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Service Manual Monitoare PC

SAMTRON. SC-428PS.
SAMTRON. SC-428PSL.
SAMTRON. SC-428E'T.
SAMTRON. SC-428PTL.

1 Precautions

Follow these safety, servicing and ESD precautions to prevent damage and to protect against potential hazards such as electrical shock and X-rays.

1-1 Safety Precautions

1-1-1 Warnings

1. For continued safety, do not attempt to modify the circuit board.
2. Disconnect the AC power before servicing.
3. When the chassis is operating, semiconductor heat sinks are potential shock hazards.

1-1-2 Servicing the High Voltage System and Picture Tube

1. When servicing the high voltage system, remove the static charge by connecting a 10k ohm resistor in series with an insulated wire (such as a test probe) between the chassis and the anode lead. (Disconnect the AC line cord from the AC outlet.)
2. Do not lift the picture tube by the neck.
3. Handle the picture tube only when wearing shatterproof goggles and after completely discharging the high voltage anode.

1-1-3 X-Rays and High Voltage Limits

1. Keep the high voltage below the specified maximum level. Be sure all service personnel are aware of the procedures and instructions covering X-rays.
   The only potential source of X-ray in current solid state display monitors is the tube. However, the picture tube does not emit measurable X-ray radiation if the high voltage is as specified in the fire and shock hazard instruction. Only when high voltage is excessive are X-rays capable of penetrating the shell of the picture tube, including the lead in glass material.
2. It is essential that service technicians have an accurate high voltage meter available at all times. Check the calibration of this meter periodically.
3. High voltage should always be kept at the rated value, no higher. Operation at high voltages may cause failure of the picture tube or high voltage circuitry and, also under certain conditions, may produce X-rays in excess of acceptable levels.
4. When the high voltage regulator is operating properly, there is no possibility of an X-ray problem. Test the brightness and use a meter to monitor the high voltage each time a color monitor comes in for service. Make sure the high voltage does not exceed its specified value and that it is regulating correctly.
5. The picture tube is especially designed to prohibit X-ray emissions. To ensure continued X-ray protection, replace the picture tube only with one that is the same type or equivalent as the original. Carefully reinstall the picture tube shields and mounting hardware; these also provide X-ray protection.
6. When troubleshooting a monitor with excessively high voltage, avoid being unnecessarily close to the monitor. Do not operate the monitor longer than is necessary to locate the cause of excessive voltage.

1-1-4 Fire and Shock Hazard

Before returning the monitor to the user, perform the following safety checks:

1. Inspect each lead dress to make certain that the leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the monitor.
2. Inspect all protective devices such as nonmetallic control knobs, insulating materials, cabinet backs, adjustment and compartment cover or shields, isolation resistor-capacitor networks, mechanical insulators, etc.

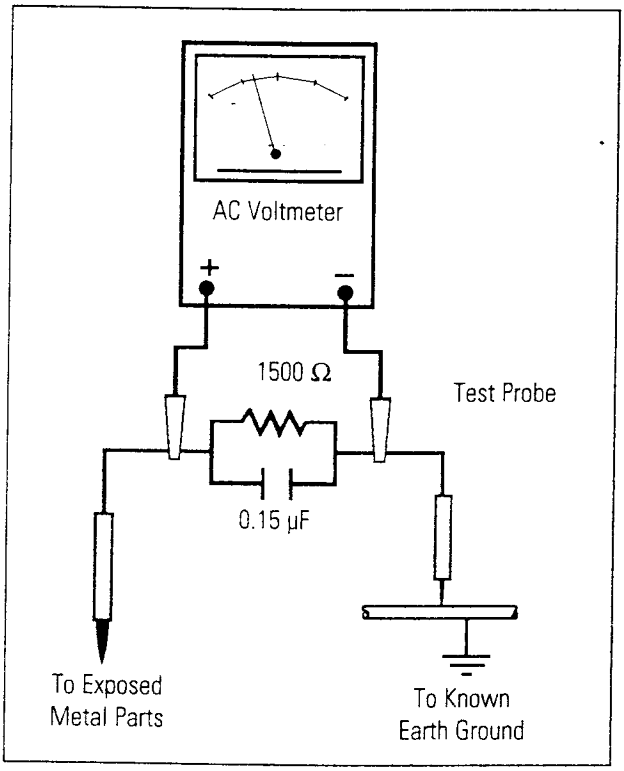


Figure1-1. Leakage Current Test Circuit

3. To be sure that no shock hazard exists, check for leakage current in the following manner:

   a. Plug the AC line cord directly into a 120 Volt AC outlet. (Do not use an isolation transformer for this test)

   b. Using two clip leads, connect a 1.5k ohm, 10 watt resistor paralleled by a 0.15µF capacitor in series with an exposed metal cabinet part and a known earth ground, such as an electrical conduit or electrical ground connected to an earth ground.

   c. Use a SSVM or VOM with 1000 ohms per-volt or higher sensitivity to measure the AC voltage drop across the resistor (see Figure 1-1).

   d Connect the resistor to an exposed metal part having a return path to the chassis (metal cabinet, screw heads, knobs, shafts, escutcheon, etc.) and measure the AC voltage drop across the resistor.

   e. Any reading of 5.25 Volt RMS (this corresponds to 3.5 milliampere AC) or more is excessive and indicates a potential shock hazard. Correct the shock hazard before returning the monitor to the user.

1-1-5 Product Safety Notices

Some electrical and mechanical parts have special safety-related characteristics which are often not evident from visual inspection. The protection they give may not be obtained by replacing them with components rated for higher voltage, wattage, etc. Parts that have special safety characteristics are identified by ⚠ on schematics and parts lists. A substitute replacement that does not have the same safety characteristics as the recommended replacement part might create shock, fire and / or other hazards. Product safety is under review continuously and new instructions are issued whenever appropriate.

1-2 Servicing Precautions

Warning: **An electrolytic capacitor installed with the wrong polarity might explode.**

Caution: Before servicing instruments covered by this service manual and its supplements, read and follow the Safety Precautions section of this manual.

Note: If unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions, always follow the safety precautions.

1-2-1 General Servicing Precautions

1. Servicing precautions are printed on the cabinet. Follow them.

2. Always unplug the unit's AC power cord from the AC power source before attempting to: (a) remove or reinstall any component or assembly, (b) disconnect all electrical plugs or connectors, (c) connect a test component in parallel with an electrolytic capacitor.

3. Some components are raised above the printed circuit board for safety. An insulation tube or tape is sometimes used. The internal wiring is sometimes clamped to prevent contact with thermally hot components. Reinstall all such elements to their original position.

4. After servicing, always check that the screws, components and wiring have been correctly reinstalled. Make sure that the portion around the serviced part has not been damaged.

5. Check the insulation between the blades of the AC plug and accessible conductive parts (examples: metal panels, input terminals and earphone jacks).

6. Insulation Checking Procedure: Disconnect the power cord from the AC source and turn the power switch ON. Connect an insulation resistance meter (500 V) to the blades of the AC plug.

   The insulation resistance between each blade of the AC plug and accessible conductive parts (see above) should be greater than 1 megohm.

7. Never defeat any of the B+ voltage interlocks. Do not apply AC power to the unit (or any of its assemblies) unless all solid-state heat sinks are correctly installed.

8. Always connect a test instrument's ground lead to the instrument chassis ground *before* connecting the positive lead; always remove the instrument's ground lead last.

1-3 Electrostatically Sensitive Devices (ESD) Precautions

Some semiconductor (solid state) devices can be easily damaged by static electricity. Such components commonly are called Electrostatically Sensitive Devices (ESD). Examples of typical ESD devices are integrated circuits and some field-effect transistors. The following techniques will reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor components or assemblies, drain the electrostatic charge from your body by touching a known earth ground. Alternatively, wear a discharging wrist-strap device. To avoid a shock hazard, be sure to remove the wrist strap before applying power to the monitor.

2. After removing an ESD-equipped assembly, place it on a conductive surface such as aluminum foil to prevent accumulation of electrostatic charge.

3. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ESDs.

4. Use only a grounded-tip soldering iron to solder or desolder ESDs.

5. Use only an antistatic solder removal device. Some solder removal devices not classified as "antistatic" can generate electrical charges sufficient to damage ESDs.

6. Do not remove a replacement ESD from its protective package until you are ready to install it. Most replacement ESDs are packaged with leads that are electrically shorted together by conductive foam, aluminum foil or other conductive materials.

7. Immediately before removing the protective material from the leads of a replacement ESD, touch the protective material to the chassis or circuit assembly into which the device will be installed.

   Caution : Be sure no power is applied to the chassis or circuit and observe all other safety precautions.

8. Minimize body motions when handling unpackaged replacement ESDs.
   Motions such as brushing clothes together, or lifting your foot from a carpeted floor can generate enough static electricity to damage an ESD.

9. ⚠ marks parts for ESDs on schematic diagrams and electrical parts list.

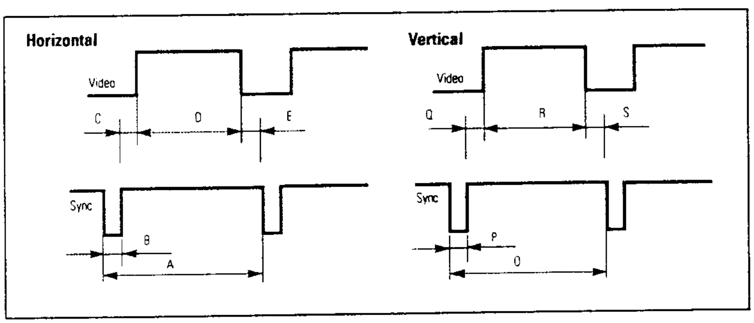
2 Reference Information

2-1 Timing Chart

This section of the service manual describes the timing that the computer industry recognizes as standard for computer-generated video signals.

Table 4-1. Timing Chart

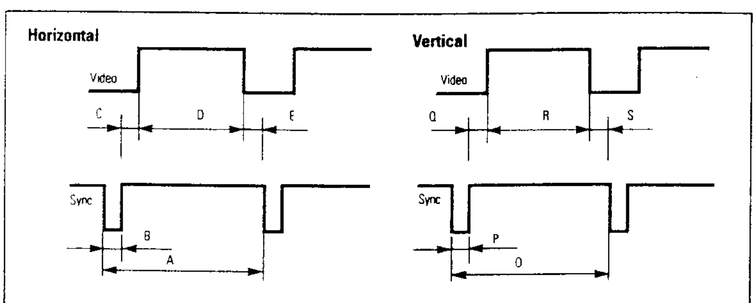
Mode / Timing	IBM				VESA		
	VGA1/70 Hz 640x350	**VGA2/70 Hz 720x400**	**VGA3/60 Hz 640x480**	**XGA87hz 1024x768**	**640/72 Hz 640x480**	**640/75 Hz 640x480**	**800/56 Hz 800x600**
fH (kHz)	31.469	31.469	31.469	35.522	37.861	37.500	35.156
A µsec	31.778	31.778	31.778	28.151	26.413	26.667	28.444
B µsec	3.813	3.813	3.813	3.920	1.270	2.032	2.000
C µsec	1.907	1.907	1.907	1.247	4.064	3.810	3.556
D µsec	25.422	25.422	25.422	22.806	20.317	20.317	22.222
E µsec	0.636	0.636	0.636	0.178	0.762	0.508	0.667
fV (Hz)	70.087	70.087	59.940	86.958	72.809	75.000	56.250
O msec	14.268	14.268	16.683	11.500	13.735	13.333	17.778
P msec	0.064	0.064	0.064	0.113	0.079	0.080	0.057
Q msec	1.907	1.080	1.048	0.563	0.739	0.427	0.626
R msec	11.122	12.711	15.253	10.810	12.678	12.800	17.067
S msec	1.176	0.413	0.318	0.014	0.237	0.027	0.028
Clock Frequency (MHz)	25.175	28.322	25.175	44.900	31.500	31.500	36.000
Polarity H.Sync / V.Sync	Positive / Negative	Negative / Positive	Negative / Negative	Positive / Positive	Negative / Negative	Negative / Negative	Neg/Pos / Neg/Pos
Remark	Separate	Separate	Separate	Separate	Separate	Separate	Separate



A : Line time total	O : Frame time total
B : Sync width	P : Sync with
C : Back porch	Q : Back porch
D : Active time	R : Active time
E : Front porch	S : Front porch

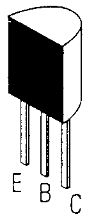
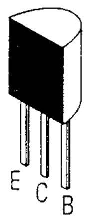
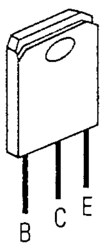
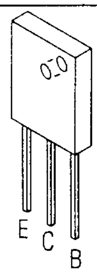
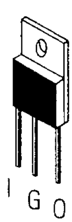
Table 4-2. Timing Chart

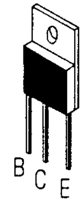
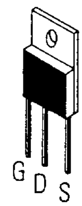
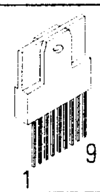
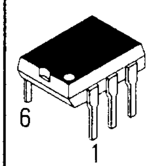
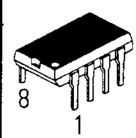
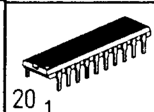
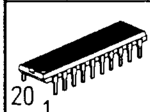
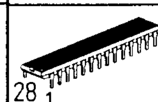
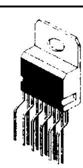
Mode / Timing	VESA		
	800/60 Hz 800x600	**800/75Hz 800x600**	**1024/60Hz 1024x768**
fH (kHz)	37.879	46.875	48.363
A μsec	26.400	21.333	20.677
B μsec	3.200	1.616	2.092
C μsec	2.200	3.232	2.462
D μsec	20.000	16.162	15.754
E μsec	1.000	0.323	0.369
fV (Hz)	60.317	75.000	60.004
O msec	16.579	13.333	16.666
P msec	0.106	0.064	0.124
Q msec	0.607	0.448	0.600
R msec	15.840	12.800	15.880
S msec	0.026	0.021	0.062
Clock Frequency (MHz)	40.000	49.500	65.000
Polarity H.Sync V.Sync	Positive Positive	Positive Positive	Negative Negative
Remark	Separate	Separate	Separate



A : Line time total	O : Frame time total
B : Sync width	P : Sync with
C : Back porch	Q : Back porch
D : Active time	R : Active time
E : Front porch	S : Front porch

2-2 Semiconductor Lead Identification

PARTS	TYPE NO.	REF. NO.
	KSC1008-Y	Q404
	VN2222LL VN0606M	Q205
	KSC945C-Y KTC1398-Y	Q201, Q202, Q203, Q204, Q206, Q402, Q409, Q502, Q601, Q607
	KSC733C-Y KTA1266-Y	Q401, Q405, Q407, Q410, Q501
	2SC4744 2SC4762 KSC5086 2SC5149 KSC5386	Q403
	6N80 2SK1358 SST6N80	Q602
	MJE800 KSE800	Q406
	MC7805 KA7805 KIA7805P	IC202
	KA317 LM317	IC603

PARTS	TYPE NO.	REF. NO.
	KSC1507 2SC3503 KSC3503	Q603
	IRF9610	Q408
	2SK1351 IRF740	Q412
	IRF630	Q413
	TDA8351	IC301
	CQY80-NG CQY80-XG	OP601
	KA3882	IC601
	24LC21/P	IC701
	TDA4850	IC401
	SL606	IC201
	LM1203 KA2139	IC101
	LM2406T	IC102

3 Product Specifications

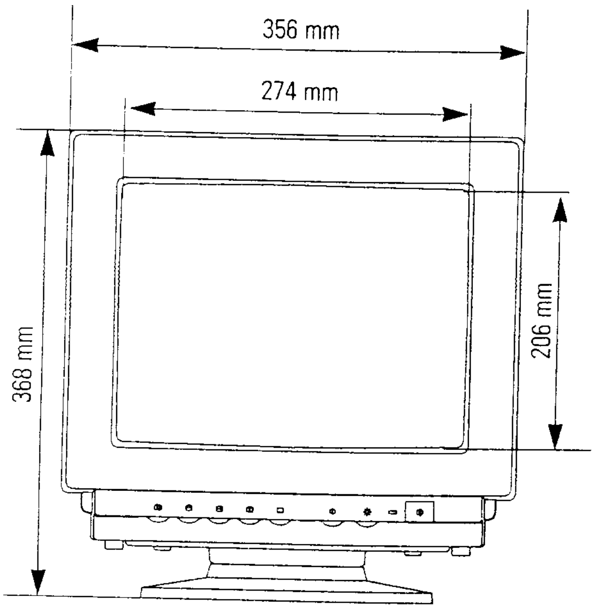
3-1 Specifications

Item / Model	SC-428PT/PTL
Picture Tube:	14-inch (36 Cm), 13.2-inch (33.5Cm) visual; Full square/regular face tube, 90° Deflection; Antistatic silica coating; AK shadow mask
	0.28 mm Dot pitch; Non-glare
Scanning Frequency Horizontal / Vertical	31.47kHz/70 Hz, 31.47kHz/60 Hz, 35.52kHz/87 Hz, 37.5kHz/75 Hz, 37.86kHz/72.8 Hz, 35.16kHz/56 Hz, 37.88kHz/60.3 Hz, 46.88kHz/75Hz, 48.36kHz/60.00Hz
Display Colors Analog Input	Unlimited Colors
Maximum Resolution	Horizontal : 1024 Dots Vertical : 768 Lines
Input Signal Video Separate Sync	Analog 0.714 Vp-p Positive at 75 Ω terminated TTL level Positive/Negative
Maximum Pixel Clock	65 MHz
Active Display	Horizontal : 255 mm ± 3 mm Vertical : 191 mm ± 3 mm
Input Voltage	AC 90-264 Volt, 60/50Hz ± 3 Hz
Power Consumption	80 Watt (max)
Dimensions	Unit (H x W x D) : 14.5 x 14 x 14.9 Inches (368 x 356 x 379.5 mm) Carton (H x W x D) : 18.2 x 18 x 15.7 Inches (462 x 457 x 398 mm)
Weight	Net/Gross: 23.2 Lbs (10.5 kg) / 27.6 Lbs (12.5 kg)
Environmental Considerations	Operating Temperature: 32° F to 104° F (0° C to 40° C) Humidity : 10 % to 80 % Storage Temperature : -4° F to 113° F (-20° C to 45° C) Humidity : 5 % to 95 %

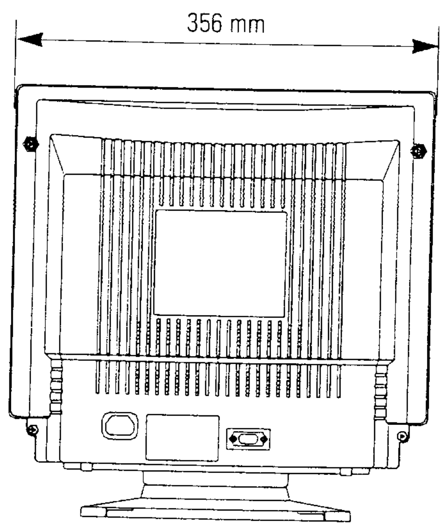
- **Notes :** Designs and specifications are subject to change without prior notice. Model numbers with an "L" suffix comply with SWEDAC (MPRII) recommendations for reduced electromagnetic fields.

3-2 Dimensions

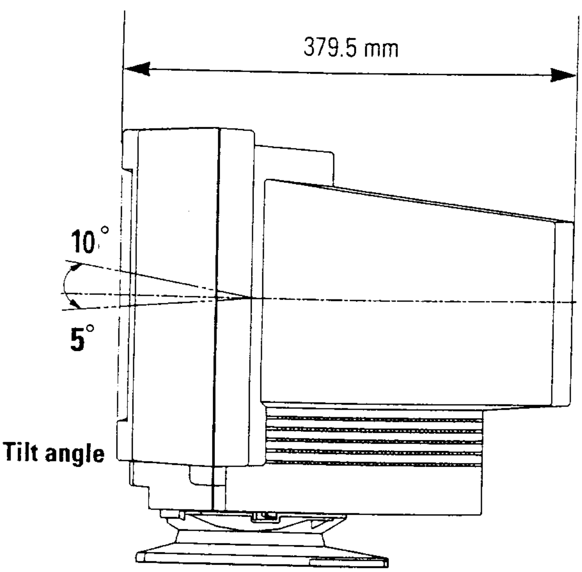
3-2-1 Front View



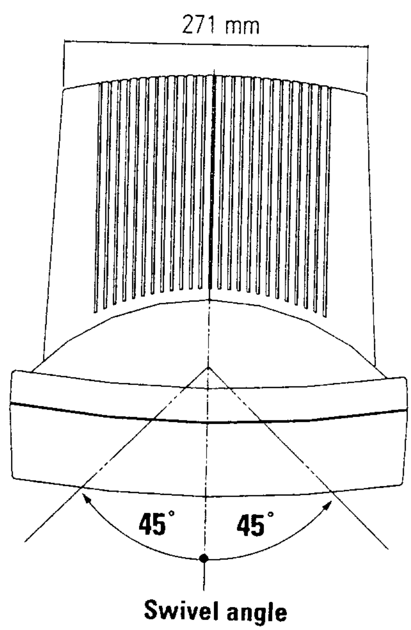
3-2-3 Rear View



3-2-2 Side View



3-2-4 Top View



3-3 Pin Assignments

Pin No. \ Sync Type	15-Pin Signal Cable Connector (Figure 3-1)
	Separate
1	Red
2	Green
3	Blue
4	GND
5	DDC return
6	GND-R
7	GND-G
8	GND-B
9	Reserved
10	GND-Sync
11	GND
12	DDC Data
13	H-Sync
14	V-Sync
15	DDC Clock

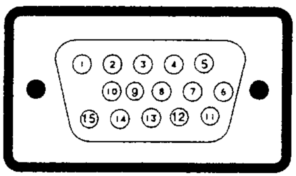
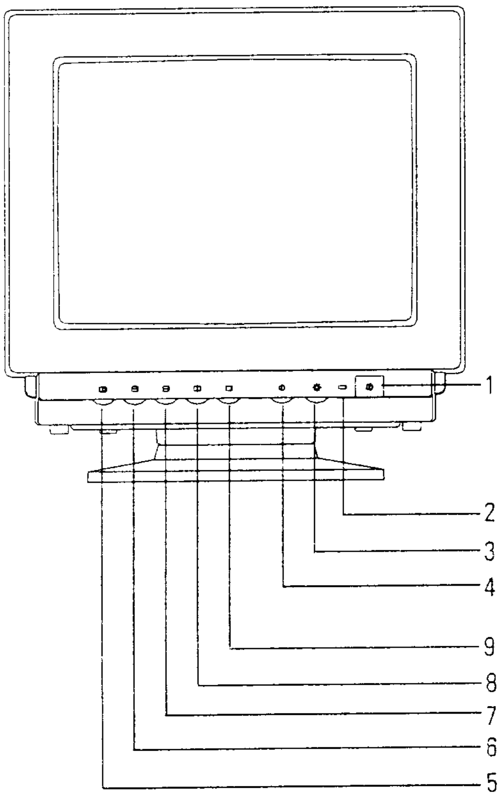


Figure 3-1. Female Type

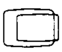
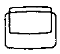
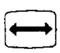
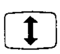
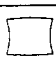
4 User Controls

4-1 Front View and Controls

4-1-1. Front View



4-1-2 Front Control Panel

Location	Symbol	Description
1		Power Button (Push)
2		Power Indicator LED (Dual Color)
3		Brightness Control
4		Contrast Control
5		Horizontal Position Control
6		Vertical Position Control
7		Horizontal Size Control
8		Vertical Size Control
9		Side Pin Cushion Control

Note 1: When used with a computer equipped with DPMS (VESA), this monitor is EnergyStar compliant.

Note 2: The monitor automatically returns to the normal operation state when horizontal and vertical sync returns. This occurs when you move the mouse or press a key on the keyboard.

Table 4-1. Display Power Management Signaling (DPMS) Standard

State / Items	Normal Operation	Power saving function EPA/NUTEK		
		Suspend Mode		Power Off Mode
Horizontal Sync	Active	Inactive	Active	Inactive
Vertical Sync	Active	Active	Inactive	Inactive
Video	Active	Blanked	Blanked	Blanked
Power Indicator	Green	Orange		Orange, Green Blinking
Power Consumption/hr	80W	Less than 15W		Less than 8W

5 Disassembly and Reassembly

This section of the service manual describes the disassembly and reassembly procedures for the CQB41** Series monitors.

WARNING: These monitors contain electrostatically sensitive devices. Use caution when handling any components.

5-1 Disassembly

Caution: Disconnect the monitor from the power source before disassembling the monitor.

5-1-1 Cabinet Disassembly

1. With a pad beneath it, stand the monitor on its front with the screen facing downward and the base closest to you. Make sure nothing will damage the screen.
2. Press in the tab on the Cabinet Bottom and pull the Tilt and Swivel Base upward to remove it.
3. Working from the back of the monitor, remove the four screws.
4. Lift the rear cover up and away from the monitor.
5. Using pinch-nose pliers or long-nose pliers, carefully disconnect the Anode Cap from the CRT.

Caution: Do not touch the anode contact on the CRT.

5-1-2 Disassembling the Stand Assembly

1. Follow steps 1 and 2 in "Cabinet Disassembly," above.
2. With the words "Front" aligned on the Stand Top and Stand Base, rotate the Top counter clockwise, and pull it back to reveal the stopper snap.
3. Press the stopper snap down and continue rotating the Stand Top until Stand Base tab is free in the slot. Pull the Stand Top and Stand Base apart.

5-1-3 Removing the Video PCB

1. Follow steps 1 through 5 in "Cabinet Disassembly," above.
2. Desolder the five tabs on the underside of the Video shield.
3. Remove the Video Shield case.
4. Using a knife, cut through the silicone bond and lift off the Video PCB.
5. Disconnect wire between Video PCB and CRT ground.(CN107)
6. Desolder the CN103, CN104 and Screen wire on Video PCB.
7. Lift the cap on the CRT socket, desolder the Focus wire.
8. Lift the Video PCB and place it on a flat, level surface which is protected from static electricity.

5-1-4 Removing the Main PCB

1. Follow steps 1 through 5 in "Cabinet Disassembly," and steps 1 through 8 in "Removing the Video PCB," above.
2. If you have not already done so, disconnect the Video PCB Assembly from the Main PCB.
3. Disconnect Degaussing Coil at CN601/602 connector on Main PCB.
4. Disconnect both side CRT ground wires at CN403 and GND1. (Normal type)
   Disconnect both side CRT ground wires at CN403, GND1 and CN404. (MPRII type)
5. Disconnect DY connector between DY and CN302 on Main PCB.
6. Slide the Main PCB from the Front Cover Ass'y.
7. Remove the Left and Right PCB Brackets.
8. Set the Main PCB on a smooth, level surface protected from static electricity.

5-1-5 CRT Ass'y Disassembly

1. Above procedure must have been done.
2. Straighten Degaussing Coil Assembly coated metal ties and lift Coil Ass'y from the CRT.
3. Remove the four corner screws and lift CRT up and away from the Front cover assembly and place on padded surface.
   ⚠ **Do not lift the CRT by the neck.**

Caution: If you will be returning this CRT to the monitor, be sure to place the CRT face down on a protective pad.

5-2 Reassembly

With the CRT facing downward on a protective pad, use the steps that follow to reassemble the monitor.

5-2-1 Replacing the CRT

1. Loop the CRT Ground Ass'y around the back of the CRT and under the four corner metal tabs. Position the corner with the spring last.

2. With the Front Cover Assembly lying face down on a protective pad, position the CRT so that the corner metal tabs fit properly in the Front Cover Assembly.

3. Secure the CRT Ground Ass'y and CRT at each of the four corners with the CRT screws.

4. Replace the Degaussing Coil Assembly and wrap the Coil with the plastic coated metal ties to hold the Coil in place.

5-2-2 Replacing the Main PCB

1. Replace the Left and Right PCB Brackets.
2. Carefully push the Main PCB Ass'y until it is fully inserted and you hear a click as the tabs engage on the Front Cover Ass'y.
3. Reconnect the following connectors and wires:
    - DY connectors (CN302)
    - CRT ground wires
    - Degaussing Coil (CN601,CN602)
    - Anode Cap
4. Main PCB should fit into slots in rear cabinet.

5-2-2 Replacing the Video PCB

1. Reconnect the cap on the CRT socket, solder the FOCUS wire and screen wire.
2. Solder the CN103, CN104 on Video PCB.
3. Reconnect wires between Video PCB and CRT ground.
4. Reconnect CRT socket and CRT pins to apply silicon bond at Plug/Socket junction.
5. Solder the five tabs on the underside of the Video Shield.

5-2-4 Cabinet Reassembly

1. If not already done, re-install the CRT following the directions given in "5-2-1 Replacing the CRT."

2. If not already done, re-install the Main PCB following the directions given in "5-2-2 Replacing the Main PCB."

3. If not already done, re-install the Video PCB following the directions given in "5-2-3 Replacing the Video PCB."

4. Position the Rear Cover making sure the tabs along the front edge are properly snapped in place. Replace the four screws.

5. Set the monitor on its Base and make sure that the CRT faceplate was not scratched or otherwise damaged.

6 Alignments and Adjustments

This section of the service manual explains how to control the raster size, position, pincushion, and make convergency and color adjustments.

Caution: The degaussing coil must be connected at CN601 and CN602 on the main PCA before servicing or operation of the monitor. Failure to do so may burn out the Resitor at R602.

6-1 Adjustment Conditions

Direction

When servicing, always face the monitor toward the East and, whenever possible, use magnetic field isolation such as a helmholtz field around the monitor.

Caution: Other electrical equipment may cause external magnetic fields.

During servicing, use an external degaussing coil to limit magnetic build up. If an external degaussing coil is not available, use the internal degaussing circuit, but not more than once per minute.

After finishing all adjustments, test the monitor in all directions. If, for example, the monitor does not meet adjustment specifications when facing in a northerly direction, face the monitor eastward again and readjust the monitor to the smallest error possible within a reasonable time limit. Test the unit again in all directions. If the monitor again fails to meet specifications in a non-easterly direction, contact your region's main service center for possible CRT replacement.

Testing and Burn-in Mode

For testing and burn-in, remove the signal cable from the monitor. Power on the monitor and warm it up. Use the burn-in mode to age the monitor.

Power Supply Voltage

AC 90-264 Volt (60/50 Hz ± 3 Hz).

High Voltage Control

Adjust VR407 to 24.5 kV ± 0.5 kV.

Warm-Up Time

The display must be on for 30 minutes before starting alignment. Warm-up time is especially critical in color temperature and white balance adjustments.

Signal

Video analog 0.714 Vp-p positive at 75 ohm terminated.

Sync: Separate
(TTL level negative/positive).

Scanning Frequency

Horizontal/Vertical
31.47 kHz/70 Hz, 31.47 kHz/60 Hz,
35.52 kHz/87 Hz, 37.86 kHz/72.8 Hz,
35.16 kHz/56 Hz, 37.88 kHz/60.3 Hz,
37.50 kHz/75 Hz, 46.88kHz/75Hz,
48.36kHz/60.00Hz

6-2 Prepare Main PCB for Adjustment

+B 166V Line Adjustment

No beam, Contrast: Minimum,
Brightness: Minimum.

Adjust VR601 to DC 166 V ± 1 V at T402 heat sink and GND.

High Voltage Adjustment

No beam, Contrast: Minimum,
Brightness: Minimum
Adjust VR407 to 24.5 kV ± 0.5 kV.

Center Raster

Adjust VR403 (H-hold) for the horizontal frequency equal to 31.5 ± 0.2 kHz.

6-3 Display Control Adjustments

Unless otherwise specified, adjust the EXT-VR:

Contrast : Max. (Fully clockwise)
Brightness : Max. (Fully clockwise)

6-3-1 **Centering**

Centering means to position the center point of the display in the middle of the display area. Horizontal size and position and vertical size and position control the centering of the display. Adjust the horizontal size and vertical size to their optimal settings: 255 mm (H) x 191 mm (V) Adjust the horizontal position and vertical position to 41.0 mm of the center point of the screen.

$|A - B| \leq 4.0$ mm.
$|C - D| \leq 4.0$ mm.

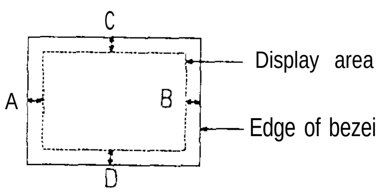


Figure 6-1. Centering

6-3-2 **Horizontal Size Adjustment**

Conditions

Scanning frequency: 48.3 kHz/60 Hz (1024 x 768)
Display image: Crosshatch pattern
Brightness: Maximum
Contrast: Maximum
Adjust VR404 (H-size) to 255 ± 5mm.

6-3-3 **Vertical Size Adjustment**

Conditions

Scanning frequency: 48.3 kHz/60 Hz (1024 x 768)
Display image: Crosshatch pattern
Brightness: Maximum
Contrast: Maximum
Adjust VR401 (V-size) to 191 ± 5mm.

6-3-4 **Horizontal/Vertical Position Adjustment**

Conditions

Scanning frequency: 48.3 kHz/60 Hz (1024 x 768)
Display image: Crosshatch pattern
Adjust VR405 (H-shift) and VR301 (V-shift) to center the screen position.

Note : VR405 (H-shift), VR301 (V-shift), VR404 (H-size), VR401 (V-size), VR402 (Side-pin) are external controls. They are located along the lower edge of the front bezel.

6-3-5 **Side Pincushion Adjustment**

Conditions

Scanning frequency: 48.3 kHz/60 Hz (1024 x 768)
Display image: Crosshatch patternAdjust VR402 (S-pin) to compensate for East/West distortion.

$|C1|, |C2| \leq 2$ mm
$|D1|, |D2| \leq 2$ mm

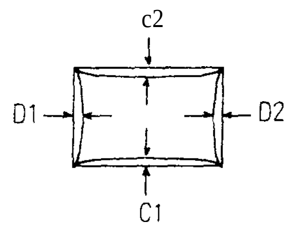


Figure 6-2. Pincushion

6-3-6 **CRT Tilt Adjustment**

Mechanical Adjustment:

Reassemble the CRT with fastening screws so that the measurements A and B are equal and the C and D measurements are equal.
If you are unable to correct the tilt, contact the regional service center for CRT replacement.

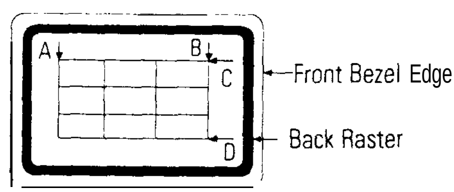


Figure 6-3. CRT Tilt Adjustment

6-4 Luminance Uniformity

Luminance uniformity means that the luminance at the position of the lowest brightness must be more than 70% of the luminance at the area with the highest brightness. Luminance is considered uniform only if the ratio of lowest to highest brightness is not less than 7:10.

Table 6-1. Computing Luminance Uniformity

Value	70 % (Min) Variation $= \frac{C}{A} \times 100$
Conditions	Display Image : White flat field. Luminance : Brightness cut off, Contrast max. A : Luminance at position of highest brightness. C : Luminance at position of lowest brightness.

6-5 White Balance Adjustment

Conditions

Measurement instrument:	Color analyzer
Scanning frequency:	48.3 kHz/60 Hz (1024 x 768)
Display image:	60 mm square white pattern
Brightness:	VR502, maximum

1. Adjust VR102R (R-BIAS) and VR102B (B-BIAS) so that the back raster color appears white to the unaided eye.
2. Set the brightness control (VR502) to the mechanical center position and the contrast control (VR501) to the maximum position.
3. Change the video signal to the 60mm square green pattern of the 48.3 kHz/60 Hz.
4. Adjust the VR101G (G-GAIN) so that the luminance of the green square is 40ft-L±2ft-L.
5. Change the video signal to the full white pattern of the 48.3 kHz/60 Hz.
6. Adjust the VR101R (R-GAIN) and VR101B (B-GAIN) to make the display color white. (X=0.283 ± 0.02, Y=0.298 ± 0.02)
7. Adjust the contrast control (VR501) so that the luminance is 3ft-L.
8. Carefully adjust VR102R (R-BIAS) and VR102B (B-BIAS) for the display color to be white.
9. Check the color coordinates at 20ft-L luminance.If there is some error, adjust the VR101R
10. Turn the contrast and the brightness controls fully clockwise.
11. Adjust the focus control of the FBT to display the sharpest image possible. (R-GAIN) and VR101B (B-GAIN) display a white color.
12. Recheck the color coordinates at 3ft-L luminance and check the white color with rotating the contrast control (VR501). If there is some error, retry the adjustment from (2).
13. Recheck the back raster after disconnecting the signal cable.
    Luminance tolerance 3.5ft-L ~ 15ft-L

6-6 Focus Adjustment

Conditions

Scanning frequency:	48.3 kHz/60 Hz (1024 x 768)
Display image:	"H" character pattern
Brightness:	Maximum
Contrast:	Maximum

1. Adjust the focus control of the FBT to display the sharpest image possible.
2. Use locktite to seal the focus control in position.

6-7 Color Purity Adjustment

Color purity is the absence of undesired color. Conspicuous mislanding (unexpected color in a uniform field) within the display area shall not be visible at a distance of 50 cm from CRT surface.

Note: Color purity adjustments should only be attempted by qualified personnel.

Conditions

Direction	: Monitor facing east.
Display image	: White flat field.
Luminance	: Cutoff point at the center of display area.

6-8 Convergence Adjustments

Misconvergence occurs when one or more of the electron beams in a multi beam CRT fail to meet the other beams at a specified point.

Table 6-1. Misconvergence Tolerance

Position	Error in (mm)	CRT Dot Pitch	Model No.
Center (A)	0.3	0.28	SC-428PT/PTL
Corner (B)	0.4	0.28	SC-428PT/PTL

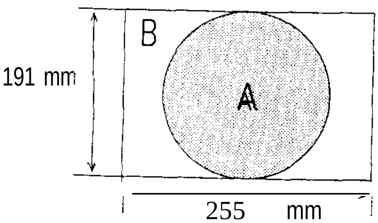
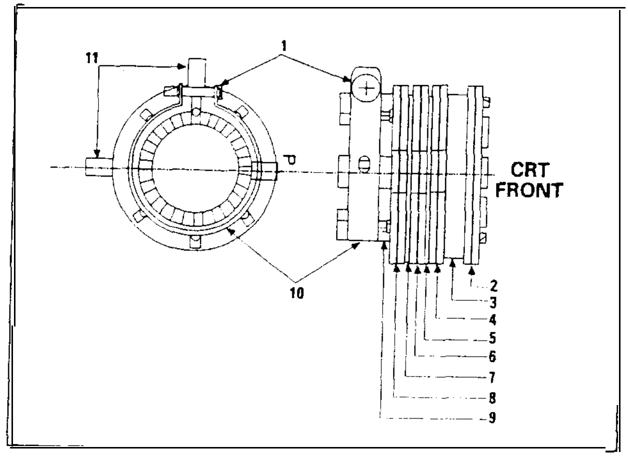


Figure 6-4. Convergence Measurement Areas



Samsung SDD CRT		
1: Setup Bolt	2: Bow Magnet	3: Band
4. Z-Pole Magnet	5. Spacer	6: 4-Pole Magnet
7: Spacer	8: 6-Pole Magnet	9 Holder
10: Band	11: Tabs	

Figure 6-5. Magnet Configuration

Red and Blue Alignment (4-pole magnet movement)

Red and Blue and Green Alignment (6-pole magnet movement)

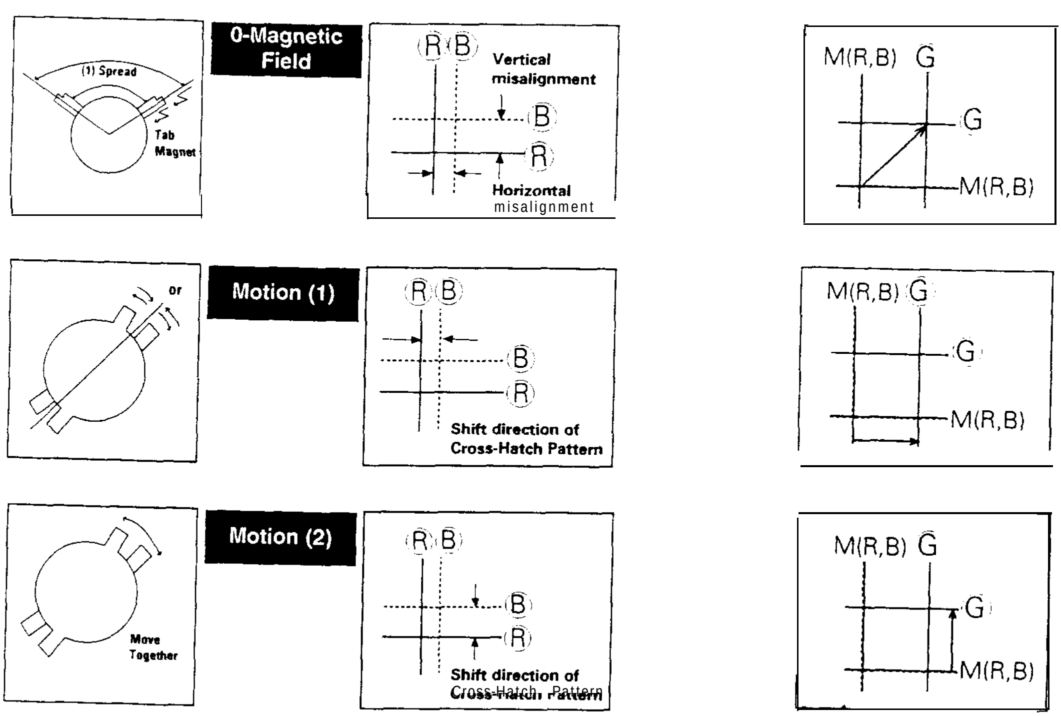


Figure 6-6. Magnet Movements

6-8-l Static (Center) Convergence

Static convergence involves the alignment of the red, blue and green lines in the center area of the display.
See “Dynamic Convergence” for alignment of the color fields around the edges of the display.

Conditions
Direction : Monitor facing east
Warm-up : 30 minutes
Display image : Crosshatch pattern
Tolerances : See Table 6-1

As shown in Figure 6-5, CRTs used in these monitors all have the same magnet configuration as shown in table 6-2 below.

Table 6-2. Magnet Configurations

MaCRT Manufacturer	Front	of	CRT
Samsung (SDD) CRTs six-pole			

Use the following steps to correct any static misconvergence:

1. Locate the pair of four-pole magnet rings.
2. Unlock the rings and rotate the individual rings (change the spacing between tabs) to converge the vertical red and blue lines.
3. Rotate the pair of rings (maintaining the spacing between tabs) to converge the horizontal red and blue lines.
4. After completing the red and blue center convergence adjustment, locate the pair of 6-pole magnet rings.
5. Rotate the individual rings (change the spacing between tabs) to converge the vertical red and blue (magenta) and green lines.
6. Rotate the pair of rings (maintaining the spacing between tabs) to converge the horizontal red and blue (magenta) and green lines. Don’t rotate the 2-pole magnet because it is for purity adjustments.
7. Mark the correct position for the magnets and apply a small line of glue to hold the magnets in place. Lock the rings in place.

6-8-2 Dynamic (Edge) Convergence

Use the following procedure to correct minor dynamic (edge) misconvergence. If, after using this procedure, dynamic misconvergence is still greater than the 0.4 mm tolerance around the periphery of the display area, replace the CRT.

1. Make sure the display is not affected by external magnetic fields.
2. Make sure the static convergence is properly adjusted.
3. Strategically place small magnetic strips on the back of the CRT to correct the misconvergence. Be careful not to remove the paper protecting the adhesive on the magnetic strip until you are satisfied with their placement and the dynamic convergence.
4. When you are satisfied with the convergence around the edge of the CRT, permanently glue the magnets to the back of the CRT.

Warning A **!**

Do not remove the factory installed wedges. These wedges were installed by the CRT manufacturer and are properly placed for this CRT. Removal may result in damage to the CRT.

6-8-3 Bow Convergence Adjustment

Conditions

Direction: Monitor facing east.
Display Image: Crosshatch pattern mixed with RGB colors.

Bow convergence adjustments are not available for any of the CRTs used in the SC-428PT/PTL monitors. While all the CRTs have bow convergence magnets, they are sealed in the CRT factory and are not user or service technician adjustable. Do not touch these magnets (see Figure 6-5). If color convergence bow adjustment is out of alignment, replace the CRT.

Bow misconvergence should not exceed the values listed in Table 6-1: Misconvergence Tolerances.

6-8-4 Balance Convergence Adjustments

Balance Convergence involves the alignment of the red and blue lines when they are misaligned at one end more so than at the other (X). The deflection yoke holds the balance coils which can correct balance misconvergences.

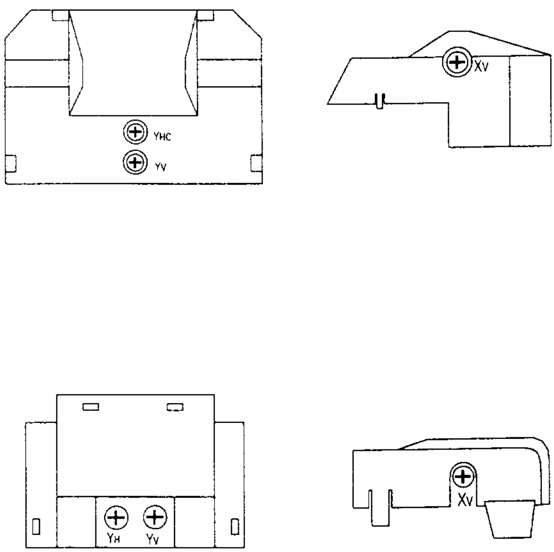


Figure 6-7. Deflection Yoke Caps

6-8-4 (a) Horizontal Line Red and Blue Balance Convergence

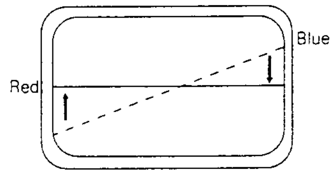


Figure 6-8. Horizontal Line Balance Misconvergence

Use a #0 hexdriver at the Horizontal Balance Coil (Xv). Turning the VR to the right raises the right end of the blue line and lowers the left end. Turning the VR to the left lowers the right end of the blue line and raises the left end.

6-8-4 (b) Vertical Red and Blue Balance Convergence

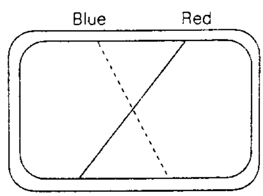


Figure 6-9. Vertical Line Balance Misconvergence

Use a #0 phillips screwdriver at the YH variable resistor. Turning the VR to the left tilts the blue line to the right. Turning it to the right tilts the blue line to the left.

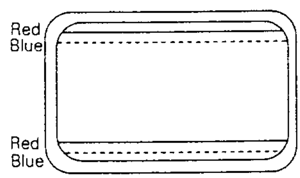


Figure 6-10. Upper and Lower Balance Misconvergence

Use a #0 phillips screwdriver at the YV variable resistor. Turning the VR to the left moves the blue line at the top upward and at the bottom, the line moves downward. Turning it to the right moves the blue line at the top downward and at the bottom, the line moves upward.

7 Troubleshooting

Notes: 1. If picture does not appear, fully rotate the brightness and contrast controls clockwise before inspection.
2. Check the following circuits:
- No raster appears: Power circuit, horizontal output circuit, H/V control circuit and H/V output circuit.
- High voltage develops but no raster appears: Video output circuits.
- High voltage does not develop: Horizontal output circuits.

No raster and picture

Yes

Does DC (NOR: 90 V, MPRII: 92 V) appear at pin 2 of T402?

No → Check the power supply circuits and high voltage regulation circuits. (D618, D601, D604, D618, IC601, Q408)

Yes

8 Does drive pulse of 4 Vp-p appear at Pin 3 of IC401?

No → Check IC401, the X-ray protector circuits and related circuits. (D401, D402, D403, Q401, Q402)

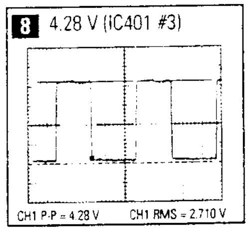
Yes

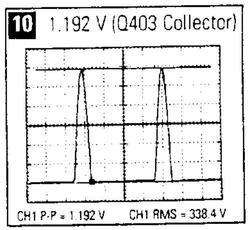
10 Does a flyback pulse appear at the collector of Q403?

No → Check Q403, Q404, T402 and their related circuits.

Yes

Check the video circuits, heater circuits and their related circuits. D501, D622, IC101, IC102



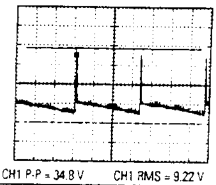


Horizontal line on raster

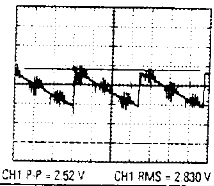
Does 35V appear at pin 6 of IC301?
- No → Check the power supply circuits. (C629, D620, R301)
- Yes ↓

14 Does an output pulse of appear at pin 7 of IC301?
- No → **17 Does an output pulse appear at pin 5 of IC401?**
  - No → Check IC401 and its related circuits.
  - Yes → Replace IC301 and check its related circuits. (R470, R471, R304, R303)
- Yes → Check the DY connector and DY. Replace CRT, if necessary.

14 34.8 V (IC301 #7)



17 2.52 V (IC401 #5)

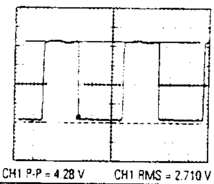


Vertical line on raster

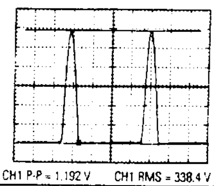
Does 12V appear at pin 1 of IC401?
- No → Check the power supply circuits or replace IC603. (R640, R641, D621, R401, Q607)
- Yes ↓

8 Does a drive pulse appear at pin 3 of IC401?
- No → Replace IC401 or check its related circuits.
- Yes → 10 Check flyback pulse at the collector of Q403. if not correct, replace Q403, Q206 and T402 or check their related circuits.

8 4.28 V (IC401 #3)

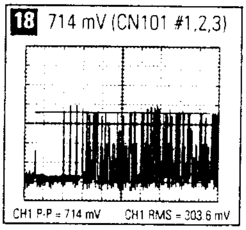


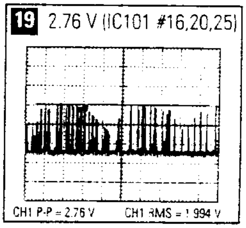
10 1.192 V (Q403 Collector)

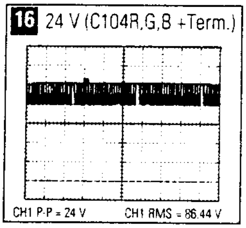


No raster

- [18] Does 74V appear at connector CN104 (pin 7) on the video PCB?
  - No → Check the power supply circuits.
  - Yes ↓
- [18] Does a video pulse appear at the input of CN101?
  - No → Check the signal cable or confirm the PC.
  - Yes ↓
- [19] Does a video pulse appear at pins 16, 20 and 25 of IC101?
  - No → Check the video input circuits. (IC101)
  - Yes ↓
- [16] Does a video pulse appear at the cathode of the CRT?
  - No → Check the video output circuits. (IC102)
  - Yes → Check the CRT socket or replace it and check the FBT (T402).

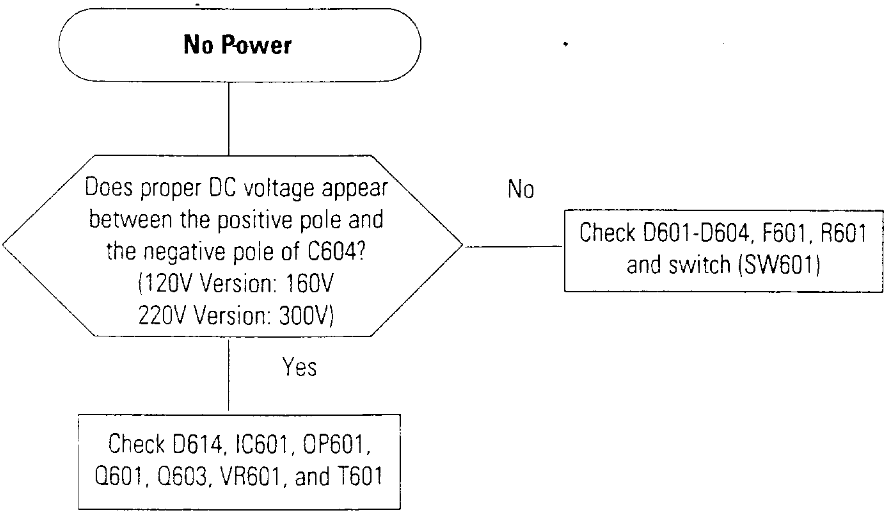


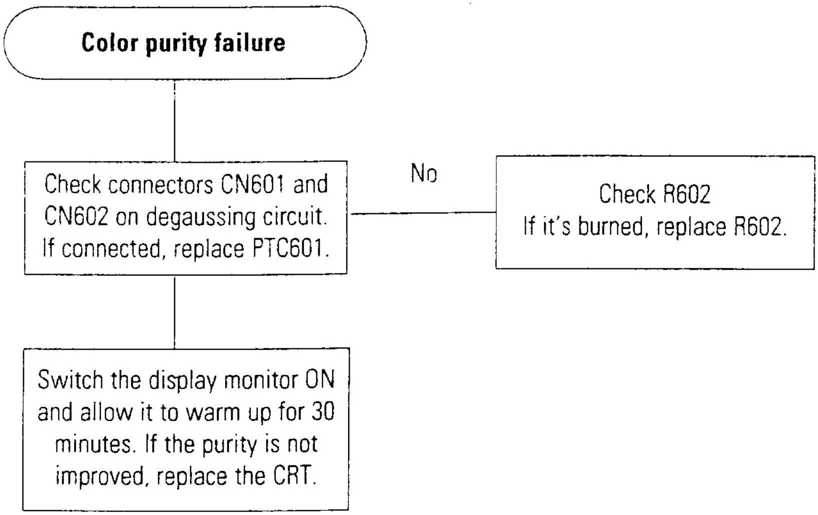




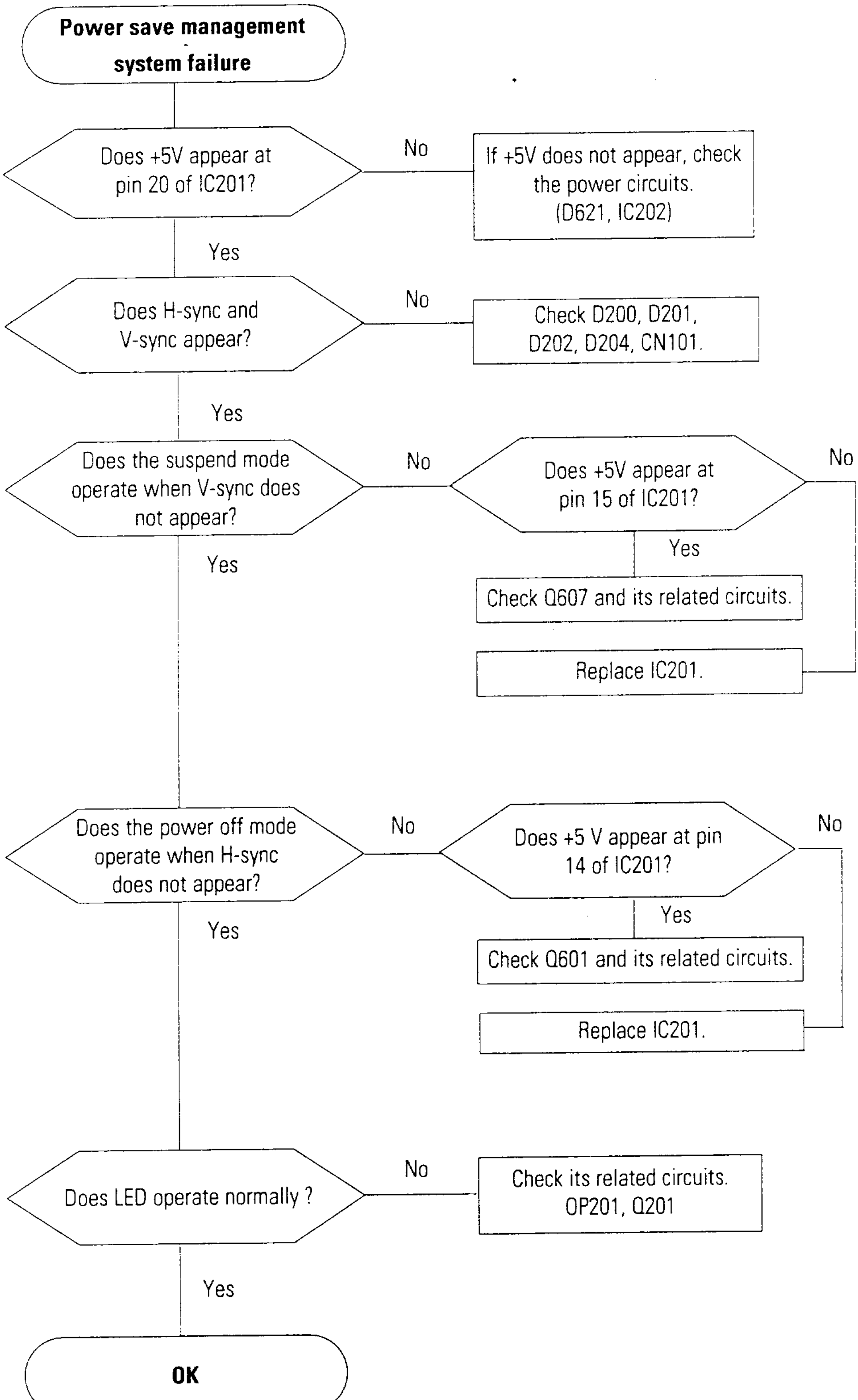
No specific color appears

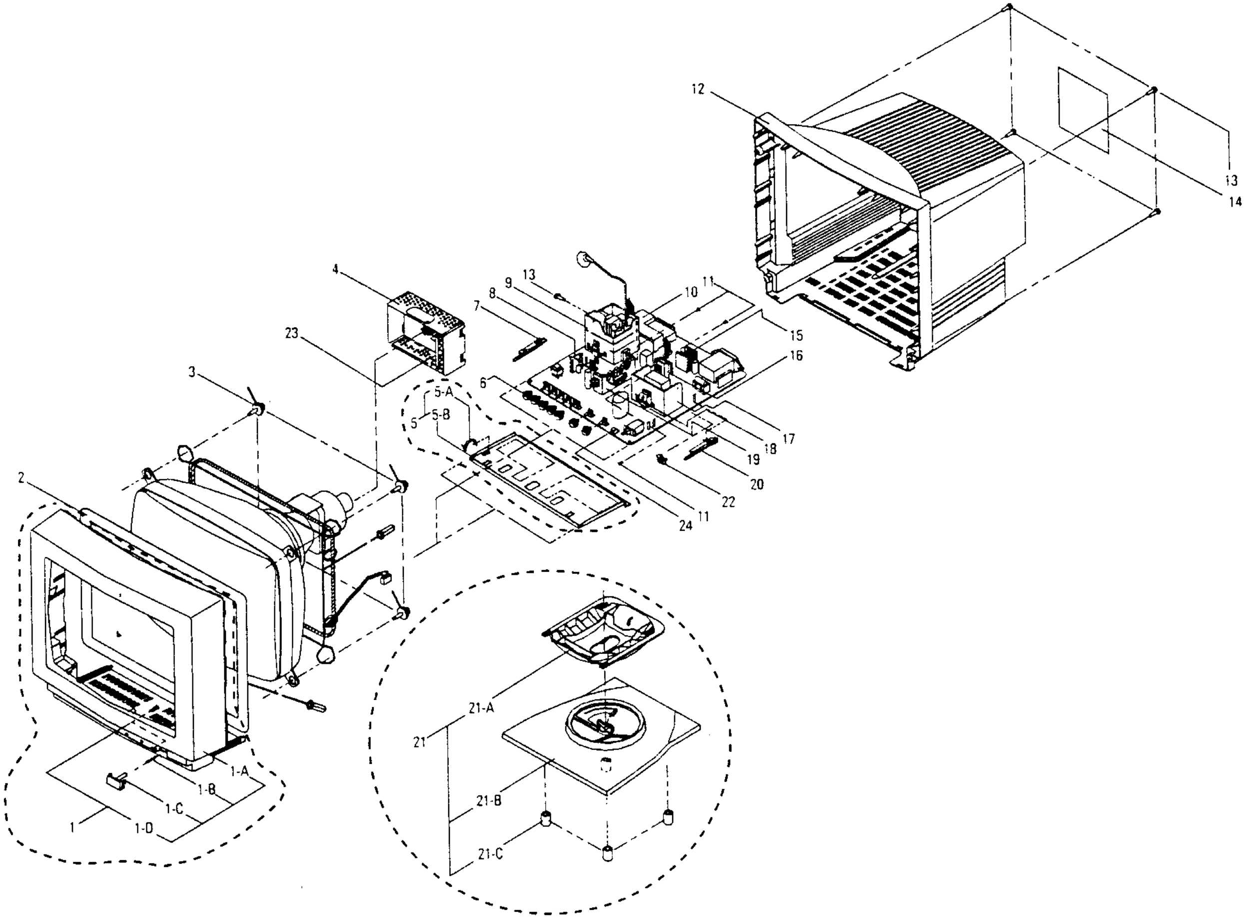
- The raster color is red or cyan. → Check the red video circuits. (IC101, IC102, VR101R, R105R)
- The raster color is green or magenta. → Check the green video circuits. (IC101, IC102, VR101G, R105G)
- The raster color is blue or yellow. → Check the blue video circuits. (IC101, IC102, VR101B, R105B)





NOTE : If color purity is not normal, manually degauss the monitor using an external degaussing coil before inspection.

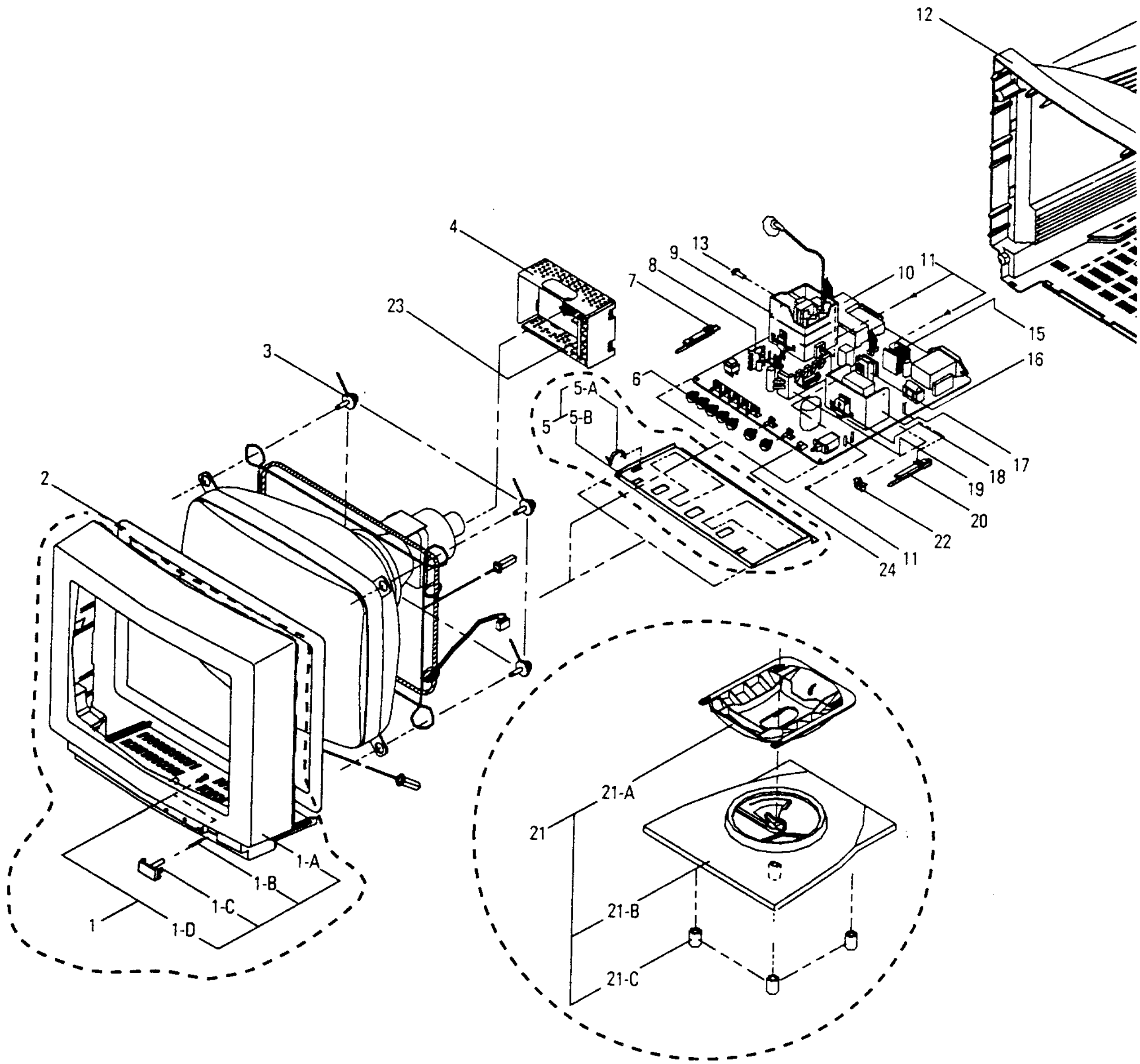

Power save management system failure
Does +5V appear at pin 20 of IC201?
No
If +5V does not appear, check the power circuits. (D621, IC202)
Yes
Does H-sync and V-sync appear?
No
Check D200, D201, D202, D204, CN101.
Yes
Does the suspend mode operate when V-sync does not appear?
No
Does +5V appear at pin 15 of IC201?
No
Yes
Check Q607 and its related circuits.
Replace IC201.
Yes
Does the power off mode operate when H-sync does not appear?
No
Does +5 V appear at pin 14 of IC201?
No
Yes
Check Q601 and its related circuits.
Replace IC201.
Yes
Does LED operate normally ?
No
Check its related circuits. OP201, Q201
Yes
OK

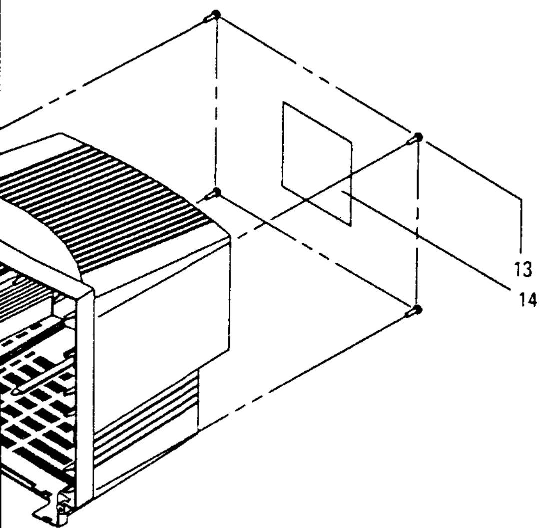


⚠ : Caution ● : Specialty part for this monitor only

No.	Description	Code No.	Specification	Q'TY	Remark
1	COVER/FRONT-ASSY	02-121-02583	SC-428PS/PT	1	●
	COVER/FRONT-ASSY	02-121-02731	SC-428PSL/PTL	1	●
1-A	COVER-FRONT	32-111-03669	ABS VO IV21, SC-428PS/PT	1	●
	COVER-FRONT	32-111-03817	ABS VO IV21, SC-428PSL/PTL	1	●
1-B	POWER SPRING	31-121-00259	SUS-304WPA, SC-428PS(L)/PT(L)	1	
1-C	KNOB-POWER	32-611-06342	ABS VO IV21, SC-428PS(L)/PT(L)	1	●
1-D	LENS-LED	32-611-06327	ACRYL CLEAR, SC-428PS(L)/PT(L)	1	●
2	SHIELD/F-ASSY	02-121-02743	SC-428PSL/PTL	1	●
3	SCREW ASSY CRT	02-111-00999	B,BH,+M5,L30,ZPC3,SWRCH18A	4	
4	SHIELD-CRT,PCB	31-129-00764	SPTE ,T=0.5	1	●
5	B/CHASSIS-ASSY	02-111-00978	SC-428PS(L)/PT(L)	1	●
5-A	BRKT-BOTTOM	31-211-02651	SECC-1,T=I.0	1	●
5-B	SPRING-PLATE	31-121-00247	SUS304-CSP 1/2H,T=0.2	1	●
6	KNOB-FUNCTION	32-611-06262	ABS VO IV21	7	●
7	BRKT/G-PCB (L)	32-611-07232	ABS VO IV21	1	●
8	H/SINK-DIODE	31-114-00167	BS+TIN COATING,T=1.0	1	●
9	H/SINK-FBT	31-114-00895	A1050P H14,T=I.0	1	
10	H/MAIN-PCB	31-129-00713	SPTE TO 3	1	
11	SCREW-TAPTITE	33-474-00048	B,BH,+M3,L10,ZPC3,SWRCH18A,W/W	4	
12	COVER-REAR	32-111-03684	ABS VO IV21	1	●
13	SCREW-TAPTITE	33-474-00024	B,BH,+M3,L10,ZPC3,SWRCH18A	5	
14	LABEL-RATING		SNA	1	●
15	H/SINK-IC (317)	31-114-00618	A6063S EXTR, T=2.0	1	●
16	H/SINK-TR (408)	31-111-00143	SPC-1,T=I.0	2	
17	H/SINK-POWER	31-114-00883	A5052P,T=2,0	1	●
18	SPRING-TR	31-121-00235	SUS-304 1/2H ,T=0.5	3	
19	H/SINK-IC (4866)	31-114-00999	A1050P HI4 T=3.0	1	●
20	BRKT/G-PCB (R)	32-611-07229	ABS VO IV21	1	●
21	STAND-ASSY	02-121-02571	SC-428PS(L)/PT(L)	1	●
21-A	STAND-TOP	32-611-06247	ABS VO IV21	1	●
21-B	STAND-BASE	32-611-06259	ABS VO IV21	1	●
21-C	RUBBER-FOOT	39-111-00286	NEOPRENE VO GRAY	4	
22	PCB-MOUNT	35-111-06621	NYLON 66	2	●
23	H/SINK-IC (102)	31-114-00924	A6063S EXTR,T=2.0	1	
24	HOLDER-LED	32-611-06381	ABS VO IV21	1	

8 Exploded View and Parts List



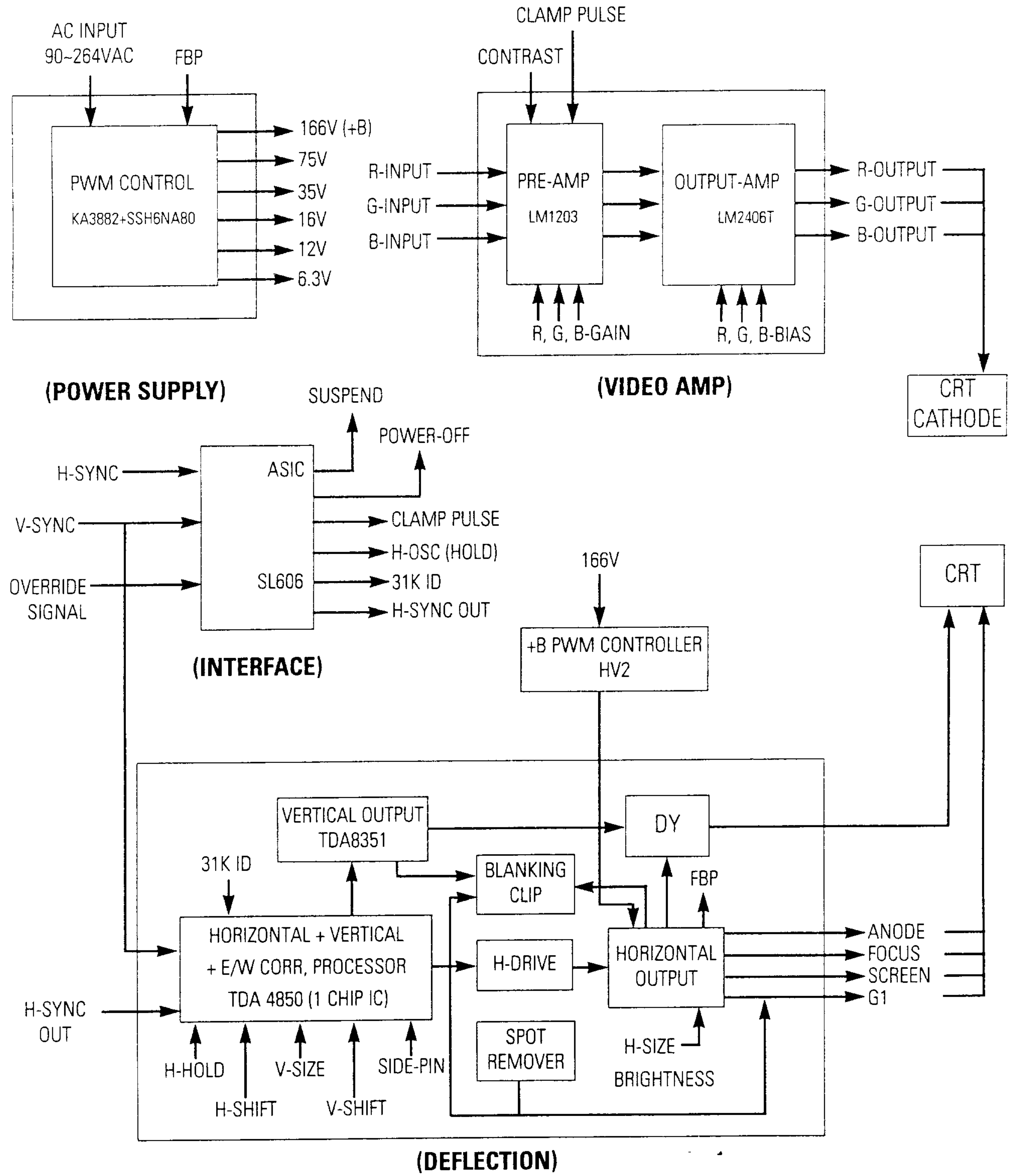


⚠ : Caution ●: Specialty part for this monitor only

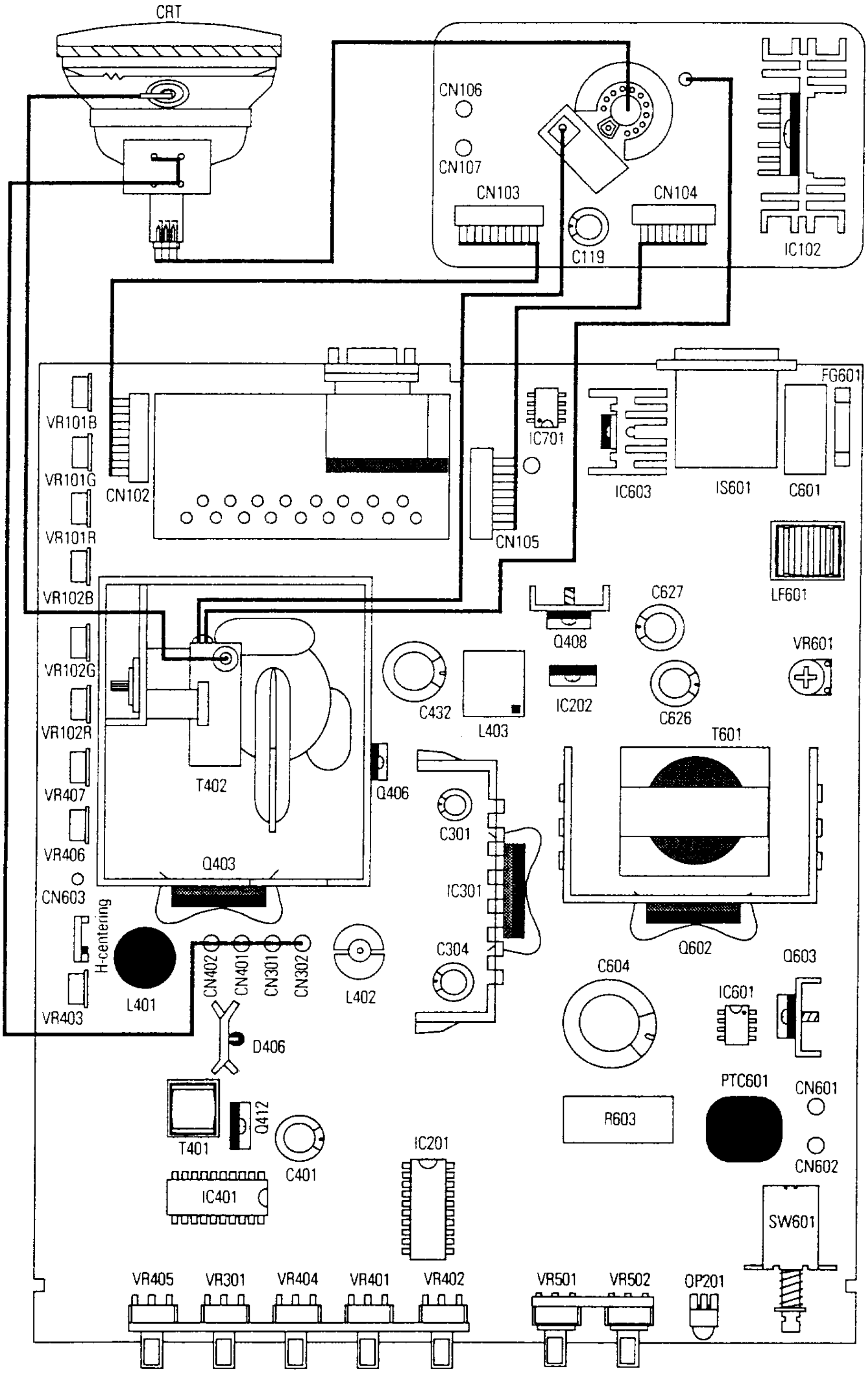
No.	Description	Code No.	Specification	Q'TY	Remark
1	COVER/FRONT-ASSY	02-121-02583	SC-428PS/PT	1	●
	COVER/FRONT-ASSY	02-121-02731	SC-428PSL/PTL	1	●
1-A	COVER-FRONT	32-111-03669	ABS VO IV21, SC-428PS/PT	1	●
	COVER-FRONT	32-111-03817	ABS VO IV21, SC-428PSL/PTL	1	●
1-B	POWER SPRING	31-121-00259	SUS-304WPA, SC-428PS(L)/PT(L)	1	
1-C	KNOB-POWER	32-611-06342	ABS VO IV21, SC-428PS(L)/PT(L)	1	●
1-D	LENS-LED	32-611-06327	ACRYL CLEAR, SC-428PS(L)/PT(L)	1	●
2	SHIELD/F-ASSY	02-121-02743	SC-428PSL/PTL	1	●
3	SCREW ASSY CRT	02-111-00999	B,BH,+M5,L30,ZPC3,SWRCH18A	4	
4	SHIELD-CRT,PCB	31-129-00764	SPTE ,T=0.5	1	●
5	B/CHASSIS-ASSY	02-111-00978	SC-428PS(L)/PT(L)	1	●
5-A	BRKT-BOTTOM	31-211-02651	SECC-1,T=I.0	1	●
5-B	SPRING-PLATE	31-121-00247	SUS304-CSP 1/2H,T=0.2	1	●
6	KNOB-FUNCTION	32-611-06262	ABS VO IV21	7	●
7	BRKT/G-PCB (L)	32-611-07232	ABS VO IV21	1	●
8	H/SINK-DIODE	31-114-00167	BS+TIN COATING,T=1.0	1	●
9	H/SINK-FBT	31-114-00895	A1050P H14,T=I.0	1	
10	H/MAIN-PCB	31-129-00713	SPTE TO 3	1	
11	SCREW-TAPTITE	33-474-00048	B,BH,+M3,L10,ZPC3,SWRCH18A,W/W	4	
12	COVER-REAR	32-111-03684	ABS VO IV21	1	●
13	SCREW-TAPTITE	33-474-00024	B,BH,+M3,L10,ZPC3,SWRCH18A	5	
14	LABEL-RATING		SNA	1	●
15	H/SINK-IC (317)	31-114-00618	A6063S EXTR, T=2.0	1	●
16	H/SINK-TR (408)	31-111-00143	SPC-1,T=I.0	2	
17	H/SINK-POWER	31-114-00883	A5052P,T=2,0	1	●
18	SPRING-TR	31-121-00235	SUS-304 1/2H ,T=0.5	3	
19	H/SINK-IC (4866)	31-114-00999	A1050P HI4 T=3.0	1	●
20	BRKT/G-PCB (R)	32-611-07229	ABS VO IV21	1	●
21	STAND-ASSY	02-121-02571	SC-428PS(L)/PT(L)	1	●
21-A	STAND-TOP	32-611-06247	ABS VO IV21	1	●
21-B	STAND-BASE	32-611-06259	ABS VO IV21	1	●
21-C	RUBBER-FOOT	39-111-00286	NEOPRENE VO GRAY	4	
22	PCB-MOUNT	35-111-06621	NYLON 66	2	●
23	H/SINK-IC (102)	31-114-00924	A6063S EXTR,T=2.0	1	
24	HOLDER-LED	32-611-06381	ABS VO IV21	1	

9 Servicing Diagrams

9-1 Block Diagram



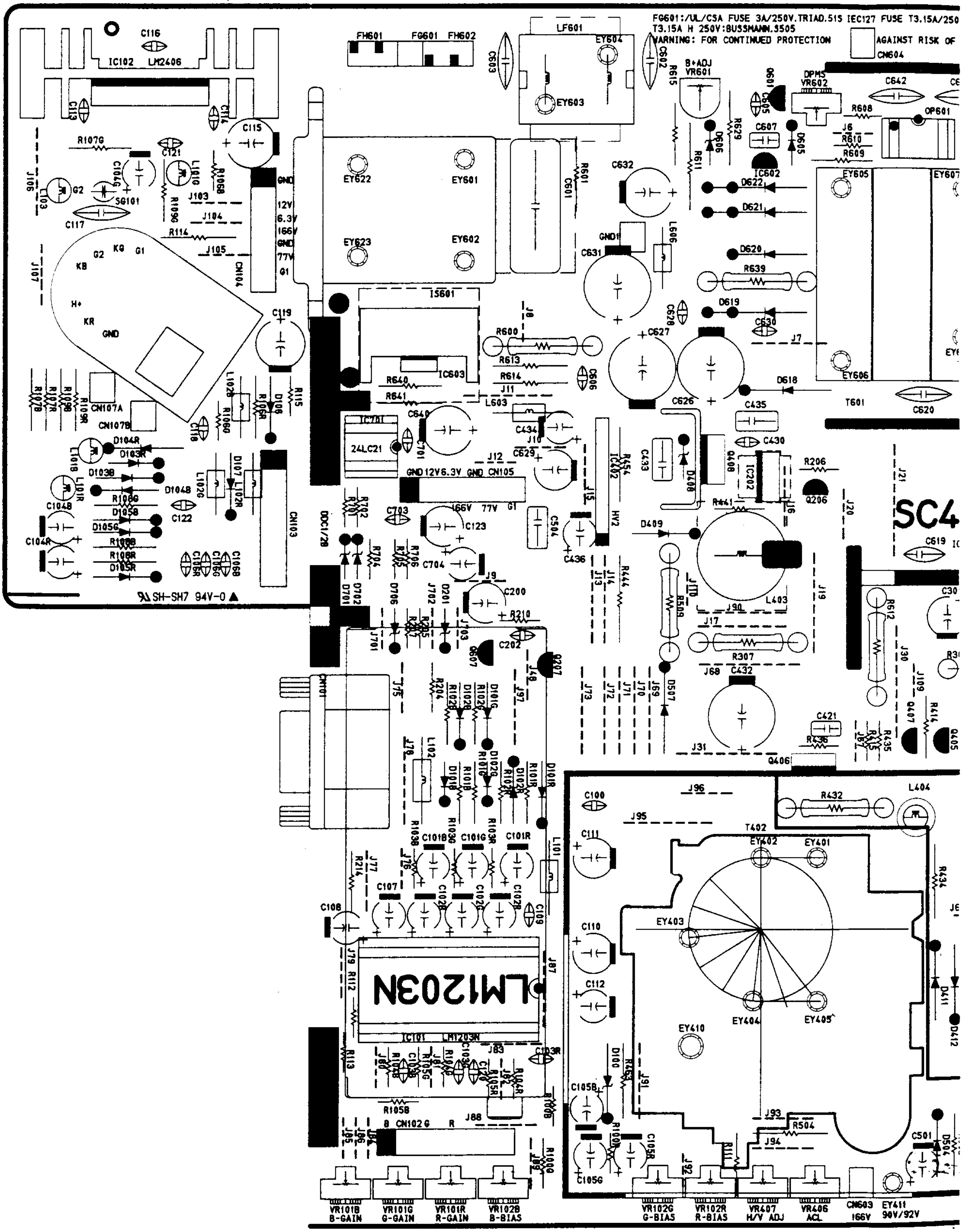
9-2 Wiring Diagram

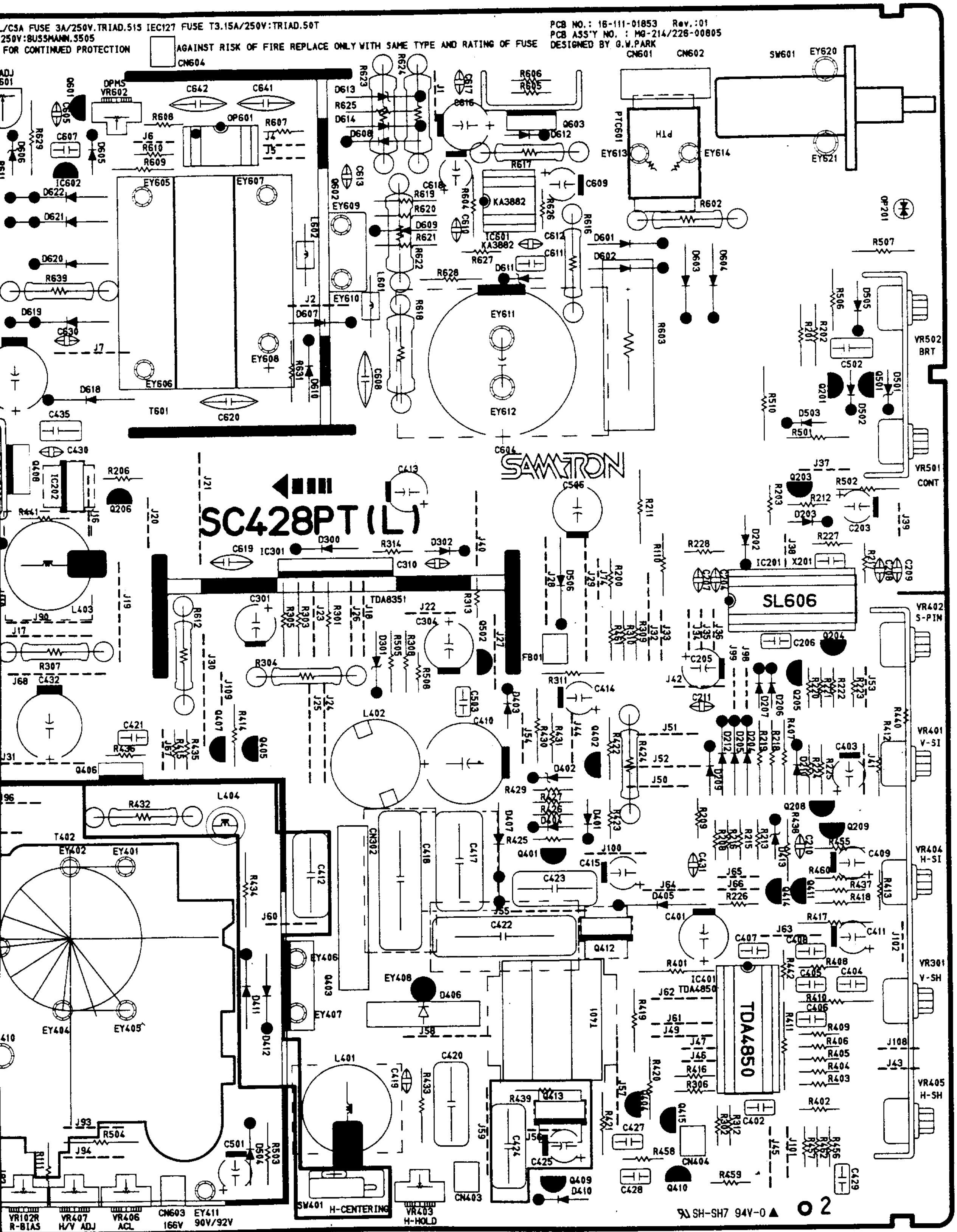


9-3 PCB Layout and Electrical Parts List

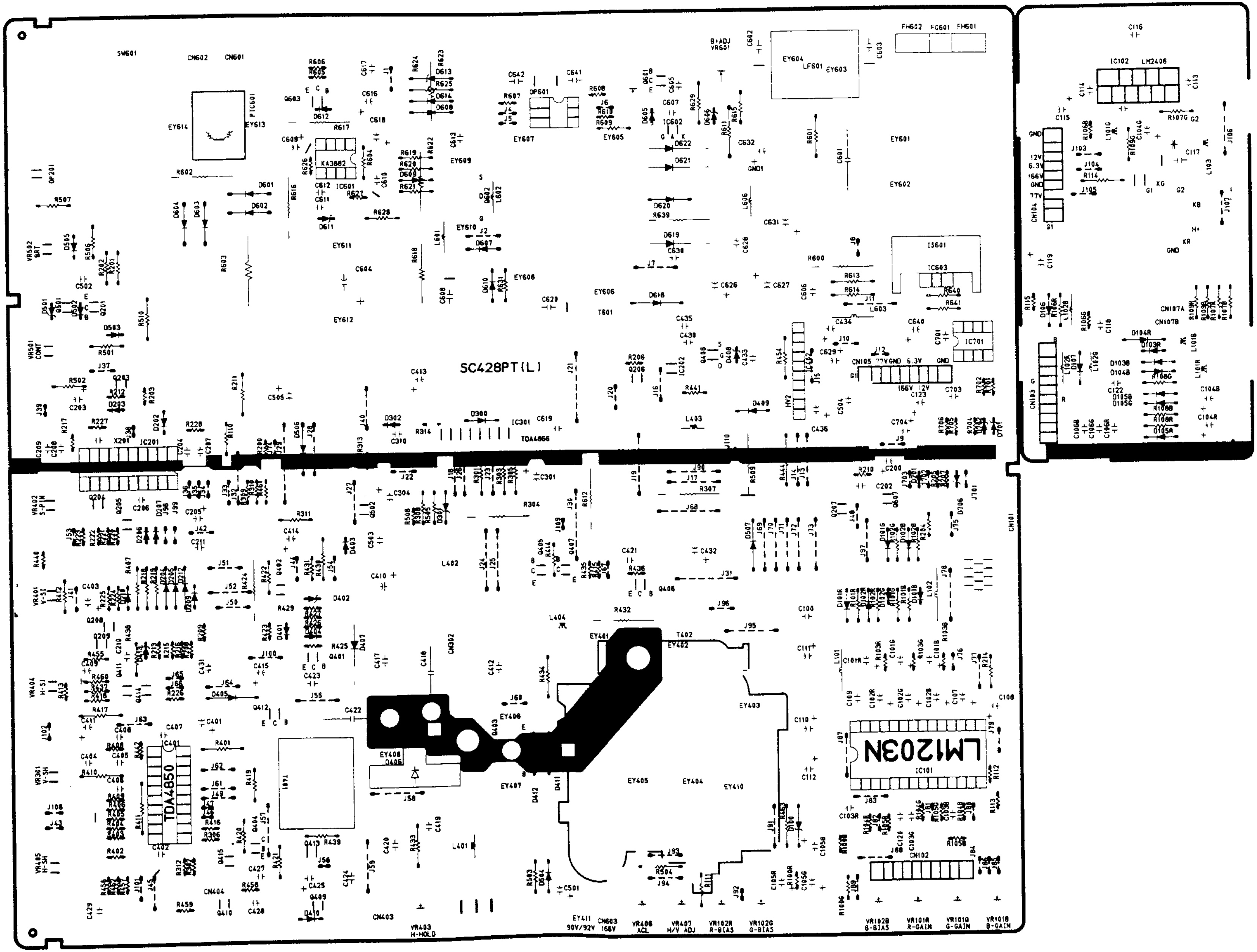
9-3-1 PCB Layout

Main and CRT Socket, Top View

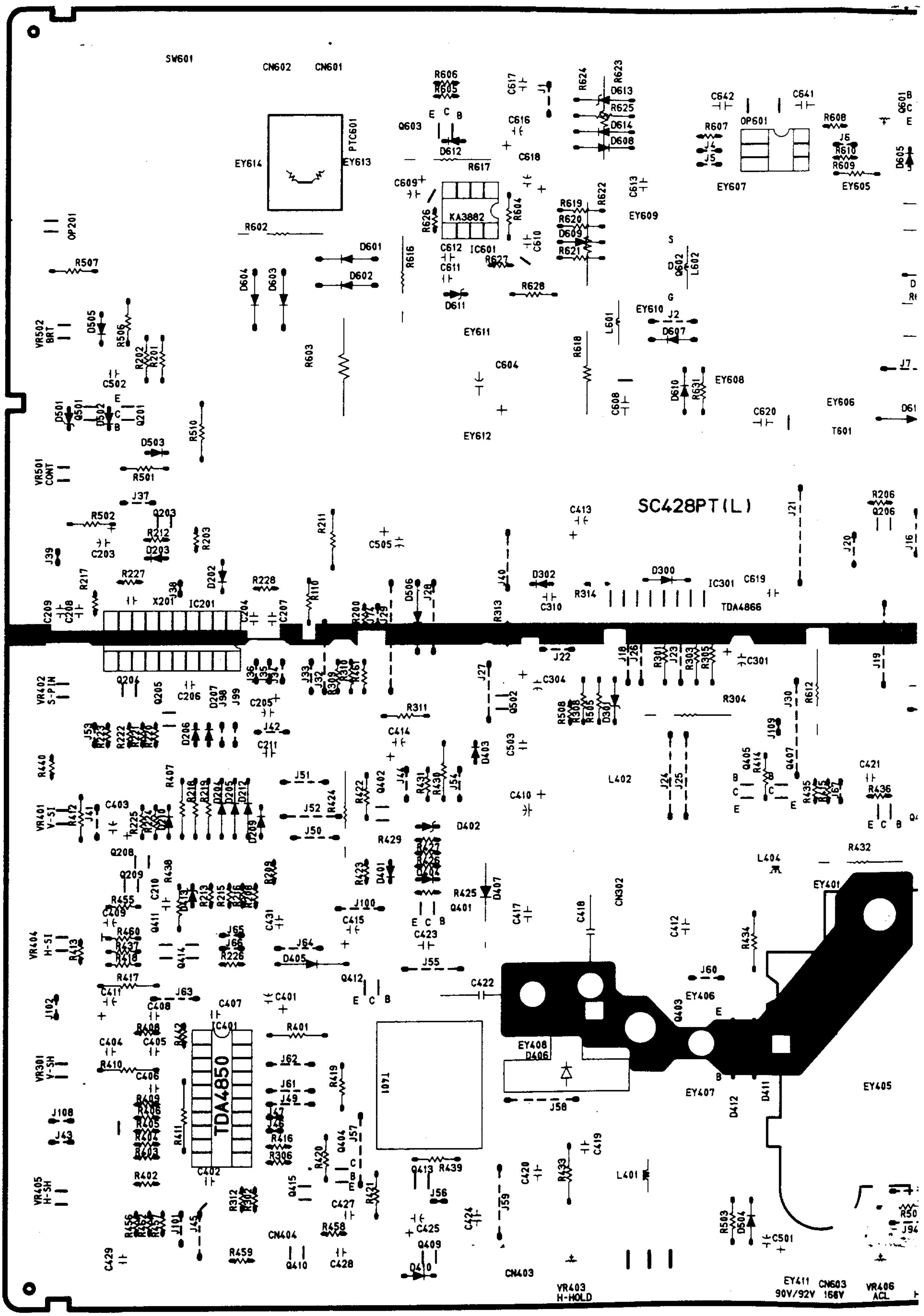


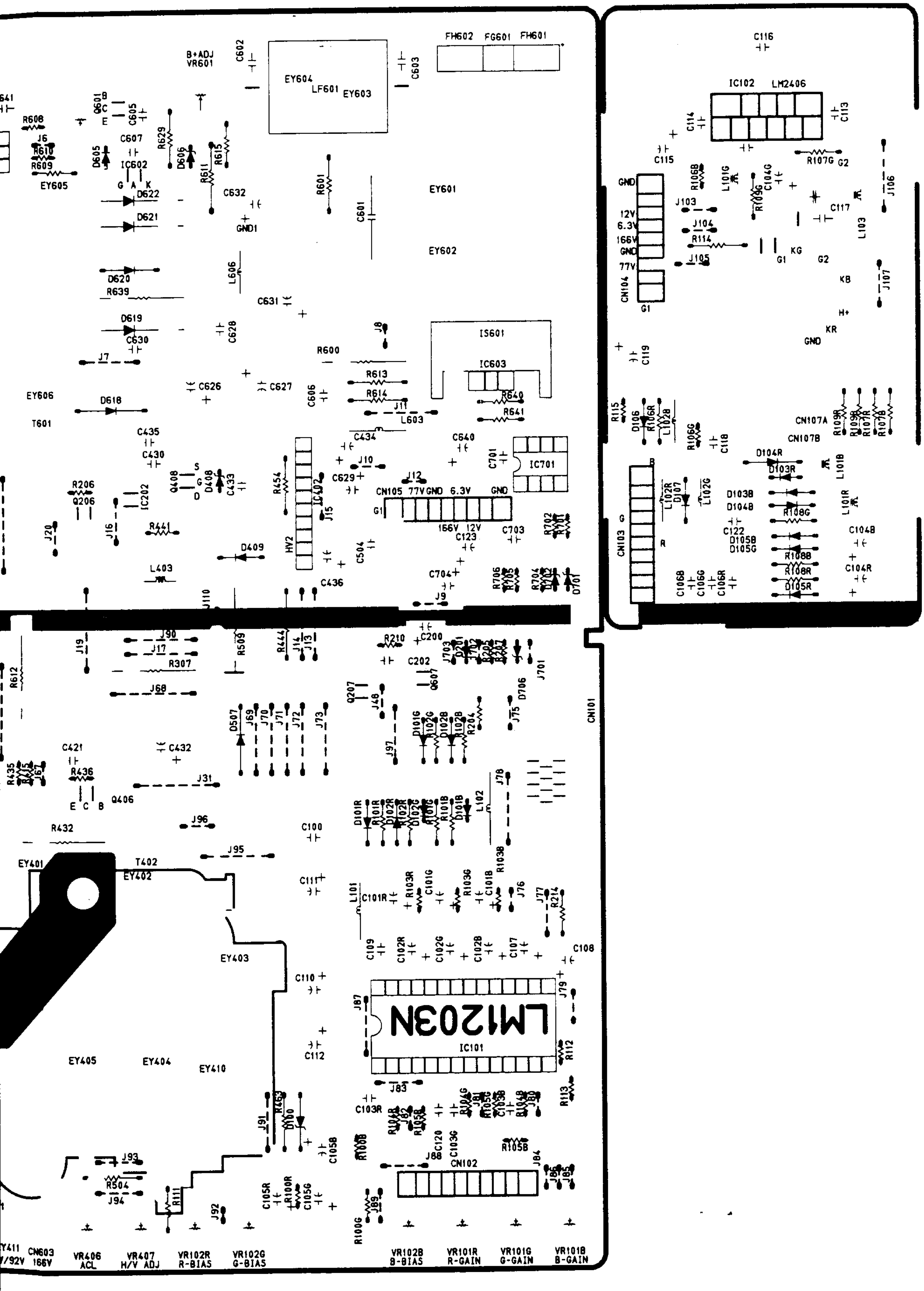

/CSA FUSE 3A/250V.TRIAD.515 IEC127 FUSE T3.15A/250V:TRIAD.50T
250V:BUSSMANN.3505
FOR CONTINUED PROTECTION
AGAINST RISK OF FIRE REPLACE ONLY WITH SAME TYPE AND RATING OF FUSE
PCB NO.: 16-111-01853 Rev.:01
PCB ASS'Y NO. : MG-214/226-00805
DESIGNED BY G.W.PARK
SAMTRON
SC428PT(L)
SL606
TDA4850
TDA8351
KA3882
VR502 BRT
VR501 CONT
VR402 S-PIN
VR401 V-SI
VR404 H-SI
VR301 V-SH
VR405 H-SH
VR102R R-BIAS
VR407 H/V ADJ
VR406 ACL
CN603 166V
EY411 90V/92V
SW401 H-CENTERING
VR403 H-HOLD
SH-SH7 94V-0
02

Main and CRT Socket, Bottom View



Main and CRT Socket, Bottom View




FH602 FG601 FH601
B+ADJ VR601
EY604 LF601 EY603
IC102 LM2406
EY605
IC602
EY601
EY602
IS601
IC603
EY606
T601
CN105 77V GND 6.3V GND
166V 12V
IC701
GND
12V
6.3V
166V
GND
77V
CN104
CN103
CN107A
CN107B
CN101
EY401
T402
EY402
EY403
LM1203N
IC101
EY405 EY404 EY410
CN102
Y411 V/92V
CN603 166V
VR406 ACL
VR407 H/V ADJ
VR102R R-BIAS
VR102G G-BIAS
VR102B B-BIAS
VR101R R-GAIN
VR101G G-GAIN
VR101B B-GAIN

9-3-2 Main & CRT Socket PCB Parts List (⚠ : Caution, ● : Specialty part for this monitor only, ⚠ ESD Caution)

Loc. No.	Description	Code No.	Remarks
CAPACITORS			
Cl00	0.1UF,-20/80%,50V,-20/85	1237101045	
C101R	10uF 20%,50V,RT	1119501068	
C101G	10uF 20%,50V,RT	111950106B	
C101B	10uF 20%,50V,RT	1119501068	
C102B	4.7uF 20%,50V,RT	1119504758	
C102G	4.7uF 20%,50V,RT	1119504758	
C102R	4.7uF 20%,50V,RT	1119504758	
C103B	33PF,20%,50V-25/85	1218203303	
C103G	33PF,20%,50V-25/85	1218203303	
C103R	33PF,20%,50V-25/85	1218203303	
C104B	1uF 20%,160V,RT	1119701057	
C104G	1uF 20%,160V,RT	1119701057	
C104R	1uF 20%,160V,RT	1119701057	
C105B	10uF 20%,50V,RT	111950106B	
C105G	10uF 20%,50V,RT	1119501068	
C105R	10uF 20%,50V,RT	111950106B	
C106B	0.01UF,-20/80%,500V,	1233501033	
C106G	0.01UF,-20/80%,500V,	1233501033	
C106R	0.01UF,-20/80%,500V,	1233501033	
C107	10uF 20%,50V,RT	1119501068	
C108	100uF 20%,16V,RT	111920~078	
C109	0.1UF,-20/80%,50V,-20/85	1237101045	
C110	100uF 20%,16V,RT	1119201078	
C111	100uF 20%,16V,RT	111920107B	
C112	100uF 20%,16V,RT	111920107B	
C113	0.1UF,-20/80%,50V,-20/85	1237101045	
C114	0.1UF,-20/80%,50V,-20/85	1237101045	
C115	47uF 20%,100V,RT	1119604761	
C116	0.01UF,-20/80%,500V,	1233501033	
C117	2700PF,10%,2KV,-25/85'C,RT	1233202728	
C118	0.01UF,-20/80%,500V,	1233501033	
C119	3.3uF 20%,250V,RT	1119803358	
C120	0.1UF,-20/80%,50V,-20/85	1237101045	
C123	100uF 20%,16V,RT	111920107B	
C200	100uF 20%,16V,RT	111920107B	
C202	0.1UF,-20/80%,50V,-20/85	1237101045	
C203	10uF 20%,50V,RT	1119501068	
C204	0.1UF,-20/80%,50V,-20/85	1237101045	
C205	100uF 20%,16V,RT	1119201078	
C206	0.0022UF,10%,100V,RT,CQ92MT	1312602226	
C207	33PF,20%,50V-25/85	1218203303	
C208	47PF,5%,50V,-25/85'C,RT	1218204707	
C209	47PF,5%,50V,-25/85'C,RT	1218204707	
C210	0.1UF,-20/80%,50V,-20/85	1237101045	
c211	0.1UF,-20/80%,50V,-20/85	1237101045	
C301	100uF 20%,50V,RT	1119501078	
C305	0.068UF,10%,100V,RT	1312606832	
C310	33PF,20%,50V-25/85	1218203303	⚠ ●
C304	470uF 20%,25V,RT	1119304773	
C401	1000uF 20%,16V,RT	1119201084	
C402	0.22UF,10%,100V,RT	131620224B	
C403	1uF 20%,50V,RT	1119501058	
C404	0.047UF,10%,100V,RT	1312604734	
C405	0.001UF,10%,100V,RT	1312601021	
C406	0.1UF,10%,100V,RT,CQ92MT	1312601045	

(⚠ : Caution, ● : Specialty part for this monitor only, ⚠ : ESD Caution)

Loc. No.	Description	Code No.	Remarks
C407	PP,3300PF,100V,2%,RT	1338703327	
C408	0.01UF,10%,100V,RT	1312601033	
C409	1uF 20%,50V,RT	111950105B	
C410	3.3uF 50V,BP	115620335B	
C411	1uF 20%,50V,RT	111950105B	
C412	PP,393,250V	1331903936	⚠ ●
C413	220uF 20%,25V,RT	1119302277	
C414	10uF 20%,16V,RT	111920106B	
C415	10uF 20%,25V,RT	111930106B	
C417	0.01UF,5%,630V,RB	1331301033	
C418	2500PF,10%,1.6KV,MP	1337702529	⚠
L TYPE	2700PF,10%,1.6KV,MP	1337702728	⚠
C419	560PF,10%,500V,-25/85	1233405612	
C420	0.33uF,5%,250V,RT	1336403342	
C421	0.0022UF,10%,100V,RT,CQ92MT	1312602226	
C422	2800PF,1.6KV	1337702823	
C423	0.01UF,5%,630V,RB	1331301033	
C424	0.33UF,5%,250V,RT	1336403342	
C425	1uF 20%,50V,RT	111950105B	
C427	0.0047UF,10%,100V,RT	1312604722	
C428	0.01UF,10%,100V,RT	1312601033	
C429	0.047UF,10%,100V,RT	1312604734	
C430	560PF,10%,500V,-25/85	1233405612	
C431	1000PF,10%,50V,-25/85	1233101021	
C432	47UF,20%,250V,-25/85'C,RT	111980476C	
C433	0.1UF,5%,250V,RT	1316501045	
C434	100uF 20%,16V,RT	111920107B	
C435	0.1UF,5%,250V,RT	1316501045	
C436	100uF 20%,16V,RT	111920107B	
C501	1uF 20%,50V,RT	111950105B	
C502	0.1UF,5%,250V,RT	1316501045	
C503	0.022UF,10%,100V,RT	1312602238	
C504	0.1UF,5%,250V,RT	1316501045	
C505	10UF,250V,20%,-25/85'C,RT	1119801069	
C601	0.47UF+/-10%,250VAC,-25/+85	133630474T	⚠ ●
C602	2200PF,20%,400VAC,-25/85	1230702226	⚠
C603	2200PF,20%,400VAC,-25/85	1230702226	⚠
C604	220UF,20%,400V,-40/85,RT	1133102277	⚠
C605	0.1UF,-20/80%,50V,-20/85	1237101045	
C606	2200PF,10%,500V,-25/85	1233402226	
C607	0.001UF,10%,100V,RT	1312601021	
C608	0.01UF,-20%/80%,1KV,-25/85,RB	1228501033	
C609	10uF 20%,50V,RT	111950106B	
C610	1000PF,10%,50V,-25/85	1233101021	
C611	PP,3300PF,100V,2%,RT	1338703327	
C612	1000PF,10%,50V,-25/85	1233101021	
C613	560PF,10%,1KV,-25/85'C,RT	1233305612	
C616	47uF 20%,100V,RT	1119604761	
C617	0.1UF,-20/80%,50V,-20/85	1237101045	
C618	47UF,20%,25V,-40/85'C,RT	111930476B	
C619	4700PF,20%,400VAC,-25/85	1230704722	⚠
C620	4700PF,20%,400VAC,-25/85	1230704722	⚠
C626	100uF 20%,100V,RT	1119601072	
C627	220uF 20%,100V,RT	111960227C	
C628	220PF,10%,1KV,RT	1233302214	
C629	100uF 20%,50V,RT	111950107B	

(⚠ : Caution, ● : Specialty part for this monitor only, ⚠ : ESD Caution)

Loc. No.	Description	Code No.	Remarks
C630	0.01UF,-20/80%,500V,	1233501033	
C631	1000uF 20%,25V,RT	1119301048	
C632	1000uF 20%,16V,RT	1119201084	
C640	220uF 20%,16V,RT	1119202277	
C641	4700PF,20%,400VAC,-25/85	1230704722	⚠
C642	4700PF,20%,400VAC,-25/85	1230704722	⚠
C701	470PF,10%,50V,-25/85	1233104719	
C703	0.1UF,-20/80%,50V,-20/85	1237101045	
C704	10uF 20%,16V,RT	111920106B	
CONNECTORS			
CN101	CONNECTOR D-SUB,15P,FEMAIL	3661190063	
CN102	WIRE,CONN/HOUSING,10P	3641200975	
CN103	WIRE,CONN/HOUSING,10P	3641200975	
CN104	WIRE,CONN/HOUSING,9P	3641200963	
CN105	WIRE,CONN/HOU',210MM,9P	3641200963	
	WIRE,CONN/HOU',155MM,BL101NG,	3641301152	
	WIRE,CONN/HOU',155MM,ring-ter,	3641301188	
L TYPE	WIRE,CONN/HOU',1260mm,BL101NG,	3641301176	
GND1	BEAD PIN D2.36	3113100012	
CN107A	BEAD PIN D2.36	3113100012	
CN302	BEAD PIN D2.36	3113100012	
CN403	BEAD PIN D2.36	3113100012	
CN601	BEAD PIN D2.36	3113100012	
CN602	BEAD PIN D2.36	3113100012	
CN603	BEAD PIN D2.36	3113100012	
CN604	BEAD PIN D2.36	3113100012	
DIODES			
D100	0.5W,12V,UZ12B	2212100116	
D101B	1N4148	2213290048	
D101G	1N4148	2213290048	
D101R	1N4148	2213290048	
D102B	1N4148	2213290048	
D102G	1N4148	2213290048	
D102R	1N4148	2213290048	
D103B	1N4148	2213290048	
D103R	1N4148	2213290048	
D104B	1N4148	2213290048	
D104R	WIRE,BARE,CU+SN+PB,1ST	3618100012	
D105B	1N4148	2213290048	
D105G	1N4148	2213290048	
D105R	1N4148	2213290048	
D106	1A1000V,1N4007	2211290063	
D107	1A1000V,1N4007	2211290063	
D201	0.5W5.1VUZ5.1B	2212100051	
D202	1N4148	2213290048	
D203	1N4148	2213290048	
D204	1N4148	2213290048	
D205	1N4148	2213290048	
D206	1N4148	2213290048	
D207	1N4148	2213290048	
D209	1N4148	2213290048	
D210	1N4148	2213290048	
D212	1N4148	2213290048	
D300	1A,600V,1N4937	2211190087	

(⚠ : Caution, ● : Specialty part for this monitor only, ⚡ : ESD Caution)

Loc. No.	Description	Code No.	Remarks
D301	0.5W,12V,UZ12B	2212100116	
D401	1N4148	2213290048	
D402	0.5W,8.2V,UZ8.2BL	221210008B	
D403	BAV21,0.25A,250V,AT	2211290167	●
D404	1N4148	2213290048	
D405	1A,600V,1N4937	2211190087	
D406	SUB-ASSY,RU4DS(2211190526)	0116101574	⚠
D407	DIODE ,3A,400V,50NS,UF5404	2211190458	⚠
D408	0.5W,9.1V,UZ9.1B	2212100099	
D409	RGP15J,1.5A,600V,250ns	2211190461	
D410	1N4148	2213290048	
D411	RGP15J,1.5A,600V,250ns	2211190461	
D412	RGP15J,1.5A,600V,250ns	2211190461	
D413	0.5W,5.1V,UZ5.1B	2212100051	
D415	BAV21,0.25A,250V,AT	2211290167	
D501	0.5W,6.2V,UZ6.2B	2212100075	
D502	1N4148	2213290048	
D503	BAV21,0.25A,250V,AT	2211290167	●
D504	1N4148	2213290048	
D505	BAV21,0.25A,250V,AT	2211290167	●
D506	1A,600V,1N4937	2211190087	
D507	1A,600V,1N4937	2211190087	
D601	1N5399GP,1.5A,1000V,AT	2211290179	⚠
D602	1N5399GP,1.5A,1000V,AT	2211290179	⚠
D603	1N5399GP,1.5A,1000V,AT	2211290179	⚠
D604	1N5399GP,1.5A,1000V,AT	2211290179	⚠
D605	1N4148	2213290048	
D606	0.5W,12V,UZ12B	2212100116	
D607	RGP02-12E,0.5A,1200V,300NS	2211190502	
D608	RGP02-12E,0.5A,1200V,300NS	2211190502	
D609	0.5W,16V,UZ16B	2212100143	
D610	1A1000V,1N4007	2211290063	
D611	0.5W5.1VUZ5.1B	2212100051	
D612	1N4148	2213290048	
D613	0.5W,16V,UZ16B	2212100143	
D614	UF4007,1A,1000V,75NS,AT	2211190485	
D618	UR1M5704	2211190752	⚠
D619	UF5408	2211190497	⚠
D620	1.5A,400V,RGP15G/FF1504	2211190167	
D621	DIODE ,3A,400V,50NS,UF5404	2211190458	⚠
D622	DIODE ,3A,400V,50NS,UF5404	2211190458	⚠
D701	0.5W5.1VUZ5.1B	2212100051	
D702	0.5W5.1VUZ5.1B	2212100051	
D706	0.5W5.1VUZ5.1B	2212100051	
OP201	LED,GREEN/RED,SPR-39MVW3	2215300012	
ICS			
IC101	1203,RGB VIDEO AMP,28	2332190208	⚡
IC102	SUB-ASSY,LM2406T(2332990128)	0116102134	⚡
IC201	SL606,ASIC,DIP-20	2351200036	⚡
IC202	78M05,0.5A,5V	2331400012	
IC301	SUB-ASSY,TDA8351(2332190339)	0116102214	⚡
IC401	TDA4850,HV DEFLECTION	2332190354	
IC402	IC HYBRIDE,SIP	2351100116	
IC601	KA3882,PWM CONTROLLER	2332100485	⚡
IC602	431C	2331300012	

(⚠ : Caution, ● : Specialty part for this monitor only, ⚠ : ESD Caution)

Loc. No.	Description	Code No.	Remarks
IC603	SUB-ASSY,KA317(2321290116)	0116101443	
IC701	24LC21 I/P	2341790063	⚠
OP601	IC OPTO-COUP'CQY80NG,ISOLA'	2330190063	
COILS			
L101	FILTER,CORE,130 OHM,3.5*8.0	1731300128	
L102	FILTER,CORE,2.4UH,5.5MM,BEA	1731300063	
L103	COIL,INDUCTOR,100uH,RT	1722300179	
L101B	COIL,0.82UH,+-25%	1722100087	●
L101G	COIL,0.82UH,+-25%	1722100087	●
L101R	COIL,0.82UH,+-25%	1722100087	●
L102B	FILTER,CORE,2.4UH,5.5MM,BEA	1731300063	
L102G	FILTER,CORE,2.4UH,5.5MM,BEA	1731300063	
L102R	FILTER,CORE,2.4UH,5.5MM,BEA	1731300063	
L401	COIL,H-LIN,FIX,12uH,25%,TUBE	1722600485	⚠ ●
L402	COIL,MODU',LITZ,200UH,10%	1721100247	
L403	COIL,CHOKE,3.2MH,15%	1722200434	
L404	8.2MH,10%	1722100179	
L601	FILTER,CORE,2.4UH,5.5MM,BEA	1731300063	
L602	FILTER,CORE,2.4UH,5.5MM,BEA	1731300063	
L603	FILTER,CORE,130 OHM,3.5*8.0	1731300128	
L606	FILTER,CORE,2.4UH,5.5MM,BEA	1731300063	
LF601	FILTER,11MH MIN	1731100407	
TRANSISTORS			
Q201	KSC945CY,150MA,60V,250MV	2111400012	●
Q203	KSC945CY,150MA,60V,250MV	2111400012	●
Q204	KSC945CY,150MA,60V,250MV	2111400012	●
Q205	VN2222LL,0.23A	2113190211	
Q206	KSC945CY,150MA,60V,250MV	2111400012	●
Q207	KSC945CY,150MA,60V,250MV	2111400012	●
Q208	KSC945CY,150MA,60V,250MV	2111400012	●
Q209	KSC945CY,150MA,60V,250MV	2111400012	●
Q401	KSA733CY	2112400024	●
Q402	KSC945CY,150MA,60V,250MV	2111400012	●
Q403	ASS'Y BU2508/KSE800(2111790378)	0116102345	
Q404	KSC1008Y	2111400036	
Q405	KSA733CY	2112400024	●
Q406	KSE800,4A,60V,40W	2111500131	●
Q407	KSA733CY	2112400024	●
Q408	H/S ASS'Y IRF9610(2113200012)	0116102158	
Q409	KSC945CY,150MA,60V,250MV	2111400012	●
Q410	KSA733CY	2112400024	●
Q411	KSA733CY	2112400024	●
Q412	FET,N-CHANNEL,2SK1351,5A,	2113190182	●
Q413	FET,N-CHANNEL,IRF630	2113100298	
Q414	KSA733CY	2112400024	●
Q415	KSC945CY,150MA,60V,250MV	2111400012	●
Q501	KSA733CY	2112400024	●
Q502	KSC945CY,150MA,60V,250MV	2111400012	●
Q601	KSC945CY,150MA,60V,250MV	2111400012	●
Q602	H/S ASS'Y STH6NA80FI(2113190274)	0116102122	
Q603	SUB-ASSY,2SC3503(211150011B)	0116102226	
Q607	KSC945CY,150MA,60V,250MV	2111400012	●

(⚠ : Caution, ● : Specialty part for this monitor only, ⚠ : ESD Caution)

Loc. No.	Description	Code No.	Remarks
RESISTORS			
R100B	22K OHM,1/6W,5%	1412102238	
R100G	22K OHM,1/6W,5%	1412102238	
R100R	22K OHM,1/6W,5%	1412102238	
R101B	47 OHM,1/6W,5%	1412104707	
R101G	47 OHM,1/6W,5%	1412104707	
R101R	47 OHM,1/6W,5%	1412104707	
R102B	75 OHM,1/6W,5%	1412107508	
R102G	75 OHM,1/6W,5%	1412107508	
R102R	75 OHM,1/6W,5%	1412107508	
R103B	10K OHM,1/6W,5%	1412101033	
R103G	10K OHM,1/6W,5%	1412101033	
R103R	10K OHM,1/6W,5%	1412101033	
R104B	200 OHM,1/6W,5%	1412102015	
R104G	200 OHM,1/6W,5%	1412102015	
R104R	200 OHM,1/6W,5%	1412102015	
R105B	390 OHM,1/6W,5%	1412103912	
R105G	390 OHM,1/6W,5%	1412103912	
R105R	390 OHM,1/6W,5%	1412103912	
R106B	47 OHM,1/4W,5%	1413404707	
R106G	47 OHM,1/4W,5%	1413404707	
R106R	47 OHM,1/4W,5%	1413404707	
R107B	150 OHM,1/6W,5%	1413401511	
R107G	150 OHM,1/6W,5%	1413401511	
R107R	150 OHM,1/6W,5%	1413401511	
R108B	470K OHM,1/4W,5%	1413404746	
R108G	470K OHM,1/4W,5%	1413404746	
R108R	470K OHM,1/4W,5%	1413404746	
R109B	100 OHM,1/4W,5%	1413401018	
R109G	100 OHM,1/4W,5%	1413401018	
R109R	100 OHM,1/4W,5%	1413401018	
R110	1K OHM,1/6W,5%	1412101021	
R111	5.6K OHM,1/4W,5%	1413405624	
R112	82K OHM,1/6W,5%	1412108238	
R113	11K OHM,1/6W,5%	1412101137	●
R114	100 OHM,1/4W,5%	1413401018	
R115	2.2M OHM,1/6W,5%	1412102253	
R200	4.7K OHM,1/4W,5%	1413404722	
R201	220 OHM,1/4W,5%	1413402214	
R202	220 OHM,1/4W,5%	1413402214	
R203	10K OHM,1/6W,5%	1412101033	
R204	100 OHM,1/6W,5%	1412101018	
R205	2.7K OHM,1/6W,5%	1412102728	
R206	4.7K OHM,1/6W,5%	1412104722	
R207	1K OHM,1/6W,5%	1412101021	
R208	3.9K OHM,1/6W,5%	1412103924	
R209	1.8K OHM,1/6W,5%	1412101826	
R210	4.7K OHM,1/4W,5%	1413404722	
R211	10K OHM,1/4W,5%	1413401033	
R212	10K OHM,1/6W,5%	1412101033	
R213	82K OHM,1/6W,5%	1412108238	
R214	1K OHM,1/4W,5%	1413401021	
R215	22K OHM,1/6W,5%	1412102238	
R216	42K OHM,1/6W,5%	1412104232	●
R217	1.8M OHM,1/6W,5%	1412101853	

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Loc. No.	Description	Code No.	Remarks
R218	680K OHM,1/6W,5%	1412106844	
R219	470K OHM,1/6W,5%	1412104746	
R220	1.8K OHM,1/6W,5%	1412101826	
R221	3.3K OHM,1/6W,5%	1412103327	
R222	2.2K OHM,1/6W,5%	1412102226	
R223	1K OHM,1/4W,5%	1413401021	
R224	10K OHM,1/6W,5%	1412101033	
R225	22K OHM,1/6W,5%	1412102238	
R226	2.2K OHM,1/6W,5%	1412102226	
R227	220 OHM,1/6W,5%	1412102214	
R228	100 OHM,1/6W,5%	1412101018	
R301	100 OHM,1/2W,5%	1414201018	
R302	100K OHM,1/6W,5%	1412101045	
PTL	100K OHM,1/6W,5%	1412101045	
R303	180 OHM,1/2W,5%	1414201814	
R304	1.0 OHM,1W,5%,FORMING	1433201R0B	
R305	1K OHM,1/4W,5%	1413691021	
R306	1.5K OHM,1/6W,5%	1412101523	●
R307	1.0 OHM,1W,5%,FORMING	1433201R0B	
R308	220 OHM,1/4W,5%	1413402214	
R309	1.5K OHM,1/6W,5%	1412101523	
R310	1.5K OHM,1/6W,5%	1412101523	
R311	1.2K OHM,1/4W,5%	1413401229	
R312	150K OHM,1/6W,5%	1412101547	
R314	3.3K OHM,1/6W,5%	1412103327	
R401	33 OHM,1/2W,5%	1414203303	
R402	180K OHM,1/6W,5%	1412101841	
R403	470K OHM,1/6W,5%	1412104746	
R404	100K OHM,1/6W,5%	1412101045	
R405	150K OHM,1/6W,5%	1412101547	
R406	220K OHM,1/6W,5%	1412102241	
R407	100K OHM,1/4W,5%	1413401045	
R408	100K OHM,1/6W,5%	1412101045	
R409	22K OHM,1/6W,5%	1412102238	
R410	10K OHM,1/6W,5%	1412101033	
R411	7.5K OHM,1/6W,5%	1412107523	
R412	100K OHM,1/6W,5%	1412101045	
R413	150K OHM,1/6W,5%	1412101547	
R414	1.8K OHM,1/4W,5%	1413401826	●
R415	100K OHM,1/6W,5%	1412101045	
R416	1K OHM,1/4W,5%	1413401021	
R417	68K OHM,1/4W,5%	1413406832	
R418	82K OHM,1/6W,5%	1412108238	
R419	2.2K OHM,1/4W,5%	1413402226	
R420	1K OHM,1/4W,5%	1413401021	
R421	180 OHM,1/4W,5%	1413401814	
R422	470 OHM,1/6W,5%	1412104719	
R423	470 OHM,1/6W,5%	1412104719	
R424	47 OHM,1W,5%,63MM TAPING	143360470B	
R425	1K OHM,1/6W,5%	1412101021	
R426	10K OHM,1/6W,5%	1412101033	
R427	10K OHM,1/6W,5%	1412101033	
R429	1K OHM,1/6W,5%	1412101021	
R430	4.7K OHM,1/6W,5%	1412104722	
R431	5.1K OHM,1/6W,5%	1412105122	
R432	82 OHM,3W,5%,63MM	1435508202	

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Loc. No.	Description	Code No.	Remarks
R433	330 OHM,1/2W,5%	1414203315	
R434	22 OHM,1/2W,5%	1414202202	
R435	33K OHM,1/6W,5%	1412103339	
R436	1K OHM,1/6W,5%	1412101021	
R437	100K OHM,1/6W,5%	1412101045	
R438	22K OHM,1/6W,5%	1412102238	
R439	47K OHM,1/4W,5%	1413404734	
R440	10K OHM,1/6W,5%	1412101033	
R441	WIRE,BARE,CU+SN+PB,1ST	3618100012	
R442	12K OHM,1/6W,5%	1412101232	
R444	10K OHM,1/6W,5%	1412101033	
R454	22 OHM,1/2W,5%	1414202202	
R455	5.6K OHM,1/6W,5%	1412105624	
R456	560K OHM,1/6W,5%	1412105648	
R457	10K OHM,1/6W,5%	1412101033	
R458	39K OHM,1/6W,5%	1412103936	
R459	1.8K OHM,1/6W,5%	1412101826	
R460	22K OHM,1/6W,5%	1412102238	
R461	4.7K OHM,1/6W,5%	1412104722	
R462	68K OHM,1/6W,5%	1412106832	
R463	470 OHM,1/6W,5%	1412104719	
R465	10K OHM,1/6W,5%	1412101033	
R501	2.7K OHM,1/4W,5%	1413402728	
R502	1.5K OHM,1/4W,5%	1413401523	
R503	7.5K OHM,1/6W,5%	1412107523	
R504	100K OHM,1/2W,5%	1414201045	
R505	1.5K OHM,1/4W,5%	1413401523	
R506	2.2M OHM,1/4W,5%	1413402253	
R507	12K OHM,1/4W,5%	1413401232	
R508	1K OHM,1/6W,5%	1412101021	
R509	100K OHM,1W,5%,63MM TAPING	143360104B	
R510	100K OHM,1/2W,5%	1414201045	
R600	100 OHM,1W,5%,63MM TAPING	143360101B	
R601	1M OHM,1/2W,5%	1414201057	
R602	220 OHM,1W,5%,63MM TAPING	143360221B	
R603	3.3 OHM,7W,5%.SHORT	1475703R3B	⚠ ●
R604	100K OHM,1/4W,5%	1413401045	
R605	10K OHM,1/6W,5%	1412101033	
R606	2.7K OHM,1/6W,5%	1412102728	
R607	2.2M OHM,1/6W,5%	1412102253	
R608	390 OHM,1/6W,5%	1412103912	
R609	1.5K OHM,1/4W,5%	1413401523	
R610	56K OHM,1/6W,5%	1412105636	
R611	1K OHM,1/4W,5%	1413401021	
R612	10K OHM,1W,5%,AT	1433601033	
R613	6.8K OHM,1/4W,5%	1413406829	
R614	120K OHM,1/2W,5%	1414201244	
R615	1.5K OHM,1/4W,5%	1413401523	
R616	100K OHM,1W,5%,63MM TAPING	143360104B	
R617	100K OHM,1W,5%,63MM TAPING	143360104B	
R618	68K OHM,3W,5%,63MM TAPING	1435506832	
R619	6.8 OHM,1/4W,5%	1413406R82	
R620	1K OHM,1/4W,5%	1413401021	
R621	100K OHM,1/4W,5%	1413401045	
R622	0.27 OHM,1W,5%,W/W AT NON	146510R271	
R623	8.2K OHM,3W,5%,63MM TAPING	1435508226	
R624	8.2K OHM,3W,5%,63MM TAPING	1435508226	
R625	10K OHM,1/2W,5%	1414201033	

(⚠ : Caution, ● : Specialty part for this monitor only, ⚡⚠ : ESD Caution)

Loc. No.	Description	Code No.	Remarks
R626	22K OHM,1/6W,5%	1412102238	
R627	100K OHM,1/6W,5%	1412101045	
R628	390 OHM,1/6W,5%	1412103912	
R629	3.3K OHM,1/2W,5%	1414203327	
R631	6.8K OHM,1/4W,5%	1413406829	
R639	47 OHM,1W,5%,63MM TAPING	143360470B	
R640	220 OHM,1/4W,2%	1413302214	
R641	1.8K OHM,1/4W,2%	1413301826	
R701	100 OHM,1/6W,5%	1412101018	
R702	100 OHM,1/6W,5%	1412101018	
R704	100 OHM,1/6W,5%	1412101018	
R705	47K OHM,1/6W,5%	1412104734	
R706	47K OHM,1/6W,5%	1412104734	
VARIABLE RESISTORS			
VR101B	200 OHM,B,0.1W,VAR,NO-HAN	1527190075	
VR101G	200 OHM,B,0.1W,VAR,NO-HAN	1527190075	
VR101R	200 OHM,B,0.1W,VAR,NO-HAN	1527190075	
VR102B	50K OHM,B,0.1W,VAR,NO-HAN	1527190024	
VR102G	50K OHM,B,0.1W,VAR,NO-HAN	1527190024	
VR102R	50K OHM,B,0.1W,VAR,NO-HAN	1527190024	
VR301	VAR,HANDLE ARRY 100K OHM*5,	1536300012	
VR401	VAR,HANDLE ARRY 100K OHM*5,	1536300012	
VR402	VAR,HANDLE ARRY 100K OHM*5,	1536300012	
VR403	1K OHM,B,0.1W,VAR,NO-HAN	1527190099	
VR404	VAR,HANDLE ARRY 100K OHM*5,	1536300012	
VR405	VAR,HANDLE ARRY 100K OHM*5,	1536300012	
VR406	200K OHM,B,0.1W,VAR,NO-HAN	1527190048	
VR407	1K OHM,B,0.1W,VAR,NO-HAN	1527190099	
VR501	VAR,HANDLE ARRY 5K/10K	1536400012	
VR502	VAR,HANDLE ARRY 5K/10K	1536400012	
VR601	500 OHM,B,0.1W,VAR,V-TYPE	1527290036	
VR602	50K OHM,B,0.1W,VAR,NO-HAN	1527190128	
TRANSFORMER			
T401	10MH/70UH,15%,SC-431V2	1713200155	
T402	FBT,COLOR,FCO-14A042	1712200354	⚠ ●
T601	TRANS,POWER S/W	1711600696	
OTHERS			
PTC601	PTC,14 OHM,20%,220V,3PIN	1562100063	
PCB	PCB MAIN 247*330,fr-1,1.6t	1611101841	
	COIL,DEGAUSSING,115T+/-1T	1722400262	
IS601	FILTER,EMI SOCKET,250V,3A	1731490155	
FG601	FUSE,TIME-LUG,3.15A,250V	1910490012	
FH601	CLIP,5.20*20MM,TAPPING	1911300087	
FH602	CLIP,5.20*20MM,TAPPING	1911300087	
SW601	PUSH SWITCH,SPST,5A/80A	1913100223	
SW401	36V,0.2A,4PIN	1913900012	
X201	8.00 MHZ,2P,RT,HC-49/u	2911100167	
EY601	EYELET 3.1*2.0*2.8,BSP,SN	3393100036	
EY602	EYELET 3.1*2.0*2.8,BSP,SN	3393100036	
EY603	EYELET 3.1*2.0*2.8,BSP,SN	3393100036	
EY604	EYELET 3.1*2.0*2.8,BSP,SN	3393100036	
EY605	EYELET 3.1*2.0*2.8,BSP,SN	3393100036	
EY606	EYELET 3.1*2.0*2.8,BSP,SN	3393100036	

(⚠ : Caution, ● : Specialty part for this monitor only, ⚠ : ESD Caution)

Loc. No.	Description	Code No.	Remarks
EY607	EYELET 3.1*2.0*2.8,BSP,SN	3393100036	
EY608	EYELET 3.1*2.0*2.8,BSP,SN	3393100036	
EY609	EYELET 3.1*2.0*2.8,BSP,SN	3393100036	
EY610	EYELET 3.1*2.0*2.8,BSP,SN	3393100036	
EY402	EYELET 3.1*2.0*2.8,BSP,SN	3393100048	
EY403	EYELET 3.1*2.0*2.8,BSP,SN	3393100048	
EY404	EYELET 3.1*2.0*2.8,BSP,SN	3393100048	
EY405	EYELET 3.1*2.0*2.8,BSP,SN	3393100048	
EY406	EYELET 3.1*2.0*2.8,BSP,SN	3393100048	
EY407	EYELET 3.1*2.0*2.8,BSP,SN	3393100048	
EY408	EYELET 3.1*2.0*2.8,BSP,SN	3393100048	
EY410	MISCEL,PIN-EYELET BSS3-1/2H	3393100063	
EY611	MISCEL,PIN-EYELET BSS3-1/2H	3393100063	
EY612	MISCEL,PIN-EYELET BSS3-1/2H	3393100063	
EY620	MISCEL,PIN-EYELET BSS3-1/2H	3393100063	
EY621	MISCEL,PIN-EYELET BSS3-1/2H	3393100063	
J1-J114	WIRE,BARE,CU+SN+PB,1ST	3618100012	
	BRAID WIRE,CDT GND,SC-428PT/L	3643700871	
	CABLE,SIGNAL,1200MM,15P,15P,428PT/L	3655190473	
SK101	SCOKET CRT,PHI29-HIGH FOCUS	3663300155	
	ASS'Y,CDT M34KUN35*03,0.28D	0121100461	
L TYPE	ASS'Y,CDT M34KUK35*03,0.28D,LF	0121100458	
SG101	CAP,SPARK-GAP,1KV,S-23	139110002B	
	CORD,POWER,NORMAL,SVT,6FT	365210021B	
CRT	CDT 14, 0.28, NOR	0121100737	
	CD 14, 0.28, MRP2	0121101479	

Note: This monitor has two different Main PCB Assembly types. The appropriate Main PCB Ass'y depends on the CRT and Deflection Yoke type. The Main PCB Assembly design is the same for both types; only a few individual parts are different. Be sure to refer to the list above for the appropriate code number.

9-4 Schematic Diagrams

Caution

1. The areas shaded or marked with ⚠ on the schematic diagram and parts list designate components which have special characteristics important for safety. Replace these parts only with parts identical to those in the original circuit or specified in the parts list. Before replacing any of these components carefully read the "Product Safety Notice."

2. When taking measurements, pay special attention to the following:

   1) Do not use your instrument between primary ground (symbol ⏚) and secondary circuit.

   2) Do not use your instrument between secondary ground (symbol ⏚) and primary circuit.

Warning

This equipment contains safety critical components. All parts shown with the ⚠ mark on the schematic are safety critical.

Replace safety critical parts with only manufacturers recommended parts. See parts list for exact replacements.

Note

1. Resistance is shown in OHM. K = 1000, M = 1,000,000 and the rated power of resistors not noted in schematic diagram is 1/4W.

2. Capacitance is shown in µF. Capacitances not otherwise noted are shown in pF (1µF = 1,000,000 pF). Rated voltage of condensers not otherwise noted in schematic diagram is 50 V.

3. Abbreviations and Symbols

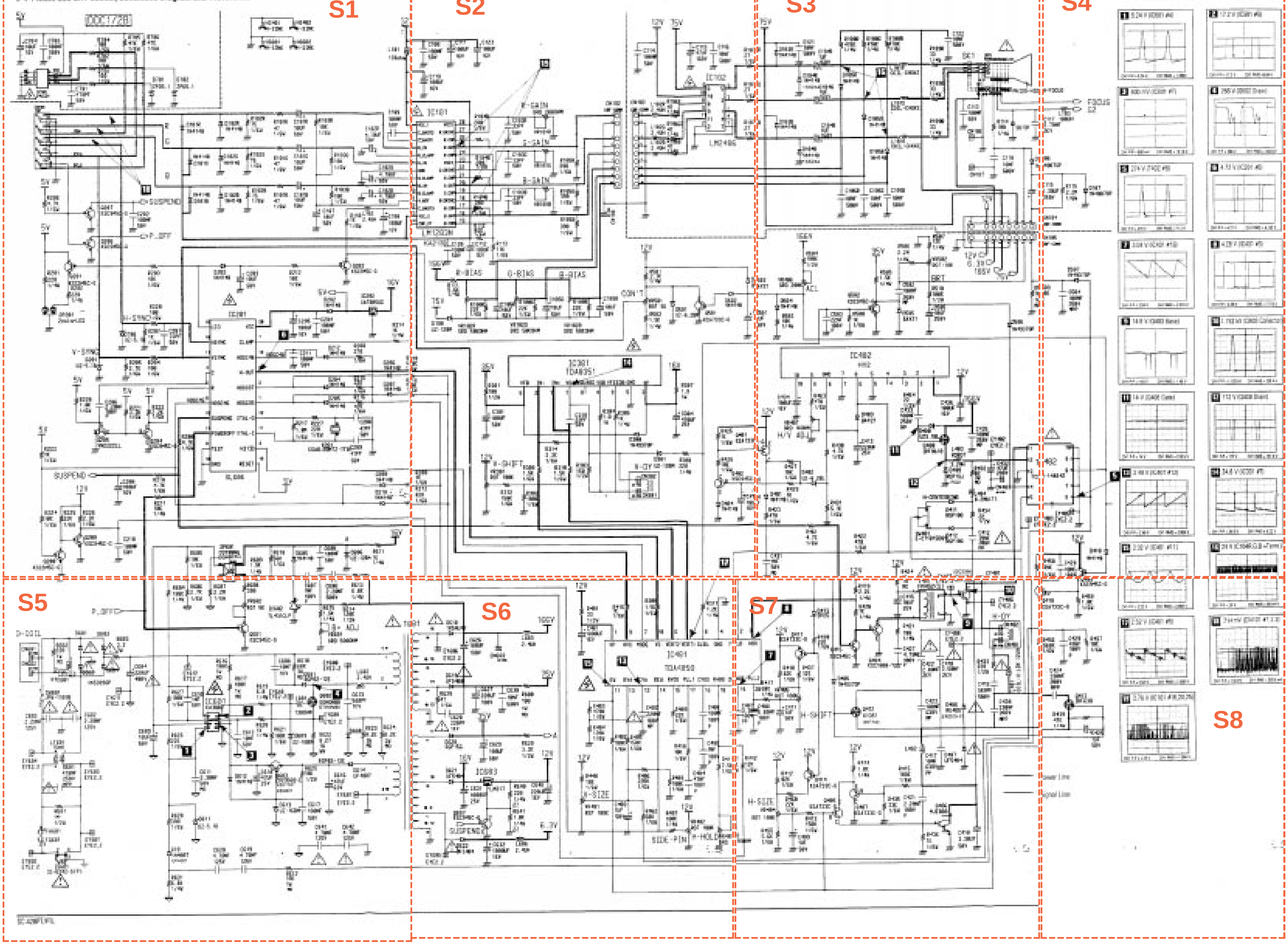
MO	R-METAL OXIDE	WW	R-WIRE WOUND
FU	FUSIBLE	C	R-COMPOSITION
CM	R-CEMENT MPP METAL POLYPROPYLENE		
MP	C-METAL POLYESTOR	PP	C-POLYPROPYLENE
P	C-POLYESTOR	T	C-TANTALUM
⏚	HOT GROUND	⏚	COLD GROUND

4. The secondary voltage is read with an SSVM from the indicated point to cold ground (⏚).
   The primary voltage is read with an SSVM from the indicated point to hot ground (⏚).

5. This schematic diagram is subject to change without notice.

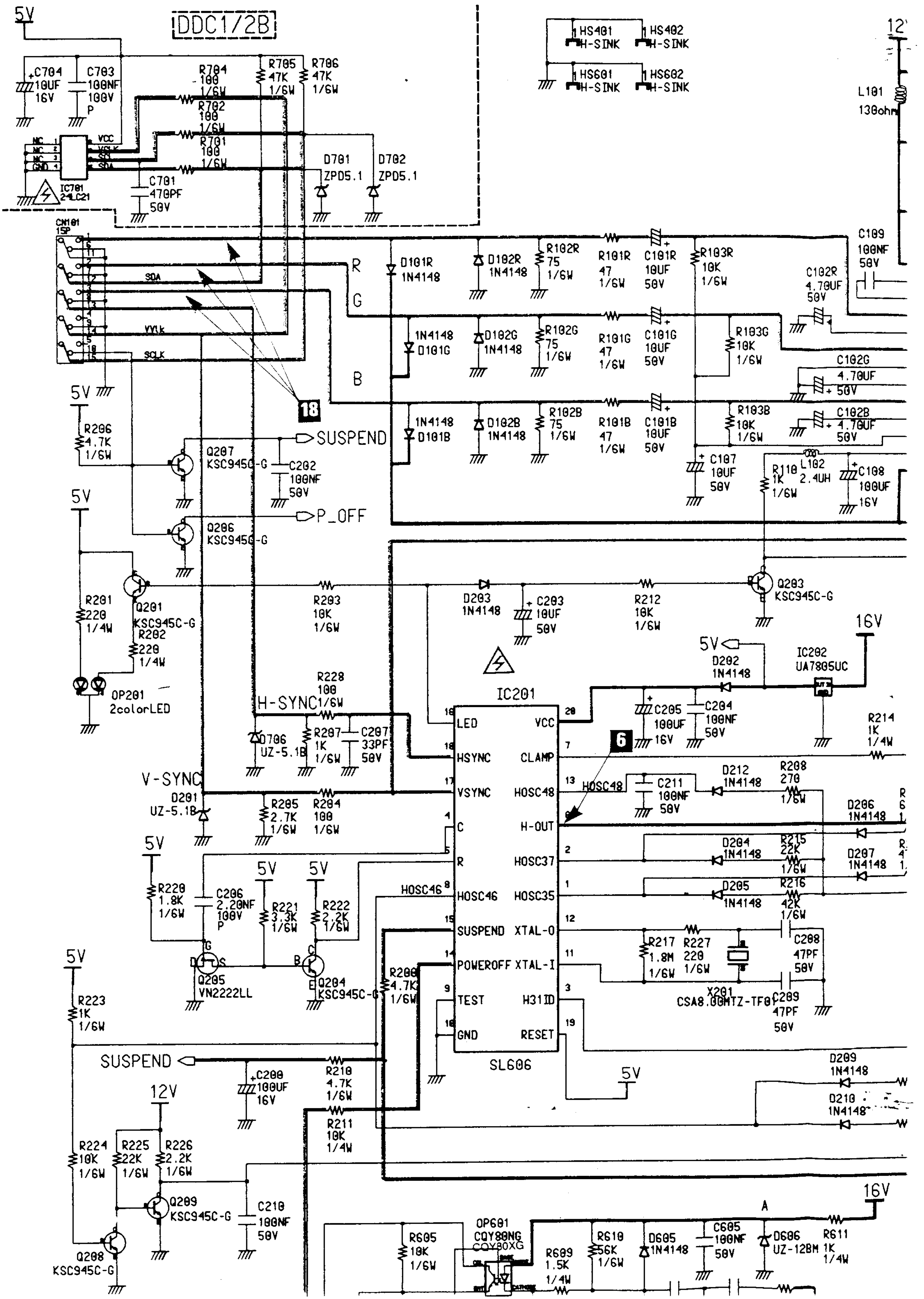
9-4 Schematic Diagram

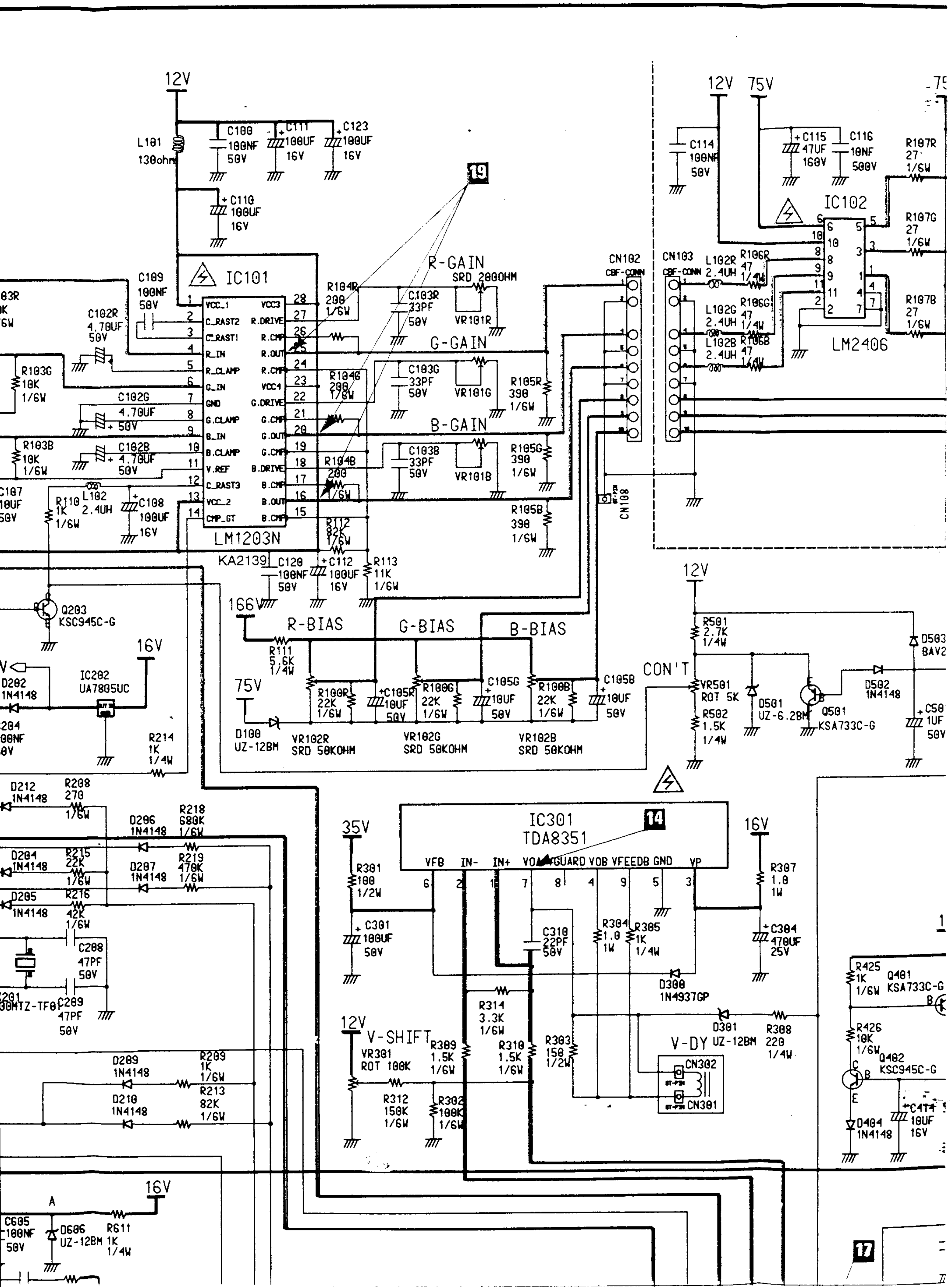
9-4-1 Main and CRT Socket, Schematic Diagram and Waveforms



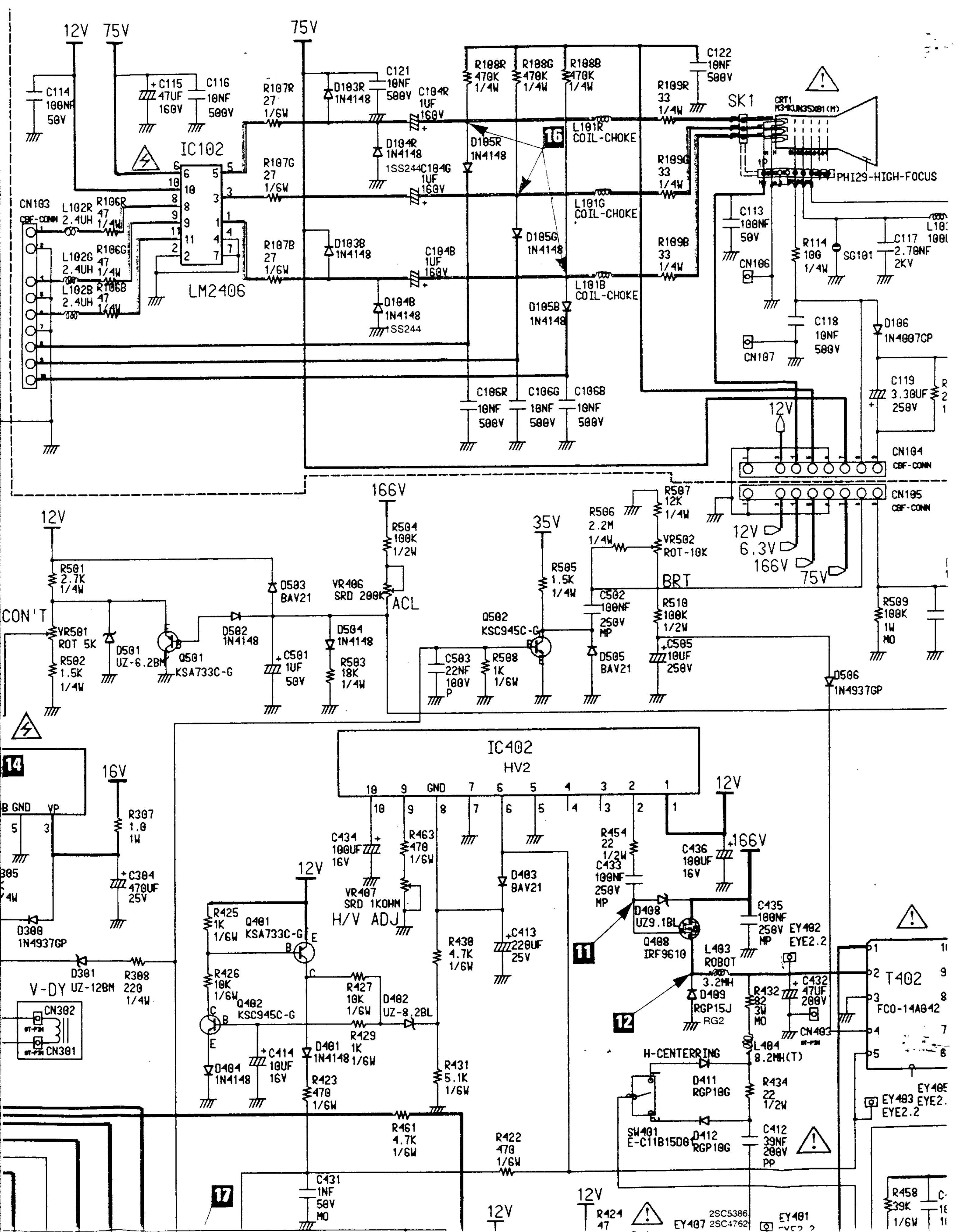
9-4 Schematic Diagram

9-4-1 Main and CRT Socket, Schematic Diagram and Waveforms

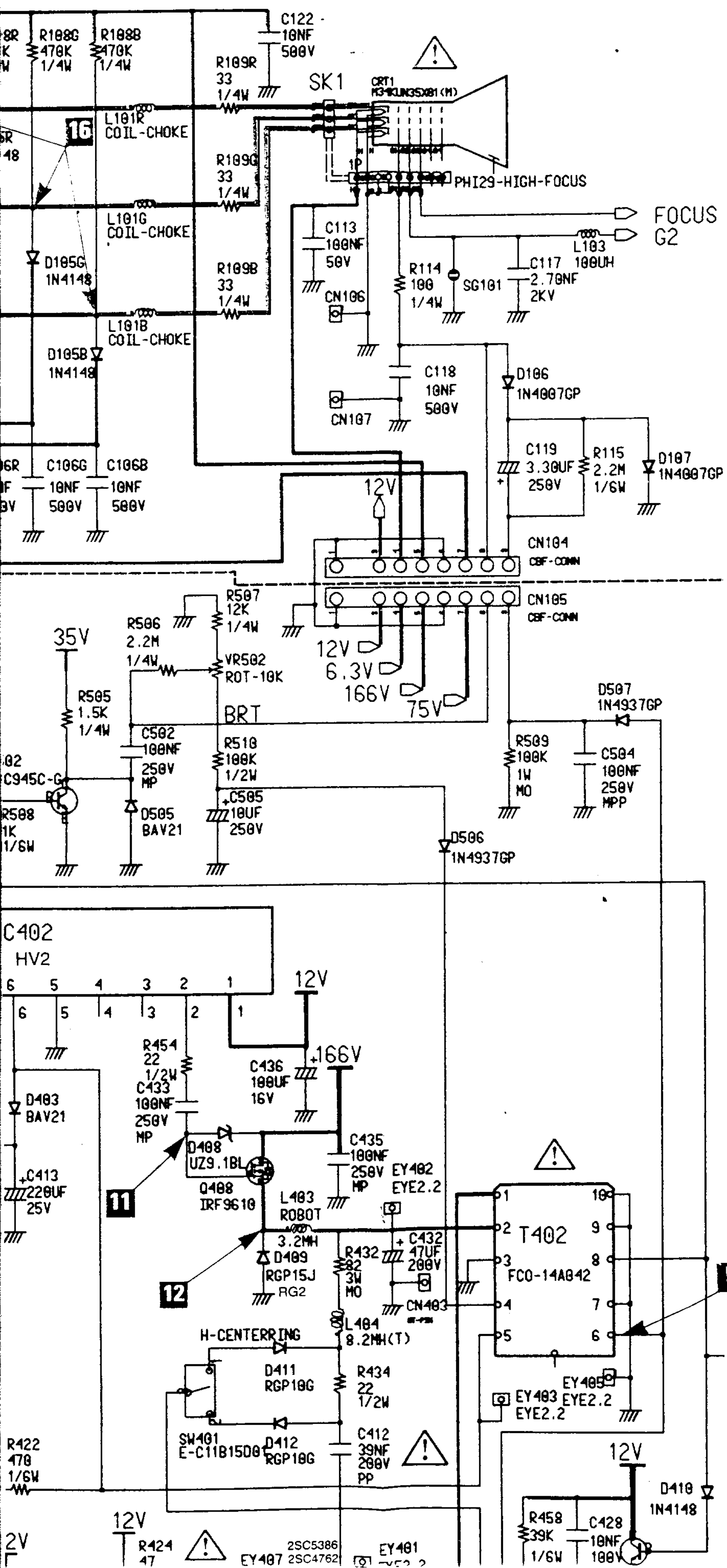


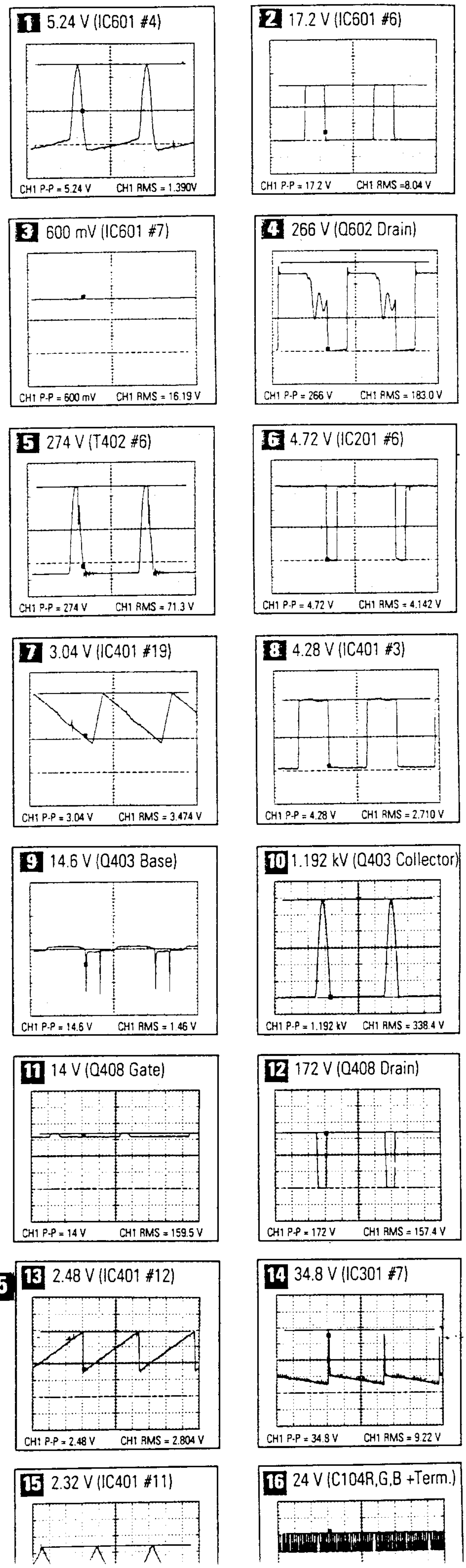


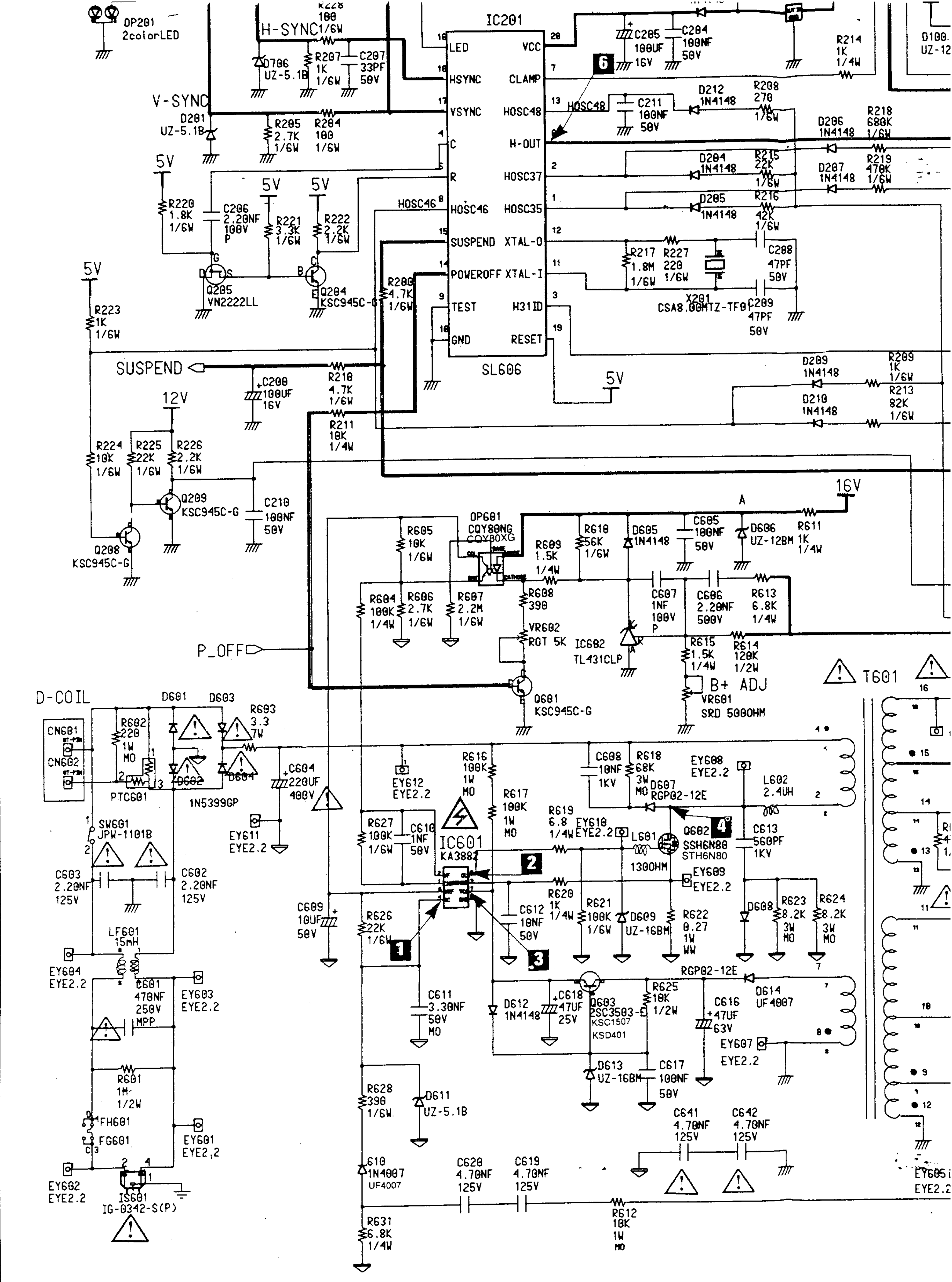
12V
L101
130ohm
C100
100NF
50V
C111
100UF
16V
C123
100UF
16V
C110
100UF
16V
19
C109
100NF
50V
IC101
LM1203N
VCC_1
C_RAST2
C_RAST1
R_IN
R_CLAMP
G_IN
GND
G.CLAMP
B_IN
B.CLAMP
V.REF
C_RAST3
VCC_2
CMP_GT
VCC3
R.DRIVE
R.CMP
R.OUT
VCC4
G.DRIVE
G.CMP
G.OUT
B.DRIVE
B.CMP
B.OUT
C102R
4.70UF
50V
R103G
10K
1/6W
C102G
4.70UF
50V
R103B
10K
1/6W
C102B
4.70UF
50V
C107
10UF
50V
R110
1K
1/6W
L102
2.4UH
C108
100UF
16V
R-GAIN
R104R
200
1/6W
C103R
33PF
50V
SRD 2000HM
VR101R
G-GAIN
R104G
200
1/6W
C103G
33PF
50V
VR101G
B-GAIN
R104B
200
1/6W
C103B
33PF
50V
VR101B
R105R
390
1/6W
R105G
390
1/6W
R105B
390
1/6W
R112
82K
1/6W
KA2139
C120
100NF
50V
C112
100UF
16V
R113
11K
1/6W
CN102
CBF-CONN
CN108
CN103
CBF-CONN
L102R
2.4UH
R106R
47
1/4W
L102G
2.4UH
R106G
47
1/4W
L102B
2.4UH
R106B
47
1/4W
75V
C114
100NF
50V
C115
47UF
160V
C116
10NF
500V
IC102
LM2406
R107R
27
1/6W
R107G
27
1/6W
R107B
27
1/6W
Q203
KSC945C-G
16V
D202
1N4148
IC202
UA7805UC
C204
100NF
50V
R214
1K
1/4W
166V
R-BIAS
G-BIAS
B-BIAS
R111
5.6K
1/4W
75V
D100
UZ-12BM
R100R
22K
1/6W
C105R
10UF
50V
R100G
22K
1/6W
C105G
10UF
50V
R100B
22K
1/6W
C105B
10UF
50V
VR102R
SRD 50KOHM
VR102G
SRD 50KOHM
VR102B
SRD 50KOHM
12V
R501
2.7K
1/4W
CON'T
VR501
ROT 5K
R502
1.5K
1/4W
D501
UZ-6.2BM
Q501
KSA733C-G
D502
1N4148
D503
BAV2
C50
1UF
50V
D212
1N4148
R208
270
1/6W
D206
1N4148
R218
680K
1/6W
D204
1N4148
R215
22K
1/6W
D207
1N4148
R219
470K
1/6W
D205
1N4148
R216
42K
1/6W
C208
47PF
50V
C209
47PF
50V
D209
1N4148
R209
1K
1/6W
D210
1N4148
R213
82K
1/6W
IC301
TDA8351
14
VFB
IN-
IN+
VOA
GUARD
VOB
VFEEDB
GND
VP
35V
R301
100
1/2W
C301
100UF
50V
16V
R307
1.0
1W
C304
470UF
25V
C310
22PF
50V
R304
1.0
1W
R305
1K
1/4W
D300
1N4937GP
R314
3.3K
1/6W
D301
UZ-12BM
R308
220
1/4W
12V
V-SHIFT
VR301
ROT 100K
R312
150K
1/6W
R309
1.5K
1/6W
R302
100K
1/6W
R310
1.5K
1/6W
R303
150
1/2W
V-DY
CN302
CN301
R425
1K
1/6W
Q401
KSA733C-G
R426
10K
1/6W
Q402
KSC945C-G
D404
1N4148
C414
10UF
16V
16V
A
C605
100NF
50V
D606
UZ-12BM
R611
1K
1/4W
17



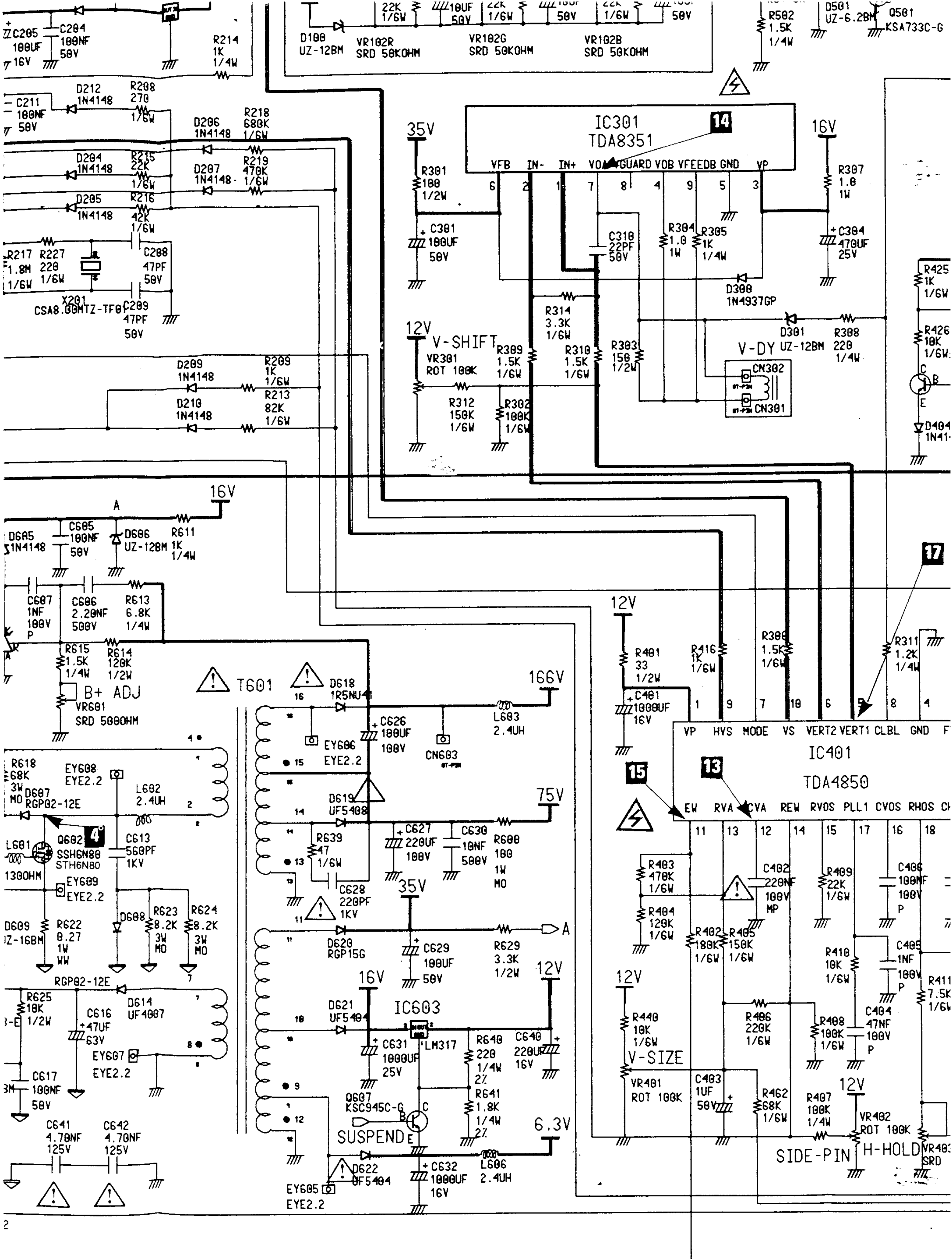
12V 75V 75V
C114 100NF 50V
C115 47UF 160V
C116 10NF 500V
R107R 27 1/6W
D103R 1N4148
C121 10NF 500V
C104R 1UF 160V
R108R 470K 1/4W
R108G 470K 1/4W
R108B 470K 1/4W
C122 10NF 500V
R109R 33 1/4W
SK1
CRT1
PHI29-HIGH-FOCUS
IC102
LM2406
CN103
L102R 2.4UH
R106R 47 1/4W
L102G 2.4UH
R106G 47 1/4W
L102B 2.4UH
R106B 47 1/4W
R107G 27 1/6W
D104R 1N4148
1SS244
C104G 1UF 160V
D105R 1N4148
16
L101R COIL-CHOKE
R109G 33 1/4W
L101G COIL-CHOKE
D105G 1N4148
R107B 27 1/6W
D103B 1N4148
C104B 1UF 160V
D104B 1N4148 1SS244
L101B COIL-CHOKE
D105B 1N4148
R109B 33 1/4W
C113 100NF 50V
CN106
R114 100 1/4W
SG101
C117 2.70NF 2KV
C118 10NF 500V
CN107
D106 1N4007GP
C119 3.30UF 250V
C106R 10NF 500V
C106G 10NF 500V
C106B 10NF 500V
12V
CN104
CN105
166V
R507 12K 1/4W
R506 2.2M 1/4W
VR502 ROT-10K
BRT
12V 6.3V 166V 75V
35V
R505 1.5K 1/4W
12V
R501 2.7K 1/4W
D503 BAV21
VR406 SRD 200K
ACL
R504 100K 1/2W
CON'T
VR501 ROT 5K
D501 UZ-6.2BM
Q501 KSA733C-G
D502 1N4148
C501 1UF 50V
D504 1N4148
R503 18K 1/4W
R502 1.5K 1/4W
Q502 KSC945C-G
C502 100NF 250V MP
C503 22NF 100V P
R508 1K 1/6W
D505 BAV21
R510 100K 1/2W
C505 10UF 250V
R509 100K 1W MO
D506 1N4937GP
IC402
HV2
10 9 GND 7 6 5 4 3 2 1
14
16V
B GND VP
R307 1.0 1W
C304 470UF 25V
D300 1N4937GP
C434 100UF 16V
R463 470 1/6W
VR407 SRD 1KOHM
H/V ADJ
D403 BAV21
C413 220UF 25V
R454 22 1/2W
C433 100NF 250V MP
C436 100UF 16V
166V
12V
D408 UZ9.1BL
Q400 IRF9610
11
C435 100NF 250V MP
EY402 EYE2.2
R425 1K 1/6W
Q401 KSA733C-G
R430 4.7K 1/6W
L403 ROBOT 3.2MH
C432 47UF 200V
T402
FCO-14A042
D301 UZ-12BM
R308 220 1/4W
V-DY
CN302
CN301
R426 10K 1/6W
Q402 KSC945C-G
R427 10K 1/6W
D402 UZ-8.2BL
R429 1K 1/6W
D401 1N4148
C414 10UF 16V
D404 1N4148
R423 470 1/6W
R431 5.1K 1/6W
12
D409 RGP15J RG2
R432 82 3W MO
CN403
L404 8.2MH(T)
H-CENTERRING
D411 RGP10G
R434 22 1/2W
EY403 EYE2.2
EY405 EYE2.
R461 4.7K 1/6W
R422 470 1/6W
SW401 E-C11B15D0
D412 RGP10G
C412 39NF 200V PP
17
C431 1NF 50V MO
12V
12V
R424 47
EY407
2SC5386 2SC4762
EY401
R458 39K 1/6W

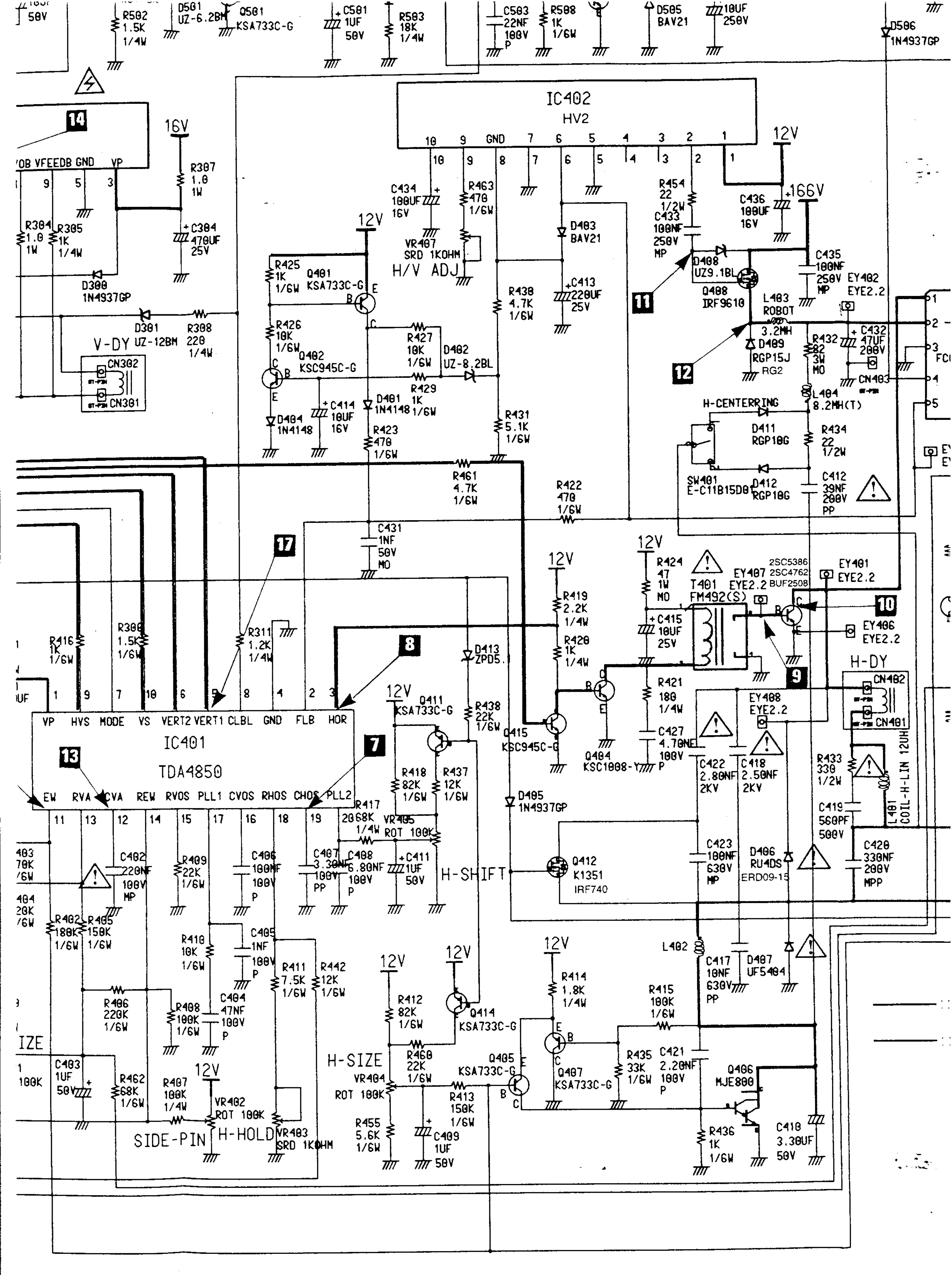

C122
10NF
500V
R108G
470K
1/4W
R108B
470K
1/4W
R109R
33
1/4W
SK1
CRT1
L101R
COIL-CHOKE
16
R109G
33
1/4W
PHI29-HIGH-FOCUS
FOCUS
G2
L101G
COIL-CHOKE
C113
100NF
50V
L103
100UH
D105G
1N4148
R109B
33
1/4W
R114
100
1/4W
SG101
C117
2.70NF
2KV
CN106
L101B
COIL-CHOKE
D105B
1N4148
C118
10NF
500V
D106
1N4007GP
CN107
C119
3.30UF
250V
R115
2.2M
1/6W
D107
1N4007GP
C106G
10NF
500V
C106B
10NF
500V
12V
CN104
CBF-CONN
CN105
CBF-CONN
R507
12K
1/4W
R506
2.2M
1/4W
35V
VR502
ROT-10K
12V
6.3V
166V
75V
R505
1.5K
1/4W
BRT
D507
1N4937GP
C502
100NF
250V
MP
R510
100K
1/2W
R509
100K
1W
MO
C504
100NF
250V
MPP
C945C-G
C505
10UF
250V
D505
BAV21
D506
1N4937GP
IC402
HV2
12V
R454
22
1/2W
C433
100NF
250V
MP
C436
100UF
16V
166V
D403
BAV21
D408
UZ9.1BL
C435
100NF
250V
MP
EY402
EYE2.2
C413
220UF
25V
11
Q408
IRF9610
L403
ROBOT
3.2MH
T402
FCO-14A042
D409
RGP15J
RG2
R432
82
3W
MO
C432
47UF
200V
12
CN403
5
L404
8.2MH(T)
H-CENTERRING
D411
RGP10G
R434
22
1/2W
EY405
EYE2.2
EY403
EYE2.2
SW401
E-C11B15D01
D412
RGP10G
C412
39NF
200V
PP
R422
470
1/6W
12V
D410
1N4148
R458
39K
1/6W
C428
10NF
100V
12V
R424
47
EY407
2SC5386
2SC4762
EY401


1 5.24 V (IC601 #4)
CH1 P-P = 5.24 V CH1 RMS = 1.390V
2 17.2 V (IC601 #6)
CH1 P-P = 17.2 V CH1 RMS = 8.04 V
3 600 mV (IC601 #7)
CH1 P-P = 600 mV CH1 RMS = 16.19 V
4 266 V (Q602 Drain)
CH1 P-P = 266 V CH1 RMS = 183.0 V
5 274 V (T402 #6)
CH1 P-P = 274 V CH1 RMS = 71.3 V
6 4.72 V (IC201 #6)
CH1 P-P = 4.72 V CH1 RMS = 4.142 V
7 3.04 V (IC401 #19)
CH1 P-P = 3.04 V CH1 RMS = 3.474 V
8 4.28 V (IC401 #3)
CH1 P-P = 4.28 V CH1 RMS = 2.710 V
9 14.6 V (Q403 Base)
CH1 P-P = 14.6 V CH1 RMS = 1.46 V
10 1.192 kV (Q403 Collector)
CH1 P-P = 1.192 kV CH1 RMS = 338.4 V
11 14 V (Q408 Gate)
CH1 P-P = 14 V CH1 RMS = 159.5 V
12 172 V (Q408 Drain)
CH1 P-P = 172 V CH1 RMS = 157.4 V
13 2.48 V (IC401 #12)
CH1 P-P = 2.48 V CH1 RMS = 2.804 V
14 34.8 V (IC301 #7)
CH1 P-P = 34.8 V CH1 RMS = 9.22 V
15 2.32 V (IC401 #11)
16 24 V (C104R,G,B +Term.)



OP201
2colorLED
R228
100
1/6W
H-SYNC
IC201
D706
UZ-5.1B
R207
1K
1/6W
C207
33PF
50V
V-SYNC
D201
UZ-5.1B
R205
2.7K
1/6W
R204
100
1/6W
LED
HSYNC
VSYNC
C
R
HOSC46
SUSPEND
POWEROFF
TEST
GND
VCC
CLAMP
HOSC48
H-OUT
HOSC37
HOSC35
XTAL-O
XTAL-I
H31D
RESET
SL606
C205
100UF
16V
C204
100NF
50V
R214
1K
1/4W
D100
UZ-12
HOSC48
C211
100NF
50V
D212
1N4148
R208
270
1/6W
D206
1N4148
R218
680K
1/6W
D204
1N4148
R215
22K
1/6W
D207
1N4148
R219
470K
1/6W
D205
1N4148
R216
42K
1/6W
R217
1.8M
1/6W
R227
220
1/6W
C208
47PF
50V
X201
CSA8.00MTZ-TF01
C209
47PF
50V
5V
R220
1.8K
1/6W
C206
2.20NF
100V
P
R221
3.3K
1/6W
R222
2.2K
1/6W
Q205
VN2222LL
Q204
KSC945C-G
R200
4.7K
1/6W
R223
1K
1/6W
SUSPEND
C200
100UF
16V
R210
4.7K
1/6W
R211
10K
1/4W
D209
1N4148
R209
1K
1/6W
R213
82K
1/6W
D210
1N4148
12V
R224
10K
1/6W
R225
22K
1/6W
R226
2.2K
1/6W
Q209
KSC945C-G
C210
100NF
50V
Q208
KSC945C-G
16V
A
OP601
CQY80NG
CQY80XG
R605
10K
1/6W
R609
1.5K
1/4W
R610
56K
1/6W
D605
1N4148
C605
100NF
50V
D606
UZ-12BM
R611
1K
1/4W
R604
100K
1/4W
R606
2.7K
1/6W
R607
2.2M
1/6W
R608
390
C607
1NF
100V
P
C606
2.20NF
500V
R613
6.8K
1/4W
VR602
ROT 5K
IC602
TL431CLP
R615
1.5K
1/4W
R614
120K
1/2W
P_OFF
B+ ADJ
VR601
SRD 5000HM
Q601
KSC945C-G
T601
D-COIL
CN601
CN602
D601
D603
R602
220
1W
MO
R603
3.3
7W
PTC601
D602
D604
1N5399GP
C604
220UF
400V
EY611
EYE2.2
SW601
JPW-1101B
C603
2.20NF
125V
C602
2.20NF
125V
LF601
15mH
EY604
EYE2.2
C601
470NF
250V
MPP
EY603
EYE2.2
R601
1M
1/2W
FH601
FG601
EY601
EYE2.2
EY602
EYE2.2
IS601
IG-0342-S(P)
EY612
EYE2.2
R616
100K
1W
MO
R617
100K
1W
MO
C608
10NF
1KV
R618
68K
3W
MO
D607
RGP02-12E
EY608
EYE2.2
L602
2.4UH
R627
100K
1/6W
C610
1NF
50V
IC601
KA3882
R619
6.8
1/4W
EY610
EYE2.2
L601
1300HM
Q602
SSH6N80
STH6N80
C613
560PF
1KV
EY609
EYE2.2
C609
10UF
50V
R626
22K
1/6W
C612
10NF
50V
R620
1K
1/4W
R621
100K
1/6W
D609
UZ-16BM
R622
0.27
1W
WW
D608
R623
8.2K
3W
MO
R624
8.2K
3W
MO
RGP02-12E
D614
UF4007
C611
3.30NF
50V
MO
D612
1N4148
C618
47UF
25V
Q603
2SC3503-E
KSC1507
KSD401
R625
10K
1/2W
C616
47UF
63V
EY607
EYE2.2
D613
UZ-16BM
C617
100NF
50V
R628
390
1/6W
D611
UZ-5.1B
C641
4.70NF
125V
C642
4.70NF
125V
D610
1N4007
UF4007
C620
4.70NF
125V
C619
4.70NF
125V
R612
10K
1W
MO
R631
6.8K
1/4W
EY605
EYE2.2


IC301
TDA8351
VFB IN- IN+ VOA GUARD VOB VFEEDB GND VP
14
35V
16V
12V
V-SHIFT
VR301
ROT 100K
V-DY
CN302
CN301
D300
1N4937GP
D301
UZ-12BM
IC401
TDA4850
VP HVS MODE VS VERT2 VERT1 CLBL GND
EW RVA CVA REW RVOS PLL1 CVOS RHOS
13
15
17
V-SIZE
VR401
ROT 100K
VR402
ROT 100K
SIDE-PIN
H-HOLD
T601
166V
75V
35V
12V
6.3V
16V
IC603
LM317
Q607
KSC945C-G
SUSPEND
B+ ADJ
VR601
SRD 500OHM
Q602
SSH6N80
STH6N80
4
D618
1R5NU41
D619
UF5408
D620
RGP15G
D621
UF5404
D622
UF5404
D614
UF4007
D607
RGP02-12E
L602
2.4UH
L603
2.4UH
L606
2.4UH
CN603
EY605
EY606
EY607
EY608
EY609
EYE2.2
X201
CSA8.00MTZ-TF01
VR102R
SRD 50KOHM
VR102G
SRD 50KOHM
VR102B
SRD 50KOHM
D100
UZ-12BM
D501
UZ-6.2BM
Q501
KSA733C-G
A


IC402
HV2
IC401
TDA4850
VP HVS MODE VS VERT2 VERT1 CLBL GND FLB HOR
EW RVA CVA REW RVOS PLL1 CVOS RHOS CHOS PLL2
H/V ADJ
V-DY
H-DY
H-CENTERRING
H-SHIFT
H-SIZE
SIDE-PIN
H-HOLD
16V
12V
166V
T401 FM492(S)
Q401 KSA733C-G
Q402 KSC945C-G
Q404 KSC1008-Y
Q405 KSA733C-G
Q406 MJE800
Q407 KSA733C-G
Q408 IRF9610
Q411 KSA733C-G
Q412 K1351 IRF740
Q414 KSA733C-G
Q415 KSC945C-G
2SC5386 2SC4762 BUF2508
D300 1N4937GP
D301 UZ-12BM
D401 1N4148
D402 UZ-8.2BL
D403 BAV21
D404 1N4148
D405 1N4937GP
D406 RU4DS ERD09-15
D407 UF5404
D408 UZ9.1BL
D409 RGP15J RG2
D411 RGP10G
D412 RGP10G
D413 ZPD5.1
D505 BAV21
D506 1N4937GP
SW401 E-C11B15D01
L401 COIL-H-LIN 12UH
L402
L403 ROBOT 3.2MH
L404 8.2MH(T)
VR402 ROT 100K
VR403 SRD 1KOHM
VR404 ROT 100K
VR405 ROT 100K
VR407 SRD 1KOHM
CN301
CN302
CN401
CN402
CN403
EY401 EYE2.2
EY402 EYE2.2
EY406 EYE2.2
EY407 EYE2.2
EY408 EYE2.2
7
8
9
10
11
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13
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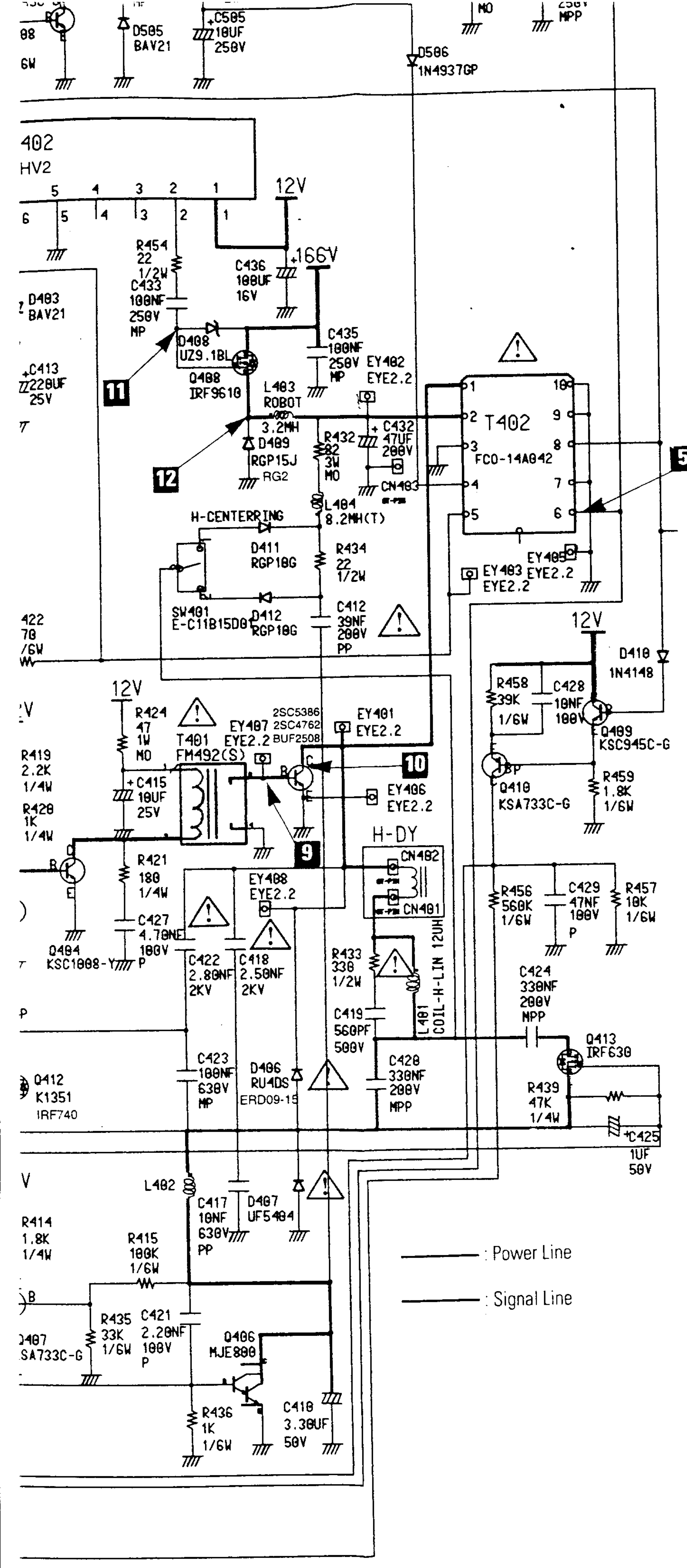
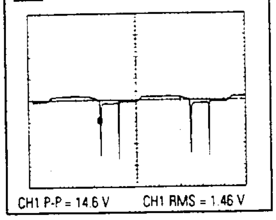
17

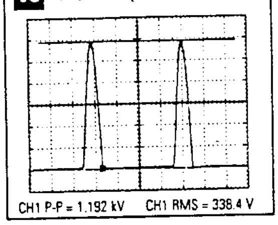


CH1 P-P = 3.04 V CH1 RMS = 3.4.4 V

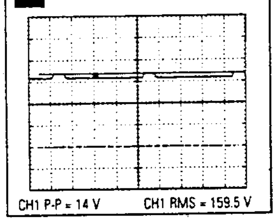
9 14.6 V (Q403 Base)



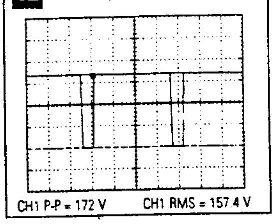
10 1.192 kV (Q403 Collector)



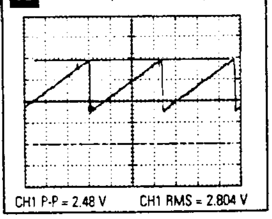
11 14 V (Q408 Gate)



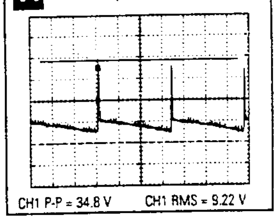
12 172 V (Q408 Drain)



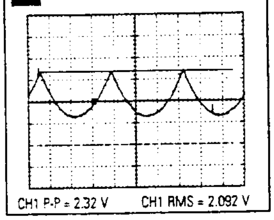
13 2.48 V (IC401 #12)



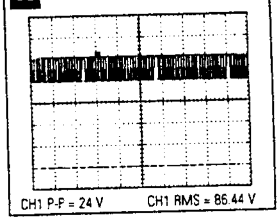
14 34.8 V (IC301 #7)



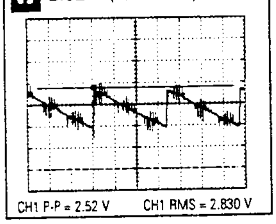
15 2.32 V (IC401 #11)



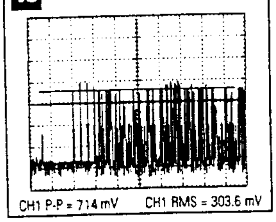
16 24 V (C104R,G,B +Term.)



17 2.52 V (IC401 #5)



18 714 mV (CN101 #1,2,3)



19 2.76 V (IC101 #16,20,25)