

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 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.

TEST JIG HOOKUP				
Function	Chek-A-Color Adapter No.	PC Board Plug No.	Pin	Color
CRT	B239	P Horiz	E4401	Red
Yoke	D4124		E4402	Blue
Yoke Setting	YP1A	P Vert	E4501	Yellow
Comments	Focus Tap		E4502	Green

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

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SAFETY CHECKS – FIRE AND SHOCK HAZARD

Cold Leakage Checks for Receivers with Isolated Ground

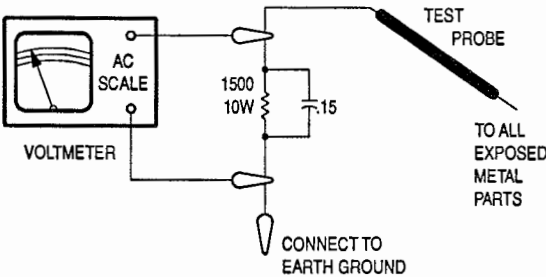
Unplug the AC cord, connect a jumper across the plug prongs, and turn the power switch on (if applicable). Use an ohmmeter to measure the resistance between the jumped AC plug and any exposed metal cabinet parts such as antenna screw heads, control shafts, or handle brackets. Exposed metal parts with 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.

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 inner board wiring for pinched wires or wires contacting any high wattage resistors. Check that all control knobs, shields, covers, grounds, and mounting hardware have been replaced. Be sure to replace all insulators and restore proper lead dress.



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PHOTOFACT® Technical Service Data

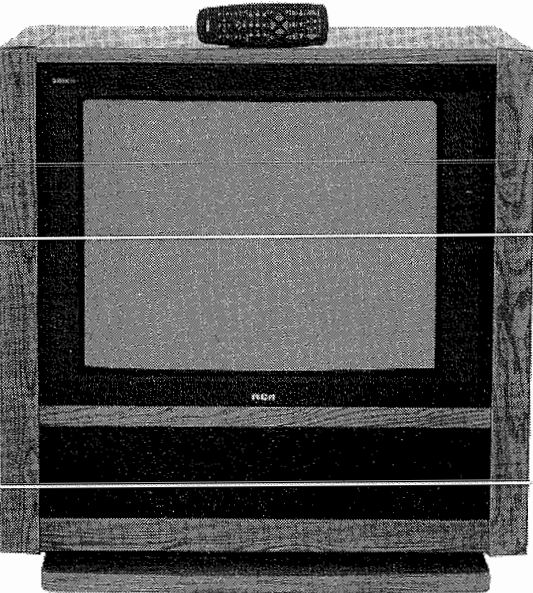
SET 3468

MODEL G27684HPKF1 (CHASSIS CTC187BG)

RCA

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RCA
Model G27684HPKF1 (Chassis CTC187BG)



Complete coverage
for servicing a television receiver...

- Schematics
- Component locations
- Parts list

Coverage includes these additional models and chassis:

MODEL	CHASSIS
F27672ETFE1/JX1	CTC187BD
F27673SEFE1	CTC187BD
G27666ATLM1	CTC187BG
G27688HPLF1	CTC187BG
G27689ATDX1/LM1	CTC187BG

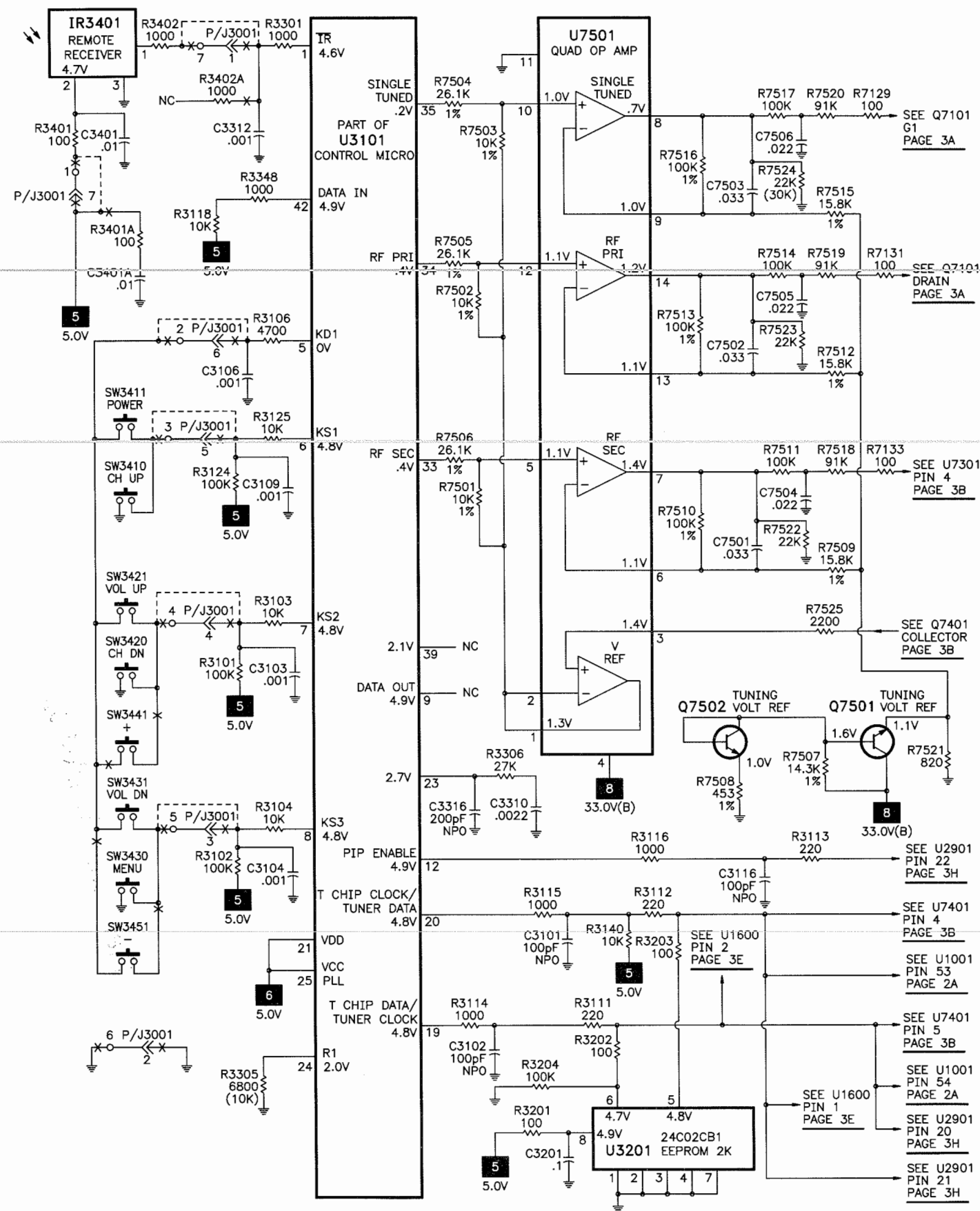


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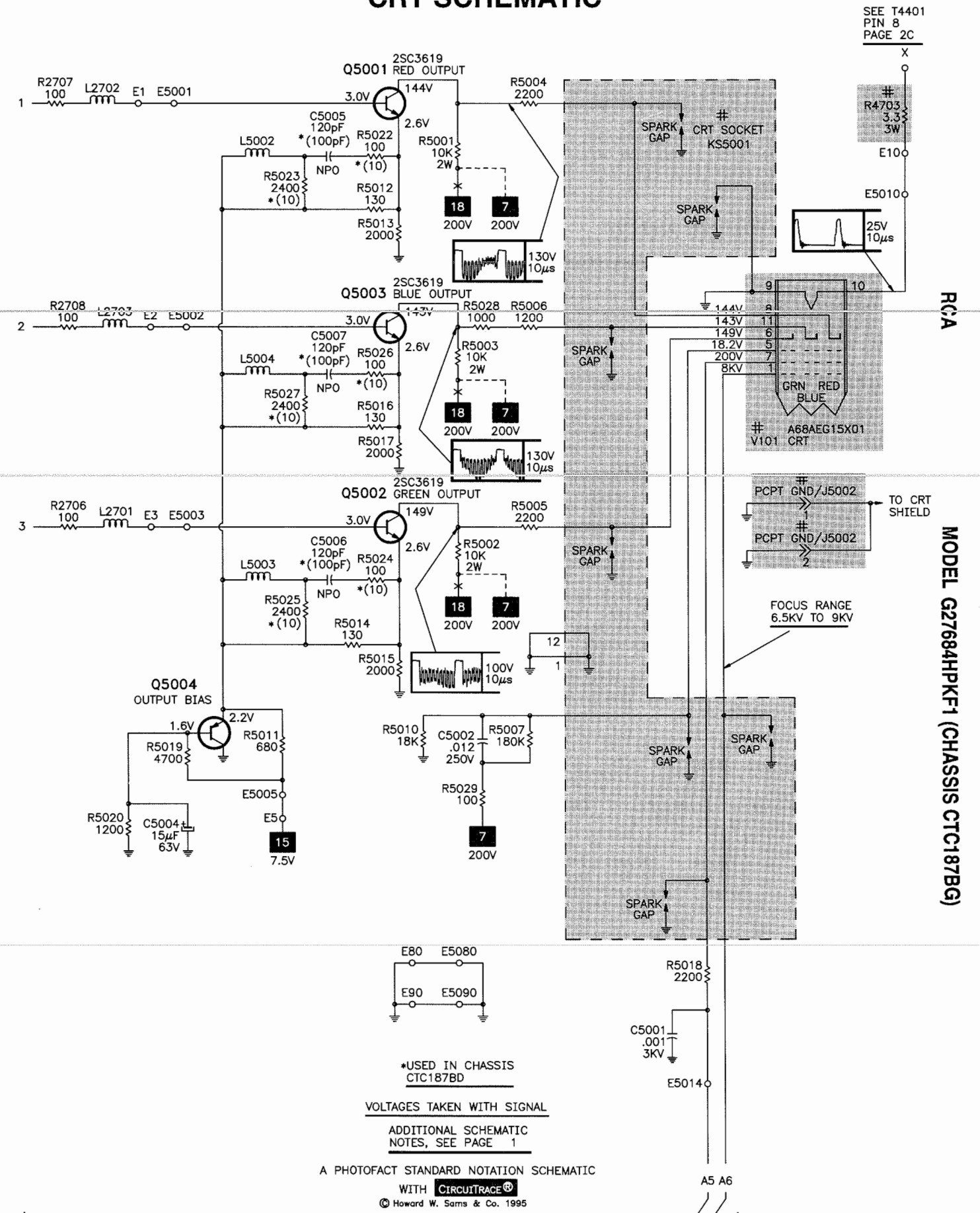
APRIL 1995 SET 3468

For Supplier Address,
See PHOTOFACT Annual Index

SYSTEM CONTROL SCHEMATIC



CRT SCHEMATIC



TUNER CIRCUIT VOLTAGE CHART

Pin No.	VHF Low Band	VHF High Band	UHF Band	Pin No.	VHF Low Band	VHF High Band	UHF Band	Pin No.	VHF Low Band	VHF High Band	UHF Band
U7301				U7401				U7501			
1	5.4V	5.4V	5.3V	1	1.7V	2.1V	1.7V	1	1.3V	1.7V	1.8V
2	2.9V	3.0V	3.2V	2	2.1V	2.1V	2.1V	2	1.3V	1.7V	1.8V
3	7.8V	7.7V	7.6V	3	2.1V	2.1V	2.1V	3	1.4V	1.6V	1.8V
4	3.0V	3.0V	3.2V	4	4.8V	4.8V	4.8V	4	33.0V	33.0V	33.0V
5	7.8V	7.7V	7.6V	5	4.7V	4.7V	4.7V	5	1.1V	1.5V	1.6V
6	0V	0V	0V	6	0V	0V	0V	6	1.1V	1.5V	1.6V
7	3.0V	3.0V	0V	7	1.3V	1.3V	1.3V	7	1.4V	4.0V	4.8V
8	9.0V	9.0V	8.8V	8	11.5V	0V	0V	8	.7V	3.5V	4.6V
9	3.0V	3.0V	3.3V	9	7.4V	7.4V	0V	9	1.0V	1.4V	1.5V
10	3.3V	3.2V	2.9V	10	4.8V	4.8V	4.8V	10	1.0V	1.4V	1.5V
11	4.9V	5.1V	9.7V	11	2.3V	2.3V	2.3V	11	0V	0V	0V
12	3.3V	3.2V	2.9V	12	2.3V	2.3V	2.3V	12	1.1V	1.4V	1.5V
13	0V	0V	0V	13	0V	0V	0V	13	1.1V	1.4V	1.5V
14	9.1V	9.0V	5.4V	14	.6V	.6V	.6V	14	1.2V	3.4V	4.4V
15	3.4V	3.4V	2.9V								
16	3.4V	3.4V	2.9V								

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

Pin No.	VHF Low Band	VHF High Band	UHF Band	Pin No.	VHF Low Band	VHF High Band	UHF Band	Pin No.	VHF Low Band	VHF High Band	UHF Band
Q7101				Q7401				Q7403			
G1	0V	0V	4.8V	E	0V	0V	0V	E	0V	0V	0V
G2	5.0V	6.5V	7.2V	B	.6V	.6V	.6V	B	.7V	.7V	0V
D	.2V	.2V	11.3V	C	2.1V	3.8V	17.8V	C	.1V	.1V	11.3V
S	.2V	.2V	4.8V								
Q7102				Q7402				Q7404			
G1	4.6V	4.6V	4.6V	E	11.4V	11.2V	11.3V	E	11.4V	11.2V	11.3V
G2	5.3V	6.8V	7.2V	B	11.3V	10.5V	10.6V	B	11.0V	11.9V	10.6V
D	11.3V	11.2V	11.4V	C	-14.9V	11.1V	11.2V	C	.1V	.1V	11.3V
S	4.1V	4.2V	11.3V								

NOTE: Voltages taken without signal.
VHF Low Band voltages taken on channel 2.
VHF High Band voltages taken on channel 7.
UHF Band voltages taken on channel 14.

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.

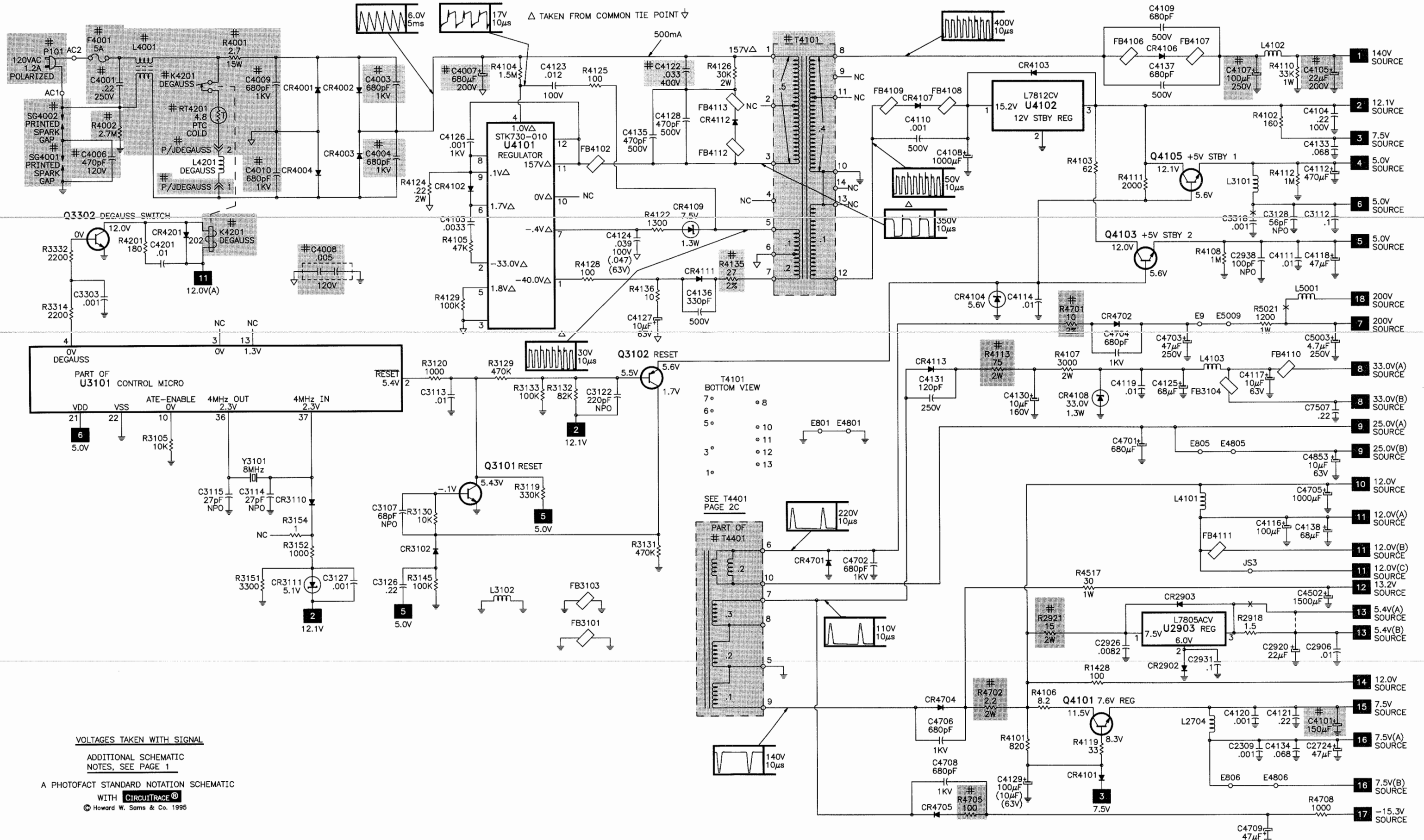
Waveforms and voltages are taken from ground, unless noted otherwise.
Waveforms taken with triggered scope and colorbar signal. Waveform voltage is peak to peak. Timebase is per division. Waveforms shown at 10 divisions. Supply voltages maintained as seen at input. Voltages measured with digital meter 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.

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

MODEL G27684HPKF1 (CHASSIS CTC187BG)

RCA

POWER SUPPLY SCHEMATIC



MISCELLANEOUS ADJUSTMENTS

PRETUNING

NOTE: All procedures require an antenna connected and power applied to the set.

Auto Program

- 1. Press the program button to select autoprogram.
- 2. Press the + button. All available channels are scanned and stored in memory.
- 3. Press display to clear menu.

Channel Memory

- 1. Press the program button to select channel memory.
- 2. Select channel with number buttons or channel up and down buttons.
- 3. Press + button to add a channel or - button to erase a channel.
- 4. Repeat steps 2 and 3 to add or erase other channels.
- 5. When finished, press done to save selections.

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 25KV to 27KV.

COLOR TEMPERATURE

NOTE: See Service Adjustment Parameters to change drive and bias values.

Press menu button on the TV set for collapsed raster service line. Set the TV to S-Video with no video signal. Preset the red, green, and blue drive values to 32. Preset the red, green, and blue bias values to provide 170VDC at the collector of the respective output transistors. Adjust screen control for a service line that is just visible. Adjust red, green, and blue drives to obtain a white raster. Check the low light to high light gray scale tracking. Repeat the procedure, if necessary, to obtain the best performance.

CHASSIS ALIGNMENT PARAMETERS

Parameter No.	Parameter Name	Value Range	Comment
13	Pass number for chassis alignment parameters	Must set to 77	May not advance to higher parameter until value is set.
14	PLL tuning	00 - 63	Apply 4.0V to pin 14 of U1001. Short junction of R7130 and R2313 to ground. Connect 41.25MHz (300mV) marker to pin 1 of SF2301. Connect an oscilloscope to pin 55 of U1001. Adjust value for 2.2µs sinewave.
15	4.5MHz trap	00 - 07	Short junction of R7130 and R2313 to ground. Apply 45.75MHz (300mV) and 41.25MHz (100mV) to pin 1 of SF2301. Connect an oscilloscope to pin 63 of U1001. Adjust value for minimum 4.5MHz sinewave.
16	Video level	00 - 07	Tune in a color bar pattern, 100% modulation, super pulse display. Connect oscilloscope to pin 63 of U1001. Adjust value range to produce 2.0Vp-p response.
17	FM level	00 - 15	Connect signal generator to pin 55 of U1001, inject 4.5MHz carrier, 1kHz modulation, with 25kHz deviation. Apply 4.0V to pin 14 of U1001. Connect oscilloscope to pin 3 of U1001. Adjust value range for 1.2Vp-p of 1kHz component.
18	B+ trim	00 - 15	CTC175 only.
19	RF AGC (1)	00 - 31	Manually tune channel 6.
20	D-PIP chroma	00 - 127	Adjust to match main picture.
21	D-PIP tint	00 - 255	Adjust to match main picture.
22	D-PIP brightness	00 - 31	Adjust to match main picture.
23	D-PIP contrast	00 - 63	Adjust to match main picture.
24	Factory tint	00 - 63	-
25	Input level	00 - 15	Refer to Stereo Adjustments.
26	Stereo VCO	00 - 63	Refer to Stereo Adjustments.
27	SAP VCO	00 - 15	Set value to 8.
28	SAP low pass filter	00 - 63	Set value to 30.
29	SAP band pass filter	00 - 15	Set value to 7.
30	Wideband/spectral separation	00 - 63	Refer to Stereo Adjustments.
31	Wideband/spectral separation	00 - 63	Refer to Stereo Adjustments.

(1) RF AGC has been preset at time of manufacture for optimum operation over a wide range of RF signal input conditions. Readjustment should not be required unless the tuner has been repaired, U1001, U3101, or U3201 has been replaced, or unusual signal conditions exist. Use weakest local signal to adjust RF AGC parameter setting.

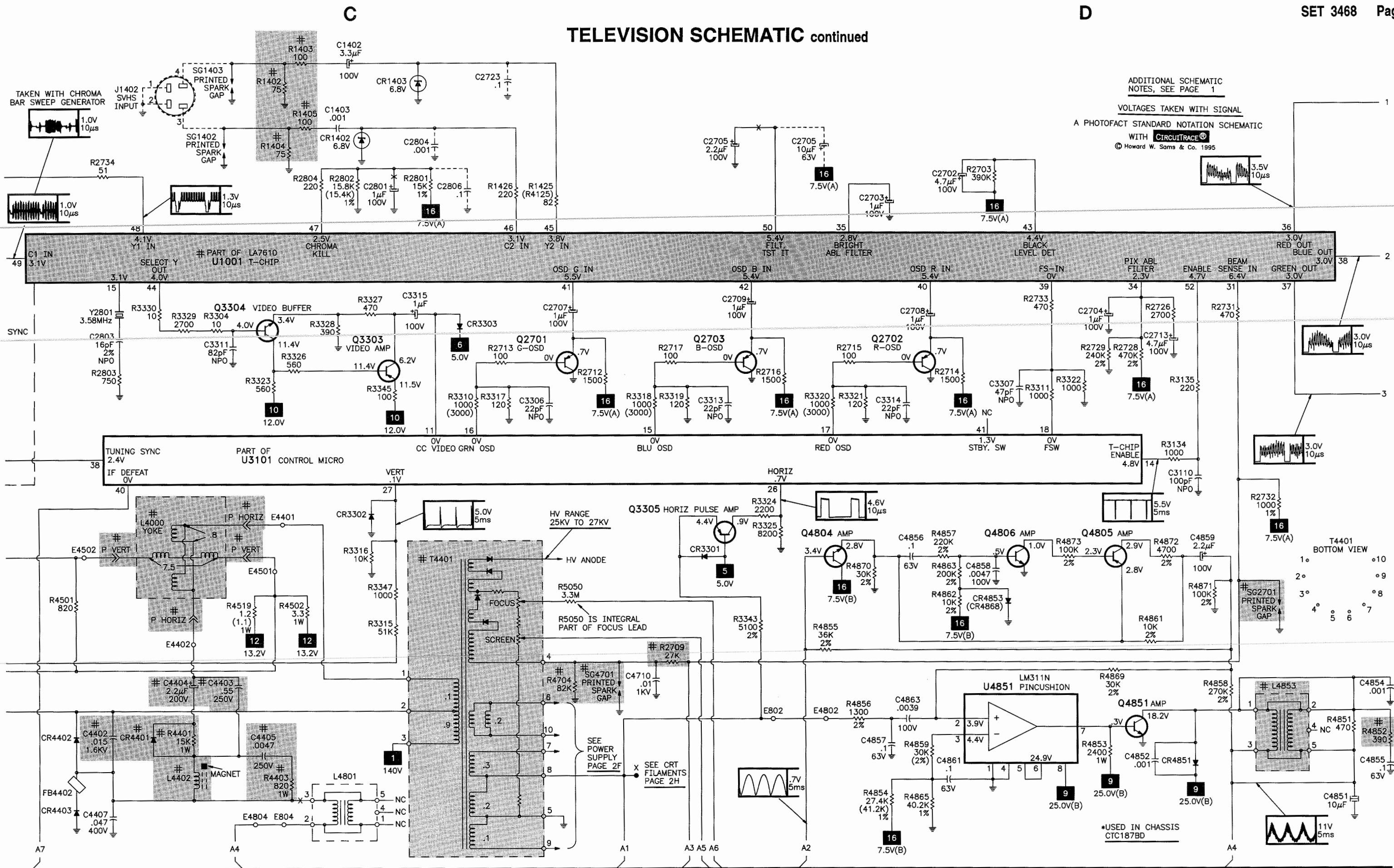
SERVICE MENU

The following adjustment and alignment procedures are accessed thru a service menu using buttons on the receiver. To access the service menu, turn the set 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 P 00, and on the right the value of that parameter V 00. 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. The three main groups of parameters are, the service adjustment parameters, the chassis alignment parameters, and the tuner alignment parameters. To access and change any of the adjustments, the proper parameter pass number and value must be entered. This information is listed at the beginning of each alignment. When these parameters are modified, the T-Chip and the corresponding EEPROM are updated. All service adjustments are bus controlled, except focus and screen.

WARNING: When adjusting the horizontal frequency be careful not to exceed the value range, or the set will go into shutdown, and replacement of U3101 may be required. In case the set goes into shutdown loop connect a capacitor across C4402 with the same value, redo horizontal frequency adjustment, then remove the capacitor. It may be necessary to readjust the horizontal frequency again.

SERVICE ADJUSTMENT PARAMETERS

Parameter No.	Parameter Name	Value Range	Comment
00	Pass number for service adjustment parameters	Must set to 76	May not advance until value set.
01	Horizontal frequency (See warning)	00 - 63	Adjust for stable or slowly moving horizontal lines.
02	Horizontal phase	00 - 15	Adjust to center picture left to right.
03	EW DC (Width)	00 - 15	Adjust for 1/2" overscan.
04	EW amplitude	00 - 07	Tune in a crosshatch pattern and adjust for straight vertical lines on left and right of screen.
05	Vertical DC	00 - 15	Adjust to center picture top to bottom.
06	Vertical size	00 - 31	Adjust to 1/4" overscan top and bottom of screen.
07	Red bias	00 - 127	Press menu button for setup line.
08	Green bias	00 - 127	Press menu button for setup line.
09	Blue bias	00 - 127	Press menu button for setup line.
10	Red drive	00 - 63	Press menu button for setup line.
11	Green drive	00 - 63	Press menu button for setup line.
12	Blue drive	00 - 63	Press menu button for setup line.



ELECTRONIC TUNER ALIGNMENT PARAMETERS

Use tuner service modulator, RCA stock no. 215568, and a VCR for signal source. Monitor RF AGC at the positive end of C2306 or at pin 12 of U1001, and adjust for minimum voltage at each parameter. The entire Electronic Tuner Alignment procedure, once started, must be completed in its entirety. Electronic Tuner Alignment is performed with top and bottom covers in place with bottom cover soldered.

Parameter No.	Parameter Name	Value Range	Parameter No.	Parameter Name	Value Range
32	Pass number for tuner alignment parameters	Must set to 78	127	Ch. 50 secondary	00-63
100	Ch. 2 secondary	00-63	128	Ch. 50 primary	00-63
101	Ch. 2 primary	00-63	129	Ch. 50 single	00-63
102	Ch. 2 single	00-63	130	Ch. 51 secondary	00-63
103	Ch. 6 secondary	00-63	131	Ch. 51 primary	00-63
104	Ch. 6 primary	00-63	132	Ch. 51 single	00-63
105	Ch. 6 single	00-63	133	Ch. 57 secondary	00-63
106	Ch. 14 secondary	00-63	134	Ch. 57 primary	00-63
107	Ch. 14 primary	00-63	135	Ch. 57 single	00-63
108	Ch. 14 single	00-63	136	Ch. 63 secondary	00-63
109	Ch. 17 secondary	00-63	137	Ch. 63 primary	00-63
110	Ch. 17 primary	00-63	138	Ch. 63 single	00-63
111	Ch. 17 single	00-63	139	Ch. 76 secondary	00-63
112	Ch. 18 secondary	00-63	140	Ch. 76 primary	00-63
113	Ch. 18 primary	00-63	141	Ch. 76 single	00-63
114	Ch. 18 single	00-63	142	Ch. 83 secondary	00-63
115	Ch. 13 secondary	00-63	143	Ch. 83 primary	00-63
116	Ch. 13 primary	00-63	144	Ch. 83 single	00-63
117	Ch. 13 single	00-63	145	Ch. 93 secondary	00-63
118	Ch. 34 secondary	00-63	146	Ch. 93 primary	00-63
119	Ch. 34 primary	00-63	147	Ch. 93 single	00-63
120	Ch. 34 single	00-63	148	Ch. 110 secondary	00-63
121	Ch. 37 secondary	00-63	149	Ch. 110 primary	00-63
122	Ch. 37 primary	00-63	150	Ch. 110 single	00-63
123	Ch. 37 single	00-63	151	Ch. 117 secondary	00-63
124	Ch. 48 secondary	00-63	152	Ch. 117 primary	00-63
125	Ch. 48 primary	00-63	153	Ch. 117 single	00-63
126	Ch. 48 single	00-63	154	Ch. 125 secondary	00-63
			155	Ch. 125 primary	00-63
			156	Ch. 125 single	00-63

MECHANICAL TUNER COIL ALIGNMENT

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 knife coils. This procedure is performed with top tuner cover removed and bottom tuner cover in place and soldered. Tuner service modulator RCA stock No. 215568 is used in this procedure.

1. Manually tune the set and the tuner service modulator to channel 125 (band 3) and enter parameter 154.
2. Connect DVM to tuner side of R7525.
3. Check for voltage reading between 4.55V and 4.75V, if not expand or compress L7303 to set voltage within these limits.
4. Manually tune the set and the tuner service modulator to channel 50 (band 2) and enter parameter 127.
5. While DVM is still connected to R7525, check for voltage reading between 4.8V and 5.0V, if not expand or compress L7304 to set voltage within these limits.
6. Manually tune the set and the tuner service modulator to channel 17 (band 1) and enter parameter 109.
7. While DVM is still connected to R7525, check for voltage reading between 4.4V and 4.6V, if not expand or compress L7305 to set voltage within these limits.
8. Manually tune the set and the tuner service modulator to channel 125 (band 3) and enter parameter 154.

9. Connect DVM to positive side of C7503 (RF AGC to tuner)
10. Set parameter value range to 31.
11. Expand or compress L7105 for minimum RF AGC voltage.
12. Enter parameter 155 and set parameter value range to 31.
13. Expand or compress L7104 for minimum RF AGC voltage.
14. Enter parameter 156 and set parameter value range to 31.
15. Expand or compress L7102 for minimum RF AGC voltage.
16. Manually tune the set and the tuner service modulator to channel 50 (band 2) and enter parameter 127.
17. Set parameter value range to 31.
18. Expand or compress L7113 for minimum RF AGC voltage.
19. Enter parameter 128 and set parameter value range to 31.
20. Expand or compress L7111 for minimum RF AGC voltage.
21. Enter parameter 129 and set parameter value range to 31.
22. Expand or compress L7107 for minimum RF AGC voltage.
23. Manually tune the set and the tuner service modulator to channel 17 (band 1) and enter parameter 109.
24. Set parameter value range to 31.
25. Expand or compress L7114 for minimum RF AGC voltage.
26. Enter parameter 110 and set parameter value range to 31.
27. Expand or compress L7112 for minimum RF AGC voltage.
28. Enter parameter 111 and set parameter value range to 31.
29. Expand or compress L7106 for minimum RF AGC voltage.
30. Perform the entire Electronic Tuner Alignment.

STEREO ADJUSTMENTS

INPUT LEVEL

Turn stereo expander off. Enter parameter 25. Set stereo generator output to pilot, 300Hz, and L + R. Connect an oscilloscope to connector JS6. Adjust the parameter value for an output level of 350mVp-p. Do not measure noise. Connect a dual oscilloscope to the right audio output at connector JS6 and the left audio output at connector JS5. Confirm that output of both sides are within $\pm 50\text{mVp-p}$ of each other.

STEREO VCO

Enter parameter 26. Set stereo generator to pilot, 300Hz and L+R. Connect a frequency counter to connector JS6. Adjust the parameter value for frequency of 62936Hz $\pm 200\text{Hz}$.

WIDEBAND/SPECTRAL SEPARATION

Set volume to midrange. Set stereo generator to pilot, 300Hz and L. Connect oscilloscope to JS6. Enter parameter 30. Adjust value to 20. Increase parameter value slowly for a minimum amplitude of waveform. Enter parameter 31. Change stereo generator to 3kHz. Set parameter value to 20. Increase parameter value slowly for a minimum amplitude of waveform.

NOTE: If stereo generator does not have 3kHz setting or if parameter 31 does not adjust the same as parameter 30, set parameter 31 to a value of 31 and confirm parameter 30 is adjusted for minimum amplitude at 3kHz or highest generator setting.

SERVICE TIP

INTERMITTENT SAP OPERATION

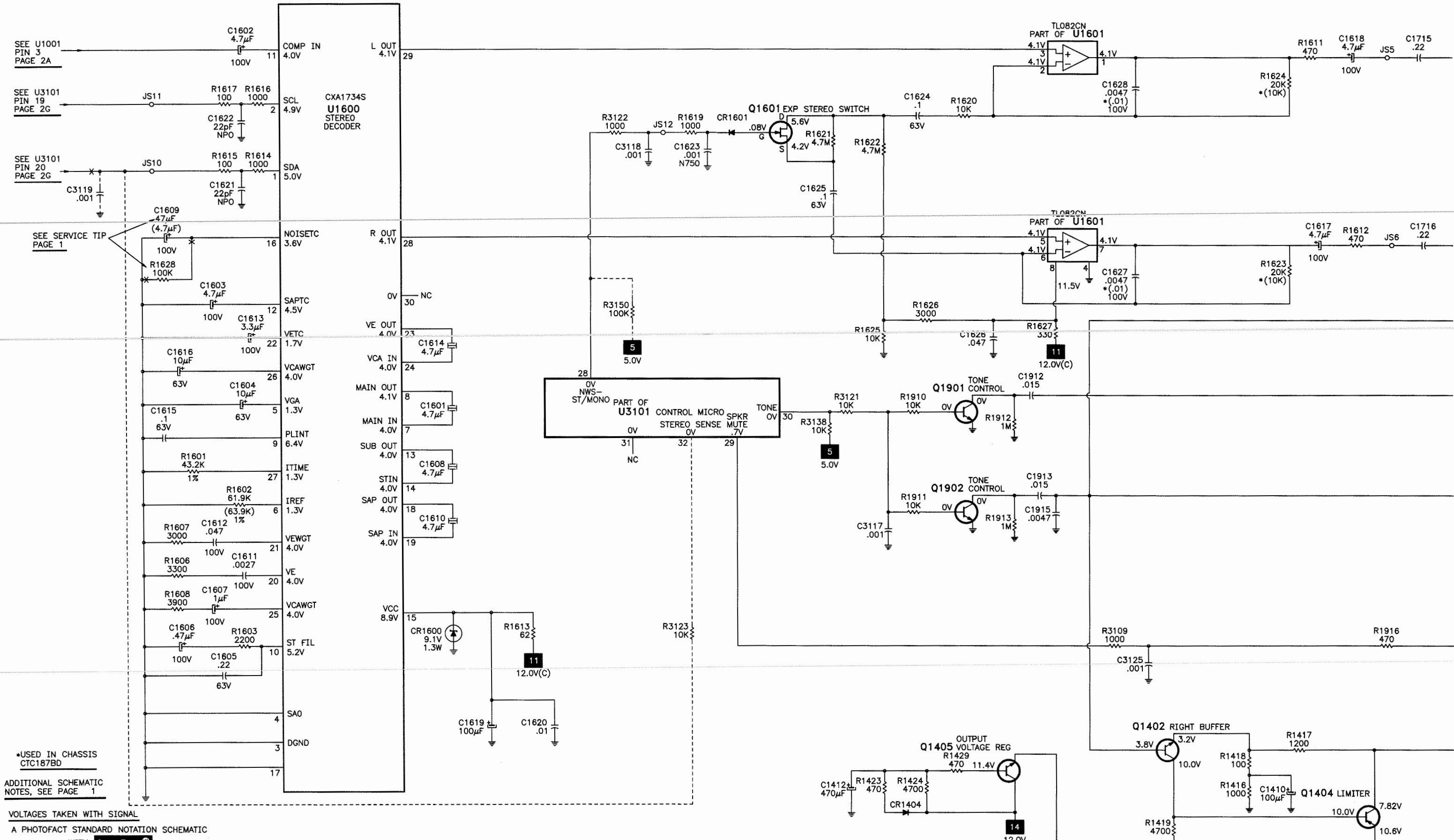
Symptom: Audio drops out in SAP mode. Chassis CTC187, serial numbers lower than 429000000.

Cause: SAP noise detector triggers when there are high level stereo L-R signals and switches from SAP mode to stereo mode.

Solution: Replace C1609 (on DBX stereo board) with 47 μF , 25V capacitor (part number 193043). Add resistor R1628, 100K ohm (part number 192084), across C1609 leads. See schematic page 3E.

[illegible]

AUDIO SCHEMATIC



*USED IN CHASSIS
CTC187BD

ADDITIONAL SCHEMATIC
NOTES, SEE PAGE 1

VOLTAGES TAKEN WITH SIGNAL
A PHOTOFACT STANDARD NOTATION SCHEMATIC
WITH **CIRCUITRACE**
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PARTS LIST continued

CAPACITORS & ELECTROLYTICS		
Item No.	Rating	Mfr. Part No.
C1601, 08	4.7µF 20% 35V NP	224269
C1610, 14	4.7µF 20% 35V NP	224269
C1621, 22	22pF 5% 50V NPO SMT	194903
C1623	.001 5% 50V N750 SMT	224274
C2302	470pF 5% 50V NPO SMT	214732
C2654	3.3µF 20% 50V NP	224270
C2656	120pF 5% 50V NPO SMT	194902
C2718	220pF 5% 50V NPO SMT	205551
C2803	16pF 2% 50V NPO SMT	214736
C2910	27pF 5% 50V NPO SMT	174407
C2917	47pF 5% 50V NPO SMT	210689
C2918	15pF 5% 50V NPO SMT	202907
C2924	33pF 5% 50V NPO SMT	194911
C2930, 32	100pF 5% 50V NPO SMT	193340
C2935	68pF 5% 50V NPO SMT	193339
C2936	10pF 5% 50V NPO SMT	214740
C2938	100pF 5% 50V NPO SMT	193340
C3101, 02	100pF 5% 50V NPO SMT	193340
C3107	68pF 5% 50V NPO SMT	193339
C3110	100pF 5% 50V NPO SMT	193340
C3114, 15	27pF 5% 50V NPO SMT	197604
C3116	100pF 5% 50V NPO SMT	193340
C3122	220pF 5% 50V NPO SMT	178188
C3128	56pF 10% 50V NPO SMT	222396
C3306	22pF 5% 50V NPO SMT	194903
C3307	47pF 5% 50V NPO SMT	210689
C3311	82pF 5% 50V NPO SMT	192049
C3313, 14	22pF 5% 50V NPO SMT	194903
C3316	200pF 5% 50V NPO SMT	218986
# C4001	.22 20% 250V	214067
# C4003, 04	680pF 20% 1KV	190538
# C4006	470pF 20% 120V	250102
# C4007	680µF 20% 200V	190560
# C4008	.005 20% 120V	195697
# C4009, 10	680pF 20% 1KV	190538
# C4101	150µF 20% 16V	161027
# C4105	22µF +30% -10% 200V	225667
# C4107	100µF +30%-10% 250V	218374
# C4122	.033 5% 400V	214747
C4126	.001 10% 1KV	160461
C4303	470pF 5% 50V NPO SMT	214732
C4310	15pF 1% 250V NPO	223899
C4311	47pF 5% 50V NPO SMT	210689
# For SAFETY use only equivalent replacement part.		

CAPACITORS & ELECTROLYTICS continued		
Item No.	Rating	Mfr. Part No.
C4313	220pF 5% 50V NPO SMT	178188
C4401	470pF 5% 50V NPO SMT	195918
# C4402	.015 1.6KV	206007
# C4403	.55 5% 250V	214753
# C4404	2.2µF 20% 200V	196050
# C4405	.0047 10% 250V	190534
# C4406	470pF 5% 1.5KV N1500	143242
C4702, 04	680pF 20% 1KV	190538
C4706, 08	680pF 20% 1KV	190538
C4710	.01 20% 1KV	137583
C4851	10µF 20% 50V NP	196060
# C4904	.22 +80 -20% 25V	214739
C5001	.001 10% 3KV	120696
C5005, 06, 07	120pF 5% 50V NPO SMT	174414
C5005, 06, 07 (1)	100pF 5% 50V NPO SMT	174412
C7102	4pF ±.25pF 50V NPO SMT	214757
C7103	22pF 5% 50V NPO SMT	194903
C7104	120pF 5% 50V NPO SMT	194902
C7105	.75pF ±.25pF 50V NPO SMT	214758
C7108	27pF 5% 50V N750 SMT	214760
C7113	100pF 5% 50V NPO SMT	193340
C7118	22pF 5% 50V NPO SMT	194903
C7124	27pF 5% 50V NPO SMT	197604
C7127	120pF 5% 50V NPO SMT	194902
C7136	75pF 5% 50V NPO SMT	192061
C7139	20pF 2% 50V N220 SMT	214761
C7140	4pF ±.5pF 50V NPO SMT	194901
C7301, 02	1.5pF ±.1pF 50V NPO SMT	223146
C7304	68pF 2% 50V NPO SMT	214762
C7305	39pF 2% 50V NPO SMT	215556
C7306	68pF 2% 50V NPO SMT	214762
C7307	10pF 5% 50V NPO SMT	214740
C7308	5.6pF ±.25pF 50V N750 SMT	214764
C7309	10pF 2% 50V NPO SMT	214765
C7310	8pF ±.5pF 50V N750 SMT	214766
C7311	5pF ±.5pF 50V NPO SMT	193917
C7312	3pF ±.5pF 50V NPO SMT	214767
C7313	10pF 5% 50V NPO SMT	241740
C7316	8pF ±.5pF 50V NPO SMT	194909
C7322	68pF 2% 50V NPO SMT	214762
C7323	7pF 2% 50V NPO SMT	214768
C7404, 05	68pF 5% 50V NPO SMT	193339
C7410, 11	10pF 5% 50V NPO SMT	214740
C7604	22pF 5% 50V NPO SMT	194903
C7605	27pF 5% 50V NPO SMT	197604
# For SAFETY use only equivalent replacement part.		
(1) Used in chassis CTC187BD.		

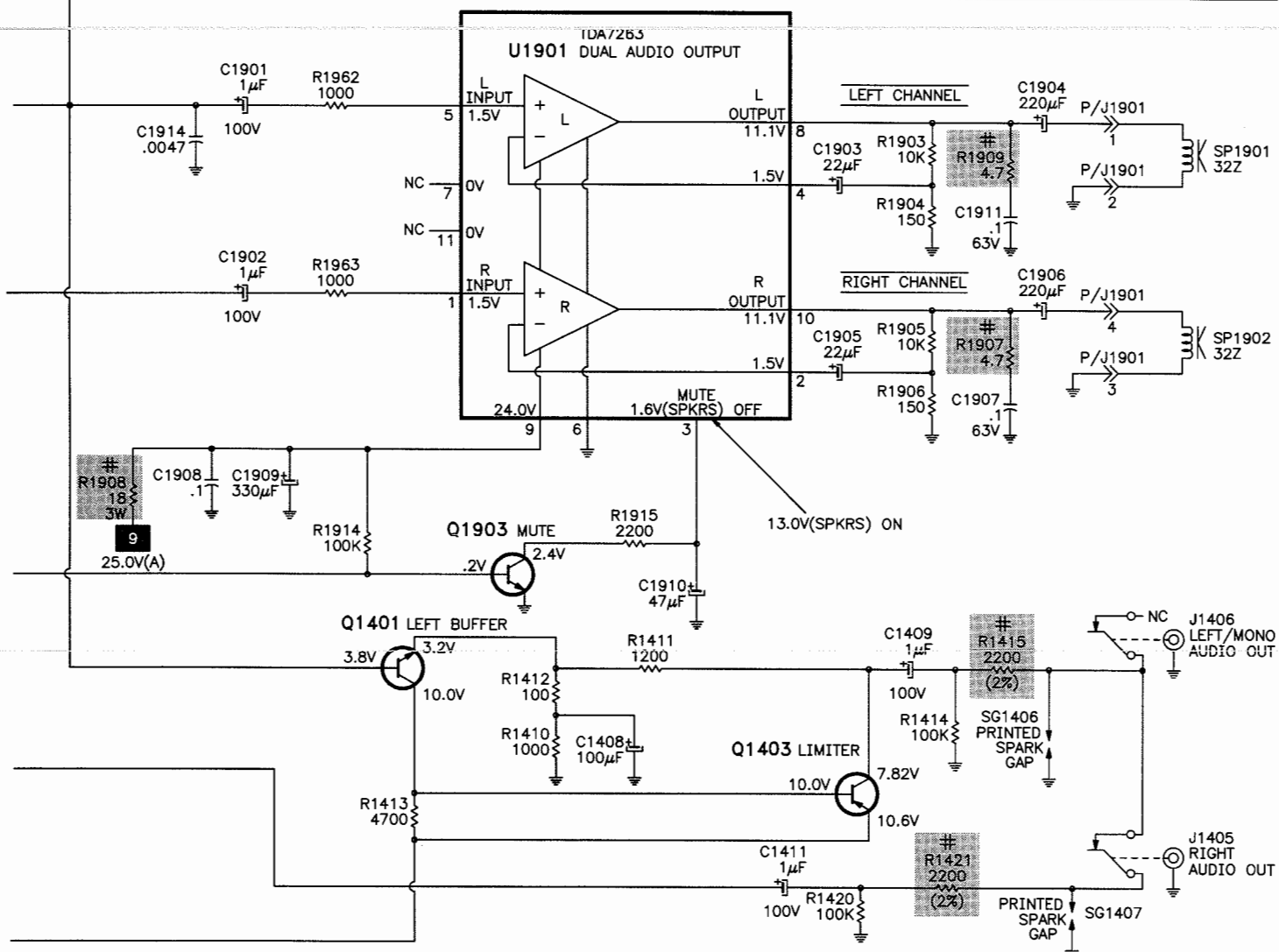
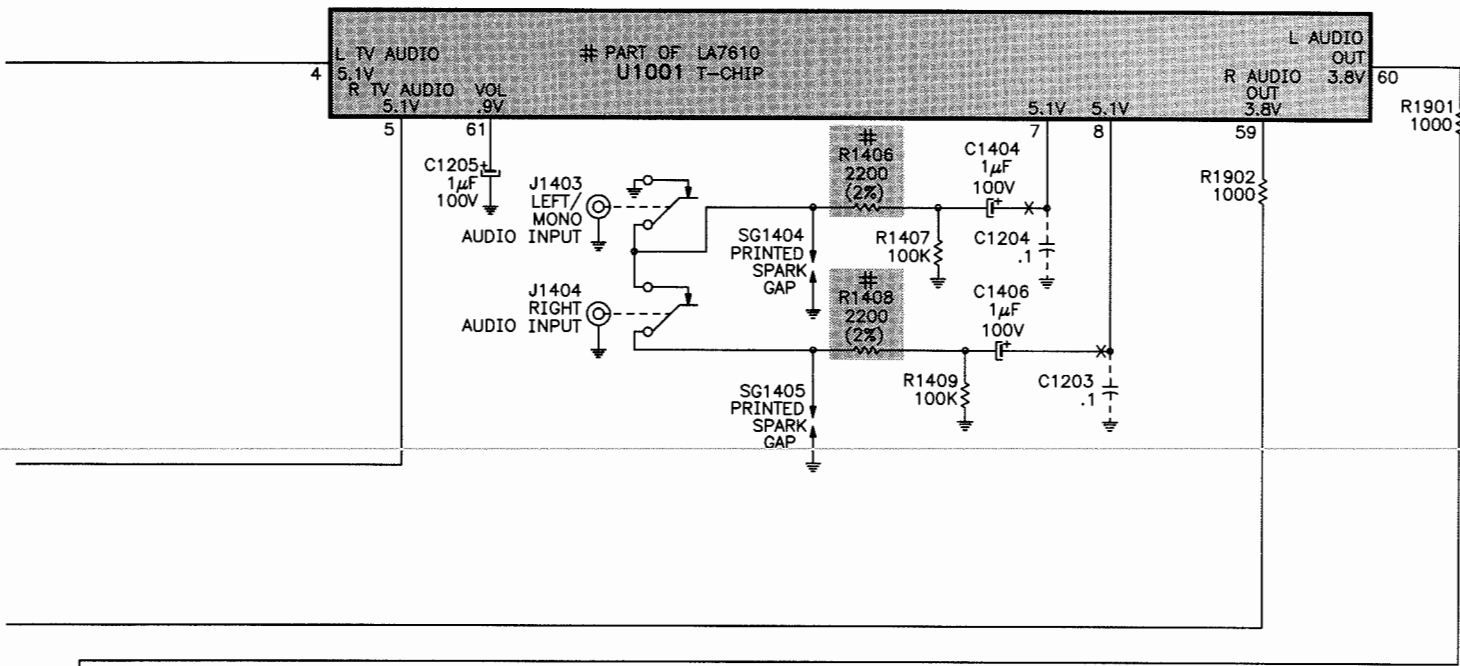
MISCELLANEOUS			
Item No.	Description	Mfr. Part No.	Notes
CF1201	Filter	195702	4.5MHz
# F4001	Fuse	175425	5Amp, 125V, Fast Acting
FL2651 (2)	Filter	225701	Comb Filter
FL7102	Filter	181470	High Pass
IR3401	Receiver	218379	Remote
IR3401 (2)	Receiver	198606	Remote
J1401, 03, 04	Jack	215544	Assembly
J1405, 06	Jack	215545	Assembly
# K4201	Relay	190490	Degaussing
# KS5001	Socket	189986	CRT
# P101	Line Cord	215576	AC, Polarized
SF2301	Filter	217318	SAW
SP1901, 02	Speaker	183165	3" X 8", 32 Ohms
SP1901, 02 (3)	Speaker	225844	2 1/4" X 5", 32 Ohms
SP1901, 02 (4)	Speaker	193192	2 1/4" X 5", 32 Ohms
SW3410	Switch	207842	Channel Up
SW3410 (2)	Switch	215500	Channel Up
SW3411	Switch	207842	Power
SW3411 (2)	Switch	215500	Power
SW3420	Switch	207842	Channel Down
SW3420 (2)	Switch	215500	Channel Down
SW3421	Switch	207842	Volume Up
SW3421 (2)	Switch	215500	Volume Up
SW3430	Switch	207842	Menu
SW3430 (2)	Switch	215500	Menu
SW3431	Switch	207842	Volume Down
SW3431 (2)	Switch	215500	Volume Down
SW3441	Switch	207842	+
SW3451	Switch	207842	-
# V101	CRT	A68AEG151	A68AEG15X01
# V101 (3)	CRT	A68AEG351	A68AEG35X01
# V101 (4)	CRT	A68AEG101	A68AEG10X01
Y2801	Crystal	161235	3.58MHz
Y2901	Crystal	197652	14.318MHz
Y3101	Crystal	217322	8MHz
Y7401	Crystal	182839	4MHz
	Fuse Holder	176642	For F4001 (2 Used)
	PC Board (1)	225756	CRT
	PC Board (1)(2)	225755	CRT
	PC Board (1)	223910	DBX Stereo
	PC Board (1)(2)	223955	DBX Stereo/Comb Filter
	PC Board (1)	220841	Front Panel Assembly
	PC Board (1)	223943	Pin Correction
	Transmitter	221132	Remote (CRK74A1)
	Transmitter (5)	221133	Remote (CRK74B1)
# For SAFETY use only equivalent replacement part.			
(1) Contact PTS Electronics Corporation for replacement; order by manufacturer's part number.			
(2) Used in chassis CTC187BD.			
(3) Used in models F27672ETFE1/JX1.			
(4) Used in model F27673SEFE1.			
(5) Used in model G27666ATLM1.			

CABINET PARTS	
Item No.	Mfr. Part No.
Models F27672ETFE1/JX1	
# Cabinet Back	BK1747
# Mask	MK1748
Model F27673SEFE1	
# Cabinet Back	BK1515
# Mask	MK1749
Models G27666ATLM1, G27688ATDY1/L M1	
# Cabinet Back	BK1753
# Mask	MK1752
Model G27684HPKF1	
# Cabinet Back	BK1517
# Mask	MK1498
Model G27688HPLF1	
# Cabinet Back	BK1519
# Mask	MK1500
Remote Transmitter	
Battery Door	224263
# For SAFETY use only equivalent replacement part.	

RCA

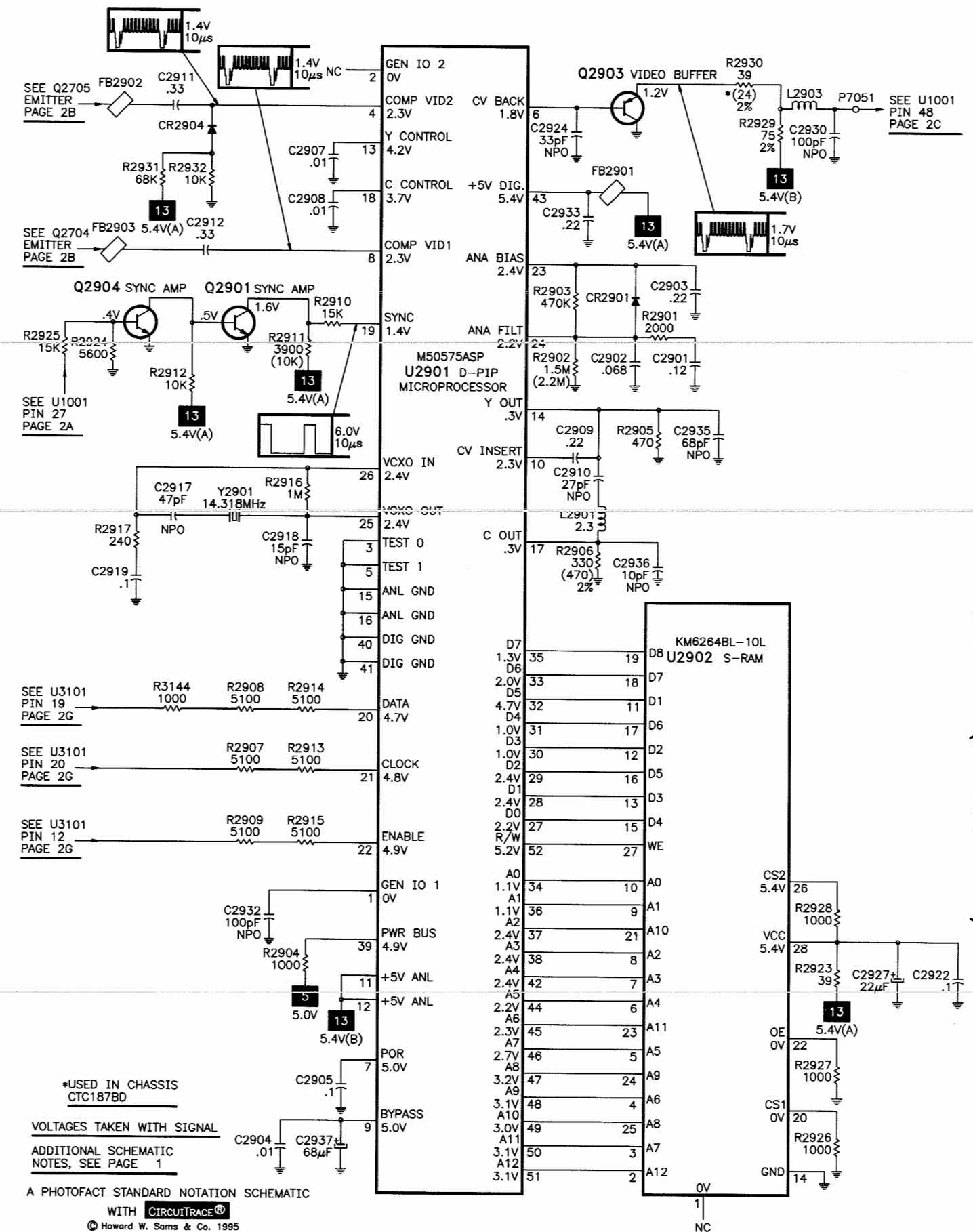
MODEL G27684HPKF1 (CHASSIS CTC187BG)

AUDIO SCHEMATIC continued



G

PIP SCHEMATIC



H


RCA

MODEL G27684HPK1 (CHASSIS CTC187BG)

PARTS LIST continued

CONTROLS & RESISTORS			
Item No.	Function/Rating	Mfr. Part No.	NTE Part No.
# R1401, 02	75 5% 1/4W	175756	QW075
# R1403	100 5% 1/4W	149602	QW110
# R1404	75 5% 1/4W	175756	QW075
# R1405	100 5% 1/4W	149602	QW110
# R1406, 08	2200 5% 1/4W	-	QW222
	2200 2% 1/4W Nonflammable	829222	QW222
# R1415, 21	2200 5% 1/4W	-	QW222
	2200 2% 1/4W Nonflammable	829222	QW222
# R1422	22 5% 1/4W	-	QW022
	22 2% 1/4W Nonflammable	829022	QW022
R1601	43.2K 1% 1/10W SMT	225704	-
R1602	61.9K 1% 1/10W SMT	225705	-
	63.9K 1% 1/10W SMT	-	-
# R1907	4.7 5% 1/4W	200197	QW4D7
# R1908	18 5% 3W	181234	3W018
# R1909	4.7 5% 1/4W	200197	QW4D7
R2656 (1)	1300 2% 1/10W SMT	205340	-
R2660 (1)	270 2% 1/10W SMT	197623	-
R2704	1000 2% 1/10W SMT	197638	-
R2705	1500 2% 1/10W SMT	197628	-
# R2709	27K 5% 1/2W	206037	HW327
R2721	1500 2% 1/8W SMT	181482	-
R2722	1000 2% 1/10W SMT	197638	-
R2728	470K 2% 1/10W SMT	205381	-
R2729	240K 2% 1/8W SMT	215687	-
R2732	1000 1% 1/4W	179753	-
R2801	15K 1% 1/10W SMT	215198	-
R2802	15.8K 1% 1/10W SMT	215199	-
	15.4K 1% 1/10W SMT	-	-
R2906	330 2% 1/10W SMT	195929	-
	470 2% 1/10W SMT	-	-
# R2921	15 5% 2W	215202	2W015
R2929	75 2% 1/10W SMT	197629	-
R2930	39 2% 1/10W SMT	205322	-
R2930 (1)	24 2% 1/10W SMT	205317	-
R3343	5100 2% 1/4W	175417	QW251
# R4001	2.7 10% 15W Wirewound	190487	-
# R4002	2.7M 10% 1/2W	217662	HW527
# R4113	75 5% 2W Wirewound	205066	-
# R4135	27 2% 1/2W	830027	HW027
R4303	5100 2% 1/4W	175417	QW251
R4305	4700 5% 3W	175368	3W247
# R4401	15K 5% 1W	190557	1W315
# R4403	820 5% 1W	175349	1W182
# R4507	1.5 5% 1W	178619	1W1D5
# R4511	1 10% 2W Wirewound	215577	-
# R4701	10 2% 1/2W Nonflammable	830010	HW010
# R4702	2.2 5% 2W Wirewound	215211	-
# R4703	3.3 5% 3W Wirewound	195730	-
# R4704	82K 5% 1/2W	830382	HW382
# R4705	100 5% 1/4W	829110	QW110
# R4852	390 5% 1/2W	175769	HW139
R4854	27.4K 1% 1/4W	-	-
	41.2K 1% 1/4W	176500	-
R4855	36K 2% 1/4W	175416	QW336
R4856	1300 2% 1/4W	203745	QW213
R4857	220K 2% 1/4W	179963	QW422
R4858	270K 2% 1/4W	179958	QW427
R4859	30K 2% 1/4W	-	QW330
	30K 5% 1/4W	175046	QW330
# For SAFETY use only equivalent replacement part.			
(1) Used in chassis CTC187BD.			

CONTROLS & RESISTORS continued			
Item No.	Function/Rating	Mfr. Part No.	NTE Part No.
R4861, 62	10K 2% 1/4W	175317	QW310
R4863	200K 2% 1/4W	181226	QW420
R4865	40.2K 1% 1/4W	219026	-
R4869, 70	30K 2% 1/4W	175046	QW330
R4871	100K 2% 1/4W	175044	QW410
R4872	4700 2% 1/4W	175413	QW247
R4873	100K 2% 1/4W	175044	QW410
# R4901	100 5% 1/4W	829110	QW110
# R4902	26.7K 1% 1/4W	196081	-
# R4903	39.2K 1% 1/4W	190469	-
# R4904	10K 5% 1/4W	175317	QW310
# R4905	5100 2% 1/4W	175417	QW251
R5001, 02, 03	10K % 2W Nonflammable	176656	2W310
R7401	191K 1% 1/10W SMT	215214	-
R7408	37.4K 1% 1/10W SMT	215215	-
R7411	1M 1% 1/10W SMT	215216	-
R7501, 02, 03	10K 1% 1/10W SMT	215217	-
R7504, 05, 06	26.1K 1% 1/8W SMT	215218	-
R7507	14.3K 1% 1/10W SMT	215219	-
R7508	453 1% 1/8W SMT	215220	-
R7509	15.8K 1% 1/10W SMT	215199	-
R7510	100K 1% 1/10W SMT	215221	-
R7512	15.8K 1% 1/4W	181121	-
R7513	100K 1% 1/10W SMT	215221	-
R7515	15.8K 1% 1/4W	181121	-
R7516	100K 1% 1/10W SMT	215221	-
RN4501	Resistor Network	215499	-
# RT4201	4.8 Cold PTC	207768	-
# For SAFETY use only equivalent replacement part.			



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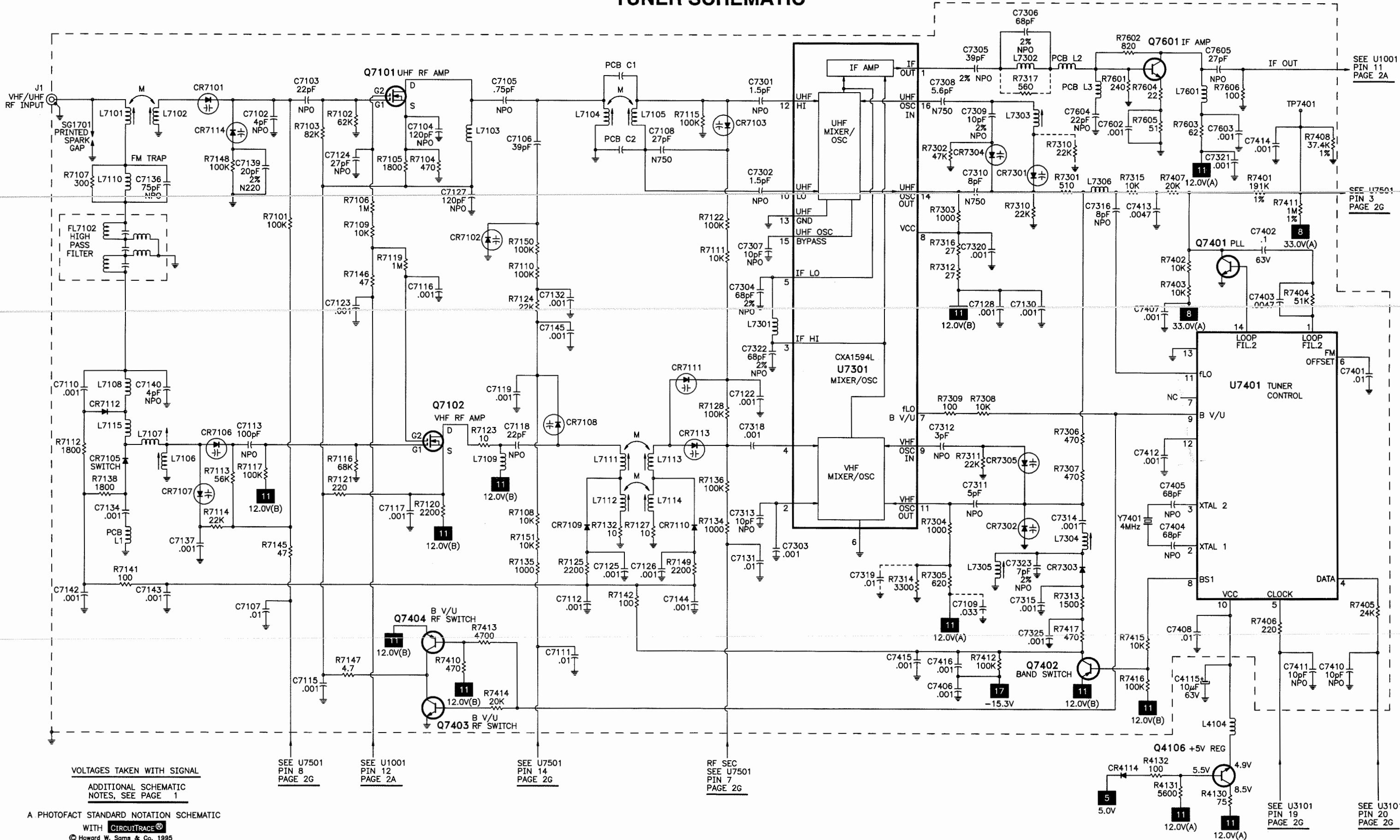
J. Barker, N. Beck, B. Bryant,
B. Buchanan, T. Clensy,
D. Cobb, G. Farrell, B. Fink,
M. Herkless, J. Kocha,
F. Malek, B. Medaris,
R. Raus, B. Skinner, J. Young

COILS & TRANSFORMERS			
Item No.	Function/Rating	Mfr. Part No.	On-Unit No.
FB2901 Thru			
FB2903	Ferrite Bead	153328	-
FB3101, 03, 04	Ferrite Bead	153328	-
FB4102	Ferrite Bead	161237	-
FB4106, 07	Ferrite Bead	154322	-
FB4108, 09	Ferrite Bead	154042	-
FB4110, 11	Ferrite Bead	215546	-
FB4112, 13	Ferrite Bead	154042	-
FB4401	Ferrite Bead	161237	-
FB4402	Ferrite Bead	206390	-
FB4501	Ferrite Bead	215547	-
L2302	VCO	215502	-
L2304	2.2µH	197616	-
L2701, 02, 03	2.2µH	197616	-
L2704	10µH	175409	-
L2901	82µH	215503	-
L2903	.68µH	215548	-
L3101	10µH	161243	-
L3102	100µH	160186	-
# L4000 (1)	Yoke 110° Horiz .95mH Vert 20.8mH	-	2G27007-03A
# L4001	Line Choke	190507	IC59100-028
L4101	10µH	175409	-
L4102	22µH	215504	-
L4103, 04	10µH	175409	-
L4201	Degaussing	212229	-
L4401	4µH	215505	-
# L4402	29µH, Horizontal Linearity	196064	-
L4801	360µH	215506	-
# L4853	820µH	215536	-
L5001	120µH	195750	-
L5002, 03, 04	56µH	196107	-
L7101	-	215507	-
L7102	-	215508	-
L7103	-	223929	-
L7104	-	223917	-
L7105	-	223917	-
L7106	-	215509	-
L7107	-	215510	-
L7108	-	215511	-
L7109	3.9µH	200559	-
L7110	-	223288	-
L7111	-	215512	-
L7112	-	215513	-
L7113	-	215514	-
L7114	-	215513	-
L7115	-	215515	-
L7301	-	223928	-
L7302	-	223930	-
L7303	-	215516	-
L7304	-	223920	-
L7305	-	215517	-
L7306	-	215554	-
L7601	.0068µH	195708	-
# T4101	Regulator SMT	221948	2G25025-B1A
# T4301	Horizontal Driver	215541	30949060
# T4401 (2)	Horizontal Output	215540	2G25027-A2F
# For SAFETY use only equivalent replacement part.			
(1) Bonded part of CRT. Yoke impedance for CRT A68AEG15X01 only.			
(2) Focus and screen controls are part of T4401.			

A

TUNER SCHEMATIC

B



PARTS LIST

Important Parts Information

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

Obtaining Parts

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

800-428-7267

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

Participating Vendors

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

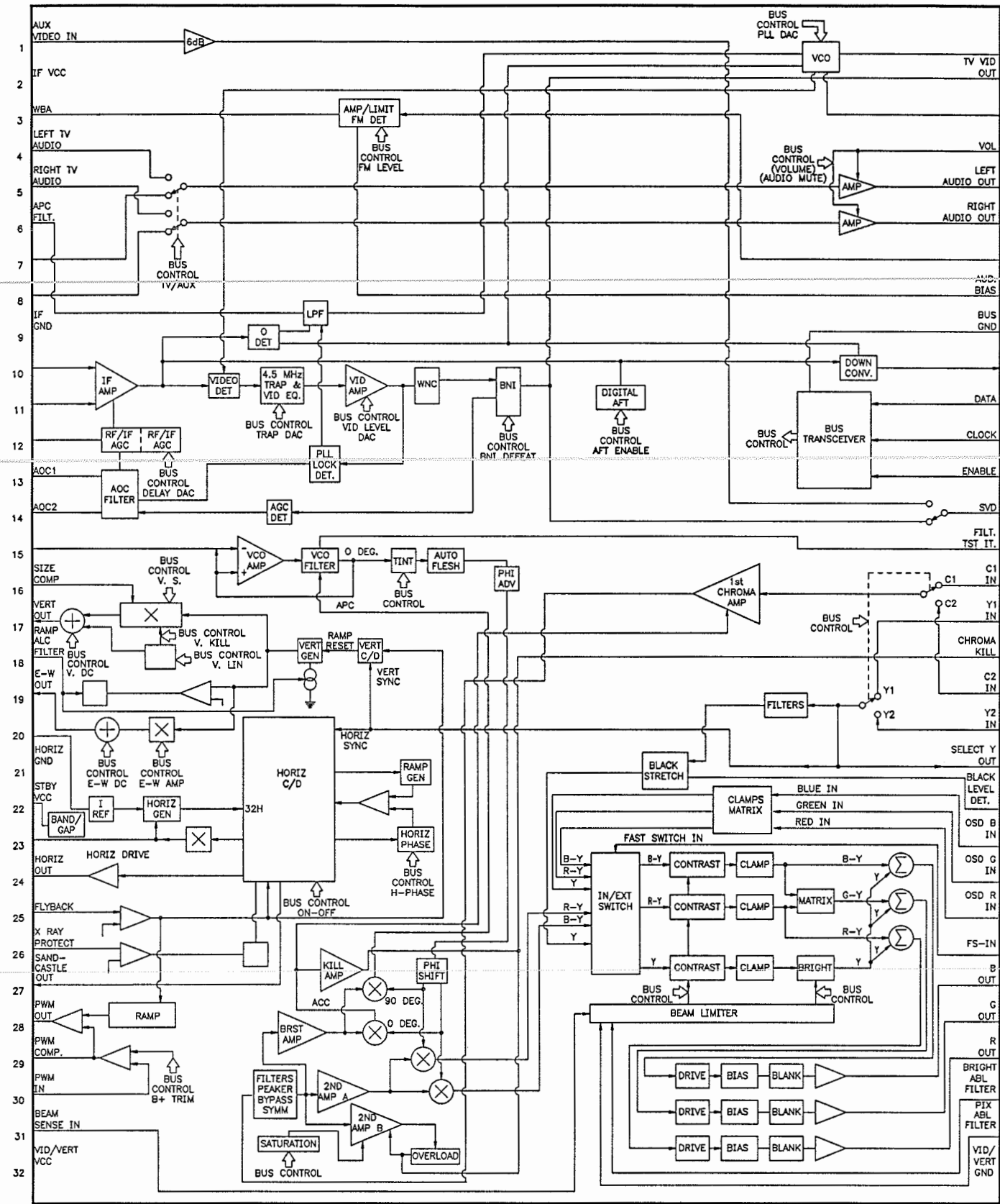
- Custom Components Corporation (Chek-A-Color)
- NTE Electronics, Inc. (NTE)
- Philips ECG Company (ECG)
- PTS Electronics Corporation (PTS)
- Sencore, Inc.
- Thomson Consumer Electronics, Inc. (SK, TCE)

SEMICONDUCTORS					
(Select the replacement that gives the best results.)					
Item No.	Type No.	Mfr. Part No.	NTE Part No.	ECG Part No.	TCE Part No.
CR1401, 02, 03	-	215487	-	-	-
CR1404	-	164717	NTE519	ECG519	SK3100
CR1600	-	225702	-	-	-
CR1601	-	164717	NTE519	ECG519	SK3100
CR2702	-	164717	NTE519	ECG519	SK3100
CR2901	-	164717	NTE519	ECG519	SK3100
CR2902	-	164874	NTE177	ECG177	SK9091
CR2903	-	164717	NTE519	ECG519	SK3100
CR2904	-	201133	-	-	-
CR3102, 10	-	201133	-	-	-
CR3111	-	218987	-	-	-
CR3301	-	164717	NTE519	ECG519	SK3100
CR3302	-	201133	-	-	-
CR3303	-	223659	-	-	-
CR4001 Thru	-	-	-	-	-
CR4004	-	147015	NTE125	ECG125	SK5010A
CR4101	-	164874	NTE177	ECG177	SK9091
CR4102	-	176296	NTE125	ECG125	SK5010A
CR4103	-	164717	NTE519	ECG519	SK3100
CR4104	-	215488	-	-	-
CR4106	-	164589	NTE558	ECG558	SK3998
CR4107	-	164590	NTE580	ECG580	SK5036
CR4108	-	217306	-	-	-
CR4109	-	215490	-	-	-
CR4111	-	176296	NTE125	ECG125	SK5010A
CR4112	-	140971	NTE552	ECG552	SK9000
CR4113	-	176296	NTE125	ECG125	SK5010A
CR4114	-	164874	NTE177	ECG177	SK9091
CR4115	-	215491	-	-	-
CR4201	-	164717	NTE519	ECG519	SK3100
CR4302	-	164717	NTE519	ECG519	SK3100
CR4303	-	176296	NTE125	ECG125	SK5010A
# CR4401	-	140971	NTE552	ECG552	SK9000
CR4402	-	198596	-	-	-
CR4403	-	164589	NTE558	ECG558	SK3998
CR4501	-	147015	NTE125	ECG125	SK5010A
CR4701	-	207878	-	-	-
CR4702	-	176296	NTE125	ECG125	SK5010A
CR4704	-	207878	-	-	-
CR4705	-	176296	NTE125	ECG125	SK5010A
CR4851	-	176296	NTE125	ECG125	SK5010A
CR4853	-	164874	NTE177	ECG177	SK9091
# CR4901	-	157301	NTE177	ECG177	SK9091
# CR4902	-	159429	NTE5019T1	ECG5019T1	SK9970
CR7101	-	215492	-	-	-
CR7102, 03 (1)	-	-	-	-	-
CR7105	-	215493	-	-	-
CR7106	-	215494	-	-	-
CR7107, 08 (2)	-	-	-	-	-
CR7109, 10	-	215493	-	-	-
CR7111 (2)	-	-	-	-	-
CR7112	-	215493	-	-	-
CR7113 (2)	-	-	-	-	-
CR7114 (1)	-	-	-	-	-
CR7301 (1)	-	-	-	-	-
CR7302 (2)	-	-	-	-	-
CR7303	-	215493	-	-	-
CR7304 (1)	-	-	-	-	-
CR7305 (2)	-	-	-	-	-
# For SAFETY use only equivalent replacement part.					
(1) Part of CR7101 diode kit.					
(2) Part of CR7106 diode kit.					

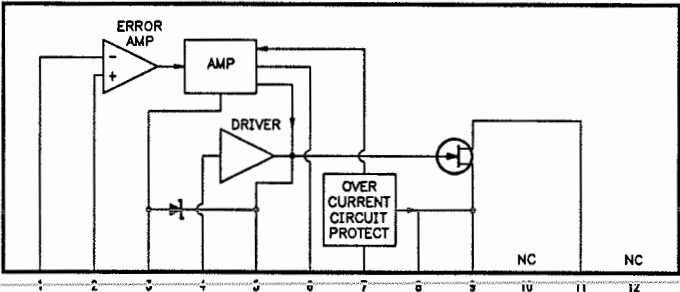
SEMICONDUCTORS continued					
(Select the replacement that gives the best results.)					
Item No.	Type No.	Mfr. Part No.	NTE Part No.	ECG Part No.	TCE Part No.
Q1401, 02	-	215495	-	-	-
Q1403, 04	-	215496	-	-	-
Q1405	-	215495	-	-	-
Q1601	-	192849	-	-	-
Q1901 Thru	-	-	-	-	-
Q1903	-	215495	-	-	-
Q2301	-	215495	-	-	-
Q2651	-	223704	-	-	-
Q2701 Thru	-	-	-	-	-
Q2705	-	215496	-	-	-
Q2901	-	215495	-	-	-
Q2903	-	215496	-	-	-
Q2904	-	215495	-	-	-
Q3101	-	215495	-	-	-
Q3102	-	215496	-	-	-
Q3301	-	215496	-	-	-
Q3302	-	223704	-	-	-
Q3303	-	215496	-	-	-
Q3304	-	215495	-	-	-
Q3305	-	215496	-	-	-
Q4101	-	157627	NTE54	ECG54	SK9366
Q4103	-	223704	-	-	-
Q4105	-	146851	NTE287	ECG287	SK3433
Q4106	-	215495	-	-	-
Q4301	-	146851	NTE287	ECG287	SK3433
Q4302	-	215495	-	-	-
Q4401	-	223942	-	-	-
Q4804	-	223704	-	-	-
Q4805	-	219025	-	-	-
Q4806	-	223704	-	-	-
Q4851	-	200168	-	-	-
# Q4901	-	147665	NTE159	ECG159	SK3466
Q5001 Thru	-	-	-	-	-
Q5003	2SC3619	215497	NTE157	ECG157	SK3747
Q5004	-	143806	NTE159	ECG159	SK3466
Q7101, 02	-	200566	-	-	-
Q7401	-	215495	-	-	-
Q7402	-	215496	-	-	-
Q7403	-	215495	-	-	-
Q7404	-	215496	-	-	-
Q7501, 02	-	215495	-	-	-
Q7601	-	146848	NTE229*	ECG229*	SK3246A*
# U1001	LA7610	215524	-	-	-
U1600	CXA1734S	225700	-	-	-
U1601	TL082CN	223806	-	-	-
U1901	TDA7263	215526	-	-	-
U2901	M50575ASP	204279	-	-	-
U2902	KM6264BL-10L	204280	-	-	-
U2903	L7805ACV	215528	-	-	-
U3101	-	223909	-	-	-
U3201	24C02CB1	223941	-	-	-
U3201 (3)	-	225688	-	-	-
U4101	STK730-010	215530	-	-	-
U4102	L7812CV	162394	NTE966	ECG966	SK3592
U4501	TDA8172	215531	NTE1788	ECG1788	SK9875
U4851	LM311N	200420	NTE922M	ECG922M	SK3668
U7301	CXA1594L	215532	-	-	-
U7401	-	215533	-	-	-
U7501	-	215534	-	-	-
# For SAFETY use only equivalent replacement part.					
* Lead configuration may vary from original.					
(3) Used in chassis CTC187BD.					

IC FUNCTIONS

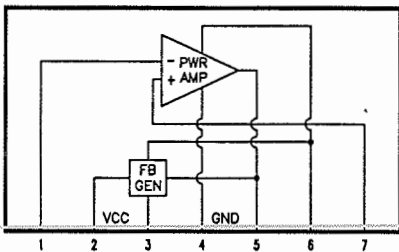
U1001
LA7610



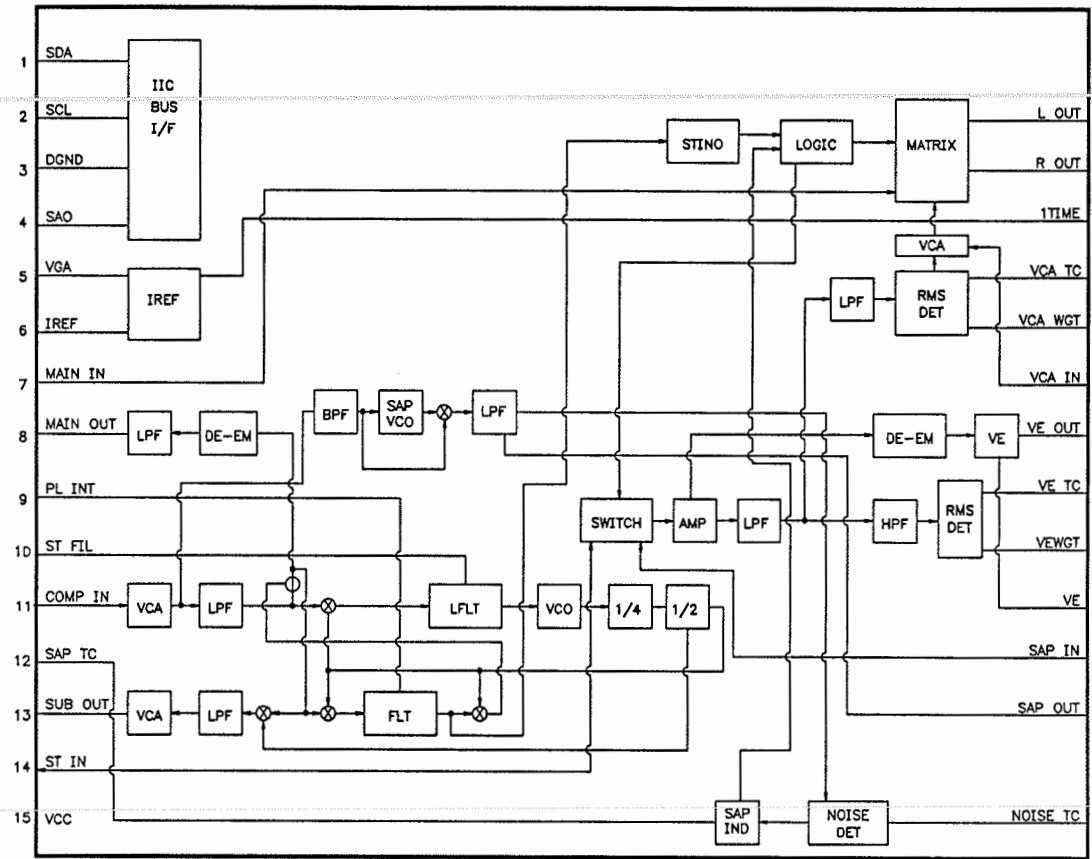
U4101
STK730-010



U4501
TDA8172



U1600
CX1734S



PLACEMENT CHART

