

SERVICE MANUAL
HIGH RESOLUTION DISPLAY MONITOR
NSV1107STTKW
(Diamond Plus 220)

NEC-MITSUBISHI ELECTRIC VISUAL SYSTEMS CORPORATION
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CBB-S5728


X-RADIATION WARNING

The surface of picture tube may generate X-Radiation.

Precaution during servicing, and if possible use of a lead apron or metal for shielding is recommended. To avoid possible exposure to X-Radiation and electrical shock hazard, the high voltage compartment and the picture tube shield must be kept in place whenever the chassis is in operation.

When replacing picture tube use only designated replacement part since it is a critical component with regard to X-Radiation as noted above.

CRITICAL COMPONENT WARNING

- In the schematic diagram/parts list, the components marked "  " are critical components for X-ray radiation.

When replacing these parts, use exactly the same one indication in parts list.

- If one or some of the components listed below are replaced, the high voltage and the operating voltage of high voltage hold-down circuit must be re-adjusted according to Clause 2.4 ADJUSTMENT on page 2-6 :

T701, IC103, IC105, R706, R707

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3. Schematic diagram

4. Exploded view

<Appendix>

Specification

User's guide

All parts list

1. Circuit description

1.1 Power block

1.1.1 Outline

- (1) The power block is compatible with 100 to 120VAC/220 to 240VAC(50/60Hz).
- (2) The active filter circuit is adopted to suppress the higher harmonic current and improve the power factor.

- (3) The circuit that supplies the electric power to the secondary side is divided into two circuits that are respectively called the main power and sub power.

Though both main and sub circuits supply the power to the secondary side in the normal operation mode, the power is supplied from the sub power only in the power save mode since the main power is stopped.

The main power is the configuration used the flyback converter type switching control IC of the simulative resonant operation. Moreover, the sub power is the configuration used PWM (pulse width modulation) control IC.

- (4) The output on the secondary side is shown in Table 1.

(Refer to the power system diagram1-3 in Pages 1-3, 1-4 and 1-5.)

Power block	Output voltage	Application	When power save
Main power side	+190V	H. deflection circuit, Video cut off circuit	OFF
	+80V	Video circuit, DBF circuit, High voltage circuit	OFF
	+15V	H/V deflection circuit, etc.	OFF
	-15V	H/V deflection circuit, etc.	OFF
	+12V	Video circuit, H. deflection circuit, etc.	OFF
Sub power side	+6.5V	Heater	ON
	+5V	MPU, etc.	ON
	P-OFF+5V	Video circuit, etc.	OFF

Table 1

1.1.2 Rectifying circuit

- (1) The AC input voltage is rectified in the full wave mode with the diode bridge in D901.
- (2) In the higher harmonic circuit of the section 1.1.4, the AC input current becomes the sine wave form in the same phase with the AC input voltage waveform, but the interference is given to other peripheral devices since the noise of the switching current appears on the input side owing to the switching waveform. Therefore, L902 and C906 are inserted to suppress the noise that is caused by the switching current.

1.1.3 Surge current suppression

- (1) TH901 (thermistor) suppresses the rush current that flows when the power switch is turned ON. Moreover, D903 and D918 are added to protect D902 from the rush current.

1.1.4 Higher harmonic circuit

- (1) The pulsating waveform rectified in the full wave mode by D901 is switched throughout the full cycle by the frequency of several tens kHz or more. Through this, the input current waveform becomes an average of the switching currents of the partial cycles, thus becoming the sine waveform in the macro. (See Fig.1)
- (2) For the AC input voltage, the AC input current of the sine wave type in the same phase flows to achieve the power circuit of improved power factor and reduced higher harmonic wave component.
- (3) L903 is the choke coil, Q901 is MOS FET, D902 is the rectifying diode, C911 is the block capacitor, and IC901 is the power factor improved controller. The power factor improved controller uses MC33262P of Motorola. (See Fig. 2)
- (4) After the sub power starts, P-SUS signal becomes HI when +5V voltage is supplied to the MPU. Then, Q902 is turned ON, the voltage of approx. +18V is supplied to pin8 (VCC terminal) of IC901 through D940 from pin2 of T902, and the following operation is started.
- (5) The pulsating voltage waveform rectified in the full wave mode by D901 is divided with R904, R905, R906, R907 and R908 (100VAC : 1.1Vp-p and 240VAC: 2.9Vp-p), and is input to pin3 of IC901 (Multiplier input). Moreover, the output (+side of C911: 400VDC) of the higher harmonic circuit is divided with R913, R914, R915, R916 and R917 (2.5VDC), and is input to pin1 of IC901 (error amplifier input).
- (6) The output of the error amplifier and the divided waveform of the pulsating voltage input to pin3 of IC901 sets the threshold voltage of the current sense comparator to control the Q901 flowing current from zero to the peak line of the AC input voltage in the sine wave pattern.
- (7) When Q901 is turned ON, the drain current of Q901 flows to R922 and R923 to drop the voltage, and the voltage generated by the voltage drop is input to pin4 (current sense input) of IC901. When the voltage reaches the threshold voltage of the current sense comparator, Q901 is turned OFF.
- (8) When Q901 is turned OFF, the accumulated energy of L903 starts to be supplied to the load through D902.
- (9) As the accumulated energy of L903 drops, the auxiliary coil voltage (pin8 of L903) also drops. When it reaches the threshold voltage of *zero current detector, Q901 will be turned ON again.
* Pin 5 of IC901 is the zero current detection terminal to input the auxiliary coil voltage of pin10 of L903. The zero current detector monitors that the auxiliary coil voltage drops beyond the threshold voltage. Thus, the accumulated energy of L903 is indirectly detected.
- (10) The above operation is repeated to continue the oscillating operation. Thus, the DC voltage (L903, Q901, D902 and C911 compose the voltage rise circuit.) is gained on the output, and the AC input current of the sine wave in the same phase with the AC input voltage is gained on the input side.

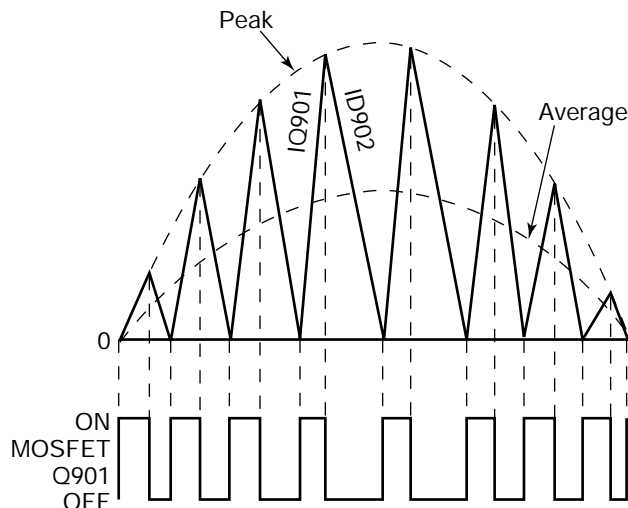
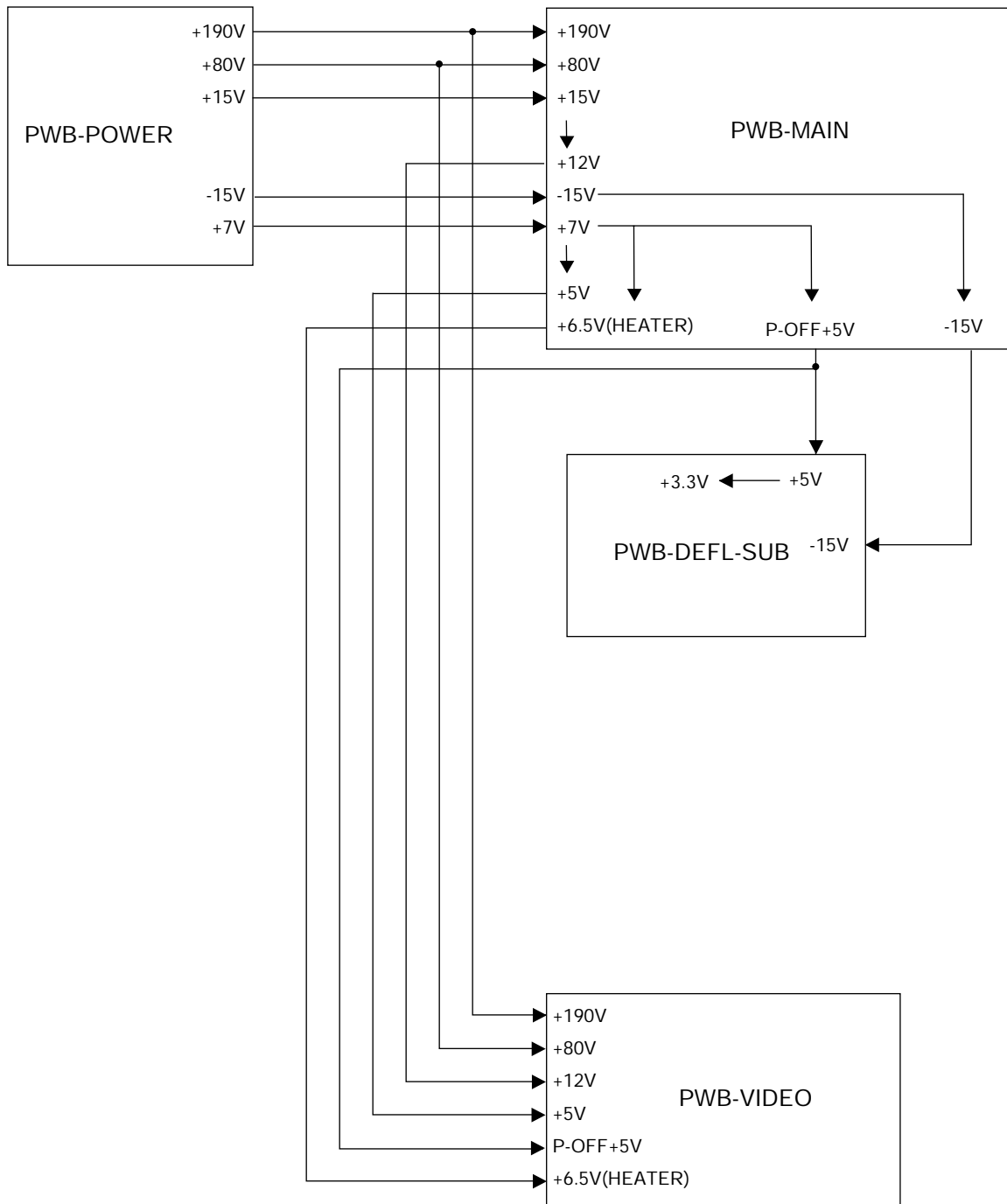
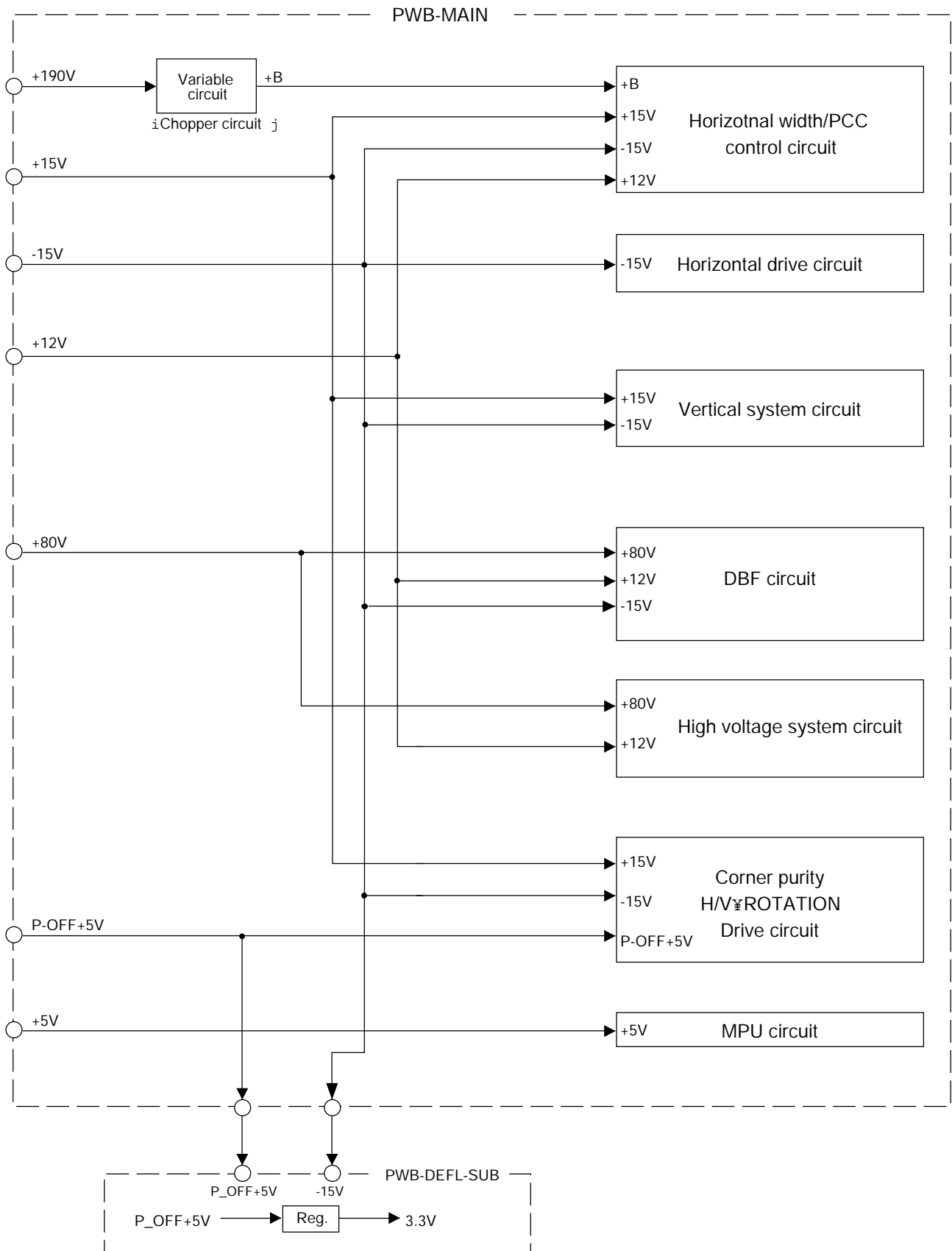


Figure 1. L903 coil current

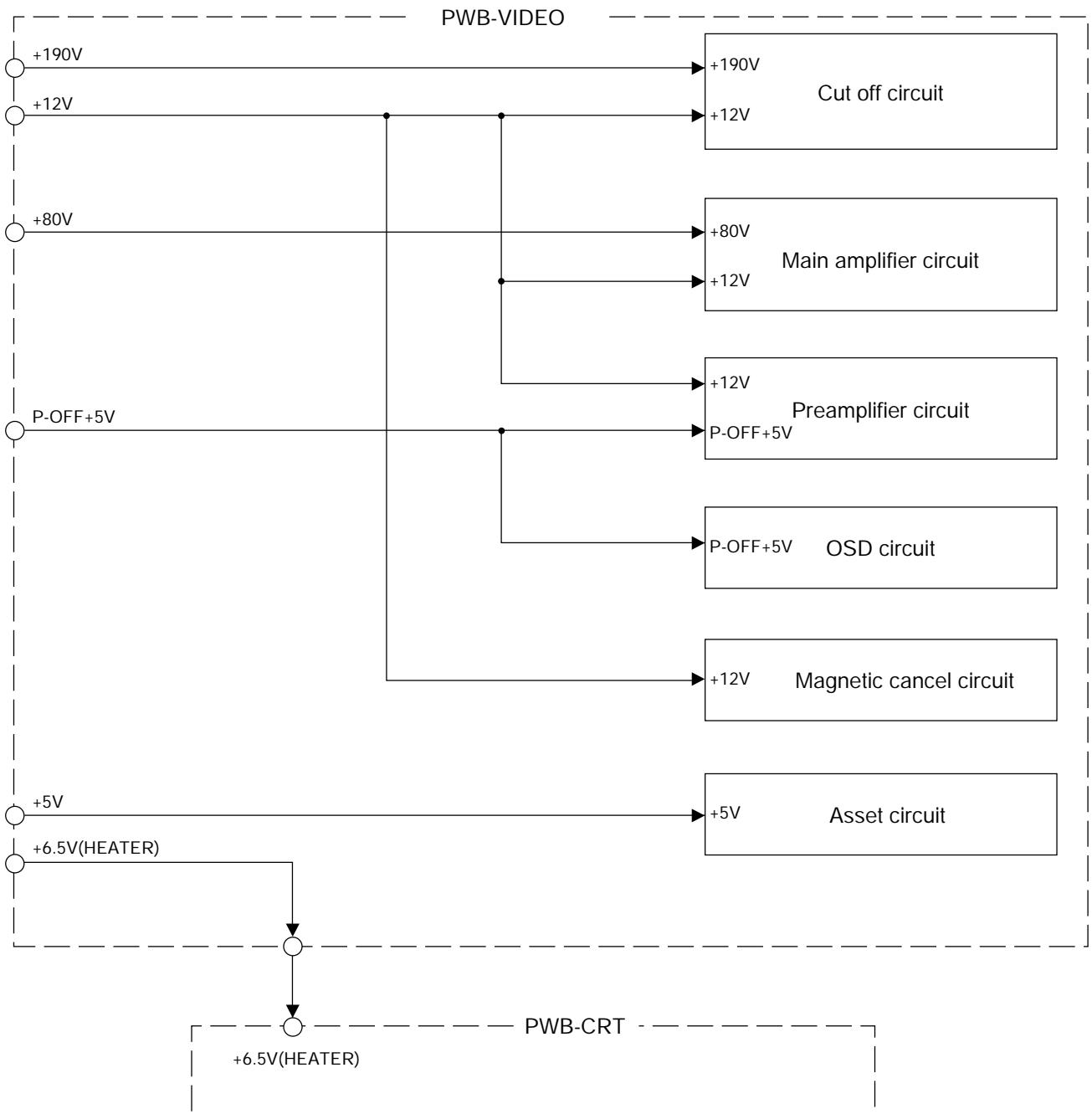
~ Power system diagram 1 ~



~ Power system diagram 2 ~



~Power system diagram 3 ~



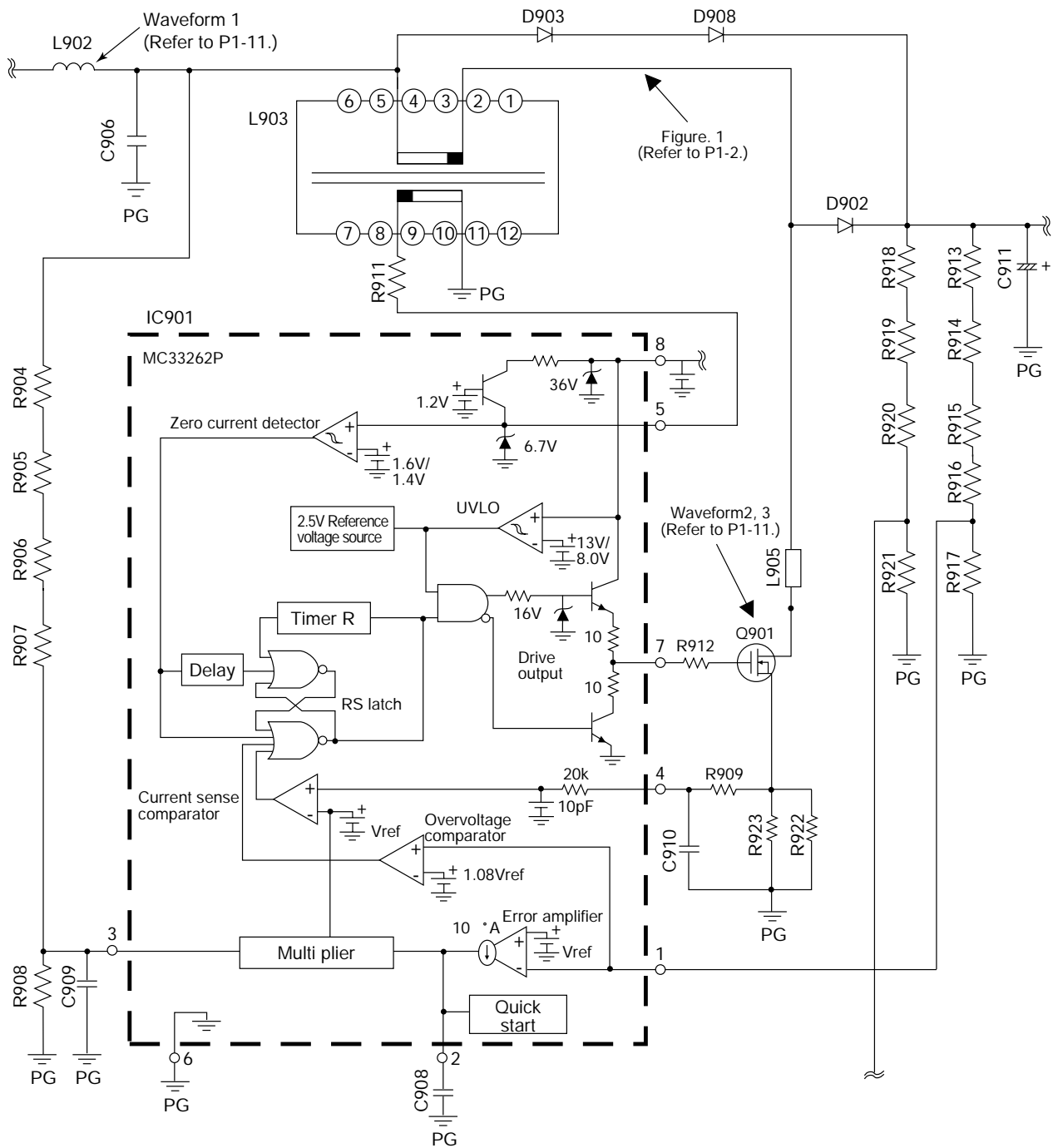


Figure 2. High harmonic waveform circuit

1.1.5 Sub power circuit

- (1) The sub power uses the self-excited type regulator MIP0255SP (IC903) produced by Panasonic. (See Fig.3)
- (2) When the power switch is turned ON, the rectified and smoothened DC voltage (AC voltage $\times \sqrt{2}$) is supplied to pin5 of IC903, and is charged to C941 through Pin 1. When pin1 reaches 5.7V, the current supply from pin3 is cut off to start oscillation in IC903, and the output FET is put into operation. (Since Q902 is OFF, IC902 and IC 903 do not operate.)
- (3) This also induces the voltage at pin2 of T902 and on the secondary side. These outputs are respectively rectified, and are used as the power for control on the primary side and the power for the MPU and heater.
- (4) The voltage fluctuation on the secondary side is restricted by controlling the current in pin 4 of IC903 (F/B terminal) by using the induced voltage in pin2 of T902.
Further, the voltage on the secondary side is determined by the value of D915 (Zener diode).
- (5) When the voltage on the secondary side starts, the MPU will be put into operation and the P-SUS signal line will become HIGH.
- (6) This information is transmitted to the primary side via IC912 to turn ON Q902.
When Q902 is turned ON, the power for control on the primary side will be supplied to IC901 and IC902 to operate the higher harmonic circuit. Thus, the main power circuit will be put into operation.

1.1.6 Main power circuit

- (1) The main power circuit adopts the flyback type switching power of pseudo-reonance operation. This is composed of a Sanken brand hybrid IC STR-F6655 (IC902) that integrates the power MOS-FET and control IC.
The circuit operation is described as follows. (See Fig. 4.)
- (2) The timing at that the power MOS-FET is turned ON is consistent with the bottom point of the voltage resonant waveform after the transformer (T901) discharges the energy to the secondary side, that is, a half cycle of the resonant frequency determined by Lp value (primary coil inductor value) of T901, and C920 (resonant capacitor). This is called pseudo-reonance operation. The advantage of such an effect is that the switching loss is reduced by turning it ON when the voltage between the drain sources of the power MOS-FET becomes the lowest.
- (3) Like the higher harmonic circuit, voltage of approx. +18V is supplied to the Vcc terminal (Pin 4) of IC902 (STR-F6655) via D940 from pin2 of T902 when Q902 is turned ON by the P-SUS signal from the MPU.
When the voltage of Pin 4 of IC902 reaches 16V, the control circuit will be put into operation to turn ON the integrated MOS-FET.
- (4) When MOS-FET is turned ON, the capacitor C1 in IC will be charged to approx. 6.5V. On the other hand, the drain current flows to R930, and the voltage generated by the voltage drop is applied to pin1 (OCP/FB terminal) of IC902.
When the voltage of Pin 1 reaches approx. 0.73V, the comparator (Comp. 1) in IC will be activated to turn OFF MOS-FET.
- (5) The voltage between both ends of C1 drops to approx. 3.7V. the oscillator output will be reversed again to turn ON MOS-FET.
The above is repeated to continue the oscillation operation.
- (6) Here, IC902 monitors +190V of the output on the secondary side with IC951 (error amplifier) and feeds back it to pin1 of IC902 with IC911 (photocoupler), thus suppressing the voltage fluctuation of the primary side.

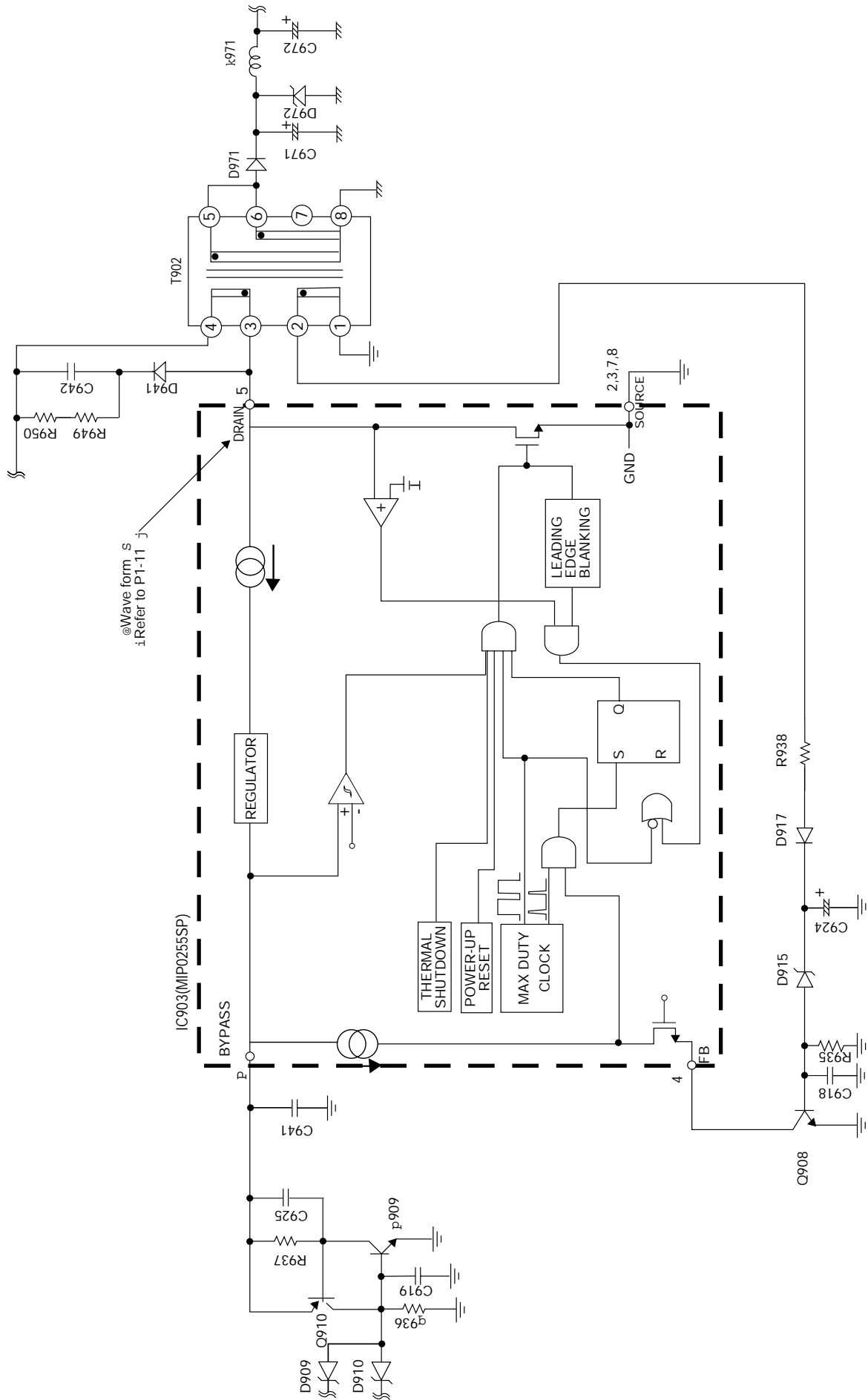


Figure 3. IC903 (MIP0255SP) block diagram and peripheral circuit

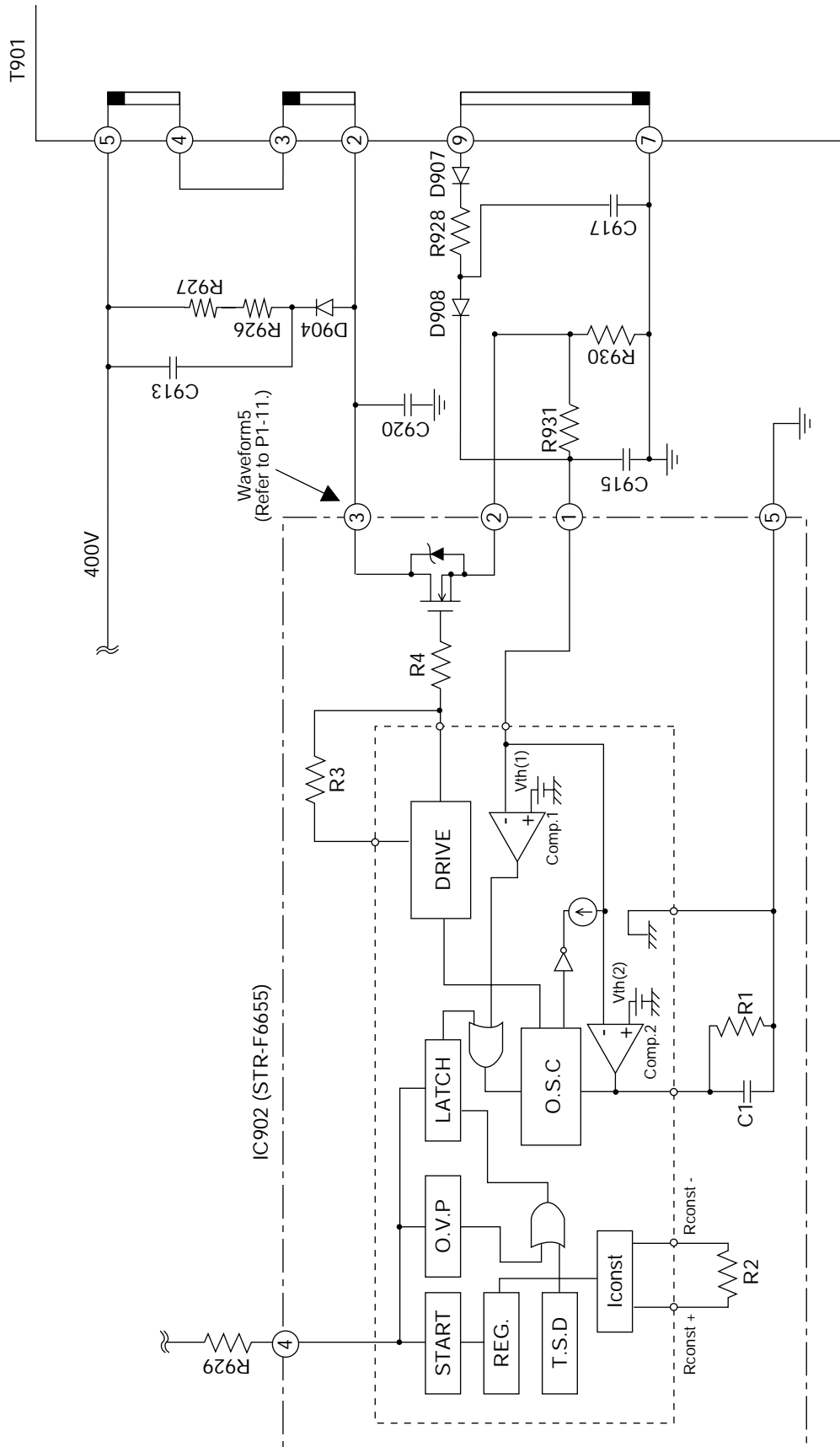


Figure 4. IC902 (STR-F6655) block diagram and peripheral circuit

1.1.7 Demagnetizing circuit

- (1) The automatic and manual demagnetizing circuit is provided.

The circuit prevents the picture from dropping its quality due to the magnetization on CRT, and operates as follows.

- (2) When powering ON, Q956 flows to activate RY901 by DG signal output by the MPU.

This will make the current flow through the demagnetizing coil for demagnetization. The demagnetizing time is approximately 5 seconds.

Manual demagnetization becomes possible by selecting the demagnetizing menu on the OSD picture.

1.1.8 Power management circuit

Turn ON the power management setting on the menu picture of OSD, and the energy saving mode shown in Table 2 will be ready depending on whether the horizontal/vertical sync. signal is present or not.

Power Save	H-sync	V-sync	Video	Power consumption	Recovery time	LED indicator
OFF	On	On	Active	130W	∞	Green
ON	Off	On	Blank	3W	5 sec.	Amber
	On	Off	Blank			
	Off	Off	Blank			

Table 2

1.1.9 Protective circuit

- (1) Overcurrent protective circuit (primary side)

IC902 is provided with an overcurrent protective circuit. The voltage drop generated by the drain current that flows into R930 is input to Pin 1 (OCP/FB terminal) of IC902. When the voltage reaches 0.73V, the overcurrent protective circuit will be activated.

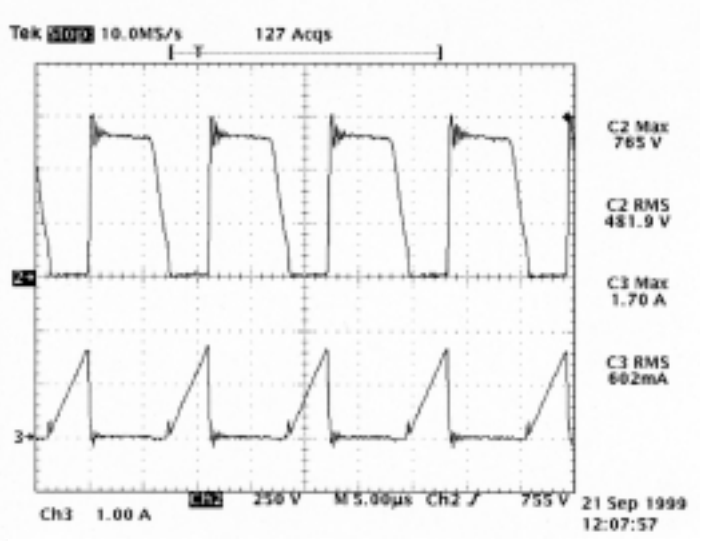
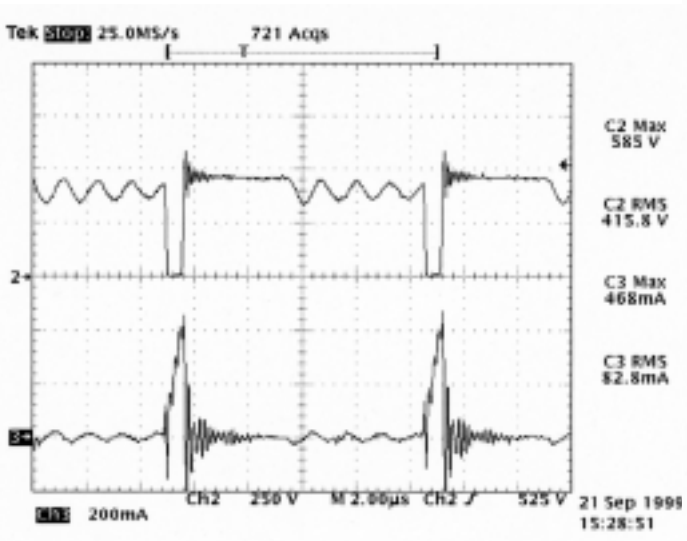
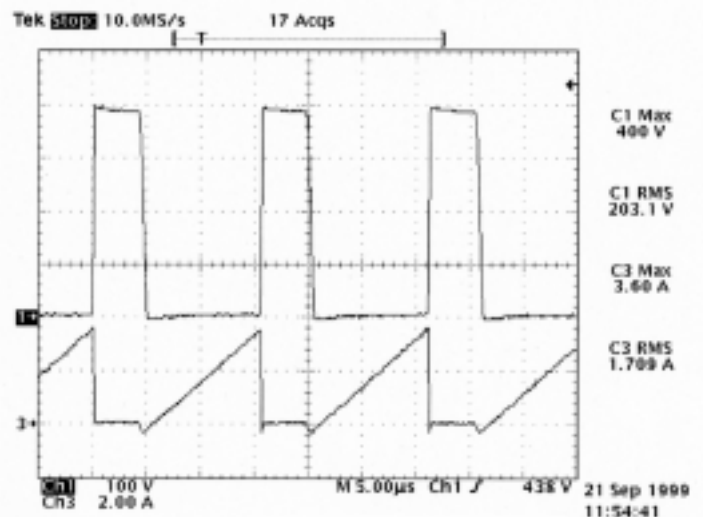
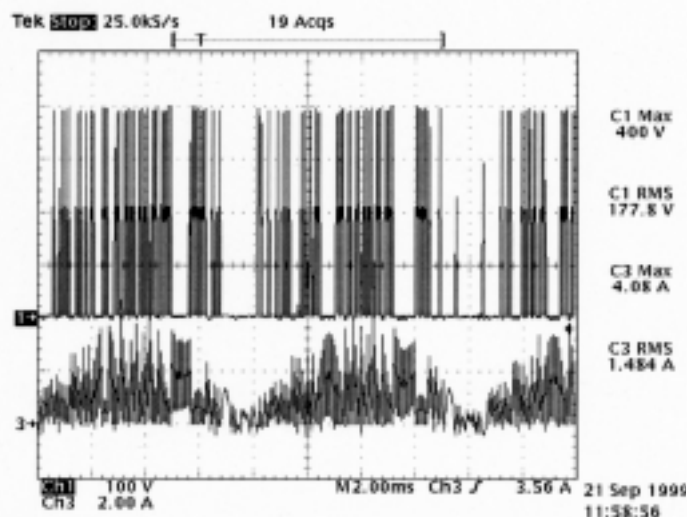
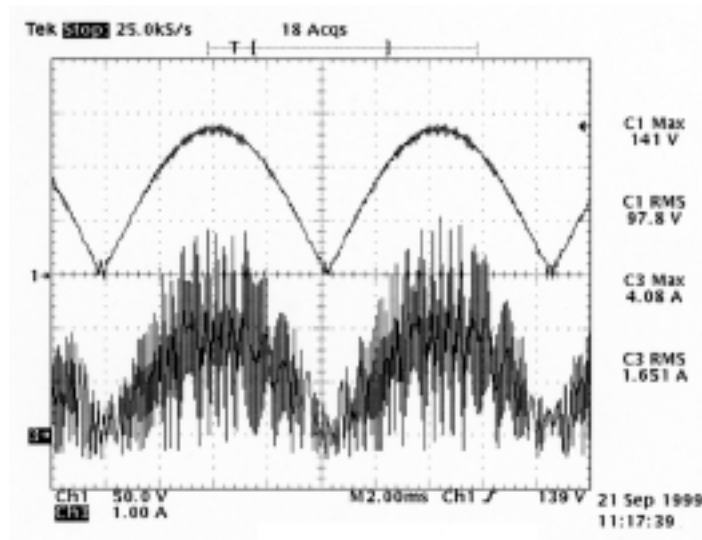
- (2) Overcurrent protective circuit (secondary side)

To protect the parts on the secondary side, the short-circuit detection circuit is provided on the secondary side output (+190V, +80V, +/-15V), one for each. As an example of +190V, the output line of +190V is monitored with R951, R952, D955 and Q951. If it drops beyond +120V for any reason, Q951 will be turned ON to transmit the information to the MPU.

Then, since the MPU sets P-SUS signal at LOW, Q902 will be turned OFF to cut off the power to IC902 in order to stop IC902. (IC901 will be also stopped at the same time.) The overcurrent protective circuit is designed to be activated when the output voltage drops approx. 30 to 40%.

- (3) Overvoltage protective circuit

R918, R919, R920 and R921 are used to detect the overvoltage in the higher harmonic circuit, and the tertiary coil (Pin 9) of T901 is used to detect the overvoltage of the voltage on the secondary side. They are both connected to the overvoltage protective circuit (Q909, Q910) on the primary side. If any overvoltage results for any reason, Q909 will be turned ON to turn ON Q910. Then, IC903 stops and Q902 will be stopped. Since the power is cut off for IC901 and IC902 as Q902 is stopped, the switching operation will be stopped.



1.2 Horizontal deflection block

The operating principle of the horizontal deflection circuit is given below.

The square wave for horizontal deflection drive is output from pin 25 of IC601 with amplitude 3.3 Vp-p and duty 45% taking account of the transistor delay so that the duty at the output of Q504 in the horizontal deflection circuit is 50%.

Here, the horizontal flyback pulse (AFC, 5V pulse) input to pin 27 of IC601 and the artificial horizontal synchronous signal (5V pulse) input from IC103 (MPU) into pin 44 of IC601 are passed through the inverter of IC6A3 to raise the edge of these waves. This measure is taken to prevent the noise such as jitter, etc.

Further, the circuit composed of Q602 and Q605, etc., connected to pin 13 of IC601 prevents the rapid change in horizontal output frequency when the horizontal input signal becomes no signal. The pin 13 of IC601 is the phase comparator filter terminal in order to carry out phase lock of the horizontal input synchronous signal and the oscillation inside IC601.

When the horizontal input synchronous signal becomes no signal, this terminal voltage shows a rapid change from 0.8V at phase lock to 0V, causing the horizontal output frequency to make a rapid change. With this circuit added, the instantaneous terminal voltage in pin 13 at unlock undergoes smooth change due to C636, suppressing the width of rapid change in the frequency. This prevents the rebound of horizontal collector pulse, and eventually the overvoltage of the horizontal output transistor (Q550).

The terminals of pin 13 to pin 20 of IC601 are the control filter terminals for the horizontal PLL.

The Q550 operates as horizontal output, and the D550 as the dumper diode.

As shown in Fig. 5, the horizontal output transistor Q550 turns to ON/OFF by means of the drive pulse in pin 25 of IC601 in substrate DEFL-SUB through the drive transformer T501, drive transistor Q504, or Q501, Q502, Q503, etc.

The deflection current I_{dy} during Q550 ON gets increased to the maximum level I_p according to the equation shown below:

$$I_{dy} = (V_{cc}/L_{dy}) \times T_{on}$$

The maximum I_p is approximately 8A at full scan when $f_h = 106k$.

Here;

V_{cc} : Output voltage of Q5F1

L_{dy} : Parallel value of the L_h value of DY (=62μH) and the horizontal output transformer (=5mH)

T_{ON} : The ON time of Q550

When the drive pulse has negative polarity, Q550 turns OFF and I_{dy} starts flowing to charge C550 until the collector voltage reaches the maximum level V_{cp} .

$$V_{cp} = V_{cc} \{1 + (\pi/2) \times (T_s/T_r)\}$$

With the maximum V_{cp} attained, the charges accumulated in C550 flow into DY as the discharge current. This charge/discharge current is called retrace time, and is expressed by the equation given below.

$$T_r = \pi \sqrt{L_{dy} \cdot C_r} \quad * C_r = C550 \text{ value}$$

In the present model, the retrace time is set to approx. 2 μ s.

Ts is called trace time, and is expressed by the equation given below with the horizontal cycle as T.

$$T = T_s + T_r$$

With Vcp = 0, the dumper diode D550 turns ON and Idy gets decreased from -Ip to 0 ampere. Since Q550 ON time and dumper diode ON time are set to overlap at 0 ampere point of Idy, the crossover distortion is prevented from occurring at 0 ampere point of Idy.

The D550 causes the transient current to flow in the high-speed dumper diode.

The horizontal output transformer T550, connected in parallel to the deflection yoke, operates as a choke coil. Figs. 6 and 7 show the image of circuit operation and the waveforms in actual machine.

1.2.1 Distortion compensation waveform generating circuit

The deflection distortion compensation waveform for horizontal size system is output from pin 64 of IC601. This waveform is output from 1-bit DAC, with 3.3V pulse waveform with resolution 25MHz output at pin 64. This pulse waveform is leveled by the low-pass filters R632 and C622 to obtain the vertical cycle compensation waveform, with the amplitude 1.0 to 1.2Vp-p and connected to pin5 of IC5C0.

The compensation waveform circuit carries out horizontal size and trapezoid compensation, side pin compensation, side pin top and bottom compensation, side pin S-shape compensation and side pin W compensation. (Refer to Compensation Image Diagram in Fig. 22)

The deflection compensation waveform for horizontal phase system is output from pin 57 of IC601. The pin 57 has 1-bit DAC output and outputs the 3.3V pulse waveform with 25MHz resolution. This pulse waveform is then leveled by the low-pass filters R619, R614, C604 and C601 to obtain the vertical cycle waveform, which is then electrically added to the horizontal system PLL filter (pin 20 of IC601) to carry out the deflection distortion compensation of the horizontal phase system. It carries out parallelogram distortion compensation and side pin balance (top and bottom) correction. (Refer to the Compensation Image Diagram in Fig. 22.)

The control of horizontal screen width and the side PCC control are carried out by IC5C0, Q5F0 and Q5F1. First, the horizontal width signal and each distortion compensation signal impressed in pin 5 of IC5C0 from pin 64 of IC601 are compared with the AFC pulse signal rectified and fed back to pin 13 of IC5C0. The signals are further compared with the constant-inclination type saw-tooth wave synchronized with the horizontal cycle created inside IC before turning into the PWM signal of square wave. This PWM signal output from pin 9 of IC5C0 carries out the above control by driving the Q5F1 gate. Fig. 8 shows the block diagram of IC5C0 and Fig. 9 the operation image waveforms.

As for the operation of Q5C3 and Q5C4 connected to pin 11 of IC5C0, Q5C4 is normally OFF when Q5C3 is ON. However, Q5C4 turns ON as Q5C3 turns OFF due to the microcomputer reset signal at power OFF, causing pin 11 of IC5C0 to get dragged to GND. Since pin 11 of IC5C0 carries out control so that the PWM ON time is 1.2 μ s when 0V is applied, it eventually causes the output voltage of Q5F1 to drop, thus preventing the damage due to the transient error pulse of Q550 (H-OUT Tr).

The Q5F0 works as a ripple filter in 190V line and keeps the Q5F0 emitter voltage constant even if there is a slight fluctuation in the collector voltage of Q5F0. The Q5F0 collector has 190V applied to it, with the emitter output being stable at 187V. This is mainly effective in dynamic regulation.

The horizontal raster position is adjusted by using Q5A1, Q5A2, VR5A1 and T550. The reference voltage is obtained from the connecting point of Cs and is then input into pin 2 of T550. When the emitter voltage in Q5A1 and Q5A2 has the DC level increased by adjusting VR5A1, the current flows to DY side, causing the raster to move left. Reversely, when the DC level of the emitter voltage is decreased, the current flows to Q5A2 side, causing the raster to move right.

The Idy DC level is adjusted by varying the emitter voltage of Q5A1 and Q5A2 at the timing No. 12 (106kHz/85Hz) using VR5A1, so that the raster position comes at the center of CRT. The operation image is shown in Fig. 10.

This adjustment, however, is confined to the factory, and is not open to the users.

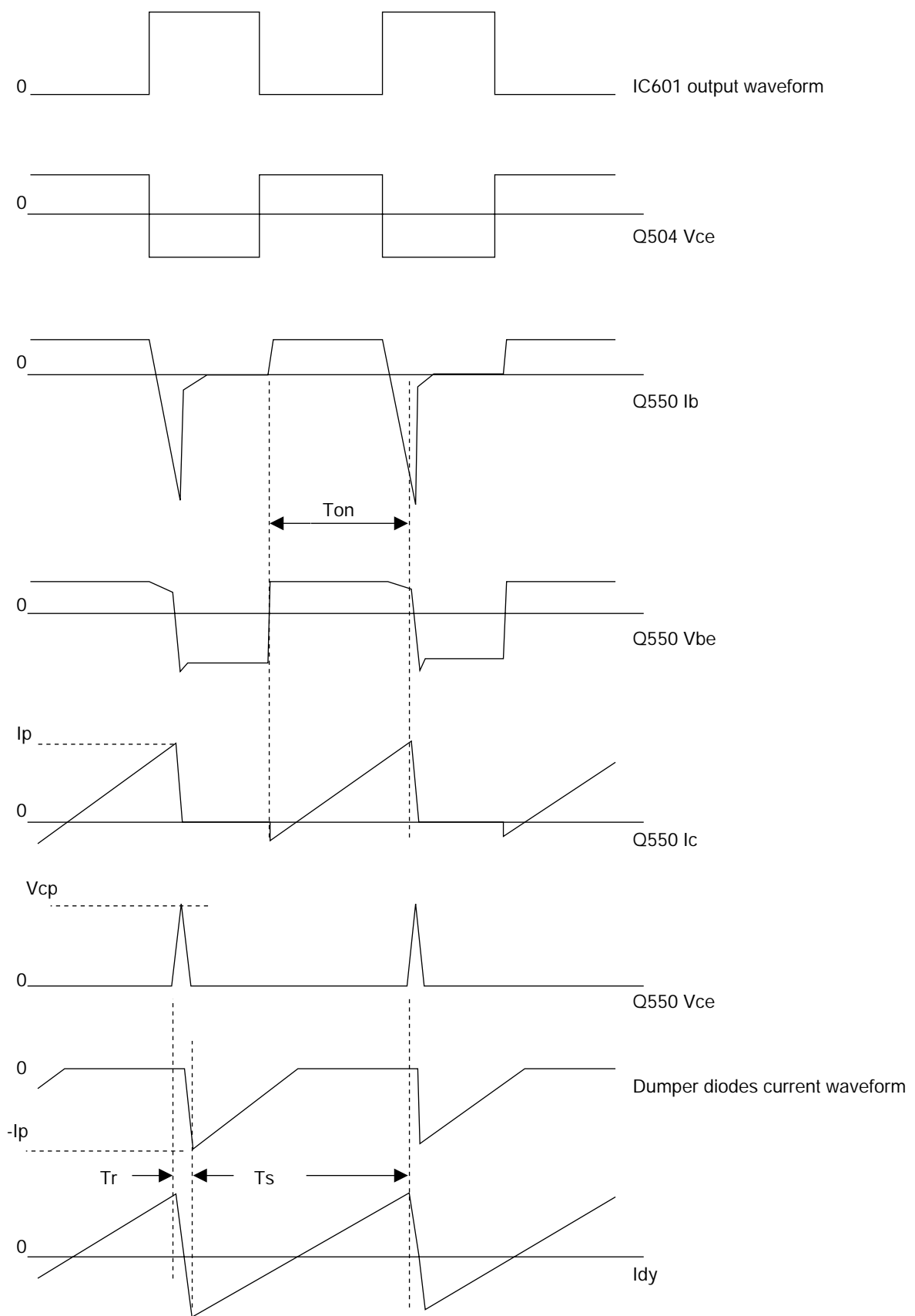
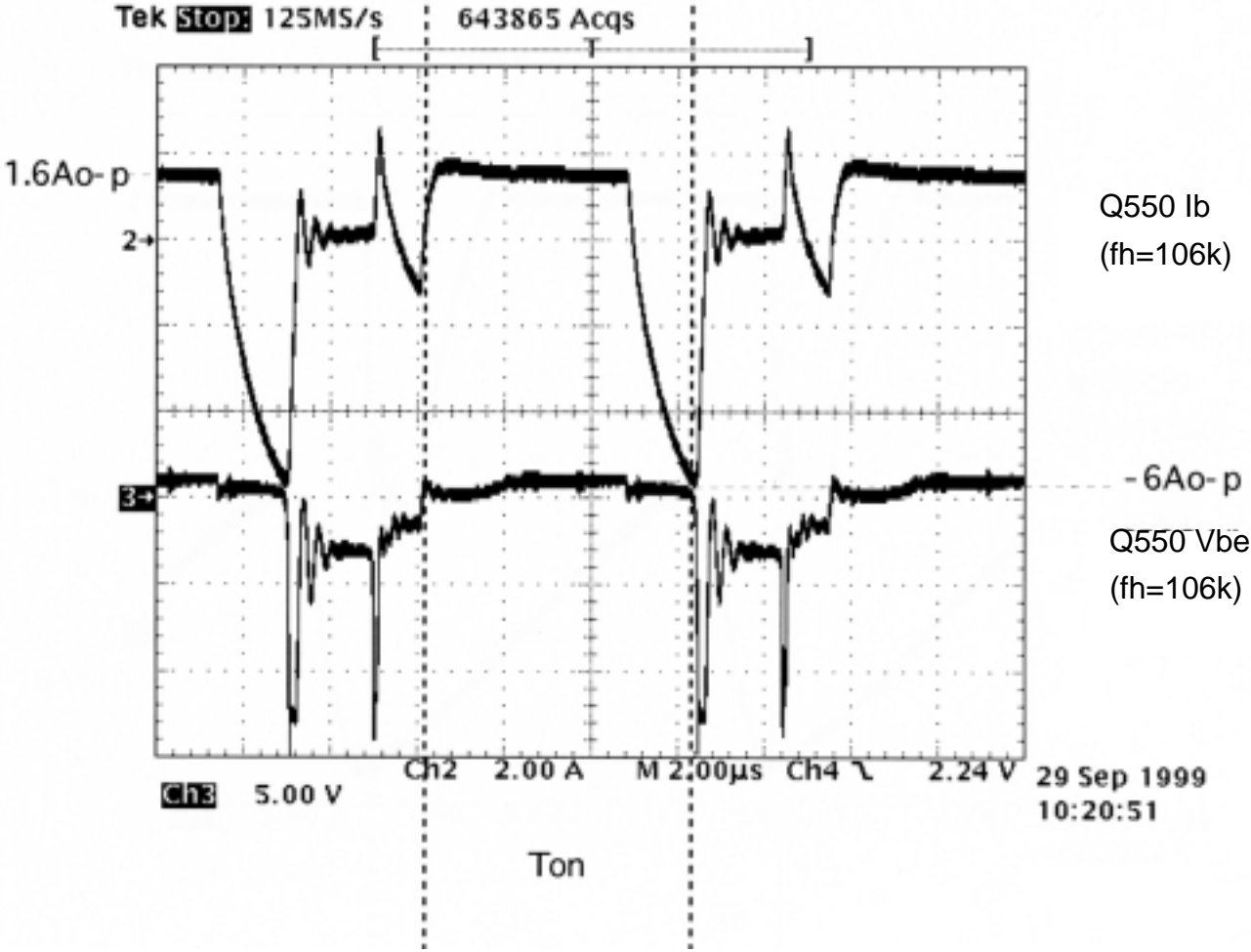
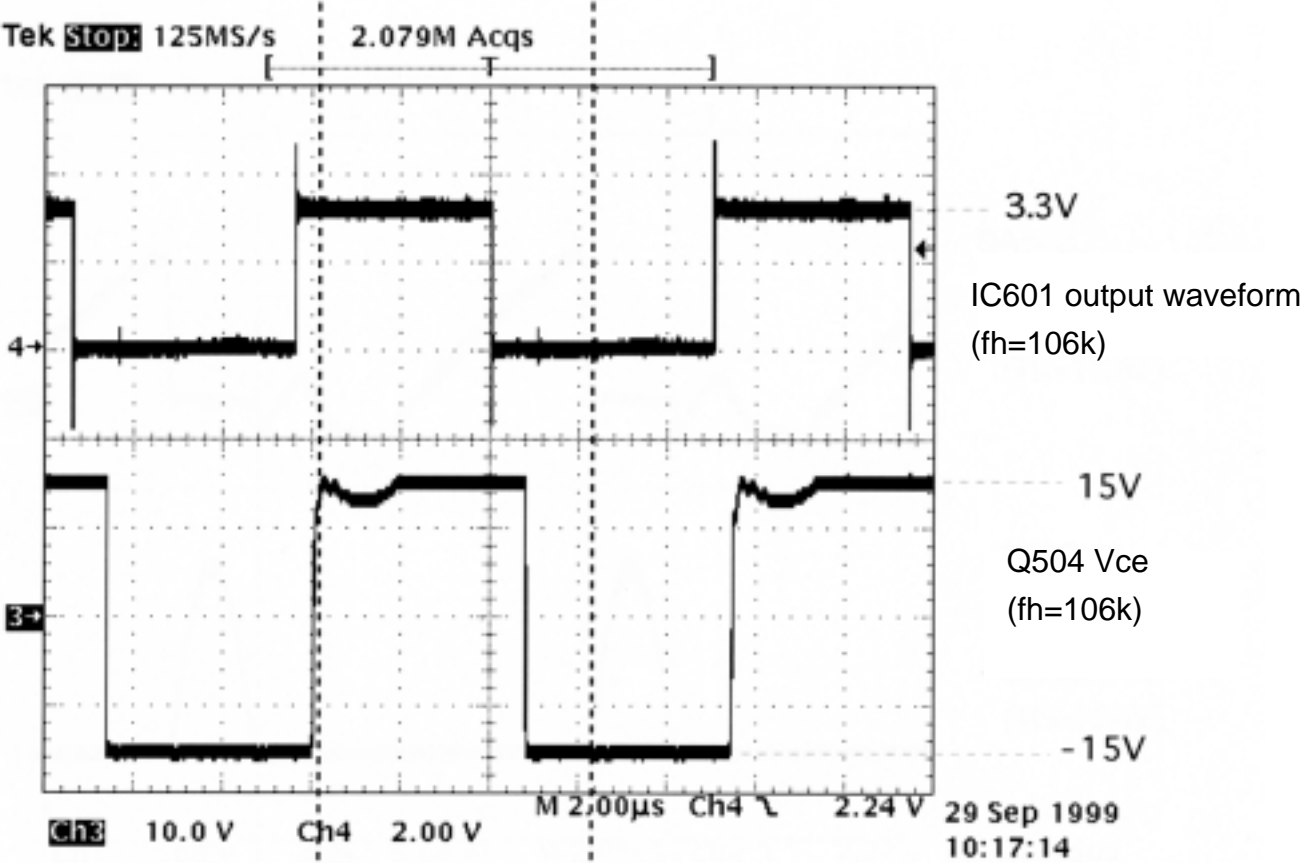
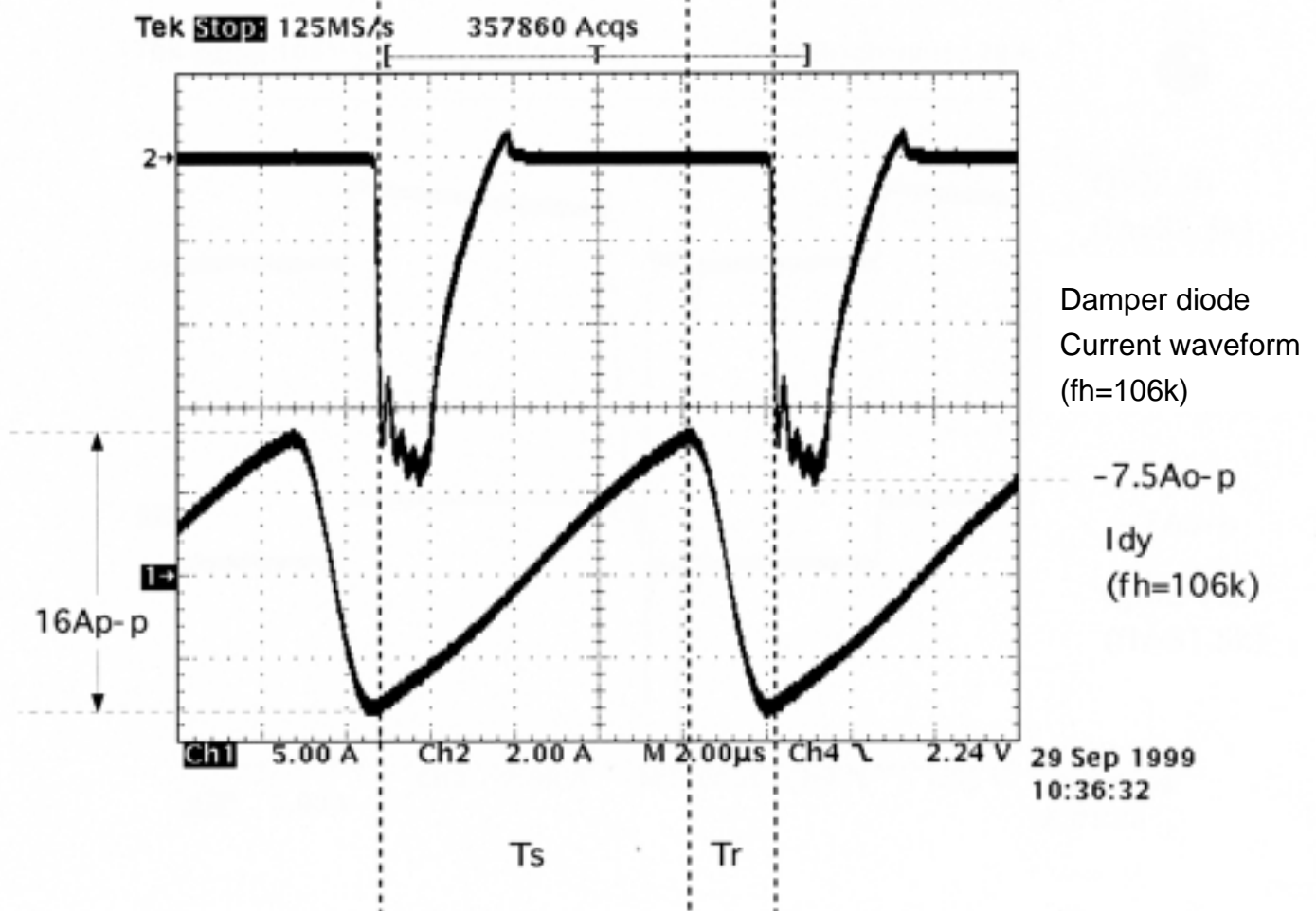
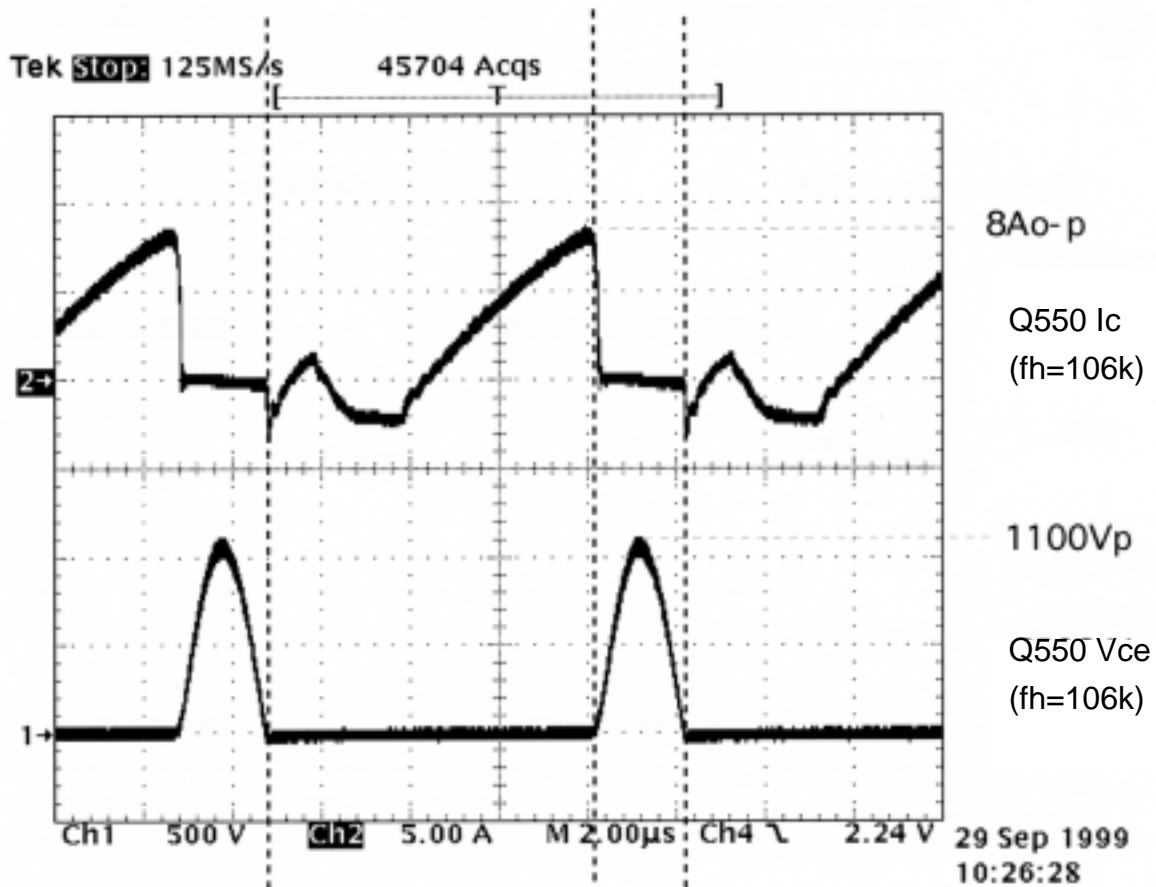


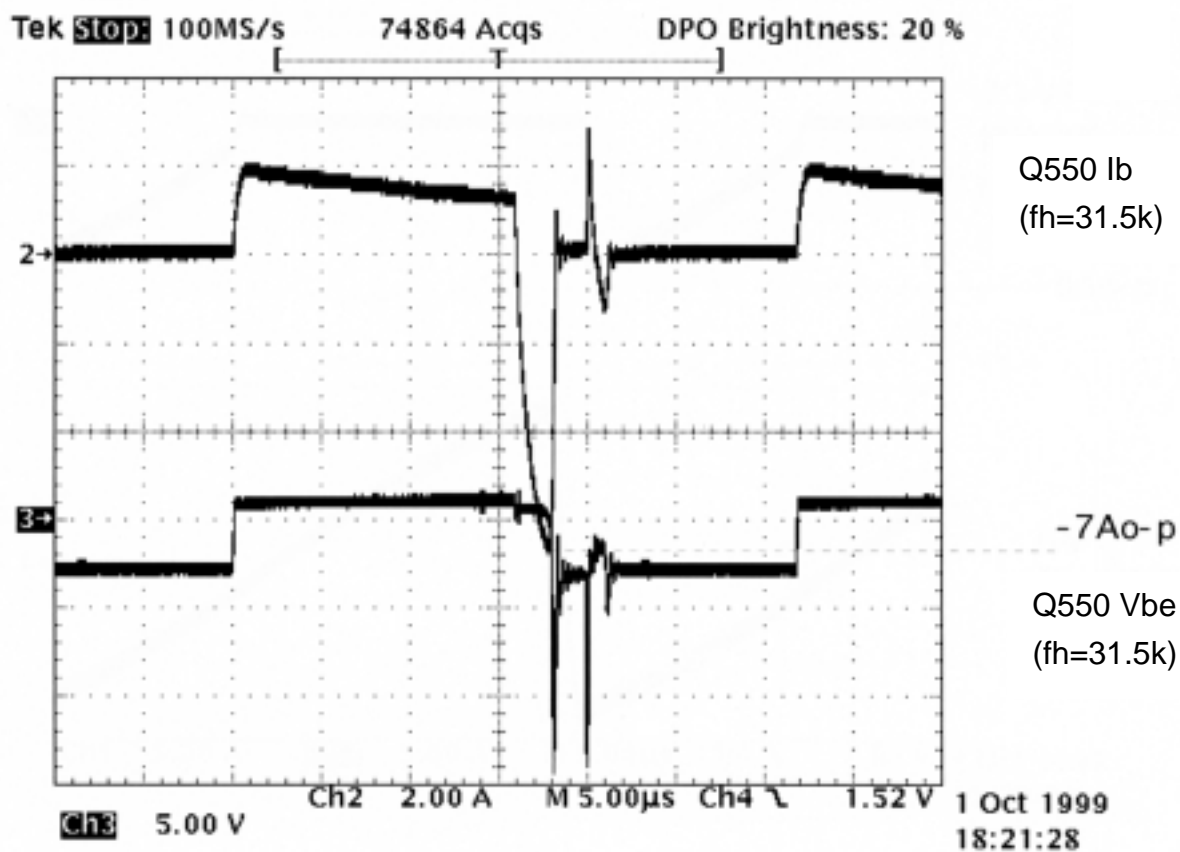
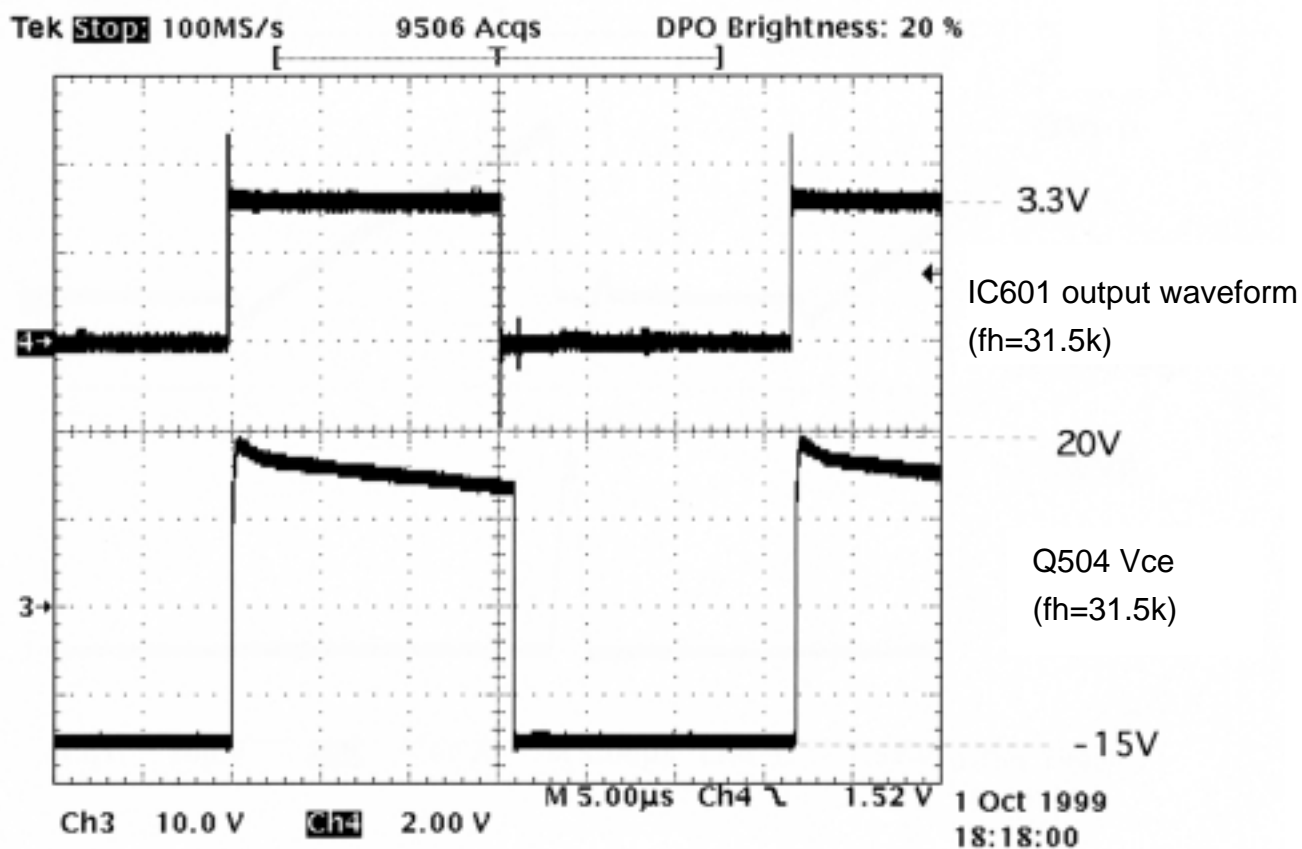
Figure 6 Horizontal deflection circuit operation image

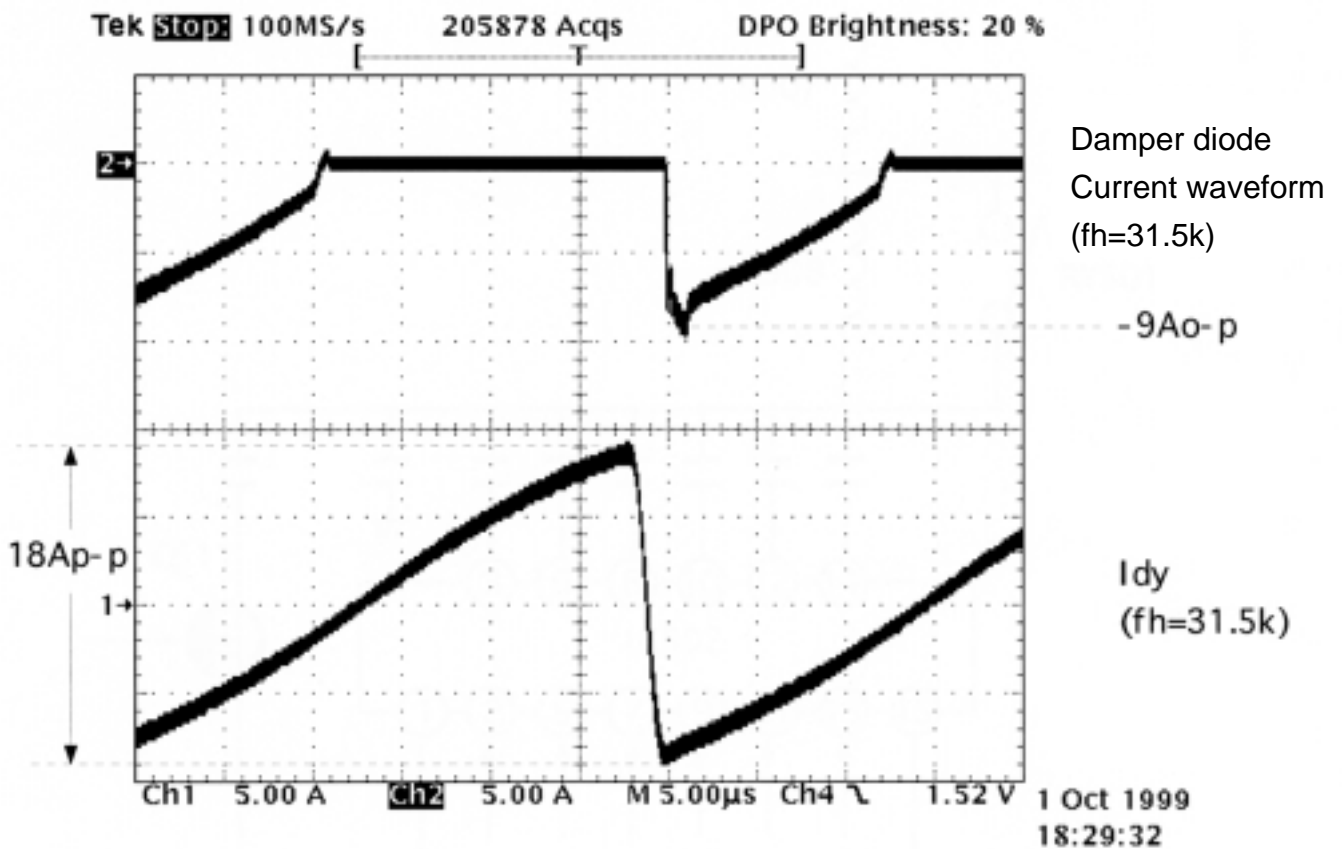
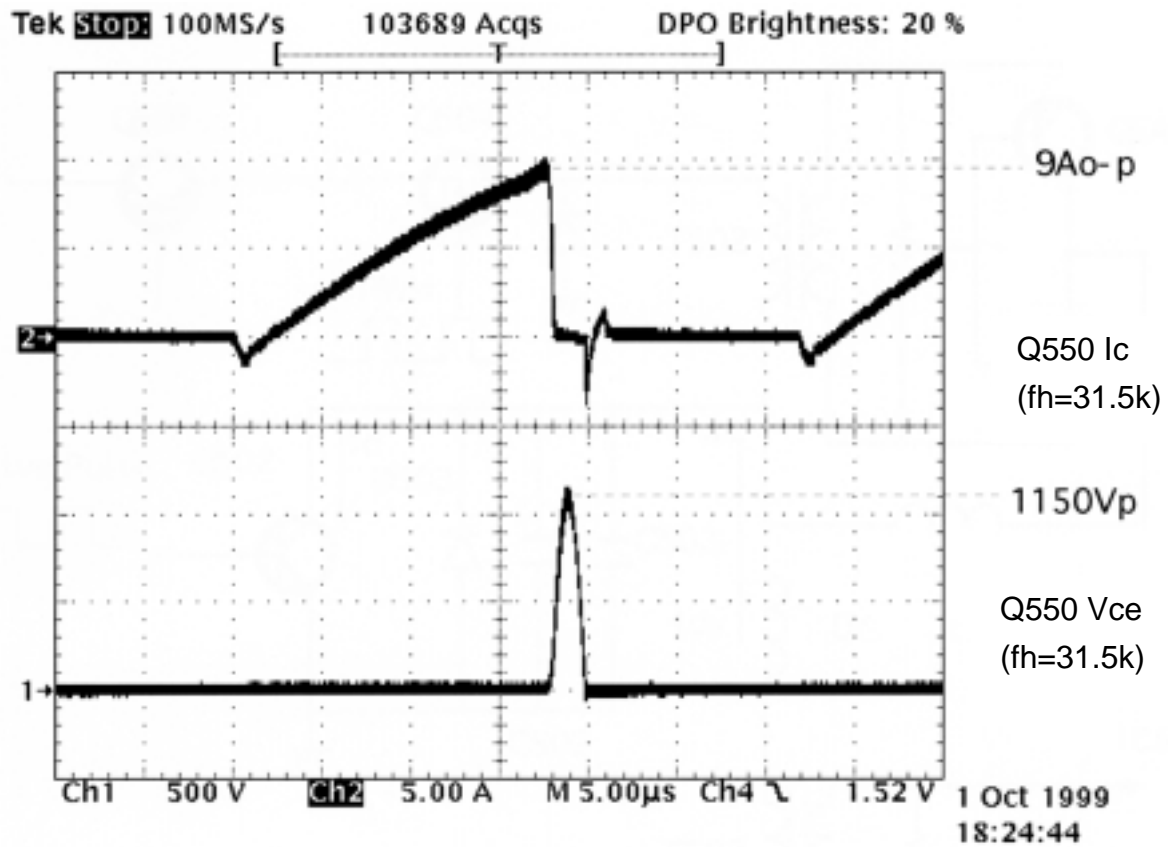
Figure 7. Deflection circuit waveform while fh=106k





Deflection circuit waveform while fh=31.5k





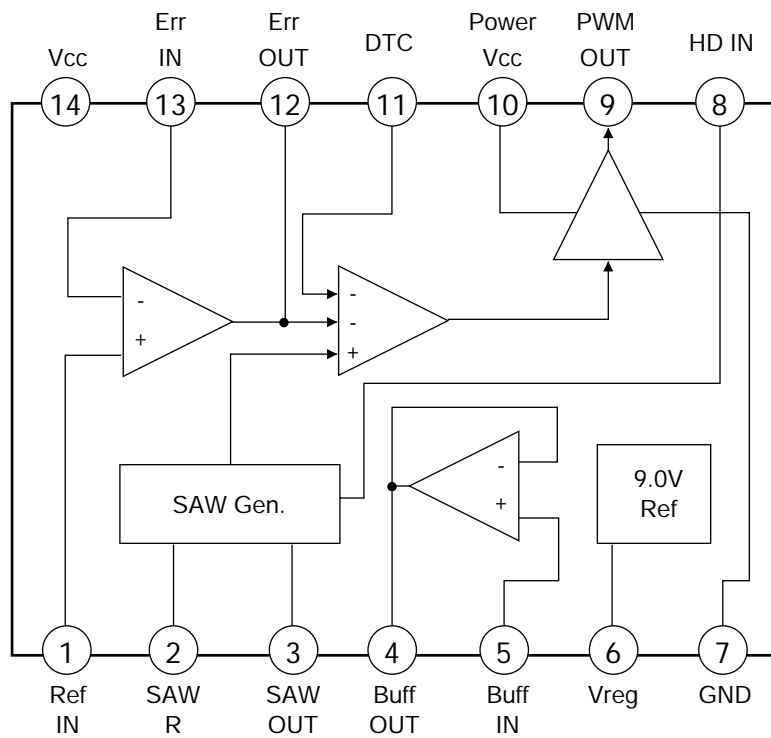


Figure 8. IC5C0 block diagram

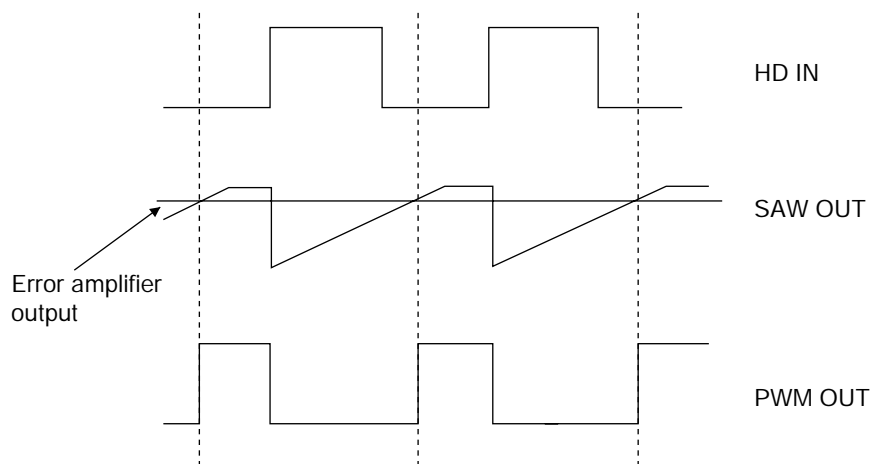


Figure 9. Operation image

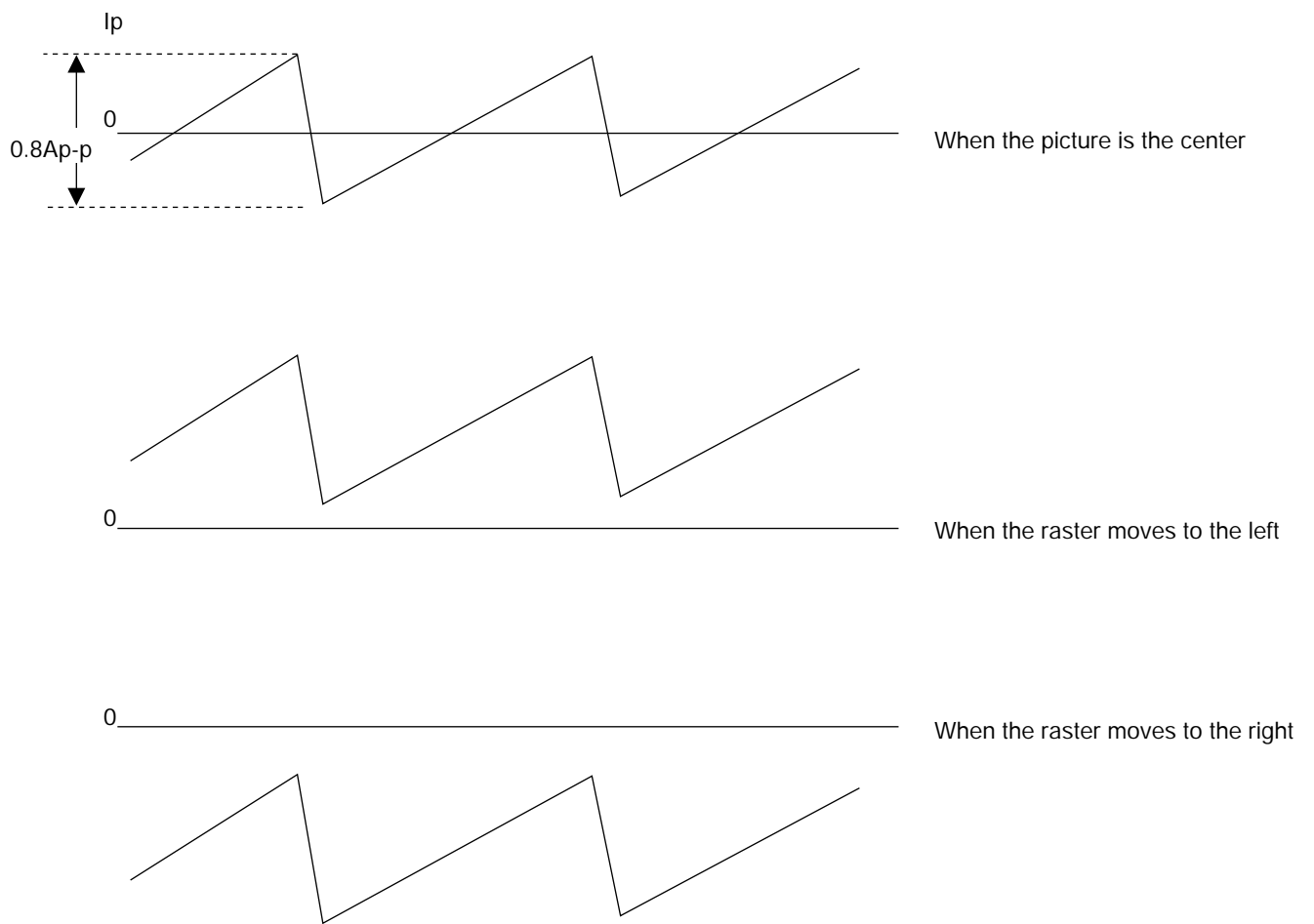


Figure 10 Horizontal position adjustment image

1.2.2 Deflection current compensation circuit

As the picture becomes flatter, the arrival distance of the deflected electronic beam becomes more different between the center and both ends of the picture. Therefore, there is a tendency for the image to be contracted at the center of the picture and expanded at both ends of the picture. Moreover, the left side of the picture is more expanded than the right side of the picture owing to the characteristics of the circuit. CS applies S type compensation to the deflection current with the resonant effect of the deflection yoke and contracts at both ends of the horizontal axis. The linearity coil increases the inductance of the starting section of the deflection current with the supersaturated reactor, and works to contract the left side of the horizontal axis.

As the frequency is lower, the capacity of CS is generally increased and the linearity coil with a larger impedance value is used. In the practical circuit, seven CS capacitors are prepared, and are combined as desired. The linearity coil changes inductance by letting the control current corresponding to the horizontal frequency flow to the control coil.

(1) S type compensation with CS

CS is switched in six steps by FET. IC560 element with six FETs included is used. On IC560, pins 2, 5, 7, 9, 11 and 13 are used as the gate, and pins 3, 6, 8, 10, 12 and 14 are used as the drain. Pins 1 and 15 are used as the ground, and each source are grounded to the earth. The binary value signal of HIGH (5V) or LOW (0V) is input to each gate by IC103. In case of HIGH, FET is turned ON. In case of LOW, FET is turned OFF. The correspondence to the signals from the capacitor and IC103 are as follows.

Table 3

	G	D	Capacitor	Signal
FET1	2	3	C565	CS2
FET2	5	6	C566	CS1
FET3	7	8	C567	CS4
FET4	9	10	C568	CS3
FET5	11	12	C569	CS5
FET6	13	14	C570	CS6

The column of G and D is Pin No.

(2) Compensation with linearity coil

The linearity coil compensates the left expansion of raster by changing the inductance value through the current value flow in order to keep the horizontal linearity to appropriate level. In the actual circuit, L560 stands for the linearity coil.

The newly adopted linearity coil is provided with a control winding capable of controlling the current characteristics of the inductance value. The control voltage (DC) corresponding to each horizontal frequency is supplied from IC103 to pass the control current to the control winding through Q560 and Q561. This controls the current characteristics of the inductance value, and eventually keeps the horizontal linearity to appropriate level. An image of characteristic of linearity coil is as figure 11.

As shown in the Table 4 below, CS is switched on the horizontal frequency bands. 1/0 in the table express the signals from IC103 with 1 for HIGH and 0 for LOW. Here, the column of the frequency expresses the lower limit value.

Table 4

fH (kHz)	Fixed C563 0.13	Fixed C564 0.13	CS6 C570 0.068	CS5 C569 0.1	CS4 C567 0.22	CS3 C568 0.62	CS2 C565 1	CS1 C566 1.2	TOTAL i ° e]
104~			0	0	0	0	0	0	0.260
94~			0	0	0	0	0	0	0.260
92~			1	0	0	0	0	0	0.328
86.5~			1	0	0	0	0	0	0.328
83~			1	1	0	0	0	0	0.428
81.5~			1	1	0	0	0	0	0.428
80~			1	1	0	0	0	0	0.428
78.5~			0	0	1	0	0	0	0.480
76~			0	0	1	0	0	0	0.480
73~			0	1	1	0	0	0	0.580
66~			0	1	1	0	0	0	0.580
63~			0	0	0	1	0	0	0.880
59~			1	0	0	1	0	0	0.948
55~			1	1	0	1	0	0	1.048
49~			0	0	1	1	0	0	1.100
45~			0	0	1	0	1	0	1.480
39~			0	1	1	0	0	1	1.780
36.5~			0	1	1	1	0	1	2.400
34~			1	1	0	0	1	1	2.628
30~			1	1	1	1	1	1	3.468

Here, the following timings are exceptional.

ap21			1	1	1	0	0	0	0.648
80k/75			0	0	1	0	0	0	0.480
91k/85			0	1	0	0	0	0	0.360

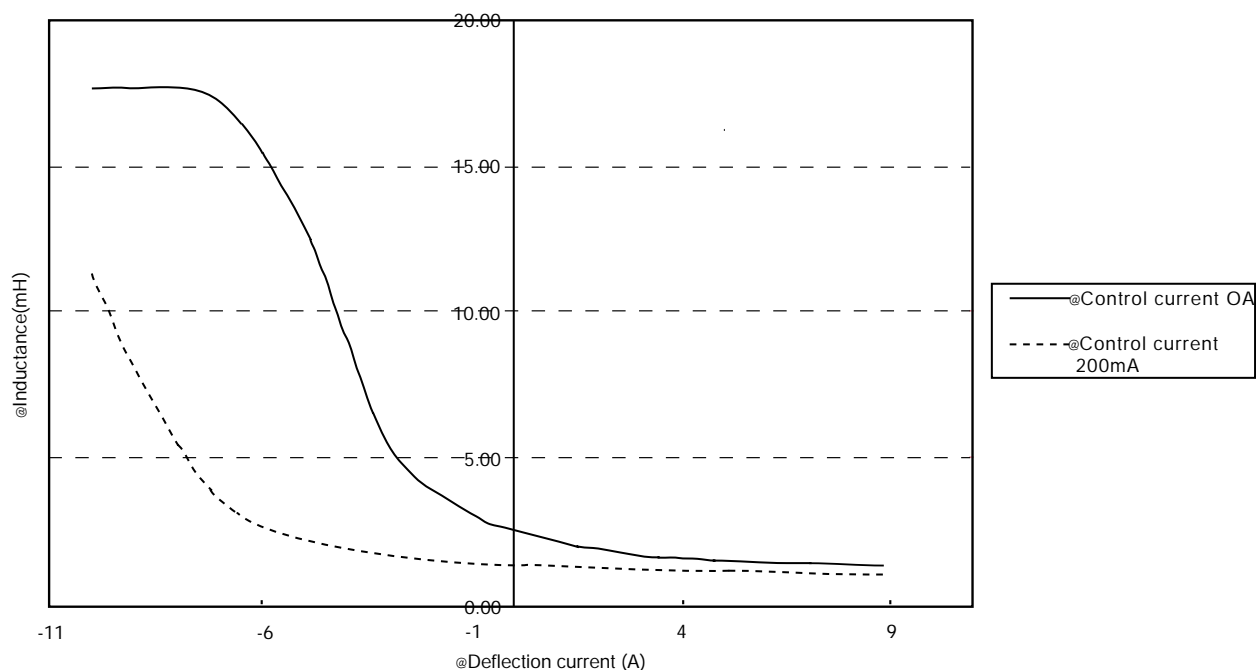
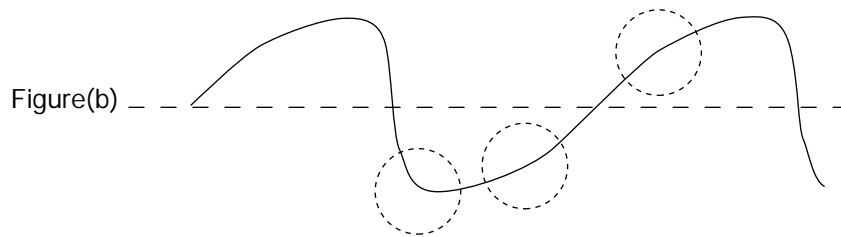
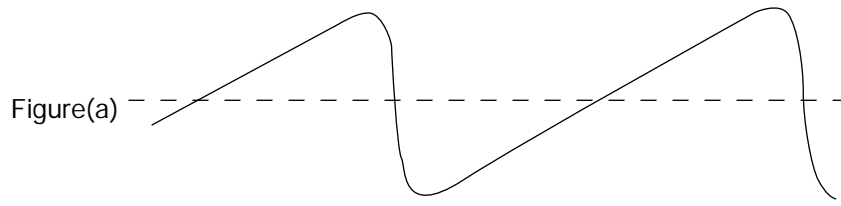


Figure 11 Characteristic of variable lineality

The waveform of the deflection current is compensated from Fig. (a) to Fig. (b) through the above. The starting section of the current is smoothened, and the linear section becomes the S type.



1.3 Vertical output block

The vertical deflection circuit controls the vertical width and vertical position with IC601 on the DEFL_SUB substract, and IC603 controls the linearity. Moreover, the signal output from IC603 is input to the vertical deflection output IC451.

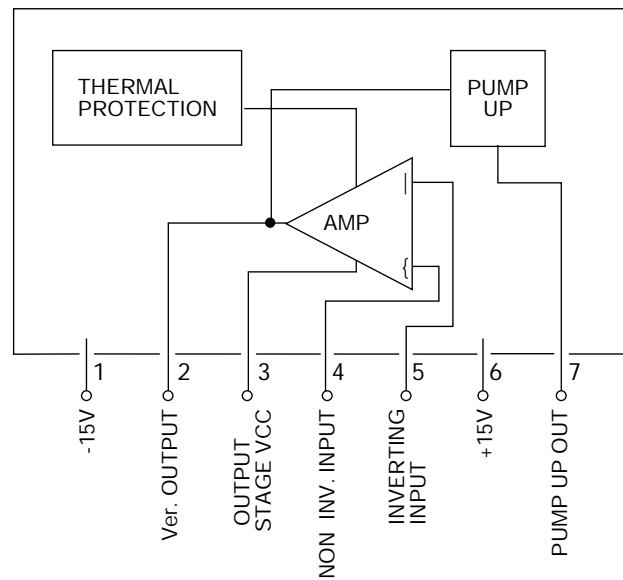


Figure 12 IC451(LA7841L) Pin connection & Function Block diagram

1.4 High voltage block

The high voltage circuit is composed of the high-voltage regulator IC701, MOS-FET Q701 flyback transformer (FBT) T701, operation amplifier IC702 and their peripheral circuits.

1.4.1 High voltage control circuit

The IC701 is an IC for high voltage control, with the block diagram given in Fig.13. The OFF trigger PWM control system is adopted to carry out high voltage control. The built-in VCO circuit gets synchronized when the horizontal synchronous signal (hereafter SYNC signal) is input from Pin 3 of IC701 (horizontal synchronous input terminal). Thus, the MOS-FET Q701 is controlled to turn OFF with the timing of the SYNC signal changing over to HI, and is called OFF trigger system.

Further, the DC voltage, output after the feedback signal (IC701 Pin 11) from FBT T701 is compared with the high-voltage set voltage (IC701 Pin 12) in the internal error amplifier, is compared with the saw-tooth-waveform of VCO to control the pulse output DUTY so as to keep the high voltage constant (PWM control). The timing chart for OFF trigger PWM control system is given in Fig.14. Set the high voltage by selecting [HVADJ] in OSD and manipulating +/- button (Standard value: 27.0kV).

1.4.2 Protective function circuit

(1) Start and stop of high-voltage regulator IC701

The IC701 starts operation when Vcc voltage (power voltage applied to Pin 2 and Pin 10) attains the level of 8.4 Vtyp, and the operation stops when the Vcc voltage is less than 7.4 Vtyp.

(2) IC701 overcurrent protection (OCP) function

It detects the peak value of the drain current in MOS-FET Q701 per pulse and stops DRIVE when the voltage in Pin 6 of IC701 detecting the end-to-end voltage of the source resistors (R722 and R723), exceeds 1.0 Vtyp until the next SYNC signal is input.

(3) IC701 overload protection (OLP) function

This function brings the system to the latch stop when OCP gets continuously activated due to continuous overload.

It forms time constant using C718. With OCP activated and C718 charged and the voltage in Pin 8 of IC701 exceeding 2.5 Vtyp, IC701 gets set to Latch mode, bringing the control operation to stop. This status does not get released (reset) until the Vcc voltage (power voltage applied to Pin 2 and Pin 10) in IC701 is less than 7.4 Vtyp.

(4) Over-voltage protection function for anode voltage (X-ray protector)

A voltage proportional to the high voltage is generated in Pin 6 of T701 due to the winding ratio between secondary and tertiary winding inside FBT T701. This voltage is then rectified by D704 and C705 and is further divided by R706 and R707 before being input in Pin 17 of microcomputer IC103 for comparison with the X-Pro set value. In case the voltage exceeds the set value, the output in Pin 33 of microcomputer IC103 gets fixed to LOW (P-OFF mode). With the mode set to P-OFF, the application of voltage Vcc to IC701 stops, causing the IC701 operation to stop. The status continues until the power SW is turned OFF. The overvoltage protection function is set to operate when the high voltage level reaches 30.5kV (with the beam current is approx. 0.1mA).

(5) Overcurrent protection function for beam current (beam protector)

The beam current is supplied from +12V power source through R709. Since the end-to-end voltage of R709 varies according to the beam current, the voltage drop due to R709 becomes large if the beam current increases. The voltage in Pin 9 of FBT T701 (the voltage obtained by subtracting the voltage drop due to beam current from the +12V power voltage) undergoes resistance division by R710 and R711, and is then input into Pin 6 of operation amplifier IC702 for comparison with Pin 5 of IC702 (reference voltage). The voltage is then output (Pin 7 of IC702) and is input into Pin 16 of microcomputer IC103. The voltage in Pin 7 of IC702 (output terminal) is output linearly due to the fluctuation in beam current. However, if the terminal voltage in Pin 16 of IC103 exceeds +5V, the output of Pin 33 of IC103 gets fixed to LOW (P-OFF mode). With the mode set to P-OFF, the application of Vcc voltage to IC701 stops, causing the IC701 operation to stop. This status continues until the power switch is turned OFF. The overcurrent protection function is set to operate when the beam current reaches the level of approximately 1300μA.

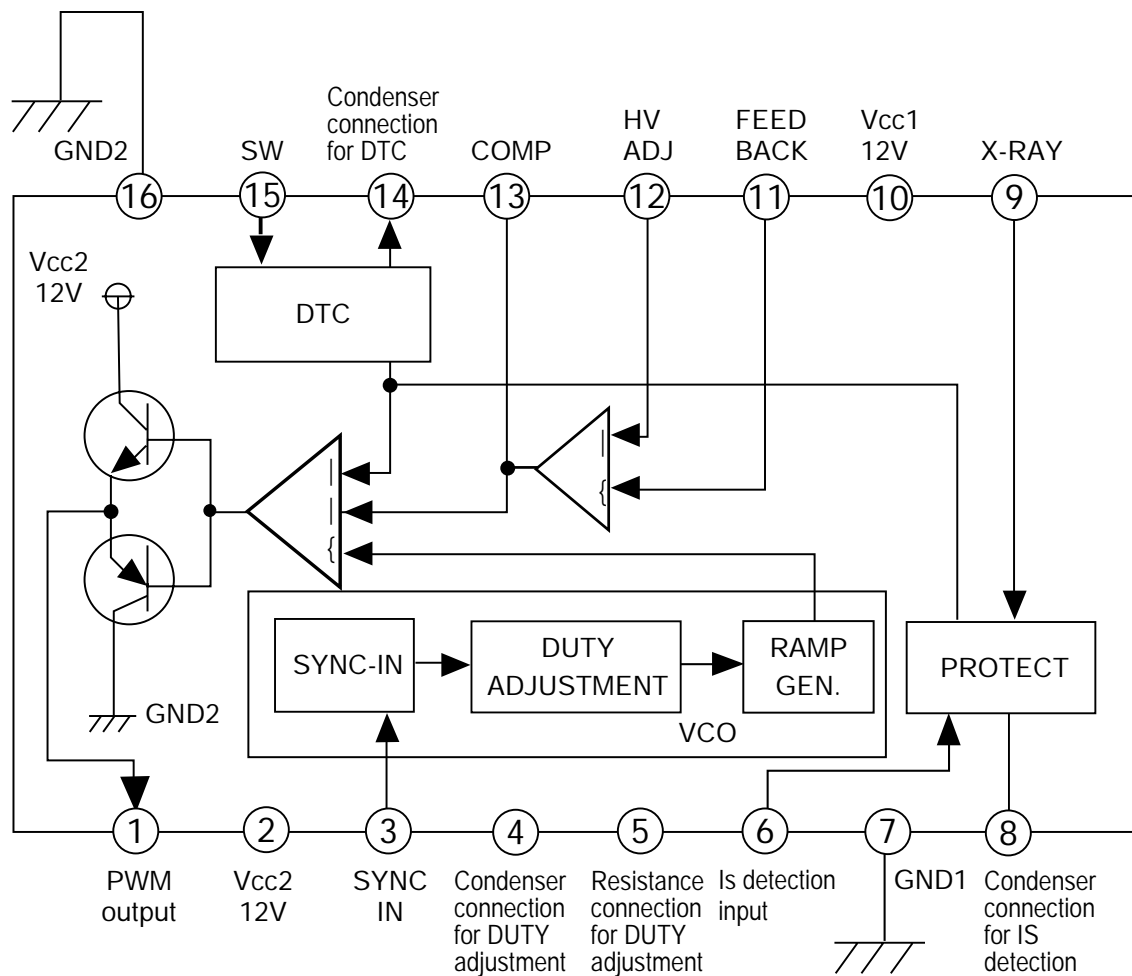


Figure 13. High voltage regulator IC701 block diagram

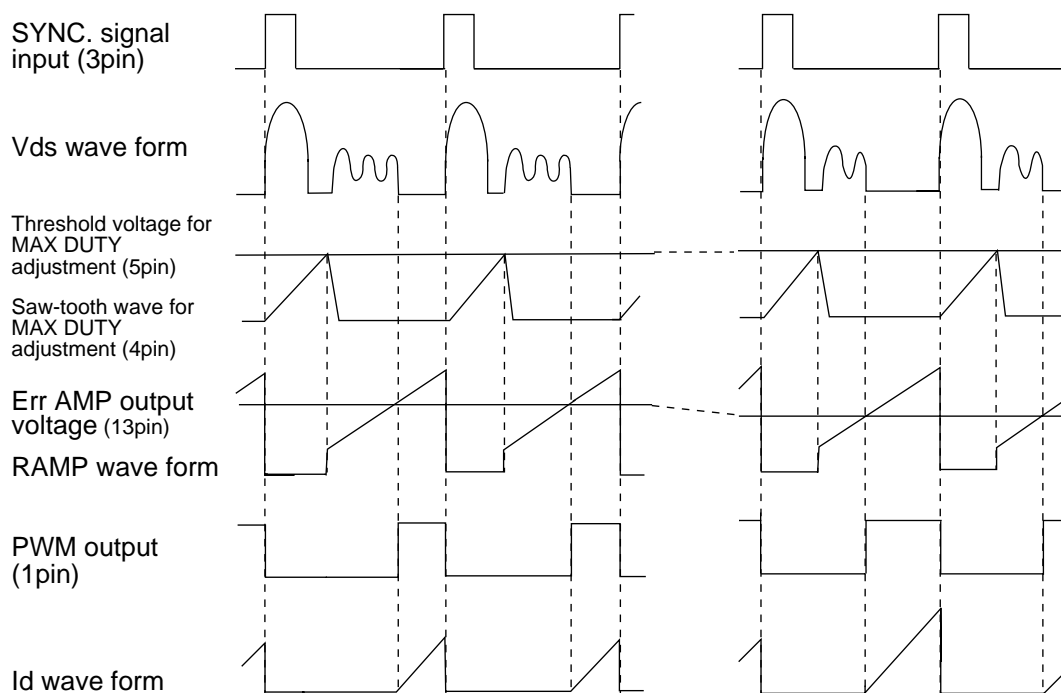


Figure 14. OFF trigger PWM control system timing chart

1.4.3 DBF (Dynamic Beam Focus) circuit

Since the display is flattened, the focus becomes unequal between the center and circumference of the picture. To compensate for it, it is necessary to superimpose the parabola voltage of 370Vp-p in the horizontal cycle with the static focus (with the horizontal width is 396mm) and the parabola voltage of 145Vp-p in the vertical cycle. The slight voltage that is generated from the parabola voltage generating circuit is amplified and reversed to generate the high voltage in order to keep the focus equal. This circuit is called DBF circuit.

As shown in Fig. (16), the circuit is composed of the parabola voltage generating circuit IC700, amplifier section IC7A0 in the front step, Q6E1 to Q6E6 of amplifier section in the rear step, T6E1, and so on.

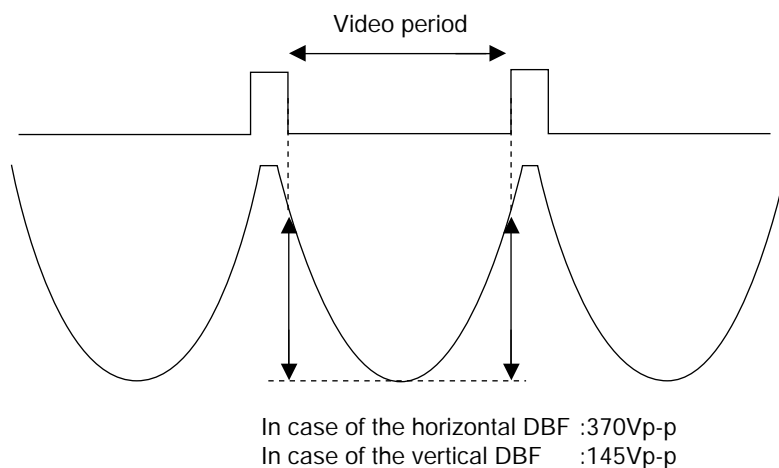


Figure 15

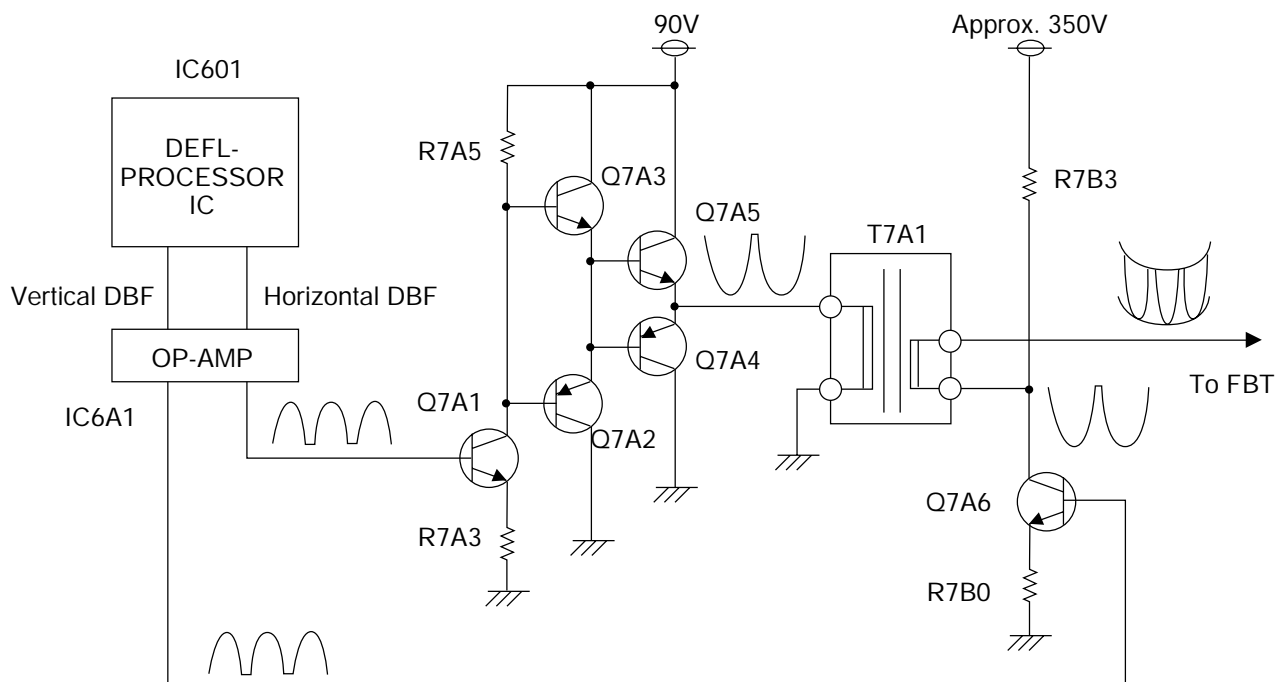


Figure 16

After the horizontal and vertical DBF voltage are separately generated, they are amplified and are finally composed.

<Horizontal section>

The voltage (approx. 0.5Vp-p) of the parabola waveform shown in Fig. (a) is output from the deflection processor IC (IC601), and is amplified approx. 14 times by OP-AMP (IC6A1). Thereafter, it is amplified to 50 to 60Vp-p by the transistor (Q7A1 to Q7A5). The amplification ratio is determined by the ratio between the resistors R7A3 and R7A5, being approx. 8 times. Moreover, the waveform is reversed as shown in Fig. (b) at this time. Then, it is amplified to approx. 500Vp-p by DBF transformer (T7A1). The coil ratio between the primary and secondary coils of the DBF transformer is 1: 10, being the amplification ratio of approx. 10 times.

<Vertical section>

The voltage (approx. 1.0Vp-p) of the parabola waveform shown in Fig. (a) is output from the deflection processor IC (IC601), and is amplified approx. 4 times by OP-AMP (IC6A1). Thereafter, it is amplified to approx. 160Vp-p by the transistor (Q7A6). The amplification ratio this time is determined by the ratio between R7B0 and R7B3, being approx. 40 times.

The horizontal and vertical DBF voltages amplified and reversed are composed by applying vertically synchronous modulation to the output on the secondary side as shown in Fig. (c). The composed voltage is input to Pin 12 of the flyback transformer (T701).

Figure (a)

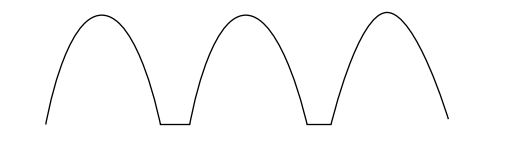


Figure (b)

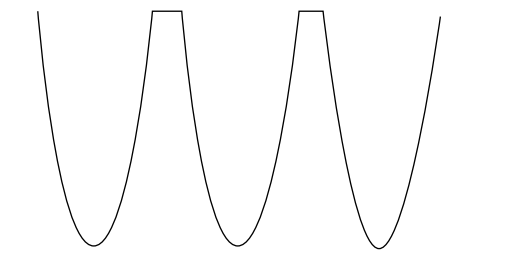
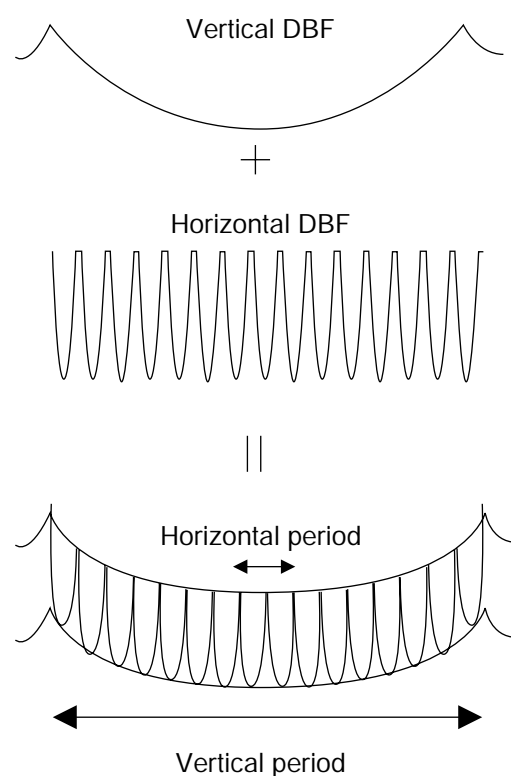


Figure (c)



1.5 CRT compensation block

1.5.1 Rotation circuit

The rotation circuit is a circuit to compensate the picture inclination caused by the earth magnetism by letting DC current flow to the rotation coil wound on the front side of DY for adjustment. It is controlled to 0 to 5V with the reference of 2.5V by IC103 pin 3 (PWM_DAC), and DC current of +/-90mA (max) is made to flow to the rotation coil by IC803 pin 2.

1.5.2 Corner purity circuit

The corner purity circuit is a circuit to compensate for the color shade and color deviation of the picture corner. On the rear side of CRT, it is adjusted by DC current flowing to the corner purity coils installed in the four corners on the display surface.

The compensation circuit is composed of the following four functions of (1) User adjustment (OSD display), (2) Aging variation compensation, (3) High/low temperature drift compensation and (4) Southern / Northern horizontal magnetic field landing cancellation.

(1) User adjustment (OSD display)

The user causes DC current of +/-60mA (max.) to flow to the purity coil of each corner according to the value displayed on OSD.

(2) Aging variation compensation

As the electronic beam collides with the aperture grille, it is thermally expanded and contracted. The thermal expansion/contraction is varied according to the elapse of the power ON/OFF time of the monitor. The color shade and deviation of the picture corner thus generated are automatically adjusted.

The voltage of the beam current supply pin (T701 pin 9) is detected with R710/R711, and the voltage that detects the time elapse of the power ON/OFF of the monitor is read from the CR charge (integration) circuit composed of C711 and R716 and CR discharge (integration) circuit, composed of C711 and R717 through IC701 (buffer amplifier) by IC103 pin 15 (CPU_ADC), and the DC current of +/-17mA(max) flows to the purity coil on each corner according to the specified control program.

(3) High/low temperature drift compensation

The front panel (glass) is thermally expanded and contracted as the temperature varies in the installation environments of the monitor. The color shade and deviation of the picture corner are automatically adjusted. The voltage that detects the temperature variation of the installation environments of the monitor is read from the environment temperature detection circuit composed of TH101 (thermistor) arranged near the front panel (glass) by IC103 pin 13 (CPU_ADC), and DC current of +/-13mA (max) is made to flow to the purity coil on each corner according to the specified control program.

(4) North-south horizontal field landing cancel

The north-south horizontal field landing cancel carries out automatic adjustment of color shading and color shift occurring appeared in the opposite direction at the top and bottom end of the monitor display surface in the horizontal direction.

The detecting voltage and direction of the north-south horizontal field (IC214 pin 2) are detected by IC214 (geomagnetic sensor unit), the detecting voltage is read by IC103 pin 19 (CPU_ADC), and the direct current of ± 20 mA (max) flows in each corner purity coil according to the specified control program. (Four-corner interlock control)

- The left upper corner on the display surface is controlled with 0 to 5V of 2.5V reference by IC103 pin 4 (PWM-DAC), and the DC current of the above value is made to flow to the purity coil on the left upper corner by IC802 pin 2.

- The right upper corner on the display surface is controlled with 0 to 5V of 2.5V reference by IC103 pin 5 (PWM-DAC), and the DC current of the above value is made to flow to the purity coil on the right upper corner by IC802 pin 8.
- The left lower corner on the display surface is controlled with 0 to 5V of 2.5V reference by IC103 pin 6 (PWM-DAC), and the DC current of the above value is made to flow to the purity coil on the left lower corner by IC801 pin 2.
- The right lower corner on the display surface is controlled with 0 to 5V of 2.5V reference by IC103 pin 7 (PWM-DAC), and the DC current of the above value is made to flow to the purity coil on the right lower corner by IC801 pin 8.

1.5.3 Earth magnetism cancel circuit

The earth magnetism cancel circuit has a south-north horizontal magnetic field canceling function.

IC214 (earth magnetism sensor unit) detects the voltage and direction of the south-north horizontal magnetic field (IC214 pin 2), and IC103 pin 19(CPU_ADC) reads the detected voltage to automatically control the following canceling function according to the specified control program.

Here, the output voltage of IC214 (earth magnetism sensor unit) operates as follows.

- South-north horizontal magnetic field (IC214 pin 2): 0.8V(-0.04mT) to 2.5V(+/-0.00mT) to 4.2V(+0.04mT)

<South-north horizontal magnetic field canceling function>

(a) Horizontal magnetic field landing cancel

The horizontal magnetic field landing cancel circuit is a circuit to compensate for the color shade and deviation that appear in the horizontal direction that becomes the opposite direction at the upper and lower ends on the monitor display surface, and the automatic adjustment is done by DC current flowing to the corner purity coil that is wound around the display surface. (synchronized control for four corners)
(Refer to 1.5.2 (4) for detail.)

(b) Horizontal magnetic field convergence cancel

The horizontal magnetic field convergence cancel circuit is the circuit to compensate for the misconvergence that results after the vertical convergence of RED and BLUE in the whole display area of the monitor deteriorates, and it is automatically adjusted by DC current flowing to the 4V convergence compensation coil mounted on DY. It is controlled with the DC component (V-CONVERGENCE) by IC601 pin 60 (4V_SC), and DC current of +/-30mA (max) is flown to the 4V convergence compensation coil by IC8A1 pin 6 (Power Opamp).

1.5.4 Vertical magnetic field landing cancel circuit

The vertical magnetic field landing cancel circuit is the circuit to compensate for the color shade and deviation that reaches its maximum at the center in the horizontal axis direction and its minimum at the upper and lower ends on the monitor display surface, and the adjustment is done by DC current according to the value displayed on OSD flowing to the speed modulating coil installed in the neck part of CRT.

It is controlled with 0 to 5V of 2.5V reference by IC211 pin 26 (DAC), and DC current of +/-140mA (max) is made to flow to the speed modulating coil by IC803 pin 8.

1.5.5 Digital dynamic convergence clear (DDCD) circuit

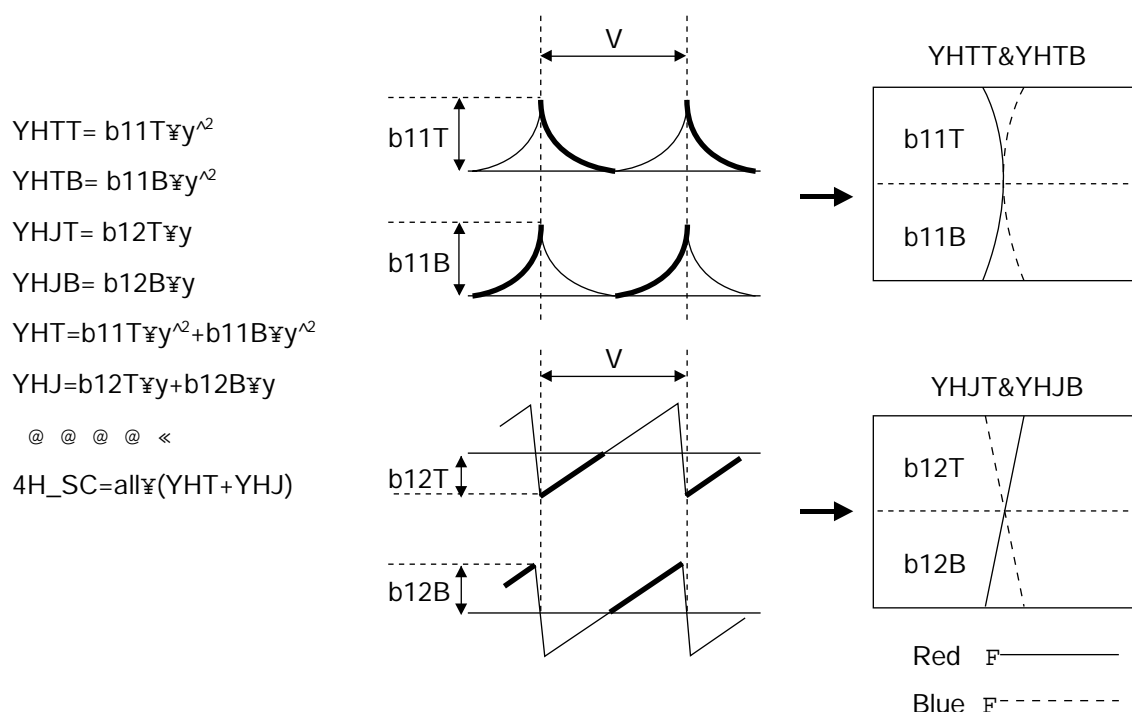
In the digital dynamic convergence clear (hereafter called DDCC) circuit, the convergence compensating current waveform is produced and amplified, and the convergence is compensated by the compensation current flowing to the sub yoke that is installed as the rear unit of the deflection yoke.

Though the principle of the convergence compensation with the sub yoke is same as the CP ring, the CP ring is used for the static variation with the parallel movement in the whole picture in the uniform magnetic field with the permanent magnet but the sub yoke is used for dynamic variation that compensates a desired position on the picture by controlling the current waveform that flows to the coil of the electric magnet.

(See Fig. 18)

(1) Production of compensation current waveform

There are 30 kinds of compensation elements, and they are programmed in IC601(CP267P151=uPD61882BGC) one by one by using the functions. The amplitude of the current is controlled by inputting the compensation coefficient into the function.



Examples of the functions and current waveform/compensation operation of YH(YHTT, YHTB, YHJT, YHJB) are shown as follows.

In the above formulas, b11T, b11B, b12T and b12B express the compensation coefficients, and y and y^2 express the primary and secondary functions of the vertical frequencies. The other parts except the compensation coefficients are programmed, and desired amplitudes (= compensation amount) are gained by varying the coefficients.

YHTT and YHTB compensate the upper and lower parts of the picture of the characteristic components of their DYs to compensate the upper and lower parts of the picture of the axis deviation component. The component gained by adding YHT and YHJ is multiplied by the offset compensation coefficient a11. The resultant component is regarded as 4H_SC, and is output from IC601 (CP267P151=uPD61882BGC) pin 61.

(2) Waveform, and operation on the picture

The case in which the currents flow through 4H coils of the sub yoke is explained. Regarding YHT (secondary function in the vertical frequency), in case of Fig 17 as an example, the current is large in the same direction at the start (upper end of the picture) and the end (lower end of the picture) of the vertical frequency, and is zeroed on the X axis of the picture. Therefore, the magnetic field that is proportional to it is generated, and RED and BLUE vary in the same direction only at the upper and lower ends of the picture. As aforementioned, YHT can be independently controlled at the upper part ($b11T.y^2$) and lower part ($b11B.y^2$).

Moreover, regarding YHJ (Primary function in the vertical frequency), if the flowing direction of the current is opposite at the start (upper end of the picture) and the end (lower end of the picture) of the vertical frequency as an example, RED and BLUE vary in the opposite direction only at the upper and lower ends of the picture. Compensation in the vertical direction can be done by making the current flow to the 4V coil.

Fig.19(a) and (b) shows the image of each adjustment item of the DDCC adjustment.

(3) Adjustment method

Before the adjustment with the compensation circuit, it is necessary that they are properly adjusted at the center (H-STATIC and V-STATIC), on the X axis (XH slider, B-Bow 4P, XV differential coil) and on the Y axis (YH volume, YV volume).

Though DC current is superimposed on the sub yoke, H-STATIC and V-STATIC are pushed to the greatest possible extent by the adjustment with CP ring in order to reduce the stress of the driver IC8A1 (STK391-110).

Moreover, since 4H and 4V coils alone are installed on the chassis, it is first necessary that the convergence of RED, BLUE and GREEN (6H, 6V) satisfy the specifications for the performance of ITC(CRT&DY).

As the adjustment procedure, the adjustment values of 30 elements are not respectively zeroed but they are adjusted to nearest to zero with a total balance in good order.

In other words, the balance (compromise) adjustment with each adjustment item is applied.

The correspondence of the names of DDCC adjustment mode to the coefficients of all 30 elements is shown below.

Factory mode

4H Coil	b11T	YHTT	y^2	b11B	YHTB	y^2	b12T	YHJT	y	b12B	YHJB	y
	b21L	XHL	x^2	b21R	XHR	x^2						
	b31TL	S3HTL	$x^2 E \cdot (y^3 + y^4 + y^5 + y^6)$	b31TR	S3HTR	$x^2 E \cdot (y^3 + y^4 + y^5 + y^6)$	b31BL	S3HBL	$x^2 E \cdot (y^3 + y^4 + y^5 + y^6)$	b31BR	S3HBR	$x^2 E \cdot (y^3 + y^4 + y^5 + y^6)$
	b41TL	POHTL	$x^2 E y^4$	b41TR	POHTR	$x^2 E y^4$	b41BL	POHBL	$x^2 E y^4$	b41BR	POHBR	$x^2 E y^4$
4V Coil	c11T	YVTT	y^2	c11B	YVTB	y^2	c12T	YVJT	y	c12B	YVJB	y
	c21L	XVL	x^2	c21R	XVR	x^2						
	c31TL	S3VTL	$x^2 E \cdot (y^3 + y^4 + y^5 + y^6)$	c31TR	S3VTR	$x^2 E \cdot (y^3 + y^4 + y^5 + y^6)$	c31BL	S3VBL	$x^2 E \cdot (y^3 + y^4 + y^5 + y^6)$	c31BR	S3VBR	$x^2 E \cdot (y^3 + y^4 + y^5 + y^6)$
	c41TL	POVTL	$x^2 E y^4$	c41TR	POVTR	$x^2 E y^4$	c41BL	POVBL	$x^2 E y^4$	c41BR	POVBR	$x^2 E y^4$

User & Factory mode

4H Coil	a11	H-CONVERGENCE	DC
4V Coil	a12	V-CONVERGENCE	DC

Table 5

(4) Block diagram

Fig. 20 shows the block diagram of the DDCC circuit.

The components 4H_DC(pin 6), 4H_SC(pin 61), 4V_DC(pin 8) and 4V_SC(pin 60) supplied from IC601(CP267P151=uPD61882BGC) to 4H-Coil and 4V-Coil are output, the dynamic component (4H_DC, 4V_DC) is amplified with IC6A1(TL084), and the static component (4H_SC, 4V_SC) is amplified with IC6A2(KIA4558).

DCC(pin 7) output from IC601 (CP267P151=uPD61882BGC) and DEFL_+3.3V(pin 3) output from IC602 (TA48M033F) are respectively the reference voltage of Op-Amp(IC6A1:TL084) that amplifies the above dynamic component (4H_DC, 4V_DC) and the reference voltage of Op-Amp(IC6A2:KIA4558) that amplifies the static component (4H_SC, 4V_SC).

On each of 4H and 4V, the waveform added with the dynamic component and static component is input to IC8A1 pin 3 and pin 4 (STK391-110) allow the specified current to flow to each convergence compensation coil.

For four poles magnetic field

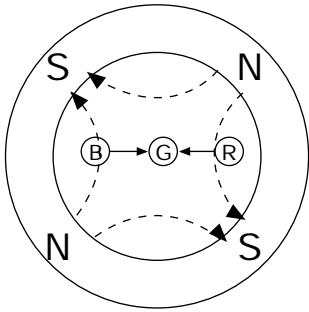
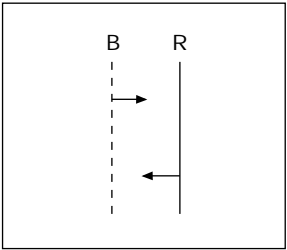
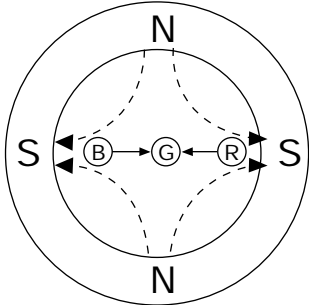
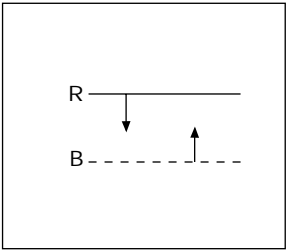
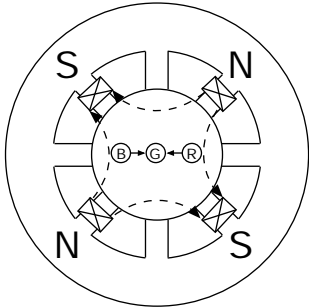
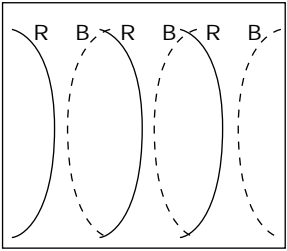
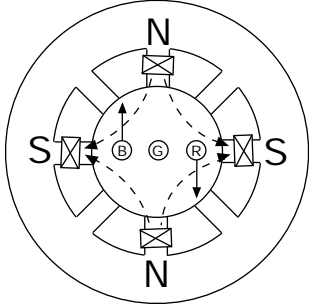
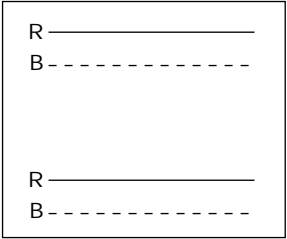
<p>Static change by the eternal magnetic field (Parallel shifting totally)</p>	 
	 
<p>Dynamic change by electromagnet (Compensate at the optional position on the picture.)</p>	<p>4H coils</p>   <p>YHT compensate</p>
	<p>4V coils</p>   <p>YVT compensate</p>

Figure 18 The principle of DDCC compensation

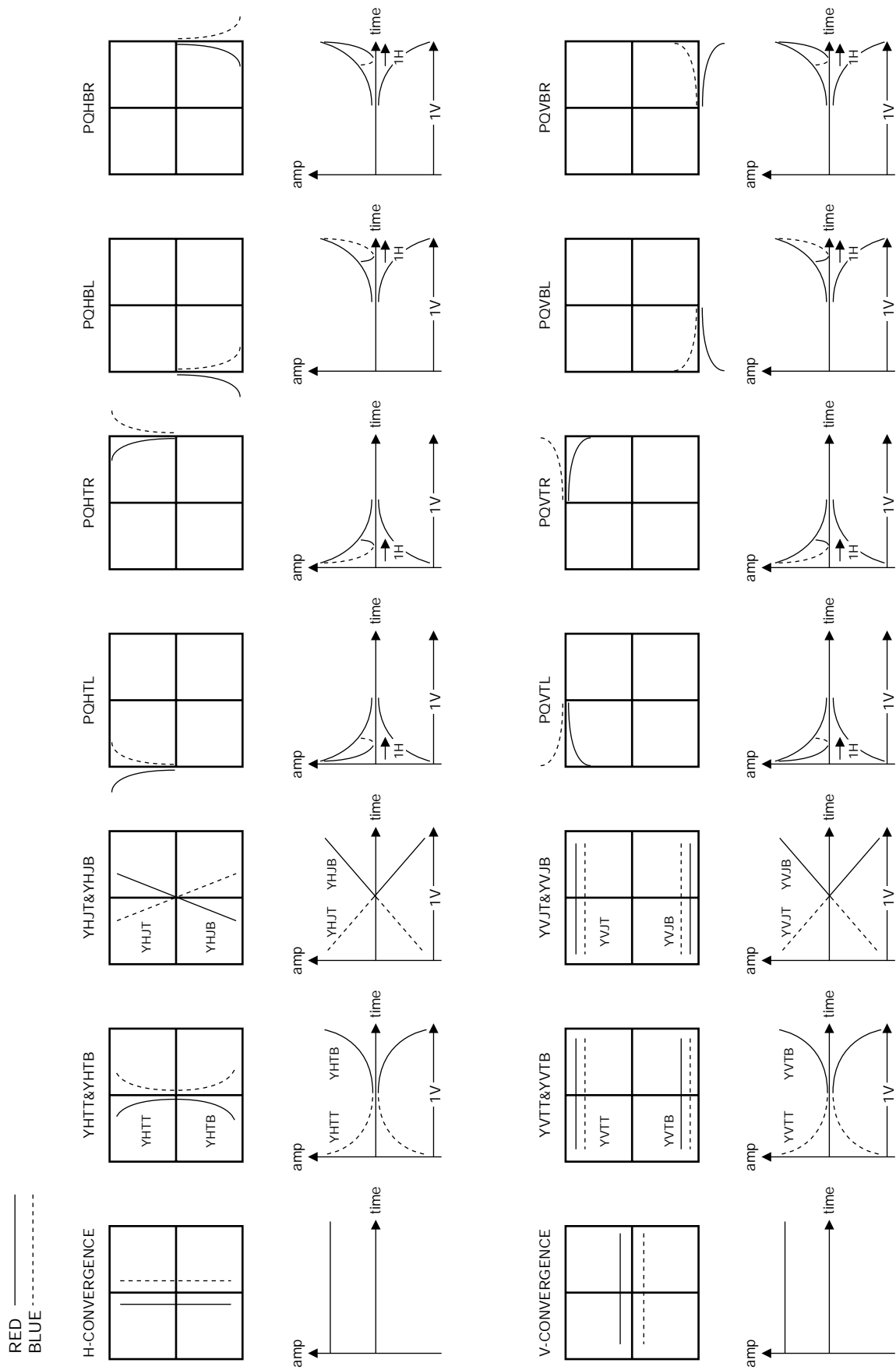


Figure 19 (a) DDCC adjustment item

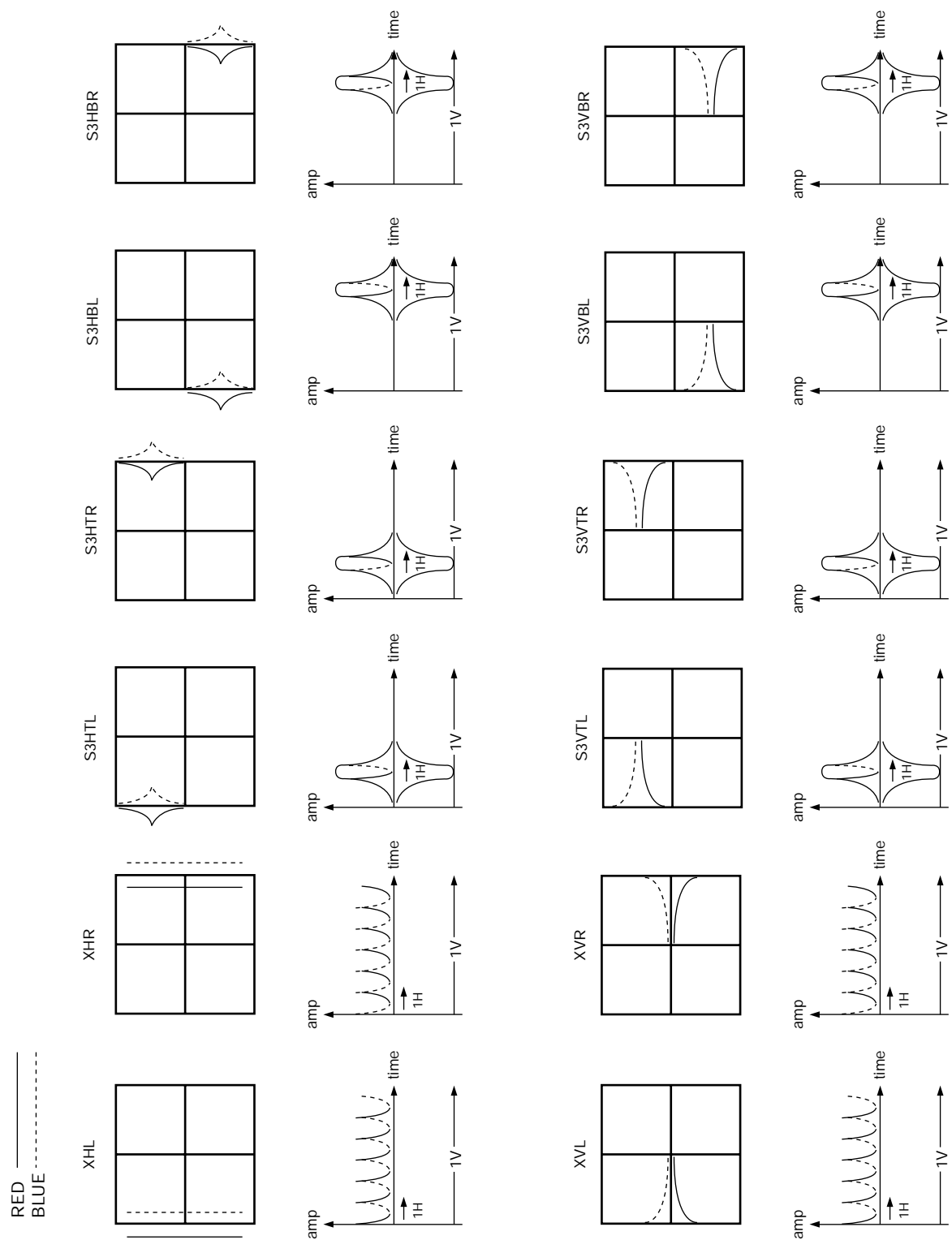


Figure 19 (b) DDCC adjustment item

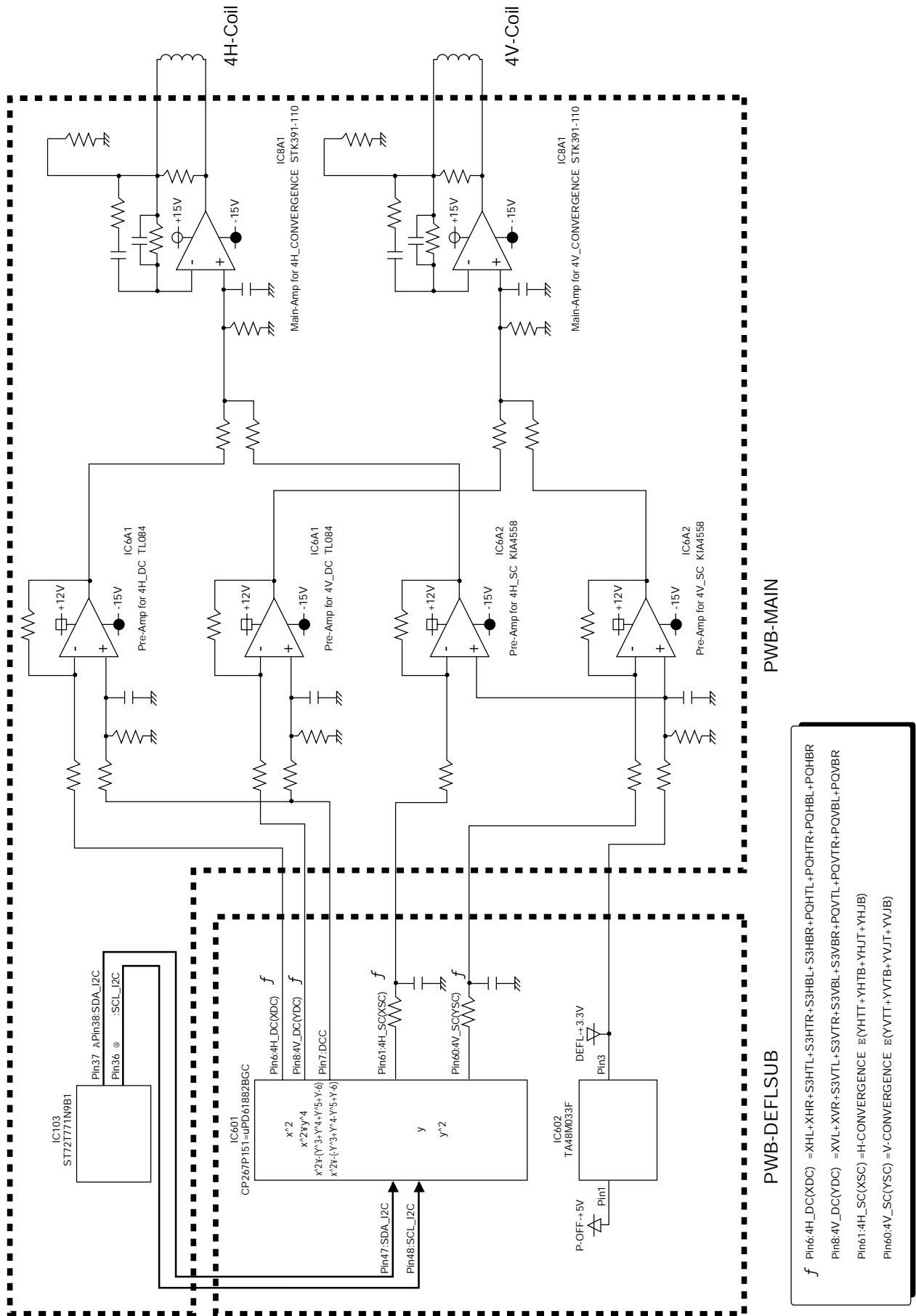


Figure 20 DDCC circuit diagram

1.6 Control block

The control block is composed of the following:

Monitor MPU IC103 to process the sync. signals, control the inside of the monitor and communicate with the external, EEPROM IC105 to memorize the picture adjustment values, etc.

1.6.1 Sync. signal process

When HSYNC or Composite Sync is input from the VIDEO board to the MPU IC103 pin 30 and VSYNC is input to the MPU IC103 pin 20 the frequency/polarity of SYNC will be discriminated. Then, HS_OUT will be output from pin 27 for beam deflection and OSD display and VS_OUT will be output from pin 26 as the polarity POSI.

If SYNC is not input or abnormal SYNC is input, the MPU IC103 will output simulative SYNC. The frequency of the simulative SYNC is near that of the previously input SYNC.

(Initial values: FH:31kHz and FV:60Hz)

1.6.2 Front button

When any tact switch of SW1A0 to SW1A8 on the front panel is pressed, the voltage of +5V will be divided with the resistor according to the button.

The signal is converted into the digital value with the A/D converter of the MPU IC103 pin 12 and pin 13 to discriminate which button is pressed.

1.6.3 I2C bus control

The IC control inside the monitor is carried out using pin 36: SCL-I2C, pin 37 and pin 38: SDA-I2C I2C bus.

The adjustment data corresponding to the input timing is read out from EEPROM and transmitted to each IC. At normal state, the SW-I2C signal of IC103 pin 28 is HI, turning Q102, Q103 and Q104 ON, enabling data transmission to IC601, IC211 and IC212. At POWER SAVE, however, since the power supply P_OFF_+5V of IC601, IC211 and IC212 is OFF, the SW-I2C signal turns to LO, switching Q102, Q103 and Q104 OFF. This shuts off the connection between I2C bus and IC601, IC211 and IC212, not affecting adversely the data communication (send-receive) with IC105 (EEPROM).

The IC103 pin 39 is a write protect signal of EEPROM IC105. At normal state (when data is not written onto EEPROM), this signal is HI. When data is written onto EEPROM, this signal turns to LO.

With the SDA_12C (input) of IC103 pin 38 turned to LO level for 2 seconds or more, the system regards the situation as I2C bus error, bringing the system forcibly to POWER SAVE state.

Table 6 Slave address list

Item	Source	ADR(BIN)
EEPROM	IC105	1010****
Deflection processor	IC601	11011100
Preamplifier	IC211	10001000
OSD	IC212	01111100

1.6.4 Power control

The normal state and power management state are switched according to pin 33 P-OFF signal and pin 32 P-SUS signal.

"Power save" of the OSD adjustment item is turned to "ON", and the power management is activated when either H/VSYNC goes out.

In the power management mode, P-OFF+5V is turned OFF by setting pin 33 P-OFF signal at HI, other power supplies except +5V and heater are turned OFF by setting pin 32 P-SUS signal at LOW.

Moreover, if pin 24 PRO signal is at HI for 1 second or more, it will be regarded as a short circuit of the power of the secondary side to forcibly turn ON POWER SAVE in order to prevent trouble from being escalated.

1.6.5 Heater control

The heater voltage is controlled by PWM pulse HEATER ON/OFF signal of IC103 pin 8.

The HEATER signal, dividing the heater voltage with R153 and R155, is input into the A/D converter of IC103 pin 18. The IC103 carried out feedback control of HEATER ON/OFF signal, so that the HEATER signal attains the specified voltage. The specified voltage of HEATER signal is $\{5 * (\text{EEPROM address } 0x023 \text{ value}) / 256\}$ (V) at normal state and $\{5 * (\text{OSD item HEATER}) / 256\}$ (V) at POWER MANAGEMENT.

When the HEATER signal deviates from the specified voltage by $\pm 0.5\text{V}$ for 1 second or more, the situation is judged as heater error, bringing the system forcibly to POWER SAVE mode.

1.6.6 ABL, Beam Protector

The feedback signal ABL of the beam current is input into IC103 pin 16.

In case the signal ABL exceeds the voltage level given below, the contrast setting of the preamplifier IC211 is lowered down to prevent the excessive flow of the beam current.

ABL specified voltage: $\{5 * (\text{OSD item ABL}) / 256\}$ (V)

Further, in case the signal ABL exceeds the 4.7 V level continuously for 2 seconds or more, the situation is judged as circuit error, bringing the system forcibly to POWER SAVE mode.

1.6.7 CRT support

The pin 2 of the geomagnetic sensor IC303 outputs the voltage change signal of the horizontal magnetic field.

This signal is then divided by R145 and R150 and input into the A/D converter of the microcomputer IC103 pin 19. This signal is further converted into digital value to detect the geomagnetism around the monitor.

The signal that divides the P_OFF_+5V at the thermistor TH100, R135 and R136 is input into the A/D converter of IC103 pin 14 and converted into digital value. Thus, the temperature inside the monitor is detected.

The monitor ON time signal BEAM TIME is input into the A/D converter of IC103 pin 15 and converted into digital signal to detect the monitor ON time.

In order to cancel the deterioration in purity and convergence due to the aforesaid geomagnetism, temperature and variation with time, the cancel current is passed to each C_PURITY 4V coil.

Each C_PURITY ROTATION controls the PWM DAC output (pin 3 to pin 7) of IC103 by means of the signal smoothened by R and C.

VPURITY is controlled by the DAC output of IC211 pin 26.

The digital signal transmitted to the deflection processor IC700 from the microcomputer through I2C bus and converted into analog voltage by IC601 is output from pin 60 then it controls the convergence 4V.

1.6.8 High voltage control

The high output voltage control is carried out by means of HV-ADJ signal smoothening the PWM DAC output of the microcomputer IC103 pin 9 using R117 and C103.

The high voltage feedback signal X-PRO is input into the A/D converter of IC103 pin 17. When this voltage exceeds the specified level for 600 msec or more, the situation is regarded as high voltage error, setting the monitor to POWER SAVE mode.

The specified voltage level is obtained from $\{5 * (\text{OSD item XPRO LEVEL}) / 256\}$ (V)

1.6.9 Display Data Channel

The DDC2B/2Bi function belongs to IC103 (microcomputer).

DDC2B: Immediately after the monitor power is turned ON, the microcomputer reads the EDID data from IC105. It outputs the EDID data according to the clock input into pin 34 SCL-DDC.

DDC2Bi: The monitor adjusts the picture etc. corresponding to DDC2Bi command which is input to pin 34 SCL-DDC and pin 35 SDA-DDC of microcomputer. This DDC2Bi command is used for the adjustment operated at factory. In case general user uses this, he/she needs specified application and adapter.

Table 7 IC103(MPU) Pin assignment

PIN#	FUNCTION	ASSIGNMENT	PIN#	FUNCTION	ASSIGNMENT
1	DA0	BRT(D/A)	56	VPP/TEST	GND
2	DA1	LIN(D/A)	55	IRIN	GND
3	DA2	ROTATION(D/A)	54	NOT(RESET)	RESEI(IN)
4	DA3	CP-TL(D/A)	53	PA0	CS1(OUT)
5	DA4	CP-TR(D/A)	52	PA1	CS2(OUT)
6	DA5	CP-BL(D/A)	51	PA2	CS3(OUT)
7	DA6	CP-BR(D/A)	50	PA3	CS4(OUT)
8	DA7	HEATER ON/OFF(D/A)	49	PA4	CS5(OUT)
9	DA8	HV-ADJ(D/A)	48	PA5	CS6(OUT)
10	VSSA	GND	47	PA6	SW-VLIN1(OUT)
11	VDDA	+5V	46	PA7/BLANKO	SW-VLIN2(OUT)
12	PB7/AN7	KEY1(A/D)	45	OSCIN	OSCIN
13	PB6/AN6	KEY2(A/D)	44	OSCOU	OSCOU
14	PB5/AN5	THERM(A/D)	43	USBVCC	DEGAUSS(OUT)
15	PB4/AN4	BEAM-TIME(A/D)	42	USBDP	NC
16	PB3/AN3	ABL(A/D)	41	USBDM	NC
17	PB2/AN2	X-PRO(A/D)	40	USBGND	NC
18	PB1/AN1	HEATER(A/D)	39	PC7/TDO(SCI)	WP(OUT)
19	PB0/VFBACK/AN0	X-OUT(A/D)	38	PC6/RDI(SCI)	SDA-12C(IN)
20	VSYNCl1	V-SYNC(IN)	37	PC5/SDA(12C)	SDA-12C(OUT)
21	PC7/VSYNCl2/ITD	HSK(OUT)	36	PC4/SCL(12C)	SCL-12C(OUT)
22	PD6/CLAMP0	CLP(OUT)	35	PC3/SDAD(DDC)	SDA-DDC(SIO)
23	PD5/ITA	LOCK(INT)	34	PC2/SCLD(DDC)/RX	SCL-DDC(SIO)
24	PD4/ITB	PRO(IN)	33	PCI/HSYNCl2	P-OFF(OUT)
25	PD3/ITC	SPARK(INT)	32	PC0/OCMP/HFBACK	P-SUS(OUT)
26	PD2/VSYNCO	VS-OUT(OUT)	31	VDD	+5V
27	PD1/HSYNCO	HS-OUT(OUT)	30	HSYNCl1	H-SYNC(IN)
28	OD0/CSYNCl	12C-SW(OUT)	29	VSS	GND

1.6.10 LED

J100 pin 1 is connected to the anode of the green LED, J100 pin 3 is connected to the anode of the amber LED, and pin 2 is connected to the cathodes of both. Since P_OFF_+5V is normally supplied, the current flows to J100 pin 1 to turn OFF Q100. Therefore, any current does not flow to J100 pin 3.

(The green LED only is lit.)

Since P_OFF_+5V is turned OFF in the power management mode, no current is not flowed to J100 pin 1 to turn ON Q100. Therefore, the current flows to J100 pin 3. (The amber LED only is lit.)

1.6.11 Clamp pulse

The clamp pulse signal CLP is output from pin 22 of the MPU IC103 with the polarity POSI. When "FRONT" is selected in the OSD adjustment item "CLAMP PULS POSITION", the signal is triggered at the front edge of HSYNC, and when "BACK" is selected, the signal is triggered at the rear edge.

1.6.12 SPARK

If it is electrically discharged in the CRT tube, the GND level of the high-voltage system circuit is considerably varied. GND of this high-voltage system is connected to the MPU IC103 pin 25 via C139. The voltage level of IC103 pin 25 is normally set at HI. If GND in the high-voltage system varies since it is electrically discharged in the CRT tube, the current will flow to R161 to set IC103 pin 25 at the LO level. Pin 25 is the external interrupt terminal that detects the trailing edge. When the trailing edge is detected, the MPU forcibly applies S/W RESET. (It is the same as when the power SW is turned ON.)

The above operation prevents the monitor from going out of control when it is electrically discharged in the CRT tube.

1.6.13 Avoidance operation during input SYNC switching

The horizontal LOCK output signal of the deflection processor IC601 pin 46 is connected to the MPU IC103 pin 23. IC103 pin 23 is the external interrupt terminal of the trailing edge detection. Though the voltage level of the LOCK signal is normally set at HI, IC600 outputs LO when the horizontal deflection lock is released since the input SYNC is switched.

When the MPU detects the trailing edge, the HSK signal of IC103 pin 21 is set at HI, and the simulative SYNC that is near the original frequency is output from pin 30 and pin 20. HSK signal is used to set +B, voltage at MIN.

This reduces the stress when the input SYNC is switched for a short time.

1.6.14 Vertical linearity switch

The frequency characteristics of the vertical linearity are compensated by pin 47 SW_VLIN1 and pin 46 SW_VLIN2 output signals of the MPU IC103.

The switching patterns are shown in the table below.

Table 8 SW_VLIN1, SW_VLIN2 select pattern

Vertical frequency	SW_VLIN1 Pin47	SW_VLIN2 Pin46
50Hz ~ 73Hz	LO	LO
73Hz ~ 90Hz	HI	LO
90Hz ~ 125Hz	LO	HI
125Hz ~ 160Hz	HI	HI

1.6.15 H/W RESET

The +5V power is connected to pin 1 of the voltage detector IC101, and IC101 pin 3 output is connected to the MPU IC103 pin 54.

On the voltage detector, pin 3 is the open drain output, being turned OFF when pin 1 voltage is 4.2V or more, and ON when it is 4.2V or less. When the power switch is turned ON, IC101 pin 3 is turned ON and the MPU pin 54 level is set at 0V since +5V has not started up.

When the voltage of IC101 pin 1 becomes 4.2V or more, IC101 pin 3 will be turned OFF, and the voltage of the MPU pin 54 rises with the time constants of R101 and C100.

When the voltage of the MPU pin 54 becomes 3.5V or more, the MPU will start operating.

1.6.16 Oscillation circuit

The crystal oscillator X100 is connected to the MPU IC103 pin 45 and pin 44. Pin 45 is the clock input, and pin 44 is the amplification circuit output in the MPU. The operation frequency of the crystal oscillator is 24MHz. The basic clock is divided in the MPU to operate the program and circuits of the MPU.

1.7 Software

1.7.1 Outline

(1) Input frequency

- Horizontal : 30kHz to 110kHz (Lower limit : 29.5kHz, Upper limit: 112kHz)
- Vertical : 50Hz to 160Hz (Lower limit: 47Hz Upper limit: 162Hz)

(2) Memory timing number

- Preset timing : 9 timing (12 timing max.)
- User timing : 15 timings can be memorized.

1.7.2 Frequency variation detection function

At normal signal input, this function checks the input frequency and polarity per VSYNC input and judges that input signal has been transmitted if the conditions a, b and c given below are satisfied 5 times continuously against the first synchronous signal state.

Condition a: There is no change in the input synchronous signal polarity both in horizontal and vertical directions.

Condition b: The horizontal frequency difference is less than 0.4kHz.

Condition c: The vertical frequency difference is less than 0.4Hz.

On detecting the change in input signal, this function compares, in the order given below, the directory data written in EEPROM with the directory data of the input signal before reading and outputting the screen data.

(1) If the input signals satisfy conditions a, b and c, they are judged to be the same as the signals registered in the directory, and the timing data are read from EEPROM and are output.

Condition a: The polarities of the input sync. signal are the same in both horizontal and vertical directions.

Condition b: Horizontal frequency difference is 0.6kHz

Condition c: Vertical frequency difference is 0.6Hz.

The sequence of the compared directories is as follows:

PRESET1 → PRESET2 → ... → PRESET12 → USER1 → USER2 → ... → USER15

If the same timing is judged on the way, the comparison work is stopped there, and the adjustment value for each corresponding timing is read out from EEPROM.

(2) If the conditions of (1) are not satisfied (when the new timing is input), the horizontal frequency reads the backup picture data of the nearest preset timing and outputs it.

1.7.3 Memory of user timing

The new timing is input. When the picture adjustment is executed, the directory data (frequency and polarity) and picture data will be memorized in EEPROM.

If 15 user timings (MAX) are memorized, the memory of the oldest user timing (directory data and picture data) is deleted, and the new timing information is memorized there.

USER1 → USER2 → ... → USER15 → USER1 → USER2 → ... →

1.7.4 Picture adjustment

- (1) The monitor has the function to do the picture adjustment with OSD and communication. The function has the following adjustment modes.

- a: Normal mode
- b: Factory mode

For entry into each adjustment mode, refer to Item "Adjustment method".

- (2) High voltage adjustment supplement

The high voltage of the normal time is determined with "HVAD" setting value of OSD adjustment item and the X-ray protect voltage is determined with "XPRO" setting value of the OSD adjustment item. To adjust the X ray protect voltage, it is necessary to raise the high voltage to 30KV once.

To temporarily raise the high voltage, "HVTP" of OSD adjustment item is used. Since "HVTP" is not memorized in EEPROM, the high voltage will return to the normal ("HVAD" setting value) when the power is turned OFF once. Even if the page of the high voltage adjustment of OSD is skipped with the select button, it will similarly return to the normal high voltage.

- (3) If XRAY-PROTECT activates even in the normal state because XRAY-PROTECT is excessively lowered by mistake, the XRAY-PROTECT and HV-ADJUST adjustment values can be initialized using the following procedure.

(a) Input the image signal to the monitor.

(b) Keeping both + and - buttons pressed, turn ON the power.

(c) Keep both + and - buttons pressed for approx. 30 seconds or more.

(d) Release - button only.

(e) Keep the + button only pressed for 15 seconds or more.

(f) When it is successfully completed, the monitor will drop to POWER SAVE. (LED pattern changes.)

(g) Turn OFF the power, and turn it ON again, and the XRAY-PROTECT adjustment value will become 254 and HV-ADJUST adjustment value will become 50.

- (4) Vertical position adjustment supplement

The displayed adjustment data corresponding to the vertical position icon in OSD adjustment item differs at Normal and Factory mode.

Normal mode ("VERT-POSITION"):

When this icon is moved, the trapezoid distortion compensation is automatically carried out. This is mainly used for compensating the distortion against the vertical position of the input timing image.

Factory mode ("PF"):

The trapezoid distortion compensation is not carried out automatically even if this icon is moved. This is mainly used for compensating the offset of the circuit and deflection yoke.

1.7.5 Power management

The function reduces the power consumption of the monitor when the connected computer is not used.

The function is turned ON and OFF from the adjustment picture.

The monitor has only one kind of the power management function.

- (1) Conditions to enter power management mode

- a: "POWER SAVE" of the picture adjustment item is left ON.
- b: Neither HSYNC nor VSYNC are input.

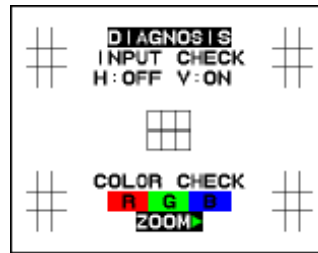
- (2) Power management operation

When the power management is activated,

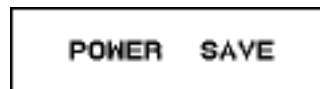
- (i) P_SUS signal is turned to LO to stop the power output on the secondary side except CRT heater, P-OFF+5V, +5V line.
- (ii) P-OFF signal is turned to HI to stop the power output of P-OFF+5V line.
- (iii) The front LED is lit amber.

1.7.6 OSD display at NO SYNC

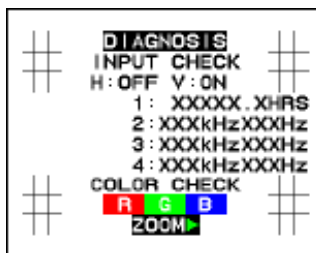
- (1) In case there is no input in either HSYNC or VSYNC, the following OSD is displayed.
 - (a) When OSD item "POWER SAVE" is set to "OFF", this OSD is continuously displayed.
 - (b) When OSD item "POWER SAVE" is set to "ON", this OSD is displayed for about 6 sec and moves to (2)



- (2) After displaying the OSD given below for about 3 seconds, the system enters POWER MANAGEMENT mode.



- (3) During POWER MANAGEMENT mode, if one of the buttons is pressed, the OSD in (1) is displayed again.
If no button is further pressed, the display moves to the state in (2) after about 1 minute.
- (4) If "→" button is pressed with OSD in (1) under display, the OSD in (1) is subjected to full scanning.
If "→" is pressed again, the display returns to original size.
- (5) If "-" and "+" buttons are simultaneously pressed with OSD in (1) under display, the OSD given below is displayed. If no button is pressed for about 1 minute, the displays from 1: to 4: are deleted.



- * Item 1: Operating time (Cumulative time while the power switch is ON)
- Item 2: Preceding input frequency, horizontal frequency, and vertical frequency
- Item 3: Input frequency, horizontal frequency, and vertical frequency before item 2
- Item 4: Input frequency, horizontal frequency, and vertical frequency before item 3

1.7.7 LED display

Normally the LED is lit up green during screen display and yellow during power management.

However, when circuit operation error is detected, the system gets forcibly set to POWER MANAGEMENT mode, with the LED being lit up in the pattern given below.

High voltage protector: Green 1 sec → Yellow 5 sec, repeat

Beam protector: Green 1 sec → Yellow 1 sec → Green 1 sec → Yellow 5 sec, repeat

EEPROM error: Green 1 sec → Yellow 1 sec → Green 1 sec → Yellow 1 sec → Green 1 sec → Yellow 5 sec, repeat

Power short-circuit on the secondary side: Green 1 sec → Yellow 1 sec → Green 1 sec → Yellow 1 sec →

Green 1 sec → Yellow 1 sec → Green 1 sec → Yellow 1 sec → Green 1 sec → Yellow 5 sec, repeat

Heater error: Green 1 sec → Yellow 1 sec → Green 1 sec → Yellow 1 sec → Green 1 sec → Yellow 1 sec → Green 1 sec → Yellow 1 sec → Green 1 sec → Yellow 5 sec, repeat

I2C bus error: Green 1 sec → Yellow 1 sec → Green 1 sec → Yellow 1 sec → Green 1 sec → Yellow 1 sec → Green 1 sec → Yellow 1 sec → Green 1 sec → Yellow 1 sec → Green 1 sec → Yellow 5 sec, repeat

High-voltage adjusted value initialization procedures: Green 1 sec → Yellow 1 sec → Green 1 sec → Yellow 1 sec → Green 1 sec → Yellow 1 sec → Green 1 sec → Yellow 1 sec → Green 1 sec → Yellow 1 sec → Green 1 sec → Yellow 5 sec, repeat

* EEPROM memory error: Each of the high voltage adjustment “HVADJ” and “XPRO LEVEL” has independent backup data. As the power is turned ON, each adjusted value is read from EEPROM, and in case this value fails to correspond with the backup data, the situation is regarded as EEPROM memory error, setting the system forcibly to POWER MANAGEMENT mode.

1.7.8 Status memory to EEPROM

The following contents are stored in EEPROM in order to supplement the analysis of fault and claim causes.

(1) Operating time

The cumulative time with the power switch ON is memorized in EEPROM by 30 minutes unit and 2 byte size.

When the memory value reaches FFFFH, the count UP stops.

The item 1 of OSD display in 1.7.6-(5) displays this memory value.

Table 9

EEPROM address	Content
0 x 0CD	Operating time lower byte
0 x 0CE	Operating time upper byte

(2) Operating frequency memory

The input frequency for the past 3 times is memorized in EEPROM in 2*3 byte size.

The items 2 to 3 of OSD display in 1.7.6-(5) display these memory values.

In case the input frequency exceeds 3 times, the oldest memory value is discarded.

Table 10

EEPROM address	Content
0 x 75B	Preceding input horizontal frequency (unit: kHz)
0 x 75C	Preceding input vertical frequency (unit: Hz)
0 x 75D	Input horizontal frequency one step before (unit: kHz)
0 x 75E	Input vertical frequency one step before (unit: Hz)
0 x 75F	Input horizontal frequency two steps before (unit: kHz)
0 x 75G	Input vertical frequency two steps before (unit: Hz)

(3) Protector operation rate memory

The protector operation rate due to error in high voltage, power short-circuit on the secondary side, I2C, BEAM, heater, or EEPROM is memorized in EEPROM in 24 bit (3 byte) size. The data is memorized in EEPROM per FACTORY ADJUSTMENT and USER mode (total 6 byte).

The count UP stops when each protector operation rate reaches the 15 times.

Table 11

EEPROM address	Content
0 x 761	Upper 4 bit: High-voltage error rate at User mode, Lower 4 bit: Short circuit rate at User mode
0 x 762	Upper 4 bit: I2C bus error rate at User mode, Lower 4 bit: Beam error rate at User mode
0 x 763	Upper 4 bit: Heater error rate at User mode, Lower 4 bit: EEPROM error rate at User mode
0 x 764	Upper 4 bit: High-voltage error rate at Factory mode, Lower 4 bit: Short circuit rate at Factory mode
0 x 765	Upper 4 bit: I2C bus error rate at Factory mode, Lower 4 bit: Beam error rate at Factory mode
0 x 766	Upper 4 bit: Heater error rate at Factory mode, Lower 4 bit: EEPROM error rate at Factory mode

1.8 Deflection processor block

1.8.1 Outline

The deflection processor block mainly composed of deflection processor IC generates and controls a variety of the following compensation waveform that are produced by this IC.

The deflection processor IC is a 64pins IC of uPD61882 of IC601.

The following seven points are generated and controlled by the deflection processor IC.

(Refer to the block diagram of IC601 in the figure 21.)

- (1)Vertical deflection waveform generating circuit
- (2)Horizontal deflection drive waveform generating circuit
- (3)Distortion compensation waveform generating circuit
- (4)DBF compensation waveform generating circuit
- (5)Convergence compensation waveform generating circuit
- (6)Blanking waveform generating circuit
- (7)Moire canceling circuit

Moreover, the block is provided with a small both-face board (PWB-DEFL-SUB) of 60mm X 70mm.

The power of the deflection processor block is +3.3V that is converted from P-OFF+5V by the regulator of IC602, and the power and GND are divided into the digital system and analog system in the inner circuit of IC601 in order to prevent noise interference for the waveforms. OP amplifier of IC603 uses the power of +5V and -15V, and works as the trace filter and voltage amplification of the amplitude of the saw-toothed waveform for vertical deflection.

1.8.2 Vertical deflection waveform generating circuit

The deflection processor IC (IC601) does 10-bit DAC output of the saw-toothed wave for vertical deflection that is synchronized with the vertical frequency input to pin 42, from pin 1 and pin 11 at both polarities (approx. 1.2V.p-p). Moreover, the center voltage IMID (approx. 1.6VDC) of the saw-toothed wave is output from pin 2.

To remove the noise, the OP amplifier (pins 1, 2 and 3) of the front step of IC603 removes the difference between the waveforms of both polarities of the saw-toothed wave for vertical deflection, using the center voltage IMID of the saw-toothed wave as the reference. From the output of the amplifier, the digital gradation component of the saw-toothed wave is removed with the low pass filter that is made of R642 and C628. Moreover, pin 62 and pin 63 of IC601 are the analog switch turning ON the retrace term, prevents the waveform deformation that is produced by the low pass filter, and prevents the degradation of the linearity and the fluctuation of the scanning line.

Moreover, the saw-toothed wave for vertical deflection is controlled to adjust the vertical picture width, vertical phase and linearity.

R645, R646, R647 and R649 connected to pair GND on the filter output composed of R642 and C628 are the resistor to improve the linearity of the saw-toothed wave for input vertical deflection, and switches the resistance into four steps with the transistor switch of Q603 and Q604 according to the vertical frequency. (Refer to Table 12.)

The saw-toothed wave for vertical deflection is output to the low output impedance with the OP amplifier (pins 5, 6 and 7) of the rear step of IC603.

Vertical frequency	Q604	Q603
50 ~72.9Hz	OFF	OFF
73 ~89.9Hz	ON	OFF
90 ~124.9Hz	OFF	ON
125 ~160Hz	ON	ON

Table 12 Vertical linearity compensation resistance select transistor ON/OFF

1.8.3 Horizontal deflection drive waveform generating circuit

The rectangular wave for horizontal deflection drive are output at the amplitude 3.3Vp-p and approx. 45% Duty from IC601 pin 25 with the delay of the transistor taken into account in order to make the Duty become 50% at the output of Q504 of the horizontal deflection circuit.

Here, the simulative horizontal sync. signal (5V pulse) from the horizontal flyback pulse (AFC, 5V pulse) input to IC601 pin 27 and IC103 (MPU) input to IC601 pin 44 is passed through the inverter of IC6A3 to produce the edges of these waveforms. This prevents the noises of the jitter, etc. from generating.

Moreover, the circuit composed of Q602, Q605, etc. connected to IC601 pin 13 prevents the rapid frequency variation of the horizontal output when the horizontal input signal becomes no signal. IC601 pin 13 is a phase comparator filter terminal to phase-lock the horizontal input sync. signal and the oscillation in IC601. When the horizontal input sync. signal becomes no signal, the terminal voltage rapidly varies from approx. 0.8V of the phase lock time to 0V, and the frequency of the horizontal output rapidly varies according to this. The circuit is added to compress the rapid frequency variation width by smoothening the variation of the terminal voltage of pin 13 by C636 when it becomes unlocked. This prevents the horizontal collector pulse from jumping in order to prevent overvoltage against the horizontal output transistor (Q550).

The terminals pin 13 to pin 20 of IC601 become the control filter terminal of horizontal PLL.

1.8.4 Distortion compensation waveform generating circuit

The deflection distortion compensating waveform is output from pin 64 of IC601. The waveform is output from 1-bit DAC, and 3.3V pulse waveform of resolution power of 25MHz is output at pin64 direct. The pulse waveform is smoothened with the low pass filter of R632 and C622 to gain the compensation waveform of the vertical frequency. The amplitude is approximately 1.0 to 1.2Vp-p, and is connected to pin5 of IC5C0.

The horizontal size, trapezoid compensation, side pin compensation, upper/lower compensation of the side pin, S type compensation of the side pin and W compensation of the side pin are applied. (Refer to the compensation image, figure 22.)

The deflection compensation waveform in the horizontal phase system is output from pin 57 of IC601. Pin 57 is the 1-bit DAC output, and outputs the pulse waveform of 3.3V of resolution power of 25MHz. The pulse waveform is smoothened with the low pass filter of R614, R619, C601 and C604, and the waveform of the vertical frequency is current-added to the filter (pin 20 of IC700) of the horizontal system PLL to compensate for the deflection distortion of the horizontal phase system. The parallel rectangular distortion compensation and the side pin balance (upper and lower) compensation are executed. (Refer to the compensation image, figure 22.)

1.8.5 DBF compensation waveform generating circuit

The horizontal system DBF compensation waveform is output in 8-bit DAC mode from pin 10 of IC601. The amplitude is approximately 0.5Vp-p. It is connected to pin 5 of IC6A1.

The vertical system DBF compensation waveform is output from pin58 in the 1-bit DAC mode. Pin 58 direct outputs the pulse waveform of the resolution power of 25MHz. The pulse waveform is smoothened with the low pass filter of R621 and C607 to gain the DBF compensation waveform of the vertical frequency. The amplitude is approximately 0.6Vp-p. It is connected to pin 3 of IC6A1.

1.8.6 Convergence compensation waveform generating circuit

The horizontal dynamic convergence compensation waveform is output from pin 6 of IC601 in the 8-bit DAC mode. The amplitude is approximately 0V to 0.5V. The vertical dynamic convergence compensation waveform is output from pin 8 in the 10-bit DAC mode. The amplitude is approximately 0V to 0.5V. The dynamic convergence compensation waveform center voltage (approx. 1.6V) is output from pin 7.

In the 1-bit DAC mode, the horizontal static convergence compensation waveform is output from pin 61, and the vertical static convergence compensation waveform is output from pin 60. In pins 60 and 61 direct, the pulse waveform of the resolution power of 25MHz is output. The pulse waveform is smoothened through the low pass filter to gain the horizontal static convergence compensation waveform and vertical static convergence compensation waveform of the vertical frequency.

1.8.7 Blanking waveform generating circuit

The horizontal blanking pulse and vertical blanking pulse are generated in IC601, and these two waveforms are mixed and output at 3.3Vp-p from pin 40 of IC601.

The reference of the phase of the vertical blanking pulse is determined at the leading edge of VFLY (vertical flyback pulse, 5V pulse) of pin 39 input of IC601, and the phase can be variably controlled to output the optimal waveform of the blanking pulse.

The horizontal blanking pulse is a pulse that is synchronized with H-IN (horizontal sync. signal, 5V pulse) of pin 44 input of IC601, and can be also variably controlled.

The waveform is connected to pin 27 of the preamplifier (IC211) of the video board.

1.8.8 Moire canceling circuit

The moire canceling circuit outputs the waveform that is reversed every line of the horizontal frequency and every 1 frame of the vertical frequency from pin 22. The vertical frequency waveform is output from pin 23, and these two waveforms are added to the horizontal PLL through the filter of R630 and C618 to achieve the moire canceling function.

Pin 30 of IC601 is a terminal to detect the drop of the power voltage (+3.3V), and the detection voltage is approximately 1.0V. When a power voltage drop is detected, pin 32 of IC601 varies from Hi level (5V) to Lo level (0V) but is not used now.

Pin 46 is a terminal to detect whether the horizontal PLL is locked and HD output from pin 25 is normal or not. It is output at the Hi level (5V) when it is locked, and at the Lo level (0V) when it is unlocked. It is connected to IC103 (MPU).

Pin 49 is the reset terminal of IC601. The reset IC of IC6A4 resets IC601 when P-OFF+5V drops to approx. 2.7V.

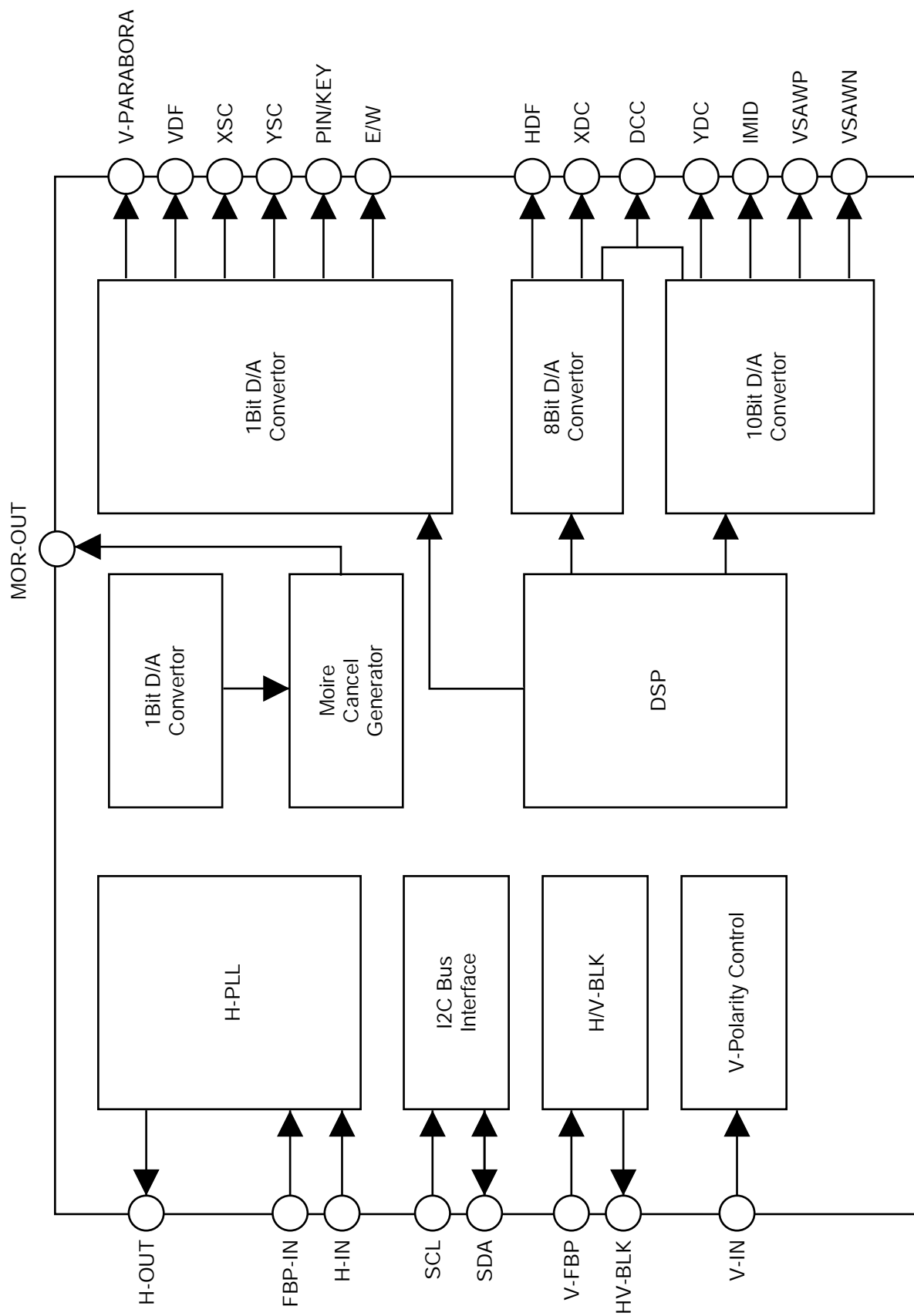
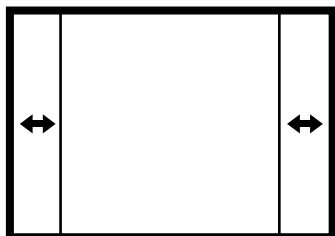


Figure 21 IC601 block diagram (uPD61882BGC)

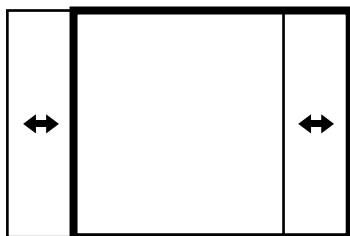
1.8.9 Distortion compensating operation

The followings are the operation image figures on the picture of the distortion compenssion.

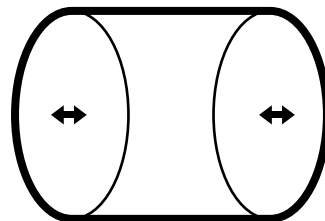
HORIZE-SIZE



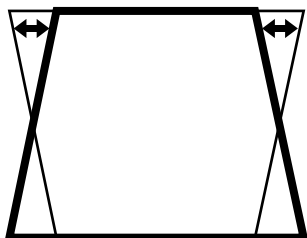
HORIZE-PHASE



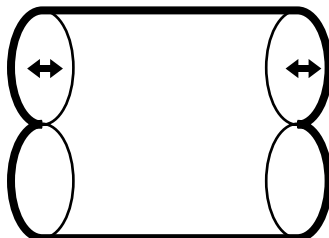
PINCUSHION



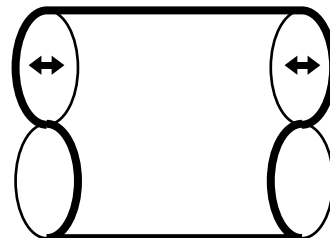
KEYSTONE



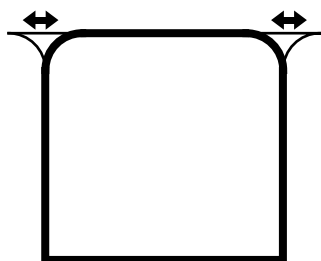
PIN-CENTER



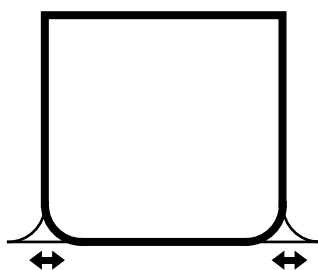
PCC-SINE



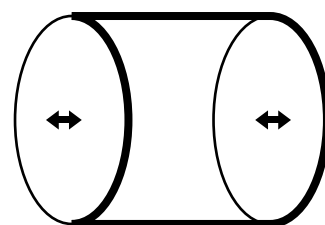
TOP-PIN



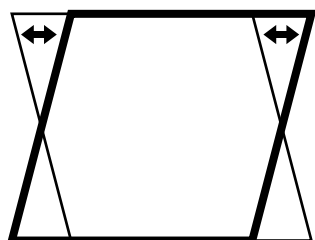
BOTTOM-PIN



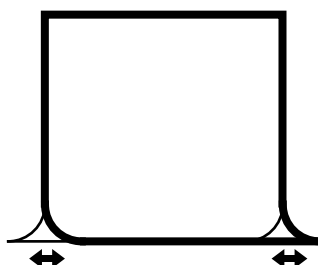
PIN-BALANCE



KEYBALANCE



BOTTOM-PIN



TOP-PIN

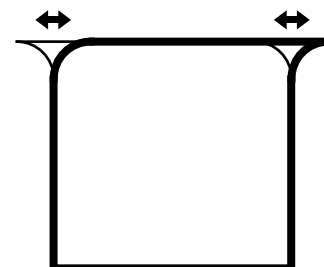


Figure. 22

1.9 Video Block

1.9.1 Picture signal amplifier circuit

The picture signal (video) amplifier is identical circuit configuration for R, G, and B. In this section, the G (green) video circuit will be described.

Note that the picture signal input of this machine is confined to one system of D-SUB connector.

The video signal is input from pin 2 of D-SUB connector J215 to pin 6 of Pre-AMP IC211. (Refer to point A in Fig.23.)

The video signal is subjected to voltage amplification, composition and amplitude control [Description 1] in Pre-AMP IC211 and output from pin 32. (Refer to point B in Fig.23.)

The video signal, output from Pre-AMP, is input into pin8 of MAIN-AMP IC210 to undergo final amplification, then output from pin 5 of MAIN-AMP IC210. (Refer to point C in Fig.23.)

* The MAIN-AMP IC210 is an amplifier used for voltage amplification (GAIN: 12 to 15 times) of the video signal.

The video signal undergoes AC coupling with the cut-off circuit (Refer to Picture Signal Amplifier and Cut-off circuit diagram in Fig.23), input into CRT socket J200 through the connector J202 on CRT substrate from the connector J210, and is then supplied to the cathode of CRT. (Refer to point D in Fig.23)

[Description 1] Role of Pre-AMP (IC211)

- Voltage amplification of video signal (GAIN: 0 to 5 times)
- Composition of the video signal for Adjustment screen (OSD) output from IC212 and the blanking signal output from IC601.
- Amplitude control of the output voltage (ABL control) <Note 1>
- D/A output for bias control

The above items are all controlled by I2C bus (IC211 pin 21: SDA_I2C, pin 20: SCL_I2C) from the micro-computer IC103.

<Note 1> ABL: Anode Beam Limiter

With the CRT anode current controlled through the current detection of the flyback transformer on the MAIN substrate, the limiter sets the upper limit of brightness at the time of full white screen.

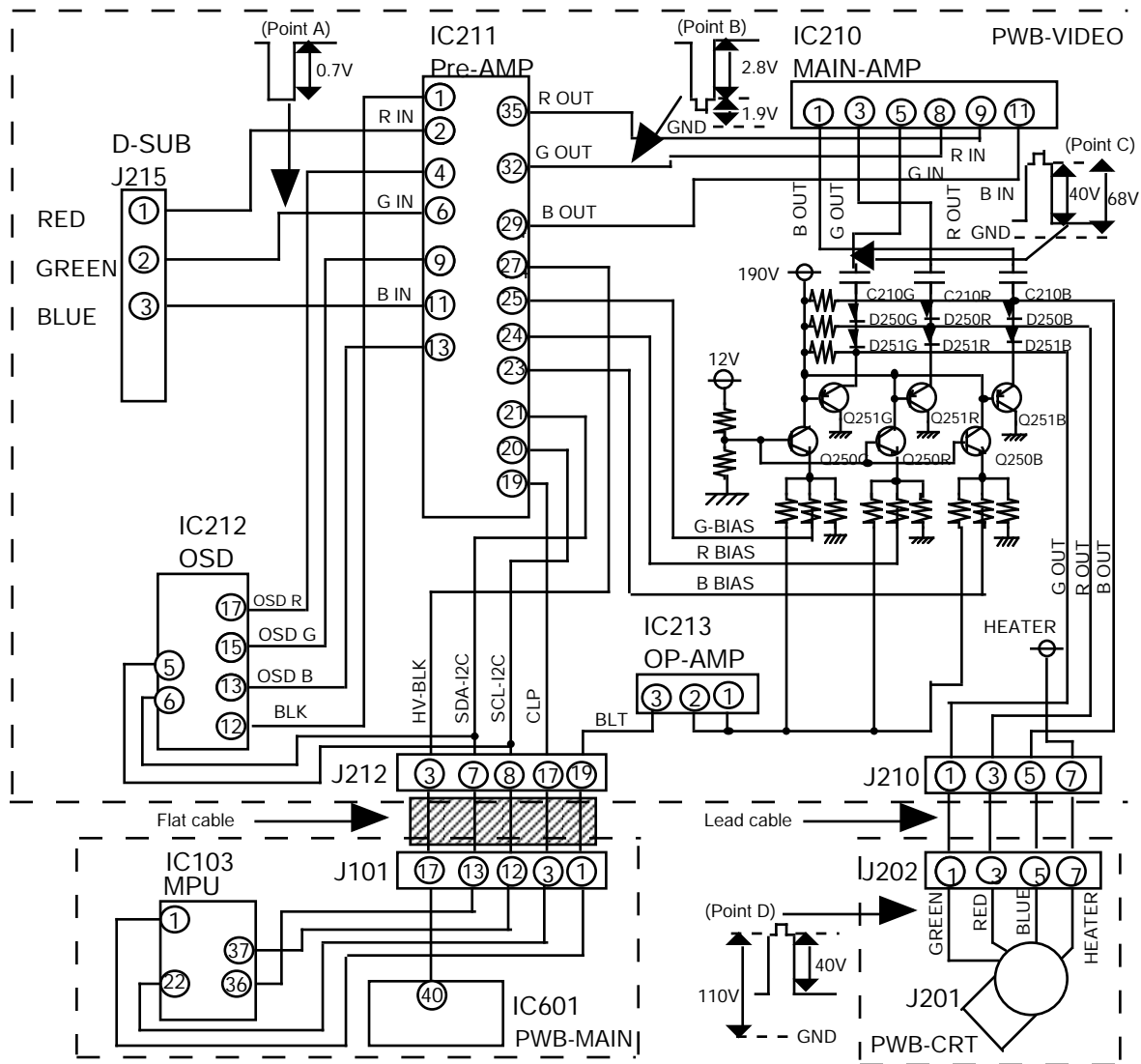


Figure 23 Video signal amplification circuit diagram

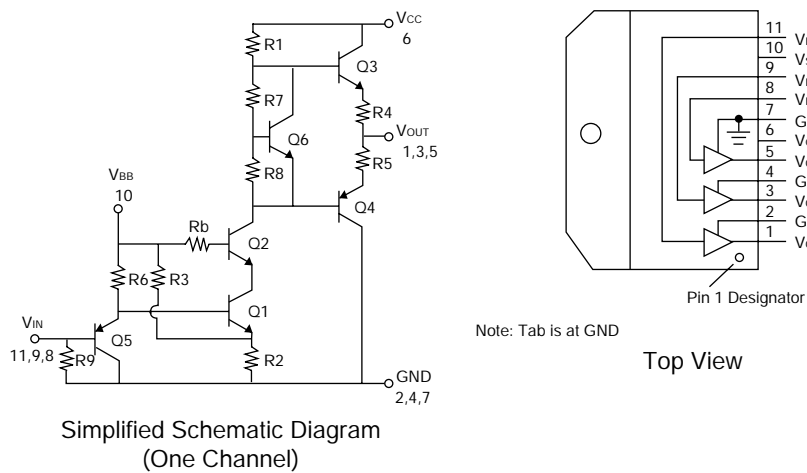


Figure 24 IC210 (LM2415T) block diagram

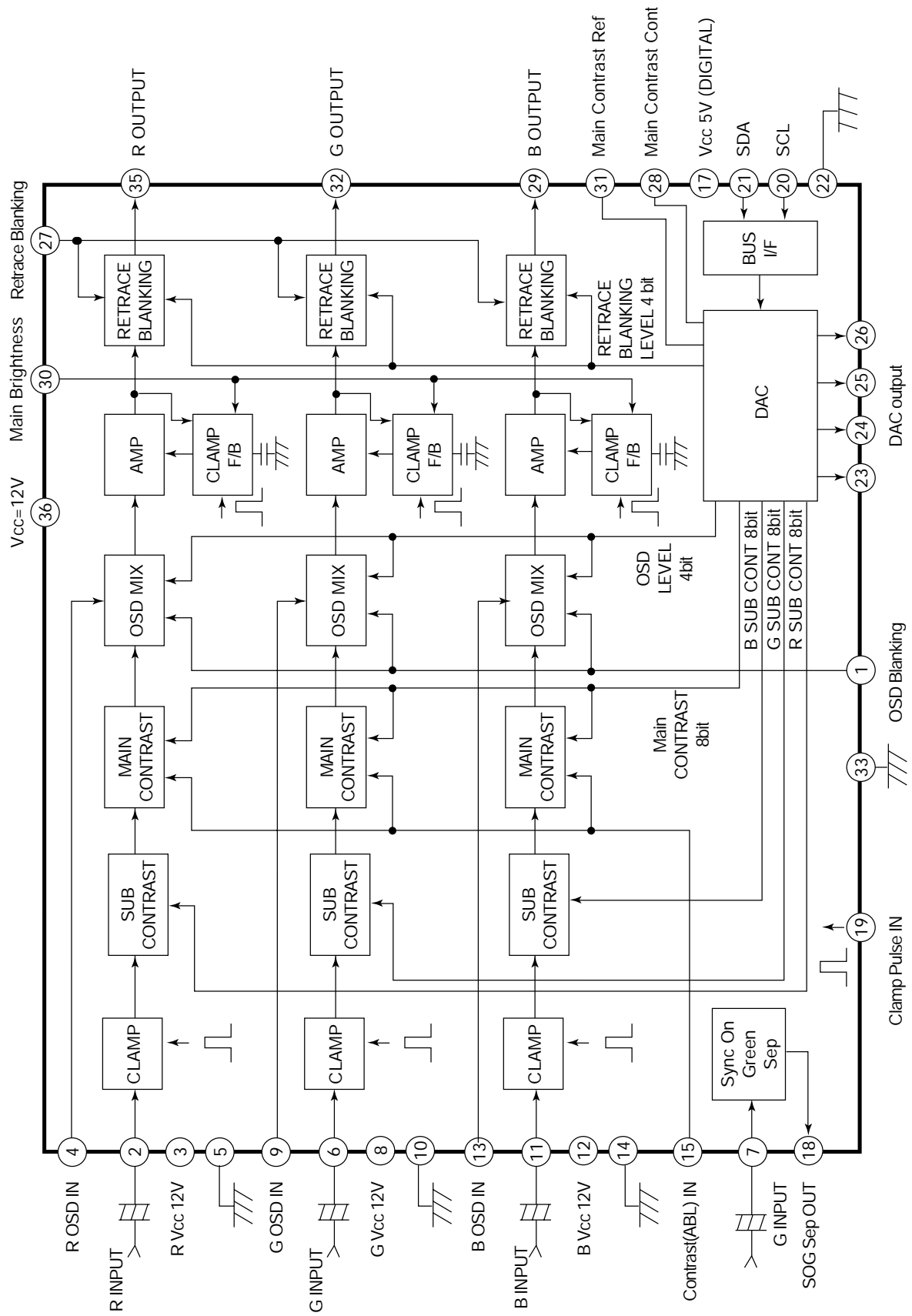


Figure 25 IC211 (M52743 BSP) block diagram

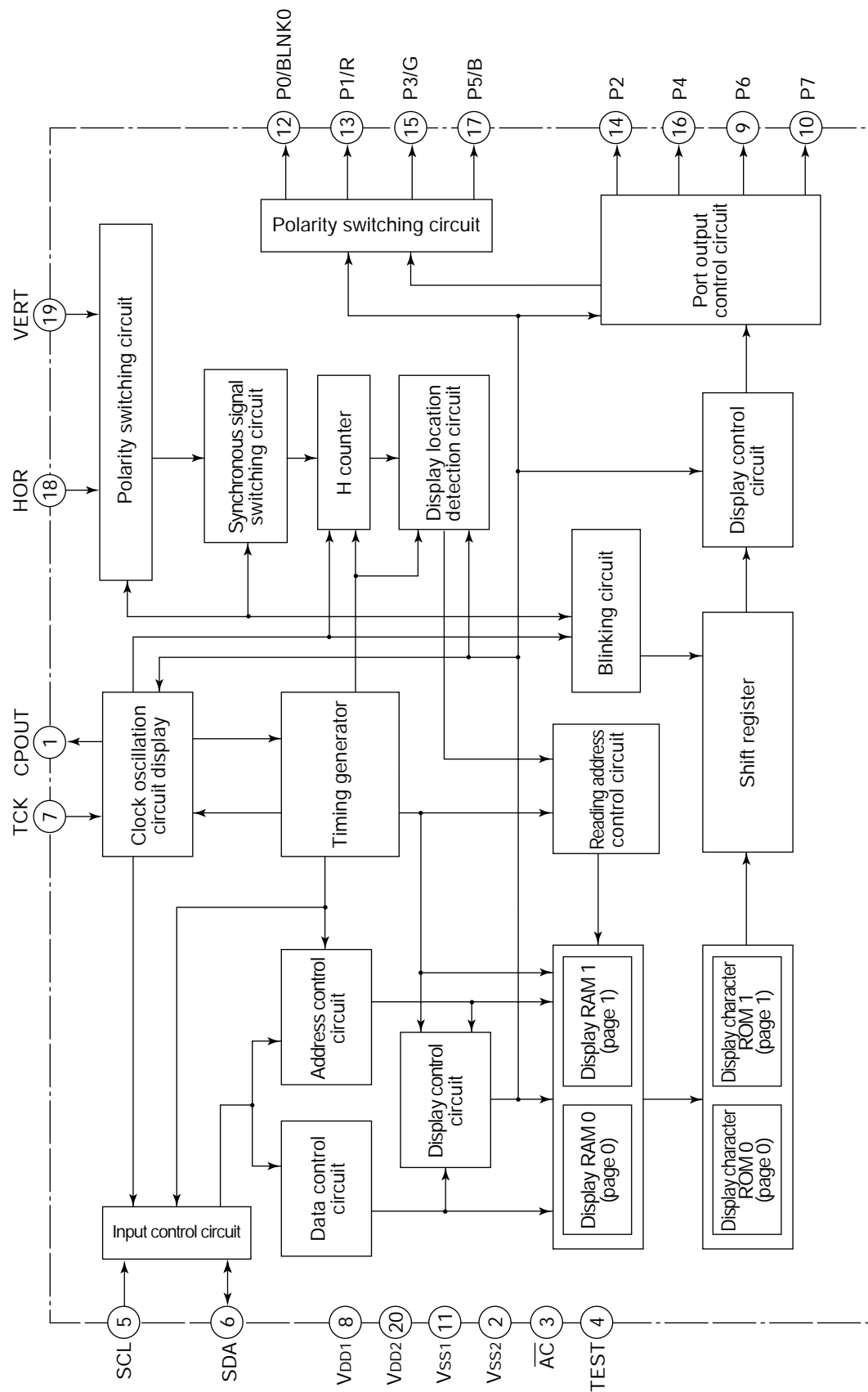


Figure 26 IC212 (M35071-067SP) block diagram

1.9.3.2 Composite sync signal

Similar to the horizontal synchronous signal in the aforesaid item [Separate synchronous signal], the composite synchronous signal is input from pin 13 of D-SUB connector J215 and input into pin 30 of the microcomputer IC103 on MAIN substrate.

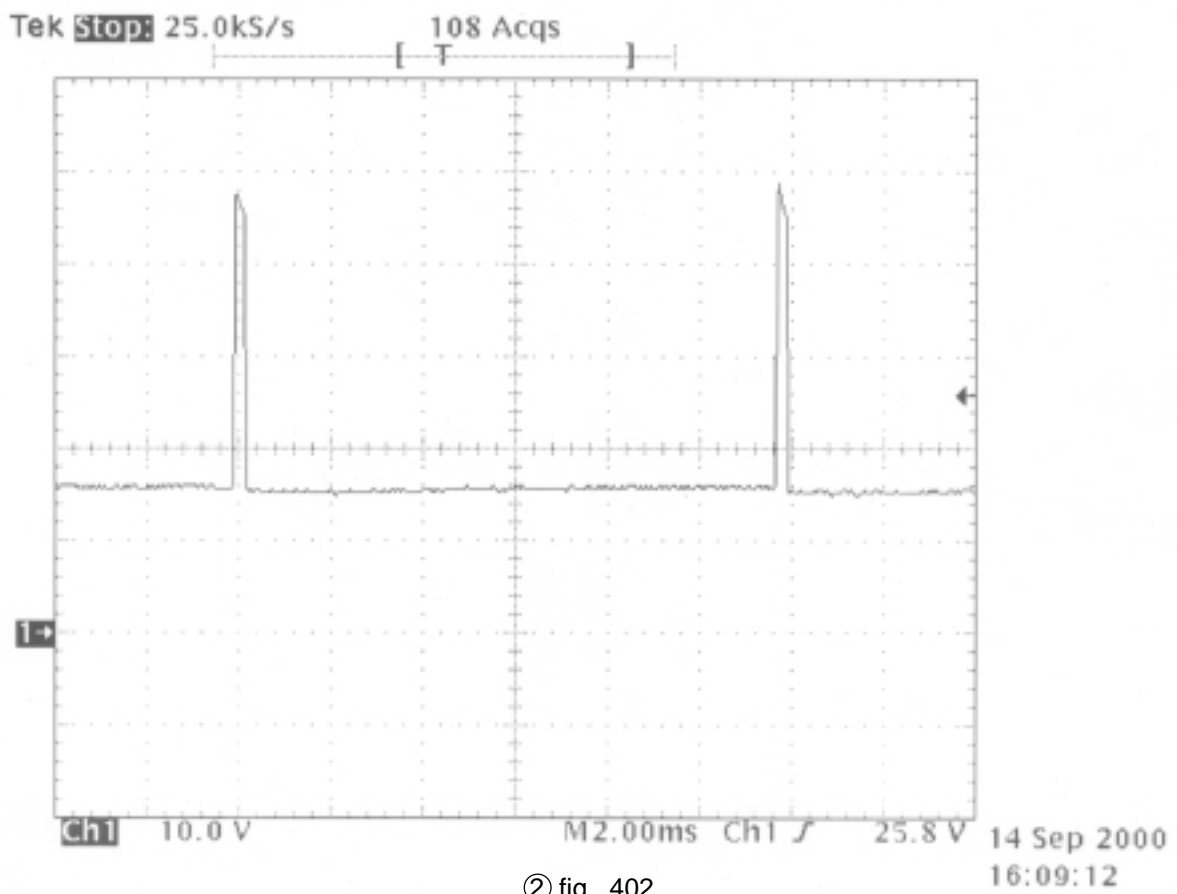
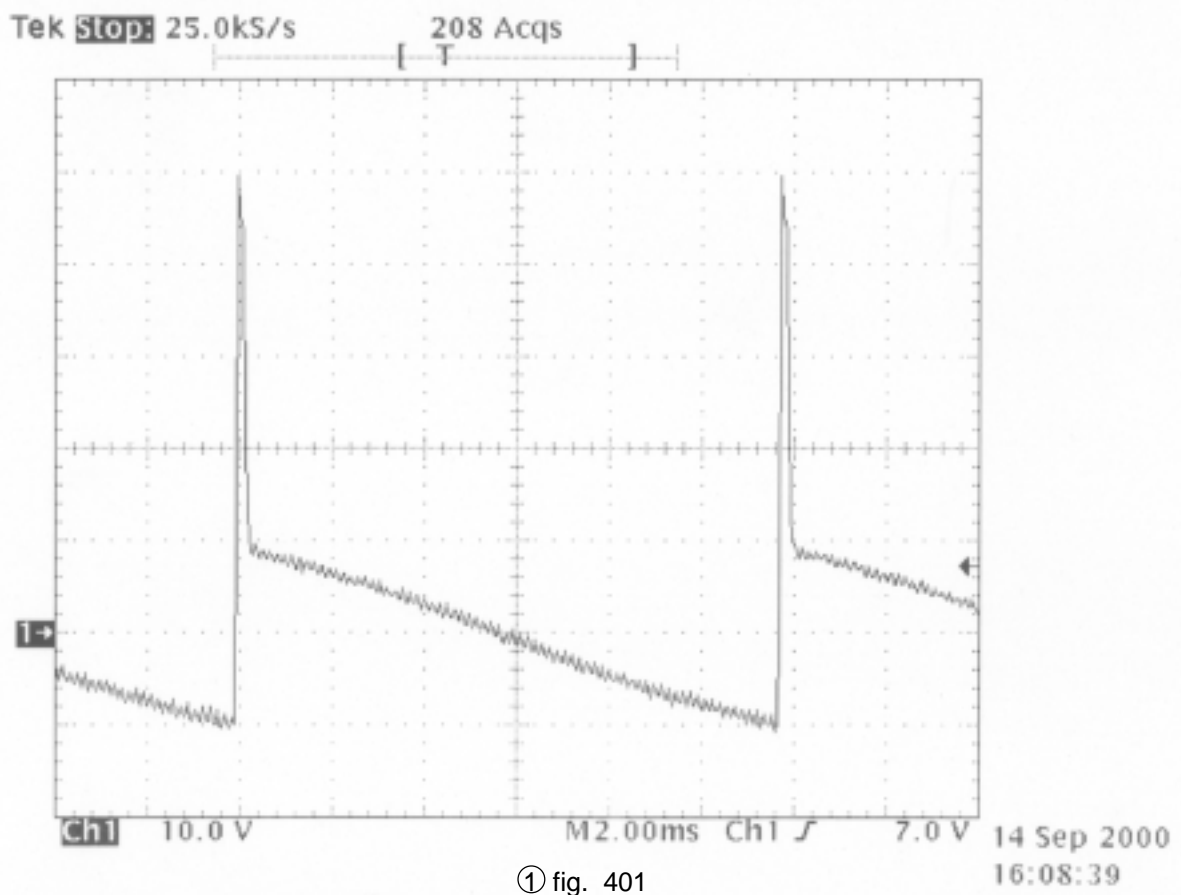
The horizontal/vertical synchronous separation of the composite synchronous signal is carried out in microcomputer IC103.

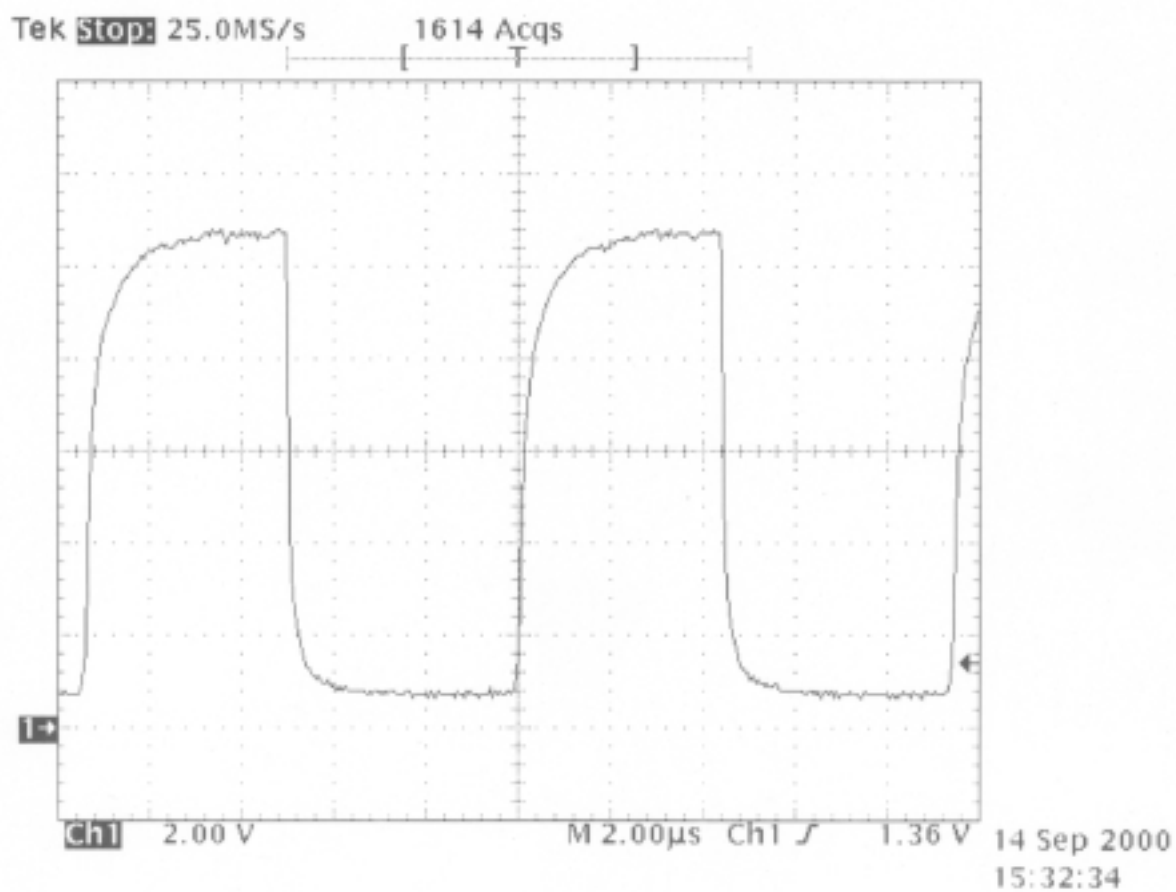
1.9.4 On Screen Display circuit

The control signal of adjustment screen (OSD) is input into pin 5 (CLK), pin 6 (DATA), pin 18 (H-BLK) and pin 19 (V-BLK) of IC212. The IC215 outputs pin 12 (BLK), pin 13 (OSD-B), pin 15 (OSD-G) and pin 17 (OSD-R) and is combined with the video signal in IC211.

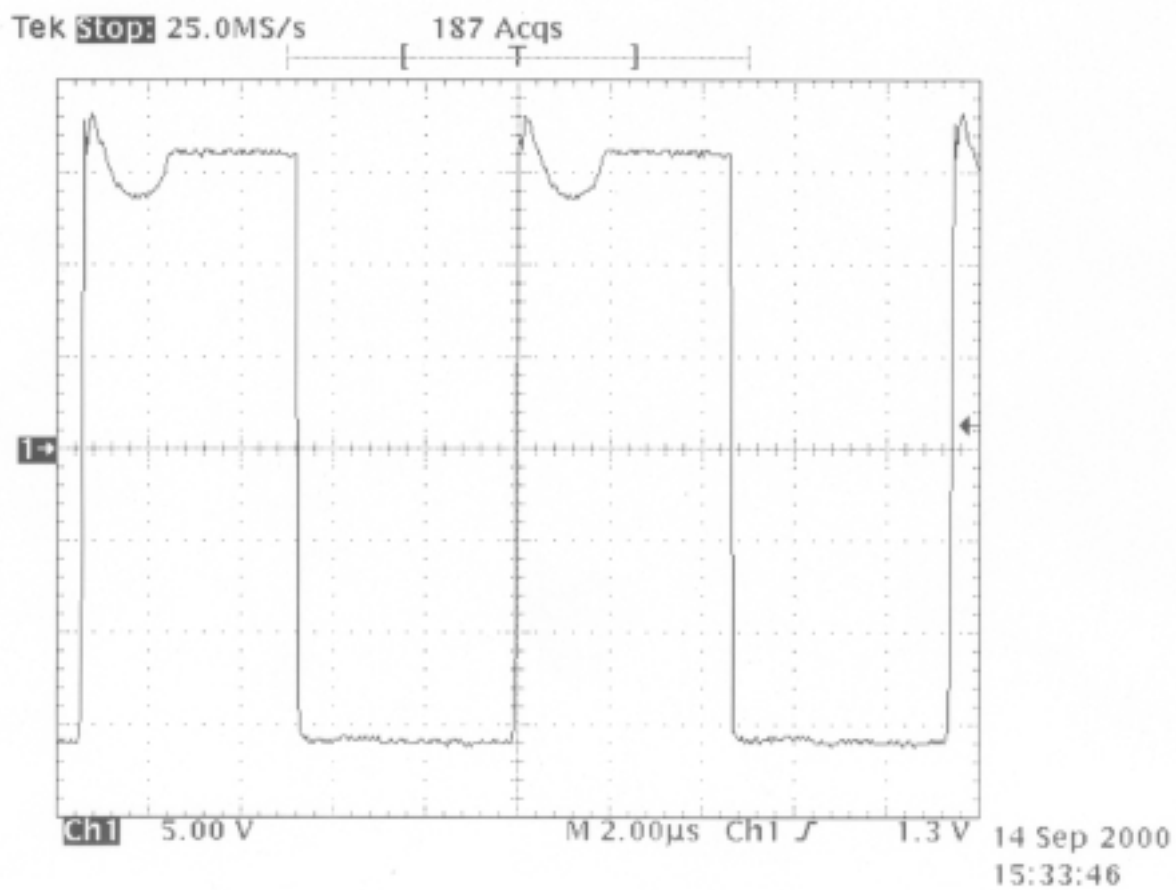
1.10 Wave form of main circuit voltage

Please refer to clause 3 schematic diagram (The numbers under every picture are described on schematic diagram)

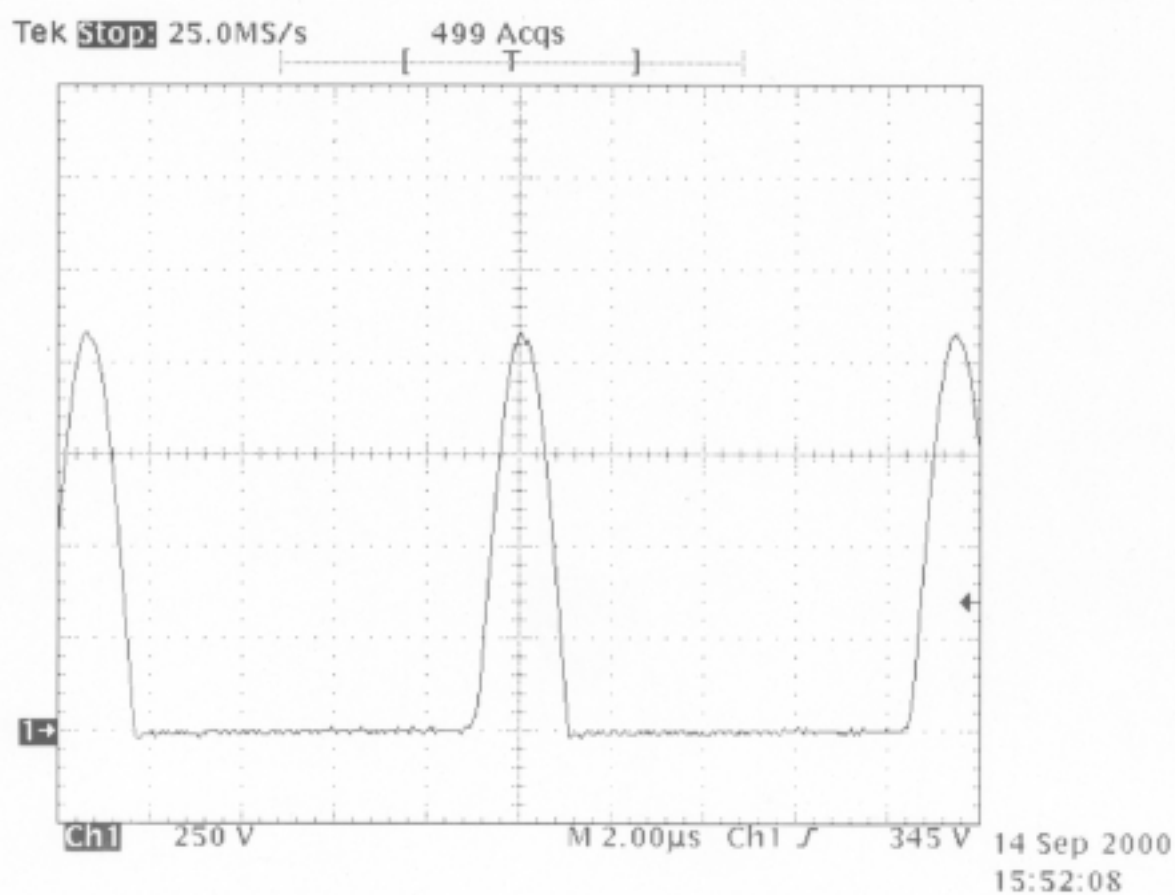




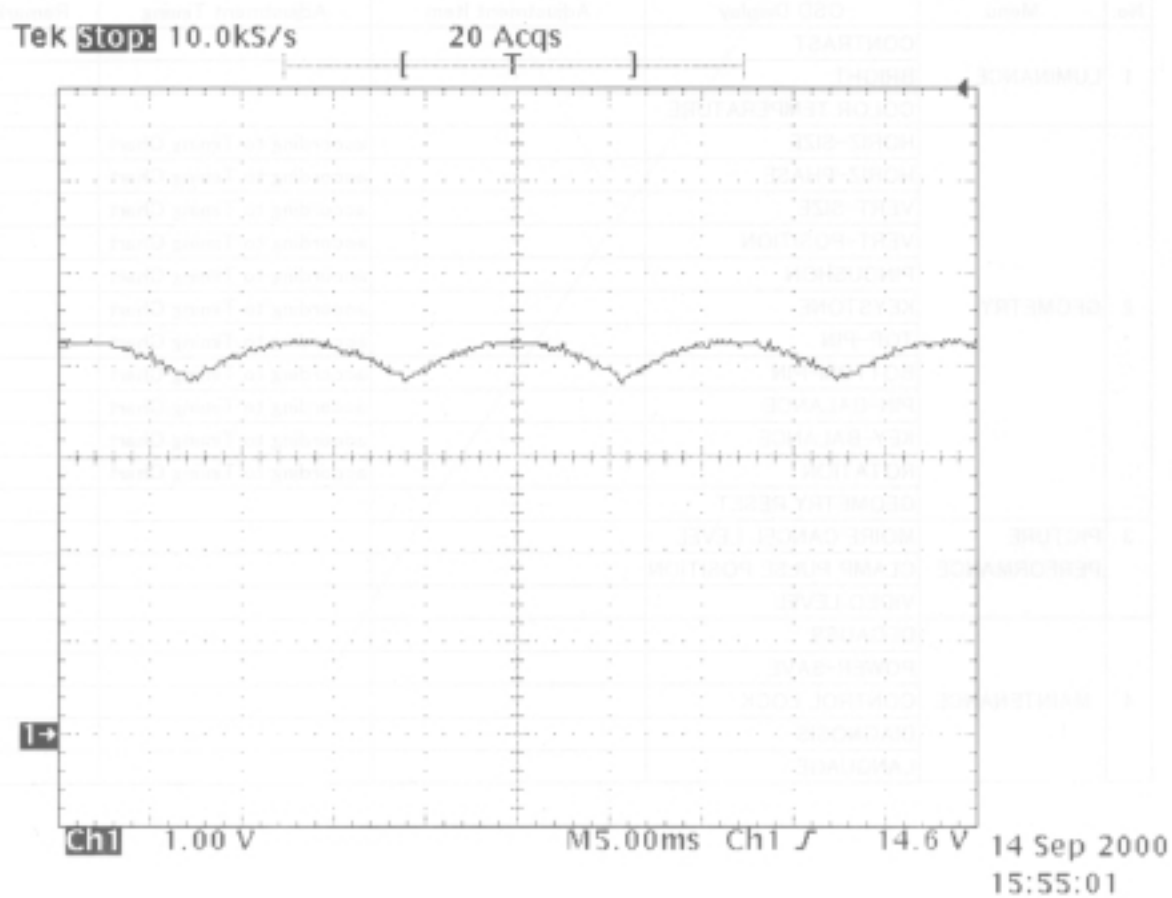
③ fig. 501



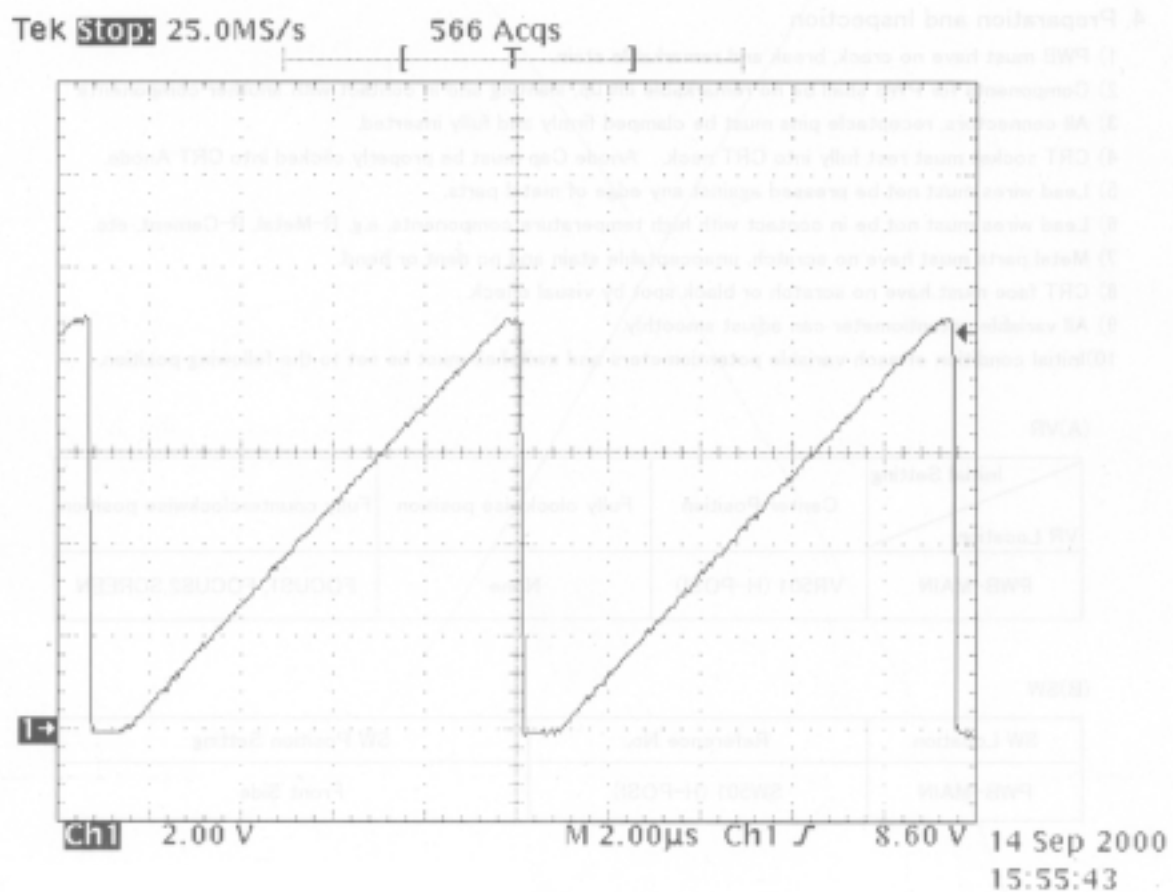
④ fig. 502



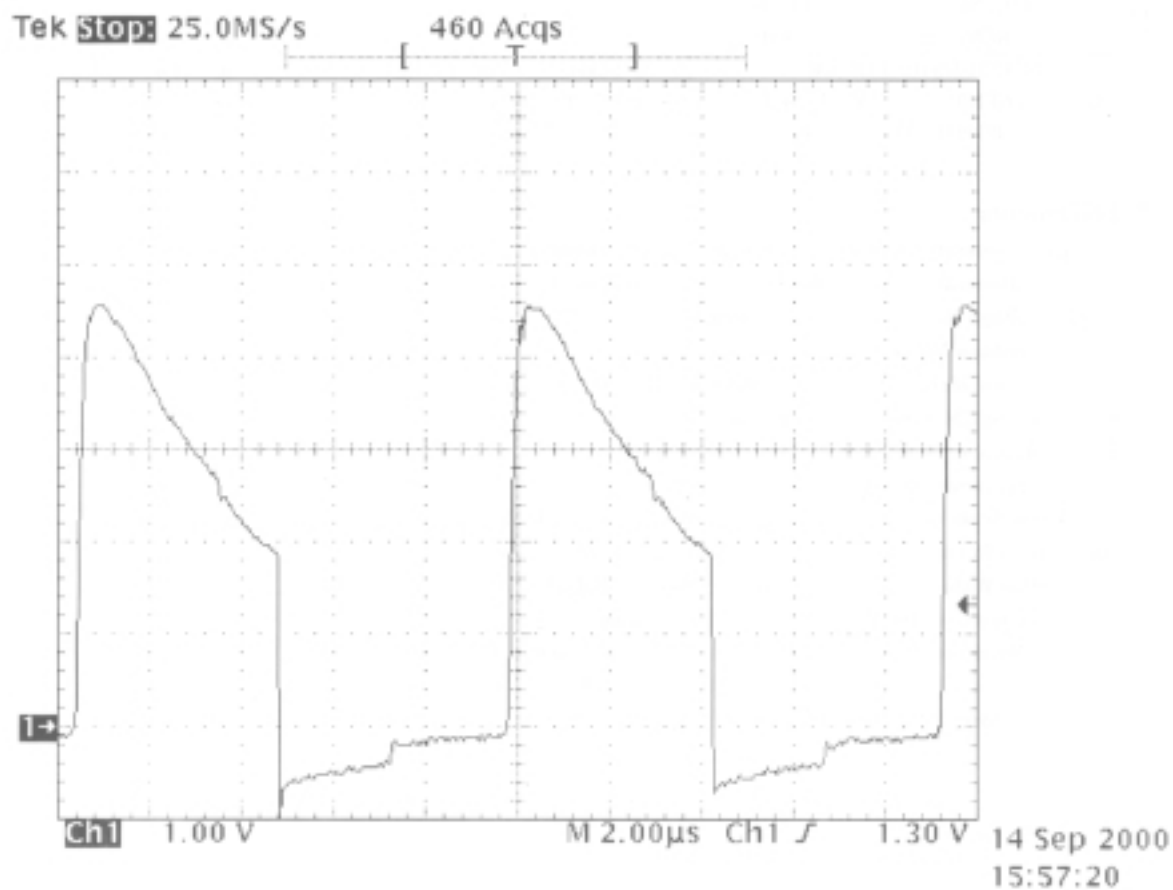
⑤ fig. 503



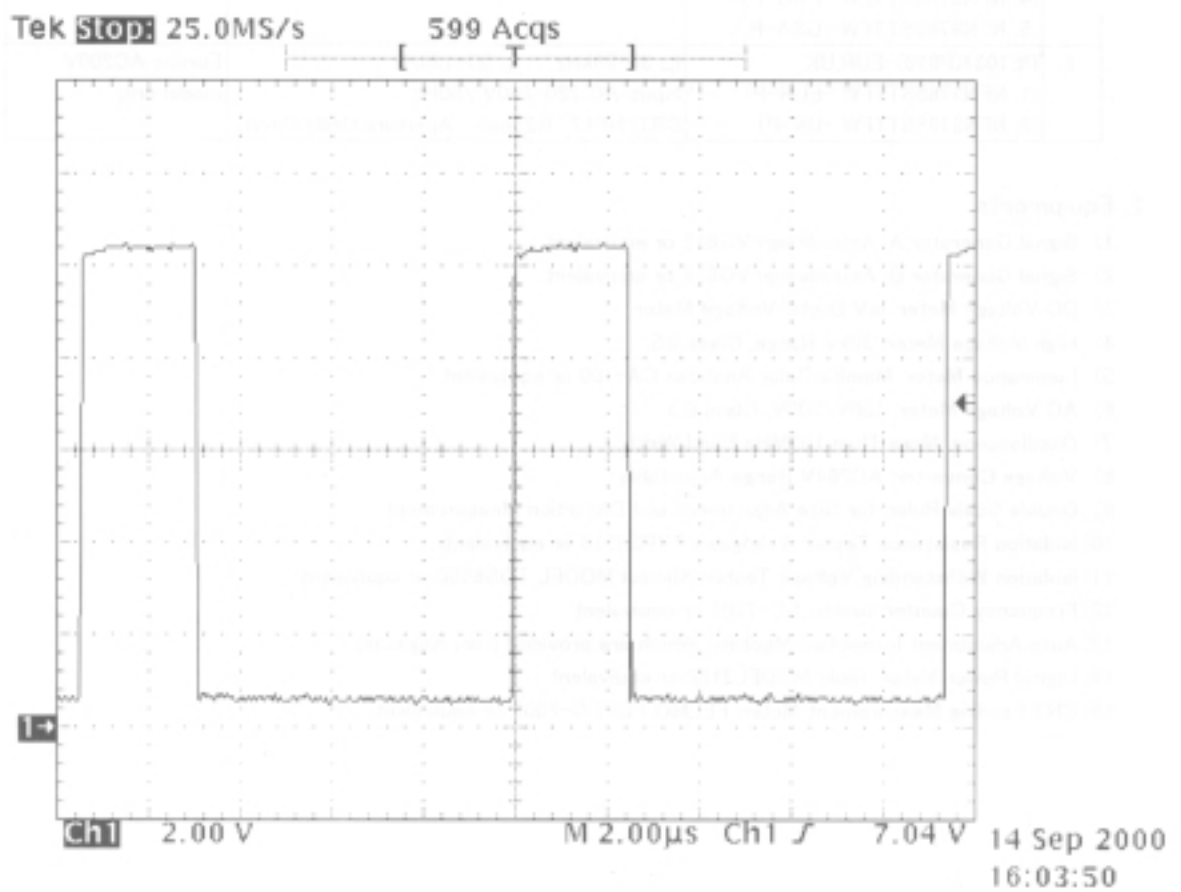
⑥ fig. 504



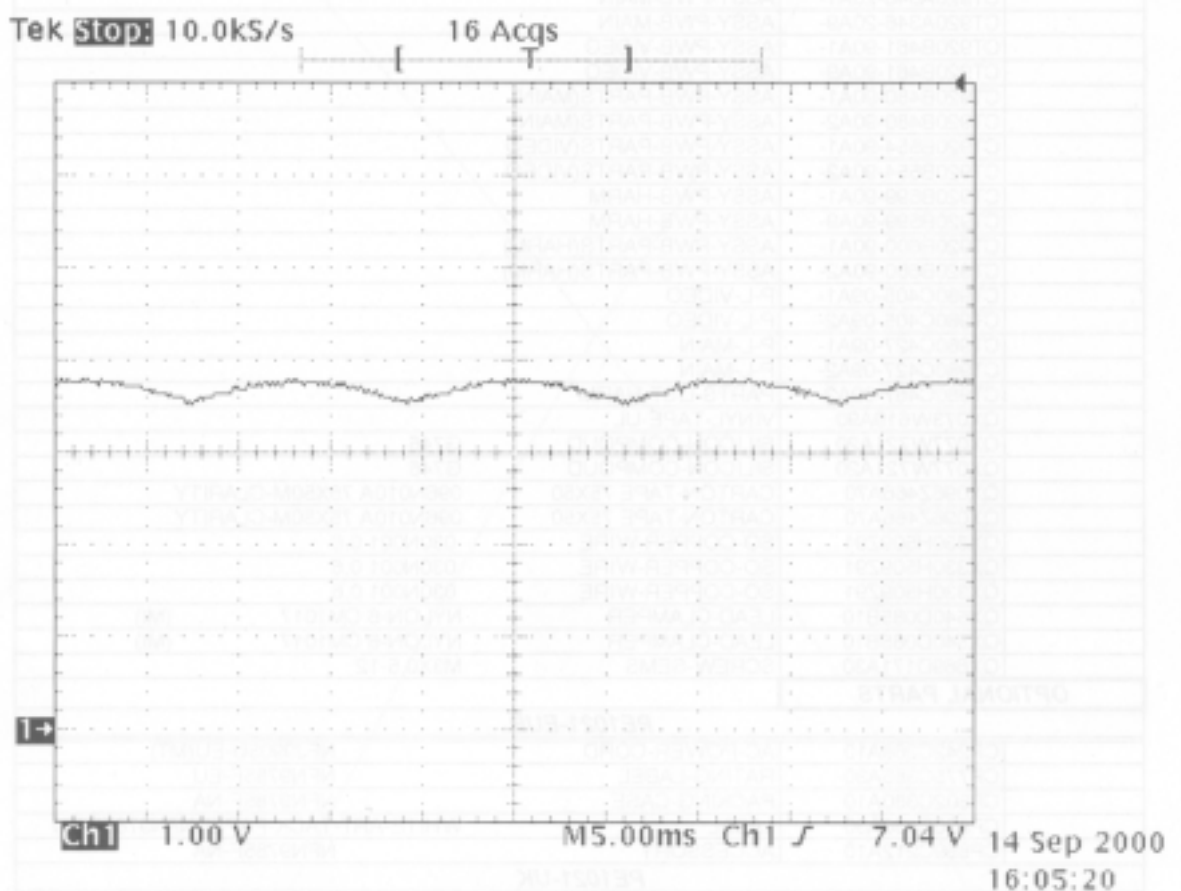
⑦ fig. 505



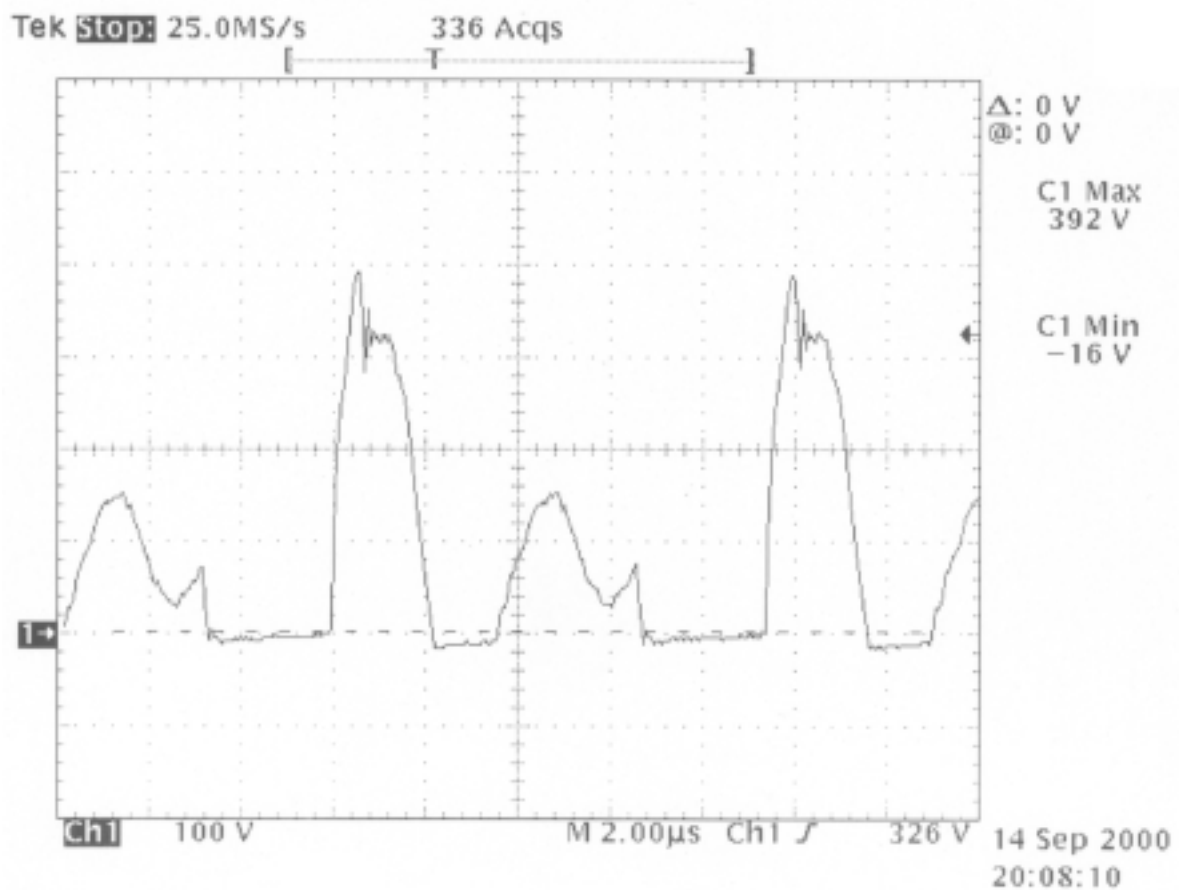
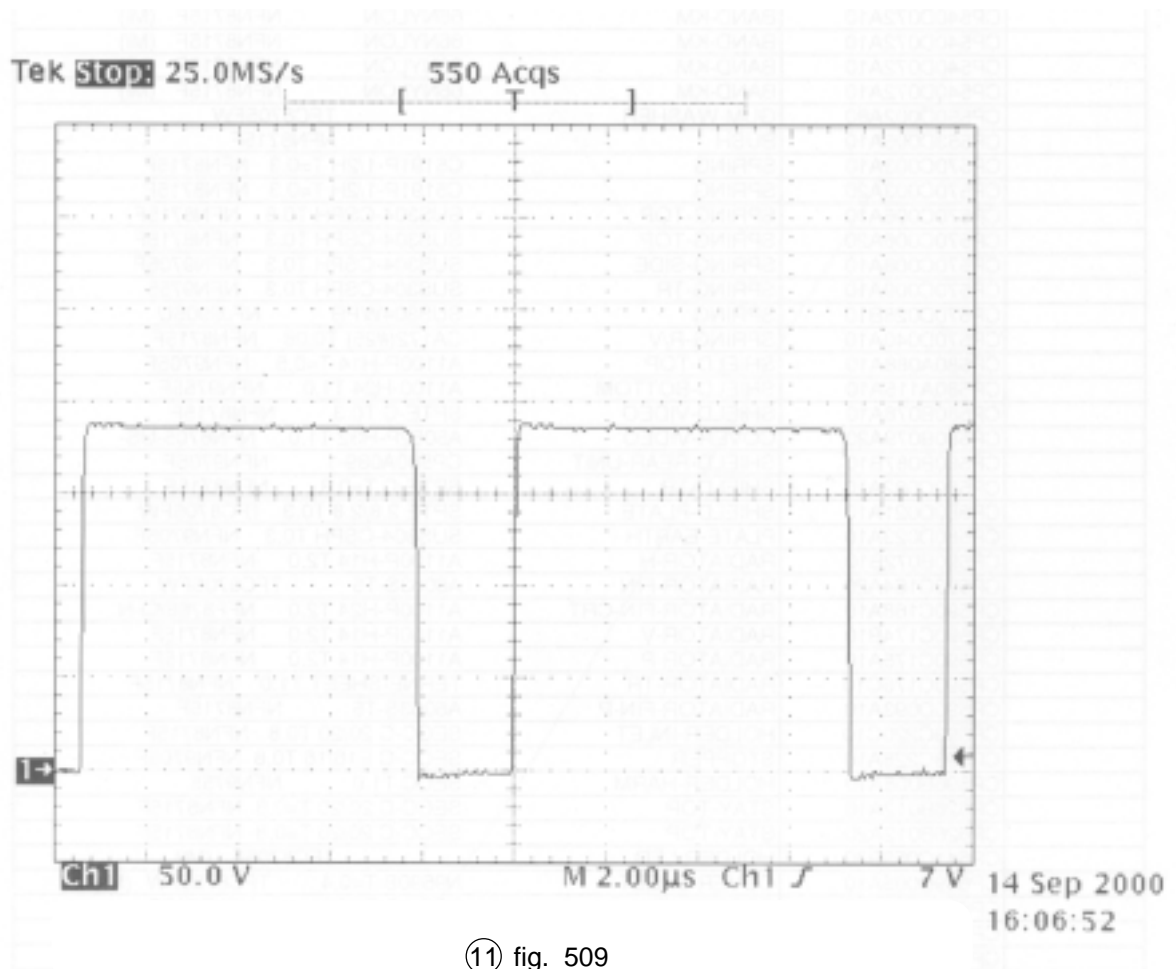
⑧ fig. 506

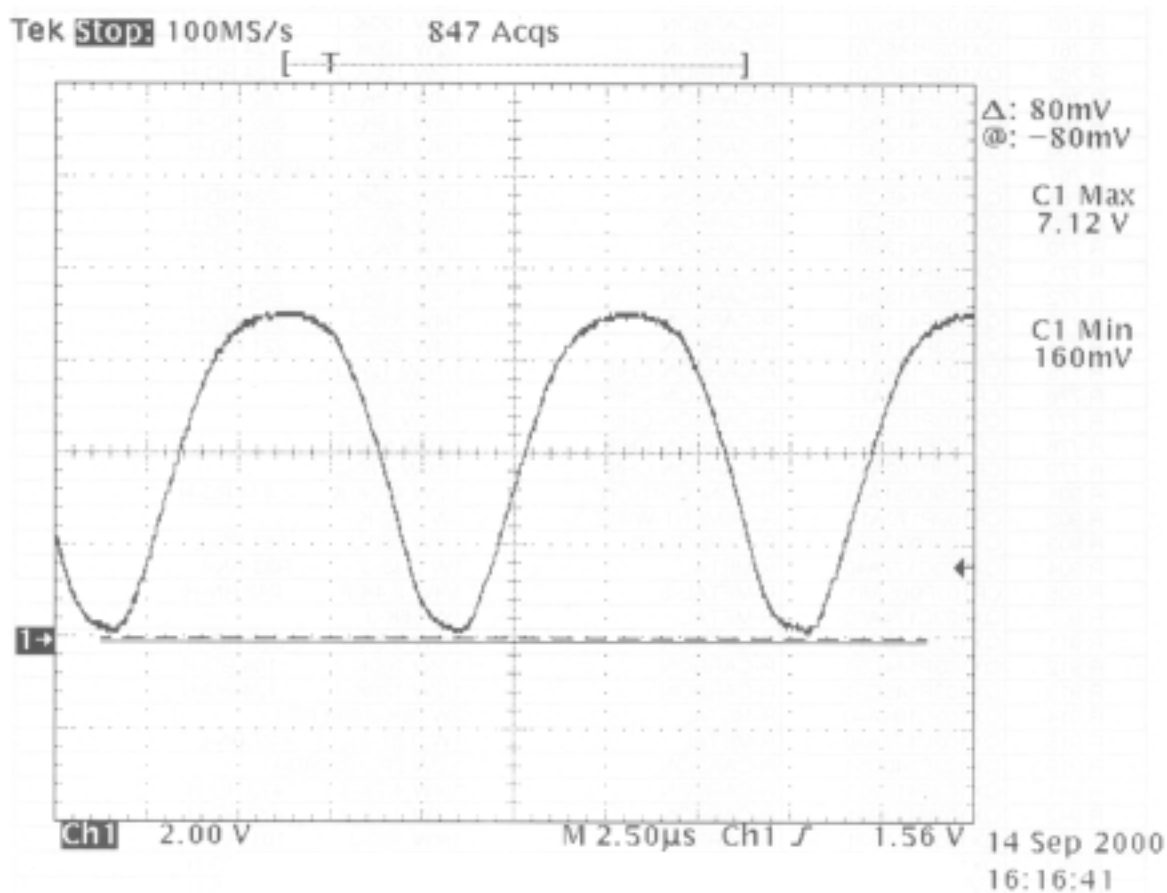


⑨ fig. 507

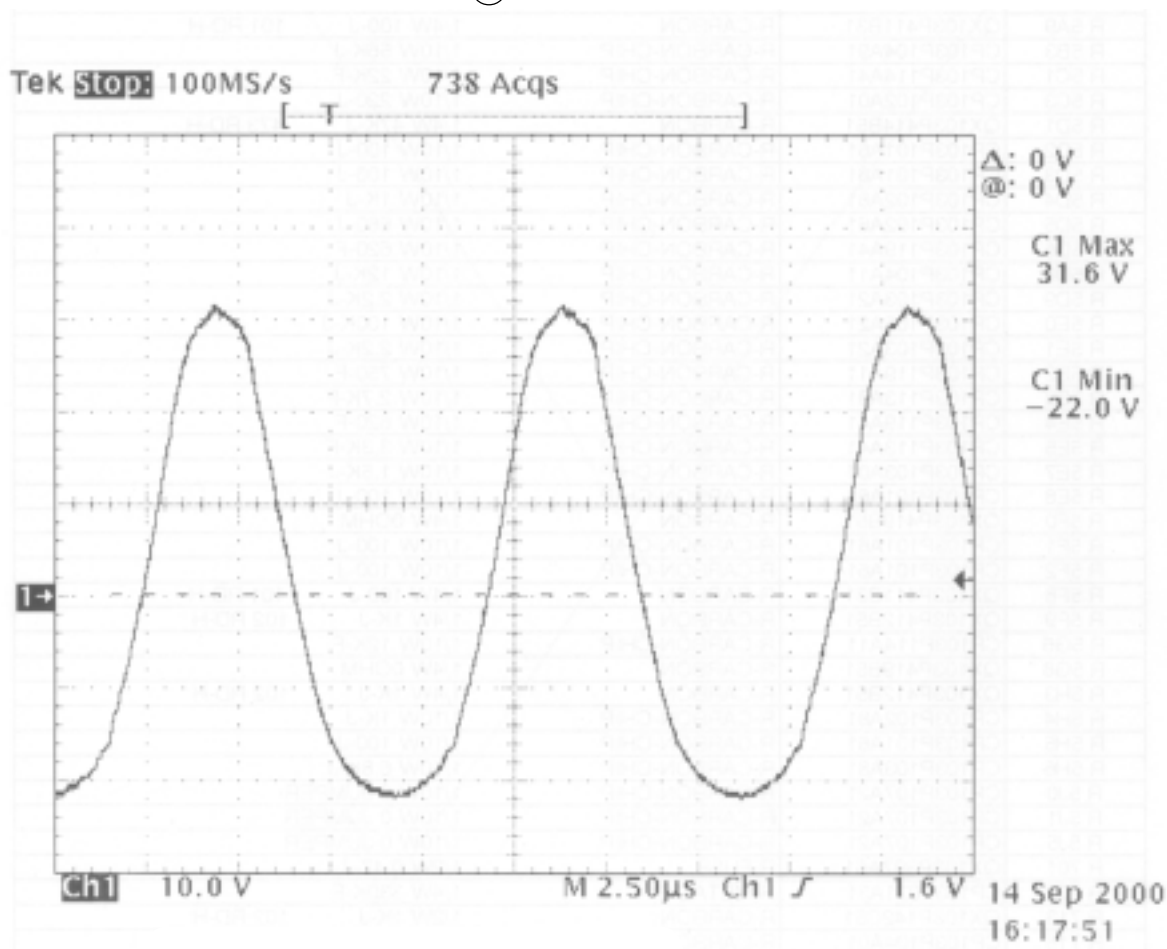


⑩ fig. 508

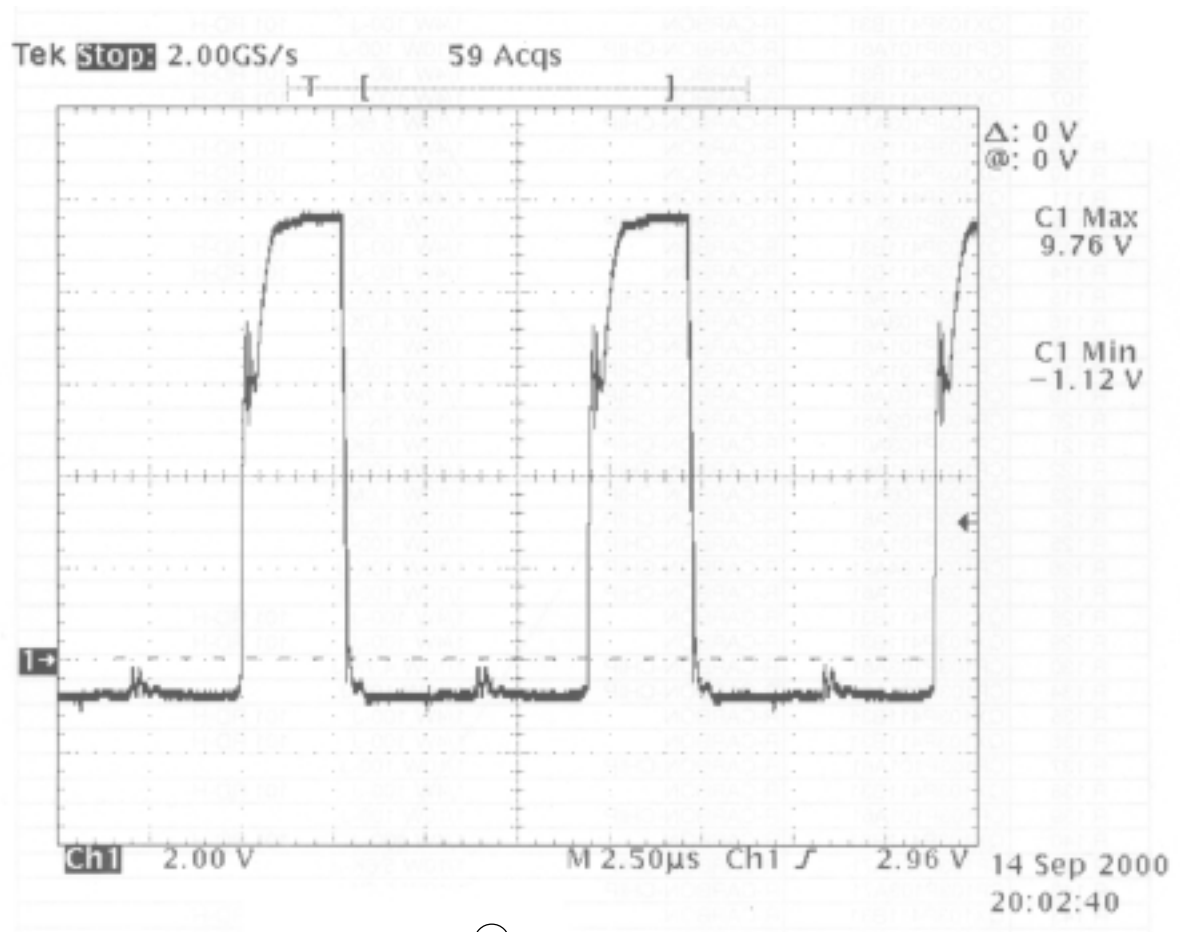




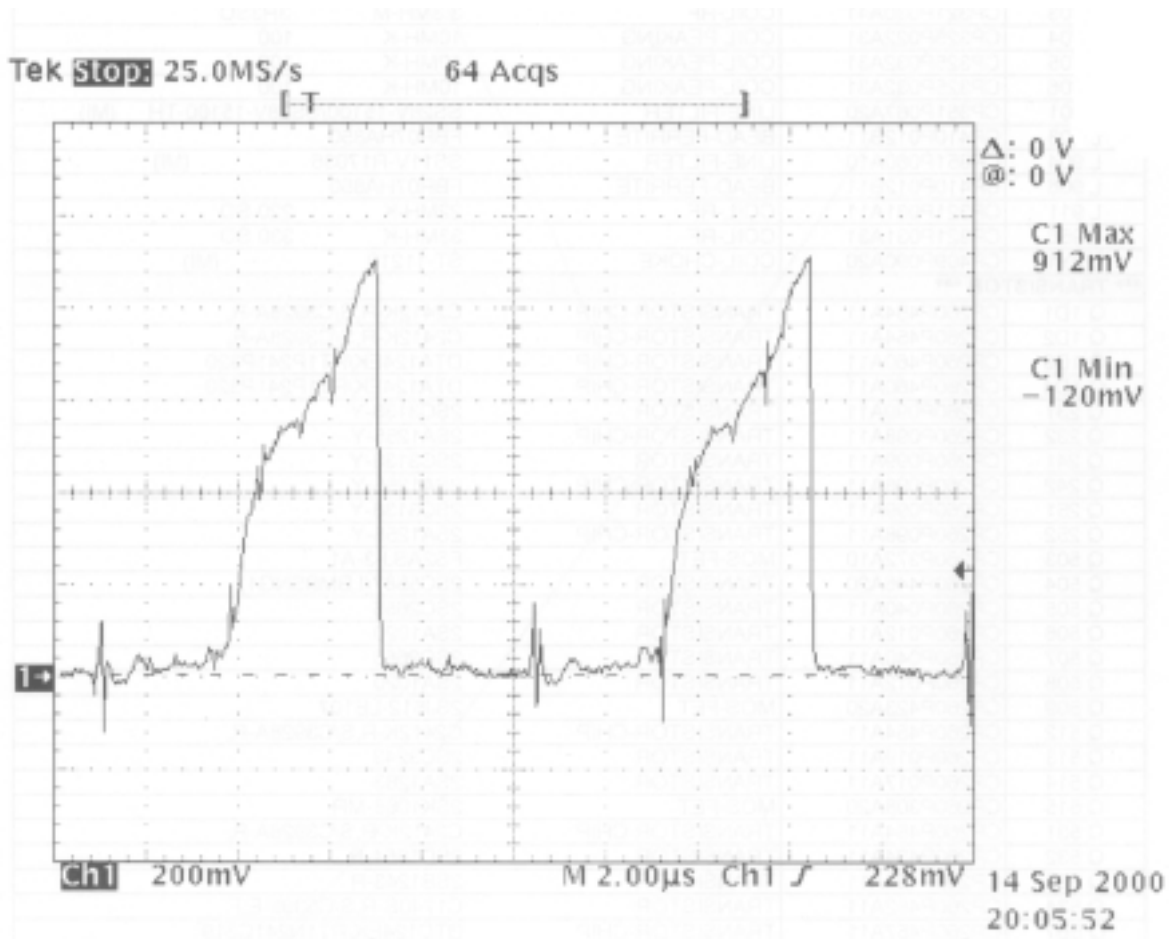
⑬ HDF-IN



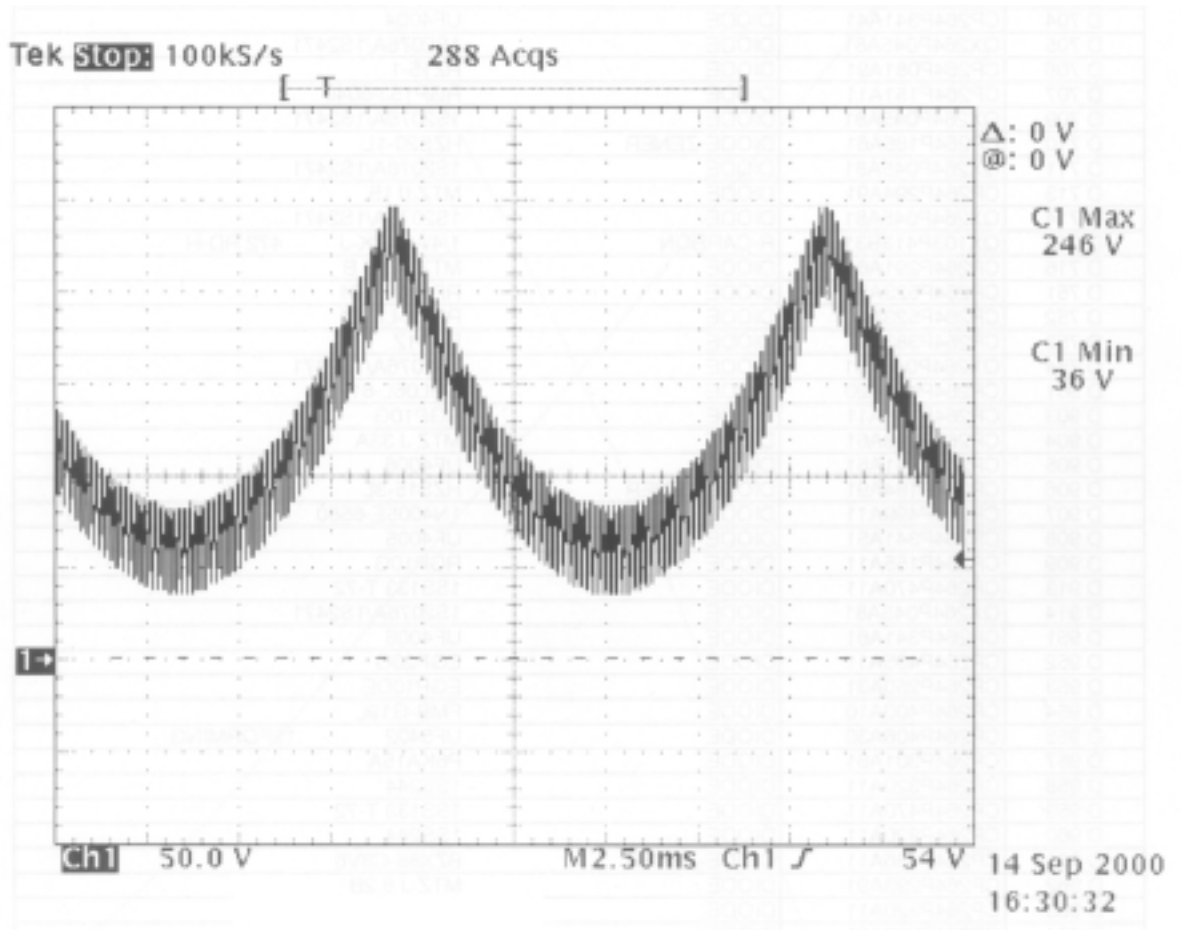
⑭ HDF-OUT



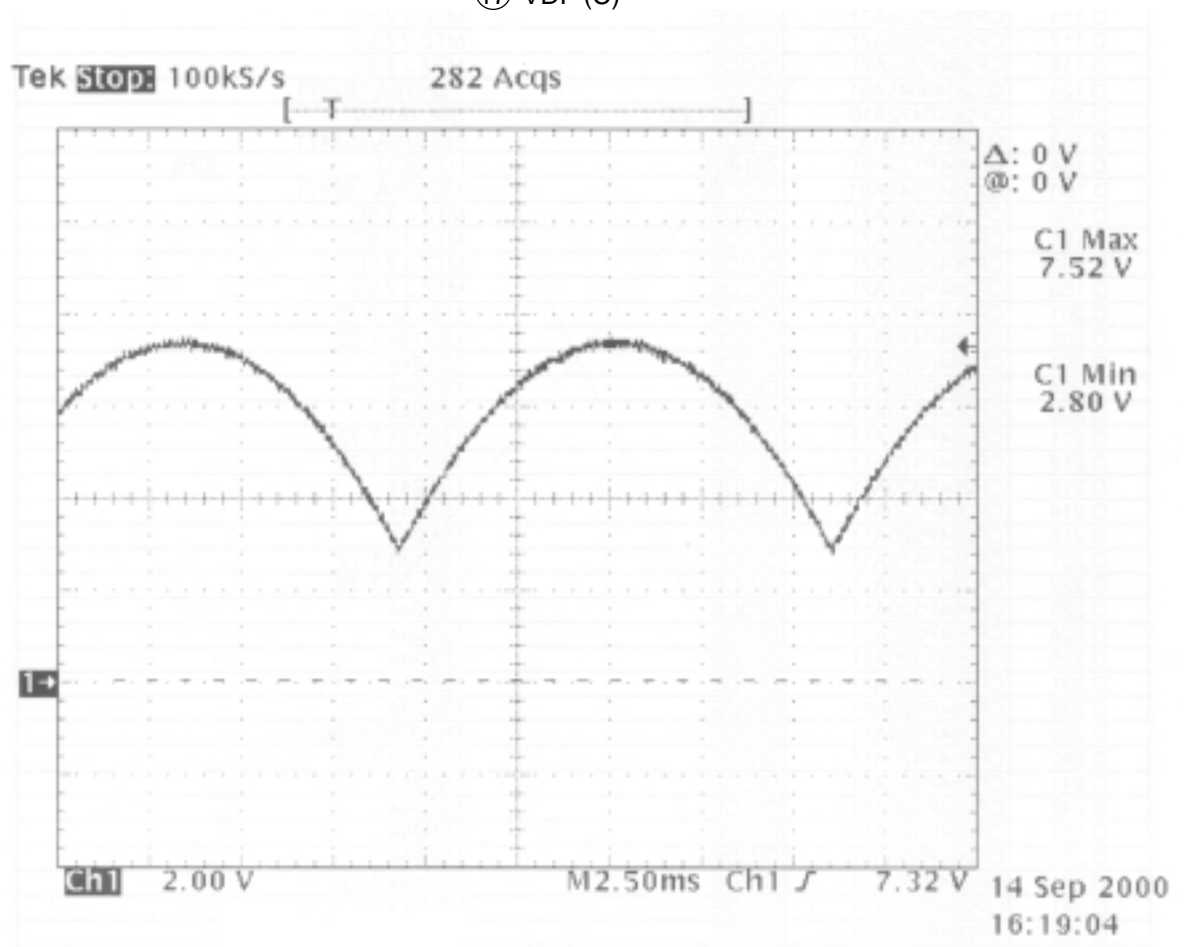
⑮ HV-OUT



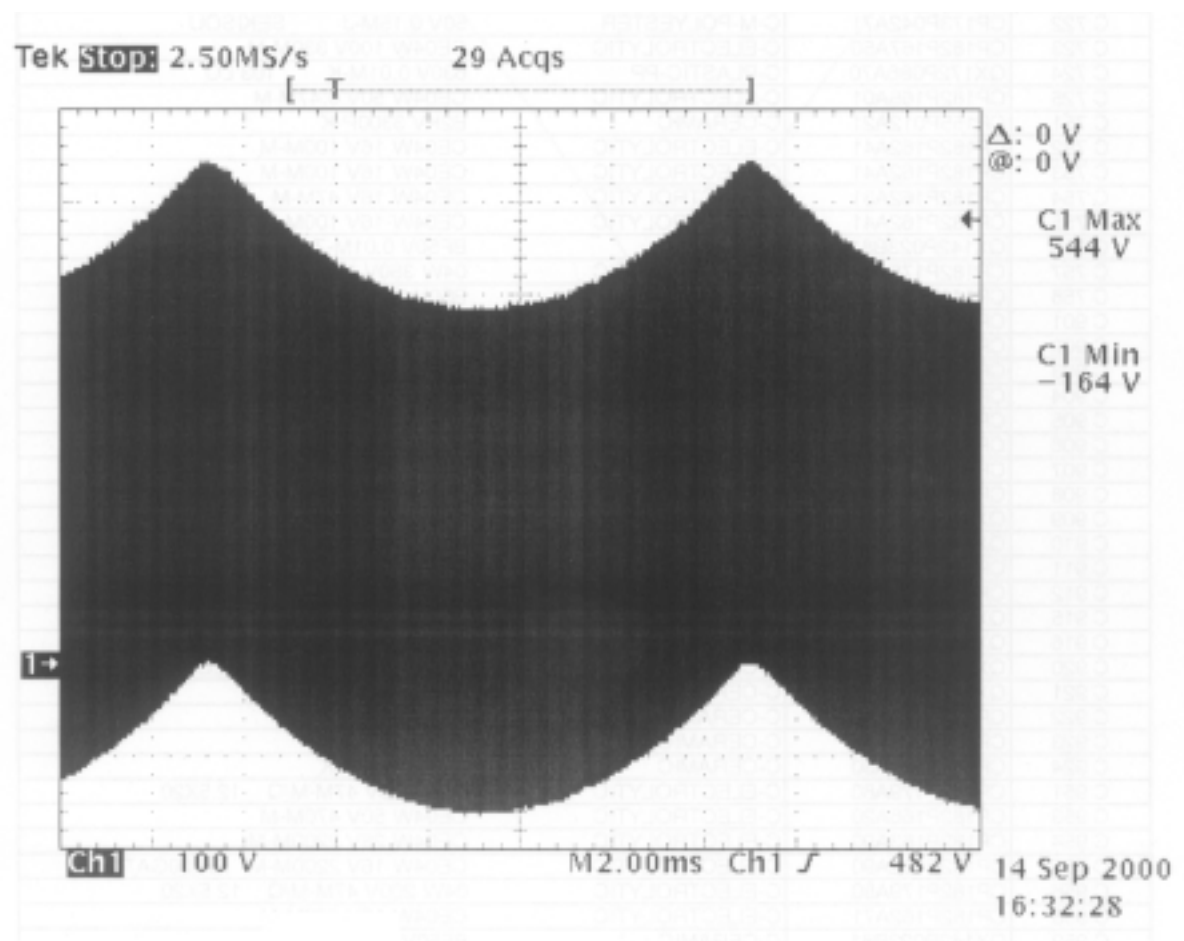
⑯ IC701 4 pin



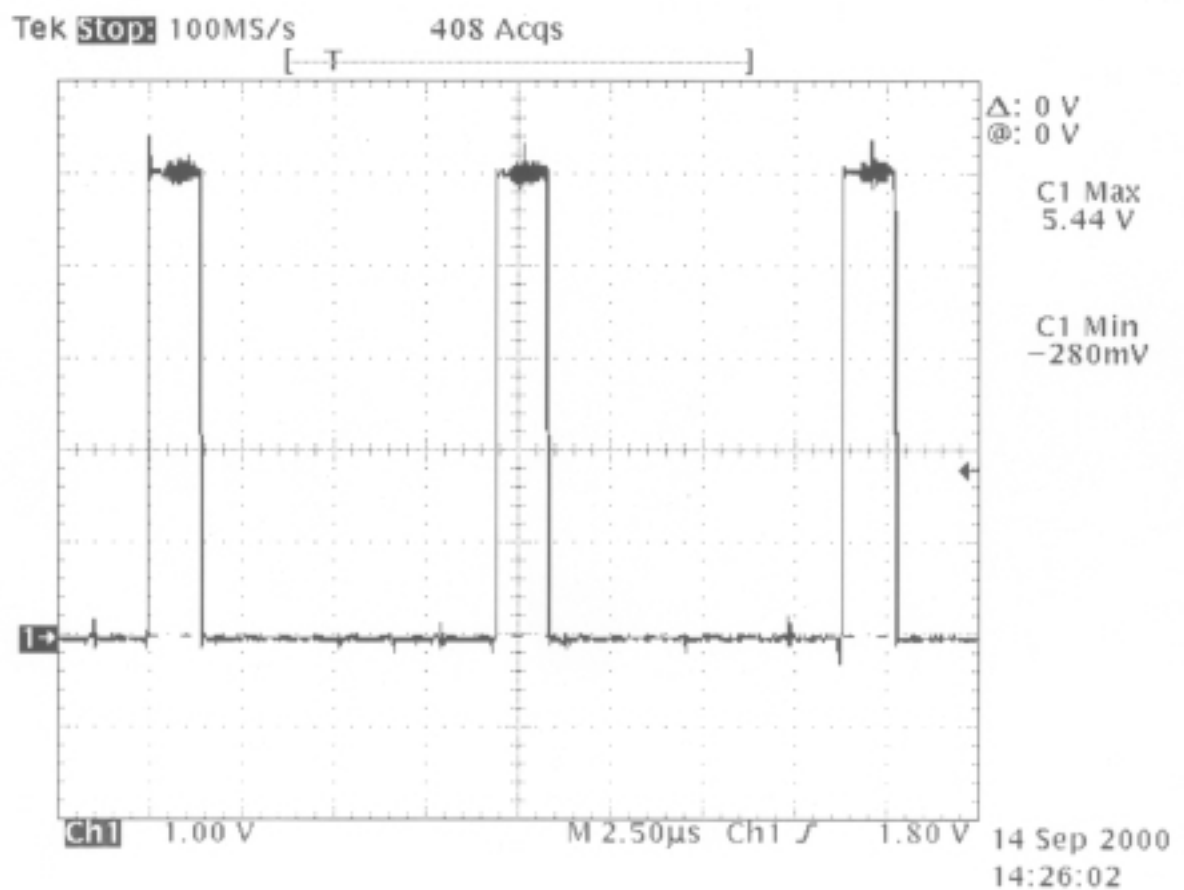
⑰ VDF (C)



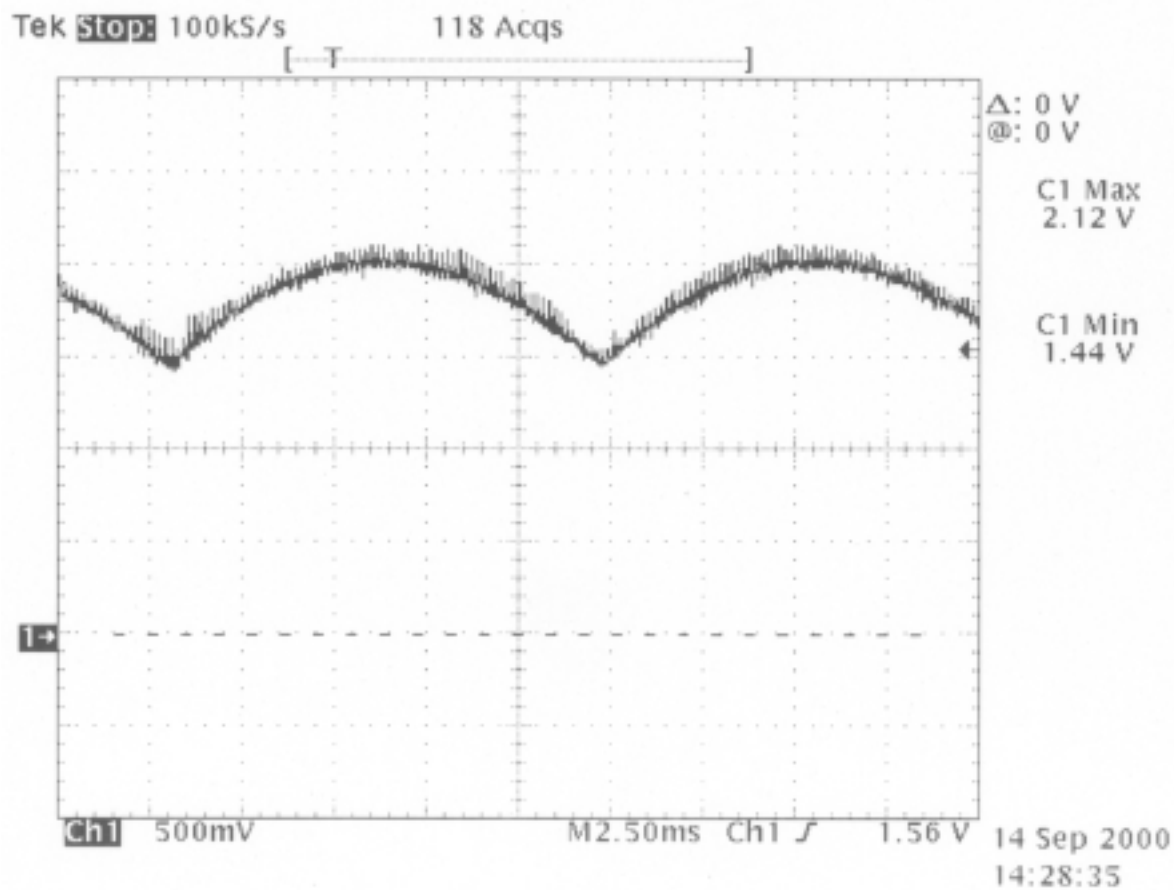
⑱ VDF-IN (B)



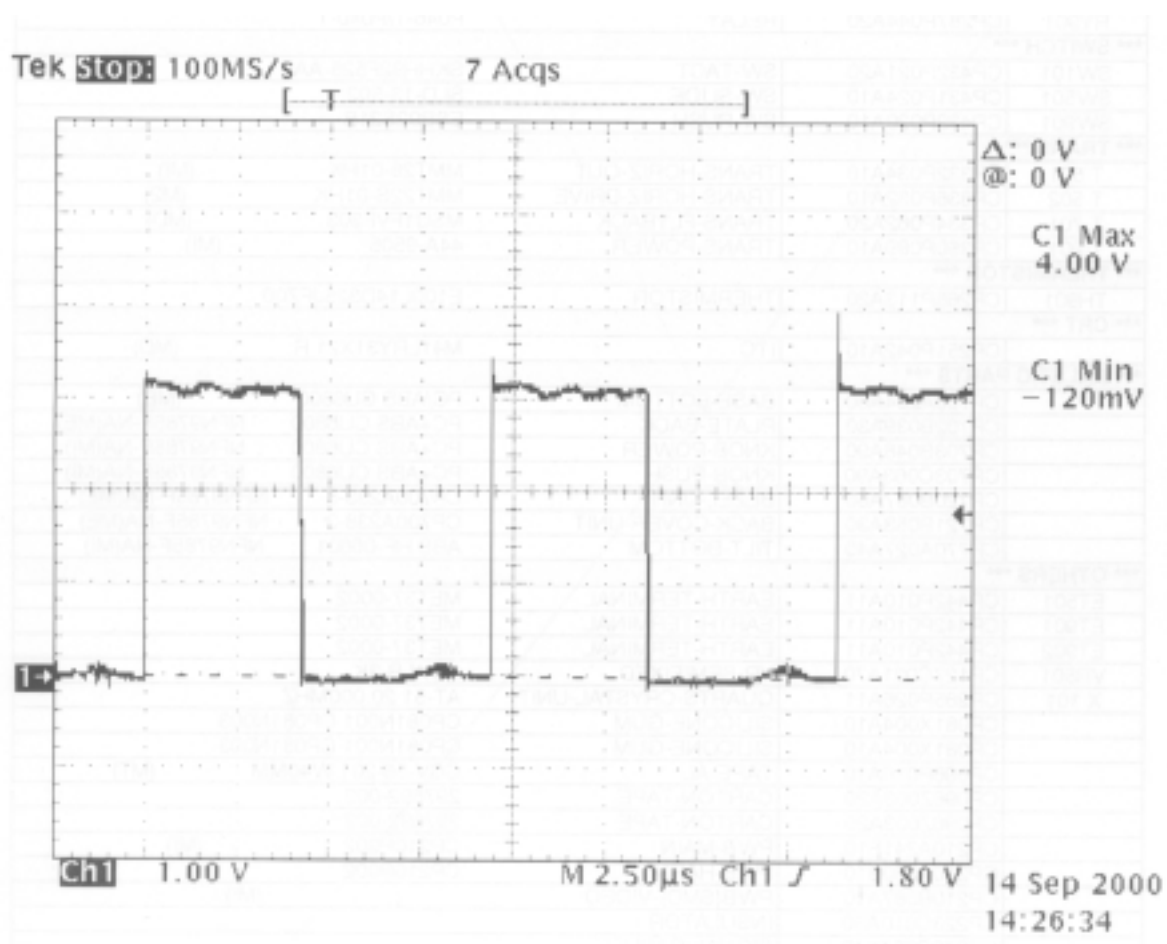
⑲ VDF-OUT



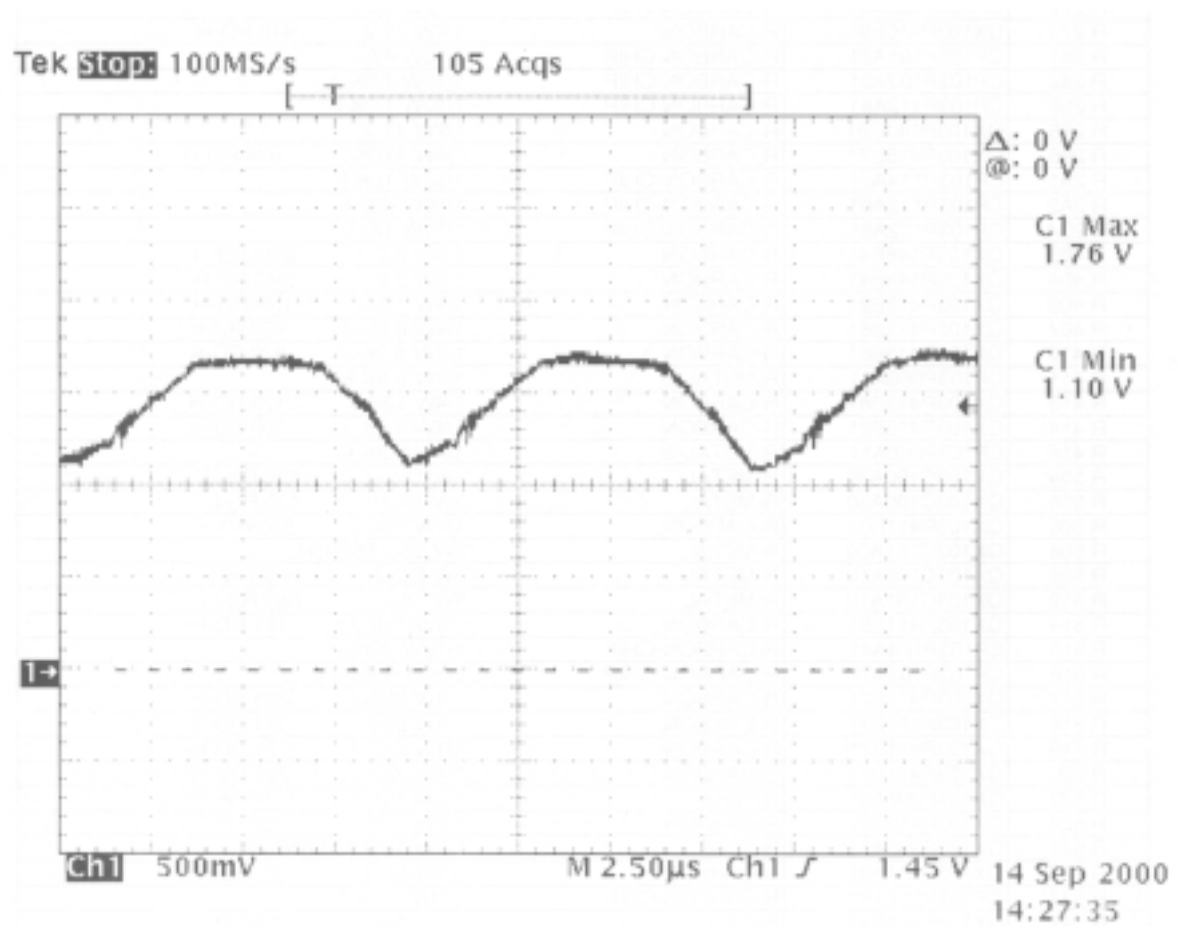
⑳ AFC



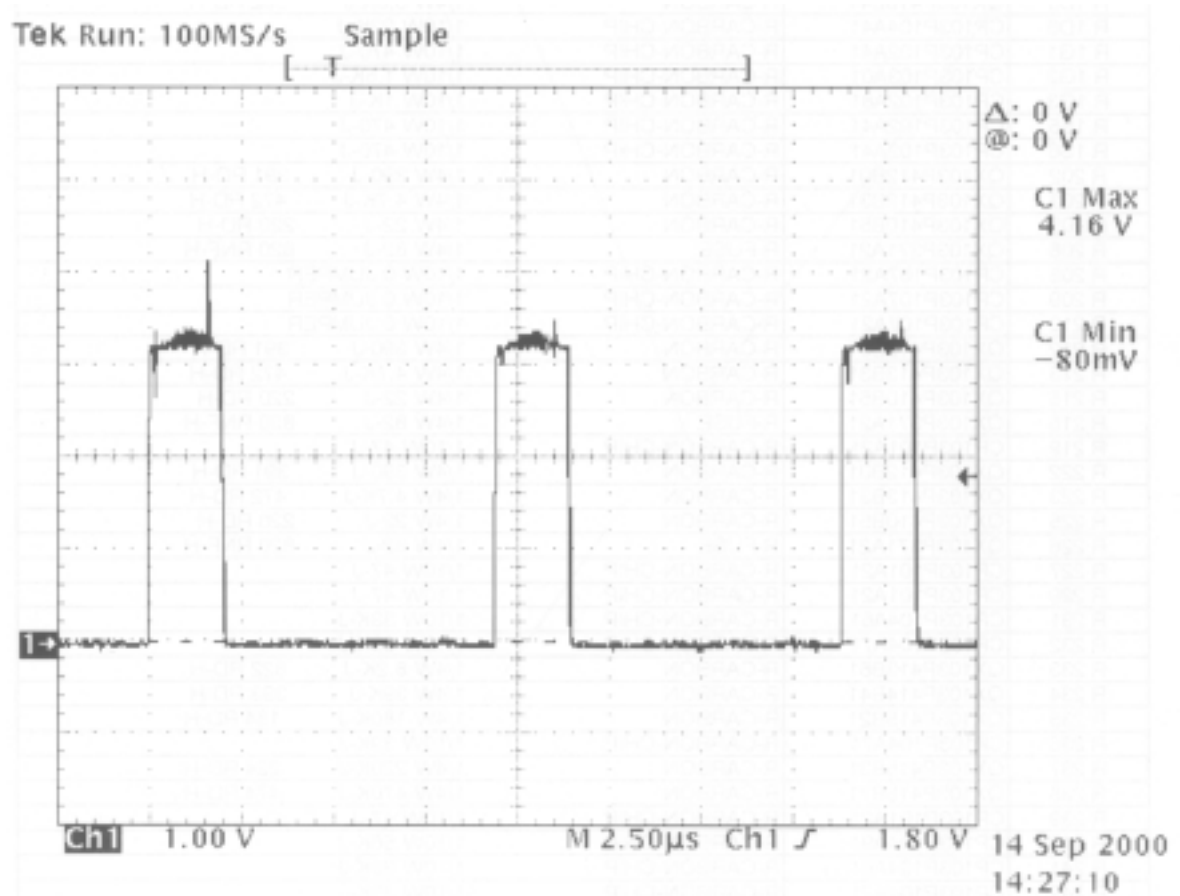
②① EW



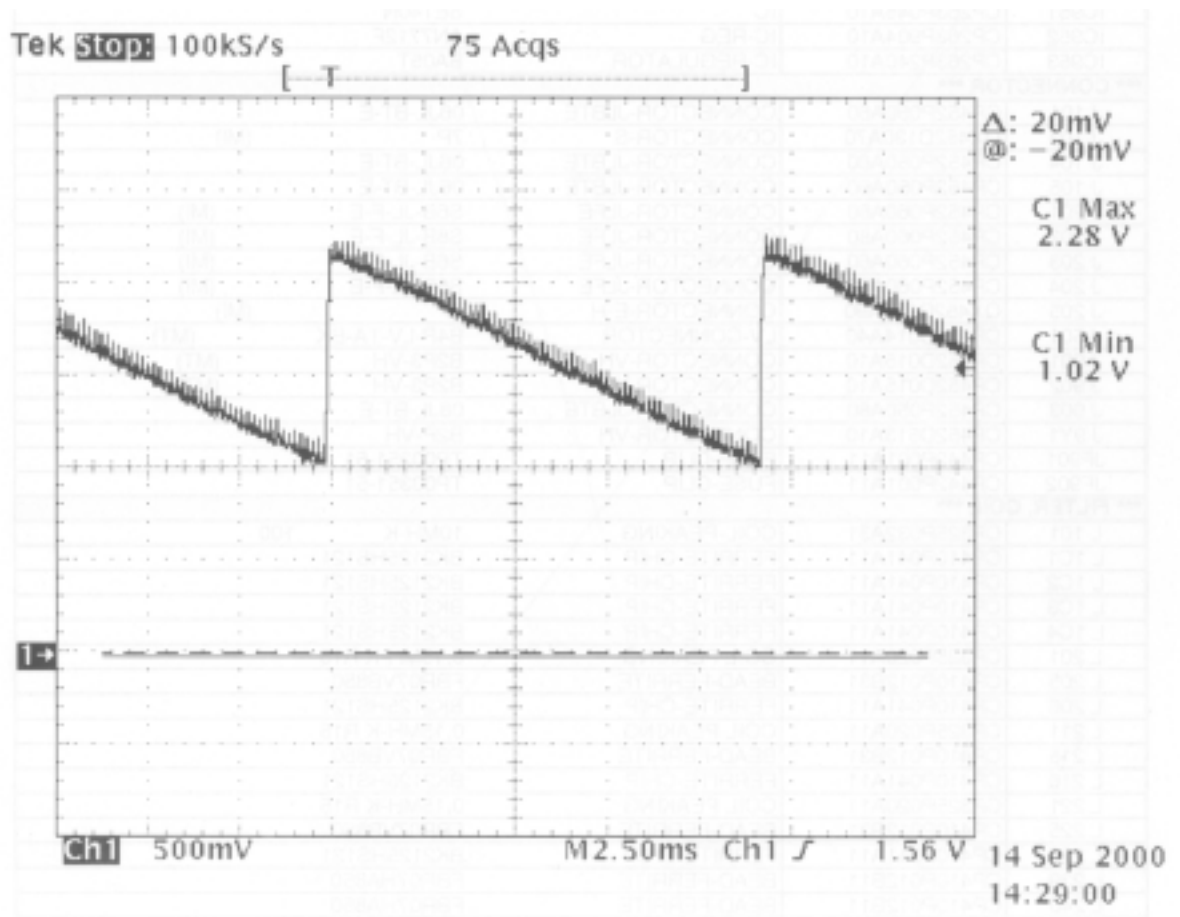
②② HD



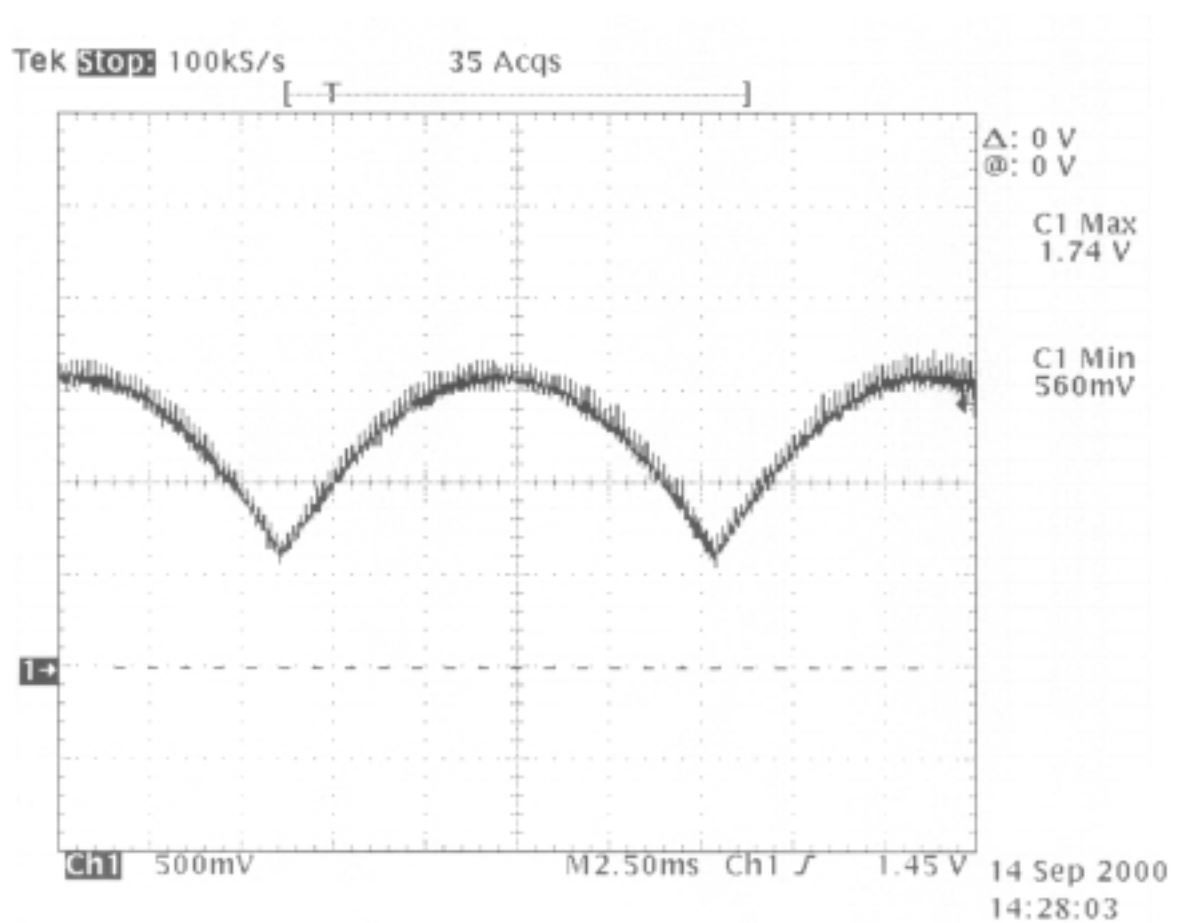
②③ HDF



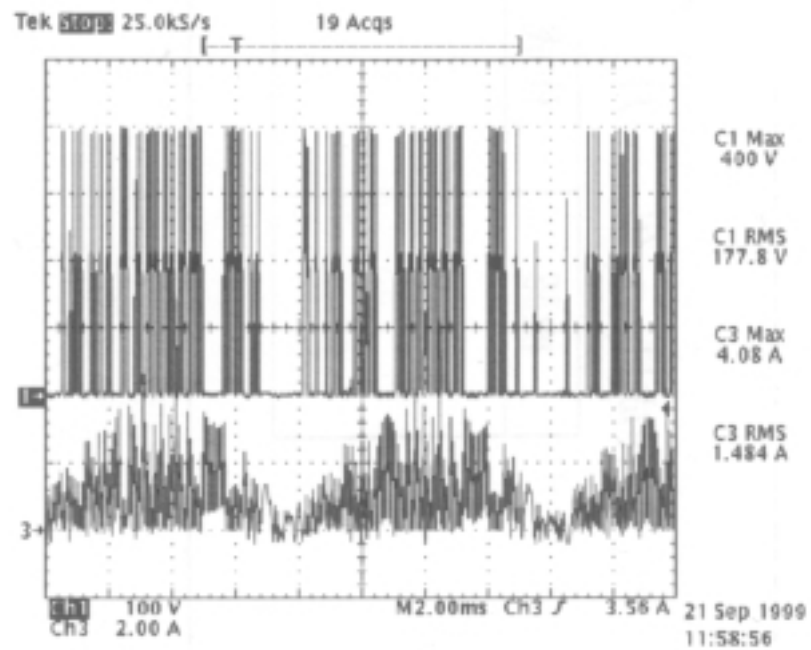
②④ HV-BLK



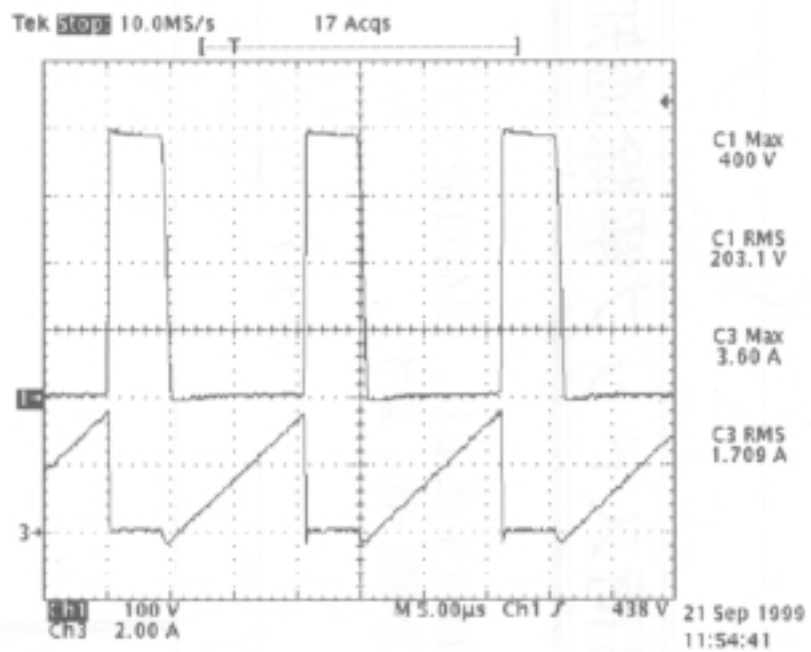
②⑤ V-SAW



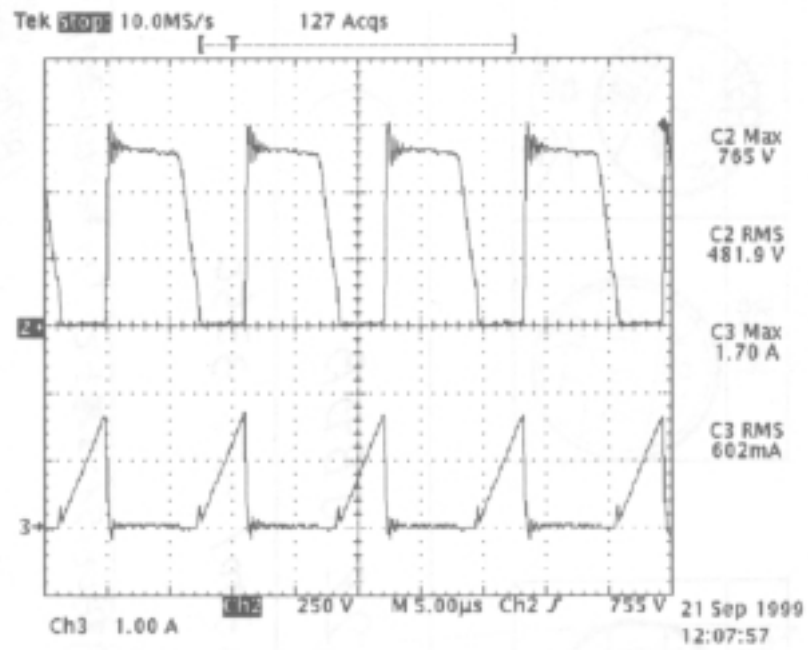
②⑥ VDF



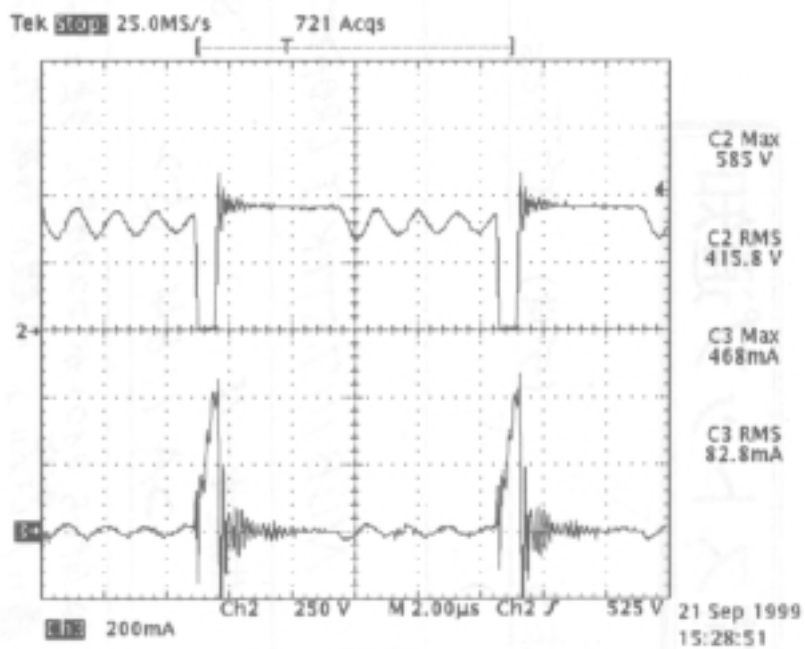
②7 fig. 901 Top:Q901 Vds
Bottom:Q901 Id



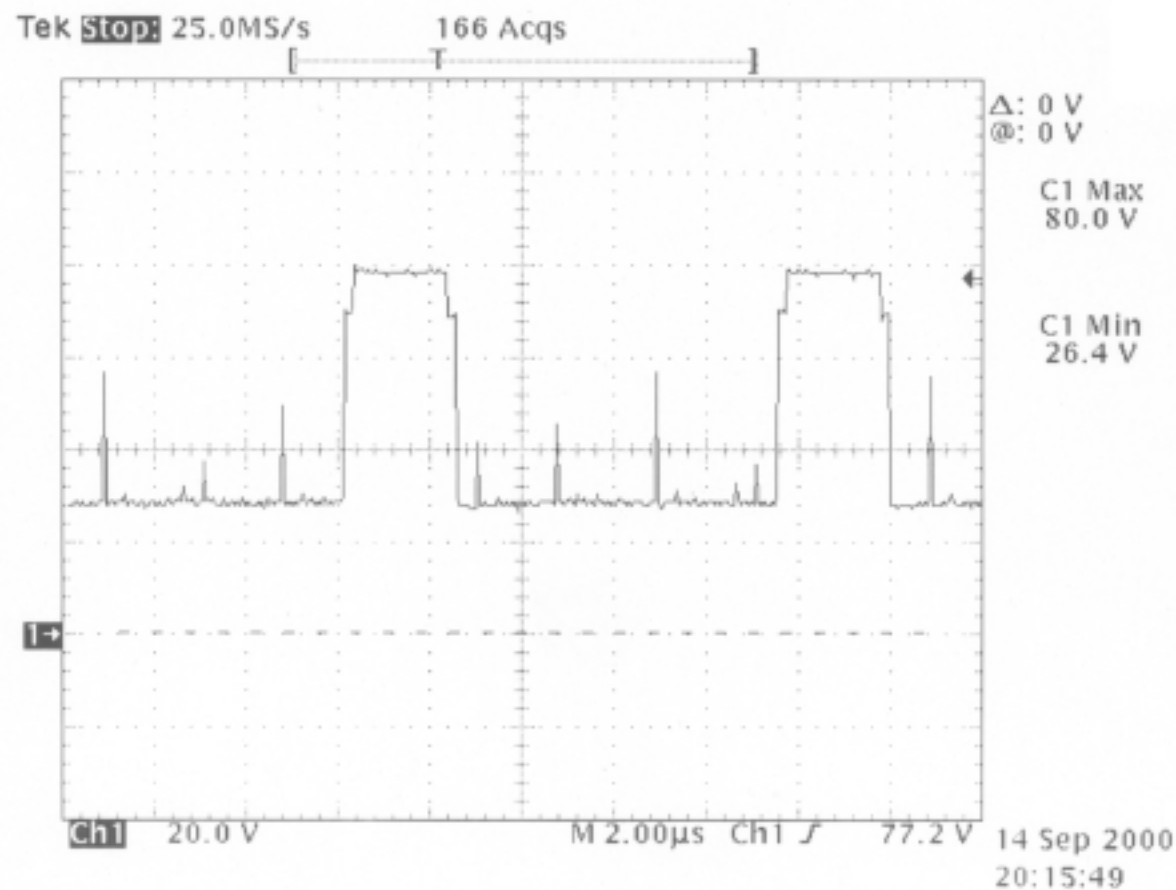
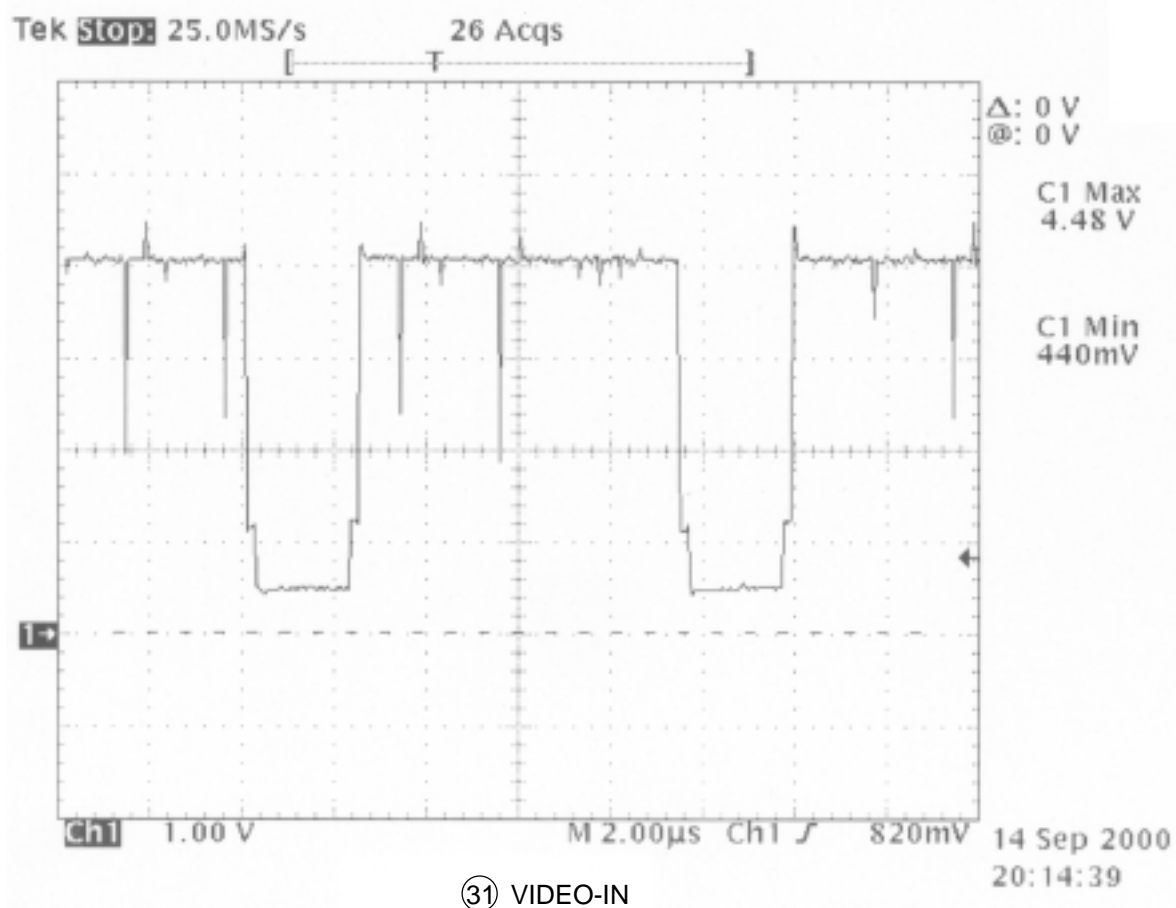
②8 fig. 902 Top:Q901 Vds (expanded)
Bottom:Q901 Id

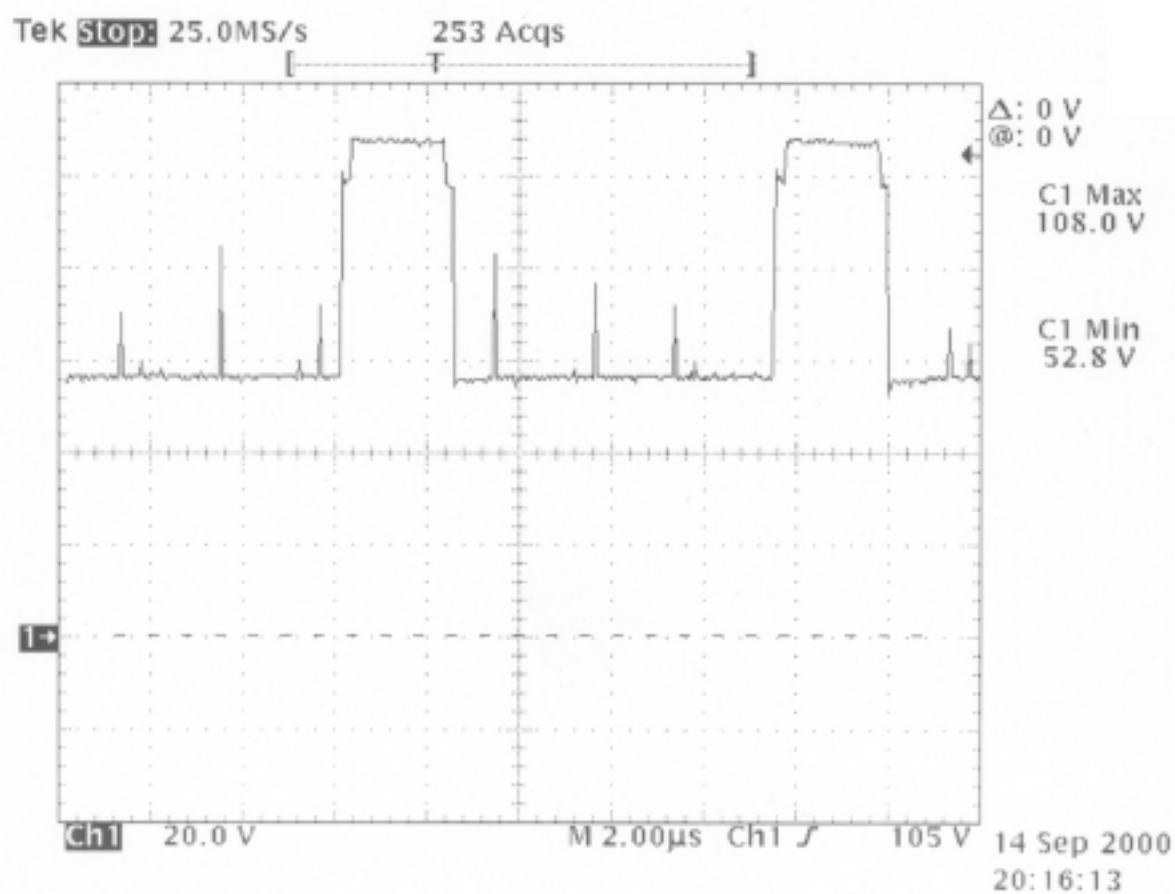


②⑨ fig. 903 Top:Q902 Vds
 Bottom:Q902 Id



③⑩ fig. 904 Top:Q903 Vds(expanded)
 Bottom:Q903 Id





③ CRT

2. Adjustment procedure

2.1 Measuring instruments

- | | |
|--|---|
| (1)Signal generator A: | Astro Design VG-812 or equivalent |
| (2)Signal generator B: | Astro Design VG-829 or equivalent |
| (3)DC voltmeter: | 150V 0.5 Class or digital voltmeter |
| (4)High voltage meter: | 0.5 Class that can measure 30KV |
| (5)Luminance meter: | Minolta color analyzer CA-100 or equivalent |
| (6)AC voltmeter: | 150V/300V 0.5 Class |
| (7)Oscilloscope: | Scope with band of 100MHz or more |
| (8)Landing measuring device: | Felmo product |
| (9)Double scale: | For width and distortion measurement |
| (10)Withstand voltage meter: | Kikusui Model TOS8650 or equivalent |
| (11)Grounding conductivity measuring instrument: | CLARE U.K. product |

2.2 Preparatory inspections

- (1) There must be no cracks or remarkable contamination on the PWB.
- (2) There must be no remarkable lifting or inclination of the parts on the PWB, and the parts must not be touching.
- (3) The connectors must be securely inserted without crimping faults.
- (4) The CRT socket, anode cap and focus lead must be securely mounted.
- (5) The lead wires must not be pressed against the edges of the board.
- (6) The lead wires must not touch the high temperature parts such as the R-METAL, R-CEMENT or TR with FIN.
- (7) The board must not be bent, remarkably contaminated or scratched.
- (8) The CRT has no scratch or chipping.
- (9) Each potentiometer must turn smoothly.
- (10)Always set each potentiometer to the following positions before turning the power ON.

Potentiometer default settings

PWB name	IC sources	Name (symbol)	Default adjustment position	Remarks
PWB-MAIN	VR5A1	H-POSI	Center	
		FOCUS1	Center	FBT
		FOCUS2	Center	FBT
		SCREEN	Completely counterclockwise	FBT

2.3 Names of each monitor part

2.3.1 Configuration of front control panel

- a FPower Switch
- b FPower-ON indicator
- c FFPM Mode Select / OSD OFF button
- d FItem select buttons
- e FFunction Adjust buttons

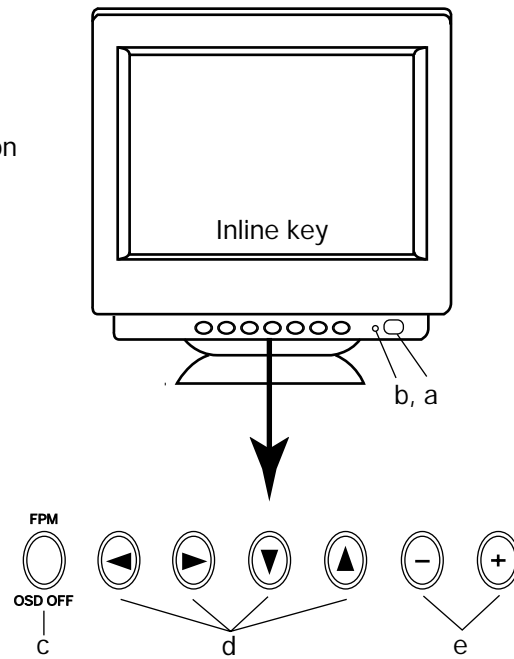


Figure 1 Front control panel

2.3.2 OSD display matrix

2.3.2.1 User mode

Adjustment items	setting contents	Default setting	setting classification	
			By timings	Common
OSD group USER 1				
CONTRAST	0 ~100	100		
BRIGHT	0 ~100	50		
COLOR	COLOR NO.1,2,3	COLOR NO.1		
R-GAIN 1,2,3	0 ~100			
G-GAIN 1,2,3	0 ~100			
B-GAIN 1,2,3	0 ~100			
COLOR TEMPERATURE 1,2,3	5000K ~9300K	COLOR1:9300K,2:6500K,3:5000K		
FACTORY PRESET	PROCEED			
OSD group USER 2				
HORIZ-SIZE	0 ~100			
HORIZ-POSITION	0 ~100			
VERT-SIZE	0 ~100			
VERT-POSITION	0 ~100	50		
ROTATION	0 ~100	CENTER		
ZOOM	0 ~100			
GTF AUTO ADJUST	PROCEED			
FACTORY PRESET	PROCEED			
OSD group USER 3				
PINCUSHION	0 ~100			
PIN-BALANCE	0 ~100			
KEystone	0 ~100			
KEY-BALANCE	0 ~100			
TOP-PIN	0 ~100			
TOP-BALANCE	0 ~100			
BOTTOM-PIN	0 ~100			
BOTTOM-BALANCE	0 ~100			
VERT-LIN	0 ~100			
VERT-LIN-BALANCE	0 ~100			
FACTORY PRESET	PROCEED			
OSD group USER 4				
CORNER PURITY (TL)	0 ~100	CENTER		
CORNER PURITY (TR)	0 ~100	CENTER		
CORNER PURITY (BL)	0 ~100	CENTER		
CORNER PURITY (BR)	0 ~100	CENTER		
LEFT/RIGHT PURITY	0 ~100	50		
MOIRE CANCEL LEVEL	0 ~100	0		
CLAMP PULSE POSITION	FRONT / BACK	BACK		
FACTORY PRESET	PROCEED			
OSD group USER 5				
HORIZ-CONVERGENCE	0 ~100	CENTER		
VERT-CONVERGENCE	0 ~100	CENTER		
FACTORY PRESET	PROCEED			
OSD group USER 6				
DEGAUSS	PROCEED			
POWER SAVE	OFF/ON	ON		
CONTROL LOCK	OFF/ON	OFF		
OSD POSITION	<-/+>	(OSD is at the center of picture)		
OSD TURN OFF	5SEC ~120SEC	45SEC		
DIAGNOSIS				
LANGUAGE	ENG/GER/FRA/ESP/ITA/JPN	ENG		
AUTO SAVE	OFF/ON	ON		
ALL RESET	PROCEED			
RESET	PROCEED			

*) CENTER ƒThe factory setting value returning by pressing (+) (-) buttons simultaneously.

2.3.2.2 Factory mode

Adjustment items	setting contents	Default setting	setting classification	
			By timings	Common
OSD group USER 1				
CONTRAST	0 ~ 254	254		
BRIGHT	0 ~ 254	127		
COLOR	COLOR NO.1,2,3	COLOR NO.1		
R-GAIN 1,2,3	0 ~ 254			
G-GAIN 1,2,3	0 ~ 254			
B-GAIN 1,2,3	0 ~ 254			
COLOR TEMPERATURE 1,2,3	5000K ~ 9300K	COLOR1:9300K,2:6500K,3:5000K		
FACTORY PRESET	PROCEED			
OSD group USER 2				
HORIZ-SIZE	0 ~ (depend on +B adjustment)			
HORIZ-POSITION	0 ~ 254			
VERT-SIZE	0 ~ 254			
VERT-POSITION	0 ~ 254	127		
ROTATION	0 ~ 254			
ZOOM	0 ~ (depend on +B adjustment)			
GTF AUTO ADJUST	PROCEED			
FACTORY PRESET	PROCEED			
OSD group USER 3				
PINCUSHION	0 ~ 254			
PIN-BALANCE	0 ~ 254			
KEystone	0 ~ 254			
KEY-BALANCE	0 ~ 254			
PCC-CENTER	0 ~ 254			
PCC-SINE	0 ~ 254			
TOP-PIN	0 ~ 254			
TOP-BALANCE	0 ~ 254			
BOTTOM-PIN	0 ~ 254			
BOTTOM-BALANCE	0 ~ 254			
VERT-LIN	0 ~ 254			
VERT-LIN-BALANCE	0 ~ 254			
FACTORY PRESET	PROCEED			
OSD group USER 4				
CORNER PURITY (TL)	0 ~ 254			
CORNER PURITY (TR)	0 ~ 254			
CORNER PURITY (BL)	0 ~ 254			
CORNER PURITY (BR)	0 ~ 254			
LEFT/RIGHT PURITY	0 ~ 254	127		
MOIRE CANCEL LEVEL	0 ~ 127	0		
CLAMP PULSE POSITION	FRONT / BACK	BACK		
FACTORY PRESET	PROCEED			
OSD group USER 5				
HORIZ-CONVERGENCE	0 ~ 254			
VERT-CONVERGENCE	0 ~ 254			
FACTORY PRESET	PROCEED			
OSD group USER 6				
DEGAUSS	PROCEED			
POWER SAVE	OFF / ON	ON		
CONTROL LOCK	OFF / ON	OFF		
OSD POSITION	<- / +>	(OSD is at the center of picture)		
OSD TURN OFF		8		
DIAGNOSIS				
LANGUAGE	ENG/GER/FRA/ESP/ITA/JPN	ENG		
AUTO SAVE	OFF / ON	ON		
ALL RESET	PROCEED			
FACTORY PRESET	PROCEED			

Adjustment items	setting contents	Default setting	setting classification	
			By timings	Common
FACT 1				
H-PURITY	0 ~254	127		
V-PURITY CHECK	0/1/2	0		
CP P OFF	0 (OFF) / 1 (ON)	1 (ON)		
P OFF	0 (OFF) / 1 (ON)	1 (ON)		
YHTT	0 ~254	127		
YHTB	0 ~254	127		
YHJT	0 ~254	127		
YHJB	0 ~254	127		
XH-J	0 ~254	127		
XH-R	0 ~254	127		
PQH-TI	0 ~254	127		
PQH-TR	0 ~254	127		
PQH-BL	0 ~254	127		
PQH-BR	0 ~254	127		
S3H-TL	0 ~254	127		
S3H-TR	0 ~254	127		
S3H-BL	0 ~254	127		
S3H-BR	0 ~254	127		
YVTT	0 ~254	127		
YVTB	0 ~254	127		
YBJT	0 ~254	127		
YVJB	0 ~254	127		
XV-L	0 ~254	127		
XV-R	0 ~254	127		
PQV-TL	0 ~254	127		
PQV-TR	0 ~254	127		
PQV-BL	0 ~254	127		
PQV-BR	0 ~254	127		
S3V-TL	0 ~254	127		
S3V-TR	0 ~254	127		
S3V-BL	0 ~254	127		
S3V-BR	0 ~254	127		
DBF-H-AMP	0 ~254			
DBF-H-PHASE	0 ~100			
DBF-V-AMP	0 ~127			
RB93	0 ~254	30		
GB93	0 ~254	30		
BB93	0 ~254	30		
RB65	0 ~254	30		
GB65	0 ~254	30		
BB65	0 ~254	30		
RB50	0 ~254	30		
GB50	0 ~254	30		
BB50	0 ~254	30		
SUB-BRIGHT	0 ~480	320		
ABL	0 ~219	219		
HEATER-OFF	0 ~254			
B-LO	0 ~187			
B-HI	0 ~187			
WP DDC	0 (OFF) / 1 (ON)	0 (OFF)		
FACT 02				
HVADJ	0 ~168			
HVTMP	HVADJ ~254	HVADJ		
XPRO-CALIBRATE	0 ~254	254		
XPRO LEVEL	HVADJ+20 ~254			

2.4 Adjustment

2.4.1 How to select the factory adjustment (FACTORY) mode

2.4.1.1 Selecting with front panel switches

- (1) Turn the power ON while holding down FPM Mode Select/OSD OFF button.
- (2) After step (1), release the button after one to two seconds.
- (3) Confirm that 00 is displayed for the counter on the OSD display, and set to 225 with the (-) Function Adjust button.
- (4) Set to 05 with the (+) Function Adjust button.
- (5) When FPM Mode Select / OSD button is pressed, the factory mode will be entered.

This factory adjustment mode is entered with the above steps.

*The factory adjustment mode remains valid even after the power is turned OFF.

Note that steps (3) to (4) must be carried out within ten seconds. If ten seconds are exceeded, the mode will return to the user mode.

<Returning to the user mode from the factory mode>

- (1) OSD (for factory, user select) is displayed with the group selection.
- (2) Set the counter value to 010 with (-) (+) Function Adjust buttons.
- (3) When FPM Mode Select / OSD OFF button (RIGHT side) is pressed, the mode will return to the user mode.

2.4.2 Adjustments before aging

Status indicator	Adjustment item	Adjustment mode/set	Input signal/pattern
	Before aging		The only the sync. signal of
			No. 12:106.25K / 85Hz, 1600x1200

2.4.2.1 Adjusting the high voltage and high voltage protector

Status indicator	Adjustment item	Adjustment mode/set	Input signal/pattern
	High voltage and high voltage protector		The only the sync. signal of
			No. 12:106.25K / 85Hz, 1600x1200

(Timing No. 12 (106.25 kHz/85 Hz, 1600×1200) SYNC signal is only input)

- (1) Turn the monitor power OFF and connect a high voltage indicator to the anode of CRT before turning the monitor power ON.
- (2) Select ⚡GO TO FACTORY MODE⚡ on OSD and set to 250 using the (-) button before pushing the FPM Mode Select /OSD OFF button.
- (3) Select HVADJ on OSD to adjust the high voltage to 27.0kV±0.5kV.
- (4) Select HVTMP (HV-ADJUST-TEMP) on OSD and turn the screen VR all the way down counter-clockwise before adjusting the high voltage to 30.5kV±0.5kV by manipulating the (+) (-) buttons.
- (5) Select XPRO-CALIBRATE using the ▼ button before pushing the (+) button. With the (+) button pushed, the microcomputer automatically sets the protector, causing the high voltage to return to 27.0V±0.5kV.
- (6) Turn the monitor power OFF/ON and rotate the screen VR so that the OSD can be confirmed.
- (7) Select HVTMP (HV-ADJUST-TEMP) on OSD by the manipulation shown above and turn the screen VR all the way down counter-clockwise.
- (8) Raise the voltage manipulating the (+) button and make sure that the high-voltage protection circuit gets activated at 30.5kV±0.5kV.

Note) Adjustment can be made with the screen VR turned all the way down counter-clockwise.

2.4.2.2 SCREEN voltage / FOCUS adjustment

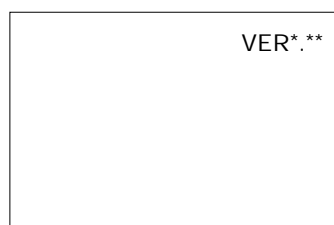
- (1) Connect a high voltage meter to the TP-SC terminal on the CRT PWB.
- (2) Set to $700V \pm 5V$ with the FBT picture potentiometer.
- (3) Adjust the focus pack "FOCUS 1, 2" so that both edges of the picture are clear.
that the high voltage protector operates.

2.4.2.3 Shock test

- (1) Display the "color bar".
- (2) Confirm that there is no abnormality in the image when shock is applied on the monitor.

2.4.2.4 Preadjustment before aging

- (1) Display a "full white".
- (2) Confirm that the R, G and B channel images are output.
- (3) Confirm that the HORIZ-PHASE, picture position, picture size, PCC and balance can be controlled, and approximately adjust.
- (4) Confirm that the OSD power management is turned OFF.
- (5) Enter the factory mode (aging mode) beforehand.
- (6) Disconnect the signal and confirm that the following display appears on the OSD. Then, adjust the picture luminance using BRIGHT adjustment, and carry out heat run for 30 minutes or more.



2.4.2.5 Adjusting the landing (ITC/4 corner purity adjustment)

Status indicator	Adjustment item	Adjustment mode/set	Input signal/pattern
	landing		No. 12:106.25K / 85Hz, 1600x1200
			Full green

- (1) Input the timing No. 12 (106.25kHz/85Hz, 1600x1200) full green signal.
- (2) Turn OFF the monitor power to carry out hand degaussing.
- (3) Select TL on OSD.
- (4) Adjust to the best condition using Function Adjust buttons. Here, make sure that the adjusted value is within the range of OSD display = 57 to 197.
- (5) Carry out similar adjustment for TR/BL/BR.

Note) When the substrate is replaced at the time of repair, set TL/TR/BL/BR to the values before replacement before carrying out adjustment.

2.4.3 Adjustments after aging

2.4.3.1 +B adjustment

Input the sync. signal of the following timings to adjust the picture width to $396 \pm 4\text{mm}$.

Timing No.	H-frequency	OSD adjustment item
A	30.0kHz	+B-L
12	106.25kHz	+B-H

2.4.4 Adjusting the picture size, position and distortion

The manual adjustment methods are explained below. The adjustments are executed in the factory adjustment (factory) mode.

Adjust the picture size to the value indicated in the list of adjustment values. (Refer to 2.5.1.10 Adjustment value list.)

Adjust the distortion to the value indicated in the picture performance inspection item. (Refer to 2.5.1.8 Picture distortion.)

2.4.4.1 Adjusting the picture inclination

Status indicator	Adjustment item	Adjustment mode/set	Input signal/pattern
	Picture inclination	Factory	No. 12:106.25K / 85Hz, 1600x1200
			Crosshatch with frame

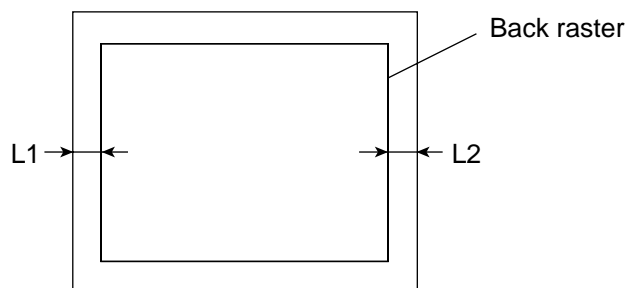
Set the OSD to ROTATION, and using (-) (+) Function Adjust buttons, set the raster inclination to be horizontal to the CRT face surface.

2.4.4.2 Adjusting the back raster position

Status indicator	Adjustment item	Adjustment mode/set	Input signal/pattern
	Back raster position	Factory	No. 12:106.25K / 85Hz, 1600x1200
			Only the sync. signal input

- (1) Set BRT to 100% to show the back raster.
- (2) Select HORIZ-PHASE with the OSD and adjust the horizontal back raster position to the center of the bezel using (-) (+) Function Adjust buttons.

At this time, the raster width will be $|L1-L2| \leq 2.0\text{mm}$.



2.4.4.3 Adjusting the left/right distortion, picture width, picture position (H-PHASE) and vertical linearity (all preset)

- (1) Set V-POSI of the user mode to 50%.

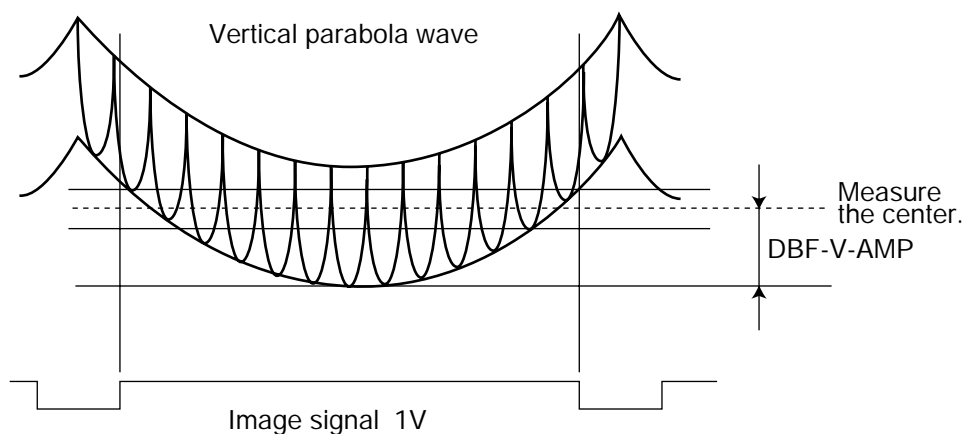
<Setting in the factory mode for the following steps>

- (2) Adjust the vertical size to approx. 297mm, and the vertical position to the approximate center.
- (3) Select V-LIN and V-LIN-BAL with the OSD, and adjust so that the vertical linearity is equal at the very top of the picture, at the very bottom of the picture, and at the center of the picture.
- (4) Select V-SIZE and V-POSI with the OSD, and adjust the vertical width and vertical position to the specified values using Function Adjust buttons.
- (5) Select PCC-AMP, PCC-PHASE, PCC-CENTER, TOP-PCC, and BOTTOM-PCC with the OSD, and adjust the vertical line at both side of the picture to the straight line using Function Adjust buttons.

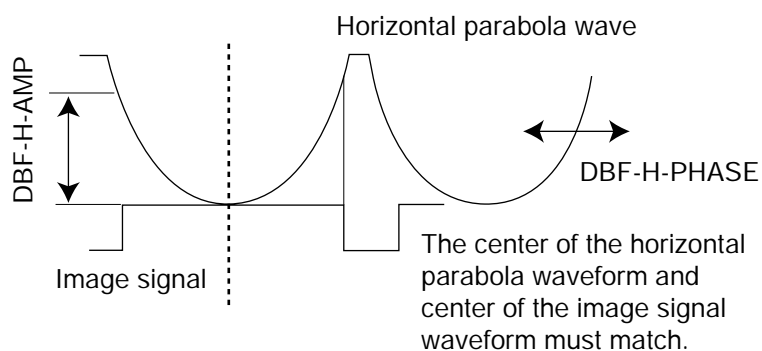
- (6) If the left and right distortions differ, select PIN-BALANCE, KEY-BALANCE, TOP-BALANCE and BOTTOM-BALANCE with the OSD, and adjust so that the distortions are visually balanced.
 - (7) Select H-PHASE with the OSD, and adjust the horizontal raster position to the center of the picture using Function Adjust buttons.
 - (8) Select H-SIZE with the OSD, and adjust the horizontal raster width to the value given in the adjustment list using Function Adjust buttons. (Refer to 2.5.1.10 Adjustment value list.)
- * Note (1) PCC-SINE is used only for touch up.
- * Note (2) The picture position and distortion must be within the ranges given in the picture performance inspection items. (Refer to 2.5.1.8 Picture distortion.)

2.4.4.4 Adjusting the DBF amplitude and phase

- (1) Connect the oscilloscope to the lead of R7B6 (AG702 side) on PWB-MAIN and to one of the signal outputs for the signal sources full R, G, B (VIDEO).
- (2) Set the OSD to the select picture of DBF-H-AMP, and using (-) (+) Function Adjust buttons adjust the horizontal parabola wave amplitude (image area) to the value given in the list of adjustment values. (Refer to 2.5.1.10 Adjustment value list.)
- (3) Set the OSD to the select picture of DBF-H-PHASE, and using (-) (+) Function Adjust buttons adjust the horizontal parabola wave phase as shown below in respect to the image signal.
- (4) Set the OSD to the DBF-V-AMP select picture, and using (-) (+) Function Adjust buttons adjust the vertical parabola wave amplitude (image area) to the value given in the list of adjustment values. (Refer to 2.5.1.10 Adjustment value list.)



DBF-V-AMP adjustment



DBF-H-AMP / PHASE adjustment

2.4.5 Adjusting the cut off

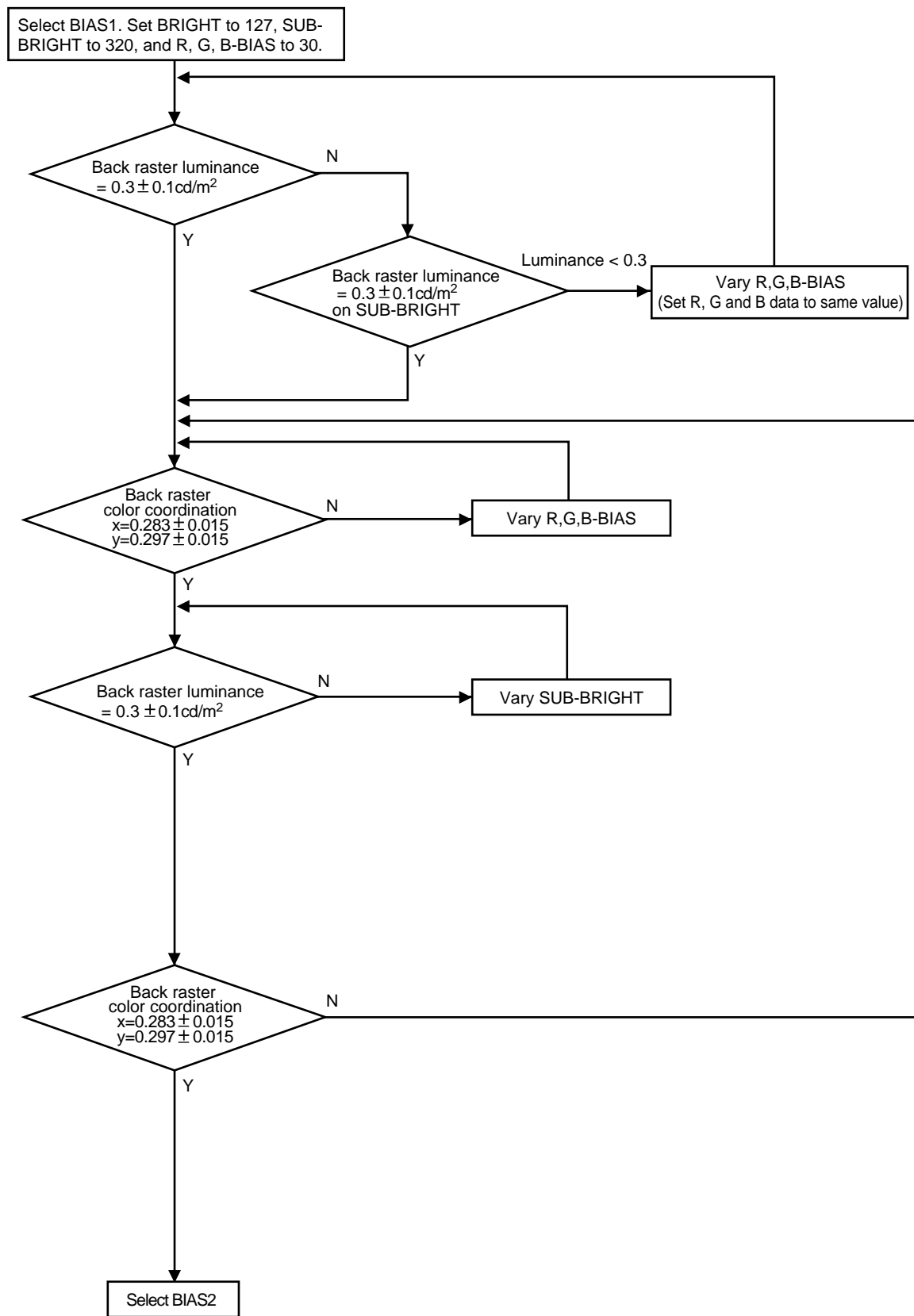
Status indicator	Adjustment item	Adjustment mode/set	Input signal/pattern
	Cut off	Factory	No. 12:106.25K / 85Hz, 1600x1200

- (1) Input the timing No. 12 (106.25kHz/85Hz, 1600x1200) from the signal source. (R, G, B OFF)
- (2) Select BIAS1, and set BRIGHT to 127, SUB-BRIGHT to 320, and the R, G, B-BIAS to 30.
- (3) Adjust the back raster luminance to $0.3 \pm 0.1 \text{ cd/m}^2$.
If less than 0.3 cd/m^2 , change R, G, B-BIAS to adjust.
The R, G, B-BIAS data must be the same values at this time.
- (4) Using two colors except for the basic colors, adjust the color coordination to the following values.
- (5) Change SUB-BRIGHT, and adjust the back raster luminance to $0.3 \pm 0.1 \text{ cd/m}^2$.
- (6) If the back raster color coordination is deviated from the following values, repeat steps (4) and (5).
- (7) Set the G-BIAS datas of COLOR 2 and 3 to the same value as the one of COLOR1.
- (8) Select BIAS 2, and change the BIAS data for the R and B colors (G-BIAS is fixed). Adjust the back raster color coordination to the following table.
- (9) Select BIAS 3, and change the BIAS data for the R and B colors (G-BIAS is fixed). Adjust the back raster color coordination to the following table.

Condirmation item		COLOR 1	COLOR 2	COLOR 3
Color coordination	x	0.283 ± 0.015	0.313 ± 0.015	0.345 ± 0.015
	y	0.297 ± 0.015	0.329 ± 0.015	0.359 ± 0.015

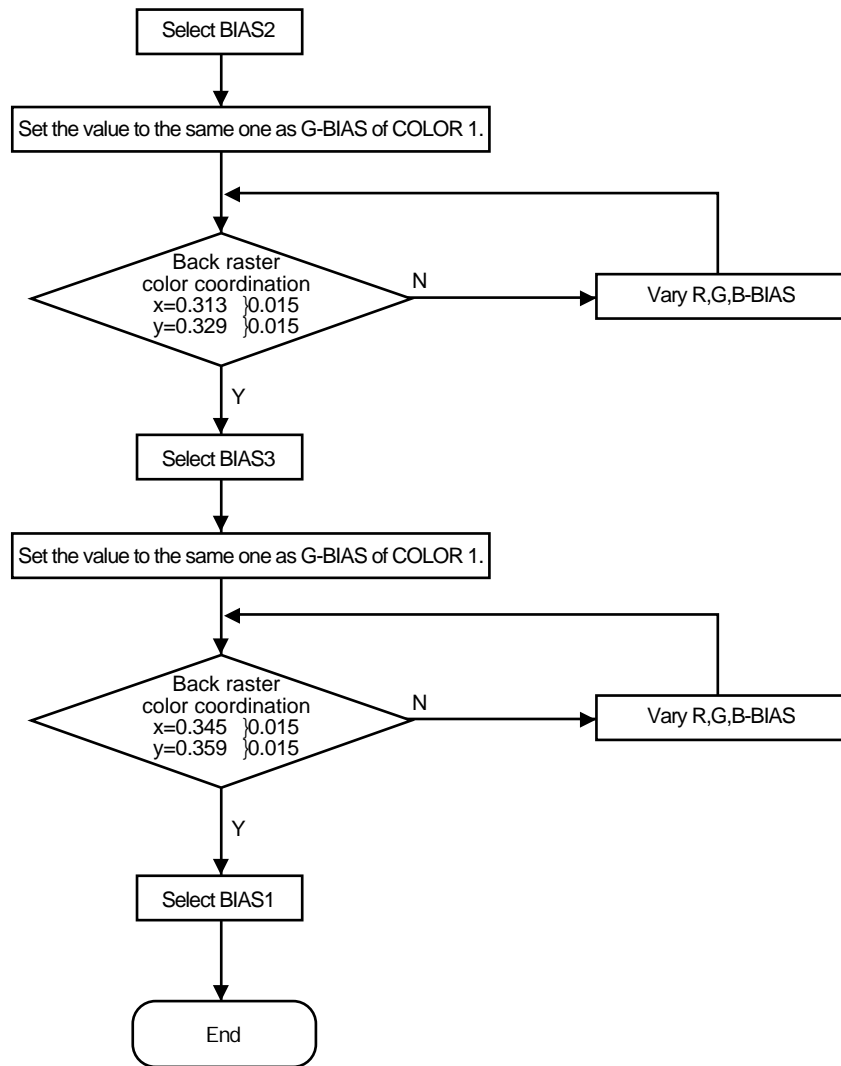
*The flow chart is provided on the next page.

Cutoff adjustment procedures



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2.4.6 Adjusting the RGB drive signal

2.4.6.1 Adjusting the R, G, B drive signal (Adjustment of COLOR 1)

Status indicator	Adjustment item	Adjustment mode/set	Input signal/pattern
	R, G, B drive signal	Factory	No. 12:106.25K / 85Hz, 1600x1200
			WINDOW picture

- (1) Input the timing No.12.
WINDOW picture (Input amplitude = 0.7Vp-p)
- (2) Select CONTRAST with the OSD, and set to MAX with (+) Function Adjust button.
- (3) Select BRIGHT with the OSD, and set the data to 127 with (-) (+) Function Adjust buttons.
- (4) Set the WINDOW pattern (approx. 80mm square at center of CRT picture), and input only "GREEN".
- (5) Set the COLOR 1 G with the OSD, and adjust the luminance to the following value with Function Adjust button.
- (6) Input BLUE, RED and GREEN, appropriately select the COLOR 1 B and R, and adjust the color coordination to the following value with Function Adjust button.
- (7) Set CONTRAST to 25cd/m² with the OSD to confirm that the change in color coordination is within ± 0.015 for both x and y.

*Adjust COLOR 2 and 3 to the following values with the same method.

If COLOR 2 and 3 are contented with the following value, they can be adjusted with presumptioni respectively.

The values of G-WINDOW are reference.

(Note) After adjusting COLOR, always set to COLOR 1.

(The COLOR preset will be set to the default COLOR 1 with this step.)

COLOR		1	2	3	Remarks
G-WINDOW luminance		(76.0)	(67.0)	(56.0)	(Reference value)
W-WINDOW	x	0.283	0.313	0.345	± 0.005
color coordination	y	0.297	0.329	0.359	± 0.005
Full white luminance (cd/m ²)		105 or more	92 or more	77 or more	

2.4.6.2 Adjusting ABL

Status indicator	Adjustment item	Adjustment mode/set	Input signal/pattern
	ABL	Factory	No. 12:106.25K / 85Hz, 1600x1200
			Full white

- (1) Set the OSD ABL to 219.
- (2) Input the timing No. 12 (106.25kHz/85Hz, 1600x1200).
(Full white picture input amplitude = 0.7Vp-p)
- (3) Set contrast to MAX, bright to MAX, and select ABL-ADJUST with OSD. Adjust to 115cd/m² ± 5 with COLOR 1.
The picture size must be approximately the H width given in the list of adjustment values at this time. (Refer to 2.5.1.10 Adjustment value list.)


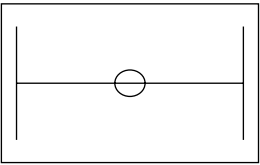
2.4.7 Adjusting the Purity

Status indicator	Adjustment item	Adjustment mode/set	Input signal/pattern
	Purity	Factory	Check 4 : 85Hz, 1600x1200
			GREEN crosshatch reverse

- (1) Input the check 4 timing (85Hz, 1600 x 1200) to confirm that the GREEN crosshatch is displayed in reverse.
- (2) Set the chamber adjustment magnetic field to the northern hemisphere magnetic field (HORIZ. = 0mT, VERT. = +0.04mT).
- (3) Demagnetize carefully the monitor with 100V handy-demagnetizer.
- (4) Set the monitor to the factory mode from the front, select H-Purity, and press FPM Mode Select / OSD OFF button once.

With this, the calibration of the horizontal (tube axis) one way geomagnetism sensor will be carried out by the MPU. ("HMAG CAL" is displayed.)

2.4.8 Adjusting the focus

	Normal or reverse display	Point to align with
Vertical line	Reverse display	 <p>FOCUS JUST at center of right side vertical line (circle section).</p>
Horizontal line	Normal display	 <p>FOCUS JUST at center of screen (circle section).</p>

<Adjusting the static focus>

Status indicator	Adjustment item	Adjustment mode/set	Input signal/pattern
	Static focus		No. 12:106.25K/85Hz, 1600x1200
			H character, crosshatch

For steps (1) and (2), use the timing No. 12 (106.25kHz/85Hz, 1600 x 1200) H character pattern and crosshatch pattern.

For step (3), use all preset timing H character patterns and crosshatch patterns.

- (1) Display a white crosshatch pattern, and adjust the focus according to "2.4.8 Adjusting the focus".
- (2) If the DBF voltage is insufficient or excessive, select DBF H AMP and DBF V AMP from the OSD, and readjust with Function Adjust button. Then repeat step (1), and adjust so that the following judgement conditions are satisfied.
- (3) For all of the other preset timings, if the DBF voltage is insufficient or excessive, select DBF H AMP and DBF V AMP from the OSD, and readjust with Function Adjust button.

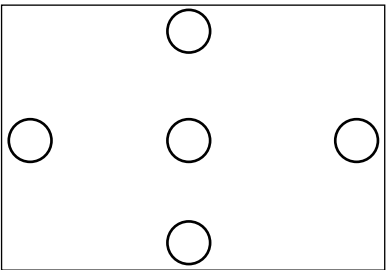
*Adjustment voltage max value:

DBF-H-AMP	H width: 396mm:	430V
	H width: 371mm:	400V
DBF-V-AMP	V width: 297mm:	190V

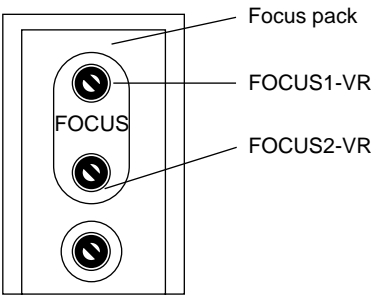
The focus is judged as follows.

Timing	Judgment pattern (Note 1) (Note 2)
Normal display (All preset)	Crosshatch pattern
Reverse display Resolution: $\leq 1600 \times 1200$ Resolution: $\geq 1600 \times 1200$	Judge with pattern A Judge with pattern B

- (Note 1) Pattern A: Font 7 ~9, Cell 10 ~11, e character
Pattern B: Font 7 ~9, Cell 10 ~11, H character
(Note 2) Focus judgement: Crosshatch pattern should be used for normal display judgement
Core: Judge the ratio of the halo (total area 1:1).
To judge the reverse display, do not carry out a relative evaluation with the other point on the screen. Instead, judge whether the e (H)



Focus attention point



2.4.9 Adjusting the convergence

2.4.9.1 Adjusting with ITC

Before adjusting the center mis-convergence and axial mis-convergence, carry out sufficient full white aging (100cd/m² or more, for one hour or more). Then, adjust with the following timing.

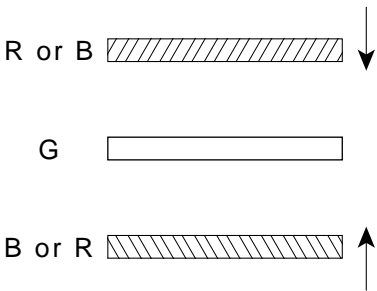
Timing: No. 12 (106.25kHz/85Hz, 1600 x 1200) crosshatch pattern

Confirm that the following DDCCP default setting is as shown in the table.

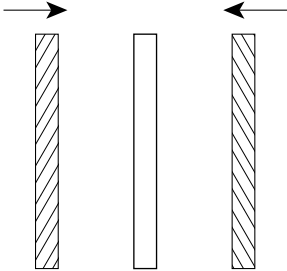
Factory mode in section 2.3.2.2 OSD display matrix
H-CONVERGENCE, V-CONVERGENCE,
Factory mode in section 2.3.2.2 OSD display matrix
All of FACT1

Adjust the horizontal and vertical convergence to the optimum setting with the CRT CP ring, etc.

(Refer to following drawings.)

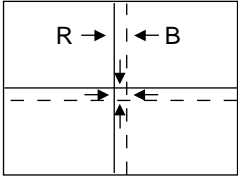
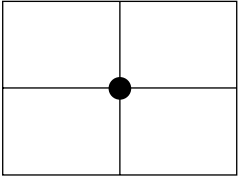
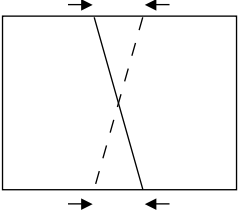
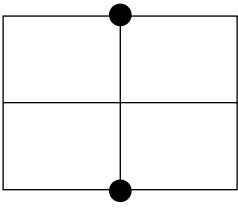
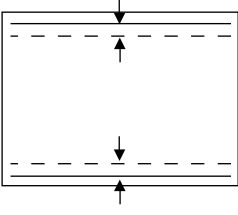
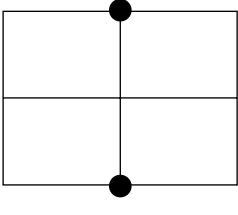
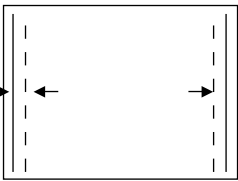
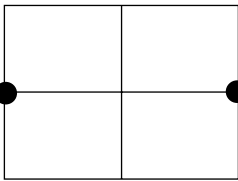
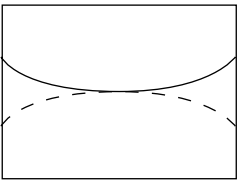
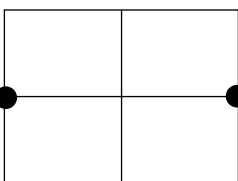
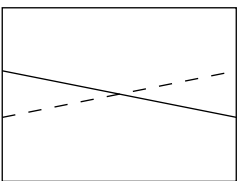


Vertical convergence



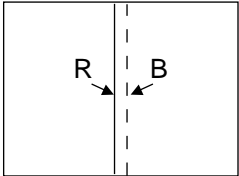
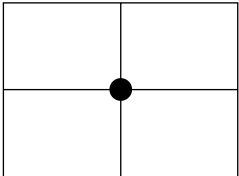
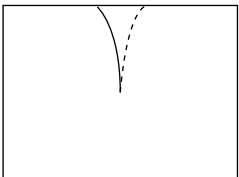
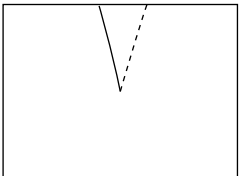
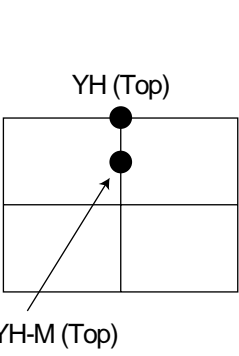
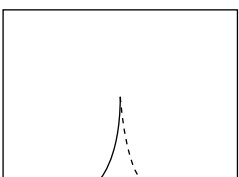
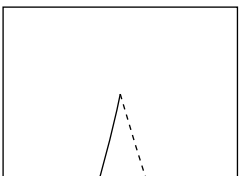
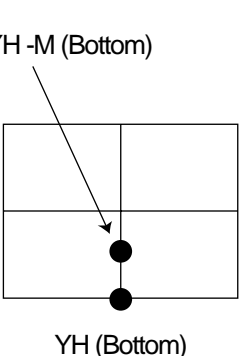

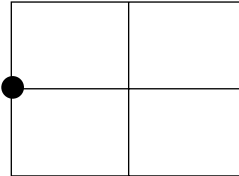

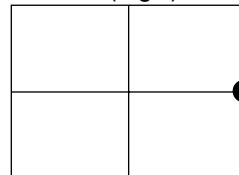
Horizontal convergence

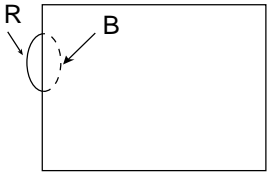
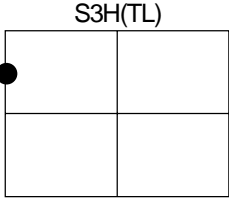

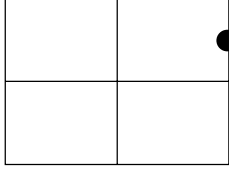

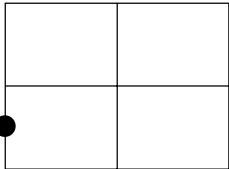

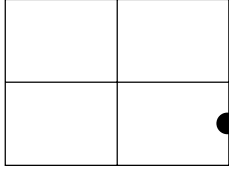
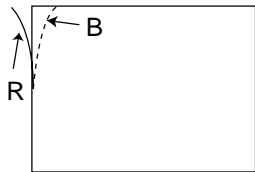
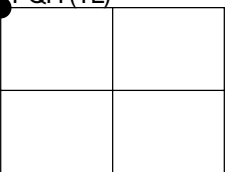

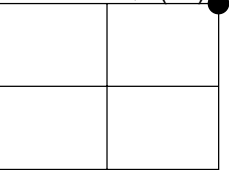
Adjusting the center misconvergence and axial misconvergence

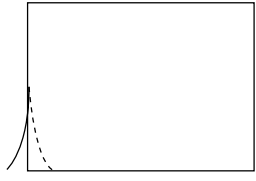
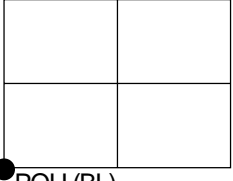
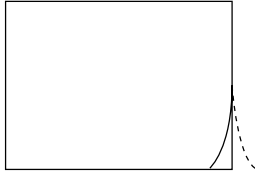
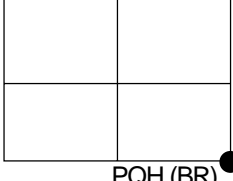
Adjustment item name	Problem	Adjustment point	Adjustment procedure
H-STATIC V-STATIC			Adjust to $\pm 0.1\text{mm}$ or less with CP-ASSY 4P.
YH axial deviation			Adjust so that TOP+BOTTOM are $\pm 0.1\text{mm}$ or less with YH volume.
YV axial deviation			Adjust so that TOP-BOTTOM is $\pm 0.1\text{mm}$ or less with YV volume.
XH axial deviation			Adjust so that LEFT-RIGHT is $\pm 0.15\text{mm}$ or less with XH slider.
XV characteristics			Only when XV (B-Bow) is $\pm 0.15\text{mm}$ or more, adjust so that LEFT-RIGHT is $\pm 0.15\text{mm}$ or less with the interlock of B-Bow 4P and CP-ASSY 4P.
XV axial deviation			Adjust so that LEFT+RIGHT is $\pm 0.15\text{mm}$ or less with XV differential.

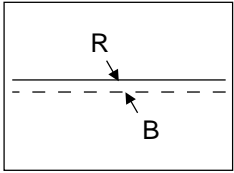
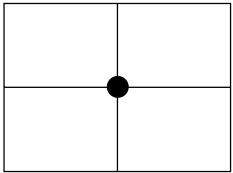
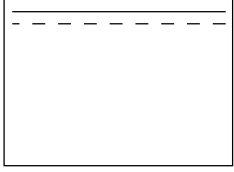
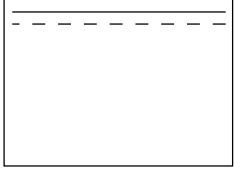
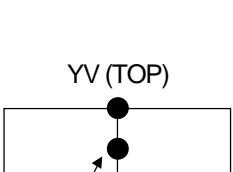

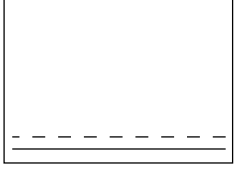
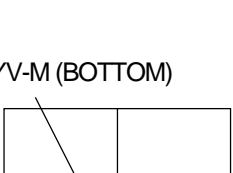
2.4.9.2 Adjusting DDCP

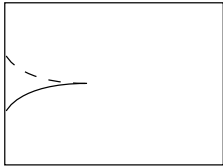
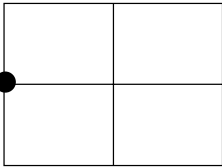
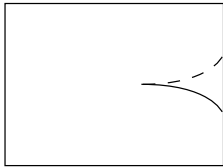
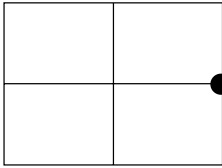
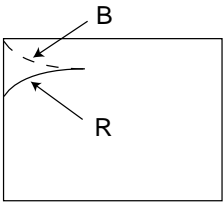
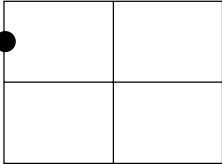
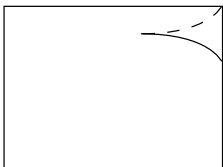
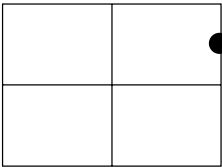
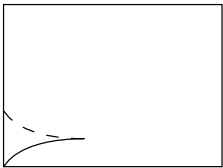
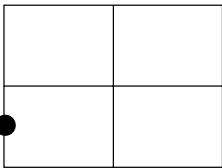
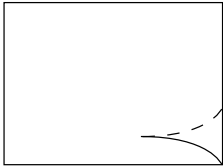
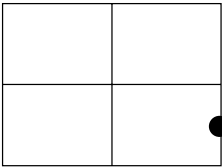
- (1) Input the timing No. 12 (106.25kHz/85Hz, 1600 x 1200) crosshatch pattern.
- (2) Enter the factory mode.
- (3) Adjust in the following order. (It is assumed that the center and axial misconvergence on the previous page have already been adjusted.)

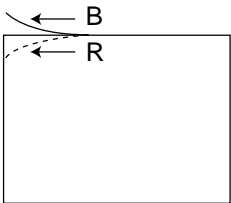
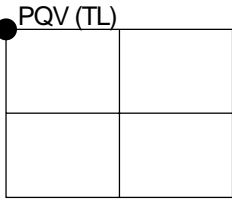
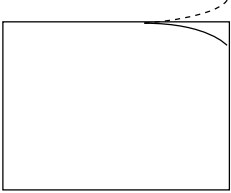
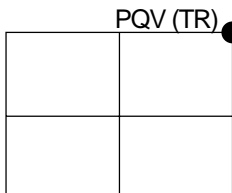
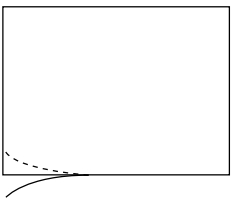
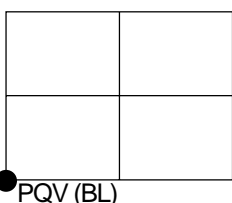
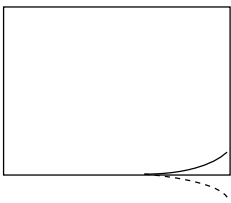
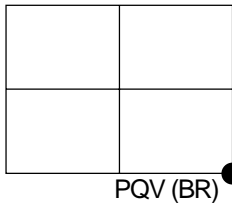
Adjustment order	Adjustment item name	Problem	Adjustment point	Adjustment procedure
4H-COIL				
1	HORIZ-CONVERGENCE			Adjust to 0.05mm or less. (Adjustment target is 0mm.)
2	YH-TT YH-JT	 		Adjust to 0.05mm or less. (Adjustment target is 0mm.) (NOTE) The operating amount at YH-M(TOP) when moving YH-TT and YH-JT : YH-TT < YH-JT
3	YH-TB YY-JB	 		Adjust to 0.05mm or less. (Adjustment target is 0mm.) (NOTE) The operating amount at YH (BOTTOM) when moving YH-TB and YH-JB : YH-TB < YH-JB
4	XH-L			Adjust to 0.1mm or less.
5	XH-R			Adjust to 0.1mm or less.

Adjustment order	Adjustment item name	Problem	Adjustment point	Adjustment procedure
4H-COIL				
6	S3H-TL			Adjust to 0.3mm or less.
7	S3H-TR			Adjust to 0.3mm or less.
8	S3H-BL			Adjust to 0.3mm or less.
9	S3H-BR			Adjust to 0.3mm or less.
10	PQH-TL			Adjust to 0.3mm or less.
11	PQH-TR			Adjust to 0.3mm or less.

Adjustment order	Adjustment item name	Problem	Adjustment point	Adjustment procedure
4H-COIL				
12	PQH-BL		 PQH (BL)	Adjust to 0.3mm or less.
13	PQH-BR		 PQH (BR)	Adjust to 0.3mm or less.

Adjustment order	Adjustment item name	Problem	Adjustment point	Adjustment procedure
4V-COIL				
1	VERT-CONVERGENCE			Adjust to 0.05mm or less. (Adjustment target is 0mm.)
2	YV-TT YV-JT	 	 YV (TOP) YV-M (TOP)	Adjust YV (TOP) to 0.05mm or less with balance adjustment of YV-TT and YV-JT. (Adjustment target is 0mm.) (Note) The operating amount at YV-M (TOP) when moving YV-TT and YV-JT. YV-TT < YV-JT
3	YV-TB YV-JB	 	 YV-M (BOTTOM) YV (BOTTOM)	Adjust YV (BOTTOM) to 0.05mm or less with balance adjustment of YV-TB and YV-JB. (Adjustment target is 0mm.) (Note) The operating amount at YV-M (BOTTOM) when moving YV-TB and YV-JB. YV-TB < YV-JB

Adjustment order	Adjustment item name	Problem	Adjustment point	Adjustment procedure
4V-COIL				
4	XV-L		<p>XV(Left)</p> 	Adjust to 0.1mm or less.
5	XV-R		<p>XV(Right)</p> 	Adjust to 0.1mm or less.
6	S3V-TL		<p>S3V(TL)</p> 	Adjust to 0.3mm or less.
7	S3V-TR		<p>S3V(TR)</p> 	Adjust to 0.3mm or less.
8	S3V-BL		<p>S3V(BL)</p> 	Adjust to 0.3mm or less.
9	S3V-BR		<p>S3V(BR)</p> 	Adjust to 0.3mm or less.

Adjustment order	Adjustment item name	Problem	Adjustment point	Adjustment procedure
4V-COIL				
10	PQV-TL			Adjust to 0.3mm or less.
11	PQV-TR			Adjust to 0.3mm or less.
12	PQV-BL			Adjust to 0.3mm or less.
13	PQV-BR			Adjust to 0.3mm or less.

* Specify the adjustment value range of the following adjustment items in general DDCP adjustment.

Adjustment items	Adjustment value range (Factory mode))
H-CONVERGENCE	91~163 (OSD display value=DAC output value)
V-CONVERGENCE	91~163 (OSD display value=DAC output value)

2.4.10 Default settings (With factory mode)

Status indicator	Adjustment item	Adjustment mode/set	Input signal/pattern
	Default settings	Factory mode	Each adjustment timing
			Crosshatch

- (1) Set the default values as shown in the table (user mode) given in the OSD display (Refer to 2.3.2.1 User mode).
If the setting class is an item for each timing, carry out for each adjustment timing except the item of default setting "CENTER".
- (2) Return to the user mode with the front panel.
- (3) Execute ALL RESET to confirm that each OSD setting is as shown in the table (user mode) given in the OSD display (Refer to 2.3.2.1 User mode).
The default setting CENTER is the factory adjustment value called when (-) (+) Function Adjust buttons are pressed simultaneously in the normal mode.
Only CONTRAST will be set to 100% when (-) (+) Function Adjust buttons are pressed simultaneously in the normal mode.
- (4) After setting the default values, turn the power switch OFF.

2.5 Inspections (In normal mode)

Status indicator	Adjustment item	Adjustment mode/set	Input signal/pattern
	Inspections	Normal mode	

2.5.1 Electrical performance

Inspect the electrical performance by setting contrast to MAX and bright to center (press (-) (+) Function Adjust buttons simultaneously).

2.5.1.1 Withstand voltage

There must be no abnormality when 1500VAC is applied for two seconds between both ends of the AC input terminal and chassis, and between the DG coil terminal and chassis.

2.5.1.2 Grounding conductivity check

Check that the resistance value is 100m Ω or less when 25A is passed between the AC input terminal grounding GND and chassis GND.

2.5.1.3 Degaussing coil operation

Confirm that when OSD DEGAUSS is executed, the picture vibrates and then stops.

2.5.1.4 POWER SAVE function operation (Set the AC power input to 230V)

Confirmation timing
Timing No. 12 (106.25kHz / 85Hz, 1600x1200)

Use the full white pattern without R, G, B signals.

Select POWER-SAVE from the OSD, and set the POWER-SAVE function ON.

(1) POWER SAVE ON

- (a) Confirm that when any SYNC (H, V, H&V) is removed, the system waits for approx. five seconds, displays POWER SAVE for approx. three seconds, and then the picture darkens.

Also confirm that the power LED changes to orange and the power consumption is as follows.

Power consumption	3W or less
-------------------	------------

- (b) Confirm that when SYNC is input again, the high voltage is recovered, and the picture appears in approx. five seconds.

2.5.1.5 Confirming the CORNER-PURITY function

Confirmation timing
Timing No. 12 (106.25kHz / 85Hz, 1600x1200)

Input a (full white display), and press (-)(+) Function Adjust buttons to change the CORNER PURITY (TR/TL/BR/BL). Confirm that the color coordination around the picture changes.

2.5.1.6 Focus, picture performance (Timing No. 12 106.25kHz / 85Hz, 1600 x 1200)

Status indicator	Adjustment item	Adjustment mode/set	Input signal/pattern
	Focus, picture performance		No.12 : 106.25kHz/85Hz, 1600x1200

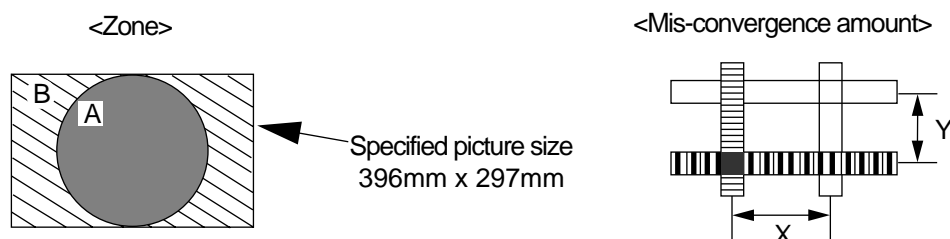
The picture must be evenly bright with the "e" character normal and reverse displays.

2.5.1.7 Misconvergence

After heat running for 20 minutes or more, the mis-convergence amount in the horizontal and vertical directions must be below the following values.

The mis-convergence amount is the value between the two colors of R, G and B separated the most in the horizontal (X) and vertical (Y) directions when a 9 vertical line x 9 horizontal line crosshatch is displayed.

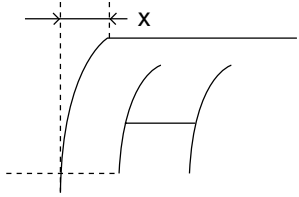
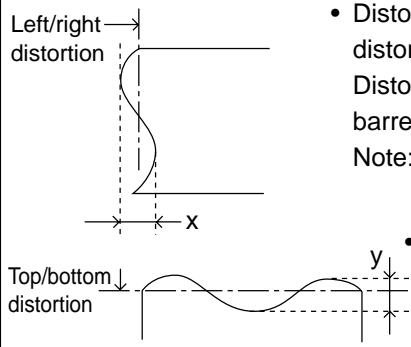
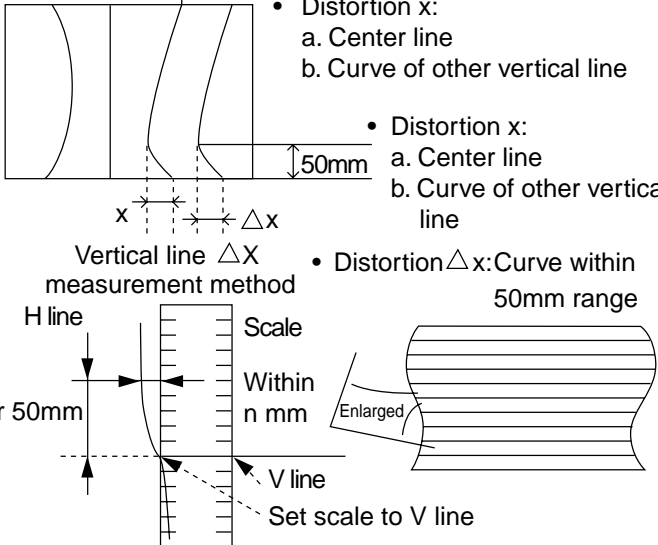
Zone	Mis-convergence amount				
A	0.25mm or less				
B	0.35mm or less				
Measurement timing (Timing No.)	12				

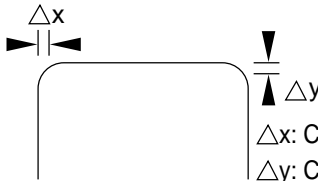
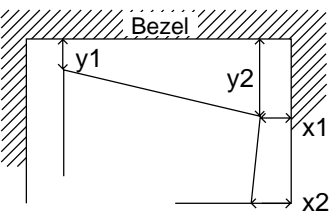
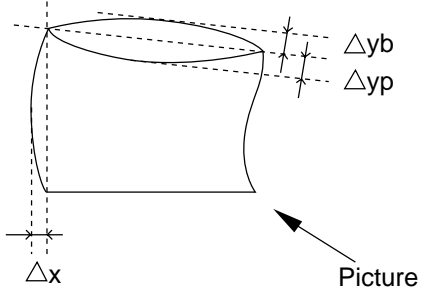
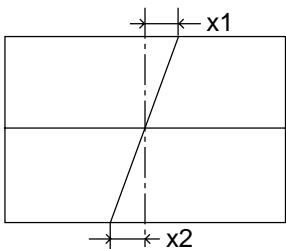
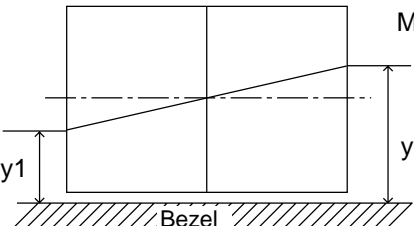


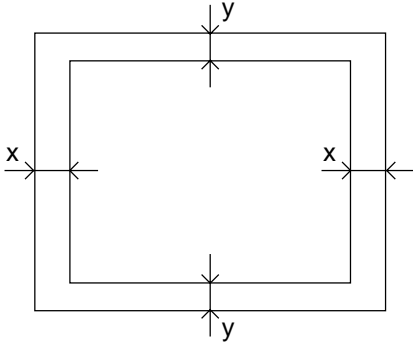
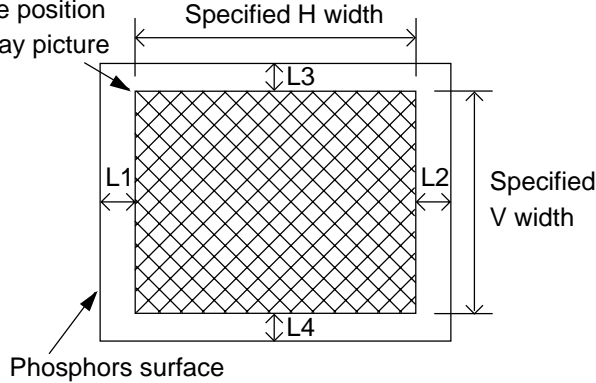
2.5.1.8 Picture distortion

When the picture distortion is measured, each distortion of the preset timing must be less than the following values.

<Picture performance inspection items> Inspect the following items for the picture distortion.

No.	Item	Judgement reference value	Input signal
1.	<p>4-corner section distortion</p> <p>Inspect the distortion at the four corners.</p> <ul style="list-style-type: none"> Signal, H character with frame (both normal/reverse)  <ul style="list-style-type: none"> Distortion x: Distortion in the range of one H character height. Judge with the white display G. (Judge the distortion amount with a fluorescent material stripe.) 	$x \leq 1\text{pitch}$ $(=0.3\text{mm})$	H character with frame (both normal/reverse)
2.	<p>4-edge distortion</p> <p>When S-character or seagull type high frequency distortion is visible, check with the following method.</p>  <ul style="list-style-type: none"> Distortion x of S-character distortion, etc.: Distortion excluding normal pin, barrel or trapezoid. Note: There must be no seagull distortion. Distortion y: High frequency distortion excluding trapezoid. 	$x \leq 0.6\text{mm}$ * Note $y \leq 1.0\text{mm}$	Crosshatch pattern
3.	<p>Inner distortion</p>  <ul style="list-style-type: none"> Distortion x: a. Center line b. Curve of other vertical line Distortion x: a. Center line b. Curve of other vertical line Distortion Δx: Curve within 50mm range 	$a. x \leq 1.0\text{mm}$ $b. x \leq 1.5\text{mm}$ (*) (*) Present No. 0 (31.5kHz, 60Hz) is: $a. x \leq 1.5\text{mm}$ $b. x \leq 2.0\text{mm}$ $\Delta x \leq 0.6\text{mm}$	

No.	Item	Judgement reference value	Input signal
4.	Line curve (crosshatch pattern outer contour)  <p> Δx: Curve within 50mm range (horizontal) Δy: Curve within 50mm range (vertical) </p>	$\Delta x \leq 1.0\text{mm}$ $\Delta y \leq 1.0\text{mm}$	Crosshatch pattern
5.	Horizontal trapezoid (top/bottom), vertical trapezoid (left/right)  <ul style="list-style-type: none"> $\Delta y = y1 - y2$ $\Delta x = x1 - x2$ Control with the above right value for each the top, bottom, left and right. 	$\Delta y \leq 2.0\text{mm}$ $\Delta x \leq 1.8\text{mm}$	
6.	Top/bottom pin and barrel, left/right pin and barrel 	$\Delta yb \leq 1.3\text{mm}$ $\Delta yp \leq 1.5\text{mm}$ $\Delta x \leq 1.0\text{mm}$	
7.	Parallelogram distortion  <p>Measure the larger of x1 and x2.</p>	$x \leq 0.8\text{mm}$	
8.	Inclination  <p>Measure $\Delta y = y1 - y2$.</p>	$\Delta y \leq 2.0\text{mm}$	

No.	Item	Judgement reference value	Input signal
9.	Distortion Must be within the following frame. (Note, excluding ROTATION) 	$y \leq 2.0\text{mm}$ $x \leq 2.0\text{mm}$	Crosshatch pattern
10.	Picture position Display picture  Phosphors surface	$ L1-L2 \leq 5.0\text{mm}$ $ L3-L4 \leq 3.0\text{mm}$	Full white

2.5.1.9 Linearity

Measure the linearity with a 17 horizontal line x 13 vertical line crosshatch.

Horizontal linearity : fH=30-40kHz whole : 15% or less, adjacent : 7% or less

fH=40-60kHz whole : 12% or less, adjacent : 7% or less

fH=60-121kHz whole : 10% or less, adjacent : 7% or less

Vertical linearity : whole : 10% or less, adjacent : 7% or less

Calculation expression : $\frac{(X_{\max} - X_{\min})}{(X_{\max} + X_{\min})/2} \times 100(\%)$

* If any doubts arise about the judgment, judge with the horizontal/vertical width tolerance of $\pm 3\text{mm}$, picture position: $|L1-L2| \leq 3.0\text{mm}$ and $|L3-L4| \leq 3.0\text{mm}$.

2.5.1.10 Adjustment value list

The horizontal width, vertical width and DBF-H amplitude must be within the following ranges.

Timing	Horizontal width (mm)	Vertical width (mm)	DBF-H amplitude (H)		DBF-V amplitude (V)	
No.	Adj. value	Adj. value	Standard Adj. value	Max. Adj. value	Standard Adj. value	Max. Adj. value
1						
2	396 }5	297 }4	370 }10	430	145 }10	190
3						
4						
5						
6	396 }5	297 }4	370 }10	430	145 }10	190
7	396 }5	297 }4	370 }10	430	145 }10	190
8	396 }5	297 }4	370 }10	430	145 }10	190
9	371 }5	297 }4	370 }10	400	145 }10	190
10	371 }5	297 }4	370 }10	400	145 }10	190
11	396 }5	297 }4	370 }10	430	145 }10	190
12	396 }5	297 }4	370 }10	430	145 }10	190
13						
14						
15	396 }5	297 }4	370 }10	430	145 }10	190
16						
17						
18						
19	396 }5	297 }4	370 }10	430	145 }10	190
20						
21						
22						
23						
24						
25						
26						
27						
28						

Standard adjustment value: in case of determining DBF voltage

Maximum adjustment value: the value impossible to set the maximum of DBF voltage

2.5.1.11 Checking the functions during Composite Sync input

Status indicator	Adjustment item	Adjustment mode/set	Input signal/pattern
	Checking the functions during Sync. on Green and Composite Sync input		Check 2 : 35kHz / 66Hz
			Full white

[Composite Sync]

Timing: Check 2 (35kHz/66Hz), full white

In the normal mode, input the above timing to confirm that the operation is normal.

2.5.1.12 Confirming the reset operation

Confirmation timing
Timing No. 12 (106.25kHz / 85Hz, 1600x1200)

Carry out the following confirmation in the NORMAL MODE.

After varying the H-SIZE data somewhat, press (-)(+) Function Adjust buttons simultaneously to confirm that the data returns to the original value.

2.5.1.13 Confirming the full white luminance

Status indicator	Adjustment item	Adjustment mode/set	Input signal/pattern
	Confirming the full white luminance		No.12: 106.25kHz / 85Hz 1600x1200
			Full white

Timing No. 12 (106.25kHz/85Hz, 1600 x 1200), input amplitude = 0.7Vp-p

Confirm that the full white luminance is the following value.

COLOR 1	COLOR 2	COLOR 3
105 or more	92 or more	77or more

2.5.1.14 Confirming CONVERGENCE compensation function

Confirm that CONVERGENCE changes by varying H-CONVERGENCE and V-CONVERGENCE.

2.5.1.15 Confirming ROTATION compensation function

Confirm that the picture rotates by changing ROTATION.

2.5.1.16 Luminance/color coordination uniformity

Status indicator	Adjustment item	Adjustment mode/set	Input signal/pattern
	Lluminance/color coordination uniformity		No.12: 106.25kHz / 85Hz 1600x1200

The luminance ratio between the center and periphery must be 80% or more with timing No. 12 (106.25kHz/85Hz, 1600 x 1200) COLOR 1.

The color coordination difference between the center and periphery must be $\Delta x, y < \pm 0.012$ at COLOR 1/2/3.

2.5.1.17 Confirming the full white color coordination

Confirm that the color coordination at the center of the full white is within the following range at the drive signal adjustment timing.

Confirmation item		COLOR 1	COLOR 2	COLOR 3
Color coordination	x	0.283 ± 0.007	0.313 ± 0.007	0.345 ± 0.007
	y	0.297 ± 0.007	0.329 ± 0.007	0.359 ± 0.007

2.5.1.18 Confirming the color tracking

Status indicator	Adjustment item	Adjustment mode/set	Input signal/pattern
	Confirming color tracking		No.12 : 106.25kHz/85Hz
			Full White

Confirm with the timing No. 12 (106.25kHz/85Hz, 1600 x 1200).

Measure the color coordination at the center of the picture using a full white pattern (input amplitude = 0.7Vp-p).

Confirm that the color coordination change is within the ± 0.015 range when the CONTRAST is set to 25cd/m² with the OSD.

2.5.1.19 CRT installation position

CRT installation position tolerance Within ± 3 mm in vertical direction Within ± 2.5 mm in horizontal direction
Inclination: Within ± 2.5 mm at bezel reference

2.5.1.20 Confirming FPM operation

Confirm with the timing No. 12 (106.25kHz/85Hz, 1600 x 1200) and COLOR 1.

Confirm that the relation of the window luminance with the back raster luminance in each mode is as follows.

	Normal	Text	Graphic
Window luminance	Standard	Low	Standard
Back raster luminance	Standard	Low	Low

* Confirm that the color is not saturated when Graphic mode.

2.5.1.21 Others

- (1) When any button is pressed, the changes must be smooth, and there must be no abnormalities such as noise.
- (2) Synchronization must not flow when the power switch is turned ON and OFF.
- (3) Confirm that the POWER LED is lit.

2.6 DDC write data contents

The contents of DDC write data must be as follows.

-- EDID DATA DUMP TEXT --
Mnuf Code: MEL
Product Code LSB (HEX): 80
Product Code MSB (HEX): 44
(Microsoft INF ID: MEL4480)
Serial Number (HEX): **
Week of Manuf: WW
Year of Manuf: YY

EDID Version: 1
EDID Revision: 2
Extension Flag: 0

Video:
Input Singal: ANALOG
Setup: NO
Sync on Green: NO
Composite Sync: YES
Separate Sync: YES
V Sync Serration: NO
V Signal Level: 0.700V/0.300V (1V p-p)

Max Image Size H: 40cm
Max Image Size V: 30cm
DPMS Stand By: YES
DPMS Suspend: YES
DPMS Active Off: YES
GTF Support: YES
Standard Default Color Space: NO
Preferred Timing Mode: NO
Display Type: RGB Color

Color:
Gamma: 2.20
Red x: 0.625
Red y: 0.340
Green x: 0.290
Green y: 0.605
Blue x: 0.150
Blue y: 0.070
White x: 0.283
White y: 0.297

Established Timings:
720x400 @70 Hz
720x400 @88 Hz
640x480 @60 Hz
640x480 @67 Hz
640x480 @72 Hz
640x480 @75 Hz
800x600 @56 Hz
800x600 @60 Hz
800x600 @72 Hz
800x600 @75 Hz
832x624 @75 Hz
1024x768 @87 Hz (I)
1024x768 @60 Hz
1024x768 @70 Hz
1024x768 @75 Hz
1152x870 @75 Hz
1280x1024 @75 Hz

Standard Timing #1:
Horizontal Active Pixels: 800
Aspect Ratio: 4:3
(600 active lines)
Refresh Rate: 85Hz

Standard Timing #2:
Horizontal Active Pixels: 1024
Aspect Ratio: 4:3
(768 active lines)
Refresh Rate: 85Hz

Standard Timing #3:
Horizontal Active Pixels: 1152
Aspect Ratio: 4:3
(864 active lines)
Refresh Rate: 75Hz

Standard Timing #4:
Horizontal Active Pixels: 1280
Aspect Ratio: 5:4
(1024 active lines)
Refresh Rate: 85Hz

Standard Timing #5:
Horizontal Active Pixels: 1600
Aspect Ratio: 4:3
(1200 active lines)
Refresh Rate: 75Hz

Standard Timing #6:
Horizontal Active Pixels: 1792
Aspect Ratio: 4:3
(1344 active lines)
Refresh Rate: 75Hz

Standard Timing #7:
Horizontal Active Pixels: 1800
Aspect Ratio: 5:4
(1440 active lines)
Refresh Rate: 70Hz

Standard Timing #8:
Horizontal Active Pixels: 1920
Aspect Ratio: 4:3
(1440 active lines)
Refresh Rate: 73Hz

Detailed Timing (block #1):
Pixel Clock: 229.50 MHz
Horizontal Active: 1600 pixels
Horizontal Blanking: 560 pixels
Vertical Active: 1200 lines
Vertical Blanking: 50 lines
(Horizontal Frequency: 106.25 kHz)
(Vertical Frequency: 85.0 Hz)
Horizontal Sync Offset: 64 pixels
Horizontal Sync Width: 192 pixels
Vertical Sync Offset: 1 lines
Vertical Sync Width: 3 lines
Horizontal Border: 0 pixels
Vertical Border: 0 pixels
Horizontal Image Size: 396 mm
Vertical Image Size: 297 mm
Interlaced: NO
Image: Normal Display
Sync: Digital Separate
Bit 1: ON
Bit 2: ON

Monitor Range Limits (block #2):
Minimum Vertical Rate: 50 Hz
Maximum Vertical Rate: 160 Hz
Minimum Horizontal Rate: 30 kHz
Maximum Horizontal Rate: 110 kHz
Maximum Pixel Clock: 330 MHz
GTF Data: 00 0a 20 20 20 20 20 20

Monitor Name (block #3): NSV1107K

Monitor Serial Number (block #4): ##

EDID EDITOR V1.40 (000621)
(C) Mitsubishi Electric 1995-2000

EDID DATA DUMP HEX
00 ff ff ff ff ff ff 00
34 ac 80 44 ** ** ** **
WW YY 01 02 0c 28 1e 78
e9 04 88 a0 57 4a 9b 26
12 48 4c ff ff 80 45 59
61 59 71 4f 81 99 a9 4f
c1 4f c2 8a d1 4d a6 59
40 30 62 b0 32 40 40 c0
13 00 8c 29 11 00 00 1e
00 00 00 fd 00 32 a0 1e
6e 21 00 0a 20 20 20 20
20 20 00 00 00 fc 00 4e
53 56 31 31 30 37 4b 1a
20 20 20 20 00 00 00 ff
00 ## ## ## ## ## ## ##
0a 20 20 20 00 SS

2.7 Self-diagnosis shipment setting

The shipment settings for self-diagnosis data area (region) are given below.

ADR	Shipment Setting (H)	LABEL NAME
0x0CB	0x00	Lower byte of operating time (excluding POWER SAVE)
0x0CC	0x00	Upper byte of operating time (excluding POWER SAVE)
0x0CD	0x00	Lower byte of operating time
0x0CE	0x00	Upper byte of operating time
0x761	0x00	Upper 4 bit: High voltage error rate at User mode, Lower 4 bit: Short-circuit rate at User mode
0x762	0x00	Upper 4 bit: I2C bus error rate at User mode, Lower 4 bit: Beam error rate at User mode
0x763	0x00	Upper 4 bit: Heater error rate at User mode, Lower 4 bit: EEPROM error rate at User mode
0x764	0x00	Upper 4 bit: High voltage error rate at Factory mode, Lower 4 bit: Short circuit rate at Factory mode
0x765	0x00	Upper 4 bit: I2C bus error rate at Factory mode, Lower 4 bit: Beam error rate at Factory mode
0x766	0x00	Upper 4 bit: Heater error rate at Factory mode, Lower 4 bit: EEPROM error rate at Factory mode

2.8 Default inspection

2.8.1 Default setting of switches

Confirm that the following switch is set as follows.

- (1) Power switch: OFF

2.8.2 Default setting of OSD

Confirm that each OSD setting is as shown in the OSD display (section 2.3.2) table (user mode/factory mode).

If the setting class is an item for each timing, carry out for each adjustment timing.

- * CENTER is the factory adjustment value called when (-) (+) Function Adjust buttons are pressed simultaneously in the normal mode.

Only CONTRAST will be set to MAX when (-) (+) Function Adjust buttons are pressed simultaneously in the normal mode.

2.8.3 Default setting of Fine Picture Mode

Confirm that the setting is as follows.

- (1) Fine Picture Mode : Normal

2.8.4 Checking the labels

Confirm that the "SERVICEMAN WARNING", "rating label", "manufacturing date stamp", "SERIAL NO. label", and "set sub-No.", etc., are attached to the specified position, and have been checked.

2.8.5 Packaging

- (1) There must be no remarkable contamination, tearing or scratches, etc.
- (2) The model name must be accurately displayed.
- (3) The SERIAL NO. must be attached. (Must be the same No. as the set.)
- (4) The package must be accurately sealed.

2.9 Degaussing with handy-demagnetizer

2.9.1 General precautions

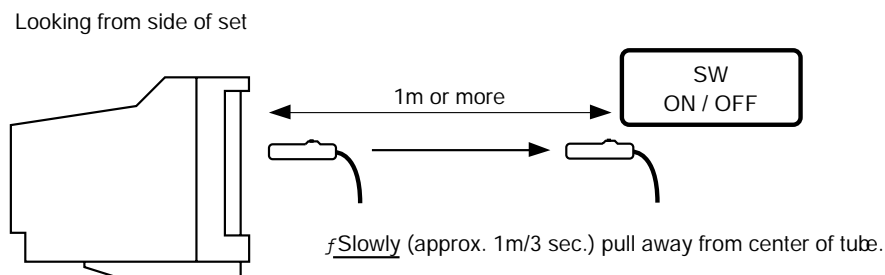
- (1) Carry this procedure out with the monitor power ON.
- (2) When degaussing with handy-demagnetizer, the demagnetizer power must be turned ON and OFF at a position at least 1m away from CRT tube.
- (3) Use a bar type demagnetizer instead of a ring type.
Carefully and slowly (1m/3 sec.) demagnetize the CRT tube and bezel side surface.
When separating the degaussing coil at the end, separate as slow as possible with the following procedure.
If separated quickly, stripes could remain at the picture corners.

2.9.2 How to hold and use the handy-demagnetizer

- (1) Approach the demagnetizer as carefully and slowly (approx. 1m/3 sec.) as possible, and move around the bezel side periphery two to three times.
- (2) Next, gradually (approx. 1m/3 sec.) move to the CRT tube side, and move around the CRT tube four to five times with the following procedure.
- (3) Finally, leave the CRT tube as slowly (approx. 1m/3 sec.) as possible, and turn the handy-demagnetizer unit switch OFF at a position 1 to 1.5m away.

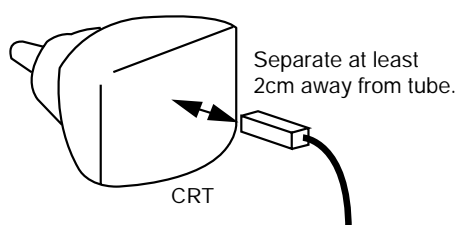
(NOTE): The monitor should be degaussed as whichever following conditions.

- (1) Degauss by handy demagnetizer in off condition.
- (2) Degauss by handy demagnetizer in power management condition.
- (3) Degauss by handy demagnetizer with monitor set degauss operation.

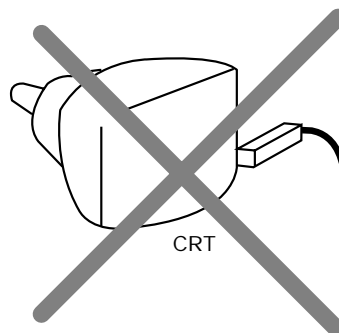


<Holding the hand degaussing unit>

Face the hand degaussing unit so that the longitudinal direction is vertical in respect to the CRT.



Do not hold the hand degaussing unit so that the longitudinal direction is parallel in respect to the CRT.

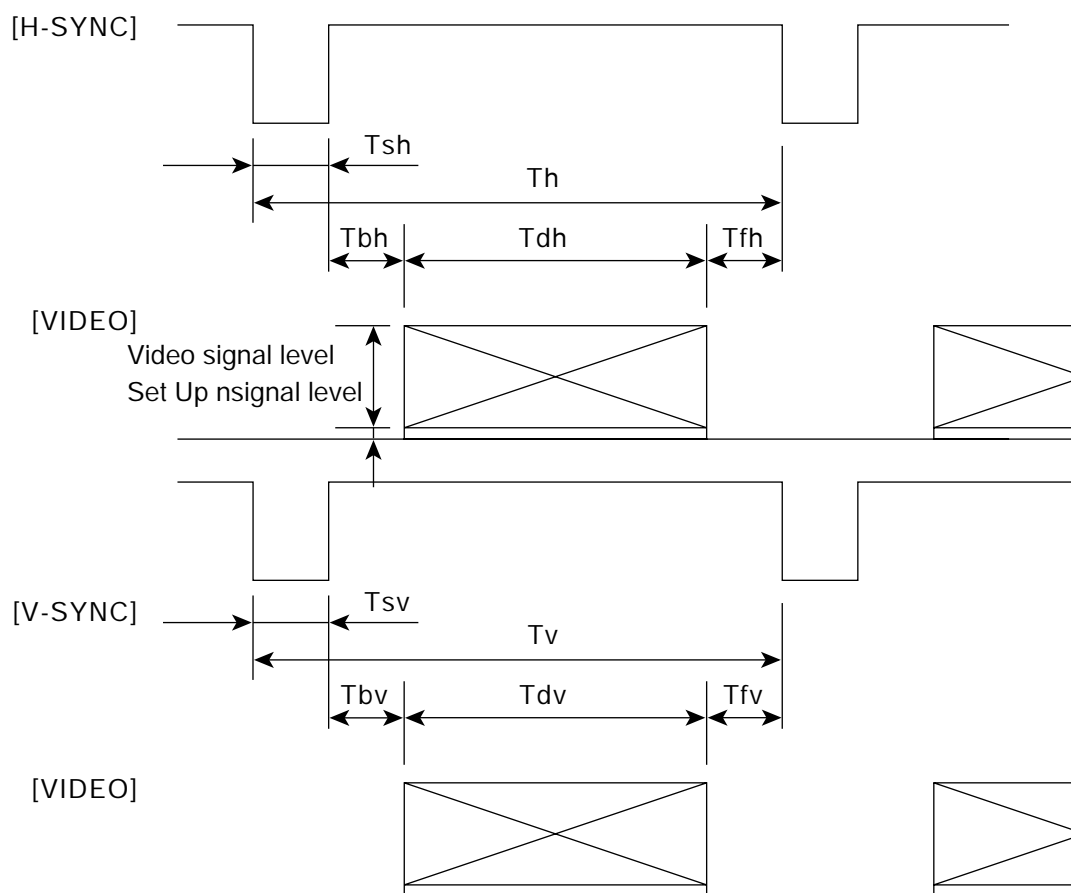


2.10 Caution

Do not input the user timing before factory adjustments.

(The automatic tracking of the FOCUS could be adversely affected.)

2.11 Timing chart



*f*Refer to after the next page for the preset timing details.

2.12 Adjustment timing

[illegible]

NO	Fh (kHz)	Clock (MHz)	Th (SEC) (dot)	Tsh (SEC) (dot)	Tfh (SEC) (dot)	Tbh (SEC) (dot)	Tdh (SEC) (dot)	Utili- zation	H re- trace s+t+b	Fv (Hz)	Tv (mSEC) (line)	Tsv (mSEC) (line)	Tthv (mSEC) (line)	Tbv (mSEC) (line)	Tdv (mSEC) (line)	V re- trace	Hs Vs	VIDEO level (V)	set up level (V)	Serra- tion (V)	Group		Remarks
1	31.469	25.175	31.778 (800)	3.813 (96)	0.636 (16)	1.907 (48)	25.422 (640)	80.00	6.356	70.090	14.268 (449)	0.064 (2)	0.382 (12)	1.111 (35)	12.711 (400)	1.175	-	+	0.7				(640*400)70Hz
2	31.469	25.175	31.778 (800)	3.813 (96)	0.636 (16)	1.907 (48)	25.422 (640)	80.00	6.356	59.940	16.683 (525)	0.064 (2)	0.318 (10)	1.048 (33)	15.253 (480)	1.112	-	-	0.7	-	-	O1	VGA(640*480)60Hz
3	37.500	31.500	26.667 (840)	2.032 (64)	0.508 (16)	3.810 (120)	20.317 (640)	76.19	6.350	75.000	13.333 (500)	0.080 (3)	0.027 (1)	0.427 (16)	12.800 (480)	0.506	-	-	0.7	-	-		VESA(640*480)75Hz
4	43.269	36.000	23.111 (832)	1.556 (56)	1.556 (56)	2.222 (80)	17.778 (640)	76.92	5.334	85.008	11.764 (509)	0.069 (3)	0.023 (1)	0.578 (25)	11.093 (480)	0.647	-	-	0.7	-	-		VESA(640*480)85Hz
5	46.875	49.500	21.333 (1056)	1.616 (80)	0.323 (16)	3.232 (160)	16.162 (800)	75.76	5.171	75.000	13.333 (625)	0.064 (3)	0.021 (1)	0.448 (21)	12.800 (600)	0.512	+	+	0.7	-	-		VESA(800*600)75Hz
6	53.674	56.250	18.631 (1048)	1.138 (64)	0.569 (32)	2.702 (152)	14.222 (800)	76.34	4.409	85.061	11.756 (631)	0.056 (3)	0.019 (1)	0.503 (27)	11.179 (600)	0.559	+	+	0.7	-	-	O2	VESA(800*600)85Hz
7	60.023	78.750	16.660 (1312)	1.219 (96)	0.203 (16)	2.235 (176)	13.003 (1024)	78.05	3.657	75.029	13.328 (800)	0.050 (3)	0.017 (1)	0.466 (28)	12.795 (768)	0.516	+	+	0.7	-	-	O3	VESA(1024*768)75Hz
8	68.677	94.500	14.561 (1376)	1.016 (96)	0.508 (48)	2.201 (208)	10.836 (1024)	74.42	3.725	84.997	11.765 (808)	0.044 (3)	0.015 (1)	0.524 (36)	11.183 (768)	0.568	+	+	0.7	-	-	O4	VESA(1024*768)85Hz
9	79.976	135.000	12.504 (1688)	1.067 (144)	0.119 (16)	1.837 (248)	9.481 (1280)	75.82	3.023	75.025	13.329 (1066)	0.038 (3)	0.013 (1)	0.475 (38)	12.804 (1024)	0.513	+	+	0.7	-	-	O5	VESA(1280*1024)75Hz
10	91.146	157.500	10.971 (1728)	1.016 (160)	0.406 (64)	1.422 (224)	8.127 (1280)	74.08	2.844	85.027	11.761 (1072)	0.033 (3)	0.011 (1)	0.483 (44)	11.235 (1024)	0.516	+	+	0.7	-	-	O6	VESA(1280*1024)85Hz
11	93.750	202.500	10.667 (2160)	0.948 (192)	0.316 (64)	1.501 (304)	7.901 (1600)	74.07	2.765	75.000	13.333 (1250)	0.032 (3)	0.011 (1)	0.491 (46)	12.800 (1200)	0.523	+	+	0.7	-	-	O7	VESA(1600*1200)75Hz
12	106.250	229.500	9.412 (2160)	0.837 (192)	0.279 (64)	1.325 (304)	6.972 (1600)	74.08	2.441	85.000	11.765 (1250)	0.028 (3)	0.009 (1)	0.433 (46)	11.294 (1200)	0.461	+	+	0.7	-	-	O8	VESA(1600*1200)85Hz
13	106.270	261.000	9.41 (2456)	0.828 (216)	0.368 (96)	1.349 (352)	6.866 (1792)	72.96	2.545	74.997	13.334 (1417)	0.028 (3)	0.009 (1)	0.649 (69)	12.647 (1344)	0.677	-	+	0.7	-	-		VESA(1792*1344)75Hz
14	112.500	288.000	8.889 (2560)	0.778 (224)	0.444 (128)	1.222 (352)	6.444 (1856)	72.49	2.444	75.000	13.333 (1500)	0.027 (3)	0.009 (1)	0.924 (104)	12.373 (1392)	0.951	-	+	0.7	-	-		VESA(1856*1392)75Hz
15	112.500	297.000	8.889 (2640)	0.754 (224)	0.485 (144)	1.185 (352)	6.465 (1920)	72.73	2.424	75.000	13.333 (1500)	0.027 (3)	0.009 (1)	0.498 (56)	12.800 (1440)	0.525	-	+	0.7	-	-		VESA(1920*1440)75Hz
16	35.00	30.240	28.571 (864)	2.116 (64)	3.175 (64)	3.175 (96)	21.164 (1600)	74.08	7.407	66.67	15.000 (525)	0.086 (3)	0.086 (3)	1.114 (39)	13.714 (480)	1.2	-	-	0.7	-	-		APPLE13(640*480)
17	49.710	57.270	20.115 (1152)	1.118 (64)	0.559 (32)	3.910 (224)	14.528 (832)	72.22	5.587	74.530	13.417 (667)	0.060 (3)	0.020 (1)	0.785 (39)	12.552 (624)	0.845	-	-	0.7	-	-		APPLE16(832*624)
18	60.240	80.000	16.600 (1328)	1.200 (96)	0.400 (32)	2.200 (176)	12.800 (1024)	77.11	3.800	74.930	13.346 (804)	0.050 (3)	0.049 (3)	0.498 (30)	12.749 (768)	0.548	-	-	0.7	-	-		APPLE19(1024*768)
19	68.680	100.000	14.560 (1456)	1.280 (128)	0.320 (32)	1.440 (144)	11.520 (1152)	79.12	3.040	75.060	13.322 (915)	0.044 (3)	0.043 (3)	0.568 (39)	12.667 (870)	0.612	-	-	0.7	-	-	O9	APPLE21(1152*870)
20	100.200	219.638	9.980 (2192)	0.801 (176)	0.546 (120)	1.348 (296)	7.285 (1600)	73.00	2.695	75.000	13.333 (1336)	0.03 (3)	0.01 (1)	0.519 (52)	12.774 (1280)	0.549	-	-	0.7	-	-		GTF(1600*1280)75Hz
21	107.200	234.982	9.328 (2192)	0.749 (176)	0.511 (120)	1.260 (296)	6.809 (1600)	73.00	2.520	80.000	12.5 (1340)	0.028 (3)	0.009 (1)	0.522 (56)	11.94 (1280)	0.55	-	-	0.7	-	-		GTF(1600*1280)80Hz
22	114.240	252.242	8.754 (2208)	0.698 (176)	0.507 (128)	1.205 (304)	6.343 (1600)	72.46	2.410	85.000	11.765 (1344)	0.026 (3)	0.009 (1)	0.525 (60)	11.204 (1280)	0.551	-	-	0.7	-	-		GTF(1600*1280)85Hz
23	105.675	261.229	9.463 (2472)	0.766 (200)	0.521 (136)	1.286 (336)	6.891 (1800)	72.82	2.573	75.000	13.333 (1409)	0.028 (3)	0.009 (1)	0.52 (55)	12.775 (1350)	0.548	-	-	0.7	-	-		GTF(1800*1350)75Hz
24	113.040	279.435	8.846 (2472)	0.716 (200)	0.487 (136)	1.202 (336)	6.442 (1800)	72.82	2.405	80.000	12.5 (1413)	0.027 (3)	0.009 (1)	0.522 (59)	11.943 (1350)	0.549	-	-	0.7	-	-		GTF(1800*1350)80Hz
25	120.445	299.667	8.303 (2488)	0.667 (200)	0.481 (144)	1.148 (344)	6.007 (1800)	72.35	2.296	85.000	11.765 (1417)	0.025 (3)	0.008 (1)	0.519 (63)	11.208 (1350)	0.548	-	-	0.7	-	-		GTF(1800*1350)85Hz
26	112.725	278.656	8.871 (2472)	0.718 (200)	0.488 (136)	1.206 (336)	6.460 (1800)	72.82	2.412	75.000	13.333 (1503)	0.027 (3)	0.009 (1)	0.523 (59)	12.774 (1440)	0.55	-	-	0.7	-	-		GTF(1800*1440)75Hz
27	120.560	299.953	8.295 (2488)	0.667 (200)	0.480 (144)	1.147 (344)	6.001 (1800)	72.34	2.294	80.000	12.5 (1507)	0.025 (3)	0.008 (1)	0.523 (63)	11.944 (1440)	0.548	-	-	0.7	-	-		GTF(1800*1440)80Hz
28	80.530	105.656	12.418 (1312)	1.060 (112)	0.303 (32)	1.363 (144)	9.692 (1024)	78.05	2.726	100.000	10.0 (805)	0.037 (3)	0.012 (1)	0.410 (33)	9.537 (768)	0.463	-	-	0.7	-	-		ELSA(1024*768)100Hz

Mark O: Factory adjustment

Mark □: Factory adjustment [Though they are presents, it does not apply to the specification of the picture distortion. The sync. signals are reference to the above. (It is possible to reset with the above timings.)]

Mark ▲: Initial data [So long as initial data, the sync. signals are reference to Hs: + and Vs: -. However, it is necessary to adjust only the H-SIZE, H-PHASE, DBF-H-AMP, DBF-H-PHASE in factory mode.

The numbers after the marks are the number of preset.

TECHNICAL SPECIFICATION

FOR

55cm/51cmV (22"/20"V) HIGH RESOLUTION
DIGITAL CONTROL AUTO-TRACKING
COLOR DISPLAY MONITOR

MODEL NAME: Diamond Plus 220
(NSV1107STTKW)

DATE : Jan 26, 2001

Drawn by H.Otsuka

Checked by M.Kanno

NEC-MITSUBISHI ELECTRIC VISUAL SYSTEMS CORPORATION

REVISE	

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• **Design and specifications are subject to change without any notice**

1. Foreword

1.1 General Description(Quick Reference)

NO.	TYPE			NM VISUAL STANDARD	REMARKS
1	CRT	Size		55cm / 51cmV (22" / 20"V)	Diamondtron NF
		Grill Spacing(Phosphor Spacing)		0.24mm (0.25mm)	Aperture Grille
		Phosphor Type		B22 (EBU)	
		Face-plate		G-WARAS	
		Electron Gun Type		S-NX-DBF	
		Face-plate Transmission		38.4 %(Including face-plate coating)	
2	SCANNING	Horizontal Freq.		30k - 110kHz	
		Vertical Freq.		50 - 160Hz	
3	SIGNAL INPUT	Video Sync.		Analog	0.7Vp-p
				Composite Sync.	TTL Nega
				Separate Sync.	TTL Posi / Nega
		Termination (Impedance)	Video	75 Ω to Ground	
			Sync.	2.2k Ω to Ground	
4	VIDEO	clock frequency		180MHz	
5	SCREEN CHARACTERISTICS	Display Resolution		1920 x 1440(Maximum Resolution) 1600 x 1200(Recommended Resolution)	addressable
		Display size	Horizontal	396mm	
			Vertical	297mm	
		Misconvergence		Center : 0.25 mm , Corner : 0.35 mm	
		Brightness (Full White)		100cd/m ² at 9300K	
6	CONTROL (User Controls)	Front	OSD	Power SW, FPM / OSD off Button, Select Button(up/down/left/right) , Adjust Button (+/-)	
				Contrast, Bright, Color,Color Temperature1/2/3, Reset, Horiz-Size,Horiz-Phase, Vert-Size, Vert-Position,Rotation,Zoom,GTF Auto Adjust, Pincushion, Pin-Balance,Keystone,Key-Balance, Top-Pin, Top-balance, Bottom-Pin, Bottom-balance, Vert-Lin,Vert-Lin-Balance, CornerPurity(TL/TR/BL/BR), Left/Right Purity, Moire Cancel Level,Clamp Pulse Position, Horiz-Convergence, Vert-Convergence, Degauss, Power Save,Control Lock,OSD Position, OSD TurnOff ,Diagnosis, Language, Auto Save, All Reset	Micro-processor control. Color adjustment. (4 color preset)
7	CONNECTOR	Power Input		3P IEC Plug	Auto-select
		Signal Input		DB9 - 15P	
8	POWER SUPPLY	Operating range		AC100 - 120V / 220 - 240V , 50 / 60 Hz	
		Power consumption (typ.)		130 W 1.30A@100-120VAC 0.60A@220-240VAC Power Save:<=3W	
9	ENVIRONMENTAL CONDITION	Operating temperature		5 - 35°C	
		Relative humidity		10 - 90% (without condensation)	
10	WEIGHT			approx. 29.7kg (65.5lbs)	
11	CABINET	with Tilt / Swivel stand		NM Visual standard	
12	REGULATION	Safety		UL / C-UL TÜV (GS)	
		EMC		FCC-B CE-Marking EN60950 EN55022 - B DOC-B EN55024 EN61000 - 3 - 2, - 3 - 3	
		X - Ray		DHHS RøV HWC	
		VLF / ELF		MPR - II , TCO91	
		Power Management		International Energy Star Program , Energy2000	
		Ergonomics		TCO99 , TÜV (GS) , TÜV-Ergo	
13	OTHERS	Plug & Play		DDC2B , 2Bi	
		Digital Dynamic Convergence			
		Communication			

1.2 Geographical Region and Regulations

MODEL NAME	REGULATIONS						
	SAFETY	EMC	X-RAY	ELF/VLF	Power Management	Ergonomics	Miscellaneous
Diamond Plus 220 (NSV1107STTKW)	UL C-UL TÜV-GS	FCC-B DOC-B EN55022-B EN55024 EN61000-3-2 EN61000-3-3 VCCI - B JPHG	DHHS HWC RöV	MPR-II TCO'91	Energy Star Energy2000	TÜV-GS TÜV-Ergo	TCO'99 CE Marking

UL	: UL1950 3rd Edition
C-UL	: CAN/CSA-C22.2 NO.950:1995
TÜV-GS	: EN60950 : 1992 & AD1/AD2/AD3/AD4/AD11 & ISO9241-3,-7and-8
FCC	: 47 CFR Part15 Subpart B, Class B
DOC	: Interference-Causing Equipment Standard ICES-003 Issue 3, Class B
DHHS	: 21CFR Chapter I Subchapter J
HWC	: Radiation Emitting Devices Regulations Chapter 1370
RÖV	: RÖV Vom 8.1. 1987
MPR-II	: MPR 1990:8
TCO'99	: Requirements for environmental labeling of personal computers (First Edition)
CE-Marking	: EN60950:1992 & AD1/AD2/AD3/AD4/AD11 EN55022:1998 Class B EN55024:1998 EN61000-3-2 : 1995 & AD1/AD2 EN61000-3-3 : 1995
Energy Star	: International Energy Star office Equipment Program
VCCI	: Guide to membership of Voluntary Control Council for Interference by data Processing Equipment and Electronic Office Machines , Class B .
JPHG (Japan Power Harmonics Guidelines)	: Guidelines for the suppression of Harmonics in Appliances and General - Use Equipment
Energy2000	: Award Criteria for the Energy Label : 1999
TÜV-Ergo	: EN 50279 2 PfG1041/11.99 ISO 9241-3:1992 ISO 9241-7:1998 ISO 9241-8:1997

2. CRT Specifications

CRT model no.	M51LRY32X61
Type	Diamondtron NF (Aperture Grille)
Size	55cm / 51cm Diagonal View able Image (22" /20" Diagonal View able Image)
Grille Spacing	0.24mm
Phosphor Spacing	0.25mm
Deflection Angle	90 degree
Phosphor Type	B22 (Medium short persistence)
Electron Gun Type	S-NX-DBF
Face-plate Transmission	Approx. 38.4% (Include Face-plate coating)
Face-plate	G-WARAS Coating (Anti-reflection, Anti-glare and Anti-static)
Screen Phosphor Area	406.1 x 304.6 mm
Face-plate Curvature	H: R= 50000 mm , V: R= 80000 mm
Phosphor Color Coordinate	R: X=0.627 , Y=0.341 G: X=0.292 , Y=0.605 B: X=0.149 , Y=0.072 (Typical)

3. Electric Specifications

3.1 Deflections

Horizontal	Scanning Frequency	30 - 110kHz
	Back Porch	$\geq 1.1 \mu\text{sec}$
	Blanking	$\geq 2.3 \mu\text{sec}$
	H-sync Width	$\geq 0.6 \mu\text{sec}$
Vertical	Scanning frequency	50 - 160Hz
	V-sync + V-back Porch	$\geq 450 \mu\text{sec}$
	V-sync Width	$3H \leq V_s \leq 10H$ ---over 50kHz (fh) $2H \leq V_s \leq 10H$ ---up to 50kHz (fh)
	V-Total Line	$\geq 256H + \text{V-sync Width}$

(*) Full screen adjustment may not be available for the timing which

Tdh / Th < 72% - Over 100kHz (fh)

Tdh / Th < 74% - Up to 100kHz (fh)

Tdh : Horizontal Display Time

Th : Horizontal Scanning Time

3.2 Signal Input

Video Input Signal	R.G.B analog
Sync. Input Signal	External composite sync. , Negative TTL External HD/VD separate sync. TTL (N or P)
Video Input Impedance	75Ω to ground
Sync. Input Impedance	2.2kΩ to ground
Signal Level	Video signal : 0.7V p-p + 10% / - 5% Separate H/V-sync. : TTL level (>2.5V)

3.3 Video Performance

Video Clock Frequency	180MHz
Pulse Rise and Fall time	5.5nsec(typ.) 10 to 90% at 35Vp-p

- The rise and fall time of the input video signal is 2.0nsec or less.
- The pulse rise or fall time is determined using the formula :

$$T_a = \sqrt{T_m^2 - (T_s^2 + T_p^2 + T_{sc}^2)}$$

Where : T_a = Amplifier rise / fall time

T_m = Measured rise / fall time

T_s = Input signal rise / fall time

T_p = Probe effect on rise / fall time = $2.2 \times R_I \times C_p$

R_I = Amplifier output resistance (ohm)

C_p = Total probe capacitance (F)

T_{sc} = Scope rise / fall time = $0.35 / \text{Scope bandwidth (MHz)}$

3.4 Power Supply

Input Voltage	100 - 120 / 220 - 240 VAC \pm 10%
Frequency	50/60Hz \pm 3Hz
Power Consumption (typ.)	130W 1.30A@100-120VAC 0.60A@220-240VAC
AC leakage current	\leq 3.5mA
Inrush current	\leq 70A 0-peak at 240VAC on cold starting

3.5 Power Saving

	H-sync	V-sync	Video	Power Consumption	Recovery Time	LED Indicator
Power Saving OFF	On	On	Active	130W	-	Green
Power Saving ON	Off	On	Blank	\leq 3W	5 sec	Orange
	On	Off	Blank			
	Off	Off	Blank			

3.6 Degaussing

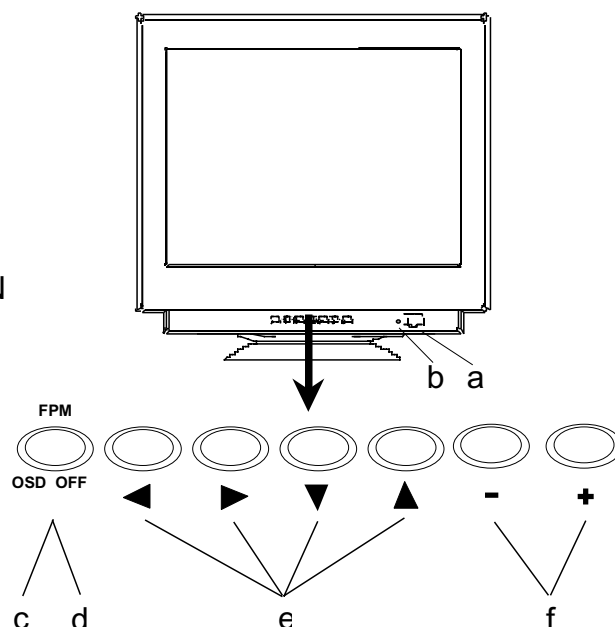
Auto Degaussing	The monitor have an automatic degaussing function which activates when the unit is turned on.
Manual Degaussing	This activates degaussing at the user's discretion after the unit is operating.

- The Monitor requires minimum 15 minutes after last degauss operation for full degauss capability.

4.Functions

4.1 Front Controls

- a : POWER SWITCH
- b : POWER-ON INDICATOR
- c : OSD OFF BUTTON
- d : FINE PICTURE MODE SELECT BUTTON
- e : ITEM SELECT BUTTONS
- f : FUNCTION ADJUST BUTTONS



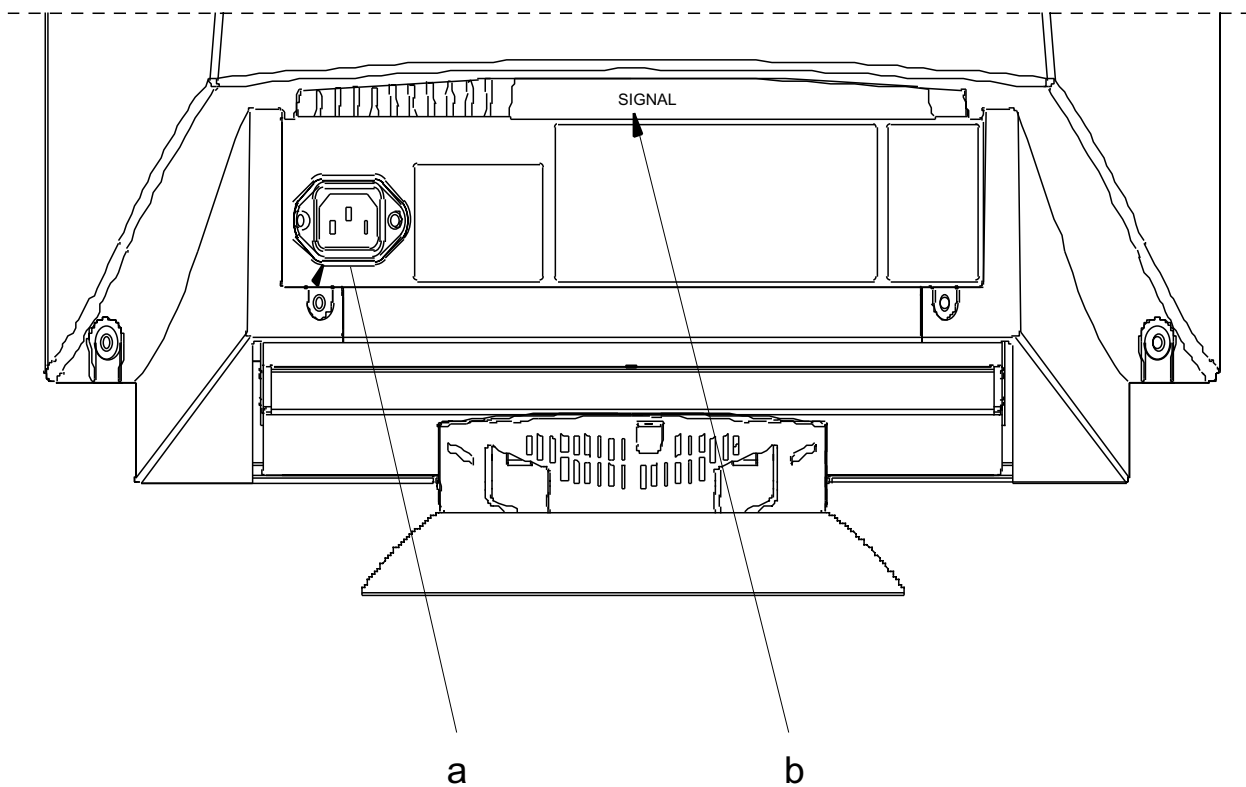
4.2 OSD(On Screen Display) Function

OSD1 Group			default	OSD4 Group			default
CONTRAST	0 - 100%		100%	CORNER PURITY(TL)	0 - 100%		adjusted
BRIGHT	0 - 100%		50%	CORNER PURITY(TR)	0 - 100%		adjusted
COLOR	1 (9300K)	1 (9300K)		CORNER PURITY(BL)	0 - 100%		adjusted
	2 (6500K)			CORNER PURITY(BR)	0 - 100%		adjusted
	3 (5000K)			LEFT / RIGHT PURITY	0 - 100%		50%
	sRGB			MOIRE CANCEL LEVEL	0 - 100%		0%
R-GAIN	0 - 100%		adjusted	CLAMP PULSE POSITION	Front / Back		Back
G-GAIN	0 - 100%		adjusted	RESET	PROCEED		-
B-GAIN	0 - 100%		adjusted				
COLOR TEMPERATURE	5000 - 9300K		9300K				
RESET	PROCEED		-				
OSD2 Group			default	OSD5 Group			default
HORIZ-SIZE	0 - 100%		adjusted	HORIZ-CONVERGENCE	0 - 100%		adjusted
HORIZ-PHASE	0 - 100%		adjusted	VERT-CONVERGENCE	0 - 100%		adjusted
VERT-SIZE	0 - 100%		adjusted	RESET	PROCEED		-
VERT-POSITION	0 - 100%		50%				
ROTATION	0 - 100%		adjusted	OSD6 Group			default
ZOOM	0 - 100%		adjusted	DEGAUSS	PROCEED		-
GTF AUTO ADJUST	0 - 100%		adjusted	POWER-SAVE	OFF/ON		ON
RESET	PROCEED		-	CONTROL LOCK	OFF/ON		Off
				OSD POSITION	<-- -->		Center
OSD3 Group			default	OSD TURN OFF	5SEC - 120SEC		45SEC
PINCUSHION	0 - 100%		adjusted	DIAGNOSIS	Preset Information		
PIN-BALANCE	0 - 100%		adjusted		Horizontal Frequency		
KEystone	0 - 100%		adjusted		Vertical Frequency		
KEY-BALANCE	0 - 100%		adjusted		Video Information		
TOP-PIN	0 - 100%		adjusted	LANGUAGE	ENG/GER	ENG	
TOP-BALANCE	0 - 100%		adjusted		ESP/FRA		
BOTTOM-PIN	0 - 100%		adjusted	AUTO SAVE	Off / On		ON
BOTTOM-BALANCE	0 - 100%		adjusted	ALL RESET	PROCEED		-
VERT-LIN	0 - 100%		adjusted	RESET	PROCEED		-
VERT-LIN-BALANCE	0 - 100%		adjusted				
RESET	PROCEED		-				

4.3 Back Panel

a : AC POWER CONNECTOR (3P IEC Plug)

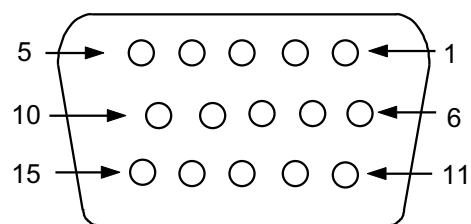
b : SIGNAL A INPUT CONNECTOR (DB9-15P)



4.4 Connector Pin Assignment

1) Signal Input Connector (DB9-15P)

Pin	Signal
1	Red-video
2	Green-video
3	Blue-video
4	Gnd
5	DDC Gnd
6	Red Gnd
7	Green Gnd
8	Blue Gnd
9	NC
10	Sync Gnd
11	Gnd
12	Serial data
13	H-sync or Composite sync
14	V-sync (V-clock)
15	Serial clock



Rear Panel

4.5 DDC (Display Data Channel) Functions

VESA DDC2B , DDC2Bi Compliance.

See Appendix2 for EDID data.

4.6 Preset Timing

Factory-preset :9 see Appendix 1 for detail timing parameters.

Factory-preload :3 see Appendix 1 for detail timing parameters.

User-preset :15

Preset Timing Discrimination

Horizontal Frequency	≥1kHz
Vertical Frequency	≥1Hz
Sync Signal Polarity	H or V-sync signal polarity is different.

- The monitor is able to discriminate input signals by at least one of above parameters.

5. Display Quality

5.1 Test Conditions

AC Voltage	120VAC 60Hz or 230VAC 50Hz
Video Signal	1600 x 1200 (106kHz, 85Hz) 0.7Vp-p
Warm Up	More than 30 min. with full white picture
Temperature	20 - 25 °C
Relative Humidity	40 - 80%
Magnetic Field	BH=0, BV=0.040mT
Contrast & Brightness	Contrast maximum and Brightness detent position
Display Size	396 x 297mm for 4:3 aspect ratio
Ambient light	200 ± 50 lx
Luminance Meter	Minolta CA100 or Equivalent

•Unless specified, the monitor is set at the factory default setting.

5.2 Display size

4:3 aspect ratio	Width: 396mm , Height: 297mm
5:4 aspect ratio	Width: 371mm , Height: 297mm

5.3 Luminance

Luminance at CRT center	Full White: $\geq 100\text{cd/m}^2$ (at Color No.1) $\geq 75\text{cd/m}^2$ (at sRGB) $\geq 70\text{cd/m}^2$ (at Color No.5)
Luminance Variation	$\Delta\text{Luminance} / \text{Center Luminance}: \leq 25\%$
Back Raster Luminance	Approx. 0.3cd/m^2 at Brightness detent position Raster must not visible at minimum Brightness control

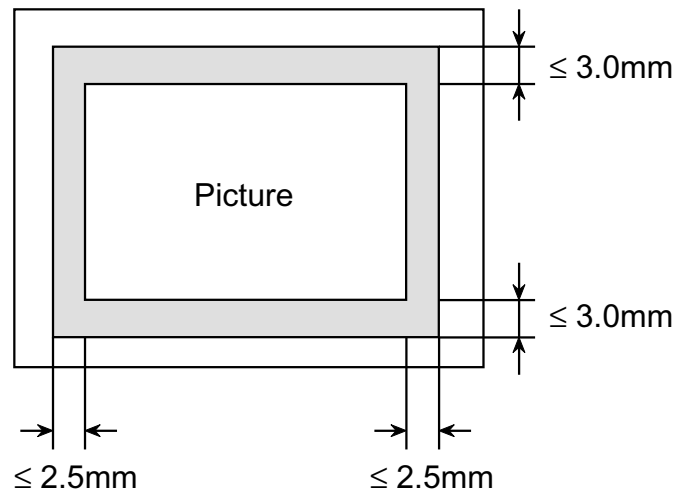
5.4 Color

Color Temperature	Color-1: 9300K + 8 M.P.C.D. $X=0.283 \pm 0.020$ $Y=0.297 \pm 0.020$
	Color-2: 6500K $X=0.313 \pm 0.020$ $Y=0.329 \pm 0.020$
	Color-3: 5000K + 8 M.P.C.D. $X=0.345 \pm 0.020$ $Y=0.359 \pm 0.020$
White Uniformity	≤ 0.020 : in either the X or Y shift between the center and peripheral area
Color Tracking	Contrast Control: ± 0.020 from 25cd/m^2 to Maximum at detent Brightness position

5.5 Overall Distortion

Overall Distortion Except rotation and centering	H: ≤ 2.5mm , V: ≤ 3.0mm
---	-------------------------

- With Green-Crosshatch applied.
- The overall distortion is defined as the total of all image distortion excluding rotation and display centering.



5.6 Linearity

Linearity	H: ≤15%(30-40k) , ≤12%(40-60k) ,≤10%(60-110k) adjacent: ≤ 7%
	V: ≤10% adjacent: ≤ 7%

- at preset timings
- With Green-Crosshatch (17 lines horizontally by 13 lines vertically) applied.
- The formula used to calculate linearity is:

$$\frac{X_{\max} - X_{\min}}{(X_{\max} + X_{\min})/2} \times 100\%$$

$$\frac{Y_{\max} - Y_{\min}}{(Y_{\max} + Y_{\min})/2} \times 100\%$$

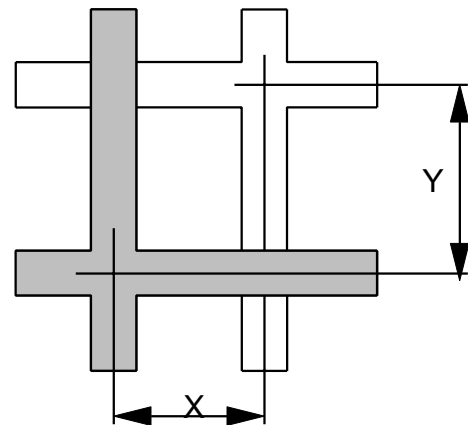
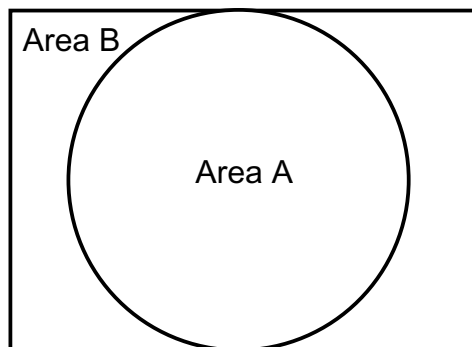
	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11	X12	X13	X14	X15	X16
Y1																
Y2																
Y3																
Y4																
Y5																
Y6																
Y7																
Y8																
Y9																
Y10																
Y11																
Y12																

$$X1=X2=X3= \dots =X16$$
$$Y1=Y2=Y3= \dots =Y12$$

5.7 Misconvergence

Misconvergence	Area A: ≤ 0.25 mm within the 297mm diameter circle
	Area B: ≤ 0.35 mm within 396mm x 297mm

- With White-Crosshatch applied.
- Zone A is a circular area with 297mm diameter at the center.
- Zone B is a rectangular area (396mm x 297mm) outside of the zone A.
- Use worst case horizontal/vertical misconvergence between any two primary colors.



5.8 Focus

Focus	Displaying 7 x 9 pixel "e" with white single pixel strokes, the entire screen shall be readable with clearly discernible characters at normal viewing distance.
-------	---

5.9 Raster Regulation

Raster Size Regulation	$\leq 0.5\%$ of the horizontal or vertical picture size
------------------------	---

- The picture size change is less than adjusted value in either the horizontal or vertical direction over 30% to 100% luminance range and 90 - 132VAC or 198 - 264VAC Input respectively.

6. Mechanical Specifications

6.1 Cabinet , Tilt / Swivel Base

Molded material	Cabinet : ABS (Flame Class HB) Tilt /Swivel Base : ABS (Flame Class HB)
Cabinet color	Grayish White (Mitsubishi Control Color No. : B-N-C039)
Bezel Logo	See Fig.2
Tilt & Swivel	Right & Left : -90°to +90°Up & Down : 10° to -5°
Dimension	495mm (W) x 493.5mm (H) x 473mm (D) 19.5" (W) x 19.4" (H) x 18.6" (D) (include Tilt /Swivel Base, see Fig.1)

6.2 Rating Label see Fig. 3

6.3 Carton Box

Paper Material	Kraftliner and trifaced corrugated board (Double wall)
Carton Box Print	See Fig.5-1(North America) / Fig.5-2(Europe)
Dimension	See Fig.4
Packing Contents	See Fig.6

6.4 Weight

Net	approx. 29.7 kg (65.5 lbs)
Gross	approx. 35 kg (77.0 lbs)

6.5 Accessories

AC Power Cord	North America		see Fig.7-1
	Europe	except UK	see Fig.7-2
		U.K.	see Fig.7-3
Signal Cable			SC-B110 : see Fig.8
User's Guide	North America		English , French
	Europe		5 Languages (English, German , French, Italian, Spanish)

7. Environmental Conditions

7.1 Temperature, Relative Humidity & Altitude

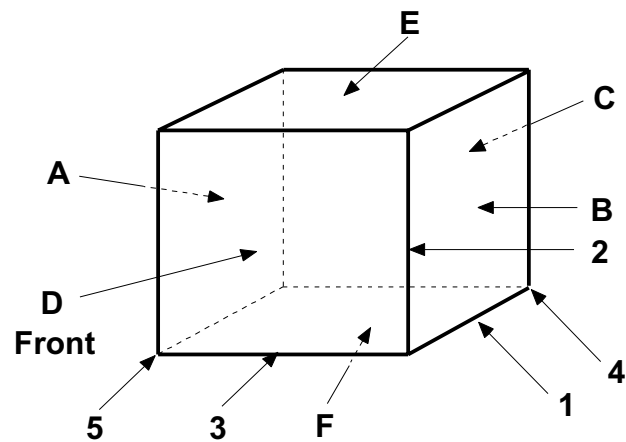
	Operating	Storage and shipment
Temperature	5 - 35°C	-20 - 60°C
Relative Humidity	10 - 90% without condensation	10 - 90% without condensation
Altitude	3000m (10000ft)	15000m (50000ft)

7.2 Vibration Test (with carton box)

1) Random Vibration

Test Axis	3 axis
Search Frequency	5 - 200Hz
Acceleration	0 - 14.42m/s ² rms
Dwelling Time	30 minutes x 3 axis
Mounting	fixed firmly on the vibration table

7.3 Drop Test (with carton box)

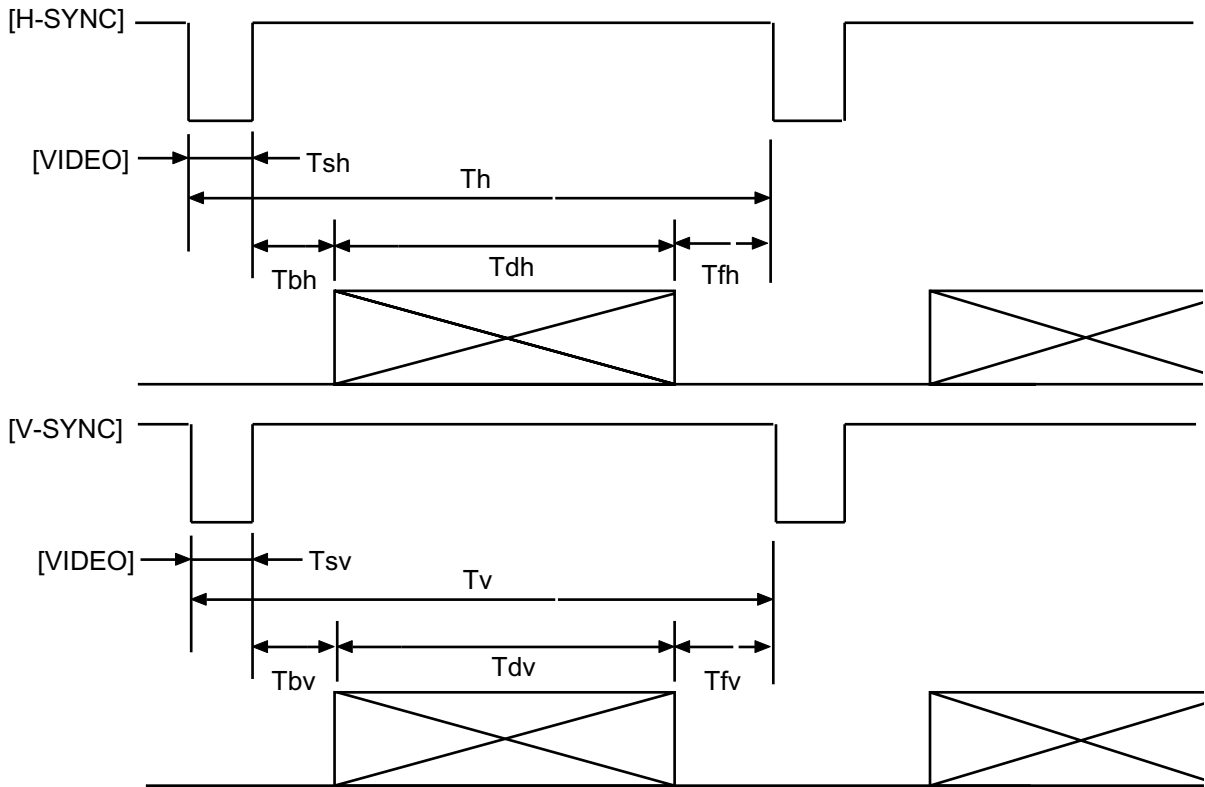


The inside unit shall withstand without any damage by following procedure.
Drop to the hard wooden board from the position of the following heights.

After finish the drop test of edges (3 position) and also corners(2 position),
tester has to change to new cushion. However for the carton box,
tester must not change to the new box and use the damaged box continuously.

	Position	Height
Edge	1,2,3	40.5cm(16inch)
Corner	4,5	40.5cm(16inch)
Other Surfaces	A,B,C,D	40.5cm(16inch)
Top Surface	E	34.5cm(14inch)
Bottom Surface	F	46cm(18inch)

Appendix 1 Preset Timing Chart



NO.	Clock (MHz)	Th (μSEC) (dot)	Tsh (μSEC) (dot)	Tfh (μSEC) (dot)	Tbh (μSEC) (dot)	Tdh (μSEC) (dot)	Tv (mSEC) (line)	Tsv (mSEC) (line)	Tfv (mSEC) (line)	Tbv (mSEC) (line)	Tdv (mSEC) (line)	Hs	Vs	Fh (kHz)	Fv (Hz)	REMARKS
1	25.175	31.778 (800)	3.813 (96)	0.636 (16)	1.907 (48)	25.422 (640)	16.683 (525)	0.064 (2)	0.318 (10)	1.048 (33)	15.253 (480)	-	-	31.469	59.940	VESA 640*480 / 60Hz
2	56.250	18.631 (1048)	1.138 (64)	0.569 (32)	2.702 (152)	14.222 (800)	11.756 (631)	0.056 (3)	0.019 (1)	0.503 (27)	11.179 (600)	+	+	53.674	85.061	VESA 800*600 / 85Hz
3	78.750	16.660 (1312)	1.219 (96)	0.203 (16)	2.235 (176)	13.003 (1024)	13.328 (800)	0.050 (3)	0.017 (1)	0.466 (28)	12.795 (768)	+	+	60.023	75.029	VESA 1024*768 / 75Hz
4	94.500	14.561 (1376)	1.016 (96)	0.508 (48)	2.201 (208)	10.836 (1024)	11.765 (808)	0.044 (3)	0.015 (1)	0.524 (36)	11.183 (768)	+	+	68.677	84.997	VESA 1024*768 / 85Hz
5	135.000	12.504 (1688)	1.067 (144)	0.119 (16)	1.837 (248)	9.481 (1280)	13.329 (1066)	0.038 (3)	0.013 (1)	0.475 (38)	12.804 (1024)	+	+	79.976	75.025	VESA 1280*1024 / 75Hz
6	157.500	10.971 (1728)	1.016 (160)	0.406 (64)	1.422 (224)	8.127 (1280)	11.761 (1072)	0.033 (3)	0.011 (1)	0.483 (44)	11.235 (1024)	+	+	91.146	85.027	VESA 1280*1024 / 85Hz
7	202.500	10.667 (2160)	0.948 (192)	0.316 (64)	1.501 (304)	7.901 (1600)	13.333 (1250)	0.032 (3)	0.011 (1)	0.491 (46)	12.800 (1200)	+	+	93.750	75.000	VESA 1600*1200 / 75Hz
8	229.500	9.412 (2160)	0.837 (192)	0.279 (64)	1.325 (304)	6.972 (1600)	11.765 (1250)	0.028 (3)	0.009 (1)	0.433 (46)	11.294 (1200)	+	+	106.250	85.000	VESA 1600*1200 / 85Hz
9	100.000	14.560 (1456)	1.280 (128)	0.320 (32)	1.440 (144)	11.520 (1152)	13.322 (915)	0.044 (3)	0.043 (3)	0.568 (39)	12.667 (870)	-	-	68.680	75.060	APPLE 21 1152*870 / 75Hz
10	28.322	31.777 (900)	3.813 (108)	0.635 (18)	1.907 (54)	25.422 (720)	14.268 (449)	0.064 (2)	0.381 (12)	1.112 (35)	12.711 (400)	-	+	31.470	70.090	DOS 720*400 / 70Hz
11	31.500	26.667 (840)	2.032 (64)	0.508 (16)	3.810 (120)	20.317 (640)	13.333 (500)	0.080 (3)	0.027 (1)	0.427 (16)	12.800 (480)	-	-	37.500	75.000	VESA 640*480 / 75Hz
12	49.500	21.333 (1056)	1.616 (80)	0.323 (16)	3.232 (160)	16.162 (800)	13.333 (625)	0.064 (3)	0.021 (1)	0.448 (21)	12.800 (600)	+	+	46.875	75.000	VESA 800*600 / 75Hz

Appendix 2 EDID data for VESA DDC

-- EDID DATA DUMP TEXT --

Manuf Code: MEL
Product Code LSB (HEX): 80
Product Code MSB (HEX): 44
(Microsoft INF ID: MEL4480)
Serial Number (HEX): **
Week of Manuf: WW
Year of Manuf: YY

EDID Version: 1
EDID Revision: 2
Extension Flag: 0

Video:

Input Signal: ANALOG
Setup: NO
Sync on Green: NO
Composite Sync: YES
Separate Sync: YES
V Sync Serration: NO
V Signal Level: 0.700V/0.300V (1V p-p)

Max Image Size H: 40 cm
Max Image Size V: 30 cm
DPMS Stand By: YES
DPMS Suspend: YES
DPMS Active Off: YES
GTF Support: YES
Standard Default Color Space: NO
Preferred Timing Mode: NO
Display Type: RGB Color

Color:

Gamma: 2.20
Red x: 0.627
Red y: 0.341
Green x: 0.292
Green y: 0.605
Blue x: 0.149
Blue y: 0.072
White x: 0.283
White y: 0.297

Established Timings:

720x400 @ 70 Hz
720x400 @ 88 Hz
640x480 @ 60 Hz
640x480 @ 67 Hz
640x480 @ 72 Hz
640x480 @ 75 Hz
800x600 @ 56 Hz
800x600 @ 60 Hz
800x600 @ 72 Hz
800x600 @ 75 Hz
832x624 @ 75 Hz
1024x768 @ 87 Hz (I)
1024x768 @ 60 Hz
1024x768 @ 70 Hz
1024x768 @ 75 Hz
1152x870 @ 75 Hz
1280x1024 @ 75 Hz

Standard Timing #1:

Horizontal Active Pixels: 800
Aspect Ratio: 4:3
(600 active lines)
Refresh Rate: 85 Hz

Standard Timing #2:

Horizontal Active Pixels: 1024
Aspect Ratio: 4:3
(768 active lines)
Refresh Rate: 85 Hz

Standard Timing #3:

Horizontal Active Pixels: 1152
Aspect Ratio: 4:3
(864 active lines)
Refresh Rate: 75 Hz

Standard Timing #4:

Horizontal Active Pixels: 1280
Aspect Ratio: 5:4
(1024 active lines)
Refresh Rate: 85 Hz

Standard Timing #5:

Horizontal Active Pixels: 1600
Aspect Ratio: 4:3
(1200 active lines)
Refresh Rate: 75 Hz

Standard Timing #6:

Horizontal Active Pixels: 1792
Aspect Ratio: 4:3
(1344 active lines)
Refresh Rate: 75 Hz

Standard Timing #7:

Horizontal Active Pixels: 1800
Aspect Ratio: 5:4
(1440 active lines)
Refresh Rate: 70 Hz

Standard Timing #8:

Horizontal Active Pixels: 1920
Aspect Ratio: 4:3
(1440 active lines)
Refresh Rate: 73 Hz

Detailed Timing (block #1):

Pixel Clock: 229.50 MHz
Horizontal Active: 1600 pixels
Horizontal Blanking: 560 pixels
Vertical Active: 1200 lines
Vertical Blanking: 50 lines
(Horizontal Frequency: 106.25 kHz)
(Vertical Frequency: 85.0 Hz)
Horizontal Sync Offset: 64 pixels
Horizontal Sync Width: 192 pixels
Vertical Sync Offset: 1 lines
Vertical Sync Width: 3 lines
Horizontal Border: 0 pixels
Vertical Border: 0 lines
Horizontal Image Size: 396 mm
Vertical Image Size: 297 mm
Interlaced: NO
Image: Normal Display
Sync: Digital Separate
Bit 1: ON
Bit 2: ON

Monitor Range Limits (block #2):

Minimum Vertical Rate: 50 Hz
Maximum Vertical Rate: 160 Hz
Minimum Horizontal Rate: 30 kHz
Maximum Horizontal Rate: 110 kHz
Maximum Pixel Clock: 330 MHz
GTF Data: 00 0a 20 20 20 20 20

Monitor Name (block #3): NSV1107K

Monitor Serial Number (block #4): ##

EDID EDITOR V1.40 (000621) (C)
Mitsubishi Electric 1995-2000

EDID DATA DUMP HEX

00 ff ff ff ff ff 00
34 ac 80 44 ** * * * *
WW YY 01 02 0c 28 1e 78
e9 9c 68 a0 57 4a 9b 26
12 48 4c ff ff 80 45 59
61 59 71 4f 81 99 a9 4f
c1 4f c2 8a d1 4d a6 59
40 30 62 b0 32 40 40 c0
13 00 8c 29 11 00 00 1e
00 00 00 fd 00 32 a0 1e
6e 21 00 0a 20 20 20 20
20 20 00 00 00 fc 00 4e
53 56 31 31 30 37 4b 0a
20 20 20 20 00 00 00 ff
00 ## ## ## ## ## ## ##
0a 20 20 20 00 SS

** : serial number1
WW : manufacture week
YY : manufacture year
: serial number2
SS : check sum

- CABINET COLOR : Graysh white
- TILT / SWIVEL BASE
Swivel Angle : +90° ~ -90°
Tilt Angle : +10° ~ -5°

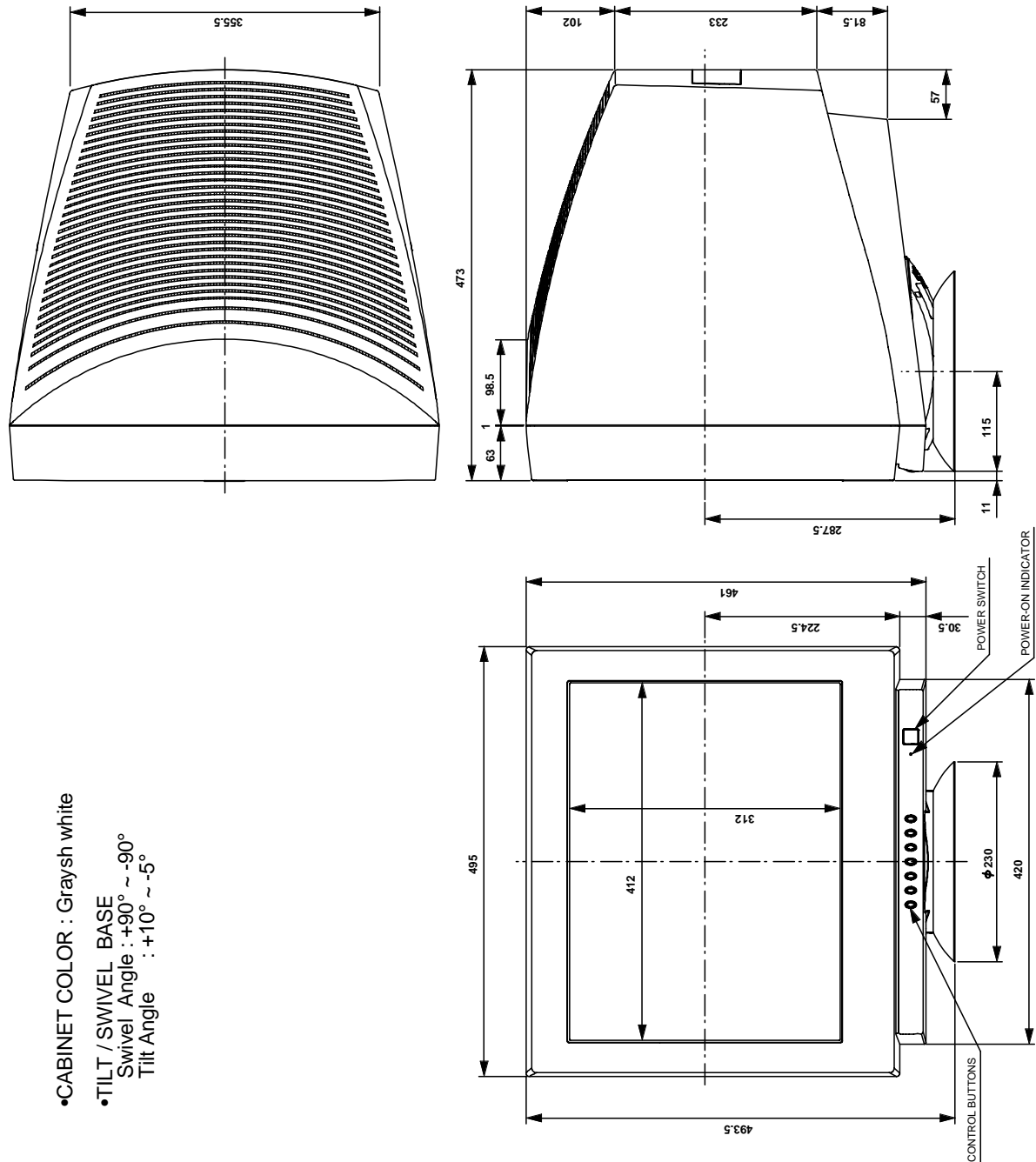
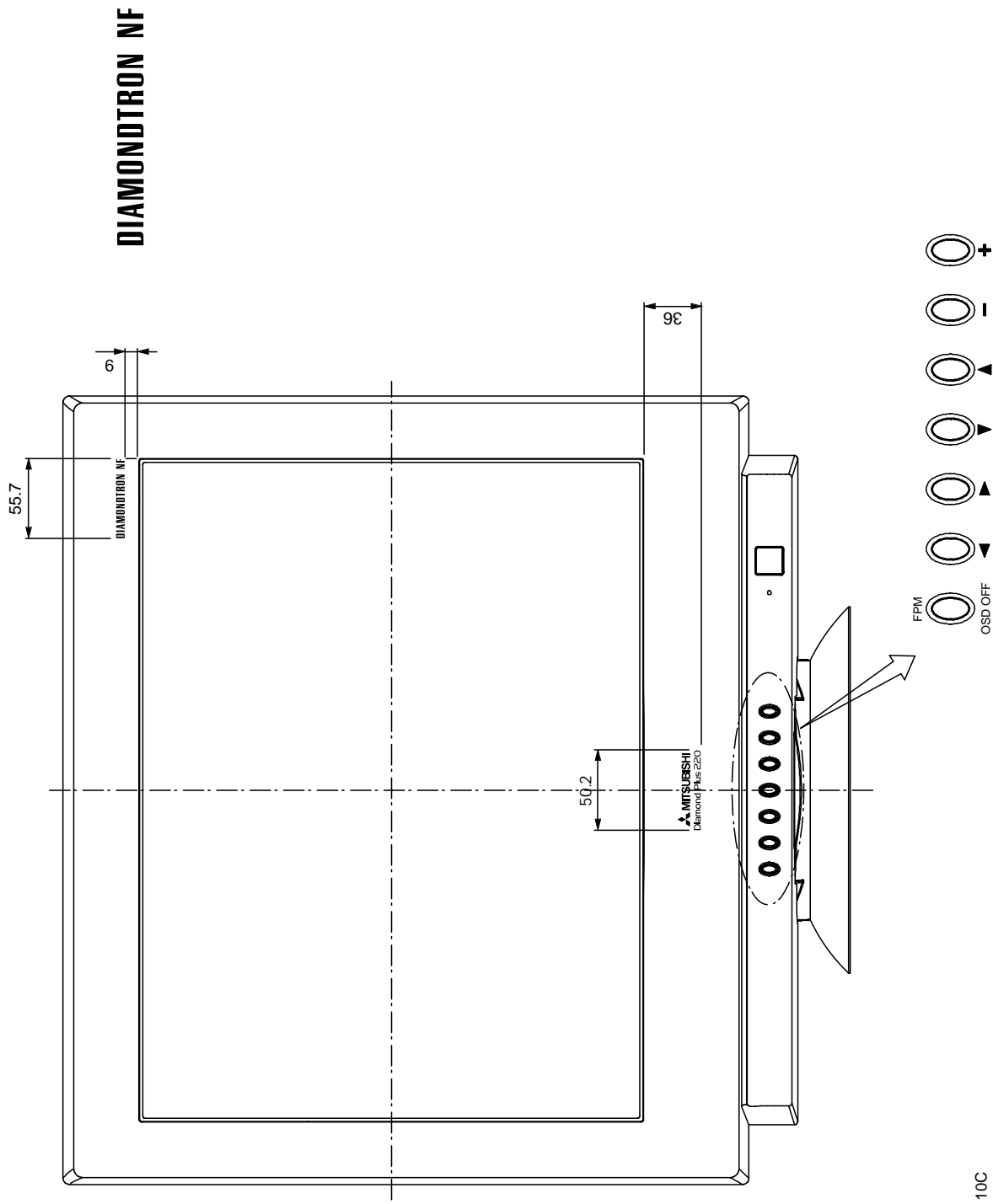


Fig. 1 OUTLINE

VSP-C0444



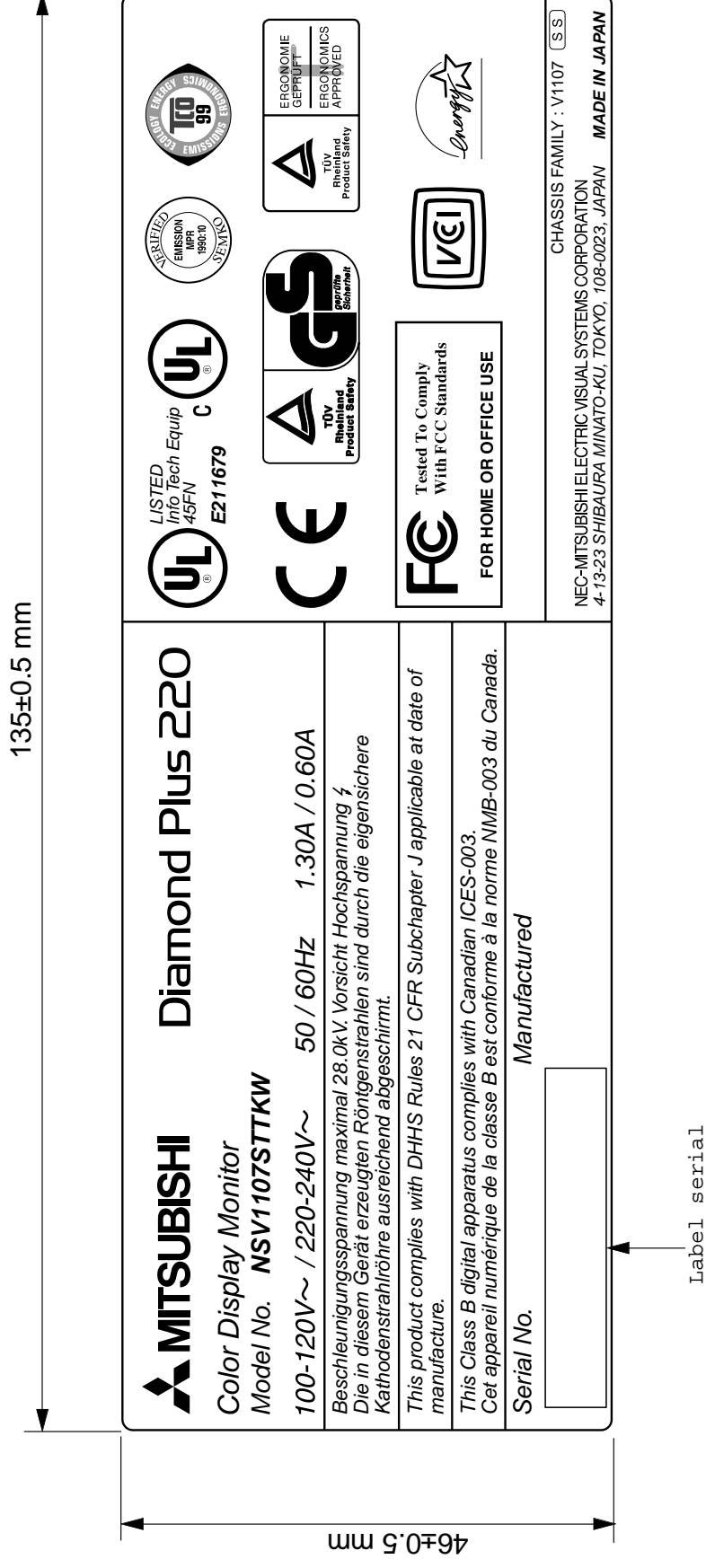
MITSUBISHI
Diamond Plus 220

COLOR OF LETTERING:PANTONE COOL GRAY 10C

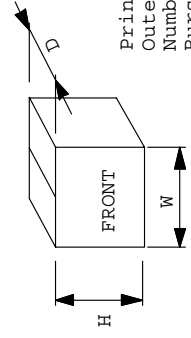
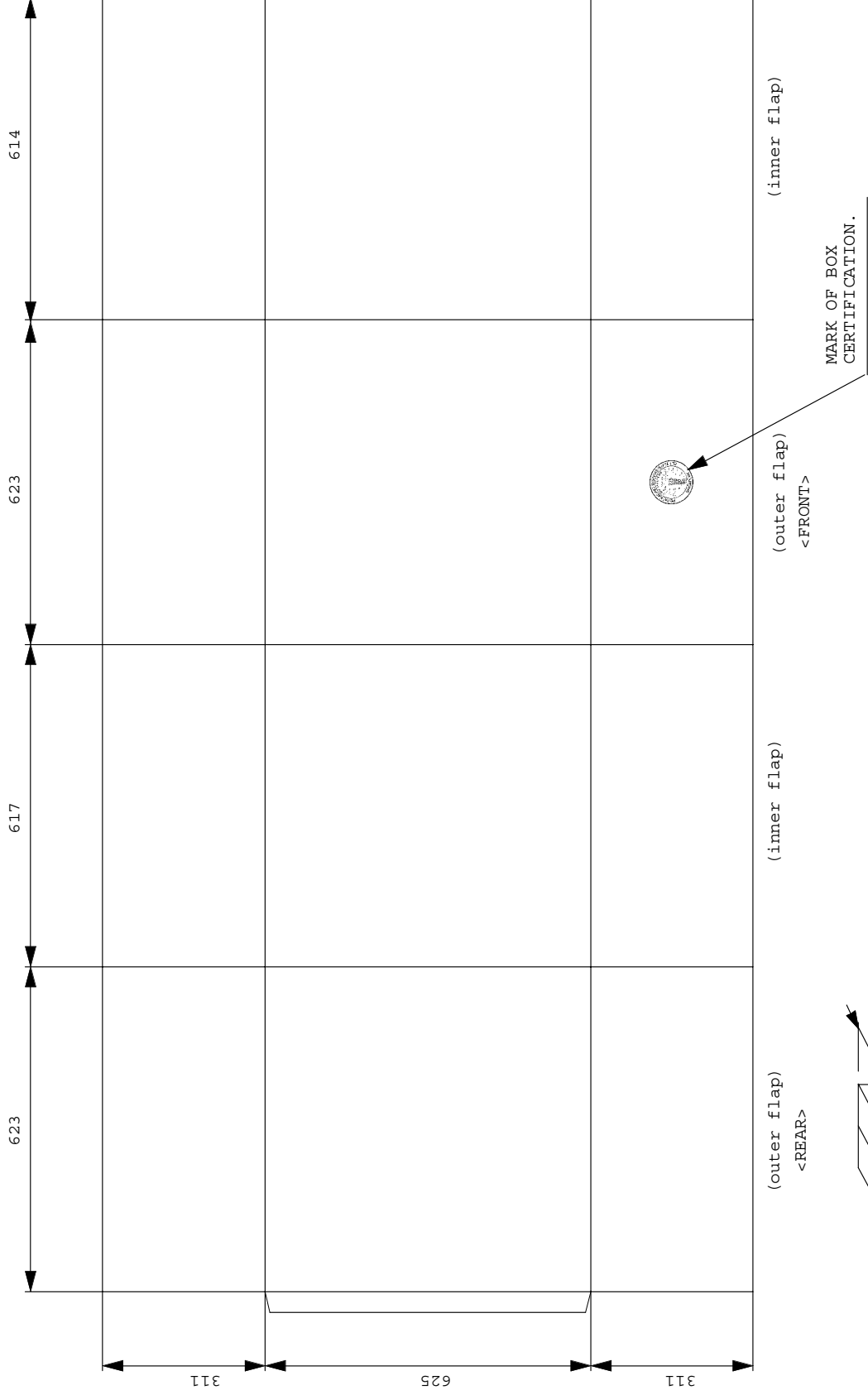
Fig. 2 BEZEL LOGO

VSP-C0444

COLOR OF LETTERING ●●●● Pantone cool gray 10C

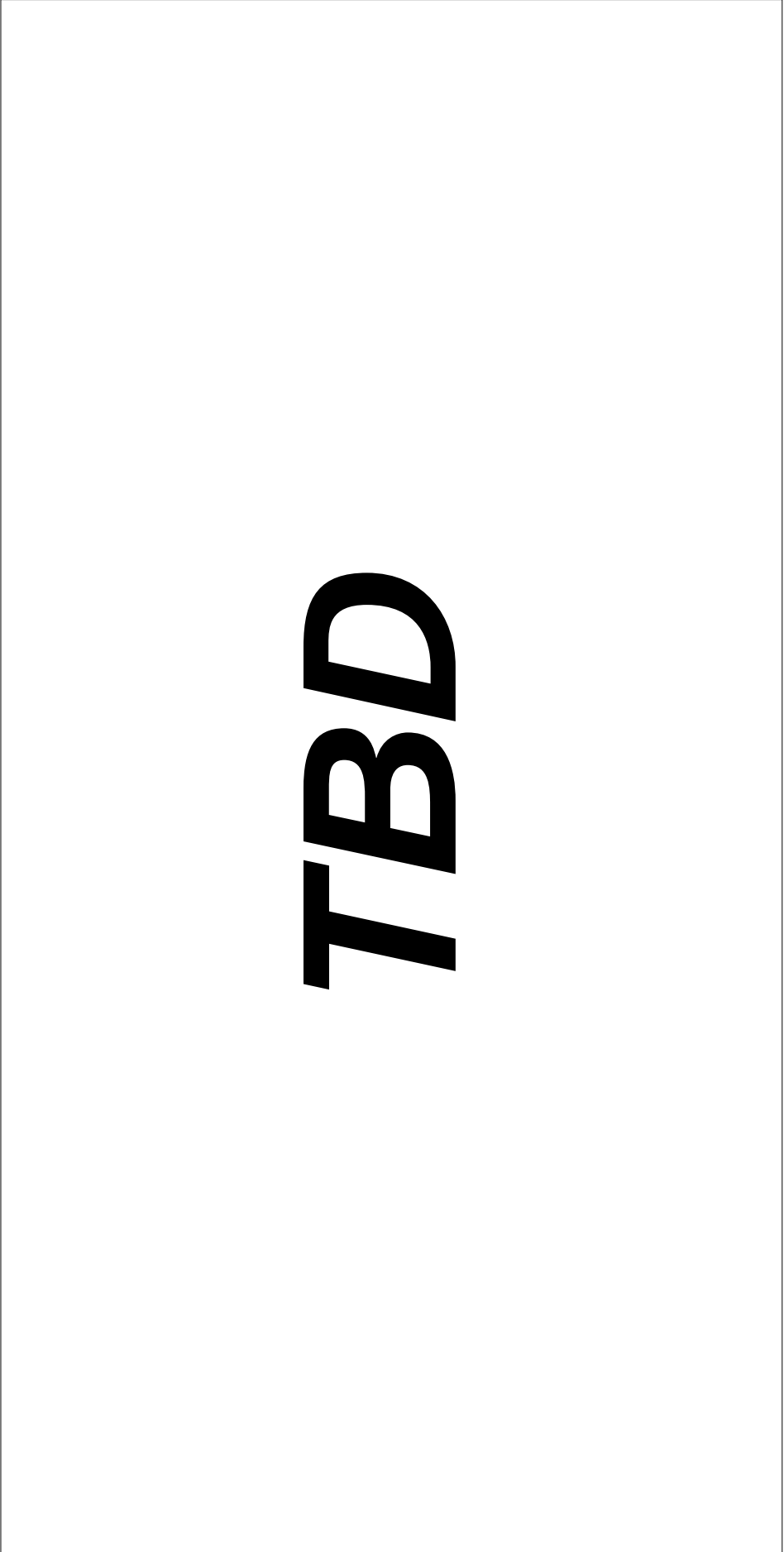


VSP-C0444



Printing process. : FLEXO-PRINTING
 Outer dimension. : W:632 x H:643 x D:626 (mm)
 Number of piles. : Max. 5 piles.²
 Bursting strength. : 275LBS / inch²
 Material. : Kraft color linerboard and trifaced corrugated board.
 (Double wall)
 Printing color : Black

Fig.4 CARTON BOX



TBD

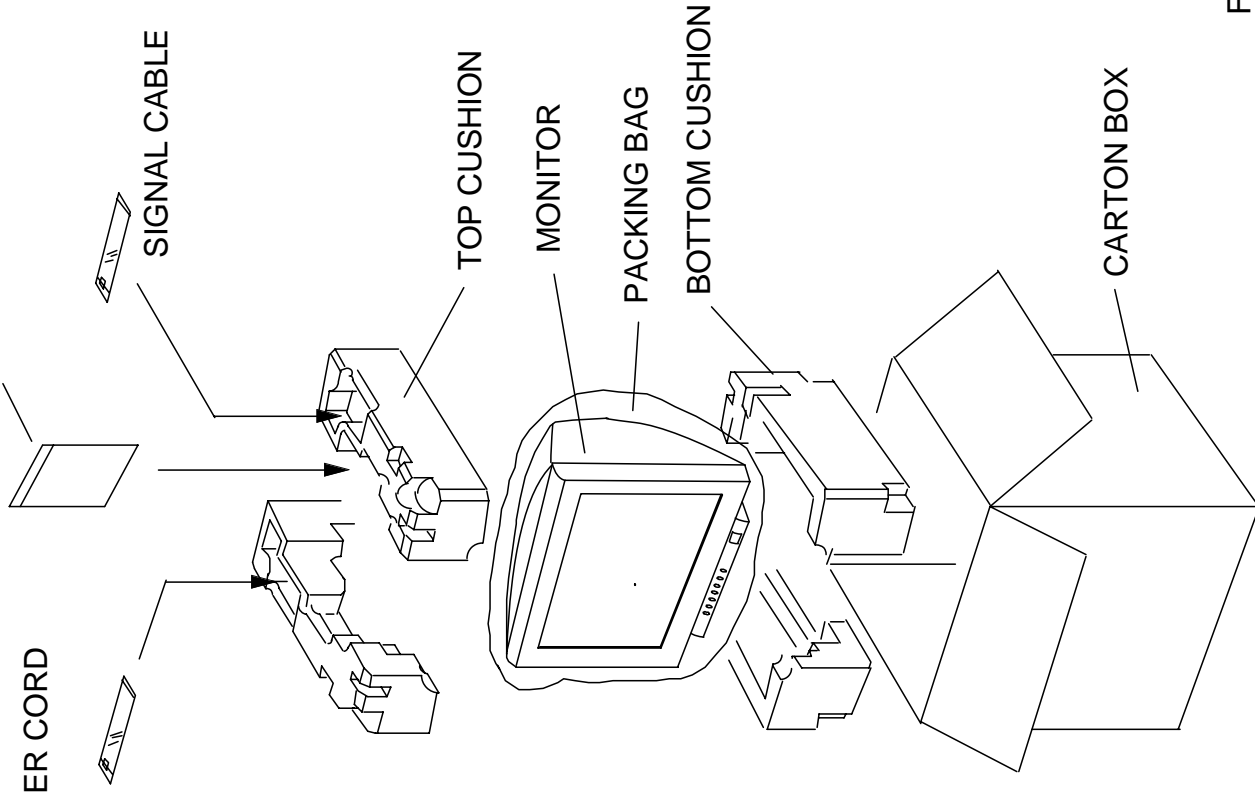
Fig.5-1 PRINTING SPECIFICATION OF CARTON BOX (North America)

VSP-C0444

NOTE 1

AC POWER CORD

USER'S GUIDE



NOTE 1: AC POWER CORD
(1) North America : see Fig.7-1
(2) Eurpe : see Fig.7-2 & Fig.7-3

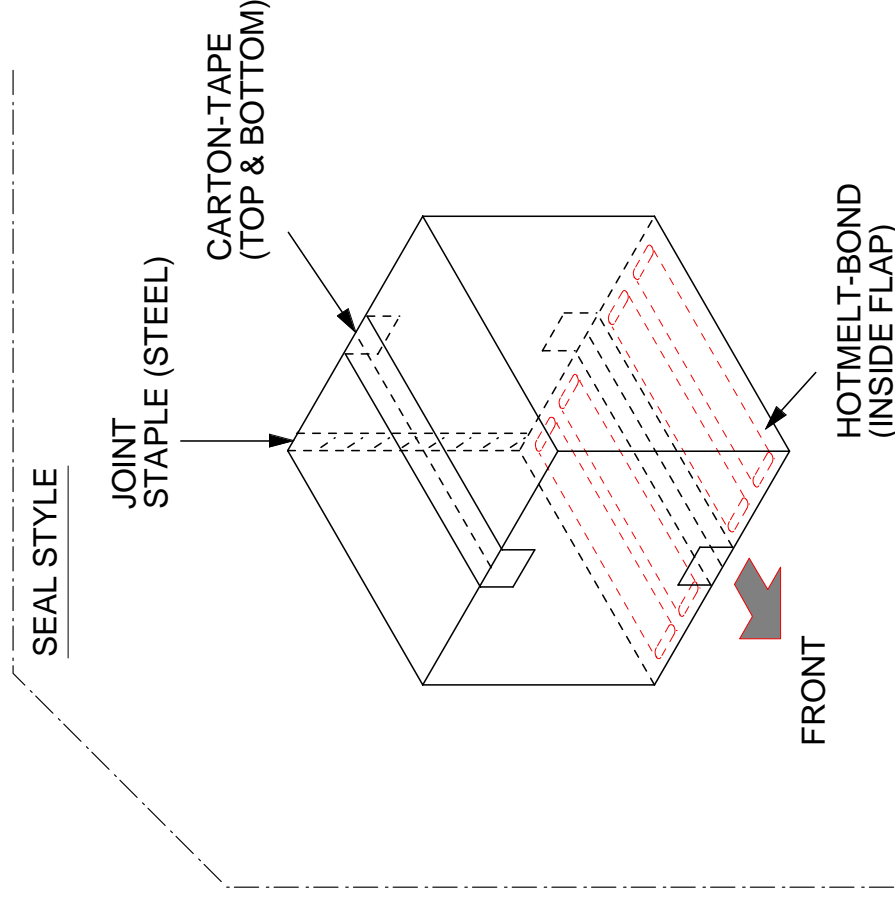


Fig.6 PACKING STYLE

VSP-C0444

<SPECIFICATION>

1.CABLE:Cross - section Area-----AWG18X3C

2.JACKET:PVC

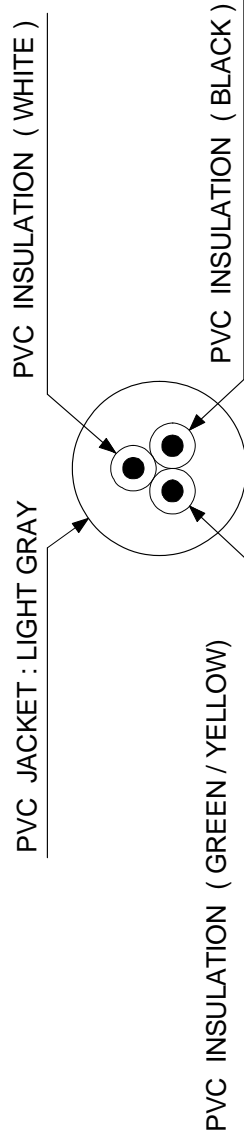
3.ABILITY

(1) VOLTAGE : AC 125V

(2) AMPERAGE : AC 10A

(3) TEMPERATURE : 60°C

4.REGULATORY APPROVALS:UL, CSA



CONSTRUCTION

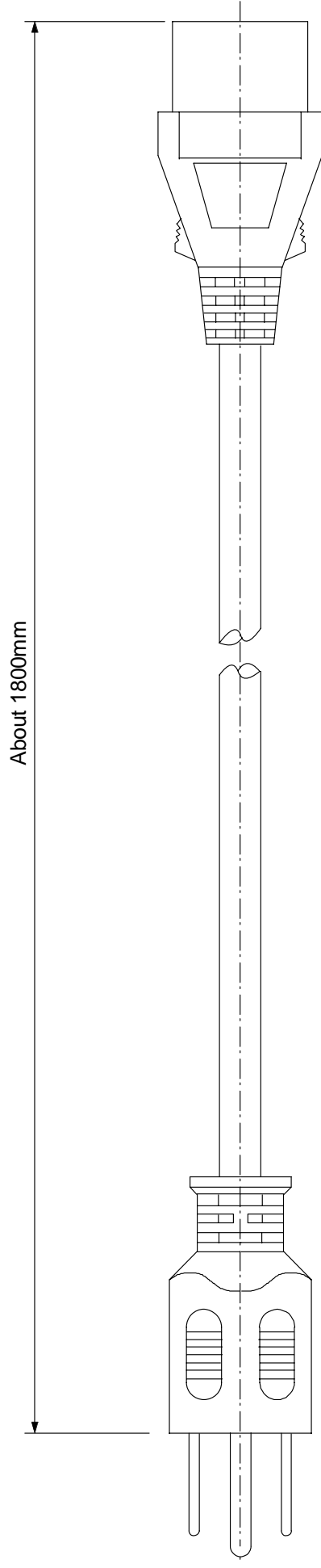


Fig. 7 - 1 AC POWER CORD (For North America)

VSP-C0444

<SPECIFICATION>

1.CABLE : Cross - section Area----1.0mm² X3C

2.JACKET : PVC

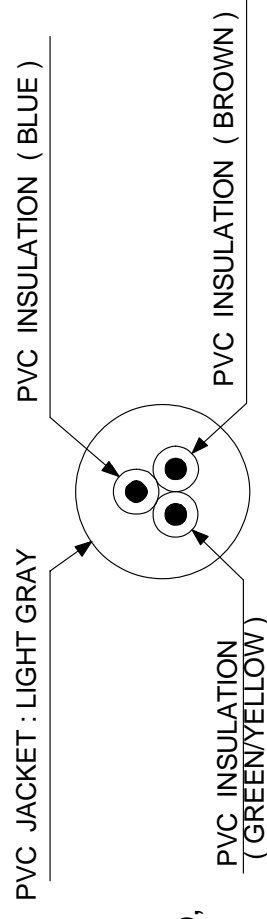
3.ABILITY

(1) VOLTAGE : AC 250V

(2) AMPERAGE : AC 10A

(3) TEMPERATURE : 70°C

4.REGULATORY APPROVALS:VDE,KEMA-MEUK,SEMKO,NEMKO,DEMKO,
FIMKO,SEV,ÖVE,IEMMEQU,CEBEC,IEC227



CONSTRUCTION

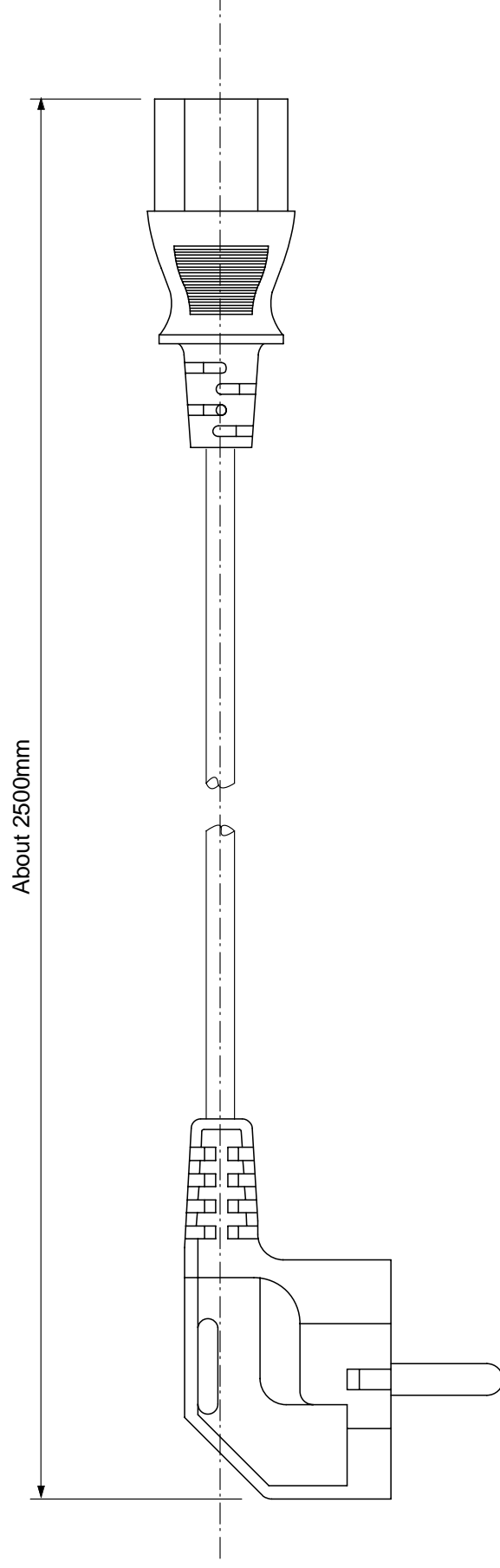


Fig. 7 - 2 AC POWER CORD (For except U.K.)

VSP-C0444

<SPECIFICATION>

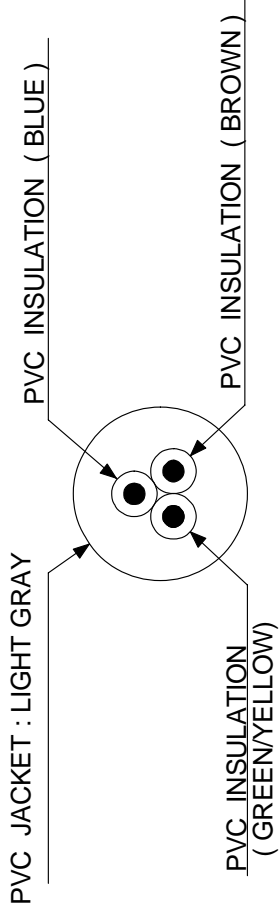
1.CABLE : Cross - section Area---1.0mm² X3C

2.JACKET : PVC

3.ABILITY

- (1) VOLTAGE : AC 250V
- (2) AMPERAGE : AC 10A
- (3) TEMPERATURE : 60°C

4.REGULATORY APPROVALS : BS



CONSTRUCTION

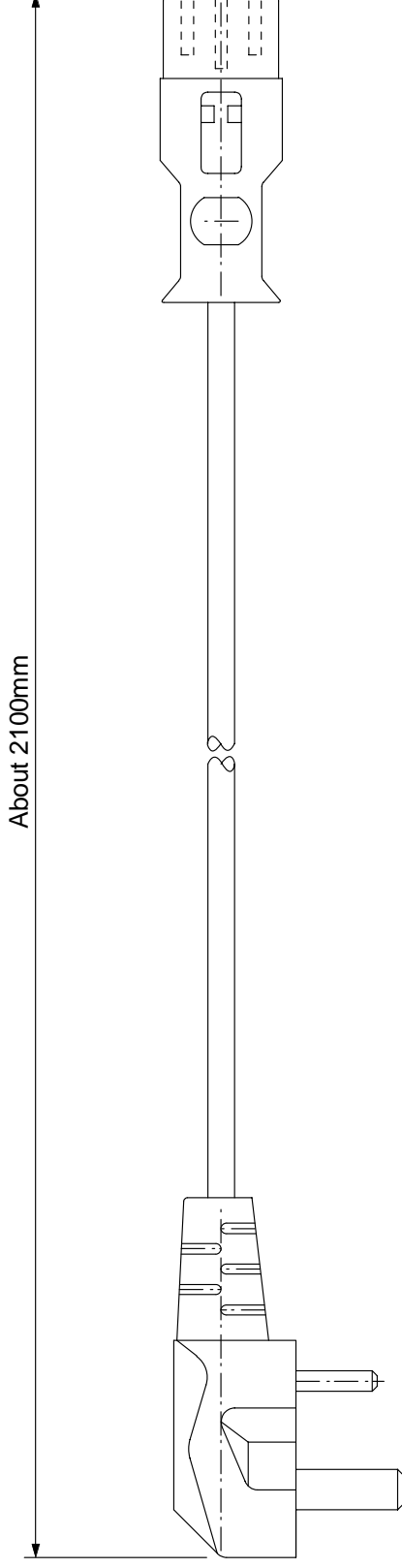


Fig. 7 - 3 AC POWER CORD (For U. K.)

VSP-C0444

SIGNAL CABLE

<SPECIFICATION>

1. JACKET:PVC (Color.....Light gray)
2. ABILITY
 - (1)VOLTAGE:30V
 - (2)TEMPERATURE:80 C°

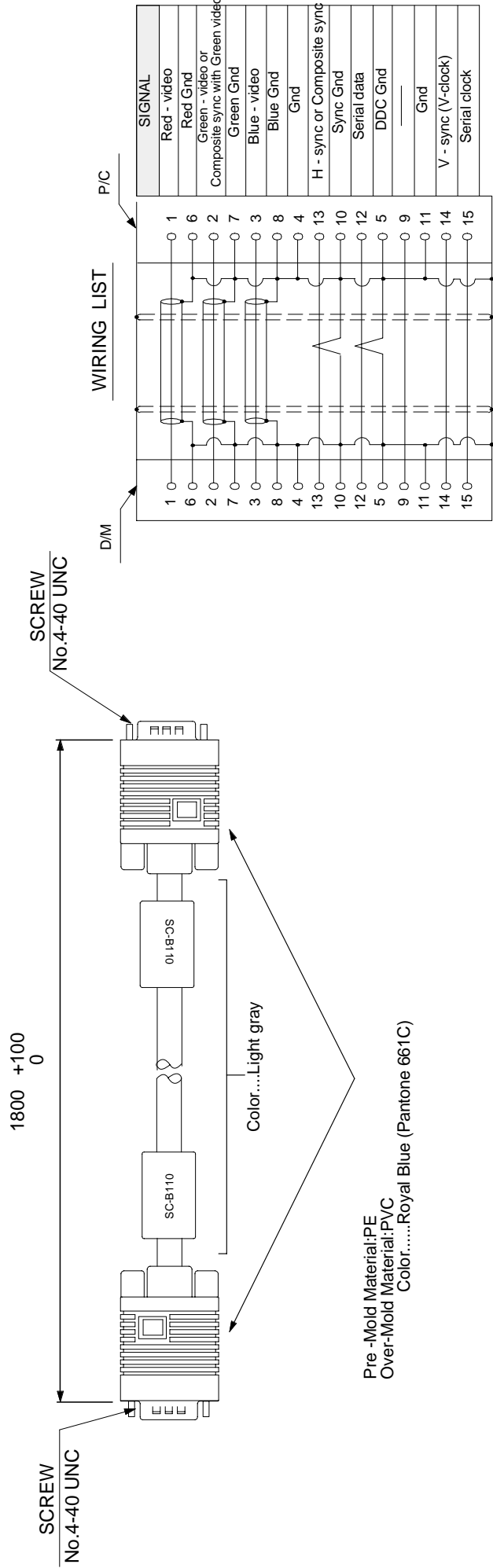
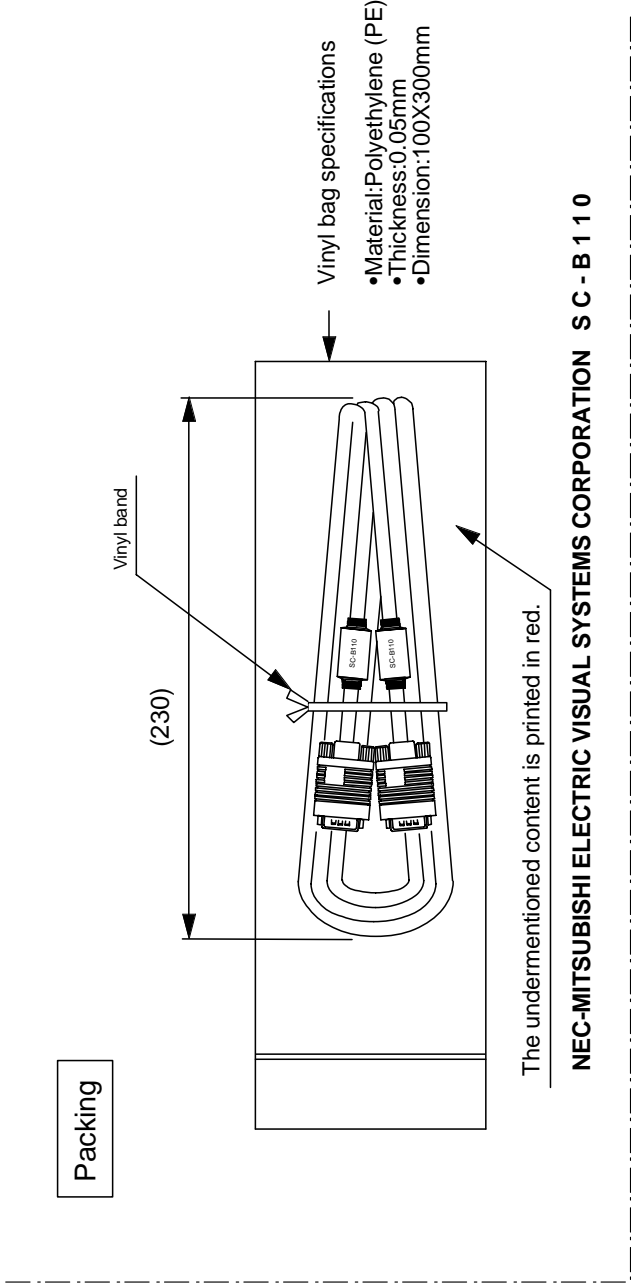


Fig. 8 SIGNAL CABLE

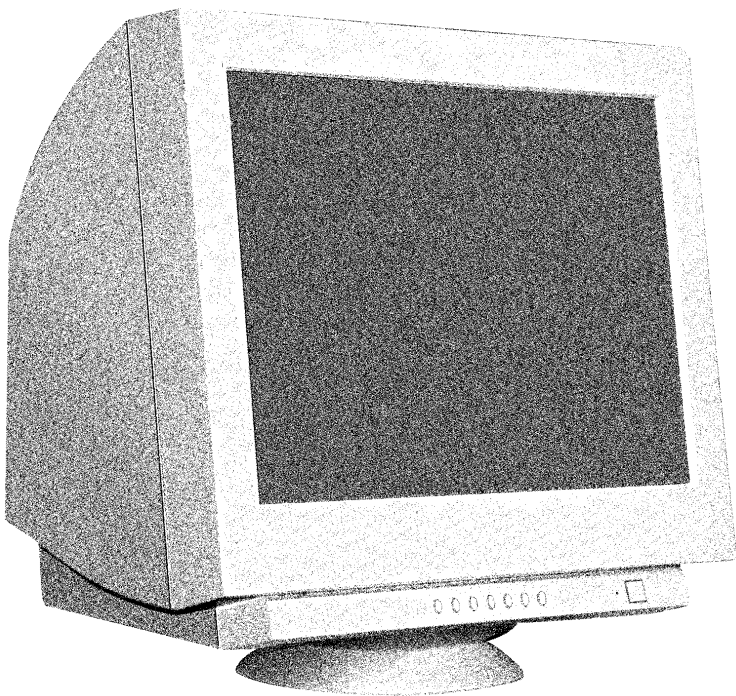
VSP-C0444



AUTO-SCANNING WITH DIGITAL CONTROL
COLOR DISPLAY MONITOR

Diamond Plus 220

USER'S GUIDE



For future reference, record the serial number of your display monitor in the space below:

SERIAL No.

The serial number is located on the rear cover of the monitor.

Internet Home Page: <http://www.necmitsubishi.com/>

Supplying Windows® 95/98/2000 INF File download service, new product information, etc.

RADIO INTERFERENCE REGULATIONS STATEMENT FOR U.S.A.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

THIS PRODUCT HAS BEEN TESTED AND FOUND TO COMPLY WITH THE LIMITS WITH SIGNAL CABLE SC-B110. USE IT TO REDUCE THE POSSIBILITY OF CAUSING INTERFERENCE TO RADIO, TELEVISION, AND OTHER ELECTRIC DEVICES. NO USER SERVICEABLE PARTS INSIDE. DO NOT ATTEMPT TO MODIFY THIS EQUIPMENT. IF MODIFIED, YOUR AUTHORITY TO OPERATE THIS EQUIPMENT MIGHT BE VOIDED BY FCC.

Declaration of Conformity - United States only

Product Name: 22 in. (55cm) Color Display Monitor
Type: NSV1107STTKW
Brand Name: MITSUBISHI

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

For questions regarding this declaration, contact:
NEC-Mitsubishi Electronics Display of America, Inc.
1250 North Arlington Heights Road, Itasca, Illinois 60143-1248, U.S.A.

or, call
(630) 467-5000

To identify this product, refer to the model number found on the product.

As an ENERGY STAR Partner, NEC-Mitsubishi Electric Visual Systems Corporation has determined that this product meets the ENERGY STAR guidelines for energy efficiency.

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(VCCI) ^ > N xB æ Z p u - • B -
" A ~ ° ´ « - g p • Ø - ~ I ~ ~ ¢ • " A
u " W I e r W M @ ~ g p † G
M Æ Q † « N - • - ~ " £ • B
@] ~ ~ † ¢ £ ¢ ~ > † ¢ B



Energy 2000 Labeling Award



Congratulations!

You have just purchased a TCO'99 approved and labelled product! Your choice has provided you with a product developed for professional use. Your purchase has also contributed to reducing the burden on the environment and also to the further development of environmentally adapted electronics products.

Why do we have environmentally labelled computers?

In many countries, environmental labelling has become an established method for encouraging the adaptation of goods and services to the environment. The main problem, as far as computers and other electronics equipment are concerned, is that environmentally harmful substances are used both in the products and during their manufacture. Since it is not so far possible to satisfactorily recycle the majority of electronics equipment, most of these potentially damaging substances sooner or later enter nature.

There are also other characteristics of a computer, such as energy consumption levels, that are important from the viewpoints of both the work (internal) and natural (external) environments. Since all methods of electricity generation have a negative effect on the environment (e.g. acidic and climate-influencing emissions, radioactive waste), it is vital to save energy. Electronics equipment in offices is often left running continuously and thereby consumes a lot of energy.

What does labelling involve?

This product meets the requirements for the TCO'99 scheme which provides for international and environmental labelling of personal computers. The labelling scheme was developed as a joint effort by the TCO (The Swedish Confederation of Professional Employees), Svenska Naturskyddsforeningen (The Swedish Society for Nature Conservation) and Statens Energimyndighet (The Swedish National Energy Administration).

Approval requirements cover a wide range of issues: environment, ergonomics, usability, emission of electric and magnetic fields, energy consumption and electrical and fire safety.

The environmental demands impose restrictions on the presence and use of heavy metals, brominated and chlorinated flame retardants, CFCs (freons) and chlorinated solvents, among other things. The product must be prepared for recycling and the manufacturer is obliged to have an environmental policy which must be adhered to in each country where the company implements its operational policy.

The energy requirements include a demand that the computer and/or display, after a certain period of inactivity, shall reduce its power consumption to a lower level in one or more stages. The length of time to reactivate the computer shall be reasonable for the user.

Labelled products must meet strict environmental demands, for example, in respect of the reduction of electric and magnetic fields, physical and visual ergonomics and good usability.

Below you will find a brief summary of the environmental requirements met by this product. The complete environmental criteria document may be ordered from:

TCO Development

SE-114 94 Stockholm, Sweden

Fax: +46 8 782 92 07

Email (Internet): development@tco.se

Current information regarding TCO'99 approved and labelled products may also be

obtained via the Internet, using the address:

<http://www.tco-info.com/>

Environmental requirements

Flame retardants

Flame retardants are present in printed circuit boards, cables, wires, casings and housings. Their purpose is to prevent, or at least to delay the spread of fire. Up to 30% of the plastic in a computer casing can consist of flame retardant substances. Most flame retardants contain bromine or chloride, and those flame retardants are chemically related to another group of environmental toxins, PCBs. Both the flame retardants containing bromine or chloride and the PCBs are suspected of giving rise to severe health effects, including reproductive damage in fish-eating birds and mammals, due to the bio-accumulative* processes. Flame retardants have been found in human blood and researchers fear that disturbances in foetus development may occur.

The relevant TCO'99 demand requires that plastic components weighing more than 25 grams must not contain flame retardants with organically bound bromine or chlorine. Flame retardants are allowed in the printed circuit boards since no substitutes are available.

Cadmium**

Cadmium is present in rechargeable batteries and in the colour-generating layers of certain computer displays. Cadmium damages the nervous system and is toxic in high doses. The relevant TCO'99 requirement states that batteries, the colour-generating layers of display screens and the electrical or electronics components must not contain any cadmium.

Mercury**

Mercury is sometimes found in batteries, relays and switches. It damages the nervous system and is toxic in high doses. The relevant TCO'99 requirement states that batteries may not contain any mercury. It also demands that mercury is not present in any of the electrical or electronics components associated with the labelled unit.

CFCs (freons)

The relevant TCO'99 requirement states that neither CFCs nor HCFCs may be used during the manufacture and assembly of the product. CFCs (freons) are sometimes used for washing printed circuit boards. CFCs break down ozone and thereby damage the ozone layer in the stratosphere, causing increased reception on earth of ultraviolet light with e.g. increased risks of skin cancer (malignant melanoma) as a consequence.

Lead**

Lead can be found in picture tubes, display screens, solders and capacitors. Lead damages the nervous system and in higher doses, causes lead poisoning. The relevant TCO'99 requirement permits the inclusion of lead since no replacement has yet been developed.

* Bio-accumulative is defined as substances which accumulate within living organisms

** Lead, Cadmium and Mercury are heavy metals which are Bio-accumulative.

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CAUTION

The power cord provided with this monitor is designed for safety and must be used with a properly grounded outlet to avoid possible electrical shock.

Do not remove the monitor cabinet as this can expose you to very high voltages and other hazards.

MANUFACTURER DECLARATION FOR CE-MARKING:

We, NEC-Mitsubishi Electric Visual Systems Corporation, declare under our sole responsibility, that this product is in conformity with the following standards:

EN60950
EN55022 Class B
EN61000-3-2
EN61000-3-3
EN55024

following the provisions of:

73/23/EEC Low Voltage Directive
89/336/EEC EMC Directive

WARNING!

This product is not designed for use in life support devices and NEC-Mitsubishi Electronics Display makes no representations to the contrary. Life support devices are those devices which are used to measure, diagnose, or evaluate the tissue, systems or functions of the human body; or other devices employed to support or sustain life or good health.

Trademark

IBM, PC, PS/2, PS/V, Personal System/2 are registered trademarks of International Business Machines Corp.

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Quadra is a trademark of Apple Computer, Inc.

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ENERGY STAR is a U.S. registered mark.

1 INTRODUCTION

Congratulations on your purchase of the high resolution color monitor. We designed this monitor to provide you with years of reliable trouble-free operation.

This guide tells you how to connect, adjust and care for your monitor. This guide also provides technical specifications and instructions for troubleshooting any basic problems you may experience with your monitor.

1.1 Features

This monitor is a 55cm/22" (508mm/20" Viewable Image Size) intelligent, microprocessor-based monitor compatible with most analog RGB (Red, Green, Blue) display standards.

It provides crisp text and vivid color graphics with both PC and Macintosh platforms.

- The monitor's wide auto-scanning compatibility range makes it possible to upgrade video cards or software without purchasing a new monitor.
- Digitally controlled auto-scanning is done using an internal microprocessor, for horizontal scan frequencies between 30kHz and 110kHz, and vertical scan frequencies between 50Hz and 160Hz. The microprocessor-based intelligence allows the monitor to operate in each frequency mode with the precision of a fixed frequency monitor.
- The monitor contains resident memory for pre-programmed screen display standards and is also capable of storing additional user adjustment parameters.
- The monitor is capable of producing a non-interlaced maximum addressable resolution format of 1920 dots x 1440 lines. This display is well suited for windowing environments.
- Because of the analog signal inputs, the monitor can display an unlimited palette of colors that can be manually adjusted to suit your specific needs.
- The monitor has a power management function accorded to VESA-DPMS-standard. To save energy, the monitor must be connected to a system compliant with the VESA -DPMS-standard. (Refer to your computer and/or video card instructions for proper operation.)
- To ensure ease of installation and ongoing use, the monitor features On Screen Display (OSD) of all monitor set-up and adjustment functions.
- For use in a variety of applications, the monitor complies with UL 1950, CSA C22.2 No.950 and EN60950 for safety, FCC Class-B, VCCI Class-B and EN55022 Class-B for EMI, MPR-II, ISO 9241-3, ISO9241-7 and ISO9241-8 for ergonomics. The monitor also complies with TCO'99 guideline for environmental safe use.
- The world's standard DIAMONDTRON NF CRT upgraded and pure picture images.
- The monitor complies with Video Electronics Standards Association (VESA) DDC2B and 2Bi (EDID) specification. If your computer is Plug & Play compliant setup will be done automatically.
- Fine 0.24mm aperture grille pitch/Maximum addressable resolution of 1920 x 1440.

1.2 Internal Preset Memory Capability

To minimize adjustment needs, the factory has preset popular display standards into the monitor, as shown in Table 1. If any of these display standards are detected, the picture size and position are automatically adjusted. All of the factory presets may be overwritten by adjusting the user controls. This monitor is capable of automatically storing up to 15 additional display standards. The new display information must differ from any of the existing display standards by at least 1kHz for the horizontal scan frequency or 1Hz for the vertical scan frequency or the sync signal polarities must be different.

Table 1. Memory Buffer Factory Presets

PRESET TIMING	Fh(kHz)	Fv (Hz)	Polarity	
			H	V
640 x 480 N.I.	31.5	60.0	–	–
800 x 600 N.I.	53.7	85.1	+	+
1024 x 768 N.I.	60.0	75.0	+	+
1024 x 768 N.I.	68.7	85.0	+	+
1152 x 870 N.I.	68.7	75.1	–	–
1280 x 1024 N.I.	80.0	75.0	+	+
1280 x 1024 N.I.	91.1	85.0	+	+
1600 x 1200 N.I.	93.8	75.0	+	+
1600 x 1200 N.I.	106.3	85.0	+	+

1.3 Power Management Function

The monitor has a power management function which reduces the power consumption of the monitor when not in use.

Power saving mode is invoked by a VESA DPMS-compliant computer. Check your computer's manual for setting this function.

Mode	Power	Power-On Indicator
Normal	130 W	Green
Power Saving Mode	≤ 3 W	Orange

1.4 DDC

The monitor includes the VESA DDC2B and DDC2Bi feature. DDC (Display Data Channel) is a communication channel over which the monitor automatically informs the computer system about its capabilities (e.g. each supported resolution with its corresponding timing).

DDC is routed through previously unused pins of the 15-pin VGA connector.

The system will "Plug and Play" if both monitor and computer implement the DDC protocol.

1.5 Location Considerations

When setting up and using the monitor, keep the following in mind:

- For optimum viewing, avoid placing the monitor against a bright background or where sunlight or other light sources may reflect on the display area of the monitor. Place the monitor just below eye level.
- Place the monitor away from strong magnetic or electromagnetic fields, such as high capacity transformers, electric motors, large current power lines, steel pillars, etc....

Magnetism can cause distortion in the picture and/or color purity.

- Avoid covering the slots or openings of the monitor. Allow adequate ventilation around the monitor so the heat from the monitor can properly dissipate. Avoid putting the monitor into any enclosure that does not have adequate ventilation.
- Avoid exposing the monitor to rain, excessive moisture, or dust, as this can cause a fire or shock hazard.
- Avoid placing the monitor, or any other heavy object, on the power cord. Damage to the power cord can cause a fire or electrical shock.
- When transporting the monitor, handle it with care.

1.6 Cleaning Your Monitor

When cleaning the monitor, please follow these guidelines:

- Always unplug the monitor before cleaning.
- Wipe the screen and cabinet front and sides with a soft unspoil cloth to prevent causing imperfections.
- If the screen requires more than dusting, apply water or neutral detergent to a soft cloth to clean the monitor screen.

CAUTION

- Do not use benzene, thinner or any volatile substances to clean the unit as the finish may be permanently marked.
- Never leave the monitor in contact with rubber or vinyl for an extended time period.
- Do not spray directly on the screen as cleaner may drip into the monitor and damage the circuitry.
- Never use an abrasive cleaner on the screen surface as this will damage the anti-reflection coating.

1.7 Unpacking

After you unpack the box you should have all of the items indicated in Figure 1. Save the box and packing materials in case you transport the monitor.

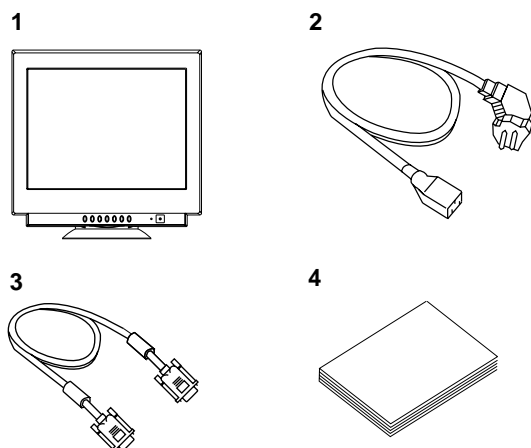


Figure 1

- | | |
|-------------------------|------------------------------------|
| 1. Color Monitor | 4. User's Guide
(this document) |
| 2. AC Power Cord | |
| 3. Signal Cable SC-B110 | |

1.8 Tilt/Swivel Base

The monitor comes with a tilt/swivel base. This enables you to position the monitor at the best angle and tilt for maximum viewing comfort.

Screen Position Adjustment

Adjust the tilt and rotation of the monitor by placing your hands at opposite sides of the case. You can adjust the monitor 90 degrees right or left, 10 degrees up or 5 degrees down, as shown below.

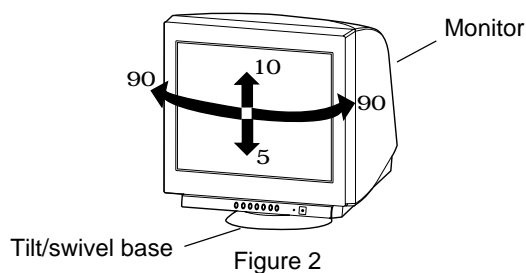


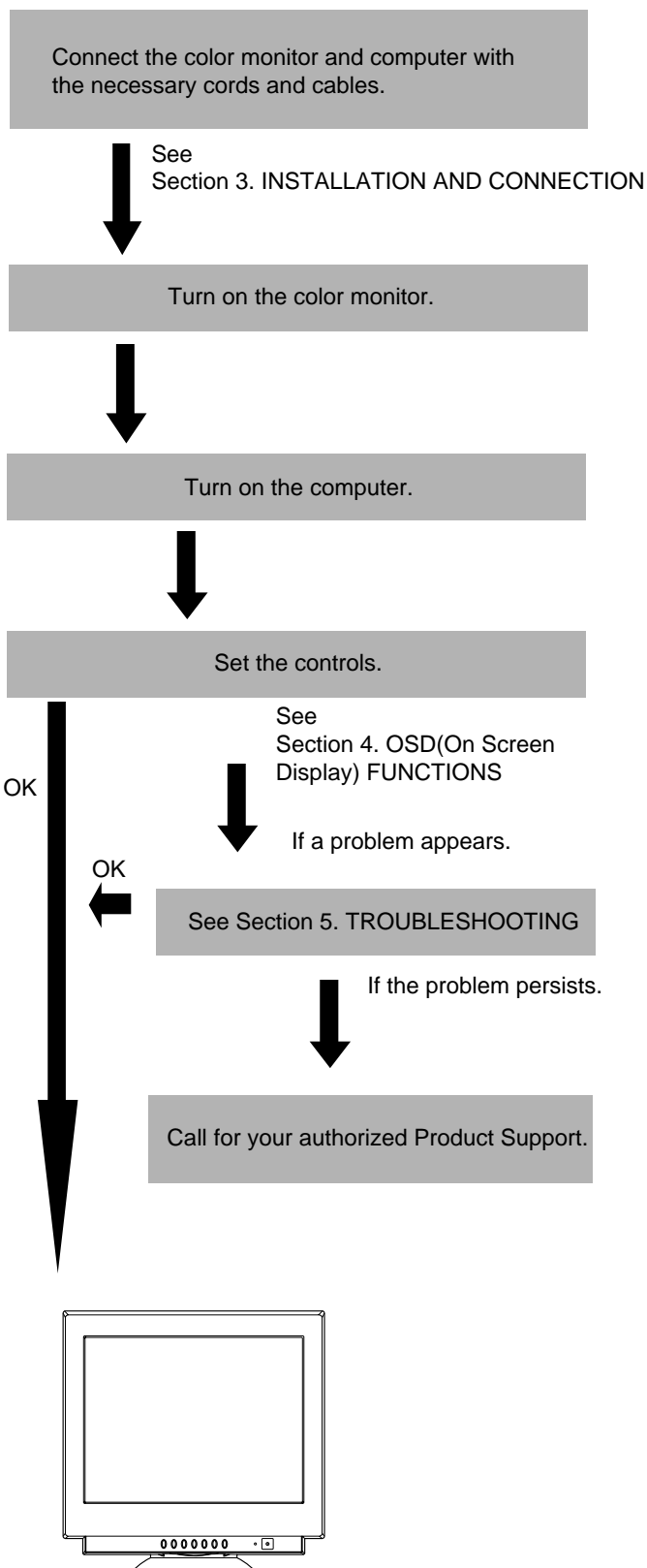
Figure 2

CAUTION

Keep your fingers away from the pivot area of the tilt/swivel base.

1.9 Quick Operation Chart

To summarize the steps in connecting your computer with the color monitor and setting the necessary controls and switches, refer to the chart below.



2 PART NAME

2.1 Control Names

See Figures 3 and 4 for the location of the user controls, indicator and connectors.

Each part is identified by number and is described individually.

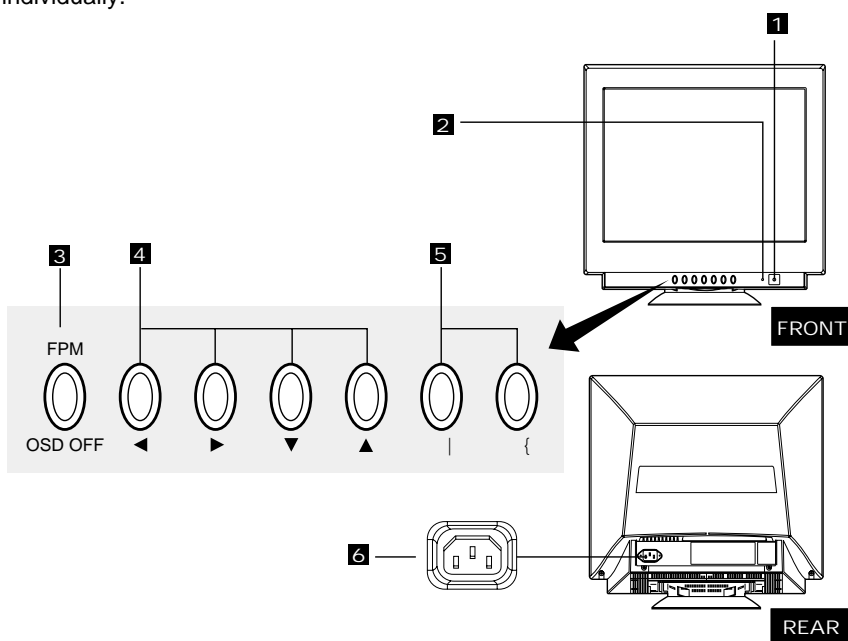


Figure 3

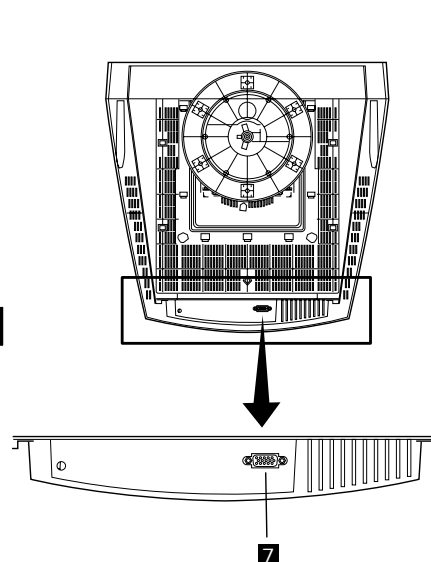


Figure 4

2.2 Function

1. **POWER SWITCH:** A push-on / push-off switch for AC power.
2. **POWER-ON INDICATOR:** This indicator illuminates green when AC power is on, and illuminates orange when the monitor is in the power management modes.
3. **FPM MODE SELECT/OSD OFF BUTTON:**
 - Without OSD screen, push to select a display mode suitable for the displayed image.
 - NORMAL MODE: for normal use
 - TEXT MODE: for images using many letters or characters
 - GRAPHIC MODE: for graphic and photographic images
 - With OSD screen, push to turn the OSD screen off.
4. **ITEM SELECT BUTTONS:** Push to select the item icon.
5. **FUNCTION ADJUST BUTTONS:** Push the adjust buttons to adjust the image on the screen.
6. **AC POWER CONNECTOR**
7. **SIGNAL INPUT CONNECTOR: DB9-15P**

3 INSTALLATION AND CONNECTION

On the back of the monitor two plug-in connections are provided: AC power connector for the AC input, and one DB9-15P connector for video signal input.

3.1 AC Power Connection

One end of the AC power cord is connected to the AC power connector on the back of the monitor. The other end is plugged into a properly grounded three-prong AC outlet. The monitor's auto-sensing power supply can automatically detect 100-120V AC or 220-240V AC and 50 or 60Hz.

3.2 Signal Cable Connection

The DB9-15P(VGA) connector is provided for compatible analog RGB outputs from your computer. Apple Macintosh computers can also be interfaced with using the optional Mitsubishi Macintosh adapter AD-A205.

3.2.1 Connecting to Any IBM VGA Compatible System

Figure 5 shows the SC-B110 cable connection to the Video Graphics Array (VGA) port in an IBM Personal System/2 series, or any VGA compatible system.

1. Power off, both the monitor and the computer.
2. Connect the one end of the SC-B110 cable to the DB9-15P connector on the VGA controller card.
3. Connect the other end of the SC-B110 cable to the DB9-15P receptacle on the back of the monitor.
4. Power on the monitor, then the computer.
5. After using the system, power off the monitor, then the computer.

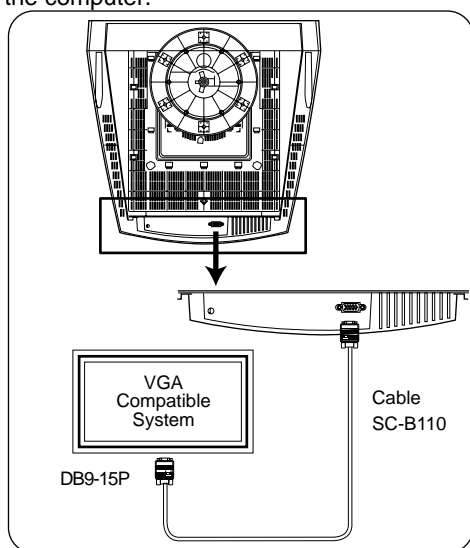


Figure 5

CAUTION

The socket-outlet shall be installed near the equipment and shall be easily accessible. During servicing, disconnect the plug from the socket-outlet.

3.2.2 Connecting to An Apple Macintosh Computer

Figure 6 shows the SC-B110 cable and AD-A205 Adapter(option) to the video port in an Apple Macintosh.

For Macintosh Adapter AD-A205, contact your dealer.

1. Power off, both the monitor and the computer.
2. Set the DIP switches of Macintosh Adapter according to the setting chart.
(See Section 7.3 Optional Macintosh Adapter AD-A205 Settings)
3. Connect the 15-pin (DB-15P) end of the AD-A205 Adapter to the straight 15-pin connector on the Macintosh video port on the computer or on the video board.
4. Connect the sub-miniature 15-pin (DB9-15P) end of the AD-A205 Adapter to the SC-B110 cable.
5. Connect the other end of the SC-B110 cable to the DB9-15P receptacle on the back of the monitor.
6. Power on the monitor, then the Macintosh.
7. After using the system, power off the monitor, then the Macintosh.

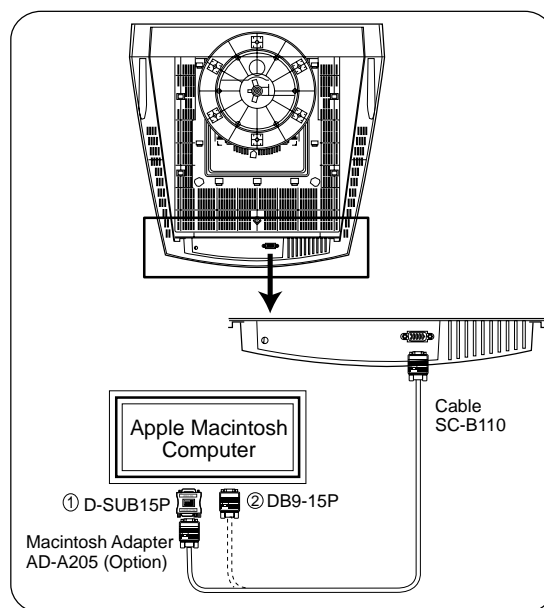


Figure 6

NOTE

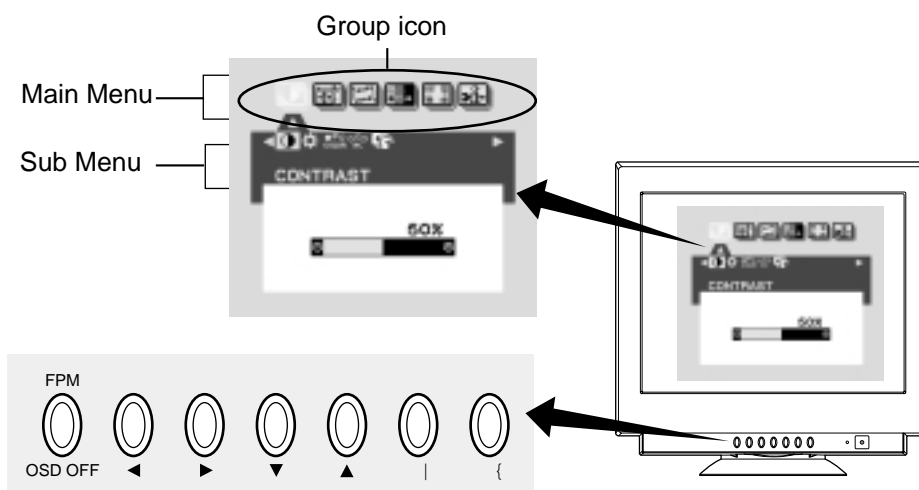
- For the Apple Macintosh Computers having a VGA compatible port, steps 2 through 4 are not necessary. Connect the end of the signal cable to the port directly.
- In case of Apple Macintosh G3 series, use "Control Panel" of "Apple Menu" when selecting a resolution. If select the resolution from "Control Bar", no screen may be displayed and the computer may freeze.

4 OSD (On Screen Display) FUNCTIONS

4.1 How to adjust the screen

The monitor has an OSD(On Screen Display) function.

The following procedure shows how to adjust the screen using the OSD function.



(1) Turn on the monitor by pressing

(2) Display the OSD screen by pressing

(3) Select the group icon on Main Menu by pressing

(4) Display the Sub Menu by pressing






























(5) Select the item icon on Sub Menu by pressing

(6) Adjust by pressing



(7) To turn the OSD screen off, press button

If you don't press any button for the time set at "OSD TURN OFF", the OSD will turn off automatically.

X: Available

Group Icon	Item Icon	Item	Press the Minus Button 	Press the Plus Button 	A	B	C
		CONTRAST	To decrease the contrast.	To increase the contrast.	X	X	X
		BRIGHT	To decrease the brightness.	To increase the brightness.	X	X	X
		COLOR	To select preferable display color mode. And, to adjust the color balance at the selected color mode.		X	X	X
		NOTE When selecting mode "sRGB", "COLOR TEMPERATURE", "CONTRAST" and "BRIGHT" are unavailable.					
		COLOR TEMPERATURE	To decrease the color temperature of the color mode selected by "COLOR"	To indecrease the color temperature of the color mode selected by "COLOR"	X	X	X
		FACTORY PRESET	_____	To restore to factory preset level.	-	-	-
		HORIZ-SIZE	To narrow the width of the image on the screen.	To expand the width of the image on the screen.	X	X	
		HORIZ-POSITION	To move the image on the screen to the left.	To move the image on the screen to the right.	X	X	
		VERT-SIZE	To narrow the height of the image on the screen.	To expand the height of the image on the screen.	X	X	
		VERT-POSITION	To move the image down.	To move the image up.	X	X	
		ROTATION	To rotate the image counterclockwise.	To rotate the image clockwise.	X	X	X
		ZOOM	To narrow the screen to all sides.	To expand the screen to all sides.	X	X	
		GTF AUTO ADJUST	_____	To adjust the screen size automatically.			
		NOTE "GTF AUTO ADJUST" is available when using with the computer which VESA GTF™ function is installed.			-	-	-
		FACTORY PRESET	_____	To restore to factory preset level.	-	-	-
		NOTE If a non-Factory Preset timing is used, "FACTORY PRESET" is unavailable.					
		PINCUSHION	To collapse the center of the image.	To expand the center of the image.	X	X	
		PIN-BALANCE	To move the top and bottom of the screen image to the right.	To move the top and bottom of the screen image to the left.	X	X	
		KEystone	To decrease the width at the top of the screen image and to increase the width at the bottom.	To increase the width at the top of the screen image and to decrease the width at the bottom.	X	X	
		KEY-BALANCE	To make the screen slant to the left.	To make the screen slant to the right.	X	X	
		TOP-PIN	To expand the width of the screen image near the corners of top.	To narrow the width of the screen image near the corners of top.	X	X	
		TOP-BALANCE	To make the screen slant to the left at the top.	To make the screen slant to the right at the top.	X	X	
		BOTTOM-PIN	To expand the width of the screen image near the corners of bottom.	To narrow the width of the screen image near the corners of bottom.	X	X	
		BOTTOM-BALANCE	To make the screen slant to the left at the bottom.	To make the screen slant to the right at the bottom.	X	X	
		VERT-LIN	To vertically compress the center of the screen and expand the top and bottom.	To vertically expand the center of the screen and compress the top and bottom.	X	X	
		VERT-LIN-BALANCE	To vertically expand the bottom of the screen and compress the top.	To vertically compress the bottom of the screen and expand the top.	X	X	
		FACTORY PRESET	_____	To restore to factory preset level.	-	-	-
		NOTE If a non-Factory Preset timing is used, "FACTORY PRESET" is unavailable.					

A. Press "FACTORY PRESET" to restore to the factory preset level.



























B. Press  and  buttons together, to restore to the factory preset level.



C. Set data does not change by the change of the signal timing.

NOTE

If a non-Factory Preset timing is used, "FACTORY PRESET" does not work.

X: Available

Group Icon	Item Icon	Item	Press the Minus Button 	Press the Plus Button 	A	B	C
		CORNER PURITY(TL)	To adjust the purity condition on the top-left corner.		X	X	X
		CORNER PURITY(TR)	To adjust the purity condition on the top-right corner.		X	X	X
		CORNER PURITY(BL)	To adjust the purity condition on the bottom-left corner.		X	X	X
		CORNER PURITY(BR)	To adjust the purity condition on the bottom-right corner.		X	X	X
		LEFT/RIGHT PURITY	To adjust the purity condition on the both sides.		X	X	X
		MOIRE CANCEL LEVEL	To decrease the level of the moire-clear wave.		X	X	
		CLAMP PULSE POSITION	To eliminate an excessive green or white-back ground that may occur when both Sync-On green and external sync signals are applied to the monitor. To clamp the video signal at the front of the H-Sync pulse.		X		
		FACTORY PRESET	To restore to factory preset level.		-	-	-
		HORIZ-CONVERGENCE	To adjust the horizontal beam alignment on the full screen area.		X	X	X
		VERT-CONVERGENCE	To adjust the vertical beam alignment on the full screen area.		X	X	X
		FACTORY PRESET	To restore to factory preset level.		-	-	-
		DEGAUSS	To eliminate possible color shading or impurity due to magnetic effects.		-	-	-
		POWER SAVE	To select the constant power consumption mode.		X		X
		CONTROL LOCK	To unlock the OSD adjustments.				X
	NOTE "BRIGHT" and "CONTRAST" are available at the locked condition.						
		OSD POSITION	To move the OSD screen position in a counter clockwise direction.	To move the OSD screen position in a clockwise direction.	X		X
		OSD TURN OFF	To adjust the time that the OSD screen disappear when no access.		X		
		DIAGNOSIS	Indicates the current scanning frequency, factory or user preset timing number, and signal input connector.		-	-	-
		LANGUAGE	To choose the language used on OSD. ENG.....English, FRA.....French, ESP.....Spanish ITA Italian, GER.....German, JPN.....Japanese				X
		AUTO SAVE	To save the new setting automatically.	To save the new setting with a confirmation message.			X
	NOTE When selecting "OFF", if "SAVE" is not done before the OSD screen disappeared, the new setting is invalid.						
		ALL RESET	Restores all items to the factory preset level.		-	-	-
		FACTORY PRESET	To restore to factory preset level.		-	-	-

- A. Press "FACTORY PRESET" to restore to the factory preset level.
 B. Press  and  buttons together, to restore to the factory preset level.
 C. Set data does not change by the change of the signal timing.


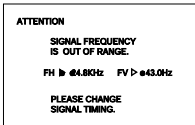
NOTE

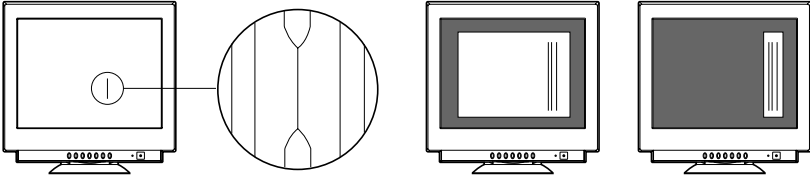
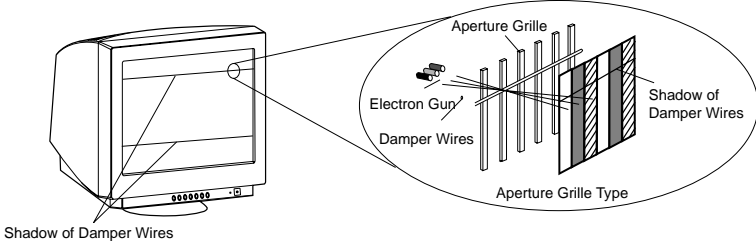
If a non-Factory Preset timing is used, "FACTORY PRESET" does not work.

ENGLISH

5 TROUBLESHOOTING

Before calling your Authorized Product Support, please check that the items below are properly connected or set. In case of using a non-standard signal, please check the pin assignments and the signal timing of your computer with the specification outlined in Section 6. SPECIFICATIONS and Section 7. APPENDIX.

PROBLEM		ITEMS TO CHECK	LOCATION
No picture	LED On (Green)	<ul style="list-style-type: none"> Contrast and brightness controls. 	<ul style="list-style-type: none"> Front
	LED Off	<ul style="list-style-type: none"> Power switch. AC power cord disconnected. 	<ul style="list-style-type: none"> Front Rear
	LED On (Orange)	<ul style="list-style-type: none"> Signal cable disconnected. Computer power switch. Power management function is active. 	<ul style="list-style-type: none"> Rear Computer Press any key on the keyboard or move the mouse.
The following message appeared. 		<ul style="list-style-type: none"> Signal cable disconnected. Computer power switch. Power management function is active. 	<ul style="list-style-type: none"> Rear Computer Press any key on the keyboard or move the mouse.
The following message appeared. 		<ul style="list-style-type: none"> Input signal frequency range is too high or too low for the monitor to synchronize with. 	<ul style="list-style-type: none"> Check the specification of graphics adapter
Abnormal picture	Display is missing, center shifts, or too small or too large of a display size	<ul style="list-style-type: none"> Do "FACTORY PRESET" or "ALL RESET" for a standard signal. Adjust HORIZ-SIZE, VERT-SIZE, HORIZ-POSITION, and VERT-POSITION with non-standard signals. Monitor may not be able to get full-screen image depend on signal. In this case, please select other resolution, or other vertical refresh timing. Make sure you wait a few seconds after adjusting the size of the image before changing or disconnecting the signal. 	<ul style="list-style-type: none"> Front (OSD) Front (OSD)

PROBLEM	ITEMS TO CHECK	LOCATION
<div>Abnormal Picture</div> <div>Black vertical lines are visible on the screen.</div>	<ul style="list-style-type: none"> Thin vertical black lines on one or both sides of the screen. This minor condition is caused by grille element overlap which can occur during shipping. <p>Position an open white window over the affected area of the screen and maximize the brightness and contrast controls. This will cause localized heating of the overlap which will clear in a few minutes. Be sure to readjust the brightness and contrast controls back to the normal viewing levels after this procedure.</p> 	
<div>Two fine horizontal lines are visible on the screen.</div>	<ul style="list-style-type: none"> The 2 very faint thin lines across the screen are normal. They are caused by the aperture grille stabilization filaments(Damper Wires) which are required for all aperture grille CRTs'. 	
<div>A buzzing sound when power on.</div>	<ul style="list-style-type: none"> A brief vibration or hum sound that is heard just after power up is normal. This is caused by the automatic degaussing function. This sound will be heard each time the monitor is powered up from a cold start and each time the manual degauss button is used. 	

6

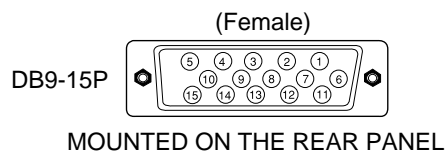
SPECIFICATIONS

CRT	Size	55cm/22" (508mm/20" Viewable Image Size)
	Mask type	Aperture grille
	Gun	In-line
	Deflection angle	90°
	Phosphors	Red, Green, Blue EBU (medium short persistence)
	Aperture grille pitch	0.24mm
	Phosphor pitch	0.25mm
	Face Plate	G-WARAS (Anti-glare, Anti-reflection and Anti-static coating)
	Focusing method	Dynamic Beam Forming (DBF)
INPUT SIGNAL	Video	0.7Vp-p analog RGB
	Sync	Separate H, V sync., or Composite sync
SIGNAL INTERFACE	Input Connectors	DB9-15P
	Input Impedance	75Ω (video), 2.2kΩ (sync.)
SCANNING FREQUENCY	Horizontal	30 - 110kHz
	Vertical	50 - 160Hz
RESOLUTION (HxV)	1920 dots x 1440 lines Non-Interlaced maximum addressable resolution format at 73Hz	
WARM-UP TIME	30 minutes to reach optimum performance level	
BRIGHTNESS	100cd/m ² , standard full white video signal at 9300K (+ 8MPCD)	
BLANKING TIME	Horizontal	≥ 2.3 μsec (typ.)
	Vertical	≥ 450 μsec (typ.)
DISPLAY SIZE	396mm x 297mm(typ.)	ratio 4:3
COLOR	5000K~9300K	
POWER SOURCE	AC100-120/220-240V±10% 50/60Hz 130W (typ.)	
OPERATING ENVIRONMENT	Temperature	5 - 35°C
	Humidity	10 - 90%RH (without condensation)
DIMENSIONS	(W)19.5inch x (H)19.4inch x (D)18.6inch / (W) 495mm x (H) 493.5mm x (D) 473mm	
WEIGHT	Approx. 29.7kg (65.3 lbs.)	
TILT/SWIVEL BASE	Tilt Angle	-5° - +10°
	Swivel Angle	±90°
REGULATIONS	Safety	UL1950 (UL), CSA C22.2 No.950 (C-UL) EN60950 (TÜV-GS)
	EMC	FCC Class-B, DOC Class-B EN55022 Class-B, VCCI Class-B EN61000-3-2, EN61000-3-3, EN55024
	X-Ray	DHHS, HWC, Röv vom 8.1, 1987
	Other	CE-Marking, MPR-II/TCO'91 ISO9241-3, ISO9241-7, ISO9241-8 (TÜV-GS) TCO '99 International ENERGY STAR Program Energy 2000 Labeling Award Guidelines for the Suppression of Harmonics in Appliances and General-Use Equipment

*This monitor is registered / certified with Model No. NSV1107STTKW.

7 APPENDIX

7.1 Monitor Signal Input Connector (DB9-15P)

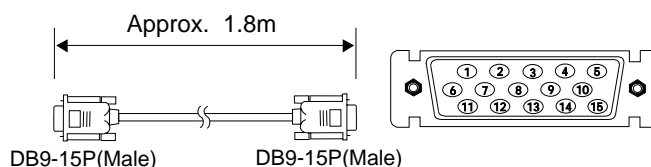


PIN ASSIGNMENTS

Pin No.	Signal
1	RED VIDEO
2	GREEN VIDEO
3	BLUE VIDEO
4	GROUND
5	DDC GROUND
6	RED GROUND
7	GREEN GROUND
8	BLUE GROUND
9	NC
10	SYNC GROUND
11	GROUND
12	SDA
13	HORIZONTAL SYNC or COMPOSITE SYNC
14	VERTICAL SYNC(VCLK)
15	SCL

DDC DISPLAY DATA CHANNEL
SDA SERIAL DATA
SCL SERIAL CLOCK
NC NO-CONNECTION

7.2 SC-B110 Signal Cable



PIN ASSIGNMENTS

Pin No.	Signal
1	RED
2	GREEN
3	BLUE
4	GROUND
5	DDC GROUND
6	RED GROUND
7	GREEN GROUND
8	BLUE GROUND
9	NC
10	SYNC GROUND
11	GROUND
12	SDA
13	HORIZONTAL SYNC
14	VERTICAL SYNC(VCLK)
15	SCL

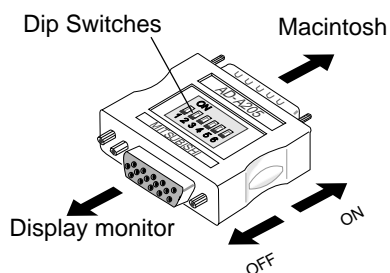
DDC DISPLAY DATA CHANNEL
SDA SERIAL DATA
SCL SERIAL CLOCK
NC NO-CONNECTION

7.3 Optional Macintosh Adapter AD-A205 Settings

The AD-A205 Macintosh Adapter(option) allows you to take an advantage of the built in video capabilities of your Macintosh computer with the monitor.

- (1) Set the dip switches of the adapter, before connect to the computer.

- (2) Set the dip switches according to the following chart. By using the following chart, you can choose a main resolution, quickly.
If you wish to operate by other resolution, refer to next page; "AD-A205 Mac Adapter Setting Chart"



Apple Macintosh	Switch ON	Switch Setting
Macintosh LC, LC II	1,2	
Macintosh LC III, LC475, LC630	2,4	
Macintosh Quadra 610, 650, 700, 800, 840AV, 900, 950 Macintosh Centris 610, 650, 660AV	1,2,3,4	
Performa 6260, 6310, 6410, 6420 Power Macintosh 6100, 6100AV, 6200, 6300 Power Macintosh 7100AV, 7200, 7300, 7500, 7600 Power Macintosh 8100, 8100AV, 8500, 8600 Power Macintosh 9500, 9600 Workgroup Server 7350, 8150, 9150, 9650	1,2,6	
Macintosh Ilvi, Ilvx Power Macintosh 4400, G3	3,4	

<Optional Macintosh Adapter AD-A205 Setting Chart>



● Set the dip switch "ON" as shown below. (Example; "1,2")

		Macintosh						Performa		Power Macintosh												
		Ilisi Ilici	Ilvi Ilvx	LC LCII	LCIII LC475	LC630	Quadra 700 900	Quadra 610 650 800 950 Centris 610 650	Quadra 840AV Centris 660AV	6260 6310	6410 6420	Workgroup Server 8150 9150	8100 VRAM Video Card (DB-15)	6200 6300	7200	4400	7300 7500 7600 8500 8600 Workgroup Server 7350	9500	9600/233 Workgroup Server 9650	9600/300 9600/350	G3	
RESOLUTION			3,4	3,4	3,4	3,4	3,4	3,4	3,4	1,2,6	1,2,6	3,4	3,4	1,2,6	3,4	3,4	3,4	3,4	3,4	3,4	3,4	3,4
		X	X	1,2	1,2	1,2	1,2	1,2	1,2	1,2,6	1,2,6	1,2,6	1,2,6	1,2,6	1,2,6	1,2,6	3,4	3,4	1,2,6	1,2,6	3,4	3,4

1. The resolution does not change with the computer powered on when you set the dip switches.
Be sure to power off the computer when you set the dip switches.
2. Set the dip switches by a pointed article like a pencil or ball point pen to touch end of the switch groove.

INHALTSVERZEICHNIS

DEUTSCH

ACHTUNG

Das mitgelieferte Netzkabel wurde konzipiert, um größtmögliche Sicherheit zu gewährleisten. Es darf nur an eine ordnungsgemäß geerdete Steckdose angeschlossen werden, um eventuelle Stromschläge zu vermeiden.

Entfernen Sie nie die Rückwand dieses Gerätes, da Sie sich dadurch sehr hohen Spannungen und anderen Gefahren aussetzen können.

HERSTELLER-KONFORMITÄTSERKLÄRUNG ZUR CE-KENNZEICHNUNG:

Wir, NEC-Mitsubishi Electric Visual Systems Corporation, erklären in alleiniger Verantwortung, daß das Produkt auf das sich diese Erklärung bezieht, mit der/ den folgenden Normen oder normativen Dokumenten übereinstimmt:

EN60950
EN55022 Klasse B
EN61000-3-2
EN61000-3-3
EN55024

Gemäß den Bestimmungen der Richtlinien:

73/23/EEC Niederspannungsrichtlinie
89/336/EEC EMV Richtlinie

ACHTUNG!

Dieses Produkt ist nicht für den Gebrauch in Zusammenhang mit lebenserhaltenden Geräten geeignet und die NEC-Mitsubishi Electronics Display macht keinerlei gegensätzliche Darstellungen. Lebenserhaltende Geräte sind solche, die zum Messen, Diagnostizieren oder für die Auswertung von Gewebe, Systemen oder Funktionen des menschlichen Körpers benutzt werden; oder andere Geräte die angewendet werden, um das Leben oder die Gesundheit zu unterstützen oder zu erhalten.

Warenzeichen

IBM, PC, PS/2, PS/V, Personal System/2 sind eingetragene Warenzeichen der International Business Machines Corp. Apple Macintosh, Quadra sind eingetragene Warenzeichen der Apple Computer, Inc.

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1 EINLEITUNG

Wir gratulieren Ihnen zu dem Kauf des hochauflösenden Farbmonitors. Wir entwickelten diesen Monitor mit dem Ziel, Ihnen jahrelang eine zuverlässige, störungsfreie Benutzung zu ermöglichen.

Dieses Handbuch zeigt Ihnen den Anschluß, die Einstellung und die Pflege Ihres Monitors. Außerdem sind technische Spezifikationen und ein Kapitel zur Störungssuche enthalten.

1.1 Eigenschaften

Der Monitor ist ein intelligenter 55cm/22" (508mm/20" Sichtbarer Bildgröße) Monitor, der zu den meisten analogen RGB (Rot, Grün, Blau) Bildschirmstandards kompatibel ist.

Er ermöglicht die Wiedergabe von Texten und Grafikdarstellungen sowohl auf PC-als auch auf Macintosh-Systemen.

- Die große Kompatibilität des Monitors ermöglicht den Wechsel des Grafikadapters oder der Software ohne den Kauf eines neuen Monitors.
- Das Auto-Scanning wird digital über den Mikroprozessor gesteuert. Der Monitor synchronisiert sich automatisch auf alle horizontalen Frequenzen zwischen 30kHz und 110kHz und auf alle vertikalen Frequenzen zwischen 50Hz und 160Hz. Die Mikroprozessorsteuerung des Monitors erlaubt den Betrieb des Monitors in jedem Frequenzmodus mit der Präzision eines Fest-Frequenz-Monitors.
- Neben einer Reihe von bereits voreingestellten Bildschirmstandards bietet der Monitor auch die Möglichkeit, benutzerabhängige Einstellungen für diese und weitere Timings abzuspeichern.
- Der Monitor erlaubt eine maximale horizontale Auflösung von 1920 Bildpunkten und eine maximale vertikale Auflösung von 1440 Linien bei IBM-basierenden Systemen und ist somit auch für fensterorientierte Benutzeroberflächen hervorragend geeignet.
- Aufgrund der analogen Signaleingänge verfügt der Monitor über eine unbegrenzte Farbpalette, die Ihren Vorstellungen entsprechend abgeglichen werden kann.
- Zur Energieeinsparung verfügt der Monitor über ein voll dem VESA-DPMS und Energy Star entsprechendes Power Management-System. Für die automatische Abschaltung muß der Monitor an ein System angeschlossen sein, welches einem dieser Standards entspricht (Für die korrekte Einstellung beachten Sie bitte die Bedienungshinweise zu Ihrem PC und/oder Ihrer Grafikkarte).
- Um dem Benutzer Installation und Einstellung so einfach wie möglich zu gestalten, ist der Monitor mit einem Bildschirmmenu (On Screen Display, OSD) für alle Einstellfunktionen ausgestattet.
- Für den Einsatz in den verschiedensten Anwendungen erfüllt der Monitor die Standards UL 1950, CSA C22.2 Nr. 950 und EN60950 für Sicherheit, FCC Klasse B, VCCI Klasse B und EN55022 Klasse B für EMI, die MPR-II Richtlinien sowie die Standards ISO9241-3, ISO9241-7 und ISO9241-8 für Ergonomie. Dieser Monitor erfüllt die Richtlinien der TCO '99-Norm für den umweltfreundlichen Gebrauch.
- Die weltbekannte DIAMONDTRON NF Bildröhre mit verbessertem Fokus und Konvergenz für ein extrem scharfes und reines Bild.
- Dieser Monitor entspricht den DDC2B und 2Bi (EDID) Spezifikationen der Video Electronics Standards Association (VESA). Bei Verwendung eines Computers (bzw. einer Grafikkarte), der die DDC 2B/2Bi(EDID) Funktion unterstützt, werden alle Anpassungen automatisch durchgeführt.
- Eine feine 0.24mm Streifenmaske mit einer maximalen Auflösung von 1920 x 1440 Bildpunkten.

1.2 Interne Speicherfähigkeit

Einstellauwand für den Benutzer so gering wie möglich zu halten, wurden werksseitig bereits die in Tabelle 1 aufgelisteten Bildschirmstandards abgespeichert. Erkennt der Monitor einen dieser Standards, werden Bildlage und -größe automatisch justiert. Diese Voreinstellungen können unter Benutzung der Bedienelemente überschrieben werden. Zusätzlich zu den werksseitig eingestellten Timings können bis zu zwölf weitere Timings abgespeichert werden. Um als 15 Timing erkannt zu werden, muß das neue Videosignal in der Horizontalfrequenz um mindestens 1KHz, in der Vertikalfrequenz um mindestens 1Hz oder in der Polarität der Synchronsignale von sämtlichen bereits abgespeicherten Timings abweichen.

Tabelle 1. Werksseitig Voreinstellungen

VOREINGESTELLTES TIMING	Fh(kHz)	Fv (Hz)	Polarität	
			H	V
640 x 480 N.I.	31.5	60.0	–	–
800 x 600 N.I.	53.7	85.1	+	+
1024 x 768 N.I.	60.0	75.0	+	+
1024 x 768 N.I.	68.7	85.0	+	+
1152 x 870 N.I.	68.7	75.1	–	–
1280 x 1024 N.I.	80.0	75.0	+	+
1280 x 1024 N.I.	91.1	85.0	+	+
1600 x 1200 N.I.	93.8	75.0	+	+
1600 x 1200 N.I.	106.3	85.0	+	+

1.3 Power Management Funktion

Dieser Monitor besitzt eine Energiesparfunktion, welche die Leistungsaufnahme reduziert, wenn der Monitor nicht benutzt wird. Diese werden durch einen Computer aktiviert, der den VESA-DPMS Richtlinien entspricht. Zur Aktivierung dieser Funktion beziehen Sie sich bitte auf das Handbuch zu Ihrem Computer.

Modus	Leistungsaufnahme	Betriebsanzeige
Normal	130 W	Grün
Energiesparmodi	≤ 3W	Orange

1.4 DDC

Dieser Bildschirm ist mit der DDC2B / DDC2Bi Funktion ausgestattet. DDC (Display Data Channel) ist ein Übertragungskanal, über den der Bildschirm dem Computer automatisch seine Leistungsmerkmale mitteilt (z.B. jeder unterstützte Bildschirmmodus mit dem entsprechenden Timing).

DDC benutzt einen Stift des 15-Stift-VGA-Steckers, der vorher nicht verwendet wurde. Das System wird die "Plug & Play"-Funktion nur dann ausführen, wenn sowohl Bildschirm als auch Computer mit der DDC Funktion ausgerüstet sind.

1.5 Betriebshinweise

Bitte beachten Sie bei der Aufstellung und dem Betrieb Ihres Monitors folgende Hinweise:

- Stellen Sie den Monitor nicht vor einem hellen Hintergrund oder dort auf, wo das Sonnenlicht oder andere helle Lichtquellen direkt auf den Monitor scheinen, um eine Anstrengung der Augen zu vermeiden. Um eine höchstmögliche Ergonomie zu gewährleisten, sollte der Monitor so aufgestellt werden, daß er sich unterhalb der Augenhöhe befindet.
- Installieren Sie den Monitor nicht in der Nähe von Geräten, die starke magnetische oder elektromagnetische Felder erzeugen, wie z.B. Hochleistungstransformatoren, Elektromotoren, Starkstromleitungen, Stahlsäulen usw. Magnetische Felder können zu Farbveränderungen und/oder zu Bildverzerrungen führen.
- Decken Sie die Entlüftungsöffnungen des Monitors nicht zu. Sorgen Sie für ausreichende Belüftung, damit die im Monitor entstehende Wärme abgeführt werden kann.
- Schützen Sie den Monitor vor Regen, Feuchtigkeit und Staub, um einen Brand oder Stromstöße zu vermeiden.
- Achten Sie darauf, daß weder der Monitor, noch ein anderer schwerer Gegenstand auf dem Netzkabel stehen. Eine Beschädigung des Netzkabels kann einen Brand oder Stromstöße verursachen.
- Behandeln Sie den Monitor vorsichtig beim Transport.

1.6 Reinigung Ihres Monitors

Beachten Sie bei der Reinigung Ihres Monitors bitte folgende Hinweise:

- Ziehen Sie vor der Reinigung immer den Netzstecker aus der Steckdose.
- Reinigen Sie den Bildschirm und das Gehäuse mit einem weichen Tuch.
- Verwenden Sie bei einer stärkeren Verschmutzung des Bildschirms ein weiches Tuch mit Haushalts-Fensterreiniger für die Reinigung.

ACHTUNG

- *Reinigen Sie das Gerät nicht mit Benzol, Verdünnern oder anderen flüchtigen Stoffen, da die Oberfläche durch diese Stoffe beschädigt werden könnte.*
- *Vermeiden Sie längeren Kontakt mit Gummi- oder Vinylprodukten.*
- *Sprühen Sie Reinigungsmittel niemals direkt auf den Monitor, da übermäßige Flüssigkeit in den Monitor eindringen und zu Schäden führen könnte.*
- *Benutzen Sie niemals ein Scheuermittel auf der Bildröhroberfläche, da dies zur Beschädigung der Anti-Reflexionsbeschichtung führt.*

1.7 Auspacken

Nach dem Auspacken Ihres Farbmonitors sollten alle in Bild 1 aufgeführten Teile vorhanden sein. Verwahren Sie den Originalkarton und das Verpackungsmaterial, falls Sie den Monitor später versenden oder transportieren müssen.

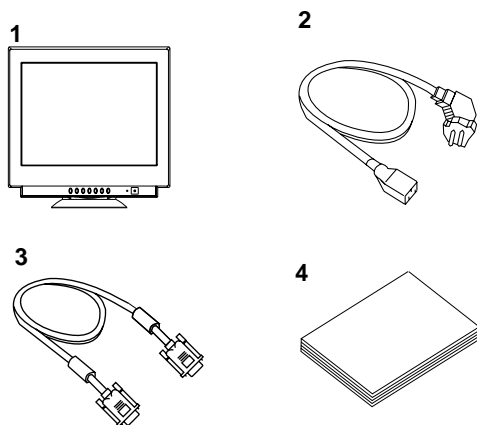


Bild 1

1. Hochauflösende Farbmonitor
2. Netzkabel
3. Kabel: SC-B110
4. Bedienungsanleitung (Dieses Dokument)

1.8 Dreh-/Kippfuß

Der Monitor wird mit einem Dreh-/Kippfuß geliefert. Er ermöglicht die Ausrichtung des Monitors nach den Anforderungen des Benutzers für größtmögliche Ergonomie.

Justierung des Bildschirms

Fassen Sie den Bildschirm an den gegenüberliegenden Seiten, an und stellen Sie den gewünschten Dreh- und Kippwinkel ein. Sie können den Monitor um 90 Grad nach rechts oder links drehen, um 10 Grad nach oben und um 5 Grad nach unten kippen.

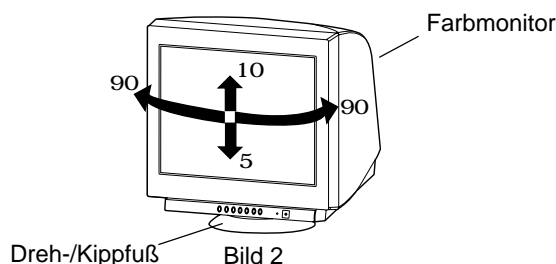


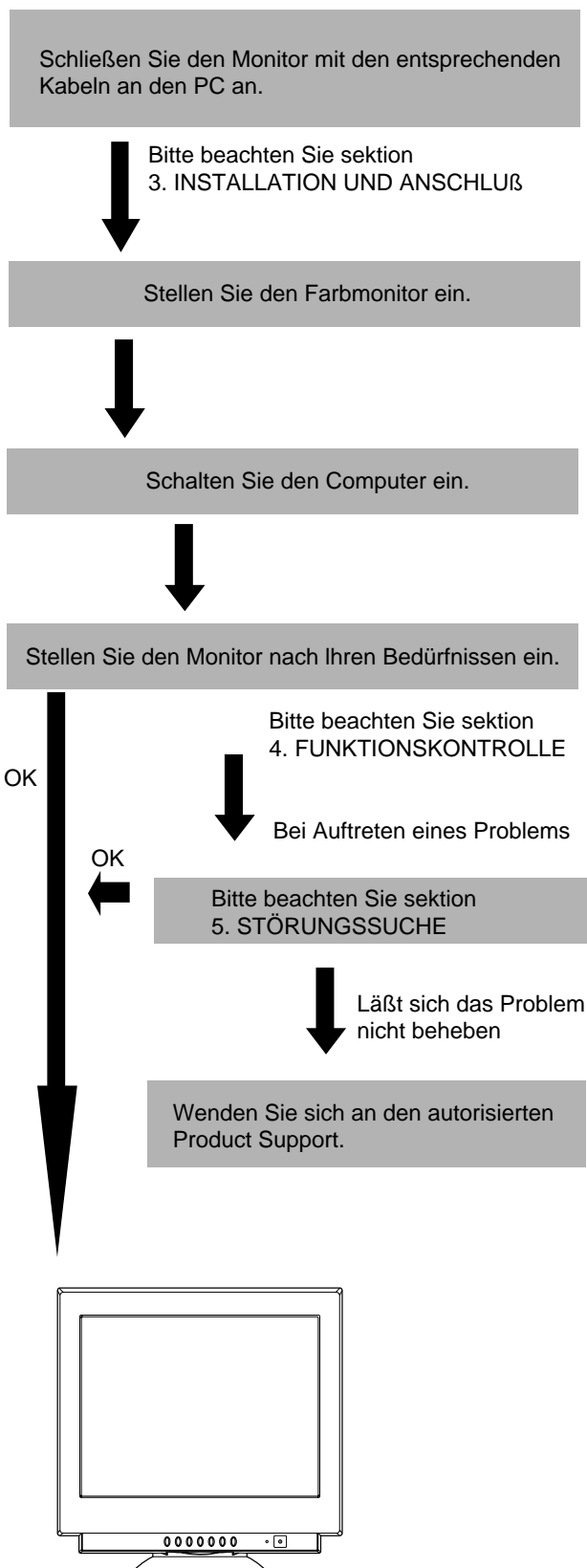
Bild 2

ACHTUNG

Bitte die Finger nicht in die Nähe der beweglichen Teile des Dreh-/Kippfusses bringen, da sonst Einklemmgefahr besteht.

1.9 Kurzinstallationsanweisung

Die nachfolgende Abbildung erläutert den Anschluß Ihres Computers und Adapters an den Farbmonitor und die Einstellung des Monitors.



2 BEDIENELEMENTE UND ANSCHLÜSSE

2.1 Bedienelemente

Bild 3 und 4 zeigen die Position der Bedienelemente und Anzeigen. Jedes Bedienelement ist mit einer Ziffer gekennzeichnet und einzeln beschrieben.

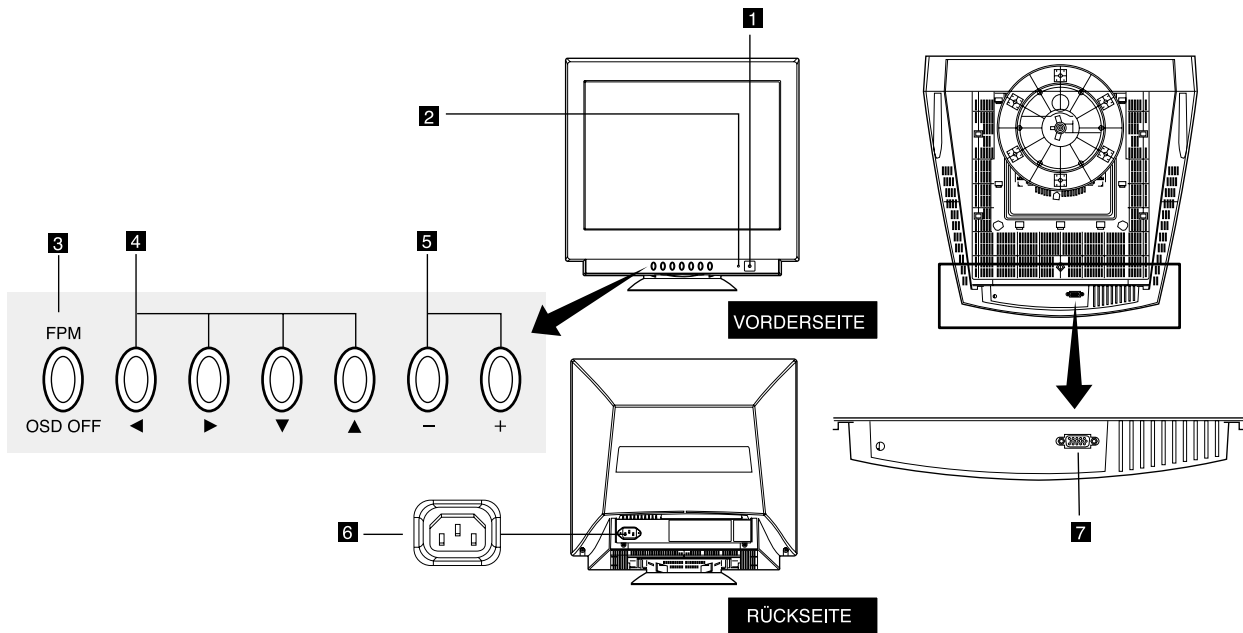


Bild 3

Bild 4

DEUTSCH

2.2 Funktion

1. **NETZSCHALTER:** Schaltet das Gerät ein bzw. aus.
2. **BETRIEBSANZEIGE:** Diese Anzeige leuchtet auf, wenn der Monitor eingeschaltet ist. und leuchtet orange, wenn sich der Monitor im Energiespar-Modus befindet.
3. **FPM MODE SELECT/OSD OFF:**
 - Ohne Bildschirmmenü: Drücken Sie die Taste, um einen für das Bild geeigneten Anzeigemodus auszuwählen.
 NORMAL MODE: Normaler Einsatz
 TEXT MODE: Darstellungen mit vielen Buchstaben oder Zeichen
 GRAPHIC MODE: Grafiken und Fotografien
 - Mit Bildschirmmenü: Drücken deaktiviert das Bildschirmmenü.
4. **AUSWAHLTASTE:** Drücken Sie diese Taste, um die gewünschte Einstellungsfunktion auszuwählen.
5. **EINSTELLTASTEN:** Mit diesen Tasten justieren Sie die gewünschte Bildeinstellung.
6. **NETZBUCHSE**
7. **SIGNAL EINGANGSBUCHSE : DB9-15P**

3 INSTALLATION UND ANSCHLUß

Auf der Rückseite des Monitors befinden sich vier Anschlüsse: Die Netzanschlußbuchse für den Netzanschluß, eine DB9-15P-Buchsen zum Anschluß der Videosignale.

3.1 Anschluß des Netzkabels

Stecken Sie das eine Ende des Netzkabels in die dafür vorgesehene Buchse auf dem Anschlußfeld auf der Rückseite des Monitors und das andere in eine ordnungsgemäß geerdete Netzsteckdose. Das automatische Schaltnetzteil des Monitors stellt sich selbständig auf die Netzspannung von entweder 100-120V AC oder 220-240V AC, 50 oder 60Hz ein.

3.2 Anschluß des Signalkabels

Das beigefügte Signalkabel ist mit einem DB9-15P Stecker für den Anschluß an die VGA-kompatiblen RGB-Ausgänge Ihres PC ausgestattet. APPLE Macintosh Computer können unter Verwendung des optional erhältlichen Mitsubishi Macintosh Adapters angeschlossen werden.

3.2.1 Anschluß an ein PC-System

Bild 5 zeigt den Anschluß des Signalkabels SC-B110 an den VGA-Anschluß eines PC der IBM Personal System/2 Serie oder jedes VGA-kompatiblen Systems.

1. Schalten Sie den Monitor und den PC aus.
2. Schließen Sie das Computerende des Kabels SC-B110 an die 15-polige Buchse an der VGA-Grafikkarte an.
3. Schließen Sie das Monitorende des Kabels SC-B110 an die 15-polige Buchse (DB9-15P) des Monitors an.
4. Schalten Sie erst den Monitor, dann den PC ein.
5. Wenn Sie das System verlassen, schalten Sie erst den Monitor, dann den PC aus.

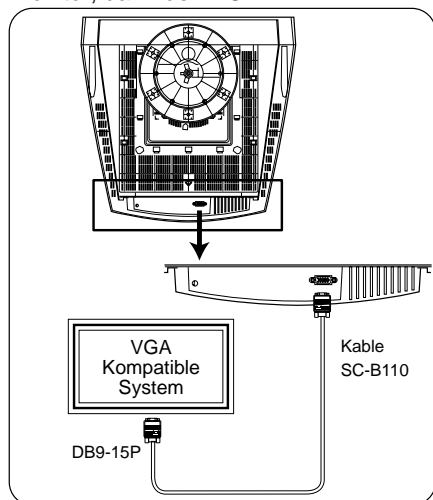


Bild 5

ACHTUNG

Die Stromversorgung dieses Monitors bleibt auch bei ausgeschaltetem Gerät aktiv. Daher sollte sich die Netzsteckdose in der Nähe des Gerätes befinden und leicht zugänglich sein.

3.2.2 Anschluß an Apple Macintosh Computer

Bild 6 zeigt den Anschluß an das Grafikboard eines Apple Macintosh mittels des Kabels SC-B110 und optionalen Adapters AD-A205.

1. Schalten Sie den Monitor und den Rechner aus.
2. Stellen Sie die DIP Schalter am Macintosh Adapter der Tabelle entsprechend ein.
(Bitte beachten Sie Sektion 7.3 Einstellung des optionalen Macintosh Adapters AD-A205)
3. Schließen Sie das 15-polige Ende (DB-15P) des Adapters AD-A205 an die 15-polige Buchse an dem integrierten Macintosh Grafikadapter oder der Zusatzgrafikkarte an.
4. Verbinden Sie das 15-polige Sub-Miniatur-Ende (DB9-15P) des Adapters AD-A205 mit dem Kabel SC-B110 (P/C).
5. Verbinden Sie das Monitorende (D/M) des Kabels SC-B110 mit der 15-poligen Buchse des Monitors.
6. Schalten Sie zuerst den Monitor, dann den Macintosh ein.
7. Wenn Sie das System verlassen, schalten Sie erst den Monitor, dann den Macintosh aus.

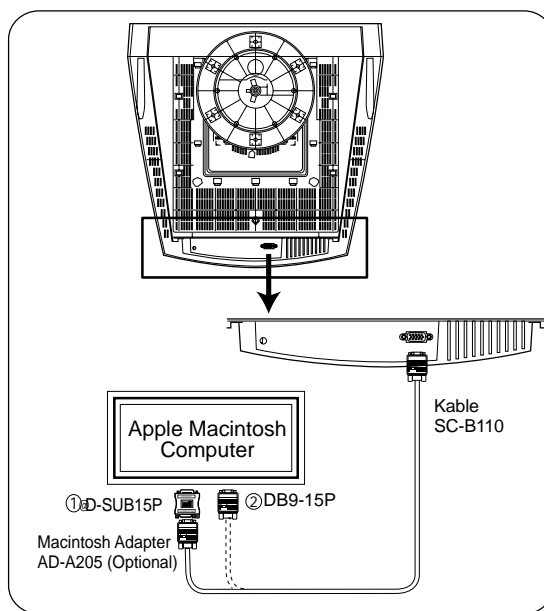


Bild 6

ANMERKUNG

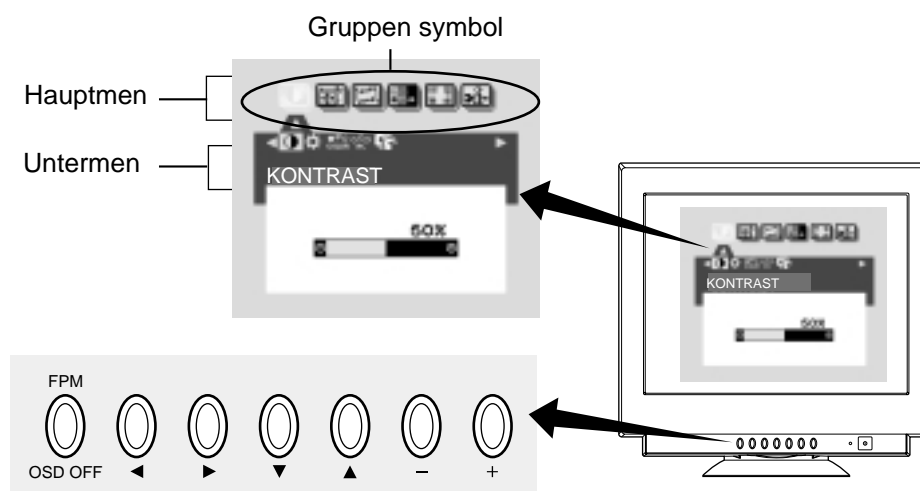
- Falls Ihr Apple Macintosh Computer mit einem VGA-kompatiblen Anschluß ausgestattet ist, entfallen die Schritte 2 bis 4. Schließen Sie in diesem Fall das Signalkabel direkt an den Anschluß an.
- Bitte gehen Sie in die Kontrollfelder des Apple Menüs, wenn Sie die Auflösung ändern möchten. (Macintosh G3 Serie). Wenn Sie die Auflösung von der Kontrolleiste aus ändern, kann es sein, daß kein Bild dargestellt wird und der Computer "eingefroren" wird.

4 FUNKTIONSKONTROLLE

4.1 Einstellen des Monitors

Der Monitor verfügt über ein sogenanntes OSD (On Screen Display, Bildschirmmenü), mit dem alle Einstellungen sehr komfortabel durchgeführt werden können.

Im folgenden wird Ihnen gezeigt, wie Sie den Monitor mit Hilfe des OSD einstellen können.



(1) Schalten Sie den Monitor durch Drücken von ein.

(2) Zeigen Sie das Bildschirmmenü durch Drücken von an.

(3) Wählen Sie das Gruppensymbol im Hauptmenü, indem Sie drücken.

(4) Zeigen Sie das Untermenü durch Drücken von an.

(5) Wählen Sie das Elementsymbol im Untermenü, indem Sie drücken.
































(6) Stellen Sie den Wert durch Drücken von ein.

(7) Drücken Sie die Taste , um das Bildschirmmenü auszuschalten.

Wenn Sie in dem unter "OSD-ANZEIGEDAUER" eingestellten Zeitraum keine Taste drücken, wird das Bildschirmmenü automatisch ausgeblendet.





























4.2 Einstellfunktionen



X: Einstellfunktion

Gruppen symbol	Symbol	Funktion	Drücken Sie die Minus Taste: 	Drücken Sie die Plus Taste: 	A	B	C	
		KONTRAST	Um den Kontrast zu verringern.	Um den Kontrast zu erhöhen.	X	X	X	
		HELLIGKEIT	Um den Helligkeit zu verringern.	Um den Helligkeit zu erhöhen.	X	X	X	
		FARBE	Auswahl des bevorzugten Farbanzeigemodus. Außerdem Einstellung der Farbbalance im gewählten Farbmodus.					
		FARBTEMPERATUR	Erhöht den Rot Anteil.	Erhöht den Grün Anteil.	X	X	X	
		WERKSEINSTELLUNG	_____	Setzt auf die werksseitigen Voreinstellungen zurückzusetzen.	-	-	-	
		BILDBREITE	Um die Bildbreite zu verringern.	Um die Bildbreite zu vergrößern.	X	X		
		HORIZ.BIDLAGE	Um die Bild nach links zu verschieben.	Um die Bild nach rechts zu verschieben.	X	X		
		BILDHÖHE	Um die Bildhöhe zu verringern.	Um die Bildhöhe zu vergrößern.	X	X		
		VERTIKALE BIDLAGE	Um das Bild nach unten zu verschieben.	Um das Bild nach oben zu verschieben.	X	X		
		ROTATION	Dreht das Bild entgegen der Uhrzeigerrichtung.	Dreht das Bild in Uhrzeigerrichtung.	X	X	X	
		ZOOM	Um das Bild in allen Richtungen zu verkleinern.	Um das Bild in allen Richtungen zu vergrößern.	X	X		
		GTF AUTOM. -EINSTELL	_____	Um Bildgröße automatisch einzustellen.	-	-	-	
		WERKSEINSTELLUNG	_____	Setzt auf die werksseitigen Voreinstellungen zurückzusetzen.	-	-	-	
		ANMERKUNG Die Einstellung "GTF AUTO" ist verfügbar, wenn ein Computer mit installierter VESA GTF-Funktion verwendet wird.						
		KISSEN-KORREKTUR	Um eine Tonnen-verzeichnung zu korrigieren.	Um eine Kissenverzeichnung zu korrigieren.	X	X		
		KISSEN-BALANCE	Um die vertikale Bildmitte nach links zu verschieben.	Um die vertikale Bildmitte nach rechts zu verschieben.	X	X		
		TRAPEZ-KORREKTUR	Um die Bildbreite am oberen Bildrand zu verringern und am unteren Bildrand zu vergrößern.	Um die Bildbreite am oberen Bildrand zu vergrößern und am unteren Bildrand zu verringern.	X	X		
		PARALLELOGRAMM KORR.	Um das Bild nach links zu neigen.	Um das Bild nach rechts zu neigen.	X	X		
		KISSENKORREKT. OBEN	Um die Bildbreite im Bereich der oberen Bildecken zu vergrößern.	Um die Bildbreite im Bereich der oberen Bildecken zu verringern.	X	X		
		KISSENBALANCE OBEN	Un die oberen Bildecken nach links zu verschieben.	Un die oberen Bildecken nach rechts zu verschieben.	X	X		
		KISSENKORREKT. UNTEN	Um die Bildmitte im Bereich der unteren Bildecken zu vergrößern.	Um die Bildmitte im Bereich der unteren Bildecken zu verringern.	X	X		
		KISSENBALANCE UNTEN	Un die unteren Bildecken nach links zu verschieben.	Un die unteren Bildecken nach rechts zu verschieben.	X	X		
		V-LINEARITÄT	Streckt den unteren Bereich und komprimiert den oberen Bereich des Bildes.	Komprimiert den unteren Bereich und streckt den oberen Bereich des Bildes.	X	X		
		BALANCE V-LINEARITÄT	Um den mittleren Bereich zu strecken und den oberen und unteren Bereich des Bildes zu komprimieren.	Um den mittleren Bereich zu komprimieren und den oberen und unteren Bereich des Bildes zu strecken.	X	X		
		WERKSEINSTELLUNG	_____	Setzt auf die werksseitigen Voreinstellungen zurückzusetzen.	-	-	-	
		ANMERKUNG Wird ein von der Werkseinstellung abweichendes Timing verwendet, ist die Option "WERKSEINSTELLUNG" nicht verfügbar.						

X: Einstellfunktion

DEUTSCH

Gruppen symbol	Symbol	Funktion	Drücken Sie die Minus Taste: 	Drücken Sie die Plus Taste: 	A	B	C
		ECKENFARBREINHEIT OL	Reguliert die Farbreinheit der oberen linken Ecke.		X	X	X
		ECKENFARBREINHEIT OR	Reguliert die Farbreinheit der oberen rechten Ecke.		X	X	X
		ECKENFARBREINHEIT UL	Reguliert die Farbreinheit der unteren linken Ecke.		X	X	X
		ECKENFARBREINHEIT UR	Reguliert die Farbreinheit der unteren rechten Ecke.		X	X	X
		FARBR.LINKS/ RECHTS	Reguliert die Farbreinheit der rechts oder links.		X	X	X
		MOIRÉ KORREKT.-PEGEL	Um den Pegel der Moirereduzierung zu verringern.		X	X	
		SCHWARZWERT- KLEMMUNG	Verhindert einen übermäßig grünen oder weißen Hintergrund, der einem gleichzeitigen externen Synchronsignal auftreten kann. Um die Schwarz-schulterklemmung auf die vordere Schwarzscherle zu setzen.	Um die Schwarz-schulterklemmung auf die hintere Schwarzscherle zu setzen. Kann bei Anschluß eines älteren Macintosh-Computers notwendig sein.	X		
		WERKSEINSTELLUNG	Setzt auf die werksseitigen Voreinstellungen zurückzusetzen.		-	-	-
		STAT.KONVERGENZ H.	Um die horizontale Deckung der Strahlen für den gesamten Bildschirmbereich einzustellen.		X	X	X
		STAT.KONVERGENZ V.	Um die vertikale Deckung der Strahlen für den gesamten Bildschirmbereich einzustellen.		X	X	X
		WERKSEINSTELLUNG	Setzt auf die werksseitigen Voreinstellungen zurückzusetzen.		-	-	-
		ENTMAGNETISIERUNG	Beseitigt Farbschatten und Farbunreinheiten.		-	-	-
		ENERGIESPARFUNKTION	Um die Energiesparfunktion zu deaktivieren.	Aktiviert die Energiesparfunktion. (Zur ordnungsgemäßen Funktion muß die Unterstützung der Energiesparfunktion auch computerseitig aktiviert sein).	X		X
		OSD SPERRUNG	Deaktiviert die OSD Sperrung. (alle Funktionen können geändert werden).	Aktiviert die OSD Sperrung (nur die Einstellungen für "HELLIGKEIT" und "KONTRAST" können geändert werden).			X
		ANMERKUNG "HELLIGKEIT" und "KONTRAST" sind im gesperrten Modus nicht verfügbar.					
		OSD POSITION	Um das Bildschirmmenu (OSD) entgegen der Uhrzeigerrichtung zu bewegen.	Um das Bildschirmmenu (OSD) in Uhrzeigerrichtung zu bewegen.	X		X
		OSD-ANZEIGEDAUER	Hier können Sie den Zeitraum einstellen, nach dem das Bildschirmmenu ausgeblendet wird, wenn keine Aktivität erfolgt.		X		
		DIAGNOSE	Zeigt die zur Zeit benutzten Ablenkfrequenzen, die Art, Benutzerdefiniert (USER) oder Voreingestellt (PRESET), und Speichernummer des verwendeten Videosignals, und den verwendeten Signalanschluß an.		-	-	-
		SPRACHE	Wählt die OSD Sprache aus. ENG.....Englisch, FRA.....Französisch, ESP.....Spanisch, ITA.....Italienisch, GER.....Deutsch, JPN.....Japanisch				X
		AUTO-SPEICHERUNG	Dient dem Speichern der neuen Einstellung(mit Bestätigungsmeldung)	Dient dem auto matischen Speichern der neuen Einstellung.			X
		ANMERKUNG Wenn Sie "AUS" wählen und vor dem Ausblenden des Bildschirmmenus nicht "SPEICHERN" verwendet wurde, ist die neue Einstellung ungültig.					
		KOMPLETTRÜCKSTELLUNG	Um alle Einstellungen auf die werksseitigen Voreinstellungen zurückzusetzen.		-	-	-
		WERKSEINSTELLUNG	Setzt auf die werksseitigen Voreinstellungen zurückzusetzen.		-	-	-

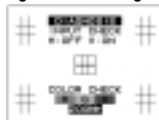
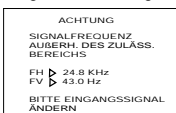
- A. Verwenden Sie "WERKSEINSTELLUNG", um diese Funktionen auf die werksseitigen Voreinstellungen zurückzusetzen.
- B. Drücken sie gleichzeitig die  und  Taste, um die werksseitig voreingestellten werte wiederherzustellen.
- C. Diese Einstellungen sind unabhängig vom verwendeten Timing und ändern sich beim Wechsel des Videosignals nicht.

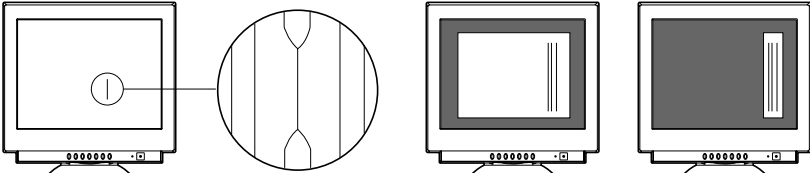
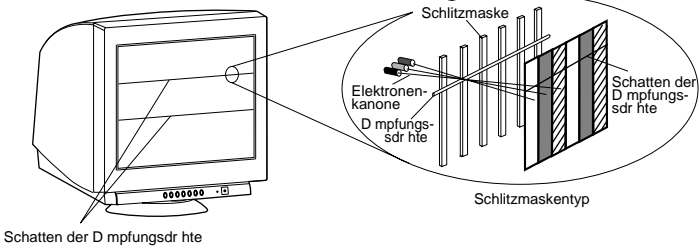
ANMERKUNG

Bei Verwendung eines benutzerdefinierten (USER) Videosignals, zeigen die Funktionen "WERKSEINSTELLUNG" keine Wirkung (Da für diese Signale keine Daten vorliegen, auf die zurückgestellt werden könnte).

5 STÖRUNGSSUCHE

Bevor Sie sich an den autorisierten Product Support wenden, überprüfen Sie bitte die unten genannten Anschlüsse und Einstellungen. Sollten Sie kein Standardsignal verwenden, prüfen Sie bitte, ob die Pinbelegung und das Signaltiming Ihres Adapters mit der Spezifikation übereinstimmen, die in Kapitel 6(SPEZIFIKATIONEN) und Kapitel 7(ANHANG), aufgeführt ist.

PROBLEM		KONTROLLE	POSITION
Kein Bild	LED an (Grün)	<ul style="list-style-type: none"> Kontrast- und Helligkeitsregler in minimaler Position? 	<ul style="list-style-type: none"> Vorderseite
	LED aus	<ul style="list-style-type: none"> Netzschalter eingeschaltet? Netzkabel korrekt angeschlossen? 	<ul style="list-style-type: none"> Vorderseite Rückseite
	LED an (Orange)	<ul style="list-style-type: none"> Signalkabel angeschlossen? Netzschalter des Computers eingeschaltet? Power Management Funktion aktiv? 	<ul style="list-style-type: none"> Rückseite Computer Drücken Sie irgendeine Taste oder bewegen Sie die Maus.
Auf dem Bildschirm erscheint die folgende Meldung. 		<ul style="list-style-type: none"> Signalkabel angeschlossen? Netzschalter des Computers eingeschaltet? Power Management Funktion aktiv? 	<ul style="list-style-type: none"> Rückseite Computer Drücken Sie irgendeine Taste oder bewegen Sie die Maus.
Auf dem Bildschirm erscheint die folgende Meldung. 		<ul style="list-style-type: none"> Die Frequenz des Eingangssignals befindet sich außerhalb des Bereiches, der vom Monitor synchronisiert (wiedergegeben) werden kann. 	<ul style="list-style-type: none"> Spezifikation des Grafikadapters.
Fehlerhaftes Bild	Bild fehltist nicht zentriertist zu klein oder zu groß	<ul style="list-style-type: none"> Bei Verwendung eines voreingestellten Timings (siehe Tabelle 1,S.3) benutzen Sie bitte die Funktionen "WERKSEINSTELLUNG" oder "KOMPLETTRÜCKSTELLUNG". Bei User Timing BILDBREITE, HORIZ. BIDLAGE, VERTIKALE BIDLAGE und BILDHÖHE einstellen. Im Einzelfall kann es vorkommen, daß der Monitor aufgrund des verwendeten Signaltimings keine Vollbilddarstellung bietet. Wechseln Sie in diesem Fall die Auflösung oder die Vertikalfrequenz des Signals. Um die Speicherung der geänderten Werte sicherzustellen, warten Sie einige Sekunden bevor Sie das Eingangssignal wechseln oder den Monitor ausschalten. 	<ul style="list-style-type: none"> Vorderseite (OSD) Vorderseite (OSD)

PROBLEM	KONTROLLE	POSITION
<p>Fehlerhaftes Bild</p> <p>schwarze vertikale Linien sind auf dem Bildschirm sichtbar</p>	<ul style="list-style-type: none"> • Auf dem Bildschirm erscheinen auf einer oder beiden Seiten dünne schwarze vertikale Linien. Dieses Bild wird durch eine Überlappung der Streifen während des Transports verursacht. • Sollte dies nicht zum Erfolg führen, positionieren Sie ein weißes Fenster über die betroffene Stelle und stellen Sie die Helligkeits- und Kontrastkontrollen auf ihre Maximalwerte. Dadurch wird die Überlappung in wenigen Minuten beseitigt. Die Helligkeits- und Kontrastwerte müssen nach diesem Vorgang wieder auf den Normalwert reduziert werden. 	
<p>Zwei feine horizontale Linien sind auf dem Bildschirm sichtbar</p>	<ul style="list-style-type: none"> • Diese beiden feinen horizontalen Linien stellen keinen Defekt dar, sondern sind für Streifenmasken normal. Bei diesen feinen Linien handelt es sich um die Schatten der Stabilisierungsdrähte, die bei allen Streifenmasken-Bildröhren zur Stabilisierung der Maske verwendet werden. 	
<p>surrendes Geräusch beim Einschalten des Gerätes</p>	<ul style="list-style-type: none"> • Ein kurzes Vibrieren oder Summen nach dem Einschalten ist normal. Dies wird durch die automatische DEGAUSS-Funktion verursacht. Dieses Geräusch tritt immer bei einem Kaltstart und bei Drücken der DEGAUSS-Taste auf. 	

6

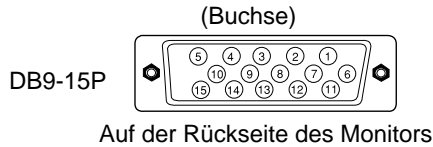
SPEZIFIKATIONEN

BILDRÖHRE	Diagonale	55cm/22" (508mm/20" Sichtbarer Bildgröße)
	Maske	Streifenmasken-Bildröhre
	Kathodensystem	In-line
	Ablenkwinkel	90°
	Phosphor	Rot, Grün, Blau EBU (mittelkurze Nachleuchtdauer)
	Streifenmaske	0.24mm
	Phosphor-Streifenabstand	0.25mm
	Frontglas	G-WARAS (antireflektierend, entspiegelt, anti-statische Beschichtung)
	Fokushmethode	Dynamische Strahlformung (DBF)
EINGANGSSIGNAL	Video	0.7Vp-p analog RGB
	Synchronisation	Getrennte hor./vert. Sync. oder Composite Sync.
SCHNITTSTELLE	Eingangsanschluß	DB9-15P
	Eingangsimpedanz	75Ω (video), 2.2kΩ(Synchronisation)
FREQUENZ- BEREICH	Horizontal	30 - 110kHz
	Vertikal	50 - 160Hz
AUFLÖSUNG (HxV)	1920 x 1440 Bildpunkte max. bei 73Hz	
WARMLAUFZEIT	30 Minuten bis zur optimalen Leistung	
HELLIGKEIT	100cd/m ² , standard volle Weißfläche bei 9300K (+ 8MPCD)	
DUNKELTASTZEIT	Horizontal	≥ 2.3 μsec (typ.)
	Vertical	≥ 450 μsec (typ.)
BILDFLÄCHE	396mm x 297mm(typ.)	Verhältnis 4:3, z.B.
FARBTEMPERATUR	5000K~9300K	
NETZSPANNUNG	AC100-120/220-240V±10% 50/60Hz 130W (typ.)	
BETRIEBS- BEDINGUNGEN	Temperatur	5 - 35°C
	Feuchtigkeit	10 - 90%RH (nicht kondensierend)
ABMESSUNGEN	(B)19.5inch x (H)19.4inch x (T)18.6inch / (B)495mm x (H)493.5mm x (T)473mm	
GEWICHT	ca. 29.7kg (65.3lbs.)	
DREH-/ KIPPFUß	Kippwinkel	-5° - +10°
	Drehwinkel	±90°
ZULASSUNGEN/ PRÜFZEICHEN	Sicherheit	UL1950 (UL), CSA C22.2 No.950 (C-UL) EN60950 (TÜV-GS)
	EMV	FCC Klasse B, DOC Klasse B EN55022 Klasse B, VCCI Klasse B EN61000-3-2, EN61000-3-3, EN55024
	Röntgenstrahlung	DHHS, HWC, Röv vom 8.1, 1987
	Andere	CE-Marking, MPR-II/TCO'91 ISO9241-3, ISO9241-7, ISO9241-8 (TÜV-GS) TCO '99 International ENERGY STAR Program Energy 2000 Labeling Award Guidelines for the Suppression of Harmonics in Appliances and General-Use Equipment

*Dieser Monitor ist unter der Modellnummer NSV1107STTKW registriert und zugelassen.

7 ANHANG

7.1 Eingangsanschluß des Monitors (DB9-15P)

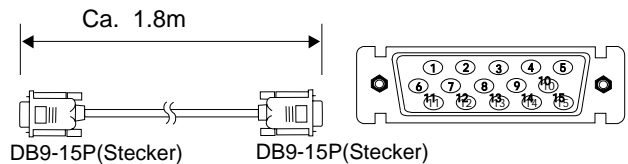


ANSCHLUßBELEGUNG

ANSCHLUß	SIGNAL
1	ROT
2	GRÜN (oder SYNC-AUF-GRÜN)
3	BLAU
4	MASSE
5	DDC MASSE
6	ROT MASSE
7	GRÜN MASSE
8	BLAU MASSE
9	NC
10	SYNC MASSE
11	MASSE
12	SDA
13	HORIZONTAL SYNC (oder COMPOSITE SYNC)
14	VERTIKAL SYNC (VCLK)
15	SCL

DDC ANGABE DATUM KANAL
SDA SERIALS DATUM
SCL SERIALS UHR
NC NICHT BELEGT

7.2 Signalkabel SC-B104



ANSCHLUßBELEGUNG

ANSCHLUß	SIGNAL
1	ROT
2	GRÜN
3	BLAU
4	MASSE
5	MASSE (DDC)
6	ROT MASSE
7	GRÜN MASSE
8	BLAU MASSE
9	NC
10	SYNC.MASSE
11	MASSE
12	SDA
13	HORIZONTAL SYNC.
14	VERTIKAL SYNC.(VCLK)
15	SCL

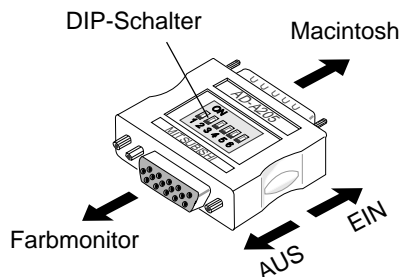
DDC ANGABE DATUM KANAL
SDA SERIALS DATUM
SCL SERIALS UHR
NC NICHT BELEGT

7.3 Einstellung des optionalen Macintosh Adapters AD-A205

Der Macintosh Adapter (optional) AD-A205 erlaubt Ihnen die Möglichkeiten der Standardgrafikkarte Ihres Macintosh vollständig zu nutzen.

- (1) Stellen Sie die DIP-Schalter des Adapters ein, bevor Sie diesen an den Computer anschließen.

- (2) Stellen Sie die DIP-Schalter gemäß nachfolgender Tabelle ein.
Durch Verwendung der folgenden Tabelle, können Sie die Hauptauflösung schnell wählen.
Falls Sie eine andere Auflösung für den Betrieb wünschen, siehe die nächste Seite unter "Einstellungstabelle für Macintosh Adapter AD-A205".



Apple Macintosh	Schalter EIN	Schaltereinstellung
Macintosh LC, LC II	1,2	
Macintosh LC III, LC475, LC630	2,4	
Macintosh Quadra 610, 650, 700, 800, 840AV, 900, 950 Macintosh Centris 610, 650, 660AV	1,2,3,4	
Performa 6260, 6310, 6410, 6420 Power Macintosh 6100, 6100AV, 6200, 6300 Power Macintosh 7100AV, 7200, 7300, 7500, 7600 Power Macintosh 8100, 8100AV, 8500, 8600 Power Macintosh 9500, 9600 Workgroup Server 7350, 8150, 9150, 9650	1,2,6	
Macintosh Ilvi, Ilvx Power Macintosh 4400, G3	3,4	

DEUTSCH

<Einstellungstabelle für Macintosh Adapter AD-A205>



● Die DIP-Schalter auf "EIN" stellen, wie es nachfolgend dargestellt ist. (Beispiel: "1,2")

- (3) Die "Einstellungstabelle für Macintosh Adapter AD-A205" zeigt alle verfügbaren Modi für Macintosh Systeme und alle möglichen Kombinationen mit dem Monitor.
Wir empfehlen jedoch, daß Sie den Monitor mit voreingestelltem Timing verwenden (Bitte beachten Sie Sektion 1.2 Interne Speicherfähigkeit).
- (4) Bitte beachten Sie die Bedienungsanleitung Ihres Computers für die Einstellung der Auflösung. An manchen Computern kann die Auflösung nicht geändert werden.

		Macintosh						Performa		Power Macintosh													
		Ilisi Iici	Ilvi Ilvx	LC LCii	LCIII LC475	LC630	Quadra 700 900	Quadra 610 650 800 950 Centris 610 650	Quadra 840AV Centris 660AV	6260 6310	6410 6420	Workgroup Server 8150 9150 6100 8100 6100AV 7100AV 8100AV AV Video Card (DB-15)	8100 VRAM Video Card (DB-15)	6200 6300	7200	4400	7300 7500 7600 8500 8600 Workgroup Server 7350	9500	9600/233 Workgroup Server 9650	9600/300 9600/350	G3		
AUFLÖSUNG																							
		3,4	3,4	3,4	3,4	3,4	3,4	3,4	1,2,6	1,2,6	3,4	3,4	1,2,6	3,4	3,4	3,4	3,4	3,4	3,4	3,4	3,4	3,4	
	X	X	1,2	1,2	1,2	1,2	1,2	1,2	1,2,6	1,2,6	1,2,6	1,2,6	1,2,6	1,2,6	1,2,6	3,4	3,4	1,2,6	1,2,6	1,2,6	1,2,6	3,4	
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1. Die Auflösung wird nicht geändert, wenn Sie bei eingeschaltetem Computer die DIP-Schalter einstellen. Unbedingt die Stromversorgung des Computers ausschalten, wenn Sie die DIP-Schalter einstellen.
2. Die DIP-Schalter mit einem spitzen Gegenstand (wie z.B. Bleistift oder Kugelschreiber) einstellen, indem dieser am Ende der Schalternut eingesetzt wird.

TABLE DES MATIERES

ATTENTION !

Le moniteur est livré avec un cordon d'alimentation de sécurité qui doit s'utiliser sur une prise correctement mise à la terre afin d'éviter d'éventuels chocs électriques.

Ne pas retirer le boîtier du moniteur : vous pouvez être exposé à des tensions élevées et à d'autres risques.

DÉCLARATION DE CONFORMITÉ POUR MARQUAGE CE:

Nous, NEC-Mitsubishi Electric Visual Systems Corporation, déclarons sous notre seule responsabilité que le produit auquel se réfère cette déclaration est conforme à la aux normes ou autres documents normatifs:

EN60950
EN55022 Classe B
EN61000-3-2
EN61000-3-3
EN55024

conformément aux dispositions de Directives:
73/23/EEC Lage-netspanningsrichtlijn
89/336/EEC EMC-richtlijn

ATTENTION!

Ce produit n'a pas été désigné pour fonctionner dans des systèmes qui permettent de mesurer, d'évaluer ou d'assurer le bon fonctionnement des fonctions du corps humain. NEC-Mitsubishi Electronics Display ne peut en aucun cas être tenu responsable en cas d'utilisation de ce produit sur de tels systèmes.

Marques déposées

IBM, PC, PS/2, PS/V, Personal System/2 sont des marques déposées d'International Business Machines Corp.

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1 INTRODUCTION

Nous vous adressons nos félicitations pour votre achat d'un moniteur couleur haute résolution. Nous avons conçu ce moniteur de façon à ce qu'il vous assure des années de fonctionnement fiable et sans problème.

Ce guide vous permet de connecter et d'utiliser votre moniteur en toute sécurité. Vous y trouverez également les spécifications techniques et les instructions nécessaires pour résoudre certains problèmes que vous pourriez rencontrer lors de l'utilisation de votre moniteur.

1.1 Caractéristiques

Le moniteur intelligent 55cm / 22" (508mm/20" Aire d'affichage), à microprocesseur, compatible avec la plupart des standards d'affichage analogique RVB (Rouge, Vert, Bleu).

Cette fonction procure des caractères nets et des couleurs éclatantes avec une utilisation PC ou Macintosh.

Le haut degré de compatibilité du balayage automatique permet de faire évoluer les cartes vidéo ou le logiciel sans changer de moniteur.

- La détection automatique des fréquences de balayage numérique et effectuée par un microprocesseur interne, permet de travailler avec des fréquences de balayage horizontal situées entre 30 kHz et 110 kHz, et avec des fréquences de balayage vertical situées entre 50 Hz et 160 Hz. Le processus intelligent mis en oeuvre par le microprocesseur permet au moniteur de travailler dans chaque mode de balayage avec la précision d'un moniteur à fréquence fixe.
- Le moniteur comporte une mémoire résidente pour les standards préprogrammés d'affichage sur écran et peut également mémoriser d'autres paramètres définis par l'utilisateur.
- La résolution horizontale maximum de ce moniteur est de 1920 points par ligne, et sa résolution verticale maximum est de 1440 lignes (valeurs typiques). Ce moniteur est donc bien adapté aux environnements à fenêtres.
- Comme les signaux d'entrée sont analogiques, ce moniteur peut afficher une palette de couleur illimitée, que l'on peut ajuster manuellement en cas de besoins spécifiques.
- Pour des raisons d'économies d'énergie, le moniteur est intégralement conforme aux méthodes de gestion d'énergie DPMS et Energy Star. Pour obtenir son arrêt automatique, il est nécessaire que le moniteur soit connecté à un système compatible avec l'un ou l'autre de ces standards (Reportez-vous aux instructions accompagnant votre ordinateur et/ou votre carte vidéo pour assurer un fonctionnement correct).
- Afin de faciliter l'installation et l'utilisation, les informations concernant les fonctions de réglages sont indiquées sur le menu à l'écran (OSD).
- Pour une utilisation optimale sous différentes applications, le moniteur est compatible avec les normes de sécurité UL 1950, CSA C22.2 No.950, EN60950, les normes d'interférence électromagnétique FCC, VCCI, EN55022 (Classe B), la norme EMI,MPR-II, ISO 9241-3, ISO 9241-7 et ISO 9241-8 la norme d'ergonomie. Ce moniteur respecte en outre les recommandations TCO '99 en matière de respect de l'environnement.
- Le standard mondial DIAMONDTRON NF CRT amélioré et des images d'une grande pureté.
- Ce moniteur répond aux normes Video Electronics Standards Association (VESA) DDC2B/2Bi(EDID). Si votre PC est compatible avec la fonction "Plug & Play", alors le réglage d'initialisation se fera automatiquement.
- Grille à fils tendus au pas de 0.24mm / Résolution adressage maximum de 1920 x 1440.

1.2 Valeurs prérégées stockées en mémoire

Pour limiter autant que possible la nécessité d'effectuer des réglages, les standards d'affichage les plus courants ont été chargés en usine dans la mémoire du moniteur, comme le montre le Tableau 1. Dès que l'un de ces standards se trouve détecté, le centrage et la dimension de l'image sont réglés automatiquement. Toutes les valeurs prérégées en usine peuvent être modifiées au moyen des commandes accessibles à l'utilisateur. Ce moniteur peut stocker jusqu'à 15 standards d'affichage supplémentaires. Les nouvelles informations ainsi stockées doivent être différentes de celles chargées en usine d'au moins 1 kHz pour ce qui concerne les fréquences de balayage horizontal, et de 1 Hz pour les fréquences de balayage vertical, ou alors les polarités des signaux de synchro devront être différentes.

Tableau 1. Standards de balayages chargés en usine

STANDARD DE BALAYAGE	Fh(kHz)	Fv (Hz)	Polarité	
			H	V
640 x 480 N.I.	31.5	60.0	–	–
800 x 600 N.I.	53.7	85.1	+	+
1024 x 768 N.I.	60.0	75.0	+	+
1024 x 768 N.I.	68.7	85.0	+	+
1152 x 870 N.I.	68.7	75.1	–	–
1280 x 1024 N.I.	80.0	75.0	+	+
1280 x 1024 N.I.	91.1	85.0	+	+
1600 x 1200 N.I.	93.8	75.0	+	+
1600 x 1200 N.I.	106.3	85.0	+	+

1.3 Fonction Economiseur d'énergie

L'économiseur d'énergie permet de réduire la consommation du moniteur lorsqu'il n'est pas utilisé. Les modes d'économie d'énergie sont évoqués par un ordinateur compatible avec les normes VESA DPMS. Vérifier votre manuel d'utilisation, pour utiliser cette fonction.

Mode	Alimentation	Indicateur d'alimentation
Normal	130 W	Vert
Mode économiseur d'énerg	≤ 3 W	Orange

1.4 DDC

Ce moniteur est muni de la fonction DDC2B et DDC2Bi feature. DDC (Display Data Channel) est un mode de communication par lequel le moniteur informe automatiquement ses performances techniques à l'unité centrale (par exemple chaque mode offert par le moniteur et les temps correspondants).

DDC utilise un contact du connecteur VGA 15 pin auparavant non utilisé.

Le système sera "Plug n' Play" seulement si l'ordinateur et le moniteur sont munis l'un et l'autre de la fonction DDC.

1.5 Considérations relatives à l'emplacement du moniteur

Lors de la mise en place et lorsque vous utilisez votre moniteur, gardez en mémoire ces quelques règles:

- Pour garantir une vision optimale, éviter d'installer votre moniteur face à un arrière-plan lumineux ou à un endroit où la lumière solaire ou d'autres sources lumineuses peuvent être réfléchies sur la zone d'affichage. Installez le moniteur juste sous la hauteur des yeux.
- Installer le moniteur à l'écart des sources de champs magnétiques ou électro-magnétiques intenses, telles que transformateurs de puissance, moteurs électriques, câbles d'alimentation véhiculant de fortes intensités, colonnes en acier, etc... Les champs magnétiques peuvent provoquer des distorsions d'image et/ou altérer la pureté des couleurs.
- Eviter d'obstruer les fentes ou ouvertures du moniteur. Laissez une ventilation adéquate autour du moniteur, de telle sorte que la chaleur produite par celui-ci puisse se dissiper librement. Eviter de placer le moniteur dans un compartiment insuffisamment ventilé.
- Ne pas exposer le moniteur à la pluie, à une humidité excessive ou à la poussière, ceci pouvant entraîner des dangers d'électrocution.
- Eviter de poser le moniteur ou tout autre objet lourd sur le cordon secteur. Un cordon secteur endommagé est une cause possible d'incendie ou d'électrocution.
- Lorsqu'on déplace le moniteur, le manipuler avec précaution.

1.6 Nettoyage de votre moniteur

Lorsque vous nettoyez votre moniteur, appliquez ces quelques règles de base:

- Toujours débrancher le moniteur avant de le nettoyer.
- Nettoyer l'écran et les parties avant et latérales du boîtier au moyen d'un chiffon doux.
- S'il est nécessaire de nettoyer l'écran au delà d'un simple dépoussiérage, utiliser pour ce faire un chiffon doux humecté d'un nettoyant ménager pour vitres.

ATTENTION !

- Ne jamais utiliser de benzène, de solvant ou autre substance volatile pour nettoyer l'appareil, car son revêtement risque d'être irréversiblement détérioré.
- Ne jamais laisser le moniteur en contact avec du caoutchouc ou du vinyle pendant une longue période.
- Ne pas pulvériser directement sur l'écran car le liquide peut tomber dans le moniteur et endommager le circuit.
- N'utiliser jamais un liquide abrasif sur la surface de l'écran car cela pourrait endommager la pellicule anti-reflet.

1.7 Déballage

Une fois votre moniteur couleur déballé, vous devez vous trouver en possession des éléments représentés Figure 1, et dont la liste se trouve ci-dessous. Conserver l'emballage d'origine dans le cas où vous seriez obligé de transporter le moniteur.

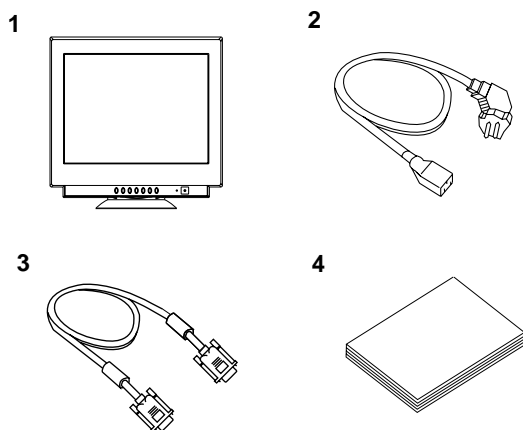


Figure 1

1. Moniteur couleur haute résolution
2. Cordon secteur
3. Câble SC-B110
4. Manuel d'utilisation (Ce document)

1.8 Pied orientable

Le moniteur est équipé d'un socle pivotant et inclinable. Ceci vous permet de positionner le moniteur sous le meilleur angle tant en inclinaison qu'en rotation, augmentant d'autant le confort visuel.

Réglages de la position de l'image

Régler l'angle et l'inclinaison du moniteur en plaçant les mains en diagonale. L'écran peut pivoter de 90° à droite ou à gauche, de 10° vers le haut et de 5° vers le bas, comme représenté ci-dessous.

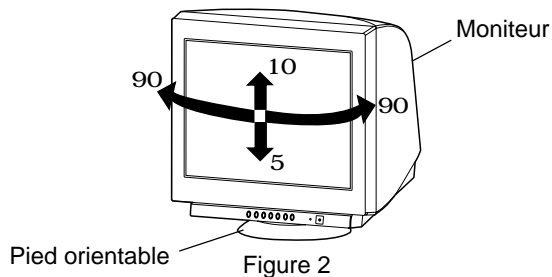


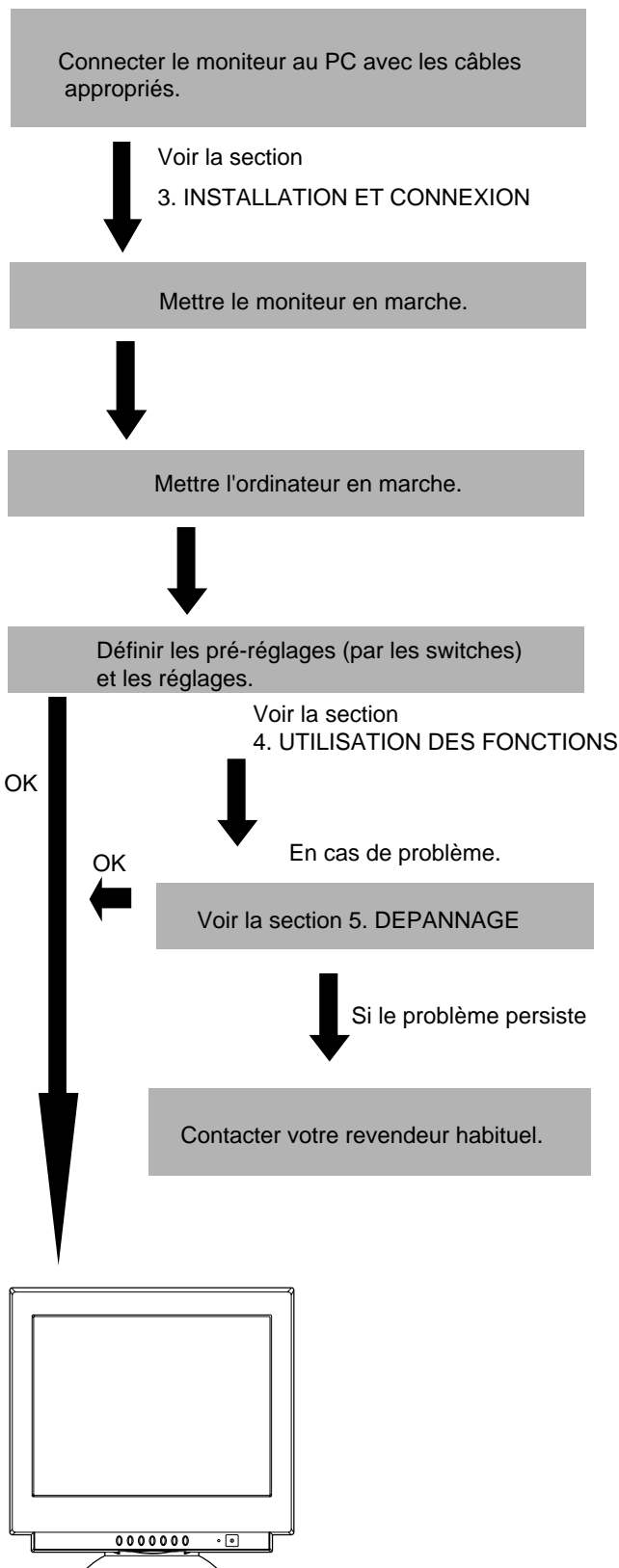
Figure 2

ATTENTION !

Tenir vos doigts à l'écart de la base pivotante du moniteur.

1.9 Processus de mise en route

Pour assurer la connexion, les pré-réglages (par les switches) et les réglages du moniteur à votre ordinateur, veuillez suivre le processus suivant:



2 GLOSSAIRE

2.1 Dénomination

Voir Figures 3 et 4 pour l'emplacement des commandes et voyants destinés à l'utilisateur. Chaque commande est repérée par son numéro, et elle est décrite individuellement.

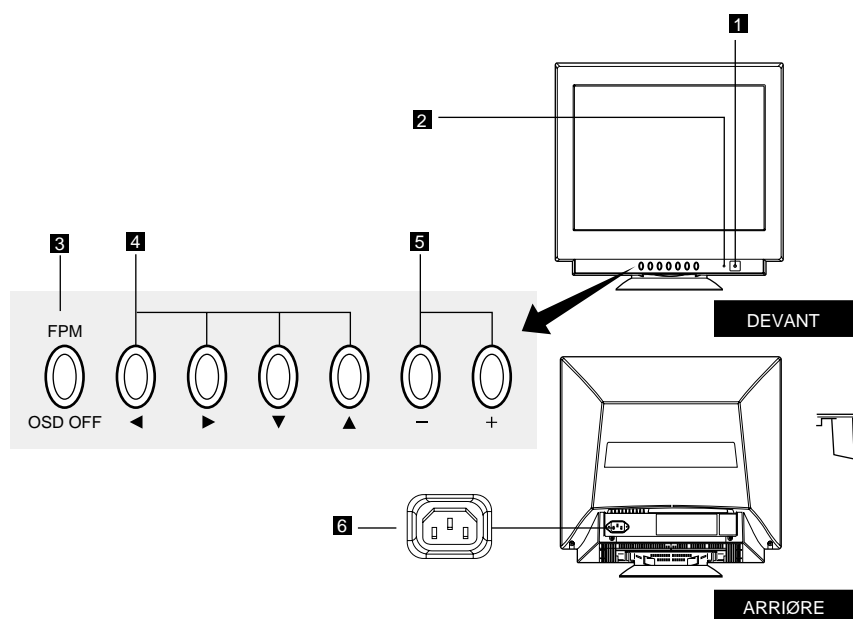


Figure 3

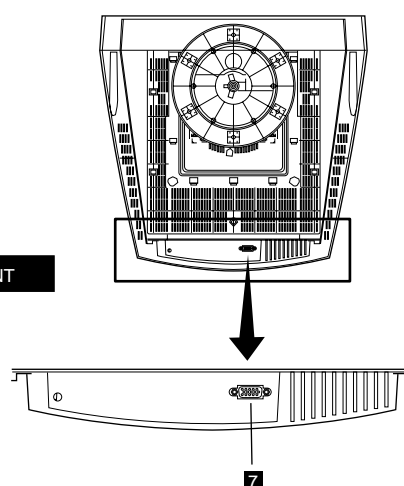


Figure 4

FRANÇAIS

2.2 Fonction des commandes

1. **INTERRUPTEUR MARCHÉ / ARRÊT:** poussoir permettant de mettre sous tension ou hors tension le moniteur; enfoncé: marche; sorti: arrêt.
2. **VOYANT SECTEUR:** Ce voyant est de couleur verte lorsque le moniteur est sous tension, et de couleur orange lorsque le moniteur est en mode économiseur d'énergie.
3. **BOUTON FPM MODE SELECT/EXTINCTION DE L'OSD:**
 - Appuyez sur ce bouton pour sélectionner un mode d'affichage adapté à l'image actuellement à l'écran lorsque l'écran OSD n'est pas affiché.
NORMAL MODE: mode d'utilisation normale
TEXT MODE: pour des images comportant beaucoup de lettres et caractères
GRAPHIC MODE: pour des images graphiques ou photographiques
 - Appuyez sur ce bouton pour éteindre l'écran OSD s'il est affiché.
4. **BOUTON DE SÉLECTION:** Presser pour sélectionner l'icône correspondant au réglage désiré.
5. **TOUCHES DE RÉGLAGE:** Utiliser les boutons de commande pour régler l'image sur l'écran.
6. **CONNECTEUR D'ALIMENTATION**
7. **CONNECTEUR DU SIGNAL D'ENTRÉE: DB9-15P**

3 INSTALLATION ET CONNEXION

3 connecteurs sont disponibles en face arrière du moniteur: Le connecteur AC pour l'alimentation électrique et deux connecteurs DB9 -15P pour les entrées vidéo.

3.1 Branchement au secteur

Une extrémité du cordon d'alimentation doit être raccordé au connecteur de face arrière du moniteur. L'autre extrémité sera branchée dans une prise secteur murale à trois broches, avec une mise à la terre correcte. L'alimentation à détection automatique de tension du moniteur s'adapte automatiquement aux tensions 100 à 120 VCA ou 220 à 240 VCA, 50 ou 60 Hz.

3.2 Branchement des câbles véhiculant les signaux

Le connecteur DB9-15P(VGA) accepte des signaux d'entrées RVB analogiques en provenance de votre ordinateur. Les unités centrales Apple Macintosh sont compatibles grâce à l'adaptateur Mitsubishi Macintosh AD-A205.

3.2.1 Branchement à tout système compatible IBM VGA

La Figure 5 montre la connexion à l'aide d'un câble SC-B110 à la sortie VIDEO VGA (Video Graphic Array) d'une unité centrale IBM ou à toute autre source VIDEO compatible VGA.

1. Mettre hors tension le moniteur et le PC.
2. Brancher l'extrémité ordinateur (PC) du câble SC-B110 au connecteur 15 broches de la carte contrôleur VGA.
3. Brancher l'extrémité Moniteur (D/M) du câble SC-B110 au connecteur 15 broches situé en face arrière du moniteur.
4. Allumer le moniteur, puis seulement ensuite, le PC.
5. En fin d'utilisation du système, arrêter le PC en premier, puis seulement ensuite le moniteur.

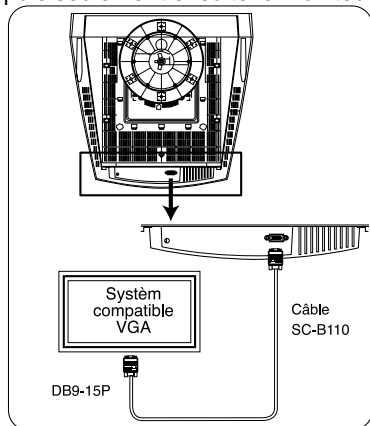


Figure 5

ATTENTION !

L'alimentation secteur de ce moniteur reste sous tension même lorsque le commutateur Marche/Arrêt est en position "Arrêt"(OFF). De ce fait, il est nécessaire que la prise secteur soit facilement accessible, en cas d'urgence. Même si le moniteur est mis hors tension il reste toujours alimenté. La prise secteur devrait ainsi être facilement accessible en cas d'urgence.

3.2.2 Raccordement à un système de la famille Apple Macintosh Ordinateur

La Figure 6 montre le câble SC-B110 et l'adaptateur AD-A205 (option) au port vidéo d'un Apple Macintosh.

1. Arrêter le moniteur et l'ordinateur.
2. Configurer les micro-interrupteurs de l'adaptateur Macintosh suivant le tableau joint (voir la section 7.3 Configuration de l'adaptateur optionnel Macintosh AD-A205).
3. Brancher l'extrémité 15 broches (DB-15P) de l'adaptateur AD-A205 au connecteur 15 broches de la sortie vidéo du Macintosh, située soit sur la carte-mère, soit sur la carte vidéo.
4. Brancher l'extrémité munie d'un connecteur subminiature 15 broches (DB9-15P) de l'adaptateur AD-A205 au câble SC-B110 (PC).
5. Brancher l'extrémité moniteur (D/M) du câble SC-B110 au connecteur 15 broches situé en face arrière du moniteur.
6. Mettre en marche le moniteur en premier, puis le Macintosh.
7. En fin d'utilisation du système, éteindre l'ordinateur, puis ensuite le moniteur.

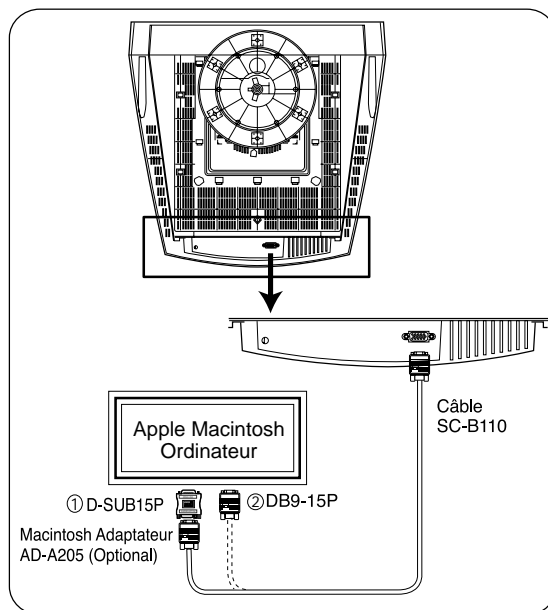


Figure 6

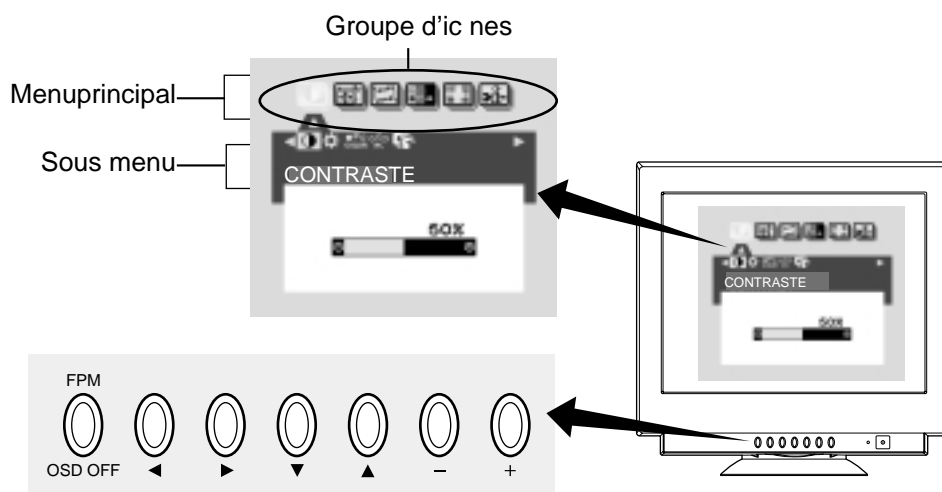
NOTE

- Pour un Apple Macintosh muni d'un port compatible VGA, l'étape 2 à 4 ne sont pas nécessaires. Connectez le câble du signal directement sur le port.
- Dans le cas d'une utilisation avec un Apple Macintosh de type G3, utiliser "Poste de travail" ou le "Menu Apple" afin de sélectionner la résolution. Dans le cas d'une sélection de la résolution depuis la barre des tâches, il se peut qu'il n'y ait pas d'image et que l'unité centrale se bloque.

4 UTILISATION DES FONCTIONS

4.1 Comment régler l'écran

Le moniteur est pourvu d'une fonction menu à l'écran.(OSD)
La procédure suivante indique comment effectuer les réglages de l'écran à partir de la fonction Menu à l'écran.



(1) Allumez le moniteur en appuyant sur

(2) Affichez l'écran OSD en appuyant sur

(3) Sélectionnez une icône du groupe du Menu principal en appuyant sur

(4) Affichez le Sous-menu en appuyant sur

(5) Sélectionnez une icône d'élément du Sous-menu en appuyant sur






























(6) Réglez en appuyant sur

(7) Appuyez sur le bouton pour éteindre l'écran OSD































L'OSD s'éteint automatiquement si vous n'avez appuyé sur aucun bouton à l'expiration du délai défini dans "EXTINCTION DE L'OSD".

4.2 Différents réglages



X: Disponibles

Groupe d'icônes	Icône	Objet	Appuyer sur la touche de réglage: 	Appuyer sur la touche de réglage: 	A	B	C
		CONTRASTE	Diminue le contraste.	Augmente le contraste.	X	X	X
		LUMINOSITE	Diminue la luminosité.	Augmente la luminosité.	X	X	X
		COULEUR	Pour sélectionner le mode de couleur d'affichage préférable. Et, pour régler la balance de couleur par rapport au mode de couleur sélectionné.		X	X	X
		NOTE En sélectionnant le mode "sRGB", "REGLAGE DES COULEURS", "CONTRASTE" et "LUMINOSITE" ne sont pas disponibles.					
		TEMPÉRATURE COULEUR	Pour diminuer la température de couleur dans le mode couleur sélectionné par "NUMERO DE COULEUR"	Pour augmenter la température de couleur dans le mode couleur sélectionné par "NUMERO DE COULEUR"	X	X	X
		PRÉRÉGLAGE USINE	_____	Retour aux réglages usines.	-	-	-
		LARGEUR	Diminue la largeur d'image sur l'écran.	Augmente la largeur d'image sur l'écran.	X	X	
		CENTRAGE HORIZONTAL	Déplace l'image vers la gauche.	Déplace l'image vers la droite.	X	X	
		HAUTEUR D'IMAGE	Diminue la hauteur de l'image sur l'écran.	Augmente la hauteur de l'image sur l'écran.	X	X	
		CENTRAGE VERTICAL	Permet de déplacer l'image vers le bas.	Permet de déplacer l'image vers le haut.	X	X	
		ROTATION	Pour tourner l'image dans le sens opposé aux aiguilles d'une montre.	Pour tourner l'image dans le sens des aiguilles d'une montre.	X	X	X
		ZOOM	Pour réduire la taille de l'image.	Pour étendre la taille de l'image.	X	X	
		REGALGE GTF	_____	Réglage automatique de la taille, de la position et de la position et de la géométrie de l'image.	-	-	-
		NOTE "REGLAGE AUTOMATIQUE GTF" est disponible en l'utilisant avec un ordinateur où la fonction VESA GTF est installée.					
		PRÉRÉGLAGE USINE	_____	Retour aux réglages usines.	-	-	-
		NOTE Si la synchronisation utilisée n'est pas un préréglage usine, "PREREGLAGE USINE" n'est pas disponible.					
		CORRECTION AMPHORE	Réduit la largeur de la partie centrale de l'image.	Augmente la largeur de la partie centrale de l'image.	X	X	
		COURBURE	Permet de déplacer vers la droite la partie inférieure et la partie supérieure de l'image affichée.	Permet de déplacer vers la gauche la partie inférieure et la partie supérieure de l'image affichée.	X	X	
		CORRECTION TRAPEZE	Diminue la largeur de la partie supérieure de l'image, et augmente la largeur de la partie inférieure de l'image	Augmente la largeur de la partie supérieure de l'image, et diminue la largeur de la partie inférieure de l'image	X	X	
		INCLINAISON	Incline l'écran vers la gauche.	Incline l'écran vers la droite	X	X	
		COUSSIN SUP.	Augmente la taille de l'image dans les angles de la partie haute de l'écran.	Diminue la taille de l'image dans les angles de la partie haute de l'écran.	X	X	
		BALANCE SUP.	Permet de déplacer les bords de la partie haute de l'écran vers la droite.	Permet de déplacer les bords de la partie haute de l'écran vers la gauche.	X	X	
		COUSSIN INF.	Augmente la taille de l'image dans les angles de la partie basse de l'écran.	Diminue la taille de l'image dans les angles de la partie basse de l'écran.	X	X	
		BALANCE INF.	Permet de déplacer les bords de la partie basse de l'écran vers la droite.	Permet de déplacer les bords de la partie basse de l'écran vers la gauche.	X	X	
		LINEARITE V.	Pour étendre verticalement le bas de l'image et compresser le haut.	Pour compresser verticalement le bas de l'image et étendre le haut.	X	X	
		LINEARITE V.EQUIL	Pour étendre verticalement le centre de l'image et compresser le haut et le bas.	Pour compresser verticalement le centre de l'image et étendre le haut et le bas.	X	X	
		PRÉRÉGLAGE USINE	_____	Retour aux réglages usines.	-	-	-
		NOTE Si la synchronisation utilisée n'est pas un préréglage usine, "PREREGLAGE USINE" n'est pas disponible.					

X: Disponibles

Groupe d'icônes	Icône	Objet	Appuyer sur la touche de réglage:   	Appuyer sur la touche de réglage:   	A	B	C
		PURETE COINS SUPG	Réglage de la pureté dans le coin supérieur gauche.		X	X	X
		PURETE COINS SUPD	Réglage de la pureté dans le coin supérieur droit.		X	X	X
		PURETE COINS INFG	Réglage de la pureté dans le coin inférieur gauche.		X	X	X
		PURETE COINS INFD	Réglage de la pureté dans le coin inférieur droit.		X	X	X
		PURETE GAU./DRO.	Réglage de la pureté dans la droite ou la gauche.		X	X	X
		NIVEAU DE MOIRAGE	Pour diminuer l'effet de moirage.		X	X	
		FRONT DE SYNCHRO	Elimine l'excès de couleur verte ou l'excès de luminosité qui peuvent apparaître lorsqu'un signal de synchronisation externe sont appliqués simultanément sur les entrées du moniteur. Synchronise le signal vidéo sur le front montant de l'impulsion de synchro horizontale.	Synchronise le signal vidéo sur le front descendant de l'impulsion de synchro horizontale. Si vous utilisez un Macintosh ancienne génération, vous devez presser le bouton "Plus".	X		
		PRÉRÉGLAGE USINE	_____	Retour aux réglages usines.	-	-	-
		CONVERGENCE STAT.H	Régler l'alignement du canon horizontal sur toute la surface de l'écran.		X	X	X
		CONVERGENCE STAT.V	Régler l'alignement du canon vertical sur toute la surface de l'écran.		X	X	X
		PRÉRÉGLAGE USINE	_____	Retour aux réglages usines.	-	-	-
		DÉMAGNÉTISATION	_____	Elimine les éventuels défauts de pureté ou problèmes de shading.	-	-	-
		ECONOMISEUR	Sélectionne une consommation d'énergie constante.	Sélectionne le mode économiseur d'énergie. (Votre unité centrale doit être configurée dans le mode économiseur d'énergie)	X		X
		VERROUILLAGE OSD	Pour autoriser tous les réglages depuis le OSD.	Figé les fonctions du Menu à l'écran à l'exception de la "LUMINOSITE" et du "CONTRASTE".			X
		NOTE "LUMINOSITE" et "CONTRASTE" ne sont pas disponibles en condition de verrouillage.					
		POSITION DU MENU	Pour bouger la position du menu à l'écran (OSD) dans le sens opposé des aiguilles d'une montre.	Pour bouger le menu à l'écran (OSD) dans le sens des aiguilles d'une montre.	X		X
		EXTINCTION DE L'OSD	Pour régler le délai d'extinction de l'écran OSD si aucune action n'est exécutée.		X		
		DIAGNOSTIC	Indique le fréquence de travail utilisé, le numéro du timing et le connecteur vidéo utilisés.		-	-	-
		LANGUAGE	Pour choisir le langage du Menu à l'écran. ENG.....Anglais, FRA.....Français, ESP.....Espagnol, ITA.....Italien, GER.....Allemand, JPN.....Japonnais				X
		MÉMORISATION AUTOM.	Pour enregistrer les nouveaux réglages avec un message de confirmation.	Pour enregistrer automatiquement les nouveaux réglages.			X
		NOTE En sélectionnant "ARRET", si aucune opération "SAVE"(enregistrer)n'est exécutée avant l'extinction de l'écran OSD, les nouveaux réglages ne sont pas enregistrés.					
		RESET GENERAL	Rétablit la valeur définie en usine pour tous les éléments.		-	-	-
		PRÉRÉGLAGE USINE	_____	Retour aux réglages usines.	-	-	-

A. Presser "PRÉRÉGLAGE USINE" pour revenir sur le réglage usine.

B. Presser les touches  et  simultanément ramène au réglage memorisé en usine.



C. Les informations ne sont pas affectées par le changement de timing.

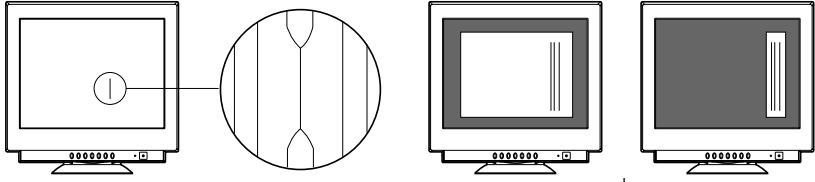
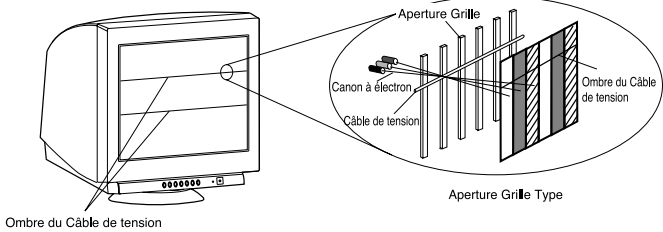
NOTE Si vous utilisez un préréglage qui n'est pas d'usine, "PRÉRÉGLAGE USINE" ne sont pas opérationnelles.

FRANÇAIS

5 DEPANNAGE

Avant de retourner votre moniteur auprès de votre revendeur, assurez vous que les points suivants soient respectés. Dans le cas d'une utilisation sous un signal vidéo standard, veillez à la compatibilité du brochage du connecteur vidéo ainsi que des spécifications électriques définies dans ce manuel.

PROBLEME		ARTICLE A CONTROLER	LOCALISATION
Pas d'image	LED allumee (Vert)	<ul style="list-style-type: none"> Contrast luminosité. 	<ul style="list-style-type: none"> Face avant
	LED éteinte	<ul style="list-style-type: none"> Interrupteur de mise en marche. Câble d'alimentation non connecté. 	<ul style="list-style-type: none"> Face avant Face arrière
	LED allumee (Orange)	<ul style="list-style-type: none"> Câble vidéo non connecté. Système non allumé. Fonction économiseur d'energie active. 	<ul style="list-style-type: none"> Face arrière Système Appuyez sur une touche du clavier ou bougez la souris.
Le message suivant apparaît 		<ul style="list-style-type: none"> Câble vidéo non connecté. Système non allumé. Fonction économiseur d'energie active. 	<ul style="list-style-type: none"> Face arrière Système Appuyez sur une touche du clavier ou bougez la souris.
Le message suivant apparaît 		<ul style="list-style-type: none"> La plage de fréquence du signal d'entrée est trop élevée ou trop basse pour que le moniteur se synchronise. 	<ul style="list-style-type: none"> Contrôler les spécifications de la source graphique et du moniteur.
Image Anormale	Absence d'image Mauvais centrage Image trop petite ou trop grande	<ul style="list-style-type: none"> Procéder à un "PRÉRÉGLAGE USINE" dans le cas d'un signal standard. Presser le bouton de réinitialisation. Le moniteur peut ne pas obtenir une image plein écran, selon le signal. Dans ce cas, sélectionner une autre résolution, ou une autre fréquence de rafraîchissement écran. Régler la taille à la position horizontales et verticales attendez quelques secondes après avoir effectué le réglage de la taille avant de déconnecter ou d'éteindre le moniteur. 	<ul style="list-style-type: none"> Face avant (OSD) Face avant (OSD)

PROBLEME	ARTICLE A CONTROLER	LOCALISATION
<p>Image Anormale</p> <p>Lignes verticales noires visibles sur l'écran</p>	<ul style="list-style-type: none"> Lignes fines verticales noires visibles sur un ou les deux côtés de l'écran. Ce phénomène peu important est provoqué par un chevauchement des éléments de la grille qui aurait pu se produire pendant le transport. <p>Si vous n'obtenez aucun résultat, positionnez une fenêtre ouverte blanche sur l'endroit affecté de l'écran et maximalisez les contrôles de luminosité et de contraste. Ceci provoquera un échauffement localisé du chevauchement et fera disparaître le problème après quelques minutes. Veuillez à remettre les contrôles de la luminosité et du contraste aux niveaux de vision normales après avoir terminé ce procédé.</p> 	
<p>Deux lignes fines horizontales sont visibles sur l'écran.</p>	<ul style="list-style-type: none"> Les deux lignes fines très faibles traversant l'écran sont normales. Ces lignes apparaissent à cause des filaments de stabilisation de la grille d'ouverture, nécessaires pour tous CRT de grilles d'ouverture. 	
<p>Un bruit sonore lorsque l'écran est allumé.</p>	<ul style="list-style-type: none"> La brève vibration ou le ronflement léger que vous ressentiez lorsque vous allumez l'écran sont des phénomènes normaux. Ceux-ci sont provoqués par la fonction de démagnétisation automatique. Vous remarquerez ces phénomènes chaque fois que vous allumez le moniteur froid et chaque fois que vous activez le bouton de démagnétisation manuelle. 	

6 SPÉCIFICATIONS

TUBE COULEUR	Dimensions	55cm/22" (508mm/20" Aire d'affichage)
	Masque	Aperture grille
	Canon	En ligne
	Angle de déflexion	90°
	Luminophores	Rouge, Vert, Bleu EBU (persistance moyenne/courte)
	Pas	0.24mm
	Pas du phosphore.	0.25mm
	Ecran	G-WARAS(Ecran anti-reflets, non diffusant, avec revêtement antistatique)
	Focalisation	Mise en forme dynamique du faisceau
SIGNAUX D'ENTREE	Vidéo	0.7Vp-p analogique RGB
	Sync	Synchro H et V séparées, ou synchro composite
INTERFACE	Connecteur d'entrée	DB9-15P
	Impédance d'entrée	75Ω (video), 2.2kΩ(sync.)
FREQUENCE DE BALAYAGE	Horizontal	30 - 110kHz
	Vertical	50 - 160Hz
RÉSOLUTION (HxV)	1920 points x 1440 Lignes Résolution maximale en mode non entrelacé à 73Hz.	
TEMPS DE MISE EN TEMPERATURE	30 minutes pour obtenir les performances optimales	
LUMINOSITE	100cd/m², Blanc à 9300K (+ 8MPCD) aux signaux vidéo standard	
TEMPS D'EFFACEMENT	Horizontal	≥ 2.3 μsec (typique.)
	Vertical	≥ 450 μsec (typique.)
DIMENSION D'IMAGE	396mm x 297mm(typique.) Rapport 4:3	
NUMERO DE COULEUR	5000K~9300K	
ALIMENTATION	AC100-120/220-240V±10% 50/60Hz 130W (typique.)	
CONDITION DE FONCTION.	Température	5 - 35°C
	Hygrométrie	10 - 90%RH (sans condensation)
BOITIER	(W)19.5" x (H)19.4" x (D)18.6" / (W) 495mm x (H) 493.5mm x (D) 473mm	
POIDS	Environ 29.7kg (65.3lbs.)	
SOCLE PIVOTANT ET INCLINABLE	Angle d'inclinaison	-5° - +10°
	Angle de pivotement	±90°
NORMES	Sécurité	UL1950 (UL), CSA C22.2 No.950 (C-UL) EN60950 (TÜV-GS)
	EMI	FCC Classe B, DOC Classe B EN55022 Classe B, VCCI Classe B EN61000-3-2, EN61000-3-3, EN55024
	X-Ray	DHHS, HWC, Röv vom 8.1, 1987
	Other	CE-Marking, MPR-II/TCO'91 ISO9241-3, ISO9241-7, ISO9241-8 (TÜV-GS) TCO '99 International ENERGY STAR Program Energy 2000 Labeling Award Guidelines for the Suppression of Harmonics in Appliances and General-Use Equipment

*Ce moniteur est enregistré / certifié avec le numéro de modèle NSV1107STTKW.

7 APPEXES

7.1 Connecteur d'entrée signal de moniteur (DB9-15P)

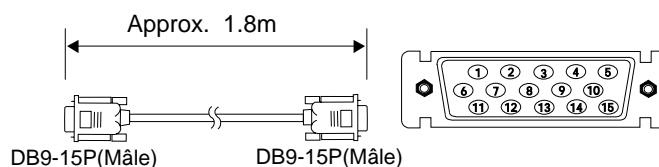


BROCHAGE DES CONNECTEURS

PIN N°	DESIGNATION
1	VIDEO ROUGE
2	VIDEO VERTE ou SYNCHRO.COMPOSITE avec VIDEO VERTE
3	VIDEO BLEUE
4	MASSE
5	MASSE DDC
6	MASSE ROUGE
7	MASSE VERTE
8	MASSE BLEUE
9	N.C
10	MASSE SYNCHRO.
11	MASSE
12	SDA
13	SYNCHRO. HORIZONTALE ou SYNCHRO. COMPOSITE
14	SYNCHRO. VERTICALE
15	SCL

DDC EXPRESSION DATUM CHAÎNE
SDA SÉRIE DATUM
SCL SÉRIE MONTRE
NC NON CONNECTÉ

7.2 Câble signal SC-B104



BROCHAGE DES CONNECTEURS

PIN N°	DESIGNATION
1	ROUGE
2	VERT
3	BLUE
4	MASSE
5	MASSE DDC
6	MASSE ROUGE
7	MASSE VERTE
8	MASSE BLEUE
9	N.C
10	MASSE
11	MASSE
12	SDA
13	SYNCHRO HORIZONTALE
14	SYNCHRO VERTICALE
15	SCL

DDC EXPRESSION DATUM CHAÎNE
SDA SÉRIE DATUM
SCL SÉRIE MONTRE
NC NON CONNECTÉ

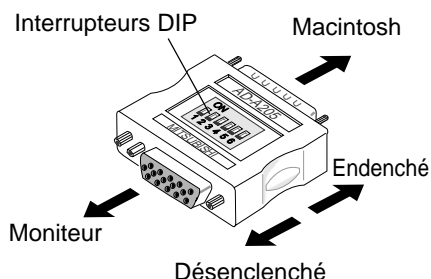
7.3 Configuration de l'adaptateur optionnel Macintosh AD-A205

L'adaptateur Macintosh AD-A205 (Option) vous permet de faire fonctionner votre moniteur à partir des interfaces graphiques intégrés dans votre Macintosh.

(1) Régler les interrupteurs DIP de l'adaptateur avant

de raccorder à l'ordinateur.

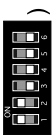
(2) Régler les interrupteurs DIP en fonction du graphique suivant. En suivant le graphique est possible de choisir rapidement une résolution principale. Si on désire opérer avec une autre résolution, se référer à la page suivante, "Graphique de réglage de l'adaptateur Mac AD-A205".



Apple Macintosh	Interrupteur Enclenché	Réglage de l'interrupteur
Macintosh LC, LC II	1,2	
Macintosh LC III, LC475, LC630	2,4	
Macintosh Quadra 610, 650, 700, 800, 840AV, 900, 950 Macintosh Centris 610, 650, 660AV	1,2,3,4	
Performa 6260, 6310, 6410, 6420 Power Macintosh 6100, 6100AV, 6200, 6300 Power Macintosh 7100AV, 7200, 7300, 7500, 7600 Power Macintosh 8100, 8100AV, 8500, 8600 Power Macintosh 9500, 9600 Workgroup Server 7350, 8150, 9150, 9650	1,2,6	
Macintosh Ilvi, Ilvx Power Macintosh 4400, G3	3,4	

GRAPHIQUE DE RÉGLAGE DE L'ADAPTATEUR MAC AD-A205

- Régler l'interrupteur DIP sur "ON" comme montré ci-dessous. (Exemple: "1,2")



		Macintosh						Performa		Power Macintosh											
		Ilisi Ilci	Ilvi Ilvx	LC LCii	LCiii LC475	LC630	Quadra 700 900	Quadra 610 650 800 950 Centris 610 650	Quadra 840AV Centris 660AV	6260 6310	6410 6420	Workgroup Server 8150 9150	8100 VRAM Video Card (DB-15)	6200 6300	7200	4400	7300 7500 7600 8500 8600 Workgroup Server 7350	9500	9600/233 Workgroup Server 9650	9600/300 9600/350	G3
RESOLUTION																					
	640 x480@60Hz																				
	640 x480@67Hz																				
	640 x480@72Hz																				
	640 x480@75Hz																				
	640 x480@85Hz																				
	800 x600@60Hz																				
	800 x600@72Hz																				
	800 x600@75Hz																				
	800 x600@85Hz																				
	832 x624@75Hz																				
	1024 x768@60Hz																				
	1024 x768@70Hz																				
	1024 x768@72Hz																				
	1024 x768@75Hz																				
	1024 x768@85Hz																				
	1152 x870@75Hz																				
	1280 x960@60Hz																				
	1280 x960@75Hz																				
	1280 x960@85Hz																				
	1280 x1024@60Hz																				
	1280 x1024@75Hz																				
	1280 x1024@85Hz																				
	1600 x1200@60Hz																				
	1600 x1200@65Hz																				
	1600 x1200@67Hz																				
	1600 x1200@70Hz																				
	1600 x1200@75Hz																				

1. La résolution ne change pas alors que l'ordinateur est sous tension lorsque les interrupteurs DIP sont réglés. Veiller à mettre l'ordinateur hors tension pour régler les interrupteurs DIP.
2. Régler les interrupteur DIP en appliquant une pointe, un crayon ou un stylo à bille à l'extrémité de la rainure de l'interrupteur.

INDICE

ATTENZIONE

L'apparecchio è dotato di cavo di alimentazione a norma di sicurezza da collegare ad una presa provvista di messa a terra per evitare eventuali rischi di scosse elettriche.

Non rimuovere il rivestimento esterno dell'apparecchio onde evitare i rischi dell'esposizione all'alta tensione.

DICHIARAZIONE DI CONFORMITÀ PER NORMATIVE CE:

Noi, NEC-Mitsubishi Electric Visual Systems Corporation, dichiariamo sotto nostra esclusiva responsabilità che il prodotto a cui si riferisce la presente dichiarazione risulta conforme ai seguenti standard o altri documenti normativi:

EN60950
EN55022 Classe B
EN61000-3-2
EN61000-3-3
EN55024

conforme alle disposizioni o alle direttive:

73/23/EEC Direttiva Bassa-Tensione
89/336/EEC Direttiva EMC

ATTENZIONE!

NEC-Mitsubishi Electronics Display dichiara che questo prodotto non è stato progettato per supportare strumenti medicali. I strumenti medicali sono tutti gli strumenti usati per misurare, diagnosticare o valutare funzioni del corpo umano; o altri strumenti impiegati a supporto o sostegno della vita o della buona salute.

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1 INTRODUZIONE

Congratulazioni per l'acquisto del monitor a colori ad alta risoluzione.

Questa guida vi indica come connettere, regolare ed avere cura del vostro monitor. Questa guida fornisce inoltre specifiche tecniche ed istruzioni per rimediare a piccoli inconvenienti che Vi potrebbero capitare con il vostro monitor.

1.1 Caratteristiche

Il monitor intelligente da 55cm/22" (508mm/20" Dimensione Immagine Visualizzabile) basato su microprocessore e compatibile con gran parte degli standard di visualizzazione RGB (rosso, verde, blu) analogici.

Il monitor restituisce un testo inciso e colori grafici vividi sia con PC sia con piattaforme Macintosh.

- Le notevoli caratteristiche di compatibilità a livello di scansione automatica rendono possibile l'aggiornamento di schede video o di software senza dover necessariamente acquistare un nuovo monitor.
- La scansione automatica a controllo digitale viene effettuata tramite un microprocessore interno per le frequenze di scansione orizzontali comprese tra 30 kHz e 110 kHz e per le frequenze di scansione verticali comprese tra 50 Hz e 160 Hz. L'intelligenza basata su microprocessore consente al monitor di funzionare su ciascuna frequenza con la precisione di un monitor a frequenza fissa.
- Il monitor dispone di una memoria residente per gli standard di visualizzazione predefiniti ed è anche in grado di memorizzare ulteriori parametri di regolazione impostati dall'utente.
- Il monitor è normalmente in grado di produrre una risoluzione orizzontale massima di 1920 punti e una risoluzione verticale massima di 1440 linee. Questo monitor è perfettamente adatto all'uso negli ambienti grafici a finestre.
- Grazie ai segnali analogici, il monitor può visualizzare una tavolozza di colori illimitata, regolabile manualmente in base ai propri bisogni specifici.
- Per risparmiare energia, il monitor della è pienamente conforme alle normative per la gestione energetica DPMS e Energy Star. Per la funzione di spegnimento automatico, il monitor deve essere collegato a un sistema conforme a entrambi gli standard (per ulteriori informazioni sull'uso corretto del monitor, consultare il manuale di istruzioni del computer e/o della scheda video).
- Tutte le funzioni del monitor sono mostrate su OSD (On Screen Display), per facilitarne installazione e l'uso.
- Per i molteplici utilizzi, il monitor è conforme a UL 1950, CSA C22.2 No.950 e EN60950 per la sicurezza, FCC Classe-B, VCCI Classe-B e EN55022 Classe-B per le EMI, MPR-II, ISO 9241-3, ISO 9241-7 e ISO 9241-8 per l'ergonomia. Il monitor rispetta le normative ambientali di sicurezza TCO '99.
- Lo standard mondiale dei cinescopi DIAMONDTRON NF viene migliorato nella purezza d'immagine.
- Il presente monitor soddisfa le specifiche della Video Electronics Standards Association (VESA), DDC2B/2Bi(EDID). Se il Vostro computer è compatibile Plug & Play, le impostazioni saranno fatte automaticamente.
- La massima risoluzione indirizzabile di 1920 x 1440 ed un'apertura di griglia di 0.24mm.

1.2 Capacità di memorizzazione di impostazioni predefinite interne

Per ridurre al minimo la necessità di effettuare delle regolazioni, nel monitor sono stati preimpostati gli standard di visualizzazione più diffusi, illustrati nella Tabella 1. Se viene individuato uno qualsiasi di questi standard di visualizzazione, le dimensioni e il posizionamento dell'immagine vengono regolati automaticamente. Il monitor è in grado di memorizzare automaticamente altri 15 standard di visualizzazione. I nuovi dati di visualizzazione devono differire da qualsiasi altro standard di visualizzazione esistente di almeno 1 kHz a livello di frequenza di scansione orizzontale o di 1 Hz a livello di frequenza di scansione verticale, oppure le polarità del segnale di sincronizzazione devono essere diverse.

Tabella 1. Impostazioni predefinite del buffer di memoria

SINCRONIZZAZIONE PREDEFINITA	Fh(kHz)	Fv (Hz)	Polarità	
			H	V
640 x 480 N.I.	31.5	60.0	–	–
800 x 600 N.I.	53.7	85.1	+	+
1024 x 768 N.I.	60.0	75.0	+	+
1024 x 768 N.I.	68.7	85.0	+	+
1152 x 870 N.I.	68.7	75.1	–	–
1280 x 1024 N.I.	80.0	75.0	+	+
1280 x 1024 N.I.	91.1	85.0	+	+
1600 x 1200 N.I.	93.8	75.0	+	+
1600 x 1200 N.I.	106.3	85.0	+	+

1.3 Funzione di gestione dell'alimentazione

Questo monitor dispone della funzione di gestione dell'alimentazione che riduce il consumo energetico del monitor, quando questo è acceso ma non viene usato. I modi di risparmio energia vengono attivati dai computer che osservano le norme DPMS VESA. Controlla sul manuale del tuo computer per impostare questa funzione.

Modo	Assorbimento	Indicatore di accensione
Normale	≤ 130 W	Verde
Modalità risparmio energia	≤ 3 W	Arancione

1.4 DDC

Questo monitor è dotato della prestazione DDC2B / 2Bi. DDC (Display Data Channel) è un canale di comunicazione sul quale il monitor informa automaticamente il computer delle sue potenzialità (ad esempio ogni modo supportato e le corrispondenti temporizzazioni). DDC utilizza un piedino del connettore VGA 15 pin precedentemente non utilizzato. Il sistema sarà "Plug n' play" solo se entrambi, monitor e computer, sono dotati della prestazione DDC.

1.5 Considerazioni sulla collocazione

Al momento dell'installazione e durante l'uso del monitor, prestare particolare attenzione a quanto segue:

- Per una visione ottimale, evitare di usare il monitor contro uno sfondo luminoso o in luoghi in cui la luce solare o altre fonti luminose possano riflettersi sull'area di visualizzazione del monitor e collocarlo appena al di sotto del livello degli occhi.
- Tenere lontano il monitor da campi magnetici o elettromagnetici forti, come trasformatori ad alta capacità, motori elettrici, linee elettriche di grosse dimensioni, pilastri di acciaio ecc.... Il magnetismo può provocare la distorsione dell'immagine e/o della purezza del colore.
- Evitare di coprire le fessure o le aperture presenti nel monitor e lasciare uno spazio adeguato intorno ad esso in modo da consentire la dissipazione del calore prodotto. Non collocare il monitor in luoghi chiusi che non consentono una ventilazione adeguata.
- Evitare di esporre il monitor a pioggia, umidità eccessiva e polvere, in quanto ciò può provocare incendi o scariche elettriche.
- Non collocare il monitor o altri oggetti pesanti sul cavo di alimentazione. Il danneggiamento del cavo di alimentazione può causare incendi o scariche elettriche.
- Maneggiare con cura durante il trasporto.

1.6 Pulizia del monitor

Durante la pulizia del monitor, attenersi alle seguenti istruzioni:

- Prima di pulirlo, staccare la spina dalla presa.
- Quando il pannello frontale e lo schermo sono sporchi, pulirli con un panno morbido.
- Se lo sporco è particolarmente resistente, per pulire il monitor usare un panno inumidito con una leggera soluzione detergente.

ATTENZIONE

- *Per pulire l'apparecchio non usare benzene, solventi o altre sostanze volatili, in quanto tali prodotti potrebbero danneggiare il rivestimento protettivo.*
- *Non lasciare mai il monitor a contatto di gomma o vinile per periodi prolungati.*
- *Non spruzzate pulitori direttamente sulla superficie dello schermo, il liquido potrebbe penetrare nel monitor e danneggiare i circuiti.*
- *Non utilizzate pulitori abrasivi per pulire la superficie dello schermo, questo potrebbe danneggiare il rivestimento anti riflesso.*

1.7 Disimballaggio

Dopo il disimballaggio del monitor a colori, dovrebbero essere disponibili tutti gli elementi indicati nella Figura 1 ed elencati qui di seguito. Conservate il materiale per l'imballo, potrebbero essere utili in caso di trasporto.

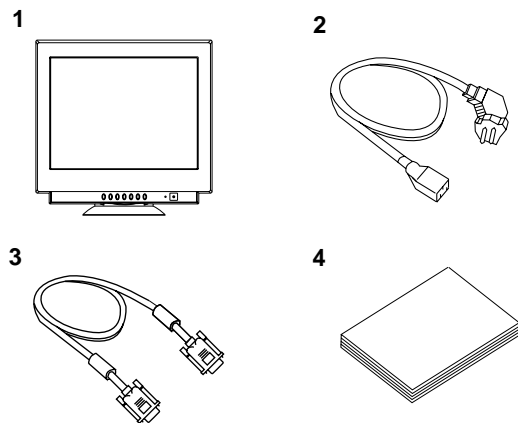


Figura 1

1. Monitor ad alta risoluzione
2. Cavo di alimentazione
3. Cavo SC-B110
4. Manuale d'uso (Questo documento)

1.8 Base orientabile

Il monitor viene fornito con un supporto basculante che consente di posizionare il monitor stesso in base all'inclinazione e all'angolazione ideali per l'utilizzo.

Regolazione della posizione dello schermo

Regolare l'angolazione e l'inclinazione del monitor afferrando il monitor per le parti esterne. Il monitor può essere spostato 90 gradi a destra o a sinistra, 10 gradi in alto o in basso, come mostrato nella figura seguente.

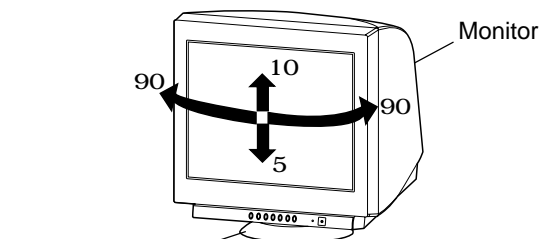


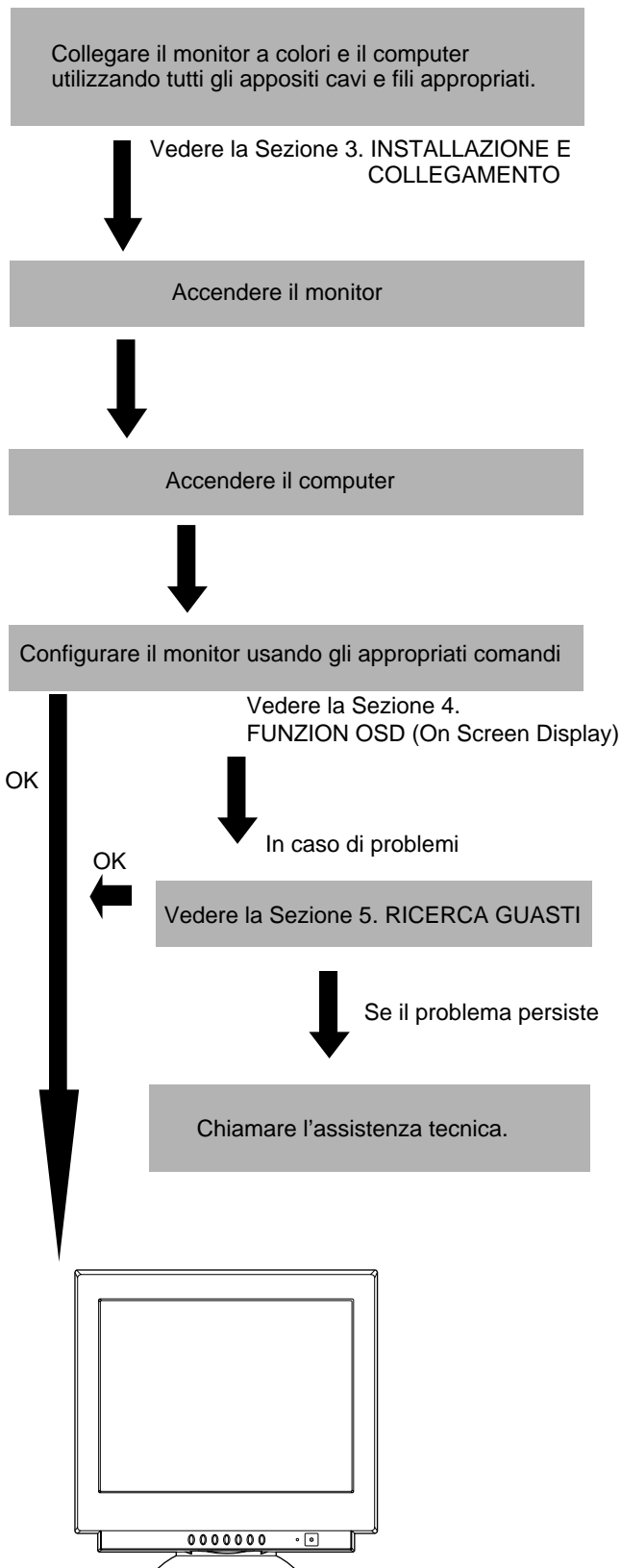
Figura 2

ATTENZIONE

Allontanate le dita dalla base orientabile.

1.9 Operazioni per l'installazione rapida

Per verificare di passo in passo la connessione del Vs. monitor con il computer e la scheda video, seguire lo schema sottostante.



2 NOME COMPONENTI

2.1 Nomi dei Comandi

La posizione dei comandi e degli indicatori seguenti è mostrata nelle Figure 3 e 4.

Ciascun controllo è identificato da un numero ed è descritto individualmente.

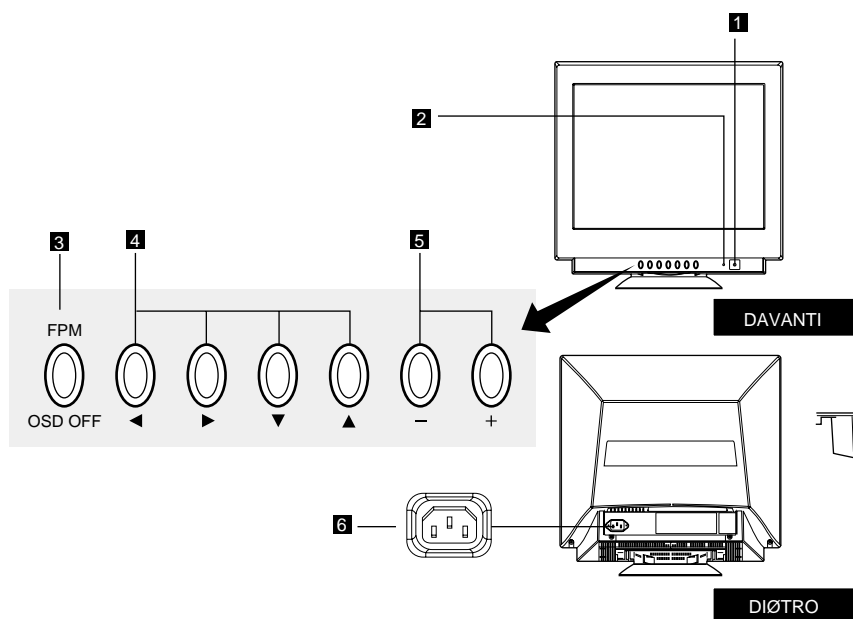


Figura 3

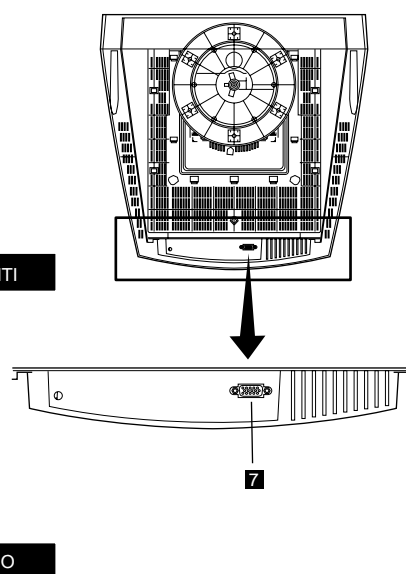


Figura 4

2.2 Funzione

1. **INTERRUTTORE DI ALIMENTAZIONE:** attiva e disattiva l'unità.
2. **INDICATORE DI ACCENSIONE:** si illumina quando l'unità è attiva, e quando il monitor si trova nelle modalità di gestione dell'alimentazione (power management) si accende la spia luminosa color orange.
3. **PULSANTE FPM MODE SELECT/OSD OFF:**
 - In assenza di schermo OSD, premere per selezionare una modalità schermo adatta alla visualizzazione dell'immagine.
 NORMAL MODE: per un utilizzo normale
 TEXT MODE: per immagini contenenti molte letters o caratteri
 GRAPHIC MODE: per immagini grafiche e fotografiche
 - Con schermo OSD, premere per disattivare lo schermo OSD.
4. **PULSANTE DI SELEZIONE ELEMENTO:** Premerlo per selezionare un elemento da regolare.
5. **TASTI DI REGOLAZIONE:** Per regolare l'immagine premere il pulsante di regolazione.
6. **CONNETTORE DI RETE AC**
7. **CONNETTORE DI INGRESSO SEGNALE: DB9-15P**

3 INSTALLAZIONE E COLLEGAMENTO

Sono presenti tre connettori sul retro del monitor : un connettore per la tensione di rete, due connettori DB9-15P per i segnali di ingresso video.

3.1 Collegamento del cavo di alimentazione CA

Un capo del cavo AC e' connesso alla presa AC sul retro del monitor. L'altra estremità va inserita in una presa CA a tre poli adeguatamente provvista di messa a terra. L'alimentazione a sensibilità automatica del monitor è in grado di individuare automaticamente l'alimentazione a 100-120 V CA o a 220-240 V CA, 50 o 60 Hz.

3.2 Collegamento cavo segnali

Il connettore DB9-15P (VGA) e' compatibile con tutti i segnali RGB analogici. I computer Apple Macintosh possono essere interfacciati con l'adattatore AD-A205.

3.2.1 Collegamento con un qualsiasi sistema IBM VGA compatibile

La Figura 5 mostra il collegamento del cavo SC-B110 alla porta VGA (Video Graphics Array) di un Sistema Personal IBM/serie 2 o di un qualsiasi sistema VGA compatibile.

1. Spegner il monitor e il computer.
2. Collegare l'estremità proveniente dal computer del cavo SC-B110 al connettore a 15 pin della scheda VGA.
3. Collegare l'estremità proveniente dal monitor (D/M) del cavo SC-B110 al connettore DB9-15P che si trova nella parte posteriore del monitor.
4. Nell'ordine, accendere prima il monitor e quindi il computer.
5. Dopo aver usato il sistema, spegnere il monitor e quindi il computer.

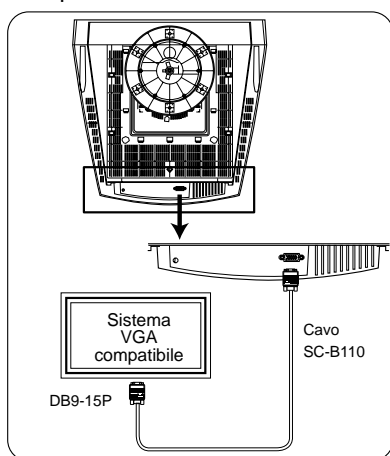


Figura 5

ATTENZIONE

L'alimentazione del questo monitor resta attiva anche quando l'interruttore di alimentazione è spento. Pertanto, è opportuno che la presa di alimentazione sia facilmente accessibile in caso di emergenza o per scollegare completamente il monitor.

3.2.2 Collegamento con un computer Apple Macintosh

La Figura 6 mostra il cavo SC-B110 (opzionale) a la connessione alla porta video di un Apple Macintosh.

1. Spegner il monitor e il Macintosh.
2. Impostare gli interruttori DIP dell'adattatore Macintosh in accordo alla tabella impostazioni. (Vedere la sezione 7.3 Impostazioni dell'adattatore opzionale Macintosh AD-A205)
3. Collegare l'estremità a 15 pin (DB-15P) dell'Apple Adapter AD-A205 al connettore a 15 pin dritto della porta video del Macintosh (parte posteriore della CPU) o della scheda video.
4. Collegare l'estremità a 15 pin miniaturizzata (DB9-15P) dell'adapter AD-A205 al cavo SC-B110 (P/C).
5. Collegare l'estremità del cavo SC-B110 al connettore DB9-15P che si trova nella parte posteriore del monitor.
6. Accendere prima il monitor e quindi il Macintosh.
7. Dopo aver usato il sistema, spegnere il monitor e quindi il Macintosh.

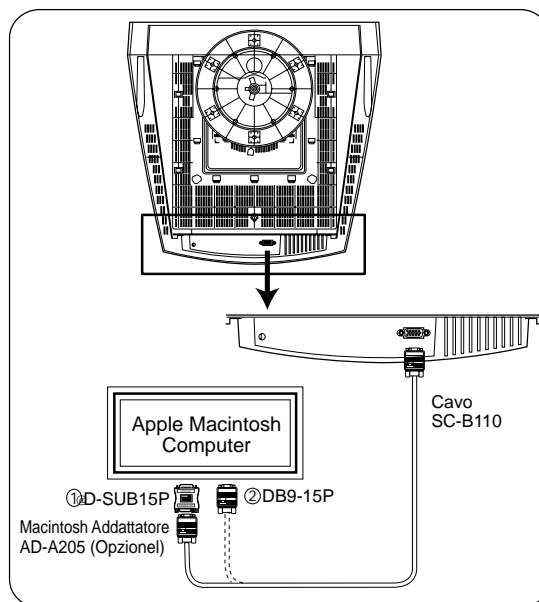


Figura 6

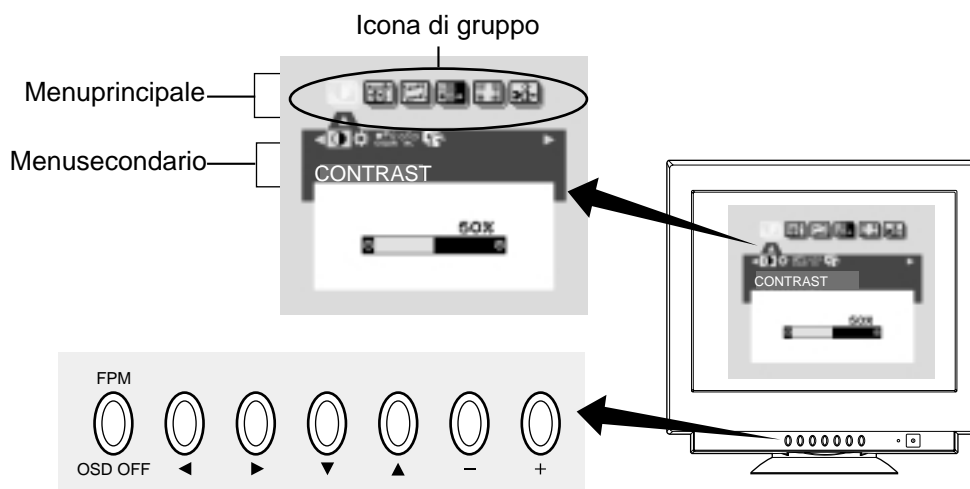
NOTA

- Per i computer Apple Macintosh compatibili alle porte VGA, i passi 2 e 4 non sono necessari. Connettere direttamente il cavo segnale standard.
- In caso di computer Apple Macintosh della serie G3, per selezionare un risoluzione usare "Control Panel" del "Apple Menu". Se selezionate la risoluzione dal "Control Bar", potrebbe non essere visualizzato lo schermo ed il computer potrebbe bloccarsi.

4 FUNZION OSD (On Screen Display)

4.1 Come regolare lo schermo

Il monitor è dotato di una funzione OSD (On Screen Display). La seguente procedura indica come eseguire correttamente la regolazione dello schermo utilizzando l'apposita funzione OSD.



(1) Accendere il monitor premendo

(2) Visualizzare lo schermo OSD premendo

(3) Selezionare l'icona del gruppo sul menu principale premendo

(4) Visualizzare il sottomenu premendo

(5) Selezionare l'icona della voce sul sottomenu premendo































(6) Regolare premendo

(7) Per disattivare lo schermo OSD, premere il pulsante

Se non si preme nessun pulsante durante il tempo impostato per "TEMPO DI SPEGN. OSD", l'OSD verrà disattivato automaticamente.



4.2 Elementi di regolazione

X: Disponibile

Icona di gruppo	Icona degli elementi	Elemento	Premere il tasto di regolazione meno: 	Premere il tasto di regolazione più: 	A	B	C
		CONTRASTO	Per diminuire il contrasto.	Per aumentare il contrasto.	X	X	X
		LUMINOSITÀ	Per diminuire la luminosità.	Per aumentare la luminosità.	X	X	X
		COLORE	Per selezionare la modalità di visualizzazione colore preferita. E per regolare il bilanciamento del colore nella modalità colore selezionata.		X	X	X
	NOTA Quando si seleziona la modalità "sRGB", "TEMPERATURA COLORE", "CONTRASTO" e "LUMINOSITÀ" non sono disponibili.						
		TEMPERATURA COLORE	Per aumentare il livello del (segnale del) colore rosso.	Per aumentare il livello del (segnale del) colore blu.	X	X	X
		CONFIG.DI FABBRICA	_____	Ripristinare il livello predefinito in fabbrica.	-	-	-
		AMPIEZZA ORIZZONTALE	Per restringere l'ampiezza dell'immagine sullo schermo.	Per espandere l'immagine sullo schermo.	X	X	
		POSIZIONE ORIZ.	Per spostare a sinistra l'immagine.	Per spostare a destra l'immagine.	X	X	
		AMPIEZZA VERTICALE	Per restringere l'altezza dell'immagine sullo schermo.	Per espandere l'altezza dell'immagine sullo schermo.	X	X	
		POSIZIONE VERTICALE	Per spostare verso il basso l'immagine.	Per spostare verso l'alto l'immagine.	X	X	
		ROTAZIONE	Per roteare l'immagine in senso antiorario.	Per roteare l'immagine in senso orario.	X	X	X
		ZOOM	Per rimpicciolire lo schermo su tutti i lati.	Per espandere lo schermo su tutti i lati.	X	X	
		AUTO REGOLAZIONE GTF	_____	Per regolare automaticamente larghezza posizione e distorsione dell'immagine.	-	-	-
	NOTA Se si utilizza una temporizzazione non preimpostata in fabbrica, "CONFIG. DI FABBRICA" non è disponibile.						
		CONFIG. DI FABBRICA	_____	Ripristinare il livello predefinito in fabbrica.	-	-	-
	NOTA Se si utilizza una temporizzazione non preimpostata in fabbrica, "CONFIG. DI FABBRICA" non è disponibile.						
		AMPIEZZA CURVATURA	Per restringere il centro dell'immagine.	Per espandere il centro dell'immagine.	X	X	
		BILANCIA CUSCINO	Per spostare la parte superiore e quella inferiore dell'immagine dello schermo verso destra.	Per spostare la parte superiore e quella inferiore dell'immagine dello schermo verso sinistra.	X	X	
		CORREZIONE TRAPEZIO	Per diminuire l'ampiezza nella parte superiore dell'immagine dello schermo e per aumentare l'ampiezza nella parte inferiore.	Per aumentare l'ampiezza nella parte superiore dell'immagine dello schermo e per diminuire l'ampiezza nella parte inferiore.	X	X	
		INCLINAZIONE	Per inclinare lo schermo verso sinistra.	Per inclinare lo schermo verso destra.	X	X	
		CURVATURA SUPERIORE	Per aumentare la larghezza dell'immagine negli angoli superiori dello schermo.	Per ridurre la larghezza dell'immagine negli angoli superiori dello schermo.	X	X	
		BILANC.ANGOLI SUP.	Per muovere gli angoli superiori dello schermo verso sinistra.	Per muovere gli angoli superiori dello schermo verso destra.	X	X	
		CURVATURA INFERIORE	Per aumentare la larghezza dell'immagine negli angoli inferiori dello schermo.	Per ridurre la larghezza dell'immagine negli angoli inferiori dello schermo.	X	X	
		BILANC.ANGOLI INF.	Per muovere gli angoli inferiori dello schermo verso sinistra.	Per muovere gli angoli inferiori dello schermo verso destra.	X	X	
		LINEARITÀ VERT.	Per espandere verticalmente il fondo dell'immagine e comprimere la sommità.	Per comprimere verticalmente il fondo dell'immagine ed espandere la sommità.	X	X	
		BILANC.LIN.VERT.	Per espandere verticalmente il centro dell'immagine e comprimere la sommità ed il fondo.	Per comprimere verticalmente il centro dell'immagine ed espandere la sommità ed il fondo.	X	X	
		CONFIG. DI FABBRICA	_____	Ripristinare il livello predefinito in fabbrica.	-	-	-
	NOTA Se si utilizza una temporizzazione non preimpostata in fabbrica, "CONFIG. DI FABBRICA" non è disponibile.						

X: Disponibile

Icona di gruppo	Icona degli elementi	Elemento	Premere il tasto di regolazione meno: 	Premere il tasto di regolazione più: 	A	B	C
		PUREZZA ANGOLI(AS)	Per regolare la condizione di purezza di colore nell'angolo superiore sinistro.		X	X	X
		PUREZZA ANGOLI(AD)	Per regolare la condizione di purezza di colore nell'angolo superiore destro.		X	X	X
		PUREZZA ANGOLI(BS)	Per regolare la condizione di purezza di colore nell'angolo inferiore sinistro.		X	X	X
		PUREZZA ANGOLI(BD)	Per regolare la condizione di purezza di colore nell'angolo inferiore destro.		X	X	X
		PUREZZA SIN./DES	Per regolare la condizione di purezza di colore nell'angolo destra ed a sinistra.		X	X	X
		LIVELLO MOIRE	Per diminuire il livello dell'onda di cancellazione MOIRE.		X	X	
		POSIZIONE AGGANCIO	Per eliminare lo sfondo eccessivamente verde e bianco che può presentarsi quando al monitor vengono applicati i due segnali ovvero sinc. sul verde ed esterno. Per bloccare il segnale video davanti all'impulso di sincronizzazione orizzontale.		X		
		CONFIG. DI FABBRICA	_____	Ripristinare il livello predefinito in fabbrica.	-	-	-
		CONVERGENZA ORIZ.	Per regolare l'allineamento orizzontale del raggio su tutta l'area dello schermo.		X	X	X
		CONVERGENZA VERT.	Per regolare l'allineamento verticale del raggio su tutta l'area dello schermo.		X	X	X
		CONFIG. DI FABBRICA	_____	Ripristinare il livello predefinito in fabbrica.	-	-	-
		SMAGNETIZZAZIONE	_____	Per eliminare possibili ombreggiature di colore o impurezze.	-	-	-
		RISPARMIO ENERGIA	Per selezionare il modo consumo di energia costante.	Per selezionare la modalità di risparmio energetico, Power-save. (Il vostro computer deve essere impostato risparmio energia)	X		X
		BLOCCO OSD	Per permettere tutte le regolazioni OSD.	Per bloccare la funzione OSD tranne le regolazioni di luminosità e contrasto "LUMINOSITÀ" e "CONTRASTO".			X
	NOTA "LUMINOSITÀ" e "CONTRASTO" non sono disponibili in modalità bloccata.						
		POSIZIONE OSD	Per muovere la posizione dell'OSD in direzione antioraria.	Per muovere la posizione dell'OSD in direzione oraria.	X		X
		TEMPO DI SPEGN.OSD	Per regolare il tempo il cui lo schermo OSD si spegne in assenza di accesso.		X		
		DIAGNOSTICA	Mostra la frequenza di scansione attuale, numero di preselezione, connettore di ingresso segnale.		-	-	-
		LINGUAGGIO	Per selezionare la lingua dell'OSD. ENG.....Inglese, FRA.....Francese, ESP.....Spagnolo, ITA.....Italiano, GER.....Tedesco, JPN.....Giapponese				X
		AUTOM. MEMORIZZARE	Per salvare la nuova regolazione con un messaggio di conferma.	Per salvare automaticamente la nuova regolazione.			X
	NOTA Se si seleziona "NON ATTIVA", senza attivare "SAVE" prima che lo schermo OSD si spenga, la nuova regolazione non è valida.						
		IMPOSTAZIONE TOTALE	Per rimpiazzare tutte regolazioni di fabbrica.		-	-	-
		CONFIG. DI FABBRICA	_____	Ripristinare il livello predefinito in fabbrica.	-	-	-

- A. Premere l'opzione di ripristino geometria "CONFIG. DI FABBRICA" per ripristinare il livello predefinito in fabbrica.
- B. Premere contemporaneamente  e  per ripristinare i livelli di fabbrica.
- C. Le impostazioni di altri tipi di segnale non cambieranno.

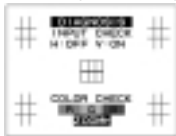
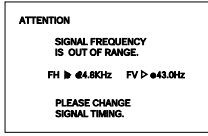
NOTA Le funzioni "CONFIG. DI FABBRICA" non funzioneranno se viene usato un segnale non riconosciuto come preimpostato di fabbrica.

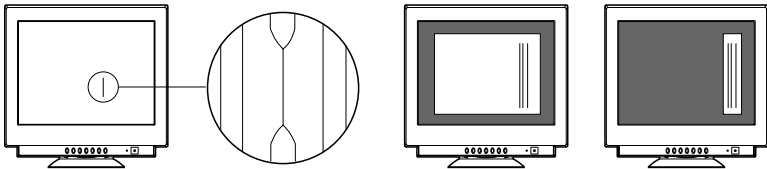
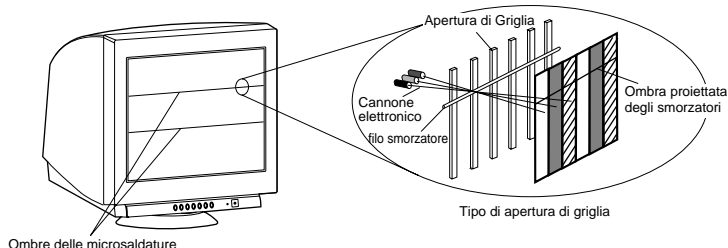
ITALIANO

5

RICERCA GUASTI

Prima di chiamare l'assistenza tecnica verificare che il monitor soddisfi le condizioni sotto elencate. Nel caso si usi un segnale video non-standard, verificare il pin assignment della scheda video e la temporizzazione del segnale con le specifiche riportate nei capitoli 6 e 7.

PROBLEMA		REGOLAZIONI DA VERIFICARE	DISPOSIZIONE DEL COMANDO
No picture	LED acceso (Verde)	<ul style="list-style-type: none"> Regolare luminosità e contrasto. 	<ul style="list-style-type: none"> Pannello frontale
	LED spento	<ul style="list-style-type: none"> Interruttore di accensione. Cavo alimentazione staccato. 	<ul style="list-style-type: none"> Pannello frontale Retro monitor
	LED acceso (Arancione)	<ul style="list-style-type: none"> Cavo segnale staccato. Interruttore computer. Power Management attivv. 	<ul style="list-style-type: none"> Retro monitor Computer Premere un pulsante della tastiera o muovere il mouse.
È apparso il seguente messaggio. 		<ul style="list-style-type: none"> Cavo segnale staccato. Interruttore computer. Power Management attivv. 	<ul style="list-style-type: none"> Retro monitor Computer Premere un pulsante della tastiera o muovere il mouse.
È apparso il seguente messaggio. 		<ul style="list-style-type: none"> La frequenza del segnale entrante potrebbe essere maggiore o minore di quella ammessa. 	<ul style="list-style-type: none"> Verificare le specifiche della scheda video del monitor.
Immagine distorta o sfuocata	Senza immagine, immagine non centrata, troppo piccola o troppo grande	<ul style="list-style-type: none"> Su segnali standard opera come "CONFIG. DIFABBRICA". Regolare AMPIEZZA ORIZZONTALE, AMPIEZZA VERTICALE, POSIZIONE ORIZ., e POSIZIONE VERTICALE con segnali video non-standard. Il monitor potrebbe non essere in grado di visualizzare a pieno schermo alcuni segnali. In questo caso selezionare sulla scheda video un'altra risoluzione o un'altra frequenza di rinfresco verticle. Assicuratevi di aspettare alcuni secondi dopo aver regolato l'immagine, prima di cambiare o togliere il segnale, o prima di spegnere il monitor. 	<ul style="list-style-type: none"> Pannello frontale (OSD) Pannello frontale (OSD)

PROBLEMA		REGOLAZIONI DA VERIFICARE	DISPOSIZIONE DEL COMANDO
Immagine distorta o stuocata	A schermo sono visibili delle linee verticali nere.	<ul style="list-style-type: none">Linee verticali nere su di un lato o su entrambe i lati. In questi rari casi, due elementi della griglia si sono accavallati durante il trasporto. <p>Se la procedura descritta non funziona, surriscaldare la maschera del tubo aprendo una piccola finestra bianca sulla zona interessata ed aumentare il contrasto e luminosità al massimo.</p> <p>Assicuratevi, dopo questa procedura, di riportare i valori di contrasto e luminosità a livelli accettabili.</p>	
			
Sono visibili due fini linee orizzontali sullo schermo		<ul style="list-style-type: none">Sono normali le due sottili righe orizzontali. Sono richieste dalla tecnologia di questo tubo, servono a stabilizzare la griglia a filamenti verticali.	
			
Un ronzio quando si accende.		<ul style="list-style-type: none">Una leggera vibrazione accompagnata da un ronzio subito dopo l'accensione è normale. Questo è causato dalla funzione di smagnetizzazione automatica. Questo ronzio sarà udito tutte le volte che si accende il monitor da freddo od ogni volta che sarà premuto il tasto di smagnetizzazione.	

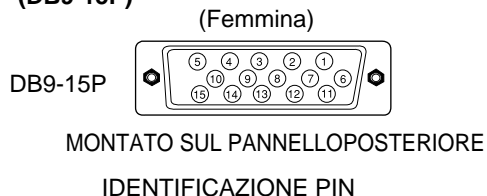
6 CARATTERISTICHE

TUBO A RAGGI CATODICI	Dimensioni	55cm/22" (508mm/20" Dimensione Immagine Visualizzabile)
	Maschera	Tipo di griglia di apertura
	Cannone	In linea
	Angolo di deflezione	90°
	Fosfori	Rosso, Verde, EBU Blu(persistenza medio-breve)
	Tolleranza tra i pixel	0.24mm
	Distanza tra i fosfori	0.25mm
	Schermo	G-WARAS(trattamento antielettricità statica, anabbagliante e antiriflesso)
	Metodo di messa a fuoco	Formazione di raggio dinamico (DBF)
SEGNALE DI INPUT	Video	RGB analogico 0.7Vp-p
	Sincronizzazione	Orizzontale separata, sincronizzazione verticale o sincronizzazione composita
INTERFACCIA	Connettore di ingresso	DB9-15P
	Impedenza di ingresso	75Ω (video), 2.2kΩ(Sincronizzazione)
FREQUENZA DI SCANSIONE	Orizzontale	30 - 110kHz
	Verticale	50 - 160Hz
RISOLUZIONE (ORIZZ.xVERT.)	1920 punti x 1440 linee massima risoluzione indirzzabile a 73 Hz non interlacciata	
TEMPO DI RISCALD	30 minuti per raggiungere il livello di prestazioni ottimale	
LUMINOSITÀ	100cd/m², segnale video completamente bianco standard a 9300K (+ 8MPCD)	
PERIODO DI OSCURAMENTO	Orizzontale	≥ 2.3 μsec (tip.)
	Verticale	≥ 450 μsec (tip.)
DIMENSIONI VISUALIZZAZIONE	396mm x 297mm(tip.)	rapporto 4:3
TEMPERATURA COLORE	5000K~9300K	
ALIMENTAZIONE	AC100-120/220-240V±10% 50/60Hz 130W (tip.)	
AMBIENTE OPERATIVO	Temperatura	5 - 35°C
	Umidità	10 - 90%RH (senza condensa)
DIMENSIONI	(L)19.5"x (A)19.4" x (P)18.6" / (L) 495mm x (A) 493.5mm x (P) 473mm	
PESO	Circa. 29.7kg (65.3lbs.)	
SUPPORTO BASCULANTE	Angolo di inclinazione	-5° - +10°
	Angolo di rotazione	±90°
NORMATIVE	Sicurezza	UL1950 (UL), CSA C22.2 No.950 (C-UL) EN60950 (TÜV-GS)
	Interferenze elettromagnetiche	FCC Classe-B, DOC Classe-B EN55022 Classe-B, VCCI Classe-B EN61000-3-2, EN61000-3-3, EN55024
	X-Ray	DHHS, HWC, Röv vom 8.1, 1987
	Altri	CE-Marking, MPR-II/TCO'91 ISO9241-3, ISO9241-7, ISO9241-8 (TÜV-GS) TCO '99 International ENERGY STAR Program Energy 2000 Labeling Award. Guidelines for the Suppression of Harmonics in Appliances and General-Use Equipment

* Questo monitor è registrato/certificato con il modello N. NSV1107STTKW.

7 APPENDICE

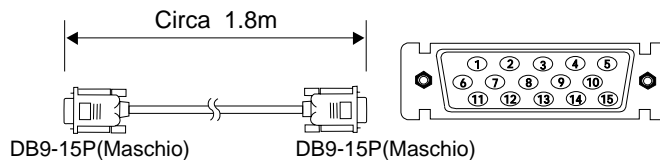
7.1 Connettore di ingresso dei segnali del monitor (DB9-15P)



Pin	SEGNALE
1	SEGNALE ROSSO
2	SEGNALE VERDE/ VERDE+COMP SYNC
3	SEGNALE BLU
4	MASSA
5	MASSA DDC
6	MASSA ROSSO
7	MASSA VERDE
8	MASSA BLU
9	NC
10	MASSA SINCRONISMO
11	MASSA
12	SDA
13	H SYNC / COMP-SYNC
14	SINCRONISMO VERTICALE
15	SCL

DDC INDICAZIONE DATA CANALE
 SDA SERIALE DATA
 SCL SERIALE OROLOGIO
 NC NON COLLEGATO

7.2 Cavo segnali SC-B104



IDENTIFICAZIONE PIN

Pin	SEGNALE
1	ROSSO
2	VERDE
3	BLU
4	TERRA
5	TERRA (DDC)
6	TERRA ROSSO
7	TERRA VERDE
8	TERRA BLU
9	NC
10	SINCR. TERRA
11	TERRA
12	SDA
13	SINCR. ORIZZONTALE
14	SINCR. VERTICALE (VCLK)
15	SCL

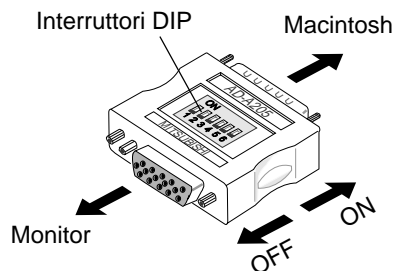
DDC INDICAZIONE DATA CANALE
 SDA SERIALE DATA
 SCL SERIALE OROLOGIO
 NC NON COLLEGATO

7.3 Impostazioni dell'adattatore optionnel Macintosh AD-A205

L'adattatore Macintosh AD-A205 (opzionale) consente di sfruttare le capacità video del computer Macintosh con il vostro monitor.

- (1) Impostate i selettori dell'adattatore prima di collegarlo al computer.

- (2) Impostate i selettori seguendo la tabella seguente. Usando la tabella seguente potete rapidamente scegliere la risoluzione principale. Se desiderate usare altre risoluzioni, fate riferimento alla pagina seguente "Tabella delle impostazioni dell'adattatore Macintosh AD-A205".



Apple Macintosh	Switch on	Switch Setting
Macintosh LC, LC II	1,2	ON 1 2 3 4 5 6
Macintosh LC III, LC475, LC630	2,4	ON 1 2 3 4 5 6
Macintosh Quadra 610, 650, 700, 800, 840AV, 900, 950 Macintosh Centris 610, 650, 660AV	1,2,3,4	ON 1 2 3 4 5 6
Performa 6260, 6310, 6410, 6420 Power Macintosh 6100, 6100AV, 6200, 6300 Power Macintosh 7100AV, 7200, 7300, 7500, 7600 Power Macintosh 8100, 8100AV, 8500, 8600 Power Macintosh 9500, 9600 Workgroup Server 7350, 8150, 9150, 9650	1,2,6	ON 1 2 3 4 5 6
Macintosh Ilvi, Ilvx Power Macintosh 4400, G3	3,4	ON 1 2 3 4 5 6

ITALIANO

AD-A205 Tabella di impostazioni dell'adattatore Mac

● @Impostare i selettori su "ON" come mostrato di seguito. (Esempio: "1,2" )

		Macintosh						Performa		Power Macintosh												
		Ilisi Ildi	Ilvi Ilvx	LC LCII	LCIII LC475	LC630	Quadra 700 900	Quadra 610 650 800 950	Quadra 840AV Centris 660AV	6260 6310	6410 6420	Workgroup Server 8150 9150	8100 VRAM Video Card (DB-15)	6200 6300	7200	4400	7300 7500 7600 8500 8600	9500	9600/233 Workgroup Server 9650	9600/300 9600/350	G3	
RISOLUZIONE			3,4	3,4	3,4	3,4	3,4	3,4	3,4	1,2,6	1,2,6	3,4	3,4	1,2,6	3,4	3,4	3,4	3,4	3,4	3,4	3,4	
		X	X	1,2	1,2	1,2	1,2	1,2	1,2	1,2,6	1,2,6	1,2,6	1,2,6	1,2,6	1,2,6	3,4	3,4	1,2,6	1,2,6	1,2,6	3,4	
							3,4				1,2,6	1,2,6			1,2,6	3,4	3,4	3,4	3,4	3,4	3,4	3,4
						3,4			3,4	1,2,6	1,2,6			3,4	1,2,6	3,4	3,4	3,4	3,4	3,4	3,4	3,4
																3,4	3,4	3,4	3,4	3,4	3,4	3,4
					2,4	2,4	2,4	2,4	2,4	2,4	1,2,6	1,2,6	1,2,6	1,2,6	1,2,6	1,2,6	3,4	3,4	1,2,6	1,2,6	1,2,6	3,4
									3,4	3,4		1,2,6		3,4		3,4	3,4	3,4	3,4	3,4	3,4	3,4
								2,3	2,3	2,3				1,2,6		3,4	3,4	1,2,6	1,2,6	1,2,6	1,2,6	3,4
														1,2,6		1,2,6	3,4	1,2,6	1,2,6	1,2,6	1,2,6	3,4
																	3,4	1,2,6	3,4	1,2,6	1,2,6	3,4
																	3,4	1,2,6	3,4	1,2,6	1,2,6	3,4
														</								

1. Impostando i selettori a computer acceso la risoluzione non cambia. Assicuratevi di spegnere il computer quando impostate i selettori.
2. Impostate i selettori usando un oggetto appuntito come una matita o una penna.

ÍNDICE DE MATERIAS

PRECAUCIÓN

El cable de alimentación que se suministra con este monitor ha sido diseñado para seguridad y se debe usar con una toma de corriente debidamente conectada a tierra, a fin de evitar los posibles choques eléctricos.

No quite la cubierta del monitor, ya que al hacerlo se expone a tensiones demasiado elevadas y a otros peligros.

DECLARACIÓN DEL FABRICANTE PARA MARCADO CE:

NEC-Mitsubishi Electric Visual Systems Corporation declaramos bajo nuestra única responsabilidad que el producto a que hace referencia la declaración está conforme con las siguientes norma(s) u otro(s) documento(s) normativos.

EN60950
EN55022 Clase B
EN61000-3-2
EN61000-3-3
EN55024

Conforme a la normativa:

73/23/EEC Directiva de Baja Tensión
89/336/EEC Directiva Compatibilidad Electromagnética

ATENCIÓN

Este producto no está diseñado para aplicaciones de uso médico y NEC-Mitsubishi Electronics Display no aceptará reclamaciones al respecto. Los equipos médicos son aquellos equipos que se utilizan para medir, diagnosticar, o evaluar, tejidos, sistemas o funciones del cuerpo humano, o aquellos equipos empleados para dar soporte o mantener la vida o salud.

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1 INTRODUCCIÓN

Le felicitamos por haber comprado el monitor a color de alta resolución. Este monitor le proveerá de años de servicio ininterrumpido y fiable. Otra vez, deseamos agradecerle el haber seleccionado nuestro producto.

Esta guía le explica como conectar, ajustar y cuidar de su monitor. También provee especificaciones técnicas e instrucciones para la localización de averías de cualquier problema básico que puede experimentar con su monitor.

1.1 Características

El monitor tiene de 55cm diagonal/22" (508mm/20" Tamaño de imagen visible) inteligente, controlado por microprocesador-compatible con la mayoría de normas de visualización RGB analógico (Rojo, Verde, Azul).

Proporciona texto claro y gráficos de color vivos con ambas plataformas PC y Macintosh.

- Debido a que el monitor es capaz de seleccionar automáticamente una amplia gama de frecuencias de barrido, es posible actualizar las tarjetas de vídeo o el software sin tener que comprar un monitor nuevo.
- La selección automática de la frecuencia de barrido se controla en forma digital mediante el uso de un microprocesador interno, para las frecuencias de barrido horizontal entre 30kHz y 110kHz, y para las frecuencias de barrido vertical entre 50Hz y 160Hz. La inteligencia basada en el microprocesador hace posible que el monitor funcione en cada modalidad de frecuencia con la misma precisión que un monitor de frecuencia fija.
- El monitor contiene memoria residente para especificaciones de visualización preprogramadas, y también es capaz de almacenar parámetros de ajuste adicionales especificados por el usuario.
- El monitor es capaz de producir un formato máximo direccionable de resolución no-entrelazado de 1920 puntos x 1440 líneas. Esta visualización es favorable entornos de ventanas multiples.
- Debido a que acepta entradas de señal analógica, el monitor puede visualizar una gama ilimitada de colores, los cuales el usuario puede ajustar manualmente para satisfacer sus necesidades particulares.
- El monitor cuenta con una función de conservación de energía que cumple con la norma VESA DPMS. Para poder conservar energía, el monitor debe conectarse a un sistema que también cumple con dicha norma (si precisa información adicional al respecto, consulte las instrucciones del ordenador o de la tarjeta de vídeo).
- Para asegurar una fácil instalación y manejo, el monitor dispone de un Menú en Pantalla, OSD (On Screen Display) para el ajuste y puesta a punto de todas las funciones.
- Para el uso en una gran variedad de aplicaciones, el monitor cumple con UL 1950, CSAC22.2 No.950 y EN60950 para la seguridad, FCC Clase-B, VCCI Clase-B y EN55022 Clase-B para EMI, MPR-II, ISO 9241-3, ISO9241-7 e ISO9241-8 para la ergonomía. El monitor también cumple con la directiva TCO'99 para un uso ambiental seguro.
- El nuevo y avanzado Tubo de Rayos Catódicos (TRC) DIAMONDTRON NF, estándar mundial, presenta imágenes nítidas y puras.
- Este monitor cumple con la especificación DDC2B/2Bi(EDID) de la Video Electronics Standards Association (VESA). La configuración será efectuada automáticamente si su ordenador es del tipo Plug & Play.
- Paso de apertura de rejilla muy fino 0.24mm./resolución máxima direccionable de 1920 x 1440.

1.2 Especificaciones internas predefinidas en memoria

A fin de mantener a un mínimo la necesidad de realizar ajustes manuales, se han preestablecido en la memoria varias especificaciones de visualización populares, las cuales se muestran en la Tabla 1. Si se detecta cualquiera de estas especificaciones, el tamaño de la pantalla y el centrado se ajustarán automáticamente. Se puede anular cualquiera de las especificaciones de fábrica usando los controles del usuario. Este monitor es capaz de almacenar hasta 15 formatos de visualización adicionales. La nueva información de visualización debe variar de cualquier especificación ya existente por un margen de por lo menos 1kHz, en el caso de la frecuencia de barrido horizontal, y de por lo menos 1Hz en el caso de la frecuencia de barrido vertical, o bien, las polaridades de las señales de sincronización deben ser diferentes.

Tabla 1. Especificaciones de fábrica almacenadas en la memoria

Resolución	Fh(kHz)	Fv (Hz)	Polaridad	
			H	V
640 x 480 N.I.	31.5	60.0	–	–
800 x 600 N.I.	53.7	85.1	+	+
1024 x 768 N.I.	60.0	75.0	+	+
1024 x 768 N.I.	68.7	85.0	+	+
1152 x 870 N.I.	68.7	75.1	–	–
1280 x 1024 N.I.	80.0	75.0	+	+
1280 x 1024 N.I.	91.1	85.0	+	+
1600 x 1200 N.I.	93.8	75.0	+	+
1600 x 1200 N.I.	106.3	85.0	+	+

1.3 Función de conservación de energía

La función de conservación de energía reduce el consumo de energía eléctrica cuando el monitor no se encuentra en uso. Los modos de ahorro de energía se activan por los equipos que cumplen con VESA-DPMS. Vea el manual de su ordenador para la puesta a punto de estas funciones.

Modo	Consumo	Indicador Alimentación
Normal	130 W	Verde
Modo Ahorro de Energía	≤ 3 W	Naranja

1.4 DDC

Este monitor incluye las características DDC2B y DDC2Bi. DDC (Display Data Channel) Canal de Visualización de Datos, es un canal de comunicaciones sobre el que el monitor informa automáticamente al sistema del ordenador sobre sus capacidades. (p. ej.: las resoluciones que proporciona y las sincronizaciones correspondientes). DDC utiliza un enrutado de 15 pins al conector del cable VGA.

El sistema realizará la configuración en forma automática tanto si el monitor como el ordenador anfitrión (host) emplean el protocolo DDC.

1.5 Ubicación del monitor

Tenga en cuenta las siguientes consideraciones al configurar y al usar el monitor:

- Para una visualización óptima, no coloque el monitor contra un fondo claro o en un lugar donde la luz solar u otra fuente de luz se refleje en la pantalla del monitor; coloque el monitor un poco debajo del nivel de los ojos.
- Aleje el monitor de los campos magnéticos o electromagnéticos fuertes, tales como transformadores de alta capacidad, motores eléctricos, líneas eléctricas, pilares de acero, etc.... el magnetismo puede distorsionar la imagen y la pureza de los colores.
- Evite cubrir las ranuras o aberturas del monitor. Asegúrese de que el monitor tenga una ventilación adecuada para que pueda disipar el calor. Evite colocar el ordenador en un lugar que no tenga la ventilación adecuada.
- Evite exponer el monitor a la lluvia, al exceso de humedad o al polvo, ya que esto puede causar un peligro de incendio o de choque eléctrico.
- No coloque el monitor ni ningún otro objeto pesado en el cable de red, ya que un cable dañado puede causar un incendio o choque eléctrico.
- Al transportar el monitor, manéjelo con cuidado.

1.6 Limpieza del monitor

Observe las siguientes pautas al limpiar el monitor:

- Siempre desconecte el monitor antes de limpiarlo.
- Use un paño suave para limpiar la pantalla y los lados de la caja.
- Si necesita hacer más que simplemente quitarle el polvo a la pantalla, utilice un producto para limpieza de cristales y un paño suave para limpiar la pantalla del monitor.

PRECAUCIÓN

- No utilice benceno, solventes o sustancias volátiles para limpiar la unidad, ya que esto puede estropear el acabado permanentemente.
- No deje que el monitor esté en contacto con el caucho o con el vinilo durante un período extenso.
- No aplique directamente sobre la pantalla, el líquido podría introducirse en el monitor y estropear parte del circuito.
- Nunca utilice limpiadores abrasivos, podría dañar la capa anti-reflejante.

1.7 Desembalaje

Después de desembalar el monitor a color, debe contar con todos los componentes indicados en la Figura 1 y enumerados a continuación. Guarde el embalaje por si tiene que transportar el monitor.

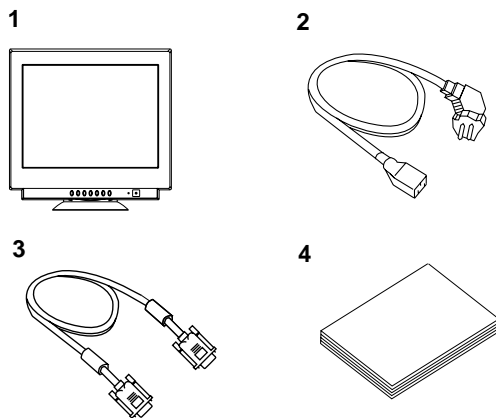


Figura 1

1. Monitor color
2. Cable alimentación CA
3. Cable de Señal SC-B110
4. Guía del usuario (este documento)

1.8 Base inclinable / giratoria

El monitor cuenta con una base inclinable / giratoria, la cual le permite ajustar la posición del monitor para obtener el mejor ángulo de visualización posible.

Ajuste de la posición de la pantalla

Adjuste la inclinación y la rotación del monitor, colocando las manos en lados opuestos de la caja. Puede hacer rotar el monitor 90 grados hacia la izquierda o hacia la derecha, o lo puede inclinar 10 grados hacia arriba ó 5 grados hacia abajo, tal como se muestra abajo.

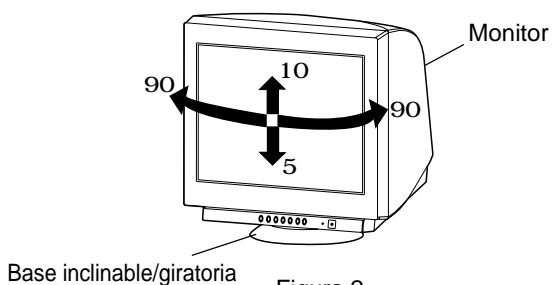


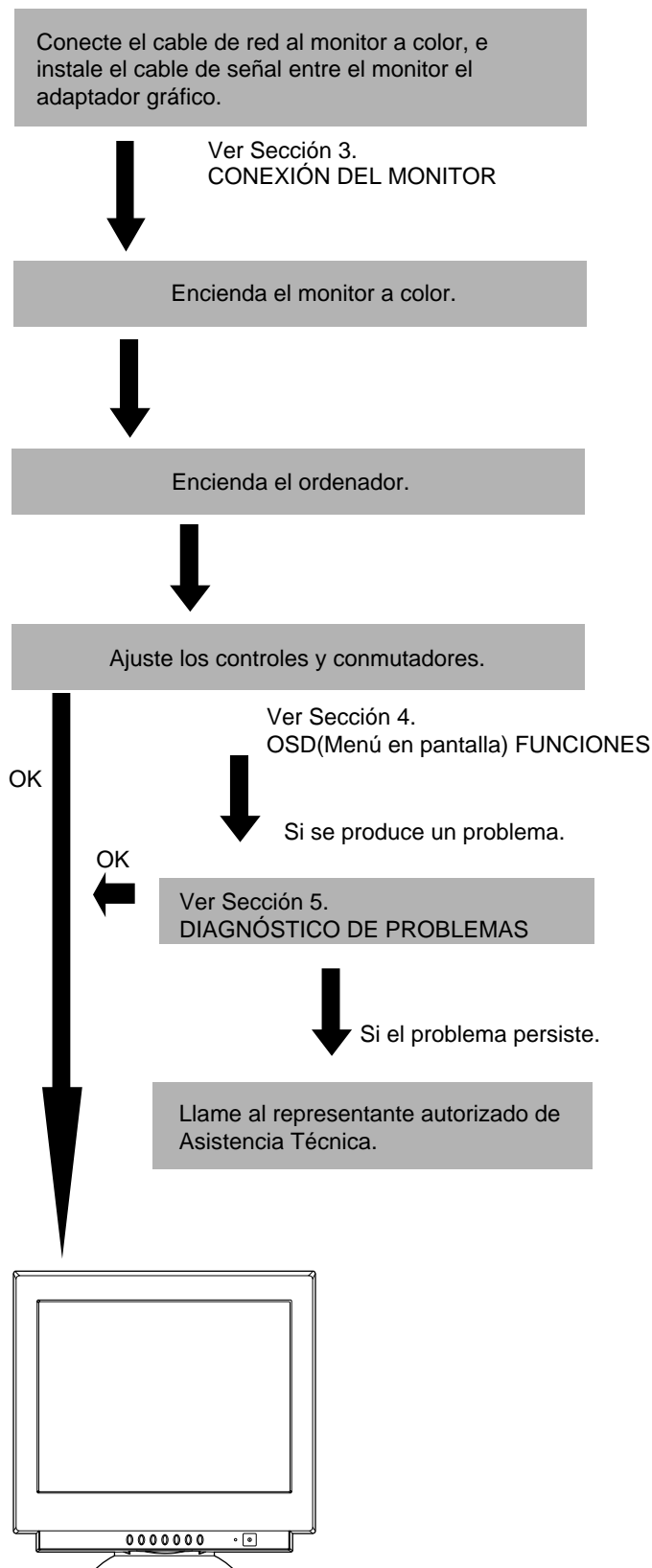
Figura 2

PRECAUCIÓN

Mantenga los dedos fuera de la zona de pivote de la base giratoria/orientable.

1.9 Diagrama para la instalación rápida

El siguiente diagrama resume el procedimiento de conexión del ordenador y del adaptador con el monitor a color el procedimiento de ajuste de los diversos controles y conmutadores.



2 NOMBRE DE PARTES

2.1 Nombres de los controles

Vea las Figuras 3 y 4 para ubicar los siguientes controles e indicadores del usuario. Cada control se identifica con un número y se describe individualmente.

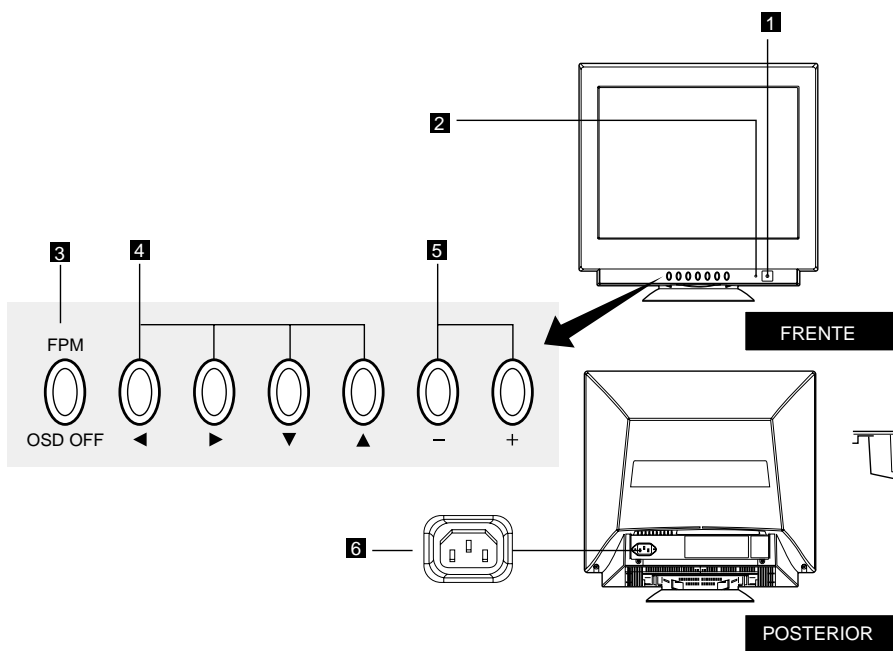


Figura 3

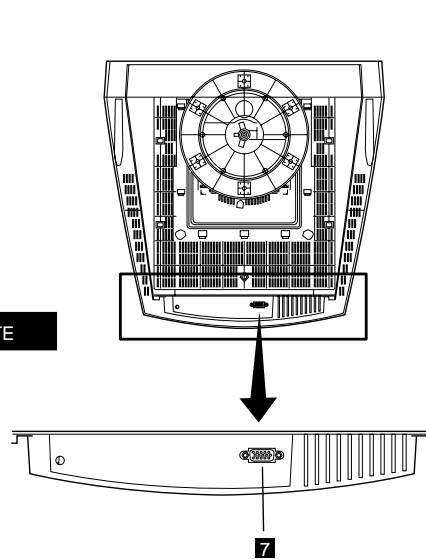


Figura 4

2.2 Funciones

1. **INTERRUPTOR DE ENCENDIDO:** Se presiona para encender o apagar la alimentación CA.
2. **INDICADOR DE ENCENDIDO:** Este indicador se ilumina de verde cuando está encendido CA, y se ilumina de ambar cuando el monitor está en los modos de ahorro de energía.
3. **BOTÓN FPM MODE SELECT (seleccionar modo FMP)/OSD OFF (MENÚ EN PANTALLA, desactivado):**
 - Si no aparece la ventana del MENÚ EN PANTALLA, púlselo para seleccionar un modo de visualización adecuado para la imagen visualizada.
NORMAL MODE (modo normal): para el uso normal
TEXT MODE (modo con texto): para las imágenes con muchas letras o caracteres
GRAPHIC MODE (modo gráfico): para imágenes gráficas y fotográficas.
 - Si aparece la ventana del MENÚ EN PANTALLA, púlselo para apagarla.
4. **BOTON SELECCIÓN:** Pulse para seleccionar el icono que desea ajustar.
5. **BOTONES DE AJUSTE:** Pulse los botones de ajuste para ajustar la imagen en la pantalla.
6. **CONECTOR DE ALIMENTACIÓN DE RED**
7. **CONECTOR DE SEÑAL DE ENTRADA:DB9-15P**

3 CONEXIÓN DEL MONITOR

En la parte posterior del monitor hay tres conectores además del conector USB: un conector de entrada de corriente C.A. y dos conectores DB9-15 patillas para la entrada de señales de vídeo.

3.1 Conexión del cable de alimentación

Uno de los extremos del cable de Red se ha de conectar al zócalo de alimentación CA en la parte trasera del monitor. El otro extremo se conecta a una toma de corriente CA debidamente conectada a tierra. La fuente de alimentación del monitor detecta automáticamente la corriente de 100-120V CA ó 220-240V CA, y 50 ó 60Hz.

3.2 Conexión del cable de señal

El conector DB9-15 (VGA) sirve para la conexión a la salida compatible analógica RGB de su ordenador. Los ordenadores Apple Macintosh también se pueden conectar utilizando el adaptador opcional de Mitsubishi para Macintosh, modelo AD-205.

3.2.1 Conexión con cualquier sistema compatible con VGA de IBM

La Figura 5 muestra la conexión de el SC-B110 del cable a el Puerto del Ordenador de Graficas de Video (VGA) en un Sistema Personal IBM /2 serie, o cualquier sistema VGA compatible.

1. Apague el monitor y el ordenador.
2. Conecte una terminal del cable SC-B110 al DB9-15P, conector sobre el tarjeta VGA de controlador.
3. Conecte el otro terminal del cable SC-B110 al DB9-15P, receptor al dorso del monitor.
4. Encienda el monitor, y el ordenador.
5. Después de usar, apague el monitor, y después el ordenador.

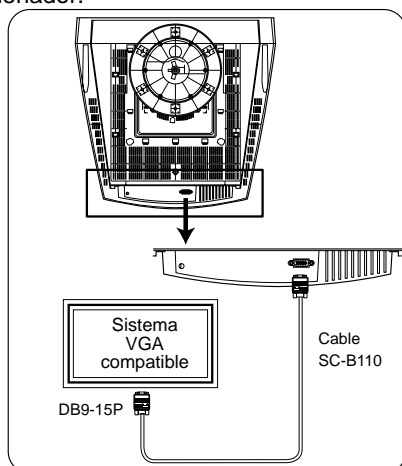


Figura 5

PRECAUCIÓN

El equipo debe ubicarse cerca de una toma de corriente, y ésta debe ser de acceso fácil. Al reparar el monitor, se debe desconectar el cable de alimentación de la toma de corriente.

3.2.2 Conexión con un Centris para aplicaciones o Quaddra de Apple Macintosh o con un ordenador de la línea Macintosh II

La Figura 6 muestra el cable de SC-B110 y el Adaptador AD-A205 (opcional) al puerto de video en un Apple Macintosh.

1. Apague ambos, el monitor y el ordenador.
2. Coloque los INTERRUPTORES DIP de Macintosh según el diagrama. (Ver Sección 7.3 Adaptador opcional Macintosh AD-A205)
3. Conecte la terminal de 15-pin del (DB-15P) al adaptador del AD-205 al conector recto 15-pin en el puerto de video Macintosh en el CPU o en el teclado de video.
4. Conecte la terminal sub-miniatura 15-pin (DB9-15P) del Adaptador AD-A205 al cable SC-B110.
5. Conecte el otro terminal del cable SC-B110 al receptáculo DB9-15P al dorso del monitor.
6. Encienda el monitor después el Macintosh.
7. Después de usar el sistema, apague el monitor, y después el Macintosh.

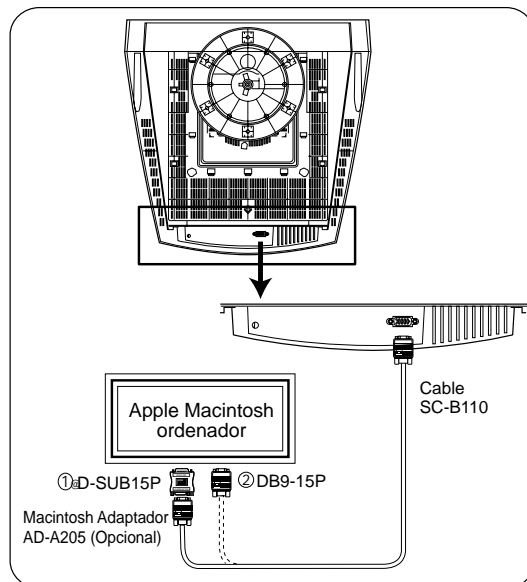


Figura 6

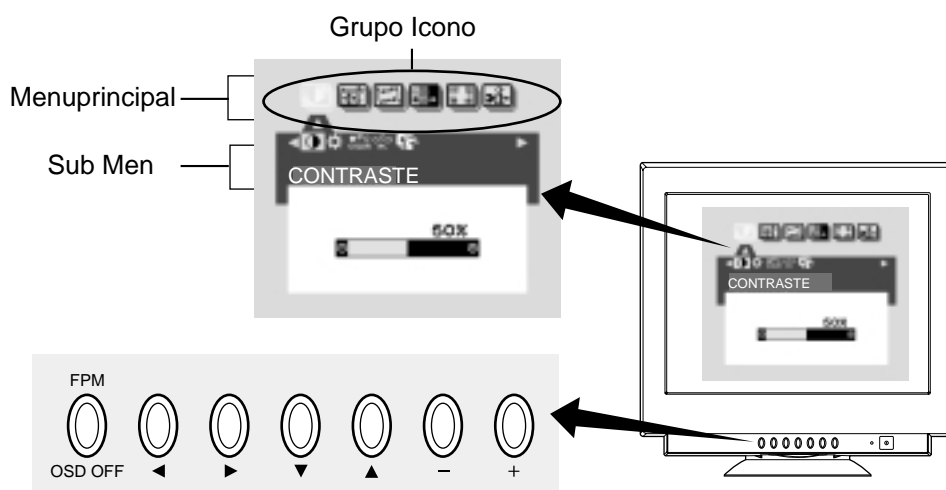
NOTA

- Para los ordenadores Apple Macintosh que tienen puerto compatible VGA, los pasos 2 a 4 no son necesarios. Conecte un extremo del cable de señal directamente al conector del puerto.
- En caso de Apple Macintosh G3, utilice el "Panel de Control" del "Menú Apple" cuando seleccione la resolución. Si selecciona la resolución a través de la "Barra de Control", puede que no se visualice ninguna imagen en el monitor y el ordenador quede bloqueado.

4 OSD (Menú en pantalla) FUNCIONES

4.1 Como ajustar la pantalla

El monitor tiene funcines de OSD (On Screen Display).
El procedimiento siguiente muestra como ajustar la pantalla usando el OSD.



(1) Encienda el monitor pulsando

(2) Active la ventana del MENÚ EN PANTALLA pulsando

(3) Seleccione el icono de grupo del menú principal pulsando

(4) Acceda al submenú pulsando

(5) Seleccione el icono de elementos en el submenú pulsando































(6) Ajuste la configuración pulsando

(7) Para apagar la ventana del MENÚ EN PANTALLA, pulse en botón



























Si no pulsa ningún botón durante el tiempo configurado en "ACTIVIDAD OSD", la ventana del MENÚ EN PANTALLA desaparecerá automáticamente.

4.2 Funciones de ajuste

X: Disponible

Grupo Icono	Función Icono	Característica	Oprima el botón de ajuste con el signo de menos: 	Oprima el botón de ajuste con el signo de más: 	A	B	C
		CONTRASTE	Para reducir el contraste.	Para aumentar el contraste.	X	X	X
		BRILLO	Para reducir el brillo.	Para aumentar el brillo.	X	X	X
		COLOR	Para seleccionar el modo de color de la pantalla que se prefiere y para ajustar el balance del color en el modo de color seleccionado.		X	X	X
	NOTA Cuando se selecciona el modo "sRGB", las funciones "COLOR TEMPERATURE" (temperatura de color), "CONTRASTE" y "BRILLO" no están disponibles.						
		TEMPERATURA DE COLOR	Para aumentar el nivel rojo de color.	Para aumentar el nivel azul de color.	X	X	X
		CONF. DE FÁBRICA	_____	Restaurar el nivel preajustado en fábrica.	-	-	-
		AMPLITUD-H	Para reducir el ancho de la imagen en la pantalla.	Para aumentar el ancho de la imagen en la pantalla.	X	X	
		POSICION-H	Para desplazar la imagen hacia la izquierda.	Para desplazar la imagen hacia la derecha.	X	X	
		AMPLITUD-V	Para reducir la altura de la imagen en la pantalla.	Para aumentar la altura de la imagen en la pantalla.	X	X	
		POSICION-V	Para desplazar la imagen hacia abajo.	Para desplazar la imagen hacia arriba.	X	X	
		ROTACION	Para girar la imagen en sentido antihorario.	Para girar la imagen en sentido horario.	X	X	X
		ZOOM	Para estrechar la imagen por todos los lados.	Para ampliar la imagen por todos los lados.	X	X	
		AUTO AJUSTE GTF	_____	Para ajustar el tamaño de pantalla, posición y la geometría automáticamente.	-	-	-
	NOTA La función "GTF AUTO ADJUST" (autoajuste de GTF) está disponible cuando se utiliza en un ordenador con la función VESA GTF instalada.						
		CONF. DE FÁBRICA	_____	Restaurar el nivel preajustado en fábrica.	-	-	-
	NOTA Si se utiliza una cadencia predefinida distinta de la estándar, no estará disponible la función "FACTORY PRESET" (configuración predefinida).						
		PCC-AMP	Para contraer el centro de la imagen.	Para expandir el centro de la imagen.	X	X	
		BALANCE-PIN	Para desplazar hacia la derecha las partes superior e inferior de la imagen.	Para desplazar hacia la izquierda las partes superior e inferior de la imagen.	X	X	
		PCC-FASE	Para reducir el ancho en la parte superior de la imagen y aumentarlo en la parte inferior.	Para aumentar el ancho en la parte superior de la imagen y reducirlo en la parte inferior.	X	X	
		INCLINACIÓN	Para hacer que la imagen se incline hacia la izquierda.	Para hacer que la imagen se incline hacia la derecha.	X	X	
		PCC-SUPERIOR	Para aumentar el ancho de la imagen cerca de los ángulos superiores.	Para reducir el ancho de la imagen cerca de los ángulos superiores.	X	X	
		BLANCE-SUP.	Para desplazar los angulos superiores de la imagen hacia la izquierda.	Para desplazar los angulos superiores de la imagen hacia la derecha.	X	X	
		PCC-INFERIOR	Para aumentar el ancho de la imagen cerca de los ángulos inferiores.	Para reducir el ancho de la imagen cerca de los ángulos inferiores.	X	X	
		BLANCE-INF.	Para desplazar los angulos inferiores de la imagen hacia la izquierda.	Para desplazar los angulos inferiores de la imagen hacia la derecha.	X	X	
		LINEALIDAD-V	Para expandir verticalmente la parte inferior de la pantalla y comprimir la superior.	Para comprimir verticalmente la parte inferior de la pantalla y expandir la superior.	X	X	
		BLANCE-V-LIN	Para expandir verticalmente la parte central de la pantalla y comprimir la superior e inferior.	Para comprimir verticalmente la parte central de la pantalla y expandir la superior e inferior.	X	X	
		CONF. DE FÁBRICA	_____	Restaurar el nivel preajustado en fábrica.	-	-	-
NOTA Si se utiliza una cadencia predefinida distinta de la estándar, no estará disponible la función "FACTORY PRESET" (configuración predefinida).							

X: Disponible

Grupo Icono	Función Icono	Característica	Oprima el botón de ajuste con el signo de menos: 	Oprima el botón de ajuste con el signo de más: 	A	B	C
		PUREZA EN ESQUIN.SI	Para disminuir el nivel de la señal eliminadora de Moire.		X	X	X
		PUREZA EN ESQUIN.SD	Para ajustar la condición de pureza en la rincón-superior izquierdo.		X	X	X
		PUREZA EN ESQUIN.II	Para ajustar la condición de pureza en rincón-superior derecho.		X	X	X
		PUREZA EN ESQUIN.ID	Para ajustar la condición de pureza en el rincón-inferior izquierdo.		X	X	X
		PUREZA IZQ./DER.	Para ajustar la condición de pureza en a la izquierda o a la derecha.		X	X	X
		NIVEL CANCEL. MOIRE	Para disminuir el nivel de la señal eliminadora de Moire.		X	X	
		POSICION CLAMP PULSE	Para eliminar el exceso de verde o blanco de fondo que puede ocurrir cuando ambos las señales externas de sincronización se aplican al monitor. Para fijar la señal de vídeo en el borde frontal del impulso de sincr. horizontal.	Para fijar la señal de vídeo en el borde posterior del impulso de sincr. horizontal. Si conecta un ordenador antiguo Macintosh, puede necesitar pulsar el botón más.	X		
		CONF. DE FABRICA	_____	Restaura el nivel preajustado en fábrica.	-	-	-
		CONVERGENCIA ESTAT.H	Para ajustar la alineación de la traza en sentido horizontal sobre toda la pantalla.		X	X	X
		CONVERGENCIA ESTAT.V	Para ajustar la alineación de la traza en sentido vertical sobre toda la pantalla.		X	X	X
		CONF. DE FABRICA	_____	Restaura el nivel preajustado en fábrica.	-	-	-
		DEGAUSS	_____	Para eliminar posible impurezas o sombreado de color.	-	-	-
		AHORRO DE ENERGIA	Para seleccionar el modo de consumo energético constante.	Para seleccionar el modo de ahorro de energía. (Su ordenador ha de estar capacitado para el control de nergia)	X		X
		BLOQUEO OSD	Permite el ajuste de todos "Menu en Pantalla"	Para cerrar la función OSD a excepción de "BRILLO" y "CONTRASTE".			X
		NOTA Las funciones "BRILLO" y 2CONTRASTE" no están disponibles cuando está activado el bloqueo.					
		POSICION OSD	Para mover la posición sobre la pantalla del OSD en sentido antihorario.	Para mover la posición sobre la pantalla del OSD en sentido horario.	X		X
		ACTIVIDAD OSD	Para definir el tiempo que debe transcurrir hasta que la ventana del MENÚ EN PANTALLA desaparezca si no se ejecuta ninguna función.		X		
		DIAGNOSTICO	Muestra la frecuencia de scan actual, N° de Preset.		-	-	-
		LENGUAJE	Para escoger el idioma en OSD. ENG.....Inglés, FRA.....Francés, ESP.....Español, ITA.....Italiano, GER.....Alemán, JPN.....Japones				X
		MEMORIA AUTOMÁTICO	Para grabar la nueva configuración después de recibir un mensaje de confirmación.	Para grabar automáticamente la nueva configuración.			X
		NOTA Al seleccionar "DESACTIVAR", si no se ejecuta "SAVE"(grabar) antes de que desaparezca la ventana del MENÚ en PANTALLA, la nueva configuración no será inválida.					
		REAJUSTE TODO	Restablece todas las configuraciones tal como se suministran con el producto.		-	-	-
		CONF. DE FABRICA	_____	Restaura el nivel preajustado en fábrica.	-	-	-

A. Presione "CONF. DE FABRICA" para restaurar al nivel preajustado en fábrica.

B. Presione  y  a la vez, para restaurar al nivel preajusado en fábrica.

C. El establecimiento de los datos no cambia cuando se cambian los tiempos de la señal.

NOTA Si no se trabaja con los preajustes de la fábrica, el "CONF. DE FABRICA" no actúan.


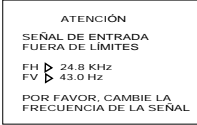
ESPAÑOL

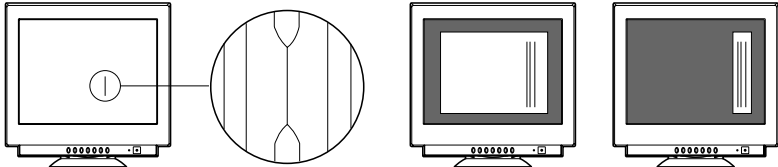
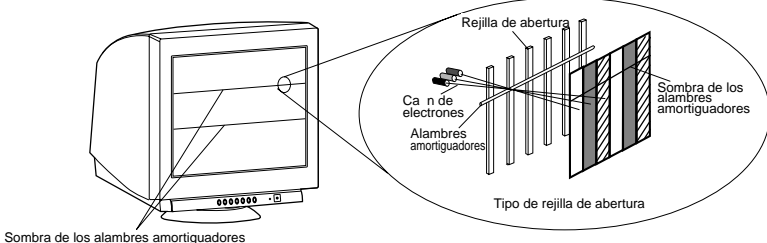
5

DIAGNÓSTICO DE PROBLEMAS

Antes de llamar al Servicio de Asistencia Técnica compruebe las conexiones y las especificaciones enumerada en la siguiente tabla.

En el caso de una señal no estándar, compare las asignaciones de las patillas de contacto y la sincronización de señal del adaptador con la ESPECIFICACIONES 6 y con la información del APÉNDICE 7.

PROBLEMA		CONEXIÓN O ESPECIFICACIÓN	UBICACIÓN
Ninguna imagen	LED On (Verde)	<ul style="list-style-type: none"> Controles de contraste y brillo. 	<ul style="list-style-type: none"> Frente (OSD)
	LED Apagado	<ul style="list-style-type: none"> Interruptor de alimentación. Cable de alimentación CA desconectado. 	<ul style="list-style-type: none"> Frente Posterior
	LED On (Naranja)	<ul style="list-style-type: none"> Cable de señal desconectado. Interruptor de alimentación del ordenador. Función de ahorro de energía activa. 	<ul style="list-style-type: none"> Posterior Ordenador Pulse cualquier tecla del teclado o mueva el ratón.
El mensaje siguiente apareció. 		<ul style="list-style-type: none"> Cable de señal desconectado Interruptor de alimentación del ordenador. Función de ahorro de energía activa. 	<ul style="list-style-type: none"> Posterior Ordenador Pulse cualquier tecla del teclado o mueva el ratón.
El mensaje siguiente apareció. 		<ul style="list-style-type: none"> La frecuencia de la señal de entrada es demasiado alta o baja para que el monitor sincronice. 	<ul style="list-style-type: none"> Compruebe las especificaciones del adaptador gráfico y del monitor.
Cuadro Anormal de ubicación	Falta la imagen, el centro se desplaza o la imagen es demasiado grande o pequeña	<ul style="list-style-type: none"> Efectúe "CONF. DE FÁBRICA" para señales estándar. Ajuste AMPLITUD-H, POSICION-H, AMPLITUD-V y POSICION-V con señales no estándares. El monitor no puede ser capaz de conseguir llenar la pantalla de imagen, depende de la señal. En este caso, por favor seleccionar otra resolución, u otro vertical "refresh". Espere unos segundos después de ajustar el tamaño de la imagen antes de cambiar o desconectar la señal o apagar el monitor. 	<ul style="list-style-type: none"> Frente (OSD) Frente (OSD)

PROBLEMA		CONEXIÓN O ESPECIFICACIÓN	UBICACIÓN
Cuadro Anormal de ubicación	Las líneas verticales negras son visibles sobre la pantalla.	<ul style="list-style-type: none"> Las líneas negras verticales delgadas sobre uno o ambos lados de la pantalla. Esta condición menor es ocasionada por la superposición de elemento de rejilla que puede ocurrir durante el embarque. <p>Coloque una ventana blanca abierta sobre el área afectada de la pantalla y aumente al máximo los controles brillo y contraste. Esto ocasionará Calor en la superposición que aclarará permanentemente en unos minutos. Asegurese de reajustar los controles de brillo y contraste a sus niveles normales de visión después de este procedimiento.</p> 	
	Dos líneas horizontales finas son visibles en la pantalla.	<ul style="list-style-type: none"> Las 2 líneas delgadas a través de la pantalla son normales. Esto es ocasionado por los filamentos de estabilización de rejilla de apertura que se requieren para toda la rejilla de apertura CRTs'. 	
	Un sonido zumbador cuando enciende.	<ul style="list-style-type: none"> Un sonido breve de zumbido o vibración que se oye simplemente después de encendido normal. Es ocasionado por la función de degaussing automático. Este sonido se oirá cada vez que el monitor se encienda desde un comienzo frío y cada vez que se usa el botón manual degauss. 	

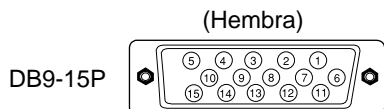
6 ESPECIFICACIONES

CRT	Tamaño	55cm/22" (508mm/20" Tamaño de imagen visible)
	Tipo de máscara	Apertura de Rejilla
	Cañón	En línea
	Ángulo de deflexión	90°
	Fósforo	Rojo, Verde, Azul EBU (persistencia mediana y breve)
	Paso de Apertura de Rejilla	0.24mm
	Paso de Fósforo	0.25mm
	Tratamiento Superficial	G-WARAS (Anti-resplandor, Anti-reflejo y recubrimiento Anti-estático)
	Método de enfoque	Formación de haz dinámico (DBF)
	SEÑAL DE ENTRADA	Vídeo Sincronización
ENTRADA DE SEÑAL	Conector de entrada	DB9-15P
	Impedancia de entrada	75Ω (vídeo), 2.2kΩ (Sincronización)
FRECUENCIA DE BARRIDO	Horizontal	30 - 110kHz
	Vertical	50 - 160Hz
RESOLUCIÓN (HxV)	1920puntos x 1440líneas máximo resolución de formato no-entrelazado a 73Hz.	
PER. DE CALENT.	30 minutos para alcanzar el nivel de funcionamiento óptimo	
BRILLANTEZ	100cd/m ² , como estandar a una señal de vídeo blanco lleno señalizado a 9300K (+ 8MPCD)	
TIEMPO DE EXTINCIÓN	Horizontal	≥ 2.3 μsec (tip.)
	Vertical	≥ 450 μsec (tip.)
TAMAÑO DE VISLZ.	396mm x 297mm(tip.)	proporción 4:3
NUMERO DEL COLOR	5000K~9300K	
FUENTE DE ALIMENTACIÓN	AC100-120/220-240V±10% 50/60Hz 130W (tip.)	
CONDICIONES DE OPERACIÓN	Temperatura	5 - 35°C
	Humedad relativa	10 - 90%RH (sin condensación)
DIMENSIONES	(A)495mm x (A)493.5mm x (P)473 mm	
PESO	Approx. 29.7kg (65.3lbs.)	
BASE INCLINABLE/ GIRATORIA	Angulo de inclinación	-5° - +10°
	Angulo de rotación	±90°
REGLAMENTOS	Seguridad	UL1950 (UL), CSA C22.2 No.950 (C-UL) EN60950 (TÜV-GS)
	Compatibilidad electromagnética	FCC Clase-B, DOC Clase-B EN55022 Clase-B, VCCI Clase-B EN61000-3-2, EN61000-3-3, EN55024
	Rayos X	DHHS, HWC, Röv vom 8.1, 1987
	Otros	CE-Marking, MPR-II/TCO'91 ISO9241-3, ISO9241-7, ISO9241-8 (TÜV-GS) TCO '99 International ENERGY STAR Program Energy 2000 Labeling Award Guidelines for the Suppression of Harronics in Appliances and General-Use Equipment

*El monitor está registrado/certificado con el número de modelo NSV1107STTKW.

7 APÉNDICE

7.1 Conector de señal de entrada del monitor (DB9-15P)



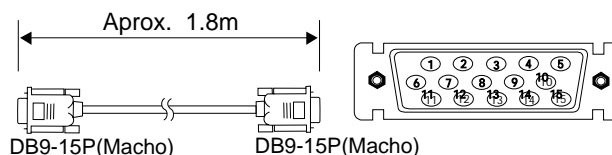
MONTADO EN EL PANEL POSTERIOR

ASIGNACIONES DE LAS PATILLAS DE CONTACTO

Pin No.	SEÑAL
1	Vídeo rojo
2	Vídeo verde o composición Sync con vídeo verde
3	Vídeo azul
4	TIERRA
5	DDC (TIERRA)
6	ROJO (TIERRA)
7	VERDE (TIERRA)
8	AZUL (TIERRA)
9	NC
10	SINCR.(TIERRA)
11	TIERRA
12	SDA
13	SYNC Horizontal o Composición Sync
14	SINCR.VERTICAL(VCLK)
15	SCL

DDC CANAL DE VISUALIZACIÓN DE
DATOS
SDA DATOS EN SERIE
SCL RELOJ EN SERIE
NC NINGUNA CONEXIÓN

7.2 Cable de señal SC-B104



ASIGNACIONES DE LAS PATILLAS DE CONTACTO

Pin No.	SEÑAL
1	ROJO
2	VERDE
3	AZUL
4	TIERRA
5	DDC (TIERRA)
6	ROJO (TIERRA)
7	VERDE (TIERRA)
8	AZUL (TIERRA)
9	NC
10	SINCR. (TIERRA)
11	TIERRA
12	SDA
13	SINCR.Horizontal
14	SINCR.VERTICAL (VCLK)
15	SCL

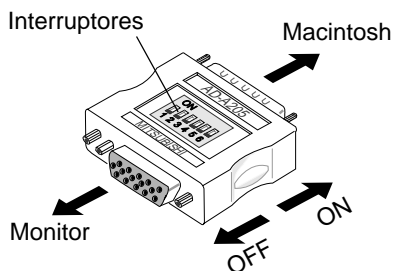
DDC CANAL DE VISUALIZACIÓN DE
DATOS
SDA DATOS EN SERIE
SCL RELOJ EN SERIE
NC NINGUNA CONEXIÓN

7.3 Adaptador Macintosh Opcional AD-A205

El adaptador (Opción) Macintosh AD-A205 le permite aventajarse de las capacidades de vídeo de su ordenador Macintosh con el monitor.

- Colocar los interruptores de del adaptador, antes de conectar al ordenador.

- Colocar los interruptores de acuerdo con el siguiente esquema. Usando el siguiente esquema puede escoger una resolución principal, rápidamente. Si desea operar mediante otra resolución, refiérese a la siguiente página, "AD-A205 Mac Adapter adaptación de esquema"



Apple Macintosh	Posición ON	Aspecto Interruptores
Macintosh LC, LC II	1,2	
Macintosh LC III, LC475, LC630	2,4	
Macintosh Quadra 610, 650, 700, 800, 840AV, 900, 950 Macintosh Centris 610, 650, 660AV	1,2,3,4	
Performa 6260, 6310, 6410, 6420 Power Macintosh 6100, 6100AV, 6200, 6300 Power Macintosh 7100AV, 7200, 7300, 7500, 7600 Power Macintosh 8100, 8100AV, 8500, 8600 Power Macintosh 9500, 9600 Workgroup Server 7350, 8150, 9150, 9650	1,2,6	
Macintosh Ilvi, Ilvix Power Macintosh 4400, G3	3,4	

ESPAÑOL

Esquema de programación del adaptador AD-A205 MAC

● Coloque el interruptor "N°" como se muestra debajo. (Ejemplo. "1,2" )

- (3) "El esquema del adaptador Mac AD-A205" muestra todos los modos disponibles para sistemas Macintosh y todas las posibles combinaciones con el monitor.
Sin embargo, le recomendamos que use el monitor con una temporización predeterminada. (ver Sección 1.2 capacidad de programación de memoria interna)
- (4) Por favor refiérase al manual de instrucciones de su ordenador a cerca del programa de resolución. La resolución puede ser cambiada en algunos ordenadores.

	Macintosh				Performa		Power Macintosh														
	Ilisi Ilici	Ilvi Ilvx	LC LCII	LCIII LC475	LC630	Quadra 700 900	Quadra 610 650 800 950 Centris 610 650	Quadra 840AV Centris 660AV	6260 6310	6410 6420	Workgroup Server 8150 9150 6100 6100AV 8100 7100AV 8100AV DRAM Video Port (HDI-45)	8100 VRAM Video Card (DB-15) 6100AV 7100AV 8100AV AV Video Card (DB-15)	6200 6300	7200	4400	7300 7500 7600 8500 8600 Workgroup Server 7350	9500	9600/233 Workgroup Server 9650	9600/300 9600/350	G3	
RESOLUCIÓN		3,4	3,4	3,4	3,4	3,4	3,4	3,4	1,2,6	1,2,6	3,4	3,4	1,2,6	3,4	3,4	3,4	3,4	3,4	3,4	3,4	3,4
	X	X	1,2	1,2	1,2	1,2	1,2	1,2	1,2,6	1,2,6	1,2,6	1,2,6	1,2,6	3,4	3,4	3,4	1,2,6	1,2,6	1,2,6	1,2,6	3,4
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1. La resolución no cambia con el ordenador encendido cuando coloca los interruptores. Asegúrese de apagar el ordenador cuando coloque los interruptores.
2. Coloque los interruptores en un punto concreto como un lápiz o bolígrafo para que toque el final de la ranura del interruptor.

CP871C200A50

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ALL PARTS LIST

MODEL NO.: NSV1107STTKW (Diamond Plus 220)

SYMBOL NO.	PART NO.	DESCRIPTION/SPECIFICATION	
*** SURGE-ABSORBER ***			
AG200B	CP252P001A61	SURGE-ABSORBER	DSP-301N-C04F
AG200G	CP252P001A61	SURGE-ABSORBER	DSP-301N-C04F
AG200R	CP252P001A61	SURGE-ABSORBER	DSP-301N-C04F
AG205S	CP252P005A21	SURGE-ABSORBER	AG15PC152FB-K2M
AG701	CP252P001A21	SURGE-ABSORBER	DSP-201M
AG702	CP252P005A21	SURGE-ABSORBER	AG15PC152FB-K2M
*** CAPACITOR ***			
C 100	CP182P165A41	C-ELECTROLYTIC	CE04W 50V 4.7M-M
C 103	CP172P401A71	C-POLYESTER	50V 1.0M-J
C 104	CP182P165A11	C-ELECTROLYTIC	CE04W 50V 1M-M
C 105	CP182P165A11	C-ELECTROLYTIC	CE04W 50V 1M-M
C 106	CP182P165A11	C-ELECTROLYTIC	CE04W 50V 1M-M
C 107	CP182P165A11	C-ELECTROLYTIC	CE04W 50V 1M-M
C 108	QX142P020B91	C-CERAMIC	B50V 1000P-K 102 SO
C 109	QX142P020B91	C-CERAMIC	B50V 1000P-K 102 SO
C 110	CP182P162A41	C-ELECTROLYTIC	CE04W 16V 100M-M
C 111	QX142P020B91	C-CERAMIC	B50V 1000P-K 102 SO
C 112	CP182P165A11	C-ELECTROLYTIC	CE04W 50V 1M-M
C 113	CP172P401A71	C-POLYESTER	50V 1.0M-J
C 114	CP172P401A71	C-POLYESTER	50V 1.0M-J
C 117	QX142P020B91	C-CERAMIC	B50V 1000P-K 102 SO
C 121	CP182P165A41	C-ELECTROLYTIC	CE04W 50V 4.7M-M
C 123	QX155P235B31	C-CERAMIC	CH50V 10P-D
C 124	QX155P235B31	C-CERAMIC	CH50V 10P-D
C 127	QX142P020B91	C-CERAMIC	B50V 1000P-K 102 SO
C 131	CP182P162A41	C-ELECTROLYTIC	CE04W 16V 100M-M
C 132	QX142P020B91	C-CERAMIC	B50V 1000P-K 102 SO
C 135	CP182P165A41	C-ELECTROLYTIC	CE04W 50V 4.7M-M
C 136	QX142P020B91	C-CERAMIC	B50V 1000P-K 102 SO
C 137	QX142P020B51	C-CERAMIC	B50V 470P-K 471 SO
C 139	QX155P313B61	C-CERAMIC	SL50V 100P-J 101 SO
C 140	QX155P313B61	C-CERAMIC	SL50V 100P-J 101 SO
C 203H	QX142P023B81	C-CERAMIC	BF50V 0.01M-Z
C 205S	CP155P011A91	C-CERAMIC	B2KV 1000P-K
C 210B	CP172P201A11	C-M-POLYESTER	ECQ-E2104JF OR RJF
C 210G	CP172P201A11	C-M-POLYESTER	ECQ-E2104JF OR RJF
C 210R	CP172P201A11	C-M-POLYESTER	ECQ-E2104JF OR RJF
C 211B	QX155P312B81	C-CERAMIC	SL50V 47P-J 470 SO
C 211G	QX155P312B81	C-CERAMIC	SL50V 47P-J 470 SO
C 211R	QX155P312B81	C-CERAMIC	SL50V 47P-J 470 SO
C 221B	CP182P182A51	C-ELECTROLYTIC-NP	04W 25V 4.7M-M NP 5X11
C 221G	CP182P182A51	C-ELECTROLYTIC-NP	04W 25V 4.7M-M NP 5X11
C 221R	CP182P182A51	C-ELECTROLYTIC-NP	04W 25V 4.7M-M NP 5X11
C 250B	CP182P172A01	C-ELECTROLYTIC	04W 200V 0.47M-M/Q 6.3X11
C 250G	CP182P172A01	C-ELECTROLYTIC	04W 200V 0.47M-M/Q 6.3X11
C 250R	CP182P172A01	C-ELECTROLYTIC	04W 200V 0.47M-M/Q 6.3X11
C 251B	QX142P023B81	C-CERAMIC	BF50V 0.01M-Z
C 251G	QX142P023B81	C-CERAMIC	BF50V 0.01M-Z
C 251R	QX142P023B81	C-CERAMIC	BF50V 0.01M-Z
C 260	CP182P172A31	C-ELECTROLYTIC	04W 200V 3.3M-M/Q 6.3X11
C 261	QX142P023B81	C-CERAMIC	BF50V 0.01M-Z
C 262	CP182P162A41	C-ELECTROLYTIC	CE04W 16V 100M-M
C 265	QX142P023B81	C-CERAMIC	BF50V 0.01M-Z
C 280	CP182P162A31	C-ELECTROLYTIC	CE04W 16V 47M-M
C 281	CP182P197A51	C-ELECTROLYTIC	04W 100V 22M-M 6.3X11
C 284	QX142P023B81	C-CERAMIC	BF50V 0.01M-Z
C 285	CP182P314A41	C-ELECTROLYTIC	25V 220M-M 8X11.5
C 286	CP182P162A41	C-ELECTROLYTIC	CE04W 16V 100M-M
C 287	CP182P162A31	C-ELECTROLYTIC	CE04W 16V 47M-M
C 288	QX142P023B81	C-CERAMIC	BF50V 0.01M-Z
C 289	CP172P400A41	C-POLYESTER	50V 0.1M-J

ALL PARTS LIST

MODEL NO.: NSV1107STTKW (Diamond Plus 220)

SYMBOL NO.	PART NO.	DESCRIPTION/SPECIFICATION
C 290	QX142P023B81	C-CERAMIC BF50V 0.01M-Z
C 291	QX142P023B81	C-CERAMIC BF50V 0.01M-Z
C 2D0	QX155P315B21	C-CERAMIC SL50V 470P-J
C 2D1	CP172P400A41	C-POLYESTER 50V 0.1M-J
C 2D2	CP182P165A11	C-ELECTROLYTIC CE04W 50V 1M-M
C 2D4	QX142P020B71	C-CERAMIC B50V 680P-K 681 SO
C 2D5	CP182P162A51	C-ELECTROLYTIC CE04W 16V 220M-M
C 2D6	QX142P023B81	C-CERAMIC BF50V 0.01M-Z
C 2H0	QX155P232B31	C-CERAMIC CH50V 33P-J 330 SO
C 2H1	QX142P023B81	C-CERAMIC BF50V 0.01M-Z
C 2H2	CP182P162A31	C-ELECTROLYTIC CE04W 16V 47M-M
C 2L0	QX142P023B81	C-CERAMIC BF50V 0.01M-Z
C 2P0	QX142P023B81	C-CERAMIC BF50V 0.01M-Z
C 2P1	QX142P023B81	C-CERAMIC BF50V 0.01M-Z
C 2P2	QX142P023B81	C-CERAMIC BF50V 0.01M-Z
C 2P4	QX142P023B81	C-CERAMIC BF50V 0.01M-Z
C 2P6	QX142P011B31	C-CERAMIC B500V 1000P-K 102 SO
C 2P8	QX142P011B31	C-CERAMIC B500V 1000P-K 102 SO
C 2V0	QX155P232B31	C-CERAMIC CH50V 33P-J 330 SO
C 2W2	QX155P233B51	C-CERAMIC CH50V 100P-J 101 SO
C 2W3	QX155P233B51	C-CERAMIC CH50V 100P-J 101 SO
C 451	CP182P163A81	C-ELECTROLYTIC CE04W 25V 1000M-M
C 452	CP182P163A81	C-ELECTROLYTIC CE04W 25V 1000M-M
C 453	QX142P020B51	C-CERAMIC B50V 470P-K 471 SO
C 454	CP182P165A91	C-ELECTROLYTIC CE04W 50V 100M-M
C 455	CP173P231A81	C-POLY 100V 224-J
C 456	QX142P020B51	C-CERAMIC B50V 470P-K 471 SO
C 457	CP172P137A51	C-POLYESTER 50V 1500P-J 152 SO
C 458	QX142P020B51	C-CERAMIC B50V 470P-K 471 SO
C 502	CP172P401A31	C-POLYESTER 50V 0.47M-J
C 503	CP172P130A91	C-POLYESTER 50V 0.022M-K-OR-J 223 SO
C 504	CP172P401A31	C-POLYESTER 50V 0.47M-J
C 505	CP182P163A71	C-ELECTROLYTIC CE04W 25V 470M-M
C 506	QX142P011B71	C-CERAMIC B500V 2200P-K 222 SO
C 507	CP182P162A31	C-ELECTROLYTIC CE04W 16V 47M-M
C 550	CP173P251A70	C-M-PP 1800V 4900P-H
C 560	QX142P011B11	C-CERAMIC B500V 680P-K 681 SO
C 561	QX142P010B91	C-CERAMIC B500V 470P-K 471 SO
C 563	CP173P141A21	C-M-PP DHSM204 250V 134JTP
C 564	CP173P141A21	C-M-PP DHSM204 250V 134JTP
C 565	CP173P193A61	C-M-PP 250V 105-J
C 566	CP173P193A81	C-M-PP 250V 125-J
C 567	CP173P191A81	C-M-PP 250V 224-J
C 568	CP173P192A91	C-M-PP 250V 564-J
C 569	CP173P190A91	C-M-PP 250V 104-J
C 570	CP173P190A51	C-M-PP 250V 683-J
C 577	CP182P164A51	C-ELECTROLYTIC CE04W 35V 47M-M
C 578	CP182P165A41	C-ELECTROLYTIC CE04W 50V 4.7M-M
C 590	CP155P025A11	C-CERAMIC R2KV 220P-K
C 591	CP155P030B41	C-CERAMIC R250V 3300P-K
C 5A1	CP182P161A81	C-ELECTROLYTIC CE04W 10V 1000M-M
C 5A2	CP182P161A81	C-ELECTROLYTIC CE04W 10V 1000M-M
C 5C0	CP182P162A31	C-ELECTROLYTIC CE04W 16V 47M-M
C 5C1	QX142P023B81	C-CERAMIC BF50V 0.01M-Z
C 5C2	CP173P230A11	C-POLY 100V 103-J
C 5C3	CP172P401A61	C-POLYESTER 50V 0.82M-J
C 5C4	CP173P190A91	C-M-PP 250V 104-J
C 5C5	CP182P165A21	C-ELECTROLYTIC CE04W 50V 2.2M-M
C 5C8	CP155P515A21	C-CERAMIC CH50V 330P-J
C 5C9	QX155P231B71	C-CERAMIC CH50V 18P-J
C 5D0	CP172P134A81	C-POLYESTER 50V 680P-J 681 SO
C 5D1	CP172P137A31	C-POLYESTER 50V 1000P-J 102 SO

ALL PARTS LIST

MODEL NO.: NSV1107STTKW (Diamond Plus 220)

SYMBOL NO.	PART NO.	DESCRIPTION/SPECIFICATION
C 5D2	CP172P139A31	C-POLYESTER 50V 0.047M-J 473 SO
C 5F0	CP182P179A81	C-ELECTROLYTIC 04W 200V 47M-M/Q 12.5X20
C 5F1	CP182P172A61	C-ELECTROLYTIC 04W 200V 22M-M/Q 10X20
C 5G0	CP182P202A41	C-ELECTROLYTIC 04W 200V 3.3M-M 6.3X11
C 5G1	CP182P202A41	C-ELECTROLYTIC 04W 200V 3.3M-M 6.3X11
C 5G3	CP182P202A31	C-ELECTROLYTIC 04W 200V 2.2M-M 6.3X11
C 601	CP141P515A01	C-CERAMIC-CHIP B 25V 104-K 2.0X1.25
C 602	CP182P162A41	C-ELECTROLYTIC CE04W 16V 100M-M
C 603	CP141P514A11	C-CERAMIC-CHIP B 50V 183-K
C 604	CP156P060A21	C-CER-CHIP B50V 103-K
C 605	CP141P516A41	C-CERAMIC-CHIP F 16V 105-Z 2.0X1.25
C 606	CP141P515A01	C-CERAMIC-CHIP B 25V 104-K 2.0X1.25
C 607	CP156P060A21	C-CER-CHIP B50V 103-K
C 608	CP182P162A41	C-ELECTROLYTIC CE04W 16V 100M-M
C 609	CP156P060A21	C-CER-CHIP B50V 103-K
C 611	CP156P060A21	C-CER-CHIP B50V 103-K
C 612	CP182P161A71	C-ELECTROLYTIC CE04W 10V 470M-M
C 613	CP156P060A21	C-CER-CHIP B50V 103-K
C 614	CP156P060A21	C-CER-CHIP B50V 103-K
C 615	CP141P511A71	C-CERAMIC-CHIP B 50V 472-K 2.0X1.25
C 616	CP156P060A21	C-CER-CHIP B50V 103-K
C 617	CP141P515A01	C-CERAMIC-CHIP B 25V 104-K 2.0X1.25
C 618	CP141P515A01	C-CERAMIC-CHIP B 25V 104-K 2.0X1.25
C 619	CP141P510A91	C-CERAMIC-CHIP B 50V 102-K 2.0X1.25
C 620	CP182P161A71	C-ELECTROLYTIC CE04W 10V 470M-M
C 621	CP182P162A31	C-ELECTROLYTIC CE04W 16V 47M-M
C 622	CP141P514A61	C-CERAMIC-CHIP B 50V 473-K
C 623	CP182P165A51	C-ELECTROLYTIC CE04W 50V 10M-M
C 624	CP156P060A21	C-CER-CHIP B50V 103-K
C 625	CP182P314A21	C-ELECTROLYTIC 25V 47M-M 5X11
C 626	CP156P060A21	C-CER-CHIP B50V 103-K
C 627	CP141P516A41	C-CERAMIC-CHIP F 16V 105-Z 2.0X1.25
C 628	CP141P517A31	C-C-CHIP B25V 823-J 2.0X1.25
C 630	CP182P290A61	C-ELECTROLYTIC 6.3V 330M-M 8X7
C 631	CP156P060A21	C-CER-CHIP B50V 103-K
C 632	CP141P515A01	C-CERAMIC-CHIP B 25V 104-K 2.0X1.25
C 633	CP156P060A21	C-CER-CHIP B50V 103-K
C 634	CP156P060A21	C-CER-CHIP B50V 103-K
C 635	CP182P162A31	C-ELECTROLYTIC CE04W 16V 47M-M
C 636	CP182P290A21	C-ELECTROLYTIC 6.3V 33M-M 5X7
C 638	CP156P053A41	C-CERAMIC-CHIP CH50V 100P-J 1.6X0.8
C 639	CP156P053A41	C-CERAMIC-CHIP CH50V 100P-J 1.6X0.8
C 6A1	QX142P023B81	C-CERAMIC BF50V 0.01M-Z
C 6A2	QX142P023B81	C-CERAMIC BF50V 0.01M-Z
C 6A3	QX142P023B81	C-CERAMIC BF50V 0.01M-Z
C 6A4	QX142P023B81	C-CERAMIC BF50V 0.01M-Z
C 6A5	QX142P023B81	C-CERAMIC BF50V 0.01M-Z
C 6A6	QX142P023B81	C-CERAMIC BF50V 0.01M-Z
C 6A7	QX142P023B81	C-CERAMIC BF50V 0.01M-Z
C 6A9	QX142P023B81	C-CERAMIC BF50V 0.01M-Z
C 6B3	CP182P165A51	C-ELECTROLYTIC CE04W 50V 10M-M
C 6B4	CP182P165A51	C-ELECTROLYTIC CE04W 50V 10M-M
C 6B5	QX142P020B51	C-CERAMIC B50V 470P-K 471 SO
C 6B8	QX155P314B81	C-CERAMIC SL50V 330P-J 331 SO
C 701	CP182P165A11	C-ELECTROLYTIC CE04W 50V 1M-M
C 702	CP173P275A91	C-P-PP 630V 822-J OR K
C 703	CP173P275A41	C-P-PP 630V 222-J OR K
C 704	CP181P097A71	C-ELECTROLYTIC 04W 100V 220 M-M
C 705	CP182P165A51	C-ELECTROLYTIC CE04W 50V 10M-M
C 706	CP182P165A21	C-ELECTROLYTIC CE04W 50V 2.2M-M
C 707	QX142P023B81	C-CERAMIC BF50V 0.01M-Z
C 708	CP172P400A41	C-POLYESTER 50V 0.1M-J

ALL PARTS LIST

MODEL NO.: NSV1107STTKW (Diamond Plus 220)

SYMBOL NO.	PART NO.	DESCRIPTION/SPECIFICATION
C 709	QX142P023B81	C-CERAMIC BF50V 0.01M-Z
C 710	QX142P023B81	C-CERAMIC BF50V 0.01M-Z
C 711	CP182P270A61	C-ELE 6.3V 2200M-M 12.5X20
C 712	QX142P023B81	C-CERAMIC BF50V 0.01M-Z
C 713	CP182P162A31	C-ELECTROLYTIC CE04W 16V 47M-M
C 715	CP172P400A41	C-POLYESTER 50V 0.1M-J
C 716	CP173P042A91	C-M-POLYESTER 50V 0.22M-J SEKISOU
C 717	QX155P233B51	C-CERAMIC CH50V 100P-J 101 SO
C 718	CP182P165A11	C-ELECTROLYTIC CE04W 50V 1M-M
C 719	CP172P134A31	C-POLYESTER 50V 0.1M-K-OR-J 104 SO
C 720	QX155P313B01	C-CERAMIC SL50V 56P-J 560 SO
C 721	CP172P139A61	C-POLYESTER 50V 0.068M-J 683 SO
C 722	CP173P043A01	C-M-POLYESTER 50V 0.27M-J SEKISOU
C 723	CP182P165A21	C-ELECTROLYTIC CE04W 50V 2.2M-M
C 7A1	CP181P034A91	C-ELECTROLYTIC 04W 100V 47M-M
C 7A2	CP173P232A11	C-POLY 100V 334-J
C 7A3	QX142P010B91	C-CERAMIC B500V 470P-K 471 SO
C 7A4	CP181P049A01	C-ELECTROLYTIC 04W 450V 2.2M-M
C 801	CP182P164A51	C-ELECTROLYTIC CE04W 35V 47M-M
C 802	CP182P164A51	C-ELECTROLYTIC CE04W 35V 47M-M
C 803	CP182P162A31	C-ELECTROLYTIC CE04W 16V 47M-M
C 811	QX155P315B21	C-CERAMIC SL50V 470P-J
C 812	QX142P023B81	C-CERAMIC BF50V 0.01M-Z
C 815	QX142P023B81	C-CERAMIC BF50V 0.01M-Z
C 816	QX155P315B21	C-CERAMIC SL50V 470P-J
C 817	CP172P400A41	C-POLYESTER 50V 0.1M-J
C 818	CP172P400A41	C-POLYESTER 50V 0.1M-J
C 821	QX155P315B21	C-CERAMIC SL50V 470P-J
C 822	QX142P023B81	C-CERAMIC BF50V 0.01M-Z
C 825	QX142P023B81	C-CERAMIC BF50V 0.01M-Z
C 826	QX155P315B21	C-CERAMIC SL50V 470P-J
C 827	CP172P400A41	C-POLYESTER 50V 0.1M-J
C 828	CP172P400A41	C-POLYESTER 50V 0.1M-J
C 831	QX155P315B21	C-CERAMIC SL50V 470P-J
C 836	QX155P315B21	C-CERAMIC SL50V 470P-J
C 837	CP172P400A41	C-POLYESTER 50V 0.1M-J
C 838	CP172P400A41	C-POLYESTER 50V 0.1M-J
C 8A1	QX155P232B31	C-CERAMIC CH50V 33P-J 330 SO
C 8A2	QX155P312B01	C-CERAMIC SL50V 22P-J 220 SO
C 8A3	QX155P314B01	C-CERAMIC SL50V 150P-J 151 SO
C 8B1	QX155P232B31	C-CERAMIC CH50V 33P-J 330 SO
C 8B2	QX155P312B01	C-CERAMIC SL50V 22P-J 220 SO
C 8B3	QX155P314B01	C-CERAMIC SL50V 150P-J 151 SO
C 8C1	CP182P223A51	C-ELECTROLYTIC CE04W 25V 220M-M 8X15
C 8C2	CP182P223A51	C-ELECTROLYTIC CE04W 25V 220M-M 8X15
C 901	CP172P930A70	C-M-P RE105-C
C 902	CP156P110A90	C-CERAMIC-AC E 2200P-M-KX
C 903	CP156P110A90	C-CERAMIC-AC E 2200P-M-KX
C 906	CP173P250A50	C-M-P HCE450V 105K-SC-I
C 907	CP172P400A41	C-POLYESTER 50V 0.1M-J
C 908	CP172P401A51	C-POLYESTER 50V 0.68M-J
C 909	QX142P021B71	C-CERAMIC B50V 4700P-K 472 SO
C 910	QX142P020B51	C-CERAMIC B50V 470P-K 471 SO
C 911	CP185P040A10	C-ELE 450V 220M LI B45
C 913	CP172P073A61	C-M-P DC630V 0.033M-K
C 914	CP182P164A51	C-ELECTROLYTIC CE04W 35V 47M-M
C 915	QX142P020B51	C-CERAMIC B50V 470P-K 471 SO
C 916	QX142P020B91	C-CERAMIC B50V 1000P-K 102 SO
C 917	QX155P233B51	C-CERAMIC CH50V 100P-J 101 SO
C 918	QX142P020B91	C-CERAMIC B50V 1000P-K 102 SO
C 919	CP172P400A41	C-POLYESTER 50V 0.1M-J
C 920	CP155P003A91	C-CERAMIC SL2KV 220P-J

ALL PARTS LIST

MODEL NO.: NSV1107STTKW (Diamond Plus 220)

SYMBOL NO.	PART NO.	DESCRIPTION/SPECIFICATION
C 923	CP182P165A41	C-ELECTROLYTIC CE04W 50V 4.7M-M
C 924	CP182P165A11	C-ELECTROLYTIC CE04W 50V 1M-M
C 925	CP172P400A41	C-POLYESTER 50V 0.1M-J
C 940	CP182P194A21	C-ELECTROLYTIC 04W 35V 100M-M 6.3X11
C 941	CP172P400A41	C-POLYESTER 50V 0.1M-J
C 942	CP173P210A11	C-M-P C630V 0.01M-J-OR-K
C 951	CP182P114A40	C-ELECTROLYTIC 250V 100M-M 16X31.5
C 952	CP182P319A11	C-ELECTROLYTIC 100V 82M-M 10X20
C 953	CP182P314A81	C-ELECTROLYTIC 25V 820M-M 10X23
C 954	CP182P314A81	C-ELECTROLYTIC 25V 820M-M 10X23
C 955	CP182P197A51	C-ELECTROLYTIC 04W 100V 22M-M 6.3X11
C 956	QX142P021B71	C-CERAMIC B50V 4700P-K 472 SO
C 957	CP182P164A71	C-ELECTROLYTIC CE04W 35V 220M-M
C 958	CP182P164A71	C-ELECTROLYTIC CE04W 35V 220M-M
C 959	CP182P179A81	C-ELECTROLYTIC 04W 200V 47M-M/Q 12.5X20
C 971	CP182P311A71	C-ELECTROLYTIC 10V 470M-M 8X11.5
C 972	CP182P162A31	C-ELECTROLYTIC CE04W 16V 47M-M
C 9A0	CP182P165A91	C-ELECTROLYTIC CE04W 50V 100M-M
C 9A1	CP182P162A41	C-ELECTROLYTIC CE04W 16V 100M-M
C 9A3	CP182P162A41	C-ELECTROLYTIC CE04W 16V 100M-M
C 9A4	CP182P162A41	C-ELECTROLYTIC CE04W 16V 100M-M
C 9A5	CP182P162A41	C-ELECTROLYTIC CE04W 16V 100M-M
C 9A7	CP182P162A41	C-ELECTROLYTIC CE04W 16V 100M-M
C 9A8	QX142P023B81	C-CERAMIC BF50V 0.01M-Z
C 9A9	CP182P164A71	C-ELECTROLYTIC CE04W 35V 220M-M
C 9B0	CP182P164A71	C-ELECTROLYTIC CE04W 35V 220M-M
C 9B1	QX142P011B31	C-CERAMIC B500V 1000P-K 102 SO
*** DIODE ***		
D 100	CP264P073A51	DIODE HZ5C1 (DH)
D 104	CP264P073A71	DIODE HZ5C3
D 105	CP264P073A71	DIODE HZ5C3
D 106	CP264P073A51	DIODE HZ5C1 (DH)
D 107	CP264P073A51	DIODE HZ5C1 (DH)
D 108	CP264P073A51	DIODE HZ5C1 (DH)
D 109	CP264P073A71	DIODE HZ5C3
D 210B	CP264P320A11	DIODE 1SS244
D 210G	CP264P320A11	DIODE 1SS244
D 210R	CP264P320A11	DIODE 1SS244
D 211B	CP264P320A11	DIODE 1SS244
D 211G	CP264P320A11	DIODE 1SS244
D 211R	CP264P320A11	DIODE 1SS244
D 220B	CP264P470A11	DIODE 1SS133 T-72
D 220G	CP264P470A11	DIODE 1SS133 T-72
D 220R	CP264P470A11	DIODE 1SS133 T-72
D 221B	CP264P470A11	DIODE 1SS133 T-72
D 221G	CP264P470A11	DIODE 1SS133 T-72
D 221R	CP264P470A11	DIODE 1SS133 T-72
D 250B	CP264P320A11	DIODE 1SS244
D 250G	CP264P320A11	DIODE 1SS244
D 250R	CP264P320A11	DIODE 1SS244
D 251B	CP264P320A11	DIODE 1SS244
D 251G	CP264P320A11	DIODE 1SS244
D 251R	CP264P320A11	DIODE 1SS244
D 260	CP264P470A11	DIODE 1SS133 T-72
D 261	CP264P470A11	DIODE 1SS133 T-72
D 262	CP264P470A11	DIODE 1SS133 T-72
D 263	CP264P470A11	DIODE 1SS133 T-72
D 2C2	CP264P075A41	DIODE HZ7C2
D 2C3	CP264P075A41	DIODE HZ7C2
D 2H0	CP264P075A41	DIODE HZ7C2
D 2V0	CP264P075A41	DIODE HZ7C2
D 451	CP264P499A11	DIODE 1N4005E-6580

ALL PARTS LIST

MODEL NO.: NSV1107STTKW (Diamond Plus 220)

SYMBOL NO.	PART NO.	DESCRIPTION/SPECIFICATION
D 452	CP264P073A51	DIODE HZ5C1 (DH)
D 501	CP264P470A11	DIODE 1SS133 T-72
D 502	CP264P464B20	DIODE SB560L-6511
D 550	CP264P465A10	DIODE FMQ-G2FS
D 560	CP264P155A11	DIODE RGP10G
D 561	CP264P124A11	DIODE EU2A
D 5A1	CP264P250A21	DIODE EGP10D STRAIGHT
D 5A2	CP264P250A21	DIODE EGP10D STRAIGHT
D 5C0	CP264P250A21	DIODE EGP10D STRAIGHT
D 5C1	CP264P470A11	DIODE 1SS133 T-72
D 5C2	CP264P470A11	DIODE 1SS133 T-72
D 5C3	CP264P470A11	DIODE 1SS133 T-72
D 5C6	CP264P470A11	DIODE 1SS133 T-72
D 5C7	QX330H509Z91	SO-COPPER-WIRE 030N001 0.6
D 5F0	CP264P499A11	DIODE 1N4005E-6580
D 5F1	CP264P080A11	DIODE HZ11A1
D 5F2	CP264P019A11	DIODE EG-1
D 5G0	CP264P499A11	DIODE 1N4005E-6580
D 5G1	CP264P499A11	DIODE 1N4005E-6580
D 600	CP264P380A11	DIODE 1SS355TE-17
D 601	CP264P380A11	DIODE 1SS355TE-17
D 6A2	CP264P073A41	DIODE HZ5B3
D 701	CP264P222A10	DIODE UF5408
D 702	CP264P341A41	DIODE UF4004
D 703	CP264P341A41	DIODE UF4004
D 704	CP264P411A11	DIODE ERA15-02
D 705	CP264P083A51	DIODE HZ24-2
D 706	CP264P073A71	DIODE HZ5C3
D 707	CP264P470A11	DIODE 1SS133 T-72
D 708	CP264P073A11	DIODE HZ5A3
D 709	CP264P471A11	DIODE CB903-4SV1
D 710	CP264P080A11	DIODE HZ11A1
D 711	CP264P470A11	DIODE 1SS133 T-72
D 712	CP264P073A71	DIODE HZ5C3
D 713	CP264P470A11	DIODE 1SS133 T-72
D 7A1	CP264P320A11	DIODE 1SS244
D 7A2	CP264P320A11	DIODE 1SS244
D 7A3	CP264P341A90	DIODE UF4005-FORMING UF1JL-6396
D 901	CP264P567A10	DIODE G5SBA60L-6088
D 902	CP264P477A10	DIODE FMG-G26S
D 903	CP264P498A11	DIODE RM10A
D 904	CP264P341A71	DIODE UF4007
D 905	CP264P320A11	DIODE 1SS244
D 906	CP264P470A11	DIODE 1SS133 T-72
D 907	CP264P320A11	DIODE 1SS244
D 908	CP264P470A11	DIODE 1SS133 T-72
D 909	CP264P050A11	DIODE HZ18-2
D 910	CP264P083A51	DIODE HZ24-2
D 915	CP264P185A21	DIODE-ZENER HZS16-3L
D 917	CP264P320A11	DIODE 1SS244
D 918	CP264P498A11	DIODE RM10A
D 920	CP264P480A20	LED SML 19460C LF68
D 940	CP264P563A41	DIODE UG06D
D 941	CP264P341A71	DIODE UF4007
D 951	CP264P341A71	DIODE UF4007
D 952	CP264P564A10	DIODE UF5406 19C2-406
D 953	CP264P400A10	DIODE FMB-G19L
D 954	CP264P400A10	DIODE FMB-G19L
D 955	CP264P470A11	DIODE 1SS133 T-72
D 956	CP264P470A11	DIODE 1SS133 T-72
D 957	CP264P470A11	DIODE 1SS133 T-72
D 960	CP264P470A11	DIODE 1SS133 T-72

ALL PARTS LIST

MODEL NO.: NSV1107STTKW (Diamond Plus 220)

SYMBOL NO.	PART NO.	DESCRIPTION/SPECIFICATION	
D 971	CP264P478A10	DIODE	RK49
D 972	CP264P080A61	DIODE	HZ11B3
D 976	CP264P470A11	DIODE	1SS133 T-72
D 9A0	CP264P470A11	DIODE	1SS133 T-72
D 9A1	CP264P470A11	DIODE	1SS133 T-72
D 9A2	CP264P470A11	DIODE	1SS133 T-72
D 9A3	CP264P250A21	DIODE	EGP10D STRAIGHT
*** FUSE ***			
F 901	CP283P017A80	FUSE	215-T5.0AH 250V
*** IC ***			
IC101	CP263P345A21	IC-LINEAR	KIA7042AP
IC103	CP266P929A10	IC-MOS	ST72771N9B1/ABP NSV11XX
IC105	CP266P321A20	IC-MOS-EEPROM	BR24C16 (DH)
IC210	CP267P154A10	IC	LM2415T
IC211	CP263P263A20	IC	M52743BSP
IC212	CP263P330A10	IC-MOS	M35071-067SP
IC213	CP263P214A10	IC-LINEAR	KIA4559P
IC214	CP267P132B20	HIC	MIU-111
IC218	CP272P111A20	IC-FTTL	74F14PC
IC451	CP263P327A10	IC	LA7841
IC560	CP263P339A10	IC-MOS	SLA5070
IC5C0	CP263P265A10	IC	BA9757
IC601	CP267P151A11	IC	CP267P151-1
IC602	CP263P282A21	IC-REGULATOR	TA48M033F(TE16L) 3.3V
IC603	CP263P129A11	IC-LINEAR	BA4558F-E2
IC6A1	CP263P343A10	IC	TL084CN
IC6A2	CP263P214A10	IC-LINEAR	KIA4559P
IC6A3	CP263P344A10	IC-CMOS	74VHC14N
IC6A4	CP263P345A11	IC-LINEAR	KIA7027AP
IC701	CP263P328A10	IC	AN5751
IC702	CP263P214A10	IC-LINEAR	KIA4559P
IC801	CP263P300A10	IC	LA6510
IC802	CP263P300A10	IC	LA6510
IC803	CP263P300A10	IC	LA6510
IC8A1	CP267P128A10	HIC	STK391-110
IC901	CP263P269A10	IC	MC33262P
IC902	CP267P153A20	IC	STR-F6655 LF1359
IC903	CP263P337A10	IC	MIP0255SP
IC911	CP268P012A70	PHOTO-COUPLER	TCET1106(G)
IC912	CP268P012A70	PHOTO-COUPLER	TCET1106(G)
IC951	CP263P338A10	IC	SE-B3
IC9A0	CP263P340A10	IC-REG	KIA7812API
IC9A1	CP263P240A10	IC-REGULATOR	BA05T
IC9A2	CP263P342A10	IC	L88MS05T
*** CONNECTOR ***			
J 100	CP452C064A31	CONNECTOR-EH	B3B-EH (MI)
J 101	CP452P182A90	CONNECTOR-FFC	19FE-BT-VK-N (MI)
J 102	CP452C064A61	CONNECTOR-EH	B6B-EH (MI)
J 1A0	CP452C027A60	CONNECTOR-EH	S6B-EH (MI)
J 200	CP449P024A10	SOCKET-CRT	CVT3280-5101
J 201	CP452P283A11	CONNECTOR	TP00705-51 (MI)
J 211	CP452C064A61	CONNECTOR-EH	B6B-EH (MI)
J 212	CP452P182A90	CONNECTOR-FFC	19FE-BT-VK-N (MI)
J 215	CP452C070A10	CONNECTOR-D-SUB	NFN8715F
J 450	CP452P247A30	CONNECTOR	B2P3-VH-B (MI)
J 550	CP452P248A60	CONNECTOR	B6P-VH-B (MI)
J 600	CP452P288A80	CONNECTOR-RF	RF-H164TD-1190-W1 (MI)
J 601	CP452P288A80	CONNECTOR-RF	RF-H164TD-1190-W1 (MI)
J 801	CP452C064A81	CONNECTOR-EH	B8B-EH (MI)
J 802	QX452D109A20	CONNECTOR	B2B-XH-AM
J 803	QX452D109A30	CONNECTOR	B3B-XH-AM
J 8A1	QX452D109A40	CONNECTOR	B4B-XH-AM

ALL PARTS LIST

MODEL NO.: NSV1107STTKW (Diamond Plus 220)

SYMBOL NO.	PART NO.	DESCRIPTION/SPECIFICATION		
J 901	CP452P247A30	CONNECTOR	B2P3-VH-B	(MI)
J 902	CP442P001A11	FUSE-CLIP	TP00351-51	
J 903	CP442P001A11	FUSE-CLIP	TP00351-51	
J 904	CP452P247A30	CONNECTOR	B2P3-VH-B	(MI)
J 905	CP452C064A10	CONNECTOR-EH	B10B-EH	(MI)
J 906	CP452P314A30	CONNECTOR	B2P3-VH-B-E	(MI)
J 907	CP452D016A10	CONNECTOR-VH	B2P3S-VH	(MT)
J 908	CP452C064A31	CONNECTOR-EH	B3B-EH	(MI)
J 9A0	CP452C064A10	CONNECTOR-EH	B10B-EH	(MI)
J 9A1	CP452C064A61	CONNECTOR-EH	B6B-EH	(MI)
*** FILTER, COIL ***				
L 200B	CP410P012B41	BEAD-FERRITE	FBR07UA850	
L 200G	CP410P012B41	BEAD-FERRITE	FBR07UA850	
L 200R	CP410P012B41	BEAD-FERRITE	FBR07UA850	
L 201B	CP325P020A41	COIL-PEAKING	0.27MH-K	R27
L 201G	CP325P020A41	COIL-PEAKING	0.27MH-K	R27
L 201R	CP325P020A41	COIL-PEAKING	0.27MH-K	R27
L 210B	CP325P020A21	COIL PEAKING	0.18MH-K	R18
L 210G	CP325P020A21	COIL PEAKING	0.18MH-K	R18
L 210R	CP325P020A21	COIL PEAKING	0.18MH-K	R18
L 280	CP410P012B11	BEAD-FERRITE	FBR07HA850	
L 281	CP410P012B11	BEAD-FERRITE	FBR07HA850	
L 282	CP325P023A51	COIL-PEAKING	100MH-K	101
L 2D0	CP325P023A11	COIL-PEAKING	47MH-K	470
L 2H0	CP410P012B11	BEAD-FERRITE	FBR07HA850	
L 2P0	CP410P012B11	BEAD-FERRITE	FBR07HA850	
L 2P1	CP410P012B11	BEAD-FERRITE	FBR07HA850	
L 2P2	CP410P012B11	BEAD-FERRITE	FBR07HA850	
L 2P3	CP325P072A51	COIL-PEAKING	100MH-K-OR-J	101
L 2P4	CP410P012B11	BEAD-FERRITE	FBR07HA850	
L 2P5	QX330H509Z91	SO-COPPER-WIRE	030N001 0.6	
L 2P6	CP410P012B11	BEAD-FERRITE	FBR07HA850	
L 2P7	QX330H509Z91	SO-COPPER-WIRE	030N001 0.6	
L 2V0	CP410P012B11	BEAD-FERRITE	FBR07HA850	
L 2W0	CP410P012B11	BEAD-FERRITE	FBR07HA850	
L 2W1	CP410P012B11	BEAD-FERRITE	FBR07HA850	
L 550	CP410P012B11	BEAD-FERRITE	FBR07HA850	
L 560	CP333P047B10	COIL-HORIZ-LIN	77A-0001	(MI)
L 561	CP321P032A11	COIL-RF	150MH-K	151 SO
L 5A1	CP321P411A10	COIL-CHOKE		(MI)
L 5C0	CP321P033A21	COIL-RF	1200MH-J	122 SO
L 5G0	CP321P032A91	COIL-RF	680MH-K	681 SO
L 5G1	CP321P033A11	COIL-RF	1000MH-J	102 SO
L 5G2	CP321P191A61	COIL-RF	2200MH-J	222
L 5G3	CP321P033A21	COIL-RF	1200MH-J	122 SO
L 600	CP410P072A51	FERRITE-CHIP	BLM21A601SPT	
L 601	CP410P072A51	FERRITE-CHIP	BLM21A601SPT	
L 602	CP410P072A51	FERRITE-CHIP	BLM21A601SPT	
L 603	CP410P072A51	FERRITE-CHIP	BLM21A601SPT	
L 604	CP410P072A51	FERRITE-CHIP	BLM21A601SPT	
L 6A1	CP410P012B11	BEAD-FERRITE	FBR07HA850	
L 6A2	CP410P012B11	BEAD-FERRITE	FBR07HA850	
L 701	CP321P170A51	COIL-RF	3.3MH-L	3R3
L 702	CP321P170A51	COIL-RF	3.3MH-L	3R3
L 704	CP321P033A21	COIL-RF	1200MH-J	122 SO
L 705	CP410P012B11	BEAD-FERRITE	FBR07HA850	
L 8A1	CP321P031A91	COIL-RF	100MH-K	101 SO
L 8A2	CP321P031A91	COIL-RF	100MH-K	101 SO
L 901	CP351P072A10	LINE-FILTER	25060	(MI)
L 902	CP351P074A20	LINE-FILTER	SN10P-601JB	(MI)
L 903	CP321P431A10	TRANS-CHOKE	7101-0297	(MI)
L 904	CP410P012B31	BEAD-FERRITE	FBR07VB850	

ALL PARTS LIST

MODEL NO.: NSV1107STTKW (Diamond Plus 220)

SYMBOL NO.	PART NO.	DESCRIPTION/SPECIFICATION		
L 951	CP321P031A51	COIL-RF	47MH-K	470 SO
L 952	CP321P030A81	COIL-RF	12MH-K	120 SO
L 953	CP321P030A81	COIL-RF	12MH-K	120 SO
L 954	CP321P031A51	COIL-RF	47MH-K	470 SO
L 971	CP321P031A51	COIL-RF	47MH-K	470 SO
L 9A0	CP321P031A91	COIL-RF	100MH-K	101 SO
L 9A1	CP410P012B11	BEAD-FERRITE	FBR07HA850	
L 9A2	CP321P030A81	COIL-RF	12MH-K	120 SO
L 9A3	CP321P030A81	COIL-RF	12MH-K	120 SO
*** TRANSISTOR ***				
Q 100	CP260P488A11	TRANSISTOR	KRA107M	
Q 102	CP260P490A11	TRANSISTOR	KRC110M-AT	
Q 103	CP260P490A11	TRANSISTOR	KRC110M-AT	
Q 104	CP260P490A11	TRANSISTOR	KRC110M-AT	
Q 250B	CP260P492A11	TRANSISTOR	2SD2651TZ	
Q 250G	CP260P492A11	TRANSISTOR	2SD2651TZ	
Q 250R	CP260P492A11	TRANSISTOR	2SD2651TZ	
Q 251B	CP260P491A11	TRANSISTOR	2SB1688TZ	
Q 251G	CP260P491A11	TRANSISTOR	2SB1688TZ	
Q 251R	CP260P491A11	TRANSISTOR	2SB1688TZ	
Q 260	CP260P489A51	TRANSISTOR	KRC120M	
Q 501	CP260P382A41	TRANSISTOR	2SC 5395-E,F	
Q 502	CP260P369A11	TRANSISTOR	2SC3202Y-AT	
Q 503	CP260P499A11	TRANSISTOR	2SA1270Y-AT	
Q 504	CP260P435A10	TRANSISTOR	2SD1815-T	
Q 550	CP260P431A40	TRANSISTOR	2SC5516	
Q 560	CP260P361A20	TRANSISTOR	2SD1740MR	
Q 561	CP260P452A11	TRANSISTOR	C1740S-R,S/C5395-E,F	
Q 5A1	CP260P479A10	TRANSISTOR	KTC2026-Y	
Q 5A2	CP260P480A10	TRANSISTOR	KTA1046-Y	
Q 5C2	CP260P368A11	TRANSISTOR	KRC102M-AT	
Q 5C3	CP260P368A11	TRANSISTOR	KRC102M-AT	
Q 5C4	CP260P452A11	TRANSISTOR	C1740S-R,S/C5395-E,F	
Q 5F0	CP260P334A20	TRANSISTOR	ET453MR-F143	
Q 5F1	CP260P486A20	MOS-FET	2SJ584LS-CB11	
Q 601	CP260P457A11	TRANSISTOR-CHIP	DTC124EK/RT1N241C319	
Q 602	CP260P454A11	TRANSISTOR-CHIP	C2412K-R,S/C3928A-R,	
Q 603	CP260P457A11	TRANSISTOR-CHIP	DTC124EK/RT1N241C319	
Q 604	CP260P457A11	TRANSISTOR-CHIP	DTC124EK/RT1N241C319	
Q 605	CP260P455A11	TRANSISTOR-CHIP	A1037K-R,S/A1530A-R,114-3/330-4	
Q 701	CP260P384A20	MOS-FET	2SK2645-01MR-F111	
Q 7A1	CP260P138A11	TRANSISTOR	2SC2240-GR	
Q 7A2	CP260P424A11	TRANSISTOR	2SA970-GR	
Q 7A3	CP260P138A11	TRANSISTOR	2SC2240-GR	
Q 7A4	CP260P418A10	TRANSISTOR	KTA1659-Y	
Q 7A5	CP260P417A10	TRANSISTOR	KTC4370-Y	
Q 7A6	CP260P419A11	TRANSISTOR	2SC4620	
Q 901	CP260P464A10	MOS-FET	2SK2148	FORMING
Q 902	CP260P461A11	TRANSISTOR	KRA224M	
Q 903	CP260P368A11	TRANSISTOR	KRC102M-AT	
Q 908	CP260P452A11	TRANSISTOR	C1740S-R,S/C5395-E,F	
Q 909	CP260P452A11	TRANSISTOR	C1740S-R,S/C5395-E,F	
Q 910	CP260P366A11	TRANSISTOR	2SA1266Y-AT	
Q 951	CP260P488A11	TRANSISTOR	KRA107M	
Q 952	CP260P368A11	TRANSISTOR	KRC102M-AT	
Q 956	CP260P452A11	TRANSISTOR	C1740S-R,S/C5395-E,F	
Q 9A0	CP260P012A21	TRANSISTOR	2SA1020-Y	
Q 9A1	CP260P489A21	TRANSISTOR	KRC117M	
*** RESISTOR ***				
R 100	QX103P413B71	R-CARBON	1/4W 10K-J	103 RD-H
R 101	QX103P412B51	R-CARBON	1/4W 1K-J	102 RD-H
R 102	QX103P413B71	R-CARBON	1/4W 10K-J	103 RD-H

ALL PARTS LIST

MODEL NO.: NSV1107STTKW (Diamond Plus 220)

SYMBOL NO.	PART NO.	DESCRIPTION/SPECIFICATION
R 103	QX103P413B71	R-CARBON 1/4W 10K-J 103 RD-H
R 104	QX103P413B71	R-CARBON 1/4W 10K-J 103 RD-H
R 105	CP103P063A31	R-METAL-S 1/4W 220-F 221 RN-H
R 106	QX103P413B71	R-CARBON 1/4W 10K-J 103 RD-H
R 107	QX103P413B71	R-CARBON 1/4W 10K-J 103 RD-H
R 108	QX103P411B91	R-CARBON 1/4W 330-J 331 RD-H
R 109	QX103P411B31	R-CARBON 1/4W 100-J 101 RD-H
R 110	QX103P411B31	R-CARBON 1/4W 100-J 101 RD-H
R 115	QX103P413B71	R-CARBON 1/4W 10K-J 103 RD-H
R 116	QX103P411B31	R-CARBON 1/4W 100-J 101 RD-H
R 117	QX103P413B71	R-CARBON 1/4W 10K-J 103 RD-H
R 119	QX103P411B31	R-CARBON 1/4W 100-J 101 RD-H
R 120	QX103P411B31	R-CARBON 1/4W 100-J 101 RD-H
R 124	QX103P413B31	R-CARBON 1/4W 4.7K-J 472 RD-H
R 125	QX103P413B31	R-CARBON 1/4W 4.7K-J 472 RD-H
R 126	QX103P413B31	R-CARBON 1/4W 4.7K-J 472 RD-H
R 127	QX103P413B31	R-CARBON 1/4W 4.7K-J 472 RD-H
R 128	QX103P413B31	R-CARBON 1/4W 4.7K-J 472 RD-H
R 129	QX103P413B31	R-CARBON 1/4W 4.7K-J 472 RD-H
R 133	QX103P411B31	R-CARBON 1/4W 100-J 101 RD-H
R 135	CP103P070A11	R-METAL-S 1/4W 100K-F 104 RN-H
R 136	CP103P067A31	R-METAL-S 1/4W 10K-F 103 RN-H
R 138	QX103P411B31	R-CARBON 1/4W 100-J 101 RD-H
R 139	QX103P413B71	R-CARBON 1/4W 10K-J 103 RD-H
R 140	QX103P416B11	R-CARBON 1/4W 1M-J 105 RD-H
R 141	QX103P413B71	R-CARBON 1/4W 10K-J 103 RD-H
R 142	QX103P411B31	R-CARBON 1/4W 100-J 101 RD-H
R 145	QX103P410B91	R-CARBON 1/4W 47-J 470 RD-H
R 146	CP103P065A71	R-METAL-S 1/4W 2.2K-F 222 RN-H
R 147	QX103P410B91	R-CARBON 1/4W 47-J 470 RD-H
R 148	QX103P411B31	R-CARBON 1/4W 100-J 101 RD-H
R 149	QX103P413B71	R-CARBON 1/4W 10K-J 103 RD-H
R 150	CP103P066A51	R-METAL-S 1/4W 4.7K-F 472RN-H
R 151	QX103P413B71	R-CARBON 1/4W 10K-J 103 RD-H
R 152	QX103P411B31	R-CARBON 1/4W 100-J 101 RD-H
R 153	CP103P066A51	R-METAL-S 1/4W 4.7K-F 472RN-H
R 154	QX103P411B31	R-CARBON 1/4W 100-J 101 RD-H
R 155	CP103P066A51	R-METAL-S 1/4W 4.7K-F 472RN-H
R 156	QX103P412B11	R-CARBON 1/4W 470-J 471 RD-H
R 157	QX103P413B21	R-CARBON 1/4W 3.9K-J 392 RD-H
R 158	QX103P413B21	R-CARBON 1/4W 3.9K-J 392 RD-H
R 160	QX103P414B51	R-CARBON 1/4W 47K-J 473 RD-H
R 161	QX103P413B31	R-CARBON 1/4W 4.7K-J 472 RD-H
R 162	QX103P410B91	R-CARBON 1/4W 47-J 470 RD-H
R 163	QX103P411B31	R-CARBON 1/4W 100-J 101 RD-H
R 164	QX103P411B31	R-CARBON 1/4W 100-J 101 RD-H
R 165	QX103P411B31	R-CARBON 1/4W 100-J 101 RD-H
R 167	QX103P414B51	R-CARBON 1/4W 47K-J 473 RD-H
R 169	QX103P414B51	R-CARBON 1/4W 47K-J 473 RD-H
R 1A2	CP103P064A91	R-METAL-S 1/4W 1K-F 102 RN-H
R 1A3	CP103P064A81	R-METAL-S 1/4W 910-F 911 RN-H
R 1A4	CP103P064A91	R-METAL-S 1/4W 1K-F 102 RN-H
R 1A5	CP103P065A91	R-METAL-S 1/4W 2.7K-F 272 RN-H
R 1A6	CP103P065A91	R-METAL-S 1/4W 2.7K-F 272 RN-H
R 1A9	CP103P063A71	R-METAL-S 1/4W 330-F 331 RN-H
R 1B0	CP103P064A21	R-METAL-S 1/4W 510-F
R 200B	CP103P410A71	R-CARBON 1/2W 33-J
R 200G	CP103P410A71	R-CARBON 1/2W 33-J
R 200R	CP103P410A71	R-CARBON 1/2W 33-J
R 203H	CP103P418A11	R-CARBON 1/2W 1.2-J
R 205S	CP103P411A71	R-CARBON 1/2W 220-J
R 210B	CP103P411A31	R-CARBON 1/2W 100-J

ALL PARTS LIST

MODEL NO.: NSV1107STTKW (Diamond Plus 220)

SYMBOL NO.	PART NO.	DESCRIPTION/SPECIFICATION
R 210G	CP103P411A41	R-CARBON 1/2W 120-J
R 210R	CP103P411A31	R-CARBON 1/2W 100-J
R 211B	QX103P410B51	R-CARBON 1/4W 22-J 220 RD-H
R 211G	QX103P410B91	R-CARBON 1/4W 47-J 470 RD-H
R 211R	QX103P410B51	R-CARBON 1/4W 22-J 220 RD-H
R 212B	QX103P412B51	R-CARBON 1/4W 1K-J 102 RD-H
R 212G	QX103P412B51	R-CARBON 1/4W 1K-J 102 RD-H
R 212R	QX103P412B51	R-CARBON 1/4W 1K-J 102 RD-H
R 214B	QX103P413B11	R-CARBON 1/4W 3.3K-J 332 RD-H
R 214G	QX103P413B11	R-CARBON 1/4W 3.3K-J 332 RD-H
R 214R	QX103P413B11	R-CARBON 1/4W 3.3K-J 332 RD-H
R 223B	QX103P411B31	R-CARBON 1/4W 100-J 101 RD-H
R 223G	QX103P411B31	R-CARBON 1/4W 100-J 101 RD-H
R 223R	QX103P411B31	R-CARBON 1/4W 100-J 101 RD-H
R 224B	CP103P062A21	R-METAL-S 1/4W 75-F 750RN-H
R 224G	CP103P062A21	R-METAL-S 1/4W 75-F 750RN-H
R 224R	CP103P062A21	R-METAL-S 1/4W 75-F 750RN-H
R 250B	QX103P415B21	R-CARBON 1/4W 180K-J 184 RD-H
R 250G	QX103P415B21	R-CARBON 1/4W 180K-J 184 RD-H
R 250R	QX103P415B21	R-CARBON 1/4W 180K-J 184 RD-H
R 251B	QX103P415B01	R-CARBON 1/4W 120K-J 124 RD-H
R 251G	QX103P415B01	R-CARBON 1/4W 120K-J 124 RD-H
R 251R	QX103P415B01	R-CARBON 1/4W 120K-J 124 RD-H
R 252B	QX103P414B11	R-CARBON 1/4W 22K-J 223 RD-H
R 252G	QX103P414B11	R-CARBON 1/4W 22K-J 223 RD-H
R 252R	QX103P414B11	R-CARBON 1/4W 22K-J 223 RD-H
R 253B	QX103P410B11	R-CARBON 1/4W 10-J 100 RD-H
R 253G	QX103P410B11	R-CARBON 1/4W 10-J 100 RD-H
R 253R	QX103P410B11	R-CARBON 1/4W 10-J 100 RD-H
R 254B	QX103P414B31	R-CARBON 1/4W 33K-J 333 RD-H
R 254G	QX103P414B31	R-CARBON 1/4W 33K-J 333 RD-H
R 254R	QX103P414B31	R-CARBON 1/4W 33K-J 333 RD-H
R 255B	QX103P414B11	R-CARBON 1/4W 22K-J 223 RD-H
R 255G	QX103P414B11	R-CARBON 1/4W 22K-J 223 RD-H
R 255R	QX103P414B11	R-CARBON 1/4W 22K-J 223 RD-H
R 256B	QX103P413B31	R-CARBON 1/4W 4.7K-J 472 RD-H
R 256G	QX103P413B31	R-CARBON 1/4W 4.7K-J 472 RD-H
R 256R	QX103P413B31	R-CARBON 1/4W 4.7K-J 472 RD-H
R 260	CP103P067A11	R-METAL-S 1/4W 8.2K-F 822 RN-H
R 261	CP103P066A91	R-METAL-S 1/4W 6.8K-F 682 RN-H
R 263	CP103P068A11	R-METAL-S 1/4W 22K-F 223RN-H
R 264	CP103P066A91	R-METAL-S 1/4W 6.8K-F 682 RN-H
R 267	CP103P068A11	R-METAL-S 1/4W 22K-F 223RN-H
R 268	CP103P068A01	R-METAL-S 1/4W 20K-F
R 269	QX103P411B31	R-CARBON 1/4W 100-J 101 RD-H
R 272	QX103P411B31	R-CARBON 1/4W 100-J 101 RD-H
R 280	CP103P064A71	R-METAL-S 1/4W 820-F 821 RN-H (DH)
R 281	CP103P065A71	R-METAL-S 1/4W 2.2K-F 222 RN-H
R 282	QX103P411B31	R-CARBON 1/4W 100-J 101 RD-H
R 283	CP103P067A71	R-METAL-S 1/4W 15K-F 153 RN-H
R 284	CP103P065A51	R-METAL-S 1/4W 1.8K-F 182 RN-H
R 285	QX103P411B31	R-CARBON 1/4W 100-J 101 RD-H
R 286	QX103P411B31	R-CARBON 1/4W 100-J 101 RD-H
R 287	QX103P411B31	R-CARBON 1/4W 100-J 101 RD-H
R 288	QX330H509Z91	SO-COPPER-WIRE 030N001 0.6
R 2C0	QX330H509Z91	SO-COPPER-WIRE 030N001 0.6
R 2C1	QX330H509Z91	SO-COPPER-WIRE 030N001 0.6
R 2C6	QX330H509Z91	SO-COPPER-WIRE 030N001 0.6
R 2C7	QX330H509Z91	SO-COPPER-WIRE 030N001 0.6
R 2D0	QX103P410B91	R-CARBON 1/4W 47-J 470 RD-H
R 2D1	QX103P410B91	R-CARBON 1/4W 47-J 470 RD-H
R 2D2	QX103P410B91	R-CARBON 1/4W 47-J 470 RD-H

ALL PARTS LIST

MODEL NO.: NSV1107STTKW (Diamond Plus 220)

SYMBOL NO.	PART NO.	DESCRIPTION/SPECIFICATION
R 2D3	QX103P410B11	R-CARBON 1/4W 10-J 100 RD-H
R 2D4	CP103P064A91	R-METAL-S 1/4W 1K-F 102 RN-H
R 2D5	QX103P410B11	R-CARBON 1/4W 10-J 100 RD-H
R 2D6	QX103P413B31	R-CARBON 1/4W 4.7K-J 472 RD-H
R 2H0	CP103P065A71	R-METAL-S 1/4W 2.2K-F 222 RN-H
R 2H1	QX103P410B91	R-CARBON 1/4W 47-J 470 RD-H
R 2L1	QX103P411B31	R-CARBON 1/4W 100-J 101 RD-H
R 2V0	CP103P065A71	R-METAL-S 1/4W 2.2K-F 222 RN-H
R 2V1	QX103P410B91	R-CARBON 1/4W 47-J 470 RD-H
R 2W0	QX103P410B11	R-CARBON 1/4W 10-J 100 RD-H
R 2W1	QX103P410B11	R-CARBON 1/4W 10-J 100 RD-H
R 2W2	QX103P410B11	R-CARBON 1/4W 10-J 100 RD-H
R 2W3	QX103P410B11	R-CARBON 1/4W 10-J 100 RD-H
R 2W4	QX103P413B51	R-CARBON 1/4W 6.8K-J 682 RD-H
R 2W5	QX103P413B51	R-CARBON 1/4W 6.8K-J 682 RD-H
R 453	CP104P111A91	R-METAL 1W 270-J
R 454	QX103P418B01	R-CARBON 1/4W 1-J 010 RD-H
R 455	CP103P066A81	R-METAL-S 1/4W 6.2K-F 622 RN-H (DH)
R 456	CP103P066A71	R-METAL-S 1/4W 5.6K-F 562 RN-H
R 457	CP103P066A51	R-METAL-S 1/4W 4.7K-F 472RN-H
R 458	CP103P066A31	R-METAL-S 1/4W 3.9K-F 392 RN-H (DH)
R 459	CP103P066A71	R-METAL-S 1/4W 5.6K-F 562 RN-H
R 460	CP104P303A11	R-METAL 2W 0.56-F
R 461	CP103P066A71	R-METAL-S 1/4W 5.6K-F 562 RN-H
R 501	QX103P412B51	R-CARBON 1/4W 1K-J 102 RD-H
R 502	QX103P412B51	R-CARBON 1/4W 1K-J 102 RD-H
R 503	QX103P412B91	R-CARBON 1/4W 2.2K-J 222 RD-H
R 504	QX103P412B51	R-CARBON 1/4W 1K-J 102 RD-H
R 505	QX103P411B51	R-CARBON 1/4W 150-J 151 RD-H
R 506	QX103P412B91	R-CARBON 1/4W 2.2K-J 222 RD-H
R 507	CP104P368A01	R-FUSE 1/2W 1-J FMR
R 508	CP104P111A31	R-METAL 1W 82-J
R 509	CP103P338A71	R-METAL 3W 3.9-J RHV
R 510	CP103P338A71	R-METAL 3W 3.9-J RHV
R 511	CP103P337A41	R-METAL 3W 0.33-J RHU
R 512	CP104P110A61	R-METAL 1W 27-J
R 513	CP103P338A71	R-METAL 3W 3.9-J RHV
R 514	QX103P410B41	R-CARBON 1/4W 18-J 180 RD-H
R 560	CP104P111A41	R-METAL 1W 100-J
R 561	CP103P331A41	R-METAL 3W 120-J RHU
R 562	CP103P331A31	R-METAL 3W 100-J RHU
R 563	CP103P412A31	R-CARBON 1/2W 680-J
R 564	QX103P411B31	R-CARBON 1/4W 100-J 101 RD-H
R 565	QX103P413B71	R-CARBON 1/4W 10K-J 103 RD-H
R 566	QX103P412B91	R-CARBON 1/4W 2.2K-J 222 RD-H
R 567	QX103P411B31	R-CARBON 1/4W 100-J 101 RD-H
R 568	QX103P414B91	R-CARBON 1/4W 100K-J 104 RD-H
R 569	QX103P414B91	R-CARBON 1/4W 100K-J 104 RD-H
R 570	QX103P414B91	R-CARBON 1/4W 100K-J 104 RD-H
R 571	QX103P414B91	R-CARBON 1/4W 100K-J 104 RD-H
R 572	QX103P414B91	R-CARBON 1/4W 100K-J 104 RD-H
R 573	QX103P414B91	R-CARBON 1/4W 100K-J 104 RD-H
R 574	QX103P411B71	R-CARBON 1/4W 220-J 221 RD-H
R 575	QX103P411B71	R-CARBON 1/4W 220-J 221 RD-H
R 576	QX103P411B71	R-CARBON 1/4W 220-J 221 RD-H
R 577	QX103P411B71	R-CARBON 1/4W 220-J 221 RD-H
R 578	QX103P411B71	R-CARBON 1/4W 220-J 221 RD-H
R 579	QX103P411B71	R-CARBON 1/4W 220-J 221 RD-H
R 5A9	QX103P411B31	R-CARBON 1/4W 100-J 101 RD-H
R 5B0	QX103P411B31	R-CARBON 1/4W 100-J 101 RD-H
R 5C0	CP103P070A21	R-METAL-S 1/4W 110K-F 114 RN-H
R 5C1	CP103P067A11	R-METAL-S 1/4W 8.2K-F 822 RN-H

ALL PARTS LIST

MODEL NO.: NSV1107STTKW (Diamond Plus 220)

SYMBOL NO.	PART NO.	DESCRIPTION/SPECIFICATION
R 5C2	CP103P067A91	R-METAL-S 1/4W 18K-F 183 RN-H
R 5C3	CP103P070A11	R-METAL-S 1/4W 100K-F 104 RN-H
R 5C4	QX103P414B91	R-CARBON 1/4W 100K-J 104 RD-H
R 5C5	QX103P411B31	R-CARBON 1/4W 100-J 101 RD-H
R 5D0	QX103P413B71	R-CARBON 1/4W 10K-J 103 RD-H
R 5D1	CP103P070A11	R-METAL-S 1/4W 100K-F 104 RN-H
R 5D2	QX103P411B31	R-CARBON 1/4W 100-J 101 RD-H
R 5D3	CP103P067A01	R-METAL-S 1/4W 7.5K-F
R 5D4	CP103P068A91	R-METAL-S 1/4W 47K-F 473 RN-H
R 5D5	CP103P070A61	R-METAL-S 1/4W 160K-F 164 RN-H
R 5D6	QX103P414B51	R-CARBON 1/4W 47K-J 473 RD-H
R 5D7	QX103P414B31	R-CARBON 1/4W 33K-J 333 RD-H
R 5D8	QX103P414B41	R-CARBON 1/4W 39K-J 393 RD-H
R 5D9	QX103P413B71	R-CARBON 1/4W 10K-J 103 RD-H
R 5E1	QX103P411B31	R-CARBON 1/4W 100-J 101 RD-H
R 5F0	CP104P363A01	R-FUSE 1/2W 2.7K-J FMR
R 5F1	QX103P415B51	R-CARBON 1/4W 330K-J 334 RD-H
R 5F2	QX103P413B31	R-CARBON 1/4W 4.7K-J 472 RD-H
R 5F3	QX103P411B51	R-CARBON 1/4W 150-J 151 RD-H
R 5G0	CP104P360A71	R-FUSE 1/2W 33-J FMR
R 5G1	CP104P360A91	R-FUSE 1/2W 47-J FMR
R 5G2	CP103P338A91	R-METAL 3W 5.6-J RHU
R 5G3	CP104P361A41	R-FUSE 1/2W 120-J FMR
R 602	CP103P491A01	R-CHIP 1/16W 33-J
R 603	CP103P491A01	R-CHIP 1/16W 33-J
R 604	CP103P492A01	R-CHIP 1/16W 220-J
R 605	CP103P490A41	R-CHIP 1/16W 10-J
R 606	CP103P492A01	R-CHIP 1/16W 220-J
R 607	CP103P492A01	R-CHIP 1/16W 220-J
R 608	CP103P492A01	R-CHIP 1/16W 220-J
R 609	CP103P494A61	R-CHIP 1/16W 33K-J
R 610	CP103P494A01	R-CHIP 1/16W 10K-J
R 611	CP103P494A61	R-CHIP 1/16W 33K-J
R 612	CP103P494A61	R-CHIP 1/16W 33K-J
R 614	CP103P492A81	R-CHIP 1/16W 1.0K-J
R 615	CP103P494A01	R-CHIP 1/16W 10K-J
R 616	CP103P494A01	R-CHIP 1/16W 10K-J
R 617	CP103P494A61	R-CHIP 1/16W 33K-J
R 618	CP103P493A81	R-CHIP 1/16W 6.8K-J
R 619	CP103P492A81	R-CHIP 1/16W 1.0K-J
R 620	CP104P006A61	R-CHIP 1/16W 5.1K-F 1.6X0.8
R 621	CP103P492A81	R-CHIP 1/16W 1.0K-J
R 623	CP103P497A11	R-CHIP 1/16W 0 JUMPER
R 624	CP103P490A41	R-CHIP 1/16W 10-J
R 625	CP103P492A81	R-CHIP 1/16W 1.0K-J
R 626	CP103P492A81	R-CHIP 1/16W 1.0K-J
R 627	CP103P493A61	R-CHIP 1/16W 4.7K-J
R 628	CP103P492A81	R-CHIP 1/16W 1.0K-J
R 629	CP104P004A81	R-CHIP 1/16W 910-F 1.6X0.8
R 630	CP103P496A61	R-CHIP 1/16W 1.5M-J
R 631	CP103P492A61	R-CHIP 1/16W 680-J
R 632	CP103P492A81	R-CHIP 1/16W 1.0K-J
R 633	CP104P004A61	R-CHIP 1/16W 750-F 1.6X0.8
R 634	CP104P002A21	R-CHIP 1/16W 75-F 1.6X0.8
R 635	CP103P495A21	R-CHIP 1/16W 100K-J
R 636	CP104P004A51	R-CHIP 1/16W 680-F 1.6X0.8
R 637	CP103P492A51	R-CHIP 1/16W 560-J
R 638	CP103P492A01	R-CHIP 1/16W 220-J
R 639	CP103P492A01	R-CHIP 1/16W 220-J
R 640	CP103P492A01	R-CHIP 1/16W 220-J
R 641	CP103P492A01	R-CHIP 1/16W 220-J
R 642	CP104P007A31	R-CHIP 1/16W 10K-F 1.6X0.8

ALL PARTS LIST

MODEL NO.: NSV1107STTKW (Diamond Plus 220)

SYMBOL NO.	PART NO.	DESCRIPTION/SPECIFICATION
R 643	CP104P004A91	R-CHIP 1/16W 1K-F 1.6X0.8
R 644	CP104P004A51	R-CHIP 1/16W 680-F 1.6X0.8
R 645	CP104P011A01	R-CHIP 1/16W 240K-F 1.6X0.8
R 646	CP104P008A01	R-CHIP 1/16W 20K-F 1.6X0.8
R 647	CP104P012A11	R-CHIP 1/16W 680K-F 1.6X0.8
R 648	CP103P497A11	R-CHIP 1/16W 0 JUMPER
R 649	CP104P013A01	R-CHIP 1/16W 1.6M-F 1.6X0.8
R 650	CP104P008A91	R-CHIP 1/16W 47K-F 1.6X0.8
R 651	CP104P008A91	R-CHIP 1/16W 47K-F 1.6X0.8
R 652	CP104P008A91	R-CHIP 1/16W 47K-F 1.6X0.8
R 653	CP104P008A91	R-CHIP 1/16W 47K-F 1.6X0.8
R 654	CP104P005A71	R-CHIP 1/16W 2.2K-F 1.6X0.8
R 655	CP104P005A71	R-CHIP 1/16W 2.2K-F 1.6X0.8
R 656	CP104P003A11	R-CHIP 1/16W 180-F 1.6X0.8
R 657	CP104P007A51	R-CHIP 1/16W 12K-F 1.6X0.8
R 658	CP104P008A91	R-CHIP 1/16W 47K-F 1.6X0.8
R 659	CP103P493A81	R-CHIP 1/16W 6.8K-J
R 660	CP103P493A81	R-CHIP 1/16W 6.8K-J
R 661	CP103P493A51	R-CHIP 1/16W 3.9K-J
R 662	CP103P493A51	R-CHIP 1/16W 3.9K-J
R 6A1	CP103P067A71	R-METAL-S 1/4W 15K-F 153 RN-H
R 6A2	QX103P413B21	R-CARBON 1/4W 3.9K-J 392 RD-H
R 6A3	CP103P067A51	R-METAL-S 1/4W 12K-F 123 RN-H
R 6A4	CP103P069A51	R-METAL-S 1/4W 82K-F 823 RN-H
R 6A5	QX103P414B21	R-CARBON 1/4W 27K-J 273 RD-H
R 6A6	CP103P067A71	R-METAL-S 1/4W 15K-F 153 RN-H
R 6A7	QX103P413B21	R-CARBON 1/4W 3.9K-J 392 RD-H
R 6A8	QX103P414B21	R-CARBON 1/4W 27K-J 273 RD-H
R 6A9	CP103P067A71	R-METAL-S 1/4W 15K-F 153 RN-H
R 6B1	CP103P067A51	R-METAL-S 1/4W 12K-F 123 RN-H
R 6B2	CP103P069A51	R-METAL-S 1/4W 82K-F 823 RN-H
R 6B3	CP103P067A71	R-METAL-S 1/4W 15K-F 153 RN-H
R 6B4	CP103P068A81	R-METAL-S 1/4W 43K-F 433 RN-H
R 6B5	QX103P413B71	R-CARBON 1/4W 10K-J 103 RD-H
R 6B6	CP103P065A91	R-METAL-S 1/4W 2.7K-F 272 RN-H
R 6B7	CP103P068A31	R-METAL-S 1/4W 27K-F 273 RN-H
R 6B8	QX103P411B31	R-CARBON 1/4W 100-J 101 RD-H
R 6B9	QX103P411B31	R-CARBON 1/4W 100-J 101 RD-H
R 6C2	CP103P067A31	R-METAL-S 1/4W 10K-F 103 RN-H
R 6C3	QX103P413B71	R-CARBON 1/4W 10K-J 103 RD-H
R 6C4	CP103P068A71	R-METAL-S 1/4W 39K-F 393 RN-H (DH)
R 6C5	CP103P068A81	R-METAL-S 1/4W 43K-F 433 RN-H
R 6C6	CP103P068A61	R-METAL-S 1/4W 36K-F 363 RN-H (DH)
R 6C7	CP103P067A31	R-METAL-S 1/4W 10K-F 103 RN-H
R 6C8	CP103P068A21	R-METAL-S 1/4W 24K-F 243 RN-H
R 6C9	QX103P412B91	R-CARBON 1/4W 2.2K-J 222 RD-H
R 6D1	QX103P412B51	R-CARBON 1/4W 1K-J 102 RD-H
R 6D2	QX103P413B71	R-CARBON 1/4W 10K-J 103 RD-H
R 6D3	QX103P411B31	R-CARBON 1/4W 100-J 101 RD-H
R 6D4	QX103P411B31	R-CARBON 1/4W 100-J 101 RD-H
R 6D5	QX103P411B01	R-CARBON 1/4W 56-J 560 RD-H
R 6D6	QX103P411B31	R-CARBON 1/4W 100-J 101 RD-H
R 701	CP103P068A81	R-METAL-S 1/4W 43K-F 433 RN-H
R 702	CP103P330A81	R-METAL 3W 39-J RHU
R 703	CP103P330A81	R-METAL 3W 39-J RHU
R 704	QX330H509Z91	SO-COPPER-WIRE 030N001 0.6
R 705	CP104P368A01	R-FUSE 1/2W 1-J FMR
R 706	CP103P070A11	R-METAL-S 1/4W 100K-F 104 RN-H
R 707	CP103P067A91	R-METAL-S 1/4W 18K-F 183 RN-H
R 708	QX103P413B71	R-CARBON 1/4W 10K-J 103 RD-H
R 709	CP103P066A41	R-METAL-S 1/4W 4.3K-F 432 RN-H
R 710	CP103P069A51	R-METAL-S 1/4W 82K-F 823 RN-H

ALL PARTS LIST

MODEL NO.: NSV1107STTKW (Diamond Plus 220)

SYMBOL NO.	PART NO.	DESCRIPTION/SPECIFICATION
R 711	CP103P068A71	R-METAL-S 1/4W 39K-F 393 RN-H (DH)
R 712	CP103P070A21	R-METAL-S 1/4W 110K-F 114 RN-H
R 713	CP103P068A51	R-METAL-S 1/4W 33K-F 333RN-H
R 714	CP103P070A11	R-METAL-S 1/4W 100K-F 104 RN-H
R 715	CP103P071A51	R-METAL-S 1/4W 390K-F 394 RN-H
R 716	CP104P050A21	R-CARBON 1/4W 1.5M-J
R 717	CP104P050A21	R-CARBON 1/4W 1.5M-J
R 718	QX103P413B71	R-CARBON 1/4W 10K-J 103 RD-H
R 719	QX103P412B91	R-CARBON 1/4W 2.2K-J 222 RD-H
R 720	CP103P413A21	R-CARBON 1/2W 3.9K-J
R 721	QX103P413B71	R-CARBON 1/4W 10K-J 103 RD-H
R 722	CP104P117A21	R-METAL 1W 0.22-J
R 723	CP104P117A21	R-METAL 1W 0.22-J
R 724	QX103P411B01	R-CARBON 1/4W 56-J 560 RD-H
R 725	QX103P413B71	R-CARBON 1/4W 10K-J 103 RD-H
R 726	QX103P413B71	R-CARBON 1/4W 10K-J 103 RD-H
R 727	QX103P413B11	R-CARBON 1/4W 3.3K-J 332 RD-H
R 728	CP103P064A91	R-METAL-S 1/4W 1K-F 102 RN-H
R 729	QX103P413B01	R-CARBON 1/4W 2.7K-J 272 RD-H
R 730	QX103P413B01	R-CARBON 1/4W 2.7K-J 272 RD-H
R 732	CP103P069A41	R-METAL-S 1/4W 75K-F 753RN-H
R 733	CP103P070A61	R-METAL-S 1/4W 160K-F 164 RN-H
R 734	QX330H509Z91	SO-COPPER-WIRE 030N001 0.6
R 7A1	QX103P412B51	R-CARBON 1/4W 1K-J 102 RD-H
R 7A3	QX103P412B51	R-CARBON 1/4W 1K-J 102 RD-H
R 7A4	CP104P352A11	R-FUSE 1/4W 470-J FOR
R 7A5	CP104P113A91	R-METAL 1W 8.2K-J
R 7A6	CP104P351A21	R-FUSE 1/4W 82-J FMR
R 7A7	QX330H509Z91	SO-COPPER-WIRE 030N001 0.6
R 7A8	QX330H509Z91	SO-COPPER-WIRE 030N001 0.6
R 7A9	CP103P410A41	R-CARBON 1/2W 18-J
R 7B0	CP103P067A11	R-METAL-S 1/4W 8.2K-F 822 RN-H
R 7B1	QX103P412B51	R-CARBON 1/4W 1K-J 102 RD-H
R 7B3	CP103P415A51	R-CARBON 1/2W 330K-J
R 7B4	QX330H509Z91	SO-COPPER-WIRE 030N001 0.6
R 7B5	QX330H509Z91	SO-COPPER-WIRE 030N001 0.6
R 7B6	CP103P462A51	R-SURGE 1/2W 3.3K-J
R 801	CP103P068A41	R-METAL-S 1/4W 30K-F 303RN-H
R 802	CP103P068A11	R-METAL-S 1/4W 22K-F 223RN-H
R 811	CP103P070A11	R-METAL-S 1/4W 100K-F 104 RN-H
R 812	CP103P070A11	R-METAL-S 1/4W 100K-F 104 RN-H
R 813	CP103P071A91	R-METAL-S 1/4W 560K-F 564 RN-H
R 814	CP103P071A91	R-METAL-S 1/4W 560K-F 564 RN-H
R 821	CP103P070A11	R-METAL-S 1/4W 100K-F 104 RN-H
R 822	CP103P070A11	R-METAL-S 1/4W 100K-F 104 RN-H
R 823	CP103P071A91	R-METAL-S 1/4W 560K-F 564 RN-H
R 824	CP103P071A91	R-METAL-S 1/4W 560K-F 564 RN-H
R 831	CP103P070A11	R-METAL-S 1/4W 100K-F 104 RN-H
R 832	CP103P070A11	R-METAL-S 1/4W 100K-F 104 RN-H
R 833	CP103P071A11	R-METAL-S 1/4W 270K-F 274 RN-H
R 834	CP103P071A91	R-METAL-S 1/4W 560K-F 564 RN-H
R 839	CP103P331A21	R-METAL 3W 82-J RHU
R 8A1	CP103P066A11	R-METAL-S 1/4W 3.3K-F
R 8A2	CP103P338A41	R-METAL 3W 2.2-J RHU
R 8A3	QX103P412B51	R-CARBON 1/4W 1K-J 102 RD-H
R 8A4	QX103P413B51	R-CARBON 1/4W 6.8K-J 682 RD-H
R 8A5	QX103P413B51	R-CARBON 1/4W 6.8K-J 682 RD-H
R 8A6	CP104P121A21	R-METAL 2W 68-J
R 8B1	CP103P066A11	R-METAL-S 1/4W 3.3K-F
R 8B2	CP103P338A01	R-METAL 3W 1-J RHU
R 8B3	QX103P412B51	R-CARBON 1/4W 1K-J 102 RD-H
R 8B4	QX103P413B51	R-CARBON 1/4W 6.8K-J 682 RD-H

ALL PARTS LIST

MODEL NO.: NSV1107STTKW (Diamond Plus 220)

SYMBOL NO.	PART NO.	DESCRIPTION/SPECIFICATION
R 8B5	QX103P413B51	R-CARBON 1/4W 6.8K-J 682 RD-H
R 8B6	CP104P121A21	R-METAL 2W 68-J
R 901	CP103P465A11	R-SURGE 1/2W 470K-J
R 904	CP103P071A71	R-METAL-S 1/4W 470K-F 474 RN-H
R 905	CP103P071A71	R-METAL-S 1/4W 470K-F 474 RN-H
R 906	CP103P070A91	R-METAL-S 1/4W 220K-F 224 RN-H
R 907	CP103P070A11	R-METAL-S 1/4W 100K-F 104 RN-H
R 908	CP103P067A31	R-METAL-S 1/4W 10K-F 103 RN-H
R 909	QX103P412B51	R-CARBON 1/4W 1K-J 102 RD-H
R 910	QX103P410B11	R-CARBON 1/4W 10-J 100 RD-H
R 911	QX103P414B11	R-CARBON 1/4W 22K-J 223 RD-H
R 912	QX103P410B21	R-CARBON 1/4W 12-J 120 RD-H
R 913	CP103P071A81	R-METAL-S 1/4W 510KF
R 914	CP103P071A81	R-METAL-S 1/4W 510KF
R 915	CP103P071A81	R-METAL-S 1/4W 510KF
R 916	CP103P068A21	R-METAL-S 1/4W 24K-F 243 RN-H
R 917	CP103P067A31	R-METAL-S 1/4W 10K-F 103 RN-H
R 918	CP103P071A31	R-METAL-S 1/4W 330K-F
R 919	CP103P071A31	R-METAL-S 1/4W 330K-F
R 920	CP103P070A51	R-METAL-S 1/4W 150K-F 154 RN-H
R 921	CP103P068A91	R-METAL-S 1/4W 47K-F 473 RN-H
R 922	CP104P127A31	R-METAL 2W 0.27-J
R 923	CP104P127A31	R-METAL 2W 0.27-J
R 926	CP104P124A51	R-METAL 2W 22K-J
R 927	CP104P124A51	R-METAL 2W 22K-J
R 928	CP103P065A51	R-METAL-S 1/4W 1.8K-F 182 RN-H
R 929	QX103P418B61	R-CARBON 1/4W 3.3-J 3R3 RD-H
R 930	CP104P200A20	R-CEMENT 2W 0.27-J
R 931	QX103P412B31	R-CARBON 1/4W 680-J 681 RD-H
R 932	CP103P066A11	R-METAL-S 1/4W 3.3K-F
R 933	QX103P413B71	R-CARBON 1/4W 10K-J 103 RD-H
R 934	QX103P413B71	R-CARBON 1/4W 10K-J 103 RD-H
R 935	QX103P412B51	R-CARBON 1/4W 1K-J 102 RD-H
R 936	QX103P413B71	R-CARBON 1/4W 10K-J 103 RD-H
R 937	QX103P413B71	R-CARBON 1/4W 10K-J 103 RD-H
R 938	QX103P411B91	R-CARBON 1/4W 330-J 331 RD-H
R 945	QX103P378A61	R-FUSE 1/4W 3.3-J 3R3 RNF-H
R 946	QX103P413B71	R-CARBON 1/4W 10K-J 103 RD-H
R 948	QX103P411B91	R-CARBON 1/4W 330-J 331 RD-H
R 949	CP104P124A11	R-METAL 2W10K-J
R 950	CP104P124A11	R-METAL 2W10K-J
R 951	CP103P415A21	R-CARBON 1/2W 180K-J
R 952	QX103P413B41	R-CARBON 1/4W 5.6K-J 562 RD-H
R 953	QX103P414B81	R-CARBON 1/4W 82K-J 823 RD-H
R 954	QX103P413B61	R-CARBON 1/4W 8.2K-J 822 RD-H
R 955	QX103P413B81	R-CARBON 1/4W 12K-J 123 RD-H
R 956	QX103P413B71	R-CARBON 1/4W 10K-J 103 RD-H
R 957	QX103P413B31	R-CARBON 1/4W 4.7K-J 472 RD-H
R 958	QX103P413B31	R-CARBON 1/4W 4.7K-J 472 RD-H
R 959	QX103P413B71	R-CARBON 1/4W 10K-J 103 RD-H
R 960	CP103P069A11	R-METAL-S 1/4W 56K-F
R 961	CP103P068A71	R-METAL-S 1/4W 39K-F 393 RN-H (DH)
R 962	QX103P413B71	R-CARBON 1/4W 10K-J 103 RD-H
R 963	CP103P065A31	R-METAL-S 1/4W 1.5K-F 152 RN-H
R 964	QX103P412B51	R-CARBON 1/4W 1K-J 102 RD-H
R 965	CP103P068A31	R-METAL-S 1/4W 27K-F 273 RN-H
R 976	QX103P412B51	R-CARBON 1/4W 1K-J 102 RD-H
R 981	CP103P411A11	R-CARBON 1/2W 68-J
R 982	QX103P412B51	R-CARBON 1/4W 1K-J 102 RD-H
R 983	QX103P413B71	R-CARBON 1/4W 10K-J 103 RD-H
R 984	CP103P414A21	R-CARBON 1/2W 27K-J
R 9A0	QX103P411B31	R-CARBON 1/4W 100-J 101 RD-H

ALL PARTS LIST

MODEL NO.: NSV1107STTKW (Diamond Plus 220)

SYMBOL NO.	PART NO.	DESCRIPTION/SPECIFICATION	
R 9A1	CP103P411A71	R-CARBON	1/2W 220-J
*** POSISTOR ***			
RP901	CP265P120A10	POSISTOR	PTH451A4R5Q23 (MI)
*** RELAY ***			
RY901	CP287P044A10	RELAY	P040-1/P039-1
*** SWITCH ***			
SW1A0	CP432P028A11	SW-TACT	KSH0612BT
SW1A1	CP432P028A11	SW-TACT	KSH0612BT
SW1A2	CP432P028A11	SW-TACT	KSH0612BT
SW1A3	CP432P028A11	SW-TACT	KSH0612BT
SW1A6	CP432P028A11	SW-TACT	KSH0612BT
SW1A7	CP432P028A11	SW-TACT	KSH0612BT
SW1A8	CP432P028A11	SW-TACT	KSH0612BT
SW901	CP432P020A10	SW-PUSH	ESB92S21B
*** TRANS ***			
T 501	CP336P033A10	TRANS-HORIZ-DRIVE	(MI)
T 550	CP332P035A30	TRANS-HORIZ-OUT	0133016700 (MI)
T 701	CP334P066A10	TRANS-FLYBACK	MSU1FVH004 (MD)
T 7A1	CP409P087A10	TRANS-DBF	0133013000 (MI)
T 901	CP350P523A10	TRANS-POWER	7101-0295 (MI)
T 902	CP350P524A10	TRANS-POWER	P-ST19E (MI)
*** THERMISTOR ***			
TH101	CP265P114A11	THERMISTOR	NRD3103K400K03FMT
TH901	CP265P113A20	THERMISTOR	E100L14D325JFZ00
*** CRT ***			
	CT251B022-40A	ASSY-ITC	
*** PLASTIC PARTS ***			
	CP702A014A10	CONNECTOR-COVER	ABS 500 NSV1107K (MI)
	CP706A001A10	PLATE-LOGO	ABS 500 NSV1107K-JP(MI)
	CP720B099A50	BEZEL-UNIT	CP700A257-1 NSV1107K (ME)
	CP721B055A10	BACK-COVER-UNIT	CP700A251-1 NSV1107K-JP(ME)
	CP722B024A10	TILT-STAND-UNIT	CP770A036-1 NSV1107K-JP(ME)
*** Others ***			
E 200	CP442P004A11	EARTH-TERMINAL	TP00370-41
E 201	CP442P004A11	EARTH-TERMINAL	TP00370-41
E 202	CP442P004A11	EARTH-TERMINAL	TP00370-41
E 203	CP442P004A11	EARTH-TERMINAL	TP00370-41
SP200	CP570D045A10	SPRING	C5210R-H T0.2 NSV1107K
VR5A1	CP127C031A70	VR-SEMIFIXED	1/5W B-3K
X 101	CP285P008A41	CRYSTAL	HC49/U-S*24MHZ
	CP077W001A10	SILICON-COMPOUND	CP077N001/CP077N002
	CP077W001A10	SILICON-COMPOUND	CP077N001/CP077N002
	CP081X004A10	SILICONE-GUM	CP081N001 CP081N003
	CP081X004A10	SILICONE-GUM	CP081N001 CP081N003
	CP081X004A10	SILICONE-GUM	CP081N001 CP081N003
	CP210A252B10	PWB-MAIN	CP210P002 (MI)
	CP210A253B10	PWB-SET	CP210P002 (MI)
	CP210C095B10	PWB(SMD)-DEFLSUB	CP210P004 (MI)
	CP223D073A10	INSULATOR	SR1825P T0.45 NSV1107K (MI)
	CP223D074A10	INSULATOR-TOP	FORMEX-18T=0.46 NSV1107K (MI)
	CP246B183A10	LEAD-CONNECTOR	UL1007 AWG26 NSV1107K (MT)
	CP246B183A20	LEAD-CONNECTOR	UL1007 AWG26 NSV1107K (MT)
	CP246B183A30	LEAD-CONNECTOR	UL1007 AWG26 NSV1107K (MT)
	CP246B183A40	LEAD-CONNECTOR	UL1007 AWG26 NSV1107K (MT)
	CP246B183A50	LEAD-CONNECTOR	UL1007 AWG26 NSV1107K (MT)
	CP246B183A60	LEAD-CONNECTOR	UL1672 AWG22 NSV1107K (MT)
	CP246B183A80	LEAD-CONNECTOR	UL1007 AWG26 NSV1107K (MT)
	CP246C343A20	PIN-LEAD	TFW9105K (MI)
	CP246C394A70	TERMINAL-LEAD	PVC-UL UL1015 AWG16 NSV1107K (MT)
	CP246C429A10	FFC-CABLE	19P NSV1107K (MT)
	CP246C430A10	LEAD-CONNECTOR	NSV1107K (MT)
	CP246C431A10	LEAD-CONNECTOR	NSV1107K (MT)

ALL PARTS LIST

MODEL NO.: NSV1107STTKW (Diamond Plus 220)

SYMBOL NO.	PART NO.	DESCRIPTION/SPECIFICATION
	CP338P013A20	CP-ASSY TP-13000MZ2
	CP409B031B10	COIL-SET NSV1107K (MT)
	CP452P253A10	NOISE-FILTER SUP-L3G-E-3B TFA1105U (MT)
	CP540C004A30	LEAD-CLAMPER CKN-10
	CP540C013A30	EDGE-SADDLE EDS-1208U
	CP540C051A10	EDGE-SADDLE PA66 NSV1107K (MI)
	CP540D005A30	LEAD-CLAMPER NYLON 6 (MI)
	CP540D023A30	BAND-RIVET NYLON 6 NAD-06 (MI)
	CP540D050A20	LEAD-CLAMPER NYLON6 THN9105K (MI)
	CP540D076A10	CLAMPER PA66 NSV1107K (MI)
	CP540D076A10	CLAMPER PA66 NSV1107K (MI)
	CP549D005A20	CARD-SPACER (MI)
	CP570C010A10	SPRING SUS304-CSPH T0.2 NSV1107K
	CP570C010A10	SPRING SUS304-CSPH T0.2 NSV1107K
	CP570C010A20	SPRING SUS304-CSPH T0.2 NSV1107K
	CP580A106A10	TILT-BASE SECC-C E16/E16 T0.8 NSV1107K
	CP580A108A10	COVER-VIDEO A1100P-H24 T0.5 NSV1107K
	CP580A109A10	SHIELD-TOP A1100P-H24 T0.3 NSV1107K
	CP580A117A10	SHIELD-POWER A5052P-H32 T0.5 NSV1107K
	CP580B088A10	CONNECTOR-PLATE SECC-C E16/E16 T0.8 NSV1107K
	CP590B077B10	RADIATOR-HV A1100P-H24 T2.0 NSV1107K
	CP590C126A40	RADIATOR-FIN A6063S-T5 NUH1107U
	CP590C160A50	RADIATOR-FIN A6063S-T5 NSV1107K
	CP590C160A60	RADIATOR-FIN A6063S-T5 NSV1107K
	CP590C173A10	RADIATOR-FIN A6063S-T5 NUH1107U
	CP590D075B10	RADIATOR-TR TERNE-SHEET T0.8 FFD6505K
	CP590D090A10	RADIATOR-F SILVER-TOP T1.0 TFA1105U
	CP590D090A20	RADIATOR-F SILVER-TOP T1.0 NUH1107U
	CP590D094A10	RADIATOR-FIN A6063S-T5 NUH1107U
	CP590D095A20	RADIATOR SILVER-TOP NSV1107K
	CP593A160B10	REAR-PLATE A1100P-H24 T1.5 NSZ2107U
	CP593B151A10	HOLDER-TOP SPTE-2.8/2.8 T0.25 NSV1107K
	CP593D203A10	HOLDER-BOTTOM SECC-C E16/E16 T0.8 NSV1107K
	CP620A031B10	FRAME-BOTTOM SECC-C E16/16 T1.0 NSV1107K
	CP623A023A10	FRAME-POWER A1100P-H24 T1.0 NSV1107K
	CP626A022A10	FRAME-CRT-TB SECC-C E16/E16 T0.8 NSV1107K
	CP626A023A10	FRAME-CRT-SIDE SECC-C E16/E16 T0.8 NSV1107K
	CP641C066A10	LEVER-POWER ABS 500 NSV1107K (MI)
	CP669D016A20	SCREW-TB-BIND-W 3X8 26AA005+BLACK
	CP669D033A10	SCREW-TB-SOLDER 3X8 SOLDER 3X8
	CP669D041A10	SCREW-HEX JFS-4S-B1WM FS6605K
	CP669D074A10	SCREW-TB-SEMS 3X8 LXM510J
	CP669D074A10	SCREW-TB-SEMS 3X8 LXM510J
	CP669D074A10	SCREW-TB-SEMS 3X8 LXM510J
	CP669D080A10	SCREW 5X20 NFN8715F
	CP669D103A10	SCREW-TB-CAP SCREW-TB-CAP
	CP669D103A10	SCREW-TB-CAP SCREW-TB-CAP
	CP669D103A10	SCREW-TB-CAP SCREW-TB-CAP
	CP669D103A10	SCREW-TB-CAP SCREW-TB-CAP
	CP669D103A10	SCREW-TB-CAP SCREW-TB-CAP
	CP669D103A10	SCREW-TB-CAP SCREW-TB-CAP
	CP669D502A20	SCREW-SEMS M3X0.5-10
	CP669D502A20	SCREW-SEMS M3X0.5-10
	CP677D001A10	EYELET BSR T0.2
	CP677D001A10	EYELET BSR T0.2
	CP677D001A10	EYELET BSR T0.2
	CP677D020A10	EYELET 2.0X3.0X3.3 0.2T
	CP677D020A10	EYELET 2.0X3.0X3.3 0.2T
	CP677D020A10	EYELET 2.0X3.0X3.3 0.2T
	CP677D020A20	EYELET 1.6X3.0X3.0 0.2T
	CP677D020A20	EYELET 1.6X3.0X3.0 0.2T
	CP831C022A10	PACKING-BAG POLYETHYLENE-SHEET-TTFA1105U

ALL PARTS LIST

MODEL NO.: NSV1107STTKW (Diamond Plus 220)

SYMBOL NO.	PART NO.	DESCRIPTION/SPECIFICATION	
	CP850D268B10	LABEL-CAUTION	WHITE-PAPER 70KG NUH1107U
	CP980C179A10	SCHEMATIC-DIAGRAM	CRT NSV1107K
	CP980D018A10	SCHEMATIC-DIAGRAM	TACT-SW NSV1107K
	CP980D019A10	SCHEMATIC-DIAGRAM	POWER-SW NSV1107K
	CT900A461-10A	ASSY-COLOR-DISPLAY	
	CT900A462-10A	ASSY-CHASSIS-SET	
	CT900A463-10A	ASSY-BEZEL	
	CT920A337-10A1-	ASSY-PWB-MAIN	
	CT920A337-10A9-	ASSY-PWB-MAIN	
	CT920A338-10A1-	ASSY-PWB-SET	
	CT920A338-10A9-	ASSY-PWB-SET	
	CT920A339-10A	ASSY-WIRING	
	CT920B575-10A1-	ASSY-PWB-PARTS(MAIN)	
	CT920B575-10A2-	ASSY-PWB-PARTS(MAIN)	
	CT920B576-10A1-	ASSY-PWB-PARTS(POWER	
	CT920B576-10A2-	ASSY-PWB-PARTS(POWER	
	CT920B577-10A1-	ASSY-PWB-PARTS(VIDEO	
	CT920B577-10A2-	ASSY-PWB-PARTS(VIDEO	
	CT920C252-10A1-	ASSY-PWB-PARTS(DEFL-	
	CT920C252-10A2-	ASSY-PWB-PARTS(DEFL-	
	CT920C253-10A2-	ASSY-PWB-PARTS(CRT)	
	CT920C254-10A1-	ASSY-PWB-PARTS(TACT-	
	CT920C254-10A2-	ASSY-PWB-PARTS(TACT-	
	CT920C255-10A1-	ASSY-PWB-PARTS(POWER	
	CT920C255-10A2-	ASSY-PWB-PARTS(POWER	
	CT940A185-10A	ASSY-MAIN-UNIT	
	CT940A186-10A	ASSY-VIDEO-UNIT	
	CT940A187-10A	ASSY-POWER-UNIT	
	CT940A188-10A	ASSY-FRAME-CRT	
	CT980C451-01A1-	PARTS-LIST-MAIN	
	CT980C451-01A2-	PARTS-LIST-MAIN	
	CT980C452-01A1-	PARTS-LIST-POWER	
	CT980C452-01A2-	PARTS-LIST-POWER	
	CT980C453-01A1-	PARTS-LIST-VIDEO	
	CT980C453-01A2-	PARTS-LIST-VIDEO	
	CT980C454-01A1-	PARTS-LIST-DEFLSUB	
	CT980C454-01A2-	PARTS-LIST-DEFLSUB	
	QX096Z466A90	CARTON-TAPE	75X500M
	QX330H509Z91	SO-COPPER-WIRE	030N001 0.6
	QX330H509Z91	SO-COPPER-WIRE	030N001 0.6
	QX330H509Z91	SO-COPPER-WIRE	030N001 0.6
	QX330H509Z91	SO-COPPER-WIRE	030N001 0.6
	QX540D036B10	LEAD-CLAMPER	* (MI)
	QX540D036B10	LEAD-CLAMPER	* (MI)
	QX540D085B10	LEAD-CLAMPER	NYLON-6 CM1017 (MI)
	QX540D085B10	LEAD-CLAMPER	NYLON-6 CM1017 (MI)
	QX540D111A10	LEAD-CLAMPER	NYLON CM1017 (MI)
	QX669D220A20	SCREW-TB	* 3X8
	QX669D221A20	SCREW-TB	4X8 46LA005
	QX669D221A40	SCREW-TB	
	QX669D221A60	SCREW-TB	46LA005 4X16
	RX669D171A30	SCREW-SEMS	M3X0.5-12
	RX669D171A50	SCREW-SEMS-W	M4X0.7-8
NSV1107K-US			
	CP242C229A60	AC-POWER-CORD	(MT)
	CP242C286A70	SIGNAL-CABLE	SC-B110
	CP775C343A10	RATING-LABEL	YUPO 0.11 NSV1107K-US
	CP802C312A20	PACKING-CASE	NSV1107K-US
	CP803A100A10	CUSHION	FOAMED-P.S P=0.017 NSV1107K
	CP859C240A50	ACCESSORY	CP871C200-3 NSV1107K-US
NSV1107K-EU			
	CP242C286A70	SIGNAL-CABLE	SC-B110

ALL PARTS LIST

MODEL NO.: NSV1107STTKW (Diamond Plus 220)

SYMBOL NO.	PART NO.	DESCRIPTION/SPECIFICATION
	CP242C289A20	AC-POWER-CORD (MT)
	CP775C343A10	RATING-LABEL YUPO 0.11 NSV1107K-US
	CP802C312A60	PACKING-CASE NSV1107K-EU
	CP803A100A10	CUSHION FOAMED-P.S P=0.017 NSV1107K
	CP859C240A60	ACCESSORY CP871C200-5 NSV1107K-EU