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.

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.

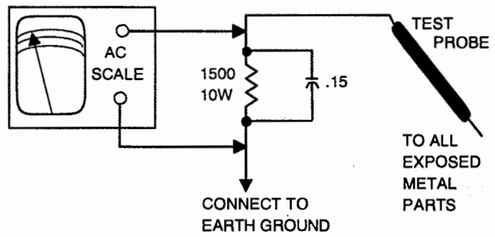
SAFETY CHECKS -- FIRE AND SHOCK HAZARD

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.	Chassis Pin No	Color
CRT	B239	P-Horiz	EY4409	Red
Yoke	D4160	P-Horiz	EY4413	Blue
Yoke Setting	YP1A	P-Vert	P4501 1	Yellow
Comments	Focus Tap	P-Vert	P4501 4	Green

HIGH VOLTAGE SHUTDOWN TEST

Apply 120VAC. Use remote transmitter to set customer controls for normal operation. Momentarily short XRP1 to XRP2. The receiver should lose raster and sound. If receiver does not lose raster and sound, the 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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4158

SET 4158

MODEL 25GT518TX1 (CHASSIS CTC185AB3)

GE

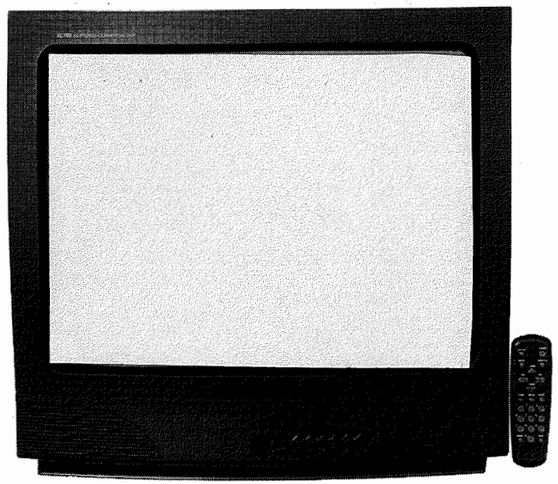
PHOTOFACT® Technical Service Data

INDEX

For Supplier Address, See PHOTOFACT Annual Index

GE

Model 25GT518TX1 (Chassis CTC185AB3)



Representative Model

Essential coverage for servicing a television receiver...

- Schematics
- Component locations
- Parts list

Coverage includes these additional models and chassis:

MODELS	CHASSIS
27GT616TX1	CTC185AB3
27GT619SX1	CTC185AB3
27GT619TX1	CTC185AB3
27GT624TX1	CTC185AB3

HOWARD W. SAMS & COMPANY

JULY 1999 SET 4158

4158

TUNER CIRCUIT VOLTAGE CHART

Pin	VHF Low Band	VHF High Band	UHF Band
U7301			
1	4.5V	4.5V	4.5V
2	3.1V	3.1V	3.1V
3	7.2V	7.2V	7.2V
4	3.1V	3.1V	3.2V
5	7.2V	7.2V	7.2V
6	0V	0V	0V
7	6.3V	6.3V	.2V
8	9.0V	9.0V	9.0V
9	3.4V	3.4V	3.4V
10	3.2V	3.2V	3.0V
11	3.2V	3.2V	3.1V
12	3.2V	3.2V	3.1V
13	0V	0V	0V
14	9.0V	9.0V	6.4V
15	3.5V	3.5V	3.2V
16	3.5V	3.5V	3.2V
U7401			
1	1.6V	1.6V	1.6V
2	2.6V	2.6V	2.6V
3	2.6V	2.6V	2.6V
4	33.0V	33.0V	33.0V
5	2.0V to 23.0V	2.0V to 23.0V	2.0V to 23.0V
6	1.7V	7.2V	6.3V
7	1.5V	5.8V	6.2V
8	.6V	7.2V	5.8V
9	5.0V	5.0V	5.0V
10	1.4V	1.4V	1.4V
11	1.4V	1.4V	1.4V
12	0V	0V	0V
13	0V	0V	0V
14	11.6V	11.6V	.3V
15	0V	0V	0V
16	0V	0V	0V
17	12.3V	.1V	.2V
18	4.9V	4.9V	4.9V
19	4.9V	4.9V	4.9V
20	0V	0V	0V

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

Pin	VHF Low Band	VHF High Band	UHF Band
Q7101			
D	.5V	.5V	12.2V
G1	2.6V	2.6V	2.1V
G2	.2V	.2V	0V
S	0V	0V	0V
Q7102			
D	12.1V	12.1V	0V
G1	2.1V	2.1V	0V
G2	2.6V	2.6V	0V
S	0V	0V	0V
Q7402			
E	12.0V	12.0V	12.0V
B	12.3V	11.6V	11.5V
C	-12.0V	12.2V	12.2V
Q7403			
E	12.0V	12.0V	12.0V
B	.5V	.5V	12.2V
C	12.3V	12.3V	0V
Q7404			
E	12.0V	12.0V	12.0V
B	12.3V	12.3V	11.5V
C	.5V	.5V	12.2V

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

MISCELLANEOUS ADJUSTMENTS

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

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 24kV to 27kV.

COLOR TEMPERATURE

Note: See Service Adjustment Parameters to change drive and bias values.
Press menu button for collapsed raster service line. Set the TV to blank raster 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. To access the service menu, turn the receiver on, press the menu button and hold it down while pressing the power button. While holding down the menu button, release the power button and press the volume + button. The screen will display a one line menu, on the left the parameter 0 00, and on the right the value of that parameter 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 two main groups of parameters are, the service adjustment 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.

SERVICE ADJUSTMENT PARAMETERS

Parameter No.	Parameter Name	On Set Value	Value Range	Comment
0 00	Pass number for service adjustment parameters.	-	Must set to 76	May not advance until value is set.
0 01	Horizontal Phase	0	00 - 15	Adjust to center picture left to right.
0 02	Vertical DC	34	00 - 63	Adjust to center picture top to bottom.
0 03	Vertical S Correction	12	00 - 15	Set value to 12.
0 04	Vertical Size	81	00 - 127	Adjust for 1/4" overscan top and bottom of screen.
0 05	Red Bias	10	00 - 127	Press menu button on the TV set for setup line.
0 06	Green Bias	5	00 - 127	Press menu button on the TV set for setup line.
0 07	Blue Bias	14	00 - 127	Press menu button on the TV set for setup line.
0 08	Red Drive	36	00 - 63	Press menu button on the TV set for setup line.
0 09	Green Drive	41	00 - 63	Press menu button on the TV set for setup line.
0 10	Blue Drive	35	00 - 63	Press menu button on the TV set for setup line.
0 11	Sub Brightness	34	00 - 127	Tune in color bar signal, turn color off. Adjust to the point the black bar starts to turn gray, then decrease until it becomes black.
0 12	RF AGC	26	00 - 63	Set to the value when snow disappears from picture.
0 13	FM Level	19	00 - 31	Apply 1kHz, L+R signal. Adjust for a 333mVp-p waveform at pin 6 of U1001 (don't include carrier portion).
0 14	VCO Tuning	83	00 - 127	Adjust for 3.8V at pin 12 of U1001.
0 15	APC Detector Adjust	32	00 - 63	Short pin 11 of U1001 to ground. Adjust for 3.8V at pin 12 of U1001.
0 16	Tint Preset	59	00 - 127	Adjust waveform at the collector of Q5003 so that the second and the third peaks are of equal amplitude.
0 17	Color Preset	66	00 - 127	Adjust waveform at the collector of Q5003 so that the first and the fourth peaks are of equal amplitude.
0 18	Video level	4	00 - 07	Adjust waveform at the emitter of Q2301 for 1Vp-p.
0 19	Vertical Linearity	8	00 - 15	Set value to 08.
0 20	Vertical Countdown Mode	0	00 - 03	Set value to 00.

MISCELLANEOUS ADJUSTMENTS continued

MANUAL TUNER 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 adjust coils. This procedure is performed with top tuner cover removed and bottom tuner cover in place and soldered.

Band 1

1. Connect a video generator to the antenna terminal.
2. Connect a digital volt meter to pin 5 of U7401.
3. Tune the video generator and the receiver to channel 17.
4. Adjust L7305 for 20.0V ±.3V.
5. Connect the digital volt meter to pin 11 of U1001.
6. Select parameter 1 13. See "Electronic Tuner Alignment Chart". Record present value. Adjust the value throughout its range. If a null in the voltage appears, L7115 alignment is acceptable. If a null in the voltage does not appear, adjust L7115 until a null in the voltage appears while adjusting the value. Return the value to the value recorded above.
7. Select parameter 1 14. See "Electronic Tuner Alignment Chart". Record present value. Adjust the value throughout its range. If a null in the voltage appears, L7114 alignment is acceptable. If a null in the voltage does not appear, adjust L7114 until a null in the voltage appears while adjusting the value. Return the value to the value recorded above.
8. Select parameter 1 15. See "Electronic Tuner Alignment Chart". Record present value. Adjust the value throughout its range. If a null in the voltage appears, L7112 alignment is acceptable. If a null in the voltage does not appear, adjust L7112 until a null in the voltage appears while adjusting the value. Return the value to the value recorded above.

Band 2

1. Connect a video generator to the antenna terminal.
2. Connect a digital volt meter to pin 5 of U7401.
3. Tune the video generator and the receiver to channel 50.
4. Adjust L7304 for 23.7V ±.3V.
5. Connect the digital volt meter to pin 11 of U1001.
6. Select parameter 1 31. See "Electronic Tuner Alignment Chart". Record present value. Adjust the value throughout its range. If a null in the voltage appears, L7110 alignment is acceptable. If a null in the voltage does not appear, adjust L7110 until a null in the voltage appears while adjusting the value. Return the value to the value recorded above.
7. Select parameter 1 32. See "Electronic Tuner Alignment Chart". Record present value. Adjust the value throughout its range. If a null in the voltage appears, L7113 alignment is acceptable. If a null in the voltage does not appear, adjust L7113 until a null in the voltage appears while adjusting the value. Return the value to the value recorded above.
8. Select parameter 1 33. See "Electronic Tuner Alignment Chart". Record present value. Adjust the value throughout its range. If a null in the voltage appears, L7111 alignment is acceptable. If a null in the voltage does not appear, adjust L7111 until a null in the voltage appears while adjusting the value. Return the value to the value recorded above.

Band 3

1. Connect a video generator to the antenna terminal.
2. Connect a digital volt meter to pin 5 of U7401.
3. Tune the video generator and the receiver to channel 125. Adjust L7303 for 23.2V ±.3V.
4. Connect a digital volt meter to pin 11 of U1001.
5. Select parameter 1 52. See "Electronic Tuner Alignment Chart". Record present value. Adjust the value throughout its range. If a null in the voltage appears, L7102 alignment is acceptable. If a null in the voltage does not appear, adjust L7102 until a null in the voltage appears while adjusting the value. Return the value to the value recorded above.
6. Select parameter 1 53. See "Electronic Tuner Alignment Chart". Record present value. Adjust the value throughout its range. If a null in the voltage appears, L7105 alignment is acceptable. If a null in the voltage does not appear, adjust L7105 until a null in the voltage appears while adjusting the value. Return the value to the value recorded above.
7. Select parameter 1 54. See "Electronic Tuner Alignment Chart". Record present value. Adjust the value throughout its range. If a null in the voltage appears, L7104 alignment is acceptable. If a null in the voltage does not appear, adjust L7104 until a null in the voltage appears while adjusting the value. Return the value to the value recorded above.

ELECTRONIC TUNER ALIGNMENT

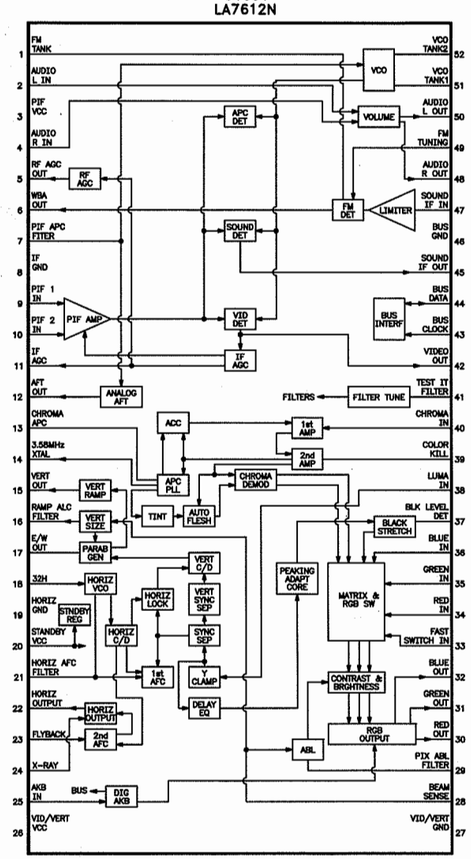
Use tuner alignment generator, RCA stock no. TAG001 and a VCR for signal source. Using a digital voltmeter, monitor the voltage at pin 11 of U1001. Tune the receiver and the generator to the channel specified in the parameter name. Adjust for minimum voltage at each parameter. The entire Electronic Tuner Alignment procedure, once started, must be completed in its entirety.

Parameter No.	Parameter Name	Value Range	On Set Value
0 00	Pass number for tuner alignment parameters	Must set to 77	
1 01	Ch. 2 secondary	00-62	26
1 02	Ch. 2 primary	00-62	23
1 03	Ch. 2 single	00-62	15
1 04	Ch. 6 secondary	00-62	51
1 05	Ch. 6 primary	00-62	45
1 06	Ch. 6 single	00-62	50
1 07	Ch. 98 secondary	00-62	52
1 08	Ch. 98 primary	00-62	47
1 09	Ch. 98 single	00-62	31
1 10	Ch. 15 secondary	00-62	54
1 11	Ch. 15 primary	00-62	53
1 12	Ch. 15 single	00-62	37
1 13	Ch. 17 secondary	00-62	44
1 14	Ch. 17 primary	00-62	52
1 15	Ch. 17 single	00-62	34
1 16	Ch. 18 secondary	00-62	31
1 17	Ch. 18 primary	00-62	26
1 18	Ch. 18 single	00-62	21
1 19	Ch. 9 secondary	00-62	42
1 20	Ch. 9 primary	00-62	36
1 21	Ch. 9 single	00-62	32
1 22	Ch. 29 secondary	00-62	44
1 23	Ch. 29 primary	00-62	39
1 24	Ch. 29 single	00-62	38
1 25	Ch. 39 secondary	00-62	50
1 26	Ch. 39 primary	00-62	45
1 27	Ch. 39 single	00-62	42

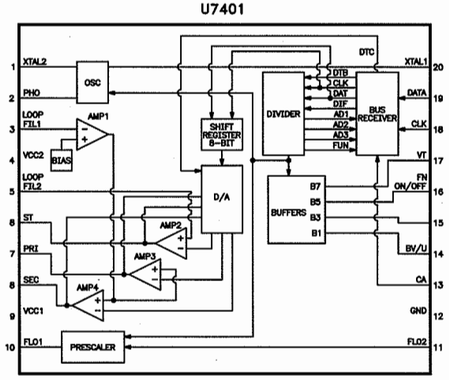
Parameter No.	Parameter Name	Value Range	On Set Value
1 28	Ch. 46 secondary	00-62	40
1 29	Ch. 46 primary	00-62	42
1 30	Ch. 46 single	00-62	36
1 31	Ch. 50 secondary	00-62	35
1 32	Ch. 50 primary	00-62	55
1 33	Ch. 50 single	00-62	30
1 34	Ch. 51 secondary	00-62	26
1 35	Ch. 51 primary	00-62	33
1 36	Ch. 51 single	00-62	36
1 37	Ch. 61 secondary	00-62	22
1 38	Ch. 61 primary	00-62	34
1 39	Ch. 61 single	00-62	32
1 40	Ch. 75 secondary	00-62	24
1 41	Ch. 75 primary	00-62	32
1 42	Ch. 75 single	00-62	31
1 43	Ch. 101 secondary	00-62	29
1 44	Ch. 101 primary	00-62	32
1 45	Ch. 101 single	00-62	40
1 46	Ch. 114 secondary	00-62	34
1 47	Ch. 114 primary	00-62	35
1 48	Ch. 114 single	00-62	46
1 49	Ch. 122 secondary	00-62	43
1 50	Ch. 122 primary	00-62	40
1 51	Ch. 122 single	00-62	56
1 52	Ch. 125 secondary	00-62	42
1 53	Ch. 125 primary	00-62	39
1 54	Ch. 125 single	00-62	51

IC FUNCTIONS

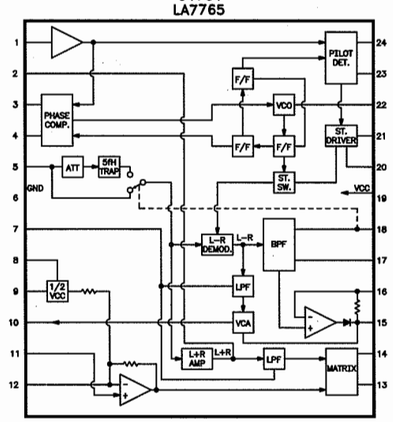
U1001
LA7612N



U7401



U1701
LA7765



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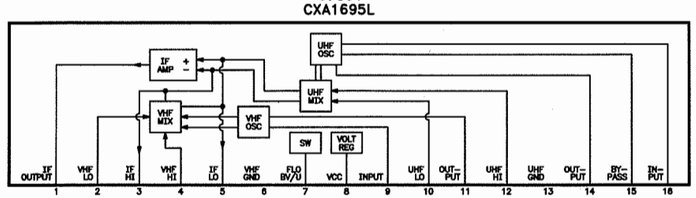

U4501
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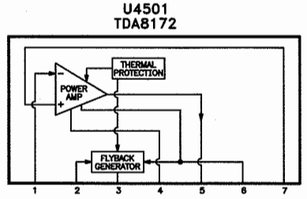
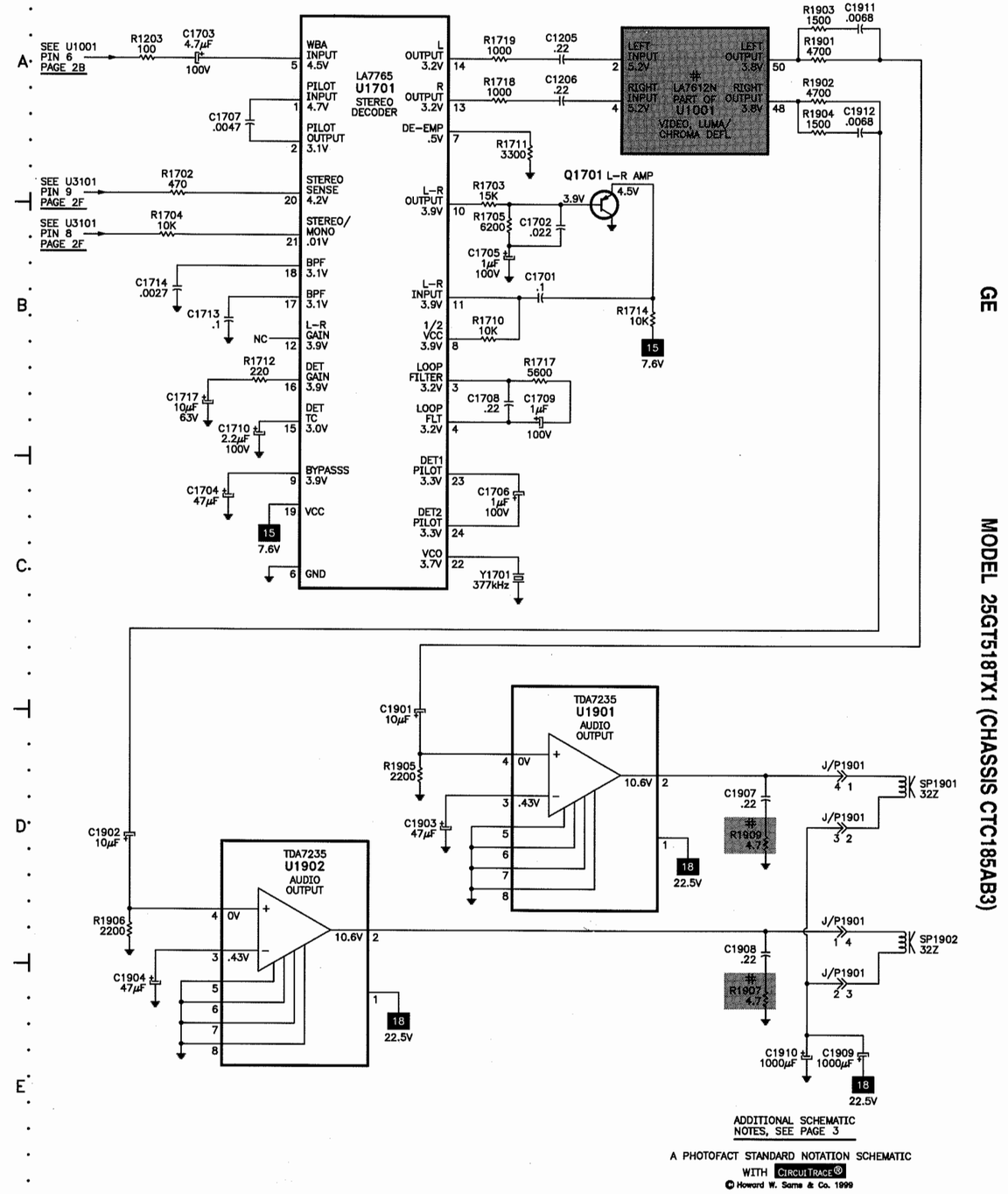


H
AUDIO SCHEMATIC

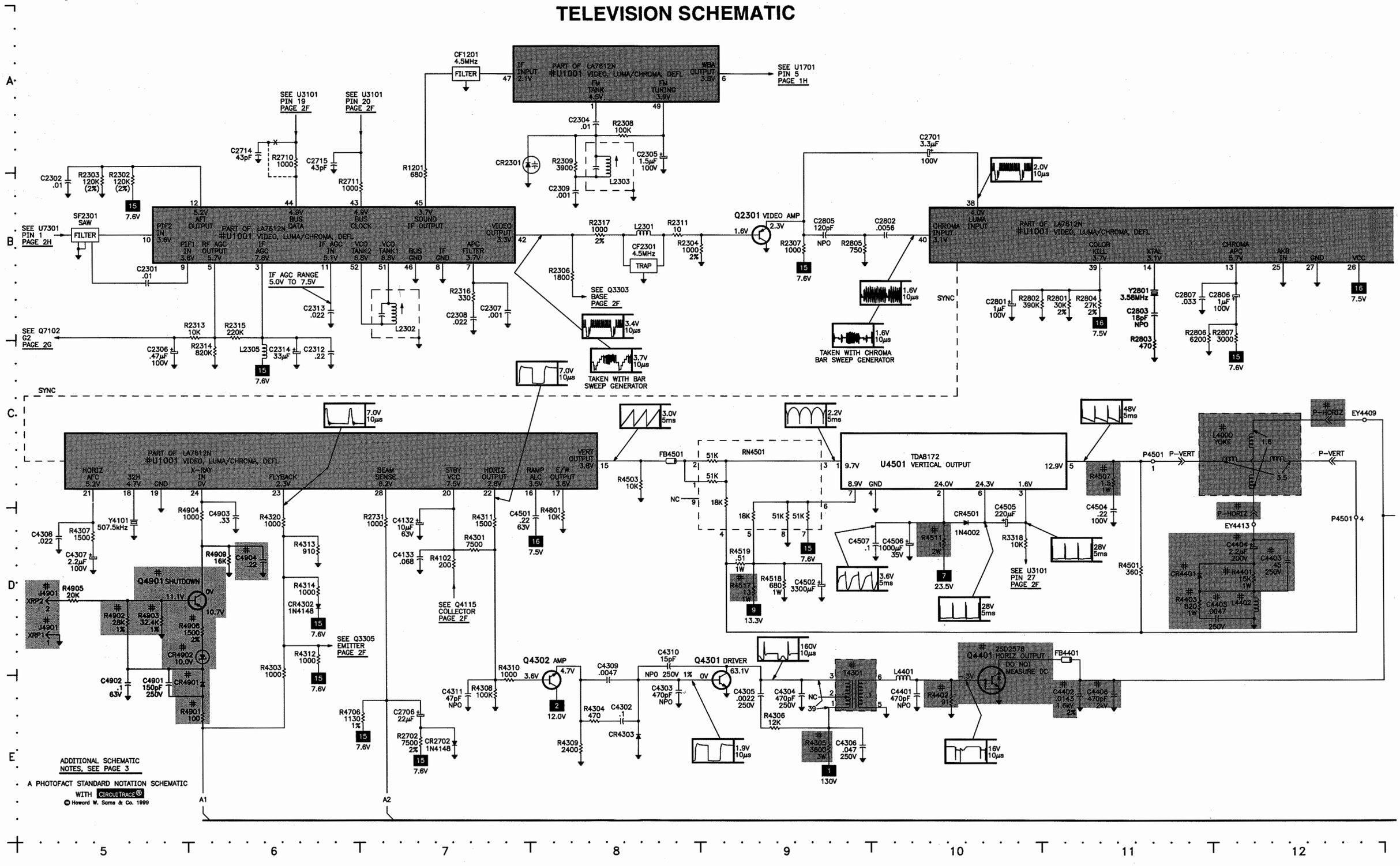


ADDITIONAL SCHEMATIC NOTES, SEE PAGE 3

A PHOTOFACT STANDARD NOTATION SCHEMATIC WITH CIRCUITRACE®

GE MODEL 25GT518TX1 (CHASSIS CTC185AB3)

TELEVISION SCHEMATIC



TELEVISION SCHEMATIC continued

C D

SEE U3101 PIN 16 PAGE 2F — R3310 3000 — R3309 360

SEE U3101 PIN 18 PAGE 2F — C2711 .022 — R3126 1000 — R2714 1000 — R3127 1000

SEE U3101 PIN 15 PAGE 2F — R3311 3000 — R3322 360 — C2710 .022

SEE U3101 PIN 17 PAGE 2F — R3320 3000 — R3316 360 — C2709 .022

33 0V FAST SW — 35 1.9V GREEN INPUT — 36 1.9V BLUE INPUT — 34 1.8V RED INPUT — 30 2.5V RED OUTPUT — BLUE OUTPUT 2.6V — GREEN OUTPUT 2.5V — 31

BLK LEVEL DET 4.5V — 37 — R2703 820K — C2702 2.2µF 100V — 16 7.5V

ABL FILTER 2.2V — 29 — R2726 2700 — C2703 1µF 100V — C2713 4.7µF 100V

TEST 5.6V — 41 — C2704 4.7µF 100V — R2705 100K — 16 7.5V

R2707 390 — L2703 — P2701 4 — P5001 2 — Q5001 2SC2482 RED DRV — 2.4V — 140V — 1.9V

R2708 390 — L2702 — P2701 2 — P5001 4 — 32 — Q5003 2SC2482 BLUE DRV — 2.6V — 131V — 2.1V

R2706 390 — L2701 — P2701 3 — P5001 3 — Q5002 2SC2482 GREEN DRV — 2.4V — 139V — 1.9V

R5022 100 — R5012 270 2% — R5007 8200 (22K) — C5005 390pF N750

R5026 100 — R5016 300 2% — C5007 470pF N750

R5024 100 — R5014 300 2% — C5006 330pF N750

R5011 1000 — Q5004 BIAS — .5V — 1.1V

C5004 15µF 63V — R5020 510 (680) (820) 2% — R5019 7500 (6200) 2% — P5001 1 — P2701 5 — 16 7.5V

4.2V 10µs — 4.3V 10µs — 3.6V 10µs

153V 10µs — 145V 10µs — 122V 10µs

R5001 20K 2W 2% — R5003 20K 2W 2% — R5002 20K 2W 2% — 5 180V

R5004 2200 — R5006 2200 — R5005 2200

PART OF K55001 CRT SOCKET — SPARK GAP

24V 10µs

V5000 CRT A63ADT15X07 — J5002 — TO CRT SHIELD

R5010 2200 — R5018 2200 — FOCUS RANGE 5kV TO 7kV

C5001 .001 3kV — EY5010 — EY4008 — R4703 1.8 3W — E5014

T4401 BOTTOM VIEW

272V 10µs

T4401 — HV RANGE 24kV TO 27kV — TO CRT HV ANODE — R5050 IS INTEGRAL PART OF FOCUS LEAD — R5050 — FOCUS — SCREEN

1 130V

SEE POWER SUPPLY PAGE 2E — SEE POWER SUPPLY PAGE 2E

200V 10µs — PRINTED SPARK GAP — R4704 82K — R4705 27K — C4710 .01 1kV — PRINTED SPARK GAP

27V 10µs

C4704 680pF 1kV — CR4702 — R4701 10 — C4702 680pF 1kV — CR4701 — P4401 4 — P5003 1 — C4703 10µF 250V — R5021 1200 1W — C5003 4.7µF 250V — L5001 — 5 180V SOURCE

P4401 1 — P5003 4

C4120 680pF 1kV — CR4102 — R4121 1000 — C4110 .1 63V — C4118 10µF 63V — R4122 2200 — CR4108 33.0V — C4119 .01 — C4117 1µF 100V — FB4110 — C7407 .001 — 6 33.0V SOURCE

7 23.5V SOURCE

R1903 20 2W — C4701 680µF — 18 22.5V SOURCE

C1905 .1 — C1906 .1

C4712 680pF 1kV — CR4705 — R4708 3000 1W — CR4706 12.0V — C7406 .001 — C4711 .01 — C4709 47µF — 8 −12.0V SOURCE

SEE Q4104 EMITTER PAGE 2E

120V 10µs

CR4704 — C4706 680pF 1kV — R4119 10 — R4710 3 2W — 9 13.3V SOURCE

10 13.2V SOURCE — C4111 10µF 63V

12 12.0V SOURCE — C4714 1000µF — R3108 10 — FB4111

R4105 2 — 13 12.0V SOURCE — C7109 .001 — C4116 47µF

R4115 51 — CR4116 9.1V — C7320 180pF NPO 2% — C7104 .001 — C4112 47µF — 14 9.0V SOURCE

R4108 8.2 1W — U4104 L78S75CV +7.6V REG — INPUT 10.9V — OUTPUT — GND — C4105 10µF 63V — 15 7.6V SOURCE

L2705 — C1718 .01 — C4101 4.7µF 100V

C4107 .068 — C2708 .22 — C2707 180µF — 16 7.5V SOURCE

R4130 75 — Q4106 +5V REG — 8.8V — 5.7V — 17 5.0V SOURCE — C7408 .01 — C4115 10µF 63V

R4131 1600 — R4132 47 — C4130 .22 — CR4115 5.6V

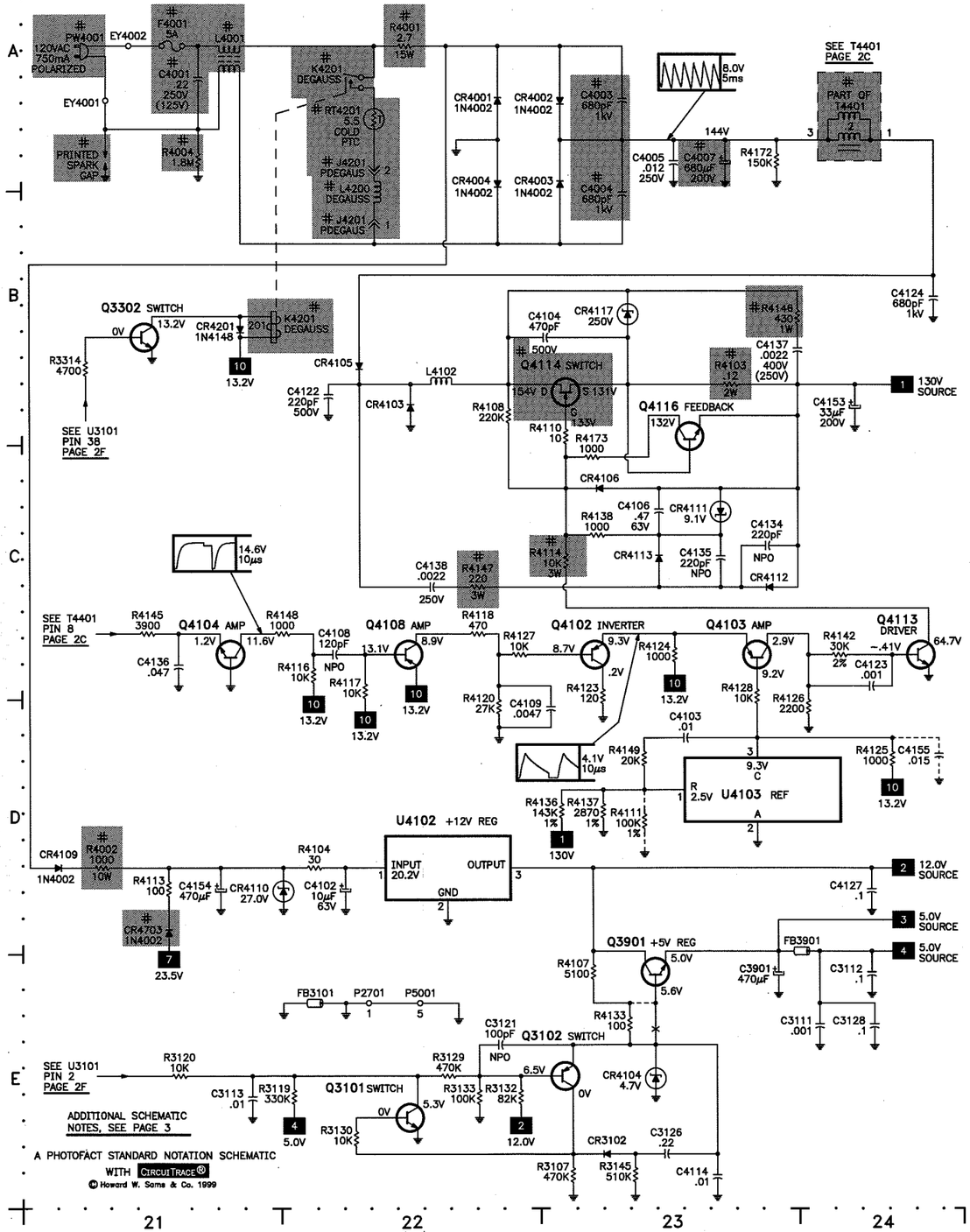
ADDITIONAL SCHEMATIC NOTES, SEE PAGE 3

A PHOTOFACT STANDARD NOTATION SCHEMATIC WITH CIRCUITRACE®

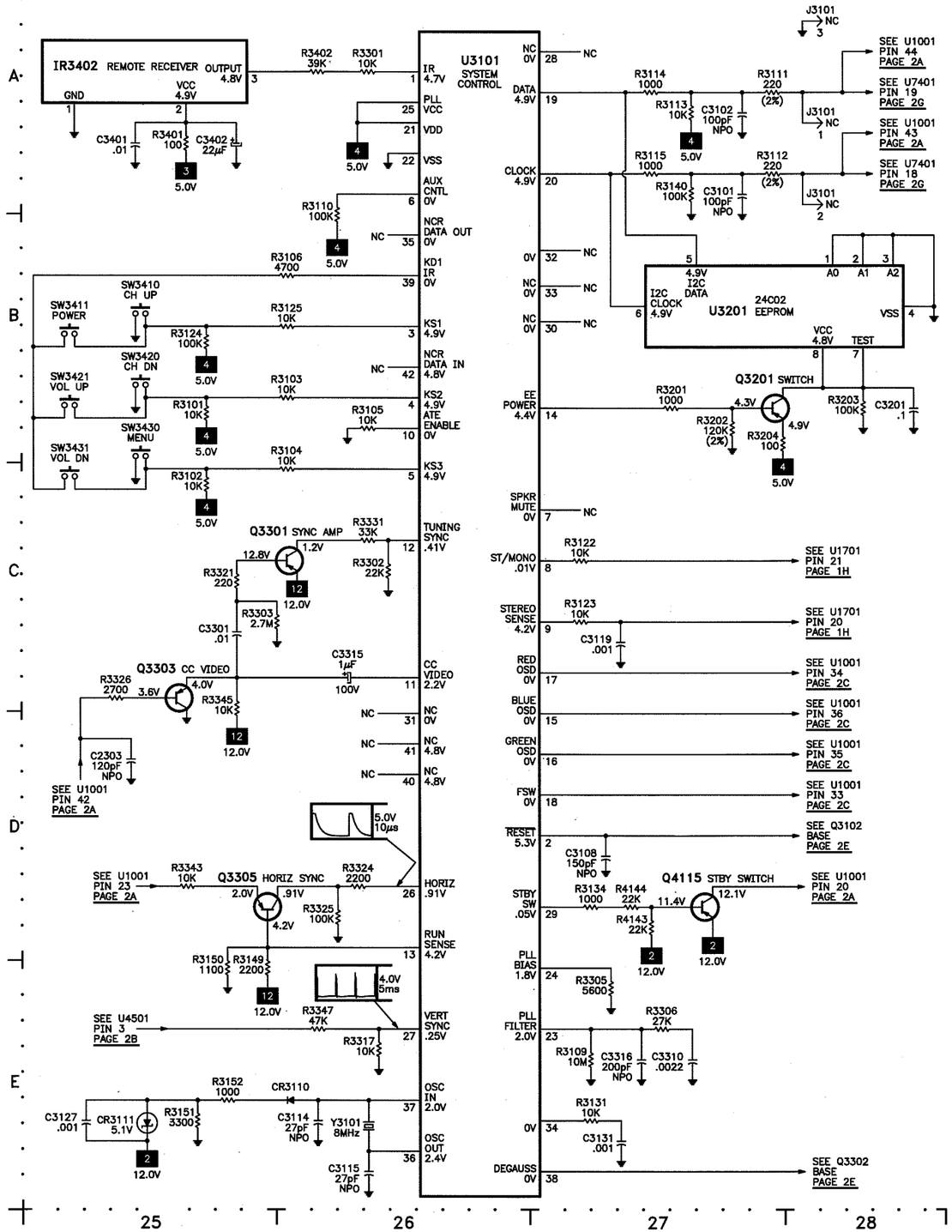
A1 A3 A4 A2 A3 A4 A1

13 14 15 16 17 18 19 20

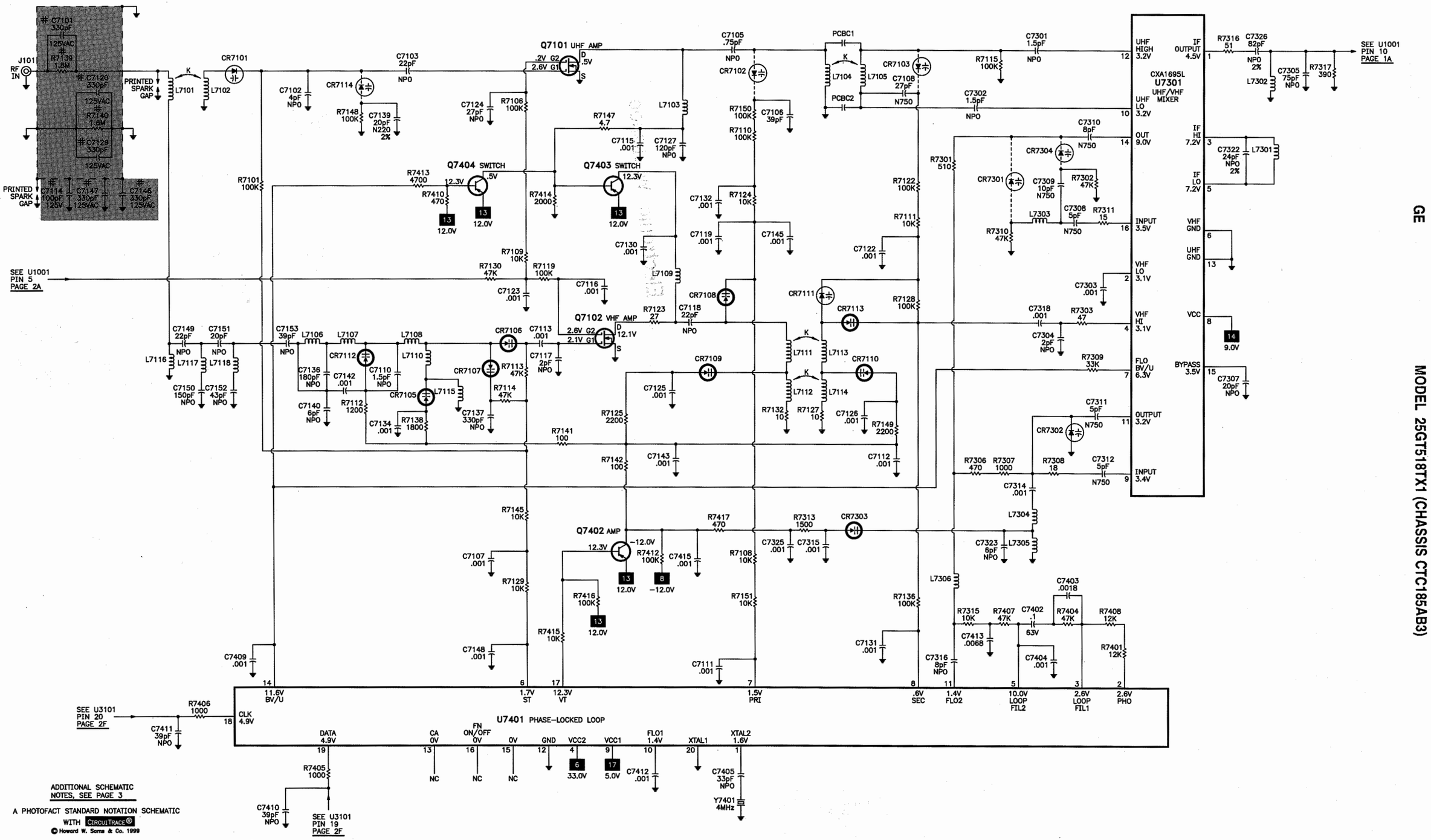
E
POWER SUPPLY SCHEMATIC



F
SYSTEM CONTROL SCHEMATIC



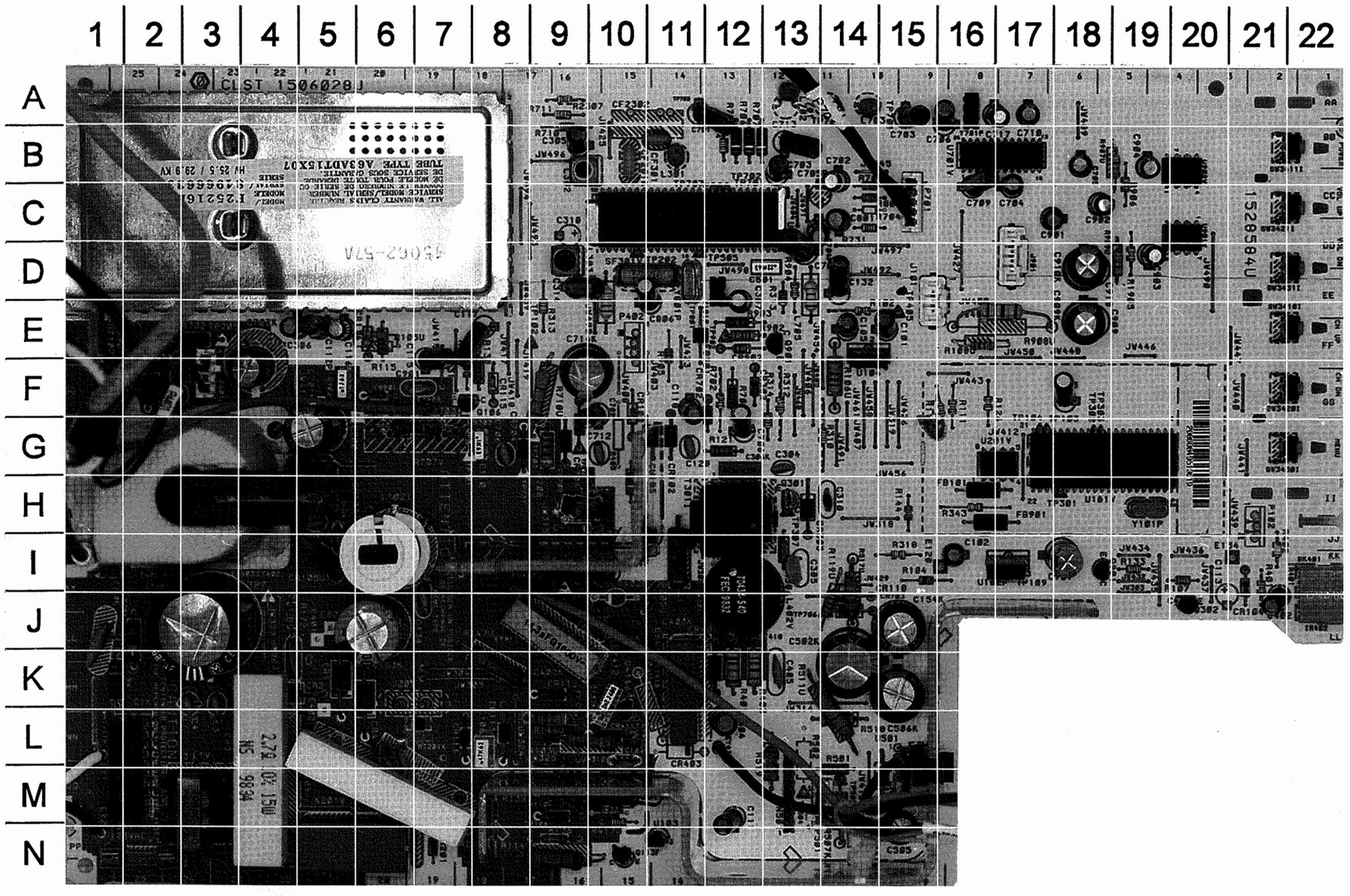
TUNER SCHEMATIC



GE

MODEL 25GT518TX1 (CHASSIS CTC185AB3)

MAIN BOARD - TOP VIEW



MAIN BOARD - TOP VIEW, GRIDTRACE LOCATION GUIDE

C1703	A-15	C4154	J-15	CR4501	M-15	R2702	F-12	R4401	K-12
C1704	B-17	C4304	G-13	CR4701	F-2	R2703	B-14	R4402	H-9
C1705	B-18	C4305	I-13	CR4702	E-3	R2706	B-12	R4403	K-12
C1706	A-16	C4306	G-12	CR4703	J-14	R2707	B-12	R4501	L-14
C1709	B-16	C4307	D-12	CR4704	G-8	R2708	B-12	R4507	M-14
C1710	A-17	C4310	H-14	CR4705	G-9	R2710	A-9	R4511	K-14
C1717	A-17	C4402	J-9	CR4706	G-9	R2711	A-9	R4517	I-14
C1901	C-17	C4403	J-10	CR4901	F-6	R2714	B-12	R4518	L-14
C1902	C-18	C4404	L-12	CR4902	E-12	R2731	C-14	R4519	L-13
C1903	D-19	C4405	I-13	F4001	N-2	R2804	C-14	R4701	F-2
C1904	B-19	C4406	K-11	FB3101	H-16	R3108	E-16	R4703	G-7
C1909	E-18	C4501	D-13	FB3901	H-16	R3111	F-16	R4704	J-2
C1910	D-18	C4502	K-14	FB4401	I-9	R3112	F-16	R4705	G-1
C2305	B-9	C4504	N-14	FB4501	E-11	R3126	F-16	R4706	F-12
C2306	E-4	C4505	N-15	IR3402	J-22	R3318	I-15	R4708	G-9
C2314	D-9	C4506	K-15	J1901	C-17	R3343	H-16	R4710	F-9
C2701	A-12	C4701	G-5	J3101	D-15	R3401	I-21	R4901	F-6
C2702	B-14	C4702	F-3	J4201	K-6	R3402	I-21	R4902	E-12
C2703	B-13	C4703	F-4	J4901	E-2	R4001	L-4	R4903	E-12
C2704	C-13	C4704	F-2	K4201	N-6	R4002	M-6	R4904	D-13
C2706	F-12	C4706	G-8	L2301	B-11	R4004	K-1	R4905	E-11
C2707	C-13	C4709	F-10	L2302	B-9	R4102	E-14	RN4501	M-13
C2713	B-13	C4710	J-1	L2303	D-9	R4103	L-10	RT4201	L-6
C2801	C-14	C4712	G-10	L2305	E-10	R4104	I-15	SF2301	D-10
C2806	D-11	C4714	F-9	L2701	A-14	R4105	E-6	SW3410	E-22
C3315	F-18	C4901	F-7	L2702	A-13	R4106	F-14	SW3411	B-22
C3402	J-21	C4902	F-5	L2703	A-14	R4107	I-20	SW3420	F-22
C3901	I-18	CF1201	B-10	L2705	D-13	R4108	M-9	SW3421	C-22
C4001	M-2	CF2301	B-11	L4001	M-3	R4110	M-9	SW3430	G-22
C4003	K-3	CR2702	F-12	L4102	I-6	R4114	N-9	SW3431	D-22
C4004	K-3	CR4001	K-5	L4401	H-9	R4115	E-6	T4301	H-12
C4005	K-4	CR4002	K-4	L4402	I-12	R4119	J-14	T4401	H-3
C4007	J-3	CR4003	L-3	P2701	B-15	R4121	G-12	U1001	C-10
C4101	E-15	CR4004	K-6	P4401	F-3	R4122	G-10	U1701	B-16
C4102	I-16	CR4102	G-11	P4401	M-14	R4130	F-8	U1901	C-20
C4104	L-10	CR4103	I-5	Q3302	J-20	R4131	F-7	U1902	B-20
C4105	E-14	CR4104	I-21	Q3901	I-18	R4133	I-19	U3101	G-19
C4106	L-8	CR4105	I-5	Q4103	A-11	R4136	N-9	U3201	G-16
C4110	G-8	CR4106	M-9	Q4106	F-7	R4138	M-8	U4102	I-17
C4111	M-12	CR4108	F-10	Q4113	N-10	R4144	H-15	U4103	N-11
C4112	E-5	CR4109	L-4	Q4114	M-10	R4145	H-10	U4104	E-14
C4115	E-7	CR4110	J-14	Q4116	K-10	R4146	L-9	U4501	L-15
C4116	E-5	CR4111	L-7	Q4301	H-13	R4147	K-8	XRP1	E-2
C4117	E-8	CR4112	K-9	Q4401	I-9	R4172	J-4	XRP2	E-2
C4118	F-11	CR4113	L-8	Q4901	E-13	R4173	M-10	Y1701	A-16
C4120	G-11	CR4115	F-8	R1905	D-19	R4303	G-7	Y2801	D-11
C4122	I-5	CR4116	E-6	R1906	C-19	R4305	I-11	Y3101	H-19
C4124	H-5	CR4117	L-10	R1907	B-19	R4306	I-13	Y4101	D-12
C4132	D-14	CR4201	N-7	R1908	E-17	R4310	G-14		
C4137	K-10	CR4302	F-12	R1909	D-19	R4312	F-13		
C4138	J-7	CR4303	H-13	R2307	A-9	R4313	D-13		
C4153	J-6	CR4401	K-12	R2313	E-9	R4314	G-13		

SCHEMATIC COMPONENT LOCATION GUIDE

C1205	A2	C3115	E26	C4403	D12	C7143	C32	CR4116	D18	L7108	C31	R1902	A3	R3133	E22	R4132	E18	R5018	C20	RT4201	A22
C1206	A2	C3119	C27	C4404	D12	C7145	B33	CR4117	B23	L7109	B32	R1903	A3	R3134	D27	R4133	E23	R5019	C18	SF2301	B5
C1701	B2	C3121	E22	C4405	D11	C7146	B29	CR4201	B21	L7110	C31	R1904	A3	R3140	B27	R4136	D23	R5020	C17	SP1901	D4
C1702	B3	C3126	E23	C4406	E11	C7147	B29	CR4302	D6	L7111	C33	R1905	D2	R3145	E23	R4137	D23	R5021	D16	SP1902	D4
C1703	A1	C3127	E25	C4501	D7	C7148	D31	CR4303	E8	L7112	C33	R1906	D1	R3149	E25	R4138	C23	R5022	B18	SW3410	B25
C1704	C1	C3128	E24	C4502	D9	C7149	C30	CR4401	D11	L7113	C33	R1907	E3	R3150	E25	R4142	C24	R5024	C17	SW3411	B25
C1705	B2	C3131	E27	C4504	D11	C7150	C30	CR4501	D10	L7114	C33	R1908	D16	R3151	E25	R4143	D27	R5026	B17	SW3420	B25
C1706	C2	C3201	B28	C4505	D10	C7151	C30	CR4701	D15	L7115	C31	R1909	D3	R3152	E25	R4144	D27	R5050	D14	SW3421	B25
C1707	A1	C3301	C25	C4506	D10	C7152	C30	CR4702	D16	L7116	C29	R2302	B5	R3201	B27	R4145	C21	R7101	B30	SW3430	C25
C1708	B2	C3310	E27	C4507	D9	C7153	C30	CR4703	D21	L7117	C30	R2303	B5	R3202	B27	R4146	B23	R7106	A31	SW3431	C25
C1709	B2	C3315	C26	C4701	D17	C7301	A34	CR4704	C17	L7118	C30	R2304	B8	R3203	B28	R4147	C22	R7108	D33	T4301	E9
C1710	B1	C3316	E27	C4702	D15	C7302	A34	CR4705	E16	L7301	B36	R2306	B8	R3204	C27	R4148	C21	R7109	B31	T4401	A24
C1713	B1	C3401	A25	C4703	D16	C7303	B35	CR4706	E16	L7302	A36	R2307	B9	R3301	A26	R4149	D23	R7110	B33	T4401	D13
C1714	B1	C3402	A25	C4704	C16	C7304	C34	CR4901	E6	L7303	B34	R2308	A8	R3302	C26	R4172	A23	R7111	B34	U1001	A3
C1717	B1	C3901	E23	C4706	D17	C7305	A36	CR4902	D6	L7304	D34	R2309	B8	R3303	C25	R4173	C23	R7112	C31	U1001	A8
C1718	E19	C4001	A21	C4709	E17	C7307	C35	CR7101	A30	L7305	D34	R2311	B8	R3305	E27	R4301	D7	R7113	C31	U1001	B10
C1901	D2	C4003	A23	C4710	D15	C7308	B34	CR7102	A33	L7306	D34	R2313	C5	R3306	E27	R4303	E6	R7114	C31	U1001	B6
C1902	D1	C4004	B23	C4711	E16	C7309	B34	CR7103	A34	PCBC1	A33	R2314	C6	R3309	A13	R4304	E8	R7115	A34	U1001	C5
C1903	D2	C4005	A23	C4712	E16	C7310	B35	CR7105	C31	PCBC2	A33	R2315	C6	R3310	A13	R4305	E9	R7119	B31	U1701	A2
C1904	E1	C4007	A23	C4714	D18	C7311	C35	CR7106	C31	PW4001	A21	R2316	B7	R3311	B14	R4306	E9	R7122	B34	U1901	D3
C1905	E16	C4101	E19	C4901	E5	C7312	C35	CR7107	C31	Q1701	B3	R2317	B8	R3314	B21	R4307	D5	R7123	C32	U1902	D2
C1906	E17	C4102	D22	C4902	E5	C7314	C34	CR7108	B33	Q2301	B9	R2702	E7	R3316	A16	R4308	E7	R7124	B33	U3101	A26
C1907	D3	C4103	D23	C4903	D6	C7315	D33	CR7109	C32	Q3101	E22	R2703	B13	R3317	E26	R4309	E8	R7125	C32	U3201	B27
C1908	D3	C4104	B22	C4904	D6	C7316	D34	CR7110	C33	Q3102	E23	R2705	B14	R3318	D10	R4310	E7	R7127	C33	U4102	D22
C1909	E4	C4105	E17	C5001	D19	C7318	C34	CR7111	B33	Q3201	B27	R2706	C17	R3320	A15	R4311	D7	R7128	B34	U4103	D23
C1910	E3	C4106	C23	C5003	D16	C7320	D18	CR7112	C31	Q3301	C25	R2707	A17	R3321	C25	R4312	D6	R7129	D31	U4104	D18
C1911	A4	C4107	E18	C5004	C17	C7322	B35	CR7113	C33	Q3302	B21	R2708	B17	R3322	B15	R4313	D6	R7130	B31	U4501	C10
C1912	A4	C4108	C22	C5005	B18	C7323	D34	CR7114	A31	Q3303	D25	R2710	B6	R3324	D26	R4314	D6	R7132	C33	U7301	A35
C2301	B5	C4109	D23	C5006	C17	C7325	D33	CR7301	B34	Q3305	D25	R2711	B6	R3325	D26	R4320	D6	R7136	D34	U7401	E31
C2302	B5	C4110	D15	C5007	B17	C7326	A35	CR7302	C34	Q3901	E23	R2714	B13	R3326	D25	R4401	D12	R7138	C31	V5000	B20
C2303	D25	C4111	D19	C7101	A29	C7402	D34	CR7303	D33	Q4102	C23	R2726	B13	R3331	C26	R4402	E10	R7139	A29	Y1701	C2
C2304	A8	C4112	D19	C7102	A30	C7403	D34	CR7304	B34	Q4103	C23	R2731	D7	R3343	D25	R4403	D11	R7140	B29	Y2801	B11
C2305	B8	C4114	E23	C7103	A31	C7404	D34	F4001	A21	Q4104	C21	R2801	B11	R3345	D25	R4501	D11	R7141	C32	Y3101	E26
C2306	C5	C4115	E19	C7104	D19	C7405	E33	FB3101	E22	Q4106	E18	R2802	B10	R3347	E26	R4503	C8	R7142	C32	Y4101	D5
C2307	B7	C4116	D19	C7105	A33	C7406	E16	FB3901	E23	Q4108	C22	R2803	C11	R3401	A25	R4507	C11	R7145	D31	Y7401	E33
C2308	B7	C4117	D16	C7106	A33	C7407	D17	FB4110	D16	Q4113	C24	R2804	B11	R3402	A26	R4511	D10	R7147	B32		
C2309	B8	C4118	D16	C7107	D31	C7408	E19	FB4111	D18	Q4114	B22	R2805	B9	R4001	A22	R4517	D9	R7148	A31		
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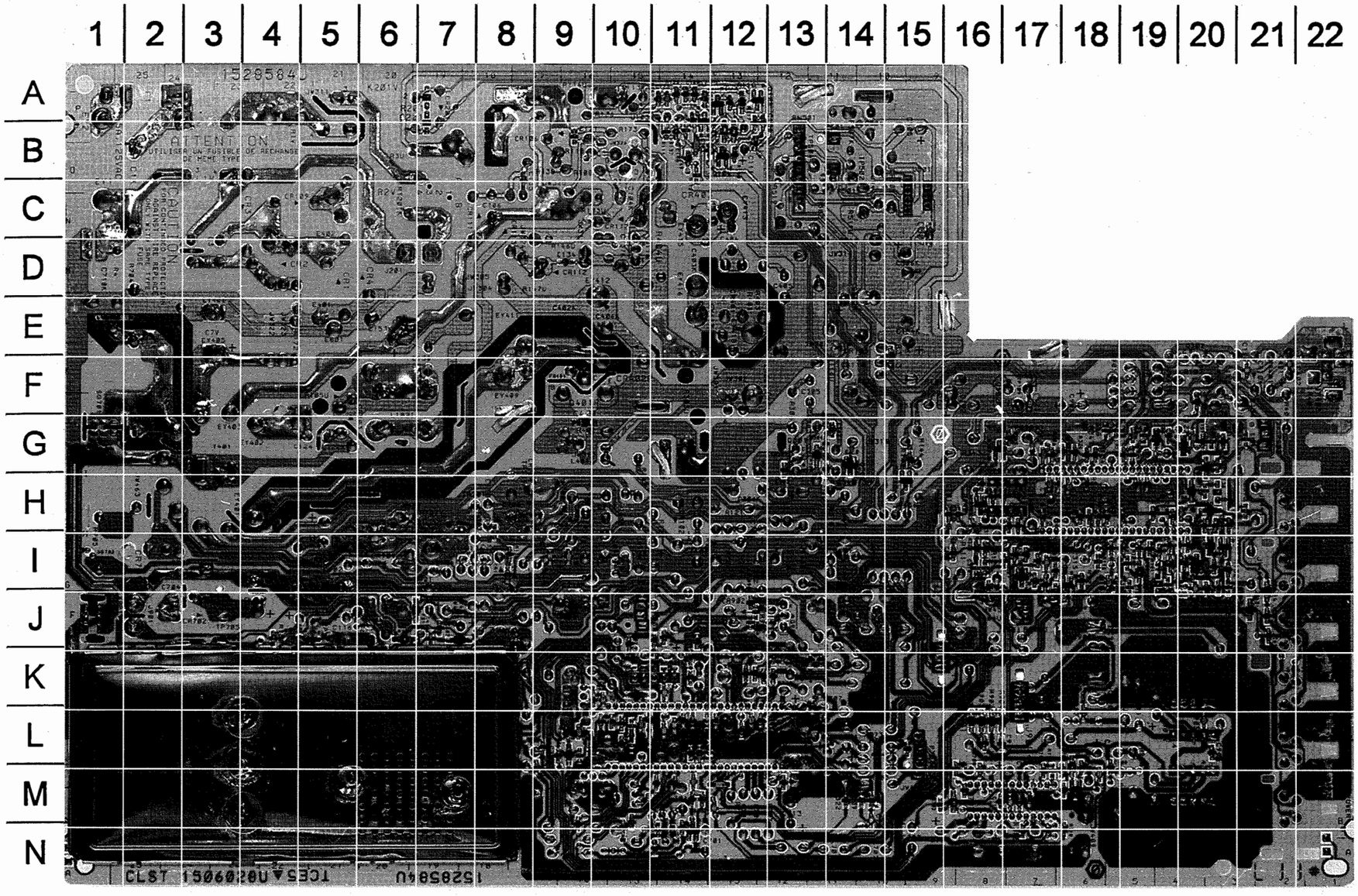
C2313	B6	C4120	D15	C7109	D19	C7410	E30	FB4501	C8	Q4116	C23	R2807	C12	R4004	A21	R4519	D9	R7150	A33		
C2314	C6	C4122	B22	C7110	C31	C7411	E30	IR3402	A25	Q4301	E9	R3101	B25	R4102	D7	R4701	D15	R7151	D33		
C2701	B10	C4123	D24	C7111	D33	C7412	E32	J101	A29	Q4302	E8	R3102	C25	R4103	B23	R4703	D20	R7301	B34		
C2702	B13	C4124	B24	C7112	C33	C7413	D34	K4201	A22	Q4401	E10	R3103	B25	R4104	D22	R4704	D14	R7302	B35		
C2703	B14	C4127	D24	C7113	C31	C7415	D32	K4201	B21	Q4901	D5	R3104	C25	R4105	D18	R4705	D15	R7303	C34		
C2704	B14	C4130	E17	C7114	B29	CF1201	A7	KS5001	A19	Q5001	A18	R3105	B26	R4106	D17	R4706	E6	R7306	C34		
C2706	E7	C4132	D7	C7115	B32	CF2301	B8	L2301	B8	Q5002	C17	R3106	B25	R4107	E23	R4708	E15	R7307	C34		
C2707	E19	C4133	D7	C7116	B32	CR2301	B7	L2302	B7	Q5003	B17	R3107	E23	R4108	B22	R4710	D17	R7308	C34		
C2708	E19	C4134	C23	C7117	C32	CR2702	E7	L2303	B8	Q5004	C18	R3108	D18	R4110	C23	R4801	D8	R7309	C35		
C2709	B16	C4135	C23	C7118	C32	CR3102	E23	L2305	C6	Q7101	A32	R3109	E27	R4111	D23	R4901	E6	R7310	B34		
C2710	B15	C4136	C21	C7119	B33	CR3110	E26	L2701	C17	Q7102	C32	R3110	B26	R4113	D21	R4902	D5	R7311	B35		
C2711	A14	C4137	B23	C7120	A29	CR3111	E25	L2702	B17	Q7402	D32	R3111	A27	R4114	C23	R4903	D5	R7313	D33		
C2713	B13	C4138	C22	C7122	B33	CR4001	A22	L2703	A17	Q7403	B32	R3112	A27	R4115	D18	R4904	D6	R7315	D34		
C2714	A6	C4153	B24	C7123	B31	CR4002	A23	L2705	E18	Q7404	B31	R3113	A27	R4116	C22	R4905	D5	R7316	A35		
C2715	B6	C4154	D21	C7124	A31	CR4003	B23	L4000	C11	R1201	B7	R3114	A27	R4117	D22	R4906	D6	R7317	A36		
C2801	B10	C4155	D24	C7125	C32	CR4004	B22	L4001	A21	R1203	A1	R3115	A27	R4118	C22	R4909	D6	R7401	D35		
C2802	B9	C4302	E8	C7126	C33	CR4102	D15	L4102	B22	R1702	B1	R3119	E22	R4119	D17	R5001	A18	R7404	D34		
C2803	B11	C4303	E8	C7127	B32	CR4103	B22	L4200	B22	R1703	B2	R3120	E21	R4120	D22	R5002	C18	R7405	E30		
C2805	B9	C4304	E9	C7129	B29	CR4104	E23	L4401	E10	R1704	B1	R3122	C27	R4121	D15	R5003	B18	R7406	E30		
C2806	B12	C4305	E9	C7130	B32	CR4105	B22	L4402	D12	R1705	B2	R3123	C27	R4122	D16	R5004	A19	R7407	D34		
C2807	B11	C4306	E9	C7131	D33	CR4106	C23	L5001	D16	R1710	B2	R3124	B25	R4123	D23	R5005	C19	R7408	D35		
C3101	B27	C4307	D5	C7132	B33	CR4108	D16	L7101	A29	R1711	A2	R3125	B25	R4124	C23	R5006	B19	R7410	B31		
C3102	A27	C4308	D5	C7134	C31	CR4109	D21	L7102	A30	R1712	B1	R3126	A13	R4125	D24	R5007	B18	R7412	D32		
C3108	D27	C4309	E8	C7136	C30	CR4110	D21	L7103	A32	R1714	B3	R3127	B14	R4126	D23	R5010	C19	R7413	B31		
C3111	E24	C4310	E8	C7137	C31	CR4111	C23	L7104	A33	R1717	B2	R3129	E22	R4127	C22	R5011	C18	R7414	B32		
C3112	E24	C4311	E7	C7139	A31	CR4112	C23	L7105	A33	R1718	A2	R3130	E22	R4128	D23	R5012	B18	R7415	D32		
C3113	E21	C4401	E10	C7140	C30	CR4113	C23	L7106	C30	R1719	A2	R3131	E27	R4130	E17	R5014	C18	R7416	D32		
C3114	E26	C4402	E11	C7142	C30	CR4115	E18	L7107	C30	R1901	A3	R3132	E22	R4131	E17	R5016	B18	R7417	D32		

MAIN BOARD - BOTTOM VIEW



A HOWARD W. SAMS GRIDTRACE™ PHOTO

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MAIN BOARD - BOTTOM VIEW, GRIDTRACE LOCATION GUIDE

C1205	L-9	C3121	H-20	Q3201	H-16	R2806	J-11	R3310	I-16
C1206	L-10	C3126	H-20	Q3301	I-17	R2807	J-11	R3311	I-17
C1701	M-18	C3127	G-20	Q3303	I-18	R3101	I-19	R3314	G-20
C1702	M-18	C3128	I-20	Q3305	G-16	R3102	I-19	R3316	M-14
C1707	M-16	C3131	G-19	Q4102	A-12	R3103	I-19	R3317	H-18
C1708	M-16	C3201	H-16	Q4104	B-12	R3104	I-19	R3320	I-16
C1713	M-17	C3301	I-17	Q4108	A-12	R3105	H-19	R3321	I-17
C1714	M-17	C3310	G-17	Q4115	H-15	R3106	G-20	R3322	M-14
C1718	M-16	C3316	H-17	Q4302	G-14	R3107	I-20	R3324	G-18
C1905	L-20	C3401	F-21	R1201	M-11	R3109	G-17	R3325	G-17
C1906	L-20	C4103	B-11	R1203	K-10	R3110	H-19	R3326	I-18
C1907	L-18	C4107	L-15	R1702	M-15	R3113	H-16	R3331	I-17
C1908	L-18	C4108	A-12	R1703	M-18	R3114	H-17	R3345	I-17
C1911	L-16	C4109	A-11	R1704	M-16	R3115	H-17	R3347	G-18
C1912	L-16	C4114	F-21	R1705	M-18	R3119	I-20	R4113	E-15
C2301	K-11	C4119	I-9	R1710	M-17	R3120	I-20	R4116	B-12
C2302	L-11	C4123	A-11	R1711	M-17	R3122	I-18	R4117	A-12
C2303	M-10	C4127	F-17	R1712	N-17	R3123	I-18	R4118	A-12
C2304	K-10	C4130	I-8	R1714	M-18	R3124	I-19	R4120	A-11
C2307	L-10	C4133	L-12	R1717	L-16	R3125	I-19	R4123	A-12
C2308	L-10	C4134	D-9	R1718	N-18	R3127	I-16	R4124	B-12
C2309	L-9	C4135	B-8	R1719	N-17	R3129	I-19	R4125	B-12
C2312	L-10	C4136	B-11	R1901	L-16	R3130	I-20	R4126	A-11
C2313	L-11	C4302	G-14	R1902	L-16	R3131	G-19	R4127	A-11
C2708	K-13	C4303	G-13	R1903	L-16	R3132	I-20	R4128	A-11
C2709	M-14	C4308	L-12	R1904	L-16	R3133	I-10	R4132	I-8
C2710	M-12	C4309	G-13	R2302	J-11	R3134	G-18	R4137	B-11
C2711	M-12	C4311	K-13	R2303	L-11	R3140	H-16	R4142	A-11
C2714	L-9	C4401	G-9	R2304	M-11	R3145	H-20	R4143	G-15
C2715	L-9	C4507	C-15	R2306	M-10	R3149	I-17	R4148	B-12
C2802	M-11	C4711	I-9	R2308	L-9	R3150	H-18	R4149	B-11
C2803	K-11	C4903	L-12	R2309	K-10	R3151	G-20	R4301	K-12
C2805	M-11	C4904	K-13	R2311	N-11	R3152	G-19	R4304	G-14
C2807	L-11	CR2301	L-9	R2314	L-10	R3201	H-18	R4307	K-12
C3101	H-16	CR3102	I-20	R2315	L-10	R3202	H-18	R4308	K-13
C3102	I-16	CR3110	G-19	R2316	L-10	R3203	H-16	R4309	G-13
C3108	H-19	CR3111	G-20	R2317	M-11	R3204	H-16	R4311	K-12
C3111	H-18	FB4110	J-7	R2705	L-11	R3301	I-20	R4320	K-13
C3112	H-17	FB4111	J-6	R2726	M-13	R3302	H-18	R4503	J-11
C3113	H-20	Q1701	M-18	R2801	L-11	R3303	I-17	R4801	L-12
C3114	H-19	Q2301	N-11	R2802	L-11	R3305	H-17	R4906	J-12
C3115	H-19	Q3101	I-20	R2803	K-11	R3306	G-17	R4909	K-13
C3119	I-18	Q3102	I-20	R2805	M-11	R3309	M-14	R7130	J-4

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.

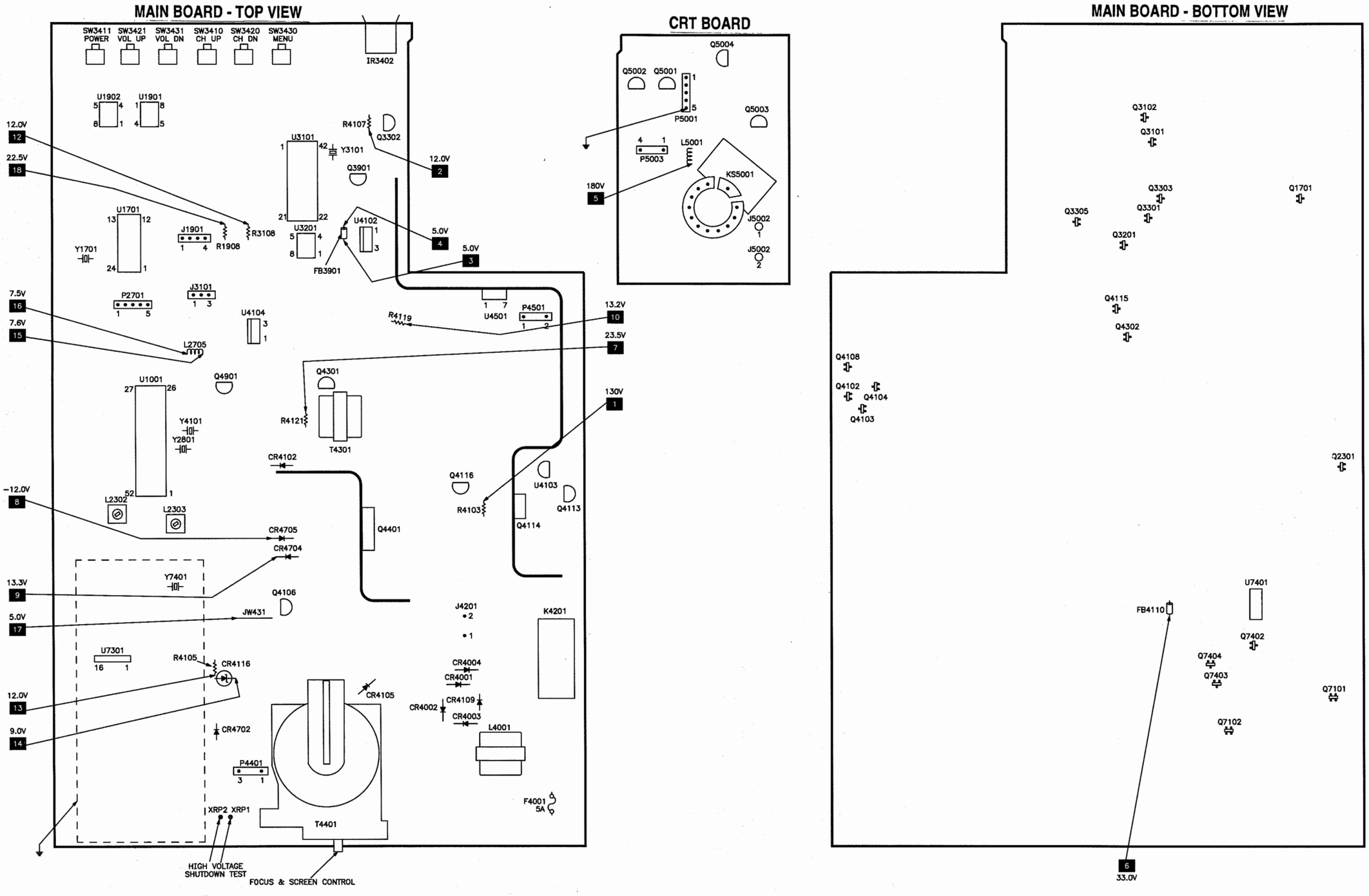
Waveforms and voltages are taken from ground, unless noted otherwise.
Waveforms taken with triggered scope and colorbar signal. Waveform voltage is peak to peak. Timebase is per division. Waveforms shown at 10 divisions.
Supply voltages maintained as seen at input.
Voltages measured with digital meter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

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

PLACEMENT CHART



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)
- Terrell & Nobis (TNI Electronics)
- Sencore, Inc.
- Thomson Consumer Electronics, Inc. (SK, TCE)

SEMICONDUCTORS

(Select the replacement that gives the best results.)

Item No.	Type No.	Mfr. Part No.	ECG Part No.	NTE Part No.	TCE Part No.
CR2301	-	227051	-	-	-
CR2702	1N4148	164717	ECG519	NTE519	SK3100
CR3102, 10	-	232709	-	-	-
CR3111	-	239195	-	-	-
CR4001 Thru					
CR4004	1N4002	147015	ECG116	NTE116	SK3311
CR4102	-	227066	-	-	-
CR4103	-	233082	-	-	-
CR4104	-	223083	-	-	-
CR4105	-	164589	ECG558	NTE558	SK3998
CR4106	-	207878	-	-	-
CR4108	-	215489	-	-	-
CR4109	1N4002	155276	ECG116	NTE116	SK3311
CR4110	-	233084	-	-	-
CR4111	-	225702	-	-	-
CR4112, 13	-	207878	-	-	-
CR4115	-	215488	-	NTE136	-
CR4116	-	227362	-	-	-
CR4117	-	242171	-	-	-
CR4201, 302	1N4148	164717	ECG519	NTE519	SK3100
CR4303	-	176296	ECG125	NTE125	SK5010A
# **CR4401**	-	140971	ECG552	NTE552	SK9000
CR4501	1N4002	155276	ECG116	NTE116	SK3311
CR4701	-	241304	-	-	-
CR4702	-	176296	ECG125	NTE125	SK5010A
# **CR4703**	1N4002	155276	ECG116	NTE116	SK3311
CR4704	-	207878	-	-	-
CR4705	-	227066	-	-	-
CR4706	-	220637	-	-	-
# **CR4901**	-	157301	ECG177	NTE177	SK9091
# **CR4902**	-	159429	ECG5019T1	NTE5019T1	SK9970
CR7101	-	215492	-	-	-
CR7102, 03 (1)	-	-	-	-	-
CR7105	-	215493	-	-	-
CR7106	-	233085	-	-	-
CR7107, 08	-	211863	-	-	-
CR7109, 10	-	215493	-	-	-
CR7111	-	211863	-	-	-
CR7112	-	215493	-	-	-
CR7113	-	233085	-	-	-
CR7114 (1)	-	-	-	-	-
CR7301 (1)	-	-	-	-	-
CR7302	-	211863	-	-	-
CR7303	-	215493	-	-	-
CR7304 (1)	-	-	-	-	-
Q1701	-	215496	-	-	-
Q2301	-	215496	-	-	-
Q3101	-	215495	-	-	-
Q3102	-	215496	-	-	-
Q3201	-	215496	-	-	-
Q3301	-	215496	-	-	-
Q3302	-	223704	-	-	-

 # For SAFETY use only equivalent replacement part.
(1) Part of CR7101 Diode Kit.

PARTS LIST continued

SEMICONDUCTORS continued

(Select the replacement that gives the best results.)

	Item No.	Type No.	Mfr. Part No.	ECG Part No.	NTE Part No.	TCE Part No.
	Q3303, 05	-	215496	-	-	-
	Q3901	-	229220	-	-	-
	Q4102, 03	-	215496	-	-	-
	Q4104	-	215495	-	-	-
	Q4106	-	229220	-	-	-
	Q4108	-	215496	-	-	-
	Q4113	-	146851	ECG287	NTE287	SK3433
#	**Q4114**	-	242204	-	-	-
	Q4115	-	215496	-	-	-
	Q4116	-	229220	-	-	-
	Q4301	-	146851	ECG287	NTE287	SK3433
	Q4302	-	215495	-	-	-
#	**Q4401**	2SD2578	242224	-	-	-
#	**Q4901**	-	147665	ECG159	NTE159	SK3466
	Q5001, 02, 03	2SC2482	231533	ECG399	NTE399	SK9352
	Q5004	-	219025	ECG159	NTE159	SK3466
	Q7101, 02	-	226973	-	-	-
	Q7402	-	215496	-	-	-
	Q7403	-	231534	-	-	-
	Q7404	-	215496	-	-	-
#	**U1001**	LA7612N	241266	-	-	-
	U1701	LA7765	215525	-	-	-
	U1901	TDA7235	231531	-	-	-
	U1902	TDA7235	231531	-	-	-
	U3101	-	233180	-	-	-
	U3201	24C02	233181	-	-	-
	U4102	-	162394	-	NTE966	-
	U4103	-	231525	-	-	-
	U4104	L78S75CV	231526	-	-	-
	U4501	TDA8172	215531	ECG1788	NTE1788	SK9875
	U7301	CXA1695L	231528	-	-	-
	U7401	-	231529	-	-	-

 # For SAFETY use only equivalent replacement part.

CONTROLS & RESISTORS

	Item No.	Function/Rating	Mfr. Part No.	NTE Part No.
#	**R1907**	4.7 5% 1/4W	200197	QW4D7
#	**R1908**	20 5% 2W	242226	2W020
#	**R1909**	4.7 5% 1/4W	200197	QW4D7
	R2302, 03	120K 2% 1/10W	207834	-
		120K 5% 1/10W	-	-
	R2304, 17	1000 2% 1/10W	197638	-
	R2702	7500 2% 1/4W	175761	QW275
	R2801	30K 2% 1/10W	200176	-
	R2804	27K 2% 1/4W	175326	QW327
#	**R3108**	10 5% 1/4W	241259	QW010
	R3111, 12	220 2% 1/4W	175324	QW122
		220 5% 1/4W	-	QW122
	R3202	120K 2% 1/10W	207834	-
		120K 5% 1/10W	-	-
#	**R4001**	2.7 10% 15W Wirewound	190487	-
#	**R4002**	1000 5% 10W	231504	10W210
#	**R4004**	1.8M 10% 1/2W	220333	HW518
#	**R4103**	.12 5% 2W Wirewound	242202	-
#	**R4105**	2 5% 1/4W	181419	QW2D0
#	**R4106**	8.2 5% 1W	235378	1W8D2
	R4111	100K 1% 1/10W	215221	-
#	**R4114**	10K 5% 3W	189989	3W310
#	**R4119**	10 5% 1/4W	241259	QW010
#	**R4121**	1000 5% 1/2W	175350	HW210
#	**R4122**	2200 5% 1/4W	175042	QW222
	R4136	143K 1% 1/4W	184980	-
	R4137	2870 1% 1/10W	231505	-
	R4142	30K 2% 1/10W	200176	-
#	**R4146**	430 5% 1W	242207	1W143
#	**R4147**	220 5% 3W	231461	3W122
#	**R4305**	3600 5% 3W	181235	3W236
#	**R4401**	15K 5% 1W	190557	-
#	**R4402**	91 5% 1/2W	227249	HW091
#	**R4403**	820 5% 1W	175349	1W182
#	**R4507**	1.5 5% 1W	178619	1W1D5
#	**R4511**	1 10% 2W Wirewound	215577	-
#	**R4517**	13 5% 1W	231508	1W013
#	**R4701**	10 10% 1/2W	241261	HW010
#	**R4703**	1.8 5% 3W Wirewound	231515	3W1D8
#	**R4704**	82K 10% 1/2W	239116	HW382
#	**R4705**	27K 10% 1/2W	238958	HW327
	R4706	1130 1% 1/4W	233070	-
#	**R4708**	3000 5% 1W	200446	1W230
#	**R4710**	3 5% 2W Wirewound	223898	-
#	**R4901**	100 5% 1/4W	198667	QW110
#	**R4902**	28K 1% 1/4W	195731	-
#	**R4903**	32.4K 1% 1/4W	210066	-
#	**R4906**	1500 2% 1/10W	197628	-
#	**R5001, 02, 03**	20K 2% 2W Nonflammable	233034	2W320
#	**R5004, 05, 06**	2200 10% 1/2W	502222	HW222
#	**R5010**	2200 10% 1/2W	502222	HW222
	R5012	270 2% 1/4W	178282	QW127
	R5014, 16	300 2% 1/4W	175354	QW130

 # For SAFETY use only equivalent replacement part.

CONTROLS & RESISTORS continued

	Item No.	Function/Rating	Mfr. Part No.	NTE Part No.
#	**R5018**	2200 10% 1/2W	502222	HW222
	R5019	6200 2% 1/4W	179316	QW262
		7500 2% 1/4W	175761	QW275
	R5020	510 2% 1/4W	240937	QW151
		680 2% 1/4W	175312	QW168
		820 2% 1/4W	175043	QW182
#	**R5021**	1200 5% 1W	179782	1W212
#	**R7139**	1.8M 10% 1/2W	220333	HW518
#	**R7140**	1.8M 10% 1/2W	220333	HW518
	RN4501	Network	215499	-
#	**RT4201**	5.5 PTC Cold	207768	-

 # For SAFETY use only equivalent replacement part.

CABINET PARTS

	Item	Mfr. Part No.
#	Button Cluster	233123
#	Mask and Back Assembly (1)	MK1974
#	Mask and Back Assembly	MK2056
#	Mask and Back Assembly (2)	MK2164
#	Window IR	234040
#	Window IR (1)	233547

 # For SAFETY use only equivalent replacement part
(1) Used in model 27GT616TX1.
(2) Used in model 25GT518TX1.

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M. Herkless, J. Kocha, F. Malek,
B. Medaris, R. Raus, B. Skinner

PARTS LIST continued

CAPACITORS & ELECTROLYTICS

	Item No.	Rating	Mfr. Part No.
	C2303	120pF 5% 50V NPO	194902
	C2803	18pF 5% 50V NPO	214028
	C2805	120pF 5% 50V NPO	194902
	C3101, 02	100pF 5% 50V NPO	193340
	C3108	150pF 5% 50V NPO	214032
	C3114, 15	27pF 5% 50V NPO	197604
	C3121	100pF 5% 50V NPO	193340
	C3316	200pF 5% 50V NPO	218986
#	**C4001**	.22 20% 250V	-
		.22 20% 125V	231451
#	**C4003, 04**	680pF 20% 1kV	190538
#	**C4007**	680µF 20% 200V	190560
	C4108	120pF 5% 50V NPO	194902
	C4120, 24	680pF 20% 1kV	190538
	C4134, 35	220pF 5% 50V NPO	205551
	C4303	470pF 5% 50V NPO	214732
	C4310	15pF 1% 250V NPO	223899
	C4311	47pF 5% 50V NPO	210689
	C4401	470pF 5% 50V NPO	195918
#	**C4402**	.0143 2% 1.6kV	235375
#	**C4403**	.45 5% 250V	203739
#	**C4404**	2.2µF 20% 200V	196050
#	**C4405**	.0047 10% 250V	190534
#	**C4406**	470pF 5% 2kV	227068
	C4702, 04, 06	680pF 20% 1kV	190538
	C4710	.01 20% 1kV	137583
	C4712	680pF 20% 1kV	190538
#	**C4904**	.22 +80% -20% 25V	217298
	C5001	.001 10% 3kV	120696
	C5005	390pF 5% 50V N750	220630
	C5006	330pF 5% 50V N750	147667
	C5007	470pF 5% 50V N750	233025
#	**C7101**	330pF 20% 125VAC	235376
	C7102	4pF +0pF -.25pF 50V NPO	214757
	C7103	22pF 5% 50V NPO	194903
	C7105	.75pF ±.25pF 50V NPO	214758
	C7108	27pF 5% 50V N750	214760
	C7110	1.5pF ±.1pF 50V NPO	223146
#	**C7114**	100pF 20% 125V	235377
	C7117	2pF ±.5pF 50V NPO	194905
	C7118	22pF 5% 50V NPO	194903
#	**C7120**	330pF 20% 125VAC	235376
	C7124	27pF 5% 50V NPO	197604
	C7127	120pF 5% 50V NPO	194902
#	**C7129**	330pF 20% 125VAC	235376
	C7136	180pF 2% 50V NPO	241265
	C7137	330pF 5% 50V NPO	205227
	C7139	20pF 2% 50V N220	214761
	C7140	6pF ±.25pF 50V NPO	227250
#	**C7146, 47**	330pF 20% 125VAC	235376

 # For SAFETY use only equivalent replacement part.

CAPACITORS & ELECTROLYTICS continued

Item No.	Rating	Mfr. Part No.
C7149	22pF 5% 50V NPO	194903
C7150	150pF 5% 50V NPO	214032
C7151	20pF 5% 50V NPO	220150
C7152	43pF 5% 50V NPO	214029
C7153	39pF 5% 50V NPO	202905
C7301, 02	1.5pF ±.1pF 50V NPO	223146
C7304	2pF ±.25pF 50V NPO	194905
C7305	75pF 5% 50V NPO	192061
C7307	20pF 5% 50V NPO	220150
C7308	5pF ±.25pF 50V N750	231457
C7309	10pF 50V N750	231458
C7310	8pF ±.5pF 50V N750	214766
C7311, 12	5pF ±.25pF 50V N750	231457
C7316	8pF ±.5pF 50V NPO	194909
C7320	180pF 2% 50V NPO	241265
C7322	24pF 2% 50V NPO	231459
C7323	6pF ±.25pF 50V NPO	227250
C7326	82pF 2% 50V NPO	231460
C7405	33pF 5% 50V NPO	194911
C7410, 11	39pF 5% 50V NPO	202905

COILS & TRANSFORMERS

	Item No.	Function/Rating	Mfr. Part No.
	FB3101	Ferrite Bead	226467
	FB3901	Ferrite Bead	226467
	FB4110, 11	Ferrite Bead	215546
	FB4401	Ferrite Bead	227410
	FB4501	Ferrite Bead	215547
	L2301	15µH	197613
	L2302	VCO	215502
	L2303	FM Tank	233056
	L2305	10µH	175409
	L2701, 02, 03	8.2µH	149170
	L2705	10µH	175409
#	**L4000**	Yoke Horiz 1.2mH Vert 9.8mH	-
#	**L4001**	Line Choke	190507
	L4102	200µH	231464
#	**L4200**	Degaussing	214679
	L4401	2.2µH	190480
#	**L4402**	Horizontal Linearity	183335
	L5001	180µH	231467
	L7101	-	215507
	L7102	-	236641
	L7103	-	223929
	L7104, 05	-	236642
	L7106	-	237456
	L7107	-	233057
	L7108	-	233074
	L7109	3.9µH	200559
	L7110	-	233075
	L7111	-	233076
	L7112	-	231441
	L7113	-	233077
	L7114	-	231441
	L7115	-	233078
	L7116	-	237461
	L7117	-	237460
	L7118	-	237461
	L7301	-	231443
	L7302	-	231444
	L7303	-	233079
	L7304	-	233080
	L7305	-	236643
	L7306	-	231448
#	**T4301**	Horizontal Driver	215541
#	**T4401** (1)	Horizontal Output	242212

 # For SAFETY use only equivalent replacement part.
(1) Screen and Focus controls are part of T4401.

MISCELLANEOUS

	Item No.	Description	Mfr. Part No.	Notes
	CF1201	Filter	195702	4.5MHz
	CF2301	Trap	181125	4.5MHz
#	**F4001**	Fuse	175425	5Amp, 125V, Fast Acting
	IR3402	Receiver	237682	Remote
#	**K4201**	Relay	190490	Degaussing
#	**KS5001**	Socket	233120	CRT
#	**PW4001**	Line Cord	215576	AC, Polarized
	SF2301	Filter	217318	SAW
	SP1901, 02	Speaker	233442	2 1/4" X 3 1/2", 32 Ohm
	SW3410	Switch	215500	Channel Up
	SW3411	Switch	215500	Power
	SW3420	Switch	215500	Channel Down
	SW3421	Switch	215500	Volume Up
	SW3430	Switch	215500	Menu
	SW3431	Switch	215500	Volume Down
#	**V5000** (1)	CRT	A63ADT157	A63ADT15X07
#	**V5000**	CRT	A63ADT275	A63ADT27X05
	Y1701	Resonator	215501	377kHz
	Y2801	Crystal	161235	3.58MHz
	Y3101	Crystal	217322	8MHz
	Y4101	Crystal	227064	507.5kHz
	Y7401	Crystal	230708	4MHz
#		Button Cap	239222	-
		Fuse Clip	176642	For F4001 (2 used)
		Transmitter	240961	Remote (CRK20A2)
		Transmitter (2)	233068	Remote (CRK84B2)

 # For SAFETY use only equivalent replacement part.
(1) Used in model 25GT518TX1.
(2) Used in models 27GT619SX1/TX1.