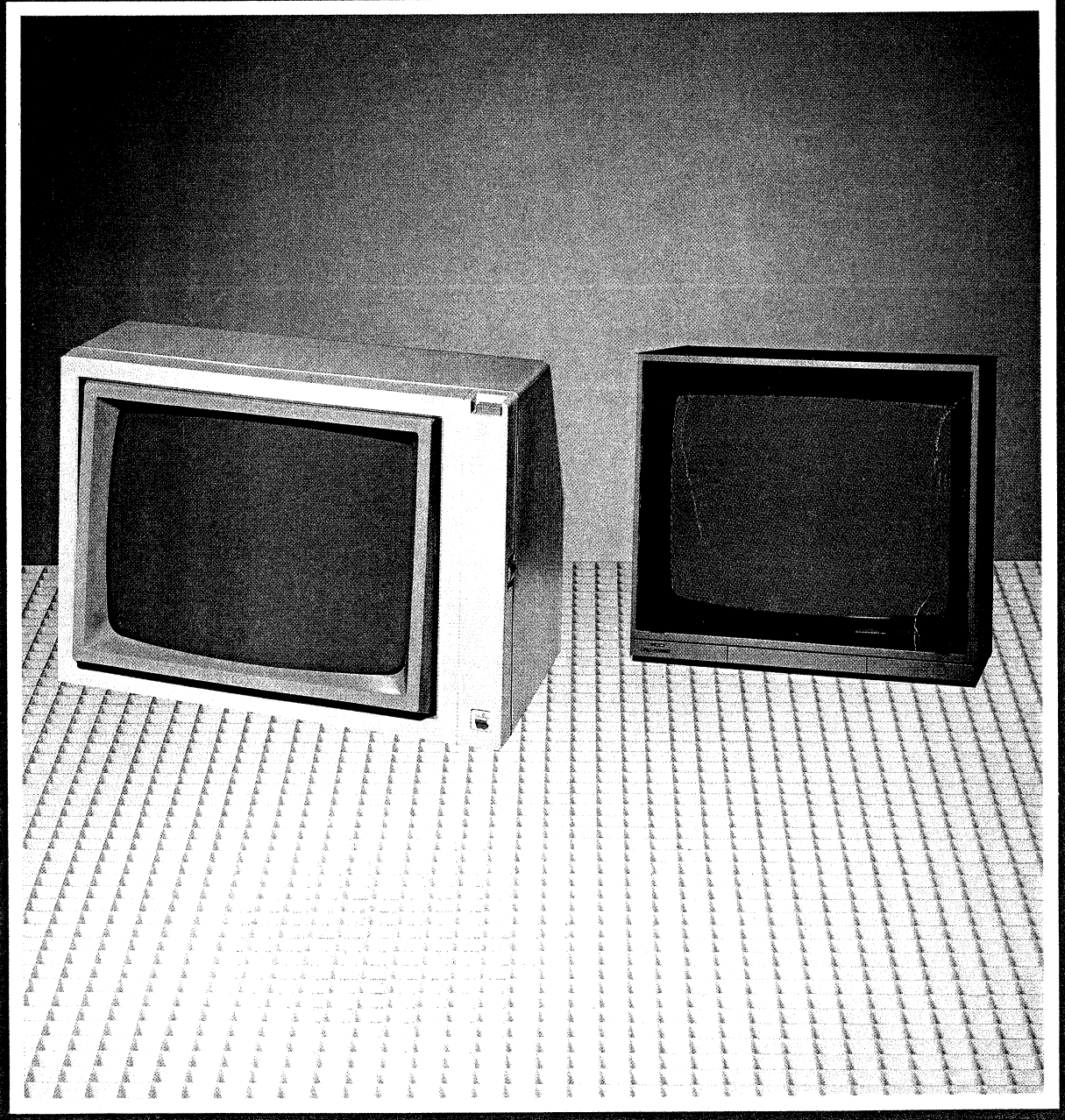
SAMS COMPUTERFACTS™ CMT9 08986

MONITOR:
APPLE® MONITOR II
MODEL A2M2010
SANYO® MODEL AVM255



TECHNICAL SERVICE DATA FOR YOUR MONITOR

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

Remove six screws holding cabinet back and remove back. Disconnect CRT socket, HV anode and ground leads. Remove six screws holding Power Indicator, Power Switch and Contrast Control to cabinet front. Disconnect yoke connector and slide chassis out of cabinet.

CRT REMOVAL

Follow "chassis removal" procedure and lay set face down on a soft protective surface. 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 IMPLOSION PROTECTION AND CLEANING

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

FUSE DEVICES

A 1-amp fuse is used for low-voltage power-supply protection.

POWER INDICATOR

Indicator is accessible after removing cabinet back.

HORIZONTAL OSCILLATOR

Adjustment of the horizontal hold is accomplished by the proper setting of the Horiz Hold Control.

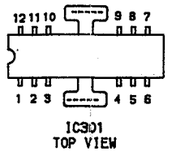
WIDTH

The width may be varied by adjusting the width coil.

CENTERING

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

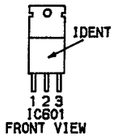
IC PINOUTS & TERMINAL GUIDES



IC301
TOP VIEW



IC401
TOP VIEW



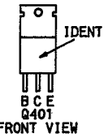
IC601
FRONT VIEW



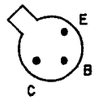
Q101, Q102
Q104, Q105
Q203, Q204
BOTTOM VIEW



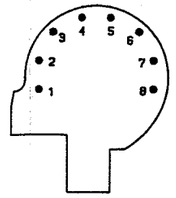
Q201
BOTTOM VIEW



Q401
FRONT VIEW

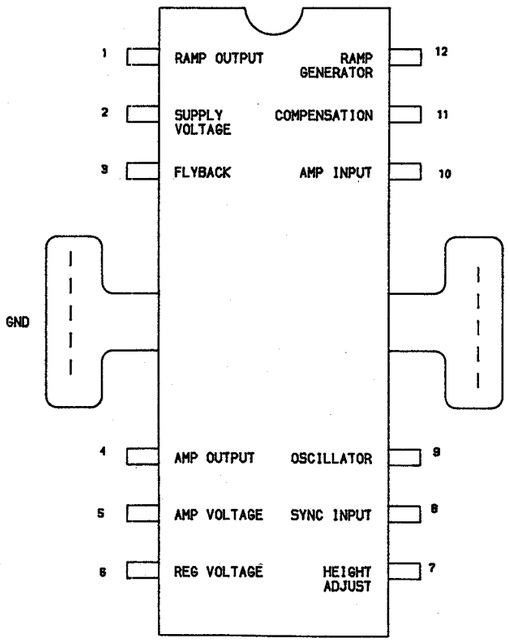


Q202
BOTTOM VIEW



T401
BOTTOM VIEW

IC301
TDA1170N



IC401
TDA1180P

1	SUPPLY VOLTAGE	GND	16
2	OUTPUT	OSC CONTROL CURRENT	15
3	OUTPUT	OSCILLATOR	14
4	PROTECTION CIRCUIT INPUT	CONT CURRENT OUTPUT	13
5	PHASE SHIFTER FILTER	TIME CONSTANT SWITCH	12
6	FLYBACK INPUT	COINCIDENCE DETECTOR	11
7	KEY & BLANK PULSE & OUTPUT	VERTICAL SYNC OUTPUT	10
8	SYNC SEPERATOR INPUT	VERTICAL SYNC SEPARATOR IN	9

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SAMS

CMT9-1 APPLE MONITOR II MODEL A2M2010

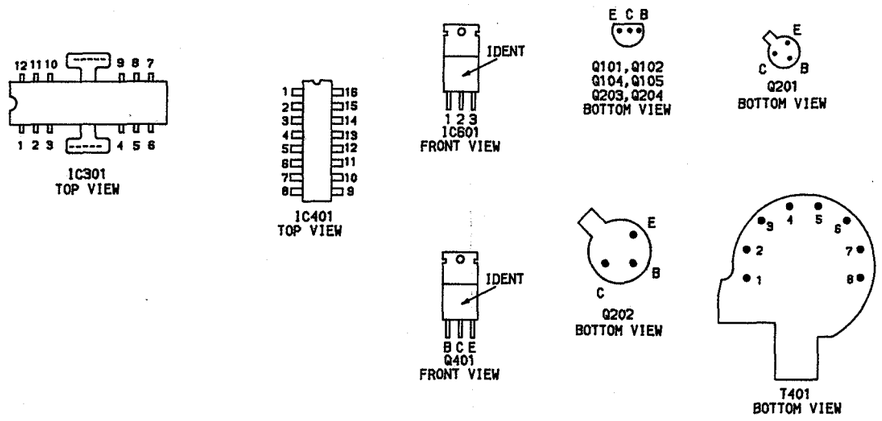
SAF

Disassemb
GridTrace
Main Bo
IC Pinouts
Miscellane
Parts List
Photos
AC Input
Cabinet
CRT Boa

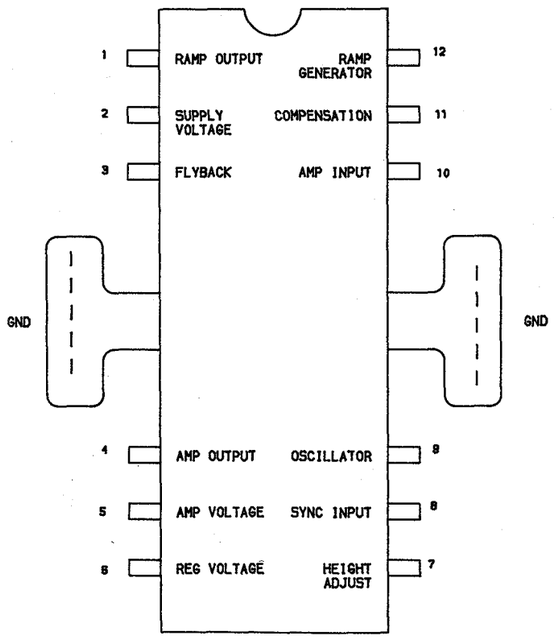
SA

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IC PINOUTS & TERMINAL GUIDES



IC301
TDA1170N

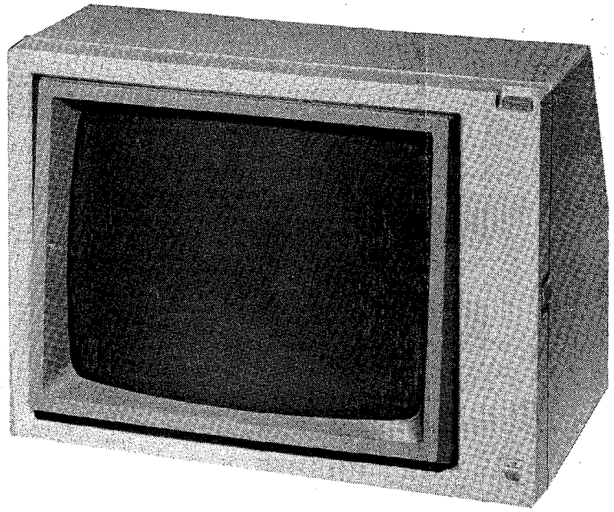


IC401
TDA1180P

1	SUPPLY VOLTAGE	GND	16
2	OUTPUT	OSC CONTROL CURRENT	15
3	OUTPUT	OSCILLATOR	14
4	PROTECTION CIRCUIT INPUT	CONT CURRENT OUTPUT	13
5	PHASE SHIFTER FILTER	TIME CONSTANT SWITCH	12
6	FLYBACK INPUT	COINCIDENCE DETECTOR	11
7	KEY & BLANK PULSE & OUTPUT	VERTICAL SYNC OUTPUT	10
8	SYNC SEPERATOR INPUT	VERTICAL SYNC SEPARATOR IN	9

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CMT9-1 APPLE MONITOR II MODEL A2M2010



SAFETY PRECAUTIONS

See page 26.

PRELMINARY SERVICE CHECKS

ENCLOSED

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IC Pinouts and Terminal Guides	28
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CRT Board	3
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Main Board	5 thru 10, 19 thru 24
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Main Board	4,25
Safety Precautions	26
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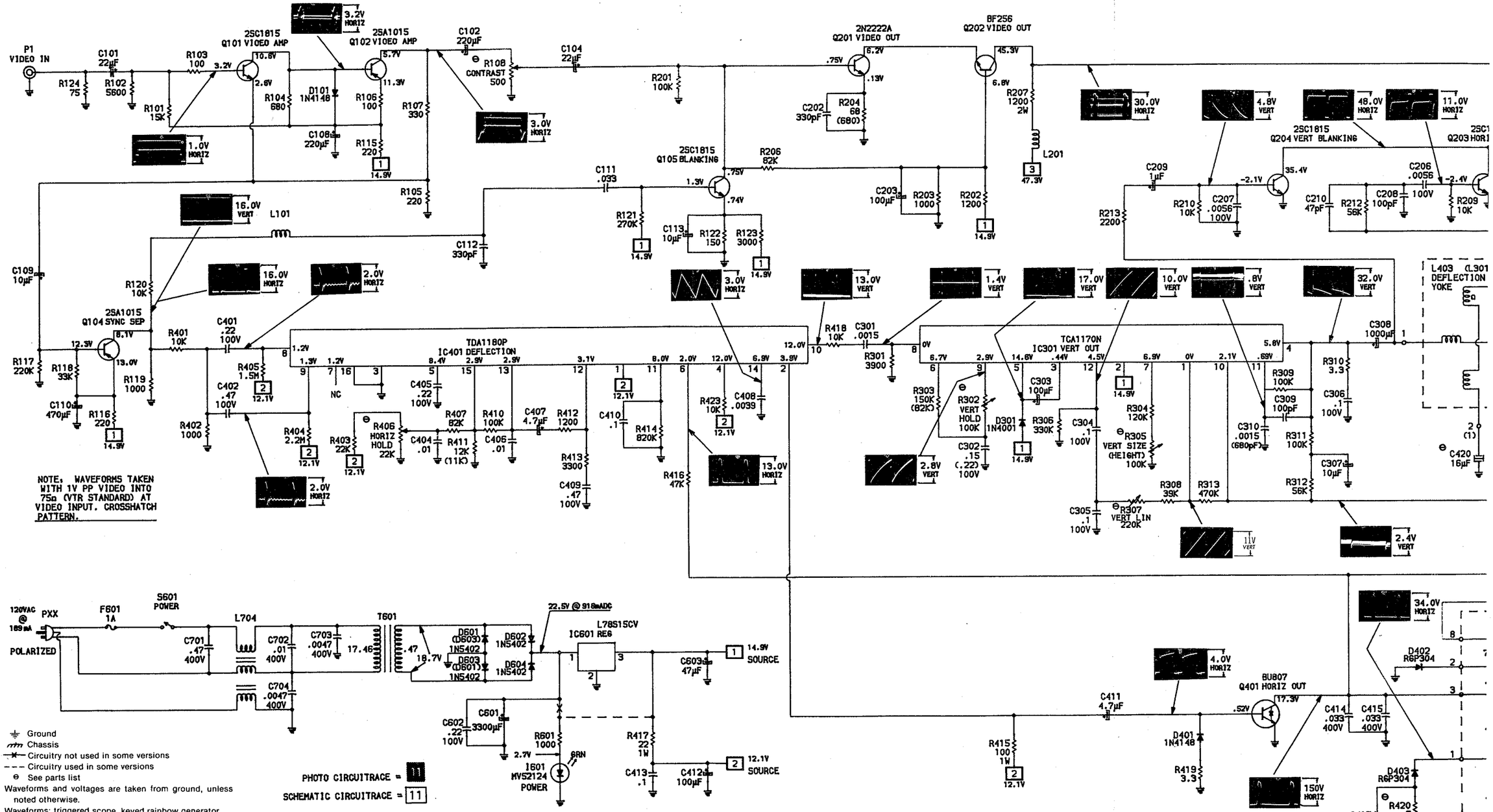
CMT9-1 APPLE MONITOR II MODEL A2M2010

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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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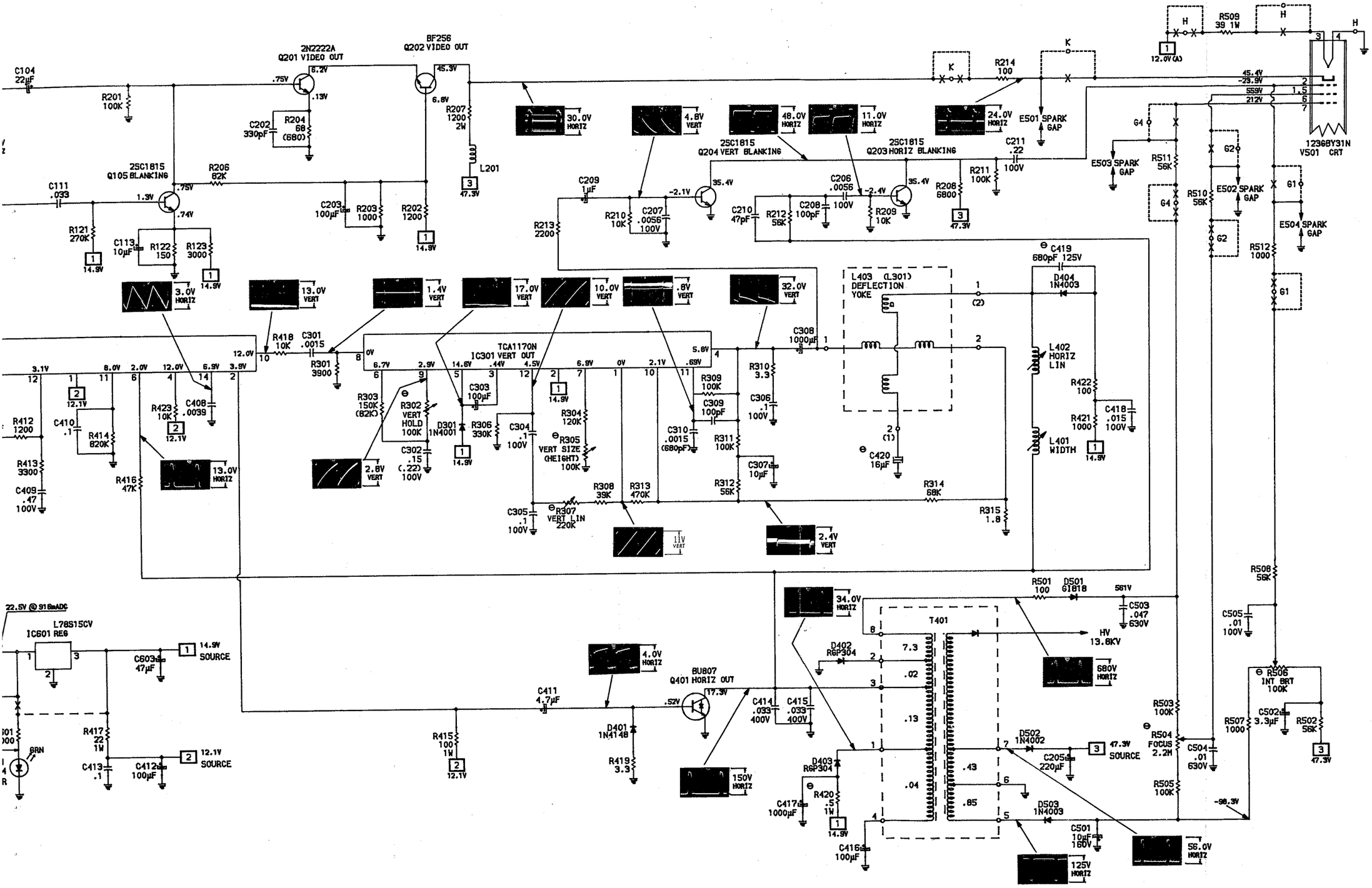
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SEE PINOUTS AND TERMINAL GUIDES ON PAGE 28

A PHOTOFACT STANDARD NOTATION SCHEMATIC WITH CIRCUITRACE™

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APPLE MONITOR II
MODEL A2M2010

BOARD 060-01-001 REV B GridTrace LOCATION GUIDE

C101	D-1	L201	G-14	R421	G-25
C102	E-3	L401	J-25	R422	F-25
C104	H-9	Q101	D-3	R423	C-19
C108	G-4	Q102	D-4	R501	S-21
C109	F-4	Q104	G-7	R502	Q-17
C110	H-5	Q105	E-10	R503	P-17
C111	D-9	Q201	D-13	R504	P-13
C112	D-9	Q202	F-13	R505	P-14
C113	E-5	Q203	D-16	R507	Q-13
C202	E-14	Q204	D-17	R508	P-15
C205	L-12	Q401	N-17	R509	J-14
C206	E-15	R101	C-2	R510	Q-18
C307	C-17	R102	C-1	R511	Q-17
C308	E-14	R103	B-3	R512	O-14
C209	G-11	R104	B-4	R601	M-3
C210	G-14	R105	B-4	T401	P-27
C211	N-13	R106	B-5		
C301	M-15	R107	E-3		
C302	S-7	R115	I-4		
C303	Q-5	R116	I-5		
C304	J-10	R117	F-6		
C305	J-9	R118	G-7		
C306	M-5	R119	E-7		
C307	K-5	R120	D-7		
C308	N-5	R121	G-10		
C309	M-8	R122	B-6		
C310	M-9	R123	G-9		
C401	J-17	R124	C-2		
C402	J-20	R201	C-14		
C404	A-23	R202	G-10		
C405	G-17	R203	D-11		
C406	D-24	R204	C-14		
C407	C-24	R206	D-11		
C408	A-27	R207	G-13		
C409	B-27	R208	F-15		
C410	F-23	R209	B-16		
C411	K-16	R210	B-17		
C412	D-21	R211	B-16		
C413	C-21	R212	G-15		
C414	L-21	R213	I-9		
C415	M-21	R214	H-13		
C416	Q-22	R301	R-11		
C417	I-28	R302	S-5		
C418	E-25	R303	R-5		
C419	I-25	R304	Q-9		
C420	I-22	R305	S-9		
C501	Q-20	R306	K-11		
C502	R-16	R307	L-9		
C503	O-21	R308	N-8		
C504	N-21	R309	M-8		
C505	R-15	R310	M-6		
C601	K-2	R311	K-6		
C602	I-2	R312	L-6		
C603	G-2	R313	M-7		
D101	B-5	R314	K-8		
D301	P-6	R315	I-8		
D401	M-15	R401	K-16		
D402	K-27	R402	K-14		
D403	J-26	R403	B-21		
D404	F-25	R404	G-18		
D501	Q-19	R405	G-18		
D502	R-21	R406	B-24		
D503	R-21	R407	B-22		
D601	P-1	R410	D-23		
D602	P-4	R411	C-25		
D603	P-2	R412	D-24		
D604	P-3	R413	D-25		
E501	I-12	R414	E-22		
E502	S-18	R415	D-19		
E503	R-18	R416	K-18		
E504	N-12	R417	G-17		
IC301	P-9	R418	G-22		
IC401	F-20	R419	K-15		
L101	E-8	R420	H-26		

TEST EQUIPMENT

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

TEST EQUIPMENT (COMPUTERFACTS)

Equipment Name	B & K Precision Equipment No.	Sencore Equipment No.	Simpson Equipment No.
OSCILLOSCOPE	1570A,1590A,1596	SC61	454
LOGIC PROBE	DP51		
LOGIC PULSER	DP101		
DIGITAL VOM	2830	DVM37,DVM56,SC61	463,467,470,474,467E
ANALOG VOM	277		260-7,160,165, 260-6XL,260-7P, 260-6XLP
ISOLATION TRANSFORMER	TR110,1604,1653,1655	PR57	
FREQUENCY COUNTER	1803,1805	FC71,SC61	710
COLOR BAR GENERATOR	1211A,1248,1251,1260	CG25,VA62	431
RGB GENERATOR	1260		
FUNCTION GENERATOR	3020		420A,420D
HI-VOLTAGE PROBE VOM/DMM Accessory probes	HV-44	HP200	248 00168,00411,00749
TEMPERATURE PROBE	TP-28		IR-10,00760,00758; 383,389,388
CRT ANALYZER	467,470	CR70	

TROUBLESHOOTING

POWER SUPPLY

Check AC Fuse F601, if open, check Capacitors C701 thru C704, Transformer T601, Bridge Rectifier Diodes D601 thru D604 and Regulator IC (IC601). If Fuse F601 is good apply 120V AC and check for 22.5V at the cathode of Diode D604. If this voltage is absent, check the Power Switch S601 and the AC Line Filter. If 22.5V is present at the cathode of Diode D604, check for 14.9V at pin 3 of IC601. If this voltage is absent, check the voltages and components associated with IC601 and check the Horizontal Output Transistor (Q401). If 14.9V is present at pin 3 of IC601, refer to the "Horizontal" section of this Troubleshooting guide.

HORIZONTAL

Check for 14.9V at the collector of the Horizontal Output Transistor (Q401). If this voltage is absent, check Resistor R420, Diode D403, and refer to the "Power Supply" section of this Troubleshooting guide. If 14.9V is present at the collector of Q401, inject a horizontal signal at the base of Transistor Q401. If horizontal deflection is now present, check the voltages, waveforms and components associated with pins 1, 2, 4, 5, 6, 11, 12, 13 14 and 15 of Deflection IC (IC401). If there is still no horizontal sweep, check the voltages, waveforms and components associated with the Horizontal Output Transformer (T401). The High Voltage Rectifier is part of Transformer T401 and if defective will affect the operation of the horizontal circuits. If the horizontal oscillator is off frequency, check the voltages, waveforms and components associated with pins 13, 14 and 15 of IC401. Horizontal linearity or foldover problems may be caused by defective Capacitors C414, C415, C420 or Coils L401 and L402.

VIDEO

Inject a video signal at the Video Input Jack (P1) and check for video on the CRT. If there is no video, check the voltages, waveforms and components associated with Video Amp Transistors Q101, Q102, Q201, Q202, and check the CRT and CRT voltages. Check blanking Transistors Q203, Q204 and associated components. If there is inadequate Brightness or Contrast, check the voltages and components associated with Contrast and Brightness Controls (R108 and R506) and check the voltage on pins 1 and 5 of the CRT.

VERTICAL

Check the voltages on Vertical Output IC (IC301). If these voltages are absent, check IC301 and refer to the "Power Supply" section of this Troubleshooting guide. If the proper voltages are present on IC301, check for a Vertical waveform at pin 4 of IC301. If this waveform is absent, check the components associated with IC301. If a vertical waveform is present at pin 4, check Electrolytic C308 and the Deflection Yoke (L430). Check Electrolytics C209, C303, C307 for defects.

SYNC

If there is no Vertical or Horizontal Sync, check for a video waveform at the collector of Sync Separator Transistor (Q104). If this waveform is absent, check Transistor Q104 and associated components. If there is no Vertical Sync, check the voltages, waveforms and components associated with pins 8, 9 and 10 of Deflection IC (IC401). If there is no Horizontal Sync, check the voltages, waveforms and components associated with pins 8, 9, 13 and 15 of IC401.

MISCELLANEOUS ADJUSTMENTS

HORIZONTAL WIDTH ADJUSTMENT

Connect a pattern generator (1VPP into 75Ω VTR Standard) to the video input and tune in a crosshatch pattern. Adjust L401 to obtain a pattern that is equal on each side and not squeezed together.

HORIZONTAL LINEARITY

Connect a pattern generator (1VPP into 75Ω VTR Standard) to the video input and tune in a crosshatch pattern. If L402 is not factory sealed, adjust to obtain proper linearity.

Note: Alternate Width and Linearity adjustments until pattern is correct.

HORIZONTAL HOLD

Connect a pattern generator (1VPP into 75Ω VTR Standard) to the video input and select a crosshatch pattern. Adjust Horizontal Hold Control (R406) until pattern locks in position. This adjustment will also eliminate tearing.

VERTICAL LINEARITY

Connect a pattern generator (1VPP into 75Ω VTR Standard) to the video input and select a crosshatch pattern. Adjust Vertical Linearity Control (R307) to make pattern even at top and bottom.

Note: Vertical Height Control can affect linearity.

PINCUSHION ADJUSTMENT

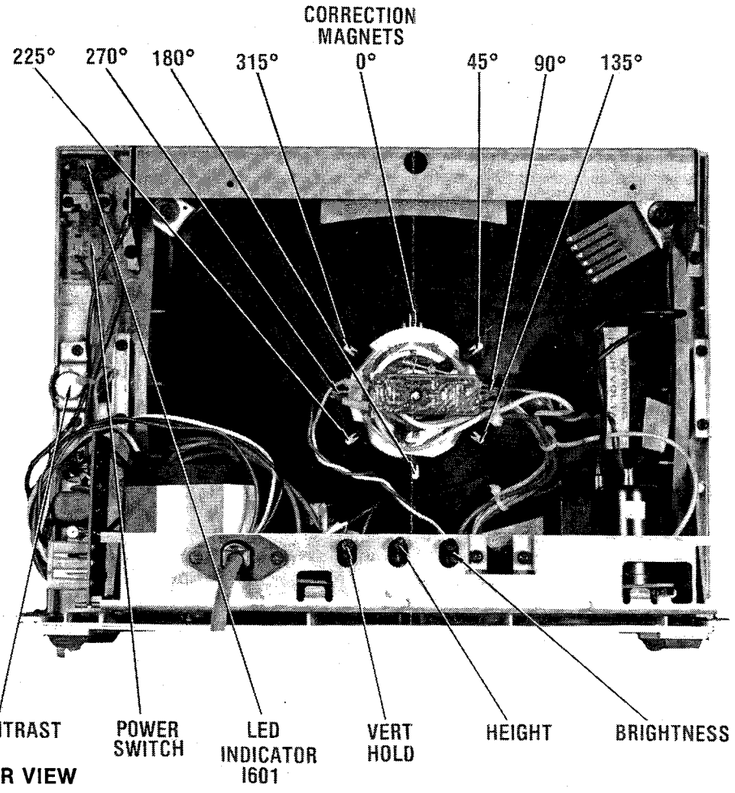
To correct Pincushion effect on the C.R.T. Raster place a magnet on the yoke mounting pin that corresponds with the affected area. Top Bow is corrected with a magnet at 0° (top center) pin. Left side Bow is corrected with a magnet at 90° clockwise pin. Bottom Low is corrected with a magnet at 180° clockwise pin. Right side Bow is corrected with a magnet at 270° clockwise pin. Rotate magnets on pin to obtain desired raster.

Note: If a second magnet is needed on any one pin the poles of the magnets must be aligned and both magnets rotated simultaneously.

TRAPEZOIDAL ADJUSTMENT

To correct a trapezoidal effect on the C.R.T. raster place a magnet on the yoke mounting pin that corresponds to the affected area. Place a magnet on the pin 45° clockwise from top center to correct top left corner. Place a magnet on the pin 135° clockwise from top center to correct bottom left corner. Place a magnet on the pin 225° clockwise from top center to correct bottom right corner. Place a magnet on the pin 315° clockwise from top center to correct top right corner. Rotate magnets to obtain desired raster.

Note: If a second magnet is needed on any one pin the poles of the magnet must be aligned and both magnets rotated simultaneously.



CABINET-REAR VIEW

BOARD 060-01-001 GridTrace LOCATION GUIDE

C101	J-6	L401	I-25	R423	C-17
C102	D-2	L402	F-27	R501	R-20
C104	F-5	Q101	D-3	R502	S-15
C108	F-6	Q102	B-3	R503	R-17
C109	I-7	Q105	F-9	R504	Q-18
C110	F-3	Q201	D-14	R505	R-17
C111	H-8	Q202	F-10	R506	S-12
C112	G-10	Q203	G-13	R507	Q-12
C113	G-10	Q204	G-14	R508	M-18
C202	B-15	Q401	J-23	R601	L-4
C203	D-12	R101	D-5	T401	P-26
C205	J-12	R102	I-6		
C206	E-14	R103	D-4		
C207	H-13	R104	C-5		
C208	E-14	R105	H-6		
C209	J-11	R106	B-5		
C210	G-16	R107	D-2		
C211	J-14	R115	D-7		
C301	O-18	R116	H-4		
C302	S-7	R117	J-8		
C303	P-7	R118	J-10		
C304	N-13	R119	J-8		
C305	P-12	R120	H-9		
C306	O-16	R121	F-7		
C307	O-17	R122	F-10		
C308	N-17	R123	F-7		
C309	N-15	R124	I-6		
C310	M-10	R201	C-14		
C311	N-17	R202	E-9		
C401	F-17	R203	D-9		
C402	G-17	R204	C-15		
C404	A-24	R205	J-15		
C405	E-16	R206	D-13		
C406	B-22	R207	G-12		
C407	C-22	R209	G-14		
C408	B-21	R210	H-12		
C409	C-25	R211	E-13		
C410	C-23	R212	H-16		
C411	K-20	R213	K-11		
C412	D-16	R301	Q-13		
C413	G-19	R302	S-5		
C414	L-20	R303	Q-5		
C415	M-20	R304	Q-8		
C416	S-21	R305	S-9		
C417	J-27	R306	O-12		
C418	E-22	R307	O-14		
C419	D-25	R308	N-10		
C420	G-25	R309	M-13		
C501	S-20	R310	N-15		
C502	S-14	R312	M-16		
C503	P-21	R313	L-10		
C504	N-21	R314	L-10		
C505	S-10	R315	L-13		
C601	K-2	R401	K-15		
C602	G-2	R402	K-16		
C603	F-2	R403	A-18		
D101	B-5	R404	I-18		
D301	O-7	R405	H-17		
D401	I-20	R406	B-26		
D402	K-26	R407	B-21		
D403	K-26	R410	C-20		
D404	D-24	R411	B-20		
D501	R-19	R412	D-21		
D502	Q-21	R413	D-21		
D503	Q-20	R414	E-20		
D601	O-3	R415	C-16		
D602	O-5	R416	K-19		
D603	O-4	R417	K-17		
D604	O-6	R418	K-18		
IC301	O-10	R419	I-20		
IC401	C-19	R420	G-21		
L101	G-8	R421	F-22		
L201	I-10	R422	E-22		

PARTS LIST AND DESCRIPTION (Continued)

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

FUSE DEVICES

ITEM NO.	DESCRIPTION	MFGR. PART NO.		NOTES
		DEVICE	HOLDER	
F601	1A @ 250V Fast Acting Pigtail 500mA @ 110V Fast Acting 500mA @ 230V Slow Blow 200mA @ 230V			

MISCELLANEOUS

ITEM No.	PART NAME	MFGR. PART No.	NOTES
E501 Thru E504	Spark Gap		
I601	LED		Power, Green
P1	Jack		Video Input
S601	Switch		Power, 115V Power, 230V
V501	CRT		
	Foot		
	Magnet		Square, White
	Magnet		Square, Red
	Magnet		Square, Green
	Magnet		Square, Blue
	Magnet		Square, Yellow
	Power Cord		
	PC Board		Main

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

WIRING DATA

High Voltage Lead	Use BELDEN No.	8869 (17 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
Power Cord	Use BLEDEN No.	8895 (Polarized Interlocking Type)

BOARD 060-01-001 REV C GridTrace LOCATION GUIDE

C101	E-2	L101	F-8	R419	L-14
C102	G-3	L201	H-13	R420	H-25
C104	G-8	L401	K-24	R421	H-25
C108	H-5	L402	E-27	R422	F-25
C109	F-5	Q101	D-3	R501	S-21
C110	H-6	Q102	F-3	R502	R-17
C111	F-11	Q104	F-6	R503	P-17
C112	E-11	Q105	F-10	R504	Q-13
C113	E-5	Q201	F-12	R505	Q-14
C202	F-13	Q202	G-12	R506	S-12
C203	G-11	Q203	F-15	R507	R-13
C205	N-12	Q204	F-17	R508	Q-14
C206	F-15	Q401	O-17	R509	J-12
C207	D-17	R101	C-2	R510	R-18
C208	F-14	R102	C-1	R511	R-17
C209	I-11	R103	C-3	R512	P-13
C210	H-15	R104	C-3	R601	N-3
C211	O-14	R105	C-4	T2	R-3
C301	H-21	R106	C-5	T401	P-27
C302	S-7	R107	F-3		
C303	Q-5	R115	J-4		
C304	L-10	R116	J-5		
C305	J-10	R117	D-7		
C306	M-5	R118	F-7		
C307	K-4	R119	D-7		
C308	N-4	R120	D-8		
C309	M-8	R121	H-9		
C310	N-8	R122	C-6		
C401	K-17	R123	H-8		
C402	K-20	R124	D-2		
C404	B-25	R201	D-12		
C405	H-17	R202	H-10		
C406	E-25	R203	D-10		
C407	D-24	R204	D-13		
C408	B-26	R206	D-10		
C409	B-27	R207	I-13		
C410	G-23	R208	G-15		
C411	L-16	R209	C-15		
C412	F-20	R210	C-17		
C413	H-20	R211	C-16		
C414	L-20	R212	I-15		
C415	M-20	R213	I-10		
C416	Q-22	R214	I-12		
C417	I-28	R301	R-10		
C418	E-25	R302	S-5		
C419	I-25	R303	R-6		
C420	J-22	R304	R-9		
C501	R-20	R305	S-9		
C502	R-16	R306	K-10		
C503	P-20	R307	M-9		
C504	N-20	R308	N-9		
C505	S-14	R309	L-8		
C601	L-1	R310	N-6		
C602	I-2	R311	L-5		
C603	H-2	R312	L-5		
D101	C-5	R313	N-7		
D301	P-6	R314	K-7		
D401	N-15	R315	J-6		
D402	K-26	R401	K-15		
D403	J-26	R402	L-14		
D404	G-25	R403	A-21		
D501	R-19	R404	H-18		
D502	S-21	R405	E-19		
D503	R-21	R406	B-24		
D601	P-1	R407	C-24		
D602	P-3	R410	C-22		
D603	P-2	R411	C-25		
D604	P-3	R412	E-24		
E501	K-12	R413	E-25		
E502	S-18	R414	F-22		
E503	S-17	R415	C-18		
E504	P-12	R416	K-19		
IC301	P-9	R417	H-18		
IC401	D-20	R418	G-21		

PARTS LIST AND DESCRIPTION

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

SEMICONDUCTORS (Select replacement transistor for best results)

ITEM No.	TYPE No.	MFGR. PART No.	REPLACEMENT DATA					
			NOTES	NTE PART No.	ECG PART No.	RCA PART No.	WORKMAN PART No.	ZENITH PART No.
D101	1N4148			NTE519	ECG519	SK3100/519	WEP925/519	103-131
D301	1S2473	(1) (2)		NTE519	ECG519	SK3100/519	WEP925/519	103-131
	1N4001	(3)		NTE116	ECG116	SK3311	WEP154	212-76-02
D401	1N4148			NTE519	ECG519	SK3100/519	WEP925/519	103-131
D402,3	RGP30G			NTE580	ECG580	SK5036/580		103-316-04
D404	1N4003			NTE116	ECG116	SK3311	WEP156	212-76-02
D501	G1818			NTE506	ECG506	SK3998/506	WEP172/506	103-287
	MR818			NTE506	ECG506	SK3998/506	WEP172/506	103-287
	PLR818			NTE506	ECG506	SK3998/506	WEP172/506	103-287
D502	1N4002			NTE116	ECG116	SK3311	WEP155	212-76-02
D503	1N4003			NTE116	ECG116	SK3311	WEP156	212-76-02
D601 thru D604	1N5402			NTE5802	ECG5802	SK9005/5802	WEP4002/5802	212-Z9000
IC301	TDA1170N			NTE1289	ECG1289	SK9182/1289		
IC401	TDA1180P	(1)(3)						
	TDA1180PD	(2)						
IC601	L78S15CV			NTE968	ECG968	SK3593/968		HE-442-63
	7815			NTE968	ECG968	SK3593/968		HE-442-63
Q101	2SC945CY	(1)		NTE85	ECG85	SK3124A/289A	WEP736/123A*	121-972
	2SC1815BL	(2)		NTE85	ECG85	SK3124A/289A	WEP66/199	121-Z9065
	2SC1815GR	(3)		NTE85	ECG85	SK3124A/289A	WEP66/199	121-Z9065
Q102	2SA1015GR			NTE290A	ECG290A	SK9132	WEP911/290A	121-Z9003*
Q104	2SA1015GR			NTE290A	ECG290A	SK9132	WEP911/290A	121-Z9003*
Q105	2SC945CY	(1)		NTE85	ECG85	SK3124A/289A	WEP736/123A*	121-972
	2SC1815BL	(2)		NTE85	ECG85	SK3124A/289A	WEP66/199	121-Z9065
	2SC1815GR	(3)		NTE85	ECG85	SK3124A/289A	WEP66/199	121-Z9065
Q201	2N2222A			NTE123A	ECG123A	SK3444/123A*	WEP736/123A	121-Z9000A
Q202	BF258			NTE396	ECG396	SK3103A/396		
Q203,4	2SC945CY	(1)		NTE85	ECG85	SK3124A/289A	WEP736/123A*	121-972
	2SC1815BL	(2)		NTE85	ECG85	SK3124A/289A	WEP66/199	121-Z9065
	2SC1815GR	(3)		NTE85	ECG85	SK3124A/289A	WEP66/199	121-Z9065
Q401	BU807				ECG2315			

(1) Board 060-01-001 Revision C.
(2) Board 060-01-001 Revision B.
(3) Board 060-01-001.
* Lead configuration may vary from original.

PARTS LIST AND DESCRIPTION (Continued)

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

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

ITEM No.	RATING	MFGR. PART No.
C420	16 25V NP	

CAPACITORS

ITEM No.	RATING	MFGR. PART No.
C419	680 120V AC	

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA		
		MFGR. PART No.	NTE PART No.	WORKMAN PART No.
R420	.5 5% 1W Metal Oxide			

(1) Used as fuse.

COILS (RF-IF)

ITEM No.	FUNCTION	MFGR. PART No.
L101	RF Choke (15mH)	
L201	RF Choke (15uH)	

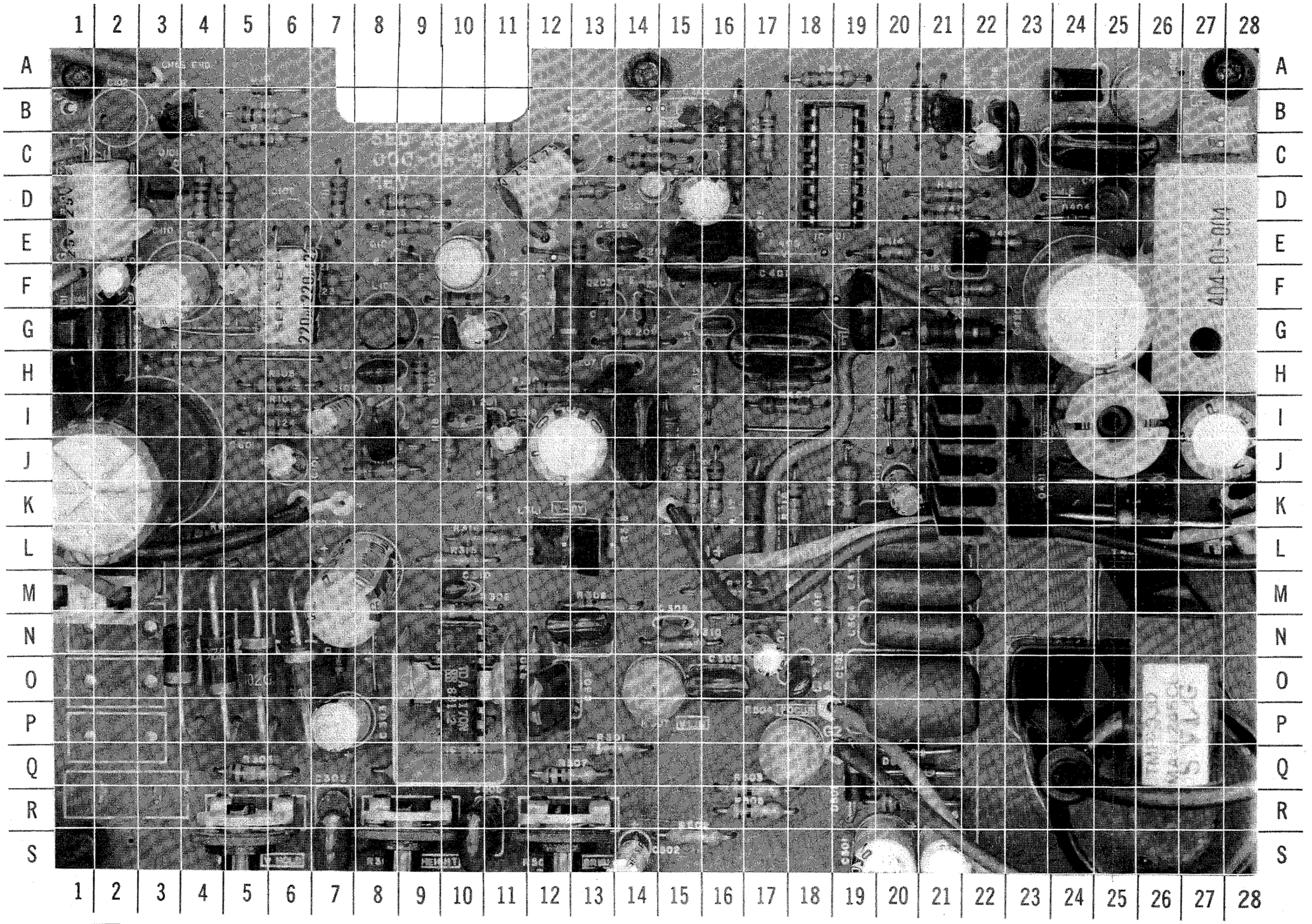
COILS & TRANSFORMERS

ITEM No.	FUNCTION	MFGR. PART No.	OTHER IDENTIFICATION	NOTES
L401	Width		403-01-004 (1)	
L402	Horiz Linearity		404-01-004 (1)	
L403	Yoke Horiz 99.7uH		DMB-1294BL (1)	
	90° Vert 14.2mH			
T401	Horiz Output		FMA-1245CL/	
			TMP-330 (1)	
T501	Power		APT001U (1)	
L704	AC Line Filter			

(1) Number on unit.

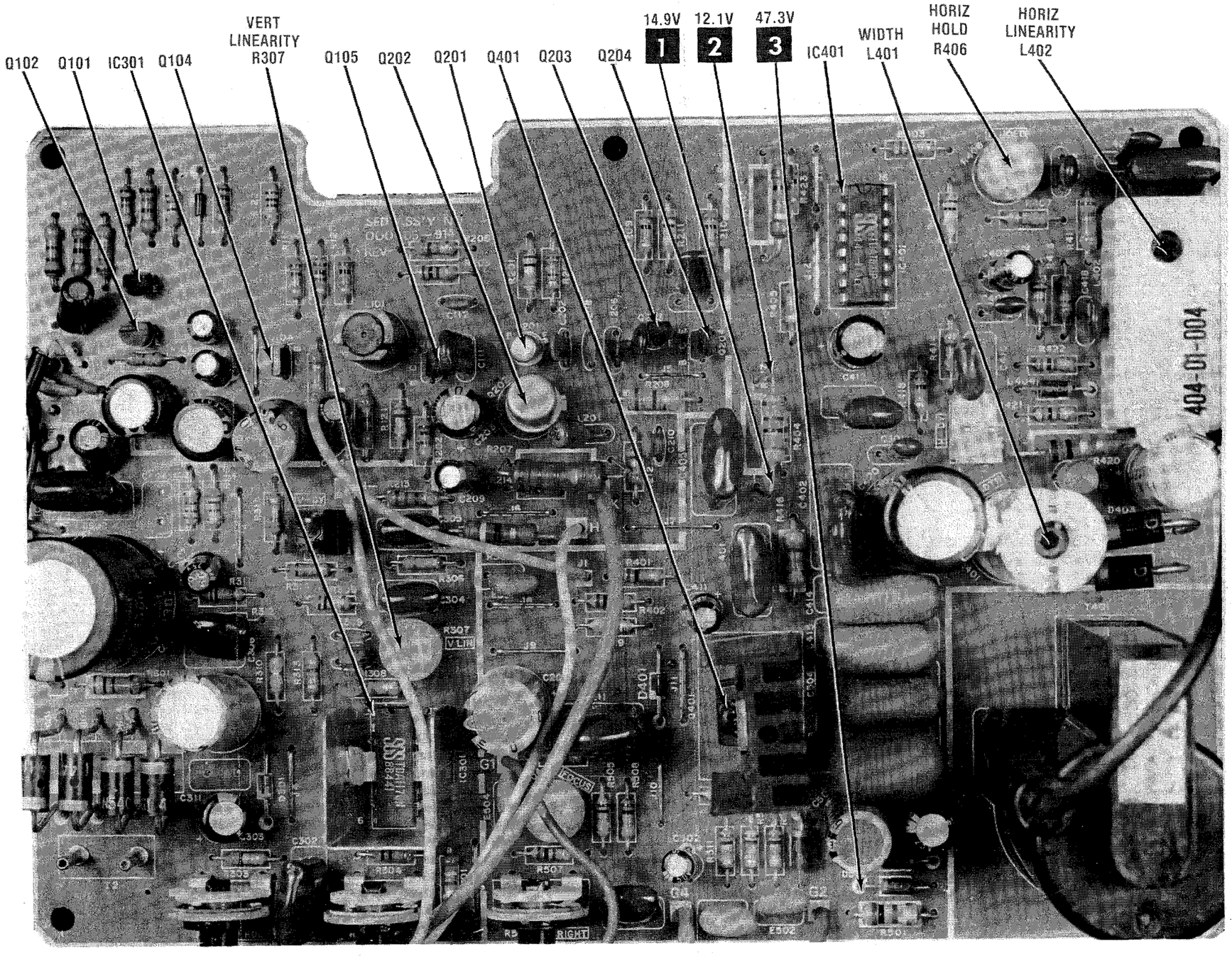
CONTROLS (All wattages 1/2 watt, or less, unless listed)

ITEM NO.	FUNCTION	RESISTANCE	MFGR. PART NO.	NOTES
R108	Contrast	500		
R302	Vert Hold	100K		
R305	Vert (Height) Size	100K		
R307	Vert Linearity	200K		
R406	Horiz Hold	22K		
R504	Focus	2.2M		
R506	INT BRT	100K		



A Howard W. Sams GRIDTRACE™ Photo **MAIN BOARD 060-01-001**

MAIN BOARD 060-01-001

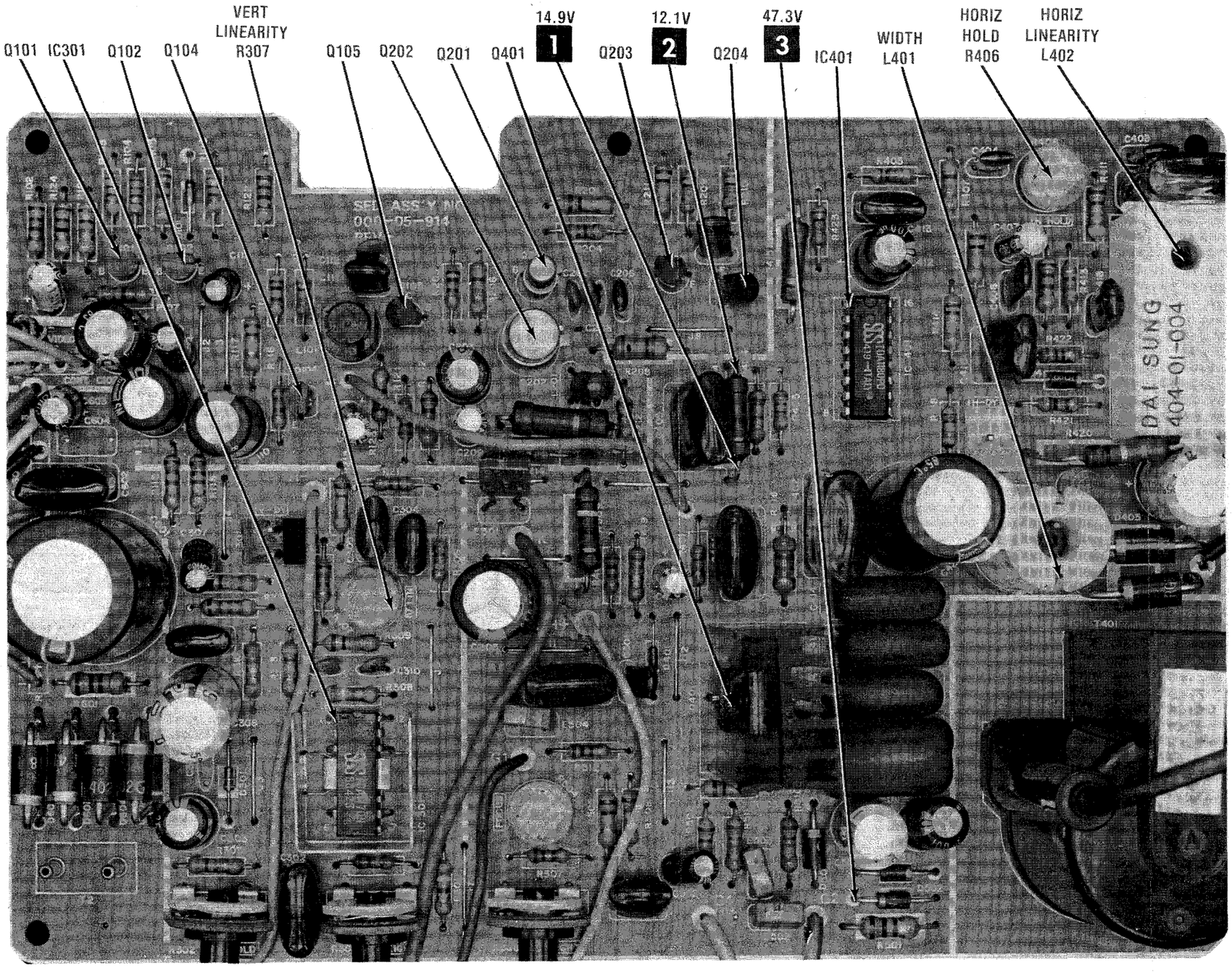


NOTE: ARROWS ON IC'S INDICATE PIN 1 UNLESS NOTED

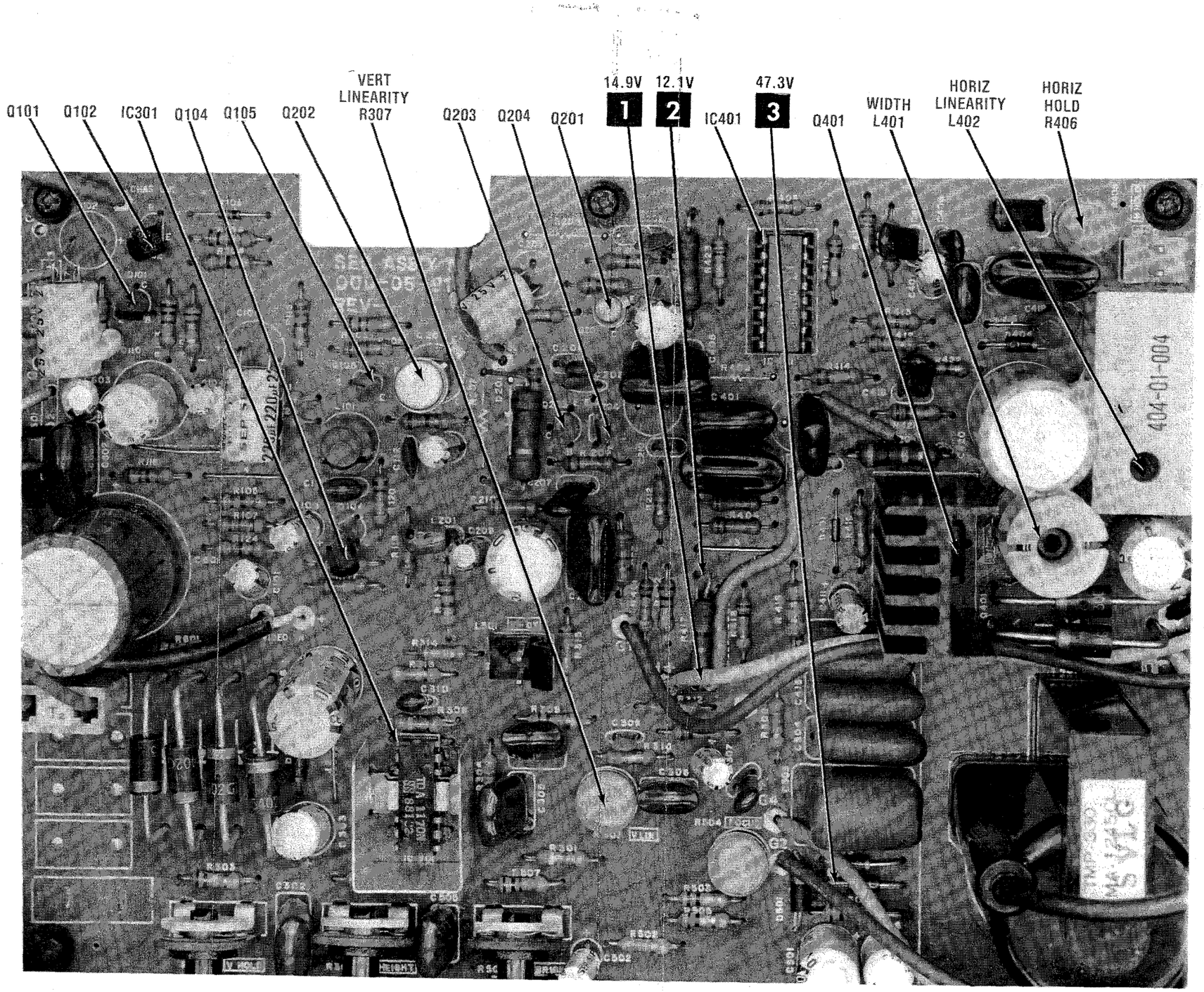
MAIN BOARD 060-01-001 REV C

MAIN BOARD 060-01-001 REV C

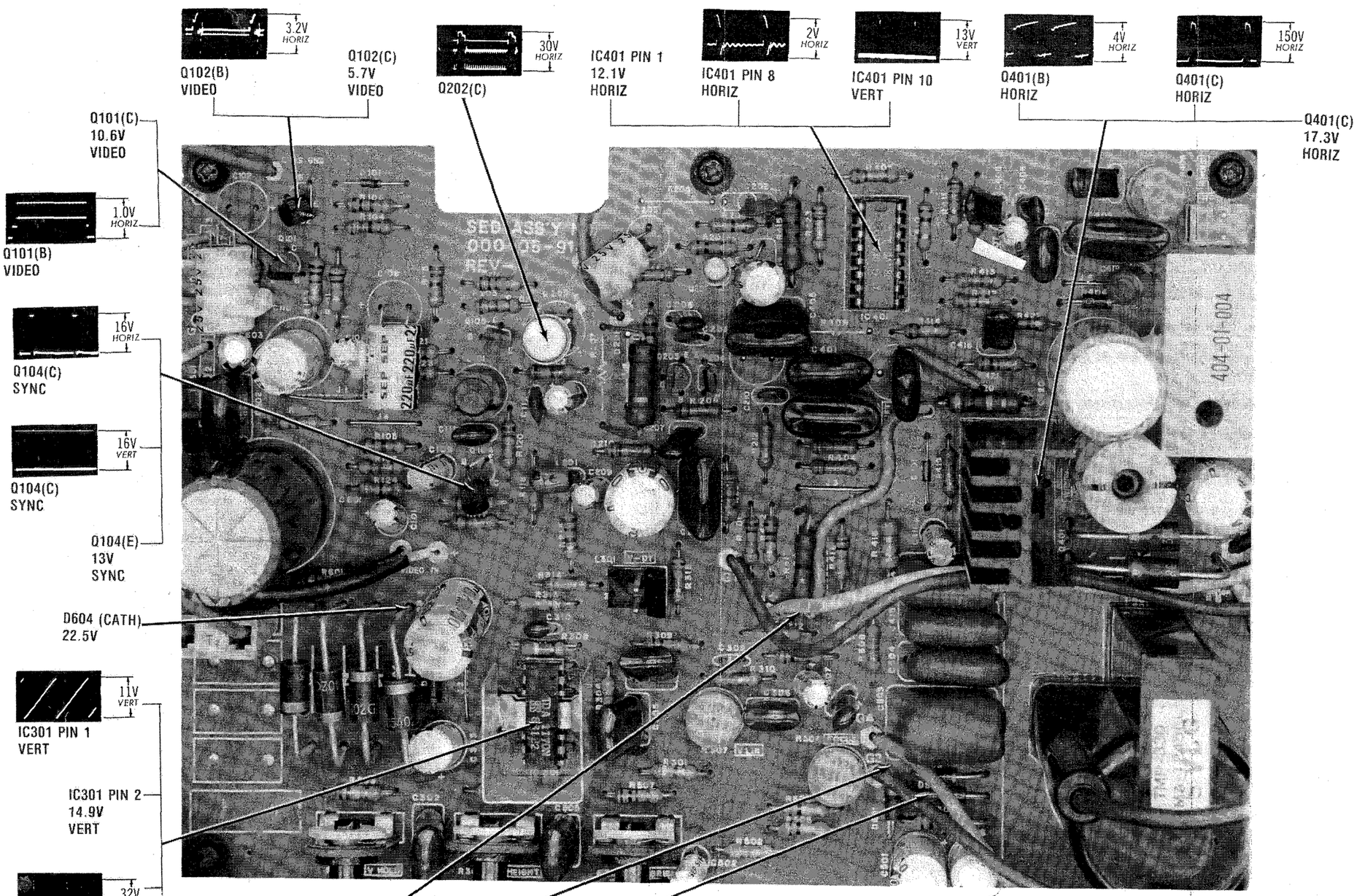
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NOTE: ARROWS ON IC'S INDICATE PIN 1 UNLESS NOTED



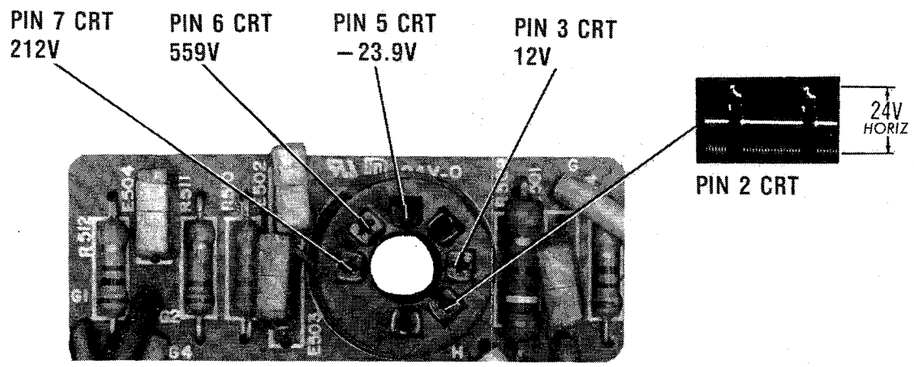
NOTE: ARROWS ON IC'S INDICATE PIN 1 UNLESS NOTED



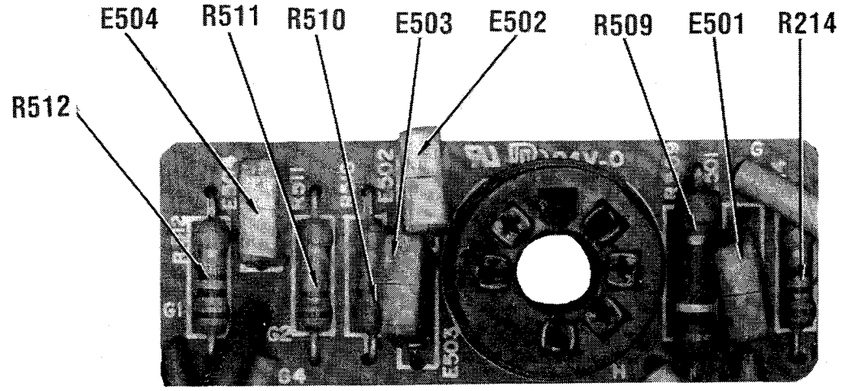
A Howard W. Sams QUICK-CHECKS™ Photo **MAIN BOARD 060-01-001**

SAFETY PRECAUTIONS

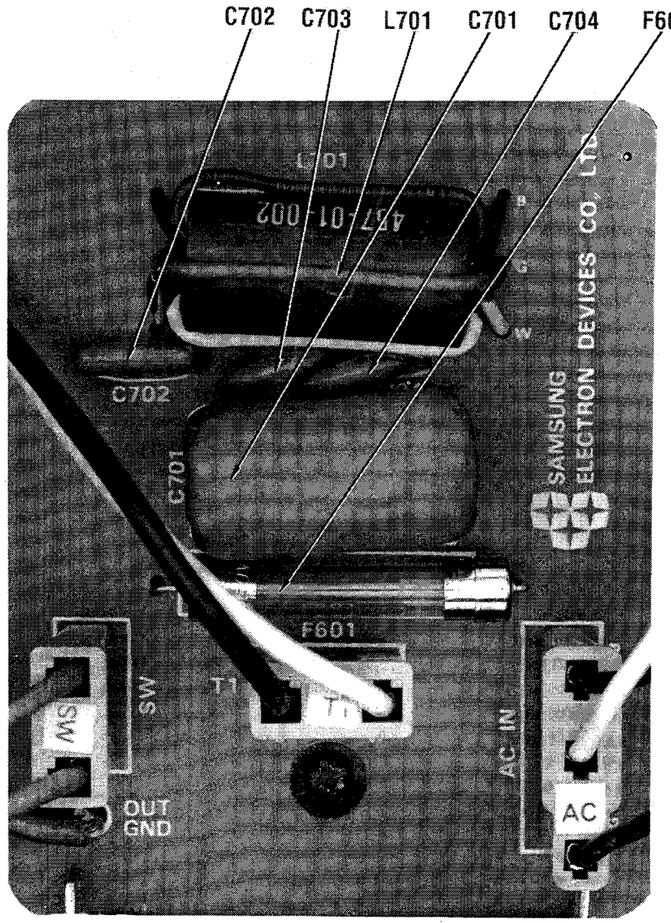
1. Use an isolation transformer for servicing.
2. Maintain AC line voltage at rated input.
3. Remove AC power from the monitor before servicing or installing electrostatically sensitive devices. Examples of typical ES devices are integrated circuits and semiconductor "chip" components.
4. Use extreme caution when handling the printed circuit boards. Some semiconductor devices can be damaged easily by static electricity. Drain off any electrostatic charge on your body by touching a known earth ground. Wear a commercially available discharging wrist strap device. This should be removed prior to applying power to the unit under test.
5. Use a grounded-tip, low voltage soldering iron.
6. Use an isolation (times 10) probe on scope.
7. Do not remove or install boards with monitor AC power On.
8. Do not use freon-propelled sprays. These can generate electrical charges sufficient to damage semiconductor devices.
9. This monitor is equipped with a grounded three-pronged AC plug. This plug must fit into a grounded AC power outlet. Do not defeat the AC plug safety feature.
10. Periodically examine the AC power cord for damaged or cracked insulation.
11. The monitor cabinet is equipped with vents to prevent heat build-up. Never block, cover, or obstruct these vents.
12. Instructions should be given, especially to children, that objects should not be dropped or pushed into the vents of the cabinet. This could cause shock or equipment damage.
13. Never expose the monitor to water. If exposed to water turn the unit off. Do not place the monitor near possible water sources.
14. Never leave the monitor unattended or plugged into the AC outlet for long periods of time. Remove AC plug from AC outlet during lightning storms.
15. Do not allow anything to rest on AC power cord.
16. Unplug AC power cord from outlet before cleaning monitor.
17. Never use liquids or aerosols directly on the monitor. Spray on cloth and then apply to the monitor cabinet. Make sure the monitor is disconnected from the AC power line.



CRT BOARD



CRT BOARD



AC INPUT BOARD

PRELIMINARY SERVICE CHECKS (Continued)
PREVENTATIVE MAINTENANCE

ENVIRONMENT

Computers perform best in a clean, cool area that is below 80 degrees Fahrenheit and free of dust and smoke particles. Even though home Computers are not affected by cigarette smoke as much as commercial Computers are affected, it is better to maintain a smoke-free area around the Computer. Do not block cabinet vents of any of the Computer system; Computer, Monitor, Printer, or other power devices.

ELECTRICAL POWER

Variations in the line voltage can affect the Computer. Try to avoid these fluctuations by using an AC receptacle that is on a power line not used by appliances or other heavy current demand devices. A power-surge protector, power-line conditioner, or non-interruptable power supply may be needed to cure the problem. **Do not** switch power On and Off frequently.

KEYBOARD

Liquids spilled into the Keyboard can ruin it. Immediately after a spill occurs, disconnect the Computer power plug from AC power outlet. Then, if circuitry or contacts are contaminated, disassemble the Keyboard and carefully rinse the Keyboard printed circuit board with distilled water and let it dry. Use a cotton swab to clean between the keys. Use a non-abrasive contact cleaner and lint-free wipers on accessible connectors and contacts.

DISK DRIVES

Clean the read/write heads of the Disk Drives about once a month or after 100 hours usage. Use only an approved head cleaning kit.

Handle carefully to preserve proper disk head alignment. A sudden bump or jolt to the Disk Drives can knock the disk head out of alignment. If the disk drive must be transported, place an old disk in slot and close door during transport.

Store disks in their protective covers and never touch the disk surface. Observe the disk handling precautions usually found on the back of disk protective covers.

PRINTERS

Carefully vacuum the Printer regularly. Wipe surface areas clean using a light all-purpose cleaner. Do not oil the machine. The oil will collect abrasive grit and dust. The dust will act as a blanket. This can cause components to overheat and fail.

STATIC ELECTRICITY

Static electricity discharge can affect the Computer. In order to minimize the possibility, use anti-static mats, sprays, tools and materials, and maintain good humidity in the Computer environment.

MONITOR

Use an isolation transformer with any Monitor that does not come as part of the system since some Monitors use a HOT chassis (chassis connected to one side of the AC line). The face of the Monitor should never be left on for long periods of time at high brightness level except when pattern is being changed periodically. Use caution when cleaning anti-glare screens, to preserve the glare-reduction feature.

PRELIMINARY SERVICE CHECKS

This data provides the user with a time-saving service tool designed for quick isolation and repair of monitor malfunctions.

Check all interconnecting cables for good connection and correct hook-up before making service checks.

TEST EQUIPMENT AND TOOLS

TEST EQUIPMENT

Digital Volt/Ohm Meter
HV Test Probe

TOOLS

Phillips Screwdriver
Low Voltage Soldering Iron
Contact Cleaner
Desoldering Tool

PARTS LIST AND DESCRIPTION

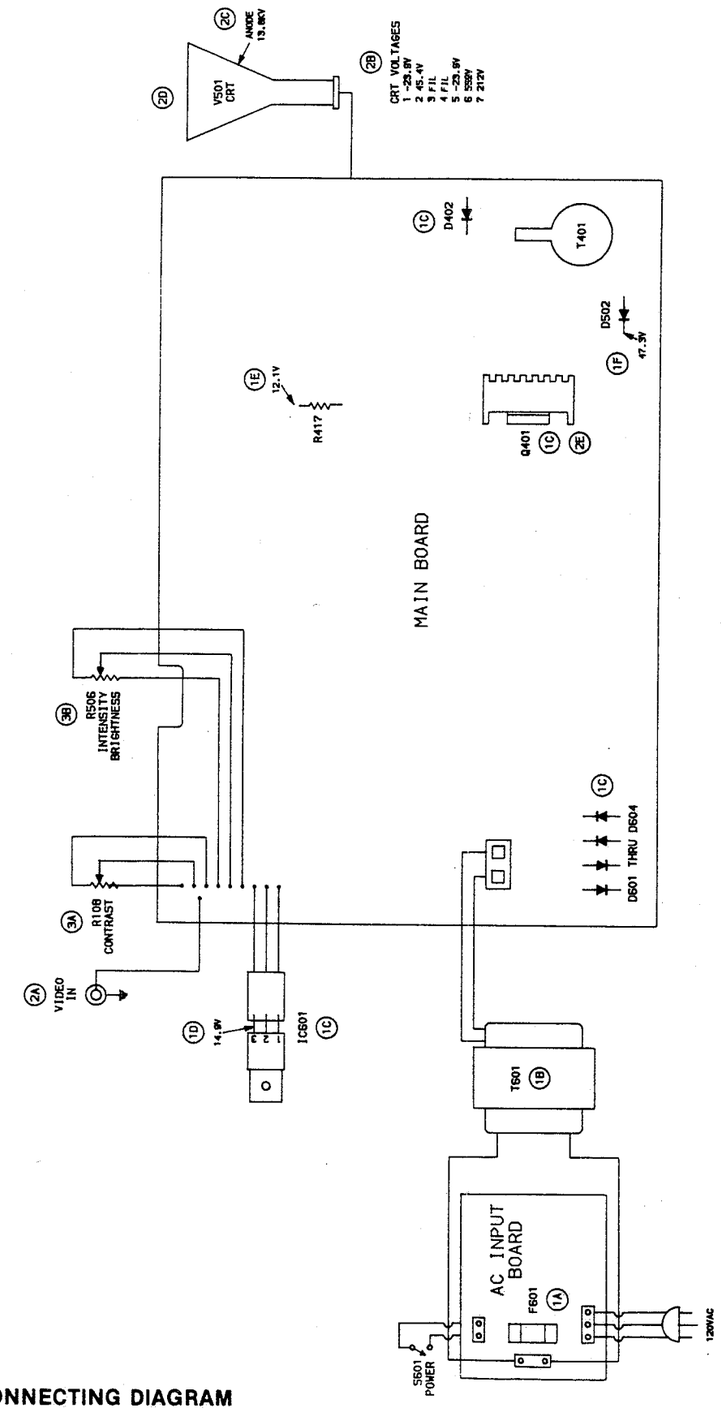
ITEM	PART NO.	DESCRIPTION
F601		Fuse, 1A
D502		Diode, 1N4002
D601 thru D604		Diode, Bridge Rectifier, 1N5402
IC601		IC, Regulator, 78S15CV
Q401		Transistor, Horiz Output

CMT9-1 APPLE MONITOR II MODEL A2M2010

SAMS™ Howard W. Sams & Co.
4300 West 62nd Street, P.O. Box 7092, Indianapolis, Indiana 46206 U.S.A.

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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INTERCONNECTING DIAGRAM

MISCELLANEOUS ADJUSTMENTS

HORIZONTAL WIDTH ADJUSTMENT

Connect a pattern generator (1VPP into 75Ω VTR Standard) to the video input and tune in a crosshatch pattern. Adjust L401 to obtain a pattern that is equal on each side and not squeezed together.

HORIZONTAL LINEARITY

Connect a pattern generator (1VPP into 75Ω VTR Standard) to the video input and tune in a crosshatch pattern. If L402 is not factory sealed, adjust to obtain proper linearity.

Note: Alternate Width and Linearity adjustments until pattern is correct.

HORIZONTAL HOLD

Connect a pattern generator (1VPP into 75Ω VTR Standard) to the video input and select a crosshatch pattern. Adjust Horizontal Hold Control (R406) until pattern locks in position. This adjustment will also eliminate tearing.

VERTICAL LINEARITY

Connect a pattern generator (1VPP into 75Ω VTR Standard) to the video input and select a crosshatch pattern. Adjust Vertical Linearity Control (R307) to make pattern even at top and bottom.

Note: Vertical Height Control can affect linearity.

PINCUSHION ADJUSTMENT

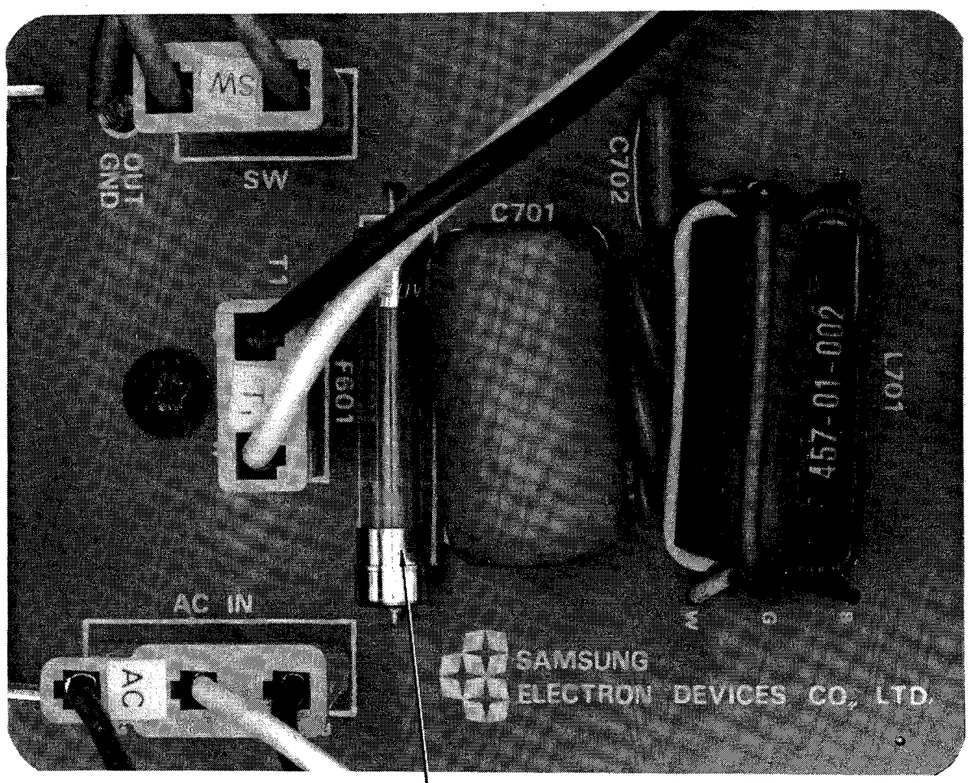
To correct Pincushion effect on the C.R.T. Raster place a magnet on the yoke mounting pin that corresponds with the affected area. Top Bow is corrected with a magnet at 0° (top center) pin. Left side Bow is corrected with a magnet at 90° clockwise pin. Bottom Low is corrected with a magnet at 180° clockwise pin. Right side Bow is corrected with a magnet at 270° clockwise pin. Rotate magnets on pin to obtain desired raster.

Note: If a second magnet is needed on any one pin the poles of the magnets must be aligned and both magnets rotated simultaneously.

TRAPEZOIDAL ADJUSTMENT

To correct a trapezoidal effect on the C.R.T. raster place a magnet on the yoke mounting pin that corresponds to the affected area. Place a magnet on the pin 45° clockwise from top center to correct top left corner. Place a magnet on the pin 135° clockwise from top center to correct bottom left corner. Place a magnet on the pin 225° clockwise from top center to correct bottom right corner. Place a magnet on the pin 315° clockwise from top center to correct top right corner. Rotate magnets to obtain desired raster.

Note: If a second magnet is needed on any one pin the poles of the magnet must be aligned and both magnets rotated simultaneously.



SERVICE CHECKS

MATCH THE NUMBERS ON THE INTERCONNECTING DIAGRAM AND PHOTOS WITH THE NUMBERS ON THE SERVICE CHECKS TO BE PERFORMED.

(1) POWER SUPPLY

(A) Check for open Fuse F601.

(B) If Fuse F601 is open, check Power Transformer (T601) with an ohmmeter.

(C) Check the Regulator IC (IC601), Diodes D601 thru D604, Horizontal Output Transistor Q401 and Diode D402.

(D) Check for 14.9V at pin 3 of IC601.

(E) Check for 12.1V at the junction of R417 and C412.

(F) Check for 47.3V at the cathode of Diode D502.

(2) NO DISPLAY

(A) Check for bad connection at the Video Input Jack (P1).

(B) Check CRT voltages.

(C) Check high voltage with HV probe.

(D) Check CRT with CRT tester.

(E) Check Horizontal Output Transistor (Q401).

(3) POOR CONTRAST AND BRIGHTNESS

(A) Clean Contrast Control (R108).

(B) Clean Intensity Brightness Control (R506).

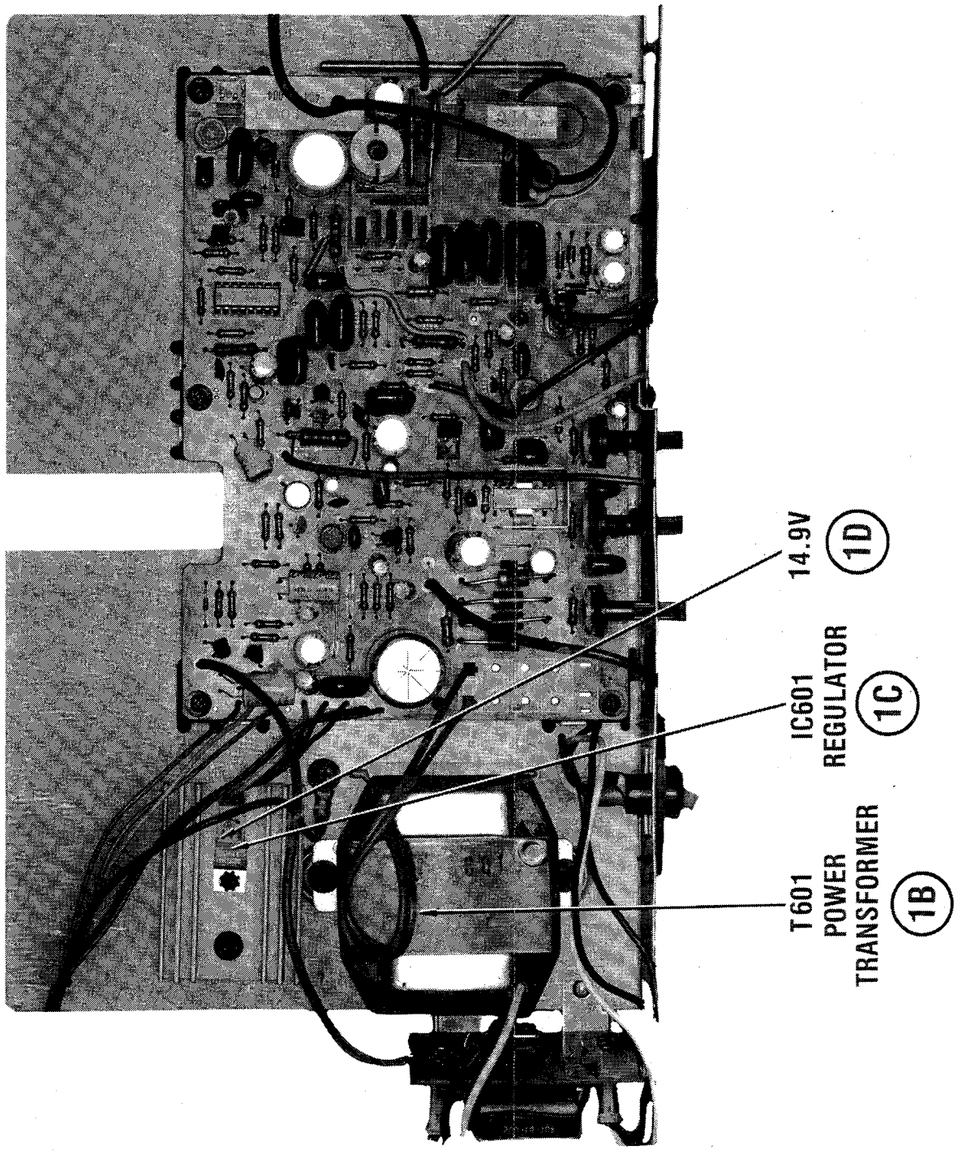
DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

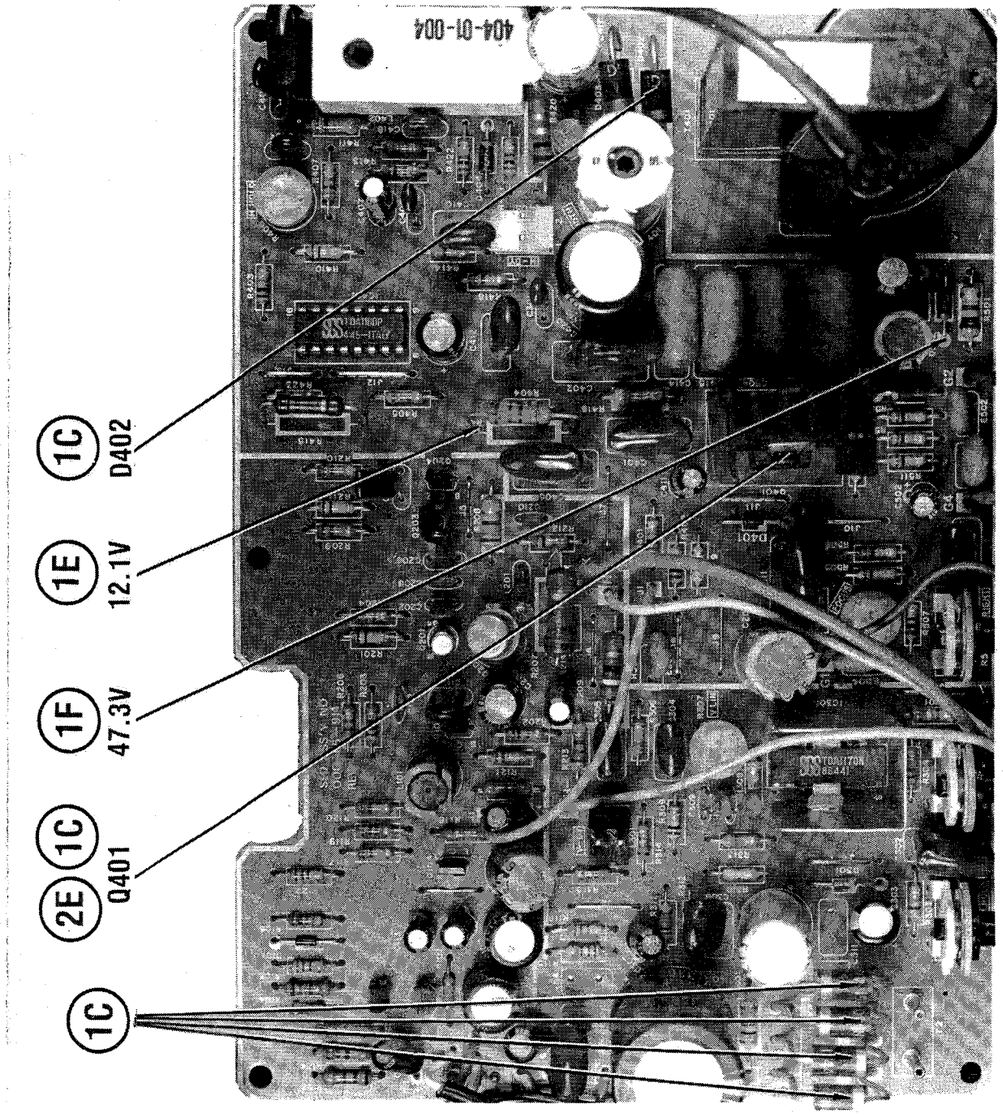
Remove six screws holding cabinet back and remove back. Disconnect CRT socket, HV anode and ground leads. Remove six screws holding Power Indicator, Power Switch and Contrast Control to cabinet front. Disconnect yoke connector and slide chassis out of cabinet.

CRT REMOVAL

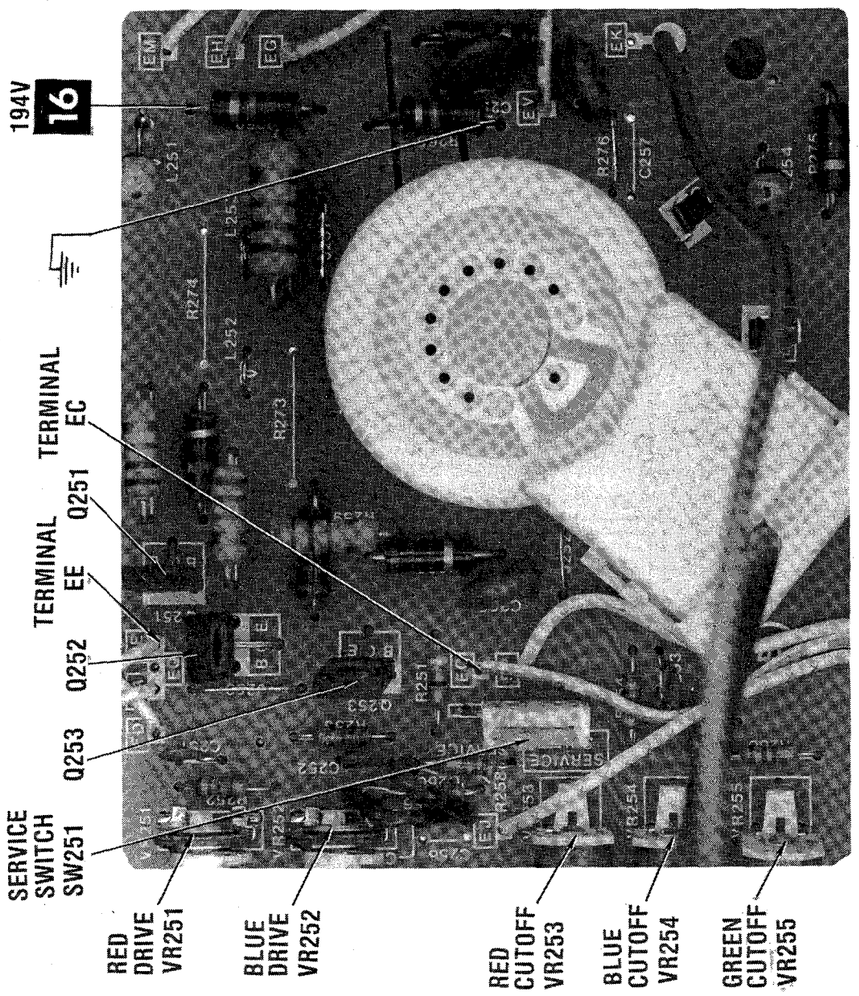
Follow "chassis removal" procedure and lay set face down on a soft protective surface. Remove four screws holding CRT to cabinet front and lift CRT out of cabinet. **Do not lift CRT by the neck.**



CHASSIS-TOP VIEW



MAIN BOARD

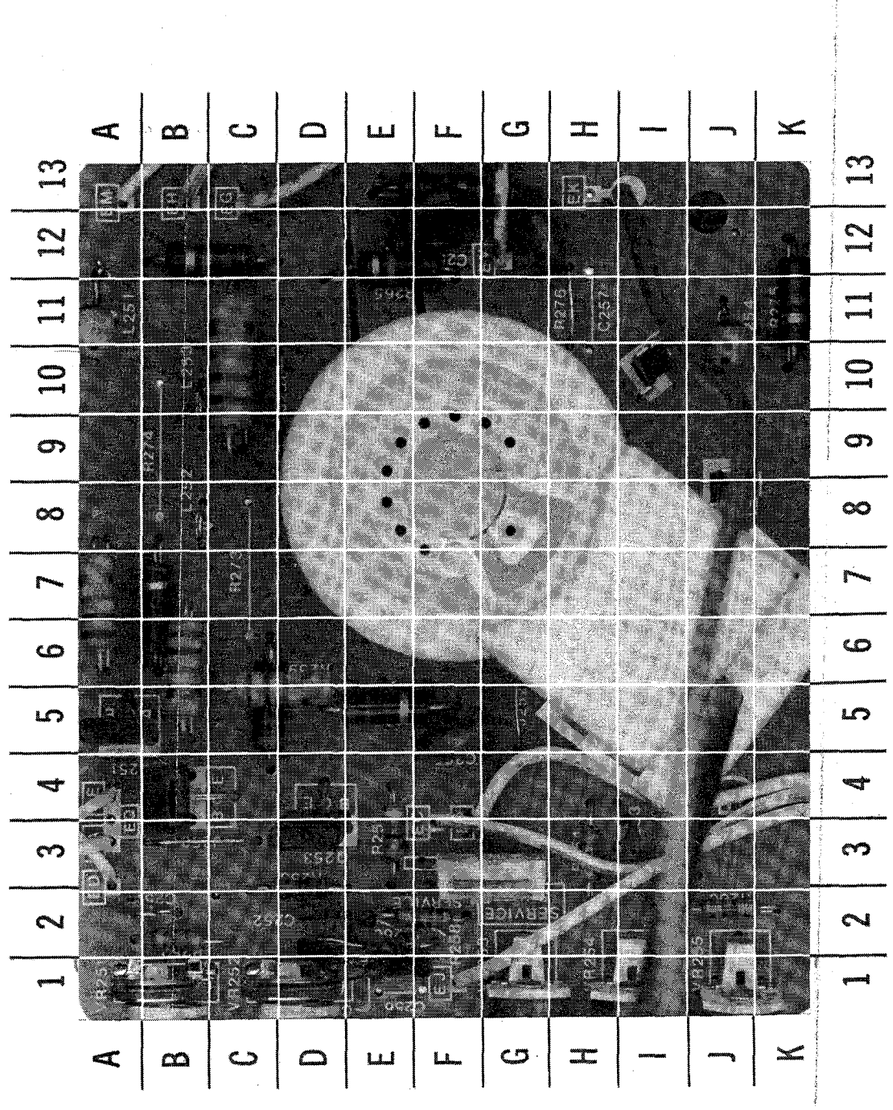


CRT BOARD

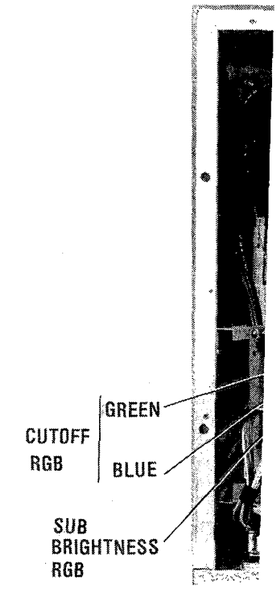
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CRT BOARD-
GridTrace
LOCATION GUIDE

C251	A-2
C252	D-2
C253	I-3
C254	F-12
C255	F-5
C258	G-12
C259	E-1
C260	E-2
C261	I-2
EC	F-3
EE	A-4
L251	A-11
L254	J-10
Q251	A-5
Q252	B-4
Q253	D-3
R251	E-3
R252	B-2
R253	D-3
R254	H-3
R255	A-7
R256	E-2
R257	B-6
R258	F-2
R259	D-5
R260	J-2
R261	B-7
R262	C-5
R263	E-5
R264	C-10
R265	E-12
R268	F-13
R269	B-12
R275	K-11
R277	A-11
SW251	G-3
VR251	B-1
VR252	D-1
VR253	G-1
VR254	I-1
VR255	J-1



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DISASSEMBLY INSTRUC

CHASSIS REMOVAL

Remove nine screws hold
remove back. Remove or
Board/Audio Board Assemb
remove assembly from ca
anode, CRT socket, defle
degaussing coil connecto
Remove two screws holdi
former assembly to cabi
assembly from cabinet.
holding switch board/con

SERVICING IN THE FIE

CRT IMPLOSION PROTECTION

Implosion protection is
the picture tube, clean
out CRT removal.

FUSE DEVICES

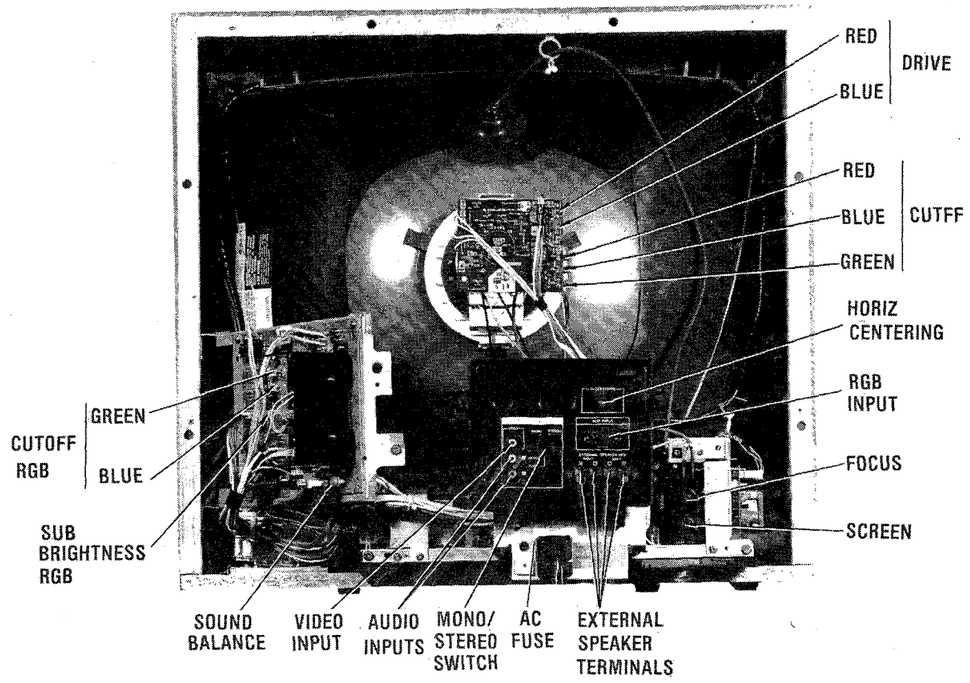
A 4-amp fuse is used f
(See photo, Cabinet - Rea

HORIZONTAL OSCILLATOR

Adjustment of the hori
plished by the prop
Horizontal Hold.

HIGH VOLTAGE

For adjustment of the h
voltage adjustment t



CABINET–REAR VIEW

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

Remove nine screws holding cabinet back and remove back. Remove one screw holding RGB Board/Audio Board Assembly to Main Board and remove assembly from cabinet. Disconnect HV anode, CRT socket, deflection yoke connector, degaussing coil connector and ground leads. Remove two screws holding Audio Power Transformer assembly to cabinet bottom and remove assembly from cabinet. Remove four screws holding switch board/control board assembly to cabinet front and remove assembly from cabinet. Remove two screws holding main board assembly to cabinet bottom and slide board out of cabinet.

CRT REMOVAL

Follow "Chassis Removal" procedure and lay set facedown on a soft protective surface. Loosen and remove CRT neck assemblies. Remove four nuts holding CRT to cabinet front and lift CRT out of cabinet. Do not lift CRT by the neck.

SERVICING IN THE FIELD

CRT IMPLOSION PROTECTION AND CLEANING

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

FUSE DEVICES

A 4-amp fuse is used for AC line protection. (See photo, Cabinet - Rear View.)

HORIZONTAL OSCILLATOR

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

HIGH VOLTAGE

For adjustment of the high voltage, place high voltage adjustment tip to one of three positions (HI, Lo, N) to achieve proper high voltage.

FOCUS

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

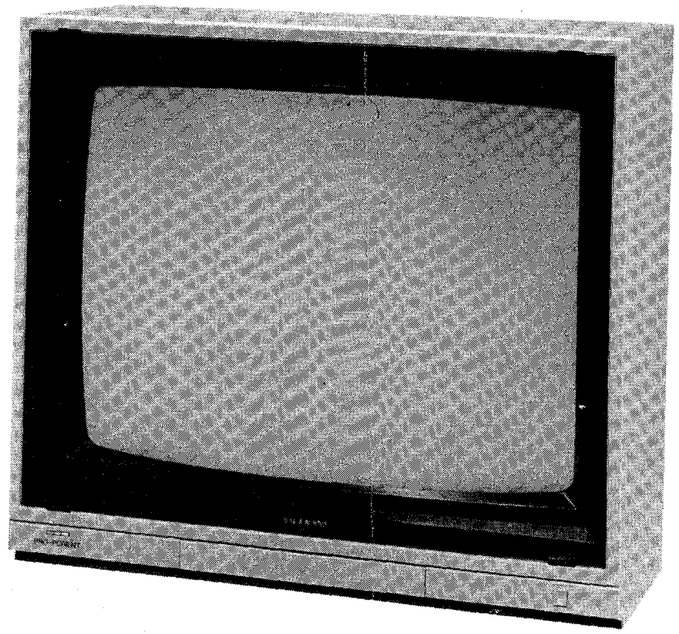
CENTERING

Horizontal centering is accomplished by proper placement of the horizontal centering jumper. (See Main Board Alignment Photo.)

Vertical centering is accomplished by proper placement adjustment of the vertical centering jumper. (Seee Main Board Alignment Photo.)

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CMT9-2 SANYO MODEL AVM255



CMT9-2 SANYO MODEL AVM255

SAFETY PRECAUTIONS
See page 4.

SERVICE INFORMATION
See pages 27,41,42.

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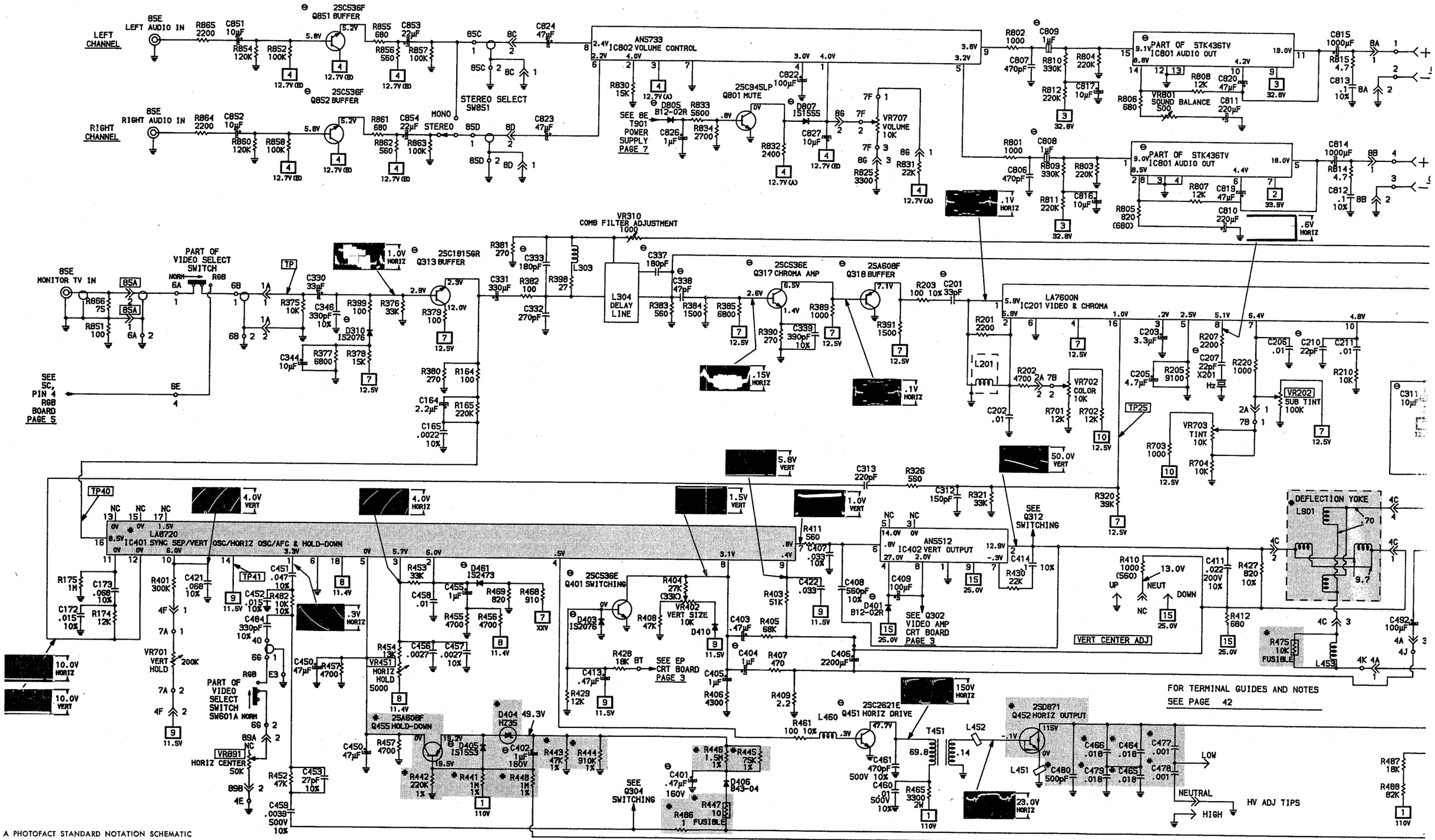
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The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been 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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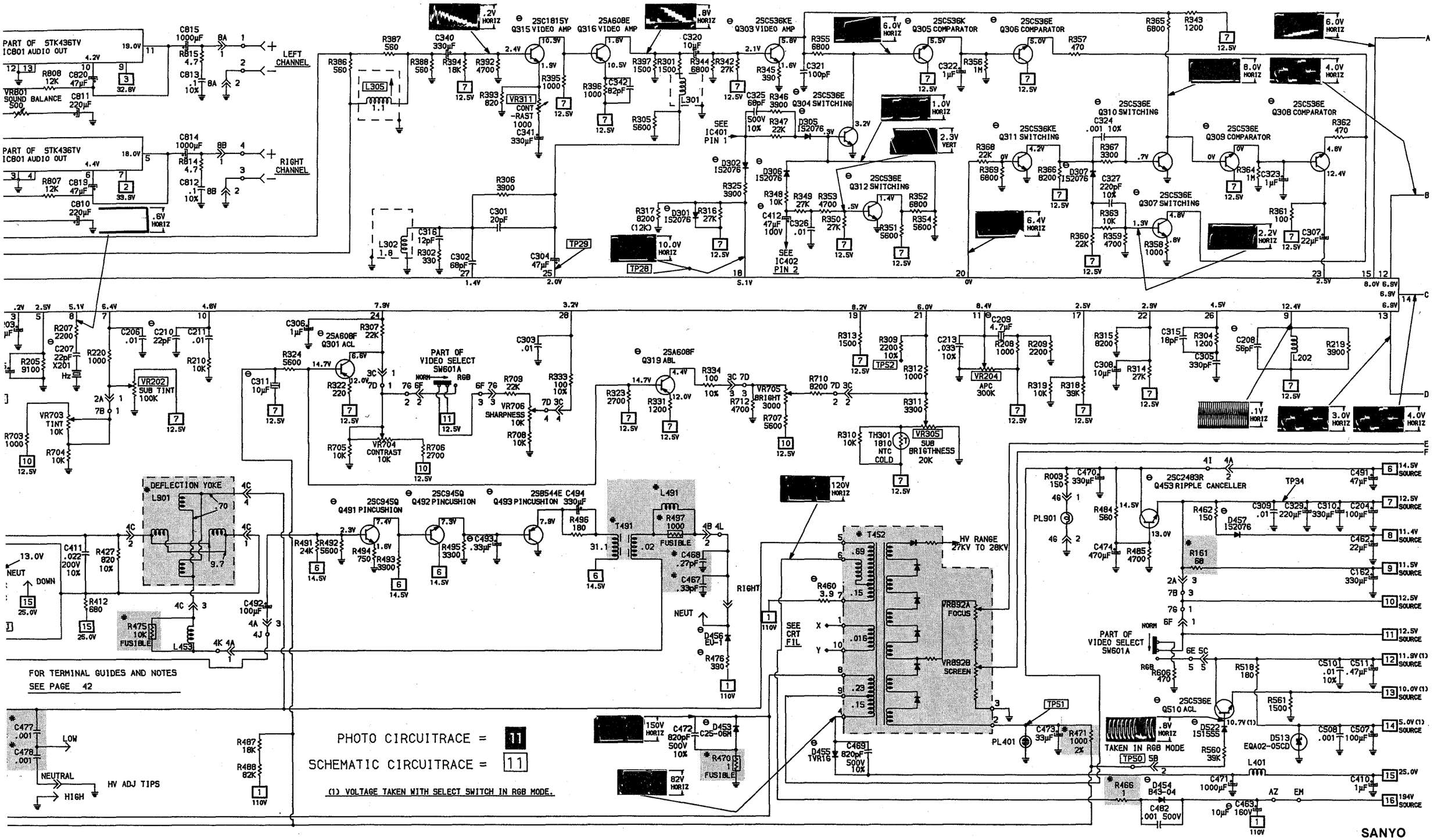
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SANYO
MODEL AVM255

SERVICE INFORMATION

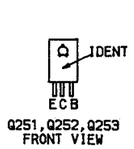
★★ HIGH VOLTAGE HOLD-DOWN ADJUSTMENT

CAUTION: The hold-down is factory preset and is not intended for service adjustment. No attempt should be made to defeat its purpose or to adjust it, unless the result of "High Voltage Hold-down Test" described on page 5 fails to shut the color monitor down, or one of the following components is replaced:
T452, D404, R445, R443, R441, R442 or IC401

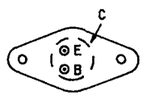
The high voltage hold-down adjustment is accomplished by removing or replacing (if previously removed) R446 or R444. Use only 1500 kΩ for R446 and 910 kΩ for R444. The high voltage will change with load current and is very sensitive in the regions near zero beam current. Because of this it is necessary to compensate for high voltage meter impedance when adjusting the hold-down voltage. The following procedure should be used for the adjustment.

1. Connect the high voltage meter (2000 MΩ) to the 2nd anode of the CRT.
2. Disconnect the AC line cord from AC outlet.
3. Connect +DC power source to terminal "TP1" on main board.
4. Turn DC power source on and raise +DC Voltage to 111 V for receiving synchronized picture.
5. Connect terminal "TP52" to terminal "TP34" on main board with jumper lead.
   Connect anode of D461 on main board to chassis ground with jumper lead.
6. Gradually raise +DC voltage until high voltage is shut down.
7. Shut down must occur between 33.5 kV and 36.0 kV.
   A. If shut down voltage is higher than that indicated above, reconnect R446 if disconnected, recheck shut down. If still too high clip one end of R444.
   B. If shut down voltage is lower than that indicated above, reconnect R444 if disconnected, recheck shut down. If still too low clip one end of R446.
8. Disconnect +DC power source from "TP 1" and replace the AC line cord. Disconnect jumper leads.
9. Recheck +B1 power supply and high voltage under normal operating conditions at 120 V AC line.

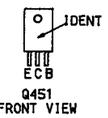
NOTE: ADJUSTMENTS AND TESTING MARKED WITH STARS ★★ ARE RELATED TO X-RADIATION SAFETY. FOR CONTINUED X-RADIATION PROTECTION, ADJUSTMENTS AND TESTING MUST BE PERFORMED PROPERLY.



Q251, Q252, Q253
FRONT VIEW



Q013, Q452
BOTTOM VIEW



Q451
FRONT VIEW



Q010, Q011, Q012, Q014, Q301 THRU Q313, Q315 THRU Q319, Q401, Q455, Q491, Q492, Q493, Q501 THRU Q510, Q801, Q851, Q852
BOTTOM VIEW

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

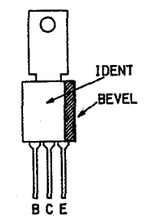
—✕— Circuitry not used in some versions
- - - Circuitry used in some versions
⊖ See parts list
※ Nominal value
⏚ Ground
▽ Common tie point

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

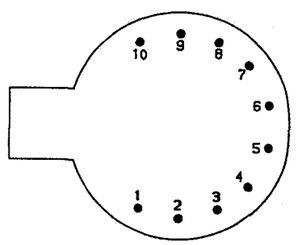
Note: All waveforms taken with VTR standard 1VP-P into 75Ω applied to video input jack unless otherwise noted.

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 ½W or less, 5% unless noted.
Value in ( ) used in some versions.



Q453
FRONT VIEW



T452
BOTTOM VIEW

TERMINAL GUIDES AND NOTES

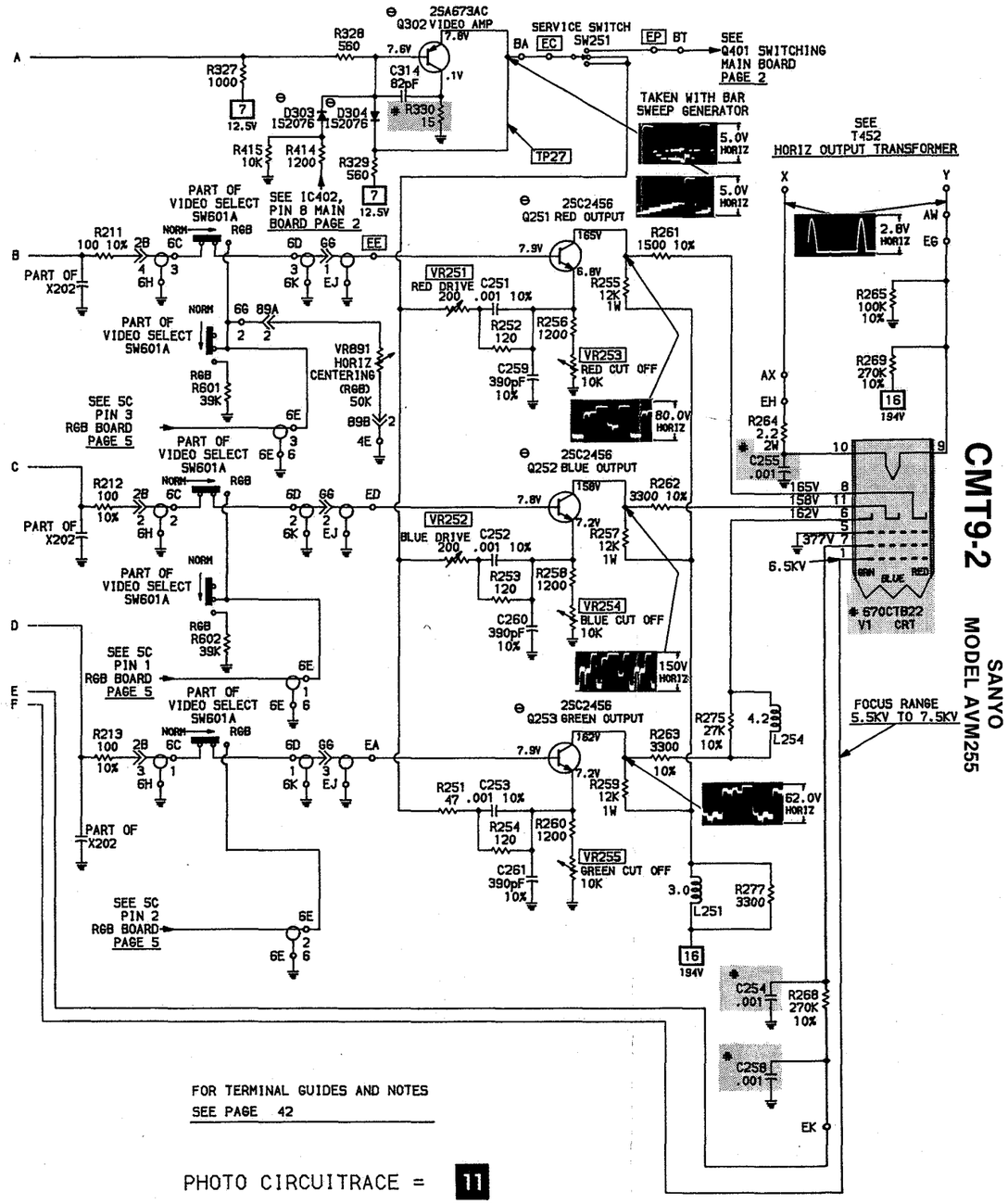


PHOTO CIRCUITRACE = 11

SCHEMATIC CIRCUITRACE = 11

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SAFETY PRECAUTIONS

SAFETY PRECAUTIONS

WARNING: Service should not be attempted by anyone not familiar with the precautions necessary when working on this type of equipment. The following precautions should be observed;

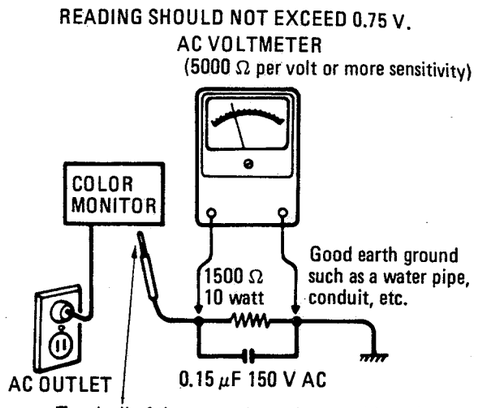
1. Comply with all caution and safety-related notes provided on cabinet back, inside the cabinet, on the chassis or the picture tube.
2. When replacing a chassis in the cabinet, always be certain that all the protective devices are installed properly, such as control knobs, adjustment covers or shields and barriers.
3. Before replacing the back cover of the set, thoroughly inspect inside the cabinet to see that no stray parts or tools have been left inside.

Before returning any color monitor to the customer, the service technician must perform the following safety checks and be sure that it is completely safe to operate without danger of electrical shock.

LEAKAGE CURRENT CHECK

Plug the AC line cord directly into a 120 V AC outlet (do not use an isolation transformer for this check). Use an AC voltmeter, having 5000 Ω per volt or more sensitivity. Connect a 1500 Ω 10 watt resistor, paralleled by a 0.15 μF 150 V AC capacitor between a known good earth ground (waterpipe, conduit, etc.) and all exposed metal parts of the cabinet (monitor TV input and external speaker terminals, handle bracket, metal cabinet, screwheads, metal overlays, control shafts, etc.). Measure the AC voltage across the 1500 Ω resistor. The test must be conducted with the AC switch on and then repeated with the AC switch off. The AC voltage indicated by the meter may not exceed 0.75 volt. A reading exceeding 0.75 volt indicates that a dangerous potential exists. The fault must first be located and corrected.
Repeat the above test with the color monitor power plug reversed.

NEVER RETURN A COLOR MONITOR TO THE CUSTOMER WITHOUT TAKING NECESSARY CORRECTIVE ACTION.



Voltmeter Hook-up for Leakage Current Check

X-RADIATION PRECAUTION

The primary source of X-RADIATION in a color monitor is the picture tube. The picture tube 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. Excessive high voltage may produce potentially hazardous X-RADIATION. To avoid such hazards, the high voltage must be maintained within specific limits. Refer to the X-RADIATION WARNING NOTE on the CHASSIS SCHEMATIC in this service manual for specific high voltage limits. If high voltage exceeds specified limits, check the components specified on the chassis schematic diagram and take necessary corrective action.
Carefully follow the instructions for +B1 Power Supply Adjustment and High Voltage Adjustment to maintain the high voltage within specified limits.

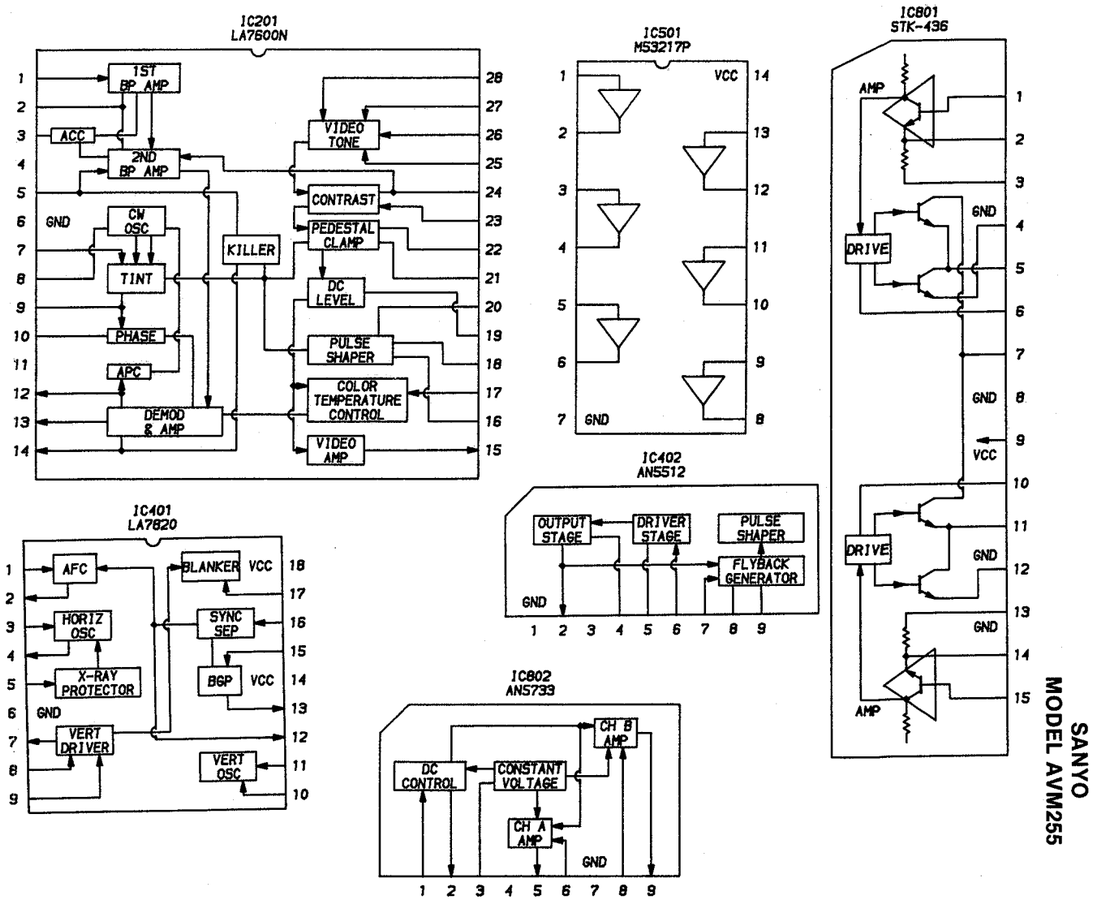
HIGH VOLTAGE HOLD-DOWN TEST

To prevent X-RADIATION from picture tube due to excessive high voltage, a HOLD-DOWN circuit is provided in the high voltage circuit. Every time the color monitor is serviced, the high voltage HOLD-DOWN circuit must be tested for proper operation. Refer to the "HIGH VOLTAGE HOLD-DOWN TEST" in service adjustments.

PRODUCT SAFETY NOTICE

Product safety should be considered when a component replacement is made in any area of a color monitor. Components identified by a # in the parts list and the schematic diagrams are components in which safety is of special significance. It is, therefore, particularly recommended that the replacement of these parts is made by using exactly the same parts as specified.

Courtesy of Manufacturer



IC FUNCTIONS

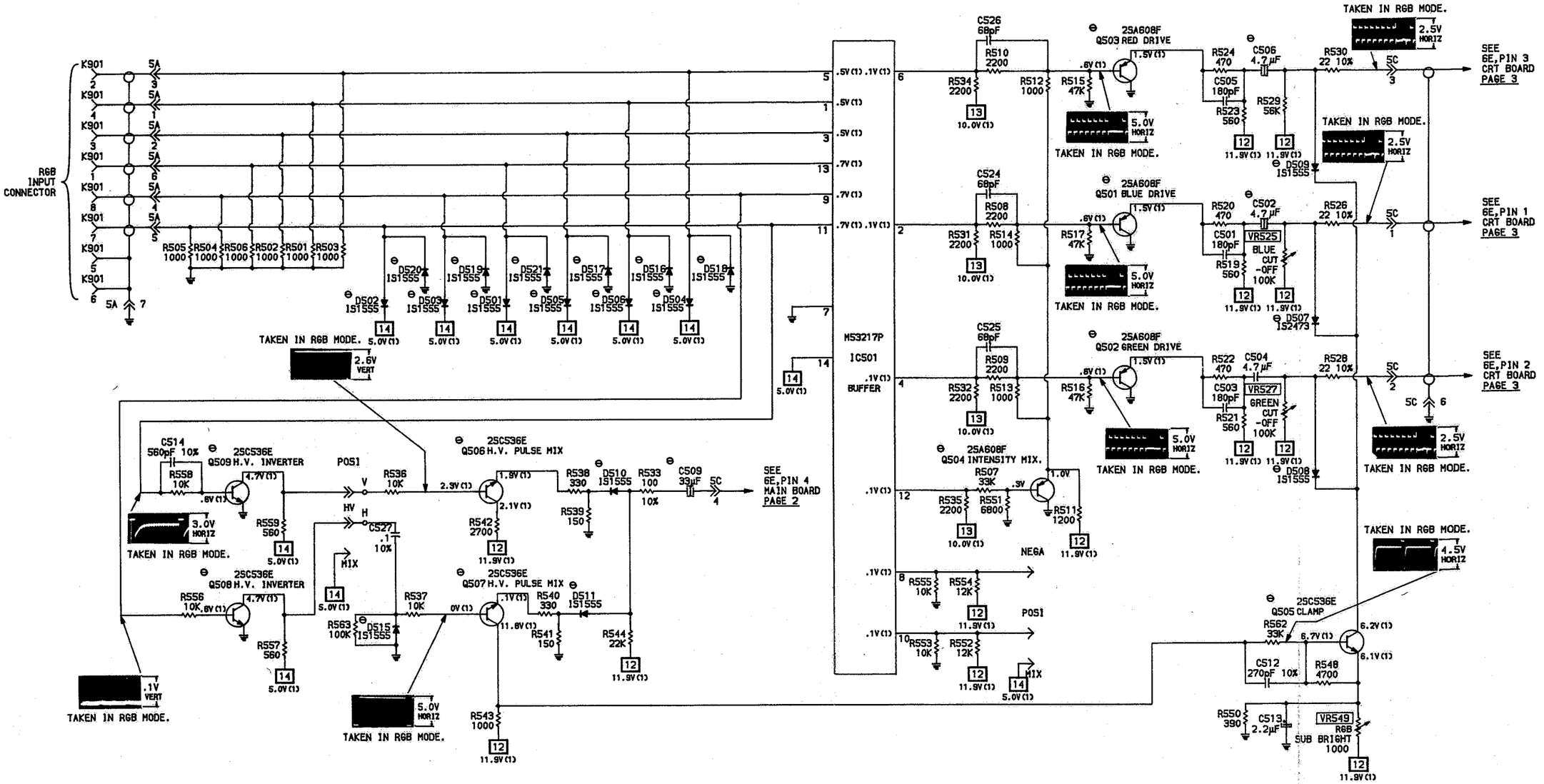
SERVICE INFORMATION

★★ HIGH VOLTAGE HOLD-DOWN TEST

The high voltage hold-down circuit check is indispensable for the final check in servicing. Check should be done following the steps below.

1. Connect set to 120 V AC line outlet and turn power on.
2. Adjust brightness and contrast controls for minimum picture brightness.
3. Connect terminal "TP7" to "TP8" on main board with jumper lead.
   Connect anode of D461 on main board to chassis ground with jumper lead.
4. Temporarily connect a 10 kΩ resistor between terminals "TP9" and "TP10" on main board.
   Color monitor should shut down losing raster.
   (If color monitor does not shut down, a malfunction is indicated and its cause must be found and corrected).
5. The color monitor must remain in the shut down mode even after removing jumper leads and 10 kΩ resistor. This is the evidence that the hold-down circuit is functioning properly.
6. To obtain picture again, turn the set off and then turn it on.

Courtesy of Manufacturer



(1) VOLTAGE TAKEN WITH VIDEO SELECT SWITCH IN R6B MODE.

FOR TERMINAL GUIDES AND NOTES SEE PAGE 42

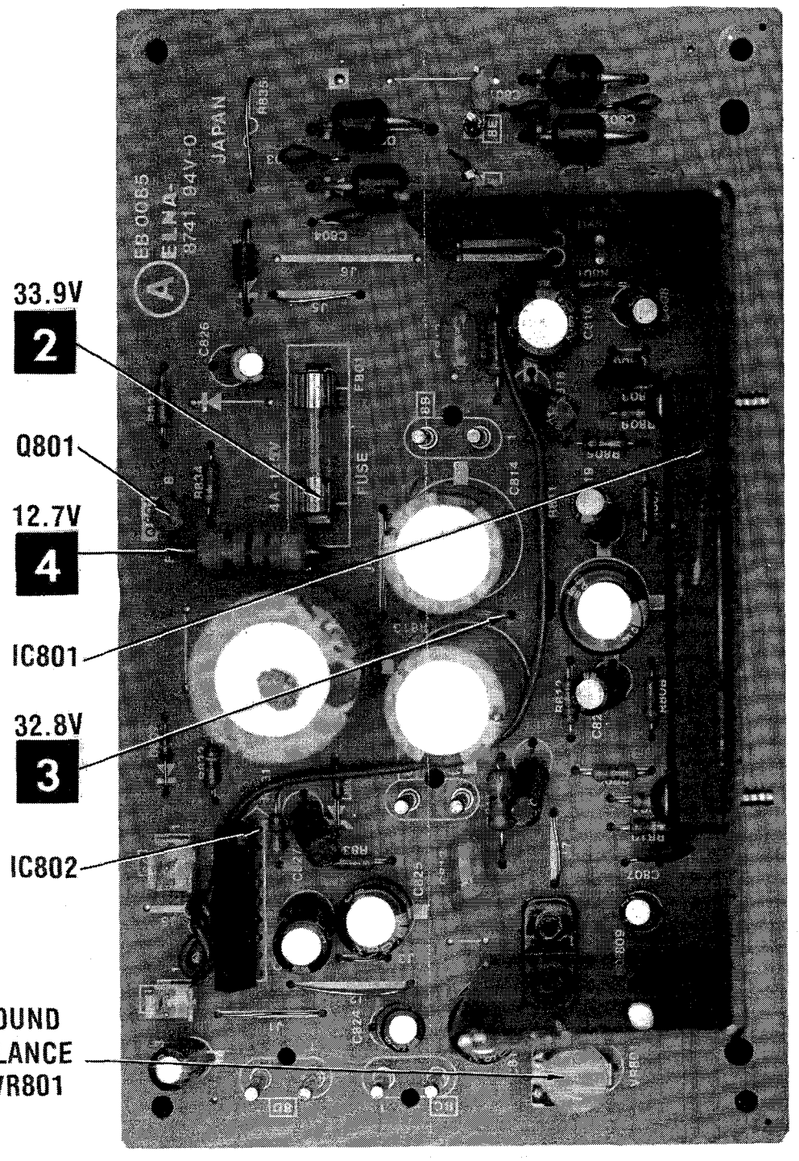
PHOTO CIRCUITRACE = 11

SCHEMATIC CIRCUITRACE = 11

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RGB BOARD

RGB BOARD

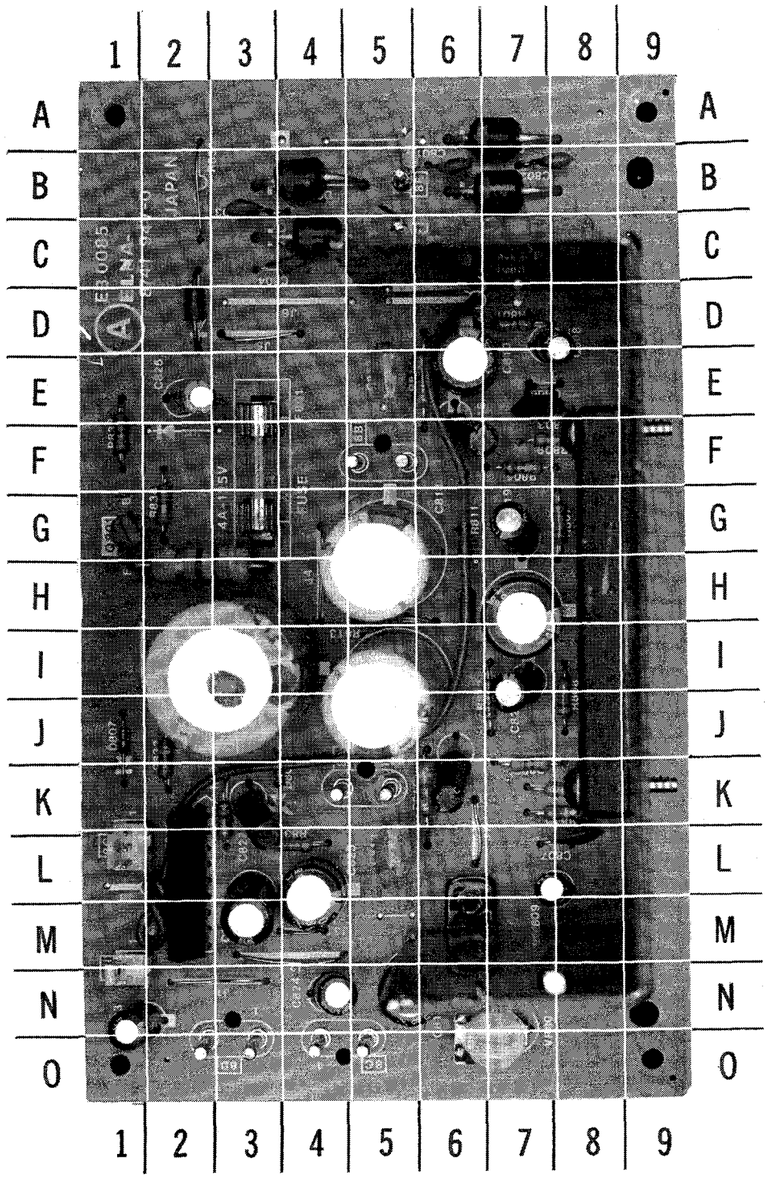


NOTE: ARROWS ON IC'S INDICATE PIN 1 UNLESS NOTED

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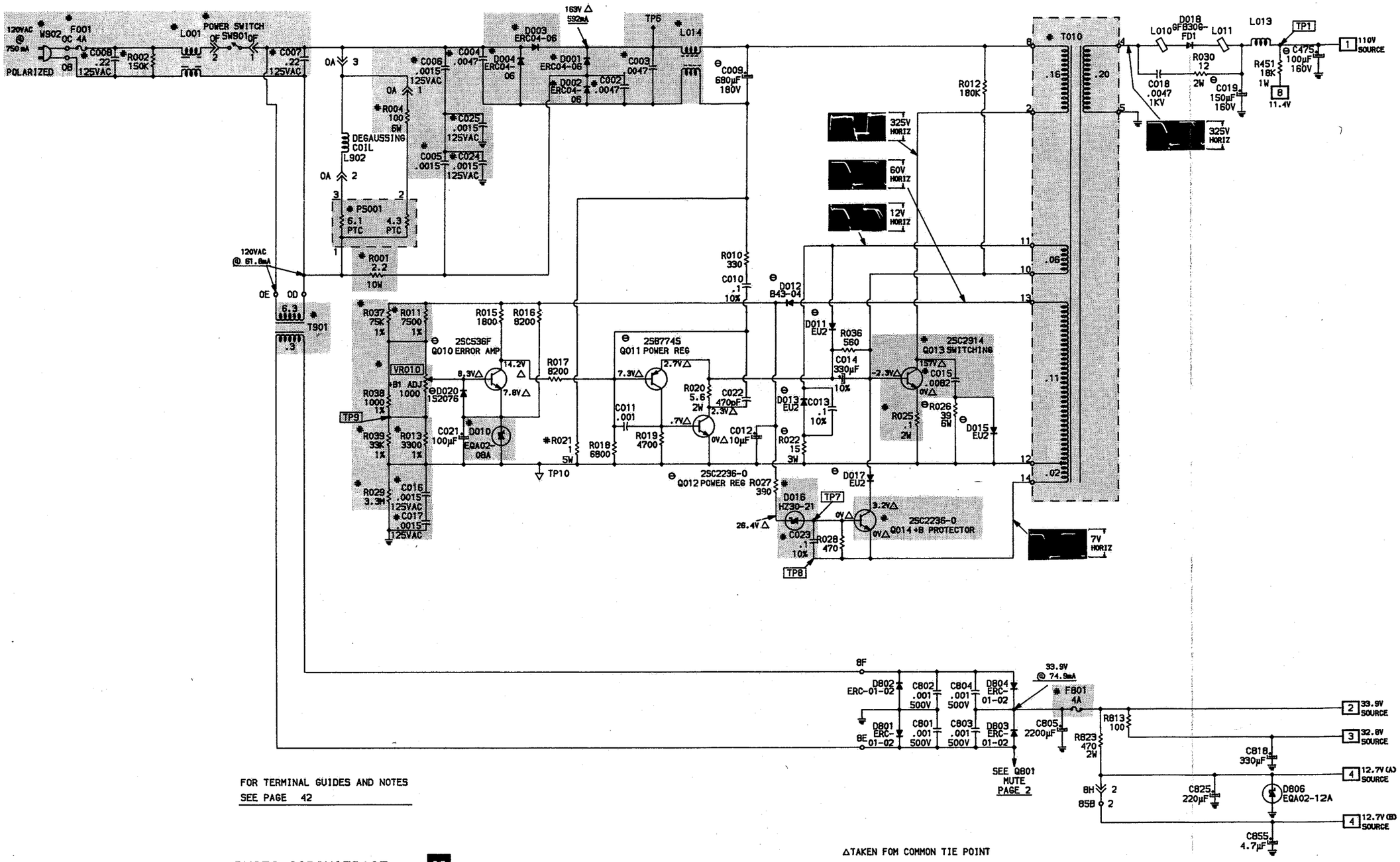
AUDIO BOARD-
GridTrace
LOCATION GUIDE

8A	K-5
8B	F-5
8C	O-4
8D	O-3
8G	L-1
8H	N-1
C801	B-6
C802	B-8
C803	B-3
C804	C-4
C805	I-3
C806	E-7
C807	L-8
C808	D-8
C809	L-7
C810	E-6
C811	N-5
C812	E-5
C813	L-5
C814	H-5
C815	I-5
C816	F-6
C817	K-6
C818	H-7
C819	G-7
C820	I-7
C822	M-3
C823	N-1
C824	N-4
C825	L-4
C826	E-2
C827	K-3
D801	A-7
D802	B-7
D803	B-4
D804	C-4
D805	D-2
D806	K-3
D807	J-1
F801	F-3
IC801	H-8
IC802	L-2
Q801	G-1
R801	D-7
R802	N-7
R803	E-7
R804	K-8
R805	F-7
R806	K-7
R807	G-8
R808	J-8
R809	F-7
R810	K-8
R811	G-7
R812	J-7
R813	H-5
R814	E-6
R815	K-6
R823	H-2
R825	L-2
R830	L-4
R831	K-3
R832	J-2
R833	F-1
R834	G-2
VR801	O-7



SANYO
MODEL AVM255

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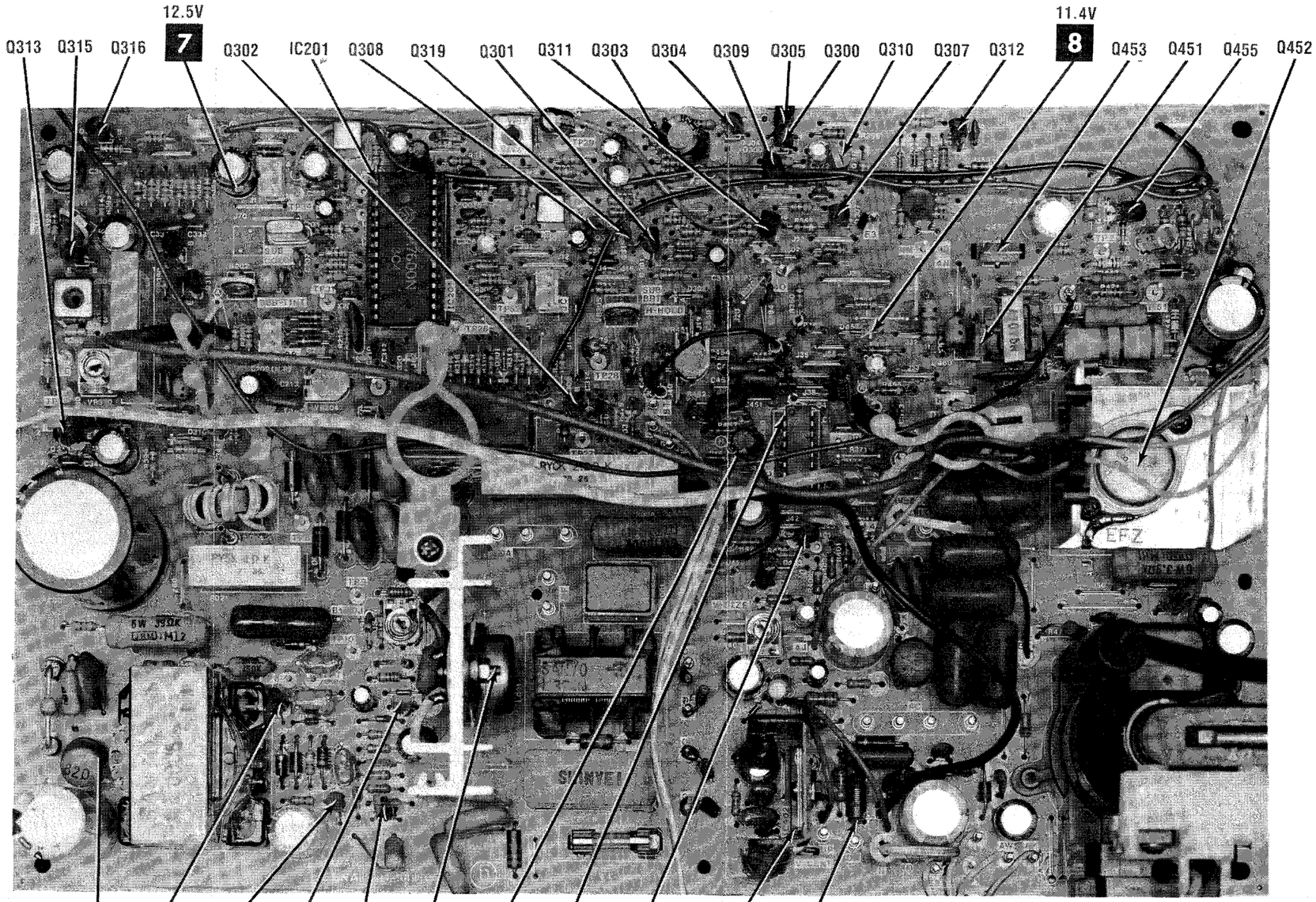
FOR TERMINAL GUIDES AND NOTES
SEE PAGE 42

△TAKEN FOM COMMON TIE POINT

PHOTO CIRCUITRACE = 11

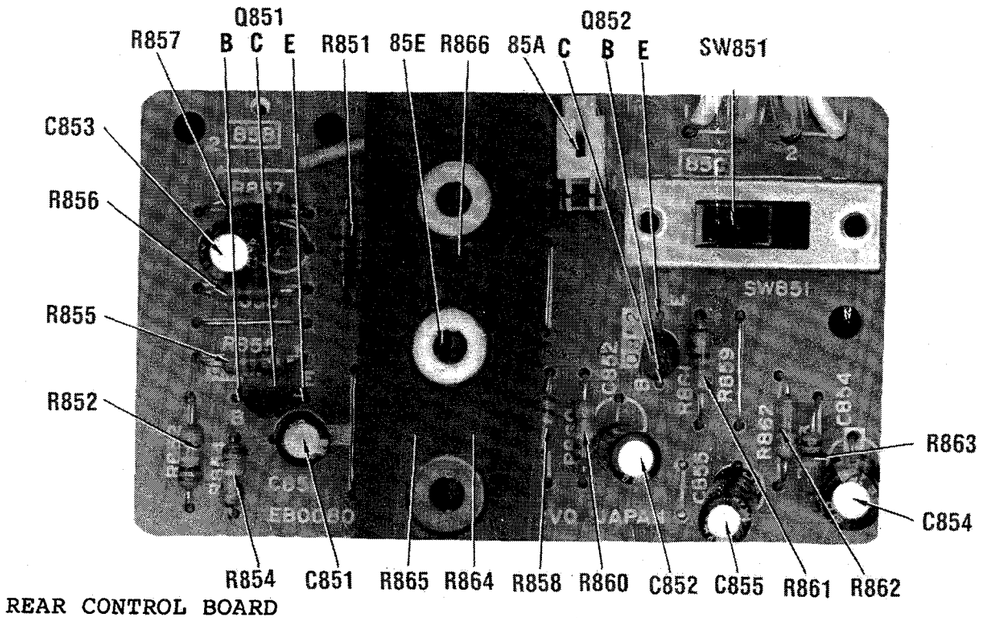
SCHEMATIC CIRCUITRACE = 11

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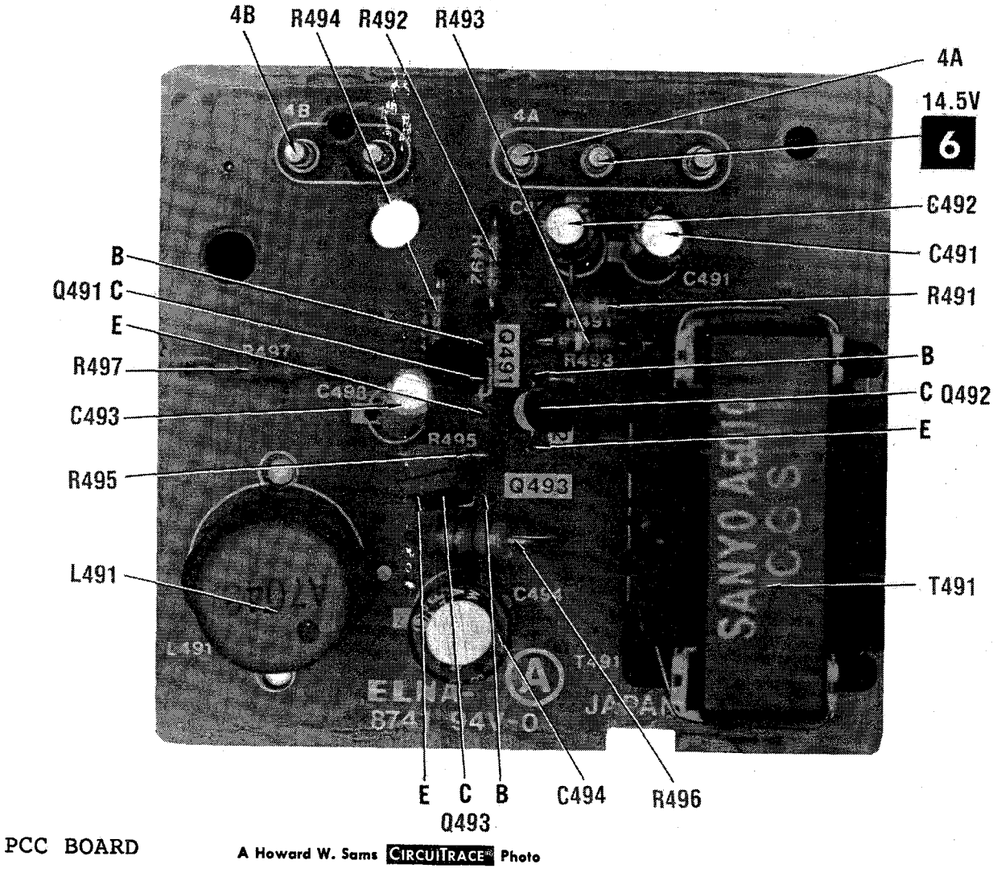


NOTE: ARROWS ON IC'S INDICATE PIN 1 UNLESS NOTED

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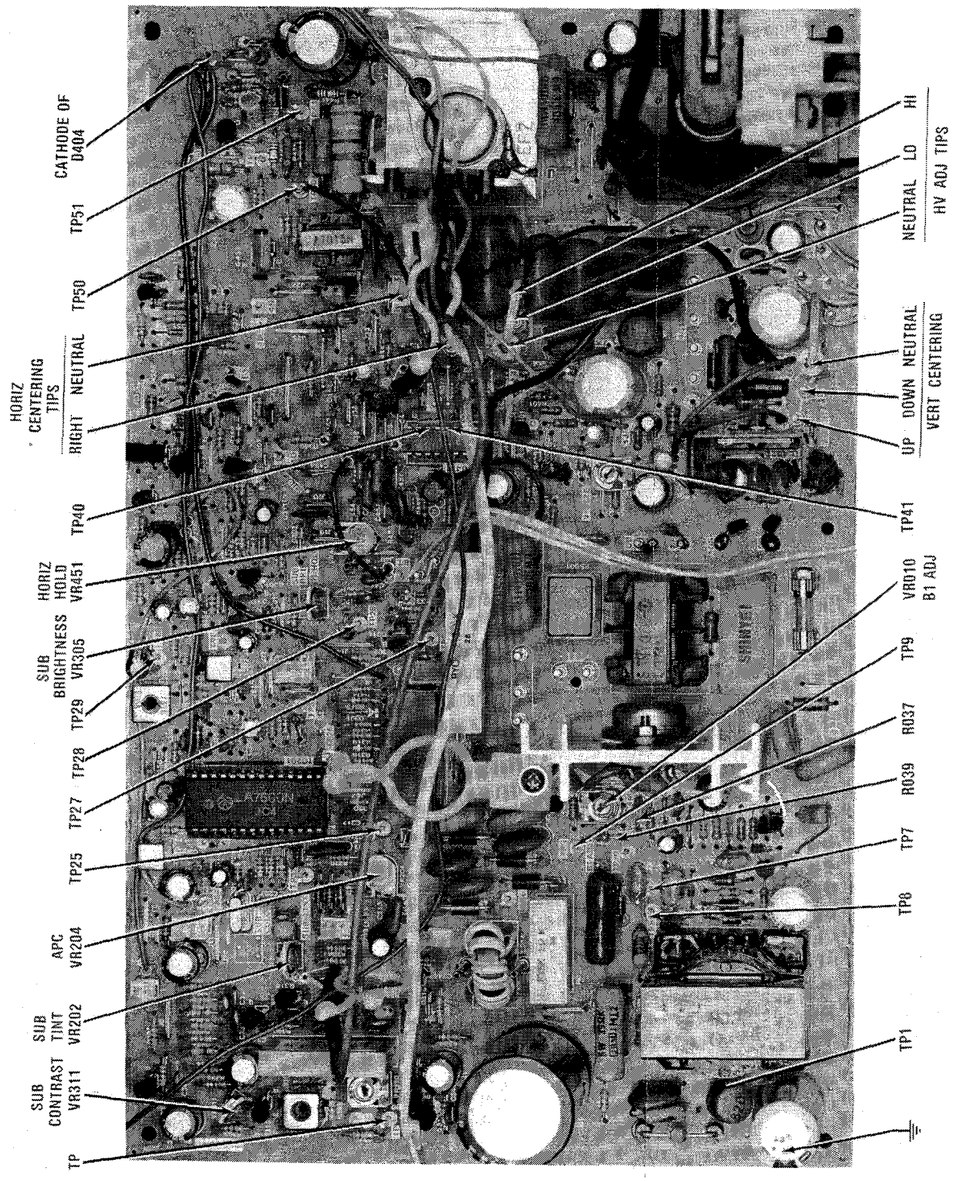


REAR CONTROL BOARD

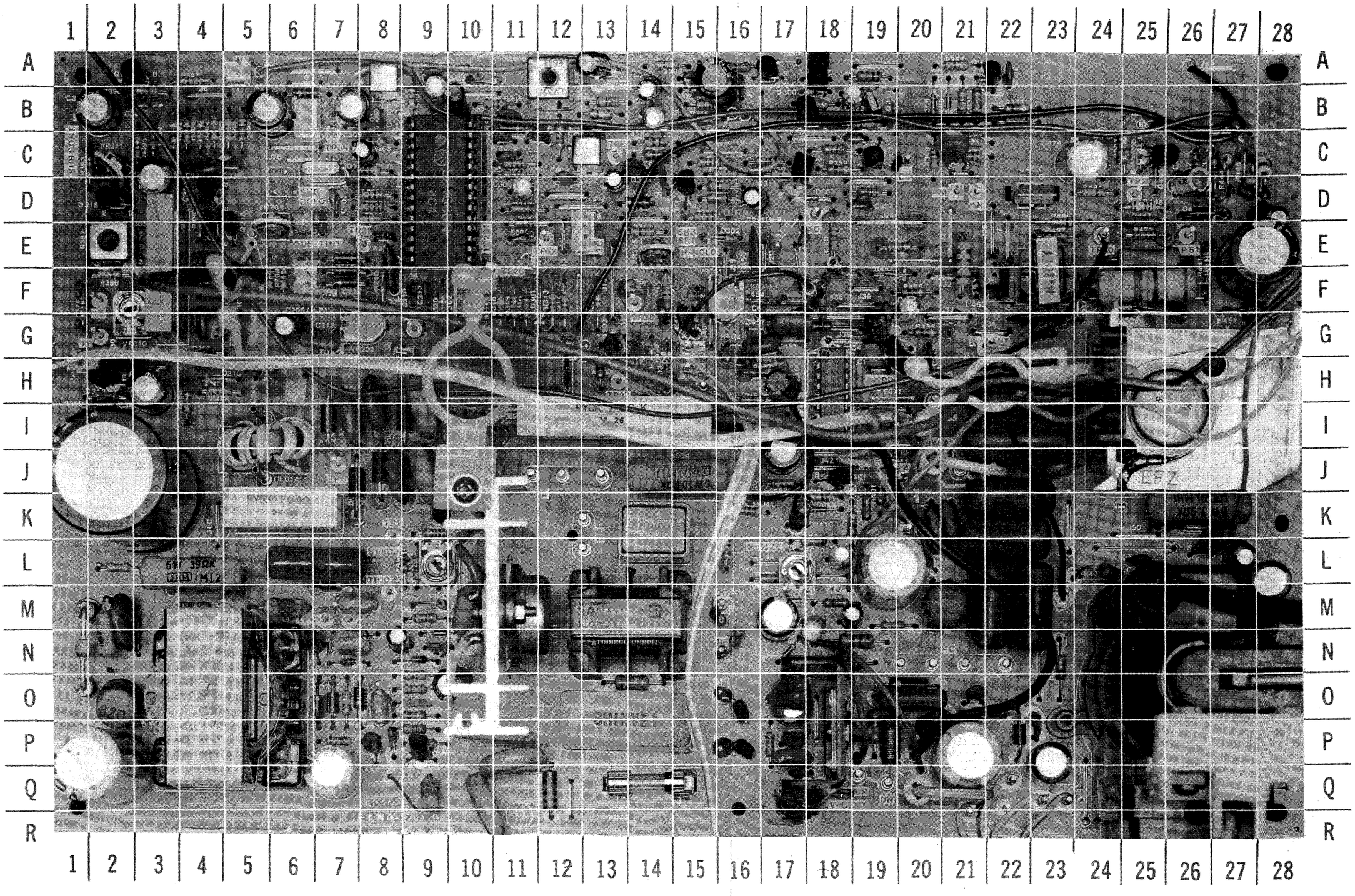


PCC BOARD

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ALIGNMENT—MAIN BOARD



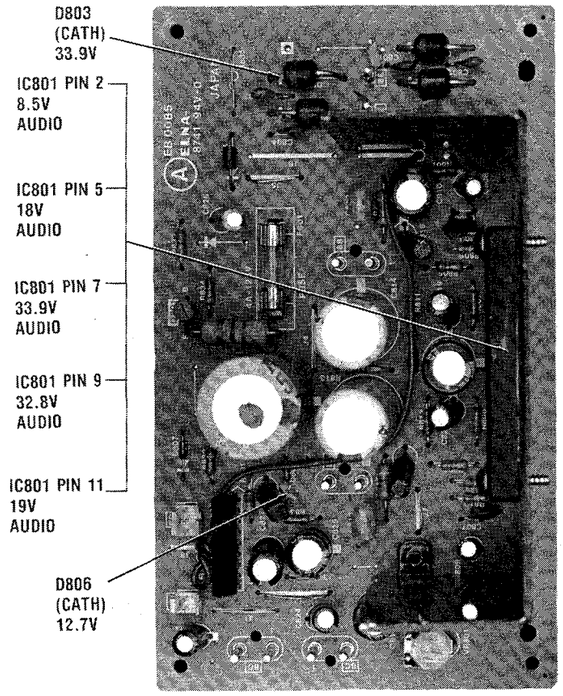
MAIN BOARD

10

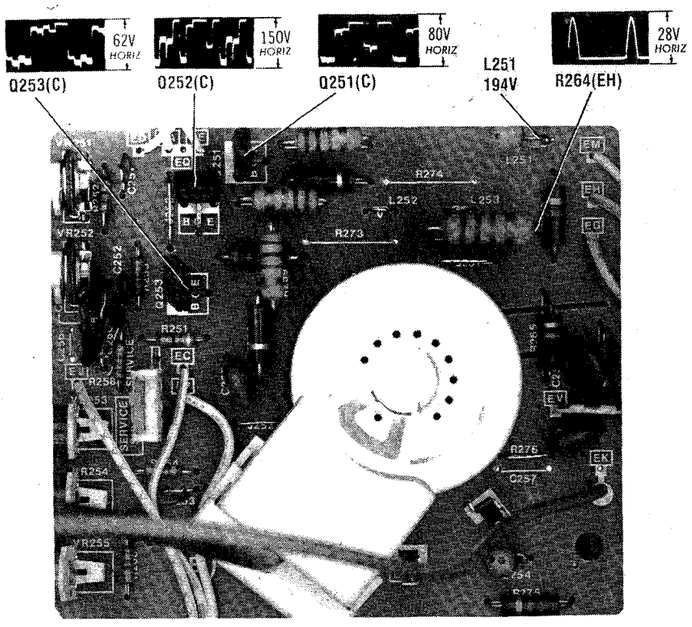
A Howard W. Sams GRIDTRACE™ Photo

MAIN BOARD

35



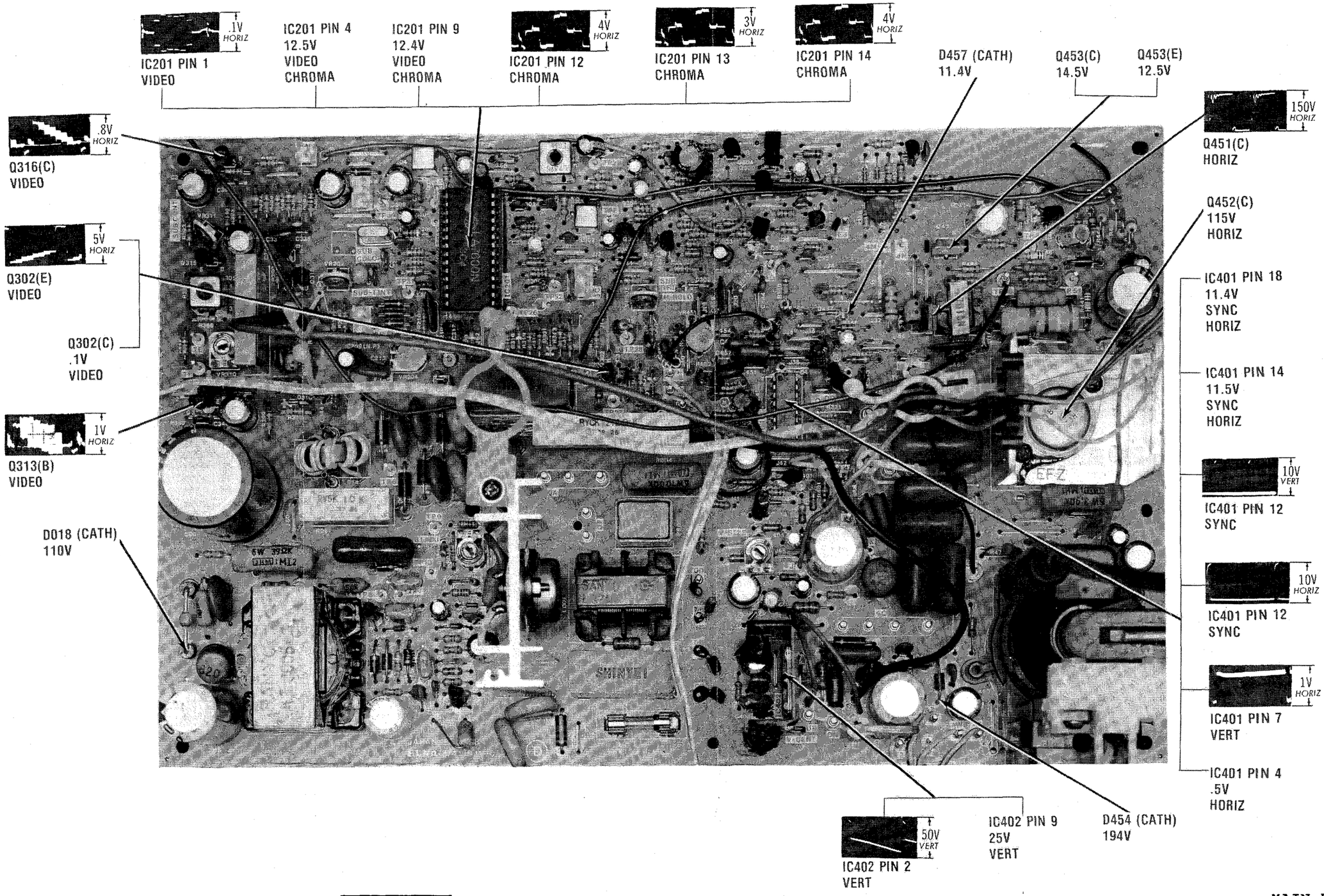
AUDIO BOARD A Howard W. Sams **QUICK-CHECKS™** Photo



CRT BOARD A Howard W. Sams **QUICK-CHECKS™** Photo

MAIN BOARD-GridTrace LOCATION GUIDE

1A	H-1	C330	H-2	D303	H-14	R012	M-4	R347	C-21	R453	F-17
2A	B-6	C331	H-3	D304	H-14	R013	L-9	R348	C-20	R454	F-16
2B	F-6	C332	H-4	D305	B-21	R015	O-9	R349	B-22	R455	G-20
3C	E-13	C333	G-4	D306	B-20	R016	O-9	R350	B-21	R456	F-20
4C	N-21	C337	C-4	D307	D-18	R017	P-9	R351	B-21	R457	H-17
4F	K-20	C338	C-5	D310	H-4	R018	P-9	R352	A-21	R460	K-26
4G	A-5	C339	E-4	D401	O-18	R019	O-9	R353	B-22	R461	G-18
0A	J-12	C340	D-3	D403	K-18	R020	Q-9	R354	B-19	R462	F-18
0F	K-13	C341	B-2	D404	C-27	R021	K-6	R355	A-16	R465	E-25
C002	J-9	C342	B-3	D405	C-25	R022	M-6	R356	A-19	R466	N-23
C003	I-7	C344	H-5	D406	D-26	R025	M-10	R357	B-17	R468	F-18
C004	H-9	C346	H-2	D410	N-17	R026	L-4	R358	C-18	R469	F-18
C005	J-9	C401	D-28	D453	L-26	R027	O-7	R359	C-18	R470	L-24
C006	I-9	C402	D-26	D454	P-22	R028	N-7	R360	E-18	R471	E-25
C007	H-11	C403	M-19	D455	O-21	R029	Q-12	R361	C-14	R475	M-20
C008	P-14	C404	M-18	D456	H-23	R030	N-2	R362	C-14	R476	F-25
C009	J-2	C405	L-18	D457	F-19	R036	P-7	R363	D-19	R482	H-16
C010	O-8	C406	L-19	D461	F-18	R037	M-9	R364	B-14	R484	D-24
C011	O-9	C407	P-17	F001	Q-14	R038	K-9	R365	B-18	R485	C-24
C012	N-8	C408	Q-17	IC201	D-9	R039	L-9	R366	C-17	R486	D-23
C013	M-7	C409	O-17	IC401	H-18	R161	H-16	R367	B-19	R487	E-23
C014	Q-7	C410	P-20	IC402	P-18	R164	H-6	R368	C-16	R488	F-25
C015	L-7	C411	O-20	L001	M-14	R165	F-5	R369	C-17	T010	O-4
C016	P-11	C412	M-17	L010	M-1	R174	I-14	R375	F-1	T451	F-23
C017	Q-10	C413	K-17	L011	O-1	R175	I-19	R376	I-2	T452	O-27
C018	M-2	C414	P-17	L013	O-2	R201	B-9	R377	H-4	TH301	F-14
C019	P-1	C421	I-19	L014	I-5	R202	C-8	R378	G-5	TP	G-2
C021	O-10	C422	I-17	L201	A-8	R203	B-6	R379	G-3	TP1	O-3
C022	P-8	C450	H-17	L202	D-6	R205	C-8	R380	H-2	TP7	M-7
C023	N-7	C451	G-17	L301	A-12	R207	D-8	R381	E-4	TP8	M-7
C024	I-10	C452	G-17	L302	C-13	R208	F-6	R382	H-3	TP9	K-8
C025	I-10	C453	G-15	L303	G-4	R209	F-6	R383	B-4	TP10	M-8
C162	J-17	C455	F-20	L304	E-3	R210	F-8	R384	B-4	TP25	G-9
C164	F-4	C456	F-17	L305	E-2	R211	E-7	R385	B-5	TP27	H-13
C165	H-19	C457	G-17	L401	P-19	R212	F-7	R386	F-2	TP28	F-14
C172	I-20	C458	F-19	L451	F-28	R213	F-7	R387	E-2	TP29	A-13
C173	I-19	C459	E-16	L453	M-21	R219	D-8	R388	B-4	TP34	B-7
C201	B-8	C460	G-23	L460	F-22	R220	D-8	R389	B-5	TP40	H-18
C202	A-9	C461	G-23	P1401	L-20	R301	A-10	R390	D-4	TP41	H-18
C203	B-9	C462	G-19	PS001	K-14	R302	C-12	R391	F-4	TP50	E-24
C204	B-7	C463	P-23	Q010	N-9	R304	C-11	R392	B-3	TP51	E-26
C205	C-8	C464	M-23	Q011	P-8	R305	B-13	R393	C-2	TP52	E-12
C206	D-7	C465	K-22	Q012	P-9	R306	B-13	R394	C-3	VR010	L-9
C207	D-7	C466	M-22	Q013	M-11	R307	C-11	R395	C-3	VR202	E-6
C208	D-7	C467	I-23	Q014	N-7	R309	E-11	R396	B-3	VR204	G-8
C209	G-6	C468	H-23	Q301	D-15	R310	F-14	R397	A-4	VR305	E-14
C210	F-9	C469	O-21	Q302	G-13	R311	E-14	R398	G-4	VR310	F-2
C211	E-8	C470	L-28	Q303	A-15	R312	E-11	R399	H-4	VR311	C-2
C213	G-7	C471	P-21	Q304	A-17	R313	F-12	R401	K-19	VR402	L-17
C301	B-13	C472	L-25	Q305	A-18	R314	D-11	R403	K-19	VR451	F-16
C302	C-11	C473	L-27	Q306	A-18	R315	B-11	R404	L-18	X201	C-7
C303	B-11	C474	C-24	Q307	C-19	R316	F-11	R405	M-19	X202	F-8
C304	A-13	C475	E-28	Q308	C-14	R317	F-12	R406	K-19		
C305	C-12	C477	K-21	Q309	B-17	R318	F-11	R407	M-18		
C306	D-11	C478	K-20	Q310	B-19	R319	F-11	R408	L-17		
C307	D-13	C479	K-22	Q311	C-17	R320	F-9	R409	P-19		
C308	B-10	C480	J-23	Q312	Q-22	R321	F-10	R410	N-19		
C309	B-8	C482	P-23	Q313	H-2	R322	D-15	R411	I-17		
C310	B-5	C484	E-17	Q315	D-2	R323	D-16	R412	N-18		
C311	D-16	D001	J-7	Q316	A-2	R324	D-16	R414	K-16		
C312	F-9	D002	J-8	Q317	D-4	R325	F-14	R415	L-16		
C313	G-20	D003	I-7	Q318	D-5	R326	E-20	R427	O-20		
C314	G-14	D004	I-9	Q319	C-14	R327	F-10	R428	J-17		
C315	C-11	D010	N-9	Q401	J-18	R328	F-13	R429	K-18		
C316	C-12	D011	O-7	Q451	F-22	R329	H-14	R430	P-17		
C320	B-14	D012	O-7	Q452	I-26	R330	H-13	R441	E-20		
C321	A-16	D013	M-7	Q453	D-23	R331	C-15	R442	C-26		
C322	B-19	D015	L-4	Q455	C-25	R333	B-11	R443	C-27		
C323	B-14	D016	N-7	R001	I-13	R334	D-14	R444	C-27		
C324	C-19	D017	O-7	R002	O-14	R342	B-15	R445	D-27		
C325	C-21	D018	N-1	R003	C-25	R343	B-15	R447	C-28		
C326	A-22	D020	N-9	R004	J-15	R344	A-14	R448	D-25		
C327	D-19	D301	F-12	R010	L-2	R345	B-15	R451	E-21		
C329	A-15	D302	E-16	R011	M-9	R346	C-21	R452	F-15		



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MISCELLANEOUS ADJUSTMENTS (Continued)

RGB HORIZONTAL CENTERING ADJUSTMENT

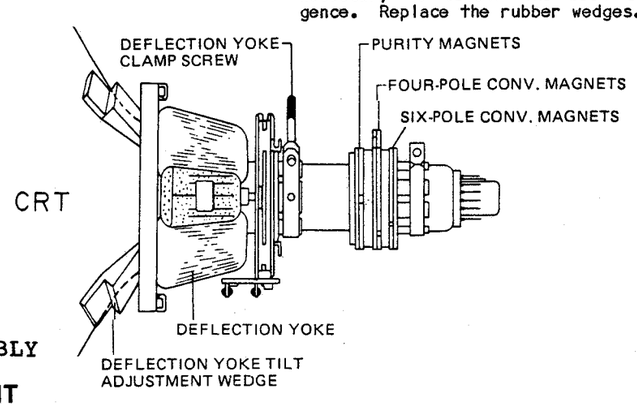
Connect RGB generator and set for crosshatch pattern. Adjust Horizontal Centering Control (VR891) to center the pattern on the screen.

PURITY ADJUSTMENT

Use a degaussing coil to demagnetize the CRT. Turn Red (VR253) and Blue (VR254) Cut-off Controls fully counterclockwise. Turn Screen Control (VR892B) fully counterclockwise. Turn Green Cut-off Control (VR255) clockwise to produce a green raster. Loosen deflection yoke and move it back as far as possible. Loosen locking ring and move purity tabs to center the vertical green band. Slowly slide the deflection yoke forward until a uniform green screen is obtained.

CONVERGENCE ADJUSTMENTS

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

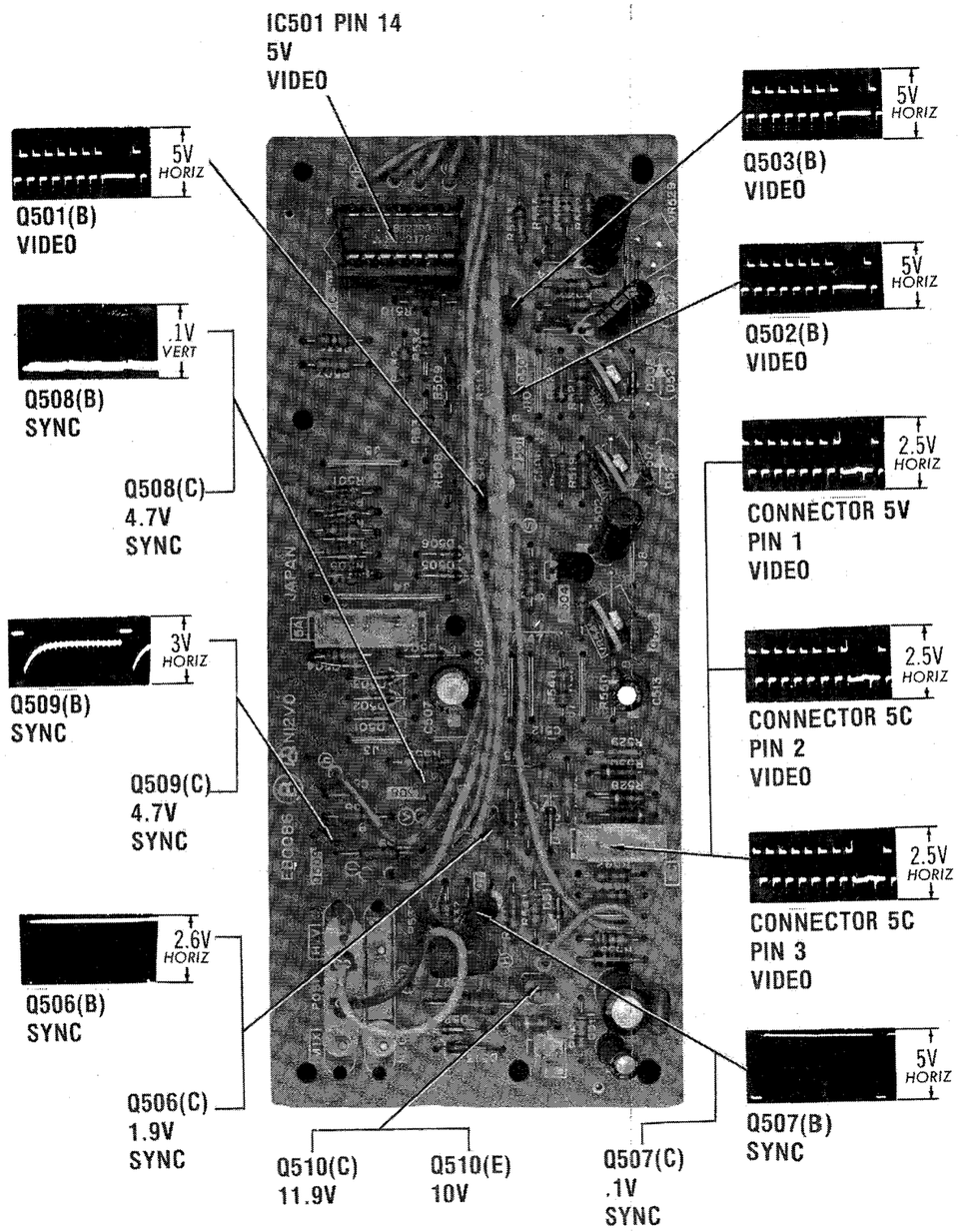


CRT NECK ASSEMBLY

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.

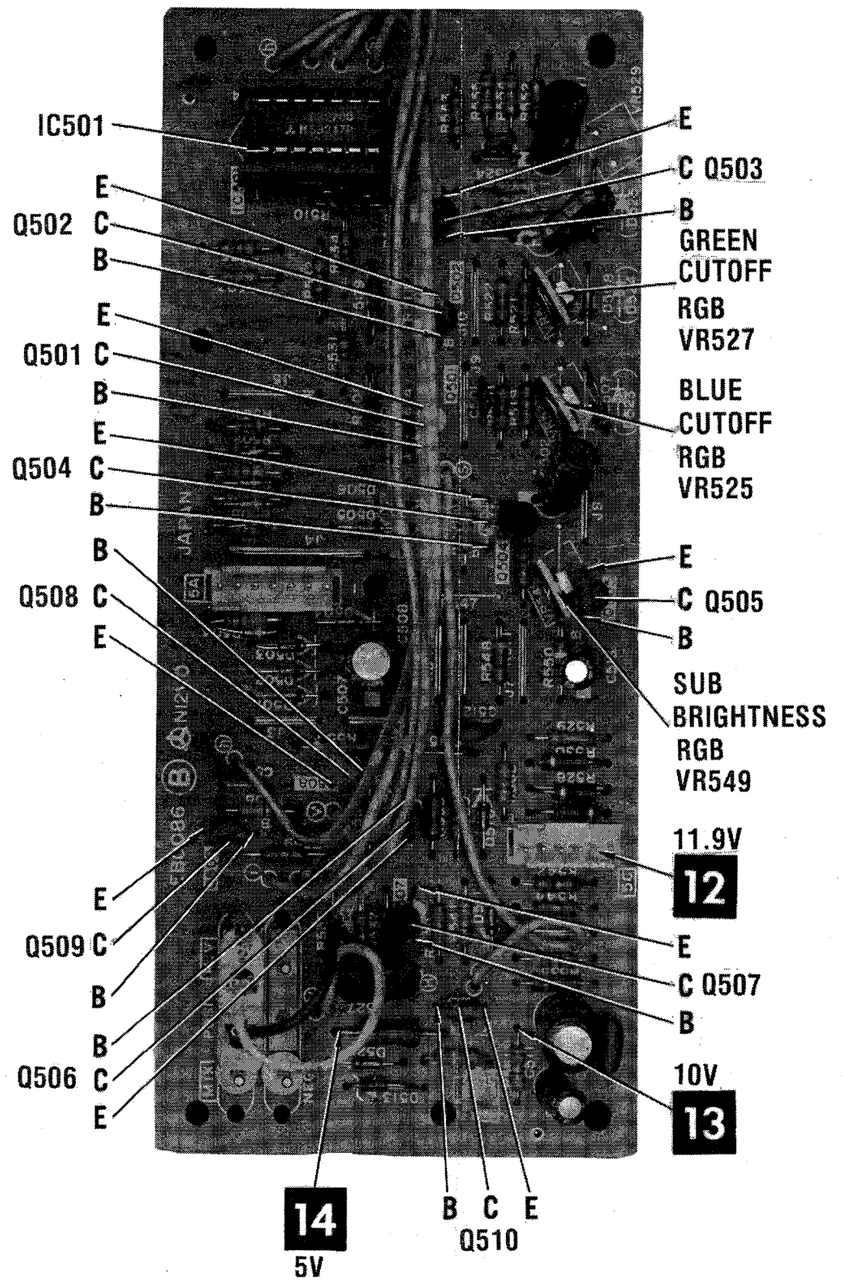
Equipment Name	B & K Precision Equipment No.	Sencore Equipment No.	Simpson Equipment No.
OSCILLOSCOPE	1560	SC61	454
GENERATORS			
RGB	1260		
MULTIBURST SIGNAL	1260	VA62	
COLOR BAR	1211A,1248,1251,1260	VA62, CG25	431
ANALOG VOM	277		260-7,160,165, 260-6XL,260-7P, 260-6XLP
DIGITAL VOM	2830	DVM37,DVM56,SC61	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	



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RGB BOARD

SANYO
MODEL AVM255
CMT9-2



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

RGB BOARD

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MISCELLANEOUS ADJUSTMENTS

NOTE: The following adjustments with the exception of RGB Adjustments, are made with a VTR Standard 1VP-P video into 75 ohm, applied to the video input terminal.

+B1 (111V) ADJUSTMENT

Tune in a video signal, set Brightness and Contrast Controls to Detent position, Sharpness Control fully clockwise. Connect a DC meter to TP1, low side to E2 (Main P.C. Board). Adjust +B1 Adjust Control (VR010) for +111V DC. If you cannot achelve this voltage, perform the following instructions. Connect a jumper from TP7 to TP8 (Main P.C. Board), connect a jumper from cathode of D404 to ground. Set VR010 fully clockwise, +B1 must measure between 114V to 124V DC. If the reading is too high clip one end of R039, if it is too low, clip one end of R037. Remove jumper from TP7 to TP8, adjust VR010 for +111V DC. Remove jumper from D404. Remove meter.

HIGH VOLTAGE ADJUSTMENT

NOTE: Perform 111V B+ Adjustment and Gray Scale Adjustment before High Voltage Adjustment is attempted. Connect a high voltage meter to the CRT anode. Tune in a video signal, set Brightness, Contrast and Color Controls to MINIMUM. High Voltage should measure 27KV to 28KV. Place High Voltage Adjustment Tip to one of three (Hi, Lo, N) positions to achelve the proper High Voltage range.

HORIZONTAL OSCILLATOR ADJUSTMENT

Tune in a video signal. Connect a jumper from TP40 to TP41. Connect a 330pF capacitor from TP25 to TP28. Readjust Brightness Control, if necessary to obtain a raster. Adjust Horizontal Oscillator Control (VR401) to momentarily synchronize the picture.

VERTICAL CENTERING ADJUSTMENT

Place the Vertical Centering Tip to one of three terminals (Up, N, Down) to center the picture vertically.

HORIZONTAL CENTERING ADJUSTMENT

Place the Horizontal Centering Tip to one of two terminals (N, Right) for best horizontal picture centering.

GRAY SCALE ADJUSTMENT

Set Red (VR251) and Blue (VR252) Drive Controls to midrange. Set Blue (VR254), Green (VR255) and Red (VR253) Cut-off Controls to MINIMUM. Set Screen Control (VR892B) to MINIMUM. Set Service Switch (SW251) to Service position. Disconnect Plug 85A (on Rear Audio Board).. Advance Screen Control until a colored line is just visible. If a line does not appear, advance Screen Control to Maximum. Advance each Bias Control until they produce a just visible line. Reconnect Plug 85A, set Service Switch (SW251) to Normal position. Tune in a video signal. Turn Color Control to MINIMUM. Alternately adjust Green and Blue Drive Controls to produce a normal black and white picture in high light areas. NOTE: If Gray Scale Adjustments are made after CRT replacement, check Brightness Level and High Voltage Adjustment.

SUB BRIGHTNESS ADJUSTMENT

Allow a 5 minute warm up time. Connect a pattern generator to the antenna terminal and tune in a crosshatch pattern. Connect a DC meter to TP50, low side to TP51. Set Brightness and Contrast Controls to Detent position, set Sharpness Control fully counterclockwise. Adjust Sub Brightness Control (VR305) for +0.6V. Check for picture blooming, if necessary adjust VR305 to prevent blooming.

APC ADJUSTMENT

Connect a color bar generator to the Video Input Terminal, adjust APC Control (VR204) for stable (sync locked) color bars.

COMB FILTER ADJUSTMENT

Connect a color bar generator to the Video Input Terminal and tune in a color bar pattern. Connect a scope to terminal "EC" on the CRT board, adjust L305 and VR310 for MINIMUM color components in the video signal. Connect a scope to TP on main board and measure the video portion of the waveform (do not include the sync pulse). Reconnect the scope to terminal "EC" (CRT board) and adjust Sub Contrast Control (VR311) for 4 times the amplitude of the video signal only (do not include the black level portion of the waveform) measured at TP.

SUB TINT ADJUSTMENT

Tune in a video signal. Set Tint Control to mechanical center. Connect scope to terminal "EE" of CRT board. Adjust Sub Tint Control (VR202) for sixth bar crossover of waveform.

NOTE: The follow adjustments are made with unit in the RGB mode using an RGB pattern generator at the RGB input terminals.

RGB GRAY SCALE AND SUB BRIGHTNESS ADJUSTMENT

Connect an RGB generator and set for blank raster with all three color signals applied. Place Video Select Switch to RGB position and Green Display Switch to Off. Set Green (VR527) and Blue (VR525) Cut-off Controls (on RGB board) fully counterclockwise. Set RGB Brightness Control (VR549) to midrange. Use jumper to connect terminal "EC" to terminal "EP" (on CRT board). Adjust Brightness Control to obtain a dim red line. Advance Green (VR527) and Blue (VR525) Cut-off Controls to produce a white line. Disconnect jumper from terminals "EC" and "EP". Set pattern generator for a corsshatch pattern and turn Brightness Control to Maximum. Adjust RGB Sub Brightness (VR549) for sufficient brightness without blooming.

SOUND BALANCE ADJUSTMENT

Connect speakers to the external speaker terminals. Apply a 400Hz, 0.5Vrms signal to the Audio Input (L) Jack. Connect scope to External Speaker Right Terminals. Place Stereo/Mono Switch to Mono position and Sound Balance Control (VR801) to mechancial center. Adjust volume control for 1V p-p on scope. Connect scope to External Speaker Left Terminals and adjust Sound Balance Control (VR801) for 1V p-p. Repeat procedure until balance is achieved.

TROUBLESHOOTING (Continued)

IC802, check the voltages, waveforms and components associated with IC801. Check the voltage at pin 1 of IC802, it should measure 4.9V at MINIMUM volume and 1.2V at Maximum.

VIDEO

Inject a video signal at the Video Input Jack, switch the Video Select Switch (SW601A) (RGB/Norm) to Norm position, set front panel controls fully clockwise and check for video on the CRT. If there is no video on the CRT, check for a video waveform at TP29. If this waveform is absent, check the voltages, waveforms and components associated with Video Buffer Transistor (Q313), Video Amp Transistors (Q303, Q315, Q316). If video is present at TP29, check for a video waveform at TP27. If this waveform is absent, check the voltages, waveforms and components associated with pins 15 thru 28 of Video/Chroma IC (IC201), Video Amp Transistor (Q302), ACL Transistor (Q301), Switching Transistors (Q304, Q307, Q310, Q311, Q312) and Comparator Transistors (Q305, Q306, Q308, Q309). If there is video at TP27, check the voltages, waveforms and components associated with Red, Blue, Green Output Transistors (Q251, Q252, Q253) and the CRT. If the brightness is inadequate or cannot be controlled, check the voltages and components associated with pins 21 and 24 of IC201 and pin 7 of the CRT.

VERTICAL

Inject a vertical drive signal at pin 7 of Sync Sep/Vertical Oscillator/Horizontal Oscillator/AFC and Hold Down IC (IC401). If there is still no vertical deflection, check the voltages, waveforms and components associated with Vertical Output IC (IC402) and the Deflection Yoke (L901). If the vertical oscillator is off frequency, check the voltages, waveforms and components associated with pins 10, 11 and 12 of IC401. Vertical linearity or foldover may be caused by the vertical feedback and bias circuits, check Electrolytics C404, C405, C406, C409, C410 and C412 for defects.

SYNC

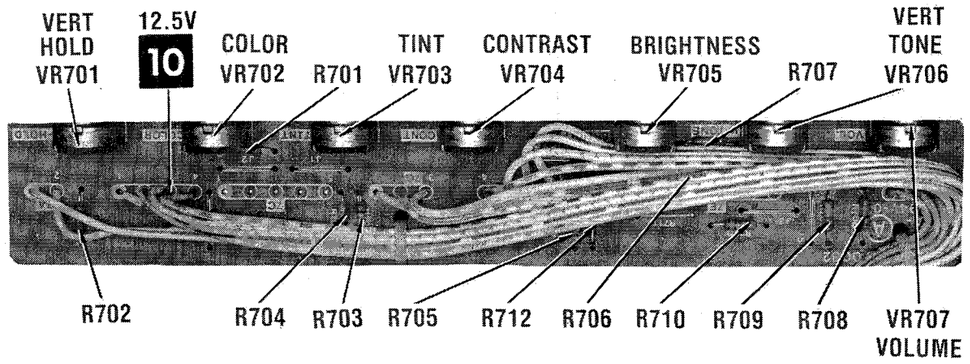
If there is no vertical or horizontal sync, check for a video waveform at TP40. If the waveform is absent, check the components associated with TP40. If there is no vertical sync, check the voltages, waveforms and components associated with pins 10 thru 15 of Sync Sep/Vertical Oscillator/Horizontal Oscillator/AFC and Hold Down IC (IC401). If there is no horizontal sync, check the voltages, waveforms and components associated with pins 1 thru 4 of IC401.

RASTER

Check the CRT and CRT voltages. If there is no Green, check the voltages, waveforms and components associated with pin 13 of Video/Chroma IC (IC201) and Green Output Transistor (Q253). If there is no Blue, check the voltages, waveforms and components associated with pin 14 of IC201 and Blue Output Transistor (Q252). If there is no Red, check the voltages, waveforms and components associated with pin 12 of IC201 and Red Output Transistor (Q251). If the raster has a pincushion shape, check the Pincushion Transistors (Q491, Q492, Q493) and associated components. If the raster has a keystone shape, check the Deflection Yoke (L901). If the raster has height or width problems, refer to the "Vertical", "Horizontal" and "Power Supply" sections of this Troubleshooting guide.

CHROMA

If there is no color, check for a chroma waveform at pins 1 and 2 of Video/Chroma IC (IC201). If the waveform is missing, check the voltages, waveforms and components associated with pins 1 and 2 and Chroma Amp Transistor (Q317), Buffer Transistor (Q318). If a chroma waveform is present at pins 1 and 2, check for the proper Red, Green and Blue chroma waveforms at pins 12, 13 and 14 respectively of IC201. If these waveforms are missing, check the voltages, waveforms and components associated with pins 3 thru 14 of IC201. Check the 3.58MHz oscillator at pin 8 of IC201. If there is no color sync, check for a horizontal sync pulse at pin 16 of IC201. If there is inadequate tint range, check the voltage and components associated with pin 7 of IC201. If the proper chroma waveforms are present at pins 12, 13 and 14 of IC201, check the Red, Blue, Green Output Transistors (Q251, Q252, Q253), the CRT and associated components.

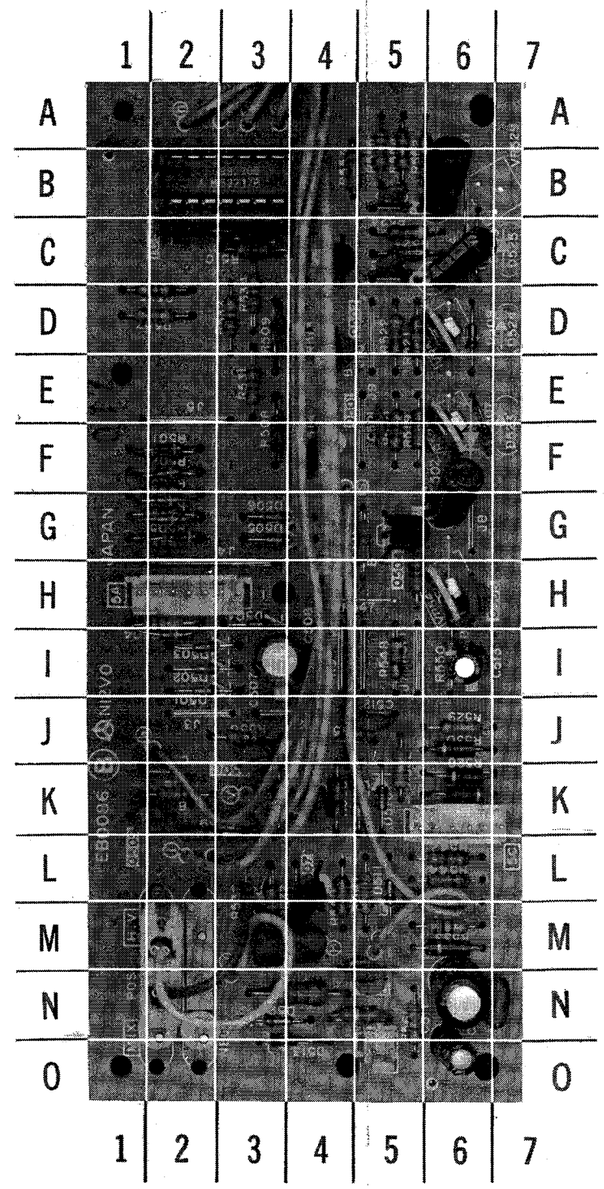


CONTROL BOARD

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RGB BOARD-GridTrace LOCATION GUIDE

5A	H-2	R523	C-5	R535	D-2	R548	I-5	R559	K-2
5B	O-5	R524	C-5	R536	M-3	R550	I-6	R560	N-5
5C	K-6	R526	K-6	R537	L-4	R551	G-5	R561	N-5
C501	F-5	R528	K-6	R538	K-4	R552	B-6	R562	K-5
C502	G-6	R529	J-6	R539	K-5	R553	B-4	R563	L-3
C503	C-5	R530	J-6	R540	L-4	R554	A-5	VR525	F-6
C504	C-6	R531	E-3	R541	L-5	R555	A-5	VR527	D-6
C505	B-5	R532	D-3	R542	L-6	R556	J-3	VR549	H-6
C506	B-6	R533	M-6	R543	M-6	R557	K-3		
C507	I-3	R534	D-3	R544	L-6	R558	K-2		
C508	I-4								
C509	N-6								
C510	N-7								
C511	O-6								
C512	J-5								
C513	I-6								
C514	J-2								
C524	F-3								
C525	D-3								
C526	C-3								
C527	M-4								
D501	I-2								
D502	I-2								
D503	I-2								
D504	H-3								
D505	G-3								
D506	G-3								
D507	F-6								
D508	D-6								
D509	C-6								
D510	K-5								
D511	L-5								
D513	N-3								
D515	M-3								
D516	F-2								
D517	F-2								
D518	G-2								
D519	I-2								
D520	G-2								
D521	G-2								
D522	N-3								
IC501	B-3								
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Q503	C-4								
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Q505	H-6								
Q506	K-4								
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R504	H-2								
R505	G-2								
R506	G-2								
R507	D-2								
R508	F-3								
R509	D-3								
R510	C-3								
R511	H-5								
R512	C-4								
R513	D-4								
R514	F-4								
R515	B-4								
R516	D-4								
R517	F-4								
R518	N-4								
R519	F-5								
R520	F-5								
R521	D-5								
R522	D-5								



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RGB BOARD

TEST JIG HOOKUP

FUNCTION	Chek-A-Color ADAPTER NO.	RCA / TeleMatic ADAPTER NO.	ZENITH ADAPTER NO.
CRT YOKE YOKE SETTING	D4120 YP1A, Focus Tap	10J683 10J701 Horiz 1.2, Vert 8.0, FVS-3950 Focus Voltage Supply.	852-441 852-392-3 (1) Horiz 1.2, Vert 8.0, Focus Tap

"4C"	PIN 1	PIN 2	PIN 3	PIN 4
(1)	YELLOW	GREEN	BLUE	RED

(P.C. BOARD)

TROUBLESHOOTING

POWER SUPPLY

Check AC Fuse (F001). If Fuse is open, check Bridge Rectifier Diodes (D001 thru D004, D801 thru D804), Audio Power Transformer (T901), Switching Transistor (Q013) and Converter Transformer (T010). Apply power to the set, depress Power Switch (SW901) and check for 163V* at TP6. If this voltage is absent, check Switch SW901, Line Filter (L001) and Resistor R001. If 163V* is present at TP6, check for 110V at the cathode of Diode D018. If this voltage is absent, check the voltages, waveforms and components associated with Error Amp Transistor (Q010), Power Regulator Transistors (Q011, Q012), Transistor Q013 and B+ Protector Transistor (Q014). If 110V is present at the cathode of Diode D018, refer to the "Horizontal" section of this Troubleshooting guide.

* With respect to isolated ground.

HORIZONTAL

Determine if the monitor is in shutdown, refer to the "High Voltage Shutdown" section of this Troubleshooting guide. If the monitor is not in shutdown, inject a horizontal signal at the base of the Horizontal Output Transistor (Q452). If horizontal sweep is now present, check the voltages, waveforms and components associated with Horizontal Drive Transistor (Q451) and pins 1 thru 5 of Sync Sep/Vertical Oscillator/Horizontal Oscillator/AFC and Hold Down IC (IC401). If there is still no horizontal deflection, check the voltages, waveforms and components associated with Transistor Q452 and Horizontal Output Transformer (T452). The High Voltage Rectifier is part of Transformer T452 and if defective will affect the operation of the horizontal circuits. Horizontal linearity or foldover problems may be caused by Capacitors C464 thru C468 and C477 thru C480 being defective. If the horizontal oscillator is off frequency, check the voltages, waveforms and components associated with pins 2, 3 and 4 of IC401.

HIGH VOLTAGE SHUTDOWN

If the monitor is in shutdown, the voltages shown will be present. The High Voltage is monitored by Diode D406 rectifying pulses from the Horizontal Output Transformer (T452). Should the High Voltage increase, the rectified voltage at the cathode of Diode D406 will also increase. This increased voltage is applied to the cathode of Diode D404 and triggers it into conduction, which causes Hold Down Transistor (Q455) to activate the shutdown circuit at pin 5 of Sync Sep/Vertical Oscillator/Horizontal Oscillator/AFC and Hold Down IC (IC401) shutting down the set. The shutdown circuit will also be activated if the ABL voltage at TP51 becomes excessively negative. This negative voltage is applied to the base of Transistor Q455 triggering it into conduction which shuts down the set. To troubleshoot, disconnect the collector of Transistor Q455 from the circuit and use a Variac for AC power. Start with 60V AC and increase as necessary to locate and correct defect. Reconnect Transistor Q455 into the circuit. NOTE: Care should be taken in defeating the High Voltage Shutdown circuit as this may cause excessive x-ray radiation and damage to the CRT, Transformer T452 and associated components. Monitor the High Voltage and troubleshoot.

Voltage measured in shutdown mode.

IC401	Q452
Pin 5 .64V	(C) 118V

AUDIO

Check DC Fuse (F801). If Fuse is open, check Audio Output IC (IC801). Inject an audio signal at either Audio Input Jack, Switch SW851 to the Mono position and check for audio at pins 5 and 9 of Volume Control IC (IC802). If there is no audio at pins 5 and 9, check the voltages, waveforms and components associated with Buffer Transistors (Q851, Q852) and IC802. If there is audio at pins 5 and 9 of

SEMICONDUCTORS (Select replacement transistor for best results)

ITEM No.	TYPE No.	MFGR. PART No.	NOTES	REPLACEMENT DATA			
				NTE PART No.	ECG PART No.	RCA PART No.	WORKMAN PART No.	ZENITH PART No.
# D001 thru D004	C0406(RECT)	E1704R		NTE580	ECG580	SK5006	WEP170/125	212-Z9000
	ERC04-06			NTE580	ECG580	SK5006	WEP170/125	212-Z9000
# D010	EQA02-08A	E1823ZA		NTE5015A	ECG5015A	SK7A5/5015A	WEP1416/5015	103-Z9002
D011	U2(RECT)			NTE552	ECG552	SK9000/552	WEP172/506	103-287
	EU2			NTE552	ECG552	SK9000/552	WEP172/506	103-287
	B43-04			NTE552	ECG552	SK9000/552	WEP172/506	103-287
D012	B4304(RECT)			NTE552	ECG552	SK9000/552	WEP172/506	103-287
	B43-04			NTE552	ECG552	SK9000/552	WEP172/506	103-287
	EU2			NTE552	ECG552	SK9000/552	WEP172/506	103-287
D013	U2(RECT)			NTE552	ECG552	SK9000/552	WEP172/506	103-287
	EU2			NTE552	ECG552	SK9000/552	WEP172/506	103-287
	B43-04			NTE552	ECG552	SK9000/552	WEP172/506	103-287
D015	U2(RECT)			NTE552	ECG552	SK9000/552	WEP172/506	103-287
	EU2			NTE552	ECG552	SK9000/552	WEP172/506	103-287
	B43-04			NTE552	ECG552	SK9000/552	WEP172/506	103-287
# D016	HZ30-2L	E1810ZB		NTE5035A	ECG5035A	SK30A/5035A	WEP1437/5035	103-Z9024
D017	U2			NTE552	ECG552	SK9000/552	WEP172/506	103-287
	EU2			NTE552	ECG552	SK9000/552	WEP172/506	103-287
	B43-04			NTE552	ECG552	SK9000/552	WEP172/506	103-287
D018	FB30G(RECT)			NTE580	ECG580	SK5036/580		103-316-04
	GFB30G-FD1			NTE580	ECG580	SK5036/580		103-316-04
D020	1S2076			NTE519	ECG519	SK3100/519	WEP925/519	103-131
	1S1555			NTE177	ECG177	SK9091/177	WEP1062/177	103-131
	1S2473			NTE519	ECG519	SK3100/519	WEP925/519	103-131
D301 thru D307	1S2076			NTE519	ECG519	SK3100/519	WEP925/519	103-131
	1S2473			NTE519	ECG519	SK3100/519	WEP925/519	103-131
	1S1555			NTE177	ECG177	SK9091/177	WEP1062/177	103-131
D310	1S2076			NTE519	ECG519	SK3100/519	WEP925/519	103-131
	1S1555			NTE177	ECG177	SK9091/177	WEP1062/177	103-131
	1S2473			NTE519	ECG519	SK3100/519	WEP925/519	103-131
D401	B12-02R			NTE116	ECG116	SK3311	WEP156	212-76-02
	S5277D			NTE116	ECG116	SK3311	WEP156	212-76-02

TROUBLESHOOTING AID

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

PICTURE or SOUND

NO PIC, NO SOUND, NO RASTER: Check AC power supply and sources generated from Horizontal Output Transformer (T452). Refer to "Troubleshooting" Power Supply and Horizontal circuits.

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

NO PIC, HAS SOUND, NO RASTER: Check Horizontal Output Transformer (T452) sources and Video circuit. Refer to "Troubleshooting" Horizontal and Video circuits.

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

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

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

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

SWEEP

NO RASTER, HAS SOUND: Check HV rectifier, Part of Horizontal Output Transformer (T452). Refer to "Troubleshooting" Horizontal circuit.

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

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

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

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

NARROW PICTURE: Refer to "Troubleshooting" Horizontal circuit.

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

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

SYNC

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

RASTER

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

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

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

COLOR (B/W operating normally)

NO COLOR: Refer to "Troubleshooting" Chroma circuit.

WEAK COLOR: Refer to "Troubleshooting" Chroma circuit.

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

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

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

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

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

PARTS LIST AND DESCRIPTION (Continued)

SEMICONDUCTORS (Select replacement transistor for best results)

ITEM No.	TYPE No.	MFGR. PART No.	REPLACEMENT DATA					
			NOTES	NTE PART No.	ECG PART No.	RCA PART No.	WORKMAN PART No.	ZENITH PART No.
D403	1S2076			NTE519	ECG519	SK3100/519	WEP925/519	103-131
	1S2473			NTE519	ECG519	SK3100/519	WEP925/519	103-131
	1S1555			NTE177	ECG177	SK9091/177	WEP1062/177	103-131
# D404	HZ35	E1294Z		NTE5037A	ECG5037A	SK36A/5037A	WEP1439/5037	103-279-37
D405	1S1553			NTE177	ECG177	SK9091/177	WEP1062/177	103-131
	1S2076A			NTE519	ECG519	SK3100/519	WEP925/519	103-131
	1S2471			NTE519	ECG519	SK3100/519	WEP925/519	103-131
# D406	B4304(RECT)			NTE552	ECG552	SK9000/552	WEP172/506	103-287
	B43-04	E1791R		NTE552	ECG552	SK9000/552	WEP172/506	103-287
	EU-1			NTE552	ECG552	SK9000/552	WEP172/506	103-287
D410								
D453	C2506(RECT)			NTE552	ECG552	SK9000/552	WEP172/506	103-287
	C25-06M			NTE552	ECG552	SK9000/552	WEP172/506	103-287
	RU3AM			NTE552	ECG552	SK9000/552	WEP172/506	103-287
D454	B4304(RECT)			NTE552	ECG552	SK9000/552	WEP172/506	103-287
	B43-04			NTE552	ECG552	SK9000/552	WEP172/506	103-287
	EU-1			NTE552	ECG552	SK9000/552	WEP172/506	103-287
D455	VR1G(RECT)			NTE552	ECG552	SK9000/552	WEP172/506	103-287
	TVR1G			NTE552	ECG552	SK9000/552	WEP172/506	103-287
	B43-04			NTE552	ECG552	SK9000/552	WEP172/506	103-287
D456	U1(RECT)			NTE552	ECG552	SK9000/552	WEP172/506	103-287
	EU-1			NTE552	ECG552	SK9000/552	WEP172/506	103-287
	B43-04			NTE552	ECG552	SK9000/552	WEP172/506	103-287
D457	1S2076			NTE519	ECG519	SK3100/519	WEP925/519	103-131
	1S2473			NTE519	ECG519	SK3100/519	WEP925/519	103-131
	1S1555			NTE177	ECG177	SK9091/177	WEP1062/177	103-131
D461	1S2473			NTE519	ECG519	SK3100/519	WEP925/519	103-131
	1S2076			NTE519	ECG519	SK3100/519	WEP925/519	103-131
	1S1555			NTE177	ECG177	SK9091/177	WEP1062/177	103-131
D501 thru	1S1555			NTE177	ECG177	SK9091/177	WEP1062/177	103-131
D506	1S2076			NTE519	ECG519	SK3100/519	WEP925/519	103-131
	1S2473			NTE519	ECG519	SK3100/519	WEP925/519	103-131

PARTS LIST AND DESCRIPTION (Continued)

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

MISCELLANEOUS

	ITEM No.	PART NAME	MFGR. PART No.	NOTES
	SW601A	Switch	ES0015	Video Select (RGB/Normal)
	SW601B	Switch	ES0015	Green Display
	SW851	Switch	E2373	Stereo/Mono Select
#	SW901	Switch	E2887XA	Power On/Off
#	V1	CRT	670CTB22 L	
	W902	Cord	E6613K	AC Power
	X201	Crystal	E8473B	3.58MHz Oscillator
	X202	Filter	C9605	Ceramic
		Cabinet Feet	3M00114	Rear Feet, Russell Replacement Board-REC-2197S (2 Required)
		P.C. Board	UF0015	Main Board, Complete Assembly
		P.C. Board	UF0032	RGB Board, Complete Assembly
		P.C. Board	UF0020	Audio Board, Complete Assembly
		P.C. Board	UF0018	PCC Board, Complete Assembly
		P.C. Board	UF0068	CRT Board, Complete Assembly
		P.C. Board	UF0081	Rear Audio Board, Complete Assembly
		P.C. Board	UF0017	Control Board, Complete Assembly
		P.C. Board	UF0016	Switch Board, Complete Assembly
		P.C. Board	UF0019	Rear Control Board, Complete Assembly
		P.C. Board	UF0033	Rear Terminal Board, Complete Assembly

For SAFETY use only equivalent replacement part.

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

ITEM	PART No.
Front Bezel Assembly (Includes Filter Glass)	YP00184
Cabinet Front Section	YW00091
Cabinet Back	3M00177
Control Door Assembly	YP00166A
Lower Front Panel Assembly	YP00181

ITEM	PART No.
Button-Power On/Off	KB0009
Button-Video Select and Display	3151067N
Knob-Vertical Hold, Color, Tint, Cont., Bright, Sharpness, Volume	3151125

SERVICE INFORMATION

SETTING CORRESPONDING TO RGB INPUT SIGNAL

When *connecting a home computer having digital RGB* output to RGB input connector, change the position of the sync. pulse select tip on RGB board inside the color monitor to match the polarity of the home computer's output signal. (Refer to table 1) Note that all signal output from the home computer should be at TTL level.

SYNC. SIGNAL FROM HOME COMPUTER		SYNC. PULSE SELECT TIP POSITION
NATURE	POLARITY	
Composite Sync.	Positive	POSITIVE H.V, NEGATIVE, MIX, GUIDE TIP
	Negative	GUIDE TIP

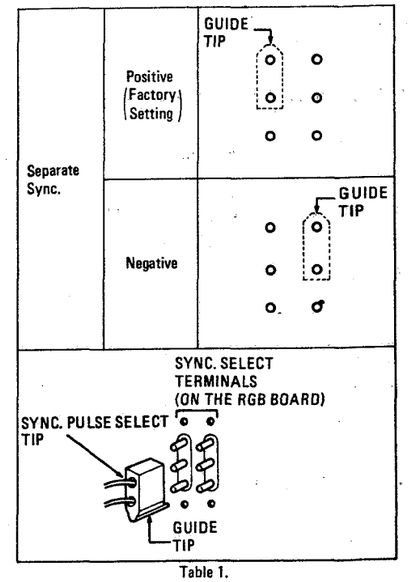


Table 1.

Courtesy of Manufacturer

PARTS LIST AND DESCRIPTION (Continued)

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

SEMICONDUCTORS (Select replacement transistor for best results)

ITEM No.	TYPE No.	MFGR. PART No.	NOTES	REPLACEMENT DATA: NTE PART No.	ECG PART No.	RCA PART No.	WORKMAN PART No.	ZENITH PART No.
D507	1S2473			NTE519	ECG519	SK3100/519	WEP925/519	103-131
	1S2076			NTE519	ECG519	SK3100/519	WEP925/519	103-131
	1S1555			NTE177	ECG177	SK9091/177	WEP1062/177	103-131
D508 thru D511	1S1555			NTE177	ECG177	SK9091/177	WEP1062/177	103-131
	1S2076			NTE519	ECG519	SK3100/519	WEP925/519	103-131
	1S2473			NTE519	ECG519	SK3100/519	WEP925/519	103-131
D513	EQA02-05CD			NTE5010A	ECG5010A	SK5A1/5010A	WEP1411/5010	103-279-10
D515	1S1555			NTE177	ECG177	SK9091/177	WEP1062/177	103-131
	1S2076			NTE519	ECG519	SK3100/519	WEP925/519	103-131
	1S2473			NTE519	ECG519	SK3100/519	WEP925/519	103-131
D516 thru D521	1S2473			NTE519	ECG519	SK3100/519	WEP925/519	103-131
	1S1555			NTE177	ECG177	SK9091/177	WEP1062/177	103-131
	1S2076			NTE519	ECG519	SK3100/519	WEP925/519	103-131
D522	1S1555			NTE177	ECG177	SK9091/177	WEP1062/177	103-131
	1S2076			NTE519	ECG519	SK3100/519	WEP925/519	103-131
	1S2473			NTE519	ECG519	SK3100/519	WEP925/519	103-131
D801 thru D804	ERC-01-02			NTE125	ECG125	SK3081/125	WEP170/125	212-Z9000
D805	B12-02R			NTE116	ECG116	SK3311	WEP156	212-76-02
	S5277B			NTE116	ECG116	SK3311	WEP156	212-76-02
D806	12A(ZENER)			NTE5021A	ECG5021A	SK12A/5021A	WEP1423/5021	103-279-21
	EQA02-12A			NTE5021A	ECG5021A	SK12A/5021A	WEP1423/5021	103-279-21
D807	1S1555			NTE177	ECG177	SK9091/177	WEP1062/177	103-131
	1S2076			NTE519	ECG519	SK3100/519	WEP925/519	103-131
	1S2473			NTE519	ECG519	SK3100/519	WEP925/519	103-131
IC201	LA7600N	QC0009						
# IC401	LA7820			NTE 1674	ECG1674	SK9325		HE-443-72
IC402	AN5512			NTE7417	ECG7417	SK7417		
IC501	M53217P							
IC801	STK436TV							
	STK-436							
IC802	AN5733							

PARTS LIST AND DESCRIPTION (Continued)

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

COILS (RF-IF)

ITEM No.	FUNCTION	MFGR. PART No.
L001	Line Filter	L374N
L013	RF Choke (82uH)	L4076
# L014	Filter Choke	Z2503
L201	Peaking	SL0013XC
L202	RF Choke (47uH)	LXXK470
	RF Choke (47uH)	LCXK470
L251	RF Choke (180uH)	LXXK181
	RF Choke (180uH)	LCXK181
L254	Peaking (220uH)	LXXK221
	Peaking (220uH)	LCXK221
L301	Delay Line Coil	L7376
L302	RF Choke (100uH)	L4516

ITEM No.	FUNCTION	MFGR. PART No.
L303	Peaking (10uH)	LXXJ100
	Peaking (10uH)	LCXJ100
L304	Delay Line	LG0005XH
L305	Comb Filter	SL0010XC
L401	RF Choke	L7133B
L453	Horizontal Linearity	A7042
L460	RF Choke (1.5uH)	LXXK1R5
	RF Choke (1.5uH)	LCXK1R5
# L491	Horizontal Linearity	A7043

For SAFETY use only equivalent replacement part.

COILS & TRANSFORMERS

ITEM No.	FUNCTION	MFGR. PART No.	OTHER IDENTIFICATION	NOTES
# L901	Yoke Horiz .77MH 110° Vert 31.1mH	DY0007XHA	DY0007XHA (1)	
# T010	Converter	AE0005	AE0005 (1)	
T451	Horiz Driver	A7015N	A7015N (1)	
# T452	Horiz Output	F5044	F5044 (1)	
# T491	Pincushion	A5010	A5010 (1)	
# T901	Audio Power	PT0008	PT0008 (1)	

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

FUSE DEVICES

ITEM NO.	DESCRIPTION	MFGR. PART NO.		NOTES
		DEVICE	HOLDER	
# F001	4 Amp @ 125V Fast Acting	E5093	E5740 (1)	
# F801	4 Amp @ 125V Fast Acting	E5093	E5740 (1)	

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

MISCELLANEOUS

ITEM No.	PART NAME	MFGR. PART No.	NOTES
A901	Magnet	D4501B	Purity and Convergence Assembly
K85ES	Jack	EK0029	RCA Type - Monitor TV IN
K251	Socket	E3501	CRT
K901	Connector	E3108	8 Pin RGB Input connector
L010	Ferrite Bead	Z2072	
	Ferrite Bead	Z2073	
L011	Ferrite Bead	Z2072	
	Ferrite Bead	Z2073	
L451	Ferrite Bead	Z2003	
L452	Ferrite Bead	Z2003	
L901	Degaussing Coil	LJ0015DGA	
PL401	Neon Lamp	E8618	
PL901	Pilot Lamp	E8804	
SW251	Switch	E2845	Service

PARTS LIST AND DESCRIPTION (Continued)

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

SEMICONDUCTORS (Select replacement transistor for best results)

ITEM No.	TYPE No.	MFGR. PART No.	REPLACEMENT DATA					
			NTE PART No.	ECG PART No.	RCA PART No.	WORKMAN PART No.	ZENITH PART No.	NOTES
# Q010	(2S)C536F		NTE85	ECG85	SK3245/199	WEP536	121-972*	
	2SC536NP		NTE85	ECG85	SK3245/199	WEP536	121-972*	
Q011	(2S)B774S	Q5053	NTE85	ECG85	SK3245/199	WEP536	121-972*	
	2SB774(Q,R,S)		NTE290A	ECG290A	SK3247/234	WEP911/290A	121-Z9003*	
	2SB774		NTE290A	ECG290A	SK3247/234	WEP911/290A	121-Z9003*	
	2SA1246		NTE290A	ECG290A	SK3247/234	WEP911/290A	121-Z9003*	
	2SA1246(S,T,U)		NTE290A	ECG290A	SK3867A/32	WEP911/290A	121-Z9003*	
Q012	(2S)C2236-O		NTE382	ECG382	SK3849/293	WEP912/293	921-1114	
	2SC2236(O,Y)		NTE382	ECG382	SK3849/293	WEP912/293	921-1114	
	2SC2236		NTE382	ECG382	SK3849/293	WEP912/293	921-1114	
# Q013	2SC2914	Q6831	NTE53	ECG53	SK9261			
	2SC2914(Z)		NTE53	ECG53	SK9261			
# Q014	(2S)C2236-O		NTE382	ECG382	SK3849/293	WEP912/293	921-1114	
	2SC2236(O,Y)	Q6793	NTE382	ECG382	SK3849/293	WEP912/293	921-1114	
	2SC2236		NTE382	ECG382	SK3849/293	WEP912/293	921-1114	
Q251 thru Q253	(2S)C2456		NTE157	ECG157	SK3747/157	WEP61/157	121-Z9016	
	2SC2456LB(Z)		NTE157	ECG157	SK3747/157	WEP61/157	121-Z9016	
	2SC2568		NTE157	ECG157	SK3747/157	WEP61/157	121-Z9016	
	2SC2568(K,L,M)		NTE157	ECG157	SK3747/157	WEP61/157	121-Z9016	
Q301	(2S)A608F		NTE290A	ECG290A	SK3114A/290A	WEP911/290A	121-Z9003*	
	2SA608(E,F)		NTE290A	ECG290A	SK3114A/290A	WEP911/290A	121-Z9003*	
	2SA608		NTE290A	ECG290A	SK3114A/290A	WEP911/290A	121-Z9003*	
Q302	(2S)A673AC		NTE290A	ECG290A	SK9132	WEP911/290A	121-Z9003*	
	2SA673A(C)		NTE290A	ECG290A	SK9132	WEP911/290A	121-Z9003*	
	2SA673A		NTE290A	ECG290A	SK9132	WEP911/290A	121-Z9003*	
	2SA673		NTE290A	ECG290A	SK9132	WEP911/290A	121-Z9003*	
	2SA673(C)		NTE290A	ECG290A	SK9132	WEP911/290A	121-Z9003*	
Q303	(2S)C536KE		NTE85	ECG85	SK3245/199	WEP536	121-972*	
	2SC536NP		NTE85	ECG85	SK3245/199	WEP536	121-972*	
	2SC536NP(E,F)		NTE85	ECG85	SK3245/199	WEP536	121-972*	

PARTS LIST AND DESCRIPTION (Continued)

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

SEMICONDUCTORS (Select replacement transistor for best results)

ITEM No.	TYPE No.	MFGR. PART No.	REPLACEMENT DATA					NOTES
			ECG PART No.	RCA PART No.	WORKMAN PART No.	NTE PART No.	ZENITH PART No.	
Q304	(2S)C536E 2SC536NP 2SC536NP(E,F)		ECG85 ECG85 ECG85	SK3245/199 SK3245/199 SK3245/199	WEP536 WEP536 WEP536	NTE85 NTE85 NTE85	121-972* 121-972* 121-972*	
Q305	(2S)C536K 2SC536NP 2SC536NP(E,F)		ECG85 ECG85 ECG85	SK3245/199 SK3245/199 SK3245/199	WEP536 WEP536 WEP536	NTE85 NTE85 NTE85	121-972* 121-972* 121-972*	
Q306 thru Q310	(2S)C536E 2SC536NP 2SC536NP(E,F)		ECG85 ECG85 ECG85	SK3245/199 SK3245/199 SK3245/199	WEP536 WEP536 WEP536	NTE85 NTE85 NTE85	121-972* 121-972* 121-972*	
Q311	(2S)C536KE 2SC536NP 2SC536NP(E,F)		ECG85 ECG85 ECG85	SK3245/199 SK3245/199 SK3245/199	WEP536 WEP536 WEP536	NTE85 NTE85 NTE85	121-972* 121-972* 121-972*	
Q312	(2S)C536E 2SC536NP 2SC536NP(E,F)		ECG85 ECG85 ECG85	SK3245/199 SK3245/199 SK3245/199	WEP536 WEP536 WEP536	NTE85 NTE85 NTE85	121-972* 121-972* 121-972*	
Q313	(2S)C1815GR 2SC1815(G,Y) 2SC1815 2SC536NP 2SC536NP (E,F,G) 2SC945A 2SC945A(K,P,Q)		ECG85 ECG85 ECG85 ECG85 ECG85 ECG85	SK3124A/289A SK3124A/289A SK3124A/289A SK3245/199 SK3245/199 SK3124A/289A SK3124A/289A	WEP66/199 WEP66/199 WEP66/199 WEP536 WEP536 WEP736/123A* WEP736/123A*	NTE85 NTE85 NTE85 NTE85 NTE85 NTE85 NTE85	121-Z9065* 121-Z9065* 121-Z9065* 121-972* 121-972* 121-972* 121-972*	
Q315	(2S)C1815Y 2SC1815(G,Y) 2SC1815 2SC536NP 2SC536NP (E,F,G) 2SC945A 2SC945A(K,P,Q)		ECG85 ECG85 ECG85 ECG85 ECG85 ECG85 ECG85	SK3124A/289A SK3124A/289A SK3124A/289A SK3245/199 SK3245/199 SK3124A/289A SK3124A/289A	WEP66/199 WEP66/199 WEP66/199 WEP536 WEP536 WEP736/123A* WEP736/123A*	NTE85 NTE85 NTE85 NTE85 NTE85 NTE85 NTE85	121-Z9065* 121-Z9065* 121-Z9065* 121-972* 121-972* 121-972* 121-972*	

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
VR525	Blue Cut Off	100K	G0351XXM	
		100K	G0351XXH	
VR527	Green Cut Off	100K	G0351XXM	
		100K	G0351XXH	
VR549	RGB Sub Bright	1000	G0354XXM	
		1000	G0354XXIH	
VR701	Vert Hold	200K	GR0029	
VR702	Color	10K	G2666	
VR703	Tint	10K	G2666	
VR704	Cont	10K	G2666XA	
		Detent @ 50%		
VR705	Bright	3000	GR0027A	
		Detent @ 50%		
VR706	Sharpness	10K	GR0028	
VR707	Volume	10K	G2666	
VR801	Sound Balance	500	G0243XXH	
		500	G0243XXM	
		500	G0243XXB	
VR891	Horiz Center	50K	G0158	
# VR892A	Focus		(1)	
# VR892B	Screen		(1)	

For SAFETY use only equivalent replacement part.
(1) Part of Horizontal Output Transformer #T452, Part Number F5044

RESISTORS (Power and Special)

	ITEM No.	RATING	REPLACEMENT DATA		
			MFGR. PART No.	NTE PART No.	WORKMAN PART No.
#	PS001	10.4 Tap 4.3	E1330P		
#	R001	2.2 5% 10W WW	RYCKJ2R2	10W2D2	
#	R002	150K 5% 1/2W Carbon Film	RFBPJ154	HW415	22-2148
#	R004	100 10% 6W WW	RY6FK101		
#	R011	7500 1% 1/4W Metal Film	RNABF752		
#	R013	3300 1% 1/4W Metal Film	RNABF332		
#	R021	1 10% 5W WW	RY5KK1R0	5W1D0	24-3010
	R022	15 10% 3W WW			
		15 10% 2W WW			
#	R025	.1 10% 2W WW	RY2PK0R1		
	R026	39 10% 6W WW			
#	R029	3.3M 20% 1/2W Carbon Comp	RCBAM335		22-2180
#	R037	75K 1% 1/4W Metal Film	RNABF753		
#	R038	1000 1% 1/4W Metal Film	RNABF102		
#	R039	33K 1% 1/4W Metal Film	RNABF333		
#	R161	68 5% 1/4W Carbon Film	RFAAJ680	QW068	22-1068
#	R330	15 5% 1/4W Carbon Film	RFAAJ150	QW015	22-1052
#	R441	1M 1% 1/4W Metal Film	RNABF105		
#	R442	220K 1% 1/4W Metal Film	RNABF224		
#	R443	47K 1% 1/4W Metal Film	RNABF473		
#	R444	910K 1% 1/2W Metal Film	RNBBF914		
#	R445	75K 1% 1/2W Metal Film	RNBBF753		
#	R446	1.5M 1% 1/2W Metal Film	RNBBF155		
#	R447	10 5% 1/2W Fusible	RNBPJ100		
#	R448	1M 1% 1/4W Metal Film	RNABF105	QW510	
	R460	3.9 10% 6W WW			
#	R466	1 5% 1/4W Carbon Film	RFAAJ1R0	QW1D0	
#	R470	1 5% 1W Fusible	RN1PJ1R0	F1W1D0	
#	R471	1000 2% 1/4W Carbon Film	RFACG102	QW210	
#	R475	1000 5% 1/2W Fusible	RNBPJ102		
	R476	390 5% 3W Metal Oxide			
#	R486	1 5% 1/4W Carbon Film	RFAAJ1R0	QW1D0	
#	R497	1000 5% 1/2W Fusible	RNBPJ102		
	TH301	1810 NTC	E1149T		

For SAFETY use only equivalent replacement part.

PARTS LIST AND DESCRIPTION (Continued)

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

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

ITEM No.	RATING	MFGR. PART No.
C009	680 180V	
C019	150 160V	
C209	4.7 25V NP	
C311	10 16V NP	
C401	.47 160V	
C402	1 160V	
C404	1 25V 10%	
C412	47 100V	

ITEM No.	RATING	MFGR. PART No.
C463	10 160V	
C475	100 160V	
C493	.33 25V 10%	
C502	4.7 25V NP	
C506	4.7 25V NP	
C509	33 16V NP	
C808	1 25V NP	
C809	1 25V NP	

CAPACITORS Items Not Listed Are Normally Available at Local Distributors.

	ITEM No.	RATING	MFGR. PART No.
#	C002	.0047 1KV	CCVTP472
#	C003	.0047 1KV	CCVTP472
#	C004	.0047 1KV	CCVTP472
#	C005	.0015 125V AC	C9608
#	C006	.0015 125V AC	C9608
#	C007	.22 125V AC 20%	CNJGM224
#	C008	.22 125V AC 20%	CNJGM224
#	C015	.0082 2KV 5%	CNZDJ822
#	C016	.0015 125V AC	C9608
#	C017	.0015 125V AC	C9608
#	C024	.0015 125V AC	C9608
#	C025	.0015 125V AC	C9608
	C201	33 N220 50V 10%	
	C207	22 N750 50V 5%	
	C208	56 N220 50V 5%	
	C210	22 NPO 50V 5%	

	ITEM No.	RATING	MFGR. PART No.
#	C254	.001 1KV	CCVJP102
#	C255	.001 1KV	CCVJP102
#	C258	.001 2KV	CCZJP102
	C333	180 N220 50V 5%	
	C337	180 N220 50V 5%	
	C338	47 N220 50V 5%	
#	C464	.018 800V 5%	CN8RJ183
#	C465	.018 800V 5%	CN8RJ183
#	C466	.018 800V 5%	CN8RJ183
#	C467	.33 200V 5%	CNLRJ334
#	C468	.27 200V 5%	CNLRJ274
#	C477	.001 2KV 10%	CCZSK102
#	C478	.001 2KV 10%	CCZSK102
#	C479	.018 800V 5%	CN8RJ183
#	C480	500 2KV 10%	CCZSK501

For SAFETY use only equivalent replacement part.

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

	ITEM NO.	FUNCTION	RESISTANCE	MFGR. PART NO.	NOTES
#	VR010	B+ Adj	1000	GF0031XH	
	VR202	Sub Tint	100K	G0351XXH	
			100K	G0351XXB	
	VR204	APC	300K	GF0030DT	
	VR251	Red Drive	200	G0559XCM	
	VR252	Blue Drive	200	G0559XCM	
	VR253	Red Cut Off	10K	G1117XRH	
			10K	G1117XRM	
			10K	G1117XRB	
	VR254	Blue Cut Off	10K	G1117XBH	
			10K	G1117XBM	
			10K	G1117XBB	
	VR255	Green Cut Off	10K	G1117XGM	
			10K	G1117XGH	
			10K	G1117XGB	
	VR305	Sub Brightness	20K	G0356XXH	
			20K	G0356XXM	
	VR310	Comb Filter Adjustment	1000	GF0031XH	
	VR311	Contrast	1000	G0354XXB	
			1000	G0354XXH	
	VR402	Vert Size	10K	G0371XXH	
	VR451	Horiz Hold	5000	G0349XDT	

PARTS LIST AND DESCRIPTION (Continued)

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

SEMICONDUCTORS (Select replacement transistor for best results)

ITEM No.	TYPE No.	MFGR. PART No.	REPLACEMENT DATA				
			NOTES	NTE PART No.	ECG PART No.	RCA PART No.	WORKMAN PART No.	ZENITH PART No.
Q316	(2S)A608E			NTE290A	ECG290A	SK3114A/290A	WEP911/290A	121-Z9003*
	2SA608(E,F)			NTE290A	ECG290A	SK3114A/290A	WEP911/290A	121-Z9003*
	2SA608			NTE290A	ECG290A	SK3114A/290A	WEP911/290A	121-Z9003*
	2SA564			NTE290A	ECG290A	SK3932/91	WEP564	121-879*
	2SA564(Q,R,S)			NTE290A	ECG290A	SK3932/91	WEP564	121-879*
	2SA1015			NTE290A	ECG290A	SK9132	WEP911/290A	121-Z9003*
	2SA1015(G,O,Y)			NTE290A	ECG290A	SK9132	WEP911/290A	121-Z9003*
Q317	(2S)C536E			NTE85	EC685	SK3245/199	WEP536	121-972*
	2SC536NP			NTE85	EC685	SK3245/199	WEP536	121-972*
	2SC536NP (E,F,G)			NTE85	EC685	SK3245/199	WEP536	121-972*
	2SC945A			NTE85	EC685	SK3124A/289A	WEP736/123A*	121-972*
	2SC945A(K,P,Q)			NTE85	EC685	SK3124A/289A	WEP736/123A*	121-972*
Q318	(2S)A608F			NTE290A	ECG290A	SK3114A/290A	WEP911/290A	121-Z9003*
	2SA608(E,F)			NTE290A	ECG290A	SK3114A/290A	WEP911/290A	121-Z9003*
	2SA608			NTE290A	ECG290A	SK3114A/290A	WEP911/290A	121-Z9003*
	2SA564			NTE290A	ECG290A	SK3932/91	WEP564	121-879*
	2SA564(Q,R,S)			NTE290A	ECG290A	SK3932/91	WEP564	121-879*
	2SA1015			NTE290A	ECG290A	SK9132	WEP911/290A	121-Z9003*
	2SA1015(G,O,Y)			NTE290A	ECG290A	SK9132	WEP911/290A	121-Z9003*
Q319	(2S)A608F			NTE290A	ECG290A	SK3114A/290A	WEP911/290A	121-Z9003*
	2SA608(E,F)			NTE290A	ECG290A	SK3114A/290A	WEP911/290A	121-Z9003*
	2SA608			NTE290A	ECG290A	SK3114A/290A	WEP911/290A	121-Z9003*
Q401	(2S)C536E			NTE85	EC685	SK3245/199	WEP536	121-972*
	2SC536NP			NTE85	EC685	SK3245/199	WEP536	121-972*
	2SC536NP(E,F)			NTE85	EC685	SK3245/199	WEP536	121-972*
	2SC945A			NTE85	EC685	SK3124A/289A	WEP736/123A*	121-972*
	2SC945A(P,Q)			NTE85	EC685	SK3124A/289A	WEP736/123A*	121-972*
	2SC1815			NTE85	EC685	SK3124A/289A	WEP66/199	121-Z9065*
	2SC1815(G,Y)			NTE85	EC685	SK3124A/289A	WEP66/199	121-Z9065*
Q451	(2S)C2621E			NTE157	EC6157	SK3747/157	WEP61/157	121-Z9016
	2SC2621-RA			NTE157	EC6157	SK3747/157	WEP61/157	121-Z9016
	2SC2621-RA (D,E)			NTE157	EC6157	SK3747/157	WEP61/157	121-Z9016

PARTS LIST AND DESCRIPTION (Continued)

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

SEMICONDUCTORS (Select replacement transistor for best results)

ITEM No.	TYPE No.	MFGR. PART No.	REPLACEMENT DATA					
			NOTES	NTE PART No.	ECG PART No.	RCA PART No.	WORKMAN PART No.	ZENITH PART No.
# Q452	2SD871			NTE89	ECG89	SK9119/89	WEP89/89	121-Z9112
	2SD871(Z)	Q6597		NTE89	ECG89	SK9119/89	WEP89/89	121-Z9112
Q453	(2S)C2483R			NTE186A	ECG186A	SK9392/80	WEP900/186A	121-Z9008
	2SC2483(O,R)			NTE186A	ECG186A	SK9392/80	WEP900/186A	121-Z9008
	2SC2483			NTE186A	ECG186A	SK9392/80	WEP900/186A	121-Z9008
# Q455	(2S)A608F			NTE290A	ECG290A	SK3114A/290A	WEP911/290A	121-Z9003*
	2SA608A			NTE290A	ECG290A	SK3114A/290A	WEP911/290A	121-Z9003*
	2SA608A(E,F)	Q5077EA		NTE290A	ECG290A	SK3114A/290A	WEP911/290A	121-Z9003*
	2SA1015			NTE290A	ECG290A	SK9132	WEP911/290A	121-Z9003*
	2SA1015(O,Y)	Q6562		NTE290A	ECG290A	SK9132	WEP911/290A	121-Z9003*
Q491,492	(2S)C945Q			NTE85	ECG85	SK3124A/289A	WEP736/123A*	121-972*
	2SC945A			NTE85	ECG85	SK3124A/289A	WEP736/123A*	121-972*
	2SC945A(P,Q)			NTE85	ECG85	SK3124A/289A	WEP736/123A*	121-972*
	2SC1815			NTE85	ECG85	SK3124A/289A	WEP66/199	121-Z9065*
	2SC1815(G,Y)			NTE85	ECG85	SK3124A/289A	WEP66/199	121-Z9065*
	2SC536NP			NTE85	ECG85	SK3245/199	WEP536	121-972*
	2SC536NP(E,F)			NTE85	ECG85	SK3245/199	WEP536	121-972*
Q493	(2S)B544E			NTE294	ECG294	SK3841/294	WEP916/294	121-Z9067
	2SB544(E,F)			NTE294	ECG294	SK3841/294	WEP916/294	121-Z9067
	2SB544			NTE294	ECG294	SK3841/294	WEP916/294	121-Z9067
	2SB564			NTE294	ECG294	SK3841/294	WEP916/294	121-Z9067
	2SB564(L,M)			NTE294	ECG294	SK3841/294	WEP916/294	121-Z9067
Q501 thru	(2S)A608F			NTE290A	ECG290A	SK3114A/290A	WEP911/290A	121-Z9003*
Q504	2SA608(E,F)			NTE290A	ECG290A	SK3114A/290A	WEP911/290A	121-Z9003*
	2SA608			NTE290A	ECG290A	SK3114A/290A	WEP911/290A	121-Z9003*
Q505 thru	(2S)C536E			NTE85	ECG85	SK3245/199	WEP536	121-972*
Q510	2SC536NP(E,F)			NTE85	ECG85	SK3245/199	WEP536	121-972*
	2SC536NP			NTE85	ECG85	SK3245/199	WEP536	121-972*
	2SC945A			NTE85	ECG85	SK3124A/289A	WEP736/123A*	121-972*
	2SC945A(P,Q)			NTE85	ECG85	SK3124A/289A	WEP736/123A*	121-972*
	2SC1815			NTE85	ECG85	SK3124A/289A	WEP66/199	121-Z9065*
	2SC1815(G,Y)			NTE85	ECG85	SK3124A/289A	WEP66/199	121-Z9065*

PARTS LIST AND DESCRIPTION (Continued)

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

SEMICONDUCTORS (Select replacement transistor for best results)

ITEM No.	TYPE No.	MFGR. PART No.	REPLACEMENT DATA					
			NOTES	NTE PART No.	ECG PART No.	RCA PART No.	WORKMAN PART No.	ZENITH PART No.
Q801	(2S)C945LP			NTE85	ECG85	SK3124A/289A	WEP736/123A*	121-972*
	2SC945A			NTE85	ECG85	SK3124A/289A	WEP736/123A*	121-972*
	2SC945A(P)			NTE85	ECG85	SK3124A/289A	WEP736/123A*	121-972*
	2SC1815			NTE85	ECG85	SK3124A/289A	WEP66/199	121-Z9065*
	2SC1815(G)			NTE85	ECG85	SK3124A/289A	WEP66/199	121-Z9065*
	2SC536NP			NTE85	ECG85	SK3245/199	WEP536	121-972*
	2SC536NP (E,F,G)			NTE85	ECG85	SK3245/199	WEP536	121-972*
Q851,852	(2S)C536F			NTE85	ECG85	SK3245/199	WEP536	121-972*
	2SC536NP			NTE85	ECG85	SK3245/199	WEP536	121-972*
	2SC536NP (E,F,G)			NTE85	ECG85	SK3245/199	WEP536	121-972*

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

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

PRELIMINARY SERVICE CHECKS (Continued)
PREVENTATIVE MAINTENANCE

ENVIRONMENT

Computers perform best in a clean, cool area that is below 80 degrees Fahrenheit and free of dust and smoke particles. Even though home Computers are not affected by cigarette smoke as much as commercial Computers are affected, it is better to maintain a smoke-free area around the Computer. Do not block cabinet vents of any of the Computer system; Computer, Monitor, Printer, or other power devices.

ELECTRICAL POWER

Variations in the line voltage can affect the Computer. Try to avoid these fluctuations by using an AC receptacle that is on a power line not used by appliances or other heavy current demand devices. A power-surge protector, power-line conditioner, or non-interruptable power supply may be needed to cure the problem. **Do not** switch power On and Off frequently.

KEYBOARD

Liquids spilled into the Keyboard can ruin it. Immediately after a spill occurs, disconnect the Computer power plug from AC power outlet. Then, if circuitry or contacts are contaminated, disassemble the Keyboard and carefully rinse the Keyboard printed circuit board with distilled water and let it dry. Use a cotton swab to clean between the keys. Use a non-abrasive contact cleaner and lint-free wipers on accessible connectors and contacts.

DISK DRIVES

Clean the read/write heads of the Disk Drives about once a month or after 100 hours usage. Use only an approved head cleaning kit.

Handle carefully to preserve proper disk head alignment. A sudden bump or jolt to the Disk Drives can knock the disk head out of alignment. If the disk drive must be transported, place an old disk in slot and close door during transport.

Store disks in their protective covers and never touch the disk surface. Observe the disk handling precautions usually found on the back of disk protective covers.

PRINTERS

Carefully vacuum the Printer regularly. Wipe surface areas clean using a light all-purpose cleaner. Do not oil the machine. The oil will collect abrasive grit and dust. The dust will act as a blanket. This can cause components to overheat and fail.

STATIC ELECTRICITY

Static electricity discharge can affect the Computer. In order to minimize the possibility, use anti-static mats, sprays, tools and materials, and maintain good humidity in the Computer environment.

MONITOR

Use an isolation transformer with any Monitor that does not come as part of the system since some Monitors use a HOT chassis (chassis connected to one side of the AC line). The face of the Monitor should never be left on for long periods of time at high brightness level except when pattern is being changed periodically. Use caution when cleaning anti-glare screens, to preserve the glare-reduction feature.

PRELIMINARY SERVICE CHECKS

This data provides the user with a time-saving service tool designed for quick isolation and repair of Monitor malfunctions.

Check all interconnecting cables for good connection and correct hookup before making service checks.

TEST EQUIPMENT AND TOOLS

TEST EQUIPMENT

Digital Volt/Ohm Meter
High Voltage Probe
CRT Tester
Crosshatch Generator
Degaussing Coil

TOOLS

Phillips Screwdriver
Low Voltage Soldering Iron
Desoldering Tool

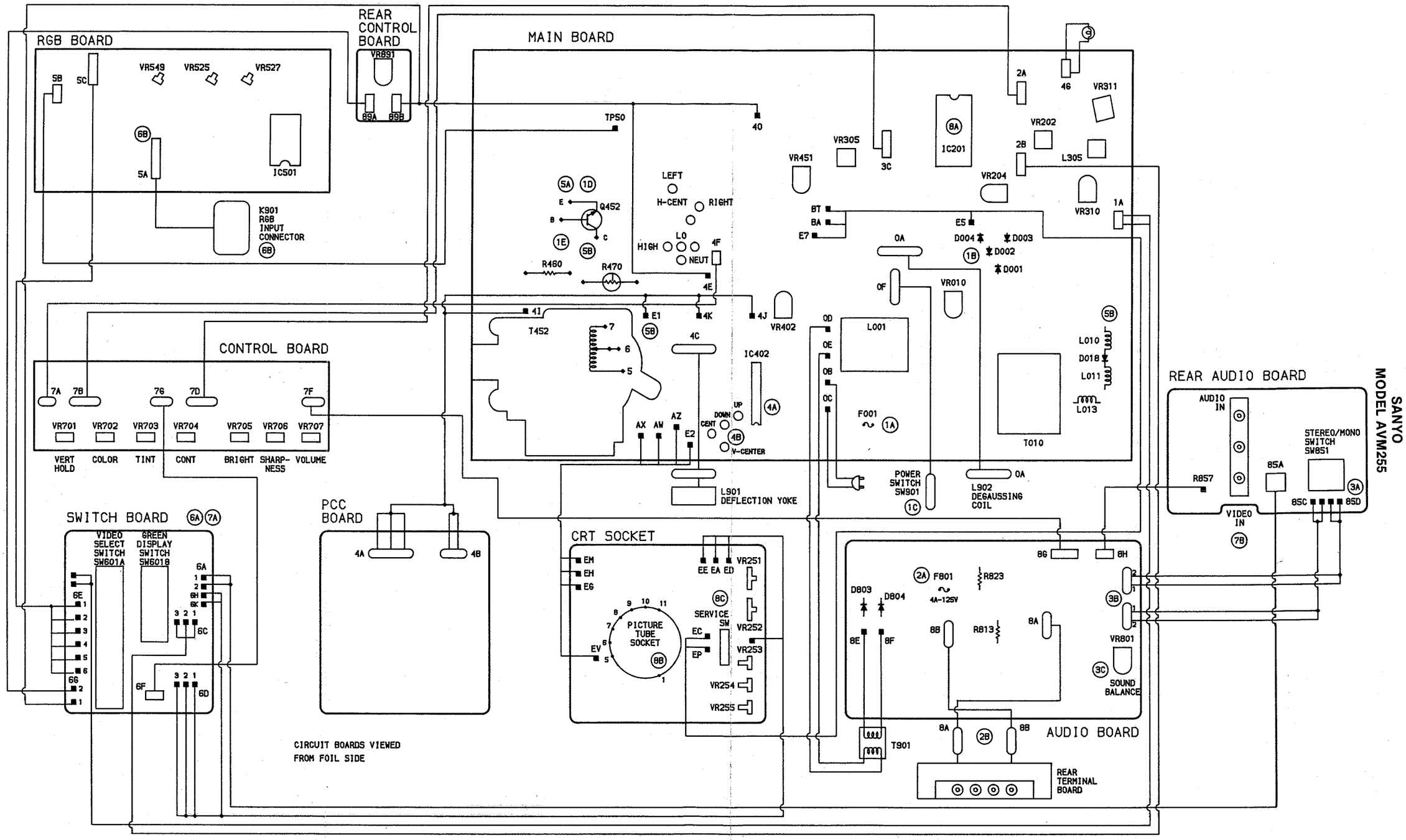
REPLACEMENT PARTS AND DESCRIPTION

ITEM	PART NO.	DESCRIPTION
D001 thru D004	E1704R	Diode, C0406
D018		Diode, FB30G
F001	E5093	Fuse, 4A, 125V Fast Acting
F801	E5093	Fuse, 4A, 125V Fast Acting
IC201		IC, LA7600N
IC402	QC0009	IC, LA7820
Q452		Transistor, 2SD871
R460		Resistor, 3.9 ohm, 6W, 10%

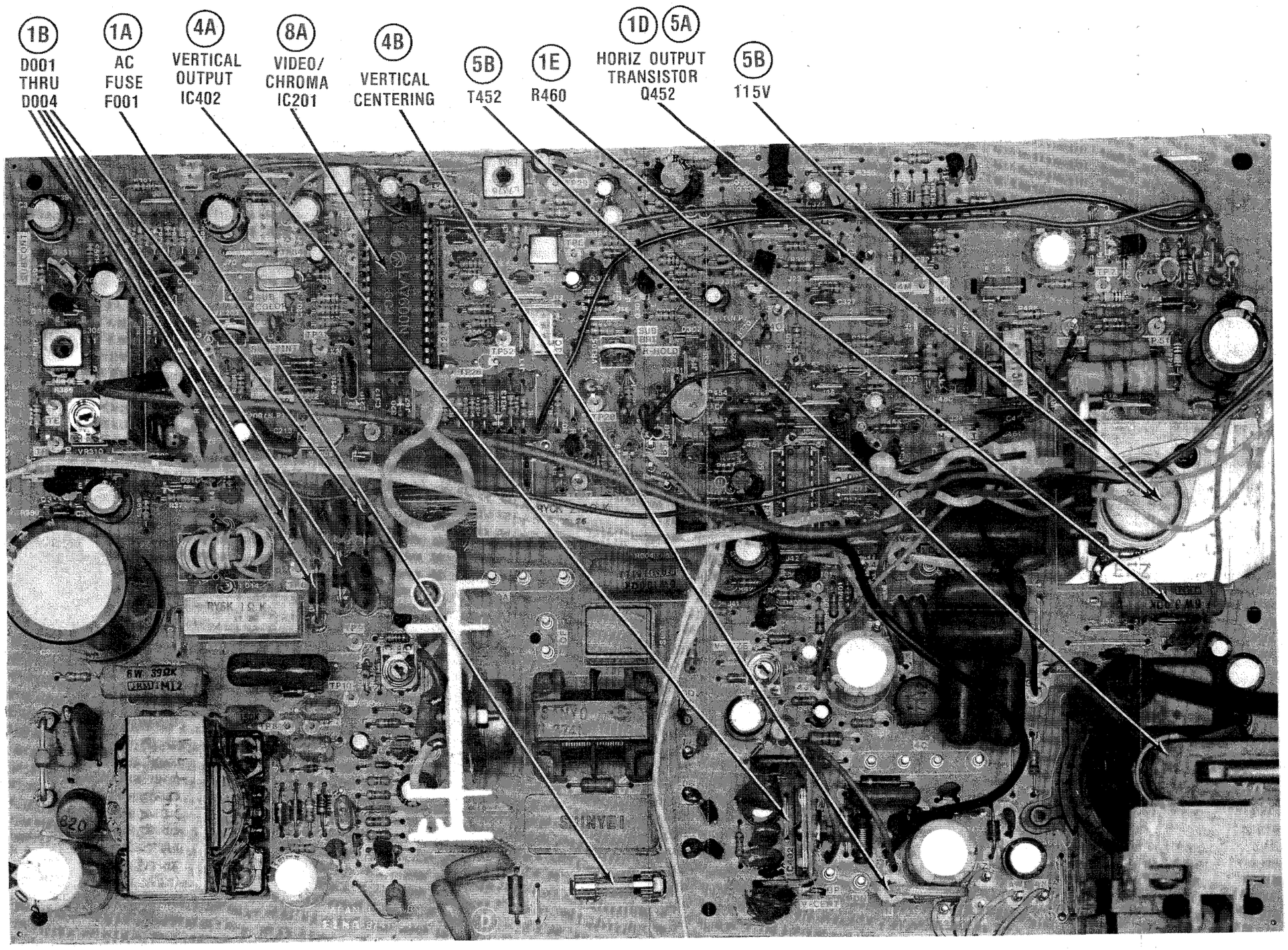
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RGB BOARD
REAR CONTROL BOARD
MAIN BOARD
CONTROL BOARD
SWITCH BOARD
PCC BOARD
CRT SOCKET
REAR AUDIO BOARD
AUDIO BOARD
VR549
VR525
VR527
VR891
IC501
K901 RGB INPUT CONNECTOR
TP50
Q452
R460
R470
LEFT
H-CENT
RIGHT
HIGH
LO
NEUT
T452
IC402
VR451
VR305
VR202
VR204
VR311
VR310
IC201
L305
VR402
L001
F001
T010
L010
D018
L011
L013
VR010
D004
D003
D002
D001
POWER SWITCH SW901
L902 DEGAUSSING COIL
L901 DEFLECTION YOKE
VR701 VERT HOLD
VR702 COLOR
VR703 TINT
VR704 CONT
VR705 BRIGHT
VR706 SHARP-NESS
VR707 VOLUME
VIDEO SELECT SWITCH SW601A
GREEN DISPLAY SWITCH SW6018
PICTURE TUBE SOCKET
SERVICE SW
VR251
VR252
VR253
VR254
VR255
F801 4A-125V
R823
R813
D803
D804
VR801
SOUND BALANCE
T901
REAR TERMINAL BOARD
AUDIO IN
STEREO/MONO SWITCH SW851
R857
VIDEO IN
CIRCUIT BOARDS VIEWED FROM FOIL SIDE
SANYO MODEL AVM255

PRELIMINARY SERVICE CHECKS (Continued)



PRELIMINARY SERVICE CHECKS (Continued)

SERVICE CHECKS

MATCH THE NUMBERS ON THE INTERCONNECTING DIAGRAM AND PHOTOS WITH THE NUMBERS ON THE SERVICE CHECKS TO BE PERFORMED.

(1) MONITOR DEAD

(A) Check AC Fuse (F001).

(B) If Fuse F001 is open, check Bridge Rectifier Diodes (D001 thru D004).

(C) Check Power Switch (SW901) for continuity.

(D) Check Horizontal Output Transistor (Q452).

(E) If Q452 is bad, check Resistor R460.

(2) NO SOUND

(A) Check DC Fuse (F801) on Audio Board.

(B) Check Connectors 8A and 8B for good connections.

(3) NO STEREO SOUND

(A) Check Stereo/Mono Switch (SW851) for dirty contacts.

(B) Check Connectors 8H, 8D and 8C for good connections.

(C) Check adjustment of Sound Balance Control (VR801).

(4) VERTICAL

(A) No vertical sweep, check for 25.0V at pin 9 of Vertical Output IC (IC402). If voltage is low disconnect pin 9 of IC402 and check for 25.0V at Source 15. If voltage is good check IC402 by substitution.

(B) Vertical not centered, check vertical centering jumper for correct centering.

(5) HORIZONTAL

(A) No horizontal sweep, check Horizontal Output Transistor (Q452).

(B) Check for 115V at collector of Q452, if voltage is misisng check Resistor R460, pins 5 and 7 of Transformer T452 for continuity, and Diode D018.

(6) NO VIDEO (RGB)

(A) Check Video Select Switch (SW601) for correct setting and clean contacts.

(B) Check RGB Input Connector (K901) and Connector 5A for good connections.

(7) NO VIDEO (NORMAL)

(A) Check Video Select Switch (SW601) for correct setting and clean contacts.

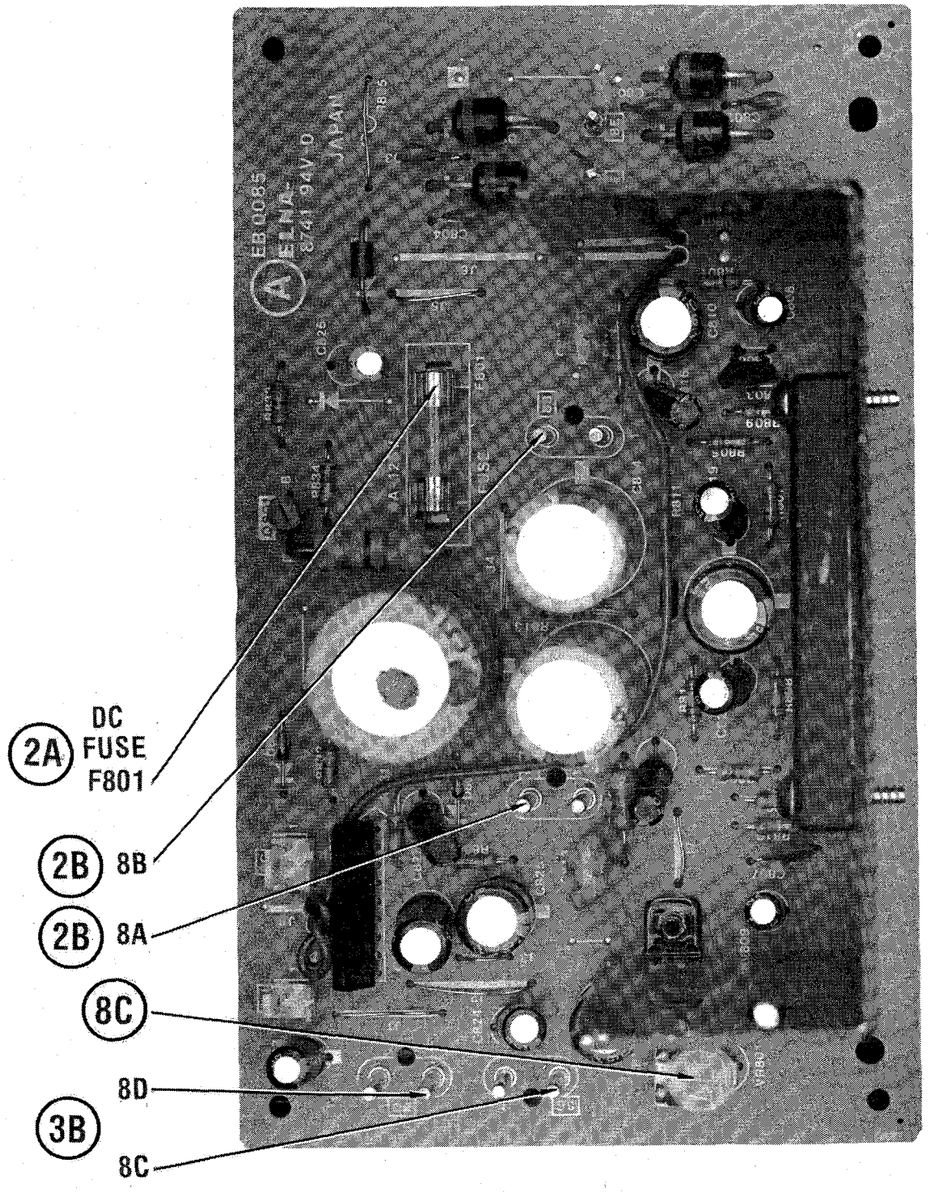
(B) Check Monitor Input Jack (85E) for good connections.

(8) NO VIDEO

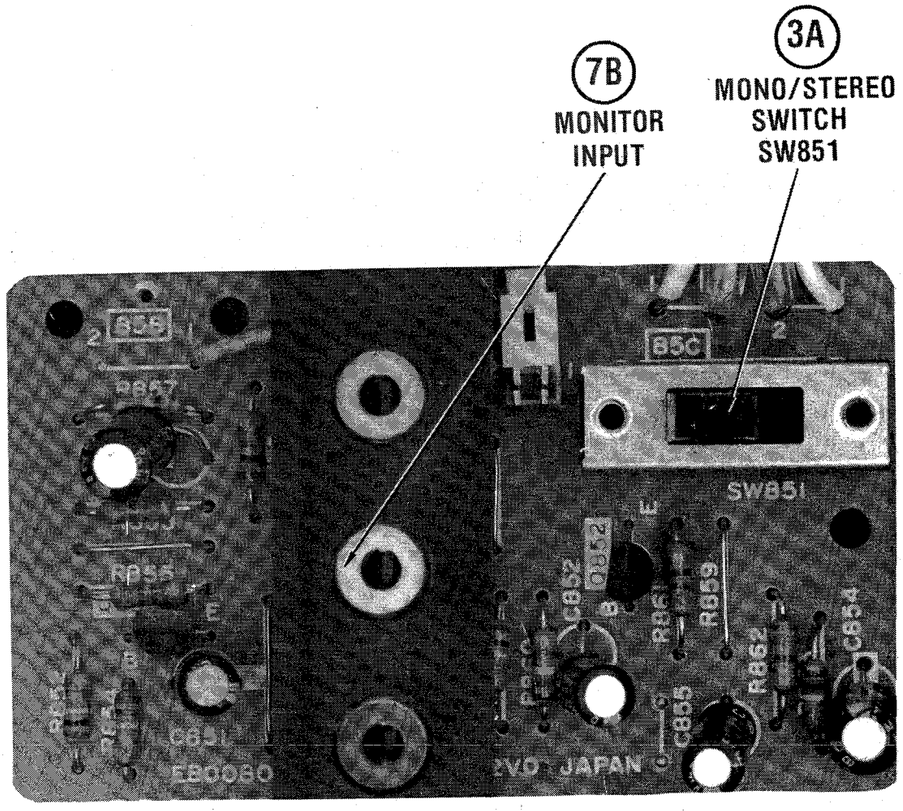
(A) Check Video/Chroma IC (IC201) by substitution.

(B) Check the CRT and CRT voltages.

(C) Check Service Switch for correct setting and clean contacts.



AUDIO BOARD



REAR AUDIO BOARD

MISCELLANEOUS ADJUSTMENTS

NOTE: The following adjustments with the exception of RGB Adjustments, are made with a VTR Standard 1VP-P video into 75 ohm, applied to the video input terminal.

+B1 (111V) ADJUSTMENT

Tune in a video signal, set Brightness and Contrast Controls to Detent position, Sharpness Control fully clockwise. Connect a DC meter to TP1, low side to E2 (Main P.C. Board). Adjust +B1 Adjust Control (VR010) for +111V DC. If you cannot acheive this voltage, perform the following instructions. Connect a jumper from TP7 to TP8 (Main P.C. Board), connect a jumper from cathode of D404 to ground. Set VR010 fully clockwise, +B1 must measure between 114V to 124V DC. If the reading is too high clip one end of R039, if it is too low, clip one end of R037. Remove jumper from TP7 to TP8, adjust VR010 for +111V DC. Remove jumper from D404. Remove meter.

HIGH VOLTAGE ADJUSTMENT

NOTE: Perform 111V B+ Adjustment and Gray Scale Adjustment before High Voltage Adjustment is attempted. Connect a high voltage meter to the CRT anode. Tune in a video signal, set Brightness, Contrast and Color Controls to MINIMUM. High Voltage should measure 27KV to 28KV. Place High Voltage Adjustment Tip to one of three (HI, Lo, N) positions to acheive the proper High Voltage range.

HORIZONTAL OSCILLATOR ADJUSTMENT

Tune in a video signal. Connect a jumper from TP40 to TP41. Connect a 330pF capacitor from TP25 to TP28. Readjust Brightness Control, if necessary to obtain a raster. Adjust Horizontal Oscillator Control (VR401) to momentarily synchronize the picture.

VERTICAL CENTERING ADJUSTMENT

Place the Vertical Centering Tip to one of three terminals (Up, N, Down) to center the picture vertically.

HORIZONTAL CENTERING ADJUSTMENT

Place the Horizontal Centering Tip to one of two terminals (N, Right) for best horizontal picture centering.

GRAY SCALE ADJUSTMENT

Set Red (VR251) and Blue (VR252) Drive Controls to midrange. Set Blue (VR254), Green (VR255) and Red (VR253) Cut-off Controls to MINIMUM. Set Screen Control (VR892B) to MINIMUM. Set Service Switch (SW251) to Service position. Disconnect Plug 85A (on Rear Audio Board).. Advance Screen Control until a colored line is just visible. If a line does not appear, advance Screen Control to Maximum. Advance each Bias Control until they produce a just visible line. Reconnect Plug 85A, set Service Switch (SW251) to Normal position. Tune in a video signal. Turn Color Control to MINIMUM. Alternately adjust Green and Blue Drive Controls to produce a normal black and white picture in high light areas. NOTE: If Gray Scale Adjustments are made after CRT replacement, check Brightness Level and High Voltage Adjustment.

SUB BRIGHTNESS ADJUSTMENT

Allow a 5 minute warm up time. Connect a pattern generator to the antenna terminal and tune in a crosshatch pattern. Connect a DC meter to TP50, low side to TP51. Set Brightness and Contrast Controls to Detent position, set Sharpness Control fully counterclockwise. Adjust Sub Brightness Control (VR305) for +0.6V. Check for picture blooming, if necessary adjust VR305 to prevent blooming.

APC ADJUSTMENT

Connect a color bar generator to the Video Input Terminal, adjust APC Control (VR204) for stable (sync locked) color bars.

COMB FILTER ADJUSTMENT

Connect a color bar generator to the Video Input Terminal and tune in a color bar pattern. Connect a scope to terminal "EC" on the CRT board, adjust L305 and VR310 for MINIMUM color components in the video signal. Connect a scope to TP on main board and measure the video portion of the waveform (do not include the sync pulse). Reconnect the scope to terminal "EC" (CRT board) and adjust Sub Contrast Control (VR311) for 4 times the amplitude of the video signal only (do not include the black level portion of the waveform) measured at TP.

SUB TINT ADJUSTMENT

Tune in a video signal. Set Tint Control to mechanical center. Connect scope to terminal "EE" of CRT board. Adjust Sub Tint Control (VR202) for sixth bar crossover of waveform.

NOTE: The follow adjustments are made with unit in the RGB mode using an RGB pattern generator at the RGB input terminals.

RGB GRAY SCALE AND SUB BRIGHTNESS ADJUSTMENT

Connect an RGB generator and set for blank raster with all three color signals applied. Place Video Select Switch to RGB position and Green Display Switch to Off. Set Green (VR527) and Blue (VR525) Cut-off Controls (on RGB board) fully counterclockwise. Set RGB Brightness Control (VR549) to midrange. Use jumper to connect terminal "EC" to terminal "EP" (on CRT board). Adjust Brightness Control to obtain a dim red line. Advance Green (VR527) and Blue (VR525) Cut-off Controls to produce a white line. Disconnect jumper from terminals "EC" and "EP". Set pattern generator for a corsshatch pattern and turn Brightness Control to Maximum. Adjust RGB Sub Brightness (VR549) for sufficient brightness without blooming.

PRELIMINARY SERVICE CHECKS (Continued)

MISCELLANEOUS ADJUSTMENTS (Continued)

SOUND BALANCE ADJUSTMENT

Connect speakers to the external speaker terminals. Apply a 400Hz, 0.5Vrms signal to the Audio Input (L) Jack. Connect scope to External Speaker Right Terminals. Place Stereo/Mono Switch to Mono position and Sound Balance Control (VR801) to mechancial center. Adjust volume control for 1V p-p on scope. Connect scope to External Speaker Left Terminals and adjust Sound Balance Control (VR801) for 1V p-p. Repeat procedure until balance is achieved.

RGB HORIZONTAL CENTERING ADJUSTMENT

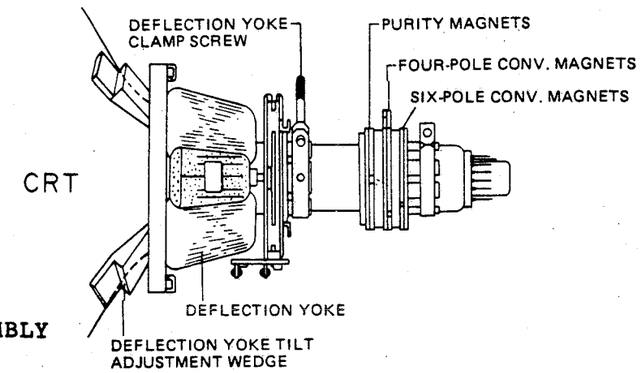
Connect RGB generator and set for crosshatch pattern. Adjust Horizontal Centering Control (VR891) to center the pattern on the screen.

PURITY ADJUSTMENT

Use a degaussing coil to demagnetize the CRT. Turn Red (VR253) and Blue (VR254) Cut-off Controls fully counterclockwise. Turn Screen Control (VR892B) fully counterclockwise. Turn Green Cut-off Control (VR255) clockwise to produce a green raster. Loosen deflection yoke and move it back as far as possible. Loosen locking ring and move purity tabs to center the vertical green band. Slowly slide the deflection yoke forward until a uniform green screen is obtained.

CONVERGENCE ADJUSTMENTS

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



CRT NECK ASSEMBLY

DISASSEMBLY INSTRUCTIONS

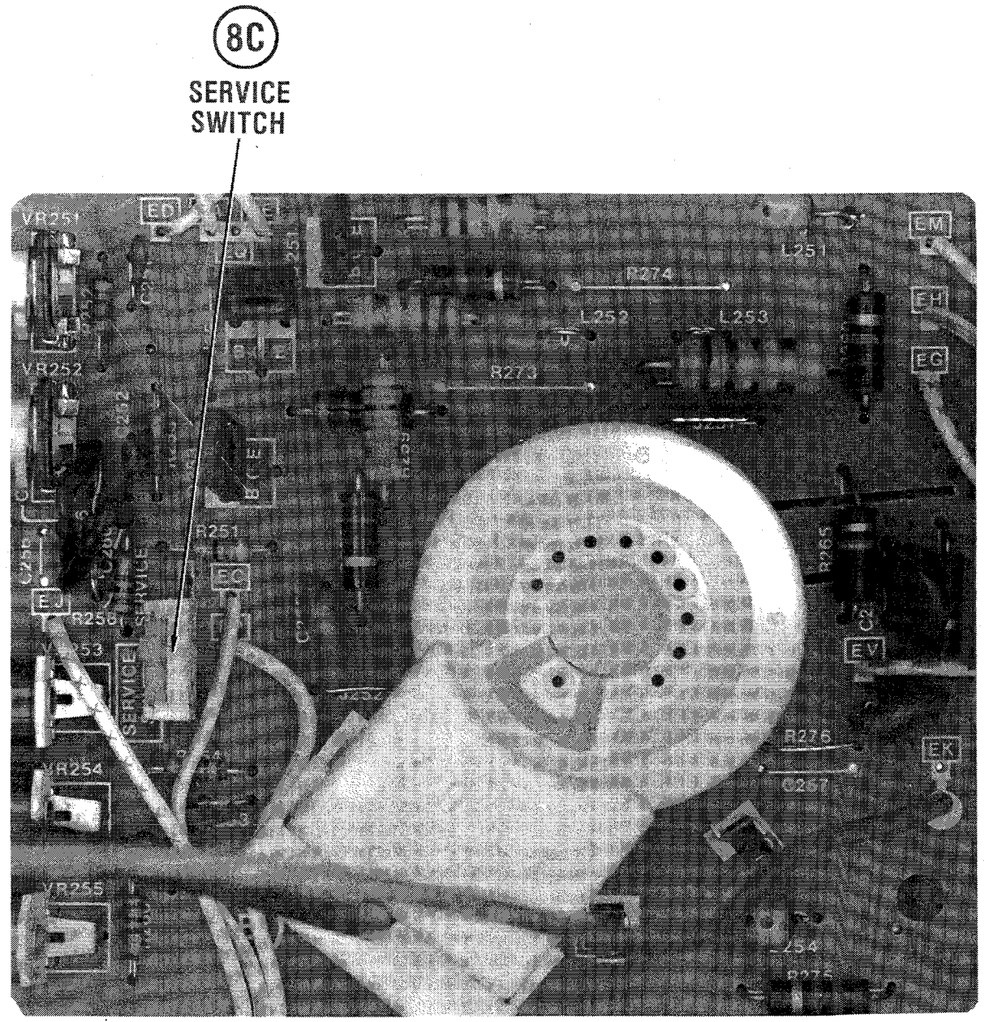
CHASSIS REMOVAL

Remove nine screws holding cabinet back and remove back. Remove one screw holding RGB Board/Audio Board Assembly to Main Board and remove assembly from cabinet. Disconnect HV anode, CRT socket, deflection yoke connector, degaussing coil connector and ground leads. Remove two screws holding Audio Power Transformer assembly to cabinet bottom and remove assembly from cabinet. Remove four screws holding switch board/control board assembly to cabinet front and remove assembly from cabinet. Remove two screws holding main board assembly to cabinet bottom and slide board out of cabinet.

CRT REMOVAL

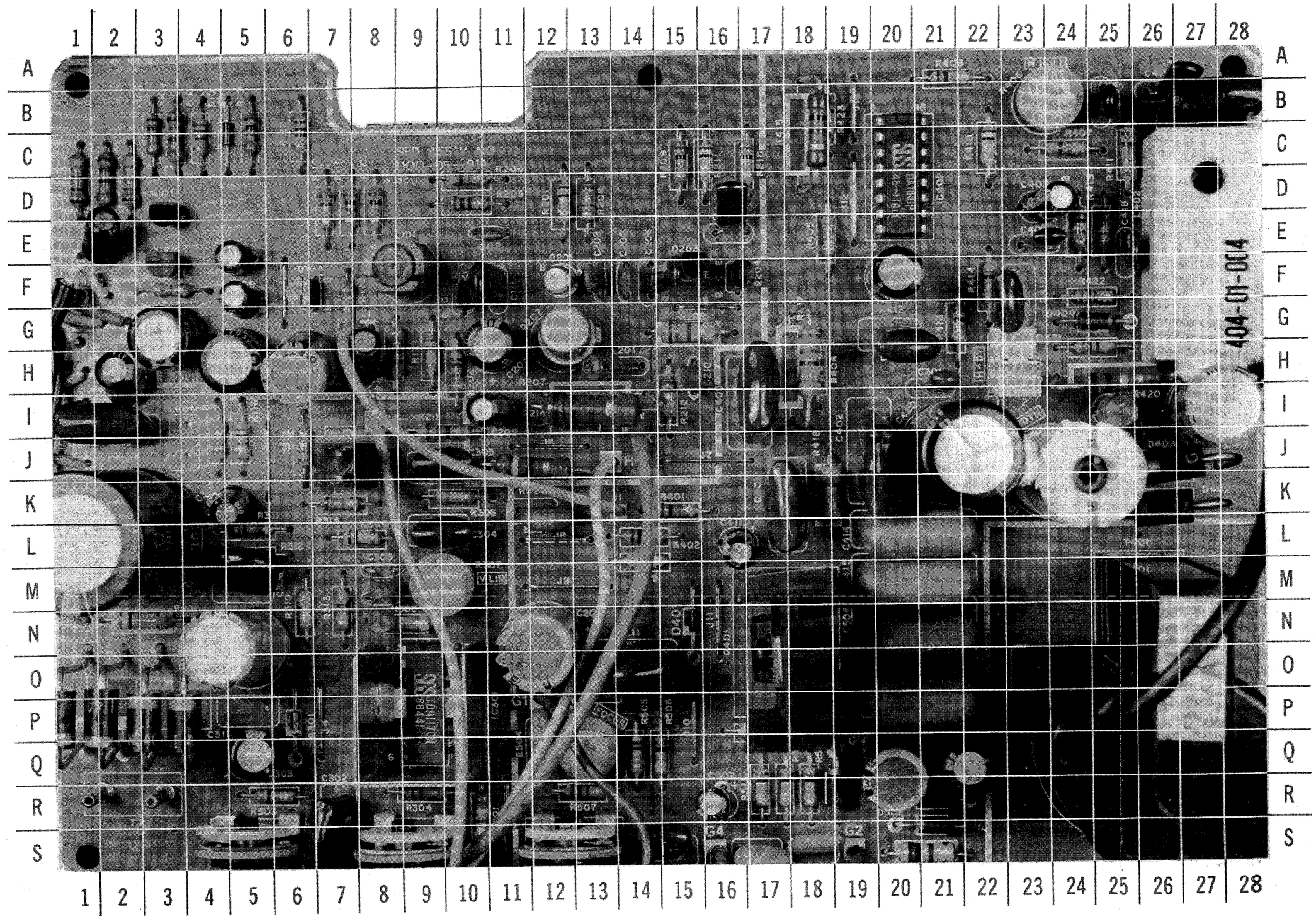
Follow "Chassis Removal" procedure and lay set facedown on a soft protective surface. Loosen and remove CRT neck assemblies. Remove four nuts holding CRT to cabinet front and lift CRT out of cabinet. Do not lift CRT by the neck.

PRELIMINARY SERVICE CHECKS (Continued)



CRT BOARD

SANYO
MODEL AVM255

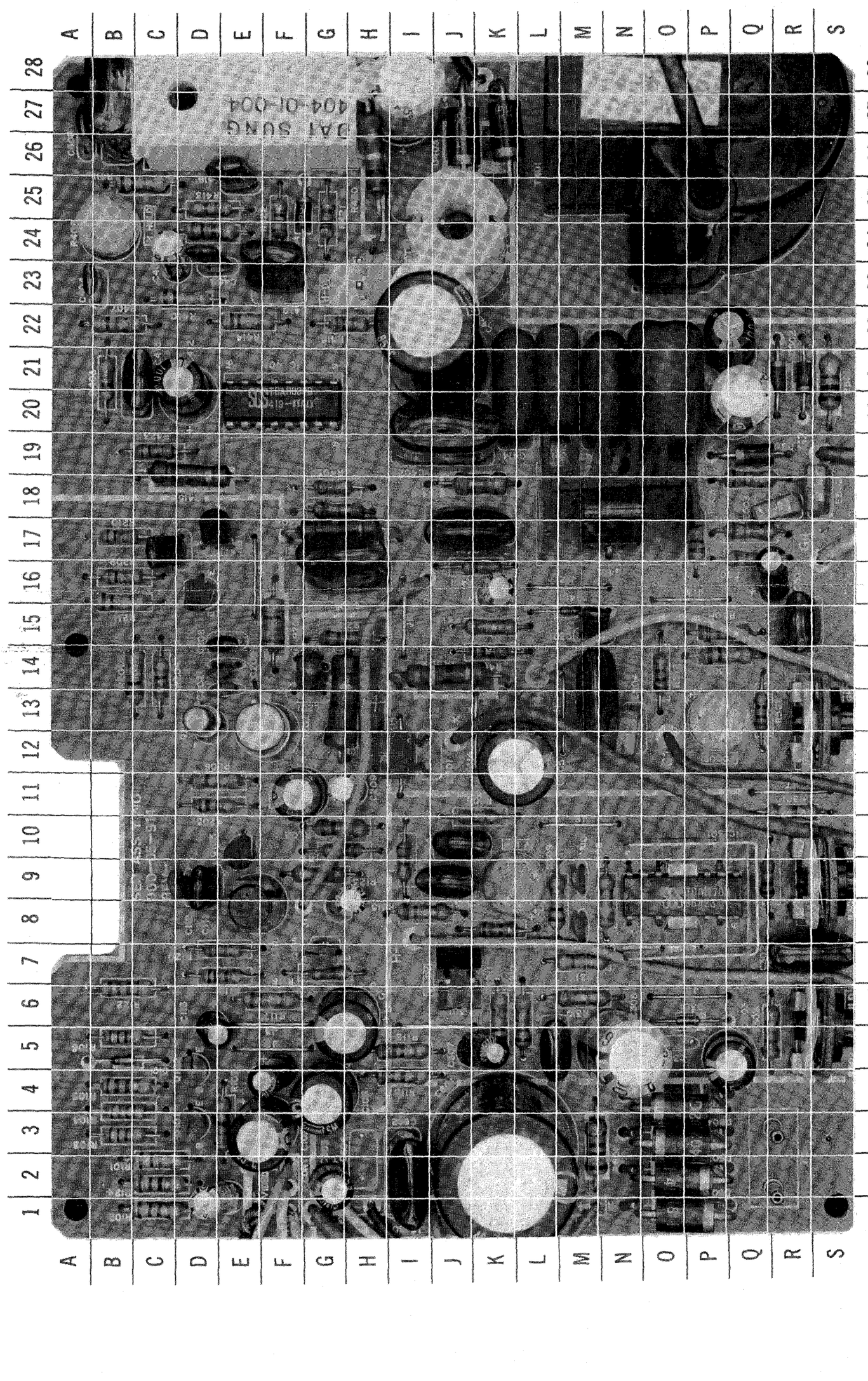


A Howard W. Sams GRIDTRACE™ Photo **MAIN BOARD 060-01-001 REV C**

MAIN BOARD 060-01-001 REV C

CMT9-1

APPLE MONITOR II
MODEL A2M2010



MAIN BOARD 060-01-001 REV B

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MAIN BOARD 060-01-001 REV B

CMT9

APPLE MONITOR II MODEL A2M2010
SANYO MODEL AVM255

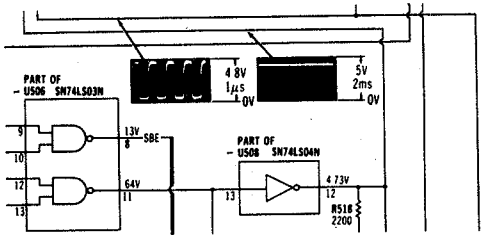
If seal is broken, nonreturnable.

SAMS

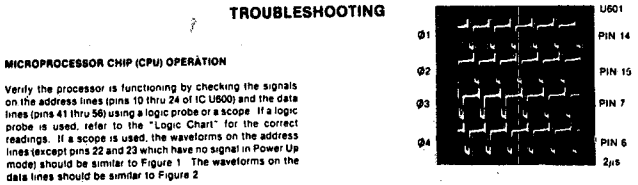
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- Step by Step Troubleshooting guides the technician through the necessary procedures to quickly locate the problem.


TROUBLESHOOTING

MICROPROCESSOR CHIP (CPU) OPERATION

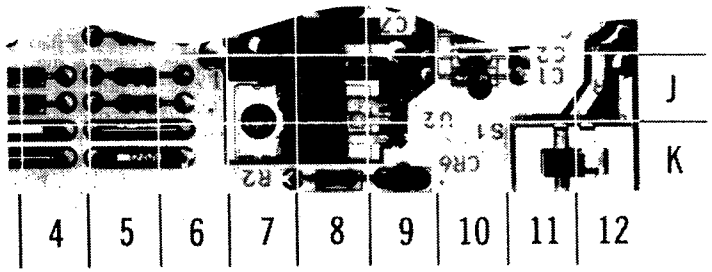
Verify the processor is functioning by checking the signals on the address lines (pins 10 thru 24 of IC U600) and the data lines (pins 41 thru 56) using a logic probe or a scope. If a logic probe is used, refer to the "Logic Chart" for the correct readings. If a scope is used, the waveforms on the address lines (except pins 22 and 23 which have no signal in Power Up mode) should be similar to Figure 1. The waveforms on the data lines should be similar to Figure 2.

- Logic Chart containing logic probe readings to isolate defective circuitry and components.

LOGIC

PIN NO.	IC U100	PIN NO.	IC U100	PIN NO.	IC U102	IC U103	IC U104	IC U105	IC U106	IC U107	IC U108	IC U109
1	P	21	P	1	L	L	L	L	L	L	L	L
2	P	22	P	2	P	P	P	P	P	P	P	P
3	P	23	P	3	H	H	H	H	H	H	H	H

- Quick Component Location using the SAMS exclusive GRIDTRACE, CIRCUITRACE, and component photographs.



- Complete Components Parts List in an easy to use format with field replacements shown when possible. SAMS unique semiconductor, chip and IC cross-reference gives you many replacements to choose from and is available at your Electronic Distributor.

SEMICONDUCTORS (Select replacement for best results)

ITEM No.	TYPE No.	MFGR. PART No.	REPLACEMENT DATA						
			ECG PART No.	GENERAL ELECTRIC PART No.	MOTOROLA PART No.	NTE PART No.	RCA PART No.	WORKMAN PART No.	ZENITH PART No.
D102	1SS53	1149-2576	ECG519	GE-514	1N4935	NTE519	SK9091/177	WEP925/519	103-131
D103	1N60FM	1149-2527	ECG109	1N60		NTE109	SK3088	WEP134/109	103-Z9001
D201	1N4004GP	1201-4205	ECG116	GE-504A	1N4004	NTE116	SK3312	WEP157	212-76-02
D501 thru D503	1SS53	1149-2576	ECG519	GE-514	1N4935	NTE519	SK9091/177	WEP925/519	103-131

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