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.

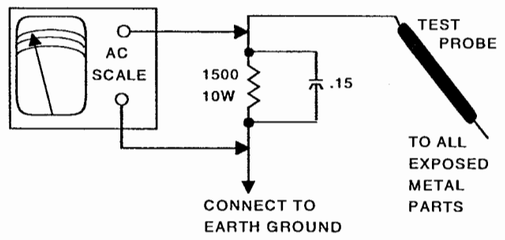
SAFETY CHECKS — FIRE AND SHOCK HAZARD

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

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.

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SET 5036

MODEL DS31820 (CHASSIS 31820-02)

SANYO

PHOTOFACT® SILVER *Technical Service Data*

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Model DS31820 (Chassis 31820-02)

INDEX

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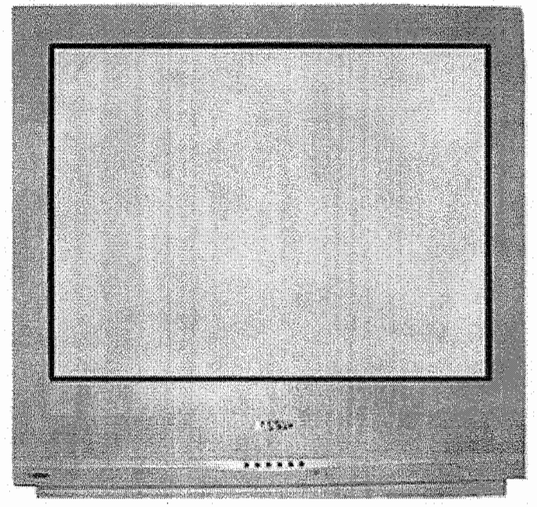


Representative Model

Essential coverage for servicing a television receiver...

- **Schematics**
- **Component locations**
- **Parts list**

Coverage includes this additional model and chassis:

Model	Chassis
DS32224	32224-01

SAMS™ Technical Publishing LLC

JULY 2005 SET 5036

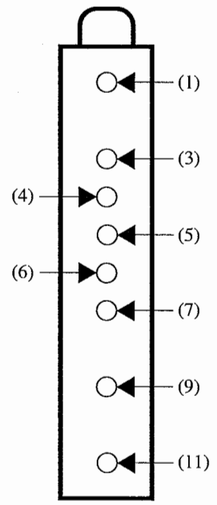
TUNER INFORMATION

TUNER VOLTAGE CHART

Pin	VHF Low Band	VHF High Band	UHF Band
(1) AGC	2.3V	2.3V	3.0V
(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	33.0V	33.0V	33.0V
(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.	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

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 28kV to 32kV.

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 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, change resistor R512 from 1000 ohms 1/2W to 470 ohms 1W.

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 RB, GB, BB. 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 820mV ±10mV.

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 .7Vp-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.

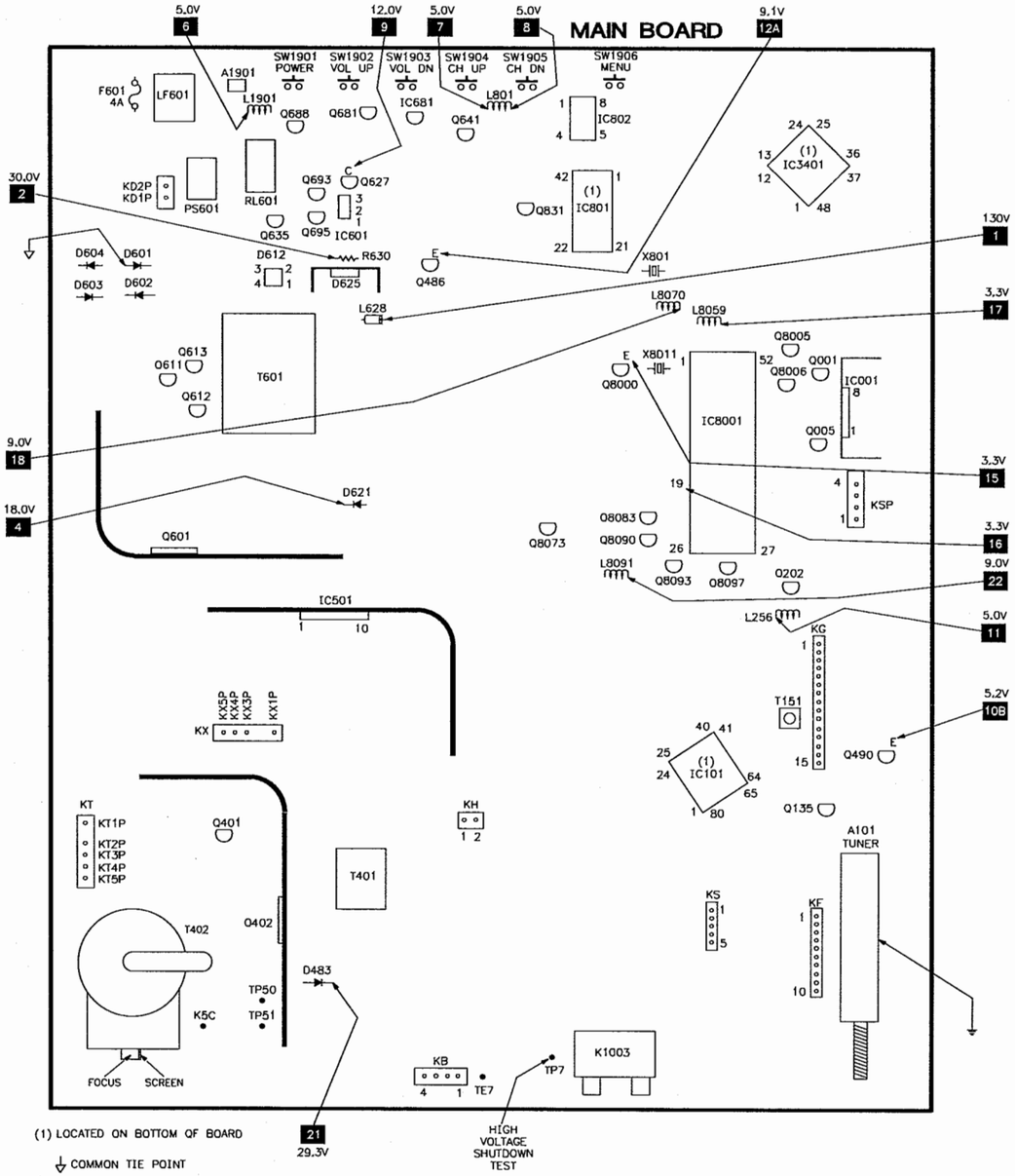
IC802 REPLACEMENT

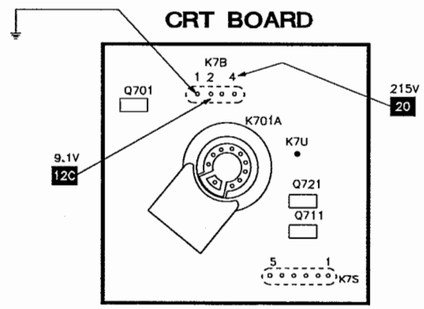
Perform the following adjustments after replacing IC802. Disconnect the AC power cord. While pressing the menu button on the front of the set, connect the AC power cord. Select service number 3C SCO and set value to 25. Select service number 3D STI and set value to 09. Select service number 3F SSH and set value to 04. Select service number 40 AFC6HFR and set value to BF. Select service number 43 VSP7VPO and set value to 15. Select service number 44 CDM5UVL and set value to 07. Select service number 45 VC5LVL and set value to 9F. Select service number 46 VSC and set value to 13. Select service number 4A RD and set value to 3A. Select service number 4C BD and set value to 3A. Select service number 50 OSD and set value to 0A. Select service number 54 FLS and set value to 83. Select service number 57 YGM8DCR4BSS2BSG 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 5F VL5BPF and set value to 80. Select service number 60 EWD and set value to 23. Select service number 61 EWA and set value to 18. Select service number 62 EWT and set value to 20. Select service number 63 EWB4EWP and set value to A8. Select service number 64 EWC7HLV6HSC and set value to 06. Select service number 65 BOW4ANG and set value to 77. Select service number 67 HBL4HBR and set value to 2A. Select service number 6A YTH2YGA and set value to 0D. Select number 6B RWD6ROF4BWD2BOF and set value to 10. Select service number 83 OPT and set value to 30. Select service number 8E SBO and set value to 07. 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 9B EBR and set value to FB. Select service number A1 EET and set value to FD. Select service number A2 EEP and set value to FE. Select service number AB VFL and set value to 04. Press menu button to exit Service Mode.

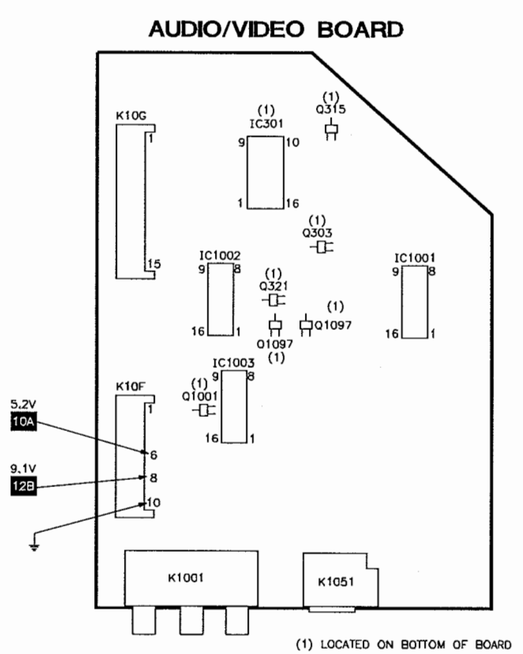
SERVICE MODE ADJUSTMENT CHART

No.	Service Adjustment	Initial Ref Value	Initial Set Up Value	Notes
3C	SCO	0F	25	Sub Color, Set data value to 25.
3D	STI	15	09	Sub Tint, Set data value to 09.
3E	SB	20	20	Sub Bright
3F	SSH	08	04	Sub Sharpness, Set data value to 04.
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	40	Vertical Size
43	VSP7VPO	2A	15	Vertical Sync Separator (7) Vertical Position, Set data value to 15.
44	CDM5UVL	06	07	Vertical Count Down Mode (5) Vertical Linearity Top, Set data value to 07.
45	VC5LVL	9E	9F	Vertical Compression (5) Vertical Linearity Bottom, Set data value to 9F.
46	VSC	14	13	Vertical S Correction, Set data value to 13.
47	RB	00	00	Red Bias, Set data value to 01. Press 1 to decrease value and 3 to increase value.
48	GB	00	00	Green Bias, Set data value to 00. Press 4 to decrease value and 6 to increase value.
49	BB	00	00	Blue Bias, Set data value to 00. 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	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	30	Sub Bias
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	YGM8DCR4BSS2BSG	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	80	Video Level (7~5) S BPF Switch, Set data value to 80.
60	EWD	28	23	E/W DC, Set data value to 23.
61	EWA	17	18	E/W Amp, Set data value to 18.
62	EWT	1D	20	E/W Tilt, Set data value to 20.
63	EWB4EWP	88	A8	E/W Corner Bottom (7~4) E/W Corner Top, Set data value to A8.
64	EWC7HLV6HSC	03	06	E/W Correction Sw (7) H Lock V Det (6) H Size Comp, Set data value to 06.
65	BOW4ANG	78	77	Bow Correction (7~4) Angle Correction, Set data value to 77.
66	PRE6OVR4CTT	C0	C0	Pre Shoot/ Over Shoot Switch
67	HBL4HBR	38	2A	H Blanking Left (7~4) H Blanking Right, Set data value to 2A.
68	SSP5VM	90	90	Sync Separator Sens (7~5) VM Gain
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	MTS Low Separation.
82	SPC	20	20	MTS Hi Separation.
83	OPT	70	30	Option, data 1 should be set to 30, in binary 8 bit 00110000.
84	OP2	52	52	Option, data 2 should be set to 52, in binary 8 bit 01010010.
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 Chroma Gain
8C	PTI	28	28	PIP Tint
8D	HR	16	16	OSD Horizontal Position
8E	SBO	05	07	Sub Bright Offset, Set data value to 07.
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	F4	16: 9 Sub Contrast
9B	EBR	00	FB	16: 9 Sub Bright, Set data value to FB.
9C	ECL	00	00	16: 9 Sub Color
9D	ETN	00	00	16: 9 Sub Tint
9E	EVS	F9	F9	16: 9 Sub V Size
9F	EVP	00	00	16: 9 Sub V Position
A0	EEA	F5	F5	16: 9 Sub E/W Amp
A1	EET	FB	FD	16: 9 Sub E/W Tilt, Set data value to FD.
A2	EEP	00	FE	16: 9 Sub E/W Corner Top, Set data value to FE.
A3	EEB	FC	FC	16: 9 Sub E/W Corner Bottom
A4	EUV	FC	FC	16: 9 Sub Vertical Linearity Top
A5	ELV	00	00	16: 9 Sub Vertical Linearity Bottom
A6	EWV	02	02	16: 9 Sub Vertical Blanking Select
A7	SSN	02	02	Sync Separator Sens
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	00	00	Red Bias, press 1 to decrease value and 3 to increase value.
	GB	00	00	Green Bias, press 4 to decrease value and 6 to increase value.
	BB	00	00	Blue Bias, press 7 to decrease value and 9 to increase value.

PLACEMENT CHART







SANYO MODEL DS31820 (CHASSIS 31820-02)

TELEVISION SCHEMATIC

TUNER NOT INCLUDED IN THIS COVERAGE

A101 TUNER
RF IN 75
PB 7 5.2V
MB 6
TU-B 33.0V 9
EN 3
AGC 2.3V 1
DATA 4.2V 5
CLK 4.3V 4
IF 0V 11

R107 8200
R106 18K #
1 130V
D101 36.0V
C103 .01
C106 3.3µF
SEE IC801 PIN 28 PAGE 2G
INTERNAL SYNC

R856 100
R857 100
SEE IC801 PIN 32 PAGE 2G
SEE IC801 PIN 34 PAGE 2G

X141 SAW FILTER
R143 1000
C143 .01
78 2.9V
79 2.9V

PART OF # IC101 SIGNAL PROCESS
SDA 8
SCL 9
77
R803 100
R804 100
R142 33K
10B 5.2V

PART OF K1001 CR COMPONENT VIDEO IN
PART OF K1001 CB COMPONENT VIDEO IN
R1055 75
R1053 75
R1054 100
R1056 100
C1054 .1
C1055 .1
K10F 7
KF 7
K10F 9
KF 9
T151
7 2.6V
60
59
39
40
67

SEE IC801 PIN 29 PAGE 2G
R162 100K
R161 100K
C161 .1
10B 5.2V

70
72
58
65
71
80
35
74
5
50
C153 .47µF
C151 .47µF
R151 330
C128 10µF
12A 9.1V
10B 5.2V
R209 100
2.0V 10µs
SEE IC801 PIN 17 PAGE 2G

C137 10pF (47pF)
69 3.2V
PART OF # IC101 SIGNAL PROCESS
3.8V 75
4.2V 66 NC
1.9V 68
C134 .0015
C133 .01
R133 1500
3.5V 73 NC
2.5V 76
R131 12K
C142 .022
C131 1µF
R135 100 3.8V
Q135 AUDIO AMP 3.2V
R137 1000
12A 9.1V
SEE IC3401 PIN 13 PAGE 3A

1.4V 10µs
R164 1000
L164 4.5MHz
X161 TRAP
Q202 IF AMP 2.5V
1.8V
R201 470
11 5.0V
KF 1
SEE IC301 PIN 3 PAGE 3C

R167 150 (180)
R163 120
R166 470 (390)
56 2.4V
1.8V

R533 330K (56K)
R531 6800 (39K)
R532 68K
10B 5.2V
SEE IC801 PIN 2 PAGE 2G
R444 18K
10B 5.2V
1.5V 5ms
R503 5600 (4700)
C506 .0056 63V
25 4.5V
16 4.9V VS
27 2.4V

PART OF # IC101 SIGNAL PROCESS
1.7V HS .8V
34 R449 4700 1%
R443 4700
10B 5.2V
SEE IC801 PIN 1 PAGE 2G
15
33
38
4
51
21
22
23
29
30
2
3
42
43
36
31
28
24
41
32
26
.63V
2.4V
H GND 2.3V

R281 10K
C427 .01
R426 680
C402 .01
C401 330µF (470µF)
C403 .0068 63V
R405 5600
C405 1µF
D351 5.1V
R423 3300 1%
C421 220µF
R401 100
R402 100
9 12.0V
1.7V 10µs
C509 .47 63V
C505 .47 63V
10B 5.2V
R400 100
R404 100
R462 22K
C462 100pF
R509 18K
R508 6800
R504 8200
R506 680
C503 3.3µF
C504 2200µF
R505 1.8 (1.5)
R507 1.8
Q401 HORIZ DRIVE 55.5V .31V
C406 470pF 500V
R405 5600
C407 .0022 500V
123V 10µs
T401
C408 4.7µF 160V
R407 4700 2W
1 130V

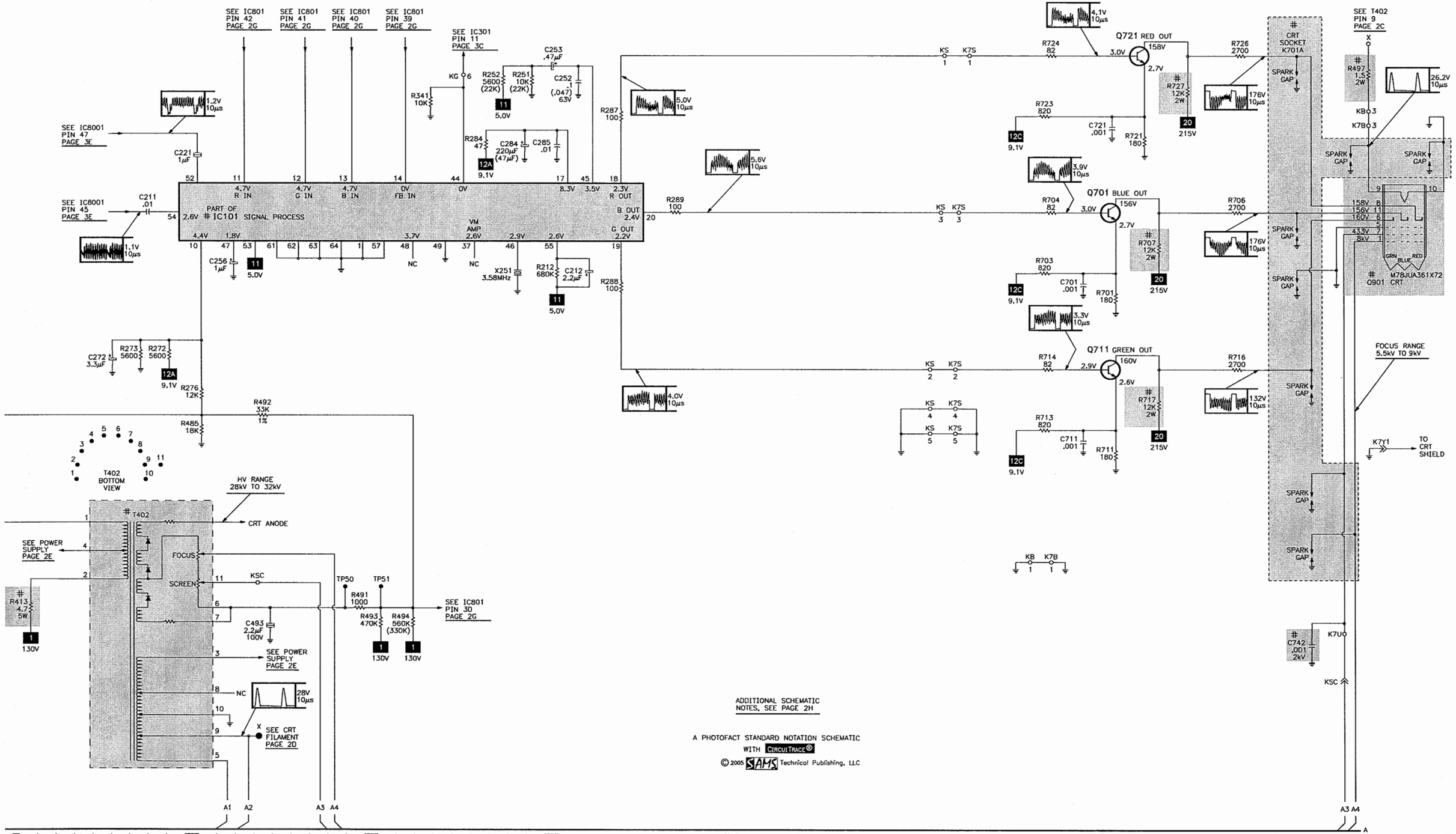
D421 11.0V
D422 11.0V
R422 10K 1%
R421 1800 1%
TE7
TP7
D428 15.0V
D429
R428 15K
SEE IC801 PIN 3 PAGE 2G
R354 10K
D482
C484 4.7µF
R482
A1
A2
A

ADDITIONAL SCHEMATIC NOTES, SEE PAGE 2H
A PHOTOFACT STANDARD NOTATION SCHEMATIC WITH CIRCUITRACE®

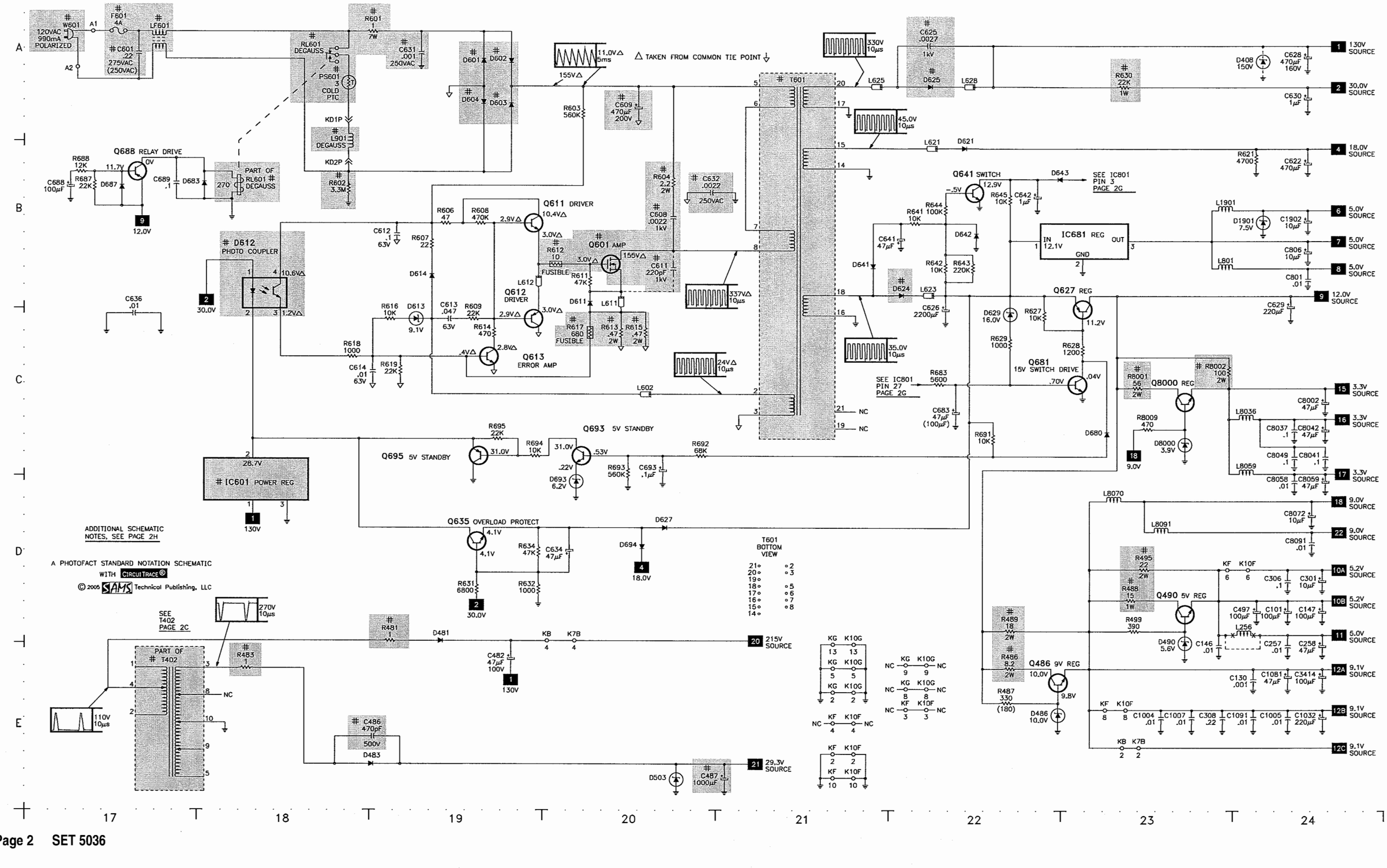
IC501 VERT OUT
VCC 6 2.7V
9 2.7V
21 29.3V
10 16.3V
GND 1
3 30.2V
7 2.4V
8 2.7V
4 2.7V
14.2V 2
R461 330K
C502 220µF
D501
R464 18K
C465 4.7µF
R468 39K
12A 9.1V
C516 4.7µF
R518 18K
R517 39K
12A 9.1V
36V 5ms
34V 5ms
60.0V 5ms
D502 75.0V
21 29.3V
27.5V 10µs
L401
L403
Q402 HORIZ OUT 128V
-.01V
0V
R463 3.3 1W
L402
L414
L416
C419 2.2µF 100V
D461
C463 .015
21 29.3V
R467 1200 2W

DY YOKE
KX1P
KX4P
KX5P
KX3P
R511 Z20 2W
C511 .15
R512 1000
21 29.3V
R418 2700
L413 MAGNET
C411 .0086 1.5kV 3%
C412 .0078 1.5kV 3%
C413 .022 400V
C414 .018 400V
C416 .27 250V
C417 .22 250V
D407
D406

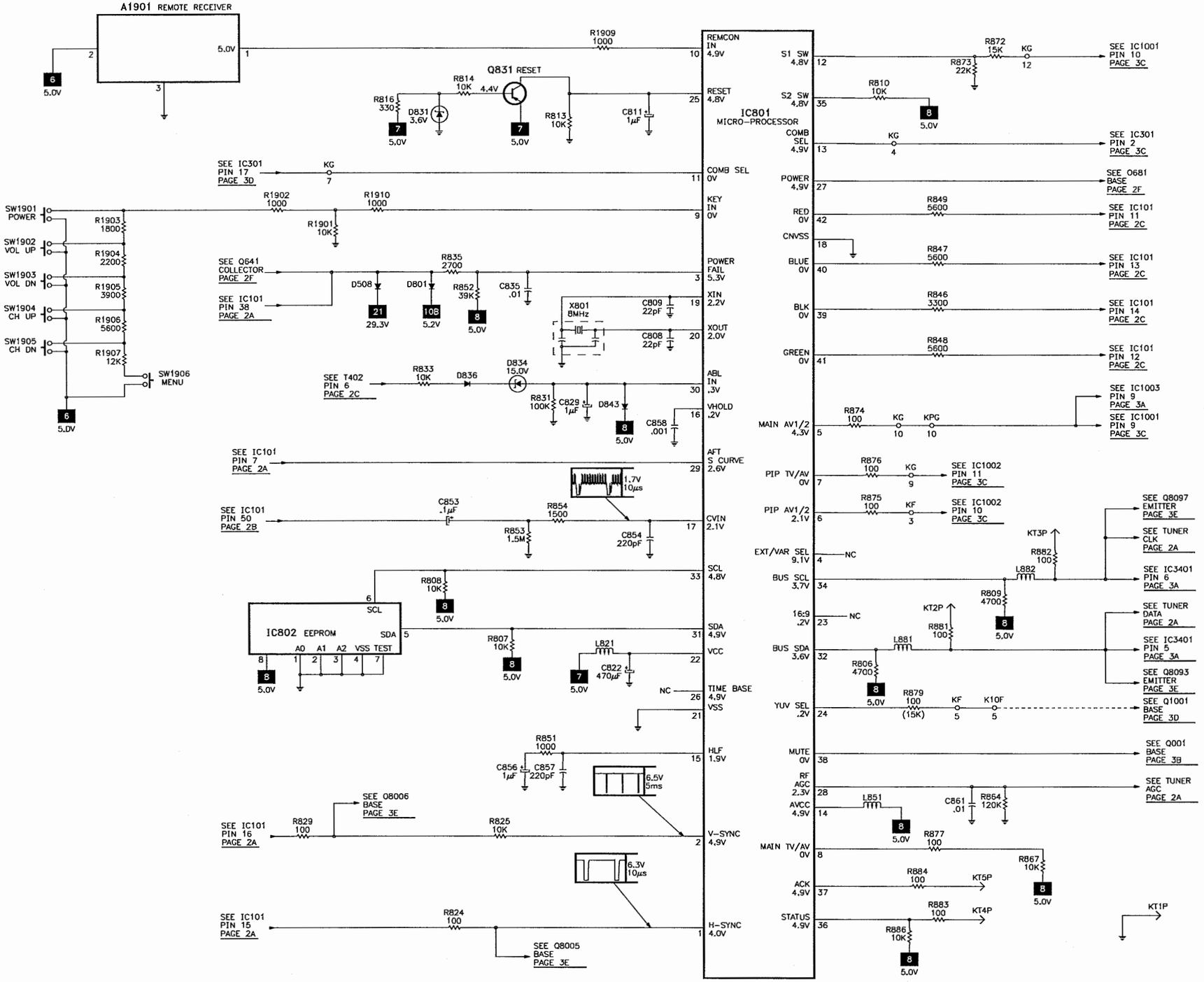
TELEVISION SCHEMATIC continued



POWER SUPPLY SCHEMATIC



SYSTEM CONTROL 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

Token from common tie point

3 Schematic CIRCUITRACE® Voltage source tie point.

A — Cabling: Heavy lines reduce use of multiple lines.

Waveforms and voltages are token from ground, unless otherwise noted.
Waveforms token 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.
Capacitor values are in microforods 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.
Roted voltage shown on zener diodes.

SANYO MODEL DS31820 (CHASSIS 31820-02)

AUDIO SCHEMATIC

SEE Q135 EMITTER PAGE 2A

R3461 1000
R3462 820
C3411 .47µF

PART OF K1001 AUDIO IN 1 LEFT
R3458 100
C3447 4.7µF
R3447 330K

PART OF K1001 AUDIO IN 1 RIGHT
R3456 100
C3445 4.7µF
R3445 330K

PART OF K1001 AUDIO IN 2 LEFT
R3454 100
C3443 4.7µF
R3453 330K

PART OF K1001 AUDIO IN 2 RIGHT
R3452 100
C3441 4.7µF
R3451 330K

PART OF IC1003 SELECT AUDIO
PART OF IC1003 SELECT AUDIO

K10G KG
K10G KG

SEE IC801 PIN 5 PAGE 2G
SEE IC801 PIN 32 PAGE 2G
SEE IC801 PIN 34 PAGE 2G

R3401 220
R3402 220

C3416 4.7µF
C3436 4.7µF
C3432 .1µF
C3426 10µF
C3423 3.3µF
C3417 4.7µF
C3413 4.7µF
C3412 47µF
C3408 .47µF
C3401 .1µF
R3421 3300
C3421 .0027
R3422 3000
C3422 .047
R3426 3900
C3427 1µF
C3433 .0047
C3434 .022
C3431 .0047
R3411 62K

IC3401 MTS

13	COMP IN 4.1V	LSOUT-L 4.1V	4
35	NC 0V	MAIN IN 4.1V	8
34	AUX1-L 4.1V	MAIN OUT 4.1V	9
21	SUBOUT 4.1V	LSOUT-R 4.1V	3
22	STIN 4.1V		
33	AUX1-R 4.1V	VEOUT 4.1V	29
16	NC 0V	VCA IN 4.1V	30
48	VOLINL 4.1V		
1	TOUTL 4.1V		
5	SDA 3.6V	SAP OUT 3.9V	24
6	SCL 3.7V	SAP IN 4.1V	25
37	NC AUX2-L 4.1V	VOLIN-R 4.1V	43
36	NC AUX2-R 4.1V	TOUT-R 4.1V	44
45	BASS-R 4.2V	TV OUT-L 4.1V	39
31	VCATC 2.0V	0V	20 NC
28	VETC 1.9V		
23	NOISETC 3.7V	DGND	7
18	SAPTC 4.1V	GND	17, 42, 46
14	VGR 1.3V		
12	PLLINT 4.8V		
2	BASS-L 4.1V	TV OUT-R 4.1V	38
26	VE 4.1V	RCINT1 4.1V	10
27	VEWGT 4.1V		
32	VCAWGT 4.1V	RCINT2 4.1V	11
41	LBC 4.1V		
40	LTC 4.1V		
47	RBC 4.1V		
15	IREF 1.3V		
			19

C3404 4.7µF
C3424 4.7µF
C3418 4.7µF
C3439 4.7µF

R3406 100K
R3407 1M
C3407 .0056
C3406 .012

12A 9.1V

R001 12K
R003 1500
C001 1µF
C008 .0047
R002 12K
R004 1500
C002 1µF
C009 .0047

IC002 AUDIO OUT

7	LIN	L OUT	1
5	NC		
6	RIN	R OUT	3
8	PREGND		
4	PWGND		
2	VCC		

C011 220µF
C010 220µF
KSP
SP901 8Z
SP902 8Z
LEFT CHANNEL
RIGHT CHANNEL

C015 330µF (100µF)

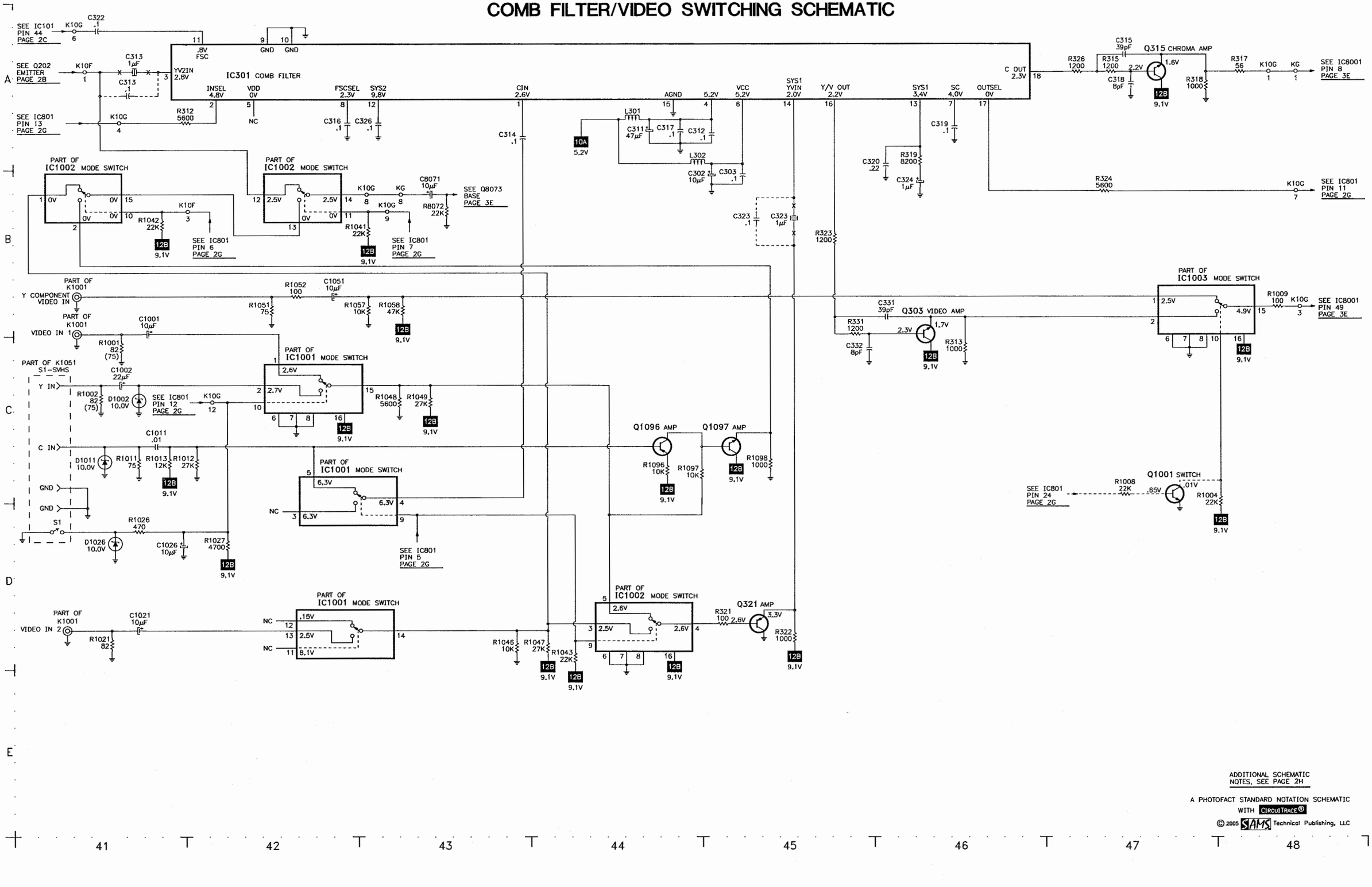
SEE IC801 PIN 38 PAGE 2G
R012 5600
Q001 SWITCH
R006 820
Q005 SWITCH
R005 10K
R009 4.7 2W
4 18.0V

R3432 10K
C3435 4.7µF
R3434 560
R3435 100K
PART OF K1003 LEFT AUDIO OUT

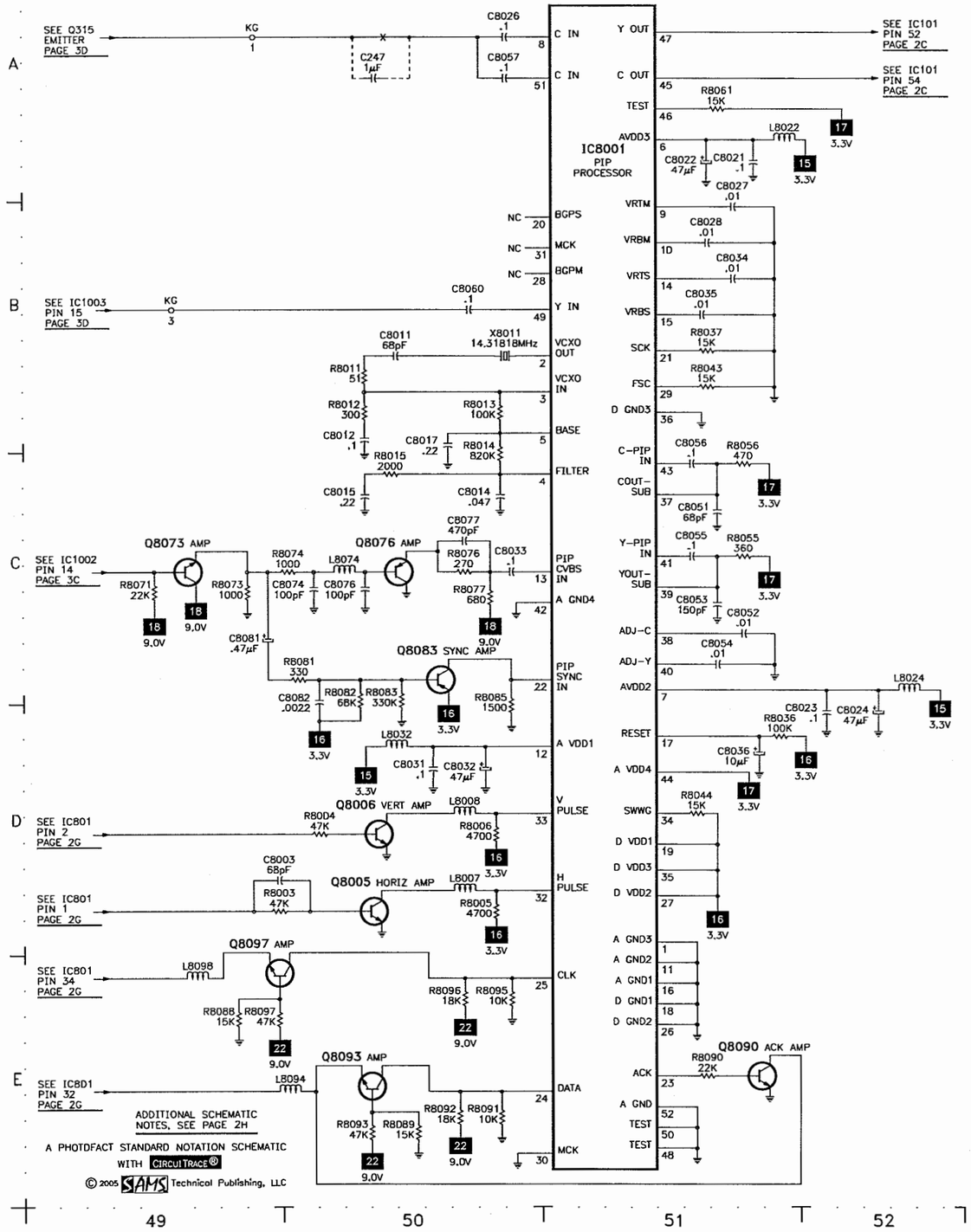
R3433 10K
C3437 4.7µF
R3436 560
R3437 100K
PART OF K1003 RIGHT AUDIO OUT

ADDITIONAL SCHEMATIC NOTES, SEE PAGE 2H

COMB FILTER/VIDEO SWITCHING SCHEMATIC



E
PIP SCHEMATIC



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

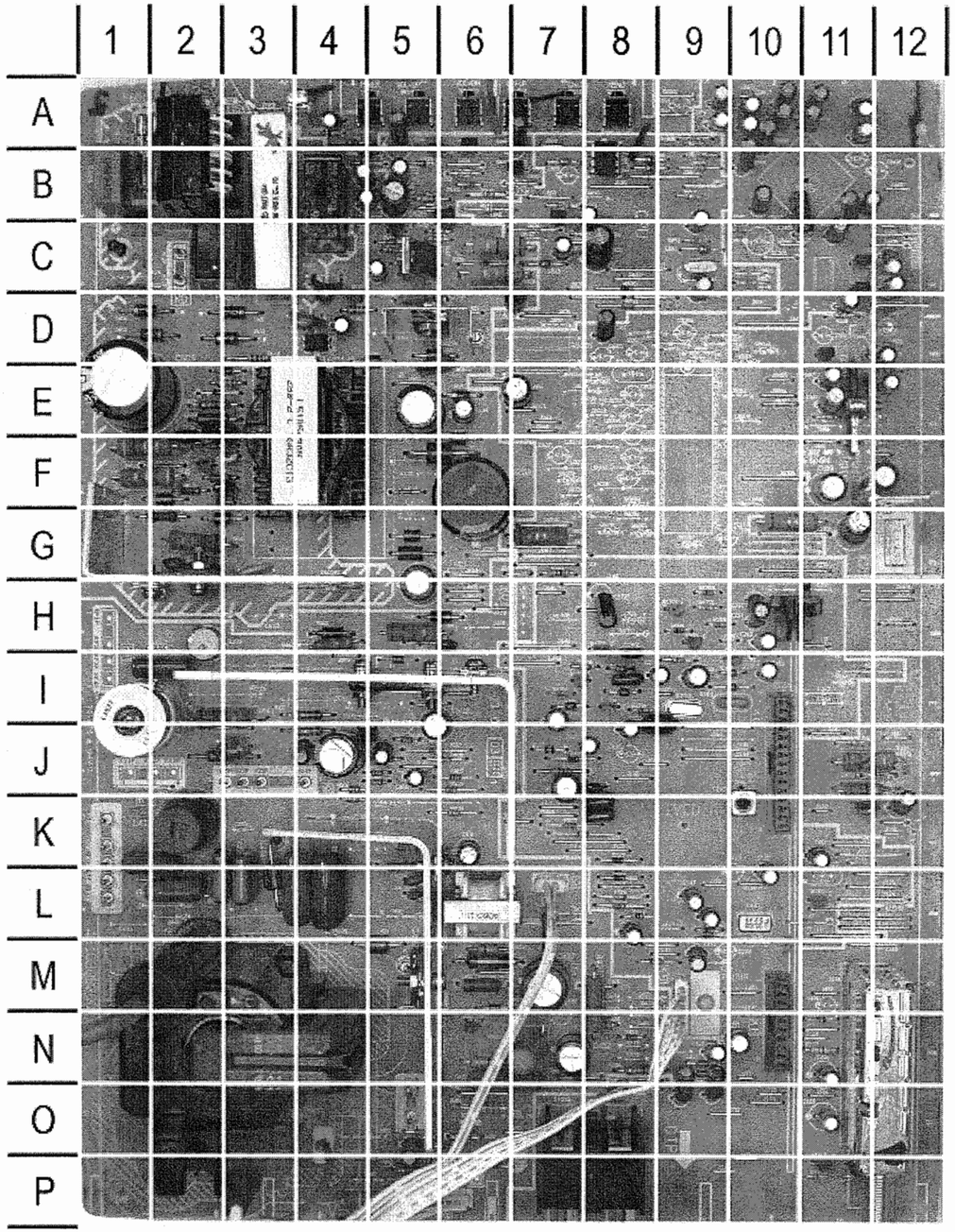
Information on test equipment and replacement parts is listed in these pages for the following participating vendors.

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

SCHEMATIC COMPONENT LOCATION GUIDE

A101	B1	C318	A47	C622	B24	C3404	A36	C8041	C24	D625	A22	K1001	C41	Q402	E6	R163	B6	R463	E6	R621	B24	R833	C26	R1057	B43	R8036	D51
A1901	A25	C319	A46	C625	A22	C3406	E37	C8042	C24	D627	D20	K1001	D41	Q486	E22	R164	B6	R464	D6	R627	C22	R835	B27	R1058	B43	R8037	B51
C001	A38	C320	B46	C626	C22	C3407	E37	C8049	C24	D629	C22	K1003	C39	Q490	D23	R166	B6	R467	E5	R628	C23	R846	B29	R1096	C44	R8043	B51
C002	B38	C322	A41	C628	A24	C3408	D35	C8051	C51	D641	B21	K1003	D40	Q601	B20	R167	B6	R468	D6	R629	C22	R847	B29	R1097	C44	R8044	D51
C008	A38	C323	B45	C629	C24	C3411	A35	C8052	C51	D642	B22	L164	B6	Q611	B19	R201	B7	R481	E19	R630	A23	R848	C29	R1098	C45	R8055	C51
C009	B38	C323	B45	C630	A24	C3412	D35	C8053	C51	D643	B22	L256	E23	Q612	C19	R209	B5	R482	E2	R631	D19	R849	B29	R1901	B26	R8056	C51
C010	B39	C324	B46	C631	A19	C3413	D35	C8054	C51	D680	C23	L301	A44	Q613	C19	R212	B12	R483	E18	R632	D19	R851	D27	R1902	B26	R8061	A51
C011	A39	C326	A43	C632	B20	C3414	E24	C8055	C51	D683	B18	L302	B44	Q627	C23	R251	A11	R485	C10	R634	D19	R852	B27	R1903	B25	R8071	C49
C015	B39	C331	C45	C634	D20	C3416	B35	C8056	C51	D687	B17	L401	E6	Q635	D19	R252	A11	R486	E22	R641	B22	R853	C27	R1904	B25	R8072	B43
C101	D24	C332	C45	C636	C17	C3417	D35	C8057	A50	D693	D20	L402	E6	Q641	B22	R272	C9	R487	E22	R642	B22	R854	C27	R1905	B25	R8073	C49
C103	B2	C401	D2	C641	B22	C3418	C36	C8058	D24	D694	D20	L403	E7	Q681	C22	R273	C9	R488	D23	R643	B22	R856	B2	R1906	B25	R8074	C49
C106	C2	C402	D2	C642	B22	C3421	E35	C8059	D24	D801	B27	L413	D8	Q688	B17	R276	C10	R489	D22	R644	B22	R857	B2	R1907	B25	R8076	C50
C128	B5	C403	D2	C683	C22	C3422	E35	C8060	B50	D831	A27	L414	E6	Q693	C20	R281	D1	R491	D10	R645	B22	R864	E29	R1909	A27	R8077	C50
C130	E24	C405	D3	C688	B17	C3423	D35	C8071	B43	D834	C27	L416	E7	Q695	C19	R284	B11	R492	C10	R683	C22	R867	E29	R1910	B26	R8081	C50
C131	A7	C406	E4	C689	B17	C3424	B36	C8072	D24	D836	C27	L602	C20	Q701	B15	R287	A12	R493	D11	R687	B17	R872	A29	R3401	C36	R8082	D50
C133	A6	C407	E4	C693	D20	C3426	C35	C8074	C50	D843	C27	L611	C20	Q711	C15	R288	B12	R494	D11	R688	B17	R873	A29	R3402	C36	R8083	D50
C134	A6	C408	E5	C701	B14	C3427	E35	C8076	C50	D1002	C41	L612	B19	Q721	A15	R289	B12	R495	D23	R691	C22	R874	C29	R3406	E37	R8085	D50
C137	A5	C411	E7	C711	C14	C3431	E35	C8077	C50	D1011	C41	L621	B22	Q831	A27	R312	A41	R497	A16	R692	C20	R875	C29	R3407	E36	R8088	E49
C142	A7	C412	E7	C721	B15	C3432	C35	C8081	C49	D1026	D41	L623	C22	Q901	B16	R313	C46	R499	D23	R693	D20	R876	C29	R3411	E35	R8089	E50
C143	B3	C413	E7	C742	D16	C3433	E35	C8082	D50	D1901	B24	L625	A21	Q1001	D47	R315	A47	R503	D4	R694	C19	R877	E29	R3421	E35	R8090	E51
C146	E23	C414	E7	C801	B24	C3434	E35	C8091	D24	D8000	C23	L628	A22	Q1096	C44	R317	A48	R504	D5	R695	C19	R879	D29	R3422	E35	R8091	E50
C147	D24	C416	E8	C806	B24	C3435	C39	D101	B1	DY	D8	L801	B23	Q1097	C45	R318	A47	R505	E5	R701	C15	R881	D29	R3426	E35	R8092	E50
C151	B5	C417	E8	C808	B28	C3436	B35	D351	D2	F601	A17	L821	D27	Q8000	C23	R319	B46	R506	D5	R703	B14	R882	C30	R3432	C38	R8093	E50
C153	B4	C419	E7	C809	B28	C3437	D39	D406	E8	IC002	A39	L851	E29	Q8005	D50	R321	D45	R507	E5	R704	B14	R883	E29	R3433	D38	R8095	E50
C161	A3	C421	D2	C811	A28	C3439	C36	D407	E8	IC101	A6	L881	D29	Q8006	D50	R322	D45	R508	D5	R706	B15	R884	E29	R3434	C39	R8096	E50
C211	B9	C427	D2	C822	D27	C3441	C34	D408	A24	IC101	B10	L882	D29	Q8073	C49	R323	B45	R509	D5	R707	B15	R886	E29	R3435	C39	R8097	E49
C212	B12	C462	D4	C829	C27	C3443	B33	D421	E2	IC101	B4	L901	B18	Q8076	C50	R324	B47	R511	D7	R711	C15	R1001	C41	R3436	D39	RL601	A18
C221	B10	C463	E6	C835	B27	C3445	B33	D422	E2	IC101	D2	L1901	B23	Q8083	C50	R326	A47	R512	D7	R713	C14	R1002	C41	R3437	D39	RL601	B18
C247	A50	C466	D6	C853	C27	C3447	A33	D428	E2	IC301	A42	L8007	D50	Q8090	E51	R331	C45	R517	D7	R714	C14	R1004	D47	R3445	B33	SP901	A40
C252	A12	C482	E19	C854	C28	C8002	C24	D429	E2	IC501	D6	L8008	D50	Q8093	E50	R341	A11	R518	D7	R716	C15	R1008	D47	R3447	A33	SP902	B40
C253	A11	C484	E2	C856	D27	C8003	D49	D461	E6	IC601	D18	L8022	A51	Q8097	E49	R354	E1	R531	C3	R717	C15	R1009	B48	R3451	C33	SW1901	B25
C256	B10	C486	E18	C857	D27	C8011	B50	D481	E19	IC681	B23	L8024	D52	R001	A37	R400	D3	R532	C3	R721	B15	R1011	C41	R3452	C33	SW1902	B25
C257	E24	C487	E21	C858	C28	C8012	C50	D482	E2	IC801	A28	L8032	D50	R002	B37	R401	E2	R533	C3	R723	B14	R1012	C42	R3453	B33	SW1903	B25
C258	E24	C493	D10	C861	E29	C8014	C50	D483	E18	IC802	D26	L8036	C23	R003	A37	R402	E2	R601	A18	R724	A14	R1013	C41	R3454	B33	SW1904	B25
C272	C9	C497	D24	C1001	C41	C8015	C50	D486	E22	IC1001	C42	L8059	D23	R004	B37	R404	E3	R602	B18	R726	A15	R1021	D41	R3456	B33	SW1905	B25
C284	B11	C502	D6	C1002	C41	C8017	C50	D490	E23	IC1001	C42	L8070	D23	R005	C39	R405	D3	R603	A20	R727	A15	R1026	D41	R3458	A33	SW1906	C25
C285	B12	C503	D5	C1004	E23	C8021	A51	D501	D6	IC1001	D42	L8074	C50	R006	C39	R406	E4	R604	B20	R803	B4	R1027	D42	R3461	A34	T151	B4
C301	D24	C504	D5	C1005	E24	C8022	A51	D502	D7	IC1002	B41	L8091	D23	R009	C39	R407	E5	R606	B19	R804	B4	R1041	B43	R3462	A35	T401	E5
C302	B45	C505	D4	C1007	E23	C8023	D52	D503	E20	IC1002	B42	L8094	E49	R012	C38	R413	D9	R607	B19	R806	D29	R1042	B41	R8001	C23	T402	D9
C303	B45	C506	D4	C1011	C41	C8024	D52	D508	B26	IC1002	D44	L8098	E49	R106	C1	R418	D8	R608	B19	R807	D27	R1043	D44	R8002	C23	T402	E17
C306	D24	C509	D3	C1021	D41	C8026	A50	D601	A19	IC1003	A34	LF601	A17	R107	B1	R421	E2	R609	C19	R808	D27	R1046	D43	R8003	D49	T601	A21
C308	E23	C511	D7	C1026	D41	C8027	B51	D602	A19	IC1003	B34	PS601	A18	R131	A7	R422	E2	R611	B20	R809	D29	R1047	D44	R8004	D50	W601	A17
C311	A44	C516	D7	C1032	E24	C8028	B51	D603	A19	IC1003	B47	Q001	C39	R133	B6	R423	D2	R612	B19	R810	A29	R1048	C43	R8005	D50	X141	B3
C312	A45	C601	A17	C1051	B42	C8031	D50	D604	A19	IC3401	A36	Q005	C39	R135	A7	R426	D2	R613	C20	R813	A27	R1049	C43	R8006	D50	X161	B6
C313	A41	C608	B20	C1054	A5	C8032	D50	D611	C20	IC8001	A51	Q135	A7	R137	A8	R428	E2	R614	C19	R814	A27	R1051	B42	R8009	C23	X251	B11
C313	A41	C609	A20	C1055	A5	C8033	C50	D612	B18	K1001	A33	Q202	B7	R142	C4	R443	D1	R615	C20	R816	A26	R1052	B42	R8011	B50	X801	B27
C314	A43	C611	B20	C1081	E24	C8034	B51	D613	C19	K1001	A4	Q303	C46	R143	B3	R444	C4	R616	C19	R824	E27	R1053	A4	R8012	B50	X8011	B50
C315	A47	C612	B19	C1091	E24	C8035	B51	D614	B19	K1001	A4	Q315	A47	R151	C5	R449	D1	R617	C20	R825	E27	R1054	A5	R8013	B50		
C316	A42	C613	C19	C1902	B24	C8036	D51	D621	B22	K1001	B33	Q321	D45	R161	A3	R461	D5	R618	C18	R829	E26	R1055	A4	R8014	C50		
C317	A44	C614	C18	C3401	D35	C8037	C24	D624	C22	K1001	B41	Q401	E4	R162	A3	R462	D4	R619	C19	R831	C27	R1056	A5	R8015	C50		

MAIN BOARD - TOP VIEW

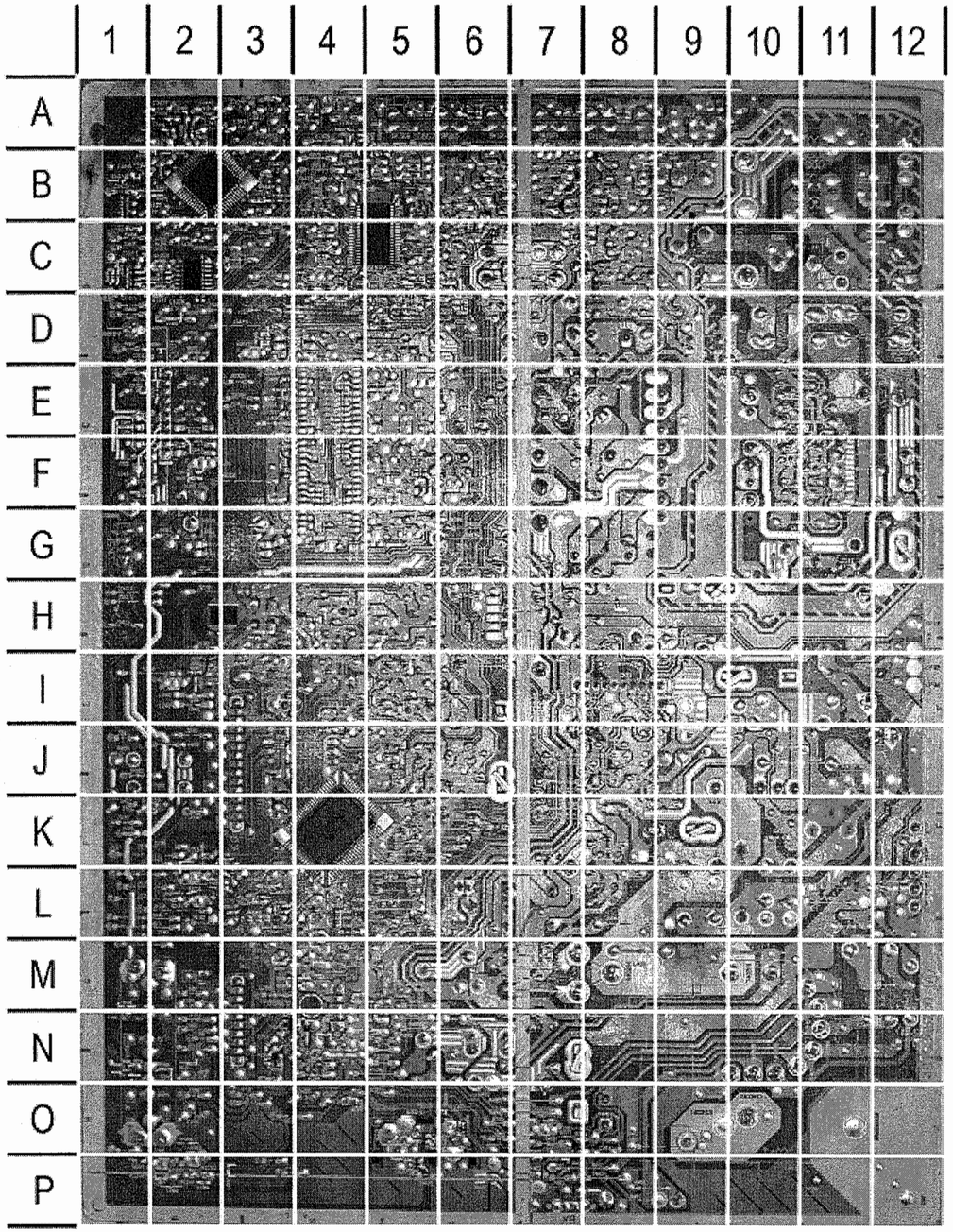


A SAMS Technical Publishing, LLC GRIDTRACE™ PHOTO

MAIN BOARD - TOP VIEW, GRIDTRACE LOCATION GUIDE

A101	N12	C511	J3	D406	L2	L256	I10	R284	L8	R604	G2
A1901	A4	C516	J5	D407	L3	L401	M6	R287	K8	R606	F2
C001	D12	C601	B1	D408	H6	L402	M6	R288	L8	R607	E3
C002	E12	C608	G3	D421	N9	L403	M5	R289	L8	R611	G2
C010	F11	C609	E1	D422	N9	L413	K2	R354	O5	R612	G2
C011	G11	C611	G2	D428	O6	L414	H2	R400	J7	R613	F1
C015	F12	C612	E2	D461	H5	L416	I1	R401	J7	R614	F2
C101	N11	C613	E2	D481	N7	L602	E2	R402	G7	R615	F1
C106	O11	C614	F3	D482	P5	L611	F2	R404	K6	R617	F2
C128	L10	C622	H5	D483	M6	L612	G3	R406	K5	R618	D3
C131	L9	C625	E5	D486	C6	L621	G5	R407	M8	R627	C6
C147	L9	C626	E5	D490	J12	L623	E6	R413	N7	R628	B5
C151	K11	C628A	F6	D501	I5	L625	D5	R418	J3	R630	D5
C153	I10	C629	B5	D502	H4	L618	D5	R422	P6	R631	D4
C211	H10	C630	D4	D508	M8	L821	C7	R428	O6	R641	B6
C212	H10	C631	C4	D601	D3	L851	C9	R443	L8	R644	B6
C221	H10	C632	D4	D602	D3	L881	B8	R444	L8	R683	B6
C252	I9	C634	C5	D603	D2	L882	B8	R461	H5	R691	C6
C253	J8	C641	E6	D604	D1	L1901	A4	R462	J6	R692	C5
C256	I9	C642	A7	D611	F2	LF601	A2	R463	H4	R693	B5
C258	I9	C683	B5	D612	D4	PS601	C2	R464	J5	R694	C5
C272	M9	C688	B4	D613	E2	Q001	D11	R467	H5	R695	C5
C284	L8	C693	B4	D614	E3	Q135	L11	R468	J6	R803	L9
C401	J7	C806	A5	D621	G5	Q202	I10	R481	O6	R804	L9
C403	J8	C811	C7	D624	F6	Q401	K5	R482	P5	R835	B9
C405	J8	C822	C8	D625	D5	Q402	M5	R483	N6	R851	C9
C406	L5	C829	B8	D627	D5	Q486	D7	R486	C6	R852	B9
C407	L5	C853	C9	D629	B5	Q490	J11	R487	C6	R867	C10
C408	K6	C856	B9	D641	E6	Q601	G2	R488	J11	R879	C8
C411	L4	C1081	D8	D642	B6	Q611	F2	R489	C6	R1909	A9
C412	L4	C1902	A4	D643	B7	Q612	F3	R491	P6	R1910	A9
C413	K1	C3401	B10	D680	B5	Q613	F3	R492	N8	R3401	C10
C414	L2	C3404	B10	D683	B4	Q627	B6	R493	N8	R3402	B10
C416	L3	C3408	A10	D687	B4	Q635	D4	R494	N8	RL601	B4
C417	L2	C3411	A9	D693	C5	Q641	B7	R495	J11	SW1901	A5
C419	I2	C3412	A9	D694	F5	Q681	A5	R497	P5	SW1902	A5
C421	N9	C3413	A10	D801	N8	Q688	B5	R499	J11	SW1903	A6
C463	H6	C3414	A10	D834	C8	Q693	C5	R503	J6	SW1904	A7
C466	J5	C3416	A10	D836	C7	Q695	C5	R504	J5	SW1905	A7
C482	N7	C3417	A10	D843	B7	Q831	B7	R505	J4	SW1906	A8
C484	O5	C3418	A11	D1901	A4	R001	D12	R506	J4	T151	K10
C486	N6	C3424	A11	F601	A1	R002	E12	R507	I4	T401	L6
C487	M7	C3426	A11	IC501	I5	R009	G7	R508	K4	T402	N3
C493	N1	C3427	A11	IC601	C5	R012	B9	R509	J5	T601	E3
C497	K12	C3432	B11	IC681	A6	R106	N8	R511	I2	X141	L10
C502	J5	C3435	N9	IC802	B8	R107	N11	R517	J5	X161	I10
C503	J4	C3436	C11	KG	J10	R142	L11	R518	J5	X251	I9
C504	J4	C3437	N9	KS	M9	R201	I10	R533	K7	X801	C9
C505	K8	C3439	B12	KTP	K1	R209	H9	R601	B3		
C506	J5	D101	N11	KX	J3	R252	I9	R602	C1		
C509	K8	D351	J7	L164	I10	R276	M9	R603	E2		

MAIN BOARD - BOTTOM VIEW



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MAIN BOARD - BOTTOM VIEW, GRIDTRACE LOCATION GUIDE

C008	E2	C3433	B1	R532	K5	R857	N1
C009	E2	C3434	B1	R608	F11	R864	C4
C103	N1	D831	B6	R609	F11	R872	B4
C130	K3	IC101	K4	R616	E10	R873	B4
C133	L3	IC801	C5	R619	F10	R874	D4
C134	K3	IC3401	B2	R621	G8	R877	C4
C137	L2	R003	D2	R629	B8	R881	A4
C142	L3	R004	E2	R632	D9	R882	A4
C143	L3	R131	L4	R634	C9	R883	B4
C146	L4	R133	L3	R642	B7	R884	B4
C161	L4	R135	L2	R645	B6	R886	B4
C257	I4	R137	L2	R687	B8	R1901	A5
C285	L5	R143	L3	R688	B8	R1902	A8
C402	J6	R151	K2	R806	B5	R1903	A8
C427	J5	R161	L4	R807	B5	R1904	A7
C462	I8	R162	L4	R808	B5	R1905	A6
C636	H8	R163	I3	R809	B4	R1906	A6
C689	B9	R164	I3	R813	C6	R1907	A5
C801	B5	R166	J3	R814	C6	R3406	B3
C808	C4	R167	J3	R816	B6	R3407	B3
C809	C4	R212	H3	R824	D5	R3411	A3
C835	B4	R251	I5	R825	D5	R3421	A2
C854	C4	R272	M4	R829	D5	R3422	A2
C857	C4	R273	M4	R831	B6	R3426	B2
C858	C4	R281	J5	R833	C6	R3432	B1
C861	C5	R341	J4	R846	C5	R3433	B1
C3406	B3	R405	J5	R847	C5	R3434	O6
C3407	B3	R423	N4	R848	D5	R3435	O6
C3421	A2	R426	J5	R849	D5	R3436	O6
C3422	A2	R449	J5	R853	C4	R3437	O4
C3423	A2	R485	N4	R854	C4	R3461	A4
C3431	C2	R531	K5	R856	N1	R3462	A4

PARTS LIST

Item No.	Type No.	Mfr. Part No.	NTE Part No.
D101	MTZJ36A	408 047 6205	-
D351	MTZJ5.1A	408 047 6502	NTE5010T1
D406	ERB44-04	407 006 4108	NTE552
D407	ERD07-15L	407 095 8001	NTE506
D408	1Z150	407 222 4401	NTE5100A
# **D421, 22**	HZ11B2L	407 158 1307	NTE5020A
D428	MTZJ15A	408 047 4409	-
D429	1S2076A	407 013 4306	NTE519
D461	1S2076	407 013 4207	NTE177
D481	ES1	407 007 6606	NTE552
D482	TVR1G	407 011 4407	NTE552
D483	ES1	407 007 6606	NTE552
D486	MTZJ10B	408 047 2306	-
D487	ERA15-02	407 005 8602	NTE552
D490	MTZJ5.6C	408 047 7707	-
D501	ERA15-02	407 005 8602	NTE552
D502	1Z75	407 118 2207	NTE5093A
D503	MTZJ36A	408 047 6205	-
D508	1S2076A	407 013 4306	NTE519
# **D601** Thru			
# **D604**	EM2B	407 005 7605	NTE125
D611	1S2076A	407 013 4306	NTE519
# **D612**	TLP421(BL)	407 218 0707	-
D613	RD9.1EB3	407 057 9800	NTE5018A
D614	ERA91-02	407 006 0100	NTE587
D621	EU2	407 007 7603	NTE552
# **D624**	RU4YXLF-L1	407 129 6706	NTE580
# **D625**	RU4AMLF-L1	407 129 7000	NTE580
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
D801	1S2076A	407 013 4306	NTE519
D831	UDZS-TE-173.6B	407 222 5903	-
D834	MTZJ15A	408 047 4409	-
D836, 43	1S2076A	407 013 4306	NTE519
D1002	MTZJ10B	408 047 2306	-
D1011, 26	MTZJ10B	408 047 2306	-
D1901	MTZJ7.5C	408 047 9206	-
D8000	MTZJ3.9A	407 099 4504	-
IC002	LA4525	409 075 7903	-
# **IC101**	LA7635NM-TBM	409 526 7221	-
IC301	LA76604M-TLM-E	409 544 5807	-
# **IC501**	LA7847	409 492 9704	-
# **IC601**	SE130NH	409 172 8102	-
IC681	UPC78L05J	409 066 7303	NTE977
IC801	M37272M8H-216FPT4	410 456 7803	-
IC802	24LC02B/P	409 333 3700	-
IC1001, 02, 03	TC4053BP	409 051 3006	NTE4053B
IC3401	CXA2134Q-T6	409 467 1108	-
IC8001	M65667SP	409 466 6302	-
Q001	2SC1740S-Q	405 011 8401	NTE85
Q005	2SB764-E	405 008 4805	NTE383
Q135	2SC1740S-Q	405 011 8401	NTE85
Q202	2SA1015-O(SAN)	405 001 7407	NTE290A
Q303, 15	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**	2SD2634-YB	405 157 1304	-
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
Q688	2SA1015-Y(SAN)	405 001 7605	NTE290A
Q693	2SC1740S-Q	405 011 8401	NTE85
Q695	2SA1015-Y(SAN)	405 001 7605	NTE290A
Q701, 11, 21	2SC2621-D-RA	405 041 6507	NTE157
Q831	2SA1015-O(SAN)	405 001 7407	NTE290A
Q1001	2SC2412K-T-96-R	405 014 4509	NTE2408
Q1096	2SA1037K-T-96-R	405 002 0308	NTE2409
Q1097	2SC2412K-T-96-R	405 014 4509	NTE2408
Q8000	2SD400-E-MP	405 023 5009	NTE382
Q8005, 06, 73	2SC1740S-Q	405 011 8401	NTE85
Q8076, 83	2SA1015-O(SAN)	405 001 7407	NTE290A
Q8090	2SC1740S-Q	405 011 8401	NTE85
Q8093, 97	2SC3114-T	405 017 1901	NTE289A

Item No.	Function/Rating	Mfr. Part No.	Notes
# **A101**	Tuner	645 052 6077	-
A1901	Receiver	645 047 6228	Remote
C221	1µF 20% 50V NP	404 084 6901	-
C313	1µF 20% 50V NP	-	-
	.1 20% 50V	403 357 9601	-
C318	8pF ±.5pF 50V	403 157 1706	-
C323	1µF 20% 50V NP	-	-
	.1 20% 50V	403 357 9601	-
C332	8pF ±.5pF 50V	403 157 1706	-
C405	1µF 20% 50V NP	404 084 6901	-
# **C406**	470pF 10% 500V	403 076 3607	-
# **C407**	.0022 10% 500V	403 076 0507	-
# **C411**	.0086 3% 1.5kV	403 343 8502	-
# **C412**	.0078 3% 1.5kV	403 343 8205	-
# **C413**	.022 5% 400V	403 083 4307	-
# **C414**	.018 5% 400V	403 083 3904	-
# **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	-
# **C487**	1000µF 20% 35V	404 087 3402	-
C493	2.2µF 20% 100V NP	404 056 5307	-
# **C511**	.15 10% 50V	403 058 5407	-
# **C601**	.22 20% 275VAC	404 066 2204	-
	.22 20% 250VAC	404 071 2404	-
# **C608**	.0022 10% 1kV	403 222 1907	-
# **C609**	470µF 20% 200V	404 075 5005	-

PARTS LIST continued

Item No.	Function/Rating	Mfr. Part No.	Notes
# **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, 16, 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	4Amp, 125VAC
# **K701A**	Socket	645 025 6103	CRT
K1001	Jack	645 052 6886	Assembly
K1003	Jack	645 032 8954	Assembly
K1051	Socket	645 052 6619	S1-SVHS
L136, 64	15µH	645 003 9713	-
L256	10µH	610 031 3873	-
L301, 02	5.6µH	645 008 2894	-
L401	1µH	645 036 4327	-
L402	Ferrite Bead	652 000 2180	-
L403	Ferrite Bead	610 078 6820	-
# **L413**	Horizontal Linearity	645 029 8035	-
L414	2000µH	610 031 1367	-
	2200µH	645 055 5645	-
L416	350µH	645 013 8676	-
L602	Ferrite Bead	645 005 0763	-
L611, 12	Ferrite Bead	610 078 5946	-
L621, 23, 25, 28	Ferrite Bead	610 078 5946	-
L801, 21, 51	5.6µH	645 008 2894	-
L881, 82	1µH	645 006 2490	-
# **L901**	Degaussing	645 039 2559	-
L1901	5.6µH	645 008 2894	-
L8007, 08	5.6µH	645 008 2894	-
L8022, 24, 32	10µH	610 031 3873	-
L8036	100µH	645 003 9676	-
L8059	10µH	610 031 3873	-
L8070	5.6µH	645 008 2894	-
L8074	33µH	645 003 9812	-
L8091	5.6µH	645 008 2894	-
L8094, 98	1µH	645 006 2490	-
# **LF601**	Line Filter	645 042 7510	-
# **PS601**	3 Cold PTC	408 046 5209	-
# **Q901** (3)	CRT	414 010 6905	M78JUA361X72
# **Q901** (4)	CRT	414 010 7001	M80JUA068X72
# **R106**	18K 5% 1/2W	401 008 2001	-
# **R401, 02**	100 5% 1/4W	401 012 4503	-
# **R406**	5600 5% 1/2W	401 010 8305	-
# **R407**	4700 5% 2W	401 068 4700	-
# **R413**	4.7 5% 5W	402 080 3108	-
# **R421**	1800 5% 1/6W	401 148 7201	-
# **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	401 006 7701	-
# **R482**	1 5% 1/4W	401 011 9004	-
# **R483**	1 5% 1/2W	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**	1.5 5% 2W	401 064 5305	-
# **R511**	220 5% 2W	401 066 6102	-
# **R601**	1 10% 7W	402 083 6106	-
# **R602**	3.3M 10% 1/2W	402 000 1603	-
# **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	-
# **R707, 17, 27**	12K 5% 2W	401 065 4604	-
# **R8001**	56 5% 2W	401 068 6902	-
# **R8002**	100 5% 2W	401 064 7507	-
# **RL601**	Relay	645 000 4155	Degaussing
SP901, 02	Speaker	645 013 6306	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	-
# **T402** (2)	Horizontal Output	645 057 0087	-
# **T601**	Power	645 057 8564	-
# **W601**	Line Cord	645 023 1698	AC, Polarized
X141	Filter	421 008 9008	SAW
X161	Trap	610 015 3059	4.5MHz
X251	Crystal	610 012 0655	3.58MHz
X801	Crystal	645 000 6692	8MHz
X8011	Crystal	645 041 1564	14.31818MHz
	Fuse Holder	645 000 5077	For F601 (2 Used)
	PC Board (3)	610 303 1651	Audio/Video
	PC Board (4)	610 312 2557	Audio/Video
	PC Board (3)	610 303 0715	CRT
	PC Board (4)	610 312 2540	CRT
	PC Board (3)	610 303 0654	Main
	PC Board (4)	610 312 2533	Main
	Transmitter (3)	645 052 8112	Remote
	Transmitter (4)	645 058 8150	Remote

 # For SAFETY use only equivalent replacement part.

(1) Bonded part of CRT.

(2) Screen and focus controls are part of T402.

(3) Used in model DS31820.

(4) Used in model DS32224.