

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.

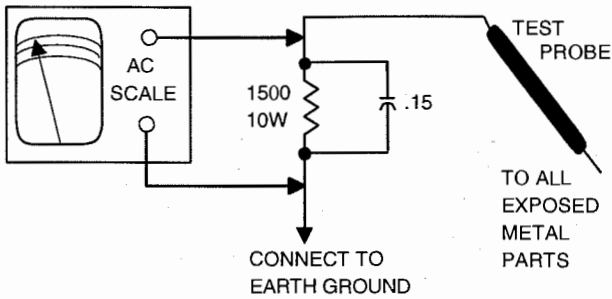
SAFETY CHECKS -- FIRE AND SHOCK HAZARD

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.



HIGH VOLTAGE SHUTDOWN TEST

Turn receiver on and 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.

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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2647 Waterfront Parkway East Drive, Suite 100
Indianapolis, IN 46214-2041

Printed in the United States of America 5 4 3 2 1



99PF01591



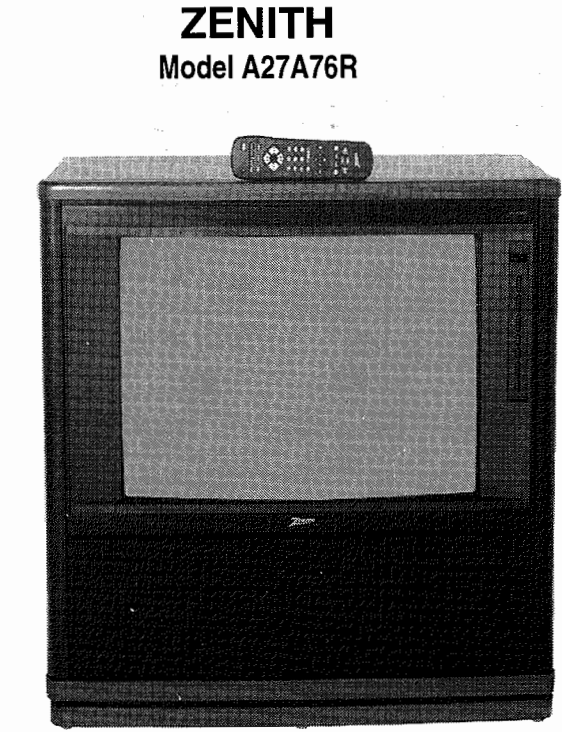
PHOTOFACT® Technical Service Data

SET 4223

MODEL A27A76R

ZENITH

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Essential coverage
for servicing a television receiver...

- Schematics
- Component locations
- Parts list


HOWARD W. SAMS & COMPANY
DECEMBER 1999 SET 4223

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 26.5kV to 28kV.

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 button 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.

Exit Service Menu

Press enter button to exit the service menu.

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, and 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.

HORIZONTAL SIZE

Tune in a crosshatch pattern. Call up service menu, select function 13, set data value for slight overscan on both sides.

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. Adjust 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.

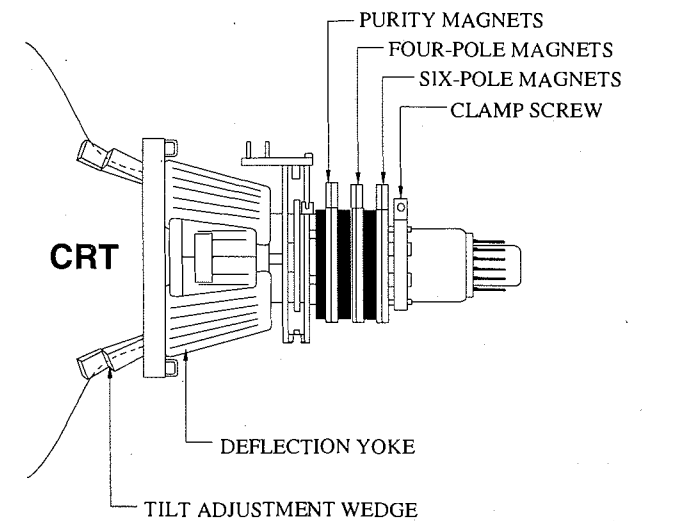
CONVERGENCE

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



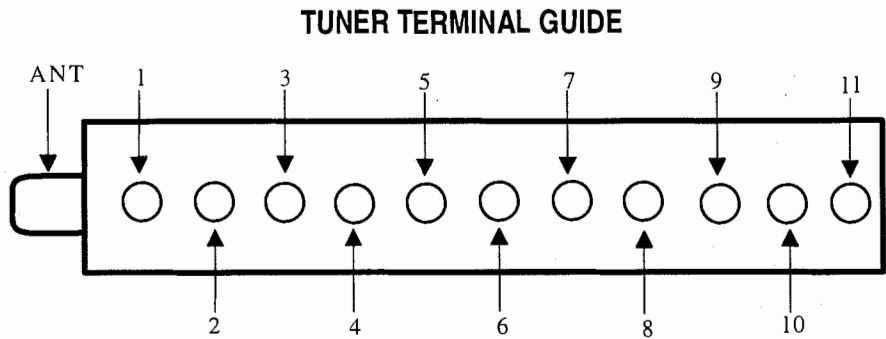
SERVICE MENU CHART

FUNCTION 1308-00 1.00	DATA VALUE	ON-SET VALUE	RANGE	NOTES
00 F MODE	0	0	0 - 1	Factory Mode. Normal setting is 0, when set to 1, all other functions are accessible.
01 PRE PX	1	1	0 - 1	Stores customer video menu picture preference (Preset). 0 is custom, 1 is preset stored.
02 V POS	17	17	0 - 30	Vertical position of On Screen Displays (Menus & Captions).
03 H POS	23	21	0 - 42	Horizontal position of On Screen Displays (Menus & Captions).
04 LEVEL	1	1	0 - 2	-
05 BAND	0	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	0 - 1	Enables AC Power On feature.
07 RF BPF	1	1	0 - 1	RF Bandpass.
08 3.58T	1	1	0 - 1	3.58MHz Trap.
09 RF BRT	32	36	0 - 63	RF Brightness.
10 AX BRT	32	36	0 - 63	Auxiliary Brightness.
11 MAX CON	63	63	0 - 63	Maximum Contrast.
12 V SIZE	53	49	0 - 254	Vertical Size.
13 H SIZE	104	55	0 - 254	Horizontal Size.
14 V PHASE	1	0	0 - 7	Vertical Phase.
15 H PHASE	20	16	0 - 31	Horizontal Phase.
16 AUD LV1	46	43	0 - 63	Audio Level.
17 RF AGC	31	48	0 - 63	-
18 H AFC	1	1	0 - 1	Horizontal AFC.
19 WH COMP	0	0	0 - 1	White Compression.
20 60HZ SW	2	2	0 - 3	-
21 PIF VCO	32	56	2 - 127	Picture IF Voltage Controlled Oscillator.
22 R CUT	5	10	0 - 254	Red Cutoff.
23 G CUT	0	0	0 - 254	Green Cutoff.
24 B CUT	10	10	0 - 254	Blue Cutoff.
25 G GAIN	66	95	0 - 254	Green Gain.
26 B GAIN	14	75	0 - 254	Blue Gain.
27 Scroll	1	1	0 - 1	Selects the method the user menus will appear on the screen.
28 6 Keys	1	0	0 - 1	Set to 0 for the 10 key keyboard, set to 1 for the 6 key keyboard.
39 A ATT	9	9	0 - 15	Audio Input Attenuator.
30 A VCO	31	34	0 - 63	Audio Voltage Controlled Oscillator.
31 A FItr	31	23	0 - 63	Audio Filter.
32 Spectrl	31	34	0 - 63	High Frequency Separation.
33 W Band	31	42	0 - 63	Low Frequency Separation.
34 PIP X1	7	7	0 - 63	Horizontal position on left side.
35 PIP Y1	5	5	0 - 63	Vertical position on left side.
36 PIP X2	49	49	0 - 63	Horizontal position on right side.
37 PIP Y2	32	32	0 - 63	Vertical position on right side.
38 PIP Ras	68	68	0 - 254	Picture In Picture Raster.
39 PIP Sw	8	8	0 - 15	Picture In Picture Switch Delay.
40 PIP Lud	2	2	0 - 7	Picture In Picture Luminance Delay.
41 PIP TOF	3	3	0 - 63	Picture In Picture Level Register.
42 In OSDC	1	1	0 - 1	OSD Internal Oscillator.
43 OSD FR	0	0	0 - 1	OSD Frame.

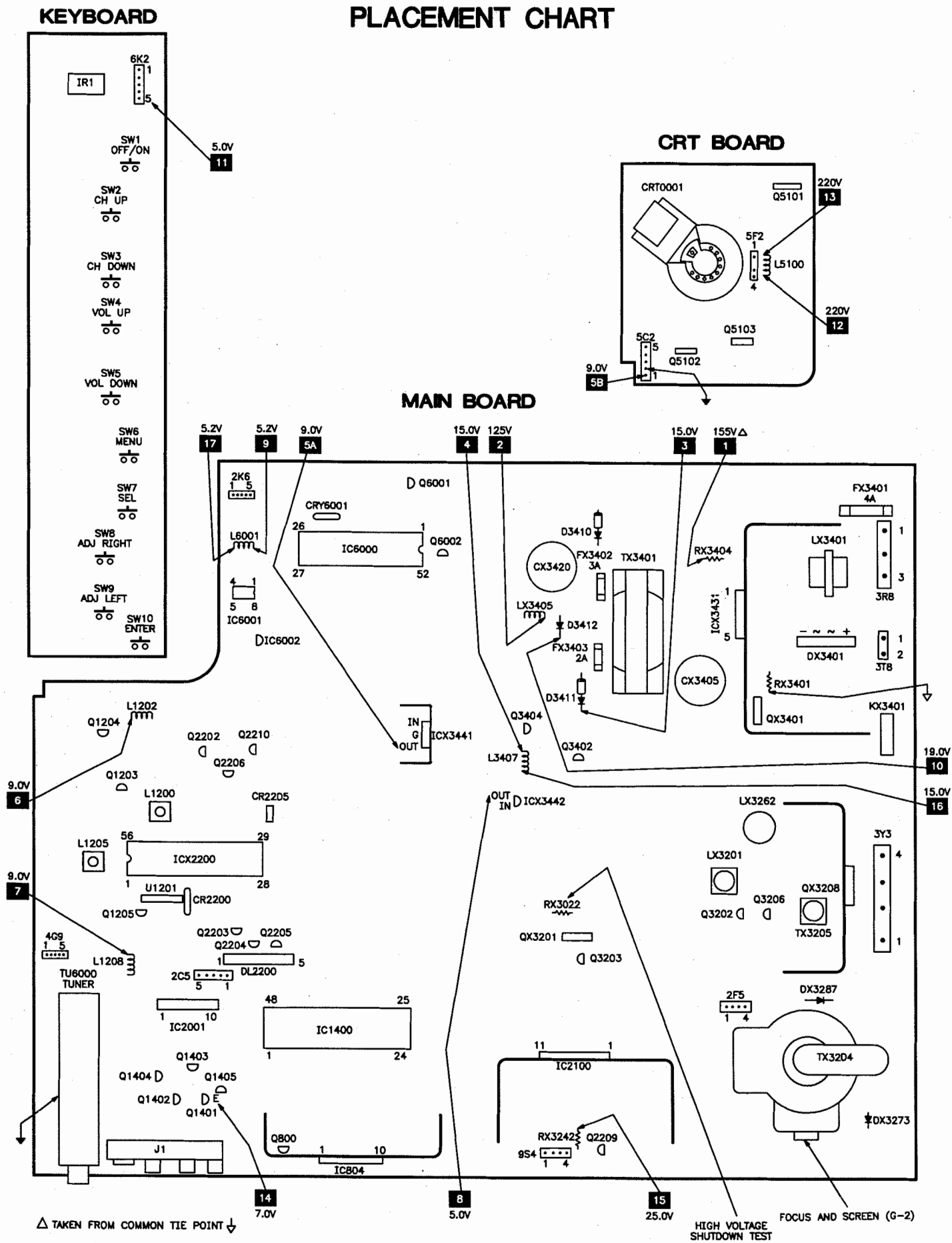
TUNER INFORMATION

TUNER VOLTAGE CHART				
Pin		VHF Low Band	VHF High Band	UHF Band
1	AGC	3.6V	3.6V	3.6V
2	TU	1.1V	3.7V	6.1V
3	EN/AS	0V	0V	0V
4	CLK	5.0V	5.0V	5.0V
5	DATA	5.0V	5.0V	5.0V
6	+9V	8.8V	8.8V	8.8V
7	+5V	5.0V	5.0V	5.0V
8	LOCK	0V	0V	0V
9	+33V	32.4V	32.4V	32.4V
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.



PLACEMENT CHART



TEST EQUIPMENT

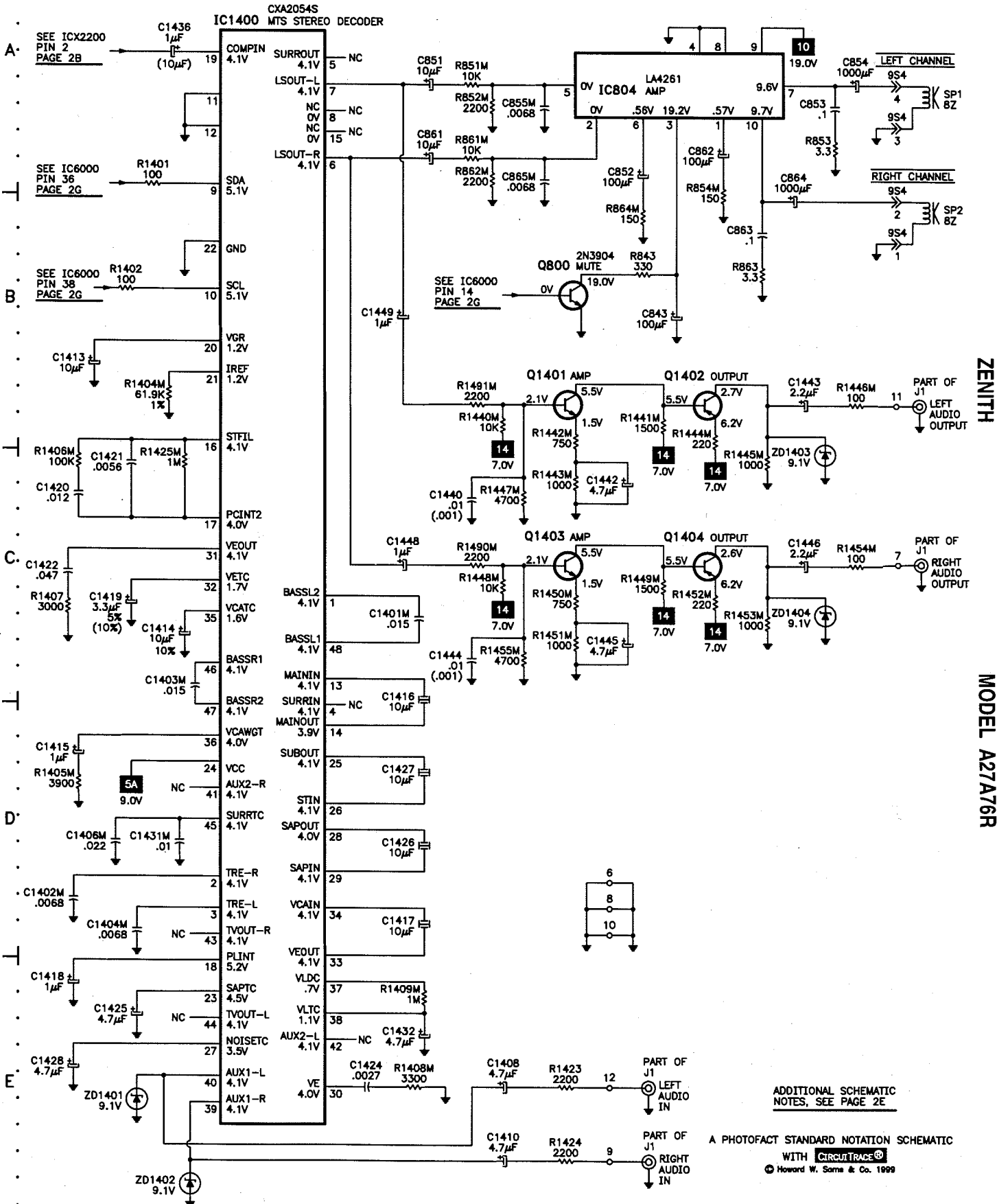
Test equipment listed by participating manufacturer illustrates typical or equivalent equipment used by Sams engineers to obtain measurements. This equipment is compatible with most types used by field service technicians.

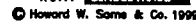
Equipment	Sencore No.	Equipment	Sencore No.
Oscilloscope	SC3100	Isolation Transformer	PR570
Generators		Capacitance Analyzer	LC102
RGB	CM2125	CRT Analyzer	CR7000
Multiburst Signal	VG91	AC Leakage Tester	PR570
Color Bar	VG91	Inductance Analyzer	LC102
TV Stereo	VG91	Flyback Yoke Tester	TVA92
Digital VOM	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

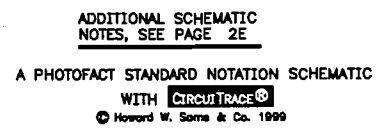
SCHEMATIC COMPONENT LOCATION GUIDE

C1	A29	C2114	E10	C6020	C32	CX3411	C23	L5102	D34	R1220	C7	R2223M	A17	R5120	C35	RX3408	C23
C841	D28	C2115	E10	C6021M	C32	CX3412	C21	L6000	A5	R1221M	C7	R2224M	B20	R5121	C35	RX3409	C23
C842	D27	C2116	D8	C6023M	B31	CX3413	C22	L6001	D26	R1222M	B7	R2225M	B13	R5122	C35	RX3411	C6
C843	B3	C2119	D10	C6024M	B31	CX3415	C23	L6002	E29	R1223M	B6	R2226M	B13	R5123	E27	RX3416	C25
C851	A2	C2202M	B12	C6025M	A31	CX3416	C23	L6003	C32	R1224M	B6	R2228M	B13	R6001M	D30	RX3420	B26
C852	B3	C2203	C18	C6026M	A5	CX3418	D23	L6004	B29	R1225M	B5	R2229M	D5	R6002M	D30	RX3424	B23
C853	A4	C2204	B19	C6028	C5	CX3420	A27	L6005	D27	R1226M	B6	R2230M	D6	R6003M	D29	RX3428	C26
C854	A4	C2205	C19	C6029M	C27	CX3424	B28	L6007	D30	R1227M	B5	R2231	E7	R6004M	D29	RX3431	A27
C855M	A2	C2207M	D7	C6030	C28	CX3429	D25	LX3201	D15	R1228	B5	R2233	E6	R6005M	D8	RX5126	B34
C861	B2	C2208	D5	C6031M	C5	CX3431	B26	LX3210	E12	R1229M	B5	R2234M	C19	R6006M	C29	RX5127	C34
C862	A3	C2209M	D5	C6032	C5	CX3440	C26	LX3262	D13	R1230M	B6	R2235M	D5	R6008M	D8	RX5128	A34
C863	B3	C2210M	A17	C6033M	A31	CX3441	C28	LX3401	A21	R1232M	A7	R2238	D6	R6012M	C16	SP1	A4
C864	B3	C2211	D5	C6035	D27	CX6027	A5	LX3405	A27	R1233M	B6	R2240M	A13	R6013	E29	SP2	B4
C865M	B2	C2212	A17	C6036M	D28	D2202	C19	LX3410	B23	R1234M	A6	R2241M	A14	R6015	C30	SW1	B29
C1206M	A9	C2215	D6	C6037	D27	D2203	C19	P3401	A21	R1235M	A6	R2242M	A14	R6016	B30	SW2	B29
C1211	A9	C2216	B20	C6038M	B31	D2206	E5	Q800	B3	R1401	B1	R2243M	B17	R6026	C31	SW3	B29
C1212M	B8	C2217	C20	C6040M	C31	D2215	E18	Q1203	B9	R1402	B1	R2257M	D6	R6027	A30	SW4	B29
C1213M	B8	C2218	B19	C6041M	D31	D3410	A26	Q1204	B10	R1404M	B1	R2259M	E7	R6030	D30	SW5	B29
C1215M	B28	C2219	D6	C6042M	B30	D3411	B25	Q1205	B6	R1405M	D1	R2260M	A33	R6031M	A30	SW8	B29
C1216M	C28	C2220M	D6	C6043M	C30	D3412	D26	Q1401	B3	R1406M	C1	R2261M	C33	R6032M	D30	SW9	B29
C1217	C28	C2221M	D5	C6045M	E31	D6001	D30	Q1402	B3	R1407	C1	R2262M	B33	R6034M	E30	SW10	B29
C1218M	B27	C2225M	B17	C6046M	E31	D6002	A5	Q1403	C3	R1408M	E2	R2266	A17	R6035M	E30	THX3415	A22
C1219M	B27	C2226	B18	C6047M	C31	DL2200	A16	Q1404	C3	R1409M	E2	R2270M	A14	R6037M	D29	TX3204	D16
C1220	B28	C2227	B10	C6048M	C31	DX2101	D9	Q1405	C27	R1421M	A10	R2271M	A14	R6039M	E31	TX3204	E24
C1221M	A6	C2237M	B27	C6049M	B31	DX2102	D9	Q2202	A13	R1422M	A10	R2272	E17	R6041M	B31	TX3205	E10
C1222	A6	C2245	D7	C6050M	C31	DX2103	E31	Q2203	A33	R1423	E3	R2273	E17	R6042M	C31	TX3401	A24
C1223M	C7	C2257M	D5	C6051M	E31	DX3005	E7	Q2204	C33	R1424	E3	R2274	E18	R6043M	B31	U1200	A8
C1224M	B6	C2260	A14	C6052M	D31	DX3006	E6	Q2205	B33	R1425M	C1	R2275M	E18	R6044M	C31	U1201	B6
C1225M	B7	C2261	B27	C6053M	D31	DX3201	E13	Q2206	B13	R1440M	B2	R2276	E18	R6045M	C31	U1202	B9
C1226M	B5	C2270	E18	C6054M	D31	DX3204	E5	Q2209	E18	R1441M	B3	R2277	C20	R6046M	C31	V1	B36
C1227M	B5	C2271	E18	C6055M	D31	DX3207	E13	Q2210	C19	R1442M	C3	R2279M	E18	R6047M	B31	ZD1401	E1
C1228M	B5	C2272	E17	C6056M	D30	DX3260	E13	Q3202	E8	R1443M	C3	R2283M	A33	R6048M	C31	ZD1402	E1
C1229	C7	C2290	C19	C6058M	C29	DX3273	E26	Q3203	D14	R1444M	C3	R2284M	C33	R6049M	C31	ZD1403	C4
C1231M	A8	C2294M	B10	C6059M	A30	DX3287	E25	Q3206	E9	R1445M	C3	R2285M	B33	R6050	C31	ZD1404	C4
C1232	A7	C2299M	D7	C6060M	A31	DX3288	E15	Q3402	C25	R1446M	B4	R2290	C19	R6053M	C30	ZD2901	C17
C1233	C28	C2901M	B16	C6061M	C17	DX3401	A23	Q3404	B25	R1447M	C2	R2291M	C19	R6058M	B30	ZD2902	C16
C1234M	C28	C2902M	B16	C6079M	B30	DX3405	B21	Q5101	B34	R1448M	C2	R2292M	C19	R6059M	E31	ZD2903	C16
C1235	D6	C2903M	C16	C6090M	B30	DX3406	C22	Q5102	C34	R1449M	C3	R2901	D17	R6061M	B30	ZD6001	C5
C1236M	D6	C2904M	A16	C6091M	B30	DX3407	C23	Q5103	A34	R1450M	C3	R2902	C17	R6069M	B30	ZDX3004	E7
C1401M	C2	C2905	C17	C6092M	E31	DX3409	C23	Q6001	D30	R1451M	C3	R2903	C16	R6070M	C30	ZDX3004	D25
C1402M	D1	C2908	C16	C6093M	A30	DY1	D13	Q6002	D8	R1452M	C3	R2904	C16	R6072M	E31		
C1403M	C1	C2951	B27	C6094M	D31	FX3401	A21	QX3201	D15	R1453M	C3	R2905	B16	R6080M	E29		
C1404M	D1	C3209	E9	C6095M	D31	FX3402	B24	QX3208	E12	R1454M	C4	R2906	C16	R6090M	C29		
C1406M	D1	C3211	E10	C6096	B19	FX3403	D26	QX3401	C22	R1455M	C2	R2909M	C18	R6091M	C24		
C1408	E2	C3214M	E8	C6098	D30	IC804	A3	R1	A29	R1456M	C27	R2914	A16	R6092M	B19		
C1410	E2	C3215	E8	CR2200	B12	IC1400	A1	R2	A29	R1457M	C27	R2916	C16	R6093	B19		
C1413	B1	C3232	E11	CR2205	D5	IC2001	B16	R3	A29	R1490M	C2	R2920	B16	R6094M	C19		
C1414	C1	C3237	E26	CRY6001	E30	IC2100	D9	R4	C29	R1491M	B2	R3201	D14	R6095	C18		
C1415	D1	C3248	D14	CX2105	E28	IC6000	A30	R5	B29	R2107M	D8	R3203	D14	R6096	C19		
C1416	D2	C3269	E25	CX2109	D13	IC6001	C32	R6	B29	R2108M	D12	R3212	C14	R6097	C19		
C1417	D2	C3270	C13	CX2110	D9	IC6002	D29	R7	B29	R2109	D12	R3223M	C13	R6098M	C18		
C1418	E1	C3271	E26	CX3003	E6	ICX2200	A9	R8	B29	R2111	D12	R3225	E10	R6099M	B18		
C1419	C1	C3419	A26	CX3004	E7	ICX2200	B11	R9	B29	R2113	D12	R3226	E10	RX2110	D11		
C1420	C1	C3421	B25	CX3007	E6	ICX2200	B19	R10	B29	R2122	D12	R3243	D14	RX2115	E14		
C1421	C1	C3422	D28	CX3201	E13	ICX2200	B7	R11	C29	R2131M	D9	R3247	C14	RX2126	E14		
C1422	C1	C3423	D26	CX3208	D15	ICX2200	D6	R12	C29	R2132	D9	R3248	D14	RX2278	E17		
C1424	E2	C3428	B28	CX3220	D14	ICX3431	B22	R13	C29	R2133M	D9	R3249M	C13	RX3008	E7		
C1425	E1	C5101M	B34	CX3222	E13	ICX3441	B26	R14	C29	R2141M	E10	R3254	E8	RX3009	E7		
C1426	D2	C5102M	C34	CX3229	E14	ICX3442	C26	R15	C29	R2142	E10	R3255M	E8	RX3010	D7		
C1427	D2	C5103M	A34	CX3231	D15	IR1	A29	R843	B3	R2143M	D10	R3256M	E9	RX3015	E7		
C1428	E1	C5104	D35	CX3233	E16	J1	B4	R851M	A2	R2144M	E10	R3421	B25	RX3016	E7		
C1430	B27	C5109	C35	CX3260	E13	J1	C4	R852M	A2	R2145M	D10	R3422M	B25	RX3022	E6		
C1431M	D1	C6001M	D29	CX3261	E13	J1	D16	R853	A4	R2146	E10	R5101M	B34	RX3202	D15		
C1432	E2	C6003M	A30	CX3264	D13	J1	E3	R854M	B3	R2147M	E10	R5102M	C34	RX3204	E6		
C1433M	B27	C6005M	A29	CX3272	E14	J1	E3	R861M	B2	R2150M	D9	R5103M	A34	RX3205	E16		
C1436	A1	C6006	A30	CX3273	E14	KX3401	B22	R862M	B2	R2151M	E32	R5104M	B34	RX3237	A35		
C1440	C2	C6007M	D31	CX3274	E10	L1200	C8	R863	B3	R2152M	E31	R5105M	C34	RX3242	E27		
C1442	C3	C6009	E29	CX3296	E26	L1201	B9	R864M	B3	R2153M	E31	R5106M	A34	RX3261	D16		
C1443	B3	C6010M	E30	CX3400	C24	L1202	C27	R1209M	B8	R2202	D5	R5107M	B34	RX3263	D13		
C1444	C2	C6011M	E30	CX3402	A22	L1203	B9	R1210M	E6	R2212M	D7	R5108M	C34	RX3264	E13		
C1445	C3	C6012M	D27	CX3403	B23	L1205	A7	R1211M	A9	R2213M	A33	R5109M	A34	RX3277	E26		
C1446	C3	C6013	D27	CX3404	A27	L1206	B6	R1212M	B8	R2214M	C33	R5113M	B34	RX3299	E10		
C1447	C27	C6014M	E30	CX3405	A28	L1208	C27	R1213M	B9	R2215M	B33	R5114M	C34	RX3400	B21		
C1448	C2	C6015M	E29	CX3406	A22	L2203	A17	R1214M	B9	R2218M	D8	R5115M	A34	RX3401	A22		
C1449	B2	C6016	D29	CX3407	B21	L2901	B16	R1216M	B9	R2219	B19	R5116	B35	RX3403	C21		
C2106	D11	C6017	D28	CX3408	B22	L3200	A22	R1217M	B10	R2220	B18	R5117	C35	RX3404	C22		
C2107	E32	C6018M	E31	CX3409	C22	L3407	B25	R1218M	B10	R2221M	D6	R5118	A35	RX3406	C21		
C2108	D12	C6019M	E31	CX3410	C21	L5100	E27	R1219M	A6	R2222M	B13	R5119	D35	RX3407	C23		

H AUDIO SCHEMATIC



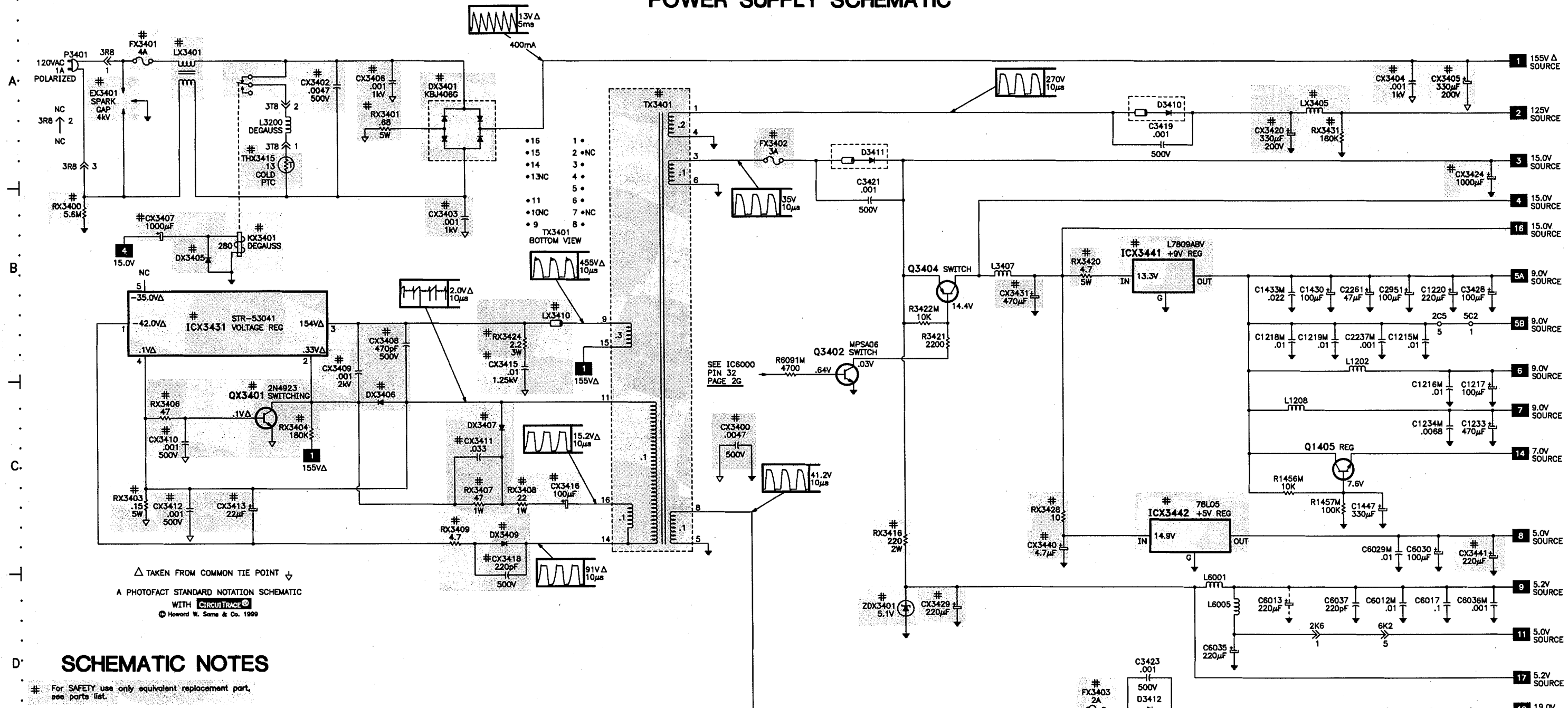




POWER SUPPLY SCHEMATIC

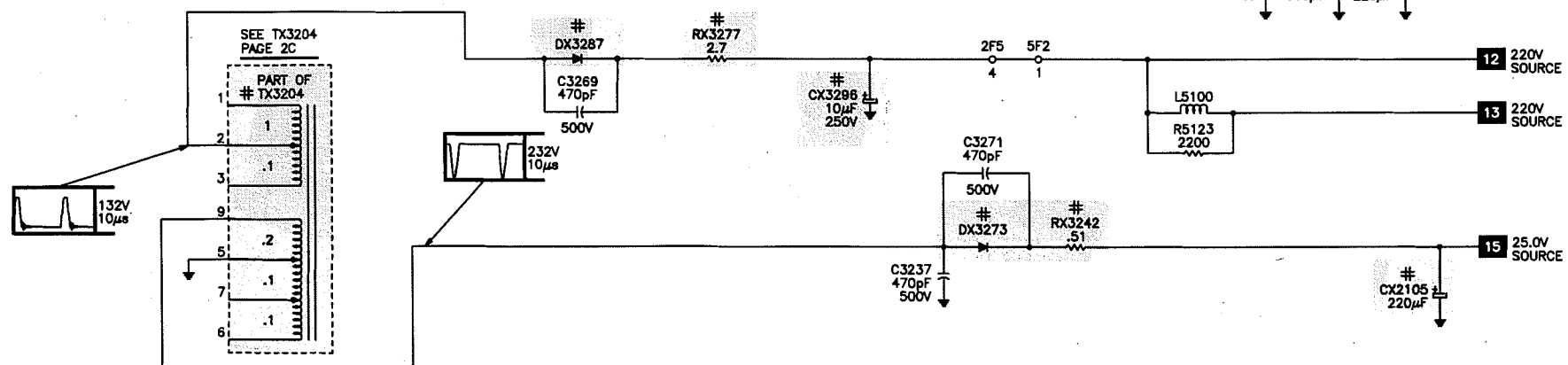
E

F



SCHEMATIC NOTES

- # For SAFETY use only equivalent replacement part, see parts list.
- Circuitry not used in some versions.
- Circuitry used in some versions.
- ⏚ Ground
- Chassis ground
- Common tie point
- △ Taken from common tie point
- 3 Schematic CircuitTrace Voltage source tie point.
- A Cabling: Heavy lines reduce use of multiple lines.
- Waveforms and voltages are taken from ground, unless otherwise noted.
- Waveform 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.



G



**TUNER NOT INCLUDED
IN THIS COVERAGE**

NC → TO TUNER
EN/AS
PIN 3

NC → TO TUNER
LOCK
PIN 8

NC → TO TUNER
TU
PIN 2

IC6001	24C04PC EEPROM	5.2V
--------	-------------------	------

SEE Q3203
BASE
PAGE 2C

SEE IC2001
PIN 2
PAGE 2D

SEE Q3402
BASE
PAGE 2F

C2107 $10\mu F$

32

H



SEE TX3204
PIN 7
PAGE 2C

2F50 1
5F20 4

FOCUS RANGE
4.5kV TO 8kV

S

ZENITH

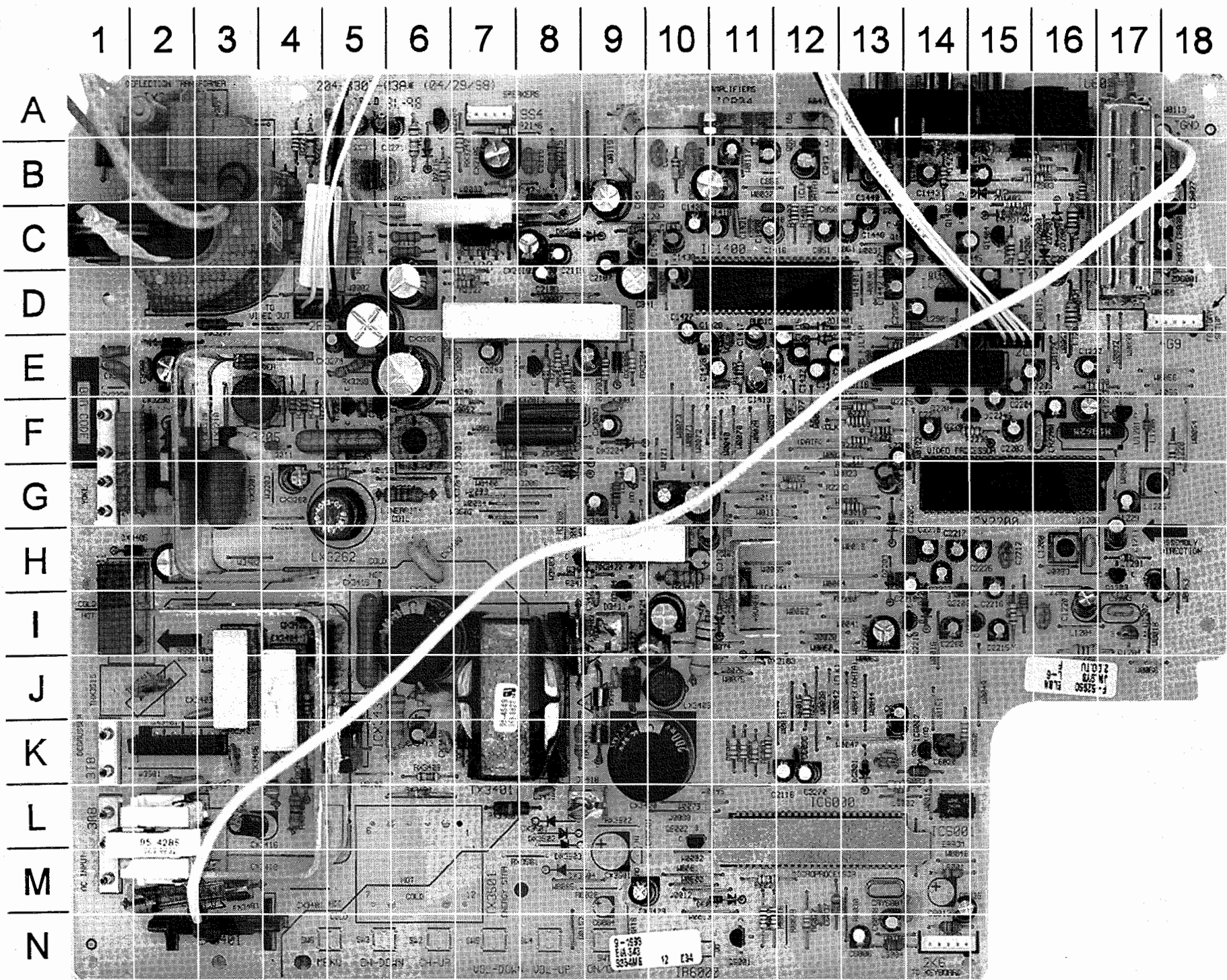
MODEL A27A76R

ADDITIONAL SCHEMATIC
NOTES, SEE PAGE 2E

A PHOTOFACT STANDARD NOTATION SCHEMATIC
WITH **CIRCUITTRACE®**
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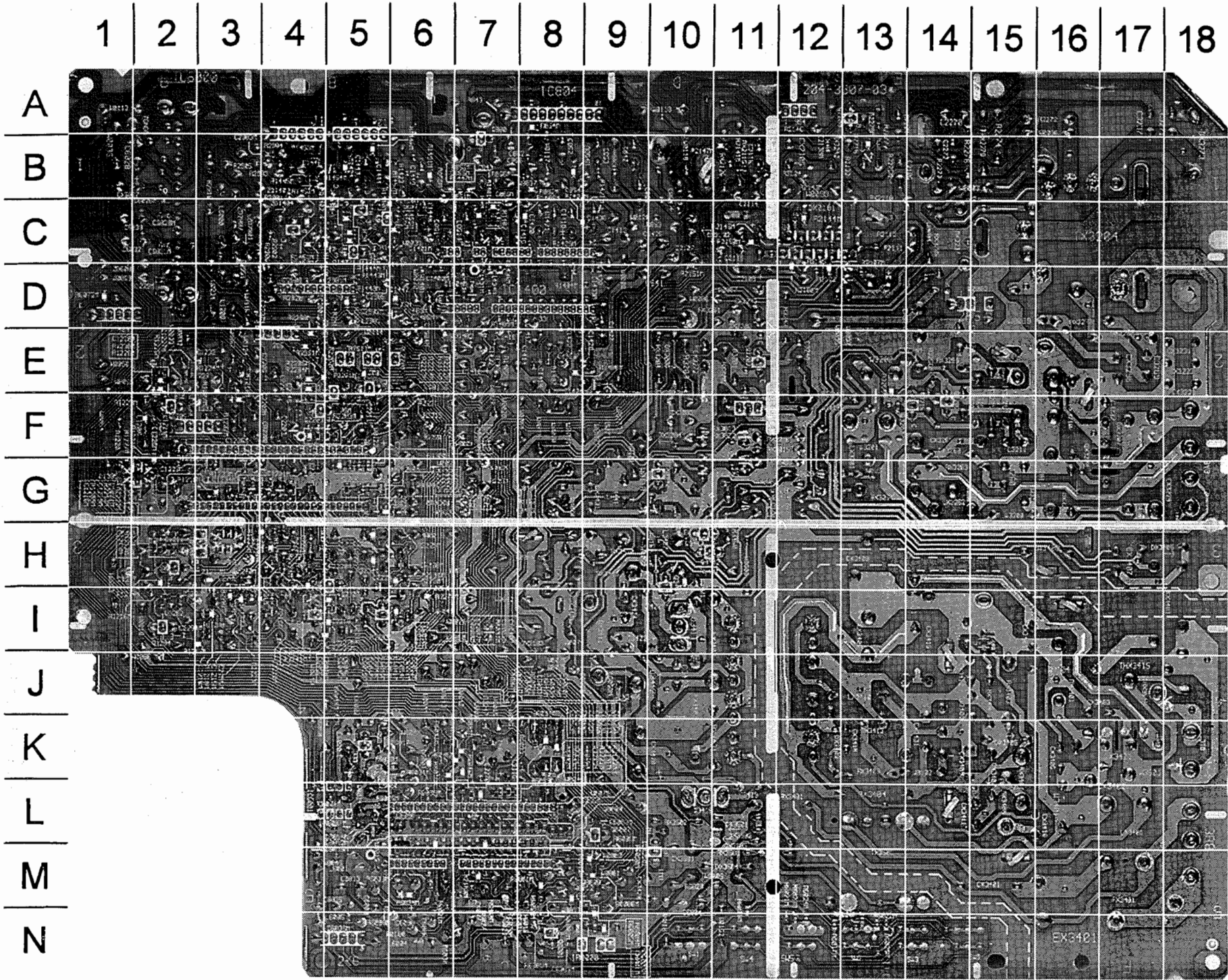
MAIN BOARD - TOP VIEW



MAIN BOARD TOP VIEW, GRIDTRACE LOCATION GUIDE

2C5	E15	C2208	F13	CX3274	E5	ICX3442	G9	R2132	B6	RX3401	J3
2F5	D4	C2211	F14	CX3296	E2	J1	A14	R2142	B7	RX3403	J4
2K6	N14	C2212	H15	CX3400	H6	KX3401	I1	R2146	A7	RX3404	L6
3R8	L1	C2215	I15	CX3402	L2	L1200	H16	R2202	F13	RX3406	J4
3T8	K1	C2216	H15	CX3403	J3	L1201	H17	R2219	F13	RX3407	K4
3Y3	F1	C2217	H14	CX3404	I4	L1202	I16	R2220	F13	RX3408	L4
4G9	D18	C2218	H14	CX3405	I6	L1203	I17	R2231	F13	RX3409	K6
9S4	A7	C2219	H14	CX3406	K3	L1205	G17	R2233	G12	RX3411	I10
C841	D9	C2226	H15	CX3407	H2	L1206	F17	R2238	F15	RX3416	H10
C842	B10	C2227	H14	CX3408	J4	L1208	D16	R2266	I15	RX3420	H9
C843	B12	C2245	F15	CX3409	K4	L2203	I15	R2272	A3	RX3424	J6
C851	C12	C2260	I14	CX3410	I4	L2901	D14	R2273	B5	RX3428	G9
C852	B11	C2261	E14	CX3411	L4	L3407	H9	R2274	B4	RX3431	K8
C853	B10	C2270	A5	CX3412	J4	L6000	C16	R2276	B5	THX3415	J2
C854	B10	C2271	A5	CX3413	K6	L6001	M14	R2277	B6	TU6000	B17
C861	C13	C2272	B5	CX3415	I15	L6002	L13	R2290	I13	TX3204	C2
C862	B11	C2290	I13	CX3416	L3	L6003	K14	R2901	C15	TX3205	F3
C863	B10	C2905	D14	CX3418	K6	L6004	N13	R2902	C15	TX3401	J7
C864	B9	C2908	D15	CX3420	K10	L6005	N14	R2903	B16	U1200	H16
C1211	H17	C2951	D16	CX3424	I10	L6007	M12	R2904	B15	U1201	F16
C1217	H17	C3209	F5	CX3429	M9	LX3201	F6	R2905	B16	U1202	I17
C1220	I16	C3211	F4	CX3431	G10	LX3210	F3	R2906	C15	ZD1401	D12
C1222	I16	C3215	F5	CX3440	G9	LX3262	G5	R2914	E13	ZD1402	E12
C1229	G17	C3232	F2	CX3441	G10	LX3401	L2	R2916	B16	ZD1403	B15
C1232	E16	C3237	B2	CX6027	B18	LX3405	J10	R2920	D15	ZD1404	C15
C1233	F16	C3248	E7	D2202	I14	LX3410	J6	R3201	E8	ZD2901	C16
C1235	F16	C3269	E2	D2203	H13	Q800	B12	R3203	E9	ZD2902	C16
C1408	E12	C3270	K12	D2206	G13	Q1203	H17	R3212	E8	ZD2903	C16
C1410	E12	C3271	B1	D2215	B6	Q1204	I17	R3225	F4	ZD6001	D18
C1413	C10	C3419	L8	D3410	L9	Q1205	F17	R3226	F4	ZDX3004	G8
C1414	E11	C3421	I9	D3411	I9	Q1401	C14	R3243	D7	ZDX3401	I11
C1415	E12	C3422	I10	D3412	J9	Q1402	C14	R3247	J12		
C1416	C11	C3423	J9	D6001	K13	Q1403	C14	R3248	F7		
C1417	E11	C3428	H10	D6002	M11	Q1404	C15	R3254	F4		
C1418	C11	C6006	N13	DL2200	E14	Q1405	C14	R3421	H9		
C1419	E11	C6009	M14	DX2101	C7	Q2202	I15	R6013	L13		
C1420	C11	C6016	J13	DX2102	C8	Q2203	F15	R6015	N11		
C1421	C11	C6017	K13	DX2103	I11	Q2204	E14	R6016	N11		
C1422	E11	C6020	K14	DX3005	G8	Q2205	E14	R6026	M11		
C1424	E11	C6028	B17	DX3006	E9	Q2206	H14	R6027	N12		
C1425	C9	C6030	C18	DX3201	G3	Q2209	A6	R6050	K14		
C1426	E11	C6032	C18	DX3204	F9	Q2210	I14	R6093	K11		
C1427	D10	C6035	M14	DX3207	F2	Q3202	F5	R6095	K11		
C1428	E10	C6037	N12	DX3260	F5	Q3203	E8	R6096	K11		
C1430	D10	C6096	K12	DX3273	B1	Q3206	F5	R6097	K11		
C1432	E12	C6098	N13	DX3287	E2	Q3402	H8	RX2110	C6		
C1436	C10	CR2200	F16	DX3288	D8	Q3404	H9	RX2115	B8		
C1440	C11	CR2205	H14	DX3401	K2	Q6001	N11	RX2126	B8		
C1442	D13	CRY6001	M13	DX3405	H2	Q6002	L10	RX2278	B4		
C1443	B14	CX2105	B7	DX3406	K4	QX3201	F8	RX3008	G7		
C1444	B14	CX2109	D6	DX3407	K4	QX3208	G2	RX3009	F13		
C1445	C15	CX2110	C8	DX3409	K7	QX3401	I4	RX3010	G13		
C1446	B15	CX3003	F9	EX3401	N3	R843	A12	RX3015	F7		
C1447	C13	CX3004	G13	FX3401	M2	R853	C9	RX3016	F7		
C1448	C13	CX3007	F9	FX3402	J9	R863	B10	RX3022	F8		
C1449	B13	CX3201	G3	FX3403	I8	R1220	F18	RX3202	E8		
C2106	B6	CX3208	E6	IC804	A11	R1228	E16	RX3204	E9		
C2107	C9	CX3222	E1	IC1400	D11	R1401	C12	RX3205	C5		
C2108	D8	CX3229	F1	IC2001	D15	R1402	C12	RX3237	C4		
C2114	B8	CX3231	E1	IC2100	C7	R1407	E11	RX3242	B7		
C2115	B8	CX3233	D5	IC6000	L12	R1423	B14	RX3261	D8		
C2116	K12	CX3260	G4	IC6001	L14	R1424	B14	RX3263	G5		
C2119	C8	CX3261	F5	IC6002	K14	R2109	D7	RX3264	G6		
C2203	F15	CX3264	G6	ICX2200	G15	R2111	C6	RX3277	D3		
C2204	E15	CX3272	E9	ICX3431	K5	R2113	C6	RX3299	E15		
C2205	E15	CX3273	D8	ICX3441	H11	R2122	D7	RX3400	L7		

MAIN BOARD - BOTTOM VIEW



MAIN BOARD BOTTOM VIEW, GRIDTRACE LOCATION GUIDE

C855M	C7	C6012M	L5	R1209M	G3	R1457M	C5	R2291M	H6
C865M	B8	C6014M	L6	R1210M	F3	R1490M	C6	R2292M	I6
C1206M	G3	C6015M	L6	R1211M	G3	R1491M	B6	R2909M	E6
C1212M	H3	C6018M	L6	R1212M	H2	R2107M	D12	R3223M	L7
C1213M	H2	C6019M	L6	R1213M	H2	R2108M	D12	R3249M	L7
C1215M	I3	C6021M	L5	R1214M	H2	R2131M	L7	R3255M	E13
C1216M	G3	C6023M	L8	R1216M	I2	R2133M	L7	R3256M	E14
C1218M	I3	C6024M	L8	R1217M	I3	R2141M	B11	R3422M	H10
C1219M	G4	C6025M	L8	R1218M	I3	R2143M	C12	R6001M	N8
C1221M	G4	C6026M	C2	R1219M	H4	R2144M	C12	R6002M	M8
C1223M	G3	C6029M	C2	R1221M	G2	R2145M	C12	R6003M	N9
C1224M	F2	C6031M	C2	R1222M	G2	R2147M	B11	R6004M	N9
C1225M	G2	C6033M	L8	R1223M	F2	R2150M	C11	R6005M	M9
C1226M	F2	C6036M	N5	R1224M	E3	R2151M	D10	R6006M	M9
C1227M	E2	C6038M	L8	R1225M	E2	R2152M	E9	R6008M	L9
C1228M	E2	C6040M	L6	R1226M	E2	R2153M	M7	R6012M	M9
C1231M	G3	C6041M	L7	R1227M	E2	R2212M	F5	R6031M	M6
C1234M	G3	C6042M	L7	R1229M	D2	R2213M	F4	R6032M	L6
C1236M	F3	C6043M	L7	R1230M	E2	R2214M	F4	R6034M	M6
C1401M	D6	C6045M	L6	R1232M	F3	R2215M	F5	R6035M	L6
C1402M	D6	C6046M	L6	R1233M	G3	R2218M	G5	R6037M	K5
C1403M	D6	C6047M	L7	R1234M	I4	R2221M	H4	R6039M	L6
C1404M	D7	C6048M	L7	R1235M	H4	R2222M	G4	R6041M	K6
C1406M	D7	C6049M	L7	R1404M	D8	R2223M	I4	R6042M	L7
C1431M	D7	C6050M	L7	R1405M	E7	R2224M	H4	R6043M	L7
C1433M	C9	C6051M	L7	R1406M	C8	R2225M	I5	R6044M	L7
C2202M	F3	C6052M	L7	R1408M	E8	R2226M	H5	R6045M	K7
C2207M	G4	C6053M	L7	R1409M	D7	R2228M	H5	R6046M	K7
C2209M	G5	C6054M	L8	R1421M	C8	R2229M	H5	R6047M	K7
C2210M	I4	C6055M	L8	R1422M	C8	R2230M	H6	R6048M	K6
C2220M	H6	C6056M	L6	R1425M	C8	R2234M	H5	R6049M	K5
C2221M	G5	C6058M	L8	R1440M	C5	R2235M	G5	R6053M	L7
C2225M	H4	C6059M	L8	R1441M	C5	R2240M	H4	R6058M	M8
C2237M	D3	C6060M	L8	R1442M	C5	R2241M	I5	R6059M	L7
C2257M	G5	C6061M	L9	R1443M	C5	R2242M	I5	R6061M	M8
C2294M	I3	C6079M	L8	R1444M	C5	R2243M	G4	R6069M	M7
C2299M	G5	C6090M	L7	R1445M	B4	R2257M	G5	R6070M	M8
C2901M	D5	C6091M	L7	R1446M	B5	R2259M	G5	R6072M	D1
C2902M	D5	C6092M	L7	R1447M	C7	R2260M	E4	R6080M	M5
C2903M	B4	C6093M	L7	R1448M	C5	R2261M	E4	R6090M	M9
C2904M	D6	C6094M	L7	R1449M	C5	R2262M	E4	R6091M	K6
C3214M	F13	C6095M	L8	R1450M	C4	R2270M	I6	R6092M	K7
C6001M	N9	R851M	C7	R1451M	C4	R2271M	E5	R6094M	K8
C6003M	N8	R852M	C7	R1452M	C4	R2275M	B13	R6098M	K8
C6005M	L6	R854M	A8	R1453M	B4	R2279M	B13	R6099M	K8
C6007M	L6	R861M	C7	R1454M	B5	R2283M	F4		
C6010M	L6	R862M	B8	R1455M	C6	R2284M	E4		
C6011M	L6	R864M	B8	R1456M	C6	R2285M	E4		

ZENITH

MODEL A27A76R

A HOWARD W. SAMS GridTrace™ PHOTO

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)
- Sencore, Inc.
- Terrell & Nobis (TNI Electronics)

SEMICONDUCTORS

(Select the replacement that gives the best results.)

Item No.	Type No.	Mfr. Part No.	ECG Part No.	NTE Part No.
D2202, 03, 06	-	103-00461A	-	-
D2215	-	103-00471A	-	-
D3412	-	103-00417-03A	-	-
D6001, 02	-	103-00461A	-	-
# DX2101	-	103-00254-01	ECG116	NTE116
# DX2102, 03	-	103-00461A	-	-
# DX3005	-	103-00461A	-	-
# DX3006	-	103-00344-04A	-	-
# DX3201	-	103 00344-06A	-	-
# DX3204	-	103-00471A	-	-
# DX3207	-	-	-	-
# DX3260	-	103-00284A	ECG552	NTE552
# DX3273	-	103-00339-04A	ECG580	NTE580
# DX3287	-	103-00326A	ECG552	NTE552
# DX3288	-	103-00344-04A	-	-
# DX3401	KBJ406G	212-00172-04	-	-
# DX3405	-	103-00254-01	ECG116	NTE116
# DX3406, 07, 09	-	103-00344-02A	ECG116	NTE116
IC804	LA4261	-	ECG1685	NTE1685
IC1400	CXA2054S	221-01127	-	-
IC2001	-	221-01171	-	-
IC2100	TDA8174A	-	ECG1858	NTE1858
IC6000	M37267M6	221-01305	-	-
IC6001	24C04PC	221-00745-04	-	-
IC6002	K1A7042P	221-01177A	-	-
# ICX2200	TA1268N	221-01165	-	-
# ICX3431	STR-53041	-	ECG1840	NTE1840
# ICX3441	L7809ABV	-	-	-
# ICX3442	78L05	221-00167-01A	ECG977	NTE977
Q800	2N3904	121-01310A	ECG85	NTE85
Q1203, 04	2N3904	121-01310A	ECG85	NTE85
Q1205	-	121-01261A	-	-
Q1401	-	121-01310A	ECG85	NTE85
Q1402	-	121-01311A	ECG290A	NTE290A
Q1403	-	121-01310A	ECG85	NTE85
Q1404	-	121-01311A	ECG290A	NTE290A
Q1405	-	121-01310A	ECG85	NTE85
Q2202 Thru	-	-	-	-
Q2205	2N3906	121-01311A	ECG290A	NTE290A
Q2206	2N3904	121-01310A	ECG85	NTE85
Q2209, 10	2N3906	121-01311A	ECG290A	NTE290A
Q3202	2N3904	121-01310A	ECG85	NTE85
Q3203	-	121-01264-01A	ECG287	NTE287
Q3206	MPSA06	121-01264-01A	ECG287	NTE287
Q3402	MPSA06	121-01340A	ECG287	NTE287
Q3404	-	121-01102A	-	-
Q5101, 02, 03	KTC3229	121-01291-01	ECG376%	NTE376%
Q6001, 02	2N3904	121-01310A	ECG85	NTE85
# QX3201	-	-	-	-
# QX3208	2SD2499	-	-	-
# QX3401	2N4923	121-01348	ECG184	NTE184
ZD1401 Thru	-	-	-	-
ZD1404	-	103-00279-18A	-	-
ZD2901	-	103-00279-18A	-	-
ZD2902	-	103-00279-10A	ECG5010A	NTE5010A
ZD2903	-	103-00279-18A	-	-
ZD6001	-	103-00279-36A	-	NTE5085A
# ZDX3004	-	103-00472A	-	-
# ZDX3401	-	103-00279-10A	ECG5010A	NTE5010A

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

MISCELLANEOUS

Item No.	Description	Mfr. Part No.	Notes
CR2200	Crystal	224-00027A	3.58MHz
CR2205	Crystal	224-00178	503kHz
CRT0001	Socket	078-03394-09	CRT
CRY6001	Crystal	224-00074-02A	8MHz
DL2200	Filter	223-00045	Comb
# EX3401	Spark Gap	038-00102	4kV
# FX3401	Fuse	136-00114-23A	4Amp, 250V, Normal Lag
# FX3402	Fuse	136-00148-23	3Amp, 250V, Nomal Lag
# FX3403	Fuse	136-00148-03	2Amp, 250V, Nomal Lag
IR1	Receiver	-	Remote
J1	Jack	A-18785	Assembly
# KX3401	Relay	195-00161	Degaussing
P3401	Line Cord	A-18588-01	AC, Polarized
SP1, 2	Speaker	049-01334-02	3" X 6 1/4", 8 Ohms, 7W
SW1	Switch	-	Off/On
SW2	Switch	-	Channel Up
SW3	Switch	-	Channel Down
SW4	Switch	-	Volume Up
SW5	Switch	-	Volume Down
SW6	Switch	-	Menu
SW7	Switch	-	Select
SW8	Switch	-	Adjust Right
SW9	Switch	-	Adjust Left
SW10	Switch	-	Enter
TU6000 (1)	Tuner	175-02721	UHF/VHF
U1200	Filter	224-00139-01A	4.5MHz
U1201	Filter	224-00160	SAW
U1202	Trap	224-00023A	4.5MHz
V1	CRT	A68AGD01X	-
	PC Board	F-50961	Keyboard
	PC Board	009-01997	Main, With MTS
	Transmitter	124-00212-35	Remote
	Wedge	152-00335	Yoke Positioning (3 Used)

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

COILS & TRANSFORMERS

Item No.	Function/Rating	Mfr. Part No.
DY1	Yoke Horiz .98mH Vert 18.1mH	095-03797-05
L1200	PIF	020-04506
L1201	10µH	020-04277-39A
L1202	10µH	020-03907-12A
L1203	12µH	020-04277-23A
L1205	SIF	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	020-04330-30
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
# LX3201	-	020-04530
# LX3210	Ferrite Bead	-
# LX3262	Horizontal Linearity	020-04073-01
# 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) Screen (G-2) and focus controls are part of TX3204.

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
# CX3201	.039 5% 630V	022-08116-07
# CX3208	4.7μF 20% 50V NP	022-08057-01
# CX3220	560pF 2kV	-
# CX3222	.001 2kV	-
# CX3229	.015 5% 700VAC	-
	.016 3% 1.6kV	022-08229-29
# CX3231	560pF 10% 2kV	022-08386-05
# CX3233	47μF 20% 160V	022-08514-11
# CX3260	2.2μF 20% 160V	022-08315-05A
# CX3261	.56 5% 200V	022-08231-13
# CX3264	470pF 10% 500V	022-07786-10C
# CX3272	47μF 20% 50V	022-08312-11A
# CX3273	470pF 10% 500V	022-07786-10C
# CX3274	100μF 20% 16V	022-08309-12A
# CX3296	10μF 20% 250V	022-08317-08
# CX3400, 02	.0047 20% 500V	022-07431-06B
# 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	1.8 5% 1/2W	063-11110-06	HW1D8
	1.5 5% 1/2W	-	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	063-10236-16	QW368
# RX3016, 22	4320 1% 1/4W	063-10936-72	-
# RX3202	1000 5% 1/4W	063-10235-72	QW210
# 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	HW5D1
# 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	15 5% 1/2W	-	HW015
	4.7 5% 1/2W	063-11110-16	HW4D7
# 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	13 Cold PTC	063-10710A	-

For SAFETY use only equivalent replacement part.

CABINET PARTS

Item	Mfr. Part No.
Cabinet Main Wood	014-12327
Cabinet Rear	014-11639-20
IR Window	192-00872

IC FUNCTIONS

