

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.

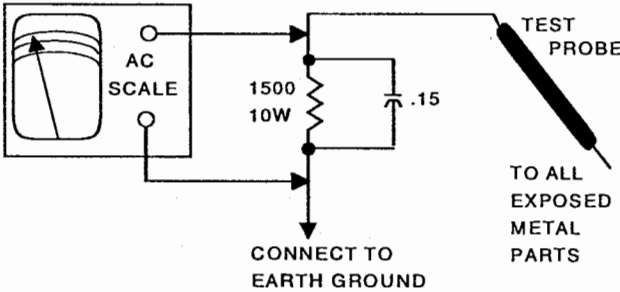
SAFETY CHECKS — FIRE AND SHOCK HAZARD

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

Set all customer controls for normal picture. Check for 11.4V at TP653. Using an external power supply, apply 13.8V to TP653. The receiver should shut down. If the receiver fails to shut down, the high voltage shutdown circuit requires repair. To return to normal operation, remove AC power and momentarily place a short between TP651 and TP652. Restore AC power and check receiver for proper operation.

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.

Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein.

© 2005 SAMS Technical Publishing, LLC

9850 E. 30th St.  
Indianapolis IN 46229  
www.samswebsite.com

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

05PF03192



SET 5024

MODELS 27J-S200, 27J-S300, CJ27S18/S20/S30

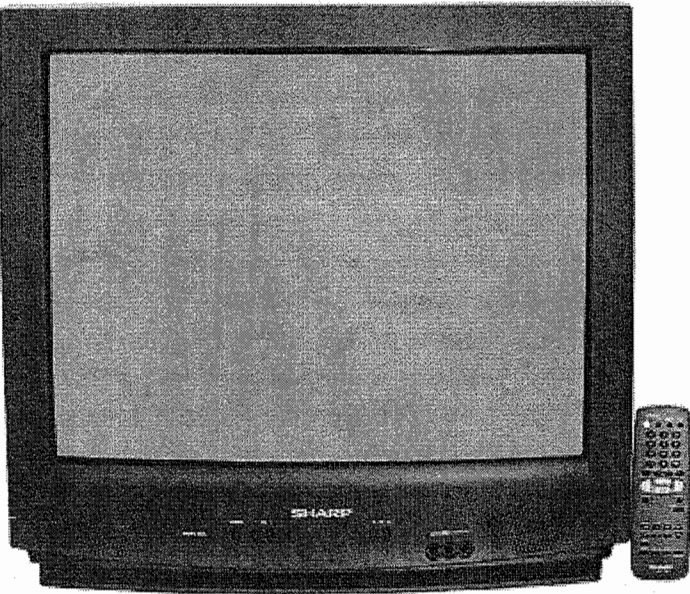
SHARP

INDEX

High Voltage Shutdown Test ..... 1  
Important Parts Information ..... 1  
Miscellaneous Adjustments ..... 1  
Parts List ..... 4  
Placement Chart ..... 1  
Safety Precautions ..... 1  
Schematic Component Location ..... 1  
Schematic Notes ..... 2  
Schematics  
    Audio ..... 2  
    Power Supply ..... 2  
    System Control ..... 3  
    Television ..... 2  
    Video Switching/PIP ..... 3  
Service Mode Adjustment Chart ..... 1  
Test Equipment ..... 1  
Tuner Information ..... 1

SHARP

Models 27J-S200, 27J-S300, CJ27S18/S20/S30



Representative Model

Essential coverage  
for servicing a television receiver...

- Schematics
- Component locations
- Parts list



For a Complete List of Manuals,  
Visit [www.samswebsite.com](http://www.samswebsite.com)

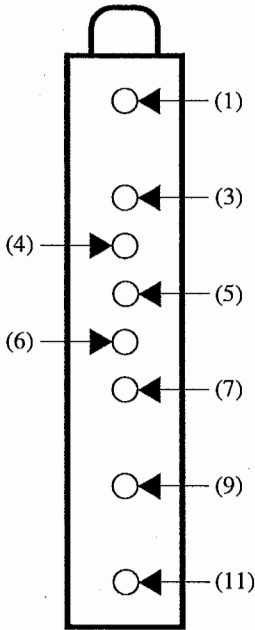
TUNER INFORMATION

TUNER VOLTAGE CHART

Pin	VHF Low Band	VHF High Band	UHF Band
(1) AGC	3.9V	4.3V	4.1V
(3) VT	0V	0V	0V
(4) CLK (SCL)	4.5V	4.5V	4.5V
(5) DATA (SDA)	4.5V	4.5V	4.5V
(6) 9V	9.0V	9.0V	9.0V
(7) 5V	5.1V	5.1V	5.1V
(9) 33V (BT)	31.5V	31.5V	31.5V
(11) IF	0V	0V	0V

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

TUNER TERMINAL GUIDE



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

Participating Vendors

Information on test equipment and replacement parts is listed in these pages for the following participating vendors.

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

MISCELLANEOUS ADJUSTMENTS

HIGH VOLTAGE CHECK

Tune in a picture. Set brightness, color, picture, and screen control to minimum. Connect a high voltage probe to CRT anode. High voltage should measure 26kV to 27.5kV.

B+ ADJUST

Tune in a picture. Connect voltmeter to the cathode of D707. Check for 130V\* ±1V\*.

\* Taken from common tie point.

COLOR PURITY / CONVERGENCE

The CRT and yoke are bonded. Adjustment is not recommended.

ENTERING SERVICE MODE

Service Mode adjustments are required when IC201 and IC2101 are replaced. If CRT is replaced perform only adjustments relating to the CRT. If IC3001 is replaced perform only adjustments relating to audio.

Turn on receiver and use reset function in the video adjustment menu to ensure that customer controls are in their proper reset position. Remove AC power. Press and hold the channel up and volume up buttons on the receiver while restoring AC power. The Service Mode will now be displayed.

When in the Service Mode a letter S with a number is displayed in the upper left part of the screen and a data number is displayed in the upper center part of the screen. The channel number is displayed in the upper right part of the screen. The S number is the service adjustment and it is changed by pressing the channel up / down buttons on the receiver or remote transmitter. The data number is the present data value of the service adjustment and can be changed by pressing the volume up / down buttons on the receiver or remote transmitter. For a complete listing of the service adjustments, refer to the Service Mode Adjustment Chart.

EXIT SERVICE MODE

Turn off the power or unplug the receiver to exit Service Mode.

RESETTING TO INITIAL VALUES

The initial values are written to IC2101 by entering the Service Mode and pressing the channel up and down buttons on the receiver for more than two seconds.

RF AGC

Tune in a picture. Enter the Service Mode and select service number S08. Set the data value to a point where no snow (noise) appears in picture. Exit the Service Mode to select another channel. Check all channels for proper operation.

CAPTION POSITION

Enter the Service Mode and select service number S18. A black text box appears on screen. Adjust data value to center text box.

VCO

Connect a digital voltmeter to pin 44 of IC201 and ground. Tune in a local channel. Enter the Service Mode and select service number S10. Set the data value to obtain 2.2V on the digital voltmeter.

WHITE BALANCE

Operate the receiver for 15 minutes. Enter the Service Mode and select service number S03. Set the data value to 00. Set brightness for a visible raster. Alternately adjust data value of S14 and S15 until a good gray scale with normal white is obtained. Select service number S03. Set the data value for normal color level.

GRAY SCALE

Connect a digital voltmeter between TP852 and TP853 on the CRT board. Tune in an active channel. Set color, brightness, and picture to minimum. Enter the Service Mode and select service number S04 and adjust the data value to obtain .26V on the digital voltmeter. Adjust screen control, if necessary, to obtain a barely visible raster. Adjust service numbers S11, S12, S13, for a good gray scale with normal white at high and low brightness. Set color to midrange. Adjust screen control for normal brightness.

MTS ADJUSTMENTS

MTS Level

Connect an MTS/TV stereo generator to the antenna input jack. Select pilot, 300Hz audio frequency, and right modulating signal. Enter the Service Mode and select M01. Connect an oscilloscope to pin 39 of IC3001. Adjust the data value for 1.4Vp-p.

Stereo VCO

Disconnect the antenna. Connect a 100µF 50V electrolytic capacitor to pin 14 of IC3001 and ground. Enter the Service Mode and select M02. Connect a frequency counter to pin 39 of IC3001. Adjust the data value for 62.94kHz ±750Hz.

Separation

Connect an MTS/TV stereo generator to the antenna input jack. Select pilot, 300Hz audio frequency, and right modulating signal. Enter the Service Mode and select M04. Connect an oscilloscope to pin 40 of IC3001. Adjust the data value for minimum amplitude of the waveform. Select 8kHz audio frequency on the generator. Select M05 and adjust the data value for minimum amplitude of the waveform.

Filter

Connect an MTS/TV stereo generator to the antenna input jack. Select pilot, 300Hz audio frequency, and L-R modulating signal. Enter the Service Mode, select M03 and set data value to 00. Increase the data value until OK appears on-screen. Note the data value. Increase the data value until OK disappears from the screen. Note the data value. Set the data value to the average of the noted data values.

SERVICE MODE ADJUSTMENT CHART

Service No.	Service Adjustment	Data Range	Data Initial Value	Notes
S01	Sub Picture	00 - 7F	55	Set brightness to minimum, picture to maximum. Adjust for normal contrast range.
S02	Sub Tint	00 - 7F	46	Adjust for normal flesh tones.
S03	Sub Color	00 - 7F	32	Adjust for normal color level.
S04	Sub Brightness	00 - 7F	40	Adjust for normal brightness level.
S05	Sharpness	00 - 3F	24	Adjust for proper sharpness of screen. Must be set to 24.
S06	Vertical Phase	00 - 07	00	Must be set to 00.
S07	Horizontal Phase	00 - 1F	12	Adjust for best horizontal centering on screen.
S08	RF AGC	00 - 3F	2A	00 produces black raster.
S09	Vertical Amp	00 - 3F	20	Adjust for proper vertical size with best linearity.
S10	VCO	00 - 7F	2C	-
S11	Red Cutoff	00 - FF	00	-
S12	Green Cutoff	00 - FF	00	-
S13	Blue Cutoff	00 - FF	00	-
S14	Green Gain	00 - FF	7F	-
S15	Blue Gain	00 - FF	7F	-
S16	3.58MHz Trap	00, 01	00	00 = On, 01 = Off. Must be set to 01.
S17	Balance	00 - 3F	20	Adjust for proper audio balance. Must be set to 20.
S18	CC Position	00 - 7F	18	Adjust to center the black box on the screen.
S19	Y-Mute	00, 01, 03	00	00 = Normal, 01 = No Y, and 03 = Vertical Collapse.
OP	Option	00 - FF	49 or 78	(1)(2)
M01	MTS Level	00 - 0F	0A	-
M02	Stereo VCO	00 - 3F	20	-
M03	Filter	00 - 3F	1C	-
M04	Low Separation	00 - 3F	20	-
M05	High Separation	00 - 3F	1B	-
P01 (3)	P in P Y-Level	00 - 7F	30	Adjust for normal contrast level.
P02 (3)	P in P Tint	00 - 3F	1B	Must be set to 1C.
P03 (3)	P in P Color	00 - 7F	29	Adjust for normal color level.
P04 (3)	P in P Y-Offset	00 - 1F	10	Must be set to 16.
P05 (3)	P in P H-Position	00 - FF	0B	Must be set to 0B.
P06 (3)	P in P Burst Gate Pulse	00 - 0F	09	Must be set to 09.

(1) Used in models 27J-S300 and CJ27S30, Must be set to 7E.

(2) Used in models 27J-S200, CJ27S18, and CJ27S20, Must be set to 7F.

(3) Used in models 27J-S300 and CJ27S30.

SCHEMATIC COMPONENT LOCATION GUIDE

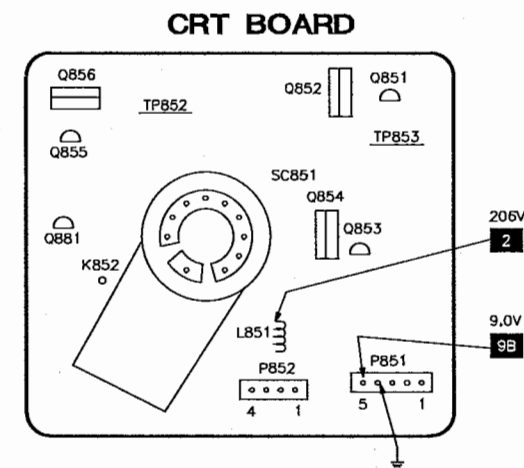
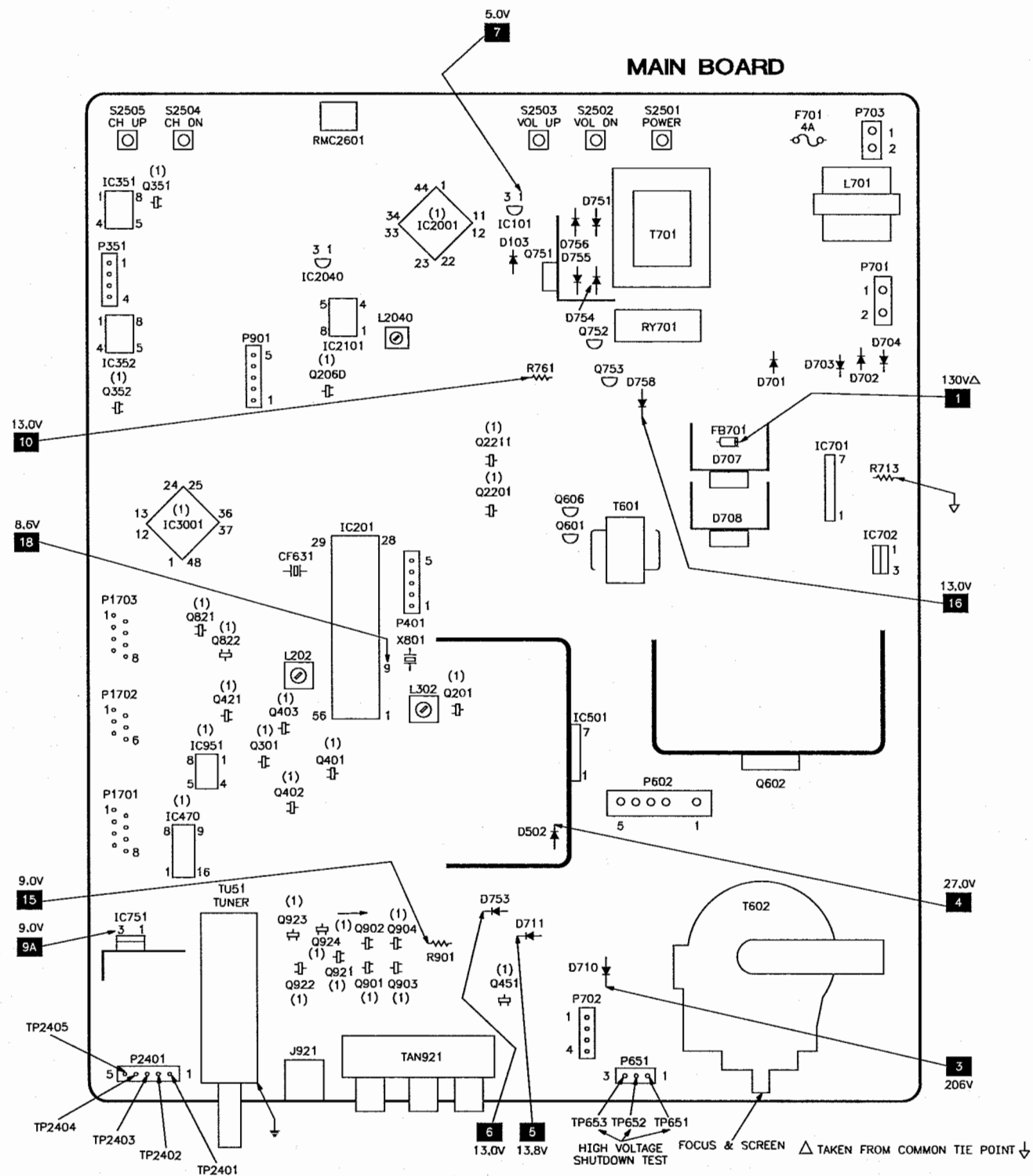
ACC701	A17	C709	B23	C1824	E20	D708	B22	Q402	B5	R415	B13	R823	D35	R1735	D39	R2213	C45
C51	C1	C710	B22	C1825	B44	D709	C21	Q403	B6	R420	C39	R824	D35	R1736	D40	R2255	D45
C53	C2	C711	B22	C1826	A43	D710	C23	Q421	B36	R421	B35	R825	D35	R1737	D40	R2401	C47
C54	C1	C712	B22	C1827	A43	D711	D21	Q451	E12	R423	C35	R826	D36	R1738	D40	R2402	B47
C55	A1	C713	A24	C1828	C44	D751	C18	Q601	E4	R424	C36	R827	D36	R1741	B40	R2403	B47
C56	B48	C714	C22	C1829	C44	D752	C19	Q602	E5	R425	B36	R828	D36	R1742	B40	R2404	D47
C57	C48	C715	C21	C1832	B44	D753	D22	Q606	E3	R451	E11	R829	D36	R1743	B40	R2501	B45
C103	D22	C717	C21	C1833	E20	D754	C18	Q751	C19	R452	E11	R851	A14	R1745	B41	R2503	B45
C201	B1	C721	D24	C1834	E20	D755	C18	Q752	B18	R453	E11	R852	A14	R1746	B41	R2504	B45
C202	B2	C722	D21	C1837	B41	D756	C18	Q753	B19	R454	E11	R853	A14	R1748	A39	R2505	B45
C203	B2	C751	C19	C1838	D41	D757	B18	Q754	C35	R455	E12	R855	A15	R1749	B40	R2506	B45
C204	C3	C753	C18	C1839	D41	D758	B20	Q821	D35	R456	D12	R856	A15	R1757	E19	R2507	B46
C205	B3	C754	D19	C1840	A42	D760	C20	Q822	D36	R457	E12	R857	A15	R1773	D39	R2508	B45
C206	C18	C756	C19	C2001	D46	D761	C19	Q851	A14	R458	E1	R858	A16	R1801	D43	R2509	B45
C207	C18	C759	C35	C2002	B46	D881	C13	Q852	A15	R459	E1	R859	C14	R1802	D43	R2601	A45
C208	C11	C801	C12	C2020	D46	D882	C13	Q853	C14	R466	A16	R860	C14	R1803	D43	R3001	A25
C209	B11	C802	C12	C2040	D24	D884	C13	Q854	C15	R467	A16	R861	C14	R1804	D43	R3002	A25
C210	B2	C803	B10	C2041	B46	D921	A34	Q855	B14	R468	A16	R863	C15	R1805	B43	R3003	C25
C301	A3	C804	B11	C2060	D46	D922	B34	Q856	B15	R501	D5	R864	C15	R1807	E42	R3004	C25
C302	B4	C805	B12	C2061	D45	D1752	E19	Q881	C14	R502	D5	R865	C15	R1808	E41	R3005	D26
C303	A5	C806	B12	C2062	D24	D1801	B43	Q901	B31	R503	D5	R866	C15	R1809	D41	R3007	D27
C307	A5	C807	B9	C2201	C45	D1802	C41	Q902	B30	R504	D4	R867	B14	R1810	E40	R3008	D27
C308	B5	C821	D34	C2211	C45	D2001	C46	Q903	E31	R505	D4	R868	B14	R1811	E41	R3010	E27
C309	C19	C822	D35	C2601	A45	D3201	B28	Q904	E30	R506	D5	R869	B14	R1812	E40	R3011	B25
C351	A31	C823	D35	C2602	A46	D3202	B28	Q921	A34	R510	D6	R871	B15	R1813	E40	R3012	B25
C352	B31	C824	D36	C3001	C25	D3203	C28	Q922	B35	R511	D23	R872	B15	R1814	E40	R3013	B25
C353	A32	C825	D18	C3002	C25	D3204	C28	Q923	A36	R512	D7	R873	B15	R1815	E41	R3014	C25
C354	A32	C826	D37	C3003	C25	DL421	B36	Q924	A36	R513	D6	R874	B15	R1816	E40	R3016	C33
C355	A31	C829	D18	C3004	A25	DY601	D7	Q1701	A40	R516	D6	R881	C13	R1817	D40	R3017	B25
C356	C31	C851	B14	C3005	A25	F701	A18	Q1730	D38	R517	D6	R882	C13	R1819	B42	R3018	B25
C357	D31	C852	C14	C3006	A25	FB601	E5	Q1731	D39	R518	D6	R883	C14	R1821	B42	R3201	B27
C358	C32	C853	B14	C3007	E26	FB701	A22	Q1732	D40	R521	D6	R884	C14	R1822	B44	R3202	B27
C359	C32	C854	D16	C3008	D19	FB702	B22	Q1741	B41	R551	D4	R895	C15	R1823	C44	R3203	B27
C360	C31	C883	C14	C3009	D19	IC101	D22	Q1742	B39	R552	D3	R901	D19	R1824	E44	R3204	B27
C361	C20	C901	B30	C3010	C25	IC201	A30	Q1752	E19	R553	D3	R903	B30	R1825	C41	R3205	B27
C362	D31	C902	D20	C3011	B26	IC201	A4	Q1802	E42	R554	D4	R904	B30	R1829	B41	R3206	C27
C401	B6	C903	E30	C3012	D26	IC201	B11	Q1803	E40	R601	E4	R905	B30	R1832	A10	R3207	C27
C402	B6	C908	A30	C3013	D26	IC201	B3	Q1804	E40	R602	E4	R906	B31	R1881	D41	R3208	C27
C403	C38	C909	C30	C3014	D26	IC201	C39	Q1831	A10	R603	E4	R907	B30	R1882	D41	R3209	C27
C404	D19	C910	B31	C3015	C27	IC201	D1	Q2060	D45	R604	E5	R908	B31	R1884	C41	R3210	C27
C405	C12	C911	D31	C3016	E26	IC351	A31	Q2201	C45	R605	D7	R910	E30	R2001	E47	R3211	C28
C406	C12	C922	B31	C3017	D27	IC352	C31	Q2211	C45	R606	E3	R911	E30	R2002	E47	R3212	C28
C407	C39	C923	E31	C3018	E26	IC421	B37	Q2250	D45	R608	E3	R912	E30	R2003	E47	R3213	C28
C408	B13	C925	A34	C3019	B25	IC501	D4	Q3201	B27	R609	E5	R913	E31	R2004	C47	R3214	B28
C409	B3	C926	A35	C3020	B25	IC701	B21	Q3202	C27	R610	E5	R914	E30	R2006	D47	R3215	C28
C410	B10	C927	B34	C3021	B25	IC702	C22	Q3203	C28	R611	E3	R915	E31	R2008	C46	R3216	B28
C411	D19	C928	A35	C3022	B25	IC751	D17	Q3204	C28	R630	D37	R922	B32	R2008	D45	R3217	B28
C412	D19	C929	A36	C3201	B27	IC821	D37	R51	C2	R631	D3	R923	E32	R2009	B46	R3218	A27
C413	D19	C930	D19	C3202	B27	IC951	B35	R52	A1	R632	D1	R924	B34	R2010	B2	R3219	B29
C422	D19	C931	B32	C3203	C27	IC1701	A38	R53	C2	R633	D1	R925	B25	R2011	E46	R3220	B29
C423	B36	C932	E32	C3204	C27	IC1751	D18	R54	B48	R634	E2	R926	B25	R2012	E46	R3221	B27
C424	B37	C951	B34	C3205	B28	IC1801	C43	R55	C48	R651	E2	R927	B33	R2020	D47	RMC2601	A45
C425	B36	C952	C35	C3206	C28	IC2001	A46	R56	C2	R652	E2	R928	A33	R2022	D47	RR2068	D47
C426	D19	C953	C34	C3207	A27	IC2040	B45	R57	C2	R653	E2	R929	A34	R2023	D45	RY701	A18
C451	E11	C954	B34	C3208	B27	IC2101	C47	R83	B34	R654	E2	R930	A34	R2024	A47	RY701	B19
C452	E12	C955	C35	C3209	B29	IC3001	A26	R201	B1	R655	D2	R931	A34	R2025	A47	S501	D6
C453	C23	C1553	E19	C3210	B29	IC3201	A28	R202	B1	R701	B20	R932	A35	R2026	A47	S2501	A46
C454	E12	C1701	A38	C3211	A29	J921	A37	R203	B1	R702	A19	R933	A35	R2027	A47	S2502	A45
C502	D6	C1702	A35	CF301	A3	J1001	C33	R204	B2	R704	A21	R934	B35	R2028	C46	S2503	A45
C504	C5	C1703	B38	CF302	A4	J1002	B25	R205	B2	R705	A21	R935	B34	R2029	E47	S2504	A45
C505	D4	C1704	A39	CF401	B5	J1003	B25	R206	B2	R706	A21	R936	B35	R2030	D46	S2505	B45
C507	D4	C1705	D19	CF631	D3	L201	B2	R207	C18	R707	A21	R937	B35	R2031	D46	SF201	B2
C508	D5	C1706	A40	CF2040	E45	L202	A3	R208	B11	R708	B23	R938	A35	R2032	D47	SP1	A32
C509	D5	C1731	D39	D51	C1	L301	B4	R301	B4	R709	B22	R939	A36	R2040	C46	SP2	C32
C510	D24	C1732	D39	D52	C2	L302	A5	R302	A4	R710	B22	R940	A35	R2041	B46	T601	E5
C511	D7	C1741	B40	D103	D22	L401	B5	R303	A5	R711	C22	R941	A35	R2042	B46	T602	A21
C512	D6	C1742	B40	D401	D11	L402	B6	R304	A5	R712	C21	R942	A36	R2043	C46	T602	D10
C513	D6	C1743	B40	D402	D11	L403	B6	R305	A6	R713	B23	R943	A36	R2044	C47	T602	D21
C514	D6	C1751	D19	D421	D37	L404	B6	R306	A6	R714	D9	R951	C34	R2045	C47	T701	C17
C551	D3	C1752	E19	D451	E11	L601	D7	R351	A30	R715	A20	R952	B34	R2046	A46	TAN921	B25
C552	B11	C1773	D39	D452	E11	L701	A18	R352	A31	R716	B21	R953	C35	R2047	B47	TAN921	B25
C603	E4	C1801	D42	D453	E12	L702	A19	R353	A32	R717	C21	R954	C34	R2048	B47	TAN921	B32
C604	B20	C1802	C42	D454	E11	L821	D35	R354	B31	R718	C23	R955	C34	R2050	D45	TAN921	B34
C607	E6	C1804	D43	D455	D12	L851	C24	R355	C30	R719	D21	R956	B34	R2060	B47	TAN921	E32
C608	E6	C1805	D43	D456	E12	L1701	A39	R356	C31	R751	C19	R957	B34	R2061	B47	V101	B16
C612	D7	C1806	D43	D457	E1	L1801	D42	R357	C32	R752	B18	R958	B35	R2062	C45	X801	B10
C614	D7	C1807	D43	D501	D4	L1802	C42	R358	D31	R754	B19	R959	C35	R2063	D46	X1801	D43
C627	D36	C1808	D43	D502	D23	L1803	D43	R401	B4	R755	D17	R960	C35	R2064	D45		
C631	D1	C1809	D43	D503	B20	L1804	C44	R402	B5	R757	B19	R961	A13	R2065	C46		
C632	D1	C1810	D43	D631	E2	L1805	D44	R403	B5	R759	C35	R962	A13	R2069	C47		
C633	E1	C1811	D44	D651	E2	L1806	E19	R404	B6	R760	C20	R1701	A37	R2070	D47		
C652	E2	C1812	E43	D652	D2	L1810	E19	R405	B6	R761	C19	R1702	A35	R2071	E47		
C653	D2	C1813	E41	D653	D2	L2001	D17	R406	B6	R766	C19	R1703	A38	R2072	E47		
C701	A18	C1814	D44	D654	D2	L2002	E17	R407	B6	R801	C12	R1704	A40	R2073	D47		

## PLACEMENT CHART

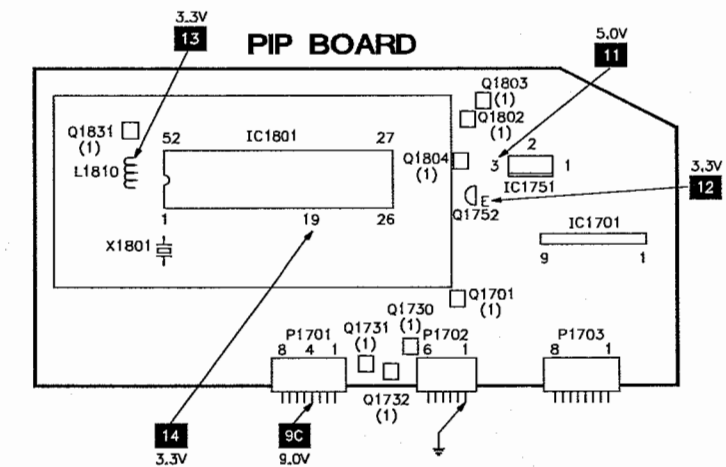
## TEST EQUIPMENT

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



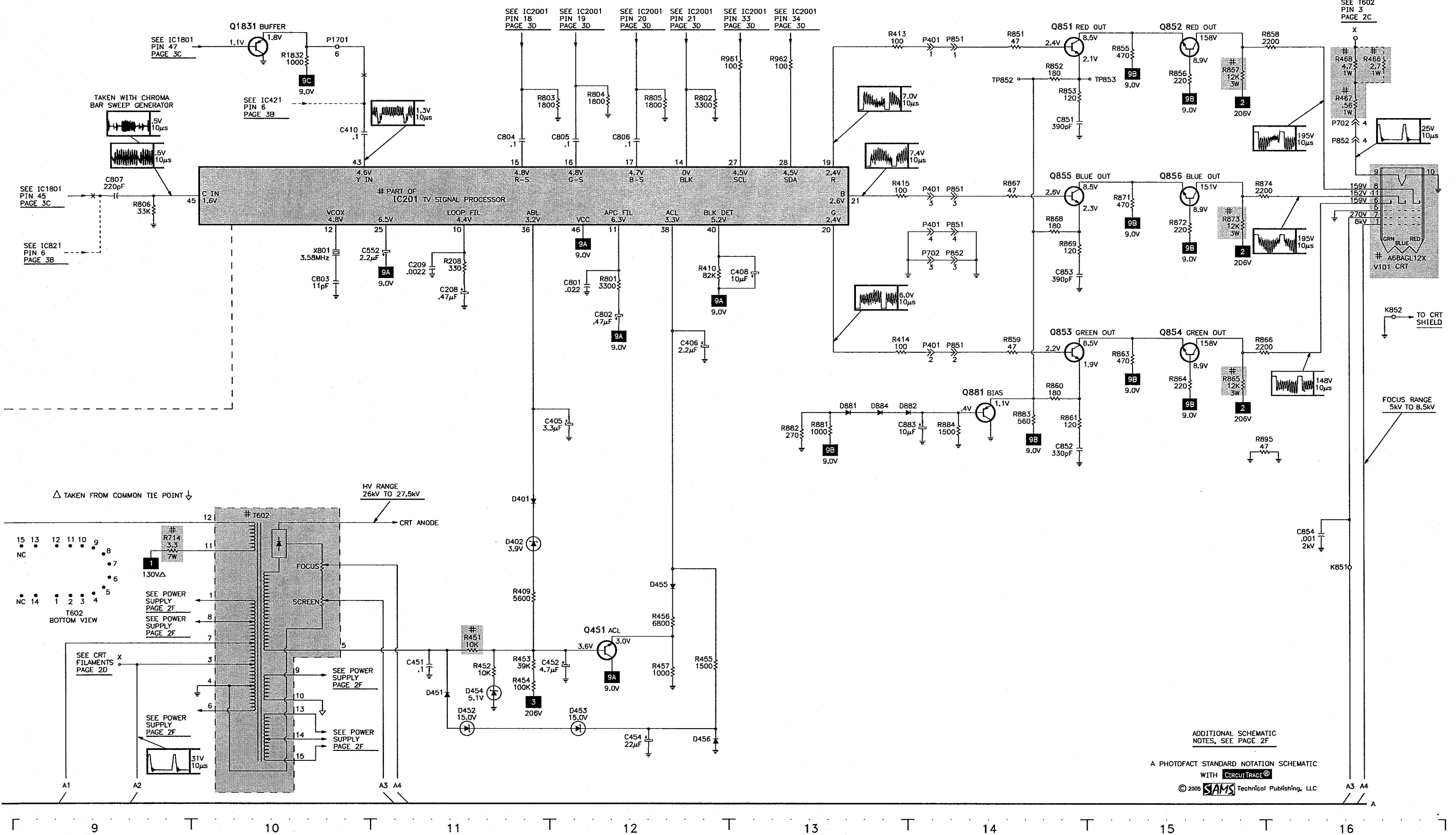
(1) LOCATED ON BOTTOM OF BOARD



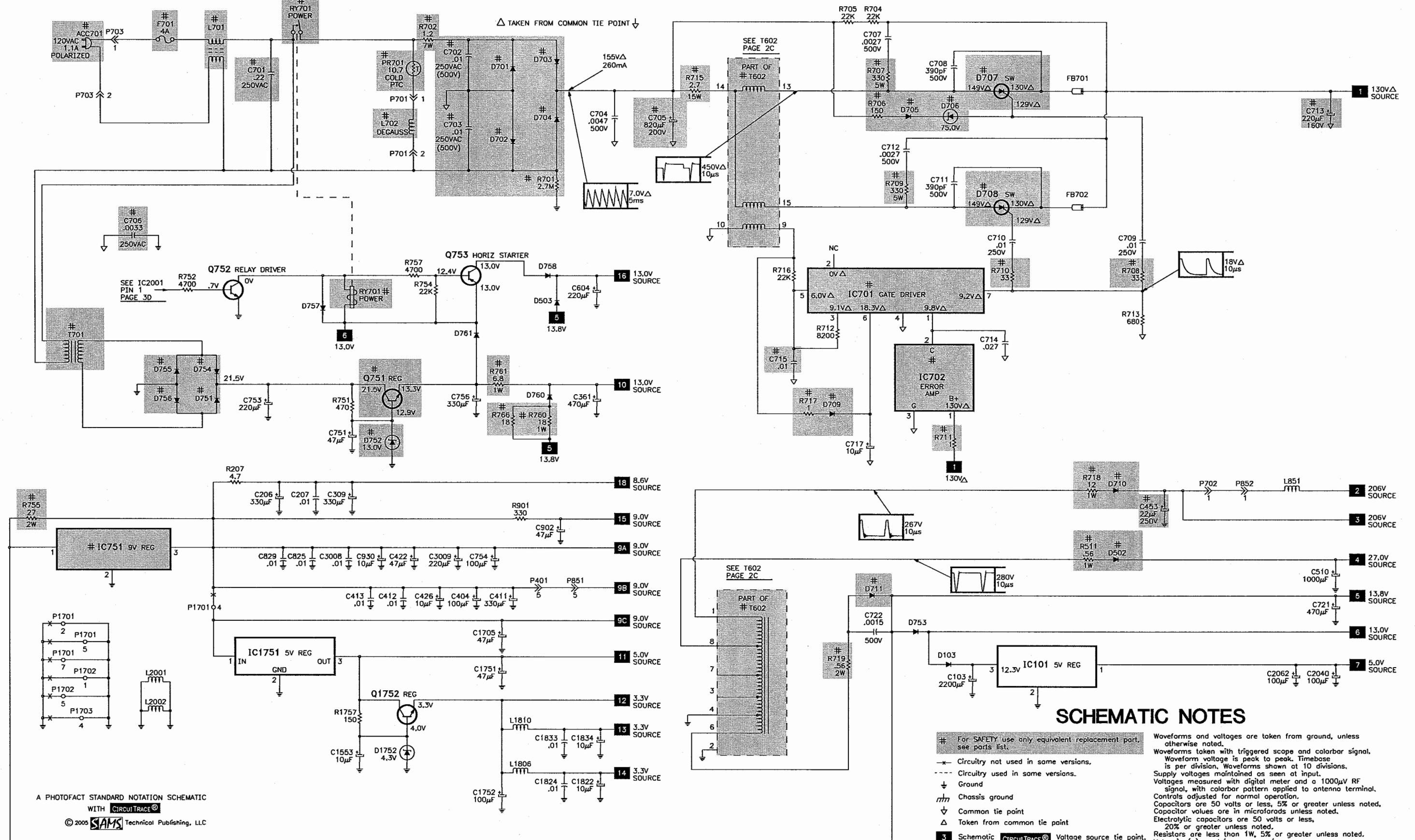


**A**





# POWER SUPPLY SCHEMATIC



## 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
  - Δ Taken from common tie point
  - 3 Schematic 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 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. Copacitor values are in microfarads unless noted. Electrolytic capacitors are 50 volts or less, 20% or greater unless noted. Resistors are less than 1W, 5% or greater unless noted. Value in ( ) used in some versions. Measurements with switching as shown unless noted. Rotted voltage shown on zener diodes.

## 4



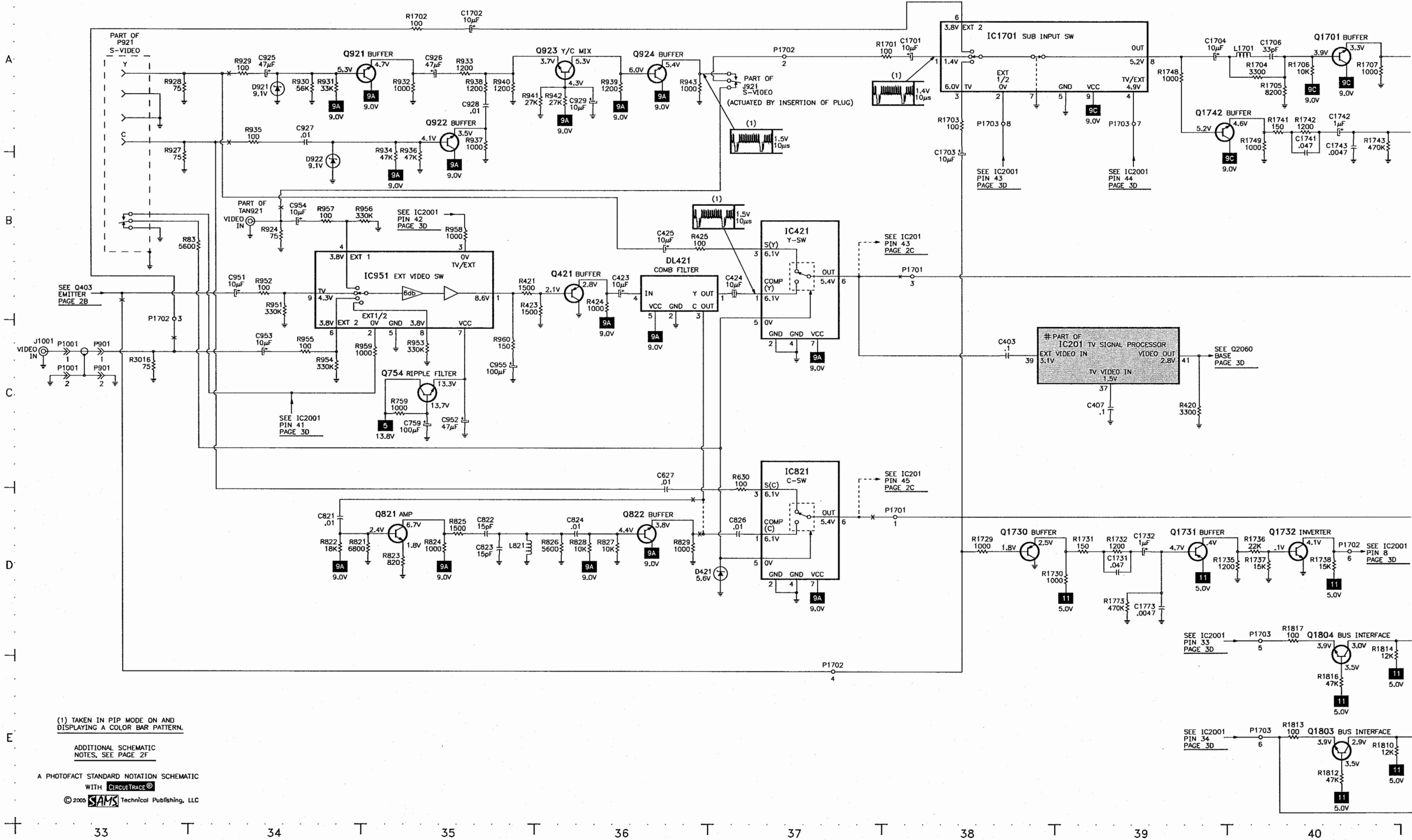
© 2005 **SAMS** Technical Publishing



A

B

VIDEO SWITCHING/PIP SCHEMATIC



(1) TAKEN IN PIP MODE ON AND  
DISPLAYING A COLOR BAR PATTERN.

ADDITIONAL SCHEMATIC  
NOTES, SEE PAGE 2F

A PHOTOFAC STANDARD NOTATION SCHEMATIC  
WITH CIRCUITTRACE

© 2005 SAMS Technical Publishing, LLC

**C**



D



PARTS LIST

Item No.	Type No.	Mfr. Part No.	NTE Part No.
D51	-	RH-EX0293CEZZ	-
D52	-	RH-EX0701GEZZ	-
D103	1SS119	VHD1SS119//-1	NTE519
D401	1SS119	VHD1SS119//-1	NTE519
D402	-	RH-EX0604GEZZ	-
D421	-	RH-EX0296CEZZ	NTE5011T1
D451	1SS119	VHD1SS119//-1	NTE519
D452, 53	-	RH-EX0217CEZZ	NTE5024A
D454	-	RH-EX0293CEZZ	-
D455, 56	1SS119	VHD1SS119//-1	NTE519
D457	-	RH-EX0313CEZZ	NTE139A
D501	1N4002	RH-DX0441CEZZ	NTE116
# D502	EU-1	RH-DX0131CEZZ	NTE552
D503	1N4002	RH-DX0441CEZZ	NTE116
D631	-	RH-EX0312CEZZ	NTE5018A
# D651	EU-1	RH-DX0131CEZZ	NTE552
# D652	-	RH-EX0655CEZZ	NTE5018A
# D653, 54	1SS119	VHD1SS119//-1	NTE519
# D701 Thru			
# D704	1S1887A	RH-DX0154CEZZ	NTE552
# D705	1SS119	VHD1SS119//-1	NTE519
# D706	-	RH-EX0238CEZZ	NTE5093A
# D707, 08	S6785G	VHSS6785GLB2E	NTE5424%
# D709, 10	EU-1	RH-DX0131CEZZ	NTE552
# D711	-	RH-DX0444CEZZ	-
# D751	1N4002	RH-DX0441CEZZ	NTE116
# D752	-	RH-EX0019TAZZ	NTE5022A
# D753 Thru			
# D756	1N4002	RH-DX0441CEZZ	NTE116
D757	1SS119	VHD1SS119//-1	NTE519
D758, 60, 61	1N4002	RH-DX0441CEZZ	NTE116
D881, 82, 84	1SS119	VHD1SS119//-1	NTE519
D921, 22	-	RH-EX0313CEZZ	NTE139A
D1752	-	RH-EX0287CEZZ	-
D1801, 02	1SS119	VHD1SS119//-1	NTE519
D2001	1SS119	VHD1SS119//-1	NTE519
D3201 Thru			
D3204	1SS119	VHD1SS119//-1	NTE519
IC101	KiA78S05P	VHiKA78S05P-1	-
# IC201	TA1201CN	RH-iX2701CEN1	-
IC351, 52	TDA7233	VHiTDA7233/-1	-
IC421	TA7347P	VHiTA7347P/-1	NTE1873
# IC501	TA8427K	VHiTA8427K/-1	-
# IC701	T8150	RH-iX0758CEZZ	-
# IC702	T8889A	VHiT8889A//-1	-
# IC751	KiA7809Pi	VHiKA7809Pi-1	NTE1966
IC821	TA7347P	VHiTA7347P/-1	NTE1873
IC951	LA7956	VHiLA7956//-1	-
IC1701	TA7348P	VHiTA348P/-1	NTE1826
IC1751	KiA7805Pi-1	VHiKA7805Pi-1	NTE1960
IC1801	M65617SP	VHiM65617SP-1	-
IC2001	TMPA8701CkF108	RH-iX2946CEZZ	-
IC2040	KiA7045P	VHiKiA7045P-1	-
IC2101	ST24C01B6	RH-iX2447CEN1	-
IC3001	CXA2053Q/	VHiCXA2053Q-1	-
IC3201	M5222P	VHiM5222P//-1	-
Q201	2SC2735	VS2SC2735//1E	NTE2402
Q301, 51, 52	2SD601	VS2SD601AR/-1	NTE2408
Q401	2SD601	VS2SD601AR/-1	NTE2408
Q402	2SB709	VS2SB709AR/-1	NTE2409
Q403	2SD601	VS2SD601AR/-1	NTE2408
Q421	2SB709	VS2SB709AR/-1	NTE2409

Item No.	Type No.	Mfr. Part No.	NTE Part No.
Q451	2SD601	VS2SD601AR/-1	NTE2408
Q601	2SC2655(Y)	VS2SC2655Y/-1	NTE293
# Q602	2SD1556	VS2SD1556//1E	NTE2331
	2SD2539	VS2SD2539//1E	NTE2353
Q606	2SC3198(Y)	VS2SC3198-Y-1	NTE85
# Q751	2SC1983	VS2SC1983//-2	NTE56
Q752	2SC3198	VS2SC3198-Y-1	NTE85
Q753	2SA1013	VS2SA1013//1E	NTE32
Q754	2SD601	VS2SD601AR/-1	NTE2408
Q821, 22	2SD601	VS2SD601AR/-1	NTE2408
Q851	2SC3198(Y)	VS2SC3198-Y-1	NTE85
Q852	2SC3619	VS2SC3619LB1E	NTE2501
Q853	2SC3198(Y)	VS2SC3198-Y-1	NTE85
Q854	2SC3619	VS2SC3619LB1E	NTE2501
Q855	2SC3198(Y)	VS2SC3198-Y-1	NTE85
Q856	2SC3619	VS2SC3619LB1E	NTE2501
Q881	2SA1266(Y)	VS2SA1266-Y-1	NTE290A
Q901 Thru			
Q904	2SD601	VS2SD601AR/-1	NTE2408
Q921 Thru			
Q924	2SD601	VS2SD601AR/-1	NTE2408
Q1701	2SD601(AR)	VS2SD601AR/-1	NTE2408
Q1730, 31	2SB709(AR)	VS2SB709AR/-1	NTE2409
Q1732	2SD601(AR)	VS2SD601AR/-1	NTE2408
Q1741	2SB709(AR)	VS2SB709AR/-1	NTE2409
Q1742	2SD601(AR)	VS2SD601AR/-1	NTE2408
Q1752	2SC1959	VS2SC1959Y/1E	NTE85
Q1802, 03, 04	2SD601(AR)	VS2SD601AR/-1	NTE2408
Q1831	2SB709(AR)	VS2SB709AR/-1	NTE2409
Q2060	2SD601	VS2SD601AR/-1	NTE2408
Q2201, 11	2SD601	VS2SD601AR/-1	NTE2408
Q2250	-	-	-
Q3201 Thru			
Q3204	2SD601	VS2SD601AR/-1	NTE2408

Item No.	Function/Rating	Mfr. Part No.	Notes
# ACC701	Line Cord	QACCD3036CESA	AC, Polarized
C424	10µF 20% 16V NP	VCE9GA1CW106M	-
# C453	22µF 20% 250V	VCEAGAEW226M	-
C514	.68µF 10% 35V Tantalum	VCSATA1VE684K	-
C551	2.2µF 10% 16V Tantalum	VCSATA1CE225K	-
# C607, 08	.0062 1.6kV	VCFPPD3CA622H	-
# C701	.22 250VAC	RC-FZ017SCEZZ	-
# C702, 03	.01 250VAC	RC-KZ0029CEZZ	-
	.01 500V	VCKYPB2HE103P	-
# C704	.0047 500V	VCKYPA2HB472K	-
# C705	820µF 200V	RC-EZ0395CEZZ	-
# C706	.0033 250VAC	RC-KZ0092GEZZ	-
# C713	220µF 160V	VCEAGW2CW227M	-
# C715	.01 10% 50V	RC-QZA103TAYK	-
C854	.001 2kV	RC-KZ0024CEZZ	-
	.0047 2kV	VCKYPB3DE472Z	-
C3001	4.7µF 20% 50V NP	VCE9GA1HW475M	-
C3010, 12	4.7µF 20% 50V NP	VCE9GA1HW475M	-
C3015	3.3µF 10% 16V Tantalum	VCSATA1CE335K	-
C3016	4.7µF 20% 50V NP	VCE9GA1HW475M	-
C3017	10µF 10% 16V Tantalum	VCSATA1CE106K	-
CF301	Filter	RFILC0029TAZZ	4.5MHz
CF302	Filter	RFILC0267CEZZ	4.5MHz
CF401	Trap	RFILC0013CEZZ	4.5MHz
CF631	Crystal	RFILA0034CEZZ	503kHz

PARTS LIST continued

Item No.	Function/Rating	Mfr. Part No.	Notes
CF2040	Filter	RFiLC0121GEZZ	-
DL421	Comb Filter	RCiLZ0938CEZZ	-
# DY601 (11)	Yoke	RCiLH0097MEZZ	-
# DY601 (12)	Yoke	RCiLH0098MEZZ	-
# F701	Fuse	QFS-B4023CEZZ	4Amp, 125V
FB601	Ferrite Bead	RBLN-0037CEZZ	-
FB701, 02	Ferrite Bead	RBLN-0037CEZZ	-
FH701, 02	Fuse Holder	QFSHD1014CEZZ	For F701 (2 Used)
J921	Socket	QSOCD0427CEZZ	S-Video
J1001	Jack	QIAKE0053GEZZ	Video In
J1002	Jack	QIAKE0055GEZZ	Audio In Left
J1003	Jack	QIAKE0059GEZZ	Audio In Right
L201	1.2μH	VP-XF1R2K0000	-
L202	VCO	RCiLi0588CEZZ	-
L301	8.2μH	VP-XF8R2K0000	-
L302	SIF	RCiLi0605CEZZ	-
L401	6.8μH	VP-XF6R8K0000	-
L402	3.3μH	VP-XF3R3K0000	-
L403, 04	8.2μH	VP-XF8R2K0000	-
L601	Horizontal Linearity	RCiLZ0621CEZZ	-
# L701 (2)	-	RCiLF0087CEZZ	-
# L701 (3)	-	RCiLF0090CEZZ	-
# L702	Degaussing	RCiLG0029MEZZ	-
L821	-	-	-
L851	82μH	VP-MK820K0000	-
L1701	68μH	VP-XF680K0000	-
L1801	1.5μH	VP-XF1R5J0000	-
L1802	2.2μH	VP-XF2R2J0000	-
L1803 Thru			
L1806	10μH	VP-XF100K0000	-
L1810	10μH	VP-XF100K0000	-
L2001, 02	100μH	VP-XF101K0000	-
L2040	Oscillator	RCiLB0159CEZZ	-
# PR701	10.7 Cold PTC	RMPTP0026CEZZ	-
# R51	150 5% 2W	VRS-RG3DB151J	-
# R52	1 5% 1/8W	VRD-RA2BE1R0J	-
# R53	33K 5% 3W	VRS-RG3LB333J	-
# R451	10K 5% 1/2W	VRS-RG2HC103J	-
# R458	3300 5% 2W	VRS-RG3DB332J	-
# R466	2.7 5% 1W	VRN-RL3AB2R7J	-
# R467	.56 5% 1W	VRN-RL3ABR56J	-
# R468	4.7 5% 1W	VRN-RL3AB4R7J	-
R501	120K 2% 1/8W	VRD-RA2BE124G	-
R502	82K 2% 1/8W	VRD-RA2BE823G	-
# R511	.56 5% 1W	VRN-RL3ABR56J	-
# R512	390 5% 1W	VRS-RG3AB391J	-
R521	15K 2% 1/8W	VRD-RA2BE153G	-
# R603	18 5% 3W	VRS-RG3LB180J	-
	10 5% 3W	VRS-RG3LB100J	-
# R604	.56 5% 3W	VRN-RL3LBR56J	-
# R609	18 5% 3W	VRS-RG3LB180J	-
	10 5% 3W	VRS-RG3LB100J	-
# R610	.56 5% 3W	VRN-RL3LBR56J	-
# R651	27 5% 1/2W	VRS-RG2HC270J	-
# R652	1800 5% 1/8W	VRD-MN2BE821J	-
# R653	8200 1% 1/8W	VRN-RA2BK822F	-
# R654	6800 1% 1/8W	VRN-RA2BK682F	-
# R655	100K 5% 1/8W	VRS-CY1JF104J	-
# R701	2.7M 10% 1/2W	VRC-UA2HG275K	-
# R702	1.2 10% 7W	VRW-KQ3NC1R2K	-
# R706	150 5% 1/2W	VRS-RG2HC151J	-
# R707	330 10% 5W	VRW-KQ3HC331K	-

Item No.	Function/Rating	Mfr. Part No.	Notes
# R708	33 5% 1/2W	VRD-RM2HD330J	-
# R709	330 10% 5W	VRW-KQ3HC331K	-
# R710	33 5% 1/2W	VRD-RM2HD330J	-
# R711	1 5% 1/4W	VRN-GA2EB1R0J	-
# R714	3.3 10% 7W	VRS-KA3NG3R3K	-
# R715	2.7 10% 15W	VRW-KQ41C2R7K	-
# R717	1 5% 1/4W	VRN-GA2EB1R0J	-
# R718	12 5% 1W	VRS-RG3AB120J	-
# R719	.56 5% 2W	VRN-RL3DBR56J	-
# R755	27 5% 2W	VRS-RG3DB270J	-
# R760	18 5% 1W	VRS-RG3AB180J	-
# R761	6.8 5% 1W	VRN-RL3AB6R8J	-
# R766	18	-	-
# R857, 65, 73	12K 5% 3W	VRS-VV3LB123J	-
R3216, 17	10K 1% 1/16W	VRS-CY1JF103F	-
RMC2601	Receiver	RRMCU0053GEZZ	Remote
# RY701	Relay	RRLYU0038CEZZ	Power
S501	Vertical Linearity	QSW-B0015CEZZ	-
S2501	Switch	QSW-K0079GEZZ	Power
S2502	Switch	QSW-K0079GEZZ	Volume Down
S2503	Switch	QSW-K0079GEZZ	Volume Up
S2504	Switch	QSW-K0079GEZZ	Channel Down
S2505	Switch	QSW-K0079GEZZ	Channel Up
SC851	Socket	QSOCV0929CEZZ	CRT
SF201	Filter	RFiLC0405CEZZ	SAW
SP1, 2	Speaker	VSP0080PBK98A	8 Ohms
# T601	Horizontal Drive	RTRNZ0168CEZZ	-
# T602 (1)	Horizontal Output	RTRNF0020MEZZ	-
# T701 (2)	Power	RTRNP0416CEZZ	-
# T701 (3)	Power	RTRNP0516CEZZ	-
TAN921	Jack	QTANJ0523CEZZ	Assembly
# TU51	Tuner	VTU115B8025AT	-
# V101	CRT	VB68AGL12X/*S	A68AGL12X
# V101	CRT	VB68KRQ58X/*S	A68KRQ58X
X801	Crystal	RCRSB0001PEZZ	-
X1801	Crystal	RCRSB0241CEZZ	-
	Magnet	PMAGF3004MEZZ	-
	PC Board	DUNTK8604WEK8	CRT
	PC Board	DUNTK9310WEK1	Front AV
	PC Board (6)	DUNTK9254WEK7	Main
	PC Board (7)	DUNTK9254WEK9	Main
	PC Board (8)	DUNTK9254WEL5	Main
	PC Board (9)	DUNTK9254WEL6	Main
	PC Board (10)	DUNTK9254WEL8	Main
	PC Board (5)	DUNTK9255WEK0	PIP
	Transmitter (4)	RRMCG1325CESA	Remote
	Transmitter (5)	RRMCG1326CESA	Remote

# For SAFETY use only equivalent replacement part.

% Lead configuration may vary from original.

(1) Screen and focus controls are part of T602.

(2) Used in models 27J-S200 and 27J-S300.

(3) Used in models CJ27S18, CJ27S20, and CJ27S30.

(4) Used in models 27J-S200, CJ27S18, and CJ27S20.

(5) Used in models 27J-S300 and CJ27S30.

(6) Used in model 27J-S200.

(7) Used in model 27J-S300.

(8) Used in model CJ27S18.

(9) Used in model CJ27S20.

(10) Used in model CJ27S30.

(11) Used with CRT A68AGL12X, R466 not used, and R468 4.7 1W.

(12) Used with CRT A68KRQ58X, R466 2.7 1W, and R468 4.7 1W.