

TEST JIG HOOKUP				
Chek-A-Color Function	Adapter No.	PC Board Plug	Pin	Color
CRT	-	P401	7	Red
Yoke	D4137		8	Blue
Yoke Program	YP3		9	Yellow
Comments	Focus Tap		10	Green

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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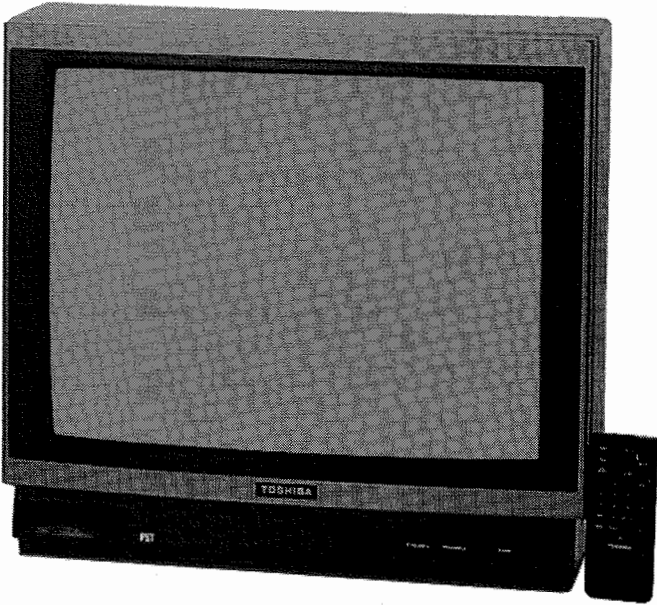
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SET 2938

MODELS CF2010J, CF2011J

TOSHIBA

TOSHIBA
Models CF2010J, CF2011J (Chassis TAC8902)

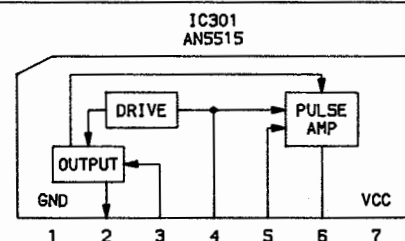


Essential coverage
for servicing a television receiver...

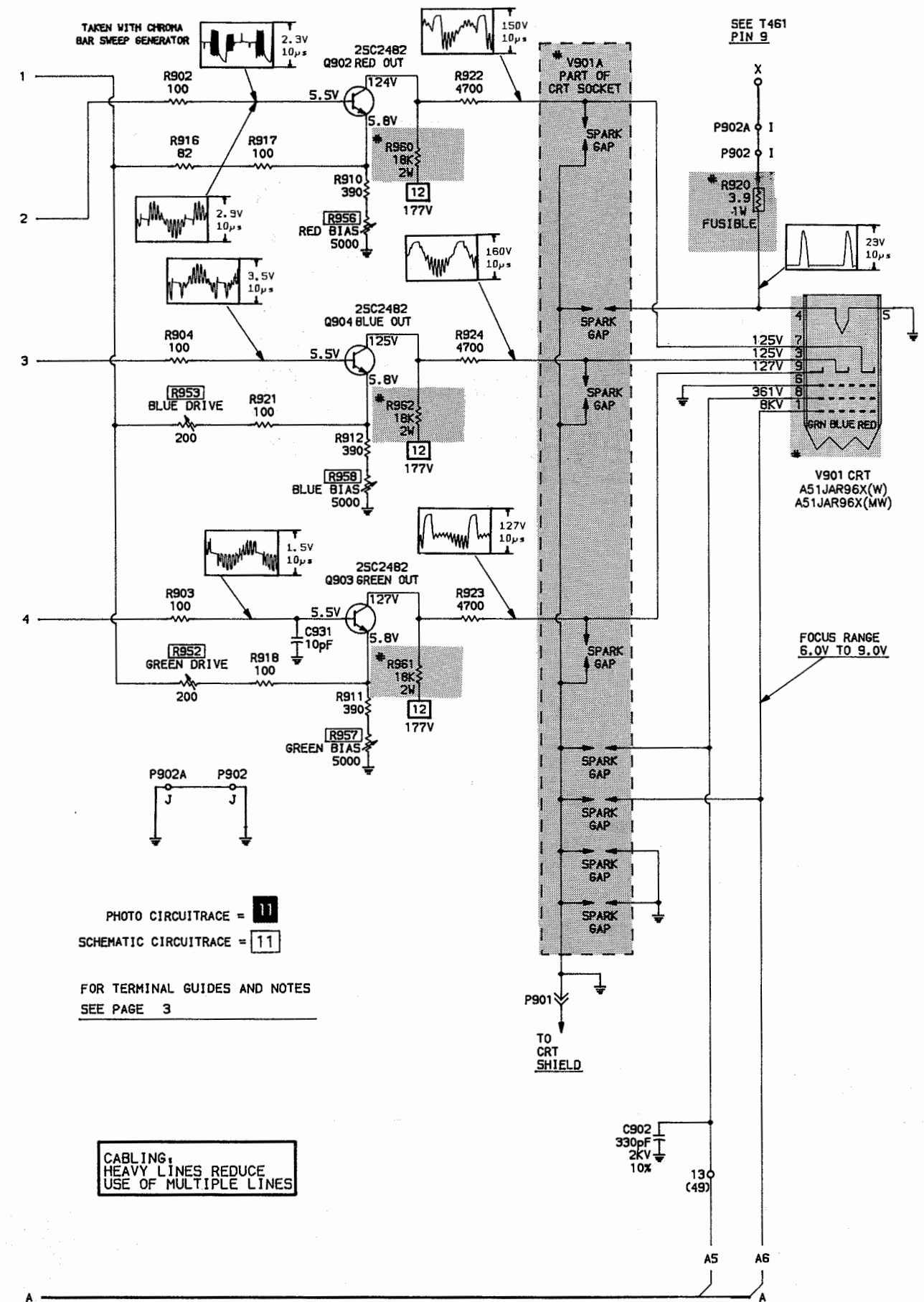
- Schematics
- Component locations
- Parts lists

For Supplier Address,
See PHOTOFACT Annual Index


HOWARD W. SAMS & COMPANY
FEBRUARY 1992 SET 2938

IC501
TAB680N

CRT SCHEMATIC



MODELS CF2010J, CF2011J

COILS & TRANSFORMERS

Item No.	Function	Mfr. Part No.	On-Unit No.	Russell Part No.
# L462	Yoke 90° Horiz 2.77mh Vert 20.5mh	23227272	TDY-621KB	-
L462A	Compensator	23848871	-	-
L462B	Compensator	23199314	-	-
T401	Horiz Driver	23224983	TLN1039	-
# T461	Horiz Output (1)	23226416	TFB4029AD	-
T661	Sound Output	23216941	TSP1063	-

For SAFETY use only equivalent replacement part.
(1) R499A Focus and R499B Screen Controls are part of Horizontal Output Transformer T461.

SPEAKER

Item No.	Description	Mfr. Part No.	Quam Part No.
W661	2 3/8" x 3 1/2" 8 ohms	23151225	

COILS (RF-IF)

Item No.	Rating	Mfr. Part No.
L061		23284101
L101		23237977
L103		23262828
L104		23237999
L105		23262827
L141		23238712
L142		23237984
L145		23238562
L161		23238560
L171		23262827
L202		23238562
L205		23238704
L411		23221739
L441		23233071
L444		23221722
L603		23238709
L604		23252905
LA01		23262776
LA02		23262776

CABINET PARTS

Item	Part No.
Front Cover	23418157 (1)
Front Cover	23417287 (2)
Back Cover	23422623
Door	23422625
Door Catch	70368125
Knob 5-Key	23443031
Knob 2-Key	23443222

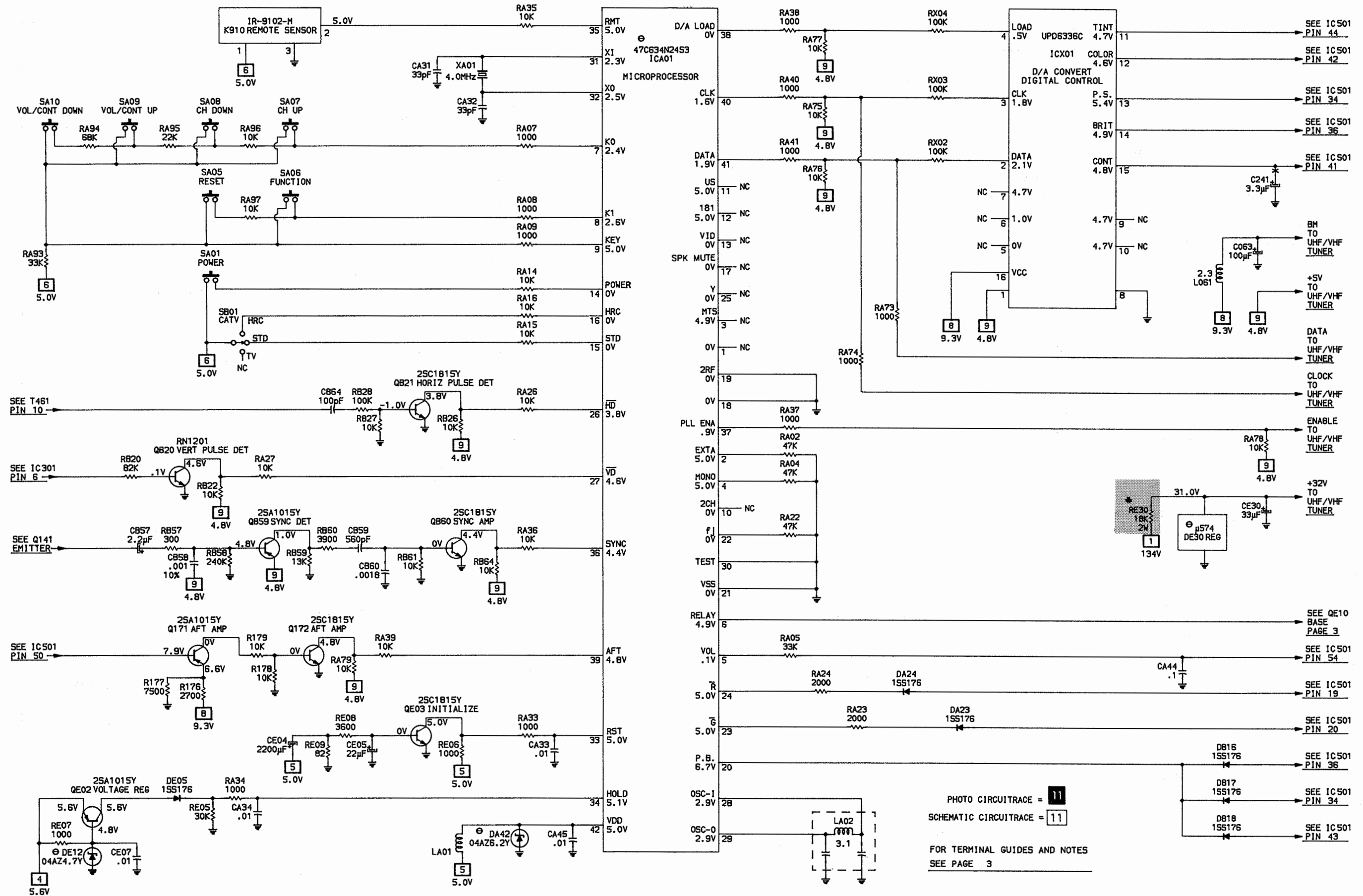
(1) Used in Model CF2011J
(2) Used in Model CF2010J

MISCELLANEOUS

Item No.	Description	Mfr. Part No.	Notes
# F801	Fuse	23144848	3 Amp @ 250V Fast Acting AC
F801A	Fuse Holder	23165081	
# F802	Fuse	23144847	1.2 Amp @ 250V Fast Acting DC
F802A	Fuse Holder	23165081	
K910	Sensor	23120439	Remote
K912	Remote Control	23120459	Hand Unit
L301	Ferrite Bead	23103859	
L409	Ferrite Bead	23103859	
L410	Ferrite Bead	23103859	
# L901	Degaussing	23200919	
M051Z	PC Board (1)	23335555	Main (USA Model)
M052Z	PC Board (1)	23335556	CRT Drive (USA Model)
# P002	Antenna Terminal	23142515	
# P801	Cord	23176733	AC Power, Polarized
5201	Switch	23145682	Service
SA01	Switch	23145227	Power
SA05	Switch	23145227	OBC
SA06	Switch	23145227	Function
SA07	Switch	23145227	Channel Up
SA08	Switch	23145227	Channel Down
SA09	Switch	23145227	Volume/Control Up
SA10	Switch	23145227	Volume/Control Down
SB01	Switch	23145227	Catv
# SR81	Relay	23146917	Power
# T801	Line Filter	23211922	TRF2137
# V901	CRT	A51JAR96X	
# V901A	Socket	23902022	CRT
V901M	Magnet	23102983	Purity-Convergence
X201	Delay Line	23250873	
X401	Resonator	23153721	
X501	Crystal	2315.630	(3.58MHz)
XA01	Resonator	23153845	(4MHz)
Z101	Filter	A560690	Saw
Z141	Trap	23107976	(4.5MHz) Video
Z601	Filter	23107932	(4.5MHz)
	UHF/VHF Antenna	23124759	Telescopic
	UHF/VHF Tuner (1)	23121639	
	Adapter	23142466	AD814J (Antenna Matching)

For SAFETY use only equivalent replacement part.
(1) Contact PTS Electronics Corporation for replacement; order by manufacturer's part number.

MICROPROCESSOR SCHEMATIC



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.

- B&K Precision
- Custom Components Corporation (Chek-A-Color)
- EVG / Russell Industries, Inc.
- NTE Electronics, Inc. (NTE)
- Philips ECG Company (ECG)
- PTS Electronics Corporation (PTS)
- Quam-Nichols Co. (Quam)
- Sencore, Inc.
- Thomson Consumer Electronics, Inc. (SK, TCE)

SEMICONDUCTORS

(Select replacement for best results.)

Item No.	Type No.	Mfr. Part No.	NTE Part No.	ECG Part No.	TCE Part No.
D204 - D206	1SS176	A7150258	NTE177	ECG177	SK9091
D210, 11	1SS176	A7150258	NTE177	ECG177	SK9091
D211, 13	1SS176	A7150258	NTE177	ECG177	SK9091
D290, 1	1SS176	A7150258	NTE177	ECG177	SK9091
D301	TVR-1B	A7568460	NTE552	ECG552	SK9000
D302, 9	S5295G	A7978850	NTE552	ECG552	SK9000
D401	04AZ9.1Z	A7116925	NTE5018A	ECG5018A	SK9A1
D405	1SS176	A7150258	NTE177	ECG177	SK9091
D406	S5295G	A7978850	NTE552	ECG552	SK9000
D408	3JH61	A7580656	NTE552	ECG552	SK9000
D421	04AZ9.1Y	A7116915	NTE5018A	ECG5018A	SK9A1
D422, 3	1SS176	A7150258	NTE177	ECG177	SK9091
D471	TVR-1B	A7568460	NTE552	ECG552	SK9000
# D472	RD6.2E	23115774	NTE5013A	ECG5013A	SK6A2
D491, 2	1SS176	A7150258	NTE177	ECG177	SK9091
D506 - D508	04AZ12X	A7117205	NTE5021T1	ECG5021T1	SK9971
D561	1SS176	A7150258	NTE177	ECG177	SK9091
D602	1SS176	A7150258	NTE177	ECG177	SK9091
D801 - D804	1S1887A	-	NTE552	ECG552	SK9000
	1S1887AFA-1	A7568754	NTE116	ECG116	SK3312
# D806	1SS176	A7150258	NTE177	ECG177	SK9091
# D819	04AZ20Y	A7117715	NTE5028A	ECG5028A	SK19A
DA23, 4	1SS176	A7150258	NTE177	ECG177	SK9091
DA42	04AZ6.2Y	A7116515	NTE5013A	ECG5013A	SK6A2
DB16 - DB18	1SS176	A7150258	NTE177	ECG177	SK9091
DE01	1S1887A	A7568752	NTE552	ECG552	SK9000
DE02, 3	1SS176	A7150258	NTE177	ECG177	SK9091
DE04	S5500G	A7986480	NTE116	ECG116	SK3312
DE05	1SS176	A7150258	NTE177	ECG177	SK9091
DE12	04AZ4.7Y	A7116215	NTE5009A	ECG5009A	SK4A7
DE30	U574	-	NTE615P	ECG615A	SK9976
	UPC574J	23115922	NTE615P	ECG615A	SK9976
DE34	1S1887A	A7568752	NTE552	ECG552	SK9000
DE35	04AZ4.3X	A7116105	NTE5008A	ECG5008A	SK4A3
DE38	04AZ6.8Y	A7116615	NTE5014A	ECG5014A	SK6A8
IC301	AN5515	23119548	NTE1684	ECG1684	SK9729
IC501	TA8680N	B0383100	NTE7010	ECG7010	SK10479
ICA01	TMP47C634N-2453Z	-	-	-	-
	47C634N2453	23318918	-	-	-
ICX01	UPD6336C	23318627	-	-	-
Q141	2SA1015Y	-	NTE290A	ECG290A	SK9132
	2SA1015-Y	A6534040	NTE290A	ECG290A	SK9132
Q161	2SC388A	-	NTE85	ECG85	SK3132
	2SC388ATM	A6708871	NTE85	ECG85	SK3132
Q171	2SA1015Y	-	NTE290A	ECG290A	SK9132
	2SA1015-Y	A6534040	NTE290A	ECG290A	SK9132
Q172	2SC1815Y	-	NTE85	ECG85	SK3124A
	2SC1815-Y	A6317440	NTE85	ECG85	SK3124A

For SAFETY use only equivalent replacement part.

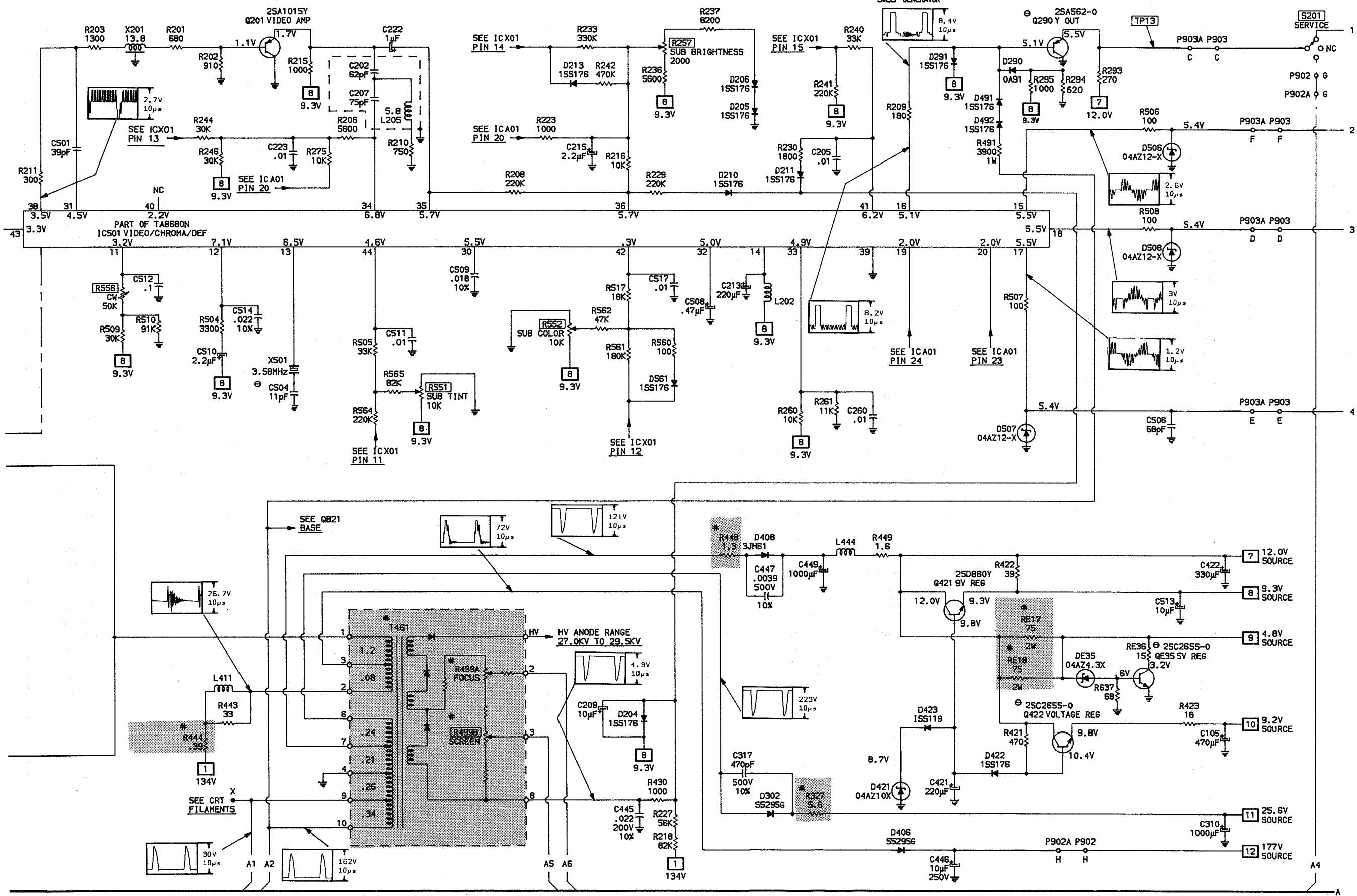
SEMICONDUCTORS continued

(Select replacement for best results.)

Item No.	Type No.	Mfr. Part No.	NTE Part No.	ECG Part No.	TCE Part No.
Q201	2SA1015Y	-	NTE290A	ECG290A	SK9132
	2SA1015-Y	A6534040	NTE290A	ECG290A	SK9132
Q202	2SC1815Y	-	NTE85	ECG85	SK3124A
	2SC1815-Y	A6317440	NTE85	ECG85	SK3124A
Q290	2SA562-O	-	NTE290A	ECG290A	SK3114A
	2SA562TM-O	A6509120	NTE290A	ECG290A	SK3114A
Q402	2SC2482	-	NTE399	ECG399	SK9352
	2SC2482FA-1	A6330069	NTE399	ECG399	SK9352
# Q404	2SD1426	A6868654	NTE2302	ECG2302	SK9422
	2SD1426FA	-	NTE2302	ECG2302	SK9422
Q421	2SD880Y	-	NTE152	ECG152	SK3440
	2SD880-Y	A6848520	NTE152	ECG152	SK3440
Q422	2SC2655Y	-	NTE293	ECG293	SK3849
	2SC2655-Y	A6333346	NTE293	ECG293	SK3849
Q471	2SA1015-O	A6534020	NTE290A	ECG290A	SK9132
Q602	2SC1815Y	-	NTE85	ECG85	SK3124A
	2SC1815-Y	A6317440	NTE85	ECG85	SK3124A
Q603	2SC2383Y	-	NTE31	ECG31	SK3866A
	2SC2383-Y	A6328333	NTE31	ECG31	SK3866A
Q604	2SA1013R	-	NTE32	ECG32	SK3867A
	2SA1013-O	A6533750	NTE32	ECG32	SK3867A
Q605	2SC2230AGR	-	NTE399	ECG399	SK9352
	2SC2230A-GR	A6325077	NTE399	ECG399	SK9352
# Q801	2SD1294	A6867051	-	ECG2335	SK10305
	2SD1294FA	-	-	ECG2335	SK10305
# Q803	S1854	A6907751	-	-	-
Q902 - Q903	2SC2482	A6330059	NTE399	ECG399	SK9352
QB20	RN1201	A6002010	-	-	-
QB21	2SC1815Y	-	NTE85	ECG85	SK3124A
	2SC1815-Y	A6317440	NTE85	ECG85	SK3124A
QB59	2SA1015Y	-	NTE290A	ECG290A	SK9132
	2SA1015-Y	A6534040	NTE290A	ECG290A	SK9132
QB60	2SC1815Y	-	NTE85	ECG85	SK3124A
	2SC1815-Y	A6317440	NTE85	ECG85	SK3124A
QE02	2SA1015Y	-	NTE290A	ECG290A	SK9132
	2SA1015-Y	A6534040	NTE290A	ECG290A	SK9132
QE03	2SC1815Y	-	NTE85	ECG85	SK3124A
	2SC1815-Y	A6317440	NTE85	ECG85	SK3124A
QE10	2SC2482	A6330059	NTE399	ECG399	SK9352
QE35	2SC2655Y	-	NTE293	ECG293	SK3849
	2SC2655-Y	A6333346	NTE293	ECG293	SK3849

For SAFETY use only equivalent replacement part.

TAKEN WITH BAR
SWEEP GENERATOR



PARTS LIST continued

CAPACITORS

Item	Rating	Mfr. Part No.
# C416	.0018 500V 10%	24214182
# C417	470 500V 10%	24214471
# C440	.0024 1.6KV 5%	24095930
# C441	.027 1.6KV 5%	24095929
# C442	.2 200V 5%	24828204
C504	11 NPO 50V 5%	24353110
# C801	.082 125VAC 20%	24095852
# C802	.0022 250VAC	24094909
CE36	.0022 250VAC	24094909

For SAFETY use only equivalent replacement part.

ELECTROLYTIC CAPACITORS

Item	Rating	Mfr. Part No.
C301	2.2 50V 10%	24617912
C305	2.2 50V 10%	24617912
# C810	470 180V	24086960

For SAFETY use only equivalent replacement part.

CONTROLS

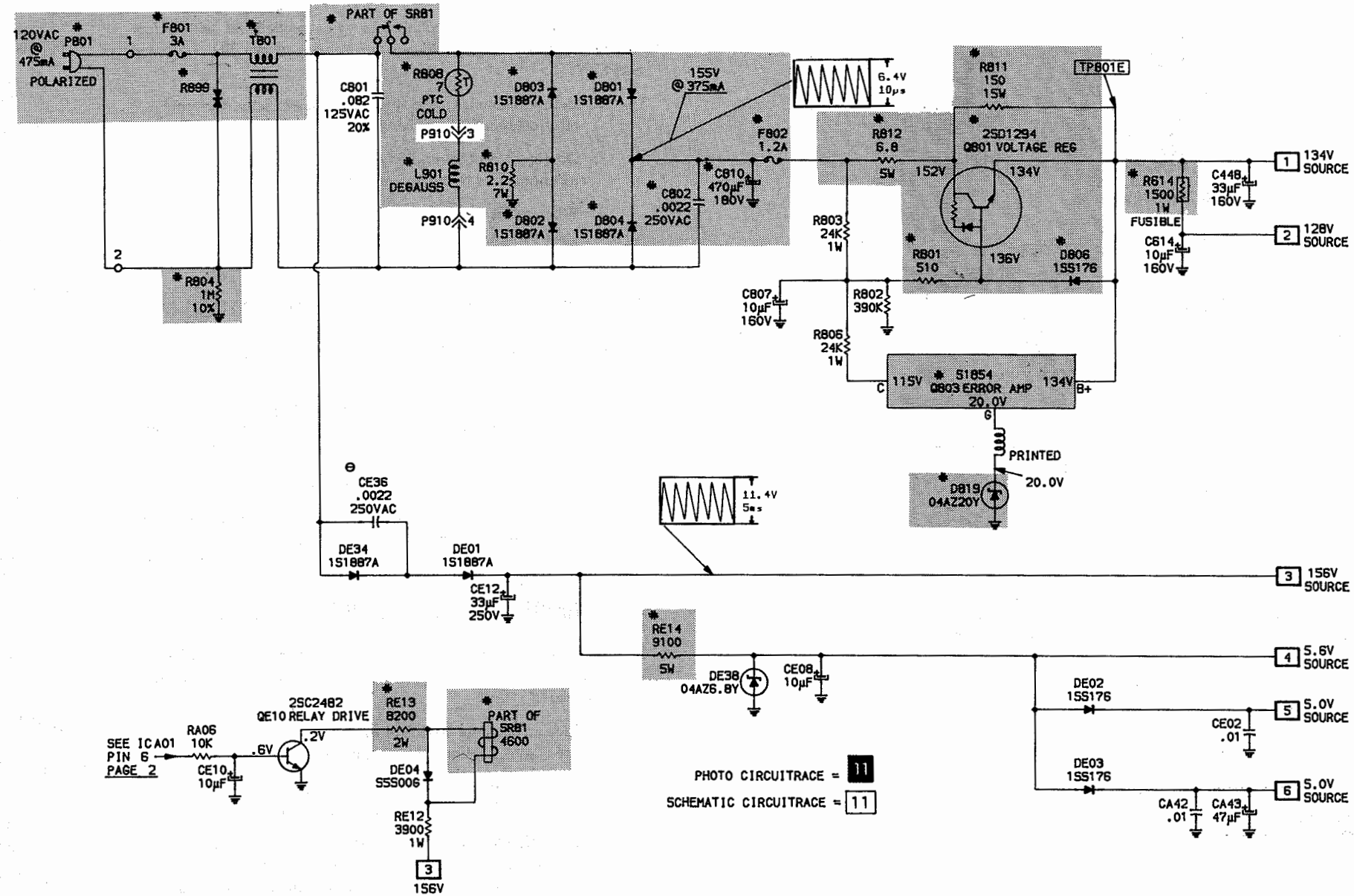
(All wattages 1/2 watt or less, unless otherwise listed.)

Item No.	Function	Resistance	Mfr. Part No.
R152	RF AGC	10K	24066926
R158	AFC Balance	200K	24066922
R257	Sub Brightness	2000	24066928
R352	Vertical Height	50K	24066924
R952	Green Drive	200	24061582
R953	Blue Drive	200	24061582
R956	Red Bias	5000	24061578
R957	Green Bias	500	24061578
R958	Blue Bias	5000	24061578

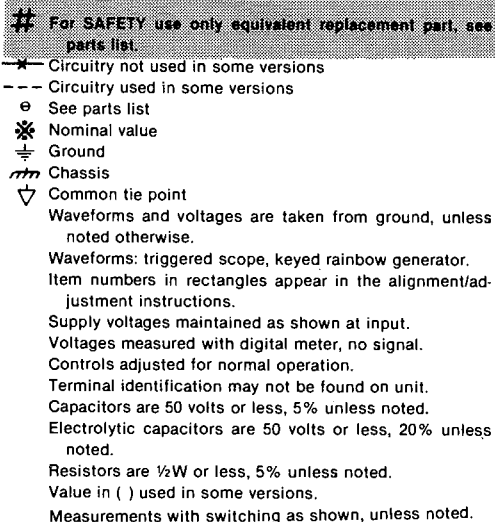
RESISTORS

Item No.	Rating	Mfr. Part No.	NTE Replacement
# R327	5.6 5% 1/2 W Metal Film	24982569	HW5D6
# R336	270 5% 2W Oxide Metal Film	24383271	2W127
# R414	12K 5% 2W Oxide Metal Film	24383123	2W312
# R416	2400 5% 5W WW	24007611	-
# R444	.39 5% 1/2W Oxide Metal Film	24982398	HW5D39
# R448	1.3 5% 1/2W Oxide Metal Film	24982139	HW1D3
# R475	200 5% 1/6W Carbon Film	24366221	-
# R478	13K 1% 1/4W Metal Film	24327133	-
# R482	5100 1% 1/4W Metal Film	24327512	-
# R495	2200 5% 2W Oxide Metal Film	24383222	2W222
# R496	12K 5% 2W Oxide Metal Film	24383123	2W312
# R614	1500 5% 1W Fusible	24532152	-
# R801	510 5% 1/2W Oxide Metal Film	24552511	HW151
# R804	1M 10% 1/2W Carbon Comp	24946105	HW510
# R808	7 Cold PTC	24000957	-
# R810	2.2 5% 7W WW	24007902	-
# R811	150 5% 15W WW	24007854	-
# R812	6.8 5% 5W WW	24007952	5W6D8
# R899	Varistor	24000902	-
# R920	3.9 5% 1W Fusible	24000907	F1W3D9
# R960	18K 5% 2W Oxide Metal Film	24554183	2W318
# R961	18K 5% 2W Oxide Metal Film	24554183	2W318
# R962	18K 5% 2W Oxide Metal Film	24554183	2W318
# RE11	8200 5% 2W Oxide Metal Film	24383822	2W282
# RE14	9100 5% 5W WW	24007551	-
# RE17	75 5% 2W Oxide Metal Film	24383750	2W075
# RE18	75 5% 2W Oxide Metal Film	24383750	2W075
# RE30	18K 5% 2W Oxide Metal Film	24383183	2W318

For SAFETY use only equivalent replacement part.



SAFETY PRECAUTIONS



SAFETY CHECKS – FIRE AND SHOCK HAZARD

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.

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.

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.

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.

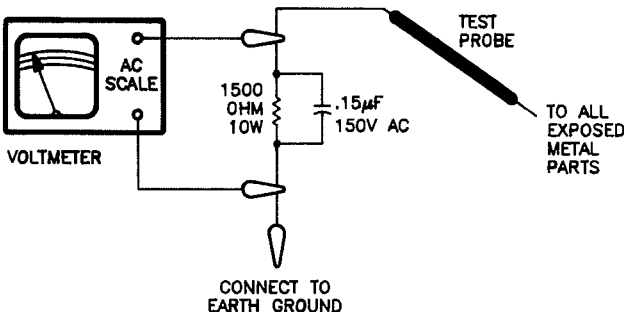
Hot Leakage Current Check

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-volt 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.

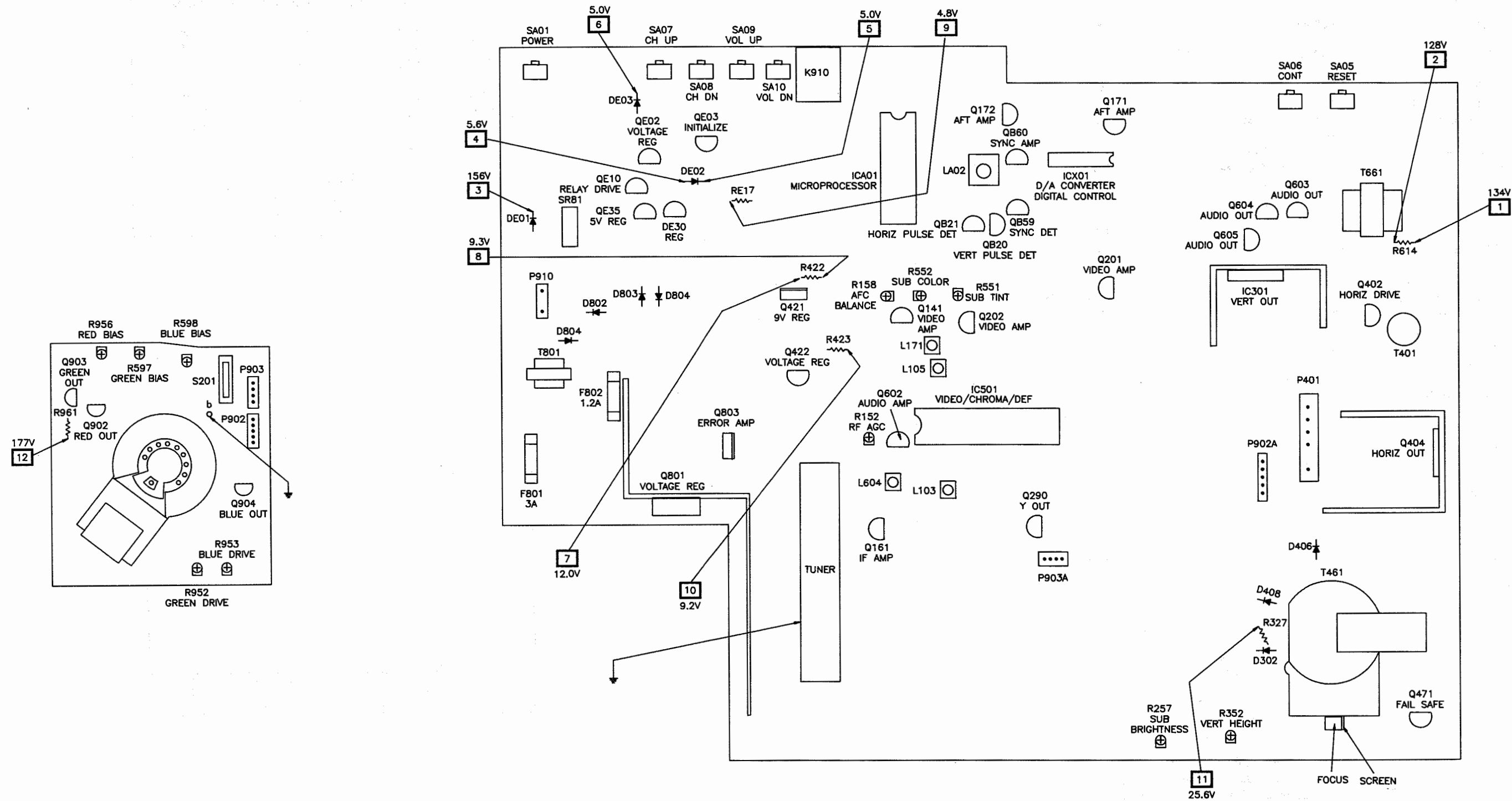
GENERAL GUIDELINES

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.



PLACEMENT CHART



TOSHIBA

MODELS CF2010J, CF2011J

TEST EQUIPMENT

Test equipment listed by participating manufacturers 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	B&K Precision No.	Sencore No.
Oscilloscope	1541A, 2120, 2125, 2160, 2190, 2522	SC61
Generators		
RGB	1249A, 1260	RG67
Multiburst Signal	1251, 1260	VA62A
Color Bar	1211A, 1249A, 1251, 1260	VA62A, CG25, NT64
TV Stereo	2009	ST65, ST66
Analog VOM	114, 117, 177, 214	-
Digital VOM	377, 388HD, 2700 Series, 2831A, 2860, 2900 Series	DVM37, DVM56A, SC61
Frequency Meter	1803A, 1804A, 1805, 1822, 1851, 1855	FC71, SC61
Hi-Voltage Probe	HV-44	HP200
VOM/DMM	-	TP212
Accessory Probes	PR-28(HV)	-
Isolation Transformer	TR110, 1604, 1653, 1655	PR57
Capacitance Analyzer	810A, 815, 820, 830	LC76, LC101, LC102
CRT Analyzer	480, 490	CR70
Temperature Probe	TP-28, TP-30	-
AC Leakage Tester	1655	PR57
Logic Probe	DP21, DP51	-
Logic Pulser	DP31, DP101	-
Inductance Analyzer	875A	LC76, LC101, LC102
Flyback Yoke Tester	875A	VA62A, LC76, LC101, LC102
TV Stereo Power Monitor	-	SR68
Field Strength Meter	-	FS73, FS74
Transistor Tester	510, 520B, 530	TF46
Video Analyzer	-	VA62A
Modulator/Converter	1201	-



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

J. Barker, B. Buchanan,
T. Clensy, R. Raus, S. Scott,
B. Smith, K. Smith, D. Stitt,
D. Urick

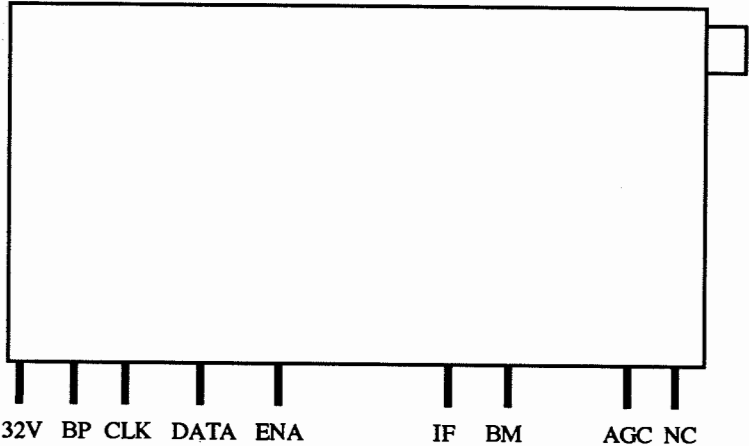
TUNER INFORMATION

TUNER VOLTAGE CHART

	VHF Low Band	VHF High Band	UHF Band
32V	31.0V	31.0V	31.0V
5V	4.8V	4.8V	4.8V
CLK	1.8V	1.8V	1.8V
DATA	2.0V	2.4V	2.3V
ENA	1.2V	1.2V	1.2V
BM	9.3V	9.3V	9.3V
AGC	6.7V	6.7V	6.7V
NC	1.3V	4.1V	6.4V

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



TOSHIBA

MODELS CF2010J, CF2011J