

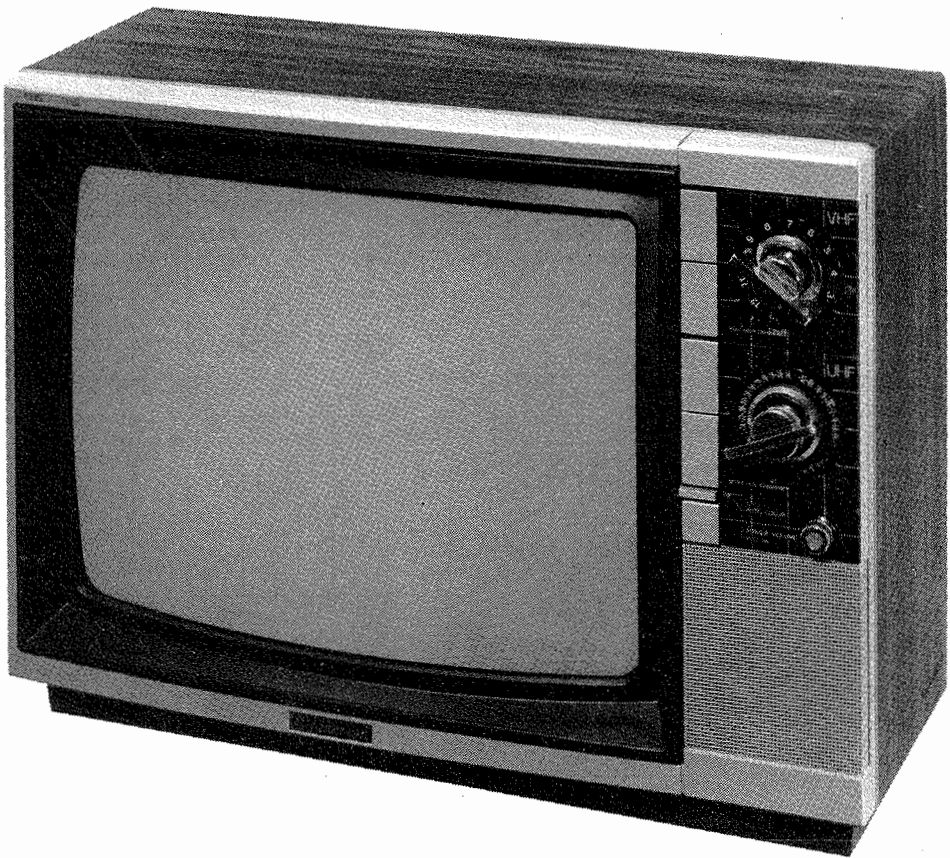
CABINET-REAR VIEW

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL	CRT REMOVAL
Remove knobs from cabinet front. Remove four screws holding cabinet back and remove back. Disconnect speaker and antenna leads. Disconnect HV anode, CRT socket, deflection yoke connector, degaussing coil connector and ground leads. Remove four screws holding tuner to cabinet front and remove assembly from cabinet. Remove four screws holding power switch/auto color switch assemblies to cabinet front and remove assemblies from cabinet. Slide main board assembly out of cabinet.	(Caution: Some versions employ CRT with neck assemblies permanently bonded to CRT. Do not attempt to remove neck assemblies from CRT with TC suffix to type number.) Follow "Chassis Removal" procedure and lay set facedown on a soft protective surface. (See caution). 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	UHF TUNER
Implosion protection is an integral part of the picture tube, cleaning accomplished without CRT removal.	The UHF tuner employs a detent mechanism for channel selection. Fine tuning is adjusted by rotating the fine tuning knob.
FUSE DEVICES	HORIZONTAL OSCILLATOR
A 4-amp fuse is used for AC line protection. (See photo, Cabinet - Rear View.)	Adjustment of the horizontal hold is accomplished by the proper setting of the Horizontal Hold.
VHF/UHF TUNER	FOCUS
See Miscellaneous Adjustments.	The focus may be varied by a focus control. (See photo, Cabinet - Rear View.)
VHF TUNER	AGC
The fine tuning mechanically engages oscillator slug for adjustment (one slug for each channel).	The AGC may be varied by an RF AGC control.



MODEL EC134S

SAFETY PRECAUTIONS  
 See page 4.

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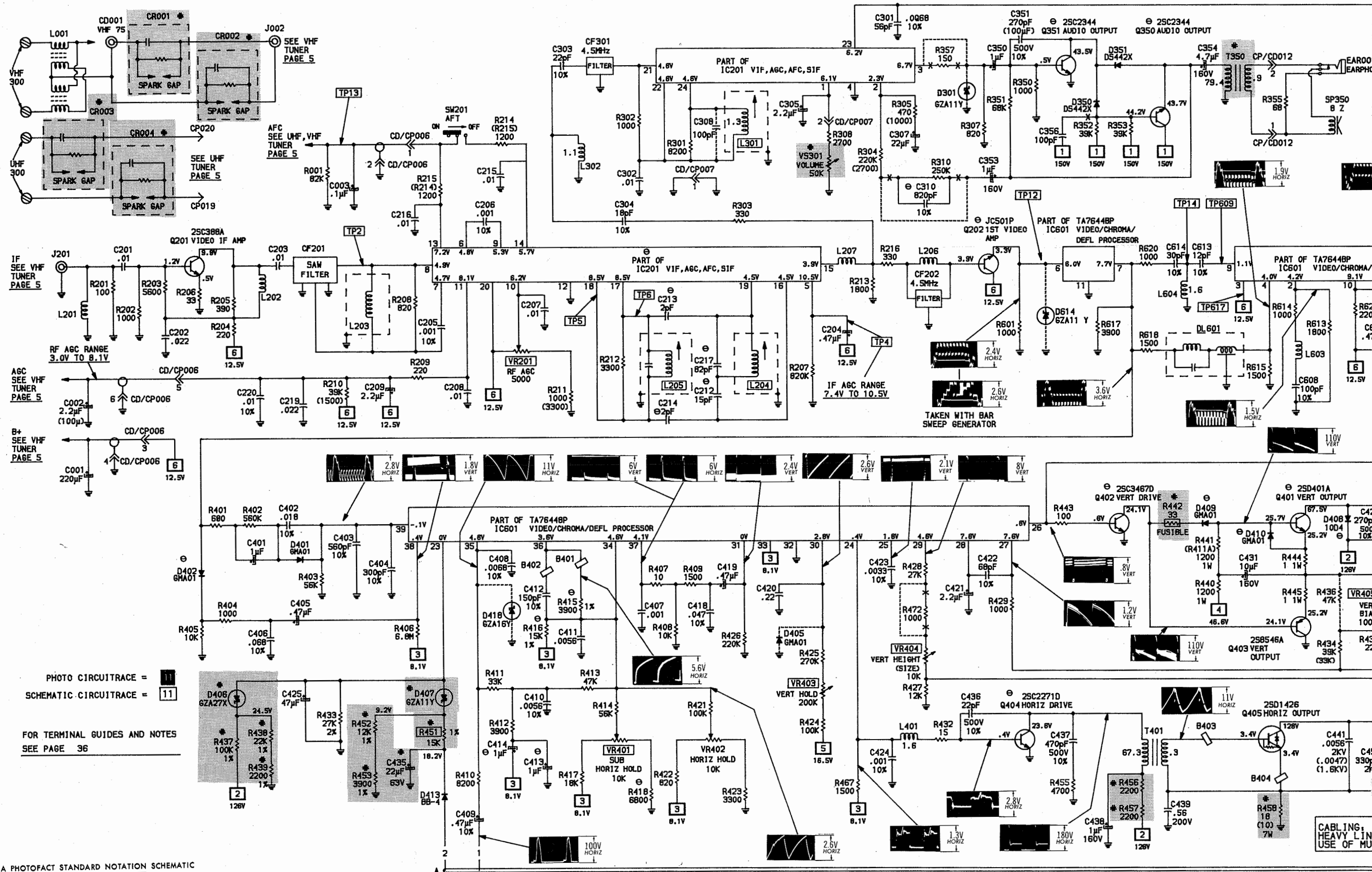
The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W.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

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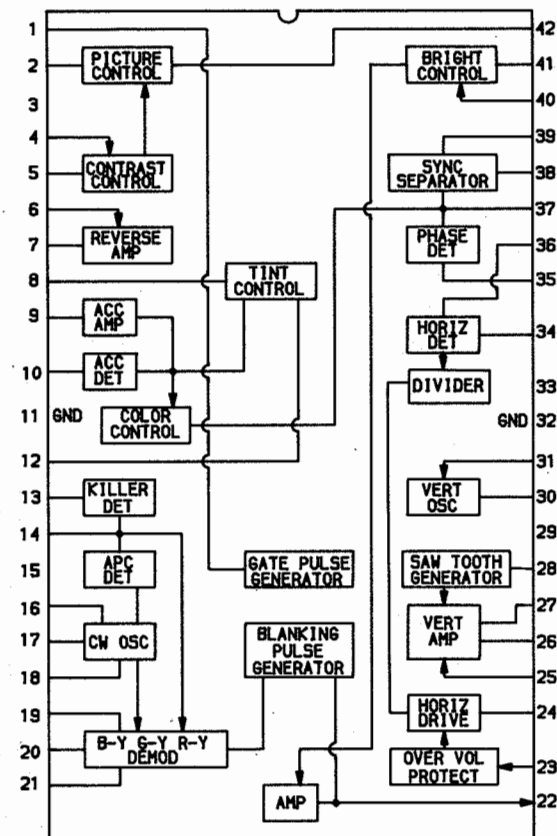
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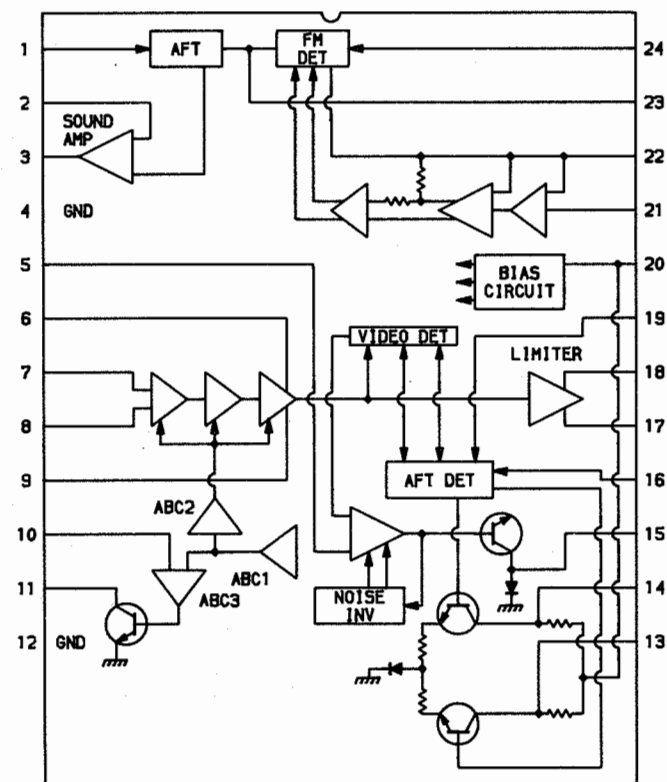
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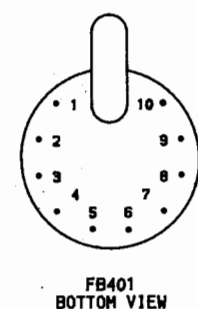
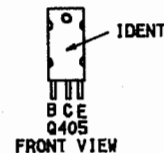
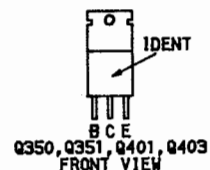
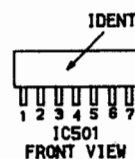
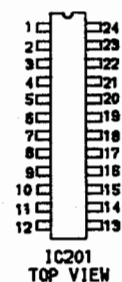
# IC FUNCTIONS IC501



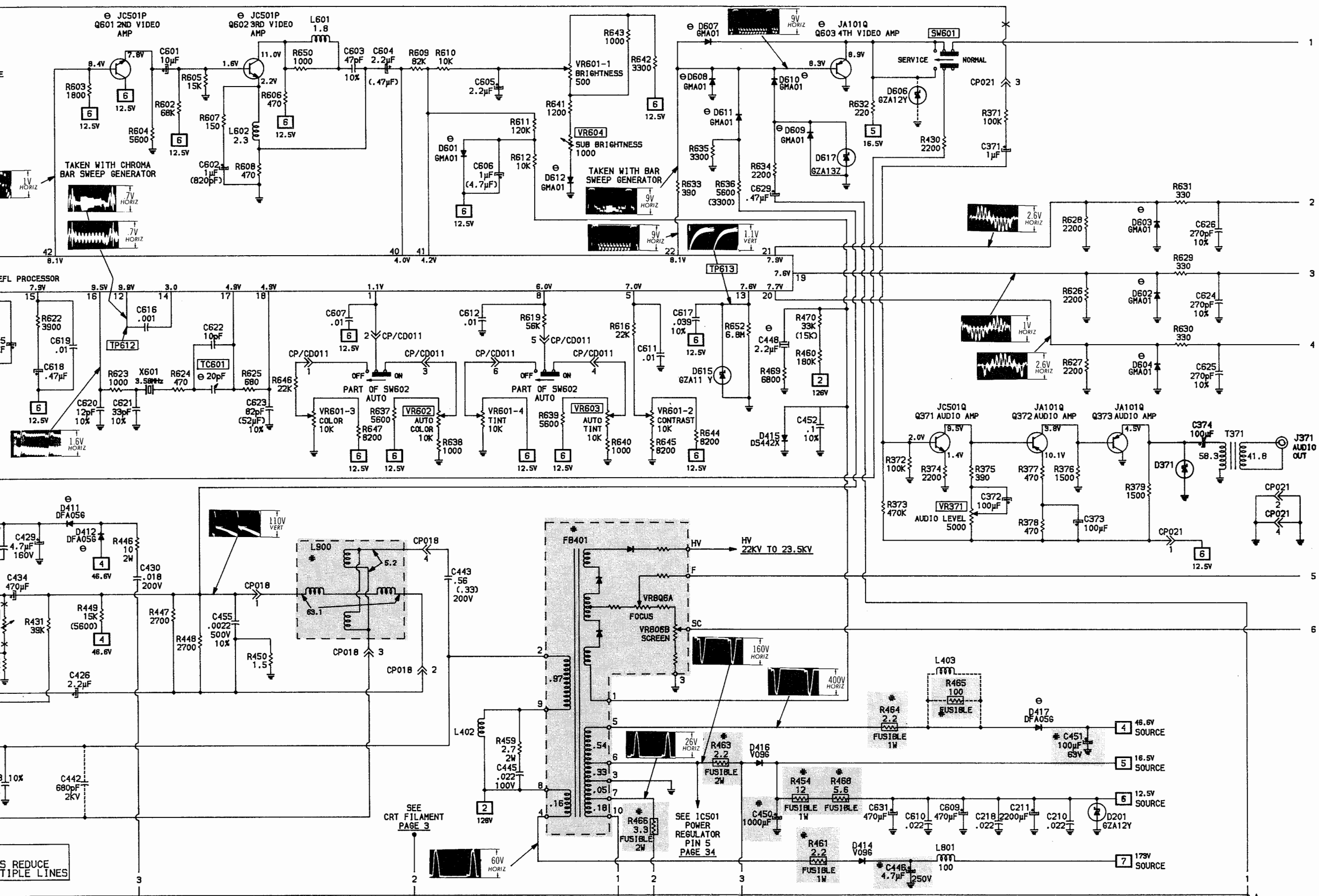
IC201



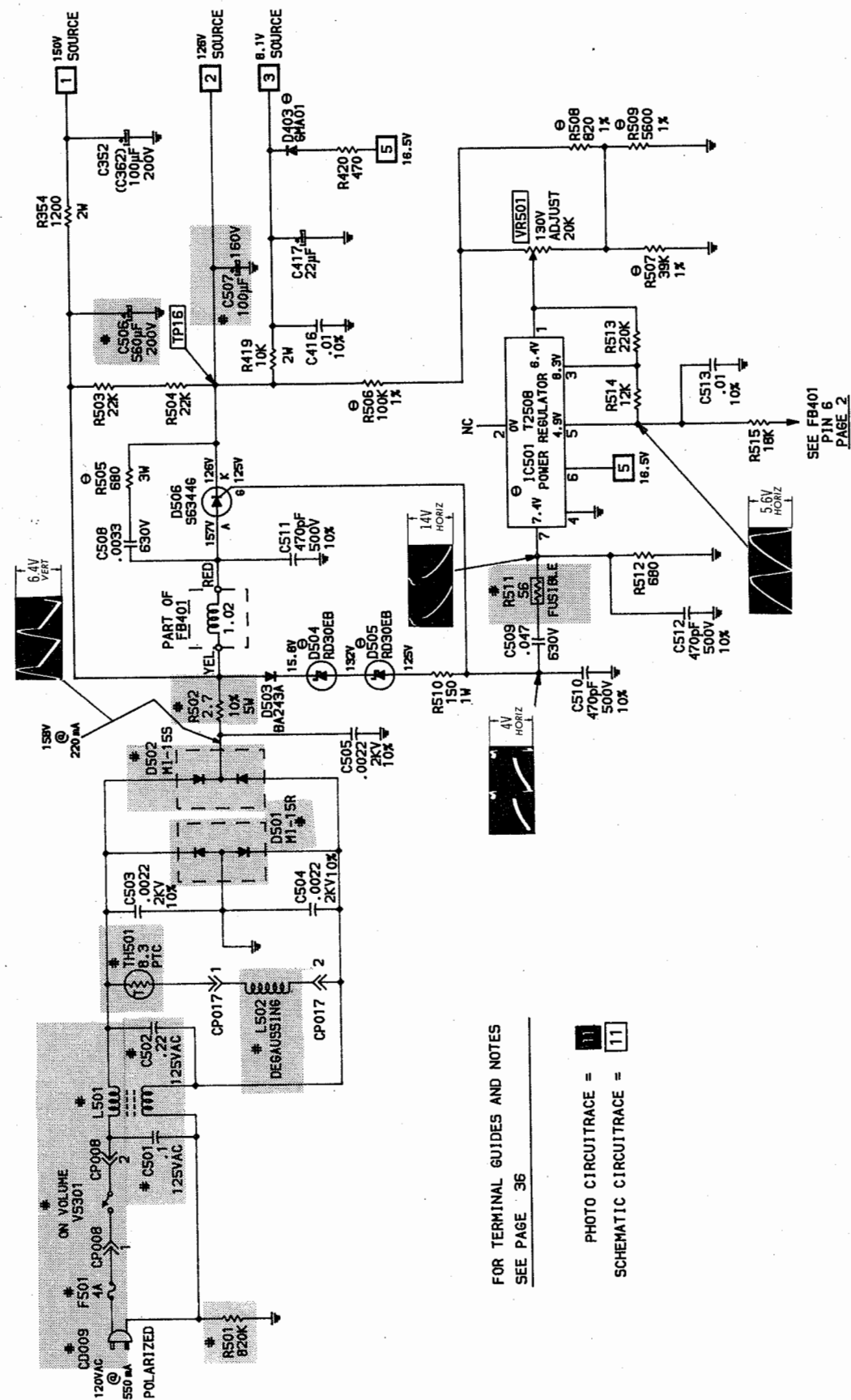
## TERMINAL GUIDES



- # For SAFETY use only equivalent replacement part, see parts list.
- Circuitry not used in some versions
  - - - Circuitry used in some versions
  - See parts list
  - ⊥ 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.





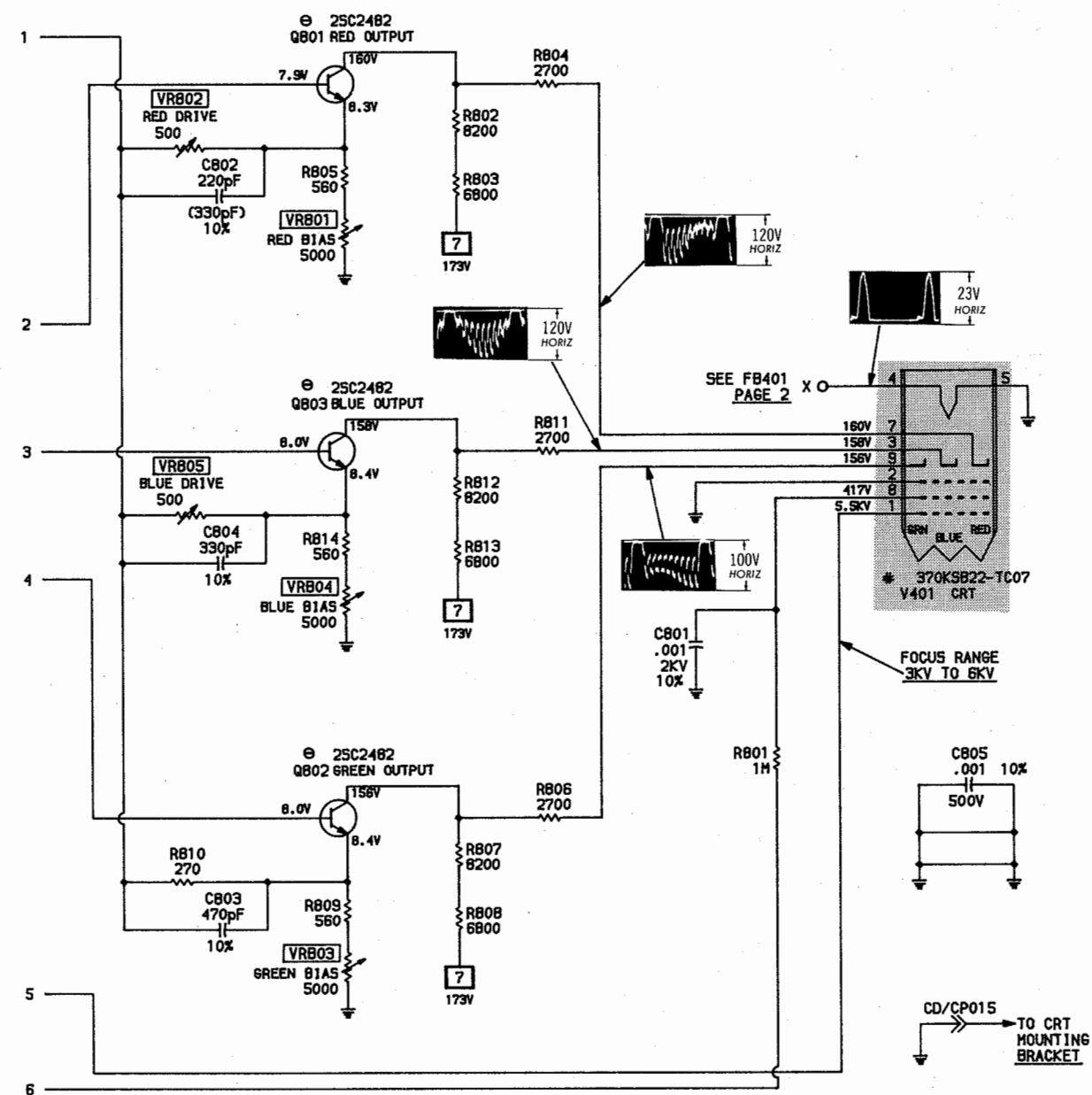


FOR TERMINAL GUIDES AND NOTES  
SEE PAGE 36

PHOTO CIRCUITRACE = 11

SCHEMATIC CIRCUITRACE = 11

A PHOTOFACIT STANDARD NOTATION SCHEMATIC  
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FOR TERMINAL GUIDES AND NOTES  
SEE PAGE 36

PHOTO CIRCUITRACE = 11  
SCHEMATIC CIRCUITRACE = 11

SCHEMATIC CIRCUITRACE = 11

A PHOTOFACIT STANDARD NOTATION SCHEMATIC  
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## SAFETY PRECAUTIONS

Operation of receiver outside of cabinet or with back removed involves a shock hazard. Work on these models should only be performed by those who are thoroughly familiar with precautions necessary when working on high voltage equipment.

Exercise care when servicing this chassis with power applied. Many B plus and high voltage RF terminals are exposed which, if carelessly contacted, can cause serious shock or result in damage to the chassis. Maintain interconnecting ground lead connections between chassis, escutcheon, picture tube tag and tuner cluster when operating chassis.

These receivers have a "polarized" AC line cord. The AC plug is designed to fit into standard AC outlets in one direction only. The wide blade connects to the "ground side" and the narrow blade connects to the "hot side" of the AC line. This assures that the TV receiver is properly grounded to the house wiring. If an extension cord must be used, make sure it is of the "polarized" type.

Since the chassis of these receivers is connected to one side of the AC supply during operation, service should not be attempted by anyone not familiar with the precautions necessary when working on this type of equipment.

When it is necessary to make measurements or tests with AC power applied to the receiver chassis, an Isolation Transformer (Use ORION Part No. IT0001 or equivalent) must be used as a safety precaution and to prevent possible damage to transistors. The Isolation Transformer should be connected between the TV line cord plug and the AC power outlet.

Certain HV failures can increase X-ray radiation. Receivers should not be operated with HV levels exceeding the specified rating for their chassis type. The maximum operating HV specified for the chassis used in these receivers is 24.5kV±1.0kV at zero beam current with a line voltage of 120V AC. Higher voltage may also increase possibility of failure in HV supply.

It is important to maintain specified values of all components in the horizontal and high voltage circuits and anywhere else in the receiver that could cause a rise in high voltage, or operating supply voltages. No changes should be made to the original design of the receiver.

Components shown in the shaded areas on the schematic diagram and/or identified by a \* in the replacement parts list should be replaced only with exact Factory recommended replacement parts. The use of unauthorized substitute parts may create a shock, fire, X-radiation, or other hazard.

To determine the presence of high voltage, use an accurate, high impedance, HV meter connected between second anode lead and the CRT tag grounding device. When servicing the High Voltage System remove static charge from it by connecting 10k ohm resistor in series with an insulated wire (such as a test probe) between picture tube tag and 2nd anode lead (AC line cord disconnected from AC supply).

The picture tube used in this receiver employs integral implosion protection. Replace with tube of the same type number for continued safety. Do not lift picture tube by the neck. Handle the picture tube only when wearing shatter-proof goggles and after discharging the

high voltage completely. Keep others without shatter-proof goggles away.

When removing springs or spring mounting parts from tuner, tuner cluster or chassis, shatter-proof goggles must be worn. Keep others without shatter-proof goggles away.

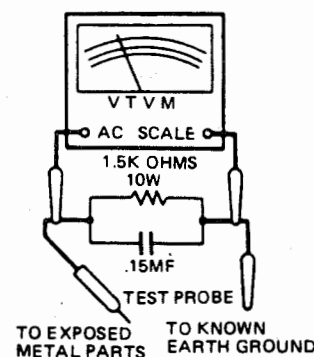
Before returning the receiver to the user, perform the following safety checks:

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. Replace 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, a check for the presence of leakage current should be made at each exposed metal part having a return path to the chassis (antenna, cabinet metal, screw heads, knobs and/or shafts, escutcheon, etc.) in the following manner.

Plug the AC line cord directly into a 120V AC receptacle. (Do not use an Isolation Transformer during these checks.) 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.)

If available, measure current using an accurate leakage current tester. (Use Standard Equipment Item No. 21641) Any reading of 0.35 MA or more is excessive and indicates a potential shock hazard which must be corrected before returning the receiver to the owner.

If a reliable leakage current tester is not available, this alternate method of measurement should be used. Using two clip leads, connect a 1500 ohm, 10 watt resistor paralleled by a 0.15 MF capacitor in series with a known earth ground, such as a water pipe or conduit and the metal part to be checked. Use a VTVM or VOM with 1000 ohms per volt, or higher, sensitivity to measure this AC voltage drop across the resistor. Any reading of 0.35 volt RMS or more is excessive and indicates a potential shock hazard which must be corrected before returning the receiver to the owner.



## TROUBLESHOOTING (Continued)

### VERTICAL

Inject a vertical signal at pin 26 of Video/Chroma/Sync/Sweep IC (IC601) and check for vertical deflection. If the vertical sweep is present, check the voltages, waveforms and components associated with pins 25 thru 31 of IC601. If there is no vertical deflection, check the voltages, waveforms and components associated with Vertical Drive Transistor (Q402) and Vertical Output Transistors (Q401, Q403). If the Vertical Oscillator is off frequency, check the voltages, waveforms and components associated with pins 30, 31 and 37 of IC601. Vertical linearity or height problems may be caused by the vertical feedback and bias circuits. Check electrolytics C419, C421, C428, C429, C431 and C434 for defects.

### SYNC

If there is no vertical or horizontal sync, check for vertical and horizontal sync/pulses at pin 37 of Video/Chroma/Sync/Sweep IC (IC601). If these pulses are missing, check the voltages, waveforms and components associated with pins 7, 37, 38 and 39 of IC (IC601). If the vertical and horizontal sync pulses are present at pin 37, check for the proper vertical waveforms at pins 30, 31 and 37 of IC601, and for the proper horizontal waveforms at pins 34 thru 37 of IC601.

### RASTER

Check the CRT and CRT voltages. If there is no Green, check the voltages, waveforms and components associated with pin 20 of IC601 and

Green Output Transistor (Q802). If there is no Blue, check the voltages, waveforms and components associated with pin 19 of IC601 and Blue Output Transistor (Q803). If there is no Red, check the voltages, waveforms and components associated with pin 21 of IC601 and Red Output Transistor (Q801). If the raster has a keystone shape, check the Deflection Yoke (L900). If the raster has height or width problems, refer to the "Vertical" or "Horizontal" and "Power Supply" sections of this Troubleshooting guide.

### CHROMA

Check for a chroma waveform at pin 9 of Video/Chroma/Sync/Sweep IC (IC601). If this waveform is missing, check the components associated with pin 7 and pin 9 of IC601. If a chroma waveform is present at pin 9, check for the proper chroma waveforms at pins 19, 20 and 21 of IC601. If these waveforms are missing, check the voltages, waveforms and components associated with pins 1 and 8 thru 21 of IC (IC601). Check the 3.58MHz oscillator at pins 16, 17 and 18 of IC601. Check the voltages and components associated with the Color Control and pin 1 of IC601. If there is no color sync, check the voltages, waveforms and components associated with pins 15 thru 18 of IC601 and Color Sync Capacitor (TC601). If there is inadequate Tint Range, check the voltage and components associated with pin 8 of IC601 and Tint Control (VR601). If the proper chroma waveforms are present at pins 19, 20 and 21 of IC601, check the CRT and Red, Green, Blue Output Transistors (Q801, Q802, Q803).

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FOLDER 1

TROUBLESHOOTING

POWER SUPPLY

Check AC Fuse (F501). If open, check Bridge Rectifier Diodes (D501, D502) and Capacitors C501 thru C504. Apply 120V AC, close Power Switch (VS301) and check for 164V at the cathode of Diode D502. If this voltage is missing, check Switch VS301 and Line Filter (L501). If 163V is present at the cathode of Diode D502, check for 130V at the cathode of Regulator SCR (D506). If this voltage is missing, check the voltages, waveforms and components associated with Power Regulator IC (IC501), Horizontal Output Transistor (Q405), Horizontal Output Transformer (FB401) and SCR (D506). If the above mentioned components and associated circuitry check out fine, refer to the "Horizontal" section of this Troubleshooting guide.

HORIZONTAL

Determine if the TV is in shutdown, refer to the "High Voltage Shutdown" section of this Troubleshooting guide. If the TV is not in shutdown, inject a horizontal signal at the base of the Horizontal Output Transistor (Q405). If horizontal deflection is now present, check the voltages, waveforms and components associated with pins 23, 24, 33 thru 36 of Video/Chroma/Sync/Sweep IC (IC601) and Horizontal Drive Transistor (Q404). If there is no horizontal sweep, check the voltages, waveforms and components associated with Transistor Q405, and Horizontal Output Transformer (FB401). The High Voltage Rectifier is part of Transformer FB401 and if defective it will affect the operation of the horizontal circuits. If the horizontal oscillator is off frequency check the voltages, waveforms and components associated with pins 34 thru 36 of IC601. Horizontal linearity or foldover problems may be due to capacitors C439, C441, C442, C443 and C453 being defective. Check all Rectifier Diodes fed by Transformer FB401.

HIGH VOLTAGE SHUTDOWN

The High Voltage is monitored by Diode D413 rectifying pulses from the Horizontal Output Transformer (FB401). Should the High Voltage increase the rectified voltage at the cathode of Diode D413 will also increase and trigger Zener Diode D407 into conduction shutting down the set. The set will also be shut down, if the Regulated 130V supply should increase substantially. Zener Diode D406 will be triggered into conduction shutting down the set. To troubleshoot, connect a clip lead from pin 23 of Video/Chroma/Sync/Sweep IC (IC601) to ground and use a Variac for AC Power. Start with 75V AC, disconnect the High Voltage Lead from the CRT Anode and increase the AC voltage as necessary to locate and correct defect. Remove clip lead from pin 23 of IC601.

NOTE: Care should be taken in defeating the High Voltage Shutdown circuit, as this may cause excessive radiation and damage to the CRT, Transformer FB401 and associated components. Monitor the High Voltage and troubleshoot.

Voltages taken in Shutdown

IC601	D506
Pin 23 1.4V	K 150V

IF AGC

Inject a Video IF signal at the IF Input and check for video on the CRT. If the video is present, check the Tuners, Tuner AFC, AGC and B+ circuits. If there is no video on the CRT, check for a video waveform at TP12. If the video is present at TP12, refer to the "Video" section of this Troubleshooting guide. If there is no video at TP12, apply AGC bias to TP4. If the video is now present at TP12, check the voltages and components associated with pins 5, 10 and 11 of VIF/AGC/AGC/SIF IC (IC201). If there is still no video at TP12, check the voltages, waveforms and components associated with pins 5 thru 20 of IC201, Video IF Amp Transistor (Q201), and Video Amp Transistor (Q202). A defective AGC can cause an overloaded picture, excessive snow or loss of picture and sound. See AGC voltage chart for voltages with signal.

IC201	
Pin 5	7.6V
Pin 11	2.8V
Pin 10	6.4V

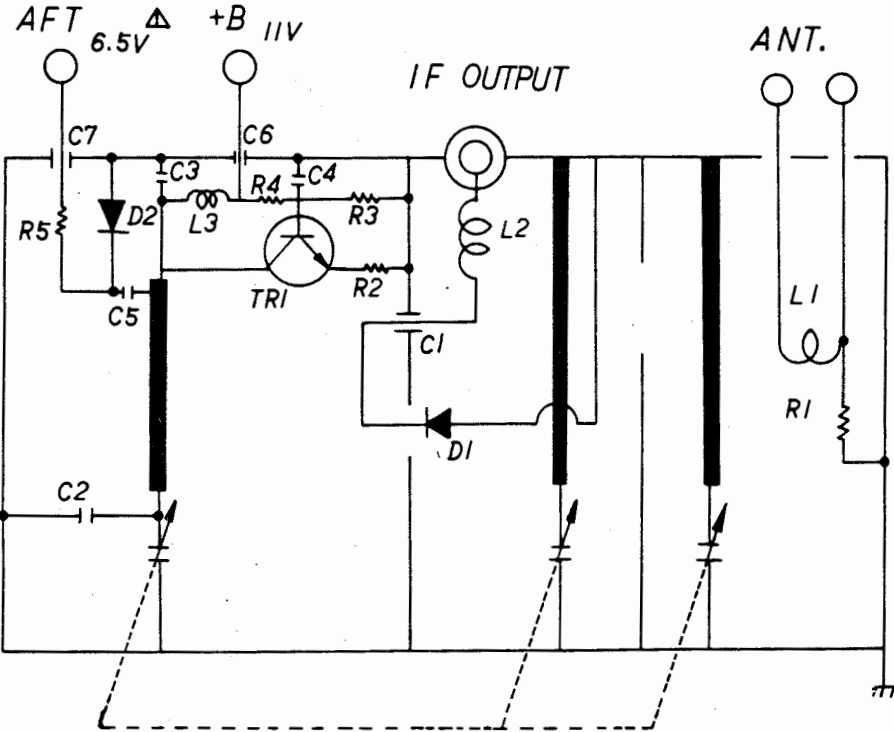
AUDIO

If there is no audio, inject an audio signal at pin 3 of VIF/SIF/AFC/AGC IC (IC201) and check for audio at the Speaker (SP350). If the audio is missing, check the voltages, waveforms and components associated with the Audio Output Transistors (Q360, Q361) and the speaker. If the audio is present, inject an Audio IF signal at pin 21 of IC201, and with the volume at maximum check for the audio at the speaker. If the audio is present, check the components associated with pins 15 and 21 of IC201. If there is no audio at the speaker, check the voltages, waveforms and components associated with pins 1 thru 3, and 21 thru 24 of IC201.

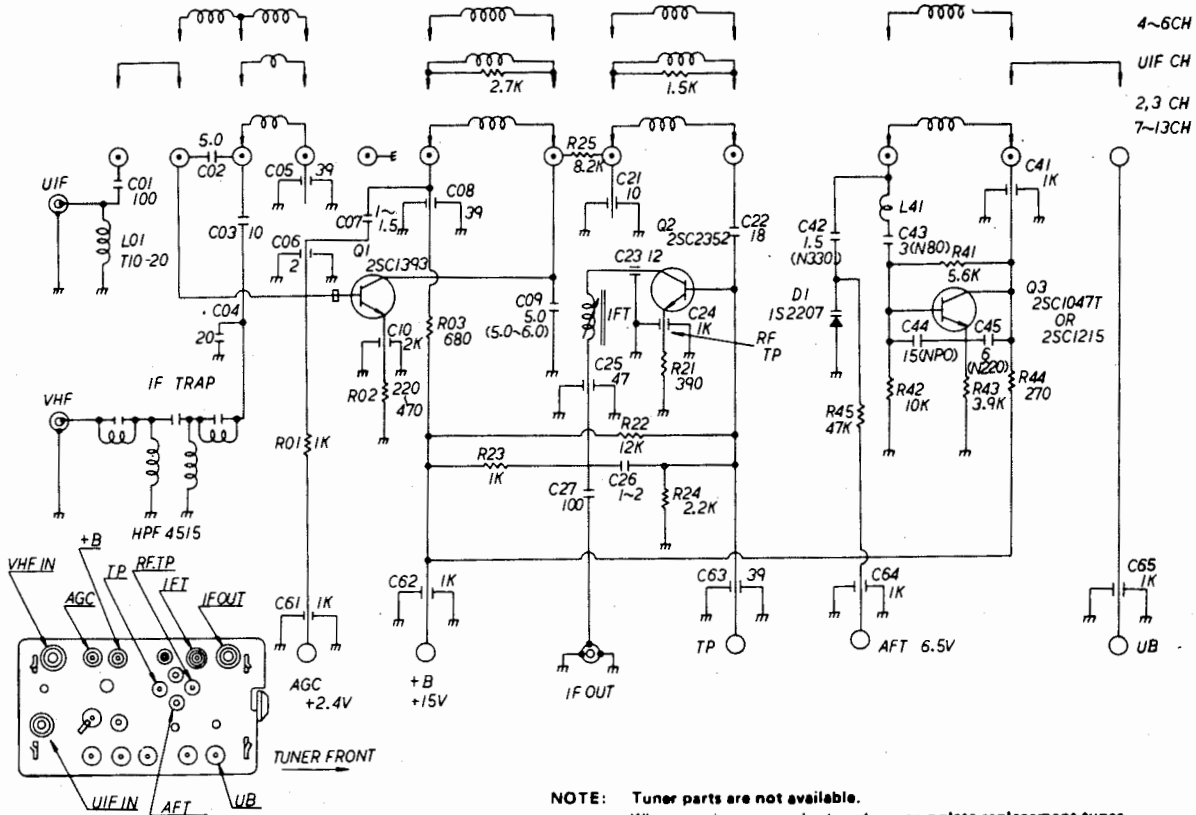
VIDEO

Inject a video signal at TP12 and check for video on the CRT. If the video is present, refer to the "IF/AGC" section of this Troubleshooting guide. If there is no video on the CRT, check for a video waveform at pin 22 of Video/Chroma/Sync/Sweep IC (IC601). If the waveform is missing, check the voltages, waveforms and components associated with pins 2 thru 7, 22, 40, 41, and 42 of IC601. If there is a video waveform at pin 22 of IC601, check the voltages, waveforms and components associated with Video Amp Transistor (Q603), the CRT, and Red, Green, Blue Output Transistors (Q801, Q802, Q803). If the brightness is inadequate or cannot be controlled, check the voltages and components associated with pins 40, 41 and 42 of IC601 and pin 8 of the CRT.

TV TUNER SCHEMATIC DIAGRAM (UHF)



TV TUNER SCHEMATIC DIAGRAM (VHF)



Courtesy of the Manufacturer

UHF/VHF TUNER

SET 2411 FOLDER 1

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FOLDER 1

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  
L204, Tuner IF Output..... 9296, 9297, 9300  
L205, L301..... 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 +6.0V Bias to TP4.  
Set RF AGC Control (VR201) to Midrange.

SOUND IF ALIGNMENT

Tune in a station and adjust L301 for maximum sound. Reduce signal strength at the antenna  
terminals until distortion appears. Continue to reduce the signal while aligning for undistorted  
output by adjusting L301.

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 (FB401). Refer to "Troubleshooting" Power Supply and Horizontal circuits.

NO PIC, NO SOUND, HAS RASTER: Check IF-AGC and source voltages from Horizontal Output  
Transformer (FB401). Refer to "Troubleshooting" IF-AGC and Horizontal circuits.

NO PIC, HAS SOUND, NO RASTER: Check Horizontal Output Transformer (FB401) 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 (FB401).  
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.

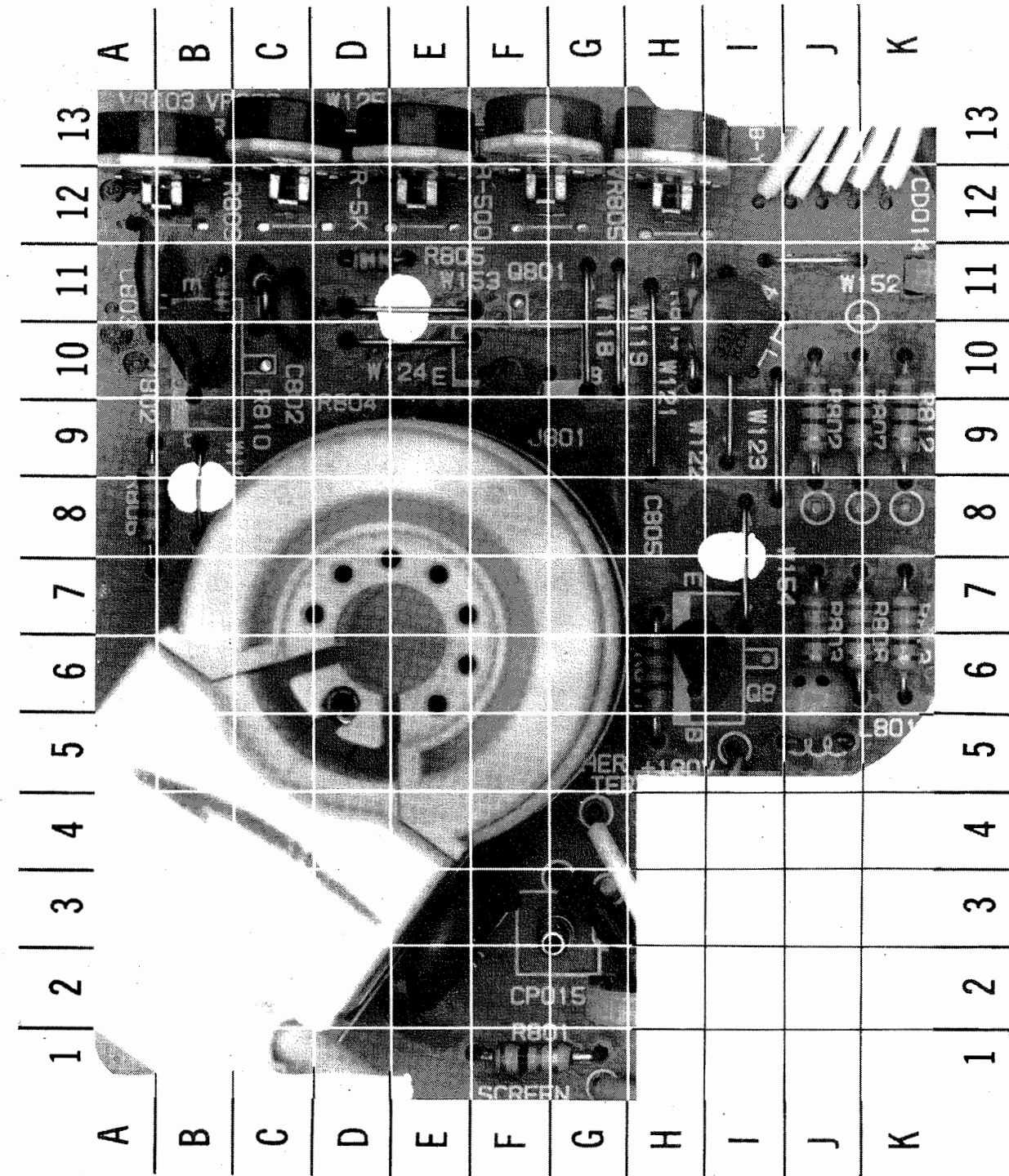
NO RED: Check Chroma and Red Output circuits. Refer to "Troubleshooting"  
Raster circuit.

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

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FOLDER 1





CRT BOARD-  
GridTrace  
LOCATION  
GUIDE

C801 E-3  
C802 C-11  
C803 A-11  
C804 I-10  
C805 G-8  
L801 J-6  
Q801 F-10  
Q802 B-10  
Q803 H-6  
R801 F-1  
R802 J-9  
R803 J-7  
R804 E-9  
R805 D-11  
R806 A-8  
R807 J-9  
R808 B-11  
R809 C-11  
R810 H-6  
R811 K-9  
R812 K-7  
R813 H-11  
R814 E-13  
VR801 C-13  
VR802 B-13  
VR803 H-13  
VR804 F-13  
VR805 F-13

### TV ALIGNMENT INSTRUCTIONS (Continued)

#### 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 TP2	44MHz (10MHz)	45.75MHz	Adjust L205 for Maximum See Figure 1.
TP12	To TP on UHF Tuner		41.25MHz 42.17MHz 44.00MHz 45.75MHz 47.25MHz	Connect a 100 ohm resistor from TP5 to TP6. Adjust VHF Tuner IF output coil for Maximum gain and symmetry of response. See Figure 2. Remove 100 ohm Resistor

#### VIDEO IF ALIGNMENT (BAR SWEEP GENERATOR)

BAR SWEEP GENERATOR	SCOPE INPUT	REMARKS
Antenna Input	TP12	Perform Video IF Adjustments per SWEEP/MARKER GENERATOR instructions above. See Figure 3.

#### AUTOMATIC FINE TUNING ALIGNMENT

Connect as explained in preliminary instructions unless specified otherwise.

DIRECT PROBE FROM SWEEP/MARKER GENERATOR	SWEEP GENERATOR OUTPUT	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	REMARKS
To TP213	To TP on VHF Tuner	44MHz (10MHz Sweep)	45.75MHz	Adjust L204 to place marker as shown. See Figure 4.

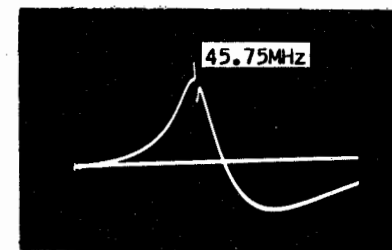


Figure 1

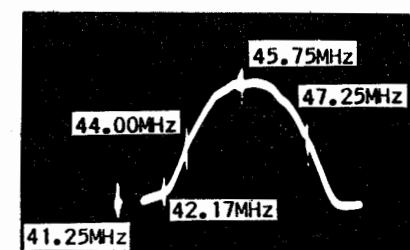


Figure 2



Figure 3

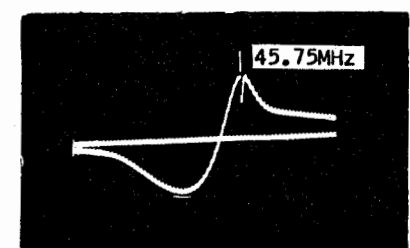


Figure 4

EMERSON  
MODELS EC-134, EC-134S

FOLDER 1

MISCELLANEOUS ADJUSTMENTS

VERTICAL SIZE AND VERTICAL BIAS ADJUSTMENTS

Connect a color bar generator and tune in a crosshatch pattern. Adjust Vertical Height (Size) Control (VR404) and Vertical Bias Control (VR405) for proper size and linearity. Note: Vertical Height (Size) (VR404) and Vertical Bias (VR405) Controls interact with each other.

RF AGC ADJUSTMENT

Tune in a strong station. Turn RF AGC Control (VR201) clockwise until snow (noise) appears in the picture then slowly counterclockwise until snow just appears.

SUB HORIZONTAL HOLD

Tune in a crosshatch pattern. Set Horizontal Hold to mechanical center. Adjust Sub Horizontal Hold (VR401) so that it is virtually impossible to lose horizontal sync when changing from channel to channel.

SUB BRIGHT ADJUSTMENT

Tune in a color bar pattern. Set Contrast and Brightness to Minimum. Adjust Sub Bright Control (VR604) for a faintly visible pattern.

COLOR SYNC ADJUSTMENT

Connect a color bar pattern to the antenna terminals and tune in a color bar pattern, allow a five minute warm up time. Connect a 0.47uF Capacitor across C613 (TP609 to TP14), a 0.015uF Capacitor from TP601 to TP612 and a 1000 ohm resistor across C617 (TP613 to TP617). Set Auto Color switch to off, Contrast and Tint Controls to Minimum and Color Control to Maximum. Adjust Color Sync Trimmer Capacitor (TC601) until color bars stop or slowly drift across the screen. Remove test capacitors and resistor.

AUTO TINT AND AUTO COLOR ADJUSTMENTS

Tune in a strong station. Set Auto Color switch to off. Adjust Color for proper Intensity and Tint for proper flesh tones. Set Auto Switch to on. Adjust Auto Color (VR602) and Auto Tint (VR603) to duplicate color intensity and flesh tones.

BLACK AND WHITE TRACKING

Set Auto Color to off position and Color Control to Minimum. Set Red (VR802) and Blue (VR805) Drive Controls to mechanical center. Set Red (VR801), Green (VR803) and Blue (VR804) Bias Controls to Minimum (fully counterclockwise). Set Service switch to

service position and screen control to Minimum. Advance screen control until a line of one color is just visible. Advance two remaining Bias Controls for a dim white line. Set Service switch to normal position. Adjust Red (VR802) and Blue (VR805) Drive Controls to produce normal black and white picture in highlight areas.

HIGH VOLTAGE SHUTDOWN TEST

Tune in a station and set all controls for normal operation. Use a jumper to momentarily short across R451. Loss of raster should occur. Remove power from set for approximately 30 seconds. Restore power and check for normal operation.

COLOR PURITY ADJUSTMENT

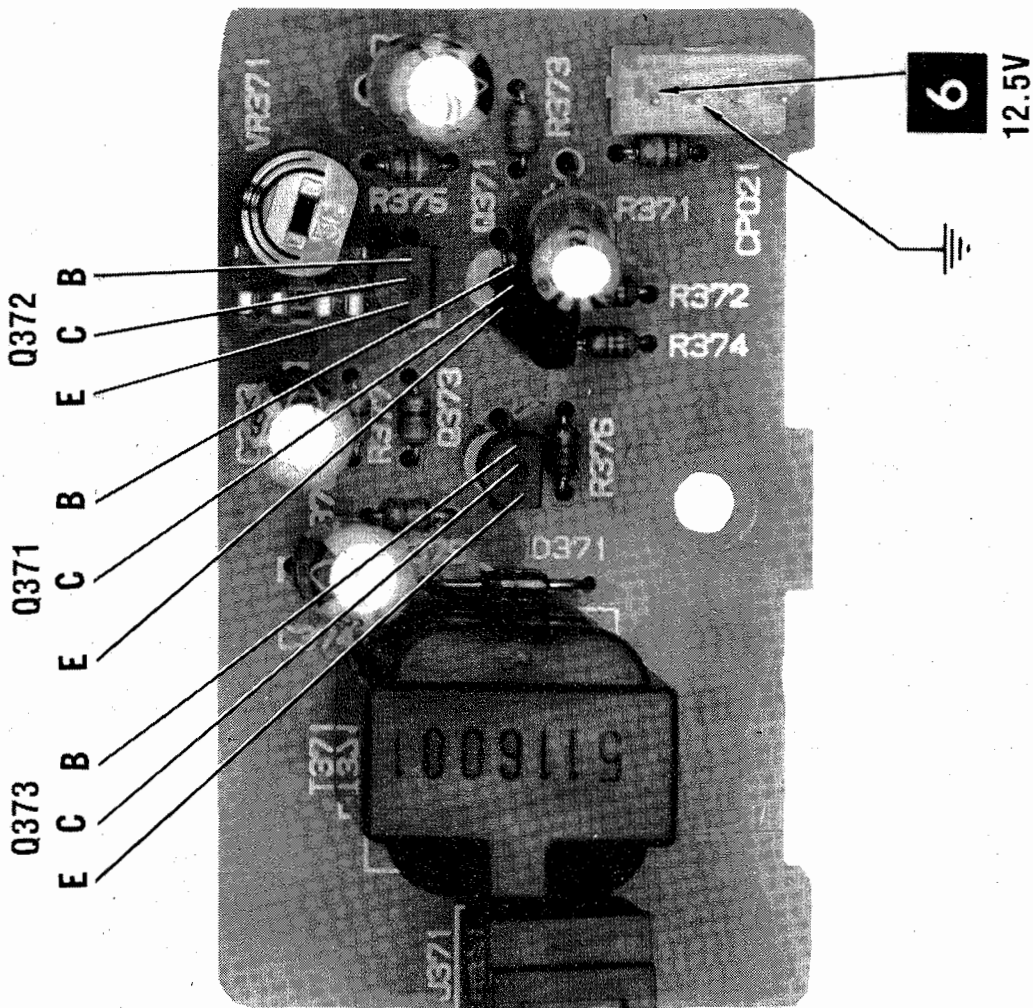
Use a degaussing coil to demagnetize the CRT. Turn screen control fully counterclockwise. Turn Red (VR801) and Blue (VR804) Bias controls fully counterclockwise. Adjust Green Bias Control (VR803) to produce a green raster. Loosen deflection yoke and move it back as far as possible. Use purity to center the vertical green band. Slowly slide the deflection yoke forward to produce a uniform green raster. Check Red and Blue purity by adjusting Bias Controls to produce red and blue fields. Tighten deflection yoke and perform black and white tracking.

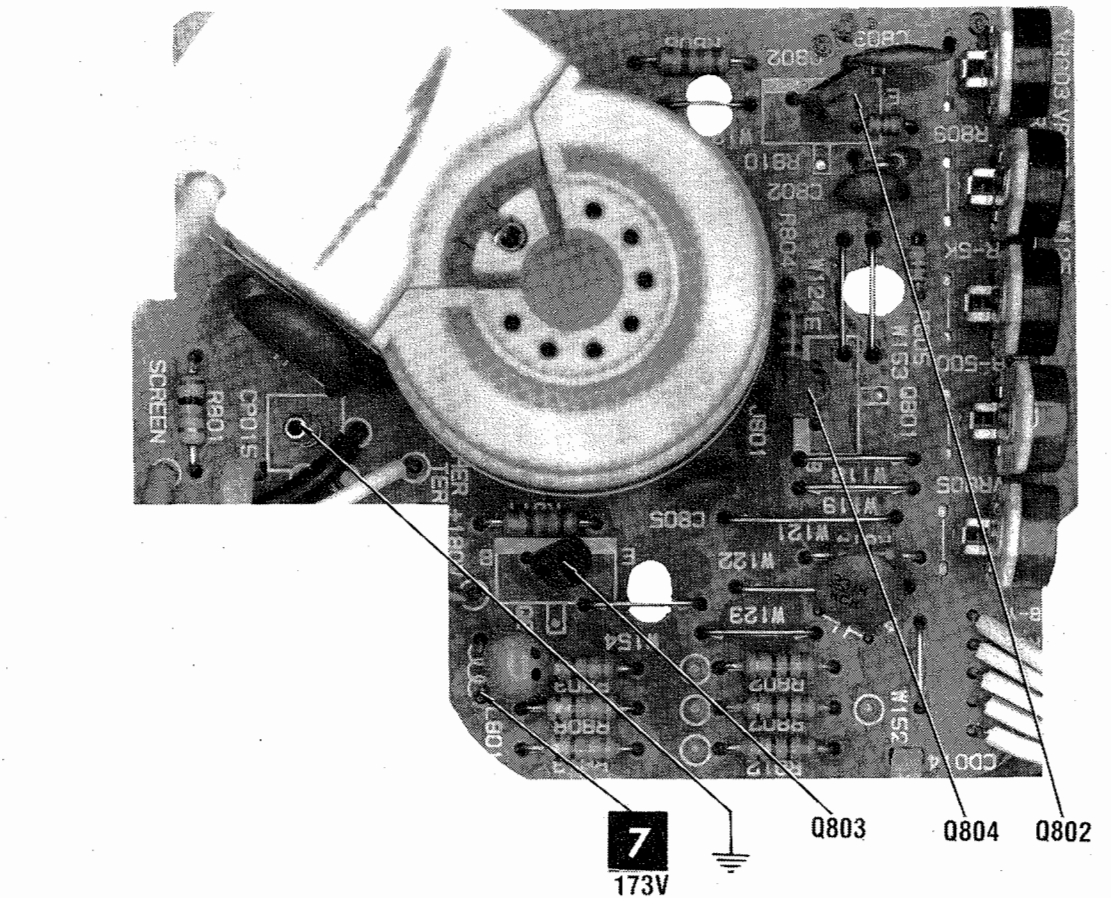
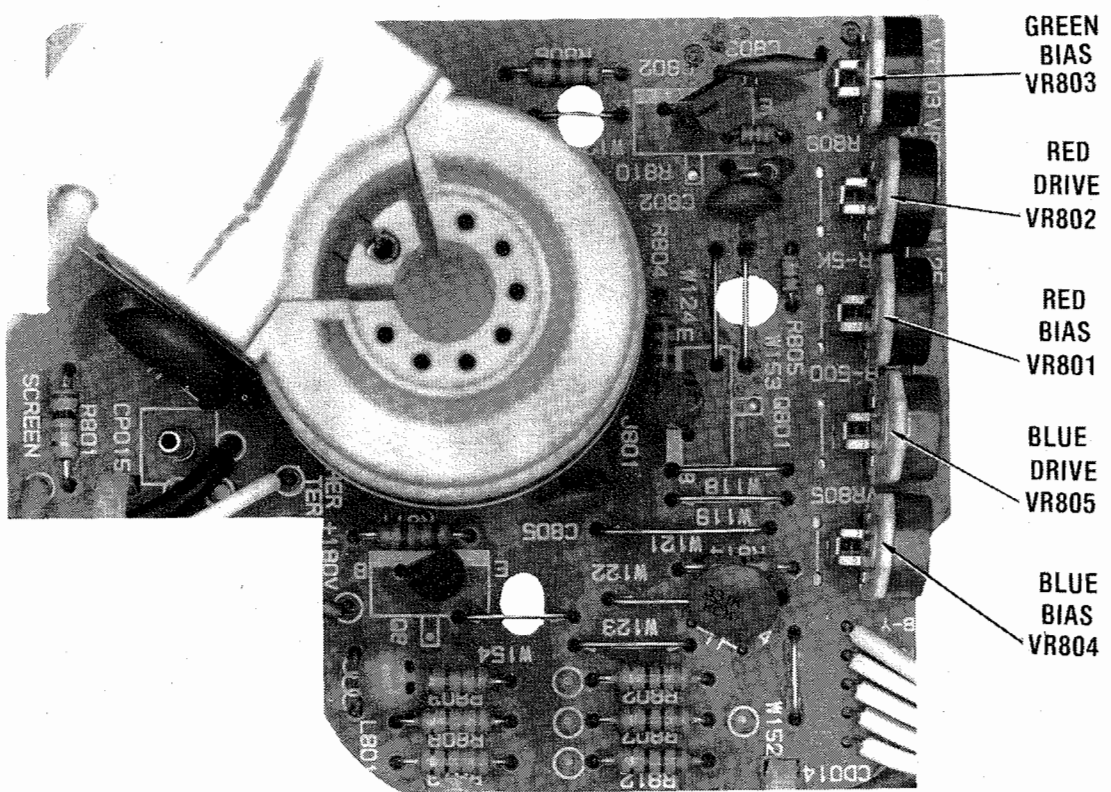
CONVERGENCE ADJUSTMENTS

Connect a color bar generator to the antenna terminals and tune in a dot pattern. Adjust 4-Pole Magnets to converge 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. Replace rubber wedges.

130V ADJUSTMENT

Connect a color bar generator to the antenna terminal and tune in a color bar signal. Turn Brightness and Color controls to Minimum. Connect a DC Voltmeter to TP16. Adjust 130V Adjust Control (VR501) for 130V with line voltage maintained at 120V AC.



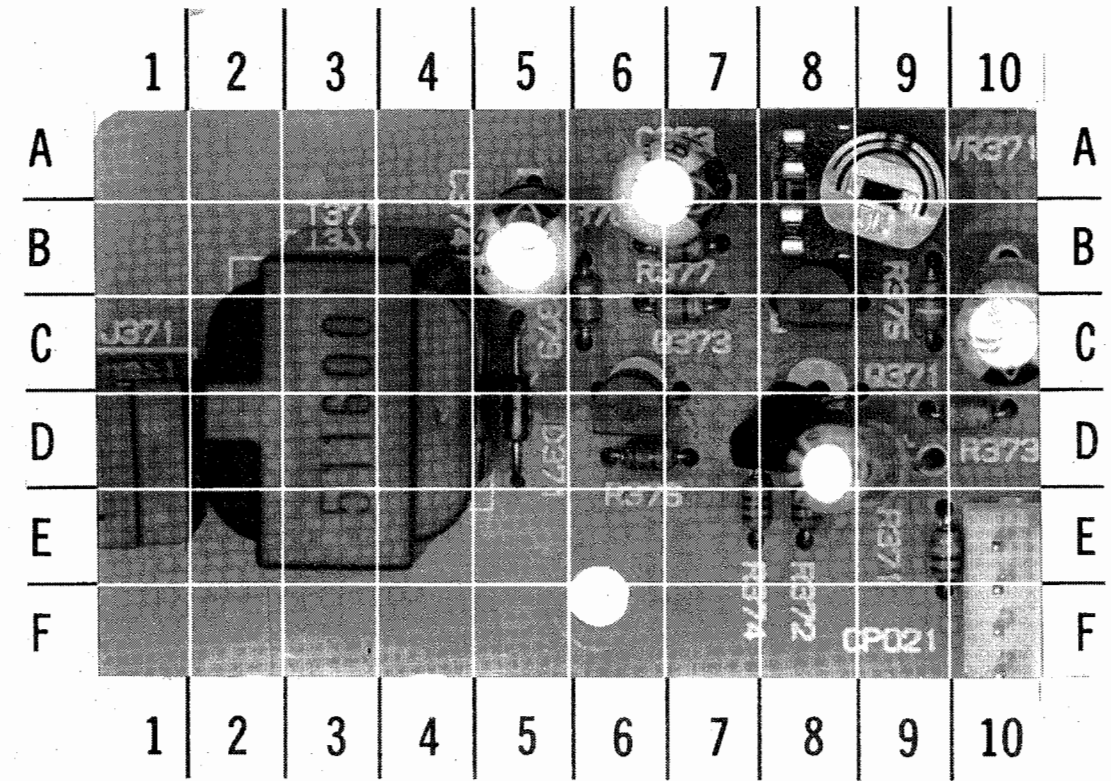


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CRT BOARD

AUDIO AMP BOARD-GridTrace LOCATION GUIDE

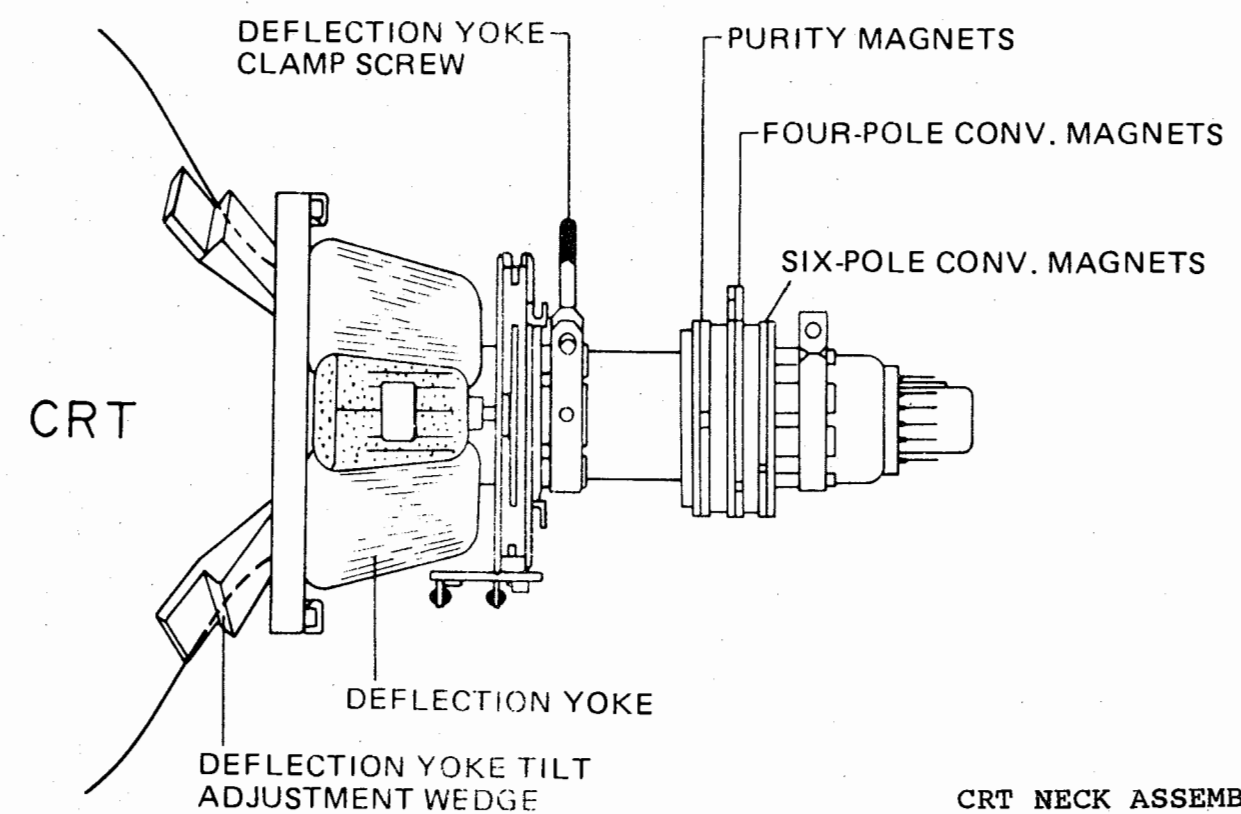
C371	D-8	J371	D-1	R372	E-8	R377	C-7
C372	C-10	Q371	D-8	R373	D-10	R378	B-7
C373	A-7	Q372	B-8	R374	E-7	R379	C-6
C374	B-5	Q373	D-6	R375	C-9	T371	D-3
CP021	F-10	R371	E-9	R376	D-6	VR371	A-9
D371	D-5						



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AUDIO AM BOARD

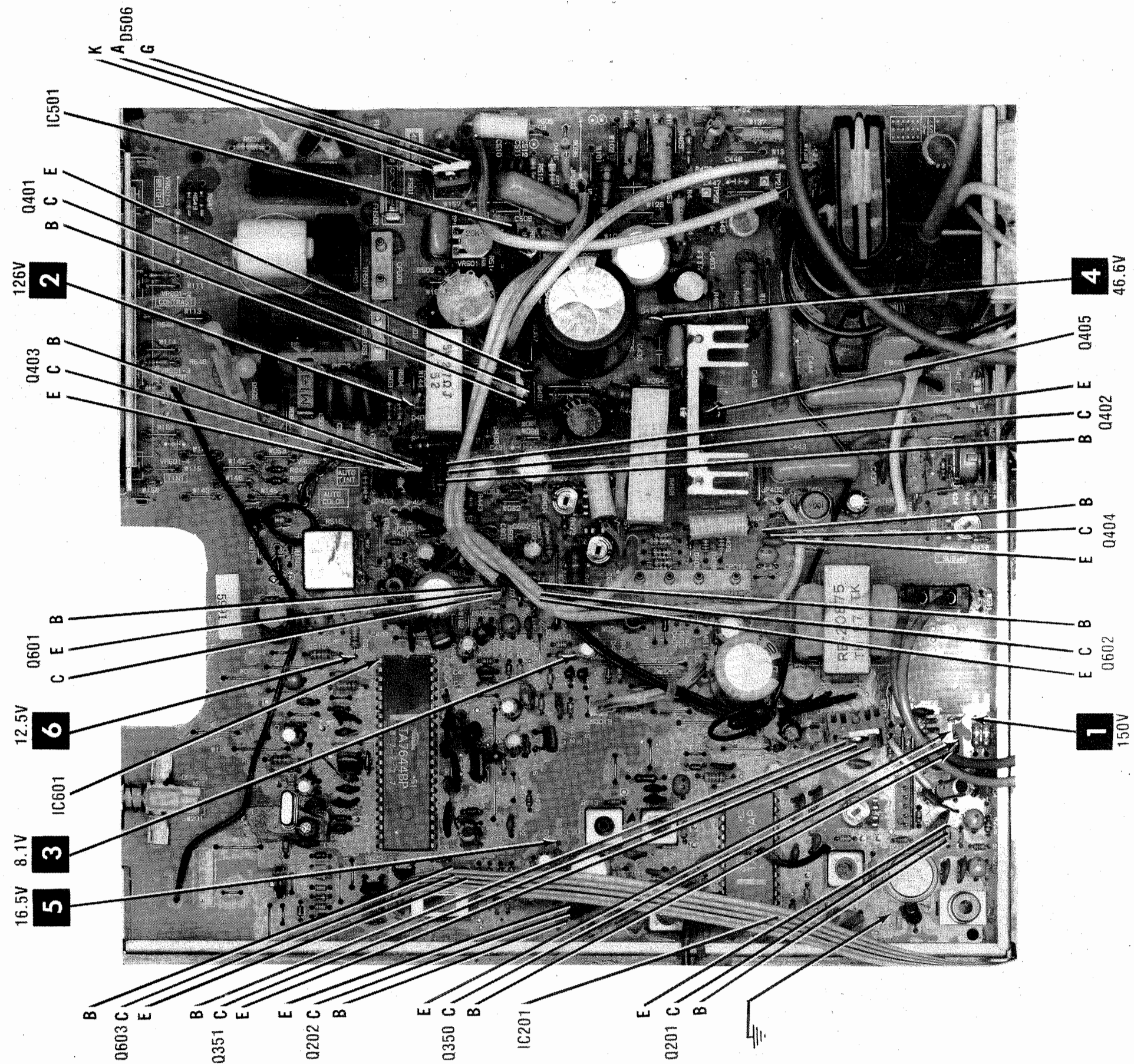
EMERSON  
MODELS EC-134, EC134S



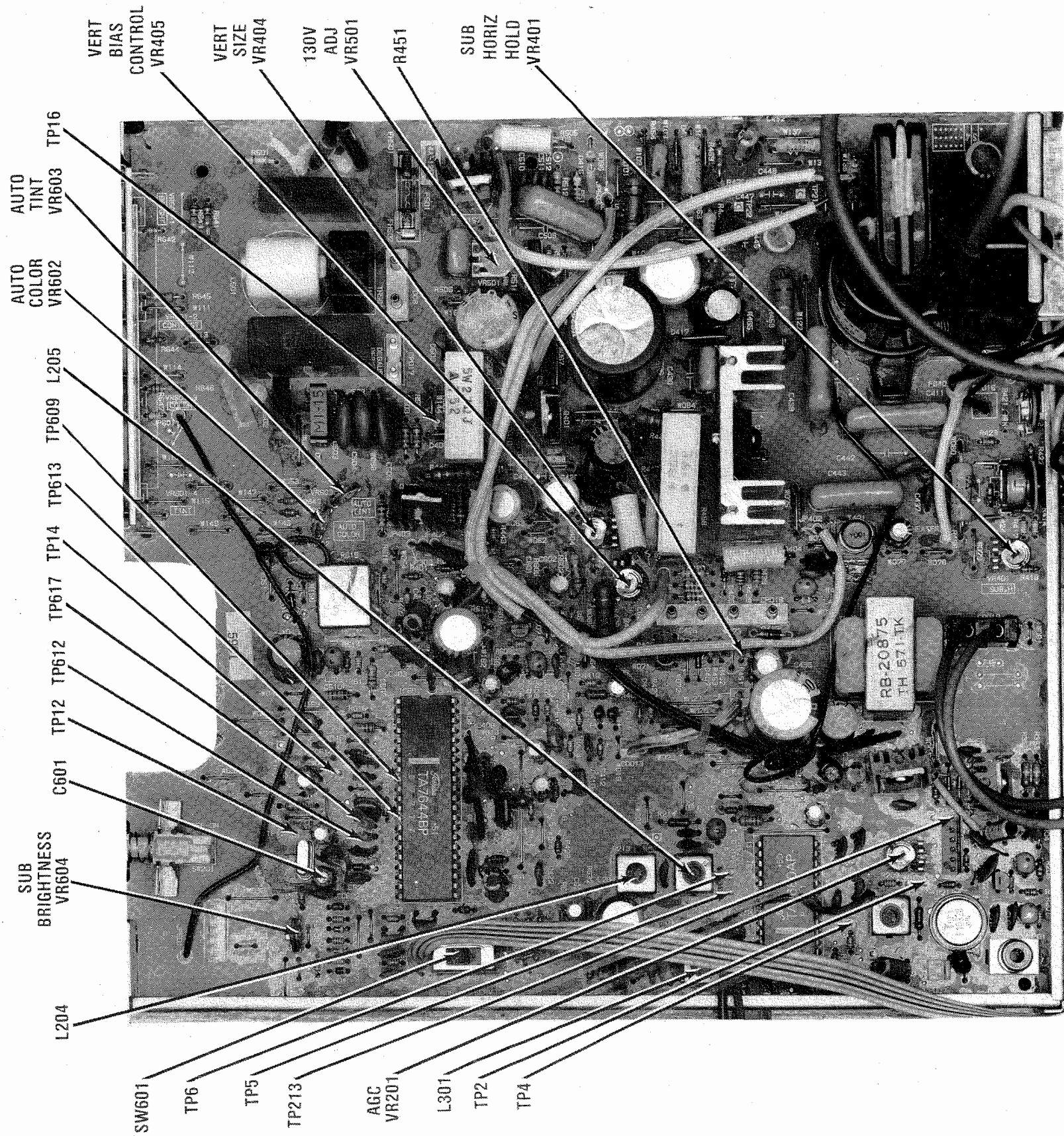
CRT NECK ASSEMBLY

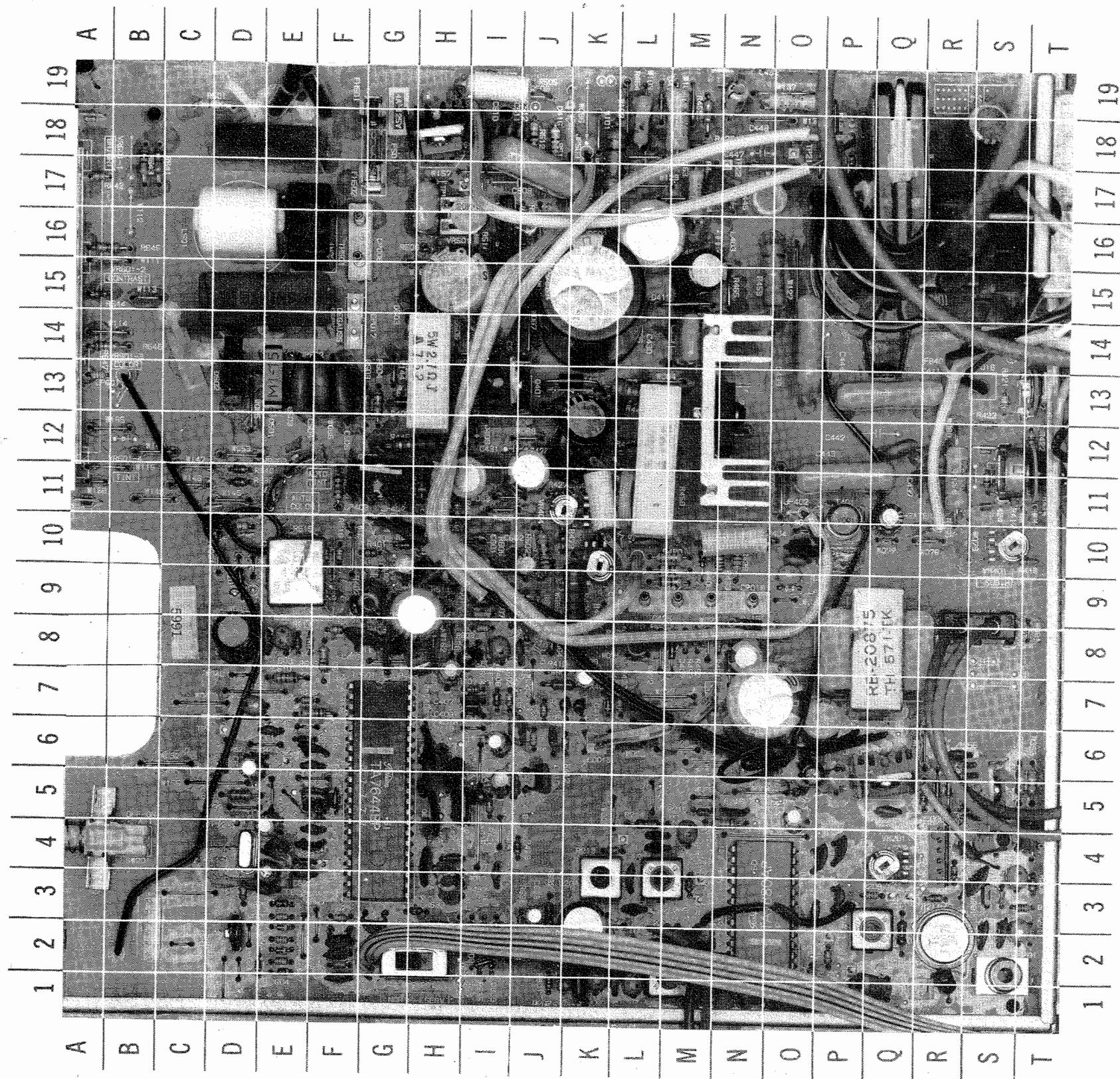
FOLDER 1



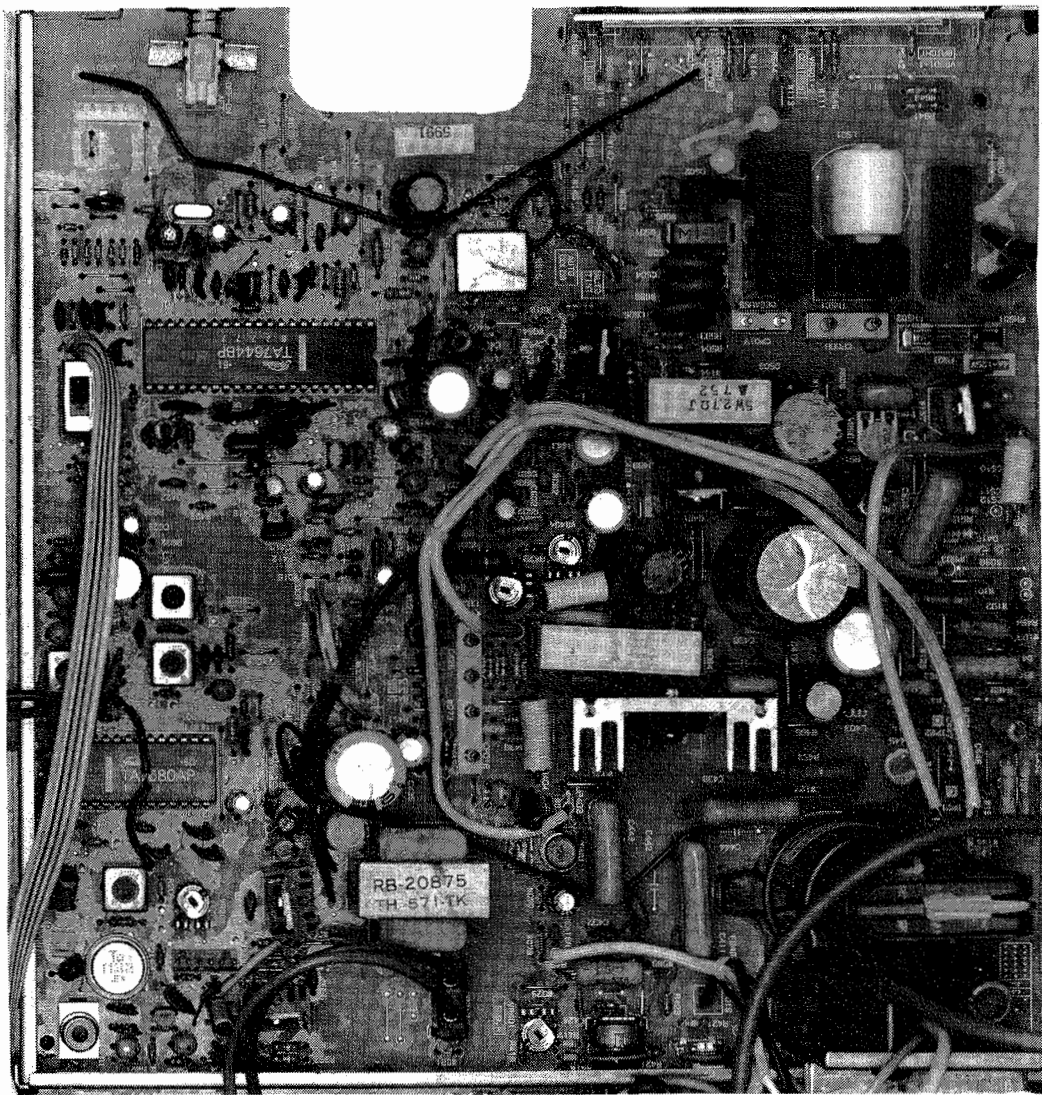












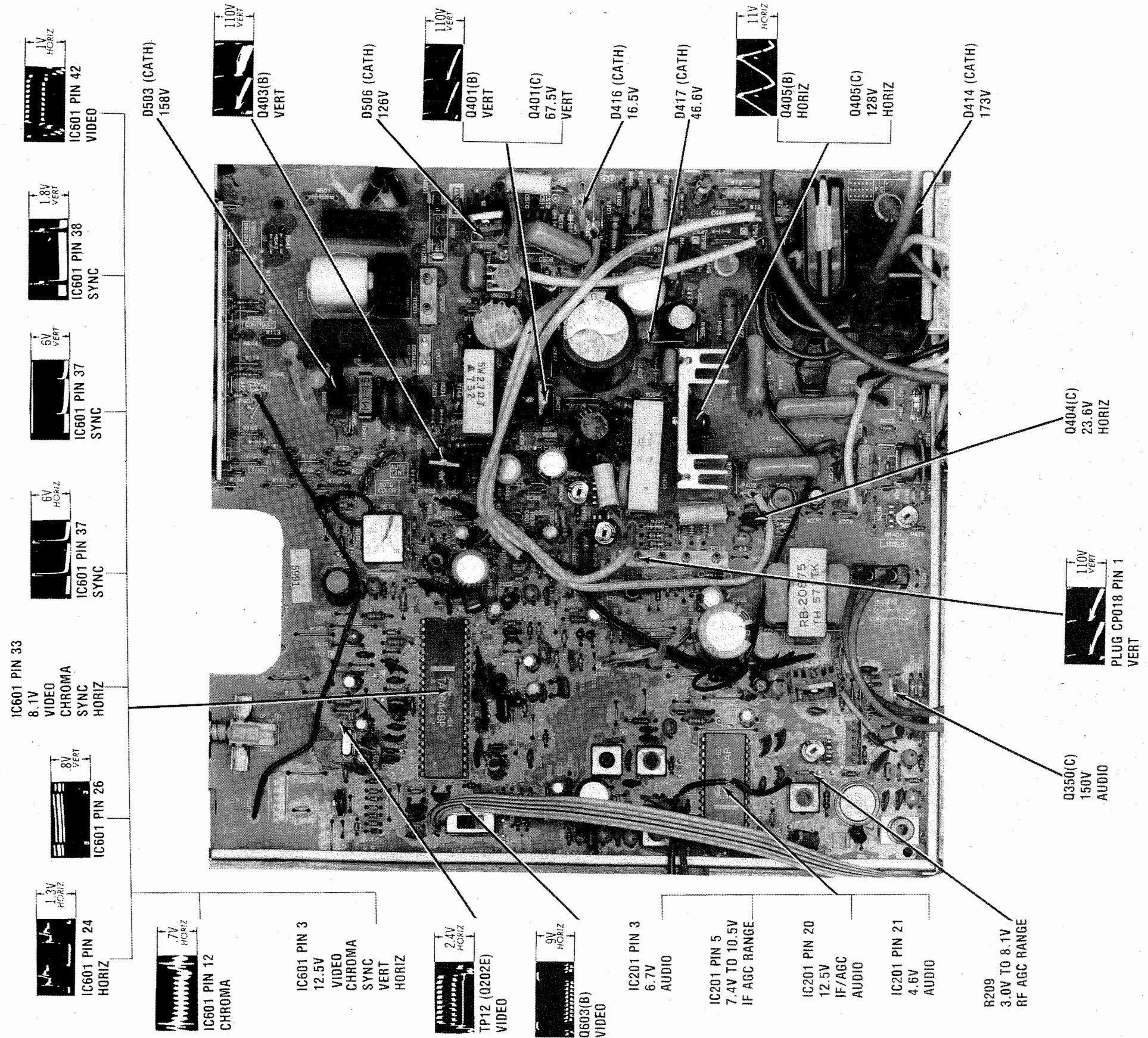
MAIN BOARD-CHASSIS LOCATION

MAIN BOARD-GridTrace LOCATION GUIDE

B401	H-6	C441	Q-13	D413	N-8	R303	L-2	R467	N-8	TH501	E-16
B402	H-6	C443	P-11	D414	S-18	R304	N-6	R468	J-10	TP2	Q-3
B403	M-12	C445	M-17	D415	L-19	R305	P-1	R469	M-19	TP4	P-2
B404	N-13	C446	S-18	D416	J-19	R307	O-2	R470	M-18	TP5	M-3
C201	S-3	C448	N-19	D417	M-15	R310	O-6	R472	J-10	TP6	M-3
C202	S-5	C450	L-16	D501	E-13	R337	O-5	R501	C-19	TP12	D-4
C203	S-3	C451	M-15	D502	D-13	R350	R-5	R502	H-13	TP213	R-5
C204	O-5	C452	M-19	D503	G-14	R351	P-5	R503	G-13	TP601	E-6
C205	O-3	C453	Q-12	D504	H-15	R352	T-5	R504	G-13	TP609	F-6
C206	P-3	C455	L-10	D505	H-15	R353	T-5	R505	I-19	TP613	E-5
C207	P-4	C501	E-18	D506	H-18	R354	K-9	R506	H-16	TP617	E-5
C208	P-4	C502	D-15	D601	H-9	R401	G-10	R507	I-19	VR201	Q-4
C209	S-4	C503	E-13	D602	E-2	R402	F-9	R508	I-17	VR401	S-10
C210	M-2	C504	F-13	D603	E-2	R403	G-8	R509	I-19	VR402	T-13
C211	K-3	C505	F-13	D604	E-2	R404	H-9	R510	H-15	VR403	S-12
C212	L-4	C506	K-15	D607	H-2	R405	G-9	R511	J-18	VR404	J-11
C213	L-3	C507	H-15	D608	I-2	R406	J-7	R512	J-18	VR405	K-10
C214	L-4	C508	H-17	D609	I-2	R407	I-7	R513	J-17	VR501	H-16
C215	N-5	C509	J-17	D610	I-2	R408	I-7	R514	I-16	VR601-1	A-17
C216	L-5	C510	I-18	D611	I-2	R409	I-7	R515	K-17	VR601-2	A-15
C217	L-3	C511	I-18	D612	D-2	R410	J-7	R601	J-1	VR601-3	A-13
C218	O-3	C512	I-18	DL601	E-9	R411	J-7	R602	J-10	VR601-4	A-11
C219	S-3	C513	H-16	F501	G-18	R411A	K-13	R603	I-8	VR602	E-11
C220	S-4	C601	I-10	FB401	Q-16	R412	K-6	R604	I-9	VR603	E-11
C301	N-1	C602	J-10	IC201	N-3	R413	J-6	R605	I-9	VR604	E-2
C302	N-1	C603	J-8	IC501	I-6	R414	T-11	R606	J-9	X601	D-4
C303	M-2	C604	I-8	IC601	G-5	R415	H-6	R607	J-9		
C304	L-1	C605	G-10	J201	S-2	R416	J-5	R608	I-8		
C305	R-2	C606	H-9	L201	T-3	R417	S-11	R609	I-8		
C307	Q-1	C607	F-8	L202	S-4	R418	T-10	R610	G-10		
C310	O-6	C608	D-8	L203	Q-4	R419	K-18	R611	H-9		
C335	O-6	C609	E-7	L204	K-3	R420	L-7	R612	F-11		
C350	P-5	C610	F-7	L205	L-3	R421	S-13	R613	E-8		
C351	Q-5	C611	F-7	L206	K-1	R422	T-12	R614	E-8		
C352	N-7	C612	E-6	L207	M-4	R423	S-12	R615	D-10		
C353	O-6	C613	E-6	L301	M-1	R424	S-11	R616	E-7		
C354	P-7	C614	E-6	L302	L-1	R425	R-12	R617	F-8		
C356	R-6	C615	D-6	L401	O-9	R426	I-5	R618	F-10		
C401	G-9	C616	E-4	L402	N-17	R427	J-11	R619	D-5		
C402	F-9	C617	F-5	L501	D-16	R428	K-9	R620	E-6		
C403	G-8	C618	E-4	L601	J-8	R429	J-4	R621	D-6		
C404	H-6	C619	E-4	L602	I-8	R430	H-2	R622	E-4		
C405	H-7	C620	E-3	L603	E-8	R431	K-11	R623	E-4		
C406	H-8	C621	E-4	L604	D-7	R432	O-10	R624	D-3		
C407	I-7	C622	E-3	Q201	S-3	R433	H-3	R625	E-3		
C408	I-8	C623	G-2	Q202	K-1	R434	K-9	R626	E-3		
C409	K-7	C624	F-2	Q350	S-5	R435	K-8	R627	E-2		
C410	J-6	C625	F-1	Q351	Q-5	R437	L-11	R628	E-2		
C411	H-5	C626	F-2	Q401	I-13	R438	N-10	R629	F-3		
C412	H-6	C629	J-3	Q402	H-11	R439	N-10	R630	F-2		
C413	K-7	C631	H-9	Q403	G-11	R440	L-12	R631	F-2		
C414	K-7	CD/CP006	R-4	Q404	O-10	R442	H-11	R632	J-3		
C416	J-5	CD/CP007	R-1	Q405	M-13	R443	H-11	R633	H-3		
C417	I-5	CD/CP001	B-2	Q601	I-9	R444	H-13	R634	J-2		
C418	J-6	CF201	R-2	Q602	J-9	R445	H-12	R635	I-2		
C419	I-6	CF202	K-1	Q603	H-2	R446	L-13	R636	J-3		
C420	H-5	CF301	M-2	R201	T-3	R447	M-9	R637	D-10		
C421	I-5	CP008	F-16	R202	T-3	R448	M-10	R638	D-11		
C422	I-3	CP017	F-14	R203	S-3	R449	K-12	R639	D-10		
C423	H-4	CP018	M-9	R204	T-4	R450	M-10	R640	D-11		
C424	H-4	CP/CD0012	S-9	R205	T-4	R451	N-8	R641	B-17		
C425	H-3	D201	D-9	R206	R-4	R452	M-8	R642	A-17		
C426	L-8	D350	R-5	R207	P-2	R453	M-8	R643	B-17		
C427	H-13	D351	R-5	R208	Q-2	R454	L-8	R644	A-15		
C429	J-11	D401	G-9	R209	Q-3	R455	R-11	R645	A-16		
C430	M-14	D402	G-8	R210	S-4	R456	N-10	R646	A-14		
C431	H-11	D403	K-7	R211	R-3	R457	K-11	R647	A-13		
C432	P-10	D406	M-10	R212	M-3	R458	L-12	R650	J-8		
C434	K-12	D407	M-8	R213	K-4	R459	O-15	R652	F-5		
C435	M-8	D408	G-13	R214	L-5	R460	M-17	SW201	A-4		
C436	O-10	D409	H-2	R215	M-5	R461	O-19	SW601	H-2		
C437	Q-11	D410	I-12	R216	K-2	R463	M-18	T350	Q-8		
C438	Q-11	D411	J-13	R301	M-1	R464	M-17	T401	P-11		
C439	O-14	D412	N-14	R302	M-2	R466	R-11	TC601	E-3		

EMERSON  
MODELS EC-134, EC134S

FOLDER 1



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EMERSON  
MODELS EC-134, EC134S





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

ITEM No.	TYPE No.	MFGR. PART No.	REPLACEMENT DATA					ZENITH PART No.
			NOTES	NTE PART No.	ECG PART No.	RCA PART No.	WORKMAN PART No.	
D201	GZA12Y	D93001200Y	(1)	NTE5021A	ECG5021A	SK12A/5021A	WEP1423/5021	103-279-21
D301	GZA11Y	D93001100Y		NTE5020A	ECG5020A	SK11A/5020A	WEP1421/5020	103-279-20
D350, 351	DS442X			NTE519	ECG519	SK3100/519	WEP925/519	103-131
D371	DS442X-BT	D13TDS442X		NTE519	ECG519	SK3100/519	WEP925/519	103-131
D401 thru	GMA01		NTE519	ECG519	SK3100/519	WEP925/519	WEP925/519	103-131
D403	GMA-01-BT	D13TGM010	NTE519	ECG519	SK3100/519	WEP925/519	WEP925/519	103-131
D405	GMA01	D130GMA010	NTE519	ECG519	SK3100/519	WEP925/519	WEP925/519	103-131
D406	GZA27X	D93002700X	NTE5033A	ECG5033A	SK27A/5033A	WEP1435/5033	WEP1435/5033	103-Z9014
D407	GZA11Y	D93001100Y	NTE5020A	ECG5020A	SK11A/5020A	WEP1421/5020	WEP1421/5020	103-279-20
D408	10D4		NTE116	ECG116	SK313/116	WEP158/116	WEP158/116	212-76-02
	10D-4	D280010D40	NTE116	ECG116	SK313/116	WEP158/116	WEP158/116	212-76-02
D409, 410	GMA01		NTE519	ECG519	SK3100/519	WEP925/519	WEP925/519	103-131
	GMA-01-BT	D13TGM010	NTE519	ECG519	SK3100/519	WEP925/519	WEP925/519	103-131
D411, 412	DFA05G		NTE552	ECG552	SK9000/552	WEP172/506	WEP172/506	103-287
	DFA05G-KBG	D23FDF405G	NTE552	ECG552	SK9000/552	WEP172/506	WEP172/506	103-287
D413	BB-4	D28000BB40	NTE552	ECG552	SK9000/552	WEP172/506	WEP172/506	103-287
D414	V09G	D24000V09G	NTE552	ECG552	SK9000/552	WEP172/506	WEP172/506	103-287
D415	DS442X		NTE519	ECG519	SK3100/519	WEP925/519	WEP925/519	103-131
	DS442X-BT	D13TDS442X	NTE519	ECG519	SK3100/519	WEP925/519	WEP925/519	103-131
D416	V09G	D24000V09G	NTE552	ECG552	SK9000/552	WEP172/506	WEP172/506	103-287
D417	DFA05G		NTE552	ECG552	SK9000/552	WEP172/506	WEP172/506	103-287
	DFA05G-KBG	D23FDF405G	NTE552	ECG552	SK9000/552	WEP172/506	WEP172/506	103-287
D418	GZA16Y	D93001600Y	NTE5025A	ECG5025A	SK16A/5025A	WEP1427/5025	WEP1427/5025	103-231
D501	MI-15R		NTE116 N1	ECG116 N1	SK9002	WEP157 N1	WEP157 N1	212-76-02 N1
	MI-15MR	D2BFM115MR	NTE116 N1	ECG116 N1	SK9002	WEP157 N1	WEP157 N1	212-76-02 N1
D502	MI-15S		NTE116 N2	ECG116 N2	SK9001/113A	WEP157 N2	WEP157 N2	212-76-02 N2
	MI-15MS	D2BFM115MS	NTE116 N2	ECG116 N2	SK9001/113A	WEP157 N2	WEP157 N2	212-76-02 N2
D503	BA243A	D110A243AC	NTE519	ECG519	SK3100/519	WEP925/519	WEP925/519	103-131
D504, 505	RD30EB		NTE5035A	ECG5035A	SK30A/5035A	WEP1437/5035	WEP1437/5035	103-Z9024
	RD30EB4	D9200300B4	NTE5035A	ECG5035A	SK30A/5035A	WEP1437/5035	WEP1437/5035	103-Z9024

**EMERSON  
MODELS EC-134, EC134S**

**FOLDER 1**

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

SEMICONDUCTORS (Select replacement transistor for best results)

ITEM No.	TYPE No.	MFR. PART No.	REPLACEMENT DATA					
			NOTES	NTE PART No.	ECG PART No.	RCA PART No.	WORKMAN PART No.	ZENITH PART No.
D506 D601 thru D604 D606	S6344G GMA01 GMA-01-BT GZA12Y	TF50S6344G D13TGM A010 D93001200Y	(1)	NTE519 NTE519 NTE5021A	ECG519 ECG519 ECG5021A	SK3100/519 SK3100/519 SK12A/5021A	WEP925/519 WEP925/519 WEP1423/5021	103-131 103-131 103-279-21
D607 thru D612 D614, 615 D617	GMA01 GMA-01-BT GZA11Y GZA13Z	D13TGM A010 D93001100Y D93001300Z	(1) (1)	NTE519 NTE519 NTE5020A NTE5022A	ECG519 ECG519 ECG5020A ECG5022A	SK3100/519 SK3100/519 SK11A/5020A SK13A/5022A	WEP925/519 WEP925/519 WEP1421/5020 WEP1424/5022	103-131 103-131 103-279-20 103-96
IC201	TA7680AP TA7681AP	I05DE76810		NTE1572 NTE1570	ECG1572 ECG1570	SK7681/1570		
IC501	T2508 T-2508 TA7644BP	I05S925080 I05DE76440		NTE1547	ECG1547	SK7676/1547		
Q201 Q202	2SC388A JC501P JC501	TC5T0388A0 TC1T00501P		NTE85 NTE85 NTE85	ECG85 ECG85 ECG85	SK3132 SK9229/85 SK9229/85	WEP535/107 WEP910/289 WEP910/289	121-722 921-1114 921-1114
Q350, 351	2SC2344 2SC2344E	TC3002344E		NTE375 NTE375	ECG375 ECG375	SK3929 SK3929	WEP763/375 WEP763/375	121-29106 121-29106
Q371 Q372, 373 Q401	JC501Q JA101Q 2SD401A 2SD401AL			NTE85 NTE290A NTE375 NTE375	ECG85 ECG290A ECG375 ECG375	SK9229/85 SK3114A/290A SK3929 SK3929	WEP910/289 WEP911/290A WEP763/375 WEP763/375	921-1114 121-29003* 121-29106 121-29106
Q402	2SC3467D 2SC3467	TD200401AL TC30034670						
Q403 Q404	2SB546A 2SC2271D 2SC2271	TB200546AL TC3002271D		NTE398 NTE399 NTE399	ECG398 ECG399 ECG399	SK9363/398 SK9352/399 SK9352/399	WEP781/292 WEP68/287 WEP68/287	121-29115 121-29045* 121-29045*
Q405 Q601, 602	2SD1426 JC501P JC501	TD5F014260 TC1T00501P		NTE2302 NTE85 NTE85	ECG2302 ECG85 ECG85	SK9422 SK9229/85 SK9229/85	WEP910/289 WEP910/289	921-1114 921-1114

PARTS LIST AND DESCRIPTION (Continued)

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

MISCELLANEOUS

ITEM No.	PART NAME	MFR. PART No.	NOTES
# TU001 # TU002 # V401	Tuner Tuner CRT	0140100001 0141100001 370KSB22-TC07 or A34EE00X- AT1620/91 V01A054Z01 10053R5701	VHF UHF  On/Off-Power
VS301 X601	Switch Crystal		

# For SAFETY use only equivalent replacement part.

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

ITEM	PART No.	ITEM	PART No.
Cabinet Front	701TPH0013	Knob-VHF Channel	731TPF0001
Cabinet Back	702TPA0089	Knob-VHF Fine Tuning	732PTA0001
Button-AFT	735TPA0018	Knob-UHF Channel	731TPF0003
Button-Auto Color	735TPA0016	Knob-UHF Fine Tuning	732TPA0003
Grille-Speaker	714JSB0006	Knob-Volume	731TPF0002
Knob-Brightness, Color Contrast & Tint (4 Used)	732TPA0006		

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PARTS LIST AND DESCRIPTION (Continued)

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

COILS & TRANSFORMERS

ITEM No.	FUNCTION	MFGR. PART No.	OTHER IDENTIFICATION	NOTES
# DY1	Yoke Horiz 3.46mH 90° Vert 117mH		DY-1440 (1)	
# FB401	Horiz Output	0432140021	3214002 (1)	
# T350	Audio Output	045128003C	RB-20875 (1)	
T371	Audio Output (MTS)		5116001 (1)	
T401	Horiz Driver	03305Y0018	Y001 (1)	

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

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		MFGR. PART No.	QUAM PART No.	
SP350	3" PM 8 Ohm	070H031001	30A05Z8R	1 Watt

FUSE DEVICES

ITEM NO.	DESCRIPTION	MFGR. PART NO.		NOTES
		DEVICE	HOLDER	
# F501	4 Amp @ .125V Fast Acting	0813C04001	067H000001 (2)	

# For SAFETY use only equivalent replacement part.  
(2) Two Used for Fuse

MISCELLANEOUS

ITEM No.	PART NAME	MFGR. PART No.	NOTES
ANT101	VHF Antenna	1256110002	Russell Replacement Assembly POR-12H
ANT102	UHF Antenna	1256500001	Russell Replacement Rod SIM-4H (Use 2)
B401	Ferrite Bead	0246301051	Russell Replacement LIN-2H
B402	Ferrite Bead	0246301051	
B403	Ferrite Bead	0246451652	
B404	Ferrite Bead	0246451652	
CD009	Cord	1203410301	AC Power, Polarized
CF201	Filter	1027045R71	SAW
CF202	Filter	1011104R51	Trap (4.5MHz)
CF301	Filter	101104R501	Trap (4.5MHz)
DL601	Delay Line	1031504001	
EAR001	Earphone	074F130003	
J350	Jack	0602101004	Earphone
J801	Socket	0662120004	CRT
# L502	Degaussing	028E140008	
PCB101	P.C. Board	13TM0048A3P	Video, Chroma & Deflection
PCB102	P.C. Board	13TC0050A3P	CRT Socket
PCB104	P.C. Board	13TE0186A3P	Auto Color/Auto Tint
PCB105	P.C. Board	13TE0187A3P	Earphone
PCB106	P.C. Board	13TT0027A3P	Tuner
PCB107	P.C. Board	13TE0185A3P	Power Switch
PCB108	P.C. Board	13TE0171ADP	Antenna
SW201	Switch	0500101009	AFT
SW601	Switch	0510422001	Service/Normal

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.
Q603	JAI01Q	TAIT00101P		NTE290A	ECG290A	SK3114A/290A	WEP911/290A
Q801 thru Q803	JAI01 2SC2482 2SC2271D 2SC2271	IC3002271D		NTE290A NTE399 NTE399 NTE399	ECG290A ECG290A ECG399 ECG399	SK3114A/290A SK3114A/290A SK9352/399 SK9352/399	WEP911/290A WEP911/290A WEP68/287* WEP68/287*
							121-29003* 121-29003* 121-29045* 121-29045* 121-29045*

# For SAFETY use only equivalent replacement part.  
\* Lead configuration may vary from original.  
(1) Used in some versions.

WIRING DATA

High Voltage Lead .....	Use BELDEN No. 9867 (30 KV)
Shielded Hook-up Wire .....	Use BELDEN No. 8401 or 8421 (Single-Conductor)
General-use Unshielded Hook-up Wire .....	Use BELDEN No. 8208 (Two-Conductor)
300-Ohm Tuner Input Lead .....	Use BELDEN No. 8529 (Solid) Available in 13 Colors
75-Ohm Tuner Input Lead .....	Use BELDEN No. 8522 (Stranded) Available in 13 Colors
300-Ohm Antenna Lead-In .....	Use BELDEN No. 8225
Antenna Rotor Cable .....	Use BELDEN No. 8241
	Use BELDEN No. 8275 (Foam Core) or 8285 (Foam Jacketed)
	Use BELDEN No. 8464 (Flat) or 8484 (Round) 4-Conductor
	Use BELDEN No. 8485 (Round) 5-Conductor
	8488 (Round) 8-Conductor

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.
C409	.47 50V 10%	E021T5R47M	C448	2.2 50V NP	E02ET52R2M
C413	1 25V	E251T3010M	# C450	1000 25V	E02703102M
C414	1 25V	E251T3010M	# C451	100 63V	E021F6101M
C421	2.2 16V 10%	E251T22R2K	# C506	560 200V	E02G0C561M
# C435	22 63V	E021T6220M	# C507	100 160V	E025FB101M
# C446	4.7 250V	E0250D4R7M			

# 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.
C212	15 NPO 50V 5%	C02TCH4E1J	# C308	100 NPO 50V 10%	C02TCH412K
C213	2 NPO 50V ±.25pF	C02TCK420C	C501	.1 125V 20%	P4450A104M
C214	2 NPO 50V ±.25pF	C02TCK420C	# C502	.22 125V 20%	P4450A224M
C217	82 NPO 50V 10%	C02TCH4W1K	TC601	20 Trimmer	0100512002

# 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
VR201	RF AGC	5000	V115353B02	
VR371	Audio Level	5000		
VR401	Sub H. Hold	10K	V115314B02	
VR402	H. Hold	10K	V114C14B02	
VR403	Vert Hold	200K	V023025B01	
VR404	Vert Height (Size)	10K	V115314B02	
VR405	Vert Bias Control	100K		
VR501	130V Adjust	20K	V145D24B03	
VR601-1	Brightness	500		
VR601-2	Contrast	10K	V029400003	
VR601-3	Color	10K	V029400003	
VR601-4	Tint	10K	V029400003	
VR602	Auto Color	10K	V115214B03	
VR603	Auto Tint	10K	V115214B03	
VR604	Sub Bright	1000	V115213B03	
VR801	Red Bias	5000	V145053B01	
VR802	Red Drive	500	V145052B01	
VR803	Green Bias	5000	V145053B01	
VR804	Blue Bias	5000	V145053B01	
VR805	Blue Drive	500	V145052B01	
# VR806A	Focus		(1)	
# VR806B	Screen		(1)	
# VS301	Volume/Switch	50K	V01A054Z01	

# For SAFETY use only equivalent replacement part.  
(1) Part of Horizontal Output Transformer #FB401, Part Number 0432140021.

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.
R415	3900 1% 1/6W Metal Oxide Film	R32506392F		
R416	15K 1% 1/6W Metal Oxide Film	R32506153F		
R418	6800 2% 1/6W Carbon Film			
	6800 5% 1/6W Carbon Film	R03106682J	QW268	22-1116
R433	27K 5% 1/4W Carbon Film		QW327	22-1130
	27K 2% 1/4W Carbon Film			
# R437	100K 1% 1/4W Metal Oxide Film	RC2104273G		
# R438	22K 1% 1/4W Metal Oxide Film	R32504104F		
# R439	2200 1% 1/4W Metal Oxide Film	R32504223F		
# R442	33 5% 1/4W Fuse	R32504222F		
# R451	15K 1% 1/6W Metal Oxide Film	R635843305		
# R452	12K 1% 1/6W Metal Oxide Film	R32506153F		
# R453	3900 1% 1/6W Metal Oxide Film	R32506123F		
# R454	12 5% 1W Fuse	R32506392F		
# R456	2200 5% 2W Metal Oxide Film	R61581120J	F1W012	
# R457	2200 5% 2W Metal Oxide Film	R3110A222J	2W222	22-4104
# R458	18 5% 7W WW	R3110A222J	2W222	22-4104
	10 5% 7W WW			
# R461	2.2 5% 1W Fuse	R512AE100J		
# R463	2.2 5% 2W Fuse	R615812R2J	F1W2D2	
# R464	2.2 5% 1W Fuse	R6148D2R2J	F2W2D2	
# R465	100 5% 1/2W Fuse	R615812R2J	F1W2D2	
# R466	2.2 5% 2W Fuse	R61582101J		
	3.3 5% 2W Fuse		F2W2D2	
# R468	5600 5% 1/2W Fuse	R6148D3R3J	F2W2D3	
# R501	820K 5% 1/2W Carbon Film	R61582R6J		
# R502	2.7 5% 5W WW	R012T2824J	HW482	22-2166
	2.7 10% 5W WW		5W2D7	
R505	680 5% 3W Metal Oxide Film	R512CD2R7K	5W2D7	
R506	100K 1% 1/6W Metal Oxide Film	R3118B681J		
R507	39K 1% 1/4W Metal Oxide Film	R32506104F		
R508	820 1% 1/6W Metal Oxide Film	R32504393F		
R509	5600 1% 1/4W Metal Oxide Film	R32506821F		
# R511	56 5% 1/4W Fuse	R32504562F		
# TH501	PTC 8.3 Cold	R63584560J		
		D8100M8R00		FR605

# For SAFETY use only equivalent replacement part.

COILS (RF-IF)

ITEM No.	FUNCTION	MFGR. PART No.	ITEM No.	FUNCTION	MFGR. PART No.
L001	Balun	023A000001	L401	Filter	021673330K
L201	Filter	021673R39M	L402	Choke	021904500K
L202	Peaking	021673R56M	L403	Choke	021704472K
L203	IF 4.5MHz	0335020028	# L501	Line Filter	0291000001
L204	AFC	033502001B	L601	Peaking	021673560K
L205	Video Detector	0335020038	L602	Peaking	021673820K
L206	4.5MHz Trap	021673150J	L603	Peaking	021673150K
L207	Peaking	0216731R5K	L604	Peaking	021673390K
L301	Sound IF	03351A001C	L801	Choke	021673101K
L302	4.5MHz Trap	021673220K			

# For SAFETY use only equivalent replacement part.

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FOLDER 1