SAFETY PRECAUTIONS

SERVICE WARNING

Only qualified service technicians who are familiar with safety checks and guidelines should perform service work. Before replacing parts, disconnect power source to protect electrostatically sensitive parts. Do not attempt to modify any circuit unless so recommended by the manufacturer. 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. To discharge static high voltage, connect a 10K ohms resistor in series with a test lead between the receiver ground and CRT anode lead. DO NOT lift the CRT by the neck. 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. Keep an accurate high voltage meter available at all times. Check meter calibration periodically. Whenever servicing a receiver, check the high voltage at various brightness levels to be sure it is regulating properly. 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. 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. 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.

GENERAL GUIDELINES

Perform a final SAFETY CHECK before returning receiver to customer. Check repaired area for poorly soldered connections, and check entire circuit board for solder splashes. Check 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.

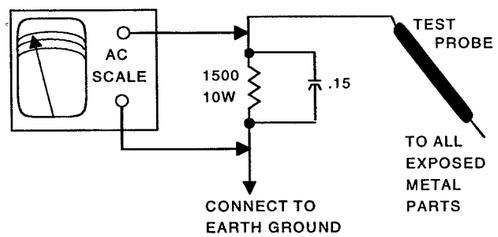
SAFETY CHECKS — FIRE AND SHOCK HAZARD

Cold Leakage Checks for Receivers with Isolated Ground

Unplug the AC cord, connect a jumper across the plug prongs, and turn the power switch on (if applicable). Use an ohmmeter to measure the resistance between the jumped 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

Plug the AC cord directly into an AC outlet. DO NOT use an isolation transformer. 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 below.) 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. Voltage measurements should not exceed .75VAC, 500µA. Any value exceeding this limit constitutes a potential shock hazard and must be corrected. If the AC plug is not polarized, reverse the AC plug and repeat exposed metal part voltage measurement at each point.



HIGH VOLTAGE SHUTDOWN TEST

Momentarily short a 1000 ohms resistor across the base of Q4902 and ground. The receiver should lose raster and sound. If the receiver does not lose raster and sound, the shutdown circuit should be repaired. To resume normal operation, remove AC power for approximately 30 seconds and then turn the receiver on. Enter the Service Mode and reset the error code parameters for X-Ray Shutdown to 00.

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Indianapolis, IN 46268-4149

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SET 4474
MODEL F32730SBFM1 (CHASSIS CTC179CM)
RCA

4474

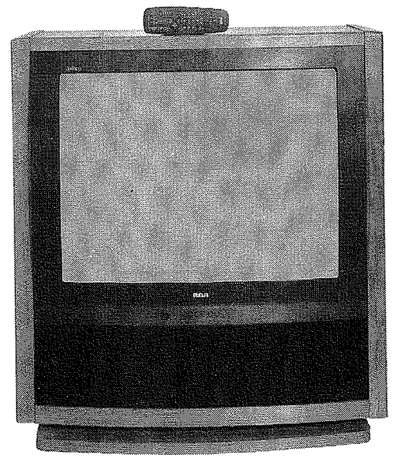
PHOTOFACT® *Technical Service Data*

INDEX

For Supplier Address, See PHOTOFACT Annual Index

RCA

Model F32730SBFM1 (Chassis CTC179CM)



Essential coverage for servicing a television receiver...

- **Schematics**
- **Component locations**
- **Parts list**

Coverage includes these additional models and chassis:

Models	Chassis
F32730SBJX1	CTC179CM
F35755MBFM2	CTC179CK
F35755MBJX2	CTC179CK
G35831ATLM1	CTC179CK

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AUGUST 2001 SET 4474

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ERROR CODES CHART

Error Code	Error	Condition Indicated
0	No error code	-
17	Bus Fault Detected by U3102	U3102 standby IIC clock or data held low.
18	DC Detect	Power supply shutdown.
22	Run Supply Momentary Dropout	Run supply momentary dropped and recovered.
23	Run Supply Shutdown	Run supply shutdown.
24	System Stack Overflow	Software error.
25	PIP Module Error	PIP fails to acknowledge.
26	User Stack Overflow	Software error.
28	Watchdog Timeout	Software error.
30	XRP Shutdown	X - ray overvoltage detected by U2001.
72	Bus Expander Fault U2502	U2502 fails to acknowledge.
73	Bus Expander Fault U2502	U2502 fails to acknowledge.
128	Stereo decoder U1600	Stereo decoder U1600 fails to acknowledge.
136	TVB Fault U1503	Tone/ Volume/ Balance U1503 fails to acknowledge.
138	TVB Fault U1504	Tone/ Volume/ Balance U1504 fails to acknowledge.
150	Video matrix switch U6501	Video matrix switch U6501 fails to acknowledge.
154	Audio matrix switch U1402	Audio matrix switch U1402 fails to acknowledge.
186	T2 Chip U2001	U2001 fails to acknowledge.
194	Tuner PLL U501	Tuner U501 PLL IC fails to acknowledge.

MISCELLANEOUS ADJUSTMENTS

B+ CHECK

NOTE : R4113 is factory sealed. DO NOT ADJUST. Refer to replacement parts for kit information.

Connect a digital DC voltmeter to pin 8 of T4401 and use pin 3 as ground point. Set brightness and picture to minimum. With AC line voltage set to 120VAC, the B+ should read 135V ±.1V.

HIGH VOLTAGE CHECK

Tune in a picture. Set brightness, contrast, and color to minimum. Connect a high voltage probe to the CRT anode. High voltage should measure 31kV to 33kV.

BLANKING RESERVE

Tune in a color bar signal, short pin 49 of U2001 to ground to eliminate color. Enter service mode, and select parameters (1 13), (1 14), and (1 15). Adjust the value of each parameter to maximum. Select parameters (1 16), (1 17), and (1 18). Adjust the value of each parameter to minimum.

Connect an oscilloscope to pin 8 of the CRT socket. Adjust the value of parameter (1 16) to obtain 5.0V ± 2.0V between the sync tip and the peak point of the red output waveform. If that can not be attained by adjusting value of parameter (1 16), then decrement the value of parameter (1 13) by one step and repeat the adjustment.

Connect an oscilloscope to pin 6 of the CRT socket. Adjust the value of parameter (1 17) to obtain 5.0V ± 2.0V between the sync tip and the peak point of the green output waveform. If that can not be attained by adjusting the value of parameter (1 17), then decrement the value of parameter (1 14) by one step, and repeat the adjustment.

Connect an oscilloscope to pin 11 of the CRT socket. Adjust the value of parameter (1 18) to obtain 5.0V ± 2.0V between the sync tip and the peak point of the blue output waveform. If that can not be attained by adjusting the value of parameter (1 18), then decrement the value of parameter (1 15) by one step, and repeat the adjustment.

COLOR TEMPERATURE

Tune in a color bar signal, short pin 49 of U2001 to ground to eliminate color. Enter service mode, and select parameters (0 14), (0 15), and (0 16). Adjust the value of each parameter to obtain a low-level white balance on the screen. Notice that the far right bar on the screen must remain black.

In case one or more of these bias parameters can not be set, increment the value of the corresponding parameter (0 20), (0 21), or (0 22) by one step at a time. These parameters have a very large effect on the display, adjust only if absolutely necessary.

Select parameters (0 17), (0 18), and (0 19). Adjust the value of each parameter to obtain a high-level white balnce on the screen. Notice that the far left bar on the screen must remain white.

Tune in a crosshatch signal, select parameter (0 14), and check for stable display. If the display is blinking or blanking, adjust the screen control. There is a narrow range of the screen control in which a stable display will appear. Repeat color temperature adjustment if necessary. Check for best black and white picture. Check tracking at low and high brightness.

STEREO ADJUSTMENTS

All adjustments were made using a MTS TV / stereo generator. Set the customer controls to normal listening levels and select stereo mode.

STEREO VCO

Unsolder the end of R1609 connected to JW244, disconnect the RF source from the antenna terminal. Enter service mode, and select parameter (1 19). Connect a frequency counter to pin 28 of U1600. Adjust the value to obtain a reading of 62.936 kHz. Resolder R1609 for normal operation.

SAP VCO

Remove power, and unsolder the end of R1609 connected to JW244. Apply 1kHz audio frequency and L-R modulating signal with SAP on. Connect an audio generator (78.67 kHz sine) to the loose end of R1609 and set signal level to 255 mVrms. Apply AC power, enter service mode, and select parameter (1 20), and set value to minimum. Increment the value slowly until an astrisk (*) appears next to the value, record this value as V1. Reset the value of parameter (1 20) to maximum. Decrement the value slowly until an astrisk (*) appears next to the value, record this value as V2. Set the value of parameter (1 20) to half the value of (V2 - V1). Resolder R1609 for normal operation.

STEREO LOWPASS FILTER

Remove power and unsolder the end of R1609 connected to JW244. Apply 1kHz audio frequency and L+R modulating signal with pilot on. Connect an audio generator (9.4 kHz sine) to the loose end of R1609 and set signal level to 1.04Vrms. Apply AC power, enter service mode, and select parameter (1 21), and set value to minimum. Increment the value slowly until an astrisk (*) appears next to the value, record this value as V1. Reset the value of parameter (1 21) to maximum. Decrement the value slowly until an astrisk (*) appears next to the value, record this value as V2. Set the value of parameter (1 21) to half the value of (V2 - V1). Resolder R1609 for normal operation.

SAP FILTER

Remove power and unsolder the end of R1609 connected to JW244. Apply 1kHz audio frequency and L-R modulating signal with SAP on. Connect an audio generator (88 kHz sine) to the loose end of R1609 and set signal level to 206mVrms. Apply AC power, enter service mode, and select parameter (1 22), and set value to minimum. Increment the value slowly until an astrisk (*) appears next to the value, record this value as V1. Reset the value of parameter (1 22) to maximum. Decrement the value slowly until an astrisk (*) appears next to the value, record this value as V2. Set the value of parameter (1 22) to half the value of (V2 - V1). Resolder R1609 for normal operation.

SEPARATION

Select pilot, 300Hz audio frequency, and left modulating signal. Connect an oscilloscope to pin 28 of U1600, enter service mode, and select parameter (1 23), set value for minimum amplitude. Change audio frequency to 3kHz, and select parameter (1 24). Set value for minimum amplitude. Repeat process until no further decrease in the waveform amplitude is obtained.

Do not use any modulation frequency other than specfied. If the specified frequency is not available set the value of parameter (1 23) to 31 and set the value of parameter (1 24) to 35.

MISCELLANEOUS ADJUSTMENTS continued

SERVICE MENU

The following adjustment procedures are accessed thru a service menu. To access the service menu, turn the receiver on, press the menu button and hold it down while pressing the power button. While holding down the menu button, release the power button and press the volume + button. The screen will display a one line menu, on the left the parameter P0, and on the right the value of that parameter V0. Release buttons. Adjustments are made by selecting the proper parameter and changing the value of that parameter. To change the parameter number use channel up and down buttons. To adjust the current value of that parameter use volume + and - buttons. To access and change any of the adjustments, the proper parameter pass number must be entered. This information is listed at the beginning of the alignment. When these parameters are modified, the T-Chip U2001 and the corresponding EEPROM U3102, and U8302 are updated. All service adjustments are bus controlled, except focus and screen. Parameters are grouped in 4 groups. Group 0 is Instrument Parameters; Group 1 is Chassis Parameters; Group 2 is Tuner Parameters; and Group 3 is PIP Tuner Parameters. A security code must be entered to access the parameters of each group.

SERVICE ADJUSTMENT PARAMETERS

Parameter No.	Parameter Name	On Set Value	Value Range	Comment
0 0	Pass number for service adjustment parameters for group 0.	00	Must set to 76	May not advance until value is set to 76.
0 1	Error Code 1	00	00 - 255	Displays the first error detected. Set to 00 before exiting. See Error Codes Chart.
0 2	Error Code 2	00	00 - 255	Displays the second error detected. Set to 00 before exiting. See Error Codes Chart.
0 3	Error Code 3	00	00 - 255	Displays the last error detected. Set to 00 before exiting. See Error Codes Chart.
0 4	Horizontal Phase	05	00 - 15	Set value to 05.
0 5	Vertical Centering	32	00 - 63	Adjust to center vertically.
0 6	Horizontal Size	20	00 - 31	Adjust for slight horizontal overscan.
0 7	Pincushion Amplitude	08	00 - 15	Set value to 08.
0 8	Pincushion Tilt	08	00 - 15	Set value to 08.
0 9	Vertical Size	110	00 - 127	Adjust for slight vertical overscan.
0 10	Vertical Linearity	08	00 - 15	Adjust to center vertically.
0 11	Vertical S-Correction	00	00 - 15	Set value to 00.
0 12	Bottom Corner Pin Correct	03	00 - 7	Set value to 03.
0 13	Top Corner Pin Correction	03	00 - 7	Set value to 03.
0 14	Red Bias	27	00 - 127	Adjust for proper low-level white balance see color temperature adjustment.
0 15	Green Bias	20	00 - 127	Adjust for proper low-level white balance see color temperature adjustment.
0 16	Blue Bias	37	00 - 127	Adjust for proper low-level white balance see color temperature adjustment.
0 17	Red Drive	32	00 - 63	Adjust for proper high-level white balance see color temperature adjustment.
0 18	Green Drive	27	00 - 63	Adjust for proper high-level white balance see color temperature adjustment.
0 19	Blue Drive	25	00 - 63	Adjust for proper high-level white balance see color temperature adjustment.
0 20	Red Sub Bias	00	00 - 3	See color temperature adjustment.
0 21	Green Sub Bias	00	00 - 3	See color temperature adjustment.
0 22	Blue Sub Bias	00	00 - 3	See color temperature adjustment.
1 0	Pass number for service adjustment parameters for group 1.	00	Must set to 77	May not advance until value is set to 77.
1 1	IF VCO Free Run	87	00 - 127	Disconnect RF source, short +side of C2309 to ground. Set the generator for 45.75MHz marker, 450mVrms. Adjust for 3.8V at pin12 of U2001.
1 2	4.5MHz Trap	07	00 - 7	Set value to 07.
1 3	IF APC Offset	16	00 - 31	Short pin 11 of U2001 to ground, adjust for 3.8V at pin 14 of U2001.
1 4	Video Level	05	00 - 7	Short pin 49 of U2001 to ground, adjust for a waveform of 1.6V ±.15Vp-p at pin 56 of U2001.
1 5	FM Level	19	00 - 31	Apply 1kHz, L+R signal. Adjust for a 333mVp-p waveform at pin 5 of U2001 (carrier portion is not included).
1 6	RF AGC Delay	30	00 - 63	Set to the value when snow disappears from picture.
1 7	D2PIP Brightness	19	00 - 31	Adjust so that the brightness of the PIP picture matches the brightness of the main picture.
1 8	D2PIP Contrast	50	00 - 63	Adjust so that the brightness of the PIP picture matches the brightness of the main picture.
1 9	D2PIP Chroma Level	67	00 - 127	Adjust so that color level of the PIP picture matches color level of the main picture.
1 10	D2PIP Tint	60	00 - 127	Adjust so that the tint of the PIP picture matches the tint of the main picture.
1 11	Factory Tint	65	00 - 127	Set value to 65.
1 12	Factory Contrast	55	00 - 127	Set value to 55.
1 13	Red Blanking (Sub-Bias)	00	00 - 3	See Blanking Reserve adjustment.
1 14	Green Blanking (Sub-Bias)	00	00 - 3	See Blanking Reserve adjustment.
1 15	Blue Blanking (Sub-Bias)	00	00 - 3	See Blanking Reserve adjustment.
1 16	Red Blanking (Bias)	00	00 - 127	See Blanking Reserve adjustment.
1 17	Green Blanking (Bias)	00	00 - 127	See Blanking Reserve adjustment.
1 18	Blue Blanking (Bias)	00	00 - 127	See Blanking Reserve adjustment.
1 19	Stereo VCO	31	00 - 63	See Stereo Adjustments.
1 20	SAP VCO	07	00 - 15	See Stereo Adjustments.
1 21	Stereo Lowpass Filter	32	00 - 63	See Stereo Adjustments.
1 22	SAP Filter	07	00 - 15	See Stereo Adjustments.
1 23	Wideband DBX	31	00 - 63	See Stereo Adjustments.
1 24	Spectral DBX	35	00 - 63	See Stereo Adjustments.

ELECTRONIC MAIN TUNER ALIGNMENT

Use tuner alignment generator, RCA stock no. TAG001, and a VCR for signal source. Monitor IF AGC at pin 11 of U2001, and adjust for minimum voltage at parameters 59 and 58. The entire Electronic Tuner Alignment procedure, once started, must be completed in its entirety.

Parameter No.	Parameter Name	Value Range	On Set Value
2 00	Pass number for Main tuner alignment parameters	Must set to 78	00
2 01	Ch. 2 secondary	00 - 62	25
2 02	Ch. 2 single	00 - 62	20
2 03	Ch. 2 primary	00 - 62	17
2 04	Ch. 3 secondary	00 - 62	26
2 05	Ch. 3 single	00 - 62	27
2 06	Ch. 3 primary	00 - 62	25
2 07	Ch. 6 secondary	00 - 62	49
2 08	Ch. 6 single	00 - 62	37
2 09	Ch. 6 primary	00 - 62	52
2 10	Ch. 99 secondary	00 - 62	49
2 11	Ch. 99 single	00 - 62	43
2 12	Ch. 99 primary	00 - 62	37
2 13	Ch. 17 secondary	00 - 62	57
2 14	Ch. 17 single	00 - 62	56
2 15	Ch. 17 primary	00 - 62	41
2 16	Ch. 18 secondary	00 - 62	30
2 17	Ch. 18 single	00 - 62	27
2 18	Ch. 18 primary	00 - 62	25
2 19	Ch. 13 secondary	00 - 62	49
2 20	Ch. 13 single	00 - 62	40
2 21	Ch. 13 primary	00 - 62	45
2 22	Ch. 29 secondary	00 - 62	35
2 23	Ch. 29 single	00 - 62	30
2 24	Ch. 29 primary	00 - 62	37
2 25	Ch. 41 secondary	00 - 62	42
2 26	Ch. 41 single	00 - 62	47
2 27	Ch. 41 primary	00 - 62	46
2 28	Ch. 47 secondary	00 - 62	49
2 29	Ch. 47 single	00 - 62	50
2 30	Ch. 47 primary	00 - 62	55
2 31	Ch. 50 secondary	00 - 62	49
2 32	Ch. 50 single	00 - 62	37
2 33	Ch. 50 primary	00 - 62	17
2 34	Ch. 51 secondary	00 - 62	25
2 35	Ch. 51 single	00 - 62	20
2 36	Ch. 51 primary	00 - 62	17
2 37	Ch. 57 secondary	00 - 62	49
2 38	Ch. 57 single	00 - 62	37
2 39	Ch. 57 primary	00 - 62	25
2 40	Ch. 68 secondary	00 - 62	49
2 41	Ch. 68 single	00 - 62	20
2 42	Ch. 68 primary	00 - 62	25
2 43	Ch. 76 secondary	00 - 62	25
2 44	Ch. 76 single	00 - 62	20
2 45	Ch. 76 primary	00 - 62	17
2 46	Ch. 93 secondary	00 - 62	49
2 47	Ch. 93 single	00 - 62	37
2 48	Ch. 93 primary	00 - 62	25
2 49	Ch. 110 secondary	00 - 62	49
2 50	Ch. 110 single	00 - 62	20
2 51	Ch. 110 primary	00 - 62	25
2 52	Ch. 120 secondary	00 - 62	49
2 53	Ch. 120 single	00 - 62	20
2 54	Ch. 120 primary	00 - 62	25
2 55	Ch. 125 secondary	00 - 62	25
2 56	Ch. 125 single	00 - 62	20
2 57	Ch. 125 primary	00 - 62	17
2 58	Main IF Filter 1	00 - 62	49
2 59	Main IF Filter 2	00 - 62	37

ELECTRONIC PIP TUNER ALIGNMENT

Monitor IF AGC at pin 4 of U8101, and adjust for minimum voltage at parameters 58, and 59. The entire Electronic Tuner Alignment procedure, once started, must be completed in its entirety.

Parameter No.	Parameter Name	Value Range	On Set Value
3 00	Pass number for PIP tuner alignment parameters	Must set to 79	00
3 01	Ch. 2 single	00 - 62	25
3 02	Ch. 2 secondary	00 - 62	20
3 03	Ch. 2 primary	00 - 62	17
3 04	Ch. 3 single	00 - 62	49
3 05	Ch. 3 secondary	00 - 62	37
3 06	Ch. 3 primary	00 - 62	25
3 07	Ch. 6 single	00 - 62	49
3 08	Ch. 6 secondary	00 - 62	20
3 09	Ch. 6 primary	00 - 62	17
3 10	Ch. 99 single	00 - 62	49
3 11	Ch. 99 secondary	00 - 62	37
3 12	Ch. 99 primary	00 - 62	17
3 13	Ch. 17single	00 - 62	25
3 14	Ch. 17 secondary	00 - 62	20
3 15	Ch. 17 primary	00 - 62	17
3 16	Ch. 18 single	00 - 62	49
3 17	Ch. 18 secondary	00 - 62	37
3 18	Ch. 18 primary	00 - 62	25
3 19	Ch. 13 single	00 - 62	49
3 20	Ch. 13 secondary	00 - 62	20
3 21	Ch. 13 primary	00 - 62	25
3 22	Ch. 29 single	00 - 62	25
3 23	Ch. 29 secondary	00 - 62	20
3 24	Ch. 29 primary	00 - 62	17
3 25	Ch. 41 single	00 - 62	49
3 26	Ch. 41 secondary	00 - 62	37
3 27	Ch. 41 primary	00 - 62	25
3 28	Ch. 47 single	00 - 62	49
3 29	Ch. 47 secondary	00 - 62	20
3 30	Ch. 47 primary	00 - 62	25
3 31	Ch. 50 single	00 - 62	49
3 32	Ch. 50 secondary	00 - 62	37
3 33	Ch. 50 primary	00 - 62	17
3 34	Ch. 51 single	00 - 62	25
3 35	Ch. 51 secondary	00 - 62	20
3 36	Ch. 51 primary	00 - 62	17
3 37	Ch. 57 single	00 - 62	49
3 38	Ch. 57 secondary	00 - 62	37
3 39	Ch. 57 primary	00 - 62	25
3 40	Ch. 68 single	00 - 62	49
3 41	Ch. 68 secondary	00 - 62	20
3 42	Ch. 68 primary	00 - 62	25
3 43	Ch. 76 single	00 - 62	25
3 44	Ch. 76 secondary	00 - 62	20
3 45	Ch. 76 primary	00 - 62	17
3 46	Ch. 93 single	00 - 62	49
3 47	Ch. 93 secondary	00 - 62	37
3 48	Ch. 93 primary	00 - 62	25
3 49	Ch. 110 single	00 - 62	49
3 50	Ch. 110 secondary	00 - 62	20
3 51	Ch. 110 primary	00 - 62	25
3 52	Ch. 120 single	00 - 62	49
3 53	Ch. 120 secondary	00 - 62	20
3 54	Ch. 120 primary	00 - 62	25
3 55	Ch. 125 single	00 - 62	25
3 56	Ch. 125 secondary	00 - 62	20
3 57	Ch. 125 primary	00 - 62	17
3 58	PIP IF Filter 1	00 - 62	49
3 59	PIP IF Filter 2	00 - 62	37

MISCELLANEOUS ADJUSTMENTS continued

MAIN TUNER ALIGNMENT (GROUP 2)

The tuner coil alignment is preset at the time of manufacture and should require no further adjustment. The following recommended procedure should be performed only in event a complete tuner alignment is necessary, which is unlikely. Use plastic or wooden tool to adjust coils. This procedure is performed with top tuner cover removed and bottom tuner cover in place and soldered.

IF Alignment

1. Use tuner alignment generator, RCA stock no. TAG001, and tune in a color bar signal on main tuner. Connect DC voltmeter to pin 11 of U2001. Connect ground to tuner shield.
2. Select parameter (2 59), and adjust value to have minimum voltage at pin 11 of U2001.
3. Select parameter (2 58), and adjust value to have minimum voltage at pin 11 of U2001.
4. Repeat steps 2 and 3 until no reduction in voltage reading at pin 11 of U2001 can be achieved.

Band 2 Manual Alignment

1. Use tuner alignment generator, RCA stock no. TAG001. Connect DC voltmeter to the junction of R509 and R510. Connect ground to tuner shield.
2. Set the tuner alignment generator for channel 50 output and tune to receive channel 50 on main tuner.
3. Adjust L703 for 4.9V ±.1V.
4. Connect voltmeter across C2309.
5. Select parameter (2 31) and record the value. Adjust parameter (2 31) thru the value range and check for a null AGC voltage. If the null voltage does not appear, adjust L104 and repeat this step. If the null voltage appears, set parameter (2 31) to recorded value and continue to the next step.
6. Select parameter (2 32) and record the value. Adjust parameter (2 32) thru the value range and check for a null AGC voltage. If the null voltage does not appear, adjust L109 and repeat this step. If the null voltage appears, set parameter (2 32) to recorded value and continue to the next step.
7. Select parameter (2 33) and record the value. Adjust parameter (2 33) thru the value range and check for a null AGC voltage. If the null voltage does not appear, adjust L107 and repeat this step. If the null voltage appears, set parameter (2 33) to recorded value.

Band 1 Manual Alignment

1. Use tuner alignment generator, RCA stock no. TAG001. Connect DC voltmeter to the junction of R509 and R510. Connect ground to tuner shield.
2. Set the tuner alignment generator for channel 17 output and tune to receive channel 17 on main tuner.
3. Adjust L704 for 4.6V ±.1V.
4. Connect voltmeter across C2309.
5. Select parameter (2 14) and record the value. Adjust parameter (2 14) thru the value range and check for a null AGC voltage. If the null voltage does not appear, adjust L105 and repeat this step. If the null voltage appears, set parameter (2 14) to recorded value and continue to the next step.
6. Select parameter (2 13) and record the value. Adjust parameter (2 13) thru the value range and check for a null AGC voltage. If the null voltage does not appear, adjust L111 and repeat this step. If the null voltage appears, set parameter (2 13) to recorded value and continue to the next step.
7. Select parameter (2 15) and record the value. Adjust parameter (2 15) thru the value range and check for a null AGC voltage. If the null voltage does not appear, adjust L108 and repeat this step. If the null voltage appears, set parameter (2 15) to recorded value.

Band 3 Manual Alignment

1. Use tuner alignment generator, RCA stock no. TAG001. Connect DC voltmeter to the junction of R509 and R510. Connect ground to tuner shield..
2. Set the tuner alignment generator for channel 125 output and tune to receive channel 125 on main tuner.
3. Adjust L701 for 4.8V ±.1V.
4. Connect voltmeter across C2309.
5. Select parameter (2 56) and record the value. Adjust parameter (2 56) thru the value range and check for a null AGC voltage. If the null voltage does not appear, adjust L302 and repeat this step. If the null voltage appears, set parameter (2 56) to recorded value and continue to the next step.
6. Select parameter (2 55) and record the value. Adjust parameter (2 55) thru the value range and check for a null AGC voltage. If the null voltage does not appear, adjust L305 and repeat this step. If the null voltage appears, set parameter (2 55) to recorded value and continue to the next step.
7. Select parameter (2 57) and record the value. Adjust parameter (2 57) thru the value range and check for a null AGC voltage. If the null voltage does not appear, adjust L304 and repeat this step. If the null voltage appears, set parameter (2 57) to recorded value.

RF AGC Alignment

1. Use tuner alignment generator, RCA stock no. TAG001. Connect DC voltmeter to the junction of R509 and R510. Connect ground to tuner shield.
2. Connect voltmeter across C2309.
3. Set the tuner alignment generator for channel 2 output and tune to receive channel 2 on main tuner.
4. Select parameter (2 1) and adjust value to have minimum DC voltage.
5. Select parameter (2 2) and adjust value to have minimum DC voltage.
6. Select parameter (2 3) and adjust value to have minimum DC voltage.
7. The adjustments for each channel must be repeated to assure correct alignment.
8. Repeat the process with parameters (2 4) thru (2 57), and repeat the adjustments for each channel must be repeated to assure correct alignment.

PIP TUNER ALIGNMENT (GROUP 3)

The tuner coil alignment is preset at the time of manufacture and should require no further adjustment. The following recommended procedure should be performed only in event a complete tuner alignment is necessary, which is unlikely. Use plastic or wooden tool to adjust coils. This procedure is performed with top tuner cover removed and bottom tuner cover in place and soldered.

IF Alignment

1. Use tuner alignment generator, RCA stock no. TAG001, and tune in a color bar signal on PIP tuner. Connect DC voltmeter to pin 4 of U8101. Connect ground to tuner shield.
2. Select parameter (3 59) PIP IF Filter 2 and adjust value to have minimum voltage at pin 4 of U8101.
3. Select parameter (3 58) PIP IF Filter 1 and adjust value to have minimum voltage at pin 4 of U8101.
4. Repeat steps 2 and 3 until no reduction in voltage reading at pin 4 of U8101 can be achieved.

Band 2 Manual Alignment

1. Use tuner alignment generator, RCA stock no. TAG001. Connect DC voltmeter to the junction of R509 and R510. Connect ground to tuner shield.
2. Set the tuner alignment generator for channel 50 output and tune to receive channel 50 on PIP tuner.
3. Adjust L703 for 4.9V ±.1V.
4. Connect voltmeter across C8117.
5. Select parameter (3 31) and record the value. Adjust parameter (3 31) thru the value range and check for a null AGC voltage. If the null voltage does not appear, adjust L104 and repeat this step. If the null voltage appears, set parameter (3 31) to recorded value and continue to the next step.
6. Select parameter (3 32) and record the value. Adjust parameter (3 32) thru the value range and check for a null AGC voltage. If the null voltage does not appear, adjust L109 and repeat this step. If the null voltage appears, set parameter (3 32) to recorded value and continue to the next step.
7. Select parameter (3 33) and record the value. Adjust parameter (3 33) thru the value range and check for a null AGC voltage. If the null voltage does not appear, adjust L107 and repeat this step. If the null voltage appears, set parameter (3 33) to recorded value.

Band 1 Manual Alignment

1. Use tuner alignment generator, RCA stock no. TAG001. Connect DC voltmeter to the junction of R509 and R510. Connect ground to tuner shield.
2. Set the tuner alignment generator for channel 17 output and tune to receive channel 17 on PIP tuner.
3. Adjust L704 for 4.6V ±.1V.
4. Connect voltmeter across C8117.
5. Select parameter (3 13) and record the value. Adjust parameter (3 13) thru the value range and check for a null AGC voltage. If the null voltage does not appear, adjust L105 and repeat this step. If the null voltage appears, set parameter (3 13) to recorded value and continue to the next step.
6. Select parameter (3 14) and record the value. Adjust parameter (3 14) thru the value range and check for a null AGC voltage. If the null voltage does not appear, adjust L111 and repeat this step. If the null voltage appears, set parameter (3 14) to recorded value and continue to the next step.
7. Select parameter (3 15) and record the value. Adjust parameter (3 15) thru the value range and check for a null AGC voltage. If the null voltage does not appear, adjust L108 and repeat this step. If the null voltage appears, set parameter (3 15) to recorded value.

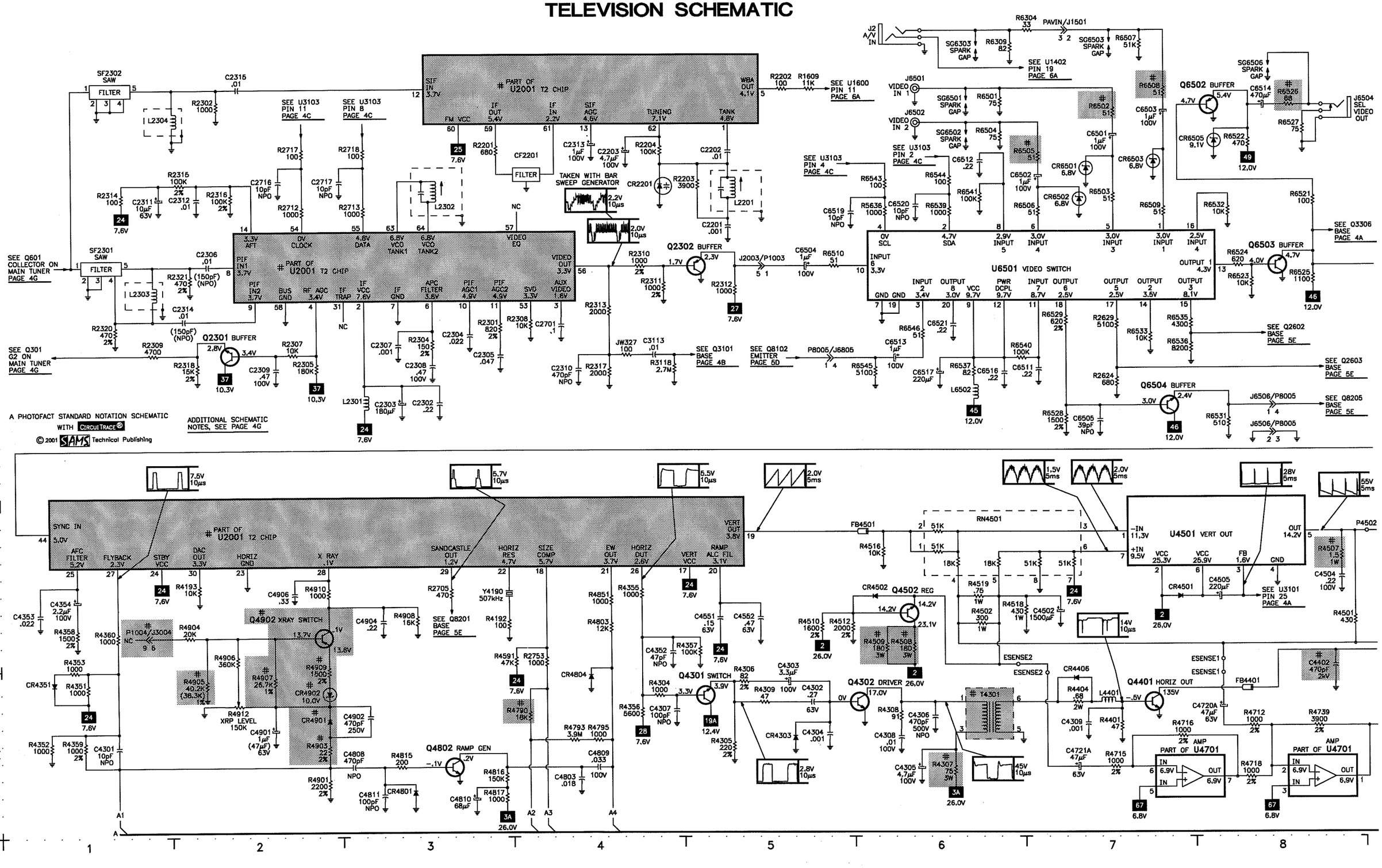
Band 3 Manual Alignment

1. Use tuner alignment generator, RCA stock no. TAG001. Connect DC voltmeter to the junction of R509 and R510. Connect ground to tuner shield.
2. Set the tuner alignment generator for channel 125 output and tune to receive channel 125 on PIP tuner.
3. Adjust L701 for 4.8V ±.1V.
4. Connect voltmeter across C8117.
5. Select parameter (3 55) and record the value. Adjust parameter (3 55) thru the value range and check for a null AGC voltage. If the null voltage does not appear, adjust L302 and repeat this step. If the null voltage appears, set parameter (3 55) to recorded value and continue to the next step.
6. Select parameter (3 56) and record the value. Adjust parameter (3 56) thru the value range and check for a null AGC voltage. If the null voltage does not appear, adjust L305 and repeat this step. If the null voltage appears, set parameter (3 56) to recorded value and continue to the next step.
7. Select parameter (3 57) and record the value. Adjust parameter (3 57) thru the value range and check for a null AGC voltage. If the null voltage does not appear, adjust L304 and repeat this step. If the null voltage appears, set parameter (3 57) to recorded value.

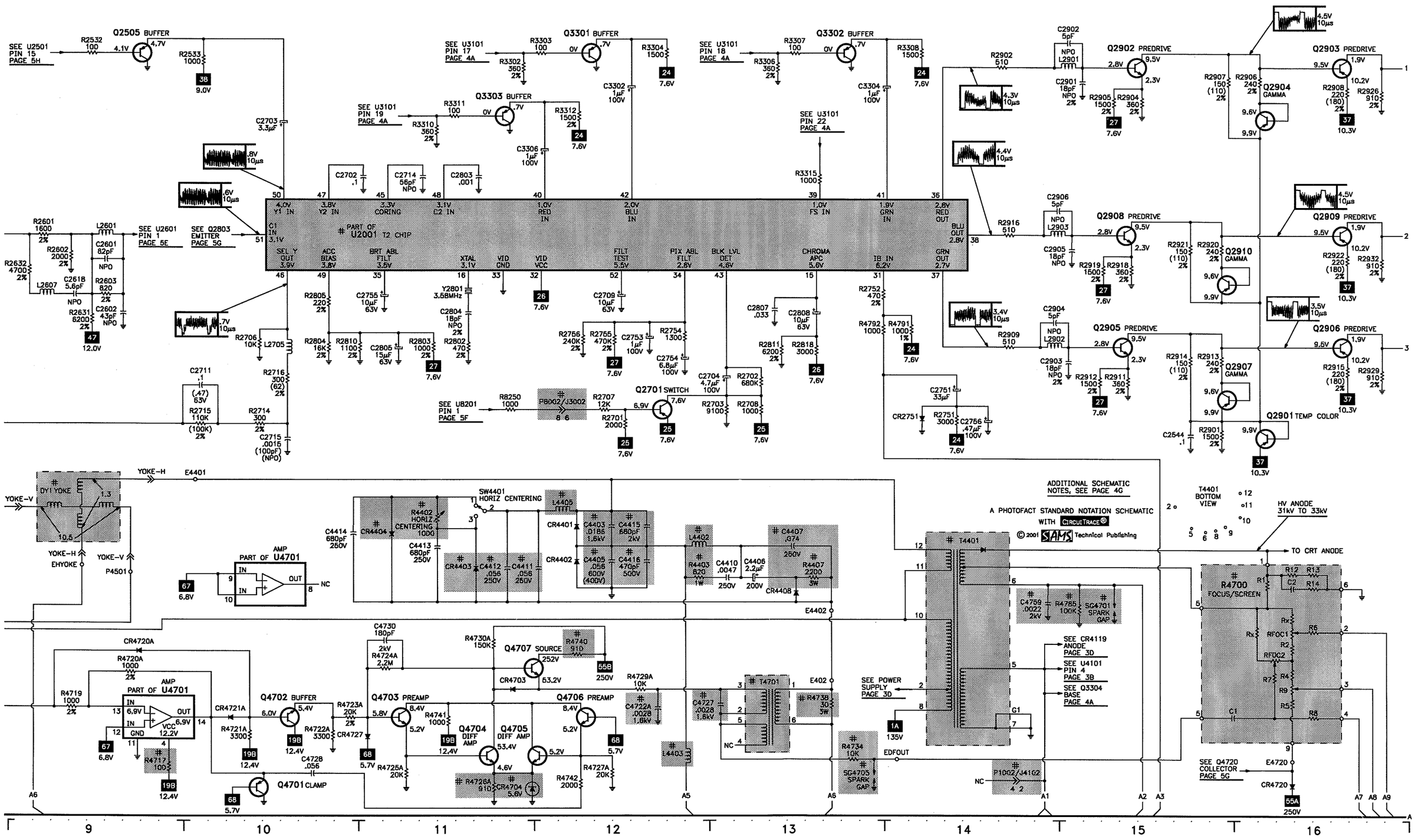
RF AGC Alignment

1. Use tuner alignment generator, RCA stock no. TAG001. Connect DC voltmeter to the junction of R509 and R510. Connect ground to tuner shield.
2. Connect voltmeter across C8117.
3. Set the tuner alignment generator for channel 2 output and tune to receive channel 2 on PIP tuner.
4. Select parameter (3 1) and adjust value to have minimum DC voltage.
5. Select parameter (3 2) and adjust value to have minimum DC voltage.
6. Select parameter (3 3) and adjust value to have minimum DC voltage.
7. The adjustments for each channel must be repeated to assure correct alignment.
8. Repeat the process with parameters (3 4) thru (3 57) and repeat the adjustments for each channel must be repeated to assure correct alignment.

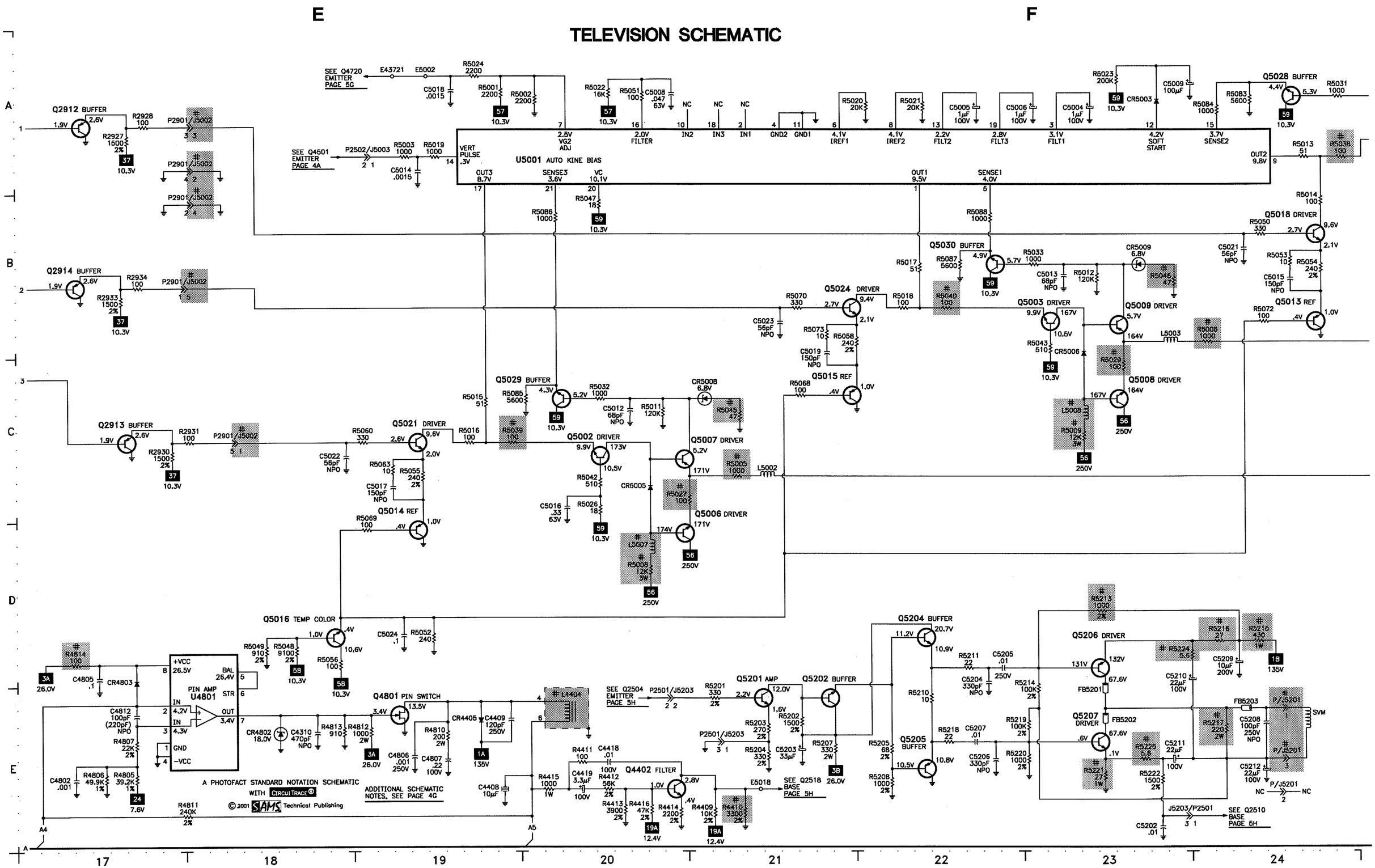
TELEVISION SCHEMATIC



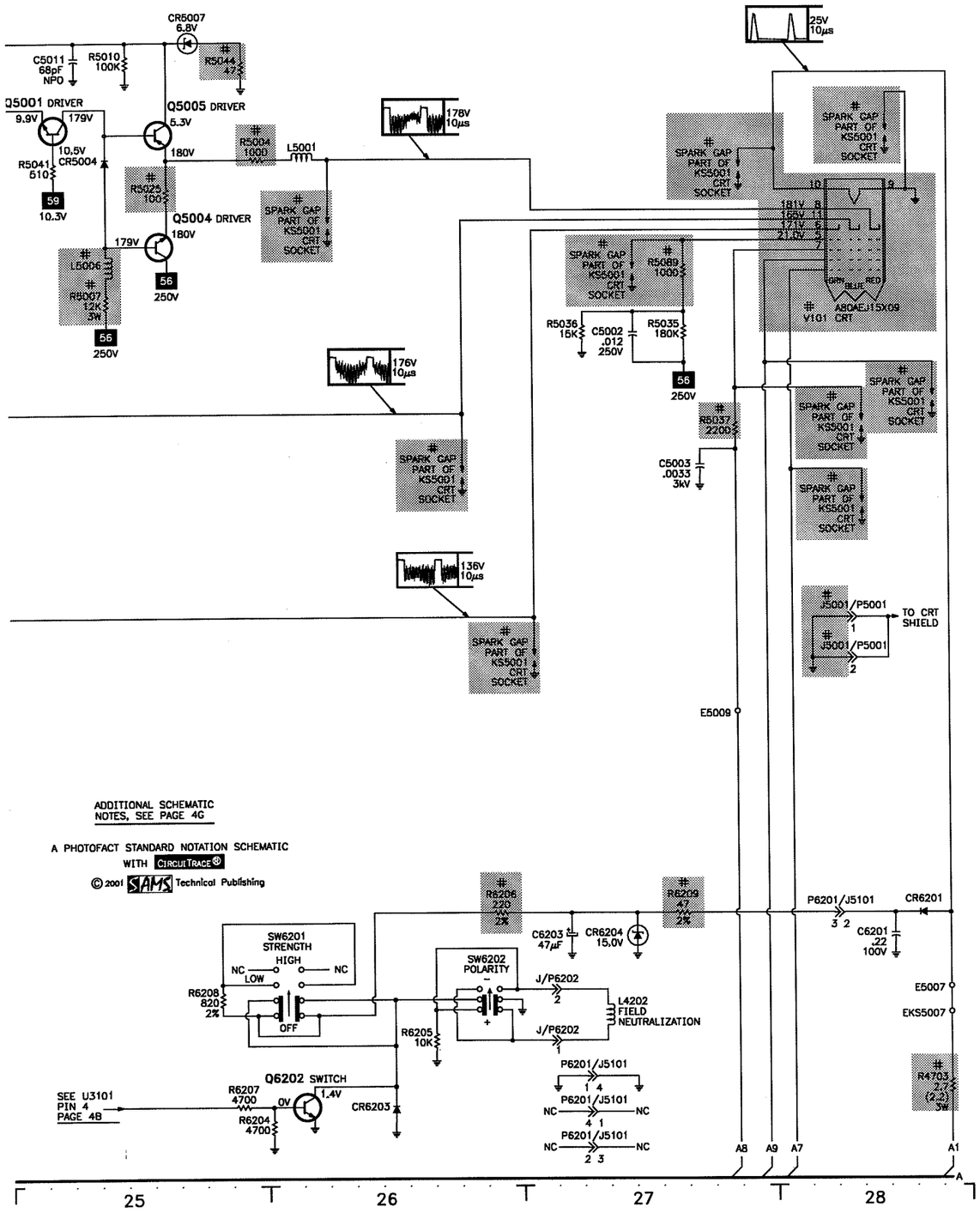
TELEVISION SCHEMATIC continued



TELEVISION SCHEMATIC



TELEVISION SCHEMATIC continued



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	CM2125
Multiburst Signal	VG91
Color Bar	VG91
TV Stereo	VG91
Digital VOM	SC3100
Frequency Meter	SC3100
Hi-Voltage Probe	HP200
Accessory Probes	TP212
Isolation Transformer	PR570
Capacitance Analyzer	LC102
CRT Analyzer	CR7000
AC Leakage Tester	PR570
Inductance Analyzer	LC102
Flyback Yoke Tester	TVA92
Field Strength Meter	SL753
Transistor Tester	TF46
Horizontal Analyzer	HA-2500
Video Analyzer	VG91, TVA92

POWER SUPPLY SCHEMATIC

A

B

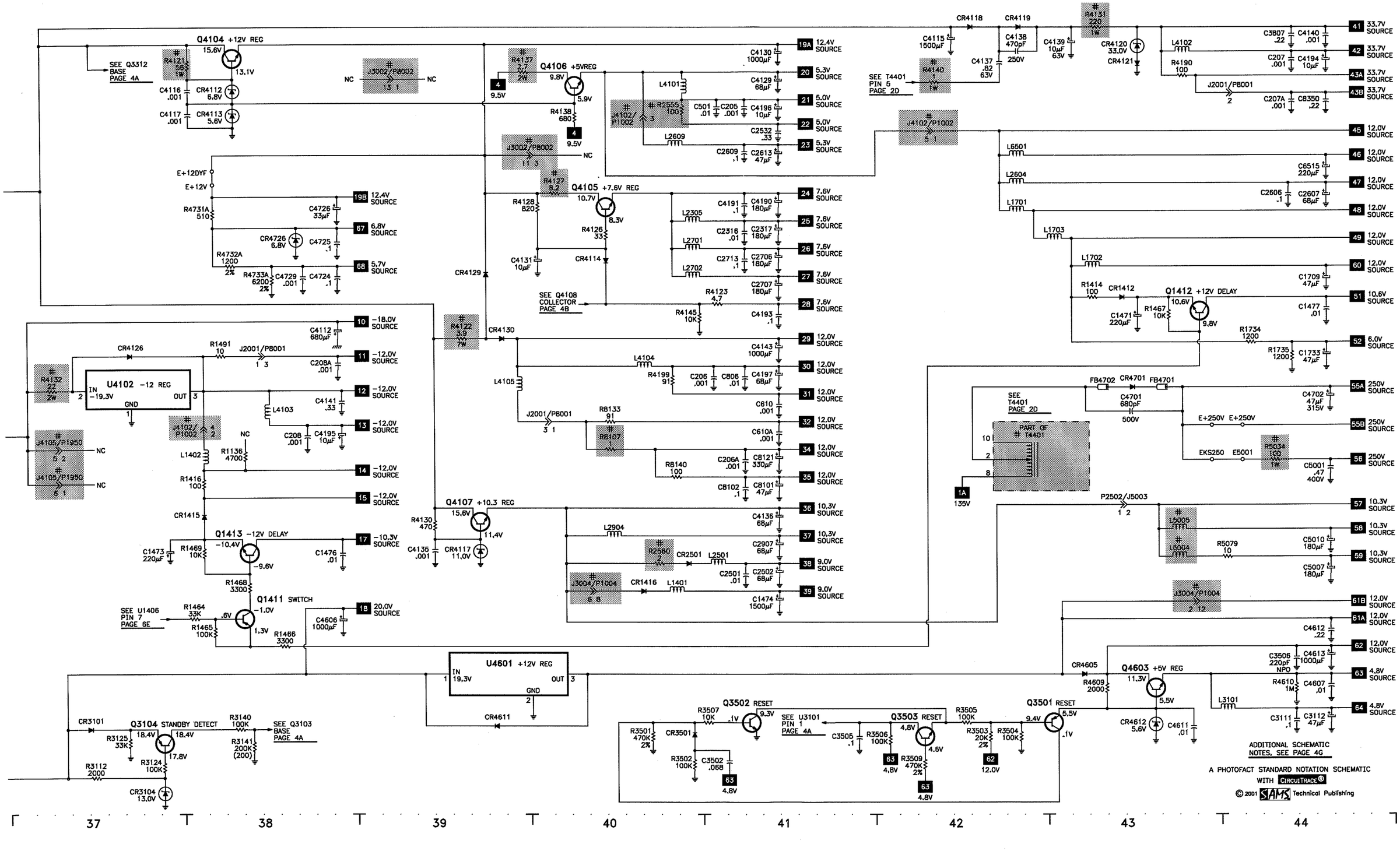
P4001 120VAC 1.2A POLARIZED
EY4001
EY4002
F4001 5A
L4001
L4002
RT4201 PTC
K4201 DEGAUSS
PDEGAUSS J4101
L4201 DEGAUSS
PDEGAUSS J4101
SG4001 SPARK GAP
R4002 2.7M
C4002 470pF 12Dv
C4011 .22 L-L 250VAC (125VAC)
R4001 1.8 15W
C4008 680pF 1kV
C4009 680pF 1kV
CR4001
C4004 680pF 1kV
C4003 680pF 1kV
12.0V 5ms
R4003 68K 1W
C4006 820µF 200V
C4147 470pF 500V
C4126 470pF 500V
R4129 330 7W
FB4102
CR4116
FB4101
C4127 .0082 600V
T4101
500V 10µs
C4114 .33
R4141 10 1W
C4007 .005 120V
R4103 1.8 2W
R4100 .51
R4102 47
C4123 220pF NPO
Q4101 CHOPPER
.2V
146V
FB4103
Q4109 DRIVER
.2V
.2V
0V
R4195 100
CR4131
R4101 10K
T4102
SEE U3101 PIN 4 PAGE 4B
Q4201 SWITCH
0V
12.0V
C4202 .001
R4201 100
CR4201
C4201 .01
K4201 DEGAUSS
19A 12.4V
J1501/PAVIN 3
CR1418
CR1417
J1950/P4105 4 3
J1950/P4105 3 4
P8002/J3002 13 1
P8002/J3002 7
NC
NC
NC
P/J3001 3 6
P/J8006 NC 1
P/J8006 2 1
E2601
P4201/J5202 1 4
EKS5008
E5008
E5011
E5010 DDFSG
P1003/J2003 2 4
EGNDA
EGND
CR5001
CR5002
ADDITIONAL SCHEMATIC NOTES, SEE PAGE 4G
A PHOTOFACT STANDARD NOTATION SCHEMATIC WITH CIRCUITRACE®

365V 10µs
C4125 470pF 500V
FB4112
CR4110
FB4113
C4132 470pF 500V
70V 10µs
C4146 470pF 500V NPO
CR4128
C4133 470pF 500V NPO
CR4102
R4511 1 2W
C4145 680µF
C4119 470pF 250V
FB4114
CR4111
FB4115
70V 10µs
45V 10µs
C4142 470pF 500V NPO
FB4108
CR4109
FB4109
C4118 470pF 500V NPO
SEE Q3312 BASE PAGE 4A
FB4110
CR4115
FB4111
C4128 470pF 500V NPO
30V 10µs
J3002/PB002 8 6
PB205 2.4 1W
LB202
C8246 .1
C8247 180µF
U8204 +5.5V REG
VIN 8.6V
REF .6V
VOUT
CR8204
C8244 .1
C4134 1500µF
C8245 .1
FB8201
FB8202
C8242 100pF NPO
C8237 .1
FB8203
CR8203
CR8205
C8235 .068
C8234 68µF
LB105
LB106
C205A .001
C501A .01
C8103 .1
C8104 100µF
NC
NC
P4201/J5202 3 2
P4201/J5202 4 1
P4201/J5202 2 3
1B 135V SOURCE
1A 135V SOURCE
2 26.0V SOURCE
3A 26.0V SOURCE
3B 26.0V SOURCE
4 9.5V SOURCE
5A 5.6V SOURCE
5B 5.6V SOURCE
5C 5.6V SOURCE
5D 5.6V SOURCE
6 5.0V SOURCE
7 5.0V SOURCE
8 5.0V SOURCE
C4121 470µF 180V
C4507 .1
C4506 1000µF
C4120 680µF
55V 10µs
C4113 470pF 500V NPO
FB4106
CR4108
FB4107
72V 10µs
C4110 470pF 500V NPO
FB4104
CR4107
FB4105
J4105/P1950 1 6
J4105/P1950 2 5
9 26.3V SOURCE
C1962 2200µF
C4111 1500µF
C1907 .22
C1908 .22
C1961 .1 63V
T4401
C4601 .001
CR4601
CR4602
C4602 .001
C4603 .001
CR4603
CR4604
C4604 .001

T4103
C4101 470pF 250V CR4101
R4104 2.4
R4405 470 2%
C4102 .0022
22V 10µs
FB4116
Q4110 DRIVER
25.7V
.1V
C4198 .022 100V
C4199 470pF 500V NPO
C4104 .001
R4198 2200
R4197 220 2%
C4124 .001
R4196 4700
CR4132
R4150 100
C4103 .001
C4108 33µF
C4148 .001
C4109 .001
U4101 PWM CONTROLLER
SENSE .1V
FB 2.5V
COMP 2.3V
OUT 3.3V
REF 5.0V
VCC 23.9V
R/C 2.2V
GND
R4111 390K
C4107 820pF
R4112 1740 1%
CR4103
R4109 75K
CR4133
C4106 100µF
R4110 1000 2%
C4105 .1 63V
R4107 1800
R4108 27
R4106 10K
R4113 REG B+ 300
R4133 53.6K 1%
R4114 45.3K 1%
1A 135V
SEE T4401 PIN 5 PAGE 2D
SEE Q3106 EMITTER PAGE 4B
Q4103 SWITCH
.7V
0V
R4117 5100
R4116 10K
R4118 10K
Q4102 SWITCH
25.1V
25.5V
25.8V
R4119 20K 2%
CR4106
CR4105
R4120 10
18 20.0V
3A 26.0V

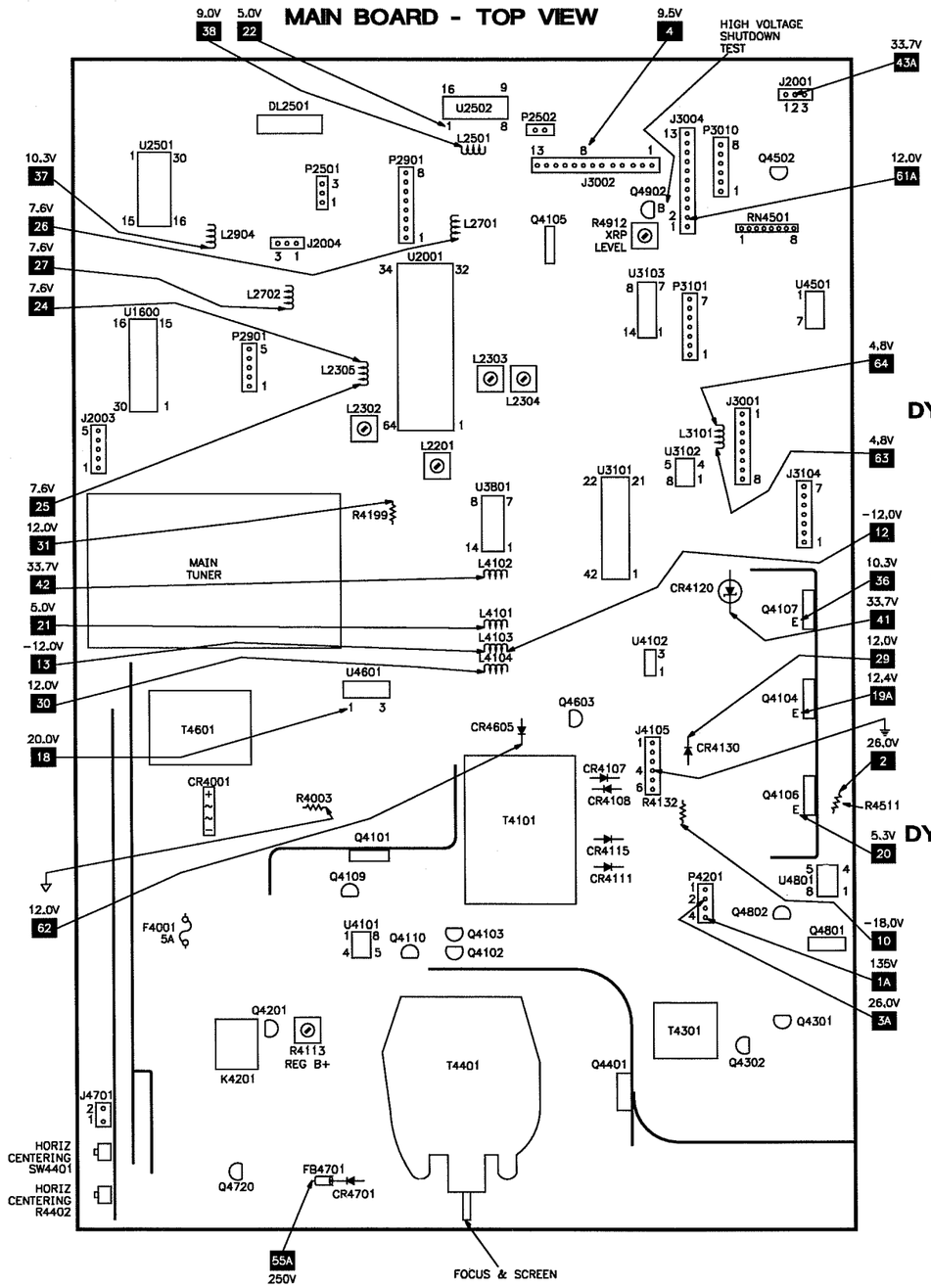
29 30 31 32 33 34 35 36

POWER SUPPLY SCHEMATIC continued

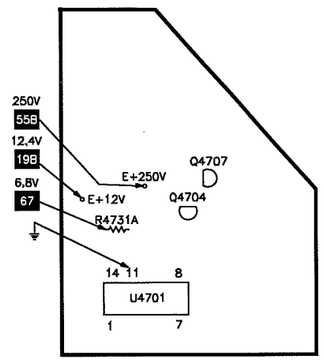


PLACEMENT CHART

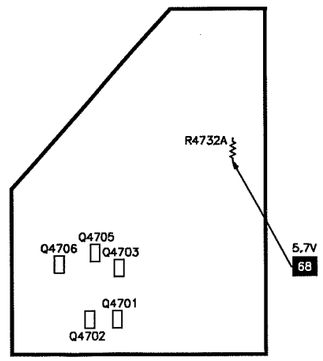
MAIN BOARD - TOP VIEW



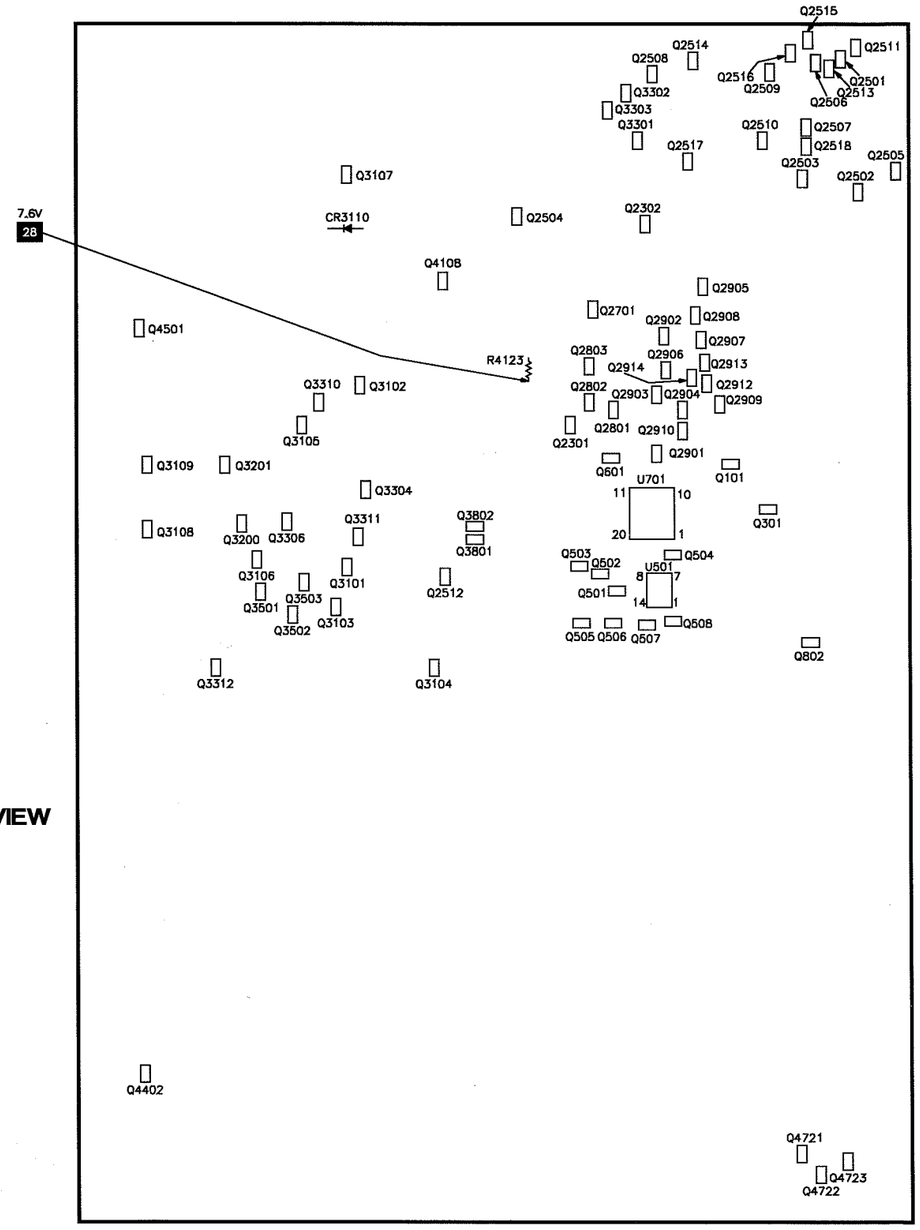
DYNAMIC FOCUS BOARD - TOP VIEW



DYNAMIC FOCUS BOARD - BOTTOM VIEW

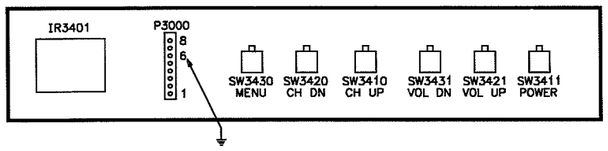


MAIN BOARD - BOTTOM VIEW

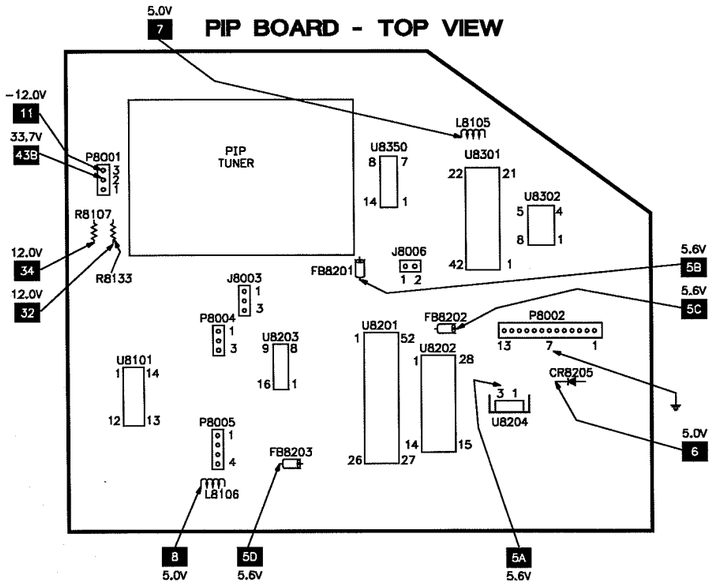


PLACEMENT CHART continued

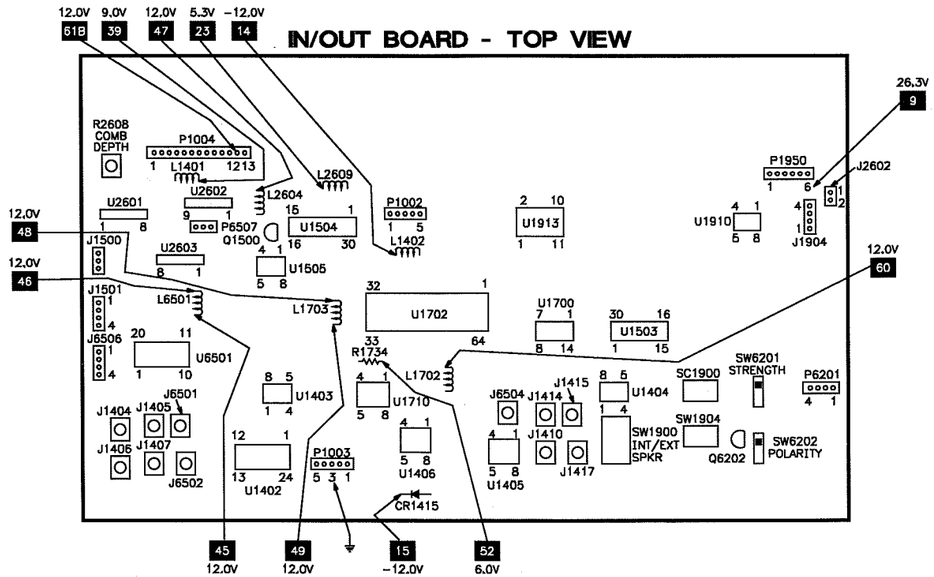
FRONT PANEL BOARD



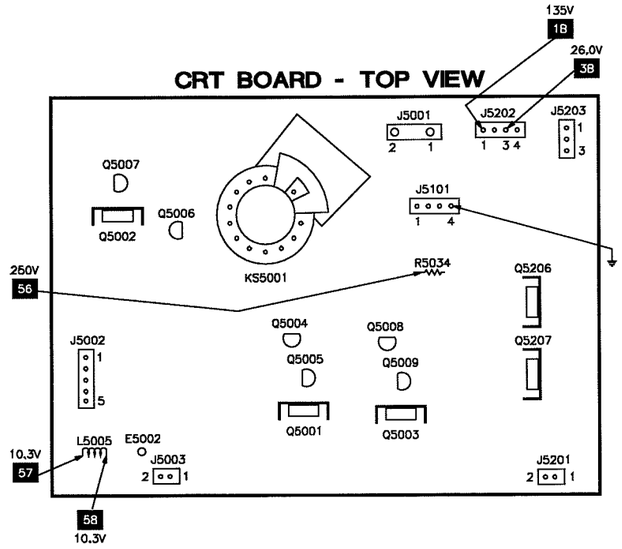
PIP BOARD - TOP VIEW



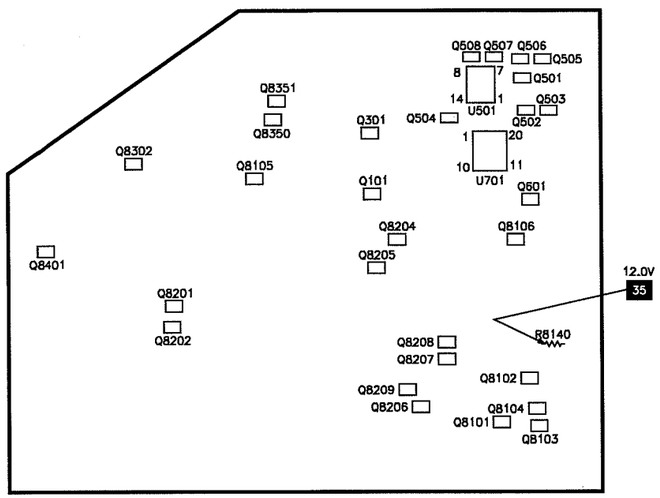
IN/OUT BOARD - TOP VIEW



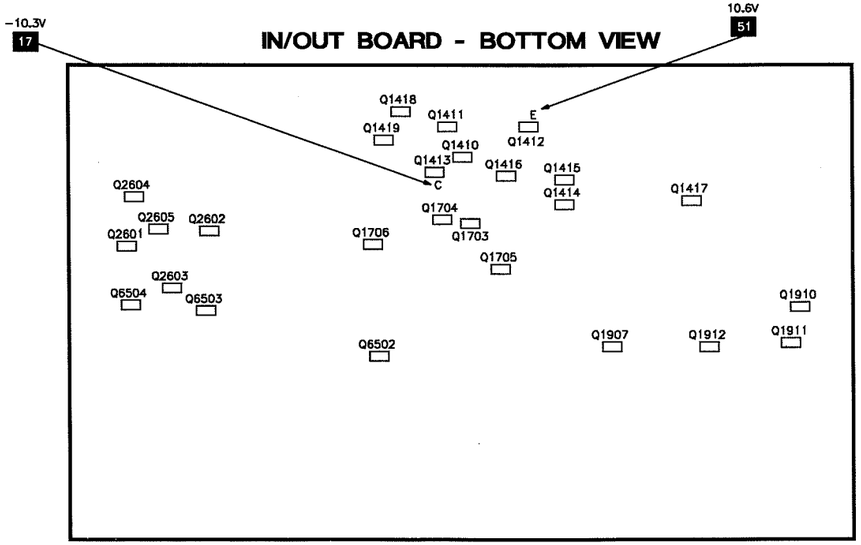
CRT BOARD - TOP VIEW



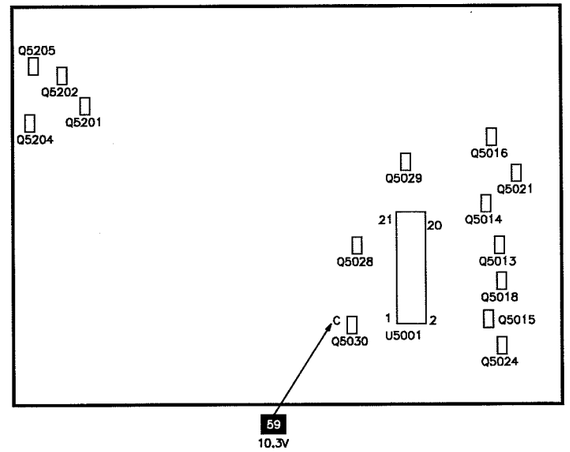
PIP BOARD - BOTTOM VIEW



IN/OUT BOARD - BOTTOM VIEW



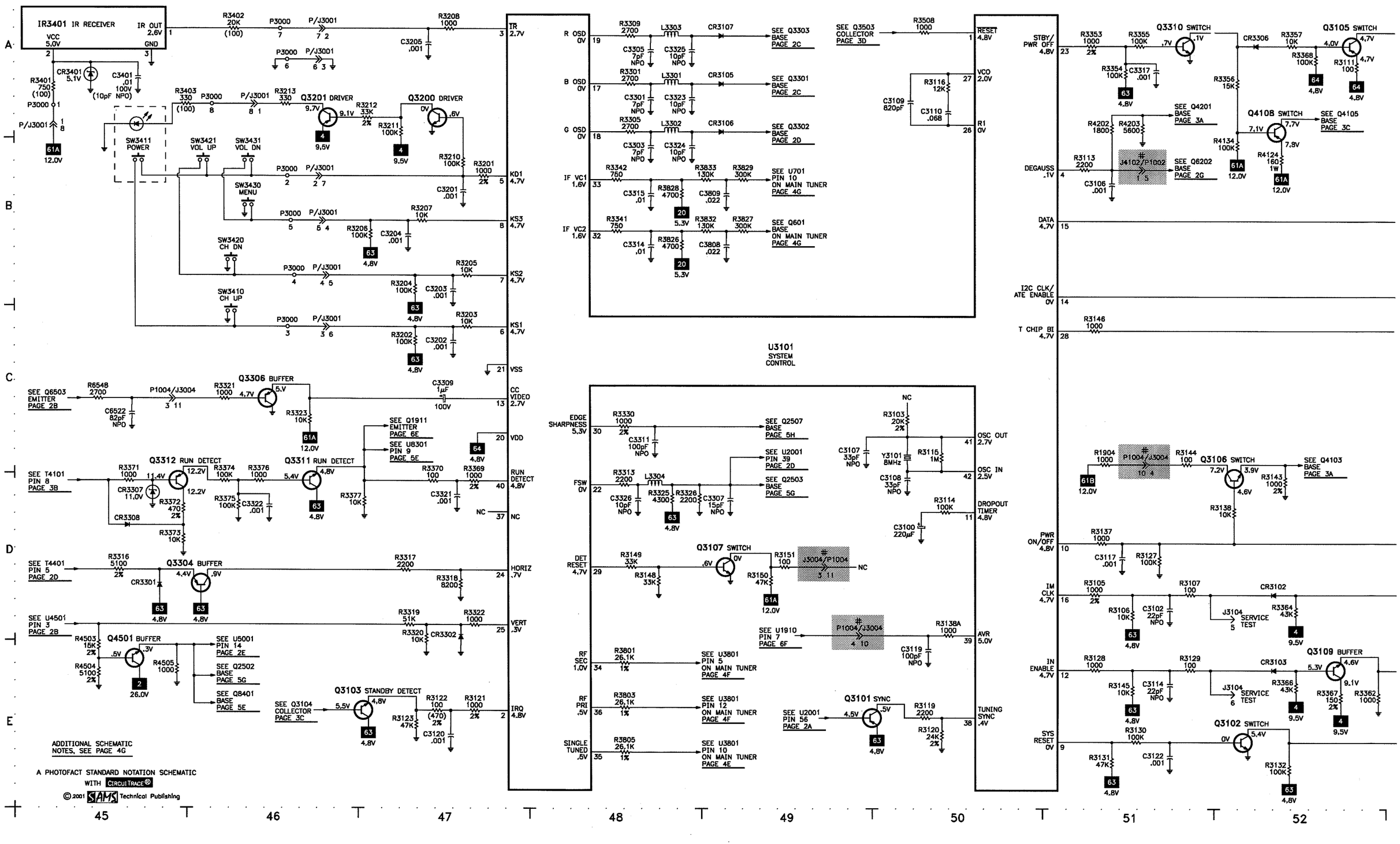
CRT BOARD - BOTTOM VIEW



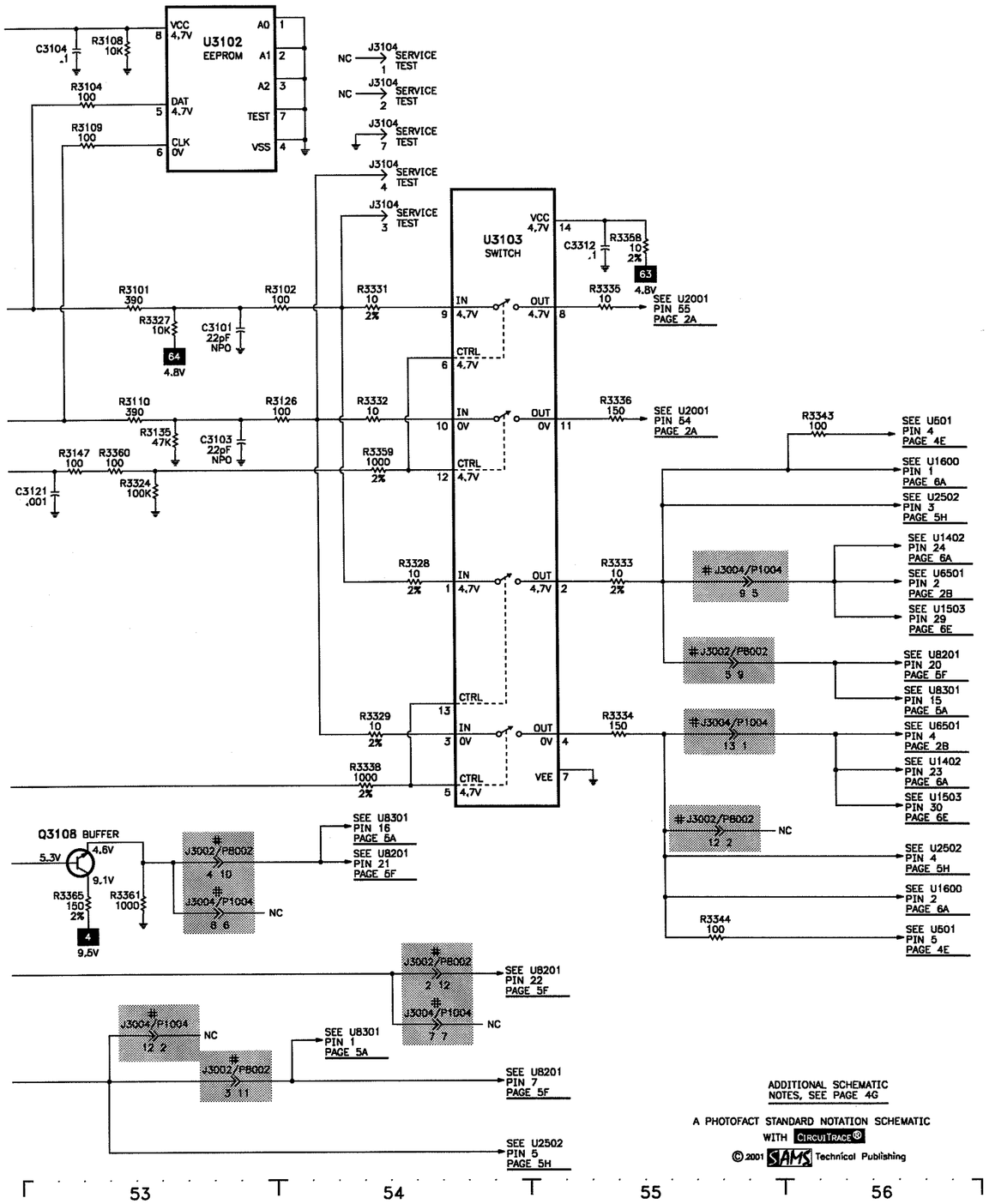
RCA

MODEL F32730SBFM1 (CHASSIS CTC179CM)

SYSTEM CONTROL SCHEMATIC



C
SYSTEM CONTROL SCHEMATIC continued



ADDITIONAL SCHEMATIC NOTES, SEE PAGE 4G

A PHOTOFACT STANDARD NOTATION SCHEMATIC WITH CIRCUITRACE®

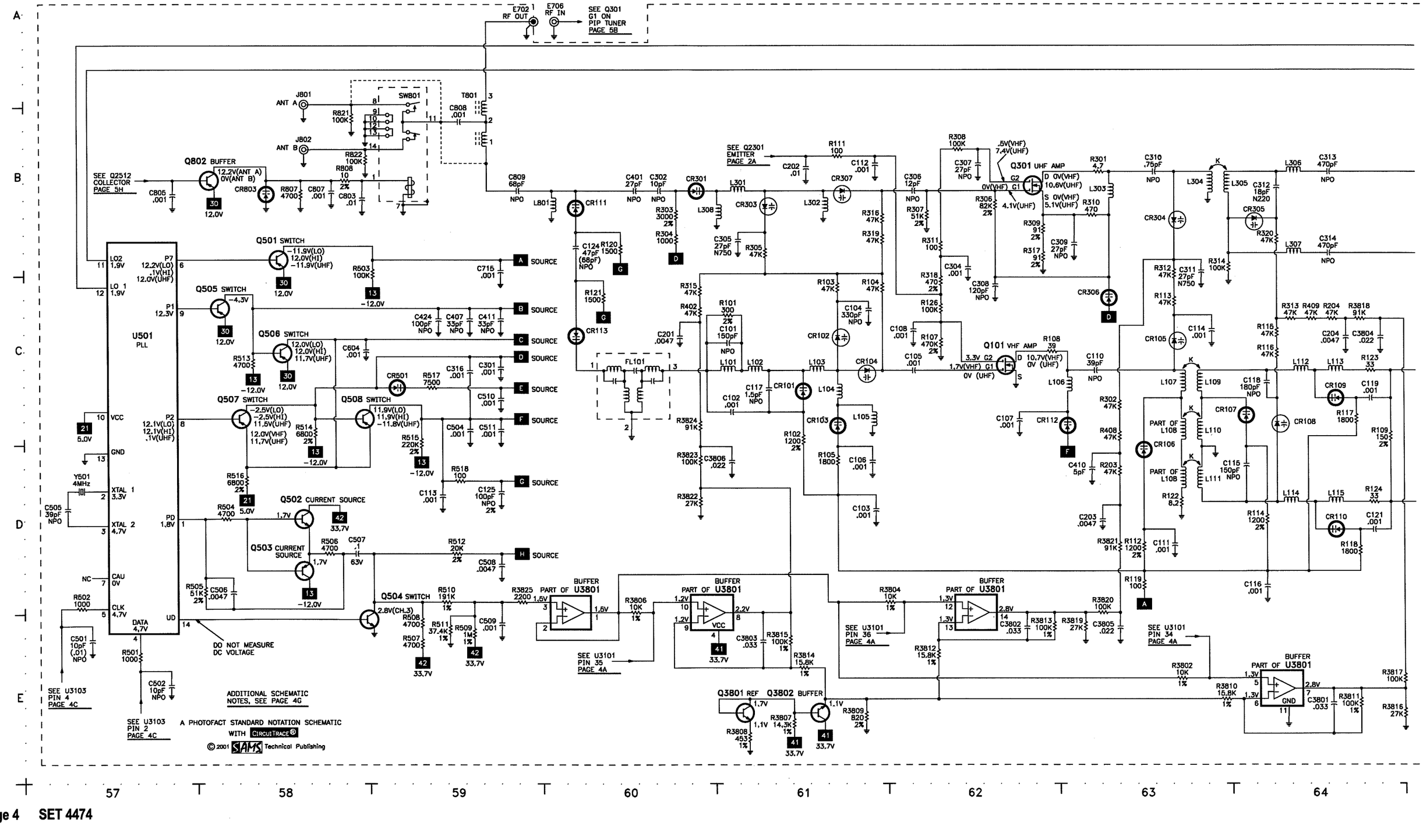
PIP TUNER VOLTAGE CHART

Pin No.	VHF Low Band	VHF High Band	UHF Band
U501			
1	1.8V	1.8V	1.8V
2	3.3V	3.3V	3.3V
3	4.7V	4.7V	4.7V
4	4.7V	4.7V	4.7V
5	4.7V	4.7V	4.7V
6	12.2V	.1V	12.0V
7	0V	0V	0V
8	12.0V	11.8V	0V
9	12.2V	12.2V	12.2V
10	5.0V	5.0V	5.0V
11	1.9V	1.9V	1.9V
12	1.9V	1.9V	1.9V
13	0V	0V	0V
14	DO NOT MEASURE DC VOLTAGE		
U701			
1	8.1V	8.1V	8.1V
2	8.1V	8.1V	8.1V
3	0V	0V	0V
4	4.0V	4.0V	3.5V
5	4.0V	4.0V	3.5V
6	3.7V	3.7V	3.9V
7	3.7V	3.7V	3.9V
8	11.9V	11.9V	11.4V
9	11.9V	11.9V	11.4V
10	11.9V	11.9V	11.4V
11	0V	0V	4.1V
12	2.7V	2.7V	2.7V
13	4.7V	4.7V	7.9V
14	4.7V	4.7V	7.9V
15	2.7V	2.7V	2.7V
16	2.9V	2.9V	2.9V
17	8.0V	8.0V	4.3V
18	8.0V	8.0V	4.7V
19	2.9V	2.9V	2.9V
20	0V	0V	0V

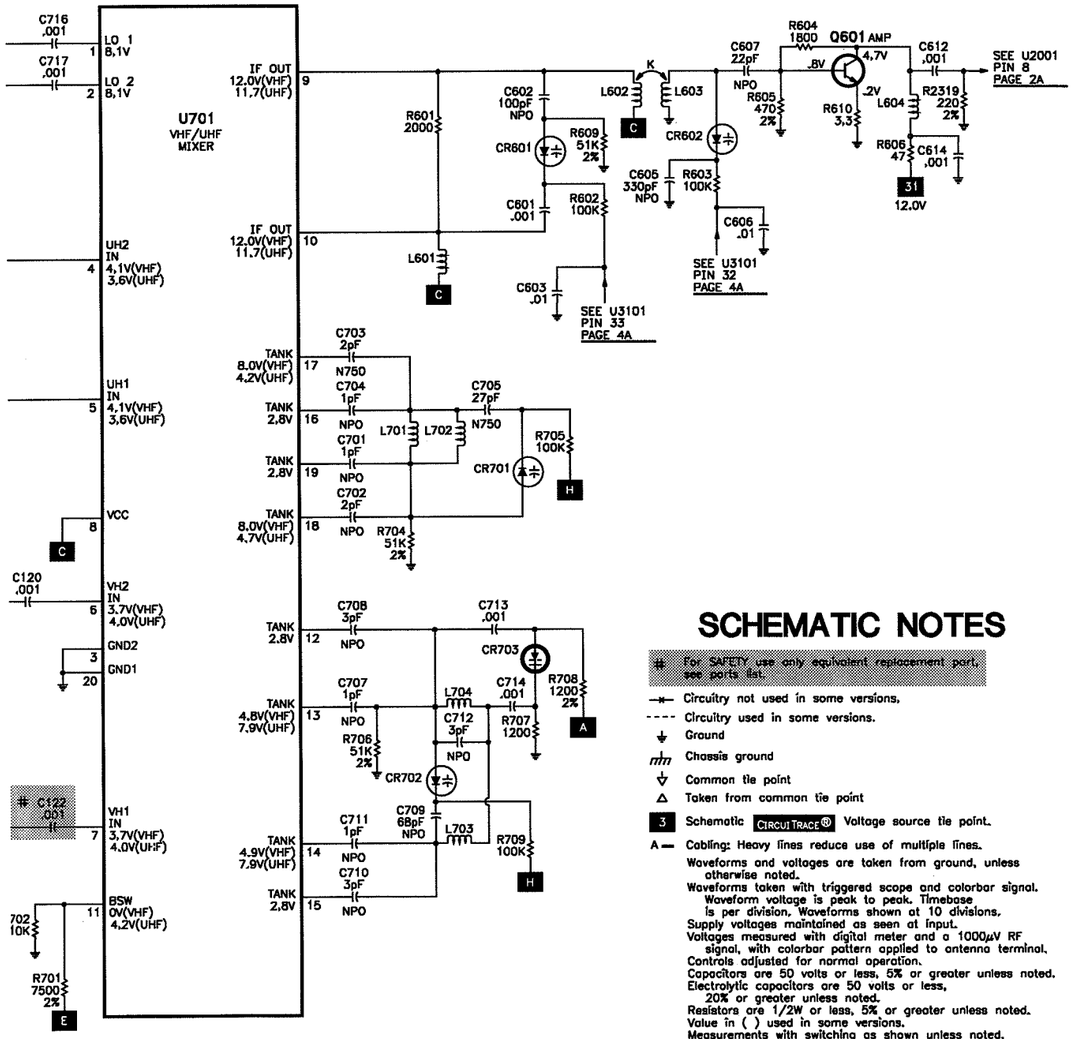
Pin No.	VHF Low Band	VHF High Band	UHF Band
Q101			
G1	1.7V	1.7V	0V
G2	2.3V	2.3V	2.3V
D	10.7V	10.7V	0V
S	0V	0V	0V
Q301			
G1	0V	0V	4.0V
G2	.5V	.5V	.5V
D	0V	0V	10.3V
S	0V	0V	4.9V
Q501			
E	12.0V	12.0V	12.0V
B	12.2V	.1V	12.0V
C	-11.9V	11.9V	-11.9V
Q506			
E	12.0V	12.0V	12.0V
B	-4.3V	-4.3V	-4.3V
C	11.9V	11.8V	11.4V
Q507			
E	11.9V	11.8V	11.4V
B	12.0V	11.8V	0V
C	-2.4V	-2.5V	11.2V
Q508			
E	11.9V	11.8V	11.4V
B	-2.4V	-2.5V	11.2V
C	11.9V	11.8V	-11.7V

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

MAIN TUNER SCHEMATIC



G
MAIN TUNER SCHEMATIC continued



SCHEMATIC NOTES

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

—⊸— Circuitry not used in some versions.

- - - Circuitry used in some versions.

⏚ Ground

⏚ Chassis ground

⏚ Common tie point

△ Taken from common tie point

3 Schematic CIRCUITRACE® Voltage source tie point.

A— Cabling: Heavy lines reduce use of multiple lines.

Waveforms and voltages are taken from ground, unless otherwise noted.
Waveforms taken with triggered scope and colorbar signal. 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 a 1000μV RF signal, with colorbar pattern applied to antenna terminal.
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.

A PHOTOFACT STANDARD NOTATION SCHEMATIC WITH CIRCUITRACE®

65 66 67 68

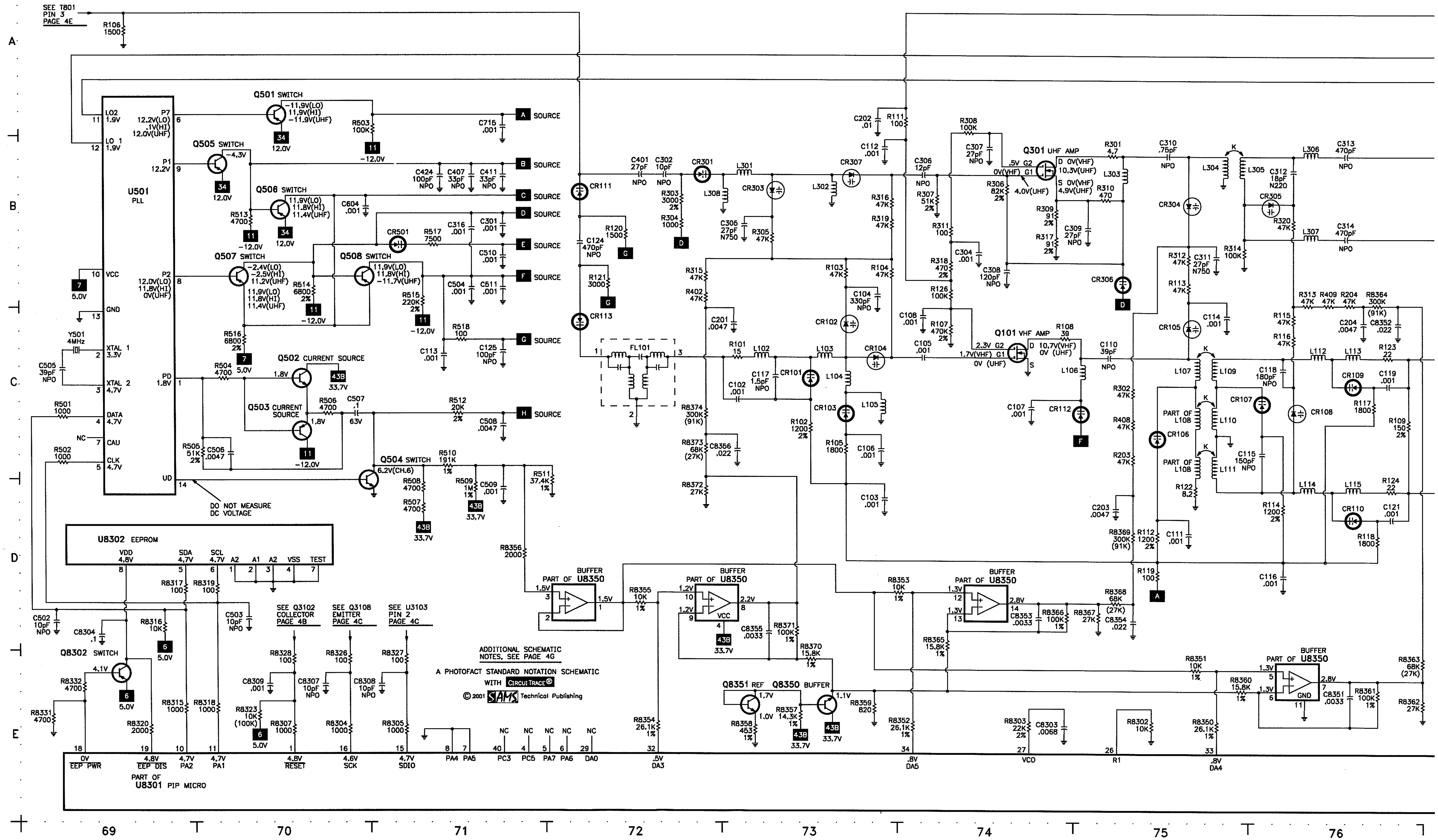
MAIN TUNER VOLTAGE CHART

Pin No.	VHF Low Band	VHF High Band	UHF Band
U501			
1	1.8V	1.8V	1.8V
2	3.3V	3.3V	3.3V
3	4.7V	4.7V	4.7V
4	4.7V	4.7V	4.7V
5	4.7V	4.7V	4.7V
6	12.2V	.1V	12.0V
7	0V	0V	0V
8	12.1V	12.1V	.1V
9	12.3V	12.3V	12.3V
10	5.0V	5.0V	5.0V
11	1.9V	1.9V	1.9V
12	1.9V	1.9V	1.9V
13	0V	0V	0V
14	DO NOT MEASURE DC VOLTAGE		
U701			
1	8.1V	8.1V	8.1V
2	8.1V	8.1V	8.1V
3	0V	0V	0V
4	4.1V	4.1V	3.6V
5	4.1V	4.1V	3.6V
6	3.7V	3.7V	4.0V
7	3.7V	3.7V	4.0V
8	12.0V	12.0V	11.7V
9	12.0V	12.0V	11.7V
10	12.0V	12.0V	11.7V
11	0V	0V	4.2V
12	2.8V	2.8V	2.8V
13	4.8V	4.8V	7.9V
14	4.9V	4.9V	7.9V
15	2.8V	2.8V	2.8V
16	2.8V	2.8V	2.8V
17	8.0V	8.0V	4.2V
18	8.0V	8.0V	4.7V
19	2.8V	2.8V	2.8V
20	0V	0V	0V

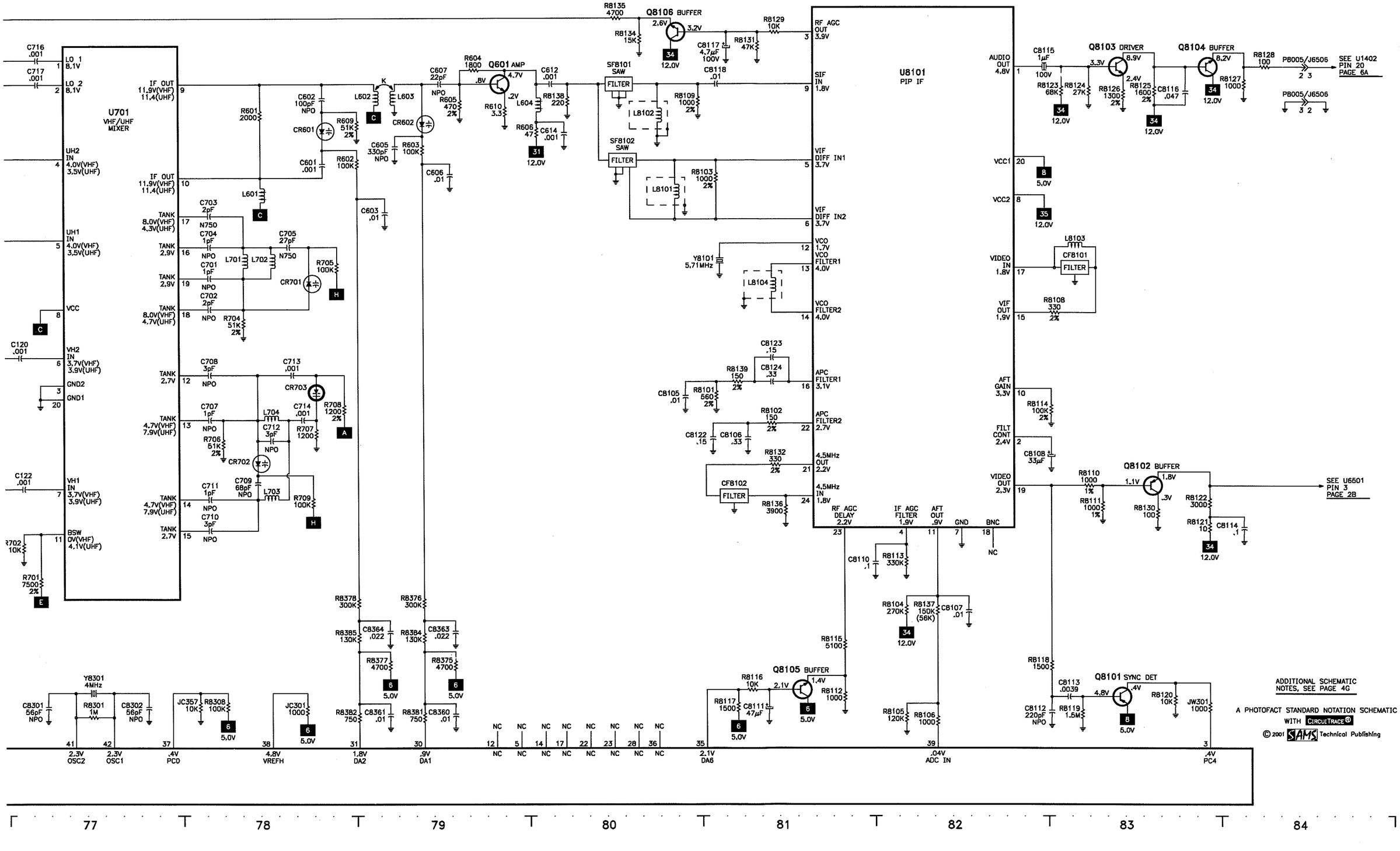
Pin No.	VHF Low Band	VHF High Band	UHF Band
Q101			
G1	1.7V	1.7V	0V
G2	3.3V	3.3V	3.3V
D	10.7V	10.7V	0V
S	0V	0V	0V
Q301			
G1	0V	0V	4.1V
G2	.5V	.5V	7.4V
D	0V	0V	10.6V
S	0V	0V	5.1V
Q501			
E	12.0V	12.0V	12.0V
B	12.2V	.1V	12.0V
C	-11.9V	12.0V	-11.9V
Q506			
E	12.0V	12.0V	12.0V
B	-4.3V	-4.3V	-4.3V
C	12.0V	12.0V	11.7V
Q507			
E	12.0V	12.0V	11.7V
B	12.1V	12.1V	.1V
C	-2.5V	-2.5V	11.5V
Q508			
E	12.0V	12.0V	11.7V
B	-2.5V	-2.5V	11.5V
C	11.9V	11.9V	-11.8V

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

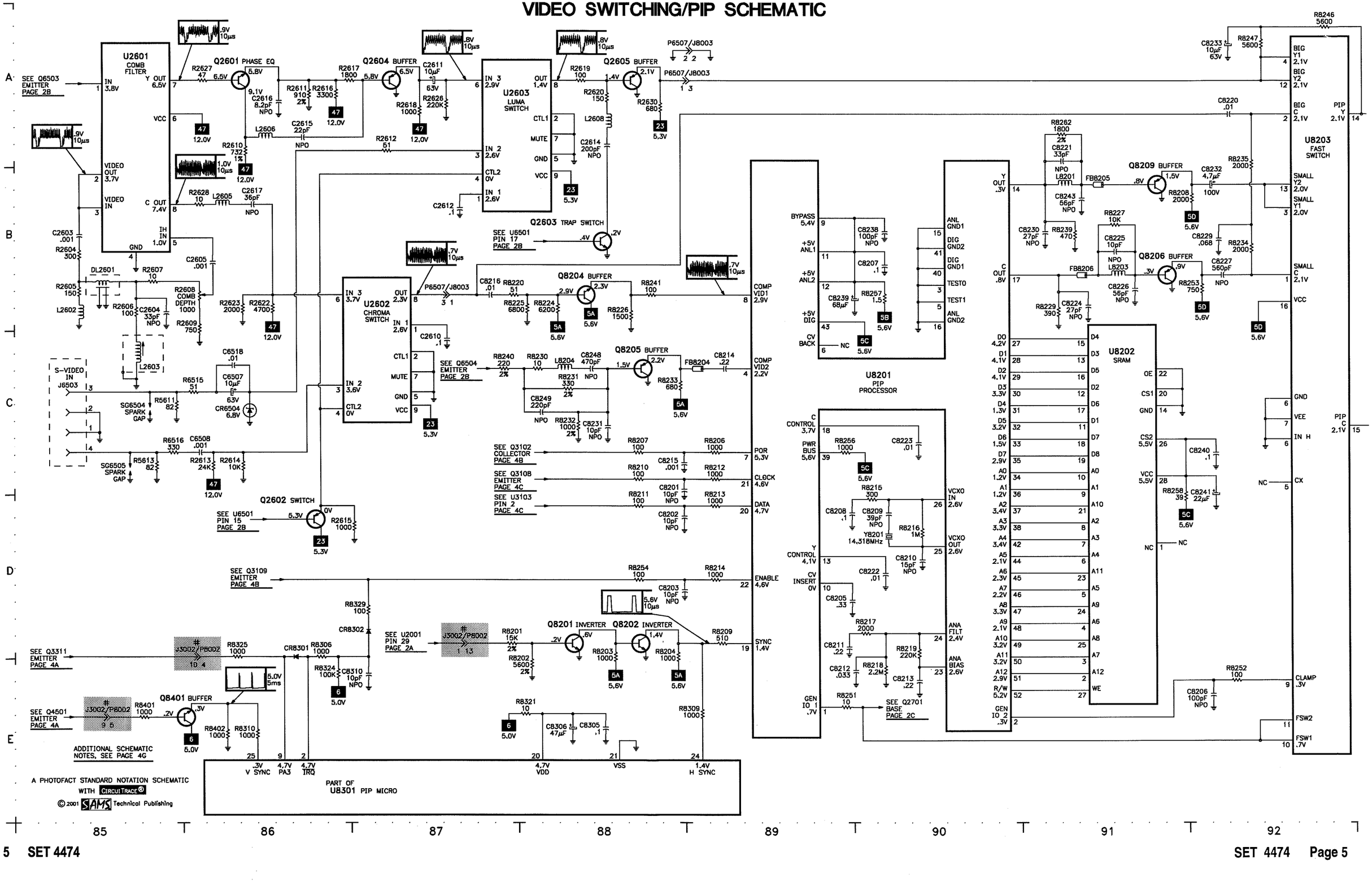
PIP TUNER/IF SCHEMATIC



PIP TUNER/IF SCHEMATIC continued

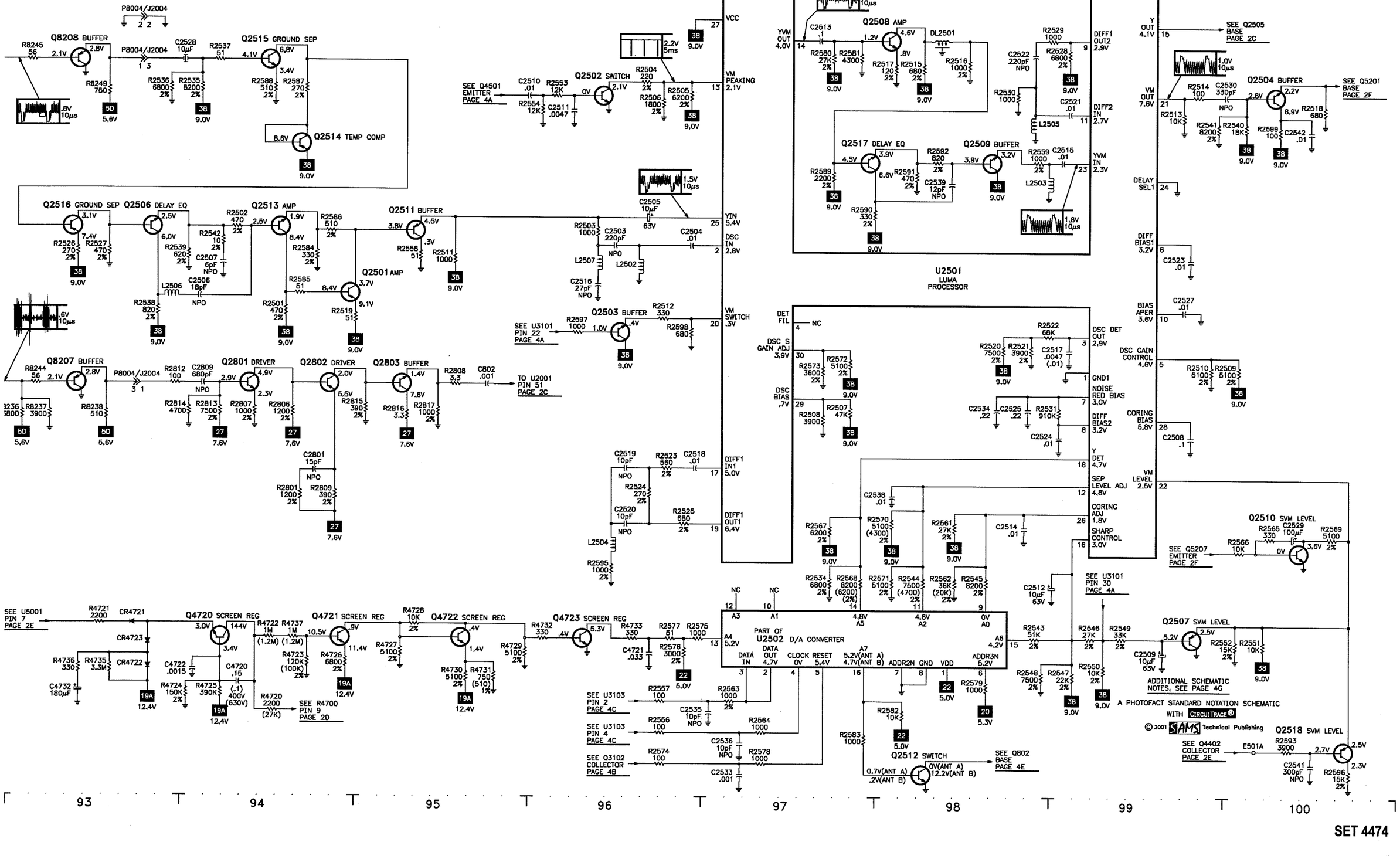


VIDEO SWITCHING/PIP SCHEMATIC

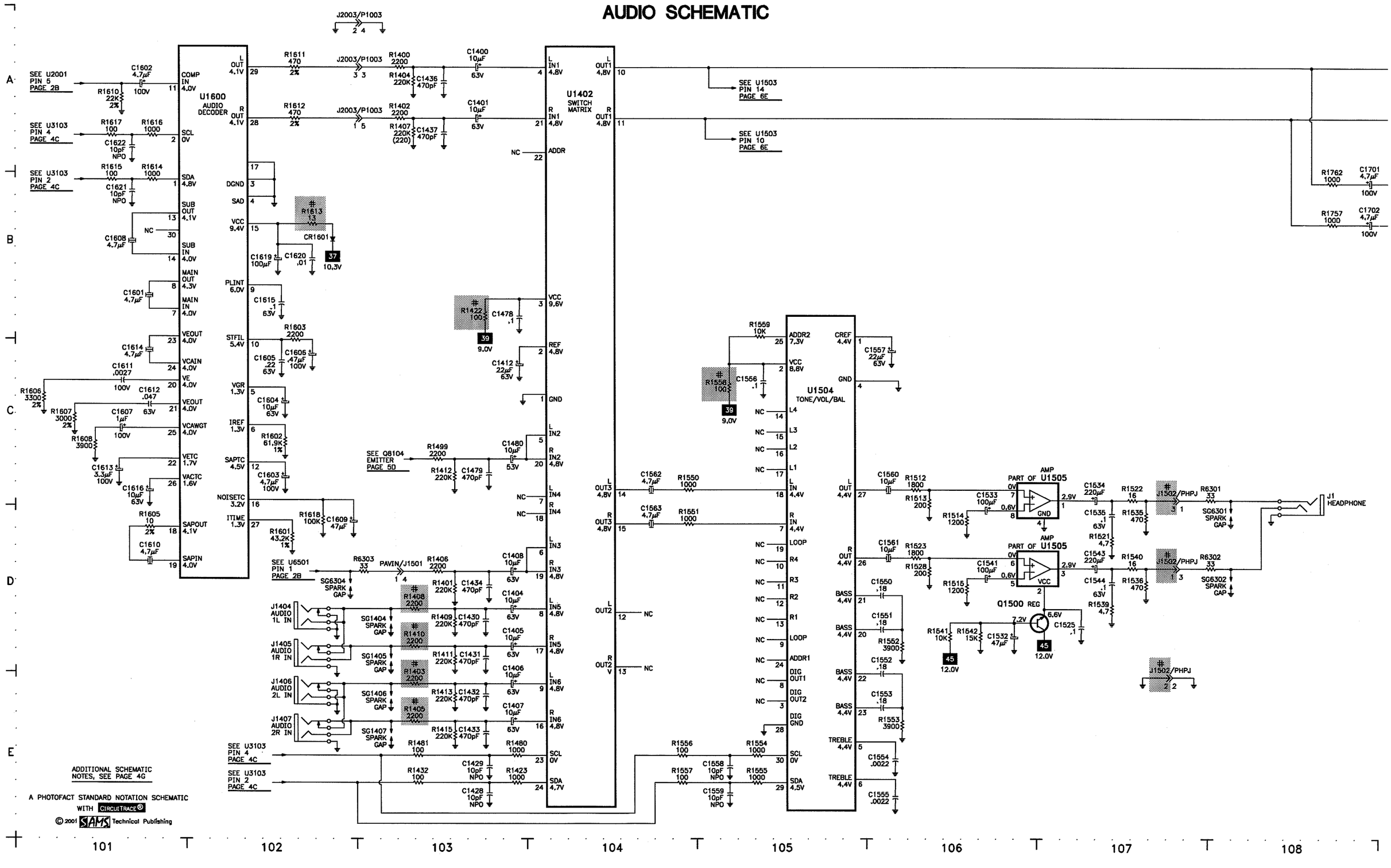


A PHOTOFACT STANDARD NOTATION SCHEMATIC WITH CIRCUITRACE®

VIDEO SWITCHING/PIP SCHEMATIC continued

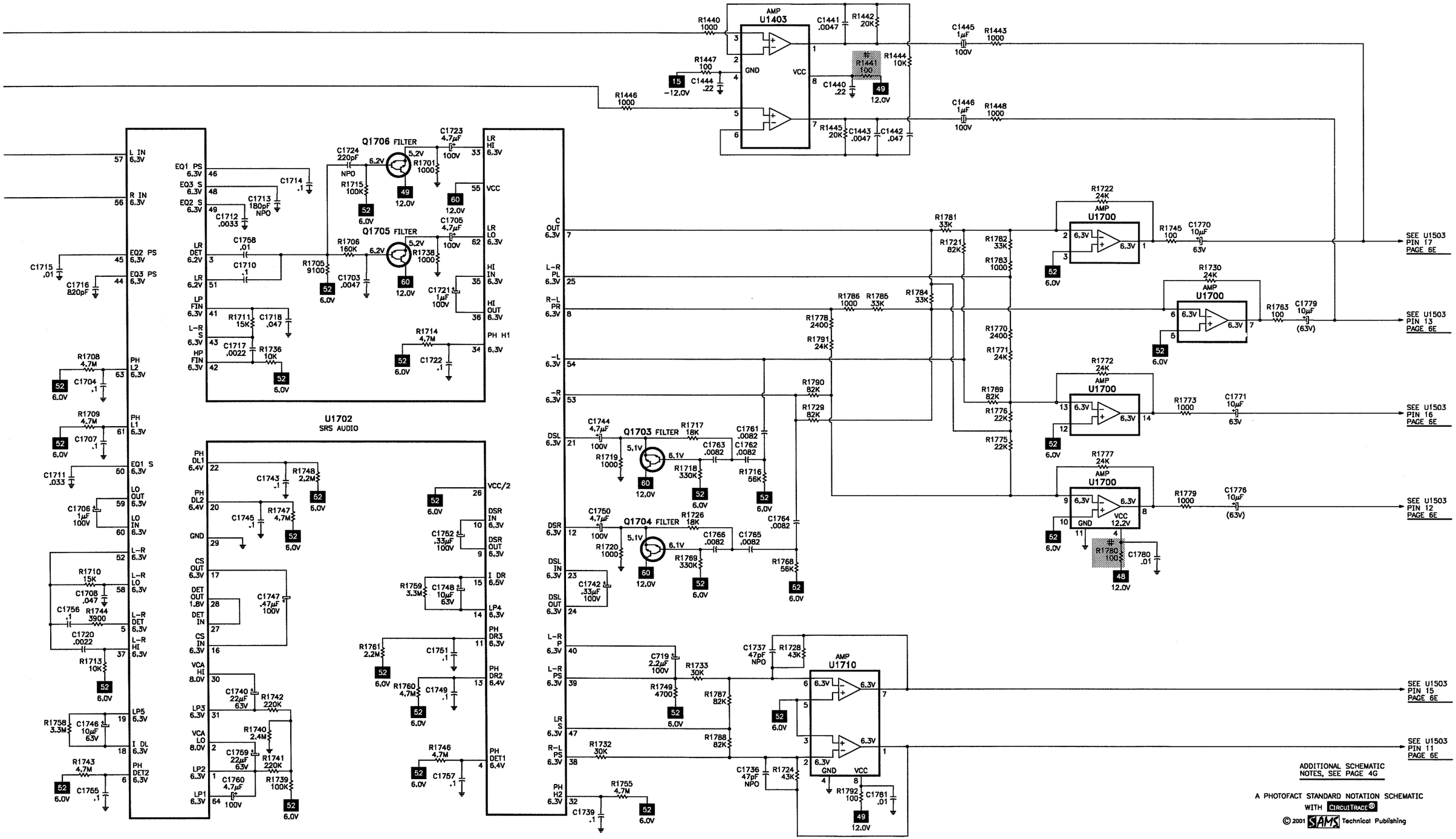


AUDIO SCHEMATIC



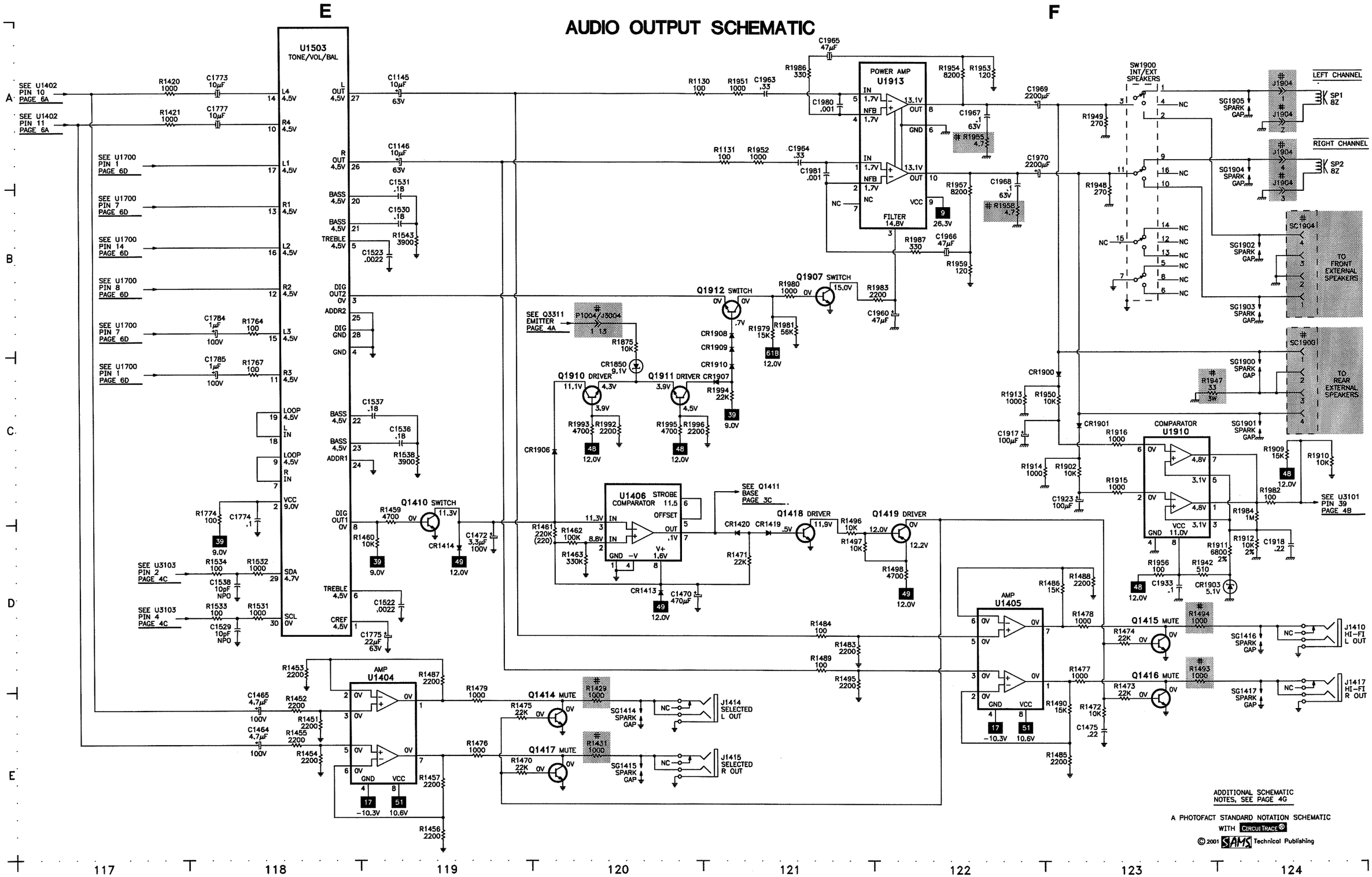
A PHOTOFACT STANDARD NOTATION SCHEMATIC WITH CIRCUITRACE®

AUDIO SCHEMATIC continued



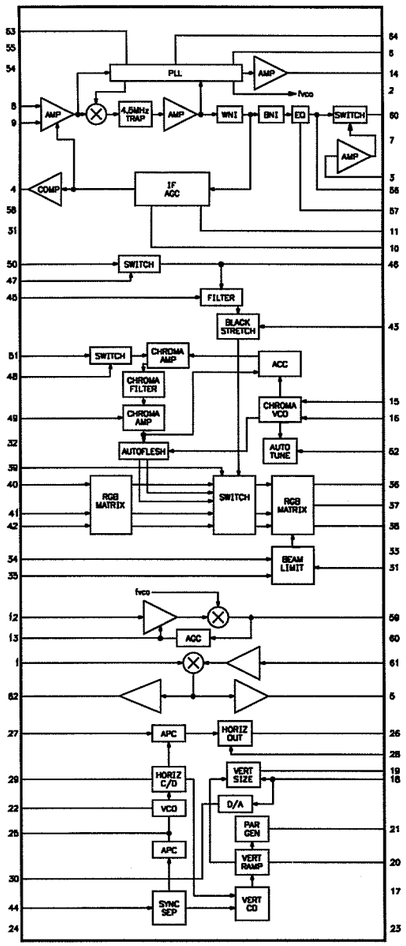
A PHOTOFACT STANDARD NOTATION SCHEMATIC WITH CIRCUITRACE®

AUDIO OUTPUT SCHEMATIC

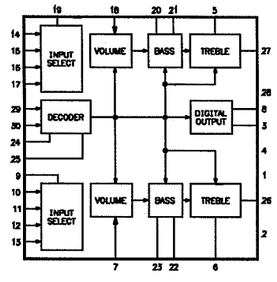


IC FUNCTIONS

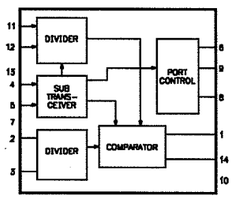
U2001



U1503 & U1504



U501



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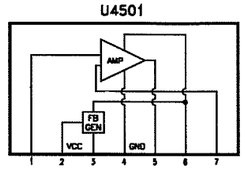

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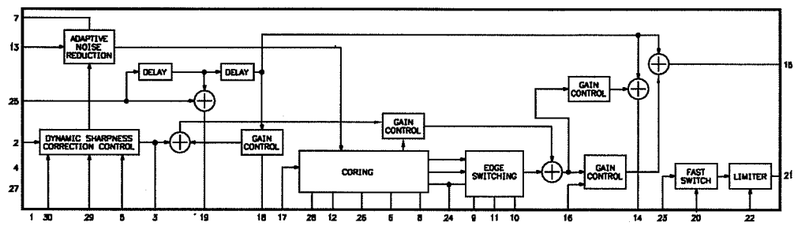

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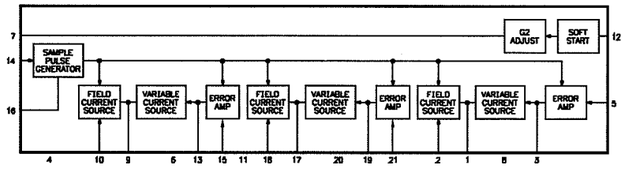

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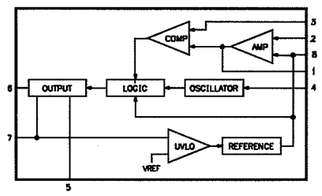

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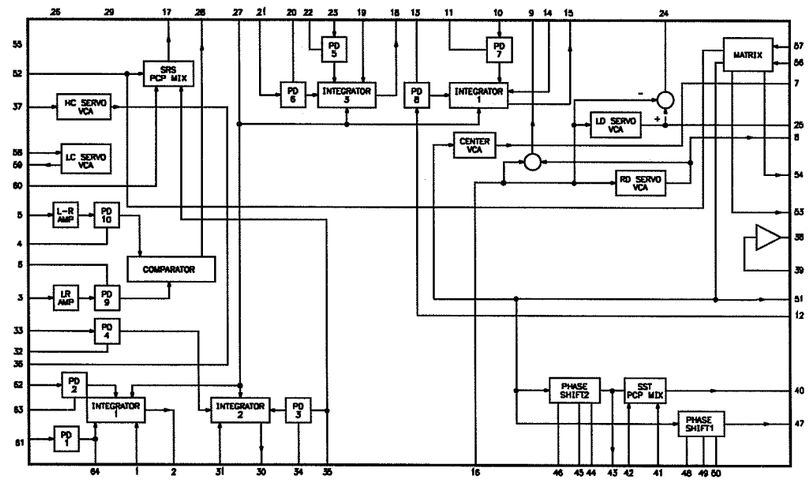

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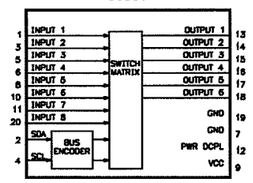

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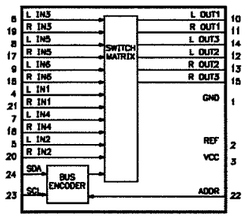

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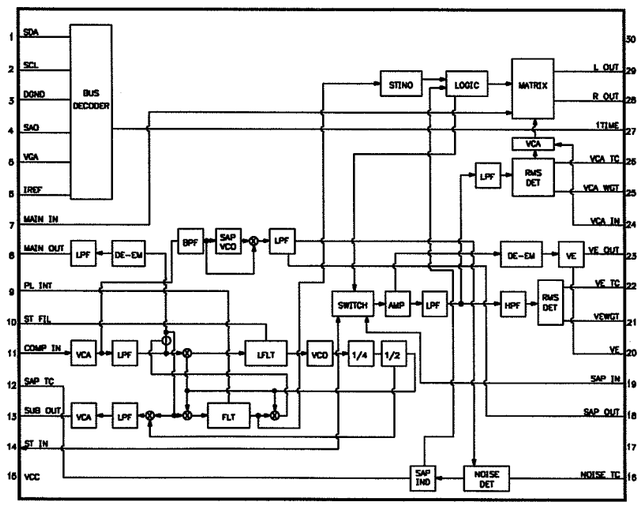

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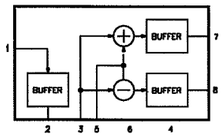

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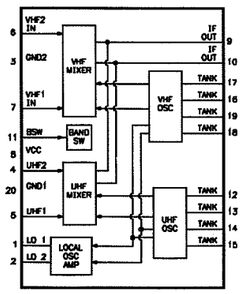
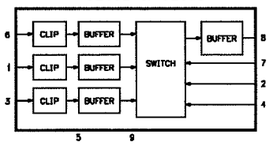


U2602 & U2603



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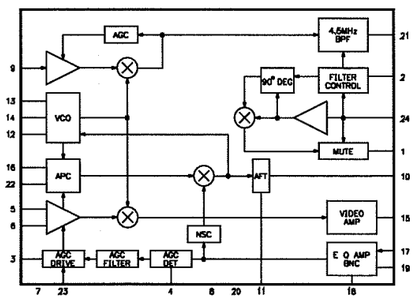

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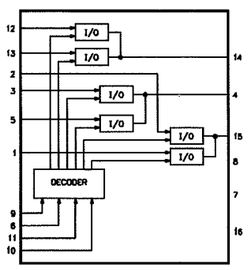

SCHEMATIC COMPONENT LOCATION GUIDE

C101	C60	C309	B75	C708	C66	C1535	D107	C1749	E111	C2511	B96	C2906	B14	C4111	D35	C4502	D7	C5208	E24	C8235	C36	CR501	B71	CR4133	D34	FB4112	A33	L302	B73	L4201	A30	Q2505	A9	Q4502	D6
C102	C61	C310	B63	C708	C78	C1536	C119	C1750	D112	C2512	D98	C2907	D41	C4112	C38	C4504	D8	C5209	D24	C8237	C36	CR501	C59	CR4201	B29	FB4113	A34	L303	B63	L4202	E27	Q2506	B93	Q4603	E43
C102	C73	C310	B75	C709	D66	C1537	C119	C1751	D111	C2513	A97	C3100	D50	C4113	C34	C4505	D8	C5210	E23	C8238	B90	CR601	B66	CR4303	E5	FB4114	B33	L303	B75	L4401	E7	Q2507	E99	Q4701	E10
C103	D61	C311	B75	C709	D78	C1538	D118	C1752	D111	C2514	D98	C3101	B53	C4114	B32	C4506	A36	C5211	E23	C8239	B89	CR601	B78	CR4351	E1	FB4115	B34	L304	B63	L4402	D12	Q2508	A98	Q4702	E10
C103	D73	C311	C63	C710	D66	C1541	D106	C1755	E109	C2515	B99	C3102	D51	C4115	A42	C4507	A36	C5212	E24	C8240	C92	CR602	B67	CR4401	D12	FB4116	D32	L304	B75	L4403	E12	Q2509	B98	Q4703	E11
C104	C61	C312	B64	C710	D78	C1543	D107	C1756	D109	C2516	C96	C3103	C53	C4116	A38	C4551	D5	C6201	E28	C8241	D92	CR602	B79	CR4402	D12	FB4401	E8	L305	B63	L4404	E20	Q2510	D100	Q4704	E11
C104	C73	C312	B76	C711	D66	C1544	D107	C1757	E111	C2517	C99	C3104	A53	C4117	A38	C4552	D5	C6203	E27	C8242	C36	CR701	B78	CR4403	D11	FB4501	D5	L305	B75	L4405	D12	Q2511	B95	Q4705	E12
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C106	D61	C314	B76	C713	C66	C1553	E105	C1761	C113	C2521	B99	C3109	A50	C4121	A36	C4604	E36	C6504	B5	C8246	B34	CR703	C66	CR4408	D13	FB5202	E23	L307	B76	L5004	D43	Q2515	A94	Q4721	E94
C107	C62	C316	B71	C713	C78	C1554	E106	C1762	C113	C2522	A98	C3110	A50	C4123	B31	C4606	D38	C6505	C7	C8247	B35	CR703	C78	CR4501	D7	FB5203	E24	L308	B60	L5005	D43	Q2516	B93	Q4722	E95
C107	C74	C316	C59	C714	C78	C1555	E106	C1763	C112	C2523	B99	C3111	E44	C4124	D33	C4607	E44	C6507	C86	C8248	C88	CR803	B58	CR4502	D6	FB8201	B35	L308	B72	L5006	B25	Q2517	B97	Q4723	E96
C108	C62	C401	B60	C714	D66	C1556	C105	C1764	D113	C2524	C99	C3112	E44	C4125	A34	C4611	E43	C6508	C86	C8249	C88	CR1412	C43	CR4601	E36	FB8202	C36	L601	B66	L5007	D20	Q2518	E100	Q4801	E19
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C116	D64	C503	D70	C809	B59	C1607	C101	C1785	C118	C2542	B100	C3302	A12	C4139	A43	C4727	E13	C8102	D41	C8353	D74	CR1906	C120	CR4722	E93	J1406	E102	L704	C78	P4001	A29	Q2905	C15	Q5015	C21
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C118	C64	C505	D57	C1401	A103	C1611	C101	C1918	D124	C2603	B85	C3306	B12	C4143	C41	C4732	E93	C8106	C81	C8360	E79	CR1910	C121	CR4801	E3	J1415	E120	L1402	C38	Q301	B74	Q2909	B16	Q5024	B21
C118	C76	C506	C70	C1404	D103	C1612	C101	C1923	C123	C2604	B85	C3307	D49	C4145	A35	C4759	D14	C8107	D82	C8361	E79	CR2201	B4	CR4802	E18	J1417	D124	L1701	B42	Q501	B70	Q2910	B16	Q5028	A24
C119	C64	C506	D58	C1405	D103	C1613	C101	C1933	D123	C2605	B86	C3309	C47	C4146	A34	C4802	E17	C8108	C82	C8363	D79	CR2501	D40	CR4803	E17	J6501	A6	L1702	B43	Q501	C58	Q2912	A17	Q5029	C20
C119	C76	C507	C70	C1406	E103	C1614	C101	C1960	B122	C2606	B44	C3311	C48	C4147	A32	C4803	E4	C8110	D81	C8364	D79	CR2751	C14	CR4804	E4	J6502	A6	L1703	B42	Q502	C70	Q2913	C17	Q5030	B22
C120	C65	C507	D58	C1407	E103	C1615	B102	C1961	D36	C2607	B44	C3312	B55	C4148	E32	C4805	D17	C8111	E81	CF2201	B3	CR3101	E37	CR4901	E2	J6504	A8	L2201	B5	Q502	D58	Q2914	B17	Q5201	E21
C120	C77	C508	C71	C1408	D103	C1616	C101	C1962	D36	C2609	B41	C3314	B48	C4190	B41	C4806	E19	C8112	E82	CF8101	B83	CR3102	D52	CR4902	E2	JC301	E78	L2301	C3	Q503	C70	Q3101	E49	Q5202	E21
C121	D64	C508	D59	C1412	C103	C1619	B102	C1963	A121	C2610	C87	C3315	B48	C4191	B41	C4807	E19	C8113	E83	CF8102	D81	CR3103	E52	CR5001	E29	JC357	E78	L2302	B3	Q503	D58	Q3102	E52	Q5204	D22
C121	D76	C509	D71	C1428	E103	C1620	B102	C1964	A121	C2611	A87	C3317	A51	C4193	C41	C4808	E2	C8114	D84	CR101	C61	CR3104	E37	CR5002	E29	JW301	E83	L2303	B1	Q504	D70	Q3103	E46	Q5205	E22
C122	D65	C509	E59	C1429	E103	C1621	B101	C1965	A121	C2612	B87	C3321	D47	C4194	A44	C4809	E4	C8115	A82	CR101	C73	CR3105	A49	CR5003	A23	JW327	C4	L2304	A2	Q504	E58	Q3104	E37	Q5206	D23
C122	D77	C510	B71	C1430	D103	C1622	A101	C1966	B122	C2613	B41	C3322	D46	C4195	C38	C4810	E3	C8116	A83	CR102	C61	CR3106	B49	CR5004	B25	K4201	A30	L2305	B40	Q505	B70	Q3105	A52	Q5207	E23
C124	B60	C510	C59	C1431	D103	C1701	B108	C1967	A122	C2614	A88	C3323	A48	C4196	A41	C4811	E3	C8117	A81	CR102	C73	CR3107	A49	CR5005	C20	K4201	B29	L2501	D41	Q505	C58	Q3106	D52	Q6202	E26
C124	B72	C511	B71	C1432	E103	C1702	B108	C1968	B122	C2615	A86	C3324	B48	C4197	C41	C4812	E17	C8118	A81	CR103	C61	CR3301	D45	CR5006	C23	L101	C60	L2502	B96	Q506	B70	Q3107	D49	Q6502	A7
C125	C71	C511	C59	C1433	E103	C1703	B110	C1969	A122	C2616	A86	C3325	A48	C4198	D32	C4901	E2	C8121	C41	CR103	C73	CR3302	E47	CR5007	A25	L102	C61	L2503	B98	Q506	C58	Q3108	D53	Q6503	B8
C125	D59	C601	B66	C1434	D103	C1704	C109	C1970	B122	C2617	B86	C3326	D48	C4199	D32	C4902	E3	C8122	C81	CR104	C61	CR3306	A52	CR5008	C21	L102	C73	L2504	D96	Q507	B70	Q3109	E52	Q6504	C7
C201	C60	C601	B78	C1436	A103	C1705	B111	C1980	A121	C2618	C9	C3401	A45	C4201	B29	C4904	D3	C8123	C81	CR104	C73	CR3307	D45	CR5009	B23	L103	C61	L2505	B98	Q507	C58	Q3200	B47	Q8101	E83
C201	C73	C602	A66	C1437	A103	C1706	D109	C1981	B121	C2701	C4	C3502	E41	C4202	B29	C4906	D2	C8124	C81	CR105	C63	CR3308	D45	CR6201	D28	L103	C73	L2506	C93	Q508	B70	Q3201	B46	Q8102	D83
C202	B61	C602	A78	C1440	A113	C1707	C109	C2201	B5	C2702	B11	C3505	E41	C4301	E1	C5001	C44	C8201	D88	CR105	C75	CR3401	A45	CR6203	E26	L104	C61	L2507	B96	Q508	C58	Q3301	A12	Q8103	A83
C202	B73	C603	B66	C1441	A113	C1708	D109	C2202	A5	C2703	B10	C3506	E44	C4302	E5	C5002	B27	C8202	D88	CR106	C75	CR3501	E40	CR6204	E27	L104	C73	L2601	B9	Q601	A67	Q3302	A13	Q8104	A83
C203	D63	C603	B79	C1442	B113	C1709	B44	C2203	A4	C2704	C13	C3801	E64	C4303	E5	C5003	C27	C8203	D88	CR106	D63	CR4001	A31	CR6501	B7	L105	C61	L2602	B85	Q601	A79	Q3303	B11	Q8105	E81
C203	D75	C604	B70	C1443	B113	C1710	B110	C2302	C3	C2706	B41	C3802	E62	C4304	E5	C5004	A23	C8205	D89	CR107	C64	CR4101	D32	CR6502	B7	L105	C73	L2603	C85	Q802	B58	Q3304	D46	Q8106	A80
C204	C64	C604	C58	C1444	A112	C1711	C109	C2303	C3	C2707	B41	C3803	E61	C4305	E6	C5005	A22	C8206	E92	CR107	C76	CR4102	A35	CR6503	B7	L106	C62	L2604	B42	Q1410	D119	Q3306	C46	Q8201	D88
C204	C76	C605	B67	C1445	A114	C1712	B110	C2304	C3	C2709	C12	C3804	C64	C4306	E6	C5006	A23	C8207	B90	CR108	C64	CR4103	D34	CR6504	C86	L106	C74	L2605	B86	Q1411	D38	Q3310	A51	Q8202	D88
C205	A41	C605	B79	C1446	B114	C1713	B110	C2305	C3	C2711	C10	C3805	E63	C4307	E4	C5007	D44	C8208	D89	CR108	C76	CR4105	E32	CR6505	A8	L107	C63	L2606	A86	Q1412	C43	Q3311	D46	Q8204	B88
C205A	C36	C606	B67	C1464	E118	C1714	B110	C2306	B2	C2713	B41	C3806	D61	C4308	E6	C5008	A20	C8209	D90	CR109	C64	CR4106	E31	CR8203	C35	L107	C75	L2607	C9	Q1413	D38	Q3312	D45	Q8205	C88
C206	C41	C606	B79	C1465	E118	C1715	B109	C2307	C3	C2714	B11	C3807	A44	C4309	E7	C5009	A23	C8210	D90	CR109	C76	CR4107	D35	CR8204	C35	L108	C63	L2608	A88	Q1414	E120	Q3501	E42	Q8206	B91
C206A	C41	C607	A67	C1470	D120	C1716	B109	C2308	C3	C2715	C10	C3808	B49	C4310	E18	C5010	D44	C8211	D89	CR110	D64	CR4108	C35	CR8205	C35	L108	C75	L2609	B40	Q1415	D123	Q3502	E41	Q8207	C93
C207	A44	C607	A79	C1471	C43	C1717	C110	C2309	C2	C2716	B2	C3809	B49	C4352	D4	C5011	A25	C8212	E89	CR110	D76	CR4109	B34	CR8301	E86	L108	C75	L2701	B40	Q1416	E123	Q3503	E42	Q8208	A93
C207A	A44	C610	C41	C1472	D119	C1718	C110	C2310	C4	C2717	B2	C4002	A29	C4353	D1	C5012	C20	C8213	E90	CR111	B60	CR4110	A34	CR8302	D87	L108	D63	L2702	B40	Q1417	E120	Q3801	E61	Q8209	B91
C208	C38	C610A	C41	C1473	D37	C1720	D109	C2311	B1	C2751	C14	C4003	A31	C4354	D1	C5013	B23	C8214	C89	CR111	B72	CR4111	B33	DL2501	A98	L109	C63	L2705	C10	Q1418	D121	Q3802	E61	Q8302	E69
C208A	C38	C612	A68	C1474	D41	C1721	B111	C2312	B2	C2753	C12	C4004	A31	C4402	D8	C5014	A19	C8215	C88	CR112	C62	CR4112	A38	DL2601	B85	L109	C75	L2901	A14	Q1419	D122	Q4101	B31	Q8350	E73
C301	B71	C612	A80	C1475	E123	C1722	C111	C2313	A4	C2754	C12	C4006	A31	C4403	D12	C5015	B24	C8216	B87	CR112	C74	CR4113	B38	DY1	D9	L110	C63	L2902	C14	Q1500	D106	Q4102	E31	Q8351	E73
C301	C59	C614	B68	C1476	D38	C1723	B111	C2314	C2	C2755	C11	C4007	C32	C4405	D12	C5016	C20	C8220	A92	CR113	C60	CR4114	B40	E702	A59	L110	C75	L2903	B14	Q1703	C112	Q4103	E31	Q8401	E85
C302	B60	C614	B80	C1477	C44	C1724	B110	C2315	A2	C2756	C14	C4008	A31	C4406	D13	C5017	C19	C8221	B91	CR113	C72	CR4115	B33	E706	A60	L111	C75	L2904	D40	Q1704	D112	Q4104	A38	R1	D16
C302	B72	C701	B78	C1478	B103	C1733	C44	C2316	B41	C2801	D94	C4009	A31	C4407	D13	C5018	A19	C8222	D90	CR301	B60	CR4116	A32	F4001	A29	L111	D63	L3101	E44	Q1705	B111	Q4105	B40	R2	E16
C304	B74	C701	C66	C1479	C103	C1736	E113	C2317	B41	C2803	B11	C4011	A30	C4408	E19	C5019	C21	C8223	C90	CR301	B72	CR4117	D39	FB4101	A32	L112	C64	L3301	A48	Q1706	B111	Q4106	A40	R101	C60
C304	C62	C702	C66	C1480	C103	C1737	D113	C2501	D41	C2804	C11	C4101	D32	C4409	E19	C5021	B24	C8224	B91	CR303	B61	CR4118	A42	FB4102	A32	L112	C76	L3302	B48	Q1907	B121	Q4107	D39	R101	C73
C305	B61	C702	C78	C1522	D119	C1739	E112	C2502	D41	C2805	C11	C4102	D32	C4410	D13	C5022	C18	C8225	B91	CR303	B73	CR4119	A42	FB4103	B32	L113	C64	L3303	A48	Q1910	C120	Q4108	B52	R102	C73
C305	B73	C703	B66	C1523	B119	C1740	E110	C2503	B96	C2807	C13	C4103	E32	C4411	D12	C5023	B21	C8226	B91	CR304	B63	CR4120	A43	FB4104	D35	L113	C76	L3304	D48	Q1911	C120	Q4109	B31	R102	D61
C306	B62	C703	B78	C1525	D107	C1742	D112	C2504	B96	C2808	C13	C4104	D32	C4412	D11	C5024	D19	C8227	B92	CR304	B75	CR4121	A43	FB4105	D35	L114	D64	L4001	A29	Q1912	B121	Q4110	D32	R103	B73
C306	B74	C704	B78	C1529	D118	C1743	C110	C2505	B96	C2809	C94	C4105	E34	C4413	D11	C5202	E23	C8229	B92	CR305	B64	CR4126	C37	FB4106	C34	L114	D76	L4002	A29	Q2301	C2	Q4201	B29	R103	C61
C307	B62	C704	C66	C1530	B119	C1744	C112	C2506	C94	C2901	A15	C4106	D34	C4414	D10	C5203	E21	C8230	B91	CR305	B76	CR4128	A34	FB4107	C35	L115	D64	L4101	A40	Q2302	B4	Q4301	E5	R104	B73
C307	B74	C705	B78	C1531	B119	C1745	D110	C2507	B94	C2902	A14	C4107	D34	C4415	D12	C5204	E22	C8231	C88	CR306	B75	CR4129	B39	FB4108	B34	L115	D76	L4102	A43	Q2501	C94	Q4302	E5	R104	C61
C308	B74	C705	C66	C1532	D106	C1746	E109	C2508	C99	C2903	C15	C4108	E32	C4416	D12	C5205	D22	C8232	B92	CR306	C63	CR4130	C39	FB4109	B34	L301	B61	L4103	C38	Q2502	B96	Q4401	E7	R105	C73
C308	C62	C707	C78	C1533	D106	C1747	D110	C2509	E99	C2904	C14	C4109	E33	C4418	E20	C5206	E22	C8233	A92	CR307	B61	CR4131	B30	FB4110	B33	L301	B73	L4104	C40	Q2503	C96	Q4402	E20	R105	D61
C309	B63	C707	D66	C1534	D107	C1748	D111	C2510	B95	C2905	B15	C4110	D35	C4419	E20	C5207	E22	C8234	C36	CR307	B73	CR4132	D32	FB4111	B34	L302	B61	L4105	C39	Q2504	B100	Q4501	E45	R106	A69

SCHEMATIC COMPONENT LOCATION GUIDE continued

R107	C62	R319	B61	R709	D66	R1487	D119	R1724	E113	R1954	A122	R2535	A94	R2613	C86	R2927	A17	R3311	B11	R3811	E64	R4306	E5	R4733	E96	R5039	C19	R6508	A7	R8209	D89	R8357	E73	U1910	C123
R107	C74	R319	B73	R709	D78	R1488	D123	R1726	D112	R1955	A122	R2536	A93	R2614	C86	R2928	A17	R3312	A12	R3812	E62	R4307	E6	R4733A	B38	R5040	B22	R6509	B7	R8210	C88	R8358	E73	U1913	A121
R108	C62	R320	B64	R807	B58	R1489	D121	R1728	D113	R1956	D123	R2537	A94	R2615	D86	R2929	C16	R3313	D48	R3813	E62	R4308	E6	R4734	E13	R5041	B25	R6510	B5	R8211	D88	R8359	E73	U2001	A4
R108	C74	R320	B76	R808	B58	R1490	E123	R1729	C113	R1957	B122	R2538	C93	R2616	A86	R2930	C17	R3315	B13	R3814	E61	R4309	E5	R4735	E93	R5042	C20	R6515	C86	R8212	C89	R8360	E75	U2001	B11
R109	C64	R402	C60	R821	B58	R1491	C38	R1730	B115	R1958	B122	R2539	B94	R2617	A86	R2931	C17	R3316	D45	R3815	E61	R4351	E1	R4736	E93	R5043	C23	R6516	C85	R8213	D89	R8361	E76	U2001	B2
R109	C76	R402	C72	R822	B58	R1493	D123	R1732	E112	R1959	B122	R2540	B100	R2618	A87	R2932	B16	R3317	D47	R3816	E64	R4352	E1	R4737	E94	R5044	A25	R6521	B8	R8214	D89	R8362	E76	U2001	D2
R111	B61	R408	C63	R1130	A120	R1494	D123	R1733	E112	R1979	B121	R2541	B99	R2619	A88	R2933	B17	R3318	D47	R3817	E64	R4353	E1	R4738	E13	R5045	C21	R6522	A8	R8215	D90	R8363	E76	U2501	C98
R111	B73	R408	C75	R1131	A121	R1495	D121	R1734	C44	R1980	B121	R2542	B94	R2620	A88	R2934	B17	R3319	D47	R3818	C64	R4355	D4	R4739	E8	R5046	B23	R6523	B8	R8216	D90	R8364	C76	U2502	E97
R112	D63	R409	C64	R1136	C38	R1496	D121	R1735	C44	R1981	B121	R2543	E98	R2622	B86	R3101	B53	R3320	E47	R3819	E63	R4356	E4	R4740	E12	R5047	B20	R6524	B8	R8217	D89	R8365	D74	U2601	A85
R112	D75	R409	C76	R1400	A103	R1497	D121	R1736	C110	R1982	C124	R2544	D98	R2623	B86	R3102	B54	R3321	C46	R3820	E63	R4357	D5	R4741	E11	R5048	D18	R6525	B8	R8218	E90	R8366	D74	U2602	B87
R113	B75	R501	C69	R1401	D103	R1498	D122	R1738	B111	R1983	B121	R2545	D98	R2624	C7	R3103	C50	R3322	D47	R3821	D63	R4358	D1	R4742	E12	R5049	D18	R6526	A8	R8219	D90	R8367	D75	U2603	A87
R113	C63	R501	E57	R1402	A103	R1499	C103	R1739	E110	R1984	C124	R2546	E99	R2626	A87	R3104	A53	R3323	C46	R3822	D60	R4359	E1	R4785	D15	R5050	B24	R6527	A8	R8220	B87	R8368	D75	U3101	C49
R114	D64	R502	C69	R1403	E103	R1512	C106	R1740	E110	R1986	A121	R2547	E99	R2627	A86	R3105	D51	R3324	C53	R3823	D60	R4360	D1	R4790	E4	R5051	A20	R6528	C7	R8224	B88	R8369	D75	U3102	A53
R114	D76	R502	E57	R1404	A103	R1513	D106	R1741	E110	R1987	B122	R2548	E98	R2628	B86	R3106	D51	R3325	D48	R3824	C60	R4401	E7	R4791	C14	R5052	D19	R6529	B7	R8225	B88	R8370	E73	U3103	B54
R115	C64	R503	B70	R1405	E103	R1514	D106	R1742	E110	R1992	C120	R2549	E99	R2629	C7	R3107	D51	R3326	D48	R3825	D59	R4402	D11	R4792	C13	R5053	B24	R6531	C8	R8226	B88	R8371	D73	U3801	D59
R115	C76	R503	C58	R1406	D103	R1515	D106	R1743	E109	R1993	C120	R2550	E99	R2630	A88	R3108	A53	R3327	B53	R3826	B48	R4403	D12	R4793	E4	R5054	B24	R6532	B8	R8227	B91	R8372	D72	U3801	D60
R116	C64	R504	C70	R1407	A103	R1521	D107	R1744	D109	R1994	C121	R2551	E100	R2631	C9	R3109	A53	R3328	C54	R3827	B49	R4404	E7	R4795	E4	R5055	C19	R6533	C7	R8229	B91	R8373	C72	U3801	D62
R116	C76	R504	D58	R1408	D103	R1522	D107	R1745	B115	R1995	C120	R2552	E100	R2632	B9	R3110	C53	R3329	D54	R3828	B48	R4407	D13	R4803	D4	R5056	D18	R6535	C7	R8230	C88	R8374	C72	U3801	E64
R117	C64	R505	C70	R1409	D103	R1523	D106	R1746	E111	R1996	C120	R2553	B96	R2701	C12	R3111	A52	R3330	C48	R3829	B49	R4409	E21	R4805	E17	R5058	B21	R6536	C7	R8231	C88	R8375	E79	U4101	D33
R117	C76	R505	D58	R1410	D103	R1528	D106	R1747	D110	R2201	A3	R2554	B96	R2702	C13	R3112	E37	R3331	B54	R3832	B48	R4410	E21	R4806	E17	R5060	C18	R6537	C6	R8232	C88	R8376	D79	U4102	C37
R118	D64	R506	C70	R1411	D103	R1531	D118	R1748	C110	R2202	A5	R2555	A40	R2703	C13	R3113	B51	R3332	C54	R3833	B48	R4411	E20	R4807	E17	R5063	C19	R6539	B6	R8233	C88	R8377	E79	U4501	D7
R118	D76	R506	D58	R1412	C103	R1532	D118	R1749	E112	R2203	B5	R2556	E96	R2705	D3	R3114	D50	R3333	C55	R4001	A30	R4412	E20	R4810	E19	R5068	C21	R6540	C6	R8234	B92	R8378	D79	U4601	E39
R119	D63	R507	D71	R1413	E103	R1533	D118	R1755	E112	R2204	A4	R2557	E96	R2706	C10	R3115	C50	R3334	D55	R4002	A29	R4413	E20	R4811	E17	R5069	D19	R6541	B6	R8235	B92	R8381	E79	U4701	D10
R119	D75	R507	E59	R1414	C43	R1534	D118	R1757	B108	R2301	C3	R2558	B95	R2707	C12	R3116	A50	R3335	B55	R4003	A31	R4414	E20	R4812	E19	R5070	B21	R6543	B6	R8236	C93	R8382	E79	U4701	E7
R120	B60	R508	D71	R1415	E103	R1535	D107	R1758	E109	R2302	A2	R2559	B98	R2708	C13	R3118	C4	R3336	C55	R4100	B31	R4415	E20	R4813	E18	R5072	B24	R6544	B6	R8237	C93	R8384	D79	U4701	E8
R120	B72	R508	E59	R1416	D38	R1536	D107	R1759	D111	R2304	C3	R2560	D40	R2712	B2	R3119	E50	R3338	D54	R4101	B31	R4416	E20	R4814	D17	R5073	B21	R6545	C6	R8238	C93	R8385	D79	U4701	E9
R121	B72	R509	D71	R1420	A117	R1538	C119	R1760	E111	R2305	C2	R2561	D98	R2713	B3	R3120	E50	R3341	B48	R4102	B31	R4501	D8	R4815	E3	R5079	D44	R6546	C6	R8239	B91	R8401	E85	U4801	E17
R121	C60	R509	E59	R1421	A117	R1539	D107	R1761	D111	R2307	C2	R2562	D98	R2714	C10	R3121	E47	R3342	B48	R4103	B30	R4502	D6	R4816	E3	R5083	A24	R6548	C45	R8240	C87	R8402	E86	U5001	A20
R122	D63	R510	D59	R1422	B103	R1540	D107	R1762	B108	R2308	C4	R2563	E97	R2715	C10	R3122	E47	R3343	C56	R4104	D32	R4503	E45	R4817	E3	R5084	A24	R8101	C81	R8241	B88	RN4501	D6	U6501	B6
R122	D75	R510	D71	R1423	E103	R1541	D106	R1763	C116	R2309	C1	R2564	E97	R2716	C10	R3123	E47	R3344	E55	R4105	D32	R4504	E45	R4851	D4	R5085	C19	R8102	C81	R8244	C93	RT4201	A30	U8101	A82
R123	C64	R511	D71	R1429	E120	R1542	D106	R1764	B118	R2310	B4	R2565	D100	R2717	B2	R3124	E37	R3353	A51	R4106	E34	R4505	E45	R4901	E2	R5086	B20	R8103	B81	R8245	A93	SF2301	B1	U8201	C90
R123	C76	R511	E59	R1431	E120	R1543	B119	R1767	C118	R2311	B4	R2566	D100	R2718	B3	R3125	E37	R3354	A51	R4107	E34	R4507	D8	R4903	E2	R5087	B22	R8104	D82	R8246	A92	SF2302	A1	U8202	C91
R124	D64	R512	C71	R1432	E103	R1550	C104	R1768	D113	R2312	B5	R2567	D97	R2751	C14	R3126	C54	R3355	A51	R4108	E34	R4508	D6	R4904	D2	R5088	B22	R8105	E82	R8247	A92	SF8101	A80	U8203	A92
R124	D76	R512	D59	R1440	A112	R1551	D104	R1769	D112	R2313	B4	R2568	D97	R2752	C13	R3127	D51	R3356	A52	R4109	D34	R4509	D6	R4905	E2	R5089	B27	R8106	E82	R8249	A93	SF8102	B80	U8204	B35
R126	C62	R513	B70	R1441	A113	R1552	D106	R1770	C114	R2314	B1	R2569	D100	R2753	D4	R3128	E51	R3357	A52	R4110	D34	R4510	D5	R4906	D2	R5201	E21	R8107	C40	R8250	C11	SP1	A124	U8301	E69
R126	C74	R513	C58	R1442	A113	R1553	E106	R1771	C114	R2315	B2	R2570	D98	R2754	C12	R3129	E51	R3358	B55	R4111	D34	R4511	A35	R4907	E2	R5202	E21	R8108	C82	R8251	E89	SP2	A124	U8301	E86
R203	C75	R514	B70	R1443	A114	R1554	E105	R1772	C115	R2316	B2	R2571	D98	R2755	C12	R3130	E51	R3359	C54	R4112	D34	R4512	D5	R4908	D3	R5203	E21	R8109	A80	R8252	E92	SW801	B59	U8302	D69
R203	D63	R514	C58	R1444	A113	R1555	E105	R1773	C115	R2317	C4	R2572	C97	R2756	C12	R3131	E51	R3360	C53	R4113	D34	R4516	D6	R4909	E2	R5204	E21	R8110	D83	R8253	B92	SW1900	A123	U8350	D71
R204	C64	R515	C71	R1445	B113	R1556	E104	R1774	D118	R2318	C2	R2573	C97	R2801	D94	R3132	E52	R3361	D53	R4114	D34	R4518	D6	R4910	D2	R5205	E22	R8111	D83	R8254	D88	SW3410	C46	U8350	D72
R204	C76	R515	D59	R1446	A112	R1557	E104	R1775	C114	R2319	A68	R2574	E96	R2802	C11	R3135	C53	R3362	E52	R4116	E31	R4519	D6	R4912	E2	R5207	E21	R8112	E81	R8256	C89	SW3411	B45	U8350	D74
R301	B63	R516	C70	R1447	A112	R1558	C105	R1776	C114	R2320	C1	R2575	E96	R2803	C11	R3137	D51	R3364	D52	R4117	E31	R4591	D3	R5001	A19	R5208	E22	R8113	D82	R8257	B90	SW3420	B46	U8350	E76
R301	B75	R516	D58	R1448	B114	R1559	C105	R1777	C115	R2321	B2	R2576	E96	R2804	C10	R3138	D52	R3365	D53	R4118	E31	R4609	E43	R5002	A20	R5210	E22	R8114	C82	R8258	D91	SW3421	B46	V101	B28
R302	C63	R517	B71	R1451	E118	R1601	D102	R1778	C113	R2501	C94	R2577	E96	R2805	C10	R3138A	E50	R3366	E52	R4119	E31	R4610	E44	R5003	A19	R5211	D22	R8115	E81	R8262	A91	SW3430	B46	Y501	C69
R302	C75	R517	C59	R1452	E118	R1602	C102	R1779	D115	R2502	B94	R2578	E97	R2806	C94	R3140	E38	R3367	E52	R4120	E31	R4700	D16	R5004	B25	R5213	D23	R8116	E81	R8301	E77	SW3431	B46	Y501	D57
R303	B60	R518	C71	R1453	D118	R1603	C102	R1780	D115	R2503	B96	R2579	E98	R2807	C94	R3141	E38	R3368	A52	R4121	A38	R4703	E28	R5005	C21	R5214	E23	R8117	E81	R8302	E75	SW4401	D11	Y2801	B11
R303	B72	R518	D59	R1454	E118	R1605	D101	R1781	B114	R2504	A96	R2580	A97	R2808	C95	R3143	D52	R3369	D47	R4122	C39	R4712	E8	R5006	C23	R5215	D24	R8118	E82	R8303	E74	SW6201	E26	Y3101	C50
R304	B60	R601	A78	R1455	E118	R1606	C101	R1782	B114	R2505	A96	R2581	A97	R2809	D94	R3144	D51	R3370	D47	R4123	C41	R4715	E7	R5007	B25	R5216	D24	R8119	E83	R8304	E70	SW6202	E26	Y4190	D3
R304	B72	R601	B66	R1456	E119	R1607	C101	R1783	B114	R2506	B96	R2582	E98	R2810	C11	R3145	E51	R3371	D45	R4124	B52	R4716	E7	R5008	D20	R5217	E24	R8120	E83	R8305	E71	T801	B59	Y8101	B81
R305	B61	R602	B67	R1457	E119	R1608	C101	R1784	B114	R2507	C97	R2583	E97	R2811	C13	R3146	C51	R3372	D45	R4126	B40	R4717	E9	R5009	C23	R5218	E22	R8121	D83	R8306	E86	T4101	A33	Y8201	D90
R305	B73	R602	B79	R1459	D119	R1609	A5	R1785	C113	R2508	C97	R2584	B94	R2812	C93	R3147	C53	R3373	D45	R4127	B40	R4718	E8	R5010	A25	R5219	E22	R8122	D83	R8307	E70	T4102	C31	Y8301	E77
R306	B62	R603	B67	R1460	D119	R1610	A101	R1786	C113	R2509	C100	R2585	C94	R2813	C94	R3148	D48	R3374	D46	R4128	B40	R4719	E9	R5011	C20	R5220	E22	R8123	A83	R8308	E78	T4103	D31		
R306	B74	R603	B79	R1461	D120	R1611	A102	R1787	E112	R2510	C99	R2586	B94	R2814	C94	R3149	D48	R3375	D46	R4129	A32	R4720	E94	R5012	B23	R5221	E23	R8124	A83	R8309	E89	T4301	E6		
R307	B62	R604	A67	R1462	D120	R1612	A102	R1788	E112	R2511	B95	R2587	A94	R2815	C95	R3150	D49	R3376	D46	R4130	D39	R4720A	E9	R5013	A24	R5222	E23	R8125	A83	R8310	E86	T4401	C42		
R307	B74	R604	A79	R1463	D120	R1613	B102	R1789	C114	R2512	C96	R2588	A94	R2816	C95	R3151	D49	R3377	D47	R4131	A43	R4721	E93	R5014	B24	R5224	D23	R8126	A83	R8315	E69	T4401	D14		
R308	B62	R605	A67	R1464	D38	R1614	B101	R1790	C113	R2513	B99	R2589	B97	R2817	C95	R3201	B47	R3401	A45	R4132	C37	R4721A	E10	R5015	C19	R5225	E23	R8127	A84	R8316	D69	T4601	E35		
R308	B74	R605	A79	R1465	D38	R1615	B101	R1791	C113	R2514	B99	R2590	B97	R2818	C13	R3202	C47	R3402	A46	R4133	D34	R4722	E94	R5016	C19	R5611	C85	R8128	A84	R8317	D69	T4701	E13		
R309	B62	R606	B68	R1466	E38	R1616	A101	R1792	E113	R2515	A98	R2591	B98	R2901	C15	R3203	C47	R3403	A45	R4134	B52	R4722A	E10	R5017	B22	R5613	C85	R8129	A81	R8318	E70	U501	B69		
R309	B74	R606	B80	R1467	C43	R1617	A101	R1875	C120	R2516	A98	R2592	B98	R2902	A14	R3204	B47	R3501	E40	R4137	A39	R4723	E94	R5018	B22	R5636	B6	R8130	D83	R8319	D70	U501	C57		
R310	B63	R609	B67	R1468	D38	R1618	D102	R1902	C123	R2517	A98	R2593	E100	R2904	A15	R3205	B47	R3502	E40	R4138	A40	R4723A	E10	R5019	A19	R6204	E26	R8131	A81	R8320	E69	U701	A77		
R310	B75	R609	B79	R1469	D38	R1701	B111	R1904	D51	R2518	B100	R2595	D96	R2905	A15	R3206	B47	R3503	E42	R4140	A42	R4724	E94	R5020	A22	R6205	E26	R8132	D81	R8321	E87	U701	B65		
R311	B62	R610	A79	R1470	E119	R1705	B110	R1909	C124	R2519	C95	R2596	E100	R2906	A16	R3207	B47	R3504	E42	R4141	B32	R4724A	E11	R5021	A22	R6206	D26	R8133	C40	R8323	E70	U1402	A104		
R311	B74	R610	B67	R1471	D121	R1706	B110	R1910	C124	R2520	C98	R2597	C96	R2907	A15	R3208	A47	R3505	E42	R4145	C40	R4725	E94	R5022	A20	R6207	E25	R8134	A80	R8324	E86	U1403	A113		
R312	B75	R701	D65	R1472	E123	R1708	C109	R1911	D124	R2521	C98	R2598	C96	R2908	A16	R3210	B47	R3506	E42	R4150	D33	R4725A	E11	R5023	A23	R6208	E25	R8135	A80	R8325	E86	U1404	E118		
R312	C63	R701	D77	R1473	E123	R1709	C109	R1912	D124	R2522	C98	R2599	B100	R2909	C14	R3211	B47	R3507	E40	R4190	A43	R4726	E94	R5024	A19	R6209	D27	R8136	D81	R8326	E70	U1405	D122		
R313	C64	R702	D65	R1474	D123	R1710	D109	R1913	C122	R2523	D96	R2601	B9	R2911	C15	R3212	B46	R3508	A50	R4192	D3	R4726A	E11	R5025	B25	R6301	D107	R8137	D82	R8327	E71	U1406	D120		
R313	C76	R702	D77	R1475	E119	R1711	C110	R1914	C122	R2524	D96	R2602	B9	R2912	C15	R3213	A46	R3509	E42	R4193	D2	R4727	E95	R5026	C20	R6302	D107	R8138	A80	R8328	E70	U1503	A118		
R314	B75	R704	C66	R1476	E119	R1713	E109	R1915	C123	R2525	D96	R2603	C9	R2913	C15	R3301	A48	R3801	E48	R4195	B30	R4727A	E12	R5027	C20	R6303	D102	R8139	C81	R8329	D87	U1504	C105		
R314	C63	R704	C78	R1477	D123	R1714	C111	R1916	C123	R2526	B93	R2604	B85	R2914	C15	R3302	A11	R3802	E63	R4196	D32	R4728	E95	R5029	C23	R6304	A6	R8140	D40	R8331	E69	U1505	C106		
R315	B72	R705	B78	R1478	D123	R1715	B110	R1942	D123	R2527	B93	R2605	B85	R2915	C16	R3303	A12	R3803	E48	R4197	D33	R4729	E95	R5031	A24	R6309	A6	R8201	D87	R8332	E69	U1505	D106		
R315	C60	R705	C66	R1479	E119	R1716	C113	R1947	C123	R2528	A99	R2606	B85	R2916	B14	R3304	A12	R3804	D61	R4198	D33	R4729A	E12	R5032	C20	R6501	A6	R8202	E88	R8350	E75	U1600	A102		
R316	B61	R706	C78	R1480	E103	R1717	C112	R1948	B123	R2529	A98	R2607	B85	R2918	B15	R3305	B48	R3805	E48	R4199	C40	R4730	E95	R5033	B22	R6502	A7	R8203	E88	R8351	E75	U1700	B114		
R316	B73	R706	D66	R1481	E103	R1718	C112	R1949	A123	R2530	A98	R2608	B86	R2919	B15	R3306	A13	R3806	E60	R4201	B29	R4730A	D11	R5034	C44	R6503	B7	R8204	E88	R8352	E74	U1700	C114		
R317	B62	R707	C78	R1483	D121	R1719	C112	R1950	C123	R2531	C99	R2609	C86	R2920	B15	R3307	A13	R3807	E61	R4202	B51	R4731	E95	R5035	B27	R6504	A6	R8205	B34	R8353	D73	U1700	C115		
R317	B74	R707	D66	R1484	D121	R1720	D112	R1951	A121	R2532	A9	R2610	B86	R2921	B15	R3308	A14	R3808	E61	R4203	B51	R4731A	B38	R5036	B27	R6505	B7	R8206	C89	R8354	E72	U1700	D114		
R318	B74	R708	C66	R1485	E123	R1721	B114	R1952	A121	R2533	A10	R2611	A86	R2922	B16	R3309	A48	R3809	E61	R4304	E4	R4732	E96	R5037	C27	R6506	B7	R8207	C88	R8355	D72	U1702	C110		
R318	C62	R708	C78	R1486	D123	R1722	B115	R1953	A122	R2534	D97	R2612	B87	R2926	A16	R3310	B11	R3810	E63	R4305	E5	R4732A	B38	R5038	A24	R6507	A7	R8208	B91	R8356	D71	U1710	E113		

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.

- NTE Electronics, Inc. (NTE)
- Sencore, Inc.

PARTS LIST

Item No.	Type No.	Mfr. Part No.	NTE Part No.
CR101	-	215493	-
CR102	-	211863	-
CR103	-	215493	-
CR104	-	227051	-
CR105	-	211863	-
CR106, 07	-	215493	-
CR108	-	211863	-
CR109	-	215493	-
CR110 Thru			
CR113	-	215493	-
CR301	-	215493	-
CR303, 04, 05	-	215492	-
CR306	-	215493	-
CR307	-	227082	-
CR501	-	215493	-
CR601, 02	-	227051	-
CR701	-	215492	-
CR702	-	211863	-
CR703	-	215493	-
CR1412 Thru			
CR1418	-	147015	NTE125
CR1419, 20	-	223659	-
CR1601	-	164717	NTE519
CR1850	-	227362	-
CR1900, 01	-	223659	-
CR1903	-	227355	-
CR1906 Thru			
CR1910	-	223659	-
CR2201	-	227051	-
CR2501	-	164717	NTE519
CR2752	-	229644	-
CR3101	-	164717	NTE519
CR3102, 03	-	223659	-
CR3104	-	226783	-
CR3105, 06, 07	-	215493	-
CR3301, 02, 06	-	223659	-
CR3307	-	226782	-
CR3308	-	223659	-
CR3401	-	198602	-
CR3501	-	223659	-
# **CR4001**	-	214649	NTE5331
CR4101	-	223338	-
CR4102	-	227066	-
CR4103, 05, 06	-	164717	NTE519
CR4107, 08	-	164590	NTE580
CR4109	-	223339	-
CR4110	-	164589	NTE580
CR4111	-	164590	NTE580
CR4112	-	218514	-
CR4113	-	226504	-
CR4114	-	164717	NTE519
CR4115	-	164590	NTE580
CR4116	-	214653	-
CR4117	-	226782	-
CR4118, 19	-	176296	NTE552
CR4120	-	217306	-
CR4121, 26	-	164717	NTE519
CR4128	-	164590	NTE580
CR4129, 30	-	147015	NTE125
CR4131	-	223651	-
CR4132	-	176296	NTE552
CR4133	-	164717	NTE519
CR4201	-	164717	NTE519
CR4303, 51	-	164717	NTE519
CR4401	-	227291	-
CR4402	-	164589	NTE580
# **CR4403, 04**	-	176296	NTE552
CR4405, 06	-	176296	NTE552
CR4408	-	140971	NTE558
CR4501	-	147015	NTE125
CR4502	-	164717	NTE519
CR4601 Thru			
CR4604	-	147015	NTE125
CR4605, 11	-	164717	NTE519
CR4612	-	215488	NTE136A

Item No.	Type No.	Mfr. Part No.	NTE Part No.
CR4701	-	164589	NTE580
CR4703	-	164874	NTE177
# **CR4704**	-	227379	-
CR4720	-	176296	NTE552
CR4720A	-	164874	NTE177
CR4721 (1)	-	176296	NTE552
CR4721 (2)	-	164717	NTE519
CR4721A	-	164874	NTE177
CR4722, 23	-	164717	NTE519
CR4726	-	215487	-
CR4727	-	164874	NTE177
CR4801	-	164717	NTE519
CR4802	-	-	-
CR4803, 04	-	164717	NTE519
# **CR4901**	-	157301	NTE177
# **CR4902**	-	159429	NTE5019T1
CR5001, 02	-	140971	NTE558
CR5003	-	164717	NTE519
CR5004, 05, 06	-	139706	NTE177
CR5007, 08, 09	-	215487	-
CR6201, 03	-	176296	NTE552
CR6204	-	223694	-
CR6501 Thru			
CR6504	-	215487	-
CR6505	-	227362	-
CR8203, 04, 05	-	164874	NTE177
CR8301, 02	-	164874	NTE177
Q101	-	226973	-
Q301	-	227008	-
Q501	-	219028	-
Q502	-	215495	-
Q503	-	215496	-
Q504	-	215495	-
Q505 Thru			
Q508	-	219028	-
Q601	-	226981	-
Q1410	-	215495	-
Q1411, 12	-	215496	-
Q1413 Thru			
Q1418	-	215495	-
Q1419	-	215496	-
Q1500	-	177788	NTE31
Q1703 Thru			
Q1706	-	227814	-
Q1907, 10, 11, 12	-	215495	-
Q2301	-	215495	-
Q2302	-	215496	-
Q2501	-	215496	-
Q2502, 03, 04	-	215495	-
Q2505	-	215496	-
Q2506	-	215495	-
Q2507	-	215496	-
Q2508, 09, 10	-	215495	-
Q2511	-	215496	-
Q2512, 13	-	215495	-
Q2514	-	215496	-
Q2515	-	215495	-
Q2516	-	215496	-
Q2517	-	215495	-
Q2518	-	215496	-
Q2601	-	215495	-
Q2602	-	215496	-
Q2603	-	215495	-
Q2604, 05	-	215496	-
Q2701	-	215496	-
Q2801	-	215495	-
Q2802	-	215496	-
Q2803	-	215495	-
Q2901	-	215496	-
Q2902	-	215495	-
Q2903, 04	-	215496	-
Q2905	-	215495	-
Q2906, 07	-	215496	-
Q2908	-	215495	-
Q2909, 10	-	215496	-

Item No.	Type No.	Mfr. Part No.	NTE Part No.
Q2912, 13, 14	-	215496	-
Q3101	-	215496	-
Q3102, 03	-	215495	-
Q3104, 05	-	215496	-
Q3106 Thru			
Q3109	-	215495	-
Q3200	-	215495	-
Q3201	-	215496	-
Q3301 Thru			
Q3304	-	215496	-
Q3306	-	215496	-
Q3310, 11	-	215495	-
Q3312	-	215496	-
Q3501	-	215496	-
Q3502, 03	-	215495	-
Q4101	-	214640	-
Q4102	-	177789	NTE32
Q4103	-	223704	-
Q4104	-	226975	-
Q4105	-	157627	NTE54
Q4106, 07	-	226975	-
Q4108	-	215496	-
Q4109	-	226971	-
Q4110	-	226972	-
Q4201	-	223704	-
Q4301	-	223704	-
Q4302	-	190482	NTE287
Q4401	-	227010	-
Q4402	-	215495	-
Q4501	-	215495	-
Q4502	-	177788	NTE31
Q4603	-	223704	-
Q4701	-	215496	-
Q4702, 03	-	215495	-
Q4704	-	226453	NTE399
Q4705, 06	-	215495	-
Q4707, 20	-	226453	NTE399
Q4721, 22	-	215496	-
Q4723	-	215495	-
Q4801	-	214641	-
Q4802	-	145395	NTE123AP
# **Q4902**	-	147665	NTE159
Q5001, 02, 03	-	208434	NTE376%
Q5004	-	226453	NTE399
Q5005	-	227406	NTE288
Q5006	-	226453	NTE399
Q5007	-	227406	NTE288
Q5008	-	226453	NTE399
Q5009	-	227406	NTE288
Q5013, 14, 15	-	215496	-
Q5016, 18	-	215495	-
Q5021, 24	-	215495	-
Q5028, 29, 30	-	214644	-
Q5201, 02	-	215495	-
Q5204	-	177788	NTE31
Q5205	-	177789	NTE32
Q5206	-	227405	-
Q5207	-	227404	-
Q6202	-	223704	-
Q6502, 03	-	215496	-
Q6504	-	215495	-
Q8101, 02	-	215496	-
Q8103 Thru			
Q8106	-	215495	-
Q8201, 02, 04	-	215495	-
Q8205 Thru			
Q8209	-	215496	-
Q8302	-	215496	-
Q8350, 51	-	215495	-
Q8401	-	215495	-
U501	-	215533	-
U701	-	227007	-
U1402	-	227345	-
U1403, 04, 05	-	223806	-
U1406	-	227357	-

PARTS LIST continued

Item No.	Type No.	Mfr. Part No.	NTE Part No.
U1503, 04	-	227344	-
U1505	-	227342	-
U1600	-	225700	-
U1700	-	207827	NTE710
U1702	-	227815	-
U1710	-	223806	-
U1910	-	227341	NTE943M
U1913	-	210911	-
# **U2001**	-	226967	-
U2501	-	226968	-
U2502	-	226969	-
U2601	-	182321	-
U2602, 03	-	227354	-
U3101 (3)	-	-	-
U3102 (3)	-	-	-
U3103	-	226976	-
U4101	-	226974	-
U4102	-	227012	-
U4501	-	215531	NTE1788
U4601	-	162394	NTE966
U4701	-	223807	-
U4801	-	200420	NTE922M
U5001	-	227396	-
U6501	-	227343	-
U8101	-	227416	-
U8201	-	227426	-
U8202	-	204280	-
U8203	-	227425	-
U8204	-	215528	-
U8301	-	227415	-
U8302	-	227843	-
U8350	-	215534	-
MAIN TUNER			
CR101	-	215493	-
CR102	-	211863	-
CR103	-	215493	-
CR104	-	227051	-
CR105	-	211863	-
CR106, 07	-	215493	-
CR108	-	211863	-
CR109 Thru			
CR113	-	215493	-
CR301	-	215493	-
CR303, 04, 05	-	215492	-
CR306	-	215493	-
CR307	-	227082	-
CR501	-	215493	-
CR601, 02	-	227051	-
CR701	-	215492	-
CR702	-	211863	-
CR703	-	215493	-
CR803	-	215493	-
Q101	-	226973	-
Q301	-	227008	-
Q501	-	219028	-
Q502	-	215495	-
Q503	-	215496	-
Q504	-	215495	-
Q505 Thru			
Q508	-	219028	-
Q601	-	226981	-
Q802	-	219028	-
Q3801, 02	-	215495	-
U701	-	227007	-
U501	-	215533	-
U3801	-	215534	-

Item No.	Function/RatingMfr.	Part No.	Notes
C104	330pF 5% 50V NPO	205227	-
C110	39pF 5% 50V NPO	181090	-
C115	150pF 5% 50V NPO	214032	-
C117	1.5pF ±.1pF 50V NPO	223146	-
C118	180pF 5% 50V NPO	211039	-
C124	470pF 5% 50V NPO	214732	-
C125	100pF 2% 50V NPO	227089	-
C302	10pF 2% 50V NPO	214740	-
C305	27pF 5% 50V N750	214760	-
C306	12pF 5% 50V NPO	214027	-
C307	27pF 5% 50V NPO	197604	-
C308	120pF 5% 50V NPO	194902	-
C309	27pF 5% 50V NPO	197604	-
C310	.75pF ±.1pF 50V NPO	227269	-
C311	27pF 5% 50V N750	214760	-
C312	18pF 2% 50V N220	227077	-
C313, 14	470pF 5% 50V NPO	214732	-
C401	27pF 5% 50V NPO	197604	-
C407, 11	33pF 5% 50V NPO	194911	-
C424	100pF 5% 50V NPO	193340	-
C502, 03	10pF 2% 50V NPO	214740	-
C505	39pF 5% 50V NPO	202905	-
C602	100pF 5% 50V NPO	193340	-
C605	330pF 5% 50V NPO	205227	-
C607	22pF 5% 50V NPO	174406	-
C701	1pF ±.1pF 50V NPO	227084	-
C702	2pF ±.1pF 50V NPO	227074	-
C703	2pF ±.1pF 50V N750	226965	-
C704	1pF ±.1pF 50V NPO	227084	-
C705	27pF 5% 50V N750	214760	-
C707	1pF ±.1pF 50V NPO	227084	-
C708	3pF ±.1pF 50V NPO	227088	-
C709	68pF 10% 50V NPO	193339	-
C710	3pF ±.1pF 50V NPO	227088	-
C711	1pF ±.1pF 50V NPO	227084	-
C712	3pF ±.1pF 50V NPO	227088	-
C1428, 29	10pF 5% 50V NPO	214740	-
C1445, 46	1µF 20% 100V NP	218513	-
C1529, 38	10pF 5% 50V NPO	214740	-
C1558, 59	10pF 5% 50V NPO	214740	-
C1560, 61	10µF 20% 16V NP	227017	-
C1562, 63	4.7µF 20% 35V NP	224269	-
C1601, 08	4.7µF 20% 35V NP	224269	-
C1610, 14	4.7µF 20% 16V NP	228341	-
C1621, 22	10pF 5% 50V NPO	214740	-
C1713	180pF 5% 50V NPO	190543	-
C1724	220pF 5% 50V NPO	205551	-
C1736, 37	47pF 5% 50V NPO	210689	-
C1773, 77	10µF 20% 16V NP	227017	-
C1965, 66	47µF 20% 10V NP	227350	-
C2306	.01 10% 50V	215555	-
	150pF 5% 50V NPO	181091	-
C2310	470pF 5% 50V NPO	214732	-
C2314	.01 5% 50V	215555	-
	150pF 5% 50V	181091	-
C2503	220pF 5% 50V NPO	205551	-
C2506	18pF 2% 50V NPO	227075	-
C2507	6pF ±.25pF 50V NPO	227250	-
C2516	27pF 5% 50V NPO	197604	-
C2519, 20	10pF 5% 50V NPO	214740	-
C2522	220pF 5% 50V NPO	205551	-
C2528	10µF 20% 16V NP	227017	-
C2530	330pF 5% 50V NPO	205227	-
C2535, 36	10pF 5% 50V NPO	214740	-
C2539	12pF 5% 50V NPO	214027	-
C2541	300pF 5% 50V NPO	220154	-
C2601	82pF 5% 50V NPO	192049	-
C2602	43pF 5% 50V NPO	214029	-
C2604	33pF 5% 50V NPO	194911	-
C2614	200pF 5% 50V NPO	218986	-
C2615	22pF 5% 50V NPO	194903	-
C2616	8.2pF 2% 50V NPO	227360	-
C2617	36pF 5% 50V NPO	194911	-
C2618	5.6pF .25pF NPO	227352	-
C2714	56pF 5% 50V NPO	190542	-
C2715	.0015 10% 50V	197609	-
	100pF 5% 50V NPO	193340	-
C2716, 17	10pF 5% 50V NPO	214740	-
C2801	15pF 5% 50V NPO	202907	-
C2804	18pF 2% 50V NPO	227075	-
C2809	680pF 5% 50V NPO	220344	-
C2901	18pF 2% 50V NPO	227075	-
C2902	5pF ±.5pF 50V NPO	193917	-
C2903	18pF 2% 50V NPO	227075	-
C2904	5pF ±.5pF 50V NPO	193917	-
C2905	18pF 5% 50V NPO	174405	-
C2906	5pF ±.5pF 50V NPO	193917	-
C3101, 02, 03	22pF 5% 50V NPO	194903	-
C3107, 08	33pF 5% 50V NPO	194911	-
C3114	22pF 5% 50V NPO	194903	-
C3119	100pF 2% 50V NPO	227089	-
C3301, 03, 05	7pF ±.5pF 50V NPO	192045	-
C3307	15pF 5% 50V NPO	202907	-
C3311	100pF 2% 50V NPO	227089	-
C3323 Thru			
C3326	10pF 1% 50V NPO	214740	-
C3401	.01 100v	-	-
	10pF 1% 50V NPO	214740	-
C3506	220pF 5% 50V NPO	205551	-
# **C4002**	470pF 10% 120VAC	250102	-
C4003, 04	680pF 20% 1kV	190538	-
# **C4006**	820µF 10% 200V	190561	-
# **C4007**	.005 20% 120V	195697	-
C4008, 09	680pF 10% 1kV	190538	-
# **C4011**	.22 20% 250VAC	214067	-
	.1 20% 125VAC	229322	-
C4110, 13, 18	470pF 10% 500V NPO	227050	-
C4123	220pF 5% 50V NPO	205551	-
# **C4126**	470pF 10% 500V	102230	-
# **C4127**	.0082 5% 600V	214070	-
C4128, 33	470pF 10% 500V NPO	227050	-
C4142, 46	470pF 10% 500V NPO	227050	-
# **C4147**	470pF 10% 500V	102230	-
C4199	470pF 10% 500V NPO	227050	-
C4301	10pF 5% 50V NPO	174402	-
C4306	470pF 10% 500V NPO	227050	-
C4307	100pF 5% 50V NPO	193340	-
C4310	470pF 5% 50V NPO	214732	-
C4352	47pF 5% 50V NPO	210689	-
# **C4402**	470pF 5% 2kV	227068	-
# **C4403**	.0186 1.6kV	227021	-
# **C4405**	.056 5% 600V	-	-
	.056 5% 400V	200149	-
# **C4407**	.074 5% 250V	227080	-
C4408	10µF 50V NP	227053	-
# **C4411, 12**	.056 10% 250V	146158	-
# **C4415**	680pF 5% 2kV	227069	-
# **C4416**	470pF 10% 500V	102230	-
# **C4722A, 27**	.0028 1.6kV	227378	-
C4730	180pF 5% 2kV	227375	-
# **C4759**	.0022 20% 2kV	227078	-
C4808	470pF 5% 50V NPO	214732	-
C4811	100pF 2% 50V NPO	227089	-
C4812	100pF 2% 50V NPO	227089	-
	220pF 2% 50V NPO	205551	-
C5003	.0033 10% 3kV	226300	-
C5011, 12, 13	68pF 5% 50V NPO	145676	-
C5015, 17, 19	150pF 5% 50V NPO	214032	-
C5021, 22, 23	56pF 5% 50V NPO	214741	-
C5204, 06	330pF 10% 50V NPO	195922	-
C5208	100pF 5% 500V NPO	227407	-
C6505	39pF 5% 50V NPO	202905	-
C6519, 20	10pF 5% 50V NPO	214740	-
C6522	82pF 5% 50V NPO	192049	-
C8112	220pF 5% 50V NPO	205551	-
C8115	1µF 20% 100V NP	218513	-
C8201	10pF 5% 50V NPO	174402	-
C8202	10pF 5% 50V NPO	214740	-
C8203	10pF 5% 50V NPO	174402	-
C8206	100pF 5% 50V NPO	193340	-
C8209	39pF 5% 50V NPO	202905	-
C8210	15pF 5% 50V NPO	202907	-
C8221	33pF 5% 50V NPO	194911	-
C8224	27pF 5% 50V NPO	197604	-
C8225	10pF 5% 50V NPO	214740	-

PARTS LIST continued

Item No.	Function/RatingMfr.	Part No.	Notes
C8226	56pF 5% 50V NPO	214741	-
C8227	560pF 5% 50V NPO	200139	-
C8230	27pF 5% 50V NPO	197604	-
C8231	10pF 5% 50V NPO	214740	-
C8238, 42	100pF 5% 50V NPO	193340	-
C8243	56pF 5% 50V NPO	214741	-
C8248	470pF 5% 50V NPO	214732	-
C8249	220pF 5% 50V NPO	178188	-
C8301, 02	56pF 5% 50V NPO	190542	-
C8307, 08, 10	10pF 5% 50V NPO	214740	-
CF2201	Filter	195702	-
CF8101	Filter	181125	-
CF8102	Filter	195702	-
DL2501	Delay Line	227063	-
DL2601	Delay Line	223169	-
# **DY1** (4)	Yoke	-	Horiz .95mH, Vert 25Mh
E706	Jack	RF Input	227055
# **F4001**	Fuse	175425	5A, 125V
FB4101, 02	Ferrite Bead	154042	-
FB4103	Ferrite Bead	227067	-
FB4104 Thru			
FB4115	Ferrite Bead	154042	-
FB4116	Ferrite Bead	152103	-
FB4401	Ferrite Bead	229324	-
FB4501	Ferrite Bead	-	-
FB4701, 02	Ferrite Bead	154042	-
FB5201, 02	Ferrite Bead	226467	-
FB5203	Ferrite Bead	227410	-
FB8201 Thru			
FB8206	Ferrite Bead	226467	-
FL101	Filter	181470	High Pass
IR3401	Receiver	218379	IR
J1	Jack	227334	Headphone
J2	Jack	227334	A/V Input
J1404	Jack	227816	Audio 1 Left Input
J1405	Jack	227817	Audio 1 Right Input
J1406	Jack	227816	Audio 2 Left Input
J1407	Jack	227817	Audio 2 Right Input
J1410	Jack	227816	HI-FI Left Output
J1414	Jack	227816	Selected Left Output
J1415	Jack	227817	Selected Right Output
J1417	Jack	227817	HI-FI Right Output
J6501	Jack	227818	Video Input 1
J6502	Jack	227818	Video Input 2
J6503	Jack	214607	S-Video Input
J6504	Jack	227818	Select Video Output
# **K4201**	Relay	190490	Degaussing
# **KS5001**	Socket	228946	CRT
L102	-	227003	-
L103	-	227005	-
L104	-	226992	-
L105	-	227006	-
L106	3.9µH	200559	-
L107	-	226987	-
L108	-	226998	-
L109	-	226993	-
L110	-	226994	-
L111	-	226998	-
L112	-	226995	-
L113	-	227000	-
L114	-	226996	-
L115	-	227000	-
L301	-	227427	-
L302	-	226988	-
L303	-	227005	-
L304	-	226983	-
L305	-	226984	-
L306	-	226990	-
L307	-	226991	-
L308	-	226985	-
L601, 02	-	226999	-
L603	-	227002	-
L604	-	227001	-
L701, 02	-	226986	-
L703	-	226989	-
L704	-	226996	-
L1401, 02	100µH	160186	-
L1701	100µH	160186	-
L1702	120µH	227813	-
L1703	100µH	160186	-
L2201	-	227052	-
L2301	2.2µH	197616	-
L2302	VCO	227070	-
L2303, 04	1µH	195709	-
L2305	10µH	175409	-
L2501	100µH	160186	-
L2502	82µH	215503	-
L2503	12µH	210687	-
L2504	82µH	215503	-
L2505, 06	10µH	161243	-
L2507	68µH	149167	-
L2601	33µH	200161	-
L2602	10µH	161243	-
L2603	18µH	223800	-
L2604	100µH	161243	-
L2605, 06	56µH	196107	-
L2607	68µH	149167	-
L2608	10µH	161243	-
L2609	100µH	160186	-
L2701, 02	10µH	175409	-
L2705	47µH	195713	-
L2901, 02, 03	10µH	161243	-
L2904	10µH	175409	-
L3101	10µH	161243	-
L3301, 02, 03	82µH	227095	-
L3304	56µH	227093	-
# **L4001**	Line Filter	227014	-
# **L4002**	Line Filter	227283	-
L4101, 02, 03	2.2µH	143893	-
L4104, 05	27µH	190017	-
L4201 (5)	Degaussing	214078	-
L4201 (6)	Degaussing	214167	-
L4202	Field Neutralization	225821	-
L4401	2.2µH	190480	-
# **L4402**	17.5µH	210895	-
# **L4403**	320µH	227059	-
# **L4404**	140µH	227044	-
# **L4405**	17.5µH	226458	-
L5001, 02, 03	22µH	195712	-
# **L5004, 05**	10µH	175409	-
# **L5006, 07, 08**	22µH	195712	-
L6501, 02	100µH	160186	-
L8101, 02	1µH	195709	-
L8103	15µH	197613	-
L8104	1.8µH	227422	-
L8105	27µH	190017	-
L8106	100µH	160186	-
L8201	22µH	195712	-
L8202	47µH	190729	-
L8203	15µH	197613	-
L8204	68µH	149167	-
# **P4001**	Line Cord	227065	AC, Polarized
R102	1200 2% 1/10W	194920	-
R107	470K 2% 1/10W	205381	-
R109	150 2% 1/10W	205334	-
R112, 14	1200 2% 1/10W	194920	-
R303	3000 2% 1/10W	194917	-
R306	82K 2% 1/10W	197906	-
R307	51K 2% 1/10W	205365	-
R309, 17	91 2% 1/10W	205330	-
R318	470 2% 1/10W	194926	-
R505	51K 2% 1/10W	205365	-
R509	1M 1% 1/10W	215216	-
R510	191K 1% 1/10W	215214	-
R511	37.4K 1% 1/10W	215215	-
R512	20K 2% 1/10W	197904	-
R514	6800 2% 1/10W	194916	-
R515	220K 2% 1/10W	192093	-
R516	6800 2% 1/10W	194916	-
R605	470 2% 1/10W	194926	-
R609	51K 2% 1/10W	205365	-
R701	7500 2% 1/10W	205348	-
R704, 06	51K 2% 1/10W	205365	-
R708	1200 2% 1/10W	194920	-
# **R1403, 05**	2200 2% 1/4W Nonflammable		829222
# **R1406, 08, 10**	2200 2% 1/4W Nonflammable		829222
# **R1422**	100 5% 1/4W	829110	-
# **R1429, 31**	1000 5% 1/4W	108865	-
# **R1441**	100 5% 1/4W	829110	-
# **R1493, 94**	1000 5% 1/4W	108865	-
# **R1558**	100 5% 1/4W	829110	-
R1601	43.2K 1% 1/10W	225704	-
R1602	61.9K 1% 1/10W	225705	-
R1605	10 2% 1/10W	205308	-
R1606	3300 2% 1/10W	195938	-
R1607	3000 2% 1/10W	194917	-
R1610	22K 2% 1/10W	205357	-
R1611, 12	470 2% 1/10W	194926	-
# **R1613**	13 5% 1/4W	829013	-
# **R1780**	100 5% 1/4W	829110	-
R1911	6800 2% 1/10W	194916	-
R1912	10K 2% 1/10W	195937	-
# **R1947**	33 5% 3W	227358	-
# **R1955, 58**	4.7 5% 1/4W	200197	-
R2301	820 2% 1/10W	192088	-
R2304	150 2% 1/10W	205334	-
R2310, 11	1000 2% 1/10W	197638	-
R2315, 16	100K 2% 1/10W	192094	-
R2318	15K 2% 1/8W	192835	-
R2319	220 2% 1/10W	192089	-
R2320	470 2% 1/10W	194926	-
R2321	470 2% 1/8W	182628	-
R2501, 02	470 2% 1/10W	194926	-
R2504	220 2% 1/10W	192089	-
R2505	6200 2% 1/10W	205347	-
R2506	1800 2% 1/10W	197903	-
R2509, 10	5100 2% 1/10W	205345	-
R2515	680 2% 1/4W	175312	-
R2516	1000 2% 1/10W	197638	-
R2517	120 2% 1/10W	205332	-
R2520	7500 2% 1/10W	205348	-
R2521	3900 2% 1/10W	197907	-
R2523	560 2% 1/10W	205338	-
R2524	270 2% 1/10W	197623	-
R2525	680 2% 1/10W	195939	-
R2526	270 2% 1/10W	197623	-
R2527	470 2% 1/10W	194926	-
R2528	6800 2% 1/10W	194916	-
R2534	6800 2% 1/10W	194916	-
R2535	8200 2% 1/10W	205349	-
R2536	6800 2% 1/10W	194916	-
R2538	820 2% 1/10W	192088	-
R2539	620 2% 1/10W	205339	-
R2541	8200 2% 1/10W	205349	-
R2542	10 2% 1/10W	205308	-
R2543	51K 2% 1/8W	181062	-
R2544	7500 2% 1/10W	192097	-
	4700 2% 1/10W	-	-
R2545	8200 2% 1/4W	175366	-
R2546	27K 2% 1/8W	193061	-
R2547	22K 2% 1/10W	205357	-
R2548	7500 2% 1/10W	205348	-
R2549	33K 2% 1/8W	176813	-
R2550	10K 2% 1/10W	195937	-
R2552	15K 2% 1/10W	205354	-
# **R2555**	100 5% 1/4W	829110	-
R2559	1000 2% 1/10W	197638	-
# **R2560**	2 5% 1/4W	181419	-
R2561	27K 2% 1/10W	205245	-
R2562	36K 2% 1/10W	205361	-
	20K 2% 1/10W	-	-
R2563	1000 2% 1/8W	190462	-
R2567	6200 2% 1/10W	205347	-
R2568	8200 5% 1/4W	175366	-
	6200 2% 1/4W	179316	-

PARTS LIST continued

Item No.	Function/RatingMfr.	Part No.	Notes
R2569	5100 2% 1/10W	205345	-
R2570	5100 2% 1/10W	205344	-
	4300 2% 1/10W	205345	-
R2571, 72	5100 2% 1/10W	205345	-
R2573	3600 2% 1/10W	205343	-
R2576	3000 2% 1/10W	194917	-
R2580	27K 2% 1/10W	205245	-
R2584	330 2% 1/10W	195929	-
R2586	510 2% 1/10W	202585	-
R2587	270 2% 1/10W	197623	-
R2588	510 2% 1/10W	202585	-
R2589	2200 2% 1/10W	192096	-
R2590	330 2% 1/10W	195929	-
R2591	470 2% 1/8W	182628	-
R2592	820 2% 1/10W	192088	-
R2595	1000 2% 1/10W	197638	-
R2596	15K 2% 1/10W	205354	-
R2601	1600 2% 1/4W	175311	-
R2602	2000 2% 1/10W	205341	-
R2603	820 2% 1/10W	192088	-
R2608	Comb Depth	181106	-
R2610	732 1% 1/10W	227361	-
R2611	910 2% 1/10W	197627	-
R2631	6200 2% 1/4W	179316	-
R2632	4700 2% 1/4W	175413	-
R2714	300 2% 1/10W	205336	-
R2715	110K 2% 1/10W	205369	-
	100K 2% 1/10W	192094	-
R2716	300 2% 1/10W	205336	-
	62 5% 1/10W	194919	-
R2752	470 2% 1/10W	194926	-
R2755	470K 2% 1/10W	205381	-
R2756	240K 2% 1/10W	205374	-
R2801	1200 2% 1/10W	194920	-
R2802	470 2% 1/10W	194926	-
R2803	1000 2% 1/10W	197638	-
R2804	16K 2% 1/10W	205355	-
R2805	220 2% 1/10W	192089	-
R2806	1200 2% 1/10W	194920	-
R2807	1000 2% 1/10W	197638	-
R2809	390 2% 1/10W	192102	-
R2810	1100 2% 1/10W	202586	-
R2811	6200 2% 1/10W	205347	-
R2813	7500 2% 1/10W	205348	-
R2815	390 2% 1/10W	192102	-
R2817	1000 2% 1/10W	197638	-
R2901	1500 2% 1/10W	197628	-
R2904	360 2% 1/4W	175567	-
R2905	1500 2% 1/10W	197628	-
R2906	240 2% 1/10W	197624	-
R2907	150 2% 1/10W	205334	-
	110 2% 1/10W	205331	-
R2908	220 2% 1/8W	181492	-
	180 2% 1/8W	181491	-
R2911	360 2% 1/10W	205337	-
R2912	1500 2% 1/8W	181482	-
R2913	240 2% 1/10W	197624	-
R2914	150 2% 1/10W	205334	-
	110 2% 1/10W	205331	-
R2915	220 2% 1/8W	181492	-
	180 2% 1/8W	181491	-
R2918	360 2% 1/10W	205337	-
R2919	1500 2% 1/10W	197628	-
R2920	240 2% 1/10W	197624	-
R2921	150 2% 1/10W	205334	-
	110 2% 1/10W	205331	-
R2922	220 2% 1/10W	192089	-
	180 2% 1/10W	194918	-
R2926	910 2% 1/10W	197627	-
R2927	1500 2% 1/10W	197628	-
R2929	910 2% 1/10W	197627	-
R2930	1500 2% 1/8W	181482	-
R2932	910 2% 1/10W	197627	-
R2933	1500 2% 1/10W	197628	-
R3103	20K 2% 1/10W	197904	-

Item No.	Function/RatingMfr.	Part No.	Notes
R3105	1000 2% 1/8W	190462	-
R3120	24K 2% 1/10W	205358	-
R3121	1000 2% 1/8W	190462	-
R3122	100 2% 1/10W	218508	-
	470 2% 1/10W	194926	-
R3143	1000 2% 1/8W	190462	-
R3201	1000 2% 1/8W	190462	-
R3212	33K 2% 1/8W	176813	-
R3302, 06, 10	360 2% 1/10W	205337	-
R3312	1500 2% 1/10W	197628	-
R3316	5100 2% 1/10W	205345	-
R3328, 29	10 2% 1/10W	205308	-
R3330	1000 2% 1/10W	197638	-
R3331, 33	10 2% 1/10W	205308	-
R3338, 53	1000 2% 1/8W	190462	-
R3358	10 2% 1/10W	205308	-
R3359	1000 2% 1/8W	190462	-
R3365, 67	150 2% 1/10W	205334	-
R3369	1000 2% 1/8W	190462	-
R3372	470 2% 1/10W	194926	-
R3501	470K 2% 1/10W	205381	-
R3503	20K 2% 1/10W	197904	-
R3509	470K 2% 1/10W	205381	-
R3801	26.1K 1% 1/8W	215218	-
R3803	26.1K 1% 1/8W	215218	-
R3805	26.1K 1% 1/8W	215218	-
# **R4001**	1.8 10% 15W Wirewound	200444	-
# **R4002**	2.7M 10% 1/2W	217662	-
# **R4003**	68K 5% 1W	179784	-
# **R4103**	1.8 5% 2W	227086	-
R4105	470 2% 1/10W	194926	-
R4110	1000 2% 1/8W	190462	-
R4112	1740 1% 1/4W	227037	-
R4113	300 Regulator B+	190525	-
# **R4114**	45.3K 1% 1/4W	176506	-
R4119	20K 2% 1/10W	197904	-
# **R4121**	56 5% 1W	176910	-
# **R4122**	3.9 5% 7W Wirewound	179813	-
# **R4127**	8.2 5% 1/2W	120595	-
# **R4129**	330 5% 7W Wirewound	200185	-
# **R4131**	220 5% 1W	190555	-
# **R4132**	22 5% 2W	179786	-
# **R4133**	53.6K 1% 1/4W	200189	-
# **R4137**	2.7 5% 2W	227821	-
# **R4140**	1 5% 1W	183140	-
# **R4141**	10 5% 1W	175781	-
R4197	220 2% 1/10W	192089	-
R4305	220 2% 1/4W	175324	-
R4306	82 2% 1/10W	205329	-
# **R4307**	75 5% 3W Wirewound	227090	-
R4358	1500 2% 1/10W	197628	-
R4359	1000 2% 1/8W	190462	-
# **R4402**	1000 Horizontal Centering	227011	-
# **R4403**	820 5% 1W	175349	-
# **R4407**	2200 5% 3W	190559	-
# **R4409**	10K 2% 1/4W	175317	-
# **R4410**	3300 2% 1/4W	175352	-
R4412	56K 2% 1/10W	192095	-
R4413	3900 2% 1/10W	197907	-
R4414	2200 2% 1/10W	192096	-
R4416	47K 2% 1/4W	175322	-
R4503	15K 2% 1/10W	205354	-
R4504	5100 2% 1/10W	205345	-
# **R4507**	1.5 5% 1W	178619	-
# **R4508, 09**	180 5% 3W	227094	-
R4510	1600 2% 1/2W	179253	-
# **R4511**	1 5% 2W Wirewound	145384	-
R4512	2000 2% 1/2W	227252	-
# **R4700** (1)	Focus/Screen	228910	-
# **R4700** (2)	Focus/Screen	229881	-
# **R4703** (1)	2.2 5% 3W Wirewound	227091	-
# **R4703** (2)	2.7 5% 3W Wirewound	229882	-
# **R4717**	100 5% 1/4W	829110	-
R4718, 19	1000 2% 1/10W	197638	-
R4720A	1000 2% 1/10W	197638	-

Item No.	Function/RatingMfr.	Part No.	Notes
R4723 (1)	100K 2% 1/10W	192094	-
R4723 (2)	120K 2% 1/10W	205370	-
R4723A	20K 2% 1/4W	175351	-
R4724	150K 2% 1/10W	195931	-
R4726A	6800 2% 1/2W	223353	-
# **R4726**	910 5% 1/2W	830191	-
R4727	5100 2% 1/10W	205345	-
R4728	10K 2% 1/10W	195937	-
R4729	5100 2% 1/10W	205345	-
R4730	5100 2% 1/4W	175417	-
R4731 (1)	510 2% 1/10W	202585	-
R4731 (2)	750 2% 1/10W	202914	-
R4732A	1200 2% 1/10W	194920	-
R4733A	6200 2% 1/10W	205347	-
# **R4734**	10K 10% 1/2W	227374	-
# **R4738**	30 5% 3W Wirewound	227376	-
R4739	3900 2% 1/10W	197907	-
# **R4740**	910 5% 1/4W	829191	-
# **R4785**	100K 5% 1/2W	227079	-
# **R4790**	18K 5% 1/2W	830318	-
R4791	1000 1% 1/4W	179753	-
R4805	39.2K 1% 1/4W	190469	-
R4806	49.9K 1% 1/4W	227085	-
R4807	22K 2% 1/10W	205357	-
R4811	240K 2% 1/10W	205374	-
# **R4814**	100 5% 1/2W	176796	-
R4901	2200 2% 1/2W	227267	-
# **R4903**	22 2% 1/4W	175357	-
# **R4905** (1)	38.3K 1% 1/4W	220197	-
# **R4905** (2)	40.2K 1% 1/4W	219026	-
# **R4907**	26.7K 1% 1/4W	196081	-
# **R4909**	1500 2% 1/10W	197628	-
# **R4912**	150K XRP Level	207883	-
# **R5004, 05, 06**	1000 10% 1/2W	502210	-
# **R5007, 08, 09**	12K 5% 3W	227393	-
# **R5025, 27, 29**	100 5% 1/4W	829110	-
# **R5034**	100 5% 1W	176673	-
# **R5037**	2200 20% 1/2W	502222	-
# **R5038, 39, 40**	100 5% 1/4W	829110	-
# **R5044, 45, 46**	47 5% 1/4W	829047	-
R5048	9100 2% 1/10W	205350	-
R5049	910 2% 1/10W	197627	-
R5054, 55, 58	240 2% 1/10W	197624	-
# **R5089**	1000 10% 1/2W	502210	-
R5201	330 2% 1/8W	181488	-
R5202	1500 2% 1/10W	197628	-
R5203	270 2% 1/8W	181481	-
R5204	330 2% 1/8W	181488	-
R5205	68 2% 1/10W	205328	-
R5208	1000 2% 1/8W	190462	-
# **R5213**	1000 2% 1/2W	829210	-
R5214	100K 2% 1/2W	227408	-
# **R5215**	430 5% 1W	831143	-
# **R5216**	27 5% 1/4W	829027	-
# **R5217**	220 5% 2W	175310	-
R5219	100K 2% 1/2W	227408	-
R5220	1000 2% 1/10W	197638	-
# **R5221**	27 5% 1W	210480	-
R5222	1500 2% 1/10W	197628	-
# **R5224, 25**	5.6 5% 1/2W	227403	-
# **R6206**	220 2% 1/2W	830122	-
R6208	820 2% 1/2W	830182	-
# **R6209**	47 2% 1/2W	830047	-
# **R6502, 05, 08**	51 5% 1/4W	175414	-
# **R6526**	68 5% 1/4W	829068	-
R6528	1500 2% 1/10W	197628	-
R6529	620 2% 1/10W	205339	-
R8101	560 2% 1/10W	205338	-
R8102	150 2% 1/10W	205334	-
R8103	1000 2% 1/8W	190462	-
# **R8107**	1 5% 1/4W	829A10	-
R8108	330 2% 1/10W	195929	-
R8109	1000 2% 1/10W	197638	-
R8110	1000 1% 1/8W	220317	-
R8111	1000 1% 1/10W	214143	-

PARTS LIST continued

Item No.	Function/RatingMfr.	Part No.	Notes
R8114	100K 2% 1/10W	192094	-
R8125	1600 2% 1/10W	197625	-
R8126	1300 2% 1/10W	205340	-
R8132	330 2% 1/10W	195929	-
R8139	150 2% 1/10W	205334	-
R8201	15K 2% 1/10W	205354	-
R8202	5600 2% 1/10W	205346	-
# **R8205**	2.4 5% 1W	176887	-
R8231	330 2% 1/8W	181488	-
R8232	1000 2% 1/10W	197638	-
R8240	220 2% 1/10W	192089	-
R8262	1800 2% 1/10W	197903	-
R8303	22K 2% 1/8W	174367	-
R8350	26.1K 1% 1/8W	215218	-
R8351	10K 1% 1/10W	215217	-
R8352	26.1K 1% 1/8W	215218	-
R8353	10K 1% 1/8W	220130	-
R8354	26.1K 1% 1/8W	215218	-
R8355	10K 1% 1/8W	220130	-
R8357	14.3K 1% 1/10W	215219	-
R8358	453 1% 1/10W	217317	-
R8360	15.8K 1% 1/10W	215199	-
R8361	100K 1% 1/10W	215221	-
R8365	15.8K 1% 1/10W	215199	-
R8366	100K 1% 1/10W	215221	-
R8370	15.8K 1% 1/10W	215199	-
R8371	100K 1% 1/10W	215221	-
RN4501	Resistor Network	215499	-
# **RT4201**	PTC Thermistor	207768	-
# **SC1900**	Connector	227346	Rear External Speakers
# **SC1904**	Connector	227346	Front External Speakers
SF2301	Filter	227024	SAW
SF2302	Filter	227023	SAW
SF8101	Filter	227024	SAW
SF8102	Filter	227023	SAW
SP1, 2 (7)	Speaker	226332	3 1/2", 8 Ohms, 5W
SP1, 2 (8)	Speaker	229647	3 1/8" X 6 1/4" 8 Ohms, 15W
SVM	-	228459	-
SW1900	Switch	227353	Internal/External Speakers
SW3410	Switch	207842	Channel Up
SW3411	Switch	205258	Power
SW3420	Switch	207842	Channel Down
SW3421	Switch	207842	Volume Up
SW3430	Switch	207842	Menu
SW3431	Switch	207842	Volume Down
SW4401	Switch	190488	Horizontal Centering
SW6201	Switch	205225	Strength
SW6202	Switch	211982	Polarity
# **T4101**	SMT	227272	-
# **T4102**	Current Sense	227016	-
# **T4103**	-	227013	-
# **T4301**	Horizontal Drive	227018	-
# **T4401** (2)(4)	Horizontal Output	227271	-
# **T4401** (3)(4)	Horizontal Output	229880	-
# **T4601**	Standby	225708	-
# **T4701**	-	210878	-
# **V101** (1)	CRT	A80AEJ159	A80AEJ15X09
# **V101** (2)	CRT	A89AEJ159	A89AEJ15X09
Y501	Crystal	182839	4MHz
Y2801	Crystal	161235	3.58MHz
Y3101	Crystal	217322	8MHz
Y4190	Resonator	-	507kHz
	Resonator	227064	507.5kHz
Y8101	Resonator	227417	5.71MHz
Y8201	Crystal	197652	14.318MHz
Y8301	Crystal	182839	4MHz
	Adapter	AH055	Antenna 75 To 300 Ohms
	Button (8)	225801	Cap
	Button (9)	229639	Cap
	Button (10)	226005	Cap
	Button (8)	229306	Cluster
	Button (9)	229641	Cluster
	Button (10)	228451	Cluster
	Button (8)	225802	Power
	Button (9)	229640	Power

Item No.	Function/RatingMfr.	Part No.	Notes
	Button (10)	228450	Power
	Fuse Holder	176642	For F4001 (2 Used)
	PC Board	228452	A/V Input
	PC Board	228908	CRT
	PC Board	226787	Dynamic Focus
	PC Board	226784	Front Panel
	PC Board	227333	Headphone
	PC Board	227809	IN/OUT
	PC Board	226788	PIP
	Transmitter	221115	Remote, CRK70A1
MAIN TUNER			
C101	150pF 5% 50V NPO	214032	-
C104	330pF 5% 50V NPO	205227	-
C110	39pF 5% 50V NPO	181090	-
C115	150pF 5% 50V NPO	214032	-
C117	1.5pF ±.1pF 50V NPO	223146	-
C118	180pF 5% 50V NPO	211039	-
# **C122**	.001 10% 50V	192060	-
C124	47pF 5% 50V NPO	-	
	68pF 5% 50V NPO	193339	-
C125	100pF 2% 50V NPO	227089	-
C302	10pF 5% 50V NPO	214740	-
C305	27pF 5% 50V N750	214760	-
C306	12pF 5% 50V NPO	214027	-
C307	27pF 5% 50V NPO	197604	-
C308	120pF 5% 50V NPO	194902	-
C309	27pF 5% 50V NPO	197604	-
C310	.75pF ±.1pF 50V NPO	227269	-
C311	27pF 5% 50V N750	214760	-
C312	18pF 2% 50V N220	227077	-
C313, 14	470pF 5% 50V NPO	214732	-
C401	27pF 5% 50V NPO	197604	-
C407, 11	33pF 5% 50V NPO	194911	-
C424	100pF 5% 50V NPO	193340	-
C501	10pF 5% 50V NPO	214740	-
	.01 10% 50V	215555	
C502	10pF 5% 50V NPO	214740	-
C505	39pF 5% 50V NPO	202905	-
C602	100pF 5% 50V NPO	193340	-
C605	330pF 5% 50V NPO	205227	-
C607	22pF 5% 50V NPO	174406	-
C701	1pF ±.1pF 50V NPO	227084	-
C702	2pF ±.1pF 50V NPO	227074	-
C703	2pF ±.1pF 50V N750	226965	-
C704	1pF ±.1pF 50V NPO	227084	-
C705	27pF 5% 50V N750	214760	-
C707	1pF ±.1pF 50V NPO	227084	-
C708	3pF ±.1pF 50V NPO	227088	-
C709	68pF 10% 50V NPO	193339	-
C710	3pF ±.1pF 50V NPO	227088	-
C711	1pF ±.1pF 50V NPO	227084	-
C712	3pF ±.1pF 50V NPO	227088	-
C809	68pF 5% 50V NPO	174410	-
E702	Jack	-	RF Output
FL101	Filter	181470	High Pass
J801	Jack	-	Antenna A
J802	Jack	-	Antenna B
L101	-	226982	-
L102	-	227003	-
L103	-	227005	-
L104	-	226992	-
L105	-	227006	-
L106	3.9µH	200559	-
L107	-	226987	-
L108	-	226998	-
L109	-	226993	-
L110	-	226994	-
L111	-	226998	-
L112	-	226995	-
L113	-	227000	-
L114	-	226996	-
L115	-	227000	-
L301	-	227427	-
L302	-	226988	-

Item No.	Function/RatingMfr.	Part No.	Notes
L303	-	227005	-
L304	-	226983	-
L305	-	226984	-
L306	-	226990	-
L307	-	226991	-
L308	-	226985	-
L601, 02	-	226999	-
L603	-	227002	-
L604	-	227001	-
L701, 02	-	226986	-
L703	-	226989	-
L704	-	226996	-
L801	-	226999	-
R101	300 2% 1/10W	205336	-
R102	1200 2% 1/10W	194920	-
R107	470K 2% 1/10W	205381	-
R109	150 2% 1/10W	205334	-
R112, 14	1200 2% 1/10W	194920	-
R303	3000 2% 1/8W	194917	-
R306	82K 2% 1/10W	197906	-
R307	51K 2% 1/10W	205365	-
R309, 17	91 2% 1/10W	205330	-
R318	470 2% 1/10W	194926	-
R505	51K 2% 1/10W	205365	-
R509	1M 1% 1/10W	215216	-
R510	191K 1% 1/10W	215214	-
R511	37.4K 1% 1/10W	215215	-
R512	20K 2% 1/10W	197904	-
R514	6800 2% 1/10W	194916	-
R515	220K 2% 1/10W	192093	-
R516	6800 2% 1/10W	194916	-
R605	470 2% 1/10W	194926	-
R609	51K 2% 1/10W	205365	-
R701	7500 2% 1/10W	205348	-
R704, 06	51K 2% 1/10W	205365	-
R708	1200 2% 1/10W	194920	-
R808	10 2% 1/10W	205308	-
R3802	10K 1% 1/10W	215217	-
R3804	10K 1% 1/10W	215217	-
R3806	10K 1% 1/10W	215217	-
R3807	14.3K 1% 1/10W	215219	-
R3808	453 1% 1/10W	217317	-
R3809	820 2% 1/10W	192088	-
R3810	15.8K 1% 1/10W	215199	-
R3811	100K 1% 1/10W	215221	-
R3812	15.8K 1% 1/10W	215199	-
R3813	100K 1% 1/10W	215221	-
R3814	15.8K 1% 1/10W	215199	-
R3815	100K 1% 1/10W	215221	-
SW801	Relay	227020	Antenna A/B
T801	RF Splitter	227015	-
Y501	Crystal	182839	4MHz

 # For SAFETY use only equivalent replacement part.
* Lead configuration may vary from original.
% Use insulating hardware supplied with replacement.
(1) Used in chassis CTC179CK.
(2) Used in chassis CTC179CM.
(3) Part of EPROM kit Part No. 229781 (Marked –97H or before) or Part No. 229782 (Marked –97I or later).
(4) Screen and focus controls are part of T4401.
(5) Used in 32" models.
(6) Used in 35" models.
(7) Used in models F32730SBFM1, F32730SBJX1, F35755MBFM2, and F35755MBJX2.
(8) Used in model G35831ATLM1.
(9) Used in models F32730SBFM1 and F32730SBJX1.
(10) Used in models F35755MBFM2 and F35755MBJX2.