

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 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 inner 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.

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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Page 1 SET 3931

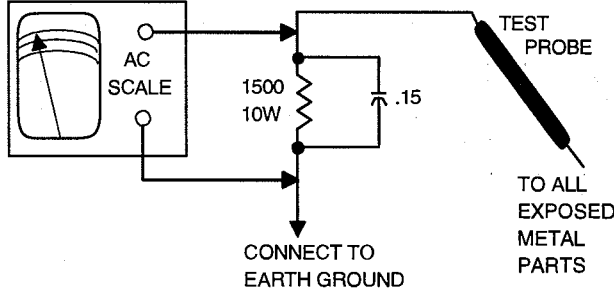
SAFETY CHECKS -- FIRE AND SHOCK HAZARD

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. Use remote transmitter to set customer controls for normal operation. Momentary short pin XRP1 to XRP2. The set should lose raster and sound, and then restart. If set does not lose raster and sound, the shutdown circuit should be repaired.



98PF01287

PHOTOFACT® Technical Service Data

SET 3931

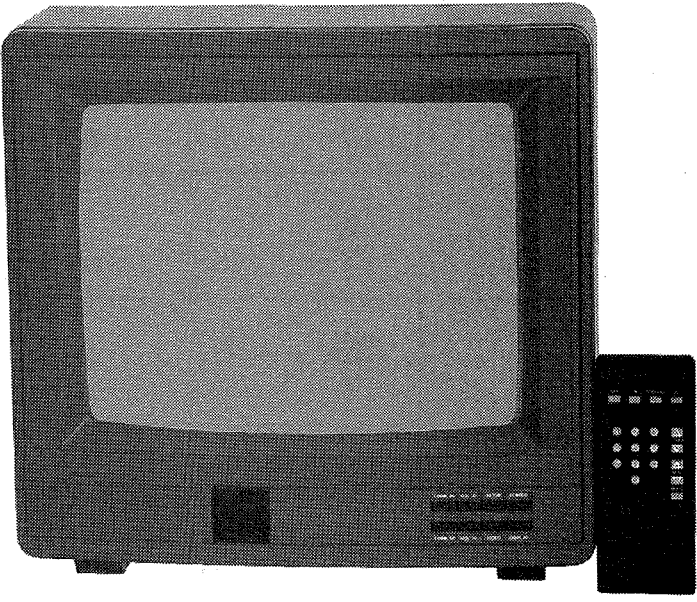
MODEL 13GP234F01 (CHASSIS TX81G)

GE

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GE
Model 13GP234F01 (Chassis TX81G)



Representative Model
Essential coverage
for servicing a television receiver...

- Schematics
- Component locations
- Parts list

Coverage includes these additional models and chassis:

MODELS	CHASSIS
13GP234C01	TX81G
13GP234F02	TX81GC
13GP234F03	TX81GT
13GP236C01	TX81G
13GP236F01	TX81G
13GP236F02	TX81GC
13GP236F03	TX81GT



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JANUARY 1998 SET 3931

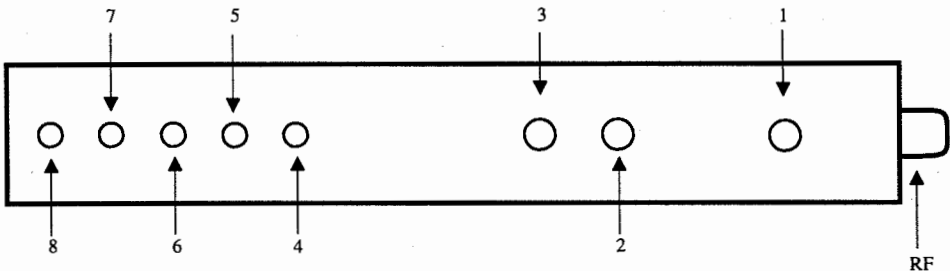
For Supplier Address,
See PHOTOFACT Annual Index

TUNER INFORMATION

TUNER VOLTAGE CHART			
Pin	VHF Low Band	VHF High Band	UHF Band
1 AGC	4.0V	4.0V	4.4V
2 12V	12.0V	12.0V	12.0V
3 IF	0V	0V	0V
4 33V	30.0V	30.0V	30.0V
5 -10V	-11.4V	-5.5V	-11.4V
6 5.1V	5.0V	5.0V	5.0V
7 DATA	4.9V	4.9V	4.9V
8 CLK	5.2V	5.2V	5.2V

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

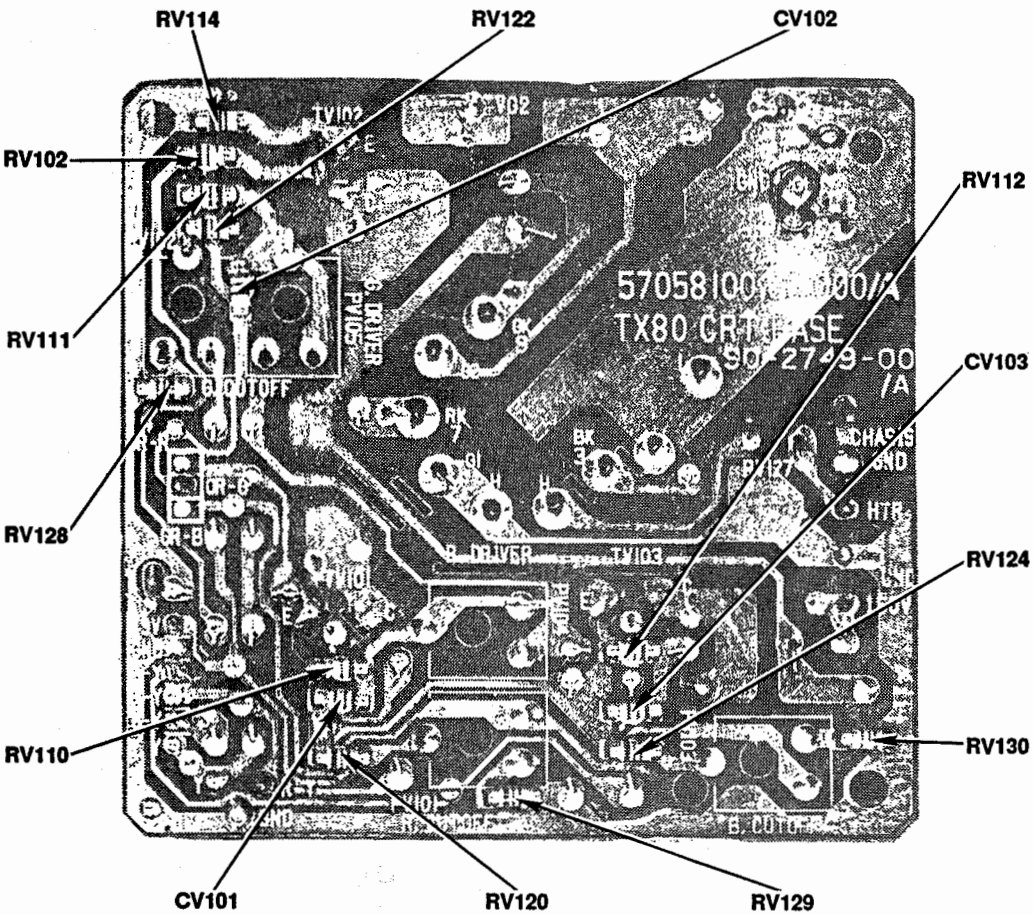


SCHEMATIC NOTES

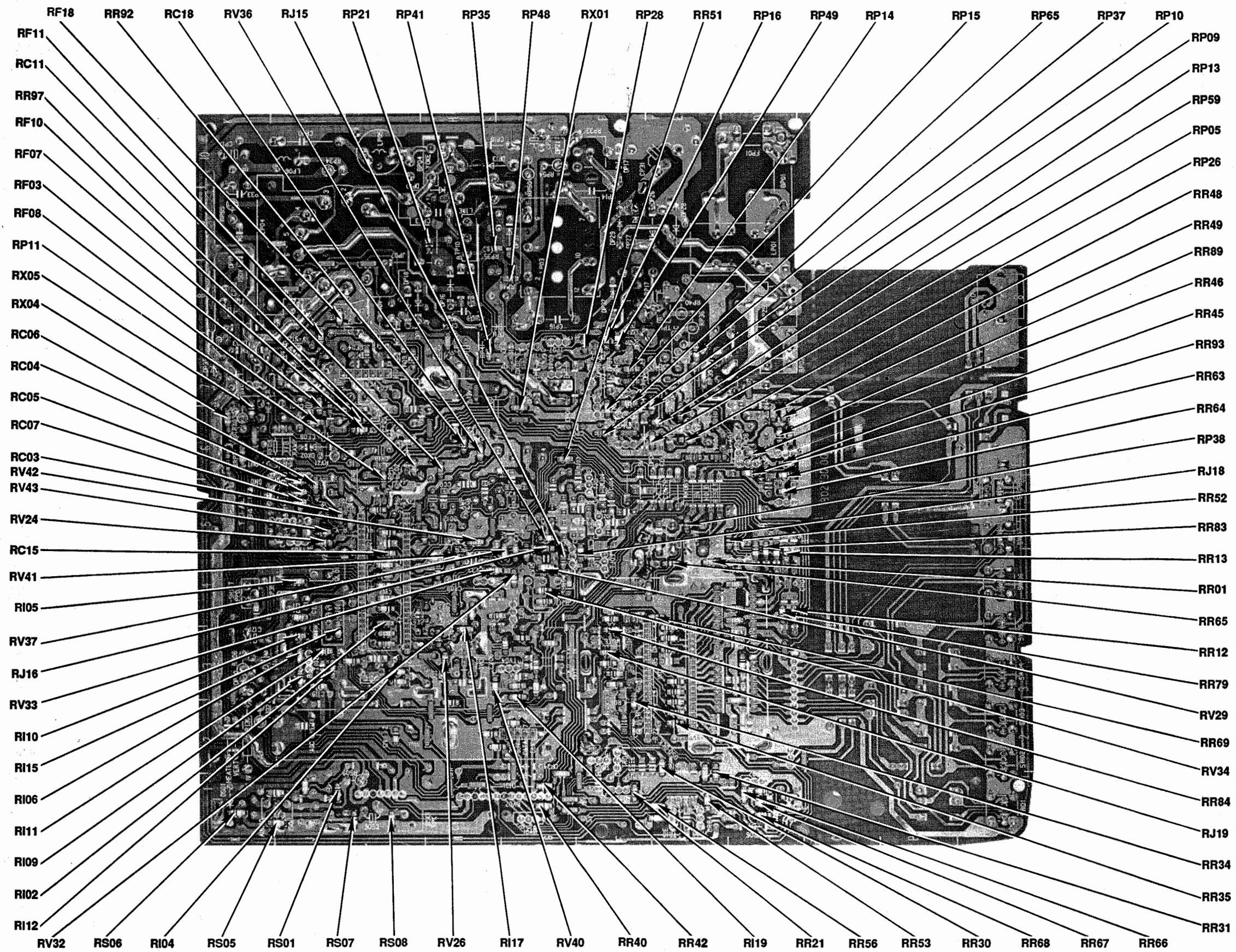
- # For SAFETY use only equivalent replacement part, see parts list.
- * Circuitry not used in some versions.
- Circuitry used in some versions.
- ⏏ Ground
- ⏏ Chassis ground
- ▽ Common tie point
- △ Taken from common tie point
- 3 Schematic CIRCUI TRACE Voltage source tie point.
- A Cabling: Heavy lines reduce use of multiple lines.

Waveforms and voltages are taken from ground, unless noted otherwise.
Waveforms taken with triggered scope and colorbar signal.
Waveform voltage is peak to peak. Timebase is per division. Waveforms shown at 10 divisions.
Supply voltages maintained as seen at input.
Voltages measured with digital meter and a 1000μV RF signal, with colorbar pattern, applied to antenna terminal.
Controls adjusted for normal operation.
Capacitors are 50 volts or less, 5% or greater unless noted.
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.

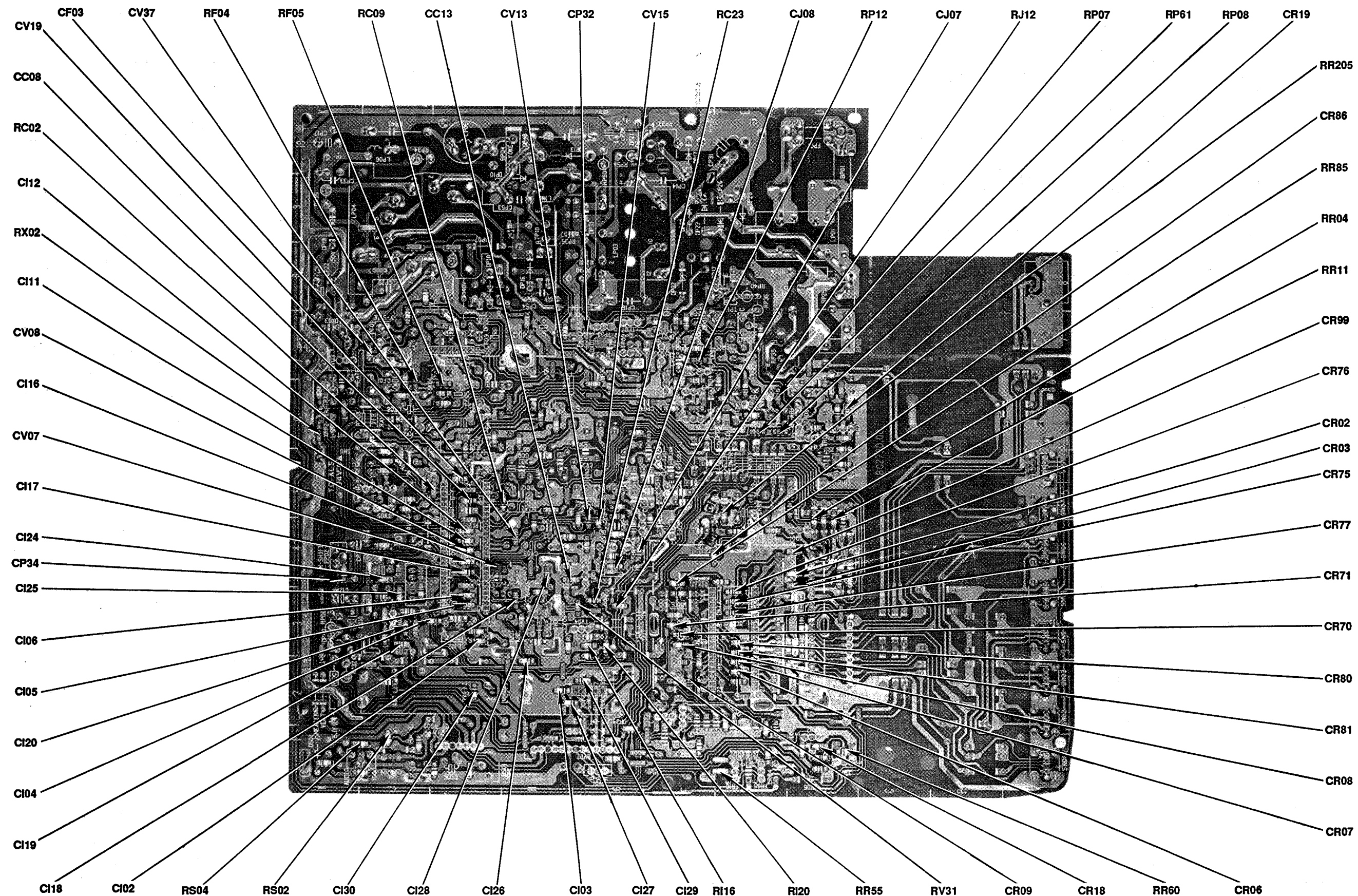
CRT BOARD



MAIN BOARD



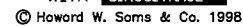
MAIN BOARD



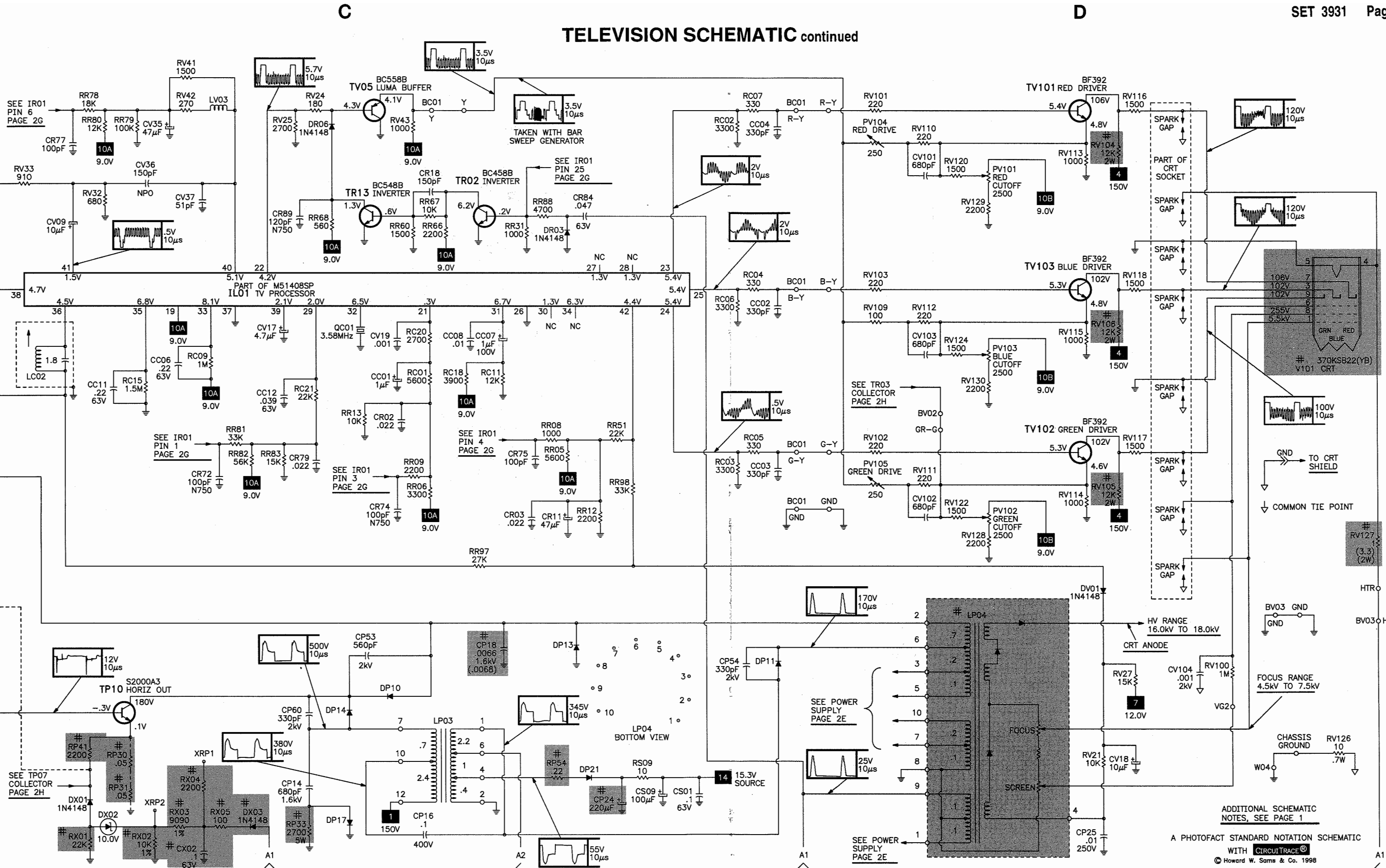
GE

MODEL 13GP234F01 (CHASSIS TX81G)

A



TELEVISION SCHEMATIC continued

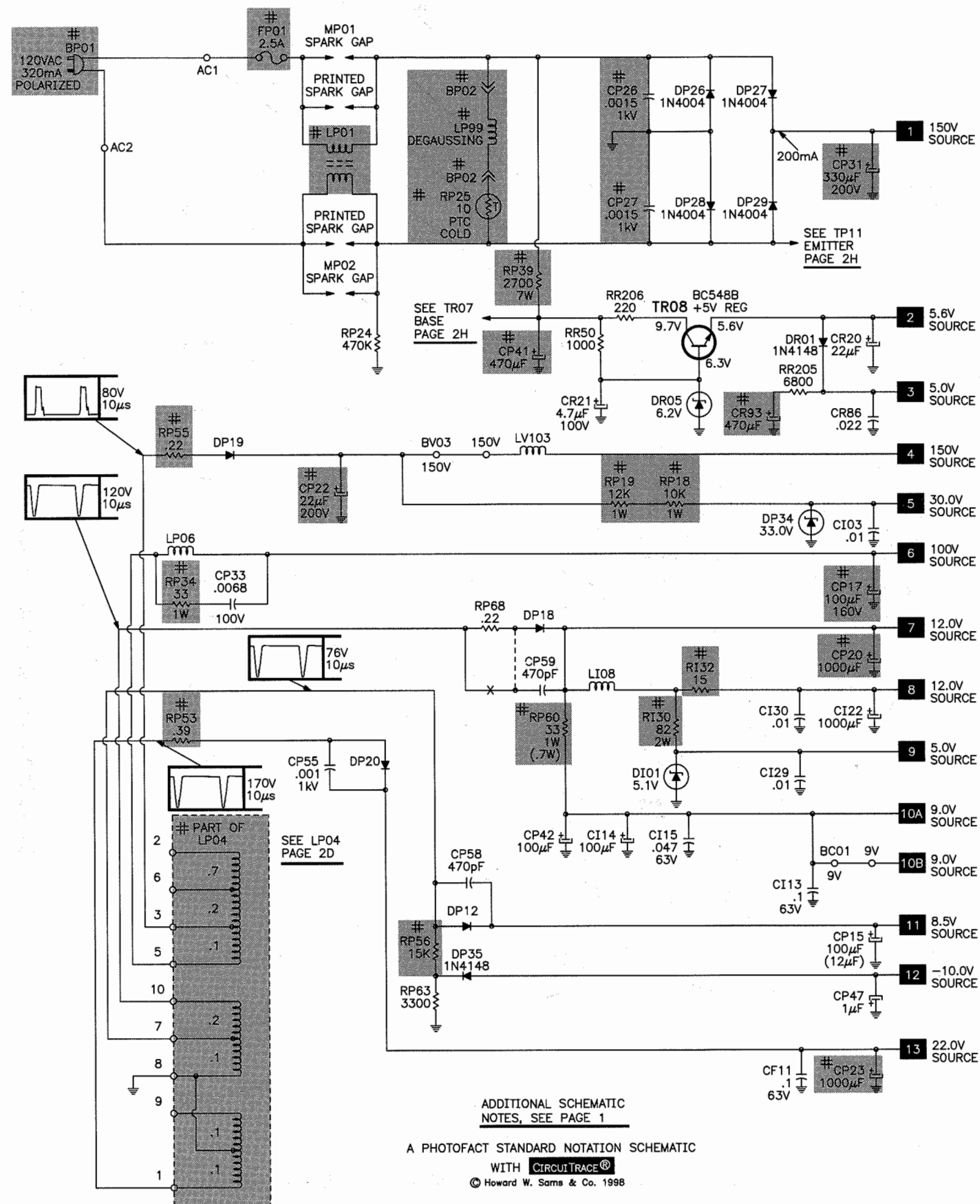


ADDITIONAL SCHEMATIC NOTES, SEE PAGE 1

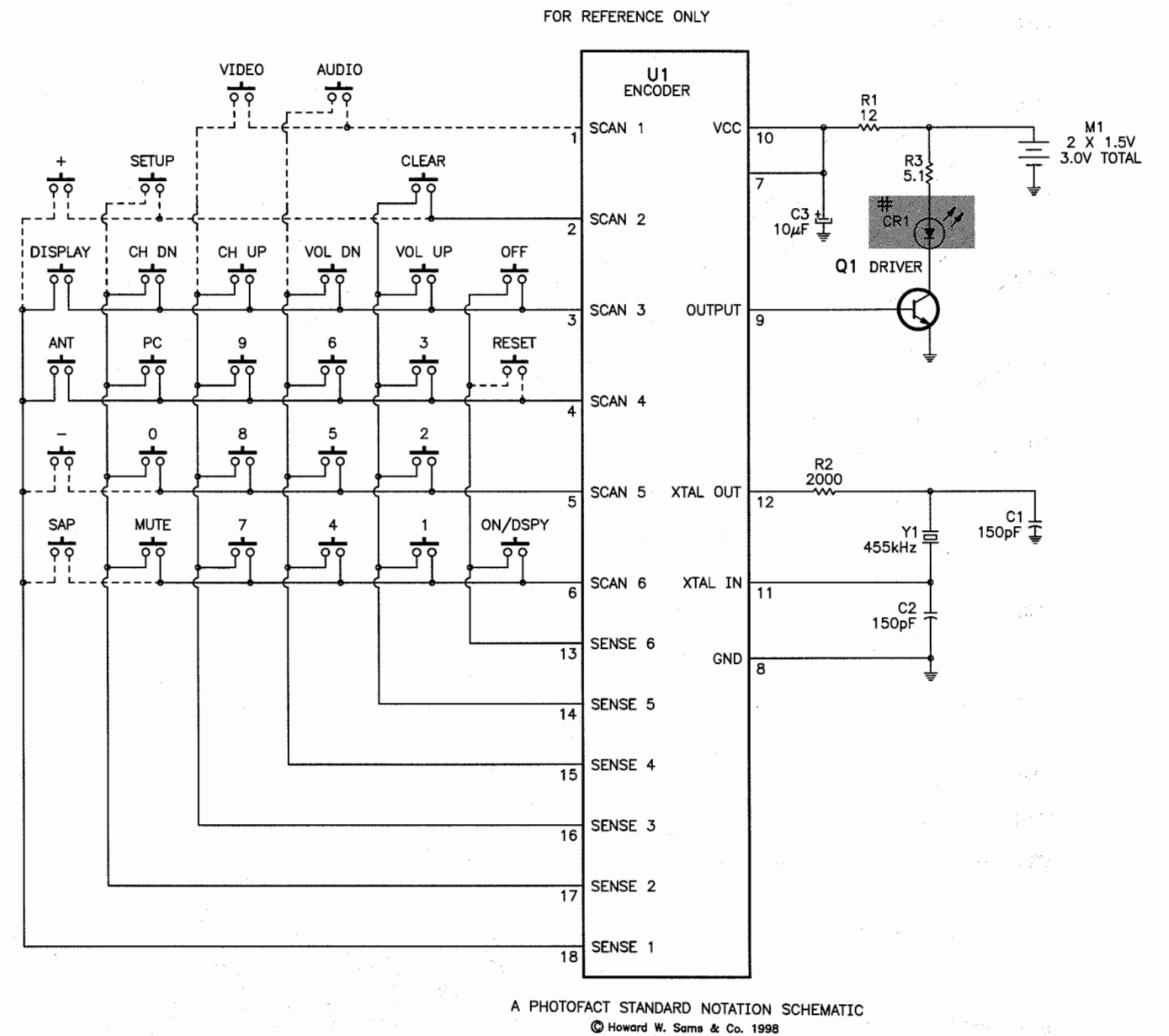
A PHOTOFAC STANDARD NOTATION SCHEMATIC WITH CIRCUITTRACE®

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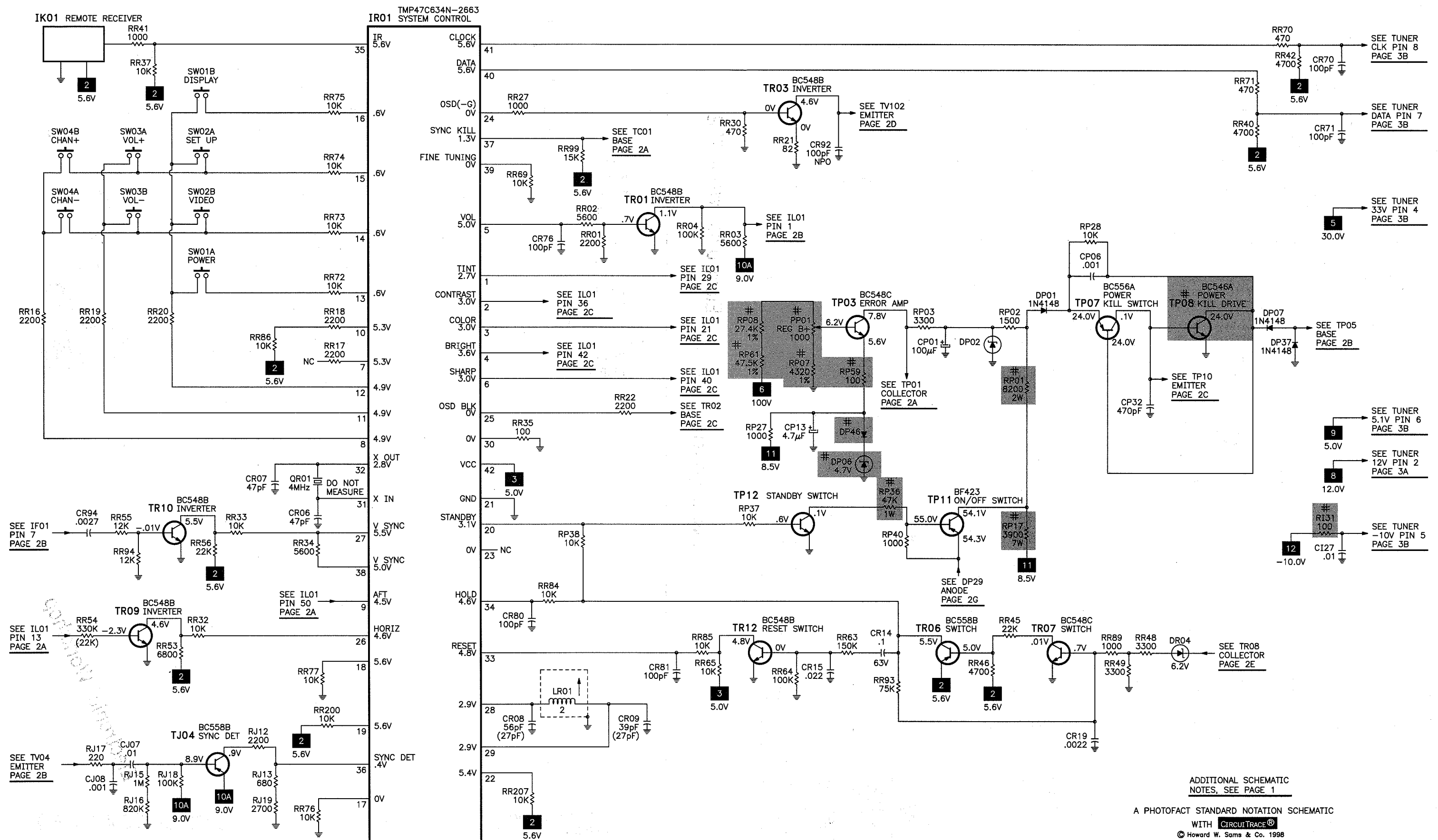
POWER SUPPLY SCHEMATIC



REMOTE TRANSMITTER SCHEMATIC



SYSTEM CONTROL SCHEMATIC

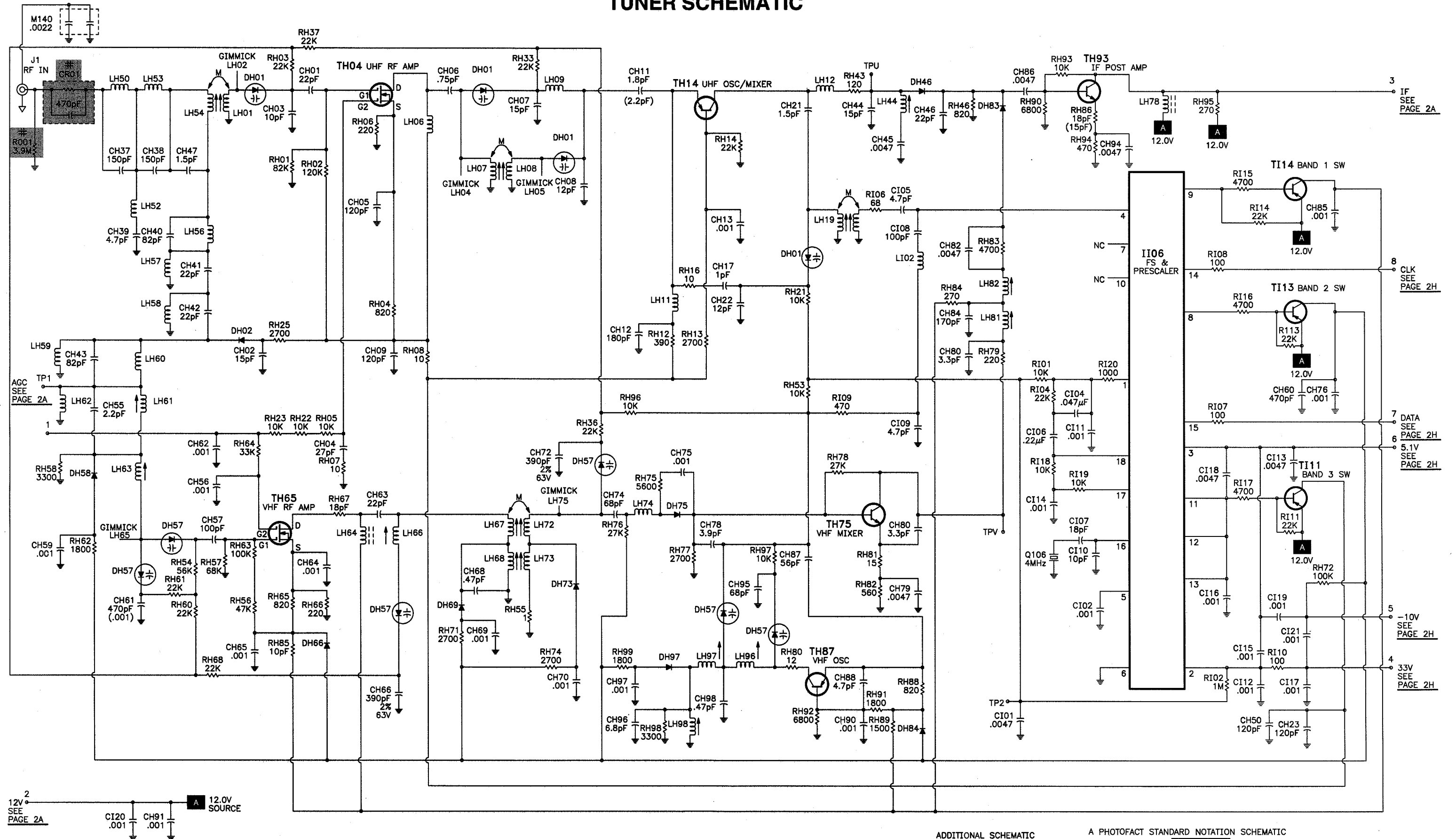


ADDITIONAL SCHEMATIC
NOTES, SEE PAGE 1

A PHOTOFACIT STANDARD NOTATION SCHEMATIC

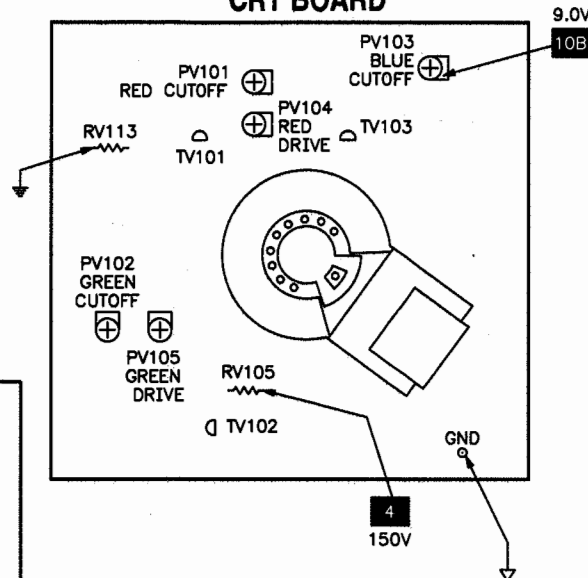
WITH **CIRCUITRACE®**
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TUNER SCHEMATIC

ADDITIONAL SCHEMATIC
NOTES, SEE PAGE 1A PHOTOFAC STANDARD NOTATION SCHEMATIC
WITH **CIRCUITTRACE®**
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IC FUNCTIONS

CRT BOARD



IF01
LA8730

The diagram shows a block labeled IF01 LA8730. Inside the block, there are three main functional blocks: VERT DRIVE, VERT OUT, and PUMP UP. VERT DRIVE is connected to VERT OUT, which is connected to PUMP UP. PUMP UP is connected to a VCC pin. VERT DRIVE is connected to a GND pin. VERT OUT is connected to an OSC STOP pin. There is also a VCC pin connected to the bottom of the block.

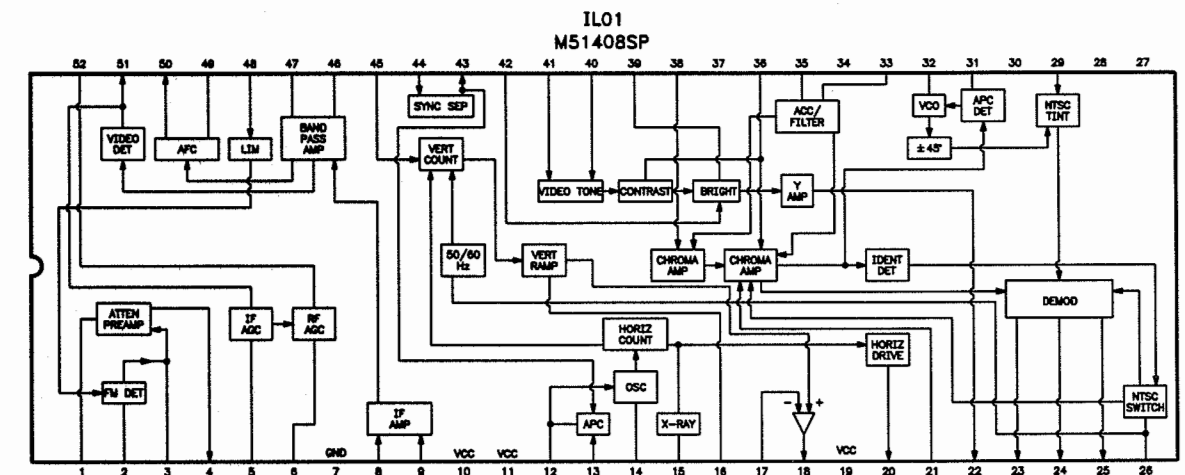
VERT DRIVE

VERT OUT

PUMP UP

GND VCC OSC STOP VCC

1 2 4 5 8 7



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

PARTS LIST

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.
- Terrell & Nobis (TNI Electronics)
- Thomson Consumer Electronics, Inc. (SK, TCE)

SEMICONDUCTORS

(Select the replacement that gives the best results.)

Item No.	Type No.	Mfr. Part No.	NTE Part No.	ECG Part No.	TCE Part No.
DC01	1N4148	198589	NTE519	ECG519	SK3100
DF01	1N4148	198589	NTE519	ECG519	SK3100
DF04	-	198590	NTE580	ECG580	-
DI01	-	250066	-	-	-
-	-	198591	-	-	-
DP01	1N4148	198589	NTE519	ECG519	SK3100
DP02	-	198592	-	-	-
DP04, 05	1N4148	198589	NTE519	ECG519	SK3100
# DP06	-	198593	-	-	-
DP07	1N4148	198589	NTE519	ECG519	SK3100
DP08	-	198590	NTE580	ECG580	-
DP10	-	198594	-	-	-
DP11	-	198595	-	-	-
DP12	-	198590	NTE580	ECG580	-
DP13	-	198596	-	-	-
DP14	-	198594	-	-	-
DP15, 16	-	198597	NTE116	ECG116	SK3313
DP17	-	198598	-	-	-
DP18 Thru DP21	-	198590	NTE580	ECG580	-
DP26 Thru DP29	1N4004	198599	NTE116	ECG116	SK3312
DP30	-	198597	NTE116	ECG116	SK3313
DP31	-	198590	NTE580	ECG580	-
DP32, 33	1N4148	198589	NTE519	ECG519	SK3100
DP34	-	198600	-	-	-
DP35	1N4148	198589	NTE519	ECG519	SK3100
DP36	-	198590	NTE580	ECG580	-
DP37	1N4148	198589	NTE519	ECG519	SK3100
# DP40	-	198601	-	-	-
# DP46	-	198601	-	-	-
DP47	-	198602	-	-	-
DR01	1N4148	198589	NTE519	ECG519	SK3100
DR03	1N4148	198589	NTE519	ECG519	SK3100
DR04, 05	-	198603	NTE5013T1	ECG5013T1	SK9969
DR06	1N4148	198589	NTE519	ECG519	SK3100
DS01	1N4148	198589	NTE519	ECG519	SK3100
DV01	1N4148	198589	NTE519	ECG519	SK3100
DX01	1N4148	198589	NTE519	ECG519	SK3100
DX02	-	198774	NTE5019T1	ECG5019T1	SK9970
# DX03	1N4148	198589	NTE519	ECG519	SK3100
IF01	LA7830	188086	NTE1773	ECG1773	SK9752
IL01	M51408SP	198607	-	-	-
IR01	TMP47C634N-2663	202048	-	-	-
-	-	209938	-	-	-
IS01	TDA2006	198609	NTE1378	ECG1378	SK7706
TC01	BC548B	-	NTE123AP*	ECG123AP*	SK3854*
TI02	-	198744	-	-	-
-	-	206017	-	-	-
TJ04	BC558B	198745	NTE159*	ECG159*	SK3466*
TP01	BC548C	198746	NTE199*	ECG199*	SK3245*
TP02	BC558C	198747	NTE159*	ECG159*	SK3466*
TP03	BC548C	198746	NTE199*	ECG199*	SK3245*
TP04	BC558C	198747	NTE159*	ECG159*	SK3466*
TP05	BC548C	198746	NTE199*	ECG199*	SK3245*
TP06	BC368	198748	NTE297	ECG297	SK3449
TP07	BC556A	198749	NTE159*	ECG159*	SK3466*
# TP08	BC546A	198750	NTE199*	ECG199*	SK3245*
TP09	BC368	198748	NTE297	ECG297	SK3449

For SAFETY use only equivalent replacement part.
* Lead configuration may vary from original.

SEMICONDUCTORS continued

(Select the replacement that gives the best results.)

Item No.	Type No.	Mfr. Part No.	NTE Part No.	ECG Part No.	TCE Part No.
TP10	S2000A3	198794	-	-	-
TP11	BF423	198751	NTE397*	ECG397*	SK3528*
TP12	-	198752	-	-	-
TR01 Thru TR03	BC548B	198743	NTE123AP*	ECG123AP*	SK3854*
TR06	BC558B	198745	NTE159*	ECG159*	SK3466*
TR07	BC548C	198746	NTE199*	ECG199*	SK3245*
TR08 Thru TR10	BC548B	198743	NTE123AP*	ECG123AP*	SK3854*
TR12, 13	BC548B	198743	NTE123AP*	ECG123AP*	SK3854*
TV04, 05	BC558B	198745	NTE159*	ECG159*	SK3466*
TV101 Thru TV103	BF392	198763	NTE287	ECG287	SK3433
Remote Transmitter (CRK53B/C)					
# CR1	-	153342	-	-	-
Q1	-	148996	NTE123AP	ECG123AP	SK3854
U1	-	181040	-	-	-
Tuner (MTP-M-2006)					
# CRD1	-	200482	-	-	-
DH01	-	200553	-	-	-
DH02	-	200471	-	-	-
DH46	-	200472	-	-	-
DH57	-	200554	-	-	-
DH58	-	200471	-	-	-
DH66	-	200472	-	-	-
DH69	-	200471	-	-	-
DH73	-	200471	-	-	-
DH75	-	200555	-	-	-
DH83, 84	-	200472	-	-	-
DH97	-	200471	-	-	-
II06	-	200558	-	-	-
TH04	-	200566	-	-	-
TH14	-	200567	-	-	-
TH65	-	200566	-	-	-
TH75	-	200557	-	-	-
TH87	-	200574	-	-	-
TH93	-	200557	-	-	-
TI11	-	200556	-	-	-
TI13	-	200556	-	-	-
TI14	-	200556	-	-	-

For SAFETY use only equivalent replacement part.
* Lead configuration may vary from original.

CABINET PARTS

Item Mfr. Part No.

Models 13GP234C01/F01/F02/F03

# Cabinet Back	BK1106
# Cabinet Front Window, IR	MK1154 197835

Models 13GP236C01/F01/F02/F03

# Cabinet Back	BK1106
# Cabinet Front Window, IR	MK1107 197835

Remote Transmitter (CRK53B)

Battery Door	191570
Buttons	192557
Case Bottom	191568
Case Top	191567
Window, IR	191569

Remote Transmitter (CRK53C)

Battery Door	191570
Buttons	192558
Case Bottom	191568
Case Top	191567
Window, IR	191569

For SAFETY use only equivalent replacement part.



Created with pride by the employees of Howard W. Sams & Company.

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PARTS LIST continued

CONTROLS & RESISTORS

Item No.	Function/Rating	Mfr. Part No.	NTE Part No.
PF01	10K Vertical Size	198784	-
PI01	500 RF AGC	198628	-
# PP01	1000 B+ Regulator	198629	-
PP02	150 Horizontal Shift	198610	-
PV101	2500 Red Cutoff	198796	-
PV102	2500 Green Cutoff	198796	-
PV103	2500 Blue Cutoff	198796	-
PV104	250 Red Drive	198795	-
PV105	250 Green Drive	198795	-
# RF01	2.7 5% 1/2W	198648	HW2D7
RF05	27.4K 1% .16W	198651	-
# RI30	82 5% 2W	198666	2W082
# RI31	100 5% 1/4W	198667	QW110
# RI32	15 5% 1/4W	198668	QW015
# RP01	8200 5% 2W	198671	2W282
# RP06	220 5% 1/4W	198675	QW122
	220 5% 1/4W	209917	QW122
# RP07	4320 1% .16W	198676	-
# RP08	27.4K 1% .16W	198651	-
RP12	68.1K 1% .16W	198790	-
# RP17	3900 5% 7W Wirewound	198682	-
# RP18	10K 5% 1W	198683	1W310
# RP19	12K 5% 1W	198684	1W312
# RP23	10 5% 3W	198791	3W010
	8.2 5% 3W	202049	3W8D2
# RP25	10 Cold PTC	198688	-
# RP29	820 5% 1/4W	198690	QW182
# RP30	.05 5% 1/4W	198691	-
# RP31	.05 10% 1/4W	198692	-
# RP32	1000 5% 1/2W	198693	HW210
	1000 10% 1/2W	206386	HW210
# RP33	2700 10% 5W Wirewound	198694	5W227
# RP34	33 5% 1W	198695	1W033
# RP36	47K 5% 1W	198696	1W347
# RP39	2700 10% 7W Wirewound	198697	-
# RP41	2200 5% .16W	198698	-
# RP50	.47 5% 1/2W	147492	HWD47
	.47 5% 1/4W	202050	QWD47
# RP53	.39 5% 1/4W	198701	-
# RP54, 55	.22 5% 1/4W	198702	-
# RP56	15K 5% 1/4W	198703	QW315
# RP59	100 5% .16W	198660	-
# RP60	33 5% .7W	198704	-
	33 5% 1W	198695	1W033
# RP61	47.5K 1% .16W	198705	-
# RP68	.22 5% 1/4W	198702	-
# RS07	10 5% .16W	198729	-
# RV104, 05, 06	12K 5% 2W	183193	2W312
# RV127	1 5% .3W	209918	-
	3.3 5% 2W	194426	2W3D3
# RX01	22K 5% .16W	198714	-
# RX02	10K 1% 1/4W	198739	-
# RX03	9090 1% 1/2W	198740	-
# RX04	2200 5% .16W	198698	-
# RX05	100 5% .16W	198660	-
# RY01	680 5% 1/2W	175364	HW168
Tuner (MTP-M-2006)			
# R001	3.9M 10% 1/2W	200713	HW539

For SAFETY use only equivalent replacement part.

CAPACITORS & ELECTROLYTICS

Item No.	Rating	Mfr. Part No.
# CF01	1000µF 20% 25V	190721
CF06	56pF 5% 50V NPO	198771
CP14	680pF 5% 1.6kV	198560
# CP17	100µF 20% 160V	168725
	100µF 20% 160V	194728
# CP18	.0066 1.6kV	198562
	.0068 1.6kV	205418
# CP20	1000µF 20% 16V	185862
# CP22	22µF 20% 200V	198563
# CP23	1000µF 20% 25V	190721
# CP24	220µF 20% 35V	161285
# CP26, 27	.0015 10% 1kV	198565
# CP31	330µF 20% 200V	182286
# CP40	.36 5% 250V	198567
# CP41	470µF 10% 50V	159311
CP53	560pF 10% 2kV	198568
CP54	330pF 10% 2kV	198569
CP55	.001 +50% -20% 1kV	198570
CP60	330pF 10% 2kV	198569
CR72, 74	100pF 5% 50V N750	198579
CR89	120pF 5% 50V N750	198580
CR92	100pF 5% 50V NPO	198581
# CR93	470µF 20% 16V	175305
# CS06	470µF 20% 25V	178836
CV104	.001 10% 2kV	198806
CV36	150pF 5% 50V NPO	198587
# CX02	.1 10% 63V	198551

Tuner (MTP-M-2006)

CH66, 72 390pF 2% 63V 200480

For SAFETY use only equivalent replacement part.

COILS & TRANSFORMERS

Item No.	Function/Rating	Mfr. Part No.
# DY1 (2)	Yoke Horiz 3.0 mH Vert 31.0 mH	204903
# DY1 (3)	Yoke	198805
LC02	-	198612
LI02	Sound Detector	198613
LI03	Video Detector	198614
	Video Detector	206385
LI07	AFT	198616
LI08	47µH	198617
# LP01	Line Filter	198618
LI04	.82µH	198615
LP02	6µH	198619
LP03	Horizontal Driver	198620
# LP04 (1)	Horizontal Output	198622
# LP05	Horizontal Linearity	198623
LP06	50µH	198624
# LP99	Degaussing	198807
LR01	-	198625
LV01	1.5µH	198783
LV02	12µH	198782
LV03	22µH	198781
LV103	150µH	198813

Tuner (MTP-M-2006)

LH64 3.9µH 200559
LH78 1.2µH 200481

For SAFETY use only equivalent replacement part.

(1) Focus and screen controls are part of LP04.

(2) Used with CRT 370KSB22 (YB).

(3) Used with CRT A34JLN60X.

MISCELLANEOUS

Item No.	Description	Mfr. Part No.	Notes
# BP01	Line Cord	198540	AC, Polarized
# FP01	Fuse	198605	2.5Amp, 250VAC
IK01	Receiver	198606	Remote
QC01	Crystal	198630	3.58MHz
QI01	Filter	198631	SAW
QI02	Filter	198632	4.5MHz
QL01	Filter	198633	-
QR01	Crystal	198634	4MHz
QV01	Trap	198636	4.5MHz
SP1	Speaker	198787	16 Ohms, 2W
SW01A	Switch	198742	Power
SW01B	Switch	198742	Display
SW02A	Switch	198742	Set Up
SW02B	Switch	198742	Video
SW03A	Switch	198742	Volume +
SW03B	Switch	198742	Volume -
SW04A	Switch	198742	Channel -
SW04B	Switch	198742	Channel +
# V101	CRT	370KSB22 (YB)	-
	CRT	A34JLN60X	-
VV01	Delay Line	198753	-
#	Adapter	193983	Antenna 75 To 300 Ohms
	Antenna	156265	VHF
	Magnet	161009	Beam Bender
	PC Board (1)	198761	CRT
	Transmitter (3)	186345	Remote (CRK53C)
	Transmitter (4)	186344	Remote (CRK53B)
	Tuner (1)(2)	198626	UHF/VHF (MTP-M-2006)
	Wedges	149903	Yoke Positioning (3 Used)

Remote Transmitter (CRK53B/C)

Y1 Crystal 157804 455kHz
PC Board (1) 191564 455kHz

Tuner (MTP-M-2006)

Q106 Crystal 200560 4MHz

For SAFETY use only equivalent replacement part.

(1) Contact PTS Electronics Corporation for replacement; order by manufacturer's part number.

(2) Contact TNI Electronics for replacement; order by part number on tuner.

(3) Used in models 13GP234C01/F01/F02/F03.

(4) Used in models 13GP236C01/F01/F02/F03.