

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 knobs, shields, covers, grounds, and mounting hardware have been replaced. Be sure to replace all insulators and restore proper lead dress.

TEST JIG HOOKUP				
Function	Chek-A-Color Adapter No.	PC Board Plug No.	Pin	Color
CRT	B239	3Y3	1	Red
Yoke	D482		2	Blue
Yoke Setting	YP1A		3	Yellow
Comments	Focus Tap		4	Brown

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

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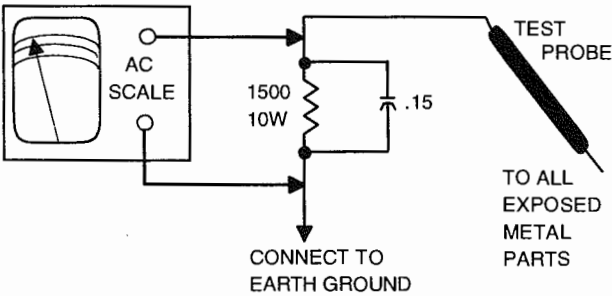
SAFETY CHECKS -- FIRE AND SHOCK HAZARD

Cold Leakage Checks for Receivers with Isolated Ground

Unplug the AC cord, connect a jumper across the plug prongs, and turn the power switch on (if applicable). Use an ohmmeter to measure the resistance between the jumped AC plug and any exposed metal cabinet parts such as antenna screw heads, control shafts, or handle brackets. Exposed metal parts with a return path should measure between 1M ohms and 5.2M ohms. Parts without a return path must measure infinity.

Hot Leakage Current Check

Plug the AC cord directly into an AC outlet. DO NOT use an isolation transformer. Use a 1500 ohms, 10W resistor in parallel with a .15µF capacitor to connect between any exposed metal parts on the receiver and a good earth ground. (See figure below.) Use an AC voltmeter with at least 5000 ohms per volt sensitivity to measure the voltage across the resistor. Check all exposed metal parts and measure voltage at each point. Voltage measurements should not exceed .75VAC, 500µA. Any value exceeding this limit constitutes a potential shock hazard and must be corrected. If the AC plug is not polarized, reverse the AC plug and repeat exposed metal part voltage measurement at each point.



HIGH VOLTAGE SHUTDOWN TEST

Turn receiver on, adjust customer controls for normal operation. Temporarily short across RX3022. The receiver should lose raster. If the receiver does not lose raster the shutdown circuit should be repaired. Turn receiver off, wait 30 seconds and test for normal operation.



98PF01411



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PHOTOFACT® Technical Service Data

SET 4039

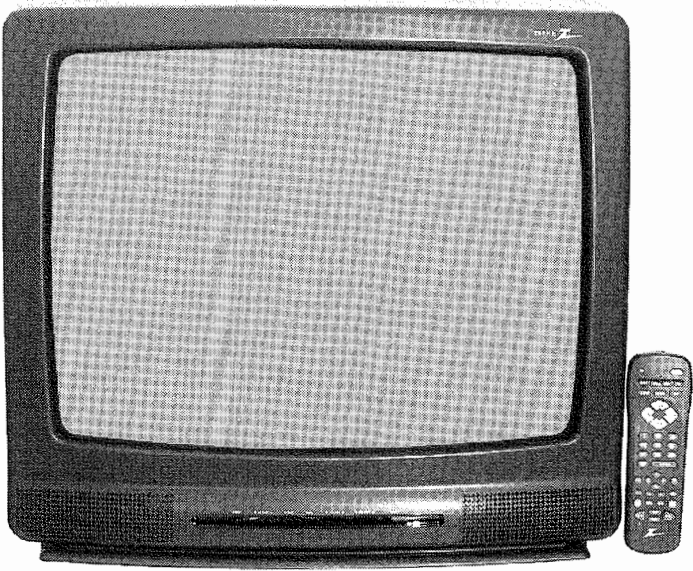
MODELS A25A23W/W9, LGA26A23WM9

ZENITH

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ZENITH
Models A25A23W/W9, LGA26A23WM9



Model A25A23W

Complete coverage
for servicing a television receiver...

- Schematics
- Component locations
- Parts list
- Troubleshooting guide



HOWARD W. SAMS & COMPANY

OCTOBER 1998 SET 4039

For Supplier Address,
See PHOTOFACT Annual Index

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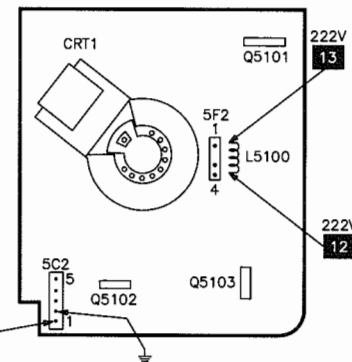


MODEL S A25A23W/M9 | GA26A23W/M9

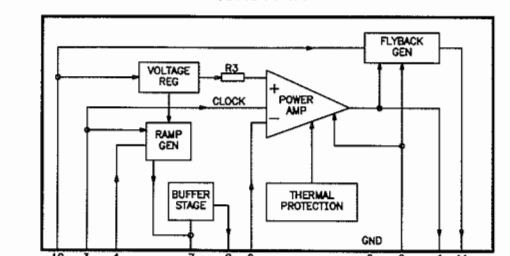
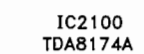
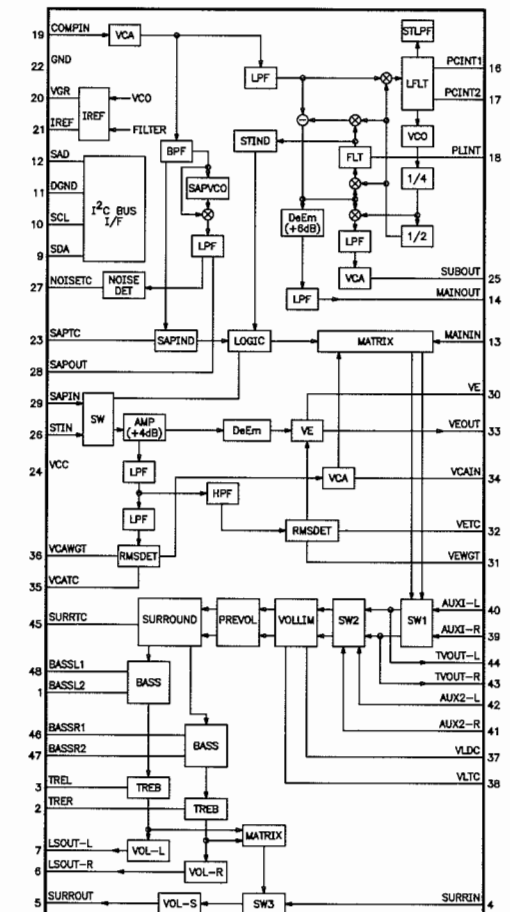
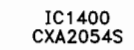
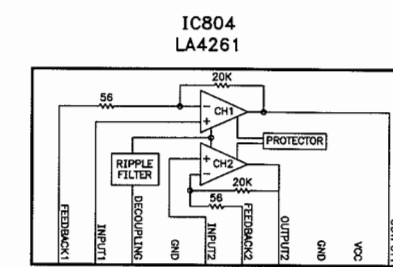
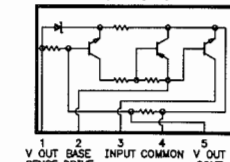
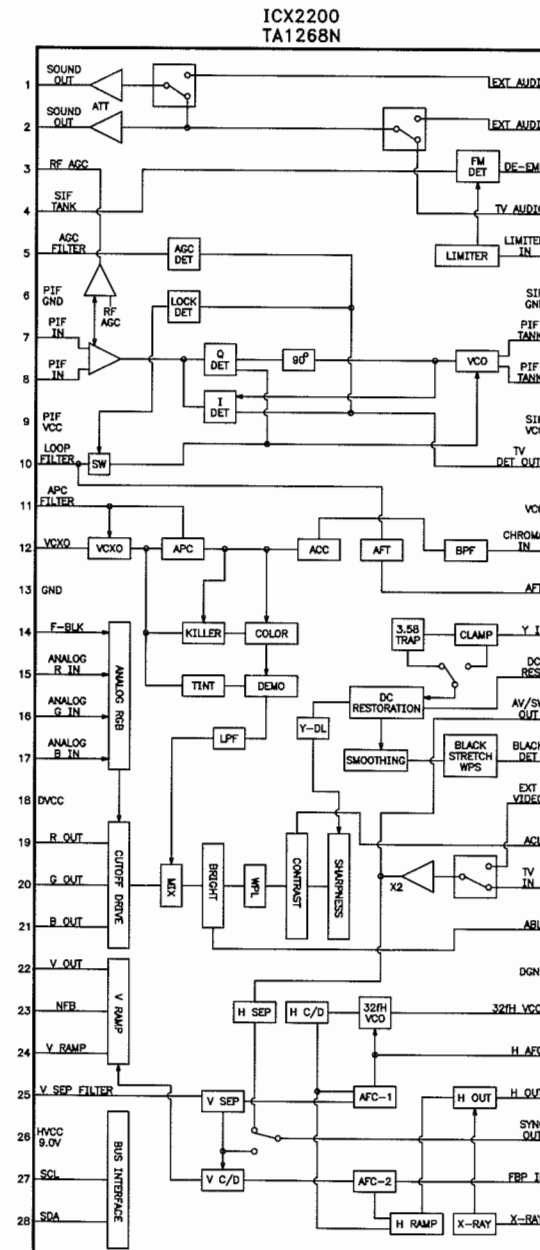
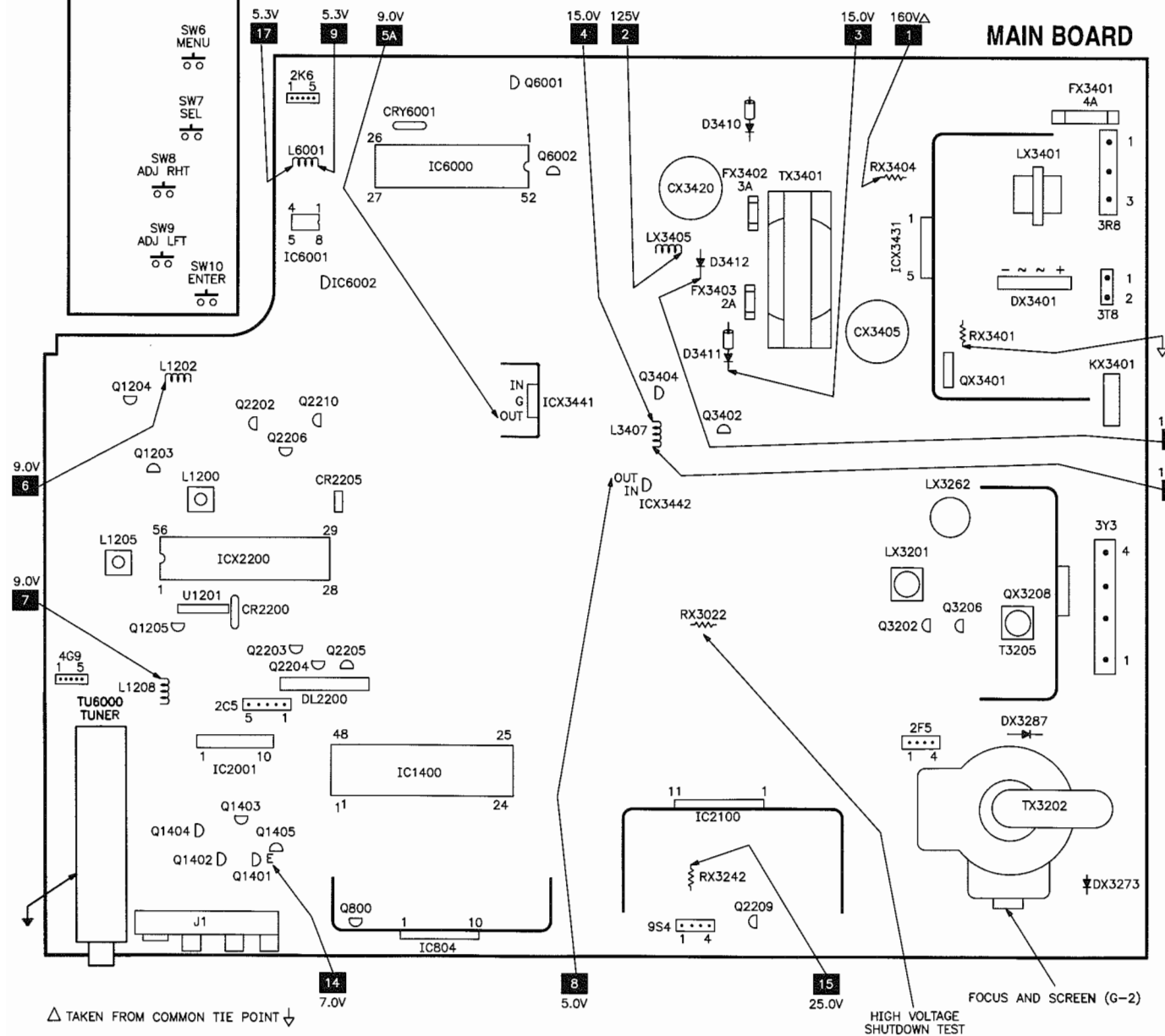
A PHOTOFACT STANDARD NOTATION SCHEMATIC
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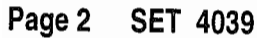
IC FUNCTIONS

CRT BOARD



MAIN BOARD



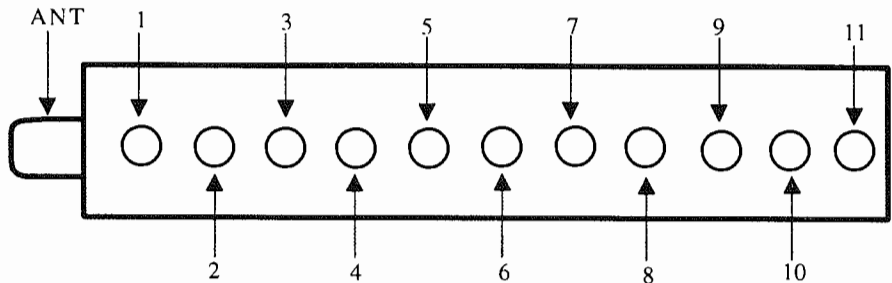
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TUNER INFORMATION

TUNER VOLTAGE CHART				
Pin		VHF Low Band	VHF High Band	UHF Band
1	AGC	3.6V	3.5V	3.6V
2	TU	1.4V	4.1V	6.1V
3	EN/AS	0V	0V	0V
4	CLK	5.1V	5.1V	5.1V
5	DATA	5.1V	5.1V	5.1V
6	+9V	9.0V	9.0V	9.0V
7	+5V	5.0V	5.0V	5.0V
8	LOCK	0V	0V	0V
9	+33V	33.0V	33.0V	33.0V
10	IF2	0V	0V	0V
11	IF OUT	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.

TUNER TERMINAL GUIDE



TROUBLESHOOTING

POWER SUPPLY

Check AC fuse FX3401. If fuse is open, check DX3401, and CX3402 thru CX3406. If FX3401 is good, apply 120VAC, and check for 160V* at the cathode of DX3401. If 160V* is missing, check LX3401, RX3401, and DX3401. If 160V* is present, check for 125V at the cathode of D3410. If 125V is missing, check D3410, TX3401, ICX3431, and QX3401. If 125V is present, turn receiver on, and check for 15.0V on the collector of Q3404, and 5.3V on the cathode of ZDX3401. If 15.0V and 5.3V are missing, check D3411, FX3402, Q3404, and Q3402. If 15.0V and 5.3V are present, check for 5.0V at the out pin of ICX3442, if the 5.0V is missing, check ICX3442. If the 5.0V is present, check for 9.0V on the output of ICX3441. If the 9.0V is missing, check ICX3441. If the 9.0V is present, check for 19.0V at the cathode of D3412, if the 19.0V is missing, check FX3403, D3412, and TX3401. If the 19.0V is present, refer to the "Horizontal" section of this Troubleshooting guide.

* Taken from common tie point.

HIGH VOLTAGE SHUTDOWN

NOTE: Monitor high voltage to insure that it does not exceed upper limit as this may cause excessive X-ray radiation and damage to CRT, TX3204, and associated components.

The high voltage from TX3204 is monitored and rectified by DX3006. The rectified voltage is applied to the cathode of ZDX3004. Should high voltage increase, the voltage at the cathode of ZDX3004 will also increase and trigger it into conduction. This action causes an increase in voltage at pin 29 of ICX2200 which internally kills the horizontal drive signal and shuts down the receiver. To troubleshoot, remove DX3006 from circuit, use a variable power supply, start at 90VAC and slowly increase voltage to locate defect. Reconnect DX3006.

Voltages Taken in Shutdown
ICX2200 Pin 29 2.7V

HORIZONTAL

To determine if the receiver is in shutdown, refer to the "High Voltage Shutdown" section of this Troubleshooting guide. Inject a horizontal signal at the base of QX3208. Check for horizontal deflection on CRT. If horizontal deflection is present, check Q3202, Q3206, and pins 29 thru 34 of ICX2200. If horizontal deflection is missing, check QX3208 and TX3204. Horizontal linearity or width problems may be caused by CX3229, CX3261, CX3264, and LX3262 being defective. The high voltage rectifier is part of TX3204 and if defective may affect the operation of horizontal circuits.

VERTICAL

Inject a vertical drive signal at pin 3 of IC2100. If vertical deflection is present, check pins 23 and 24 of ICX2200. If vertical deflection is missing, check IC2100. Vertical linearity or height problems may be caused by CX2109, CX2110, C2108, and C2119 being defective.

RASTER

Check the CRT and CRT voltages. If red is missing, check Q5103, Q2203, and pin 19 of ICX2200. If green is missing, check Q5102, Q2204, and pin 20 of ICX2200. If blue is missing, check Q5101, Q2205, and pin 21 of ICX2200. If raster has a keystone shape, check DY1. If raster has height or width problems, refer to "Vertical", "Horizontal", or "Power Supply" sections of this Troubleshooting Guide.

CHROMA

Check for a chroma waveform at pin 45 of ICX2200. If the waveform is missing, check IC2001, DL2200, and refer to the "Video" section of this Troubleshooting guide. Check for proper chroma waveforms at pins 19, 20, and 21 of ICX2200. If the waveforms are missing, check pins 15, 16, 17, and 38 of ICX2200. Check the 3.58MHz oscillator at pin 12 of ICX2200. If proper chroma waveforms are present at pins 19, 20, and 21 of ICX2200, refer to the "Raster" section of this Troubleshooting guide.

IF AGC

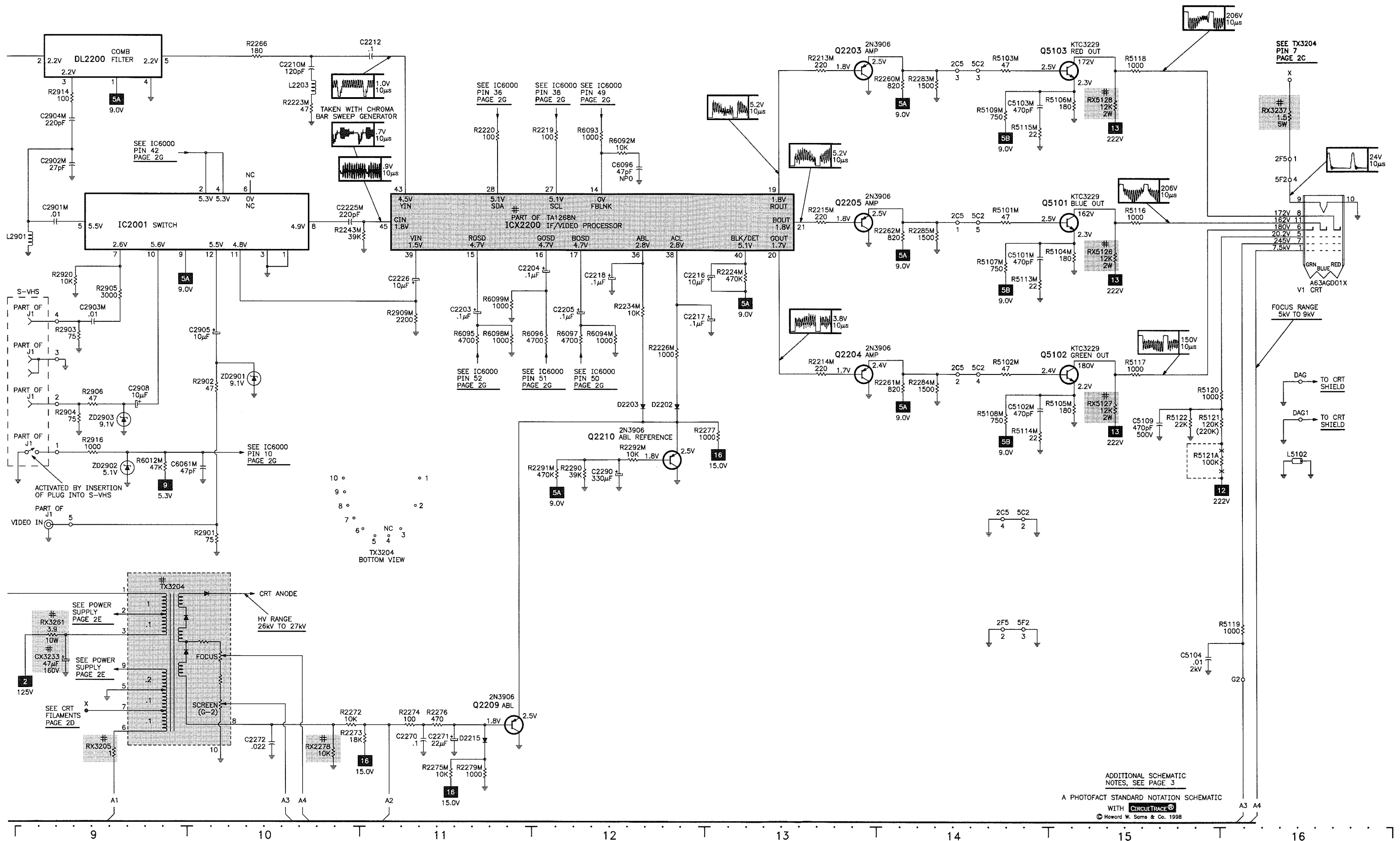
Inject a video IF signal at IF input and check for video on CRT. If video is present, check the tuner and tuner control circuits. If video is missing, check for a video waveform at pin 47 of ICX2200. If the video waveform is present, refer to the "Video" section of this Troubleshooting guide. If the video waveform is missing at pin 47 of ICX2200, apply AGC bias to pin 5 of ICX2200. If video is now present, check pins 5, 3, and 49 of ICX2200. If video is missing, check pins 3, 5, 7, 8, and 44 thru 50 of ICX2200. A defective AGC circuit can cause an overloaded picture, excessive snow or loss of audio and video.

VIDEO

Inject a video signal at the base of Q1203. If video is present on the CRT, refer to the "IF AGC" section of this Troubleshooting guide. If the video is missing on the CRT, check for a luminance waveform at pin 43 of ICX2200. If luminance is missing, check Q1203, Q1204, pins 37 and 41 of ICX2200, Q2202, and DL2200. If luminance is present at pin 43 of ICX2200, refer to "Raster" section of this Troubleshooting guide.

AUDIO

Select an active TV channel and check for an audio waveform at pin 19 of IC1400. If waveform is missing, check pins 52, 2, and 48 of ICX2200. If audio waveform is present at pin 19 of IC1400, tune in a station transmitting stereo. Check for audio waveforms at pins 6 and 7 of IC1400. If the waveforms are missing, check IC1400. If the waveforms are present, check IC804 and Q800.



MISCELLANEOUS ADJUSTMENTS

This receiver employs digital customer controls which are accessed through the service menu. All adjustments were performed at reset unless otherwise indicated. Record all the data values for all functions in the service menu before making any changes.

HIGH VOLTAGE CHECK

Tune in a picture. Set brightness and color to minimum. Connect a high voltage probe to CRT anode. High voltage should read between 26kV to 27kV.

SERVICE MENU

To access the service menu adjustments by using the remote transmitter keypad; Press and hold the menu button until the menu display disappears from the screen. Key in 9, 8, 7, 6, and press the enter button.

To access the service menu adjustments by using the receiver keypad; Press the menu button until the display disappears from the screen. Without releasing the menu button simultaneously press the adjust right and channel up buttons.

The receiver is now in service menu mode with function 03 H Pos 21 displayed. The first line on the service menu is a version number of the software used in the receiver. On the bottom is a date the module went through the factory. Use the select up and down buttons to select function. Use the adjust buttons to make changes to selected function. The function 00 F Mode (Factory Mode) is always set to 0. Only the first seven items in the service menu can be brought up. Use the select key to select the 00 F Mode function and change the adjustment to 1, now all the menu items will be accessible.

NOTE: Set value of function 00 F Mode (Factory Mode) to 0 before exiting the service menu mode. If not set to 0 the receiver will not shut off with the remote or power button on the receiver.

HORIZONTAL SIZE

Tune in a crosshatch pattern. Call up service menu, select function 15, set data value for slight overscan on both sides.

RF AGC

Tune in a picture. Call up service menu, select function 17, set data value to a point where snow appears in picture, then to a point where snow disappears.

WHITE COMPRESSION

Tune in a picture. Set picture settings to preset. Call up service menu, select function 19, set data value to 0.

COLOR TEMPERATURE

Tune in a crosshatch pattern. Set brightness, picture, and color to minimum. Call up service menu, select functions 22, 23, and 24, set data values to 0. Select functions 25 and 26 and reduce data values until one predominate color is just visible. Adjust data values for functions 22, 23, and 24 of the two least predominate colors to obtain a white pattern. Tune in an active black and white channel and

adjust functions 25 and 26 for best white to black tracking at high and low brightness.

COLOR PURITY

Operate the receiver for 15 minutes. Use a degaussing coil to degauss the CRT and mounting hardware. Tune in a green raster pattern. Loosen the deflection yoke clamp screw and slide the deflection yoke backward to obtain a vertical green band. Rotate and/or spread the purity magnet tabs to center the vertical green band. Slide the deflection yoke forward until a pure green screen is obtained. Check red and blue purity.

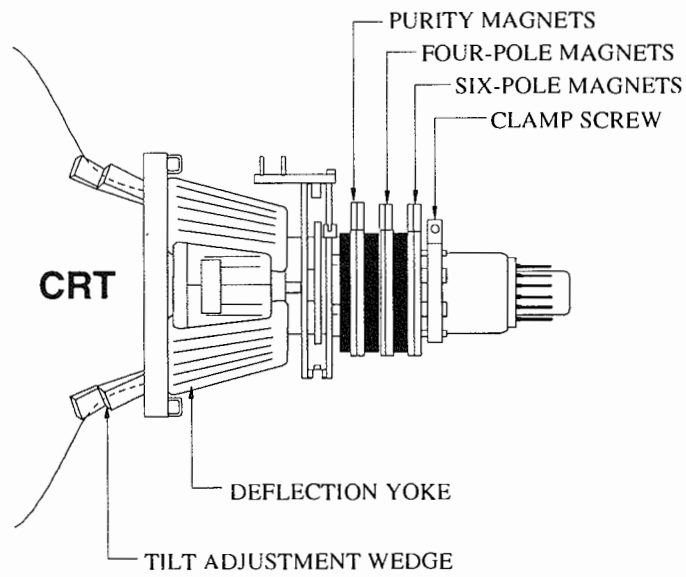
CONVERGENCE

Operate the receiver for 15 minutes. Tune in a dot pattern. Adjust the four pole magnet tabs to converge the red and blue dots at the center of the screen. Adjust the six pole magnet tabs to converge the red/blue dots with the green dots at the center of the screen.

NOTE: Rotate the two tabs of each set of magnets equally and opposite to converge vertically, and rotate both tabs in the same direction to converge horizontally.

Four and six pole magnets interact, repeat adjustment until center convergence is correct. Tune in a crosshatch pattern. Remove the rubber wedges between the deflection yoke and the CRT. Tilt the deflection yoke up or down to converge the vertical lines at the top and bottom of the screen, and the horizontal lines at the right and left sides of the screen. Tilt the deflection yoke right or left to converge the horizontal lines at the top and bottom of the screen, and the vertical lines at the right and left sides of the screen. Repeat convergence procedure as necessary to obtain best overall convergence. Apply adhesive to wedges and replace between the deflection yoke and the CRT.

CRT NECK ASSEMBLY



SERVICE MENU CHART

FUNCTION	DATA VALUE	RANGE	NOTES
1305-01 1.01			
00 F MODE	0	0 - 1	Factory Mode. Normal setting is 0, when set to 1, all other functions are accessible.
01 PRE PX	1	0 - 1	Stores customer video menu picture preference (Preset). 0 is custom, 1 is preset stored.
02 V POS	14	0 - 30	Vertical position of On Screen Displays (Menus & Captions).
03 H POS	21	0 - 42	Horizontal position of On Screen Displays (Menus & Captions).
04 LEVEL	1	0 - 2	-
05 BAND	0	0 - 7	This setting depends upon input signal. 0 Broadcast Fixed, 1 CATV AFC, 2 HRC AFC, 3 ICC AFC, 4 Broadcast AFC, 5 CATV Fixed, 6 HRC Fixed, 7 ICC Fixed.
06 AC ON	0	0 - 1	Enables AC Power On feature.
07 RF BPF	1	0 - 1	RF Bandpass.
08 3.58T	1	0 - 1	3.58MHz Trap.
09 RF BRT	39	0 - 63	RF Brightness.
10 AX BRT	39	0 - 63	Auxiliary Brightness.
11 MAX CON	63	0 - 63	Maximum Contrast.
12 V SIZE	87	0 - 254	Vertical Size.
13 H SIZE	110	0 - 254	Horizontal Size.
14 V PHASE	3	0 - 7	Vertical Phase.
15 H PHASE	15	0 - 31	Horizontal Phase.
16 AUD LVL	44	0 - 63	Audio Level.
17 RF AGC	47	0 - 63	-
18 H AFC	1	0 - 1	Horizontal AFC.
19 WH COMP	0	0 - 1	White Compression.
20 60HZ SW	2	0 - 3	-
21 PIF VCO	52	2 - 127	Picture IF Voltage Controlled Oscillator.
22 R CUT	5	0 - 254	Red Cutoff.
23 G CUT	1	0 - 254	Green Cutoff.
24 B CUT	17	0 - 254	Blue Cutoff.
25 G GAIN	95	0 - 254	Green Gain.
26 B GAIN	70	0 - 254	Blue Gain.
27 Scroll	1	0 - 1	Selects the method the user menus will appear on the screen.
28 6 Keys	0	0 - 1	Set to 0 for the 10 key keyboard, set to 1 for the 6 key keyboard.
29 A ATT	9	0 - 15	This item is not used.
30 A VCO	33	0 - 63	Audio Voltage Controlled Oscillator.
31 A FI tr	33	0 - 63	-
32 Spectr 1	34	0 - 63	High Frequency Separation.
33 W Band	42	0 - 63	Low Frequency Separation.
34 PIP X1	7	0 - 63	-
35 PIP Y1	5	0 - 63	-
36 PIP X2	49	0 - 63	-
37 PIP Y2	32	0 - 63	-
38 PIP Ras	68	0 - 254	Picture In Picture Raster.
39 PIP Sw	8	0 - 15	Picture In Picture Switch Delay.
40 PIP Lud	2	0 - 7	Picture In Picture Luminance Delay.
41 PIP TOF	3	0 - 63	-
42 In OSDC	1	0 - 1	-
43 OSD FR	0	0 - 1	-

TELEVISION SCHEMATIC

TO TUNER IF2 PIN 10

TUNER NOT INCLUDED IN THIS COVERAGE

SEE IC6000 PIN 3 PAGE 2G

TO TUNER +9V PIN 6

TO TUNER +5V PIN 7

TO TUNER AGC PIN 1

TO TUNER +3.3V PIN 9

SEE IC6000 PIN 6 PAGE 2G

SEE IC6000 PIN 2 PAGE 2G

SEE IC6000 PIN 48 PAGE 2G

SEE IC6000 PIN 13 PAGE 2G

SEE IC6000 PIN 19 PAGE 2H

SEE IC6000 PIN 22 PAGE 2G

SEE Q6001 BASE PAGE 2G

ADDITIONAL SCHEMATIC NOTES, SEE PAGE 3

A PHOTOFAC STANDARD NOTATION SCHEMATIC

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1 2 3 4 5 6 7 8

A PHOTOFACT STANDARD NOTATION SCHEMATIC

WITH **CIRCUITRACE[®]**
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SCHEMATIC NOTES

SCHEMATIC COMPONENT LOCATION GUIDE

C1	A-25	C1440	C-30	C3428	B-24	CR2200	B-7	FX3403	D-22	Q3206	E-5	R1409M	E-30	R2235M	D-1	R6002M	D-26	RX3400	B-17
C841	D-24	C1442	C-31	C5101M	B-14	CR2205	D-1	IC804	A-31	Q3402	C-21	R1421M	A-6	R2238	D-2	R6003M	D-25	RX3401	A-18
C842	D-23	C1443	B-31	C5102M	C-14	CRY6001	E-26	IC1400	A-29	Q3404	B-21	R1422M	A-6	R2240M	A-7	R6004M	D-25	RX3403	C-17
C843	B-31	C1444	C-30	C5103M	A-14	CX2105	E-24	IC2001	B-9	Q5101	B-15	R1423	E-31	R2241M	A-8	R6005M	D-4	RX3404	C-18
C851	A-30	C1445	C-31	C5104	E-15	CX2109	D-7	IC2100	D-5	Q5102	C-15	R1424	E-31	R2242M	A-8	R6006M	C-25	RX3406	C-17
C852	B-31	C1446	C-31	C5109	C-15	CX2110	D-5	IC6000	A-26	Q5103	A-15	R1425M	C-29	R2243M	B-11	R6008M	D-4	RX3407	C-19
C853	A-32	C1447	C-23	C6001M	D-25	CX3003	E-2	IC6001	C-28	Q6001	D-26	R1440M	B-30	R2257M	D-2	R6012M	C-9	RX3408	C-19
C854	A-32	C1448	C-30	C6003M	A-26	CX3004	E-3	IC6002	D-25	Q6002	D-4	R1441M	B-31	R2259M	E-3	R6013	E-25	RX3409	C-19
C855M	A-30	C1449	B-30	C6005M	A-25	CX3007	E-2	ICX2200	A-5	QX3208	E-8	R1442M	C-31	R2260M	A-14	R6015	C-26	RX3411	C-2
C861	B-30	C2106	D-7	C6006	A-26	CX3229	E-8	ICX2200	B-12	QX3401	C-18	R1443M	C-31	R2261M	C-14	R6016	B-26	RX3416	C-21
C862	A-31	C2107	E-28	C6007M	D-27	CX3233	E-9	ICX2200	B-3	R1	A-25	R1444M	C-31	R2262M	B-14	R6026	C-27	RX3420	B-22
C863	B-31	C2108	D-7	C6009	E-25	CX3260	D-7	ICX2200	B-7	R2	A-25	R1445M	C-31	R2266	A-10	R6027	A-26	RX3424	B-19
C864	B-31	C2114	E-6	C6010M	E-26	CX3261	E-8	ICX2200	D-2	R3	A-25	R1446M	B-32	R2270M	A-8	R6030	D-26	RX3428	C-22
C865M	B-30	C2115	E-6	C6011M	E-26	CX3264	D-8	ICX3431	B-18	R4	C-25	R1447M	C-30	R2271M	A-8	R6031M	A-26	RX3431	A-23
C1206M	A-5	C2116	D-4	C6012M	D-23	CX3274	E-6	ICX3441	B-22	R5	B-25	R1448M	C-30	R2272	E-10	R6032M	D-26	RX5126	B-15
C1211	A-5	C2119	D-6	C6013	D-23	CX3296	E-22	ICX3442	C-22	R6	B-25	R1449M	C-31	R2273	E-11	R6034M	E-26	RX5127	C-15
C1212M	B-4	C2202M	B-7	C6014M	E-26	CX3400	C-20	IR1	A-25	R7	B-25	R1450M	C-31	R2274	E-11	R6035M	E-26	RX5128	A-15
C1213M	B-4	C2203	C-11	C6015M	E-25	CX3402	A-18	J1	B-32	R8	B-25	R1451M	C-31	R2275M	E-11	R6037M	D-25	SP1	A-32
C1215M	B-24	C2204	B-12	C6016	D-25	CX3403	B-19	J1	C-32	R9	B-25	R1452M	C-31	R2276	E-11	R6039M	E-27	SP2	B-32
C1216M	C-24	C2205	C-12	C6017	D-24	CX3404	A-23	J1	D-9	R10	B-25	R1453M	C-31	R2277	C-13	R6041M	B-27	SW1	B-25
C1217	C-24	C2207M	D-3	C6018M	E-27	CX3405	A-24	J1	E-31	R11	C-25	R1454M	C-32	R2279M	E-11	R6042M	C-27	SW2	B-25
C1218M	B-23	C2208	D-1	C6019M	E-27	CX3406	A-18	J1	E-31	R12	C-25	R1455M	C-30	R2283M	A-14	R6043M	B-27	SW3	B-25
C1219M	B-23	C2209M	D-1	C6020	C-28	CX3407	B-17	KX3401	B-18	R13	C-25	R1456M	C-23	R2284M	C-14	R6044M	C-27	SW4	B-25
C1220	B-24	C2210M	A-10	C6021M	C-28	CX3408	B-18	L1200	C-4	R14	C-25	R1457M	C-23	R2285M	B-14	R6045M	C-27	SW5	B-25
C1221M	A-2	C2211	D-1	C6023M	B-27	CX3409	C-18	L1201	B-5	R15	C-25	R1490M	C-30	R2290	C-12	R6046M	C-27	SW8	B-25
C1222	A-2	C2212	A-11	C6024M	B-27	CX3410	C-17	L1202	C-23	R843	B-31	R1491M	B-30	R2291M	C-12	R6047M	B-27	SW9	B-25
C1223M	C-3	C2215	D-2	C6025M	A-27	CX3411	C-19	L1203	B-5	R851M	A-30	R2107M	D-4	R2292M	C-12	R6048M	C-27	SW10	B-25
C1224M	B-2	C2216	B-13	C6026M	A-1	CX3412	C-17	L1205	A-3	R852M	A-30	R2108M	D-7	R2901	D-10	R6049M	C-27	THX3415	A-18
C1225M	B-3	C2217	C-13	C6028	C-1	CX3413	C-18	L1206	B-2	R853	A-32	R2109	E-7	R2902	C-10	R6050	C-27	TX3204	D-9
C1226M	B-1	C2218	B-12	C6029M	C-23	CX3415	C-19	L1208	C-23	R854M	B-31	R2111	D-7	R2903	C-9	R6053M	C-26	TX3204	E-20
C1227M	B-1	C2219	D-2	C6030	C-24	CX3416	C-19	L2203	A-10	R861M	B-30	R2113	D-7	R2904	C-9	R6058M	B-26	TX3205	E-6
C1228M	B-1	C2220M	D-2	C6031M	C-1	CX3418	D-19	L2901	B-9	R862M	B-30	R2122	D-7	R2905	B-9	R6059M	E-27	TX3401	A-20
C1229	C-3	C2221M	D-1	C6032	C-1	CX3420	A-23	L3200	A-18	R863	B-31	R2131M	D-5	R2906	C-9	R6061M	B-26	U1200	A-4
C1231M	A-4	C2225M	B-10	C6033M	A-27	CX3424	B-24	L3407	B-21	R864M	B-31	R2132	D-5	R2909M	C-11	R6069M	B-26	U1201	B-2
C1232	A-3	C2226	B-11	C6036M	D-24	CX3429	D-21	L5100	E-23	R1209M	B-4	R2133M	D-5	R2914	A-9	R6070M	C-26	U1202	B-5
C1233	C-24	C2227	B-6	C6037	D-23	CX3431	B-22	L5102	C-16	R1210M	E-2	R2141M	E-6	R2916	C-9	R6072M	E-27	VI	B-16
C1234M	C-24	C2237M	B-23	C6038M	B-27	CX3440	C-22	L6000	A-1	R1211M	A-5	R2142	E-6	R2920	B-9	R6080M	E-25	ZD1401	E-29
C1235	D-2	C2245	D-3	C6040M	C-27	CX3441	C-24	L6001	D-22	R1212M	B-4	R2143M	D-6	R3225	E-6	R6090M	C-25	ZD1402	E-29
C1236M	D-2	C2257M	D-1	C6041M	D-27	CX6027	A-1	L6002	E-25	R1213M	B-5	R2144M	E-6	R3226	E-6	R6091M	C-20	ZD1403	C-31
C1401M	C-30	C2260	A-8	C6042M	B-26	D2202	C-12	L6003	C-28	R1214M	B-5	R2145M	D-6	R3254	E-4	R6092M	B-12	ZD1404	C-31
C1402M	D-29	C2261	B-23	C6043M	C-26	D2203	C-12	L6004	B-25	R1216M	B-5	R2146	E-6	R3255M	E-4	R6093	B-12	ZD2901	C-10
C1403M	C-29	C2270	E-11	C6045M	E-27	D2206	E-1	L6005	D-23	R1217M	B-6	R2147M	E-6	R3256M	E-5	R6094M	C-12	ZD2902	C-9
C1404M	D-29	C2271	E-11	C6046M	E-27	D2215	E-11	L6007	D-26	R1218M	B-6	R2150M	D-5	R3421	B-21	R6095	C-11	ZD2903	C-9
C1406M	D-29	C2272	E-10	C6047M	C-27	D3410	A-22	LX3210	E-8	R1219M	A-2	R2151M	E-28	R3422M	B-21	R6096	C-12	ZD6001	C-1
C1408	E-30	C2290	C-12	C6048M	C-27	D3411	B-21	LX3262	D-8	R1220	C-3	R2152M	E-27	R5101M	B-14	R6097	C-12	ZDX3004	E-3
C1410	E-30	C2294M	B-6	C6049M	B-27	D3412	D-22	LX3401	A-17	R1221M	C-3	R2153M	E-27	R5102M	C-14	R6098M	C-11	ZDX3401	D-21
C1413	B-29	C2299M	D-3	C6050M	C-27	D6001	D-26	LX3405	A-23	R1222M	B-3	R2202	D-1	R5103M	A-14	R6099M	B-11		
C1414	C-29	C2901M	B-9	C6051M	E-27	D6002	A-1	LX3410	B-19	R1223M	B-2	R2212M	D-3	R5104M	B-15	RX2110	D-7		
C1415	D-29	C2902M	B-9	C6052M	D-27	DL2200	A-9	P3401	A-17	R1224M	B-2	R2213M	A-13	R5105M	C-15	RX2115	E-7		
C1416	D-30	C2903M	C-9	C6053M	D-27	DX2101	D-5	Q800	B-31	R1225M	B-1	R2214M	C-13	R5106M	A-15	RX2126	E-7		
C1417	D-30	C2904M	A-9	C6054M	D-27	DX2102	D-5	Q1203	B-5	R1226M	B-2	R2215M	B-13	R5107M	B-14	RX2278	E-10		
C1418	E-29	C2905	C-10	C6055M	D-27	DX2103	E-27	Q1204	B-6	R1227M	B-1	R2218M	D-4	R5108M	C-14	RX3008	E-3		
C1419	C-29	C2908	C-9	C6056M	D-26	DX3005	E-3	Q1205	B-2	R1228	B-1	R2219	B-12	R5109M	A-14	RX3009	E-3		
C1420	C-29	C2951	B-23	C6058M	C-25	DX3006	E-2	Q1401	B-31	R1229M	B-1	R2220	B-11	R5113M	B-14	RX3010	D-3		
C1421	C-29	C3209	E-5	C6059M	A-26	DX3204	E-1	Q1402	B-31	R1230M	B-2	R2221M	D-2	R5114M	C-14	RX3015	E-3		
C1422	C-29	C3211	E-6	C6060M	A-27	DX3260	D-8	Q1403	C-31	R1232M	A-3	R2222M	B-7	R5115M	A-14	RX3016	E-3		
C1424	E-30	C3214M	E-4	C6061M	C-10	DX3273	E-22	Q1404	C-31	R1233M	B-2	R2223M	A-10	R5116	B-15	RX3022	E-2		
C1425	E-29	C3215	E-4	C6079M	B-26	DX3287	E-21	Q1405	C-23	R1234M	A-2	R2224M	B-13	R5117	C-15	RX3204	E-2		
C1426	D-30	C3232	E-7	C6090M	B-26	DX3401	A-19	Q2202	A-7	R1235M	A-2	R2225M	B-8	R5118	A-15	RX3205	E-9		
C1427	D-30	C3237	E-22	C6091M	B-26	DX3405	B-17	Q2203	A-13	R1401	B-29	R2226M	C-12	R5119	D-16	RX3237	A-16		
C1428	E-29	C3269	E-21	C6092M	E-27	DX3406	C-18	Q2204	C-13	R1402	B-29	R2228M	B-7	R5120	C-16	RX3242	E-23		
C1430	B-23	C3271	E-22	C6093M	A-26	DX3407	C-19	Q2205	B-13	R1404M	B-29	R2229M	D-1	R5121	C-16	RX3261	D-9		
C1431M	D-29	C3419	A-22	C6094M	D-27	DX3409	C-19	Q2206	B-7	R1405	D-29	R2230M	D-2	R5121A	C-16	RX3263	D-7		
C1432	E-30	C3421	B-21	C6095M	D-27	DY1	D-8	Q2209	E-11	R1406M	C-29	R2231	E-3	R5122	C-15	RX3264	D-8		
C1433M	B-23	C3422	D-24	C6096	B-12	FX3401	A-17	Q2210	C-12	R1407M	C-29	R2233	E-2	R5123	E-23	RX3277	E-22		
C1436	A-29	C3423	D-22	C6098	D-26	FX3402	B-20	Q3202	E-4	R1408M	E-30	R2234M	C-12	R6001M	D-26	RX3299	E-6		

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

✖ Circuitry not used in some versions.

--- Circuitry used in some versions.

⏏ Ground

⏏ Chassis ground

⏏ Common tie point

△ Taken from common tie point

3 Schematic **CIRCUITRACE®**: Voltage source tie point.

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

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

Waveforms taken with triggered scope and colorbar signal.

Waveform voltage is peak to peak. Timebase is per division. Waveforms shown at 10 divisions.

Supply voltages maintained as seen at input.

Voltages measured with digital meter and a 1000μV RF signal, with colorbar pattern, applied to antenna terminal.

Controls adjusted for normal operation.

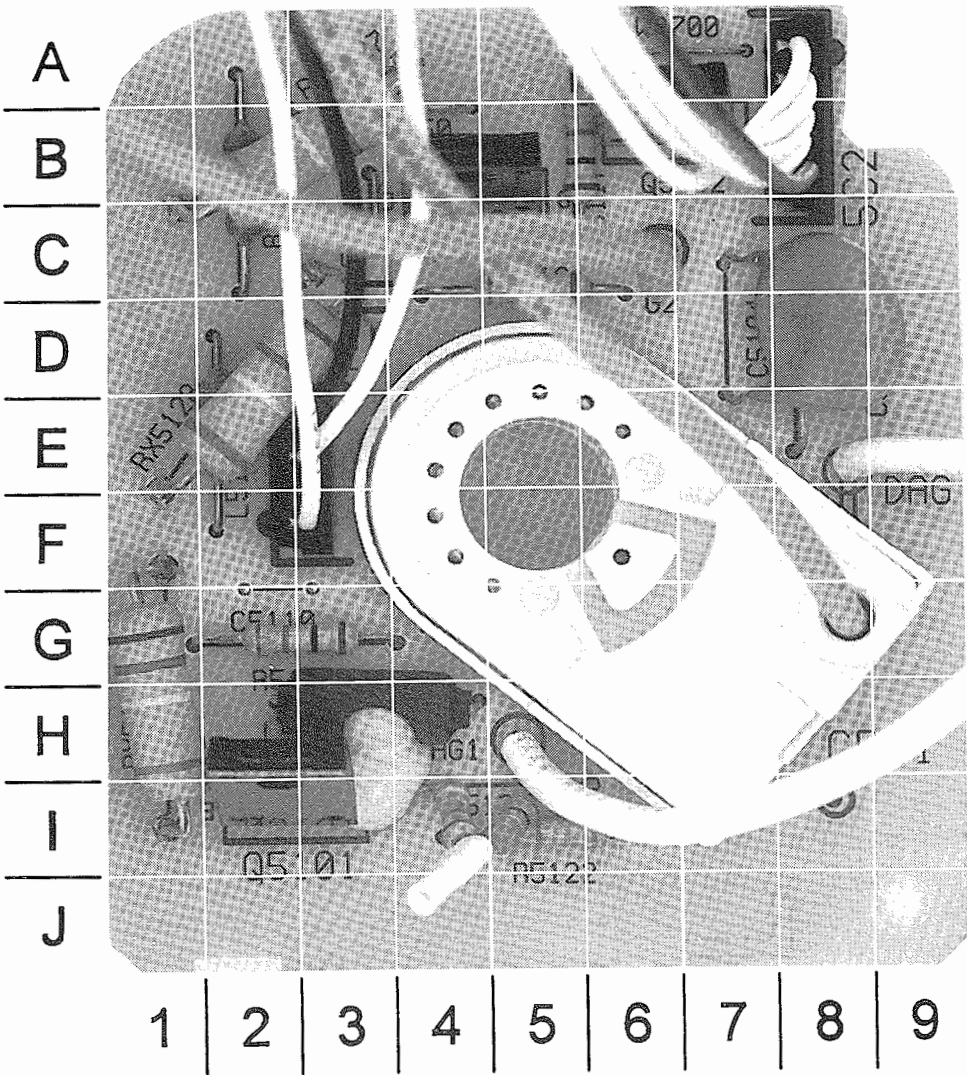
Capacitors are 50 volts or less,

PARTS LIST continued

CAPACITORS & ELECTROLYTICS		
Item No.	Rating	Mfr. Part No.
C1414	10µF 10% 50V	022-7669-15A
C1416, 17	10µF 20% 25V NP	022-08188-05A
C1419	3.3µF 5% 50V	-
	3.3µF 10% 50V	022-07669-14A
C1426, 27	10µF 20% 25V NP	022-08188-05A
C3232	.001 10% 1kV	022-07811A
C5104	.01 +80% -20% 2kV	022-07523-01B
C6096	47pF 5% 50V NPO	022-08241-26A
# CX2105	220µF 20% 35V	022-08311-13
# CX2109	2200µF 20% 25V	022-08310-17
# CX2110	220µF 20% 25V	022-08310-13A
# CX3003, 04	10µF 20% 50V	022-08312-08A
# CX3007	470pF 10% 500V	022-07786-10C
# CX3229	.013 3% 1.6kV	022-08229-27
# CX3233	47µF 20% 160V	022-08514-11
# CX3260	2.2µF 20% 160V	022-08315-05A
# CX3261	.47 5% 200V	022-08231-12
# CX3264	470pF 10% 500V	022-07786-10C
# CX3274	100µF 20% 16V	022-08309-12A
# CX3296	10µF 20% 250V	022-08317-08
# CX3400, 02	.0047 20% 250VAC	022-07431-06B
	.0047 20% 500V	-
# CX3403, 04	.001 10% 1kV	022-07811A
# CX3405	330µF 20% 200V	022-08444-09
# CX3406	.001 10% 1kV	022-07811A
# CX3407	1000µF 20% 25V	022-08310-16
# CX3408	470pF 10% 500V	022-07786-10C
# CX3409	.001 10% 2kV	022-08386-08
# CX3410	.001 10% 500V	022-07786C
# CX3411	.033 10% 50V	022-08049-18A
# CX3412	.001 10% 500V	022-07786C
# CX3413	22µF 20% 50V	022-08312-09A
# CX3415	.01 5% 1.25kV	022-08008-12
# CX3416	100µF 20% 25V	022-08310-12A
# CX3418	220pF 10% 500V	022-07786-01C
# CX3420	330µF 20% 200V	022-08444-09
# CX3424	1000µF 20% 25V	022-08310-16
# CX3429	220µF 20% 16V	022-08309-13A
# CX3431	470µF 20% 25V	022-08310-15
# CX3440	4.7µF 20% 50V	022-08312-07A
# CX3441	220µF 20% 16V	022-08309-13A
# CX6027	470µF 20% 16V	022-08309-15A
# For SAFETY use only equivalent replacement part.		

CONTROLS & RESISTORS			
Item No.	Function/Rating	Mfr. Part No.	NTE Part No.
R1404M	61.9K 1% 1/10W	063-11244-76A	-
# RX2110	2.7 5% 1/4W	-	QW2D7
	3.3 5% 1/4W	063-10235-12	QW3D3
# RX2115, 26	1.5 5% 1/2W	063-10243-04	HW1D5
# RX2278	10K 5% 1/2W	063-10243-96	HW310
# RX3008	2210 1% 1/4W	063-10936-37	-
# RX3009	100K 5% 1/4W	063-10236-20	QW410
# RX3010	100 5% 1/4W	063-10235-48	QW110
# RX3015	68K 5% 1/4W	-	QW368
	47K 5% 1/4W	063-10236-12	QW347
# RX3016, 22	4320 1% 1/4W	063-10936-72	-
# RX3204	4700 5% 1/4W	063-10235-88	QW247
# RX3205	1 5% 1/2W	063-10565	HW1D0
# RX3237	1.5 5% 5W Wirewound	063-10442-28A	5W1D5
# RX3242	.51 5% 1/2W	063-11214-16	HWD51
# RX3261	3.9 10% 10W Wirewound	063-10460-38A	10W3D9
# RX3263	22K 5% 1/2W	063-10244-04	HW322
# RX3264	750 5% 1W	063-10832-69B	1W175
# RX3277	2.7 5% 1/2W	063-10565-10	HW2D7
# RX3299	39 5% 1/2W	-	HW039
	15 5% 1/2W	063-10565-28C	HW015
# RX3400	5.6M 20% 1/2W	063-11264-01	HW556
# RX3401	.68 10% 5W Wirewound	063-10444-20A	5WD68
# RX3403	.15 5% 5W Wirewound	063-10442-04A	5WD15
# RX3404	180K 5% 1/2W	063-11088-26	HW418
# RX3406	47 5% 1/4W	063-10235-40	QW047
# RX3407	47 5% 1W	063-11156-40B	1W047
# RX3408	22 5% 1W	063-11156-32B	1W022
# RX3409	4.7 5% 1/2W	063-11110-16	HW4D7
# RX3411	15K 5% 2W	063-10837B	2W315
# RX3416	220 5% 2W	063-11160-56B	2W122
# RX3420	4.7 5% 5W Wirewound	63-10442-40A	5W4D7
# RX3424	2.2 5% 3W	063-11164-08B	3W2D2
# RX3428	10 5% 1/4W	063-10559-24	QW010
# RX3431	180K 5% 1/2W	063-10244-26	HW418
# RX5126, 27, 28	12K 5% 2W	063-10836-98B	2W312
# THX3415	5.6 Cold PTC	063-10710A	-
# For SAFETY use only equivalent replacement part.			

CRT BOARD - TOP VIEW

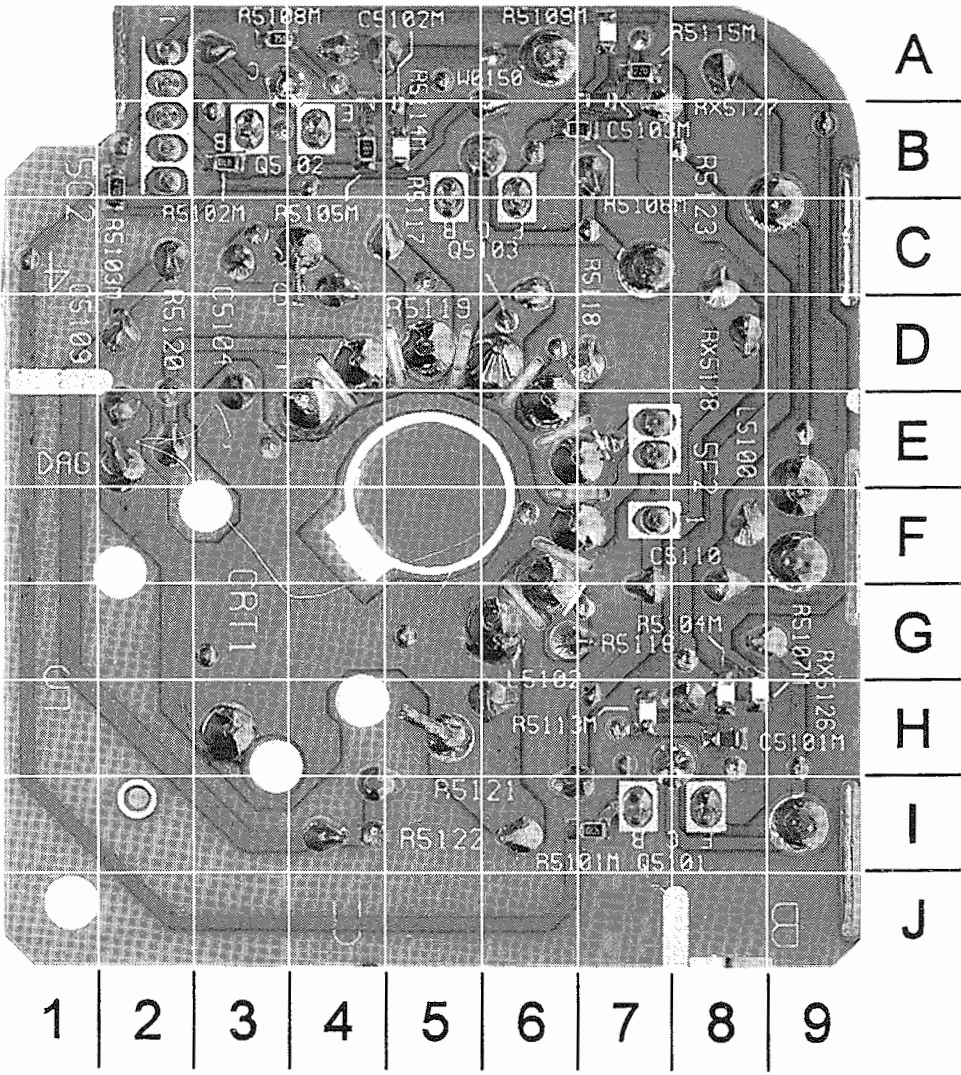


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**CRT BOARD - TOP VIEW,
GRIDTRACE LOCATION
GUIDE**

C5104	D-8	R5118	C-3
C5109	D-8	R5119	C-5
DAG	E-8	R5120	D-8
DAG1	H-5	R5121	I-4
L5100	E-2	R5122	I-5
L5102	H-3	R5123	B-2
Q5101	I-2	RX5126	H-1
Q5102	A-7	RX5127	B-3
Q5103	B-4	RX5128	D-2
R5116	G-2	5C2	B-8
R5117	B-6	5F2	E-3

CRT BOARD - BOTTOM VIEW



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**CRT BOARD - BOTTOM
VIEW, GRIDTRACE
LOCATION GUIDE**

C5101M	H-8	R5106M	B-7
C5102M	B-5	R5107M	H-7
C5103M	A-7	R5108M	A-3
R5101M	I-7	R5109M	A-7
R5102M	B-3	R5113M	H-7
R5103M	B-2	R5114M	B-5
R5104M	H-8	R5115M	A-7
R5105M	B-4		

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.
D2202, 03, 06	-	103-00461A	-	-	-
D2215	-	103-00471A	-	-	-
D3410	-	-	-	-	-
D3411	-	-	-	-	-
D3412	-	103-00417-03A	NTE580	ECG580	SK5036
D6001, 02	-	103-00461A	-	-	-
# DX2101	-	103-00254-01	NTE116	ECG116	SK3313
# DX2102, 03, 05	-	103-00461A	-	-	-
# DX3006	-	103-00344-04A	-	-	-
# DX3204	-	103-00471A	-	-	-
# DX3260	-	103-00284A	NTE552	ECG552	SK9000
# DX3273	-	103-00339-04A	NTE580	ECG580	SK5036
# DX3287	-	103-00326A	NTE552	ECG552	SK9000
# DX3401	KBJ406G	212-00172-04	-	-	-
# DX3405	-	103-00254-01	NTE116	ECG116	SK3313
# DX3406, 07, 09	-	103-00344-02A	NTE116	ECG116	SK3313
IC804	LA4261	-	NTE1685	ECG1685	SK9948
IC1400	CXA2054S	221-01127	-	-	-
IC2001	-	221-01171	-	-	-
IC2100	TDA8174A	-	-	-	-
IC6000	M37267M6	221-01305	-	-	-
IC6001	24C04PC	221-00745-04	-	-	-
IC6002	KIA7042P	221-01177A	-	-	-
# ICX2200	TA1268N	221-01165	-	-	-
# ICX3431	STR-53041	-	NTE1840	ECG1840	SK10144
# ICX3441	L7809ABV	-	-	-	-
# ICX3442	78L05	221-00167-01A	NTE977	ECG977	SK3462
Q800	2N3904	121-01310A	NTE85	ECG85	SK3124A
Q1203, 04	2N3904	121-01310A	NTE85	ECG85	SK3124A
Q1205	-	121-01261A	-	-	-
Q1401	-	121-01310A	NTE85	ECG85	SK3124A
Q1402	-	121-01311A	NTE290A	ECG290A	SK3114A
Q1403	-	121-01310A	NTE85	ECG85	SK3124A
Q1404	-	121-01311A	NTE290A	ECG290A	SK3114A
Q1405	-	121-01310A	NTE85	ECG85	SK3124A
Q2202 Thru					
Q2205	2N3906	121-01311A	NTE290A	ECG290A	SK3114A
Q2206	2N3904	121-01310A	NTE85	ECG85	SK3124A
Q2209, 10	2N3906	121-01311A	NTE290A	ECG290A	SK3114A
Q3202	2N3904	121-01310A	NTE85	ECG85	SK3124A
Q3206	MPSA06	121-01264-01A	NTE287	ECG287	SK3433
Q3402	MPSA06	121-01340A	NTE287	ECG287	SK3433
Q3404	-	121-01102A	-	-	-
Q5101, 02, 03	KTC3229	121-01291-01	NTE376%	ECG376%	-
Q6001, 02	2N3904	121-01310A	NTE85	ECG85	SK3124A
# QX3208	2SD1651	-	NTE2331	ECG2331	SK9422
# QX3401	2N4923	121-01348	NTE184	ECG184	SK3190
ZD1401 Thru					
ZD1404	-	103-00279-18A	-	-	-

For SAFETY use only equivalent replacement part.
% Use insulating hardware supplied with replacement.

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.
ZD2901	-	103-00279-18A	-	-	-
ZD2902	-	103-00279-10A	NTE5010A	ECG5010A	SK5A1
ZD2903	-	103-00279-18A	-	-	-
ZD6001	-	103-00279-36A	-	-	-
# ZDX3004	-	103-00472A	-	-	-
# ZDX3401	-	103-00279-10A	NTE5010A	ECG5010A	SK5A1

For SAFETY use only equivalent replacement part.

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

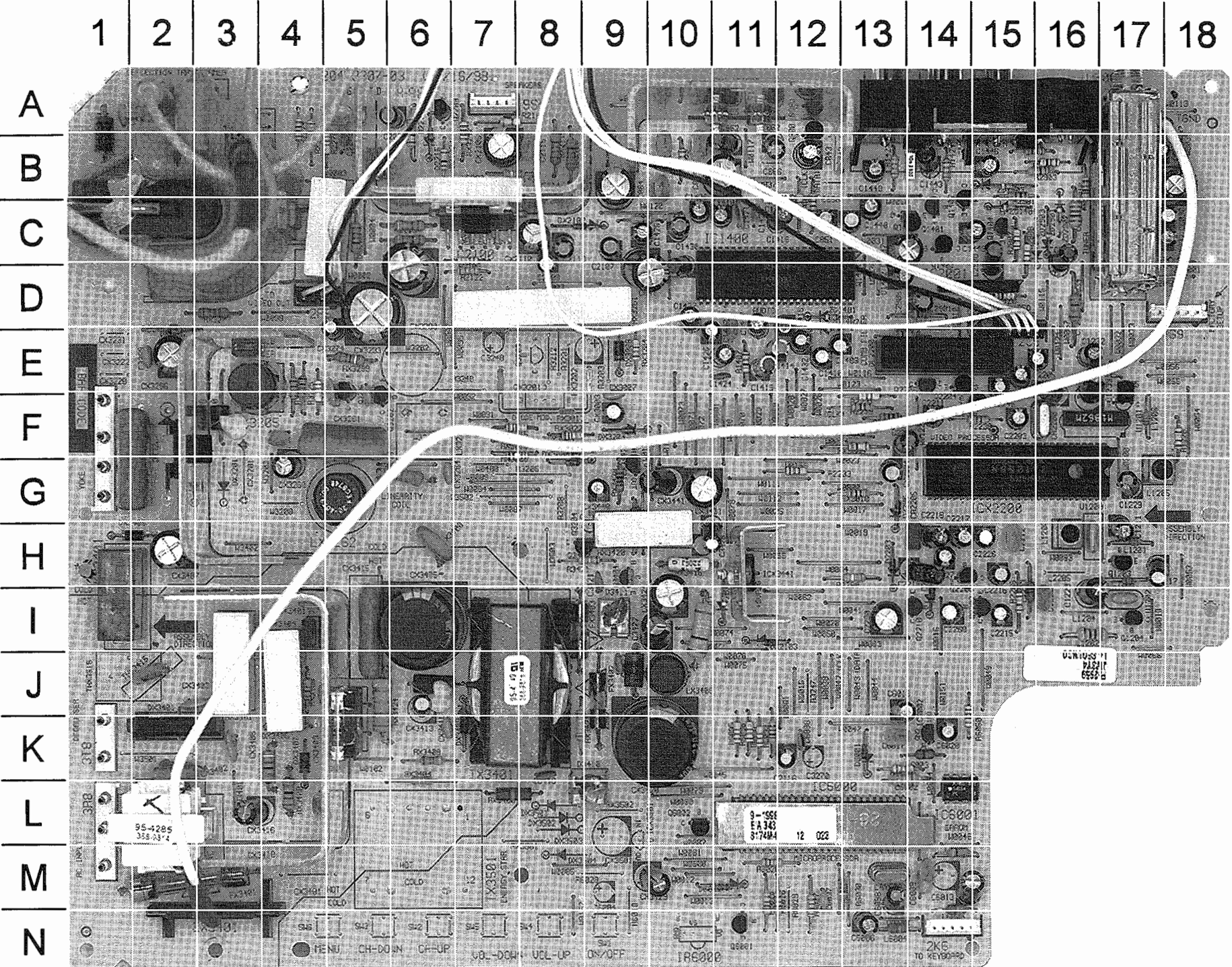
Or consult the Sams *Annual Index* for the address of the original equipment manufacturer.

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)

MAIN BOARD - TOP VIEW



A HOWARD W. SAMS GridTrace™ PHOTO

MAIN BOARD - TOP VIEW, GRIDTRACE LOCATION GUIDE

C841	D-10	C2271	A-6	D2215	B-6	Q2205	E-14	RX3016	F-7
C842	B-10	C2272	B-5	D3410	L-9	Q2206	H-14	RX3022	F-8
C843	B-12	C2290	I-13	D3411	I-9	Q2209	A-6	RX3204	E-9
C851	C-12	C2905	D-14	D3412	J-9	Q2210	I-14	RX3205	C-5
C852	B-11	C2908	C-15	D6001	K-13	Q3202	F-5	RX3237	C-4
C853	B-10	C2951	C-16	D6002	M-11	Q3206	E-5	RX3242	B-7
C854	B-11	C3209	E-5	DL2200	E-14	Q3402	H-9	RX3261	D-8
C861	C-13	C3211	F-4	DX2101	B-7	Q3404	H-9	RX3263	G-5
C862	B-11	C3215	F-5	DX2102	C-8	Q6001	N-11	RX3264	G-6
C863	B-10	C3232	E-2	DX2103	I-11	Q6002	L-10	RX3277	D-3
C864	B-9	C3237	A-2	DX3005	G-8	QX3208	F-2	RX3299	E-5
C1211	H-17	C3269	E-2	DX3006	E-9	QX3401	I-4	RX3400	L-7
C1217	H-17	C3271	A-1	DX3204	F-9	R843	A-12	RX3401	J-3
C1220	I-16	C3419	K-8	DX3260	F-5	R853	C-9	RX3403	J-4
C1222	I-16	C3421	H-9	DX3273	B-1	R863	B-10	RX3404	K-6
C1229	G-17	C3422	I-10	DX3287	E-2	R1220	F-18	RX3406	J-4
C1232	E-16	C3423	J-9	DX3401	K-2	R1228	E-17	RX3407	K-4
C1233	E-16	C3428	H-11	DX3405	H-2	R1401	C-12	RX3408	L-4
C1235	E-16	C6006	N-13	DX3406	K-4	R1402	C-12	RX3409	K-6
C1408	E-12	C6009	M-14	DX3407	K-4	R1407	E-11	RX3411	I-10
C1410	E-12	C6013	M-15	DX3409	K-7	R1423	B-13	RX3416	H-10
C1413	C-10	C6016	J-13	EX3401	M-3	R1424	B-14	RX3420	H-9
C1414	E-12	C6017	K-13	FX3401	M-2	R2109	C-7	RX3424	J-5
C1415	D-12	C6020	K-14	FX3402	J-9	R2111	C-6	RX3428	G-9
C1416	C-12	C6028	B-17	FX3403	I-8	R2113	C-6	RX3431	K-8
C1417	D-11	C6030	C-18	IC804	A-11	R2122	D-7	THX3415	J-2
C1418	C-11	C6032	C-18	IC1400	D-11	R2132	B-6	TU6000	B-17
C1419	E-11	C6037	M-12	IC2001	D-15	R2142	B-7	TX3204	C-2
C1420	C-11	C6096	K-12	IC2100	C-7	R2146	A-7	TX3205	E-3
C1421	C-11	C6098	M-13	IC6000	L-12	R2202	F-13	TX3401	J-7
C1422	D-11	CR2200	F-16	IC6001	L-14	R2219	F-13	UI200	H-16
C1424	E-11	CR2205	H-14	IC6002	K-14	R2220	F-13	UI201	F-16
C1425	C-9	CRY6001	M-13	ICX2200	G-15	R2231	F-13	UI202	I-17
C1426	E-11	CX2105	B-7	ICX3431	K-5	R2233	G-12	ZD1401	D-12
C1427	D-10	CX2109	D-6	ICX3441	H-11	R2238	F-15	ZD1402	E-12
C1428	E-10	CX2110	C-8	ICX3442	G-9	R2266	I-15	ZD1403	B-15
C1430	D-10	CX3003	F-9	JI	A-15	R2272	A-3	ZD1404	C-15
C1432	E-12	CX3004	G-13	KX3401	I-1	R2273	B-5	ZD2901	C-16
C1436	C-10	CX3007	F-9	L1200	H-16	R2274	A-4	ZD2902	C-16
C1440	B-12	CX3229	F-2	L1201	H-17	R2276	B-5	ZD2903	C-16
C1442	D-13	CX3233	D-5	L1202	I-16	R2277	A-6	ZD6001	C-18
C1443	B-14	CX3260	G-4	L1203	H-17	R2290	H-13	ZDX3004	F-8
C1444	B-14	CX3261	F-5	L1205	G-17	R2901	B-15	ZDX3401	I-11
C1445	C-15	CX3264	G-6	L1206	F-17	R2902	C-15	2C5	D-15
C1446	B-15	CX3274	E-5	L1208	D-16	R2903	B-16	2F5	D-4
C1447	C-14	CX3296	E-2	L2203	I-15	R2904	B-16	2K6	N-14
C1448	C-13	CX3400	H-6	L2901	D-14	R2905	B-16	3R8	L-1
C1449	B-13	CX3402	K-2	L3407	H-9	R2906	C-15	3T8	K-1
C2106	B-6	CX3403	J-2	L6000	C-16	R2914	E-13	3Y3	F-1
C2107	C-9	CX3404	I-4	L6001	M-14	R2916	B-16	4G9	D-18
C2108	D-8	CX3405	I-6	L6002	K-13	R2920	D-15	9S4	A-7
C2114	B-8	CX3406	K-3	L6003	K-14	R3225	E-4		
C2115	B-8	CX3407	H-3	L6004	N-13	R3226	E-4		
C2116	K-12	CX3408	J-4	L6005	M-14	R3254	E-4		
C2119	C-8	CX3409	K-4	L6007	M-13	R3421	H-9		
C2203	F-15	CX3410	I-4	LX3210	F-3	R6013	K-13		
C2204	E-15	CX3411	L-4	LX3262	G-5	R6015	M-11		
C2205	E-16	CX3412	J-4	LX3401	L-2	R6016	M-12		
C2208	F-14	CX3413	J-6	LX3405	J-10	R6026	M-11		
C2211	F-14	CX3415	I-5	LX3410	J-6	R6027	M-12		
C2212	H-15	CX3416	L-3	Q800	A-12	R6050	K-14		
C2215	I-15	CX3418	K-6	Q1203	H-17	R6093	K-11		
C2216	H-15	CX3420	K-10	Q1204	I-17	R6095	K-11		
C2217	H-14	CX3424	I-10	Q1205	E-17	R6096	K-11		
C2218	H-14	CX3429	M-10	Q1401	C-14	RX2110	B-6		
C2219	H-14	CX3431	G-10	Q1402	B-14	RX2115	B-8		
C2226	H-15	CX3440	G-9	Q1403	C-14	RX2126	B-8		
C2227	H-14	CX3441	G-10	Q1404	C-15	RX2278	A-4		
C2245	E-15	CX6027	B-18	Q1405	C-14	RX3008	F-8		
C2260	I-14	D2202	I-14	Q2202	I-15	RX3009	F-13		
C2261	D-15	D2203	H-13	Q2203	F-15	RX3010	G-13		
C2270	A-5	D2206	G-13	Q2204	E-14	RX3015	F-7		

PARTS LIST continued

CABINET PARTS

Item Mfr. Part No.

Model A25A23W

Cabinet Front 014-12313-04
Cabinet Rear 014-12297-03
IR Lens 192-922
Jack Panel 012-10858
Knob Array 46-10587

Model A25A23W9

Cabinet Front 014-12187-11
Cabinet Rear 014-12181-07
IR Lens 192-00858-01
Jack Panel 012-10858
Knob Array 46-10554

Model LGA26A23WM9

Cabinet Front 014-12313-04
Cabinet Rear 014-12297-03
IR Lens 192-922
Knob Array 46-10587

TEST EQUIPMENT

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

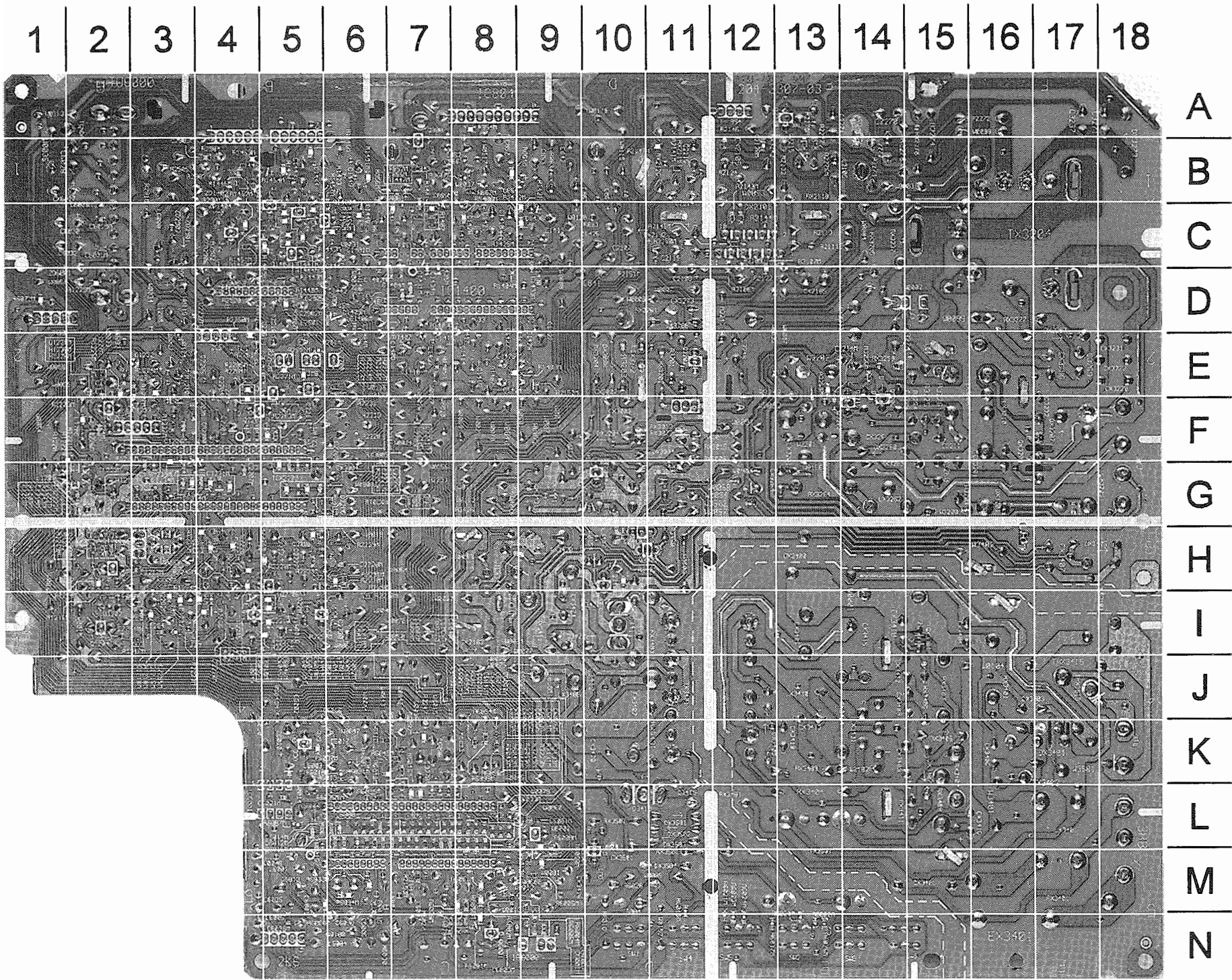
Equipment	Sencore No.
Oscilloscope	SC3100
Generators	
RGB	CM2125
Multiburst Signal	VG91
Color Bar	VG91
TV Stereo	VG91
Digital VOM	SC3100
Frequency Meter	SC3100
Hi-Voltage Probe	HP200
Accessory Probes	TP212
Isolation Transformer	PR570
Capacitance Analyzer	LC102
CRT Analyzer	CR7000
AC Leakage Tester	PR570
Inductance Analyzer	LC102
Flyback Yoke Tester	TVA92
Field Strength Meter	SL753
Transistor Tester	TF46
Horizontal Analyzer	HA-2500
Video Analyzer	VG91, TVA92



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

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MAIN BOARD - BOTTOM VIEW



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MAIN BOARD - BOTTOM VIEW, GRIDTRACE LOCATION GUIDE

C855M	C-7	C6049M	L-7	R1455M	C-6	R6042M	L-7
C865M	B-8	C6050M	L-7	R1456M	C-6	R6043M	L-7
C1206M	G-3	C6051M	L-7	R1457M	C-6	R6044M	L-7
C1212M	H-3	C6052M	L-7	R1490M	C-6	R6045M	K-7
C1213M	H-2	C6053M	L-7	R1491M	B-6	R6046M	K-7
C1215M	I-3	C6054M	L-8	R2107M	D-12	R6047M	K-7
C1216M	G-3	C6055M	L-8	R2108M	C-12	R6048M	K-6
C1218M	I-3	C6056M	L-6	R2131M	L-7	R6049M	J-5
C1219M	G-4	C6058M	L-8	R2133M	L-8	R6053M	L-7
C1221M	G-4	C6059M	L-8	R2141M	B-11	R6058M	M-8
C1223M	G-3	C6060M	L-8	R2143M	C-12	R6059M	L-7
C1224M	F-2	C6061M	L-9	R2144M	C-12	R6061M	M-8
C1225M	G-2	C6079M	L-8	R2145M	C-12	R6069M	M-8
C1226M	F-2	C6090M	L-7	R2147M	B-11	R6070M	M-8
C1227M	E-2	C6091M	L-7	R2150M	C-11	R6072M	D-1
C1228M	E-2	C6092M	L-7	R2151M	D-10	R6080M	M-5
C1231M	G-3	C6093M	L-7	R2152M	E-9	R6090M	M-9
C1234M	G-3	C6094M	L-7	R2153M	M-7	R6091M	K-6
C1236M	F-3	C6095M	L-8	R2212M	F-5	R6092M	K-7
C1401M	C-6	R851M	C-7	R2213M	F-4	R6094M	K-8
C1402M	D-7	R852M	C-7	R2214M	F-4	R6098M	K-8
C1403M	D-6	R854M	A-8	R2215M	F-5	R6099M	K-8
C1404M	D-7	R861M	C-7	R2218M	G-5		
C1406M	D-7	R862M	B-8	R2221M	H-4		
C1431M	D-7	R864M	B-8	R2222M	G-4		
C1433M	D-9	R1209M	G-3	R2223M	I-4		
C2202M	F-3	R1210M	F-3	R2224M	H-4		
C2207M	G-4	R1211M	G-3	R2225M	I-5		
C2209M	G-5	R1212M	H-2	R2226M	H-5		
C2210M	I-4	R1213M	H-2	R2228M	H-5		
C2220M	H-6	R1214M	H-2	R2229M	H-5		
C2221M	G-5	R1216M	I-2	R2230M	H-6		
C2225M	H-4	R1217M	I-3	R2234M	H-5		
C2237M	D-3	R1218M	I-3	R2235M	G-5		
C2257M	G-6	R1219M	H-4	R2240M	H-4		
C2294M	I-3	R1221M	F-2	R2241M	I-5		
C2299M	G-5	R1222M	F-2	R2242M	I-5		
C2901M	D-5	R1223M	F-2	R2243M	G-4		
C2902M	D-6	R1224M	E-3	R2257M	G-6		
C2903M	B-4	R1225M	E-2	R2259M	G-5		
C2904M	D-6	R1226M	E-2	R2260M	E-4		
C3214M	F-13	R1227M	E-3	R2261M	E-4		
C6001M	N-9	R1229M	D-2	R2262M	E-5		
C6003M	N-8	R1230M	E-2	R2270M	I-6		
C6005M	L-6	R1232M	F-3	R2271M	E-5		
C6007M	L-6	R1233M	G-3	R2275M	B-13		
C6010M	L-6	R1234M	I-4	R2279M	B-13		
C6011M	L-6	R1235M	I-4	R2283M	F-4		
C6012M	L-5	R1404M	D-8	R2284M	E-4		
C6014M	L-5	R1405M	E-7	R2285M	E-5		
C6015M	L-6	R1406M	C-8	R2291M	H-6		
C6018M	L-6	R1408M	E-8	R2292M	I-6		
C6019M	L-6	R1409M	D-7	R2909M	E-6		
C6021M	L-5	R1421M	C-9	R3255M	E-13		
C6023M	L-8	R1422M	C-9	R3256M	E-14		
C6024M	L-8	R1425M	C-8	R3422M	H-10		
C6025M	L-8	R1440M	C-5	R6001M	N-8		
C6026M	C-2	R1441M	C-5	R6002M	N-8		
C6029M	C-2	R1442M	C-5	R6003M	N-9		
C6031M	C-2	R1443M	C-5	R6004M	M-9		
C6033M	L-8	R1444M	C-5	R6005M	M-9		
C6036M	N-5	R1445M	B-4	R6006M	M-9		
C6038M	L-8	R1446M	B-5	R6008M	L-9		
C6040M	L-7	R1447M	C-7	R6012M	M-9		
C6041M	L-7	R1448M	C-5	R6031M	M-6		
C6042M	L-7	R1449M	C-5	R6032M	L-6		
C6043M	L-7	R1450M	C-4	R6034M	M-6		
C6045M	L-6	R1451M	C-5	R6035M	L-6		
C6046M	L-6	R1452M	C-4	R6037M	K-5		
C6047M	L-6	R1453M	B-4	R6039M	L-6		
C6048M	L-7	R1454M	B-5	R6041M	K-6		

ZENITH

MODELS A25A23W/W9, LGA26A23WM9

PARTS LIST continued

COILS & TRANSFORMERS

Item No.	Function/Rating	Mfr. Part No.
DY1	Yoke Horiz 1.27mH Vert 10.35mH	095-04456-03
L1200	PIF	020-04506
L1201	10μH	020-04277-39A
L1202	10μH	020-03907-12A
L1203	12μH	020-04277-23A
L1205	-	020-04278B
L1206	.82μH	020-04277-09A
L1208	120μH	020-03907-25A
L2203	15μH	020-04129-22
L2901	4.7μH	020-04129-16
L3200	Degaussing	020-04330-35
L3407	33μH	020-04462-18A
L5100	220μH	020-03907-28A
L5102	Ferrite Bead	-
L6000	100μH	020-03907-024A
L6001	4.7μH	020-04129-16
L6002	8.2μH	020-04129-19
L6003, 04, 05	1μH	020-04129-08
L6007	4.7μH	020-04129-16
# LX3210	Ferrite Bead	-
# LX3262	Horizontal Linearity	020-04073-03
# LX3401	Line Filter	095-04285
# LX3405	100μH	020-04405-48
# LX3410	Ferrite Bead	-
# TX3204 (1)	Horizontal Output	095-04372-01
# TX3205	Horizontal Driver	095-04477
# TX3401	Chopper	095-04549

For SAFETY use only equivalent replacement part.
(1) Focus and screen (G-2) controls are part of TX3204.

MISCELLANEOUS

Item No.	Description	Mfr. Part No.	Notes
CR2200	Crystal	224-00027A	3.58MHz
CR2205	Crystal	224-000178	503kHz
CRT1	Socket	078-03394-09	CRT
CRY6001	Crystal	224-00074-02A	8MHz
DL2200	Comb Filter	223-00045	-
# EX3401	Spark Gap	038-00102	-
# FX3401	Fuse	136-00114-23A	4Amp, 250V, Normal Lag
# FX3402	Fuse	136-00148-23	3Amp, 250V, Normal Lag
# FX3403	Fuse	136-00148-03	2Amp, 250V, Normal Lag
IR1 (1)	Receiver	-	Remote
J1	Jack	A-18785	Assembly
# KX3401	Relay	195-00161	Degaussing
P3401	Line Cord	A-18588-01	AC, Polarized
SP1, 2	Speaker	49-01368-03	2" X 5", 8 Ohms, 5W
SW1 (1)	Switch	-	Off/On
SW2 (1)	Switch	-	Channel Up
SW3 (1)	Switch	-	Channel Down
SW4 (1)	Switch	-	Volume Up
SW5 (1)	Switch	-	Volume Down
SW6 (1)	Switch	-	Menu
SW7 (1)	Switch	-	Select
SW8 (1)	Switch	-	Adjust Right
SW9 (1)	Switch	-	Adjust Left
SW10 (1)	Switch	-	Enter
TU6000 (2)	Tuner	175-02721	UHF/VHF, 175-2721
U1200	Filter	224-00139-01A	4.5MHz
U1201	Filter	224-00160	SAW
U1202	Trap	224-00023A	4.5MHz
V1	CRT	A63AGD01X	-
	Balun	A-14323	Antenna, Used in model LGA26A23WM9
	Magnet	A-07690-06	Purity/Convergence
	PC Board	F-50826	Keyboard Assembly
	PC Board	009-01996	Main
	Transmitter	124-00212-35	Remote
	Wedge	152-00335	Yoke Positioning (3 Used)

For SAFETY use only equivalent replacement part.
(1) Part of keyboard assembly.
(2) Contact TNI Electronics for replacement; order by part number on tuner.