

FOR TERMINAL GUIDES AND NOTES
SEE PAGES 5, 76

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SCHEMATIC CIRCUITRACE = 11

MAGNAVOX CHASSIS STEREO/AMP DECODER BOARDS 19C501 THRU 19C519

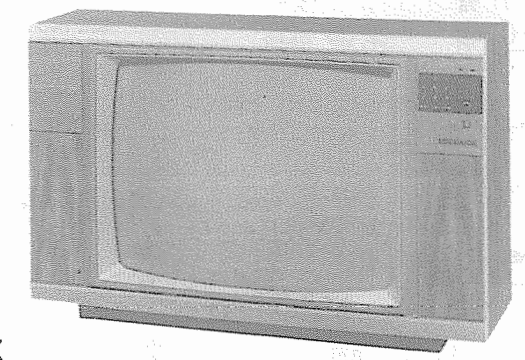
SET 2394 FOLDER 1

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Representative Model CS4153WA01



MAGNAVOX CHASSIS 19C501 THRU 19C519

SAFETY PRECAUTIONS

See page 73

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

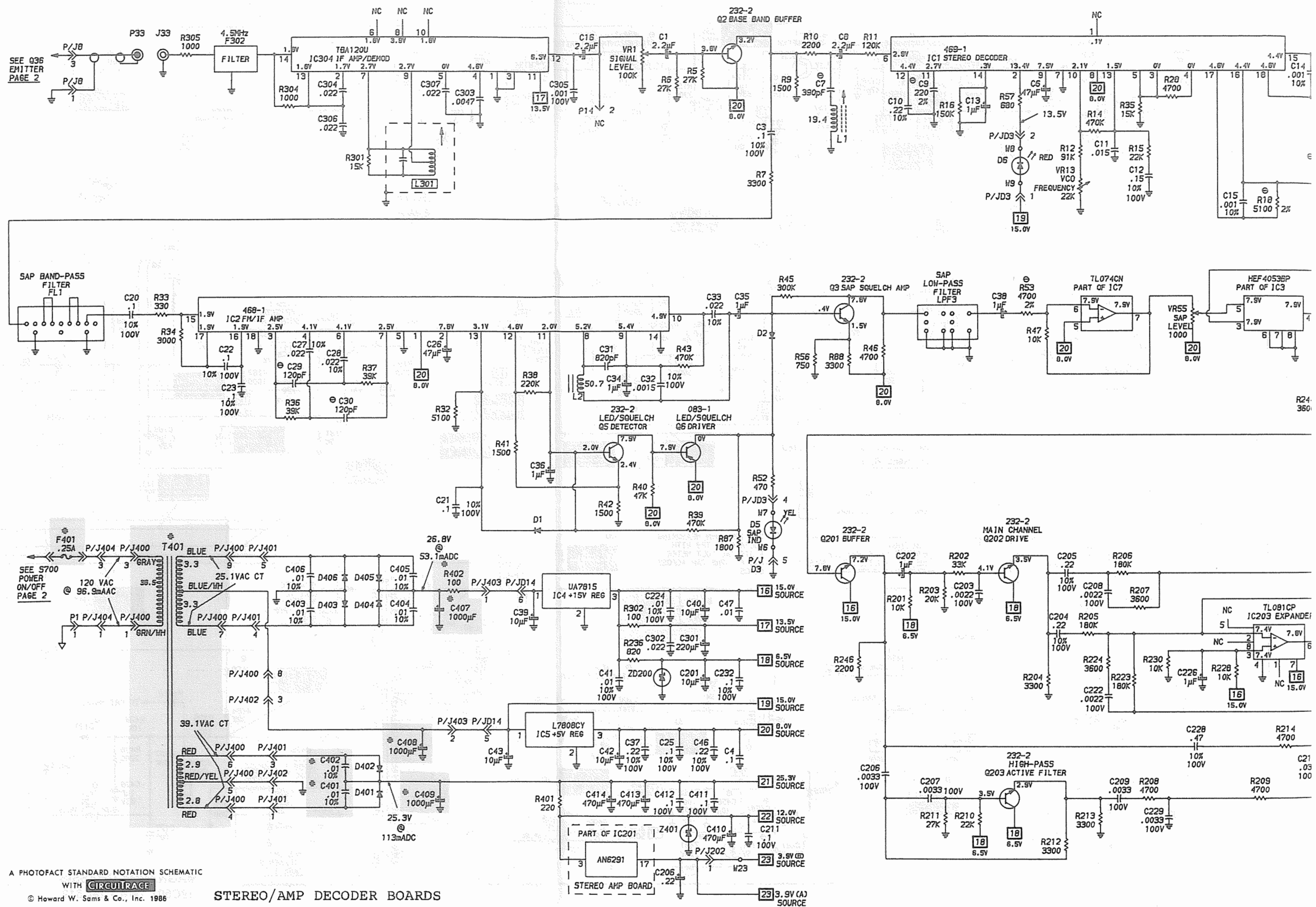
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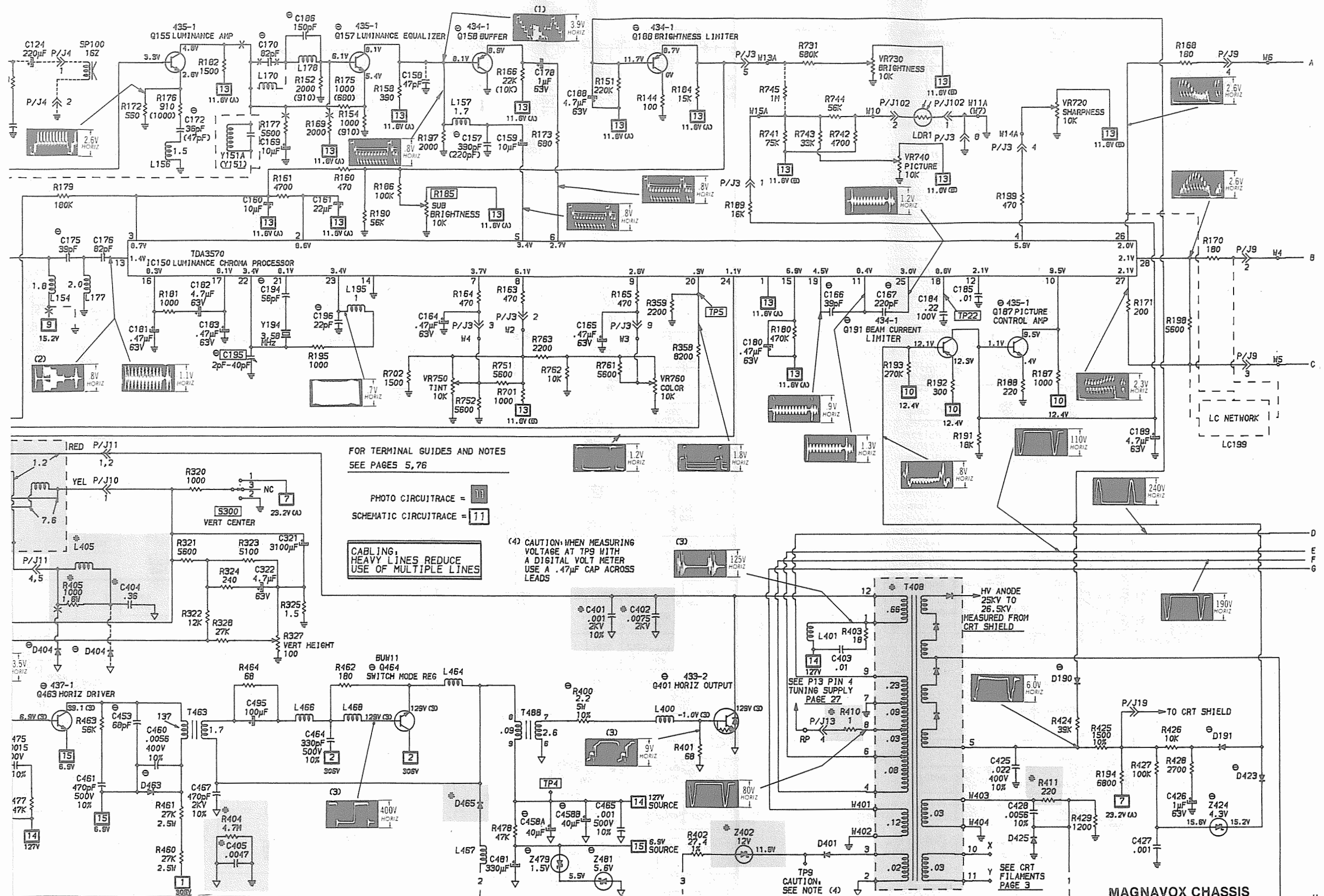
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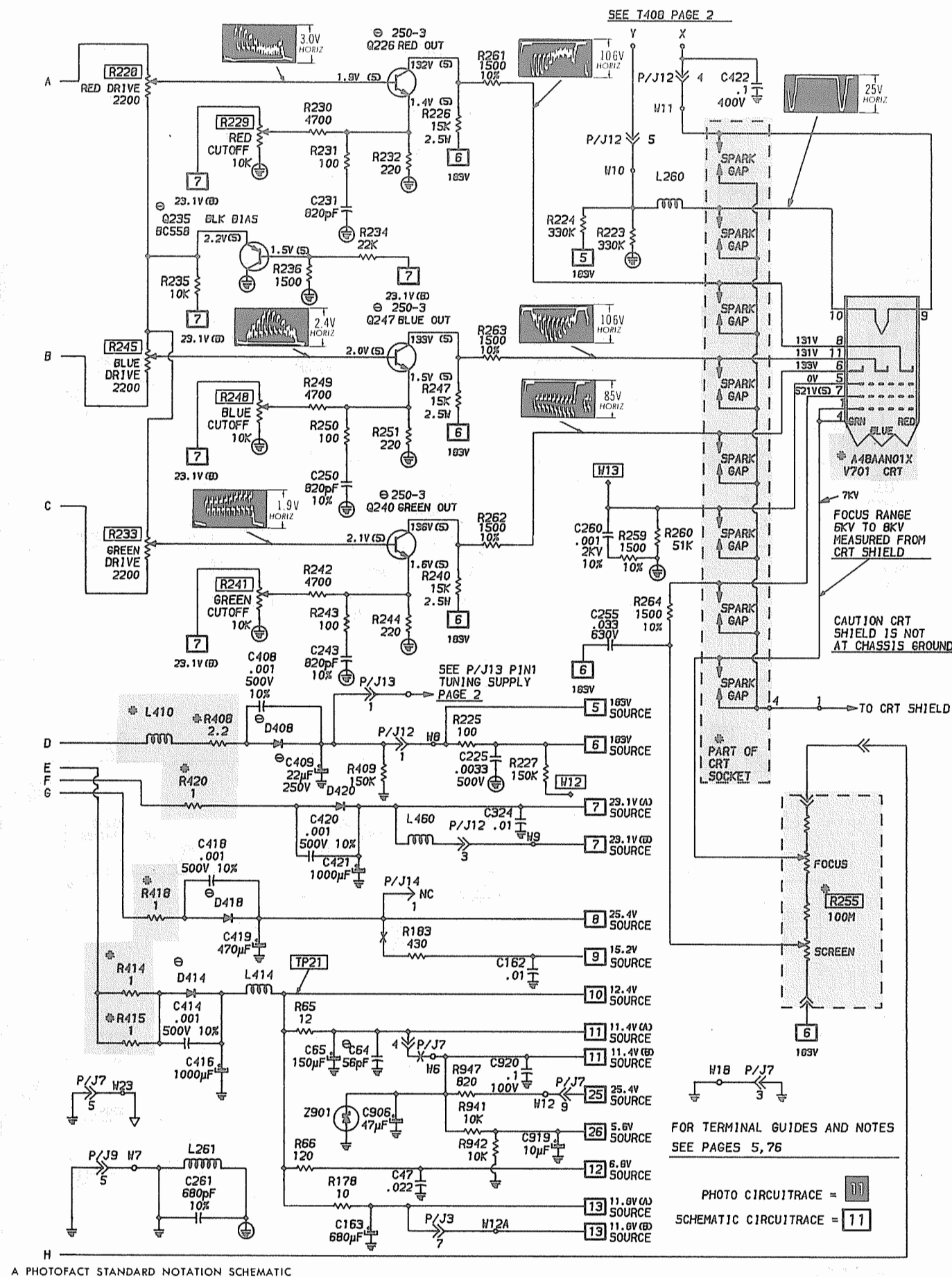
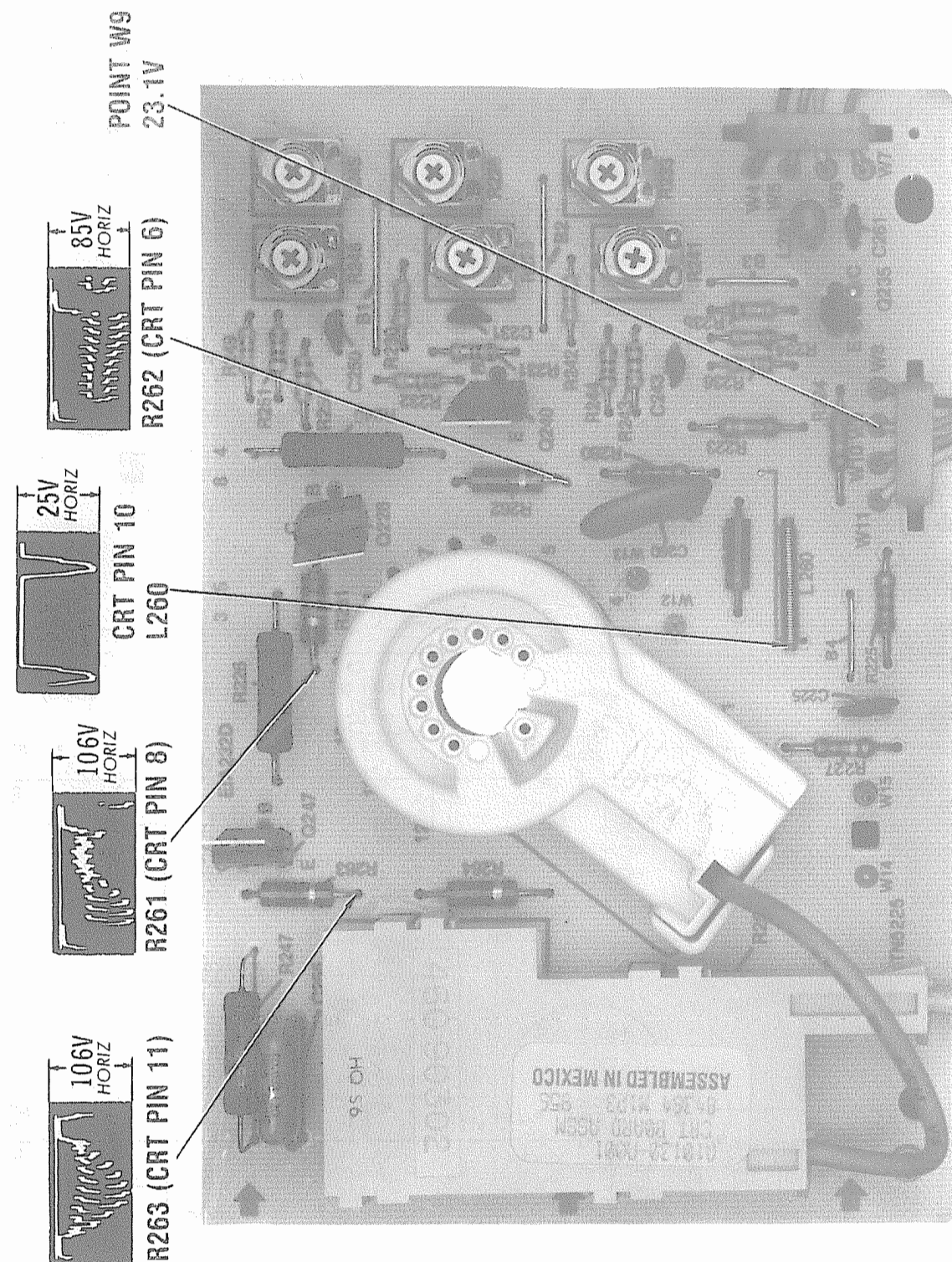
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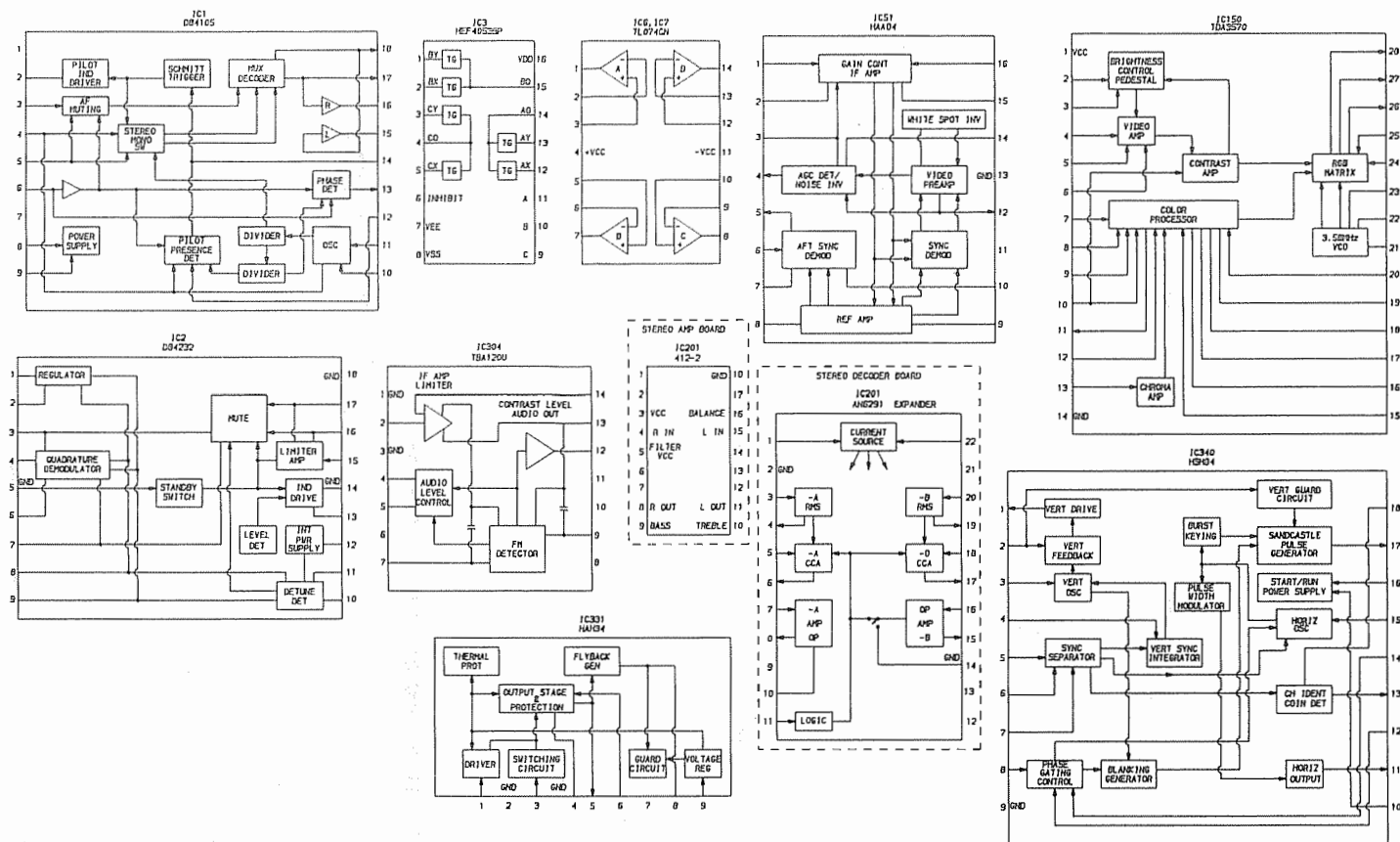






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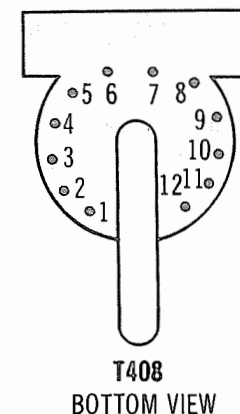
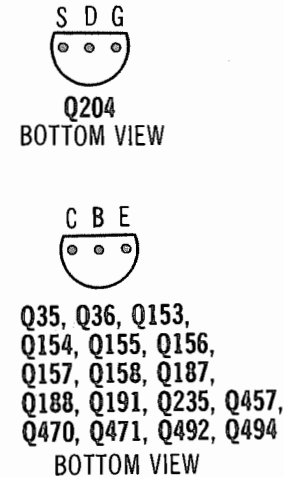
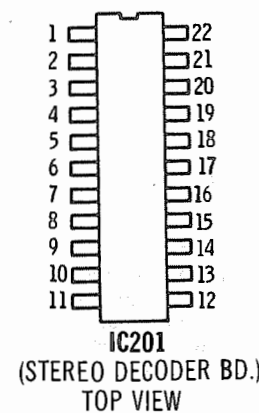
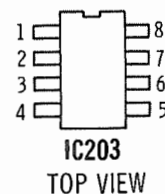
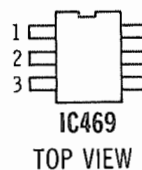
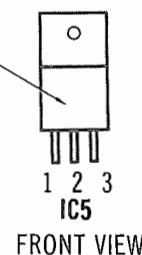
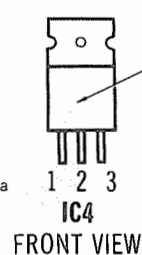
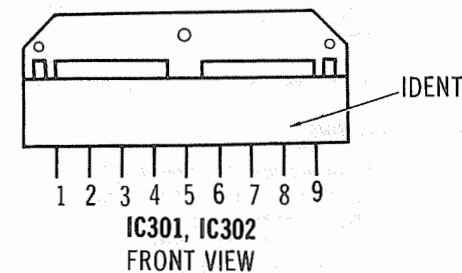
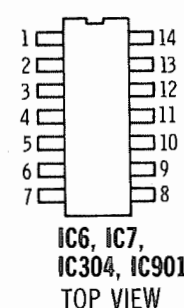
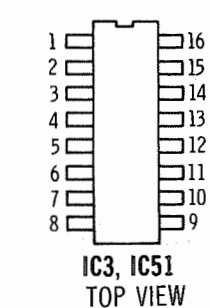
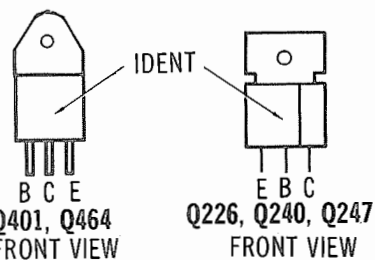
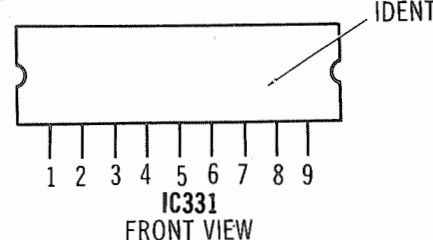
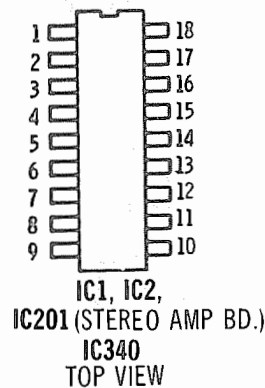
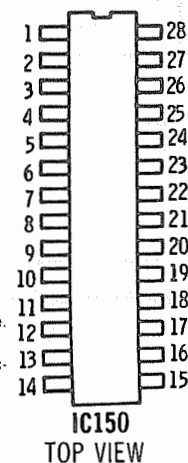


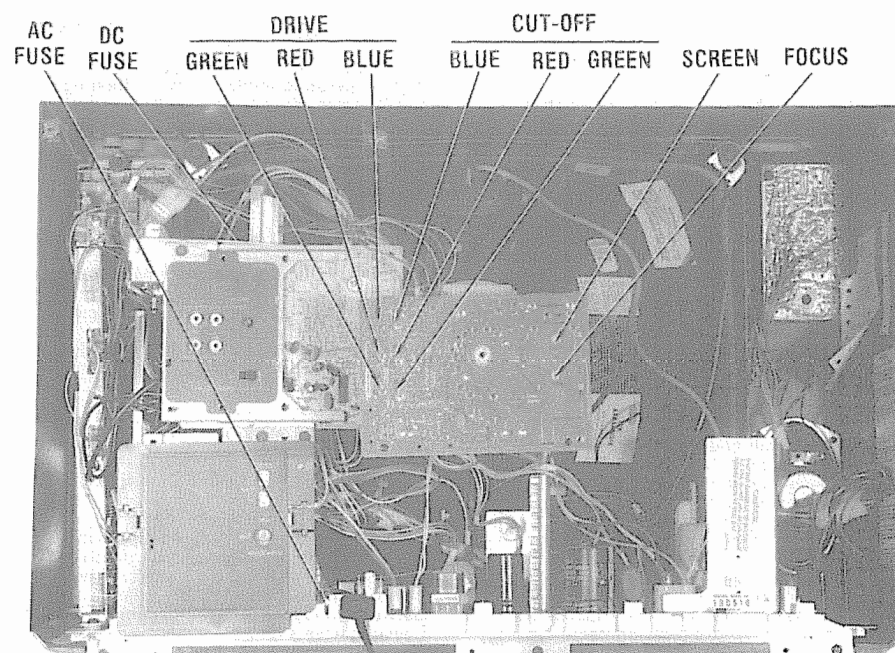


TERMINAL GUIDES

SCHEMATIC NOTES

- 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
- Isolated Ground
- Chassis
- Common tie point
- 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.
- 10% unless noted.
- Measurements with switching as shown, unless noted.
- (1) Waveform taken with Bar Sweep Generator.
- (2) Waveform taken with Chroma Bar Sweep Generator.
- (3) Waveforms and voltages taken from common tie point.
- (4) Caution: When measuring voltage at TP9 with a digital meter use a .47µf capacitor across leads.
- (5) Voltages taken from isolated ground.





CABINET-REAR VIEW

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

Remove knob from cabinet front. Remove six screws holding cabinet back and remove back. Disconnect speaker and antenna connectors. Disconnect HV anode, CRT socket, deflection yoke connectors, degaussing coil connector and ground leads. Remove two screws holding tuning selector panel assembly to cabinet front and remove assembly from cabinet. Channel readout is accessible for servicing. Remove three screws holding control assembly to cabinet front and remove assembly from cabinet. Remove three screws holding main

board, A/V interface, stereo amp, stereo decoder, tuner assembly to cabinet bottom and remove 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 screws holding CRT to cabinet front and lift CRT out of cabinet. Do not lift CRT by the neck.

SERVICING IN THE FIELD

CRT IMPLSION PROTECTION AND CLEANING

Implosion protection is an integral part of the picture tube, cleaning accomplished without CRT removal.

FUSE DEVICES

A .25-amp fuse is used on Stereo Amp board for low-voltage power supply protection. (See photo, Cabinet - Rear View.)

A 5-amp fuse is used for AC line protection. (See photo, Cabinet - Rear View.)

VHF/UHF TUNER

Ten numbered buttons are provided for two digit entry channel selection with CH▲(Channel Up) and ▼CH (Channel Down) provided for channel scanning. Fine tuning is automatic. No pretuning.

HORIZONTAL OSCILLATOR

Adjustment of the horizontal hold is accomplished by the proper setting of the Horizontal Frequency control.

FOCUS

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

AGC

The AGC may be varied by AGC Delay Control. See Alignment Photo.

CENTERING

Horizontal centering is accomplished by proper adjustment of the Horizontal Centering control. (See Alignment Photo.)

Vertical centering is accomplished by proper adjustment of the Vertical Centering Control. (See Alignment Photo.)

TV ALIGNMENT INSTRUCTIONS (Continued)

VIDEO IF ALIGNMENT (BAR SWEEP GENERATOR)

BAR SWEEP GENERATOR	SCOPE INPUT	REMARKS
To Antenna Terminal.	To TP19 (Junction R60 and C60)	Perform Video IF Adjustments per SWEEP/MARKER GENERATOR instructions above. See Figure 3.

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 TP20 (Pin 6 of Connector P6)	To J1	44.00MHz	45.75MHz	Adjust L55 for Maximum gain and symmetry of response. See Figure 4.

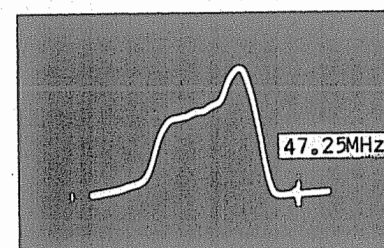


Figure 1

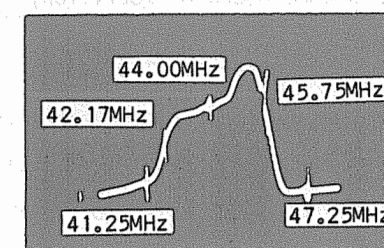


Figure 2

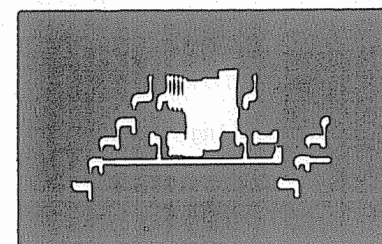


Figure 3

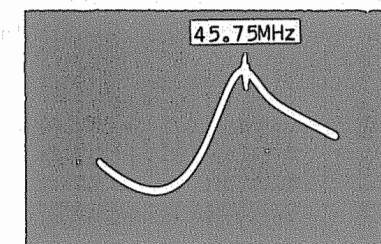


Figure 4

MAGNAVOX CHASSIS
19C501 THRU 19C519

FOLDER 1

SECONDARY CONTROL BOARD

GridTrace LOCATION GUIDE

- E-3

A-3

F-1

G-5

G-4

G-3

B-3

D-1

A-5

B-6

C-6

C-7

I-2

N-2

C-2

D-2

D-4

B-2

B-4

L-2

L-4

L-7
- R701

R702

R731

R741

R742

R743

R744

R751

R752

R761

R762

R763

S703

S705

S706

VR720

VR730

VR740

VR750

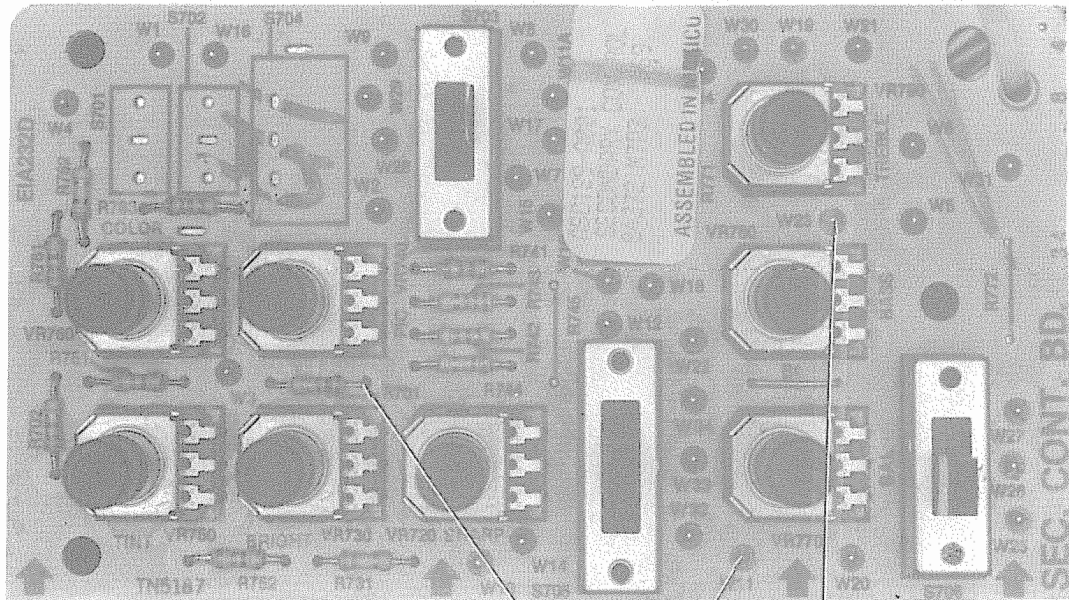
VR760

VR770

VR780

VR790

A Howard W. Sams **GRIDTRACE™** Photo



11.8V(B)

13

3.9V(B)

23

SECONDARY CONTROL BOARD

A Howard W. Sams **CIRCUITRACE** Photo

TEST JIG HOOKUP

FUNCTION	Chek-A-Color ADAPTER NO.	RCA / TeleMatic ADAPTER NO.	ZENITH ADAPTER NO.
CRT YOKE YOKE SETTING	B239 D4153 (1) YP2A, Focus Tap	10J683 10J729 (1) Horiz 1.9, Vert 8.0 FVS-3950 Focus Voltage Supply	852-441 852-412 (2) Horiz 1.8, Vert 14 Focus Tap

(1) If Vertical or Horizontal Sweep is reversed, rotate respective connector 180 degrees.

P11 PIN 1 & 2	P11 PIN 3 & 4	P10 PIN 1	P10 PIN 3	(P.C. BOARD)
------------------	------------------	--------------	--------------	--------------

(2) RED BLUE YELLOW GREEN

TROUBLESHOOTING

POWER SUPPLY CIRCUIT DESCRIPTION

When 120V AC is applied across pins 3 and 5 of Connector P1, start up Diode D461 develops approximately 18.1V which is applied to Horizontal Optic Coupler IC (IC469), Coupler Driver Transistor (Q457) and Sync Processor IC (IC340). The horizontal signal developed by IC340 is fed to the base of Pulse Shaper Transistor (Q470) by Transistor Q457 and IC469. Simultaneously with the above described events approximately 306V* is developed at the cathode of Diode D460 as a result of a voltage doubler circuit. The 306V* is applied to Horizontal Driver Transistor (Q463), Switch Mode Regulator Transistor (Q464), Pulse Shaper Transistor (Q470) and Pulse Width Regulator Transistor (Q471). As a result, these transistors are pulsed into conduction along with Horizontal Output Transistor (Q401), and their operation is sustained by the horizontal signal developed by IC340 being applied to the base of Transistor Q470. When Transistor Q401 is pulsed On, the B+ sources developed from Horizontal Output Transformer (T408) are pulsed into operation and continue to operate provided that the Horizontal Oscillator in IC340, Transistors Q401, Q457, Q463, Q464, Q470, Q471 and Error Latch Transistors (Q492, Q494) and Transformers T408, Horiz Driver (T463), Switch Mode (T488) and associated circuitry are not defective.

* With respect to common tie point.

POWER SUPPLY

If there is no raster or sound, check AC Fuse (F450). If Fuse is open, check Diodes D459, D460, Capacitors C450, C455, C457 and Electrolytic C458. If F450 is good, apply 120V AC and check for 120V AC between Connector P1 pin 3 and ground*. If 120V AC is missing, check Line Filter (L450) and On/Off Switch S700. If 120V AC is present at pin 3 of Connector P1, check for 306V* at the cathode of Diode D460

and 18.1V at the cathode of Diode D461. If these voltages are missing, check Resistors R455, R489, Start-Up Transformer (T453) and Electrolytic C476. If there is 306V* at the cathode of Diode D460 and 18.1V at the cathode of Diode D461, refer to the "Horizontal" section of this Troubleshooting guide.

* With respect to common tie point.

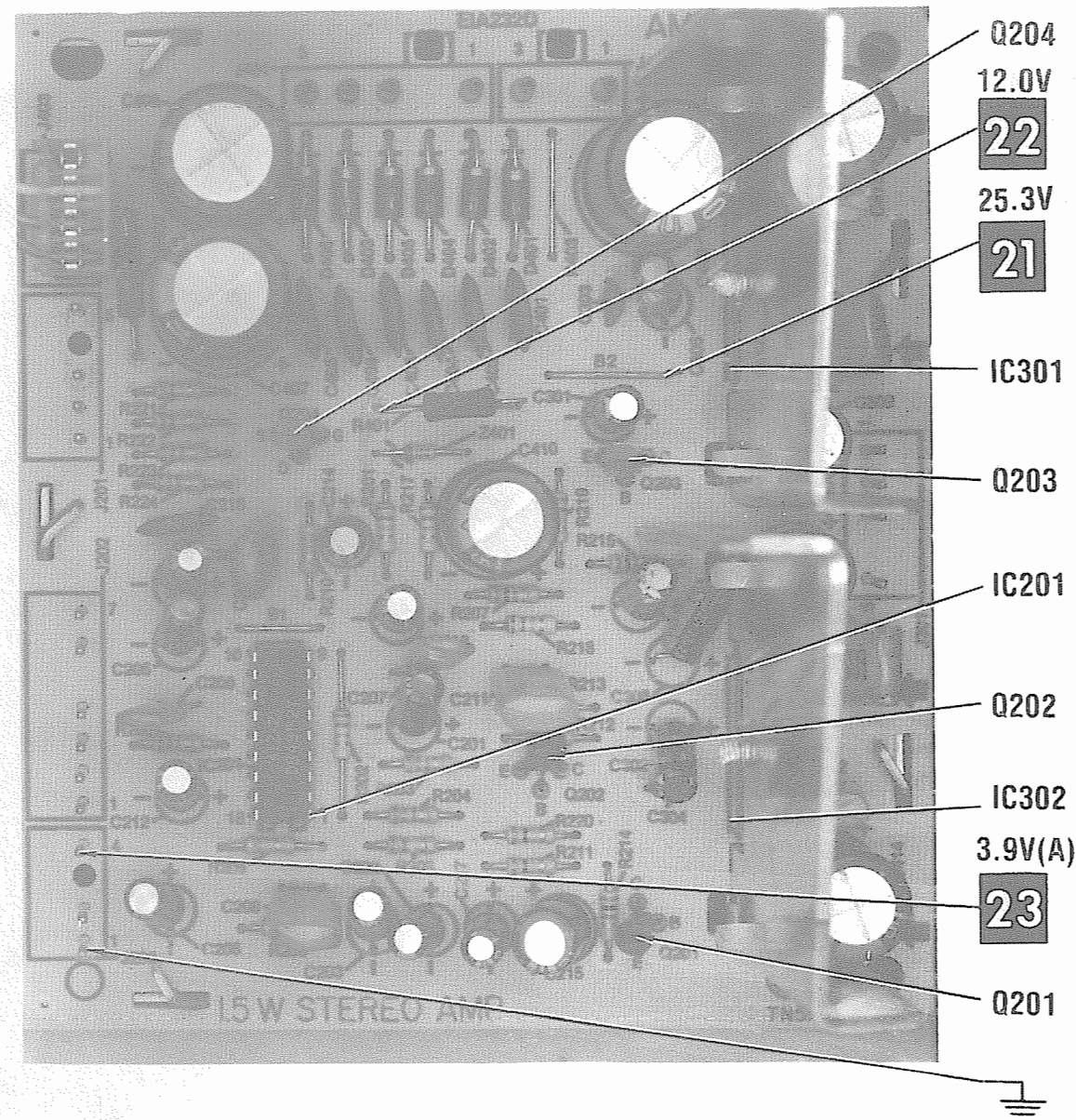
HORIZONTAL

If there is no horizontal sweep, check for 306V* at the cathode of Diode D460 and 18.1V at the cathode of Diode D461. If these voltages are missing, refer to the "Power Supply" section of this Troubleshooting guide. If these voltages are present, inject a horizontal signal at pin 5 of Optic Coupler IC (IC469). If horizontal sweep returns, check voltages, waveforms and components associated with pins 8, 10 thru 16 of Sync Processor IC (IC340), Coupler Driver Transistor (Q457) and IC469. If horizontal sweep does not return, check voltages, waveforms and components associated with Horizontal Output Transistor (Q401), Horizontal Driver Transistor (Q463), Switch Mode Regulator Transistor (Q464), Pulse Shaper Transistor (Q470), Pulse Width Regulator Transistor (Q471), Error Latch Transistors (Q492, Q494), Horizontal Driver Transformer (T463), Switch Mode Transformer (T488), Horizontal Output Transformer (T408) and the Deflection Yoke DY1. Check for 11.9V at TP9, 183V at the cathode of Diode D408, 12.4V at the cathode of Diode D414, 25.4V at the cathode of Diode D418 and 23.2V at the cathode of Diode D420. Horizontal linearity or foldover problems may be caused by Capacitors C401, C402, C404 and Horiz Linearity Coil (L405) being defective. If the horizontal oscillator is off frequency, check the voltages, waveforms and components associated with pins 8, 12, 14 and 15 of IC340.

* With respect to common tie point.

MAGNAVOX CHASSIS
19C501 THRU 19C519

FOLDER 1



NOTE: ARROWS ON IC'S INDICATE PIN 1 UNLESS NOTED

TROUBLESHOOTING (Continued)

VERTICAL

If there is no vertical sweep, inject a vertical signal at pin 1 of Sync Processor IC (IC340). If the vertical deflection returns, check the voltages, waveforms and components associated with pins 1, 2 and 3 of IC340. If vertical deflection does not return, check the voltages, waveforms and components associated with Vertical Output IC (IC331) and the Deflection Yoke (DY1). If the vertical oscillator is off frequency, check the voltages and components associated with pins 1, 2 and 3 of IC340. Vertical linearity or foldover problems may be caused by Electrolytics C321, C322 and C331 being defective.

SYNC

If there is no vertical or horizontal sync, check for a video waveform at TP6. If the waveform is missing, check voltages and components associated with TP6. If there is no vertical sync, check the voltages, waveforms and components associated with pins 2, 3, 4, 6, and 7 of Sync Processor IC (IC340). If there is no horizontal sync, check the voltages and components associated with pins 6, 7 and 15 of IC340.

RASTER

Check the CRT and CRT voltages. If there is no green, check the voltages, waveforms and components associated with pin 27 of Luminance Chroma Processor IC (IC150) and Green Output Transistor (Q240). If there is no blue, check

MISCELLANEOUS ADJUSTMENTS

COLOR TEMPERATURE ADJUSTMENT

Disconnect IF Input Cable from J1 to obtain a blank raster. Set Brightness, Picture and Color Controls to MINIMUM. Set Tint and Sharpness Controls to midrange. Set G2 Screen (R255), Sub Brightness (R185), Blue Cutoff (R248), Red Cutoff (R229), Green Cutoff (R241), Blue Drive (R245), Red Drive (R228) and Green Drive (R233) Controls fully counterclockwise. Short pins 1 and 7 of Vertical Output IC (IC331) to ground. Connect a jumper from W12 to W13 on CRT Socket Board. Adjust G2 Screen Control until a dim line of one color just appears. Disconnect jumper from W12 to W13. Turn Sub Brightness Control clockwise until a dim line of one color appears. Adjust the cutoff controls of the two missing colors to produce a low level white line. Disconnect short from pins 1 and 7 of IC331. Reconnect IF Input Cable to J1 and tune in a picture. Adjust Sub Brightness Control (R185) if necessary for a low level picture. Set Picture Control (VR740) to Maximum and set Brightness Control (VR730) to midrange. Adjust Drive Controls for best white in highlights of the picture.

PURITY ADJUSTMENT

NOTE: Allow 15 minute warm up. Degauss the picture tube and mounting brackets. Set Picture Control to MINIMUM and adjust Brightness Control for normal brightness. Disconnect

the voltages, waveforms and components associated with pin 28 of IC150 and Blue Output Transistor (Q247). If there is no red, check the voltages, waveforms and components associated with pin 26 of IC150 and Red Output Transistor (Q226). If the raster has a keystone shape, check the deflection yoke. If the raster has height or width problems, refer to the "Power Supply" and "Vertical" or "Horizontal" sections of this Troubleshooting guide.

CHROMA

If there is no color, check for a color waveform at pin 13 of Luminance Chroma IC (IC150). If the waveform is missing, check components associated with pin 13 of IC150. If a waveform is present, check for the proper color waveforms at pins 26, 27 and 28 of IC150. If the waveforms are missing, check the voltages, waveforms and components associated with pins 7 thru 12 and 16 thru 28 of IC150. Check the 3.58MHz oscillator to be sure it is operating at the proper frequency. If there is no color sync, check the voltages, waveforms and components associated with pins 20, 21, 22 and 23 of IC150. If there is incorrect hue (tint), check the voltages and components associated with pin 7 of IC150. If there is no green, check the voltages and components associated with pin 27 of IC150, Green Output Transistor (Q240) and pin 6 of the CRT. If there is no blue, check the voltages and components associated with pin 28 of IC150, Blue Output Transistor (Q247) and pin 11 of the CRT. If there is no red, check the voltages and components associated with pin 26 of IC150, Red Output Transistor (Q226) and pin 8 of the CRT.

Plug from J1 (IF/Input) for a blank raster. Set Green (R241) and Blue (R248) Cutoff Controls fully counterclockwise to obtain a red raster. Loosen the yoke clamp and slide yoke back as close to 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).

RF AGC DELAY

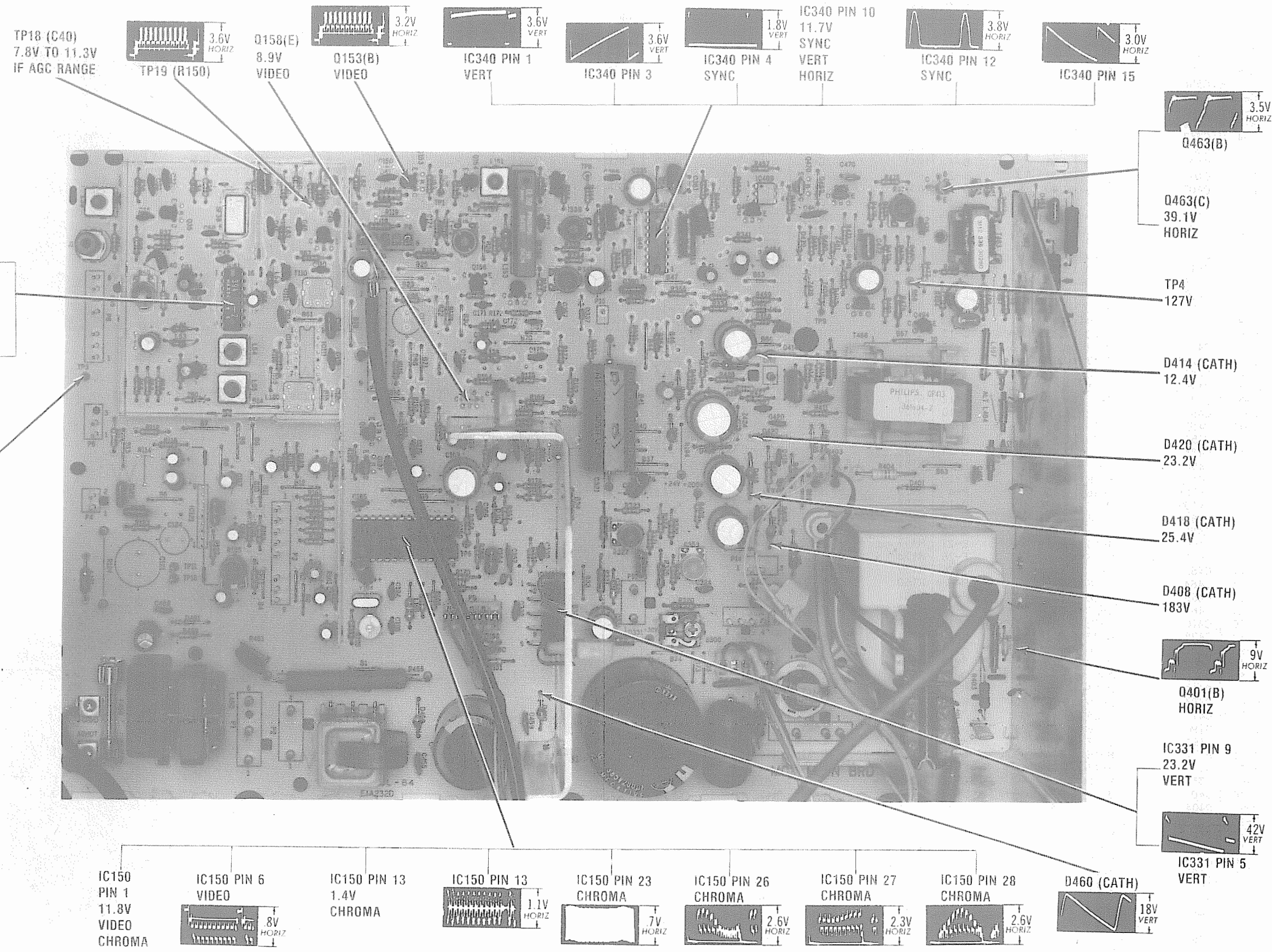
Tune in a weak station, or loosely couple the antenna to obtain a snowy picture. Set RF AGC Delay Control (R50) fully clockwise. Slowly turn RF AGC Delay Control counterclockwise to a point slightly beyond MINIMUM snow.

130V ADJUSTMENT

Use an isolation transformer for this adjustment. Adjust isolation transformer for 120V AC. Connect DC meter to TP4, low side to pin 1 of Connector P1. Adjust 130V Adjust Control (R474) for +130V DC \pm 1V DC.

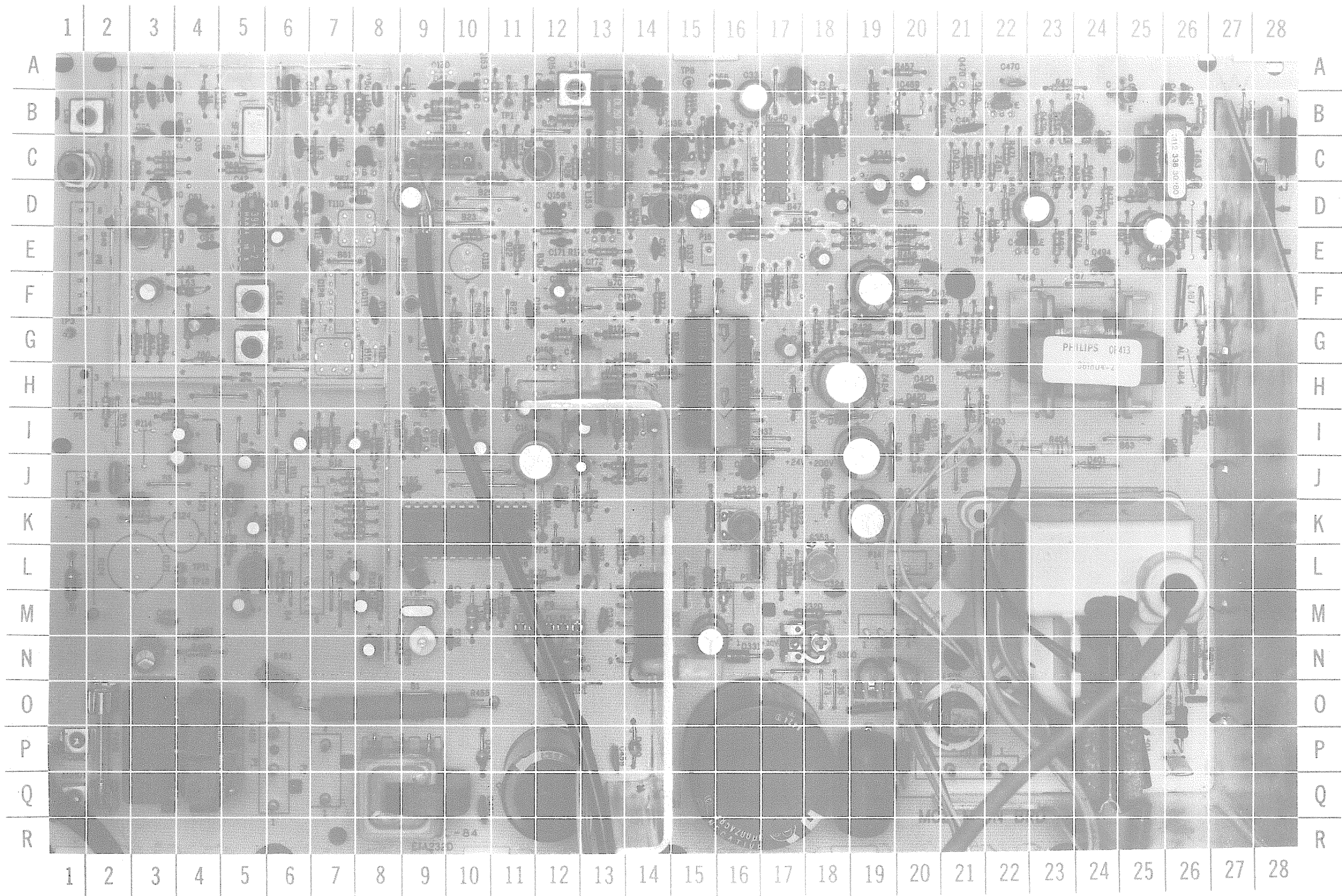
3.58MHz OSCILLATOR ADJUSTMENT

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 IC150) to TP21 (+12 volt source). Connect a jumper from TP5



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FOLDER 1



MAIN BOARD

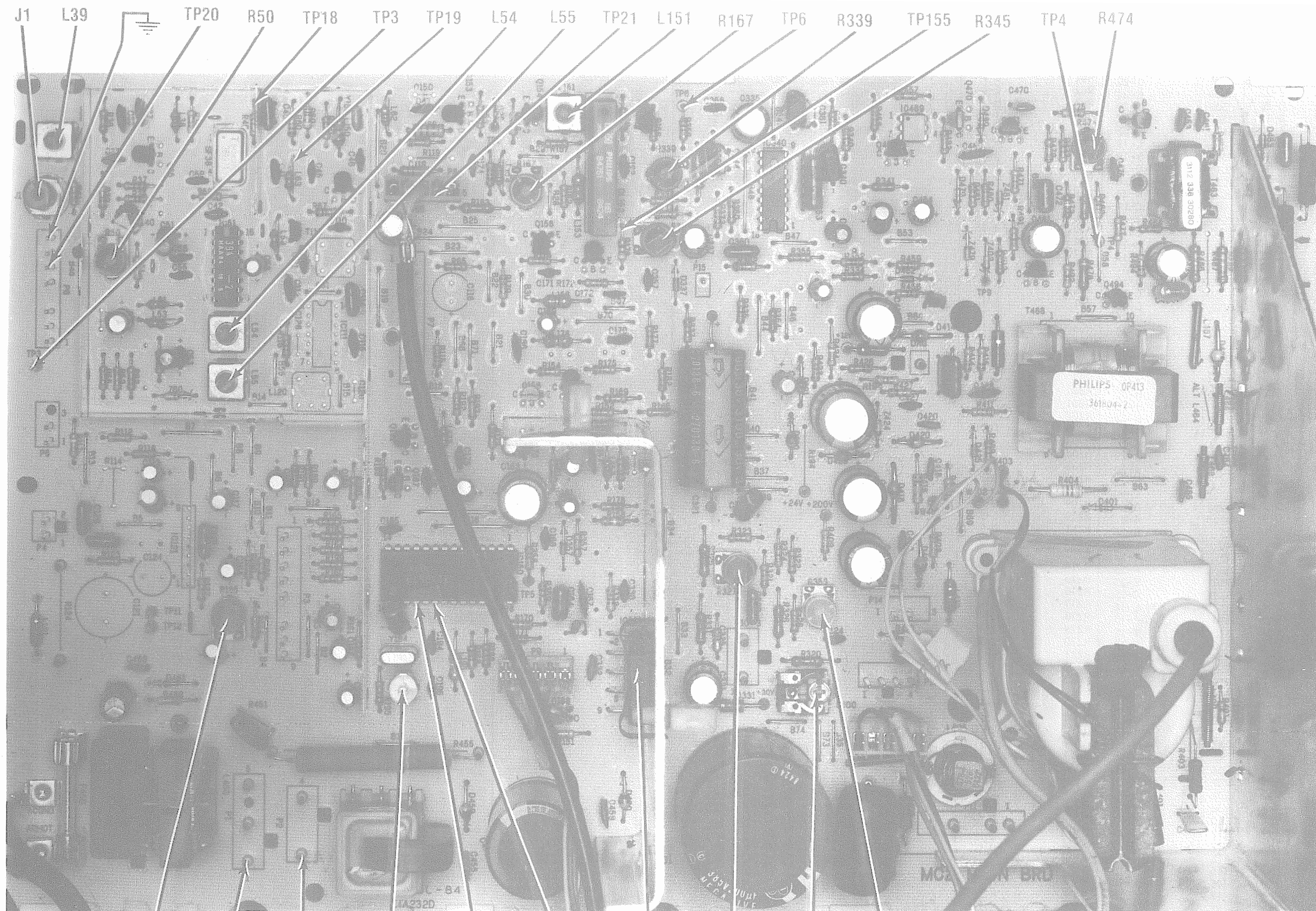
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SET 2394 FOLDER 1

MAGNAVOX CHASSIS
19C501 THRU 19C519

FOLDER 1

MAIN BOARD



J1 L39 TP20 R50 TP18 TP3 TP19 L54 L55 TP21 L151 R167 TP6 R339 TP155 R345 TP4 R474

R185 P1 C195 TP22 TP5 IC331 R327 S300 R353

MAIN BOARD

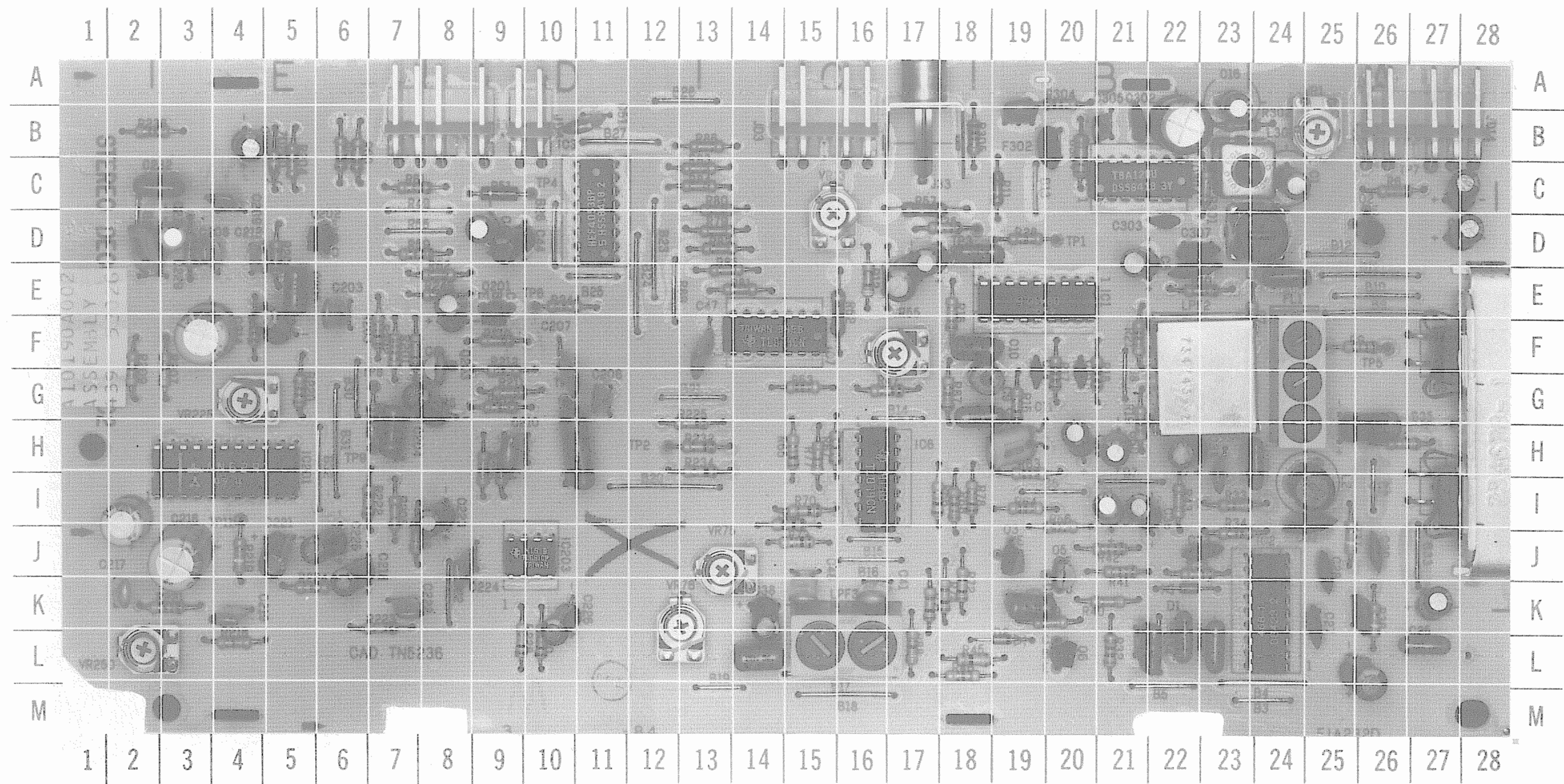
MAIN BOARD

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19C501 THRU 19C519

FOLDER 1

SET 2394 FOLDER 1

17



MAGNAVOX CHASSIS
19C501 THRU 19C519

Ref.	Description	Part No.	Ref.	Description
CAPACITORS			RESISTORS (Continued)	
C101	.001uF., 50Vdc, 10%, Z5P, Cer. Disc.	2508281029	R305	51k
C102	2.2uF., 50Vdc, Electrolytic	2701682050	R306	10k
C103	.001uF., 50Vdc, 10%, Z5P, Cer. Disc.	2508281029	R401	6.2k
C104	22pF., 50Vdc, 5%, NPO, Cer. Disc.	2508372205	R402	5.6k
C105	22pF., 50Vdc, 5%, NPO, Cer. Disc.	2508372205	R403	6.2k
C109	.001uF., 50Vdc, 10%, Z5P, Cer. Disc.	2508281029	R404	5.6k
C126	.001uF., 50Vdc, 10%, Z5P, Cer. Disc.	2508281029	R405	270 ohms, 1/4W
C128	1uF., 50Vdc, Electrolytic	2701681050	R406	270 ohms, 1/4W
C201	1uF., 100Vdc, 10%, Polyester Film	2508801049	R407	270 ohms, 1/4W
C202	2.2uF., 50Vdc, Electrolytic	2701682050	R408	270 ohms, 1/4W
C203	.047uF., 100Vdc, 10%, Polyester Film	2508794739	R409	270 ohms, 1/4W
C204	.33uF., 100Vdc, 10%, Polyester Film	2508803349	R410	270 ohms, 1/4W
C205	1uF., 100Vdc, 20%, Polyester Film	2508801040	R411	270 ohms, 1/4W
C206	.001uF., 50Vdc, 10%, Z5P, Cer. Disc.	2508281029	R414	12k
C405	.001uF., 50Vdc, 10%, Z5P, Cer. Disc.	2508281029	R415	22k
C406	.001uF., 50Vdc, 10%, Z5P, Cer. Disc.	2508281029	R416	470 ohm
C407	.001uF., 50Vdc, 10%, Z5P, Cer. Disc.	2508281029	R417	470 ohm
C408	.001uF., 50Vdc, 10%, Z5P, Cer. Disc.	2508281029	R501	22k, 2.5W, Metal Film
C409	.001uF., 50Vdc, 10%, Z5P, Cer. Disc.	2508281029	R511	20 ohm
C410	.001uF., 50Vdc, 10%, Z5P, Cer. Disc.	2508281029	R601	15k
C411	.001uF., 50Vdc, 10%, Z5P, Cer. Disc.	2508281029	R602	15k
C412	.001uF., 50Vdc, 10%, Z5P, Cer. Disc.	2508281029	R603	15k
C413	.001uF., 50Vdc, 10%, Z5P, Cer. Disc.	2508281029	R604	51k
C414	.001uF., 50Vdc, 10%, Z5P, Cer. Disc.	2508281029	R605	51k
C415	.001uF., 50Vdc, 10%, Z5P, Cer. Disc.	2508281029	R606	51k
C416	.001uF., 50Vdc, 10%, Z5P, Cer. Disc.	2508281029	R651	3k
C417	.001uF., 50Vdc, 10%, Z5P, Cer. Disc.	2508281029	R751	3.3k
C501	10uF., 50Vdc, Electrolytic	2701681150	R752	560 ohm
C510	.001uF., 500Vdc, 20%, Z5P, Cer. Disc.	2505521020	R753	16k
C511	1000uF., 16Vdc, Electrolytic	2701681316	R754	5.6k
C512	4.7uF., 50Vdc, Electrolytic	2701685050	SEMICONDUCTORS	
C513	.01uF., 50Vdc, 20%, Z5T, Cer. Disc.	2508291030	D101	Diode, Silicon
C514	2.2uF., 50Vdc, Electrolytic	2701682050	D126	Diode, Silicon
C601	.001uF., 50Vdc, 10%, Z5P, Cer. Disc.	2508281029	D127	Diode, Silicon
C602	.001uF., 50Vdc, 10%, Z5P, Cer. Disc.	2508281029	D203	Diode, Shottky
C603	.001uF., 50Vdc, 10%, Z5P, Cer. Disc.	2508281029	D510	Diode, Silicon
C651	.001uF., 50Vdc, 10%, Z5P, Cer. Disc.	2508281029	D654	Diode, Silicon
C652	.001uF., 50Vdc, 10%, Z5P, Cer. Disc.	2508281029	Z501	Diode, Zener, 30V
C653	.001uF., 50Vdc, 10%, Z5P, Cer. Disc.	2508281029	Q401	Transistor, PNP
C654	150uF., 16Vdc, Electrolytic	2701688216	Q402	Transistor, PNP
C655	560pF., 2k Vdc, 10%, Cer. Disc.	2508840002	Q601	Transistor, PNP
C701	100uF., 16V, Electrolytic	2701681216	Q602	Transistor, PNP
C702	100uF., 25V, Electrolytic	2701681225	Q603	Transistor, PNP
C703	.001uF., 50Vdc, 10%, Z5P, Cer. Disc.	2508281029	Q751	Transistor, NPN
C751	220pF., 50Vdc, 10%, Z5P, Cer. Disc.	2508282219	IC100	IC
C752	56pF., 50Vdc, 10%, NPO, Cer. Disc.	2508375609	IC200	IC
C753	33pF., 50Vdc, 10%, NPO, Cer. Disc.	2508373309	IC500	IC, 5V Regulator
C754	4.7pF., 50Vdc, ± .25pF., NPO, Cer. Disc.	2508374797	INDUCTORS	
RESISTORS			INDUCTORS	
(All are Carbon Film, 5%, 1/4W unless otherwise specified.)			L101	4.7uH., Peaking Coil
R101	180k	2302811845	L401	4.7uH., Peaking Coil
R102	100k	2302811045	L405	4.7uH., Peaking Coil
R109	15k	2302811535	L406	4.7uH., Peaking Coil
R110	15k	2302811535	L407	4.7uH., Peaking Coil
R112	15k	2302811535	L408	4.7uH., Peaking Coil
R122	470 ohm	2302814715	L409	4.7uH., Peaking Coil
R125	15k	2302811535	L410	4.7uH., Peaking Coil



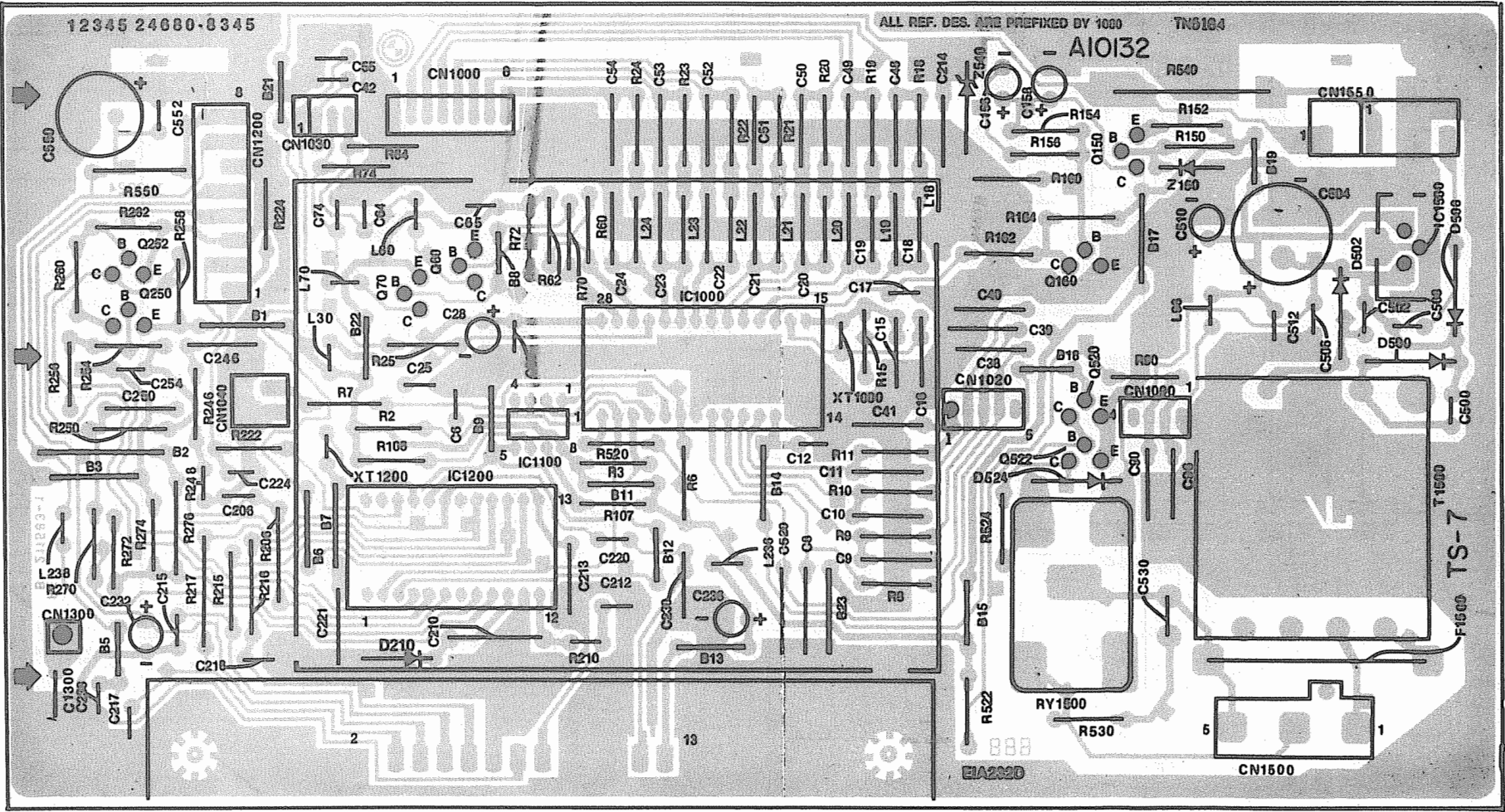
FOLDER 1

A10221-A001 & A10223-A001
TS-7 FIVE FUNCTION SCAN/CHANNEL DISPLAY MODULE
REPLACEMENT PARTS LIST

Ref. No.	Description	Part No.	Ref.	Description	Part No.
S1	Pushbutton Switch f/Volume Up	1606880004	C452	1000pF., 10%, 50V, Ceramic Capacitor	2508311029
S2	Pushbutton Switch f/Volume Down	1606880004	CN1000	8 Pin Connector	1811931008
S3	Pushbutton Switch f/Channel Up	1606880004		Contacts f/ CN1000 (8 used)	1811330001
S4	Pushbutton Switch f/Channel Down	1606880004		3 Pin connect (CN1030)	1811931003
S5	Pushbutton Switch f/Power (2 used on the A10221 Module)	1606880004		Contacts f/ CN1030 (3 used)	1811330001
D451	Channel Display LED	5303030001		3 Pin Socket f/ LDR	1811210001
C451	1000pF., 10%, 50V, Ceramic Capacitor	2508311029		Plastic Spacer f/ LDR	1456290001
				Socket f/ Channel Display LED	1816200018

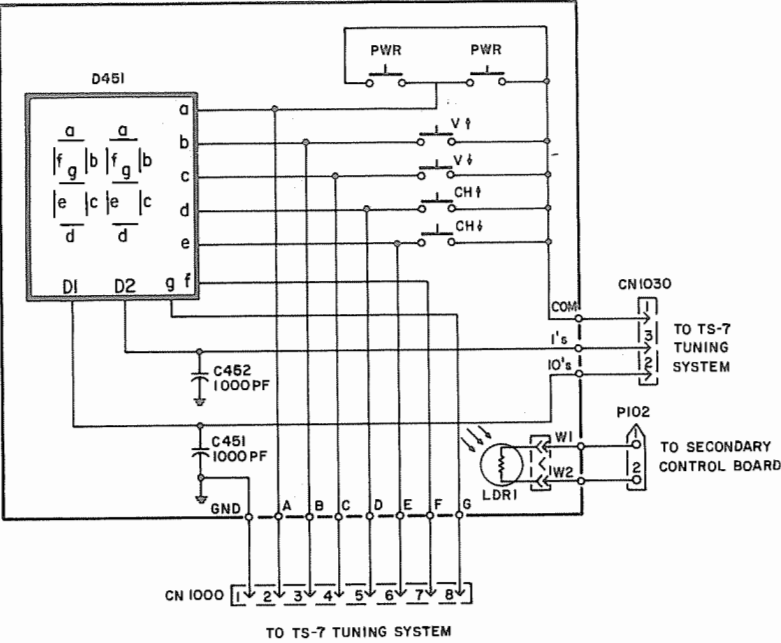
A10132-A001 TS-7 TUNER CONTROL MODULE
P.C. BOARD OVERLAY
(VIEWED FROM THE COMPONENT SIDE)

TS-7 P.C. Board Notes:
1. When referring to the electrical replacement parts list or the schematic diagram, add 1000 to the reference numbers of all discrete components screened on the P.C. Board below.

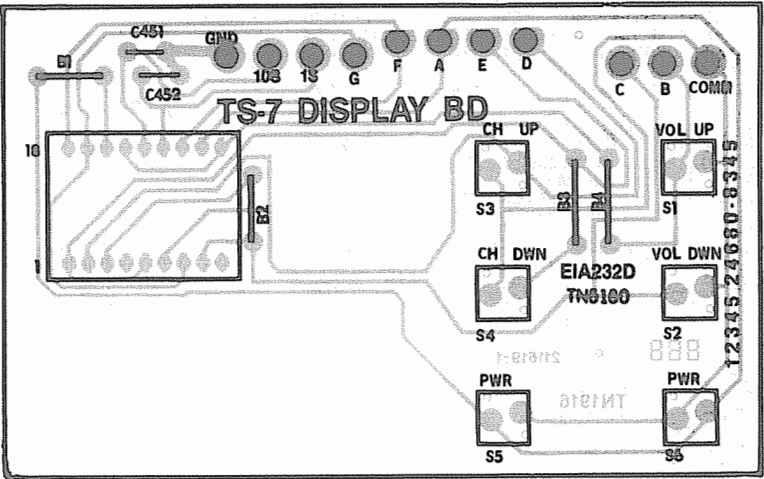


TS-7 TUNER CONTROL MODULE

TS-7 CHANNEL SELECT/DISPLAY MODULE SCHEMATIC DIAGRAM



A10221 TS-7 CHANNEL SELECT/DISPLAY MODULE
(VIEWED FROM THE COMPONENT SIDE)



Courtesy of the Manufacturer

TS-7 TUNER CONTROL MODULE

MAGNAVOX CHASSIS
19C501 THRU 19C519

FOLDER 1

MCU P.C. Board Notes

- 1 When referring to the electrical replacement parts list, add 1000 to the reference numbers of all discrete components
- 2 The following components may be located on the copper side of some board assemblies C1080, C1081, C1182 & C1370

***Note: If replacement of the MCU Panel is necessary, remove and save the following components/parts as they will not be supplied with the replacement panel.**

MCU REMOTE TUNING SYSTEM ASSEMBLY (WITH/WITHOUT FAVORITE STATION) REPLACEMENT PARTS LIST

COILS & TRANSFORMERS		
L1180	33uH., Peaking Coil	3614443309
L1571	22uH., Peaking Coil (L.P. Versions only)	3618352209
L1590	100uH., Peaking Coil	3617351015
T1500	Power Transformer	3003840002

C1003	.01μF., 10%, 100V, Ceramic	2508311039
C1008 thru		
C1014	.001μF., 10%, 50V, Ceramic (6 used)	2508311029
C1016	.001μF., 10%, 50V, Ceramic	2508311029
C1017	.001μF., 10%, 50V, Ceramic	2508311029
C1018	.001μF., 10%, 50V, Ceramic	2508311029
C1020 thru		
C1027	.001μF., 10%, 50V, Ceramic (8 used)	2508311029
C1028	1μF., 50V, Electrolytic	2701591050
C1052	.01μF., 10%, 50V, Ceramic (Favorite Station Models only)	2508311039
C1056	1000pF., 10%, 50V, Ceramic (Favorite Station Models only)	2508311029
C1058	1000pF., 10%, 50V, Ceramic (Favorite Station Models only)	2508311029
C1080	.01μF., 10%, 50V, Ceramic	2508281039
C1081	1μF., 20%, 100V, Polyester	2508141040
C1082	4.7μF., 50V, Electrolytic	2701595050
C1150	22μF., 35V, Electrolytic	2701592135
C1180	.01μF., 10%	2508281039
C1182	1000pF., 10%, 50V, Ceramic	2508281029
C1202	15pF., 5%, N220, Ceramic	2508421505
C1204	27pF., 5%, N220, Ceramic	2508422705
C1212	1μF., 50V, Electrolytic	2701681050
C1214	.047μF., +80 -20%, 50V, Ceramic	2508334738
C1216	.001μF., 10%, 50V, Ceramic	2508311029
C1222	.01μF., 10%, 50V, Ceramic	2508281039
C1226	.001μF., 10%, 50V, Ceramic	2508311029
C1228	1μF., 50V, Electrolytic	2701591050
C1250	6800pF., 10%, 50V, Ceramic	2508316829
C1252	39pF., 5%, 50V, NPO, Ceramic	2508413905
C1254	1μF., 50V, Electrolytic	2701591050
C1300	.047μF., 10%, 100V, Polyester	2508454739
C1302	400pF., 10%, 50V, Ceramic	2508314719
C1304	.001μF., 10%, 50V, Ceramic	2508311029
C1306	1000pF., 10%, 50V, Ceramic	2505521020
C1308	1μF., 250V, Electrolytic	2701860002
C1370	1000pF., 10%, 50V, Ceramic	2508281029
C1500	100μF., 50V, Electrolytic	2701681250
C1502	3300μF., 16V, Electrolytic	2701683316
C1504	10μF., 50V, Electrolytic	2701681150
C1520	.01μF., +80 -20%	2506260017
C1550	1000pF., 10%, 50V, Ceramic	2505521020

**MAGNAVOX CHASSIS
19C501 THRU 19C519**

FOLDER 1

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.

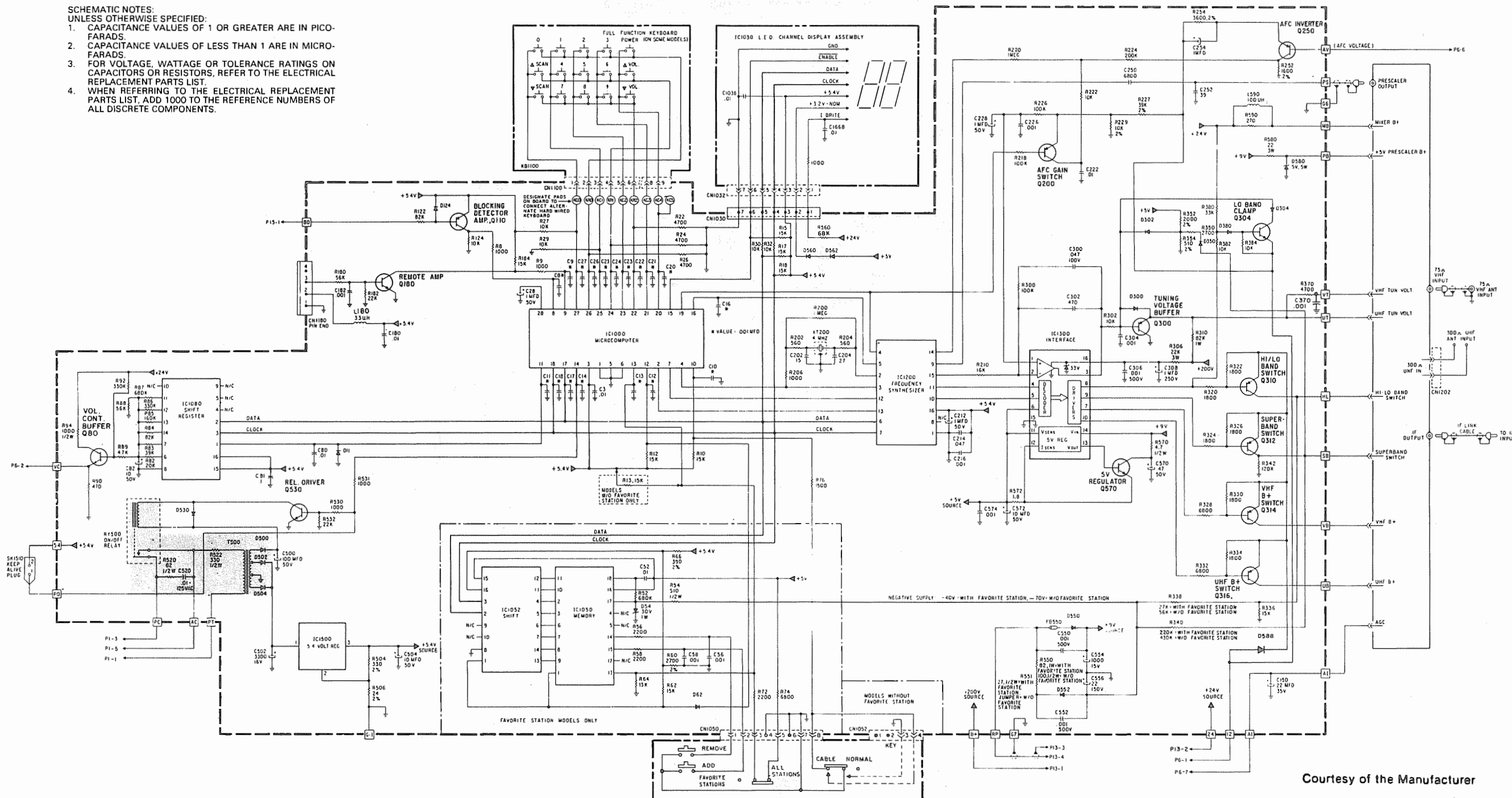
Under no circumstances should the original design be modified or altered without written permission from the N.A.P. Consumer Electronics Corp. N.A.P.C.E.C. assumes no liability, express or implied, arising out of any unauthorized modification of design.

SCHEMATIC NOTES:

UNLESS OTHERWISE SPECIFIED:

1. CAPACITANCE VALUES OF 1 OR GREATER ARE IN PICO-FARADS
2. CAPACITANCE VALUES OF LESS THAN 1 ARE IN MICRO-FARADS
3. FOR VOLTAGE, WATTAGE OR TOLERANCE RATINGS ON CAPACITORS OR RESISTORS, REFER TO THE ELECTRICAL REPLACEMENT PARTS LIST.
4. WHEN REFERRING TO THE ELECTRICAL REPLACEMENT PARTS LIST, ADD 1000 TO THE REFERENCE NUMBERS OF ALL DISCRETE COMPONENTS.

MCU REMOTE MICROPROCESSOR TUNING SYSTEM SCHEMATIC DIAGRAM



MAGNAVOX CHASSIS
19C501 THRU 19C519

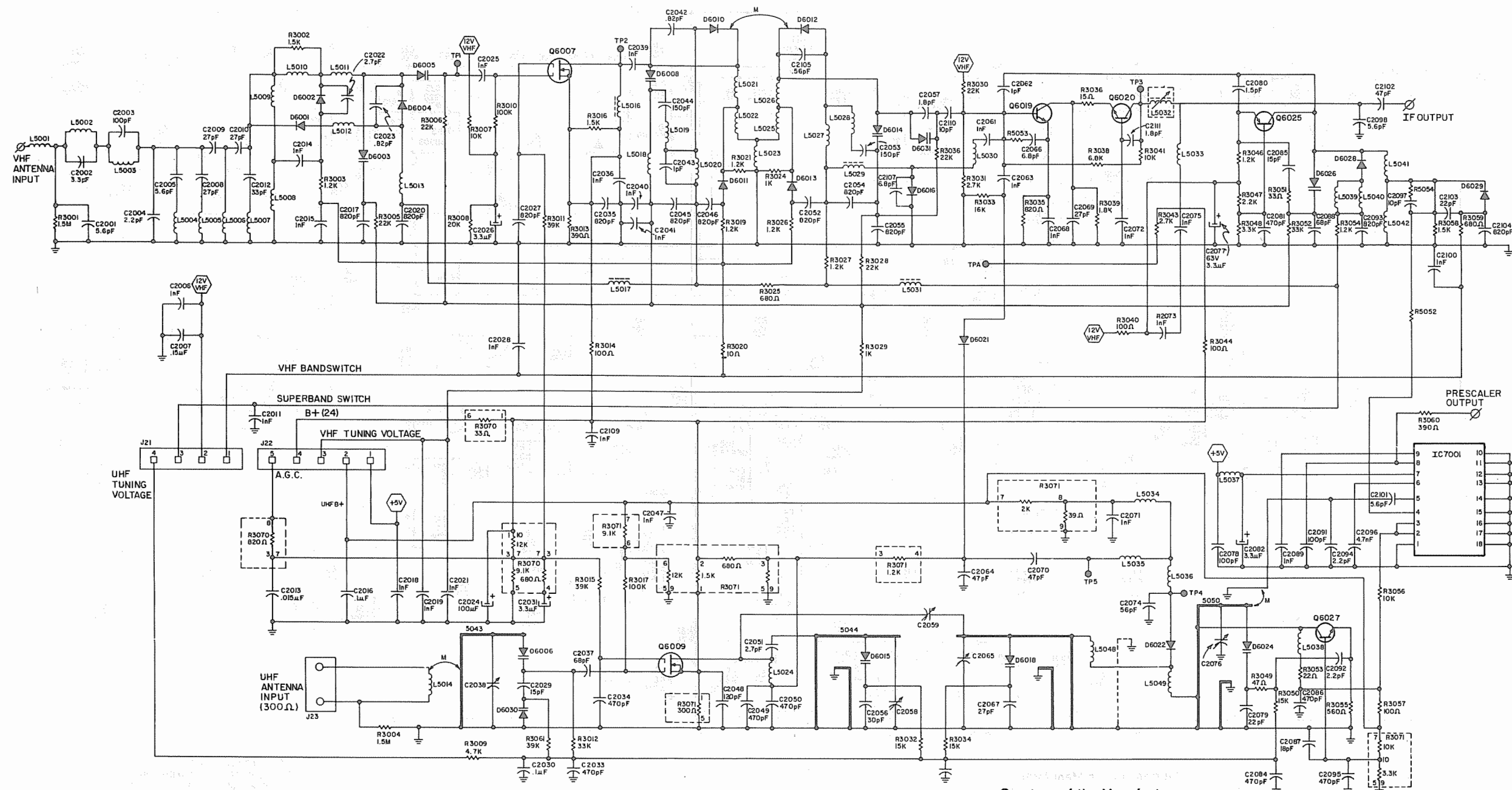
FOLDER 1

Courtesy of the Manufacturer

340262 TUNER MODULE
REPLACEMENT PARTS LIST
(125 CH. TUNER USED WITH
MCU TUNING SYSTEM)

Ref.	Description	Part No.	Ref.	Description	Part No.
SEMICONDUCTORS ONLY					
6001	Diode	2805015302	6016	Diode	2805015302
6002	Diode	2805015301	6018	Diode, Varactor	2805055301
6003	Diode, Varactor	2805035301	6019	NPN Transistor	2805336101
6004	Diode	2805015301	6020	NPN Transistor	2805326101
6005	Diode, Varactor	2805025301	6021	Diode	2805015302
6006	Diode, Varactor	2805055301	6022	Diode	2805045301
6007	N Channel MOSFET	2805066101	6024	Diode, Varactor	2805055301
6008	Diode, Varactor	2805035301	6025	PNP Transistor	2805346101
6009	N Channel MOSFET	2805076101	6026	Diode, Varactor	2805035301
6010	Diode	2805015301	6027	NPN Transistor	2805316101
6011	Diode	2805015301	6028	Diode	2805015301
6012	Diode	2805015301	6029	Diode	2805015301
6013	Diode	2805015302	6030	Diode, Varactor	2805055301
6014	Diode, Varactor	2805035301	6031	Diode, Varactor	2805055301
6015	Diode, Varactor	2805055301	7001	Prescaler I.C.	2805086121

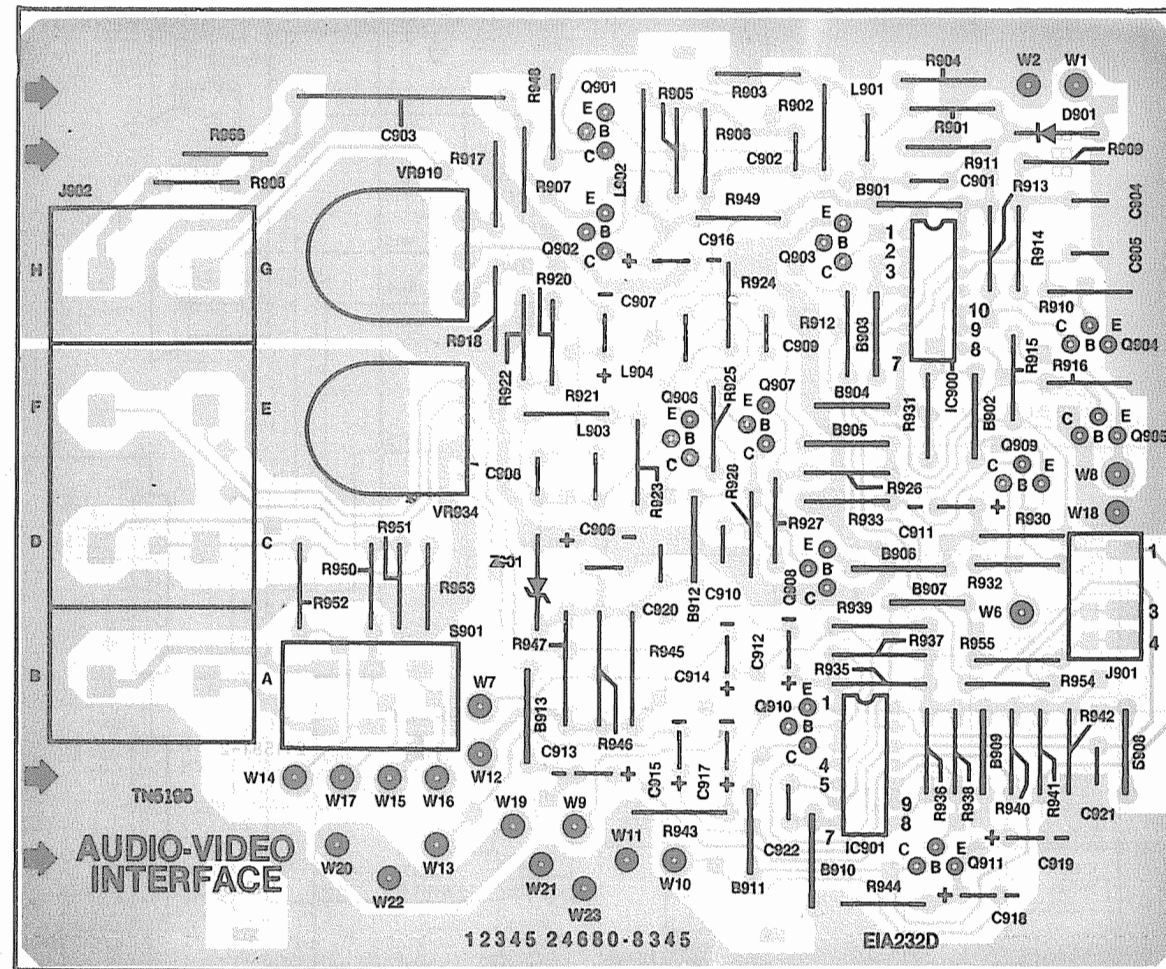
3402620003 (125 Ch.) UHF & VHF TUNER MODULE SCHEMATIC DIAGRAM



MAGNAVOX CHASSIS
19C501 THRU 19C519

FOLDER 1

A10252-A001 & A10253-A001 AUDIO/VIDEO INTERFACE MODULE
P.C. BOARD OVERLAY
(VIEWED FROM THE COMPONENT SIDE)



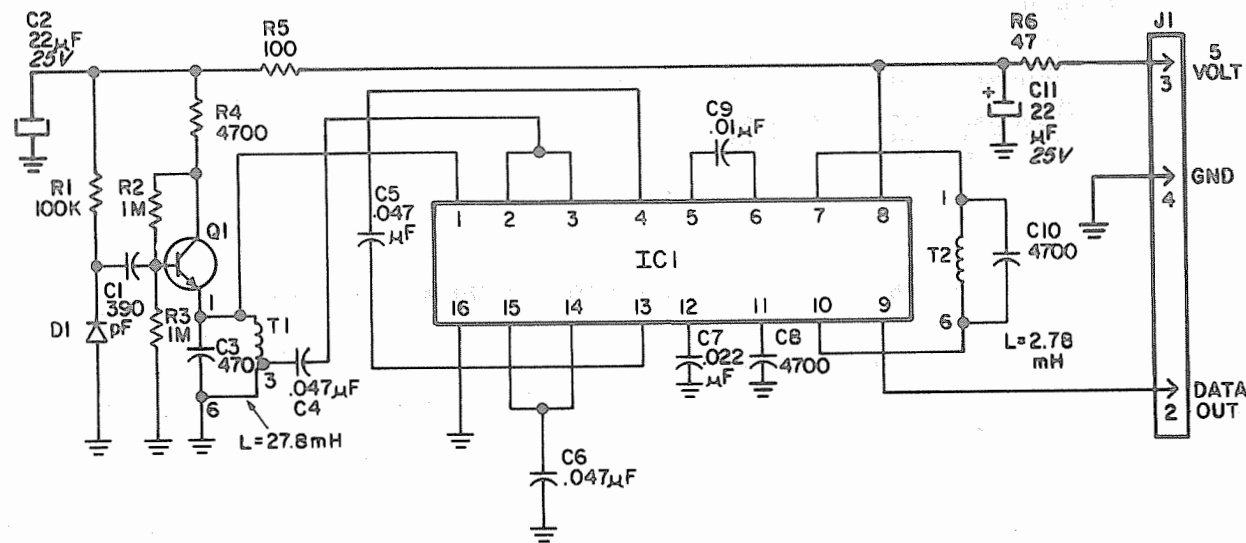
A10252-A001 AUDIO/VIDEO
INTERFACE MODULE
REPLACEMENT PARTS LIST

Ref.	Description	Part No.	Ref.	Description	Part No.
COILS & TRANSFORMERS			RESISTORS (Continued)		
L901	Peaking Coil, 22uH	3614442205	R933	3.3k	2302813325
L902	Peaking Coil, 5.6uH	3618355695	R935	150k	2302811545
L903	Peaking Coil, 22uH	3614442205	R936	150k	2302811545
L904	Peaking Coil, 12uH	3614441205	R937	150k	2302811545
CAPACITORS			R938	150k	2302811545
C901	56pF., 5%, 50V, Ceramic	2508375605	R939	150k	2302811545
C902	270pF., 5%, 50V, Ceramic, N750	2508392715	R940	150k	2302811545
C903	220uF., 16V, Electrolytic	2702032216	R941	10k	2302811035
C904	.1uF., 20%, 100V, Polyester Film	2508451040	R942	10k	2302811035
C905	.1uF., 20%, 100V, Polyester Film	2508451040	R943	1k	2302811025
C906	47uF., 25V, Electrolytic	2701685125	R944	1k	2302811025
C907	100uF., 25V, Electrolytic	2701681225	R945	330 ohm, 5%, 1.6W, Metal Film	2303093315
C908	68pF., 5%, 50V, Ceramic	2508376805	R946	330 ohm, 5%, 1.6W, Metal Film	2303093315
C909	120pF., 5%, 50V, Ceramic, NPO	2508371215	R948	4.7k	2302814725
C910	120pF., 5%, 50V, Ceramic, NPO	2508371215	R949	24 ohm	2302812405
C911	4.7uF., 50V, Electrolytic	2701344759	R950	1k	2302811025
C912	1uF., 50V, Electrolytic	2701681050	R951	100 ohm	2302811015
C913	1uF., 50V, Electrolytic	2701681050	R952	1k	2302811025
C914	1uF., 50V, Electrolytic	2701681050	R953	100 ohm	2302811015
C915	1uF., 50V, Electrolytic	2701681050	R954	470 ohm	2302814715
C916	47uF., 25V, Electrolytic	2701685125	R955	470 ohm	2302814715
C917	1uF., 50V, Electrolytic	2701681050	R956	10k	2302811035
C918	1uF., 50V, Electrolytic	2701681050	CONTROLS & SWITCHES		
C919	10uF., 50V, Electrolytic	2701681150	R919	Video Level Adjust, 1k	2204130015
C920	.1uF., 20%, 100V, Polyester Film	2508451040	R934	Audio Level Adjust, 100k	2204220008
C921	.1uF., 20%, 100V, Polyester Film	2508451040	S901	Slide Switch f/ Speaker Select	1605460010
C922	.1uF., 20%, 100V, Polyester Film	2508451040	SEMICONDUCTORS		
RESISTORS (unless otherwise specified, all are 5%, 1/4W, Carbon Film)			IC900	Quad Bilateral Switch IC	6121860001
R901	470 ohm	2302814715	IC901	Quad Bilateral Switch IC	6121860001
R902	2.4k	2302812425	Q901	NPN, Transistor	6102320002
R903	820 ohm	2302818215	Q902	NPN, Transistor	6102320002
R904	470 ohm	2302814715	Q903	NPN, Transistor	6102320002
R905	470 ohm	2302814715	Q904	NPN, Transistor	6102320002
R906	470 ohm	2302814715	Q905	PNP, Transistor	6102230001
R907	680 ohm	2302816815	Q906	NPN, Transistor	6102320002
R908	68 ohm	2302816805	Q907	PNP, Transistor	6102230001
R909	10k	2302811035	Q908	PNP, Transistor	6102230001
R910	10k	2302811035	Q909	NPN, Transistor	6102320002
R911	1k	2302811025	Q910	NPN, Transistor	6102320002
R912	120k	2302811245	Q911	NPN, Transistor	6102320002
R913	560k	2302815645	D901	Silicon Diode	5301811001
R914	120k	2302811245	Z901	Zener Diode, 12V, 1W	5301921120
R915	1k	2302811025	MISCELLANEOUS		
R916	56k	2302815635	J901	4 Pin Contact Wafer	1814790204
R917	82 ohm	2302818205	J902	Phono Jack Assembly	1814780013
R918	680 ohm	2302816815	PD2	5 Pin Connector Housing	1812100005
R920	2.4k	2302812425		Negative Polarizing Key f/ PD2	1810760001
R921	13k	2302811335		Contacts f/ PD2 (3 used)	1810110001
R922	3.3k	2302813325	P7	9 Pin Connector Housing	1812100009
R923	220 ohm	2302812215		Negative Polarizing Key f/ P7	1810760001
R924	240 ohm	2302812415		Contacts f/ P7 (6 used)	1810110001
R925	560 ohm	2302815615	P201	5 Pin Connector w/ Contacts	1817140005
R926	180 ohm	2302811815		Positive Polarizing Key f/ P201	1813510002
R927	180 ohm	2302811815	P301	5 Pin Connector w/ Contacts	1817140005
R928	820 ohm	2302818215		Negative Polarizing Key f/ P301	1813510001
R930	2.2k	2302812225		Spade Lug Clips f/ Speakers	1024870035
R931	100k	2302811045		(4 used)	
R932	15k	2302811535			

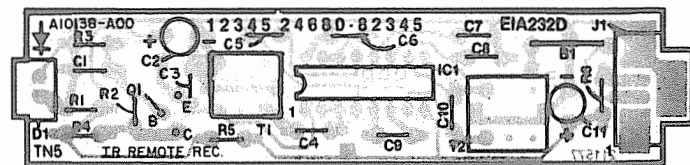
MAGNAVOX CHASSIS
19C501 THRU 19C519

Courtesy of the Manufacturer

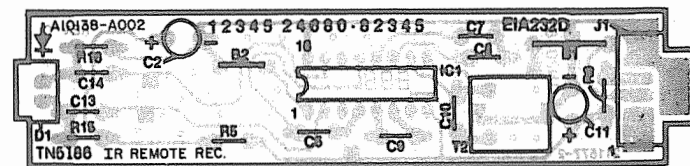
A10138-A001 REMOTE RECEIVER MODULE SCHEMATIC DIAGRAM



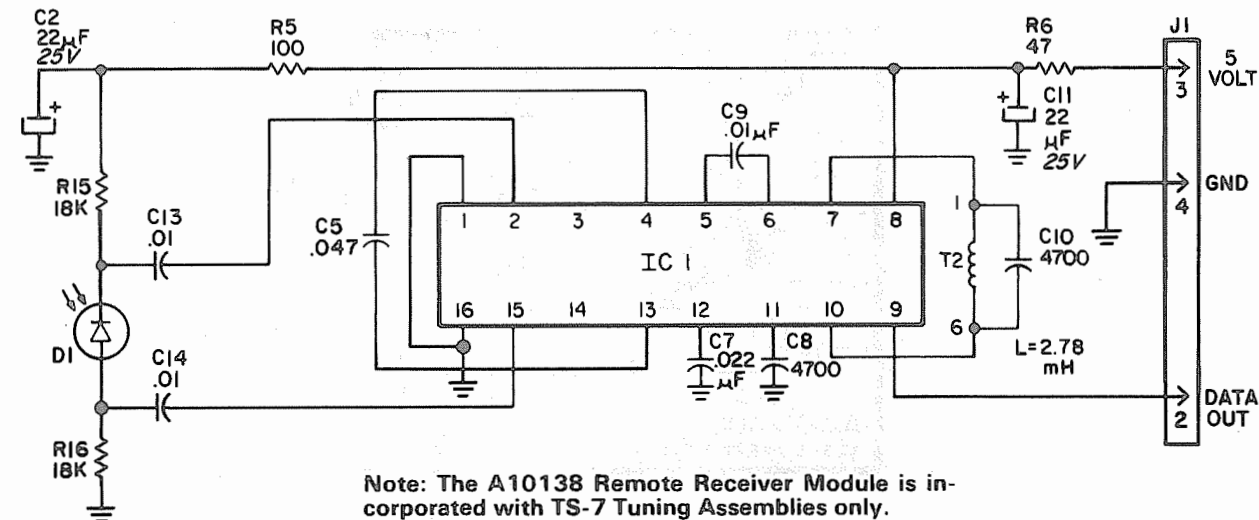
A10138-A001 REMOTE RECEIVER MODULE
P.C. BOARD OVERLAY
(VIEWED FROM THE COMPONENT SIDE)



A10138-A002 REMOTE RECEIVER MODULE
P.C. BOARD OVERLAY
(VIEWED FROM THE COMPONENT SIDE)



A10138-A002 REMOTE RECEIVER MODULE SCHEMATIC DIAGRAM



Note: The A10138 Remote Receiver Module is incorporated with TS-7 Tuning Assemblies only.

A10138-A001/2 REMOTE RECEIVER MODULES

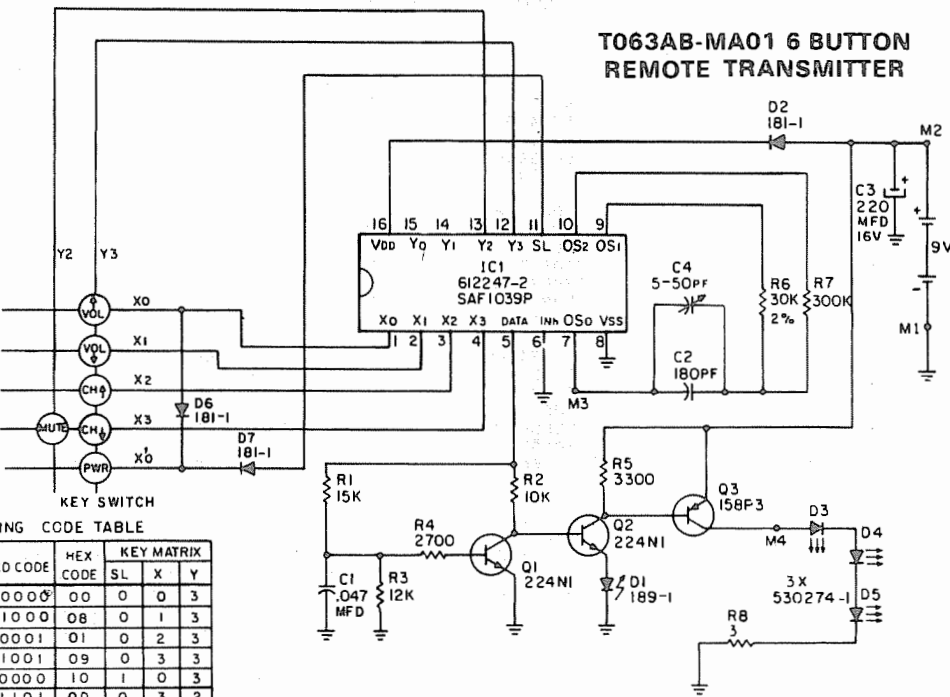
A10138-A001 & -A002
REMOTE RECEIVER MODULE
REPLACEMENT PARTS LIST

Ref.	Description	Part No.	Ref.	Description	Part No.
COILS					
T1	Inductor Coil (-A001 only)	3619870003	RESISTORS		
T2	Inductor Coil	3719870001	R1	100k, 5%, 1/4W, Carbon Film	2302841045
CAPACITORS					
C1	390pF., 10%, 50V, Ceramic (-A001 only)	2508313919	R2	1M, 5%, 1/4W, Carbon Film	2302851055
C2	22uF., 25V, Electrolytic	2701592125	R3	1M, 5%, 1/4W, Carbon Film	2302851055
C3	470pF., 10%, 50V, Ceramic (-A001 only)	2508314719	R4	4.7k, 5%, 1/4W, Carbon Film	2302854725
C4	.047uF., 20%, 50V, Ceramic (-A001 only)	2508334738	R5	100 ohm, 5%, 1/4W, Carbon Film	2302851015
C5	.047uF., 20%, 50V, Ceramic	2508334738	R6	47 ohm, 5%, 1/4W, Carbon Film	2302854705
C6	.047uF., 20%, 50V, Ceramic (-A001 only)	2508334738	R15	15k, 5%, 1/4W, Carbon Film (-A002 only)	2302851835
C7	22k, +80 -20%, 50V, Ceramic	2508332238	R16	18k, 5%, 1/4W, Carbon Film (-A002 only)	2302851835
C8	4700pF., 10%, 50V, Ceramic	2508314729	SEMICONDUCTORS		
C9	.01uF., 10%, 50V, Ceramic	2508311039	D1	Photo Diode, Silicon	5302350001
C10	4700pF., 10%, 50V, Ceramic	2508314729	Q1	NPN Silicon Transistor (-A001 only)	6100940004
C11	22uF., 25V, Electrolytic	2701592125	IC1	Remote Receiver IC	6124500001
C13	.01uF., 10%, 50V, Ceramic (-A002 only)	2508311039	MISCELLANEOUS		
C14	.01uF., 10%, 50V, Ceramic (-A002 only)	2508311039	Front Cap Shield		7343920001
			Rear Cap Shield		7344150002
			Receiver Grille		7326110002
			Spacer		1448050001
			Support Bracket		1452330002
			4 Pin Waffer Connector		1815310104

T063AB-MA01 6 BUTTON
REMOTE TRANSMITTER
REPLACEMENT PARTS LIST

Ref.	Description	Part No.	Ref.	Description	Part No.
CAPACITORS					
C1	.047uF., 20%, 250V, Polyester	2506554730	SEMICONDUCTORS		
C2	180pF., Polypropylene	2507191812	D1	Light Emitting Diode	5301890001
C3	220uF., 16V, Electrolytic	2701460002	D2	Diode, Silicon	5301810001
C4	50pF., Trimmer	2602200003	D3	Infrared Emitting Diode	5302740001
RESISTORS					
(All are 5%, 1/4W, Carbon Film unless specified otherwise.)					
R1	15k	2302811535	D4	Infrared Emitting Diode	5302740001
R2	10k	2302811035	D5	Infrared Emitting Diode	5302740001
R3	12k	2302811235	D6	Diode, Silicon	5301810001
R4	2700 ohm	2302812725	D7	Diode, Silicon	5301810001
R5	3300 ohm	2302813325	Q1	NPN Transistor	6103350001
R6	33k	2302813335	Q2	NPN Transistor	6103350001
R7	300k	2302813045	Q3	PNP Transistor	6101580003
R8	3 ohm	2302813095	IC1	Remote Transmitter IC	6122470002
CONTROLS & SWITCHES					
S1-S6	Pushbutton Switches (6 used)	1606820001	MISCELLANEOUS		
			Case Top		1447990002
			Case Bottom w/ Battery Door		7045820003
			Button Array (Key Tops)		1448030002
			Spacer f/ D1		1449940001
			Foam Pad f/ Battery		4419200049
			Contact & Lead Asm. f/ Battery		1814200005
			Window f/ Infrared Transmission		1448020001

Courtesy of the Manufacturer



OPERATING CODE TABLE			
FUNCTION	BCD CODE	HEX CODE	KEY MATRIX
VOL ↑	00000	00	0 0 3
VOL ↓	01000	08	0 1 3
CH ↑	00001	01	0 2 3
CH ↓	01001	09	0 3 3
POWER	10000	10	1 0 3
MUTE	01101	0D	0 3 2

T063AB-MA01 6 BUTTON
REMOTE TRANSMITTER

T063AB-MA01 REMOTE TRANSMITTER

Ref.	Description	Part No.	Ref.	Description	Part No.
CAPACITORS			SEMICONDUCTORS		
C1	Polyester, .047uF., 20%, 250V	2506554730	D4	Infrared Emitting Diode	5302740001
C2	Polypropylene, 180pF.	2507191812	D5	Infrared Emitting Diode	5302740001
C3	Electrolytic, 220uF., 16V	2702032216	D6	Silicon Diode	5301811001
C4	Trimmer, 50pF.	2602200003	D7	Silicon Diode	5301811001
RESISTORS			Q1	NPN Silicon Transistor	6102240001
(All are 5%, 1/4W, Carbon Film unless specified otherwise.)			Q2	NPN Silicon Transistor	6102240001
R1	15k	2302811535	Q3	PNP Silicon Transistor	6101580003
R2	10k	2302811035	IC1	Remote Transmitter IC	6122470002
R3	12k	2302811235	MISCELLANEOUS		
R4	2700 ohm	2302142725		Pushbutton Array, f/ Magnavox	1452400009
R5	3.3k	2302813325		Pushbutton Array, f/ Sylvania	1452400007
R6	33k	2302813325		Pushbutton Array, f/ Philco	1452400008
R7	300k	2302813045		Case Top	1455850004
R8	3 ohm	2302143095		Inlay, f/ Case Top (Magnavox)	1520300003
CONTROLS				Inlay, f/ Case Top (Sylvania)	1520300001
	Pressure Pad Keyboard	7028641001		Inlay, f/ Case Top (Philco)	1520300002
SEMICONDUCTORS				Case Bottom	1447670001
D2	Silicon Diode	5301811001		Battery Door	1447630004
D3	Infrared Emitting Diode	5302740001		Window f/ Infrared Transmission	1447640001
				Battery Connector & Lead Asm.	1814200002

[illegible]

PCB layout for the 17 FUNCTION IR REMOTE X-MITTER. The board is populated with a TI69842 IC, various resistors (R1-R8), capacitors (C1-C4), and connectors (D1-D4). A 17-pin connector is labeled '17 FUNCTION IR REMOTE X-MITTER'. The board is marked with '12345 24650-62345'.

*Note: This Key is referred to as "Quick View" on Sylvania transmitters, "Adjacent Channel" on Magnavox and "Review" on Philco.

Ref.	Description	Part No.	Ref.	Description	Part No.
TRANSFORMERS					
T1	Inductor (-A001 only)	3619870003	R6	47 ohm	2302854705
T2	Inductor	3619870001	R7	10k	2302851035
CAPACITORS					
(All are 10%, 50V, Ceramic Disc unless specified otherwise.)			R8	100k	2302851045
C1	390pF., (-A001 only)	2508313919	R9	10k	2302851035
C2	22uF., 25V, Electrolytic	2701592125	R10	270k	2302852745
C3	470pF., 5%	2508314719	R11	10k	2302851035
C4	.047uF., +80-20%, (-A001 only)	2508334738	R12	180k	2302851845
C5	.047uF., +80-20%	2508334738	R13 & 14	33k, (2 used)	2302853335
C6	.047uF., +80-20%, (-A001 only)	2508334738	R15 & 16	18k, (2 used, -A002 only)	2302851835
C7	22000pF., +80-20%	2508332238	SEMICONDUCTORS		
C8	4700pF.	2508314729	D1	Photo Diode	5302350001
C9	.01uF.	2508311039	D2	Silicon Diode	5301810001
C10	4700pF.	2508314729	Q1	NPN Transistor (-A001 only)	6100940004
C11	22uF., 25V, Electrolytic	2701592125	Q2	NPN Transistor	6102320002
C12	6800pF., 2%, Polyester	2508786822	Q3	NPN Transistor	6102320002
C13	.01uF., (-A002 only)	2508311039	Q4	NPN Transistor	6102320002
C14	.01uF., (-A002 only)	2508311039	IC1	Remote Receiver IC	6124500002
RESISTORS					
(All are 5%, 1/4W, Carbon Film unless specified otherwise.)			MISCELLANEOUS		
R1	100k, (-A001 only)	2302851045		4 Pin Wafer Connector	1815310104
R2 & 3	1 Meg. (2 used, -A001 only)	2302851055		Preamplifier Support	1452330001
R4	4700 ohm, Metal Film, (-A001 only)	2302854725		Grille	7326110002
R5	100 ohm	2302851015		Cap-Front	7343920001
				Cap-Rear	7344150002

A10144 Remote Receiver Module

The schematic diagram illustrates the internal components of the A10144 Remote Receiver Module. The central component is IC1 (A10144), which is interfaced with an MCU Board via connector J1. The circuit includes various passive components such as resistors (R1-R16), capacitors (C1-C11), and a diode (D1). A transformer (T2) and a relay (J1) are also shown. The module is designed to interface with an MCU Board via J1, with pins 1, 2, 3, and 4 connected to specific MCU pins (P1, P2, P3, P4).

*Note: Pin 2 of J1 connects to P3 of CN1180 on the MCU Board.
Pin 3 of J1 connects to Pin 2 and Pin 4 of J1 connects to Pin 1 of CN1180.

FOLDER 1

MISCELLANEOUS (Continued)

For SAFETY use only equivalent replacement part.

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

(1) When replacing Mask, Secondary Control Door and Speaker Overlays must also be replaced.
(2) Mod. CE4145WA01 (3) Mod. CEP127PE01

PARTS LIST AND DESCRIPTION (Continued)

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

SEMICONDUCTORS (Select replacement transistor for best results)

MAGNAVOX CHASSIS
19C501 THRU 19C519

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.
L260	RF Choke (12uH)	3618000008	L154	RF Choke (18uH)	3618131805
L261	RF Choke (.68uH)	3619550680	L156	RF Choke (120uH)	3618351215
	MAIN BOARD		L157	Peaking (27uH)	3618132705
DL152	Delay Line	3615790005	L170	Peaking (10uH)	3619551005
	Delay Line	3615790006	L177	RF Choke (22uH)	3618132205
L38	RF Choke (1.2uH)	3618131290	L178	Peaking (10uH)	3618351005
L39	Video IF (47.25MHz)	3617990005		Peaking (68uH)	
L40	RF Choke (14.5 Turns)	3616811014	L195	Peaking (39uH)	3618353905
L53	Peaking (2.2uH)	3618132290	L400	Peaking (5.3uH)	3618000012
L54	Video IF (45.75MHz)	3617990003	L401	RF Choke (42uH)	3618000014
L55	Video IF (45.75MHz)	3617990004	# L405	Linearity	3619990005
L58	RF Choke (.33uH)	3618130330	# L410	RF Choke (5.6uH)	3618355699
L61	Peaking (2.2uH)	3618132290	L414	RF Choke (12uH)	3618351209
L62	RF Choke (56uH)	3618135609	L450	Line Choke	3619840001
L63	Peaking (2.2uH)	3618132290	L460	RF Choke (12uH)	3618000008
L120	Sound Discriminator	3619680002	L464	Peaking (.5uH)	3618000010
L121	RF Choke (22uH)	3618352209	L465	RF Choke (12uH)	3618000008
L150	Peaking (10uH)	3618351009	L466	Peaking (5.3uH)	3618000012
L151	Chroma Phase Null	3619660001	L467	Peaking (12uH)	3618000008
L151A (Y151)	3.58MHz Trap	3616910002	L468	Peaking (.5uH)	3618000010
L153	Peaking (18uH)	3618131805	LC199	LC Network	3619980001
			T110	Sound IF	3619650001
				STEREO DECODER BOARD	
			L1	SAP Trap (10mH)	3619870004
			L2	Peaking (22mH)	3620252235
			L301	Sound Discriminator	3619680002

For SAFETY use only equivalent replacement part.

COILS & TRANSFORMERS

ITEM No.	FUNCTION	MFGR. PART No.	OTHER IDENTIFICATION	NOTES
# DY1	Yoke Horiz 2.19mH 90° Vert 19.95mH	3619830002 (1) 3619830001 (2)	361983-2	
# T401	Power		300390-4-D	
# T408	Horiz Output	3619861001	361986-2001	
# T453	Start-Up	3004030001	38601	
T463	Horiz Drive	3204030002	3112 338 30280	
T488	Switch Mode	3618040002	361804-2	

For SAFETY use only equivalent replacement part.
(1) Used with CRT No. A48AAN01X, A48AAN03X, A48AAN04X
(2) Used with CRT No. 19VMFP2200, A480005200

FUSE DEVICES

ITEM NO.	DESCRIPTION	MFGR. PART NO.		NOTES
		DEVICE	HOLDER	
# F450	MAIN BOARD 5 A @ 250V Fast Acting	181501500		
# F401	STEREO AMP BOARD .25 A @ 250V Slow Blow .25 A @ 125V Slow Blow	1810215025		

For SAFETY use only equivalent replacement part.

PARTS LIST AND DESCRIPTION (Continued)

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

WIRING DATA

High Voltage Lead	Use BELDEN No. 9867 (30 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

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	MFGR. PART No.	ITEM No.	RATING	MFGR. PART No.
C458A B C	40 385V	270171001	# C408	1000 25V	2701681325
	40 385V		# C409	1000 35V	2701681335
	200 385V			STEREO DECODER BOARD	
			C211	3.3 50V 10%	2701343359
			C214	47 50V 10%	2701344769
			C216	47 50V 10%	2701344769
			C220	10 50V 10%	2701341069
# C407	1000 50V	2701681350			

For SAFETY use only equivalent replacement part.
Items Not Listed Are Normally Available At Local Distributors.

CAPACITORS

ITEM No.	RATING	MFGR. PART No.	ITEM No.	RATING	MFGR. PART No.
	MAIN BOARD		C195	2.40 Trimmer	2602290001
C38	18 NPO 50V 5%	2508411805	C196	22 NPO 50V 5%	2508412205
C45	10 NPO 50V 10%	2508411008	C332	68 N750 50V 5%	2508686805
C46	22 NPO 50V 5%	2508412205	C356	68 NPO 50V 5%	2508416805
C64	56 NPO 50V 5%	2508415605	# C401	.001 2KV 10%	2508850009
C110	5 NPO 50V 5%		# C402	.0075 2KV	2508187525
	4.7 NPO 50V ±.25	2508415097	# C403	.01 100V 5%	2508451035
C157	390 N750 50V 5%	2508433915	# C404	.36 400V 5%	2508050003
	220 NPO 50V 5%	2508422215	# C405	.0047 125VAC	2506260014
C166	39 NPO 50V 5%	2508413905	# C450	.22 120V AC	2509842240
C167	220 N220 50V 5%	2508422215	C453	68 N750 50V 5%	2508686805
C170	82 NPO 50V 5%	2508418205	C480	390 N750 50V 5%	2508433915
	120 NPO 50V 5%	2508411215		STEREO AMP BOARD	
C171	5 NPO 50V 5%		# C401	.01 50V 10%	2508281029
	4.7 NPO 50V ±.25	2508415097	# C402	.01 50V 10%	2508281029
C172	36 NPO 50V 5%	2508413605		STEREO DECODER BOARD	
	47 NPO 50V 5%	2508414705			
C175	39 NPO 50V 5%	2508413905	C7	390 N750 50V 5%	2508393915
C176	82 NPO 50V 5%	2508418205	C9	220 100V 2%	2508772212
C186	150 NPO 50V 5%	2508411515	C29	120 NPO 50V 10%	2508371219
	180 NPO 50V 5%	2508421815	C30	120 NPO 50V 10%	2508371219
	56 NPO 50V 5%	2508415605			
C194	56 NPO 50V 5%	2508415605			

For SAFETY use only equivalent replacement parts.
Items Not Listed Are Normally Available At Local Distributors.

MAGNAVOX CHASSIS
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FOLDER 1

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
ATC TUNER CONTROL UNIT/CLUSTER ASSEMBLY				
# R700/ S700	Volume/Switch	4700	2203610019	ATC214/92
# R700	Volume/Switch			ATC264
# R700	Volume	20K	2203990009	ATC258
# R700	Volume			ATC255
AUDIO INTERFACE BOARD				
VR934A	Audio Level Adjust	100K	2204220008	
VR934B	Audio Level Adjust	100K		
CRT BOARD				
R228	Red Drive	2200	2204202222	
R229	Red Cutoff	10K	2204201032	
R233	Green Drive	2200	2204202222	
R241	Green Cutoff	10K	2204201032	
R245	Blue Drive	2200	2204202222	
R248	Blue Cutoff	10K	2204201032	
# R255	Focus/G2 (Screen) Assembly		2204620002	
MAIN BOARD				
R50	RF Delay Adjust	22K	2204162232	
R114	Audio Preset Adjust	10K	2204161032	
R167	Chroma Null Adjust	560	2204165612	
R185	Sub-Brite Adjust	10K	2204161032	
R327	Vertical Height Adjust	100	2204161012	
R339	Horizontal Frequency Adjust	10K	2204161032	
R345	Horizontal Center Adjust	10K	2204161032	
R353	Vertical Frequency Adjust	150K	2204161542	
R474	+130V Adjust	10K	2204161032	
SECONDARY CONTROL BOARD				
VR720	Sharpness	10K Detent @ 50%	2204590016	
VR730	Brightness	10K	2204590001	
VR470	Picture	10K	2204590001	
VR750	Tint	10K	2204590001	
VR760	Color	10K	2204590001	
VR770	Balance	50K Detent @ 50%	2204590011	
VR780	Bass	50K Detent @ 50%	2204590011	
VR790	Treble	50K Detent @ 50%	2204590011	
STEREO DECODER BOARD				
VR1	Signal Level Adjust	100K	2203021042	
VR13	VCO Frequency Adjust	22K	2203022232	
VR55	SAP Level Adjust	1000	2203021022	
VR75	L+R Adjust	1000	2203021022	
VR76	L-R Adjust	1000	2203021022	
VR225	8kHz Adjust	50K	2203025032	
VR250	Timing Adjust	2200	2203022222	

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.	NTE PART No.	WORKMAN PART No.
	ATC TUNER CONTROL UNIT/ CLUSTER ASSEMBLY			
LDR (LDR1)	20K, 100V, 175mW	2303160002 (1)		
	MAIN BOARD			
R155	1000 2% 1/4W Carbon Film	2302811022	QW210	
R174	1600 2% 1/4W Carbon Film	2302811622	QW216	
R400	2.2 10% 5W WW	2401090003	5W2D2	
R402	27.4 1% .4W Metal Film	2302752749		
R404	4.7M 5% 1/2W Metal Film	2302674755		
R405	1000 5% 1.6W Metal Film	2303091025		
R408	2.2 5% 1/3W Carbon Film	2302682285		
R409	150K 5% 1/4W Carbon Film	2302811545	QW415	22-1148
R410	1 5% 1/3W Carbon Film	2302681085		
R411	220 5% 1/4W Carbon Film	2302812215	QW122	22-1080
R414	1 5% 1/3W Carbon Film	2302681085		
R415	1 5% 1/3W Carbon Film	2302681085		
R418	1 5% 1/2W Metal Film	2302271085	HW1D0	
R420	1 5% 1/3W Carbon Film	2302681085		
R451	PTC 9.1 Cold	2302070008		FR605
R455	1.8 10% 10W WW	2401191889	10W1D8	
R471	470 2% 1/4W Carbon Film	2302814712	QW147	
R472	5.49K 1% .4W Metal Film	2302755492		
R475	330 2% 1/4W Carbon Film	2302813312	QW133	
R476	115K 1% .4W Metal Film	2302751154		
R479	150K 2% 1/4W Carbon Film	2302811542	QW415	
R486	1.3 2% 1/2W Metal Film	2302761308	HW1D3	
R488	1.3 2% 1/2W Metal Film	2302761308	HW1D3	
R489	2.2 5% 1/3W Carbon Film	2302682285		
	STEREO DECODER BOARD			
R17	5100 2% 1/4W Carbon Film	2302815122	QW251	
R18	5100 2% 1/4W Carbon Film	2302815122	QW251	
R19	4700 2% 1/4W Carbon Film	2302814722	QW247	
R21	4700 2% 1/4W Carbon Film	2302814722	QW247	
R53	4700 2% 1/4W Carbon Film	2302814722	QW247	
R63	4700 2% 1/4W Carbon Film	2302814722	QW247	
R64	4700 2% 1/4W Carbon Film	2302814722	QW247	
R69	10K 2% 1/4W Carbon Film	2302811032	QW310	
R70	10K 2% 1/4W Carbon Film	2302811032	QW310	
R71	10K 2% 1/4W Carbon Film	2302811032	QW310	
R72	10K 2% 1/4W Carbon Film	2302811032	QW310	
R73	20K 2% 1/4W Carbon Film	2302812032	QW320	
R74	10K 2% 1/4W Carbon Film	2302811032	QW310	
R240	1000 5% 1/4W Carbon Film	2302811025	QW210	22-1096
	1000 2% 1/4W Carbon Film	2302811022	QW210	

For SAFETY use only equivalent replacement part.
(1) ATC 213/14, 257 thru 265, 267, 291/92.

MAGNAVOX CHASSIS
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FOLDER 1

PARTS LIST AND DESCRIPTION (Continued)

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

SEMICONDUCTORS (Select replacement transistor for best results)

REPLACEMENT DATA					
ITEM No.	TYPE No.	MFGR. PART No.	NOTES	NTE PART No.	ECG PART No.
STEREO AMP BOARD					
D401 thru D406		5301711001		NTE116	ECG116
IC201	412-2	6124120002		NTE1566	ECG1566
IC301, 302	327-1	6123270001		NTE123AP	ECG123AP
Q201 thru Q203	232-2	6102320002		NTE5021A	ECG5021A
Q204	234-1	6102340001			
Z401		5301571120			
STEREO DECODER BOARD					
D1, D2		5301811001		NTE177	ECG177
IC1	469-1	6124690001		NTE4053B	ECG4053B
IC2	468-1	6124680001		NTE968	ECG968
IC3	HEF4053BP	6124930001		NTE859	ECG859
IC4	uA7815	6124790005		NTE857M	ECG857M
IC5	L7808CY	6124790003		NTE1580	ECG1580
IC6, IC7	TL074CN	6124800001		NTE123AP	ECG123AP
IC201	AN6291	6124890001		NTE123AP	ECG123AP
IC203	TL081CP	6123590001		NTE159	ECG159
IC304	TBA120U	6123700001		NTE123AP	ECG123AP
Q2, Q3	232-2	6102320002			
Q5	232-2	6102320002			
Q6	083-1	6100830001			
Q201 thru Q203	232-2	6102320002			
ZD200		5301571689			

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

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		MFGR. PART No.	QUAM PART No.	
SP101, 102	3" X 5" PM 16 Ohm	5835091001	35AZZ16	Two used
SP100	4" X 6" PM 16 Ohms	5846121004	46A1Z16	Models CE4145WA01/4151WA01, CEP127PE01, RE4252WA01.

MISCELLANEOUS

ITEM No.	PART NAME	MFGR. PART No.	NOTES
CHASSIS			
D451 (IC 1030)	LED	5302650001	Channel Display, ATC 213/14/59/60/61/62/91/92.
# L451	LED	5302650002	Channel Display, ATC257/58/63/65.
# P1	Degaussing Coil	3620210001	Model RE4252WA01.
# V701	Degaussing Coil	3610210001	AC Power.
	Cord	4614070001	Model CS4153WA01.
	CRT	A48AAN01X	Models CE4151WA01, RE4252WA01.
		A48AAN04X	Alternately used Model CS4153WA01.
		A48AAN03X	Models CE4145WA01, CEP127PE01.
		19VMFP2200	Models RS4254WA01/4256SL01.
		A480005200	Models CE4151WA01, CS4153WA01, RE4252WA01, RS4254WA01/4256SL01.
	Balun Assembly	3618050001	Models CE4145WA01, CEP127PE01.
	Cable Assembly-IF/RF	4616110001	Model RE4252WA01.
	Cable Assembly-IF/RF	4616110004	ATC214.
	Capristor	2502330001	ATC213/58/59/91/92.
		2502330007	
	Convergence & Purity Assembly	3615730008	
	LED	5302651002	Models CE4151WA01, CS4153WA01, RE4252WA01.
	LED	5302970002	SAP Indicator, Models CS4153WA01, RS4254WA01/4256SL01.
	LED	5302970003	Stereo Indicator, Models CS4153WA01, RS4254WA01/4256SL01.
	LED	5302970001	ACC1, ACC2, ACC3, A/V Indicators, Model RS4256SL01.
	Tuner Clutch Assembly		ATC213/14/59/61/91/92.
	Tuner Control Unit		ATC232/55/57/58/60/62/63/65/66/67.
	UHF Antenna	7012090002	RUSSELL Replacement BOW-4H.
	UHF/VHF Antenna	3620040001	Models CE4145WA01, CEP127PE01.
	Combiner		
	VHF Antenna	7043890003	RUSSELL Replacement Assembly POR-12H.
	Yoke Wedges	6448670001	RUSSELL Replacement Rod SIM-4H (Use 2)
			3 Used
ATC TUNER CONTROL UNIT/ CLUSTER ASSEMBLY			
# S700	Switch	1606650004	On/Off, ATC232/55/61.
		1606650003	On/Off, ATC258.
		1607240001	On/Off, ATC260.
			On/Off, ATC257/63/65/67.
AUDIO INTERFACE BOARD			
SW901	Switch	1605460010	Internal Speaker.
	CRT BOARD		
	CRT Socket	1813710104	
MAIN BOARD			
FB400	Ferrite Bead	3640460001	
S300	Switch	1606720001	Vertical Centering
SF38	SAW Filter	3619710001	
Y150	Crystal	3617560001	4.5MHz
Y194	Crystal	5604040005	3.58MHz

MAGNAVOX CHASSIS
19C501 THRU 19C519

FOLDER 1

PARTS LIST AND DESCRIPTION

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

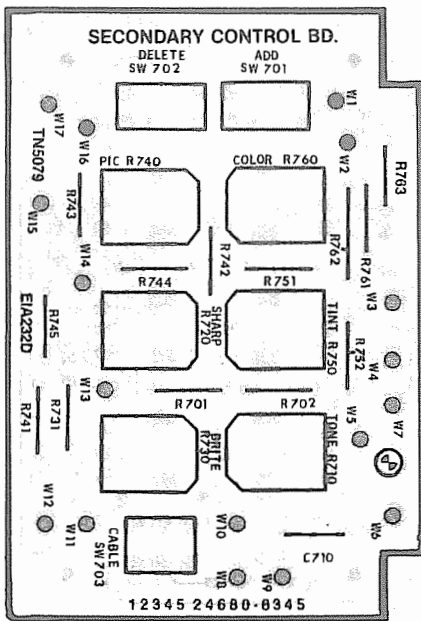
SEMICONDUCTORS (Select replacement transistor for best results)

REPLACEMENT DATA														
ITEM No.	TYPE No.	MFGR. PART No.	NOTES	NTE PART No.	ECG PART No.	RCA PART No.	WORKMAN PART No.	ZENITH PART No.						
AUDIO INTERFACE BOARD														
IC901 Q910, 911 Z901	186-1	6121860001		NTE4016B	ECG4016B	SK4016B	WEP2275/4016	HE-442-99						
	232-2	6102320002		NTE123AP	ECG123AP	SK3854/123A	WEP736/123A	121-Z9000A						
	192-120	5301921120		NTE142A	ECG142A	SK12V/142A	WEP1112/142	103-Z9003						
	CRT													
Q226 Q235 Q240 Q247	250-3	6102500003		NTE171	ECG171	SK3201/171	WEP702/171	121-822						
	BC558	6104340001		NTE159+	ECG159+	SK3466/159+	WEP62/159+	121-Z9003+						
	250-3	6102500003		NTE171	ECG171	SK3201/171	WEP702/171	121-822						
	250-3	6102500003		NTE171	ECG171	SK3201/171	WEP702/171	121-822						
MAIN BOARD														
D190, 191 D331 D337 D357		5302600002		NTE552	ECG552	SK9000/552	WEP172/506	103-287						
		5301710001		NTE116	ECG116	SK3311	WEP156	212-76-02						
		5301810001		NTE177	ECG177	SK9091/177	WEP1062/177	103-131						
		5301810001		NTE177	ECG177	SK9091/177	WEP1062/177	103-131						
D401 D404 D408 D414		5302660001		NTE552	ECG552	SK9000/552	WEP172/506	103-287						
		5302600002		NTE552	ECG552	SK9000/552	WEP172/506	103-287						
		5302600002		NTE552	ECG552	SK9000/552	WEP172/506	103-287						
		5303050002		NTE552	ECG552	SK9000/552	WEP172/506	103-287						
D418 D420 D423 D425		5303050003		NTE552	ECG552	SK9000/552	WEP172/506	103-287						
		5302600002		NTE552	ECG552	SK9000/552	WEP172/506	103-287						
		5302600002		NTE552	ECG552	SK9000/552	WEP172/506	103-287						
		5301810001		NTE177	ECG177	SK9091/177	WEP1062/177	103-131						
D459, 460 D461, 462 D463 D465 D470		5302620001		NTE552	ECG552	SK9000/552	WEP172/506	103-287						
		5301810001		NTE177	ECG177	SK9091/177	WEP1062/177	103-131						
		5302610001		NTE552	ECG552	SK9000/552	WEP172/506	103-287						
		5303050003		NTE580	ECG580	SK5036/580	WEP172/506	103-316-04						
		5301810001	NTE177	ECG177	SK9091/177	WEP1062/177	103-131							

SECONDARY CONTROL MODULE (ASC) INFORMATION

Note: For information on secondary control modules not covered in this manual refer to supplemental service data.

ASC121 & ASC139 SECONDARY CONTROL MODULES ASC140, ASC153 & ASC154 SECONDARY CONTROL MODULES ASC152 SECONDARY CONTROL MODULE



ASW016 FIVE FUNCTION SCAN MODULE
REPLACEMENT PARTS LIST

Ref.	Description	Part No.
S1	Pushbutton Sw. f/Channel Up	1606880001
S2	Pushbutton Sw. f/Channel Down	1606880001
S4	Slide Sw. f/Cable-Normal	1606690001
S5	Pushbutton Sw. f/Power	1606880001
S6	Pushbutton Sw. f/Volume Up	1606880001
S7	Pushbutton Sw. f/Volume Down	1606880001
CN1052	4 Pin Connector w/contacts	1813750004
	Negative Polarizing Key f/CN1052	1813760001
CN1100	9 Pin Connector w/contacts	1813750009
	Negative Polarizing Key f/CN1100	1813760001
	Feed Thru Post (5 used)	1811580001

ASW006 FIVE FUNCTION SCAN MODULE
REPLACEMENT PARTS LIST

Ref.	Description	Part No.
S1	Pushbutton Sw. f/Channel Up	1606880001
S2	Pushbutton Sw. f/Channel Down	1606880001
S3	Slide Sw. f/Fav. Sta.-All Sta. Sw.	1606690001
S4	Slide Sw. f/Cable-Normal Sw.	1606690001
S5	Pushbutton Sw. f/Power	1606880001
S6	Pushbutton Sw. f/Volume Up	1606880001
S7	Pushbutton Sw. f/Volume Down	1606880001
S9	Momentary Sw. f/Add	1606680002
S10	Momentary Sw. f/Remove	1606680002
CN1050	8 Pin Connector w/contacts	1816100408
CN1100	9 Pin Connector w/contacts	1816100709
	Feed Thru Post (5 used)	1811580001

ALD012 LED INDICATOR MODULE
REPLACEMENT PARTS LIST

Ref.	Description	Part No.
	Square Stereo Ind. LED (Red)	5302970003
	Square S.A.P. Ind. LED (Amber)	5302970002
	Square Audio/Video Ind. (Green)	5302970001
	Square LED Ind. (Green) f/ACC1, ACC2 & ACC3 (3 used)	5302970001
PD3	5 Pin Connector w/contacts	1817140005
	Negative Polarizing Key f/PD3	1813510001
P32	5 Pin Connector Housing	1812450002
	Female Contacts f/P32 (5 used)	1807250002

A10251-A001 R.F. SWITCH MODULE
REPLACEMENT PARTS LIST

Ref.	Description	Part No.
CAPACITORS (All are 10%, 50V, Ceramic unless otherwise specified.)		
C1	56pF., 5%, NPO	2508415605
C2	1000pF.	2508311029
C3	1000pF.	2508311029
C4	1000pF.	2508311029
C5	1000pF.	2508311029
C6	56pF., 5%, NPO	2508415605
C7	1000pF.	2508311029
C8	1000pF.	2508311029
C9	1000pF.	2508311029
C10	1000pF.	2508311029
C11	1000pF.	2508311029
C12	1000pF.	2508311029
C13	56pF., 5%, NPO	2508415605
C14	1000pF.	2508311029
C15	1000pF.	2508311029
C16	1000pF.	2508311029
C17	1000pF., Feedthru	2506650002
C18	1000pF., Feedthru	2506650002
C19	1000pF., Feedthru	2506650002
C20	1000pF., Feedthru	2506650002
C21	1000pF., Feedthru	2506650002

RESISTORS (All are 1/4W, 5%, Carbon Film unless otherwise specified.)		
R2	22k	2302732235
R3	910 ohm	2302739115
R4	1k	2302811025
R5	22k	2302732235
R6	470 ohm	2302814715

ASW015 FIVE FUNCTION SCAN MODULE
REPLACEMENT PARTS LIST

Ref.	Description	Part No.
S1	Pushbutton Sw. f/Volume Up	1606880004
S2	Pushbutton Sw. f/Volume Down	1606880004
S3	Pushbutton Sw. f/Channel Up	1606880004
S4	Pushbutton Sw. f/Channel Down	1606880004
S5	Pushbutton Sw. f/Power (2 used)	1606880004
CN1100	9 Pin Connector w/contacts	1813750009
	Negative Polarizing Key f/CN1100	1813760001
	Feed Thru Post (5 used)	1811580006

ASW017 FIVE FUNCTION SCAN MODULE
REPLACEMENT PARTS LIST

Ref.	Description	Part No.
SW1	Pushbutton Sw. f/Volume Up	1606880004
SW2	Pushbutton Sw. f/Volume Down	1606880004
SW3	Pushbutton Sw. f/Channel Up	1606880004
SW4	Pushbutton Sw. f/Channel Down	1606880004
SW5	Pushbutton Sw. f/Power	1606880004
CN1100	9 Pin Connector w/contacts	1813750009
	Negative Polarizing Key f/CN1100	1813760001
	Feed Thru Post (5 used)	1811580006

ALD006, ALD007 & ALD008
LED INDICATOR MODULE
REPLACEMENT PARTS LIST

Ref.	Description	Part No.
	Round Stereo Ind. LED (Red- for ALD006 Module only)	5301890001
	Square Stereo Ind. LED (Red- for ALD007 & ALD008)	5302970003
	Round S.A.P. Ind. LED (Amber- for ALD006 only)	5301890002
	Square S.A.P. Ind. LED (Amber- for ALD007 & ALD008)	5302970002
PD3	5 Pin Connector w/contacts	1817140005
	Negative Polarizing Key f/PD3	1813510001

Ref.	Description	Part No.
RESISTORS (Continued)		
R7	100 ohm	2302811015
R8	1k	2302811025
R9	2k	2302812025
R10	1200 ohm	2302811225
R11	100 ohm	2302811015
R12	22k	2302812235
R13	1k	2302811025
R15	1k	2302731025
R16	100 ohm	2302811015
R17	1k	2302811025
R18	22k	2302812235
R19	1k	2302811025

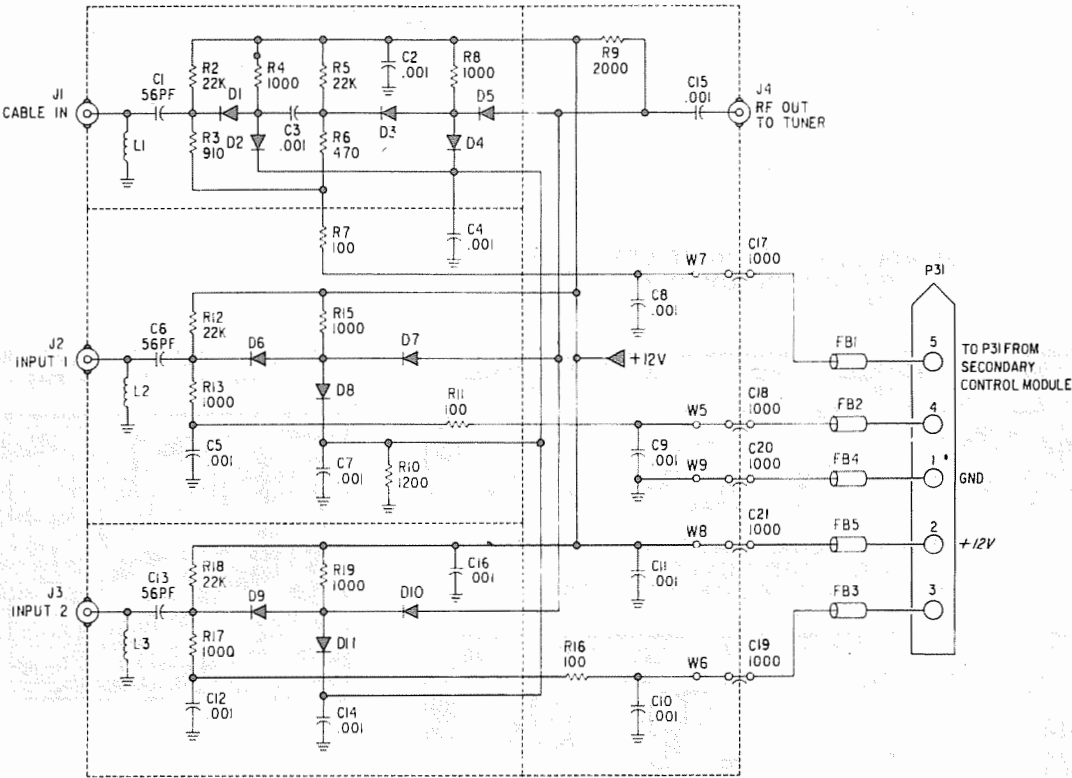
COILS		
L1	14.5 Turns	-----
L2	14.5 Turns	-----
L3	14.5 Turns	-----

SEMICONDUCTORS		
D1 thru D11	Diode - Bandswitch (11 used)	5302051003

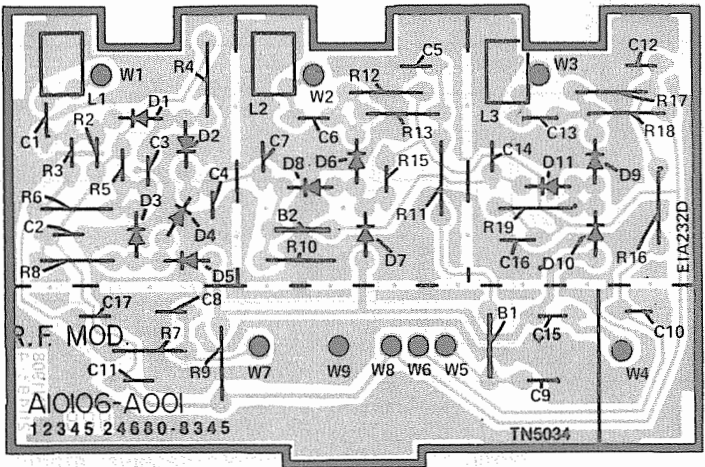
MISCELLANEOUS		
FB1 thru FB5	Ferrite Beads (5 used)	3640050001
	F type Connector f/Inputs (3 used)	1813841005
P31	5 Pin Connector Housing	1812450002
	Male Contacts f/P31 (5 used)	1807260002
	Phono Socket f/RF Output	1810950003
	Top & Bottom Shield Covers (2 used)	7334360001

- SCHEMATIC NOTES
UNLESS OTHERWISE SPECIFIED:
1. CAPACITANCE VALUES OF 1 OR GREATER ARE IN PICO FAR-ADS.
 2. CAPACITANCE VALUES OF LESS THAN 1 ARE IN MICRO FAR-ADS.
 3. FOR VOLTAGE, WATTAGE OR TOLERANCE RATINGS ON CAPACITORS OR RESISTORS, REFER TO THE ELECTRICAL REPLACEMENT PARTS LIST.

A10251-A001 R.F. SWITCH MODULE SCHEMATIC DIAGRAM



A10251-A001 R.F. SWITCH MODULE
P.C. BOARD OVERLAY
(VIEWED FROM THE COMPONENT SIDE)

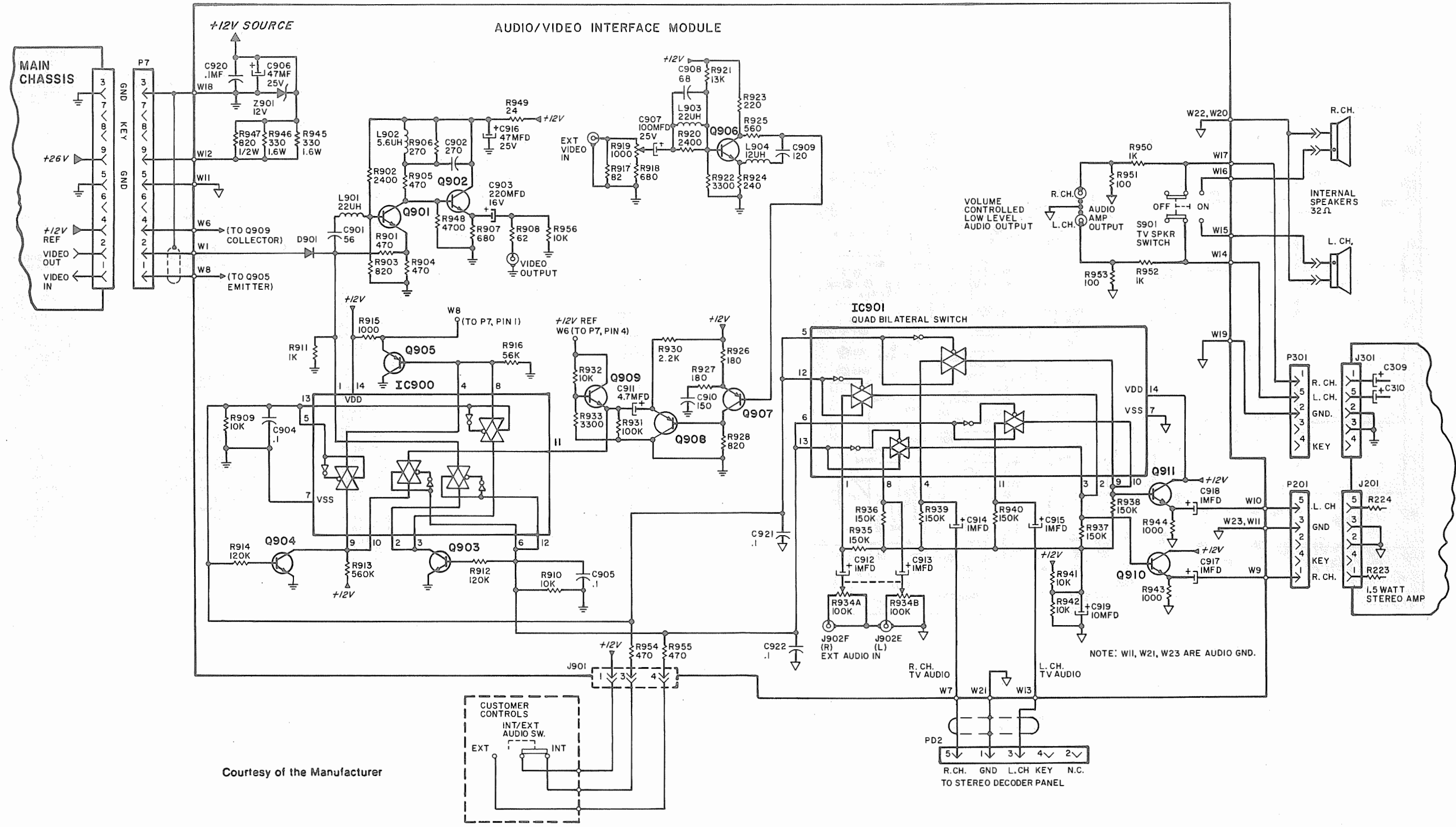


MAGNAVOX CHASSIS
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FOLDER 1

A10252-A001 AUDIO/VIDEO INTERFACE MODULE
SCHEMATIC DIAGRAM

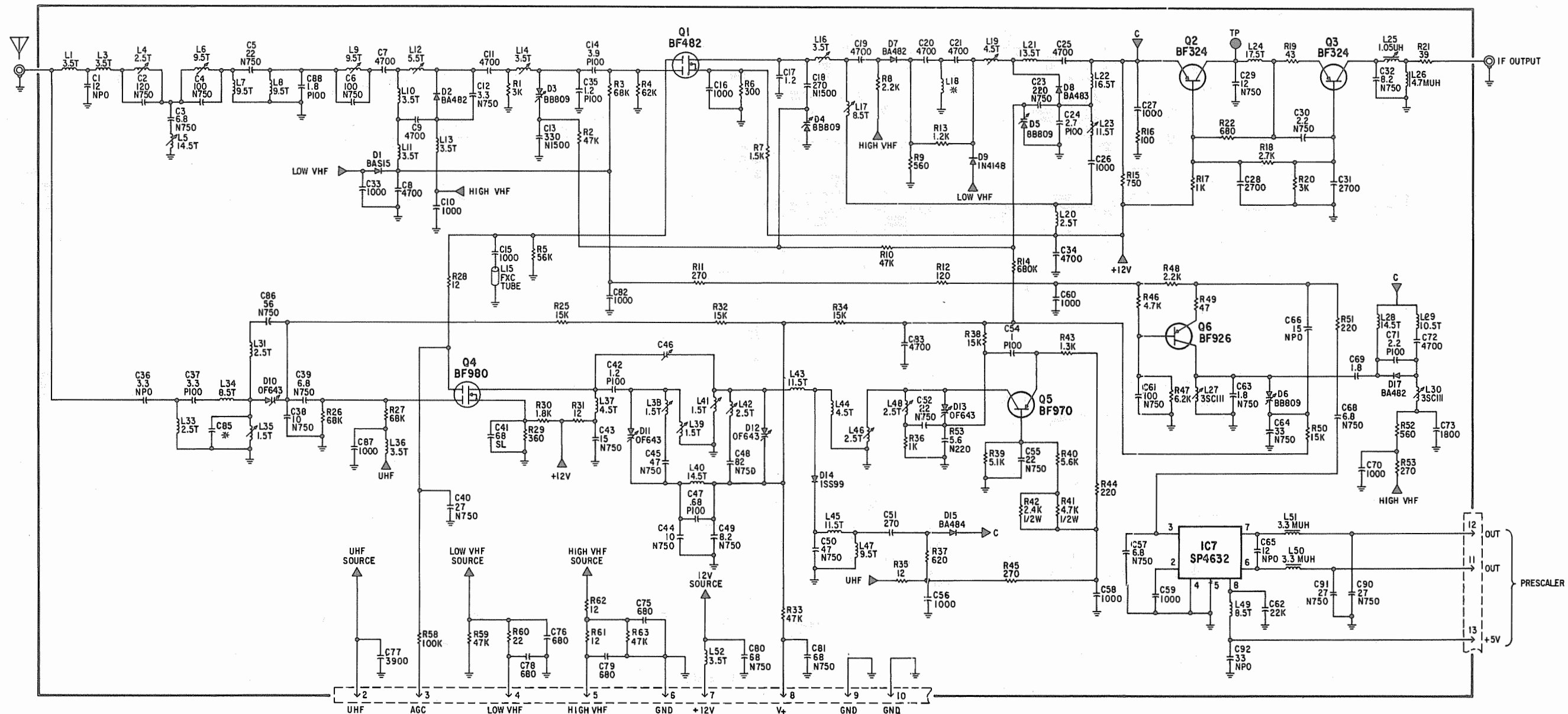
- SCHEMATIC NOTES:
UNLESS OTHERWISE SPECIFIED:
1. CAPACITANCE VALUES OF ONE OR MORE ARE IN PICOFARADS.
2. CAPACITANCE VALUES OF LESS THAN ONE ARE IN MICROFARADS.
3. FOR VOLTAGE, WATTAGE OR TOLERANCE RATINGS OF CAPACITORS OR RESISTORS, REFER TO THE ELECTRICAL REPLACEMENT PARTS LIST.



**340263 TUNER MODULE
REPLACEMENT PARTS LIST
(83 CH. TUNER USED WITH TS-6 & TS-7
TUNING SYSTEMS)**

Ref.	Description	Part No.	Ref.	Description	Part No.
SEMICONDUCTORS ONLY					
D1	Diode, Type BAS15	-----	D13	Diode, Varactor, Type 0F643	-----
D2	Diode, Type BA482	2805015301	D14	Diode, Type 1SS99	2805045301
D3	Diode, Varactor, Type BB809	2805025301	D15	Diode, Type BA484	-----
D4	Diode, Varactor, Type BB809	2805025301	D17	Diode, Type BA482	2805015301
D5	Diode, Varactor, Type BB809	2805025301	Q1	N Channel MOSFET, Type BF482	-----
D6	Diode, Varactor, Type BB809	2805025301	Q2	PNP Transistor, Type BF324	-----
D7	Diode, Type BA482	2805015301	Q3	PNP Transistor, Type BF324	-----
D8	Diode, Type BA483	2805015302	Q4	N Channel MOSFET, Type BF980	2805076101
D9	Diode, Type 1N4148	-----	Q5	PNP Transistor, Type BF970	-----
D10	Diode, Varactor, Type 0F643	-----	Q6	PNP Transistor, Type BF926	-----
D11	Diode, Varactor, Type 0F643	-----	IC7	Prescaler IC, Type SP4632	-----
D12	Diode, Varactor, Type 0F643	-----			

340263 (83 CHANNEL) UHF/VHF TUNER SCHEMATIC DIAGRAM



Courtesy of the Manufacturer

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.

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.

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.

UNLESS OTHERWISE SPECIFIED:

1. CAPACITANCE VALUES OF 1 OR GREATER ARE IN PICO-FARADS.
2. CAPACITANCE VALUES OF LESS THAN 1 ARE IN MICRO-FARADS.
3. FOR VOLTAGE, WATTAGE OR TOLERANCE RATINGS ON CAPACITORS OR RESISTORS, REFER TO THE ELECTRICAL REPLACEMENT PARTS LIST.
4. WHEN REFERRING TO THE ELECTRICAL REPLACEMENT PARTS LIST, ADD 1000 TO THE REFERENCE NUMBERS OF ALL DISCRETE COMPONENTS.



FOLDER 1

Ref.	Description	Part No.
CAPACITORS (Continued)		
C1552	1000pF., 10%, 50V, Ceramic	2505521020
C1554	1000µF., 16V, Electrolytic	2701681316
C1556	22µF., 160V, Electrolytic	2701860004
C1570	.47µF., 50V, Electrolytic	2701685950
C1571	.022µF., 20%, 100V, Polyester (L.P. Versions only)	2508452230
C1572	10µF., 50V, Electrolytic	2701591150
C1574	1000pF., 10%, 50V, Ceramic	2508281029
RESISTORS		
(All resistors are ¼W, 5%, Carbon Film unless otherwise specified)		
R1008	1k	2302811025
R1009	1k	2302811025
R1010	15k	2302811535
R1012	15k	2302811535
R1013	15k	2302811535
R1014	15k	2302811535
R1015	15k	2302811535
R1017	15k	2302811535
R1018	15k	2302811535
R1022	4.7k	2302814725
R1024	4.7k	2302814725
R1026	4.7k	2302814725
R1027	10k	2302811035
R1029	10k	2302811035
R1030	10k	2302811035
R1032	10k	2302811035
R1052	680k (Favorite Station Models only)	2302816845
R1054	510 ohm, ½W (Fav. Station Models only)	2302825115
R1056	2.2k (Favorite Station Models only)	2302812225
R1058	2.2k (Favorite Station Models only)	2302812225
R1060	2.7k, 2% (Fav. Station Models only)	2302812722
R1062	15k (Favorite Station Models only)	2302811535
R1064	15k (Favorite Station Models only)	2302811535
R1066	390 ohm, 2% (Favorite Station Models only)	2302813912
R1072	2.2k (Favorite Station Models only)	2302812225
R1074	6.8k (Favorite Station Models only)	2302816825
R1076	1.5k	2302811525
R1082	20k	2302812035
R1083	39k	2302813935
R1084	82k	2302818235
R1085	160k	2302811645
R1086	330k	2302813345
R1087	680k	2302816845
R1088	56k	2302815635
R1089	4.7k	2302814725
R1090	470 ohm	2302814715
R1092	330k	2302813345
R1094	1k, ½W	2302821025
R1122	82k	2302818235
R1124	10k	2302811035
R1180	56k	2302815635
R1182	22k	2302812235
R1184	15k	2302811535
R1200	1 megohm	2302811055
R1202	560 ohm	2302815615
R1204	560 ohm	2302815615
R1206	1k	2302811025
R1210	16k	2302811025
R1218	100k	2302811045
R1220	1 megohm	2302811055
R1222	10k	2302811035
R1224	200k	2302812045
R1226	100k	2302811045
R1227	39k, 2%	2302813932
R1229	10k, 2%	2302811032
R1252	1.6k, 2%	2302811622
R1254	3.6k, 2%	2302813622
R1300	100k	2302811045
R1302	10k	2302811035
R1306	22k, 5%, 3W, Metal Oxide	2301932235
R1310	82k, 5%, 1W, Metal Film	2302818235
R1320	1.8k	2302811825
R1322	1.8k	2302811825
R1324	1.8k	2302811825
R1326	1.8k	2302811825
R1328	6.8k	2302816825
R1330	1.8k	2302811825
R1332	6.8k	2302816825
R1334	1.8k	2302811825
R1336	15k	2302811535
R1338	56k (w/o Favorite Station)	2302815635
R1338	27k (Favorite Station Models)	2302812735
R1340	430k (w/o Favorite Station)	2302814345
R1340	220k (Favorite Station Models)	2302812245
R1342	120k	2302811245
R1350	2.7k	2302812725
R1352	2k, 2%	2302812022
R1354	470 ohm, 2%	2302814712
R1370	4.7k	2302814725
R1380	33k	2302813335
R1382	10k	2302811035
R1384	10k	2302811035
R1504	330 ohm, 2%	2302813312
R1506	24 ohm, 2%	2302812402
R1520	82 ohm, ½W	2302828205
R1522	330 ohm, ½W	2302823315

MCU TUNING CONTROL ASSEMBLIES

Ref.	Description	Part No.
RESISTORS (Continued)		
R1530	1k	2302811025
R1531	1k	2302811025
R1532	22k	2302812235
R1550	100 ohm, ½W (w/o Favorite Station)	2302821015
R1550	82 ohm, 1W (Favorite Station Models)	2302018205
R1551	27 ohm, ½W (Favorite Station Models)	2302822705
R1550	68k	2302816835
R1580	20 ohm, 5%, 3W, Metal Oxide	2301932005
R1590	270 ohm	2302812715
SEMICONDUCTORS		
IC1000	*Microcomputer IC*	6124420001
IC1080	Shift Register IC	6123350001
IC1050	Memory IC (Favorite Station Models only)	6123680001
IC1052	Shift Register IC (Favorite Station Models only)	6123350001
IC1200	*Frequency Synthesizer IC*	6123370005
IC1300	*Interface IC*	6123360001
IC1500	Voltage Regulator IC	6124480001
Q1080	Volume Control Buffer, NPN Transistor	6104500001
Q1200	AFC Gain Switch, NPN Transistor	6104750001
Q1304	Lo Band Clamp, NPN Transistor	6104500001
Q1310	Hi/Lo Bandswitch, PNP Transistor	6104600001
Q1314	VHF B+ Switch, PNP Transistor	6104600001
Q1316	UHF B+ Switch, PNP Transistor	6104600001
Q1570	5V Regulator, NPN Transistor	6104620003
D1011	Silicon Diode	5301811001
D1035	Silicon Diode	5302521002
D1054	Zener Diode, 30V, 1W (Favorite Station Models only)	5301921300
D1062	Silicon Diode, Schottky (Favorite Station Models only)	5302471001
D1124	Silicon Diode, 100V	5302511001
D1300	Silicon Diode	5301811001
D1302	Silicon Diode	5301811001
D1304	Silicon Diode	5301811001
D1350	Silicon Diode	5301811001
D1380	Silicon Diode	5301811001
D1500	Silicon Diode	5301711002
D1502	Silicon Diode	5301711002
D1504	Silicon Diode	5301711002
D1530	Silicon Diode	5301711002
D1550	Silicon Diode	5302671002
D1662	Silicon Diode	5302671002
D1560	Silicon Diode	5301711002
D1562	Silicon Diode	5301711002
D1580	Zener, 5.25V, 5W	5302781008
D1588	Silicon Diode	5302521002
MISCELLANEOUS		
P203	4 Pin Connector w/contacts (present on models incorporating the 1.5 Watt Stereo Amp Panel)	1817140004
CN1052	Negative Polarizing Key f/P203	1813510001
	7 Pin PC Board Waffer	1814920007
	7 Pin CN1030 to Display Connector	1815120007
	4 Pin PC Board Waffer	1814920024
	4 Pin PC Board Waffer f/CN1180	1814920004
P1	4 Pin CN1180 to IR Remote Receiver Connector	1811931004
	5 Pin CN1302 Molex MCU to P22 (U/V 1813802005 Varactor Tuner)	
	4 Pin CN1300 Molex MCU + P21 (U/V 1813802004 Varactor)	
	5 Pin Housing Connector f/AC Remote Power	1816140005
	Terminal Crimp (3 used)	2006060001
P6	8 Pin Connector ATC to P6	1817140008
P13	Negative Polarizing Key f/P6	1813510001
	Housing Connector Locking Type MCU to P13	1812101004
P15	Terminal Crimp (4 used)	1810110001
	1 Pin Connector f/Channel Identification	1812100001
PL510	Terminal Crimp f/P15 (1 used)	1810110001
	2 Pin Housing From Points P0 & 5.4 (Keep Alive)	1811420001
XT1200	Female Contacts f/PL510 (2 used)	1809300002
	Phono Plug From Point PS to Prescaler Output	1814050006
	IC Socket (16 Pin) (3 used)	1815220016
	IC Socket (18 Pin)	1815220018
	IC Socket (28 Pin)	1815220028
	Ferrite Bead	3640050003
	Heatsink - Clip On	1037110001
	Resistor Mounting Pins (4 used)	1808820003
	4MHz Crystal	5604420003
	Shield (MCU)	7344090001
RY1500	Shield (Cover)	7344430001
	Keyboard	7043700001
RY1500	Relay On-Off	1606750002
Courtesy of the Manufacturer		

MCU NON-REMOTE TUNING SYSTEM ASSEMBLY (WITH/WITHOUT FAVORITE STATION)

Ref.	Description	Part No.
REPLACEMENT PARTS LIST		
COILS & TRANSFORMERS		
L1571	22µH., Peaking Coil (L.P. Versions only)	3618352209
L1590	100µH., Peaking Coil	3617351015
CAPACITORS		
C1003	.01µF., 10%, 100V, Ceramic	2508311039
C1008 thru C1014	.001µF., 10%, 50V, Ceramic (6 used)	2508311029
C1016	.001µF., 10%, 50V, Ceramic	2508311029
C1017	.001µF., 10%, 50V, Ceramic	2508311029
C1018	.001µF., 10%, 50V, Ceramic	2508311029
C1020 thru C1027	.001µF., 10%, 50V, Ceramic (8 used)	2508311029
C1028	1µF., 50V, Electrolytic	2701591050
C1052	.01µF., 10%, 50V, Ceramic (Favorite Station Models only)	2508311039
C1056	1000pF., 10%, 50V, Ceramic (Favorite Station Models only)	2508311029
C1058	1000pF., 10%, 50V, Ceramic (Favorite Station Models only)	2508311029
C1080	.01µF., 10%, 50V, Ceramic	2508281039
C1081	1µF., 20%, 100V, Polyester	2508141040
C1150	22µF., 35V, Electrolytic	2701592135
C1202	15pF., 5%, N220, Ceramic	2508421505
C1204	27pF., 5%, N220, Ceramic	2508422705
C1212	1µF., 50V, Electrolytic	2701681050
C1214	.047µF., +80 -20%, 50V, Ceramic	2508334738
C1216	.001µF., 10%, 50V, Ceramic	2508311029
C1222	.01µF., 10%, 50V, Ceramic	2508281039
C1226	.001µF., 10%, 50V, Ceramic	2508311029
C1228	1µF., 50V, Electrolytic	2701591050
C1250	6800pF., 10%, 50V, Ceramic	2508316829
C1252	39pF., 5%, 50V, NPO, Ceramic	2508413905
C1254	1µF., 50V, Electrolytic	2701591050
C1300	.047µF., 10%, 100V, Polyester	2508454739
C1302	470pF., 10%, 50V, Ceramic	2508314719
C1304	.001µF., 10%, 50V, Ceramic	2508311029
C1306	1000pF., 10%, 50V, Ceramic	2505210029
C1308	1µF., 250V, Electrolytic	2701860002
C1370	1000pF., 10%, 50V, Ceramic	2508281029
C1504	10µF., 50V, Electrolytic	2701681150
C1550	1000pF., 10%, 50V, Ceramic	2505521020
C1552	1000pF., 10%, 50V, Ceramic	2505521020
C1554	1000µF., 16V, Electrolytic	2701681316
C1556	22µF., 160V, Electrolytic	2701860004
C1570	.47µF., 50V, Electrolytic	2701685950
C1571	.022µF., 20%, 100V, Polyester (L.P. Versions only)	2508452230
C1572	10µF., 50V, Electrolytic	2701591150
C1574	1000pF., 10%, 50V, Ceramic	2508281029
RESISTORS		
(All resistors are ¼W, 5%, Carbon Film unless otherwise specified)		
R1008	1k	2302811025
R1009	1k	2302811025
R1010	15k	2302811535
R1012	15k	2302811535
R1013	15k (w/o Favorite Station only)	2302811535
R1014	15k	2302811535
R1015	15k	2302811535
R1017	15k	2302811535
R1018	15k	2302811535
R1022	4.7k	2302814725
R1024	4.7k	2302814725
R1026	4.7k	2302814725
R1027	10k	2302811035
R1029	10k	2302811035
R1030	10k	2302811035
R1032	10k	2302811035
R1052	680k (Favorite Station Models only)	2302816845
R1054	510 ohm, ½W (Favorite Station Models only)	2302825115
R1056	2.2k (Favorite Station Models only)	2302812225
R1058	2.2k (Favorite Station Models only)	2302812225
R1060	2.7k, 2% (Favorite Station Models only)	2302812722
R1062	15k (Favorite Station Models only)	2302811535
R1064	15k (Favorite Station Models only)	2302811535
R1066	390 ohm, 2% (Favorite Station Models only)	2302813912
R1072	2.2k (Favorite Station Models only)	2302812225
R1074	6.8k (Favorite Station Models only)	2302816825
R1076	1.5k	2302811525
R1082	20k	2302812035
R1122	82k	2302818235
R1124	10k	2302811035
R1184	15k	2302811535
R1200	1 megohm	2302811055
R1202	560 ohm	2302815615
R1204	560 ohm	2302815615
R1210	16k	2302811025
R1218	100k	2302811045
R1220	1 megohm	2302811055
R1222	10k	2302811035
R1224	200k	2302812045
R1226	100k	2302811045
R1227	39k, 2%	2302813932
R1229	10k, 2%	2302811032
R1252	1.6k, 2%	2302811622
R1254	3.6k, 2%	2302813622
R1300	100k	2302811045
R1302	10k	2302811035
R1306	22k, 5%, 3W, Metal Oxide	2301932235
R1310	82k, 5%, 1W, Metal Film	2302818235
R1320	1.8k	2302811825
R1322	1.8k	2302811825
R1324	1.8k	2302811825
R1326	1.8k	2302811825
R1328	6.8k	2302816825
R1330	1.8k	2302811825
R1332	6.8k	2302816825
R1334	1.8k	2302811825
R1336	15k	2302811535
R1338	56k (w/o Favorite Station)	2302815635
R1338	27k (Favorite Station Models)	2302812735
R1340	430k (w/o Favorite Station)	2302814345
R1340	220k (Favorite Station Models)	2302812245
R1342	120k	2302811245
R1350	2.7k	2302812725
R1352	2k, 2%	2302812022
R1354	470 ohm, 2%	2302814712
R1370	4.7k	2302814725
R1380	33k	2302813335
R1382	10k	2302811035
R1384	10k	2302811035
R1504	330 ohm, 2%	2302813312
R1506	24 ohm, 2%	2302812402
R1520	82 ohm, ½W	2302828205
R1522	330 ohm, ½W	2302823315
R1572	1.8 ohm	2302811895
R1580	20 ohm, 3W, Metal Oxide	2301932005
R1590	270 ohm	23028

A10132-A001 TS-7 TUNER CONTROL MODULE
REPLACEMENT PARTS LIST

Ref. No.	Description*	Part No.
COILS & TRANSFORMERS		
L1018	33uH., Peaking Coil	3618133309
L1019	33uH., Peaking Coil	3618133309
L1020	33uH., Peaking Coil	3618133309
L1021	33uH., Peaking Coil	3618133309
L1022	33uH., Peaking Coil	3618133309
L1023	33uH., Peaking Coil	3618133309
L1024	33uH., Peaking Coil	3618133309
L1030	12uH., Peaking Coil	3619551209
L1060	33uH., Peaking Coil	3618133309
L1070	33uH., Peaking Coil	3618133309
L1096	12uH., Peaking Coil	3619551209
L1236	12uH., Peaking Coil	3619551209
L1238	12uH., Peaking Coil	3619551209
CAPACITORS		
C1006	.001uF., 50Vdc, 10%, Z5P, Cer. Disc.	2508281029
C1011	.001uF., 50Vdc, 10%, Z5P, Tubular Cer.	2507481020
C1012	.001uF., 50Vdc, 10%, Z5P, Cer. Disc.	2508281029
C1015	39pF., 50Vdc, 5%, NPO, Cer. Disc.	2507393905
C1016	39pF., 50Vdc, 5%, NPO, Cer. Disc.	2507393905
C1017	.001uF., 50Vdc, 10%, Z5P, Cer. Disc.	2508281029
C1018	.001uF., 50Vdc, 20%, Z5P, Tubular Cer.	2507481020
C1019	.001uF., 50Vdc, 20%, Z5P, Tubular Cer.	2507481020
C1020	.001uF., 50Vdc, 20%, Z5P, Tubular Cer.	2507481020
C1021	.001uF., 50Vdc, 20%, Z5P, Tubular Cer.	2507481020
C1022	.001uF., 50Vdc, 20%, Z5P, Tubular Cer.	2507481020
C1023	.001uF., 50Vdc, 20%, Z5P, Tubular Cer.	2507481020
C1024	.001uF., 50Vdc, 20%, Z5P, Tubular Cer.	2507481020
C1025	.001uF., 50Vdc, 10%, Z5P, Cer. Disc.	2508281029
C1028	22uF., 25V, Electrolytic	2701682125
C1030	.022uF., 100Vdc, 10%, Polyester Film	2508802239
C1041	.001uF., 50Vdc, 20%, Z5P, Tubular Cer.	2507481020
C1042	.001uF., 50Vdc, 10%, Z5P, Cer. Disc.	2508281029
C1048	.001uF., 50Vdc, 20%, Tubular Cer.	2507481020
C1049	.001uF., 50Vdc, 20%, Tubular Cer.	2507481020
C1050	.001uF., 50Vdc, 20%, Z5P, Tubular Cer.	2507481020
C1051	.001uF., 50Vdc, 20%, Z5P, Tubular Cer.	2507481020
C1052	.001uF., 50Vdc, 20%, Z5P, Tubular Cer.	2507481020
C1053	.001uF., 50Vdc, 20%, Z5P, Tubular Cer.	2507481020
C1054	.001uF., 50Vdc, 20%, Z5P, Tubular Cer.	2507481020
C1064	.01uF., 100Vdc, 10%, Polyester Film	2508801039
C1065	.01uF., 50Vdc, 10%, Z5P, Cer. Disc.	2508281039
C1074	.01uF., 100Vdc, 10%, Polyester Film	2508281039
C1090	.001uF., 50Vdc, 20%, Z5P, Tubular Cer.	2507481020
C1096	.001uF., 50Vdc, 20%, Z5P, Tubular Cer.	2507481020
C1156	22uF., 25V, Electrolytic	2701682125
C1158	3.3uF., 50Vdc, Electrolytic	2701683050
C1206	.001uF., 50Vdc, 10%, Z5P, Cer. Disc.	2508281029
C1210	1uF., 100Vdc, 10%, Mylar	2506000011
C1212	.01uF., 50Vdc, 10%, Z5P, Cer. Disc.	2508281039
C1213	.001uF., 50Vdc, 20%, Z5P, Tubular Cer.	2507481020
C1214	.001uF., 50Vdc, 20%, Z5P, Tubular Cer.	2507481020
C1215	.1uF., 100Vdc, 10%, Polyester Film	2508801049
C1216	.1uF., 100Vdc, 10%, Polyester Film	2508801049
C1217	.1uF., 100Vdc, 10%, Polyester Film	2508801049
C1220	.01uF., 50Vdc, 10%, Z5P, Cer. Disc.	2508281039
C1221	10pF., 50V, 10%, NPO, Ceramic	2507391009
C1224	.001uF., 50Vdc, 10%, Z5P, Cer. Disc.	2508281029
C1230	39pF., 50Vdc, 5%, NPO, Cer. Disc.	2507393905
C1232	47uF., 25V, Electrolytic	2701685125
C1236	22uF., 25V, Electrolytic	2701682125
C1238	.001uF., 50Vdc, 10%, Z5P, Cer. Disc.	2508281029
C1250	.001uF., 50Vdc, 20%, Z5P, Tubular Cer.	2507481020
C1254	.047uF., 100Vdc, 10%, Polyester Film	2508804739
C1300	560pF., 2kVdc, 10%, Cer. Disc.	2508840002
C1500	.001uF., 50Vdc, 10%, Z5P, Cer. Disc.	2508281029
C1502	.001uF., 50Vdc, 10%, Z5P, Cer. Disc.	2508281029
C1504	1000uF., 25V, Electrolytic	2701681325
C1506	.022uF., 100Vdc, 10%, Polyester Film	2508802239
C1510	10uF., 50V, Electrolytic	2701681150
C1512	.022uF., 100Vdc, 10%, Polyester Film	2508802239
C1520	.001uF., 50Vdc, 20%, Z5P, Tubular Cer.	2507481020
C1530	.01uF., 125Vac, +80-20%, Cer. Disc.	2506260017
C1550	1000uF., 16V, Electrolytic	2701681325

TS-7 TUNER CONTROL MODULE

Ref.	Description	Part No.
CAPACITORS (Continued)		
C1552	.022uF., 100Vdc, 10%, Polyester Film	2508802239
RESISTORS		
(All are 5%, 1/4W, Carbon Film unless otherwise specified)		
R1002	4.7k	2302814725
R1003	4.7k	2302814725
R1006	10k	2302811035
R1007	1k	2302811025
R1011	220 ohm	2302812215
R1015	1 meg	230281055
R1018	180 ohm	2302811815
R1019	180 ohm	2302811815
R1020	180 ohm	2302811815
R1021	180 ohm	2302811815
R1022	180 ohm	2302811815
R1023	180 ohm	2302811815
R1024	180 ohm	2302811815
R1060	2.7k	2302812725
R1062	22k	2302812235
R1064	15k	2302811535
R1070	2.7k	2302812725
R1072	22k	2302812235
R1074	15k	2302811535
R1090	1k	2302811025
R1150	30 ohm	2302813005
R1152	43 ohm	2302814305
R1154	33k	2302813335
R1156	680 ohm	2302816815
R1160	15k	2302811535
R1162	100 ohm	2302811015
R1164	10k	2302811035
R1206	2.7k	2302812725
R1210	100 ohm	2302851015
R1215	51 ohm	2302815105

Ref.	Description	Part No.
RESISTORS (Continued)		
R1216	51 ohm	2302815105
R1217	51 ohm	2302815105
R1222	3.3k	2302813325
R1224	3.3k	2302813325
R1246	10k	2302811035
R1250	1k	2302811025
R1254	560k	2302815645
R1256	560k	2302815645
R1258	10k	2302811035
R1260	10k	2302811035
R1262	22k	2302812235
R1270	47k	2302814735
R1272	1.8k	2302811825
R1274	1.8k	2302811825
R1276	1.8k	2302811035
R1520	10k	2302813905
R1522	4.7k	2302818205
R1524	39 ohm	2302662235
R1530	82 ohm	2302121205
R1540	22k, 2.5W, Metal Film	
R1550	12 ohm, 1/2W	
SEMICONDUCTORS		
D1210	Diode, Schottky	5302470001
D1500	Diode, Silicon	5301711002
D1502	Diode, Silicon	5301711002
D1524	Diode, Silicon	5301711002
Z1150	Diode, Zener, 3.9V	5301571399
Z1540	Diode, Zener, 33V, 1W	5301921330

Ref.	Description	Part No.
SEMICONDUCTORS (Continued)		
Q1060	Transistor, PNP	6102230001
Q1070	Transistor, PNP	6102230001
Q1150	Transistor, PNP	6100830001
Q1160	Transistor, NPN	6102320002
Q1250	Transistor, PNP	6100830001
Q1252	Transistor, NPN	6102320002
Q1520	Transistor, NPN	6102320002
Q1522	Transistor, NPN	6102240001
IC1000	IC, Microcomputer	6124260003
IC1200	IC, Interface	6124240001
IC1500	IC, 5V Regulator	6124790001
MISCELLANEOUS		
CN1000	Wafer Connector, 8 Circuit	1814920008
CN1030	Wafer Connector, 3 Circuit	1814920003
CN1090	Wafer Connector, 4 Circuit	1814920004
F1500	Fuse, Slo Blow, .125 Amp	1808655012
XT1000	Crystal, 5.12MHz	5604440001
XT1200	Crystal, 4MHz	5604170005
RY1500	Power Relay	1607230003
	Socket, 24 Pin (IC1200)	1815220024
	Socket, 28 Pin (IC1000)	1815220028
	Heat Sink (IC1500)	7316650002
	Square Wire Pins (CN1200, CN1250, CN1550, CN1040, CN1300, 25 used)	1811580101

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.

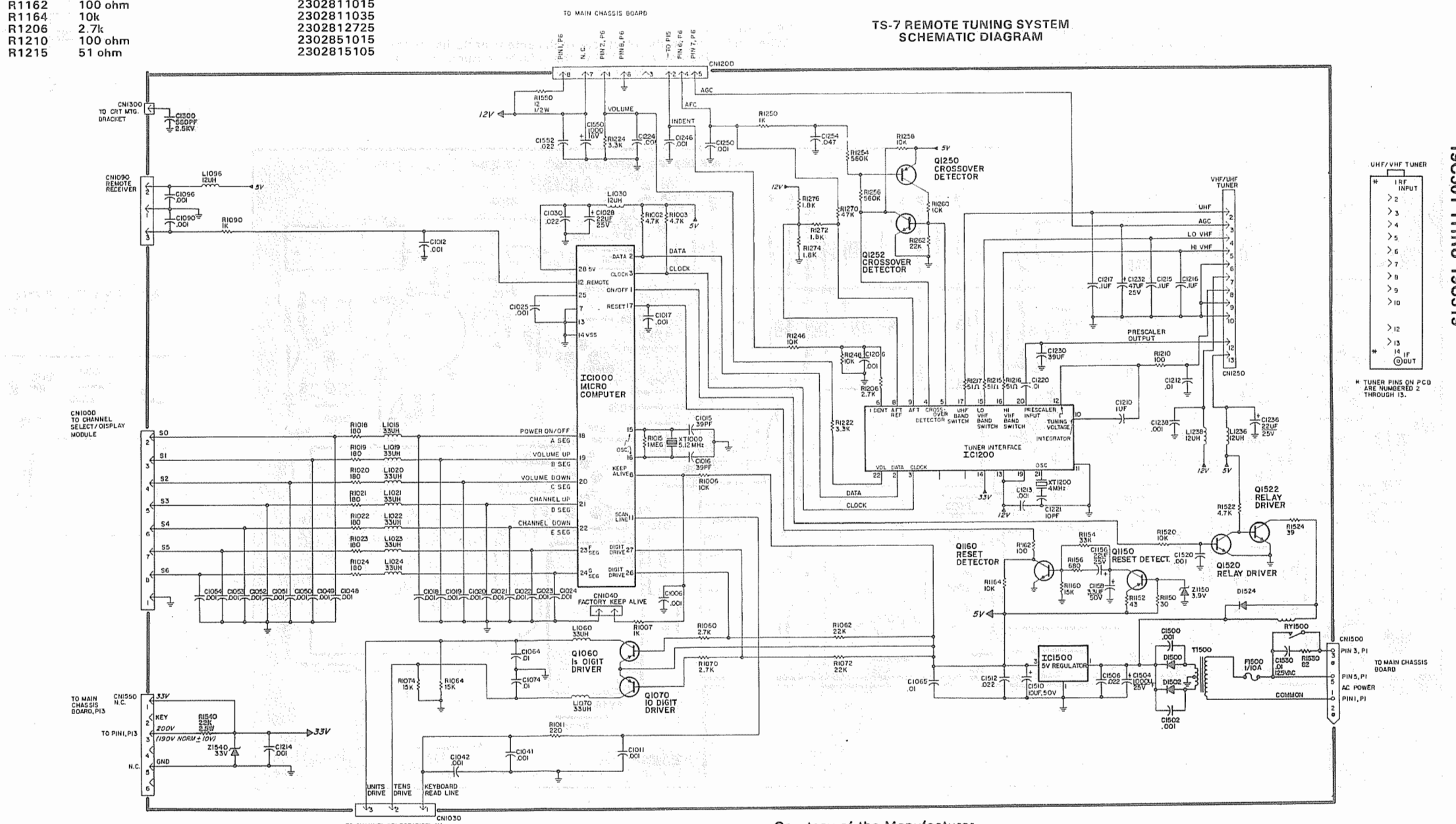
For maximum reliability and performance, all other parts should be replaced by those having identical specifications.

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

SCHEMATIC NOTES

UNLESS OTHERWISE SPECIFIED:

- CAPACITANCE VALUES OF ONE OR MORE ARE IN PICOFARADS.
- CAPACITANCE VALUES OF LESS THAN ONE ARE IN MICROFARADS.
- FOR VOLTAGE, WATTAGE OR TOLERANCE RATINGS OF CAPACITORS OR RESISTORS, REFER TO THE ELECTRICAL REPLACEMENT PARTS LIST.
- *TUNER PINS ON THE P.C. BOARD ARE NUMBERED 2 THRU 13. PIN 1 IS THE R.F. INPUT, PIN 14 IS THE I.F. OUTPUT.
- THE REFERENCE NUMBERS OF DISCRETE COMPONENTS SCREENED ON THE P.C. BOARD MUST HAVE 1000 ADDED TO THEM IN ORDER TO CROSS-REFERENCE THEM TO THIS SCHEMATIC.



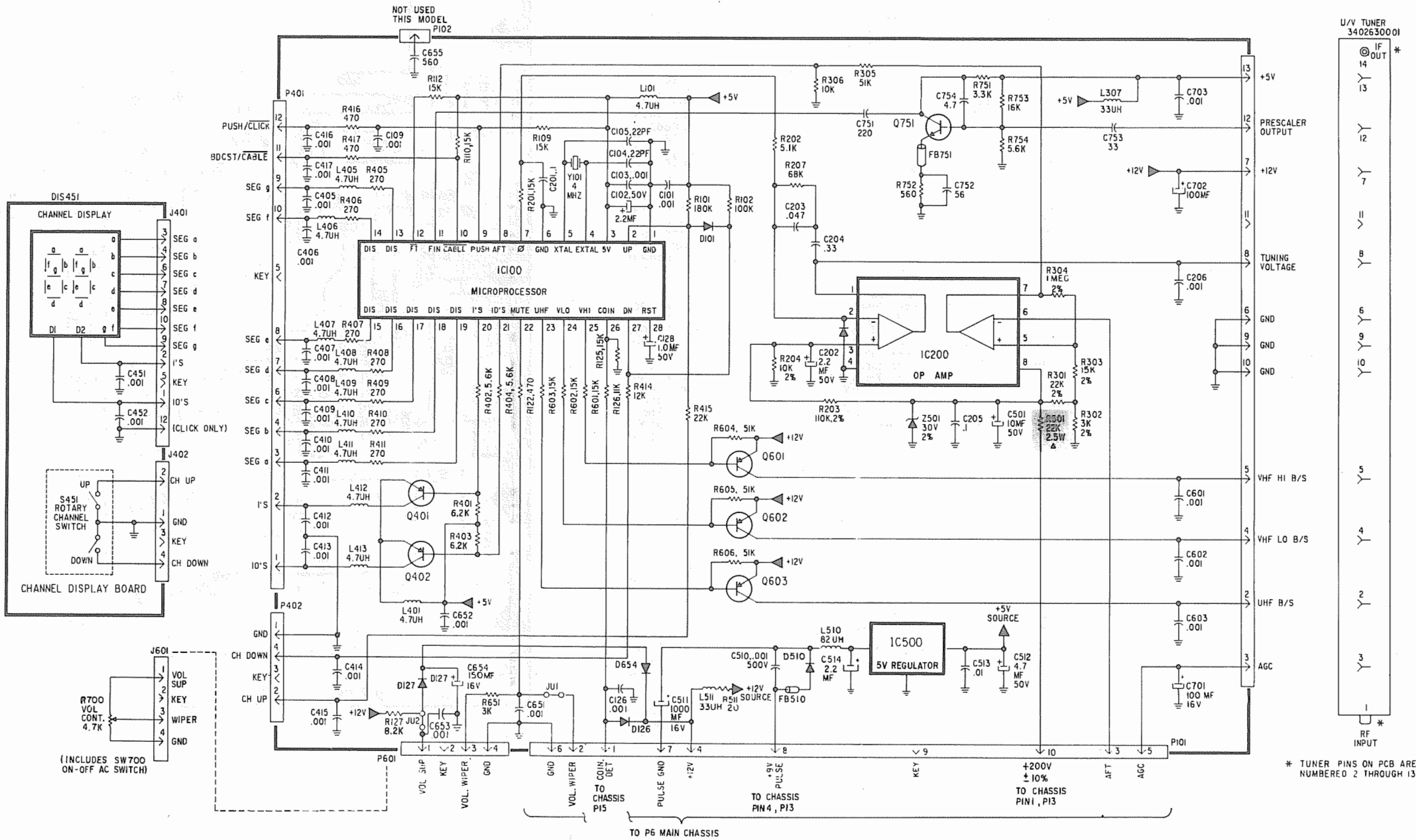
A10217-A001 TS-6 ONE-KNOB CHANNEL SELECT/DISPLAY MODULE
REPLACEMENT PARTS LIST

Ref. No.	Description	Part No.
S451	Rotary Channel Select Switch	1607160001
C451	1000pF., 10%, 50V, Ceramic Capacitor	2508311029
C452	1000pF., 10%, 50V, Ceramic Capacitor	2508311029
D451	Channel Display LED	5303030001
P401	12 Pin Connector w/ Contacts Negative Polarizing Key f/P401	18135100012
P402	4 Pin connector w/ Contacts Negative Polarizing Key f/P402	1817140004
		1813510001

A10218-A001 & A10219-A001
TS-6 TWO PUSHBUTTON CHANNEL SELECT/DISPLAY MODULE
REPLACEMENT PARTS LIST

Ref. No.	Description	Part No.	Ref.	Description	Part No.
S452	Pushbutton Switch f/Channel Down	1606880004	P402	4 Pin Connector w/ Contacts Negative Polarizing Key f/P402	1817140004
S453	Pushbutton Switch f/Channel Up	1606880004	P601	4 Pin Connector w/ Contacts Negative Polarizing Key f/P601	1817140004
R3	Volume Slide Control, 4700 ohm	2204320004	P102	2 Pin Male Connector f/LDR (A10218 only)	1808340002
LDR	Light Dependent Resistor (A10218 only)	2303160002		Female Contacts f/P102 (2 used)	1807250002
				Spacer f/LDR (A10218 only)	1456290001
C451	3 Pin Socket f/LDR	1811210001		Socket f/Channel Display LED	1816200018
C452	1000pF., 10%, 50V, Ceramic Capacitor	2508311029			
P401	12 Pin Connector w/ Contacts Negative Polarizing Key f/P401	1813500012			
		1813510001			

TS-6 NON-REMOTE TUNING SYSTEM
SCHEMATIC DIAGRAM

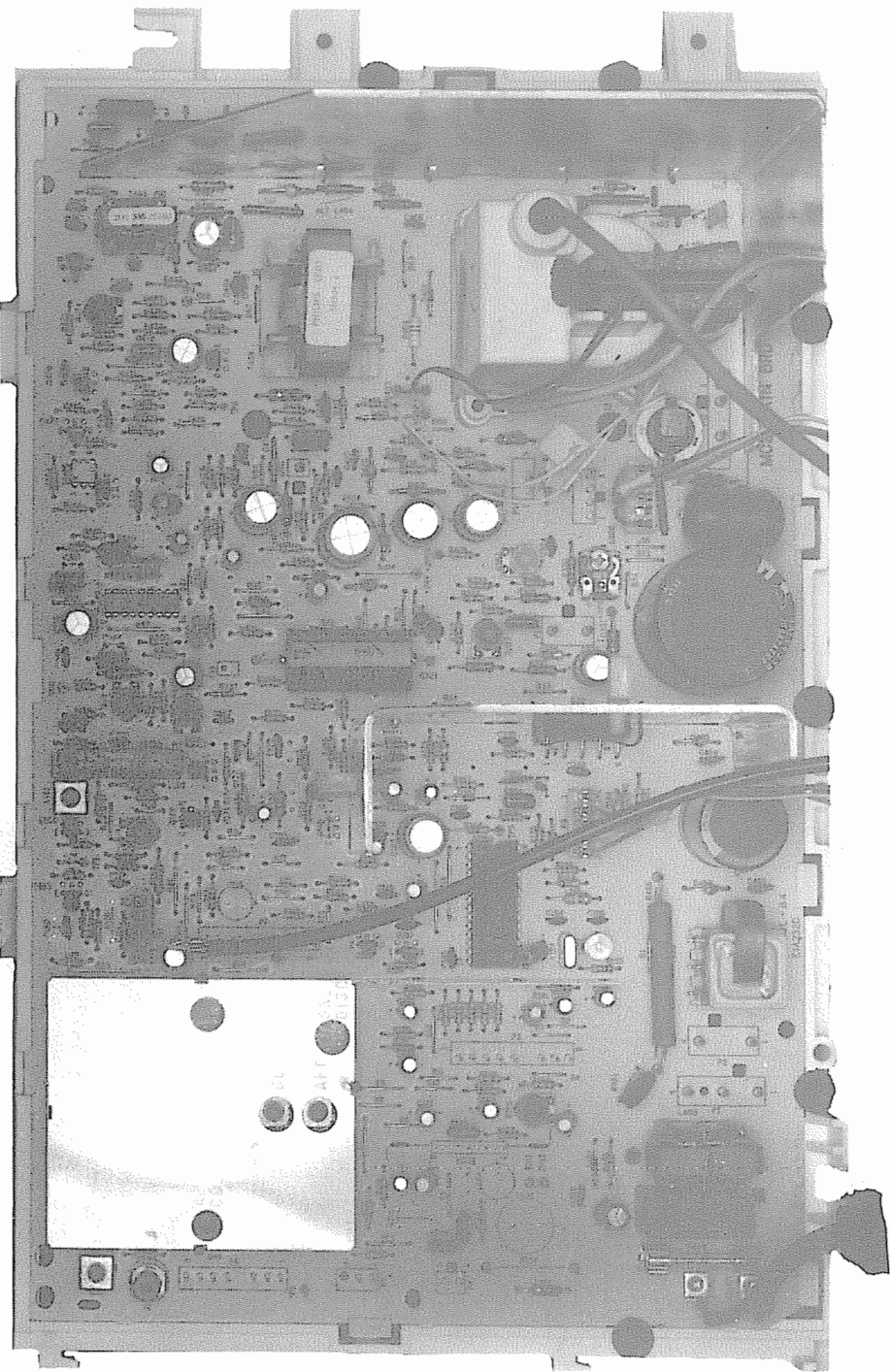


MAGNAVOX CHASSIS
19C501 THRU 19C519

FOLDER 1

STEREO DECODER BOARD GridTrace LOCATION GUIDE

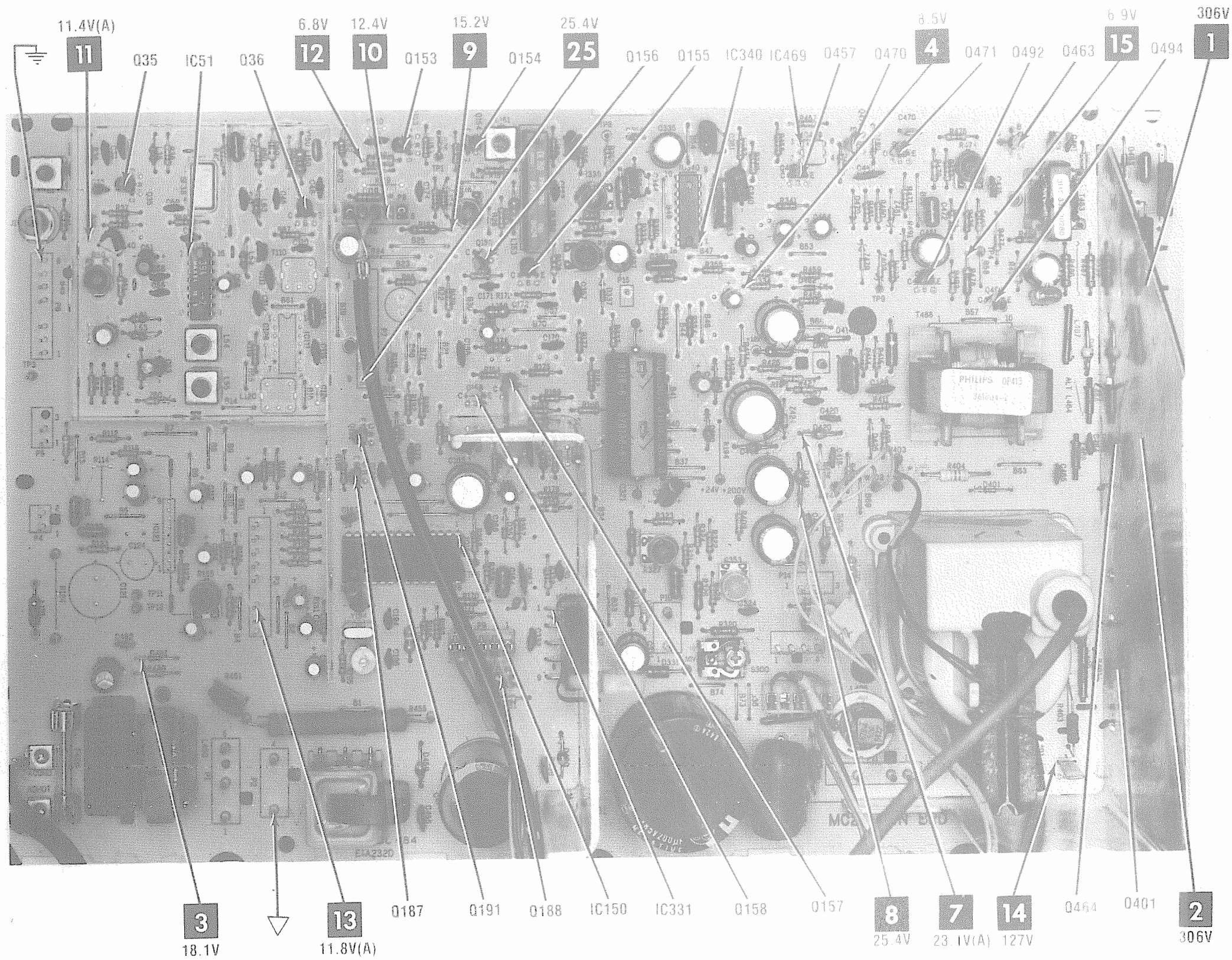
C1	C-24	C301	B-22	R58	B-6
C3	E-24	C302	B-21	R59	D-7
C4	D-18	C303	D-22	R60	B-6
C6	E-17	C304	B-20	R61	C-7
C7	E-22	C305	B-21	R62	E-8
C8	D-21	C306	B-20	R63	H-19
C9	G-18	C307	D-22	R64	I-19
C10	F-18	D1	K-22	R65	H-15
C11	H-19	D2	L-19	R66	I-17
C12	G-18	F302	B-19	R67	H-15
C13	D-17	FL1	G-25	R68	I-18
C14	G-19	IC1	E-20	R69	I-15
C15	G-20	IC2	K-24	R70	I-15
C16	A-23	IC3	C-11	R71	K-17
C20	H-24	IC4	I-27	R72	K-18
C21	L-22	IC5	F-27	R73	J-15
C22	L-23	IC6	H-16	R74	K-18
C23	L-22	IC7	F-15	R77	H-15
C25	L-27	IC201	H-3	R78	I-18
C26	L-26	IC203	J-10	R79	D-13
C27	K-25	IC304	C-21	R80	C-13
C28	J-25	L1	D-24	R81	E-14
C29	K-26	L2	I-25	R82	D-13
C30	J-26	L301	C-23	R83	C-13
C31	I-25	LPF1	G-23	R84	C-13
C32	H-23	LPF2	F-23	R85	E-13
C33	J-23	LPF3	L-16	R86	B-13
C34	H-22	P/J33	A-17	R87	G-18
C35	I-21	P/JD2	B-8	R88	L-17
C36	I-21	P/JD3	B-15	R201	F-7
C37	K-19	P/JD4	B-10	R202	F-7
C38	K-14	P/JD14	B-27	R203	F-7
C39	D-28	Q2	D-26	R204	C-5
C40	K-27	Q3	J-19	R205	I-7
C41	K-16	Q5	J-20	R206	D-5
C42	H-26	Q6	L-20	R207	G-3
C43	C-28	Q201	E-9	R208	D-3
C44	D-9	Q202	D-6	R209	G-2
C45	D-9	Q203	G-8	R210	F-9
C46	L-14	R5	H-26	R211	G-9
C47	F-13	R6	C-26	R212	G-9
C48	K-15	R7	E-24	R213	G-9
C49	H-20	R9	F-26	R214	H-9
C50	H-21	R10	E-23	R215	H-9
C51	B-11	R11	C-19	R216	J-7
C201	B-4	R12	E-16	R217	F-4
C202	E-8	R14	E-17	R218	L-4
C203	E-6	R15	G-19	R219	J-4
C204	H-7	R16	E-18	R220	G-5
C205	E-5	R17	G-20	R221	K-3
C206	G-11	R18	G-20	R222	I-6
C207	G-10	R19	H-21	R223	K-7
C208	D-3	R21	F-21	R224	K-5
C209	C-4	R28	D-19	R225	H-13
C210	H-9	R32	L-21	R228	L-9
C211	D-3	R33	I-23	R230	L-10
C212	D-4	R34	J-23	R232	H-13
C213	F-5	R35	D-18	R234	H-13
C214	F-3	R36	K-26	R236	B-2
C215	G-8	R37	J-25	R240	G-7
C216	J-3	R38	J-23	R244	E-10
C217	K-2	R39	K-20	R246	E-8
C218	J-6	R40	K-21	R301	C-23
C219	K-4	R41	J-21	R302	B-23
C220	I-2	R42	J-21	R304	A-20
C221	J-5	R43	I-22	R305	B-18
C222	K-7	R45	L-18	VR1	B-25
C223	I-8	R46	L-18	VR13	D-15
C224	J-8	R47	G-16	VR55	F-17
C225	J-6	R51	C-9	VR75	J-13
C226	K-10	R52	E-16	VR76	K-13
C228	H-10	R53	G-15	VR225	G-4
C229	D-2	R56	I-20	VR250	L-2
C232	C-2	R57	C-17	ZD200	C-5



MAGNAVOX CHASSIS
19C501 THRU 19C519

FOLDER 1

MAIN BOARD - SHIELD LOCATION



NOTE: ARROWS ON IC'S INDICATE PIN 1 UNLESS NOTED

MAGNAVOX CHASSIS
19C501 THRU 19C519

FOLDER 1

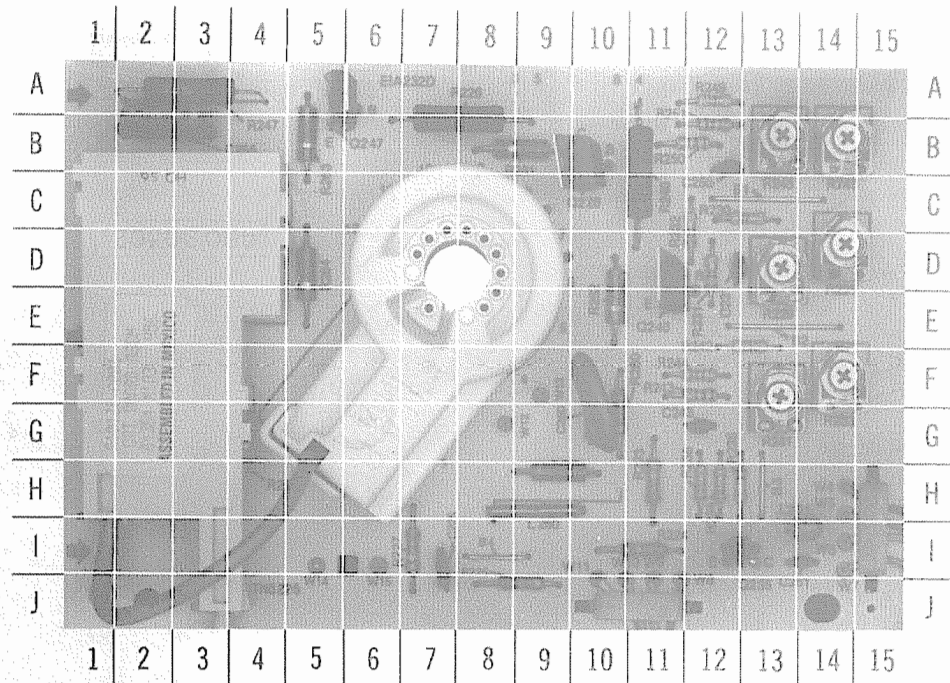
MAIN BOARD

A Howard W. Sams **CIRCUITRACE** Photo

MAIN BOARD

MAIN BOARD GridTrace LOCATION GUIDE

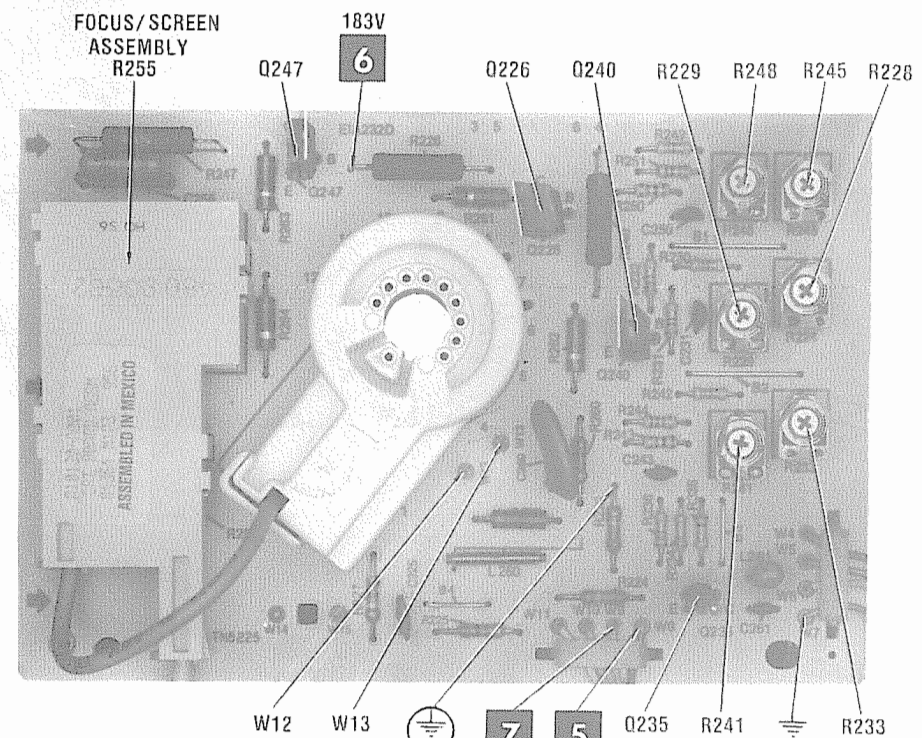
C35	B-3	C337	D-15	D465	G-26	Q463	B-25	R189	I-7	R463	B-26
C36	B-3	C338	C-15	D470	C-21	Q464	I-27	R190	K-6	R464	D-25
C37	A-3	C340	C-18	D480	B-21	Q470	B-21	R191	I-7	R471	C-22
C38	B-2	C341	D-19	DL152	C-13	Q471	B-22	R192	H-10	R472	C-23
C40	A-6	C344	B-16	F450	P-2	Q492	E-22	R193	H-10	R473	B-23
C41	C-6	C353	C-18	FB400	H-28	Q494	E-24	R194	G-19	R474	B-24
C42	D-5	C356	A-16	IC51	D-5	R35	C-3	R195	N-8	R475	A-23
C45	C-7	C357	E-14	IC150	K-10	R36	B-3	R197	I-14	R476	C-24
C46	B-8	C360	D-16	IC331	M-14	R37	C-3	R198	M-11	R477	D-24
C47	A-9	C361	A-17	IC340	C-17	R38	B-4	R199	K-7	R478	E-23
C51	D-4	C362	E-18	IC469	B-20	R39	C-3	R320	M-18	R479	B-23
C53	G-4	C363	D-18	J1	C-1	R40	B-6	R321	K-17	R480	C-21
C55	E-4	C401	O-28	L38	B-4	R41	C-2	R322	K-17	R481	C-21
C56	D-4	C402	Q-28	L39	B-2	R50	D-3	R323	K-16	R482	C-24
C58	E-6	C403	P-26	L40	D-3	R51	E-3	R324	K-17	R483	B-20
C59	C-5	C404	Q-19	L53	F-4	R52	G-3	R325	K-15	R485	D-27
C60	B-7	C405	M-26	L54	F-5	R55	G-3	R326	L-17	R486	E-26
C63	F-3	C408	J-20	L55	G-5	R59	C-5	R327	K-16	R488	E-26
C64	D-7	C409	K-19	L58	D-6	R60	B-7	R328	L-17	R489	N-4
C65	D-9	C414	E-20	L61	F-4	R61	G-4	R331	L-15	R491	D-22
C110	D-8	C416	F-19	L62	B-9	R62	G-3	R332	L-13	R492	E-23
C111	E-7	C418	I-20	L63	C-7	R65	E-10	R333	D-16	R494	E-25
C112	E-7	C419	J-19	L121	L-1	R66	B-10	R334	E-19	S300	N-18
C113	I-4	C420	H-20	L150	B-8	R67	D-7	R335	F-16	SF38	B-5
C114	E-8	C421	H-19	L151	A-12	R68	B-9	R336	B-16	T408	L-24
C115	F-8	C422	M-20	L153	C-13	R112	H-3	R337	F-15	T453	Q-9
C117	J-5	C425	G-21	L154	C-11	R115	G-10	R338	C-14	T463	C-26
C119	C-9	C426	G-17	L156	E-12	R116	F-6	R339	C-15	T488	G-24
C122	J-4	C427	H-20	L157	I-13	R117	H-2	R340	B-18	TP3	G-1
C123	K-3	C428	G-21	L177	H-10	R118	I-3	R341	C-19	TP4	D-24
C125	K-5	C450	P-3	L178	F-12	R123	K-3	R344	D-15	TP5	K-12
C126	J-2	C452	H-28	L195	M-10	R127	L-5	R345	D-14	TP6	A-15
C157	I-13	C453	B-26	L400	N-26	R144	L-13	R352	E-19	TP18	A-6
C159	I-10	C454	C-20	L401	P-25	R148	B-11	R353	L-18	TP19	B-7
C160	I-13	C455	Q-10	L405	O-21	R150	B-7	R354	F-17	TP20	E-1
C161	J-13	C456	N-3	L410	L-21	R151	O-12	R355	D-17	TP21	B-10
C162	C-14	C457	F-28	L414	F-19	R152	H-13	R356	B-15	TP22	L-9
C163	J-12	C458A	P-16	L450	P-4	R153	B-11	R357	K-13	TP155	D-14
C164	K-5	C458B	P-16	L460	O-19	R154	G-12	R358	K-12	Y150	B-8
C165	M-5	C458C	P-16	L464	H-26	R155	C-11	R359	L-12	Y194	M-9
C166	J-12	C459	P-13	L465	G-28	R156	B-14	R360	D-16	Z60	G-4
C167	L-13	C460	B-28	L466	E-27	R157	B-12	R361	C-18	Z402	E-21
C168	B-14	C461	B-26	L467	F-26	R158	J-13	R362	E-16	Z424	H-19
C169	F-12	C462	M-3	L468	I-26	R159	B-14	R363	B-18	Z479	D-21
C170	F-14	C464	I-26	P1	P-6	R160	K-7	R400	L-28	Z481	C-22
C171	E-12	C465	I-26	P2	P-7	R161	I-12	R401	N-26		
C172	E-14	C467	D-27	P3	K-6	R162	C-12	R402	E-22		
C174	C-10	C470	A-22	P4	J-1	R163	J-7	R403	O-26		
C175	I-10	C472	C-23	P5	H-1	R164	K-7	R404	I-23		
C176	I-9	C475	C-24	P6	F-1	R165	J-7	R405	P-20		
C178	I-11	C476	Q-12	P7	F-9	R166	H-14	R408	K-20		
C180	I-8	C480	B-21	P8	C-9	R167	C-12	R409	J-18		
C181	L-9	C481	D-23	P9	M-12	R168	M-10	R410	L-20		
C182	M-8	C494	E-25	P10	M-16	R169	G-14	R411	H-21		
C183	L-7	C495	E-25	P11	P-21	R170	L-12	R414	G-21		
C184	L-12	D190	H-17	P12	O-19	R171	M-11	R415	G-21		
C185	J-9	D191	G-17	P13	M-19	R172	E-13	R418	I-20		
C186	F-11	D331	N-16	P14	L-20	R173	H-11	R420	I-21		
C188	N-8	D337	E-15	P15	E-15	R174	E-12	R424	G-18		
C189	I-6	D357	K-12	P19	G-20	R175	G-13	R425	F-22		
C194	M-10	D401	J-24	Q35	B-3	R176	D-14	R426	G-19		
C195	N-9	D404	Q-19	Q36	C-8	R177	F-14	R427	G-20		
C196	N-10	D408	K-20	Q153	A-10	R178	J-13	R428	G-18		
C321	H-16	D414	F-20	Q154	A-12	R179	E-11	R429	I-21		
C322	J-16	D418	I-19	Q155	D-13	R180	I-8	R451	O-6		
C323	L-16	D420	H-20	Q156	D-12	R181	M-8	R455	O-8		
C324	M-18	D423	I-18	Q157	G-13	R182	G-14	R456	E-20		
C325	M-16	D425	I-21	Q158	G-12	R183	C-11	R457	A-20		
C330	L-14	D459	P-10	Q187	I-9	R184	L-6	R458	B-19		
C331	M-15	D460	P-14	Q188	N-12	R185	L-5	R459	E-20		
C332	M-13	D461	N-4	Q191	H-9	R186	K-6	R460	D-28		
C334	B-17	D462	E-20	Q401	N-27	R187	H-10	R461	C-28		
C335	B-16	D463	B-27	Q457	B-19	R188	I-9	R462	H-27		



CRT BOARD GridTrace LOCATION GUIDE

C225	I-7	Q247	A-5	R234	H-12	R250	B-12
C231	D-12	R223	H-11	R235	H-13	R251	B-12
C243	G-12	R224	I-11	R236	H-12	R255	C-2
C250	B-12	R225	J-9	R240	B-11	R259	H-9
C255	B-2	R226	B-8	R241	F-13	R260	G-10
C260	G-10	R227	I-7	R242	E-13	R261	B-9
C261	I-14	R228	D-14	R243	F-12	R262	E-10
L260	H-9	R229	D-13	R244	F-12	R263	B-5
L261	I-14	R230	C-13	R245	B-14	R264	D-5
Q226	B-10	R231	D-12	R247	A-3	W12	G-8
Q235	I-13	R232	C-12	R248	B-13	W13	F-9
Q240	D-11	R233	F-14	R249	A-12		

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A Howard W. Sams **CIRCUITRACE™** Photo 23.1V(B) 183V

CRT BOARD

MAGNAVOX CHASSIS
19C501 THRU 19C519

FOLDER 1

MISCELLANEOUS ADJUSTMENTS (Continued)

(Pin 20 IC150) to ground (IF Shield). Adjust 3.58MHz oscillator (C195) until color stops or slowly drifts.

HORIZONTAL OSCILLATOR ADJUSTMENT

Tune in a picture and connect a jumper from TP6 (Pin 5 IC340) to ground. Adjust Horizontal Frequency Control (R339) until picture stops or slowly drifts across the screen. Remove jumper from TP6 and check 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 (R345) for proper horizontal centering. Adjust Vertical Centering Switch (S300) to center the crosshatch pattern on the screen.

VERTICAL FREQUENCY ADJUSTMENT

Tune in a station and adjust for a normal picture. Adjust Vertical Frequency Control (R353) until picture locks in. Check lock-in by switching from channel to channel. If necessary, readjust until proper lock-in is obtained.

CONVERGENCE ADJUSTMENTS

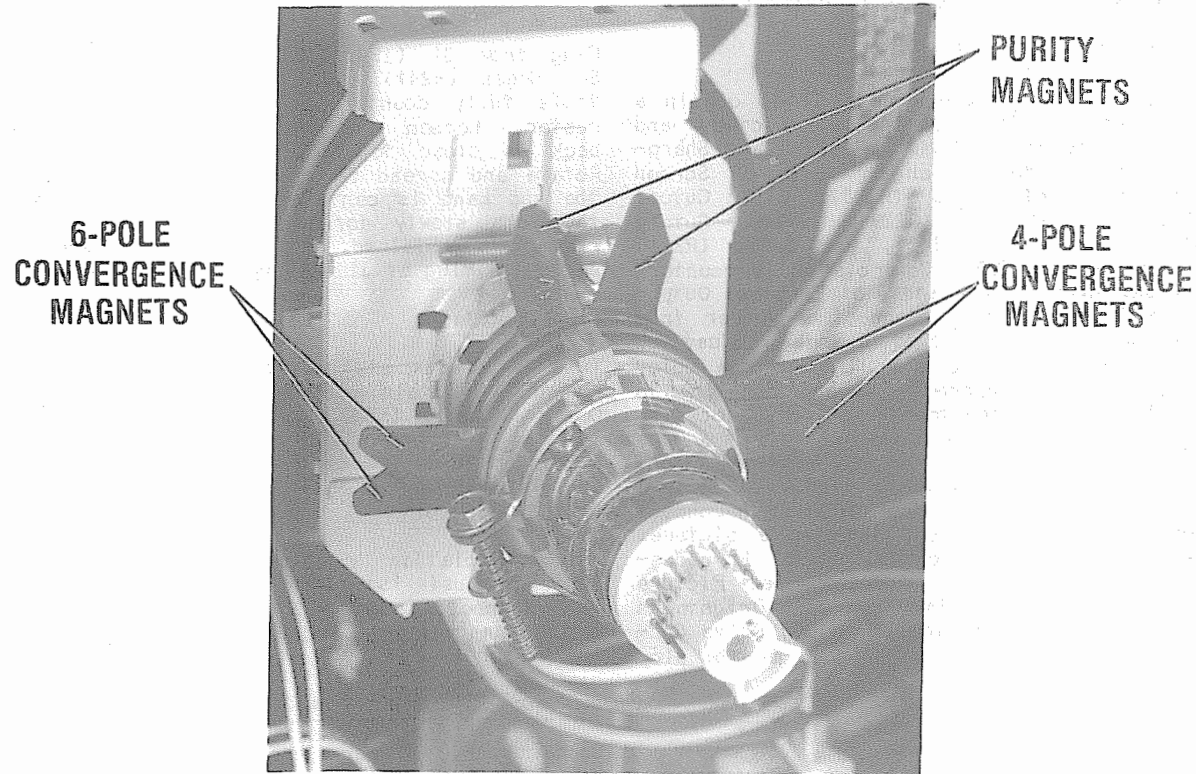
NOTE: Before attempting convergence adjustments, the receiver should be operated for at least 15 minutes. Connect a color bar generator to the antenna terminals and tune in a crosshatch pattern. Spread the tabs of the 4-pole magnets to converge the red and blue vertical lines in the center of the screen, 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 horizontally to converge edges of screen. Apply adhesive to wedges and carefully replace on picture tube.

COMB FILTER ADJUSTMENT

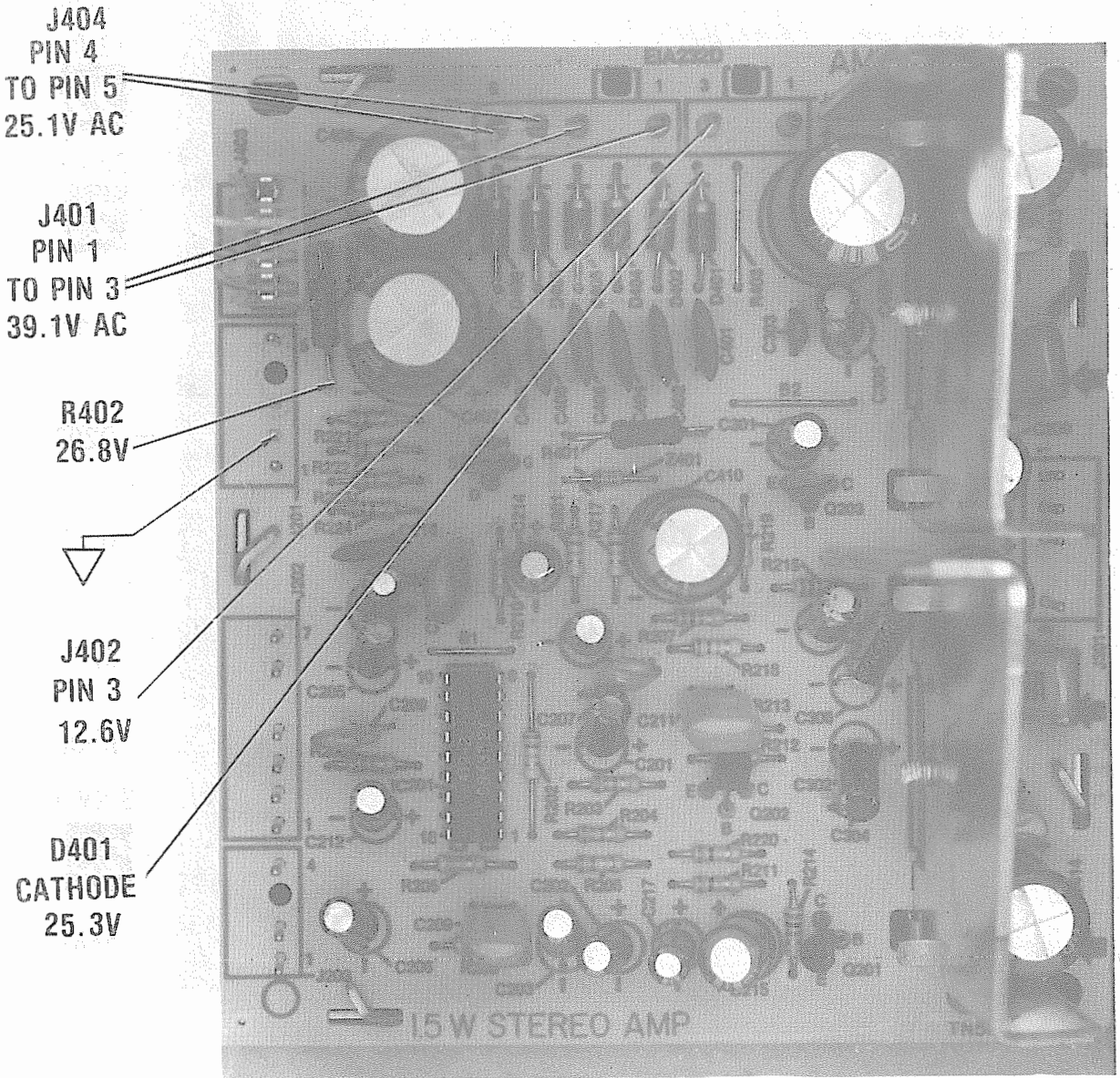
Connect a color bar generator to the antenna input and tune in a color bar signal. Connect a scope to TP155 (Emitter of Q155). Adjust Chroma Phase Null (L151) and Chroma Null Control (R167) for MINIMUM component.

SOUND DISCRIMINATOR ADJUSTMENT

Tune in an active channel and set volume to an audible level. Adjust Sound Discriminator Coil (L301) on Stereo Decoder Board for Maximum audio output.



CRT NECK ASSEMBLY



MAGNAVOX CHASSIS
19C501 THRU 19C519

FOLDER 1

TROUBLESHOOTING (Continued)

HIGH VOLTAGE SHUTDOWN

The High Voltage is monitored by Diode D401 rectifying pulses from High Voltage Transformer (T408). Should the high voltage increase, the rectified voltage at the cathode of Diode D401 will also increase, and at a certain level will trigger Zener Diode (Z402) into conduction. This changes the bias on Error Latch Transistors (Q492, Q494), causing them to conduct, which shuts down the set. To troubleshoot a set that has been shut down, remove Resistor R402 from circuit, use a variac for AC power and troubleshoot until defect is located and corrected. Return Resistor R402 to circuit.

NOTE: Care should be taken in defeating the High Voltage Shutdown Circuit as this may cause X-Ray radiation and damage to the CRT, High Voltage Transformer T408 and associated components. Monitor the high voltage and use a variac for AC power and troubleshooting.

NOTE: Voltages taken with TV in shutdown.

	E	B	C
Q463	1.2V	1.8V	1.2V
Q464	0V	0V	358V*
Q470	0V	.3V	1.0V
Q471	1.0V	.4V	1.0V
Q492	.6V	0V	.8V
Q494	0V	.8V	0V

* With respect to common tie point.

IF-AGC

If there is no picture or sound, inject a video IF signal at the IF Input and check for a picture on the CRT. If a picture is present, check the Tuner, Tuner Control Board, AGC and AFT circuits. If there is no picture on the CRT, check for a video waveform at TP1. If a waveform is present, refer to the "Video" section of this Troubleshooting guide. If there is no video at TP1, apply AGC bias to pin 14 of Video IF IC (IC51). If video is now present at TP1, check components associated with pin 14 of IC51. If the video is still missing, check voltages, waveforms and components associated with pins 1 thru 5, 7 thru 12, 14, 15 and 16 of IC51. 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.

Pin 4	IC51	4.3V
Pin 14	IC51	6.3V

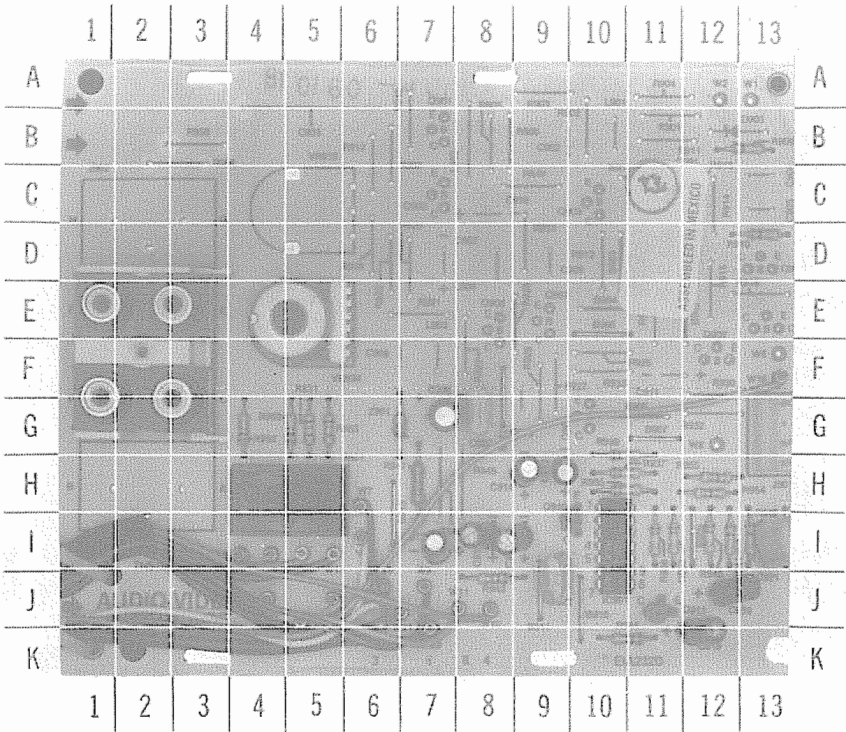
AUDIO

Select a station that is transmitting a stereo signal. If there is no audio and video is present, make sure Internal/External Speaker Switch (S901) is switched to the Internal position. Turn volume up and listen for sound at the speaker. If sound is not present, check for an audio waveform at TP5A. If the waveform is missing, check the voltages, waveforms and components associated with pins 1 thru 14

of IF Amp Demodulator IC (IC304), Base Band Buffer Transistor (Q2), Transistor Q36 and IC51. If there is an audio waveform at TP5A, check for an audio waveform at pins 7 and 8 of Quad Input Amp IC (IC6). If there is no waveform at pins 7 and 8 of IC6, check the voltages, waveforms and components associated with pins 1 thru 18 of Stereo Decoder IC (IC1) and pins 1 thru 14 of IC6. If there is audio at pins 7 and 8 of IC6, check for audio at pins 3 and 5 of Connector P/JD2. If the audio is missing, check the voltages, waveforms and components associated with pins 1 thru 16 of Function Switch IC (IC3), Matrix/SAP Amp IC (IC7), Expander IC (IC201), Expander Amp IC (IC203) and Transistors Q201, Q202, Q203. Also check Regulator ICs (IC4 and IC5). Select a TV station that is transmitting an SAP signal. Place Mono/Stereo/SAP Switch (S705) in the SAP position and check for audio at pins 3 and 5 of Connector P/JD2. If the audio is missing, check the voltages, waveforms and components associated with FM/IF Amp IC (IC2) and Transistors Q3, Q5 and Q6. If there is audio at pins 3 and 5 of P/JD2 in the SAP mode, check for audio in all three modes at pins 1 and 5 of Connector P/J201. If there is no audio, check the voltages, waveforms and components associated with Audio Switching IC (IC901) and Transistors Q910 and Q911 on Audio Interface Board. If there is audio at pins 1 and 5 of Connector P/J201, check the voltages, waveforms and components associated with pins 1 thru 18 of IC201, pins 1 thru 9 of IC301, IC302 and Transistors Q201 thru Q204 on Stereo Amp Board. Place Norm/Ext Switch S706 in the External position, inject an audio signal at both Audio Input Jacks (J902E, F), and with volume at Maximum, listen for sound at the speaker. If audio is missing, check the voltages, waveforms and components associated with pins 1 thru 14 of IC901 on Audio Interface Board and S706.

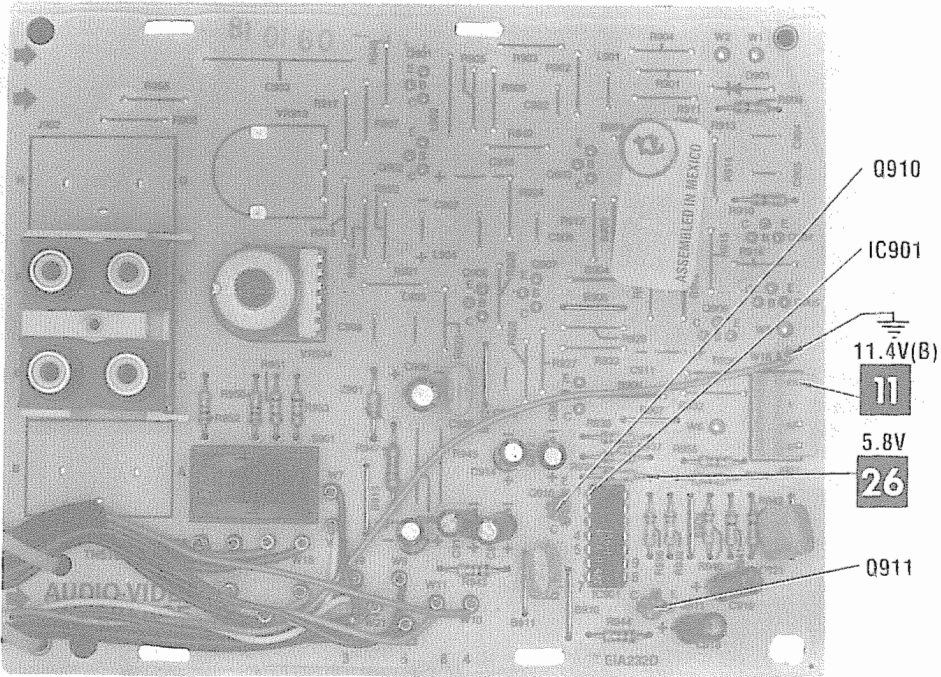
VIDEO

If there is no video, inject a video signal at TP1 and check for video on the CRT. If video is present, refer to the IF AGC section of this Troubleshooting guide. If there is no video on the CRT, check for a video waveform at pins 5 and 6 of Video/Chroma IC (IC150). If the waveform is missing, check the voltages, waveforms and components associated with Delay Line Driver Transistor (Q154), Luminance Amp Transistor (Q155), Luminance Equalizer Transistor (Q157), Buffer Transistor (Q158), and Luminance Inverter Transistor (Q156). If video is present at pins 5 and 6 of IC150, check for video at pins 26, 27 and 28 of IC150. If there is no video, check the voltages, waveforms and components associated with pins 1 thru 7, 24, 26, 27 and 28 of IC150, Brightness Limiter Transistor (Q188), Picture Control Amp Transistor (Q187) and Beam Current Limiter Transistor (Q191). If there is video at pins 26, 27, and 28 of IC150, check the voltages and components associated with Output Transistors (Q226, Q235, Q240, Q247) and the CRT. If the brightness (Luminance) is inadequate or cannot be controlled, check the voltages and components associated with Transistors Q187, Q188, Q191, pins 2 and 3 of IC150 and pin 7 of the CRT.



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AUDIO INTERFACE BOARD GridTrace LOCATION GUIDE							
C906	G-7	C922	J-9	R937	H-10	R951	G-5
C912	H-9	IC901	I-10	R938	I-11	R952	G-4
C913	I-7	J901	G-13	R939	G-10	R953	G-5
C914	H-9	J902	E-2	R940	I-12	R954	H-12
C915	I-8	Q910	I-10	R941	I-12	R955	H-12
C917	I-8	Q911	J-11	R942	I-13	S901	H-5
C918	K-12	R909	B-13	R943	J-8	VR934A	E-5
C919	J-12	R910	D-13	R944	K-10	VR934B	E-5
C920	G-8	R935	H-10	R947	H-7	Z901	G-7
C921	I-13	R936	I-11	R950	G-5		



NOTE: ARROWS ON IC'S INDICATE PIN 1 UNLESS NOTED

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AUDIO INTERFACE BOARD

MAGNAVOX CHASSIS
19C501 THRU 19C519

FOLDER 1

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 (T408). Refer to "Troubleshooting" Power Supply and Horizontal circuits.

NO PIC, NO SOUND, HAS RASTER: Check IF-AGC and source voltages from Horizontal Output Transformer (T408). Refer to "Troubleshooting" IF-AGC and Horizontal circuits.

NO PIC, HAS SOUND, NO RASTER: Check Horizontal Output Transformer (T408) 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 (T408). 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.

SAFETY PRECAUTIONS

NAPCEC SAFETY GUIDELINES FOR THE PROFESSIONAL SERVICE TECHNICIAN

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.

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.

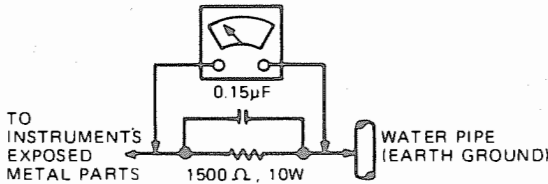
X-radiation

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.
 7. It is essential to use the specified picture tube to avoid a possible X-radiation problem.
 8. 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

1. Unplug the ac line cord and connect a jumper between the two prongs of the plug.
 2. Turn on the power switch.
 3. Measure the resistance value between the jumpered ac plug and all exposed metallic cabinet parts of the receiver, such as screw-heads, 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

1. Do not use an isolation transformer for this test. Plug the completely re-assembled receiver directly into the ac outlet.
 2. 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 above.
 3. Use an ac voltmeter with at least 5000 ohms/volt sensitivity to measure the potential across the resistor.
 4. 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.
 5. 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.)

Picture Tube Replacement

The primary source of X-radiation in this television receiver is the picture tube. The picture tube utilized in this chassis is specially constructed to limit X-radiation emissions. For continued X-radiation protection, the replacement tube must be the same type as the original, including suffix letter, or a N.A.P. Consumer Electronics Corp. (NAPCEC) approved type.

Parts Replacement

Many electrical and mechanical parts in NAPCEC television sets have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. The use of a substitute part which does not have the same safety characteristics as the NAPCEC recommended replacement parts shown in this service manual may create shock, fire or other hazards.

Courtesy of the Manufacturer

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.

Equipment Name	B & K Precision Equipment No.	Sencore Equipment No.	Simpson Equipment No.
OSCILLOSCOPE	1560	SC61	454
GENERATORS			
RGB	1260		
MULTIBURST SIGNAL	1260	VA62	
COLOR BAR	1211A,1248,1251,1260	VA62, CG25	431
ANALOG VOM	277		260-7,160,165, 260-6XL,260-7P, 260-6XLP
DIGITAL VOM	2830	DVM37,DVM56,SC61	463,464,470,474,467E
FREQUENCY METER	1803,1805	FC71,SC61	710
HI-VOLTAGE PROBE VOM/DMM Accessory probes	HV-44	HP200	248 00168,00411,00749
ISOLATION TRANSFORMER	TR110,1604,1653,1655	PR57	
CAPACITANCE ANALYZER	820	LC53	
CRT ANALYZER	467,470	CR70	
TEMPERATURE PROBE	TP-28		IR-10,00760,00758; 383,389,388
AC LEAKAGE TESTER	1655	PR57	229
ILLUMINATION METER			408-2
LOGIC PROBE	DP51		
LOGIC PULSER	DP101		
INDUCTANCE ANALYZER		LC53	
FLYBACK YOKE TESTER		LC53,VA62	

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
C195,..... 5000
R50, R167, R185, R339, R345, R353, R474 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.
Connect a +7.4 Volt Bias to TP18. (Junction R40 and C4).
Disconnect Plug J1. Use IF Shield for ground.

VIDEO IF ALIGNMENT (SWEEP MARKER GENERATOR)

DIRECT PROBE FROM SWEEP/MARKER GENERATOR	SWEEP GENERATOR OUTPUT	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	REMARKS
To TP19 (Junction R60 and C60)	To J1	44MHz (10MHz Sweep)	47.25MHz	Adjust L39 for MINIMUM. See Figure 1.
"	"	"	41.25MHz 42.17MHz 44.00MHz 45.75MHz 47.25MHz	Adjust L54 to position the 45.75MHz marker as high as possible on the response curve without lowering the amplitude of the response curve. See Figure 2. NOTE: Reconnect J1 Plug.

CHASSIS SIGNAL FLOW BLOCK DIAGRAM

