

CONTENTS

| | |
|---|----|
| 1. General | 1 |
| 2. Specifications | 1 |
| 3. Names of each section | 3 |
| 4. Adjustment procedure | 5 |
| 4.1 B/W MAIN-1 PCB | 5 |
| 4.2 CRT section adjustments | 6 |
| 4.3 Adjustment notes | 7 |
| 5. Modification procedure | 8 |
| Modification for external sync operation | 8 |
| 6. Electrical parts arrangement | 10 |
| B/W MAIN-1 PCB | 10 |
| CRT-2 PCB | 11 |
| 7. Electrical parts list | 12 |
| B/W MAIN-1 PCB | 12 |
| CRT-2 PCB | 13 |
| Chassis | 14 |
| 8. Block diagram | 15 |
| 9. Schematic diagram | 17 |
| 10. Mechanical parts list and external view | 19 |

NOTICE

This Service Manual describes the most typical product of this model. If there are any specific differences between this Manual and the servicing unit, please contact Hitachi Denshi sales office in your area.

PRODUCT SAFETY NOTICE

(1) X-RAY RADIATION

The primary source of X-ray radiation in this monitor is the picture tube. The tube used in this monitor is especially constructed to limit X-ray radiation emission.

For continued X-ray radiation protection, the replacement tube must be the same type as the original, Hitachi approved one.

(2) PRODUCT SAFETY NOTE

Many electrical and mechanical parts in this monitor have special safety related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded necessarily be rated for higher voltages, wattage, etc. Electrical components having such features are identified by marking with a symbol on the schematic diagram and parts list in this manual.

The use of a substitute replacement component which the Hitachi recommended replacement one, shown in the parts list in this manual, may create shock, fire, X-radiation, or other hazards.

MODEL VM-910A
VIDEO MONITOR
Service Manual

1. GENERAL

The Hitachi VM-910A is a high performance 9-inch video monitor designed to provide an excellent quality picture display of video signals from a CCTV camera or other video signal sources. VM-910A features high reliability IC and transistor circuitry.

2. SPECIFICATIONS

| | |
|------------------------|--|
| Format | U, C type ... EIA 525 lines E/K type ... CCIR 625 lines |
| Sync System | Internal (can be modified for external sync) |
| Input Signal | 1.0 V _{p-p} composite video; sync negative |
| Input Impedance | 75 Ω or high impedance bridge connection |
| Effective Picture Size | 182 mm (7.17") x 136 mm (5.35") |
| CRT | 9-inch, 90° deflection, 230 BTB 4 or equivalent |
| Power Requirement | U, C type ... 117 V AC 60 Hz E/K type ... 100/117/220/240 V AC 50 Hz |
| Power Consumption | 28 W |
| Ambient Temperature | -10 to +50 °C (+14 to 122 °F) |
| Dimensions | 219 mm (W) x 219 (W) x 234 (D) mm (Approx. 8.62 x 8.62 x 9.21 in) |
| Weight | 6 kg (12 lbs) |
| Electrical Performance | Horizontal: 500 lines |
| Resolution | Vertical: 300 lines |
| Video Gain | More than 35 dB: continuously |
| Video Linearity | Within ±5 % to 60 V _{p-p} output (APL 50 % stairstep signal) |
| Signal to Noise Ratio | Hum: better than 50 dB Synchronous: better than 40 dB |

| | |
|-----------------------|--|
| Deflection Linearity | Within 2 % (at center, with respect to picture height) |
| Power Source Voltage | Abnormal operation shall not occur against +10 % variation with respect to the rated AC input. |
| Insulation Resistance | More than 10 M Ω (DC 500 V) between AC input and chassis. |

3. NAMES OF EACH SECTION

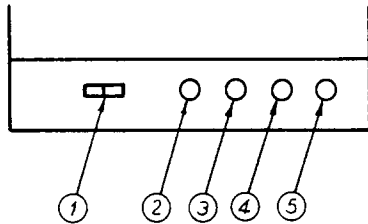


Fig. 1 Front Panel

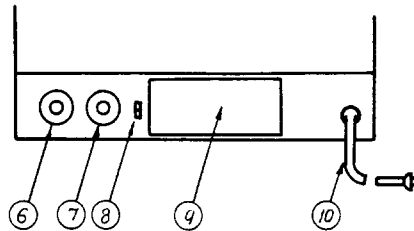


Fig. 2 Rear Panel

- | | | |
|---|-------------|---|
| ① | POWER | Power supply ON/OFF switch. When set to ON, picture is obtained after a few seconds. |
| ② | V.HOLD | Adjust control when picture rolls upwards or downwards. If picture rolls downwards, adjust control slowly until rolling stops. At this position, since circuit free oscillator frequency and signal sync frequency are the same, set V.HOLD control to just slightly clockwise of this position. |
| ③ | H.HOLD | Adjust control when picture sync rolls toward left or right, or to slightly change the picture position toward the left or right. Normally, picture remains synchronized within full range of control. |
| ④ | BRIGHT | Control for adjusting picture brightness. |
| ⑤ | CCNTR(CCNT) | Control for adjusting picture contrast. |
| ⑥ | VIDEO IN | Use coaxial cable to connect video input signal to this connector. |
| ⑦ | VIDEO OUT | Employ when using "bridge through" connection of the input signal to other equipment (see following) |

- ⑧ 75 Ω ON-OFF Termination switch for input video signal.
When VIDEO OUT ⑦ connector is not being used for bridge through connection, set this switch to ON. If video input signal is bridged through to other equipment, set this switch to OFF and terminate signal at the final unit in the signal line at 75 Ω (see equipment operating instructions). In cases when this monitor is the final unit, set switch to ON.
- ⑨ BLANK PANEL Use this space for modifying video monitor to external sync type.
- ⑩ Power Cord Connect to commercial AC power source.

4. ADJUSTMENT PROCEDURE

4.1 B/W MAIN-1 PCB

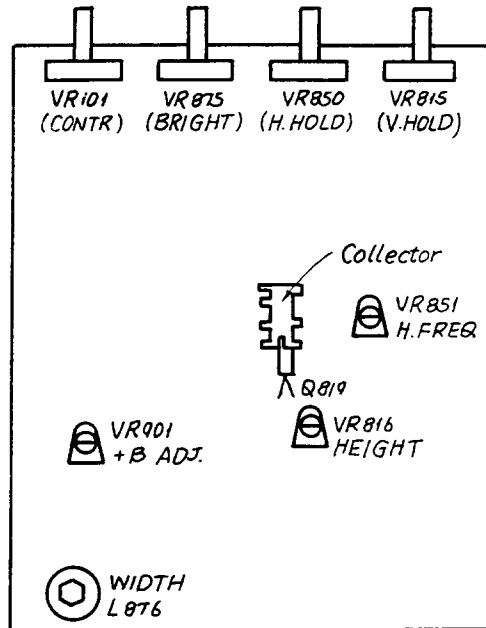


Fig. 3

1) +B Voltage (VR901)

Connect DC voltmeter between chassis (GND) and Q819 collector (heatsink) and with trimmer driver turn [+B ADJ] to adjust. This is normally adjusted for 12 ± 0.5 V.

2) H.FREQ (VR851)

Adjust if picture rolls toward left or right. Set H FREQ (VR851) to position where picture does not roll with full range operation of H. HOLD control or when POWER switch is operated ON-OFF.

In this case, care must be taken for not touching a metal screwdriver to Q819 collector.

3) V.HOLD (VR815)

Turn control left and right. In center of range where upward or downward picture roll begins, set control to position where optimum interlace is obtained.

4) HEIGHT (VR816)

Adjust vertical amplitude. Set to position where picture vertical amplitude completely fills CRT mask, but loss of raster does not occur. If vertical roll is obtained at this time, readjust V.HOLD (VR815).

5) Linearity coil (L875)

Linearity coil is installed at the place marked with L876. The place marked with L875 is shorted.

4.2 CRT section adjustments

1) Picture Inclination

Deflection yoke can be turned by loosening clamp screw.

When adjusting, press yoke toward CRT and observe vertical inclination condition near center of picture.

Tighten deflection yoke clamp screw firmly after adjusting.

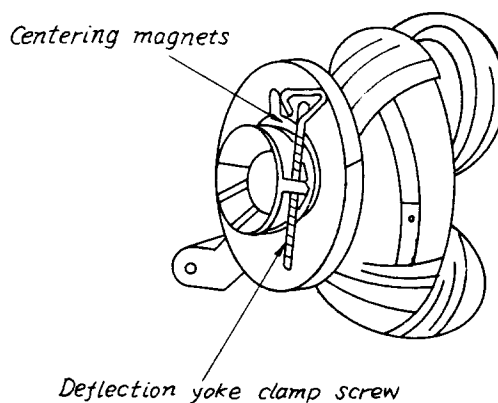


Fig. 4 Deflection yoke

2) Picture Position

Perform by mutually adjusting deflection yoke centering magnets (2 magnets). Magnetic field is strongest when both magnets are overlapped, at which position picture movement becomes greatest. Note that if picture position is changed excessively by using the centering magnets, deflection distortion and impaired linearity can occur. Some movement in horizontal direction can also occur when H.HOLD control is operated.

3) Width coil

Adjusts horizontal amplitude. Set to position where picture horizontal amplitude completely fills CRT mask, but loss of raster does not occur. Be sure to use a plastic hexagonal core driver for adjusting this coil. A metal tool (Allen wrench, etc.) can damage the core.

4.3 Adjustment notes

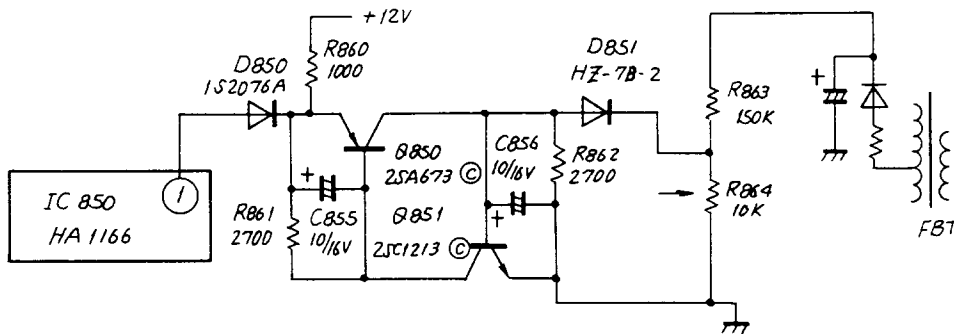


Fig. 5 X-ray prevention circuit

A X-ray prevention circuit is adopted in the horizontal deflection circuit. Note that in the following circumstances, horizontal oscillation stops and raster is not obtained.

- 1) Power supply voltage rises excessively above +12 V.
- 2) H.Freq. is reduced sharply.
- 3) Breakdown of resonating capacitors C867 & C868.

In even oscillation stops, set POWER switch to OFF and inspect for above 3 items.

To re-establish oscillation:

- 1) Return above 3 items to normal operating mode.
- 2) Set POWER switch to OFF and wait several seconds before setting it to ON.

5. MODIFICATION PROCEDURE

Modification for external sync operation

- 1) Circuit diagram modification

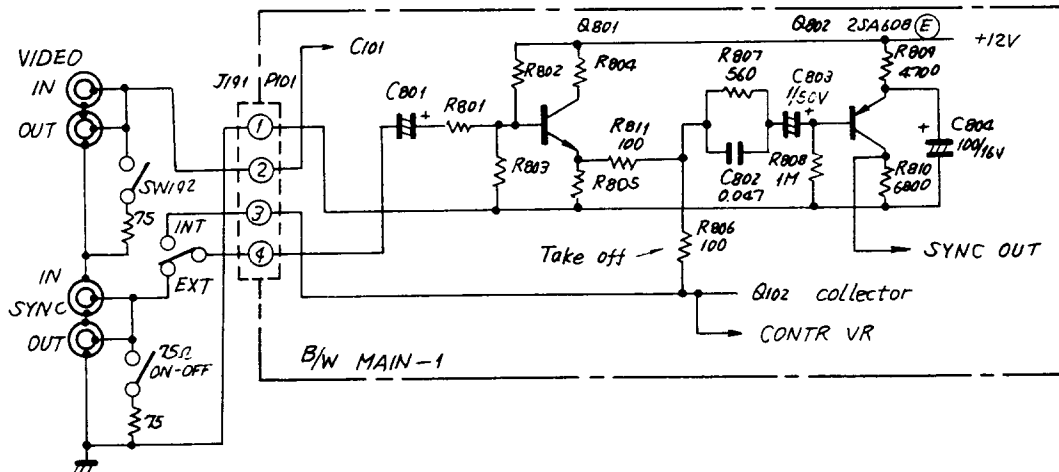


Fig. 6

- 2) Parts list

| Part Code | Symbol | Description | Qty |
|-----------|--------|------------------------------------|-----|
| JHS0022 | | UHF type connector, S-I 9321 | 2 |
| SSV0105 | | Slide switch, SS(F) 12-07 | 2 |
| RCE0137 | | Carbon resistor R1/4W 75Ω ±5% | 1 |
| JYX0156 | | Terminal 29002#2 | 2 |
| HTC0148 | Q 801 | Transistor 2SC458 C | 1 |
| RCE0139 | R 801 | Carbon resistor 1/4W 10kΩ ±5% | 1 |
| " | 802 | " " " " " | 1 |
| " | 803 | " " " " " | 1 |
| RCE0137 | 804 | " " " 100Ω " | 1 |
| RCE0172 | 805 | " " " 2000Ω " | 1 |
| RCE0137 | 811 | " " " 100Ω " | 1 |
| CEX0148 | C 801 | Elyc capacitor 16WV 33μF +50% -10% | 1 |

3) Assembly wiring

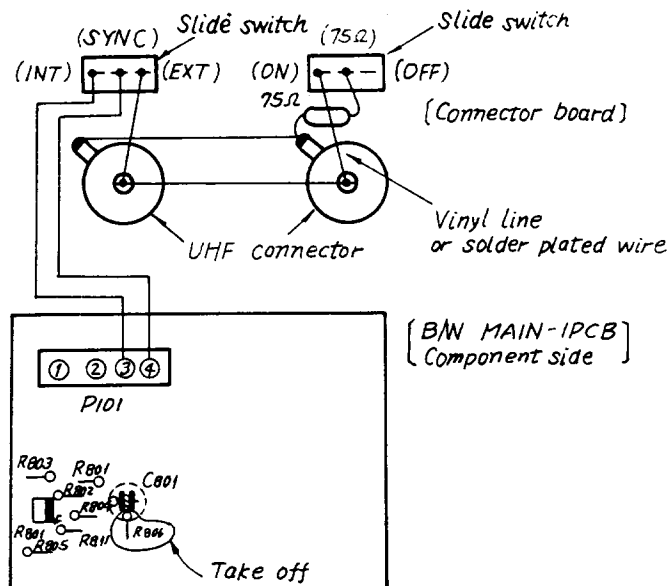


Fig. 7

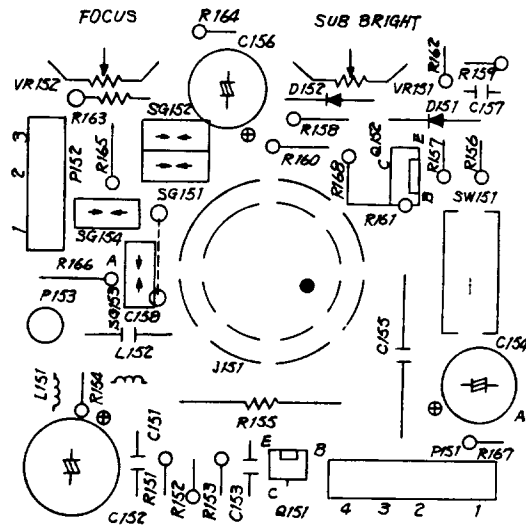
4) Wiring steps

- a) Remove the blank panel.
- b) Install a UHF connector (and a slide switch) to the external sync connector panel.
- c) Make connection as illustrated in Fig. 7.
- d) Install the external sync connector panel instead of the blank panel.
- e) Remove R806 from B/W MAIN-1 PCB.
- f) Add Q801, R801-805, R811 and C801 onto B/W MAIN-1 PCB.

5) Operating check

Apply specified signal (sync 4 ± 2 V) and confirm operation. If sync signal is lower than specification, change R801 value by approx. 1 kΩ.

CRT-2 PCB



7. ELECTRICAL PARTS LIST

PRODUCT SAFETY NOTICE --- Components marked with a Δ have special characteristics important to safety. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE of this manual. Do not degrade the safety of this monitor through improper servicing.

B/W MAIN-1 PCB

| Part Code | Symbol | Description | Remarks |
|--------------------|--------------|---------------------------|-----------|
| ILH0073 | IC 850 | <u>IC</u> | |
| | | HA1166 | |
| <u>Transistors</u> | | | |
| HTC0148 | Q 101 | 2SC458-C- | |
| HTC0148 | 102 | Not Used | |
| | 103 | 2SC458-C- | |
| HTA0152 | 802 | 2SA608-E- | |
| HTC0148 | 815 | 2SC458-C- | |
| " | 816 | " | |
| HTA0085 | 817 | 2SA673-C- | |
| HTC0148 | 818 | 2SC458-C- | |
| HTD0073 | 819 | 2SD726-C- | |
| HTD0069 | 820 | 2SB690-C- | |
| HTA0085 | Δ 850 | 2SA673-C- | |
| HTC0057 | Δ 851 | 2SC1213-C- | |
| HTC0424 | Δ 852 | 2SC681A | |
| HTD0073 | 901 | 2SD726-C- | |
| HTA0085 | 902 | 2SA673-C- | |
| <u>Diodes</u> | | | |
| HDS0110 | D 101 | 1S2076A | |
| HDS0110 | 816 | 1S2076A | |
| " | 817 | " | |
| HDS0110 | 850 | 1S2076A | |
| HDH0124 | Δ 851 | HZ-7B-2 | |
| HDS0110 | 852 | 1S2076A | |
| HDX0043 | Δ 853 | V09C | |
| HDX0014 | 854 | U06C | |
| HDX0043 | Δ 855 | V09C | |
| HDX0043 | Δ 875 | V09C | |
| " | Δ 876 | " | |
| " | Δ 877 | " | |
| " | Δ 878 | " | |
| " | Δ 879 | " | |
| " | Δ 880 | " | |
| HDV0013 | Δ 901 | V03C | |
| " | Δ 902 | " | |
| " | Δ 903 | " | |
| " | Δ 904 | " | |
| HDH0033 | 905 | HZ6B | |
| HDS0110 | 906 | 1S2076A | |
| <u>Resistors</u> | | | |
| RCE0138 | R 101 | Carbon 1/4W 1000 Ω | $\pm 5\%$ |
| RCE0177 | 102 | " " 22k Ω | " |
| " | 103 | " " " | " |
| RCE0139 | 104 | " " 10k Ω | " |
| RCE0137 | 105 | " " 100 Ω | " |
| RCE0206 | 106 | Not Used | |
| | 107 | Carbon 1/4W 390 Ω | $\pm 5\%$ |
| RCE0137 | 108 | Not Used | |
| | 109 | Carbon 1/4W 100 Ω | $\pm 5\%$ |
| RCE0177 | 110 | " " 22k Ω | " |
| RCE0138 | 111 | " " 1000 Ω | " |
| RCE0139 | 112 | " " 10k Ω | " |
| RCE0247 | 113 | " " 8200 Ω | " |
| RCE0138 | 114 | " " 1000 Ω | " |
| RCR3891 | 115 | Not Used | |
| | 116 | Carbon 1/2W 8.2 Ω | $\pm 5\%$ |

| Part Code | Symbol | Description | Remarks |
|-----------|--------------|----------------------------|-----------|
| RCE0137 | R 806 | Carbon 1/4W 100 Ω | $\pm 5\%$ |
| RCE0226 | 807 | " " 560 Ω | " |
| RCE0141 | 808 | " " 1M Ω | " |
| RCE0216 | 809 | " " 4700 Ω | " |
| RCE0238 | 810 | " " 6800 Ω | " |
| RCE0227 | 815 | Carbon 1/4W 5600 Ω | $\pm 5\%$ |
| RCE0216 | 816 | " " 4700 Ω | " |
| " | 817 | " " " | " |
| RCE0228 | 818 | " " 56k Ω | " |
| RCE0227 | 819 | " " 5600 Ω | " |
| RCE0196 | 820 | " " 3300 Ω | " |
| RCE0167 | 821 | " " 1800 Ω | " |
| RCR3899 | 822 | " 1/2W 12 Ω | " |
| RCR3885 | 823 | " " 2.2 Ω | " |
| RCE0186 | 824 | " 1/4W 2700 Ω | " |
| RCE0177 | 825 | " " 22k Ω | " |
| RCE0228 | 826 | " " 56k Ω | " |
| RCE0177 | 827 | " " 22k Ω | " |
| RCE0156 | 828 | " " 1500 Ω | " |
| RCE0174 | 829 | " " 22 Ω | " |
| RCE0147 | 830 | " " 1200 Ω | " |
| RCE0166 | 831 | " " 180 Ω | " |
| RCE0196 | 832 | " " 3300 Ω | " |
| RCR0225 | 833 | " " 56 Ω | " |
| RCE0175 | 834 | " " 220 Ω | " |
| " | 835 | " " " | " |
| RCE0236 | 836 | " " 68 Ω | " |
| RCR3883 | 837 | " 1/2W 1 Ω | " |
| " | 838 | " " " | " |
| RCE0138 | 839 | " 1/4W 1000 Ω | " |
| " | 840 | Not Used | |
| RCE0177 | 841 | Carbon 1/4W 22k Ω | $\pm 5\%$ |
| RCE0195 | 842 | " " 330 Ω | " |
| RCE0158 | 850 | Carbon 1/4W 150k Ω | $\pm 5\%$ |
| RCE0198 | 851 | " " 330k Ω | " |
| RCE0157 | 852 | " " 15k Ω | " |
| RCE0158 | 853 | " " 150k Ω | " |
| " | 854 | " " " | " |
| RCE0157 | 855 | " " 15k Ω | " |
| RCE0247 | 856 | " " 8200 Ω | " |
| RCE0176 | 857 | " " 2200 Ω | " |
| RCE0196 | 858 | " " 3300 Ω | " |
| RCE0247 | 859 | " " 8200 Ω | " |
| RCE0138 | 860 | " " 1000 Ω | " |
| RCE0186 | 861 | " " 2700 Ω | " |
| " | 862 | " " " | " |
| RCE0158 | Δ 863 | " " 150k Ω | " |
| RCE0139 | Δ 864 | " " 10k Ω | " |
| RCR3893 | Δ 865 | " 1/2W 100 Ω | " |
| RCR3892 | Δ 866 | " " 10 Ω | " |
| RMR2976 | Δ 867 | Metal 2W 4700 Ω | " |
| RMR2951 | Δ 868 | " 1W 10k Ω | " |
| RMR3002 | Δ 869 | " " 6800 Ω | " |
| RMR2973 | Δ 875 | Metal 2W 33 Ω | $\pm 5\%$ |
| RCE0217 | 882 | Carbon 1/4W 47k Ω | $\pm 5\%$ |
| RCR4050 | 889 | Carbon 1/4W 100k Ω | $\pm 5\%$ |
| RWE0001 | Δ 901 | Wire Wound 10W 27 Ω | $\pm 5\%$ |
| RCR3937 | 902 | Carbon 1/2W 330 Ω | " |
| RCE0176 | 903 | " 1/4W 2200 Ω | " |
| RCE0156 | 904 | " " 1500 Ω | " |
| RCE0136 | 905 | " " 10 Ω | " |

| Part Code | Symbol | Description | Remarks |
|-----------------------|---------|----------------------|---------|
| <u>Capacitors</u> | | | |
| CEX0184 | C 101 | Elyc 16V 33μF | |
| CEX0172 | 102 | " 10V 330μF | |
| CEX0180 | 103 | " 16V 100μF | |
| CEX0185 | 104 | " 330μF | |
| CCT0098 | 105 | Ceramic 50V 0.047μF | |
| CQA0013 | 802 | Plastic 50V 0.047μF | ±10% |
| CEX0218 | 803 | Elyc " 1μF | |
| CEX0180 | 804 | " 16V 100μF | |
| CQA0013 | 815 | Plastic 50V 0.047μF | ±10% |
| CQA0015 | 816 | " " 0.1μF | " |
| CEX0218 | 817 | Elyc " 1μF | |
| CSC0173 | 818 | Tantal 16V 10μF | +20% |
| CST0398 | 819 | " 2.2μF | " |
| CEX0179 | 820 | Elyc " 10μF | |
| CEX0184 | 821 | " 33μF | |
| CEX0218 | 822 | " 50V 1μF | |
| CEX0185 | 823 | " 16V 330μF | |
| CEX0180 | 824 | " 100μF | |
| CEX0169 | 825 | " 10V 1000μF | |
| CEX0218 | 826 | " 50V 1μF | |
| CEX0184 | 827 | " 16V 33μF | |
| CQA0015 | 830 | Plastic 50V 0.1μF | ±10% |
| CQS0020 | 850 | Plastic 50V 0.0033μF | ±5% |
| CEX0218 | 851 | Elyc " 1μF | |
| CQA0007 | 852 | Plastic " 0.0047μF | ±5% |
| CCU0113 | 853 | Ceramic " 560 pF | " |
| " | 854 | " " " | " |
| CEX0179 | 855 | Elyc 16V 10μF | |
| " | 856 | " " " | |
| CQA0011 | 857 | Plastic 50V 0.022μF | ±5% |
| CEX0185 | 858 | Elyc 16V 330μF | |
| CQA0013 | 859 | Plastic 50V 0.047μF | ±10% |
| " | 860 | " " " | " |
| " | 861 | Not Used | |
| CQA0005 | 862 | Plastic 50V 0.002μF | ±10% |
| CQT0023 | △ 863 | " 250V 0.22μF | +20% |
| CQT0010 | △ 864 | " 0.1μF | " |
| CEX0185 | △ 865 | Elyc 16V 330μF | |
| " | △ 866 | " " " | |
| CQD0012 | △ 867 | Plastic 630V 0.047μF | ±10% |
| CQD0006 | △ 868 | " 0.022μF | " |
| CQT0012 | △ 875 | Plastic 250V 0.047μF | ±10% |
| " | △ 876 | " " " | " |
| " | △ 877 | " " " | " |
| " | △ 878 | " " " | " |
| CEX0248 | △ 879 | Elyc 450V 1μF | |
| CEX0238 | △ 880 | " 160V 3.3μF | |
| " | 881 | Not Used | |
| " | 882 | " " " | |
| CEX0237 | △ 883 | Elyc " (BP) 160V 1μF | |
| CEX0210 | △ 884 | " 25V 4.7μF | |
| CEE0054 | △ 901 | Elyc 25V 3300μF | |
| CQA0009 | 902 | Plastic 50V 0.01μF | ±10% |
| CEX0184 | 903 | Elyc 16V 33μF | |
| CEX 0180 | 904 | " 100μF | |
| <u>Var. Resistors</u> | | | |
| RDR0432 | VR 101 | Carbon 1000Ω | CONTR |
| RDR0425 | 815 | Carbon 5000Ω | V HOLD |
| RDV0198 | 816 | " " | |
| RDR0426 | 850 | Carbon 50kΩ | H HOLD |
| RDV0198 | 851 | " 5000Ω | |
| RDR0433 | △ 875 | Carbon 500kΩ | BRIGHT |
| RDV0197 | 901 | Carbon 1000Ω | |
| <u>Coils</u> | | | |
| TLF0041 | L △ 850 | 27μH ±10% | |
| TLL0050 | L △ 876 | LC-0168 | |
| <u>Transformers</u> | | | |
| TTH0006 | T △ 850 | H. Drive HD-12 | |
| TTT0226 | △ 851 | FBT TC-0448 | |

| Part Code | Symbol | Description | Remarks |
|----------------------------|---------|--------------------------|----------------|
| <u>Connectors</u> | | | |
| JBX0342 | P △ 101 | 9952#3 (4P) | |
| JBX0344 | 8 | " | |
| JBX0344 | 801 | 9952#5 (6P) | |
| JBX0341 | 901 | 9952#2 (3P) | |
| JBX0368 | J △ 101 | 34203#3 (4P) | |
| JBX0367 | △ 102 | 34202#3 (3P) | |
| Pin 29002-2 (for J101-102) | | | |
| 7 pcs | | | |
| <u>Miscellaneous</u> | | | |
| EFG0525 | F △ 901 | Fuse 3A | J, E/K type |
| EFL0140 | △ " | " 3A UL | U, C type |
| EFY0002 | XF 901 | Fuse Clip 85PN-0815 | 2 pcs (J, E/K) |
| ETS0112 | " | Terminal 9773 | 2 pcs (U, C) |
| " | XR 901 | " " | 2 pcs |
| EHX0023 | RQ 819 | Heat Sink 4054907 | |
| " | 820 | " " | |
| SSV0109 | SW 801 | Switch, Slide SSFB12-07P | |

CRT-2 PCB

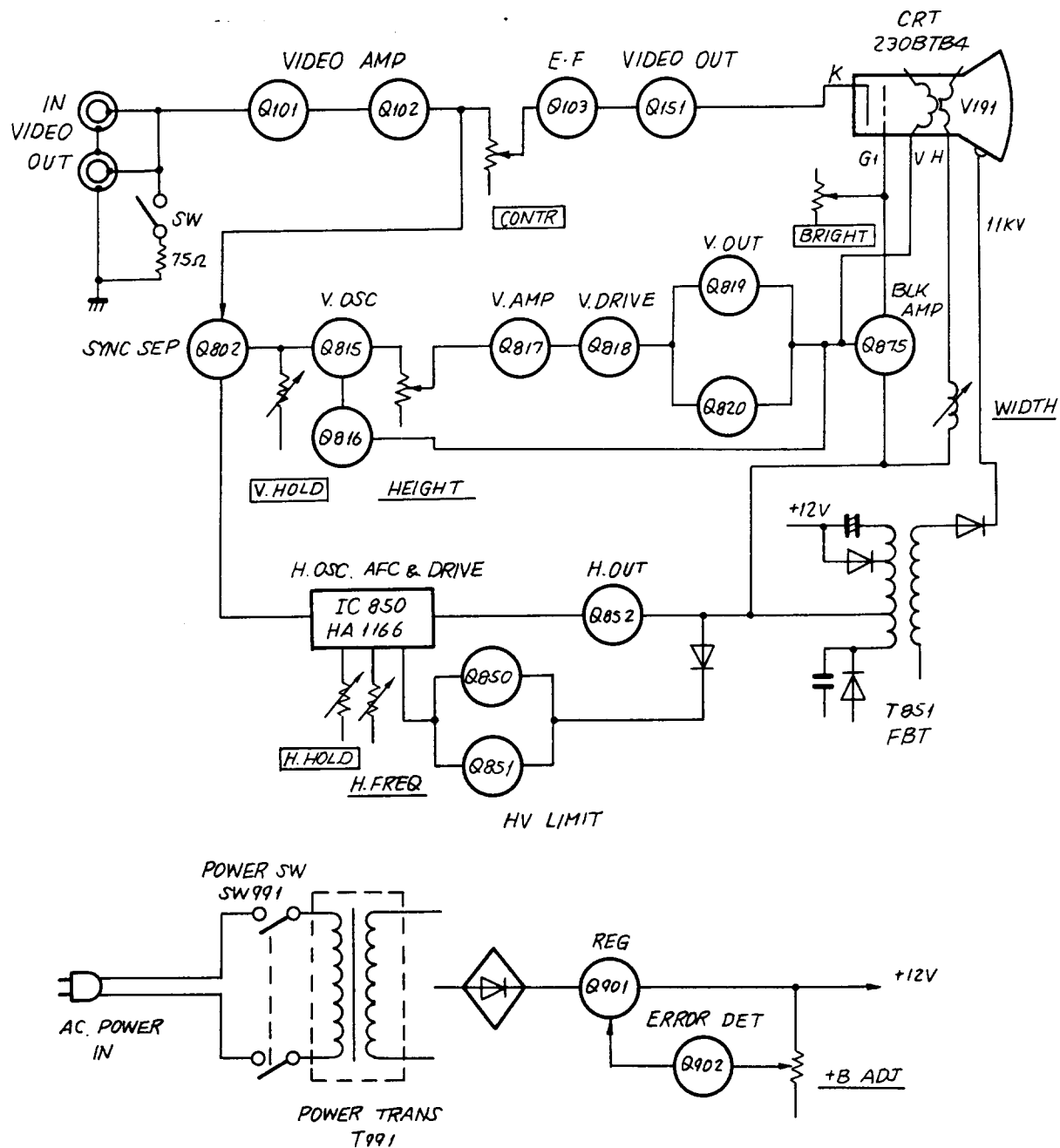
| Part Code | Symbol | Description | Remarks |
|-----------------------|---------|----------------------|---------|
| <u>Transistor</u> | | | |
| HTC0085 | Q △ 151 | 2SC1514 | |
| <u>Resistors</u> | | | |
| RCE0225 | R 151 | Carbon 1/4W 56Ω | ±5% |
| RCE0215 | 152 | " 470Ω | " |
| RCE0165 | 153 | " 18Ω | " |
| RCE0186 | 154 | " 2700Ω | " |
| RMR2980 | △ 155 | Metal 2W 6800Ω | " |
| RCE0218 | 159 | Carbon 1/4W 470kΩ | ±5% |
| " | 160 | Not Used | |
| RCE0156 | 161 | Carbon 1/4W 1500Ω | ±5% |
| RCE0216 | 162 | " 4700Ω | " |
| RCR4073 | 163 | " 2200Ω | " |
| RCE0178 | 164 | " 220kΩ | " |
| RCE0140 | 165 | " 100kΩ | " |
| " | 166 | " " " | " |
| <u>Var. Resistors</u> | | | |
| RCR3896 | VR 151 | Carbon 1/2W 100kΩ | ±5% |
| RCE0140 | 152 | " 1/4W " | " |
| <u>Capacitors</u> | | | |
| CCU0109 | C 151 | Ceramic 50V 220 pF | ±5% |
| CEX0172 | 152 | Elyc 10V 330μF | |
| CQA0005 | 153 | Plastic 0.0022μF | ±10% |
| CEX0237 | △ 154 | Elyc 160V 1μF | |
| CQT0026 | △ 155 | Plastic 250V 0.47μF | ±20% |
| CQT0016 | 158 | Plastic 400V 0.047μF | ±20% |
| <u>Coils</u> | | | |
| TLF0068 | L 151 | 120μH ±10% | |
| TLF0067 | 152 | 100μH " | |
| <u>Connectors</u> | | | |
| JBX0342 | P 151 | 9952#3 (4P) | |

| Part Code | Symbol | Description | Remarks |
|----------------------|-----------------|-------------------------------|---------|
| JBX0341 ETP0069 | P 152 153 | 9952#2 (3P) Contact pin_GT | |
| <u>Miscellaneous</u> | | | |
| EZZ0056 | SG Δ 151 | Spark Gap AG-20-2kV | |
| EZZ0056 | 152 | Not Used | |
| EZZ0056 | Δ 153 | Spark Gap AG-20-2kV | |
| DYX0010 | J 151 | CRT Socket 1426#2 | |

CHASSIS

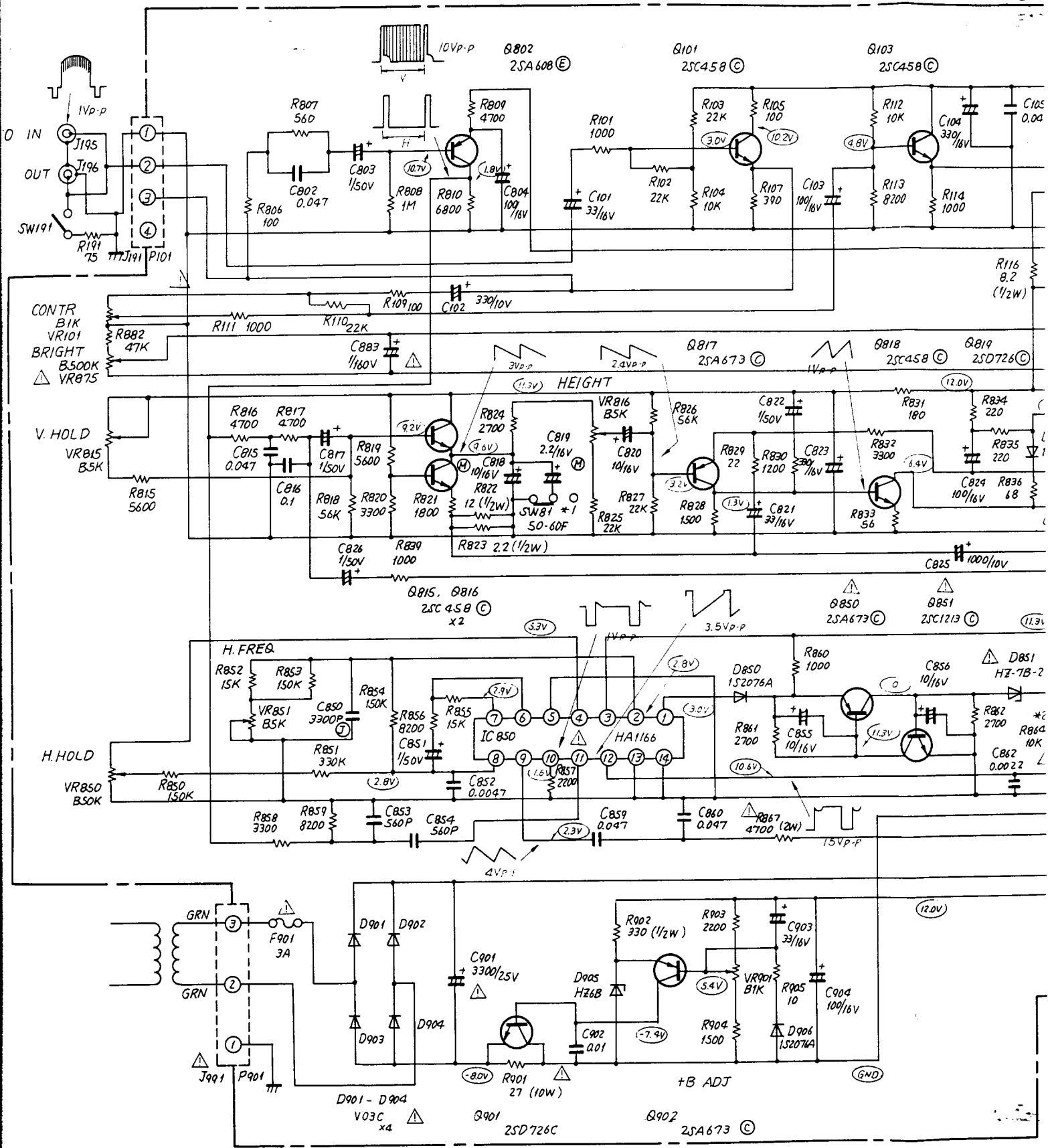
| Part Code | Symbol | Description | Remarks |
|----------------------|-----------------|---|-----------|
| DPX0067 | V Δ 191 | <u>Picture Tube</u> 230BTB4 | |
| RCR4118 | R 191 | <u>Resistor</u> Carbon 1/4W 75 Ω \pm 5% | |
| <u>Transformers</u> | | | |
| TTT0116 | T Δ 991 | Power TC-0444A | J type |
| TTT0117 | Δ " | " TC-0445 | U, C type |
| TTT0130 | Δ " | " TC-0464 | E/K type |
| <u>Switches</u> | | | |
| SSV0105 | SW 191 | Slide SS(F) 12-07 | |
| SSS0063 | Δ 991 | See San SDE-4SB-2 | |
| JYX0262 | | Pin 29002-2 (for J191, 891 & 991) | 13 pcs |
| JYX0169 | | Pin 29000 (for J194) | |
| JBX0368 | J 191 | 34203#2 (4P) | |
| JBX0374 | 194 | 34338 (1P) | |
| JHS0022 | 195 | S-19321 M-type | |
| " | 196 | " | |
| JBX0370 | Δ 891 | 34205#2 (6P) | |
| JBX0367 | Δ 991 | 34202#2 (3P) | |
| <u>Miscellaneous</u> | | | |
| TLL0113 | DY Δ 891 | DEF Yoke LC-0165B | |
| BBZ0073 | P Δ 991 | Code Set VM-1165B (2.5m) | J type |
| BBZ0060 | Δ " | " VM-0033 (8F) | U type |
| BBZ0055 | Δ " | " VM-0099 (8F) | E/K type |
| BBZ0159 | Δ " | " VM-0033 (8F) | C type |
| EFL0089 | F Δ 991 | Fuse 1A | U, C, E/K |
| ETB0384 | XF 991 | Terminal ML-3182-5P | U, C, E/K |

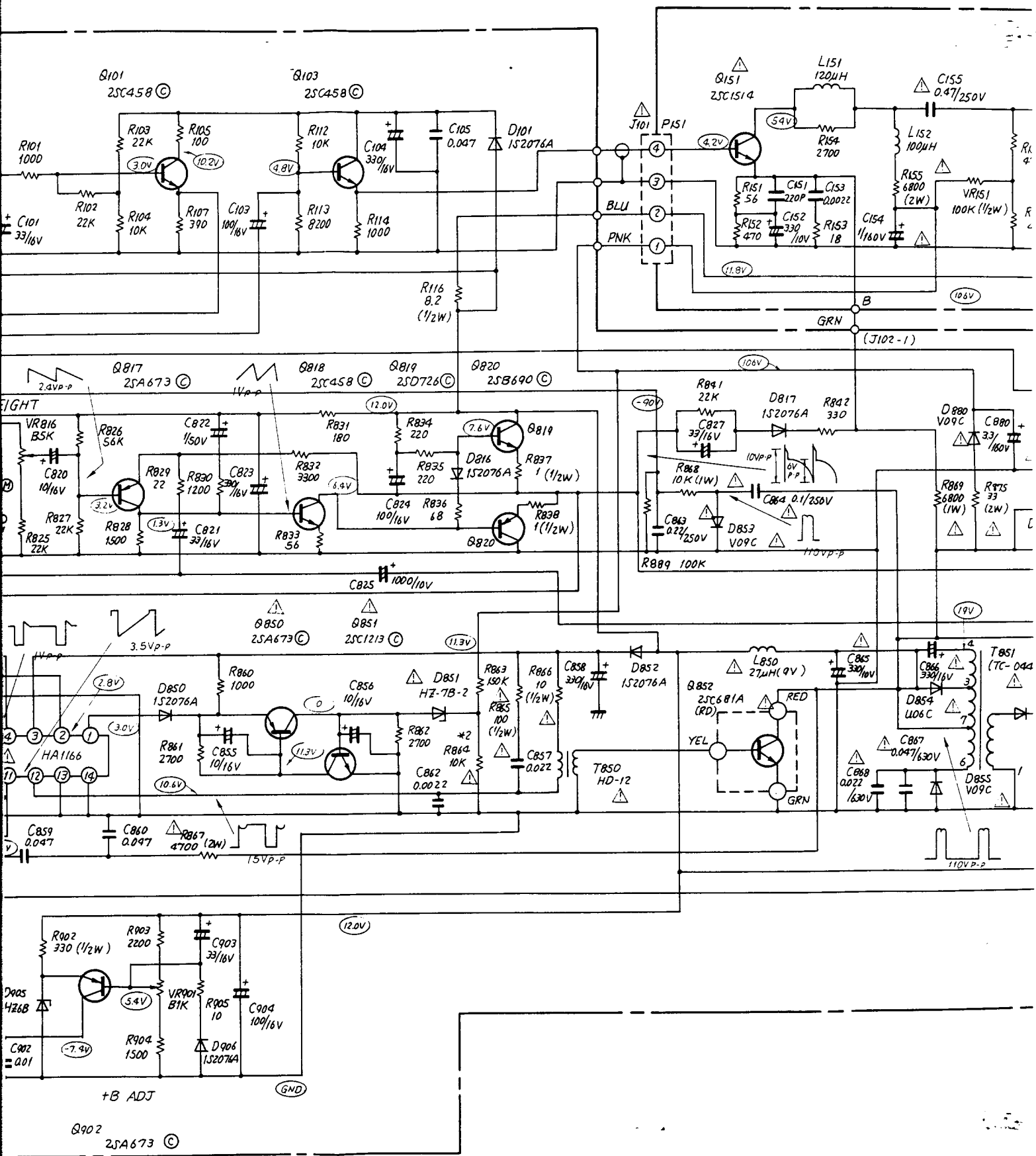
8. BLOCK DIAGRAM

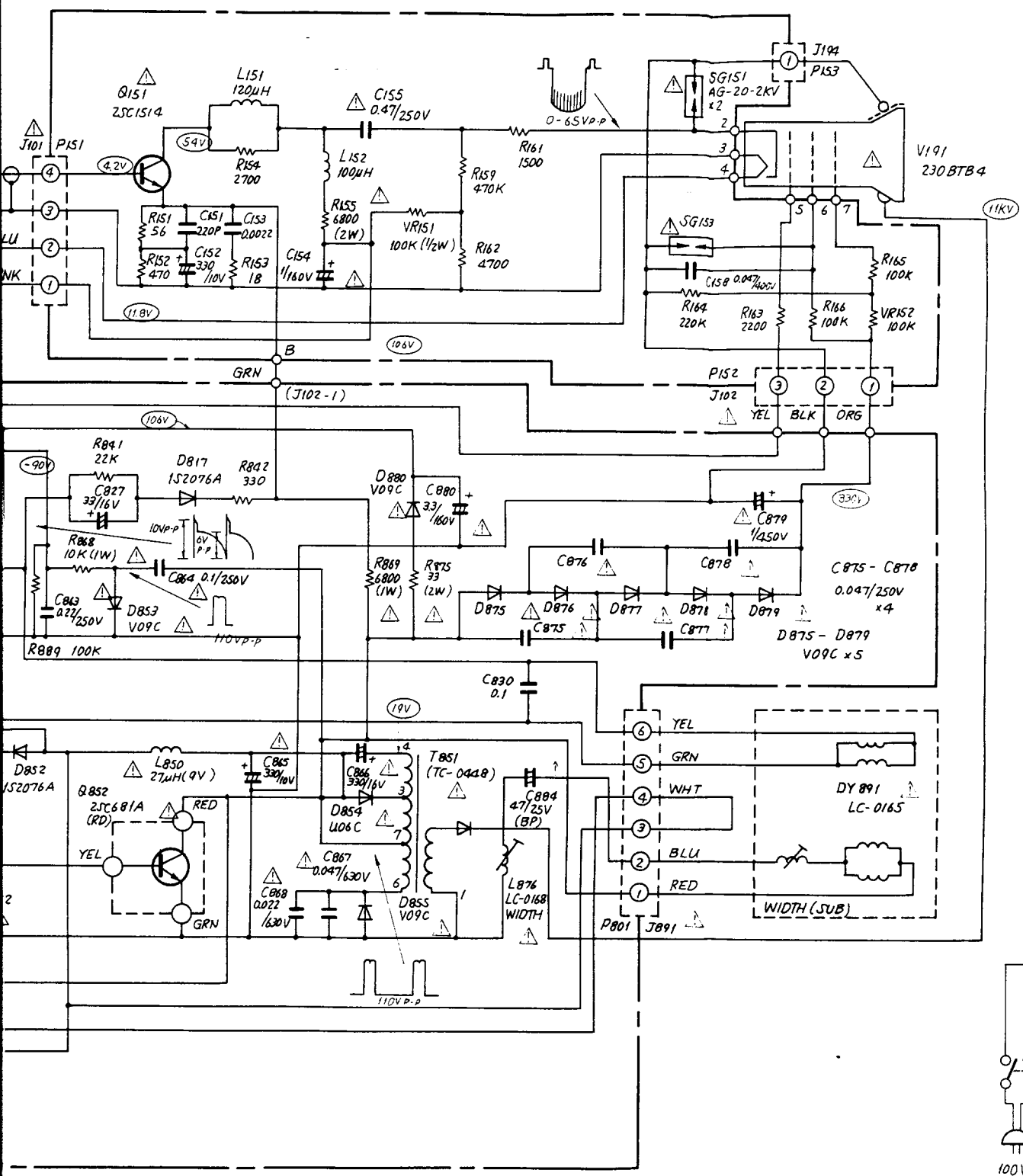


VIDEO MONITOR, VM-910A
BLOCK DIAGRAM

SCHEMATIC DIAGRAM







Notes

- 1. U
- 2. U
- 3. *
- 4. *

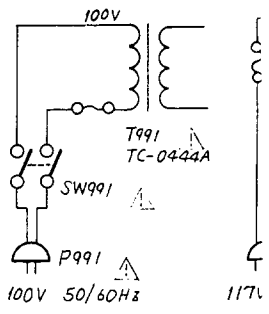
PRODUC

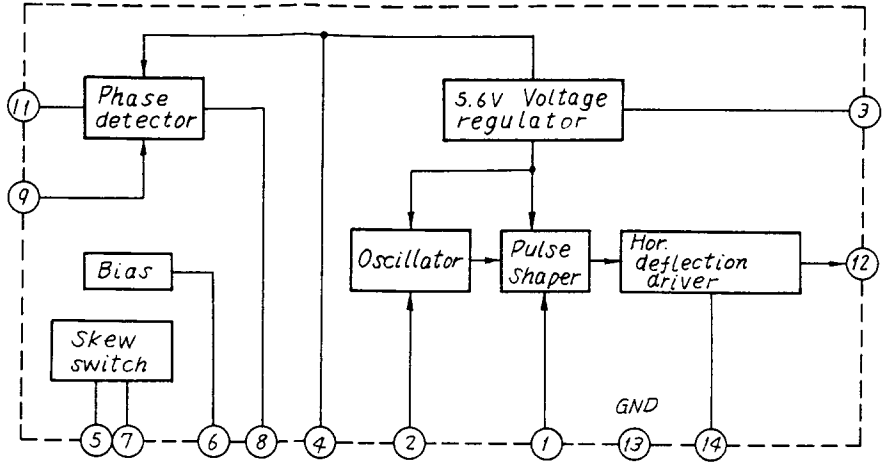
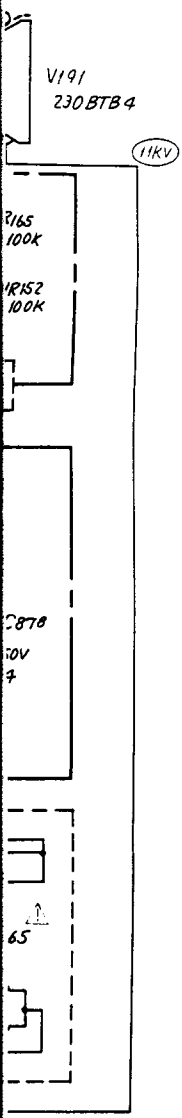
Comp
to su
Befor
NOTIC
impr

FUNDAM

Diffe.
servi

VM-910AJ





Block Diagram for IC 850 HA1166

Notes

1. Unless otherwise specified, all resistors are in ohms, 1/4 watt.
2. Unless otherwise specified, all capacitors are in μF , 50V.
3. *1. Used only for J type.
4. *2. Factory adjusted.

PRODUCT SAFETY NOTICE

Components marked with a \triangle have special characteristics important to safety. Before replacing any of these components, read carefully the "PRODUCT SAFETY NOTICE" of this manual. Do not degrade the safety of this MONITOR through improper servicing.

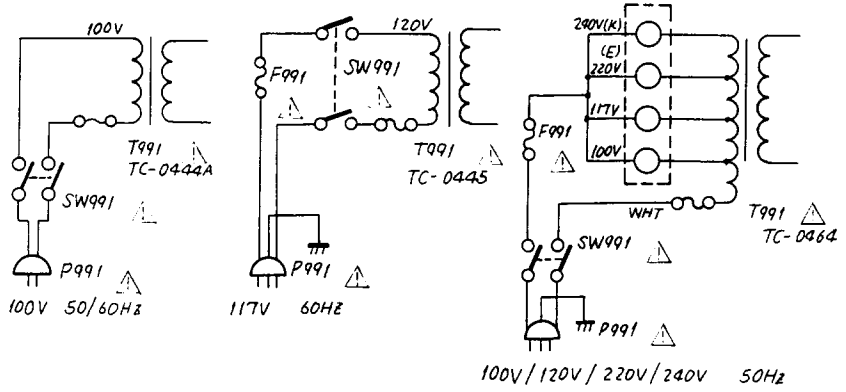
FUNDAMENTAL SCHEMATIC DIAGRAM

Differences may be found between this schematic diagram and the servicing unit due to various improvements made hereafter.

VM-910AJ

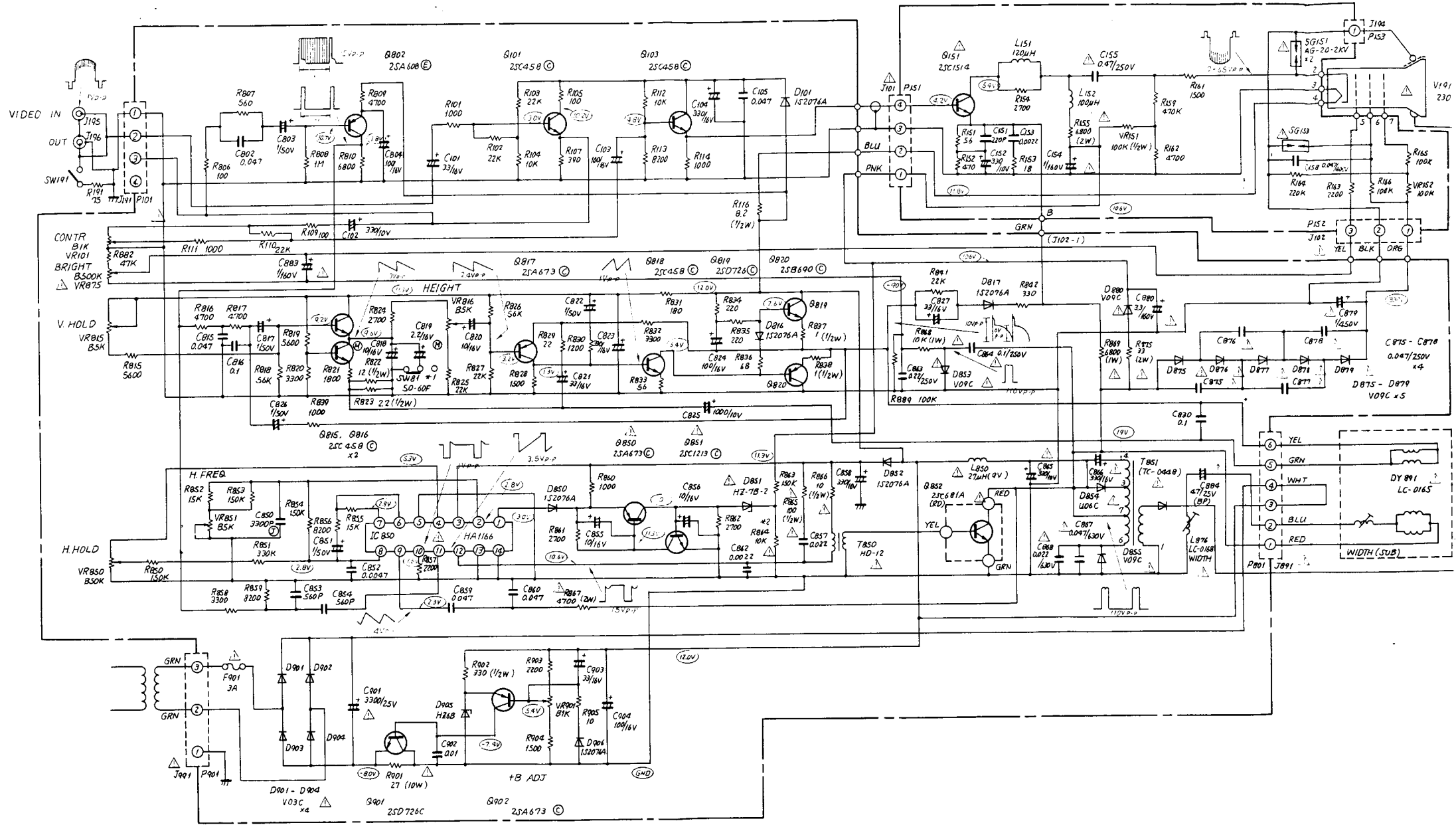
VM-910AUC

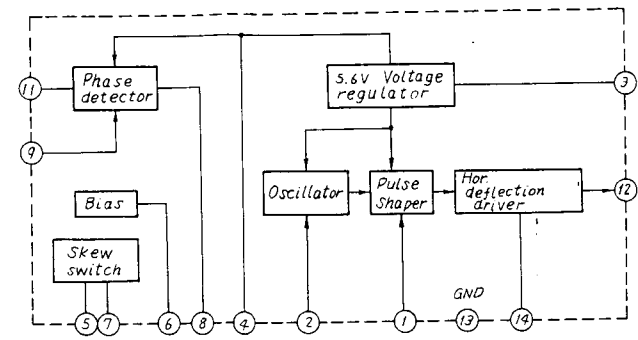
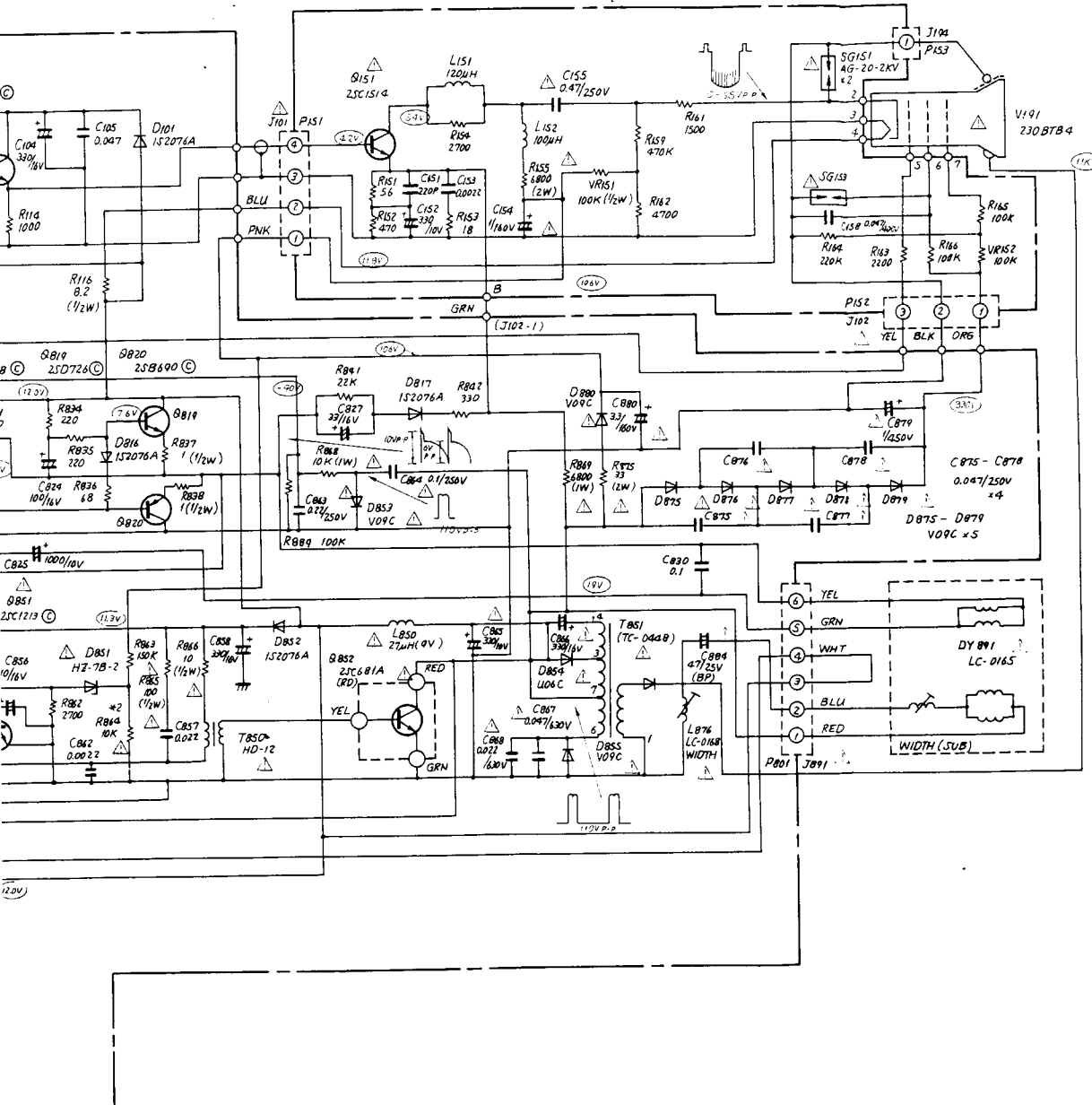
VM-910AE/K



VIDEO MONITOR, VM-910A
SCHEMATIC DIAGRAM

9. SCHEMATIC DIAGRAM





Block Diagram for IC850 HA1166

Notes

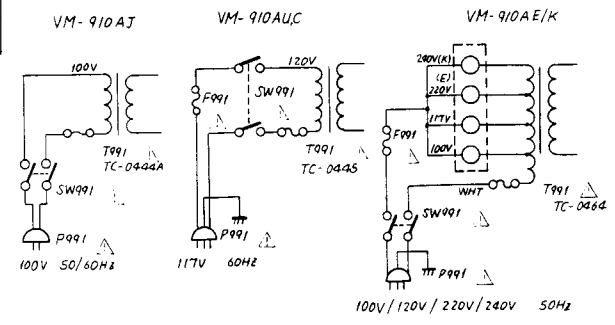
- 1 Unless otherwise specified, all resistors are in ohms, 1/4 watt.
- 2 Unless otherwise specified, all capacitors are in μF , 50V.
- 3 *1. Used only for J type.
- 4 *2. Factory adjusted

PRODUCT SAFETY NOTICE

Components marked with a Δ have special characteristics important to safety. Before replacing any of these components, read carefully the "PRODUCT SAFETY NOTICE" of this manual. Do not degrade the safety of this MONITOR through improper servicing.

FUNDAMENTAL SCHEMATIC DIAGRAM

Differences may be found between this schematic diagram and the servicing unit due to various improvements made hereafter.



VIDEO MONITOR, VM-910A
SCHEMATIC DIAGRAM

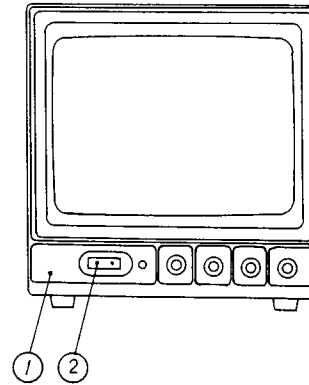
10. MECHANICAL PARTS LIST AND EXTERNAL VIEW

1) CRT replacement

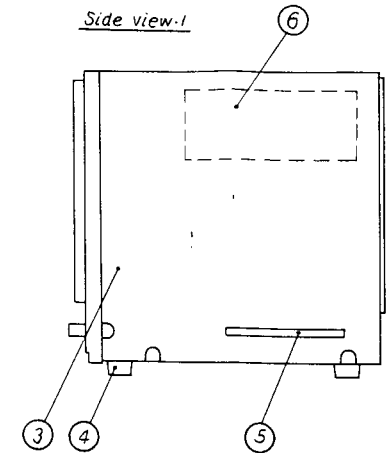
1. Take out 2 screws from both sides of front mask (1) and remove front mask.
2. Take out 2 screws each from top and bottom of rear cover (16) and remove rear cover.
3. Remove deflection yoke (9) and CRT-2PC board (12).
4. Remove 4 CRT mounting nuts.
5. Remove CRT from front of unit and replace.
6. Reassembly by reversing above steps.

| Part Code | Symbol | Description | Remarks |
|-----------|--------|-------------------|--------------|
| 1002995C | 1 | Mask, Front | |
| 8322426A | 2 | Power Switch | |
| 3022087A | 3 | Cabinet | |
| 4058587A | 4 | Foot | U, C type |
| 8354069A | 5 | Label, Side | " , CSA |
| 3024612B | 6 | Picture Tube | |
| 4054315A | 7 | Heat Sink | E type |
| 8354079D | 8 | Deflection Yoke | U, C type |
| 8316098A | 9 | Label, X-Ray | |
| 8318896A | 10 | " , UL | |
| 4054721B | 11 | CRT-2PCB | |
| 4054721C | 12 | Switch | |
| 3024848A | 13 | Panel, Blank | |
| 4058790B | 14 | " , Connector | U type |
| 4054278A | 15 | Bush, Power Cord | C, E, K type |
| 8355628A | 16 | Cover, Rear | |
| 2012735A | 17 | Protector | |
| 2012726B | 18 | Label, CSA | C type |
| 4044797E | 19 | " , UL-CSA | U, C type |
| 4053815A | 20 | Chassis | U, E, K type |
| 4056872A | 21 | " | C type |
| | 22 | Lug C5 | U, C type |
| | 23 | Power Transformer | |
| | 24 | PCB Holder | |
| | 25 | B/W MAIN-1 PCB | |

Front view



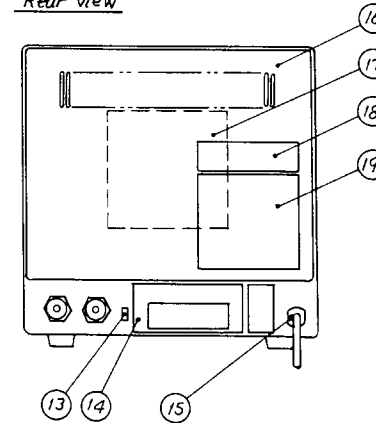
Side view-1



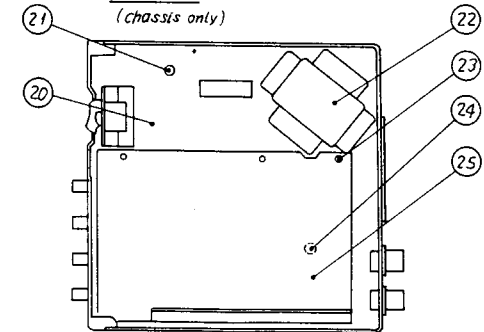
2) B/W MAIN PC board replacement

1. Take out 2 screws from both sides of front mask (1) and remove front mask.
2. Take out 2 screws each from top and bottom of rear cover (16) and remove rear cover.
3. Place monitor on its side and take out 4 screws from both sides of cabinet (3).
4. Place chassis (20) in the normal position.
5. Disconnect connectors of B/W MAIN-1 PC board.
6. Take out 2PC board mounting screws [at side of heatsink (8)]. (At opposite side held by PC board holder.)
7. Remove PC board and replace.
8. Reassemble by reversing above steps.

Rear view



Top view (chassis only)

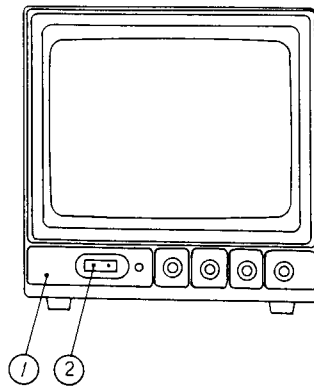


LIST AND EXTERNAL VIEW

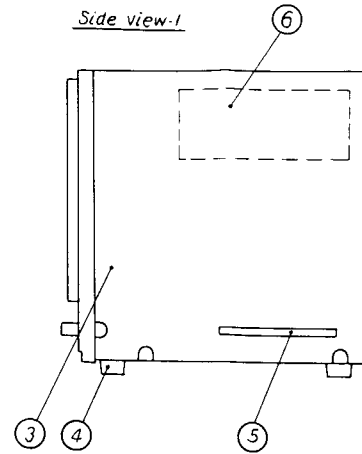
from both sides of
 and remove front mask.
 each from top and
 er (16) and remove
 yoke (9) and CRT-
 nting nuts.
 front of unit and
 ersing above steps.
 placement
 from both sides of
 and remove front mask.
 each from top and
 er (16) and remove
 s side and take out
 sides of cabinet (3).
 in the normal
 ors of B/W MAIN-1
 d mounting screws
 x (8)].
 eld by PC board
 and replace.
 ersing above steps.

| Part Code | Symbol | Description | Remarks |
|-----------|--------|-------------------|--------------|
| 1002995C | 1 | Mask, Front | |
| | 2 | Power Switch | |
| 8322425A | 3 | Cabinet | |
| 1022087A | 4 | Foot | |
| 4058587A | 5 | Label, Side | U,C type |
| 8354080A | 6 | " , CSA | |
| | 7 | Picture Tube | |
| 1024612B | 8 | Heat Sink | |
| | 9 | Deflection Yoke | |
| 4054115A | 10 | Label, X-Ray | E type |
| 8354079D | 11 | " , UL | U,C type |
| | 12 | CRT-PCB | |
| | 13 | Switch | |
| 8316098A | 14 | Panel, Blank | |
| 8318896A | | " , Connector | U type |
| 4054721B | 15 | Bush, Power Cord | C, E, K type |
| 4054721C | | " | type |
| 1024848A | 16 | Cover, Rear | |
| 4058790B | 17 | Protector | C type |
| 4054279A | 18 | Label, CSA | U,C type |
| 8355628A | 19 | " , UL-CSA | U, E, K type |
| 2012726A | 20 | Chassis | type |
| | | " | C type |
| 2012726B | 21 | Lug C5 | |
| 4044797E | 22 | Power Transformer | |
| | 23 | PCB Holder | U, C type |
| 4051815A | 24 | " | |
| 4056872A | 25 | B/W MAIN-1 PCB | |

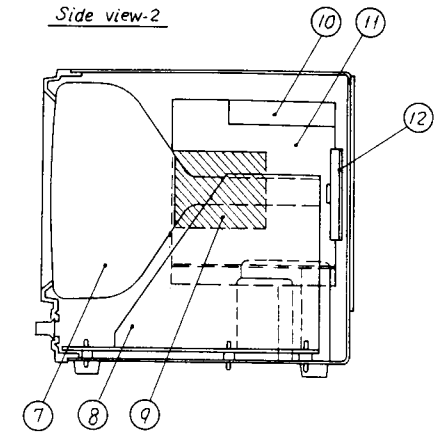
Front view



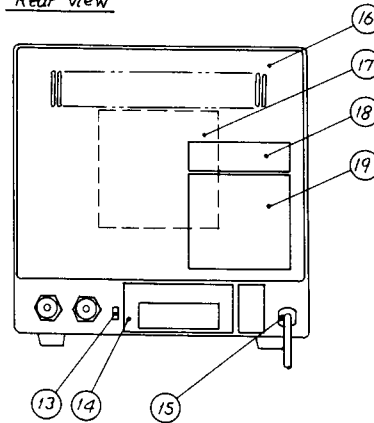
Side view-1



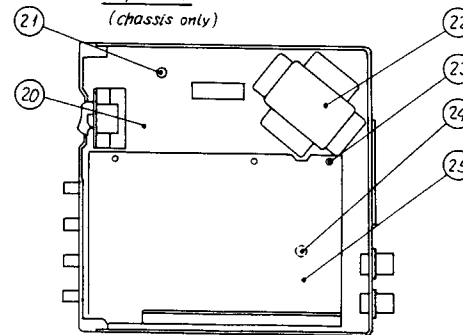
Side view-2



Rear view



*Top view
(chassis only)*



**VIDEO MONITOR, VM-910A
 EXTERNAL VIEW**