023-H KTC1815-O,Y KTC1815GR 2SC458B,C GS9023,H 2SC458-O,Y,GR	161-016H 06120168/9 06120170 06120005/6 06120008	GE-123AP	NTE123AP	ECG123AP	SK3854/123AP	WEP736/123A	121-Z9000A
			GE-210	NTE85	ECG85	SK3245/199	WEP910/289	921-1114
			GE-210	NTE85	ECG85	SK3245/199	WEP910/289	921-1114
			GE-210	NTE85	ECG85	SK3124A/289A	WEP910/289	121-972*
			GE-123AP	NTE123AP	ECG123AP	SK3854/123AP	WEP736/123A	121-Z9000A
Q201 thru Q203								

PARTS LIST AND DESCRIPTION (Continued)

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

SEMICONDUCTORS (Select replacement transistor for best results)

ITEM No.	TYPE No.	MFR. PART No.	REPLACEMENT DATA					ZENITH PART No.
			GENERAL ELECTRIC PART No.	NEW-TONE NTE PART No.	PHILIPS ECG PART No.	RCA PART No.	WORKMAN PART No.	
Q204	KTA562Y	06100081/2	GE-269	NTE290A	ECG290A	SK3114A/290A	WEP911/290A	121-Z9003*
	KTA562TM		GE-269	NTE290A	ECG290A	SK3114A/290A	WEP911/290A	121-Z9003*
Q321,2	2SA673C,D	06100015/6	GE-269	NTE290A	ECG290A	SK9132	WEP911/290A	121-Z9003*
	MJE9730		GE-375	NTE375	ECG375	SK9118/375	WEP63/375	121-Z9106
Q401	2SD1138	06130053	GE-375	NTE375	ECG375	SK9118/375	WEP63/375	121-Z9106
	2SD1138,C		GE-375	NTE375	ECG375	SK9118/375	WEP63/375	121-Z9106
Q404	KSD401-7	06130047	GE-375	NTE375	ECG375	SK3929	WEP63/375	121-Z9106
	2SC2167Y		GE-375	NTE375	ECG375	SK3929	WEP63/375	121-Z9106
Q561 thru Q601,2	2SD401Y	06120186/7	GE-251	NTE376	ECG376	SK3219	WEP779/198	121-Z9028
	2SC2068		GE-251	NTE376	ECG376	SK3219	WEP779/198	121-Z9028
Q605,6	2SC2068GS-1	06120150	GE-251	NTE376	ECG376	SK3219	WEP779/198	121-Z9028
	GS2014,G		GE-251	NTE376	ECG376	SK3219	WEP779/198	121-Z9028
Q803	GS2014,G	06120181/2	GE-247	NTE186A	ECG186A	SK9362/376	WEP900/186A	121-Z9008
	KSC1507-0,Y		GE-247	NTE186A	ECG186A	SK9362/376	WEP900/186A	121-Z9008
Q805	2SC1514	06130052	GE-375	NTE375	ECG375	SK9118/375	WEP63/375	121-Z9106
	2SC2068		GE-375	NTE375	ECG375	SK9118/375	WEP63/375	121-Z9106
Q805,6	KTC1815Y	161-016H	GE-210	NTE85	ECG85	SK3245/199	WEP910/289	921-1114
	GS9023,H		GE-123AP	NTE123AP	ECG123AP	SK3854/123AP	WEP736/123A	121-Z9000A
Q803	KTC2229Y	06120161/2	GE-222*	NTE399	ECG399	SK3244	WEP68/287*	121-Z9045*
	KTC2229-0,Y		GE-222*	NTE399	ECG399	SK3244	WEP68/287*	121-Z9045*
Q803	2SC1921	06120217	GE-222*	NTE399	ECG399	SK9352/399	WEP750	121-Z9045*
	2SC1921		GE-222*	NTE399	ECG399	SK9352/399	WEP750	121-Z9045*

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

PARTS LIST AND DESCRIPTION (Continued)

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

ELECTROLYTIC CAPACITORS Items Not Listed Are Normally Available At Local Distributors.

ITEM No.	RATING	MFR. PART No.	ITEM No.	RATING	MFR. PART No.
C1	10 16V NP	181-064P	C438	1 160V	08110707
C106	10 16V 20%	181-064F	C471	33 50V	02140516
C323	.47 50V 10%	181-040W	C515	10 16V NP	181-064P
C333	1 25V 10%	181-032Q	C612	1 50V NP	181-064R
C437	22 50V 10%	181-112A	C802	470 200V	181-075A
	33 160V	181-102A	C808	47 200V	181-081E

For SAFETY use only equivalent replacement part.

CAPACITORS Items Not Listed Are Normally Available At Local Distributors.

ITEM No.	RATING	MFR. PART No.	ITEM No.	RATING	MFR. PART No.
C213	.022 100V 10%	02705333	C501	18 NPO 50V 5%	08300718
C431	.0022 500V 10%	02201064	C502	12 NPO 50V 5%	08300714
C432	470 2KV 10%	181-087A	C512	18 NPO 50V 5%	08300718
		02201552	C513	27 NPO 50V 5%	08300722
C433	.003 1.6KV 5%	181-083A	C516	33 NPO 50V 5%	08300724
C434	.0033 1.6KV 5%	181-093B	C801	.1 125VAC	181-084D
C435	.2 200V 5%	181-059J		.1 125VAC	181-062A
C436	.27 200V 5%	181-059K	C805	.0047 500V 10%	02201068

For SAFETY use only equivalent replacement part.

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

ITEM NO.	FUNCTION	RESISTANCE	MFR. PART NO.	NOTES
R151	AGC Delay	4700	180-021C	
R252	Contrast	10K	180-144B	
R253	Brightness	500	180-144D	
R254	Sub Brightness	4700	180-021C	
R351	Vert Hold	5000	180-144E	
R352	Vert Height	470	180-021F	
R451	Horiz Hold	10K	180-021H	
R452	X-Ray	2200	180-021B	
R498	Screen		(1)	
R499	Focus		(1)	
R551	Color	10K	180-144B	
R552	Tint	10K	180-144B	
R553	Color Preset	10K	180-021H	
R554	Tint Preset	10K	180-021H	
R555	Color Sync	47K	180-021L	
R561	Red Drive	330	180-051F	
R565	Red Bias	10K	180-051D	
R570	Green Bias	10K	180-051D	
R571	Blue Drive	330	180-051F	
R577	Blue Bias	10K	180-051D	

For SAFETY use only equivalent replacement part.

(1) R498 and R499 are part of Focus Pack Z401, Part Number 180-133B.

WIRING DATA

High Voltage Lead	Use BELDEN No. 8866 (40 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. 8529 (Solid) Available in 13 Colors
	8522 (Stranded) Available in 13 Colors
300-Ohm Tuner Input Lead	Use BELDEN No. 8225
75-Ohm Tuner Input Lead	Use BELDEN No. 8241
300-Ohm Antenna Lead-In	Use BELDEN No. 8275 (Foam Core) or 8285 (Foam Jacketed)
Antenna Rotor Cable	Use BELDEN No. 8464 (Flat) or 8484 (Round) 4-Conductor
	8485 (Round) 5-Conductor
	8488 (Round) 8-Conductor

PARTS LIST

LOCATION NUMBER	PART NO.	DESCRIPTION
3. F/S PWB		
DIODE		
D01	06200167	1S2471
D02	06200167	1S2471
D03	06200167	1S2471
D04	06200167	1S2471
D05	06200167	1S2471
D06	06200167	1S2471
D07	06200167	1S2471
D08	06200167	1S2471
D09	06200167	1S2471
D10	06200167	1S2471
D11	06200167	1S2471
D13	06200167	1S2471
D14	06200168	RD, 12FB
D17	06200027	1N4003
D18	06200027	1N4003
D19	06200167	1S2471
D20	06200130	1S2473
TRANSISTOR		
Q02	06120029	KTC9014A (C)
Q03	06120029	KTC9014A (C)
Q04	06120029	KTC9014A (C)
Q05	06120029	KTC9014A (C)
Q06	06120029	KTC9014A (C)
Q07	06120029	KTC9014A (C)
Q08	06120231	KTC9015A (B)
Q09	06120224	KTC9014A (C)
Q10	06120227	KTC9013A (H)
Q11	06120229	KTC9014A (C)
I.C.		
IC01	06300104	IC, UPD 1705C-012
IC02	06300106	IC, UPA 56C
IC03	06300107	IC, UPA 53C
IC04	06300105	IC, UPC 393C
IC05	06300144	IC, UC 7805UC
IC06	06300121	IC, LA 7910
IC07	167-006A	IC, UPC 574J
MISCELLANEOUS		
RL101	141-005B	RELAY, VS12MB
X01	156-005A	CRYSTAL 4.5 MHz
CO-F1	366-039G	PIN, MOLEX 5045-08A
CO-F2	366-039J	PIN, MOLEX 5045-10A
CO-F3	366-039G	PIN, MOLEX 5045-08A
CO-F4	366-039B	PIN, MOLEX 5045-03A
CO-F5	366-042B	PIN, ASSY PLUG 2P
CO-F6	366-039B	PIN, MOLEX 5045-03A
CO-F7	366-039J	PIN, MOLEX 5045-10A
CO-F8	366-039J	PIN, MOLEX 5045-10A
CO-F10	366-039A	PIN, MOLEX 5045-02A
	385-015A	JACK, PHONO

PARTS LIST (Continued)

LOCATION NUMBER	PART NO.	DESCRIPTION
4. TRANSMITTER PWB		
RESISTOR		
RT01	01501025	RN, 1 ohm 1/4W
CAPACITOR		
CT01	02140316	CE, 33uF/16V, ±20%
CT02	02300136	CC, 100pF/50V, ±5%
CT03	02300136	CC, 100pF/50V, ±5%
DIODE		
DT01	162-038A	INFRA RED DIODE, EL2
DT02	162-038A	INFRA RED DIODE, EL2
DT03	06200073	1S2473
TRANSISTOR		
QT01	06120233	KN2222
I.C.		
ICT01	06300108	IC, UPD1913C
MISCELLANEOUS		
XT01	166-015A	RESOPATOR, CSB455A
5. PRE-AMP PWB		
LOCATION NUMBER	PART NO.	DESCRIPTION
DIODE		
DP01	06210011	PHOTO PH302
DP02	06200180	RD, 11EB
I.C.		
ICP01	06300095	IC, UPC1373H
COIL		
LP01	150-214A	TUNING 384Hz
6. CONTROL PWB		
MISCELLANEOUS		
SW001	140-093A	SWITCH, SLIDE SSJ-823
SW002	140-094A	SWITCH, SLIDE SSA-042

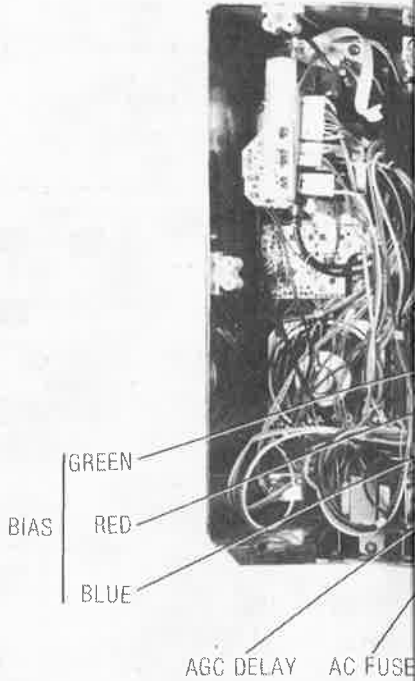
PARTS LIST (Continued)

LOCATION NUMBER	PART NO.	DESCRIPTION
7. AUTO & ABC PWB		
CAPACITOR		
C1	181-064F	CE, 10uF/16F, ±20%
DIODE		
D1	06200150	1S2471
TRANSISTOR		
Q1	06120229	KTC9014A (C)
MISCELLANEOUS		
SW501	140-034F	SWITCH, UNI-PUSH (SUE-6CK)
LOCATION NUMBER	PART NO.	DESCRIPTION
8. AUDIO PWB		
RESISTOR		
R620	01157143	RD, 82K ohm
R621	01157133	RD, 33K ohm
R622	01157115	RD, 3.3K ohm
R623	01157087	RD, 390 ohm
R624	01157100	RD, 1.3K ohm
R625	01157109	RD, 4.3K ohm
R626	01157125	RD, 15K ohm
R627	01157101	RD, 1.5K ohm
R628	01157089	RD, 470 ohm
R629	01157083	RD, 270 ohm
R630	01157097	RD, 1K ohm
CAPACITOR		
C620	02110313	CE, 10uF/16V, +80%, -20%
C621	02110313	CE, 10uF/16V, +80%, -20%
C622	02110411	CE, 4.7uF/25V, +80%, -20%
C623	02110313	CE, 10uF/10V, +80%, -20%
C624	02705335	MYL, 0.047uF/100V, ±10%
C625	02705333	MYL, 0.022uF/100V, ±10%
TRANSISTOR		
Q605	161-016H	GS9023 (H)
Q606	161-016H	GS9023 (H)
TRANS		
T621	151-185A	TRANS. AUDIO

PARTS LIST (Continued)

LOCATION NUMBER	PART NO.	DESCRIPTION
9. TUNER PWB		
CAPACITOR		
C11	02140316	CE, 33u/16V, ±20%
C12	02140501	CE, 0.1u/50V, ±20%
C29	02140511	CE, 4.7u/50V, ±10%
MISCELLANEOUS		
COT1	366-039E 113-120A 380-015A	PIN, MOLEX 5045-06A TUNER, VTA-7USPK JACK, PHONO
10. ANTENNA PWB		
P1	380-029A	JACK, PHONO
P3	380-029A	JACK, PHONO
SW1	140-076B	SWITCH, SLIDE SSJ-022
11. HEAT SINK ASSY		
R803	180-100D	RWR, 220 ohm 25W
C431	02201064	CK, 2200pF/500V, ±10%
C432	181-087A	CK, 470pF/2KV, ±10%
Q404	06160006	25D900B
IC801	06300111	IC, STR383
12. MISCELLANEOUS		
CDS	06510001	RESISTOR CDS P1195
POWER	140-034H	SWITCH, UNI-PUSH, NON-LOCK
SW		
SW802	140-075C	SWITCH, POWER
LED	162-041A	LED DIS PLAY, TLR-2168
SPEAKER	120-014A	SPEAKER 100A21G0001
L901	150-139P	DEGAUSSING COIL
	450-003A	ANT, ADAPTER (300 ohm to 75 ohm)
	132-004A	LOOP ANTENNA
	132-021A	ROD ANTENNA
Z401	180-133B	FOUCS PACK MHF 019-38
	121-001B	EARPHONE

Courtesy of the Manufacturer



DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

Remove ten screws holding cabinet move back. Disconnect HV and deflection yoke connectors, connectors, speaker connector leads. Remove five screws holding remote receiver and tuning assemblies to cabinet front and from cabinet. Channel accessible for servicing. Remove holding picture control/main assembly to cabinet front and from cabinet. Remove screws and

SERVICING IN THE FIELD

CRT IMPLSION PROTECTION AND CLEANING

Implsion protection is an in the picture tube, cleaning acc out CRT removal.

FUSE DEVICES

A 1-amp fuse is used for low supply protection. (See photo, View.)

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

READOUT ACCESSIBILITY

Tuner assembly must be removed. bly Instructions.

T (Continued)

PART NO.	DESCRIPTION
TER PWB	
RESISTOR	
01501025	RN, 1 ohm 1/4W
CAPACITOR	
02140316	CE, 33uF/16V, ± 20%
02300136	CC, 100pF/50V, ± 5%
02300136	CC, 100pF/50V, ± 5%
DIODE	
062-038A	INFRA RED DIODE, EL2
062-038A	INFRA RED DIODE, EL2
06200073	1S2473
TRANSISTOR	
06120233	KN2222
I.C.	
06300108	IC, UPD1913C
MISCELLANEOUS	
066-015A	RESOPATOR, CSB455A
VB	
PART NO.	DESCRIPTION
DIODE	
06210011	PHOTO PH302
06200180	RD, 11EB
I.C.	
06300095	IC, UPC1373H
COIL	
0650-214A	TUNING 384Hz
WB	
MISCELLANEOUS	
040-093A	SWITCH, SLIDE SSJ-823
040-094A	SWITCH, SLIDE SSA-042

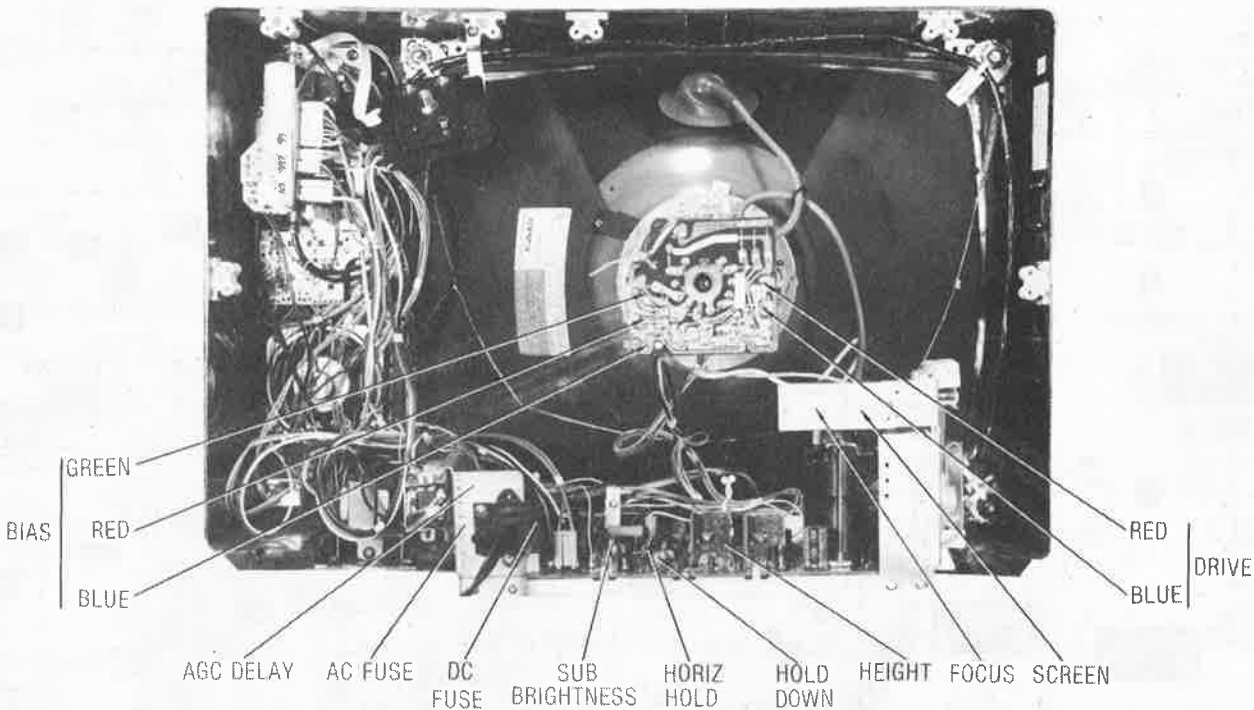
PARTS LIST (Continued)

LOCATION NUMBER	PART NO.	DESCRIPTION
7. AUTO & ABC PWB		
CAPACITOR		
C1	181-064F	CE, 10uF/16F, ± 20%
DIODE		
D1	06200150	1S2471
TRANSISTOR		
Q1	06120229	KTC9014A (C)
MISCELLANEOUS		
SW501	140-034F	SWITCH, UNI-PUSH (SUE-6CK)
LOCATION NUMBER	PART NO.	DESCRIPTION
8. AUDIO PWB		
RESISTOR		
R620	01157143	RD, 82K ohm
R621	01157133	RD, 33K ohm
R622	01157115	RD, 3.3K ohm
R623	01157087	RD, 390 ohm
R624	01157100	RD, 1.3K ohm
R625	01157109	RD, 4.3K ohm
R626	01157125	RD, 15K ohm
R627	01157101	RD, 1.5K ohm
R628	01157089	RD, 470 ohm
R629	01157083	RD, 270 ohm
R630	01157097	RD, 1K ohm
CAPACITOR		
C620	02110313	CE, 10uF/16V, + 80%, - 20%
C621	02110313	CE, 10uF/16V, + 80%, - 20%
C622	02110411	CE, 4.7uF/25V, + 80%, - 20%
C623	02110313	CE, 10uF/10V, + 80%, - 20%
C624	02705335	MYL, 0.047uF/100V, ± 10%
C625	02705333	MYL, 0.022uF/100V, ± 10%
TRANSISTOR		
Q605	161-016H	GS9023 (H)
Q606	161-016H	GS9023 (H)
TRANS		
T621	151-185A	TRANS, AUDIO

PARTS LIST (Continued)

LOCATION NUMBER	PART NO.	DESCRIPTION
9. TUNER PWB		
CAPACITOR		
C11	02140316	CE, 33u/16V, ± 20%
C12	02140501	CE, 0.1u/50V, ± 20%
C29	02140511	CE, 4.7u/50V, ± 10%
MISCELLANEOUS		
COT1	366-039E 113-120A 380-015A	PIN, MOLEX 5045-06A TUNER, VTA-7USPK JACK, PHONO
10. ANTENNA PWB		
P1 P3 SW1	380-029A 380-029A 140-076B	JACK, PHONO JACK, PHONO SWITCH, SLIDE SSJ-022
11. HEAT SINK ASSY		
R803 C431 C432 Q404 IC801	180-100D 02201064 181-087A 06160006 06300111	RWR, 220 ohm 25W CK, 2200pF/500V, ± 10% CK, 470pF/2KV, ± 10% 25D900B IC, STR383
12. MISCELLANEOUS		
CDS POWER S/W SW802 LED SPEAKER L901	06510001 140-034H 140-075C 162-041A 120-014A 150-139P 450-003A	RESISTOR CDS P1195 SWITCH, UNI-PUSH, NON-LOCK SWITCH, POWER LED DIS PLAY, TLR-2168 SPEAKER 100A21G0001 DEGAUSSING COIL ANT, ADAPTER (300 ohm to 75 ohm) LOOP ANTENNA
Z401	132-004A 132-021A 180-133B 121-001B	ROD ANTENNA FOUCS PACK MHF 019-38 EARPHONE

Courtesy of the Manufacturer



CABINET-REAR VIEW

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

Remove ten screws holding cabinet back and remove back. Disconnect HV anode, CRT socket, deflection yoke connectors, degaussing coil connectors, speaker connectors and ground leads. Remove five screws holding tuner control remote receiver and tuning selector panel assemblies to cabinet front and remove assemblies from cabinet. Channel readout is now accessible for servicing. Remove five screws holding picture control/main power switch assembly to cabinet front and remove assembly from cabinet. Remove screws and release latch

holding main board assembly to cabinet bottom and slide main board assembly out of cabinet. Remove two screws holding power transformer and auto-color switch to cabinet front and bottom. Remove devices from cabinet.

CRT REMOVAL

Follow "Chassis Removal" procedure and lay set facedown on a soft protective surface. Loosen and remove CRT neck assemblies. Remove four nuts holding degaussing coil and 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 1-amp fuse is used for low-voltage power-supply protection. (See photo, Cabinet - Rear View.)

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

READOUT ACCESSIBILITY

Tuner assembly must be removed. See Disassembly Instructions.

VHF/UHF TUNER

Ten buttons are provided for two digit channel entry with two buttons for channel scanning up and down. Fine tuning is accomplished by using two more buttons. (FINE + and -).

HORIZONTAL OSCILLATOR

Adjustment of the horizontal hold is accomplished by the proper setting of the horiz hold. (See photo, Cabinet - Rear View.)

FOCUS

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

AGC

The AGC may be varied by an AGC Delay control. (See photo, Cabinet - Rear View.)