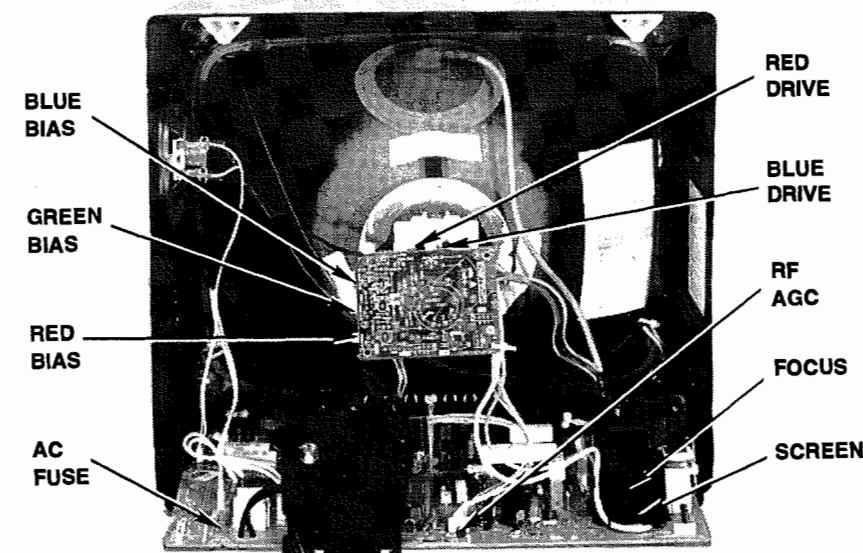


CABINET - REAR VIEW



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	PR57
Generators		Capacitance Analyzer	LC101, LC102
RGB	CM2000	CRT Analyzer	CR70
Multiburst Signal	VG91	AC Leakage Tester	PR57
Color Bar	VG91	Inductance Analyzer	LC101, LC102
TV Stereo	VG91	Flyback Yoke Tester	TVA92
Digital VOM	SC3100	TV Stereo Power Monitor	SR68, PA81
Frequency Meter	SC3100	Field Strength Meter	SL750
Hi-Voltage Probe	HP200	Transistor Tester	TF46
Accessory Probes	TP212	Video Analyzer	VG91, TVA92

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

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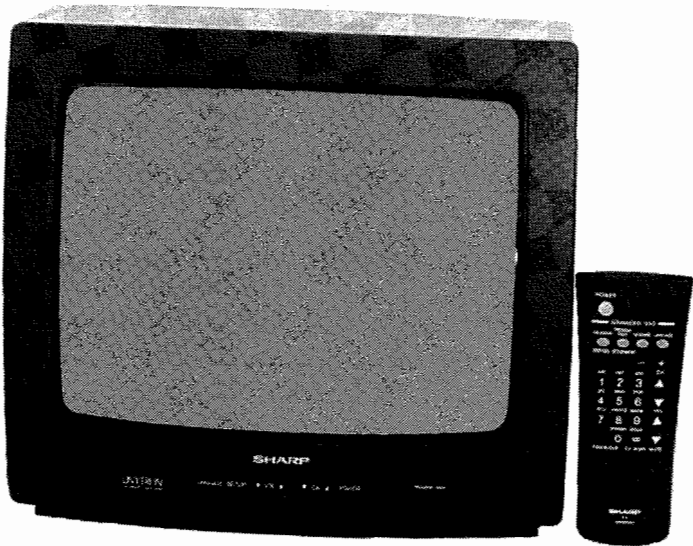
PHOTOFACT® Technical Service Data

SET 3230

MODEL 13E-M100

SHARP

SHARP  
Model 13E-M100



Essential coverage  
for servicing a television receiver...

- Schematics
- Component locations
- Parts lists

  
**HOWARD W. SAMS & COMPANY**  
November 1993 SET 3230

For Supplier Address,  
See PHOTOFACT Annual Index

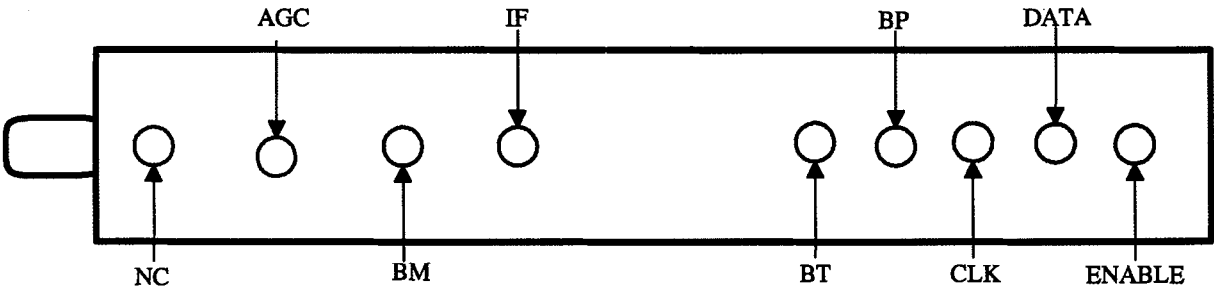
3230

TUNER INFORMATION

TUNER VOLTAGE CHART			
Pin	VHF Low Band	VHF High Band	UHF Band
NC	1.4V	4.2V	5.4V
AGC	5.1V	5.4V	3.6V
BM	8.8V	8.8V	8.8V
IF	0V	0V	0V
BT	31.0V	31.0V	31.0V
BP	5.0V	5.0V	5.0V
CLK	4.8V	4.8V	4.8V
DATA	4.8V	4.8V	4.8V
ENABLE	.3V	.3V	.3V

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



SCHEMATIC NOTES

# For SAFETY use only equivalent replacement part, see parts list.

✕ Circuitry not used in some sets.

--- Circuitry used in some versions.

⏏ Ground

⏏ Chassis ground

⏏ Common tie point

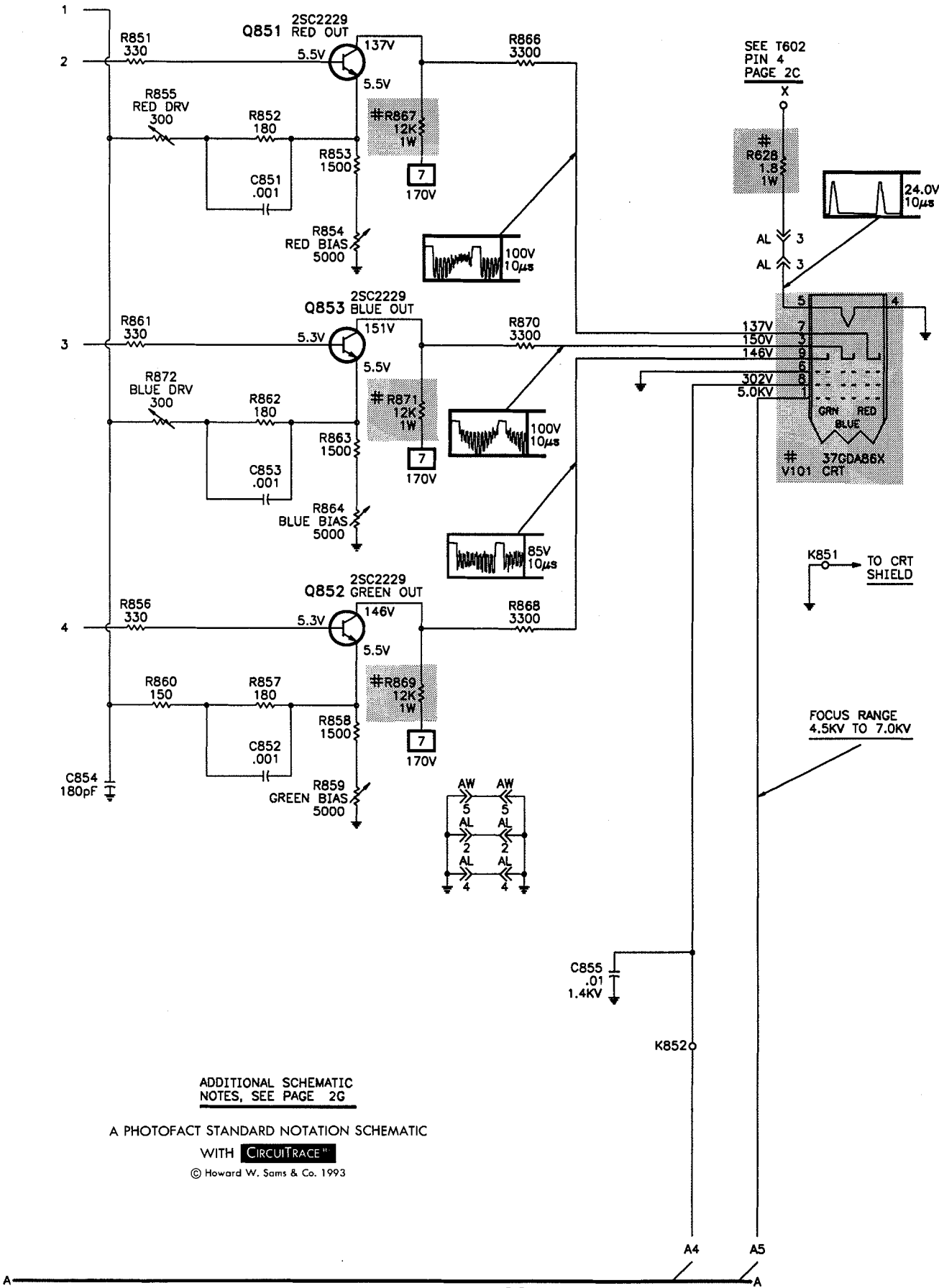
△ Taken from common tie point

11 Schematic Circuittrace

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

Waveforms and voltages are taken from ground, unless noted otherwise.  
Waveforms taken with triggered scope and keyed rainbow generator. Waveform voltage is peak to peak. Timebase is per division. Waveforms shown at 10 divisions.  
Item numbers in rectangle appear in adjustment instructions.  
Supply voltages maintained as seen at input.  
Voltages measured with digital meter and no signal.  
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 1/2 W 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.

CRT SCHEMATIC



ADDITIONAL SCHEMATIC  
NOTES, SEE PAGE 2G

A PHOTOFAC STANDARD NOTATION SCHEMATIC

WITH CIRCUITRACE™

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SHARP

MODEL 13E-M100

PARTS LIST continued

CONTROLS & RESISTORS

Item No.	Function/Rating	Mfr. Part No.	NTE Part No.
PR501	750 Cold PTC	RMPTP0011GEZZ	-
# PR701	11.3 Cold PTC	RMPTP0026CEZZ	-
R221	10K RF AGC	RVR-B5328CEZZ	-
# R354	82 5% 3W	VRS-VV3LB820J	3W082
# R356	22 5% 1W	VRS-VV3AB220J	1W022
R412	20K Sub OSD	RVR-B5329CEZZ	-
R507	3300 Vertical Size	RVR-M4331CEZZ	-
# R521	1 5% 1W	VRN-VV3AB1R0J	1W1D0
R522	47K 2% 1/8W	-	EW347
# R615	4700 5% 5W Wirewound	VRW-KQ3HC472K	5W247
# R616	1800 5% 3W	VRS-SV3LB182J	3W218
# R617	.22 5% 1W	VRN-VV3ABR22J	1W022
# R620	6.8 10% 10W Wirewound	VRW-KQ4AC6R8K	10W6D8
# R621	39 5% 1/2W	VRS-SV2HC390J	HW039
# R623	5600 10% 1/2W	VRC-MA2HG562K	HW256
# R624	10K 5% 1/2W	VRS-SV2HC103J	HW310
# R628	1.8 5% 1W	VRN-VV3AB1R8J	1W1D8
# R651	68 5% 1/4W	VRD-RA2EE680J	QW068
# R652	10K 1/8W SMT	VRD-MN2BE103J	-
# R653	47K 1/8W SMT	VRD-MN2BE473J	-
# R701	2.2 10% 7W Wirewound	VRW-KV3NC2R2K	-
# R702	820K 5% 1/2W	VRD-RM2HD824J	HW482
# R703	330 10% 5W Wirewound	VRW-KQ3HC331K	5W133
# R704	150 5% 1/2W	VRS-SV2HC151J	HW115
# R705	33 5% 1/2W	VRD-RM2HD330J	HW033
# R707	1000 122V	RVR-M4328CEZZ	-
# R708	100K 2% 1/4W	VRD-RA2EE104G	QW410
# R709	5600 2% 1/4W	VRD-RA2EE562G	QW256
# R710	68K 5% 1/8W	VRD-RA2BE683J	EW368
# R716	2.2 5% 2W	VRN-VV3DB2R2J	2W2D2
# R717	150 5% 1/2W	VRS-SV2HC151J	HW115
# R721	390 5% 3W	VRS-SV3LB391J	3W139
# R722	330 10% 5W Wirewound	VRW-KQ3HC331K	5W133
# R723	330 10% 5W Wirewound	VRW-KQ3HC331K	5W133
# R724	820 5% 1W	VRS-VV3AB821J	1W182
# R751	27 5% 2W	VRS-VV3DB270J	2W027
R854	5000 Red Bias	RVR-B5411CEZZ	-
R855	300 Red Drive	RVR-B5197CEZZ	-
R859	5000 Green Bias	RVR-B5411CEZZ	-
R864	5000 Blue Bias	RVR-B5411CEZZ	-
# R867	12K 5% 1W	VRS-VV3AB123J	1W312
# R869	12K 5% 1W	VRS-VV3AB123J	1W312
# R871	12K 5% 1W	VRS-VV3AB123J	1W312
R872	300 Blue Drive	RVR-B5197CEZZ	-
# R2101	15K 5% 2W	VRS-VV3DB153J	1W315
# R2103	68 5% 3W	VRS-VV3LB680J	3W068
R2207	15K 1% 1/8W	-	-
# R2212	200 5% 1W	VRS-VV3AB221J	2W120
R2515	10K Sub Brightness	RVR-M4334CEZZ	-
R2524	33K Sub Color	RVR-M4337CEZZ	-
R2535	100K Sub Picture	RVR-M4340CEZZ	-
R2544	100K Sub Tint	RVR-M4340CEZZ	-

# For SAFETY use only equivalent replacement part.

COILS & TRANSFORMERS

Item No.	Function/Rating	Mfr. Part No.	On-Unit No.
# DY601	Yoke 90°	RCiLH0014PEZZ	H0014PE
	Horiz 3.3mH		
	Vert 29.8mH		
	Yoke	RCiLH0008PEZZ (1)	-
	Yoke	RCiLH0016PEZZ (2)	-
	Yoke	RCiLH1606CEN5 (3)	-
FB601	Ferrite Bead	RBLN-0010CEZZ	-
FB602	Ferrite Bead	RBLN-0010CEZZ	-
FB603	Ferrite Bead	RBLN-0037CEZZ	-
FB701	Ferrite Bead	RBLN-0037CEZZ	-
L201	.82µH	VP-MKR82M0000	-
L202	.68µH	VP-RFR68K0000	-
L205	180MHz Filter	RCiLP0094CEZZ	-
L206	PIF Detection	RCiLi0553CEZZ	-
L207	AFT	RCiLi0547CEZZ	-
L301	180MHz Filter	RCiLP0094CEZZ	-
L302	Sound Detector	RCiLi0374CEZZ	-
L401	15µH	VP-MK150K0000	-
L402	180MHz Filter	RCiLP0094CEZZ	-
# L701	Line Filter	RCiLF0003PEZZ	-
# L702	Degaussing	RCiLG0029PEZZ	-
L851	220µH	VP-MK221K0000	-
L2001	Sign Position	RCiLB0079CEZZ	-
L2401	12µH	VP-MK120J0000	-
L2402	6.8µH	VP-MK6R8J0000	-
L2403	8.2µH	VP-MK8R2K0000	-
L2404	15µH	VP-MK150K0000	-
L2405	68µH	VP-MK680J0000	-
T601	Horizontal Driver	RTRNZ0073CEZZ	Z073
# T602	Horizontal Output	RTRNF0057PEZZ (4)	F0057PE

# For SAFETY use only equivalent replacement part.  
(1) Used with CRT: CPJ370BVBK1U.  
(2) Used with CRT: A34EAE01X.  
(3) Used with CRT: R370BV1BK1A.  
(4) Includes focus and screen controls.

CABINET PARTS

Item	Mfr. Part No.
Button (Power, Channel Up/Down, Volume Up/Down, Language, Setup)	JBTN-0101PEKA
Cabinet Assembly	CCABA2171WEV0
Cabinet Rear	GCABB2152PEKA
Window, IR	GMADT0096PEKA

MISCELLANEOUS

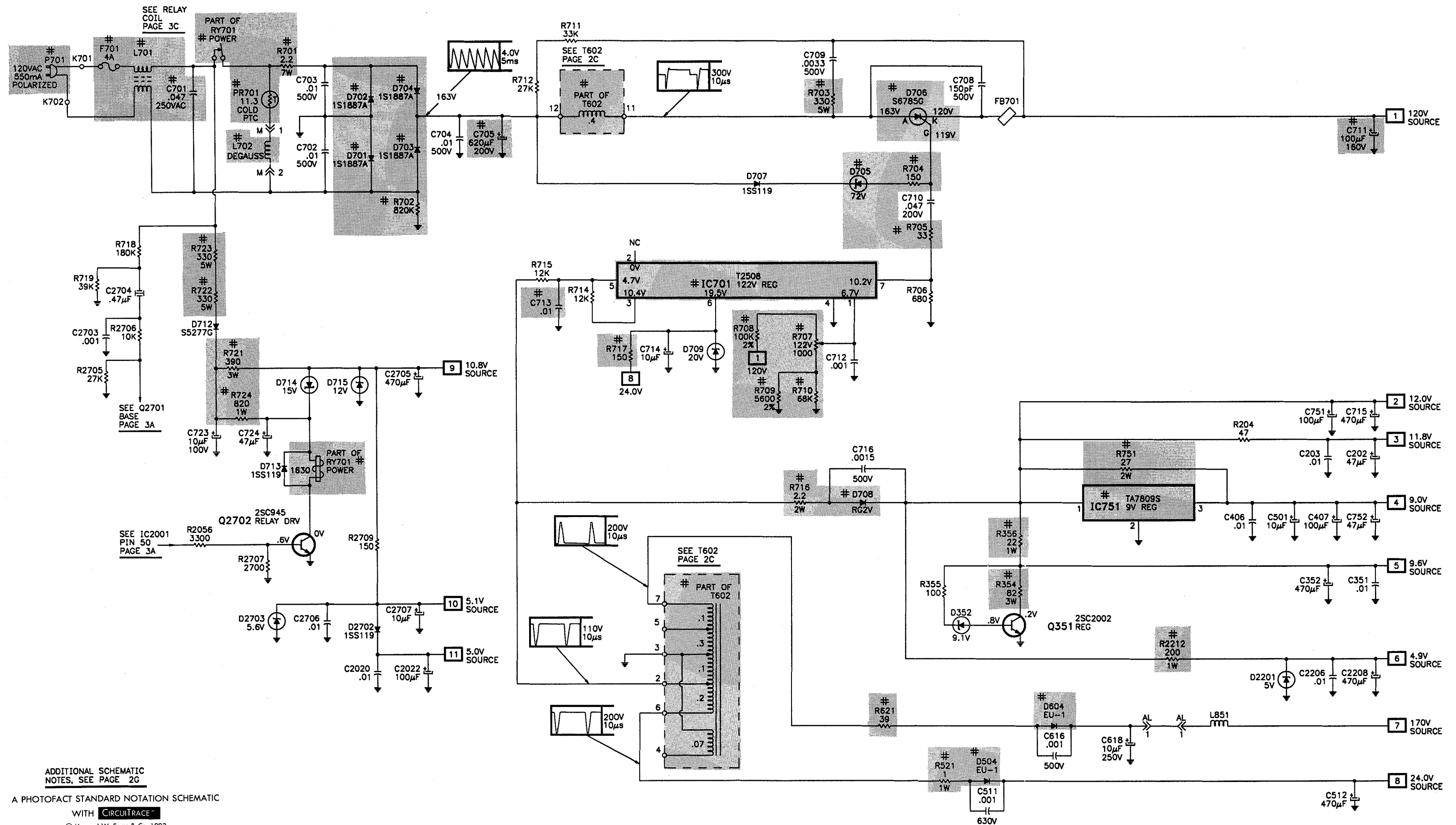
Item No.	Description	Mfr. Part No.	Notes
# C1, R1	Component Combination	(1)	470pF, 3.4M-5.2M, Spark Gap
	Component Combination	(1) (2)	470pF, 2M-4M, Spark Gap
# C2, R2	Component Combination	(1)	470pF, 3.4M-5.2M, Spark Gap
	Component Combination	(1) (2)	470pF, 2M-4M, Spark Gap
CF301	Sound Takeoff	RFiLC0174CEZZ	4.5MHz
CF401	Trap	RFiLC0002AJZZ	4.5MHz
CF601	Filter	RFiLA0034CEZZ	503kHz
CF2001	Filter	RFiLA0069CEZZ	-
# F701	Fuse	QFS-B4023CEZZ	4 Amp, 125V, Slow Blow
	Fuse	QFS-B4021CEZZ	4 Amp, 125V, Slow Blow
# P701	Line Cord	QACCD3014CESA	AC, Polarized
RMC2001	Receiver	RRMCU0207CEZZ	Remote
# RY701	Relay	RRLYU0024CEZZ	Power
S851	Switch	QSW-B0015CEZZ	Cutoff
S2001	Switch	QSW-K0068CEZZ	Power
S2002	Switch	QSW-K0068CEZZ	Channel Up
S2003	Switch	QSW-K0068CEZZ	Channel Down
S2004	Switch	QSW-K0068CEZZ	Volume Up
S2005	Switch	QSW-K0068CEZZ	Volume Down
S2006	Switch	QSW-K0068CEZZ	Setup
S2007	Switch	QSW-K0068CEZZ	Language
SC851	Socket	QSOCV0829CEZZ	CRT
SF201	Filter	RFiLC0137CEZZ	SAW
SP1	Speaker	VSP0080P-G5YB	3" Round, 32 Ohm, 2W (80P-G3YB)
# TU2101	Tuner (3)	VTUENV568H1G3	UHF/VHF
# V101	CRT	VB37GDA86X/1E	37GDA86X
	CRT	VB34KPU02X/*S	A34KPU02XX
	CRT	VB370BVBK1U-S	CPJ370BVBK1U
	CRT	VB370BV1BK1*S	R370BV1BK1A
	CRT	VBA34EAE01X-S	A34EAE01X
	CRT	VBA34JLN60X-S	A34JLN60X
X801	Crystal	RCRSB0001PEZZ	3.579545MHz
	Antenna	QANTR0010PEZZ	Rod
	PC Board (3)	DUNTK7954WEV0	CRT
	PC Board (3)	DUNTK7953WEV0	Main
#	Holder	QFSDH1009CEZZ	Fuse (2 used)
#	Magnet	PMAGF3006CEZZ	Purity/Static Convergence, Assembly
	Terminal Board	QTANZ0131CEZZ	Antenna, Assembly (Includes C1 Thru C7, R1, and R2)
	Transmitter	RRMCG0938CESA	Remote
	Wedge	PSPAG0004PEZZ	Yoke Positioning (3 used)

# For SAFETY use only equivalent replacement part.  
(1) Part of antenna terminal board.  
(2) Used in some versions.  
(3) Contact PTS Electronics Corporation for replacement; order by manufacturer's part number.

SHARP

MODEL 13E-M100

# POWER SUPPLY SCHEMATIC



ADDITIONAL SCHEMATIC NOTES, SEE PAGE 2G

A PHOTOFAC STANDARD NOTATION SCHEMATIC

WITH CIRCUITRACE

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SAFETY PRECAUTIONS

SERVICE WARNING

ONLY qualified service technicians who are familiar with safety checks and guidelines should perform service work. For continued SAFETY:

- 1. Before replacing parts, disconnect power source to protect electrostatically sensitive parts.
- 2. Do not attempt to modify any circuit unless so recommended by the manufacturer.
- 3. When servicing chassis, use an isolation transformer between the line cord and power receptacle.

SERVICING HIGH VOLTAGE AND PICTURE TUBE

Use EXTREME CAUTION when servicing the High Voltage circuits.

- 1. To discharge static High Voltage, connect a 10 kilohm resistor in series with a test lead between chassis and picture tube anode lead.
- 2. DO NOT lift picture tube by the neck.
- 3. ALWAYS wear shatterproof goggles when handling picture tube 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 picture tube is the only potential source of x-rays.

- 1. Keep an accurate High Voltage meter available at all times. Check meter calibration periodically.
- 2. Whenever servicing a chassis, check High Voltage at various brightness levels to be sure it is regulating properly.
- 3. 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.
- 4. When troubleshooting a set with excessive High Voltage, avoid close contact with picture tube. DO NOT operate set longer than necessary. To locate the cause of excessive High Voltage, use a variable AC transformer to regulate voltage.
- 5. In present chassis, 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.

SAFETY CHECKS – FIRE AND SHOCK HAZARD

Cold Leakage Checks for Sets with Isolated Ground

- 1. Unplug the AC cord, connect a jumper across the plug prongs, and turn the power switch ON.
- 2. Use an ohmmeter to measure the resistance between the jumpered 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 200 kilohms and 5 megohms. Parts without a return path must register infinity.

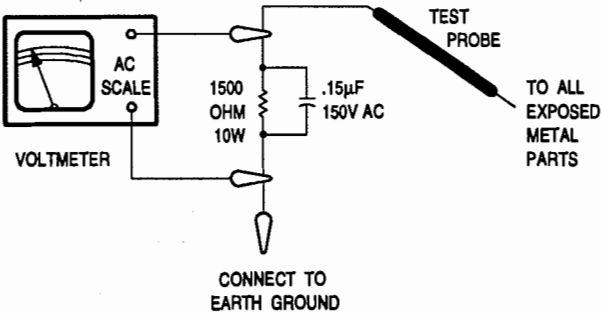
Hot Leakage Current Check

- 1. Plug the AC cord directly into AC outlet. DO NOT use an isolation transformer.
- 2. Use a 1500-ohm, 10-watt resistor in parallel with a .15-microfarad 150 Volts AC capacitor to connect between any exposed metal parts on the set and a good earth ground. (See figure below.)
- 3. Use an AC voltmeter with at least 1000 ohms-per-volt sensitivity to measure the voltage across the resistor. Check all exposed metal parts and measure voltage at each point.
- 4. Voltage readings should not exceed .75 volts RMS (5 milliamps AC). Any value exceeding this limit constitutes a potential shock hazard and must be corrected.
- 5. If AC plug is not polarized, reverse the AC plug and repeat exposed metal part voltage measurement at each point.

GENERAL GUIDELINES

Perform a final SAFETY CHECK before returning set to customer.

- 1. Check repaired area for poorly soldered or de-soldered connections, and check entire circuit board for solder splashes.
- 2. Check inner board wiring for pinched wires or wires contacting any high-wattage resistors.
- 3. 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.



PARTS LIST

SEMICONDUCTORS

(Select replacement for best results.)

Item No.	Type No.	Mfr. Part No.	NTE Part No.	ECG Part No.	TCE Part No.
D352	-	RH-EX0311CEZZ	-	-	-
D401	1SS119	VHD1SS119/-1	NTE519	ECG519	SK3100
	1N4148	RH-DX0045GEZZ	NTE519	ECG519	SK3100
D402	-	RH-EX0092CEZZ	NTE5006A	ECG5006A	SK3A6
D403	1SS119	VHD1SS119/-1	NTE519	ECG519	SK3100
	1N4148	RH-DX0045GEZZ	NTE519	ECG519	SK3100
D451 Thru					
D453	1SS119	VHD1SS119/-1	NTE519	ECG519	SK3100
	1N4148	RH-DX0045GEZZ	NTE519	ECG519	SK3100
D454	-	RH-EX0103CEZZ	NTE5011A	ECG5011A	SK5A6
D501	-	RH-EX0238CEZZ	-	-	-
D502	S5277G	RH-DX0110CEZZ	NTE116	ECG116	SK3312
	-	RH-DX0155CEZZ	NTE552	ECG552	SK9000
D503	1SS119	VHD1SS119/-1	NTE519	ECG519	SK3100
	1N4148	RH-DX0045GEZZ	NTE519	ECG519	SK3100
# D504	EU-1	RH-DX0131CEZZ	NTE552	ECG552	SK9000
	TVR1G	RH-DX0126CEZZ	NTE552	ECG552	SK9000
D602	-	RH-EX0598CEZZ	-	-	-
# D604	EU-1	RH-DX0131CEZZ	NTE552	ECG552	SK9000
	TVR1G	RH-DX0126CEZZ	NTE552	ECG552	SK9000
D605	-	RH-EX0193CEZZ	NTE5020A	ECG5020A	SK11A
# D651	1SS119	VHD1SS119/-1	NTE519	ECG519	SK3100
	1N4148	RH-DX0045GEZZ	NTE519	ECG519	SK3100
# D652	-	RH-EX0130CEZZ	NTE5029A	ECG5029A	SK20A
# D701 Thru					
# D704	1S1887A	RH-DX0154CEZZ	NTE552	ECG552	SK9000
# D705	-	RH-EX0238CEZZ	-	-	-
# D706	S6785G	VHSS6785GLB2E	-	-	-
D707	1SS119	VHD1SS119/-1	NTE519	ECG519	SK3100
	1N4148	RH-DX0045GEZZ	NTE519	ECG519	SK3100
# D708	RG2V	RH-DX0382CEZZ	NTE580	ECG580	SK5036
D709	-	RH-EX0592CEZZ	NTE5079A	ECG5079A	-
D712	S5277G	RH-DX0110CEZZ	NTE116	ECG116	SK3312
	-	RH-DX0155CEZZ	NTE552	ECG552	SK9000
D713	1SS119	VHD1SS119/-1	NTE519	ECG519	SK3100
	1N4148	RH-DX0045GEZZ	NTE519	ECG519	SK3100
D714	-	RH-EX0217CEZZ	NTE5023A	ECG5023A	SK14A
D715	-	RH-EX0022TAZZ	NTE5020A	ECG5020A	SK11A
D716	1SS119	VHD1SS119/-1	NTE519	ECG519	SK3100
	1N4148	RH-DX0045GEZZ	NTE519	ECG519	SK3100
D2002	1SS119	VHD1SS119/-1	NTE519	ECG519	SK3100
	1N4148	RH-DX0045GEZZ	NTE519	ECG519	SK3100
D2017	1SS119	VHD1SS119/-1	NTE519	ECG519	SK3100
	1N4148	RH-DX0045GEZZ	NTE519	ECG519	SK3100
D2018	-	RH-EX0043TAZZ	NTE5010A	ECG5010A	SK5A1
D2019	-	RH-PX0304CEZZ	-	-	-
D2020, 22	1SS119	VHD1SS119/-1	NTE519	ECG519	SK3100
	1N4148	RH-DX0045GEZZ	NTE519	ECG519	SK3100
D2101	-	RH-EX0207CEZZ	NTE5035A	ECG5035A	SK30A

# For SAFETY use only equivalent replacement part.



## D



## PARTS LIST continued

## SEMICONDUCTORS continued

(Select replacement for best results.)

Item No.	Type No.	Mfr. Part No.	NTE Part No.	ECG Part No.	TCE Part No.
D2102	-	RH-EX0131CEZZ	NTE5010A	ECG5010A	SK5A1
D2201	-	RH-EX0131CEZZ	NTE5010A	ECG5010A	SK5A1
D2301	1SS119	VHD1SS119//-1	NTE519	ECG519	SK3100
	1N4148	RH-DX0045GEZZ	NTE519	ECG519	SK3100
D2511	1SS119	VHD1SS119//-1	NTE519	ECG519	SK3100
	1N4148	RH-DX0045GEZZ	NTE519	ECG519	SK3100
D2701, 02	1SS119	VHD1SS119//-1	NTE519	ECG519	SK3100
	1N4148	RH-DX0045GEZZ	NTE519	ECG519	SK3100
D2703	-	RH-EX0103CEZZ	NTE5011A	ECG5011A	SK5A6
D2704	1SS119	VHD1SS119//-1	NTE519	ECG519	SK3100
	1N4148	RH-DX0045GEZZ	NTE519	ECG519	SK3100
# IC201	TA8825BN	RH-IX2163CEZZ	-	-	-
IC351	TDA7052	VHITDA7052/-1	NTE7051	ECG7051	-
# IC501	TA8445K	VHITA8445K/-1	-	-	-
# IC701	T2508	RH-IX0137CEZZ	NTE1751	ECG1751	-
# IC751	TA7809S	VHITA7809S/-1	-	-	-
IC2001	-	RH-IX2157CEN2	-	-	-
IC2201	LA7945	VHILA7945//-1	-	-	-
IC2701	LE93CS56S1	RH-IX2281CEZZ	-	-	-
IC2702	PST529C2	VHIST529C2-1	-	-	-
Q201	2SC1906	VS2SC1906//1E	NTE107	ECG107	SK3293
Q302	2SC945	VS2SC945AQ/-1	NTE85	ECG85	SK3124A
Q351	2SC2002	VS2SC2002-K1A	NTE85	ECG85	SK3449
Q353	2SC945	VS2SC945AP/-1	NTE85	ECG85	SK3124A
	2SC1815	VS2SC1815GW-1	NTE85	ECG85	SK3124A
Q401	2SC945	VS2SC945AQ/-1	NTE85	ECG85	SK3124A
Q451	2SA562	VS2SA562TO/-1	NTE290A	ECG290A	SK3114A
	2SA854	VS2SA854-Q/1E	NTE290A	ECG290A	SK3841
Q452	2SC945	VS2SC945AQ/-1	NTE85	ECG85	SK3124A
Q601	2SC2482	VS2SC2482//-1	NTE399	ECG399	SK9352
# Q602	2SD1554	VS2SD1554//1E	NTE2302	ECG2302	SK9422
Q851 Thru					
Q853	2SC2229	VS2SC22290/1E	NTE399	ECG399	SK3244
	2SC2482	VS2SC2482//-1	NTE399	ECG399	SK9352
Q2001	2SC945	VS2SC945AQ/-1	NTE85	ECG85	SK3124A
Q2401	2SC945	VS2SC945AQ/-1	NTE85	ECG85	SK3124A
Q2402	2SC945	VS2SC945AQ/-1	NTE85	ECG85	SK3124A
Q2701	2SC945	VS2SC945AQ/-1	NTE85	ECG85	SK3124A
Q2702	2SC945	VS2SC945AP/-1	NTE85	ECG85	SK3124A
	2SC1815	VS2SC1815GW-1	NTE85	ECG85	SK3124A

# For SAFETY use only equivalent replacement part.

## Important Parts Information

- The parts listed here are those not usually available from a well-stocked supply cabinet or bin.
- Where items may be replaced with equivalent parts, several alternates are shown from participating vendors.
- On the parts lists, safety items are marked with a # to remind you that only exact replacements are recommended for these items.
- When ordering parts, state the model number, part number, and description.

## Obtaining Parts

Many of these parts are available from your local Sams authorized distributor or the manufacturer of the equipment. Call Sams for the name of your nearest distributor:

800-428-7267

Or consult the Sams *Annual Index* for the address of the original equipment manufacturer.

## Participating Vendors

Information on test equipment and replacement parts is listed in these pages for the following participating vendors. Consult the Sams *Annual Index* for their current address.

- Custom Components Corporation (Chek-A-Color)
- NTE Electronics, Inc. (NTE)
- Philips ECG Company (ECG)
- PTS Electronics Corporation (PTS)
- Sencore, Inc.
- Thomson Consumer Electronics, Inc. (SK, TCE)

## CAPACITORS &amp; ELECTROLYTICS

Item No.	Rating	Mfr. Part No.
# C3	.001	(1)
# C4	.001	(1)
# C5	.001	(1)
# C6	.5pF	(1) (2)
# C7	1.5pF	(1) (2)
C401	3.3μF 50V NP	VCE9GA1HW335M
C405	2.2μF 50V NP	VCE9GA1HW225M
C413	.47μF 50V NP	VCE9GA1HW474M
C510	10μF 16V NP	VCE9GA1CW106M
# C611	680pF 2KV 10%	RC-KZ0039CEZZ
# C612	.0036 1.6K 5%	VCFFPD3CA362J
# C613	.0036 1.6K 5%	VCFFPD3CA362J
C621	82pF 5% NPO	-
# C701	.047 250VAC 10%	RC-FZ004SGEZZ
	.047 125VAC	RC-QZ005SCEZZ
# C705	620μF 200V	RC-EZ0183CEZZ
# C711	100μF 160V	RC-EZ0378CEZZ
# C713	.01 50V 10%	VCQYTA1HM103K
C805	56pF NPO	-
C806	1μF 50V NP	VCE9GA1HW105M
C809	39pF 5% NPO	-
	100pF	-
C810	39pF 5% NPO	-
	100pF	-
C811	39pF NPO	-
	100pF	-
C855	.01 1.4KV	RC-KZ0016CEZZ
C2025	180pF 5% NPO	-
C2106	10μF 16V Tantalum	VCSATA1CE106K
C2202	100pF 5% NPO	-
C2406	10μF 16V NP	VCE9GA1CW106M
C2704	.47μF 50V NP	VCE9GA1HW474M

# For SAFETY use only equivalent replacement part.

(1) Part of antenna terminal board assembly, Part No.

QTANZ0131CEZZ.

(2) Used in some versions.



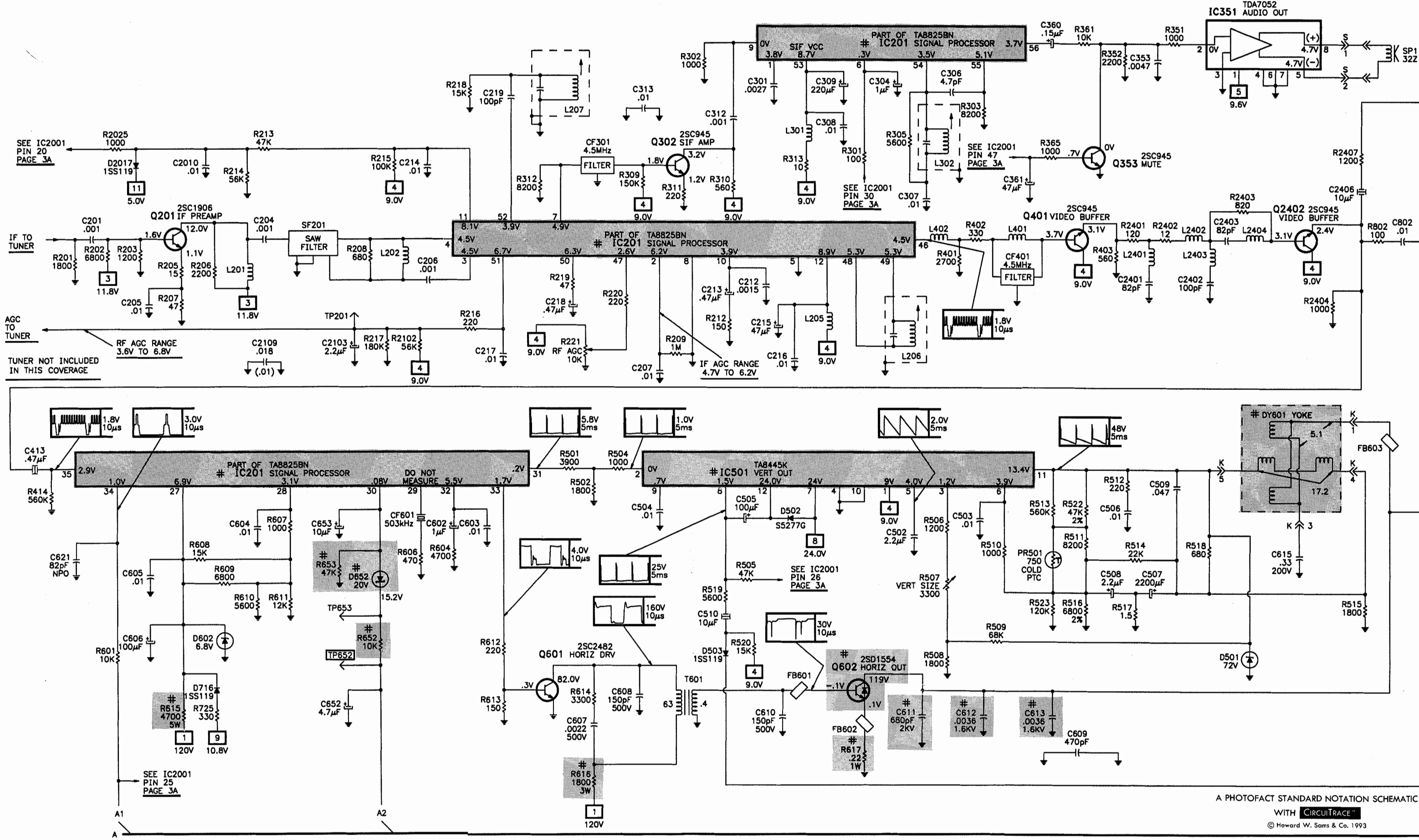
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J. Barker, B. Bryant,  
B. Buchanan, T. Clensy,  
D. Cobb, G. Farrell, B. Fink,  
M. Herkless, J. Kocha,  
J. Limp, F. Malek, B. Medaris,  
R. Raus, B. Skinner, J. Young

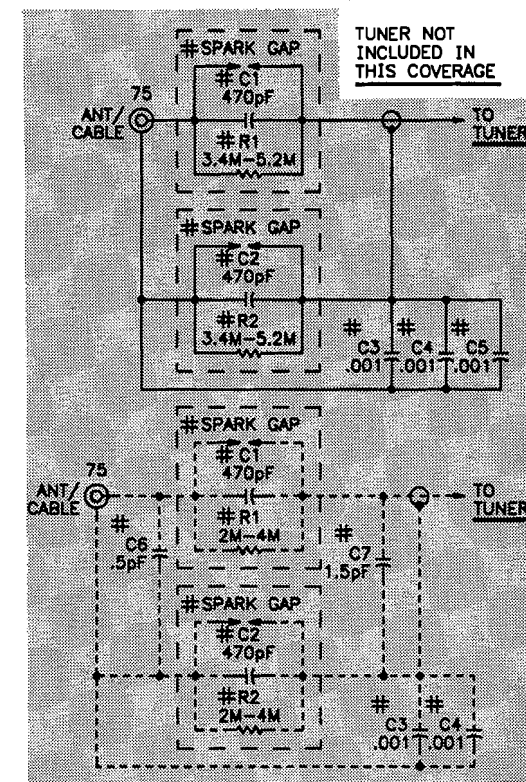
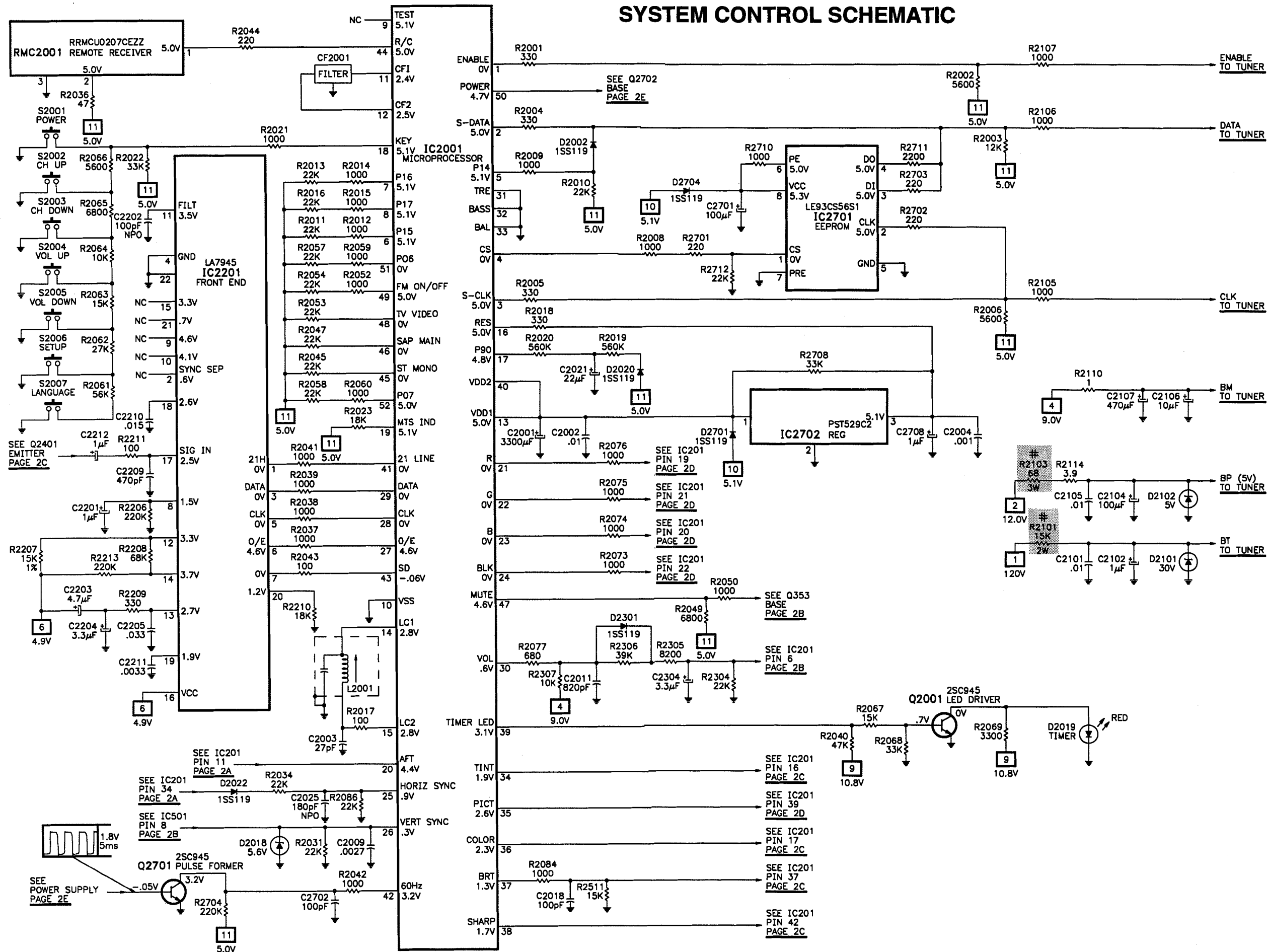
A

TELEVISION SCHEMATIC

B



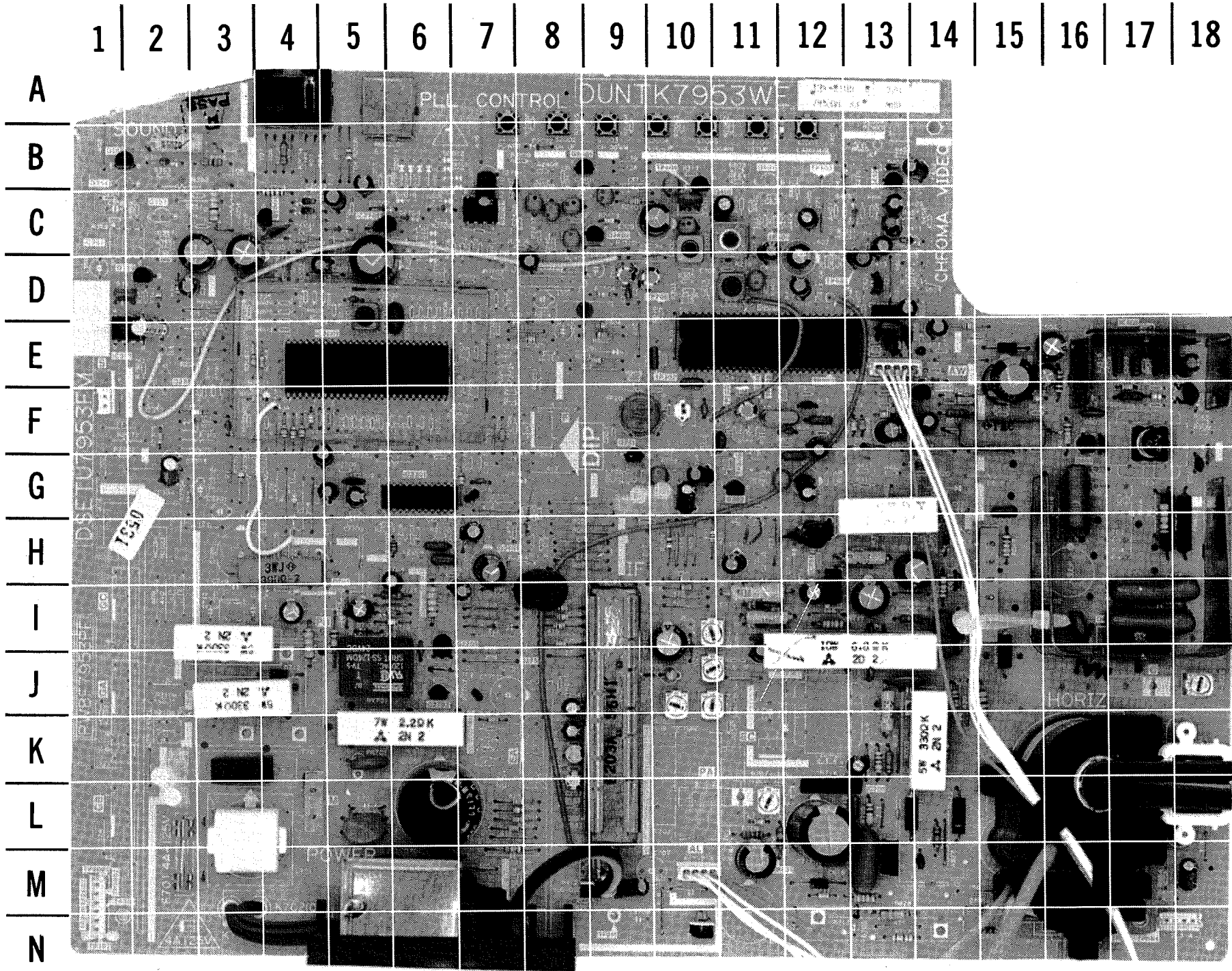




ADDITIONAL SCHEMATIC  
NOTES, SEE PAGE 2G

A PHOTOFACT STANDARD NOTATION SCHEMATIC  
WITH CIRCUITRACE™  
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MAIN BOARD - TOP VIEW



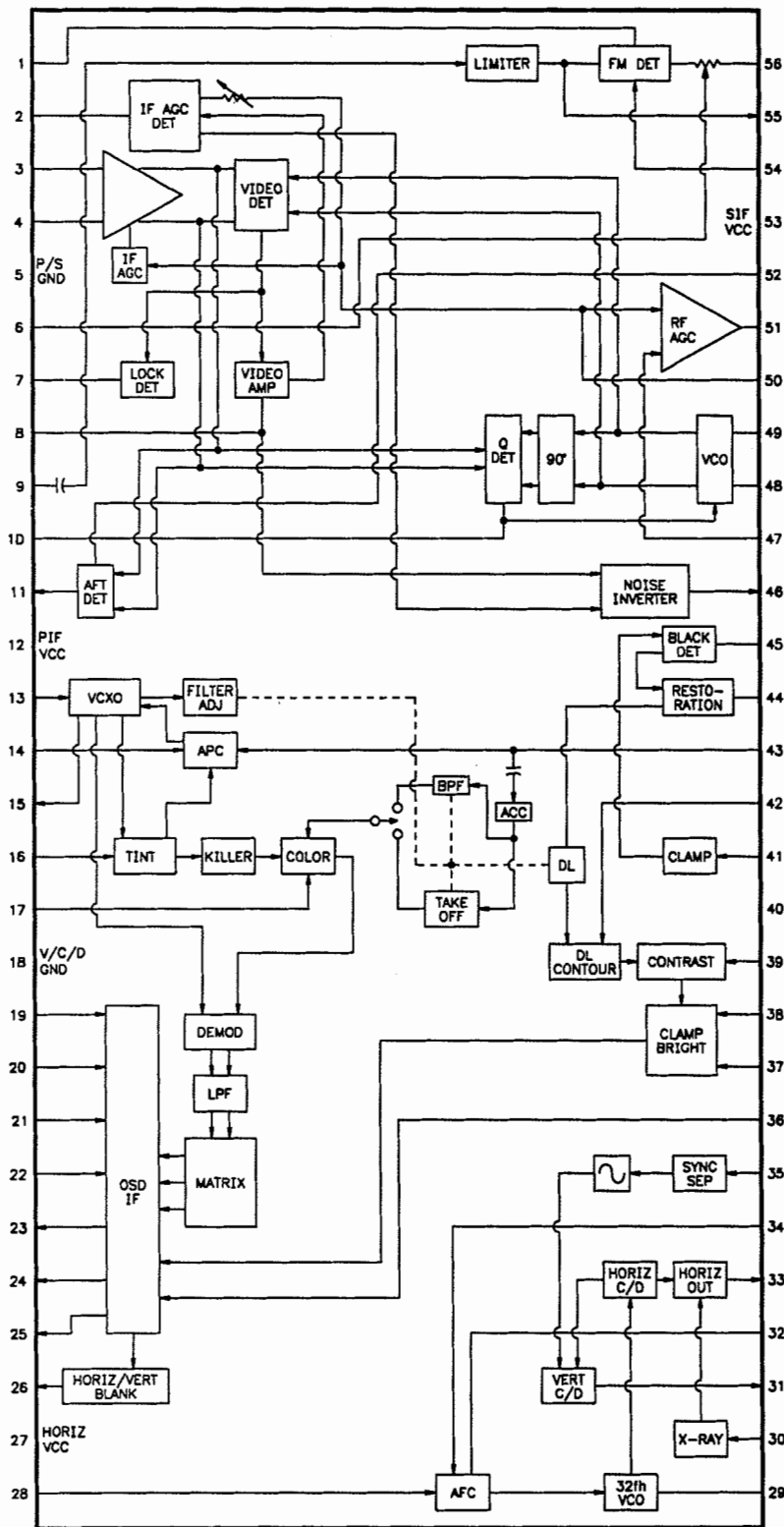
A HOWARD W. SAMS GRIDTRACE™ PHOTO

MAIN BOARD - TOP VIEW, GRIDTRACE LOCATION GUIDE

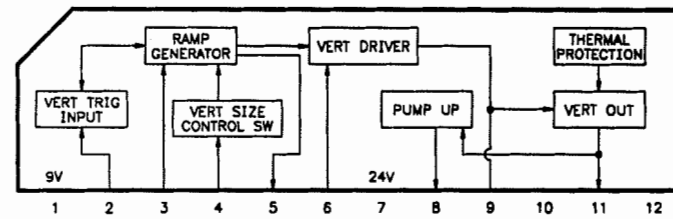
AL	M-10	C713	L-13	D503	G-14	L2405	C-8	R708	L-11	S2002	B-8
AW	E-13	C714	K-13	D504	I-14	M	L-4	R709	L-11	S2003	B-9
C202	G-10	C715	I-13	D602	F-13	PR501	F-18	R710	L-11	S2004	B-10
C207	E-10	C716	J-12	D604	M-12	PR701	K-5	R711	M-12	S2005	B-10
C213	F-11	C723	I-4	D605	H-14	Q201	G-9	R712	N-13	S2006	B-11
C215	G-12	C724	I-5	D651	N-15	Q302	G-11	R715	K-13	S2007	B-12
C217	D-9	C751	I-12	D652	N-15	Q351	B-1	R716	J-13	SF201	F-9
C218	D-10	C752	H-12	D701	M-6	Q353	B-2	R717	I-12	T601	F-17
C301	E-10	C803	G-12	D702	L-5	Q401	B-10	R718	I-5	T602	L-16
C304	G-10	C804	F-12	D703	M-5	Q451	F-14	R719	I-6	TP201	N-1
C309	C-10	C805	F-12	D704	L-5	Q452	B-13	R721	H-4	TP202	N-1
C313	F-10	C806	F-12	D705	N-13	Q601	F-16	R722	I-3	TP301	N-2
C352	C-3	C807	F-12	D706	M-13	Q602	I-17	R723	J-3	TP651	N-13
C353	D-1	C809	E-13	D707	N-12	Q2001	C-4	R724	I-4	TP652	N-17
C360	E-2	C810	E-13	D708	J-13	Q2401	B-9	R725	I-6	TP653	N-18
C361	D-2	C811	E-13	D709	K-13	Q2402	C-9	R751	H-13	TP654	N-18
C401	C-11	C2001	D-5	D712	J-4	Q2701	I-6	R807	E-9	TP2001	M-1
C402	C-11	C2003	D-5	D713	I-5	Q2702	J-6	R808	E-9	TP2002	M-1
C405	C-12	C2011	F-3	D714	I-5	R204	H-10	R2019	C-4	TP2003	M-1
C407	D-12	C2016	G-7	D715	I-6	R213	E-9	R2025	E-8	TU2101	I-9
C409	C-13	C2021	D-4	D716	I-7	R216	I-10	R2034	B-4	X801	F-12
C410	D-12	C2022	G-4	D2002	C-6	R220	H-10	R2036	B-5		
C411	C-13	C2025	C-4	D2017	E-8	R221	N-10	R2037	F-4		
C412	D-13	C2101	I-11	D2018	C-4	R301	H-10	R2038	F-4		
C413	C-13	C2102	J-11	D2019	A-4	R352	D-1	R2039	F-4		
C414	M-8	C2103	M-9	D2020	D-4	R354	B-2	R2040	F-3		
C452	B-14	C2104	H-11	D2022	B-8	R355	B-3	R2041	G-7		
C501	E-18	C2106	J-10	D2101	I-11	R356	C-3	R2044	E-4		
C502	E-17	C2107	I-10	D2102	I-11	R361	D-2	R2050	E-3		
C503	E-17	C2109	M-7	D2201	H-7	R365	D-2	R2056	F-7		
C504	E-17	C2201	G-5	D2301	F-3	R412	M-9	R2061	B-12		
C505	E-16	C2202	G-5	D2511	I-10	R453	F-13	R2067	E-3		
C506	F-17	C2203	I-7	D2701	C-5	R504	E-14	R2069	B-4		
C507	E-15	C2204	H-7	D2702	C-5	R507	J-18	R2077	F-4		
C508	E-16	C2205	H-6	D2703	C-4	R508	F-18	R2086	C-4		
C509	G-15	C2208	H-7	D2704	C-6	R516	F-17	R2101	I-11		
C510	F-14	C2210	H-6	F701	M-2	R517	E-16	R2103	I-11		
C511	I-14	C2212	G-5	FB601	H-17	R518	H-15	R2105	I-8		
C512	H-14	C2304	G-2	FB602	H-18	R519	F-14	R2106	I-8		
C602	D-13	C2406	D-8	FB603	J-15	R521	J-15	R2107	I-8		
C603	E-13	C2407	B-7	FB701	L-13	R522	F-17	R2114	I-11		
C606	F-13	C2501	D-9	IC201	E-11	R523	F-15	R2207	H-6		
C607	F-16	C2511	K-8	IC351	E-2	R608	F-13	R2212	I-6		
C608	F-16	C2521	K-8	IC501	E-17	R609	F-13	R2304	G-2		
C609	G-18	C2531	L-8	IC701	L-12	R611	F-13	R2305	F-2		
C610	G-18	C2541	L-8	IC751	I-12	R612	F-15	R2306	F-3		
C611	I-16	C2701	C-7	IC2001	E-5	R614	F-16	R2307	G-3		
C612	I-17	C2703	J-6	IC2201	G-6	R615	H-13	R2401	C-9		
C613	I-17	C2704	H-6	IC2701	C-7	R616	F-15	R2403	C-9		
C615	G-16	C2705	C-3	IC2702	C-6	R617	H-17	R2501	I-7		
C616	M-12	C2707	C-5	K	I-15	R620	J-13	R2503	I-8		
C617	I-14	C2708	B-5	L201	G-10	R621	K-14	R2504	D-9		
C618	M-11	CF301	F-11	L202	F-10	R622	I-14	R2512	K-7		
C619	K-14	CF401	C-10	L205	G-12	R623	L-14	R2513	L-7		
C621	D-13	CF601	D-13	L206	D-11	R624	J-14	R2515	J-10		
C652	M-18	CF2001	D-6	L207	C-11	R625	I-14	R2522	L-7		
C653	E-14	D352	B-2	L301	B-10	R628	N-13	R2524	J-10		
C701	K-3	D401	C-13	L302	C-10	R629	J-13	R2533	L-7		
C702	M-6	D402	B-13	L401	C-10	R651	L-14	R2535	J-10		
C703	L-5	D403	B-13	L402	D-11	R701	K-6	R2542	L-7		
C704	M-6	D451	F-14	L701	L-3	R702	M-5	R2544	I-10		
C705	L-6	D452	G-13	L2001	D-5	R703	K-14	R2709	C-4		
C708	M-14	D453	E-14	L2401	C-9	R704	M-13	RMC2001	A-6		
C709	J-13	D454	C-13	L2402	C-8	R705	L-13	RY701	J-5		
C710	M-13	D501	E-16	L2403	C-8	R706	K-13	S	F-1		
C711	L-12	D502	E-15	L2404	C-8	R707	L-11	S2001	B-7		

## IC FUNCTIONS

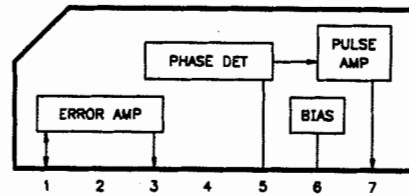
**IC201  
TA8825BN**



**IC501  
TA8445K**



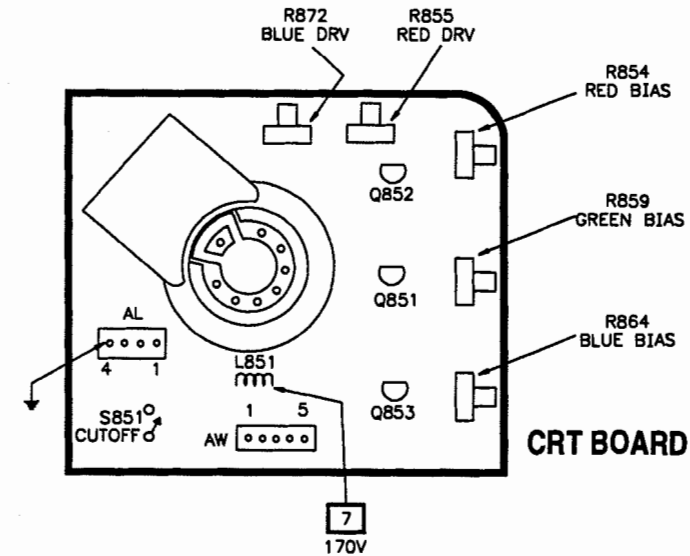
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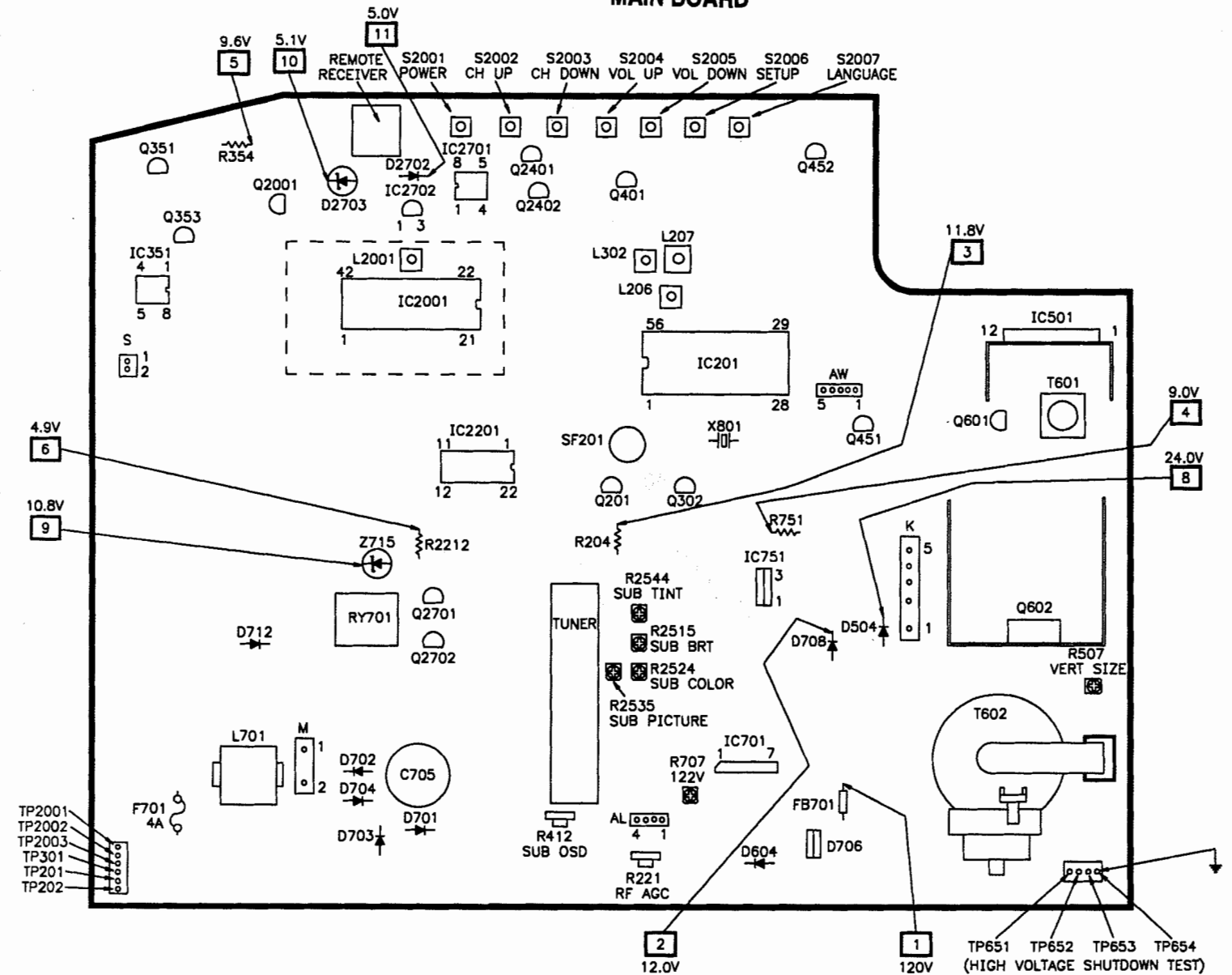
## PLACEMENT CHART

### HIGH VOLTAGE SHUTDOWN TEST

After any servicing relating to the high voltage circuits, horizontal deflection circuits, or B+ circuits, test shutdown by momentarily applying 25.5V, through an isolation diode, to TP652. The set should lose raster and sound. If the set fails to go into shutdown, the high voltage shutdown circuit requires repair. To restore operation, remove power, wait 30 seconds, then restore power.



### MAIN BOARD

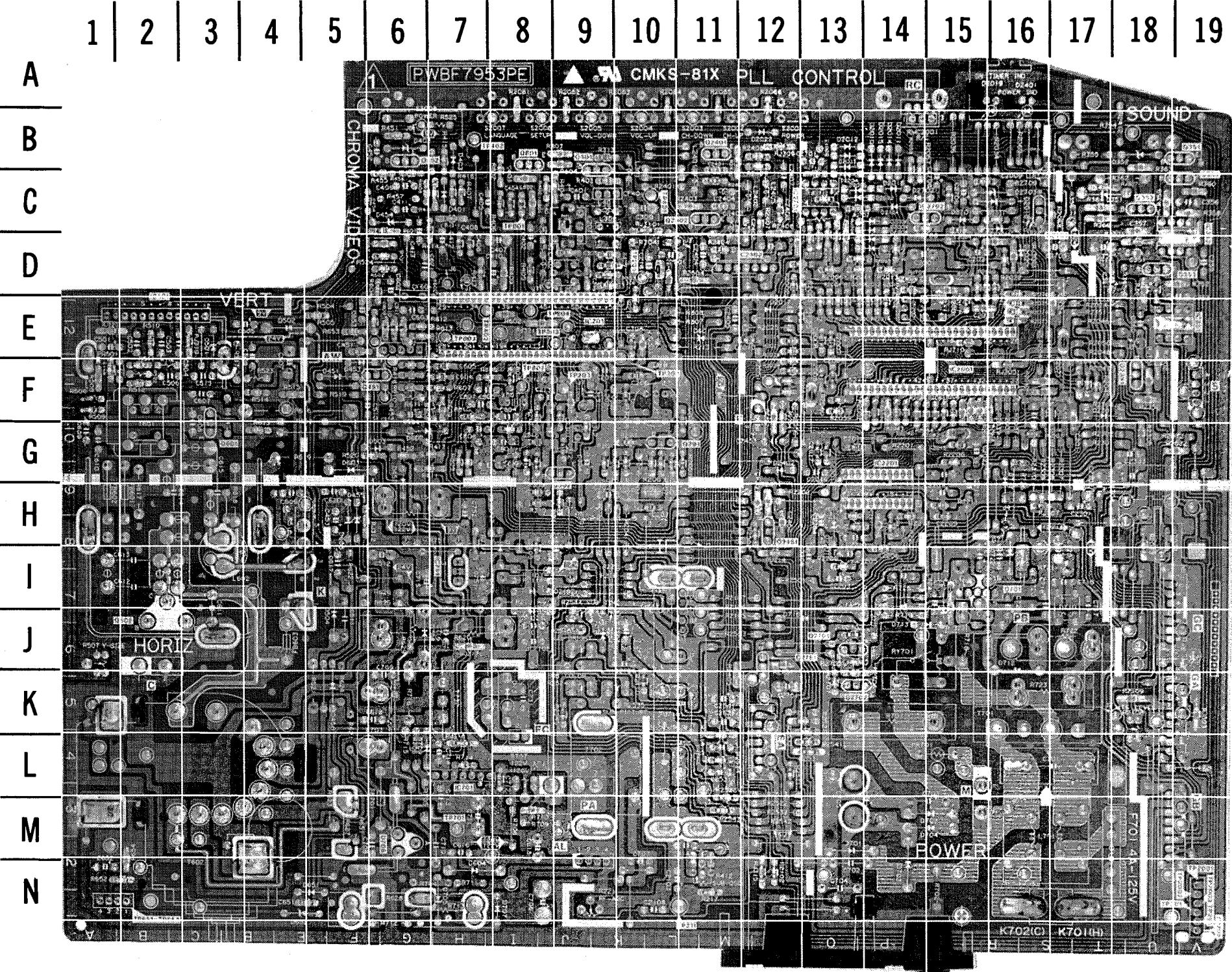


SHARP

MODEL 13E-M100



MAIN BOARD - BOTTOM VIEW



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MAIN BOARD - BOTTOM VIEW, GRIDTRACE LOCATION GUIDE

C201	G-10	R310	H-8	R2011	D-13	R2534	L-11
C203	H-10	R311	H-9	R2012	E-14	R2541	L-13
C204	F-11	R312	G-9	R2013	D-14	R2543	M-11
C205	G-10	R313	B-9	R2014	E-14	R2545	K-9
C206	F-10	R351	D-18	R2015	E-14	R2701	D-13
C212	F-9	R401	C-8	R2016	D-14	R2702	D-13
C214	G-8	R402	C-8	R2017	E-15	R2703	D-13
C216	G-8	R403	C-9	R2018	D-15	R2704	F-12
C219	D-9	R404	C-9	R2020	D-15	R2705	J-13
C306	D-9	R405	D-8	R2021	D-16	R2706	K-13
C307	D-9	R406	C-8	R2022	D-16	R2707	K-13
C308	E-10	R407	C-7	R2023	H-18	R2708	C-15
C312	G-9	R408	C-6	R2026	E-12	R2710	C-13
C351	D-18	R411	C-7	R2027	E-12	R2711	D-13
C404	C-8	R413	D-7	R2028	F-12	R2712	C-13
C406	D-7	R414	C-7	R2029	F-12		
C408	D-7	R415	B-7	R2031	C-16		
C451	E-5	R416	C-7	R2042	F-14		
C604	F-7	R417	G-7	R2043	F-14		
C605	F-7	R418	F-6	R2045	F-17		
C651	N-4	R451	B-6	R2047	F-17		
C712	L-8	R452	G-6	R2049	F-17		
C802	C-8	R454	C-6	R2052	F-14		
C808	F-8	R455	C-6	R2053	F-12		
C2002	D-14	R456	C-6	R2054	F-12		
C2004	C-15	R501	D-6	R2057	B-14		
C2005	F-13	R502	D-6	R2058	B-14		
C2006	F-13	R505	E-5	R2059	F-13		
C2007	E-13	R506	F-1	R2060	F-13		
C2008	E-13	R509	F-1	R2062	A-9		
C2009	C-15	R510	E-2	R2063	A-10		
C2010	E-12	R511	F-2	R2064	B-10		
C2015	G-15	R512	F-2	R2065	B-11		
C2017	G-13	R513	F-1	R2066	B-12		
C2018	G-13	R514	F-4	R2068	C-17		
C2019	G-13	R515	F-4	R2073	E-16		
C2020	E-13	R520	G-6	R2074	E-16		
C2105	I-8	R601	C-6	R2075	E-16		
C2206	I-14	R604	D-6	R2076	D-16		
C2209	H-15	R606	E-6	R2081	F-15		
C2211	H-13	R607	F-7	R2082	F-15		
C2401	B-11	R610	F-16	R2083	F-15		
C2402	C-12	R613	G-4	R2084	F-15		
C2403	C-11	R652	N-2	R2085	F-14		
C2408	C-12	R653	E-5	R2102	N-12		
C2702	J-13	R714	L-7	R2110	K-10		
C2706	C-15	R802	B-8	R2206	G-15		
R201	G-9	R805	G-8	R2208	H-14		
R202	G-10	R806	F-8	R2209	I-13		
R203	G-10	R809	G-7	R2210	H-13		
R205	G-11	R810	F-7	R2211	H-15		
R206	G-10	R811	G-6	R2213	H-14		
R207	G-10	R812	E-6	R2402	C-11		
R208	F-10	R813	E-6	R2404	D-11		
R209	F-10	R814	F-6	R2407	C-12		
R212	F-8	R815	G-7	R2408	B-12		
R214	E-12	R2001	E-13	R2409	B-12		
R215	G-8	R2002	D-12	R2410	B-11		
R217	N-11	R2003	D-13	R2502	H-12		
R218	D-9	R2004	E-13	R2511	L-12		
R219	E-10	R2005	E-13	R2514	L-11		
R302	F-9	R2006	D-13	R2521	K-13		
R303	D-9	R2008	E-13	R2523	M-11		
R305	D-9	R2009	E-13	R2531	L-13		
R309	H-8	R2010	D-13	R2532	K-13		

SHARP

MODEL 13E-M100