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 VOLTAGEAND 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.

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.

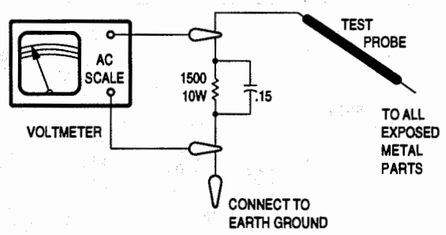
SAFETY CHECKS -- FIRE AND SHOCK HAZARD

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.



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

HIGH VOLTAGE SHUTDOWN TEST

Apply 120VAC. Momentary short pin XRP1 to XRP2. The receiver should lose raster and sound. If the receiver does not shutdown, the high voltage shutdown circuit should be repaired. To resume normal operation, remove AC power and wait 30 seconds, then turn the receiver on.

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PHOTOFACT® Technical Service Data

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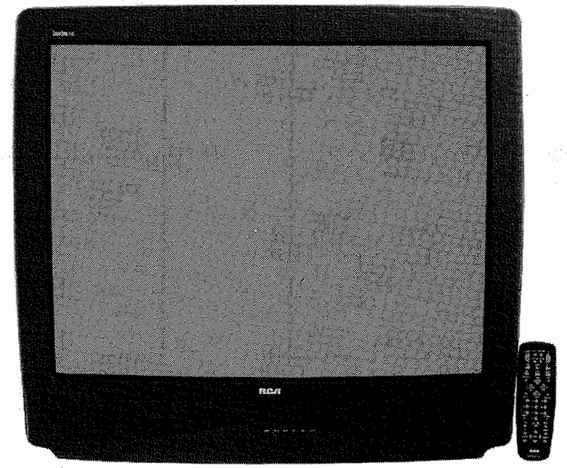
For Supplier Address,
See PHOTOFACT Annual Index

RCA

Models F35673MBFM1/JX1 (Chassis CTC187CL3)



Model F35673MBFM1

Essential coverage for servicing a television receiver...

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

Coverage includes these additional models and chassis:

MODEL	CHASSIS
F32672SBFM1/JX1	CTC187CL3
G32681ATLM1	CTC187CL3
G35781ATLM1	CTC187CL3

HOWARD W. SAMS & COMPANY

JUNE 1996 SET 3672

3672

MISCELLANEOUS ADJUSTMENTS

PRETUNING

NOTE: All procedures require an antenna or cable 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 28kV to 30kV.

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.

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	Value	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	16	Adjust for stable or slowly moving horizontal lines.
02	Horizontal phase	00 - 15	8	Adjust to center picture left to right.
03	EW DC (Width)	00 - 15	1	Adjust for 1/2 inch overscan.
04	EW amplitude	00 - 07	1	Tune in a crosshatch pattern and adjust for straight vertical lines on left and right of screen.
05	Vertical DC	00 - 15	8	Adjust to center picture top to bottom.
06	Vertical size	00 - 31	16	Adjust to 1/4" overscan top and bottom of screen.
07	Red bias	00 - 127	35	Press menu button for setup line.
08	Green bias	00 - 127	32	Press menu button for setup line.
09	Blue bias	00 - 127	52	Press menu button for setup line.
10	Red drive	00 - 63	32	Press menu button for setup line.
11	Green drive	00 - 63	33	Press menu button for setup line.
12	Blue drive	00 - 63	29	Press menu button for setup line.

CHASSIS ALIGNMENT PARAMETERS

Parameter No.	Parameter Name	Value Range	Value	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	31	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	4	Short junction of R7130 and R2313 to ground. Apply 45.75MHz (300mV) and 41.25 MHz (100mV) to pin 1 of SF2301. Connect an oscilloscope to pin 63 of U1001, and adjust value for minimum 4.5MHz sinewave.
16	Video level	00 - 07	6	Tune in a color bar pattern, 100% modulation, super pulse display. Connect oscilloscope to pin 63 of U1001. Adjust value range to produce 2Vp-p response.
17	FM level	00 - 15	7	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, and adjust value range for 1.2Vp-p of 1kHz component.
18	B+ trim	00 - 15	7	CTC175 only.
19	RF AGC (1)	00 - 31	19	Manually tune channel 6.
20	D-PIP chroma	00 - 127	63	Adjust to match main picture.
21	D-PIP tint	00 - 255	25	Adjust to match main picture.
22	D-PIP brightness	00 - 31	16	Adjust to match main picture.
23	D-PIP contrast	00 - 63	16	Adjust to match main picture.
24	Factory tint	00 - 63	30	-
25	Input level	00 - 15	9	Refer to Stereo Adjustments.
26	Stereo VCO	00 - 63	25	Refer to Stereo Adjustments.
27	SAP VCO	00 - 15	10	Set value to 9.
28	SAP low pass filter	00 - 63	21	Set value to 30.
29	SAP band pass filter	00 - 15	8	Set value to 9.
30	Spectral Separation	00 - 63	38	Refer to Stereo Adjustments.
31	Spectral Separation	00 - 63	40	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.

MISCELLANEOUS ADJUSTMENTS continued

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
32	Pass number for tuner alignment parameters	Must set to 78
100	Ch. 2 secondary	00-63
101	Ch. 2 primary	00-63
102	Ch. 2 single	00-63
103	Ch. 6 secondary	00-63
104	Ch. 6 primary	00-63
105	Ch. 6 single	00-63
106	Ch. 14 secondary	00-63
107	Ch. 14 primary	00-63
108	Ch. 14 single	00-63
109	Ch. 17 secondary	00-63
110	Ch. 17 primary	00-63
111	Ch. 17 single	00-63
112	Ch. 18 secondary	00-63
113	Ch. 18 primary	00-63
114	Ch. 18 single	00-63
115	Ch. 13 secondary	00-63
116	Ch. 13 primary	00-63
117	Ch. 13 single	00-63
118	Ch. 34 secondary	00-63
119	Ch. 34 primary	00-63
120	Ch. 34 single	00-63
121	Ch. 37 secondary	00-63
122	Ch. 37 primary	00-63
123	Ch. 37 single	00-63
124	Ch. 48 secondary	00-63
125	Ch. 48 primary	00-63
126	Ch. 48 single	00-63

Parameter No.	Parameter Name	Value Range
127	Ch. 50 secondary	00-63
128	Ch. 50 primary	00-63
129	Ch. 50 single	00-63
130	Ch. 51 secondary	00-63
131	Ch. 51 primary	00-63
132	Ch. 51 single	00-63
133	Ch. 57 secondary	00-63
134	Ch. 57 primary	00-63
135	Ch. 57 single	00-63
136	Ch. 63 secondary	00-63
137	Ch. 63 primary	00-63
138	Ch. 63 single	00-63
139	Ch. 76 secondary	00-63
140	Ch. 76 primary	00-63
141	Ch. 76 single	00-63
142	Ch. 83 secondary	00-63
143	Ch. 83 primary	00-63
144	Ch. 83 single	00-63
145	Ch. 93 secondary	00-63
146	Ch. 93 primary	00-63
147	Ch. 93 single	00-63
148	Ch. 110 secondary	00-63
149	Ch. 110 primary	00-63
150	Ch. 110 single	00-63
151	Ch. 117 secondary	00-63
152	Ch. 117 primary	00-63
153	Ch. 117 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 input 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 ± 50mVp-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 ± 200Hz.

WIDEBAND/SPECTRAL SEPARATION

Set volume to midrange. Set stereo generator to pilot, 300Hz and Left. 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.

TUNER CIRCUIT VOLTAGE CHART

Pin No.	VHF Low Band	VHF High Band	UHF Band
U7301			
1	5.4V	5.4V	5.3V
2	2.9V	3.0V	3.2V
3	7.8V	7.7V	7.6V
4	3.0V	3.0V	3.2V
5	7.8V	7.7V	7.6V
6	0V	0V	0V
7	3.0V	3.0V	0V
8	9.0V	9.0V	8.8V
9	3.0V	3.0V	3.3V
10	3.3V	3.2V	2.9V
11	4.4V	5.1V	9.7V
12	3.3V	3.2V	2.9V
13	0V	0V	0V
14	9.1V	9.0V	5.4V
15	3.4V	3.4V	2.9V
16	3.4V	3.4V	2.9V
U7401			
1	1.9V	1.8V	1.7V
2	3.4V	3.4V	3.4V
3	4.6V	4.9V	4.9V
4	4.8V	4.8V	4.8V
5	4.7V	4.7V	4.7V
6	0V	0V	0V
7	3.7V	3.6V	3.7V
8	11.5V	0V	0V
9	7.4V	7.4V	0V
10	4.8V	4.8V	4.8V
11	2.0V	2.0V	2.0V
12	2.0V	2.0V	2.0V
13	0V	0V	0V
14	.6V	.6V	.6V

Pin No.	VHF Low Band	VHF High Band	UHF Band
U7501			
1	1.3V	1.7V	1.8V
2	1.3V	1.7V	1.8V
3	1.4V	1.6V	1.8V
4	33.0V	33.0V	33.0V
5	1.1V	1.5V	1.6V
6	1.1V	1.5V	1.6V
7	1.4V	4.0V	4.8V
8	1.2V	4.0V	4.0V
9	1.0V	1.4V	1.5V
10	1.0V	1.4V	1.5V
11	0V	0V	0V
12	1.1V	1.4V	1.5V
13	1.1V	1.4V	1.5V
14	1.5V	3.4V	3.8V
Q7101			
G1	0V	0V	4.8V
G2	5.0V	6.5V	7.2V
D	.2V	.2V	11.3V
S	.2V	.2V	4.8V
Q7102			
G1	4.6V	4.6V	4.6V
G2	5.3V	6.8V	7.2V
D	11.3V	11.2V	11.4V
S	4.1V	4.2V	11.3V
Q7401			
E	0V	0V	0V
B	.6V	.6V	.6V
C	2.1V	3.8V	17.8V

Pin No.	VHF Low Band	VHF High Band	UHF Band
Q7402			
E	12.0V	12.0V	12.0V
B	11.3V	10.5V	10.6V
C	-14.9V	11.1V	11.2V
Q7403			
E	0V	0V	0V
B	.7V	.7V	0V
C	.1V	.1V	11.3V
Q7404			
E	12.0V	12.0V	12.0V
B	11.0V	10.9V	10.6V
C	.1V	.1V	11.3V

NOTE: Voltages on U7301, U7401, and U7501 taken with signal.

Voltages on Q7101, Q7102, and Q7401 thru Q7404 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.

-x- 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.

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)

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

TELEVISION SCHEMATIC

A

B

VOLTAGES TAKEN WITH SIGNAL

ADDITIONAL SCHEMATIC NOTES, SEE PAGE 1

A PHOTOFACT STANDARD NOTATION SCHEMATIC WITH CIRCUITRACE®

J1401 VIDEO INPUT

SG1401 PRINTED SPARK GAP

R1401 75

R1422 22 2%

C1405 .01

C1401 3.3µF 100V

CR1401 6.8V

C2722 .1

SEE U3101 PIN 20 PAGE 2G

SEE U3101 PIN 19 PAGE 2G

R1427 82

R3143 1000

R1201 680

R1203 4700

CF1201 4.5MHz FILTER

PART OF LA7610 U1001 T-CHIP AUDIO BIAS 6.0V

C1201 1µF 100V

JS7

R1609 11K

R1610 (R1630) 22K

SEE U1600 PIN 11 PAGE 3A

TAKEN WITH BAR SWEEP GENERATOR

2.7V 10µs

2.5V 10µs

IF SEE Q7601 COLLECTOR PAGE 3F

SF2301 SAW FILTER

R2301 620

C2301 .01

53 4.8V CLOCK

54 4.7V DATA

1 1.6V AUX VIDEO IN

55 3.5V BUS GND

56

PART OF LA7610 U1001 T-CHIP IF VCC 7.5V

TV IVDEO OUT 3.4V 63

SVD 3.3V 51

AGC2 5.1V 14

AGC1 5.1V 13

IF GND 9

APC 3.4V 6

2 7.5V

62 6.7V

64 6.7V

C2313 .022

R2316 330

C2302 470pF NPO

C2308 .022

C2312 .22

C2311 33µF

L2304

16 7.5V(A)

L2302

R2721 1500 2%

Q2705 VIDEO BUFFER 1.5V 2.1V

R2722 1000 2%

R2723 1000

16 7.5V(A)

SEE U2901 PIN 4 PAGE 3D

SEE Q2903 EMITTER PAGE 3D

E2601

FL2651 COMB FILTER 3.4V

C2656 120pF

C2655 .0056

E2603

P705

R2735 220

C2654 3.3µF

E2602

P705

R2734 51

1.5V 10µs

1.7V 10µs

1.5V 10µs

NPO R2658 1000

Q2651 9V REG 9.4V

C2652 68µF

C2651 .1

C2653 .068

R2656 1300 2%

R2660 270 2%

11 12.0V(C)

11 12.0V(C)

RF AGC RANGE 5.3V TO 7.9V

AGC SEE Q7101 G2 PAGE 3E

R7130 100

R2313 10K

R2315 68K

R2314 200K

C2306 .22 63V

11 12.0V(A)

Q2301 IF DEFEAT .1V

R3117 10K

R2302 10K

C3111 .001

R2312 820

C2307 .047

R2705 1500 2%

Q2704 VIDEO BUFFER 1.5V 2.1V

R2704 1000 2%

R2718 1000

16 7.5V(A)

SEE U2901 PIN 8 PAGE 3D

R2711 2000

C2718 220pF NPO

C3301 .01

R3399 220

Q3301 SYNC AMP 5.5V .6V

R3303 2.7M

5 5.0V

R3331 2200

R3302 24K

4.5V 10µs

SYNC

8.0V 10µs

PART OF LA7610 U1001 T-CHIP

FLYBACK 2.1V 25

PWM OUT 0V 28

PWM COMP. 3.7V 29

PWM IN 3.7V 30

HORIZ GND 21

1.0V 20

PROTECT X RAY 0V 26

E-W OUT 2.9V 19

SANDCASTLE OUT 1.2V 27

SIZE COMP. 6.4V 16

2.6V 23

STBY VCC 7.4V 22

HORIZ OUT 3.0V 24

VERT GND 33

RAMP ALC FILT 2.8V 18

VERT OUT 3.7V VID/VERT VCC 32

17

6.0V 10µs

7.4V 10µs

2.0V 5ms

2.4V 5ms

1.5V 5ms

30V 5ms

50V 5ms

FB4501

RN4501 51K 51K

R4516 10K

TDA8172 U4501 VERT OUTPUT 9.8V 8.8V 24.8V 25.5V 1.5V 13.0V

C4505 220µF

CR4501

R4511 2W

C4506 330µF 63V

C4507 .1

C3317 .01

R4507 1.5 1W

C4504 .22 100V

12 11.4V

16 7.5V(A)

9 25.0V(A)

15 7.5V

C4501 .1

C4503 .1

15 7.5V

R4312 7500

CR4302

16 7.5V(A)

R4313 10K

R4314 1000

C4312 100pF

R4302 22K

C4313 220pF NPO

R4303 5100 2%

R4901 100

XRP2 J4901 2

XRP1 J4901 1

R4907 20K

R4902 26.7K 1%

R4903 39.2K 1%

R4905 5100 2%

13.7V

13.4V

0V

Q4901 X RAY PROTECT

R4906 22K

C4904 .22

C4905 .001

CR4902 10.0V

23.5V

C4902 .1 63V

C4901 150pF 250V

CR4901

E4803

C4903 .33

C4903 .33µF

R4904 10K

R4109 1600

R4801 1000

E803

R2710 470

SEE Q2904 BASE PAGE 3D

C2706 33µF (22µF)

CR2702

R2702 7500

R4520 100

15 7.5V

R4523 100

C4307 1µF 100V

C4308 .022

R4307 3000

CR4115 9.1V

R4134 4.7

3 7.5V

R4311 1000

R4301 5600

R4308 100K

C4311 47pF NPO

R4310 1000

Q4302 HORIZ BUFFER 3.6V 3.8V

2 12.1V

R4304 4700

C4309 .0047

R4309 2400

C4303 470pF NPO

CR4303

C4302 .1

C4310 15pF 250V 1% NPO

Q4301 HORIZ DRIVE .1V 70.0V

C4304 470pF 250V

1.5V 10µs

180V 10µs

28V 5ms

Q4401 HORIZ OUT .8V 139V

FB4401

T4301

L4401

C4401 470pF NPO

R4402 22

C4406 470pF 2KV N1500

C4305 .0022 250V

R4306 12K

C4306 .047 250V

R4305 4700 3W

1 140V

NC 38.5

16V 10µs

A1

A2

A3

A

TELEVISION SCHEMATIC continued

TAKEN WITH CHROMA BAR SWEEP GENERATOR

J1402 SVHS INPUT

SG1403 PRINTED SPARK GAP

SG1402 PRINTED SPARK GAP

R1403 100 C1402 3.3µF 100V CR1403 6.8V C2723 .1

R1402 75 R1405 100 C1403 .001 CR1402 6.8V C2804 .001

R1404 75

R2804 220 R2802 15.8K 1% C2801 1µF 100V R2801 15K 1% C2806 .1

C2705 22µF 100V C2705 2.2µF 100V

C2703 1µF 100V

C2702 4.7µF 100V R2703 390K

R1426 220 R1425 (R4125) 82

PART OF LA7610 U1001 T-CHIP

C1 IN 3.1V | SELECT Y OUT 4.0V | OSD G IN 5.5V | OSD B IN 5.4V | OSD R IN 5.4V | FS-IN 0V | PIX ABL FILTER 2.3V | BEAM ENABLE 4.7V | SENSE IN 6.4V | GREEN OUT 3.0V | RED OUT BLUE OUT 3.0V

Y2801 3.58MHz C2803 16pF 2% NPO R2803 750

R3330 10 R3329 2700 R3304 10 C3311 82pF NPO

Q3304 VIDEO BUFFER R3328 390 R3327 470 C3315 1µF 100V CR3303

Q3303 VIDEO AMP R3326 560 R3323 560 R3345 100

C2707 1µF 100V Q2701 R2713 G-OSD 100 R3317 120 C3306 22pF NPO R2712 1500 R3310 1000

C2709 1µF 100V Q2703 R2717 100 R3319 120 C3313 22pF NPO R2716 1500 R3318 1000

C2708 1µF 100V Q2702 R2715 100 R3321 120 C3314 22pF NPO R2714 1500 R3320 1000

R2733 470 C3307 47pF NPO R3311 1000 R3322 1000

C2704 1µF 100V R2729 240K 2% R2728 470K 2% C2713 4.7µF 100V R2726 2700

R2731 470 R3135 220

R3134 1000 C3110 100pF NPO

R2732 887 1%

SYNC

IF DEFEAT TUNING SYNC .5V

PART OF U3101 CONTROL MICRO

CC VIDEO GRN OSD | BLU OSD | RED OSD | STBY. SW 1.3V | FSW 0V | T-CHIP ENABLE 4.8V

VERT .1V HORIZ .7V

SEE T4401 PAGE 2F

CRT HV RANGE 28kV TO 30kV

CRT HV ANODE

R5050 3.3M

R5050 IS INTEGRAL PART OF FOCUS LEAD

T4401 FOCUS SCREEN

R3316 10K R3347 1000 R3315 51K

Q3305 HORIZ PULSE AMP CR3301 R3324 2200 R3325 8200

R3343 5100 2%

R4855 36K 2%

Q4804 AMP

Q4806 AMP

Q4805 AMP

C4856 .1 63V R4857 100K 2% R4863 200K 2% C4858 .012 100V R4862 10K 2% CR4853 (CR4868)

R4873 100K 2% R4870 30K 2% R4872 100 2% C4859 2.2µF 100V R4871 75K 2%

R4859 30K R4861 3300 2%

T4401 BOTTOM VIEW

SG2701 PRINTED SPARK GAP

P HORIZ E4401 L4000 YOKE P VERT E4502 P VERT E4501 P HORIZ E4402

R4501 820 R4519 1.2 1W R4502 4.3 1W

C4404 2.2µF 200V C4403 .55 250V

CR4401 R4401 15K 1W C4405 .0047 250V R4403 820 1W L4402 MAGNET

CR4402 C4402 .0157 1.6kV FB4402 CR4403 C4407 .041 400V

L4801 E4804 E804

R4704 82K 2% SG4701 PRINTED SPARK GAP C4710 .01 1kV R2709 27K

X SEE V101 PIN 10 PAGE 2H

E802 E4802

U4851 LM311N PINCUSHION

R4856 1300 2% C4863 .0039 100V C4857 .1 63V R4869 30K 2% C4861 .1 63V R4854 41.2K 1% R4865 40.2K 1%

Q4851 AMP R4853 2400 1W C4852 .001 CR4851

R4858 270K 2% L4853 C4854 .001 R4851 NC 470 R4852 390 C4855 .1 63V C4851 10µF

VOLTAGES TAKEN WITH SIGNAL

ADDITIONAL SCHEMATIC NOTES, SEE PAGE 1

A PHOTOFACT STANDARD NOTATION SCHEMATIC WITH CIRCUITRACE®

A1 A2 A3 A5 A6 A4 A4

POWER SUPPLY SCHEMATIC

△ TAKEN FROM COMMON TIE POINT

P101 120VAC 1.2A POLARIZED
F4001 5A
L4001
R4001 2.7 15W
C4001 .22 250V
K4201 DEGAUSS
C4009 680pF 1kV
CR4001 CR4002
C4003 680pF 1kV
RT4201 4.8 PTC COLD
P/J DEGAUSS
L4201 DEGAUSS
C4010 680pF 1kV
CR4004
C4004 680pF 1kV
CR4003
R4002 2.7M
SG4002 PRINTED SPARK GAP
SG4001 PRINTED SPARK GAP
C4006 470pF 120V
AC1 AC2

6.0V 5ms
15V 10µs
400V 10µs

500mA
C4007 680µF 200V
R4104 1.5M
C4123 .012 100V
R4125 100
C4122 .033 400V
R4126 30K 2W
FB4113
CR4112
FB4112
C4128 470pF 500V
C4135 470pF 500V
FB4102
R4124 .22 2W
CR4102
C4126 .001 1kV
C4103 .0033
R4105 47K
R4129 100K
R4122 1300
CR4109 7.5V 1.3V
C4124 .039 100V
R4128 100
CR4111
R4135 27 2%
C4136 330pF 500V
C4127 10µF 63V
R4136 10
E801 E4801
E15 E2605
120V 10µs
30V 10µs

T4101
157V△
1.4V△
STK730-030 U4101 REGULATOR
.1V△
1.7V△
0V△
-.4V△
-33.0V△
-40.0V△
1.8V△
NC
50V 10µs
350V 10µs

C4109 680pF
FB4106 500V CR4106 FB4107
C4137 680pF 500V
L4102
C4107 100µF 250V
R4110 33K 1W
C4105 10µF 200V
1 140V SOURCE

CR4103
FB4109 CR4107 FB4108
C4110 .001 500V
L7812CV 15.2V U4102 12V STBY REG
C4108 1000µF
2 12.1V SOURCE
R4102 160
C4104 .22 100V
3 7.5V SOURCE
C4133 .068
R4103 62
Q4105 +5V STBY 1
12.1V
5.6V
R4111 1000 (2000)
L3101
R4112 1M
C4112 470µF
4 5.0V SOURCE
C3112 .1
6 5.0V SOURCE

Q4103 +5V STBY 2
12.0V
5.6V
R4108 1M
C2938 100pF NPO
C4111 .01
C4118 47µF
5 5.0V SOURCE
L5001
18 200V SOURCE

CR4104 5.6V
C4114 .01
R4701 10
CR4702
C4702 680pF 1kV
C4704 680pF 1kV
E9 E5009
R5021 1200 1W
7 200V SOURCE
C4703 47µF 250V
L4103
C5003 4.7µF 250V
FB4110
R4107 3000 2W
C4130 10µF 160V
CR4108 33.0V 1.3W
C4119 .01
C4125 68µF
FB3104
C4117 10µF 63V
8 33.0V(A) SOURCE
8 33.0V(B) SOURCE
C7507 .22
9 25.0V(A) SOURCE
C4701 680µF
E805 E4805
9 25.0V(B) SOURCE
C4853 10µF 63V
E812 P/J4201
9 25.0V(C) SOURCE
E807
R4868 3.3 2W
Q4852 12V REG
14.2V
12.1V
E809
10 12.0V SOURCE
C4705 1000µF
L4101
JS3
11 12.0V(C) SOURCE
11 12.0V(A) SOURCE
C4116 100µF
C4138 68µF
FB4111
11 12.0V(B) SOURCE
R4517 27 1W
12 11.4V SOURCE
C4502 1500µF (2200µF)
CR2903
L7805ACV U2903 REG
8.4V
.7V
R2921 15 2W
R2918 1.5
13 5.4V SOURCE
20 5.4V SOURCE
C2926 .0082
C2920 22µF
C2906 .001
CR2902
C2931 .1
R1428 100
14 10.5V SOURCE
R4106 8.2
Q4101 7.6V REG
9.9V
8.3V
15 7.5V SOURCE
L2704
C4120 .001
C4121 .22
C4101 150µF
R4119 33
C4101
CR4101
3 7.5V
C2309 .001
C4134 .068
C2724 47µF
16 7.5V(A) SOURCE
E806 E4806
16 7.5V(B) SOURCE
R4708 1000
17 -15.3V SOURCE
C4709 47µF

R4113 75 2W
C4706 680pF 1kV
R4702 2.2 2W
C4708 680pF 1kV
CR4705
R4705 100
CR4704
CR4701

Q3302 DEGAUSS SWITCH
0V
12.0V
R3332 2200
R4201 180
CR4201
C4201 .01
200
K4201 DEGAUSS
SEE Q4201 BASE PAGE 2H
11 12.0(A)
C3303 .001
R3314 2200
C4008 .005 120V

NC NC
4 3 13
0V 4.8V 0V
DEGAUSS
PART OF U3101 CONTROL MICRO
RESET 5.4V 2
VDD 21 6 5.0V
VSS 22
ATE—ENABLE 0V 10
R3105 10K
4MHz OUT 2.3V 36
4MHz IN 2.3V 37
Y3101 8MHz
C3115 27pF NPO
C3114 27pF NPO
CR3110
R3154 1 NC
R3152 1000
R3151 3300
CR3111 5.1V
C3127 .001
2 12.1V

R3120 1000
C3113 .01
R3129 470K
R3133 100K
R3132 82K
C3122 220pF NPO
2 12.1V
Q3102 RESET
5.5V
5.6V
1.7V
R3131 470K

8 10 11 12 13
7 6 5 3 1
T4101 BOTTOM VIEW
SEE T4401 PAGE 2C
PART OF T4401
220V 10µs
110V 10µs
6 10 7 8 5 9
.2 .3 .2 .1

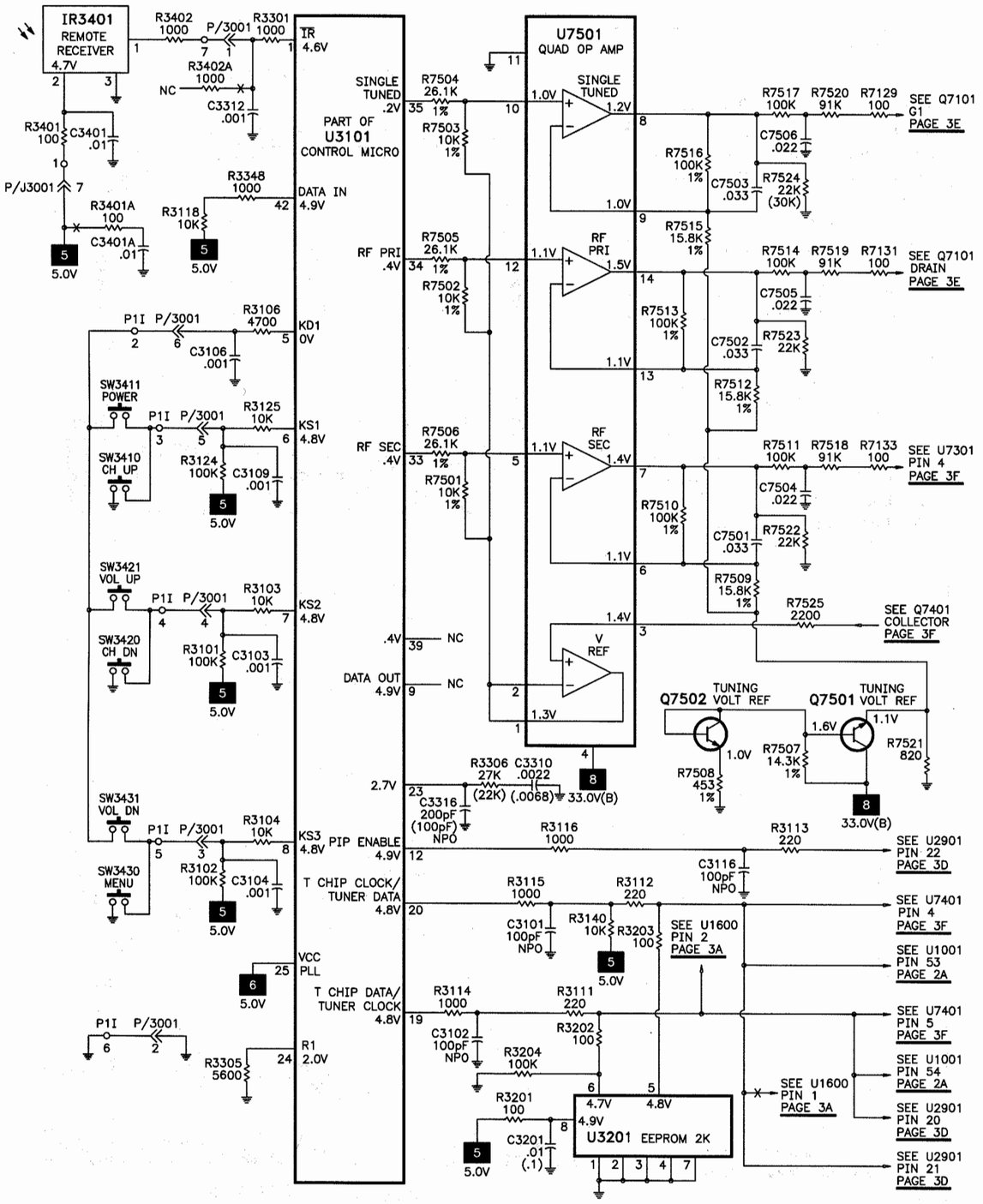
Q3101 RESET
5.43V
-.1V
R3119 330K
5 5.0V
C3107 68pF (27pF) NPO
R3130 10K
CR3102
C3126 .22
R3145 100K
5 5.0V
L3102
FB3103

VOLTAGES TAKEN WITH SIGNAL

ADDITIONAL SCHEMATIC NOTES, SEE PAGE 1

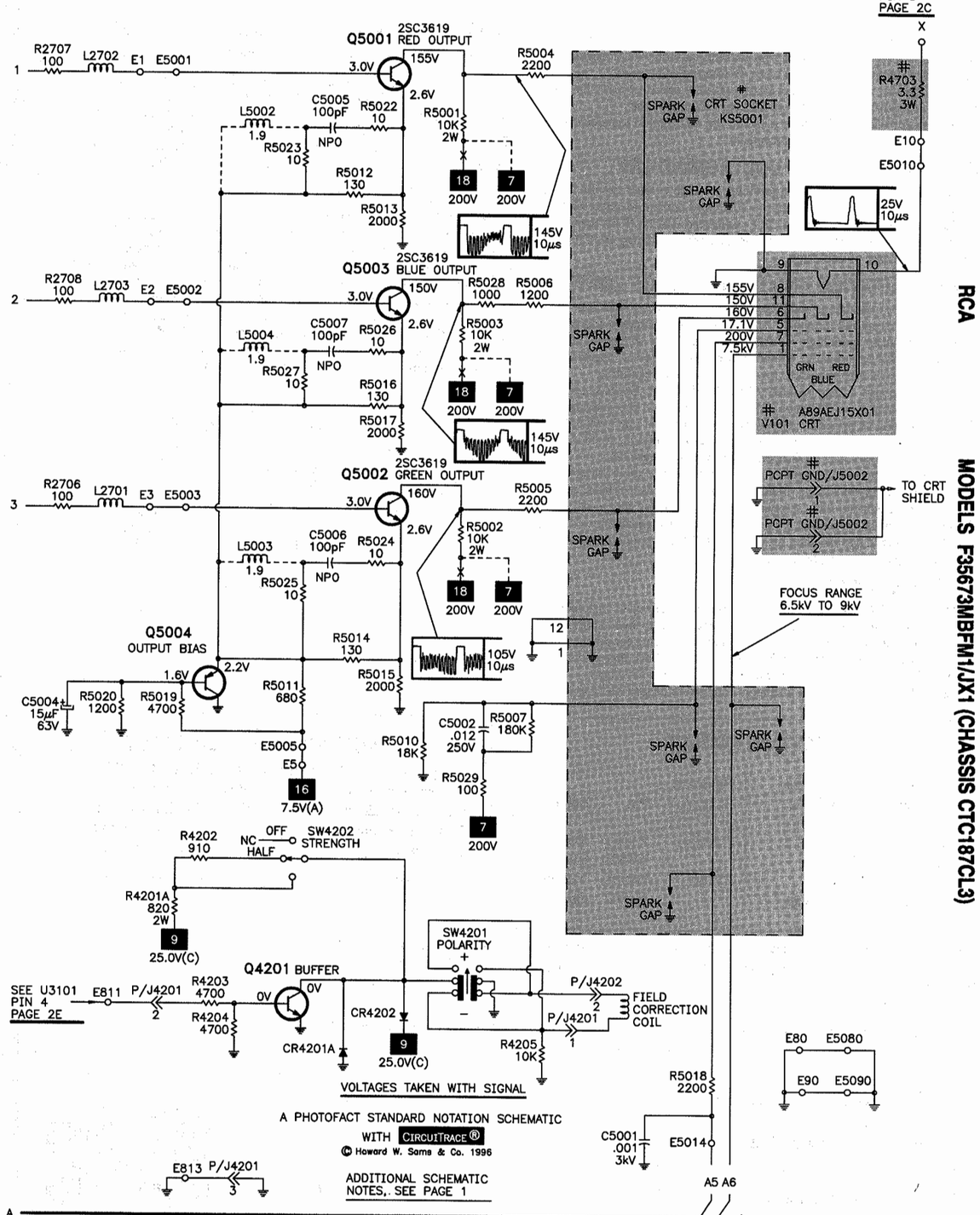
A PHOTOFACT STANDARD NOTATION SCHEMATIC WITH CIRCUITRACE®

SYSTEM CONTROL SCHEMATIC



G

CRT SCHEMATIC



H

AUDIO SCHEMATIC

A

B

SEE U1001 PIN 3 PAGE 2A

C1602 4.7µF 100V

COMP IN 4.0V 11

CXA1734S U1600 STEREO DECODER

L OUT 4.1V 29

SEE U3101 PIN 19 PAGE 2G

JS11

R1617 100

R1616 1000

SCL 4.9V 2

C1622 22pF NPO

SEE U3101 PIN 20 PAGE 2G

JS10

R1615 100

R1614 1000

SDA 5.0V 1

C3119 .001

C1621 22pF NPO

C1609 47µF (4.7µF) 100V

NOISETC 3.0V 16

R1628 100K

C1603 4.7µF 100V

SAPTC 3.0V 12

C1613 3.3µF 100V

VETC 1.7V 22

C1616 10µF 63V

VCAWGT 1.8V 26

C1604 10µF 63V

VGA 1.3V 5

C1615 .1 63V

PLINT 6.4V 9

R1601 43.2K 1%

ITIME 1.3V 27

R1602 61.9K 1%

IREF 1.3V 6

R1607 3000

C1612 .047 100V

VEWGT 4.0V 21

R1606 3300

C1611 .0027 100V

VE 4.0V 20

R1608 3900

C1607 1µF 100V

VCAWGT 4.0V 25

C1606 .47µF 100V

R1603 2200

C1605 .22 63V

ST FIL 5.2V 10

SAO 4

DGND 3

17

R OUT 4.1V 28

0V NC 30

VE OUT 4.0V 23

C1614 4.7µF

VCA IN 4.0V 24

MAIN OUT 4.1V 8

C1601 4.7µF

MAIN IN 4.0V 7

SUB OUT 4.0V 13

C1608 4.7µF

STIN 4.0V 14

SAP OUT 4.0V 18

C1610 4.7µF

SAP IN 4.0V 19

VCC 8.9V 15

CR1600 9.1V 1.3W

C1619 100µF

C1620 .01

R1613 62

11 12.0V(C)

R3122 1000

JS12

R1619 1000

C3118 .001

C1623 .001 N750

CR1601 .08V

R1618 33K

11 12.0V(C)

Q1601 EXP STEREO SWITCH 5.6V

R1621 4.7M 4.2V

R1622 4.7M

C1625 .1 63V

C1624 .1 63V

R1620 10K

TL082CN PART OF U1601

4.1V 3 4.1V 2

4.1V 1

C1628 .01 100V

R1624 10K

R1611 470

C1618 4.7µF 100V

JS5

C1715 .22

TL082CN PART OF U1601

4.1V 5 4.1V 6

4.1V 7

8 11.8V 4

C1627 .01 100V

R1623 10K

C1617 4.7µF 100V

R1612 470

JS6

C1716 .22

R3150 100K

5 5.0V

R1626 3000

R1625 10K

C1626 .047

R1627 330

11 12.0V(C)

28 0V NWS–ST/MONO

PART OF U3101 CONTROL MICRO

STEREO 0V SENSE SPKR MUTE .7V

TONE 0V 30

0V 31 NC

32 NC

29

R3138 10K

5 5.0V

R3121 10K

C3117 .001

TONE CONTROL Q1901

R1910 10K

0V

R1912 1M

C1912 .015

TONE CONTROL Q1902

R1911 10K

0V

R1913 1M

C1913 .015

C1915 .0047

R3109 1000

C3125 .001

R1916 470

Q1402 RIGHT BUFFER

3.8V

3.2V

10.0V

R1417 1200

R1418 100

R1416 1000

C1410 100µF

Q1404 LIMITER

10.0V

7.82V

10.6V

R1419 4700

OUTPUT VOLTAGE REG Q1405

R1429 470 11.4V

C1412 470µF

R1423 470

R1424 4700

CR1404

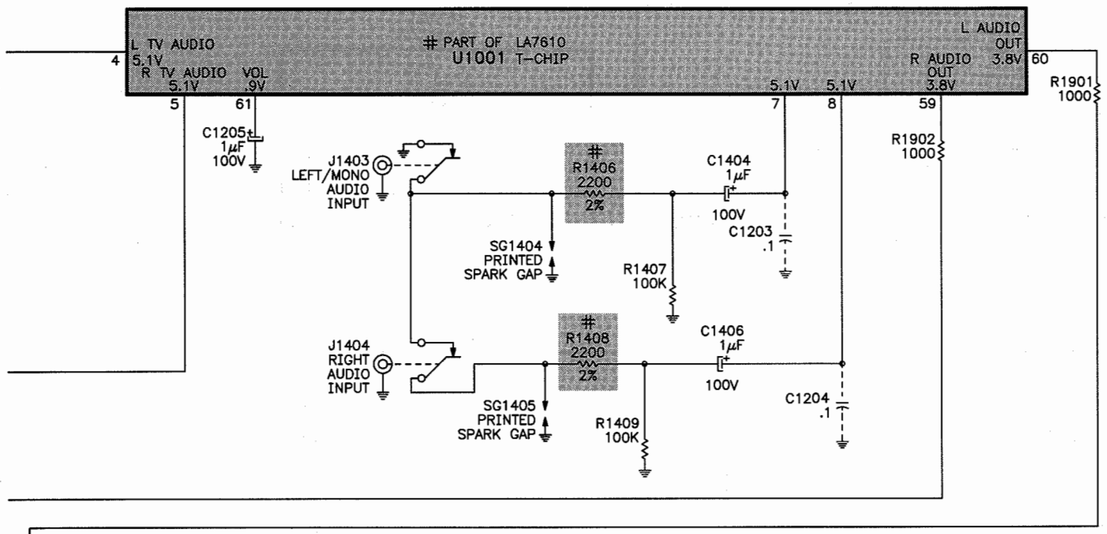
14 10.5V

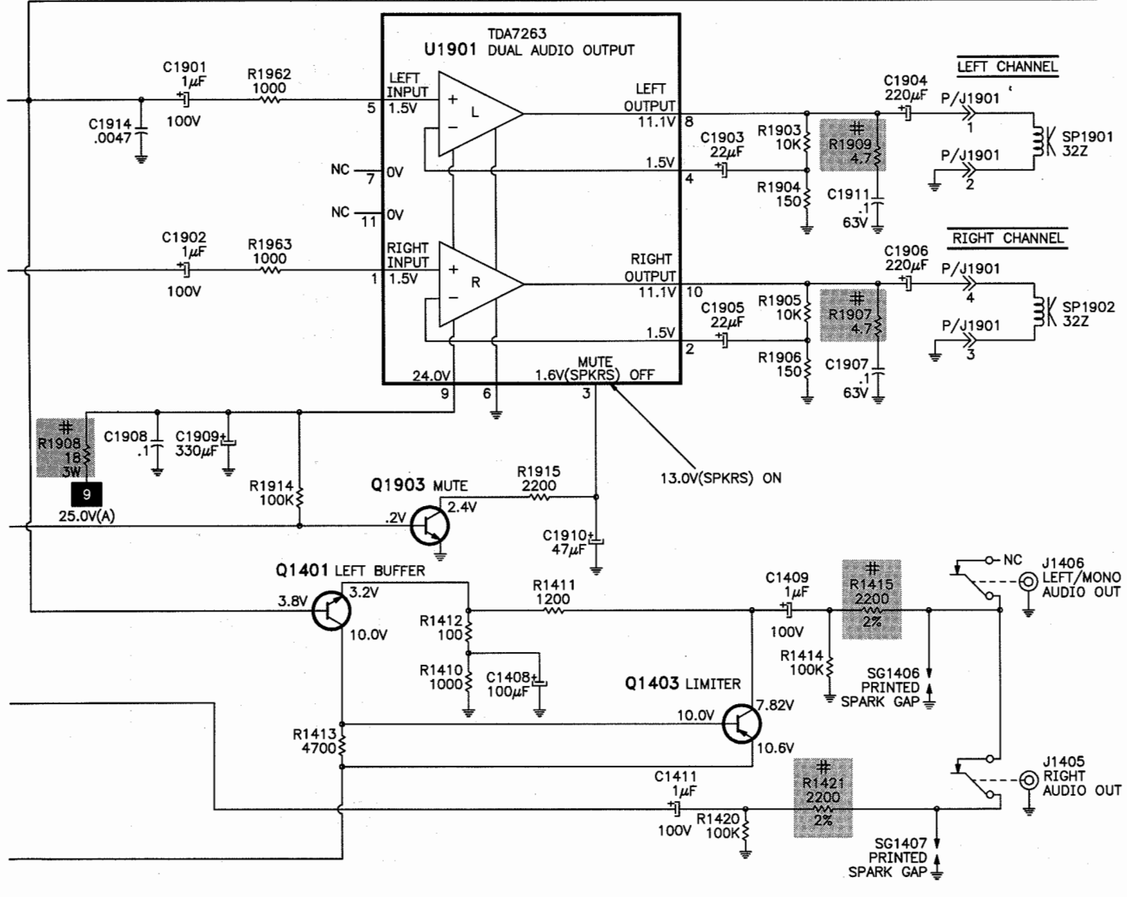
ADDITIONAL SCHEMATIC NOTES, SEE PAGE 1

VOLTAGES TAKEN WITH SIGNAL

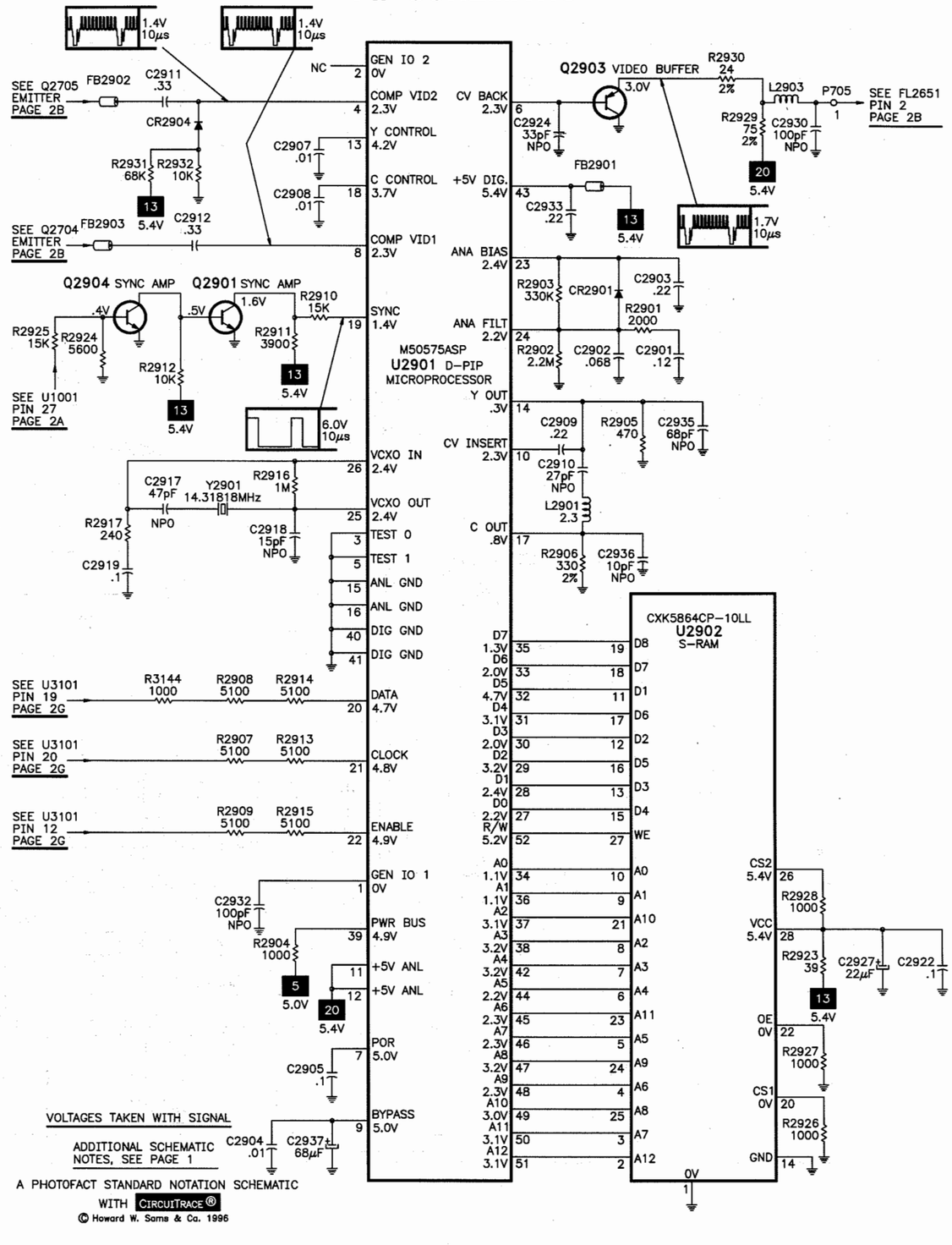
A PHOTOFACT STANDARD NOTATION SCHEMATIC WITH CIRCUITRACE®

C
AUDIO SCHEMATIC continued





D
PIP SCHEMATIC

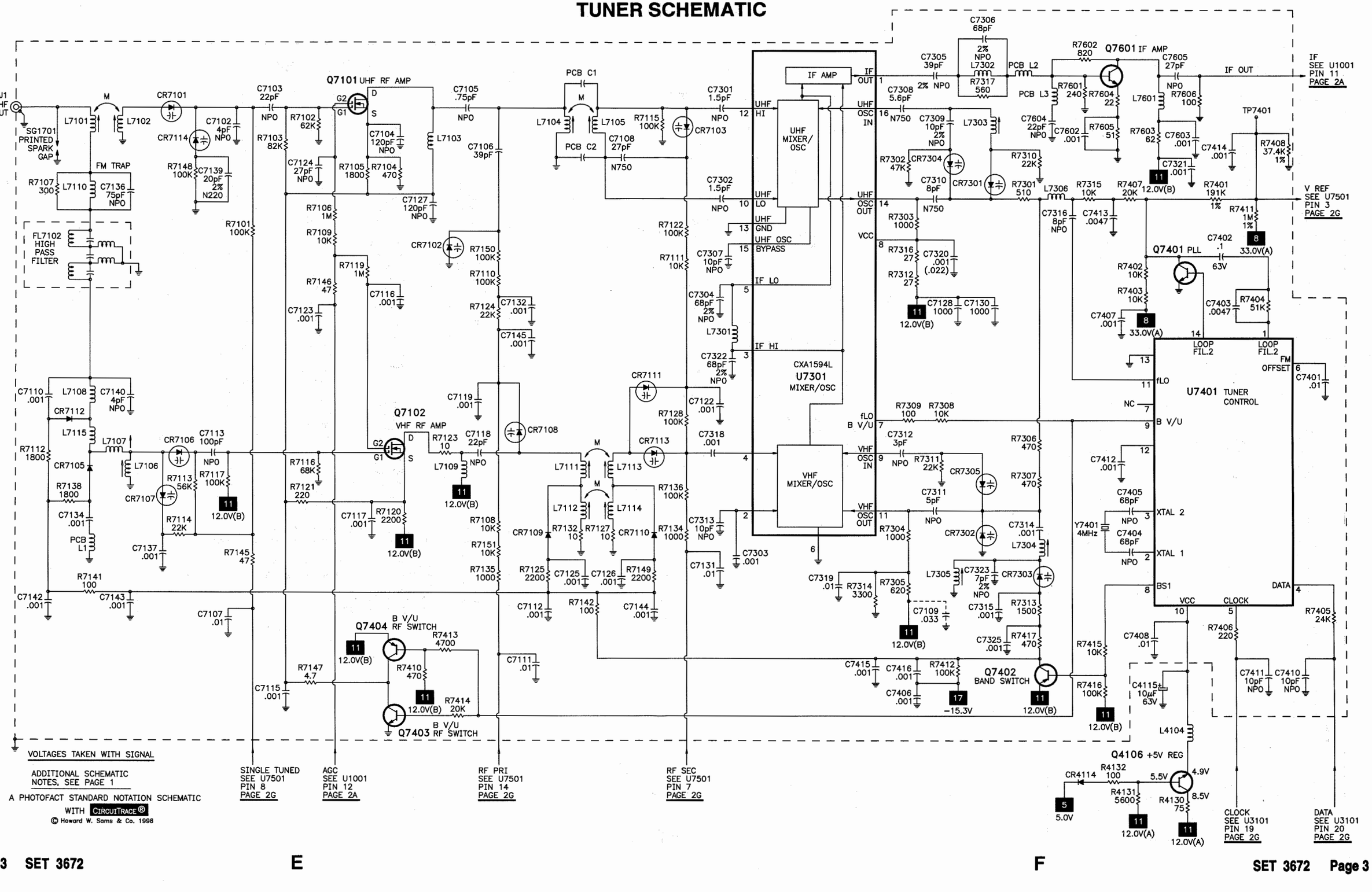


VOLTAGES TAKEN WITH SIGNAL

ADDITIONAL SCHEMATIC NOTES, SEE PAGE 1

A PHOTOFACT STANDARD NOTATION SCHEMATIC WITH CIRCUITRACE®

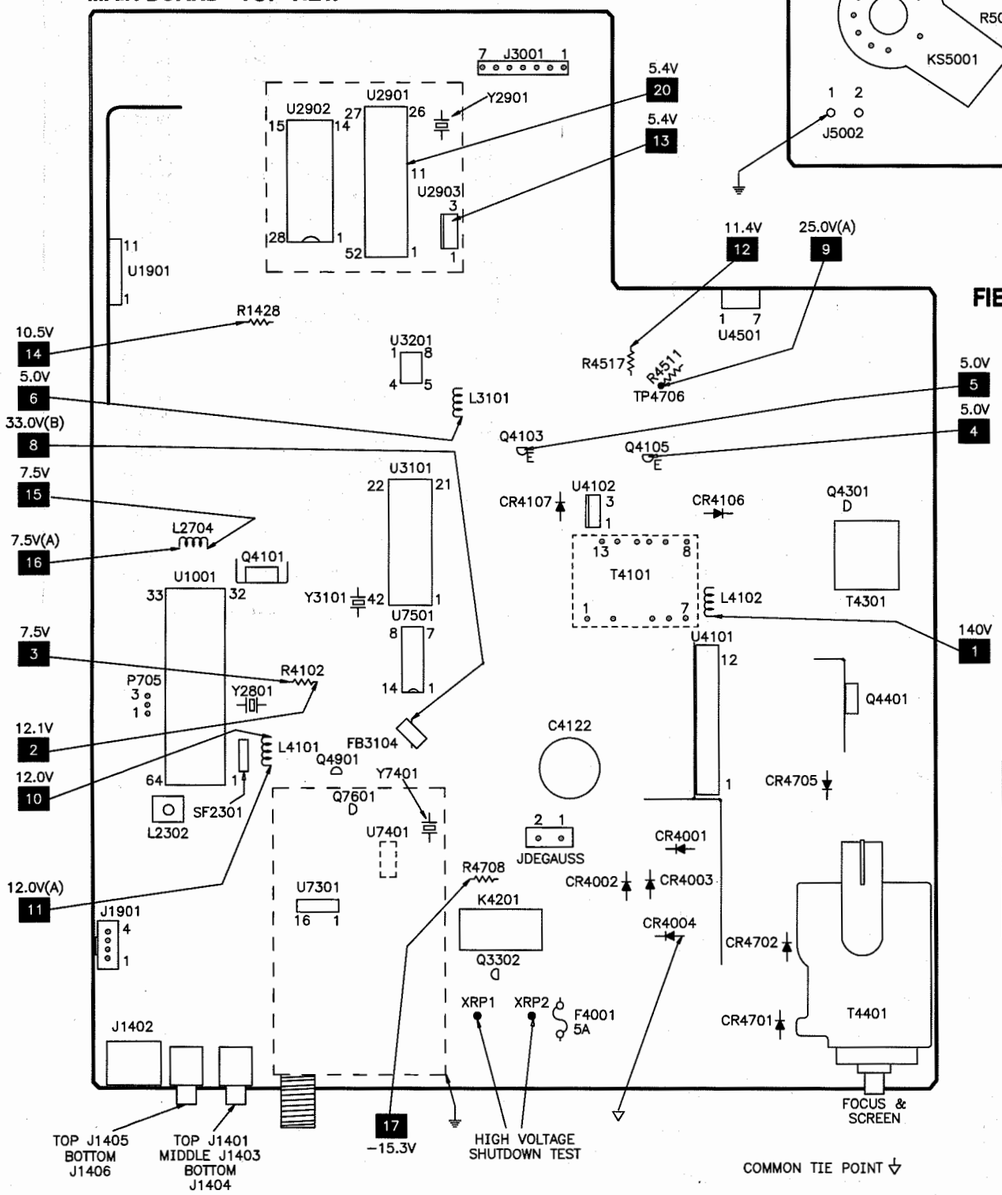
TUNER SCHEMATIC



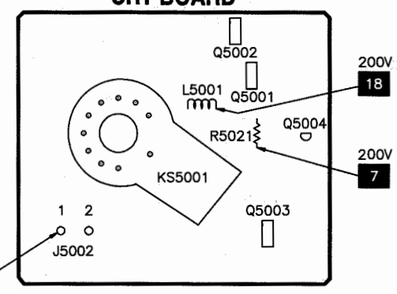
PLACEMENT CHART

RCA MODELS F35673MBFM1/JX1 (CHASSIS CTC187CL3)

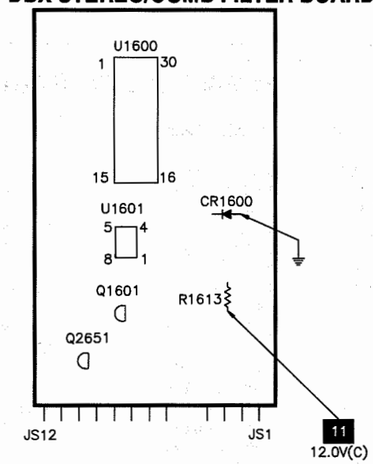
MAIN BOARD - TOP VIEW



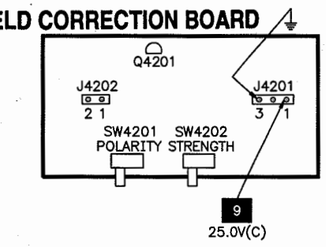
CRT BOARD



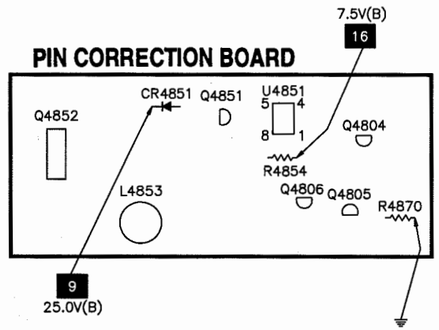
DBX STEREO/COMB FILTER BOARD



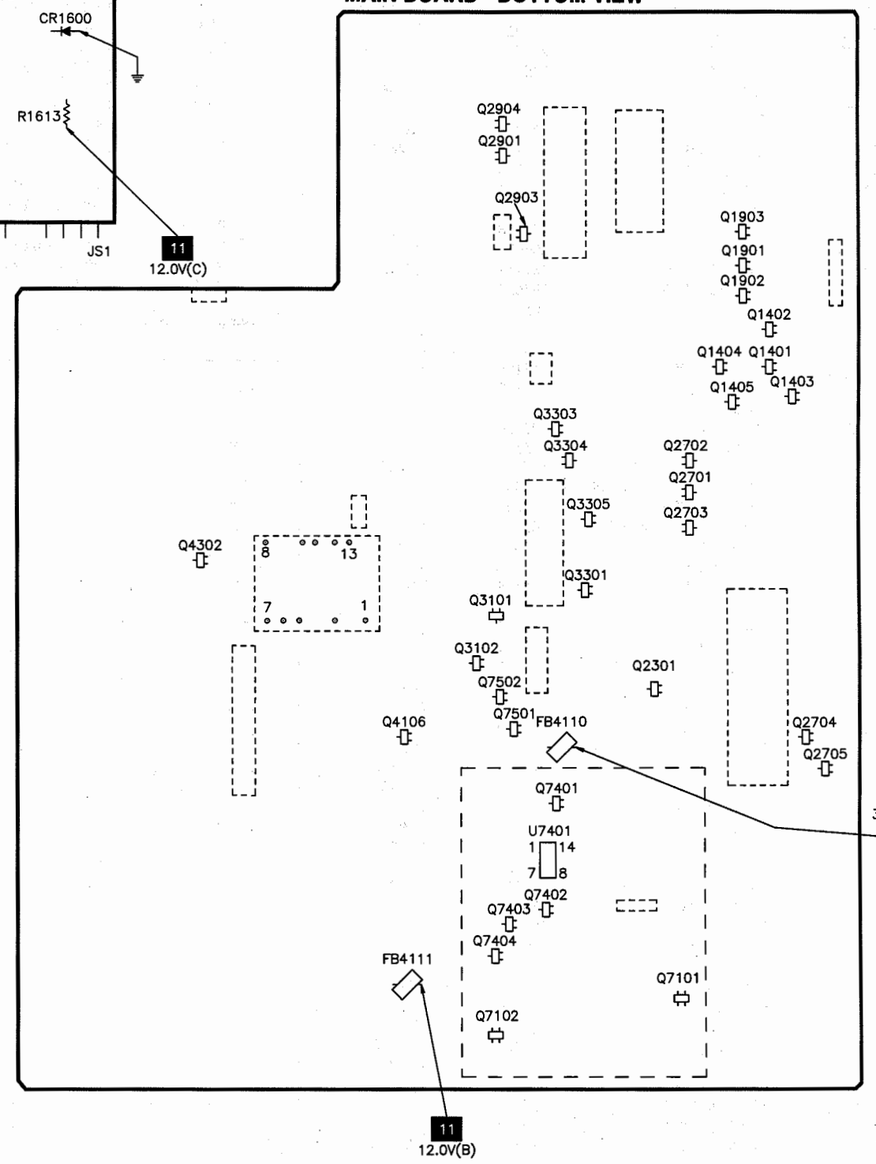
FIELD CORRECTION BOARD



PIN CORRECTION BOARD

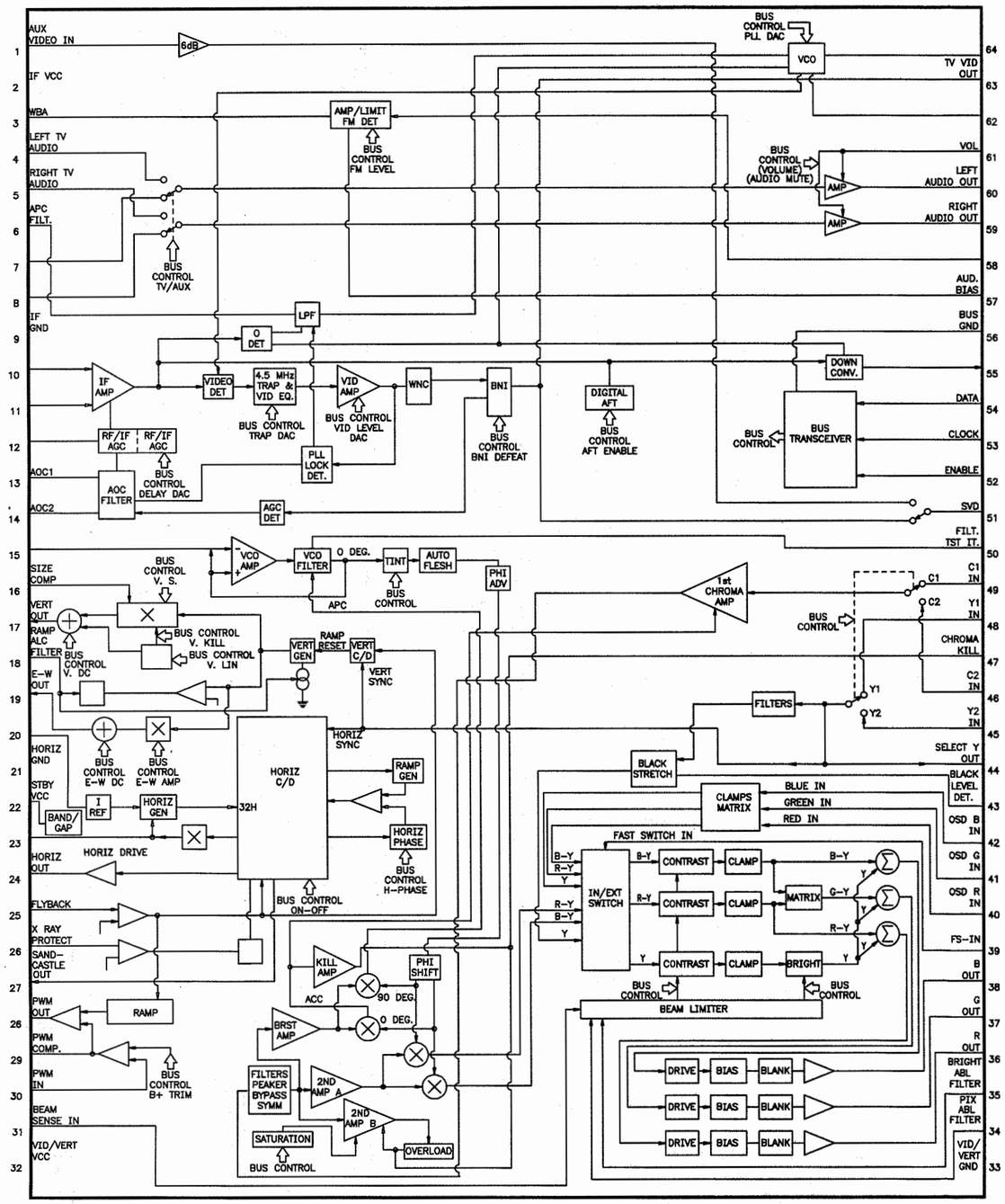


MAIN BOARD - BOTTOM VIEW

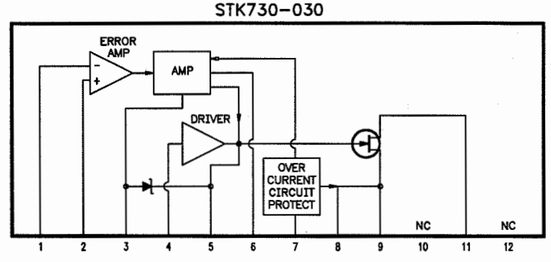


IC FUNCTIONS

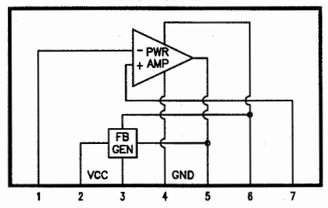
U1001
LA7610



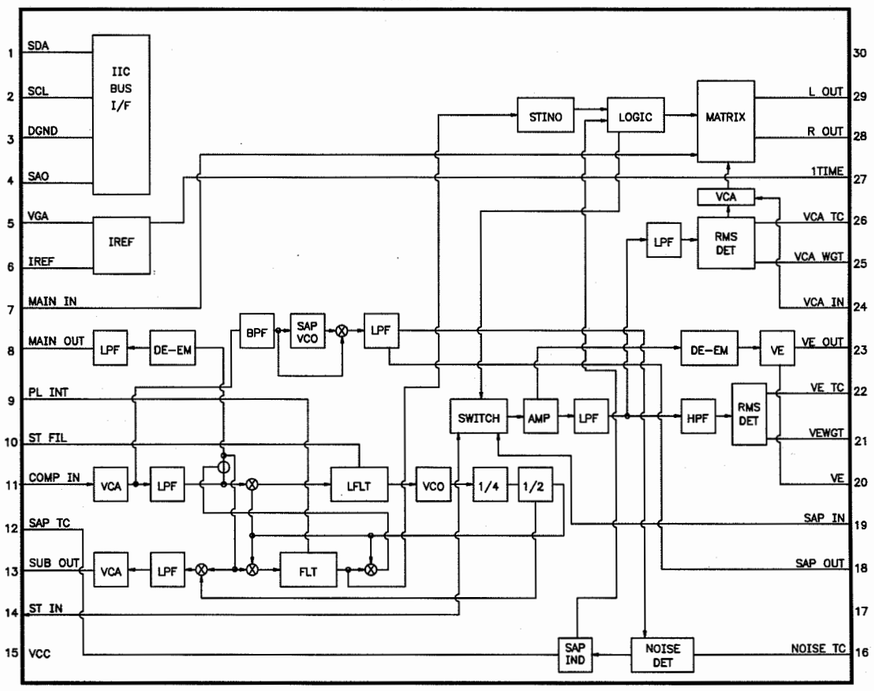
U4101
STK730-030



U4501
TDA8172



U1600
CXA1734S



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

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

PARTS LIST

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
CR3303	-	223659	-	-	-
CR4001, 02, 03, 04	-	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
CR4201A	-	176296	NTE125	ECG125	SK5010A
CR4202	-	176296	NTE125	ECG125	SK5010A
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
CR4854	-	164717	NTE519	ECG519	SK3100
# **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, 14 (2)	-	-	-	-	-
CR7301, 02 (1)	-	-	-	-	-
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, 02, 03	-	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	-	-	-
Q4201	-	223704	-	-	-
Q4301	-	146851	NTE287	ECG287	SK3433
Q4302	-	215495	-	-	-
Q4401	-	223942	-	-	-
Q4804	-	223704	-	-	-
Q4805	-	219025	NTE159	ECG159	SK3466
Q4806	-	223704	-	-	-
Q4851	-	200168	-	-	-
Q4852	-	157627	NTE54	ECG54	SK9366
# **Q4901**	-	147665	NTE159	ECG159	SK3466
Q5001, 02, 03	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	CXK5864CP-10LL	204280	-	-	-
U2903	L7805ACV	215528	-	-	-
U3101	-	223909	-	-	-
U3201	-	223957	-	-	-
U4101	STK730-030	223948	-	-	-
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.

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 2% 1/4W	829222	QW222
#	**R1415, 21**	2200 2% 1/4W	829222	QW222
#	**R1422**	22 2% 1/4W	829022	QW022
	R1601	43.2K 1% 1/10W	225704	-
	R1602	61.9K 1% 1/10W	225705	-
#	**R1613**	62 5% 1/2W	830062	HW062
#	**R1907**	4.7 5% 1/4W	200197	QW4D7
#	**R1908**	18 5% 3W	181234	3W018
#	**R1909**	4.7 5% 1/4W	200197	QW4D7
	R2656	1300 2% 1/10W	205340	-
	R2660	270 2% 1/10W	197623	-
	R2704	1000 2% 1/10W	197638	-
	R2705	1500 2% 1/10W	197628	-
#	**R2709**	27K 5% 1/2W	206037	HW327
	R2721	1500 2% 1/8W	181482	EW215
	R2722	1000 2% 1/10W	197638	-
	R2728	470K 2% 1/10W	205381	-
	R2729	240K 2% 1/8W	215687	EW424
	R2732	887 1% 1/4W	223949	-
	R2801	15K 1% 1/10W	215198	-
	R2802	15.8K 1% 1/10W	215199	-
	R2906	330 2% 1/10W	195929	-
	R2929	75 2% 1/10W	197629	-
	R2930	24 2% 1/10W	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	-
	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 10% 1/2W	830010	HW010
#	**R4702**	2.2 5% 2W Wirewound	215211	-
#	**R4703**	3.3 5% 3W Wirewound	195730	-
#	**R4704**	82K 2% 1/2W	830382	HW382
#	**R4705**	100 5% 1/4W	829110	QW110
#	**R4852**	390 5% 1/2W	175769	HW139
	R4854	41.2K 1% 1/4W	176500	-
	R4855	36K 2% 1/4W	175416	QW336
	R4856	1300 2% 1/4W	203745	QW213
	R4858	270K 2% 1/4W	179958	QW427
	R4861	3300 2% 1/4W	175352	QW233
	R4862	10K 2% 1/4W	175317	QW310
	R4863	200K 2% 1/4W	181226	QW420
	R4865	40.2K 1% 1/4W	219026	-
	R4866	560 2% 1W	831156	1W156
	R4867	820 2% 1/2W	830182	HW182
	R4869, 70	30K 2% 1/4W	175046	QW330
	R4871	75K 2% 1/4W	179238	QW375
	R4872	100 2% 1/4W	175325	QW110
	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

 # For SAFETY use only equivalent replacement part.

CONTROLS & RESISTORS continued

	Item No.	Function/Rating	Mfr. Part No.	NTE Part No.
#	**R4905**	5100 2% 1/4W	175417	QW251
	R7401	191K 1% 1/10W	215214	-
	R7408	37.4K 1% 1/10W	215215	-
	R7411	1M 1% 1/10W	215216	-
	R7501, 02, 03	10K 1% 1/10W	215217	-
	R7504, 05, 06	26.1K 1% 1/8W	215218	-
	R7507	14.3K 1% 1/10W	215219	-
	R7508	453 1% 1/8W	215220	-
	R7509	15.8K 1% 1/10W	215199	-
	R7510	100K 1% 1/10W	215221	-
	R7512	15.8K 1% 1/4W	181121	-
	R7513	100K 1% 1/10W	215221	-
	R7515	15.8K 1% 1/10W	181121	-
	R7516	100K 1% 1/10W	215221	-
	RN4501	Resistor Network	215499	-
#	**RT4201**	4.8 Cold PTC	207768	-

 # For SAFETY use only equivalent replacement part.

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 10% 50V NPO	194903
	C1623	.001 5% 50V N750	224274
	C2302	470pF 5% 50V NPO	214732
	C2654	3.3µF 20% 50V NP	224270
	C2656	120pF 5% 50V NPO	194902
	C2718	220pF 5% 50V NPO	205551
	C2803	16pF 2% 50V NPO	214736
	C2910	27pF 5% 50V NPO	174407
	C2917	47pF 5% 50V NPO	210689
	C2918	15pF 5% 50V NPO	202907
	C2924	33pF 5% 50V NPO	194911
	C2930, 32	100pF 5% 50V NPO	193340
	C2935	68pF 5% 50V NPO	193339
	C2936	10pF 5% 50V NPO	214740
	C2938	100pF 5% 50V NPO	193340
	C3101, 02	100pF 5% 50V NPO	193340
	C3107	68pF 5% 50V NPO	-
		27pF 5% 50V NPO	197604
	C3110	100pF 5% 50V NPO	193340
	C3114, 15	27pF 5% 50V NPO	197604
	C3116	100pF 5% 50V NPO	193340
	C3122	220pF 5% 50V NPO	178188
	C3306	22pF 5% 50V NPO	194903
	C3307	47pF 5% 50V NPO	210689
	C3311	82pF 5% 50V NPO	192049
	C3313, 14	22pF 5% 50V NPO	194903
	C3316	200pF 5% 50V NPO	218986
		100pF 5% 50V NPO	-
#	**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**	10µF 20% 200V	214743
#	**C4107**	100µF +30% -10% 250V	218374
#	**C4122**	.033 5% 400V	214747
	C4126	.001 10% 1kV	160461
	C4303	470pF 5% 50V NPO	214732
	C4310	15pF 1% 250V NPO	223899
	C4311	47pF 5% 50V NPO	210689
	C4313	220pF 5% 50V NPO	178188
	C4401	470pF 5% 50V NPO	195918
#	**C4402**	.0157 1.6kV	206008
#	**C4403**	.55 5% 250V	214753
#	**C4404**	2.2µF 20% 200V	196050
#	**C4405**	.0047 10% 250V	190534
#	**C4406**	470pF 5% 2kV N1500	227068
	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	100pF 5% 50V NPO	174412
	C7102	4pF ±.25pF 50V NPO	214757

 # For SAFETY use only equivalent replacement part.

CAPACITORS & ELECTROLYTICS continued

Item No.	Rating	Mfr. Part No.
C7103	22pF 5% 50V NPO	194903
C7104	120pF 5% 50V NPO	194902
C7105	.75pF ±.25pF 50V NPO	214758
C7108	27pF 5% 50V N750	214760
C7113	100pF 5% 50V NPO	193340
C7118	22pF 5% 50V NPO	194903
C7124	27pF 5% 50V NPO	197604
C7127	120pF 5% 50V NPO	194902
C7136	75pF 5% 50V NPO	192061
C7139	20pF 2% 50V N220	214761
C7140	4pF ±.5pF 50V NPO	194901
C7301	1.5pF ±.1pF 50V NPO	223146
C7302	1.5pF ±.1pF 50V NPO	223146
C7304	68pF 2% 50V NPO	214762
C7305	39pF 2% 50V NPO	215556
C7306	68pF 2% 50V NPO	214762
C7307	10pF 5% 50V NPO	214740
C7308	5.6pF ±.25pF 50V N750	214764
C7309	10pF 2% 50V NPO	214765
C7310	8pF ±.5pF 50V N750	214766
C7311	5pF ±.5pF 50V NPO	193917
C7312	3pF ±.5pF 50V NPO	214767
C7313	10pF 5% 50V NPO	241740
C7316	8pF ±.5pF 50V NPO	194909
C7322	68pF 2% 50V NPO	214762
C7323	7pF 2% 50V NPO	214768
C7404, 05	68pF 5% 50V NPO	193339
C7410	10pF ±.5pF 50V NPO	214740
C7411	10pF ±.5pF 50V NPO	214740
C7604	22pF 5% 50V NPO	194903
C7605	27pF 5% 50V NPO	197604

 # For SAFETY use only equivalent replacement part.

PARTS LIST continued

COILS & TRANSFORMERS

	Item No.	Function/Rating		Mfr. Part No.
	FB2901, 02, 03	Ferrite Bead		153328
	FB3103, 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
	FL7102	Filter		181470
	L2302	-		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	Horiz 0.94mH	-
			Vert 24.6mH	-
#	**L4001**	Line Choke		190507
	L4101	10µH		175409
	L4102	22µH		215504
	L4103, 04	10µH		175409
	L4201 (2)	Degaussing		218827
	L4201 (3)	Degaussing		225836
	L4401	4µH		215505
#	**L4402**	Horizontal Linearity		210895
#	**L4853**	820µH		215536
	L5001	120µH		195750
	L5002, 03, 04	56µH		196107
	L7101	-		215507
	L7102	-		215508
	L7103	-		223929
	L7104, 05	-		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
#	**T4301**	Horizontal Driver		215541
#	**T4401** (4)	Horizontal Output		223952

 # For SAFETY use only equivalent replacement part.
(1) Part of CRT and Yoke Assembly.
(2) Used in models F32672SBFM1/JX1, and G32681ATLM1.
(3) Used in models F35673MBFM1/JX1, and G35781ATLM1.
(4) Focus and screen controls are part of T4401.

CABINET PARTS

	Item	Mfr. Part No.
	MODEL F35673MBFM1/JX1	
	Button Cluster	229633
#	Mask and Back Assembly	MK1851
	Speaker Grille	229635
	Remote Receiver Window	229636
	MODEL F32672SBFM1/JX1	
	Button Cluster	231077
#	Mask and Back Assembly	MK1916
	Remote Receiver Window	229642
	MODEL G32681ATLM1	
#	Back Cover	BK1760
	Button Cluster	231233
#	Mask	MK1925
	Remote Receiver Window	203519
	MODEL G35781ATLM1	
#	Back Cover	BK1883
	Button Cluster	230084
#	Mask	MK1881
	Remote Receiver Window	221040

 # For SAFETY use only equivalent replacement part.

MISCELLANEOUS

	Item No.	Description	Mfr. Part No.	Notes
	CF1201	Filter	195702	4.5MHz
#	**F4001**	Fuse	175425	5Amp, 125V, Fast Acting
	FL2651	Filter	225701	Comb
	IR3401	Receiver	198606	Remote
	J1401, 03, 04	Jack	226298	Assembly
	J1402	Jack	195705	SVHS
	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 (4)	Speakers	183165	3" x 8", 32Ohms
	SP1901, 02 (5)	Speakers	225844	2 1/4" x 5", 32Ohms
	SP1901, 02 (6)	Speakers	193192	2 1/4" x 5", 32Ohms
	SW3411	Switch	215500	Power
	SW3410	Switch	215500	Channel Up
	SW3420	Switch	215500	Channel Down
	SW3421	Switch	215500	Volume Up
	SW3430	Switch	215500	Menu
	SW3431	Switch	215500	Volume Down
	SW4201	Switch	207052	Polarity
#	**V101** (2)	CRT	A80AEJ151	A80AEJ15X01
#	**V101** (3)	CRT	A89AEJ151	A89AEJ15X01
	SW4202	Switch	222562	Strength
	Y2801	Crystal	161235	3.58MHz
	Y2901	Crystal	197652	14.31818MHz
	Y3101	Crystal	217322	8MHz
	Y7401	Crystal	182839	4MHz
		Adapter	193983	Antenna 75 To 300 Ohms
		PC Board (1)	225755	CRT
		PC Board (1)	223955	DBX Stereo/Comb Filter
		PC Board (1)	223951	Field Correction
		PC Board (1)	225698	Front Panel
		PC Board (1)	223950	Pin Correction
		Transmitter	221132	Remote

 # For SAFETY use only equivalent replacement part.
(1) Contact PTS Electronics Corporation for replacement; order by manufacturer's part number.
(2) Used in models F32672SBFM1/JX1, and G32681ATLM1.
(3) Used in models F35673MBFM1/JX1, and G35781ATLM1.
(4) Used in models G32681ATLM1 and G35781ATLM1.
(5) Used in models F35673MBFM1/JX1.
(6) Used in models F32672SBFM1/JX1.