

CABINET-REAR VIEW

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

Remove knobs from cabinet front. Remove five screws holding cabinet back and remove back. Disconnect HV anode, CRT socket, deflection yoke connectors, degaussing coil connectors, speaker connectors and ground leads. Remove four screws holding tuners and tuning selector assembly to cabinet front and remove assembly from cabinet. Channel indicator is accessible for servicing. Remove two screws holding picture control assembly to cabinet front and remove assembly from cabinet. Release two

latches holding main board assembly to cabinet bottom and slide board assembly out of cabinet.

CRT REMOVAL

Follow "Chassis Removal" procedure and lay set facedown on a soft protective surface. Loosen and remove CRT neck assemblies. Remove four screws 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 2-amp fuse is used for AC line protection. (See photo, Cabinet-Rear View.)

LAMP ACCESSIBILITY

Tuner assembly must be removed. See Disassembly Instructions.

UHF AND VHF TUNERS

The UHF and VHF tuners employ a detent mechanism for channel selection. Fine tuning is accomplished by adjusting the fine tuning controls.

HORIZONTAL OSCILLATOR

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

WIDTH

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

FOCUS

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

AGC

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

CENTERING

Horizontal centering is accomplished by proper adjustment of the horizontal centering control. (See Placement Chart.)

Vertical centering is accomplished by proper setting of the vertical centering switch. (See Placement Chart.)

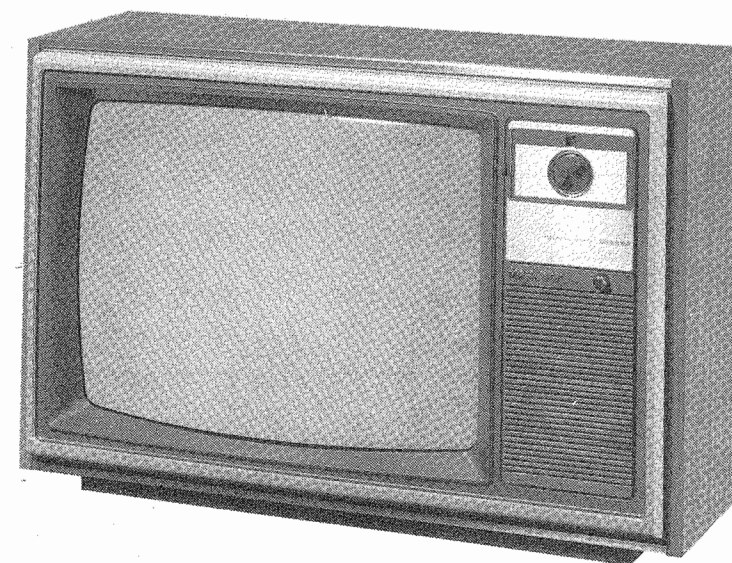
SET 2335 FOLDER 2

SAMS

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For Supplier Address See PHOTOFACT® Index

MAGNAVOX CHASSIS
19C301 THRU 19C314,7044780003



612126001
1785

MODEL BD4143WA04

SAFETY PRECAUTIONS

See page 4,5.

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Howard W. Sams & Co., Inc.

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DATE 7-85 SET 2335 FOLDER 2

MAGNAVOX CHASSIS
19C301 THRU 19C314,7044780003

SET 2335 FOLDER 2

TS6 TROUBLESHOOTING CHARTS

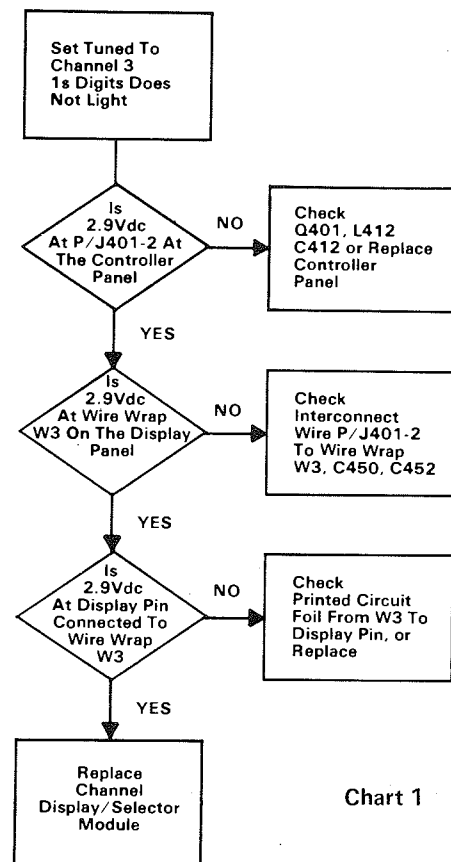


Chart 1

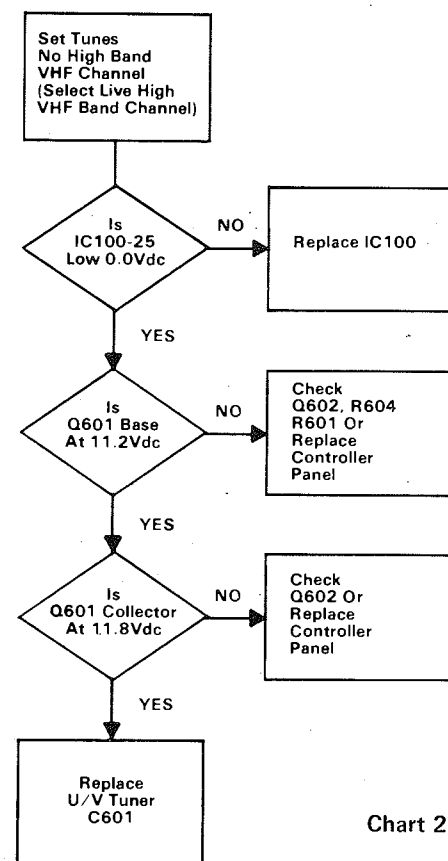


Chart 2

Courtesy of the Manufacturer

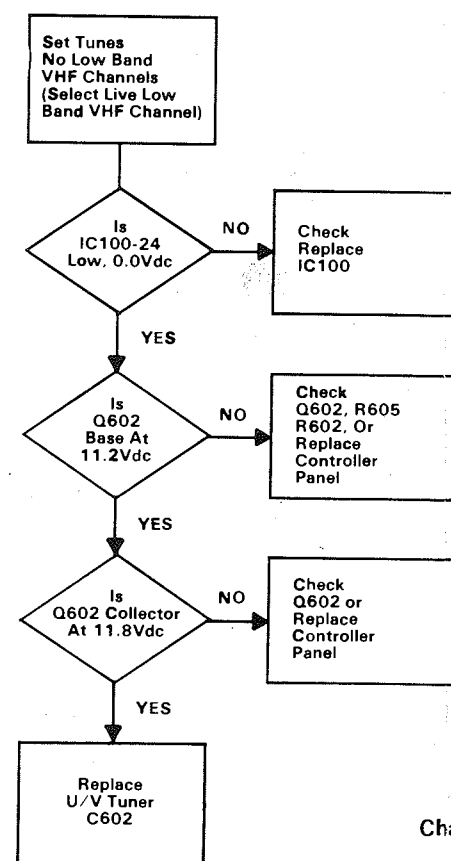


Chart 3

TS6 TROUBLESHOOTING CHARTS

TS6 TROUBLESHOOTING CHARTS (Continued)

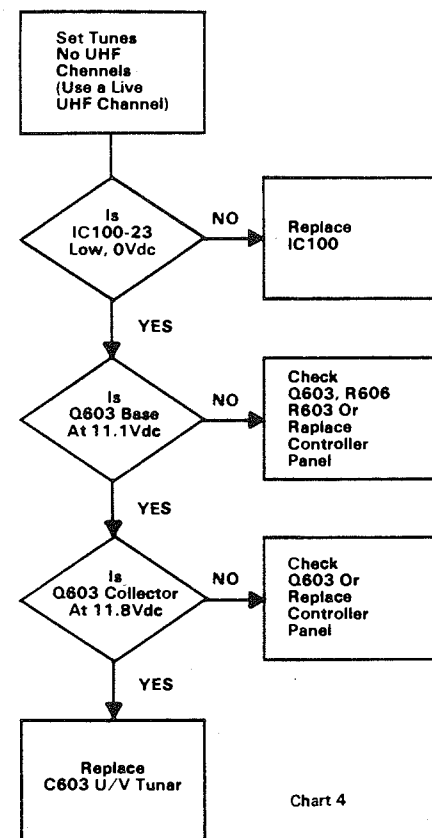


Chart 4

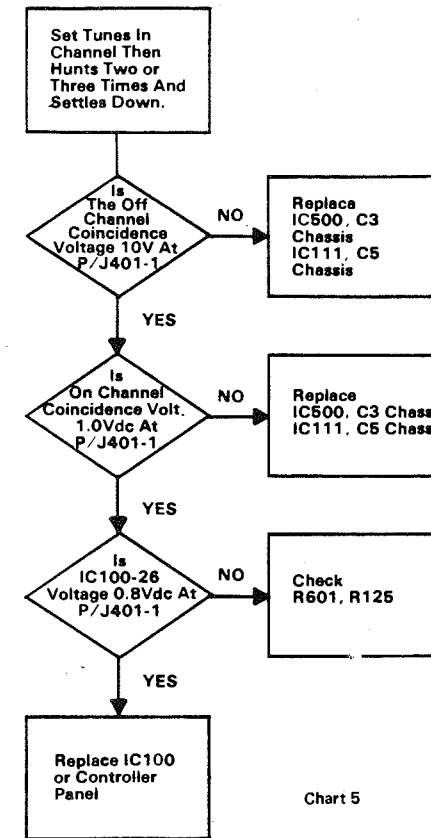


Chart 5

Courtesy of the Manufacturer

TS6 TROUBLESHOOTING CHARTS

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

Remove knobs from cabinet screws holding cabinet back. Disconnect HV anode, CRT yoke connectors, degaussing speaker connectors and ground four screws holding tuners assembly to cabinet front assembly from cabinet. Channel plate for servicing. Remove picture control assembly to remove assembly from cabinet.

SERVICING IN THE FIELD

CRT IMPLOSION PROTECTION AND

Implosion protection is a safety feature. The picture tube, cleaning out CRT removal.

FUSE DEVICES

A 2-amp fuse is used for (See photo, Cabinet-Rear View).

LAMP ACCESSIBILITY

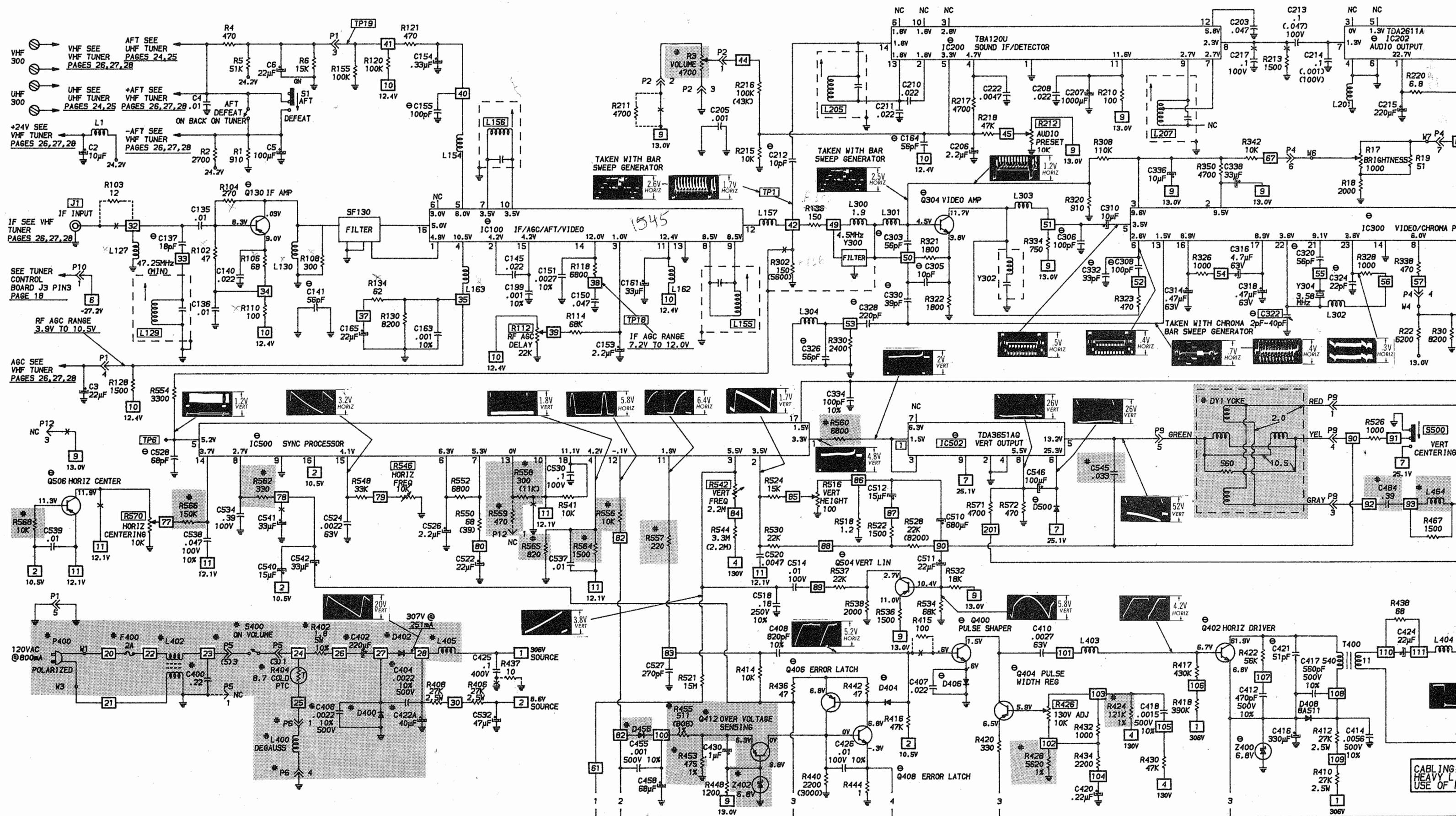
Tuner assembly must be removed by instructions.

UHF AND VHF TUNERS

The UHF and VHF tuners employ a channel selection accomplished by adjusting the controls.

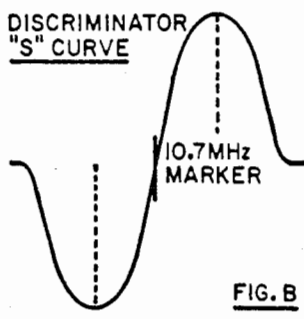
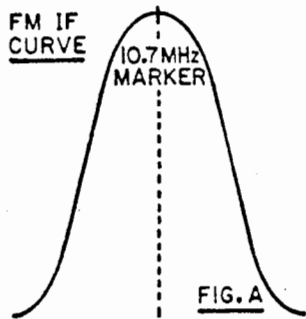
HORIZONTAL OSCILLATOR

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



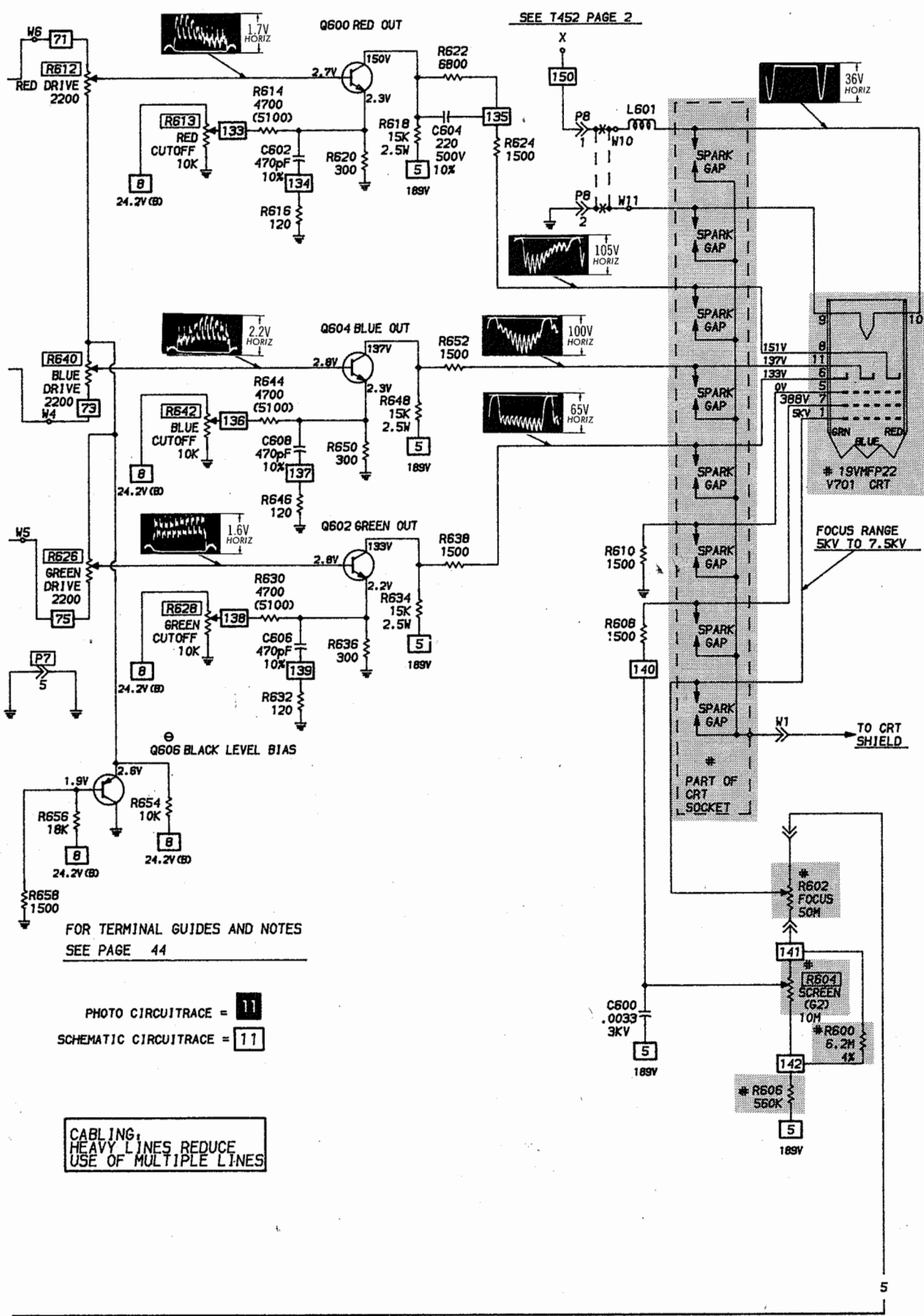
FM Alignment Procedure

Step	Tuning Indicator Setting	Hook-Up and Procedure	Generator Frequency	Adjust	Adjust For
Switch receiver On. Select FM function.					
1	Near min. capacity at point of no interference.	Sweep generator to lead-end of R15 using chassis bracket as ground point. Use a .04 blocking capacitor. Short-out antenna terminals on board. Connect demodulator probe to lead-end of R21. Adjust generatout output level until grass just appears on sweep output curve.	10.7MHz sweep and marker	T1 T2	Maximum gain and symmetry. Center marker on curve. See Fig. A.
2			Sweep generator connected as stated above. Remove demodulation probe. Low capacity probe connected to lead end of R31. Adjust generator output so that the vertical deflection of the finished "S" curve is the same amplitude as that of the FM IF curve.	T4 T5	Symmetrical "S" curve with centered marker. See Fig. B.
3	Minimum Capacity	Remove shorting clip from FM antenna input pins on tuner. Sweep generator to FM antenna terminals. Connect scope probe to lead side of R31.	108.5MHz-400Hz 30% modulation	CT2	Correct dial calibration
4	Maximum Capacity			CT1	Maximum gain
5			87.5MHz-400Hz 30% modulation	L5	Correct dial calibration
6				L2	Maximum gain
Reduce signal input and repeat steps 3 through 6 for maximum sensitivity and correct dial calibration.					
When correctly aligned, this receiver will tune through 87.5MHz and 108.5MHz.					



Courtesy of the Manufacturer

RADIO FM ALIGNMENT



A PHOTOFAC STANDARD NOTATION SCHEMATIC
WITH **CIRCUITRACE**
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SAFETY PRECAUTIONS

Safety Checks

After the original service problem has been corrected, a complete safety check should be made. Be sure to check over the entire set, not just the areas where you have worked. Some previous servicer may have left an unsafe condition, which could be unknowingly passed on to your customer. Be sure to check all of the following:

Fire and Shock Hazard

- 1. Be sure all components are positioned in such a way as to avoid possibility of adjacent component shorts. This is especially important on those chassis which are transported to and from the service shop.
- 2. Never release a repaired receiver unless all protective devices such as insulators, barriers, covers, strain reliefs, and other hardware have been installed according to the original design.
- 3. Soldering and wiring must be inspected to uncover possible cold solder joints, solder splashes, or sharp solder points, frayed leads, pinched leads, or damaged insulation (including ac cord). Be certain to remove loose solder balls and all other loose foreign particles.
- 4. Check across-the-line components and other components for physical evidence of damage or deterioration and replace if necessary. Follow original layout, lead length and dress.
- 5. No lead or component should touch a receiving tube or a resistor rated at 1 watt or more. Lead tension around protruding metal surfaces or edges must be avoided.
- 6. All critical components (shaded gray on the schematic diagrams and parts lists) such as: fuses, flameproof resistors, capacitors, transformers, etc., should be replaced with exact manufacturer's parts listed in the service information to avoid hazards caused by improper parts. Do not use replacement components other than those specified or make unrecommended circuit modifications.
- 7. When servicing any receiver, always use a separate isolation transformer for the chassis. Failure to use a separate isolation transformer may expose you to possible shock hazard, and may cause damage to servicing instruments.
- 8. Many receivers use a polarized line cord (one wide pin on the plug). Defeating this safety device may create a potential hazard to the servicer and the user. Extension cords which do not incorporate the polarizing feature should never be used.
- 9. After re-assembly of the set, always perform an ac leakage test, or resistance test from the line cord to all exposed metal parts of the cabinet. Also, check all metal control shafts (with knobs removed), antenna terminals, handles, screws, etc., to be sure the set is safe to operate without danger of electrical shock.

Courtesy of the Manufacturer

Implosion

- 1. All picture tubes used in current model receivers are equipped with an integral implosion system.

Care should always be used, and safety glasses worn, whenever handling any picture tube. Avoid scratching or other damage during installation.
- 2. Use only replacement tubes as specified by the manufacturer.

X-radiation

- 1. Be sure procedures and instructions to all your service personnel cover the subject of X-radiation. Potential sources of X-rays in TV receivers are the picture tube and the high voltage circuits. The basic precaution which must be exercised is to keep the HV at the factory recommended level.
- 2. To avoid possible exposure to X-radiation and electrical shock only the manufacturer's specified anode connectors must be used.
- 3. It is essential that the service technician has available at all times an accurate HV meter. The calibration of this meter should be checked periodically against a reference standard.
- 4. When the HV circuitry is operating properly there is no possibility of a X-radiation problem. High voltage should always be kept at the manufacturer's rated value — no higher — for optimum performance. Every time a color set is serviced, the brightness should be run up and down while monitoring the HV with a meter to be certain that the HV does not exceed the specified value and that it is regulated correctly.

We suggest that you and your service technicians review test procedures so that HV and HV regulation are always checked as a standard servicing procedure, and the reason for this prudent routine be clearly understood by everyone. It is important to use an accurate and reliable HV meter. It is recommended that the HV reading be recorded on each customers' invoice, which will demonstrate a proper concern for the customers' safety.

- 5. When troubleshooting and making test measurements in a receiver with a problem of excessive high voltage, reduce the line voltage by means of a Variac to bring the HV into acceptable limits while troubleshooting. Do not operate the chassis longer than necessary to locate the cause of the excessive HV.
- 6. New type picture tubes are specifically designed to withstand higher operating voltages without creating undesirable X-radiation. It is strongly recommended that any shop test fixture which is to be used with the new higher voltage chassis be equipped with one of the new type tubes designed for this service. Addition of a permanently connected HV meter to the shop test fixture is advisable. The CRT types used in these new sets should never be replaced with any other types as that may result in excessive X-radiation.

RADIO CHASSIS SERVICE ADJUSTMENTS

Removal Procedures

AM/FM Radio Removal Procedures

- 1. Remove the three (3) knobs from the front of the cabinet.
 - a) Tuning
 - b) Bandswitch - AM/FM
 - c) Volume
- 2. Disconnect plastic connector going from radio to Tuner Cluster of TV (Power and Speaker connections).
- 3. Disconnect FM Antenna ribbon wire.
- 4. Remove from left hand side of TV cabinet, a screw

securing the radio chassis support bracket to the side panel of TV chassis.
5. Lastly, remove the three (3) screws on the radio dial assembly bracket that secure the radio chassis to the TV cabinet mask.

Light Box Removal Procedure

Depress light box from the sides and lift out. These dial lamps are rated at 6V, 30mA.

To replace light box be sure the ridge of the box is facing the three (3) knobs. Box will snap in easily with minimum effort.

Alignment Procedure

Maintain line at 120V, 60Hz during alignment.

Volume Control must be set at minimum.

A 24 ohm, 1W, non-inductive amplifier output lead is required.

AM:
AM signal generator capable of 400Hz, 30% modulated accurate signals from 455kHz to 1620kHz.

General purpose scope (preferred) or AC meter.

FM:
Sweep generator capable of accurate 86.5MHz to 109.5MHz signal and 10.7MHz marker.

General purpose scope, detector and low capacitor probes.

AM Alignment Procedure

Step	Tuning Indicator Setting	Hook-Up and Procedure	Generator Frequency	Adjust	Adjust For	
Switch receiver On. Select AM function.						
1	Off-Station	Radiate signal to tuner. Scope at lead-end of R33.	455kHz-400Hz 30% modulation	T3 T6	Maximum gain	
Reduce signal level and repeat for maximum gain.						
2	Minimum Capacity		1620kHz-400Hz 30% modulation	CT4	Correct dial calibration	
3				CT3	Maximum gain	
4	Maximum Capacity		530kHz-400Hz 30% modulation	L7	Correct dial calibration	
5				L6	Maximum gain	
Reduce signal strength and repeat steps 2 through 5 for maximum sensitivity and correct dial calibration.						
When correctly aligned, this receiver should tune through a signal at 540kHz and 1620kHz.						

Courtesy of the Manufacturer

RADIO AM ALIGNMENT

RADIO CHASSIS 7044780003
REPLACEMENT PARTS LIST

Ref.	Description	Part No.	Ref.	Description	Part No.
Capacitors (All Ceramic, 50V unless otherwise specified.)			Resistors (Continued)		
C1	470pF., 150V		R24	6.8k	
C2	470pF., 150V		R25	47k	
C3	15pF., 50V		R26	1k	
C4	.001		R27	1k	
C5	.001		R28	5.6k	
C6	.001		R29	5.6k	
C7	.02		R30	150k	
C8	.02		R31	4.7k	
C9	18pF.		R32	6.8k	
C10	2pF., 50V		R33	1k	
C11	350pF.		R34	68k	
C12	3pF., 50V		R35	330k	
C13	30pF., 50V		R36	1k	
C14	.001		R37	120k	
C15	5pF., 50V		R38	82 ohm	
C16	82pF.		R39	15k	
C17	15pF., 50V		R40	4.7k	
C18	.005		R41	1k	
C19	.01		R42	1k	
C20	820pF.		R43	330 ohm	
C21	.001		R44	1 ohm, 1/2W	
C22	.02		R45	1 ohm, 1/2W	
C24	100pF.		R46	100 ohm	
C25	.02		R47	1k	
C26	.01		R48	220 ohm	
C27	.02		R49	1 megohm, 10%, 1/2W	
C28	.02		R50	1 megohm, 10%, 1/2W	
C29	.02		R51	330 ohm	
C30	.01		R52	120k	
C31	.02		Coils & Transformers		
C32	4.7μF., 10V, Electrolytic	0032477046	L1	Coil - FM Antenna	0070577002
C33	.02		L2	Coil - FM Interstage	0067591004
C34	220μF., 10V, Electrolytic	0032477038	L3	Coil - 1μH	0067592005
C35	4.7μF., 10V, Electrolytic	0032477046	L4	Ferrite Rod - AM Antenna	0055805001
C36	300pF.		L5	Coil - FM Antenna	0067591006
C37	300pF.		L6	Coil - AM Antenna	0069250052
C38	.005		L7	Coil - AM Oscillator	0069927028
C39	.002		T1	Transformer - 1st FM IF	0069723002
C40	.02		T2	Transformer - 2nd FM IF	0069723009
C41	.01		T3	Transformer - 1st AM IF	0069722033
C42	1μF., 10V, Electrolytic	0067050030	T4	Transformer - Ratio Detector Primary	0069713018
C43	100μF., 25V		T5	Transformer - Ratio Detector Secondary	0069713019
C44	100μF., 10V, Electrolytic	0067050018	T6	Transformer - 2nd AM IF	0069722033
C45	47μF., 10V, Electrolytic	0032477036	T301	Power Transformer	0075917001
C46	47μF., 10V, Electrolytic	0032477036	Semiconductors - Diodes		
C47	100pF.		D1	Diode - Detector, CDG00	0022017500
C48	1000μF., 16V, Electrolytic	0010833062	D2	Diode - AFC, FV-1043	53W0012
C49	.02		D3	Diode - 1N60	1N60
C50	.02		D4	Diode - CDG24	0014094072
C51	.02		D5	Diode - CDG24	0014094072
C52	220μF., 16V, Electrolytic	0032477038	D6	Diode - Detector, CDG00	0022017500
C54	820pF.		D7	Diode - 1N60	1N60
C55	470pF., 150V		D8	Diode - 1N60	1N60
C56	470pF., 150V		D9	Diode - Detector, CDG00	0022017500
C57	.001		D10	Diode - Rectifier	0014094073
C58	.02		D11	Diode - Rectifier	0014094073
CV1-4	Tuning Gang	0067530009	D12	Diode - 1N60	1N60
CT1-4	Tuning Gang	0067530009	D13	Diode - 1N4148	0022017508
Resistors (All 5%, 1/4W, unless otherwise specified.)			Semiconductor - Transistors		
R1	3.3 megohm, 10%, 1/2W		Q1	FM RF Amp - 1502C	1502D
R2	3.3 megohm, 10%, 1/2W		Q2	FM Converter - 1502D	1502E
R3	390 ohm		Q3	1st FM Amp AM Converter - 1502E	1502E
R4	1k		Q4	1st AM 2nd FM Amp - 1502D	1502E
R5	120 ohm		Q5	2nd AM 3rd FM Amp - 1502E	1502E
R6	680 ohm		Q6	Preamp - 1602E	0023708005
R7	1k		Q7	Driver - 1402E	ED1402E
R8	120 ohm		Q8	Power Output - 1702M	0023510003
R9	100 ohm		Q9	Power Output - 1802M	0023511004
R10	120k		Miscellaneous		
R11	47k		S201	Bandswitch	0073048002
R12	1k			Connector - 3 Circuit	0010302032
R13	3.9k			Dial - Cord Pulley	0069809001
R14	470 ohm			Dial - Drum	0076200002
R15	15k			Dial - Lamp, 6V - 30mA	0074232002
R16	100 ohm			Dial - Light Box	0075831001
R17	100 ohm			Dial - Pointer	0075827005
R18	1.5k			Dial - Pointer Carriage	0075827004
R19	1k			Dial - Spring	0068890002
R20	220 ohm			P.V.C. Sleeve	0067537009
R21	560 ohm				
R22	1.2k				
R23	330 ohm				

WARNING

For continued safety of this product, parts highlighted by shading in the parts lists in this manual should be used as replacements for those parts highlighted in the schematic diagrams in this service manual. Use of substitute replacement parts which do not have the same specified safety characteristics may create shock, fire or other hazards.

For maximum reliability and performance, all other parts should be replaced by those having identical specifications.

Under no circumstances should the original design be modified or altered without written permission from the N.A.P. Consumer Electronics Corp. NAPCEC assumes no liability, express or implied, arising out of any unauthorized modification of design.

Courtesy of the Manufacturer

RADIO PARTS LIST

SAFETY PRECAUTIONS (Continued)

- It is essential to use the specified picture tube to avoid a possible X-radiation problem.
- Most TV receivers contain some type of emergency "Hold Down" circuit to prevent HV from rising to excessive levels in the presence of a failure mode. These various circuits should be understood by all technicians servicing them, especially since many hold down circuits are inoperative as long as the receiver performs normally.

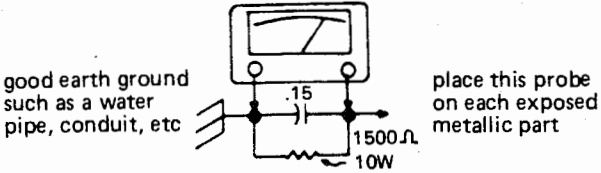
Leakage Current Cold Check

- Unplug the ac line cord and connect a jumper between the two prongs of the plug.
- Turn on the power switch.
- Measure the resistance value between the jumpered ac plug and all exposed metallic cabinet parts of the receiver, such as screwheads, antennas and control shafts. When the exposed metallic part has a return path to the chassis, the reading should be between 1 megohm and 5.2 megohms. When the exposed metal does not have a return path to the chassis, the reading must be infinity. Remove the jumper from ac line cord.

Leakage Current Hot Check

- Do not use an isolation transformer for this test. Plug the completely re-assembled receiver directly into the ac outlet.
- Connect a 1.5k ohm, 10 watt resistor paralleled by a 0.15 mfd. capacitor between each exposed metallic cabinet part and a good earth ground such as a water pipe, as shown in Figure 1.
- Use an ac voltmeter with at least 5000 ohms/volt sensitivity to measure the potential across the resistor.
- The potential at any point should not exceed 0.75 volts. A leakage current tester may be used to make this test; leakage current must not exceed 0.5 milliamps. If a measurement is outside the limits specified, there is a possibility of shock hazard. The receiver should be repaired and re-checked before returning it to the customer.
- Repeat the above procedure with the ac plug reversed. (Note: An ac adapter is necessary when a polarized plug is used. Do not defeat the polarizing feature of the plug.)

AC Voltmeter



Courtesy of the Manufacturer

MAGNAVOX CHASSIS
19C301 THRU 19C314, 7044780003

FOLDER 2

TEST EQUIPMENT

Test Equipment listed by Manufacturer illustrates typical or equivalent equipment used by SAMS' Engineers to obtain measurements and is compatible with most types used by field service technicians.

TEST EQUIPMENT (TV)

Equipment Name	B & K Precision Equipment No.	Simpson Equipment No.		
OSCILLOSCOPE	1560	454		
GENERATORS				
BAR SWEEP				
COLOR BAR	1211A,1248,1251,1260	431		
SWEEP/MARKER				
ANALOG VOM	277	260-7		
DIGITAL VOM	2830	463,467,470,474		
FREQUENCY METER	1803,1805	710		
HI-VOLTAGE PROBE	HV-44	248		
ISOLATION TRANSFORMER	TR110,1604,1653,1655			
CAPACITANCE ANALYZER	820			
INDUCTANCE ANALYZER				

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
C322.....5000
R112, R212, R301, R426, R500, R542, R546, R570.....8606, 8606L, 8869

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.
Disconnect Plug at J1.
Connect a +7.4V Bias to TP18. (Junction R118 and C150)

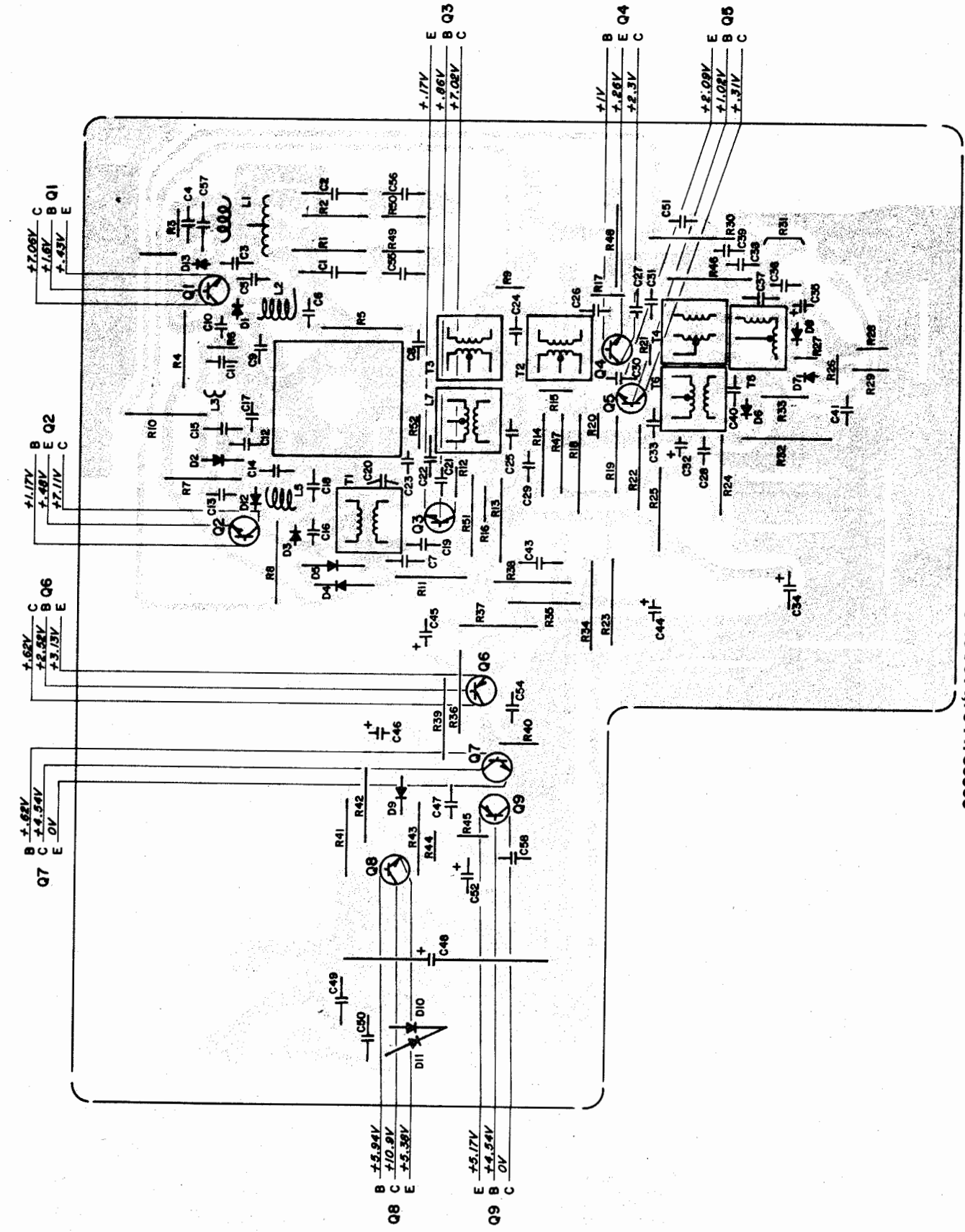
VIDEO IF ALIGNMENT (SWEEP MARKER GENERATOR)

DIRECT PROBE FROM SWEEP/MARKER GENERATOR	SWEEP GENERATOR OUTPUT	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	REMARKS
To TP1	To J1	44MHz (10MHz Sweep)	47.25MHz	Adjust L129 for MINIMUM. See Figure 1.
"	"	"	45.75MHz	Adjust L155 to position the 45.75MHz marker as high as possible on the response curve without lowering the amplitude of the response curve. NOTE: Reconnect Plug at J1. See Figure 2.

VIDEO IF ALIGNMENT (BAR SWEEP GENERATOR)

BAR SWEEP GENERATOR	SCOPE INPUT	REMARKS
To Antenna Terminals	To TP1	Perform Video IF Adjustments per SWEEP/MARKER GENERATOR instructions above. See Figure 3.

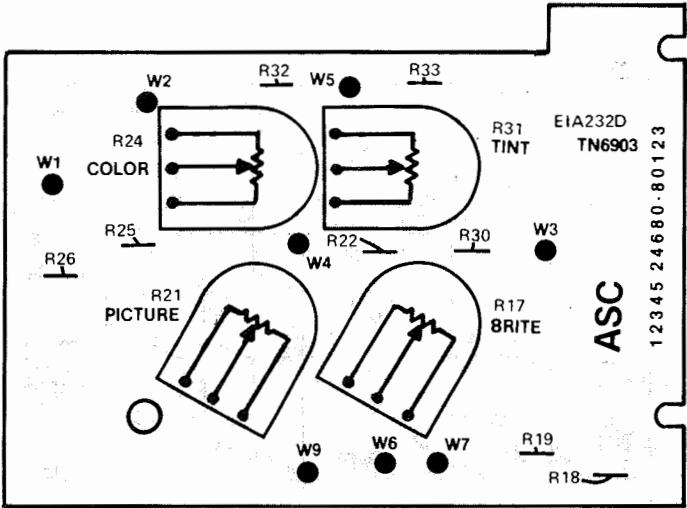
RADIO CHASSIS 7044780003 P.C. BOARD
(Component Side Shown)



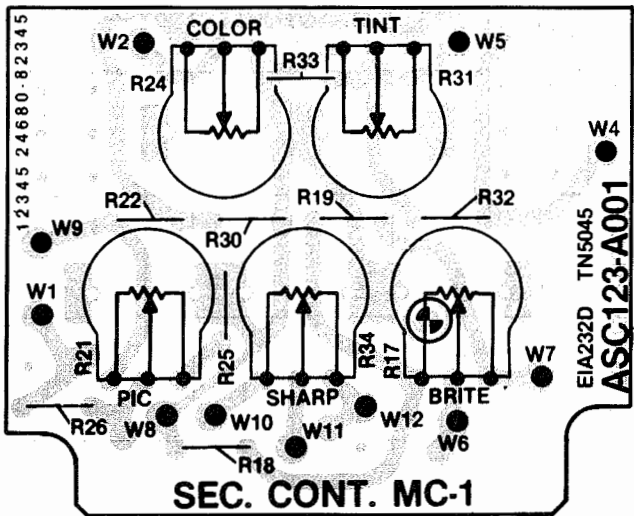
ASC067-A001, ASC123-A001, & ASC148-A001
SECONDARY CONTROL BOARD ASSEMBLY
REPLACEMENT PARTS LIST

Ref.	Description	Part No.	Ref.	Description	Part No.
Resistors			Controls (Continued)		
R18	Carbon Film, 2 kilohm, 5%, ¼W	2302732025	R31	Tint Control, 200 kilohm	2204130024
R19	Carbon Film, 51 ohm, 5%, ¼W	2302735105	R34	Sharpness Control, 10 kilohm (ASC123 & ASC148 only)	2204130022
R22	Carbon Film, 6.2 kilohm, 5%, ¼W	2302736225			
R25	Carbon Film, 1 kilohm, 5%, ¼W	2302731025			
R26	Carbon Film, 18 kilohm, 5%, ¼W	2302731835	Miscellaneous		
R30	Carbon Film, 8.2 kilohm, 5%, ¼W	2302738225	P4	9 Pin Square Wire Connector w/contacts (ASC067 only)	1815290009
R32	Carbon Film, 100 kilohm, 5%, ¼W	2302731045	P4	9 Pin Square Wire Connector w/contacts (ASC123 & ASC148 only)	1817140309
R33	Carbon Film, 100 kilohm, 5%, ¼W	2302731045			
Controls					
R17	Brightness Control, 1 kilohm	2204130022	P11	4 Pin Square Wire Connector w/contacts (ASC123 & ASC148 only)	1817140404
R21	Picture Control, 5 kilohm	2204130021			
R24	Color Control, 20 kilohm	2204130023			

ASC067-A001 SECONDARY CONTROL BOARD OVERLAY
(VIEWED FROM THE COMPONENT SIDE)



ASC123-A001 SECONDARY CONTROL BOARD OVERLAY
(VIEWED FROM THE COMPONENT SIDE)



Courtesy of the Manufacturer

TV ALIGNMENT INSTRUCTIONS (Continued)

SOUND IF ALIGNMENT

Tune in a station and adjust L205 and L207 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 L205.

AUTOMATIC FINE TUNING ALIGNMENT

Connect as explained in preliminary instructions unless specified otherwise.

DIRECT PROBE FROM SWEEP/MARKER GENERATOR	SWEEP GENERATOR OUTPUT	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	REMARKS
To TP19 (Pin 3 - P1 Plug)	To J1	44MHz (10MHz Sweep)	45.75MHz	Adjust L156 for Maximum gain and symmetry of response. See Figure 4

NOTE: Reconnect Plug at J1.

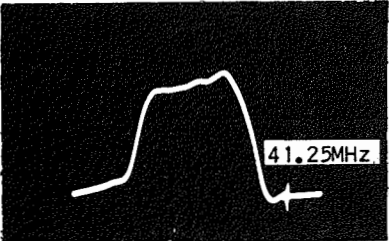


Figure 1

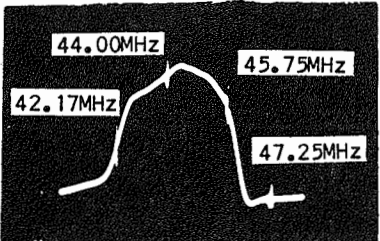


Figure 2



Figure 3

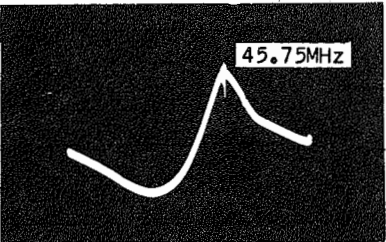
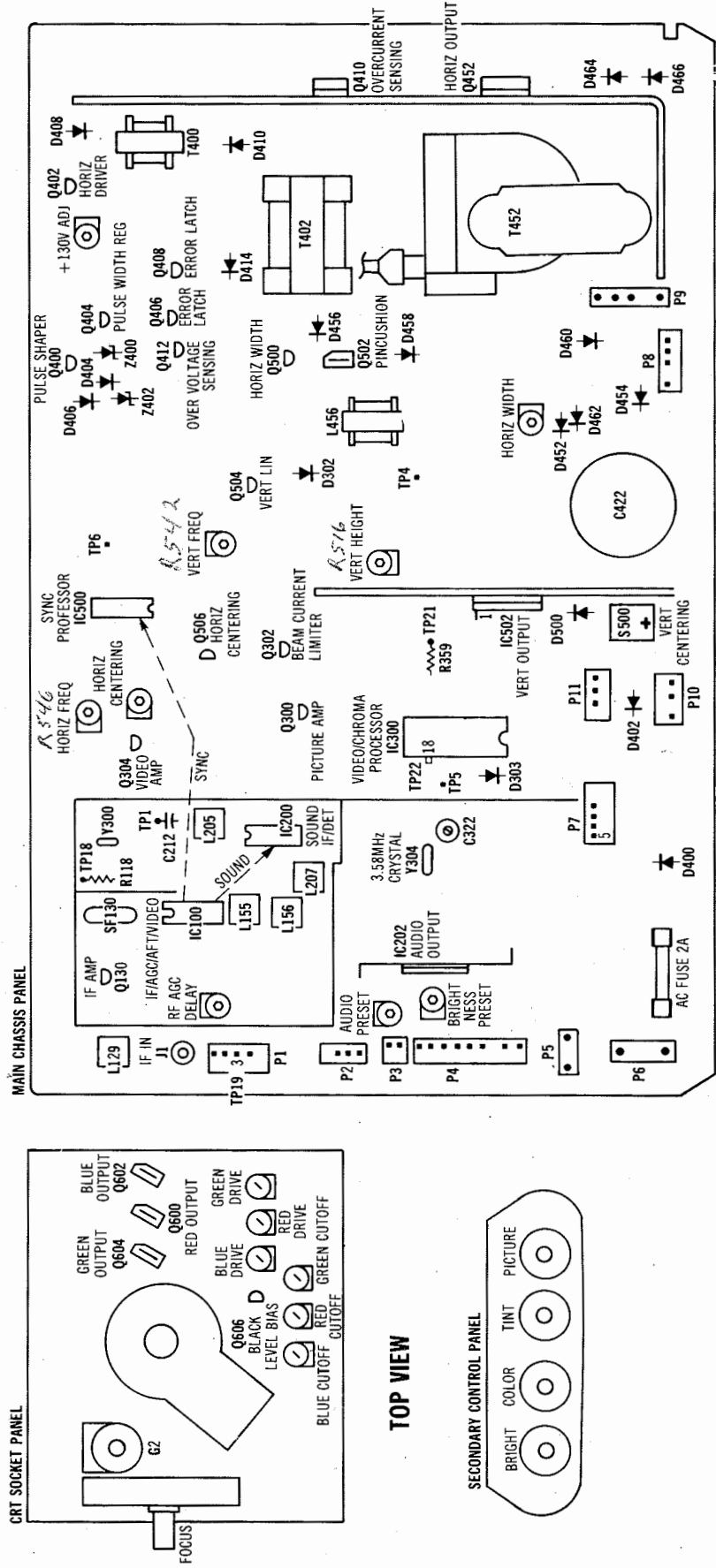


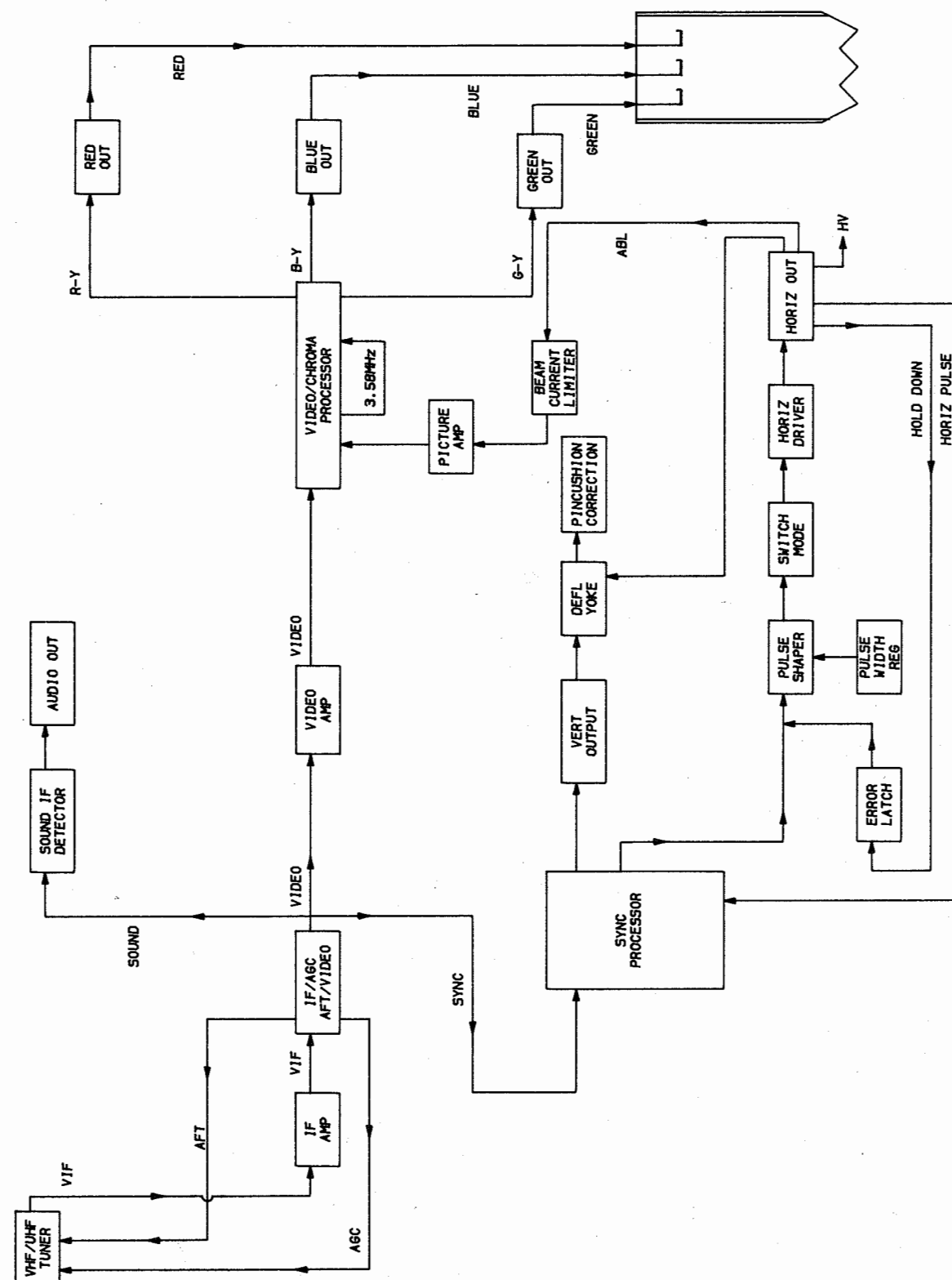
Figure 4

PLACEMENT CHART



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	
IC100	11K	9780	74K	1590	52K	INF	INF	2340	2340	INF	290	758	0	INF	
													PIN 15	PIN 16	
													9780	11K	
IC200	0	100K	INF	12K	7010	920	INF	INF	INF	913	390	6600	104K	100K	
IC202	9310	4630	INF	0	INF	0	INF	4630	62						
IC300	287	14K	9660	9850	14K	INF	16K	3430	5940	1340	5850	INF	5500	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	
	474K	INF	INF	INF	INF	2170	INF	INF	INF	30K	INF	1410	1292	1215	
IC500	9020	15K	INF	557	4080	INF	INF	INF	0	297	INF	10K	303	153K	
											PIN 15	PIN 16	PIN 17	PIN 18	
											41K	INF	10K	10K	
IC502	16K	0	16K	0	60K	INF	INF	473	INF						
V601	INF	NC	NC	1505	1505	56K	4.8M	63K	FIL	FIL	56K				
ITEM	E	B	C		ITEM	E	B	C		ITEM	E	B	C		
Q130	331	280	.3		Q406	INF	INF	3000		Q502	146K	158K	0		
Q300	220	5070	1340		Q408	1	3000	INF		Q504	1809	14K	2000		
Q302	466	263K	5070		Q410	127K	127K	INF		Q600	283	1625	55K		
Q304	1051	638	1034		Q412	477	1424	3000		Q602	269	1387	55K		
Q400	2M	INF	INF		Q452	0	2.8	122K		Q604	240	1400	55K		
Q402	INF	INF	INF		Q500	0	66K	158K		Q606	1367	1424	0		
Q404	INF	7890	INF												



BLOCK DIAGRAM

MISCELLANEOUS ADJUSTMENTS

RF AGC DELAY

Tune in a weak station, or loosely couple the antenna to obtain a snowy picture. Set RF AGC Delay Control (R112) fully clockwise. Slowly turn RF AGC Delay Control counterclockwise to a point slightly beyond MINIMUM snow.

AUDIO PRESET ADJUSTMENT

Set volume control and Audio Preset Control (R212) to MINIMUM. Adjust Audio Preset Control clockwise to a point where sound or noise can just be heard.

B+ ADJUSTMENT

Use an Isolation Transformer for this adjustment. Adjust Isolation Transformer for 120V AC. Connect a DC meter to TP4, low side to ground. Adjust 130 Volt Control (R426) for +130V DC $\pm 1V$ DC.

3.58MHz OSCILLATOR ADJUSTMENT

Connect a color bar generator to the antenna terminals and tune in a color bar pattern. Set Color and Tint Controls to midrange. Connect a jumper from TP22 (Pin 18 IC300) to TP21 (+12V source). Connect a jumper from TP5 (Pin 20 IC300) to ground. Adjust 3.58MHz Oscillator (C322) until colors stop or slowly drift.

HORIZONTAL OSCILLATOR ADJUSTMENT

Tune in a picture and connect a jumper from TP6 to ground. Adjust Horizontal Frequency Control (R546) until picture stops or slowly drifts. Remove jumper from TP6 and check for lock-in on all channels.

HORIZONTAL AND VERTICAL CENTERING

Connect a color bar generator to the antenna terminals and tune in a crosshatch pattern. Adjust Horizontal Centering Control (R570) for proper horizontal centering. Adjust Vertical Centering Switch (S500) to center the cross-hatch pattern on the screen.

VERTICAL FREQUENCY ADJUSTMENT

Tune in a station and adjust for a normal picture. Adjust Vertical Frequency Control (R542) until picture locks in. Check lock-in by switching from channel to channel. If necessary readjust until proper lock-in is obtained.

CONVERGENCE ADJUSTMENTS

NOTE: Before attempting convergence adjustments, the receiver should be operated for at least 15 minutes. Connect a color bar generator to the antenna terminals and tune in a cross-hatch pattern. Spread the tabs of the 4-pole magnets to converge the red and blue vertical lines in the center of the screen, rotate the tabs to converge the red and blue horizontal lines at the center of the screen. Spread and rotate the tabs of the 6-pole magnets to converge the red and blue with the green line(s) (horizontal and vertical) at the center of the screen. Remove the rubber wedges from the picture tube. Tilt the yoke vertically and hori-

zonally to converge edges of screen. Apply adhesive to wedges and carefully replace on picture tube.

HORIZONTAL WIDTH

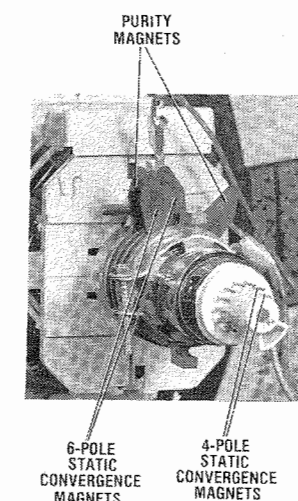
Connect a color bar generator to the antenna terminals and tune in a crosshatch pattern. Adjust Horizontal Width Control (R500) to obtain approximately 3/8 of an inch overscan on each side of the screen.

PURITY ADJUSTMENT

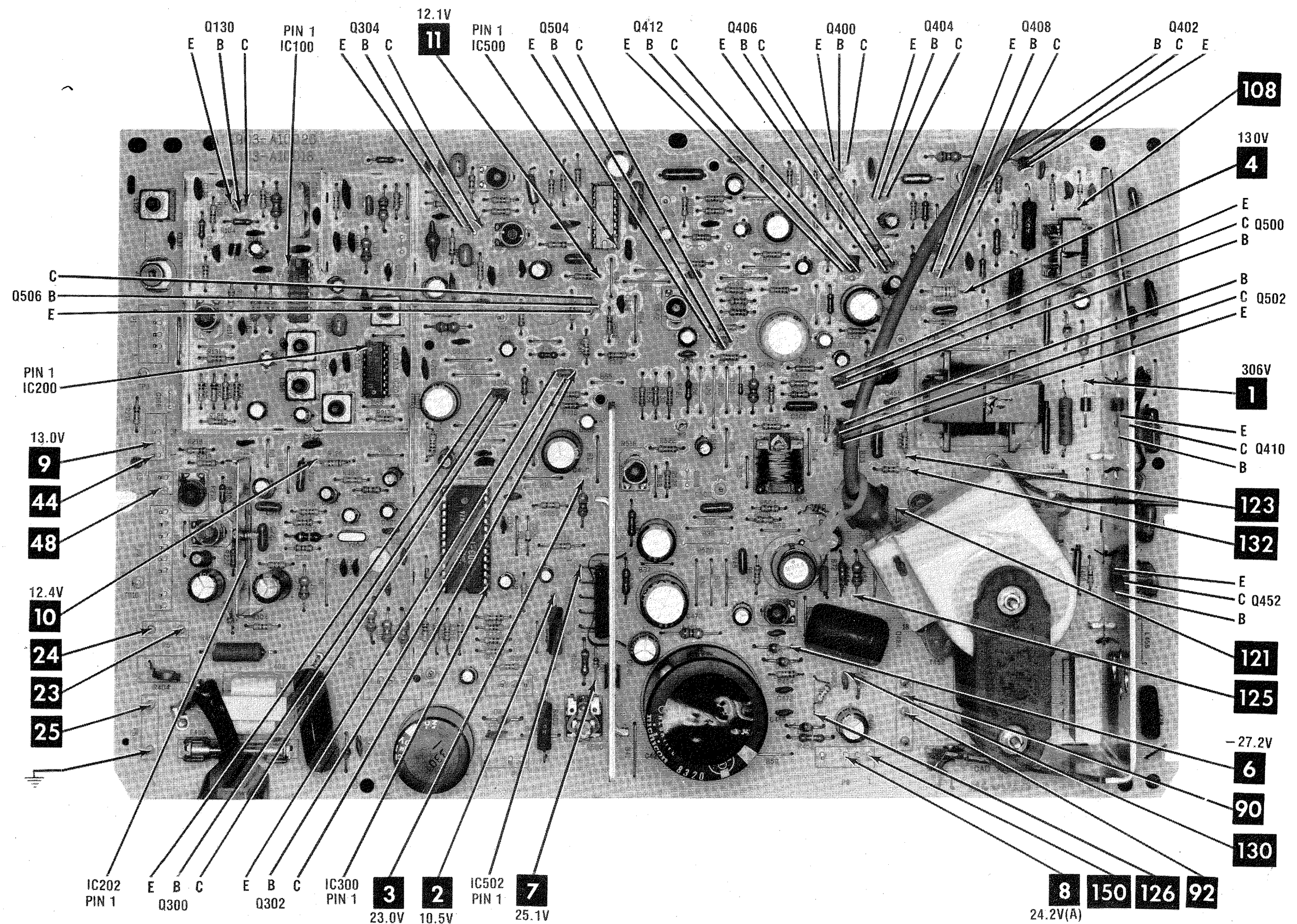
NOTE: Allow a 15 minute warm-up. Degauss the picture tube and mounting brackets. Set Picture Control to MINIMUM and adjust Brightness Control for normal brightness. Disconnect plug from J1 (IF Input) for a blank raster. Set Green (R628) and Blue (R642) Cutoff Controls fully counterclockwise to obtain a red raster. Loosen the yoke clamp and slide yoke back as close to the purity magnet as possible. Rotate and spread the purity magnet tabs until the red band is centered on the screen. Move the yoke slowly forward until a uniform red raster is obtained. Tighten yoke clamp and reconnect plug at J1 (IF Input).

COLOR TEMPERATURE ADJUSTMENT

Set channel selector to an unused channel. Set Brightness, Picture and Color Controls to MINIMUM. Set Green (R628), Red (R613), Blue (R642) Cutoff Controls and Brightness Preset (R301) to MINIMUM. Set Screen (G2) Control (R604) to MINIMUM. Set Green (R626), Red (R612) and Blue (R640) Drive Controls to Maximum. Turn set off and connect a jumper from pin 1 of IC502 to its own heatsink to collapse raster. Remove Plug P7 and reconnect so that only pin 5 is making contact. Adjust G2 Control until a dim line of one color appears. Adjust Cutoff Controls of the two missing colors to produce a low level white line. Remove jumper from IC502 and reconnect Plug P7. Tune in a picture and adjust Brightness Preset Control for a low level picture. Set Picture Control to Maximum and Brightness Control to midrange. Adjust Drive Controls for best white in highlights of the picture. Readjust Brightness Preset Control if necessary.



CRT NECK ASSEMBLY



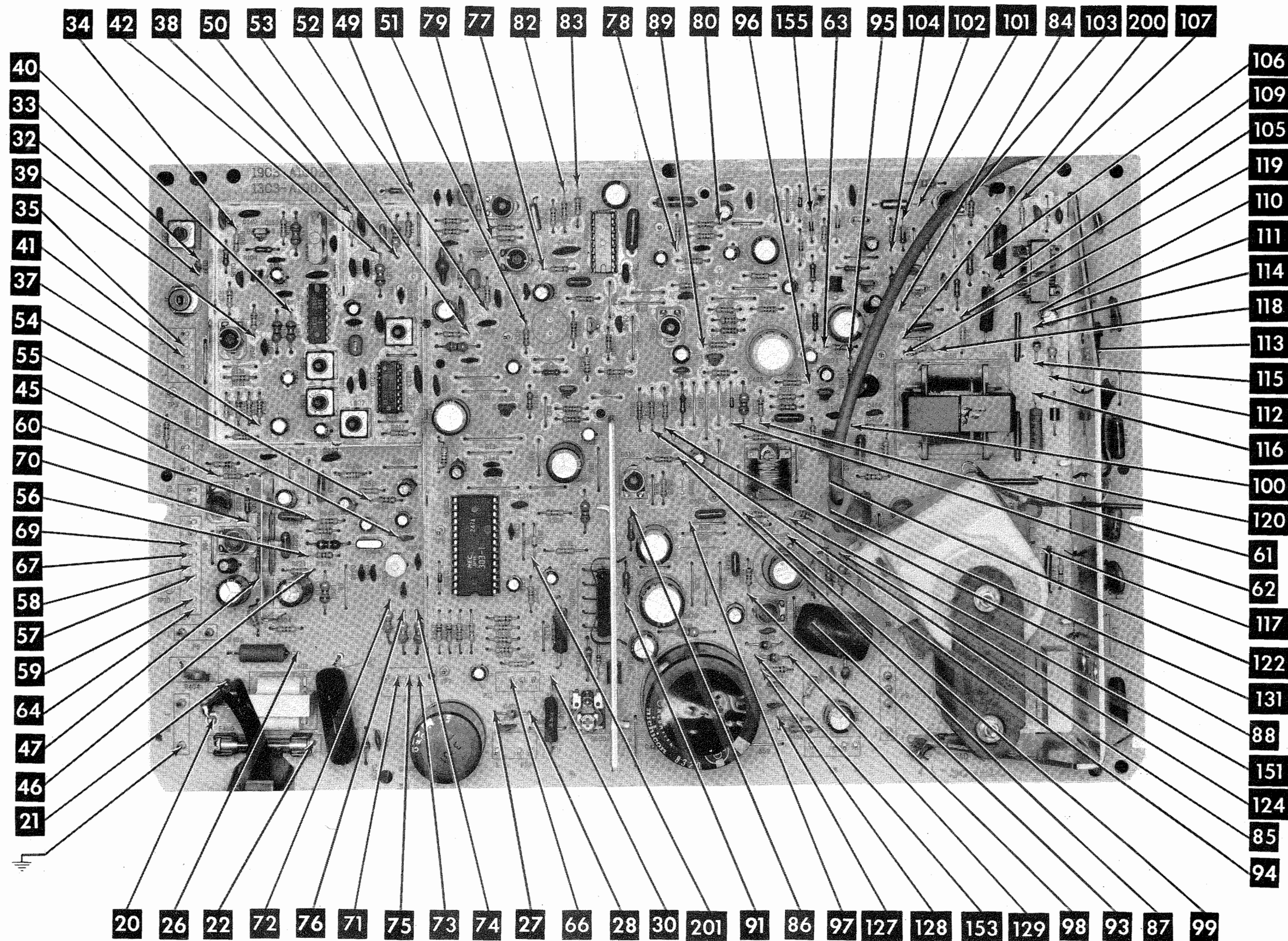
MAGNAVOX CHASSIS
19C301 THRU 19C314,7044780003

FOLDER 2

MAIN BOARD

A Howard W. Sams CIRCUITRACE® Photo

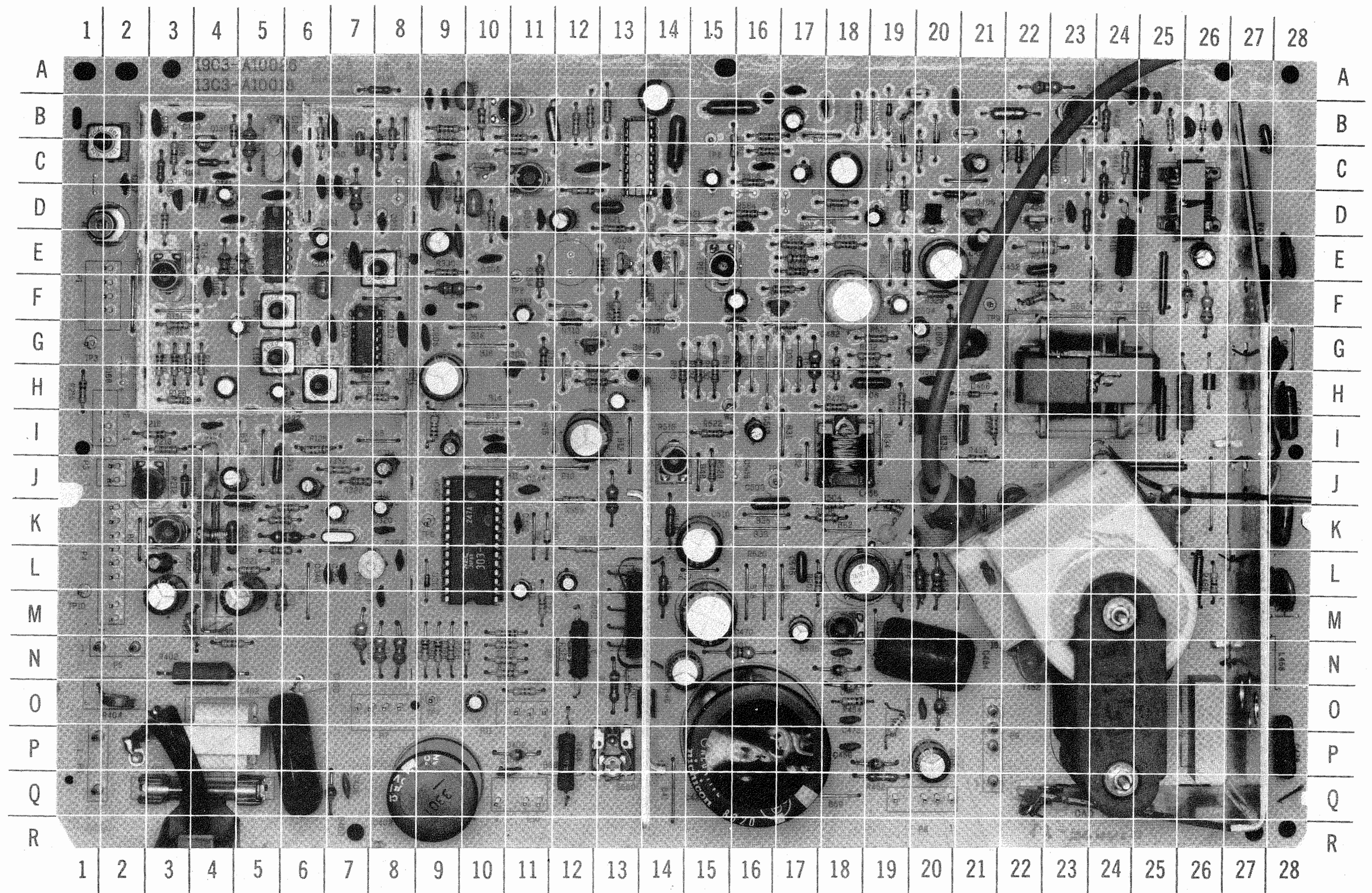
MAIN BOARD



MAIN BOARD

A Howard W. Sams CIRCUITRACE® Photo

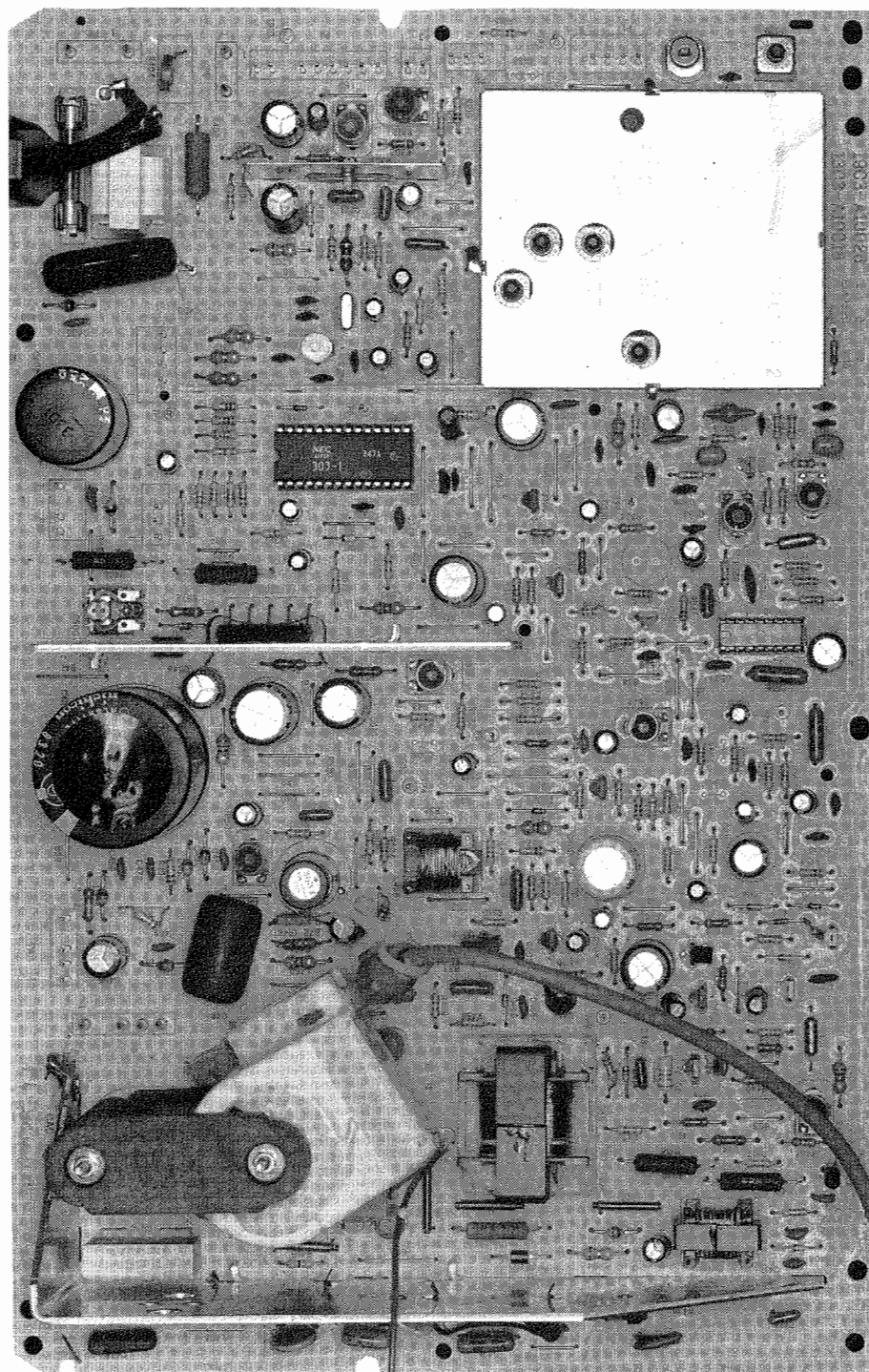
MAIN BOARD



MAIN BOARD

A Howard W. Sams GRIDTRACE™ Photo

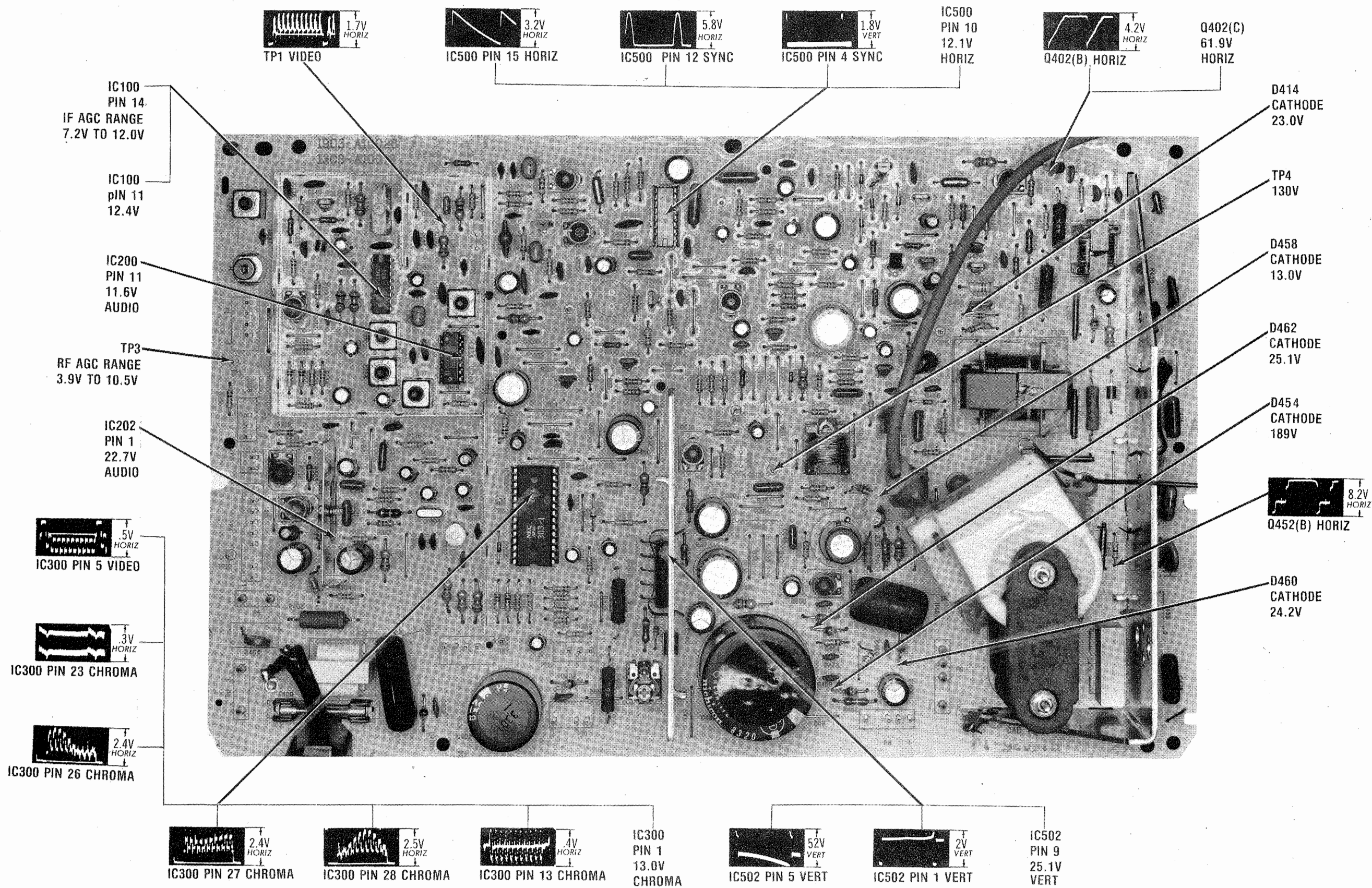
MAIN BOARD



MAIN BOARD-SHIELD LOCATION

MAIN BOARD-GridTrace LOCATION GUIDE

C135	D-3	C417	B-26	D460	Q-20	Q504	F-16	R422	B-25	SF130	C-5
C136	B-3	C418	D-23	D462	Q-18	Q506	E-13	R424	D-23	T	I-27
C137	C-2	C420	C-21	D464	P-27	R102	C-3	R426	B-23	T400	C-26
C140	B-3	C421	A-25	D466	P-27	R104	C-4	R428	C-22	T402	H-23
C141	C-4	C422A	P-16	D500	Q-13	R106	Q-3	R430	F-24	T452	L-24
C145	D-5	C422B	P-16	F400	Q-4	R108	B-4	R432	B-24	TP1	D-8
C150	B-7	C422C	P-16	FB400	H-26	R110	D-3	R434	C-22	TP4	J-16
C151	C-6	C424	E-26	FB499	Q-28	R112	E-3	R436	D-20	TP5	K-9
C153	D-4	C425	H-28	IC100	E-5	R114	E-4	R438	D-27	TP6	K-15
C154	G-4	C426	D-22	IC200	G-7	R118	B-6	R440	C-22	TP18	B-6
C155	D-4	C427	E-28	IC202	K-4	R120	G-3	R442	D-22	TP19	F-2
C159	E-6	C428	G-28	IC300	K-10	R121	G-3	R444	C-24	TP21	J-12
C160	C-7	C430	E-21	IC500	Q-13	R126	I-6	R446	G-27	TP22	K-9
C161	E-6	C432	E-22	IC502	M-13	R128	H-3	R448	E-18	Y300	C-7
C163	F-4	C434	E-20	J1	D-2	R130	G-3	R450	F-22	Y302	C-9
C164	I-4	C453	N-18	L127	D-4	R134	G-4	R452	Q-19	Y304	K-7
C165	H-4	C454	M-17	L129	B-2	R136	A-8	R453	D-19	Z400	B-20
C167	E-9	C455	H-21	L130	L-5	R155	G-3	R454	Q-18	Z402	C-19
C199	C-6	C456	P-18	L154	E-5	R210	I-9	R455	E-19	Z500	K-11
C203	G-8	C458	G-21	L155	F-5	R212	J-3	R456	Q-19		
C205	G-6	C460	I-12	L156	Q-5	R215	H-1	R458	I-21		
C206	H-5	C462	K-19	L157	D-7	R216	I-3	R460	K-19		
C207	H-9	C464	J-20	L162	F-6	R217	H-8	R462	L-21		
C208	G-9	C466	P-20	L163	E-4	R218	I-3	R464	L-20		
C210	G-7	C468	Q-20	L201	M-5	R220	M-3	R466	H-26		
C211	E-7	C470	M-15	L203	J-13	R221	L-5	R467	L-19		
C212	D-8	C472	Q-18	L205	E-8	R222	L-4	R468	L-26		
C213	J-5	C474	L-28	L207	H-6	R301	K-3	R469	I-21		
C214	J-4	C476	P-26	L300	C-8	R302	B-8	R470	H-18		
C215	M-5	C478	P-28	L301	B-9	R303	J-3	R500	M-18		
C218	J-4	C480	K-28	L302	K-6	R304	N-4	R502	L-17		
C219	L-3	C482	F-18	L303	D-10	R308	D-9	R504	K-18		
C220	M-3	C484	N-20	L304	F-9	R310	F-12	R506	K-18		
C221	K-4	C485	J-21	L308	N-7	R312	G-12	R508	H-19		
C222	I-6	C486	I-21	L310	N-8	R314	G-11	R510	H-19		
C302	H-13	C500	K-16	L312	N-8	R316	H-12	R511	Q-20		
C303	B-9	C502	H-20	L402	P-4	R318	F-14	R512	Q-19		
C305	B-9	C504	G-20	L403	A-22	R320	B-10	R514	Q-19		
C306	D-10	C506	H-19	L404	F-26	R321	B-9	R516	J-14		
C307	F-19	C510	K-15	L405	F-25	R322	B-9	R518	K-14		
C308	E-10	C511	F-16	L406	F-25	R323	D-10	R521	Q-16		
C310	F-11	C512	I-16	L408	F-27	R324	G-18	R522	L-15		
C312	L-11	C514	F-16	L452	L-26	R325	N-12	R524	H-15		
C314	J-8	C515	A-14	L454	Q-17	R326	J-7	R526	L-14		
C316	K-8	C518	B-14	L456	I-18	R327	M-11	R528	J-15		
C318	I-9	C520	D-14	L460	J-25	R328	L-5	R530	H-15		
C320	K-8	C522	B-17	L461	N-16	R329	F-20	R532	E-17		
C322	L-7	C524	B-11	L462	L-20	R330	E-9	R534	E-17		
C324	L-8	C526	C-17	L464	L-18	R334	E-11	R536	G-17		
C326	F-10	C527	A-17	P1	F-2	R336	N-11	R537	F-17		
C328	E-9	C528	C-16	P2	I-2	R338	N-11	R538	F-17		
C330	C-9	C530	D-13	P3	J-2	R340	N-11	R540	F-13		
C332	K-11	C532	D-12	P4	L-2	R342	M-11	R541	D-13		
C334	D-11	C534	B-15	P5	N-2	R344	K-5	R542	E-15		
C336	Q-10	C537	D-16	P6	P-1	R346	K-6	R544	E-22		
C338	L-12	C538	C-12	P7	Q-8	R350	Q-11	R546	B-11		
C340	J-6	C539	E-14	P8	Q-20	R352	J-7	R548	Q-11		
C342	K-7	C540	C-15	P9	P-21	R354	N-9	R550	B-16		
C344	J-11	C542	D-19	P10	Q-11	R356	N-10	R552	Q-16		
C346	L-6	C545	L-17	P11	Q-11	R358	N-9	R554	B-11		
C348	I-10	C546	N-14	Q130	B-4	R359	J-12	R555	E-13		
C350	I-10	D302	G-17	Q300	G-11	R360	N-9	R556	B-12		
C352	L-7	D303	L-9	Q302	G-12	R402	N-4	R557	B-13		
C354	M-8	D400	Q-7	Q304	C-10	R404	Q-2	R558	B-12		
C400	P-6	D402	P-11	Q400	A-20	R406	N-12	R560	H-14		
C402	Q-9	D404	B-19	Q402	A-24	R408	P-12	R562	Q-15		
C404	P-11	D406	B-19	Q404	B-21	R410	E-24	R564	D-16		
C406	Q-7	D408	B-26	Q406	D-21	R412	C-25	R565	Q-16		
C407	B-20	D410	F-26	Q408	D-22	R414	B-18	R566	D-12		
C408	B-17	D414	F-22	Q410	I-17	R415	B-19	R568	F-13		
C410	B-22	D452	N-18	Q412	D-20	R416	D-18	R570	Q-11		
C412	B-26	D454	P-19	Q452	L-27	R417	C-24	R571	L-12		
C414	B-27	D456	H-21	Q500	G-20	R418	E-24	R572	Q-13		
C416	C-18	D458	J-20	Q502	I-20	R420	C-20	S500	P-13		



NOTE: The A10028-A001 is an alternate assembly for the A10028-A002 (Quad Control Pack) only.

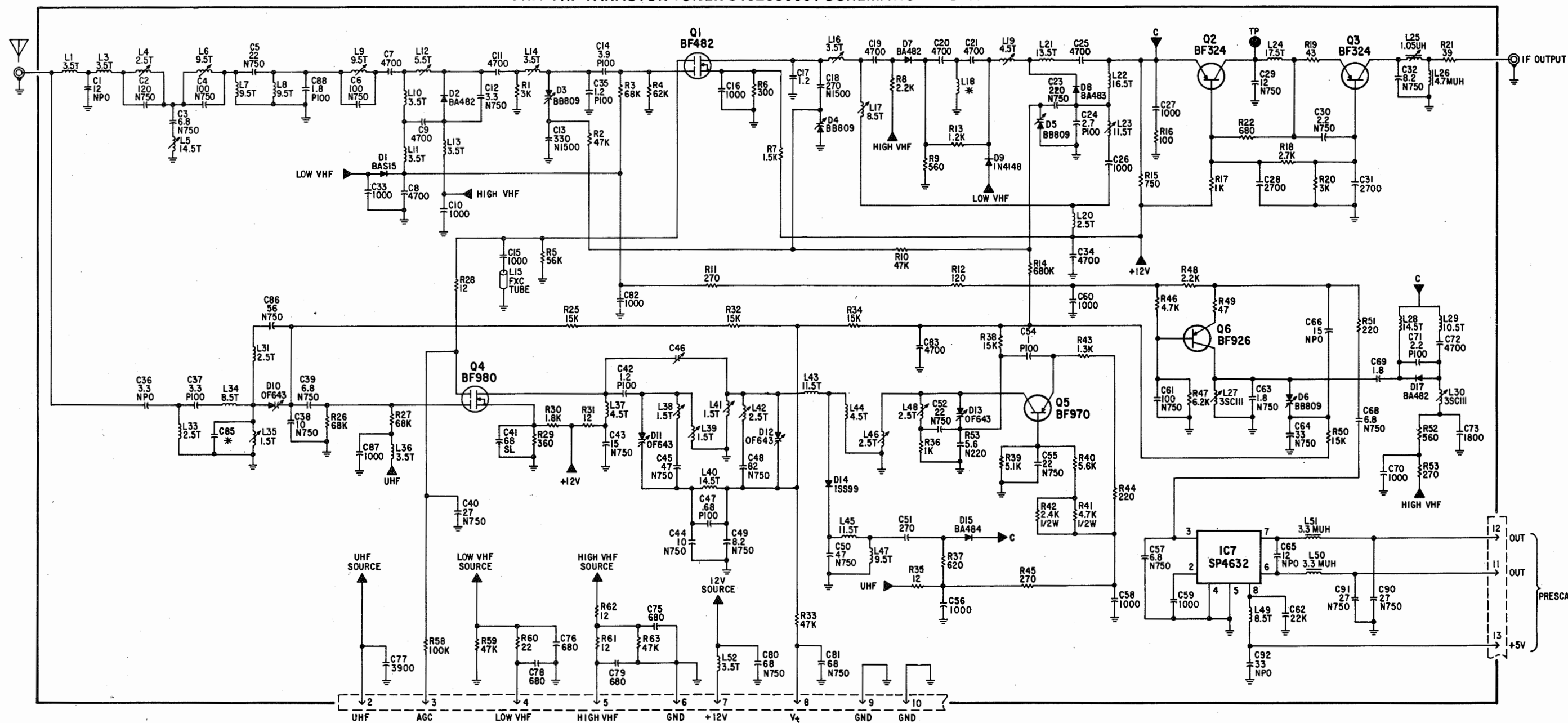


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FOLDER 2

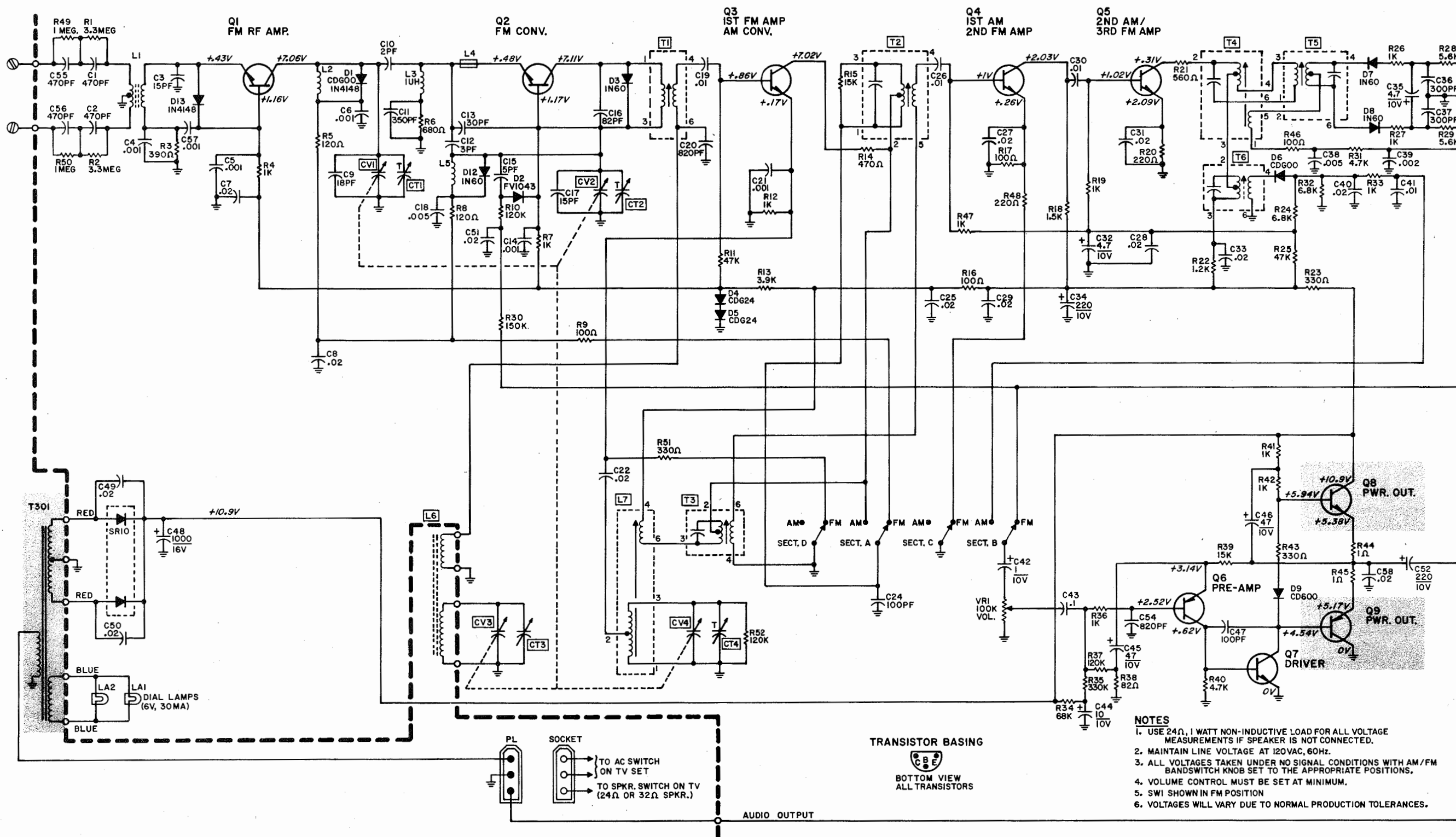
UHF/VHF VARACTOR TUNER 3402630001 SCHEMATIC DIAGRAM



MAGNAVOX CHASSIS
19C301 THRU 19C314, 704780003

NOTES:
UNLESS OTHERWISE SPECIFIED:
1. ALL RESISTORS ARE IN OHMS, 1/4W, 5%.
2. ALL CAPACITORS ARE IN PICO FARADS.
* INDICATES PRINTED ON PC BOARD.

RADIO CHASSIS 7044780003 SCHEMATIC DIAGRAM



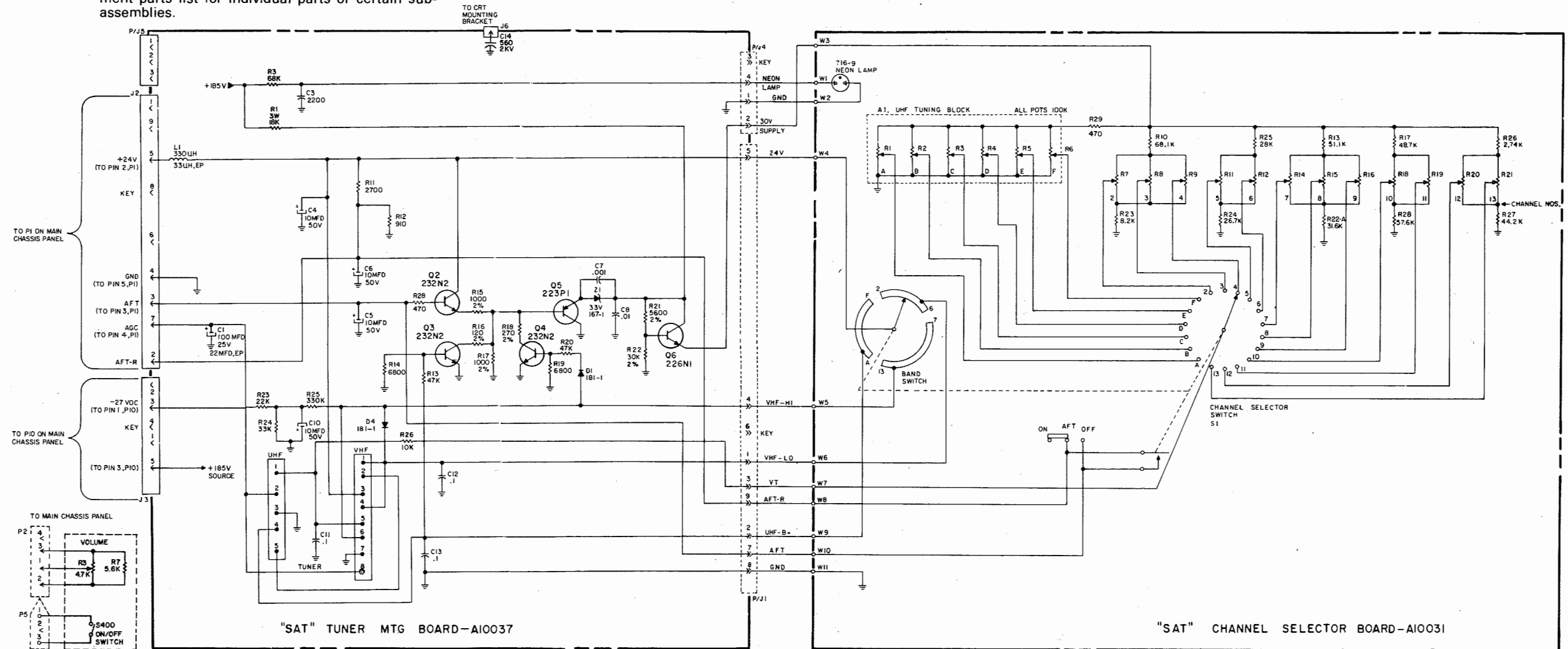
MAGNAVOX CHASSIS
 19C301 THRU 19C314, 7044780003

FOLDER 2

TUNER CONTROL UNIT INFORMATION

ATC076, ATC181, ATC184 & ATC288 TUNER CONTROL UNIT SCHEMATIC DIAGRAM

Note: Tuner Control Unit Assemblies are non-repairable; repair only type assemblies. Refer to replacement parts list for individual parts or certain sub-assemblies.



- SCHEMATIC NOTES:**
UNLESS OTHERWISE SPECIFIED:
1. CAPACITANCE VALUES OF 1 OR GREATER ARE IN PICOFARADS.
 2. CAPACITANCE VALUES OF LESS THAN 1 ARE IN MICROFARADS.
 3. FOR VOLTAGE, TOLERANCE OR WATTAGE RATINGS OF CAPACITORS OR RESISTORS REFER TO THE REPLACEMENT PARTS LIST.

**Indicates a not normally stocked item. However, it may be ordered by description (extra time may be required for delivery).

A10037-A001 ONE KNOB TUNER MOUNTING P.C. BOARD REPLACEMENT PARTS LIST

Ref.	Description	Part No.	Ref.	Description	Part No.	Ref.	Description	Part No.	Ref.	Description	Part No.	
Coils			Capacitors (Continued)			Resistors (Continued)			Semiconductors			
L1	Peaking Coil, 330mH.	3619953316	C12	.1uF., 10%, 100V, Polyester	2508451049	R16	120 ohm, 2%	2302141215	D1	Silicon Diode	5301819001	
Capacitors			C13	.1uF., 10%, 100V, Polyester	2508801049	R17	1k ohm, 2%	2302731022	D4	Silicon Diode	5301819001	
			C14	560pF., 10%, 2kV, Ceramic	2508840002	R18	270 ohm, 2%	2302142712	Z1	Zener Diode, 33V	5301671001	
	C1	100uF., 25V, Electrolytic	2701591225	Resistors			R19	6800 ohm	2302736825	Q2	NPN Silicon Transistor	6102320002
	C3	2200pF., 10%, 500V, Ceramic	2508612229	(All are 5%, 1/4W, Carbon Film unless specified otherwise.)			R20	47k ohm	2302734735	Q3	NPN Silicon Transistor	6102320002
	C4	10uF., 20%, 50V, Electrolytic	2701591150	R1	18k ohm, 3W, Metal Film	2301931835	R21	5600 ohm, 2%	2302735622	Q4	NPN Silicon Transistor	6102320002
	C5	10uF., 20%, 50V, Electrolytic	2701591150	R3	68k ohm	2302148835	R22	30k ohm, 2%	2302733032	Q5	PNP Silicon Transistor	6102230001
	C6	10uF., 20%, 50V, Electrolytic	2701591150	R11	2700 ohm	2302142725	R23	22k ohm	2302732235	Q6	NPN Silicon Transistor	6101480003
C7	1000pF., 10%, 500V, Ceramic	2508601029	R12	910 ohm	2302149115	R24	33k ohm	2302733335	Miscellaneous			
C8	.01uF., +80 -20%, 50V, Ceramic	2508581039	R13	47k ohm	2302144735	R25	330k ohm	2302143345				
C10	10uF., 50V, Electrolytic	2701591150	R14	6800 ohm	2302736825	R26	10k ohm	2302141035				
C11	.1uF., 10%, 100V, Polyester	2508451049	R15	1k ohm, 2%	2302141022	R28	470 ohm	2302144715				
									Tuner Shield			7342890001

MAGNAVOX CHASSIS
19C301 THRU 19C314,7044780003

1. CAPACITANCE VALUES OF ONE OR MORE ARE IN PICOFARADS.
2. CAPACITANCE VALUES LESS THAN ONE ARE IN MICROFARADS.
3. RESISTORS ARE 1/4 WATT, 5% TOLERANCE.
4. ▲ = EXACT REPLACEMENT PART, SEE BILL OF MATERIALS.
5. * TUNER PINS ON PCB ARE NUMBERED 2 THROUGH 13. PIN 1 IS THE RF INPUT; PIN 14 IS THE IF OUTPUT.



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 (T452). Refer to "Troubleshooting" Power Supply and Horizontal circuits.

NO PIC, NO SOUND, HAS RASTER: Check IF-AGC and source voltages from Horizontal Output Transformer (T452). Refer to "Troubleshooting" IF-AGC and Horizontal circuits.

NO PIC, HAS SOUND, NO RASTER: Check Horizontal Output Transformer (T452) 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 (T452). 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.

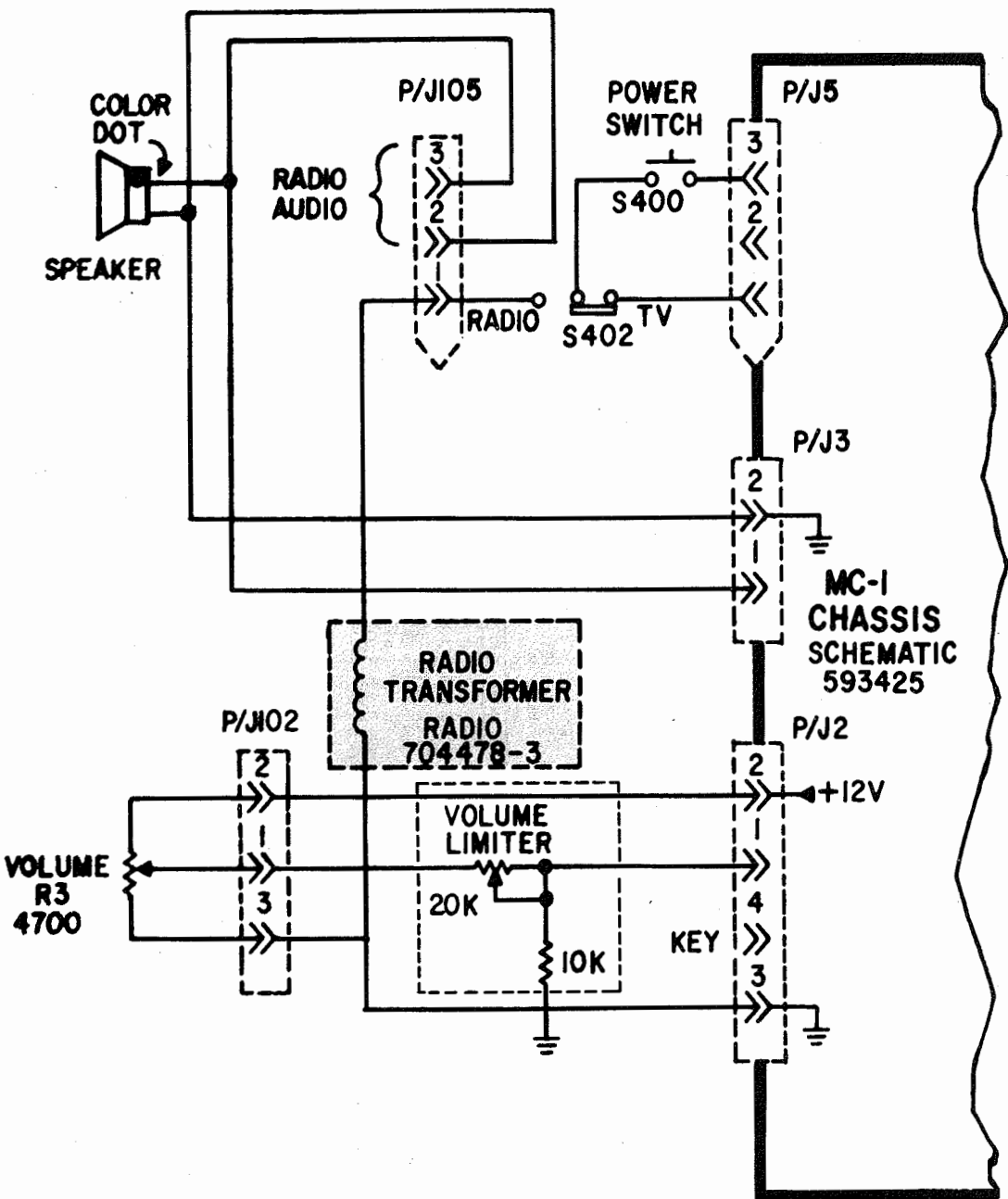
NO GREEN: Check Chroma and Green Output circuits. Refer to "Troubleshooting" Raster circuit.

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.

VOLUME LIMITER SCHEMATIC DIAGRAM



VOLUME LIMITER ASSEMBLY
7048430001/0002
REPLACEMENT PARTS LIST

Description	Part No.	Ref.
4 Pin Square Wire Connector	1817140004	P2
3 Pin Connector	1807350002	P105
Male Contacts f/P105	1807260002	
Female Contacts f/P105	1807250001	
Negative Polarizing Key f/P105	1813510001	
10k, 5%, 1/4W, Carbon Film Resistor	2302811035	
20k Volume Limiter Control	2203980008	
Bracket f/Volume Limiter Control	7344520001	
10 ohm, 10%, 1W, Metal Oxide Resistor (-0002 only)	2302011035	

VOLUME LIMITER ASSEMBLY
7050630001
REPLACEMENT PARTS LIST

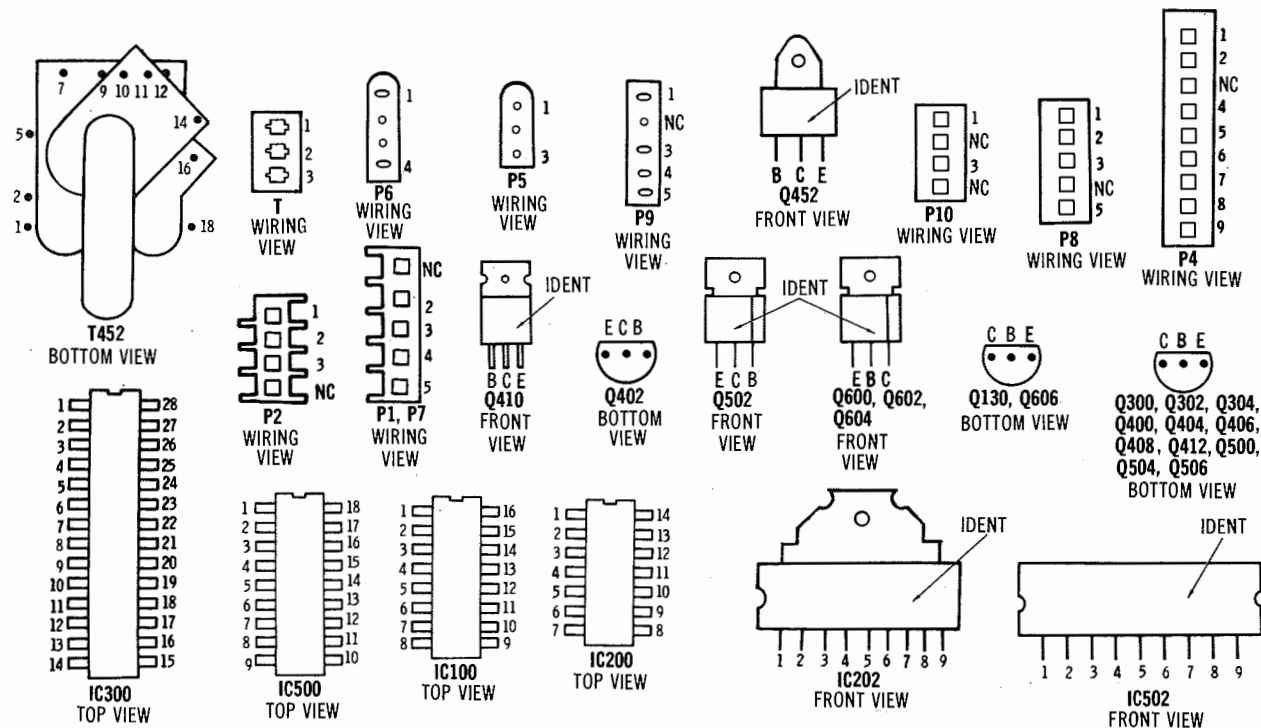
Description	Part No.
4 Pin Square Wire Connector	1817140004
3 Pin Connector	1807350002
Female Contacts f/P105	1807250002
Negative Polarizing Key	1813510001
Phono Plug f/SAP Module	1814390001
20k, Volume Limiter Control	22039800100
10k, 5%, 1/4W, Carbon Film Resistor	2302811035
Transformer	3204070003
Bracket f/Volume Limiter Control	7345040001

Courtesy of the Manufacturer

VOLUME LIMITER SCHEMATIC AND PARTS LIST

MAGNAVOX CHASSIS
19C301 THRU 19C314,7044780003

TERMINAL GUIDES



For SAFETY use only equivalent replacement part, see parts list.

— Circuitry not used in some versions

--- Circuitry used in some versions

⊕ See parts list

* Nominal value

⊥ Ground

Waveforms and voltages are taken from ground, unless noted otherwise.

Waveforms: triggered scope, keyed rainbow generator.

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

Supply voltages maintained as shown at input.

Voltages measured with digital meter, no signal.

Controls adjusted for normal operation.

Terminal identification may not be found on unit.

Capacitors are 50 volts or less, 5% unless noted.

Electrolytic capacitors are 50 volts or less, 20% unless noted.

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

Value in () used in some versions.

TERMINAL GUIDES AND NOTES

TEST JIG HOOKUP

FUNCTION	Chek-A-Color ADAPTER NO.	RCA / TeleMatic ADAPTER NO.	ZENITH ADAPTER NO.
CRT YOKE YOKE SETTING	B239 YP2A, Focus Tap	10J683 10J731 Horiz 1.9, Vert 8.0, FVS-3950 Focus Voltage Supply	852-422 852-392-2 (1) Horiz 1.8, Vert 8, Focus Tap

PIN 1 PIN 3 PIN 4 PIN 5 (P.C. Board)
(1) RED BLUE YELLOW GREEN

TROUBLESHOOTING

POWER SUPPLY

If there is no raster or sound, check AC Fuse (F400). If open, check Capacitors C400, C404, C406, C425, Electrolytics C402 and C422, Diodes D400, D402 and Switch Mode Transistor (Q410). If F400 is good, apply 120V AC and check for 322V at the collector of transistor Q410. If voltage is missing, check Line Filter (L402), Power Switch (S400), Resistor R402 and Coil L405. If voltage is present, refer to "Horizontal" section of this Troubleshooting guide.

HORIZONTAL

Make sure that the set is not in Shutdown. Refer to the "High Voltage Shutdown" section of this Troubleshooting guide. If set is not in shutdown, inject a horizontal signal at the base of Pulse Shaper Transistor (Q400). If set comes on and stays on, check the voltages, waveforms and components associated with pins 8 thru 18 of Sync Processor IC (IC500). If set does not come on, check the voltages, waveforms and components associated with Pulse Shaper Transistor Q400, Horizontal Driver Transistor (Q402), Pulse Width Regulator Transistor (Q404), Error Latch Transistors (Q406, Q408), Switch Mode Transistor (Q410), Over Voltage Sensing Transistor (Q412), Horizontal Driver Transformer (T400), Switch Mode Transformer (T402), Horizontal Output Transformer (T452) and Horizontal Output Transistor (Q452). Check B+ Sources derived from Transformer T452. Check for 130V at TP4, 13.3V at TP9, 195V at the cathode of D454, 135V at the cathode of D458, 24.6V at the cathode of D460, 25.7V at the cathode of D462 and -28.1V at the anode of D452. The High Voltage Rectifier is part of T452 and may be defective. If the horizontal oscillator is off frequency, check the voltages and components associated with pin 15 of IC500. Horizontal linearity or fold-over problems may be due to Capacitors C474, C476, C478, C484 and Coils L464 and L456.

HIGH VOLTAGE SHUTDOWN

The High Voltage is monitored by Diode D456, rectifying pulses from High Voltage Transformer (T452). Should the High Voltage increase, the rectified voltage at the cathode of D456 will also increase and at a certain level will turn on Over Voltage Sensing Transistor (Q412). This action turns on Error Latch Transistors (Q406 and Q408) which shuts down the set. To troubleshoot a set that has been shut down, remove Diode D456 from circuit, use a Variac for AC power and troubleshoot until defect has been located and corrected. Return Diode D456 to circuit. NOTE: Care should be taken in defeating the High Voltage Shutdown circuit as this may cause excessive X-radiation and damage to the CRT, Transformer T452 and associated components. Monitor High Voltage, use a Variac for AC power and troubleshoot.

NOTE: Voltages taken with TV in Shutdown.

	E	B	C
Q400	.15V	.56V	.73V
Q402	.73V	1.4V	.83V
Q404	.73V	.37V	.73V
Q406	.42V	.06V	.71V
Q408	0V	.40V	.06V
Q410	0V	0V	354V
Q412	1.3V	.40V	.86V
TP4	0V		

IF-AGC

If there is no picture or sound, inject an IF signal at the IF input and check for a picture on the CRT. If a picture is present, check the Tuner AGC and AFC circuits. If a picture is not present, check for a video waveform at TP1. If a video waveform is present, refer to the "Video" section of this Troubleshooting guide. If there is no video waveform at TP1, apply AGC bias to pin 14 of Video IF/AGC/AFC/Video IC (IC100). If a picture is now present at TP1, check the components associated with

TROUBLESHOOTING (Continued)

pin 14 of IC100. If a picture is still missing at TP1, check the voltages, waveforms and components associated with pins 1, 2, 5 and 7 thru 16 of IC100 and IF Amp Transistor (Q130). A defective AGC circuit can cause an overloaded picture, excessive snow or loss of picture and sound. See AGC Voltage Chart for voltages that change with signal.

AGC VOLTAGE CHART

IC100	Pin 4	3.1V
IC100	Pin 14	7.3V

AUDIO

If there is video but no sound, inject an audio signal at pin 7 of Audio Output IC (IC202). If audio is now present, check the voltages, waveforms and components associated with Audio IF/Amp/Detector IC (IC200). If audio is still missing, check the voltages, waveforms and components associated with IC202 and the speaker.

VIDEO

If there is no video, inject a video signal at TP1. If the video is now present, refer to the "IF-AGC" section of this Troubleshooting guide. If there is no video with a video signal injected at TP1, check for a video waveform at pins 5 and 6 of Video/Chroma/Processor IC (IC300). If the waveform is missing, check the voltages, waveforms and components associated with TP1, Video Amp Transistor (Q304) and pins 5 and 6 of IC300. If there is a video waveform at pins 5 and 6 of IC300, check for a video waveform at pins 26, 27 and 28. If the waveform is missing, check the voltages, waveforms and components associated with pins 1 thru 4, 10, 20, 24, 26, 27 and 28 of IC300. If the waveform is present, check the voltages, waveforms and components associated with Red Output Transistor (Q600), Green Output Transistor (Q602), Blue Output Transistor (Q604), Black Level Bias Transistor (Q606) and the CRT. If there is insufficient or too much brightness, check the voltages and components associated with Beam Current Limiter Transistor (Q302).

VERTICAL

If there is no vertical sweep, inject a vertical signal at pin 1 of Vertical Output IC (IC502). If vertical sweep returns, check the voltages, waveforms and components associated with pins 1 thru 4 of Sweep/Sync Processor IC (IC500). If vertical sweep does not return, check the voltages, waveforms and components

associated with Vertical Output IC (IC502) and the Deflection Yoke. Vertical linearity or foldover problems may be caused by Electrolytics C510, C511, C512 and C546 being defective. If the vertical oscillator is off frequency, check the voltages and components associated with pin 3 of IC500.

SYNC

If there is no vertical or horizontal sync, check for the proper vertical and horizontal sync pulses at TP6. If missing, check components associated with TP6. If sync pulses are present at TP6, check for the proper vertical waveforms at pins 3 and 4 of Sync Processor IC (IC500) and the proper horizontal waveform at pin 15.

RASTER

If there is no raster, but High Voltage is present, check the CRT and CRT voltages. If there is no Red, check the voltages, waveforms and components associated with pin 26 of Video/Chroma Processor IC (IC300) and Red Output Transistor (Q600). If there is no Green, check the voltages, waveforms and components associated with pin 27 of IC300 and Green Output Transistor (Q602). If there is no Blue, check the voltages, waveforms and components associated with pin 28 of IC300 and Blue Output Transistor (Q604). If the raster has a keystone shape, check the Deflection Yoke (DY1). If the raster has height or width problems, refer to the "Vertical", "Horizontal" and "Power Supply" sections of this Troubleshooting guide.

CHROMA

If there is no color, check for a chroma waveform at pin 13 of Video/Chroma Processor IC (IC300). If the waveform is missing, check components associated with pin 13 of IC300. If waveform is present, check for the proper color waveforms at pins 26, 27 and 28. If waveforms are missing, check the voltages, waveforms and components associated with pins 7 thru 9, 11, 12, 15 thru 19 and 21 thru 28 of IC300. Check to be sure the 3.58MHz oscillator is operating at the correct frequency. If there is improper hue (Tint), check the voltages, and components associated with pin 7 of IC300. If the proper color waveforms are present at pins 26, 27 and 28, check the voltages, waveforms and components associated with Red Output Transistor (Q600), Green Output Transistor (Q602), Blue Output Transistor (Q604) and the CRT.

ATC246-A001 TUNER CONTROL UNIT ASSEMBLY REPLACEMENT PARTS LIST

Description	Part No.	Description	Part No.
Control Assemblies		Miscellaneous	
Secondary Control Board Assembly (Refer to the ASC120-A001 under Secondary Control Board Information)	-----	Control Bezel	1454420001
Display Board Assembly (Refer to the A10126-A001 parts list)	-----	Function Label f/Secondary Controls	1520000001
		Cable Clamp	1032000003
		R3/S400, Volume On-Off Control, 4.7k ohm	2203610020
		P5, 5 Pin Male Connector	1816140005
		Contacts f/P5 (2 used)	2006060001
		P601, 4 Pin Square Wire Connector, w/contacts	1817140204
		Varactor, UHF/VHF Tuner	3402630001

ATC233-A001 TUNER CONTROL UNIT ASSEMBLY REPLACEMENT PARTS LIST

Description	Part No.	Description	Part No.
Control Assemblies		Miscellaneous (Continued)	
Secondary Control Board Assembly (Refer to the ASC123-A001 under Secondary Control Board Information)	-----	Secondary Control Door	1455170001
Display Board Assembly (Refer to the A10147-A001 parts list)	-----	Hinge Clips f/Secondary Control Door (2 used)	7338510002
		Label f/Secondary Controls	1520130001
		Philco Nameplate f/Secondary Control Door	1520110001
		Decorative Overlay f/Control Bezel	1455180001
		R3/S400, Volume On-Off Control, 4.7k ohm	2203610020
		P5, 5 Pin Male Connector	1816140005
		Contacts f/P5 (2 used)	2006060001
		P601, 4 Pin Square Wire Connector, w/contacts	1817140204
Miscellaneous		Cable Clamp	1032000003
Knob f/Channel Up	1559540004	Varactor, UHF/VHF Tuner	3402630001
Button f/Channel Up	1455040006		
Button f/Channel Down	1455040007		
Control Bezel	1455160003		

ATC245-A001 TUNER CONTROL UNIT ASSEMBLY REPLACEMENT PARTS LIST

Description	Part No.	Description	Part No.
Control Assemblies		Miscellaneous	
Secondary Control Board Assembly (Refer to the ASC120-A001 under Secondary Control Board Information)	-----	Control Bezel	1455650001
Display Board Assembly (Refer to the A10126-A001 parts list)	-----	R3/S400, Volume On-Off Control, 4.7k ohm	2203610020
		P5, 5 Pin Male Connector	1816140005
		Contacts f/P5 (2 used)	2006060001
		P601, 4 Pin Square Wire Connector, w/contacts	1817140204
		Varactor, UHF/VHF Tuner	3402630001

A10126-A001 DISPLAY BOARD ASSEMBLY REPLACEMENT PARTS LIST

Ref.	Description	Part No.	Ref.	Description	Part No.
Capacitors			Miscellaneous		
C451	1000pF., 10%, 50V, Ceramic	2508311029	P401	12 Pin Square Wire Connector w/contacts	1813500012
C452	1000pF., 10%, 50V, Ceramic	2508311029		Negative Polarizing Key f/P401	1813510001
Controls & Switches			P402	4 Pin Square Wire Connector w/contacts	1813500004
S451	Rotary Click Switch	1607160001		Negative Polarizing Key f/P402	1813510001
			D451	LED Channel Display	5303030001

A10147-A001 DISPLAY BOARD ASSEMBLY REPLACEMENT PARTS LIST

Ref.	Description	Part No.	Ref.	Description	Part No.
Capacitors			Miscellaneous		
C451	1000pF., 10%, 50V, Ceramic	2508311029	P401	12 Pin Square Wire Connector w/contacts	1813500012
C452	1000pF., 10%, 50V, Ceramic	2508311029		Negative Polarizing Key f/P401	1813510001
Controls & Switches			P402	4 Pin Square Wire Connector w/contacts	1813500004
S452	Momentary Pushbutton Switch	1606880004		Negative Polarizing Key f/P402	1813510001
S453	Momentary Pushbutton Switch	1606880004	D451	LED Channel Display	5303030001
				18 Pin Socket f/LED Ch. Display	1816200018

WARNING

For continued safety of this product, parts highlighted by shading in the parts lists in this manual should be used as replacements for those parts highlighted in the schematic diagrams in this service manual. Use of substitute replacement parts which do not have the same specified safety characteristics may create shock, fire or other hazards.

For maximum reliability and performance, all other parts should be replaced by those having identical specifications.

Under no circumstances should the original design be modified or altered without written permission from the N.A.P. Consumer Electronics Corp. NAPCEC assumes no liability, express or implied, arising out of any unauthorized modification of design.

A10031-A001 ONE KNOB CHANNEL SELECT P.C. BOARD
REPLACEMENT PARTS LIST

Ref.	Description	Part No.	Ref.	Description	Part No.
Resistors (All are 1%, 1/4W, Metal Film unless specified otherwise.)			Controls & Switches (Continued)		
R10	68.1k ohm	2302556812	R15	Ch. 8 Tuning, 100k ohm, 20%	2204341042
R13	51.1k ohm	2302555112	R16	Ch. 9 Tuning, 100k ohm, 20%	2204341042
R17	48.7k ohm	2302554872	R18	Ch. 10 Tuning, 100k ohm, 20%	2204341042
R22-A	31.6k ohm	2302553162	R19	Ch. 11 Tuning, 100k ohm, 20%	2204341042
R23	8250 ohm	2302558251	R20	Ch. 12 Tuning, 100k ohm, 20%	2204341042
R24	26.7k ohm	2302552672	R21	Ch. 13 Tuning, 100k ohm, 20%	2204341042
R25	28k ohm	2302552802	S1	Channel Select Sw. (18 positions)	1606960001
R26	2740 ohm	2302552741	S2	AFT Leaf Sw. (mounted on back of S1)	1607000003
R27	44.2k ohm	2302554422	Miscellaneous		
R28	57.6k ohm	2302555762			
R29	470 ohm, 5%, Carbon Film	2302144715			
Controls & Switches					
A1	R1 thru R6, UHF Tuning Block & AFT Switch (Ch. a to F)	2204400001	J1	Neon Lamp	1807160009
R7	Ch. 2 Tuning, 100k ohm, 20%	2204341042		9 Pin Sq. Wire Connector w/ Contacts	1817140009
R8	Ch. 3 Tuning, 100k ohm, 20%	2204341042		Negative Polarizing Key f/ J1	1813510001
R9	Ch. 4 Tuning, 100k ohm, 20%	2204341042	J4	4 Pin Sq. Wire Connector w/ Contacts	1817140004
R11	Ch. 5 Tuning, 100k ohm, 20%	2204341042		Negative Polarizing Key f/ J4	1813510001
R12	Ch. 6 Tuning, 100k ohm, 20%	2204341042		Bulb Holder f/ Neon Lamp	1442890002
R14	Ch. 7 Tuning, 100k ohm, 20%	2204341042		Detent Gear	1450950001
				Tuning Shaft	1450940001
				Copper Detent Spring	7342740001
				Bearings f/ Detent Spring (2 used)	7333560005
				Retaining Ring f/ Tuning Shaft	1036620009

UHF TUNER 3403020003 (Complete Asm.)
REPLACEMENT PARTS LIST

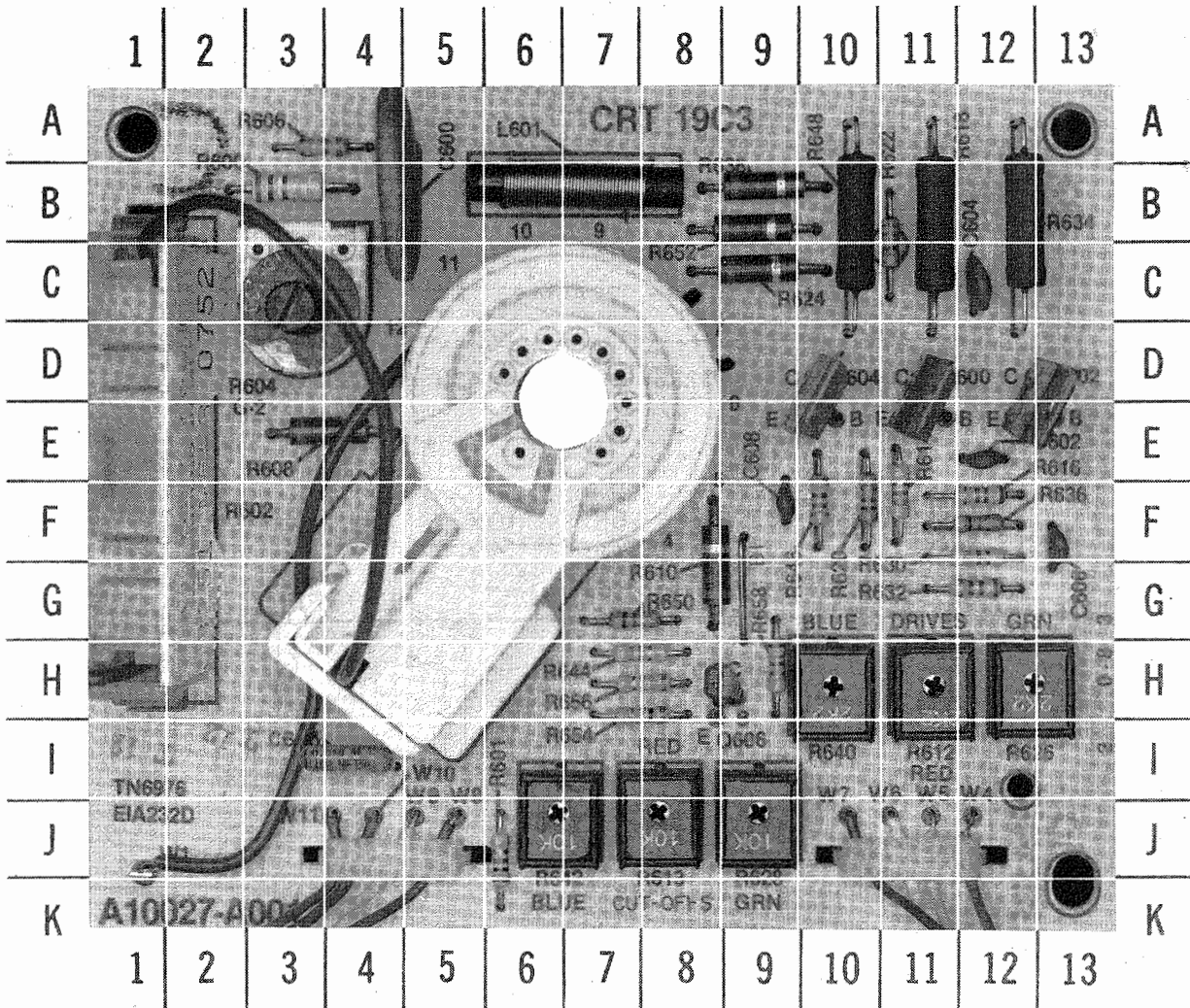
Ref.	Description	Part No.	Ref.	Description	Part No.
Resistors (All are Carbon Film, 5%, 1/4W unless otherwise specified)			Capacitors (Continued)		
R1	1.5M ohm, 10%, 1/2W	2302121559	C28	1.5, ± .25pF., N2200	2507220007
R2	22k ohm	2302142235	C29	18, N750, Leadless	2508521805
R3	47k ohm	2302144735	C30	1.5, ± .1pF., NPO	2507251591
R4	100k ohm	2302141045	C31	.022uF., ± .2pF., 25V	2508582236
R5	330	2302143315	C33	4700, ± .1pF.	2508584728
R6	1.5k ohm	2302141525	C34	330, ± .2pF.	2507233316
R7	180	2302141815	C36	2200, ± .2, Y5P	2507232226
R8	22k ohm	2302142235	C38	1000, ± .1pF., Y5P	2507231028
R9	22k ohm	2302142235	C39	3.3, ± .1pF., NPO	2507253391
R10	22k ohm	2302142235	Coils		
R12	680 ± 1/2W	2302126815			
R13	68	2302336805	L2	Coil, Ant - UHF	3617470003
R14	820	2302148215	L3	Coil, 2 1/2 Turns	
R15	33	2302333305	L4	Coil, 3 1/2 Turns	
R16	150	2302141515	L5	Coil, 3 1/2 Turns	
R17	4.7k ohm	2302144725	L6	Coil, 2 1/2 Turns	
R18	4.7k ohm	2302144725	L7	Coil, 8 1/2 Turns	
R19	2.7k ohm	2302142725	L10	Coil, 2 1/2 Turns	
R20	820	2302148215	L12	Coil, 4 1/2 Turns	
R21	3.3k ohm	2302143325	L14	Coil, 1 1/2 Turns	
R22	2.2k ohm	2302142225	L15	Coil, 6 1/2 Turns	
R23	470	2302144715	L16	Coil, 10 1/2 Turns	
R24	75	2302147505	L17	Coil, 4 1/2 Turns	
R25	680	2302146815	L18	Coil, 23 1/2 Turns	
R26	6.8	2302146895	L19	Coil, 3 1/2 Turns	
Capacitors (All in pF., 50V unless otherwise specified)			Semiconductors		
C1	68, ± .1pF., SL	2507336801	FB1	Ferrite Bead	3640050002
C2	1000, ± .1pF., Y5P	2507231028	FB2	Ferrite Bead	3610050005
C3	68, ± .1pF., SL	2507336801	D1	Diode, Varactor	5301951004
C4	1.5, ± .1pF., NPO	2507251591	D2	Diode, Varactor	5301951004
C5	100, ± .1pF., SL	2507331011	D3	Diode, Varactor	5301951004
C6	120, Z5P, Leadless	2508541219	D4	Diode, Barmixer	5301941003
C7	22, N750, Leadless	2508522205	D5	Diode, Varactor	5301951004
C8	18, N750, Leadless	2508521805	Q1	Transistor, Mosfet - Dual RF	6104180001
C9	1000, ± .1pF., Y5P	2507231028	Q2	Transistor, NPN	6104190001
C10	1000, ± .1pF., Y5P	2507231028	Q3	Transistor, Hi-Freq. IF	6103900001
C11	100, ± .2pF., Z5P	2507231026	Miscellaneous		
C12	27, ± .1pF., N1500	2507322701			
C14	2.7, ± .2pF., NPO	2507252792			
C17	1000, ± .1pF., Y5P	2507231028			
C18	82, ± .1pF., N1500	2507328201			
C19	15, N750, Leadless	2508521505			
C20	8.2, NPO, Leadless	2508478298			
C23	.022uF., ± .2pF., Z5V	2508582236			
C25	56, SL, Leadless	2508535605			
C26	27, ± .1pF., N1500	2507012708			
C27	1.5, ± .1pF., NPO	2507251591			

Courtesy of the Manufacturer

CHANNEL SELECT BOARD AND UHF TUNER PARTS LIST

CRT BOARD-GridTrace LOCATION GUIDE

C600	B-4	R600	B-3	R618	B-11	R640	H-10
C602	E-12	R601	J-6	R620	F-10	R642	J-6
C603	I-4	R602	E-1	R622	B-11	R644	H-8
C604	C-12	R604	C-3	R624	C-9	R646	F-10
C606	F-13	R606	A-3	R626	H-13	R648	B-10
C608	F-9	R608	E-3	R628	J-9	R650	G-7
L601	B-7	R610	G-8	R630	F-12	R652	B-9
Q600	D-11	R612	H-11	R632	G-12	R654	H-8
Q602	D-13	R613	J-8	R634	B-12	R656	H-8
Q604	D-10	R614	F-11	R636	F-12	R658	H-9
Q606	H-9	R616	F-12	R638	B-9		



MAGNAVOX CHASSIS
19C301 THRU 19C314, 7044780003

FOLDER 2

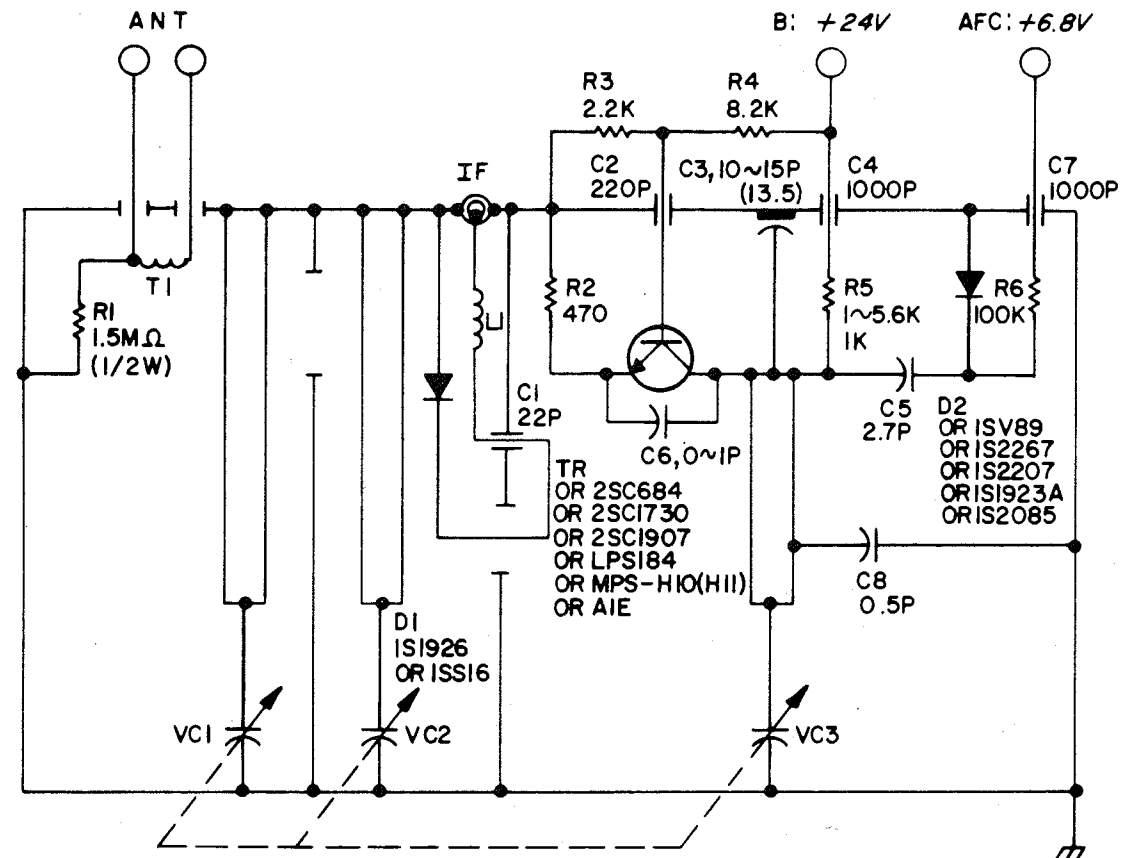
A Howard W. Sams GRIDTRACE™ Photo

CRT BOARD

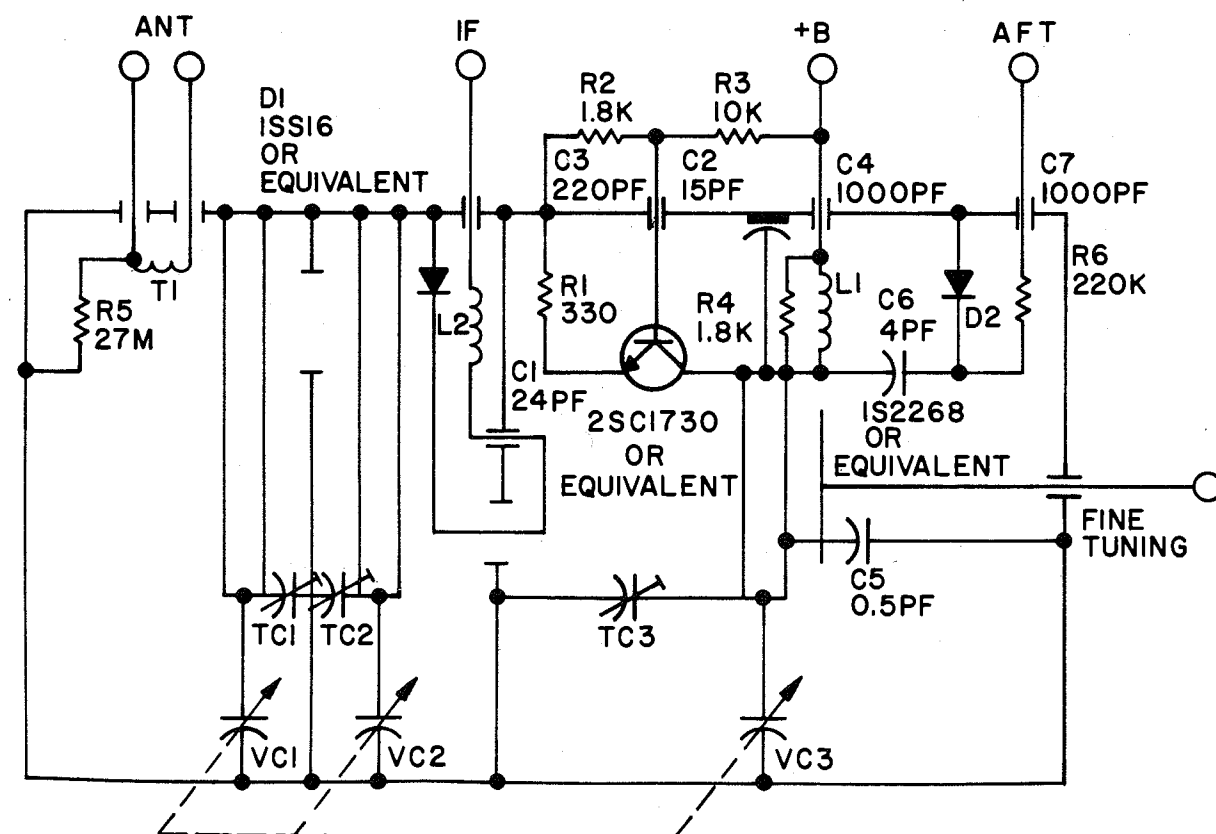
SET 2335 FOLDER 2

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UHF TUNER 3402770001 SCHEMATIC DIAGRAM

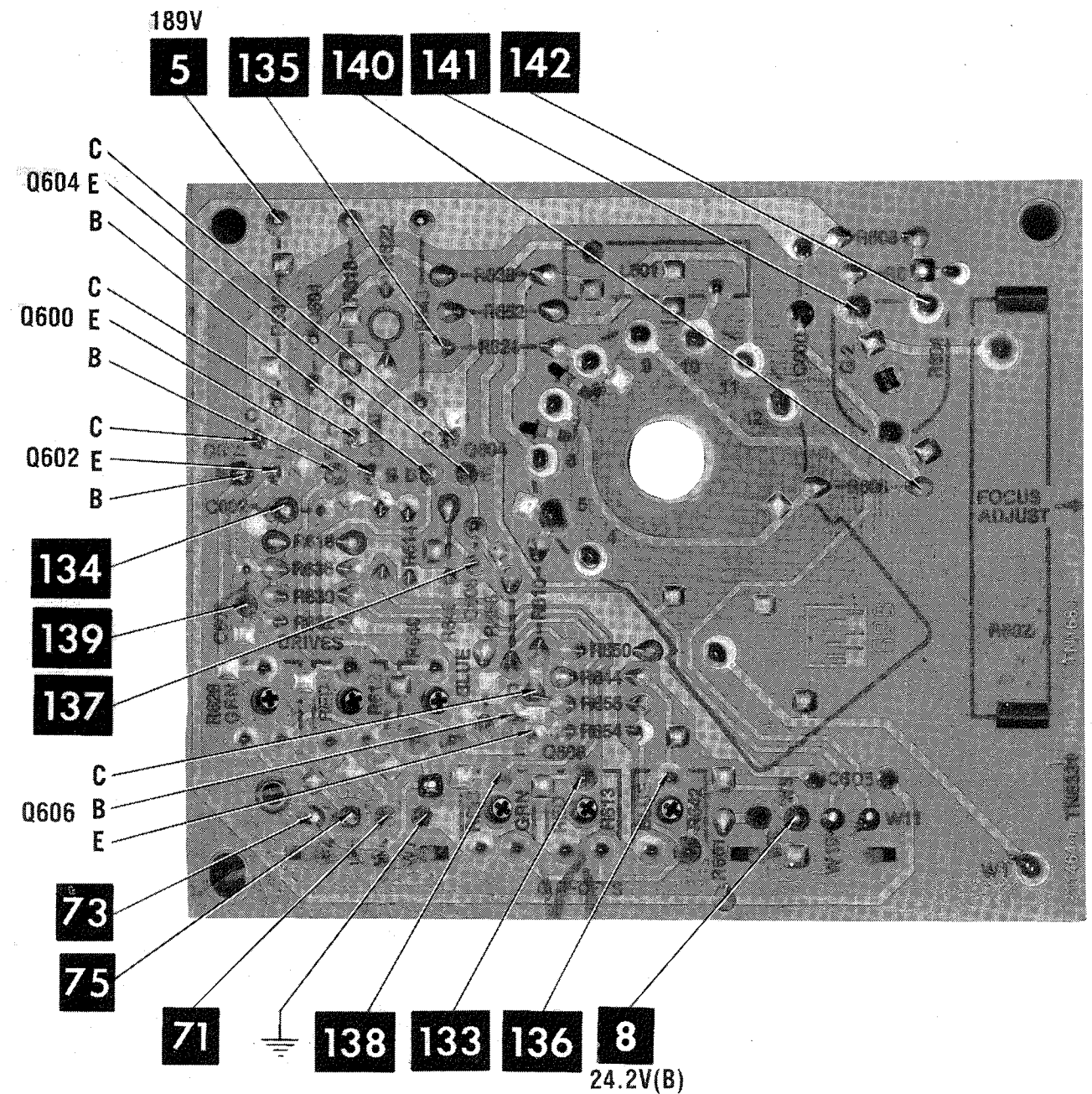


UHF TUNER 3402880001 SCHEMATIC DIAGRAM



UHF TUNERS

Courtesy of the Manufacturer



MAGNAVOX CHASSIS
19C301 THRU 19C314, 7044780003

FOLDER 2

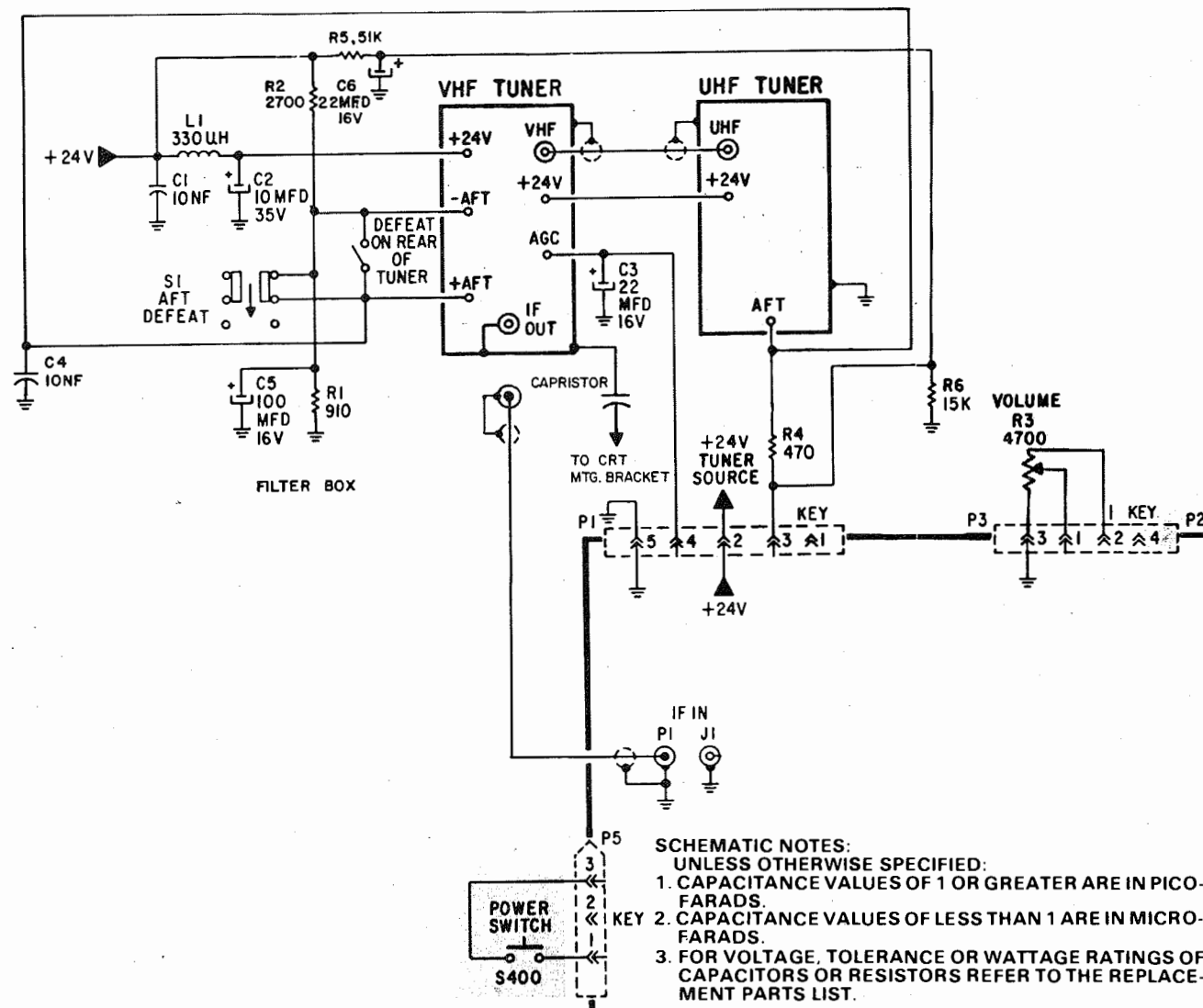
A Howard W. Sams CIRCUITRACE® Photo

CRT BOARD

ATC138-A001, ATC140-A001, ATC180-B002,
ATC202-A001/-0002 & ATC286-A001 TUNER CONTROL UNIT
REPLACEMENT PARTS LIST

Ref.	Description	Part No.	Ref.	Description	Part No.
Coils			Controls & Switches (Continued)		
L1	RF Choke Coil, 330uH.	3606760021		UHF Tuner (ATC286 only)	3402880001
Capacitors				VHF Tuner (ATC138, ATC140, ATC180 & ATC286)	3402780001
C1	.01uF., 20%, 100V, Ceramic	2506600002		VHF Tuner (ATC202-A001 only)	3402890001
C2	10uF., 35V, Electrolytic	2701171135		VHF Tuner (ATC202-A002 only)	3402460020
C3	22uF., 16V, Electrolytic	2701172116	Miscellaneous		
C4	.01uF., 20%, 100V, Ceramic	2506600002	P1	5 Pin Square Wire Connector w/Contacts	1813500005
C5	100uF., 16V, Electrolytic	2701171216		Negative Polarizing f/P1	1813510001
C6	22uF., 16V, Electrolytic	2701172116	P5	3 Pin Male Connector	1816140012
Resistors				Contacts f/P5 (2 used)	2006060001
R1	910 ohm, 5%, 1/4W, Carbon Film	2302819115	P102	3 Pin Female Connector (ATC180 only)	1807340001
R2	2700 ohm, 5%, 1/4W, Carbon Film	2302812725		Contacts f/P102 (3 used)	1807250002
R4	470 ohm, 5%, 1/4W, Carbon Film	2302814715	P2	4 Pin Square Wire Connector w/Contacts (ATC138, ATC140 & ATC202)	1813500004
R5	51k ohm, 5%, 1/4W, Carbon Film	2302815135		4 Pin Square Wire Connector (ATC286 only)	1817140004
R6	15k ohm, 5%, 1/4W, Carbon Film	2302811535	P2	Negative Polarizing Key f/P2	1813510001
Controls & Switches				IF Link Cable Asm. (UHF to VHF)	7044660001
S400/R3	On-Off, Volume Control, 4.7k	2203610003		IF Cable Assembly	7045710008
S400/R3	On-Off, Volume Control, 4.7k (ATC286 only)	2204580001		Capristor (mounted from Control Unit Bezel to CRT Mounting Bracket)	2502330007
S1	AFT Defeat Sw. (ATC138 & ATC286)	1606940006			
S1	AFT Defeat Sw. (ATC140 & ATC202)	1606430006			
	UHF Tuner	3402770002			

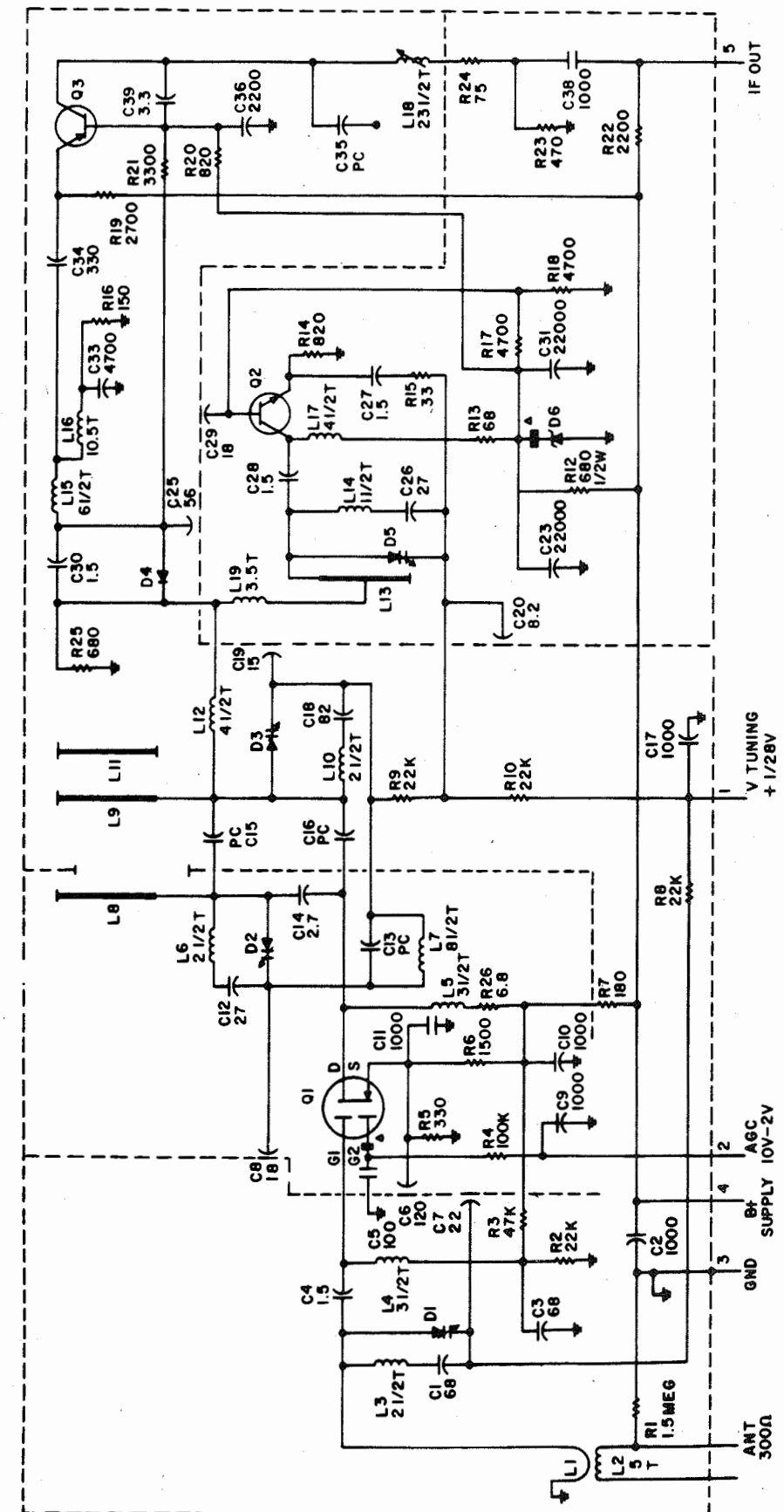
ATC138, ATC140, ATC180, ATC202 & ATC286 TUNER CONTROL UNITS
SCHEMATIC DIAGRAM



TUNER CONTROL AND PARTS LIST

Courtesy of the Manufacturer

UHF TUNER 3403020003 SCHEMATIC DIAGRAM



Courtesy of the Manufacturer

UHF TUNER 3403020003

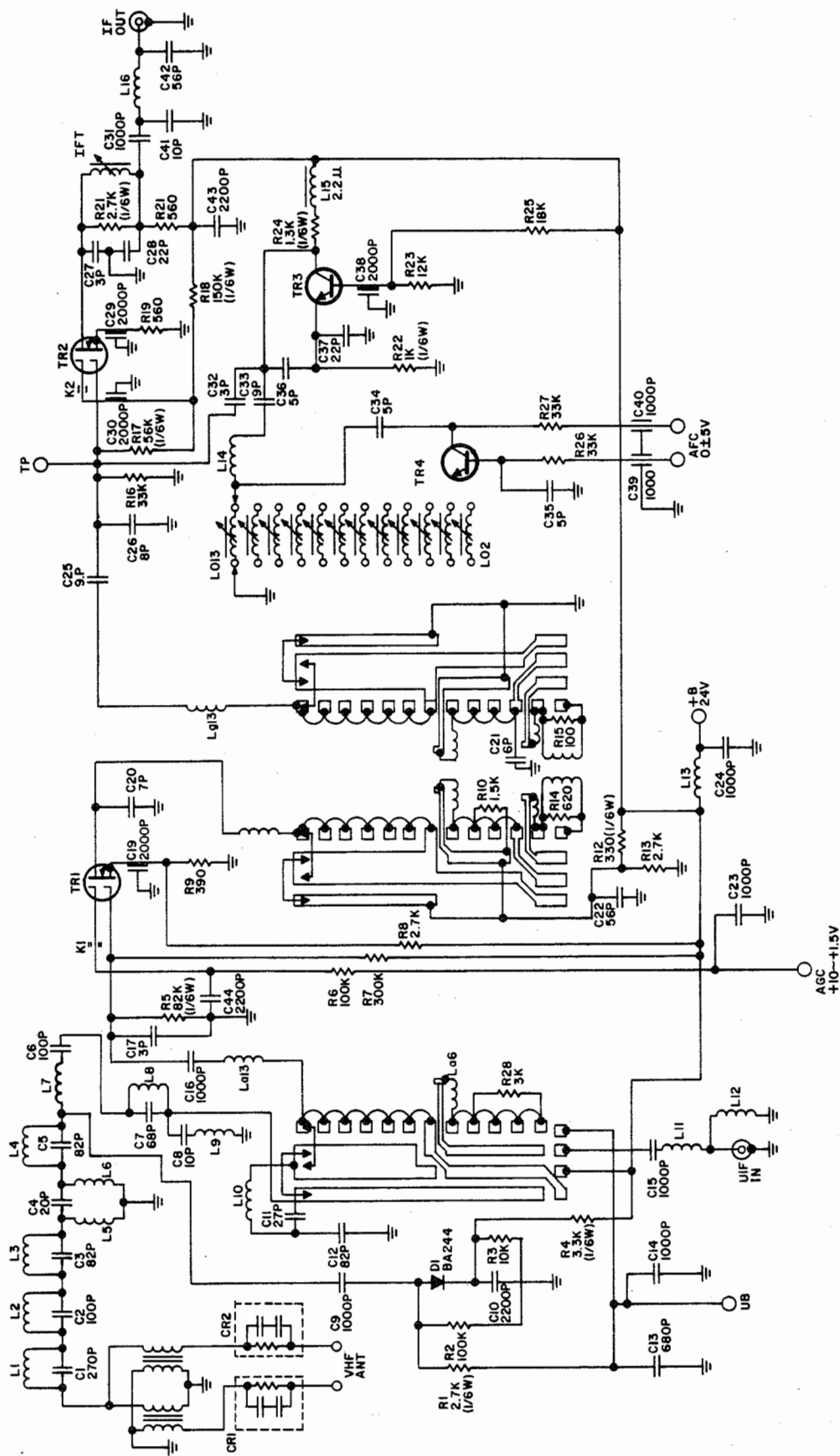
SET 2335 FOLDER 2

MAGNAVOX CHASSIS
19C301 THRU 19C314, 7044780003

FOLDER 2

25

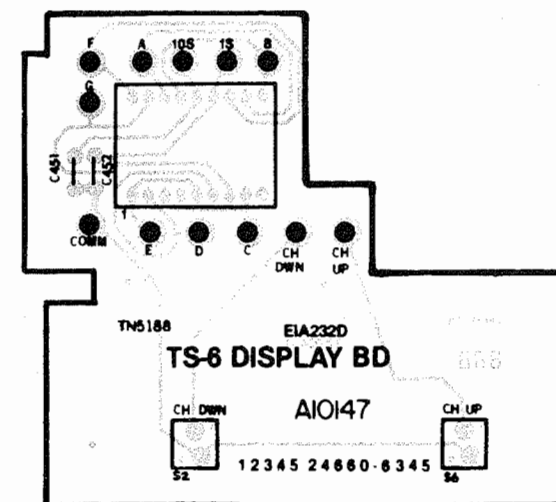
VHF TUNER 3402780001 SCHEMATIC DIAGRAM



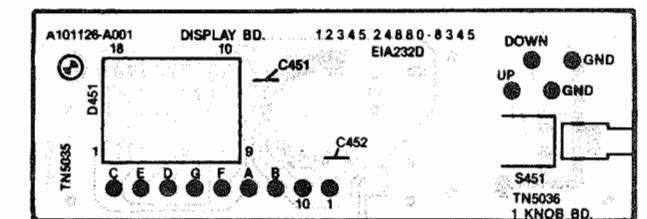
Courtesy of the Manufacturer

VHF TUNER 3402780001

A10147-A001 DISPLAY BOARD OVERLAY
(VIEWED FROM THE COMPONENT SIDE)



A10126-A001 DISPLAY BOARD OVERLAY
(VIEWED FROM THE COMPONENT SIDE)



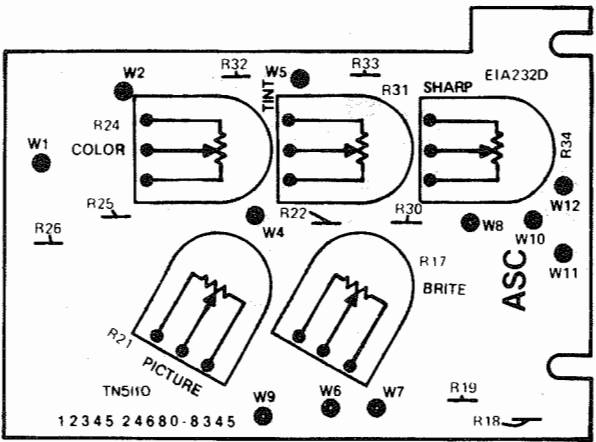
A10127-A001 NON-REMOTE ELECTRONIC
TUNING SYSTEM (TS-6)
REPLACEMENT PARTS LIST

Ref.	Description	Part No.	Ref.	Description	Part No.
Coils & Transformers			Resistors (Continued)		
L101	4.7μH., Peaking Coil	3618134799	R203	110k, 2%	2302811142
L401	4.7μH., Peaking Coil	3618134799	R204	10k, 2%	2302811032
L405 thru			R207	68k	2302816835
L413	4.7μH., Peaking Coil (9 used)	3618134799	R301	22k, 2%	2302812232
L510	82μH., Peaking Coil	3618358209	R302	3k, 2%	2302813022
L511	33μH., Peaking Coil	3618353309	R303	15k, 2%	2302811532
L703	33μH., Peaking Coil	3618353309	R304	1M, 2%	2302811052
Capacitors (All are 10%, 50V, Ceramic unless otherwise specified.)			R305	51k	2302815135
C101	1000pF.	2508281029	R306	10k	2302811035
C102	2.2μF., Electrolytic	2701682050	R401	6200 ohm	2302816225
C103	1000pF.	2508281029	R402	5600 ohm	2302815625
C104	22pF., 5%, NPO	2508372205	R403	6200 ohm	2302816225
C105	22pF., 5%, NPO	2508372205	R404	5600 ohm	2302815625
C109	1000pF.	2508281029	R405 thru		
C126	1000pF.	2508281029	R411	270 ohm, 1/8W (7 used)	2303152715
C128	1μF., Electrolytic	2701681050	R414	12k	2302811235
C201	1μF., 100V, Polyester	2508801049	R415	22k	2302812235
C202	2.2μF., Electrolytic	2701682050	R416	470 ohm	2302814715
C203	.047μF., 100V, Polyester	2508794739	R417	470 ohm	2302814715
C204	.33μF., 100V, Polyester	2508803349	R501	22k, 2 1/2W, Metal Film	2302662235
C205	.1μF., 20%, 100V, Polyester	2508801040	R502	18 ohm, Metal Film	2303101895
C206	1000pF.	2508281029	R511	20 ohm	2302812005
C405 thru			R601 thru		
C417	1000pF. (13 used)	2508281029	R603	15k (3 used)	2302811535
C501	10μF., Electrolytic	2701681150	R604 thru		
C512	4.7μF., Electrolytic	2701685050	R606	51k	2302815135
C513	.01μF., 20%	2508291030	R651	3k	2302813025
C514	1000μF., 16V, Electrolytic	2701681316	R751	3300 ohm	2302813325
C601 thru			R752	560 ohm	2302815615
C603	1000pF. (3 used)	2508281029	R753	16k	2302811635
C651 thru			R754	5600 ohm	2302815625
C653	1000pF. (3 used)	2508281029	Semiconductors		
C654	150μF., 16V, Electrolytic	2701688216	D101	Diode, Silicon	5301810002
C655	560pF., 2kV	2508840002	D126	Diode, Silicon	5301810002
C701	33μF., 16V, Electrolytic	2701683116	D127	Diode, Silicon	5301810002
C702	100μF., 25V, Electrolytic	2701681316	D203	Schottky Diode	5302470001
C703	1000pF.	2508281029	D654	Diode, Silicon	5301810002
C751	220pF.	2508282219	Z501	Diode, Zener, 30V	5302491300
C752	56pF., NPO	2508375609	Q401	Transistor, PNP	6104340001
C753	33pF., NPO	2508373309	Q402	Transistor, PNP	6104340001
C754	4.7pF., ±.25pF., NPO	2508374797	Q601	Transistor, PNP	6104340001
Resistors (All are 5%, 1/4W, Carbon Film unless otherwise specified.)			Q602	Transistor, PNP	6102330001
R101	180k	2302811845	Q603	Transistor, PNP	6104340001
R102	100k	2302811045	Q751	Transistor, NPN	6104190002
R109	15k	2302811535	IC100	Micro	6124410004
R110	15k	2302811535	IC200	Dual Op-Amp IC	6122850003
R111	15k	2302811535	IC500	5V Regulator IC	6121030003
R112	15k	2302811535	Miscellaneous		
R122	470 ohm	2302814715	FB751	Ferrite Bead	3640050005
R125	11k	2302811135	Y101	Crystal, 4MHz	5604170005
R126	11k	2302811135		Heat Sink f/IC500	7316650002
R127	4700 ohm	2302814725		28 Pin IC Socket f/IC100	1815220028
R128	47k	2302854735		Top Shield f/IC100	7345110001
R201	15k	2302811535		Bottom Shield f/IC100	7345110001
R202	5100 ohm	2302815125		UHF & VHF Varactor Tuner (82 Ch.)	3402630001
				28 Pin IC Socket f/IC100	1815220028

Courtesy of the Manufacturer

DISPLAY BOARDS OVERLAY AND TS6 TUNING SYSTEM PARTS LIST

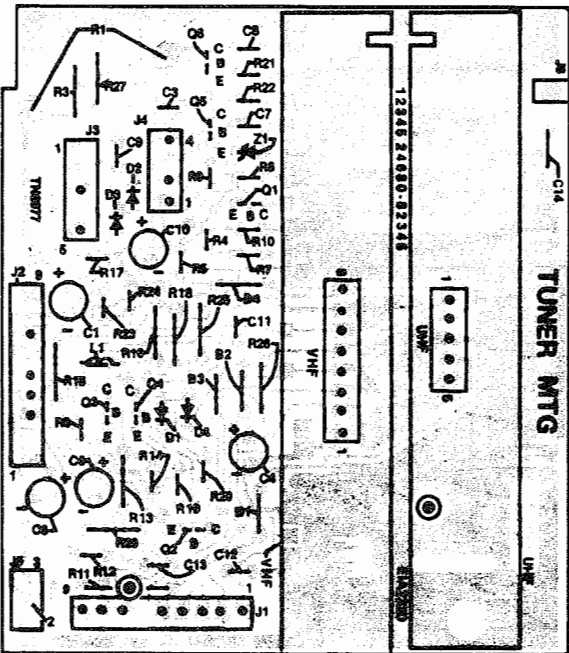
ASC148-A001 SECONDARY CONTROL BOARD OVERLAY
(VIEWED FROM THE COMPONENT SIDE)



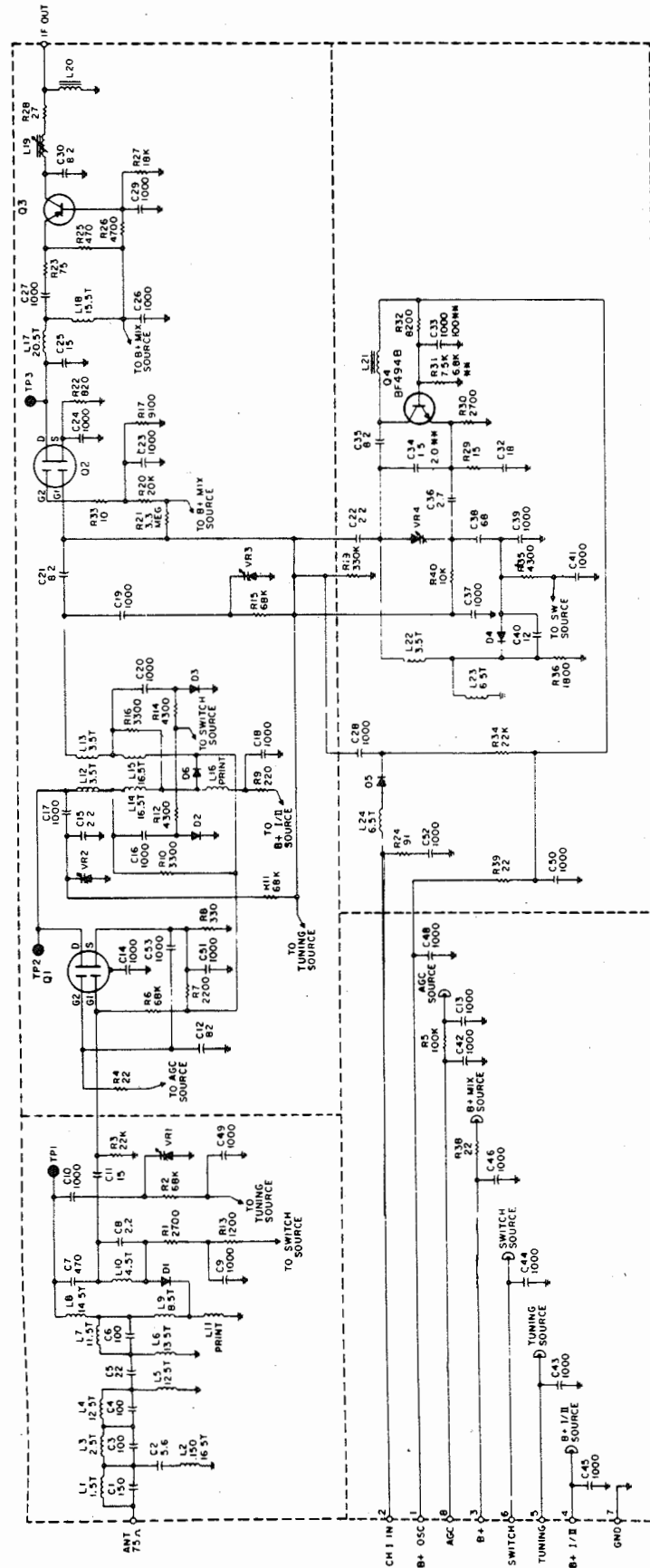
ATC076-A001, ATC181-A001, ATC184-A001
& ATC288 TUNER CONTROL UNIT
REPLACEMENT PARTS LIST

Ref.	Description	Part No.	Ref.	Description	Part No.
Control Assemblies					
	Tuner Mounting P.C. Board Asm. (Varactor Tuners not included)	A10037-A002		Contacts f/P102 (3 used - ATC181 & ATC184 only)	1807250002
	Channel Select P.C. Board Asm. (see the A10031-A001 Replacement Parts List for individual parts)	-----		Contacts f/P102 (3 used - ATC288 only)	1807260002
	UHF Varactor Tuner	3403020003		3 Pin Male Connector	1816140012
	VHF Varactor Tuner	3403010004		Contacts f/P5	2006060001
S400/R3	On-Off Volume Control, 4.7k ohm	2203610007	S402	Rocker Switch f/Radio-TV Power (ATC181 only)	1607090002
R7	5.6k ohm, 5%, 1/4W, Carbon Film	2302145625	S402	Rocker Switch f/Radio-TV Power (ATC288 only)	1607090004
P2	4 Pin Square Wire Connector w/Contacts (ATC076 only)	1813500004		Plastic Front Panel	1450960004
	Negative Polarizing Key f/P2	1813510001		Front Panel Inlay	1518700001
P102	3 Pin Female Connector (ATC181, ATC184 & ATC288)	1807340001		Window f/Neon Lamp	1450970001

A10037-A001 TUNER MOUNTING
P.C. BOARD OVERLAY
(VIEWED FROM THE COMPONENT SIDE)



VHF TUNER 3403010004 SCHEMATIC DIAGRAM



VHF TUNER 3403010004

Courtesy of the Manufacturer

NOTES:
1. CAPACITANCE VALUES OF 1.0 OR GREATER ARE IN PICOFARADS.
2. CAPACITANCE VALUES LESS THAN 1 ARE IN MICROFARADS.
3. RESISTOR VALUES ARE IN OHMS UNLESS OTHERWISE SPECIFIED.
4. WIRE GAUGE IS 30 UNLESS OTHERWISE SPECIFIED.
5. WIRE GROUP 2 ONLY.

Coils
L1
L2
L3
L4
L5
L6
L7
L8
L9
L10
L11
L12
L13
L14
L15
L16
L17
L18
L19
L20
L21
L22
L23
L24

Coil, 1 1/2 Turns
Coil, 1 1/2 Turns
Coil, 2 1/2 Turns
Coil, 12 1/2 Turns
Coil, 12 1/2 Turns
Coil, 12 1/2 Turns
Coil, 11 1/2 Turns
Coil, 14 1/2 Turns
Coil, 8 1/2 Turns
Coil, 4 1/2 Turns
Coil, RF Choke
Coil, 14 1/2 Turns
Coil, 16 1/2 Turns
Coil, 20 1/2 Turns
Coil, 15 1/2 Turns
Coil, 14 1/2 Turns
Coil, 5.6uH, Peaking
Coil, Inductor - Fixed
Coil, 3 1/2 Turns
Coil, 6 1/2 Turns

3615070017
3615070017
3614445690
3616830001

Semiconductors
Q1 Transistor, Mosfet
Q2 Transistor, Mosfet - Mixer
Q3 Transistor, RF - Amp
Q4 Transistor, (NPN) Osc.
D1 Diode, Bandswitch
D2 Diode, Bandswitch
D3 Diode, Bandswitch
D4 Diode, Bandswitch
D5 Diode, Bandswitch
D6 Diode, Bandswitch
VR1 Diode, Varactor
VR2 Diode, Varactor
VR3 Diode, Varactor
VR4 Diode, Varactor
Miscellaneous
Connector
Cover Tuner VHF (2 used)
Clip - Heatsink, Transistor
Shield, Bottom
Shield, Ant.

6103510001
6103990001
6103990001
6104000001
5302051003
5302051003
5302051003
5302051003
5301811001
5302051003
5301881004
5301881004
5301881004

1812850008
7334360001
7334470001
7336920001
7336940001

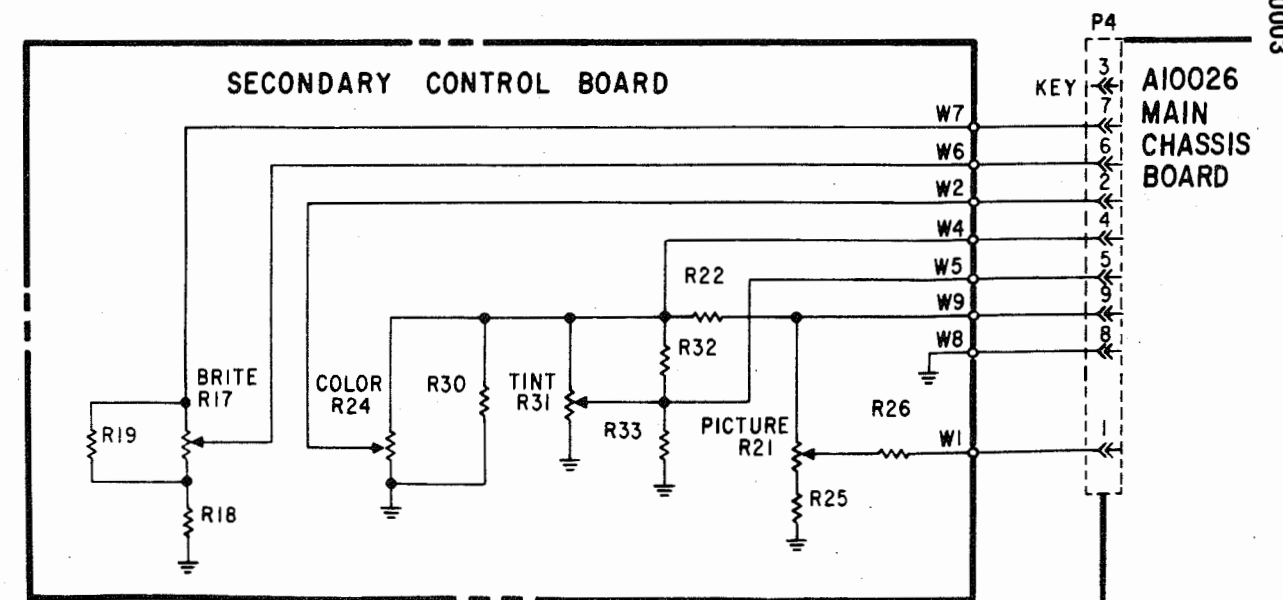
A10028-A001, ASC079-A001 & A002, AND ASC120-A001 SECONDARY CONTROL BOARD ASSEMBLY REPLACEMENT PARTS LIST

Ref.	Description	Part No.	Ref.	Description	Part No.
Resistors			ASC079-A002 Controls		
R18	Carbon Film, 2 kilohm, 5%, ¼W	2302812025	R17	Brightness Control, 1 kilohm	2204130022
R19	Carbon Film, 51 ohm, 5%, ¼W	2302815105	R21	Picture Control, 5 kilohm	2204130021
R22	Carbon Film, 6.2 kilohm, 5%, ¼W	2302816225	R24	Color Control, 20 kilohm	2204130023
R25	Carbon Film, 1 kilohm, 5%, ¼W	2302811025	R31	Tint Control, 200 kilohm	2204130024
R26	Carbon Film, 18 kilohm, 5%, ¼W	2302811835			
R30	Carbon Film, 8.2 kilohm, 5%, ¼W	2302818225	ASC120-A001 Control		
R32	Carbon Film, 100 kilohm, 5%, ¼W	2302811045	R17	Brightness Control, 1 kilohm	2204590012
R33	Carbon Film, 100 kilohm, 5%, ¼W	2302811045	R21	Picture Control, 4.7 kilohm	2204590009
			R24	Color Control, 20 kilohm	2204590013
			R31	Tint Control, 200 kilohm	2204590014
			R34	Sharpness Control, 10 kilohm	2204590001
A10028-A001 Controls			Miscellaneous		
R17	Brightness Control, 1 kilohm	2204130015	P4	9 Pin Square Wire Connector, w/ contacts (A10028 & ASC079 only)	1813500009
R21	Picture Control, 4.7 kilohm	2204130005			
R24	Color Control, 20 kilohm	2204130006	P4	9 Pin Square Wire Connector, w/ contacts (ASC120 only)	1817140309
R31	Tint Control, 200 kilohm	2204130007	P11	4 Pin Square Wire Connector, w/ contacts (ASC120 only)	1817140404
ASC079-A001 Controls					
R17	Brightness Control, 1 kilohm	2204130016			
R21	Picture Control, 4.7 kilohm	2204130019			
R24	Color Control, 20 kilohm	2204130017			
R31	Tint Control, 200 kilohm	2204130018			

A10028-A002 SECONDARY CONTROL PACK REPLACEMENT PARTS LIST

Ref.	Description	Part No.	Ref.	Description	Part No.
Controls					
	Quad Control Pack	2204610001	Miscellaneous		
			P4	9 Pin Square Wire Connector Negative Polarizing Key 1/P4	1813500009 1813510001

SECONDARY CONTROL BOARD ASSEMBLY SCHEMATIC DIAGRAM



Courtesy of the Manufacturer

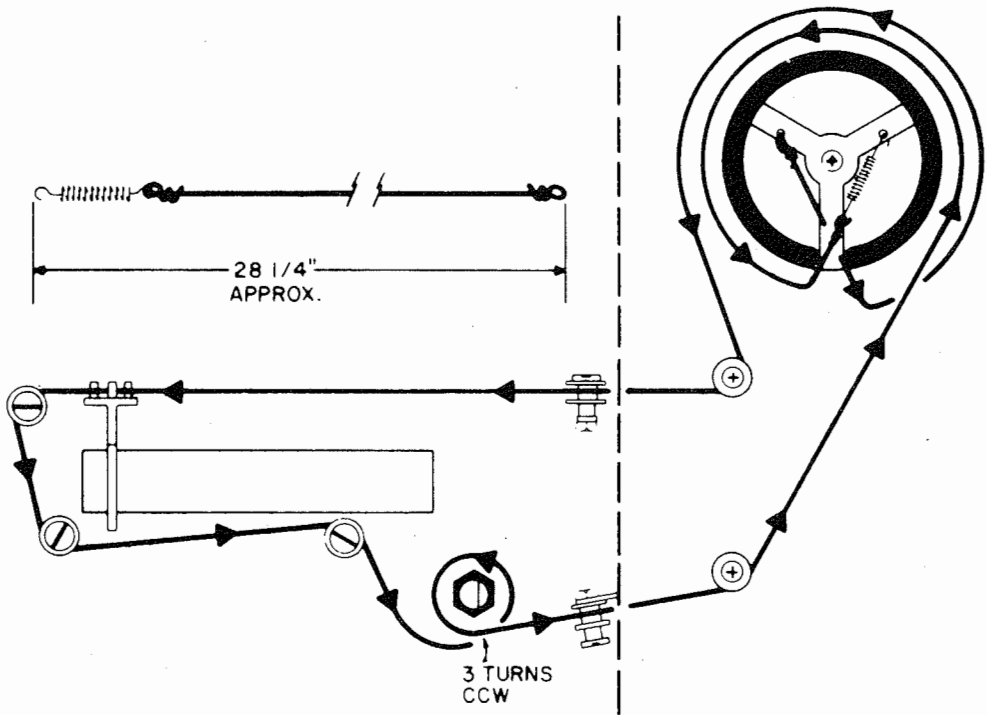
SECONDARY CONTROL SCHEMATIC AND PARTS LIST

MAGNAVOX CHASSIS
19C301 THRU 19C314, 7044780003

FOLDER 2

Courtesy of the Manufacturer

DIAL STRINGING



PARTS LIST AND DESCRIPTION

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

SEMICONDUCTORS (Select replacement transistor for best results)

ITEM No.	TYPE No.	MFG. PART No.	REPLACEMENT DATA					ZENITH PART No.
			GENERAL ELECTRIC PART No.	NTE PART No.	PHILIPS ECG PART No.	RCA PART No.	WORKMAN PART No.	
D302,3	181-1	5301811001	GE-300	NTE177	ECG177	SK9091/177	WEP1062/177	103-131
D400		5302621001	GE-531	NTE125	ECG125	SK3081/125	WEP170/125	903-334
D402		5302621001	GE-531	NTE125	ECG125	SK3081/125	WEP170/125	903-334
D404		5301811001	GE-300	NTE177	ECG177	SK9091/177	WEP1062/177	103-131
D406		5301811001	GE-300	NTE177	ECG177	SK9091/177	WEP1062/177	103-131
D408	BAS11	5302611001	GE-511	NTE552	ECG552	SK9000/552	WEP172/506	103-287
D410		5302601002						
D414		5302611001	GE-511	NTE552	ECG552	SK9000/552	WEP172/506	103-287
D452	BYV95B	5302601001		NTE580	ECG580	SK5036/580		
D454		5302601001		NTE580	ECG580	SK5036/580		
D456	BYV95B	5302681001	GE-514	NTE519	ECG519	SK3100/519	WEP925/519	103-131
D457		5302681001	GE-514	NTE519	ECG519	SK3100/519	WEP925/519	103-131
D458		5301840001		NTE580	ECG580	SK5036/580		
D460	BYV95B	5302601001		NTE580	ECG580	SK5036/580		
D462	BYV95B	5302601001		NTE580	ECG580	SK5036/580		
D464		5302591001						
D466		5302601001		NTE580	ECG580	SK5036/580		
D500	126-1	5302611001	GE-511	NTE552	ECG552	SK9000/552	WEP172/506	103-287
IC100		61 21260001		NTE1545	ECG1545	SK9379/1545		
IC200	TBA120U	61 23700001			ECG1580			
IC202	TDA2611A	61 23270001			ECG1580			
IC300	303-1	61 23030001			ECG1566			
IC500		61 23280001		NTE1410	ECG1410	SK9016/1410	WEP1410/1410	
IC502		61 24450001						
IC502	TDA3651AQ	61 23290001			ECG1567			
Q130	TDA3651A	6103900001		NTE395+	ECG1567			
	BF524			NTE395+	ECG395+	SK9434+		
					ECG395+	SK9434+		

36 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.	MFG. PART No.	REPLACEMENT DATA					
			GENERAL ELECTRIC PART No.	NTE PART No.	PHILIPS ECG PART No.	RCA PART No.	WORKMAN PART No.	ZENITH PART No.
Q300	435-1	6104350001	GE-123AP+	NTE123AP+	EOG123AP+	SK3854/123AP+	WEP736/123A+	121-Z9000A+
Q302	434-1	6104340001	GE-82+	NTE159+	EOG159+	SK3466/159+	WEP62/159+	121-Z9003+
Q304	435-1	6104350001	GE-123AP+	NTE123AP+	EOG123AP+	SK3854/123AP+	WEP736/123A+	121-Z9000A+
Q400	435-2	6104350002	GE-123AP+	NTE123AP+	EOG123AP+	SK3854/123AP+	WEP736/123A+	121-Z9000A+
Q402	BF422	6104370001	GE-222*	NTE399	EOG399	SK9352/399	WEP68/287*	121-Z9045*
Q404	434-1	6104340001	GE-82+	NTE159+	EOG159+	SK3466/159+	WEP62/159+	121-Z9003+
Q406	434-1	6104340001	GE-82+	NTE159+	EOG159+	SK3466/159+	WEP62/159+	121-Z9003+
Q408	435-1	6104350001	GE-123AP+	NTE123AP+	EOG123AP+	SK3854/123AP+	WEP736/123A+	121-Z9000A+
Q410		6105110001		NTE47	EOG47	SK9459/47		
		6105330001		NTE51	EOG51	SK9452/51		
Q412	434-1	6104340001	GE-82+	NTE159+	EOG159+	SK3466/159+	WEP62/159+	121-Z9003+
Q452		6104330001		NTE2300	EOG2300			
Q500	435-1	6104350001	GE-123AP+	NTE123AP+	EOG123AP+	SK3854/123AP+	WEP736/123A+	121-Z9000A+
Q502		6104380001						
Q504	434-1	6104340001	GE-82+	NTE159+	EOG159+	SK3466/159+	WEP62/159+	121-Z9003+
Q506	434-1	6104340001	GE-82+	NTE159+	EOG159+	SK3466/159+	WEP62/159+	121-Z9003+
Q600		6102500003	GE-27	NTE171	EOG171	SK3201/171	WEP702/171	121-822
Q602		6102500003	GE-27	NTE171	EOG171	SK3201/171	WEP702/171	121-822
Q604		6102500003	GE-27	NTE171	EOG171	SK3201/171	WEP702/171	121-822
Q606	BC558	6104340001	GE-82+	NTE159+	EOG159+	SK3466/159+	WEP62/159+	121-Z9003+
Z400		5300731045	GE-82+	NTE159+	EOG159+	SK3466/159+	WEP62/159+	121-Z9003+
Z402		5300731045						
Z500		5301571180						

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

PARTS LIST AND DESCRIPTION (Continued)

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

MISCELLANEOUS

ITEM No.	PART NAME	MFR. PART No.	NOTES
#	VHF Tuner	3403010004	
#	VHF Tuner	3402780001	
#	VHF Tuner	3402890001	
#	VHF Tuner	3402460001	
#	UHF/VHF Tuner	3402630001	
#	Wedge	6448670001	Yoke (3 used)

For SAFETY use only equivalent replacement part.
(1) 2 used.

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
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

MAGNAVOX CHASSIS
19C301 THRU 19C314,7044780003

PARTS LIST AND DESCRIPTION (Continued)

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

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		MFG. PART No.	QUAM PART No.	
SP101	3" X 5" PM 16 Ohms	583508-1002 (1)	35A05Z16	

(1) Number on unit.

FUSE DEVICES

ITEM NO.	DESCRIPTION	MFG. PART NO.		NOTES
		DEVICE	HOLDER	
F400	2A 125V Slow-Blow	1810215200	1810070001 (1)	

For SAFETY use only equivalent replacement part.
(1) Two used

MISCELLANEOUS

ITEM No.	PART NAME	MFG. PART No.	NOTES
FB400	Ferrite Bead	3640050001	
FB499	Ferrite Bead	3640050001	
L400	Degaussing Coil		
J1	Jack	1813720002	IF Input
P1	Plug	181350005	Tuner
P2	Plug	181350004	Volume
P3	Plug	181350002	Speaker
P4	Plug	1813500009	Secondary Controls
	Plug	1817140309	Secondary Controls
P5	Plug	1807350002	On/Off Switch
P7	Plug	181350005	CRT Board
P8	Plug	181350005	CRT Board
P400	Cord	4614070001	AC Power, Polarized
S1	Switch	1606940006	AFT
	Switch	1606430006	AFT
S400	Switch	2204580001	Power, Part of Volume Control R3
		2203610003	Power, Part of Volume Control R3
S500	Switch	1606720001	Vertical Centering
SF130	Filter	3618020001	SAW
V701	CRT	19VMFP22	
	CRT	19VMGP22	
	CRT	A48AAP02XP	
	CRT	A48AAN01XP	
	CRT	A48AAK04XP	
V300	Filter	3617560001	Ceramic 4.5MHz
Y302	LC Trap	3616910003	3.58MHz
Y304	Crystal	5604040005	3.58MHz
	Antenna		UHF RUSSELL Replacement BOW-4H
	Antenna		VHF RUSSELL Replacement POR-MAG
			VHF RUSSELL Replacement Rod SIM-5H (1)
	Magnet	3615730008	Convergence and Purity
	P.C. Board	A10026-A001 thru -A006	Main
	P.C. Board	A10026-B007	Main
	P.C. Board	A10026-B008	Main
	P.C. Board	A10027-A002	CRT
	P.C. Board	A10027-A004	CRT
	P.C. Board	ASC067,079, ASC120, 123, 148	Secondary Board
	Socket	1813710103	CRT
	UHF Tuner	3403020003	
	UHF Tuner	3402770002	
	UHF Tuner	3402880001	

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	MFG. PART No.	ITEM No.	RATING	MFG. PART No.
C402	220 200V	2701392220	C482	4.7 50V	2701540001
C422A	40 380V	2701710001			
B	40 380V	2701710001			
C	200 380V	2701710001			

For SAFETY use only equivalent replacement part.

CAPACITORS Items Not Listed Are Normally Available At Local Distributors.

ITEM No.	RATING	MFG. PART No.	ITEM No.	RATING	MFG. PART No.
C137	18 NPO 50V 5%	2508411805	C350	100 NPO 50V 5%	2508411015
C141	56 NPO 50V 5%	2508415605	C352	68 NPO 50V 5%	2508416805
C155	100 NPO 50V 5%	2508411015	C354	68 NPO 50V 5%	2508416805
C160	100 NPO 50V 5%	2508411015	C400	.22 125V	2506472240
C164	56 NPO 50V 5%	2508415605	C404	2200 500V 10%	2508612229
C212	10 NPO 50V 10%	2508411008	C406	2200 500V 10%	2508612229
C303	56 NPO 50V 5%	2508415605	C421	51 N330 500V 5%	2508665105
C305	10 NPO 50V 10%	2508411008	C474	560 2KV 10%	2508840002
C306	100 NPO 50V 5%	2508411015		1000 2KV 10%	2508850009
C308	100 NPO 50V 5%	2508411015	C476	6200 2KV 5%	2508186225
C320	56 NPO 50V 5%	2508415605		6800 2KV 5%	2508186825
C322	40pF Trimmer	2602290001	C478	.033 250V 5%	2508173335
C324	22 NPO 50V 5%	2508412205		.039 250V 5%	2508173935
C326	56 NPO 50V 5%	2508415605	C483	1000 2KV 10%	2508850009
C328	220 N220 50V 5%	2508422215	C484	.39 500V 10%	2508050001
C330	39 NPO 50V 5%	2508413905	C528	68 NPO 5%	2508416805
C332	33 NPO 50V 5%	2508413305	C545	.033 250V 10%	2509603339
C346	68 NPO 50V 5%	2508416805	C600	3300 3KV 20%	2508840005
C348	39 NPO 50V 5%	2508413905			

For SAFETY use only equivalent replacement part.

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

ITEM NO.	FUNCTION	RESISTANCE	MFG. PART NO.	NOTES
R3	Volume Control	4700	2203610003	
	Volume Control	4700	2204580001	
R417	Brightness	1000	2204130015	
	Brightness	1000	2204130016	
	Brightness	1000	2204130022	
	Brightness	1000	2204590012	
R21	Picture	4700	2204130005	
	Picture	4700	2204130019	
	Picture	5000	2204130021	
	Picture	4700	2204590009	
R24	Color	20K	2204130006	
	Color	20K	2204130017	
	Color	20K	2204130023	
	Color	20K	2204590013	
R31	Tint	200K	2204130007	
	Tint	200K	2204130018	
	Tint	200K	2204130024	
	Tint	200K	2204590014	
R34	Sharpness	10K	2204590001	
R12	RF/AGC Delay	22K	2204162232	
R212	Audio Preset	10K	2204161032	
R301	Brightness Preset	330	2204163312	
R426	130V Adjust	10K	2204161032	
R500	Horizontal Width	22K	2204162232	
R516	Vertical Height	100	2204161012	

PARTS LIST AND DESCRIPTION (Continued)

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

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

ITEM NO.	FUNCTION	RESISTANCE	MFGR. PART NO.	NOTES
R542	Vert Frequency	2.2M	2204162252	
R546	Horiz Frequency	10K	2204161032	
R570	Horiz Centering	10K	2204161032	
# R602	Focus Adjust	50M	2204210003	
# R604	Screen (G2)	10M	2204081062	
R612	Red Drive	2200	2204202222	
R613	Red Cutoff	10K	2204201032	
R626	Green Drive	2200	2204202222	
R628	Green Cutoff	10K	2204201032	
R640	Blue Drive	2200	2204202222	
R642	Blue Cutoff	2200	2204201032	

For SAFETY use only equivalent replacement part.

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA		
		MFGR. PART No.	NTE PART No.	WORKMAN PART No.
# R402	1.8 10% 5W WW	2401211889	5W1D8	
# R404	PTC 8.7 Cold	2302070008		FR605
# R424	121K 1% .4W Metal Film	2302751214		
# R428	5620 1% .4W Metal Film	2302755622		
# R453	475 1% .4W Metal Film	2302754751		
# R455	511 1% .4W Metal Film	2302755111		
	806 1% .4W Metal Film	2302758061		
# R456	2.2 5% 1/3W Carbon Film Flameproof	2302682285		
# R458	2.2 5% 1/3W Carbon Film Flameproof	2302682285		
# R460	1 5% 1/2W Carbon Film Flameproof	2302701085	HW1D0	
# R462	15 5% 1/3W Carbon Film Flameproof	2302681595		
# R464	1 5% 1/3W Carbon Film Flameproof	2302681085		
# R466	2.7 10% 4W WW	2401202789		
# R468	68 5% 1/4W Carbon Film	2302816805		
# R501	22K 5% 2.5W Metal Film	2302662235		
# R555	100 5% 1/4W Carbon Film	2302811015	QW110	22-1072
# R556	10K 5% 1/4W Carbon Film	2302811035	QW310	22-1120
	30K 5% 1/4W Carbon Film	2302813035	QW330	
# R557	220 5% 1/4W Carbon Film	2302812215	QW122	22-1080
# R558	300 5% 1/4W Carbon Film	2302813015	QW130	
#	11K 5% 1/4W Carbon Film	2302811035	QW311	
# R559	100 5% 1/4W Carbon Film	2302811015	QW110	22-1072
# R560	6800 5% 1/4W Carbon Film	2302816825	QW268	22-1116
# R562	330 5% 1/4W Carbon Film	2302813315	QW133	22-1084
# R564	1500 5% 1/4W Carbon Film	2302811525	QW215	22-1100
# R565	820 5% 1/4W Carbon Film	2302818215	QW182	22-1094
# R566	150K 5% 1/4W Carbon Film	2302811545	QW415	22-1148
# R568	10K 5% 1/4W Carbon Film	2302811035	QW310	22-1120
# R600	6.2M 5% 1/2W Metal Film	2302676255		
# R601	100 5% 1/4W Carbon Film	2302811015	QW110	22-1072
# R606	560K 5% 1/4W Carbon Film	2302815645	QW456	22-1162

For SAFETY use only equivalent replacement part.

PARTS LIST AND DESCRIPTION (Continued)

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

COILS (RF-IF)

ITEM No.	FUNCTION	MFGR. PART No.	ITEM No.	FUNCTION	MFGR. PART No.
L1	RF Choke (330uH)	3606760021	L310	Peaking (6.8uH)	3618356899
L127	Peaking		L312	Peaking (6.8uH)	3618356899
L129	47.25MHz Trap	3617990005	# L402	Line Choke	3619150001
L130	RF Choke (1.2uH)	3618351290	L403	Peaking (22uH)	3618352209
L154	Peaking (.82uH)	3618350829	# L404	Peaking (5.6uH)	3618355699
L155	Video IF	3617990003	# L405	RF Choke (5.3uH)	3618000012
L156	AFT	3617990004	L406	Peaking (12uH)	3618000008
L157	Peaking (5.6uH)	3618355699	L408	Peaking (.5uH)	3618000010
L162	RF Choke (1.2uH)	3617351299	# L452	Peaking (5.3uH)	3618100012
L163	Peaking (.82uH)	3618350829	L454	RF Choke (12uH)	3618000008
L201	RF Choke (5.6uH)	3618355699			3618351209
L203	RF Choke (22uH)	3618352209	# L456	Peaking (370uH)	3619100001
L205	Sound IF	3619680001	# L458	Peaking (5.3uH)	3618000005
L207	Sound IF	3619680002	L460	RF Choke (12uH)	3618000008
L300	Peaking (10uH)	3618351009			3618000014
L301	Peaking (100uH)	3617351015	L461	RF Choke (12uH)	3618351209
L302	Peaking (39uH)	3618353909	# L462	RF Choke (22uH)	3618352209
L303	Peaking (47uH)	3617354705	# L464	Linearity	3616780006
L304	Peaking (18uH)	3618351809	L601	RF Choke (42uH)	3618000014
L308	Peaking (6.8uH)	3618356899			

For SAFETY use only equivalent replacement part.

COILS & TRANSFORMERS (Sweep Circuits)

ITEM No.	FUNCTION	MFGR. PART No.	OTHER IDENTIFICATION	NOTES
# DY1	Yoke Horiz 1.82mH	3619090001	361909-1 (1)	
# T400	90° Vert 20.4mH	3204030001	50061 (1)	
# T452	Horiz Driver	3619080002	361908-2D (1)	
	Horiz Output		3619640001 (2)	

For SAFETY use only equivalent replacement part.

(1) Number on unit.

(2) Models with Main Chassis A10026-B007.

TRANSFORMER (Radio)

ITEM No.	RATING			REPLACEMENT DATA	
	PRI.	SEC. 1	SEC. 2	MFGR. PART No.	NOTES
# T301				0075917001 (1)	

For SAFETY use only equivalent replacement part.

(1) Models with Radio Chassis 7044780003.

TRANSFORMER (Switch Mode)

ITEM No.	RATING			REPLACEMENT DATA	
	PRI.	SEC. 1	SEC. 2	MFGR. PART No.	NOTES
# T402	1-10 350V PP (1) @ 570mA DC	2-3 80V PP (1) @ 28mA DC	7-8 10.5V PP (1) @ 320mA DC	3618040001 312213850050 (2)	

For SAFETY use only equivalent replacement part.

(1) Horizontal rate

(2) Number on unit.