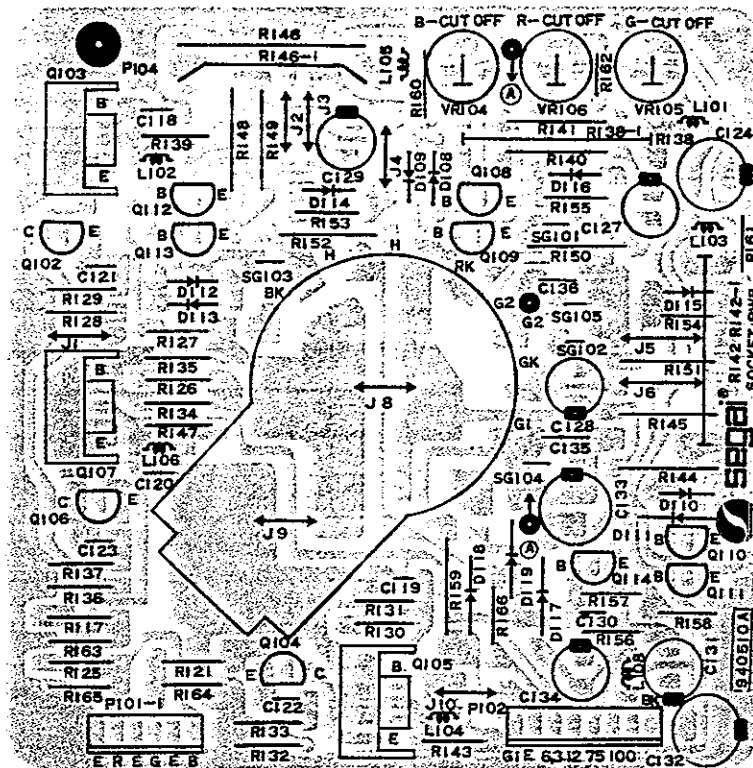
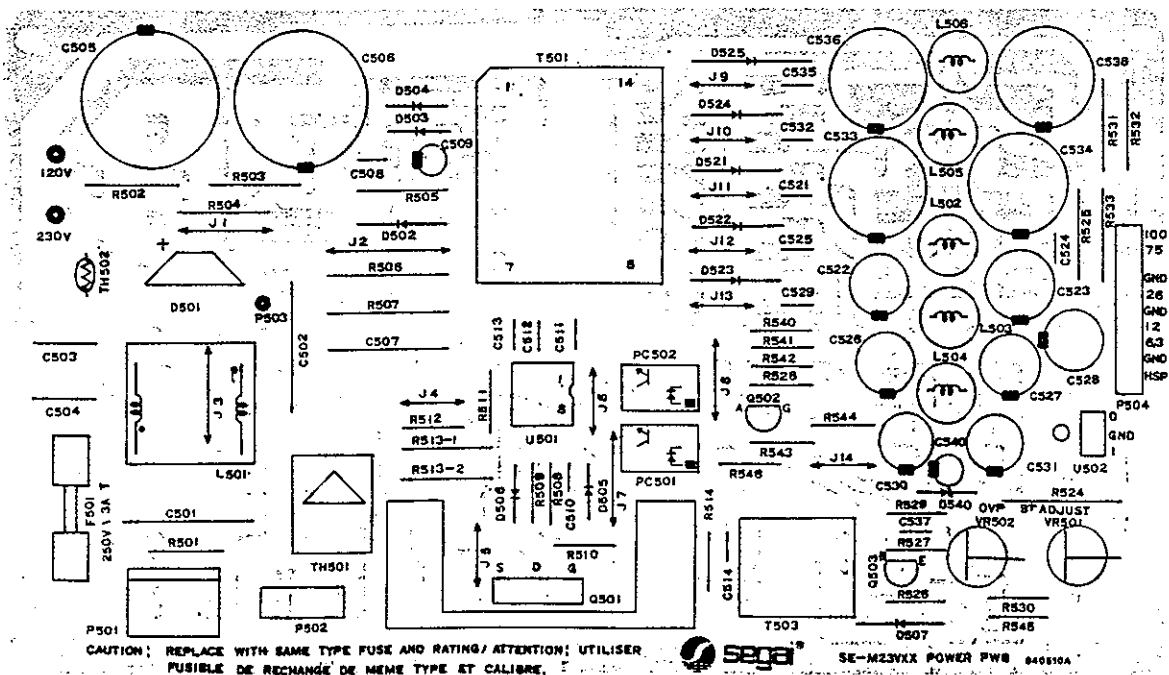


COMPONENT LAYOUT SOCKET PWB AND POWER PWB

SOCKET PWB



POWER PWB



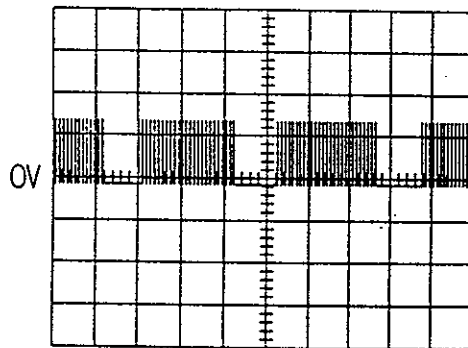
TYPICAL OSCILLOSCOPE WAVEFORM PATTERNS

The waveforms shown below indicate typical wave shapes of a fully functional monitor. When attempting to diagnose monitor problems with an oscilloscope it may helpful to refer to these wave shapes. The charts are numbers to be found on the schematic diagram from where on the chassis the waveform was derived.

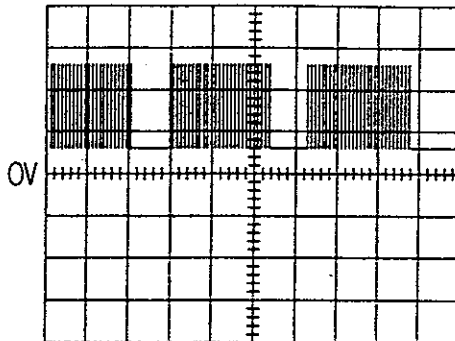
The waveforms were observed on the wide band oscilloscope under the following conditions:

Monitor Input Signal

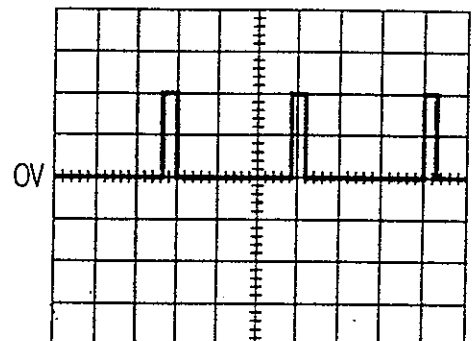
1. Crosshatch
2. Horizontal frequency-31.5KHz
3. Vertical frequency-60/ 70Hz



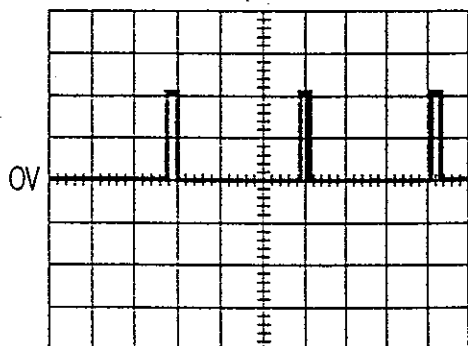
① 0.5V/DIV 10μSEC/DIV



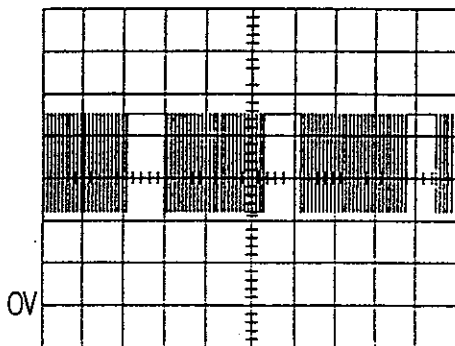
② 1V/DIV 10μSEC/DIV



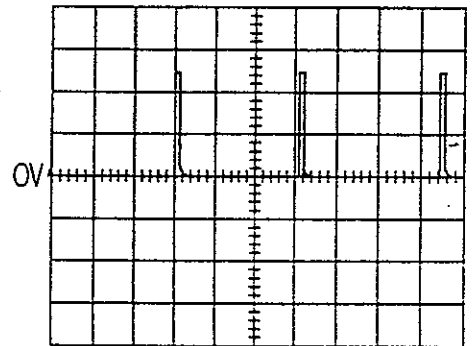
③ 2V/DIV 10μSEC/DIV



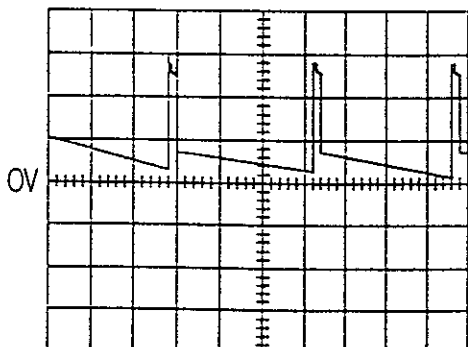
④ 5V/DIV 10μSEC/DIV



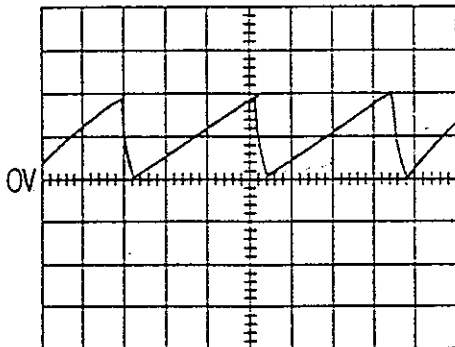
⑤ 20V/DIV 10μSEC/DIV



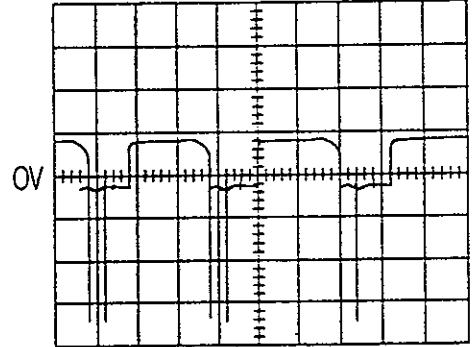
⑥ 5V/DIV 5mSEC/DIV



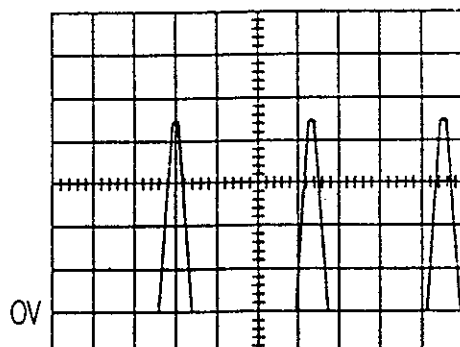
⑦ 20V/DIV 5mSEC/DIV



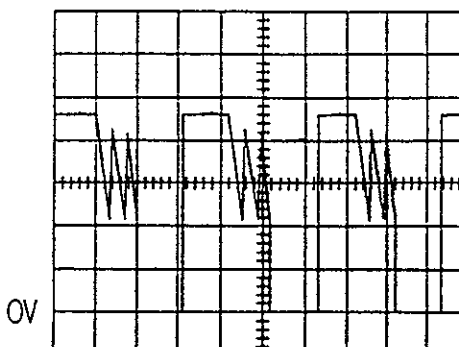
⑧ 2V/DIV 10μSEC/DIV



⑨ 2V/DIV 10μSEC/DIV



⑩ 200V/DIV 10μSEC/DIV



⑪ 100V/DIV 10μSEC/DIV

WHITE BALANCE PROCEDURE

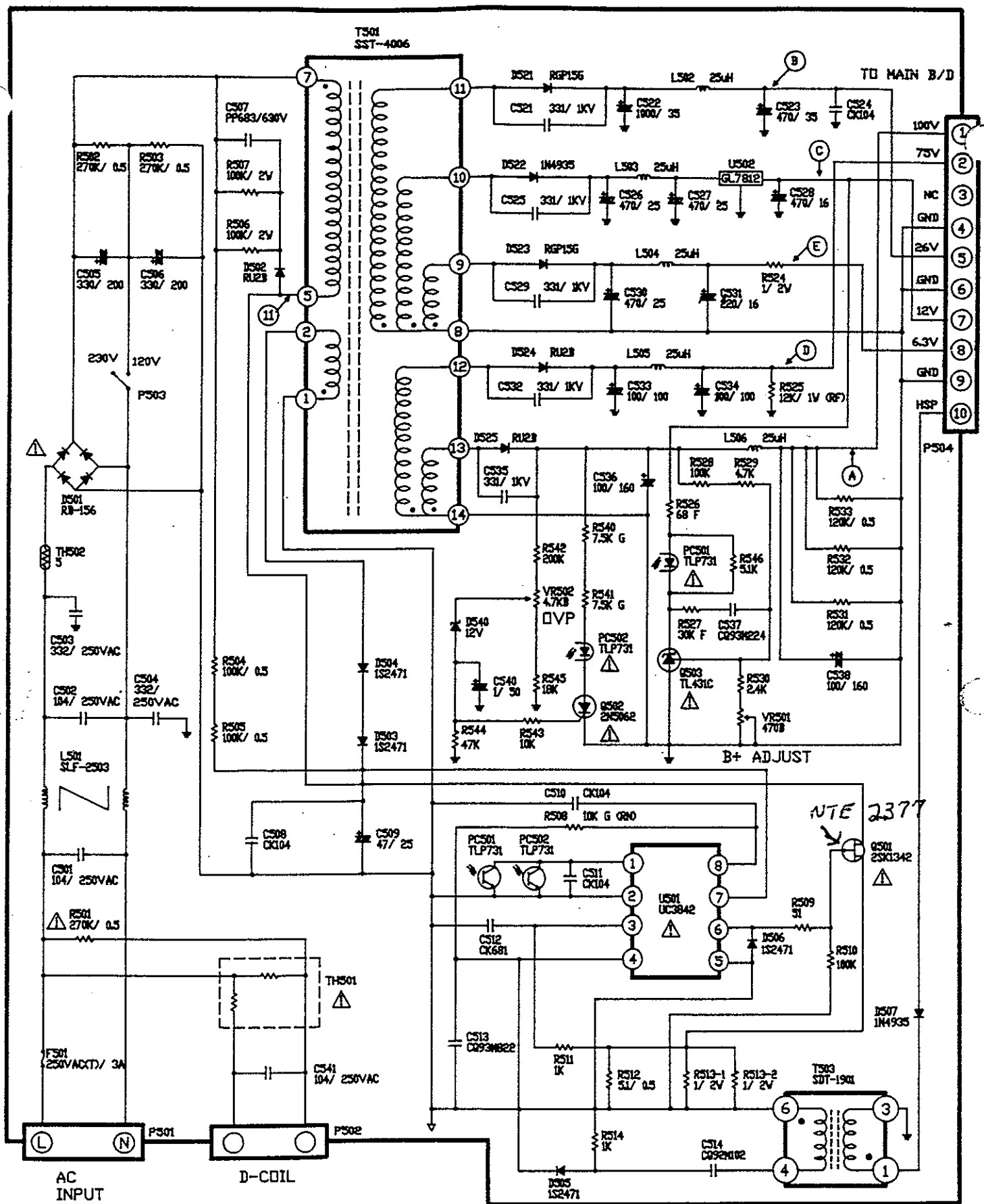
Steps 1-5 require RGB inputs to be grounded while the horizontal and vertical sync inputs are connected at nominal scan rate. Steps 6-8 require the use of a VGA signal generator. If a VGA signal generator is not available acceptable results may be obtained using the game program.

1. Set the three Cutoff controls, VR104, VR105 and VR106 to their minimum positions, fully counterclockwise. These controls are located on the CRT neck PWB.
2. Set the three video Drive controls, VR101, VR102, VR103 to their minimum positions, fully counterclockwise.
3. Set the sub Bright control and Contrast control, VR307 and VR304, to their middle settings.
4. Slowly turn the Screen control, located on the

FBT, clockwise until the raster is JUST visible. Observe the color of the raster. This is the lead color and it's associated Cutoff control should remain fully counterclockwise for the remainder of this procedure.

5. Adjust the sub Bright control for a dim raster. Adjust the to remaining Cutoff control for the best grey uniformity.
6. Using a color bar pattern, adjust the video Drive controls for best neutral white and color saturation in the color bar pattern.
7. Adjust the sub Bright and Contrast controls for proper screen illumination.
8. If necessary, repeat steps 5 and 6 until good tracking of white balance is achieved.

SERVICE NOTES



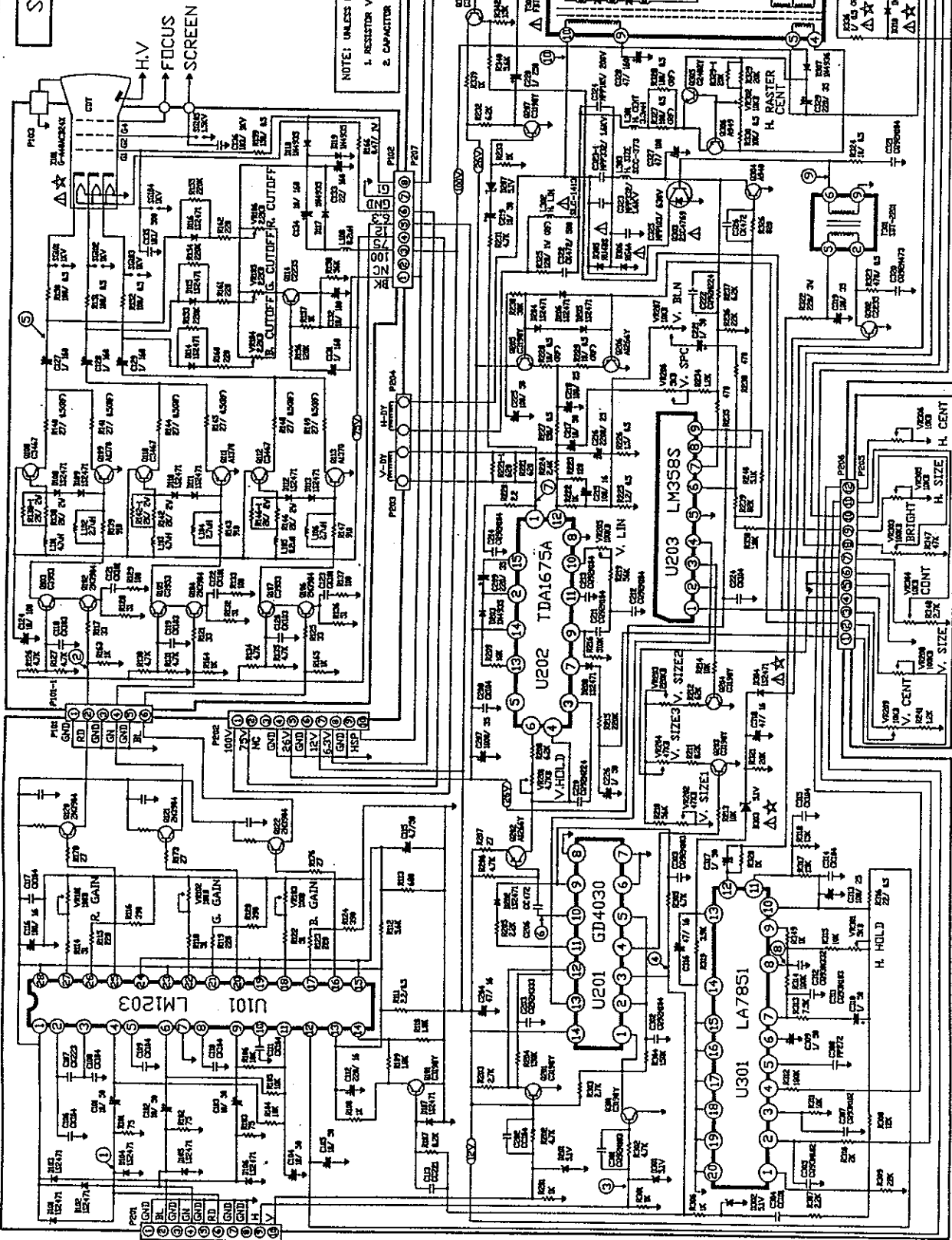
NOTE:

	120V	230V
TH501	8 ROM	18 ROM

VERSION B, 1.0 940510A

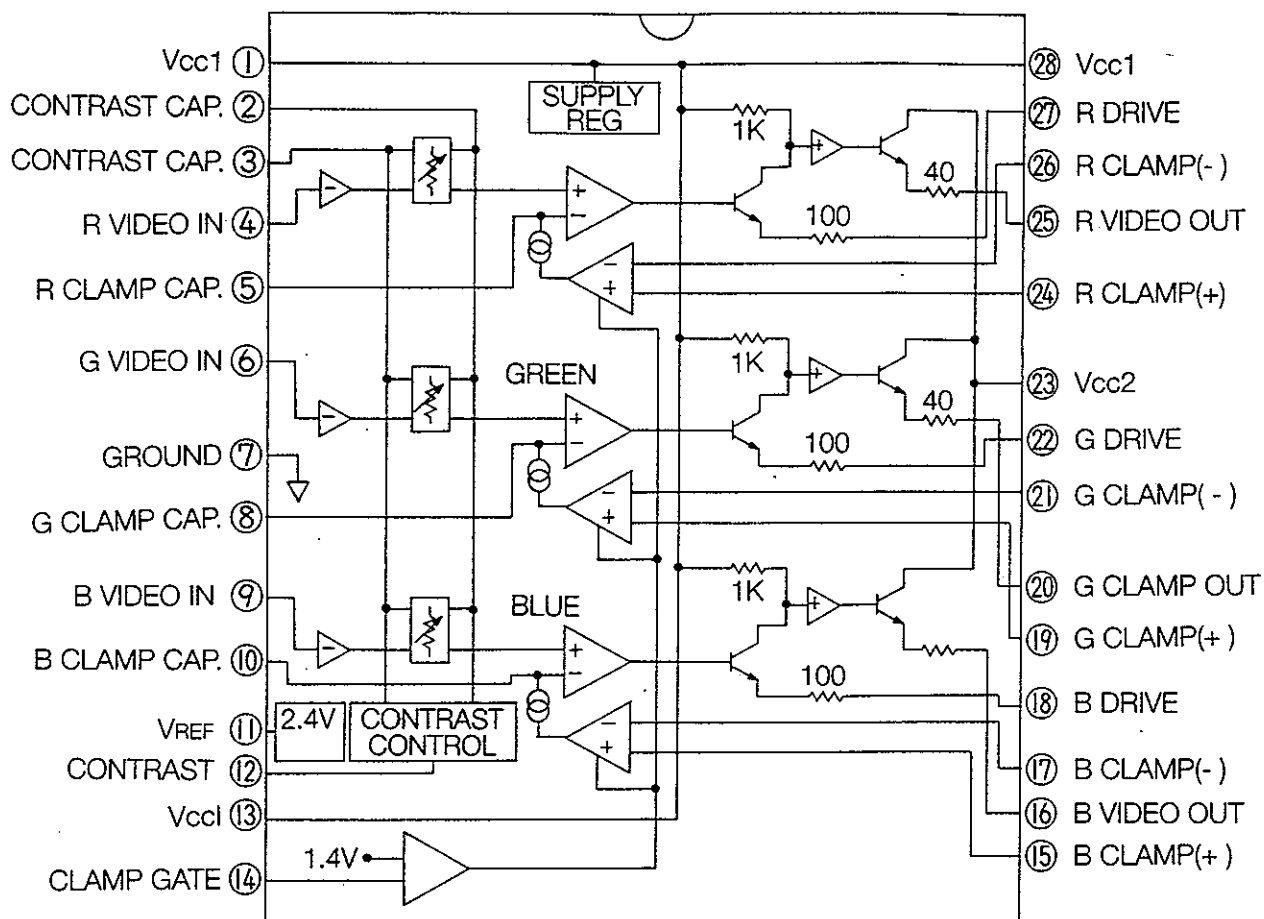
WARNING: TO MAINTAIN ORIGINAL PRODUCT SAFETY DESIGN STANDARDS RELATIVE TO X-RAY RADIATION, FEDERAL REGULATIONS REQUIRE THAT THE COMPONENTS IDENTIFIED ON THIS SCHEMATIC BY THE SYMBOL ⚠️ BE REPLACED WITH IDENTICAL PART NUMBERS SHOWN.

SE-M23V20

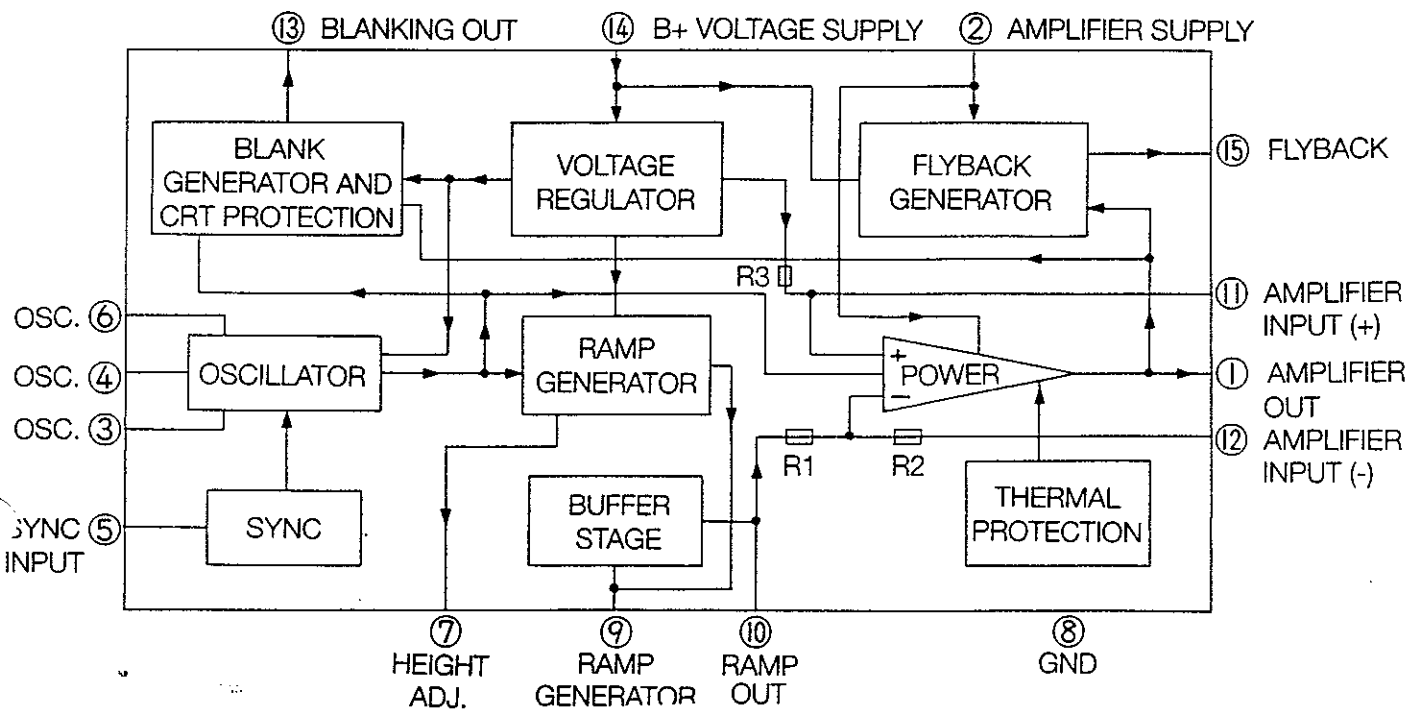


INTEGRATED CIRCUIT DIAGRAM

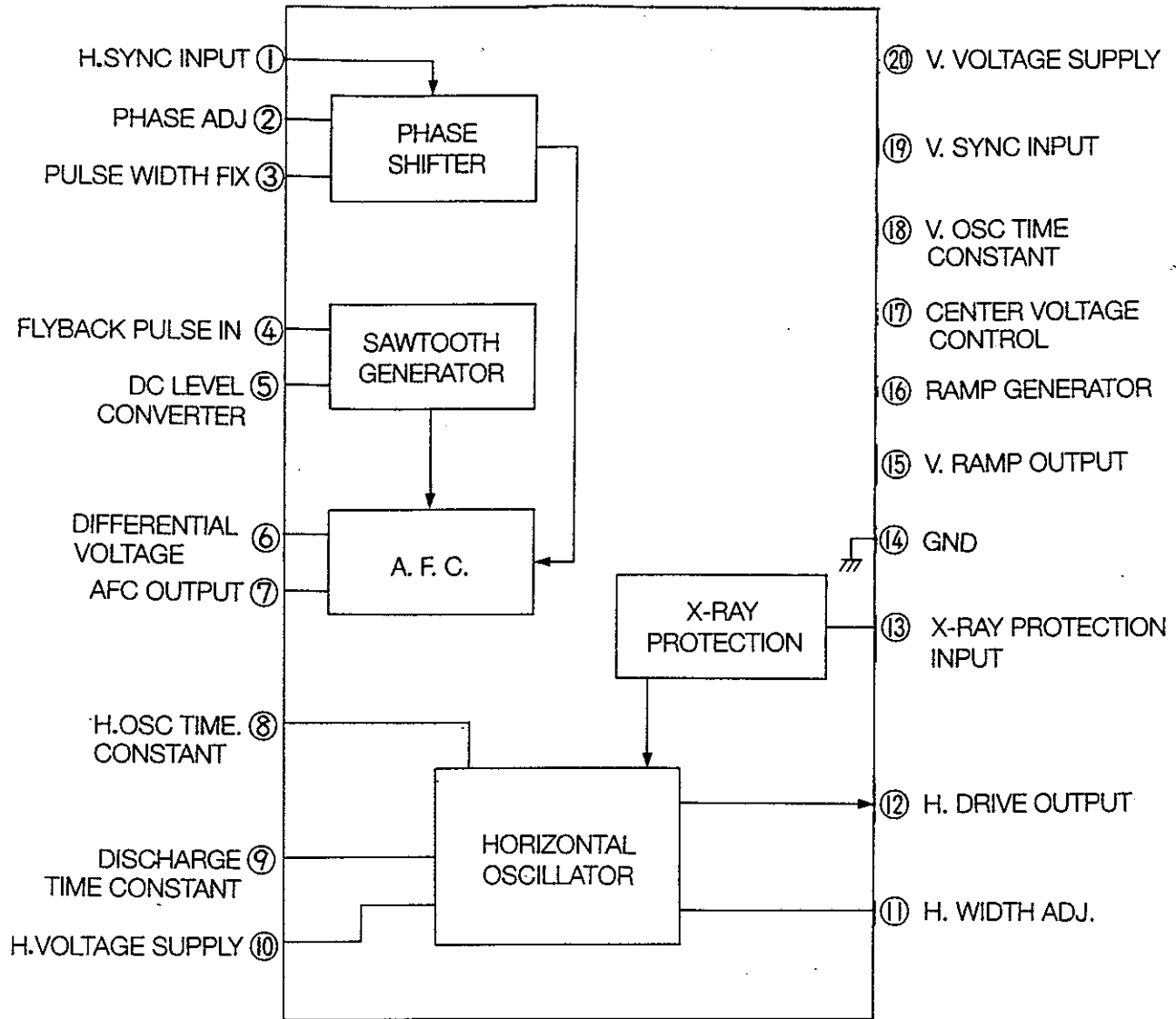
U101 (VIDEO DRIVE) LM1203



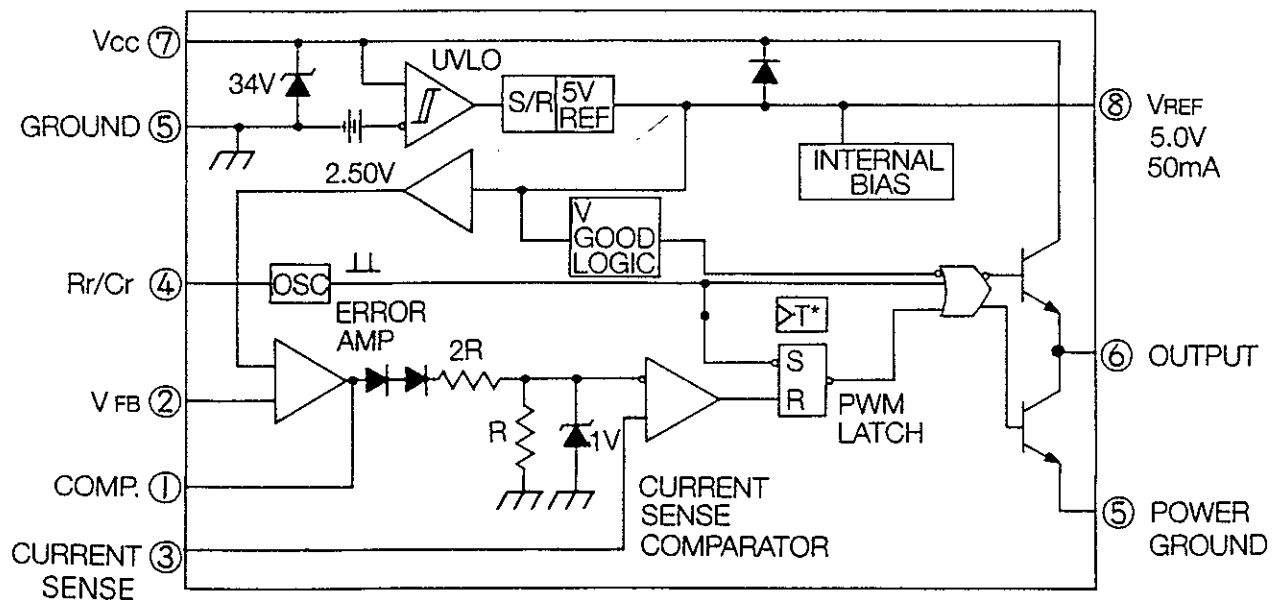
U201 (VERTICAL OSC & OUTPUT) TDA1675A



U301 (HORIZONTAL SYNC, OSC & AFC, AND DRIVE OUTPUT) LA7851



U501 (SWITCHING REGULATOR) UC3842



PARTS LIST

LOCATION NO. PARTS NAME SPECIFICATION

TRANSFORMERS, COILS

T301	TRANSFORMER, DRIVE	SDT-2201
302	FLYBACK TRANSFORMER	TLF-73545
T501	TRANSFORMER, SWITCHING	SST-4006
T503	TRANSFORMER, PULSE	SDT-1901
L101	COIL, PEAKING	4.7μH
L102	COIL, PEAKING	2.7μH
L103	COIL, PEAKING	4.7μH
L104	COIL, PEAKING	2.7μH
L105	COIL, PEAKING	8.2μH
L106	COIL, PEAKING	2.7μH
L108	COIL, PEAKING	8.2μH
L301	COIL, CENT	3.3mH
L302	COIL, LINEARITY(14")	SLC-1408
	COIL, LINEARITY(20")	SLC-1413
L303	COIL, SIZE	SCC-373
L501	COIL, LINE FILTER	SLF-2503
L502	COIL, CHOKE	25μH
L503	COIL, CHOKE	25μH
L505	COIL, CHOKE	25μH
L506	COIL, CHOKE	25μH
L509	COIL, CHOKE	25μH

INTEGRATED CIRCUITS

U101	IC, LINEAR	LM1203
U201	IC, CMOS	GD4030
U202	IC, MONOLITHIC LINEAR	TDA1675A
U203	IC, LINEAR	LM358S
U301	IC, MONOLITHIC LINEAR	LA7851
U501	IC, LINEAR	UC3842
U502	IC, LINEAR	GL7812
PC501	IC, PHOTO COUPLER	TLP731
PC502	IC, PHOTO COUPLER	TLP731

SEMI-CONDUCTORS

Q101	TRANSISTOR	KTC3198Y
Q102	TRANSISTOR	2N3904
Q103	TRANSISTOR	2SC3953
Q104	TRANSISTOR	2N3904
Q105	TRANSISTOR	2SC3953
Q106	TRANSISTOR	2N3904
Q107	TRANSISTOR	2SC3953
Q108	TRANSISTOR	2SC3467
Q109	TRANSISTOR	2SA1370
Q110	TRANSISTOR	2SC3467
Q111	TRANSISTOR	2SA1370
Q112	TRANSISTOR	2SC3467
Q113	TRANSISTOR	2SA1370
Q114	TRANSISTOR	2SC2235
Q120	TRANSISTOR	2N3904
Q121	TRANSISTOR	2N3904
Q122	TRANSISTOR	2N3904
Q201	TRANSISTOR	KTC3198Y
Q202	TRANSISTOR	KTA1266Y
Q203	TRANSISTOR	KTC3198Y
Q204	TRANSISTOR	KTC3198Y
Q205	TRANSISTOR	KTC3198Y
Q206	TRANSISTOR	KTA1266Y
Q207	TRANSISTOR	KTC3198Y
Q301	TRANSISTOR	KTC3198Y
Q302	TRANSISTOR	KTC2235Y
Q303	TRANSISTOR	2SC4769
Q304	TRANSISTOR	KTA940
Q305	TRANSISTOR	2SC2482Y

LOCATION NO. PARTS NAME SPECIFICATION

Q306	TRANSISTOR	2SA949Y
Q307	TRANSISTOR	KTC3198Y
Q501	FET	2SK1342
Q502	SCR	2N5062
Q503	SCR	TL431C
D101	DIODE, SWITCHING	1S2471
D102	DIODE, SWITCHING	1S2471
D103	DIODE, SWITCHING	1S2471
D104	DIODE, SWITCHING	1S2471
D105	DIODE, SWITCHING	1S2471
D106	DIODE, SWITCHING	1S2471
D107	DIODE, SWITCHING	1S2471
D108	DIODE, SWITCHING	1S2471
D109	DIODE, SWITCHING	1S2471
D110	DIODE, SWITCHING	1S2471
D111	DIODE, SWITCHING	1S2471
D112	DIODE, SWITCHING	1S2471
D113	DIODE, SWITCHING	1S2471
D114	DIODE, SWITCHING	1S2471
D115	DIODE, SWITCHING	1S2471
D116	DIODE, SWITCHING	1S2471
D117	DIODE, FAST RECOVERY	1N4935
D118	DIODE, FAST RECOVERY	1N4935
D119	DIODE, FAST RECOVERY	1N4935
D201	DIODE, ZENER	1/2W 5.1V
D202	DIODE, SWITCHING	1S2471
D203	DIODE, FAST RECOVERY	1N4935
D204	DIODE, SWITCHING	1S2471
D205	DIODE, SWITCHING	1S2471
D206	DIODE, SWITCHING	1S2471
D207	DIODE, ZENER	1/2W 5.1V
D208	DIODE, SWITCHING	1S2471
D301	DIODE, ZENER	1/2W 5.1V
D302	DIODE, ZENER	1/2W 5.1V
D303	DIODE, ZENER	1/2W 5.1V
D304	DIODE, SWITCHING	1S2471
D305	DIODE, FAST RECOVERY	RU4DS
D306	DIODE, FAST RECOVERY	RG4A
D307	DIODE, FAST RECOVERY	1N4936
D309	DIODE, FAST RECOVERY	1N4936
D310	DIODE, FAST RECOVERY	1N4936
D501	DIODE, BRIDGE	RB-156
D502	DIODE, FAST RECOVERY	RU2B
D503	DIODE, SWITCHING	1S2471
D504	DIODE, SWITCHING	1S2471
D505	DIODE, SWITCHING	1S2471
D506	DIODE, SWITCHING	1S2471
D507	DIODE, FAST RECOVERY	1N4935
D521	DIODE, FAST RECOVERY	RG15G
D522	DIODE, FAST RECOVERY	1N4935
D523	DIODE, FAST RECOVERY	RG15G
D524	DIODE, FAST RECOVERY	RU2B
D525	DIODE, FAST RECOVERY	RU2B
D540	DIODE, ZENER	1/2W 12V

RESISTOR

TH501	THERMISTOR(PTC)	230V 18 ROM
		120V 8 ROM
TH502	THERMISTOR(NTC)	5 OHM
VR101	VARIABLE RESISTOR	910E 100B
VR102	VARIABLE RESISTOR	910E 100B
VR103	VARIABLE RESISTOR	910E 100B
VR104	VARIABLE RESISTOR	950A 2.2KB
VR105	VARIABLE RESISTOR	950A 2.2KB

PARTS LIST

LOCATION NO.	PARTS NAME	SPECIFICATION
VR106	VARIABLE RESISTOR	950A 2.2KB
VR201	VARIABLE RESISTOR	RH0615C 4.7KB
VR202	VARIABLE RESISTOR	RH0615C 47KB
VR203	VARIABLE RESISTOR	RH0615C 220KB
VR204	VARIABLE RESISTOR	RH0615C 47KB
VR205	VARIABLE RESISTOR	RH0615C 100KB
VR206	VARIABLE RESISTOR	950E 5KB
VR207	VARIABLE RESISTOR	RH0615C 10KB
VR208	VARIABLE RESISTOR	910G 100KB
VR209	VARIABLE RESISTOR	910G 10KB
VR301	VARIABLE RESISTOR	950E 5KB
VR302	VARIABLE RESISTOR	950E 10KB
VR303	VARIABLE RESISTOR	910G 100KB
VR304	VARIABLE RESISTOR	910G 10KB
VR305	VARIABLE RESISTOR	910G 10KB
VR306	VARIABLE RESISTOR	910G 10KB
VR307	VARIABLE RESISTOR	950E 10KB
VR501	VARIABLE RESISTOR	910A 470B
VR502	VARIABLE RESISTOR	910A 4.7KB
R101	RESISTOR, CARBON	1/4W 75 OHM J
R102	RESISTOR, CARBON	1/4W 75 OHM J
R103	RESISTOR, CARBON	1/4W 75 OHM J
R104	RESISTOR, CARBON	1/4W 10K J
R105	RESISTOR, CARBON	1/4W 10K J
R106	RESISTOR, CARBON	1/4W 10K J
R107	RESISTOR, CARBON	1/4W 8.2K J
R108	RESISTOR, CARBON	1/4W 1K J
R109	RESISTOR, CARBON	1/4W 1.8K J
R110	RESISTOR, CARBON	1/4W 1.8K J
R111	RESISTOR, CARBON	1/2W 2.2 OHM J
R112	RESISTOR, CARBON	1/4W 5.6K J
R113	RESISTOR, CARBON	1/4W 680 OHM J
R114	RESISTOR, CARBON	1/4W 51 OHM J
R115	RESISTOR, CARBON	1/4W 220 OHM J
R116	RESISTOR, CARBON	1/4W 390 OHM J
R117	RESISTOR, CARBON	1/4W 33 OHM J
R118	RESISTOR, CARBON	1/4W 51 OHM J
R119	RESISTOR, CARBON	1/4W 220 OHM J
R120	RESISTOR, CARBON	1/4W 390 OHM J
R121	RESISTOR, CARBON	1/4W 33 OHM J
R122	RESISTOR, CARBON	1/4W 51 OHM J
R123	RESISTOR, CARBON	1/4W 220 OHM J
R124	RESISTOR, CARBON	1/4W 390 OHM J
R125	RESISTOR, CARBON	1/4W 33 OHM J
R126	RESISTOR, CARBON	1/4W 4.7K J
R127	RESISTOR, CARBON	1/4W 4.7K J
R128	RESISTOR, CARBON	1/4W 51 OHM J
R129	RESISTOR, CARBON	1/4W 100 OHM J
R130	RESISTOR, CARBON	1/4W 4.7K J
R131	RESISTOR, CARBON	1/4W 4.7K J
R132	RESISTOR, CARBON	1/4W 51 OHM J
R133	RESISTOR, CARBON	1/4W 100 OHM J
R134	RESISTOR, CARBON	1/4W 4.7K J
R135	RESISTOR, CARBON	1/4W 4.7K J
R136	RESISTOR, CARBON	1/4W 51 OHM J
R137	RESISTOR, CARBON	1/4W 100 OHM J
R138	RESISTOR, METAL	2W 2K J
R138-1	RESISTOR, METAL	2W 2K J
R139	RESISTOR, CARBON	1/4W 910 OHM J
R140	RESISTOR, FUSING	1/2W 27 OHM F
R141	RESISTOR, FUSING	1/2W 27 OHM F
R142	RESISTOR, METAL	2W 2K J
R142-1	RESISTOR, METAL	2W 2K J
R143	RESISTOR, CARBON	1/4W 910 OHM J
R144	RESISTOR, FUSING	1/2W 27 OHM F

LOCATION NO.	PARTS NAME	SPECIFICATION
R145	RESISTOR, FUSING	1/2W 27 OHM F
R146	RESISTOR, METAL	2W 2K J
R146-1	RESISTOR, METAL	2W 2K J
R147	RESISTOR, CARBON	1/4W 910 OHM J
R148	RESISTOR, FUSING	1/2W 27 OHM F
R149	RESISTOR, FUSING	1/2W 27 OHM F
R150	RESISTOR, CARBON	1/2W 100 OHM J
R151	RESISTOR, CARBON	1/2W 100 OHM J
R152	RESISTOR, CARBON	1/2W 100 OHM J
R153	RESISTOR, CARBON	1/4W 220K J
R154	RESISTOR, CARBON	1/4W 220K J
R155	RESISTOR, CARBON	1/4W 220K J
R156	RESISTOR, CARBON	1/4W 120K J
R157	RESISTOR, CARBON	1/4W 1K J
R158	RESISTOR, CARBON	1/4W 56K J
R159	RESISTOR, CARBON	1/2W 150 OHM J
R160	RESISTOR, CARBON	1/4W 220 OHM J
R161	RESISTOR, CARBON	1/4W 220 OHM J
R162	RESISTOR, CARBON	1/4W 220 OHM J
R163	RESISTOR, CARBON	1/4W 1K J
R164	RESISTOR, CARBON	1/4W 1K J
R165	RESISTOR, CARBON	1/4W 1K J
R166	RESISTOR, METAL	1W 0.47 OHM J
R170	RESISTOR, CARBON	1/4W 27 OHM J
R173	RESISTOR, CARBON	1/4W 27 OHM J
R176	RESISTOR, CARBON	1/4W 27 OHM J
R201	RESISTOR, CARBON	1/4W 1K J
R202	RESISTOR, CARBON	1/4W 4.7K J
R203	RESISTOR, CARBON	1/4W 2.7K J
R204	RESISTOR, CARBON	1/4W 150K J
R205	RESISTOR, CARBON	1/4W 2.2K J
R206	RESISTOR, CARBON	1/4W 4.7K J
R207	RESISTOR, CARBON	1/4W 27 OHM J
R208	RESISTOR, CARBON	1/4W 6.2K J
R209	RESISTOR, CARBON	1/4W 10K J
R210	RESISTOR, CARBON	1/4W 56K J
R211	RESISTOR, CARBON	1/4W 8.2K J
R212	RESISTOR, CARBON	1/4W 62K J
R213	RESISTOR, CARBON	1/4W 10K J
R214	RESISTOR, CARBON	1/4W 10K J
R215	RESISTOR, CARBON(14")	1/4W 120K J
	RESISTOR, CARBON(20")	1/4W 220K J
R216	RESISTOR, CARBON	1/4W 510K J
R219	RESISTOR, CARBON	1/4W 56K J
R220	RESISTOR, CARBON	1/4W 2.2 OHM J
R221	RESISTOR, CARBON	1/4W 620 OHM J
R221-1	RESISTOR, CARBON	1/4W 620 OHM J
R222	RESISTOR, CARBON	1/4W 1K J
R223	RESISTOR, CARBON	1/4W 120 OHM J
R224	RESISTOR, CARBON	1/4W 2.4K J
R225	RESISTOR, CARBON(14")	1/2W 1.5 OHM J
	RESISTOR, CARBON(20")	1/2W 1.2 OHM J
R226	RESISTOR, CARBON	1/2W 1.5 OHM J
R227	RESISTOR, CARBON	1/2W 150 OHM J
R228	RESISTOR, FUSING	1/2W 10 OHM J
R229	RESISTOR, FUSING	1/2W 10 OHM J
R230	RESISTOR, CARBON	1/4W 30K J
R231	RESISTOR, CARBON	1/4W 4.7K J
R232	RESISTOR, CARBON	1/4W 6.2K J
R233	RESISTOR, CARBON	1/4W 1K J
R234	RESISTOR, CARBON	1/4W 1.2K J
R235	RESISTOR, CARBON	1/4W 470 OHM J
R236	RESISTOR, CARBON	1/4W 22K J
R237	RESISTOR, CARBON	1/4W 6.2K J
R238	RESISTOR, CARBON	1/4W 470 OHM J