

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.

HIGH VOLTAGE SHUTDOWN TEST

Apply 120VAC, turn the receiver on, and set all customer controls for normal operation. Measure the voltage at TP7. Voltage should measure between 16.5V and 21.0V. If voltage exceeds this range the circuit must be repaired. Momentarily connect a jumper between TP7 and the cathode of D421. The receiver should lose raster and sound. If receiver does not lose raster and sound, the shutdown circuit should be repaired. To resume normal operation, remove AC power for 30 seconds and then restore AC power.

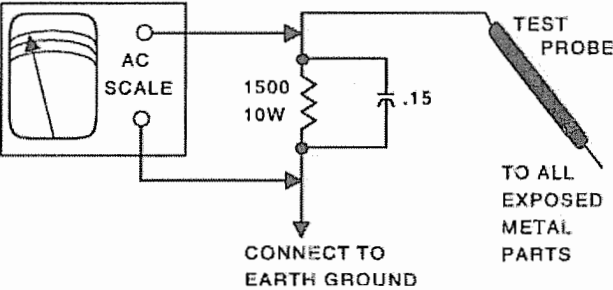
SAFETY CHECKS — FIRE AND SHOCK HAZARD

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

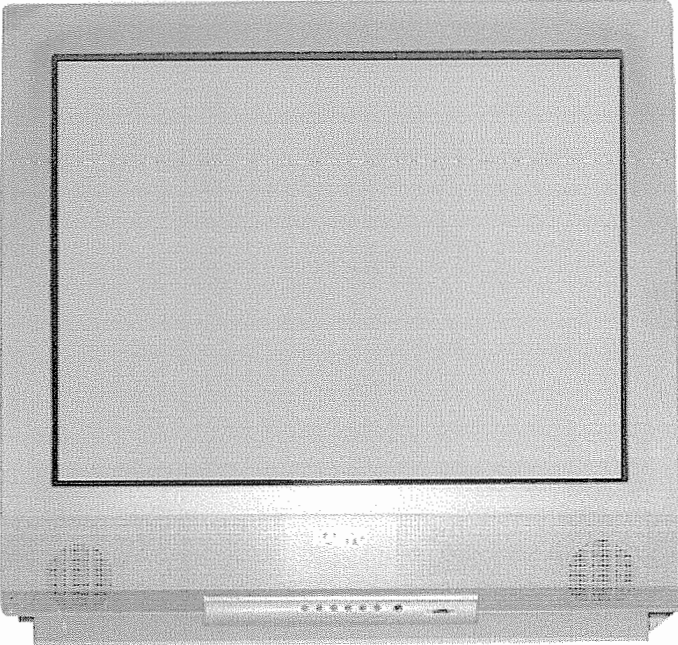
Plug the AC cord directly into an AC outlet. DO NOT use an isolation transformer. Use a 1500 ohms, 10W resistor in parallel with a .15µF capacitor to connect between any exposed metal parts on the receiver and a good earth ground. (See figure below.) Use an AC voltmeter with at least 5000 ohms per volt 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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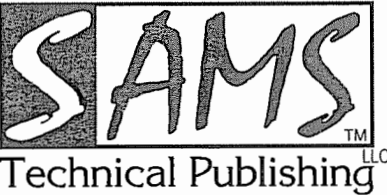
Model DS35520 (Chassis 35520-02/03)



Representative Model

Essential coverage  
for servicing a television receiver...

- Schematics
- Component locations
- Parts list



FEBRUARY 2006 SET 5110

SET 5110

MODEL DS35520 (CHASSIS 35520-02/03)

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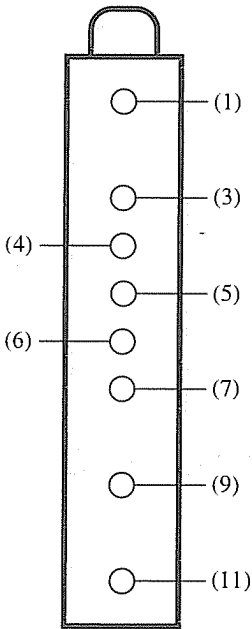
TUNER INFORMATION

TUNER VOLTAGE CHART

Pin	VHF Low Band	VHF High Band	UHF Band
(1) AGC	2.3V	2.4V	2.9V
(3) EN	0V	0V	0V
(4) CLK	4.3V	4.3V	4.3V
(5) DATA	4.2V	4.2V	4.2V
(6) MB	5.2V	5.2V	5.2V
(7) PB	5.2V	5.2V	5.2V
(9) TU-B	33.6V	33.6V	33.6V
(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



TEST EQUIPMENT

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

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

MISCELLANEOUS ADJUSTMENTS

B+ CHECK

Connect a digital DC voltmeter to the cathode of D625. Set brightness and picture to minimum. With AC line set to 120VAC, B+ should read 130V ±2.0V.

HIGH VOLTAGE CHECK

Tune in a picture. Set customer controls to minimum. Connect a high voltage probe to CRT anode. High voltage should measure 29.9kV to 34.6kV.

ENTERING SERVICE MODE

Disconnect the AC power cord. While pressing the menu button on the front of the set, connect the AC power cord. Use the channel up and down buttons to select the service number. Use volume up and down buttons to

MISCELLANEOUS ADJUSTMENTS continued

change the value. Press the menu button to exit the Service Mode.

HORIZONTAL WIDTH

Tune in a crosshatch pattern. Enter the Service Mode and select service item number 60 EWD. Adjust for the proper horizontal width.

HORIZONTAL POSITION

Tune in a crosshatch pattern. Enter the Service Mode and select service item number 41 VTR7HP. Adjust for the best horizontal centering.

VERTICAL SIZE

Tune in a crosshatch pattern. Enter the Service Mode and select service item number 42 VS. Adjust for proper vertical size and best vertical linearity.

VERTICAL CENTERING

Tune in a crosshatch pattern. Check that the pattern is centered. If too low, add resistor R513, 1000 ohms 1W. If too high, add resistor R512 1000 ohms 1/2W.

VCO

VCO must be adjusted after IC101, IC802, or T151 is replaced. Tune in a picture. Connect positive lead of a digital voltmeter to pin 58 of IC101 and the negative lead to TE7. Adjust T151 to obtain a reading of 3.6V ±.2V.

VIDEO LEVEL

Tune in a color bar pattern. Set picture and brightness to normal. Connect an oscilloscope to the emitter of Q202, and the negative lead to ground. Enter the Service Mode and select service number 5F VL5BPF. Adjust for 1.0Vp-p ±.1Vp-p waveform on the oscilloscope.

GRAY SCALE

Tune in a crosshatch pattern. Enter the Service Mode. Set the value of service number 4A RD and the value of service number 4C BD to 3A. Set the value of service numbers 47 RB, 48 GB, and 49 BB to 00. Set screen control, color, brightness, and picture to minimum. Select service number B0 BIAS. Adjust screen control, if necessary, to obtain a barely visible line. Adjust the bias levels for a white line. Select service number AF DRV and adjust the drive values for normal black and white picture at all brightness levels.

SUB BRIGHTNESS

Tune in a color bar pattern. Set picture and brightness to normal. Connect positive lead of a digital voltmeter to TP51 and the negative lead to TP50. Enter the Service Mode and select service number 3E SB. Adjust for 680mV.

SUB COLOR, SUB TINT, SUB SHARPNESS

Tune in a picture. Enter the Service Mode. Select service number 3C SCO. Adjust for normal color level. Select service number 3D STI. Adjust for normal flesh tones. Select service number 3F SSH. Adjust for best contrast range.

INPUT LEVEL

Set generator to 1kHz audio frequency and L-R modulating signal. Connect an oscilloscope to pin 38 of IC3401. Enter Service Mode and select the service item number 80 ATT. Adjust for .4Vp-p waveform.

SEPARATION

Set generator to pilot, 300Hz audio frequency, and left modulating signal. Connect an oscilloscope to pin 38 of IC3401 and ground. Enter the Service Mode and select service number 81 WDB. Adjust for minimum amplitude of the waveform. Set generator to 8kHz audio frequency. Select service number 82 SPC and adjust for minimum amplitude of the waveform.

CONVERGENCE / PURITY

The deflection yoke is bonded to the CRT. Convergence and purity adjustments are not required.

IC802 REPLACEMENT

Perform the following adjustments after replacing IC802. Disconnect the AC power cord. While pressing the menu button on the front of the set, connect the AC power cord. Select service number 3C SCO and set value to 1C. Select service number 3D STI and set value to 12. Select service number 3F SSH and set value to 05. Select service number 40 AFC6HFR and set value to BF. Select service number 42 VS and set value to 2E. Select service number 43 VSP7VPO and set value to 20. Select service number 44 CDM5UVL and set value to 15. Select service number 45 VC5LVL and set value to 27. Select service number 46 VSC and set value to 07. Select service number 4A RD and set value to 3A. Select service number 4C BD and set value to 3A. Select service number 4D SBI and set value to 3C. Select service number 50 OSD and set value to 0A. Select service number 54 FLS and set value to 83. Select service number 57 YGM6DCR4BSS2BSG and set value to 61. Select service number 58 AFC7CBP5 and set value to C0. Select service number 59 DIG6ABL5MSD4BAT and set value to 64. Select service number 5A RYA and set value to 00. Select service number 61 EWA and set value to 11. Select service number 62 EWT and set value to 26. Select service number 63 EWB4EWP and set value to 63. Select service number 65 BOW4ANG and set value to 98. Select service number 66 PRE6OVR4CTT and set value to 28. Select service number 67 HBL4HBR and set value to 39. Select service number 68 SSP5VM and set value to 8C. Select service number 6A YTH2YGA and set value to 0D. Select service number 6B RWD6ROF4BWD2BOF and set value to 10. Select service number 83 OPT and set value to 3C. Select service number 84 OP2 and set value to 0E. Select service number 8D HR and set value to 1A. Select service number 8E SBO and set value to 0A. Select service number 92 DTN and set value to FC. Select service number 96 DCB and set value to 00. Select service number 97 DCR and set value to 00. Select service number 9A ECN and set value to E9. Select service number 9B EBR and set value to FA. Select service number 9E EVS and set value to F7. Select service number A0 EEA and set value to F8. Select service number A1 EET and set value to 04. Select service number A2 EEP and set value to FE. Select service number A3 EEB and set value to FD. Select service number A4 EUV and set value to FE. Select service number A5 ELV and set value to 03. Select service number AB VFL and set value to 04. Press menu button to exit Service Mode.

SERVICE MODE ADJUSTMENT CHART

No.	Service Adjustment	Initial Ref Value	Initial Set Up Value	Notes
3C	SCO	0F	1C	Sub Color, Set data value to 1C.
3D	STI	15	12	Sub Tint, Set data value to 12.
3E	SB	20	20	Sub Bright
3F	SSH	08	05	Sub Sharpness, Set data value to 05.
40	AFC6HFR	A5	BF	AFC (6) Horizontal Frequency, Set data value to BF.
41	VTR7HP	0C	0C	Vertical Trans (7) Horizontal Phase
42	VS	40	2E	Vertical Size, Set data value to 2E.
43	VSP7VPO	2A	20	Vertical Sync Separator (7) Vertical Position, Set data value to 20.
44	CDM5UVL	06	15	Vertical Count Down Mode (5) Vertical Linearity Top, Set data value to 15.
45	VC5LVL	9E	27	Vertical Compression (5) Vertical Linearity Bottom, Set data value to 27.
46	VSC	14	07	Vertical S Correction, Set data value to 07.
47	RB	00	00	Red Bias, Press 1 to decrease value and 3 to increase value.
48	GB	00	00	Green Bias, Press 4 to decrease value and 6 to increase value.
49	BB	00	00	Blue Bias, Press 7 to decrease value and 9 to increase value.
4A	RD	38	3A	Red Drive, press 1 to decrease value and 3 to increase value, Set data value to 3A.
4B	HT5HTD4GD	37	37	Half Tone (6~5) Half Tone Defeat (4) Green Drive
4C	BD	38	3A	Blue Drive, press 7 to decrease value and 9 to increase value, Set data value to 3A.
4D	SBI	30	3C	Sub Bias, Set data value to 3C.
4E	-	-	-	Not Used.
4F	-	-	-	Not Used.
50	OSD	07	0A	On Screen Display Contrast, Set data value to 0A.
51	CRG6	80	80	Coring
52	-	-	-	Not Used.
53	-	-	-	Not Used.
54	FLS	84	83	Y/C Filter Mode, Set data value to 83.
55	GRY7CRS5GYA3CKO	03	03	Gray (7) Cross B/W (6~5) G-Y Angle (4) Color Killer
56	FBP6YAP4WP	42	42	FBP Blanking (6) Y APF (4) White Peak
57	YGM6DCR4BSS2BSG	A5	61	Y Gamma (7~6) DC Reset (5~4) B Strk Start (3~2) B Strk Gain, Set data value to 61.
58	AFC7CBP5	40	C0	Auto Flesh (7) Color Band Pass Filter (5), Set data value to C0.
59	DIG6ABL5MSD4BAT	44	64	OSD D/A (6) ABL Defeat (5) Mid Stop (4) ABL Threshold, Set data value to 64.
5A	RYA	0B	00	R-Y/ B-Y Angle, Set data value to 00.
5B	CBO4CRO	88	88	Cb DC Offset (7~4) Cr DC Offset
5C	-	-	-	Not Used.
5D	STS7RAD	20	20	S Trap Switch (7) RF AGC Delay
5E	FMM7VIF4IAS	00	00	FM Mute (7) VIF System Switch (4) IF AGC
5F	VL5BPF	A0	A0	Video Level (7~5) S BPF Switch
60	EWD	28	28	E/W DC
61	EWA	17	11	E/W Amp, Set data value to 11.
62	EWT	1D	26	E/W Tilt, Set data value to 26.
63	EWB4EWP	88	63	E/W Corner Bottom (7~4) E/W Corner Top, Set data value to 63.
64	EW7HLV6HSC	03	03	E/W Correction Sw (7) H Lock V Det (6) H Size Comp
65	BOW4ANG	78	98	Bow Correction (7~4) Angle Correction, Set data value to 98.
66	PRE6OVR4CTT	C0	28	Pre Shoot Adj (7~4) Overshoot Adj (5~4) Chroma Trap Test, Set data value to 28.
67	HBL4HBR	38	39	H Blanking Left (7~4) H Blanking Right, Set data value to 39.
68	SSP5VM	90	8C	Sync Separator Sens (7~5) VM Gain, Set data value to 8C.
69	VBL4	00	00	V Size 0.75 (7) V Blanking Select
6A	YTH2YGA	00	0D	Y TH (3~2) Y Gain, Set data value to 0D.
6B	RWD6ROF4BWD2BOF	00	10	R Width (7~6) R Offset (5~4) B Width (3~2) B Offset, Set data value to 10.
80	ATT	07	07	MTS Input Level
81	WDB	20	20	Wide Band

No.	Service Adjustment	Initial Ref Value	Initial Set Up Value	Notes
82	SPC	20	20	Spectral
83	OPT	70	3C	Option, data 1, Set data value to 3C.
84	OP2	52	0E	Option, data 2, Set data value to 0E.
85	PUV	18	18	PIP Up Vertical Position
86	PDV	93	93	PIP Down Vertical Position
87	PLH	0A	0A	PIP Left Horizontal Position
88	PRH	65	65	PIP Right Horizontal Position
89	PCN	2A	2A	PIP Contrast
8A	PBS	0F	0F	PIP BG Start
8B	PCO	28	28	PIP Color
8C	PTI	28	28	PIP Tint
8D	HR	16	1A	H Display Position, Set data value to 1A.
8E	SBO	05	0A	Sub Bright Offset, Set data value to 0A.
8F	DCN	00	00	YUV Sub Contrast
90	DBR	00	00	YUV Sub Bright
91	DCL	00	00	YUV Sub Color
92	DTN	00	FC	YUV Sub Tint, Set data value to FC.
93	DSP	00	00	YUV Sub Sharpness
94	DCG	00	00	YUV Sub Coring
95	DVM	00	00	YUV Sub VM
96	DCB	02	00	YUV Cb Offset, Set data value to 00.
97	DCR	02	00	YUV Cr Offset, Set data value to 00.
98	DHC	00	00	YUV Sub H Phase
99	DHS	00	00	YUV Sub E/W DC
9A	ECN	F4	E9	16: 9 Sub Contrast, Set data value to E9.
9B	EBR	00	FA	16: 9 Sub Bright, Set data value to FA.
9C	ECL	00	00	16: 9 Sub Color
9D	ETN	00	00	16: 9 Sub Tint
9E	EVS	F9	F7	16: 9 Sub V Size, Set data value to F7.
9F	EVP	00	00	16: 9 Sub V Position
A0	EEA	F5	F8	16: 9 Sub E/W Amp, Set data value to F8.
A1	EET	FB	04	16: 9 Sub E/W Tilt, Set data value to 04.
A2	EEP	00	FE	16: 9 Sub E/W Corner Top, Set data value to FE.
A3	EEB	FC	FD	16: 9 Sub E/W Corner Bottom, Set data value to FD.
A4	EUV	FC	FE	16: 9 Sub Vertical Linearity Top, Set data value to FE.
A5	ELV	00	03	16: 9 Sub Vertical Linearity Bottom, Set data value to 03.
A6	EWV	02	02	16: 9 Sub Vertical Blanking Select
A7	SSN	02	02	Sync Separator Sense
A8	CDR	00	00	TV Count Down Mode
A9	AFR	00	00	AFC Loop Gain
AA	B16	04	04	16: 9 ABL VTH Sw
AB	VFL	03	04	Filter Sys (AV), Set data value to 04.
AC	VCB	01	01	C Bypass (AV)
AD	BWD	02	02	EWD AT AV Blue Back
AF	DRV	R 40	R 40	Red Drive, press 1 to decrease value and 3 to increase value.
	DRV	B 40	B 40	Blue Drive, press 7 to decrease value and 9 to increase value.
B0	RB	-	-	Red Bias, press 1 to decrease value and 3 to increase value.
	GB	-	-	Green Bias, press 4 to decrease value and 6 to increase value.
	BB	-	-	Blue Bias, press 7 to decrease value and 9 to increase value.

SCHEMATIC COMPONENT LOCATION GUIDE

A101	B1	C310	C46	C505	D4	C1001	C41	C3411	A35	D508	B26	IC701	A14	L612	B19	Q721	B13	R252	A11	R426	D2	R606	B19	R719	C13	R1001	C41	R1717	C11	R3436	D39
A1901	A25	C311	A44	C506	D4	C1002	C41	C3412	D35	D601	A19	IC801	A28	L621	B22	Q831	A27	R272	C9	R427	B11	R607	B19	R721	B13	R1002	C41	R1718	C7	R3437	D39
C001	A38	C312	A44	C509	D3	C1004	E23	C3413	D35	D602	A19	IC802	D26	L623	C22	Q901	B16	R273	C9	R428	E2	R608	B19	R722	B13	R1004	D47	R1719	C10	R3445	B33
C002	B38	C313	A41	C511	D7	C1005	E24	C3414	E24	D603	B19	IC1001	C42	L625	A21	Q1001	D47	R276	C10	R430	E4	R609	C19	R723	B13	R1008	D47	R1720	E14	R3447	A33
C005	B40	C314	A43	C516	D7	C1007	E23	C3416	B35	D604	B19	IC1001	C42	L628	A22	Q1201	D37	R277	C12	R443	D1	R611	B20	R724	A14	R1009	B48	R1722	D13	R3451	C33
C007	B40	C315	B8	C601	A17	C1011	C41	C3417	D35	D611	C20	IC1001	D42	L721	E20	Q1202	D39	R278	C12	R444	C4	R612	B19	R725	A15	R1011	C41	R1723	D13	R3452	C33
C008	A38	C316	A42	C608	B20	C1021	D41	C3418	C36	D612	B18	IC1002	B41	L801	B23	Q1211	C37	R279	C12	R449	D1	R613	C20	R729	B13	R1012	C42	R1724	D12	R3453	B33
C009	B38	C317	A44	C609	A20	C1026	D41	C3421	E35	D613	C19	IC1002	B42	L821	D27	Q1212	C39	R281	D1	R461	D5	R614	C19	R733	B14	R1013	C41	R1725	D12	R3454	B33
C010	B40	C318	B8	C611	B20	C1032	E24	C3422	E35	D614	B19	IC1002	C44	L851	E29	Q1700	C6	R284	B11	R462	D4	R615	C20	R734	B13	R1021	D41	R1727	D14	R3456	B33
C011	A40	C319	A45	C612	B19	C1051	B42	C3423	D35	D621	B22	IC1003	A34	L881	D29	Q1701	C7	R287	A12	R463	E6	R616	C19	R803	B4	R1026	D41	R1728	D13	R3458	A33
C015	A39	C320	B43	C613	C19	C1054	A5	C3424	B36	D624	C22	IC1003	B34	L882	D29	Q1702	C8	R288	B12	R464	D6	R617	C20	R804	B4	R1027	D42	R1730	D13	R3461	A34
C017	C17	C322	A41	C614	C18	C1055	A5	C3426	C35	D625A	A22	IC1003	B47	L901	B18	Q1704	C10	R289	B12	R467	E5	R618	C18	R806	D29	R1043	D43	R1732	E14	R3462	A35
C101	D24	C323	A45	C622	B24	C1081	E23	C3427	E35	D627	D20	IC1201	C38	L1701	C10	Q1705	D12	R302	C46	R468	D6	R619	C19	R807	D27	R1046	E43	R1733	D14	RL601	A18
C103	B2	C324	B43	C625	A22	C1091	E24	C3431	E35	D629	C22	IC1201	D38	L1702	C11	Q1706	D13	R303	C46	R481	E19	R621	B24	R808	D27	R1047	E43	R1734	D14	RL601	B18
C106	C2	C326	A43	C626	C22	C1201	D37	C3432	C35	D641	B21	IC1201	E37	L1703	D15	Q1707	D13	R304	C46	R482	E2	R627	C23	R809	D29	R1048	C43	R1735	D14	SP901	A40
C128	B5	C331	C45	C628A	A24	C1206	E24	C3433	E35	D642	B22	IC3401	A36	L1704	D14	Q1708	E14	R306	C46	R483	E18	R628	C23	R810	A29	R1049	C43	R1736	D14	SP902	B40
C130	E23	C332	C45	C629	C24	C1211	A37	C3434	E35	D643	B22	IC501P	D6	L1705	D14	Q1709	D14	R307	C46	R485	C10	R629	C22	R813	A27	R1051	B42	R1737	E14	SW1901	B25
C131	A7	C401	D2	C630	A24	C1701	C7	C3435	C39	D680	C23	K701	A15	L1706	B23	Q1711	E14	R308	C47	R486	E22	R630	A23	R814	A27	R1052	B42	R1738	D15	SW1902	B25
C133	A6	C402	D2	C631	A19	C1702	C10	C3436	B35	D683	B18	K701	B15	L1901	B23	Q1712	E13	R309	C47	R487	E22	R631	D19	R816	A26	R1053	A4	R1740	E15	SW1903	B25
C134	A6	C403	D2	C632	B20	C1704	C7	C3437	D39	D687	B17	K701	B15	LF601	A17	R001	A38	R312	A41	R488	D23	R632	D19	R824	E27	R1054	A5	R1741	D15	SW1904	B25
C137	A5	C405	D3	C634	D20	C1705	E24	C3439	C36	D693	D20	K701	B16	PS601	A18	R002	B38	R313	C45	R489	D22	R634	D19	R825	E27	R1055	A4	R1742	D15	SW1905	B25
C142	A7	C406	E4	C636	C17	C1706	E24	C3441	C34	D694	D20	K701	B16	Q001	C39	R003	A38	R315	B8	R491	D10	R641	B22	R829	E27	R1056	A5	R1744	E14	SW1906	C25
C143	B3	C407	E4	C641	B22	C1708	C10	C3443	B33	D708	B14	K701	B16	Q135	A7	R004	B38	R317	B9	R492	C10	R642	B22	R831	C27	R1057	B43	R1746	E23	T151	B4
C146	E23	C408	E5	C642	B22	C1709	C11	C3445	B33	D741	E23	K701	C16	Q202	B6	R008	B39	R318	B8	R493	D11	R644	B22	R833	C26	R1058	B43	R1747	D12	T401	E5
C147	D24	C411	E7	C683	C22	C1711	D13	C3447	A33	D754	E23	K701	C16	Q271	C12	R009	A39	R319	B43	R494	D11	R645	B22	R835	B27	R1201	D37	R1748	D11	T402A	D9
C151	B5	C412	E7	C688	B17	C1712	D12	D101	B1	D801	B27	K1001	A33	Q301	C46	R010	A39	R321	C44	R495	D23	R683	C22	R846	B29	R1202	D37	R1753	C6	T402A	E17
C153	B4	C413	E7	C689	B17	C1713	D13	D276	C12	D831	A27	K1001	A4	Q302	C47	R011	B39	R322	C45	R497	A16	R687	B17	R847	B29	R1203	D37	R1901	B26	T601	A21
C161	A3	C414	E7	C693	D20	C1714	D14	D277	B12	D834	C27	K1001	A4	Q303	C45	R012	C39	R323	B45	R499	D23	R688	B17	R848	C29	R1204	D37	R1902	B26	W601	A17
C211	B9	C416	E8	C731	E24	C1715	D14	D278	C12	D836	C27	K1001	B33	Q315	B8	R106	C1	R324	B46	R503	D4	R691	C22	R849	B29	R1206	E38	R1903	B25	X141	B3
C212	B12	C417	E8	C732	B13	C1716	E14	D279	A12	D843	C27	K1001	B41	Q321	C44	R107	B1	R326	B8	R504	D5	R692	C20	R851	D27	R1208	D39	R1904	B25	X161	B6
C221	B10	C419	E7	C742	C16	C1717	B11	D351	D2	D1002	C41	K1001	C41	Q401	E4	R131	A7	R331	C45	R505	E5	R693	D20	R852	B27	R1209	C38	R1905	B25	X251	B11
C252	A12	C421	D2	C745	E20	C1718	E14	D406	E8	D1011	C41	K1001	D41	Q402	E6	R133	B6	R341	A11	R506	D5	R694	C19	R853	C27	R1210	D38	R1906	B25	X801	B27
C253	A11	C422	D9	C747	E21	C1719	B24	D407	E8	D1026	D41	K1002	C39	Q486	E22	R135	A7	R354	E1	R507	E5	R695	C19	R854	C27	R1211	C37	R1907	B25		
C256	B10	C427	D2	C801	B24	C1721	D15	D408	A24	D1705	D15	K1002	D40	Q490	D23	R137	A8	R400	D3	R508	D5	R701	A13	R856	B2	R1212	C37	R1909	A27		
C257	E24	C462	D4	C806	B24	C1722	E15	D421	E2	D1707	E14	L164	B6	Q601	B20	R142	C4	R401	E2	R509	D5	R702	A13	R857	B2	R1213	C37	R1910	B26		
C258	E24	C463	E6	C808	B28	C1724	E13	D422	E2	D1708	E13	L256	E23	Q611	B19	R143	B3	R402	E2	R511	D7	R703	A13	R864	E29	R1214	C37	R3401	C36		
C271	C12	C466	D6	C809	B28	C1726	D15	D428	E2	D1901	B24	L301	A44	Q612	C19	R151	C5	R404	E3	R512	D7	R704	B14	R867	E29	R1218	C39	R3402	C36		
C272	C9	C482	E19	C811	A28	C1727	E23	D429	E2	DY	D8	L302	B44	Q613	C19	R161	A3	R405	D3	R513	D7	R705	B15	R872	A29	R1700	C7	R3406	E37		
C284	B11	C484	E2	C822	D27	C1740	E15	D461	E6	F601	A17	L306	C46	Q627	C23	R162	A3	R406	E4	R517	D7	R706	A14	R873	A29	R1702	C7	R3407	E36		
C285	B12	C486	E18	C829	C27	C1748	E24	D481	E19	IC001	A39	L401	E6	Q635	D19	R163	B6	R407	E5	R518	D7	R707	C14	R874	C29	R1703	C7	R3411	E35		
C301	D24	C487	E21	C835	B27	C1749	E14	D482	E2	IC101	A6	L402	E6	Q641	B22	R164	B6	R408	E5	R531	C3	R708	C14	R877	E29	R1705	C7	R3421	E35		
C302	B44	C489	E24	C853	C27	C1902	B24	D483	E18	IC101	B10	L403	E7	Q681	C23	R166	B6	R413	D9	R532	C3	R709	A13	R879	D29	R1706	C7	R3422	E35		
C303	B44	C493	D10	C854	C28	C3401	D35	D486	E22	IC101	B4	L413	D8	Q688	B17	R167	B6	R416	E5	R533	C3	R711	C13	R881	D29	R1707	C8	R3426	E35		
C306	D24	C497	D24	C856	D27	C3404	A36	D490	E23	IC101	D2	L414	E6	Q693	C20	R201	B7	R418	D8	R601	A18	R712	C13	R882	C30	R1711	C10	R3432	C38		
C307	C46	C502	D6	C857	D27	C3406	E37	D501	D6	IC301	A42	L416	E7	Q695	C19	R209	B5	R421	E2	R602	B18	R713	C13	R883	E29	R1712	C10	R3433	D38		
C308	E23	C503	D5	C858	C28	C3407	E37	D502	D7	IC601	D18	L602	C20	Q701	A13	R212	B12	R422	E2	R603	A20	R714	C14	R884	E29	R1714	C7	R3434	C39		
C309	C46	C504	D5	C861	E29	C3408	D35	D503	E20	IC681	B23	L611	C20	Q711	C13	R251	A11	R423	D2	R604	B20	R715	C15	R886	E29	R1716	C10	R3435	C39		

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MODEL DS35520 (CHASSIS 35520-02/03)

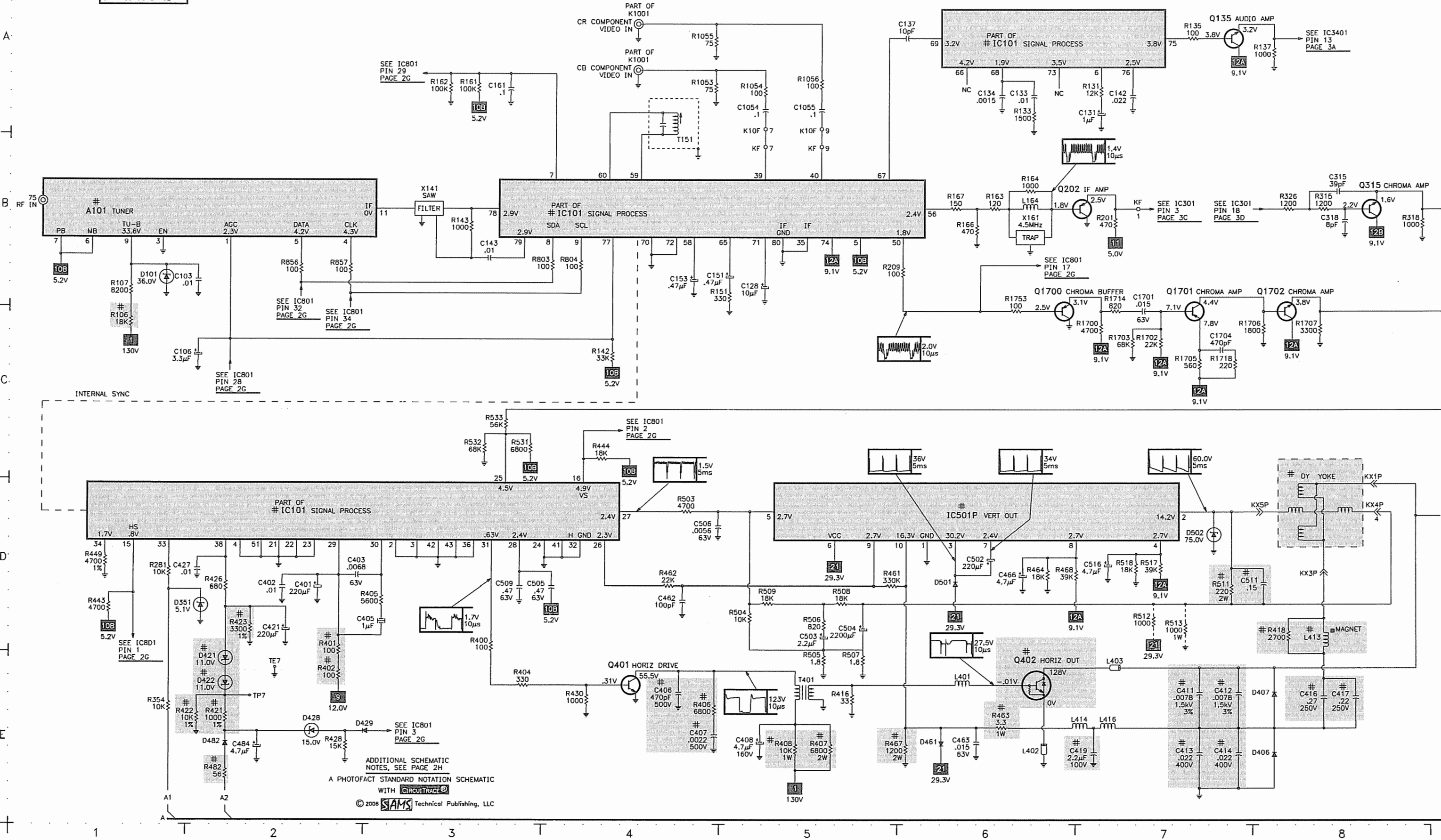


A

B

TELEVISION SCHEMATIC

TUNER NOT INCLUDED  
IN THIS COVERAGE



SEE IC1003 PIN 15 PAGE 3D

SEE IC801 PIN 42 PAGE 2G

SEE IC801 PIN 41 PAGE 2G

SEE IC801 PIN 40 PAGE 2G

SEE IC801 PIN 39 PAGE 2G

SEE IC301 PIN 11 PAGE 3C

SEE IC101 SIGNAL PROCESS

Q1704 VM AMP

Q1705 AMP

Q1706 AMP

Q1707 BUFFER

Q1708 BUFFER

Q1709 VM DRIVE

Q1712 CORRECTION

Q701 RED BUFFER

Q721 BLUE BUFFER

Q711 RED BUFFER

Q721 BIAS

IC701 CRT DRIVER

T402A BOTTOM VIEW

HV RANGE 29.9KV TO 34.6KV

CRT ANODE

FOCUS

SCREEN

KSC

TP50

TP51

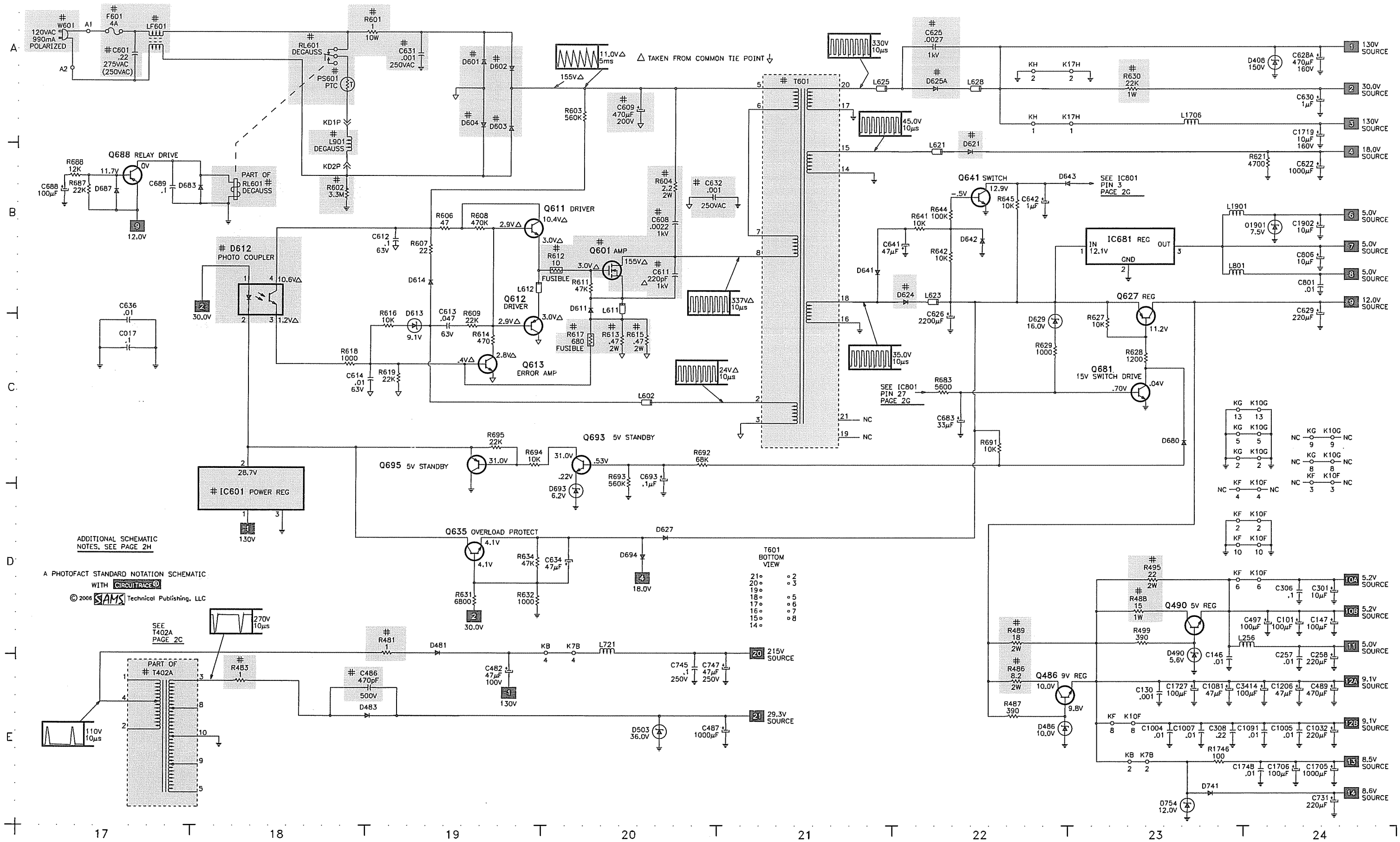
SEE POWER SUPPLY PAGE 2E

SEE CRT FILAMENT PAGE 2D

SEE T402A PIN 9 PAGE 2C

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# POWER SUPPLY SCHEMATIC

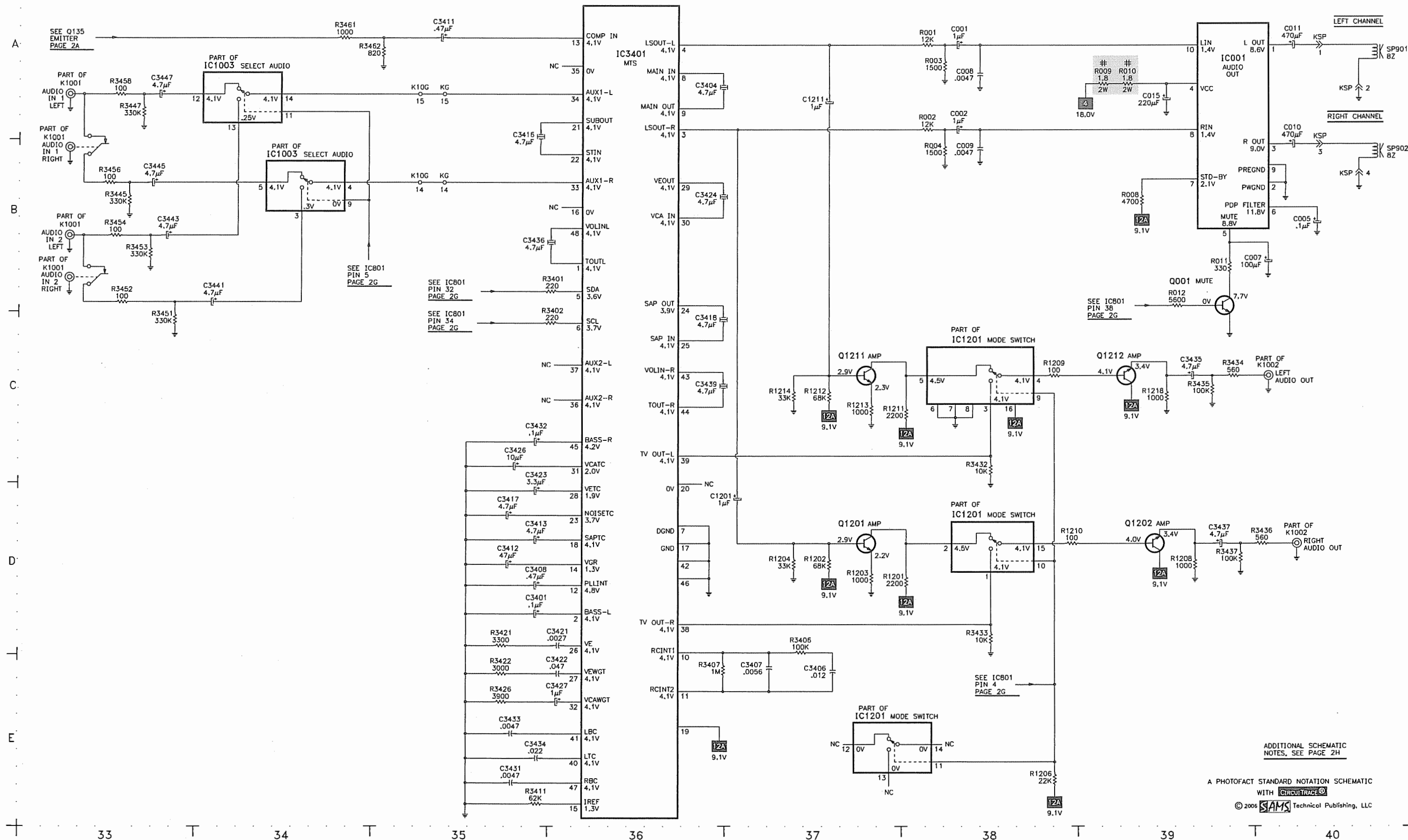




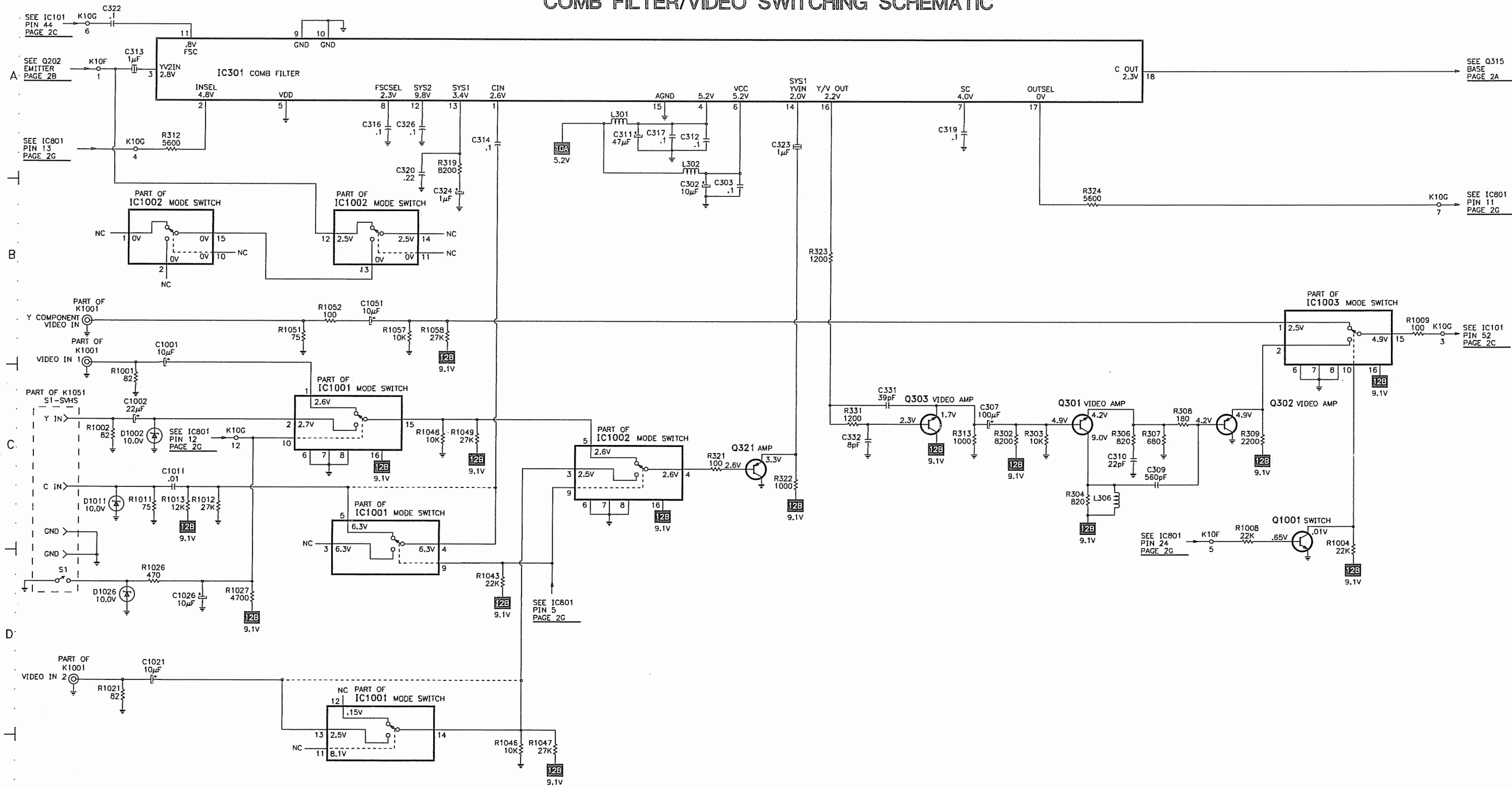
Rotated voltage shown on zener diodes.



# AUDIO SCHEMATIC



COMB FILTER/VIDEO SWITCHING SCHEMATIC



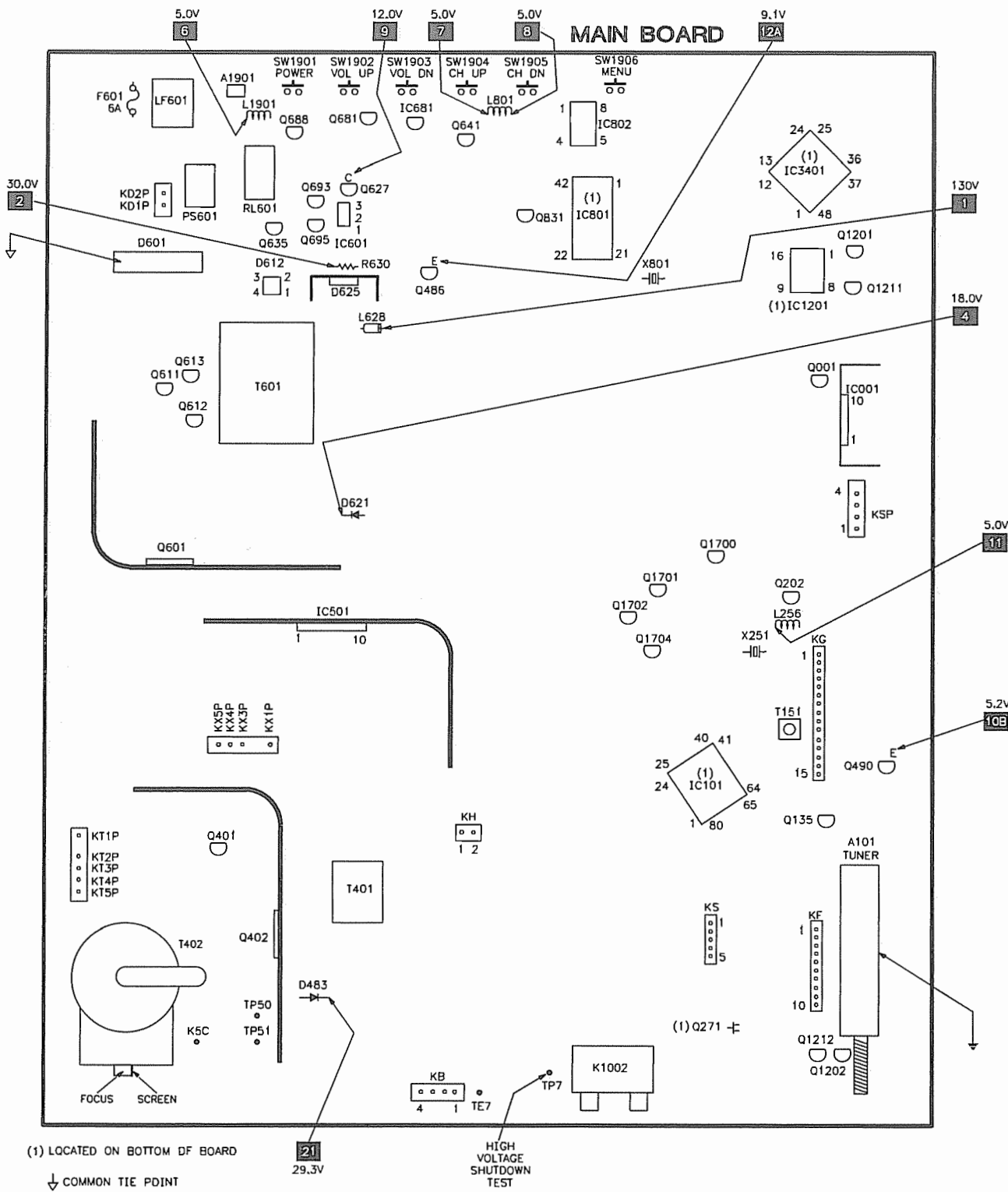
ADDITIONAL SCHEMATIC  
NOTES, SEE PAGE 2H

A PHOTOFAC STANDARD NOTATION SCHEMATIC  
WITH CIRCUITTRACE®

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MODEL DS35520 (CHASSIS 35520-02/03)

PLACEMENT CHART



PARTS LIST

Item No.	Type No.	Mfr. Part No.	NTE Part No.
D101	MTZJ36A	408 047 6205	-
D276 Thru			
D279	1SS355TE-17	407 149 0807	NTE519
D351	MTZJ5.1A	408 047 6502	NTE5010T1
D406	ERB44-04	407 006 4108	-
D407	ERD07-15L	407 095 8001	-
D408	I2I50	407 222 4401	NTE5100A
# D421, 22	HZ11B2L	407 158 1307	NTE5020A
D428	RD15EB1	407 054 5706	NTE5023A
D429	1S2076A	407 013 4306	NTE519
D461	1S2076A	407 013 4306	NTE519
D481	ES1	407 007 6606	NTE552
D482	TVR1G	407 011 4407	NTE552
D483	ES1	407 007 6606	NTE552
D486	RD10EB2	407 054 0008	NTE5019A
D490	MTZJ5.6C	408 047 7707	-
D501	ERA15-02	407 005 8602	NTE552
D502	I275	407 118 2207	NTE5093A
D503	MTZJ36A	408 047 6205	-
D508	1S2076A	407 013 4306	NTE519
# D601 thru			
# D604	RM3A	407 222 4708	-
D611	1S2076A	407 013 4306	NTE519
# D612	PCTL P421(BL)	407 218 0707	-
D613	RD9.1EB3	407 057 9800	NTE5018A
D614	ERA91-02	407 006 0100	NTE587
# D621	RU3YX	407 106 2806	NTE588
# D624	RU4YXLF-L1	407 129 6706	NTE580
# D625A	FML-G16S	407 191 3900	NTE598
D627	1S2076A	407 013 4306	NTE519
D629	RD16EB1	407 054 7007	NTE5025A
D641	EU2Z	407 007 7801	NTE552
D642, 43	1S2076A	407 013 4306	NTE519
D680, 83, 87	1S2076A	407 013 4306	NTE519
D693	RD6.2EB2	407 057 2702	NTE5013A
D694	1S2076A	407 013 4306	NTE519
D741	1S2076A	407 013 4306	NTE519
D754	MTZJ12B	408 048 2404	NTE5021T1
D801	1S2076A	407 013 4306	NTE519
D831	UDZS-TE-173.6B	407 222 5903	-
D834	RD22EB1	407 055 2803	NTE5030A
D836, 43	1S2076A	407 013 4306	NTE519
D1002, 11, 26	MTZJ10B	408 047 2306	-
D1705, 07	SB07-03N	407 108 5300	-
D1708	1S2076A	407 013 4306	NTE519
D1901	MTZJ7.5C	408 047 9206	-
IC001	LA4600	409 389 4607	-
# IC101	LA7635NM-TBM	409 526 7221	-
IC301	LA76604M-TLM-E	409 544 5807	-
# IC501P	LA7848	409 479 3909	-
# IC601	SE130NH	409 172 8102	-
IC681	UPC78L05J	409 066 7303	NTE977
IC701	TDA6103Q/N3	409 468 8403	NTE7139
IC801	M37272M8H-216FPT4	410 456 7803	-
IC802	24LC02B/P	409 333 3700	-
IC1001, 02, 03	TC4053BP	409 051 3006	NTE4053B
IC1201	TC4053BF-EL	409 051 2930	-
IC3401	CXA2134Q-T6	409 467 1108	-
Q001	2SC1740S-Q	405 011 8401	NTE85
Q135	2SC1740S-Q	405 011 8401	NTE85
Q202	2SA1015-0(SAN)	405 001 7407	NTE290A
Q271	2SA1037K-T-96-R	405 002 0308	NTE2409
Q301	2SC2412K-T-96-R	405 014 4509	NTE2408
Q302	2SA1037K-T-96-R	405 002 0308	NTE2409
Q303	2SC2412K-T-96-R	405 014 4509	NTE2408
Q315	2SC2412K-T-96-R	405 014 4509	NTE2408
Q321	2SA1037K-T-96-R	405 002 0308	NTE2409
Q401	2SC2271-D-CTV	405 013 6207	NTE399
# Q402	2SD2645-YB	405 163 4306	-
Q486, 90	2SD400-E-MP	405 023 5009	NTE382
# Q601	2SK2638	405 148 1801	-
Q611	2SC2274-E	405 013 6801	NTE289A
Q612	2SA984-E	405 006 6504	-
Q613	2SC2274-E	405 013 6801	NTE289A
Q627	2SB985-S	405 009 6907	-
Q635, 41, 81	2SC1740S-Q	405 011 8401	NTE85

Item No.	Type No.	Mfr. Part No.	NTE Part No.
Q688	2SA1015-Y(SAN)	405 001 7605	
Q693	2SC1740S-Q	405 011 8401	
Q695	2SA1015-Y(SAN)	405 001 7605	
Q701, 11, 21	2SA1015-0(SAN)	405 001 7407	
Q831	2SA1015-0(SAN)	405 001 7407	
Q1001	2SC2412K-T-96-R	405 014 4509	
Q1201, 02	2SC1740S-Q	405 011 8401	
Q1211, 12	2SC1740S-Q	405 011 8401	
Q1700, 01	2SA1015-0(SAN)	405 001 7407	
Q1702	2SC1740S-Q	405 011 8401	
Q1704 Thru			
Q1707	2SC1740S-Q	405 011 8401	
Q1708	2SA1015-0(SAN)	405 001 7407	
Q1709	2SA1837-LB	405 108 4903	
Q1711	2SC4793-LB	405 108 5009	
Q1712	2SC1740S-Q	405 011 8401	
Item No.	Function/Rating	Mfr. Part No.	
# A101	Tuner	645 052 6084	
A1901	Receiver	645 047 6228	
C221	1μF 20% 50V NP	404 084 6901	
C313	1μF 20% 50V NP	403 086 2607	
C323	1μF 20% 50V NP	403 086 2607	
C405	1μF 20% 50V NP	404 084 6901	
# C406	470pF 10% 500V	403 076 3607	
# C407	.0022 10% 500V	403 076 0507	
# C411, 12	.0078 3% 1.5kV	403 343 8205	
# C413, 14	.022 5% 400V	403 083 4307	
# C416	.27 5% 250V	403 346 7126	
# C417	.22 5% 250V	403 346 6921	
# C419	2.2μF 10% 100V	403 158 9107	
# C486	470pF 10% 500V	403 076 3607	
C493	2.2μF 20% 100V NP	404 056 5307	
# C511	.15 5% 50V	403 058 5407	
# C601	.22 20% 275VAC	404 089 1703	
# C608	.0022 10% 1kV	403 222 1907	
# C609	470μF 20% 200V	404 075 5005	
# C611	220pF 10% 1kV	403 238 8501	
# C625	.0027 10% 1kV	403 232 0402	
# C631	.001 20% 250VAC	404 088 2909	
# C632	.0022 20% 250VAC	404 088 3005	
# C742	.001 2kV	403 077 2807	
C3404	4.7μF 20% 50V NP	404 089 6500	
C3416, 18	4.7μF 20% 50V NP	404 089 6500	
C3423	3.3μF 10% 10V Tantalum	403 342 9203	
C3424	4.7μF 20% 50V NP	404 089 6500	
C3426	10μF 10% 10V Tantalum	403 299 1820	
C3436, 39	4.7μF 20% 50V NP	404 089 6500	
# DY (1)	Yoke	-	
# F601	Fuse	423 007 1601	
# K701 (3)	Socket	645 026 2005	
# K701 (4)	Socket	645 042 7664	
K1001	Jack	-	
K1002	Jack	-	
K1051	Socket	645 052 6619	
L164	15μH	645 003 9713	
L256	10μH	610 031 3873	
L301, 02	5.6μH	645 008 2894	
L306	39μH	645 008 2856	
L401	1μH	645 052 5919	
L402	Ferrite Bead	652 000 2180	
L403	Ferrite Bead	610 078 6820	
# L413	Horizontal Linearity	645 030 2862	
L414	202μH	610 031 1367	
L416	350μH	645 013 8676	
L602	Ferrite Bead	645 005 0763	
L611, 12	Ferrite Bead	610 078 5946	
L621, 23	Ferrite Bead	610 078 5946	
L625, 28	Ferrite Bead	610 078 5946	
L721	150μH	645 001 4796	
L801	5.6μH	645 008 2894	
L821	5.6μH	645 008 2894	
L851	5.6μH	645 008 2894	
L881, 82	1μH	645 006 2490	
# L901	Degaussing	645 057 3743	

NTE Part No.
NTE290A
NTE85
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NTE2408
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NTE290A
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NTE85

Item No.	Function/Rating	Mfr. Part No.	Notes
L1701	10μH	610 031 3873	-
L1702	27μH	645 008 2825	-
L1703, 04, 05	Ferrite Bead	610 078 5946	-
L1706	5.6μH	645 008 2894	-
L1901	5.6μH	645 008 2894	-
# LF601	Line Filter	645 012 0589	-
# PS601	PTC	408 046 5209	-
# Q901 (3)	CRT	414 011 2104	A89AEJ15X02
# Q901 (4)	CRT	414 011 5105	A89AKB50X01(V)
# R009	1.8 5% 2W	401 064 5701	-
# R010	1.8 5% 2W	401 064 5701	-
# R106	18K 5% 1/2W	401 008 2001	-
# R401, 02	100 5% 1/4W	401 012 4503	-
# R406	6800 5% 1/2W	401 011 2302	-
# R407	6800 5% 2W	401 069 3702	-
# R408	10K 5% 1W	401 058 5007	-
# R413	3.9 5% 5W	402 085 5909	-
# R418	2700 5% 1/2W	401 009 1607	-
# R421	1000 1% 1/6W	401 052 6505	-
# R422	10K 1% 1/6W	401 052 6802	-
# R423	3300 1% 1/10W	401 264 9301	-
R449	4700 1% 1/10W	401 265 1700	-
# R463	3.3 5% 1W	401 061 0006	-
# R467	1200 5% 2W	401 065 3706	-
# R481	1 5% 1/2W Nonflammable	401 006 7701	-
# R482	56 5% 1/4W	401 021 0701	-
# R483	1 5% 1/2W Nonflammable	401 006 7701	-
# R486	8.2 5% 2W	401 069 5607	-
# R488	15 5% 1W	401 059 1602	-
# R489	18 5% 2W	401 065 9609	-
R492	33K 1% 1/6W	401 156 8504	-
# R495	22 5% 2W	401 066 5204	-
# R497	2.2 5% 2W	401 066 3002	-
	4.7 5% 1W	401 061 8903	-
# R511	220 5% 2W	401 066 6102	-
# R601	1 10% 10W	402 056 6805	-
# R602	3.3M 10% 1/2W	402 000 0705	-
# R604	2.2 5% 2W	401 066 3002	-
# R612	10 5% 1/2W Fusible	402 001 8502	-
# R613, 15	.47 5% 2W	401 180 8402	-
# R617	680 5% 1/4W Fusible	402 001 8106	-
# R630	22K 5% 1W	401 060 5002	-
# R705	1000 5% 1W	401 058 3706	-
# R706, 07, 08	100K 5% 1W	401 058 5908	-
# R715, 25	1000 5% 1W	401 058 3706	-
# R1742	100 5% 2W	401 064 7507	-
# RL601	Relay	645 011 2713	Degaussing
SP901, 02	Speaker	645 010 0567	8 Ohms
SW1901	Switch	645 006 9673	Power
SW1902	Switch	645 006 9673	Volume Up
SW1903	Switch	645 006 9673	Volume Down
SW1904	Switch	645 006 9673	Channel Up
SW1905	Switch	645 006 9673	Channel Down
SW1906	Switch	645 006 9673	Menu
T151	Oscillator	645 049 3775	-
T401	Horizontal Drive	610 000 1138	-
# T402A (2)	Horizontal Output	645 058 8006	-
# T601	Power	645 056 7353	-
# W601	Line Cord	645 028 1600	AC, Polarized
X141	Filter	421 008 9008	SAW
X161	Trap	610 015 3059	4.5MHz
X251	Crystal	610 012 0655	3.58MHz
X801	Crystal	645 026 8434	8MHz
	Fuse Holder	645 000 5077	For F601 (2 Used)
	PC Board	610 307 3712	Audio/Video
	PC Board (3)	610 307 3705	CRT
	PC Board (4)	610 307 4283	CRT
	PC Board (3)	610 307 3699	Main
	PC Board (4)	610 307 4276	Main
	Transmitter	645 061 0165	Remote

# For SAFETY use only equivalent replacement part.

(1) Bonded part of CRT.

(2) Screen and focus controls are part of T402A.

(3) Used in chassis 35520-02.

(4) Used in chassis 35520-03.

SANYO

MODEL DS35520 (CHASSIS 35520-02/03)