

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 ground 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 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.

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

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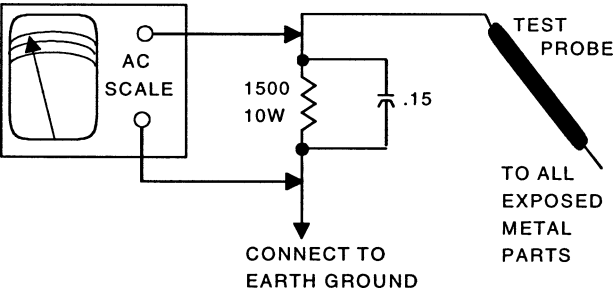
SAFETY CHECKS — FIRE AND SHOCK HAZARD

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.



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SET 4770

MODEL SR5133B (CHASSIS LP816)

QUASAR

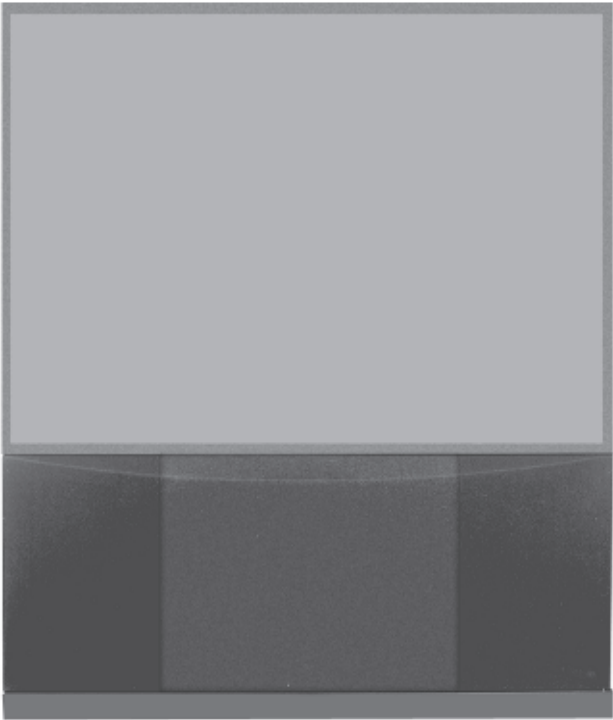
PHOTOFACT[®] Technical Service Data
GOLD

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QUASAR
Model SR5133B (Chassis LP816)



AUGUST 2003 SET 4770

TUNER INFORMATION

MAIN TUNER VOLTAGE CHART

Pin	VHF Low Band	VHF High Band	UHF Band
AGC	4.5V	5.4V	4.5V
TU	1.0V	4.2V	4.5V
ADD	0V	0V	0V
SCL	3.4V	3.4V	3.4V
SDA	3.5V	3.5V	3.5V
BM	8.8V	8.8V	8.8V
BPL	5.0V	5.0V	5.0V
NC	0V	0V	0V
BTL	4.2V	7.4V	7.7V
NC	0V	0V	0V
IF1	0V	0V	0V

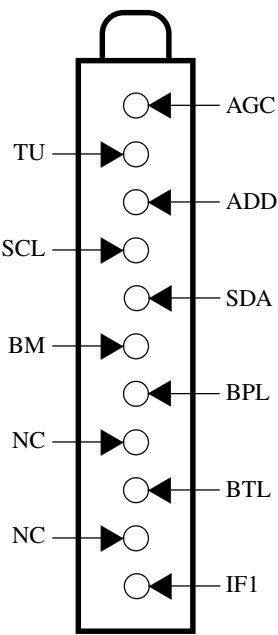
NOTE: VHF Low Band voltages taken on channel 2.
VHF High Band voltages taken on channel 7.
UHF Band voltages taken on channel 14

PIPTUNER VOLTAGE CHART

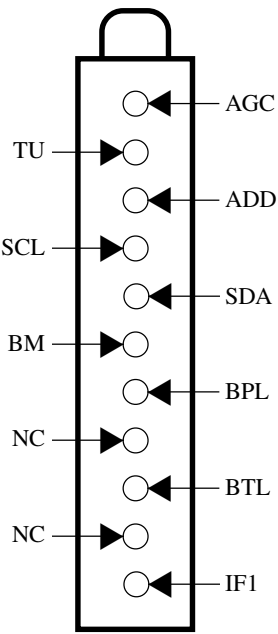
Pin	VHF Low Band	VHF High Band	UHF Band
AGC	4.5V	5.4V	4.5V
TU	1.0V	4.1V	4.6V
ADD	5.0V	5.0V	5.0V
SCL	3.4V	3.4V	3.4V
SDA	3.5V	3.5V	3.5V
BM	9.0V	9.0V	9.0V
BPL	5.0V	5.0V	5.0V
NC	0V	0V	0V
BTL	4.2V	7.3V	7.8V
NC	0V	0V	0V
IF1	0V	0V	0V

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

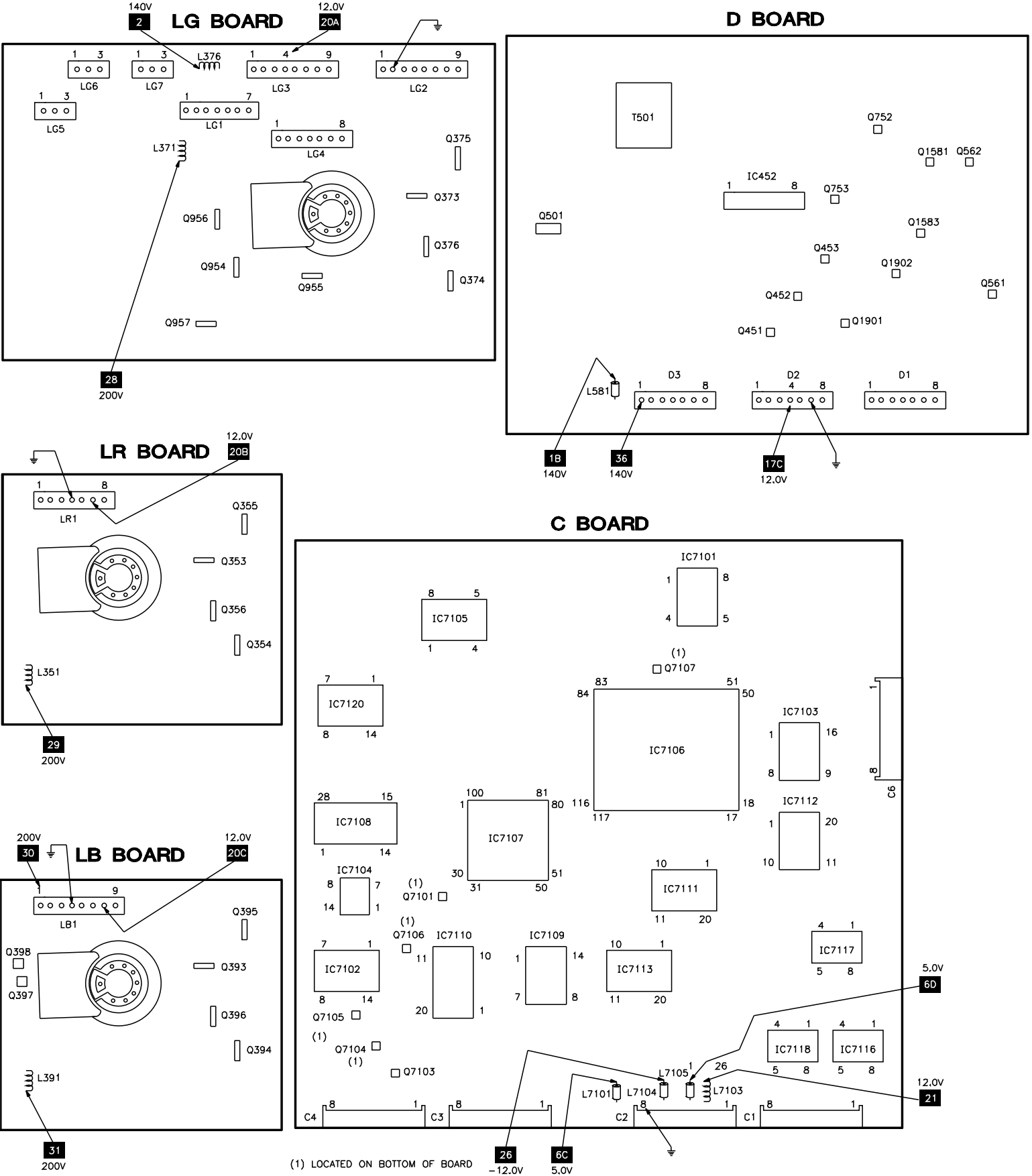
MAIN TUNER TERMINAL GUIDE



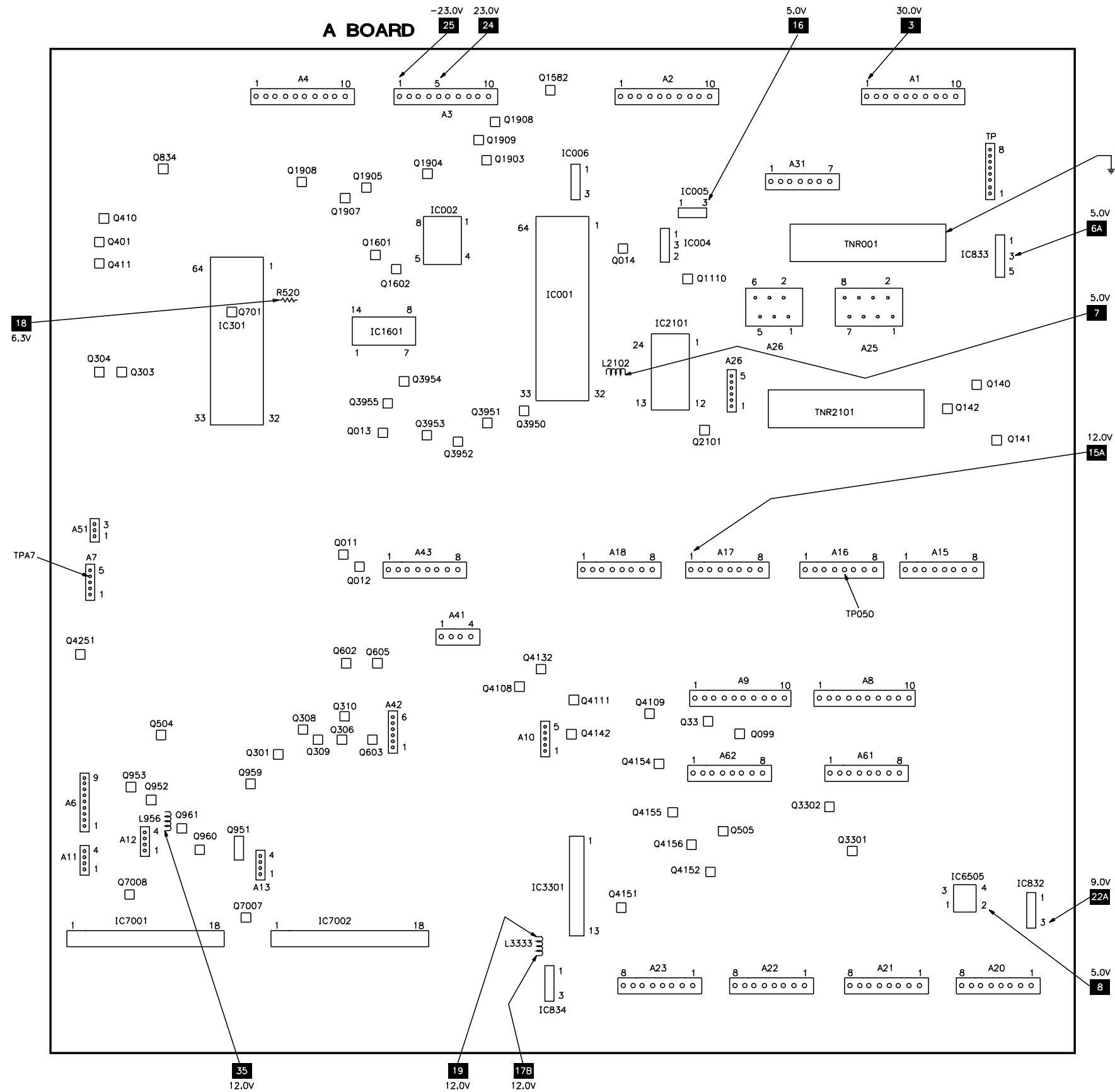
PIPTUNER TERMINAL GUIDE



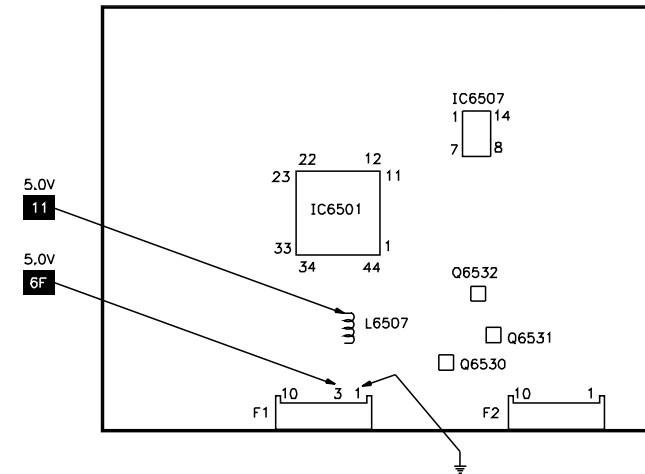
PLACEMENT CHART



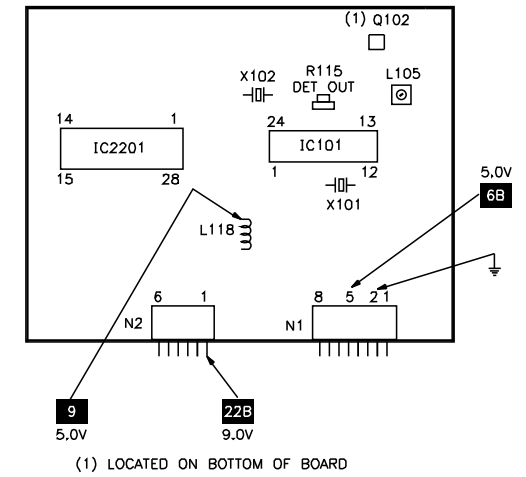
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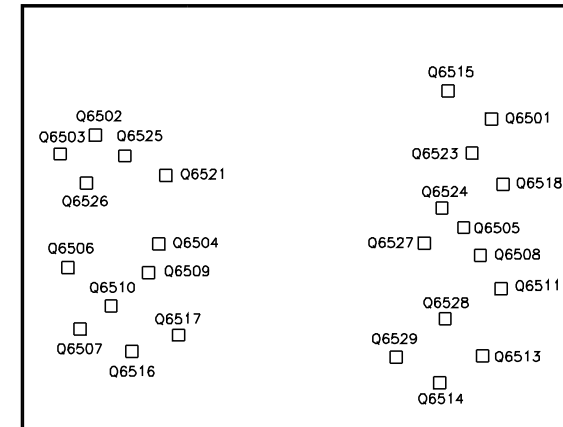
F2 BOARD - TOP VIEW



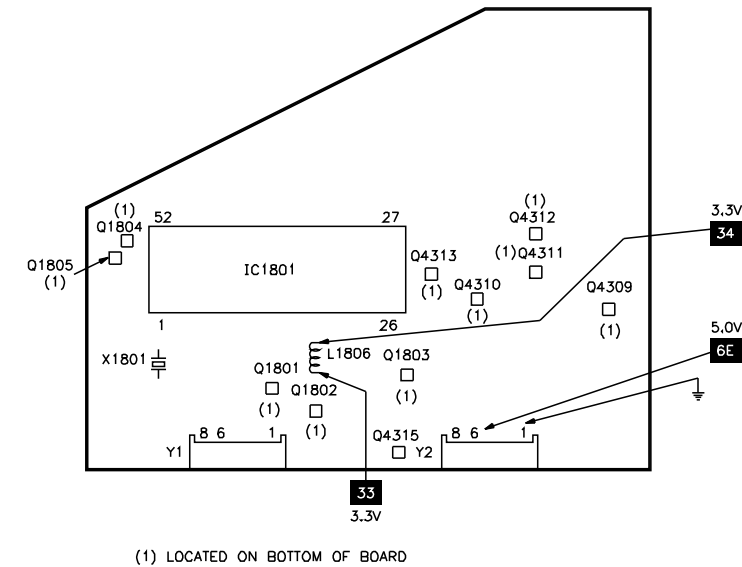
N BOARD



F2 BOARD - BOTTOM VIEW

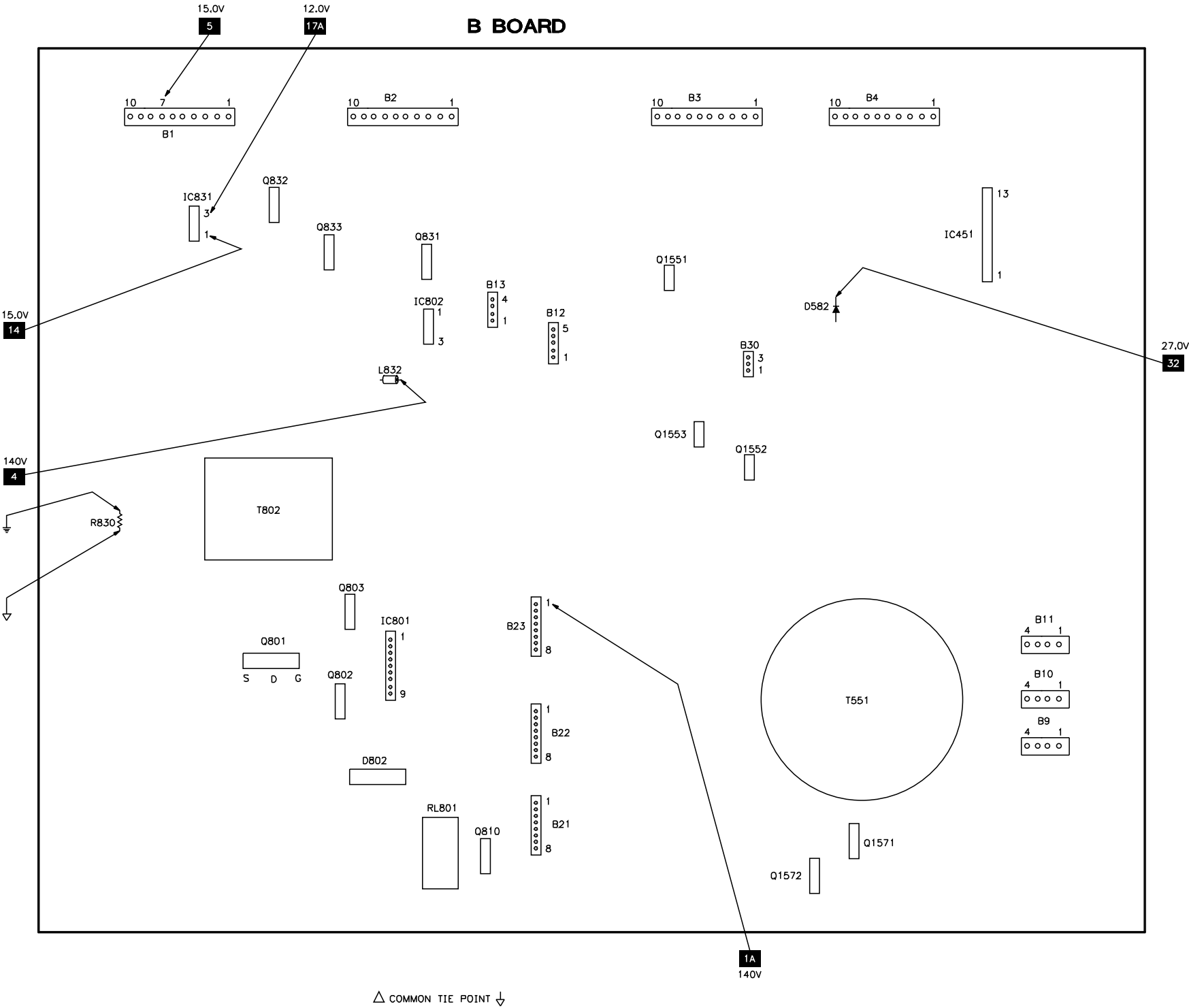


Y BOARD

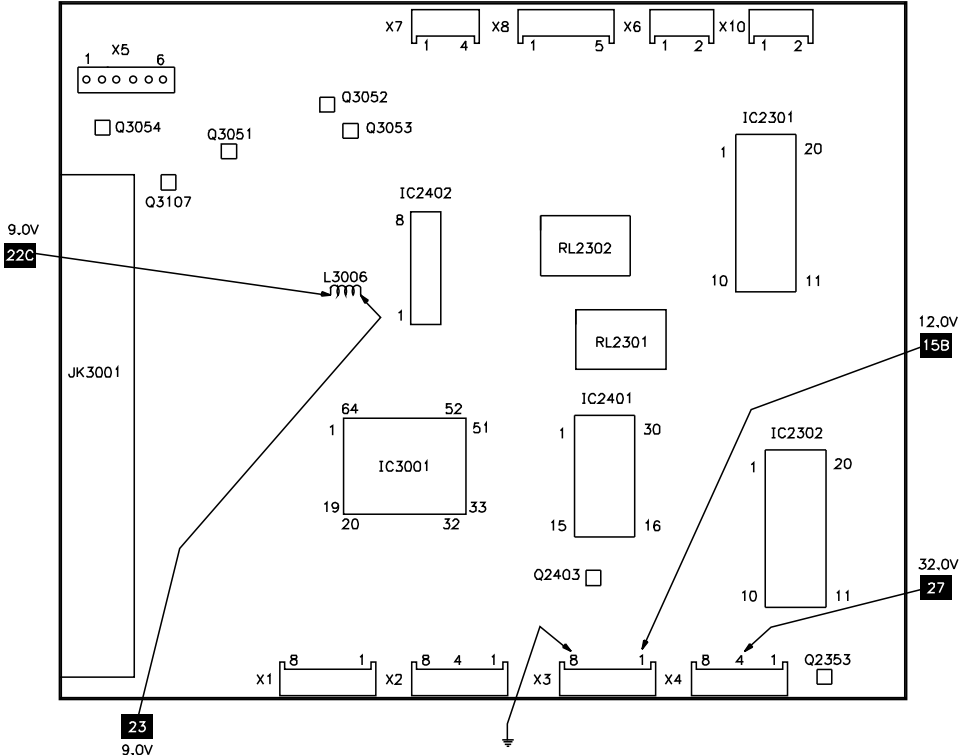


(1) LOCATED ON BOTTOM OF BOARD

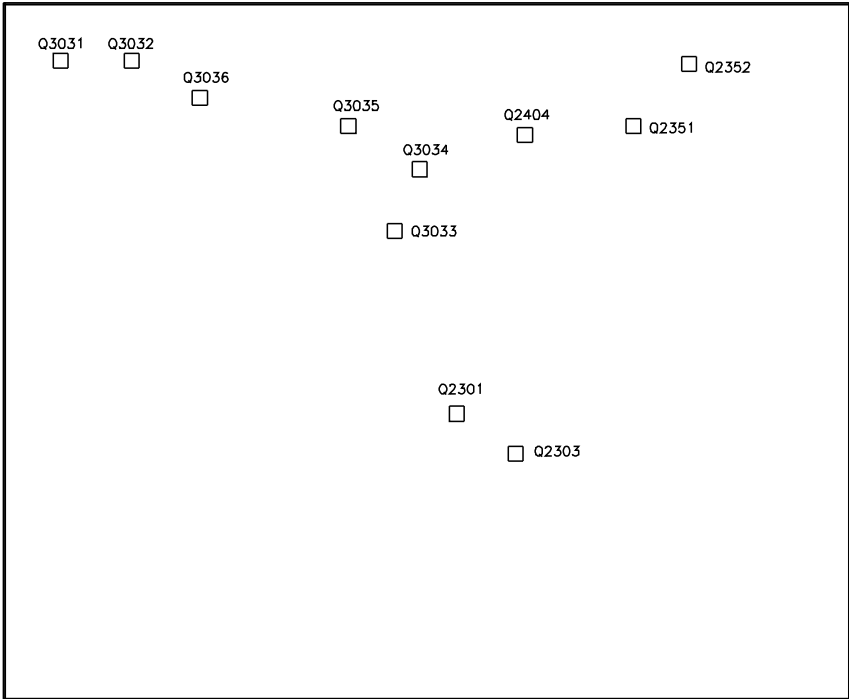
PLACEMENT CHART continued



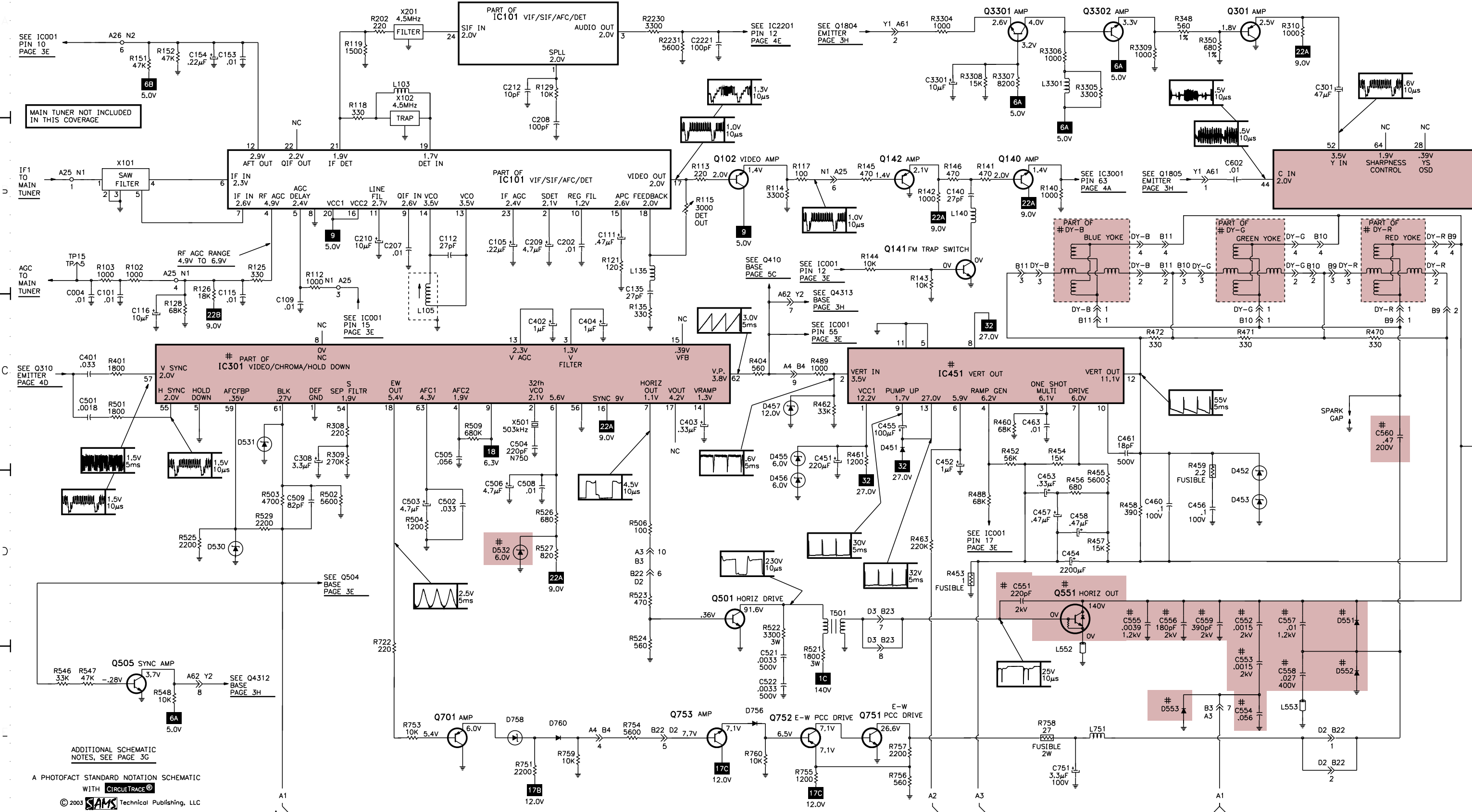
X BOARD - TOP VIEW

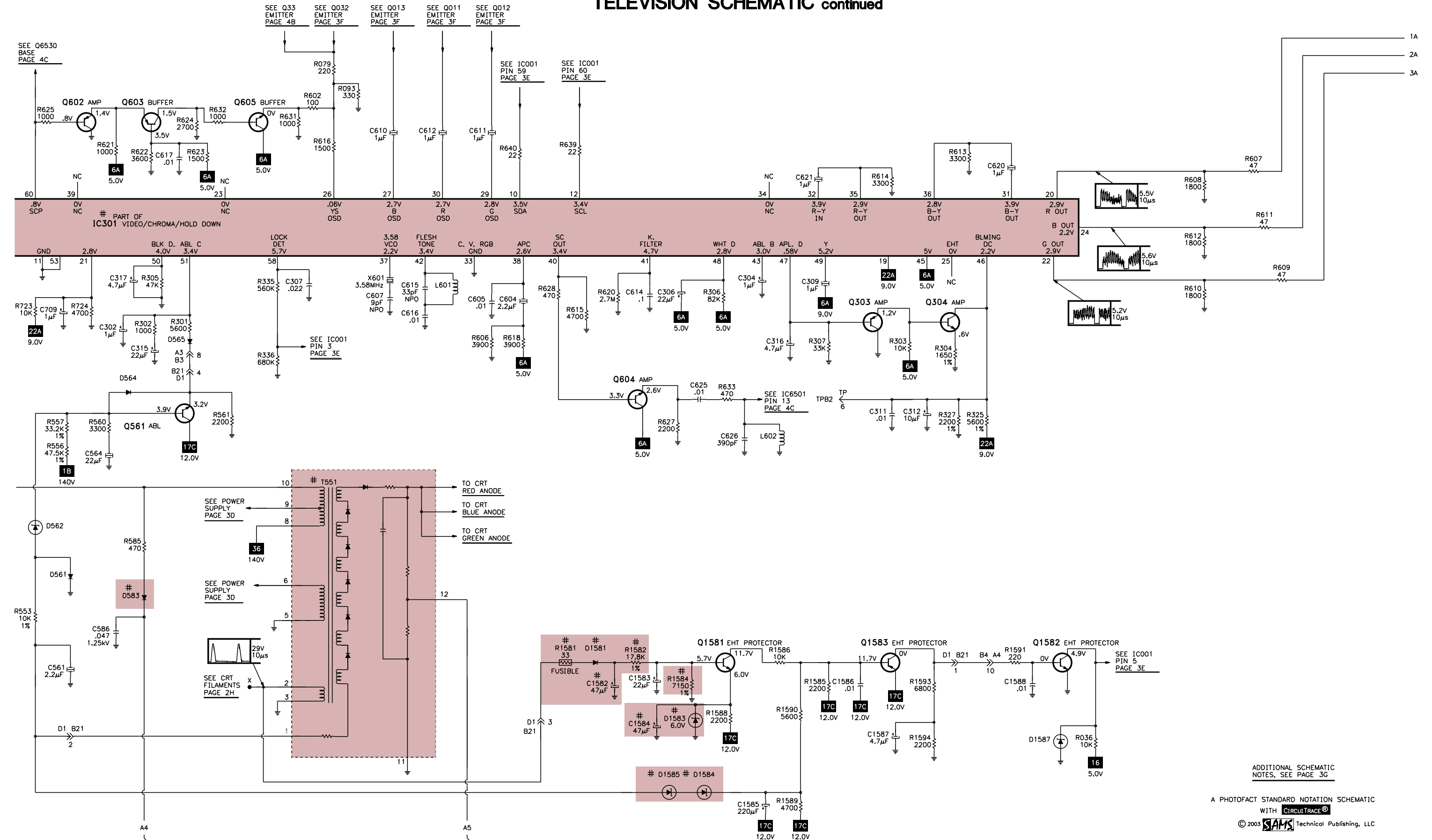


X BOARD - BOTTOM VIEW



TELEVISION SCHEMATIC



TELEVISION SCHEMATIC continued

ADDITIONAL SCHEMATIC
NOTES, SEE PAGE 3G

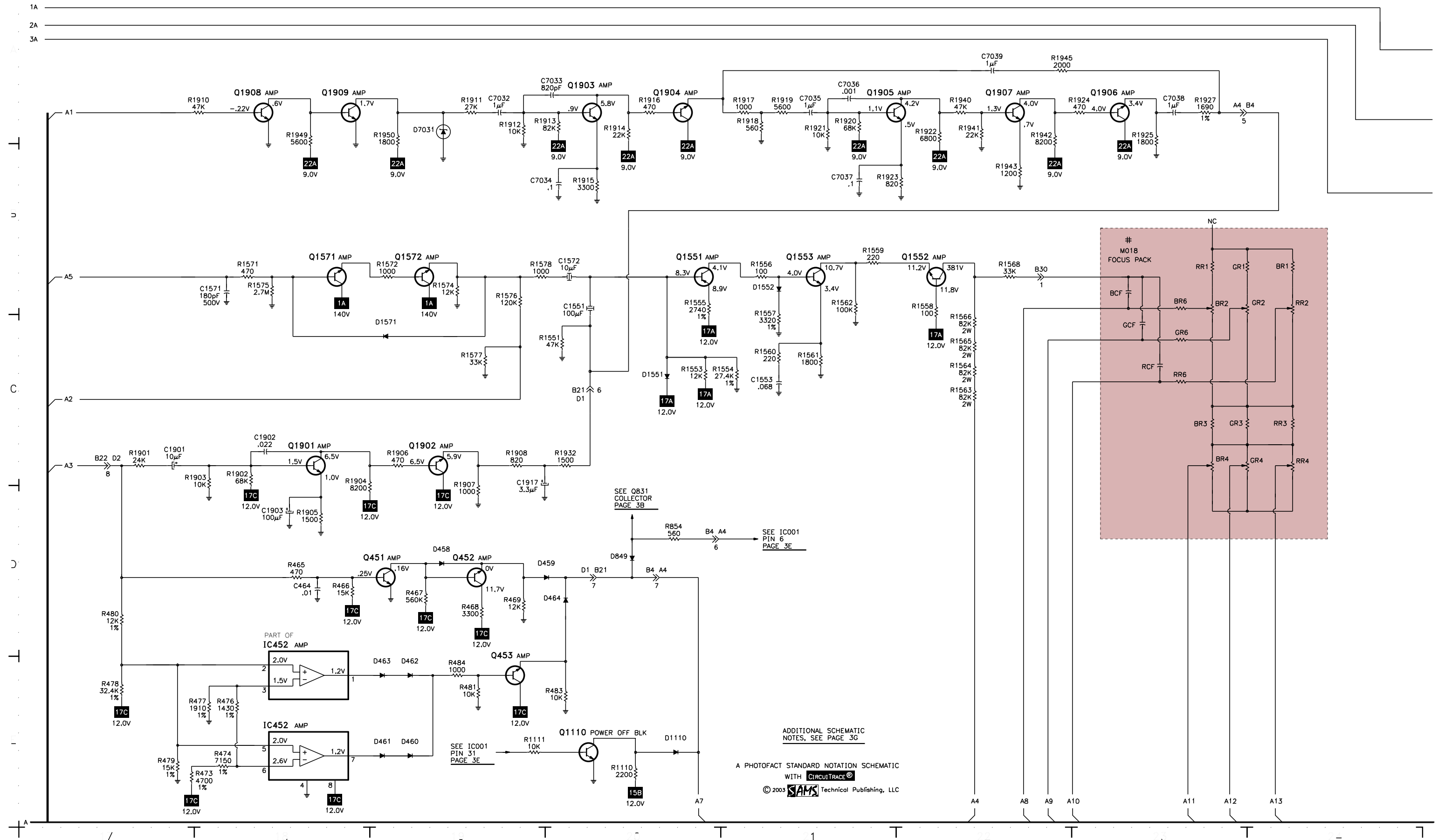
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E

TELEVISION SCHEMATIC continued

F

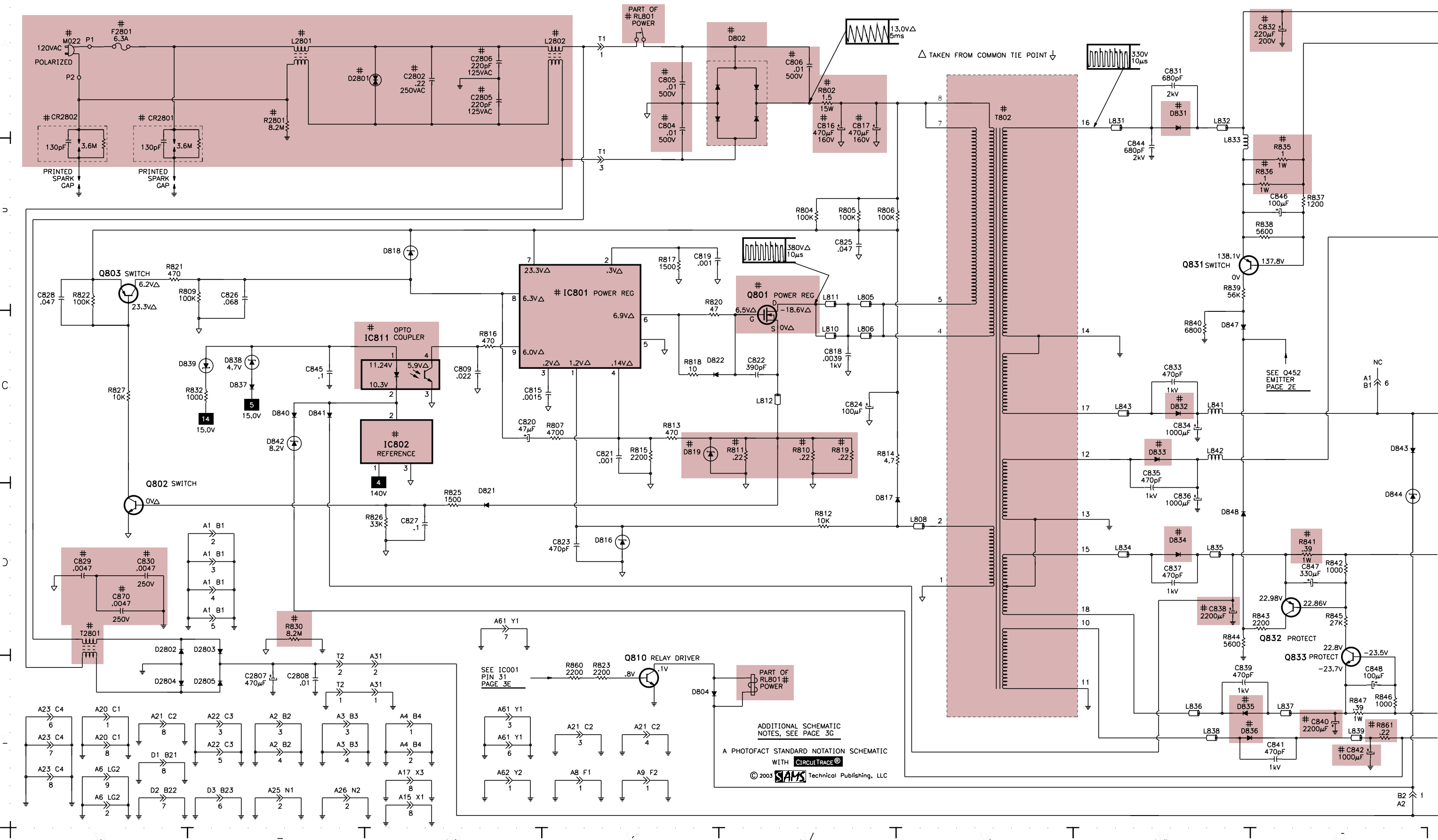


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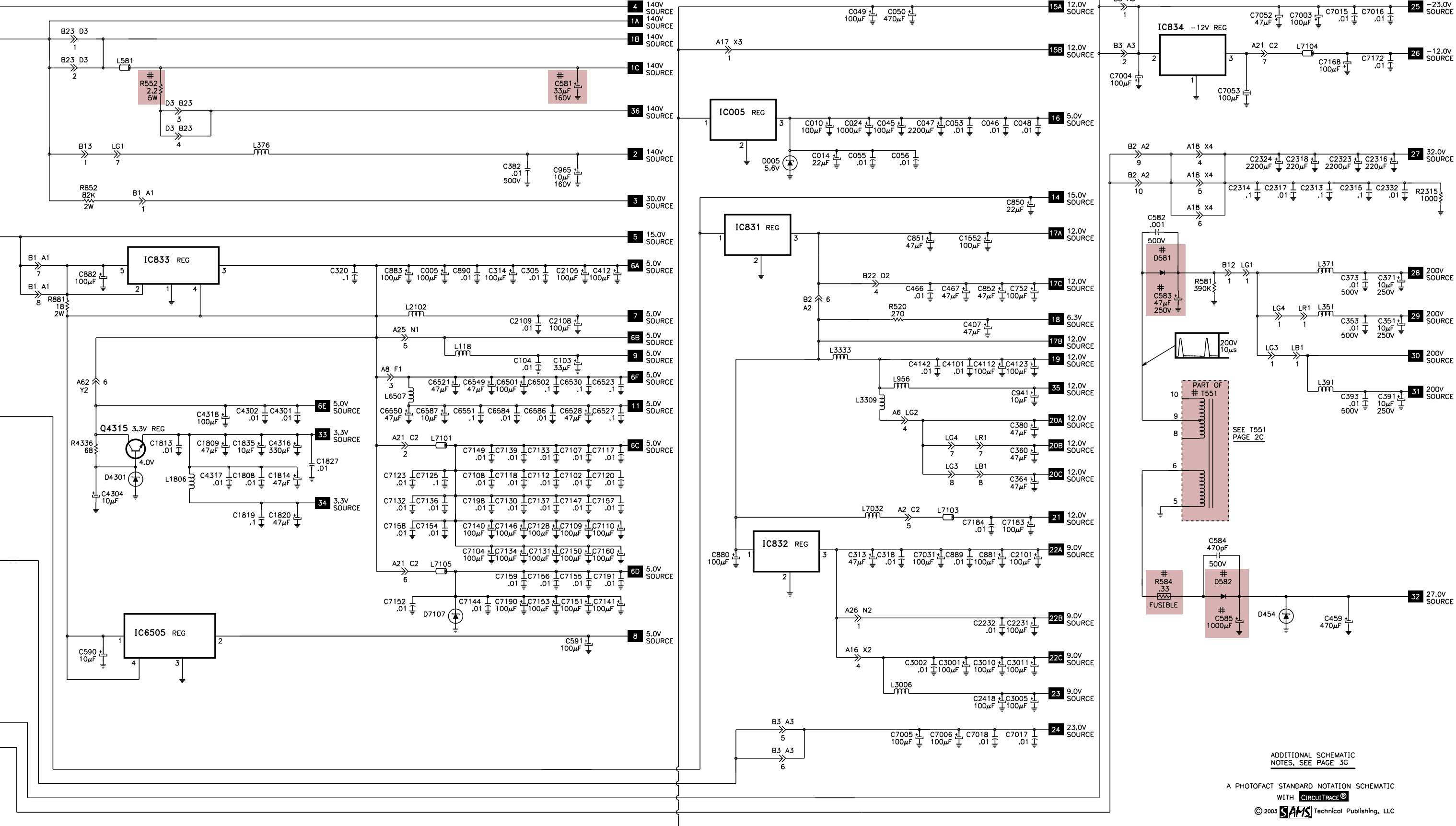


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POWER SUPPLY SCHEMATIC



POWER SUPPLY SCHEMATIC continued

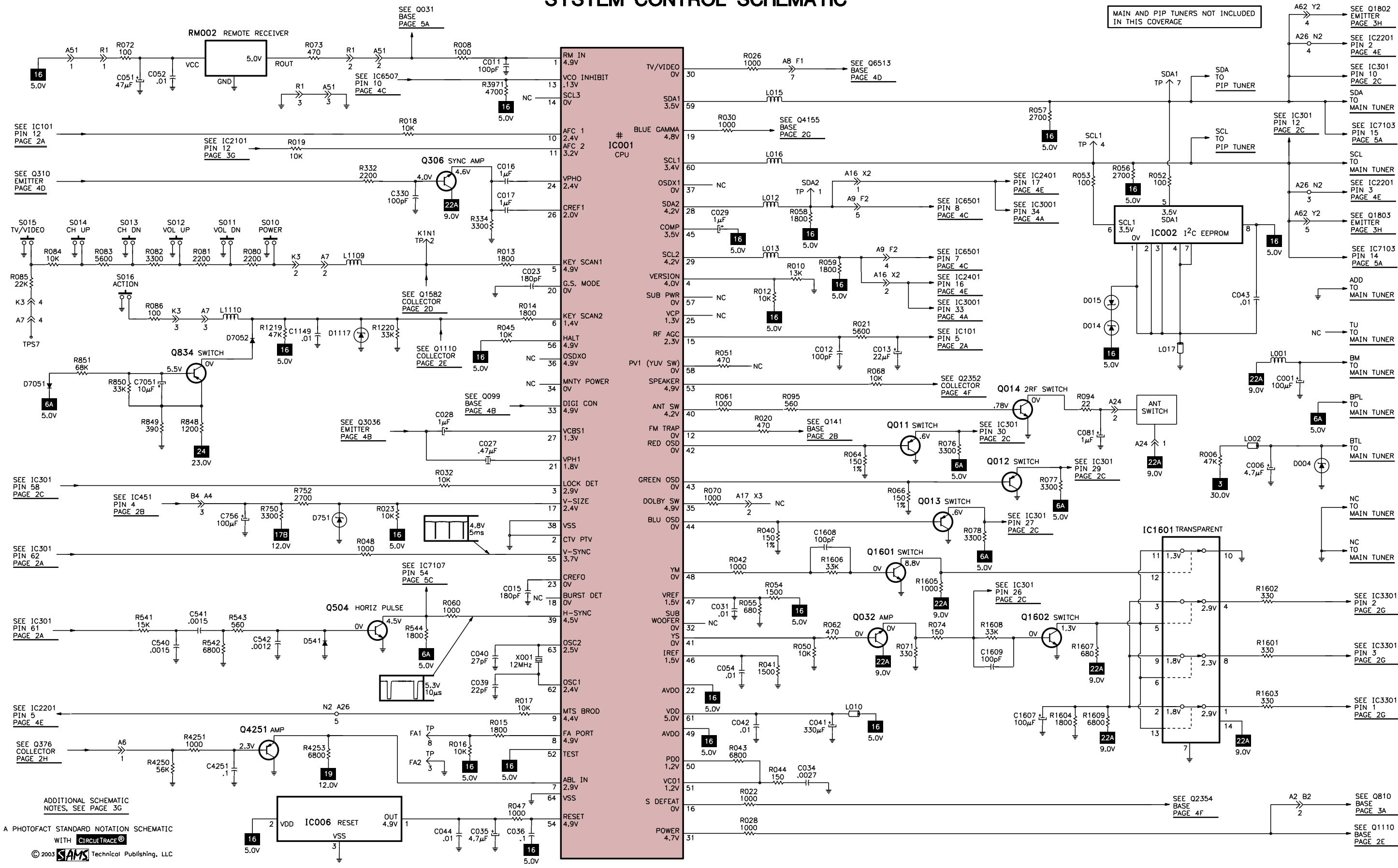


ADDITIONAL SCHEMATIC
NOTES, SEE PAGE 3G

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SYSTEM CONTROL SCHEMATIC



G



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 otherwise noted.

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 100 μ V 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.

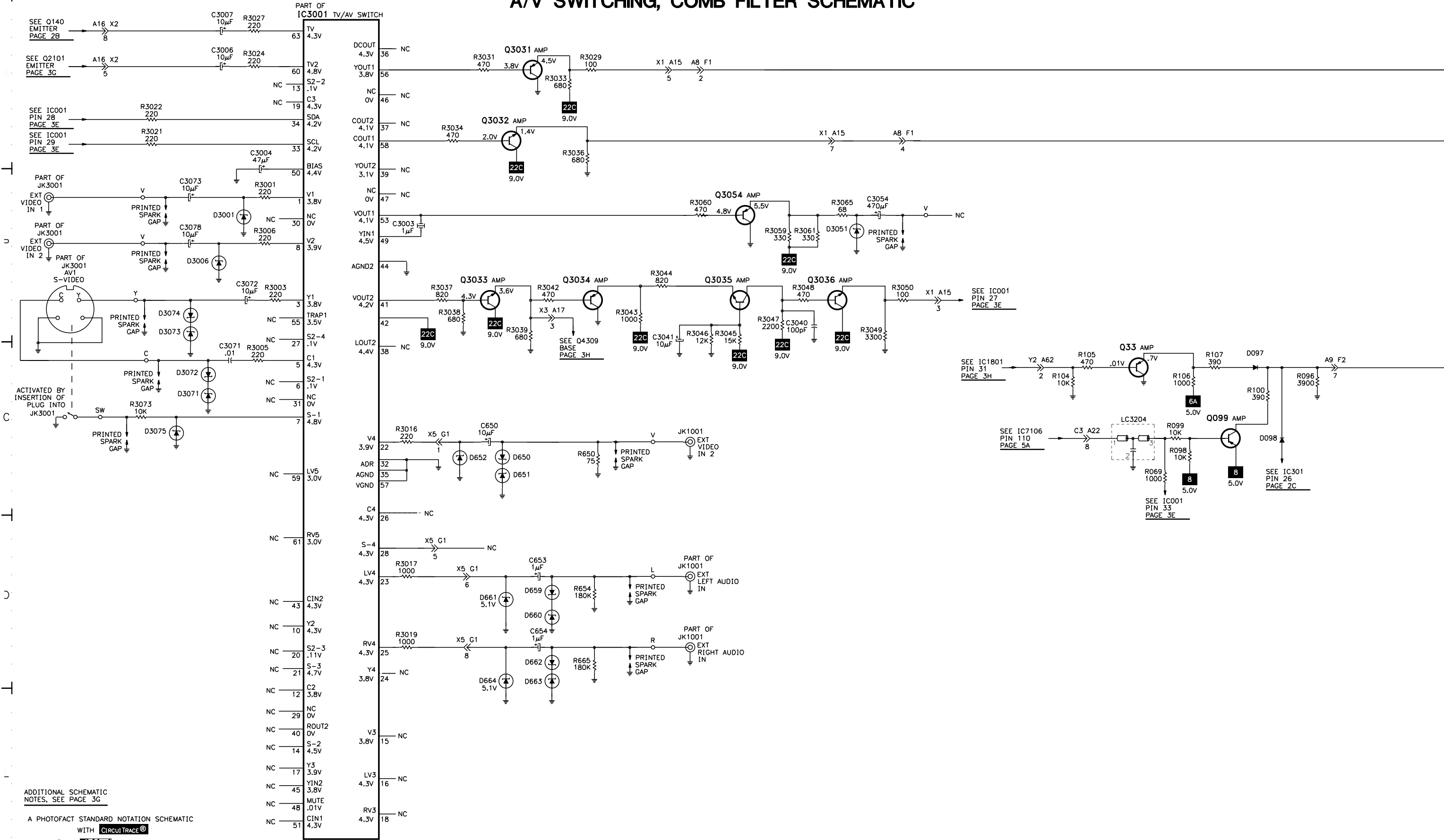
Measurements with switching as shown unless noted.

Rated voltage shown on zener diodes.

F



A/V SWITCHING, COMB FILTER SCHEMATIC



ADDITIONAL SCHEMATIC
NOTES, SEE PAGE 3G

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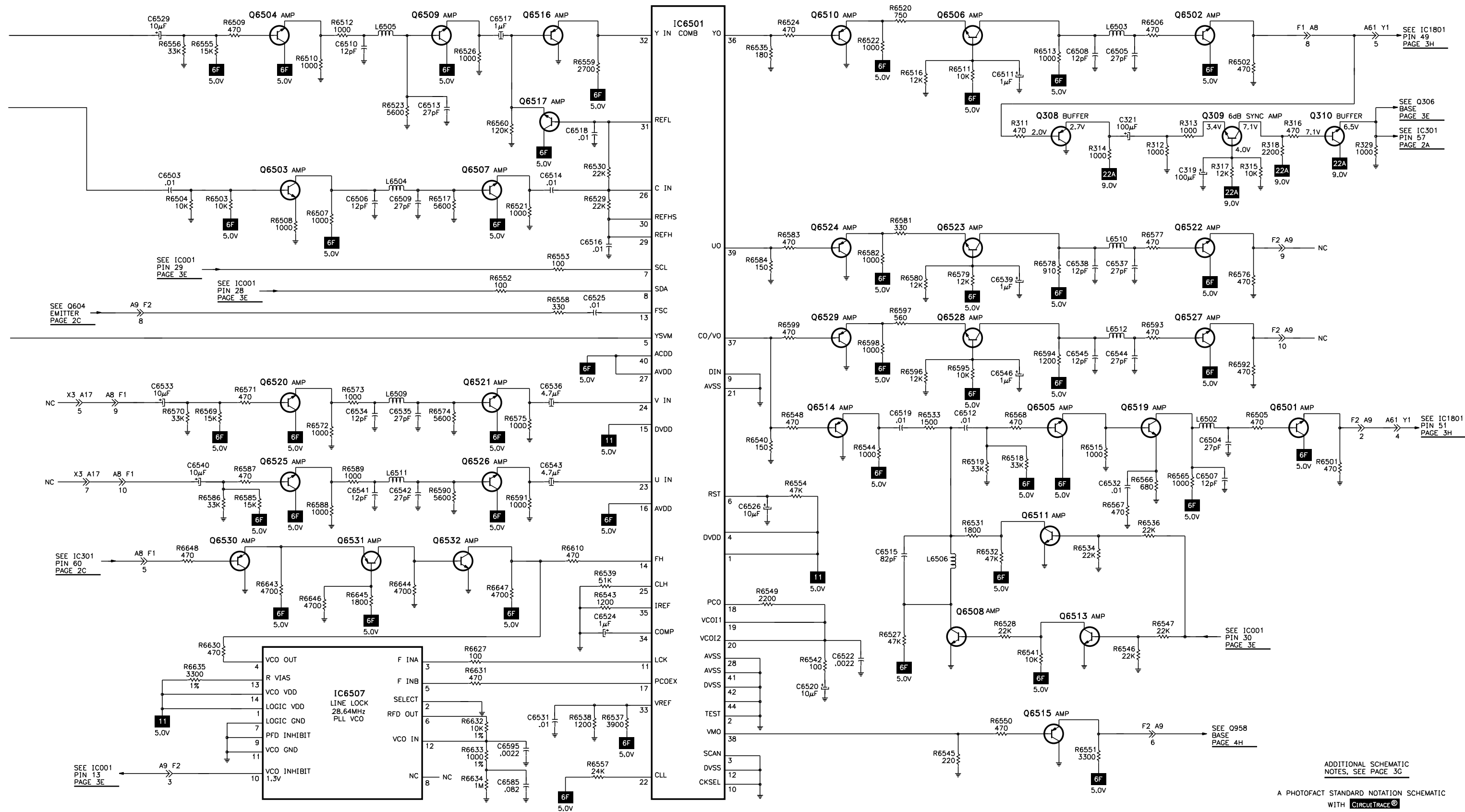
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C

COMB FILTER SCHEMATIC continued

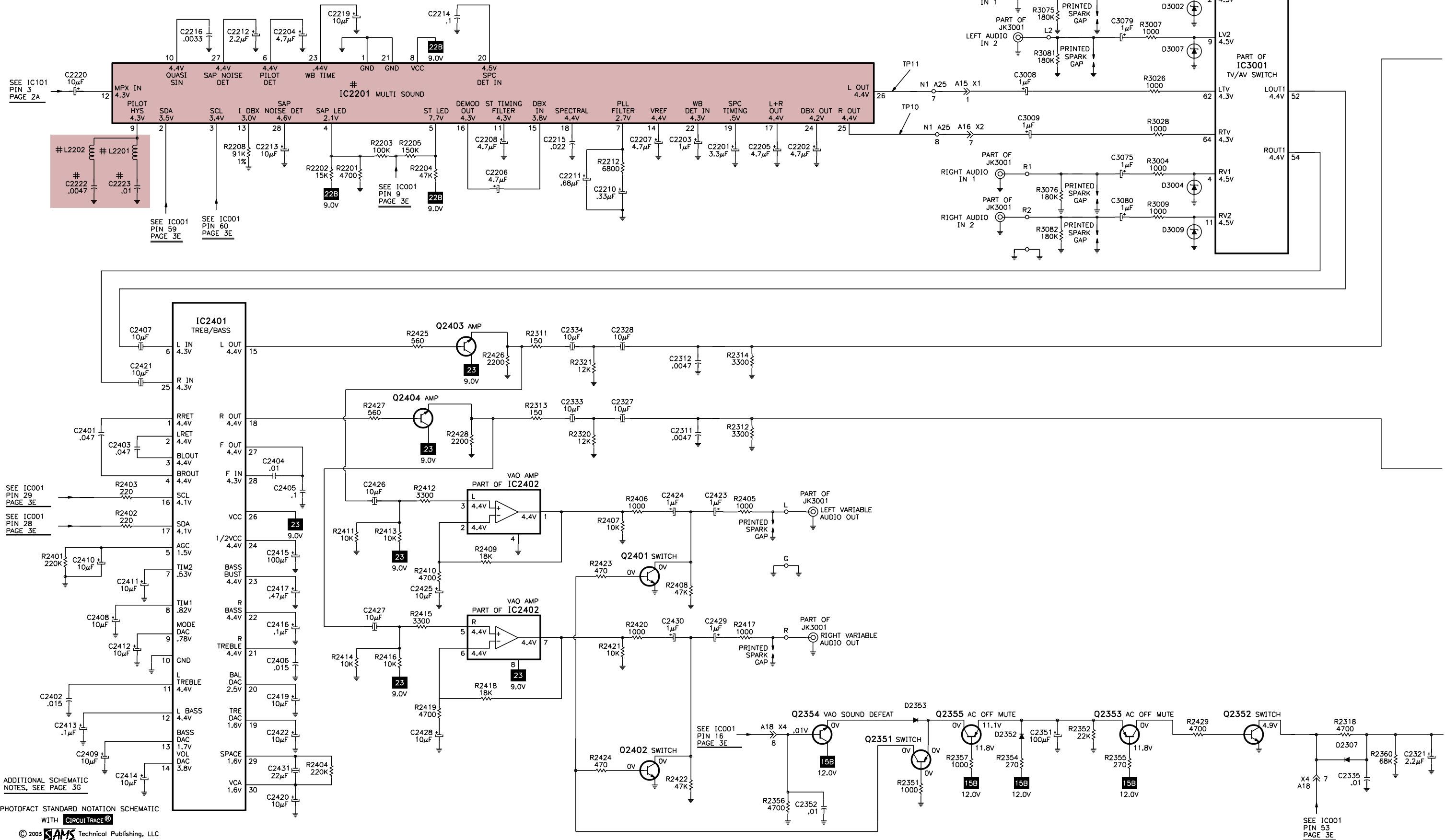
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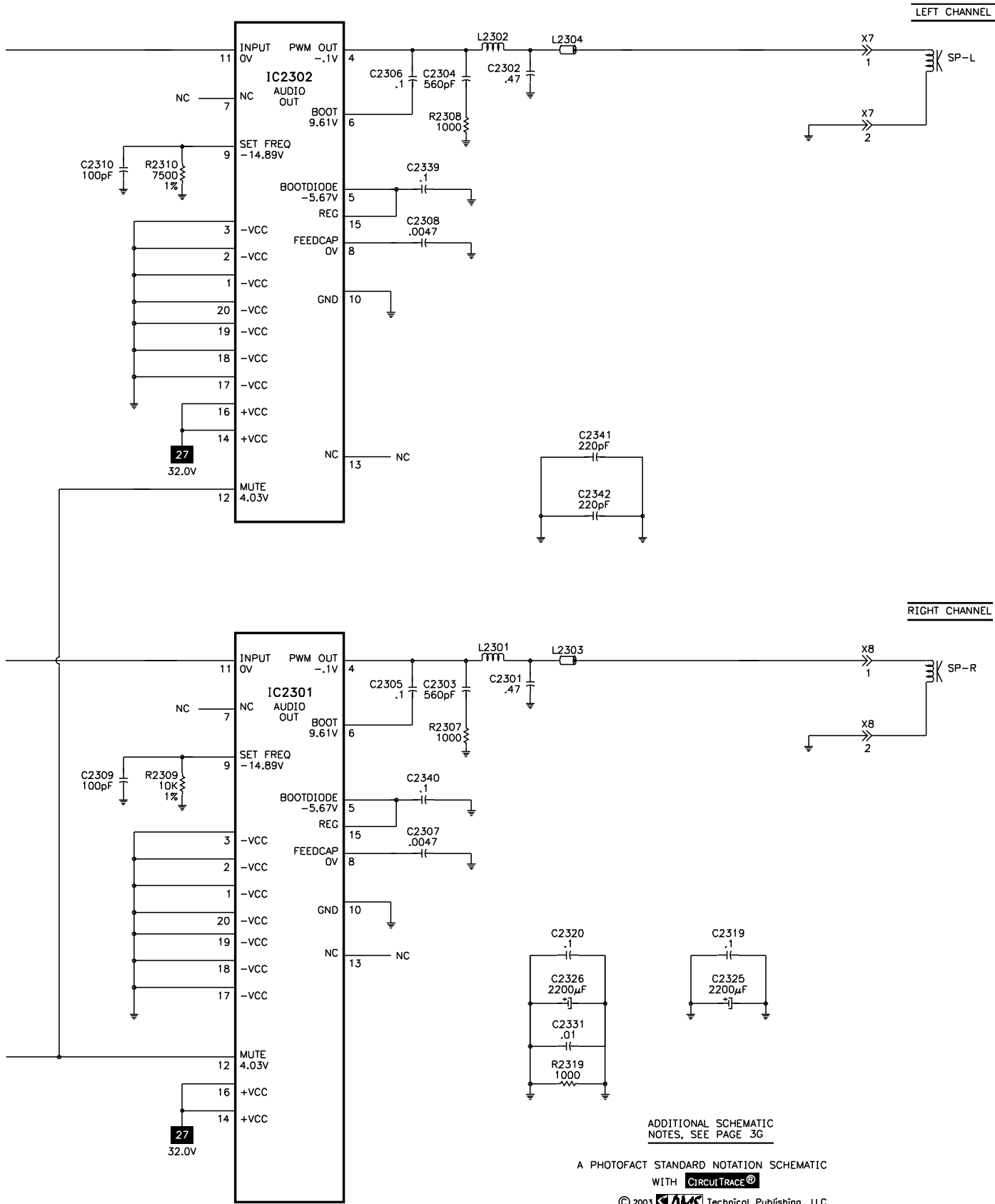
ADDITIONAL SCHEMATIC
NOTES, SEE PAGE 3G

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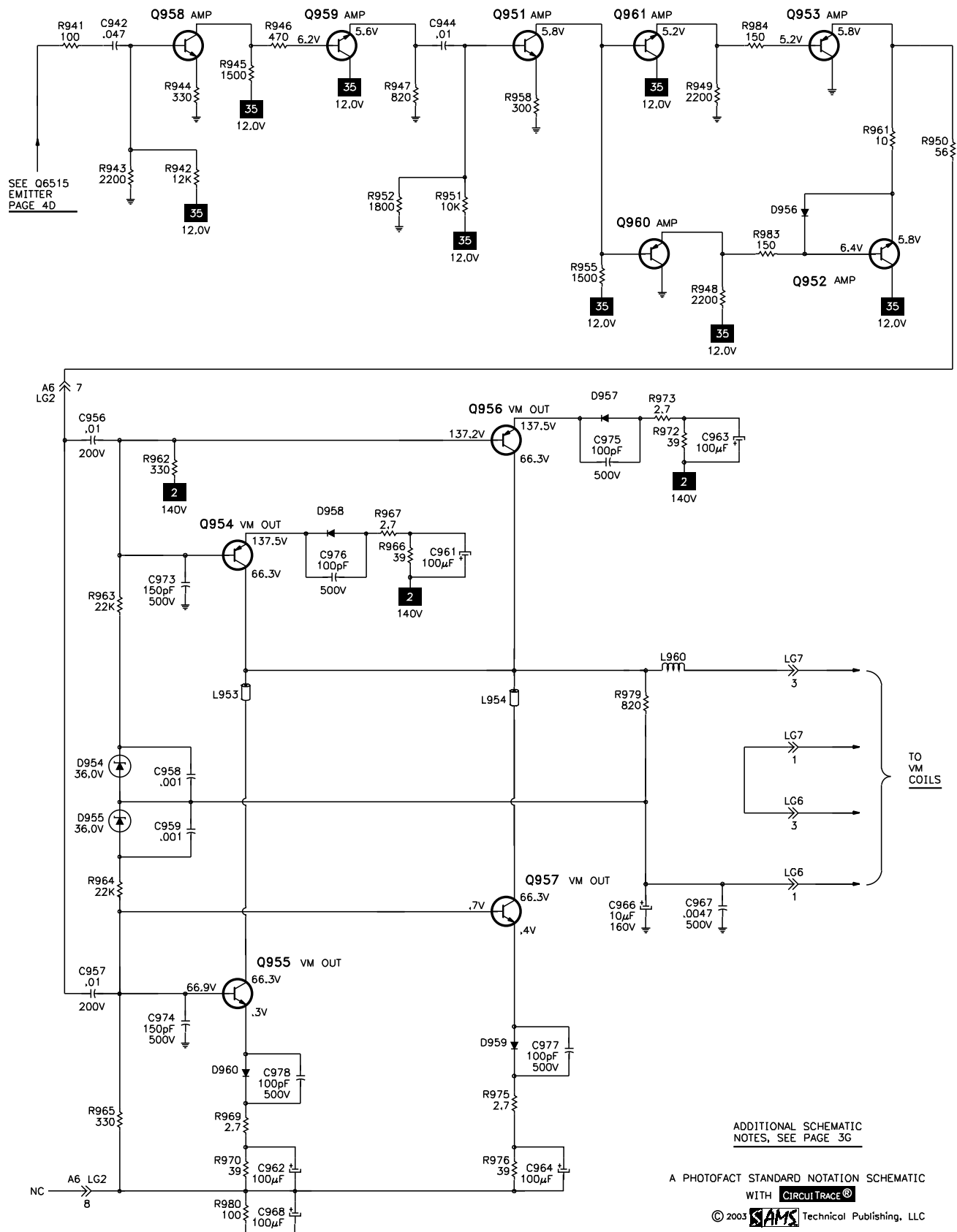
AUDIO SCHEMATIC



G
AUDIO SCHEMATIC continued



H
VM SCHEMATIC

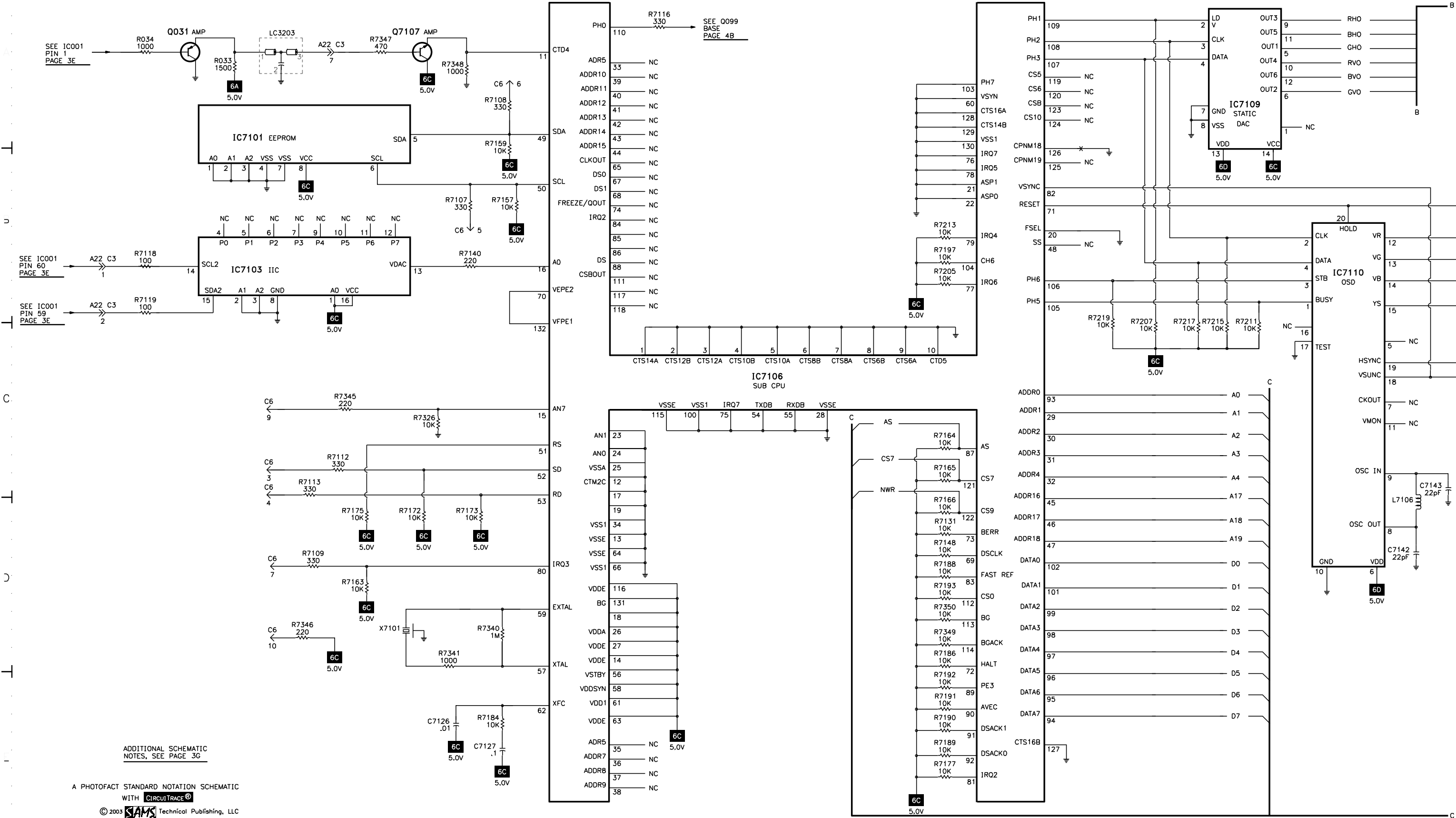


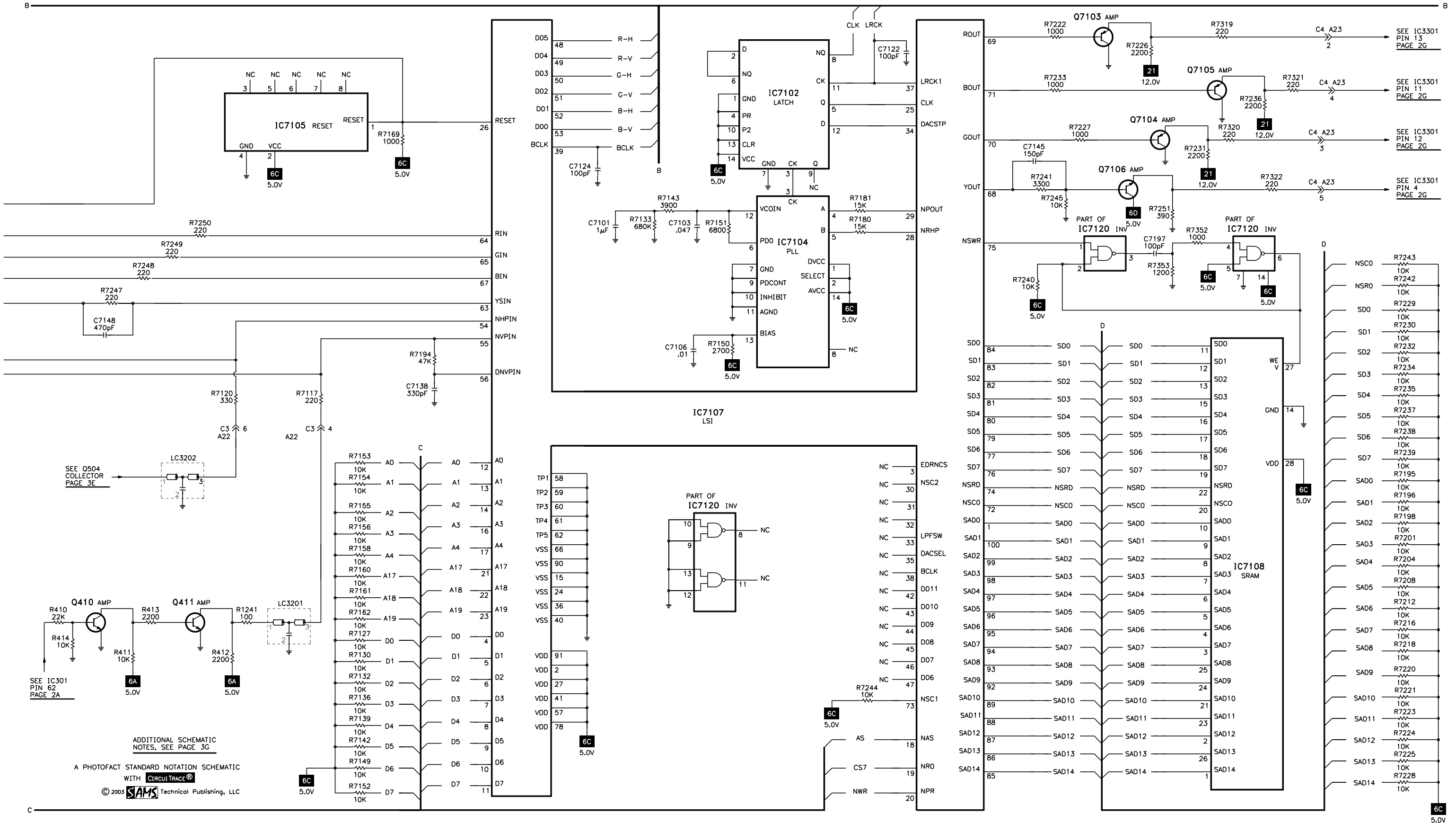
QUASAR MODEL SR5133B (CHASSIS LP816)

A

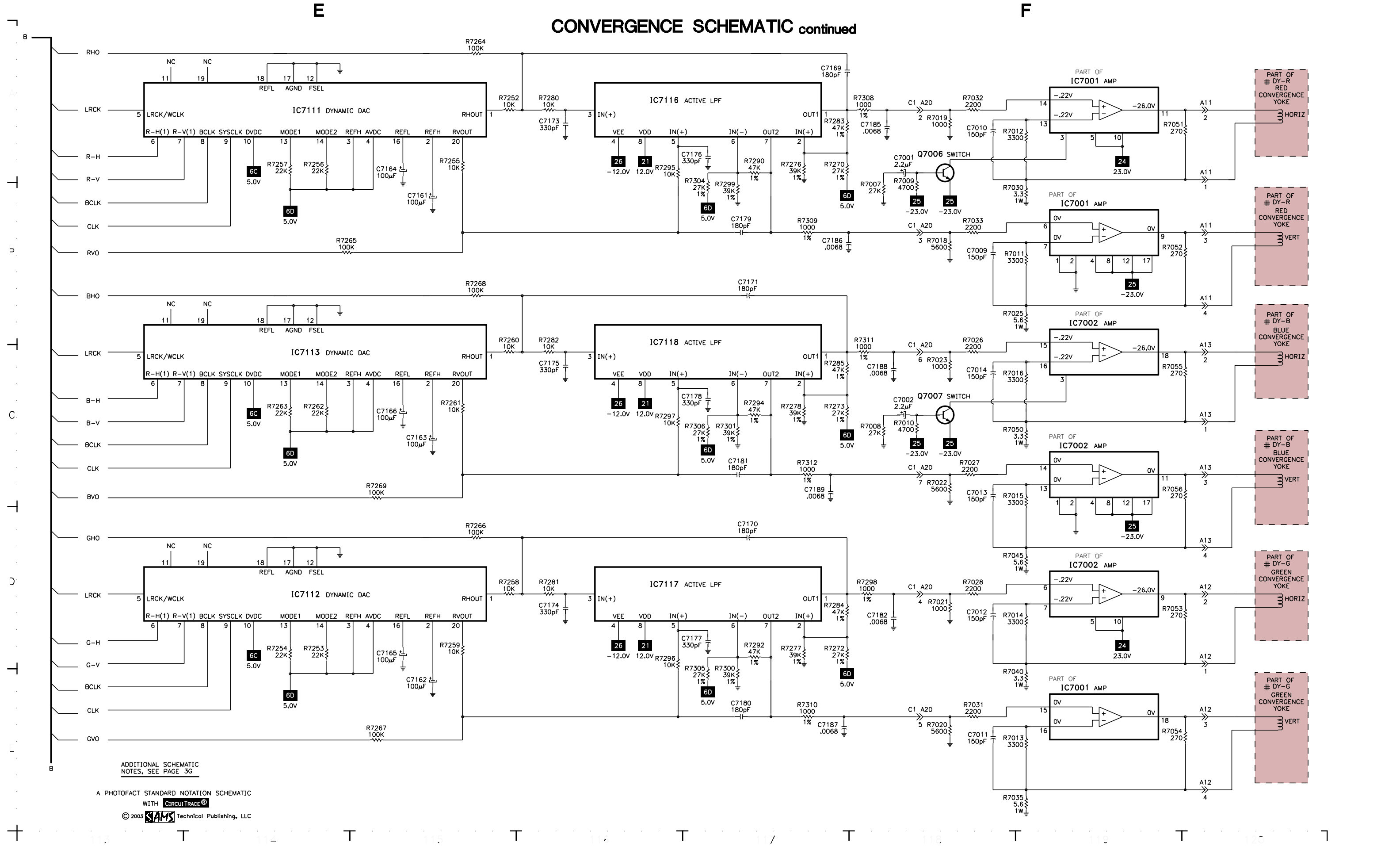
CONVERGENCE SCHEMATIC

B





CONVERGENCE SCHEMATIC continued



ADDITIONAL SCHEMATIC
NOTES, SEE PAGE 3G

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SCHEMATIC COMPONENT LOCATION GUIDE

C001	C56	C407	C46	C850	B46	C2206	B83	C3075	B87	C7051	C49	D376	D30	D3051	B69	L372	E29	Q309	B79	Q4156	D27	R094	C54	R401	C1	R756	E5	R1577	C19	R2310	B89	R4114	D26	R6545	E78	R7127	D106	R7268	B115
C004	C1	C412	B44	C851	B46	C2207	B84	C3078	B65	C7052	A48	D377	D30	D3071	C66	L373	D31	Q310	B80	Q4251	E50	R095	C53	R404	C5	R757	E5	R1578	B19	R2311	C83	R4115	D26	R6546	D79	R7130	E106	R7269	D115
C005	B43	C451	C5	C852	B46	C2208	B83	C3079	A87	C7053	A47	D378	D31	D3072	C66	L374	D29	Q353	A29	Q4309	A61	R096	C72	R410	D105	R758	E6	R1581	D12	R2312	C85	R4116	E26	R6547	D79	R7131	D102	R7270	B117
C006	C56	C452	D6	C880	D33	C2210	B84	C3080	B87	C7101	B108	D391	C30	D3073	C65	L375	D30	Q354	B30	A62	R098	C71	R411	D105	R759	E4	R1582	D12	R2313	C83	R4117	C26	R6548	C77	R7132	E106	R7272	D117	
C010	B45	C453	D6	C870	D45	C2211	B84	C3301	A6	C7102	C44	D393	C29	D3074	B65	L376	B42	Q355	A29	Q4311	B62	R099	C71	R412	D106	R760	E5	R1584	E12	R2314	C85	R4118	E27	R6549	D77	R7133	B108	R7273	C117
C011	A51	C454	D6	C881	D46	C2212	A82	C4101	C46	C7103	B108	D394	C29	D3075	C65	L391	C48	Q356	A30	Q4312	B62	R100	C71	R413	D105	R802	A37	R1585	E13	R2315	B48	R4119	B25	R6550	E78	R7136	E106	R7276	B117
C012	C53	C455	C5	C882	B41	C2213	B82	C4107	D25	C7104	D43	D395	C29	D4103	D25	L392	C29	Q373	D29	Q4313	C62	R102	C1	R414	D105	R804	B37	R1586	D13	R2318	E88	R4120	D25	R6551	E78	R7139	E106	R7277	D117
C013	C53	C456	D7	C883	B43	C2214	A83	C4108	D25	C7106	C108	D396	C30	D4104	D25	L393	C31	Q374	E30	Q4315	C41	R103	C1	R452	D6	R805	B37	R1588	E13	R2319	E91	R4121	D25	R6552	C75	R7140	B99	R7278	C117
C014	B45	C457	D6	C889	D46	C2215	B84	C4109	D25	C7107	C44	D397	C30	D4105	C28	L394	C29	Q375	D29	Q6501	C80	R104	C70	R453	D6	R806	B37	R1589	E13	R2320	C84	R4122	D25	R6553	B75	R7142	E106	R7280	A116
C015	D51	C458	D6	C890	B43	C2216	A82	C4110	C28	C7108	C43	D398	C31	D4106	D25	L395	C30	Q376	D30	Q6502	A79	R105	C70	R454	D6	R807	C35	R1590	E13	R2321	C84	R4124	E26	R6554	D77	R7143	B108	R7281	D116
C016	B51	C459	D48	C941	C46	C2219	A83	C4111	E28	C7109	D44	D399	E30	D4107	D26	L552	E6	Q393	C29	Q6503	B74	R106	C71	R455	D7	R809	C34	R1591	D14	R2351	E86	R4125	D26	R6555	A74	R7148	D102	R7282	C116
C017	B51	C460	D7	C942	A93	C2220	A81	C4112	C46	C7110	D44	D451	C5	D4109	A27	L553	E8	Q394	C30	Q6504	A74	R107	C71	R456	D6	R810	C37	R1593	E14	R2352	E87	R4126	D27	R6556	A73	R7149	E106	R7283	A117
C023	B51	C461	C7	C944	A94	C2221	A4	C4123	C46	C7112	C44	D452	D7	D4110	B27	L581	A41	Q395	C29	Q6505	C78	R112	C2	R457	D7	R811	C37	R1594	E14	R2354	E86	R4127	E26	R6557	E76	R7150	C108	R7284	D117
C024	B45	C463	C6	C956	C93	C2222	B81	C4131	A28	C7117	C44	D453	D7	D4111	C26	L601	B11	Q396	C30	Q6506	A78	R113	B4	R458	D7	R812	D37	R1601	D55	R2355	E87	R4131	A26	R6558	C75	R7151	B108	R7285	C117
C027	C51	C464	D18	C957	E93	C2223	B81	C4141	C27	C7118	C43	D454	D48	D4112	B27	L602	C13	Q397	E29	Q6507	B75	R114	B5	R459	D7	R813	C36	R1602	D55	R2356	E85	R4132	A27	R6559	A76	R7152	B106	R7290	B117
C028	C51	C466	B46	C958	D93	C2231	D46	C4142	C46	C7120	C44	D455	D5	D4134	A26	L751	E6	Q398	E28	Q6508	D78	R115	B4	R460	C5	R814	C37	R1603	E55	R2357	E86	R4133	A27	R6560	B75	R7153	C106	R7292	D117
C029	B52	C467	B46	C959	D93	C2232	D46	C4151	B27	C7122	A109	D456	D5	D4144	C26	L805	C37	Q410	D105	Q6509	A75	R117	B2	R461	C5	R815	C36	R1604	E54	R2360	E88	R4134	A28	R6565	D79	R7154	D106	R7294	C117
C031	D53	C501	C1	C961	C94	C2301	C90	C4251	E50	C7123	C43	D457	C5	D4154	B26	L806	C37	Q411	D105	Q6510	A77	R118	B5	R462	C5	R816	C35	R1605	D54	R2401	D81	R4135	C29	R6566	D79	R7155	D106	R7295	B116
C034	E53	C502	D3	C962	E94	C2302	A90	C4301	C42	C7124	B108	D458	D19	D4301	D41	L808	D38	Q451	D19	Q6511	D78	R119	A2	R463	D6	R817	B36	R1606	D53	R2402	D81	R4136	A28	R6567	D79	R7156	D106	R7296	D116
C035	E51	C503	D3	C963	C95	C2303	C90	C4302	C42	C7125	C43	D459	D19	D7031	B19	L810	C37	Q452	D19	Q6513	D78	R121	B4	R465	D18	R818	C36	R1607	D55	R2403	D81	R4138	A27	R6568	C78	R7157	B99	R7297	C116
C036	E51	C504	C3	C964	E95	C2304	A90	C4303	C62	C7126	E99	D460	E19	D7051	C49	L811	C37	Q453	E19	Q6514	C77	R125	C2	R466	D18	R819	C37	R1608	D54	R2404	E82	R4139	A27	R6569	C74	R7158	D106	R7298	D118
C039	D51	C505	C3	C965	B44	C2305	C90	C4304	D41	C7127	E99	D461	E19	D7052	C50	L812	C37	Q501	D4	Q6515	E78	R126	C2	R467	D19	R820	C36	R1609	E55	R2405	D85	R4140	A27	R6570	C73	R7159	B99	R7299	B117
C040	D51	C506	D3	C966	D95	C2306	A90	C4307	A61	C7128	D44	D462	E19	D7107	D43	L831	B39	Q504	D51	Q6516	A75	R128	C1	R468	D19	R821	B33	R1801	D62	R2406	D84	R4141	C26	R6571	C74	R7160	D106	R7300	E117
C041	E53	C508	D3	C967	D95	C2307	D90	C4313	A62	C7130	D43	D463	E19	DY-B	C6	L832	B39	Q505	E1	Q6517	B75	R129	A3	R469	D19	R822	C33	R1802	C62	R2407	D84	R4142	C26	R6572	C74	R7161	D106	R7301	C117
C042	E53	C509	D2	C968	E94	C2308	B90	C4314	A61	C7131	D44	D464	D20	DY-G	C7	L833	B39	Q551	D6	Q6519	C79	R135	C4	R470	C8	R823	E36	R1803	C62	R2408	D84	R4143	C27	R6573	C74	R7162	D106	R7304	B117
C043	B55	C521	E5	C973	C93	C2309	D89	C4315	B61	C7132	D43	D530	D2	DY-R	C8	L834	D39	Q561	C9	Q6520	C74	R140	B6	R471	C7	R825	D35	R1804	C62	R2409	D83	R4144	C27	R6574	C75	R7163	D98	R7305	E117
C044	E51	C522	E5	C974	E95	C2310	B89	C4316	C42	C7133	C44	D531	C2	F2801	A33	L835	D39	Q602	A9	Q6521	C75	R141	B6	R472	C7	R826	D35	R1805	B62	R2410	D83	R4145	C27	R6575	C75	R7164	C102	R7306	C117
C045	B45	C540	D50	C975	C93	C2311	C84	C4317	C42	C7134	D43	D532	D3	IC001	A52	L836	E39	Q603	A9	Q6522	B79	R142	B6	R473	E17	R827	C33	R1807	E63	R2411	D83	R4146	C27	R6576	B79	R7165	C102	R7308	A117
C046	B46	C541	D50	C976	C94	C2312	C84	C4318	C42	C7136	D43	D541	D50	IC002	B55	L837	E40	Q604	C12	Q6523	B78	R143	C6	R474	E18	R830	D34	R1808	E63	R2412	D83	R4151	B26	R6577	B79	R7166	D102	R7309	B117
C047	B46	C542	D50	C977	E95	C2313	B48	C4319	B63	C7137	D44	D551	D8	IC005	B45	L838	E39	Q605	A10	Q6524	B77	R144	B5	R476	E18	R832	C34	R1809	E62	R2413	D83	R4152	B26	R6578	B78	R7169	B107	R7310	E117
C048	B46	C551	D6	C978	E94	C2314	B47	C6501	C43	C7138	C107	D552	E8	IC006	E50	L839	E40	Q701	E3	Q6525	D74	R145	B5	R477	E18	R835	B40	R1810	E63	R2414	D83	R4153	B27	R6579	B78	R7172	D99	R7311	C117
C049	A45	C552	D7	C1149	C50	C2315	B48	C6502	C44	C7139	C43	D553	E7	IC101	A3	L841	C39	Q751	E5	Q6526	D75	R146	B6	R478	E17	R836	B39	R1811	E62	R2415	D83	R4154	B27	R6580	B77	R7173	D99	R7312	C117
C050	A45	C553	E7	C1551	C20	C2316	B48	C6503	B73	C7140	D43	D561	D9	IC101	B3	L842	C39	Q752	E5	Q6527	C79	R151	A1	R479	E17	R837	B40	R1812	C63	R2416	D83	R4155	B27	R6581	B77	R7175	D98	R7319	A111
C051	A49	C554	E7	C1552	B46	C2317	B48	C6504	C79	C7141	D44	D562	D9	IC301	B9	L843	C39	Q753	E4	Q6528	C78	R152	A1	R480	D17	R838	B39	R1813	E63	R2417	D85	R4156	B27	R6582	B77	R7177	E102	R7320	B111
C052	A50	C555	D7	C1553	C21	C2318	B48	C6505	A79	C7142	D104	D564	C9	IC301	C2	L953	C93	Q801	C37	Q6529	C77	R202	A2	R481	E19	R839	B39	R1814	B64	R2418	E83	R4158	A25	R6583	B77	R7180	B109	R7321	A112
C053	B46	C556	D7	C1571	B18	C2319	E91	C6506	B74	C7143	D43	D565	C9	IC451	C6	L954	C94	Q802	D33	Q6530	D74	R301	C9	R483	E20	R840	C39	R1815	E63	R2419	E83	R4162	C28	R6584	B77	R7181	B109	R7322	B111
C054	D53	C557	D8	C1572	B20	C2320	E91	C6507	C79	C7144	D43	D581	D47	IC452	D58	L956	C45	Q803	C33	Q6531	D74	R302	C9	R484	E19	R841	D40	R1816	E61	R2420	D84	R4165	D28	R6585	D74	R7184	C99	R7326	C117
C055	B45	C558	E8	C1582	E12	C2321	E88	C6508	A78	C7145	B110	D582	D47	IC452	E18	L960	C95	Q810	D36	Q6532	D75	R303	C14	R485	D6	R842	D40	R1817	D28	R2421	D83	R4166	D28	R6586	D74	R7185	E102	R7340	D99
C056	B46	C559	D7	C1583	E12	C2323	B48	C6509	B75	C7146	D43	D583	D9	IC801	C36	L1109	B50	Q831	B39	Q7006	B118	R304	C14	R489	C5	R843	D39	R1822	E62	R2422	E84	R4167	E27	R6587	D74	R7188	D102	R7341	E99

MISCELLANEOUS ADJUSTMENTS

ENTERING SERVICEMAN MODE

Turn on receiver and momentarily short pins 3 and 8 of connector TP. The letters “CHK” will appear in yellow on the upper right of the screen, volume up and down will adjust rapidly. Press the action button and volume up button on K board simultaneously. The receiver will enter the service-man mode, the letters “CHK” will turn red, the volume up and down buttons will adjust normally and all customer controls are set to normal. Press power button on remote to select one of eight service modes.

- B = VCJ Sub Adjustments
- C = VCJ Cutoff Adjustments
- D = Pincushion Adjustments
- P = PIP Adjustments
- S = S Option Adjustments
- V = V Option Adjustments
- X = X Option Adjustments
- Y = Y Option Adjustments
- CHK = Normal operation of channel and volume buttons

SERVICEMAN MODE QUICK ENTRY

From the on screen menu, select the setup icon and select cable mode. Select the timer icon and set sleep timer to 30. Press the action button twice. Press the volume down button. Tune to channel 124. Adjust the volume to minimum. Press the receiver volume down button. The set will enter the serviceman mode and the red letters “CHK” will appear on the screen.

EXIT SERVICEMAN MODE

NOTE: Always exit serviceman mode when finished making adjustments.

Press action and power buttons on receiver control panel simultaneously for approximately 2 seconds to exit serviceman mode. The receiver will display a self check menu with audio on channel 3.

PURITY CHECK

Press recall button on remote transmitter to enter purity check mode.

NOTE: Receiver must be in serviceman mode for purity colors to display on screen. Press recall button to cycle through white, red, green, blue, and normal screens.

VCJ SUB ADJUSTMENTS

NOTE: Write down original On-Set values in detail before making any adjustments in case a misadjustment occurs.

Press channel up or down buttons on remote to select any of adjustment addresses. Press volume up or down buttons on remote to change level of adjustment.

VCJ SUB ADJUSTMENTS CHART

Adjustment	Range	Default Level	On-Set Value
Sub Color (B0)	0-63	18	25
Sub Tint (B1)	0-63	32	37
Sub Brightness (B2)	0-192	96	94
Sub Contrast (B3)	0-63	37	36
RF AGC (B4)	0-255	128	128
Sub Bright A1 (B5)	0-192	96	96
VCJ Sharpness (B6)	0-127	5	5
Sub Color A1 (B7)	0-15	5	5
Sub Tint Video (B8)	0-15	5	5
Sub Color Comp (B9)	-	32	32
Sub Color Compensate (BA)	-	5	5
Sub Tint Comp (BB)	-	32	32

Sub Contrast (B3)

NOTE: This adjustment is factory set, DO NOT adjust unless repairs are made to associated circuits, CRT board, or CRT is replaced.

Tune in a pattern with 87.5% modulation 70% saturated color bar with 100 IRE white and 7.5 black. Set picture to maximum, color to minimum, brightness and sharpness to center. Record levels of S1, S2, and S3 and set S1 and S2 levels to 0, and set S3 level to 15. Connect a jumper from pin 6 of connector TP to ground. Connect a jumper from TPD5 to TPDGND. Adjust B2 for 200V p-p ± 2V from white to black level at TPLG1. Adjust C0 for 200V p-p ± 2V from white to black level at TPLR1. Adjust C2 for 210V p-p ± 2V from white to black level at TPLB1. Adjust B3 for 100V p-p ± 2V from white to 7.5 IRE black level at TPLG1. Do not include sync tip in measurement. Set S1 level to 04, and S2 level to 07. Perform Sub Brightness (B2) adjustment.

Sub Brightness (B2)

This adjustment must be made after Sub Contrast (B3) or Color Temperature (C0, C1, C2, C5, C6) adjustments are made. DO NOT adjust Screen after sub brightness is set. Tune in a color bar signal with 100 IRE white and 7.5 IRE black. Switch generator color to off. Adjust B2 until the black bar starts to turn gray, then decrease adjustment until bar just turns black.

Sub Color (B0)

Normalize picture settings, set brightness to minimum, set auto color to off position. Tune in a color bar pattern, set the contrast to maximum. Enter serviceman mode. Select VCJ sub adjustments, select B0. Press volume up or down button for best color level on screen. Check all channels.

Sub Tint (B1)

Tune in a picture. Set color and brightness to midrange. Set the contrast to maximum. Enter serviceman mode. Select VCJ sub adjustments, select B1. Press the volume up or down button to adjust for best flesh tone. Check other channels.

RF AGC (B4)

Tune in a picture. Adjust B4 until snow appears in picture, then back until snow disappears.

RED, GREEN & BLUE CUTOFF

With no input signal, observe the Green picture tube and adjust the Green Screen control for minimum noise. Adjust the noise level for the Red and the Blue to match the noise level in the Green tube.

VCJ CUTOFF ADJUSTMENTS

Follow same procedure used for VCJ sub adjustments. Select VCJ cut off adjustments.

VCJ CUTOFF ADJUSTMENT CHART

Adjustment	Range	Default Level	On-Set Value
Red Cutoff (C0)	0-3 20-255	2 20	2 20
Green Cutoff (C1)	0-255	128	128
Blue Cutoff (C2)	0-3 20-255	2 20	2 20
Brightness (C3)	0-63	31	31
Sub Brightness (C4)	0-192	96	96
Red Drive (C5)	0-255	128	128
Blue Drive (C6)	0-255	128	128
R Drive Corr (cool) (C7)	0-63	12	12
B Drive Corr (cool) (C8)	0-63	12	12
R Drive Corr (wrm) (C9)	0-63	20	20
B Drive Corr (wrm) (CA)	0-63	12	12

Color Temperature (C0, C1, C2, C5, C6)

Observe low and high brightness areas of a B/W picture for proper tracking.

Enter serviceman mode and select VCJ cutoff adjustments. Set C0, C1, and C2 for a gray picture. Set C5 and C6 for correct white areas.

S OPTION ADJUSTMENTS

NOTE: Adjustment of S option adjustments that not listed is not recommended.

Write down original values in detail before making any adjustments in case a misadjustment occurs. Always exit serviceman mode after making adjustments. Enter serviceman mode. Select Soption adjustments mode S. Press channel up and down buttons on remote to select adjustment. Press volume up and down buttons on remote to change level of adjustment.

S OPTION ADJUSTMENTS CHART

Adjustment	Range	Default Level	On-Set Level
Pre & Overshoot (S0)	0-7	3	3
Black Expansion (S1)	0-15	4	4
White Gamma Level (S2)	0-15	15	7
White Gamma Gain (S3)	0-15	15	15
Small Gamma Level (S4)	0-15	7	7
Demodulation Angle (S5)	0-31	12	12
Demodulation Gain (S6)	0-63	27	25
G-Y Ratio (S7)	0-3	1	1
White Letter Compensation (S8)	0-15	4	4
White Letter Slice Voltage (S9)	0-15	5	5
Switches TV (SA)	0-255	36	36
Switches Video (SB)	0-255	36	36
Gradient of Contrast (SC)	0-255	90	90
Stereo Input Level (SD)	0-63	40	40
Stereo PLL VCO (SE)	0-63	36	44
Stereo Filter (SF)	0-63	26	33
Low Frequency Separation (S10)	0-63	37	41
High Frequency Separation (S11)	0-63	22	22
Clock Adjustment (S12)	0-255	128	130
S-Cutoff Red (S13)	0-28	14	14
S-Cutoff Blue (S14)	0-28	14	14
Loudness (S15)	0-15	7	7
Closed Caption Digital Filter (S16)	0-1	1	1
Closed Caption Scroll (S17)	0-2	1	1
Spatializer Effect (S18)	0-63	25	25

Stereo PLL VCO (SE)

Tune in a stereo signal. Connect a frequency counter to pin 25 of IC2201, adjust SE level to obtain 15.734kHz ± 50Hz.

Stereo Filter (SF)

Tune in a stereo signal. On generator select 1kHz audio frequency, and L-R modulating signal. Connect a scope to pin 26 of IC2201, adjust SF for minimum amplitude on the scope.

Frequency Separation (S10 & S11)

On generator select pilot, 1kHz audio frequency, and right modulating signal. Connect an oscilloscope to pin 26 of IC2201. Adjust S10 for minimum amplitude of waveform. On generator select 8kHz audio frequency. Adjust S11 for minimum amplitude of waveform.

MISCELLANEOUS ADJUSTMENTS continued

Stereo Input Level (SD)

On generator select pilot, 1kHz audio frequency, and L-R modulating signal. Connect oscilloscope to pin 25 of IC2201 adjust SD for 900mVp-p.

Clock Adjustment (S12)

Connect a frequency counter to pin 34 of TPS1. Turn receiver off. Record the frequency. Turn the receiver on and enter the serviceman mode and select S12. Adjust S12 based on the following formulas:

S12 = 128 + 1.35 X 1000000 X { [187.5 - (recorded frequency)] } / 187.5

X OPTION ADJUSTMENTS

NOTE: Write down original on-set values in detail before making any adjustments in case a misadjustment occurs. X option adjustments apply only for some models.

X OPTION ADJUSTMENTS CHART

Adjustment	Range	Default Level	On-Set Level
Edge Correction (X0)	N/A	8	-
B Edge Correction (X1)	N/A	0	-
Correct Amnt on Edge (X2)	N/A	1	-
Y Delay Comp (X3)	N/A	3	-
Detail Correct Lmt Lvl (X4)	N/A	24	-
Coring Lvl of Edge Corr (X5)	N/A	41	-
Comp Det SW (X6)	N/A	0	-
Y Delay Adj (X7)	N/A	3	-
C Delay Adj RF (X8)	N/A	2	-
C Delay Adj Video(X9)	N/A	5	-
VM Limt Lvl (Xa)	N/A	90	-
VM Freq SW (Xb)	N/A	1	-
VM Coring Lvl (Xc)	N/A	8	-
VM SW/S BPF SW (Xd)	N/A	1	-
VMLM Correction Coeff (Xe)	N/A	255	-
Sharpness Offset Lvl (Xf)	N/A	90	-
C Delay Comp (X10)	N/A	10	-
Correct Clmp Strt Pos (X11)	N/A	211	-

V OPTION ADJUSTMENTS

Write down original on-set values in detail before making any adjustments in case a misadjustment occurs.

V OPTION ADJUSTMENTS CHART

Adjustment	Range	Default Level	On-Set Level
Static Digital Converg (V0)	N/A	0	0
Dynamic Digital Converg (V1)	N/A	0	0
VPS V Size (V2)	0-255	128	128
ABL Input Level (V3)	N/A	10	10
Blue Gamma (V4)	0-255	0	0
VMLM Switch (V5)	0-1	0	0
ABL Switch (V6)	0-1	0	0

PINCUSHION ADJUSTMENTS

NOTE: Write down original On-Set values in detail before making any adjustments in case a misadjustment occurs. Press channel up or down buttons on remote to select any of adjustment addresses. Press volume up or down buttons on remote to change level of adjustment.

PINCUSHION ADJUSTMENTS CHART

Adjustment	Range	Default Level	On-Set Value
Vertical Size (D0)	0-127	53	85
Vertical Linearity (D1)	0-63	37	41
S Compensation (D2)	0-63	45	25
Horizontal Size (D3)	0-63	53	41
Horizontal Centering (D4)	0-31	12	6
E-W Parabola (D5)	0-63	10	30
Trapezoid Compensation (D6)	0-63	29	36
E-W Corner 2 (D7)	0-15	13	15
E-W Corner 1 (D8)	0-15	13	15
Vertical EHT (D9)	0-15	8	8
Horizontal EHT (Da)	0-15	8	8
Vertical Position (Db)	0-63	32	32

Vertical Linearity (D1)

Tune in a crosshatch pattern. Adjust D1 so that boxes at top and bottom of screen are the same proportion.

Vertical Size (D0) and S Compensation (D2)

Tune in a crosshatch pattern. Adjust D0 for 1/2 inch overscan at top and bottom of screen. Adjust D2 so that the top and bottom boxes are the same proportion as the center boxes.

Horizontal Size (D3)

Tune in a crosshatch pattern. Adjust D3 so that the picture is just at the left and right edge of the screen and then increase the level by 3 digits.

Horizontal Centering (D4)

Tune in a crosshatch pattern. Adjust D4 so that pattern is centered.

E-W Pincushion Correction (D5, D7, D8)

Tune in a crosshatch pattern. Normalize picture settings. Set auto color to off. Adjust D5 for straight vertical lines at left and right side of screen. Adjust D7 for straight vertical lines at top of screen. Adjust D8 for straight vertical lines at bottom of screen.

Trapezoid Compensation (D6)

Tune in a crosshatch pattern. Adjust D6 so vertical lines are perpendicular to horizontal lines.

Vertical Position (Db)

Connect digital voltmeter to pin 2 of connector DY. Connect oscilloscope to pin 3 of connector DY. Tune in a monoscope pattern. Adjust Db for 13.0V ±.1V with no distortion at top and bottom of vertical waveform. Remove jumper.

PIP ADJUSTMENTS

NOTE: Adjustment of PIP adjustments not listed is not recommended.

Write down original values in detail before making any adjustments in case a misadjustment occurs. Always exit serviceman mode after making adjustments. Enter serviceman mode and select service mode P. Press channel up and down buttons on remote to select adjustment. Press volume up and down buttons on remote to change level of adjustment.

PIP ADJUSTMENTS CHART

Adjustment	Range	Default Level	On-Set Level
PIP Color (P0)	0-127	92	92
PIP Tint (P1)	0-255	54	54
PIP Brightness (P2)	0-31	22	22
PIP Contrast (P3)	0-127	80	80
PIP Position 1/9 Upper (P4)	0-255	27	26
PIP Position 1/9 Lower (P5)	0-255	143	143
PIP Position 1/9 Left (P6)	0-255	12	10
PIP Position 1/9 Right (P7)	0-255	103	101
PIP Position 1/16 Upper (P8)	0-255	27	26
PIP Position 1/16 Lower (P9)	0-255	161	160
PIP Position 1/16 Left (PA)	0-255	12	10
PIP Position 1/16 Right (PB)	0-255	116	116
PIP Freerun (PC)	N/A	0	0
PIP Y Delay (PD)	0-15	4	4

PIP Color, Tint, Brightness, and Contrast (P0 thru P3)

Tune in a color bar pattern on the PIP and main picture. Adjust P0 to match the PIP color with the main picture color. Adjust P1 to match the PIP tint with the main picture tint. Adjust P2 to match the PIP brightness with the main picture brightness. Adjust P3 to match the PIP contrast with the main picture contrast.

MISCELLANEOUS ADJUSTMENTS continued

SECOND TUNER ADJUSTMENTS

Second Tuner VCO

Apply a colorbar signal to the video input. Connect a jumper between TPA7 (pin 4 of connector A7) and ground. Adjust L2109 to measure 2.4V ±.1V at pin 12 of IC2101. Connect a scope to TP050 and adjust R2115 to obtain a waveform of 1.0V ±.05Vp-p on the scope.

Second Tuner RF AGC

Tune in a color bar pattern through the second tuner. Adjust R2118 fully counterclockwise, snow will appear on the picture, and then adjust R2118 clockwise for best snow free picture. Check all other available channels for proper adjustment.

Y OPTION ADJUSTMENTS

Write down original on-set values in detail before making any adjustments in case a misadjustment occurs. Always exit serviceman mode after making adjustments.

Enter serviceman mode and select Y option adjustments mode. Press channel up and down buttons on remote to select adjustment. Press volume up and down buttons on remote to change level of adjustment.

Y OPTION ADJUSTMENTS CHART

Adjustment	Range	Default Level	On-Set Level
Sync Separation (Y0)	0-7	4	4
Sync Separation (Y1)	0-255	24	24
Sync Separation (Y2)	0-255	12	12
Sync Separation (Y3)	0-255	12	12
V Comp Hold start (Y4)	0-7	2	2
V Comp Hold end (Y5)	0-15	6	6
H Clamp Mode Level (Y6)	0-255	64	64
V Edge Coring Level (Y7)	0-31	22	22
V Edge Corr Limit Lev (Y8)	0-15	3	3
3D NStand Level (Y9)	0-15	15	15
3D Stand Level (YA)	0-15	2	1
1F2F Mdet High Level (YB)	0-15	5	5
1F2F Mdet Low Level (YC)	0-15	9	9
Mdet Set (YD)	0-15	12	12
Mdet Set (YE)	0-1	0	0
V Edge Gain (YF)	0-3	1	3
1F Color MLevel Set (Y10)	0-15	14	14
1F Color MLevel Set (Y11)	0-15	12	12
Mdet Set (Y12)	0-15	15	15
Color MEdge Det Lev (Y13)	0-15	5	5
1F Mdet Level (Y14)	0-15	8	8
2F Mdet Level (Y15)	0-15	2	2
1F Mdet Filter SW (Y16)	0-1	0	0
1F Mdet Edge Sens (Y17)	0-1	1	1
1F Mdet Sens (Y18)	0-15	15	15
1F Mdet High Level (Y19)	0-15	8	8
1F Mdet Low Level (Y1A)	0-15	4	4
2F Mdet High Level (Y1B)	0-15	3	3
2F Mdet Low Level (Y1C)	0-15	1	1
Mdet Edge Det Level (Y1D)	0-15	7	7
AI V Sampling start (Y1E)	0-31	4	4
AI V Sampling stop (Y1F)	0-63	30	30

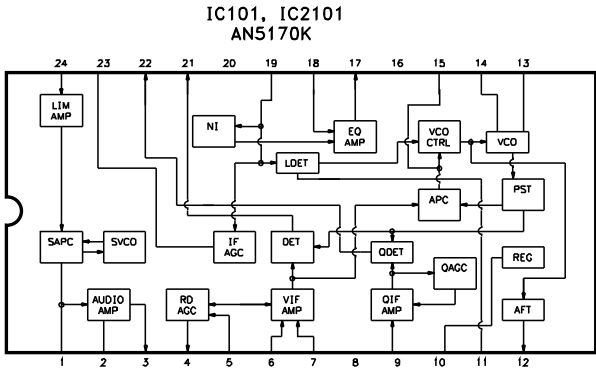
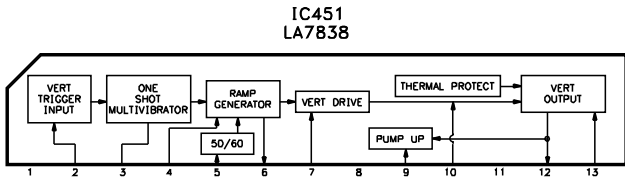
Y OPTION ADJUSTMENTS CHART continued

Adjustment	Range	Default Level	On-Set Level
AI H Sampling start (Y20)	0-31	5	5
AI H Sampling stop (Y21)	0-63	22	22
BGP Position (Y22)	0-255	16	16
B Exp APL Thresh L (Y23)	0-63	20	20
Pedestal Comp (Y24)	0-7	3	3
B Exp APL Calc (Y25)	0-31	6	6
B Comp Var Limiter (Y26)	0-15	4	4
Luminance Diff Gain (Y27)	0-3	3	3
Pseudo Contour Killer (Y28)	0-1	0	0
B Exp APL Reflection (Y29)	0-1	0	0
Base Value (Y2A)	0-15	15	15
B Exp Var Reflection (Y2B)	0-3	2	2
ALine Stand/Nstand Dt Sw (Y2C)	0-63	0	0
S1 Histogram Limiter (Y2D)	0-63	30	30
S2 Histogram Limiter (Y2E)	0-63	30	30
S3 Histogram Limiter (Y2F)	0-63	30	30
S4 Histogram Limiter (Y30)	0-63	30	30
Ymin Det Offset (Y31)	0-7	4	4
Ymin Det Gain (Y32)	0-3	2	2
Ymin Limiter (Y33)	0-63	42	42
Ymax Limit Value (Y34)	0-63	39	39
AI Fleshtone SW (Y35)	0-1	1	1
APL Corr Limiter (Y36)	0-63	10	10
APL Corr SW Point (Y37)	0-127	37	37
Col Cont Level L APL (Y38)	0-63	28	28
Col Cont Gain L APL (Y39)	0-3	0	0
Col Cont Gain H APL (Y3A)	0-63	54	54
AI Col Corr Gain (Y3B)	0-3	2	2
Color Det Gain (Y3C)	0-3	1	1
Color Det Threshold (Y3D)	0-63	39	39
DSC Noise Removal (Y3E)	0-63	4	4
DSC Delay SW (Y3F)	0-1	0	0
DSC Off SW (Y40)	0-1	0	0
DSC Limit Level (Y41)	0-255	112	112
Clip point Edge Corr (Y42)	0-15	8	8
BPF SW RF (Y43)	0-3	2	3
BPF SW Video (Y44)	0-3	0	0
DSC Gain SW big sig (Y45)	0-3	1	1
DSC Limit SW big sig (Y46)	0-63	12	12
DSC Gain SW sm sig (Y47)	0-3	1	1

Y OPTION ADJUSTMENTS CHART continued

Adjustment	Range	Default Level	On-Set Level
DSC Limit SW sm sig (Y48)	0-63	24	24
Edge Corr Gain SW (Y49)	0-15	8	8
Detail corr Limit Lev (Y4A)	0-15	8	8
B corr Gain on Edge (Y4B)	0-3	2	2
Coring Level on Edge (Y4C)	0-63	8	8
VM Freq SW (Y4D)	0-1	1	1
VM Coring Level (Y4E)	0-15	8	8
VM Limit Level (Y4F)	0-127	67	67
VM B corr SW (Y50)	0-1	0	0
Y Delay Adj (Y51)	0-7	3	3
C Delay Adj RF (Y52)	0-15	6-13	6
C Delay Adj Video (Y53)	0-15	6-10	6
DCOR corr COEFFI A (Y54)	0-255	10	10
DCOR corr COEFFI B (Y55)	0-255	200	200
DCOR corr COEFFI C (Y56)	0-255	100	100
VMLM corr COEFFI A (Y57)	0-255	255	255
VMLM corr COEFFI B (Y58)	0-255	200	200
Sharp Offset Level (Y59)	0-127	32	32
WECOR Thresh s sig (Y5A)	0-255	28	28
WECOR Thresh w sig (Y5B)	0-255	34	34
Burst in 16msXn (Y5C)	0-255	12	12
Burst out 16msXn (Y5D)	0-255	0	0
SD Threshold on (Y5E)	0-255	226	226
SD Threshold off (Y5F)	0-255	226	226
VP Threshold max (Y60)	0-255	127	127
VP Threshold min (Y61)	0-255	107	107
VP (NG—OK) 16msXn (Y62)	0-255	12	12
VP (OK—NG) 16msXn (Y63)	0-255	12	12
Std time 16msXn (Y64)	0-255	6	6
SD (NG—OK) 16msXn (Y65)	0-255	12	12
SD (OK—NG) 16msXn (Y66)	0-255	12	12
Freq Avg Quantity (Y67)	0-4	3	3
C Del Adj Comp (Y68)	N/A	6-23	6
DSC/DVC Det Slic Level (Y69)	N/A	8	8
DVC Stand Det Sw (Y6A)	N/A	0	0
Line Stand/Nstand Dt Lvl (Y6B)	N/A	127	127
H-Mode Sett Wt Int/Cmp (Y6C)	N/A	0	0
Line Stand/Nstand Dt Sw (Y6D)	N/A	1	1

IC FUNCTIONS



Important Parts Information

- **Parts not listed in the parts list are commonly available at your local electronics parts retailer.**
- 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.

- NTE Electronics, Inc. (NTE)
- Sencore, Inc.

PARTS LIST

Item No.	Type No.	Mfr. Part No.	NTE Part No.	Item No.	Type No.	Mfr. Part No.	NTE Part No.	Item No.	Type No.	Mfr. Part No.	NTE Part No.
D004	-	MA4330H	-	D841	-	MA165	NTE519	IC6507	-	TLC2932IPWL	-
D005	-	MA4056M	NTE5011A	D842	-	MA4082M	NTE5016A	IC7001, 02	-	STK392-110	-
D014, 15	-	MA4051M	NTE5010T1	D843	-	MA165	NTE519	IC7101	-	24LC32TI/SM	-
D097, 98	-	MA152K	NTE593	D844	-	MA4020	-	IC7102	-	SN74HC74NS	-
D351	-	ERA15-10	NTE125	D847, 48, 49	-	MA165	NTE519	IC7103	-	JLC1562BF	-
D353 Thru	-			D954, 55	-	MA4360M	NTE5037A	IC7104	-	TLC2932IPWL	-
D357	-	MA165	NTE519	D956	-	MA28WTX	-	IC7105	-	MC33064D5	-
D358	-	AU01Z	NTE552	D957 Thru	-			IC7106	-	SC430409CFC	-
D359, 60, 61	-	MA165	NTE519	D960	-	MA165	NTE519	IC7107	-	11350-501	-
D363	-	MA4091M	NTE5018A	D1110	-	MA152K	NTE593	IC7108	-	TVSA0342	-
D364	-	MA167	NTE519	D1117	-	MA3051	-	IC7109	-	M62354FP	-
D371	-	ERA15-10	NTE125	D1551	-	MA165	NTE519	IC7110	-	TVSA0036	-
D373 Thru	-			D1552	-	MA29-B	-	IC7111, 12, 13	-	LC78815M	-
D377	-	MA165	NTE519	D1571	-	MA165	NTE519	IC7116, 17, 18	-	UPC4570G2	-
D378	-	AU01Z	NTE552	# D1581	-	AS01	NTE552	IC7120	-	SN74HC00NSL	-
D391	-	ERA15-10	NTE125	# D1583	-	MA4062L	NTE5012A	Q011, 12, 13	-	2SB709ARTX	NTE2409
D393 Thru	-			# D1584, 85	-	MA4330M	-	Q014	-	2SD601ARTX	NTE2408
D397	-	MA165	NTE519	D1587	-	MA3082M	-	Q031	-	2SB709ARTX	NTE2409
D398	-	AU01Z	NTE552	D2102	-	MA4330H	-	Q032	-	2SD601ARTX	NTE2408
D399	-	TVSRM1	NTE116	D2307, 52, 53	-	MA152K	NTE593	Q099	-	2SB709ARTX	NTE2409
D451	-	ERA15-01	NTE116	D2802 Thru	-			Q33	-	2SB709ARTX	NTE2409
D452, 53	-	MA2330-B	-	D2805	-	ERA15-01	NTE116	Q102	-	2SD601ARTX	NTE2408
D454	-	MA4360M	NTE5037A	D3001	-	MA3110M	-	Q140, 41	-	2SD601ARTX	NTE2408
D455, 56	-	MA4062L	NTE5012A	D3002, 04	-	MA3051M	-	Q142	-	2SB709ARTX	NTE2409
D457	-	MA4120M	NTE5021T1	D3006	-	MA3110M	-	Q301, 03	-	2SB709ARTX	NTE2409
D458 Thru	-			D3007, 09	-	MA3051M	-	Q304, 06	-	2SD601ARTX	NTE2408
D464	-	MA165	NTE519	D3051	-	MA3110M	-	Q308	-	2SB709ARTX	NTE2409
D530, 31	-	MA4039H	-	D3071 Thru	-			Q309, 10	-	2SD601ARTX	NTE2408
# D532	-	MA4062L	NTE5012A	D3075	-	MA3110M	-	Q353, 54	-	2SC3063	NTE157
D541	-	MA152K	NTE593	D4103, 04	-	MA152K	NTE593	Q355, 56	-	2SB1011	-
# D551	-	RH3FLFS1	-	D4105	-	MA152K	NTE593	Q373, 74	-	2SC3063	NTE157
# D552	-	S2L60P1518	-	D4106	-	MA3056M	-	Q375, 76	-	2SB1011	-
# D553	-	MA4270M	NTE146A	D4107	-	MA152K	NTE593	Q393, 94	-	2SC3063	NTE157
D561	-	MA165	NTE519	D4109 Thru	-			Q395, 96	-	2SB1011	-
D562	-	MA4039M	-	D4112	-	MA152K	NTE593	Q397, 98	-	2SC1473A	NTE399
D564	-	MA165	NTE519	D4134, 44, 54	-	MA152K	NTE593	Q410, 11	-	2SD601ARTX	NTE2408
D565	-	MA152K	NTE593	D4301	-	MA3036H	-	Q451, 52, 53	-	2SC1685QRS	NTE85
# D581	-	ERA22-04	NTE552	D7031	-	MA3091M	-	Q501	-	2SC4212H	NTE2501
# D582	-	AU02	NTE552	D7051, 52	-	MA152K	NTE593	Q504, 05	-	2SD601ARTX	NTE2408
# D583	-	RP1H	NTE525	D7107	-	MA4056M	NTE5011A	# Q551	-	2SD2553MA	-
D650, 51, 52	-	MA4110M	-	# IC001	-	MN102L35GTS	-	Q561	-	2SC1685QRS	NTE85
D659, 60	-	MA4110M	-	IC002	-	M24C08-WBN6	-	Q602, 03	-	2SB709ARTX	NTE2409
D661	-	MA4051M	NTE5010T1	IC005	-	AN78M05	NTE960	Q604, 05	-	2SD601ARTX	NTE2408
D662, 63	-	MA4110M	-	IC006	-	MN1280R	NTE15044	Q701	-	2SB709ARTX	NTE2409
D664	-	MA4051M	NTE5010T1	IC101	-	AN5170K	-	Q751	-	2SD1499P	NTE54
D751	-	MA3047M	-	# IC301	-	AN5308NK	-	Q752	-	2SA564AQRSTA	NTE290A
D756	-	MA156	NTE519 N3	# IC451	-	LA7838	NTE7039	Q753	-	2SC1685QRS	NTE85
D758	-	MA4030L	-	IC452	-	BA15218N	NTE778S	# Q801	-	FS18SM-10-AB	-
D760	-	MA152K	NTE593	# IC801	-	AN8026	-	Q802	-	2SC1685QRS	NTE85
# D802	-	RBV-408	NTE5311	# IC802	-	SE139NLF4	-	Q803	-	2SA564AQRSTA	NTE290A
D804	-	MA165	NTE519	# IC811	-	TLP621GR	NTE3098	Q810	-	2SC1685QRS	NTE85
D816	-	MA700	NTE584	IC831	-	AN7812	NTE966	Q831	-	2SA1961QAHW	-
D817	-	AU01Z	NTE552	IC832	-	AN7809	NTE1910	Q832	-	2SA564AQRSTA	NTE290A
D818	-	MA4220L	-	IC833	-	SI-3050CA	-	Q833	-	2SC1473RTA	-
# D819	-	TMPG10G3	-	AN78M12	-	MC14066BFEL	NTE967	Q834	-	2SB709ARTX	NTE2409
D821	-	MA165	NTE519	IC1601	-		-	Q951	-	2SC1685QRS	NTE85
D822	-	ERA22-02	NTE552	IC1801	-	M65617SP	-	Q952	-	2SD601ARTX	NTE2408
# D831	-	RU30ALFS1	NTE580	IC2101	-	AN5170K	-	Q953	-	2SB709ARTX	NTE2409
# D832	-	RU3YX-M	NTE588	# IC2201	-	AN5819K	-	Q954	-	2SB940P	NTE398
# D833	-	RU3YX-MLF-C4	NTE588	IC2301, 02	-	TDA7480	-	Q955	-	2SD1264P	NTE375
# D834, 35	-	RL3ZLFS1	-	IC2401	-	AN7396K	-	Q956	-	2SB940P	NTE398
# D836	-	RL4ZLF-L1	-	IC2402	-	BA15218N	NTE778S	Q957	-	2SD1264P	NTE375
D837	-	MA165	NTE519	IC3001	-	CXA2079Q	-	Q958, 59	-	2SD601ARTX	NTE2408
D838	-	MA4047L	NTE5009A	IC3301	-	AN5862K	-	Q960	-	2SB709ARTX	NTE2409
D839	-	MA4033M	-	IC6501	-	MN82831	-	Q961	-	2SD601ARTX	NTE2408
D840	-	MA167	NTE519	IC6505	-	PQ3RD13B	-	Q1110	-	2SD601ARTX	NTE2408

PARTS LIST continued

Item No.	Type No.	Mfr. Part No.	NTE Part No.	Item No.	Function/Rating	Mfr. Part No.	Notes	Item No.	Function/Rating	Mfr. Part No.	Notes
Q1551	-	2SA564AQRSTA	NTE290A	C027	.47µF 20% 50V NP	ECEA1HNR47U	-	# CR2801, 02	130pF, 3.6M, Spark Gap	EXNG131P365	-
Q1552	-	2SC4635-YB7	-	C301	47µF 16V NP	ECEA1CN470U	-	# D2801	Varistor	ERC10VK361G	-
Q1553	-	2SC1685QRS	NTE85	C309	1µF 50V NP	ECEA1HKN010U	-	# DY-B	Yoke/Convergence Yoke	KDY2AS631F	Blue
Q1571, 72	-	2SC1473R	NTE399	C356	.0033 10% 2kV	ECKD3D332KB	-	# DY-G	Yoke/Convergence Yoke	KDY2AS631F	Green
Q1581	-	2SC1685QRS	NTE85	C359, 63	.001 10% 2kV	ECKD3D102KB	-	# DY-R	Yoke/Convergence Yoke	KDY2AS631F	Red
Q1582	-	2SD601ARTX	NTE2408	C376	.0033 10% 2kV	ECKD3D332KB	-	# F2801	Fuse	0BA1C63NU100	6.3Amp, 125V
Q1583	-	2SA564AQRSTA	NTE290A	C379	.001 10% 2kV	ECKD3D102KB	-	JK1001	Jack	TJB2A100102	Assembly
Q1601, 02	-	2SD601ARTX	NTE2408	C396	.0033 10% 2kV	ECKD3D332KB	-	JK3001	Jack	TJB2AA0122	Assembly
Q1801, 02, 03	-	2SD601ARTX	NTE2408	C402	1µF 25V Tantalum	ECSF1EE105	-	L001	39µH	ELESN390KA	-
Q1804, 05	-	2SB709ARTX	NTE2409	C403	.33µF 35V Tantalum	ECSF1VE334	-	L002	Ferrite Bead	EXCELSA35	-
Q1901, 02	-	2SC1685QRS	NTE85	C452	1µF 25V Tantalum	ECSF1EE105	-	L010	Ferrite Bead	EXCELSA35	-
Q1903 Thru	-			C504	220pF 5% 50V N750	ECJ2VU1H221J	-	L012, 13, 15, 16	10µH	TLUABTA100K	-
Q1909	-	2SD601ARTX	NTE2408	# C551	220pF 5% 2kV	ECKD3D221JB	-	L017	Ferrite Bead	EXCELSA35T	-
Q2101	-	2SD601ARTX	NTE2408	# C552, 53	.0015 5% 2kV	ECKD3D152JB	-	L103	15µH	ELESN150JA	-
Q2351	-	2SB709ARTX	NTE2409	# C554	.056 5% 50V	ECQB1H563JM	-	L105	VCO	EIV7EN053B	-
Q2352	-	2SD601ARTX	NTE2408	# C555	.0039 5% 1.2kV	ECWH12H392JS	-	L118	15µH	ELESN150JA	-
Q2353	-	2SB709ARTX	NTE2409	# C556	180pF 5% 2kV	ECKD3D181JB	-	L135	56µH	ELESN560JA	-
Q2354	-	2SD601ARTX	NTE2408	# C557	.01 5% 1.2kV	ECWH12H103JS	-	L140	33µH	ELESN330KA	-
Q2355	-	2SB709ARTX	NTE2409	# C558	.027 5% 400V	ECQF4273JZH	-	L351	100µH	ELEBD101KA	-
Q2401 Thru	-			# C559	390pF 5% 2kV	ECKD3D391JB	-	L352, 53, 54	82µH	TLTACT820K	-
Q2404	-	2SD601ARTX	NTE2408	# C560	.47 200V	TAC7A2D474JC	-	L355	Ferrite Bead	EXCELSA35T	-
Q3031	-	2SB709ARTX	NTE2409	C561	2.2µF 50V NP	ECEA1HN2R2U	-	L371	100µH	ELEBD101KA	-
Q3032, 33	-	2SD601ARTX	NTE2408	C564	22µF 16V NP	ECEA1CN220U	-	L372, 73, 74	82µH	TLTACT820K	-
Q3034	-	2SB709ARTX	NTE2409	# C581	33µF 160V	ECEA160V33Z	-	L375	Ferrite Bead	EXCELSA35T	-
Q3035, 36	-	2SD601ARTX	NTE2408	# C583	47µF 250V	ECA2EM470	-	L376, 91	100µH	ELEBD101KA	-
Q3054	-	2SB709ARTX	NTE2409	# C585	1000µF 35V	ECA1VM102	-	L392, 93, 94	82µH	TLTACT820K	-
Q3301, 02	-	2SD601ARTX	NTE2408	C586	.047 10% 1.25kV	ECQE12473KF	-	L395	Ferrite Bead	EXCELSA35T	-
Q4108 Thru	-			C604	2.2µF 50V NP	ECEA1HN2R2U	-	L552, 53	Ferrite Bead	EXCELSA35B	-
Q4111	-	2SD601ARTX	NTE2408	C607	9pF ±.5pF 50V NPO	ECJ2VC1H090D	-	L581	Ferrite Bead	EXCELD35C	-
Q4131	-	2SB709ARTX	NTE2409	C610, 11, 12	1µF 50V NP	ECEA1HN010U	-	L601	82µH	TLUABTA820K	-
Q4132	-	2SD601ARTX	NTE2408	C615	33pF 5% 50V NPO	ECJ2VC1H330J	-	L602	4.7µH	TLTACT4R7J	-
Q4141	-	2SB709ARTX	NTE2409	C620, 21	1µF 50V NP	ECEA1HN010U	-	L751	Phasing	TLH15733M	-
Q4142	-	2SD601ARTX	NTE2408	# C804, 05, 06	.01 +80% - 20% 500V	ECKD2H103ZF	-	L805, 06	Ferrite Bead	EXCELSA35T	-
Q4151	-	2SB709ARTX	NTE2409	# C816, 17	470µF 160V	EC0S2DA471BB	-	L808	Ferrite Bead	EXCELD35	-
Q4152	-	2SD601ARTX	NTE2408	C818	.0039 10% 1kV	ECKD3A392KB	-	L810, 11	Ferrite Bead	EXCELSA35T	-
Q4154	-	2SB709ARTX	NTE2409	# C829, 30	.0047 20% 250V	ECKCNB472ME	-	L812, 31	Ferrite Bead	EXCELSA35B	-
Q4155	-	2SD601ARTX	NTE2408	C831	680pF 10% 2kV	ECKD3D681KB	-	L832	Ferrite Bead	EXCELSA39E	-
Q4156	-	2SB709ARTX	NTE2409	# C832	220µF 200V	ECES2DU221E4	-	L833	Choke	TLP15103S	-
Q4251	-	2SB709ARTX	NTE2409	C833, 35, 37	470pF 10% 1kV	ECKD3A471KB	-	L834 Thru			
Q4309	-	2SB709ARTX	NTE2409	# C838	2200µF 35V	ECA1VM222	-	L839	Ferrite Bead	EXCELSA35T	-
Q4310	-	2SD601ARTX	NTE2408	C839	470pF 10% 1kV	ECKD3A471KB	-	L841, 42	22µH	ELEIN220KA	-
Q4311	-	2SB709ARTX	NTE2409	# C840	2200µF 35V	ECA1VM222	-	L843	Ferrite Bead	EXCELSA35T	-
Q4312, 13	-	2SD601ARTX	NTE2408	C841	470pF 10% 1kV	ECKD3A471KB	-	L953, 54	Ferrite Bead	EXCELSA35T	-
Q4315	-	2SC1384Q	NTE293	# C842	1000µF 50V	ECA1HM102	-	L956	100µH	ELESN101JA	-
Q6501, 02	-	MSD601	-	C844	680pF 10% 2kV	ECKD3D681KB	-	L960	1µH	TLTACT1R0K	-
Q6503	-	MSB709	-	# C870	.0047 20% 250V	ECKCNB472ME	-	L1109	10µH	TLTACT100J	-
Q6504 Thru	-			C1551	100µF 25V NP	ECEA1EN101U	-	L1110	10µH	TLTACT100K	-
Q6509	-	MSD601	-	C1572	10µF 50V NP	ECEA1HN100U	-	L1801	1.5µH	ELESN1R5KA	-
Q6510	-	MSB709	-	# C1582	47µF 50V	ECA1HM470	-	L1803	2.2µH	ELESN2R2K	-
Q6511, 13	-	MSD601	-	# C1584	47µF 35V	ECA1VM470	-	L1804	15µH	ELESN150KA	-
Q6514, 15, 16	-	MSB709	-	C2201	3.3µF 16V Tantalum	AP335K016CAE	-	L1806, 07	1µH	ELESN1R0KA	-
Q6517	-	MSD601	-	C2219	10µF 16V Tantalum	AP106K016CAE	-	L1808	Ferrite Bead	EXCELD35	-
Q6519 Thru	-			# C2222	.0047 10% 50V	ECJ2VB1H472K	-	L2102	10µH	TLTACT100K	-
Q6523	-	MSD601	-	# C2223	.01 10% 50V	TCUX1H103KBN	-	L2103	15µH	TLTACT150K	-
Q6524	-	MSB709	-	C2327, 28	10µF 16V NP	ECEA1CKN100	-	L2104	33µH	TLTACT330K	-
Q6525 Thru	-			C2333, 34	10µF 16V NP	ECEA1CKN100	-	L2105	1.2µH	TLTACT1R2K	-
Q6528	-	MSD601	-	C2407, 21	10µF 50V NP	ECEA1HN100U	-	L2106	56µH	TLTACT560K	-
Q6529, 30, 31	-	MSB709	-	C2426, 27	10µF 50V NP	ECEA1HN100U	-	L2107	1.2µH	TLTACT1R2K	-
Q6532	-	MSD601	-	C2431	22µF 50V NP	ECEA1HN220U	-	L2109	VCO	EIV7EN053B	-
Q7006, 07	-	2SD601ARTX	NTE2408	# C2802	.22 20% 250VAC	ECQU2A224MW	-	L2112	Ferrite Bead	EXCELSA35	-
Q7103, 04, 05	-	MSB709	-	# C2805, 06	220pF 125VAC	-	-	# L2201	1000µH	ELESN102JA	-
Q7106, 07	-	MSD601	-	C3003	1µF 50V NP	ECEA1HN010U	-	# L2202	470µH	ELESN471JA	-
				C4307	10µF 16V NP	ECEA1CKN100	-	L2301, 02	Filter	ELC10E680	-
				C6517	1µF 50V NP	ECEA1HN010U	-	L2303, 04	Ferrite Bead	EXCELSA35	-
				C6536, 43	4.7µF 50V NP	ECEA1HN4R7U	-	# L2801	Line Filter	ELF18D850B	-
				C7053	100µF 16V NP	ECEA1CN101U	-	# L2802	Line Filter	ELF18D650M	-

PARTS LIST continued

Item No.	Function/Rating	Mfr. Part No.	Notes	Item No.	Function/Rating	Mfr. Part No.	Notes	Item No.	Function/Rating	Mfr. Part No.	Notes
L3006	10µH	TLTACT100K	-	R1557	3320 1% 1/4W	ER0S2CKF3321	-		PC Board	TNP2AA049	G
L3301	33µH	TLTACT330K	-	# R1581	33 1% 1/2W Fusible	ERQ12HJ330	-		PC Board	TNP2AA050	K
L3309, 33	10µH	TLTACT100K	-	# R1582	17.8K 1% 1/4W	ER0S2CKF1782	-		PC Board	TNPA0784BA	LB
L4301	3.9µH	ELESN3R9KA	-	# R1584	7150 1% 1/4W	ER0S2CKF7151	-		PC Board	TNPA0783BA	LG
L6502 Thru				R1927	1690 1% 1/10W	ERJ6ENF1691	-		PC Board	TNPA0782BA	LR
L6505	33µH	ELESN330JA	-	R2115	3000 Detector Out	EVND8AA03B33	-		PC Board	TNP2AA027AB	N
L6506	15µH	ELESN150JA	-	R2118	10K AGC Delay	EVND8AA03B14	-		PC Board	TNPA0615	R
L6507	15µH	ELESN150KA	-	R2208	91K 1% 1/10W	ERJ6ENF9102	-		PC Board	TNP2AA045AD	T
L6509 Thru				R2309	10K 1% 1/10W	ERJ6ENF1002	-		PC Board	TNP2AA063AB	X
L6512	33µH	ELESN330JA	-	R2310	7500 1% 1/10W	ERJ6ENF7501	-		PC Board	TNPA1059AC	Y
L7032	1µH	TLTACT1R0K	-	# R2801	8.2M 20% 1/2W	ERC12ZGM825	-		Transmitter	EUR511516	Remote
L7101, 03, 04, 05	Ferrite Bead	EXCELDR35	-	R4134	390 1% 1/10W	ERJ6ENF3900	-	# For SAFETY use only equivalent replacement part. % Used insulating hardware supplied with replacement.			
L7106	33µH	TLTACT330J	-	R4135	1800 1% 1/10W	ERJ6ENF1801	-				
LC3201 Thru				R4138	1910 1% 1/10W	ERJ6ENF1911	-				
LC3204	L-C Network	EXCEMT101BTS	-	R4144	390 1% 1/10W	ERJ6ENF3900	-				
M011	Socket	TJS1A5160	CRT	R4145	1910 1% 1/10W	ERJ6ENF1911	-				
M012	Lens	TKGF5005	PTV	R4154	464 1% 1/10W	ERJ6ENF4640	-				
M013	Mirror	TKG2AA50051	-	R4155	1800 1% 1/10W	ERJ6ENF1801	-				
M014	Screen	TKG2AA50051	Protective Panel	R4170	1200 1% 1/10W	ERJ6ENF1201	-				
M015	Screen	TKG2AH50201	Lenticular	R6632	10K 1% 1/10W	ERJ6ENF1002	-				
M016	Screen	TKG2AH50211	Fresnel	R6633	1000 1% 1/10W	ERJ6ENF1001	-				
# M018	Focus Pack	TNX2A1001	-	R6635	3300 1% 1/10W	ERJ6ENF3301	-				
# M022	Line Cord	TSX2AA0131	Polarized	R7270, 72, 73	27K 1% 1/10W	ERJ6ENF2702	-				
M026	Mirror	TXFKG01BSER	Assembly	R7276, 77, 78	39K 1% 1/10W	ERJ6ENF3902	-				
# M029	CRT	TXFCRT85SER	Blue	R7283, 84, 85	47K 1% 1/10W	ERJ6ENF4702	-				
# M030	CRT	TXFCRT86SER	Green	R7290, 92, 94	47K 1% 1/10W	ERJ6ENF4702	-				
# M031	CRT	TXFCRT87SER	Red	R7298	1000 1% 1/10W	ERJ6ENF1001	-				
R040, 64, 66	150 1% 1/10W	ERJ6ENF1500	-	R7299	39K 1% 1/10W	ERJ6ENF3902	-				
R115	3000 Detector Output	EVND2AA03B33	-	R7300, 01	39K 1% 1/10W	REJ6ENF3902	-				
R304	1650 1% 1/10W	ERJ6ENF1651	-	R7304, 05, 06	27K 1% 1/10W	ERJ6ENF2702	-				
R325	5600 1% 1/10W	ERJ6ENF5601	-	R7308 Thru							
R327	2200 1% 1/10W	ERJ6ENF2201	-	R7312	1000 1% 1/10W	ERJ6ENF1001	-				
R348	560 1% 1/10W	ERJ6ENF5600	-	# RL801	Relay	TSEH8007	Power		Equipment	Sencore No.	
R350	680 1% 1/10W	REJ6ENF6800	-	RM002	Receiver	RPM-637CBRL	Remote		Oscilloscope	SC3100	
R360	3900 1% 1/4W	ER0S2CKF3901	-	S010	Switch	EVQQVC13T	Power		Generators		
R363, 64	5600 5% 3W	ERG3SJ562H	-	S011	Switch	EVQQVC13T	Volume Down		RGB	CM2125	
R370	3900 1% 1/4W	ER0S2CKF3901	-	S012	Switch	EVQQVC13T	Volume Up		Multiburst Signal	VG91	
R373, 74	5600 5% 3W	ERG3SJ562H	-	S013	Switch	EVQQVC13T	Channel Down		Color Bar	VG91	
R380	3900 1% 1/4W	ER0S2CKF3901	-	S014	Switch	EVQQVC13T	Channel Up		TV Stereo	VG91	
R383, 84	5600 5% 3W	ERG3SJ562H	-	S015	Switch	EVQQVC13T	TV/Video		Digital VOM	SC3100	
R453	1 5% 1/2W Fusible	ERQ12HJ1R0	-	S016	Switch	EVQQVC13T	Action		Frequency Meter	SC3100	
R459	2.2 5% 1/4W Fusible	ERQ14AJ2R2	-	SP-L	Speaker	EASG12P525A2	-		Hi-Voltage Probe	HP200	
R473	4700 1% 1/4W	ER0S2CKF4701	-	SP-R	Speaker	EASG12P525A2	-		Accessory Probes	TP212	
R474	7150 1% 1/4W	ER0S2CKF7151	-	T501	Horizontal Driver	ETH19Y70AYM	-		Isolation Transformer	PR570	
R476	1430 1% 1/4W	ER0S2CKF1431	-	# T551	Horizontal Output	KFT7AQ051F	-		Capacitance Analyzer	LC102	
R477	1910 1% 1/4W	ER0S2CKF1911	-	# T802	Power	ETS42AD365AC	-		CRT Analyzer	CR7000	
R478	32.4K 1% 1/4W	ER02SCKF3242	-	# T2801	Power	ETP28Z439AF	-		AC Leakage Tester	PR570	
R479	15K 1% 1/4W	ER0S2CKF1502	-	# TNR001	Tuner	ENV56D36G3R	Main		Inductance Analyzer	LC102	
R480	12K 1% 1/4W	ER0S2CKF1202	-	# TNR2101	Tuner	ENV56D36G3R	PIP		Flyback Yoke Tester	TVA92	
R521	1800 5% 3W	ERQ3CJ182L	-	X001	Crystal	TSSA096	12MHz		Field Strength Meter	SL753	
R522	3300 5% 3W	ERG3SJ332	-	X101	Filter	M1972M	SAW		Transistor Tester	TF46	
# R552	2.2 10% 5W	ERF5ZK2R2	-	X102	Trap	EFCS4R5MW5BA	4.5MHz		Horizontal Analyzer	HA-2500	
R553	10K 1% 1/4W	ER0S2CKF1002	-	X201	Filter	SFSH4R5MDB	4.5MHz		Video Analyzer	VG91, TVA92	
R556	47.5K 1% 1/4W	ER0S2CKF4752	-	X501	Crystal	TAFCSB503F38	503kHz				
R557	33.2K 1% 1/4W	ER0S2CKF3322	-	X601	Crystal	TSS816-N2X	3.58MHz				
# R583	1 5% 2W	ERQ2CJP1R0	-	X1801	Crystal	TSSA092	-				
# R584	.33 1% 1/2W	ERQ12HKR33	-	X2102	Trap	EFCS4R5MW5BA	4.5MHz				
R758	27 5% 2W Fusible	ERQ2CJ270L	-	X2103	Filter	EFCKM1958M	SAW				
# R802	1.5 5% 15W	TAR26FJ1R5Z	-	X7101	Crystal	EF0EC4004T4	-				
# R810, 11, 19	.22 5% 1/2W	ERX12SJR22	-		Antenna Switch	ENPE627	-				
# R830	8.2M 20% 1/2W	ERC12ZGM825	-		Fuse Holder	XCST13301	For F2801 (2 Used)				
# R835, 36	1 5% 1W	ERX1SJ1R0	-		PC Board	TXANP1A0RV	A				
# R841	.39 5% 1W	ERX1SJR39	-		PC Board	TNPH0121AG	B				
# R861	.22 10% 1/2W	ERQ12HKR22	-		PC Board	TNPA1513	C				
R1554	27.4K 1% 1/4W	ER0S2CKF2742	-		PC Board	TNPA0609AB	D				
R1555	2740 1% 1/4W	ER0S2CKF2741	-		PC Board	TNP2AA056AA	F2				

QUASAR

MODEL SR5133B (CHASSIS LP816)