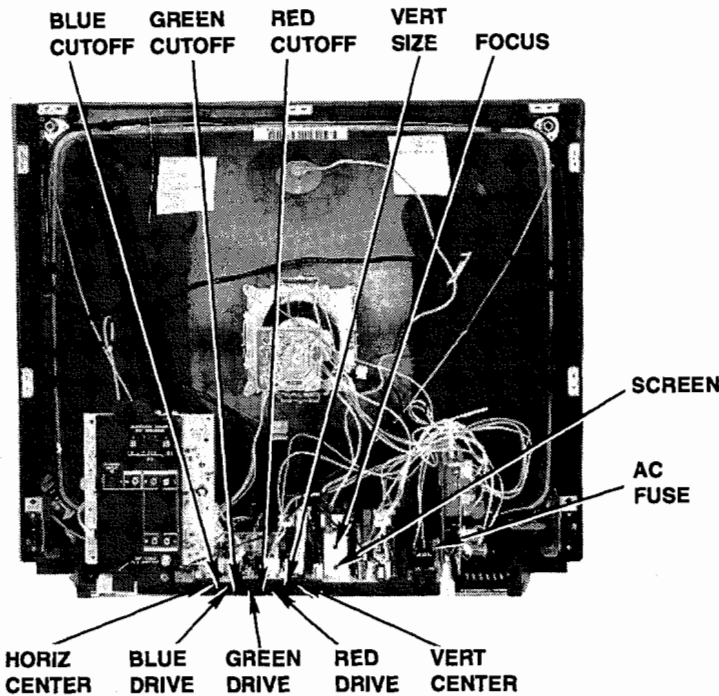


CABINET - REAR VIEW



TEST JIG HOOKUP

Function	Chek-A-Color Adapter No.	PC Board Plug No.	Pin	Color
CRT	B239	J800	1, 2	Red
Yoke	D482		3, 4	Blue
Yoke Setting	YP1	J850	1	Black
Comments	Focus Tap		2	Yellow

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.

©1994 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



94PF02590



0 81262 03273 2

PHOTOFACT® Technical Service Data

SET 3273

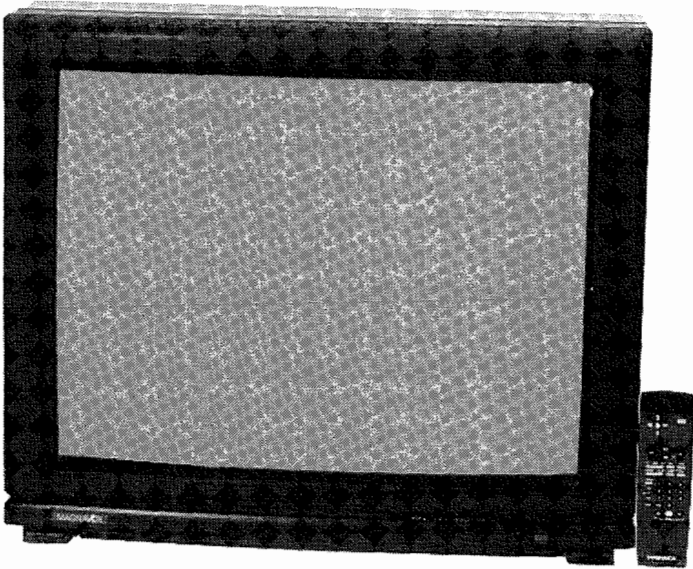
MODEL RS3161C202 (CHASSIS 31X304) LP

MAGNAVOX

INDEX

Cabinet - Rear View	1
High Voltage Shutdown Test	4
IC Functions	1
Important Parts Information	4
Miscellaneous Adjustments	1
Parts List	4
Placement Chart	4
Safety Precautions	1
Schematics	
Audio / Video Switching	3
CRT	2
Power Supply	2
Pincushion	3
Stereo / Audio	3
System Control	3
Television	2
Tuner	4
Schematic Notes	1
Service Information	1
SMPS Shutdown Test	4
Stereo Adjustments	1
Test Equipment	1
Test Jig Hookup	1
Tuner Information	1

MAGNAVOX  
Model RS3161C202 (Chassis 31X304) LP



Essential coverage  
for servicing a television receiver...

- Schematics
- Component locations
- Parts list

Coverage includes these additional models and chassis:

MODEL	CHASSIS
RS3161C202	31X104 (EP)
XS3161C101	31X104 (EP)
XS3161C202	31X304 (LP)

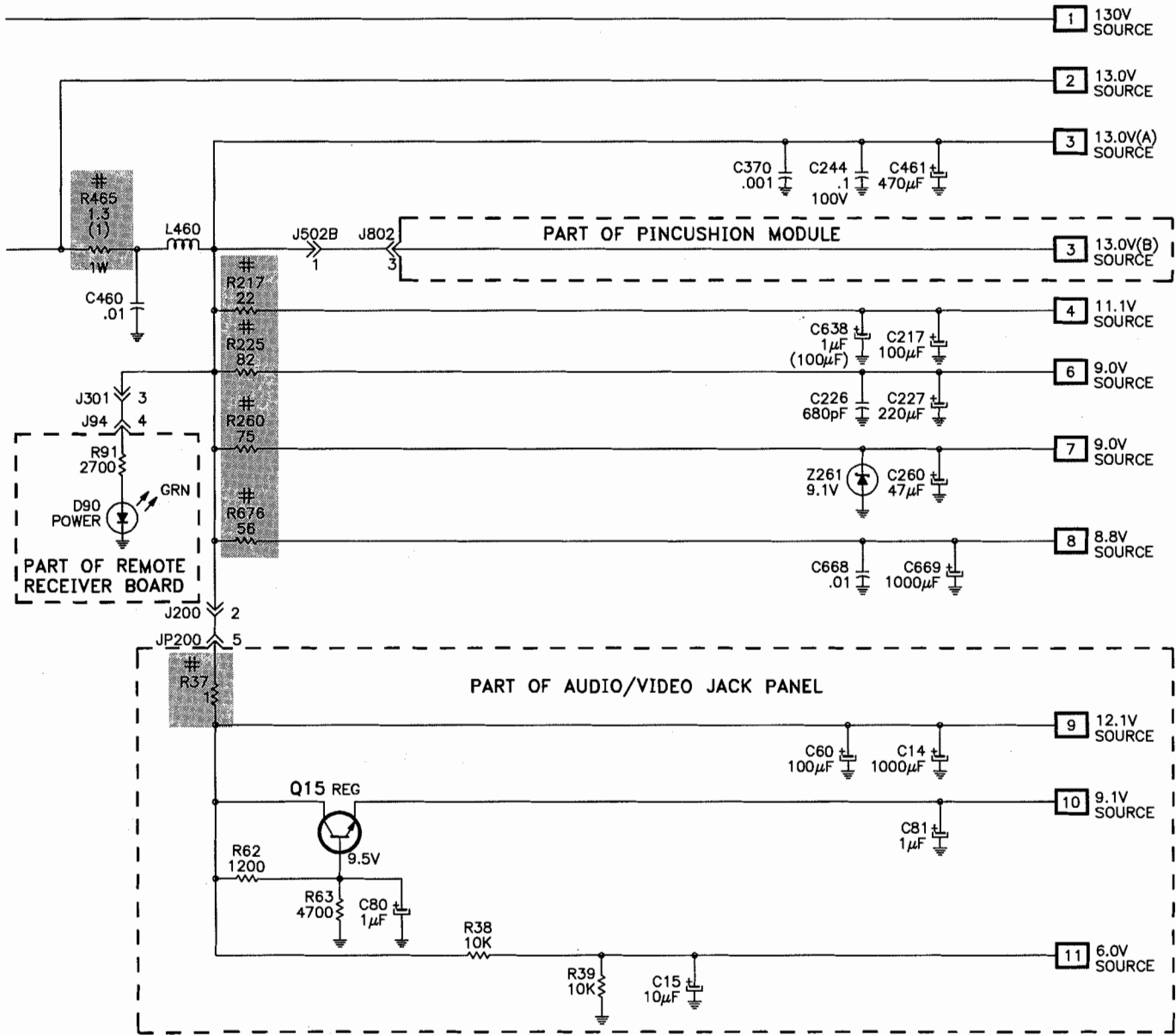


HOWARD W. SAMS & COMPANY

FEBRUARY 1994 SET 3273

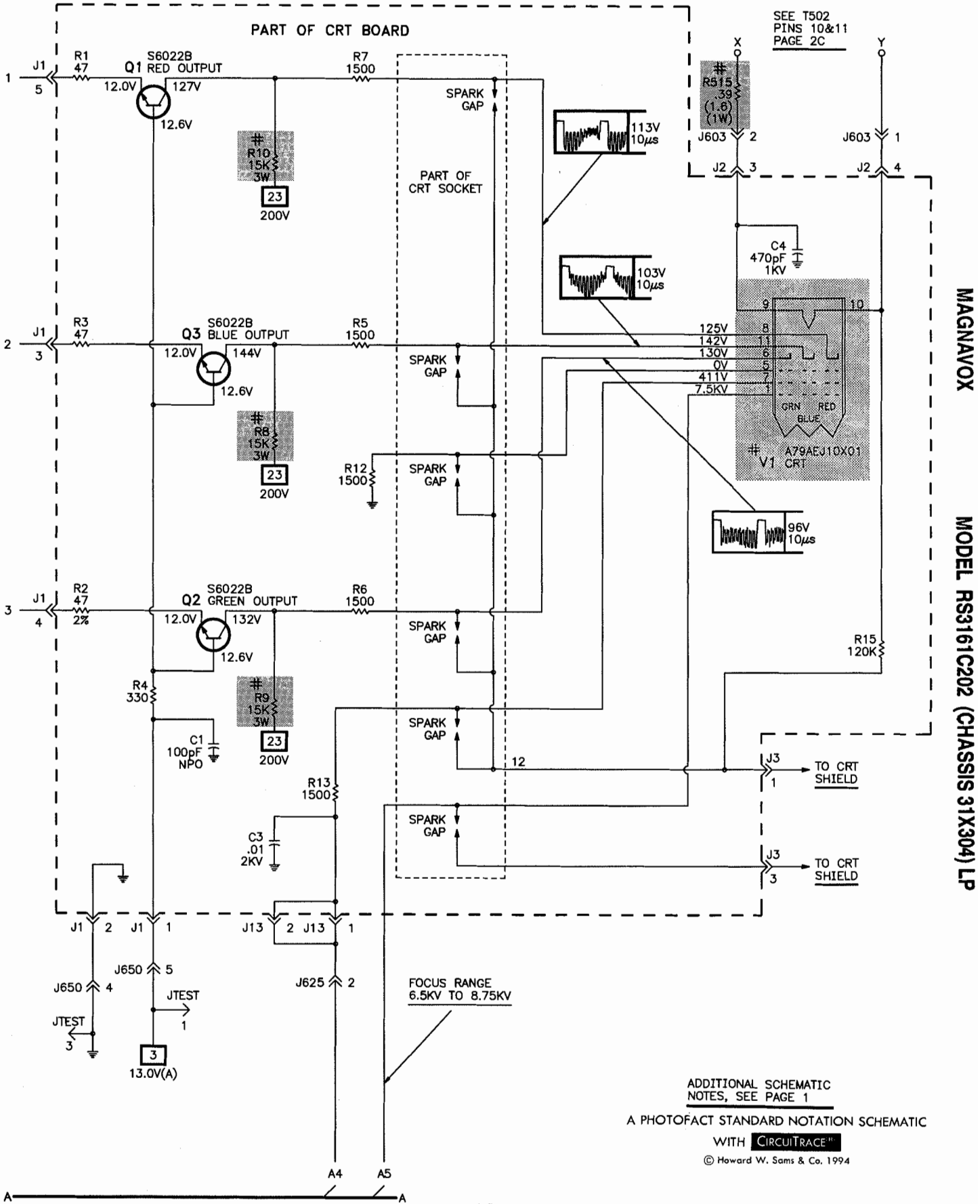
For Supplier Address,  
See PHOTOFACT Annual Index

POWER SUPPLY SCHEMATIC continued



G

CRT SCHEMATIC



MISCELLANEOUS ADJUSTMENTS

HORIZONTAL CENTERING

Tune in a crosshatch pattern. Adjust R514 to center the crosshatch pattern at the left and right sides of the screen.

PINCUSHION

Tune in a crosshatch pattern. Adjust R809 to straighten the vertical lines on the left and right sides of the screen. Adjust R807 to remove any tilting of the vertical lines on the left and right sides of the screen. Adjust R812 for a slight underscan of the raster at the left and right sides of the screen. Adjust R823 to align corners for straight lines at top and bottom of screen. Check horizontal centering. Readjust R812 for a slight overscan of the raster at the left and right sides of the screen.

RF AGC DELAY

Tune in a weak station. Turn R207 fully counterclockwise. Slowly turn R207 clockwise to a point just past minimum snow.

130V B+

Turn receiver on. Connect voltmeter to TP4. Adjust R433 for 130V ±1.0V.

SUB BRIGHTNESS

Tune in an active station. Set color and picture settings to minimum. Set brightness to midrange level. Adjust R380 for just visible highlights.

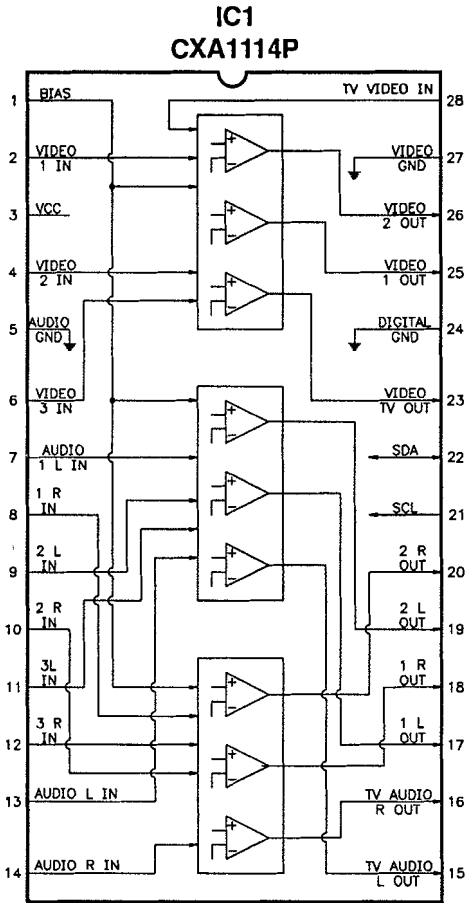
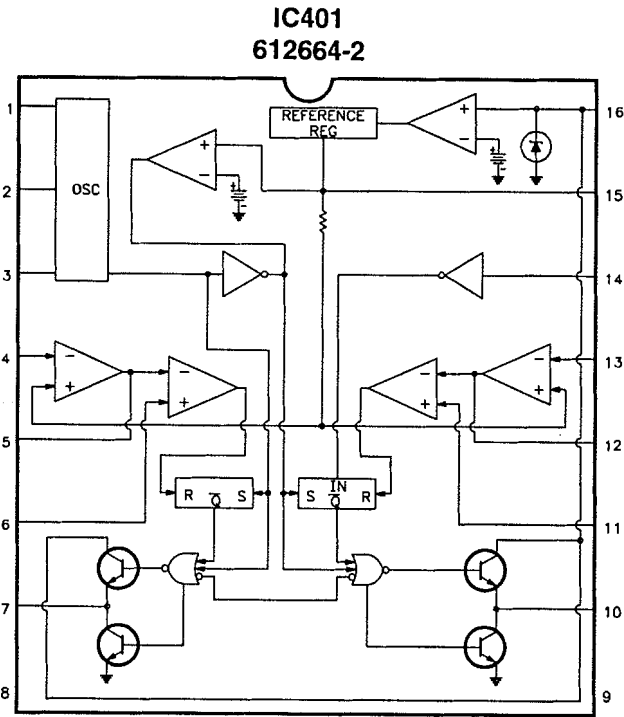
WHITE BALANCE

Turn receiver off and disconnect vertical connector J550 on main board. Place a jumper between pins 1 and 4 of the JTEST connector. Rotate R647, R649, and R653 fully clockwise. Rotate R648, R651, and R653 fully clockwise. Turn receiver on and adjust the screen control for a just visible line of a predominant color. Adjust the remaining two cutoff controls for a dim white line. Turn receiver off, remove jumper from JTEST connector, and reconnect vertical connector J550. Turn receiver on and tune in an active channel. Set color to minimum. Adjust drive controls for best black and white picture at high and low brightness levels.

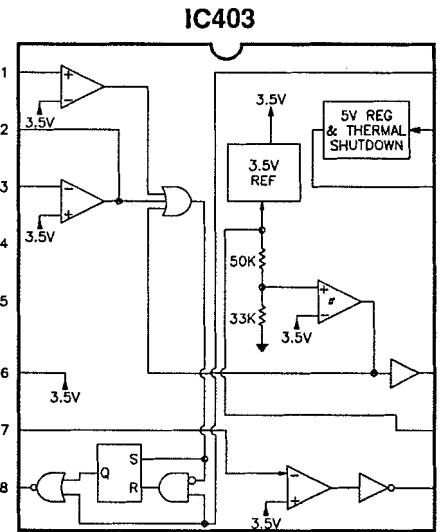
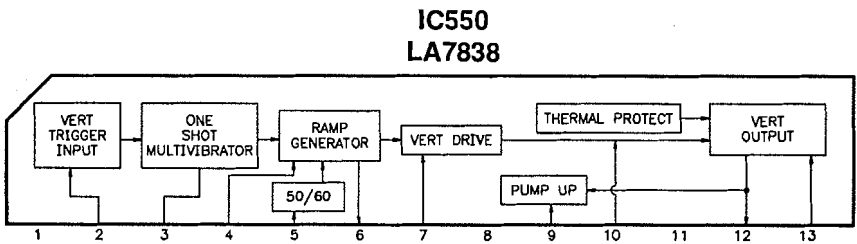
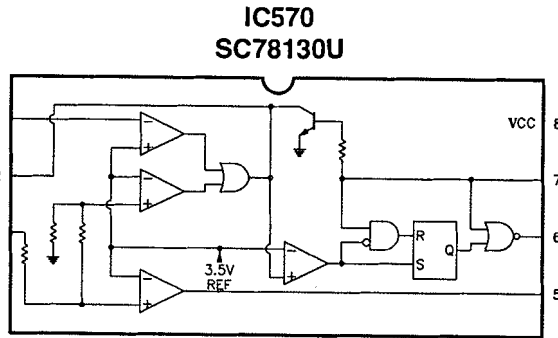
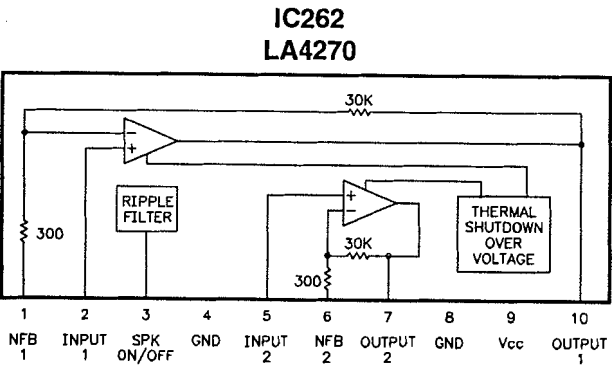
CONVERGENCE/PURITY

Convergence and color purity are factory preset. Adjustment not recommended.

IC FUNCTIONS continued



IC FUNCTIONS

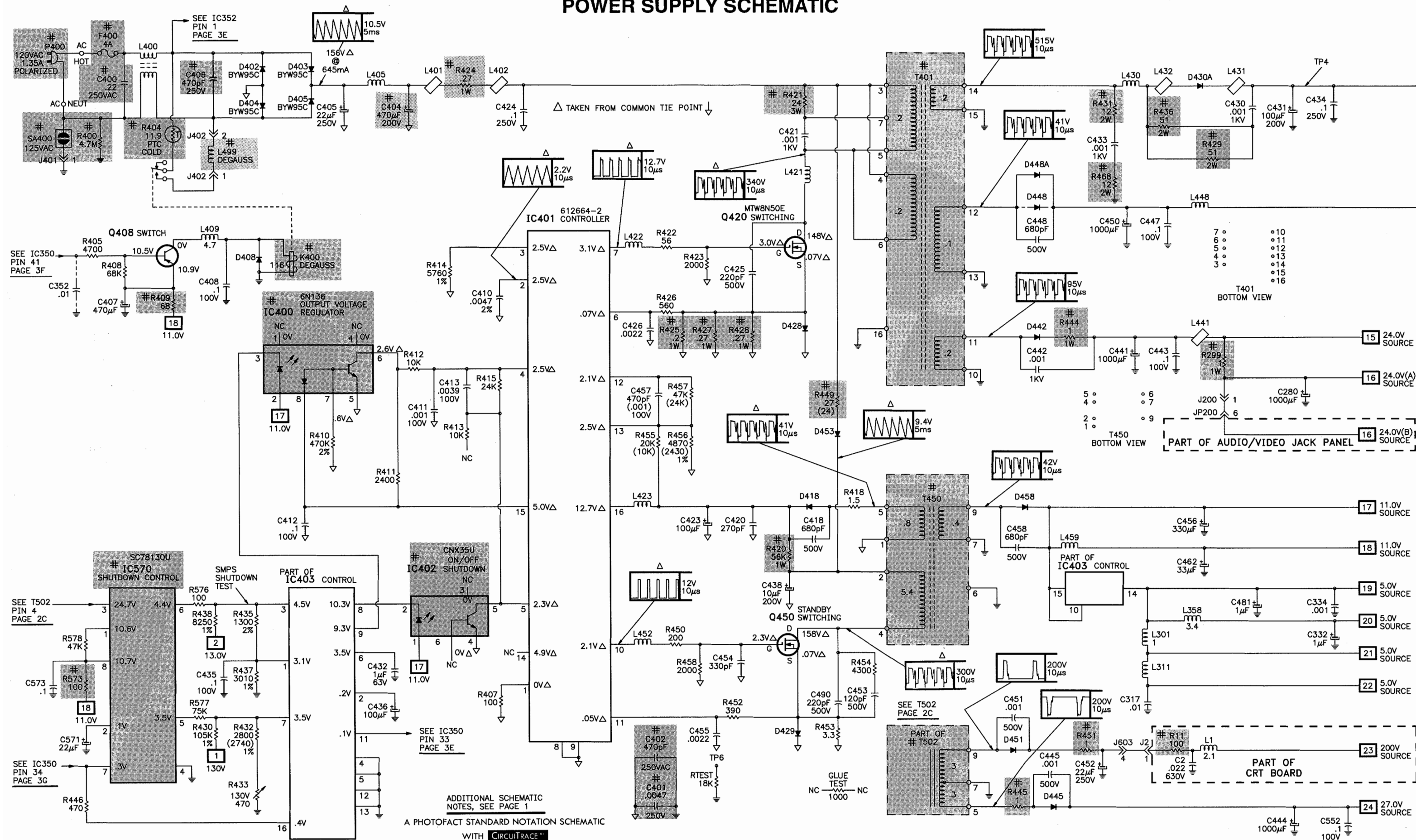


**HF**

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

*J. Barker, B. Bryant,  
B. Buchanan, T. Clensy,  
D. Cobb, G. Farrell, B. Fink,  
M. Herkless, J. Kocha,  
J. Limp, F. Malek, B. Medaris,  
R. Raus, B. Skinner, J. Young*

## POWER SUPPLY 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 the receiver, use an isolation transformer between the line cord and power receptacle.

SERVICING THE HIGH VOLTAGE AND CRT

Use EXTREME CAUTION when servicing the high voltage circuits.

- 1. To discharge static high voltage, connect a 10K ohms resistor in series with a test lead between the receiver and CRT anode lead.
- 2. DO NOT lift the CRT by the neck.
- 3. Always wear shatterproof goggles when handling the CRT 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 CRT 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 receiver, check the 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 receiver with excessive high voltage, avoid close contact with the CRT. DO NOT operate the receiver longer than necessary. To locate the cause of excessive high voltage, use a variable AC transformer to regulate voltage.
- 5. In present receivers, 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 Receivers with Isolated Ground

- 1. Unplug the AC cord, connect a jumper across the plug prongs, and turn the power switch on (if applicable).
- 2. 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, or handle brackets. Exposed metal parts with a return path should measure between 1M ohms and 5.2M ohms. Parts without a return path must measure infinity.

Hot Leakage Current Check

- 1. Plug the AC cord directly into an AC outlet. DO NOT use an isolation transformer.
- 2. Use a 1500 ohms, 10W resistor in parallel with a .15µF capacitor to connect between any exposed metal parts on the receiver and a good earth ground. (See figure.)

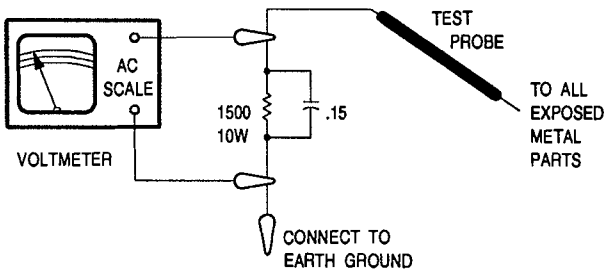
- 3. Use an AC voltmeter with at least 5000 ohms per volt sensitivity to measure the voltage across the resistor. Check all exposed metal parts and measure voltage at each point.
- 4. Voltage measurements should not exceed .75VAC, 500µA. Any value exceeding this limit constitutes a potential shock hazard and must be corrected.
- 5. If the AC plug is not polarized, reverse the AC plug and repeat exposed metal part voltage measurement at each point.

GENERAL GUIDELINES

Perform a final SAFETY CHECK before returning receiver to customer.

- 1. Check repaired area for poorly soldered or unsoldered connections, and check entire circuit board for solder splashes.
- 2. Check inner board wiring for pinched wires or wires contacting any high wattage resistors.

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.



TEST EQUIPMENT

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

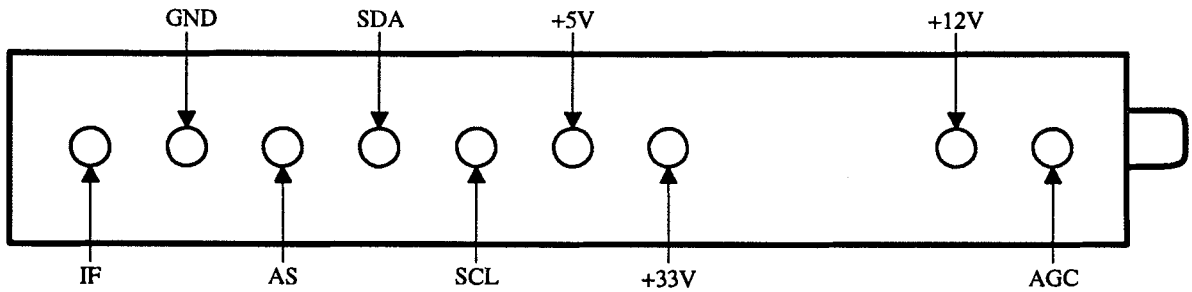
Equipment	Sencore No.
Oscilloscope	SC3100
Generators	
RGB	CM2000
Multiburst Signal	VG91
Color Bar	VG91
TV Stereo	VG91
Digital VOM	SC3100
Frequency Meter	SC3100
Hi-Voltage Probe	HP200
Accessory Probes	TP212
Isolation Transformer	PR57
Capacitance Analyzer	LC101, LC102
CRT Analyzer	CR70
AC Leakage Tester	PR57
Inductance Analyzer	LC101, LC102
Flyback Yoke Tester	TVA92
TV Stereo Power Monitor	SR68, PA81
Field Strength Meter	SL750
Transistor Tester	TF46
Video Analyzer	VG91, TVA92

TUNER INFORMATION

TUNER VOLTAGE CHART

Pin	VHF Low Band	VHF High Band	UHF Band	Pin	VHF Low Band	VHF High Band	UHF Band
AGC	4.24V	4.8V	4.8V	GND	0V	0V	0V
+12V	12.0V	12.0V	12.0V	IF	0V	0V	0V
+33V	.74V	1.5V	1.7V	NOTE: Voltages taken with signal. VHF Low Band voltages taken on channel 2. VHF High Band voltages taken on channel 7. UHF Band voltages taken on channel 14.			
+5V	5.0V	5.0V	5.0V				
SCL	5.7V	5.7V	5.7V				
SDA	5.7V	5.7V	5.7V				
AS	0V	0V	0V				

TUNER TERMINAL GUIDE



SCHEMATIC NOTES

- # For SAFETY use only equivalent replacement part, see parts list.
- ✕ Circuitry not used in some sets.
- Circuitry used in some versions.
- ⏏ Ground
- ⏏ Chassis ground
- ⏏ Common tie point
- △ Taken from common tie point
- 11 Schematic Circuittrace
- A Cabling: Heavy lines reduce use of mutiple lines.

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

Waveforms taken with triggered scope and keyed rainbow generator. Waveform voltage is peak to peak. Timebase is per division. Waveforms shown at 10 divisions.

Supply voltages maintained as seen at input.

Voltages measured with digital meter and no signal.

Controls adjusted for normal operation.

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.

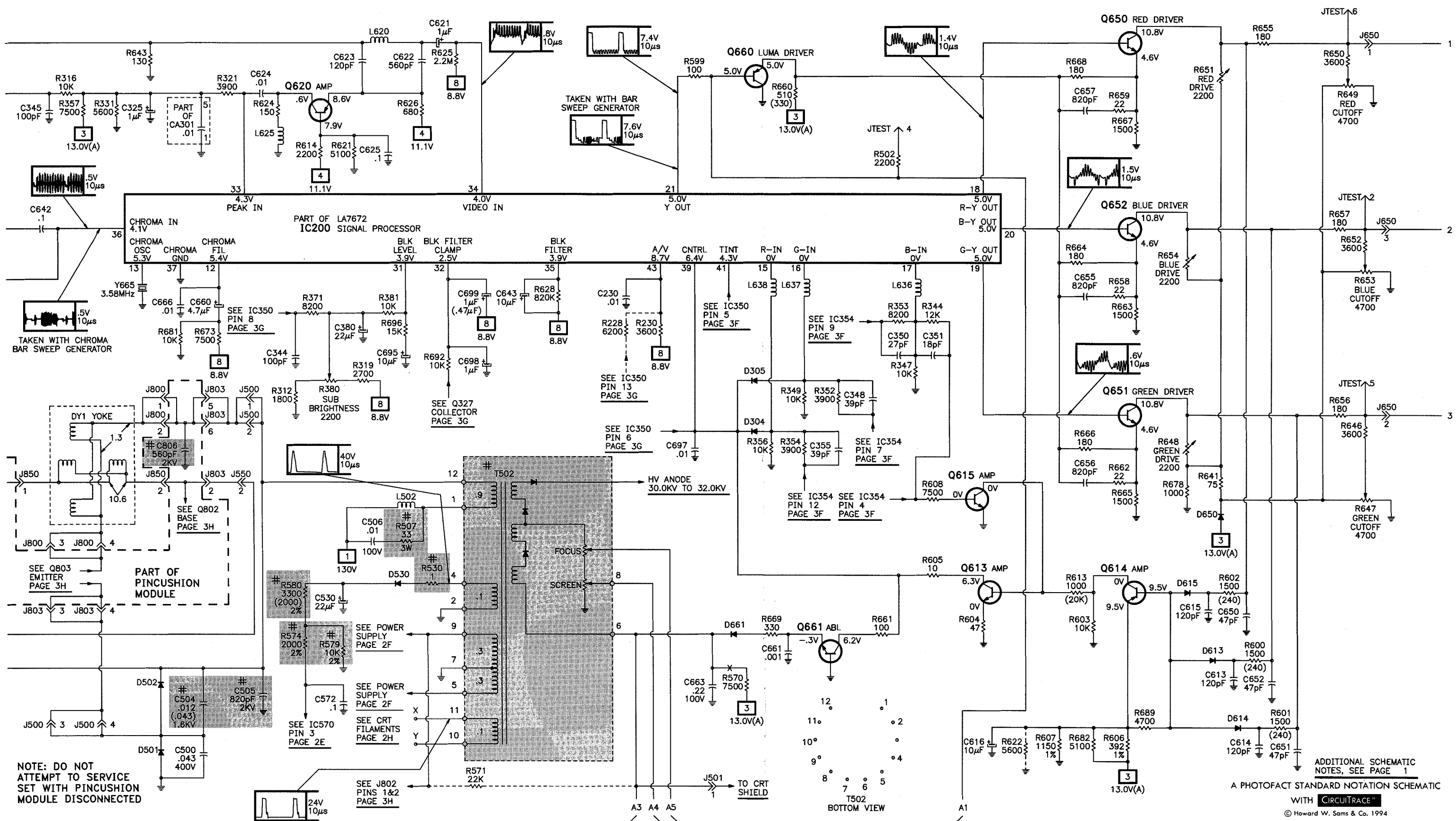
Value in ( ) used in some versions.

Measurements with switching as shown, unless noted.

Rated voltage shown on Zener Diodes.



TELEVISION SCHEMATIC continued



NOTE: DO NOT ATTEMPT TO SERVICE SET WITH PINCUSHION MODULE DISCONNECTED

ADDITIONAL SCHEMATIC NOTES, SEE PAGE 1  
A PHOTOFACT STANDARD NOTATION SCHEMATIC  
WITH CIRCUITRACE  
© Howard W. Sams & Co. 1994

In the event replacement of IC350 is necessary, or a customer is dissatisfied with the initial factory default values, the following procedure may be required to enter the field service test mode.

ENTERING TEST MODES

A remote transmitter is required in order to perform this adjustment.

- 1. From the main board assembly, momentarily ground the keyboard line (pin 2 of J300) through a 100 ohm resistor or enter, in sequence, 0 6 2 5 9 6 then press the menu button on the remote transmitter (these entries must be made before the display times out or the sequence will have to be repeated). The receiver must be on for the test mode to be activated. Subsequent entries of this command will not be acted upon by the system.

EXPLANATION OF TEST MODES

NOTE: A loss of power during this test mode will cause the receiver to return to normal operations.

- Test mode A - no information available
- Test mode B - no information available
- Test mode C - field service test mode
- Test mode D - no information available

Test mode C

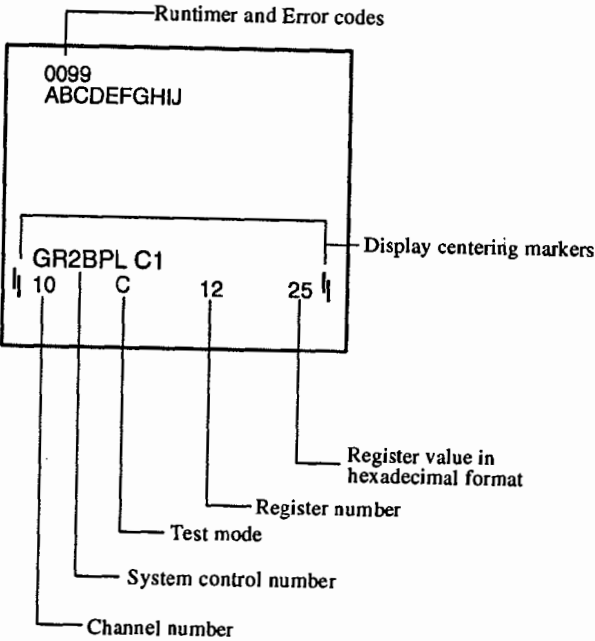
- 1. Test mode C is used to set the receiver to its optimum settings.
- 2. Upon entry into the field service test mode the receiver will enter test mode C and display the following:
- 3. In this mode all normal on screen displays (OSD's) will be suppressed and replaced by this special test mode display.
- 4. The first line in the lower left hand corner (displayed in red) is the control systems number (GR2BPL). This number will be followed by a letter denoting use of the control system, whether in consumer product (C), lodging product (M), or hospital product (H). This letter will be followed by a single digit number signifying the current revision level of the software in use.
- 5. If the model being tested has the PIP function, the PIP window will appear upon entry into the field service test mode.
- 6. By depressing the status/exit button, the system runtimer will be displayed along with the system error code information. The runtimer is displayed in the upper left hand portion of the screen in hexadecimal format.
- 7. In the upper left hand corner, directly under the system runtimer, there may appear up to 10 letters. These letters indicate the failure or operation of a functional part of the system. These letters are called error codes. Error codes will only be displayed if the function is not operating properly. That particular function of the system will operate in one of two modes, or the receiver does not have that feature.
- 8. By depressing any key on the remote transmitter, except the status/exit button, the system runtimer and the error code display will be removed from the screen.
- 9. To restore the system runtimer and the error code display, depress the status/exit button on the remote transmitter.
- 10. The following is a list of error codes and an explanation for each code.

Code Explanation

- A - tuner failure
- B - memory failure
- C - black & white pip module failure
- D - color pip module failure
- E - clock failure
- F - jack panel failure (1)
- G - audio panel failure

- H - line frequency = 50Hz (2)
- I - RF switcher failure (1)
- J - remote locator failure (1)

- (1) Models using the standard software do not support these functions and will not display them as error conditions.
- (2) The clock time base is derived from the AC line frequency. The microcomputer will test the time base of the AC line frequency and determine if the clock is to run from a 50Hz base (for Latin America) or a 60Hz base. Any frequency between 37Hz and 55Hz will be considered to be 50Hz. Any frequency above 55Hz will be considered 60Hz for use in the clock time base and no error code will appear.



SPECIAL KEY DESIGNATION

Special keys have been designated to function within this test mode. These keys and their functions are described below.

- 1. Channel up or channel down and the number keys will allow access to a channel. The number keys allow random access to any channel, while the channel up or channel down keys scan the channels in the favorite station memory.
- 2. Display or menu keys cause the test mode to change from A through D.
- 3. The cursor up and cursor down keys will increase or decrease the register number from 10 through the maximum number of control registers.
- 4. Plus and minus or cursor right and cursor left change the register's value. The register values can be increased or decreased in one step increments from minimum to maximum. These values will be saved in memory when the field service test mode is exited.

IDENTIFYING SOFTWARE

The on screen display (OSD) centering markers will signify whether the receiver being tested uses standard software or deluxe software.

- (1) If there are two yellow centering markers only, this receiver uses standard software.
- (2) The yellow centering markers can be adjusted horizontally by entering register number 19 and then changing the register's value by following the procedure outlined in special key designation section steps 3 and 4.

- (3) If there are two yellow centering markers and two red centering markers, this receiver uses deluxe software.
- (4) First adjust the yellow centering markers with the same procedure listed above. The red centering markers can then be adjusted by entering register number 20. The red marker on the left hand side should be lined up directly over, or as close as possible to, the yellow marker on the left hand side. Use the procedure in special key designation section steps 3 and 4.

MODIFYING TEST MODE

The field service test mode display will appear, along with the system information, whenever the field service test mode has been entered. This display is a one line display at the bottom of the screen containing the channel number, test mode level, register number, and the register value.

Upon entering the field service test mode the first register displayed is the picture register (register 12).

Registers and their functions are as follows:

Register	Value	Function
10	(1)	Feature word
11	1F	Brightness register
12	30	Picture register
13	1F	Color register
14	1F	Tint register
15	1F	Sharpness register
16	20	Bass register
17	20	Treble register
18	20	Balance register
19	(2)	Horizontal display start position (yellow)
20	(2)	Horizontal display start position (red)
21	04	PIP write counter position
22	07	PIP read counter position

23	(3)	PIP X position register
24	(3)	PIP Y position register
25	06	Beam current register
26	0-F	Exit field service test mode register

- (1) The value of this register is determined by the features included in the model being tested. The feature value for this model is 3.
- (2) Refer to Identifying Software Procedure in this service information.
- (3) Not used in this model.

NOTE: All registers can be altered even though they may not be a part of the feature package associated with the receiver being tested.

The following items are defined by the programming of the memory for each test mode. Their values are predetermined by the factory for their specific requirements in each test mode.

Brightness	Picture
Color	Tint
Sharpness	Stereo mode
SAP mode	Auxiliary input or antenna
SVHS input	Channel

EXITING TEST MODE

To exit the field service test mode, choose register 26. The value of this register upon entry will be 0, increase its value to F, or turn the receiver off at the local (keyboard) power button.

The system will then execute the following:

- 1. The setup values will be stored.
- 2. The favorite station maps will be overwritten (the stations which will be programmed into memory will be 2 through 14 and AUX/VCR.)
- 3. The video and audio controls and the last channel are recalled from the memory.

STEREO ADJUSTMENTS

Adjustments were made using a MTS TV / stereo generator. Unless otherwise indicated, adjustments are made with customer controls at normal settings.

INPUT LEVEL

Connect generator to antenna terminals. Select stereo mode on receiver. Select pilot, 1kHz audio frequency, and L-R modulating signal. Connect an oscilloscope to pin 39 of IC260 and adjust R249 for .5V p-p MTS signal.

SAP FILTER

Connect generator to antenna terminals. Select SAP mode on receiver. Select SAP, 1kHz audio frequency, and L-R modulating signal. Connect an oscilloscope to pin 26 of IC260. Turn R257 fully clockwise then slowly back until the waveform appears and mark this control setting. Turn R257 fully counterclockwise then slowly back until the waveform appears and mark this setting. Adjust R257 halfway between the two settings.

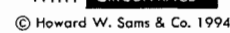
SEPARATION

Connect generator to antenna terminals. Select stereo mode on the receiver. Select pilot, 300Hz audio frequency, and left modulating signal. Connect an oscilloscope to pin 11 of IC261, and adjust R258 for minimum amplitude of waveform. Set audio frequency to 8kHz, and adjust R255 for minimum amplitude of waveform. Repeat until no further decrease in amplitude can be obtained.

PILOT NULL

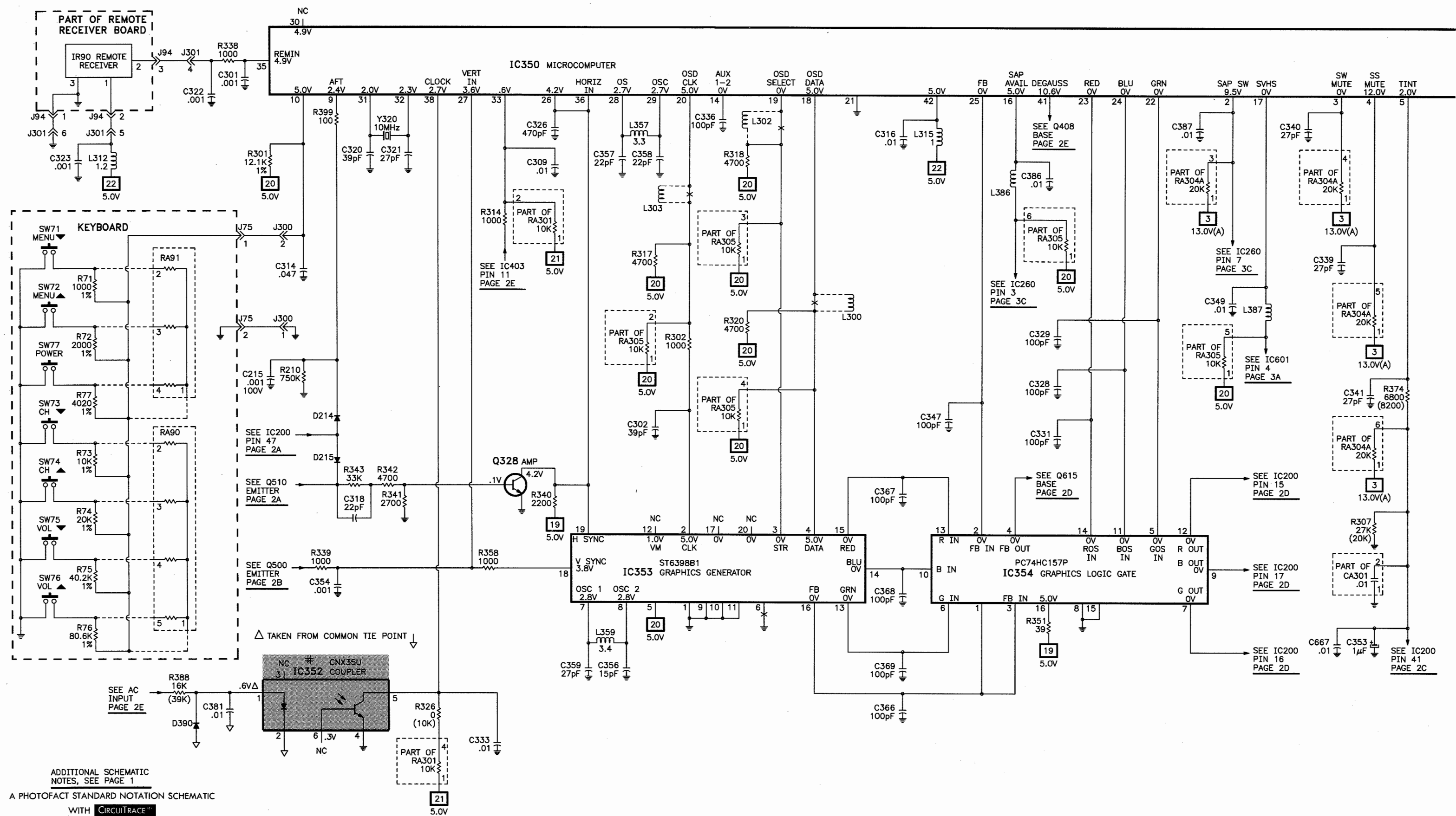
Connect generator to antenna terminals. Select stereo mode on receiver. Select pilot on, SAP off. Turn R259 fully counterclockwise then slowly back until the stereo indicator LED lights.

**A**





SYSTEM CONTROL SCHEMATIC



ADDITIONAL SCHEMATIC  
NOTES, SEE PAGE 1  
A PHOTOFACT STANDARD NOTATION SCHEMATIC  
WITH CIRCUITRACE™  
© Howard W. Sams & Co. 1994

PARTS LIST continued

COILS & TRANSFORMERS continued

Item No.	Function/Rating	Mfr. Part No.	On-Unit No.
L638	1.2µH	4835 157 67003	
# T401	SMPS Power	4835 148 87276	300815-1001
# T450	SMPS Standby	4835 148 87251	410-4
T501	Horizontal Drive	4835 148 47015	403-11
# T502 (3)	Horizontal Output	4835 140 67089	0364089-0001

PINCUSHION BOARD

L802	1.5µH	4835 152 27037	362168-2
L803 (1)	Choke	4835 154 97161	-
L803 (2)	Choke	4835 152 27031	-
# L804	Linearity	4835 150 57037	-

# For SAFETY use only equivalent replacement part.

(1) Used in pincushion module 00APC024.

(2) Used in pincushion module 00APC0221.

(3) Focus and screen controls are part of T502.

CAPACITORS & ELECTROLYTICS

Item No.	Rating	Mfr. Part No.
----------	--------	---------------

CRT BOARD

C1	100pF 5% 50V NPO	4835 122 47014
C3	.01 2KV	4835 122 57002
C4	470pF 10% 1KV	4835 122 47459

MAIN BOARD

# C400	.22 250VAC	4835 122 97047
# C401	.0047 250V	4835 122 97023
# C402	470pF 250VAC	4835 122 97071
# C404	470µF 200V	4835 124 47097
# C406	470pF 20% 250V	4835 122 97022
C410	.0047 2% 50V	4835 121 47045
C421	.001 10% 1KV	4835 122 47373
C430	.001 10% 1KV	4835 122 47373
C433	.001 10% 1KV	4835 122 47373
C442	.001 10% 1KV	4835 122 47373
# C504	.012 5% 1.6KV	-
	.043 5% 1.6KV	4835 121 47161
# C505	820pF 2KV	4835 122 57004
C509	22pF 10% 500V NPO	4835 122 47073
C553	4.7pF NPO	4835 122 47452

PINCUSHION BOARD

# C806	560pF 10% 2KV	4835 122 57007
# C812	4.7µF 100V	4835 121 47392
# C813	.51 250V	4835 122 97062
	.56 250V	4835 121 47426
CA301	.01 X 5 Network	4835 122 97069

# For SAFETY use only equivalent replacement

CONTROLS & RESISTORS

Item No.	Function/Rating	Mfr. Part No.	NTE Part No.
----------	-----------------	---------------	--------------

AUDIO / VIDEO JACK PANEL BOARD

# R10	22 5% 1/8W	4835 110 67078	EW022
# R19	22 5% 1/8W	4835 110 67078	EW022
# R37	1 5% 1/2W	4835 116 57109	HW1D0

CRT BOARD

R2	47 2% 1/4W	-	QW047
	47 5% 1/4W	4835 110 57324	QW047
# R8 Thru			
# R10	15K 5% 3W	4835 116 67018	3W315
# R11	100 5% 1/2W	4835 116 67089	HW110

KEYBOARD

R71	1000 1% 1/8W SMT	4835 111 27011	-
R72	2000 1% 1/8W SMT	4835 111 27022	-
R73	10K 1% 1/8W SMT	4835 111 27027	-
R74	20K 1% 1/8W SMT	4835 111 27023	-
R75	40.2K 1% 1/8W SMT	4835 111 27026	-
R76	80.6K 1% 1/8W SMT	4835 111 27015	-
R77	4020 1% 1/8W SMT	4835 111 27025	-

MAIN BOARD

R207	10K AGC	4835 100 17036	-
# R217	22 5% 1/4W SMT	4835 111 37077	-
# R225	82 5% 1/2W	4835 116 67093	-
R249	2200 Audio BB Level	4835 100 17037	-
R255	4700 3kHz	4835 100 17041	-
R257	22K SAP Bandpass	4835 100 17038	-
R258	10K 300Hz	4835 100 17036	-
R259	47K Pilot Null	4835 100 17042	-
# R260	75 5% 1/2W	4835 110 47031	HW075
# R283, 93	2.2 5% 1/8W	4835 110 67081	EW2D2
# R299	1 1W 5%	4835 116 57117	1W1D0
R301	12.1K 1% 1/8W	4835 110 67187	-
# R360	15 5% 1/8W	4835 110 67076	EW015
# R361	18K 5% 1W	4835 116 57036	1W318
R380	2200 Sub Brightness	4835 100 17037	-
# R400	4.7M 5% 1/2W	4835 116 57009	HW547
# R404	11.9 PTC Cold	4835 116 47001	-
# R409	68 5% 1/3W	4835 116 57292	-
R410	470K 2% 1/4W	4835 111 37349	QW447
R414	5760 1% 1/8W	4835 116 57033	-
# R420	56K 5% 1W	4835 116 57039	1W356
# R421	24 5% 3W	4835 116 57043	3W024
# R424	.27 5% 1W	4835 116 57056	1WD27
# R425	.2 5% 1W	4835 116 57054	-
# R427	.27 5% 1W	4835 116 67096	1WD27
# R428	.27 5% 1W	4835 116 67096	1WD27
# R429	51 5% 2W	4835 110 57258	2W051
R430	105K 1% 1/2W	4835 116 57287	-
# R431	12 5% 2W	4835 116 57075	2W012
R432	2800 1% 1/8W	-	-
	2740 1% 1/8W	4835 111 37045	-
R433	470 130V	4835 100 17039	-
R435	1300 2% 1/4W	4835 111 37302	QW213
# R436	51 2% 2W	4835 110 57258	2W051
R437	3010 1% 1/8W	4835 116 57029	-
R438	8250 1% 1/8W	4835 110 67189	-
# R444	1 5% 1W	4835 116 67094	1W1D0

# For SAFETY use only equivalent replacement part.

CONTROLS & RESISTORS continued

Item No.	Function/Rating	Mfr. Part No.	NTE Part No.
----------	-----------------	---------------	--------------

# R445	1 5% 1/3W	4822 111 30483	-
# R449	27 5% 1/3W	-	-
	24 5% 1/3W	4835 116 57019	-
# R451	1 5% 1/3W	4822 111 30483	-
R456	4870 1% 1/8W	-	-
	2430 1% 1/8W	4835 116 57028	-
# R465	1.3 5% 1W	-	1W1D3
	1 5% 1W	4835 116 57117	1W1D0
# R468	12 5% 2W	4835 116 57075	2W012
# R504	2400 5% 3W	4835 116 67019	3W224
# R505	.27 5% 1W	-	1WD27
	.47 5% 1W	4835 116 57038	1WD47
# R507	33 5% 3W	4835 116 67102	3W033
# R511	220K 5% 1/2W	4835 116 57018	HW422
R514	10K Horizontal Centering	4835 100 17029	-
# R515	.39 5% 1W	-	1WD39
	1.6 5% 1W	4835 116 57311	1W1D6
# R519	220K 5% 1/2W	4835 116 57018	HW422
# R530	1 5% 1/3W	4822 111 30483	-
# R532	100 5% 1/8W	4835 110 67071	EW110
# R548	100 5% 1/4W SMT	4835 111 37021	-
R552	3000 2% 1/4W	-	QW230
	3600 2% 1/4W	4835 111 37304	QW236
# R555	330 5% 1W	4835 116 57382	1W133
R557	47K Vertical Size	4835 100 17023	-
# R563	2.2 5% 1/4W	4835 110 57035	QW2D2
# R565	470 5% 1/4W	4835 111 37104	QW147
# R573	100 5% 1/8W	4835 110 67071	EW110
# R574	2000 2% 1/4W	4835 111 37348	QW220
# R579	10K 2% 1/8W	4835 110 67179	EW310
# R580	3300 2% 1/4W	-	QW233
	2000 2% 1/4W	4835 111 37348	QW220
R606	392 1% 1/8W	4835 116 57383	-
R607	1150 1% 1/8W	4835 111 37352	-
# R609	47 5% 1/4W	4835 111 37107	QW047
R617	2400 2% 1/4W	4835 111 37326	QW224
R619	560 2% 1/4W	4835 111 37351	QW156
# R640	47 5% 1/8W	4835 110 67004	EW047
R647	4700 Green Cutoff	4835 100 17022	-
R648	2200 Green Drive	4835 100 97035	-
R649	4700 Red Cutoff	4835 100 17022	-
R651	2200 Red Drive	4835 100 97035	-
R653	4700 Blue Cutoff	4835 100 17022	-
R654	2200 Blue Drive	4835 100 97035	-
# R676	56 5% 1/2W	4835 116 67091	HW056
RA301	10K x 4 Network	4835 111 97021	-
RA304A	20K x 7 Network	4835 122 97021	-
RA305	10K x 5 Network	4835 122 97073	-

PINCUSHION BOARD

# R802	1 5% 1/3W	4822 111 30483	-
R807	1000 Side Trapezoid	4835 100 17014	-
R809	10K Side Amplitude	4835 100 17015	-
R812	10K Width	4835 100 17015	-
# R818	10 5% 1W	4835 116 67119	1W010
# R819	1000 5% 2W	4835 116 57057	2W210
R823	10K Corner	4835 100 17015	-

# For SAFETY use only equivalent replacement part.

MISCELLANEOUS

Item No.	Description	Mfr. Part No.	Notes
----------	-------------	---------------	-------

SP1, 3	Speaker	-	3/4" Round
SP2, 4	Speaker	-	4" X 4", 16 Ohms
# V1 (1)	CRT	4835 131 27052	A79AEJ10X01
# V1 (2)	CRT	4835 131 27064	-
	Transmitter	4835 219 17394	00M1430A BA02
	PC Board (3)	4835 219 57375	Audio / Video Jack Panel, 00AVJ137
	PC Board (3)	4835 219 57443	CRT, 00APT107
	PC Board (3)	4835 219 57394	Keyboard, 00ASW108
	PC Board (3)	-	Main, 00EMX141 (Chassis 31X104)
	PC Board (3)	-	Main, 00EMX341 (Chassis 31X304)
	PC Board (3)	4835 219 57365	Pincushion, 00APC022
	PC Board (3)	4835 219 57392	Pincushion, 00APC024

AUDIO / VIDEO JACK PANEL BOARD

J1	Jack	0018 221 10004	Video Out
J3	Jack	0018 221 10004	Video In 1
J4	Jack	0018 221 10004	Video In 2
J5A	Jack	4835 265 97219	Audio Input Left / Right
J12	Jack	0018 169 7004	S-Video
J14	Terminal Block	0020 053 90009	External Speakers
J15	Jack	4835 265 97023	Left / Right Variable / Fixed Out

KEYBOARD

SW71	Switch	4835 277 27066	Menu Down
SW72	Switch	4835 277 27066	Menu Up
SW73	Switch	4835 277 27066	Channel Down
SW74	Switch	4835 277 27066	Channel Up
SW75	Switch	4835 277 27066	Volume Down
SW76	Switch	4835 277 27066	Volume Up
SW77	Switch	4835 277 27066	Power

MAIN BOARD

# F400	Fuse	4835 253 97095	4Amp, 125VAC, Slow Blow
# K400	Relay	4835 280 47033	Degaussing
# P400	Line Cord	4835 321 17005	AC, polarized
S550	Switch	4835 273 57003	Vertical Centering
# SA400	Surge Absorber	4835 116 97001	-
Y200	Filter	4835 153 97022	SAW
Y202	Filter	4835 157 57341	4.5MHz
Y203	Crystal	4835 153 97004	503.5MHz
Y206	Filter	4835 154 17001	4.5MHz
Y320	Crystal	4835 157 57595	10MHz
Y600	Comb Filter	4835 152 87001	-
Y665	Crystal	4835 242 77179	3.58MHz
	Tuner (3)	4835 210 47042	UHF/VHF, 3403130005

REMOTE RECEIVER BOARD

IR90	Receiver	4835 218 27004	Remote Control (ALRO11)
------	----------	----------------	-------------------------

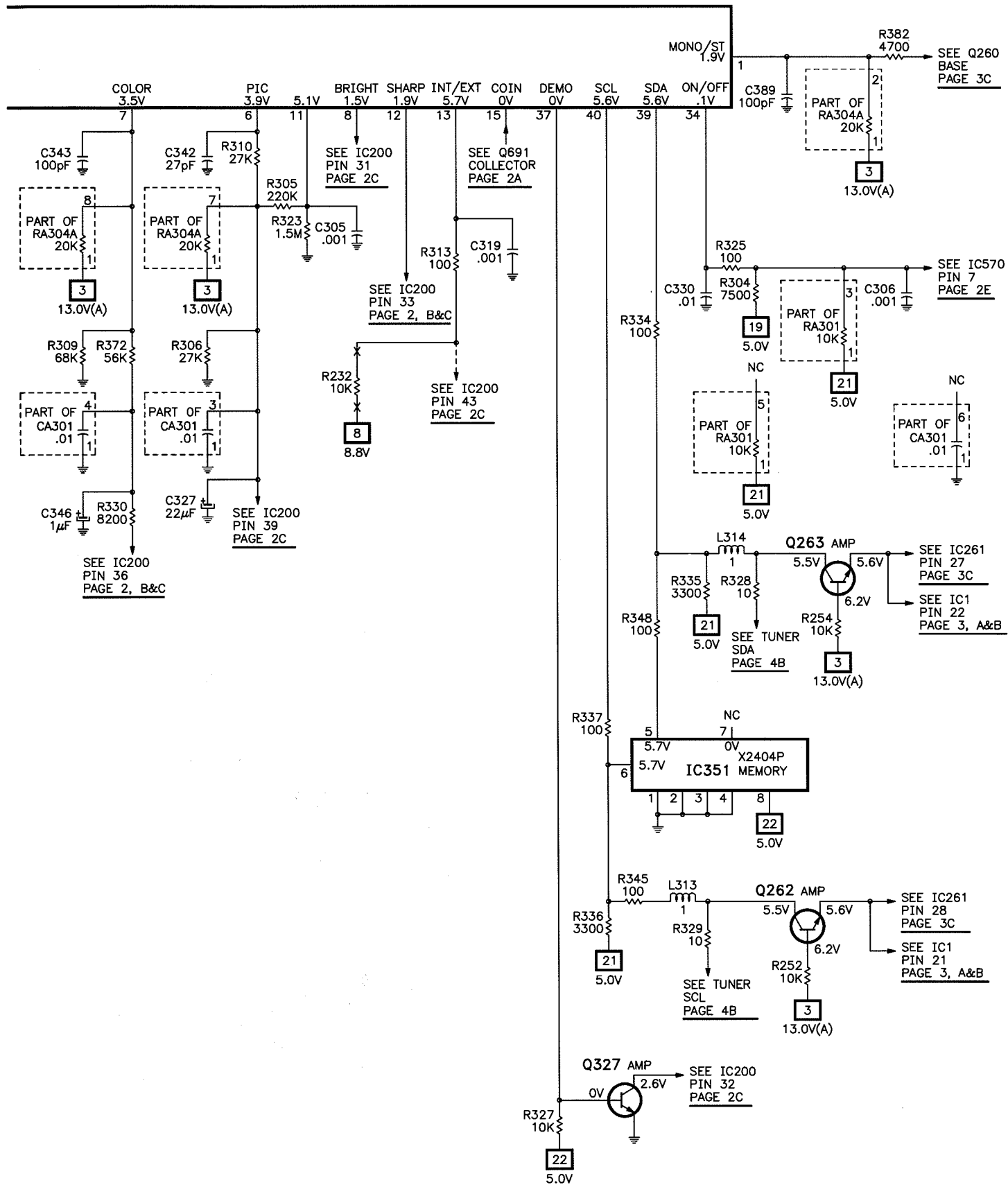
# For SAFETY use only equivalent replacement part.

(1) Early production.

(2) Late production.

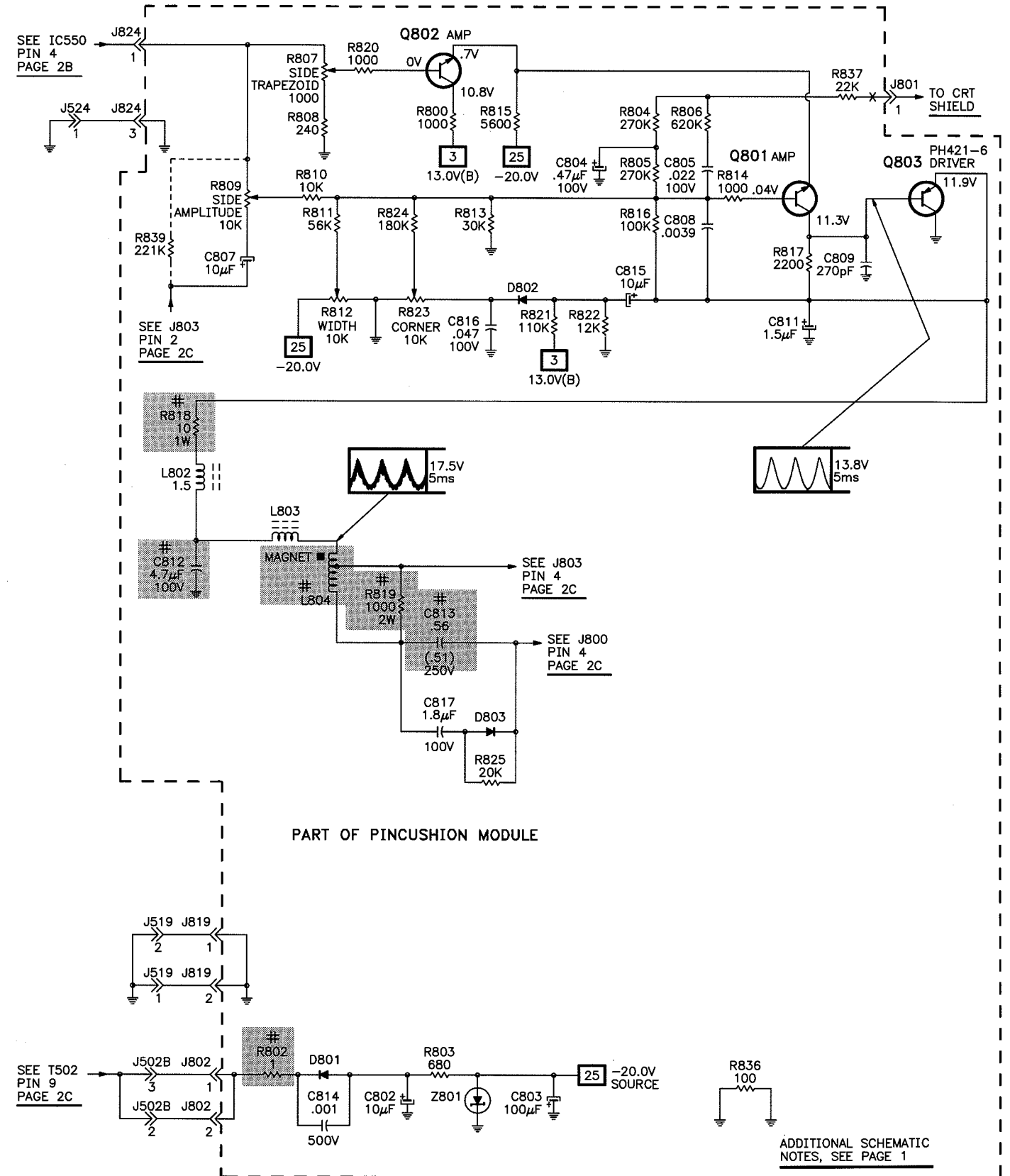
(3) Contact PTS Electronics Corporation for replacement; order by manufacturer's part number.

## SYSTEM CONTROL SCHEMATIC continued



**G**

## PINCUSHION SCHEMATIC



### A PHOTOFACT STANDARD NOTATION SCHEMATIC

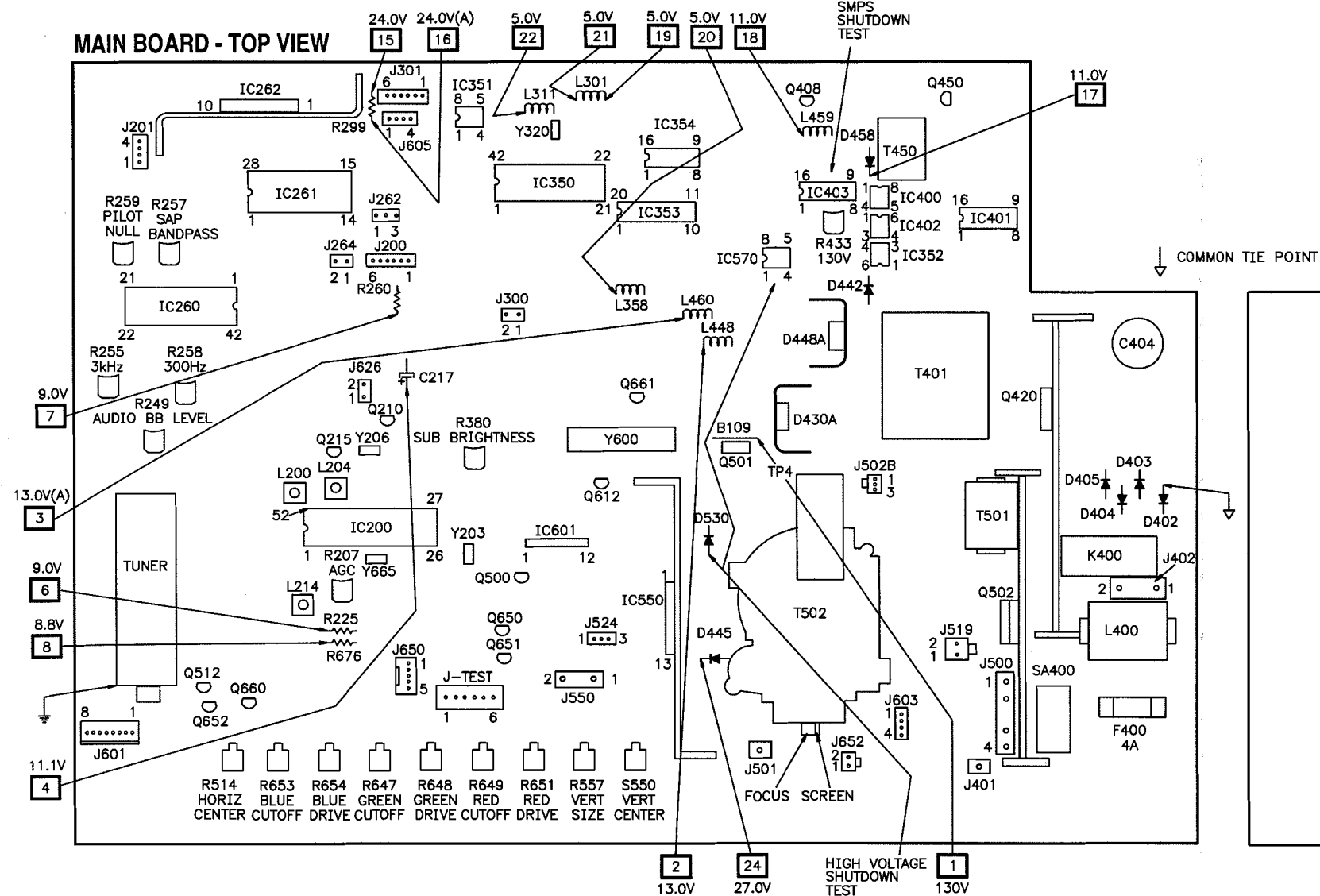
WITH **CIRCUITRACE<sup>®</sup>**  
© Howard W. Sams & Co. 1994

© Howard W. Sams & Co. 1994

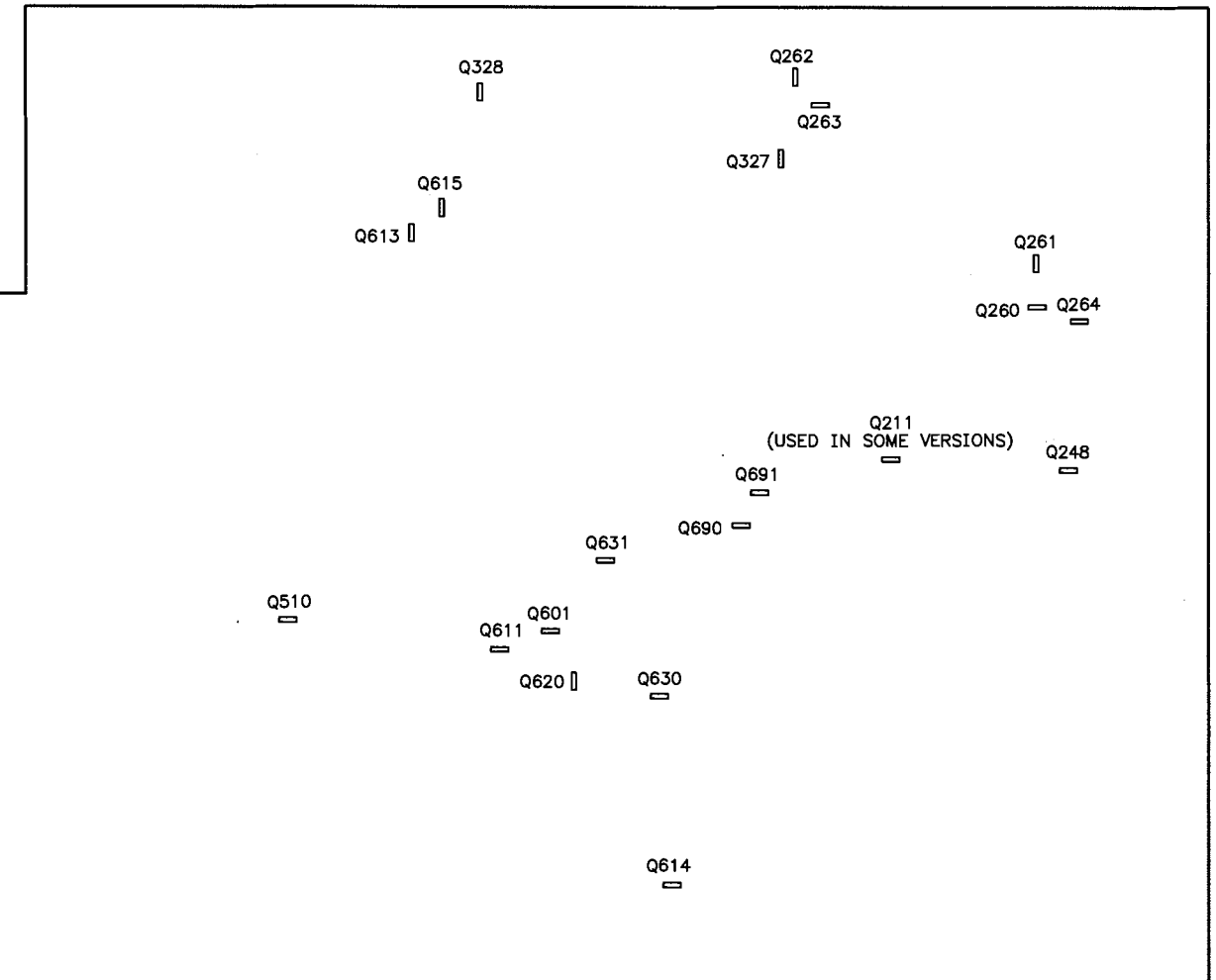
## H

## PLACEMENT CHART

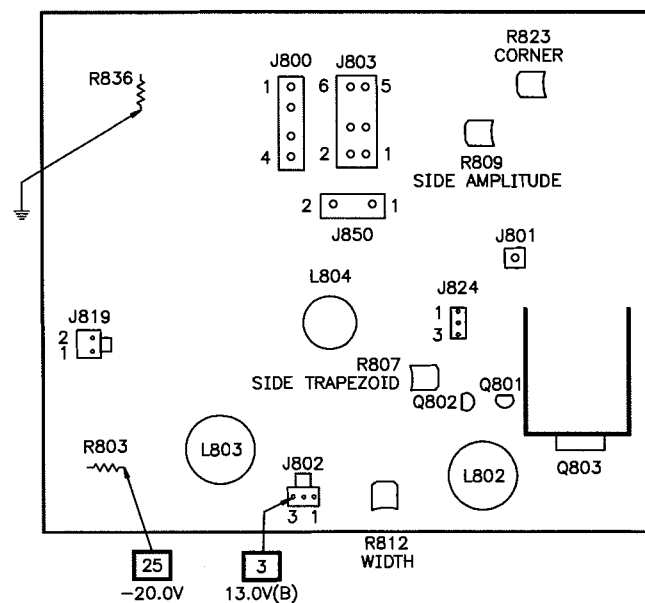
### MAIN BOARD - TOP VIEW



### MAIN BOARD - BOTTOM VIEW



## PINCUSHION BOARD



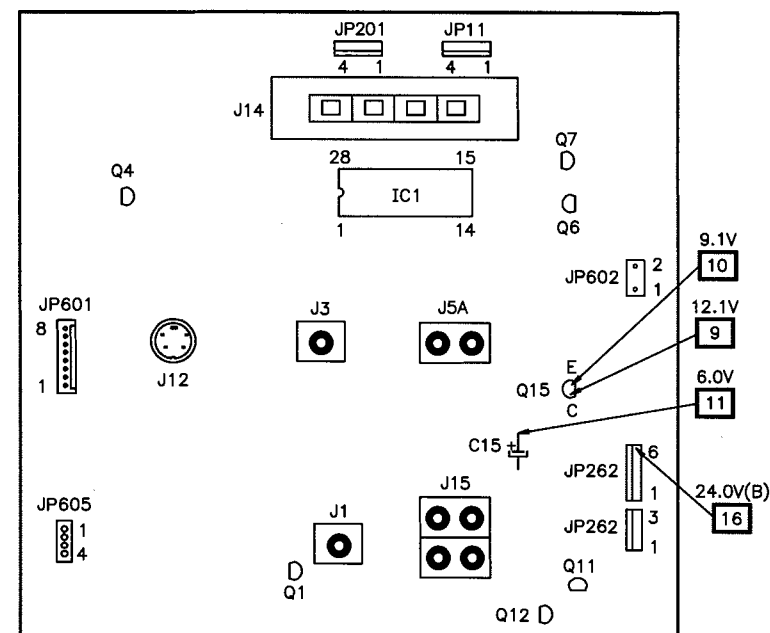
## HIGH VOLTAGE SHUTDOWN TEST

After any servicing to the high voltage circuits, test the shutdown circuit by momentarily placing a 2200 ohms resistor between the cathode of D530 and pin 3 of IC570. Receiver should go into shutdown losing sound and raster.

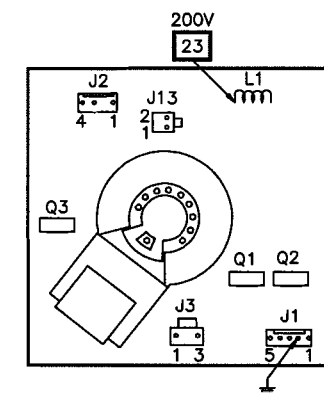
## SMPS SHUTDOWN TEST

The SMPS has a high voltage shutdown circuit also, to test this circuit, momentarily short pin 1 to pin 3 of IC403. The set should immediately go into shutdown. To reset, remove power for least 5 seconds and then restore power.

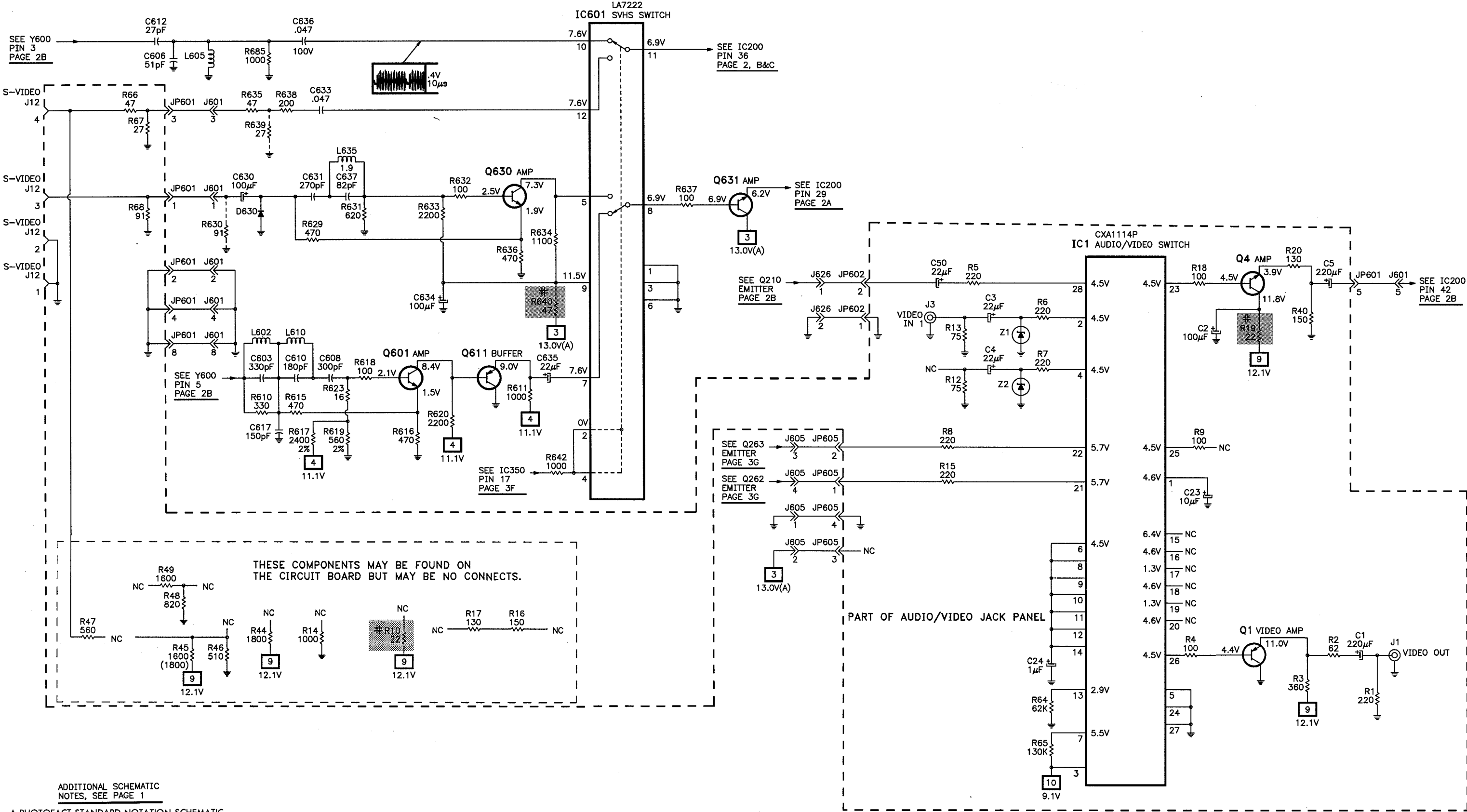
## AUDIO / VIDEO JACK PANEL BOARD



**CRT BOARD**



AUDIO/VIDEO SWITCHING SCHEMATIC





PARTS LIST

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.

Participating Vendors

Information on test equipment and replacement parts is listed in these pages for the following participating vendors. Consult the Sams *Annual Index* for their current address.

- Custom Components Corporation (Chek-A-Color)
- NTE Electronics, Inc. (NTE)
- Philips ECG Company (ECG)
- PTS Electronics Corporation (PTS)
- Sencore, Inc.
- Thomson Consumer Electronics, Inc. (SK, TCE)

CABINET PARTS

Item	Mfr. Part No.
Button Assembly (7 buttons)	4835 432 17356
Cabinet Rear	4835 432 97367
Cabinet Wrap	4835 432 77045
Crystal	4835 381 17084
Foot	4835 462 47016
Housing, Control	4835 432 17352
Jack Panel	4835 219 57375
Lens, IR	4835 381 17006
Mask	4835 432 77056
Speaker Bracket, Left	4835 401 17001
Speaker Bracket, Right	4835 401 17002
Speaker Box Assy, Right	4835 240 77078
Speaker Box Assy, Left	4835 240 77079

SEMICONDUCTORS

(Select the replacement that gives the best results.)

Item No. Type No. Mfr. Part No. NTE Part No. ECG Part No. TCE Part No.

AUDIO / VIDEO JACK PANEL BOARD

Q1	-	4835 130 47126	NTE159*	ECG159*	SK3466*
Q4	-	4835 130 47055	NTE123AP*	ECG123AP*	SK3854*
Q6, 7	-	4835 130 47055	NTE123AP*	ECG123AP*	SK3854*
Q11, 12	-	4835 130 47055	NTE123AP*	ECG123AP*	SK3854*
Q15	-	4835 130 47055	NTE123AP*	ECG123AP*	SK3854*
IC1	CXA1114P	4835 209 87952	-	-	-
Z1, 2	-	4835 130 37074	-	-	-

CRT BOARD

Q1 Thru					
Q3	S6022B	4835 130 47796	-	-	-

MAIN BOARD

D214, 15	-	4835 130 37048	NTE519	ECG519	SK3100
D259	-	4835 130 37066	-	-	-
D304, 05	-	4835 130 37066	-	-	-
D390	-	4835 130 37048	NTE519	ECG519	SK3100
D402 Thru					
D405	BYW95C	4835 130 37059	NTE580	ECG580	SK5036
D408	-	4835 130 37052	NTE580	ECG580	SK5036
D418	-	4835 130 37058	NTE587	ECG587	SK9937
D428	-	4835 130 37052	NTE580	ECG580	SK5036
D429	-	4835 130 37058	NTE587	ECG587	SK9937
D430A	-	4835 130 37563	NTE598	ECG598	SK9859
D442	-	4835 130 37059	NTE580	ECG580	SK5036
D445	-	4835 130 37052	NTE580	ECG580	SK5036
D448 (1)	-	4835 130 37059	NTE580	ECG580	SK5036
D448A	-	4835 130 37663	-	-	-
D451	-	4835 130 37052	NTE580	ECG580	SK5036
D453	-	4835 130 37182	NTE125	ECG125	-
D458	-	4835 130 37058	NTE587	ECG587	SK9937
D501	-	4835 130 37059	NTE580	ECG580	SK5036
D502	-	4835 130 37095	-	-	-
D504	-	4835 130 37066	-	-	-
D512	-	4835 130 37048	NTE519	ECG519	SK3100
D530	-	4835 130 37058	NTE587	ECG587	SK9937
D550	-	4835 130 37094	NTE580	ECG580	SK5036
D613 Thru					
D615	-	4835 130 37066	-	-	-
D630	-	4835 130 37048	NTE519	ECG519	SK3100
D650	-	4835 130 37058	NTE587	ECG587	SK9937
D659	-	4835 130 37048	NTE519	ECG519	SK3100
D661	-	4835 130 37053	NTE552	ECG552	SK9000
IC200	LA7672	4835 209 88005	-	-	-
IC260	CXA1124BS	4835 209 88002	-	-	-
IC261	TDA7318	4835 209 88004	-	-	-
IC262	LA4270	4835 209 87085	NTE1798	ECG1798	SK9745
IC350	-	4835 209 17432	-	-	-
IC351	X2404P	4835 209 47101	-	-	-
# IC352	CNX35U	4835 130 97005	NTE3041	ECG3041	SK2041
IC353	ST6398B1	4835 209 17433	-	-	-
IC354	PC74HC157P	4835 209 87904	-	-	-
# IC400	6N136	4835 130 97006	NTE3092	ECG3092	SK9770
IC401	612664-2	4835 209 87834	-	-	-
# IC402	CNX35U	4835 130 97005	NTE3041	ECG3041	SK2041

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

SEMICONDUCTORS continued

(Select the replacement that gives the best results.)

Item No. Type No. Mfr. Part No. NTE Part No. ECG Part No. TCE Part No.

IC403	-	4835 209 87712	-	-	-
IC550	LA7838	4835 209 88003	NTE7039	ECG7039	-
# IC570	SC78130U	4835 209 87838	-	-	-
IC601	LA7222	4835 209 87089	NTE7066	ECG7066	-
Q210	-	4835 130 47055	NTE123AP*	ECG123AP*	SK3854*
Q211 (1)	-	4835 130 47112	NTE2407	ECG2407	-
Q215	-	4835 130 47049	NTE159	ECG159	SK3466
Q248	-	4835 130 47112	NTE2407	ECG2407	-
Q260 Thru					
Q264	-	4835 130 47086	NTE2406	ECG2406	SK10097
Q327	-	4835 130 47085	-	-	-
Q328	-	4835 130 47086	NTE2406	ECG2406	SK10097
Q408	-	4835 130 47049	NTE159	ECG159	SK3466
Q420	MTW8N50E	4835 130 47768	NTE2393%	ECG2393%	-
Q450	-	4835 130 47063	-	-	-
Q500	-	4835 130 47055	NTE123AP*	ECG123AP*	SK3854*
Q501	S6022B	4835 130 47796	-	-	-
Q502	2SD1556	4835 130 47771	NTE2331	ECG2331	SK10088
Q510	-	4835 130 47086	NTE2406	ECG2406	SK10097
Q512	-	4835 130 47055	NTE123AP*	ECG123AP*	SK3854*
Q601	-	4835 130 47086	NTE2406	ECG2406	SK10097
Q611	-	4835 130 47112	NTE2407	ECG2407	-
Q612	-	4835 130 47049	NTE159	ECG159	SK3466
Q613	-	4835 130 47086	NTE2406	ECG2406	SK10097
Q614	-	4835 130 47112	NTE2407	ECG2407	-
Q615	-	4835 130 47086	NTE2406	ECG2406	SK10097
Q620	-	4835 130 47112	NTE2407	ECG2407	-
Q630, 31	-	4835 130 47086	NTE2406	ECG2406	SK10097
Q650 Thru					
Q652	-	4835 130 47055	NTE123AP*	ECG123AP*	SK3854*
Q660	-	4835 130 47049	NTE159	ECG159	SK3466
Q661	-	4835 130 47051	NTE123AP	ECG123AP	SK3854
Q690	-	4835 130 47085	-	-	-
Q691	-	4835 130 47112	NTE2407	ECG2407	-
Z261	-	4835 130 37562	NTE139A	ECG139A	-
Z361	-	4835 130 37046	NTE5036A	ECG5036A	SK33A
Z567	-	4835 130 37063	NTE5030A	ECG5030A	SK22A
Z568	-	4835 130 37664	-	-	-
Z569	-	4835 130 37126	-	-	-

PINCUSION BOARD

D801	-	4835 130 37094	NTE580	ECG580	SK5036
D802	-	4835 130 37048	NTE519	ECG519	SK3100
D803	-	4835 130 37094	NTE580	ECG580	SK5036
Q801, 02	-	4835 130 47191	NTE123AP	ECG123AP	SK3854
Q803	PH421-6	4835 130 47084	NTE332	ECG332	SK9236
Z801	-	4835 130 37081	NTE5029A	ECG5029A	SK20A

REMOTE RECEIVER BOARD

D90	-	4835 130 37516	-	-	-
D91	-	4835 130 37541	-	-	-

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

COILS & TRANSFORMERS

Item No. Function/Rating Mfr. Part No.

DY1 (1)	Yoke 110° Horiz .96mH Vert 24.6mH	-
---------	-----------------------------------	---

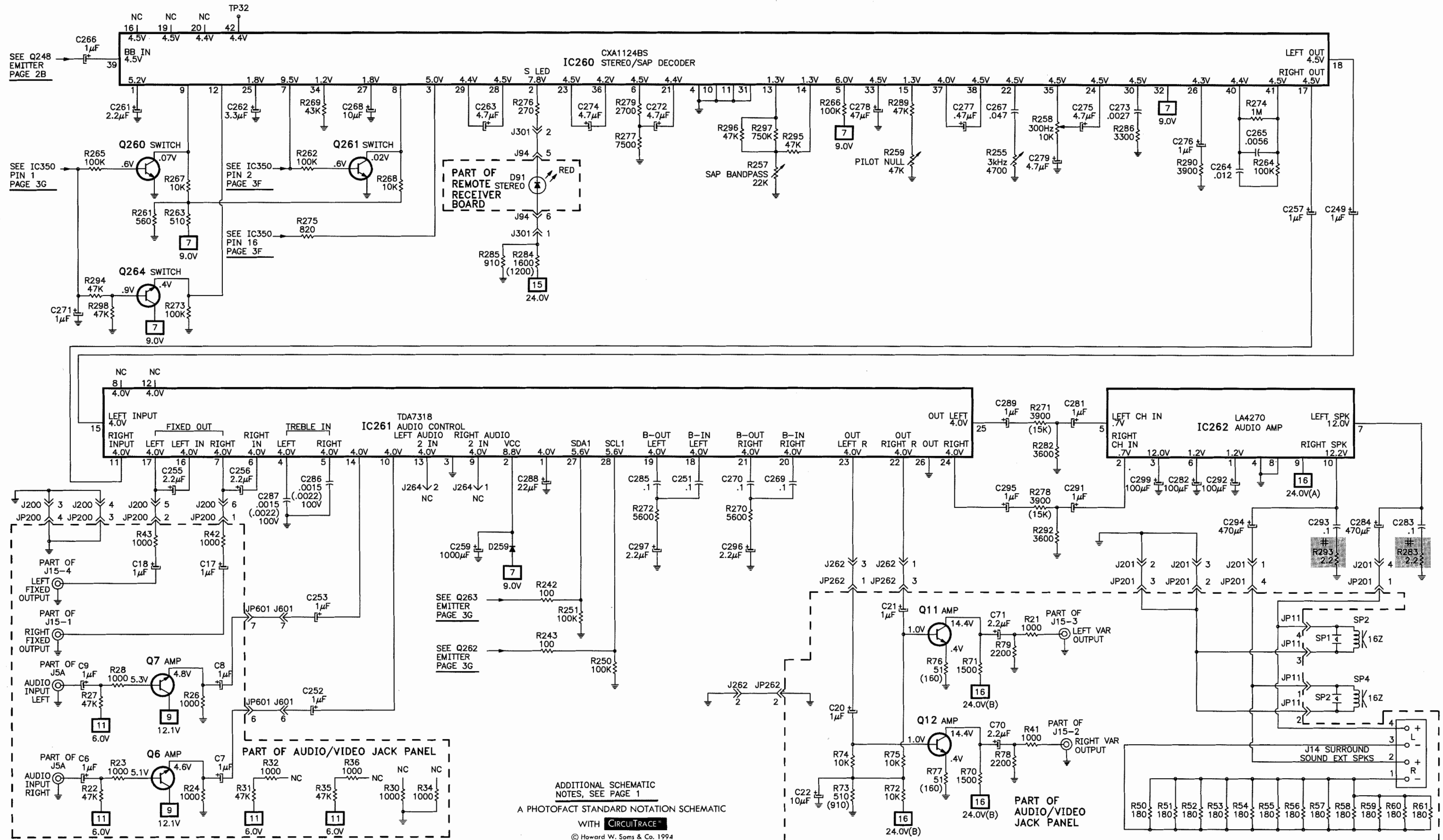
CRT BOARD

L1	47µH	4835 157 57763
----	------	----------------

MAIN BOARD

L200	45.75MHz	4835 157 57594
L204	45.75MHz	4835 157 57485
L214	4.5MHz	4835 157 57113
L230	27µH	4835 157 57119
L300	4.76µH	4835 157 67011
L301	27µH	4835 157 57154
L302, 03	4.76µH	4835 157 67011
L311	1.2µH	4835 157 67003
L312	1.2µH	4835 157 57048
L313 Thru		
L315	4.76µH	4835 157 67011
L357, 58	27µH	4835 157 57119
L359	27µH	4835 157 67019
L365	1.2µH	4835 157 57048
L386, 87	27µH	4835 157 57266
L400	Filter	4835 152 17001
L401	Ferrite Bead	-
L402	Ferrite Bead	-
L405	1.8µH	4835 152 27029
L409	100µH	4835 157 57047
L421	.70µH	4835 152 27036
L422	2.2µH	4835 157 57752
L423	.68µH	4835 157 57751
L430	.70µH	4835 152 27036
L431	Ferrite Bead	-
L432	Ferrite Bead	-
L441	Ferrite Bead	4835 526 17009
L448	12µH	4835 152 27002
L452	2.2µH	4835 157 57752
L459	10µH	4835 157 57093
L460	42µH	4835 157 57063
# L499 (2)	Degaussing	4835 150 17095
# L499 (3)	Degaussing	4835 157 97033
L502	42µH	4835 157 57336
L505	100µH	4835 157 57047
L546	5.7µH	4835 152 27038
L602	10µH	4835 150 57004
L605	15µH	4835 150 57005
L606	4.76µH	4835 157 67011
L610 (4)	10µH	4835 150 57004
L610 (5)	18µH	4835 150 57038
L620	2.7µH	4835 157 57098
L625	10µH	4835 150 57004
L635	10µH	4835 157 67031
L636	1.2µH	4835 157 67003
L637	1.2µH	4835 157 67003

# For SAFETY use only equivalent replacement part.  
(1) Part of CRT.  
(2) Late Production.  
(3) Early Production.  
(4) Comb Filter only.  
(5) Non-Comb Filter only



ADDITIONAL SCHEMATIC  
NOTES, SEE PAGE 1

---

A PHOTOFACT STANDARD NOTATION SCHEMATIC  
WITH **CIRCUITRACE™**

© Howard W. Soms & Co. 1994

[illegible]

SEE PAGE 2A

+33V  
11  
C314  
.001

+12V  
6  
C122  
.0047  
C308  
.0047  
A 12.0V SOURCE

+5V  
12  
C315  
.0047  
C307  
.0047  
B 5.0V SOURCE

© Howard W. Sams & Co. 1994