

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.

HORIZONTAL OSCILLATOR DISABLE TEST

Place a jumper between pins 3 and 4 of IC803. Connect a high voltage probe to the CRT anode. Set the AC supply to 45VAC. Turn the receiver on and slowly increase the AC supply. Confirm the high voltage does not exceed 31.5kV when the horizontal just begins to pull out of sync. If the high voltage should exceed 31.5kV or the receiver fails to lose horizontal sync, the horizontal oscillator disable circuit should be repaired. Remove jumper.

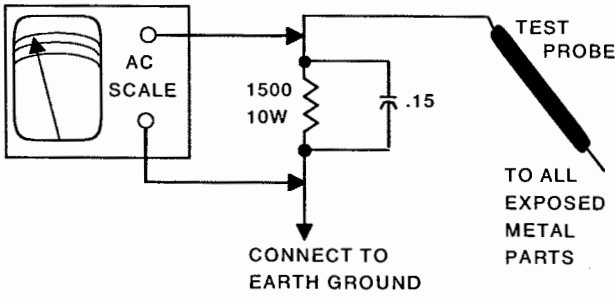
SAFETY CHECKS — FIRE AND SHOCK HAZARD

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.



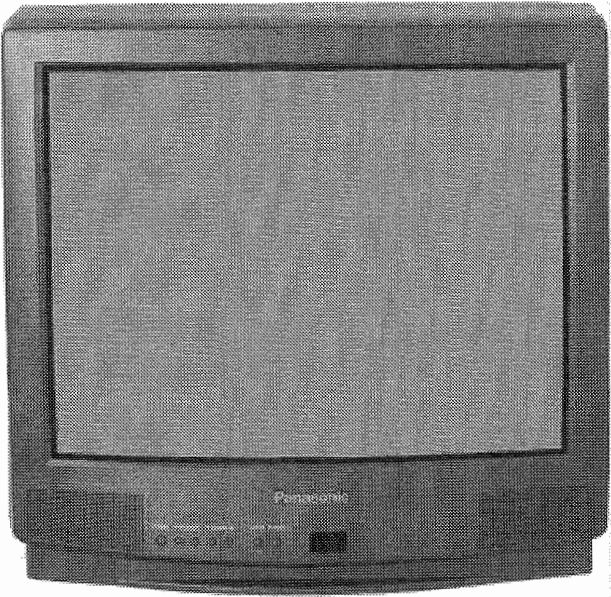
SET 4843

MODEL CT-2521HDB (CHASSIS BP355)

PANASONIC

PHOTOFACT® Technical Service Data

PANASONIC  
Model CT-2521HDB (Chassis BP355)



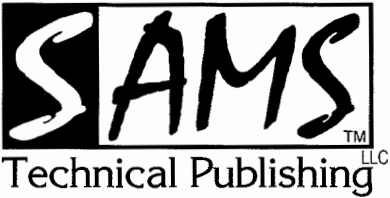
Representative Model

Essential coverage  
for servicing a television receiver...

- Schematics
- Component locations
- Parts list

Coverage includes this additional model and chassis:

Model	Chassis
CT-2511HDB	AP335



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

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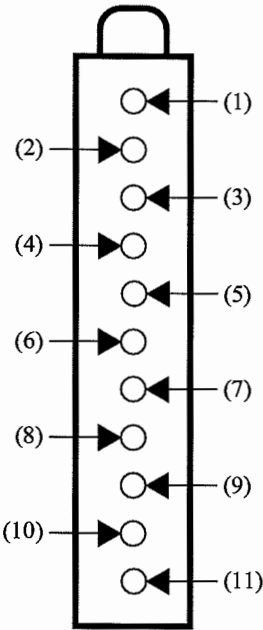
TUNER INFORMATION

TUNER VOLTAGE CHART

Pin	VHF Low Band	VHF High Band	UHF Band
(1) AGC	4.0V	5.1V	4.2V
(2) TU	1.3V	4.3V	4.4V
(3) ADD	0V	0V	0V
(4) SCL	4.2V	4.2V	4.2V
(5) SDA	4.2V	4.2V	4.2V
(6) BM	5.0V	5.0V	5.0V
(7) BPL	5.0V	5.0V	5.0V
(8) NC	0V	0V	0V
(9) BTL	4.5V	7.5V	7.6V
(10) NC	0V	0V	0V
(11) 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.

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

SERVICE INFORMATION

CRT PROTECTION

The CRT protection circuit is made up of Q451 and Q452. This circuit blanks out the CRT if vertical deflection failure occurs. It is important for the life of the CRT that this circuit be tested before returning the receiver to the customer. To test, short the base of Q452 to ground. The screen should go blank, if not this circuit needs repair.

## MISCELLANEOUS ADJUSTMENTS

NOTE: This receiver employs digital customer controls. All adjustments are at normalized position unless otherwise indicated.

### B+ CHECK

Connect a digital DC voltmeter to L802 and the common tie point. Set brightness and picture to minimum. With AC line voltage set to 120VAC, B+ should read 130V\* ±1.0V\*.

\* Taken from a common tie point.

### HIGH VOLTAGE CHECK

Tune in a picture. Set brightness and picture for a black raster. Connect a high voltage probe to CRT anode. High voltage should read 26kV to 28kV.

### 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.

### PURITY

Enter serviceman mode. See Purity Check to display a green raster. Loosen deflection yoke and move it back as far as possible. Loosen locking ring and move the purity tabs to center the vertical green band. Slowly slide the deflection yoke forward until a uniform green screen is obtained.

### CONVERGENCE

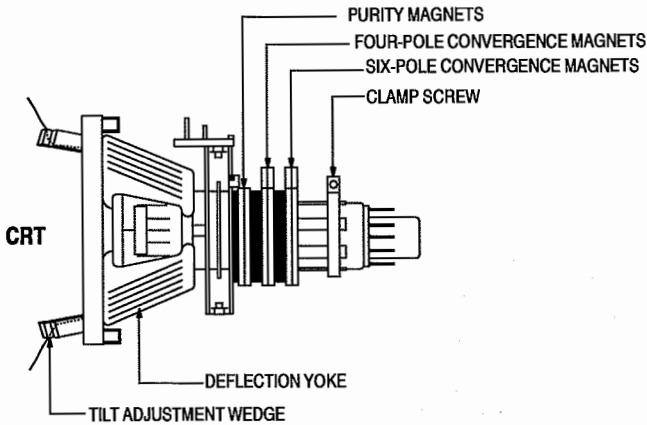
Connect a signal generator to antenna terminal and tune in a dot pattern. Adjust the 4-pole magnets to converge the red and blue dots at the center of the screen. Adjust the 6-pole magnets to converge the red/blue dots over the green dots at the center of the screen.

NOTE: Spread the two tabs of each set of magnets equally and opposite to converge vertically, and rotate both tabs in the same direction to converge horizontally. Since the four and six pole magnets interact, repeat the adjustment until center convergence is correct.

Tune in a crosshatch pattern. Remove rubber wedges between the deflection yoke and CRT. Tilt deflection yoke up or down to converge the vertical lines at the top and bottom of the screen and the horizontal lines at the left and right sides of the screen. Tilt the deflection yoke left or right to converge the horizontal lines at the top and bottom of the screen and the vertical lines at the left and right sides of the screen. Repeat convergence procedure if necessary to obtain the best overall convergence. Replace rubber wedges.

If the yoke or CRT is replaced, a convergence corrector strip (Part No. 0FMK014ZZ) may be required to match the yoke and CRT for optimum convergence. Position the strip between the CRT and yoke for best convergence at corners of screen and secure with tape.

### CRT NECK ASSEMBLY



### ENTERING SERVICEMAN MODE

Turn the receiver on and momentarily short pins 3 and 8 of connector TP. In the upper left side of the picture, CHK is displayed in yellow. Press the action and volume up buttons on the receiver. The CHK display turns red. The serviceman mode is indicated by CHK displayed in red at the upper left side of the picture. Press the power button on the remote or the action and volume down buttons on the receiver repeatedly to select one of six service modes.

B = DAC Adjustments

C = CRT Adjustments

S = Options Adjustments

M = Stereo Adjustments

CHK = Normal operation of channel and volume buttons.

### 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.

### DAC ADJUSTMENTS

NOTE: Write down original 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.

#### DAC Adjustment Range and Default Levels

Adjustment	Range	Default Level	On-Set Level
Sub Color (B0)	0-63	24	25
Sub Tint (B1)	0-63	45	44
Sub Brightness (B2)	0-255	75	92
Sub Contrast (B3)	0-63	31	31
Killer/ABL/Gamma (B4)	0-7	5	5
Video Adjustment (B5)	0-15	8	8
Audio Adjustment (B6)	0-31	16	17
Vertical Size (B7)	0-63	37	44

#### SUB COLOR (B0)

Tune in a color bar signal. Connect oscilloscope to pin 1 of connector C1 on the C board. Connect TPD2 to ground. Enter serviceman mode and select DAC adjustment. Select sub color (B0). Adjust waveform for .9Vp-p ±.05Vp-p. Remove jumper.

#### SUB TINT (B1)

Tune in a color bar signal. Connect oscilloscope to pin 1 of connector C1 on the C board. Connect TPD2 to ground. Enter serviceman mode and select DAC adjustment. Select sub tint (B1). Adjust waveform so the 1st and 4th peaks are of equal amplitude. Remove jumper.

#### SUB BRIGHTNESS (B2)

This adjustment must be made after sub picture and color temperature adjustments are made, DO NOT adjust screen after sub brightness is set. Connect a color bar signal with pure white and pure black to the antenna input. Set color to minimum. Enter serviceman mode and select DAC adjustment. Select sub brightness (B2). Adjust until the black bars start to turn gray, then decrease adjustment until bars turn black.

#### SUB CONTRAST (B3)

NOTE: This adjustment is factory set, DO NOT adjust unless CRT or C board is replaced.

Connect a color bar signal to the antenna input. Connect oscilloscope to pin 2 of connector C1 on C board. Connect TPD2 to ground. Enter serviceman mode and select DAC adjustment. Select sub contrast (B3). Adjust for 2.8V ±.1Vp-p from white to black level. Do not include sync tip in measurement. Remove jumper.

### Video Adjustment (B5)

Connect a color bar signal to the antenna input. Connect oscilloscope to pin 32 of IC101. Enter serviceman mode and select DAC adjustment. Select video adjustment (B5). Adjust for 1.0Vp-p ± .05Vp-p.

### Audio Adjustment (B6)

NOTE: This adjustment is factory set, do not adjust unless IC002 or IC101 has been replaced.

Connect a generator with a 1kHz mono audio tone to the antenna terminal. Connect an oscilloscope to junction of R202 and R203. Enter serviceman mode, and select DAC adjustment. Select audio adjustment (B6). Adjust for .7V ±.2V.

### CRT ADJUSTMENTS

Follow same procedure used for DAC adjustments.

#### CRT Adjustment Range and Default Levels

Adjustment	Range	Default Level	On-Set Level
Red Cutoff (C0)	0 0 thru 1 255	0 127	0 118
Green Cutoff (C1)	0-255	64	64
Blue Cutoff (C2)	0 0 thru 1 255	0 100	0 128
Red Drive (C3)	0-255	67	69
Blue Drive (C4)	0-255	64	69
YNR Switch (C5)	0-1	0	0
AFT (C6)	0 0 thru 1 128	1 103	1 152
RF AGC (C7)	0-255	64	65
YNR (C8)	0-7	0	0
Horiz Centering (C9)	0-31	12	11
Beam Limit (Ca)	0-7	4	4
VCJ Test H (Cb)	0-2	2	0

### Color Temperature (C0 thru C4)

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

Enter serviceman mode and select CRT adjustments. Set the red cutoff (C0), green cutoff (C1), and blue cutoff (C2) for a gray picture. Set the red drive (C3) and blue drive (C4) for correct white areas.

### RF AGC (C7)

Tune in a picture. Enter serviceman mode and select CRT adjustments. Decrease the on-set level until snow appears in picture, then increase the data value to a point just past where snow disappears.

### Horizontal Centering (C9)

Tune in a crosshatch pattern. Enter serviceman mode and select CRT adjustments. Select horizontal centering (C9) adjustment and adjust crosshatch pattern for correct horizontal centering.

### Beam Limit (Ca)

Tune in a picture. Enter serviceman mode and select CRT adjustments. Adjust beam limit for best picture.

### OPTIONS ADJUSTMENTS

Options adjustments for PIP can be entered but no adjustments should be necessary. They are factory set for normal PIP performance. Write original values in case one of the adjustments is changed by mistake. Confirm that the values are as shown for default level.

### Options Adjustment Range and Default Levels

Adjustment	Range	Default Level	On-Set Level
PIP Color (S0)	0-127	80	100
PIP Contrast (S1)	0-127	52	52
Up 1/9 (S2)	0-255	26	26
Down 1/9 (S3)	0-255	146	146
Left 1/9 (S4)	0-255	9	13
Right 1/9 (S5)	0-255	103	103
Up 1/16 (S6)	0-255	27	26
Down 1/16 (S7)	0-255	163	163
Left 1/16 (S8)	0-255	9	13
Right 1/16 (S9)	0-255	118	118
Freerun (Sa)	-	N/A	-
Clock Adjustment (Sb)	0-255	128	78
PIP Tint (Sc)	0-255	50	58
Loudness Compensation (Sd)	0-63	2	2

### Clock Adjustment (Sb)

Connect a frequency counter to pin 13 of IC001. Turn receiver off. Record the frequency. Turn the receiver on and enter the serviceman mode and select options adjustments. Select clock adjustment (Sb). Adjust (Sb) based on the following formula:

$$(Sb) = 128 + .901 \times 1000000 \left[ \frac{244.1406 - \text{pin 13 (measured in Hz)}}{244.1406} \right]$$

### VCO

Connect a balance antenna, select a midband channel (Ch 10, 11, 12, or 13) and attenuate the signal strength for a weak noisy video. Adjust L105 for best picture, check other channels and repeat the process while applying stronger signal.

### STEREO ADJUSTMENTS

All adjustments were made using an MTS TV / stereo generator connected to the antenna terminal. Set the customer controls to normal listening levels and select stereo mode.

#### Stereo Adjustment Range and Default Levels

Adjustment	Range	Default Level	On-Set Level
Input Level (M0)	0-63	31	33
High - Level Separation (M1)	0-63	31	25
Low - Level Separation (M2)	0-31	16	10

#### Input Level (M0)

On generator select pilot, 1kHz audio frequency, and L+R modulating signal. Connect an oscilloscope to pin 22 of IC2201. Enter serviceman mode and select stereo adjustments. Select input level (M0). Adjust data value for 1Vp-p.

#### High Level Separation (M1) and Low Level Separation (M2)

On generator select pilot, 300Hz audio frequency, and left modulating signal. Connect an oscilloscope to pin 22 of IC2201. Enter serviceman mode and select stereo adjustments. Select low level separation (M2). Adjust the data value for minimum amplitude of waveform. On generator select 8kHz audio frequency. Select high level separation (M1). Adjust the data value for minimum amplitude of the waveform. Repeat until no further decrease in amplitude can be obtained.

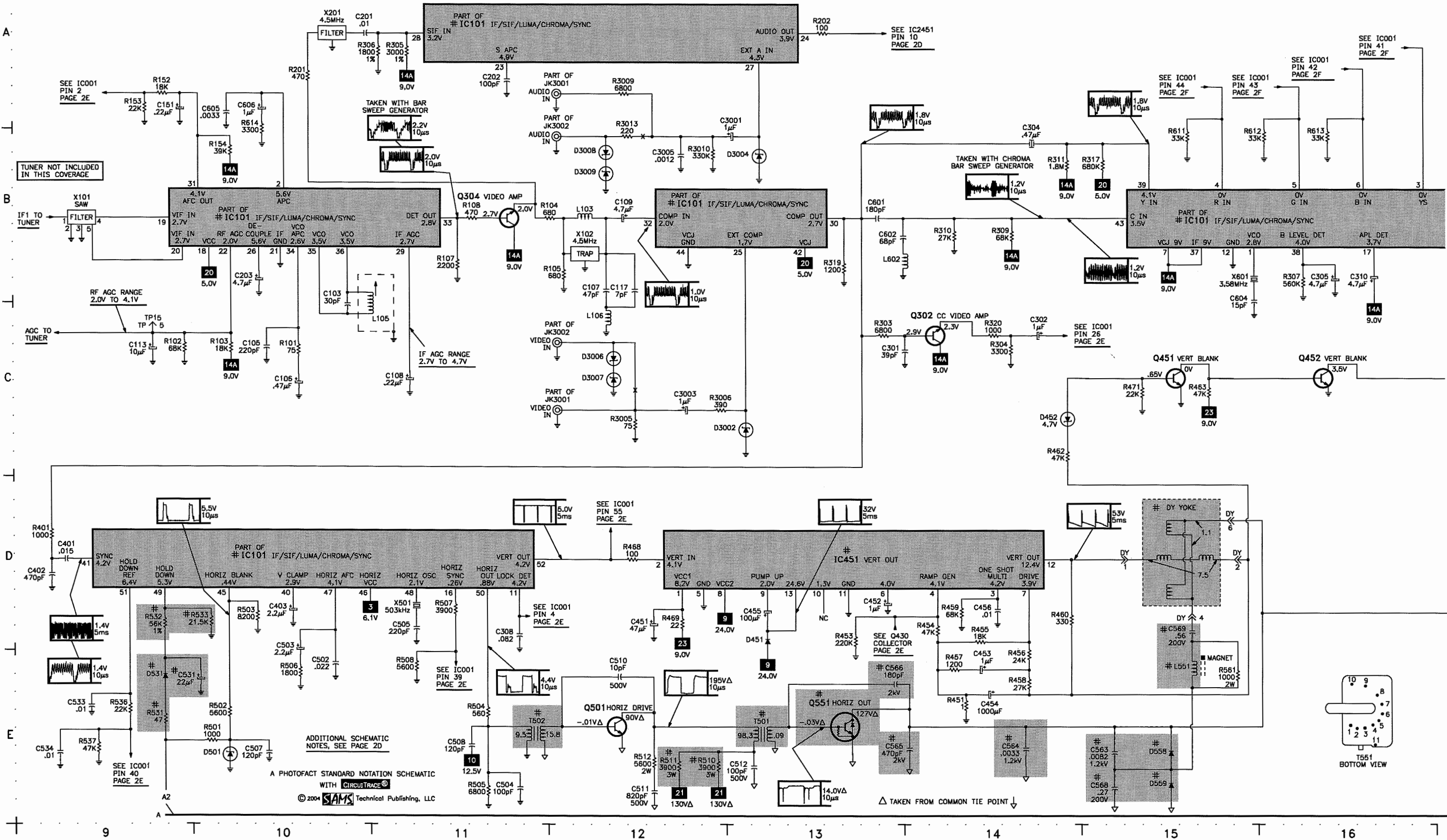
## H



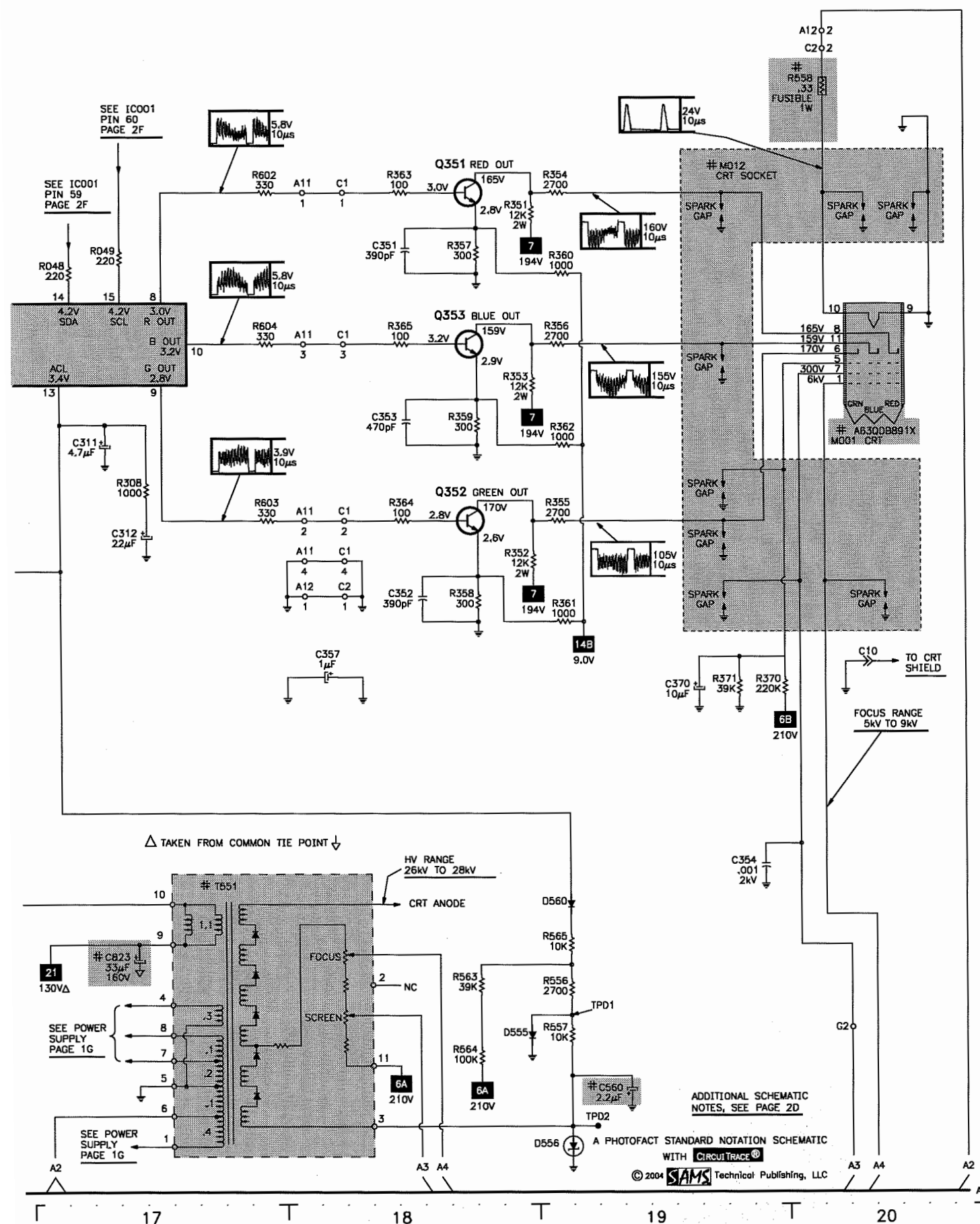
A

B

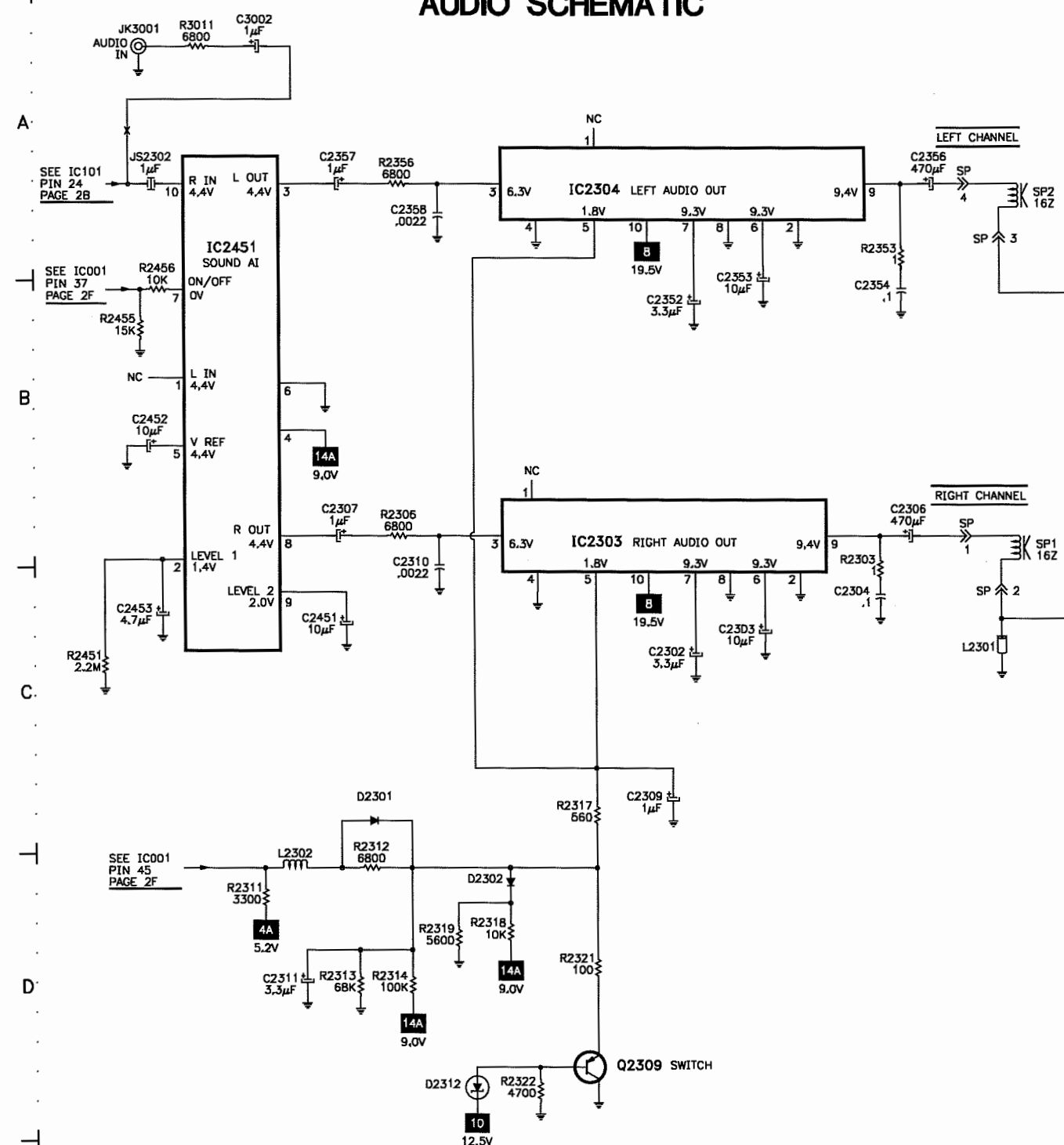
TELEVISION SCHEMATIC



**C**  
**TELEVISION SCHEMATIC** continued



## D AUDIO SCHEMATIC



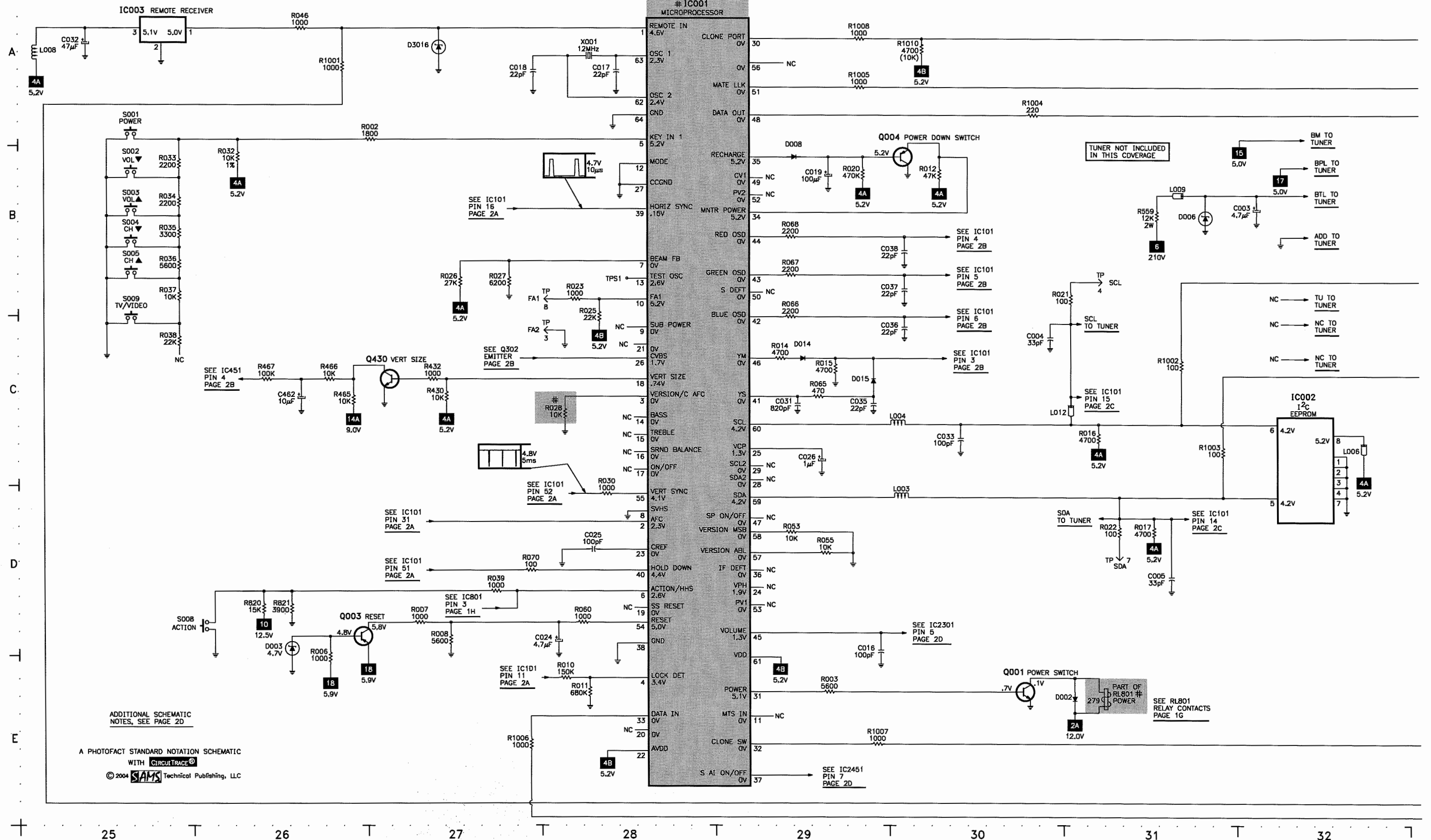
## SCHEMATIC NOTES

- # 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
- △ Taken from common tie point
- 3** Schematic **CIRCUITRACE®** Voltage source tie point.
- A — Coiling: 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 1000 $\mu$ 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.

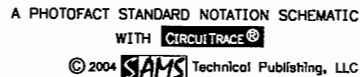
A PHOTOFACT STANDARD NOTATION SCHEMATIC  
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# SYSTEM CONTROL SCHEMATIC



# G

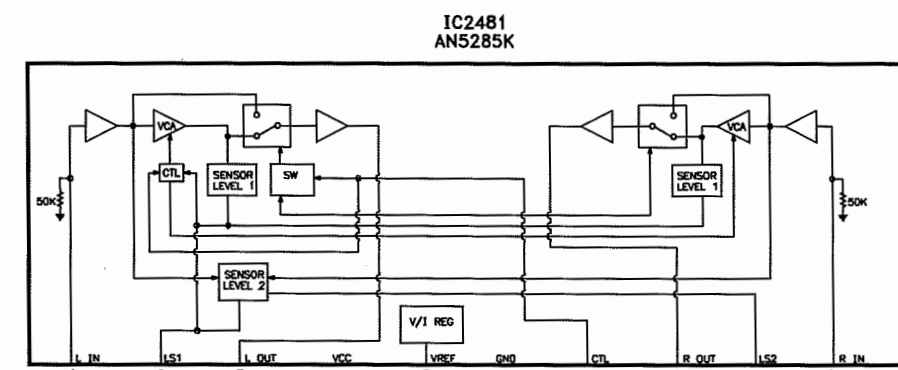
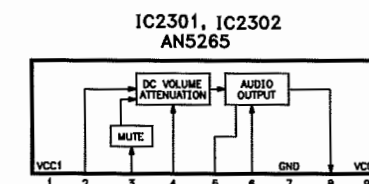
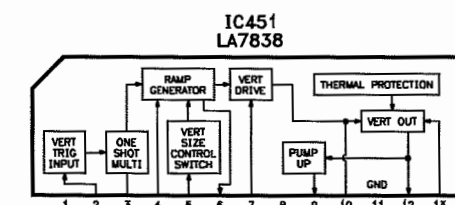
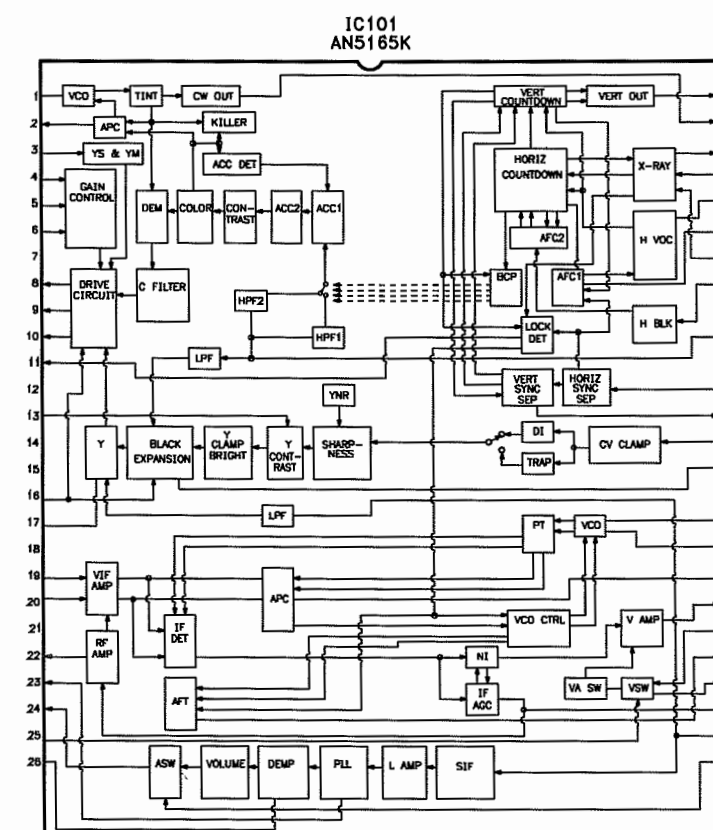
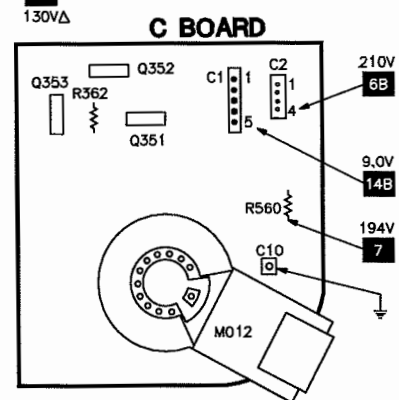
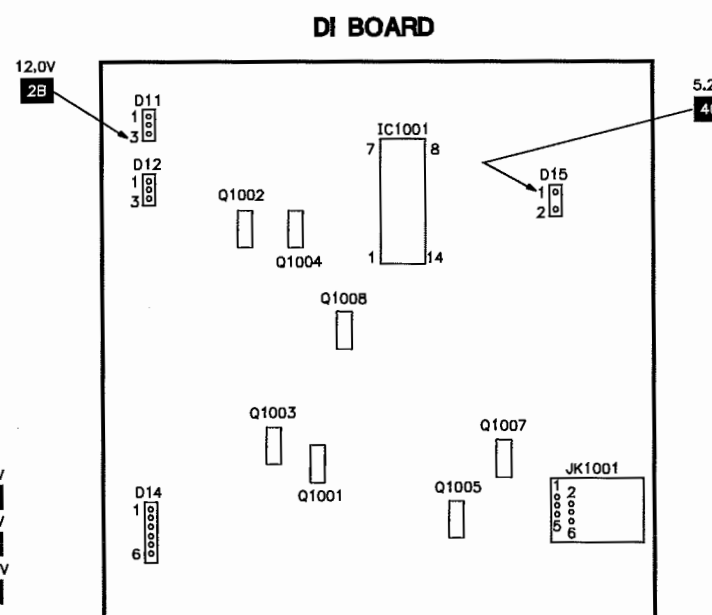


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C001	E8	C462	C26	C2307	C21	D3006	C12	Q353	B18	R153	A9	R533	D10	R1032	A33
C003	B32	C502	E10	C2309	C23	D3007	C12	Q430	C27	R154	B10	R536	E9	R1033	C35
C004	C30	C503	E10	C2310	C22	D3008	B12	Q451	C15	R201	A10	R537	E9	R1034	C35
C005	D31	C504	E11	C2311	D21	D3009	B12	Q452	C16	R202	A13	R551	E2	R1035	C35
C008	C4	C505	D11	C2351	D5	D3016	A27	Q501	E12	R303	C13	R552	D1	R1036	D33
C010	C5	C506	D4	C2352	B23	DY	D15	Q551	E13	R304	C14	R553	D1	R1037	C35
C011	C5	C507	E10	C2353	B23	F801	A1	Q801	B7	R305	A11	R554	E6	R2301	D3
C013	D3	C508	E11	C2354	B23	FA1	C27	Q802	B6	R306	A11	R556	E19	R2303	C23
C016	D29	C510	E12	C2356	A24	FA2	C27	Q804	D6	R307	B16	R557	E19	R2306	C22
C017	A28	C511	E12	C2357	A21	IC001	A28	Q1001	C35	R308	C17	R558	A20	R2311	D21
C018	A27	C512	E13	C2358	A22	IC002	C32	Q1002	C35	R309	B14	R559	B31	R2312	D21
C019	B29	C531	E10	C2451	C22	IC003	A25	Q1003	D33	R310	B14	R560	D4	R2313	D21
C020	C4	C532	D4	C2452	B21	IC101	A11	Q1004	D34	R311	B14	R561	E15	R2314	D22
C022	B3	C533	E9	C2453	C21	IC101	B10	Q1005	E34	R317	B15	R563	E18	R2317	C22
C024	D28	C534	E9	C2454	E7	IC101	B12	Q1006	A33	R319	B13	R564	E18	R2318	D22
C025	D28	C551	E5	C3001	B12	IC101	B15	Q1007	E35	R320	C14	R565	D19	R2319	D22
C026	C29	C552	D2	C3002	A21	IC101	D10	Q2309	D22	R351	B19	R602	B17	R2321	D22
C031	C29	C553	D2	C3003	C12	IC451	D13	R002	B26	R352	C19	R603	C17	R2322	D22
C032	A25	C554	E2	C3005	B12	IC551	E6	R003	E29	R353	B19	R604	B17	R2353	B23
C033	C30	C555	D1	D001	B3	IC552	E6	R004	C2	R354	B19	R611	B15	R2356	A22
C035	C29	C556	E5	D002	E31	IC801	D6	R005	C2	R355	C19	R612	B15	R2451	C21
C036	C30	C557	D1	D003	E26	IC803	A6	R006	E26	R356	B19	R613	B16	R2455	B21
C037	B30	C559	D4	D006	B31	IC1001	A34	R007	D27	R357	B18	R614	B10	R2456	B21
C038	B30	C560	E19	D008	B29	IC1001	B33	R008	D27	R358	C18	R801	A3	R3005	C12
C101	E7	C561	E1	D009	E2	IC1001	C33	R010	E28	R359	B18	R805	A5	R3006	C12
C102	E7	C563	E15	D011	C3	IC1001	C34	R011	E28	R360	B19	R806	B5	R3009	A12
C103	C10	C564	E14	D014	C29	IC2303	C22	R012	B30	R361	C19	R808	D6	R3010	B12
C105	C10	C565	E13	D015	C29	IC2304	A22	R014	C29	R362	C19	R809	C6	R3011	A21
C106	C10	C566	E13	D016	D2	IC2451	B21	R015	C29	R363	B18	R810	D6	R3013	B12
C107	C12	C568	E15	D017	D2	JK3001	A12	R016	C31	R364	C18	R812	D6	RL801	A2
C108	C11	C569	D15	D052	C3	JK3001	A21	R017	D31	R365	B18	R813	D6	RL801	E31
C109	B12	C570	E7	D451	D13	JK3001	C12	R020	B29	R370	C19	R815	B1	S001	B25
C110	E8	C571	E4	D452	C14	JK3002	B12	R021	B30						

**MODEL CT-2521HDB (CHASSIS BP355)**

## IC FUNCTIONS



PARTS LIST

Item No.	Type No.	Mfr. Part No.	NTE Part No.
D001	-	ERA15-01	NTE116
D002	-	MA165	NTE519
D003	-	MA4047M	NTE5009A
D006	-	MA4330H	-
D008, 09,11	-	MA165	NTE519
D014 Thru	-		
D017	-	MA165	NTE519
D052	-	MA4068M	NTE5014A
D451	-	ERA15-01	NTE116
D452	-	MA4047M	NTE5009A
D453	-	MA165	NTE519
D501	-	MA4082L	-
# D531	-	AS01	NTE552
# D532	-	MA4062L	NTE5012A
# D551	-	TVSRU2N	NTE552
# D553, 54	-	AU02	NTE552
D555	-	MA165	NTE519
D556	-	MA4360H	-
# D558	-	RS3FS	NTE506
# D559	-	BYD33G-113	-
D560	-	MA165	NTE519
# D561	-	AU02	NTE552
# D801, 02	-	GP15KL-042	-
D806	-	MA4047H	NTE5009A
D807	-	MA165	NTE519
D820, 21, 22	-	EU02V1	NTE552
D823	-	RL30A	-
D824	-	EU02V1	NTE552
# D825	-	TVSSR2KL	-
D826	-	EU02V1	NTE552
D829	-	MA165	NTE519
D1001, 02, 03	-	MA4068M	NTE5014A
D2301, 02	-	MA165	NTE519
D2312	-	MA4068M	NTE5014A
D3002, 04	-	MA4110M	-
D3006 Thru	-		
D3009	-	MA4110M	-
D3016	-	MA3056M	-
# IC001	-	MN1874088TD0	-
IC002	-	M24C16-WBN6	-
# IC101	-	AN5165K	-
# IC451	-	LA7838	NTE7039
# IC551	-	AN78M09	NTE1910
IC552	-	AN78M05	NTE960
# IC801	-	PC817X2	NTE3098
# IC803	-	STR58041A	NTE7078
IC1001	-	TC4066BP	NTE4066B
IC2303, 04	-	LA4285	-
IC2451	-	AN5285K	-
Q001	-	2SD601ARTX	NTE2408
Q002	-	2SC1685QRS	NTE85
Q003, 04	-	2SB709ARTX	NTE2409
Q302, 04	-	2SD601ARTX	NTE2408
Q351, 52, 53	-	2SC3063	NTE157
Q430	-	2SD601ARTX	NTE2408
Q451, 52	-	2SD601ARTX	NTE2408
Q501	-	2SC4212H	NTE2501
# Q551	-	2SD2539MA1	NTE2353
Q801	-	2SC1685RSTA	NTE85
Q802	-	2SC1384RS	NTE293
Q804	-	2SA1767Q	-
Q1001 Thru	-		
Q1007	-	2SC1685QRS	NTE85
Q2309	-	2SB709ARTX	NTE2409

Item No.	Function/Rating	Mfr. Part No.	Notes
C304	.47μF 50V NP	ECEA1HNR47U	-
C354	.001 10% 2kV	ECKD3D102KB	-
C452	1μF 25V Tantalum	ECSF1EE105	-
# C531	22μF 25V	ECA1EM220	-
# C551	330μF 35V	ECA1VM331	-
# C552	470μF 25V	ECA1EM471	-
# C555	22μF 250V	ECEA2EU220	-
# C556	470μF 16V	ECA1CM471	-
# C560	2.2μF 25V	EEANA1E2R2B	-
# C563	.0082 5% 1.2kV	ECWH12H822JS	-
# C564	.0033 5% 1.2kV	ECWH12H332JS	-
# C565	470pF 5% 2kV	ECKD3D471JB	-
# C566	180pF 5% 2kV	ECKD3D181JB	-
# C568	.27 5% 200V	ECQM2274JZ	-
# C569	.56 5% 200V	ECWF2564JBB	-
# C801, 02	.0047 +100% -0% 250VAC	ECKDAE472ZED	-
# C805, 06	220μF 20% 200V	EC0S2DA221BB	-
# C809	150μF 200V	EC0S2DG151DG	-
# C810, 11	.015 20% 250VAC	ECQU2A153MV	-
# C812	.22 20% 250VAC	ECQU2A224MV	-
C818	820pF 10% 1kV	ECKD3A821KB	-
# C820	10μF 63V	ECA1JHG100B	-
# C823	33μF 160V	ECEA160V33Z	-
C824	330pF 10% 1kV	ECKD3A331KB	-
C825	470pF 10% 1kV	ECKD3A471KB	-
# CRA801, 02	Capristor	EXNG471P365	470pF 125VAC, 3.6M, Spark Gap
# D805	Thermistor	TRPW5B0M050D	PTC
# DY	Yoke	TLY2AA013	Horiz 1.1mH, Vert 19.5mH
# F801	Fuse	XBA2A00101	6.3Amp, 125V
IC003	Receiver	RPM-6937-V12	Remote
JK3001	Jack	TJB2AA0291	Assembly
JK3002	Jack	TJB2AA0034	Assembly
JS2302	1μF 50V NP	ECEA1HN010U	-
L001	2.2μH	TLTABT2R2K	-
L002	39μH	ELESN390KA	-
L003, 04	2.2μH	TLTABT2R2K	-
L006	Ferrite Bead	EXCELSA24T	-
L008	47μH	TLTABT470K	-
L009	Ferrite Bead	EXCELSA35	-
L012	Ferrite Bead	EXCELSA24T	-
L103	12μH	TLTABT120K	-
L104	1μH	TLTABT1R0K	-
L105	VCO	EIV7EN053B	-
L106	18μH	ELESN180JA	-
L253	Ferrite Bead	EXCELSA35	-
L351	-	TLTABT101K	-
# L551	Horizontal Linearity	TLH6663P	-
L602	12μH	ELESN120JA	-
# L801	Line Filter	ELF17N017A	-
L802	68μH	ELIE680KA	-
L804	Ferrite Bead	EXCELSA39	-
# L820	Degaussing	0LK19003-1A	-
L2301	Ferrite Bead	-	-
L2302	2.2μH	TLTABT2R2K	-
# M001	CRT	A63QDB891X	-
# M012	Socket	TJSC00300	CRT
# M025	Line Cord	TSX2AA0211	AC, Polarized
# R028	10K 5% 1/10W	ERJ6GEYJ103	-
R032	10K 1% 1/4W	ER0S2CKF1002	-
R305	3000 1% 1/4W	ER0S2CKF3001	-
R306	1800 1% 1/10W	ERJ6ENF1801	-
# R510, 11	3900 5% 3W	ERG3FJ392H	-
# R531	47 5% 1/4W	ERD25FJ470	-
# R532	56K 1% 1/10W	ERJ6ENF5602	-
# R533	21.5K 1% 1/10W	ERJ6ENF2152	-
# R551, 52, 53	1 5% 1/2W	ERDS1FJ1R0	-
# R558	.33 10% 1W Fusible	ERQ1CZKR33	-

PANASONIC

MODEL CT-2521HDB (CHASSIS BP355)

PARTS LIST continued

Item No.	Function/Rating	Mfr. Part No.	Notes
# R801	1.5 10% 7W	ERF7ZK1R5	-
# R815	8.2M 20% 1/2W	ERC12ZGM825	-
R824	39 5% 3W	ERG3FJ390	-
# R826	.22 10% 2W	ERF2AKR22	-
R828	47 5% 3W	ERG3FJ470H	-
R829	180 5% 1/4W Fusible	ERQ14AJ180	-
R2301	12 5% 2W Fusible	ERQ2CJP120	-
# RL801	Relay	TSEH8007	Power
S001	Switch	EVQPF106K	Power
S002	Switch	EVQPF106K	Volume Down
S003	Switch	EVQPF106K	Volume Up
S004	Switch	EVQPF106K	Channel Down
S005	Switch	EVQPF106K	Channel Up
S008	Switch	EVQPF106K	Action
S009	Switch	EVQPF106K	TV/Video
SP1, 2	Speaker	TAS2AA0012	16 Ohms, 1.5W
# T001	Power	TLP16297	-
# T501	Horizontal Driver	TLH15452	-
# T502	Horizontal Coupling	ETE19Z30AY	-
# T551 (1)	Horizontal Output	KFT4AB143F	-
# T801	Power	ETS28AE219NC	-
# TNR001	Tuner	ENV56D37G3R	-
X001	Crystal	TSSA010	-
X101	Filter	M1969M	SAW
X102	Trap	EFCS4R5MW5BA	4.5MHz
X201	Filter	SFSH4R5MDB	4.5MHz
X501	Crystal	TAFCSB503F38	503kHz
X601	Crystal	TSS2AA001	3.58MHz
	Magnet	0FMK014ZZ	Convergence Corrector
	PC Board (2)	TNP2AH008FF	A
	PC Board (3)	TNP2AH008FG	A
	PC Board	TNP2AA034AH	C
	PC Board (3)	TNP2AA072	DI

# For SAFETY use only equivalent replacement part.  
(1) Screen and focus controls are part of T551.  
(2) Used in model CT-2511HDB.  
(3) Used in model CT-2521HDB

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

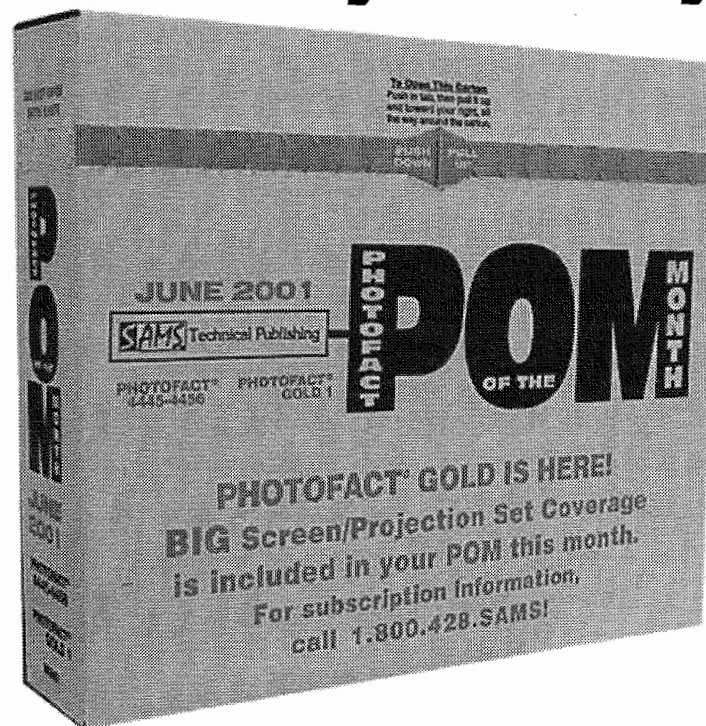
Participating Vendors

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

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

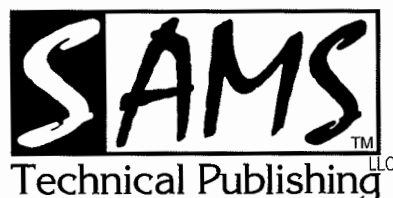
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