

CABINET-REAR VIEW

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

Remove nine screws holding cabinet back and remove back. Disconnect speaker and antenna connectors. Channel readout may be removed at this point of disassembly. Remove two screws and release two latches holding readout selector panel to cabinet front and remove assembly from cabinet. Disconnect HV anode, CRT socket, deflection yoke connector, degaussing coil connector and ground leads. Remove two screws from below holding tuner assembly to

cabinet bottom and remove assembly from cabinet. Release one latch holding main board assembly to cabinet bottom and slide assembly out of cabinet.

CRT REMOVAL

Follow "Chassis Removal" procedure and lay set facedown on a soft protective surface. Loosen and remove CRT neck assemblies. Remove four 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 1-amp fuse is used for low-voltage power-supply protection. (See Alignment Photo.)

A 3-amp fuse is used for AC line protection. (See Alignment Photo.)

CHANNEL READOUT ACCESSIBILITY

Readout is accessible after removing cabinet back.

VHF/UHF TUNER

See Miscellaneous Adjustments.

Channel (up) and (down) buttons are provided for channel scanning. Ten numbered buttons on the remote are provided for one or two digit entry channel selection with channel (up) and (down) buttons provided for channel scanning. Fine tuning is automatic with fine tuning + (up) and - (down) buttons provided for additional fine tuning. No pretuning.

HORIZONTAL OSCILLATOR

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

FOCUS

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

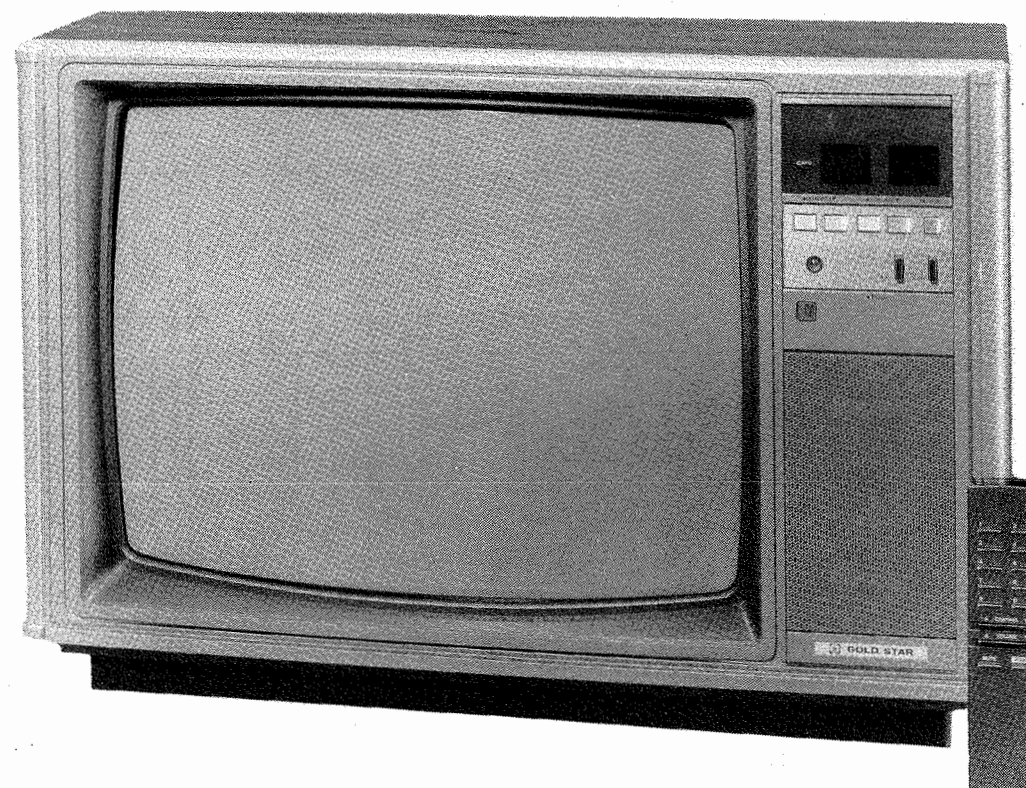
SET 2387 FOLDER 1

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SAFETY PRECAUTIONS

See page 4.

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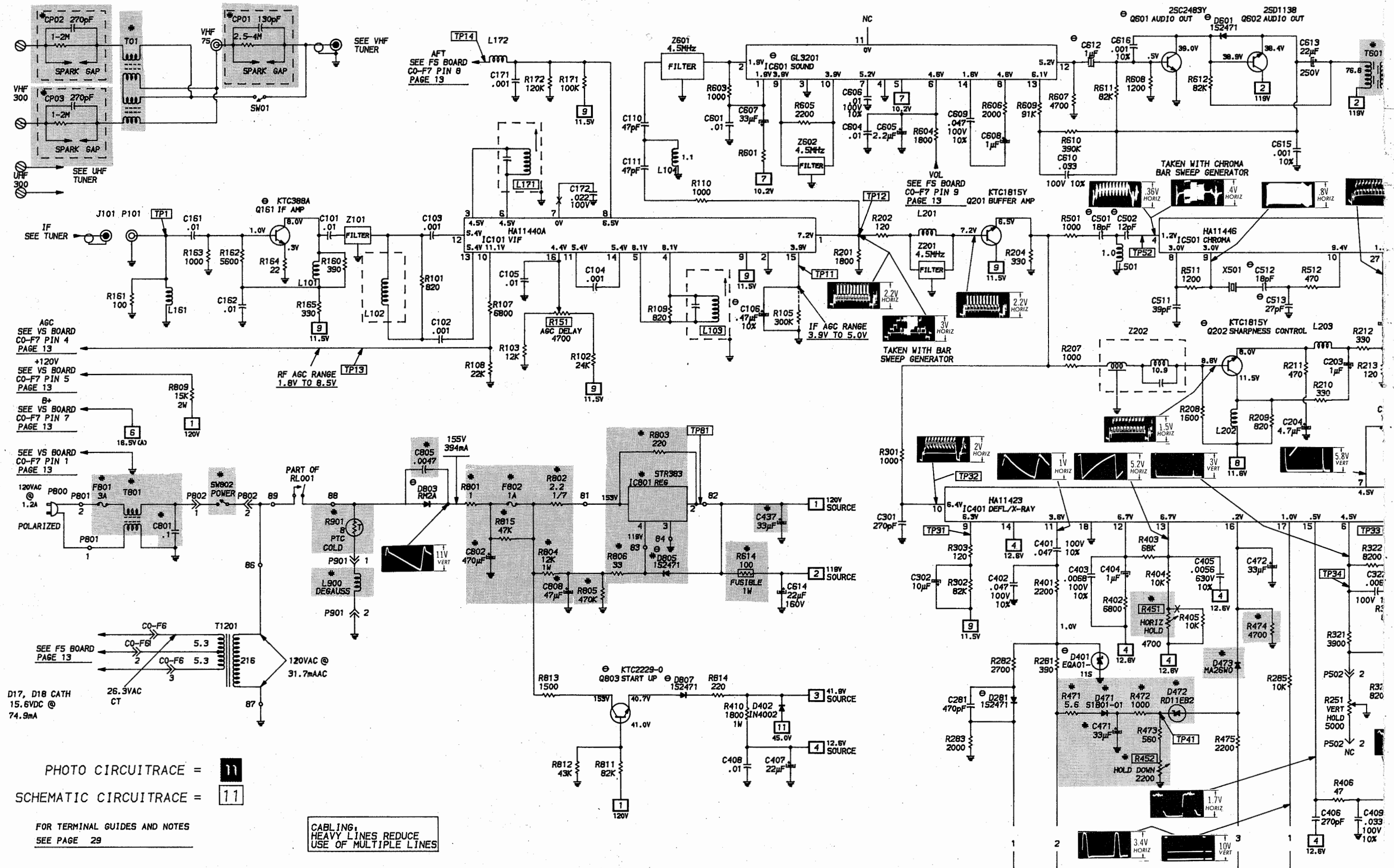
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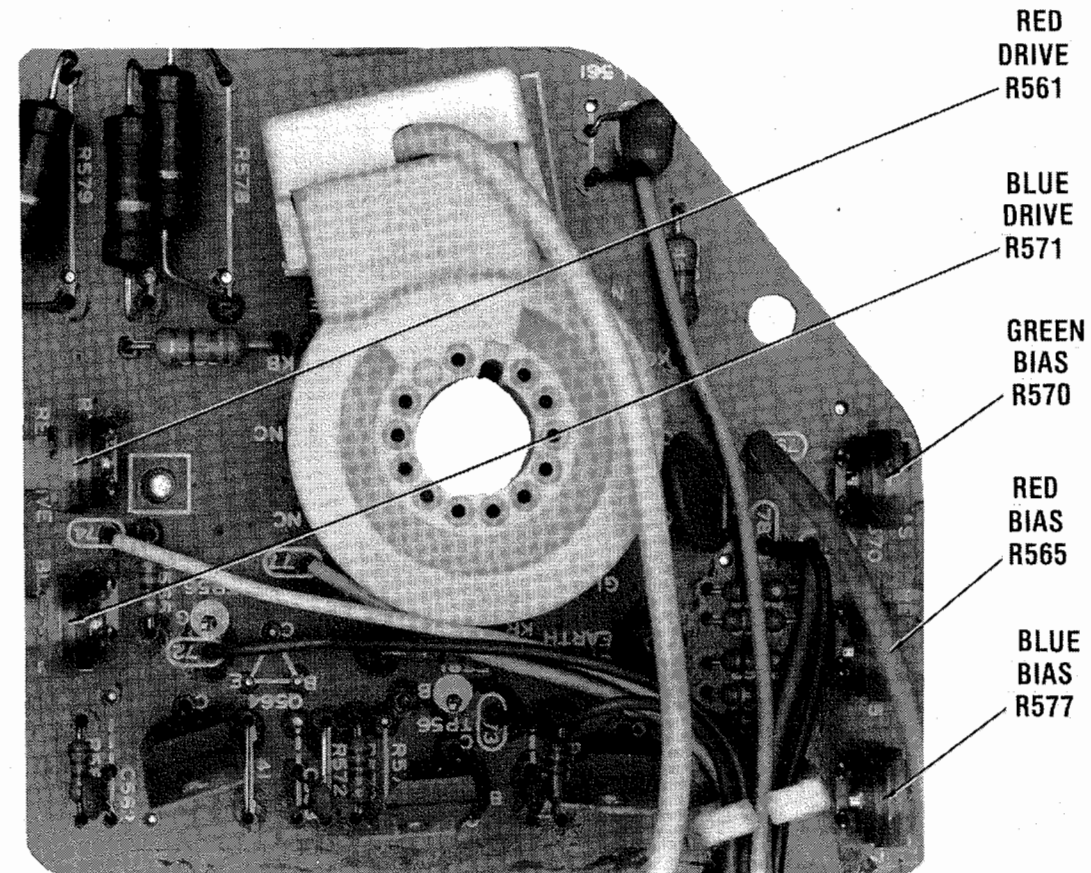
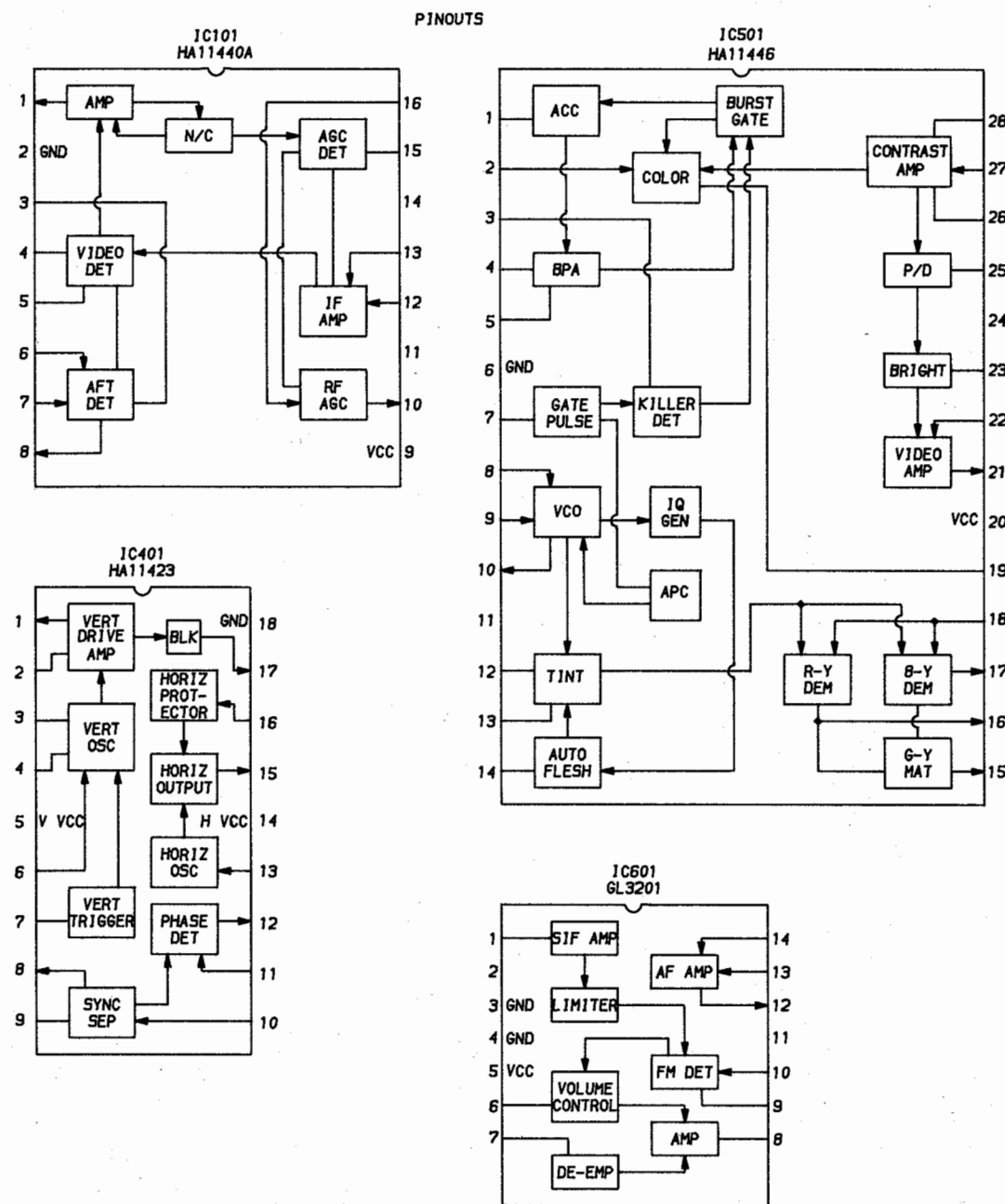


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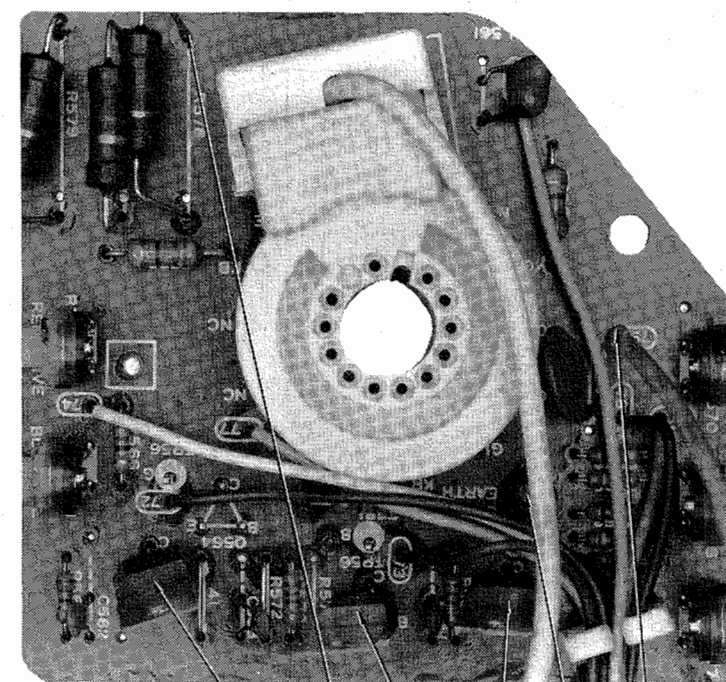
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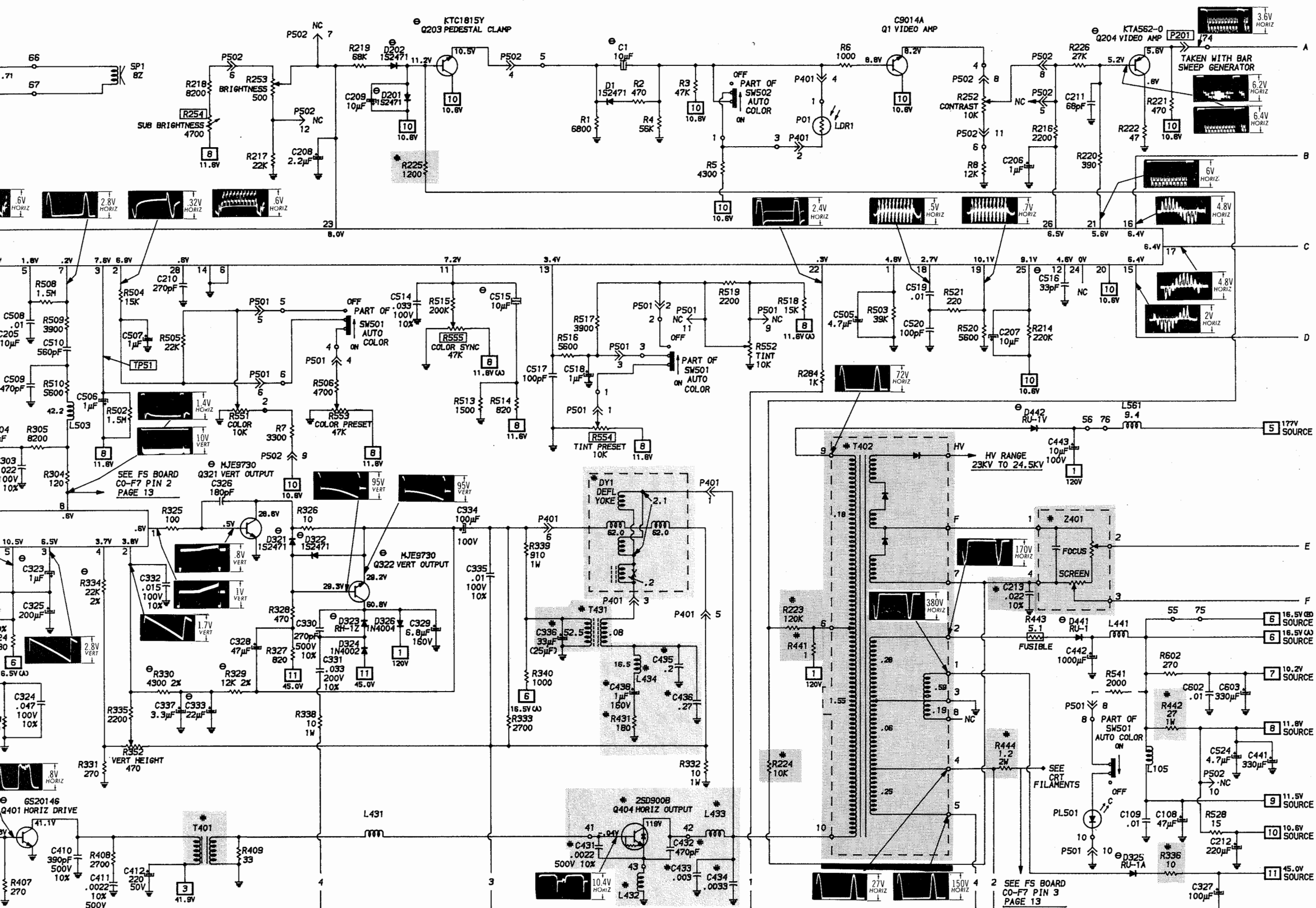
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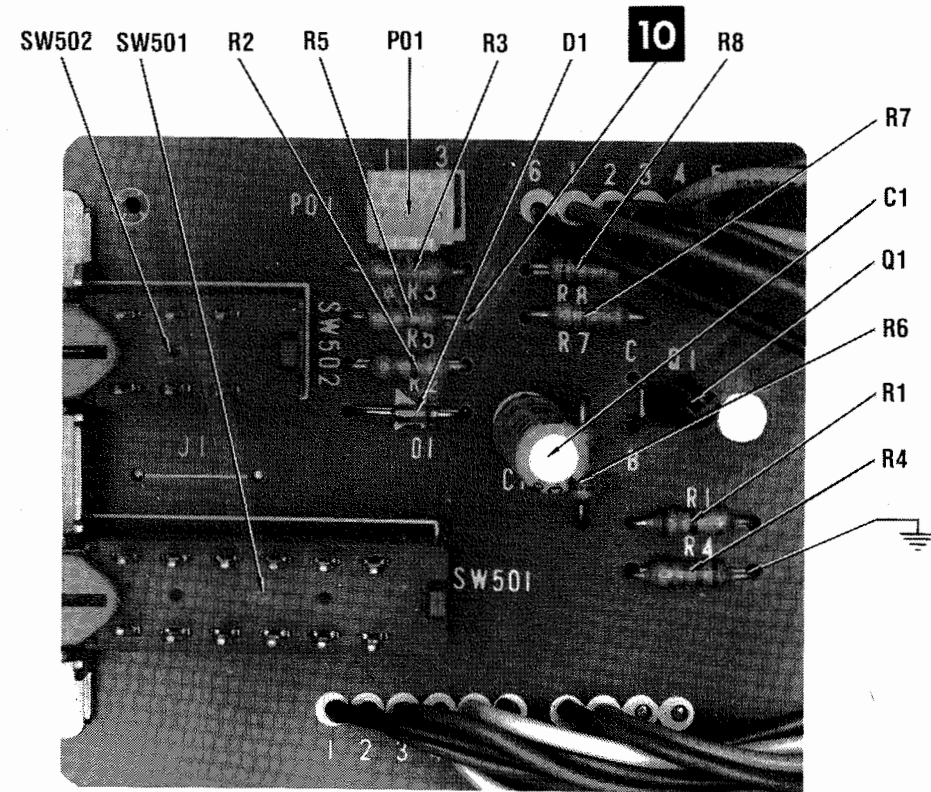
CRT BOARD



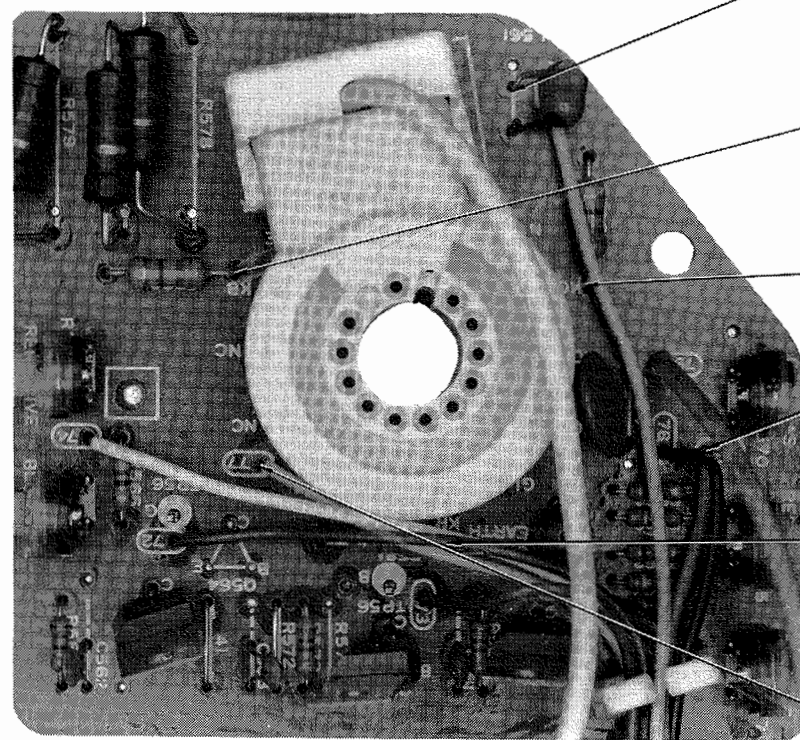
CRT BOARD



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AUTO BOARD

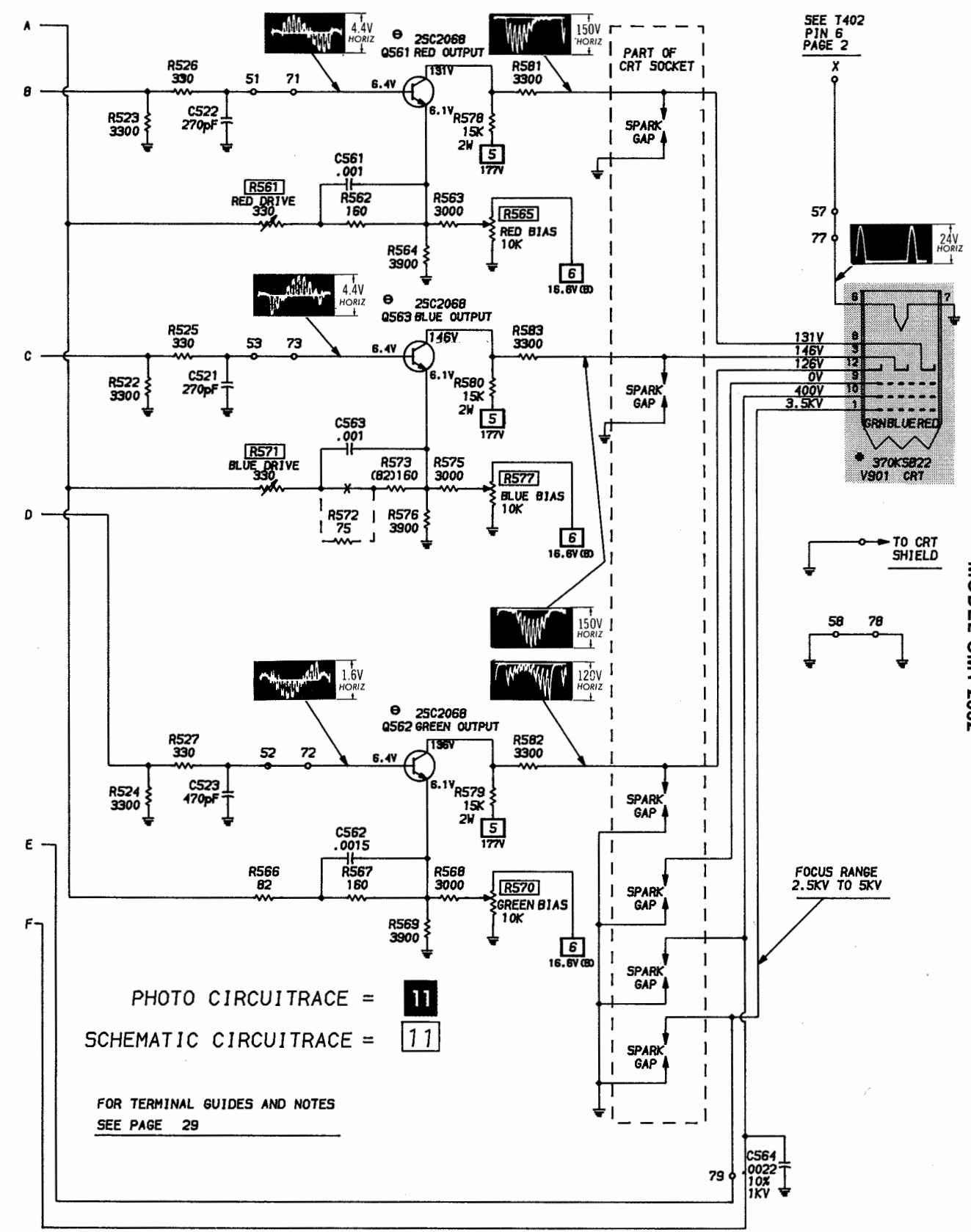


CRT BOARD

A Howard W. Sams **CIRCUITRACE™** Photo

- L561 (POINT 76)
176V
- R583 (CRT PIN 3)
- R582 (CRT PIN 12)
KG
- POINT 75
16.5V
- R581 (CRT PIN 8)
KR
- POINT 77 (CRT PIN 6)
HTR

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



A PHOTOFAC STANDARD NOTATION SCHEMATIC
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FOLDER 1

SAFETY PRECAUTIONS

- 1 Service work should be performed only after you are thoroughly familiar with all of the following safety checks and servicing guidelines.

WARNING

- 1. No modification of any circuit should be attempted for continued safety.
- 2. Disconnect the AC plug from the AC outlet before replacing parts.
- 3. Semiconductor heat sinks should be regarded as potential shock hazards when the chassis is operating.
- 4. The chassis in this receiver is hot. (connected to one side of the AC line). Use an isolation transformer between the line cord and power receptacle, when servicing this chassis.

SERVICING OF HIGH VOLTAGE SYSTEM AND PICTURE TUBE

When servicing the high voltage system, remove the static charge by connecting a 10K ohm Resistor in series with an insulated wire (such as a test probe) between the chassis and the anode lead. (AC line cord should be disconnected from AC outlet.)

- 1. Picture tube in this receiver employs integral implosion protection.
- 2. Replace with tube of the same type number for continued safety.
- 3. Do not lift picture tube by the neck.
- 4. Handle the picture tube only when wearing shatter-proof goggles and after discharging the high voltage completely.

X-RADIATION AND HIGH VOLTAGE LIMITS

- 1. Be sure your service personnel are aware of the procedures and instructions covering X-radiation. The only potential sources of X-ray in current solid state TV receivers is the picture tube. However, the picture tube does not emit measurable X-ray radiations if the high voltage is kept at factory-set levels. It is only when high voltage is excessive that X-radiation is capable of penetrating the shell of the picture tube including the lead in glass material. The important precaution is to keep the high voltage at factory-set levels.
- 2. It is essential that servicemen have available at all times an accurate high voltage meter. The calibration of this meter should be checked periodically.
- 3. High voltage should always be kept at rated value - no higher. Operation at higher voltages may cause a failure of the picture tube or high voltage circuitry and, also, under certain conditions, may produce radiation in excess of desirable levels.
- 4. When the high voltage regulator is operating properly there is no possibility of an X-radiation problem. Every time a color chassis is serviced, the brightness should be tested while monitoring the high voltage with a meter to be certain that the high voltage does not exceed the specified value and that it is regulating correctly.

X-RADIATION AND HIGH VOLTAGE LIMITS (Continued)

- 5. Do not use a picture tube other than that specified or make unrecommended circuit modifications in the high voltage circuitry.
- 6. When trouble shooting and taking test measurements on a receiver with an excessive high voltage, avoid being unnecessarily close to the receiver. Do not operate the receiver longer than is necessary to locate the cause of excessive voltage.

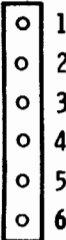
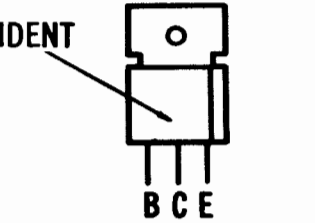
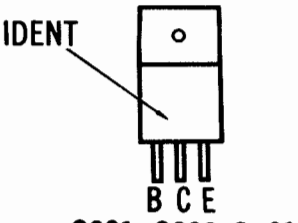
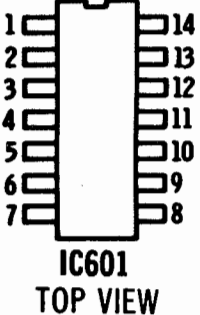
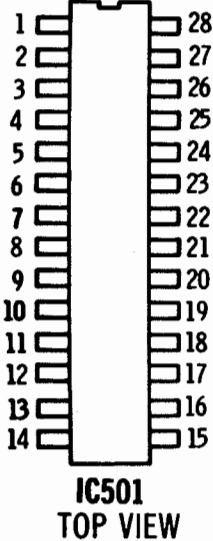
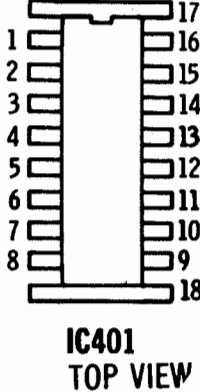
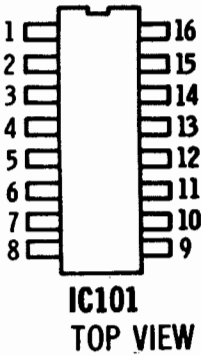
BEFORE RETURNING THE RECEIVER (Fire & Shock Hazard)

Before returning the receiver to the user, perform the following safety checks.

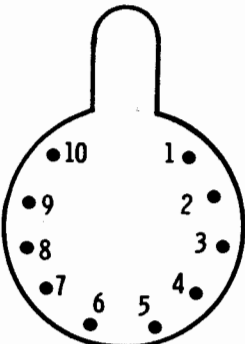
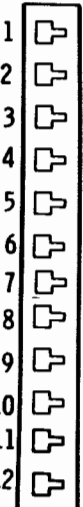
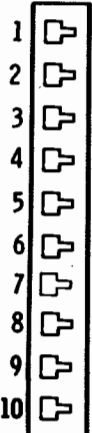
- 1. Inspect all lead dress to make certain that leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the receiver.
- 2. Inspect all protective devices such as non-metallic control knobs, insulating fishpapers, cabinet backs, adjustment and compartment covers or shields, isolation resistor-capacity networks, mechanical insulators etc.
- 3. To be sure that no shock hazard exists, check for leakage current in the following manner.
 - Plug the AC line cord directly into a 120 volt AC outlet. (Do not use an isolation transformer for this test)
 - Using two clip leads, connect a 1.5k ohm, 10 watt resistor paralleled by a 0.15µF capacitor in series with all exposed metal cabinet parts and a known earth ground, such as water pipe or conduit.
 - Use a VTVM or VOM with 1000 ohm per volt, or higher, sensitivity to measure the AC voltage drop across the resistor (See Diagram).
 - Move the resistor connection to earth exposed metal part having a return path to the chassis (antenna, metal cabinet, screw heads, knobs and control shafts, escutcheon, etc.) and measure the AC voltage drop across the resistor.All checks must be repeated with the AC line cord plug connection reversed. (If necessary, a non-polarized adapter plug must be used only for the purpose of completing these checks.) Any reading of 0.3 volt RMS (this corresponds to 0.2 milliamp. AC.) or more is excessive and indicates a potential shock hazard which must be corrected before returning the receiver to the owner.

Courtesy of the Manufacturer

TERMINAL GUIDES



WIRING VIEW



For SAFETY use only equivalent replacement part, see parts list.
-x- Circuitry not used in some versions
--- Circuitry used in some versions
e See parts list
⊕ Ground
▽ Common tie point
Waveforms and voltages are taken from ground, unless noted otherwise.
Waveforms: triggered scope, keyed rainbow generator.
Item numbers in rectangles appear in the alignment/adjustment instructions.
Supply voltages maintained as shown at input.
Voltages measured with digital meter, no signal.
Controls adjusted for normal operation.
Terminal identification may not be found on unit.
Capacitors are 50 volts or less, 5% unless noted.
Electrolytic capacitors are 50 volts or less, 20% unless noted.
Resistors are 1/2W or less, 5% unless noted.
Value in () used in some versions.

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FOLDER 1

TROUBLESHOOTING (Continued)

AUDIO

Check for 11.02V at pin 5 of Sound IC (IC601), 120V at the collector of Audio Output Transistor (Q602) and 37.7V at the collector of Audio Output Transistor (Q601). Check for 4.9V at pin 6 of IC601 with volume at MINIMUM and check for 2.26V with volume at Maximum. If there is no sound, inject an audio signal at pin 12 of IC601. If sound returns, check IC601 and associated circuitry. If sound is still missing, check Transistor Q601 and Q602, Diode D601, Audio Output Transformer (T601), Speaker (SP1) and associated circuitry.

VIDEO

Check the CRT and CRT voltages and waveforms. Inject a video signal at TP12 and check with a scope for a luminance waveform at pin 27 of Chroma IC (IC501). If the waveform is not present, check voltages, waveforms and components associated with the Buffer Amp Transistor (Q201) and Sharpness Control Transistor (Q202). If the videow waveform is present at pin 27 of IC501, check for a proper waveform at the base of Video Amp Transistor (Q204). If the waveform is missing at the base of Transistor Q204, check voltages, waveforms and components associated with pins 20 thru 28 of IC501 and Pedestal Amp Transistor (Q203). Check the voltages and waveforms on the Red Output Transistor (Q561), the Green Output Transistor (Q562), the Blue Output Transistor (Q563) and associated circuitry. Check for a blanking waveform at pin 22 of IC501.

VERTICAL

Check for 10.46V at pin 5 of the Deflection/-X-Ray IC (IC401) and 58.8V at the collector of the Vertical Output Transistor (Q322). Inject a vertical signal at pin 1 of IC401, If vertical deflection returns, check voltages, waveforms and components associated with pins 1 thru 7 of IC401. If there is no vertical deflection, check the Vertical Output Transistors (Q321 and Q322), Diodes D321 thru D326, Electrolytics C334 and C336, Side Pincushion Transformer (T431), the vertical winding of Deflection Yoke (DY1) and associated circuitry. Vertical linearity or foldover problems can be caused by vertical feedback and bias circuits. Check Diodes D321 thru D326, Electrolytics C328 and C334 and associated circuitry.

SYNC

Check voltages and waveforms at pins 8, 9 and 10 of Deflection/X-Ray IC (IC401). Check for the proper horizontal waveform at pins 11, 12 and 13 of IC401, and for the proper vertical waveforms at pins 3, 4, and 7 of IC401. The sync separator is part of IC401. Check for 12.68V at pin 14 of IC401.

RASTER

Check CRT and CRT voltages. If the raster is magenta, check voltages and waveforms on pin 15 of the Chroma IC (IC501) and the Green Output Transistor (Q562) and associated circuitry. If the raster is yellow, check

voltages and waveforms on pin 17 of the IC501 and Blue Output Transistor (Q563). If the raster is cyan, check voltages and waveforms on pin 16 of IC501 and the Red Output Transistor (Q561) and associated circuitry. If the raster has a pincushion shape, check voltages, waveforms and components associated with the Side Pincushion Transformer (T431). If the raster has a keystone shape check the Deflection Yoke (DY1). If the raster has height or width problems, refer to the "Vertical", "Horizontal" and "Power Supply" sections of this Troubleshooting guide.

CHROMA

If there is no color, inject a color video signal at TP12 and check waveform at TP52. Also check voltages, waveforms and components associated with pins 1 thru 14 of the Chroma IC (IC501). Check for a 3.58MHz waveform at pin 9 of IC501. If the 35.8MHz waveform is missing or not of the right value, check Crystal X501 and the value of associated components. Check for 10.52V at pin 20 of IC501 and check voltages, waveforms and components associated with pins 18, 19 and 20 of IC501. If there is no color sync, check Color Sync Control (R555). Check voltage and check for a gate pulse waveform at pin 7 of IC501. Check voltages, waveforms and components associated with pins 1, 3, 8, 9, 10 and 11 of IC501. For incorrect hue (tint), check voltages and components associated with pins 12, 13 and 14 of IC501. If there is no green, check voltage, waveform and components associated with pin 15 of IC501. If there is no red, check voltage, waveform and components associated with pin 16 of IC501. If there is no blue, check voltage, waveform and components associated with pin 17 of IC501.

FAIL-SAFE

The Fail-Safe circuit prevents excessive anode voltage from being developed by sampling horizontal pulses at pin 4 of the Horizontal Output Transformer (T402). As soon as the high voltage exceeds the safety limit, a higher current will flow thru Diode D471. Zener Diode D472 will conduct and Diode D473 will turn On. The voltage at pin 16 of the Deflection/X-Ray IC (IC401) will rise, X-Ray Protection circuit will be activated, and the horizontal oscillator will shutdown, causing the set to shutdown.

TEST EQUIPMENT

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

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

TV ALIGNMENT INSTRUCTIONS

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

PRELIMINARY INSTRUCTIONS

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

VIDEO IF ALIGNMENT (SWEEP MARKER GENERATOR)

DIRECT PROBE FROM SWEEP/MARKER GENERATOR	SWEEP GENERATOR OUTPUT	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	REMARKS
To TP12	To TP1 (Junction L161 and C161)	44MHz (10MHz Sweep)	41.25MHz 42.17MHz 44.00MHz 45.75MHz	Adjust L103 for Maximum gain symmetry of response. See Figure 1.

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TV ALIGNMENT INSTRUCTIONS (Continued)

VIDEO IF ALIGNMENT (BAR SWEEP GENERATOR)

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

AUTOMATIC FINE TUNING ALIGNMENT

Connect as explained in preliminary instructions unless otherwise specified.
See Auto Color Switch (SW501) to On.

DIRECT PROBE FROM SWEEP/MARKER GENERATOR	SWEEP GENERATOR OUTPUT	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	REMARKS
To TP14	To TP1 (Junction L161 and C161)	44MHz (10MHz Sweep)	45.75MHz	Adjust L171 for Maximum gain and symmetry of response. See Figure 3.

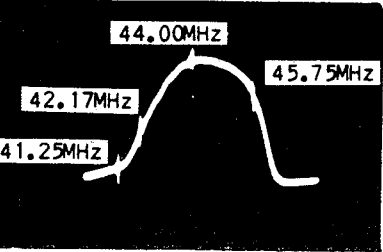


Figure 1

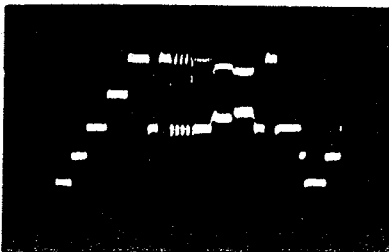


Figure 2

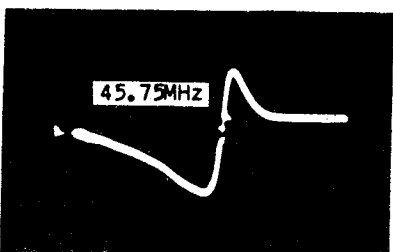
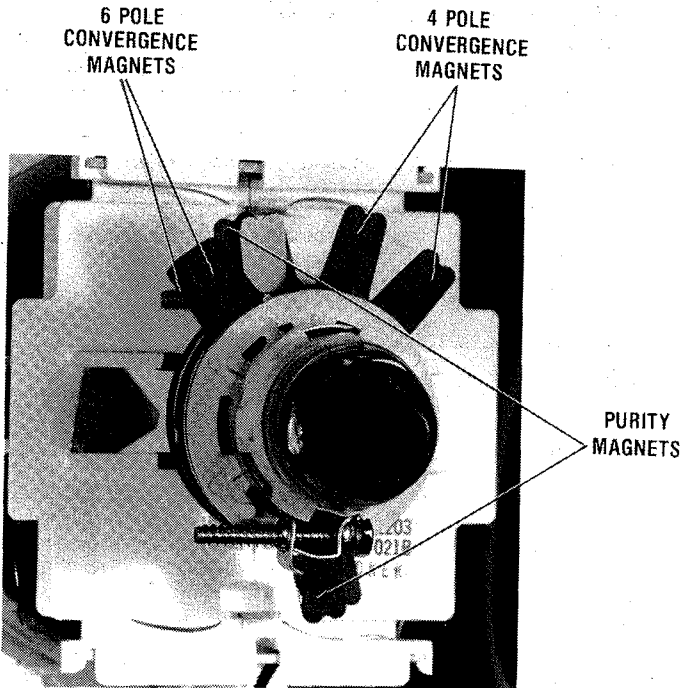


Figure 3



CRT NECK ASSEMBLY

TEST JIG HOOKUP

FUNCTION	Chek-A-Color ADAPTER NO.	RCA / TeleMatic ADAPTER NO.	ZENITH ADAPTER NO.
CRT YOKE YOKE SETTING	B244 D4134 (1) YP1, B208, V508/V509 100mH Toward Chassis Focus Tap	10J647 10J719 Horiz 1.9 Vert 34 VFS-3950 Focus Voltage Supply	852-348 852-425 (2) Horiz 1.8, Vert 34 Focus Tap

P401	PIN 1	PIN 3	PIN 5	PIN 6
(1)	RED	BLUE	ORANGE	YELLOW
(2)	RED	BLUE	YELLOW	GREEN

(P.C. BOARD)

TROUBLESHOOTING

POWER SUPPLY

Check AC Fuse (F801). If open, check Diodes D017, D018, D803, Transformer T1201, Electrolytic C802, Voltage Regulator IC (IC801), IC05 and associated circuitry. Check for short to ground from TP81. If there is no short, apply 120VAC and check for 156V at DC Fuse (F802). If Fuse F802 is open, check IC801, Start Up Transistor (Q803), Horizontal Output Transistor (Q404) and check associated circuitry that is supplied from the 120V B+ source. Check for 120V at TP81, 41.9V at the cathode of Diode D807. Check sources from Horizontal Output Transformer (T402). Check for 176V at the cathode of Diode D442, 15.78V at the cathode of Diode D441, 43.8V at the cathode of Diode D325 and check for 11.40V at the positive end of Electrolytic C441. To troubleshoot the horizontal circuit, refer to the "Horizontal" section of this Troubleshooting guide.

HORIZONTAL

Check the voltage at pin 16 of Deflection/X-Ray IC (IC401). If the voltage is 0.6V or more that indicates the Fall-Safe is activated. Check for 119V at the collector of the Horizontal Output Transistor (Q404). If the voltage is missing, check for 120V at both sides of Resistor R441. If Resistor R441 is open, check Transistor Q404, and Horizontal Output Transformer (T402). If the voltage is present, inject a horizontal signal at the base of Transistor Q404. If high voltage returns, check the Horizontal Drive Transistor (Q401), Horizontal Drive Transformer (T401), pins 13, 14, 15 and 16 of IC401 and associated circuitry. If the high voltage does not return, check voltages, waveforms, and components associated with Transistor Q404, Transformer T402, Side Pin Cushion Transformer (T431), the Deflection Yoke (DY1). The high voltage rectifier is part of Transformer T402 and may be defective. Check B+ sources

developed from Transformer T402 which can cause loading of the horizontal circuit. Check for B+ sources rectified by Diodes D325, D441 and D442. Poor horizontal linearity or foldover can be caused by the condition of Capacitors C410, C411 and C431 thru C436 and associated circuitry.

Voltages are taken with fall-safe circuit activated.

Collector of Q404	161V
Collector of Q401	48V
Pin 16 of IC401	1.10V

IF-AGC

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

AGC VOLTAGE CHART

NOTE: Voltages taken with Keyed-Rainbow generator.

PIN 10	PIN 15
2.2V	4.8V

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FOLDER 1

TROUBLESHOOTING AID

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

PICTURE OR SOUND

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

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

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

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

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

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

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

SWEEP

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

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

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

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

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

NARROW PICTURE: Refer to "Troubleshooting" Horizontal circuit.

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

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

SYNC

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

RASTER

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

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

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

COLOR (B/W operating normally)

NO COLOR: Refer to "Troubleshooting" Chroma circuit.

WEAK COLOR: Refer to "Troubleshooting" Chroma circuit.

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

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

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

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

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

MISCELLANEOUS ADJUSTMENTS

AGC DELAY ADJUSTMENT

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

AUTO COLOR ADJUSTMENT

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

SUB BRIGHTNESS ADJUSTMENT

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

COLOR TEMPERATURE ADJUSTMENT

Tune in a station. Set Color Control to MINIMUM and Auto Color Switch go Off. Set Contrast and Brightness Controls to midrange. Set Red (R561) and Blue (R571) Drive Controls and Sub Brightness Control (R254) to midrange. Set Red (R565), Green (R570) and Blue (R577) Bias Controls to MINIMUM. Disconnect Raster Tip (P201) and connect a jumper from TP33 to TP34. Turn Screen Control fully counterclockwise and then slowly turn clockwise until a line of one color just appears. Do not adjust the Bias Control for this color. Adjust the two remaining Bias Controls to produce a low level white line. Remove jumper from TP33 to TP34 and reconnect Raster Tip (P201). Adjust Brightness and Contrast Controls for best picture. Adjust Red and Blue Drive Controls for best white in the highlight area of the picture.

NOTE: Readjust Sub Brightness Control after color temperature adjustment is completed.

COLOR PURITY ADJUSTMENT

Disconnect antenna and set Brightness and Contrast Controls to Maximum. Adjust Blue (R571) and Red (R561) Drive Controls to MINIMUM. Adjust Red (R565) and Blue (R577) Bias Controls to MINIMUM. Adjust Green Bias Control (R570) and Screen Control to obtain a green raster. Use a degaussing coil to demagnetize the CRT and mounting brackets. Loosen the clamp holding the deflection yoke (DY1) and move yoke back against the purity magnet. Adjust the purity tabs to place the green band in the center of the screen. Move the deflection yoke forward to obtain a uniform green raster. Tighten yoke clamp.

COLOR SYNC ADJUSTMENT

Connect a color bar generator to the antenna terminals and tune in a color bar pattern. Place Auto Color Switch to Off. Set Color Control to Maximum and Tint Control to

midrange. Connect a .1uF Capacitor from TP51 to TP52. Adjust Color Sync Control (R555) until colors stop or slowly drift. Remove .1uF Capacitor and check on all channels for proper color sync.

CONVERGENCE ADJUSTMENT

Connect a color bar generator to the antenna terminals and tune in a dot pattern. Adjust 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.

HORIZONTAL HOLD ADJUSTMENT

NOTE: Horizontal Hold Control (R451) is factory adjusted and sealed. If the control or associated components are replaced, adjust as follows.

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

FAIL-SAFE CIRCUIT ADJUSTMENT

NOTE: Hold Down Control (R452) is factory adjusted and sealed. If the control or associated components are replaced adjust as follows:

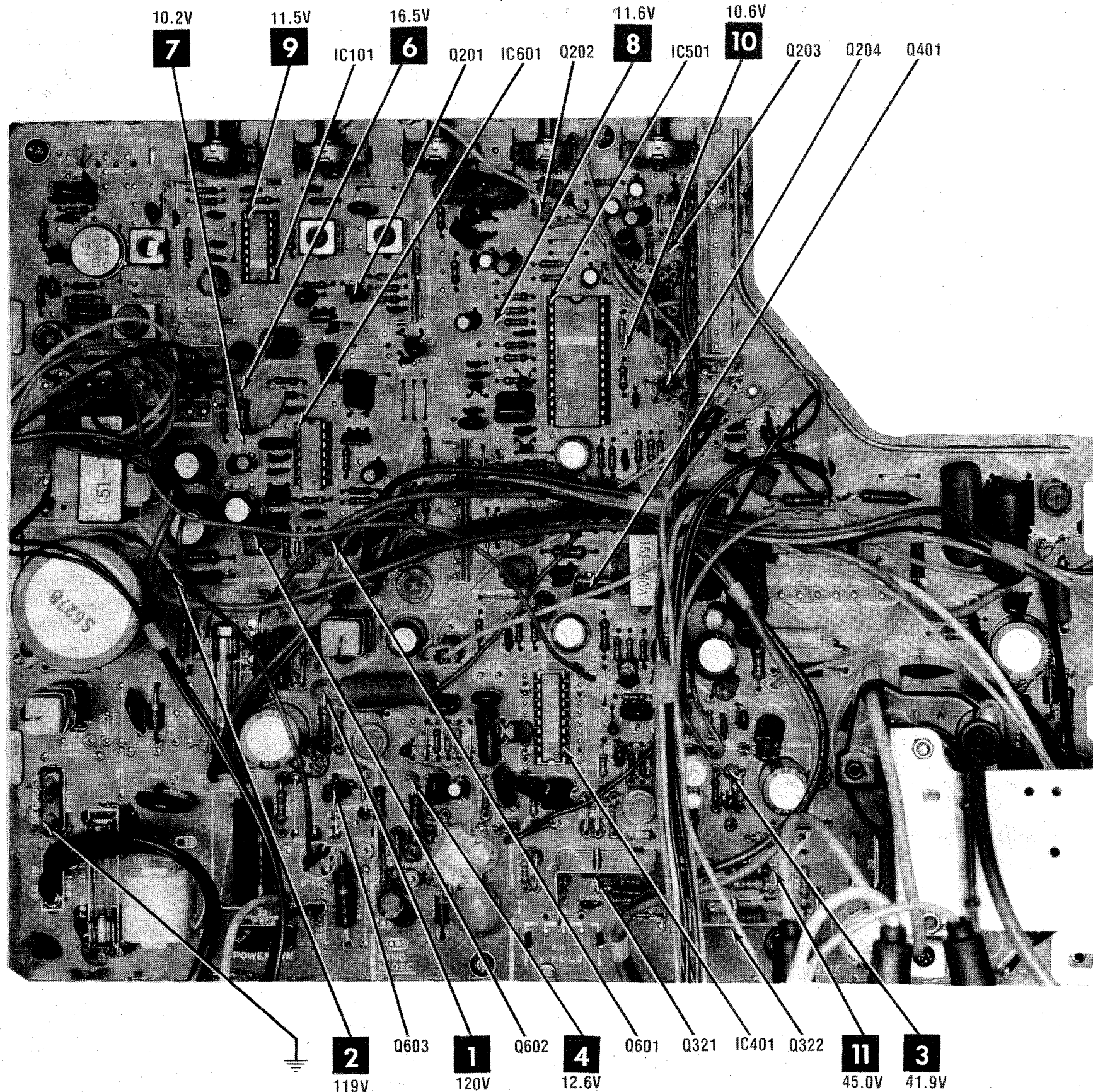
Measure B+ voltage at TP81. Voltage should be +120V DC. Set Brightness and Contrast Controls to Minimum. Connect a DC meter to TP41. If part number for D472 is RD11E-B2, adjust Hold Down Control (R452) for +10.05 \pm 0.02V DC. If part number for D472 is HZ11B-2L, adjust Hold Down Control (R452) for +9.95 \pm 0.02V DC. Epoxy control after adjustment.

FAIL-SAFE CIRCUIT

Tune in a station. Temporarily short from TP41 to the Cathode of D471. Loss of raster and sound should occur. Remove jumper. Remove power to receiver for approximately 5 seconds. Restore power and check for proper operation. If loss of raster and sound does not occur with placement of jumper refer to Troubleshooting Guide, Fail-Safe section.

GOLDSTAR
MODEL CMT-2032

FOLDER 1



GOLDSTAR
MODEL CMT-2032

FOLDER 1

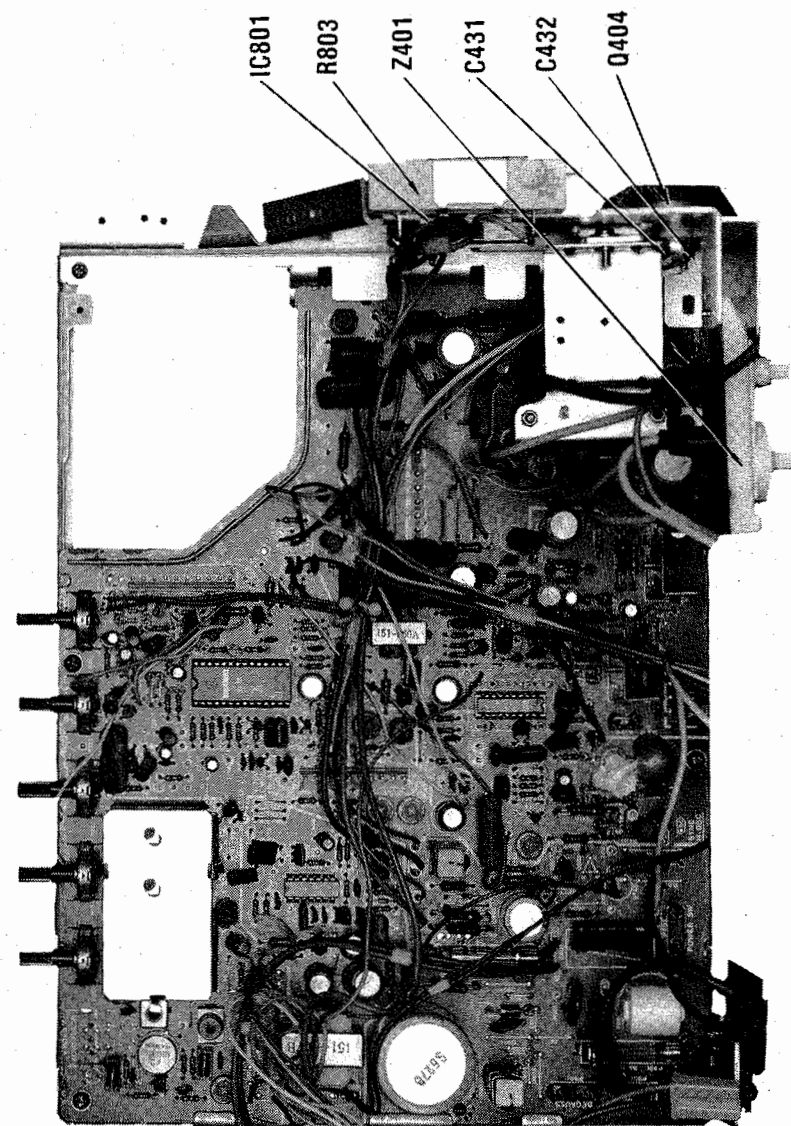
MAIN BOARD

25

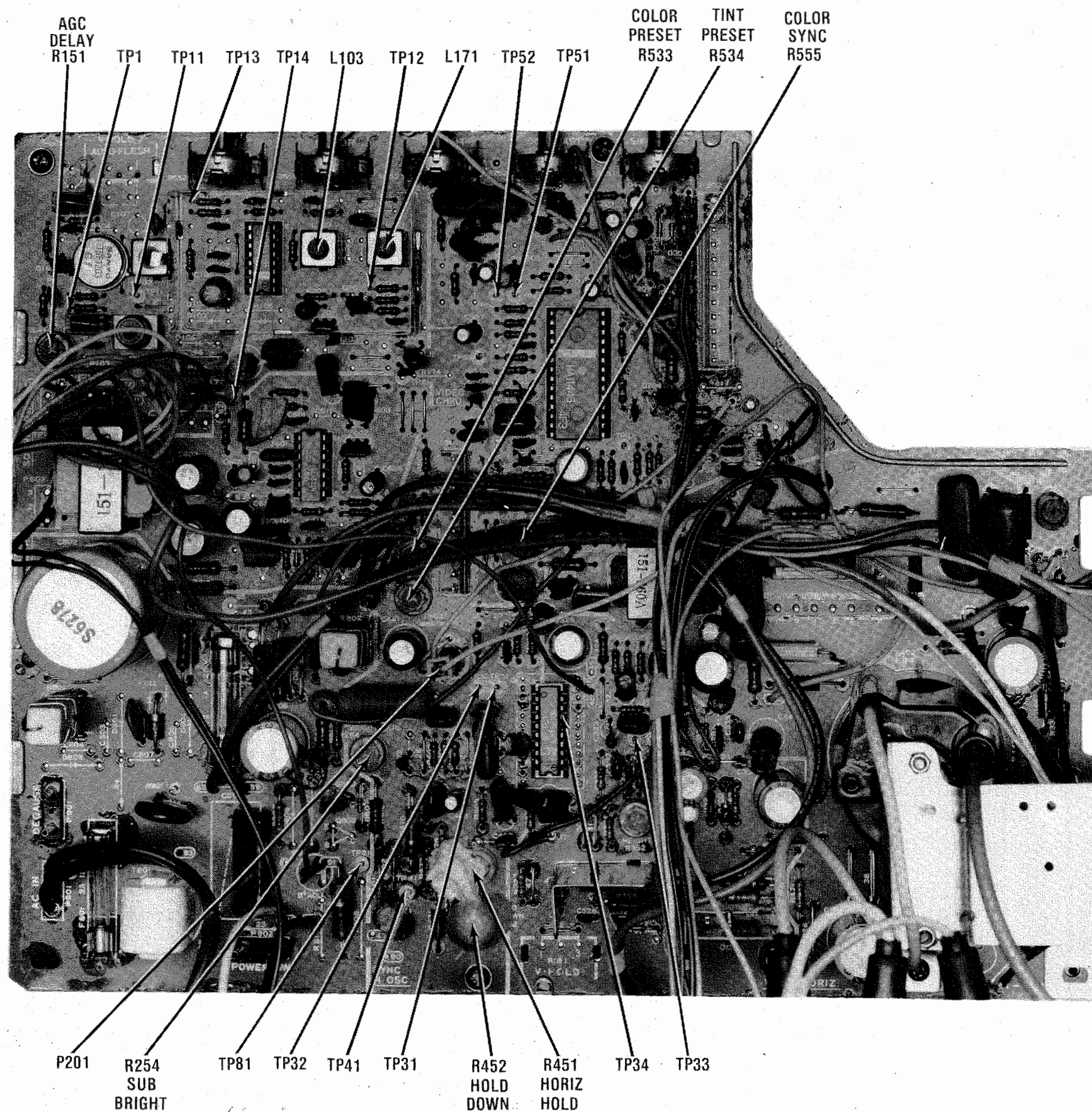
A Howard W. Sams CIRCUITRACE Photo

MAIN BOARD

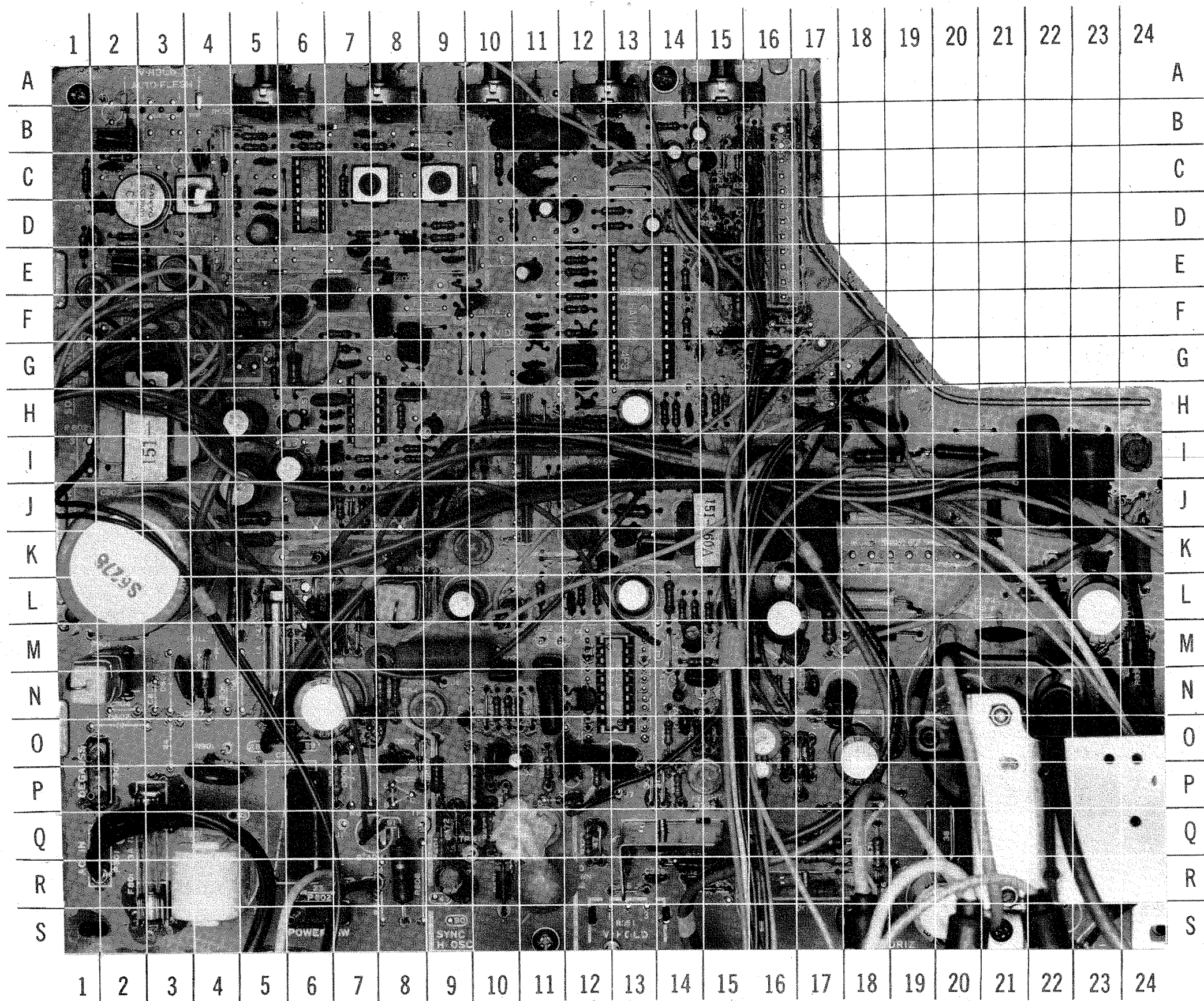
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CHASSIS-OVERALL VIEW



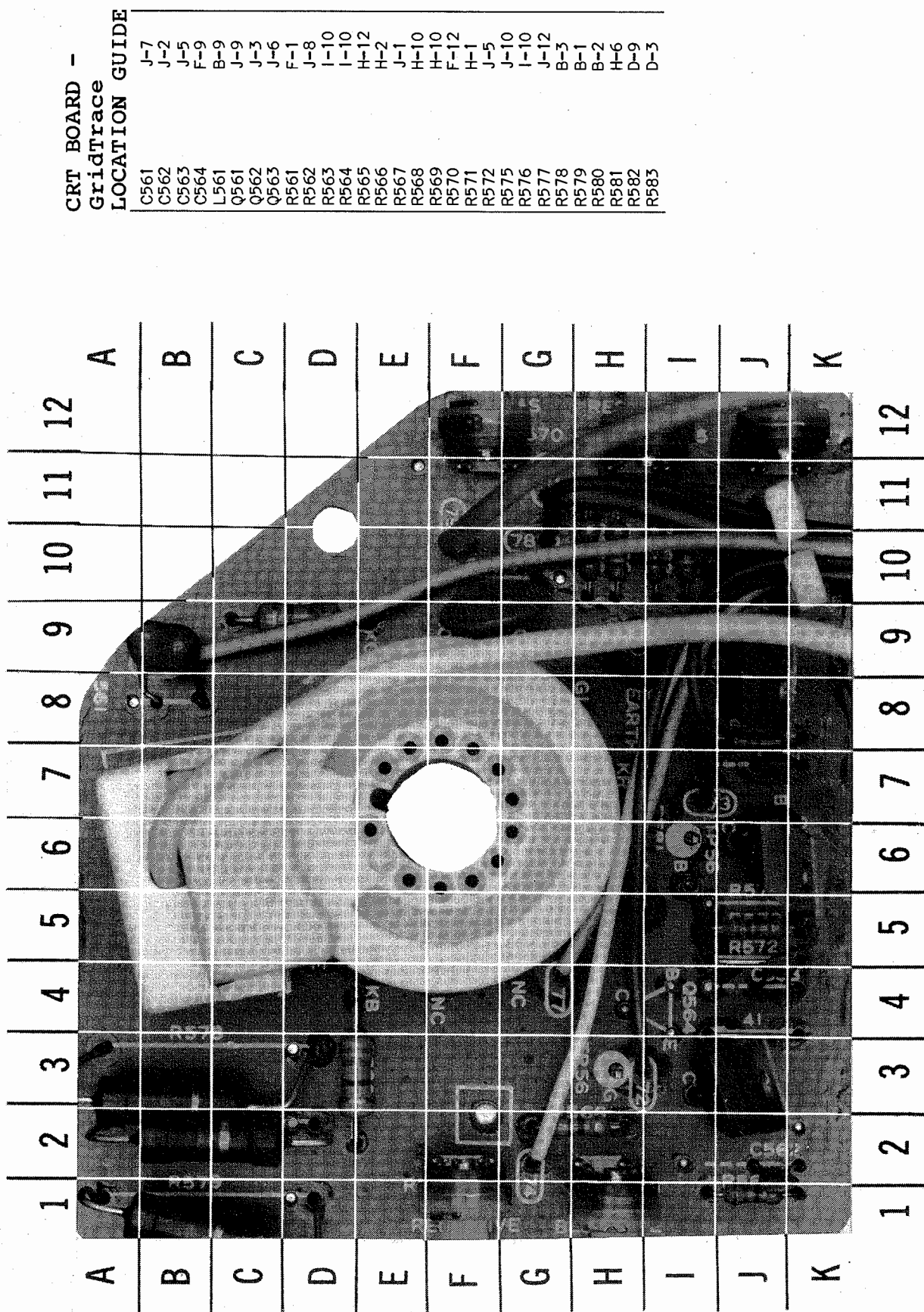
MAIN BOARD - ALIGNMENT



GOLDSTAR
MODEL CMT-2032

FOLDER 1

CRT BOARD



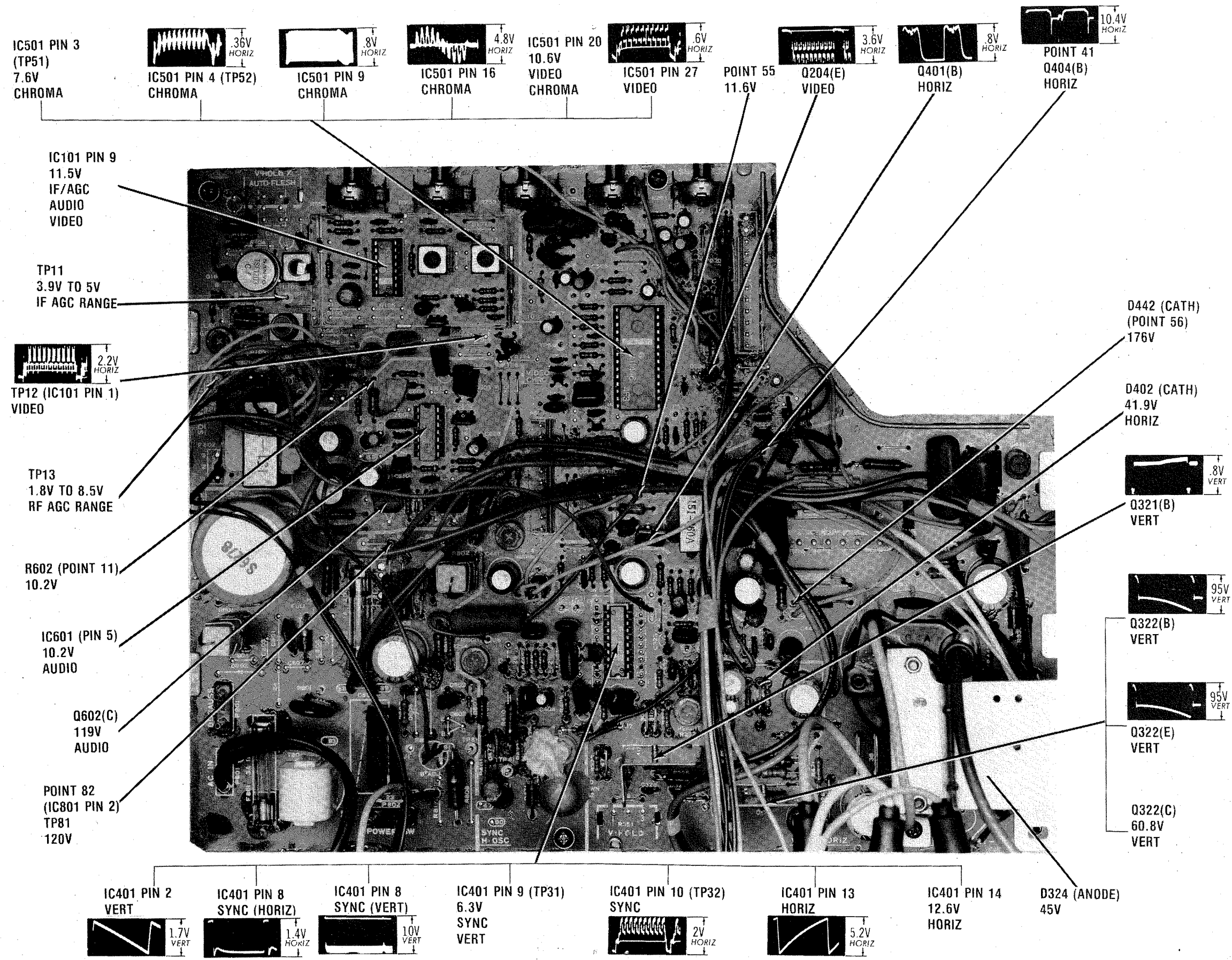
A Howard W. Sams GRIDTRACE™ Photo

MAIN BOARD - GridTrace LOCATION GUIDE

C101	C-2	C507	F-11	L431	I-16	R322	M-14	R602	G-6
C102	D-5	C508	E-12	L432	I-23	R323	Q-12	R603	G-7
C103	C-5	C509	F-11	L433	J-21	R324	L-14	R604	G-5
C104	C-5	C510	F-11	L434	L-17	R325	Q-14	R605	H-8
C105	E-2	C511	F-12	L441	I-24	R326	R-14	R606	I-8
C106	D-5	C512	F-11	L501	C-11	R327	Q-17	R607	I-8
C108	F-6	C513	G-11	L503	K-12	R328	Q-17	R608	J-8
C109	B-6	C514	G-11	P201	L-10	R329	Q-16	R609	I-7
C110	F-9	C515	I-13	P401	K-20	R330	N-16	R610	J-7
C111	E-9	C516	H-12	P501	K-10	R331	P-14	R611	J-7
C161	D-1	C517	H-12	P502	B-16	R332	Q-16	R612	J-5
C162	C-4	C518	I-11	Q161	D-2	R333	M-17	R614	K-5
C171	B-7	C519	H-14	Q201	D-8	R334	Q-15	R801	N-1
C172	C-8	C520	I-14	Q203	D-15	R335	Q-14	R802	L-8
C203	B-14	C521	I-14	Q204	F-15	R336	Q-23	R804	L-6
C204	B-15	C522	H-17	Q321	Q-14	R338	N-24	R805	P-7
C205	D-14	C523	H-17	Q322	R-16	R339	I-18	R806	L-7
C206	D-14	C601	G-7	Q401	K-14	R340	I-20	R809	R-8
C207	E-15	C602	H-7	Q404	R-24	R352	P-15	R811	N-8
C208	C-14	C603	H-4	Q601	J-8	R401	Q-9	R812	N-8
C209	C-14	C604	H-7	Q602	J-6	R402	P-10	R813	L-7
C210	D-14	C605	H-6	Q803	O-8	R403	N-10	R814	P-9
C211	G-14	C606	I-6	R101	C-5	R404	N-11	R815	L-4
C212	H-13	C607	F-8	R102	F-5	R405	P-11	R901	P-4
C213	K-23	C608	I-9	R103	F-3	R406	N-10	TP1	E-2
C281	N-16	C609	G-8	R107	B-5	R407	L-15	TP11	D-6
C301	L-12	C610	I-6	R108	B-4	R408	J-13	TP12	B-9
C302	K-12	C612	J-9	R109	C-7	R409	J-16	TP13	B-5
C303	M-15	C613	I-6	R110	E-9	R410	P-10	TP14	F-6
C304	M-14	C614	J-5	R151	E-1	R431	K-17	TP31	M-11
C322	N-14	C615	I-7	R161	D-2	R441	L-18	TP32	M-11
C323	N-14	C616	J-7	R162	C-1	R442	M-9	TP33	N-14
C324	O-13	C801	Q-6	R163	D-1	R443	N-23	TP34	N-13
C325	L-13	C802	K-2	R165	B-5	R444	K-24	TP41	Q-8
C326	R-13	C805	N-3	R166	C-2	R451	Q-11	TP51	D-12
C327	R-24	C808	N-6	R171	B-6	R452	R-11	TP52	D-11
C328	Q-13	D201	C-15	R172	B-8	R471	Q-18	TP81	Q-8
C329	S-18	D202	C-15	R201	D-9	R472	Q-10	X501	G-12
C330	R-24	D281	N-16	R202	D-7	R473	R-10	Z101	D-2
C331	O-24	D321	R-14	R204	D-9	R474	P-12	Z201	E-8
C332	Q-14	D322	R-15	R207	C-10	R475	P-10	Z202	B-11
C333	Q-16	D323	R-24	R208	B-11	R501	D-10	Z601	H-6
C334	Q-18	D324	R-24	R209	B-13	R502	E-12	Z602	H-8
C335	N-17	D325	Q-23	R210	C-13	R503	D-12		
C336	I-17	D326	S-18	R211	B-14	R504	E-12		
C337	P-16	D401	P-18	R212	D-13	R505	H-10		
C401	M-11	D402	P-17	R213	D-13	R506	I-10		
C402	M-10	D441	M-24	R214	E-14	R508	F-12		
C403	Q-10	D442	M-18	R216	C-14	R509	F-12		
C404	Q-10	D471	Q-10	R217	B-10	R510	J-11		
C405	N-11	D472	Q-9	R218	D-15	R511	F-12		
C406	N-12	D473	O-9	R219	D-15	R512	G-12		
C407	P-12	D601	J-7	R220	F-14	R513	H-12		
C408	O-12	D803	N-4	R221	F-15	R514	I-12		
C409	L-15	D805	M-7	R222	G-16	R515	I-12		
C410	K-13	D807	Q-8	R223	L-22	R516	H-12		
C411	K-13	F801	R-3	R224	L-22	R517	I-10		
C431	R-24	F802	M-5	R225	G-18	R518	A-5		
C432	R-24	IC101	C-6	R226	D-15	R519	A-5		
C433	I-22	IC401	N-13	R251	A-15	R520	H-14		
C434	J-23	IC501	F-13	R252	A-13	R521	H-14		
C435	J-16	IC601	H-7	R253	A-10	R522	L-15		
C436	K-17	IC801	J-24	R254	N-9	R523	H-15		
C437	S-20	L101	B-2	R281	P-18	R524	H-15		
C438	L-16	L102	C-4	R282	O-17	R525	G-16		
C441	L-9	L103	C-7	R283	L-15	R526	G-16		
C442	L-23	L104	F-10	R284	I-14	R527	H-16		
C443	N-17	L105	F-6	R295	L-15	R528	I-14		
C471	R-9	L161	E-2	R301	L-11	R551	A-8		
C472	O-12	L171	C-9	R302	L-12	R552	A-5		
C501	C-11	L172	F-5	R303	L-12	R553	J-10		
C502	D-11	L201	E-7	R304	L-14	R554	K-10		
C505	D-12	L202	B-12	R305	L-14	R555	J-12		
C506	D-11	L203	B-13	R321	O-15	R601	F-7		

GOLDSTAR
MODEL CMT-2032

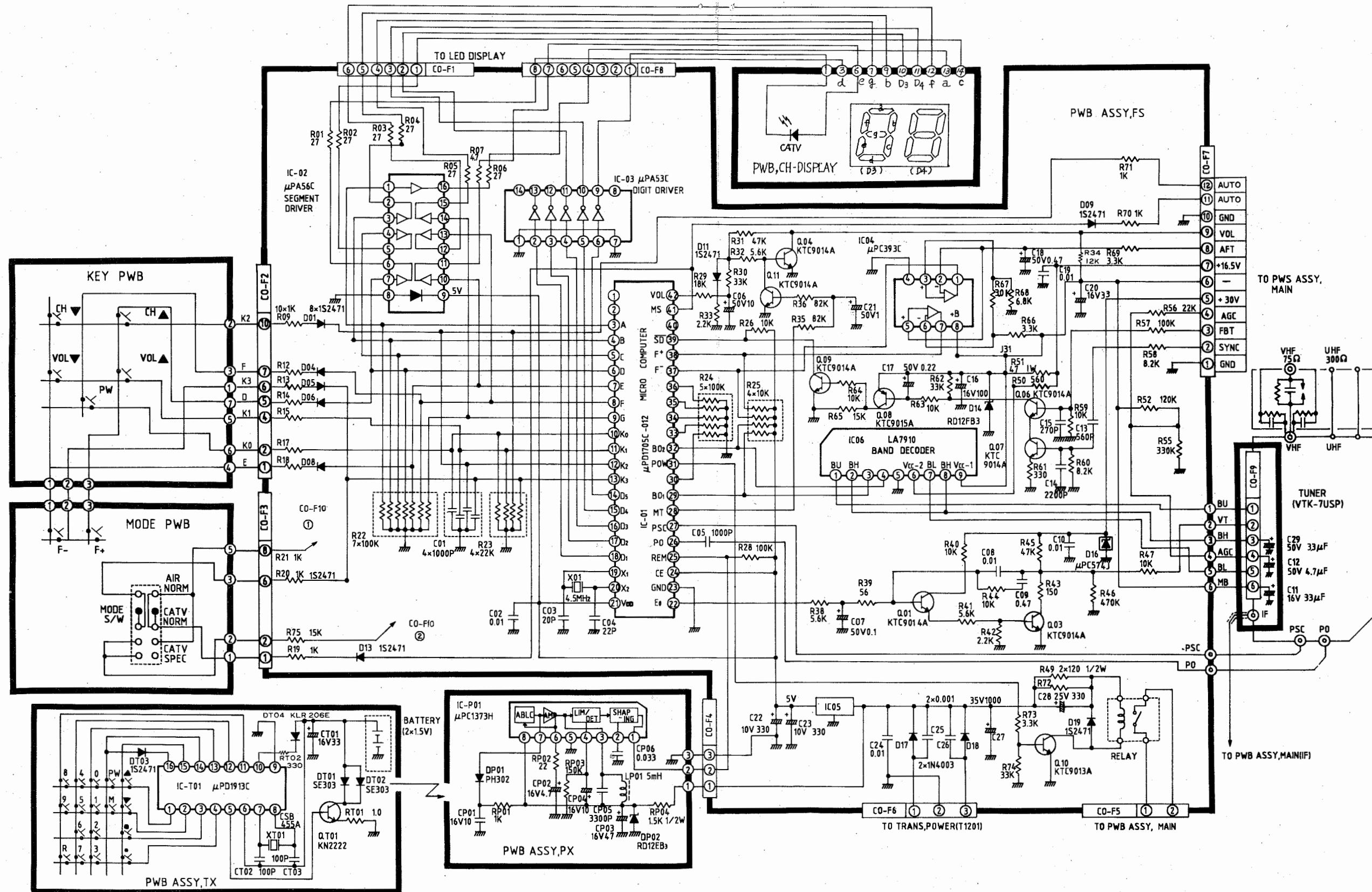
FOLDER 1



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MODEL CMT-2032

FOLDER 1

FREQUENCY SYNTHESIZER TUNING SYSTEM SCHEMATIC CIRCUIT DIAGRAM



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MODEL CMT-2032

FOLDER 1

Courtesy of the Manufacturer

CHANNEL SELECTOR BOARD, KEY BOARD, PREAMP BOARD AND TRANSMITTER BOARD SCHEMATIC

CHANNEL SELECTOR BOARD

PARTS LIST AND DESCRIPTION

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

SEMICONDUCTORS (Select replacement transistor for best results)

ITEM No.	TYPE No.	MFG. PART No.	REPLACEMENT DATA					
			NOTES	NTE PART No.	ECG PART No.	RCA PART No.	WORKMAN PART No.	ZENITH PART No.
D1 D201, 202	1S2471			NTE519	ECG519	SK3100/519	WEP925/519	103-131
	1S2471			NTE519	ECG519	SK3100/519	WEP925/519	103-131
	1N4148			NTE519	ECG519	SK3100/519	WEP925/519	103-131
	1S1553			NTE177	ECG177	SK9091/177	WEP1062/177	103-131
	1S2076			NTE519	ECG519	SK3100/519	WEP925/519	103-131
D281	1S1555			NTE177	ECG177	SK9091/177	WEP1062/177	103-131
	1S2471			NTE519	ECG519	SK3100/519	WEP925/519	103-131
	1N4148			NTE519	ECG519	SK3100/519	WEP925/519	103-131
	1S1553			NTE177	ECG177	SK9091/177	WEP1062/177	103-131
	1S2076			NTE519	ECG519	SK3100/519	WEP925/519	103-131
D321, 322	1S1555			NTE177	ECG177	SK9091/177	WEP1062/177	103-131
	1S2471			NTE519	ECG519	SK3100/519	WEP925/519	103-131
	1N4148			NTE519	ECG519	SK3100/519	WEP925/519	103-131
	1S1553			NTE177	ECG177	SK9091/177	WEP1062/177	103-131
	1S2076			NTE519	ECG519	SK3100/519	WEP925/519	103-131
D323	1S1555			NTE177	ECG177	SK9091/177	WEP1062/177	103-131
	RH-1Z			NTE552	ECG552	SK5002	WEP172/506	103-287
	1S2775			NTE552	ECG552	SK5002	WEP172/506	103-287
	1N4002			NTE116	ECG116	SK3311	WEP155	212-76-02
	RJ-1A			NTE552	ECG552	SK9000/552	WEP172/506	103-287
D324 D325	S52951			NTE552	ECG552	SK9000/552	WEP172/506	103-287
	V09G			NTE552	ECG552	SK9000/552	WEP172/506	103-287
	1N4004			NTE116	ECG116	SK3312	WEP157	212-76-02
	EQA01-11S			NTE5020A	ECG5020A	SK11A/5020A	WEP1421/5020	103-279-20
	RD11EB			NTE5020A	ECG5020A	SK11A/5020A	WEP1421/5020	103-279-20
D401	HZ-11C			NTE5020A	ECG5020A	SK11A/5020A	WEP1421/5020	103-279-20
	1N4002			NTE116	ECG116	SK3311	WEP155	212-76-02
	RJ-1			NTE552	ECG552	SK9000/552	WEP172/506	103-287
	S5295G			NTE552	ECG552	SK9000/552	WEP172/506	103-287
	V09E			NTE552	ECG552	SK9000/552	WEP172/506	103-287
D441	RJ-1V			NTE552	ECG552	SK9000/552	WEP172/506	103-287
	UF-1			NTE552	ECG552	SK9000/552	WEP172/506	103-287
	V09G			NTE552	ECG552	SK9000/552	WEP172/506	103-287
D442								

PARTS LIST AND DESCRIPTION (Continued)

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

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		MFGR. PART No.	QUAM PART No.	
SP1	3 1/2" PM 8 Ohms	120-035B	3A05Z8	1.5 Watts

FUSE DEVICES

ITEM NO.	DESCRIPTION	MFGR. PART NO.		NOTES
		DEVICE	HOLDER	
# F801	3 Amp @ 125V Fast Acting			
# F802	1 Amp @ 125V Fast Acting			

For SAFETY use only equivalent replacement part.

MISCELLANEOUS

ITEM No.	PART NAME	MFGR. PART No.	NOTES
# CP01	Component Combination		VHF Antenna Isolation
# CP02	Component Combination		VHF Antenna Isolation
# CP03	Component Combination		VHF Antenna Isolation
# L901	Degaussing Coil		
RL001	Relay	141-005B	
SW501	Switch	140-032D	Auto Color
SW502	Switch	140-032D	Auto Color
# SW802	Switch		Power On/Off
# V901	CRT	A48ABY00X 510NJB22	
X501	Crystal		4.5MHz
Z101	Filter		SAW
Z201	Filter		Ceramic, 4.5MHz Trap
Z401	Focus Pack		
Z601	Filter		Ceramic, 4.5MHz Trap
Z602	Filter		Ceramic, 4.5MHz Trap
#	Antenna		UHF Russell Replacement Antenna SIM-4H.
	Antenna		VHF Russell Replacement Assembly POR-12H.
	Socket		CRT
	UHF/VHF Tuner	VTK-7USP	

For SAFETY use only equivalent replacement part.

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

ITEM	PART No.	ITEM	PART No.
Cabinet Front	300-269A	Control Door	315-070A
Cabinet Back	303-487A	Panel Assembly Control	313-137A
Antenna Board Assembly	401-063C	Power Cord Hanger	344-004B

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

GOLDSTAR
MODEL CMT-2032

FOLDER 1

PARTS LIST AND DESCRIPTION (Continued)

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

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA		
		MFGR. PART No.	NTE PART No.	WORKMAN PART No.
# R223	120K 2% 1/2W Carbon Film		HW412	22-1120
# R224	10K 5% 1/4W Carbon Film		QW310	22-1098
# R225	1200 5% 1/4W Carbon Film		QW212	
# R329	12K 2% 1/4W Carbon Film		QW312	
# R330	4300 2% 1/4W Carbon Film		QW243	
# R334	22K 2% 1/4W Carbon Film		QW322	
# R336	10 5% 1/2W Metal Film		HW010	22-2078
# R431	180 5% 1/2W Carbon Film		HW118	
# R441	1 5% 1W Metal Film		1W1D0	
# R442	27 5% 3W WW			
# R443	5.1 5% 1W Fusible		F1W5D1	
# R444	1.2 5% 2W Fusible		F2W1D2	
# R471	5.6 5% 1/4W Carbon Film		QW5D6	22-1042
# R472	1000 5% 1/4W Carbon Film		QW210	22-1096
# R473	560 5% 1/4W Carbon Film		QW156	22-1090
# R474	4700 5% 1/4W Carbon Film		QW247	22-1112
# R614	100 5% 1W Fusible		F1W110	
# R801	1 5% 7W WW			
# R802	2.2 5% 7W WW			
# R803	220 5% 25W WW		25W122	
# R804	12K 5% 1W Metal Film		1W312	22-3122
# R805	470K 5% 1/4W Carbon Film		QW447	22-1160
# R806	33 5% 1/2W Metal Film		HW033	
# R815	47K 5% 1W Metal Film		1W347	22-3136
# R901	PTC 8 Cold		FR605	

For SAFETY use only equivalent replacement part.

COILS (RF-IF)

ITEM No.	FUNCTION	MFGR. PART No.	ITEM No.	FUNCTION	MFGR. PART No.
L101	Video IF		L431	RF Choke	
L102	Video IF		L432	RF Choke	
L103	Video IF		L433	RF Choke	
L104	RF Choke (24uH)		L434	RF Choke (68uH)	
L105	RF Choke (100uH)		L441	RF Choke	
L161	RF Choke (.55uH)		L501	RF Choke	
L171	AFT		L503	Peaking (15uH)	
L172	Peaking (5.6uH)		L561	RF Choke (270uH)	
L201	Peaking (15uH)		# T801	Line Choke	
L202	Peaking (33uH)		Z202	Delay Line	
L203	Peaking (47uH)				

For SAFETY use only equivalent replacement part.

COILS & TRANSFORMERS

ITEM No.	FUNCTION	MFGR. PART No.	OTHER IDENTIFICATION	NOTES
# DY1	Yoke Horiz 1.98mH 90° Vert 130mH		YS52203 (1)	
# T401	Horiz Drive		151-060A (1)	
# T402	Horiz Output		MSH-S361 (1)	
# T431	Pincushion		151-100C (1)	
# T601	Audio Output		151-167B (1)	
# T1201	Remote		151-156D (1)	

For SAFETY use only equivalent replacement part.

(1) Number on unit.

PARTS LIST AND DESCRIPTION (Continued)

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

SEMICONDUCTORS (Select replacement transistor for best results)

ITEM No.	TYPE No.	MFGR. PART No.	REPLACEMENT DATA				
			NOTES	NTE PART No.	ECG PART No.	RCA PART No.	WORKMAN PART No.
D471	S1B01-01			NTE552	ECG552	SK3311	WEP172/506
D472	W03B			NTE116	ECG116	SK3311	WEP156
	RZ11EB2			NTE5020A	ECG5020A	SK11A/5020A	WEP1421/5020
	HZ11B-2L			NTE5020A	ECG5020A	SK11A/5020A	WEP1421/5020
D473	MA26W0			NTE605	ECG605A	SK3864/605	WEP605/605
	RVDFV-212			NTE605	ECG605A	SK3864/605	WEP605/605
D601	1S2471			NTE519	ECG519	SK3100/519	WEP925/519
	1N4148			NTE519	ECG519	SK3100/519	WEP925/519
	1S1553			NTE177	ECG177	SK9091/177	WEP1062/177
	1S2076			NTE519	ECG519	SK3100/519	WEP925/519
# D803	RM2A			NTE580	ECG580	SK5006	WEP170/125
# D805	1R5GZ61			NTE125	ECG125	SK3081/125	WEP170/125
	1S2471			NTE519	ECG519	SK3100/519	WEP925/519
	1N4148			NTE519	ECG519	SK3100/519	WEP925/519
	1S1553			NTE177	ECG177	SK9091/177	WEP1062/177
	1S2076			NTE519	ECG519	SK3100/519	WEP925/519
D807	1S2471			NTE519	ECG519	SK3100/519	WEP925/519
	1N4148			NTE519	ECG519	SK3100/519	WEP925/519
	1S1553			NTE177	ECG177	SK9091/177	WEP1062/177
	1S2076			NTE519	ECG519	SK3100/519	WEP925/519
	1S1555			NTE177	ECG177	SK9091/177	WEP1062/177
IC101	HA11440A			NTE1471	ECG1471	SK7705	WEP925/519
IC401	HA11423			NTE1650	ECG1650	SK9194/1471	WEP925/519
IC501	HA11446			NTE712	ECG712	SK7606/1650	WEP925/519
IC601	GL3201			NTE712	ECG712	SK3072/712	WEP1062/177
	LSC1008P					SK3072/712	WEP925/519
# IC801	STR383			NTE123AP	ECG123AP	SK7719	WEP1062/177
	EXT954-20C			NTE85	ECG85	SK3854/123AP	WEP925/519
Q1	C9014A			NTE85	ECG85	SK9229/85	WEP736/123A
Q161	KTC388A			NTE85	ECG85	SK3132	WEP910/289
	2SC388A			NTE107	ECG107	SK3293/107	WEP535/107
	2SC1906						WEP923/316

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GOLDSTAR
MODEL CMT-2032

FOLDER 1

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

SEMICONDUCTORS (Select replacement transistor for best results)

REPLACEMENT DATA						MFGR. PART No.	TYPE No.	ITEM No.
NOTES	NTE PART No.	ECG PART No.	RCA PART No.	WORKMAN PART No.	ZENITH PART No.			
	NTE85 NTE123AP NTE123A NTE85	ECG85 ECG123AP ECG123A ECG85	SK9229/85 SK3854/123AP SK3444/123A SK3124A/289A	WEP910/289 WEP736/123A WEP736/123A WEP910/289	921-1114 121-29000A 121-29000A 121-29065		(KT)C1815Y GS9023-H 2SC458-O/Y/GR 2SC458-B/C	Q201 thru Q203
	NTE290A NTE290A NTE290A NTE290A	ECG290A ECG290A ECG290A ECG290A	SK3114A/290A SK3114A/290A SK3114A/290A SK9132	WEP911/290A WEP911/290A WEP911/290A WEP911/290A	121-29003* 121-29003* 121-29003* 121-29003*		(KT)A562-O KTA562TM-Y 2SA562TM-O/Y 2SA673C/D	Q204
	NTE375 NTE375 NTE375 NTE375	ECG375 ECG375 ECG375 ECG375	SK9118/375 SK3929 SK3929 SK3929	WEP763/375 WEP763/375 WEP763/375 WEP763/375	121-29106 121-29106 121-29106 121-29106		MJE9730 2SD1138 2SD1138-C 2SC2167-Y 2SD401-Y	Q321, 322
	NTE198 NTE198 NTE376 NTE376	ECG198 ECG198 ECG376 ECG376	SK3220/198 SK3219 SK3219 SK9362/376	WEP779/198 WEP779/198 WEP779/198 WEP779/198	121-29028 121-29028 121-29028 121-29028		GS2014G 2SC1507-O/Y 2SC2068 2SC1514	Q401
	NTE89 NTE376 NTE376 NTE186A NTE186A NTE375 NTE375	ECG89 ECG376 ECG376 ECG186A ECG186A ECG375 ECG375	SK9119/89 SK3219 SK9362/376 SK9392/80 SK9392/80 SK3929 SK3929	WEP89/89 WEP779/198 WEP779/198 WEP900/186A WEP900/186A WEP763/375 WEP763/375	121-29112 121-29028 121-29028 121-29008 121-29008 121-29106 121-29106		(KT)C2229-O 2SC2229-O/Y 2SC1921	Q803

For SAFETY use only equivalent replacement part.
* Lead configuration may vary from original.
(KT) Prefix = Korea.

PARTS LIST AND DESCRIPTION (Continued)

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

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	MFGR. PART No.	ITEM No.	RATING	MFGR. PART No.
C1	10 16V NP		# C471	33 50V	
C106	.47 50V 10%		C515	10 16V NP	
C323	1 25V 10%		C612	1 50V NP	
C333	22 50V 10%		C613	2.2 250V	
# C336	33 25V		# C802	470 200V	
# C437	33 160V		# C808	47 200V	
# C438	1 160V				

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

CAPACITORS

ITEM No.	RATING	MFGR. PART No.	ITEM No.	RATING	MFGR. PART No.
# C213	.022 100V 10%		C501	18 NPO 50V 5%	
# C431	.0022 500V 10%		C502	12 NPO 50V 5%	
# C432	470 2KV 10%		C512	18 NPO 50V 5%	
# C433	.033 1.6KV 5%		C513	27 NPO 50V 5%	
# C434	.0033 1.6KV 5%		C516	33 NPO 50V 5%	
# C435	.2 200V 5%		# C801	.1 125V 20%	
# C436	.27 200V 5%		# C805	.0047 500V 10%	

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

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

ITEM NO.	FUNCTION	RESISTANCE	MFGR. PART NO.	NOTES
R151	AGC Delay	4700		
R251	Vert Hold	5000		
R252	Contrast	10K		
R253	Brightness	500		
R254	Sub Brightness	4700		
R352	Vert Height	470		
# R451	Horiz Hold	4700		
# R452	Hold Down	2200		
R551	Color	10K		
R552	Tint	10K		
R553	Color Preset	47K		
R554	Tint Preset	10K		
R555	Color Sync	47K		
R561	Red Drive	330		
R565	Red Bias	10K		
R570	Green Bias	10K		
R571	Blue Drive	330		
R577	Blue Bias	10K		
# Z401	Focus Screen		(1)	

For SAFETY use only equivalent replacement part.
(1) Z401 contains Focus and Screen Controls.

GOLDSTAR
MODEL CMT-2032

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