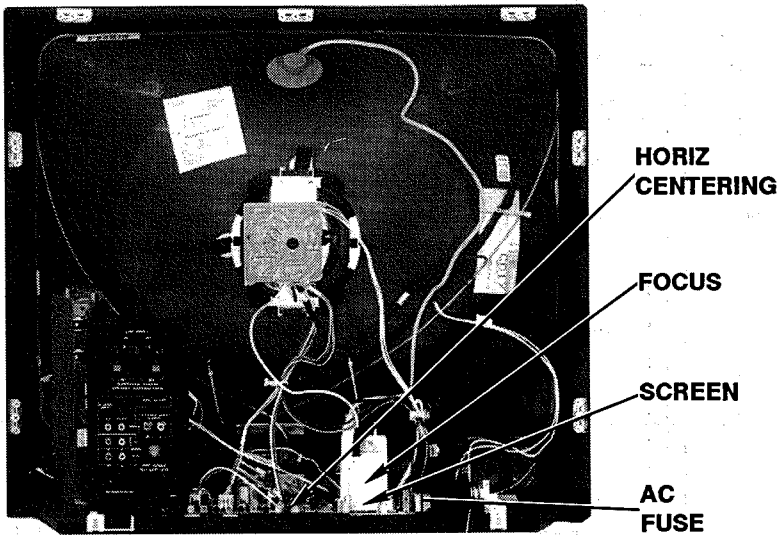


CABINET - REAR VIEW



TEST JIG HOOKUP

Chek-A-Color Function	Adapter No.	PC Board Plug	Pin	Color
CRT	B239	# J11	1	Black
Yoke	D482		2	Yellow
Yoke Setting	YP1	# J8	1,2	Red
Comments	Focus Tap		4,5	Blue

The listing of any available replacement part herein in no case constitutes a recommendation, warranty, or guarantee by Howard W. Sams & Company as to the quality and suitability of such replacement part. The numbers of the listed parts have been compiled from information furnished to Howard W. Sams & Company by the manufacturers of the specific type of replacement part listed.

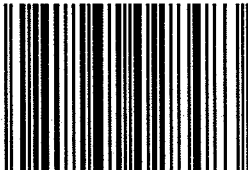
Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein.

©1991 by Howard W. Sams & Company
2647 Waterfront Parkway East Drive, Suite 300
Indianapolis, IN 46214-2012

Printed in the United States of America 5 4 3 2 1



91BG02102



0 81262 02848 3

PHOTOFACT® Technical Service Data

SET 2848

CHASSIS 27W102, 27W106/-00AA, 31W103

SYLVANIA

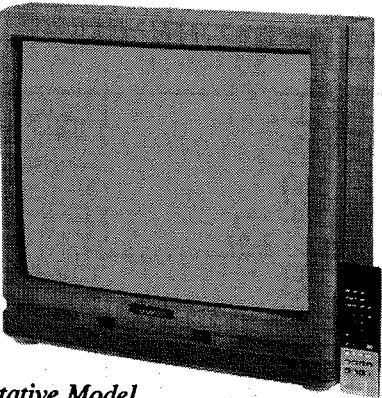
INDEX

Alignment	
TV	1
Convergence Adjustments	7
Grid Trace Location Guide	
A/V Jack Panel	11
CRT Board	9
Main Board - Bottom View	9
Main Board - Top View	8
Pincushion Board	7
PIP Module - Top View	11
Remote Transmitter (UR5)	12
Remote Transmitter (UR8)	12
Stereo Amp Board	7
IC Functions	6
Miscellaneous Adjustments	7
Parts List	
TV	12,13,14
Photos	
A/V Jack Panel	11
Cabinet - Rear View	1
CRT Board	9
CRT Neck Assembly	7
Main Board - Bottom View	9
Main Board - Top View	8
Pincushion Board	7
PIP Module - Bottom View	10
PIP Module - Top View	11
Remote Transmitter (UR5)	12
Remote Transmitter (UR8)	12
Stereo Amp Board	7
PIP Adjustments	7
PIP Troubleshooting	1
Quick-Checks Troubleshooting	
CRT Board	9
Main Board - Top View	8
PIP Module - Top View	11
Safety Precautions	1
Schematics	
A/V Switch	2
Audio	4
CRT	2
Pincushion	5
PIP	3
Power Supply	3
Remote Receiver	6
Remote Transmitter (UR5)	4
Remote Transmitter (UR8)	4
Stereo Amp	6
Terminal Guides and Notes	7
Tuner Control	5
TV	2
UHF/VHF Tuner	5
Service Information	7
Stereo/SAP Adjustments	7
Test Equipment	1
Test Jig Hookup	1
Troubleshooting	1
Tuner Terminal Guide	5
Tuner Voltage Chart	5

For Supplier Address,
See PHOTOFACT Annual Index

SYLVANIA

Chassis 27W102, 27W106/-00AA, 31W103



Representative Model

Complete coverage
for servicing a television receiver...

- Schematics
- Parts lists
- Component locations
- Troubleshooting guide

Coverage includes these additional models and chassis:

MODEL	CHASSIS
RPS590AK01	27W106
RPS599P101	27W106-00AA
RPS730A101	27W102
RRK810A106	31W103



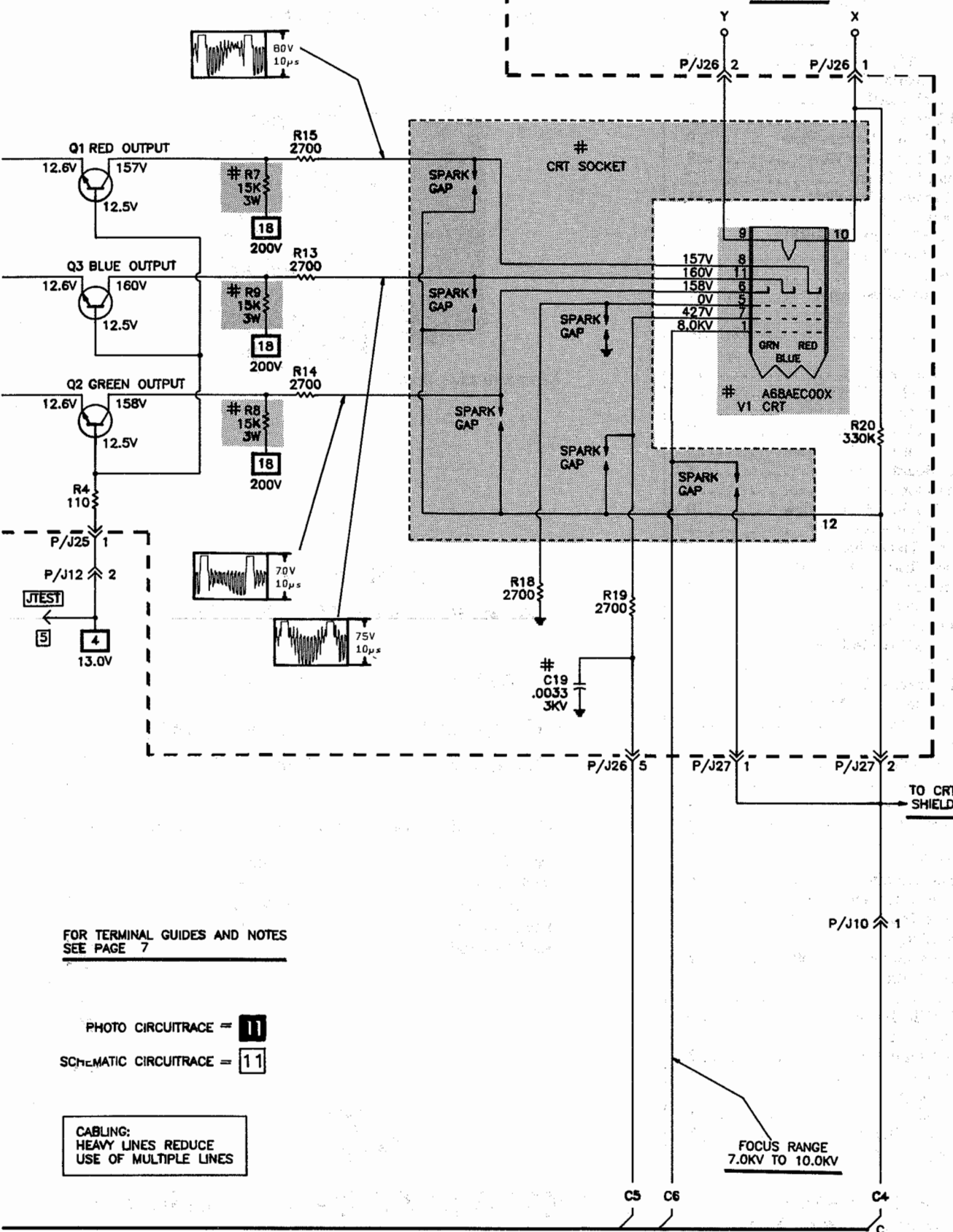
HOWARD W. SAMS & COMPANY

JULY 1991 SET 2848

CRT SCHEMATIC continued

PART OF CRT BOARD

SEE T501
PINS 10,11
PAGE 2C



FOR TERMINAL GUIDES AND NOTES
SEE PAGE 7

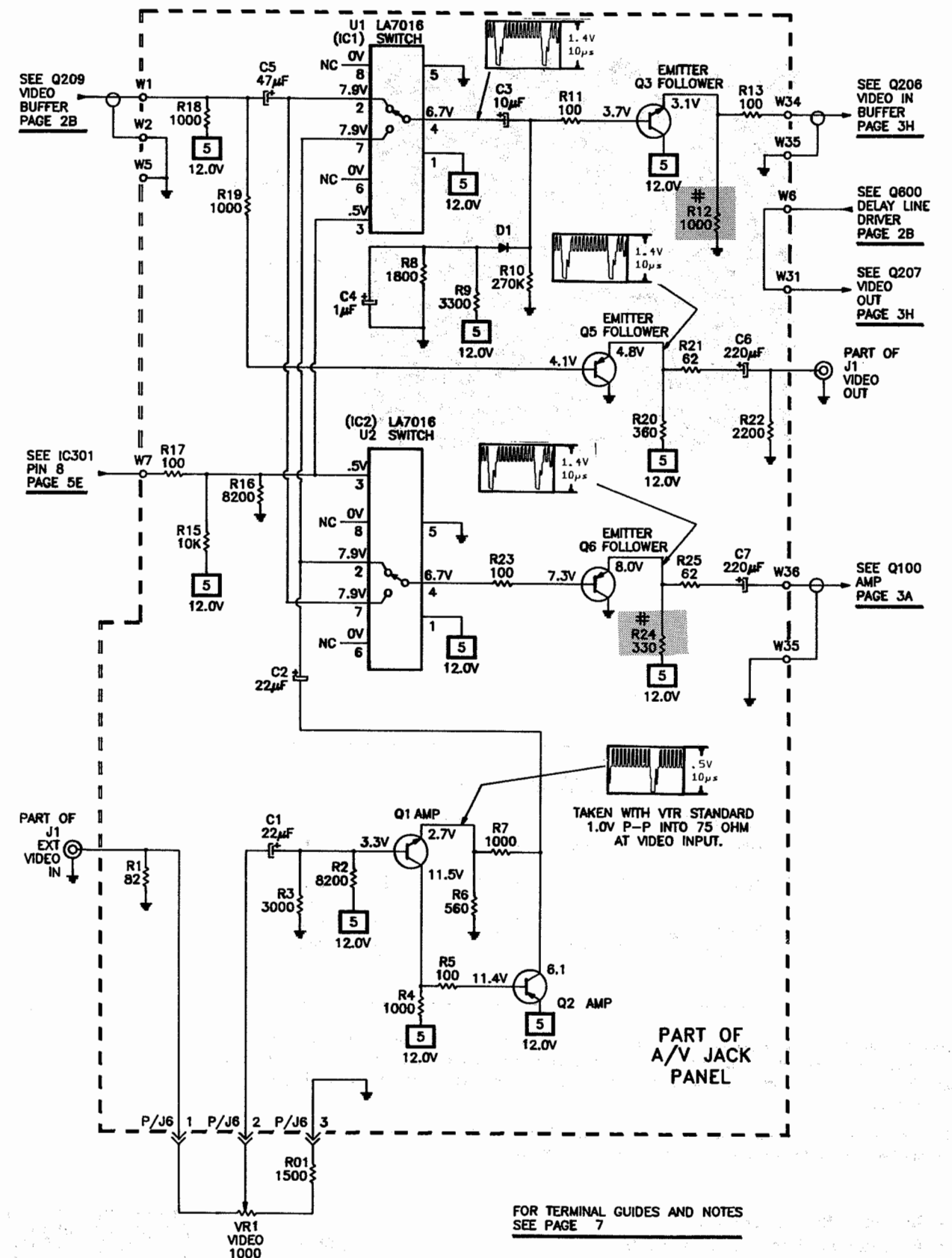
PHOTO CIRCUITTRACE = **11**

SCHEMATIC CIRCUITTRACE = **11**

CABLING:
HEAVY LINES REDUCE
USE OF MULTIPLE LINES

G

A/V SWITCH SCHEMATIC



FOR TERMINAL GUIDES AND NOTES
SEE PAGE 7

A PHOTOFAC STANDARD NOTATION SCHEMATIC
WITH **CIRCUITTRACE**
© Howard W. Sams & Co. 1991

H

TEST EQUIPMENT

Test equipment listed by participating manufacturers illustrates typical or equivalent equipment used by Sams engineers to obtain measurements. This equipment is compatible with most types used by field service technicians.

Equipment	B&K Precision No.	SENCORE No.
Oscilloscope	1541A, 2120, 2125, 2160, 2190, 2522	SC61
Generators		
RGB	1249A, 1260	RG67
Multiburst Signal	1251, 1260	VA62A
Color Bar	1211A, 1249A, 1251, 1260	VA62A, CG25, NT64
TV Stereo	2009	ST65, ST66
Analog VOM	114, 117, 177, 214	-
Digital VOM	377, 388HD, 2700 Series, 2831A, 2860, 2900 Series	DVM37, DVM56A, SC61
Frequency Meter	1803A, 1804A, 1805, 1822, 1851, 1855	FC71, SC61
Hi-Voltage Probe	HV-44	HP200
VOM/DMM	-	TP212
Accessory Probes	PR-28(HV)	-
Isolation Transformer	TR110, 1604, 1653, 1655	PR57
Capacitance Analyzer	810A, 815, 820, 830	LC76, LC101, LC102
CRT Analyzer	480, 490	CR70
Temperature Probe	TP-28, TP-30	-
AC Leakage Tester	1655	PR57
Logic Probe	DP21, DP51	-
Logic Pulser	DP31, DP101	-
Inductance Analyzer	875A	LC76, LC101, LC102
Flyback Yoke Tester	875A	VA62A, LC76, LC101, LC102
TV Stereo Power Monitor	-	SR68
Field Strength Meter	-	FS73, FS74
Transistor Tester	510, 520B, 530	TF46
Video Analyzer	-	VA62A
Modulator/Converter	1201	-

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-THORSEN

Alignment COILS: L205, L230, L233	RECOMMENDED TOOLS: 9440
--------------------------------------	----------------------------

PRELIMINARY INSTRUCTIONS

Select highest unused channel. Set scope sweep to external or vector mode. 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 useable indication. Sweep Generator frequency is 44MHz with 10MHz Sweep.

NOTE: Response may vary from that shown.

Apply 6.6V Bias to TP210.

VIDEO IF ALIGNMENT (SWEEP MARKER GENERATOR)

DIRECT PROBE FROM SWEEP GENERATOR	SWEEP GENERATOR OUTPUT	MARKER GENERATOR FREQUENCY	REMARKS
TP1	TP207	45.75MHz	Adjust L230 for Maximum 45.75MHz. See Figure 1.

TV ALIGNMENT INSTRUCTIONS continued

VIDEO IF ALIGNMENT (BAR SWEEP GENERATOR)

BAR SWEEP GENERATOR	SCOPE INPUT	REMARKS
To Antenna	TP1	Perform VIF Adjustments as per SWEEP/MARKER GENERATOR instructions. See Figure 3.

SOUND IF ALIGNMENT

Tune in a station and adjust L205 for Maximum sound. Reduce signal strength at the antenna terminals until distortion appears. Continue to reduce the signal while aligning for undistorted output by adjusting L205.

AUTOMATIC FINE TUNING ALIGNMENT

Connect as explained in preliminary instructions unless specified otherwise.

DIRECT PROBE FROM SWEEP GENERATOR	SWEEP GENERATOR OUTPUT	MARKER GENERATOR FREQUENCY	REMARKS
TP2	TP207	45.75MHz	Adjust L233 to place 45.75MHz marker as shown. See Figure 2.

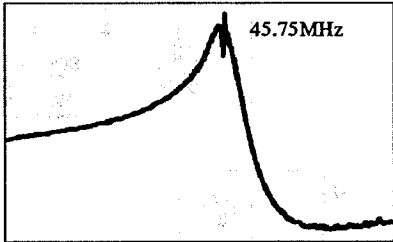


Figure 1

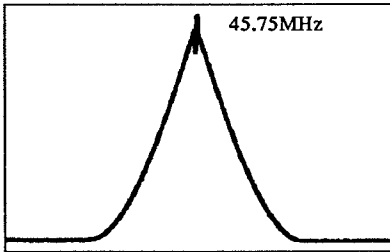


Figure 2

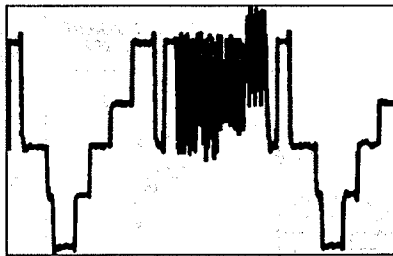
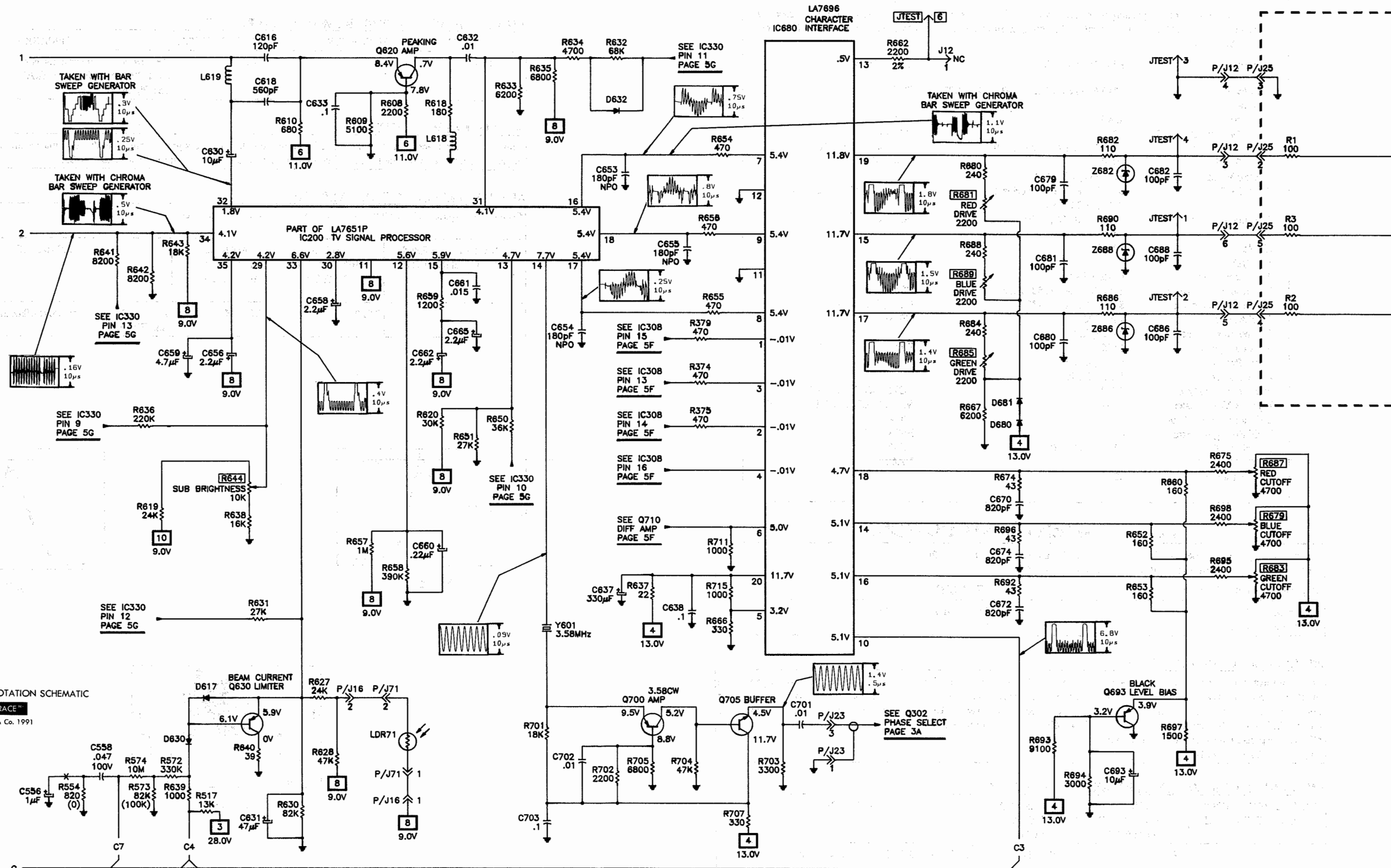


Figure 3

CRT SCHEMATIC



SAFETY PRECAUTIONS

SERVICE WARNING

ONLY qualified service technicians who are familiar with safety checks and guidelines should perform service work. For continued SAFETY:

- 1. Before replacing parts, disconnect power source to protect electrostatically sensitive parts.
- 2. Do not attempt to modify any circuit unless so recommended by the manufacturer.
- 3. When servicing chassis, use an isolation transformer between the line cord and power receptacle.

SERVICING HIGH VOLTAGE AND PICTURE TUBE

Use EXTREME CAUTION when servicing the High Voltage circuits.

- 1. To discharge static High Voltage, connect a 10k ohm resistor in series with a test lead between chassis and picture tube anode lead.
- 2. DO NOT lift picture tube by the neck.
- 3. ALWAYS wear shatterproof goggles when handling picture tube to protect eyes in case of implosion.

X-RAY RADIATION AND HIGH VOLTAGE LIMITS

Be aware of the instructions and procedures covering x-ray radiation. In solid-state receivers and monitors, the picture tube is the only potential source of x-rays.

- 1. Keep an accurate High Voltage meter available at all times. Check meter calibration periodically.
- 2. Whenever servicing a chassis, check High Voltage at various brightness levels to be sure it is regulating properly.
- 3. Keep High Voltage at rated value, NO HIGHER. Excessive High Voltage may cause x-ray radiation or failure of associated components. DO NOT depend on protection circuits to keep voltage at rated value.
- 4. When troubleshooting a set with excessive High Voltage, avoid close contact with picture tube. DO NOT operate set longer than necessary. To locate the cause of excessive High Voltage, use a variable AC transformer to regulate voltage.
- 5. In present chassis, many electrical and mechanical components have safety-related characteristics which are not detectable by visual inspection. Such components are identified by a # on both the schematic and the parts list. For SAFETY, use only equivalent replacement parts when replacing these components.

SAFETY CHECKS – FIRE AND SHOCK HAZARD

Cold Leakage Checks for Sets with Isolated Ground

- 1. Unplug the AC cord and connect a jumper across the plug prongs.
- 2. Turn the power switch ON.
- 3. Use an ohmmeter to measure the resistance between the jumpered AC plug and any exposed metal cabinet parts such as: antenna screw heads, control shafts, handle brackets. Exposed metal parts with a return path should measure between 200k ohms and 5 megohms. Parts without a return path must register infinity.

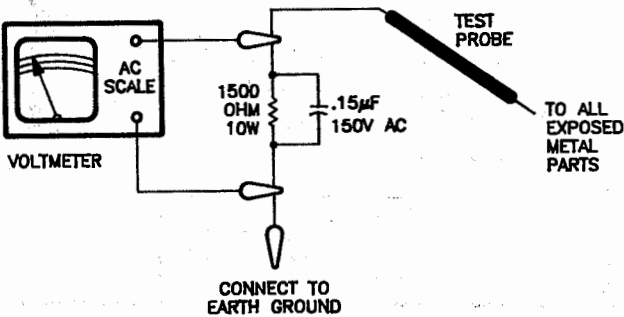
Hot Leakage Current Check

- 1. Plug the AC cord directly into AC outlet. DO NOT use an isolation transformer.
- 2. Use a 1500 ohm, 10W resistor in parallel with a 1.5 V AC capacitor to connect between any exposed metal parts on the set and a good earth ground, such as a water pipe. (See figure below.)
- 3. Use an AC voltmeter with at least 1000 ohms-per-volt sensitivity to measure the voltage across the resistor. Check all exposed metal parts and measure voltage at each point.
- 4. Voltage readings should not exceed .75V RMS (5 milliamps AC). Any value exceeding this limit constitutes a potential shock hazard and must be corrected.
- 5. Reverse the AC plug and repeat exposed metal part voltage measurement at each point.

GENERAL GUIDELINES

Perform a final SAFETY CHECK before returning set to customer.

- 1. Check repaired area for poorly soldered or de-soldered connections, and entire circuit board for solder splashes.
- 2. Check inner board wiring for pinched wires or wires contacting any high-wattage resistors.
- 3. Check that all control knobs, shields, covers, grounds and mounting hardware have been replaced. Be sure to replace all insulators and restore proper lead dress.



TROUBLESHOOTING

POWER SUPPLY

Check the AC Fuse (F400). If Fuse F400 is open, check Bridge Rectifier Diodes (D402 thru D405), Capacitors C400, C403 and C417 and Electrolytics C410 and C411. Apply 120VAC and check for 158V* at the cathode of Diode D403. If this voltage is missing, check Line Filter (L400) and Degauss Relay (K400). If 158V* is present, check for 11.0V at the cathode of D458. If the voltage is missing, check the voltages and components associated with Standby Regulator Transistor (Q440), pins 10,11,12,13 and 16 of Controller IC (IC401) and Resistor R416. If 11.0V is present, check for 5V on pin 3 of 5V Regulator IC (IC305). Check that pin 5 of IC401 toggles in voltage when Power button is pressed. If it does not, check On/Off Shutdown IC (IC402), Power On/Off Transistor (Q464) and pins 11,31,40 of Micro-Computer IC (IC301). If IC401 toggles, check for 130V at the cathode of D414. If this voltage is missing, check the voltages and components associated with the Voltage Control Amp Transistors (Q461 and Q460), Output Voltage Regulator IC (IC400), IC401 and Full Power Regulator Transistor (Q410). If the voltage at D414 is 178V, the set may be in shutdown, refer to the "Horizontal" and the "High Voltage Shutdown" sections of this Troubleshooting guide. If the proper voltage is present at D414, refer to the "Horizontal" section of this Troubleshooting guide.

*Taken from Common Tie Point.

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 (Q501). If horizontal deflection is now present, check the voltages, waveforms and components associated with pins 20, 22 thru 25 of the TV Signal Processor IC (IC200) and the Horizontal Driver Transistor (Q500). If there is still no horizontal sweep, check the voltages, waveforms and components associated with Horizontal Driver Transformer (T500), Q501 and the Horizontal Output Transformer (T501). The high voltage rectifier is part of T501 and if defective will affect the performance of the horizontal circuits. If the Horizontal Oscillator is off frequency, check the voltages, waveforms and components associated with pin 24 of IC200. Horizontal linearity or foldover problems may be caused by Capacitors

C505, C521, C522, C524, and Linearity Coil (L509) being defective.

Voltage Taken with TV in Shutdown
Cathode D414 178V

HIGH VOLTAGE SHUTDOWN TEST

Apply 120VAC, turn set On, set all customer controls for normal operation. Connect a 7.3V Bias thru an isolation diode to the cathode of D513. Set should lose Raster and Sound. If set does not lose Raster and Sound the shutdown circuit should be repaired. To resume normal operation, remove Bias, AC Power and wait 30 seconds then turn set On.

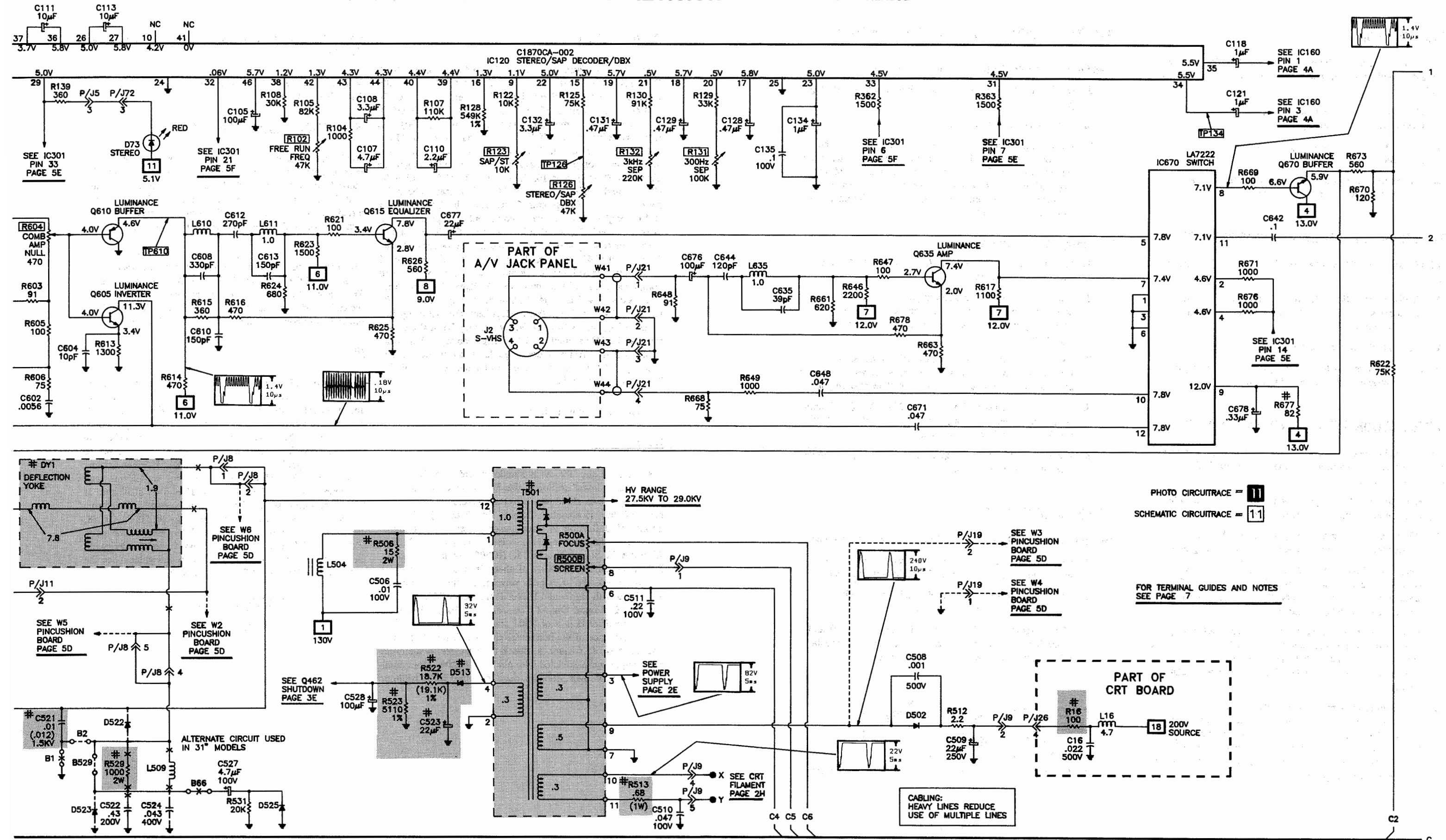
The manufacturer recommends an alternative test method. Confirm that the voltage at the base of Over Voltage Monitor Transistor (Q466) is 13V. Connect an insulated clip lead to the emitter of Horizontal Output Transistor (Q501) and short the emitter to collector. Set should go into shutdown.

IF-AGC

Inject a video IF signal at the IF input and check for video on the CRT. If video is present, check the tuner, tuner control and tuner AFC circuits. If there is no video on the CRT, check for a video waveform at TP1. If video is present at TP1, refer to the "Video" section of this Troubleshooting guide. If there is no video at TP1, apply AGC bias to pin 10 of the TV Signal Processor IC (IC200). If video is now present at TP1, check the voltages, waveforms and components associated with pins 8, 10 and 40 of IC200. If there is still no video at TP1, check the voltages, waveforms and components associated with pins 5 thru 8, 10, 36, 37, 38, 40, 41 and 42 of IC200 and the Video Buffer Transistor (Q209). A defective AGC circuit can cause an overloaded picture, excessive snow or loss of audio and video. See the AGC Voltage Chart for AGC voltages with signal.

AGC VOLTAGE CHART

IC200	
Pin 8	5.3V
Pin 10	6.7V
Pin 40	3.6V

TELEVISION SCHEMATIC continued

TROUBLESHOOTING continued

AUDIO

Select an active TV channel and check for an audio waveform at pin 2 of the Stereo/SAP Decoder/DBX IC (IC120). If there is no audio, check the voltages, waveforms and components associated with the IF Detector Sound IC (IC260) and pins 1, 2, 9 and 39 of the TV Signal Processor IC (IC200). If audio is present at pin 2 of IC120, select a station that is transmitting a Stereo signal and check for audio at pins 26 and 37 of IC120. If audio is missing, check voltages, waveforms and components associated with pins 15 thru 27, 29, 36 thru 45 of IC120. Select a station transmitting a SAP signal. Select the SAP mode and check for an audio waveform at pin 12 of IC120. If waveform is missing, check the voltages, waveforms and components associated with pins 2 thru 14, 28, 47 and 48 of IC120. Check for audio waveforms at pins 1 and 3 of the Audio Controller IC (IC160). If waveforms are missing, check voltages, waveforms and components associated with pins 29 thru 35 of IC120. If waveforms are present at pins 1 and 3 of IC160, check for waveforms at pins 7 and 10 of the Stereo Amp IC (IC180). If waveforms are missing, check voltages, waveforms and components associated with IC160 and IC180.

HIGH VOLTAGE SHUTDOWN

The high voltage is monitored by Diode D513, rectifying pulses from the Horizontal Output Transformer (T501). Should the high voltage increase, the shutdown latches the Shutdown Transistors (Q462 and Q463). This causes the On/Off Shutdown IC (IC402) to turn On and shutdown the Controller IC (IC401).

VIDEO

Inject a video signal at TP1 and check for video on the CRT. If video is present, refer to the "IF-AGC" section of this Troubleshooting guide. If there is no video on the CRT, check for a video waveform at pin 32 of TV Signal Processor IC (IC200). If video is missing at pin 32 of IC200, check the voltages, waveforms and components associated with Switch IC (IC1), Emitter Follower Transistor (Q3), Video Input Buffer Transistor (Q206), Multiplexer IC (IC230), Video Output Transistor (Q207), Delay Line Driver Transistor (Q600), Luminance Buffer Transistor (Q610), Luminance Equalizer Transistor (Q615), Switch IC (IC670) and Luminance Buffer Transistor (Q670). If video is present at pin 32 of IC200, check for a video waveform at pin 10 of Character Interface IC (IC680). If the waveform is missing, check the voltages, waveforms and components associated with pins 19, 29 thru 33 of IC200. If the waveform is present at pin 10 of IC680, check the voltages, waveforms and components associated with IC680, Red, Green, Blue Output Transistors (Q1, Q2, Q3) and CRT. If the Brightness is inadequate or cannot be controlled, check the voltages, waveforms and components associated with pin 29 of IC200.

VERTICAL

Inject a vertical drive signal at pin 3 of the Vertical Output IC (IC550). If vertical deflection is now present, check voltages, waveforms and components associated with pin 27 of the TV Signal Processor IC (IC200) and the Vertical Amp Transistor (Q304). If there is still no vertical deflection, check the voltages, waveforms and components associated with IC550. Vertical linearity or foldover problems may be caused by vertical feedback and bias circuits, check Electrolytics C553, C565 and C567 for defects.

SYNC

If there is no vertical or horizontal sync, check the voltages, waveforms and components associated with pin 26 of the TV Signal Processor IC (IC200). If there is no vertical sync, check the voltages, waveforms and components associated with pins 26 and 27 of IC200. If there is no horizontal sync, check the voltages and components associated with pins 22 thru 26 of IC200.

RASTER

Check the CRT and CRT voltages. If there is no Red, check the voltages and components associated with pin 16 of the TV Signal Processor IC (IC200), pins 1, 7 and 19 of the Character Interface IC (IC680) and Red Output Transistor (Q1). If there is no Blue, check the voltages and components associated with pin 18 of IC200, pins 3, 9 and 15 of IC680 and Blue Output Transistor (Q3). If there is no Green, check the voltages and components associated with pin 17 of IC200, pins 2, 8 and 17 of IC680 and Green Output Transistor (Q2). 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

Check for a chroma waveform at pin 34 of the TV Signal Processor IC (IC200). If the waveform is missing, check the components associated with pin 34. Check the voltages, waveforms and components associated with pins 11 and 12 of the Switch IC (IC670). If a chroma waveform is present at pin 34 of IC200, check for the proper waveforms at pins 16, 17 and 18 of IC200. If these waveforms are missing, check the voltages, waveforms and components associated with pins 11 thru 18, 34 and 35 of IC200. Check the 3.58MHz oscillator at pin 14 of IC200. If there is inadequate Tint range, check the voltages and components associated with pin 13 of IC200. If the proper waveforms are absent at pins 16, 17 and 18 of IC200, refer to the "Raster" section of this Troubleshooting guide.

PIP TROUBLESHOOTING

PIP VIDEO

Check the waveform at pin 8 of Multiplexer/Analog To Digital Converter (IC150). If the waveform is missing, check waveforms, voltages and components associated with Amp Transistor (Q100), Low Pass Filter Transistor (Q101) and Buffer Transistor (Q102). If the waveform is present at pin 8 of IC150, check the waveform at pin 1 of Multiplexer IC (IC230). If the waveform is missing, check voltages, waveforms, logic and components associated with PIP Video Buffer Transistor (Q203), PIP Video Amps (Q200, Q202), D/A IC (IC200), Logic Unit IC (IC400), IC150 and SRAM IC (IC410). If the waveform is present at pin 1 of IC230, check voltages and components associated with IC230.

PIP OSCILLATOR

Check the waveform at pin 2 of Quad Excl Or Gate IC (IC300). If the waveform is missing at pin 2 of IC300, check voltages, waveforms and components associated with Phase Select Transistor (Q302), Phase Buffer Transistor (Q303) and Phase Amp Transistor (Q304). If the waveform is present at pin 2 of IC300, check for 14.318MHz at pin 34 of Logic Unit IC (IC400). If the frequency is incorrect, check voltages, waveforms, logic and components associated with Osc Buffers (Q300, Q301) and IC300.

PIP CHROMA

Check the waveform at pin 30 of Decoder IC (IC100). If the waveform is missing, check the voltages and components associated with pin 30 of IC100. If the waveform is present at pin 30 of IC100, check the waveforms at pins 6 and 7 of Multiplexer/Analog To Digital Converter IC (IC150). If the waveforms at pins 6 and 7 of IC150 are missing, check voltages and components associated with R-Y Transistor (Q108), B-Y Transistor (Q109), B-Y Clamp Transistor (Q106), R-Y Clamp Transistor (Q107), IC180 and IC100. If

waveforms are present at pins 6 and 7 of IC150, check voltages, logic and components associated with IC150, Logic Unit IC (IC400) and SRAM IC (IC415).

PIP SYNC

Check the waveform at pin 27 of Decoder IC (IC100). If the waveform is missing, check voltages and components associated with pin 27 of IC100. If the waveform is present at pin 27 of IC100, check voltages and components associated with IC100.

PIP VERTICAL

Check the waveform at pin 24 of Decoder IC (IC100). If the waveform is missing, check voltages and components associated with IC100. If the waveform at pin 24 of IC100 is present, check the waveform at pin 30 of Logic Unit IC (IC400). If the waveform at pin 30 of IC400 is missing, check voltages and components associated with Vert Transistor (Q209). If the waveform at pin 30 of IC400 is present, check the logic and components associated with IC400.

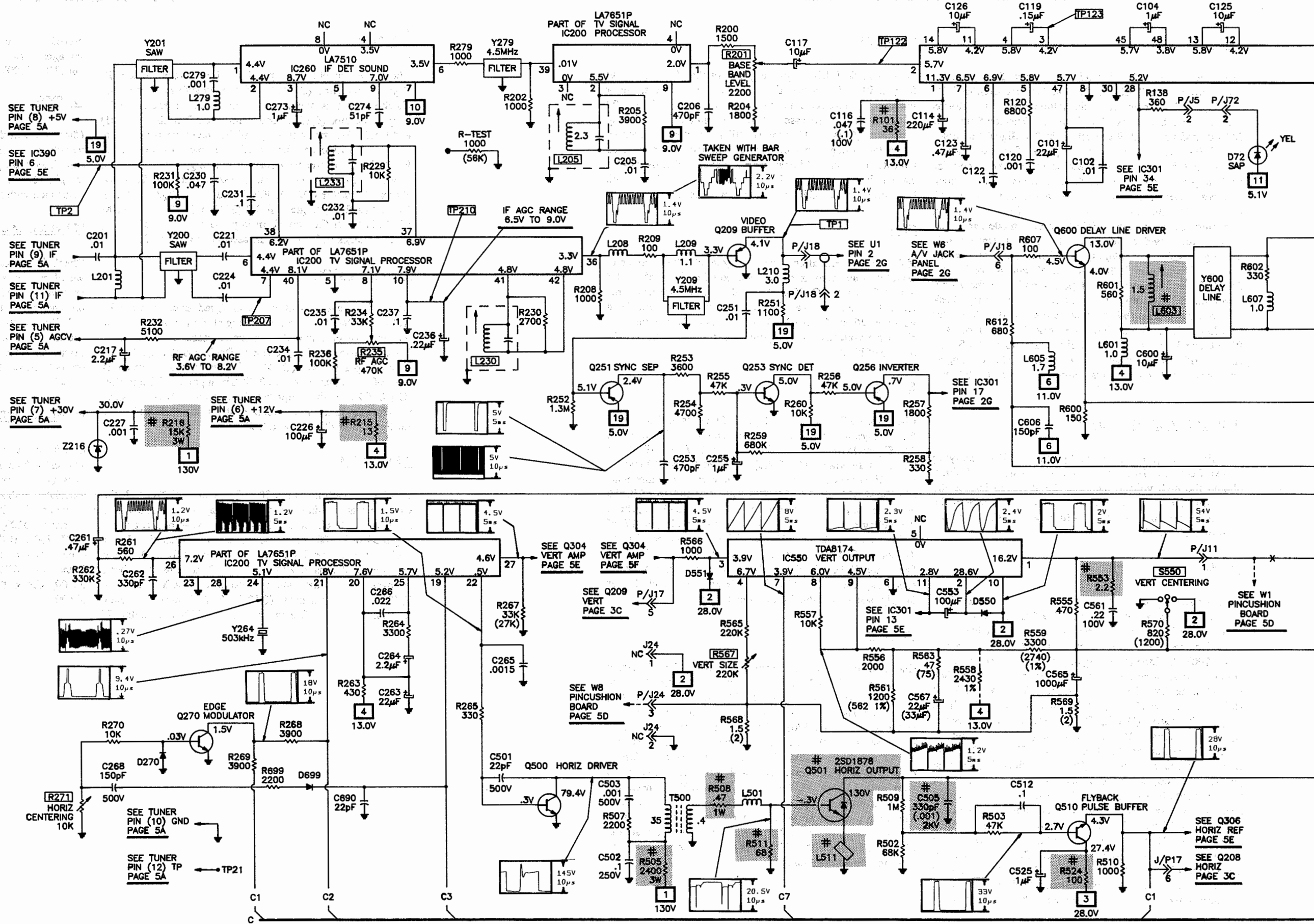
PIP HORIZONTAL

Check the waveform at the Emitter of PIP Horizontal Transistor (Q103). If the waveform at the emitter of Q103 is missing, check voltages, waveforms and components associated with PIP Horizontal Transistors (Q103, Q104) and Decoder IC (IC100). If the waveform is present at the emitter of Q103, check the waveform at pin 31 of Logic Unit IC (IC400). If the waveform at pin 31 of IC400 is missing, check voltages and components associated with Horizontal Transistor (Q208). If the waveform is present at pin 31 of IC400, check the logic and components associated with IC400.

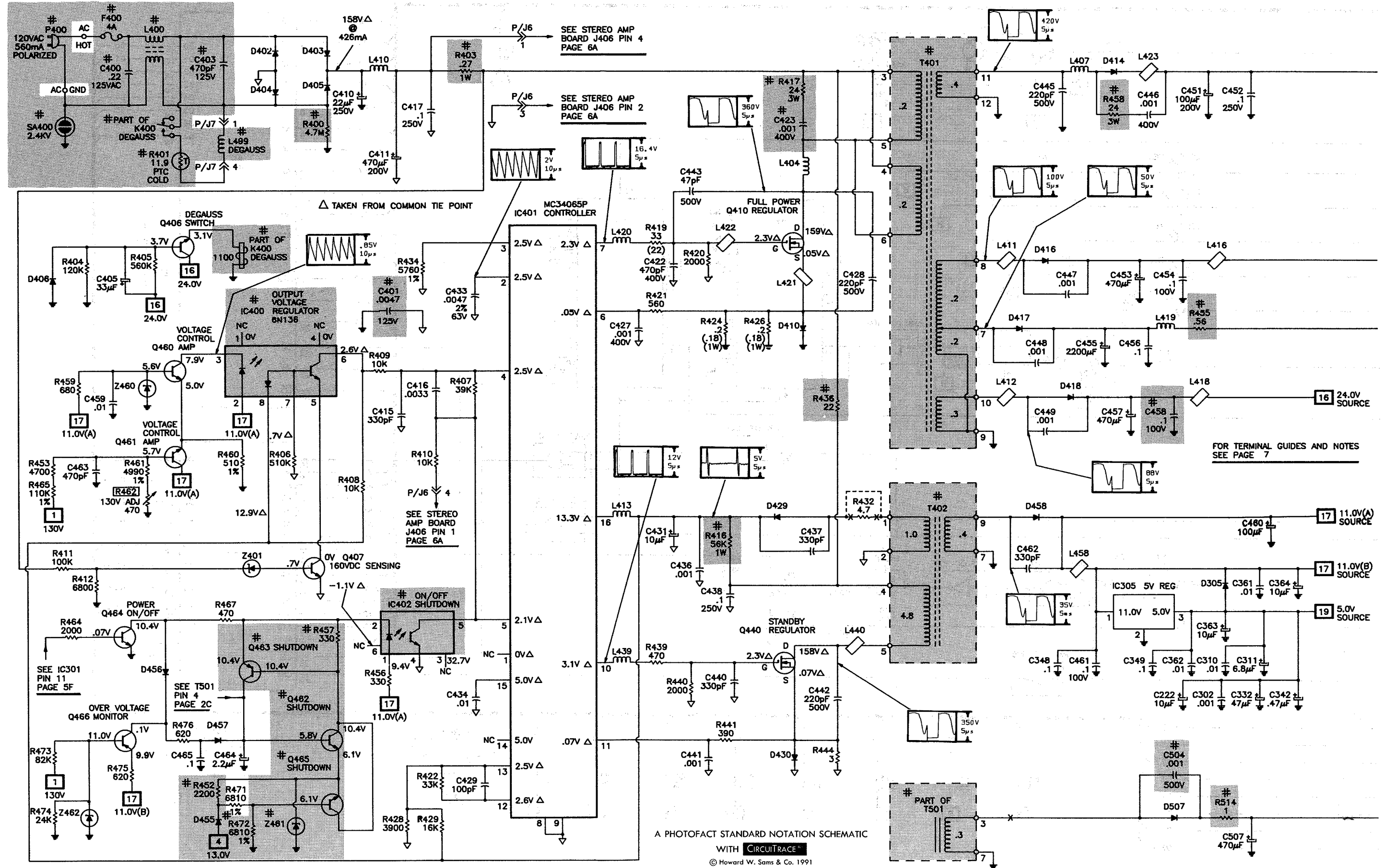
A

B

TELEVISION SCHEMATIC

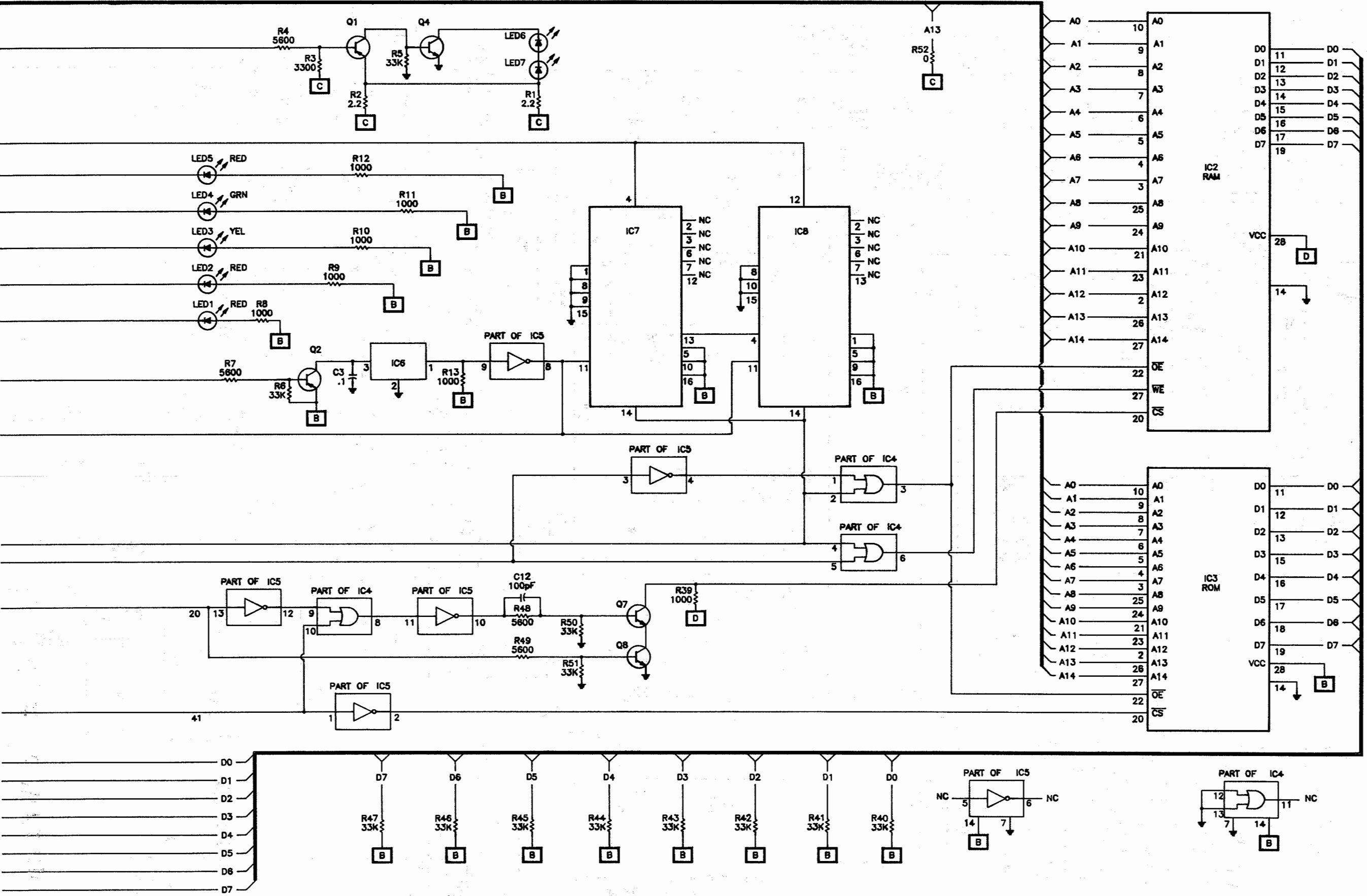


POWER SUPPLY SCHEMATIC



REMOTE TRANSMITTER (UR5) SCHEMATIC continued

SYLVANIA CHASSIS 27W102, 27W106/-00AA, 31W103

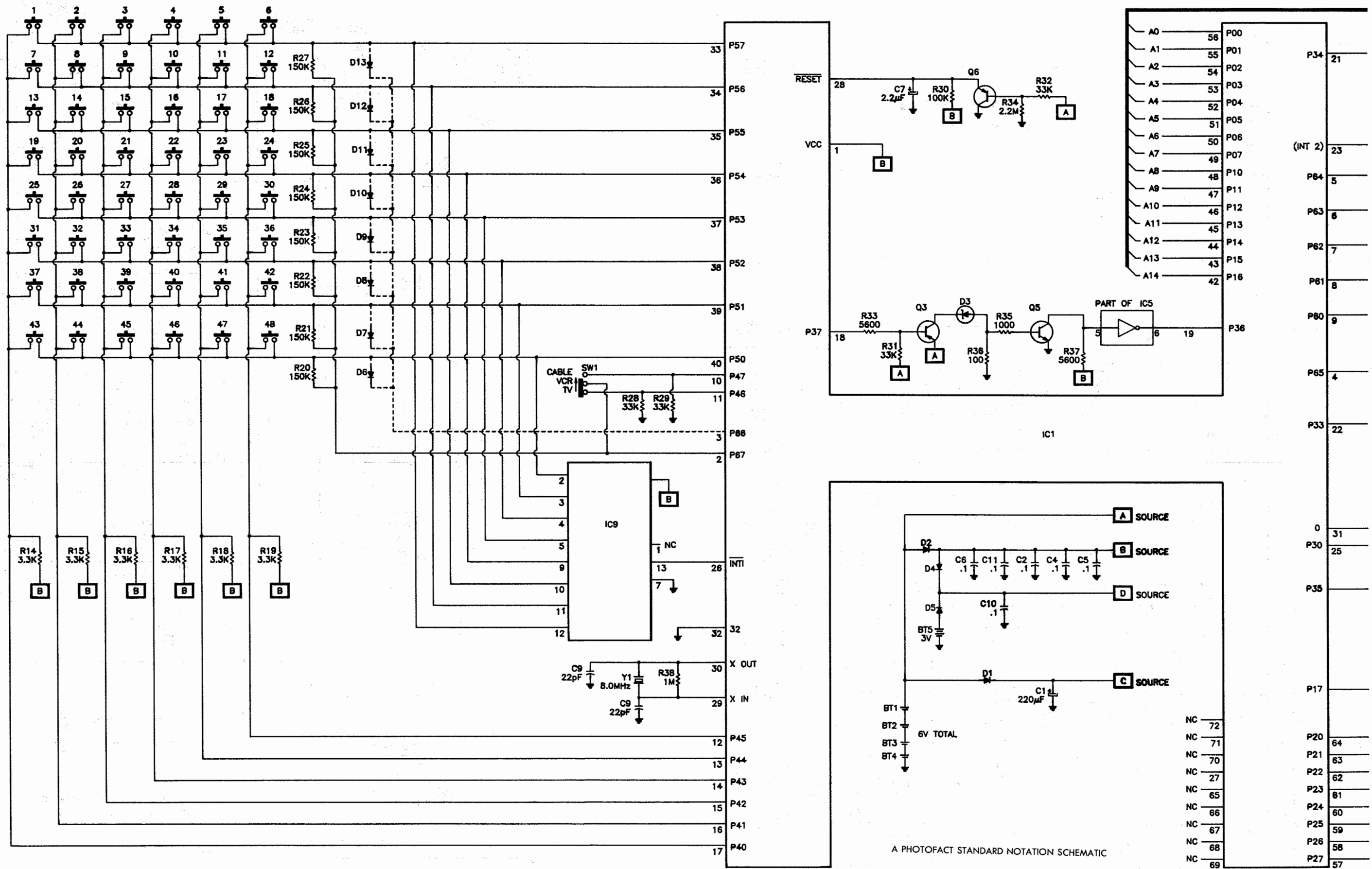


G

H



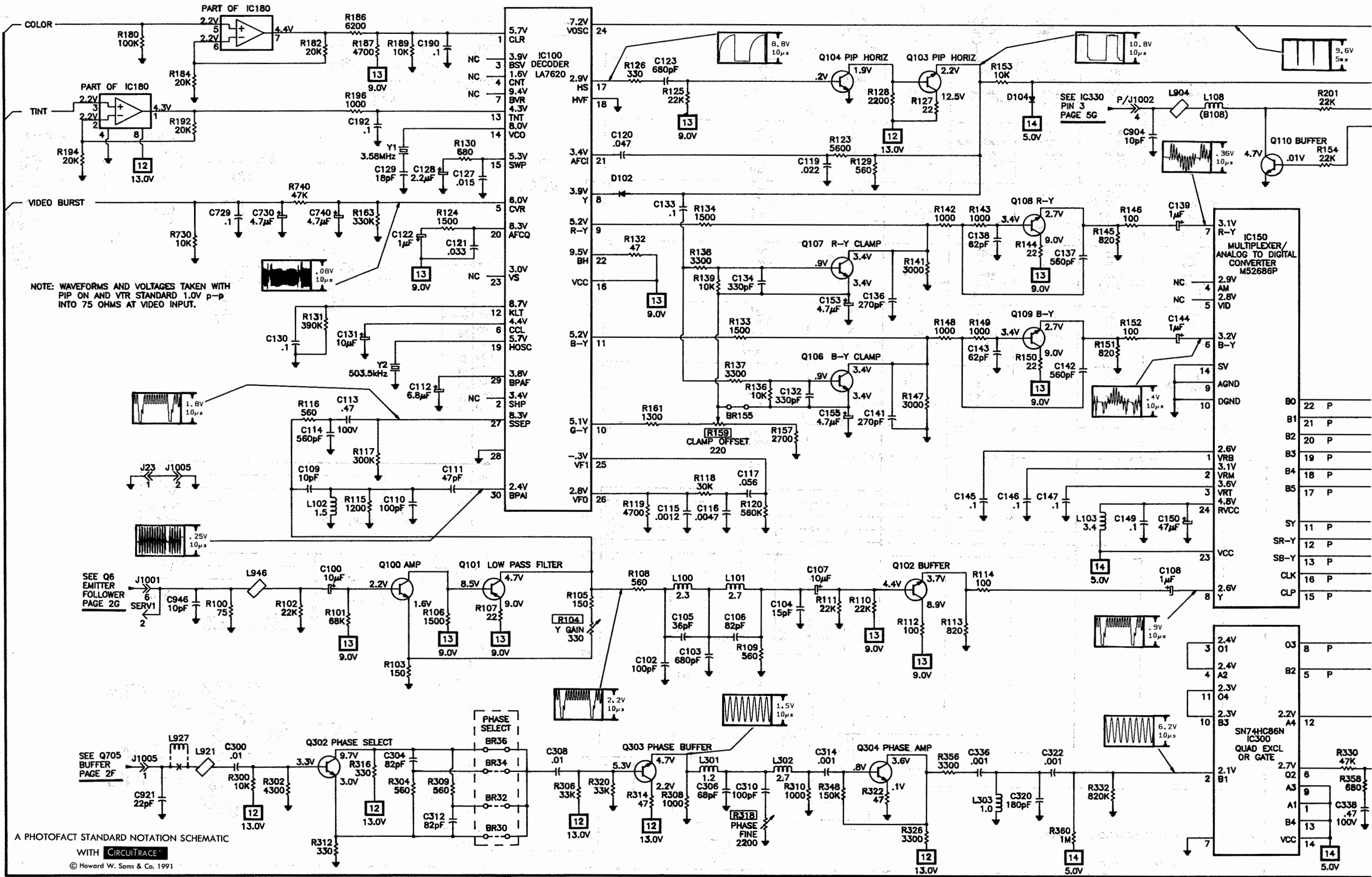
REMOTE TRANSMITTER (UR5) SCHEMATIC



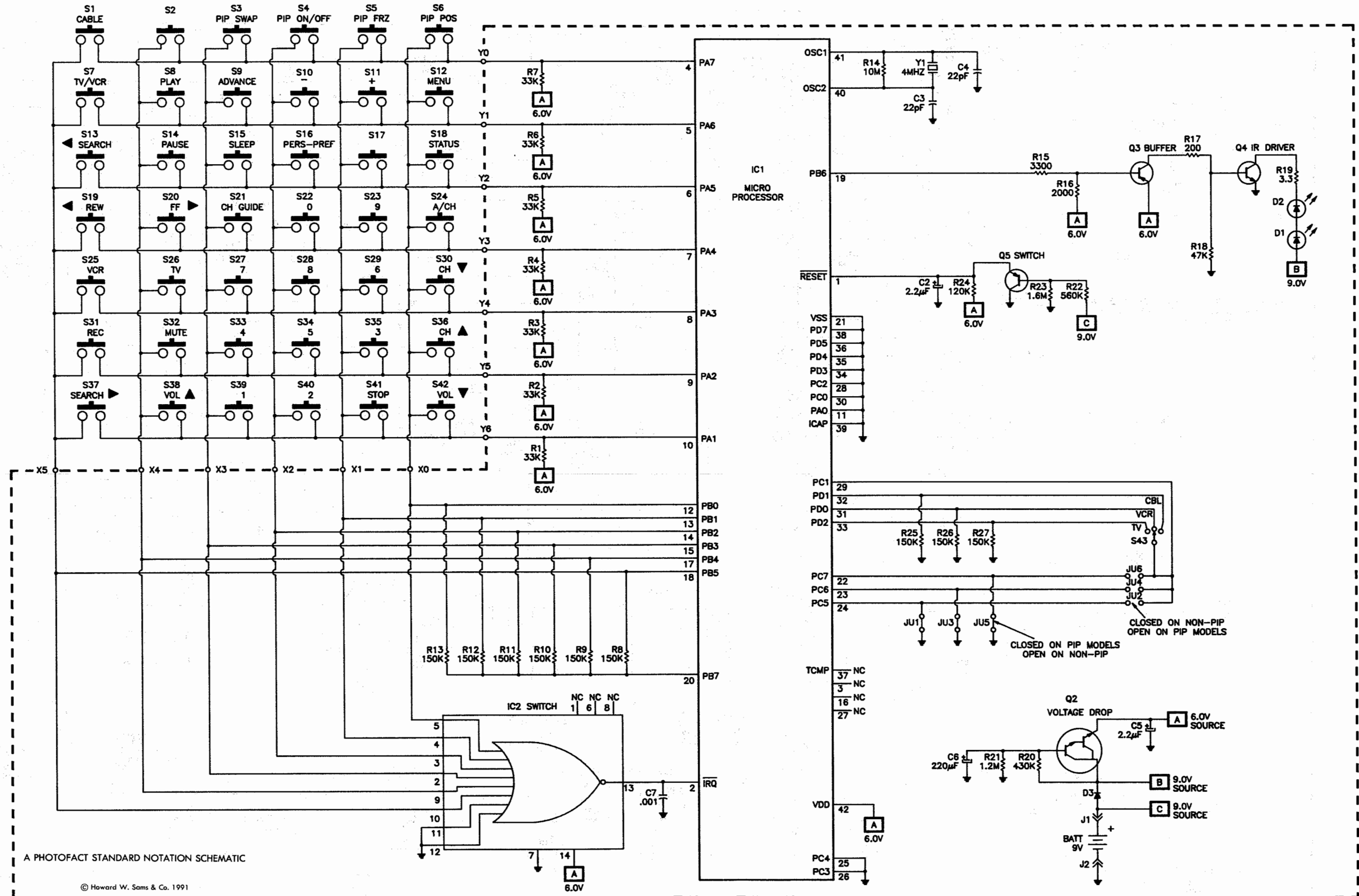
A

B

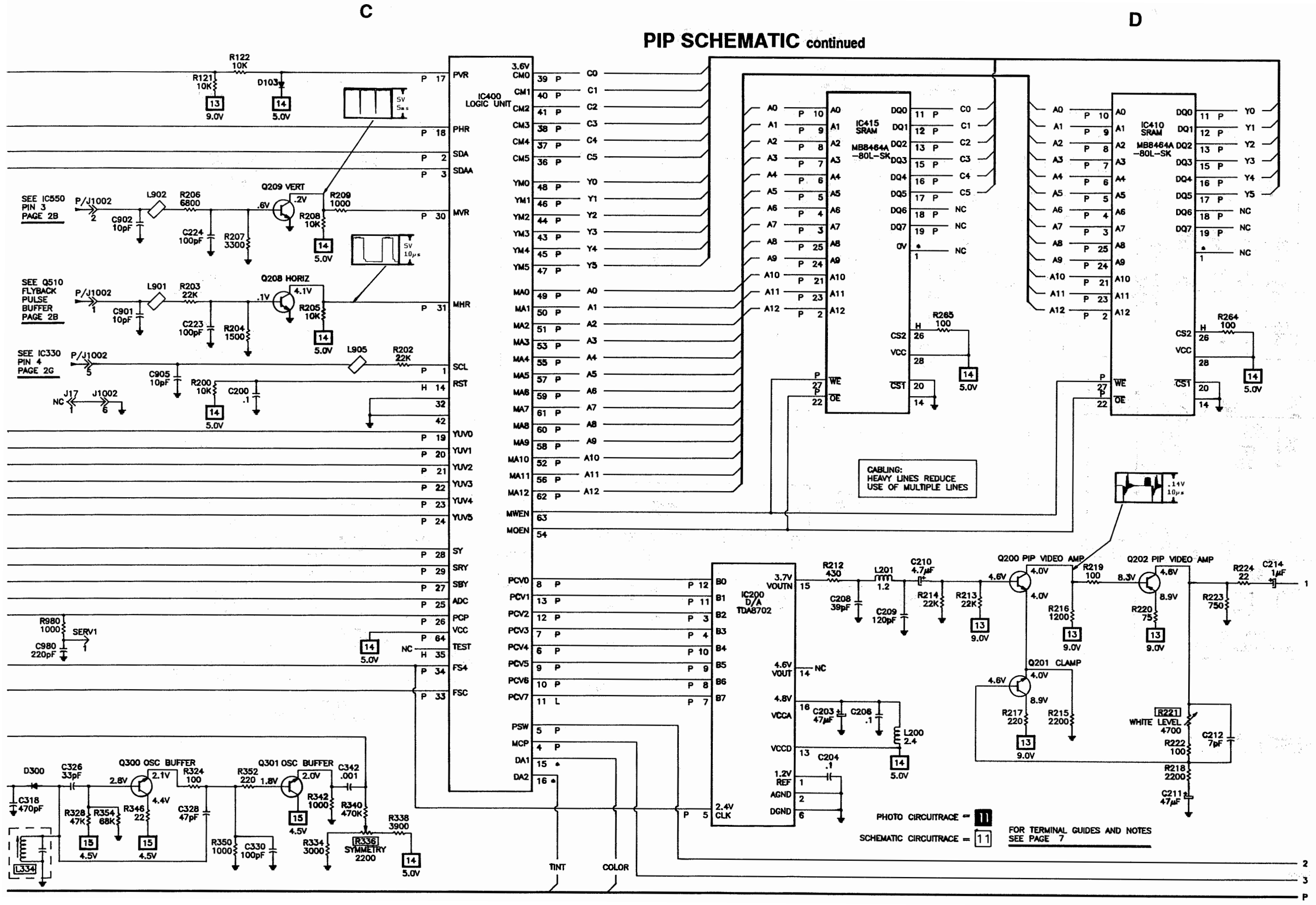
PIP SCHEMATIC



REMOTE TRANSMITTER (UR8) SCHEMATIC



PIP SCHEMATIC continued



CABLING:
HEAVY LINES REDUCE
USE OF MULTIPLE LINES

PHOTO CIRCUITRACE = 11
SCHEMATIC CIRCUITRACE = 11
FOR TERMINAL GUIDES AND NOTES
SEE PAGE 7

SEE IC120
PIN 35
PAGE 2D

SEE IC120
PIN 34
PAGE 2D

SEE IC330
PIN 4
PAGE 5G

SEE IC330
PIN 3
PAGE 5G

IC160 AUDIO CONTROLLER

IC180 STEREO AMP

LA4270

EMITTER FOLLOWER Q8

EMITTER FOLLOWER Q7

PART OF J1 LEFT AUDIO OUT

PART OF J1 RIGHT AUDIO OUT

PART OF J1 LEFT AUDIO IN

PART OF J1 RIGHT AUDIO IN

PART OF A/V JACK PANEL

PART OF A/V JACK PANEL

EXT SPEAKER

EXT SPEAKER

EXT SPEAKER TERMINALS

SP1 16Z

SP2 16Z

VARIABLE LEFT AUDIO OUT

VARIABLE RIGHT AUDIO OUT

PHOTO CIRCUITRACE = 11

SCHEMATIC CIRCUITRACE = 11

FOR TERMINAL GUIDES AND NOTES
SEE PAGE 7

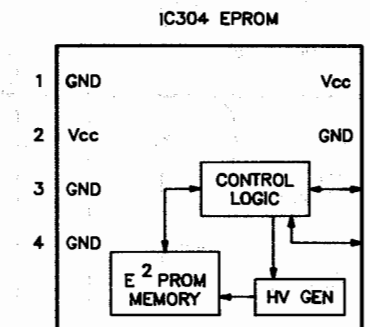
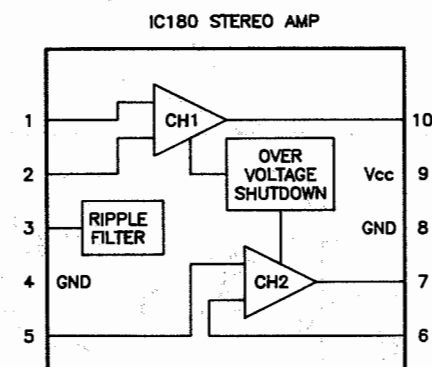
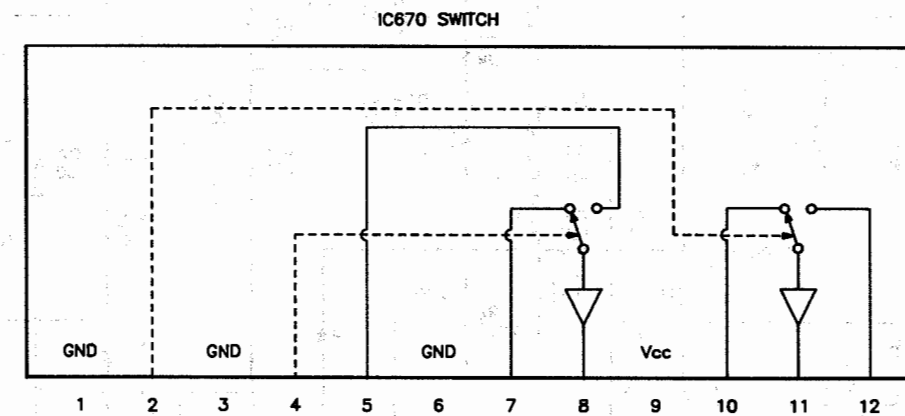
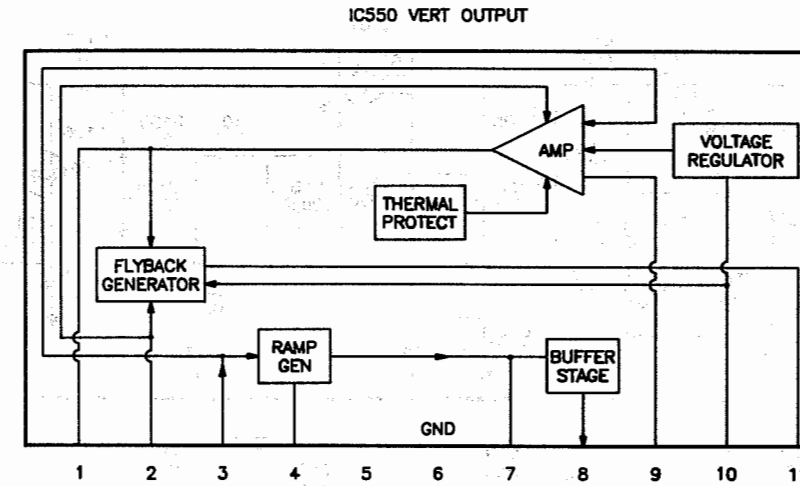
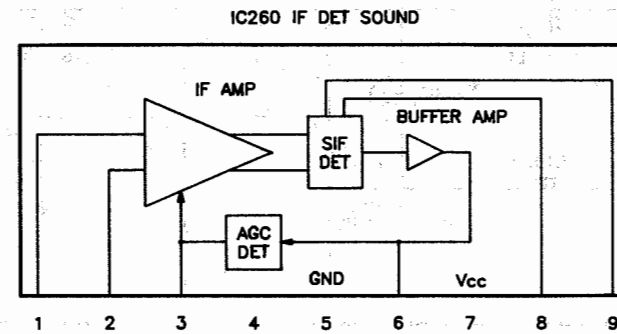
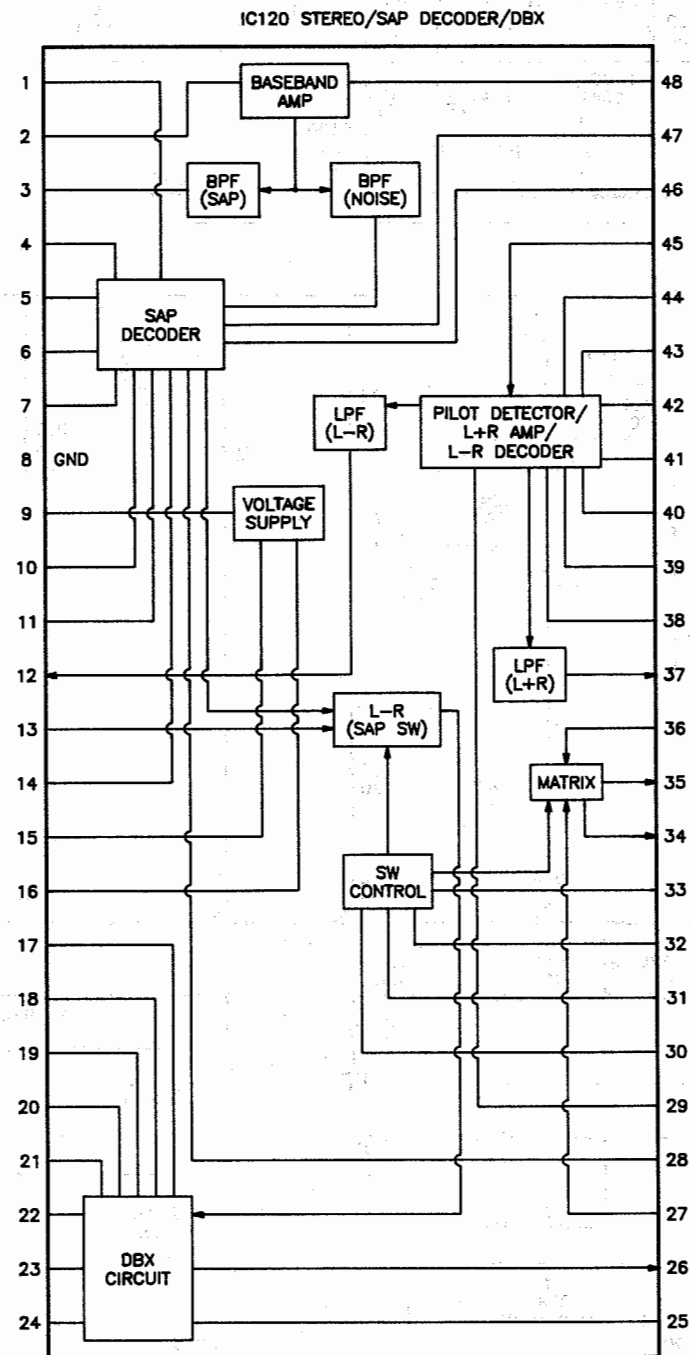
WITH CIRCUITRACE™

© Howard W. Sams & Co. 1991

The diagram illustrates a complex electronic circuit, likely a radio receiver or amplifier, featuring several key components and their interconnections:

- Transistors:** Q101, Q102, Q1, Q201, Q202, Q203, Q204, Q205, Q206, Q6.
- Capacitors:** C101, C102, C104, C105, C106, C107, C108, C109, C110, C111, C112, C113, C114, C115, C116, C117, C118, C119, C120, C121, C122, C123, C124, C125, C126, C127, C128, C129, C130, C131, C132, C133, C134, C135, C136, C137, C138, C139, C140, C141, C142, C143, C144, C145, C146, C147, C148, C149, C150, C151, C152, C153, C154, C155, C156, C157, C158, C159, C160, C161, C162, C163, C164, C165, C166, C167, C168, C169, C170, C171, C172, C173, C174, C175, C176, C177, C178, C179, C180, C181, C182, C183, C184, C185, C186, C187, C188, C189, C190, C191, C192, C193, C194, C195, C196, C197, C198, C199, C200, C201, C202, C203, C204, C205, C206, C207, C208, C209, C210, C211, C212, C213, C214, C215, C216, C217, C218, C219, C220, C221, C222, C223, C224, C225, C226, C227, C228, C229, C230, C231, C232, C233, C234, C235, C236, C237, C238, C239, C240, C241, C242, C243, C244, C245, C246, C247, C248, C249, C250, C251, C252, C253, C254, C255, C256, C257, C258, C259, C260, C261, C262, C263, C264, C265, C266, C267, C268, C269, C270, C271, C272, C273, C274, C275, C276, C277, C278, C279, C280, C281, C282, C283, C284, C285, C286, C287, C288, C289, C290, C291, C292, C293, C294, C295, C296, C297, C298, C299, C300, C301, C302, C303, C304, C305, C306, C307, C308, C309, C310, C311, C312, C313, C314, C315, C316, C317, C318, C319, C320, C321, C322, C323, C324, C325, C326, C327, C328, C329, C330, C331, C332, C333, C334, C335, C336, C337, C338, C339, C340, C341, C342, C343, C344, C345, C346, C347, C348, C349, C350, C351, C352, C353, C354, C355, C356, C357, C358, C359, C360, C361, C362, C363, C364, C365, C366, C367, C368, C369, C370, C371, C372, C373, C374, C375, C376, C377, C378, C379, C380, C381, C382, C383, C384, C385, C386, C387, C388, C389, C390, C391, C392, C393, C394, C395, C396, C397, C398, C399, C400, C401, C402, C403, C404, C405, C406, C407, C408, C409, C410, C411, C412, C413, C414, C415, C416, C417, C418, C419, C420, C421, C422, C423, C424, C425, C426, C427, C428, C429, C430, C431, C432, C433, C434, C435, C436, C437, C438, C439, C440, C441, C442, C443, C444, C445, C446, C447, C448, C449, C450, C451, C452, C453, C454, C455, C456, C457, C458, C459, C460, C461, C462, C463, C464, C465, C466, C467, C468, C469, C470, C471, C472, C473, C474, C475, C476, C477, C478, C479, C480, C481, C482, C483, C484, C485, C486, C487, C488, C489, C490, C491, C492, C493, C494, C495, C496, C497, C498, C499, C500, C501, C502, C503, C504, C505, C506, C507, C508, C509, C510, C511, C512, C513, C514, C515, C516, C517, C518, C519, C520, C521, C522, C523, C524, C525, C526, C527, C528, C529, C530, C531, C532, C533, C534, C535, C536, C537, C538, C539, C540, C541, C542, C543, C544, C545, C546, C547, C548, C549, C550, C551, C552, C553, C554, C555, C556, C557, C558, C559, C560, C561, C562, C563, C564, C565, C566, C567, C568, C569, C570, C571, C572, C573, C574, C575, C576, C577, C578, C579, C580, C581, C582, C583, C584, C585, C586, C587, C588, C589, C590, C591, C592, C593, C594, C595, C596, C597, C598, C599, C600, C601, C602, C603, C604, C605, C606, C607, C608, C609, C610, C611, C612, C613, C614, C615, C616, C617, C618, C619, C620, C621, C622, C623, C624, C625, C626, C627, C628, C629, C630, C631, C632, C633, C634, C635, C636, C637, C638, C639, C640, C641, C642, C643, C644, C645, C646, C647, C648, C649, C650, C651, C652, C653, C654, C655, C656, C657, C658, C659, C660, C661, C662, C663, C664, C665, C666, C667, C668, C669, C670, C671, C672, C673, C674, C675, C676, C677, C678, C679, C680, C681, C682, C683, C684, C685, C686, C687, C688, C689, C690, C691, C692, C693, C694, C695, C696, C697, C698, C699, C700, C701, C702, C703, C704, C705, C706, C707, C708, C709, C710, C711, C712, C713, C714, C715, C716, C717, C718, C719, C720, C721, C722, C723, C724, C725, C726, C727, C728, C729, C730, C731, C732, C733, C734, C735, C736, C737, C738, C739, C740, C741, C742, C743, C744, C745, C746, C747, C748, C749, C750, C751, C752, C753, C754, C755, C756, C757, C758, C759, C760, C761, C762, C763, C764, C765, C766, C767, C768, C769, C770, C771, C772, C773, C774, C775, C776, C777, C778, C779, C780, C781, C782, C783, C784, C785, C786, C787, C788, C789, C790, C791, C792, C793, C794, C795, C796, C797, C798, C799, C800, C801, C802, C803, C804, C805, C806, C807, C808, C809, C810, C811, C812, C813, C814, C815, C816, C817, C818, C819, C820, C821, C822, C823, C824, C825, C826, C827, C828, C829, C830, C831, C832, C833, C834, C835, C836, C837, C838, C839, C840, C841, C842, C843, C844, C845, C846, C847, C848, C849, C850, C851, C852, C853, C854, C855, C856, C857, C858, C859, C860, C861, C862, C863, C864, C865, C866, C867, C868, C869, C870, C871, C872, C873, C874, C875, C876, C877, C878, C879, C880, C881, C882, C883, C884, C885, C886, C887, C888, C889, C890, C891, C892

IC FUNCTIONS continued

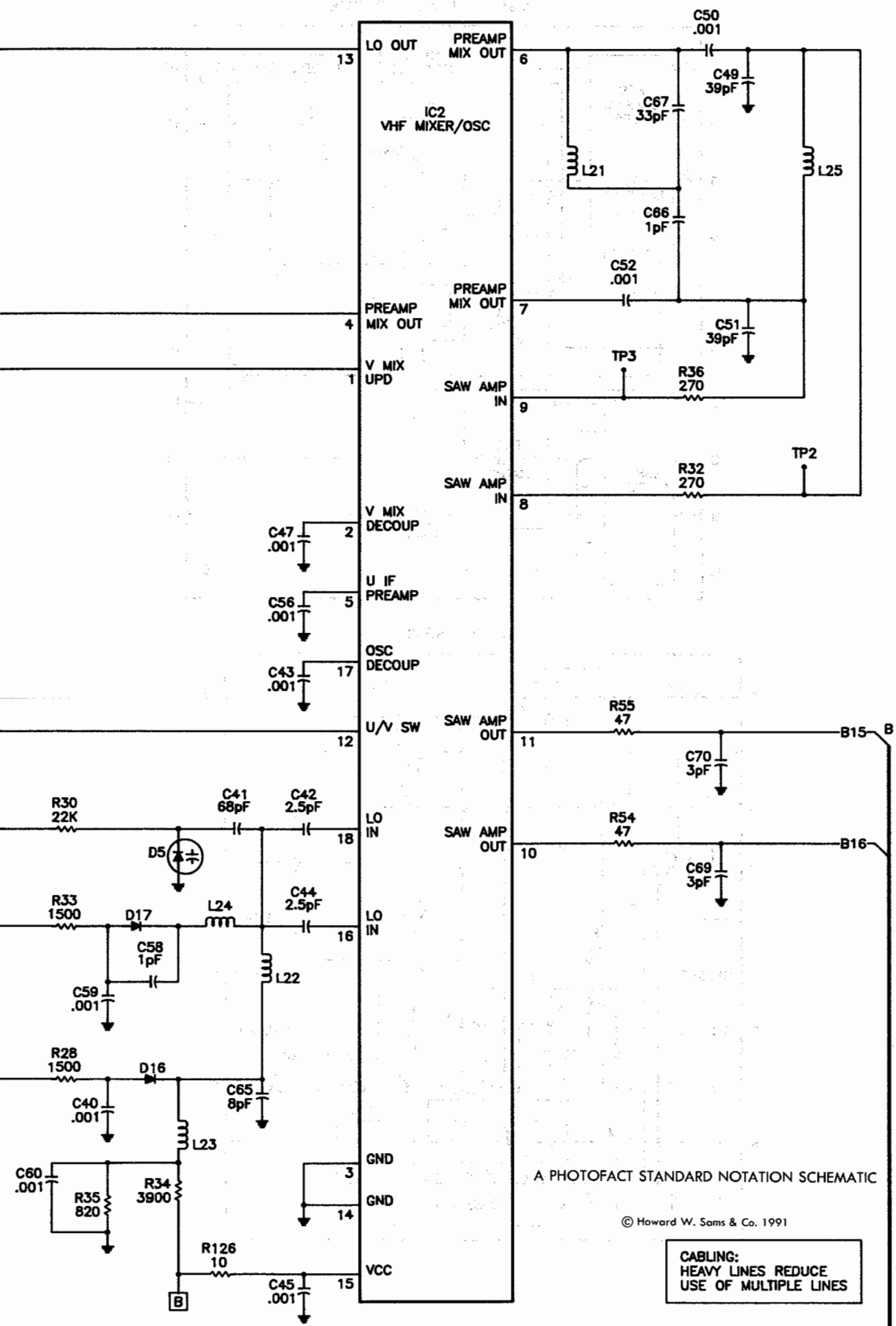


MAIN BOARD continued

G

H

UHF/VHF TUNER SCHEMATIC continued

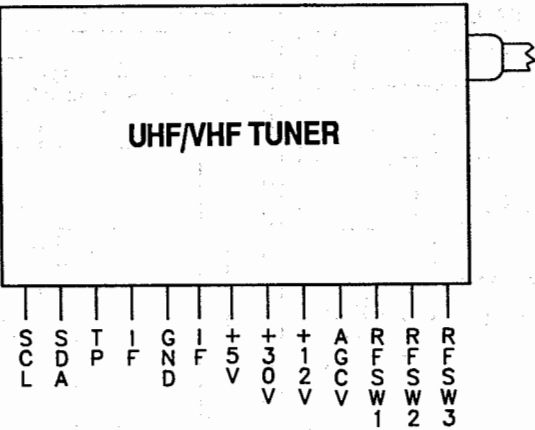


TUNER VOLTAGE CHART

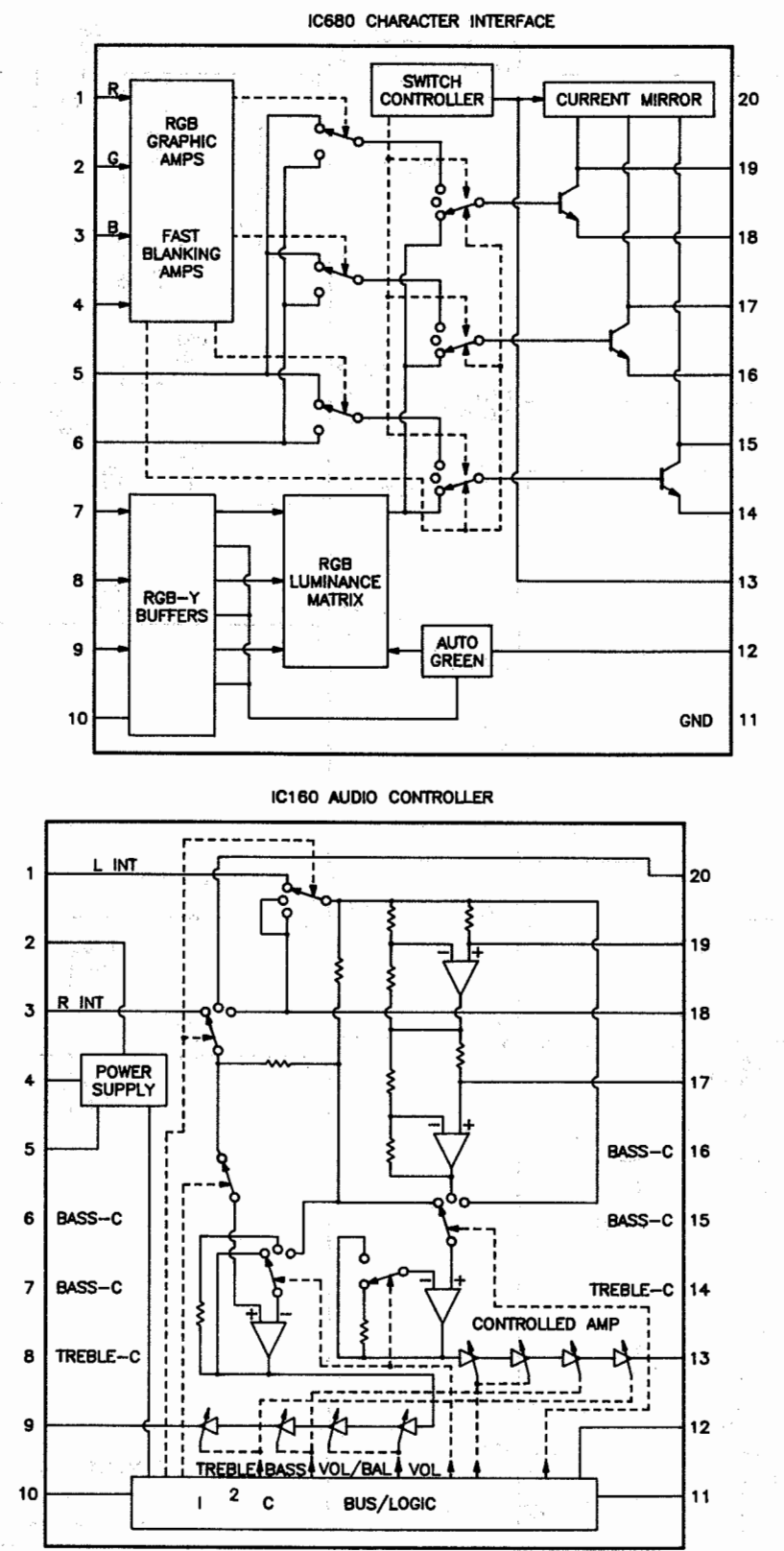
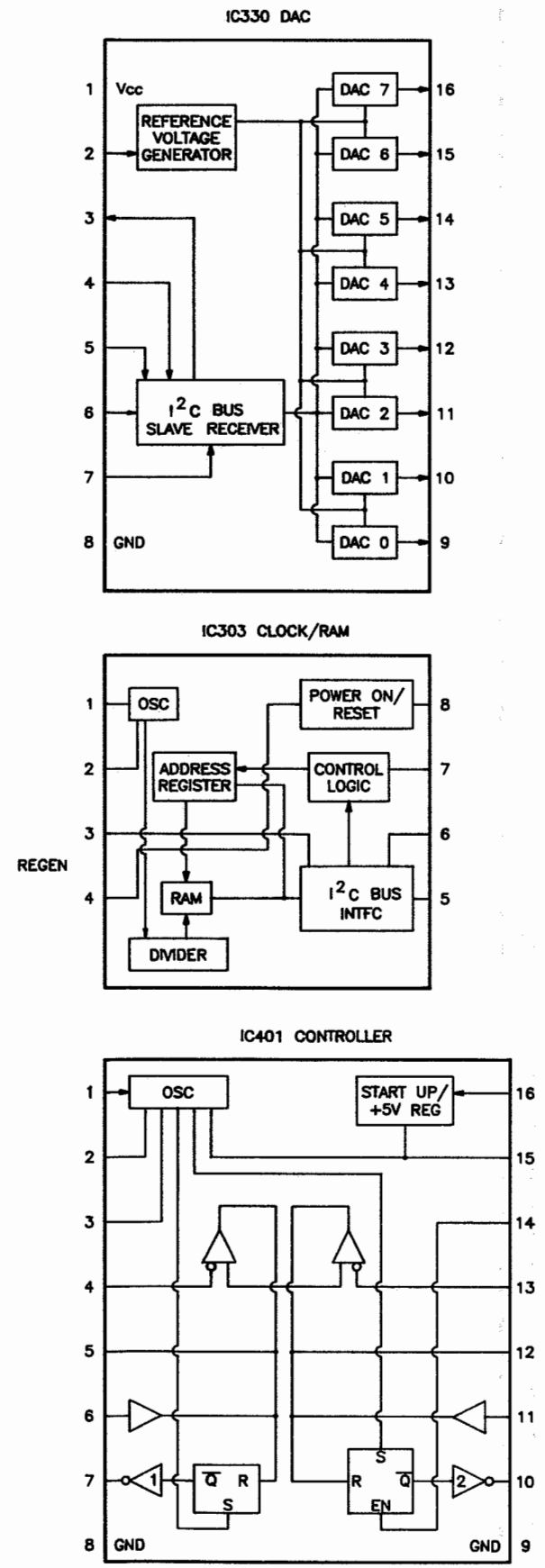
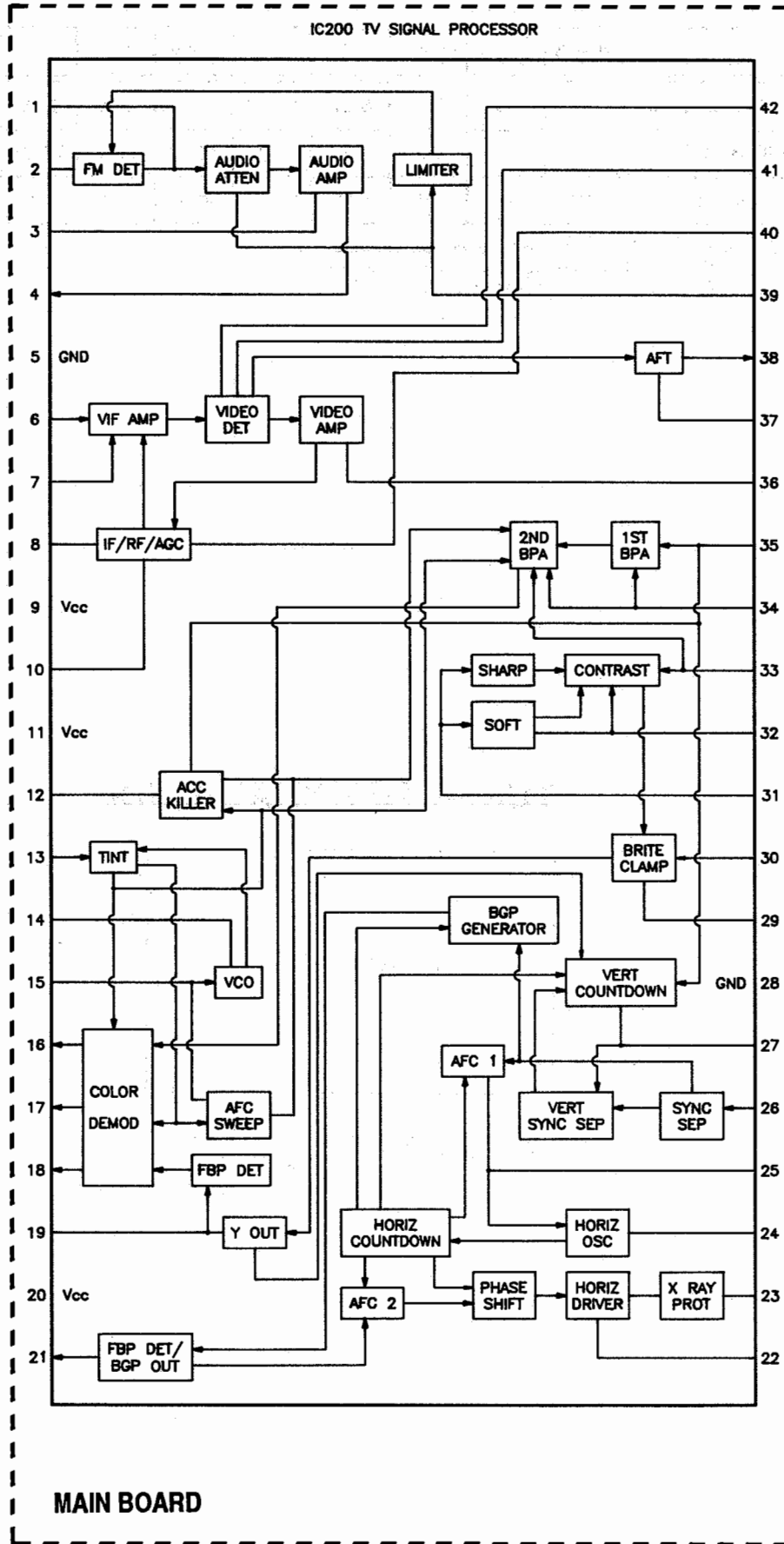
	RFSW3	RFSW2	RFSW1	AGCV	+12V	+30V	+5V	TP	SDA	SCL
VHF Low Band	.1V	.1V	0V	8.2V	12.0V	30.0V	5.0V	2.4V	4.7V	4.7V
VHF High Band	.1V	.1V	0V	8.2V	12.0V	30.0V	5.0V	10.2V	4.7V	4.7V
UHF Band	.1V	.1V	0V	8.2V	12.0V	30.0V	5.0V	5.7V	4.7V	4.7V

NOTE: VHF Low Band voltages taken on channel 2.
VHF High Band voltages taken on channel 7.
UHF Band voltages taken on channel 14.

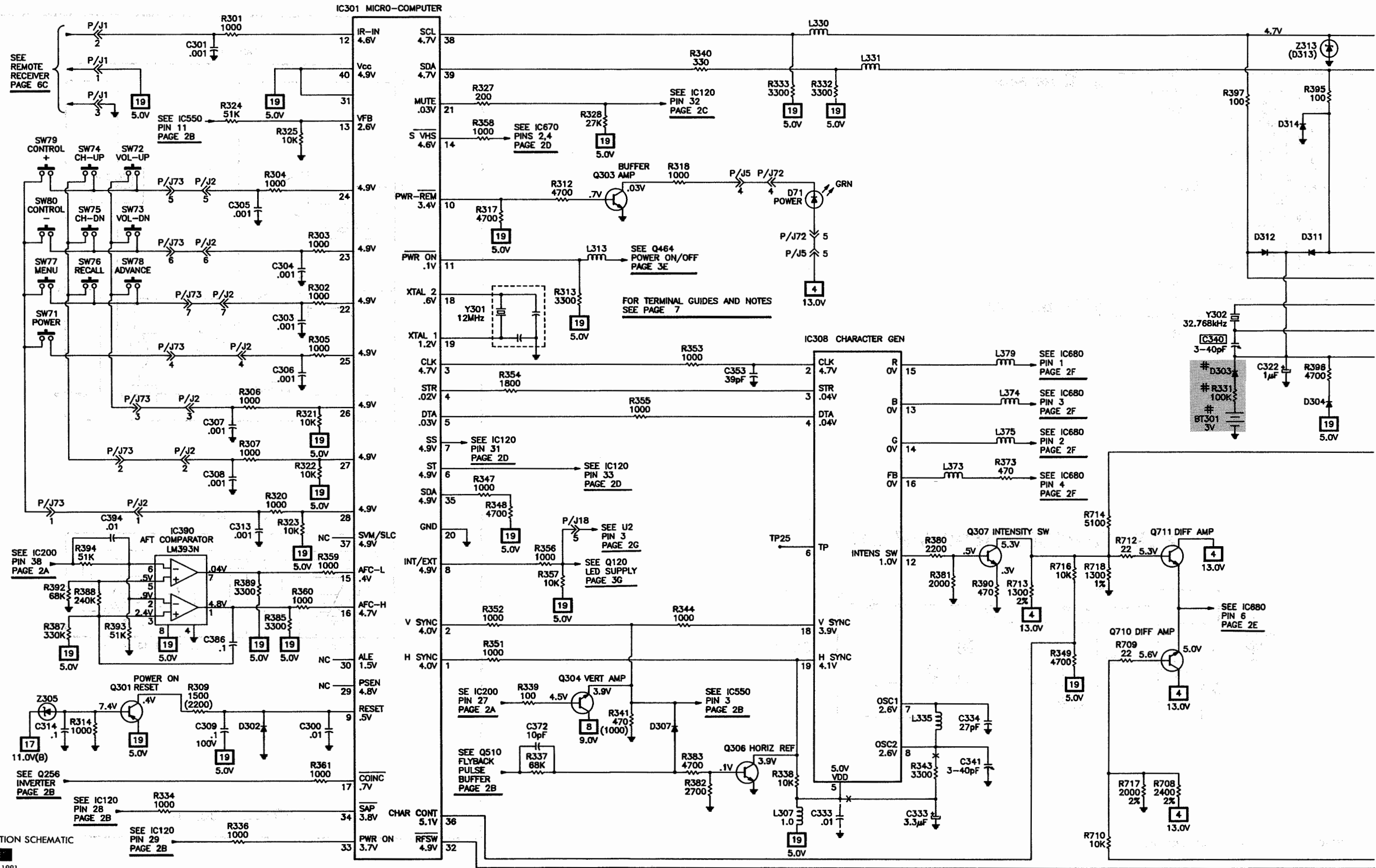
TUNER TERMINAL GUIDE



IC FUNCTIONS continued



TUNER CONTROL SCHEMATIC

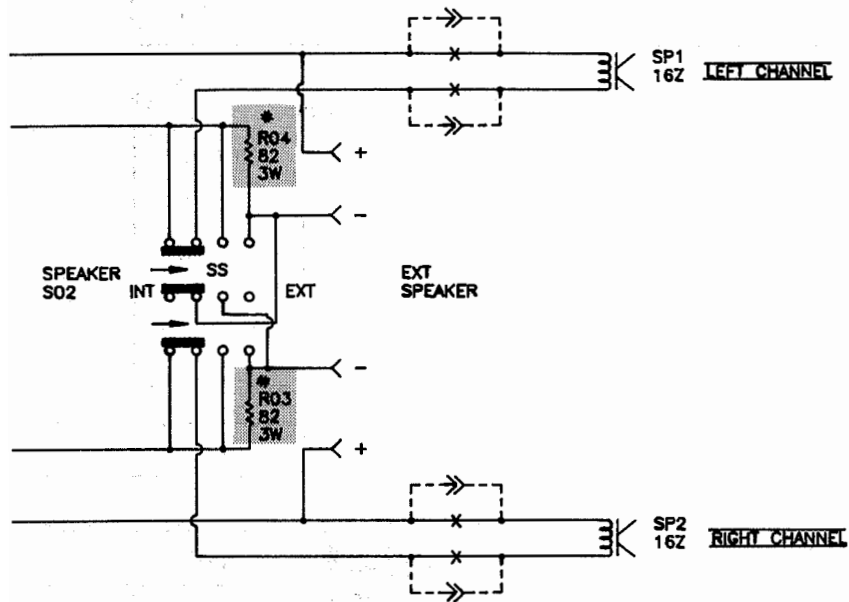


A PHOTOFAC STANDARD NOTATION SCHEMATIC

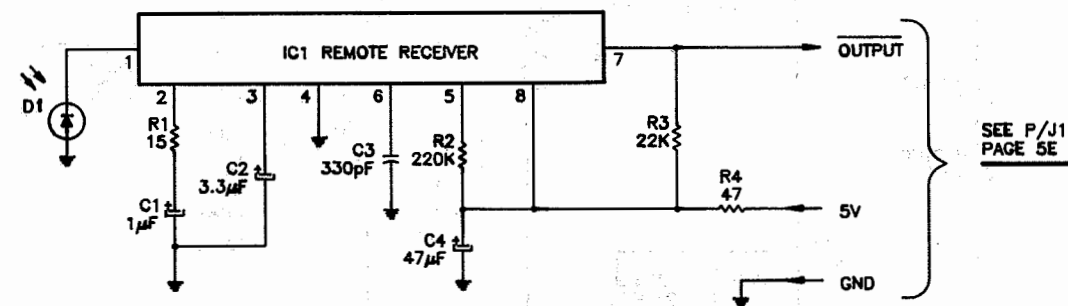
WITH **CIRCUITRACE™**

© Howard W. Sams & Co. 1991

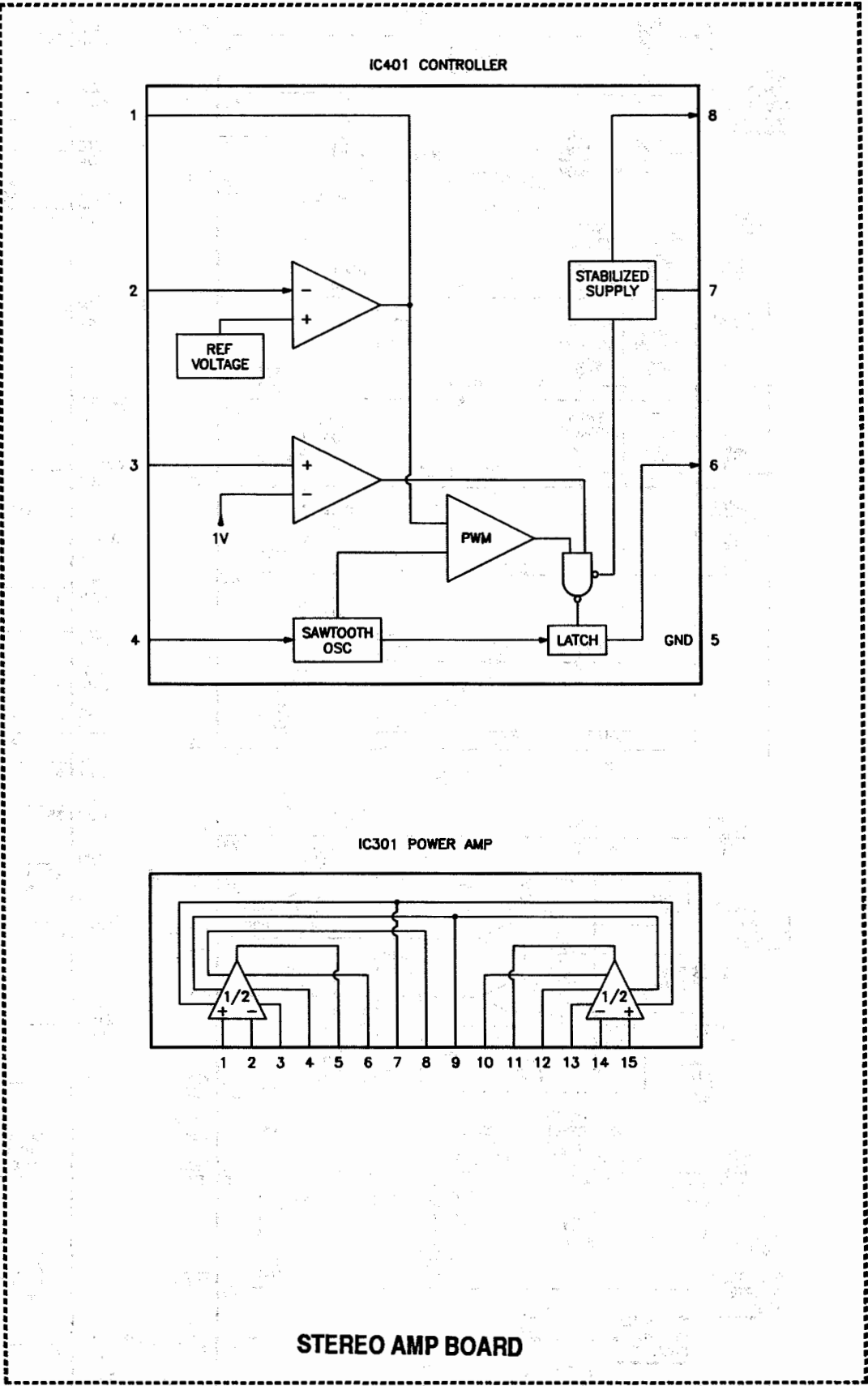
C
STEREO AMP SCHEMATIC continued



REMOTE RECEIVER SCHEMATIC

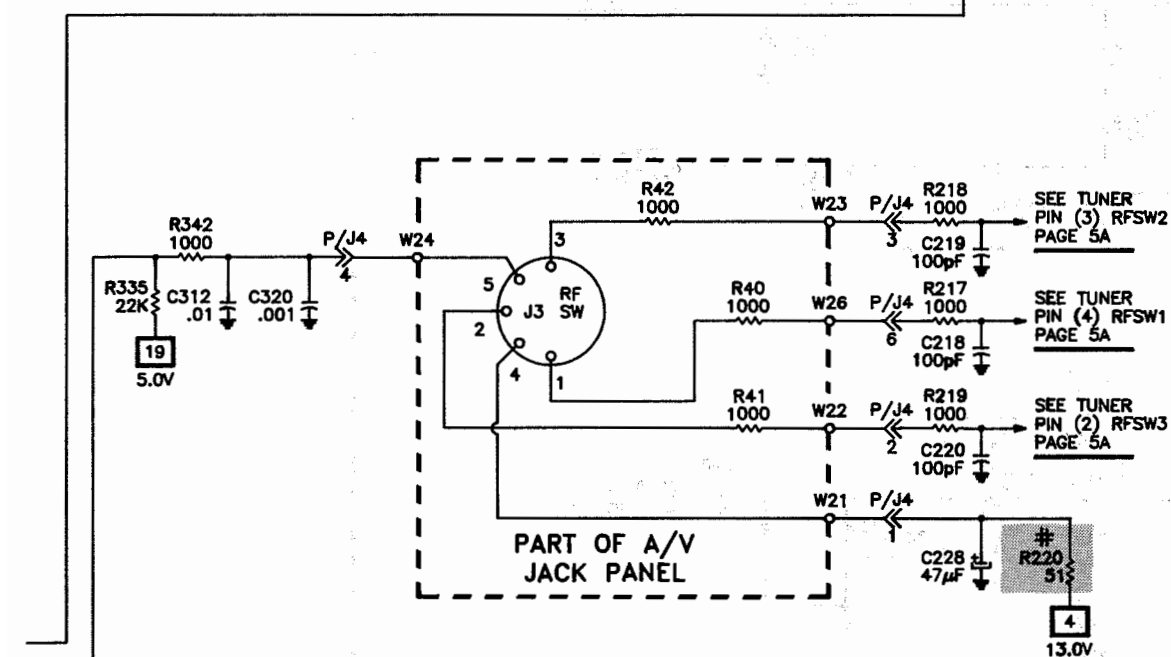
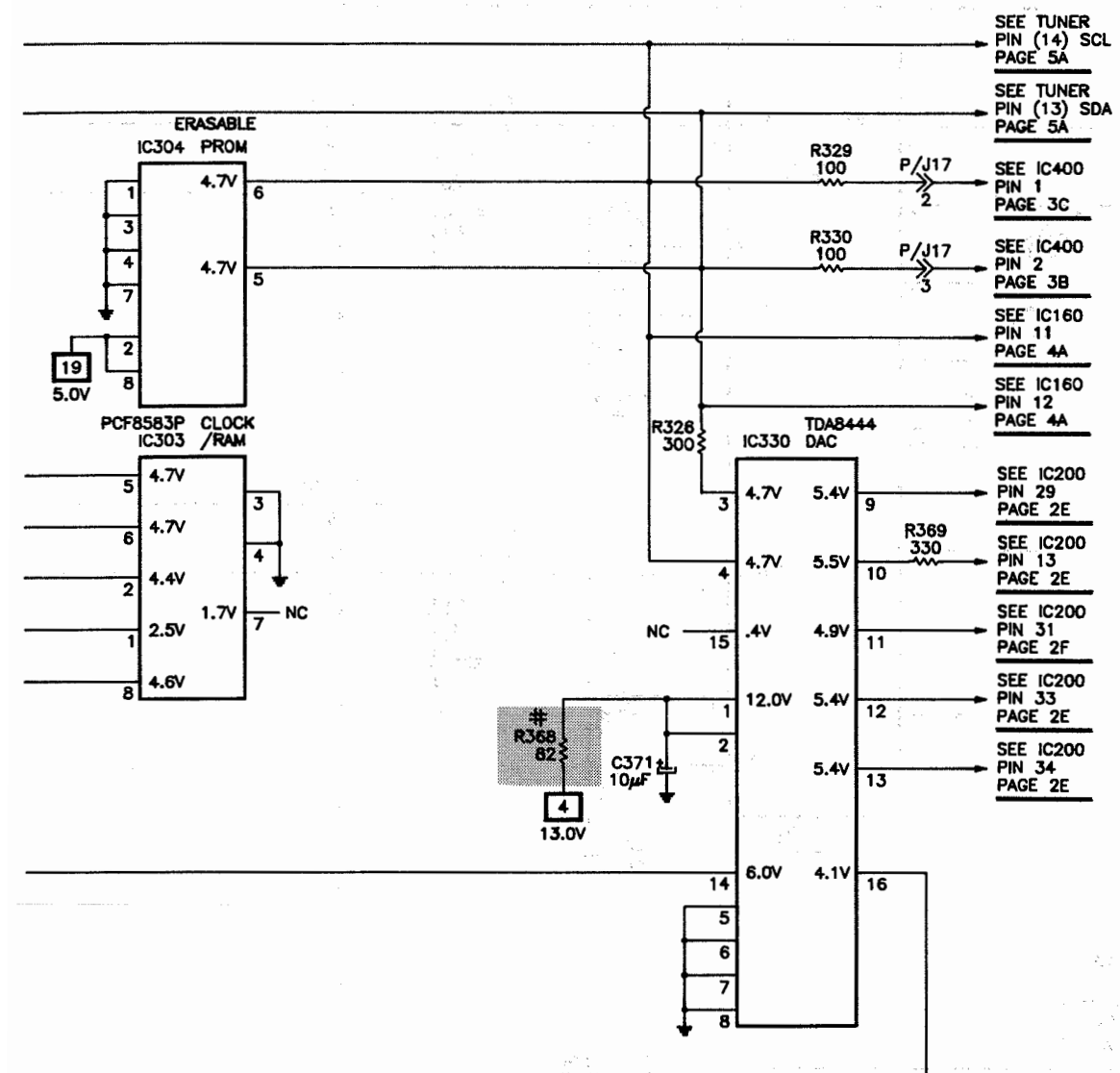


D
IC FUNCTIONS

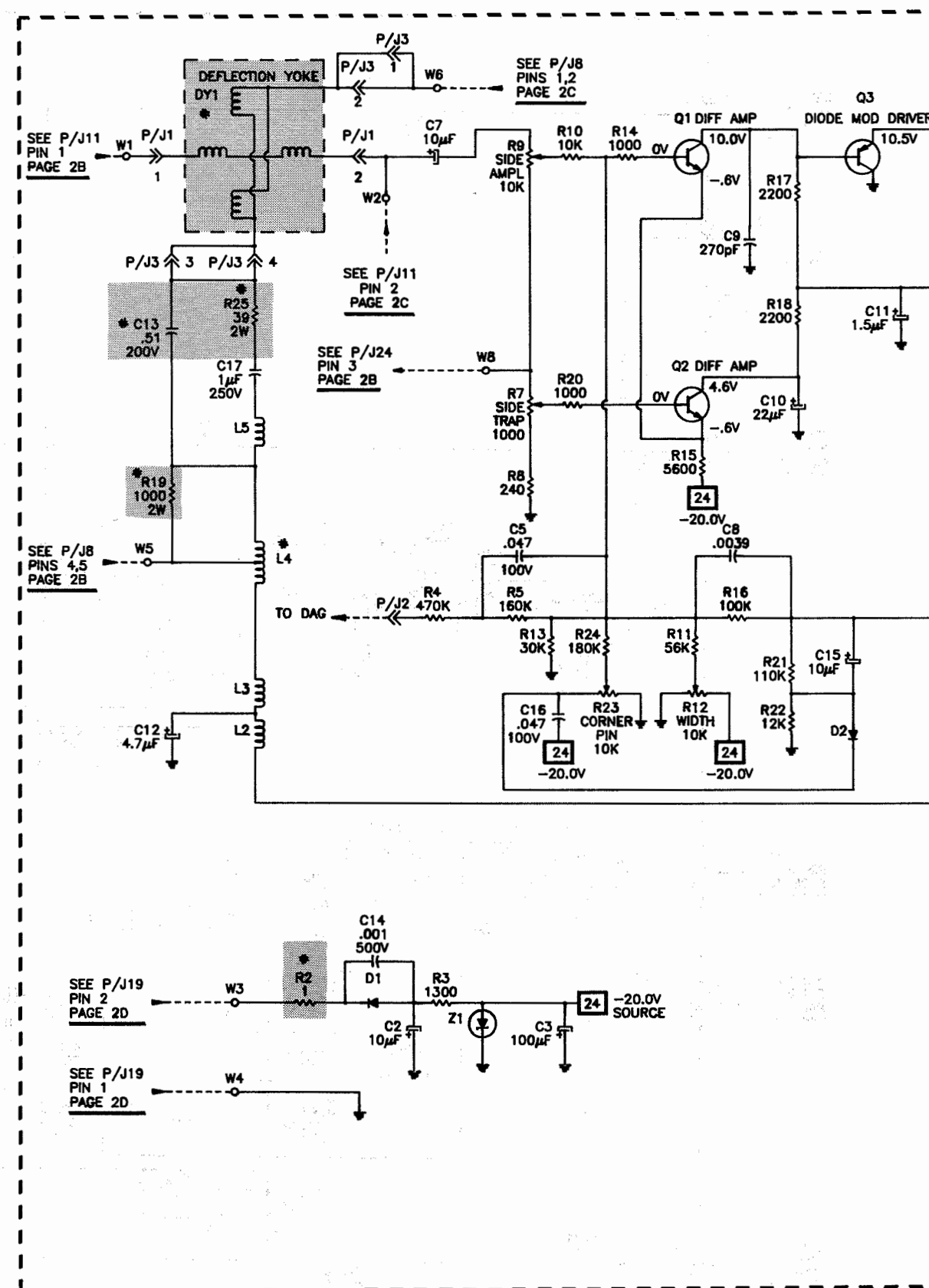


C

TUNER CONTROL SCHEMATIC continued



D PNCUSHION SCHEMATIC

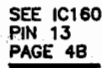


A PHOTOFACT STANDARD NOTATION SCHEMATIC

A

STEREO AMP SCHEMATIC

E



SEE P/J20
PIN 4
PAGE 4B

SEE IC160
PIN 9
PAGE 4B

SEE IC401
PIN 5
PAGE 3E

SEE P/J6
PIN 3
PAGE 3E

SEE
D403,
D405
PAGE 35

A PHOTOFACIT STANDARD NOTATION SCHEMATIC

MISCELLANEOUS ADJUSTMENTS

PRETUNING

Note: Remote Transmitter is used to perform Pretuning operations.

Timer

1. Press TV button.
2. Press Menu button.
3. Press ADV button to select hours or minutes.
4. Press Minus (-) or Plus (+) button to set proper hours and minutes.
5. Press Status Exit button to clear screen.

Sleep Timer

1. Press TV button, Sleep button.
2. Use sleep button to select sleep timer interval.
3. Press Status Exit button to clear screen.

NOTE: To select channel higher than 69 press Menu button and Three button. Use Plus (+) or Minus (-) buttons to select cable.

Program Channels

1. Connect antenna or CATV.
2. Press TV button.
3. Press Menu button, Three and Two buttons.
4. Use ADV to select "Select Channels".
5. Use Channel Up, Channel Down or number buttons to select channel.
6. Press Plus (+) or Minus (-) buttons to add channel to memory.
7. Repeat steps 5 and 6 to add additional channels to memory. Press Status Exit to clear screen.

Auto Program Channels

1. Perform steps 1-3 of Program Channels.
2. Use ADV button to select "Auto Program Channels".
3. Press Plus (+) button to program all active channels.
4. Press Status Exit button to clear screen.

Parental Control Code

1. Press Menu, Four and Plus (+) buttons.
2. Press Zero, Seven, One and One buttons.
3. Repeat step 2 and then use number buttons to enter new four digit code.
4. Press Status Exit button to clear screen.

NOTE: This chassis employs digital customer controls. Unless otherwise noted all controls were set for normal operation with the PIP Off. Some functions are accessible through the Remote Transmitter only.

B+ ADJUSTMENT

Tune in a picture. Adjust brightness to MINIMUM. Connect a digital DC Voltmeter to TP4, low side to ground. With AC line voltage set to 120VAC, adjust 130V Control (R462) for 130VDC.

HIGH VOLTAGE CHECK

Tune in a picture. Set Picture, Brightness and Color to MINIMUM. Connect a high voltage probe to CRT Anode. High Voltage should read 27.5KV to 29.0KV.

RF AGC ADJUSTMENT

Tune in a picture. Adjust RF AGC Control (R235) counterclockwise until snow appears in picture, then clockwise until snow disappears.

COMB FILTER ADJUSTMENT

Tune in a color bar pattern. Connect an Oscilloscope to TP610, low side to ground. Adjust Comb Amp Null (R604) and Chroma Phase Coil (L603) for MINIMUM chroma component in waveform.

VERTICAL CENTER HEIGHT ADJUSTMENT

Tune in a picture. Adjust Vertical Size Control (R567) to reduce size of raster until top and bottom edge are visible. Adjust Vertical Centering Switch (S550) to provide best vertical centering. Readjust R567 to provide slight overscan without stretching picture.

HORIZONTAL CENTERING ADJUSTMENT

Tune in a crosshatch pattern. Adjust Horizontal Centering Control (R271) for best horizontal centering of picture.

CLOCK OSCILLATOR ADJUSTMENT

NOTE: Adjustment is not recommended. If it is necessary proceed as follows: Connect a 3VDC Bias to a 10K ohm resistor. Connect resistor to pin 7 of Clock/RAM IC303. Connect a Frequency Counter through a low cap probe to pin 7 of IC303. Adjust Clock Oscillator Trimmer (C340) for 1 second +/- 4 microseconds.

MISCELLANEOUS ADJUSTMENTS continued

COLOR PURITY ADJUSTMENT

Operate the set for 15 minutes. Use a degaussing coil to demagnetize the CRT and mounting brackets. Select AUX IN on receiver. Set Picture to MINIMUM, Brightness for a viewable raster. Set Blue (R679) and Green (R683) Cutoff Controls fully Clockwise. Set Green (R685) and Blue (R689) Drive Controls fully Counterclockwise. Set Red Cutoff Control (R687) fully Counterclockwise. Advance Red Drive Control (R681) Clockwise to produce a red raster. Loosen the Deflection Yoke clamp screw and slide the Yoke back. Rotate and spread the purity magnet tabs until the red band is centered on the screen. Move the Yoke forward until a uniform red screen is obtained.

GRAY SCALE ADJUSTMENT

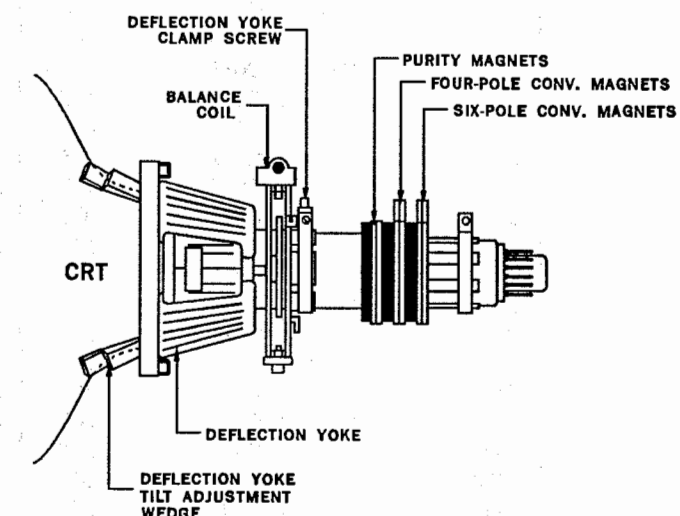
Tune in a picture. Using the Remote Transmitter select PER/Pref 0. Select AUX IN on receiver. Set Color, Sub Brightness (R644) and Screen Control to MINIMUM. Set Red (R687), Green (R683) and Blue (R679) Cutoff Controls, and Green (R685), Blue (R689) and Red (R681) Drive Controls fully Clockwise. Remove power from set and remove Deflection Yoke Plug (P11). Connect a jumper between J-TEST pins 5 and 6. Restore power and adjust Screen Control until a faint line of one color just appears. Remove the jumper and adjust the Sub Brightness Control (R644) until a faint line of one color just appears. Adjust the Cutoff Controls of the remaining two colors to obtain a dim

white line. Remove power from set, and replace Plug P11. Restore power and select antenna input. Tune in a picture. Adjust Drive Controls for best white in highlight areas. Check tracking at low and high brightness. If necessary, retouch Drive Controls at high brightness.

CONVERGENCE ADJUSTMENT

Operate the receiver for fifteen minutes. Tune in a dot pattern. Loosen Deflection Yoke clamp screw. Adjust the four-pole magnet tabs to converge the red and blue dots at the center of the screen. Adjust the six-pole magnet tabs to converge the red/blue dots with the green dots at the center of the screen. NOTE: Rotate the two tabs of each set of magnets equally and opposite to converge vertically and rotate both tabs in the same direction to converge horizontally. Four and six-pole magnets interact, repeat adjustment until center convergence is correct. Tune in a crosshatch pattern. Remove the rubber wedges between the Deflection Yoke and the 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 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 as necessary to obtain best overall convergence. Replace rubber wedges. Tighten Deflection Yoke clamp screw.

CRT NECK ASSEMBLY



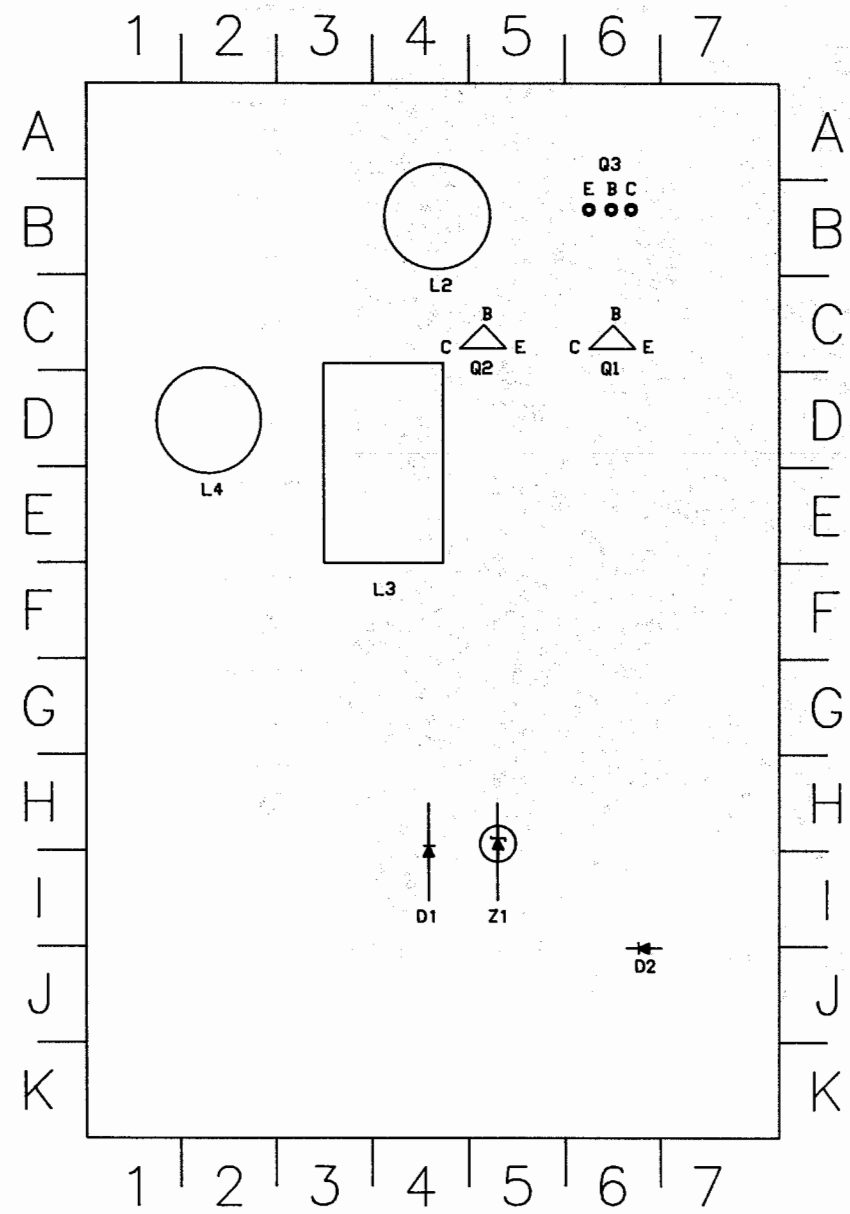
MAIN BOARD - TOP VIEW - GRIDTRACE LOCATION GUIDE

BT301	C-10	C443	G-19	D429	C-16	L307	D-9	R232	G-3	R529	K-15	Y279	G-4
C101	C-2	C445	G-15	D430	B-17	L313	D-12	R234	J-5	R531	I-15	Y301	D-13
C105	B-2	C446	H-13	D458	D-15	L330	B-11	R235	J-4	R552	L-10	Y302	C-9
C107	C-2	C447	F-13	D502	L-15	L331	B-11	R263	J-10	R555	L-4	Y600	G-9
C108	C-2	C449	G-14	D507	K-12	L335	D-10	R265	H-6	R566	K-4	Y601	I-5
C111	C-3	C450	E-14	D513	K-12	L373	E-10	R268	K-9	R567	M-4	Z203	J-5
C113	C-4	C451	H-14	D525	I-15	L374	E-9	R271	M-9	R568	K-4	Z216	H-2
C114	E-2	C452	H-15	D550	K-5	L375	E-9	R302	B-14	R569	K-3	Z305	B-8
C116	D-2	C453	F-13	D630	J-9	L379	E-10	R303	B-13	R570	M-3	Z401	E-17
C120	E-2	C454	F-14	D680	M-6	L400	K-9	R304	B-13	R572	K-9	Z460	D-15
C121	B-3	C455	F-15	D681	M-5	L404	G-17	R305	B-13	R574	L-5	Z461	E-15
C125	D-3	C457	G-13	D699	K-8	L407	G-14	R306	B-13	R602	F-10	Z462	C-14
C129	D-3	C458	G-13	F400	L-20	L410	H-19	R307	B-13	R604	G-10		
C132	E-4	C460	C-15	IC120	D-2	L411	F-15	R312	D-12	R611	H-11		
C134	D-4	C461	B-15	IC160	C-6	L412	G-15	R320	B-13	R614	H-10		
C135	D-4	C462	D-15	IC180	A-5	L413	D-16	R329	D-7	R619	F-4		
C150	D-5	C501	I-11	IC200	I-4	L416	G-12	R330	D-8	R622	J-9		
C156	D-6	C502	I-16	IC260	G-3	L418	G-12	R332	B-11	R639	K-11		
C164	D-6	C503	I-16	IC301	D-11	L419	F-14	R334	B-12	R644	F-5		
C168	C-7	C504	K-12	IC303	B-9	L420	D-17	R336	B-12	R645	K-7		
C181	B-4	C505	K-16	IC304	B-10	L421	G-18	R340	B-11	R654	K-8		
C184	A-7	C506	H-12	IC305	C-8	L422	G-18	R342	B-12	R655	K-8		
C186	A-3	C507	J-12	IC308	D-10	L423	H-14	R347	B-12	R656	K-8		
C188	A-3	C508	L-15	IC330	F-6	L439	C-17	R352	D-11	R662	L-6		
C189	B-6	C509	M-16	IC390	F-2	L440	A-16	R359	D-13	R675	M-8		
C190	A-8	C510	M-14	IC400	E-16	L458	D-15	R360	D-13	R679	M-5		
C191	A-7	C511	M-13	IC401	D-16	L501	J-17	R373	K-10	R681	M-8		
C204	K-6	C521	M-17	IC402	F-16	L504	I-12	R374	L-10	R682	L-7		
C222	I-2	C522	J-16	IC550	L-5	L509	L-16	R375	L-10	R683	M-6		
C226	J-2	C523	M-12	IC670	H-9	L511	K-17	R379	L-10	R685	M-7		
C228	M-2	C527	I-15	IC680	L-8	L601	G-10	R394	G-4	R686	L-7		
C263	I-8	C528	L-11	J1	B-14	L603	G-9	R400	K-18	R687	M-7		
C268	M-10	C551	K-5	J2	B-13	L605	H-10	R401	J-19	R689	M-5		
C273	F-4	C553	L-5	J4	L-2	L607	F-10	R403	G-17	R690	L-7		
C309	D-12	C556	K-4	J5	F-7	L610	H-10	R411	F-16	R708	E-6		
C332	D-8	C558	K-4	J7	J-19	L611	H-10	R416	B-16	R709	E-8		
C340	B-8	C561	K-4	J8	L-16	L618	I-10	R417	F-17	R710	F-5		
C341	D-8	C565	L-3	J9	M-15	L619	G-6	R419	E-17	R713	E-7		
C363	B-8	C567	M-4	J10	M-12	L635	I-8	R420	E-17	R714	F-5		
C364	B-8	C600	G-9	J11	L-4	Q120	F-7	R421	E-17	R717	F-5		
C371	F-6	C611	H-10	J12	L-6	Q270	M-9	R424	G-19	R-TEST	M-2		
C394	G-4	C630	H-5	J13	A-2	Q410	G-18	R426	G-19	S550	M-3		
C400	L-19	C631	G-7	J14	C-6	Q500	I-11	R436	E-16	SA400	M-18		
C401	I-18	C637	L-8	J15	J-12	Q501	K-17	R439	B-17	T401	G-16		
C402	A-15	C645	J-7	J16	G-7	Q600	G-8	R440	B-17	T402	B-15		
C403	J-19	C653	K-7	J17	E-8	Q670	H-8	R441	C-17	T500	I-17		
C405	H-17	C654	J-7	J18	F-8	Q693	L-9	R444	A-16	T501	J-13		
C410	H-20	C655	J-7	J20	B-4	R102	B-3	R455	F-14	TP1	F-6		
C411	F-19	C659	G-8	J21	I-9	R123	D-2	R458	G-13	TP2	G-4		
C415	E-17	C676	I-9	J23	J-6	R126	E-2	R462	E-14	TP3	E-3		
C417	H-19	C677	H-9	J32	B-15	R131	E-3	R505	H-13	TP4	G-12		
C422	F-19	D270	M-9	J TEST	M-6	R132	D-4	R506	I-12	TP122	D-2		
C423	F-17	D305	B-8	K400	I-19	R138	E-7	R507	I-15	TP123	D-2		
C427	D-17	D402	I-20	L201	J-3	R139	E-6	R508	J-17	TP126	E-2		
C428	G-19	D403	I-20	L205	J-4	R187	G-12	R509	J-15	TP134	C-3		
C431	C-16	D404	I-19	L208	H-5	R200	G-2	R511	J-17	TP207	I-4		
C433	D-16	D405	I-19	L209	G-5	R201	F-2	R512	M-15	TP210	I-5		
C436	C-16	D410	G-19	L210	E-8	R203	K-7	R513	M-15	TP610	H-10		
C438	A-16	D414	H-14	L230	H-4	R204	F-2	R514	J-11	Y200	I-3		
C440	A-17	D416	F-14	L233	H-4	R215	J-2	R517	K-11	Y201	I-3		
C441	C-17	D417	F-14	L275	G-4	R216	A-14	R522	M-11	Y209	G-5		
C442	B-17	D418	G-14	L279	G-3	R220	M-2	R523	M-11	Y264	H-5		

PINCUSHION BOARD - GRIDTRACE LOCATION GUIDE

C2	H-3	C14	I-4	L3	D-4	R5	F-5	R15	F-5
C3	J-3	C15	H-7	L4	D-2	R7	G-6	R18	B-5
C5	F-6	C16	H-5	L5	B-3	R8	G-5	R19	D-3
C7	H-6	C17	C-2	Q1	C-6	R9	G-7	R20	F-6
C8	E-6	D1	H-4	Q2	C-5	R10	F-7	R21	I-6
C9	B-6	D2	J-6	Q3	B-6	R11	F-5	R22	J-6
C10	B-5	J1	J-3	R2	H-3	R12	G-5	R23	J-5
C11	C-4	J2	G-3	R3	J-4	R13	D-5	R25	B-2
C12	F-4	J3	F-1	R4	G-4	R14	D-6	Z1	H-5
C13	A-2	L2	B-4						

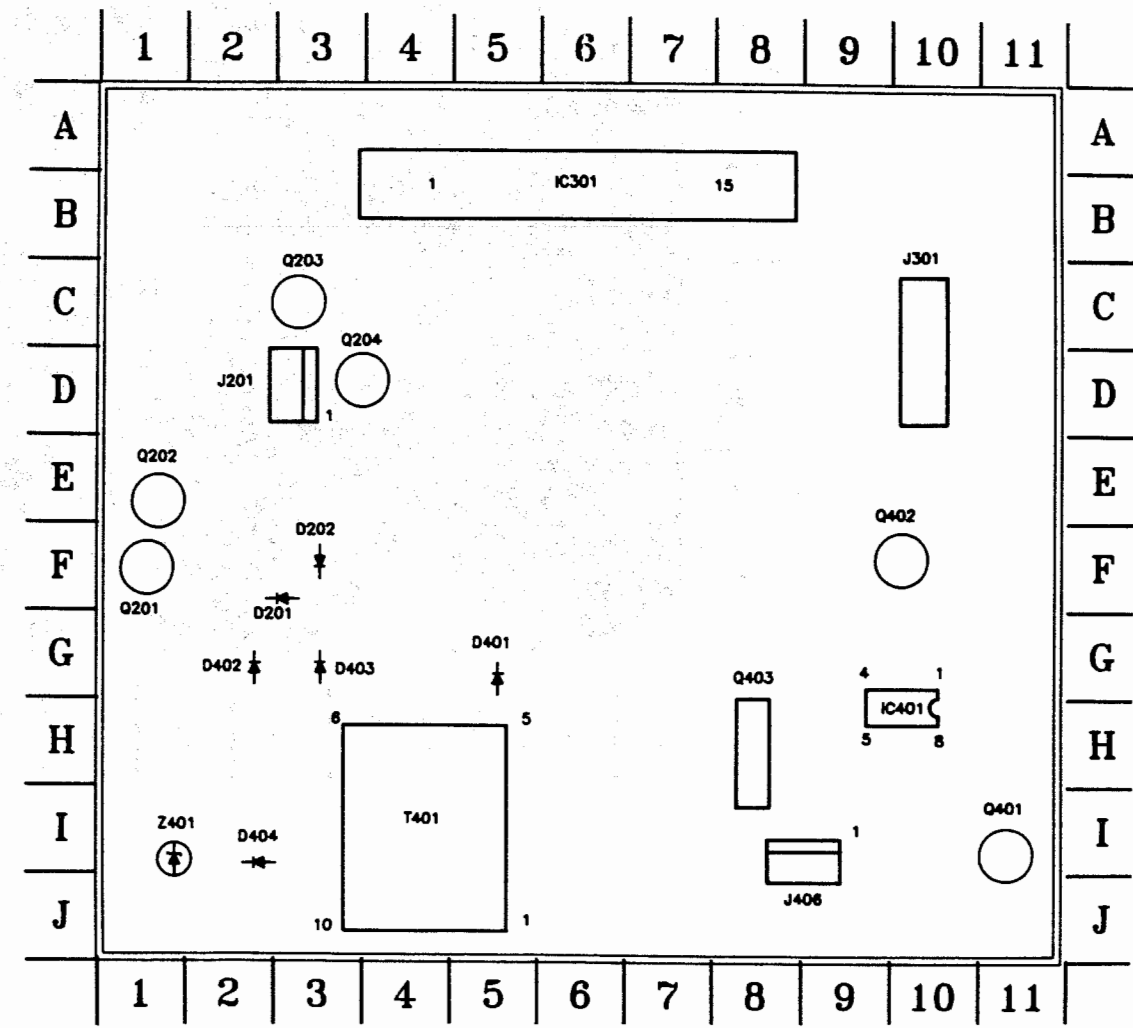
PINCUSHION BOARD



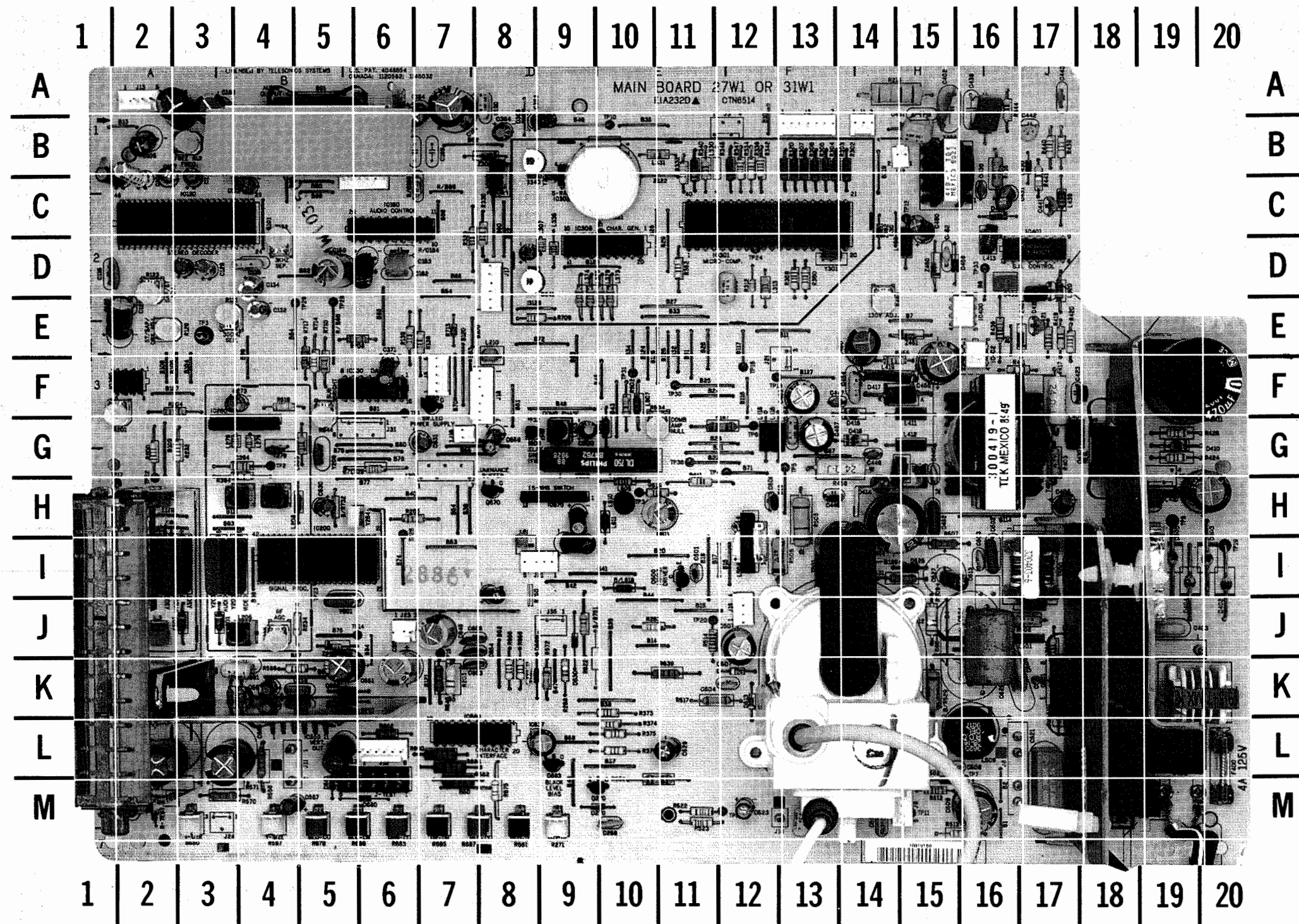
STEREO AMP BOARD - GRIDTRACE LOCATION GUIDE

C201	E-2	C407	G-9	D404	I-2	Q403	H-8	R313	C-11
C202	F-1	C408	G-9	IC301	B-5	R201	B-2	R314	D-9
C301	B-1	C409	G-7	IC401	G-10	R202	D-3	R401	E-7
C302	B-3	C410	H-3	J201	D-3	R203	C-2	R403	I-6
C303	A-1	C411	E-5	J301	C-10	R204	D-3	R404	F-8
C304	B-3	C412	G-4	J406	I-9	R205	E-3	R405	F-8
C305	C-7	C413	I-3	L401	J-7	R206	E-3	R406	F-9
C306	D-6	C414	I-2	L402	J-7	R207	E-3	R407	I-10
C307	C-7	C415	G-1	L403	H-6	R208	E-2	R408	J-11
C308	C-5	C416	H-1	L404	G-7	R209	F-2	R409	F-10
C309	B-10	C417	H-2	L405	H-2	R301	B-2	R410	G-10
C310	D-8	C418	H-9	L406	C-5	R302	D-4	R411	H-8
C311	B-9	C419	H-9	L407	H-9	R303	C-5	R413	I-8
C312	B-4	C420	D-7	L408	C-2	R304	C-4	R414	G-8
C313	B-11	C421	H-8	L409	I-3	R305	C-6	R415	I-7
C314	D-9	C422	E-8	L410	F-7	R306	C-6	R416	G-2
C401	G-5	C423	I-10	Q201	F-1	R307	C-6	R417	G-3
C402	I-7	D201	F-3	Q202	E-1	R309	B-7	R418	G-2
C403	H-5	D202	F-3	Q203	C-3	R310	B-5	R420	I-6
C404	F-6	D401	G-5	Q204	D-4	R311	B-8	T401	I-4
C405	F-10	D402	G-2	Q401	I-11	R312	B-4	Z401	I-2
C406	H-10	D403	G-3	Q402	F-9				

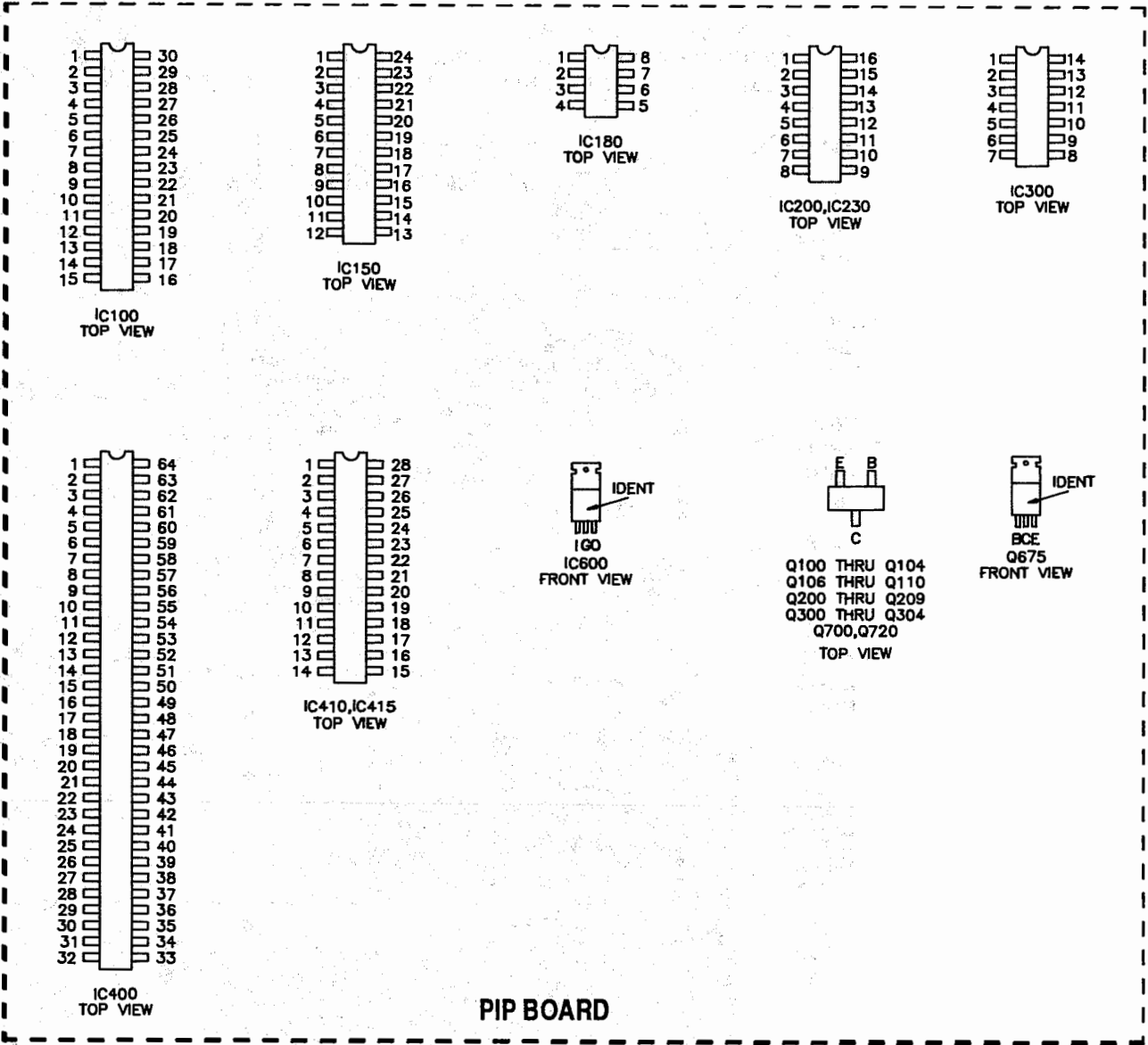
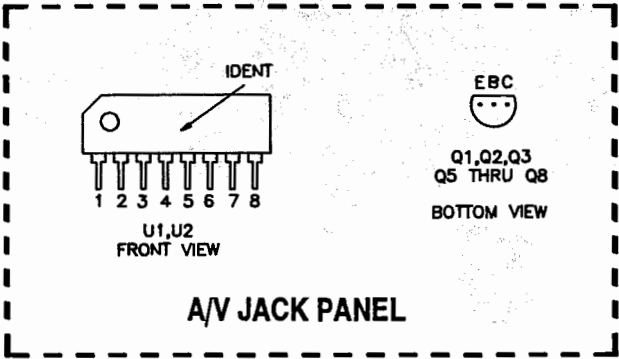
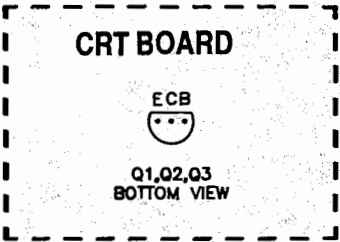
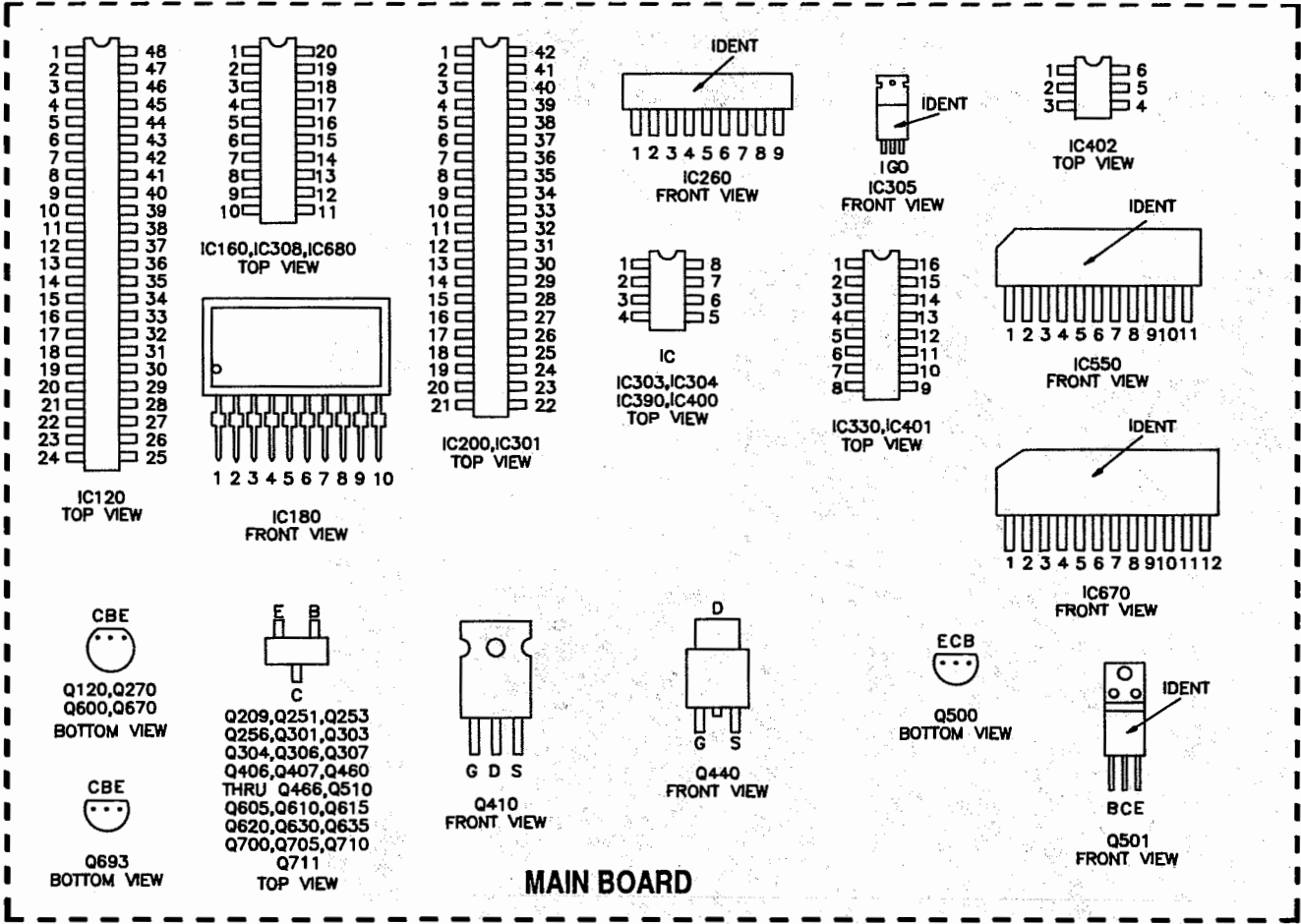
STEREO AMP BOARD



MAIN BOARD - TOP VIEW



TERMINAL GUIDES AND SCHEMATIC NOTES



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

- X- Circuitry not used in some versions
- Circuitry used in some versions
- ⊗ Nominal value
- ⬇ Ground
- ⬆ Chassis
- ⬆ Common tie point

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

Waveforms: triggered scope, keyed rainbow generator. Item numbers in rectangles appear in alignment/ad-justment instructions.

Supply voltage 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% or greater unless noted.

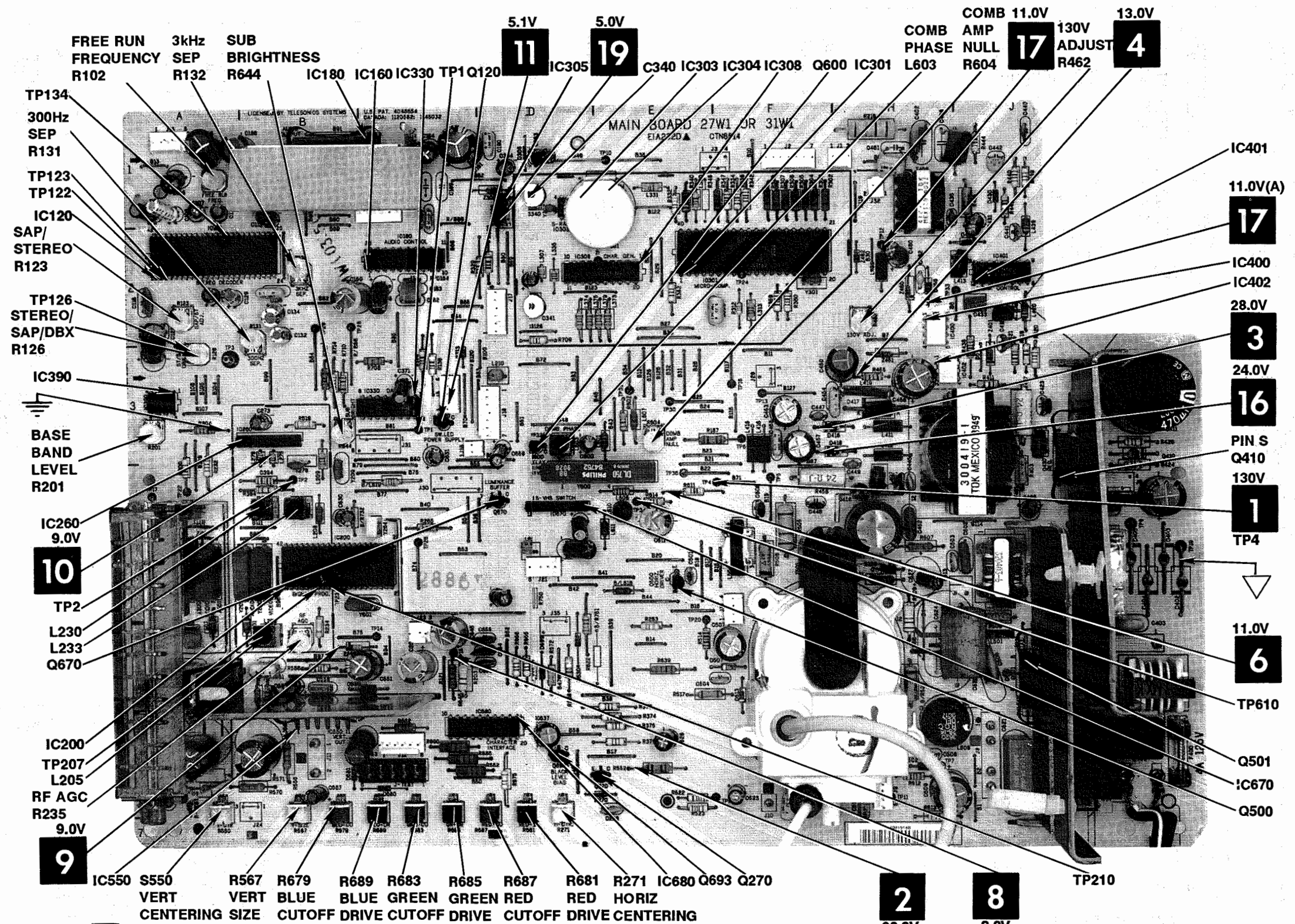
Electrolytic capacitors are 50 volts or less, 20% or greater unless noted.

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

Value in () used in some versions.

Measurements with switching as shown, unless noted.

MAIN BOARD - TOP VIEW



COMMON TIE POINT
NOTE: ARROWS ON IC'S INDICATE PIN 1 UNLESS NOTED
NOTE: ARROWS ON TRANSISTORS INDICATE BASE UNLESS NOTED

SERVICE INFORMATION

TS-33 TEST MODES

This set uses the TS-33 Tuning System that provides Test Modes to adjust many functions of the TV set. Test Mode A can be entered directly by shorting pins 24 and 25 of Microprocessor IC (IC301) together. Test Mode B can be entered by turning the set On and pressing the following buttons on the remote transmitter in this sequence: Channel Up, Volume Up, Channel Down, Volume Down, 9, 8, and 7. Test Modes can be changed by pressing the Plus (+) or Minus (-) buttons on the remote transmitter. Pressing the Power button on the set will exit the Test Mode and reprogram IC301 with the changes that were made.

Test Mode A provides the full range of register value adjustment with sixty-four steps. Register values are displayed in hexadecimal format from 00 to FF. This mode is used to adjust the factory preset values. If a Main Board has been changed, check the value of Register 14. When entering this mode the set will attempt to read the current values stored in the Clock/RAM IC (IC303). If a failure of IC303 has occurred, the set will use the following default values when entering Test Mode A.

REGISTER NUMBER	REGISTER FUNCTION	REGISTER VALUE
00	Brightness	1F
01	Picture	1F
02	Color	1F
03	Tint	1F
04	Sharpness	1F
05	Clearview	00
06	Not Used	1F
07	Bass	1F
08	Treble	1F
09	Balance	1F
10	Red Horizontal	1F
11	Red Vertical	1F
12	Blue Horizontal	1F
13	Blue Vertical	1F
14	Feature	**
15	Status 0	00
16	Status 1	0C
17	Status 2	81
18	Status 3	00
19	PIP Color	1F
20	PIP Tint	1F
21	PIP Clamp	0E
22	Main Clamp	13
23	Foreground Ch. RGB	00
24	Background Ch. RGB	07
25	Foreground Ch. Int	25
26	Background Ch. Int	18

** 01 if Main Board (00EMW102) is used in set.
** 03 if Main Board (00EMW103/05) is used in set.
** 00 if Main Board (00EMW123/24/25/26) is used in set.

Test Mode B provides register value adjustment with three steps: Minimum, Midpoint and Maximum.

Test Mode C provides for Gray Scale adjustment at the factory.

Test Mode D provides a white box for Purity adjustment of CRT warm up.

Test Mode E provides a crosshatch pattern for Linearity, Overscan, Pincushion and Convergence adjustments.

When in a Test Mode, all On Screen displays are suppressed and replaced with a special Test Mode display at bottom of screen. This display contains four sets of characters. The first set of characters at the left indicates the current channel number. The second set indicates the current Test Mode. The third set indicates the register number. The fourth set indicates the register value. To make adjustments while in Test Mode A, press the ADV button on the remote transmitter to highlight in yellow the third and fourth set of characters. Press the correct digit buttons for the desired function, then press the Plus (+) or Minus (-) buttons to change the register value.

Pressing the Status button on the remote transmitter while in any test mode will activate the Tuning System Identification display at the top of the screen. TS33 displayed, at the left, indicates the Tuning System type. The first letter next to TS33 indicates the ROM code release. The second letter indicates the product type: A = Direct View and B = Projection TV. The letters under TS33 indicate subsystems that may exist but did not respond to Microcomputer commands when the Test Mode was first activated. This information may be helpful while troubleshooting and is shown in the following chart.

A	PIP Gate Array	Pins 2 and 3 of J17
B	Erasable Prom	IC304
C	U/V Tuner Control	IC201 in U/V Tuner
D	Clock/RAM	IC303
E	Stereo/Audio Control	IC160
F	Chassis Control	IC330
G	PTV Convergence DAC	PTV SDA J3
H	PTV Jack Panel DAC	PTV SDA J3
I	RF Switch	Pin 4 of J4
J	Dolby Volume Control	PTV SDA J3
K	Dolby Mode Control	PTV SDA J3

The four characters at the upper right indicate the total hours of the On-Time, in hexadecimal format, of the TV set. Pressing the Plus (+) button on the remote transmitter will reset the Run-Timer to zero.

If the set is in a Test Mode and power is removed, the set will return to that Test Mode when power is restored. If a Test Mode command is given while the set is currently operating in any Test Mode, the command will be ignored.

STEREO/SAP ADJUSTMENTS

NOTE: The following adjustments were made using a B&K Model 2009 MTS TV/STEREO Generator, equivalent generator may be used. Set the receiver to Stereo Mode for all adjustments except where otherwise indicated.

BASE BAND ADJUSTMENT

Connect Generator to antenna terminals. Select PILOT, 1kHz Audio Frequency and L-R Modulating Signal. Connect an Oscilloscope to TP122, low side to ground. Adjust Base Band Level Control (R201) for 700mV p-p.

SAP STEREO ADJUSTMENT

Connect Generator to Antenna terminals. Select SAP, 1kHz Audio Frequency and L-R Modulating Signal. Connect an Oscilloscope to TP123, low side to ground. Adjust SAP/Stereo Control (R123) for Maximum.

FREE RUN FREQUENCY ADJUSTMENT

Connect Generator to Antenna terminals. Select PILOT, 1kHz Audio Frequency and L-R Modulating Signal. Set Free

Run Frequency Control (R102) fully Clockwise. Adjust Free Run Frequency Control Counterclockwise until Stereo indicator lights.

SAP/STEREO/DBX ADJUSTMENT

Connect Generator to Antenna terminals. Select PILOT, 1kHz Audio Frequency and L+R Modulating Signal. Connect a digital DC Voltmeter to TP126, low side to ground. Adjust Stereo/SAP/DBX Control (R126) for 360mVDC.

SEPARATION ADJUSTMENT

Connect Generator to Antenna terminals. Select PILOT, 300Hz Audio Frequency and Left Modulating Signal. Connect an Oscilloscope to TP134, low side to ground. Adjust 300Hz Separation Control (R131) for MINIMUM, change Audio Frequency to 8kHz. Adjust 3kHz Separation Control (R132) for MINIMUM. Repeat until no further decrease can be obtained.

PIP ADJUSTMENTS

NOTE: Adjustments made with color bar pattern applied to Main and PIP picture.

14.318MHZ OSC ADJUSTMENT

Disconnect Connector P/J1005. Attach a jumper from pin 2 of IC300 to ground. Connect a frequency counter to pin 34 of IC400. Adjust 14.318MHz Frequency Coil (L334) for 14.318MHz. Remove jumper from pin 2 of IC300 and reconnect P/J1005.

SYMMETRY ADJUSTMENT

Disconnect connector P/J1005. Attach a jumper from pin 2 of IC300 to Ground. Connect an Oscilloscope to pin 34 of IC400, low side to ground. Adjust Symmetry Control (R336) for a 50% duty cycle. Remove jumper from pin 2 of IC300 and reconnect P/J1005.

Y GAIN ADJUSTMENT

Connect Oscilloscope to pin 8 of IC150, low side to ground. Adjust Y Gain Control (R104) for .95V p-p.

CLAMP OFFSET ADJUSTMENT

Connect Oscilloscope to pin 7 of IC150, low side to ground. Adjust Clamp Offset Control (R159) to center chroma signal on signal baseline.

WHITE LEVEL ADJUSTMENT

Connect Oscilloscope to pin 1 of Connector P/J1001, low side to ground. Adjust White Level Control (R221) to balance PIP White Level and Main White Level.

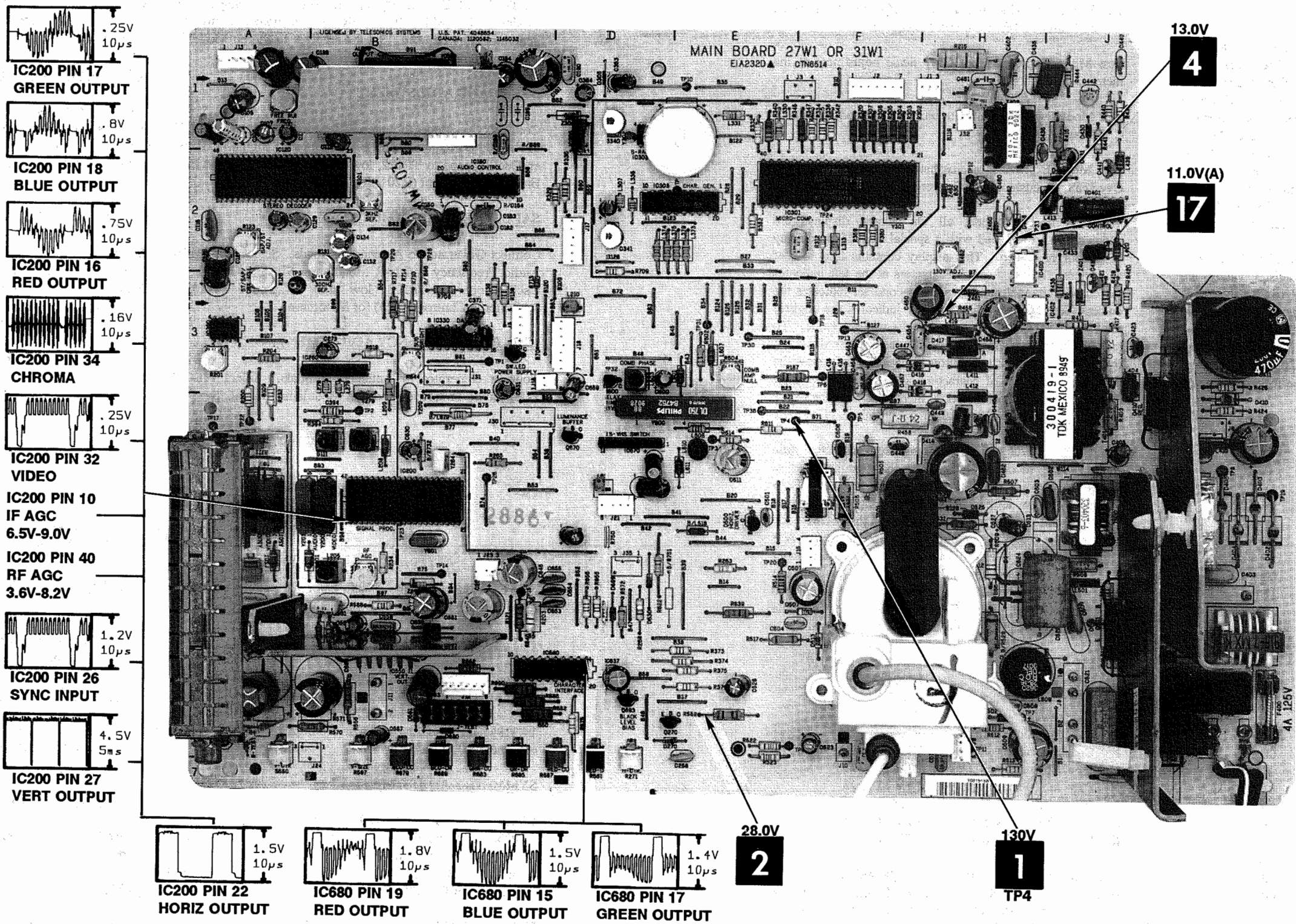
PHASE FINE ADJUSTMENT

Adjust Phase Fine Control (R318) for correct Tint in PIP window.

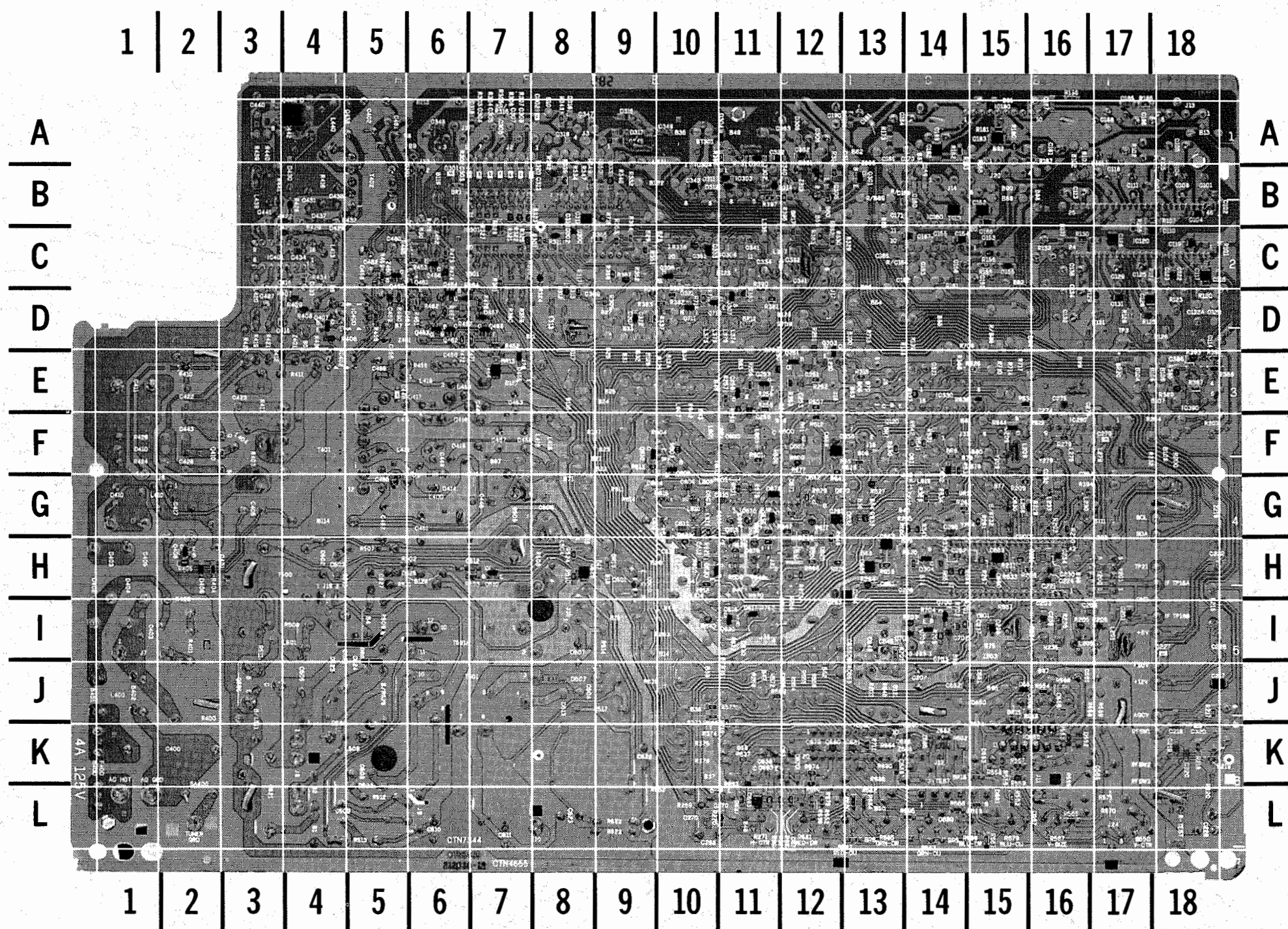
BURST GAIN ADJUSTMENT

Connect a digital voltmeter to Emitter of Q720. Adjust Burst Gain Control (R712) for 6.0V.

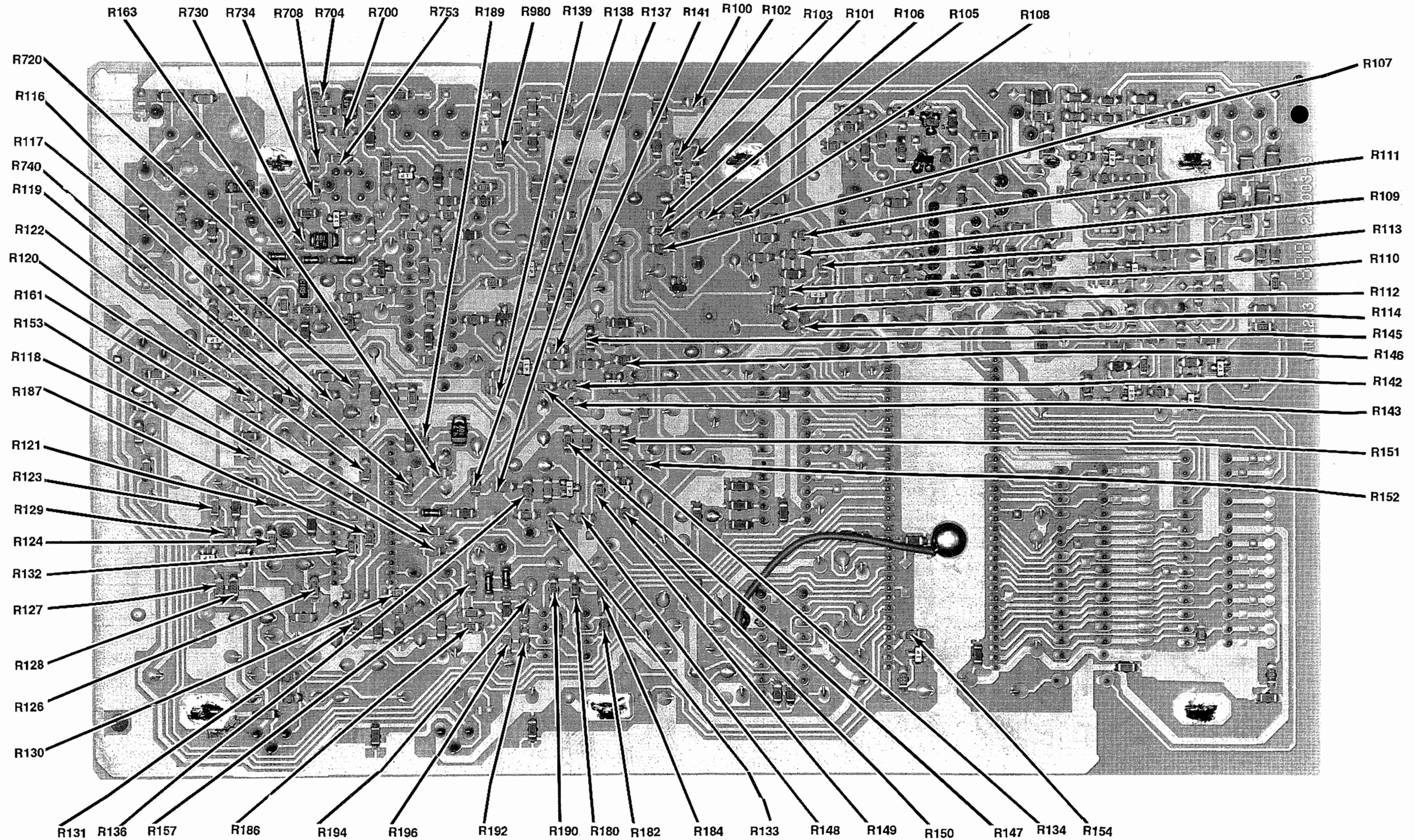
MAIN BOARD - TOP VIEW



MAIN BOARD - BOTTOM VIEW



PIP MODULE - BOTTOM VIEW



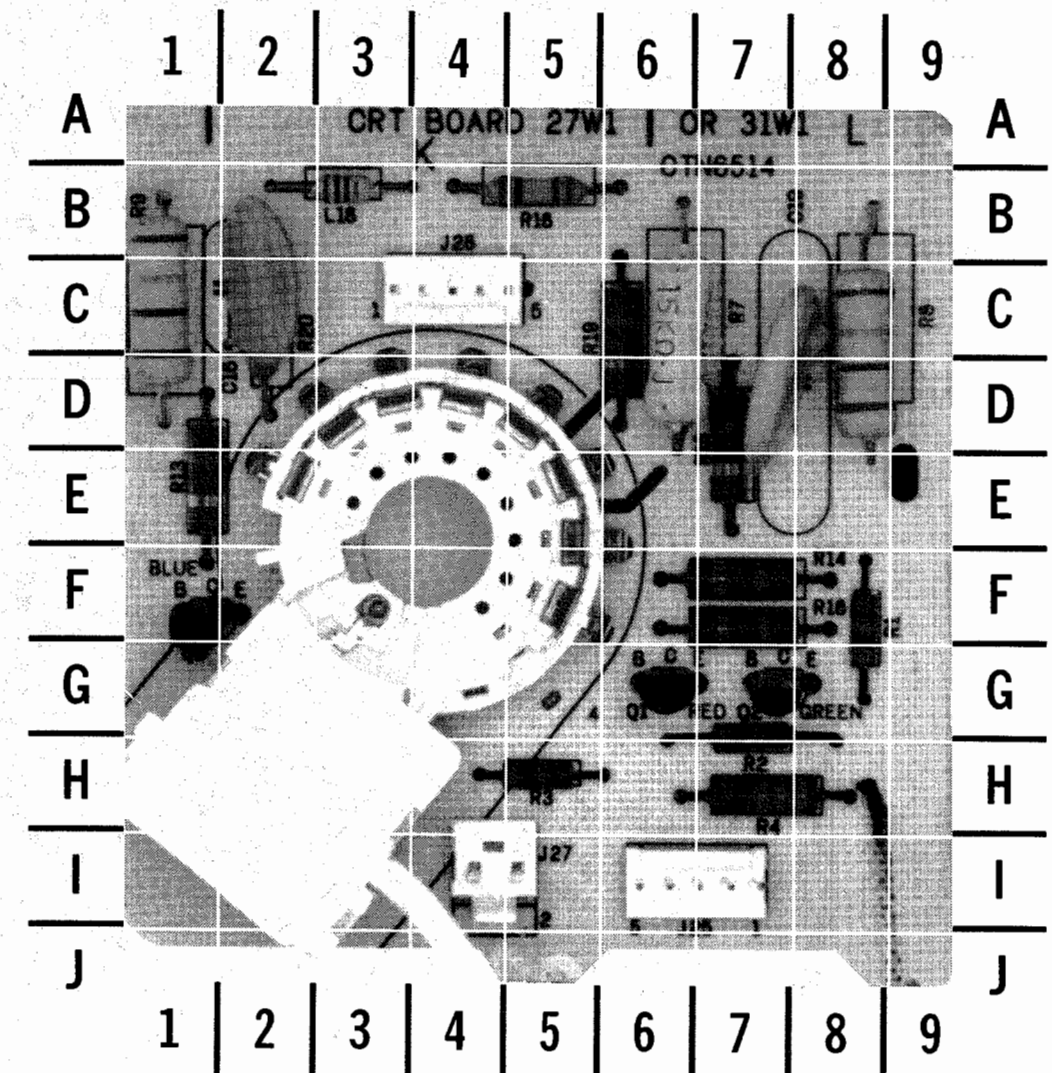
MAIN BOARD - BOTTOM VIEW - GRIDTRACE LOCATION GUIDE

C102	B-18	C307	B-7	C679	K-12	R122	C-18	R338	C-10	R476	D-7	R660	K-12
C104	B-18	C308	B-7	C680	K-12	R125	D-17	R339	H-14	R502	H-6	R661	H-12
C110	C-17	C310	B-8	C681	K-13	R128	D-17	R341	G-14	R503	H-7	R663	G-11
C117	C-18	C311	B-8	C682	K-14	R129	D-17	R434	C-12	R510	H-8	R666	J-10
C118	A-17	C312	B-8	C686	K-14	R130	C-16	R344	D-9	R524	H-8	R667	L-15
C119	C-18	C313	B-7	C688	L-13	R137	E-14	R348	A-8	R553	K-16	R668	H-12
C122	C-18	C314	B-12	C690	K-13	R155	C-15	R349	B-8	R554	J-16	R669	G-12
C123	C-18	C320	K-18	C693	L-11	R156	C-15	R351	C-9	R556	K-15	R670	H-11
C126	D-17	C322	A-11	C701	I-14	R166	B-15	R353	C-9	R557	K-15	R671	G-11
C128	C-17	C333	C-10	C702	I-14	R167	A-15	R354	C-9	R559	K-15	R673	H-12
C131	D-17	C334	C-11	C703	I-14	R180	A-15	R355	C-9	R563	L-15	R674	K-12
C151	B-14	C342	B-10	D155	C-15	R181	A-15	R356	C-9	R561	K-15	R676	G-11
C152	B-15	C348	A-6	D302	C-8	R182	A-14	R357	C-9	R565	L-16	R677	G-12
C153	C-15	C349	A-10	D303	A-11	R183	A-15	R358	C-7	R573	J-10	R678	H-11
C154	C-14	C353	C-10	D304	A-11	R185	A-17	R361	C-7	R600	F-12	R680	L-13
C155	C-14	C361	B-12	D307	D-9	R186	A-16	R362	C-12	R601	F-11	R684	L-13
C159	B-14	C362	A-12	D311	B-11	R202	G-16	R363	C-12	R603	F-10	R688	L-14
C160	B-14	C372	D-9	D312	B-11	R205	I-16	R368	E-14	R605	F-11	R692	L-12
C165	C-13	C386	E-18	D314	B-11	R208	H-15	R369	G-14	R606	F-11	R693	K-11
C166	B-15	C416	C-4	D406	H-2	R209	G-15	R380	D-11	R607	E-12	R694	L-11
C167	C-14	C429	C-4	D455	E-7	R217	J-18	R381	D-11	R608	H-10	R695	L-14
C171	B-14	C434	C-4	D456	D-6	R218	K-18	R382	D-10	R609	H-11	R696	L-12
C182	A-14	C437	B-4	D457	D-7	R219	K-18	R383	D-10	R610	H-10	R697	L-11
C183	A-15	C448	E-5	D551	J-15	R229	G-15	R385	E-18	R612	F-12	R698	L-15
C185	A-17	C456	E-5	D617	I-11	R230	G-16	R387	E-18	R613	F-9	R699	J-11
C187	A-16	C459	D-5	D632	F-14	R231	H-15	R388	E-18	R615	G-10	R701	I-14
C201	I-17	C463	D-6	Q209	F-15	R236	I-16	R389	E-18	R616	G-11	R702	I-14
C203	I-15	C464	E-7	Q251	E-12	R251	D-12	R390	D-11	R617	G-12	R703	I-14
C205	I-17	C465	D-6	Q253	E-11	R252	E-12	R391	B-6	R618	H-10	R704	I-14
C206	I-16	C512	H-7	Q256	E-11	R253	E-12	R392	E-18	R620	H-14	R705	I-14
C217	J-18	C525	H-8	Q301	B-13	R254	E-11	R393	E-18	R621	G-10	R707	I-13
C218	K-18	C552	J-14	Q303	E-12	R255	E-11	R395	B-12	R623	H-10	R711	K-13
C219	K-18	C602	F-12	Q304	H-14	R256	E-11	R396	A-11	R624	G-10	R712	D-10
C220	K-18	C604	F-9	Q306	C-10	R257	E-11	R397	B-11	R625	H-11	R715	J-11
C221	H-16	C606	G-10	Q307	D-11	R258	E-11	R404	H-2	R626	H-12	R716	B-9
C224	H-16	C608	G-10	Q406	H-2	R259	E-11	R405	H-2	R627	G-13	R718	C-10
C227	I-18	C610	G-11	Q407	D-4	R260	E-11	R406	D-4	R628	F-13	Z313	B-12
C230	H-16	C612	G-10	Q440	A-4	R261	G-15	R407	D-4	R629	G-12	Z682	K-14
C231	H-16	C613	G-10	Q460	C-5	R262	G-14	R408	D-4	R630	F-13	Z686	K-14
C232	G-16	C614	H-10	Q461	C-6	R264	H-13	R409	D-4	R631	F-14	Z688	K-13
C234	H-16	C616	I-10	Q462	D-6	R267	H-15	R410	E-2	R632	F-14		
C235	I-16	C618	G-14	Q463	D-6	R269	L-10	R412	E-3	R633	H-15		
C236	I-15	C625	H-12	Q464	D-6	R270	L-10	R422	B-4	R634	G-14		
C237	I-15	C632	G-13	Q465	D-7	R279	F-16	R428	B-4	R635	G-13		
C251	E-12	C633	H-11	Q466	C-6	R301	C-8	R429	C-4	R636	E-15		
C253	E-12	C635	H-12	Q510	H-7	R309	D-9	R432	B-5	R637	K-11		
C255	E-11	C638	K-11	Q605	F-10	R313	D-8	R434	C-4	R638	E-15		
C261	G-12	C642	G-12	Q610	F-9	R314	B-12	R452	D-7	R640	I-10		
C262	H-15	C644	H-11	Q615	G-11	R317	D-8	R453	C-6	R641	F-14		
C264	H-13	C646	I-13	Q620	H-10	R318	E-13	R456	D-5	R642	F-14		
C265	G-14	C648	G-12	Q630	I-11	R321	B-7	R457	D-6	R643	F-12		
C266	H-14	C656	F-12	Q635	G-11	R322	B-7	R459	C-5	R646	G-12		
C274	F-16	C658	H-15	Q705	I-14	R323	B-7	R460	D-5	R647	G-12		
C275	E-16	C660	H-15	Q700	I-14	R324	C-8	R461	D-6	R648	H-11		
C279	F-17	C661	H-13	Q710	D-10	R325	C-7	R464	D-7	R649	H-12		
C300	C-8	C662	H-13	Q711	D-10	R326	E-15	R465	C-6	R650	G-14		
C301	B-6	C665	H-13	R101	C-18	R327	C-7	R467	D-6	R651	H-14		
C302	A-8	C670	K-12	R104	B-18	R328	C-7	R471	D-7	R652	L-12		
C303	B-7	C671	G-12	R105	A-18	R331	A-11	R472	D-6	R653	L-11		
C304	B-7	C672	K-12	R107	B-17	R333	B-9	R473	C-6	R657	I-15		
C305	B-7	C674	L-12	R108	C-17	R335	B-8	R474	C-6	R658	H-14		
C306	B-7	C678	G-11	R120	C-18	R337	D-9	R475	C-6	R659	H-13		

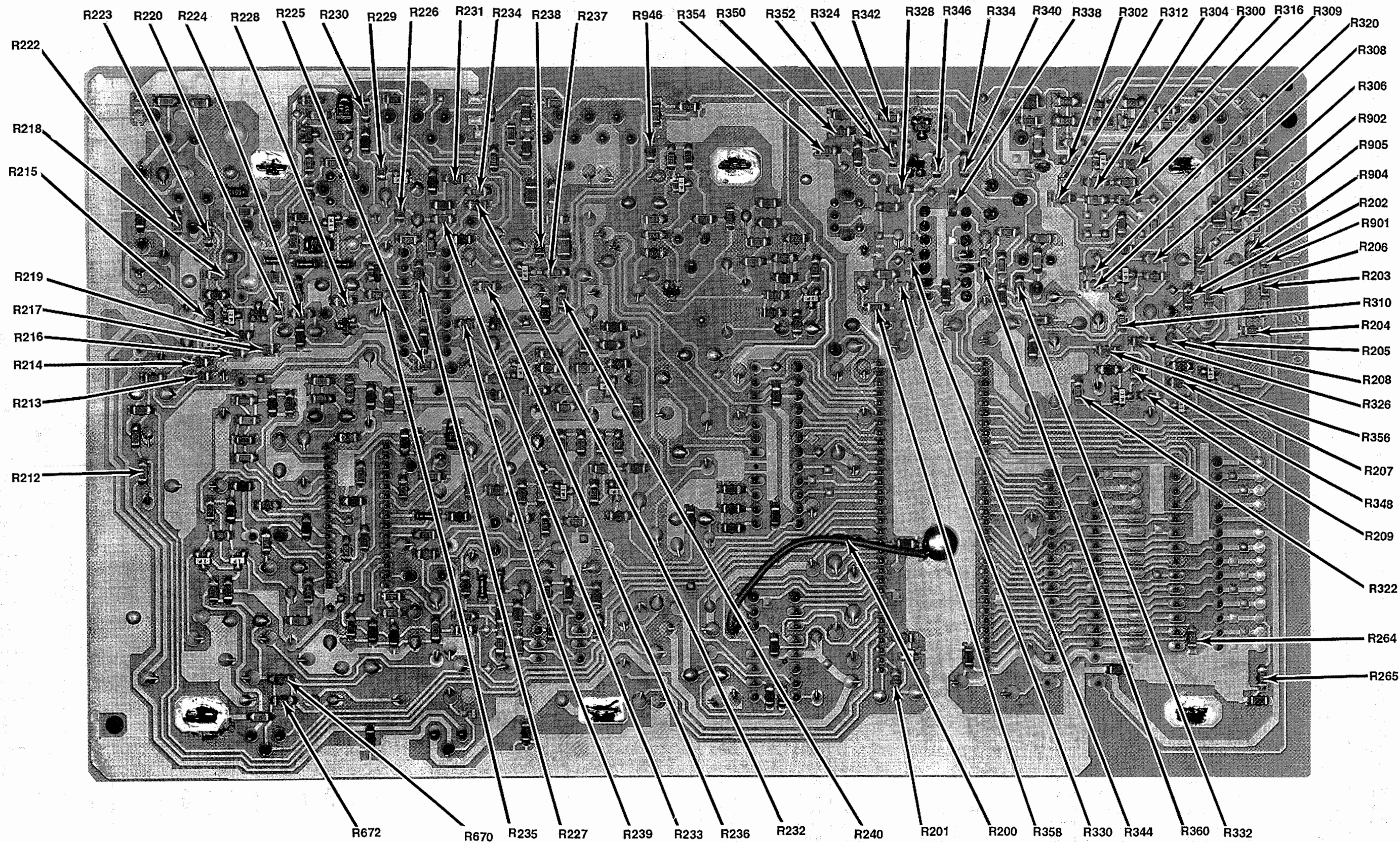
CRT BOARD - GRIDTRACE LOCATION GUIDE

C16	C-2	Q1	G-6	R4	H-7	R15	D-7
C19	D-7	Q2	G-7	R7	C-6	R16	B-5
J25	I-7	Q3	F-1	R8	D-8	R18	F-7
J26	C-3	R1	F-8	R9	C-1	R19	C-6
J27	I-4	R2	G-7	R13	E-1	R20	D-3
L16	B-3	R3	H-5	R14	F-7		

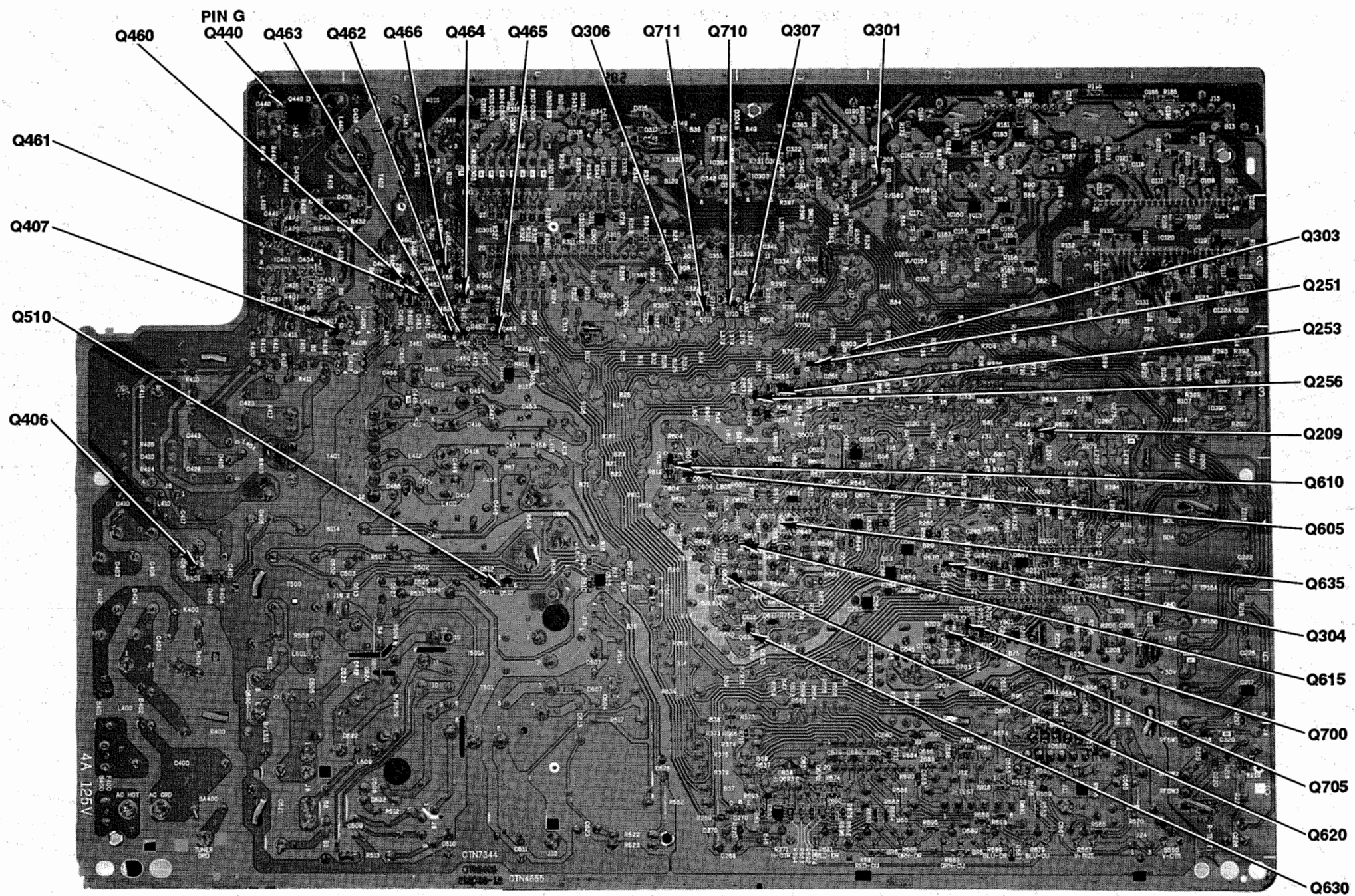
CRT BOARD



PIP MODULE - BOTTOM VIEW

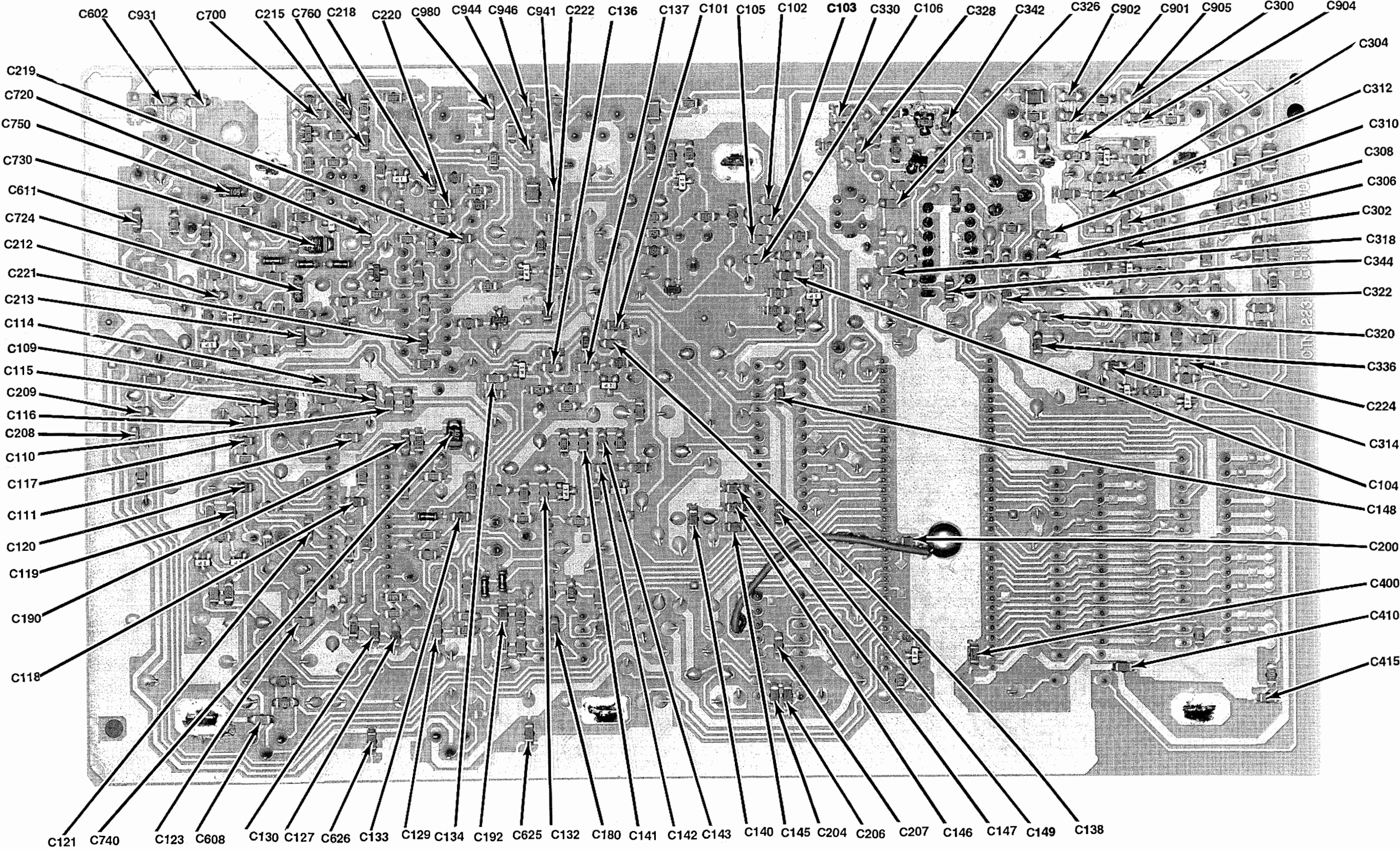


MAIN BOARD - BOTTOM VIEW

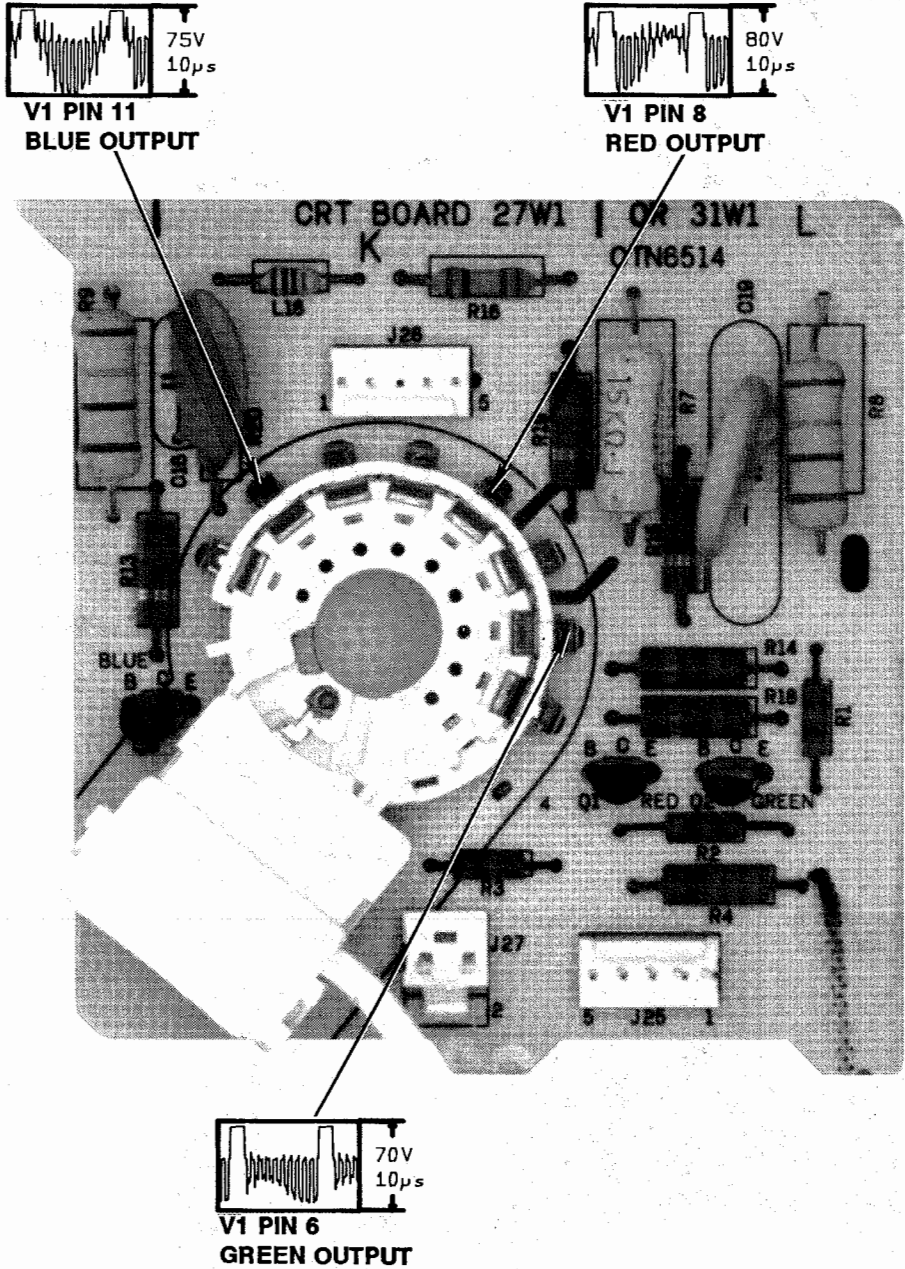


NOTE: ARROWS ON TRANSISTORS INDICATE BASE UNLESS NOTED

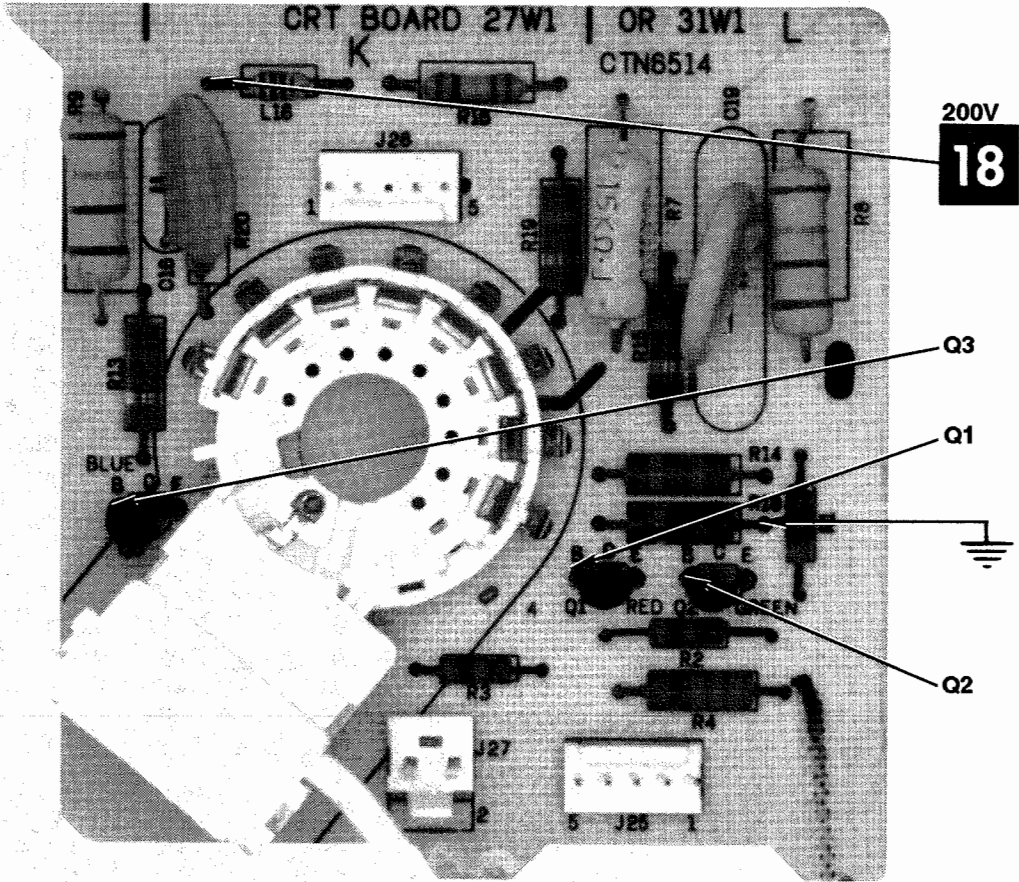
PIP MODULE - BOTTOM VIEW



CRT BOARD

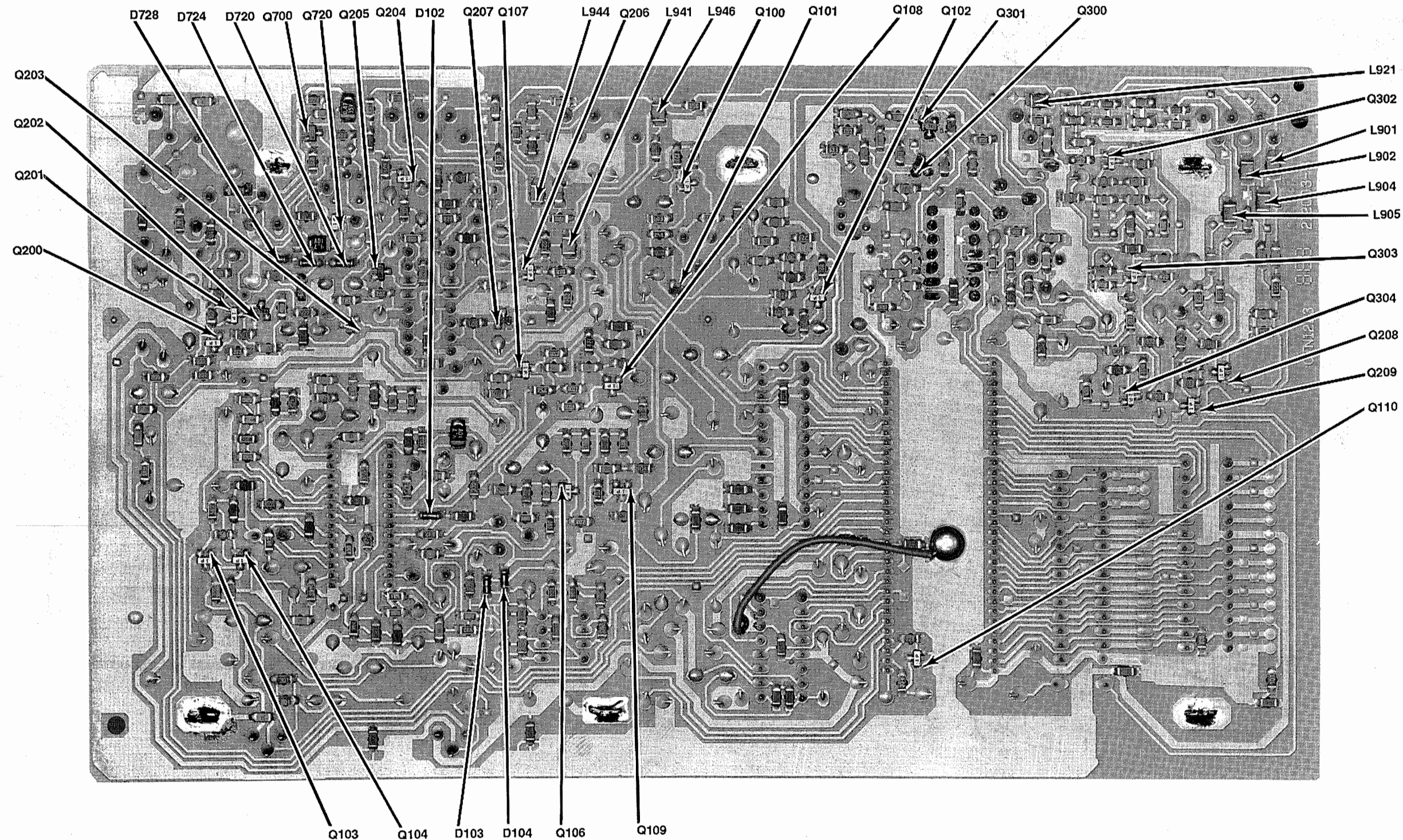


CRT BOARD



NOTE: ARROWS ON TRANSISTORS INDICATE BASE UNLESS NOTED

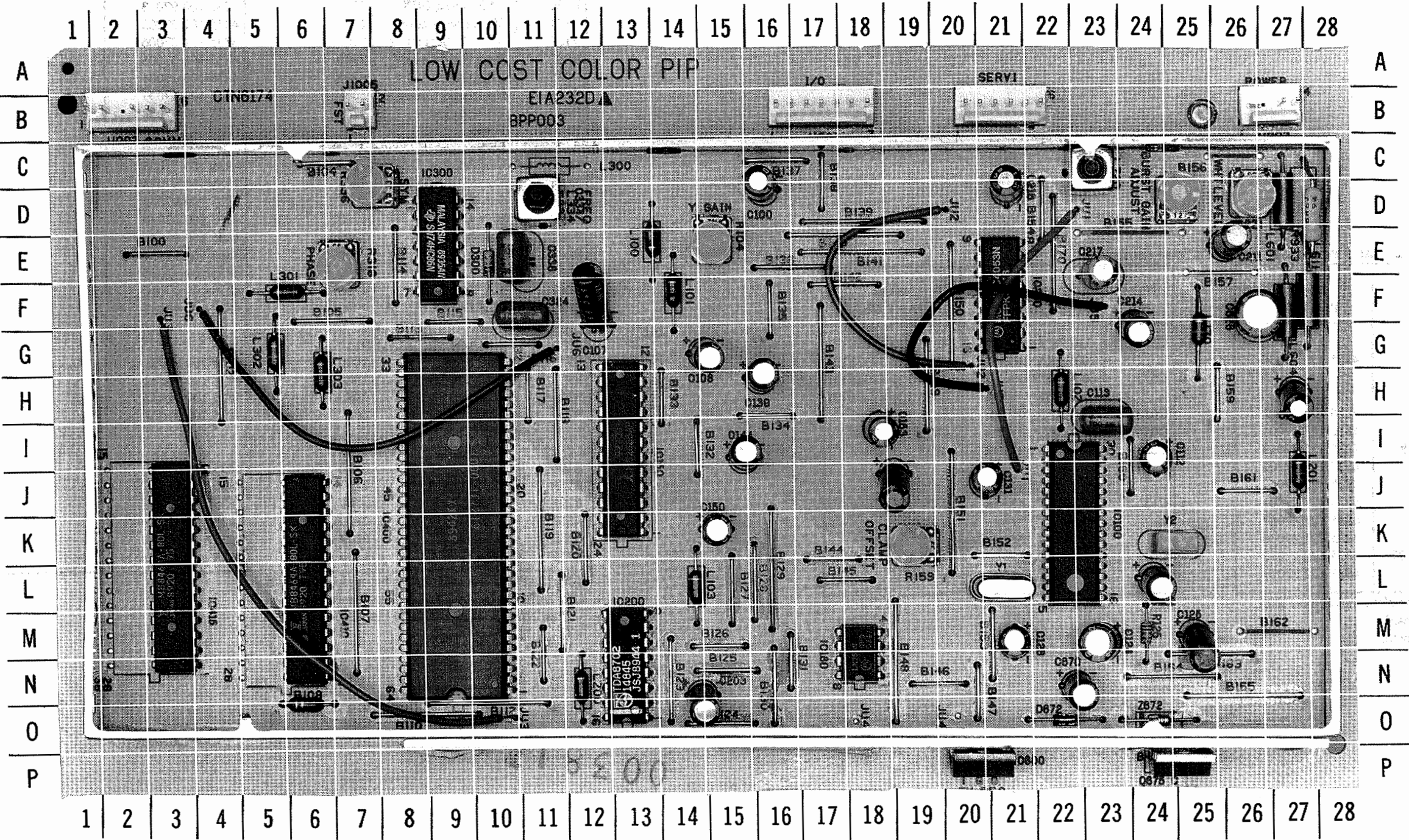
PIP MODULE - BOTTOM VIEW



PIP MODULE - TOP VIEW - GRIDTRACE LOCATION GUIDE

C100	D-16	C131	J-20	C214	F-24	IC100	I-22	IC600	P-20	L108	O-6	L604	F-27	R318	E-7
C107	F-12	C139	H-16	C216	D-21	IC150	K-13	J1001	B-17	L170	F-25	L611	F-28	R336	C-7
C108	G-15	C144	I-15	C217	E-23	IC180	N-18	J1002	B-2	L200	N-12	L720	C-23	R712	D-25
C112	I-24	C150	K-15	C324	F-11	IC200	O-13	J1003	B-27	L201	J-27	Q675	P-25	R933	D-28
C113	I-23	C153	I-18	C338	E-11	IC230	G-21	J1005	B-7	L301	F-6	R104	E-15	SERVICE	B-21
C122	L-24	C155	J-19	C628	F-27	IC300	D-9	L100	E-13	L302	G-5	R125	M-24	Y1	L-21
C124	M-23	C203	N-14	C670	N-22	IC400	N-10	L101	F-14	L303	G-6	R159	K-19	Y2	K-25
C125	M-25	C210	H-27	D300	E-10	IC410	N-6	L102	H-22	L334	D-11	R221	C-26	Z672	O-24
C128	M-21	C211	E-26	D672	O-22	IC415	N-4	L103	L-14	L601	D-27				

PIP MODULE - TOP VIEW



PARTS LIST continued

ELECTROLYTIC CAPACITORS Items not listed are normally available at local distributors.

ITEM No.	RATING	MFGR PART No.
# C523	MAIN BOARD 22 50V	4835 124 47051

For SAFETY use only equivalent replacement part.

ITEM No.	RATING	MFGR PART No.

CAPACITORS Items not listed are normally available at local distributors.

ITEM No.	RATING	MFGR PART No.
# C19	CRT BOARD .033 3KV 20%	4835 122 47036
C340	MAIN BOARD 2-40 Variable	4835 125 57001
C341	3-40 Variable	4835 125 57001
# C400	.22 125VAC 20%	4835 121 47013
# C401	.0047 125V 20%	4835 121 97002
# C402	.001 125V 20%	4835 122 47069
# C403	470 125V 20%	4835 121 97001
C433	.0048 63V 2%	4835 121 47087
# C458	.1 100V	4835 121 47036
C501	22 NPO 500V 10%	4835 122 47073
# C504	.001 500V 10%	4835 122 37027

For SAFETY use only equivalent replacement part.

(1) Used in 27 Inch Main Board.

(2) Used in 31 Inch Main Board.

ITEM No.	RATING	MFGR PART No.
# C505	330 2KV 20%	4835 122 47058 (1)
	.001 2KV 10%	4835 122 37031 (2)
# C521	.01 1.5KV 5%	4835 121 47048 (1)
	.012 1.5KV 5%	4835 121 47161 (2)
C653	180 NPO 50V 5%	4835 122 47043
C654	180 NPO 50V 5%	4835 122 47043
C655	180 NPO 50V 5%	4835 122 47043
# C13	PINCUSHION BOARD .51 200V	4835 121 47046
C407	STEREO AMP BOARD .0047 63V 2%	4835 121 47085

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

ITEM No.	FUNCTION	RESISTANCE	MFGR PART No.	NOTES
VR1	A/V JACK BOARD Video	1000	4835 101 37001	
R102	MAIN BOARD Free Run Frequency	47K	4835 100 97033	
R123	SAP/Stereo	10K	4835 100 97032	
R126	SAP/Stereo/DBX	47K	4835 100 97033	
R131	300Hz Separation	100K	4835 101 37003	
R132	300KHz Separation	220K	4835 101 37006	
R201	Base Band Level	2200	4835 101 37005	
R235	RF AGC	470K	4835 100 17001	
R271	Horizontal Centering	10K	4835 100 17002	
R462	130V Adjust	470	4835 100 97038	
# R500A	Focus		(1)	
# R500B	Screen		(1)	
R567	Vertical Size	220K	4835 100 17005	
R604	Comb Amp Null	470	4835 100 97038	
R644	Sub Brightness	10K	4835 100 97032	
R679	Blue Cutoff	4700	4835 100 97036	
R681	Red Drive	2200	4835 100 97035	
R683	Green Cutoff	4700	4835 100 97036	
R685	Green Drive	2200	4835 100 97035	
R687	Red Cutoff	4700	4835 100 97036	
R689	Blue Drive	2200	4835 100 97035	
R7	PINCUSHION BOARD Side Trap	1000	4835 100 97031	
R9	Side Amplitude	10K	4835 100 97032	
R12	Width	10K	4835 100 97032	
R23	Corner Pin	10K	4835 100 97032	
R104	PIP MODULE Y Gain	330	4835 101 37007	
R159	Clamp Offset	220	4835 101 37004	
R221	White Level	4700	4835 100 97039	
R318	Phase Fine	2200	4835 101 37005	
R336	Symmetry	2200	4835 101 37005	
R712	Burst Gain	100	4835 101 37002	

For SAFETY use only equivalent replacement part.

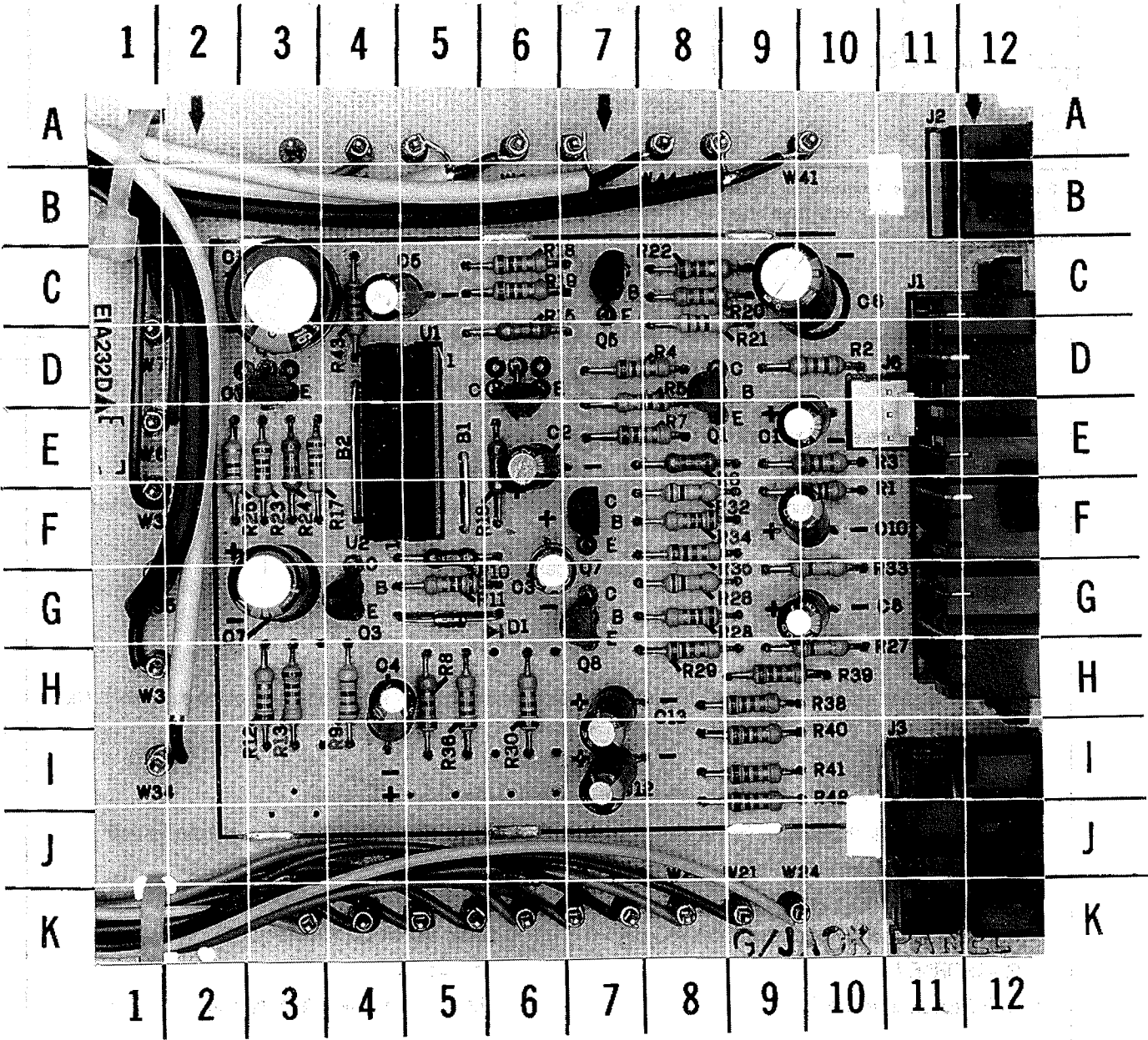
(1) Part of Horizontal Output Transformer T501,

Part Number 4835 146 27007 or 4835 140 67042.

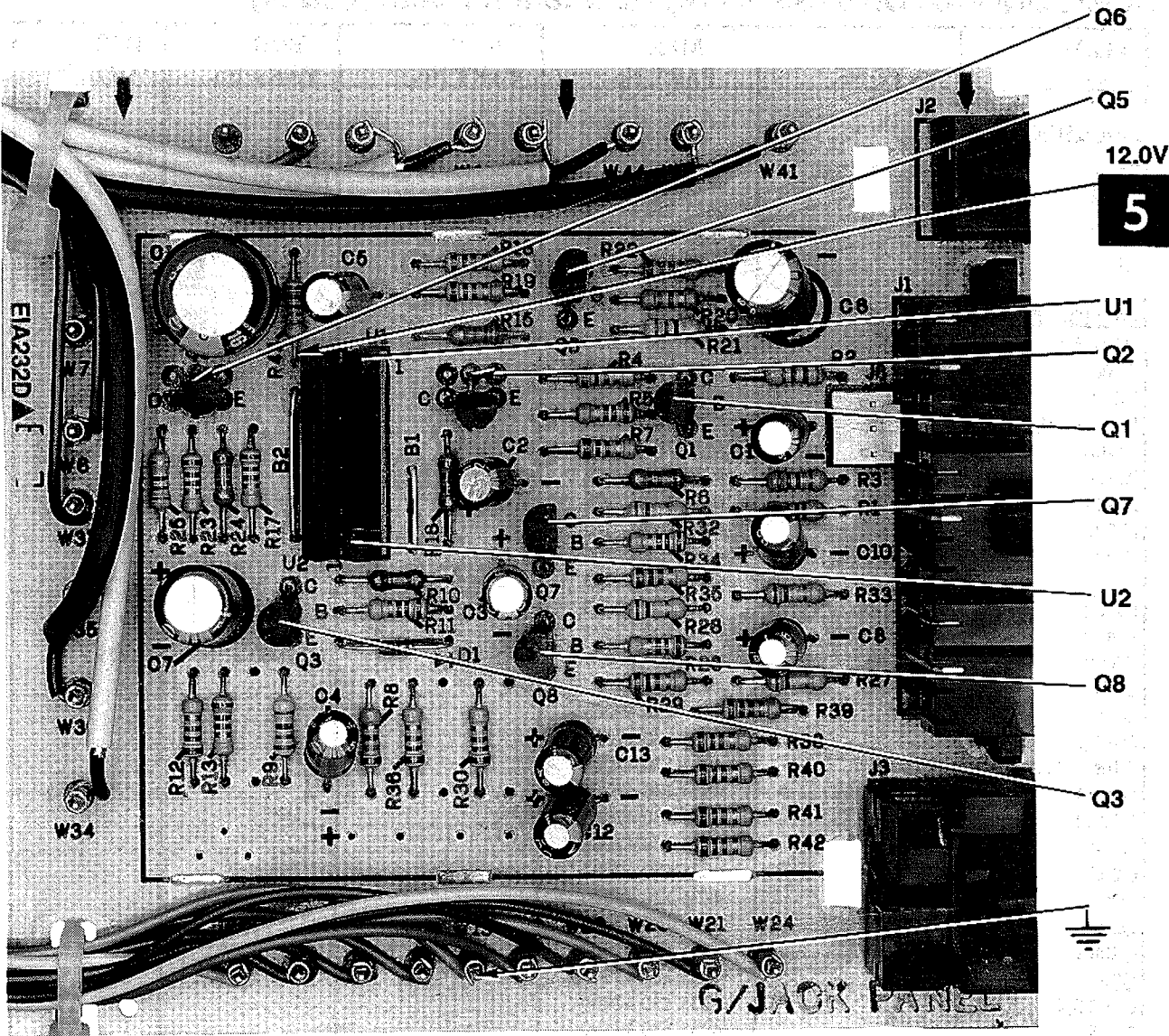
A/V JACK PANEL - GRIDTRACE LOCATION GUIDE

C1	E-10	J2	B-12	R4	D-7	R18	C-6	R32	F-8
C2	E-6	J3	J-12	R5	D-7	R19	C-6	R33	G-10
C3	G-6	J6	E-11	R6	E-8	R20	C-8	R34	F-8
C4	H-4	Q1	D-8	R7	E-7	R21	D-8	R35	F-8
C5	C-5	Q2	D-6	R8	H-5	R22	C-8	R36	H-5
C6	C-10	Q3	G-4	R9	H-4	R23	E-3	R38	H-9
C7	G-3	Q5	C-7	R10	F-5	R24	E-3	R39	H-9
C8	G-10	Q6	D-3	R11	G-5	R25	E-2	R40	I-9
C10	F-10	Q7	F-7	R12	H-3	R26	G-8	R41	I-9
C12	I-7	Q8	G-7	R13	H-3	R27	H-10	R42	I-9
C13	H-7	R1	F-10	R15	D-6	R28	G-8	R43	C-4
C14	C-3	R2	D-10	R16	E-6	R29	H-8	U1	D-5
D1	G-5	R3	E-10	R17	E-3	R30	H-6	U2	F-4
J1	F-12								

A/V JACK PANEL



A/V JACK PANEL



NOTE: ARROWS ON TRANSISTORS INDICATE BASE UNLESS NOTED

PARTS LIST continued

SEMICONDUCTORS (Select replacement for best results)

ITEM No.	TYPE No.	MFR PART No.	NTE PART No.	ECG PART No.	TCE PART No.
PINCUSHION BOARD					
D1		4835 130 37094	NTE580	ECG580	SK5036
D2		4835 130 37048	NTE519	ECG519	SK3100
Q1,2		4835 130 47191			
Q3		4835 130 47084			
Z1		4835 130 37081			
PIP MODULE					
D102,3,4		4835 130 37066			
D300		4835 130 37088			
D672		4835 130 37048	NTE519	ECG519	SK3100
D720,24,28		4835 130 37066			
IC100	LA7620	4835 209 87094	NTE1845	ECG1845	
IC150	M52686AP	4835 209 87092			
IC180	LM358N	4835 209 87079	NTE928M	ECG928M	SK3692
IC200	TDA8702	4835 209 47015			
IC230	MC74HC4053N	4835 209 17005			
IC300	SN74HC86N	4835 209 17004			
IC400	612731-0001	4835 209 17026			
IC410,15	MB8464A-80L-SK	4835 209 17021			
IC600	612479-1	4835 209 87067	NTE960	ECG960	SK3591
Q100		4835 130 47066			
Q101		4835 130 47065			
Q102,3,4		4835 130 47066			
Q106 - Q110		4835 130 47066			
Q200,1		4835 130 47066			
Q202,3		4835 130 47065			
Q204		4835 130 47066			
Q205		4835 130 47094			
Q206		4835 130 47066			
Q207		4835 130 47065			
Q208,9		4835 130 47066			
Q300,1		4835 130 47095			
Q302,3,4		4835 130 47066			
Q675		4835 130 47089			
Q700		4835 130 47095			
Q720		4835 130 47066			
Z672		4835 130 37096	NTE5018A	ECG5018A	SK9A1
REMOTE RECEIVER BOARD					
D1		4835 130 37089			
IC1		4835 209 87083			

SEMICONDUCTORS (Select replacement for best results)

ITEM No.	TYPE No.	MFR PART No.	NTE PART No.	ECG PART No.	TCE PART No.
STEREO AMP BOARD					
D201,2,3		4835 130 37048	NTE519	ECG519	SK3100
D401		4835 130 37058	NTE587	ECG587	SK9937
D402,3		4835 130 37061			
D404		4835 130 37058	NTE587	ECG587	SK9937
IC301		4835 209 87082			
IC401		4835 209 17027			
Q201,2		4835 130 47052	NTE123AP	ECG123AP	SK3854
Q203,4		4835 130 47083			
Q401,2		4835 130 47052	NTE123AP	ECG123AP	SK3854
Q403		4835 130 47068			
Z401		4835 130 37085			
SWITCH/LED BOARD					
D71		4835 130 37056			
D72		4835 130 37069			
D73		4835 130 37065			

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

Important Parts Information

- The parts listed here are those not usually available from a well-stocked supply cabinet or bin.
- Where items may be replaced with equivalent parts, several alternates are shown from participating vendors.
- On the parts lists, safety items are marked with a # to remind you that only exact replacements are recommended for these items.
- When ordering parts, state the model number, part number, and description.

Obtaining Parts

Many of these parts are available from your local Sams authorized distributor or the manufacturer of the equipment. Call Sams for the name of your nearest distributor:

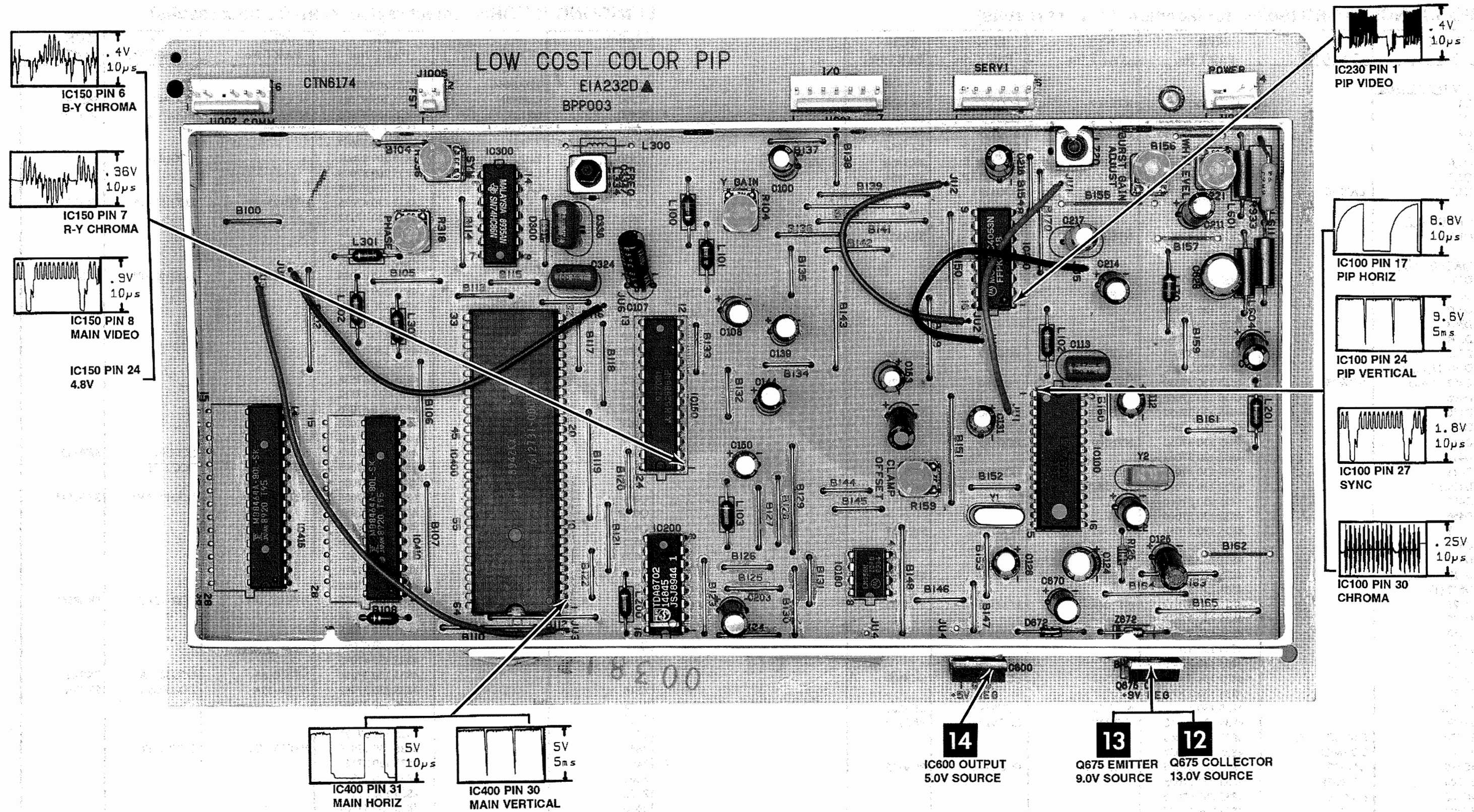
800-428-7267

Or consult the Sams *Annual Index* for the address of the original equipment manufacturer.

Information is listed in these pages for the following participating vendors. Consult the Sams *Annual Index* for their current address.

- B&K Precision
- Custom Components Corporation (Chek-A-Color)
- GC-THORSEN
- NTE Electronics, Inc. (NTE)
- Philips ECG Company (ECG)
- Quam-Nichols Co. (Quam)
- Sencore, Inc.
- Thomson Consumer Electronics, Inc. (SK, TCE)

PIP MODULE - TOP VIEW



PARTS LIST

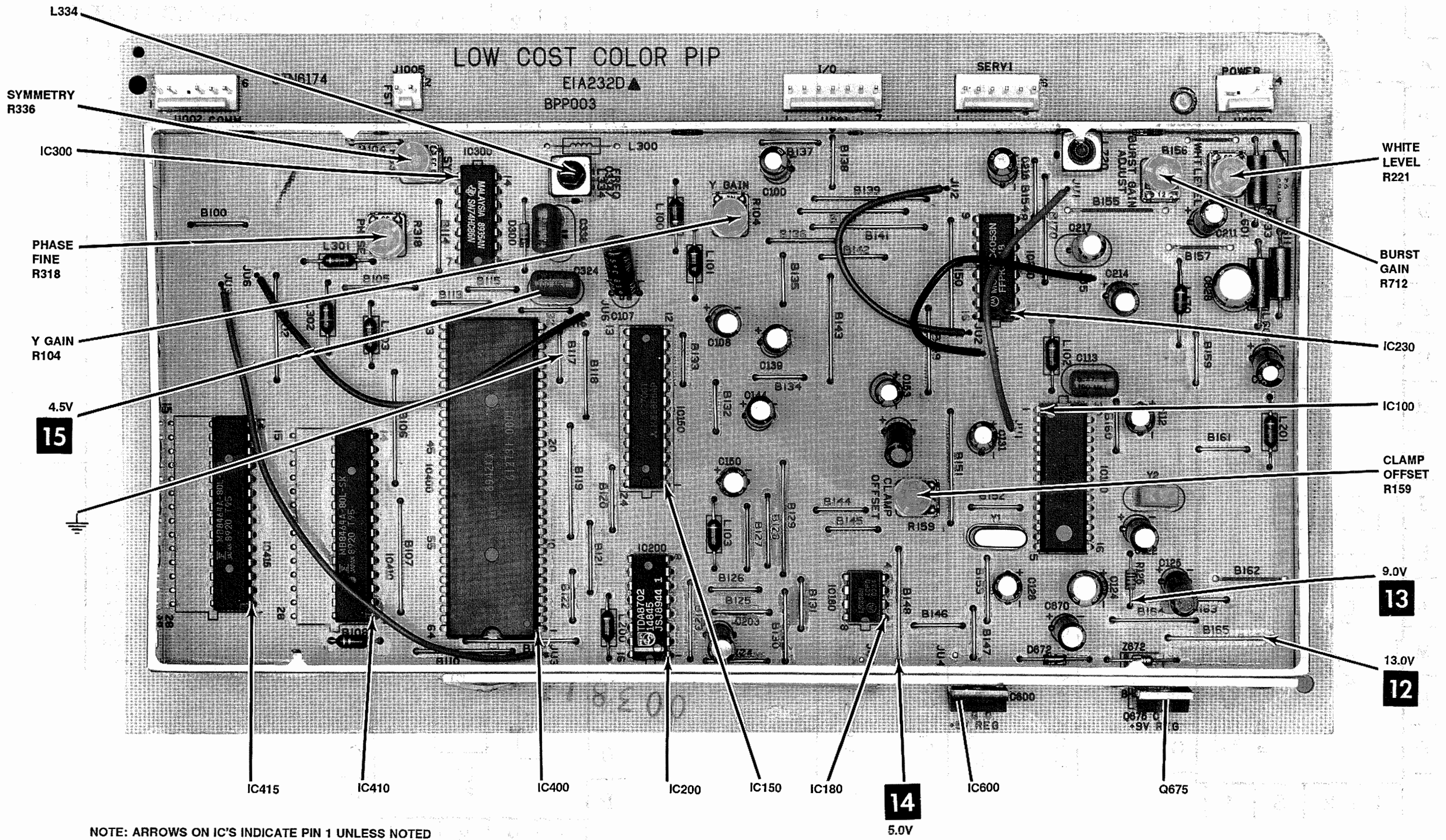
SEMICONDUCTORS (Select replacement for best results)

ITEM No.	TYPE No.	MFR PART No.	NTE PART No.	ECG PART No.	TCE PART No.
A/V JACK PANEL					
D1	LA7016	4835 130 37048	NTE519	ECG519	SK3100
Q1		4835 130 47052	NTE123AP	ECG123AP	SK3854
Q2		4835 130 47049	NTE159	ECG159	SK3466
Q3		4835 130 47052	NTE123AP	ECG123AP	SK3854
Q5,6		4835 130 47049	NTE159	ECG159	SK3466
Q7,8		4835 130 47052	NTE123AP	ECG123AP	SK3854
U1,2		4835 209 87074	NTE1781	ECG1781	SK9746
CRT BOARD					
Q1,2,3		4835 130 47073	NTE399	ECG399	SK9352
MAIN BOARD					
D155	BYW95C	4835 130 37066			
D270		4835 130 37048	NTE519	ECG519	SK3100
D302		4835 130 37066			
D303		4835 130 37066			
D304		4835 130 37066			
D305		4835 130 37048	NTE519	ECG519	SK3100
D307,11,12,14		4835 130 37066			
D402 - D405		4835 130 37059	NTE580	ECG580	SK5036
D406		4835 130 37066			
D410		4835 130 37052	NTE580	ECG580	SK5036
D414		4835 130 37061			
D416		4835 130 37052	NTE580	ECG580	SK5036
D417		4835 130 37061			
D418		4835 130 37052	NTE580	ECG580	SK5036
D429,30		4835 130 37058	NTE587	ECG587	SK9937
D455		4835 130 37066			
D456,7		4835 130 37066			
D458		4835 130 37058	NTE587	ECG587	SK9937
D502		4835 130 37389			
D507		4835 130 37389			
D513		4835 130 37099	NTE580	ECG580	SK5036
D522 (1)		4835 130 37095			
D523		4835 130 37059	NTE580	ECG580	SK5036
D525		4835 130 37389			
D550		4835 130 37389			
D551		4835 130 37066			
D617		4835 130 37066			
D630		4835 130 37048	NTE519	ECG519	SK3100
D632		4835 130 37066			
D680,81		4835 130 37048	NTE519	ECG519	SK3100
D699		4835 130 37048	NTE519	ECG519	SK3100
IC120	C1870CA-002	4835 209 47063			
IC160	TDA8426	4835 209 87087			
IC180	LA4270	4835 209 87085	NTE1798	ECG1798	SK9745
IC200	LA7651P	4835 209 87605			
IC260	LA7510	4835 209 87086			
IC301	612792-1	4835 209 47076			
IC303	PCF8583P	4835 209 47059			
IC304		4835 209 47101			
IC305	612479-1	4835 209 87067	NTE960	ECG960	SK3591
IC308	ST6398B1/A	4835 209 47074			

SEMICONDUCTORS (Select replacement for best results)

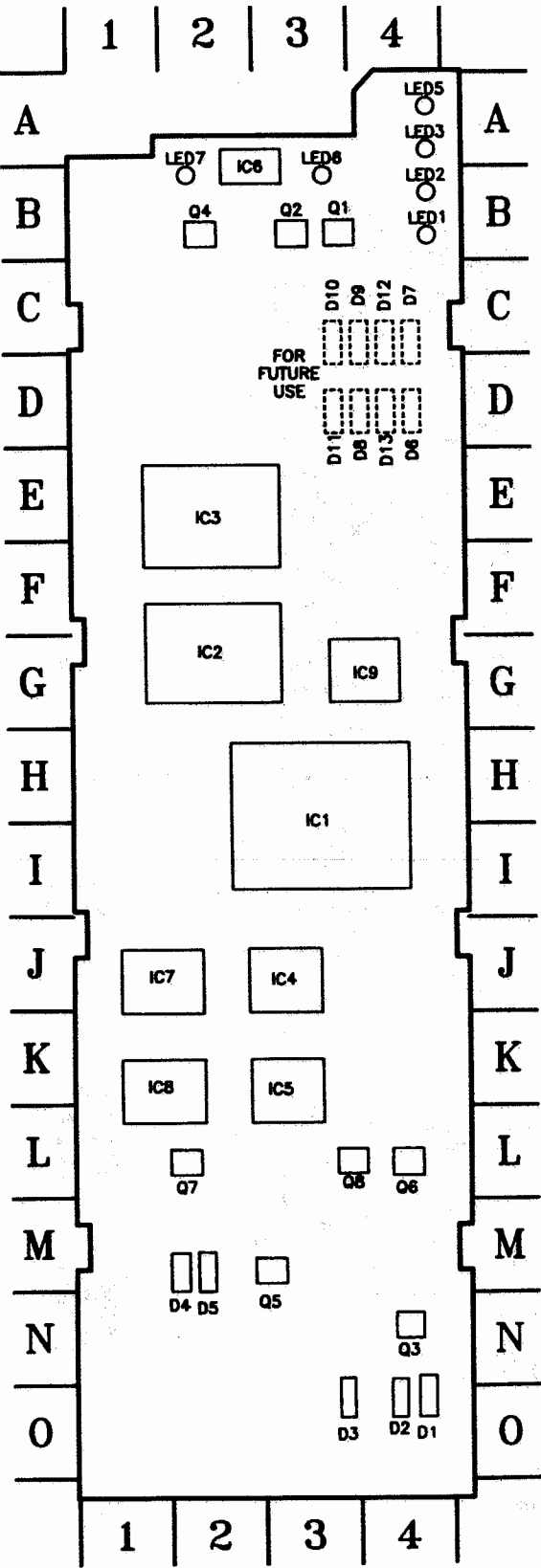
ITEM No.	TYPE No.	MFR PART No.	NTE PART No.	ECG PART No.	TCE PART No.
IC330	TDA8444	4835 209 87084			
IC390	LM393N	4835 209 87081	NTE943M	ECG943M	SK9993
# IC400	6N136	4835 130 97006	NTE3092	ECG3092	SK9770
IC401	MC34065P	4835 209 87071			
# IC402		4835 130 37057			
IC550	TDA8174	4835 209 87091		ECG1857	
IC670	LA7222	4835 209 87089			
IC680	LA7696	4835 209 87088			
Q120		4835 130 47055	NTE123AP*	ECG123AP*	SK3854*
Q209		4835 130 47112			
Q251		4835 130 47112			
Q253		4835 130 47086			
Q256		4835 130 47112			
Q270		4835 130 47055	NTE123AP*	ECG123AP*	SK3854*
Q301		4835 130 47112			
Q303,4,6,7		4835 130 47086			
Q406,7		4835 130 47086			
Q410		4835 130 47092			
Q440		4835 130 47098			
Q460,1		4835 130 47086			
# Q462		4835 130 47538			
Q463		4835 130 47112			
Q464		4835 130 47086			
# Q465		4835 130 47086			
Q466		4835 130 47112			
Q500	2SC2482	4835 130 47073	NTE399	ECG399	SK9352
# Q501	2SD1878	4835 130 47097	NTE2331	ECG2331	
Q510		4835 130 47086			
Q600		4835 130 47055	NTE123AP*	ECG123AP*	SK3854*
Q605		4835 130 47086			
Q610		4835 130 47112			
Q615		4835 130 47086			
Q620		4835 130 47116			
Q630		4835 130 47116			
Q635		4835 130 47086			
Q670		4835 130 47055	NTE123AP*	ECG123AP*	SK3854*
Q693		4835 130 47126			
Q700		4835 130 47088			
Q705		4835 130 47096			
Q710,11		4835 130 47086			
Z203		4835 130 37086	NTE5018A	ECG5018A	SK9A1
Z216		4835 130 37082	NTE5035A	ECG5035A	SK30A
Z305		4835 130 37397			
Z313					
Z401		4835 130 37121			
Z460		4835 130 37068			
# Z461		4835 130 37121	NTE5011T1	ECG5011T1	
Z462		4835 130 37001			
Z482		4835 130 37101			
Z686		4835 130 37101			
Z688		4835 130 37101			

PIP MODULE - TOP VIEW



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

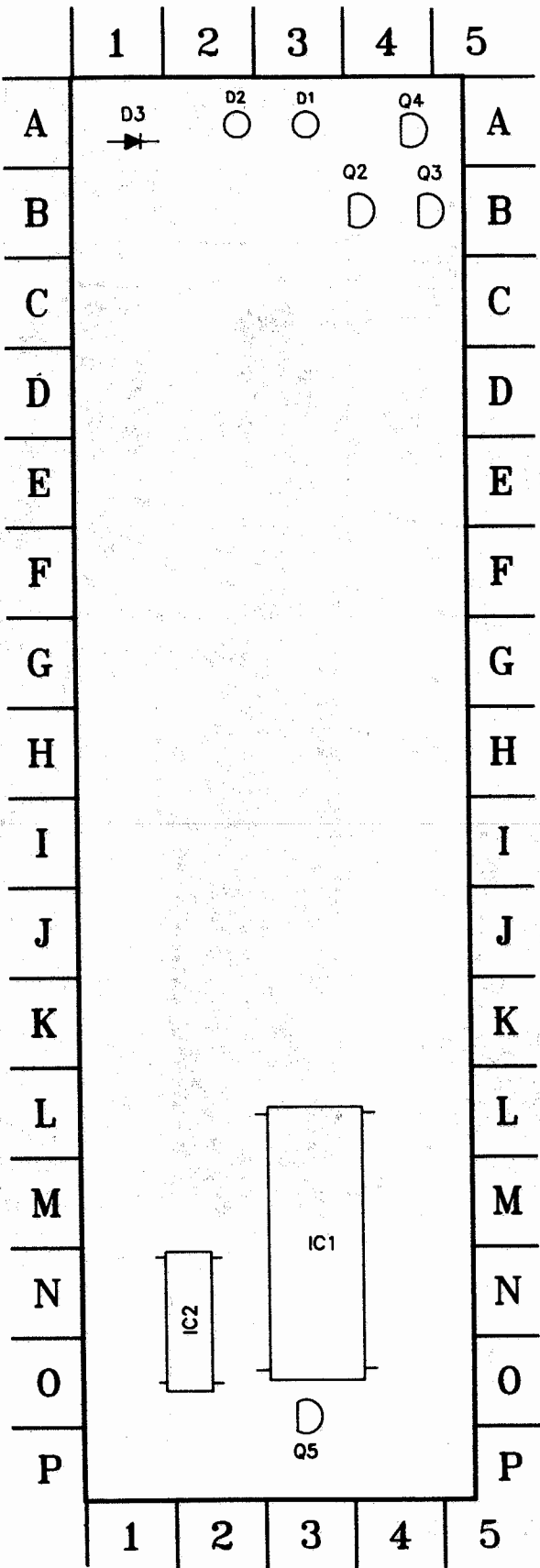
REMOTE TRANSMITTER (UR5)



REMOTE TRANSMITTER (UR5) - GRIDTRACE LOCATION GUIDE

BT5	O-3	R3	C-3
C1	B-1	R4	C-3
C2	K-2	R5	C-1
C3	B-3	R6	C-2
C4	G-4	R7	C-1
C5	K-3	R8	C-3
C6	I-2	R9	C-4
C7	M-4	R10	B-4
C8	J-4	R11	B-4
C9	J-4	R12	A-4
C10	G-3	R13	C-2
C11	F-3	R14	M-1
C12	L-2	R15	C-3
D1	O-4	R16	M-3
D2	O-4	R17	M-3
D3	N-3	R18	M-3
D4	M-2	R19	M-2
D5	M-2	R20	F-4
D6	D-4	R21	E-4
D7	C-4	R22	F-4
D8	D-4	R23	F-3
D9	C-4	R24	F-3
D10	C-3	R25	E-3
D11	D-3	R26	E-3
D12	C-4	R27	E-4
D13	D-4	R28	I-1
IC1	I-4	R29	I-1
IC2	F-3	R30	M-4
IC3	E-1	R31	N-3
IC4	J-3	R32	M-4
IC5	K-3	R33	N-3
IC6	B-2	R34	M-4
IC7	J-2	R35	M-3
IC8	K-2	R36	M-3
IC9	G-4	R37	M-2
LED1	B-4	R38	J-4
LED2	B-4	R39	M-2
LED3	A-4	R40	D-2
LED4	A-4	R41	D-1
LED5	A-4	R42	D-1
LED6	A-3	R43	C-1
LED7	A-2	R44	C-1
Q1	B-3	R45	C-2
Q2	B-3	R46	C-2
Q3	N-4	R47	D-1
Q4	B-2	R48	L-3
Q5	M-2	R49	L-3
Q6	L-4	R50	L-2
Q7	L-2	R51	M-3
Q8	L-3	R52	G-1
R1	C-3	Y1	K-4
R2	C-2		

REMOTE TRANSMITTER (UR8)



REMOTE TRANSMITTER (UR8) - GRIDTRACE LOCATION GUIDE

C2	B-2
C3	L-5
C4	L-5
C5	P-4
C6	C-2
C7	O-1
D1	A-3
D2	A-2
D3	A-1
IC1	L-4
IC2	N-2
Q2	B-4
Q3	B-5
Q4	A-4
Q5	O-3
R1	M-1
R2	M-2
R3	M-2
R4	M-2
R5	L-2
R6	L-2
R7	L-2
R8	P-1
R9	P-1
R10	P-3
R11	P-2
R12	P-2
R13	P-2
R14	L-5
R15	B-5
R16	B-5
R17	A-4
R18	B-5
R19	A-4
R20	A-2
R21	A-2
R22	O-4
R23	O-4
R24	L-2
R25	M-5
R26	M-5
R27	M-5
Y1	K-5

PARTS LIST continued

COILS (RF-IF)

ITEM No.	RATING	MFGR PART No.	ITEM No.	RATING	MFGR PART No.
L16	<u>CRT BOARD</u> RF Choke (100μH)	4835 157 57047	# L601	RF Choke (10μH)	4835 157 57093
L201	<u>MAIN BOARD</u> Peaking (.47μH)	4835 157 57091	L603	Chroma Amp Null	4835 157 57116
L205	Audio Detector	4835 157 57113	L605	RF Choke (10μH)	4835 157 57092
L208	Peaking (1.2μH)	4835 157 57094	L607	Peaking (18μH)	4835 157 57095
L209	Peaking (4.7μH)	4835 157 57101	L610	Peaking (8.2μH)	4835 157 57118
L210	Peaking (180μH)	4835 157 57108	L611	Peaking (10μH)	4835 157 57093
L230	45.75MHz Detector	4835 157 57112	L618	Peaking (5.6μH)	4835 157 57103
L233	AFT	4835 157 57112	L619	Peaking (2.7μH)	4835 157 57098
L275	RF Choke (47μH)	4835 157 57124	L635	Peaking (12μH)	4835 157 57107
L279	Peaking (2.2μH)	4835 157 57122		<u>PINCUSHION AMP</u>	
L307	RF Choke (3.3μH)	4835 157 57123	L2	SCR Regulator	4835 153 57002
L313	Peaking (4.7μH)	4835 157 57101	L3	RF Choke	4835 157 57355
L330	Peaking (4.7μH)	4835 157 57101	# L4	Horizontal Linearity	4835 157 57356
L331	Peaking (4.7μH)	4835 157 57101	L5	Peaking (3.3mH)	4835 150 17019
L335	Peaking (27μH)	4835 157 57119		<u>PIP MODULE</u>	
L373	Peaking (6.8μH)	4835 157 57105	L100	Peaking (47μH)	4835 157 57066
L374	Peaking (6.8μH)	4835 157 57105	L101	Peaking (56μH)	4835 157 57067
L375	Peaking (6.8μH)	4835 157 57105	L102	Peaking (15μH)	4835 157 57073
L379	Peaking (6.8μH)	4835 157 57105	L103	RF Choke (100μH)	4835 157 57047
# L400	Line Filter	4835 152 17001	L108	Peaking (3.3μH)	4835 157 57154
L404	Peaking	4835 157 57128	L170	RF Choke (180μH)	4835 157 57096
L407	Peaking	4835 157 57128	L200	RF Choke (56μH)	4835 157 57067
L413	RF Choke	4835 157 57128	L201	Peaking (27μH)	4835 157 57052
L419	RF Choke (5.3μH)	4835 157 57054	L301	Peaking (27μH)	4835 157 57052
L420	Peaking (2.2μH)	4835 157 57097	L302	Peaking (68μH)	4835 157 57104
L439	RF Choke (2.2μH)	4835 157 57097	L303	Peaking (10μH)	4835 157 57092
# L501	Peaking	4835 157 57081	L334	Tank Circuit	4835 157 57111
L504	RF Choke	4835 157 57125	L720	Tank Circuit	4835 157 57109

For SAFETY use only equivalent replacement part.

COILS & TRANSFORMERS

ITEM No.	FUNCTION	MFGR PART No.	OTHER IDENTIFICATION	NOTES
# DY1	<u>CHASSIS</u> Yoke 100" Horiz 1.4 mH Vert 18.5 mH Yoke Yoke	4835 150 17042 4835 150 17067 (2) 4835 150 17057 (3)	362075-7 (1)	
L509	<u>MAIN BOARD</u> Horizontal Linearity	4835 150 57024 (4)	362028-16 (1)	
# T401	SMPS	4835 140 67008	30041-1 (1)	
# T402	Power	4835 145 37001		
T500	Horizontal Driver	4835 142 47001	320403-6 (1)	
# T501	Horizontal Output Horizontal Output	4835 146 27007 (4) 4835 140 67042 (5)	00362153-0001 (1)	
# T401	<u>STEREO AMP BOARD</u> Power	4835 140 67007		

For SAFETY use only equivalent replacement part.

- (1) Number on Unit.
(2) Used in some versions of Model RPS599P101.
(3) Used in Model RRK810A106.
(4) Used in 27 Inch Main Board.
(5) Used in 31 Inch Main Board.

SPEAKERS

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		MFGR PART No.	QUAM PART No.	
SP1,2	4 1/2" X 2" 16 Ohm 6" X 4" (2 Used) 6" X 4" (2 Used) Crossover Network (2 Used) 5 1/4" (2 Used) 2 3/4" (2 Used)	4835 240 27017 4835 240 57006 4835 240 37006 4835 240 77021 4835 240 57011 4835 240 27003		Used in Model RPS590AK01. Used in Model RPS599P101. Used in Model RRK810A106. Used in Model RRK810A106. Used in Model RRK810A106.



Created with pride by the
employees of Howard W. Sams
& Company.

J. Barker, T. Clensy, D. Raus,
S. Scott, K. Smith, D. Stitt,
D. Urick

SYLVANIA

CHASSIS 27W102, 27W106/-00AA, 31W103

PARTS LIST continued

NOTES

MISCELLANEOUS

ITEM No.	DESCRIPTION	MFGR PART No.	NOTES
L401 L402 L403 L404 L405 L406 L407 L408 L409 L410	<u>STEREO AMP BOARD</u>		
	Ferrite Bead	4835 526 17001	
	Ferrite Bead	4835 526 17001	
	Ferrite Bead	4835 526 17001	
	Ferrite Bead	4835 526 17001	
	Ferrite Bead	4835 526 17001	
	Ferrite Bead	4835 526 17001	
	Ferrite Bead	4835 526 17001	
	Ferrite Bead	4835 526 17001	
	Ferrite Bead	4835 526 17001	
BT5 SW1 Y1	<u>UR5 REMOTE TRANSMITTER</u>		
	Battery	4835 138 17001	Lithium, 3V
	Switch	4835 277 27012	Cable, VCR, TV
	Crystal	4835 242 77021	8.0MHz
	Case	4835 432 37017	Bottom
	Case	4835 432 37013	Top
	Door	4835 432 37018	Battery
S43 Y1	Keypad	4835 410 37025	UR5
	<u>UR8 REMOTE TRANSMITTER</u>		
	Switch	4835 277 27007	TV, VCR, CATV
	Crystal	4835 242 77011	4.0MHz
	Battery	4835 138 17007	
	Case	4835 432 37005	Back
	Case	4835 432 37004	Front
	Door	4835 432 37006	Battery
	Keypad	4835 410 37024	36 Button
	Keypad	4835 410 37032	40 Button

For SAFETY use only equivalent replacement part.

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

ITEM	PART No.	PART No.	PART No.	PART No.
<u>MODEL</u>	<u>RPS590AK01</u>	<u>RPS599P101</u>	<u>RPS730A101</u>	<u>RRK810A106</u>
Cabinet Back	4835 432 97169	4835 432 97203	4835 432 97192	4835 432 97193
Crystal-IR			4835 381 17047	
Crystal-LED			4835 381 17048	
Cup, CRT	4835 437 67002	4835 437 67002		
Lens	4835 381 17016	4835 381 17016		4835 381 17016
Mask	4835 432 77026			4835 342 77028
10 Pushbutton Assembly	4835 410 37029	4835 410 37029	4835 219 47136	4835 410 37029
10 Pushbutton Control				4835 410 37055

SYLVANIA CHASSIS 27W102, 27W106/-00AA, 31W103

PARTS LIST continued

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA		
		MFGR PART No.	NTE PART No.	
	<u>A/V JACK BOARD</u>			
# R02	39 5% 2W Metal Film	4835 116 67008	2W039	
# R03	82 5% 3W Metal Film	4835 116 67009	3W082	
# R04	82 5% 3W Metal Film	4835 116 67009	3W082	
# R05	8.2 5% 2W Metal Film	4835 116 57133	2W8D2	
# R06	8.2 5% 2W Metal Film	4835 116 57133	2W8D2	
# R12	1000 5% 1/4W Carbon Comp	4835 110 57018	QW210	
# R24	330 5% 1/4W Carbon Comp	4835 110 57012	QW133	
# R43	15 5% 1/3W Metal Film	4835 116 57064		
	<u>CRT BOARD</u>			
# R7	15K 5% 3W Metal Film	4835 116 67018	3W315	
# R8	15K 5% 3W Metal Film	4835 116 67018	3W315	
# R9	15K 5% 3W Metal Film	4835 116 67018	3W315	
# R16	100 5% 1/2W Metal Film	4835 116 57081	HW110	
	<u>MAIN BOARD</u>			
# R101	36 5% 1/4W Carbon Chip	4835 111 37094		
R128	549K 1% 1/8W Metal Film	4835 111 37046		
# R155	47 5% 1/4W Carbon Chip	4835 111 37107		
# R185	2.2 5% 1/4W Carbon Chip	4835 111 37076 (3)		
# R186	2.2 5% 1/4W Carbon Chip	4835 111 37076 (3)		
# R187	1 5% 1/2W Metal Film	4835 116 57082 (3)	HW1D0	
	2400 5% 1/4W Carbon Film	4835 110 47045 (4)	QW224	
# R203	43 5% 1W Metal Film	4835 116 67014	1W043	
# R215	13 5% 1/3W Metal Film	4835 116 57089		
# R216	15K 5% 3W Metal Film	4835 116 67018	3W315	
# R220	51 5% 1/3W Metal Film	4835 116 57092		
# R331	100K 5% 1/4W Carbon Chip	4835 111 37024		
# R368	82 5% 1/4W Carbon Chip	4835 111 37126		
# R400	4.7M 5% 1/2W Carbon Film	4835 110 47024	HW547	
# R401	11.9 PTC Cold	4835 116 47001		
# R403	.27 5% 1W Metal Film	4835 116 57056	1WD27	
# R416	56K 5% 1W Metal Film	4835 116 57039	1W356	
# R417	24 5% 3W Metal Film	4835 116 57043	3W024	
R434	5760 1% 1/8W Carbon Chip	4835 111 27007		
# R436	22 5% 1/3W Metal Film	4835 116 57091		
# R452	2200 5% 1/4W Carbon Chip	4835 111 37072		
# R455	.56 5% 1/2 W Metal Film	4865 116 67006	HWD56	
# R457	330 5% 1/4W Carbon Chip	4835 111 37034		
# R458	24 5% 3W Metal Film	4835 116 57043	3W024	
R460	510 1% 1/8W Carbon Chip			
	510 5% 1/8W Carbon Chip	4835 111 37039		
R461	4990 1% 1/8W Carbon Chip	4835 111 27005		
R465	110K 1% 1/8W Carbon Chip	4835 111 27001		
R471	6810 1% 1/8W Carbon Chip	4835 111 27008		
R472	6810 1% 1/8W Carbon Chip	4835 111 27008		
# R505	2400 5% 3W Metal Film	4835 116 67019	3W244	
# R506	15 5% 2W Metal Film	4835 116 57077	2W015	
# R508	.47 5% 1W Metal Film	4835 116 57038	1WD47	
# R511	68 5% 1/4W Carbon Film	4835 110 57248	QW068	

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA	
		MFGR PART No.	NTE PART No.
# R513	.68 5% 1/2W Metal Film	4835 116 57217 (1)	HWD68
	.68 5% 1W Metal Film	4835 116 57052 (2)	1WD68
# R514	1 5% 1/3W Metal Film	4822 111 30483	
# R522	18.7K 1% 1/4W Metal Film	4835 116 57235 (1)	
# R523	5110 1% 1/4W Metal Film	4835 116 57263 (1)	
# R524	100 5% 1/4W Carbon Chip	4835 111 37021	
# R529	1000 5% 2W Metal Film	4835 116 57057 (1)	2W210
# R552	1 5% 1/2W Metal Film	4835 116 57082	HW1D0
# R553	2.2 5% 1/4W Carbon Chip	4835 111 37076	
R558	2430 1% 1/8W Carbon Chip	4835 111 27004 (2)	
R559	2740 1% 1/8W Carbon Chip	4835 111 37045 (2)	
R561	562 1% 1/8W Carbon Chip	4835 111 27009 (2)	
# R611	47 5% 1/4W Carbon Film	4835 110 57019	QW047
# R629	47 5% 1/4W Carbon Chip	4835 111 37107	
# R637	22 5% 1/4W Carbon Chip	4835 111 37077	
# R645	75 5% 1/2W Carbon Film	4835 110 47031	HW075
R662	2200 2% 1/4W Carbon Film	4835 110 57079	
# R677	82 5% 1/4W Carbon Chip	4835 111 37126	
R708	2400 2% 1/4W Carbon Film	4835 110 57269	
R713	1300 2% 1/8W Carbon Film	4835 110 67166	
R717	2000 2% 1/4W Carbon Film	4835 110 57232	
R718	1300 1% 1/8W Carbon Chip	4835 111 27018	
	19.1K 1% 1/4W Metal Film	4835 116 57249 (2)	
<u>PINCUSHION BOARD</u>			
# R2	1 5% 1/3W Metal Film	4822 111 30483	
# R19	1000 5% 2W Metal Film	4835 116 57057	2W210
# R25	39 5% 2W Carbon Comp	4835 110 57065	2W039
<u>PIP MODULE</u>			
# R933	5.6 5% 1W Metal Film	4835 116 67015	1W5D6
<u>STEREO AMP BOARD</u>			
# R305	100 5% 1/3W Metal Film	4835 116 87002	
# R401	56K 5% 1W Metal Film	4835 116 57039	1W356
# R403	470 5% 1W Metal Film	4835 116 57074	1W147
R404	20K 1% 1/4W Metal Film	4835 116 57104	
R405	5110 1% 1/4W Metal Film	4835 116 57236	
R410	3010 1% 1/4W Metal Film	4835 116 57084	
# R415	.68 5% 1/2W Metal Film	4835 116 57052	HWD63
# R416	.51 5% 1/2W Metal Film	4835 116 67001	HWD51
# R417	.51 5% 1/2W Metal Film	4835 116 67001	HWD51
# R420	1 5% 1/2W Metal Film	4835 116 57082	HW1D0
# R421	4.7 5% 1/4W Carbon Film	4835 110 57097	QW4D7
<u>SWITCH/LED BOARD</u>			
LDR71	LDR	4835 111 17023	

For SAFETY use only equivalent replacement part.
(1) Used in 27 Inch Main Board.
(2) Used in 31 Inch Main Board.
(3) Used in Models without Stereo Amp Board.
(4) Used in Models with Stereo Amp Board.

PARTS LIST continued

MISCELLANEOUS

ITEM No.	DESCRIPTION	MFGR PART No.	NOTES
S02	<u>A/V JACK BOARD</u> Switch Panel	4835 277 27009 4735 432 97188	Speaker Rear
# L499	<u>CHASSIS</u> Coil Coil	4835 157 97013 4835 157 97004	Degaussing Degaussing, Used in Models RPS590AK01, RPS599P101
# P400	Coil	4835 157 97007	Degaussing, Used in Model RRK810A106
# V1	Cord CRT CRT	4835 321 17005 4835 131 27037 4835 131 27015	AC Line, Polarized 27 Inch (A68AEC01X27V) 31 Inch (M78JUA25X31V), Used in Model RRK810A106
#	Balun Balun Magnet Magnet	4825 218 27003 4835 218 27003 4835 150 27002 4835 526 27001	Used in Model RRK810A106 Convergence and Purity Assembly CRT Correction (4 Used) Used in Models RRK810A106
	P.C. Board P.C. Board	4835 219 57202 4835 219 57102	A/V Jack Panel (00AVJ088) A/V Jack Panel (00AVJ082), Used in Models RPS590AK01, RPS599P101
	P.C. Board	4835 219 57208	A/V Jack Panel (00AVJ086), Used in Model RRK810A106
	P.C. Board P.C. Board P.C. Board	4835 219 57037 4835 219 27275 4835 219 27283	CRT Board (00APT073) Main Board, 27 Inch, (00EMW123) Main Board, 31 Inch, (00EMW125), Used in Model RRK810A106
	P.C. Board	4835 219 57205	Pincushion Board (00APC012), Used in Model RRK810A106
	P.C. Board P.C. Board P.C. Board	4835 219 57195 4835 219 77011 4835 219 77114	PIP Module (00APP003) Remote Receiver Board (00ARR008) Stereo Amp Board (00AMP011), Used in Model RRK810A106
	P.C. Board Transmitter Transmitter	4835 219 57039 4835 219 17296 4835 219 17055	Switch/LED Board (00ASW085) Remote (UR5) Remote (UR8), Used in Models RPS590AK01, RPS599P101
	Wedge Wedge	4835 535 27001 4835 535 27002	Yoke Adjustment Yoke (2 Used)

MISCELLANEOUS

ITEM No.	DESCRIPTION	MFGR PART No.	NOTES
#	<u>CRT BOARD</u> Socket	4835 255 77006	CRT
# BT301	<u>MAIN BOARD</u> Battery	4835 138 17008	Lithium
# F400	Fuse	4835 253 37003	4 Amp @ 125VAC
# K400	Relay	4835 277 27011	Degauss
L411	Ferrite Bead	4835 526 17009	
L412	Ferrite Bead	4835 526 17009	
L416	Ferrite Bead	4835 526 17009	
L418	Ferrite Bead	4835 526 17009	
L421	Ferrite Bead	4835 526 17002	
L422	Ferrite Bead	4835 526 17002	
L423	Ferrite Bead	4835 526 17002	
L440	Ferrite Bead	4835 526 17009	
L458	Ferrite Bead	4835 526 17009	
L511	Ferrite Bead	4835 526 17003	
S550	Switch	4835 273 57001	Vertical Centering
# SA400	Surge Absorber	4835 116 97001	2.4KV
Y200	Saw Filter	4835 153 97006	Video IF
Y201	Saw Filter	4835 153 97007	Sound IF
Y209	Trap	4835 154 17001	4.5MHz
Y264	Resonator	4835 153 97004	503kHz
Y279	Filter	4835 153 57004	
Y301	Resonator	4835 157 57129	12MHz
Y302	Crystal	4835 242 77023	32.786kHz
Y600	Delay Line	4835 157 57089	
Y601	Crystal Tuner	4835 242 77022 4835 210 47005	3.58MHz UHF/VHF (-003403091003)
L601	<u>PIP MODULE</u> Ferrite Bead	4835 157 57316	
L602	Ferrite Bead	4835 526 17001	
L604	Ferrite Bead	4835 157 57316	
L611	Ferrite Bead	4835 157 57316	
L901	Ferrite Bead		
L902	Ferrite Bead	4835 157 57316	
L904	Ferrite Bead	4835 157 57316	
L905	Ferrite Bead	4835 157 57316	
L921	Ferrite Bead	4835 526 17004	
L927	Ferrite Bead	4835 157 57315	
L941	Ferrite Bead	4835 526 17004	
L944	Ferrite Bead	4835 157 57315	
L946	Ferrite Bead	4835 157 57315	
Y1	Crystal	4835 242 77001	3.58MHz
Y2	Resonator	4835 153 97005	503.5kHz