

2. Adjustment procedure

2.1 Application

This adjustment procedure applies to the 15-inch LCD display (LCD1535VI/LCD1535VI-BK).

2.2 Measurement instruments used

- | | |
|---|---|
| (1) Analog signal generator: | Astro Design VG-813 or equivalent |
| (2) Digital signal generator: | Astro Design VG-828D or equivalent |
| (3) DVI-D PC: | DELL PC (Carrying GeForce2 Ultra 3D 64MB), DELL PC DIMENSION 4200 (Carrying GeForce3 64MB DDR) or IBM PC NetVista |
| (4) DC voltmeter: | Digital voltmeter |
| (5) Luminance meter: | MINOLTA Color analyzer CA-110 or equivalent |
| (6) Oscilloscope: | Scope with band of 300MHz or more |
| (7) Voltage converter: | AC264V range adjustable |
| (8) Isolation resistance tester: | YOKOGAWA TYPE3213 or equivalent |
| (9) Isolation withstanding voltage meter: | KIKUSUI MODEL TOS8650 or equivalent |
| (10) Grounding conductivity measuring instrument: | CLARE U.K. product or equivalent |

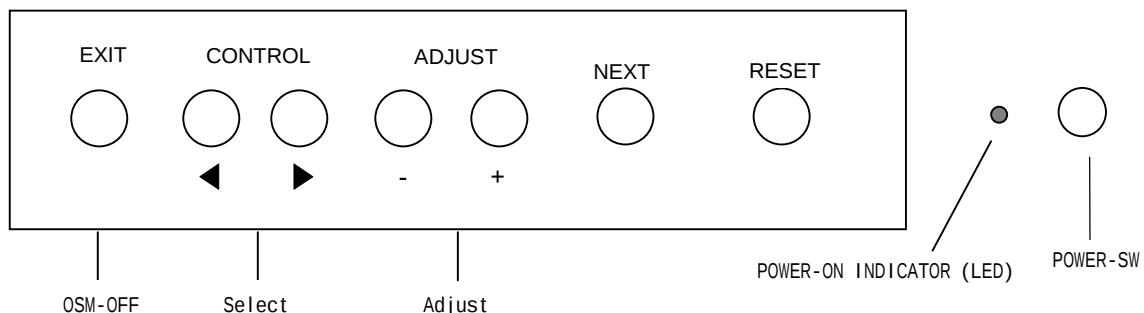
2.3 Standard setting state

Unless designated in particular, the test is carried out with the following state.

Item		State for Adjustment
Power voltage		AC120V 60Hz: for North America AC240V 50Hz: for Europe
Input frequency		Timing No.14 (60kHz/75Hz, XGA75)
Input connector		DVI-A
OSM setting (USER MODE)	BRIGHTNESS	MAX
	CONTRAST	CENTER
	SHARPNESS	CENTER
	AccuColor	NATIVE or sRGB

2.4 Names of each LCD monitor part, and adjustment methods

2.4.1 Configuration of front control panel



(Note) When the item listed below is selected and RESET button is pressed, then the level bar and the data value are to be set as follows.

- (1) BRIGHTNESS: MAX
- (2) CONTRAST: CENTER
- (3) SHARPNESS: CENTER
- (4) COLOR TEMPERATURE: NATIVE
- (5) COLOR CONTROL: All of R, Y, G, C, B, M and S should be 0 (CENTER)
- (6) OSM TURN OFF: 45SEC

2.4.2 OSM operation method

<User mode>

OSM appears when CONTROL button or ADJUST button is pressed. The adjustment items are grouped according to category. Select the category with NEXT button, and select the adjustment item with CONTROL button.

<Factory mode> (For factory adjustment)

-How to enter Factory mode-

To enter the factory adjustment mode, press front keys in order of DOWN (-), DOWN (-), UP (+), UP (+), DOWN (-), UP (+) and CONTROL (►) during OSM picture is not displayed .

With operation above, the color of OSM frame changes to magenta from cyan, and all indications in the factory mode are in English.

-How to return to User mode-

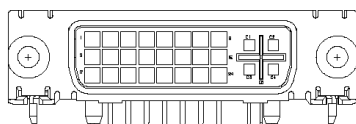
To return to User mode, turn POWER-SW OFF.

2.4.3 Configuration of signal input / power input section

DVI-I signal input connector (VIDEO)

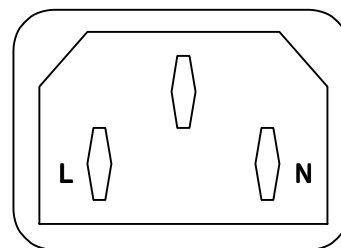
Pin No.	Signal	Pin No.	Signal
1	T.M.D.S. Data 2-	16	Hot Plug Detect
2	T.M.D.S. Data 2+	17	T.M.D.S. Data 0-
3	T.M.D.S. Data 2 Shield	18	T.M.D.S. Data 0+
4	N.C.	19	T.M.D.S. Data 0 Shield-
5	N.C.	20	N.C.
6	DDC Clock	21	N.C.
7	DDC Data	22	T.M.D.S. Data Clock Shield
8	Analog Vertical Sync	23	T.M.D.S. Data Clock +
9	T.M.D.S. Data 1-	24	T.M.D.S. Data Clock-
10	T.M.D.S. Data 1+	C1	Analog Red
11	T.M.D.S. Data 1 Shield	C2	Analog Green
12	N.C.	C3	Analog Blue
13	N.C.	C4	Analog Horizontal Sync
14	+5V Power	C5	Analog Ground (analog R, G and B return)
15	Ground (return for +5V, HSync and Vsync)		

Input signal cable is detachable.



DVI Compatible Host Receptacle Connector
(Monitor side)

Power code is detachable.



Host Receptacle AC inlet
(Monitor side)

2.5 PWB, mechanism and appearance inspection

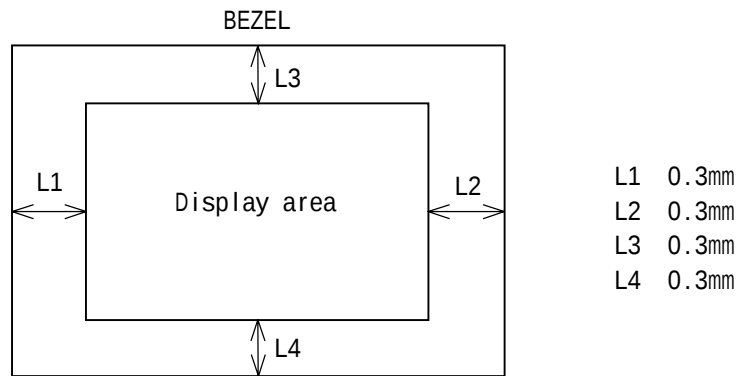
2.5.1 Visual and conductivity check

- (1) There should be no cracks, remarkable contamination or solder faults on the PWBs.
- (2) There should be no remarkable lifting or inclination of the parts on the PWBs, and the parts should not be in contact with other parts.
- (3) There should be no short-circuit across the power supply and GND on the PWBs.

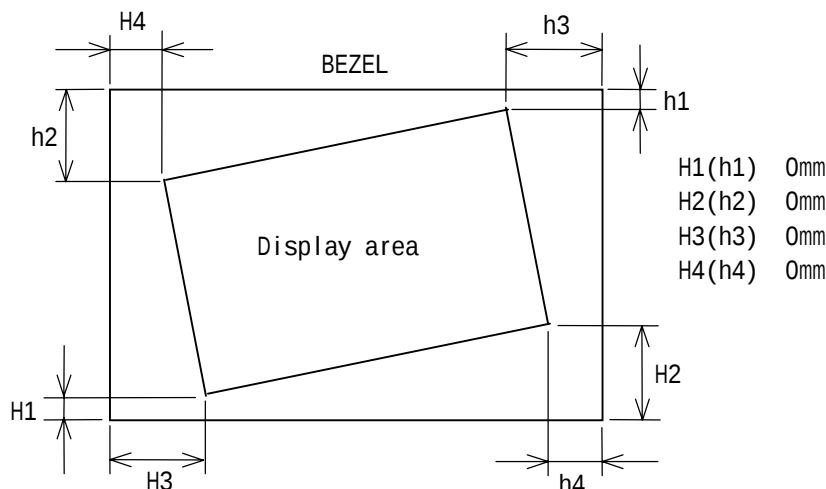
2.5.2 Mechanism and appearance inspection

- (1) All connectors, receptacle pins should be clamped firmly and fully inserted.
- (2) Lead wires should not be pressed against any edge of metal parts.
- (3) Lead wires should not be in contact with high temperature components.
- (4) Metal parts should have no scratch, remarkable stain, dent or bend.
- (5) Liquid crystal display should not be scratched or contaminated.
- (6) There should be no abnormality with the front switch operation.
- (7) There should be no wave patterns seen on the liquid crystal panel when the front switch is pressed.
- (8) The picture position and picture inclination should satisfy the following specifications.

* Check if the picture position is within the following specification (with white frame pattern).



* Check if the picture inclination is within the following specification (with white frame pattern).

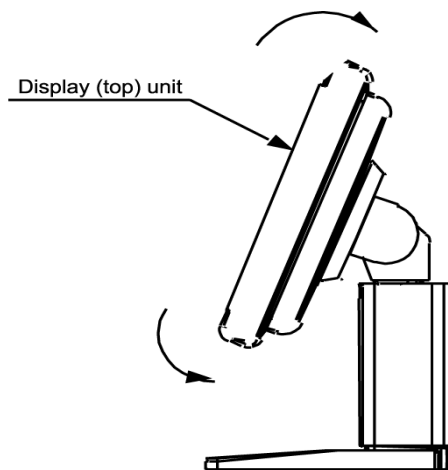


(9) Check the movement of stand without SIGNAL-CABLE (DVI-D / DVI-A) and AC-POWER-CORD.

<Inclination>

Display (top) unit should move properly without abnormal sound such as clattering or squeaking when it is moved as Picture A below.

Display (top) unit should not move when (+) button on the front is pressed lightly with the index finger.



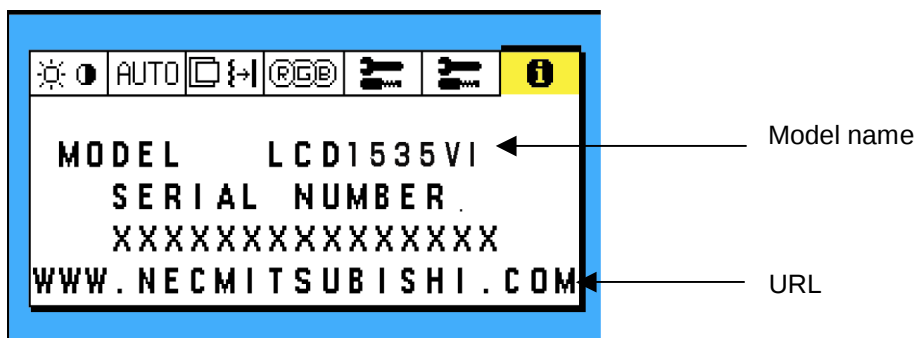
Picture A

2.5.3 PWB adjustment

2.5.3.1 Initial writing in EEPROM data

To initialize the preset timing, write the default data of preset timing listed in "2.12 Timing chart" with an external source by communication.

(Refer to the service tool manual for detail.)



Confirm that the model name shown on the OSM picture in factory mode is LCD1535VI.

2.6 General adjustment and inspection

2.6.1 Preparation

Note1) Rough adjustment should be implemented with 100VAC/60Hz, and aging (heat-running) should be implemented with 240VAC/50Hz.

Note2) When DVI-D is used for input, unless particularly designated, only Timing No. 14 (60kHz/75Hz, XGA75) should be used for inspection.

Unless particularly designated, adjustment should be carried out with DVI-A input in factory mode and the setting state should be as follows. (To enter factory mode, refer to "2.4.2 OSM operation method".)

BRIGHTNESS: MAX (255)

CONTRAST: CENTER (128)

SHARPNESS: CENTER (64)

AccuColor: NATIVE or sRGB

COLOR CONTROL: All of R, Y, G, C, B, M and S should be 0 (CENTER)

Before aging, signal is input for confirmation of each operation switch operation.

Moreover, unless particularly designated, Timing No. 14 should be used for confirmation.

2.6.1.1 Confirming operation of operation SW and functions

- (1) Input the confirmation timing with the signal generator, and set the pattern to OP2.
- (2) Confirm that the picture appears within 4 seconds after turning the vacation switch on the side face and the power switch ON.
- (3) Confirm that Power-On Indicator is lit in green.
- (4) Press (◀) button to display the OSM picture.
- (5) Select OSM POSITION with OSM, and press (+) / (-) button to confirm that OSM picture moves.
- (6) After pressing RESET button, press NEXT button to confirm that the OSM picture returns to the appointed position.
- (7) Press EXIT button, and confirm that OSM picture disappears.

2.6.1.2 Inspection of picture

- (1) Check the picture position and the inclination according to "2.5.2 Mechanism and appearance inspection" .
- (2) Check the picture defect according to "2.9 Liquid crystal display defect standards" .

2.6.1.3 Aging

- (1) Set to aging mode with OSM.
- (2) Carry out heat running for 30 minutes or more in the no-signal state.
- (3) Cancel aging mode with OSM.

<How to enter aging mode>

To enter aging mode, press (+) and (-) buttons simultaneously holding down RESET button when OSM is displayed in NO SIGNAL state. Set OSM GAIN to MAX (255) using (+) and (-) buttons during heat running.

Set the display pattern to the full white by pressing (◀) and (▶) buttons (the power-on indicator is lit in green at aging mode).

NEXT button enables to switch OSM displaying / no-displaying.

<How to disable aging mode>

To disable aging mode, press EXIT button when OSM is displayed.

Note that turning power ON and OFF can not disable the aging mode.

2.6.2 Main adjustment

Carry out the following adjustment with appropriate AC power voltage and power frequency applying the spec for destination.

2.6.2.1 Confirming the picture during heat running

- (1) Confirm that the white colored picture is displayed in whole display area.
- (2) Confirm that there is no intermittent image caused by picture inclination, etc.

2.6.2.2 BIAS adjustment

- (1) Input timing No. 14 (60kHz/75Hz, XGA75) with signal generator, then set the pattern to full black with frame and video signal level to 0.7V.
- (2) Select BIAS with OSM, and press (+) button. (Automatic adjustment of BIAS)

2.6.2.3 GAIN adjustment

- (1) Input timing No. 14 (60kHz/75Hz, XGA75) with signal generator, then set pattern to full white and video signal level to 0.7V.
- (2) Select GAIN with OSM, and press (+) button. (Automatic adjustment of GAIN)

2.6.2.4 BRIGHT-LIMIT adjustment

- (1) Input timing No. 14 (60kHz/75Hz, XGA75) with signal generator, then set pattern to full white and video signal level to 0.7V.
- (2) Select BRIGHT-MAX with OSM, and set the value to 255 (MAX).
Measure the luminance at the center of the picture with luminance meter, then confirm that it is within the following value range.
 $240\text{cd} / \text{m}^2 - 350\text{cd} / \text{m}^2$ (300cd / m² (typ.) for the specification of Liquid Crystal Panel)
- (3) Select BRIGHT-MIN with OSM, and set the value to 30.
Measure the luminance at the center of the picture with luminance meter, then confirm that it is within the following value range.
 $15\text{cd} / \text{m}^2 - 30\%$ with BRIGHT MAX

2.6.2.5 Confirming color coordination of Liquid Crystal Panel

- (1) Input timing No. 14 (60kHz / 75Hz, XGA75) with signal generator, then set pattern to full white and video signal level to 0.7V.
- (2) Set CONTRAST to CENTER (128) and BRIGHTNESS to MAX (255).
- (3) Set color temperature (AccuColor) to N (NATIVE).
- (4) Confirm that the color coordination is within the following value range at the center of the picture.
 $X = 0.303 \pm 0.03$ $Y = 0.313 \pm 0.03$

2.6.2.6 Writing the data for each model use

Write the applicable model name and other data every destination with the service tool software.

- (1) Write the applicable EDID data with the service tool software, and the applicable model name is to be written in automatically.
- (2) Initialize the main EEPROM with the service tool software, and the applicable URL and OSM expression is to be written in automatically.
- (3) After writing in, display MONITOR INFO. on OSM picture to confirm that the followings are set correctly.

Model Name	LCD1535VI
URL	WWW.NECMITSUBISHI.COM
OSM expression	OSM

Note) OSM expression can be confirmed by other adjustment menus having OSM display position adjustment, etc.

2.7 Writing into the DDC data

Write serial No. and year/week manufactured in the LCD display monitor using the service tool.
The version of the service tool software used is as follows.

Service tool S/W folder name: SVT309NM20

Service tool S/W version: Ver3.09-2.0-0

Be sure to read "Read me first" first in using the service tool.

For concrete use, refer to the service tool manual attached to the service tool.

2.7.1 Data configuration

The data which are all 128 bytes configuring DDC (EDID) are as follows.
(Refer to the following page for details of the data.)

ADDRESS	NUMBER OF BYTES	CONTENTS
00h ~ 07h	8	Header
08h ~ 11h	10	Vender/Product ID
12h ~ 13h	2	Data construction version
14h ~ 18h	5	Basic display spec. (picture size, etc.)
19h ~ 22h	10	Color characteristics
23h ~ 25h	3	Product support timing (VESA, etc.)
26h ~ 35h	16	Support timing (except above mentioned)
36h ~ 47h	18	Detail timing data (1 timing)
48h ~ 59h	18	Frequency range
5Ah ~ 6Bh	18	ASCII NAME
6Ch ~ 7Dh	18	SERIAL NUMBER
7E	1	Extension Flag
7F	1	Checksum

2.7.2 Configuration of DDC (EDID) data

The configuration of DDC (EDID) data is as follows.

-- EDID DATA DUMP TEXT (ANALOG) --

Manufacturer Code: NEC
Product Code (HEX): 65D8
Product Code (DEC): 26072
(Microsoft INF ID: NEC65D8)
Serial Number (DEC): 1
Serial Number (HEX): 00000001
Week of Manufacture: 1
Year of Manufacture: 2002

EDID Version: 1
EDID Revision: 3
Extension Flag: 0

Video:

Input Singal: ANALOG
Setup: NO
Sync on Green: NO
Composite Sync: YES
Separate Sync: YES
V Sync Serration: YES
V Signal Level: 0.700V/0.000V (0.7V p-p)

Max Image Size H: 30 cm
Max Image Size V: 23 cm
DPMS Stand By: YES
DPMS Suspend: YES
DPMS Active Off: YES
GTF Support: NO
Standard Default Color Space: YES
Preferred Timing Mode: YES
Display Type: RGB Color

Color:

Gamma: 2.20
Red x: 0.639
Red y: 0.333
Green x: 0.278
Green y: 0.598
Blue x: 0.144
Blue y: 0.054
White x: 0.303
White y: 0.313

Established Timings:

720x400 @ 70 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 @ 60 Hz
1024x768 @ 70 Hz
1024x768 @ 75 Hz

Standard Timing #1:
NOT USED

Standard Timing #2:
NOT USED

Standard Timing #3:
NOT USED

Standard Timing #4:
NOT USED

Standard Timing #5:
NOT USED

Standard Timing #6:
NOT USED

Standard Timing #7:
NOT USED

Standard Timing #8:
NOT USED

Detailed Timing (block #1):

---Preferred Timing Mode---

Pixel Clock: 78.75 MHz
Horizontal Active: 1024 pixels
Horizontal Blanking: 288 pixels
Vertical Active: 768 lines
Vertical Blanking: 32 lines
(Horizontal Frequency: 60.02 kHz)
(Vertical Frequency: 75.0 Hz)
Horizontal Sync Offset: 16 pixels
Horizontal Sync Width: 96 pixels
Vertical Sync Offset: 1 line
Vertical Sync Width: 3 lines
Horizontal Border: 0 pixel
Vertical Border: 0 line
Horizontal Image Size: 304 mm
Vertical Image Size: 228 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: 75 Hz
Minimum Horizontal Rate: 30 kHz
Maximum Horizontal Rate: 60 kHz
Maximum Pixel Clock: 80 MHz
GTF Data: 00 0a 20 20 20 20 20 20

Monitor Name (block #3): LCD1535VI_A

Monitor Serial Number (block #4): 201000001

EDID DATA DUMP HEX
00 FF FF FF FF FF FF 00
38 A3 D8 65 01 00 00 00
01 0C 01 03 6D 1E 17 78
EE 94 F9 A3 55 47 99 24
0D 4D 50 BF EE 00 01 01
01 01 01 01 01 01 01 01
01 01 01 01 01 01 C3 1E
00 20 41 00 20 30 10 60
13 00 30 E4 10 00 00 1E
00 00 00 FD 00 32 4B 1E
3C 08 00 0A 20 20 20 20
20 20 00 00 00 FC 00 4C
43 44 31 35 33 35 56 49
5F 41 0A 20 00 00 00 FF
00 32 30 31 30 30 30 30
30 31 0A 20 20 20 00 C4

-- EDID DATA DUMP TEXT (DIGITAL) --

Manufacturer Code: NEC
Product Code (HEX): 65D8
Product Code (DEC): 26072
(Microsoft INF ID: NEC65D8)
Serial Number (DEC): 1
Serial Number (HEX): 00000001
Week of Manufacture: 1
Year of Manufacture: 2002

EDID Version: 1
EDID Revision: 3
Extension Flag: 0

Video:
Input Singal: DIGITAL
DFP Compatible: NO

Max Image Size H: 30 cm
Max Image Size V: 23 cm
DPMS Stand By: YES
DPMS Suspend: YES
DPMS Active Off: YES
GTF Support: NO
Standard Default Color Space: YES
Preferred Timing Mode: YES
Display Type: RGB Color

Color:
Gamma: 2.20
Red x: 0.639
Red y: 0.333
Green x: 0.278
Green y: 0.598
Blue x: 0.144
Blue y: 0.054
White x: 0.303
White y: 0.313

Established Timings:
720x400 @ 70 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 @ 60 Hz
1024x768 @ 70 Hz
1024x768 @ 75 Hz

Standard Timing #1:
NOT USED

Standard Timing #2:
NOT USED

Standard Timing #3:
NOT USED

Standard Timing #4:
NOT USED

Standard Timing #5:
NOT USED

Standard Timing #6:
NOT USED

Standard Timing #7:
NOT USED

Standard Timing #8:
NOT USED

Detailed Timing (block #1):
---Preferred Timing Mode---
Pixel Clock: 78.75 MHz
Horizontal Active: 1024 pixels
Horizontal Blanking: 288 pixels
Vertical Active: 768 lines
Vertical Blanking: 32 lines
(Horizontal Frequency: 60.02 kHz)
(Vertical Frequency: 75.0 Hz)
Horizontal Sync Offset: 16 pixels
Horizontal Sync Width: 96 pixels
Vertical Sync Offset: 1 line
Vertical Sync Width: 3 lines
Horizontal Border: 0 pixel
Vertical Border: 0 line
Horizontal Image Size: 304 mm
Vertical Image Size: 228 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: 75 Hz
Minimum Horizontal Rate: 30 kHz
Maximum Horizontal Rate: 60 kHz
Maximum Pixel Clock: 80 MHz
GTF Data: 00 0a 20 20 20 20 20 20

Monitor Name (block #3): LCD1535VI_D

Monitor Serial Number (block #4): 201000001

EDID DATA DUMP HEX

```
00 FF FF FF FF FF FF 00
38 A3 D8 65 01 00 00 00
01 0C 01 03 80 1E 17 78
EE 94 F9 A3 55 47 99 24
0D 4D 50 BF EE 00 01 01
01 01 01 01 01 01 01 01
01 01 01 01 01 01 C3 1E
00 20 41 00 20 30 10 60
13 00 30 E4 10 00 00 1E
00 00 00 FD 00 32 4B 1E
3C 08 00 0A 20 20 20 20
20 20 00 00 00 FC 00 4C
43 44 31 35 33 35 56 49
5F 44 0A 20 00 00 00 FF
00 32 30 31 30 30 30 30
30 31 0A 20 20 20 00 AE
```

2.8 Inspection

Unless particularly designated, the performance is confirmed in "2.3 Standard setting state" . The display should be set to the full white pattern with signal generator.

2.8.1 Electric performance

2.8.1.1 Confirming the operation of operation SW

- (1) The picture must appear within four seconds after turning power switch ON.
- (2) Confirm that Power-On Indicator is lit.
- (3) Synchronization must not flow when power switch is turned ON and OFF.
- (4) OSM must appear when CONTROL button is pressed.
- (5) The setting value must smoothly change and abnormalities such as noise must not occur when (+) / (-) button is pressed.
- (6) Press EXIT button, and confirm that OSM picture disappears.

2.8.1.2 Frequency change speed

Confirm that it does not take so long time to change the picture when frequency is changed. (Within five seconds)

2.8.1.3 Confirming frequency range (Confirming preset timing)

Confirm that the synchronization is not deviated at the designated preset timing (No. 4, 6, 10 and 14).

2.8.1.4 Confirming automatic adjustment function

Input the confirmation timing with signal generator.

Set the pattern to 1-dot-zigzag-grid with frame. Change the adjustment value of CLOCK intentionally, and select AUTO ADJUST with OSM. Confirm that the picture is put back to normal when (+) button is pressed so that AUTO ADJUST can be carried out.

2.8.1.5 Confirming composite sync. signal

Input composite sync. signal (SUN57 listed in "2.12 Timing chart") with signal generator, and set the pattern to 1-dot-zigzag-grid with frame. Start up AUTO ADJUST, and confirm that the picture appears normally.

2.8.1.6 Confirming digital input

Input timing No. 14 to DVI-D connector with signal generator, and set the pattern to horizontal lamp with frame. Confirm that the picture appears normally (without out-of-synchronism, picture-short, vertical noise of chromatic color, dot noise, jitter and gray-scale noise).

2.8.1.7 Confirming power management function

(1) Input the specified timing with signal generator, and set the pattern to full white.

Mode	H	V	Power voltage	Input timing	Power consumption
Normal	On	On	AC240V 50Hz	60KHz75Hz (XGA75)	38W or less
Power-Save	Off	Off	↑	↑	3W or less

(2) Input the timings mentioned above, and confirm the image display or OSM display.

Turn the signal generator H-sync / V-sync OFF.

(3) Confirm that Power-On Indicator by power-SW turns to orange.

(4) Confirm that the picture returns within four seconds when H-sync/ V-sync and VIDEO signals are input.

2.8.1.8 Power voltage fluctuation

Confirm that there should be no abnormality like that the adjusted condition is changed when the power voltage is varied within the following range slowly and rapidly.

Power voltage		Input timing
AC90-132V/60Hz	AC198-264V/50Hz	OPTION2 (pattern 06) of confirmation timing
for North America	for Europe	

2.8.1.9 Power asynchronous shaking

Confirm that the picture shaking should not be observed at the point 50 cm away when the power voltage is set to the value listed in the following table.

Power voltage		Input timing
AC120V/60Hz	AC240V/50Hz	OPTION2 (pattern 06) of confirmation timing
for North America	for Europe	

2.8.1.10 Isolation voltage

Confirm that the abnormality is never seen when AC1500V is applied for two seconds across AC earth GND pin to chassis GND. Cut-off current must be 10mA.

2.8.1.11 Ground resistance

Confirm that the resistance must be less than 100m ohms or less when 25A is applied across AC earth GND pin to chassis GND.

2.8.1.12 Shock test

(1) Input confirmation timing with signal generator, and set the pattern to OPTION2 (pattern 06).

(2) Confirm that there is no abnormality in the image when shock is applied to the monitor. Do not apply shock on the front of the liquid crystal panel.

2.8.1.13 Confirming color selecting (AccuColor) function

(1) Input timing No. 14 (60kHz/75Hz, XGA75) with signal generator, and input OPTION2 (pattern 0B), gray-scale or full white for picture pattern.

(2) Confirm that color temperature varies by switching Color No. (1, 2, 3, sRGB, 5 and N (NATIVE)).

2.8.1.14 Confirming color control function

- (1) Input timing No.14 (60kHz/75Hz, XGA75) with signal generator, and input OPTION2 (pattern 06).
- (2) Select Color1 in the color selecting (AccuColor) picture.
- (3) Enter the color selecting (AccuColor) adjustment picture using (-) or (+) button, then select the adjustment item R (red) using (▶) buttons.
- (4) Extend R bar graph for (+) direction using (+) button, and confirm that the color bar on the upper side of OPTION2 picture turns to yellow from red.
- (5) Press RESET button to execute color reset, then confirm that the yellow colored color bar on the upper side of OPTION2 picture returns to red.

2.8.1.15 Confirming sharpness function

- (1) Input timing No.4 (31.5kHz/60Hz, VGA480) or timing No.14 (60kHz/75Hz, XGA75) with signal generator, and input OPTION2 (pattern 06).
- (2) Adjust the sharpness, then confirm that the letters on the OPTION2 picture get vivid.

2.8.1.16 Confirming OSM display time

- (1) Input timing No.4 (31.5kHz/60Hz, VGA480) or timing No.14 (60kHz/75Hz, XGA75) with signal generator, and input OPTION2 (pattern 06).
- (2) Display the OSM picture, then select OSM TURN OFF.
- (3) Set to 10SEC (10 seconds) using (-) button.
- (4) Confirm that OSM picture disappears 10 seconds later after getting the finger off the button.
- (5) Again, set OSM TURN OFF time to 45SEC (45 seconds).
 - * It returns to 45SEC setting by pressing RESET button.

2.8.2 Picture performance

2.8.2.1 Picture performance inspection

Check the picture performance with the following procedure. Confirm that preset symbol (P) is correctly displayed on the upper right of the OSM picture in correspondence to the preset timing designated in the factory mode.

Inspection items	Display pattern	Measurement method	Criteria	Timing No.	Input connector
Sampling noise	1-dot-zigzag-grid frame +	Visual check	Image noise must not be remarkable. *1	4, 6, 10, 14	DVI-A
Picture position difference	1-dot-zigzag-grid frame +	Visual check	Top, bottom, left and right of the frame must be seen.	4, 6, 10, 14	DVI-A
Picture position difference	Frame	Visual check	Top, bottom, left and right of the frame must be seen.	14	DVI-D
Digital noise	Horizontal lamp (Gray-scale)	Visual check	Chromatic colored vertical noise, dot noise, jitter and gray-scale noise must not be seen.	14	DVI-D
Smear Pixel cross talk	WINDOW OPTION2 (pattern 06)	Visual check	Smear, etc. must not be remarkable.	14	DVI-A
Video tracking	OPTION2 (pattern 0B)	Visual check	All of gray-scale must be displayed.	14	DVI-A
BRIGHTNESS	OPTION2 (pattern 06)	Visual check	Varying must be carried out smoothly.	14	DVI-A
CONTRAST	OPTION2 (pattern 06)	Visual check	Varying must be carried out smoothly.	14	DVI-A
Horizontal line (flickering noise)	Horizontal lamp (gray-scale)	Varying CONTRAST with visual check	Horizontal line must not be remarkable.	14	DVI-A
CROSS MODULATION *2	CROSS MODULATION test pattern	Measuring Ya and Yb with luminance meter	(Ya-Yb)/Yb : within 5%	14	DVI-A
Unevenness/spot on LCD panel	According to 2.8.2.3 (2) Liquid crystal picture defect	Visual check	According to 2.8.2.3 (2) Liquid crystal picture defect	14	DVI-A

*1: If flickering is still seen in the inspection in timing No. 14 with the designated display pattern, change the pattern to the below, then confirm that the picture is displayed correctly.

Confirmation pattern: Frame + H character (H character: Font size = 7 x 9, Cell size = 13 x 14)

*2: This inspection is to be carried out if designated.

2.8.2.2 Confirming color coordination

- (1) Input timing No. 14 (60kHz/75Hz, XGA75) with signal generator, and set the pattern to full white.
- (2) Set BRIGHTNESS to MAX (255) and CONTRAST to CENTER (128) with OSM, and confirm that the color coordination at the center of the liquid crystal panel is as follows with COLOR COMPENSATION is off (NATIVE).

$$x = 0.303 \pm 0.03 \quad y = 0.313 \pm 0.03$$

- (3) Confirm that the value of x and y at the center of the liquid crystal panel is within the values specified below with BRIGHTNESS is set to MAX (255) and CONTRAST to CENTER (128) when each COLOR is selected with COLOR SELECTION (AccuColor).

If out of specification, compensate with each color temperature.

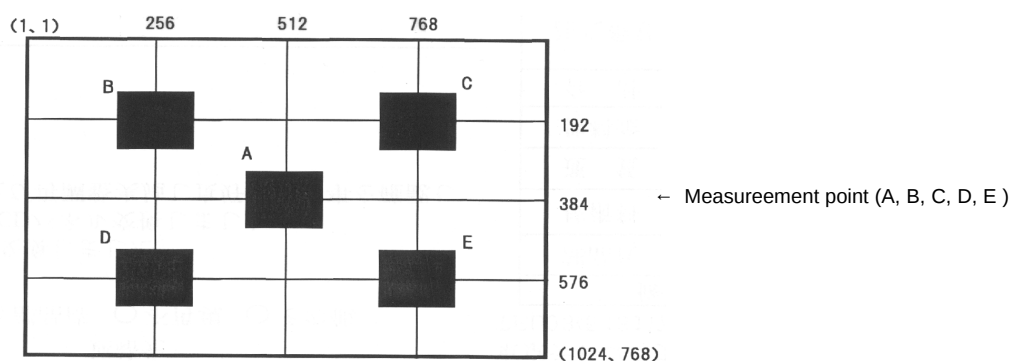
Color1	9300 K :	$x=0.281 \pm 0.015$	$y=0.290 \pm 0.015$
Color2	8200 K :	$x=0.290 \pm 0.015$	$y=0.300 \pm 0.015$
Color3	7500 K :	$x=0.300 \pm 0.015$	$y=0.310 \pm 0.015$
SRGB	6500 K :	$x=0.313 \pm 0.010$	$y=0.329 \pm 0.010$
Color5	5000 K :	$x=0.345 \pm 0.015$	$y=0.352 \pm 0.015$

2.8.2.3 Panel inspection (luminance / color coordination / defect)

- (1) Luminance and color coordination

Input the confirmation timing with signal generator, and set the picture pattern to full white (0.7Vp-p). Measure the luminance and color coordination with a luminance meter, and confirm that the values are as shown below.

For measuring of optical parameters, carry out the measurement where there is little effect from outer light (in a dark room, etc.), and the panel should be heated run for 30 minutes or more.



* The size of each point is 25mm x 25mm

Mode	Definition	Color setting	Contrast	Bright	Criterion
Contrast ratio	Full white/Full black luminance at point A	NATIVE	CENTER	MAX	300 or more (*)
White luminance	Full white luminance at point A	NATIVE	CENTER	MAX	240cd/m ² - 350cd/m ²
BRIGHT variable range	Luminance MAX value and MIN value at point A	NATIVE	CENTER	MAX	240cd/m ² or more
				MIN	15cd/m ² to 20% of BRIGHT MAX value (For judgement, 1 minute or more should be passed after BRIGHT was changed.)
Xw	Color coordination at point A (X value)	NATIVE	CENTER	MAX	0.303±/ 0.03 or less
Yw	Color coordination at point A (Y value)	NATIVE	CENTER	MAX	0.313 ±/ 0.03 or less
Black luminance	Full black luminance at point A	NATIVE	CENTER	MAX	1.0cd/m ² or less (*)
Uniformity	Min. value of ①*×100 Max. value of ①* ①*=luminance at points A to E	NATIVE	CENTER	MAX	75% or more

* The criterion of 1cd/m² or less are executed by the blink of the measurement value (the measurement value is regarded as reference).

(2) Liquid crystal picture defect

Input the confirmation timing with signal generator. Visually check the defects in each full mono color pattern of white, black, red, green and blue. Carry out the measurement where there is little effect from outer light (in a dark room, etc.).

Criterion: Must follow the details of "2.9 Liquid crystal display defect standards".

2.9 Liquid crystal display defect standards

2.9.1 Appearance inspection

2.9.1.1 Condition of appearance inspection

- (1) Distance: Approx. 35 cm
- (2) Visual angle: 10 ° for Upper / lower / right / left
- (3) Ambient illumination: 300-500 lx
- (4) Ambient temperature: Approx. 25 °
- (5) Input signal: XGA75Hz

Allowance number: N

Average diameter: ϕ

Length of Foreign debris / scratch: L (mm)

Width of scratch: W (mm)

Diameter: ϕ (mm)

Defects		Standard		Remarks
Appearance Inspection	Circular black dust, contamination	$0.2 < \varphi \leq 0.4$	N 5	*1, *2
		$0.4 < \varphi$	N = 0	
	Foams, peelings on polarizing plate	$0.2 < \varphi \leq 0.5$	N 3	
		$0.5 < \varphi$	N = 0	
	Fibrous dust, contamination	$L \leq 2$ $W \leq 0.1$	N 4	
		$2 < L$ $W \leq 0.1$	N = 0	
		$0.1 < W$	According to the spec. for circular black dust, contamination	
	Liner scratch	$L \leq 10$ $0.01 < W \leq 0.05$	N 4	
		$10 < L$ $0.01 < W$	N = 0	
		$0.05 < W$	N = 0	
	Circular scratch	$0.2 < \varphi \leq 0.5$	N 3	
		$0.5 < \varphi$	N = 0	
Unevenness, stain, undulation on polarizing plate	Unacceptable if it can be seen easily			

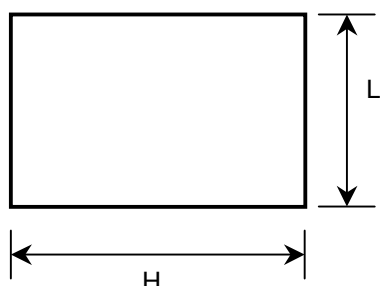
*1: Judgment of the items mentioned above should be carried out within the zone specified in 2.9.2.1 Zone.

*2: The defect beyond average diameter/length should be less than the specified numbers within specified zone.

*3: A dark room or the environment conforming to it should be prepared for the circumferential environment.

2.9.2 Display grade inspection standard

2.9.2.1 Zone



* H and L conform to the (effective) display size mentioned in the specification (304.1 x 228.1 mm).

2.9.2.2 Definition

- (1) Bright dot: Bright dot always seen on the black screen
- (2) Black dot: Black dot seen on the monochromatic white/red/green/ blue screen
- (3) Liner defect (horizontal/vertical): Defect no lighting on the horizontal or vertical line
- (4) Uneven display: The luminance of picture is uneven.

2.9.2.3 Defect standard

Defect item	Size: Dot	Specified value
Dot defect	Bright dot	N 4 (Green: 4)
	Black dot	N 4
	Total defects	N 4
	Continuous 2 defective dots	
	Bright dot	N 2 pair
	Black dot	N 2 pair
	Continuous 3 defective dots	0
	Distance between bright dots	15
	Distance between black dots	15
	Liner defect	0

The definition of bright dot: Bright dot seen through ND filter with 5% permeability on the full black screen

2.10 Confirming the DDC data

Using the service tool confirm that the EDID data is correctly written.

EDID (ex: LCD1535VI for North America)

	ID-SERIAL					YEAR/WEEK MANUFACTURED				
	0 1	0 2	0 3	0 4	0 5	0 6	0 7	0 8	0 9	1 0
0 0 0	0 0	F F	F F	F F	F F	F F	F F	0 0	3 8	A 3
0 1 0	C 8	6 5	A 2	0 B	0 0	0 0	0 1	0 B	0 1	0 3
0 2 0	0 E	1 E	1 7	7 8	E E	C 6	A 4	9 E	5 7	4 A
0 3 0	9 9	2 6	1 9	4 F	5 7	B F	E E	0 0	0 1	0 1
0 4 0	0 1	0 1	0 1	0 1	0 1	0 1	0 1	0 1	0 1	0 1
0 5 0	0 1	0 1	0 1	0 1	6 4	1 9	0 0	4 0	4 1	0 0
0 6 0	2 6	3 0	1 8	8 8	3 6	0 0	3 0	E 4	1 0	0 0
0 7 0	0 0	1 8	0 0	0 0	0 0	F D	0 0	3 2	4 B	1 E
0 8 0	3 C	0 8	0 0	0 A	2 0	2 0	2 0	2 0	2 0	2 0
0 9 0	0 0	0 0	0 0	F C	0 0	4 E	4 5	4 3	2 0	4 C
1 0 0	4 3	4 4	3 1	3 5	3 5	3 0	5 8	0 A	0 0	0 0
1 1 0	0 0	F F	0 0	3 5	3 1	3 2	4 1	3 0	3 2	3 9
1 2 0	3 7	3 8	0 A	2 0	2 0	2 0	0 0	* *		

CLOCK/FREQUENCY

MONITOR NAME

SERIAL NUMBER

The above data shows as follows.

"ID-SERIAL" = 2978

"YEAR/WEEK MANUFACTURED" = 1st week of 2001

"CLOCK/FREQUENCY" = VERTICAL (MIN) 50Hz, VERTICAL (MAX) 75Hz, HORIZONTAL (MIN) 30kHz, HORIZONTAL (MAX) 60kHz, CLK (MAX) 80MHz

"MONITOR NAME" = NEC LCD1535VI

"SERIAL NUMBER (S/N)" = 512A02978*

* NEC serial number system should be applied for SERIAL NUMBER (S/N).

Lower 5 digits of S/N → converted to hex. Numbers → registered in ascending order
Upper 3 digits of S/N → 0 (according to VESA standard)

(ex.) 512A02978 → 00000BA2 → EEPROM

Address (H)	Data (H)
0C	A2
0D	0B
0E	00
0F	00

[ASCII conversion]

Using the barcode system read the serial numbers (9 digits) assigned at NMV (Nagasaki), then convert them as follows to establish.

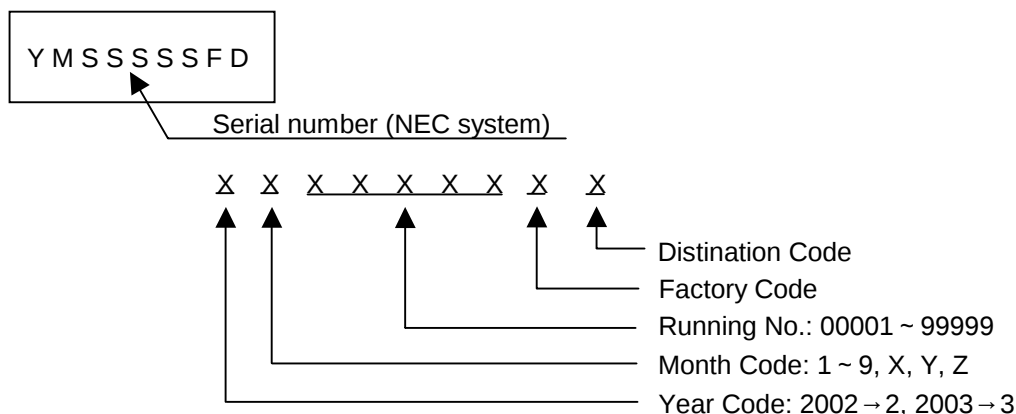
S/N → converted to ASCII code → registered (to MonitorDescriptor#4) in descending order

(ex.) 512A02978 → 35 31 32 41 30 32 39 37 38 → EEPROM

Address (H)	Data (H)
71	35
72	31
73	32
74	41
75	30
76	32
77	39
78	37
79	38
7A	0A → shows the end of S/N data*
7B	20 → shows blank*
7C	20 → shows blank*
7D	20 → shows blank*

*Fixed data (set according to the number of digits of S/N)

Serial number system (reference)



2.11 Outgoing inspection

2.11.1 OSM default setting

Confirm that the OSM setting values are as shown below before outgoing.

<OSM default setting>	
Menu	for NORTH AMERICA/EUROPE
BRIGHTNESS	MAX (255)
CONTRAST	CENTER (128)
SHARPNESS	CENTER (64)
AccuColor	NATIVE
R	0
Y	0
G	0
C	0
B	0
M	0
S	0
DVI SELECTION	DIGITAL
LANGUAGE	ENGLISH
OSM H-POSITION	CENTER (50)
OSM V-POSITION	CENTER (50)
OSM TURN OFF	45SEC
OSM LOCK OUT)	OFF
RESOLUTION NOTIFIER	OFF
URL	WWW. NECMITSUBISHI. COM
MODEL NAME	LCD1535VI

2.11.2 Default setting of power switch

Confirm that the following power switches are set as follows.

- (1) VACATION SW (side face): ON.
- (2) Power SW (front): OFF.

2.11.3 Checking the labels, etc.

"Rating nameplate", etc. must be attached at the designated positions.

2.11.4 Displaying the operation time

Reset the power operation time display in FACTORY1.

- (1) Executes ON TIME RESET.
- (2) Executes TOTAL TIME RESET.

2.11.5 Packaging specifications

- (1) There must be no remarkable contamination or scratching, etc., and the grille of DVI-I connector has no chipping off.
- (2) The type name must be accurately displayed.
- (3) The Serial No. must be attached (it must be the same No. as the set).
- (4) All accessories (such as set-up seat, signal cable, power cord, accessory) should be prepared.
- (5) The unit must be accurately sealed.

2.12 Timing chart

<Preset Timing List>

No.	Timing name	Dot clock (MHz)	Horizontal						Vertical						HS/VS Polarity	Preset
			Frequency Fh (KHz)	Period Th (μ S)	Sync. pulse Ths (μ S)	Front porch Thf (μ S)	Back porch Thb (μ S)	Display time Thd (μ S)	Frequency FV (Hz)	Period Tv (ms)	Sync. pulse Tvs (ms)	Front porch Tvf (ms)	Back porch Tvb (ms)	Display time Tvd (ms)		
1	MAC13	30.24	35.00 (Dots)	28.57 864	2.12 64	2.12 64	3.17 96	21.16 640	66.67 (Lines)	15.00 525	0.09 3	0.09 3	1.11 39	13.71 480	N, N	○
2	MAC16	57.24	49.70 (Dots)	20.13 1152	1.12 64	0.56 32	3.91 224	14.54 832	74.52 (Lines)	13.42 667	0.06 3	0.02 1	0.78 39	12.56 624	N, N	○
3	VGA350	25.175	31.47 (Dots)	31.78 800	3.81 96	0.64 16	1.91 48	25.42 640	70.08 (Lines)	14.27 449	0.06 2	1.18 37	1.91 60	11.12 350	P, N	○
4	VGA60	25.175	31.47 (Dots)	31.78 800	3.81 96	0.64 16	1.91 48	25.42 640	59.94 (Lines)	16.68 525	0.06 2	0.32 10	1.05 33	15.25 480	N, N	●
5	VGA75	31.50	37.50 (Dots)	26.67 840	2.03 64	0.51 16	3.81 120	20.32 640	75.00 (Lines)	13.33 500	0.08 3	0.03 1	0.43 16	12.80 480	N, N	○
6	VESA720	28.32	31.47 (Dots)	31.78 900	3.81 108	0.64 18	1.91 54	25.42 720	70.08 (Lines)	14.27 449	0.06 2	0.41 13	1.08 34	12.71 400	N, P	●
7	SVGA56	36.00	35.16 (Dots)	28.44 1024	2.00 72	0.67 24	3.56 128	22.22 800	56.25 (Lines)	17.78 625	0.06 2	0.03 1	0.63 22	17.07 600	P, P	○
8	SVGA60	40.00	37.88 (Dots)	26.40 1056	3.20 128	1.00 40	2.20 88	20.00 800	60.32 (Lines)	16.58 628	0.11 4	0.03 1	0.61 23	15.84 600	P, P	○
9	SVGA72	50.00	48.08 (Dots)	20.80 1040	2.40 120	1.12 56	1.28 64	16.00 800	72.19 (Lines)	13.85 666	0.12 6	0.77 37	0.48 23	12.48 600	P, P	○
10	SVGA75	49.50	46.88 (Dots)	21.33 1056	1.62 80	0.32 16	3.23 160	16.16 800	75.00 (Lines)	13.33 625	0.06 3	0.02 1	0.45 21	12.80 600	P, P	●
11	XGA60	65.00	48.36 (Dots)	20.68 1344	2.09 136	0.37 24	2.46 160	15.75 1024	60.00 (Lines)	16.67 806	0.12 6	0.06 3	0.60 29	15.88 768	N, N	○
12	XGA70	75.00	56.48 (Dots)	17.71 1328	1.81 136	0.32 24	1.92 144	13.65 1024	70.07 (Lines)	14.27 806	0.11 6	0.05 3	0.51 29	13.60 768	N, N	○
13	XGA72	78.08	58.10 (Dots)	17.21 1344	1.72 134	0.33 26	2.05 160	13.11 1024	72.08 (Lines)	13.87 806	0.10 6	0.05 3	0.50 29	13.22 768	N, N	○
14	XGA75	78.75	60.02 (Dots)	16.66 1312	1.22 96	0.20 16	2.23 176	13.00 1024	75.03 (Lines)	13.33 800	0.05 3	0.02 1	0.47 28	12.80 768	P, P	●
15	XGA60	65.00	48.36 (Dots)	20.68 1344	2.09 136	0.37 24	2.46 160	15.75 1024	60.00 (Lines)	16.67 806	0.12 6	0.06 3	0.60 29	15.88 768	P, P	○
16	VGA73	31.5	37.86 (Dots)	26.41 832	1.27 40	0.76 24	4.06 128	20.32 640	72.81 (Lines)	13.73 520	0.08 3	0.24 9	0.74 28	12.68 480	N, N	
17	SUN	70.49	52.45	19.04 1344	1.93 136	0.34 24	1.27 160	14.53 1024	65.07	15.37 806	0.11 6	0.06 3	0.55 29	14.64 768	P, N	○
18	PAL	27	31.25	32 864	3.59 97	1.74 47	0.7 19	25.95 700	50	20 625	0.393 12	1.13 35	0.072 2	18.4 575	N, N	●
S/G evaluation	S/G35	30.24	35	28.571 864	3.5 106	1.891	4.0 121	19.18 580	66.70	15.0 525	0.086 3	1.485	2.00 70	11.428 400	S/G	●
Composite estimation	SUN57	74.25	56.59 (Dots)	17.67 1312	1.83 136	0.22 16	1.83 136	13.79 1024	70.04 (Lines)	14.28 808	0.106 6	0.035 2	0.57 32	13.57 768	N, P	●
Frequency over limit	72K90	100.00	72.67 (Dots)	13.76 1376	1.28 128	0.32 32	1.92 192	10.24 1024	90.50 (Lines)	11.05 803	0.04 3	0.014 1	0.427 31	10.57 768	N, N	
Frequency under limit		21.053	24.83 (Dots)	40.28 848	3.04 64	2.8 59	4.04 85	30.4 640	41.38 (Lines)	19.33 600	0.322 8	2.376 59	0.52 13	16.112 400	N, N	

* ● of the preset shown in the above table indicates the timing for confirmation.

2.13 OSM display matrix

<User mode>

Level	OSM item	-	+	Setting or circuit operation	Adjustment range	Default value
1	BRIGHTNESS	Darkens	Brightens	Modulates inverter (back light)	0-MAX	MAX
	CONTRAST	Small	Large	Changes output data with digital contrast	0-MAX	CENTER
	CONTRAST (AUTO)	Executes		Automatically adjusts contrast	—	—
2(*2)	AUTO ADJUST	Executes		Automatically adjusts H.position, V.position, clock and clock phase	—	—
3(*2)	LEFT/RIGHT	Moves to the left	Moves to the right	Changes horizontal image position to where image data taken (Adjustment of horizontal position)	0-MAX	Optional
	DOWN/UP	Moves down	Moves up	Changes vertical image position to where image data taken (Adjustment of vertical position)	0-MAX	Optional
	H. SIZE	Narrows to the left	Expands to the right	Changes setting of PLL dividing ratio (Adjustment of Clock)	0-MAX	Optional
	FINE	Changes flickering of the picture		Changes clock phase (Adjustment of Clock phase)	0-MAX	Optional
4	CUSTOMIZE (AccuColor)	—		Selects Color1/Color2/Color3/sRGB/Color5/Native	—	NATIVE
	COLOR 1	Changes to lower color temperature	Changes to higher color temperature	Changes color temperature	5000K-9600 K	9300K
	COLOR 2	Changes to lower color temperature	Changes to higher color temperature	Changes color temperature	5000K-9600 K	8200K
	COLOR 3	Changes to lower color temperature	Changes to higher color temperature	Changes color temperature	5000K-9600 K	7500K
	sRGB	—	—	sRGB	—	sRGB
	COLOR 5	Changes to lower color temperature	Changes to higher color temperature	Changes color temperature	5000K-9600 K	5000K
	NATIVE	—	—	Panel color temperature	—	Panel color temp
	R (RED)	Gets closer to Magenta	Gets closer to Yellow	Operates color conversion function	-100 to 100	0
	Y (YELLOW)	Gets closer to Red	Gets closer to Green	Operates color conversion function	-100 to 100	0
	G (GREEN)	Gets closer to Yellow	Gets closer to Cyan	Operates color conversion function	-100 to 100	0
	C (CYAN)	Gets closer to Green	Gets closer to Blue	Operates color conversion function	-100 to 100	0
	B (BLUE)	Gets closer to Cyan	Gets closer to Magenta	Operates color conversion function	-100 to 100	0
	M (MAGENDA)	Gets closer to Blue	Gets closer to Red	Operates color conversion function	-100 to 100	0
	S (SATURATION)	Color lights	Color deepens	Operates color conversion function	-100 to 100	0
5	SHARPNESS	Soft	Hard	Adjusts horizontal outline enforcement register of ASIC	0-MAX	CENTER
	EXPANSION MODE H.EXPANSION	Narrows to the horizontal direction	Expands to the horizontal direction	Changes pixel number for taking picture data	0-MAX	Optional
	EXPANSION MODE V.EXPANSION	Narrows to the vertical direction	Expands to the vertical direction	Changes line number for taking picture data	0-MAX	Optional
	DVI SELECTION	Enters into sub menu		Selects DIGITAL/ANALOG	—	DIGITAL

6	LANGUAGE	Enters into sub menu		Selects language used at OSM pictures: 7 languages	—	ENGLISH
	OSM POSITION (LEFT/RIGHT)	Moves to the left	Moves to the right	Changes OSM display position horizontally	0-MAX	CENTER
	OSM POSITION (DOWN/UP)	Moves down	Moves up	Changes OSM display position vertically	0-MAX	CENTER
	OSM TURN OFF	Enters into sub menu		Select how long the monitor waits after the last touch of a button to shut off OSM control menu. The preset choices are 10, 20, 30, 45, 60 and 120 seconds.	—	45 SEC
	OSM LOCK OUT	Enters into sub menu		Locks out / cancels OSM control (Press both control keys for LOCK OUT, then press both control keys again for cancel.)	—	Cancel
	RESOLUTION NOTIFIER	Enters into sub menu		Select RESOLUTION NOTIFIER ON/OFF	—	OFF
	FACTORY PRESET	Executes		Resets all OSM control settings back to the factory settings	Except for LANGUAGE	—
7	DISPLAY MODE	Executes		Indicates information about input timing used, etc.	—	—
	MONITOR INFO.	Executes		Indicates model name and serial number	—	—

<Factory mode>

Level	OSM item	-	+	Setting or circuit operation	Adjustment range	Default value
1	BRIGHTNESS	Darkens	Brightens	Modulates inverter (back light)	BRIGHT_MIN. ~ BRIGHT_MAX.	BRIGHT_MAX
	CONTRAST	Small	Large	Changes output data with digital contrast	30-225	128
	CONTRAST (AUTO)	Executes		Automatically adjusts contrast	—	—
2(*2)	AUTO ADJUST	Executes		Automatically adjusts H.position, V.position, clock and clock phase	—	—
3(*2)	LEFT/RIGHT	Moves to the left	Moves to the right	Changes horizontal image position to where image data taken (Adjustment of horizontal position)	512-1023	*1
	DOWN/UP	Moves down	Moves up	Changes vertical image position to where image data taken (Adjustment of vertical position)	10-100	*1
	H. SIZE	Narrows to the left	Expands to the right	Changes setting of PLL dividing ratio (Adjustment of Clock)	0-255	*1
	FINE	Changes flickering of the picture		Changes clock phase (Adjustment of Clock phase)	0-31	*1
4	CUSTOMIZE (AccuColor)	—		Selects Color1/Color2/Color3/sRGB/Color5/Native	—	NATIVE
	COLOR 1	Changes to lower color temperature	Changes to higher color temperature	Changes color temperature	5000K-9600K	9300K
	COLOR 2	Changes to lower color temperature	Changes to higher color temperature	Changes color temperature	5000K-9600K	8200K
	COLOR 3	Changes to lower color temperature	Changes to higher color temperature	Changes color temperature	5000K-9600K	7500K
	sRGB	—	—	sRGB	—	sRGB
	COLOR 5	Changes to lower color temperature	Changes to higher color temperature	Changes color temperature	5000K-9600K	5000K
	NATIVE	—	—	Panel color temperature	—	Panel color temp.
	R (RED)	Gets closer to Magenta	Gets closer to Yellow	Operates color conversion function	-100 to 100	0
	Y (YELLOW)	Gets closer to Red	Gets closer to Green	Operates color conversion function	-100 to 100	0
	G (GREEN)	Gets closer to Yellow	Gets closer to Cyan	Operates color conversion function	-100 to 100	0
	C (CYAN)	Gets closer to Green	Gets closer to Blue	Operates color conversion function	-100 to 100	0
	B (BLUE)	Gets closer to Cyan	Gets closer to Magenta	Operates color conversion function	-100 to 100	0
	M (MAGENDA)	Gets closer to Blue	Gets closer to Red	Operates color conversion function	-100 to 100	0
	S (SATURATION)	Color lights	Color deepens	Operates color conversion function	-100 to 100	0
5	SHARPNESS	Soft	Hard	Adjusts horizontal outline enforcement register of ASIC	0-127	64
	EXPANSION MODE H.EXPANSION	Narrows to the horizontal direction	Expands to the horizontal direction	Changes pixel number for taking picture data	—	*1
	EXPANSION MODE V.EXPANSION	Narrows to the vertical direction	Expands to the vertical direction	Changes line number for taking picture data	1 to 2 time(s)	*1
	DVI SELECTION	Enters into sub menu		Selects DIGITAL/ANALOG	—	DIGITAL

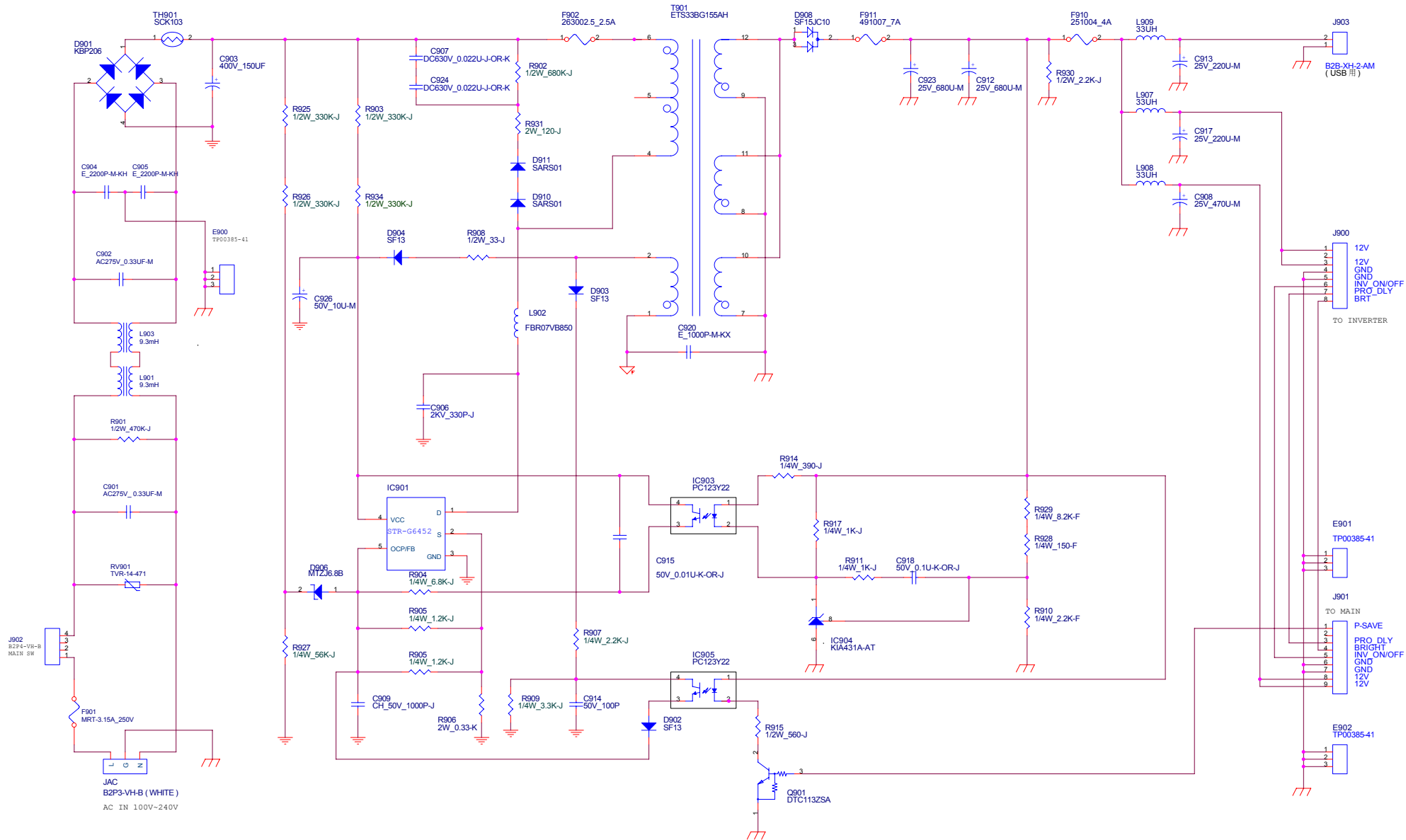
6	LANGUAGE	Enters into sub menu		Selects language used at OSM pictures: 7 languages	—	ENGLISH
	OSM POSITION (LEFT/RIGHT)	Moves to the left	Moves to the right	Changes OSM display position horizontally	0-100	50
	OSM POSITION (DOWN/UP)	Moves down	Moves up	Changes OSM display position vertically	0-100	50
	OSM TURN OFF	Enters into sub menu		Select how long the monitor waits after the last touch of a button to shut off OSM control menu. The preset choices are 10, 20, 30, 45, 60 and 120 seconds.	—	45 SEC
	OSM LOCK OUT	Enters into sub menu		Locks out / cancels OSM control (Press both control keys for LOCK OUT, then press both control keys again for cancel.)	—	Cancel
	RESOLUTION NOTIFIER	Enters into sub menu		Select RESOLUTION NOTIFIER ON/OFF	—	OFF
	FACTORY PRESET	Executes		Resets all OSM control settings back to the factory settings	Except for LANGUAGE	—
7	DISPLAY MODE	Executes		Indicates information about input timing used, etc.	—	—
	MONITOR INFO.	Executes		Indicates model name and serial number	—	—
8	BRIGHT LIMIT MIN.	Darkens	Brightens	Decides under limit of variable range	30 to BRIGHT LIMIT MAX.	30
	BRIGHT LIMIT MAX.	Darkens	Brightens	Decides upper limit of variable range	100-220	220
	BIAS	Executes		Automatically adjusts RGB clamp voltage	—	—
	GAIN	Executes		Outputs digital data=FFH when 0.7V is input	—	—
	GAMMA OFFSET DIGITAL	Decrements	Increments	Offset adjustment of digital gamma data for black level compensation	-15 to 15	0
	GAMMA OFFSET ANALOG	Decrements	Increments	Offset adjustment of analog gamma data for black level compensation	-15 to 15	0
	PLL LOCK EDGE	FRONT / BACK / RISE / FALL AUTO		Appoints basic sync. signal edge	—	FRONT
	PCLK	32.5MHz	35.0 MHz 37.5MHz	Switches panel lock	32.5 - 37.5	35.0
	SERVICE INF.	—		Indicates lamp operation time, MPU operation time and MPU version	—	—
	ON TIME RESET	Executes		Clears panel operation time	—	0
	TOTAL TIME RESET	Executes		Clears circuit operation time	—	0
	CLKHDLY	Decrements	Increments	Micro adjustment of H. clock position of signal input to panel	0 - 7	1
	CHANGE SETUP OSD	ON	OFF		—	OFF
	EEP WRITE PROTECT	ON	OFF	EEPROM write protect for EDID Effective: ON Ineffective: OFF Initialize with AC Power OFF of monitor (ON)	—	ON
	POWER SAVE	ON	OFF	Power save mode Effective: ON Ineffective: OFF	—	OFF
	OSD SW	OSM	OSD	OSD indication setting	—	OSM

*1 Setting values are different by timing.

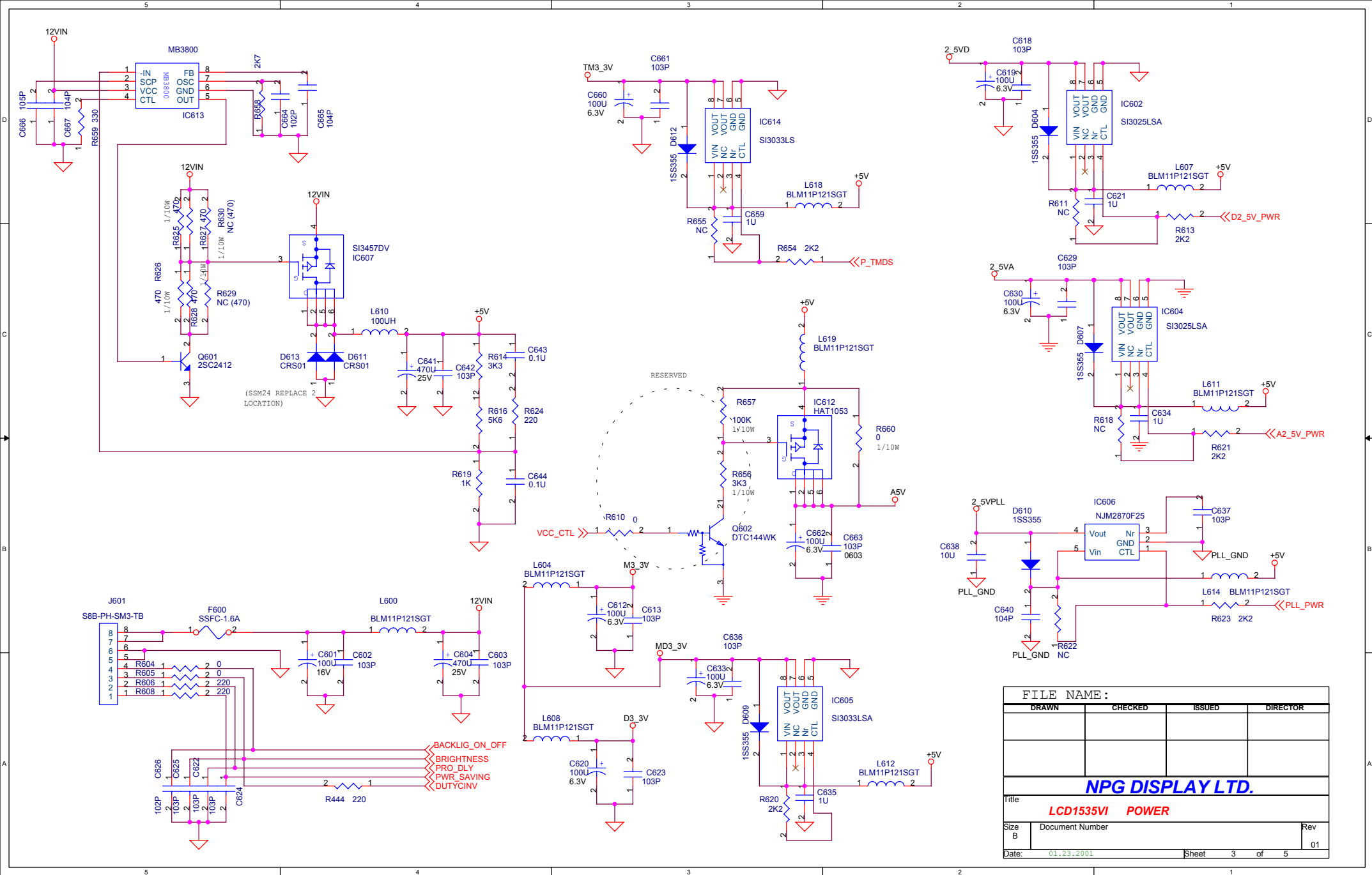
*2 It is available with analog input.

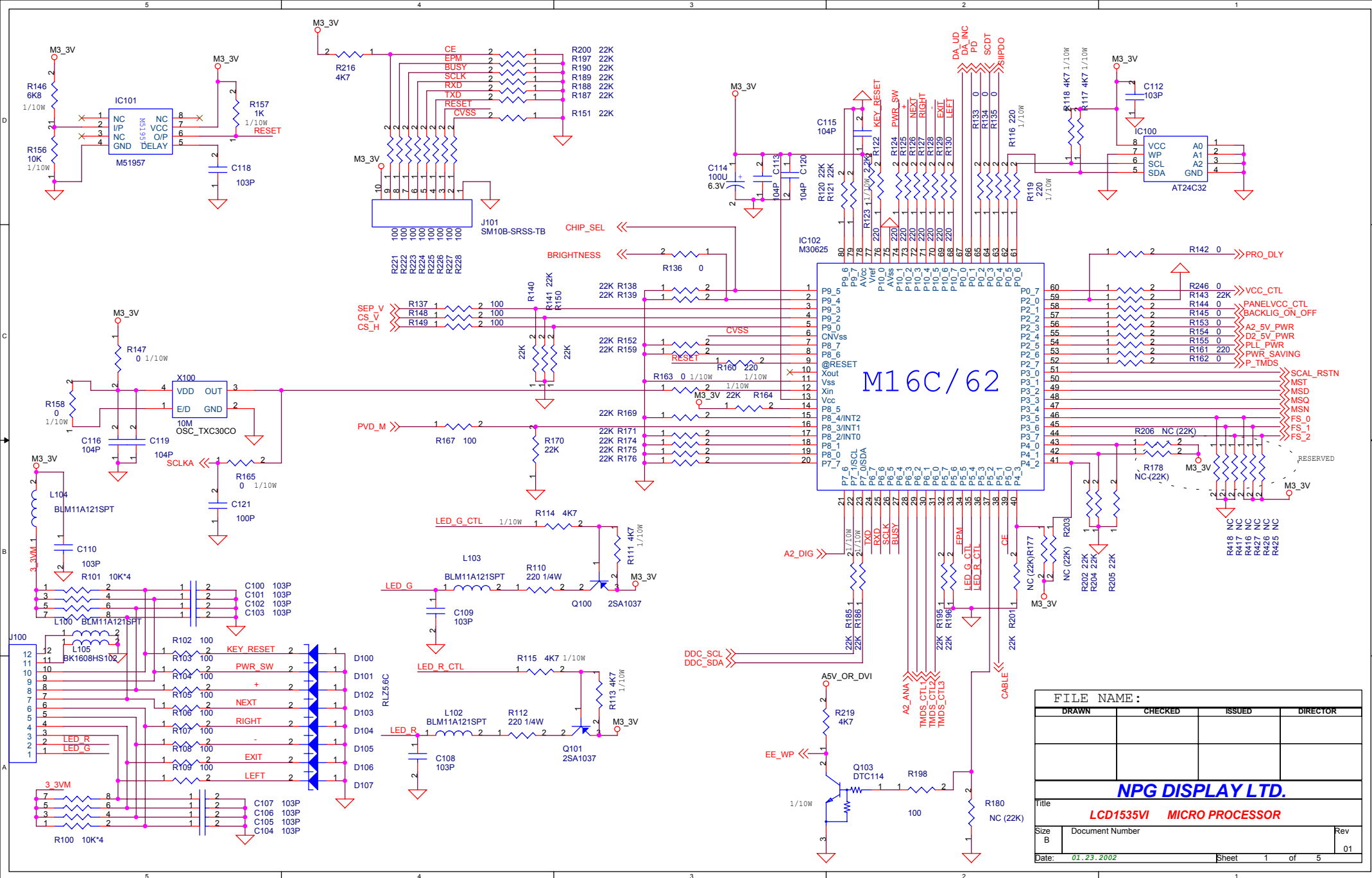
3. Schematic diagram

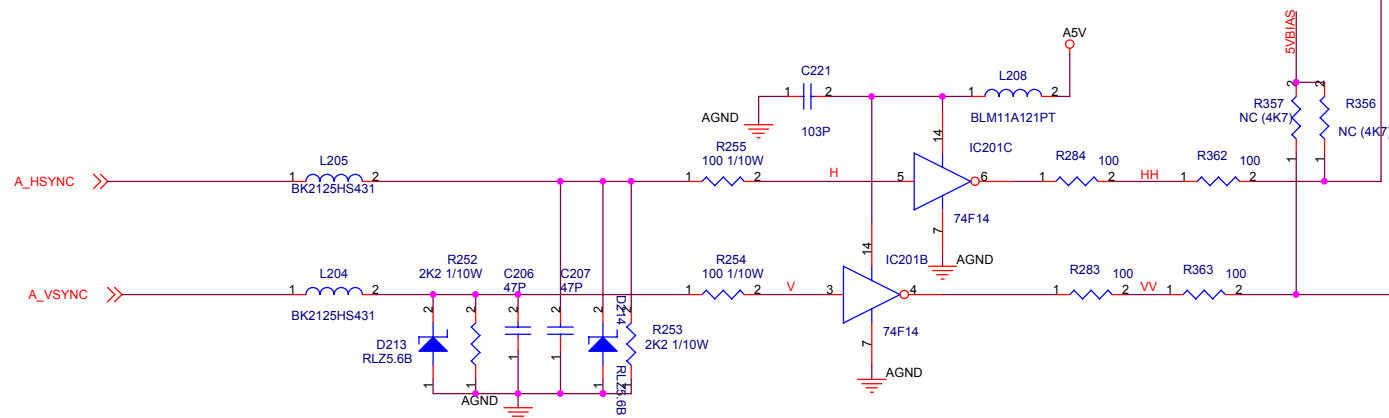
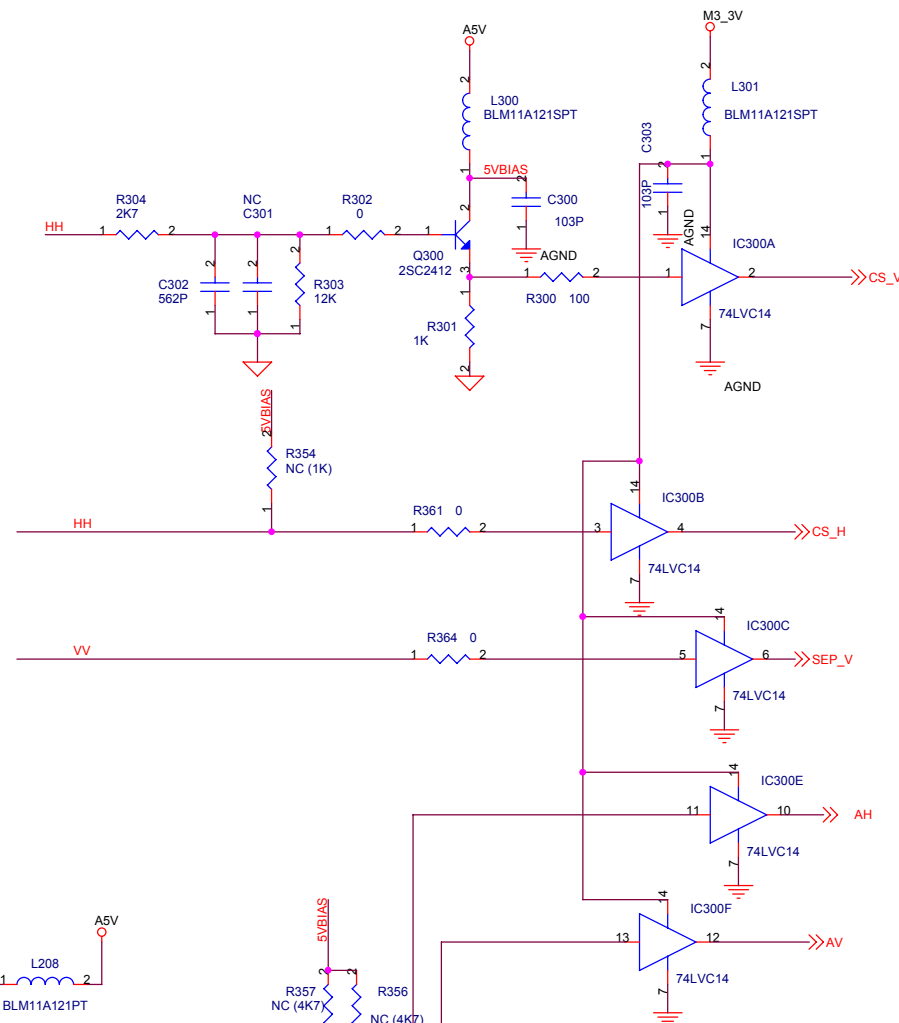
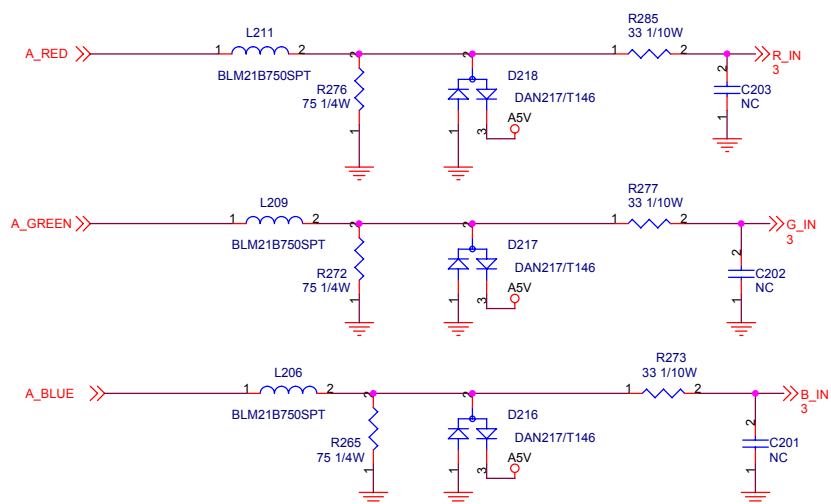
- 1. PWB-POWER (1/2)**
- 2. PWB-POWER (2/2)**
- 3. PWB-PANEL INTERFACE**
- 4. PWB-MICRO PROCESSOR**
- 5. PWB-VGA INPUT**
- 6. PWB-TMDS**
- 7. PWB-INVERTER**
- 8. PWB-SCALER**



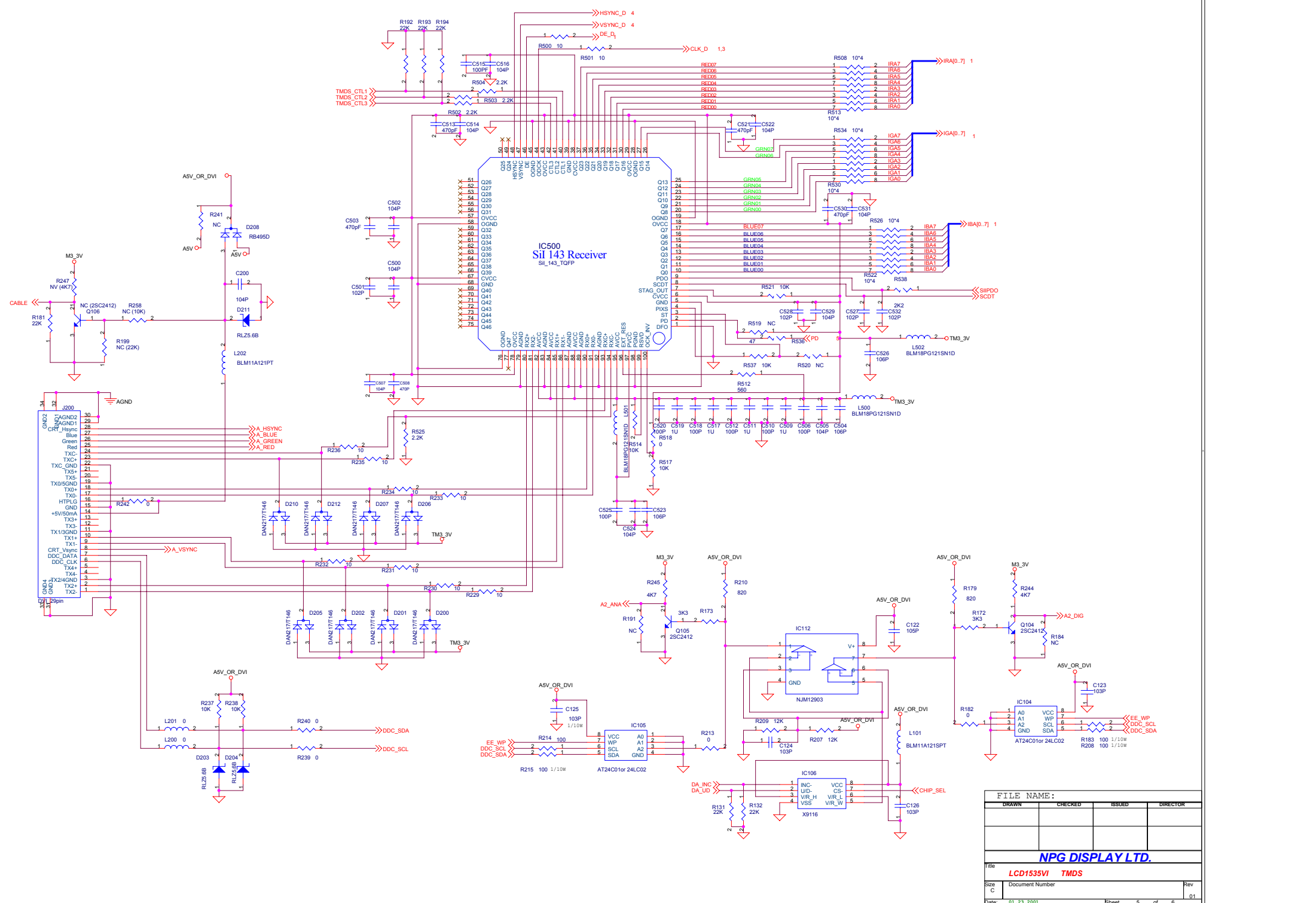
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LCD1535VI POWER			
File			
Size	Document Number	Rev	
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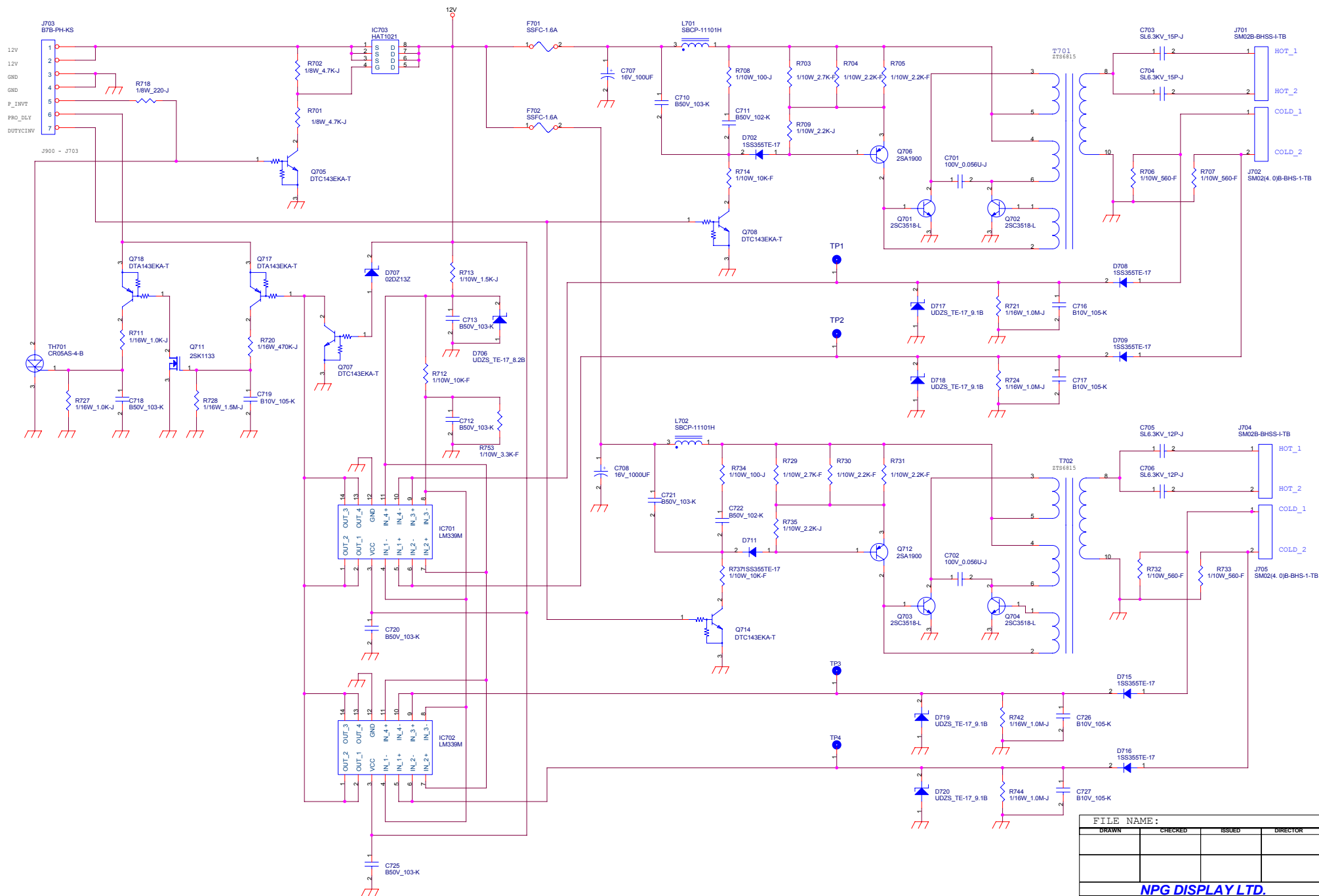




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NPG DISPLAY LTD.			
Title LCD1535VI VGA INPUT			
Size B	Document Number		Rev 01
Date: 01.23.2001	Sheet 5 of 5		



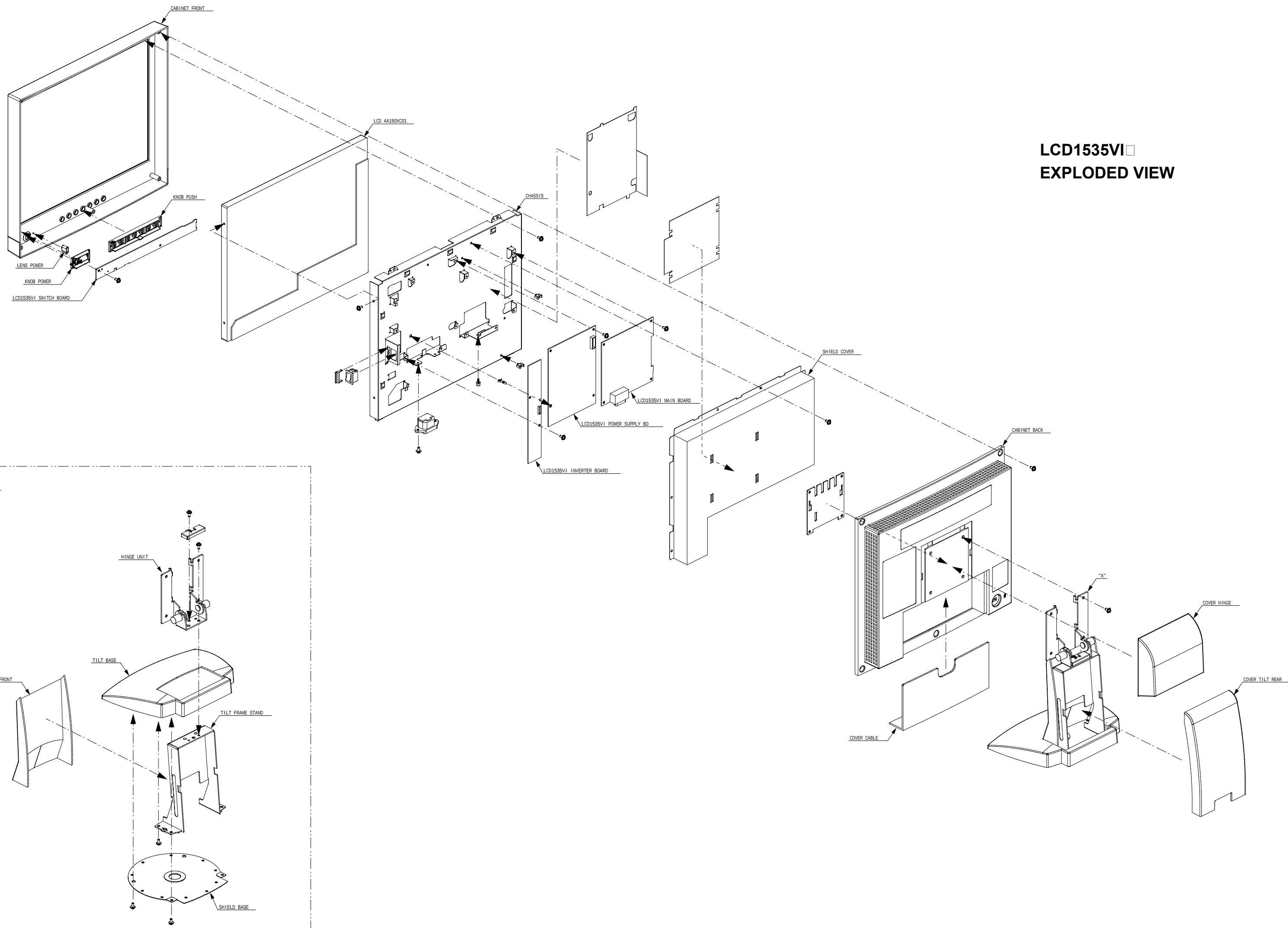
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LCD1535VI TMDs			
File	Document Number	Rev	
Size			
C			
Date:	01.23.2001	Sheet	5 of 6



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NPG DISPLAY LTD.			
LCD1535VI INVERTER			
Size	Document Number	Rev	
C		01	
Date	01.23.2002	Sheet	1 of 2

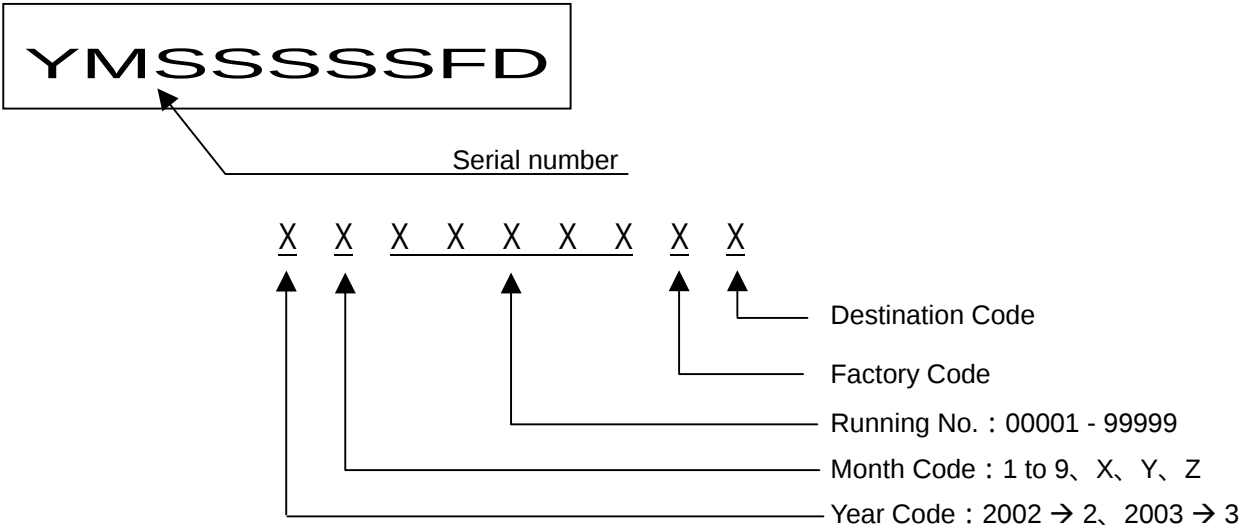
M64539FP

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Title			
LCD1535VI SCALER			
Size	Document Number		Rev
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Date:	01.23.2001		Sheet 4 of 5



"A"部詳細

Serial Number System



ENGINEERING SPECIFICATION

For

Model No : NL1502 (LCD 1535VI)

Panel No : AA150XC01(ADI)



DEPARTMENT	APPROVED BY	DATA
H/W	CC LEE & Kevin. Wang	
F/W	Allen. Lee	
M/E	C. L. Chen	
PMD	Kevin. Wang	
PMM	Ted. Wang	
DQA	T.Fujita / Ku-Yeh	

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	{ 7 } ----- MECHANICAL SPECIFICATION : LCD 1535VI	
	{ 9 } ----- OSM NORMAL FORMAT	

PS: Initial LCD monitor model NL1502 Engineering Specification 0.1ver. 1/23/02

Revision from 0.1ver to 0.2ver appendix files have EDID data and OSM format. 3/8/02

Revision from 0.2ver to 0.3ver appendix files have M/E and package data. 3/12/02

Revision from 0.3ver to 0.31ver appendix files have M/E and package data. 3/18/02

Revision from 0.31ver to 0.32ver appendix files have M/E and package data(Font). 3/25/02

1. SCOPE

The NPG NL1502 (TFT with analog or digital signal input) is a high resolution (max. resolution (1024 X 768) color LCD monitor which uses 15" high contrast TFT-LCD panel.

This monitor supplies user with following features:

- On Screen Display adjustment function
- Multi-sync process
- DPMS power saving function
- VESA standard compatible ME design
- **Tilt** function of display panel
- Plug & Play (DDC2B,) function
- Auto Adjustment function (Analog input only)
- Support sRGB function
- The NL1502 TFT color monitor dual input technology allowing both analog and digital inputs of one connect (DVI-I).
Provides tradition Multi-Sync technology compatibility for analog as well as TMDS based digital compatibility for digital inputs.

2. MAIN CHARACTERISTICS

2.1 LCD PANEL:

LCD panel: 15", color TFT-LCD

Model no.: ADI AA150XC01

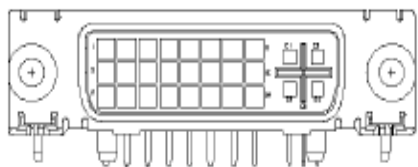
PARAMETER	SPECIFICATIONS		UNIT
1.DISPLAY SIZE	304.1(H) X 228.1(V)		mm
2.ACTIVE AREA	15.0 (Diagonal)		inch
3.VIEW ANGLE RANGE	H	R/L 75°(Typ.), 75° (Typ.)	Deg.
	V	Up/Down 50°(Typ.), 60°(Typ.)	
4.PIXEL FORMAT	1024(H)X768(V)		pixel
	(1 pixel = R+G+B dots)		
5.PIXEL PITCH	0.297(H) X0.297 (V)		mm
PIXEL CONFIGURATION	R, G, B vertical stripe		
DISPLAY MODE	Normally white		
UNIT OUTLINE DIMENSIONS	326(W) X255 (H) X15.5 (D)		mm
WEIGHT	1350(Max.)		g
SURFACE TREATMENT	Anti-glare, LR-coating and hard-coating3H		
CONTRAST RATIO	450:1(Typ.)/ 300:1(Min.)		
DISPLAY COLOR	8bit 16.77 million color		
BRIGHTNESS	300(Typ.)		cd/m ²
RESPONSE TIME	25(Typ.) (Tr:6 ; Tf:19 ms)		ms
COLOR TEMPERATURE	White X=0.303±0.03 ,Y=0.313±0.03		

2.2 SIGNAL INPUT CABLE:

High-density [see mechanical specifications](#) DVI –I to15 pins “D-SUB” type,
male connector cable.

2.3 VIDEO SIGNAL : INPUT DIGITAL SIGNAL

Pin No	Signal Name	Pin No	Signal Name
1.	T.M.D.S. Data 2 -	16.	Hot Plug Detect
2.	T.M.D.S. Data 2+	17.	T.M.D.S. Date 0 -
3.	T.M.D.S. Data 2 Shield	18.	T.M.D.S. Date 0 +
4.	N.C.	19.	T.M.D.S. Data 0 Shield
5.	N.C.	20.	N.C.
6.	DDC Clock	21.	N.C.
7.	DDC Data	22.	T.M.D.S. Data Clock Shild
8.	Analog Vertical Sync	23.	T.M.D.S. Data Clock +
9.	T.M.D.S. Data 1 -	24.	T.M.D.S. Data Clock -
10.	T.M.D.S. Data 1 +	C1	Analog RED
11.	T.M.D.S. Data 1 Shield	C2	Analog GREEN
12.	N.C.	C3	Analog BLUE
13.	N.C.	C4	Analog horizontal Sync
14.	+5V Power	C5	Analog Ground
15.	Ground		(Analog R.G.B Return)



DVI Compatible Host Receptacle Connector

Max. 80 MHz bandwidth

Input video voltage range: 0.6~0.95 Vp-p, typ.: 0.7 Vp-p

Impedance: 75 Ω $\pm 5\%$ / 50 pF(max.)

2.4 SCAN FREQUENCY:

Horizontal frequency: 30 ~ 60 kHz

Vertical frequency: 50 ~ 75.1 Hz

Polarity (positive or negative): 2.5V~5V

2.5 MULTI-SYNC PROCESS:

Separate SYNC and H+V SYNC is acceptable.

2.6 VESA STANDARD WALL MOUNTING.

2.7 TILT:

Up/Down: 30°/-5°.

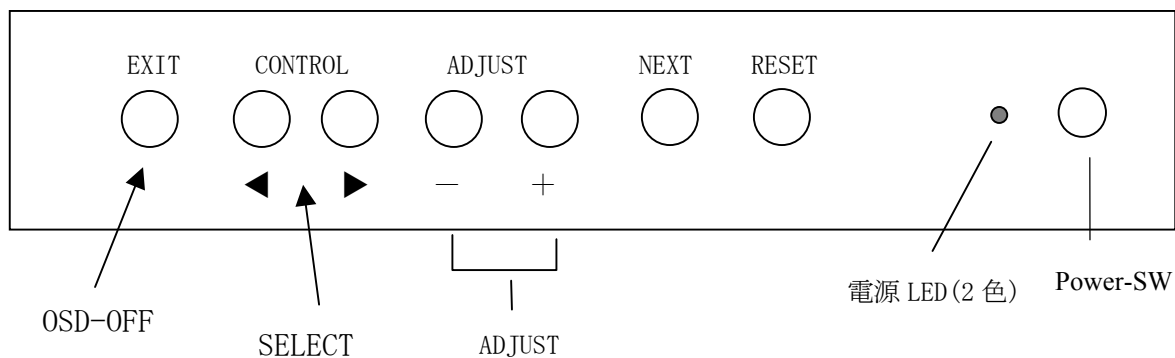
2.8 PLUG & PLAY:

Analog--DDC 2B .

2.9 EXTERNAL CONTROLLER & OUTLET:

Front control key: EXIT , ◀ , ▶ , — , + , NEXT , RESET ,

2.10 OSM CONTROL BUTTONS:



* PRIMARY POWER SWITCH.

2.11 OSM Control :

The various functions are controlled by 7 buttons on the front bezel using OSM(On Screen Manager).

2.12 OSM USER Menu :

Group Menu	Adjustment Item	Description
Bright	Brightness	LCD back light brightness adjustment.
	Contrast	Input video gain adjustment.
	Auto Adjust Contrast (Analog input only)	Automatic Contrast adjustment.
Auto Adjust	Auto Adjust (Analog input only)	Automatically adjust the image position, H.size and fine setting
Position Controls	H-Position	Horizontal position control.
	V-Position	Vertical position control.
	H-Size	Horizontal display size adjustment.
	Fine	Clock Phase adjustment
Color Setting	Color1	Default Color : 9300K / Custom(5000k to 9600k)
	Color2	Default Color : 8200K / Custom(5000k to 9600k)
	Color3	Default Color : 7500K / Custom(5000k to 9600k)
	sRGB	Default Color : 6500K
	Color5	Default Color : 5000K / Custom(5000k to 9600k)
	Native	Panel Native Color
	Color Control	R G B Y M C S
Tool1	Sharpness	Image Enhancement
	Expansion Mode	Expanding image
	VIDEO Detect	Video detection priority
	DVI SELECTION	EDID Data Selection on DVI input
Tool2	Language	OSM menus in Seven languages
	OSD Position	Select the OSD position
	OSM Turn Off	OSM turn off time
	OSM Lock out	OSM control lock
	Resolution Notifier	ON /OFF Selection
	Factory Reset	Reset all OSM control setting s back to the factory setting
Information	Display mode	current resolution, H/V-frequency Information
	Monitor Info	Model name and Serial number information

2.13 AC INPUT POWER:

Max. 264 vac/50 Hz, Min. 90 vac/(50Hz/60 Hz)

Normal 100 V ~ 240 Vac($\pm 10\%$)50/60 Hz

2.14 POWER SAVING FUNCTION

MODE	H-SYNC	V-SYNC	Power CONSUMPTION	LED INDICATOR
NORMAL	WITH	WITH	$\leq 35W$	GREEN
POWER SAVING MODE	WITHOUT	WITH	$< 3W$	AMBER
	WITH	WITHOUT	$< 3W$	AMBER
	WITHOUT	WITHOUT	$< 3W$	AMBER

2.15 COMPATIBLE TIMING CHART:

Mode	Resolution	H-Freq (khz)	V-Freq (hz)	Dot Clock (MHz)	Remark
VESA IBM-AT PC-9800	640 X 480	31.47	60.0	25.175	VGA60
		37.86	72.81	31.5	VGA73
		37.5	75.0	31.5	VGA75
	800 X 600	35.16	56.25	36.0	SVGA56
		37.88	60.32	40.0	SVGA60
		48.8	72.19	50.0	SVGA72
		46.88	75.0	49.5	SVGA75
	1024 X 768	48.36	60.0	65.0	XGA60
		58.1	72.08	78.08	XGA72
US Test	720 X 400	31.47	70.0	28.3	VESA720
PC-9800	640 X 400	35.0	66.7	30.24	MAC13
Power Mac	640 X 480	49.7	74.52	57.24	MAC16
	832 X 624	60.2	75.03	78.75	XGA75
	1024 X 768	48.36	60.0	65	XGA60
Sun Ultra	1024 X 768	52.45	65.07	70.49	
		56.48	70.07	75	XGA70
VGA350	640 X 350	31.47	70.08	25.175	VGA35
PAL	700 X 575	31.25	50	27	PAL

The block diagram illustrates the system architecture of the M64539FP. The central component is the **M64539FP** chip, which is connected to various input and output modules. **Inputs:** **TMD5 INPUT** feeds into the **IC500 Sii 143 TMD5 receiver**, which then connects to the **DIGITAL INPUT INTERFACE**. **VGA R;G;B INPUT** feeds into the **R;G;B ADC**, which connects to the **SCALING** block. **H;V SYNC.** feeds into the **MODE / SYNC. DETECTION** block. **Internal Processing:** The **DIGITAL INPUT INTERFACE** and **SCALING** blocks feed into the **COLOR CORRECTION & GAMMA CORRECT** block. The **MODE / SYNC. DETECTION** block feeds into the **PLL** block. The **PLL** block feeds into the **OSC 10M HZ** block. The **OSC 10M HZ** block feeds into the **MICRO CONTROL** block. The **MICRO CONTROL** block feeds into the **HOST INTERFAC E** block. The **HOST INTERFAC E** block feeds into the **OSD & FONT RAM** block. The **OSD & FONT RAM** block feeds into the **MIXER** block. The **COLOR CORRECTION & GAMMA CORRECT** block feeds into the **MIXER** block. The **MIXER** block feeds into the **OUTPUT INTERFACE** block. The **OUTPUT INTERFACE** block feeds into the **TFT LCD PANEL**. **Power and Timing:** The **OSC 10M HZ** block feeds into the **INVERTER** block. The **INVERTER** block feeds into the **TFT LCD PANEL**. The **OSC 10M HZ** block also feeds into the **2.5V** and **3.3V** voltage regulators. The **2.5V** and **3.3V** regulators feed into the **MICRO CONTROL** block. The **12V & 5V FROM POWER BD.** feeds into the **2.5V** and **3.3V** voltage regulators.

4. POWER SUPPLY

AC Characteristic	Min.	Max.	Comment
Input Voltage	90 Vac	264 Vac	Universal
Line Frequency	47 Hz	63 Hz	
Inrush current	N/A	60A	
Efficiency			Note 1

Note 1: 70%(min.) At full load, 115 V_{ac}/60Hz

DC Output	+12 V	
Current (min.)	45 mA	
Current (max.)	3.3 A	
Ripple & Noise	120 mA	Note 1
Regulation	5%	Note 1
Over Voltage Protection	15.6 V	
Shot Circuit Protection	Yes	
DC Power ON Rise Time	<100 ms	Full Load
Overshoot	13.2 V	
Hold Up Time	16 ms	115 v _{ac} / 60Hz/Full Load

Note 1: The ripple and regulation shall be maintained in the SPEC for all combinations of below condition:

- Min. & Max. Output current.
- Min. & Max. AC input voltage.
- Min. & Max. AC input frequency.

5. FUNCTIONAL QUALITY

* Measurement shall be executed 30 minutes after turning on and $25^{\circ}\text{C} \pm 5^{\circ}\text{C}$ ambient temperature. **Input at XGA 75Hz** (Detail specification, please refer to panel specification)

5.1 CONTRAST RATIO (CR)

Typical: CR = **450:1** at $\theta = \Phi = 0$

$$\text{CR} = \frac{\text{LUMINANCE ALL PIXELS "WHITE"}}{\text{LUMINANCE ALL PIXELS "BLACK"}}$$

5.2 VIEWING ANGLE RANGE (MIN.)

$\text{CR} \geq 10$ Φ_x (left/right): Typical ($-75^{\circ} / 75^{\circ}$) θ_y (up/down): Typical ($-60^{\circ} / 50^{\circ}$)

$\text{CR} \geq 5$ Φ_x (left/right): Typical ($-80^{\circ} / 80^{\circ}$) θ_y (up/down): Typical ($-80^{\circ} / 70^{\circ}$)

5.3 RESPONSE TIME (TYP.)

$t_r = 6\text{ms}$

$t_f = 19\text{ms}$

5.4 MODULE CHROMATICITY OF WHITE (COLOR TEMPERATURE)

ADI	Wx	0.303(Typ.)
	Wy	0.313(Typ.)

5.5 BRIGHTNESS ($I_L = 6.5 \text{ mA}$):

ADI	300(Typ.)/240(Min.)
-----	---------------------

Unit: cd/m^2

* The values shall be measured at center of screen.

5.6 BRIGHTNESS UNIFORMITY ΔL_w

Minimum: $\Delta L_w =$

ADI	75%
-----	-----

$$\Delta L_w = \frac{\text{MIN} \cdot \text{LUMINANCE OF 5 POINTS}}{\text{MAX} \cdot \text{LUMINANCE OF 5 POINTS}} \times 100\%$$

* White uniformity is defined as the following with 5 measurements.

6. RELIABILITY REQUEST

6.1 INPUT POWER

Voltage change 90 to 264 Vac
90 to 264 Vac (for testing)
Input Frequency 47 to 53 Hz , 57 to 63 Hz
Instantaneous Power Drop Min. 10 ms
Slow-up & Slow-down 0 to 264 Vac , 10V/sec

6.2 IMMUNITY

Lightning Surge +/- 2kV IEC1000-4-5
Power Line Noise +/- 4kV IEC1000-4-4
Electrostatic Test +/- 4kV Contact IEC1000-4-2
+/- 8kV Air IEC1000-4-2

6.3 MECHANICAL

Packaged Drop test 90 cm (7.5kg) 1-corner,3-ridge,6-side
Shock test 40G/ half-sine wave
Vibration test level:14.406m/s² rms(for reference)

6.4 SAFETY

High Pot	3KVac/4242Vdc for 1min between AC-in to Signal cable	
	1.5KVdc/2121Vdc between AC-in to metal parts as ground	
Insulation Resistance	500Vdc / over than 10M ohm	
Leakage Current	Less than 0.2mA (Ac 110V), Less than 3.5mA (Ac 254V)	
Abnormal test (Open-Short)	Non Fire , Non Smoke	
Thermal Profile	Surface of cabinet:	Less than delta T=35°C
	Parts & Unit :	Must be less than temp. spec. of each parts &units
Capacitance Discharge	Under 5V on 1 min. from open Test condition :100VAc	

6.5 TEMPERATURE AND HUMIDITY

Operation	Low temp	5°C	5H
	High temp	35°C	5H, 100%Vac
	High temp. & High humi.	35°C/80%	5H
Storage	Low temp.	-20°C	48H
	High temp. & High humi.	60°C,90%	48H
High temperature aging		40°C	240H, 110Vac
High temp. & high humidity aging		40°C,85%	48H
Cold start		Power off 5 hours/under 0°C	
		Number of test times: 10 times	
		Interval time: 3min (ON time 10 sec.)	
Dew test		High pot & Insulation Resistance	

6.6 LIFE

Item	Life	Note
Front Power SW	10,000 times	
Key SW	100,000 times	
Tilt	15,000 times	
AC Inlet	2,000 times	
AC cord winding	2,000 times	“DENTORI” conforming
VGA cable CN	200 times	
VGA cable winding test	200 times	Weight: 500g
		Angle: 60° each side

6.7Vibration test(Packing)

Swept Sine

Test Axis	3axis
Search Frequency	5~200Hz
Sweep time	2 minutes
Acceleration	4.91m/s ² (0.5G) (zero to peak)
Dwelling time	5 minutes for each resonant point of each 3axis
Mounting	Fixed firmly on the vibration table

Random Vibration

Test Axis	3axis
Search Frequency	5~200Hz
Sweep time	2 minutes
Acceleration	0~14.4m/s ²
Dwelling time	30 minutes
Mounting	Fixed firmly on the vibration table

6.8 Drop test(Packing)

Test Point	Height
1 corner	76cm
3 edges	76cm
1 Top surface	57cm
1 Bottom surface	81.5cm
Other 4 surface	76cm

6.9 EMC/Safety Regulation

Regulations	Country	Logo on rating label of Display
UL-1950 (Safety)	USA	YES
C-UL (Safety)	Canada	YES
FCC part15 classB (EMC)	USA	YES
ICES (EMC)	Canada	YES (Notice)
TUV/GS (Safety & Ergonomics)	Germany	YES
CE-Mark (Safety & EMC)	Germany UK Italia Switzerland Other countries in Europe	YES
Energy Star (Energy Consumption)	USA Australia Japan	NO In use's manual
TCO99 (Ergonomics and others)	Sweden Other countries	YES And TCO label also
PSB (Safety)	Singapore	Pending
C-Tick (EMC)	Australia	YES
Nemko,Ftmko,Semko,Demko (Safety)	Sweden	YES
CB		YES
VCCI Class B	Japan	YES

7. INSPECTION SPECIFICATION

7.1 INSPECTION CONDITION

- 1) Room temperature: $25^{\circ}\text{C} \pm 5^{\circ}\text{C}$ Humidity: $65 \pm 5\%$ RH
- 2) Display-on inspection, visual appearance inspection on screen
The distance between the module and inspector's eyes should be at least 35 cm, and this inspection shall be conducted using the ceiling fluorescent lighting. Illumination intensity on the display surface is about 500 Lux.

7.2 DISPLAY-ON INSPECTION

- 1) With the following display pattern input, a correct display pattern is not obtained. MAJOR
 - A. All dots light up or all dots do not light up.
 - B. Each color of R.G.B.
 - C. Predetermined figure and character pattern
- 2) Vertical line is deficient. MAJOR
- 3) Horizontal line is deficient. MAJOR
- 4) Cross line is deficient. MAJOR

7.3 BLACK/WHITE SPOTS OR R/G/B SPOTS

Same as panel's spec.

7.4 BLACK/WHITE LINES

Same as panel's spec.

7.5 BLACK SPOTS/ WHITE SPOTS

Same as panel's spec.

7.6 SCRATCHES AND DENT ON THE POLARIZER

Same as panel's spec.

7.7 POLARIZE INCLINATION BUBBLES

Same as panel's spec.

7.8 STAINS ON LCD PANEL SURFACE

- Cannot be removed even when wiped lightly with a soft cloth or similar cleaning too. MINOR

8.APPENDIX

APPENDIX I EDID DATA

1. EDID Serial No. Format

1) NL1535VI for the **Analog** EDID data

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
00	00	FF	FF	FF	FF	FF	FF	00	38	A3	D8	65	01	00	00	00
10	08	0C	01	03	6D	1E	17	78	EE	94	F9	A3	55	47	99	24
20	0D	4D	50	BF	EE	00	01	01	01	01	01	01	01	01	01	01
30	01	01	01	01	01	01	C3	1E	00	20	41	00	20	30	10	60
40	13	00	30	E4	10	00	00	1E	00	00	00	FD	00	32	4B	1E
50	3C	08	00	0A	20	20	20	20	20	20	00	00	00	FC	00	4C
60	43	44	31	35	33	35	56	49	5F	41	0A	20	00	00	00	FF
70	00	32	32	30	30	30	30	31	59	42	0A	20	20	20	00	81

Week of Manufacture (Month*4) Serial No.

Year of Manufacture

Serial No Area 9bytes

Check Sum

2.Bar Code Format(code39)

Digit		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Format	*	N	N	N	N	N	N	N	N	N			Y	M	S	S	S	S	S	F	R	*
Example	*	0	1	2	3	4	5	6	7				2	2	0	0	0	0	1	Y	B	*

*+Model Code + 3 spaces + Serial No. + *

Serial No. Descriptions;

Y: Manufactured Year (Last digit) ex. 2 → 2002

M: Manufactured Month 1 ~ 9, X(October),
Y(November), Z(December)

S: Serial No. (5digits) 00001 ~ onward
(restart when month is changed)

F: Factory Code: Y is NPG China Factory

R: Product for the customer code: B: Europe

3.EDID Code Input Procedure

ex.

1) Scan Bar code (20 digits) 01234567 2200001YB

2) Skip 11 digits then find the Serial No. 2200001YB

3) Make Year hex Code from Year digit 2 → 0Ch

4) Make Week hex Code from Month digit 2*4 = 08 → 08h

5) Change Serial No. to ASCII code

32h 32h 30h 30h 30h 30h 31h 59h 42h

- 6) Apply Serial No. Information to the default EDID code.
- 7) Download EDID from PC to Monitor.
- 8) DDC2B Inspection

APPENDIX II EDID DATA

1. EDID Serial No. Format

1) NL1535VI for the **Digital** EDID data

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
00	00	FF	FF	FF	FF	FF	FF	00	38	A3	D8	65	01	00	00	00
10	08	0C	01	03	80	1E	17	78	EE	94	F9	A3	55	47	99	24
20	0D	4D	50	BF	EE	00	01	01	01	01	01	01	01	01	01	01
30	01	01	01	01	01	01	C3	1E	00	20	41	00	20	30	10	60
40	13	00	30	E4	10	00	00	1E	00	00	00	FD	00	32	4B	1E
50	3C	08	00	0A	20	20	20	20	20	20	00	00	00	FC	00	4C
60	43	44	31	35	33	35	56	49	5F	44	0A	20	00	00	00	FF
70	00	32	32	30	30	30	30	31	59	42	0A	20	20	20	00	6D

Week of Manufacture (Month*4) Serial No.

Year of Manufacture

Serial No Area 9bytes

Check Sum

2.Bar Code Format(code39)

Digit		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Format	*	N	N	N	N	N	N	N	N				Y	M	S	S	S	S	S	F	R	*
Example	*	0	1	2	3	4	5	6	7				2	2	0	0	0	0	1	Y	B	*

*+Model Code + 3 spaces + Serial No. + *

Serial No. Descriptions;

Y: Manufactured Year (Last digit) ex. 2 → 2002

M: Manufactured Month 1 ~ 9, X(October),

Y(November), Z(December)

S: Serial No. (5digits) 00001 ~ onward

(restart when month is changed)

F: Factory Code: Y is NPG China Factory

R: Product for the customer code: B: Europe

3.EDID Code Input Procedure

ex.

- 1) Scan Bar code (20 digits) 01234567 2200001YB
- 2) Skip 11 digits then find the Serial No. 2200001YB
- 3) Make Year hex Code from Year digit 2 → 0Ch

4) Make Week hex Code from Month digit $2*4 = 08 \rightarrow 08h$

5) Change Serial No. to ASCII code

32h 32h 30h 30h 30h 30h 31h 59h 42h

6) Apply Serial No. Information to the default EDID code.

7) Download EDID from PC to Monitor.

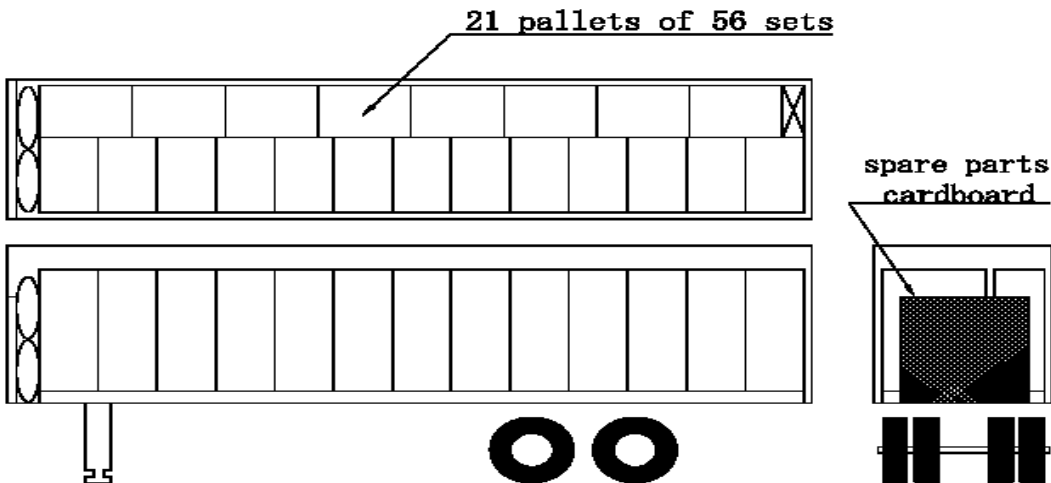
8) [DDC2B Inspection](#)

Appendix III Preset Timing Chart

NO	Timing	Dot Clock (MHz)	Horizontal							Vertical					HS,VS
			Freq. Fh (KHz)	Period Th (uS)	Pulse Width Ths (uS)	Front Phrch Thf (uS)	Back Porch Thb (uS)	Display Time Thd (uS)	Freq. FV (Hz)	Period Tv (ms)	Pulse Width T vs (ms)	Front Porch T vf (ms)	Back Porch T vb (ms)	Display Time T vd (ms)	
1	MAC13	30.24	35.00 (Dot)	28.57 864	2.12 64	2.12 64	3.17 96	21.16 640	66.67 (Line)	15.00 525	0.09 3	0.09 3	1.11 39	13.71 480	N,N
2	MAC16	57.24	49.70 (Dot)	20.13 1152	1.12 64	0.56 32	3.91 244	14.54 832	74.52 (Line)	13.42 667	0.06 3	0.02 1	0.78 39	12.56 624	N,N
3	VGA350	25.175	31.47 (Dot)	31.78 800	3.81 96	0.64 16	1.91 48	25.42 640	70.08 (Line)	14.27 449	0.06 2	1.18 37	1.91 60	11.12 350	P,N
4	VGA60	25.175	31.47 (Dot)	31.78 800	3.81 96	0.64 16	1.91 48	25.42 640	59.94 (Line)	16.68 525	0.06 2	0.32 10	1.05 33	15.25 480	N,N
5	VGA75	31.50	37.50 (Dot)	26.67 840	2.03 64	0.51 16	3.81 120	20.32 640	75.00 (Line)	13.33 500	0.06 3	0.03 1	0.43 16	12.80 480	N,N
6	VESA720	28.32	31.47 (Dot)	31.78 900	3.81 108	0.64 18	11.91 54	25.42 720	70.08 (Line)	14.27 449	0.06 2	0.41 13	1.08 34	12.71 400	N,P
7	SVGA56	36.00	35.16 (Dot)	28.44 1024	2.00 72	0.67 24	3.56 128	22.22 800	56.25 (Line)	17.78 625	0.06 2	0.03 1	0.63 22	17.07 600	P,P
8	SVGA60	40.00	37.88 (Dot)	26.40 1056	3.20 128	1.00 40	2.20 88	20.00 800	60.32 (Line)	16.58 628	0.11 4	0.03 1	0.61 23	15.84 600	P,P
9	SVGA72	50.00	48.08 (Dot)	20.80 1040	2.40 120	1.12 56	1.28 64	16.00 800	72.19 (Line)	13.85 666	0.12 6	0.77 37	0.48 23	12.48 600	P,P
10	SVGA75	49.50	46.88 (Dot)	21.33 1056	1.62 80	0.32 16	3.23 160	16.16 800	75.00 (Line)	13.33 625	0.06 3	0.02 1	0.45 21	12.80 600	P,P
11	XGA60	65.00	48.36 (Dot)	20.68 1344	2.09 136	0.37 24	2.46 160	15.75 1024	60.00 (Line)	16.67 806	0.12 6	0.06 3	0.60 29	15.88 768	N,N
12	XGA70	75.00	56.48 (Dot)	17.71 1328	1.81 136	0.32 24	1.92 144	13.65 1024	70.07 (Line)	14.27 806	0.11 6	0.05 3	0.51 29	13.60 768	N,N
13	XGA72	78.08	58.10 (Dot)	17.21 1344	1.72 134	0.33 26	2.05 160	13.11 1024	72.08 (Line)	13.87 806	0.10 6	0.05 3	0.50 29	13.22 768	N,N
14	XGA75	78.75	60.02 (Dot)	16.66 1312	1.22 96	0.20 16	2.23 176	13.00 1024	75.03 (Line)	13.33 800	0.05 3	0.02 1	0.47 28	12.80 768	P,P
15	XGA60	65.00	48.36 (Dot)	20.68 1344	2.09 136	0.37 24	2.46 160	15.75 1024	60.00 (Line)	16.67 806	0.12 6	0.06 3	0.60 29	15.88 768	P,P
16	VGA73	31.50	37.86 (Dot)	26.41 832	1.27 40	0.76 24	4.06 128	20.32 640	72.81 (Line)	13.73 520	0.08 3	0.24 9	0.74 28	12.68 480	N,N
17	SUN	70.49	52.45 (Dot)	19.04 1344	1.93 136	0.34 24	1.27 160	14.53 1024	65.07 (Line)	15.37 806	0.11 6	0.06 3	0.55 29	14.64 768	P,N
18	PAL	27.00	31.25 (Dot)	32 864	3.59 97	1.74 48	0.7 19	25.95 700	50.00 (Line)	20.00 625	0.39312	1.13 35	0.0722	18.4 575	N,N

{ 4 }

NL1502

CONTAINER LOADING		NOTE/DATE
40"Container Dimension Inside:L=12020mm W=2350mm H=2380mm & Door opening: W=2340mm H=2280mm the container will be a "VENTILATED" container to prevent any "humidity issue". Number of pallets by container : 21 pallets of 56 sets. Total quantity : 1176 LCD monitors a quantity of 20 "cardboard spare parts" will be put on 7 first container. See following drawing : 		
MultiSync LCD1535VI		
NPG	SHT	

{ 5 }

NL1502

2) PACKAGE

Palletization

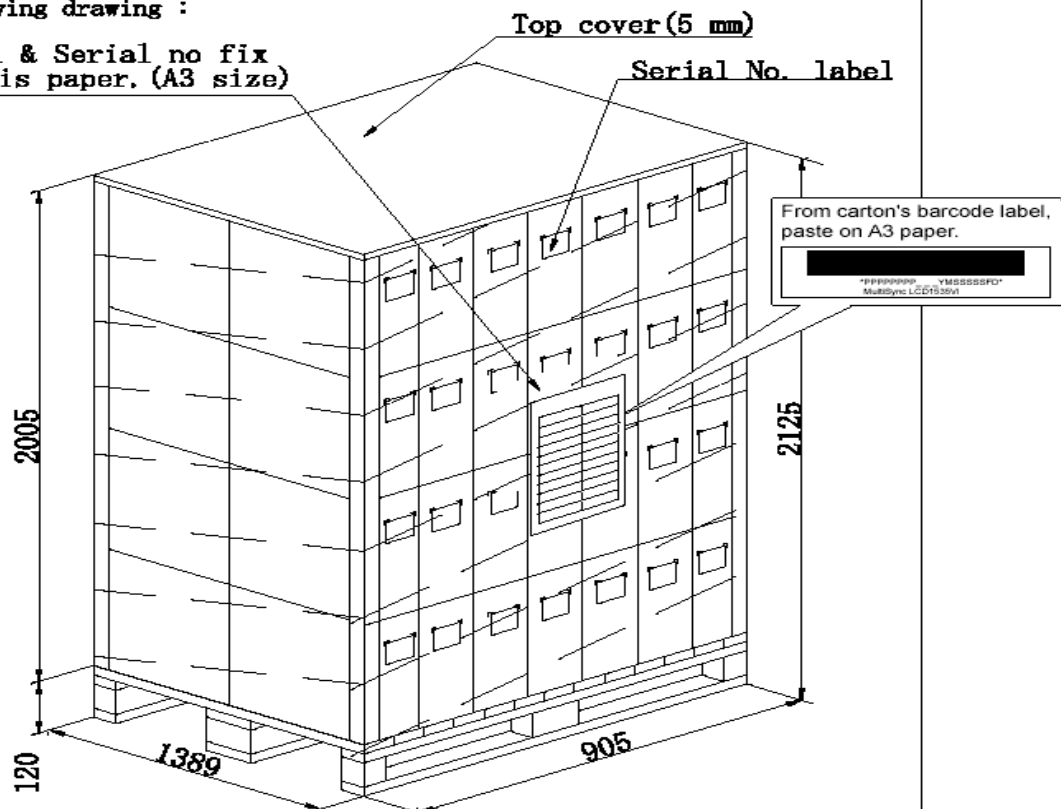
Number of levels : 4 layers Number of units by pallet : 56 Monitors

The complete pallet MUST BE FOLLOW the specified requirements :

- 4 cardboard corners(50mm x 50mm x 3mm),
- a cardboard top cover(thickness : 5mm),
- plastic film attached to the pallet foot, correctly wrapped(2 turns) from the bottom to cover partially the top cover .It MUST NOT cover totally the top cover to prevent "condensation issue".
- The carton must be positioned to have the LCD front inside the pallet.
- All the carton unit set labels must be visible from outside the pallet. (Barcode label)

See following drawing :

Model & Serial no fix
in this paper. (A3 size)



MultiSync LCD1535VI

NPG

SHT

NL1502

		NOTE/DATE
<u>Pallet</u> The pallet MUST BE FOLLOW the specified requirements : - in WOOD. - with FOUR ENTRIES, - with a maximum Load weight : 750 kg PALLET SIZE : L=1389 mm W=905 mm H=120 mm See following drawing : Pallet for 15" LCD Monitor All dimensions in millimeters.		
MultiSync LCD1535VI		
NPG		SHT

{ 6 }

STACKING PALLET

REV. <table border="1"><tr><td>T</td><td>Z</td><td>S</td><td>A</td><td>B</td></tr><tr><td>A</td><td>B</td><td>C</td><td>D</td><td>E</td><td>F</td><td>G</td><td>H</td></tr></table>		T	Z	S	A	B	A	B	C	D	E	F	G	H
T	Z	S	A	B										
A	B	C	D	E	F	G	H							
5029695102040														
PPPPPPP YMSSSSSFD MultiSync LCD1535VI														
MODEL:XXXXXXXX	MODEL:XXXXXXXX													
SERIAL No. XXXXXXXXX	SERIAL No. XXXXXXXXX													
PPPPPPP YMSSSSSFD MultiSync LCD1535VI														
MODEL:XXXXXXXX	MODEL:XXXXXXXX													
SERIAL No. XXXXXXXXX	SERIAL No. XXXXXXXXX													

PPPPPPP YMSSSSSFD MultiSync LCD1535VI
--

This label need rip among a label from barcode label.
It must be paste on stacking pallet paper to record.
(Please see page Fig. -)

The palletization need to use 3 pages.

STACKING ON PALLET		MODEL NAME: MultiSync LCD1535VI SERIAL NO.: 2200001YB	
1	<table border="1"><tr><td>*PPPPPPP YMSSSSSFD* MultiSync LCD1535VI</td></tr></table>	*PPPPPPP YMSSSSSFD* MultiSync LCD1535VI	11
PPPPPPP YMSSSSSFD MultiSync LCD1535VI			
2	<table border="1"><tr><td>*PPPPPPP YMSSSSSFD* MultiSync LCD1535VI</td></tr></table>	*PPPPPPP YMSSSSSFD* MultiSync LCD1535VI	12
PPPPPPP YMSSSSSFD MultiSync LCD1535VI			
3	<table border="1"><tr><td>*PPPPPPP YMSSSSSFD* MultiSync LCD1535VI</td></tr></table>	*PPPPPPP YMSSSSSFD* MultiSync LCD1535VI	13
PPPPPPP YMSSSSSFD MultiSync LCD1535VI			
4		14	
5		15	
6		16	
7		17	
8		18	
9		19	
10		20	

{ 7 }

Mechanical Specifications : LCD1535VI

REV.A
7/MAR./02

1. Cabinet, Tilt stand

Plastic material	Cabinet & Tilt base: PC+ABS (94V5)
Cabinet color	MIST White MC-8510
Outline	See Fig.-2
Tilt angle	Up & Down : +30° to -5°
Dimension	350.5mm (W) x 362.1mm (H) x 160.7mm (D) 13.8" (W) x 14.3" (H) x 6.3" (D) (Include tilt stand : See Fig.-2)
Cabinet logo size & control dimension	See Fig.-3
Logo position on the front cover	See Fig.-3
Logo position on the rear cover	See Fig.-4

2. Rating label : See Fig.-5

3. Carton box

Carton box	See Fig.-6
Carton box print	See Fig.-7
Dimension (Outer)	450mm (W) x 505mm (H) x 197mm (D) 17.7" (W) x 19.9" (H) x 7.8" (D)

4. Product code of Serial number & Revision label

Bar code label	See Fig.-8 (For carton box)
Revision label	See Fig.-9 (Monitor back side)

5. Weight

Net	Approx. 4.8kg (10.6 lbs)
Gross	Approx. 6.3kg (13.9 lbs)

6. Accessories

User's Manual	See Fig.-10
Caution sheet	See Fig.-11
Step sheet	See Fig.-12
Type Label	See Fig.-13
Sales office list	See Fig.-14
PE BAG	See Fig.-15

7. AC power cord: See Fig.-16

8. Signal cable: See Fig.-17

9. Packing style : See Fig.-18

10. Caution sheet fold up & sheet of type : See Fig.-19

LCD1535VI OUTLINE

REV.A
7/MAR./02

SCALE:1/2
DIMENSION IN mm.

▲ **NOTE:**
CABINET COLOR: MIST WHITE MC-8510
TILT ANGLE: +30° ~ -5°
WEIGHT:
WITH STAND: 4.8 Kg
WITHOUT STAND: 3.9 Kg

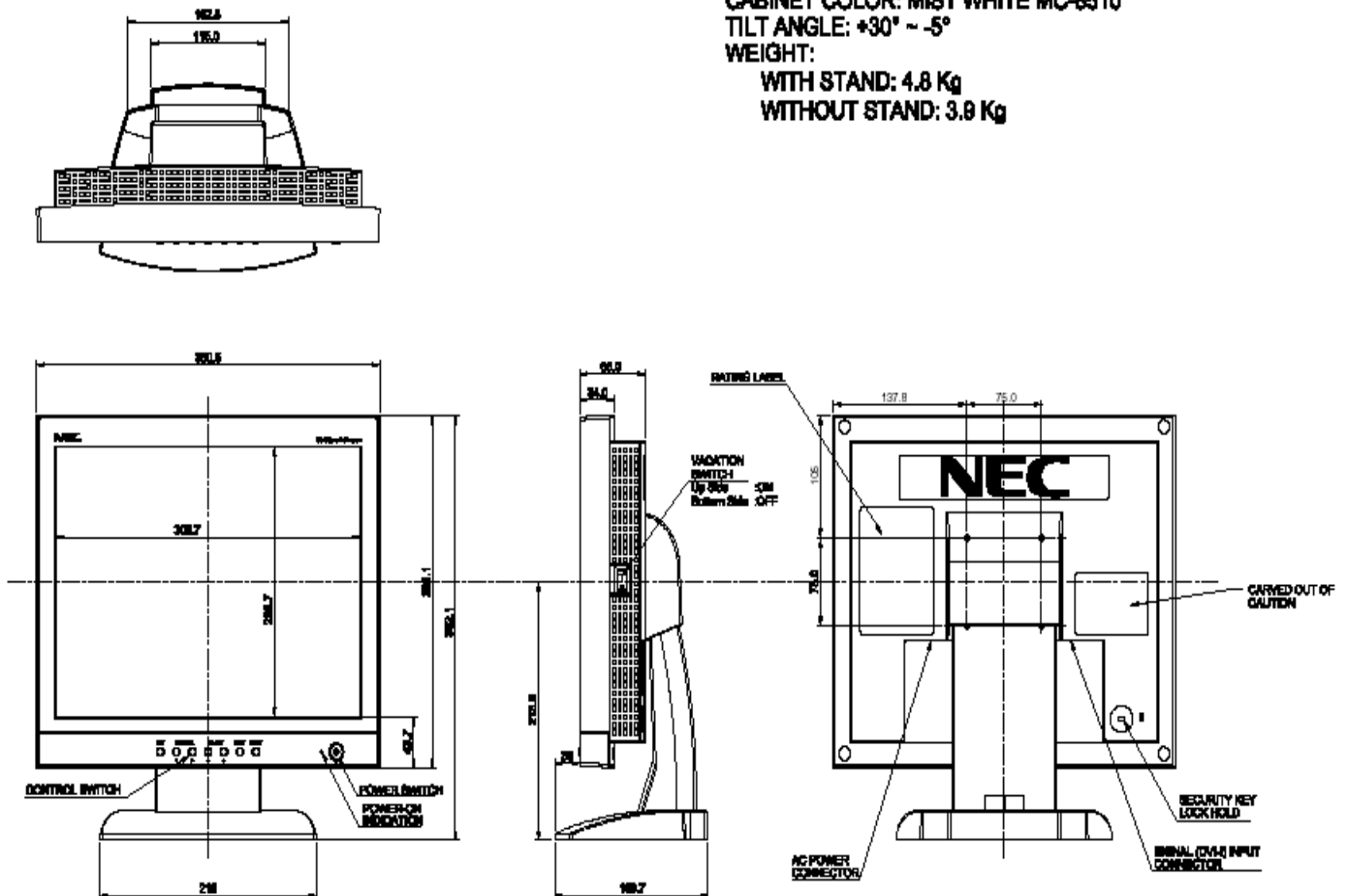


Fig-2

LCD1535VI LOCATION OF FRONT LOGO

- COLOR OF LETTERING : REAR GRAY SILVER EC-0790
- COLOR OF CABINET : MIST WHITE MC-8510

REV.A
7/MAR/02

SCALE:1/2
DIMENSION IN mm.

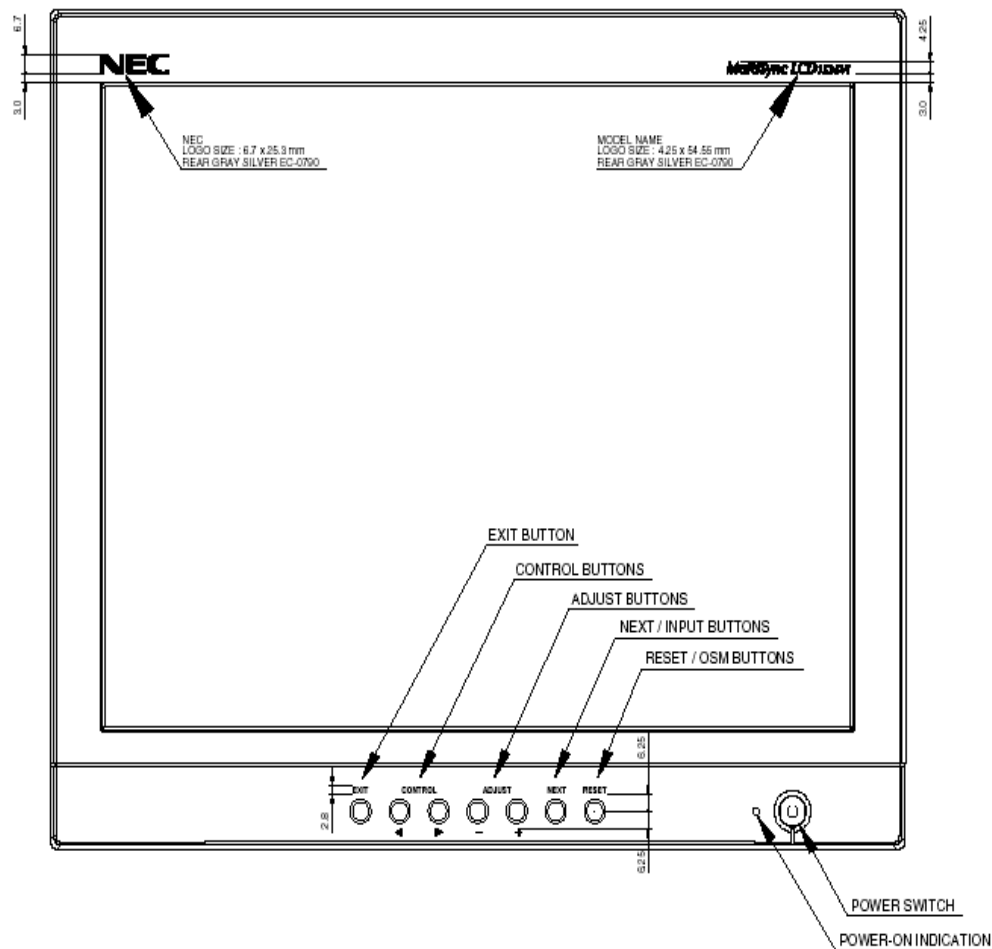


Fig-3

LCD1535VI LOCATION OF REAR LOGO

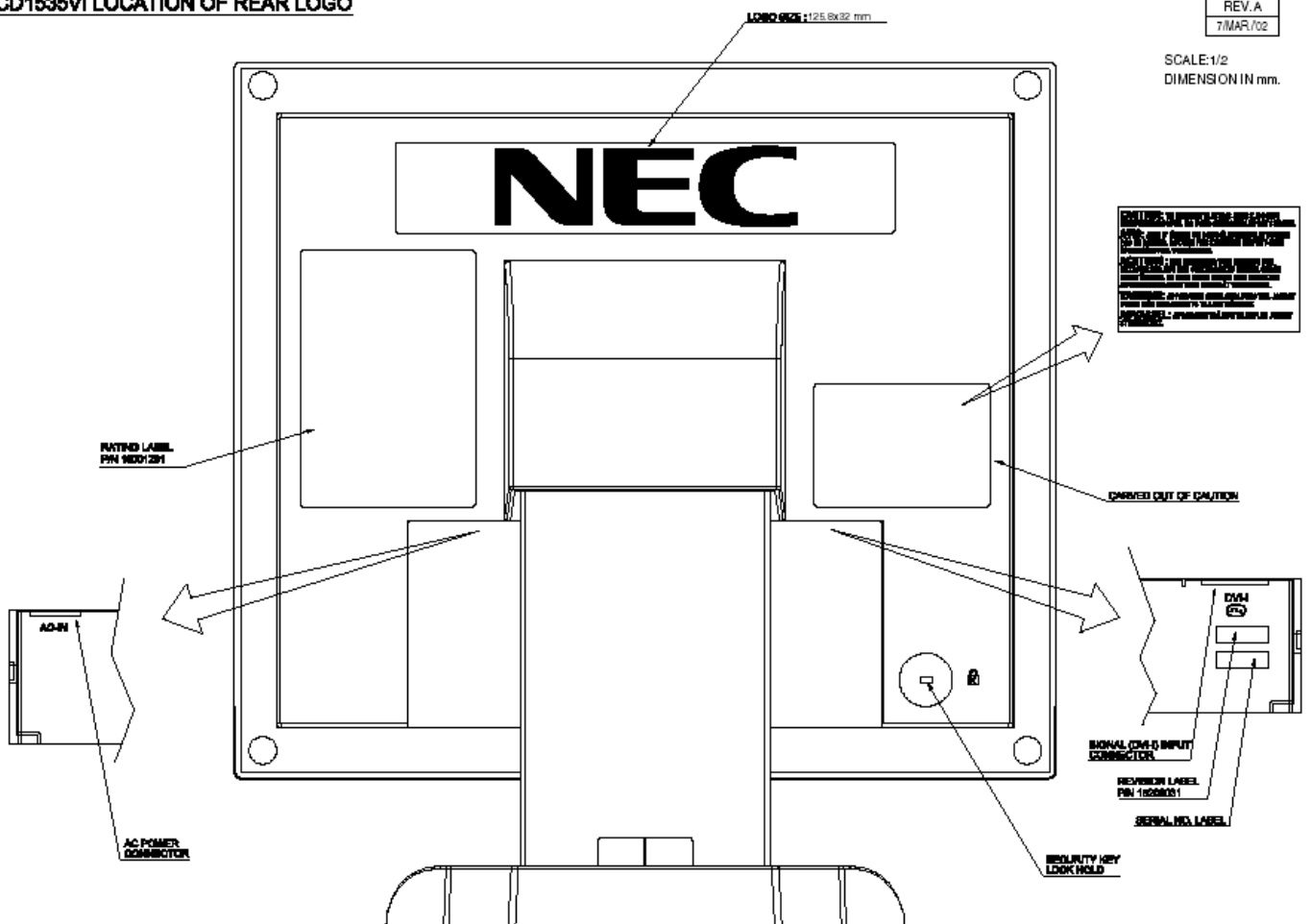


Fig-4

LCD1535VI RATING LABEL

BACK GROUND COLOR: CABINET COLOR (MIST WHITE)
LETTERING COLOR : DARK REAL GRAY INK32

REV. A
7/MAR/02
SCALE: 1/1
DIMENSION IN MM

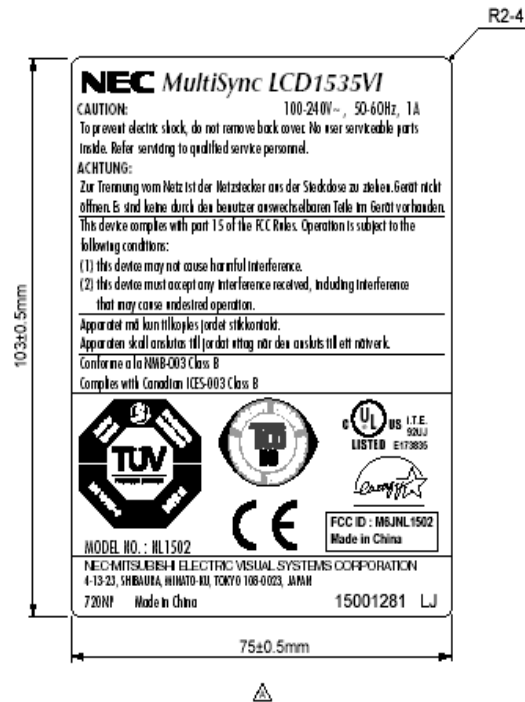


Fig-5

LCD1535VI CARTON BOX

COLOR OF MATERIAL: KRAFT COLOR (BROWN)

REV. A
03/Mar/02

SCALE: 1/16
DIMENSION IN mm.

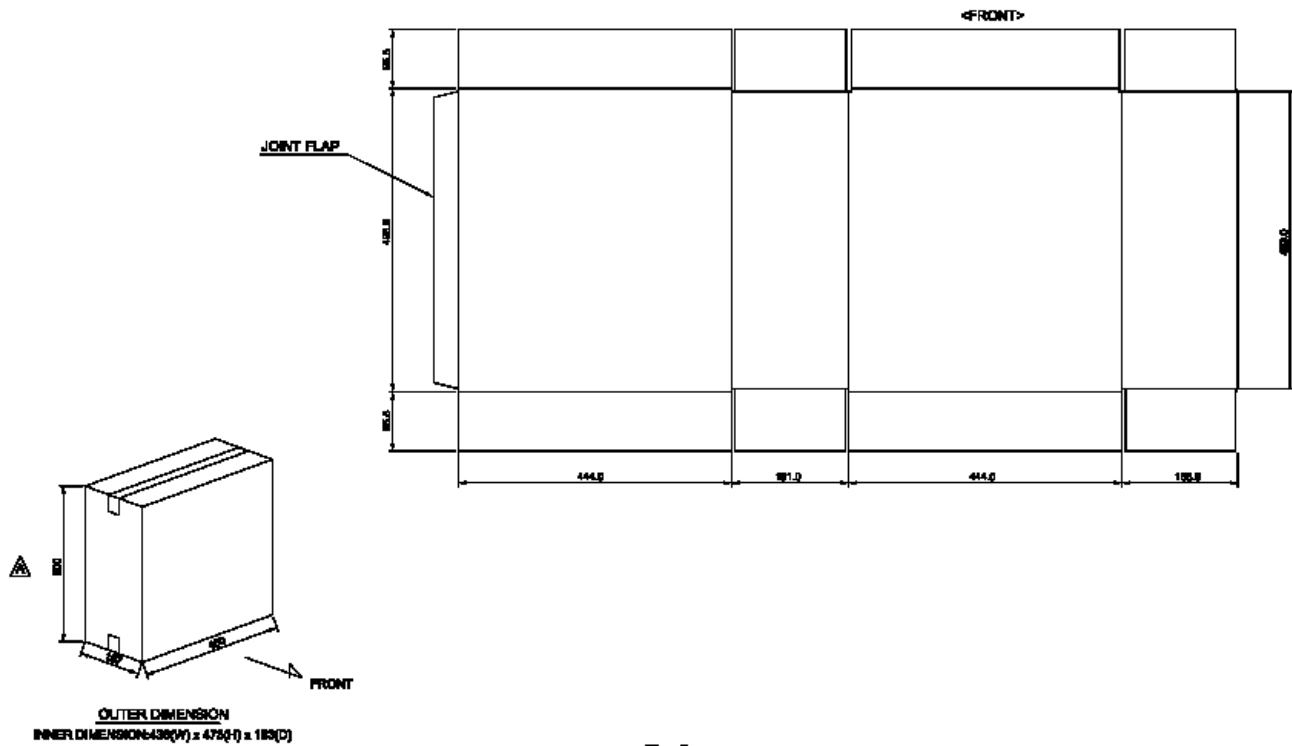


Fig-6

LCD1535VI PRINTING SPECIFICATION OF CARTON BOX

• P/N : 13201611
• COLOR OF PRINTING:BLACK

REV A
7/MAR/02
SCALE:1/5
DIMENSION IN MM

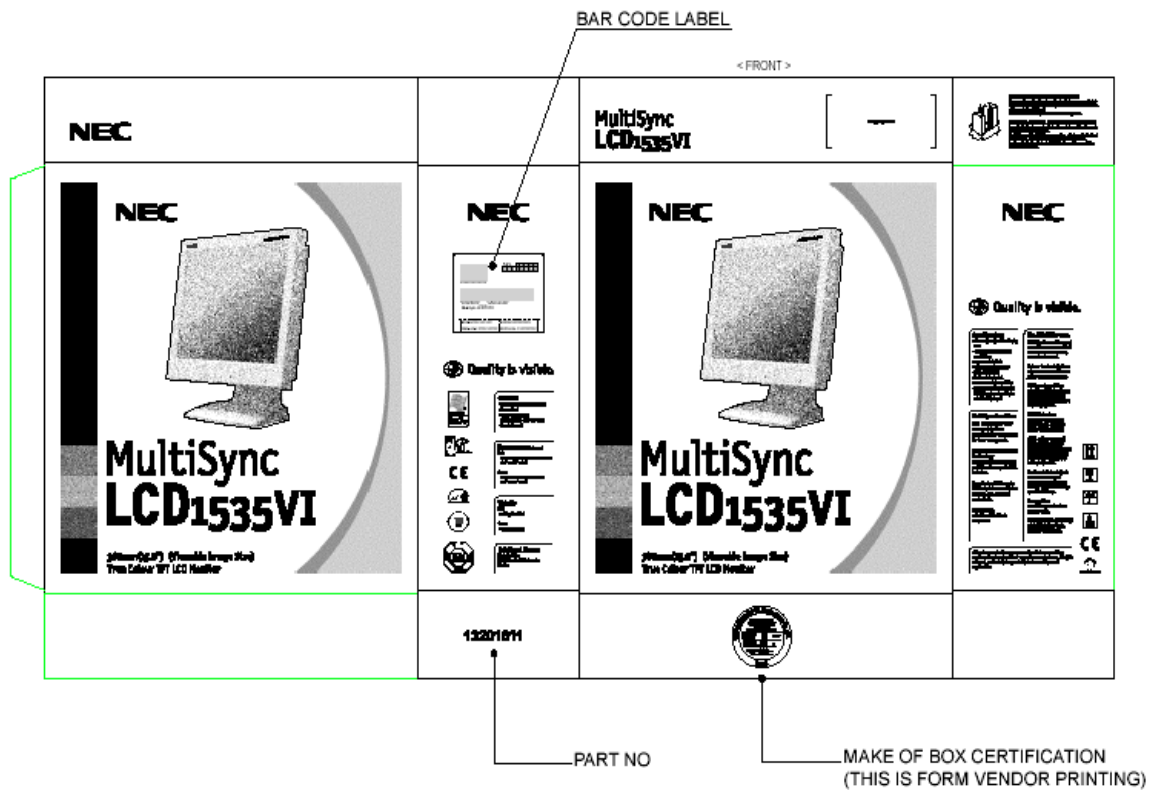
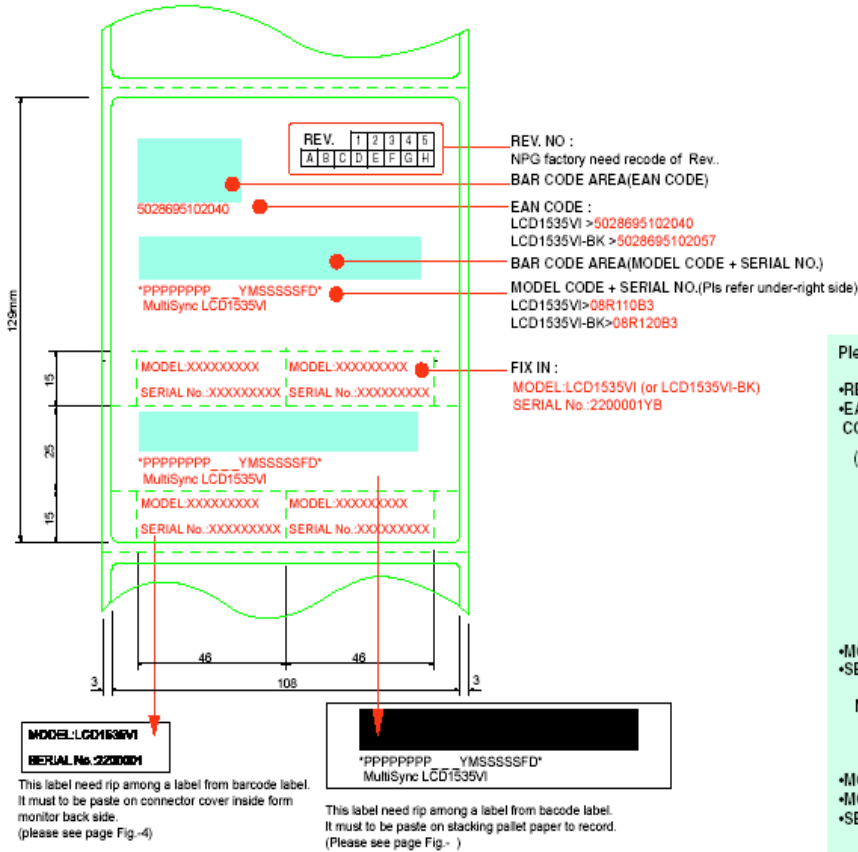


Fig-7

LCD1535VI LABEL SERIES: SERIAL BARCODE LABEL

- PN : 15200281 SERIAL BARCODE LABEL
- BACK GROUND COLOR : WHITE
- LETTERING COLOR : BLACK(FIXED)

REV. A
7MAR/02
SCALE: 1/25
DIMENSION IN MM



Please refer to this style and fix in on the label.

- REV: NEED MARKING(CHANGABLE)
- EAN: 5028695102040/5028695102057(FIXED)
- CODE 39: MODEL CODE + SERIAL NO.

(EX.)(.PPPPPPP_YMSSSSFD.) >(*PPPPPPP_2200001YB*)

DISTINATION CODE
FACTORY CODE
SERIAL NO.
MONTH 1-9,X(Oct),Y(Nov),Z(Dec)
MANUFACTURE YEAR(LAST DIGIT)
KEEP TO 3 POINT SPACE
8 DIGITS CUSTOMER PRODUCT CODE

- MODEL CODE : PPPPPPP(FIXED), 8 digits customer product code.
- SERIAL NO. DESCRIPTION (CHANGABLE):
Y: Manufactured year (last digit)ex.2->2002
M: Manufactured month 1-9,X(October),Y(November),Z(December)
S: Serial No.(5 digits)00001-onward(restart when month is changed)
F: Factory code: Y is NPG China Factory
D: Distination code:Europe:B
- MODEL NAME.: MultiSync LCD1535VI(or MultiSync LCD1535VI-BK)(FIXED)
- MODEL : LCD1535VI(LCD1535VI-BK)(FIXED)
- SERIAL NO.: SEE ABOVE(CHANGABLE)

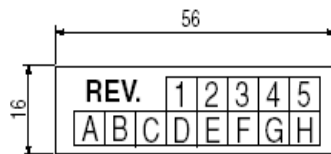
Fig-8

LCD1535VI REVISION LABEL

- P/N 15200031 REVISION LABEL
- MATERIAL: HIGHT QUALITY PAPER (WHITE)
- LETTERING COLOR: BLACK

REV. A
7/MAR./02

SCALE: 1/1
DIMENSION IN MM



Example:

Factory need changeable on this revision area.
NPG factory need write down this Rev.
Like this below:

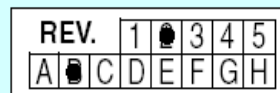


Fig-9

LCD1535VI USER'S MANUAL

- PIN 15501031
- LANGUAGE: ENGLISH,GERMAN,SPAIN,FRENCH,ITALIAN
- MATERIAL: RECYCLE PAPER 500(WHITE)
- LETTERING COLOR: BLACK

REV. A
7/MAR/02

SCALE: 1:1
DIMENSION IN MM



Fig-10

LCD1535VI CAUTION SHEET

• P/N 15800101 CAUTION SHEET
• MATERIAL PAPER: RECYCLE PAPER 500(YELLOW)
• LETTERING COLOR: BLACK

REV. A
7/MAR/02
SCALE: 1:1
DIMENSION IN MM

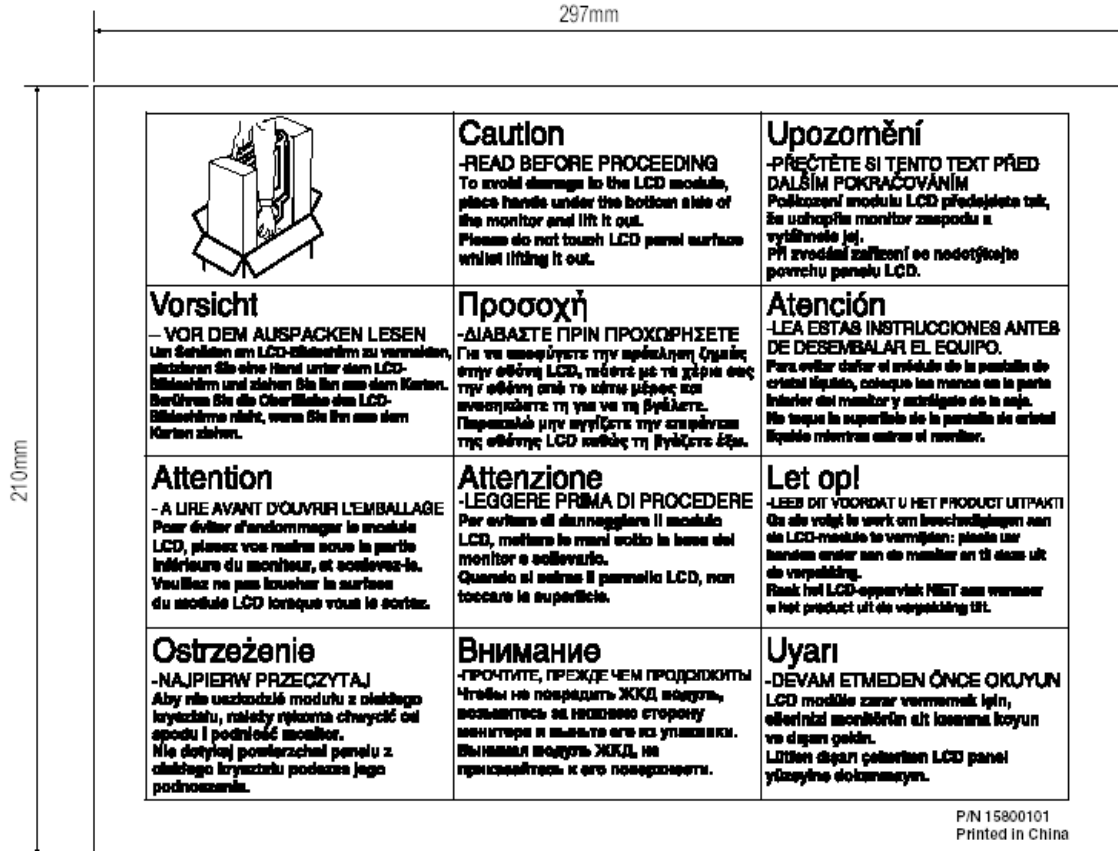


Fig-11

LCD1535VI SETUP SHEET:

- PIN : 15800111 SETUP SHEET
- MATERIAL PAPER: RECYCLE PAPER(WHITE)
- LETTER COLOR : BLACK

REV. A
7/MAR/02
SCALE: 1/2
DIMENSION IN MM

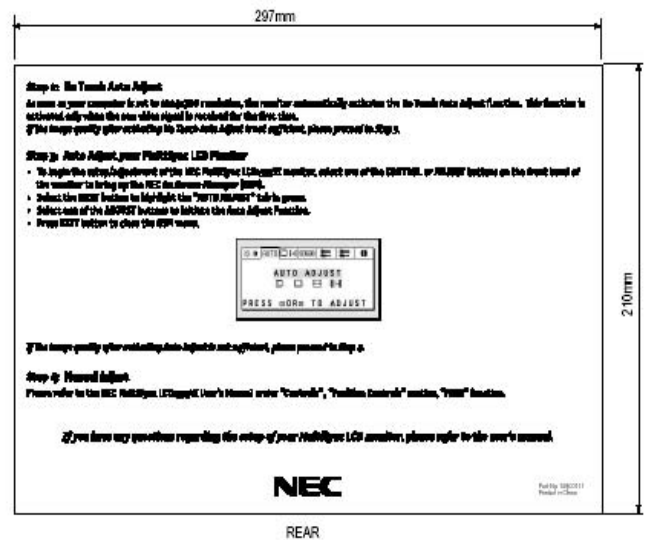
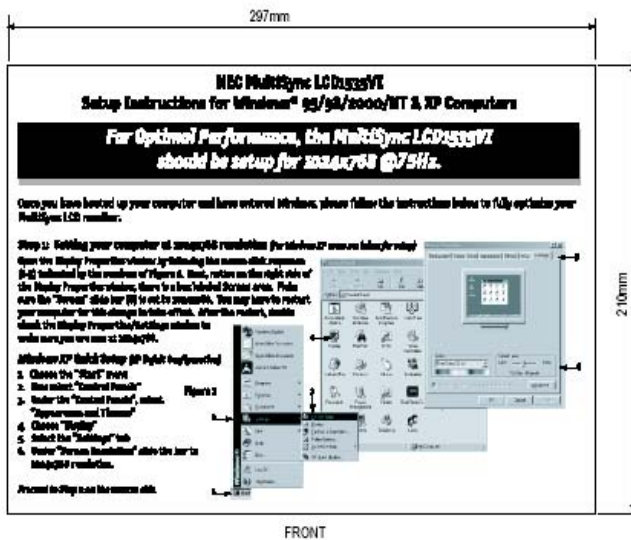


Fig-12

LCD1535VI SALES OFFICE LIST

• P/N 15900054 SALES OFFICE LIST
• MATERIAL: RECYCLE PAPER 500(WHITE)
• LETTERING COLOR: BLACK

REV. A
9/MAR./02

SCALE: NTS
DIMENSION IN MM

138mm	
Sales Office List	
NEC-Mitsubishi Electronics Display - Europe GmbH Landshuter Allee 12 - 14 D-80637 München, Germany Phone: 089-99699-0 http://www.nec-mitsubishi.com NEC-Mitsubishi Electronics Display - Deutschland GmbH Landshuter Allee 12 - 14 D-80637 München, Germany Phone: 089-99699-0 http://www.nec-mitsubishi.com NEC-Mitsubishi Electronics Display - UK Ltd. 32 Southwark Bridge Road London SE1 9SU, England Phone: 0207 292 6300 http://www.nec-mitsubishi.com NEC-Mitsubishi Electronics Display - France S.A.S LE VERMOREL 37, rue Adam Ledoux 92400 Courbevoie, France Phone: 01 55 70 26 70 http://www.nec-mitsubishi.com NEC-Mitsubishi Electronics Display - Netherlands Antareslaan 55, NL-2132 JE Hoofddorp, The Netherlands Phone: 023-5546646 http://www.nec-mitsubishi.com NEC Iberica S.A. MINIPARC-1 Edificio A C/Alcala, 1 El Soto de la Moraleja Alcobendas 28109 Madrid, España Phone: 91-2032900 http://www.nec.es NEC Scandinavia AB Karlavagnavägen 20 Box 20067 SE-161 02 Bromma, Sweden Phone: 08-6959200 http://www.nec.se	NEC Italia s.r.l. Via Leonardo Da Vinci, 97 20100 Trezzano Sul Naviglio (Milano) Italy Phone: 02 484151 http://www.nec.it NEC Australia Pty. Ltd. 244 Beacraft Rd. Epping NSW 2121 Australia Phone: 02-9090-2000 http://www.nec.com.au NEC Singapore Pte. Ltd. No.1 Maritime Square, #12 - 10 World Trade Center, Singapore 099253 Phone: 2761 918 http://www.nec.com.sg NEC Taiwan Ltd. 7F, No.167 Sec 2, Nan King East Road, Taipei, Taiwan, Republic of China Phone: 02-2515-0000 http://www.nec.com.tw NEC Hong Kong Limited 11/F, Tower B, New Mandarin Plaza, 14 Science Museum Road, Tsimshatsui East, Kowloon, Hong Kong Phone: 2369 0395 http://www.nec.com.hk NEC (Thailand) Ltd. 24th Floor Siam-mit Tower 159 Sukhumvit 21 Road, Klongtoey Nua, Wattana, Bangkok 10110 Phone: 2591 192 http://www.nec.thai.co.th NEC Malaysia Sdn. Bhd. 33th Floor, Menara TA One, 22, Jalan P. Ramlee, 50250 Kuala Lumpur Phone: (03)21641199 Phone: 2387 758
215mm	Printed in China 15900054

Fig-13

LCD1535VI PACKING BAG:

• P/N : 13700161 PACKING BAG (750X450MM)
• PRINTING COLOR : ROSE RED

REV. A
7/MAR/02
SCALE: 1/1
DIMENSION IN MM

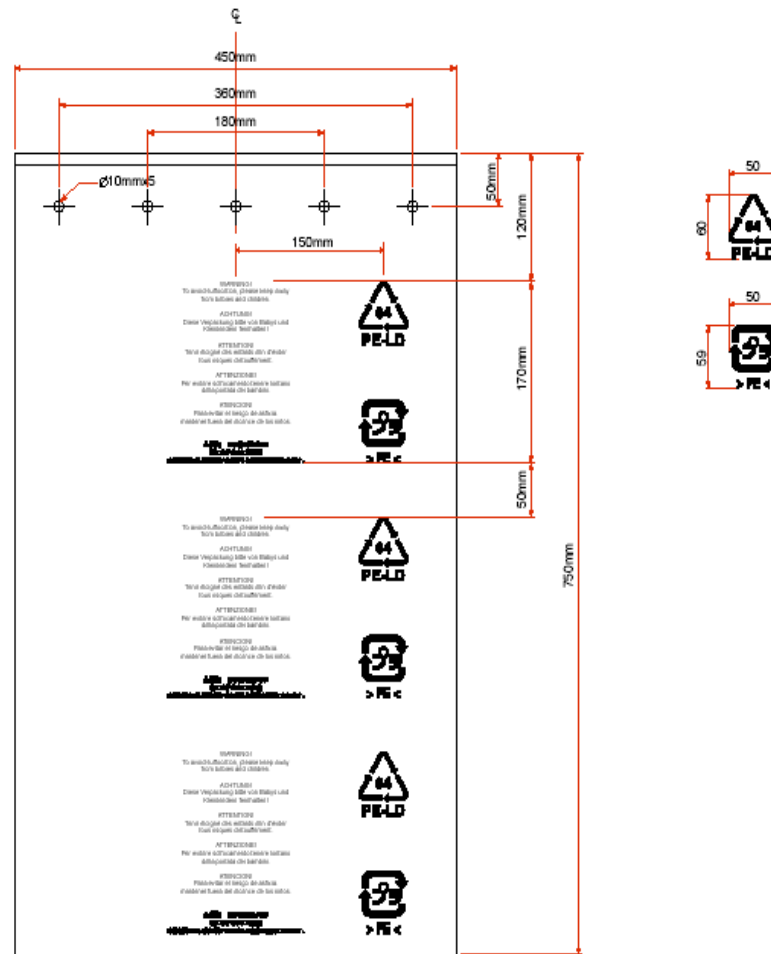


Fig-14

LCD1535VI POWER CORD

1.CABLE SIZE : 1.0mm²×3C

2.JACKET : PVC

3.COLOR : GRAY 808808

4.ABILITY

(1) VOLTAGE : AC250V

(2) AMPERAGE : AC 10A - 18A

(3) TEMPERATURE : 70°C

5.REGULATORY APPROVALS : VDE,KEMA-MELUK,BENKO,NEMKO,DEMKO,
FMKO,SEV,OVE,JENMEQU,CEBEC,IEC227

REVA
7/MAR/02

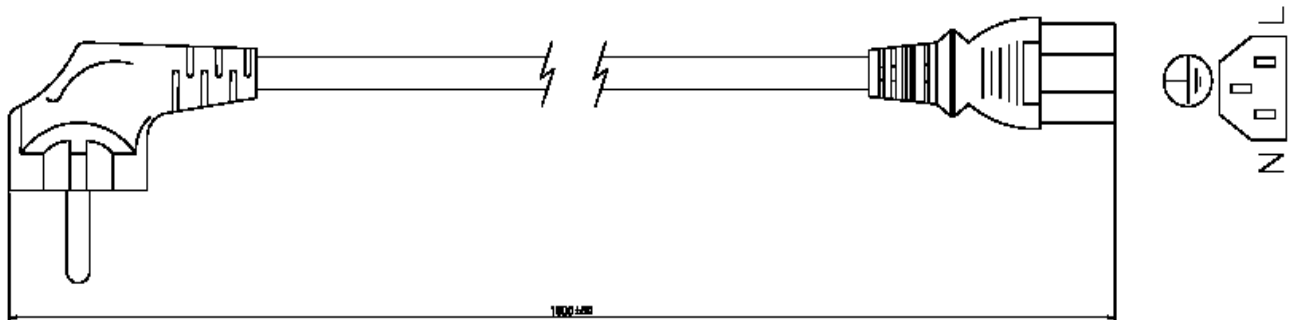
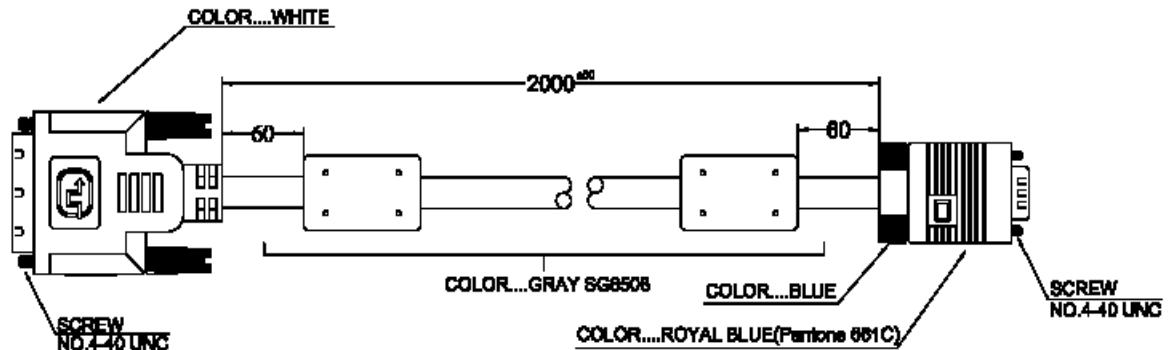


Fig-15

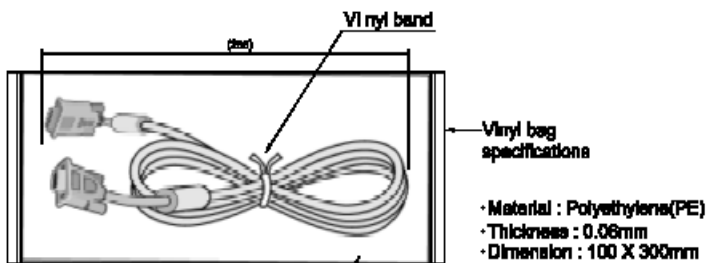
LCD1535VI SIGNAL CABLE (DVI-A)

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

REV.A
7/MAR./02



Packing :



The undermentioned content is printed in black.

NEC-MITSUBISHI ELECTRIC VISUAL SYSTEM CORPORATION. SC-D

WIRING LIST

DVI-A	D-SUB	Signal
01	01	Red - video
02	02	Red Gnd
03	03	Green - video
04	04	Green Gnd
05	05	Blue - video
06	06	Blue Gnd
07	07	H - sync Composite sync
08	08	Serial clock
09	09	Serial data
10	10	V - sync (V-synch)
11	11	Gnd
12	12	Gnd
13	13	DAC Gnd
14	14	Video Gnd

Fig-16

LCD1535VI PACKING STYLE

REV.A
7/MAR/02

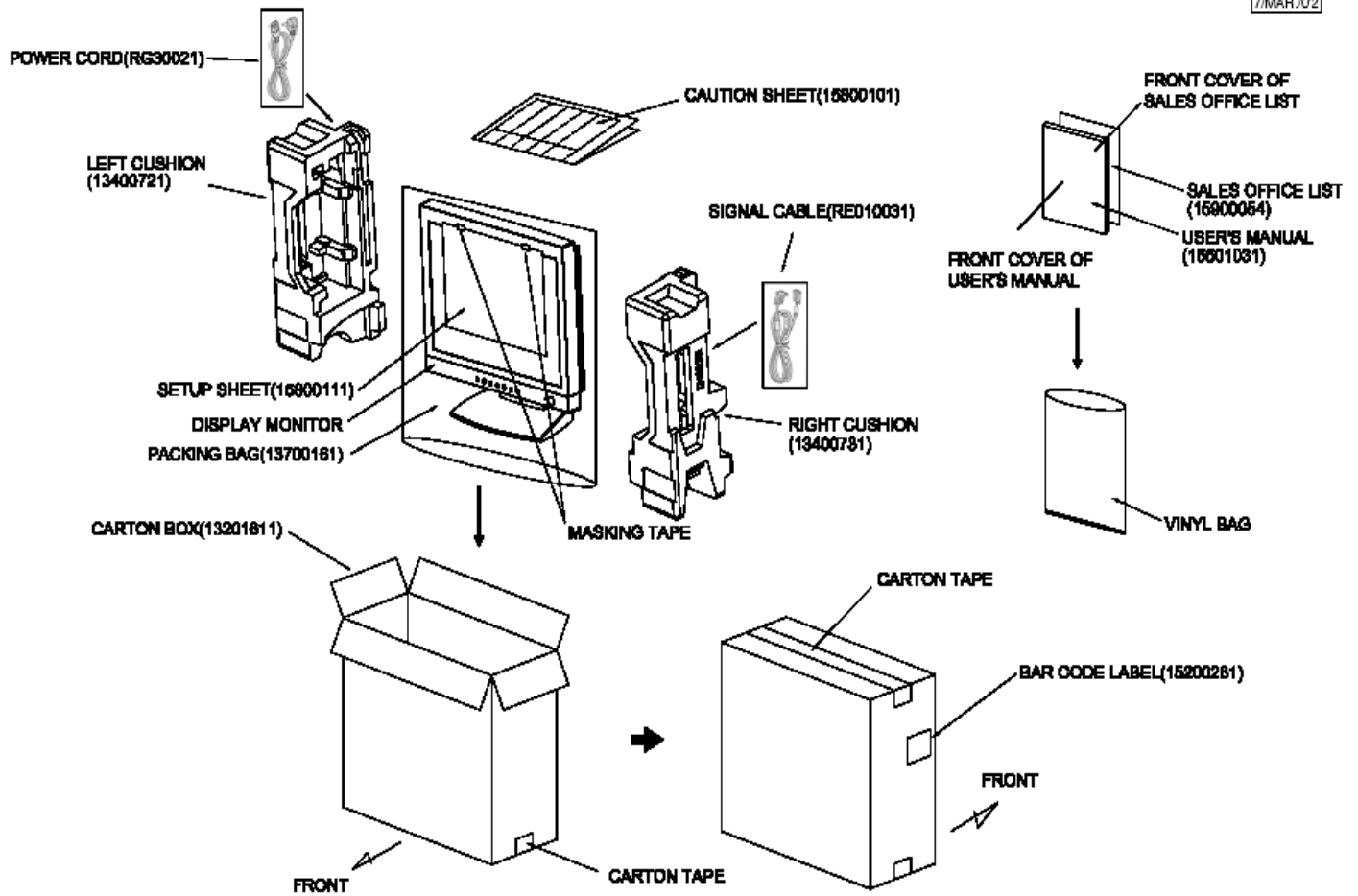


Fig-17

LCD1535VI
CAUTION SHEET FOLD UP & SETUP SHEET OF TYPE

REV. A
7/MAR/02

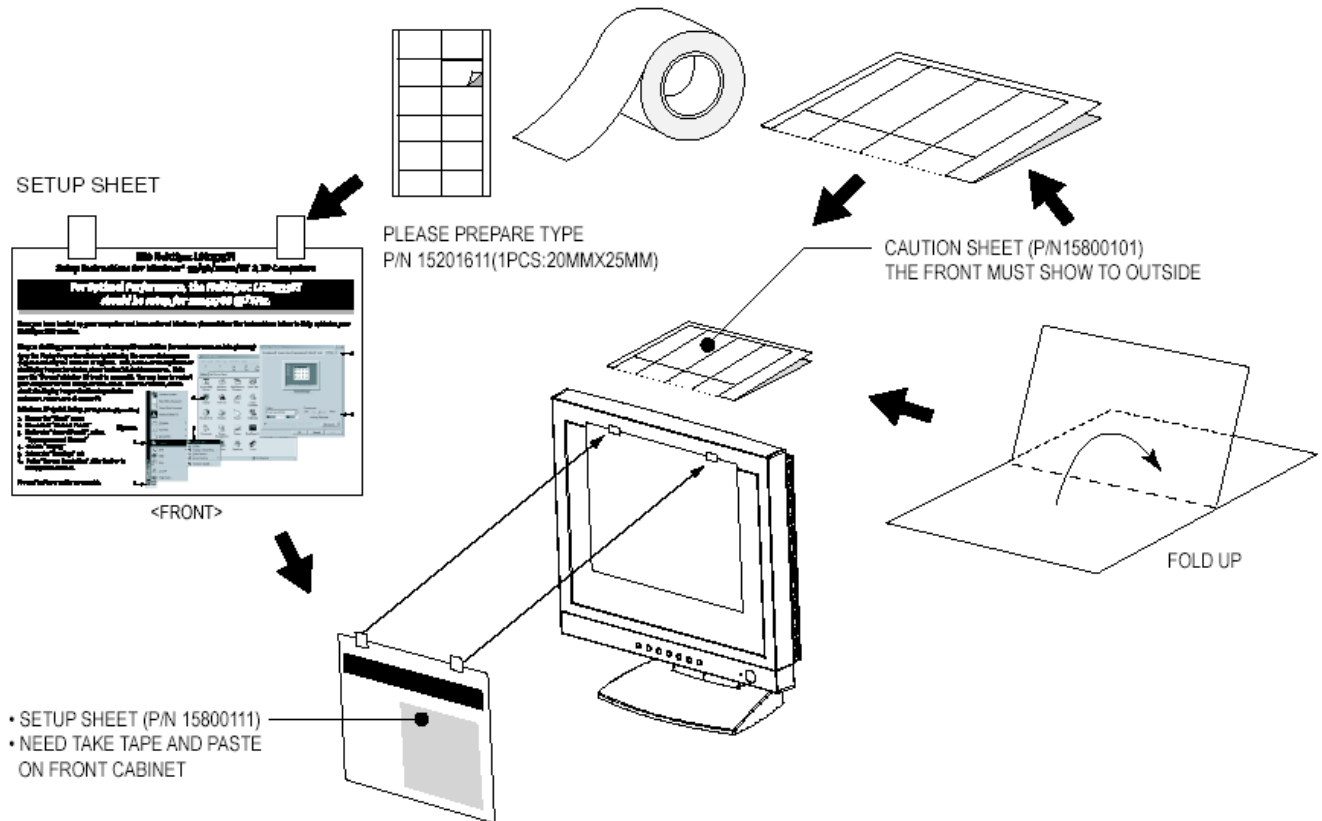


Fig-18

TYPE LABEL

- P/N : 1520161
- BACK GROUND COLOR : WHITE

REV. A
7/MAR/02
SCALE: 1/1
DIMENSION IN MM

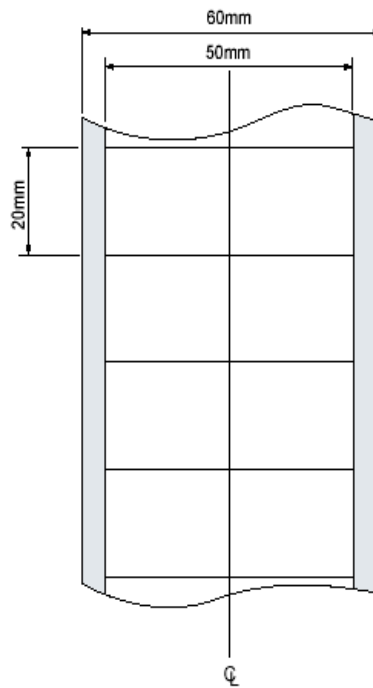


Fig-19

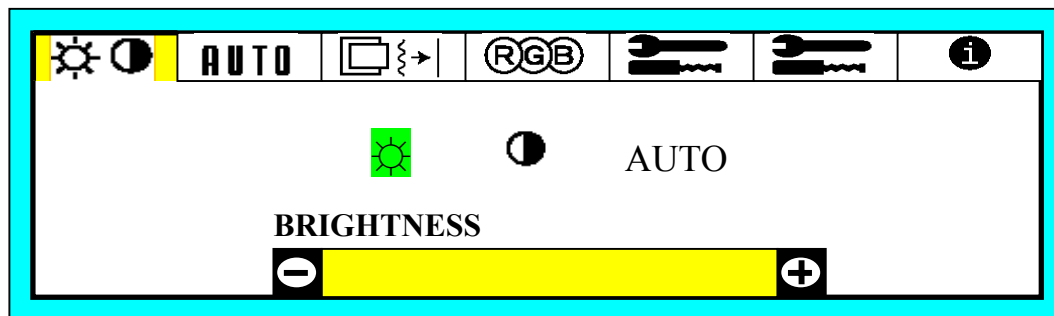
{ 9 }

OSM NORMAL FORMAT

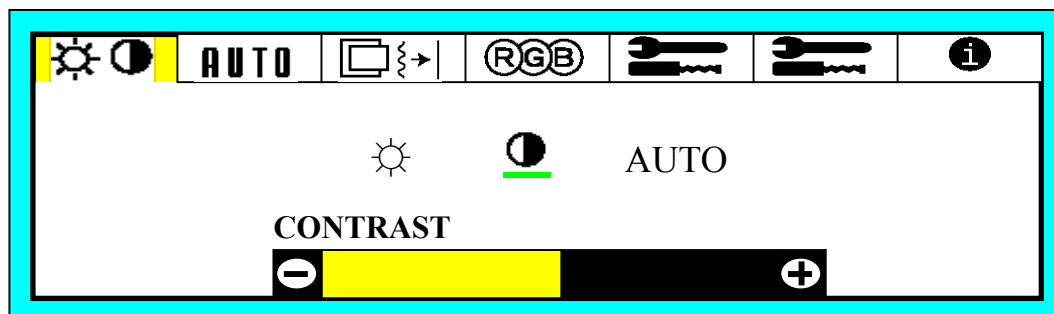
1) ANALOG INPUT Normal format:

Page 1:

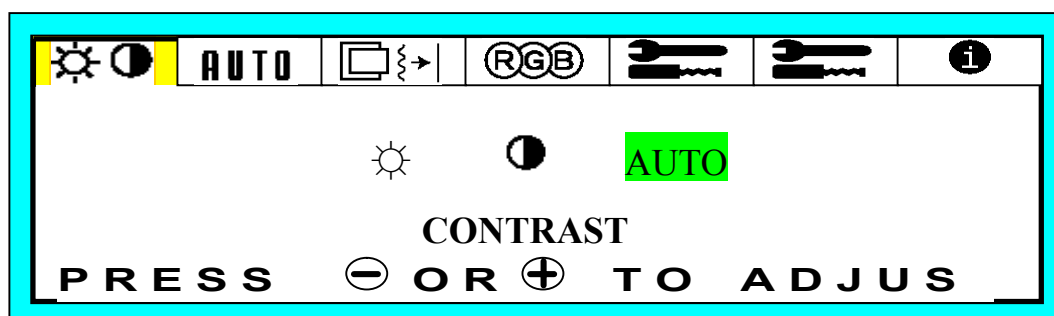
1) Brightness (Item)



2) Contrast (Item)

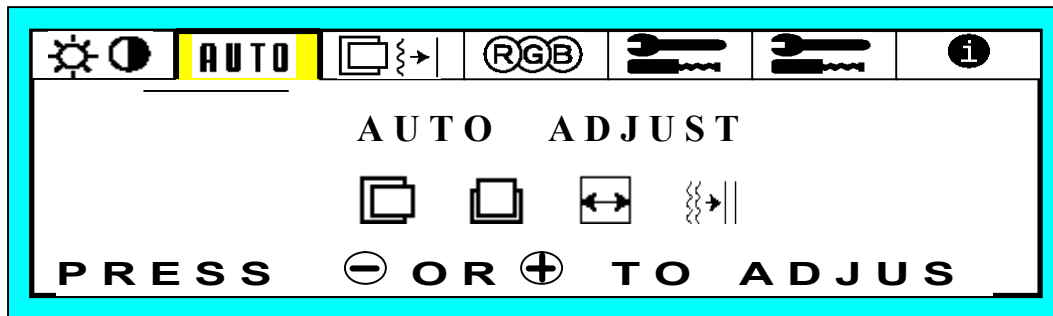


3) Contrast Auto



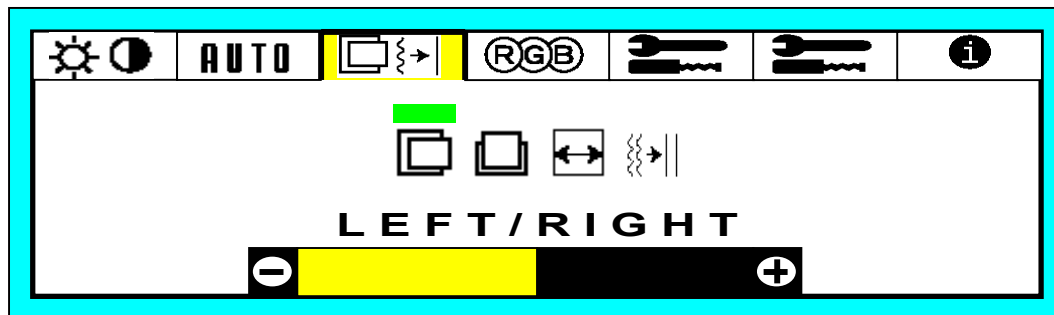
Page 2:

1) Auto adjust (Item)

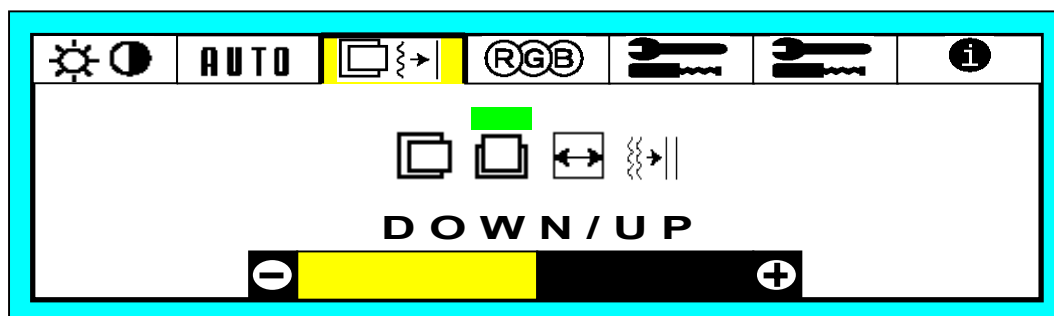


Page 3:

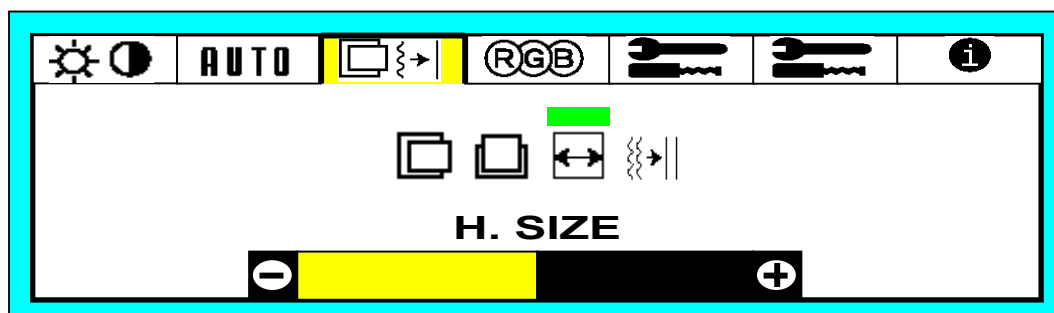
1) Left/Right (Item)



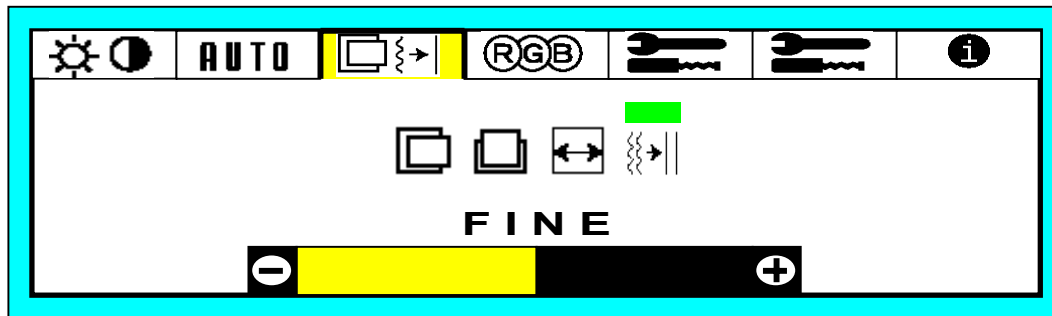
2) Down/Up (Item)



2) H. Size (Item)

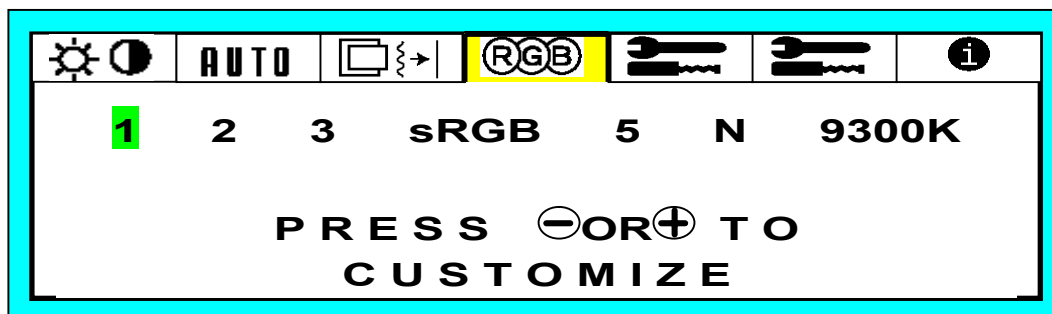


2) Down/Up(Item)

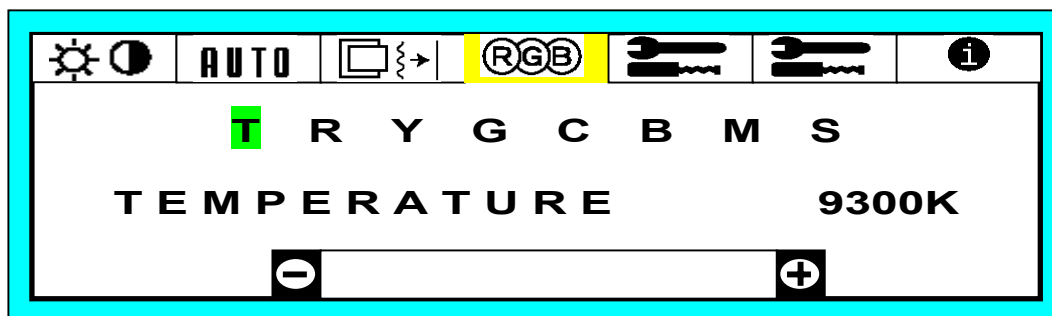


Page 4:

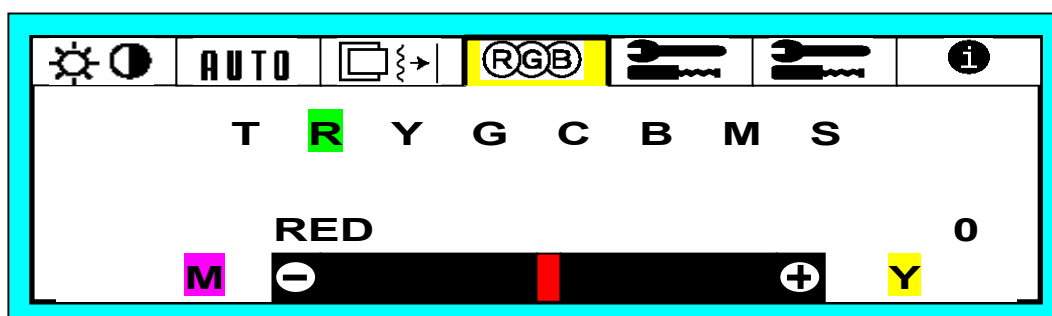
1) 9300K (Item)



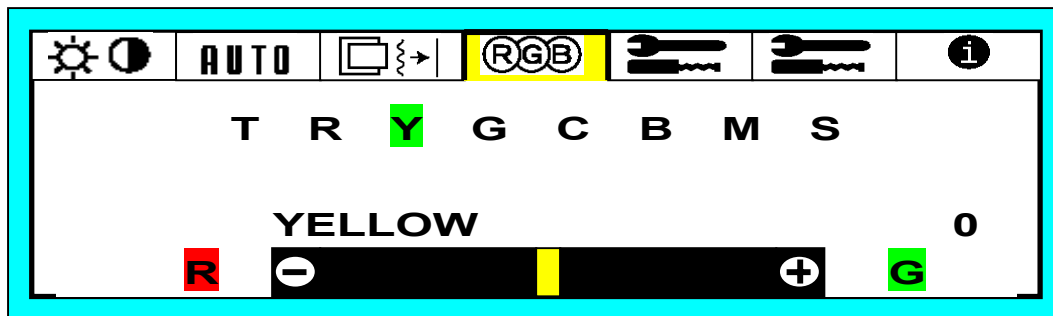
(1) Customize adjust (Sub Item)



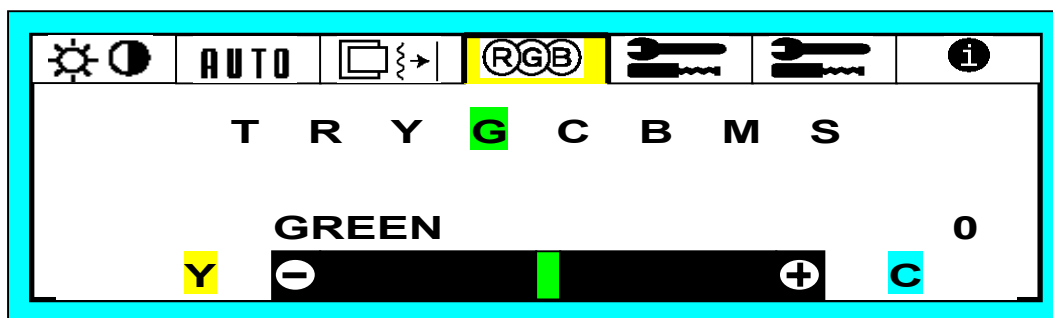
(2) Customize adjust (Sub Item)



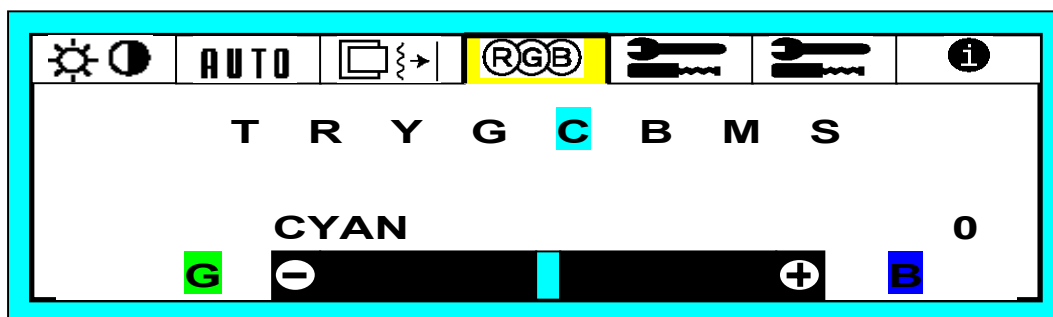
(3) Customize adjust (Sub Item)



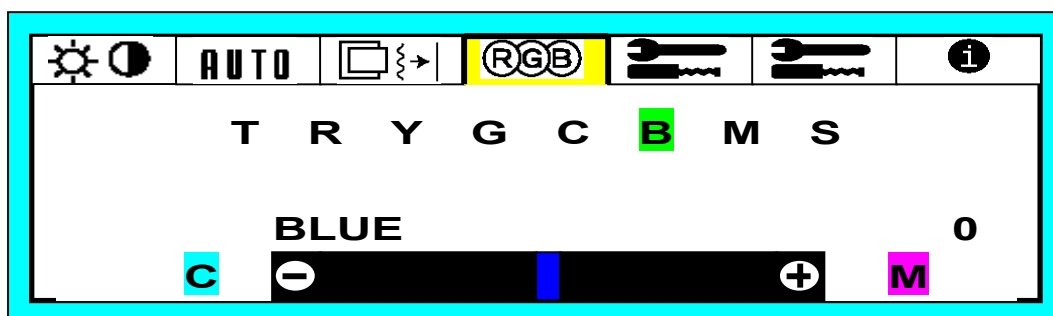
(4) Customize adjust (Sub Item)



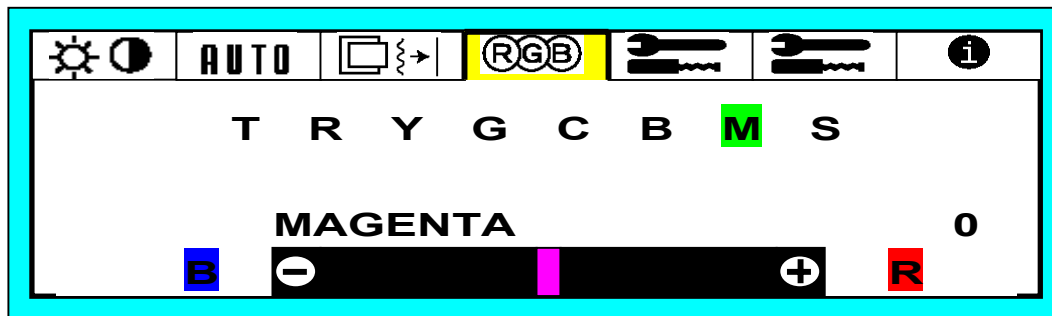
(5) Customize adjust (Sub Item)



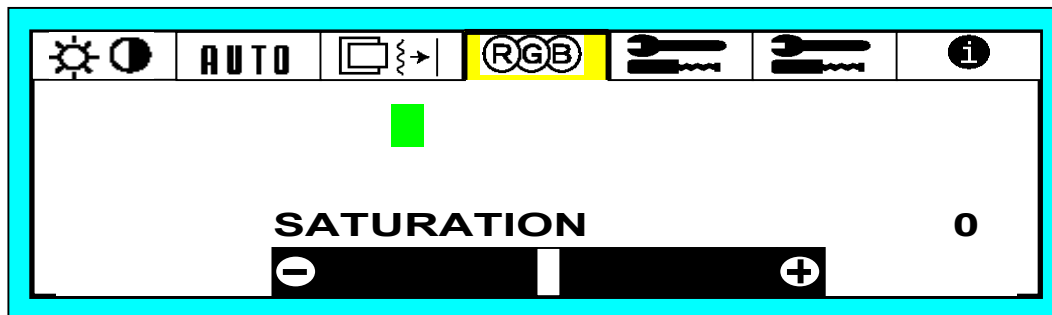
(6) Customize adjust (Sub Item)



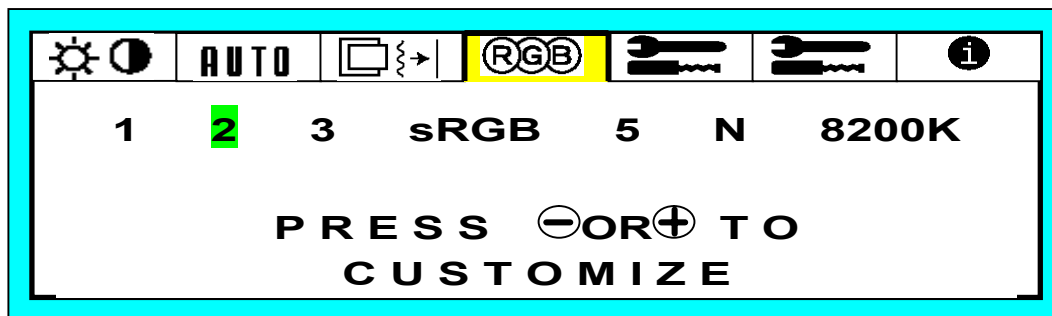
(7) Customize adjust (Sub Item)



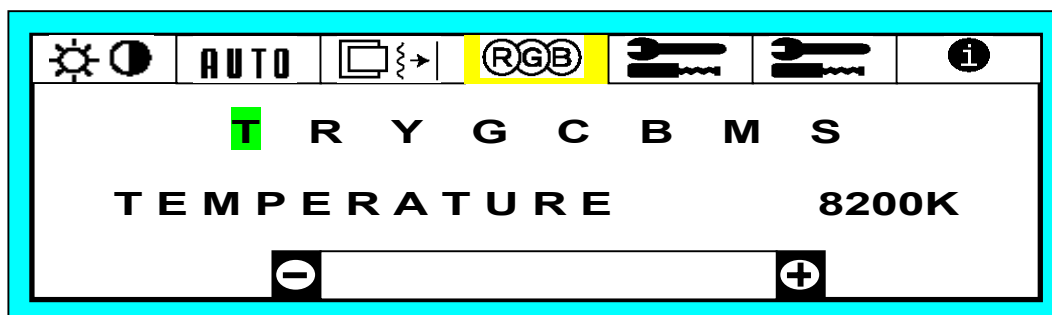
(8) Customize adjust (Sub Item)



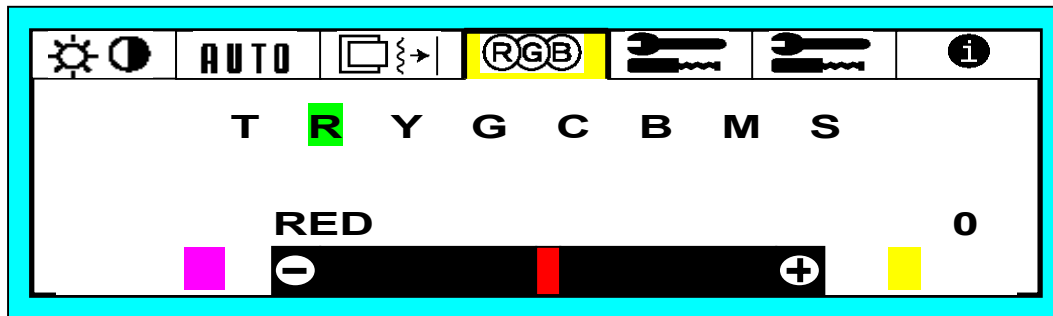
2) 8200K (Item)



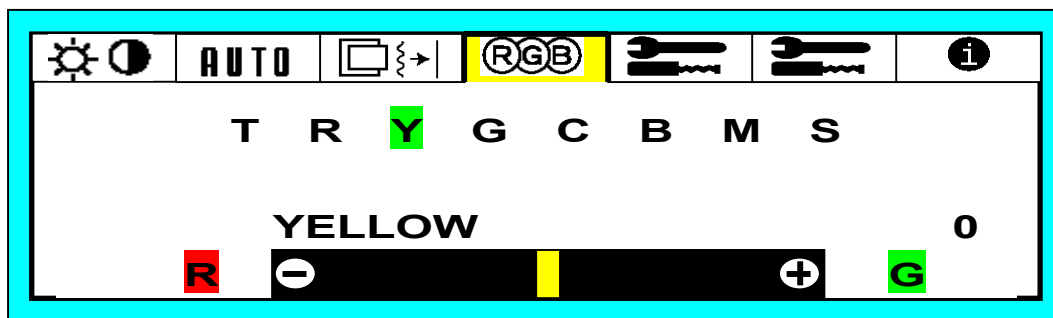
(1) Customize adjust (Sub Item)



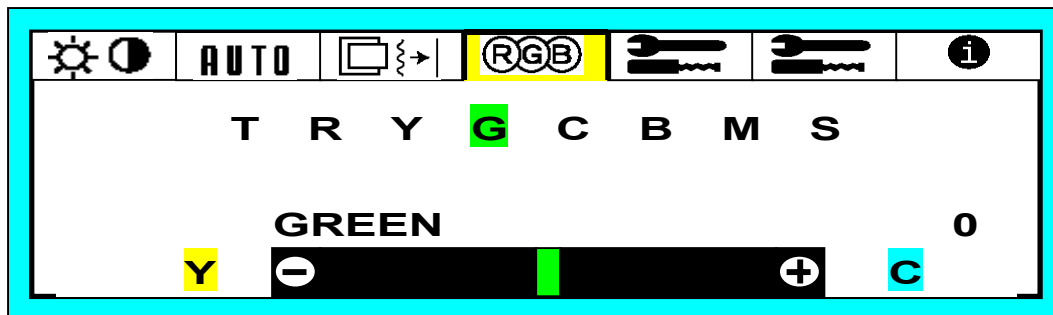
(2) Customize adjust (Sub Item)



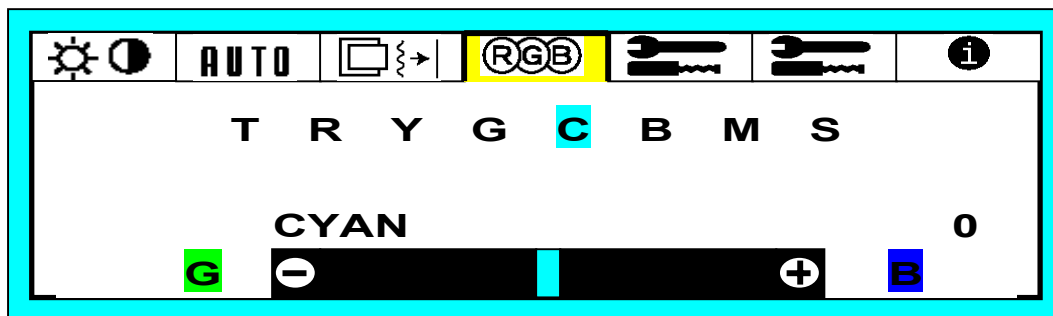
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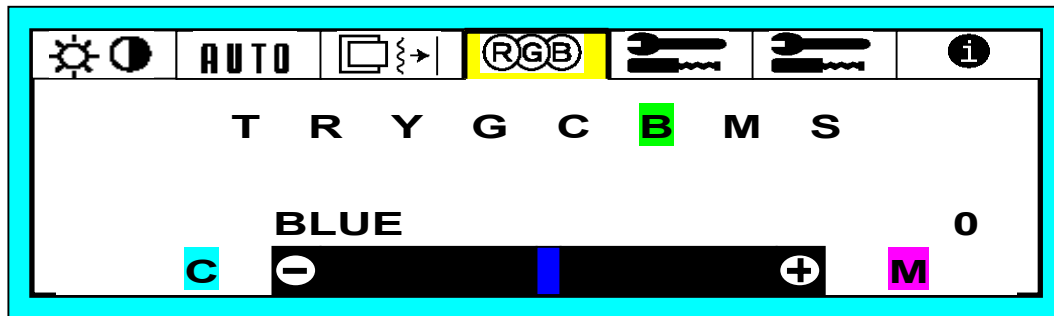
(4) Customize adjust (Sub Item)



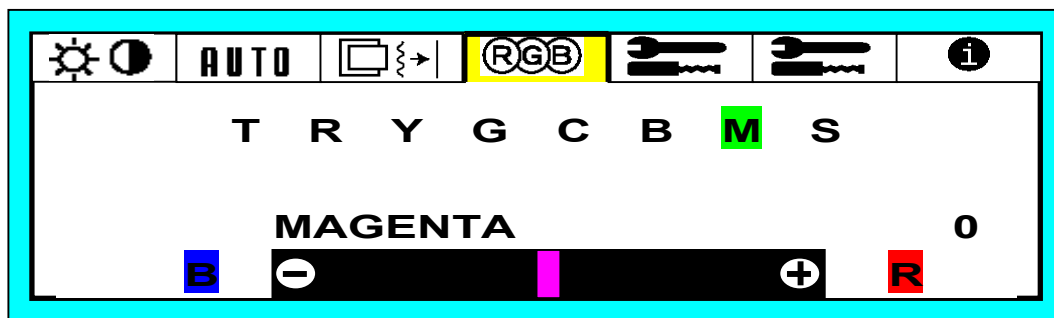
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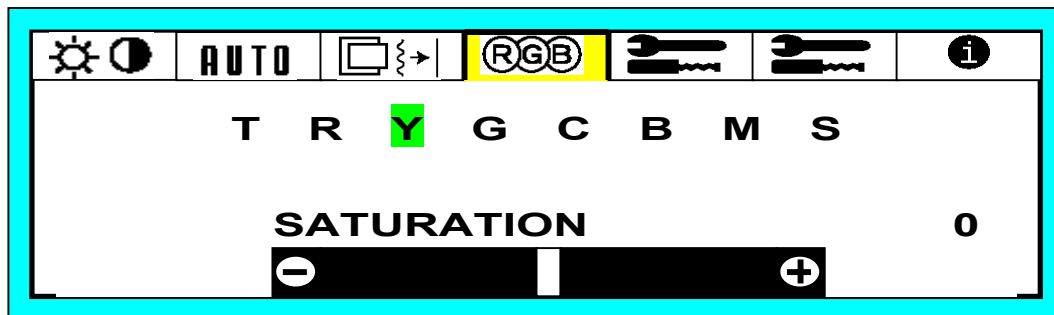
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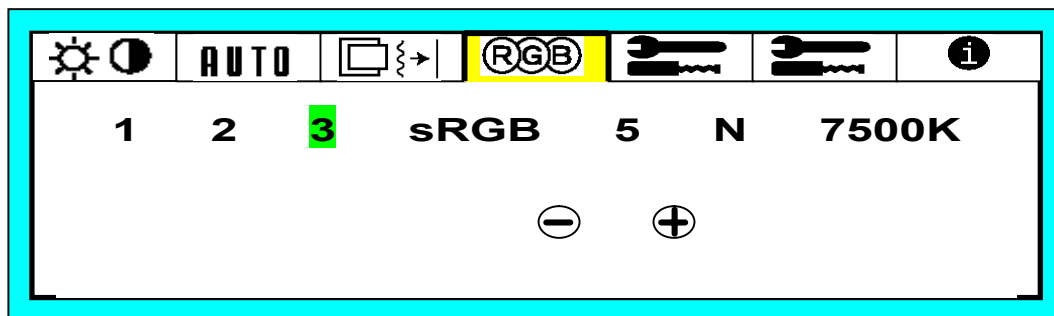
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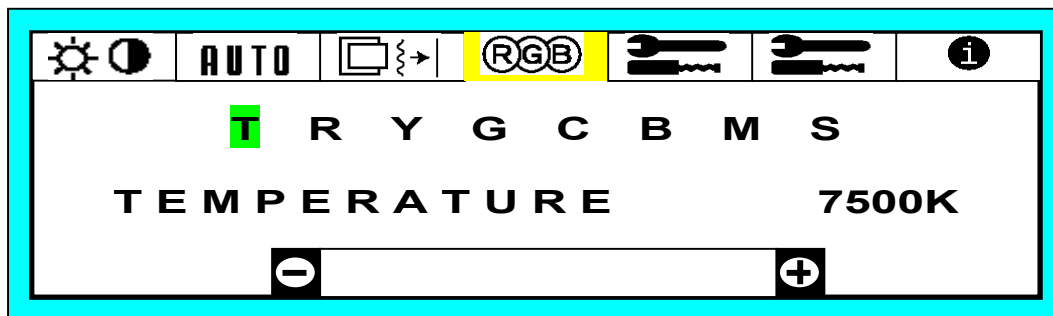
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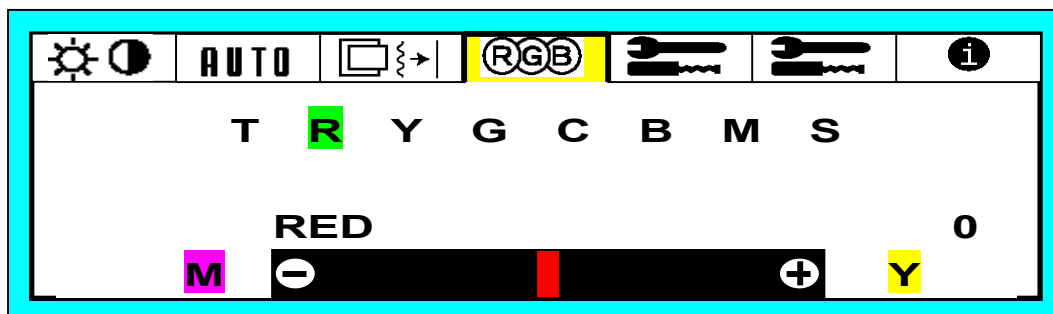
3) 7500K (Item)



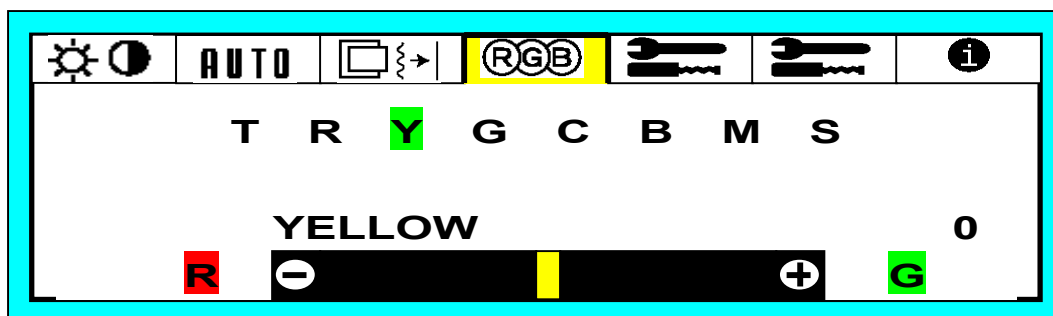
(1) Customize adjust (Sub Item)



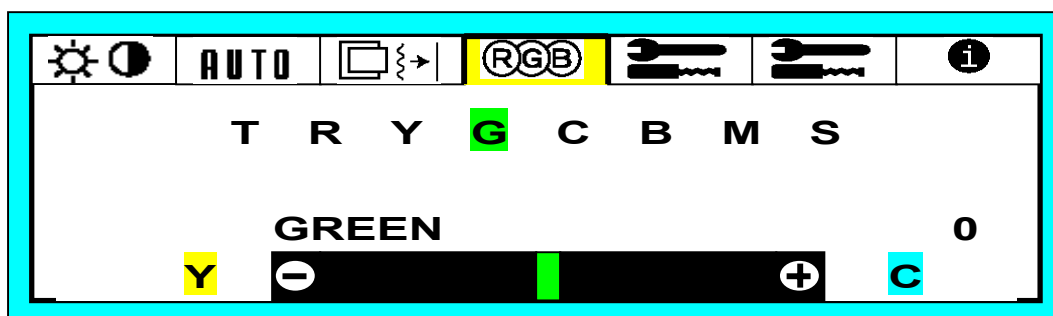
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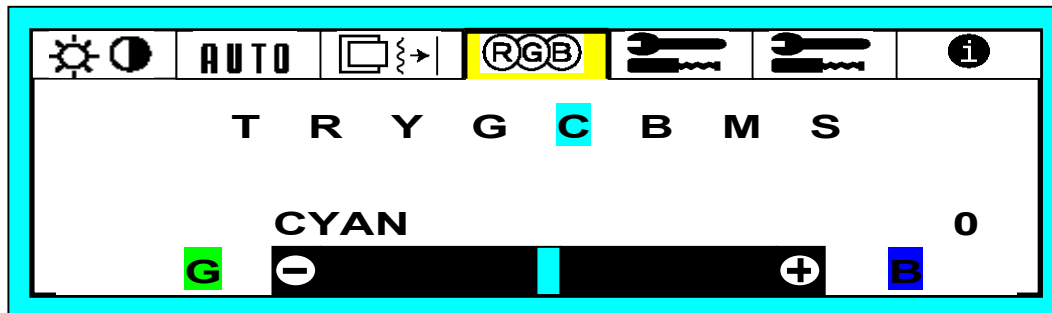
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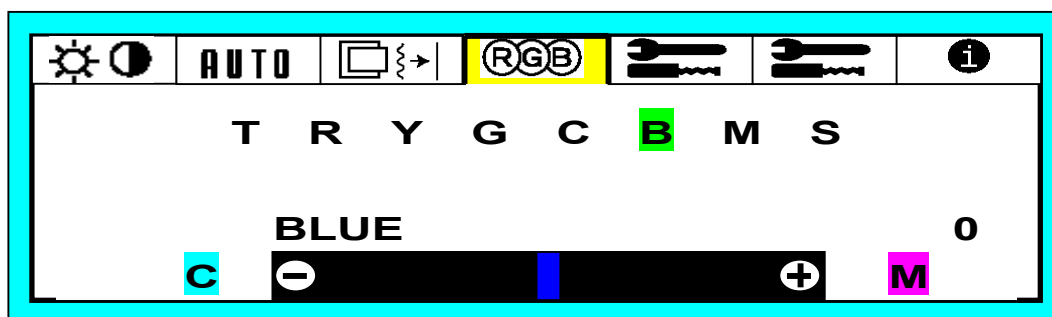
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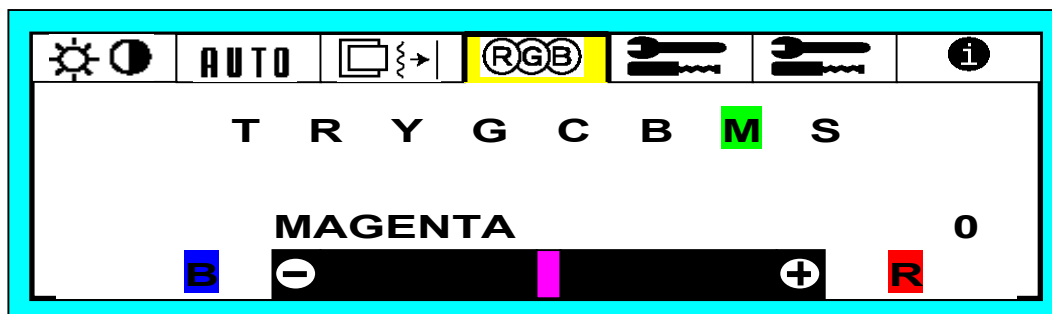
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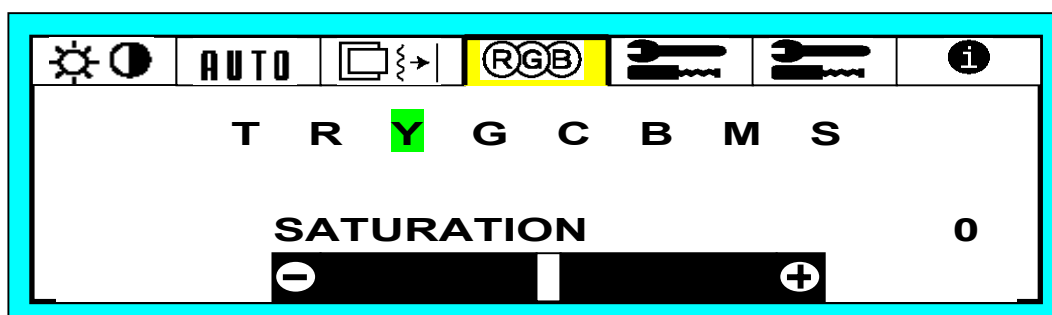
(6) Customize adjust (Sub Item)



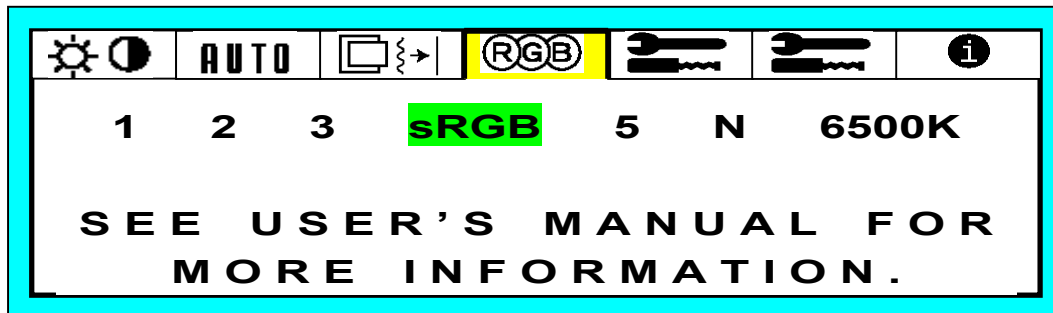
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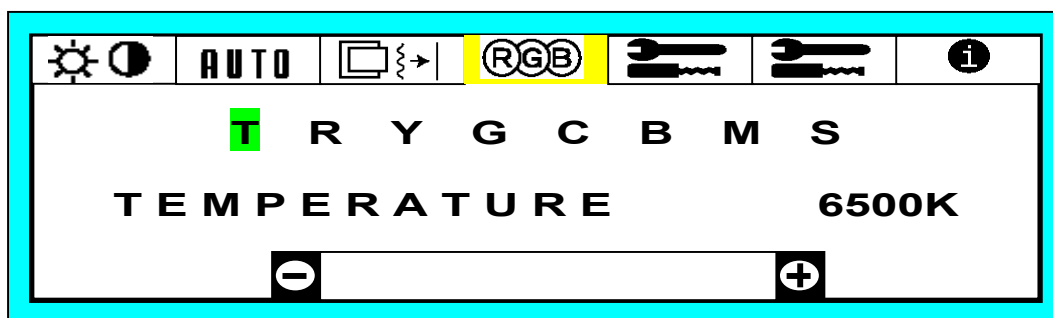
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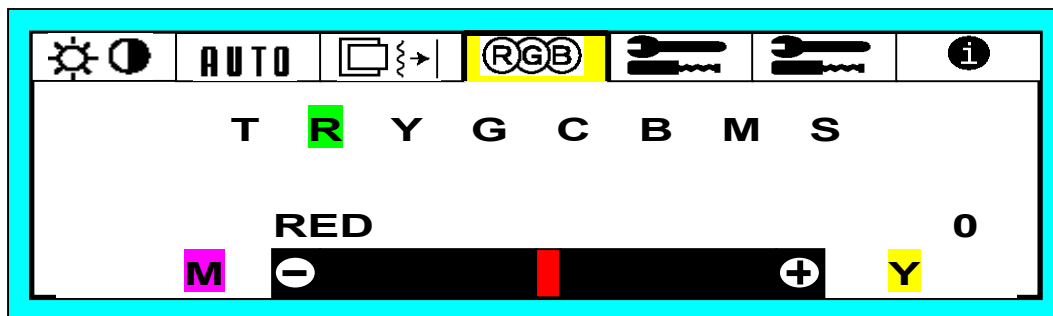
4) 6500K (Item)



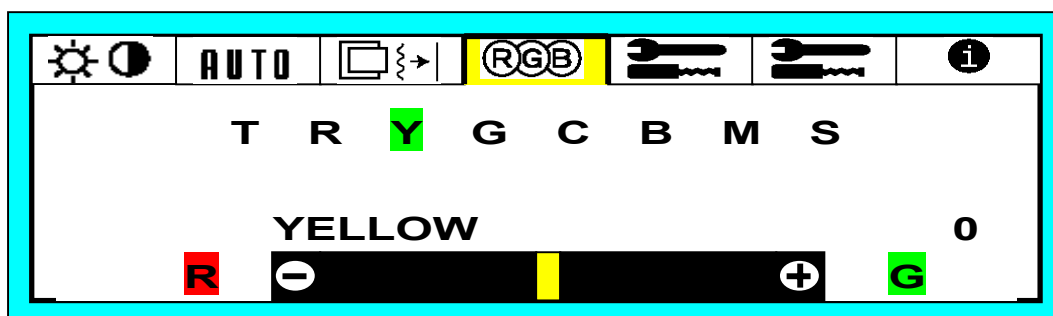
(1) Customize adjust (Sub Item)



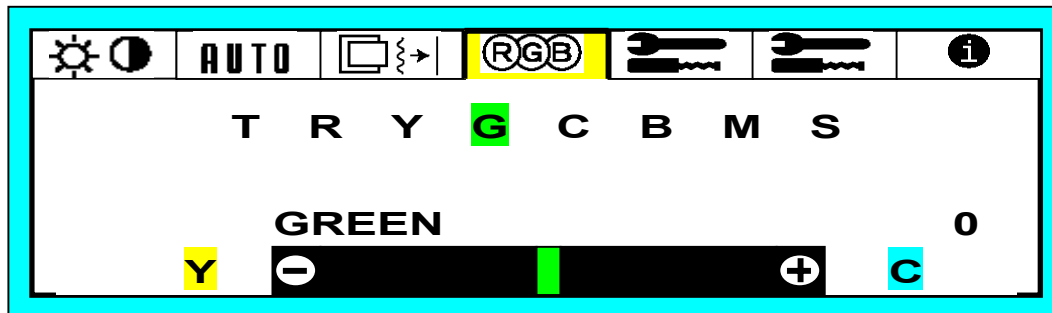
(2) Customize adjust (Sub Item)



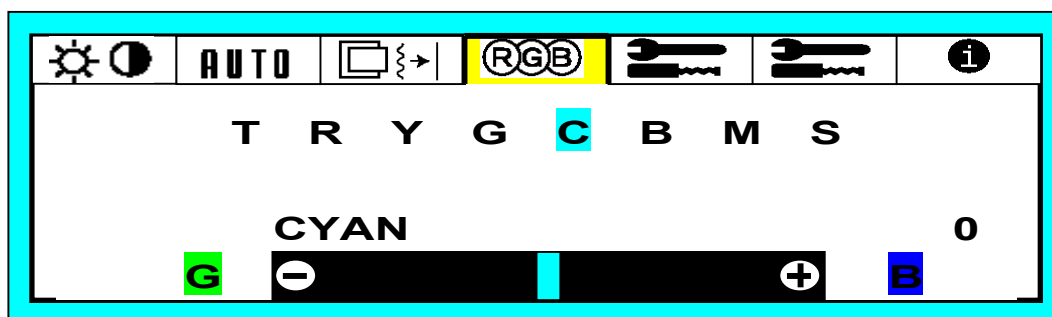
(3) Customize adjust (Sub Item)



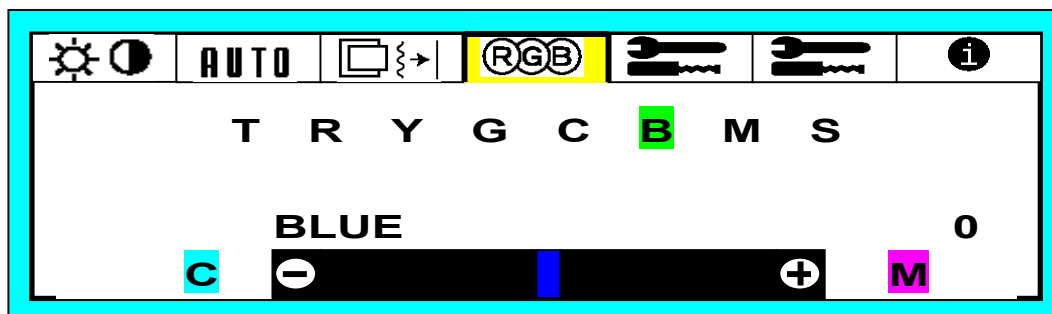
(4) Customize adjust (Sub Item)



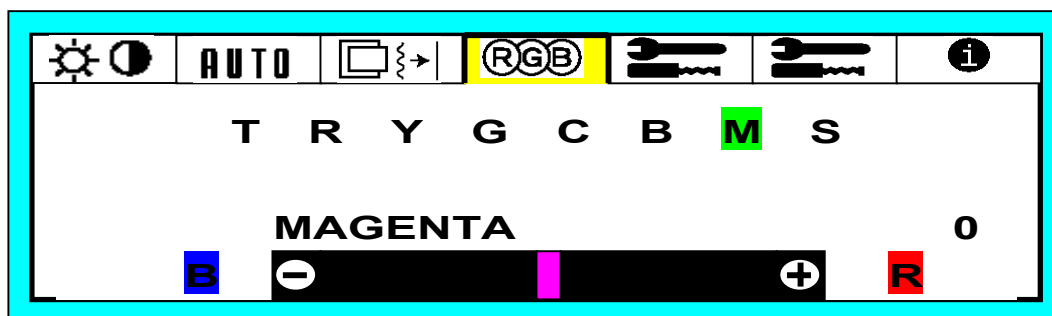
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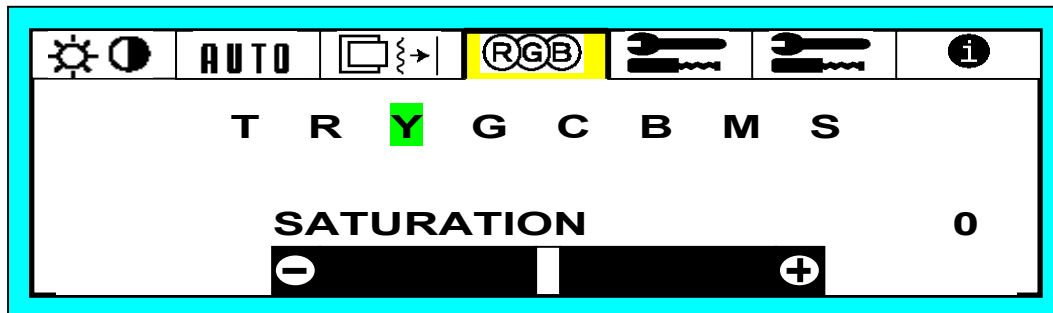
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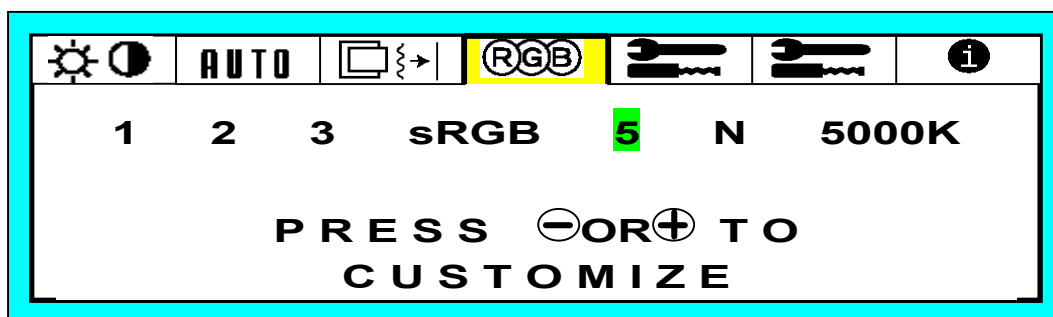
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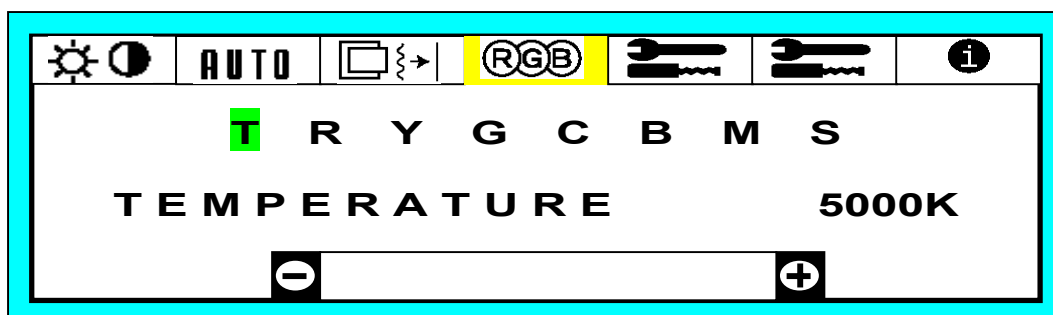
(8) Customize adjust (Sub Item)



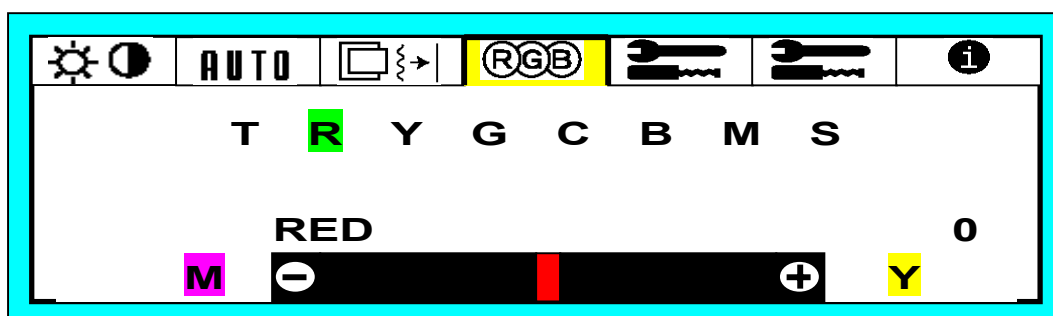
5) 5000K (Item)



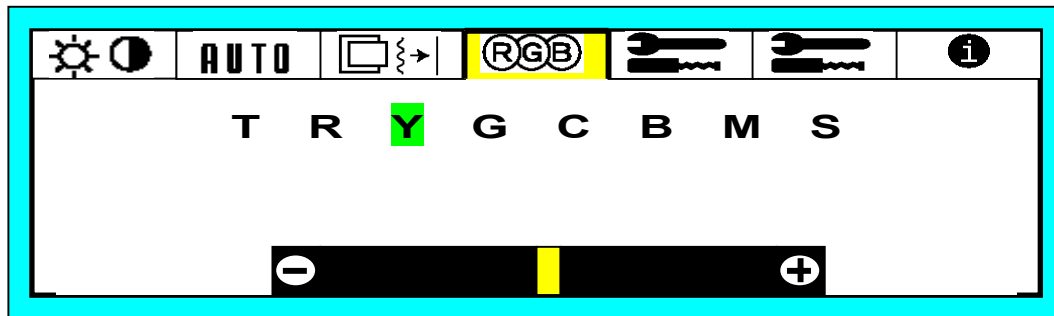
(1) Customize adjust (Sub Item)



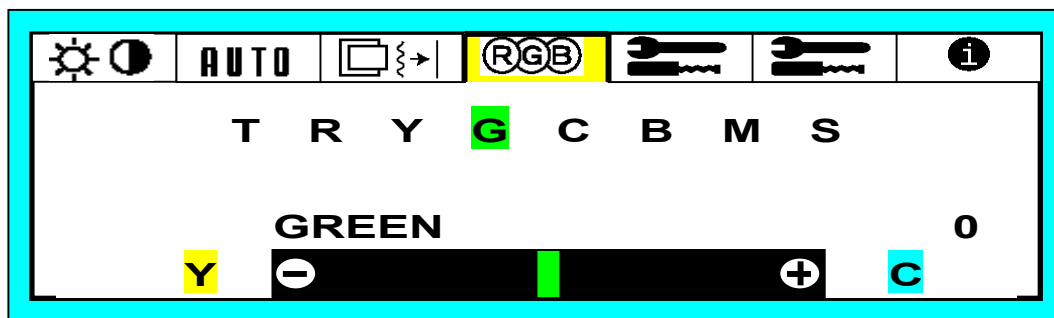
(2) Customize adjust (Sub Item)



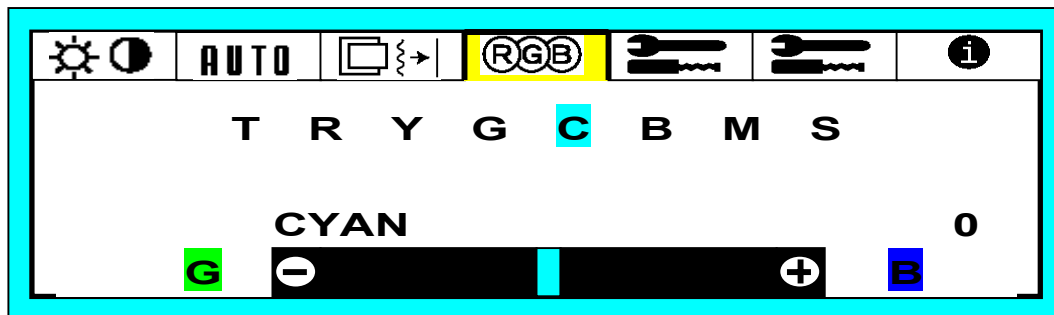
(3) Customize adjust (Sub Item)



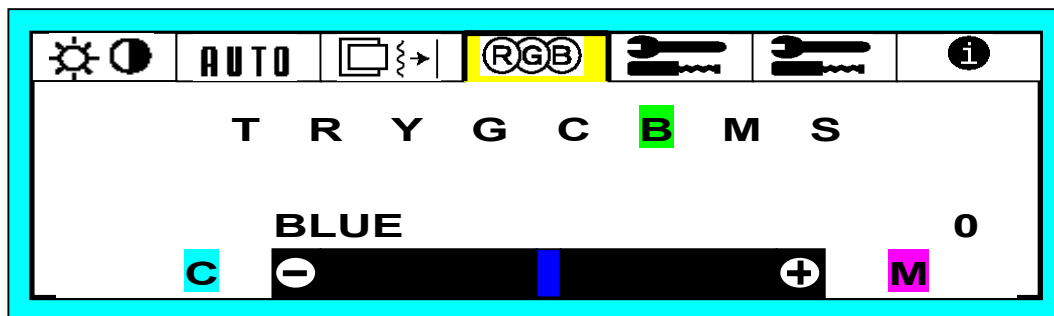
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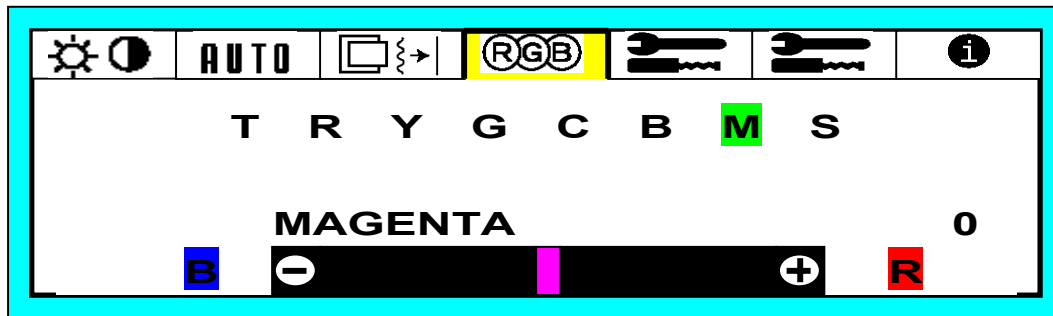
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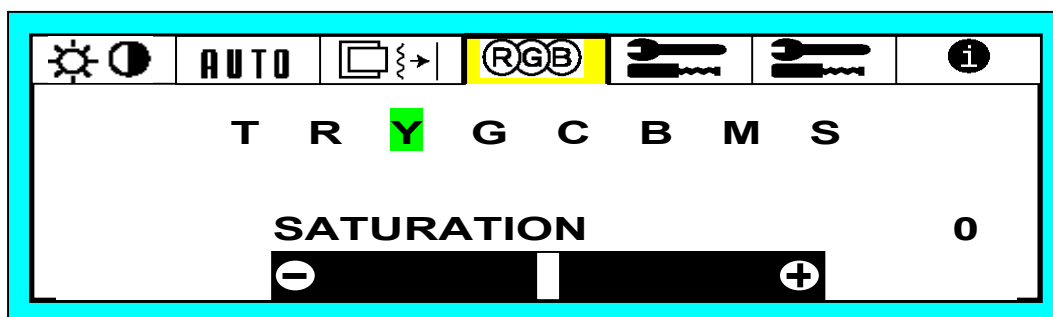
(6) Customize adjust (Sub Item)



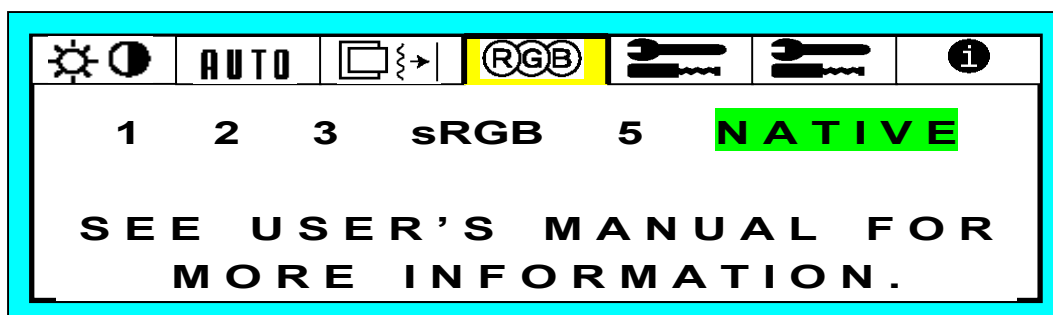
(7) Customize adjust (Sub Item)



(8) Customize adjust (Sub Item)



6) Native (Item)

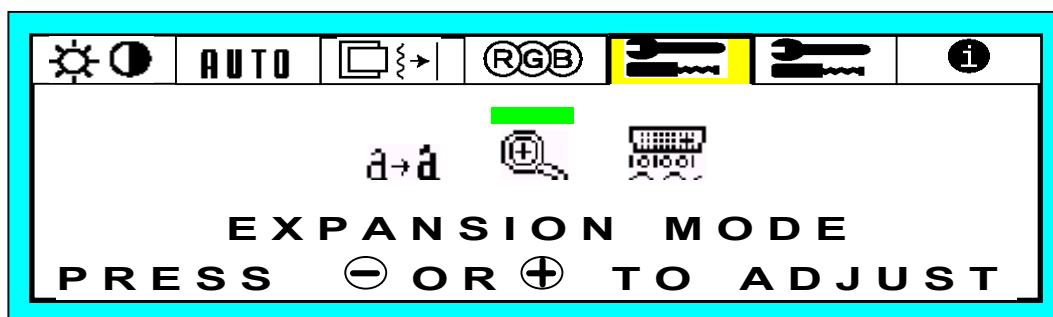


Page 5:

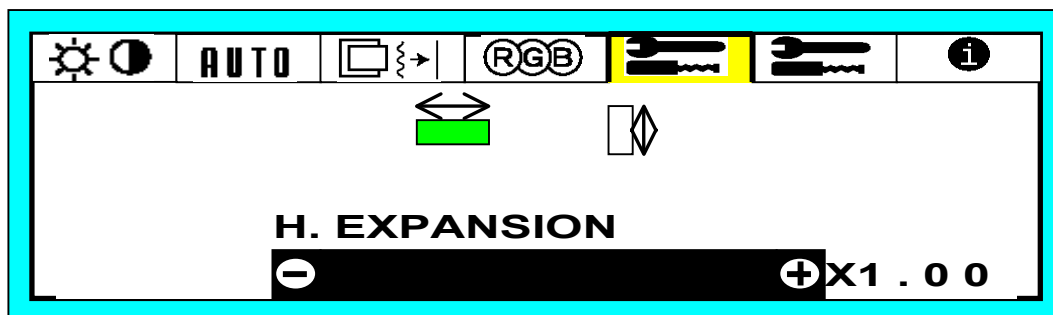
1) Sharpness (Item)



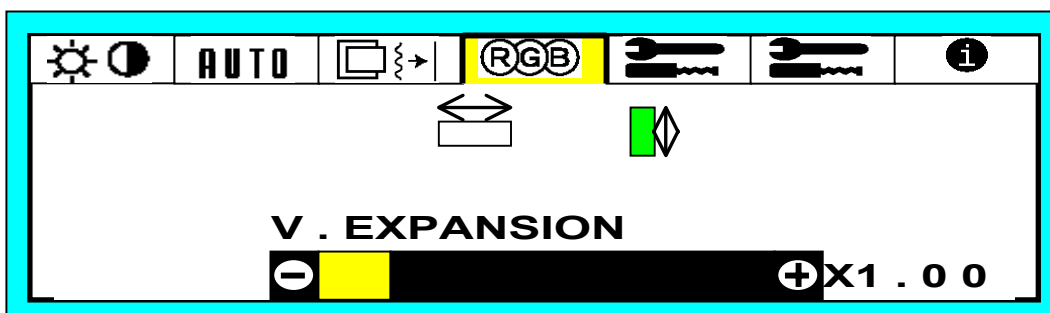
2) Expansion Mode (Item)



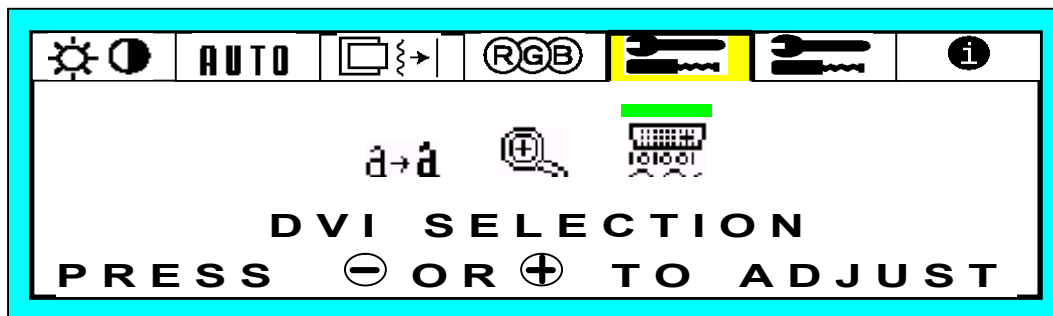
(1) Customize adjust (Sub Item)



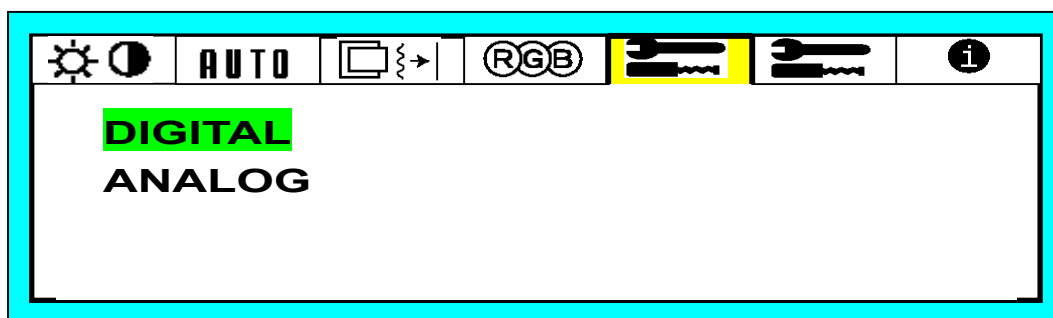
(2) Customize adjust (Sub Item)



3) DVI Selection (Item)

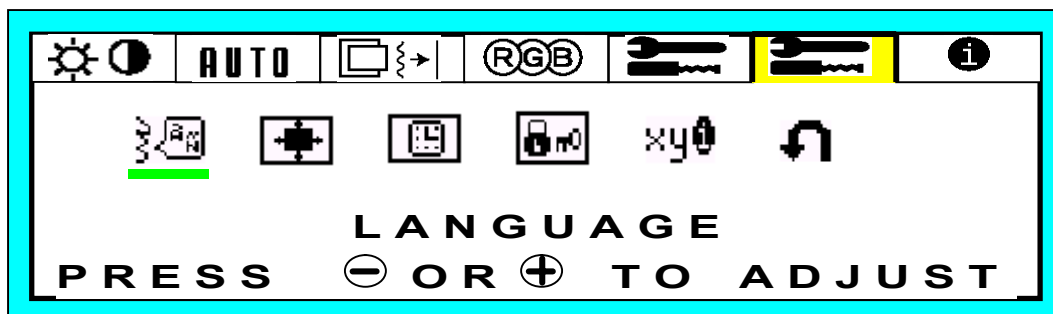


(1) customize adjust (Sub Item)

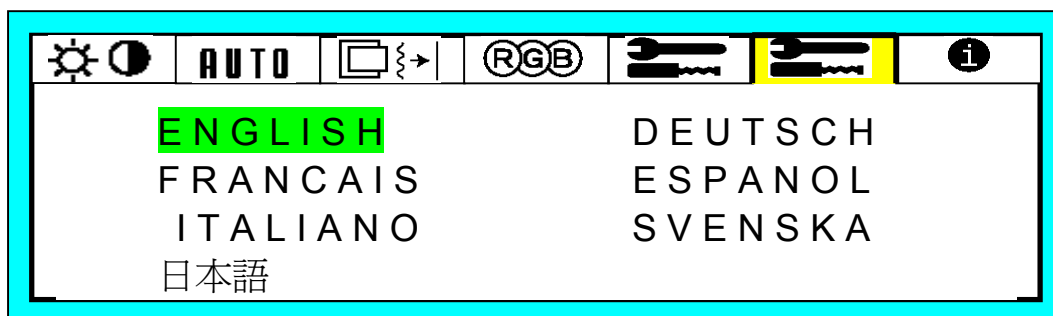


Page 6:

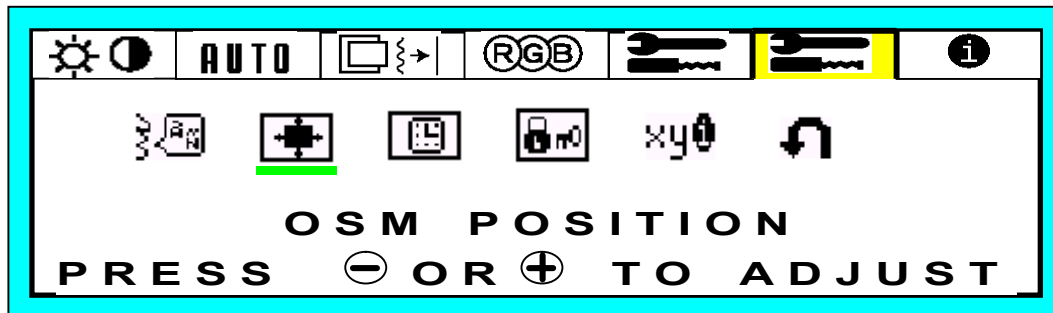
1) Language (Item)



(1) customize adjust (Sub Item)



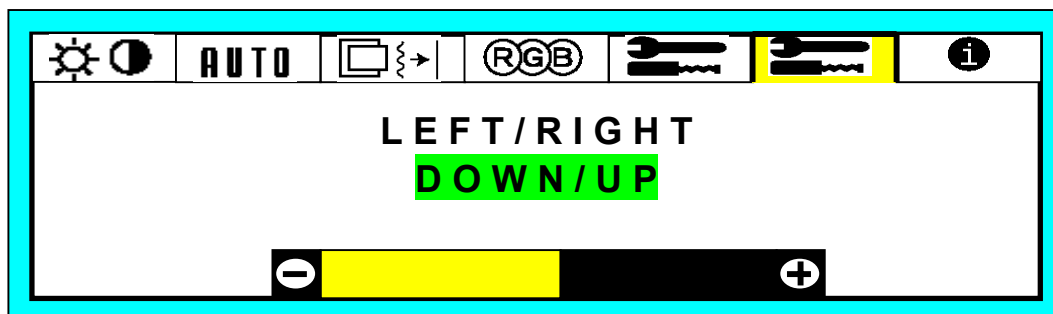
2) OSM Position (Item)



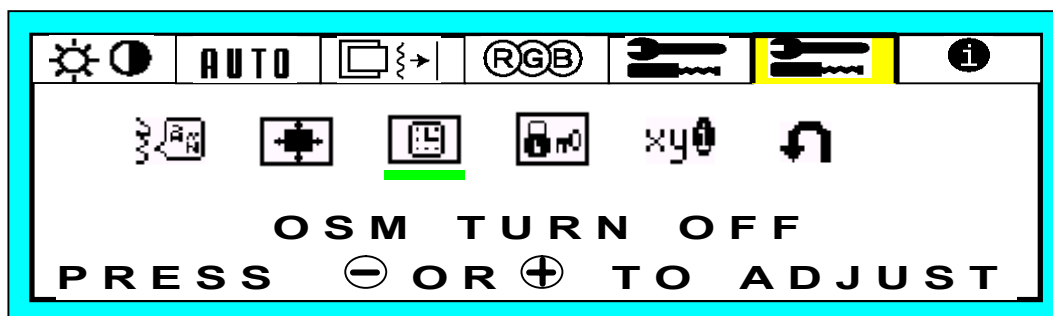
(1) Customize adjust (Sub Item)



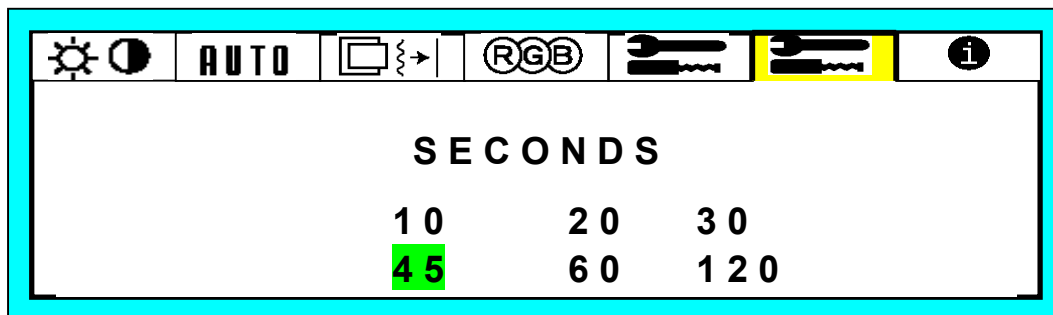
(2) Customize adjust (Sub Item)



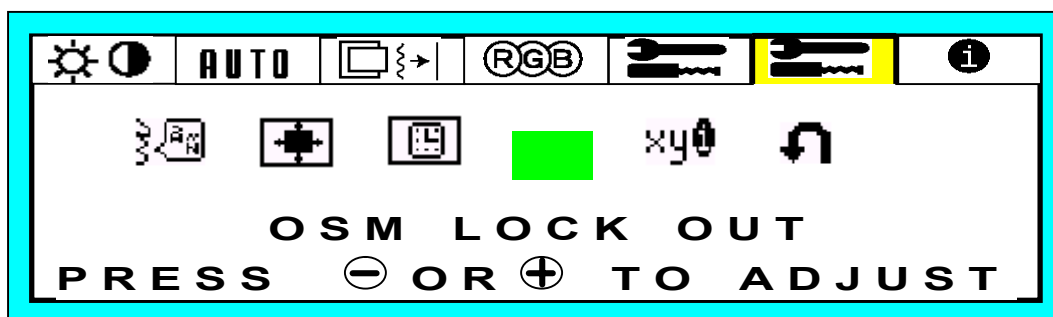
3) OSM Turn off (Item)



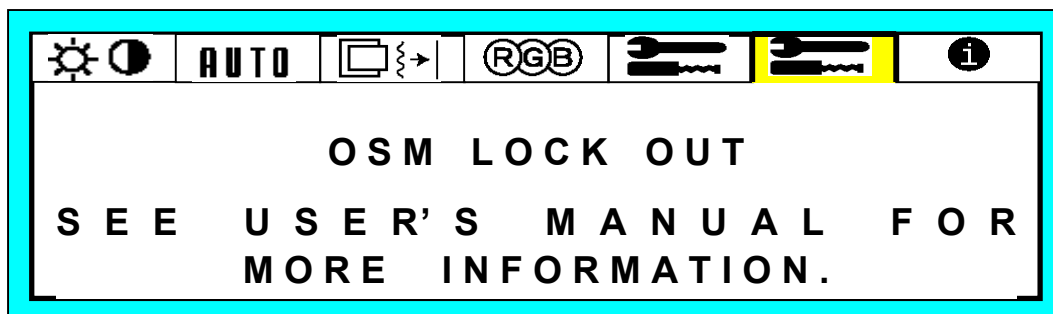
(1) Customize adjust (Sub Item)



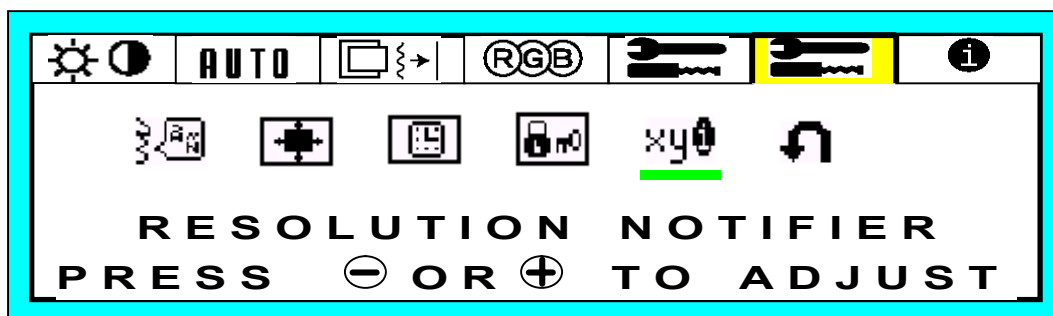
4) OSM Lock out (Item)



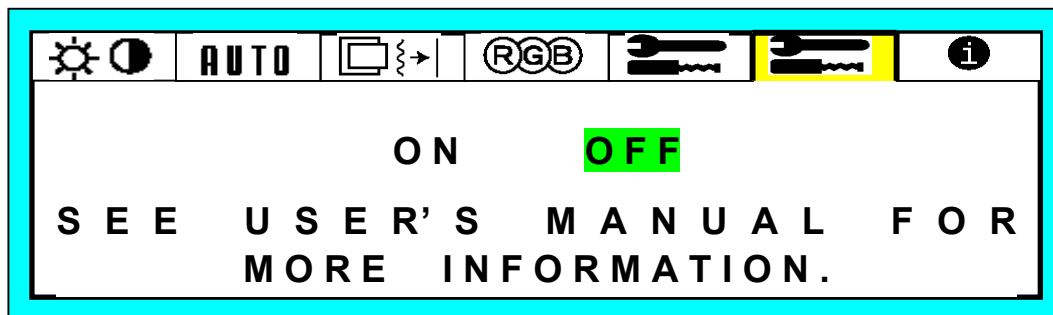
(1) Customize adjust (Sub Item)



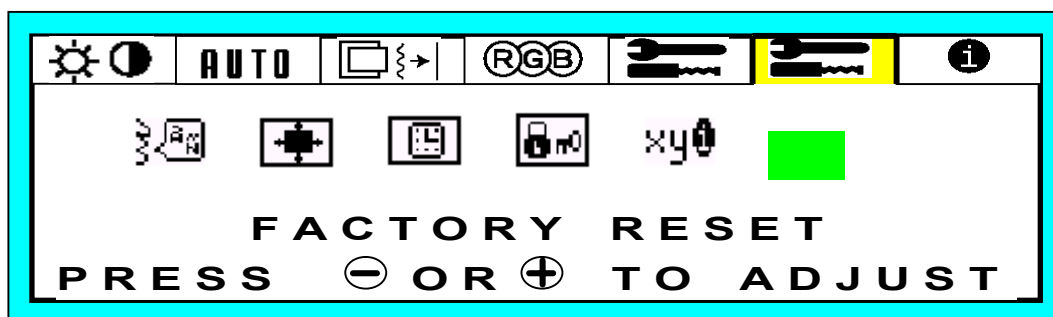
5) Resolution notifier (Item)



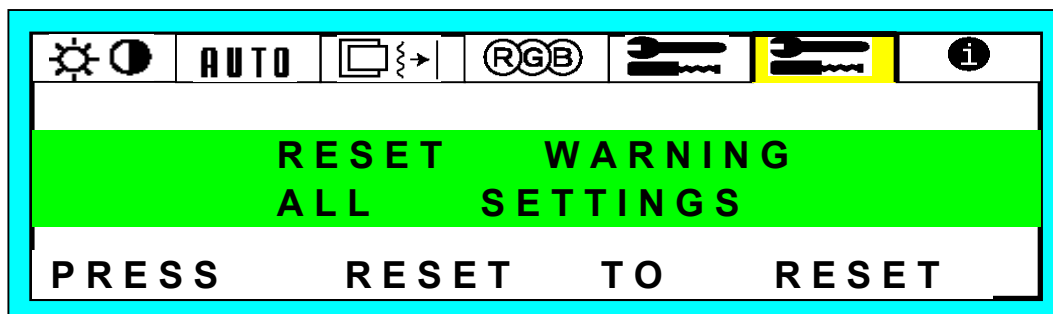
(1) Customize adjust (Sub Item)



6) Factory reset (Item)

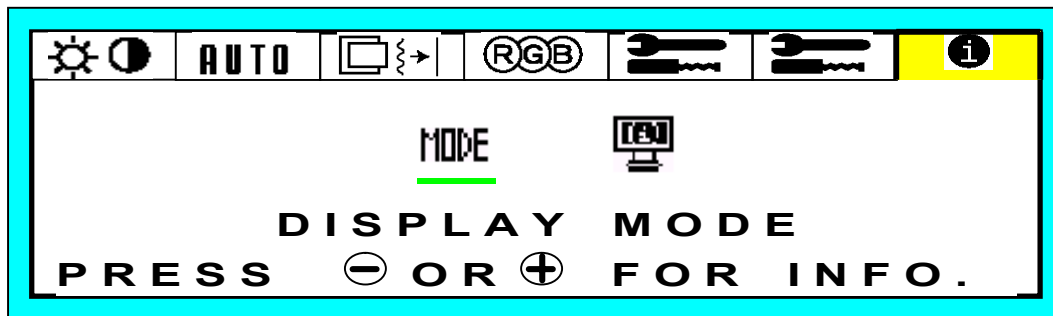


(1) Customize adjust (Sub Item)

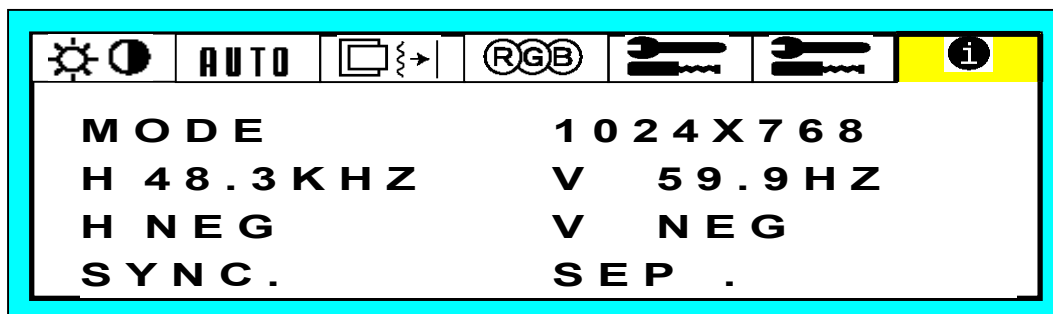


Page 7:

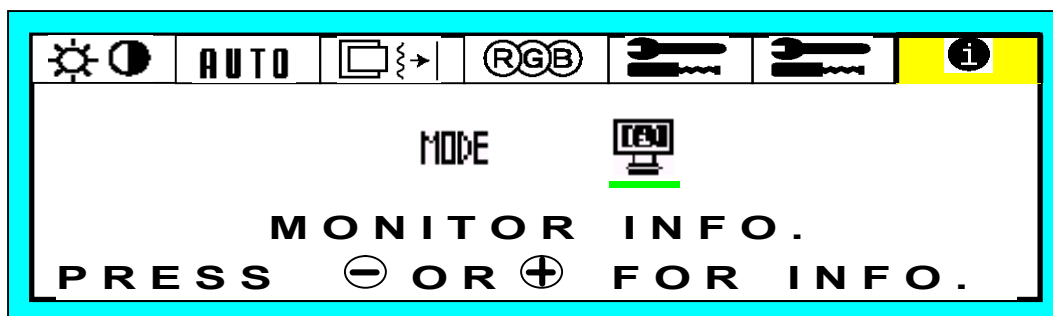
1) Display mode (Item)



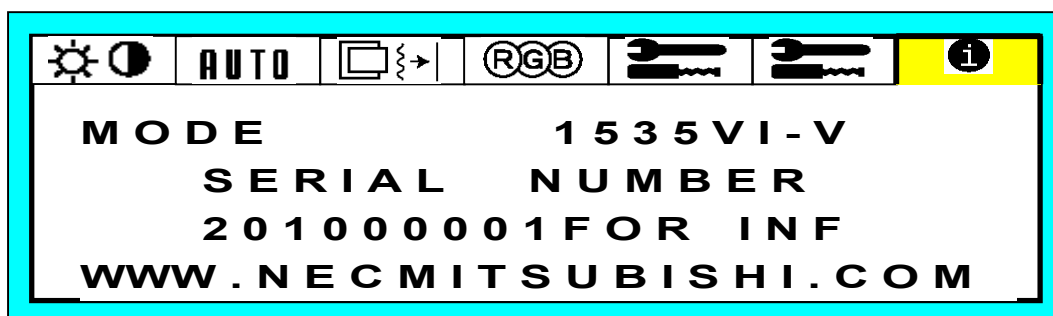
(1) Customize adjust (Sub Item)



2) Monitor info (Item)



(2) Customize adjust (Sub Item)



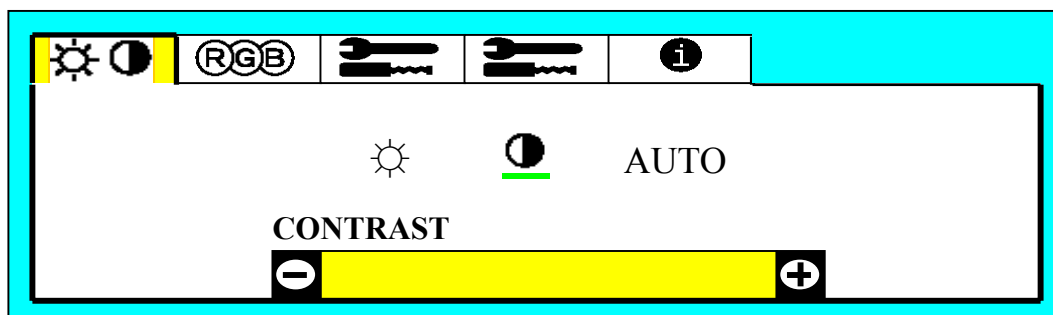
2) DIGITAL INPUT Normal format:

Page 1:

1) Brightness (Item)



2) Contrast (Item)

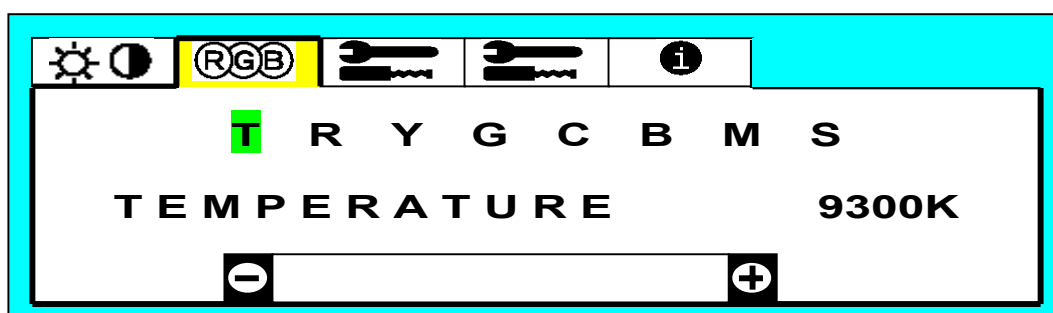


Page 2:

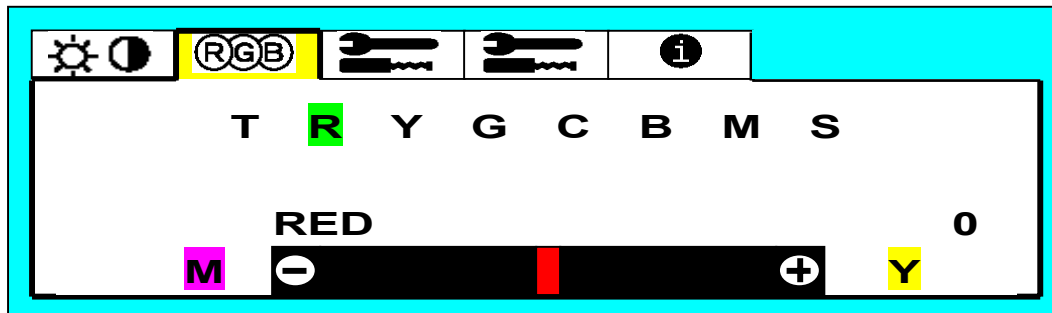
1) 9300K (Item)



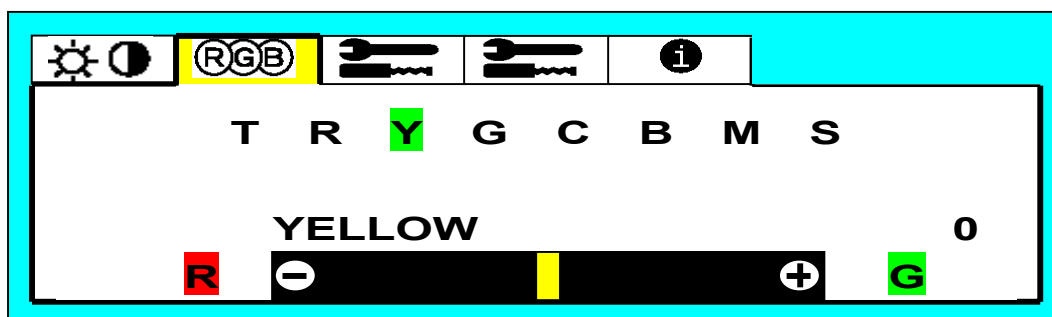
(1) Customize adjust (Sub Item)



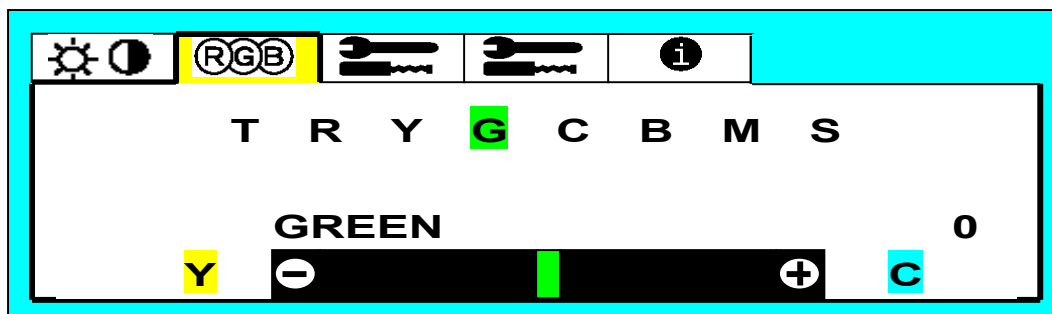
(2) Customize adjust (Sub Item)



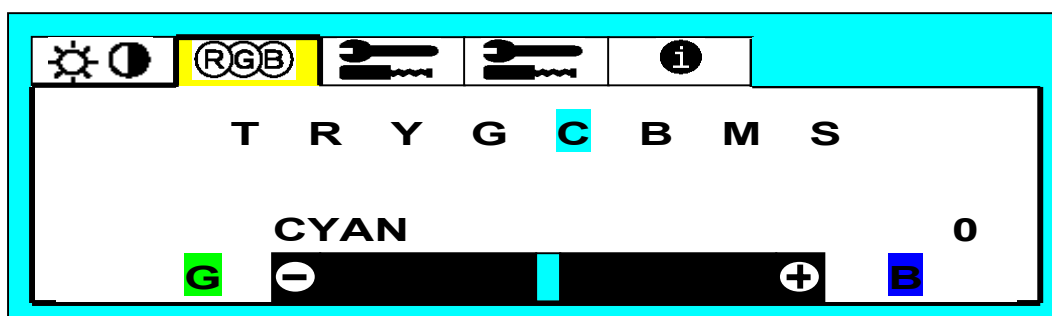
(3) Customize adjust (Sub Item)



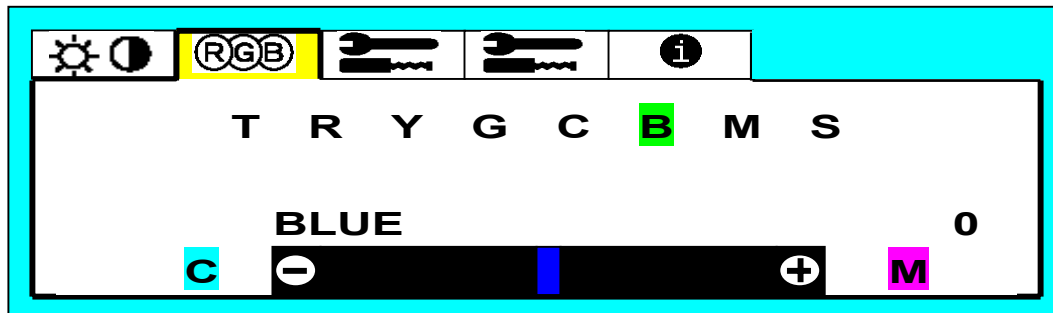
(4) Customize adjust (Sub Item)



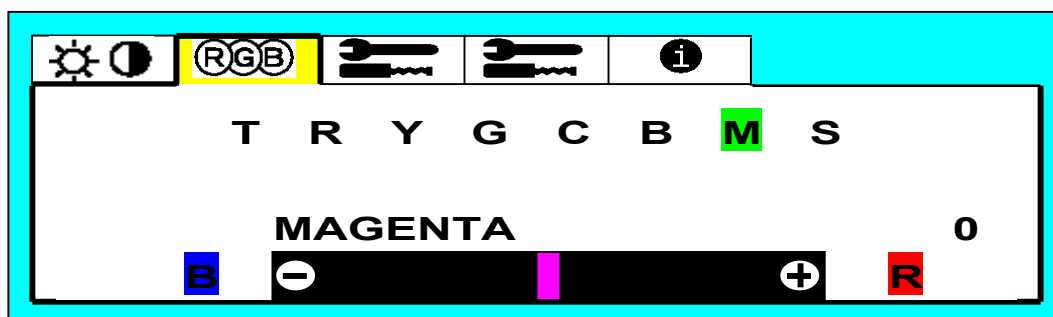
(5) Customize adjust (Sub Item)



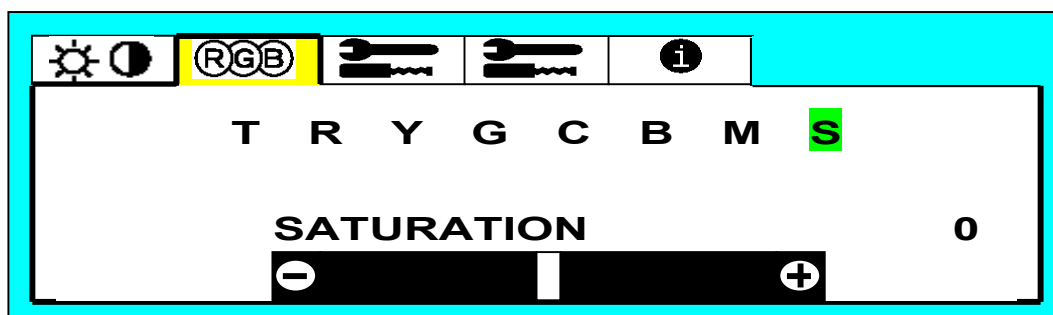
(6) Customize adjust (Sub Item)



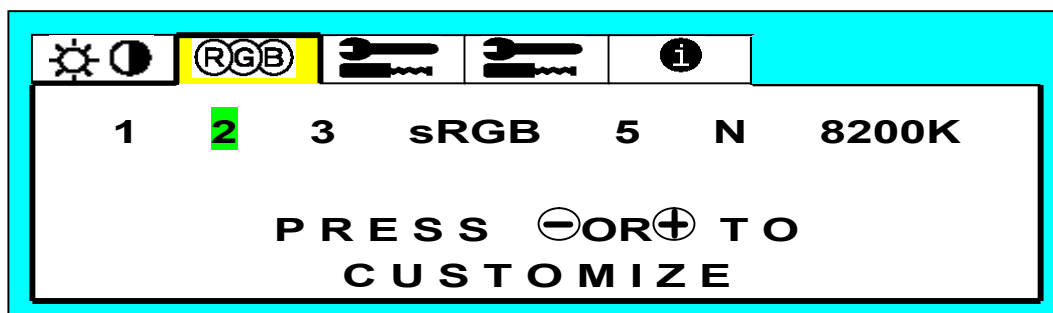
(7) Customize adjust (Sub Item)

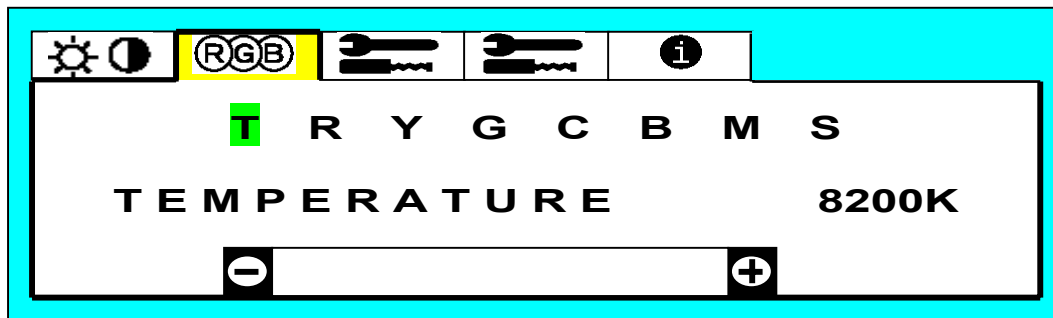


(8) Customize adjust (Sub Item)

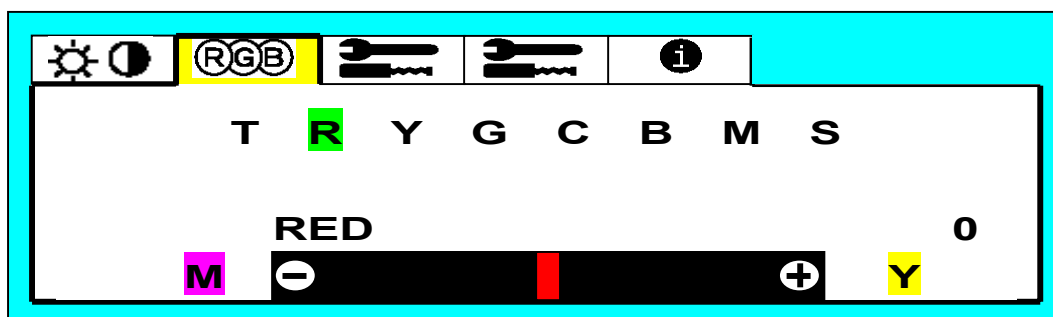


2) 8200K (Item)

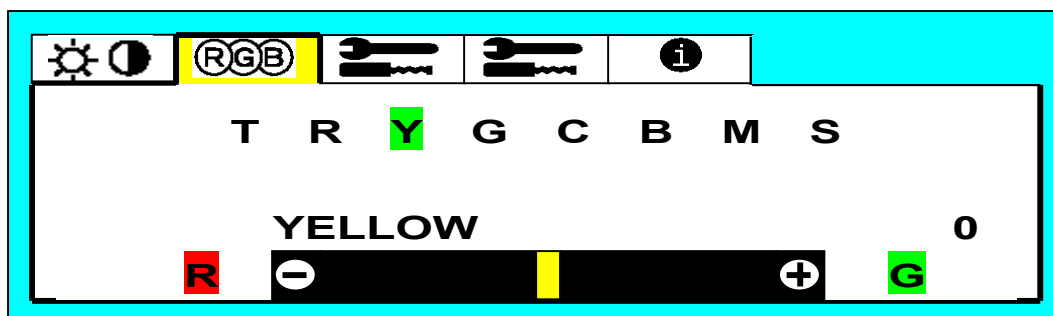




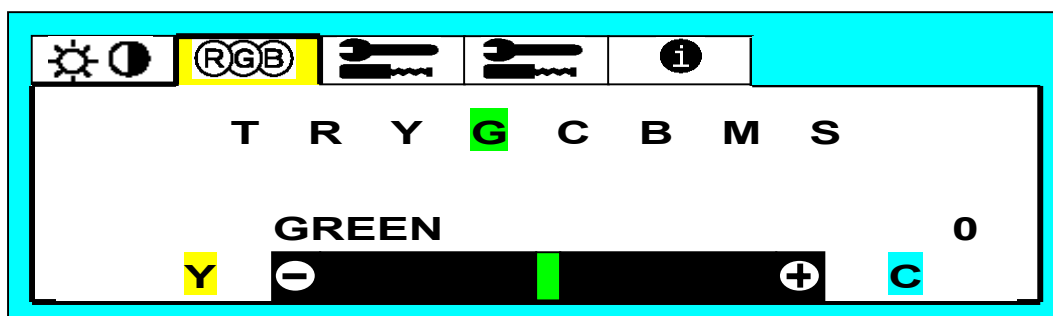
(2) Customize adjust (Sub Item)



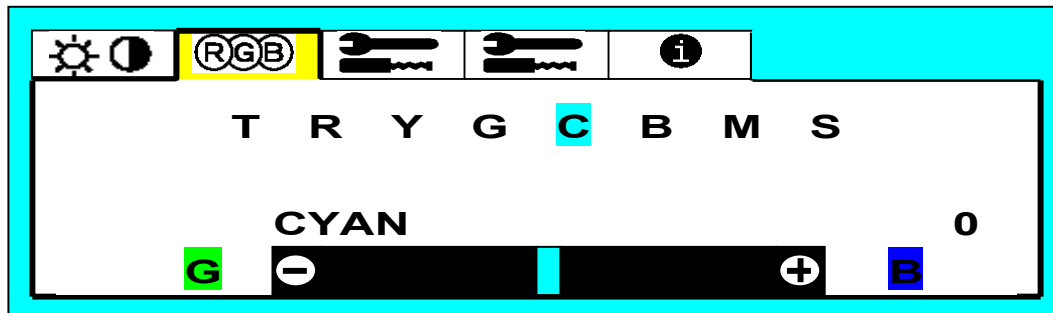
(3) Customize adjust (Sub Item)



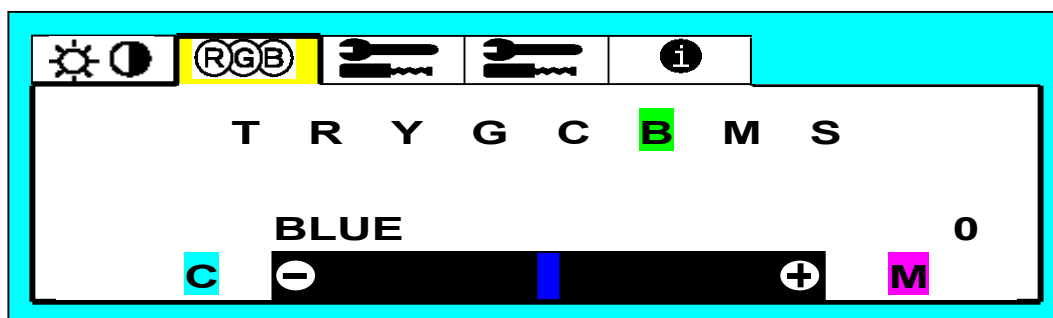
(4) Customize adjust (Sub Item)



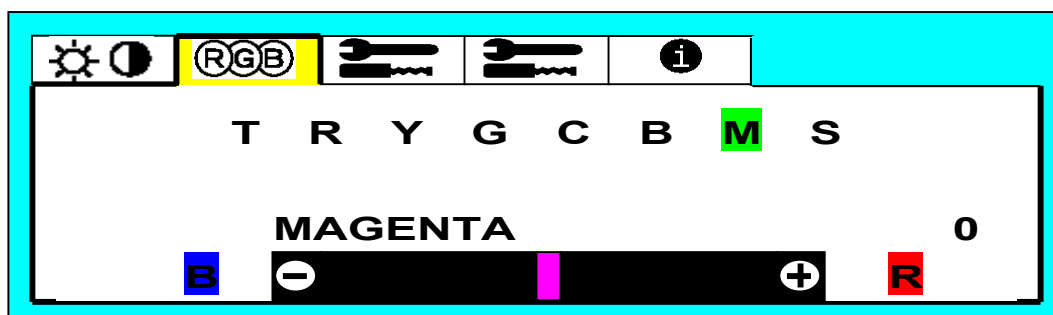
(5) Customize adjust (Sub Item)



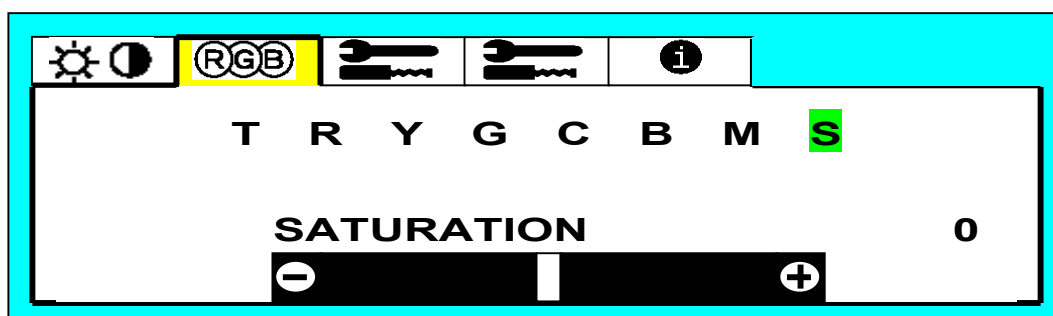
(6) Customize adjust (Sub Item)



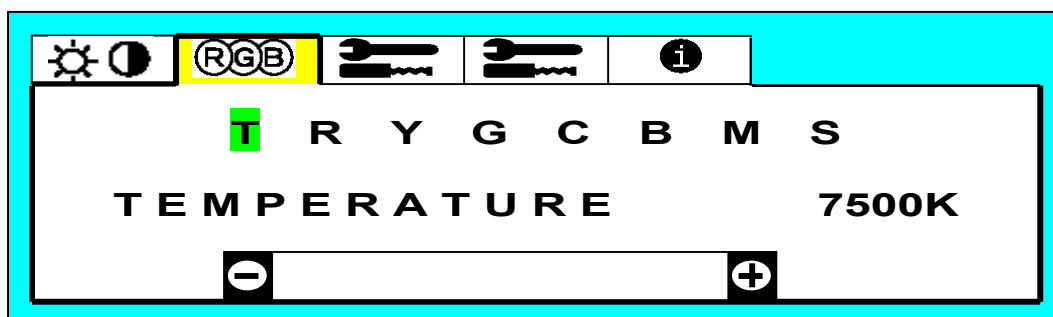
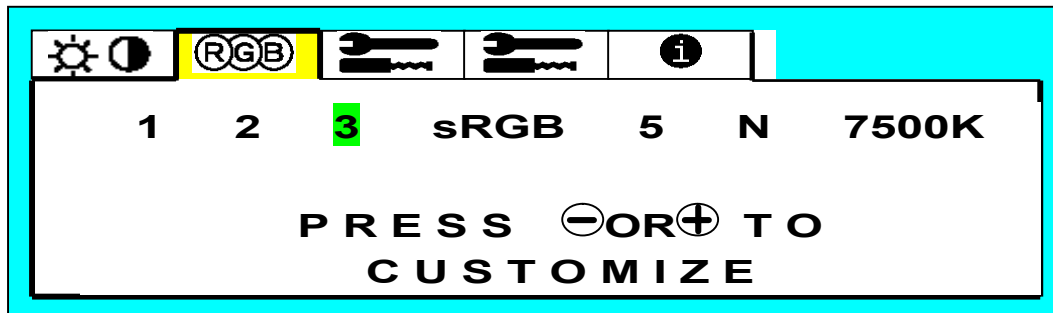
(7) Customize adjust (Sub Item)



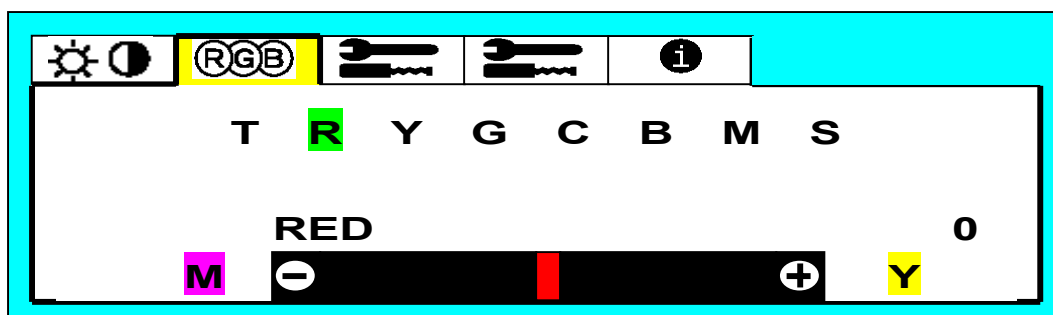
(8) Customize adjust (Sub Item)



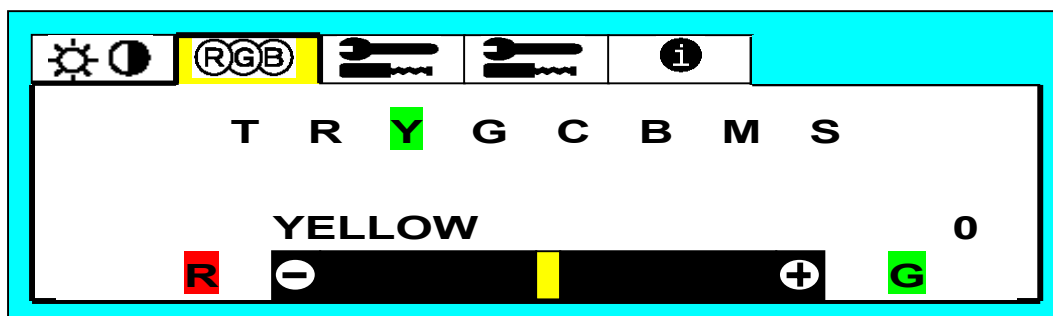
3) 7500K (Item)



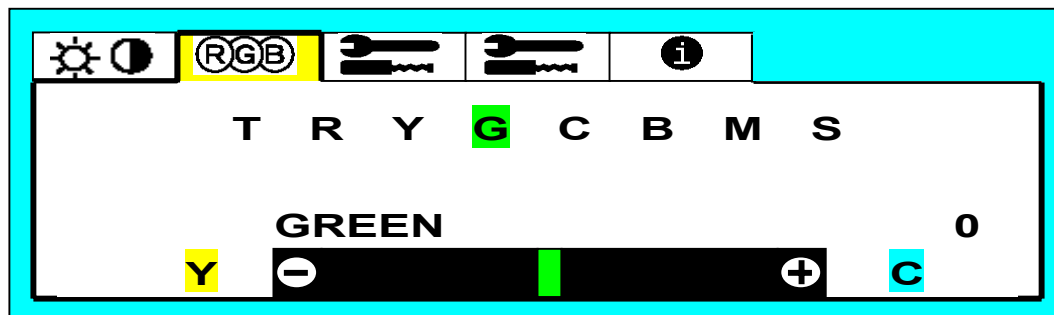
(2) Customize adjust (Sub Item)



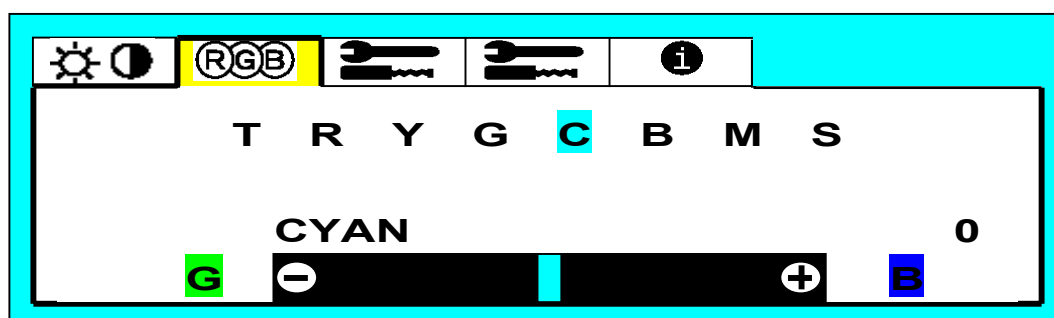
(3) Customize adjust (Sub Item)



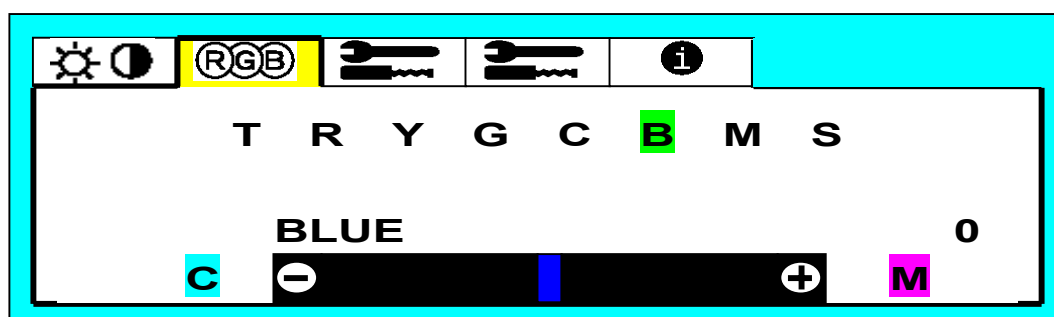
(4) Customize adjust (Sub Item)



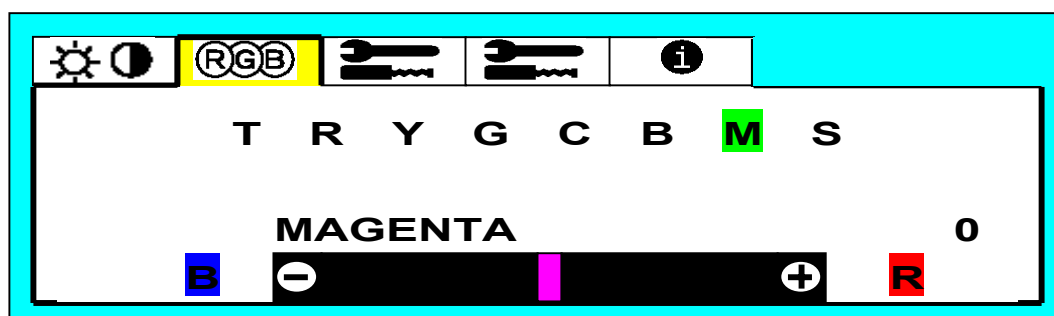
(5) Customize adjust (Sub Item)



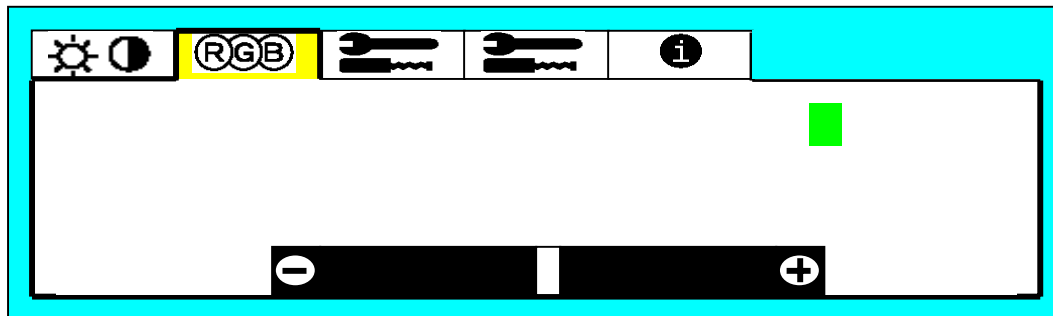
(6) Customize adjust (Sub Item)



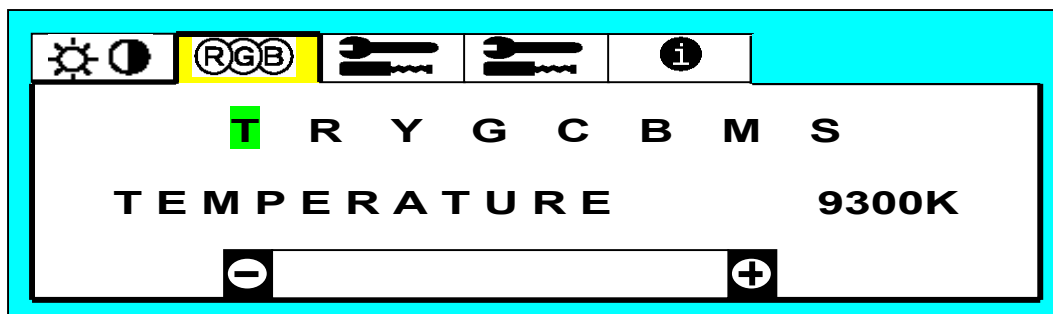
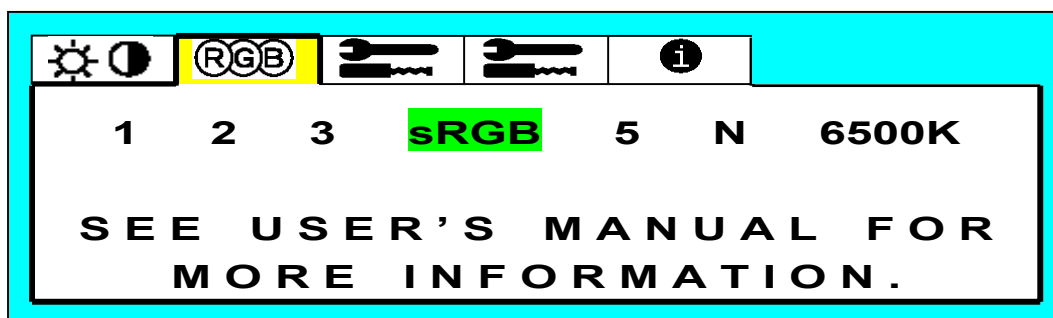
(7) Customize adjust (Sub Item)



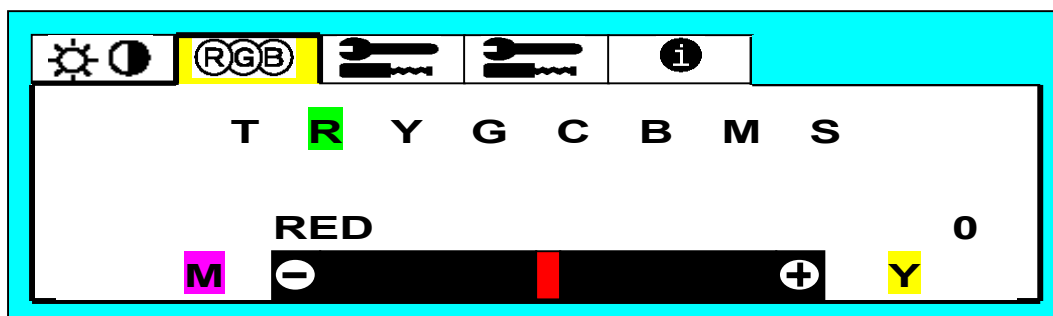
(8) Customize adjust (Sub Item)



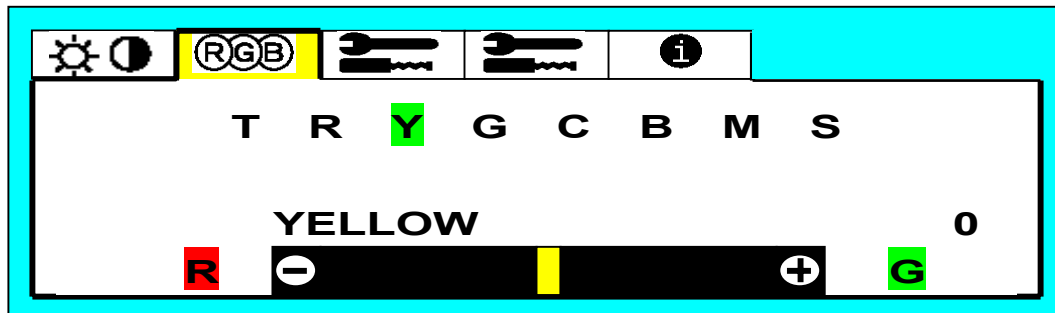
4) 6500K (Item)



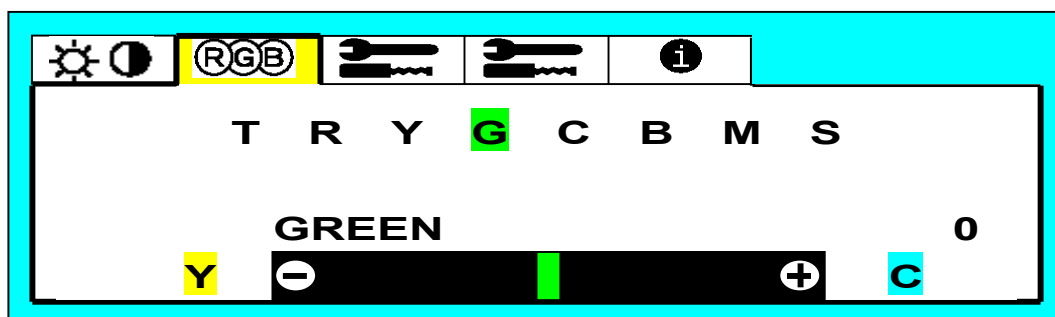
(2) Customize adjust (Sub Item)



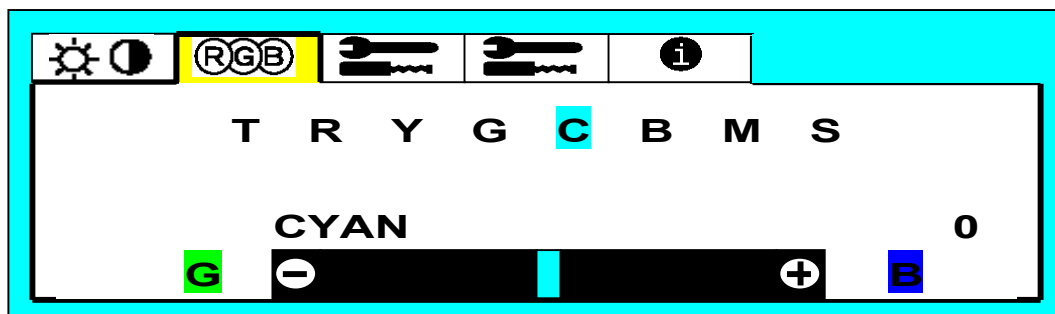
(3) Customize adjust (Sub Item)



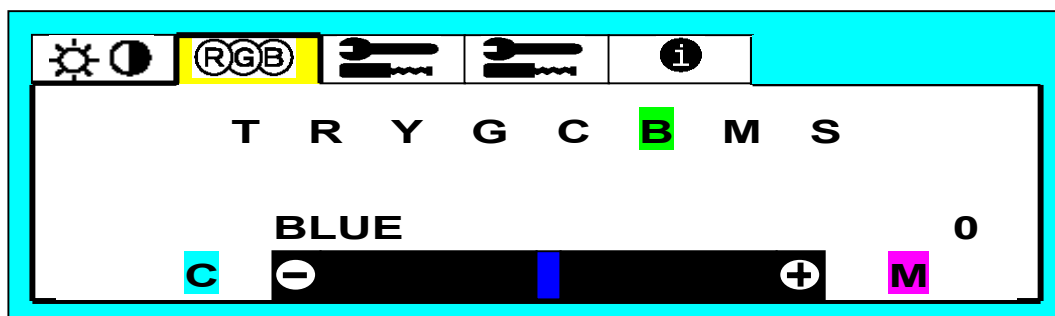
(4) Customize adjust (Sub Item)



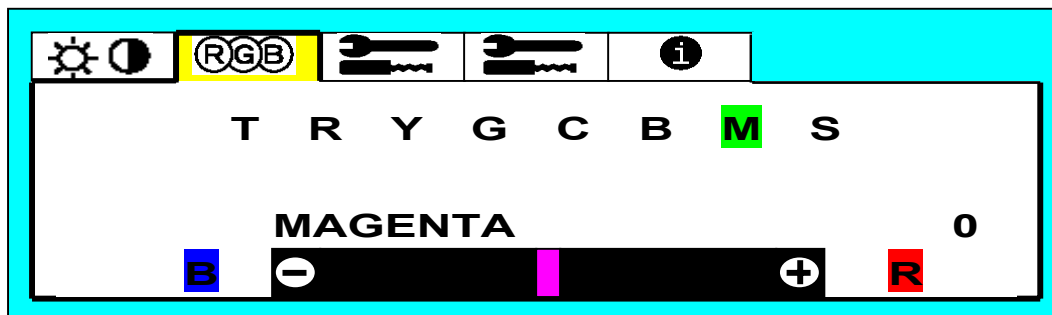
(5) Customize adjust (Sub Item)



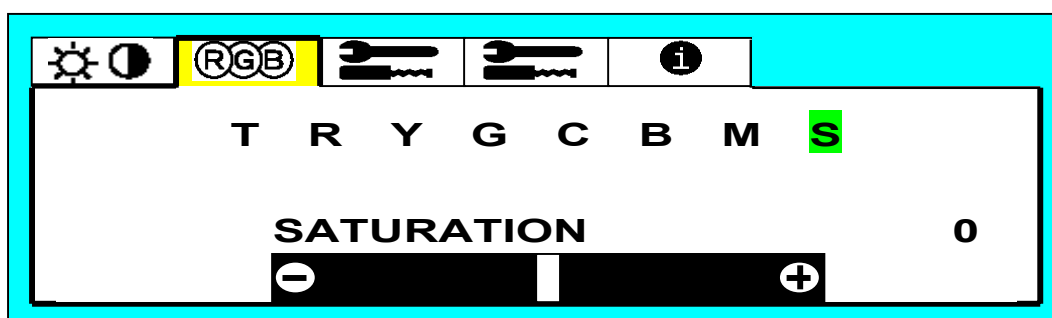
(6) Customize adjust (Sub Item)



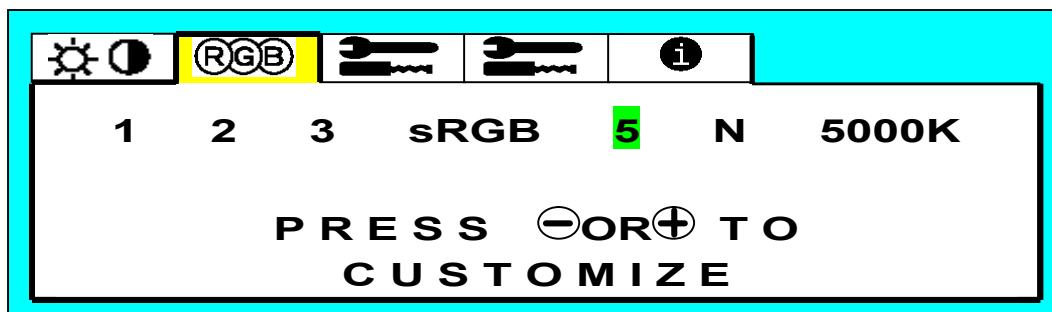
(7) Customize adjust (Sub Item)



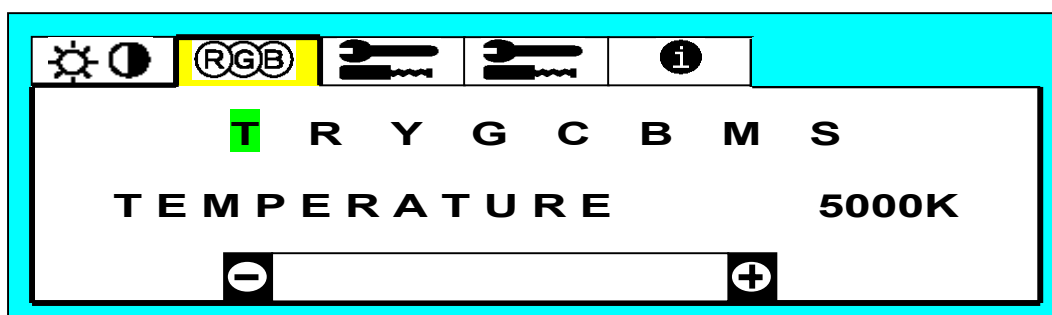
(8) Customize adjust (Sub Item)



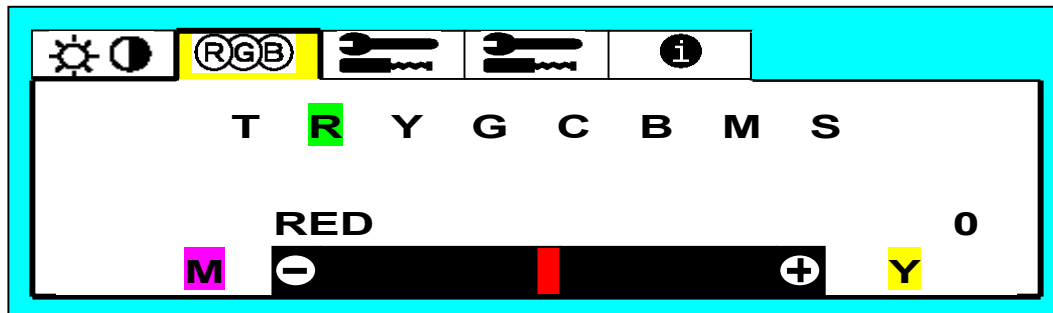
5) 5000K (Item)



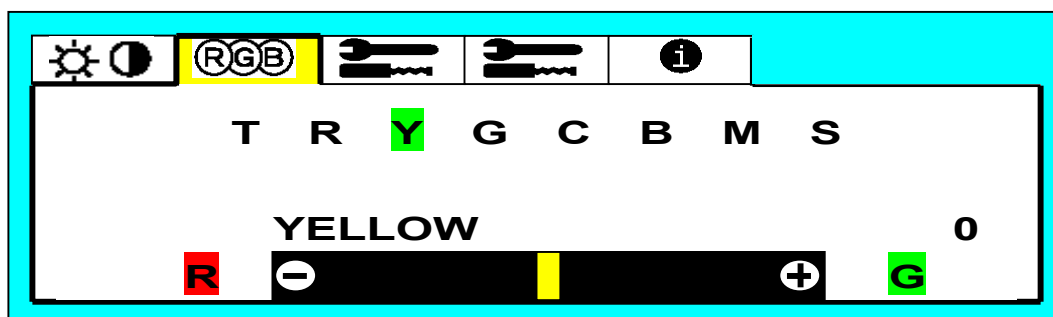
(1) Customize adjust (Sub Item)



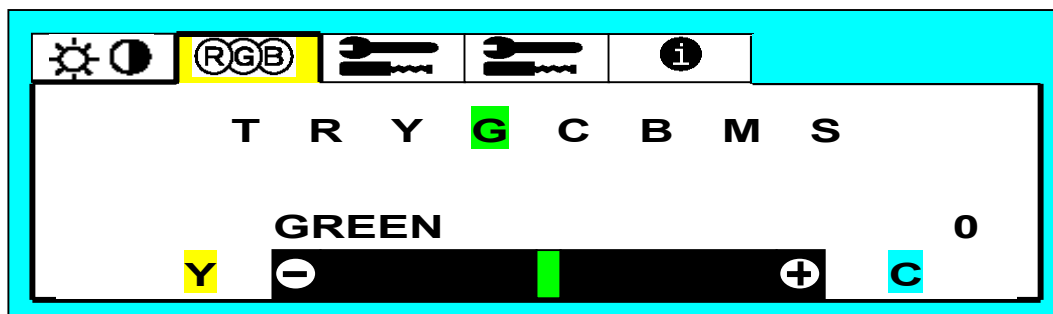
(2) Customize adjust (Sub Item)



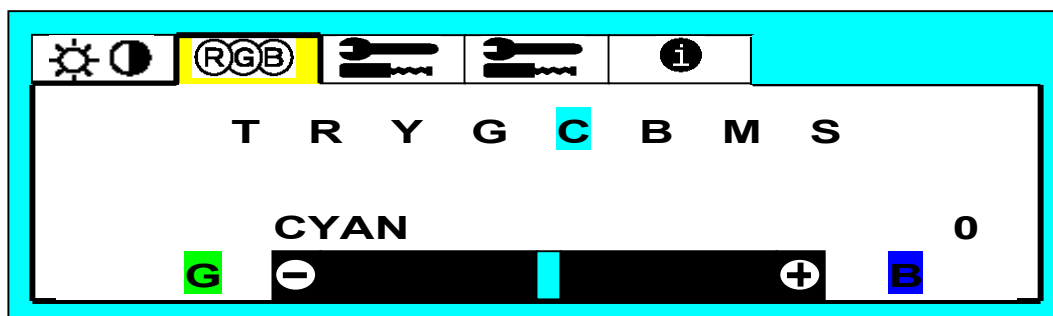
(3) Customize adjust (Sub Item)



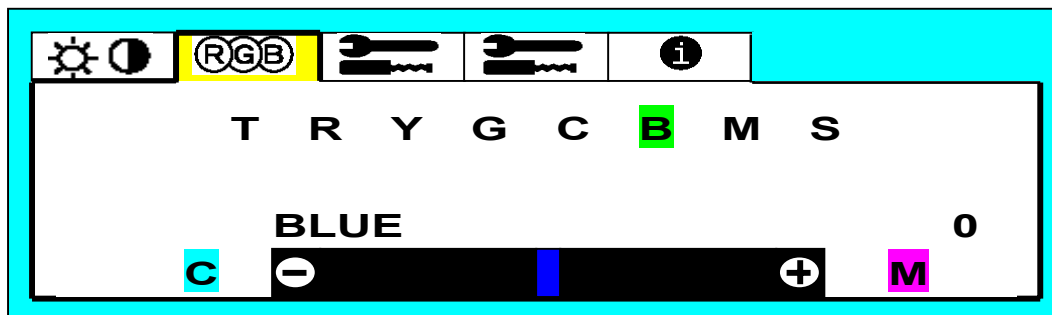
(4) Customize adjust (Sub Item)



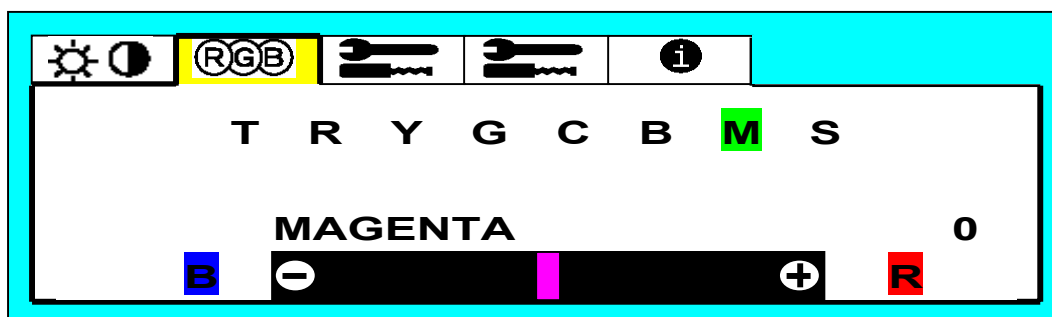
(5) Customize adjust (Sub Item)



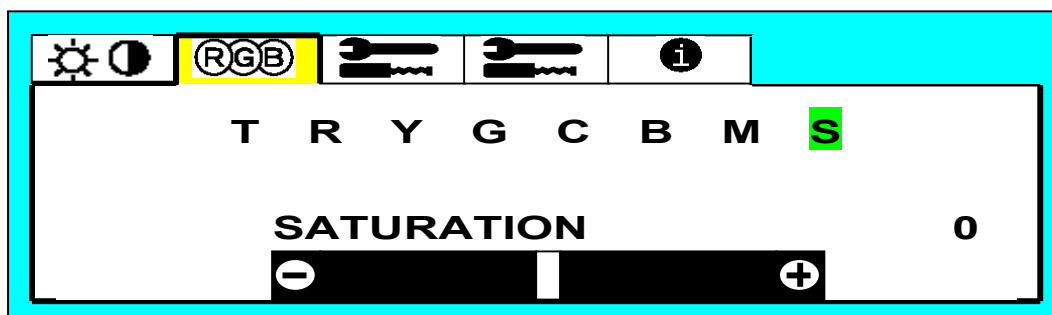
(6) Customize adjust (Sub Item)



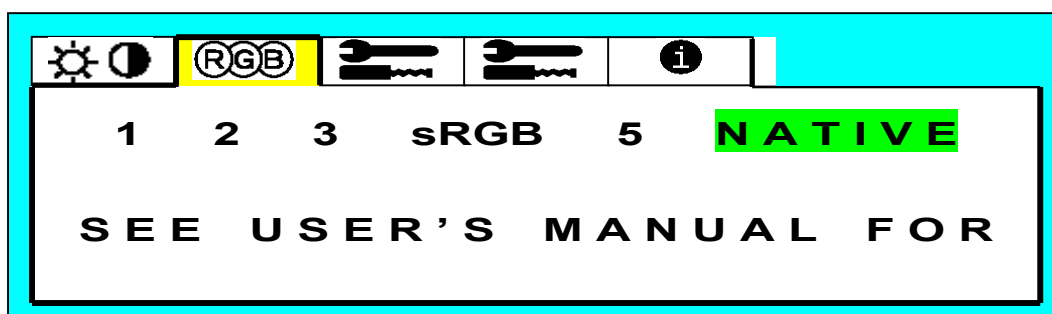
(7) Customize adjust (Sub Item)



(8) Customize adjust (Sub Item)



6) Native (Item)

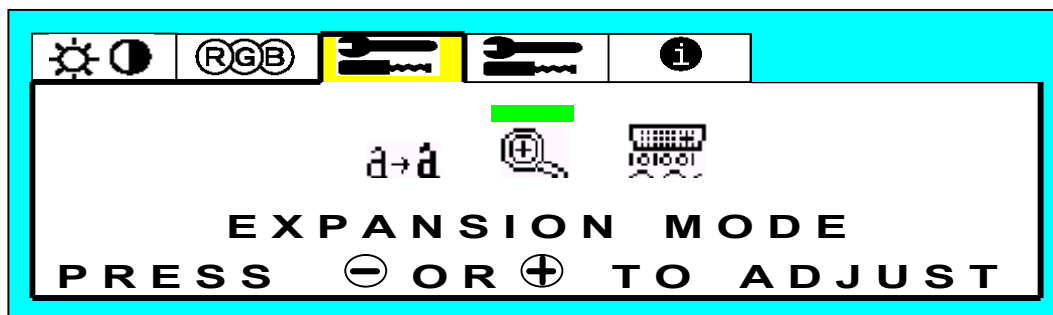


Page 3:

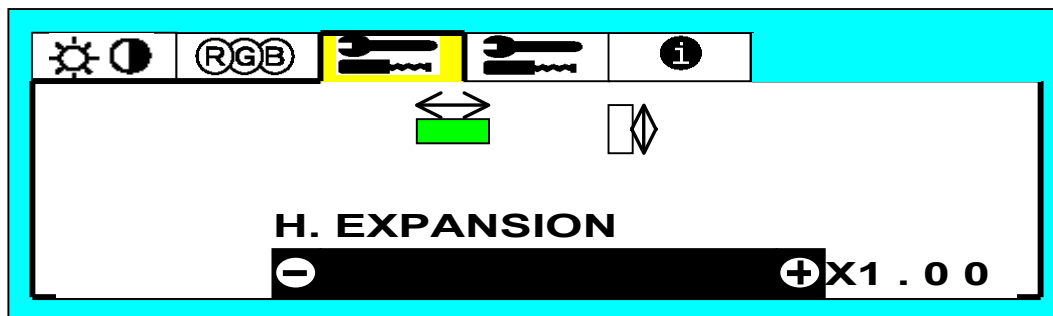
1) Sharpness (Item)



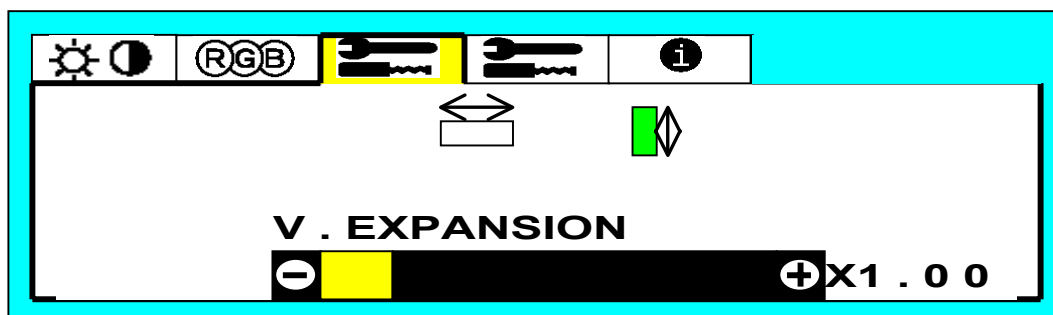
2) Expansion Mode (Item)



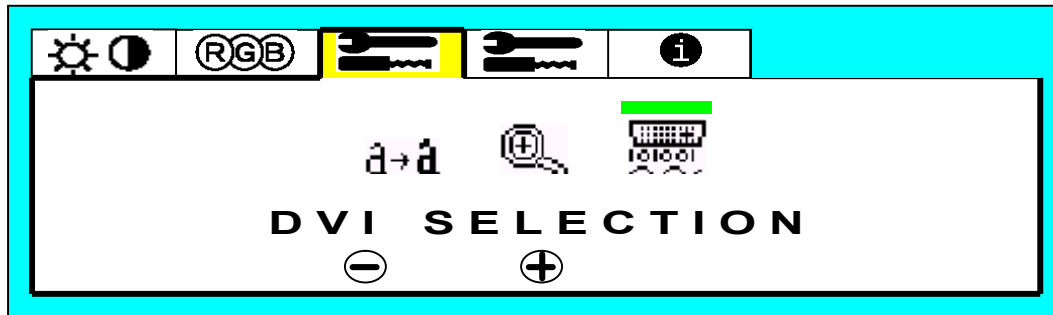
(1) Customize adjust (Sub Item)



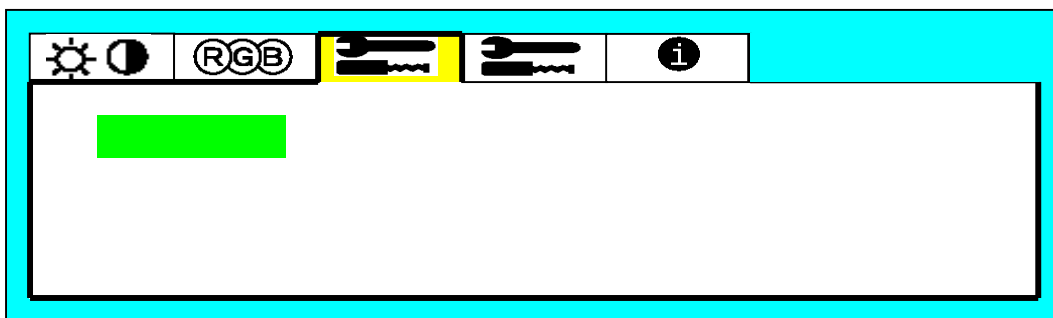
(2) Customize adjust (Sub Item)



3) DVI Selection (Item)



(1) Customize adjust (Sub Item)



Page 4:

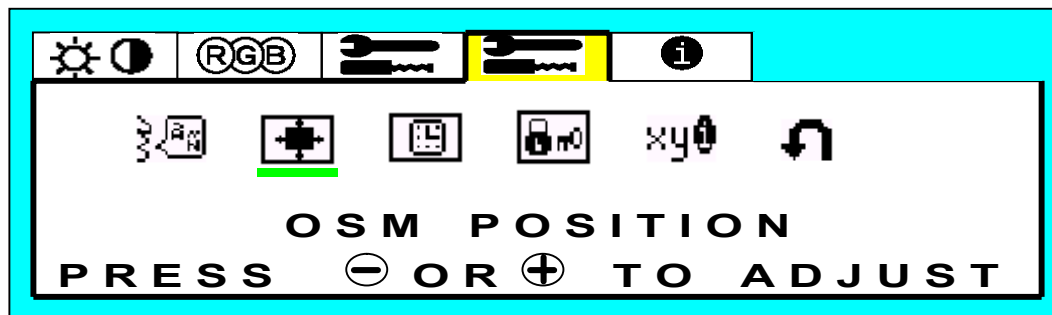
1) Language (Item)



(1) Customize adjust (Sub Item)



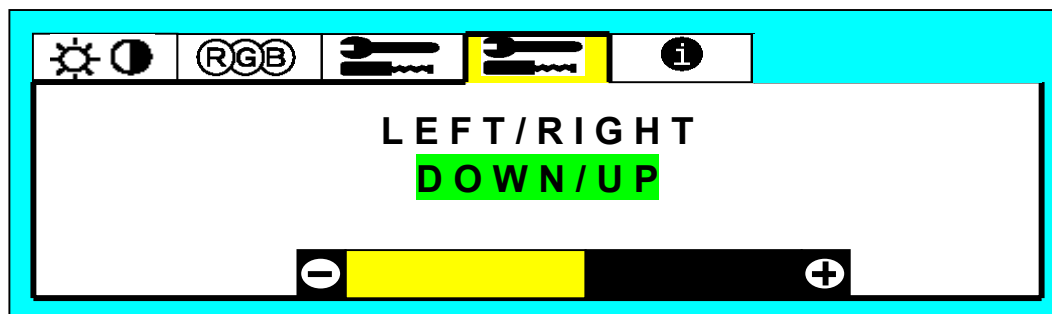
2) OSM Position (Item)



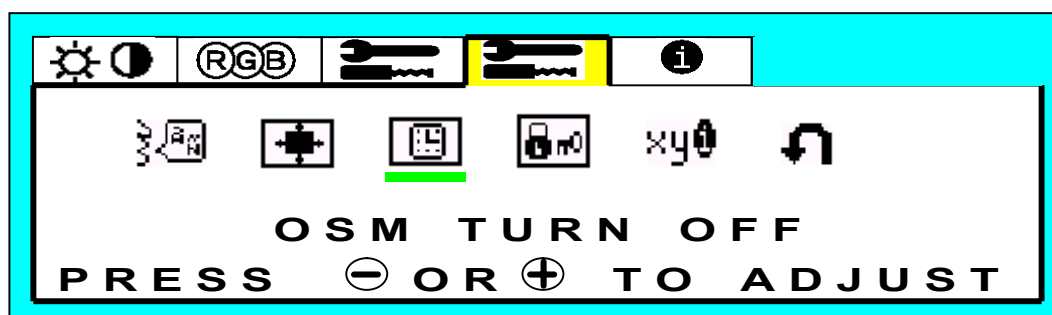
(1) Customize adjust (Sub Item)



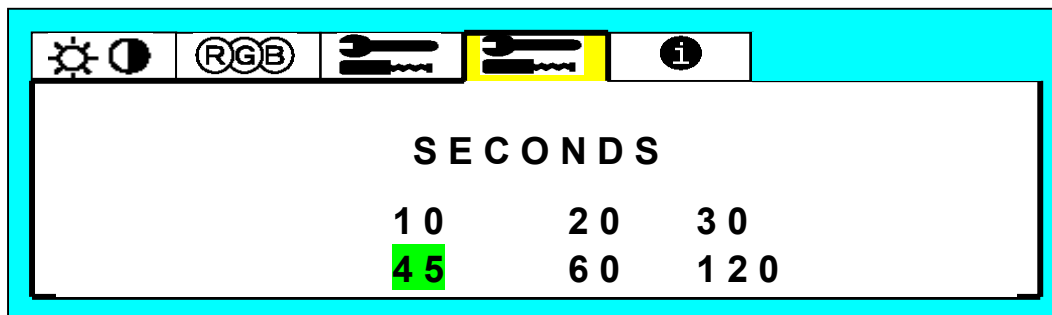
(2) Customize adjust (Sub Item)



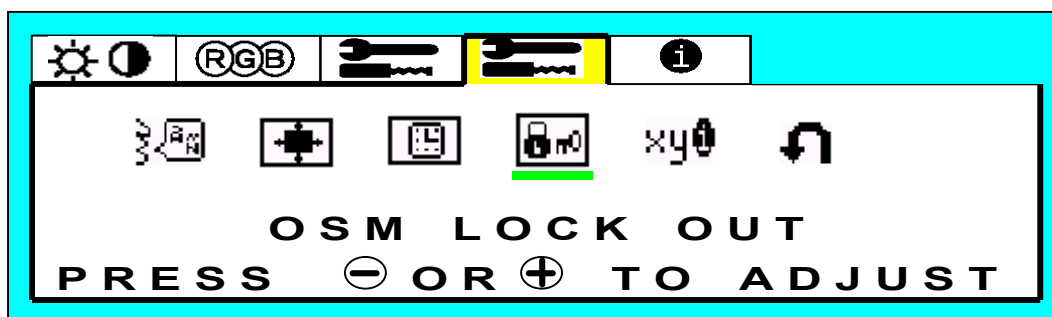
3) OSM Turn off (Item)



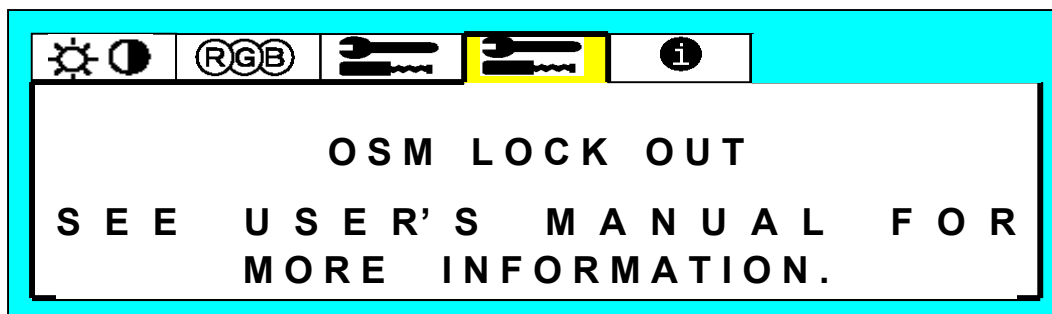
(1) Customize adjust (Sub Item)



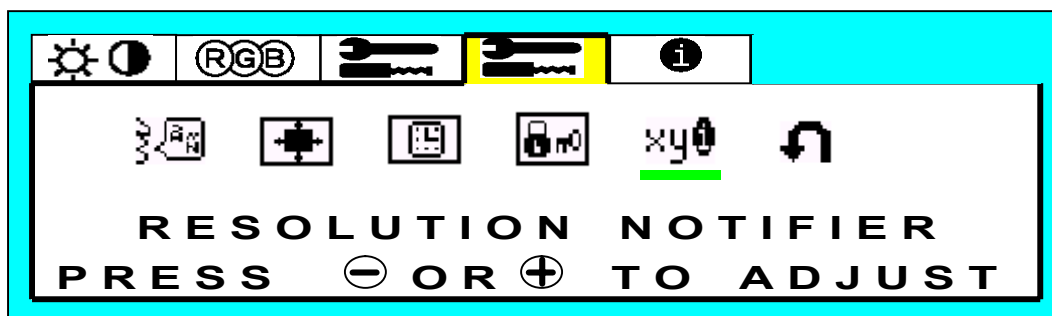
4) OSM Lock out (Item)



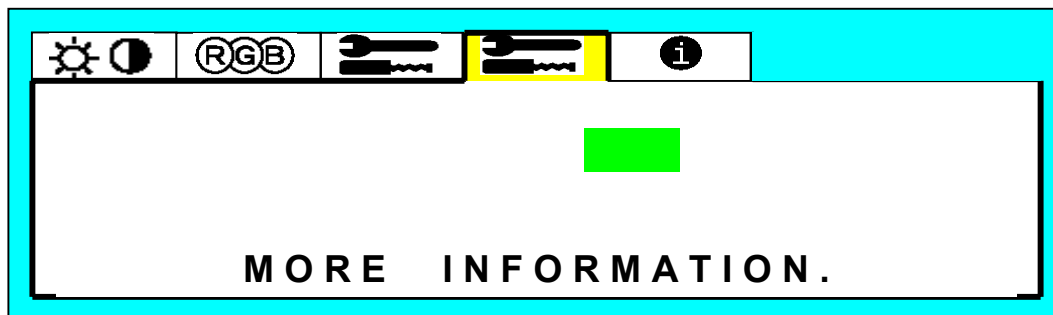
(1) Customize adjust (Sub Item)



5) Resolution notifier (Item)



(1) Customize adjust (Sub Item)



6) Factory reset (Item)

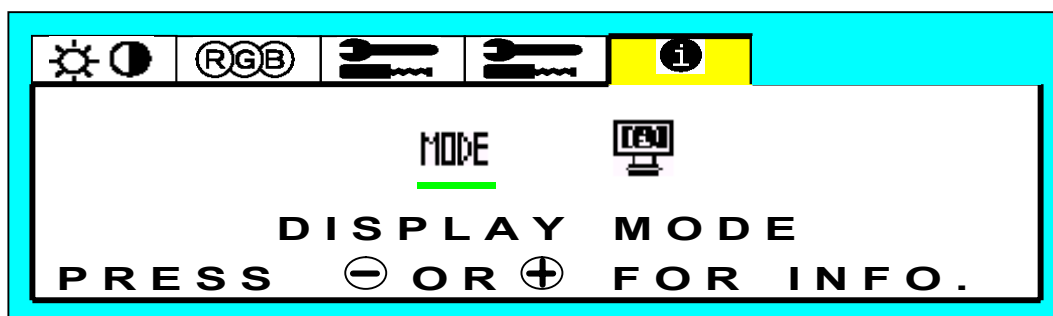


(1) Customize adjust (Sub Item)

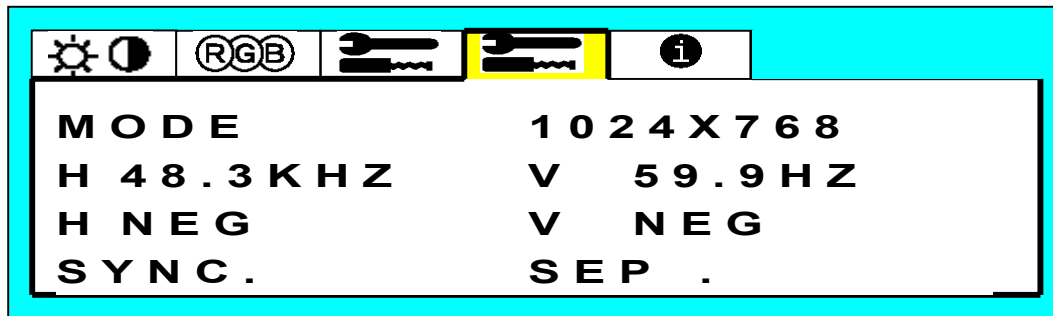


Page 5:

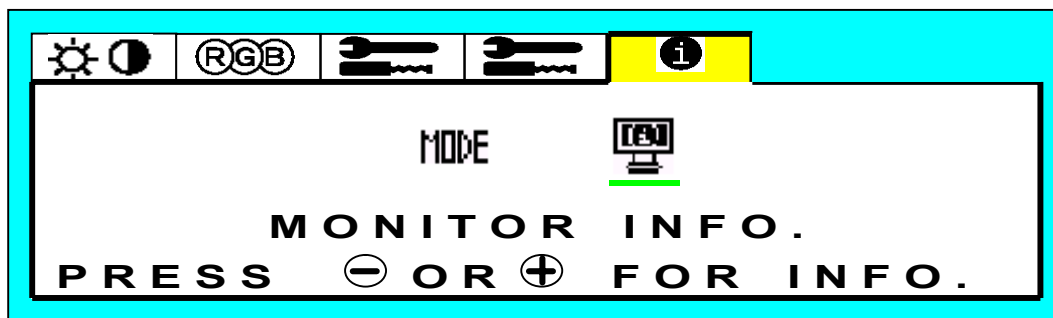
1) Display mode (Item)



(1) Customize adjust (Sub Item)



2) Monitor info (Item)



(1) Customize adjust (Sub Item)

