

Service
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M32 107E4 GS_3



DDC/Power saving/MPR II/TCO

107E41/00C

Service Manual

Horizontal frequencies
30 - 70 kHz

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SAFETY NOTICE

ANY PERSON ATTEMPTING TO SERVICE THIS CHASSIS MUST FAMILIARIZE HIMSELF WITH THE CHASSIS AND BE AWARE OF THE NECESSARY SAFETY PRECAUTIONS TO BE USED WHEN SERVICING ELECTRONIC EQUIPMENT CONTAINING HIGH VOLTAGES.

CAUTION: USE A SEPARATE ISOLATION TRANSFORMER FOR THIS UNIT WHEN SERVICING.

REFER TO BACK COVER FOR IMPORTANT SAFETY GUIDELINES

IMPORTANT SAFETY NOTICE

Go to cover page

Proper service and repair is important to the safe, reliable operation of all PHILIPS Company** Equipment. The service procedures recommended by PHILIPS and described in this service manual are effective methods of performing service operations. Some of these service operations require the use of tools specially designed for the purpose. The special tools should be used when and as recommended.

It is important to note that this manual contains various CAUTIONS and NOTICES which should be carefully Read in order to minimize the risk of personal injury to service personnel. The possibility exists that improper Service methods may damage the equipment. It also is important to understand that these CAUTIONS and NOTICES ARE NOT EXHAUSTIVE. PHILIPS could not possibly know, evaluate and advise the service trade of all conceivable ways in which service might be done or of the possible hazardous consequences of each way. Consequently, PHILIPS has not undertaken any such broad evaluation. Accordingly, a servicer who uses a service procedure or tool which is not recommended by PHILIPS must first satisfy himself thoroughly that neither his safety nor the safe operation of the equipment will be jeopardized by the service method selected.

* * Hereafter throughout this manual, PHILIPS Company Will be referred to as PHILIPS.

WARNING

Critical components having special safety characteristics are identified with a  by the Ref. No. in the parts list and enclosed within a broken line* (where several critical components are grouped in one area) along with the safety symbol  on the schematics or exploded views.

Use of substitute replacement parts which do not have the same specified safety characteristics may create shock, fire, or other hazards.

Under no circumstances should the original design be modified or altered without written permission from PHILIPS. PHILIPS assumes no liability, express or implied, arising out of any unauthorized modification Of design.
Servicer assumes all liability.

* Broken Line 

FOR PRODUCTS CONTAINING LASER :

DANGER- Invisible laser radiation when open.
AVOID DIRECT EXPOSURE TO BEAM.

CAUTION- Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

CAUTION- The use of optical instruments with this product will increase eye hazard.

TO ENSURE THE CONTINUED RELIABILITY OF THIS PRODUCT, USE ONLY ORIGINAL MANUFACTURER'S REPLACEMENT PARTS, WHICH ARE LISTED WITH THEIR PART NUMBERS IN THE PARTS LIST SECTION OF THIS SERVICE MANUAL.

Technical Specification*

CRT

Size and deflection	: 17 inch/41cm, flat/square
Deflection angle	: 90 degrees
Dot pitch	: 0.27mm with black matrix
Face treatment	: Anti-glare, anti-static,
Light transmission	: 47%
Phosphor	: P22

Recommended display area	: 12.0" x 9.0" / 306 x 230 mm
Maximum display area	: 12.9" x 9.7" / 327 x 245 mm

Scanning	
Horizontal scanning	: 30 - 70 KHz
Vertical scanning	: 50 - 160 Hz

Video	
Video dot rate	: 108 Mhz

Input impedance	
-Video	: 75 Ohms
- Sync	: 2.2K Ohms

Signal input level	: 0.7Vpp
	Separate sync

Sync input signal	: Separated sync. with TTL level
Sync polarities	: Positive or negative

White Color Temperature

Chromaticity CIE coordinates:

at 9300 °k	x = 0.283 +/- 0.015	y = 0.297 +/- 0.015
at 6500 °k	x = 0.313 +/- 0.015	y = 0.329 +/- 0.015

Carton box

Size (with pedestal)	: 399(W)x410(H)x408(D)
Net weight	: 15 Kg
Power supply	: 90 - 264 VAC, 50/60 3Hz
Power consumption	: 90 Watts Max.

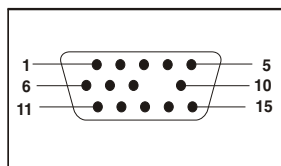
Operating condition

Temperature	: 0 °C - 40 °C
Relative Humidity	: 10 % - 90 % (W/O condensation)

Storage condition

Temperature	: - 25 °C - 65 °C
Relative Humidity	: 5 % - 95 % (W/O condensation)

Pin assignment :



The 15-pin D-sub connector(male) of the signal cable :

Pin No.	Assignment	Pin No.	Assignment
1	Red video input	9	No pin
2	Green video input	10	Logic. Ground
3	Blue video input	11	Identical output- connected to pin 10
4	Identical output- connected to pin 10	12	Serial data data(SDA)
5	fground	13	H.Sync /H + V
6	Red video ground	14	V.Sync(VCLK for DDC)
7	Green video ground	15	Data clock line(SCL)
8	Blue video ground		

Data Storage

Factory preset modes:

This monitor has 8 factory-preset modes as indicated in the following table :

	Mode	Resolution	Frequen		Sync polarity	
			H(KHz)	V(Hz)	H	V
M01	VGA	720 x 400	31.5	70	-	+
M02	VGA	640 x 480	31.47	60	-	-
M03	VGA	640 x 480	43.3	85	-	-
M04	SVGA	800 x 600	46.9	75	+	+
M05	SVGA	800 x 600	53.674	85	+	+
M06	EVGA	1024 x 768	60.0	75	+	+
M07		1280 x 1024	64.0	60	+	+
M08	EVGA	1024 x 768	68.7	85	+	+

Automatic Power Saving

If you have VESA's DPMS compliance display card or software installed in your PC, the monitor can automatically reduce power consumption when power saving function active. And if an input from keyboard, mouse or other input devices is detected, the monitor will automatically "wake up". The following table shows the power consumption and signaling of this automatic power saving feature :

Power Management Definition						
VESA's mode	VIDEO	H-SYNC	V-SYNC	POWER USED	POWER SAVING(%)	LED COLOR
ON	Active	Yes	Yes	<64 w	0 %	Green
Stand-by	Blanked	No	Yes	<2 w	96 %	Yellow
Suspend	Blanked	Yes	No	<2 w	96 %	Yellow
OFF	Blanked	No	No	<2 w	96 %	Yellow

This monitor is ENERGY STAR compliant.

As an ENERGY STAR Partner, PHILIPS has determined that this product meets the ENERGY STAR guidelines for energy efficiency

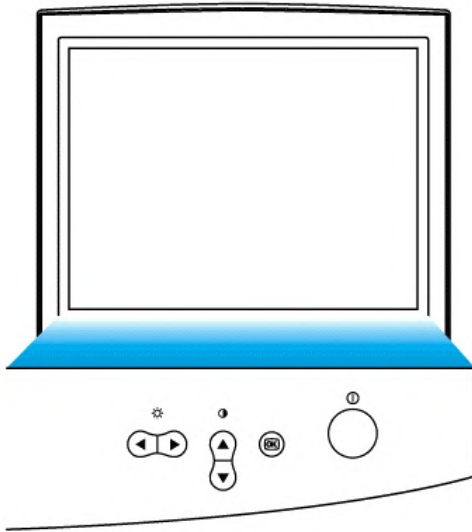


ENERGY STAR® is a U.S. registered mark. AS AN ENERGY STAR PARTNER, DELL Computer Corporation HAS DETERMINED THAT THIS PRODUCT MEETS THE ENERGY STAR GUIDELINES FOR ENERGY EFFICIENCY.

Front control & OSD

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Front View

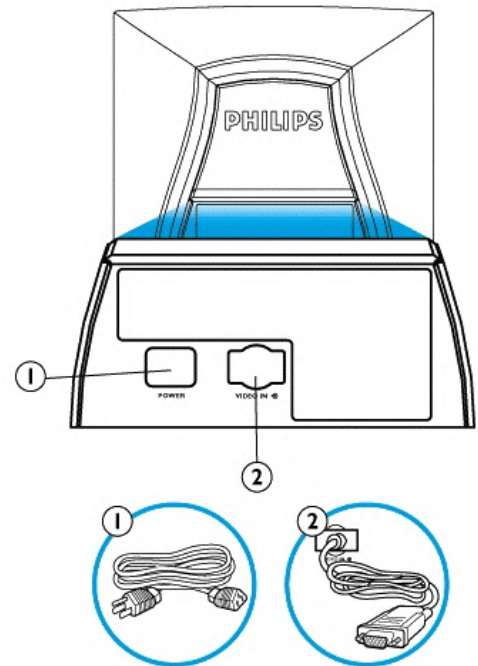


Front control



- Power button switches your monitor on.
- OK button which when pressed will take you to the OSD controls
- Contrast hotkey. When the UP arrow is pressed, the adjustment controls for the CONTRAST will show up. UP and DOWN buttons are used when adjusting the OSD of your monitor
- Brightness hotkey. When the RIGHT arrow is pressed, the adjustment controls for BRIGHTNESS will show up.
- LEFT and RIGHT buttons, like the UP and DOWN buttons, are also used in adjusting the OSD of your monitor.

Rear view



1. Power in - attach power cable here.
2. Video In - this is a cable which is already attached to your monitor. Connect the other end of the cable to your PC.

Description of the On Screen Display

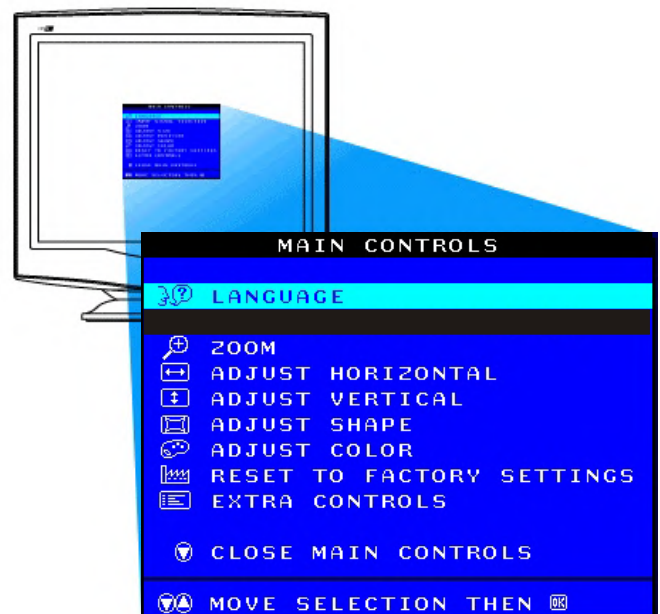
What is the On-Screen Display?

This is a feature in all Philips monitors which allows an end-user to adjust screen performance of monitors directly through an on-screen instruction window. The user interface provides user-friendliness and ease-of-use when operating the monitor.

Basic and simple instruction on the control keys.

On the front controls of your monitor, once you press the  button, the On Screen Display (OSD) Main Controls window will pop up and you can now start making adjustments to your monitor's various features.

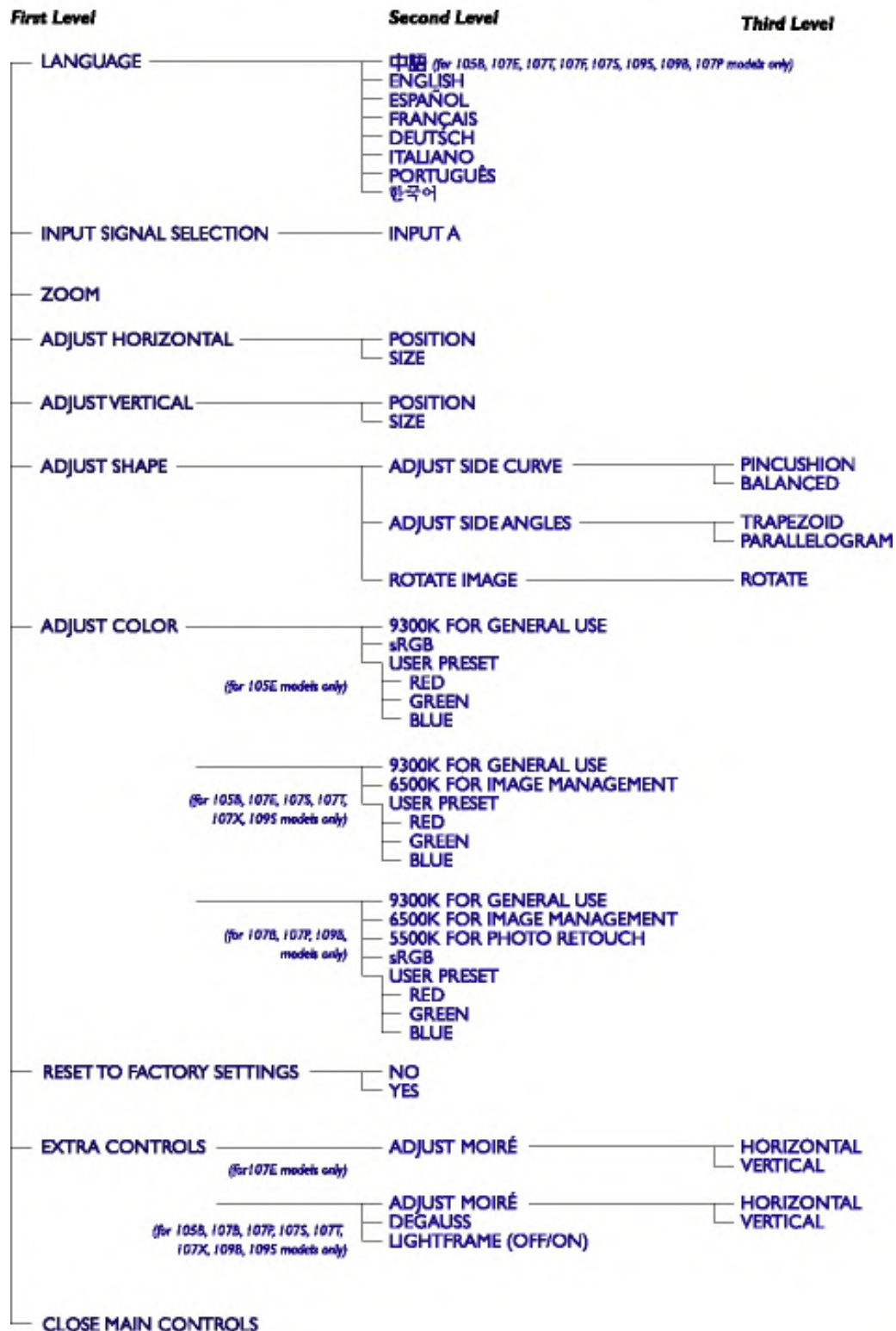
Use the   or   the keys to make your adjustments within.



The OSD Tree

Below is an overall view of the structure of the On-Screen Display. You can use this as reference when you want to later on work your way around the different adjustments.

CRT OSD tree / English



OSD Adjustments

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The OSD Controls

BRIGHTNESS

To adjust your screen's brightness, follow the steps below. Brightness is the overall intensity of the light coming from the screen. A 50% brightness is recommended.

- 1) Press the  or  button on the monitor. The BRIGHTNESS window appears.



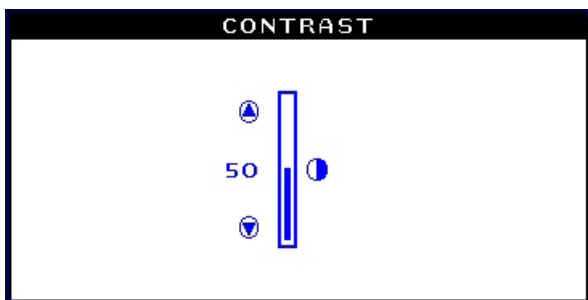
- 2) Press the  or  button to adjust the brightness.
- 3) When the brightness is adjusted to the level desired, stop pressing the  or  button and after three seconds the BRIGHTNESS window will disappear with the new adjustment saved.

Smart Help After the BRIGHTNESS window has disappeared, to continue to the CONTRAST window, follow the steps under CONTRAST.

CONTRAST

To adjust your screen's contrast, follow the steps below. Contrast is the difference between the light and dark areas on the screen. A 100% contrast is recommended.

- 1) Press the  or  button on the monitor. The CONTRAST window appears.



- 2) Press the  or  button to adjust the contrast.
- 3) When the contrast is adjusted to the level desired, stop pressing the  or  button and after three seconds the CONTRAST window will disappear with the new adjustment saved.

Smart Help After the CONTRAST window has disappeared, to continue to the MAIN CONTROLS, follow the steps under LANGUAGE

LANGUAGE

The ON SCREEN DISPLAY shows its settings in one of five languages. The default is English, but you can select French, Spanish, German, or Italian.

- 1) Press the  button on the monitor. The MAIN CONTROLS window appears. LANGUAGE should be highlighted.
- 2) Press the  button again. The LANGUAGE window appears.



- 3) Press the  or  button until the desired language is highlighted.



- 4) Press the  button to confirm your selection and return to MAIN CONTROLS window. CLOSE MAIN CONTROLS will be highlighted...

Smart Help After returning to MAIN CONTROLS . . .

. . . to continue to INPUT SIGNAL SELECTION, press the  button until INPUT SIGNAL SELECTION is highlighted. Next, follow steps 3 - 5 under INPUT SIGNAL SELECTION.

. . . to exit completely, press the  button

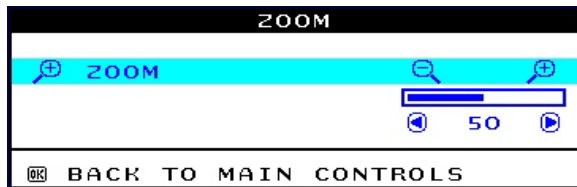
ZOOM

ZOOM increases or decreases the size of the images on your screen. To adjust the ZOOM follow the steps below.

- 1) Press the  button on the monitor. The MAIN CONTROLS window appears.
- 2) Press the  button until ZOOM is highlighted.



- 3) Press the  button. The ZOOM window appears.



- 4) Press the  or  button to adjust ZOOM.
- 5) Press the  button to confirm your selection and return to the MAIN CONTROLS window. CLOSE MAIN CONTROLS will be highlighted.

Smart Help After returning to MAIN CONTROLS . . .

. . . to continue to ADJUST HORIZONTAL, press the  button until ADJUST HORIZONTAL is highlighted. Next, follow steps 3 - 7 under ADJUST HORIZONTAL.

. . . to exit completely, press the  button

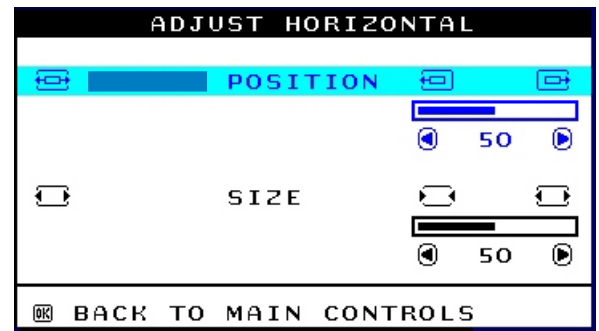
ADJUST HORIZONTAL

ADJUST POSITION under ADJUST HORIZONTAL shifts the image on your screen either to the left or right. Use this feature if your image does not appear centered. ADJUST SIZE under ADJUST HORIZONTAL expands or controls the image on your screen, pushing it out toward the left and right sides or pulling it in toward the center.

- 1) Press the  button on the monitor. The MAIN CONTROLS window appears.
- 2) Press the  button until ADJUST HORIZONTAL is highlighted.

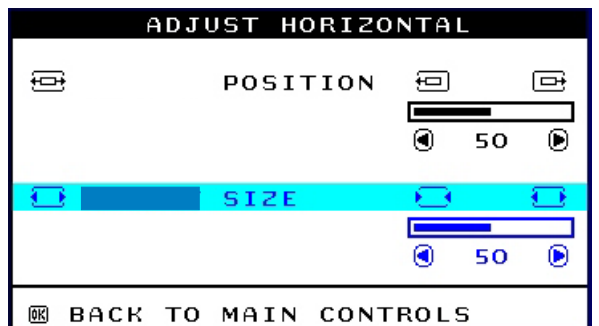


- 3) Press the  button. The ADJUST HORIZONTAL window appears. ADJUST POSITION should be highlighted.



- 4) Press the  or  button to move the image to the left or right.

- 5) When the position is adjusted, press the  button to return to MAIN CONTROLS window, or press the  to highlight ADJUST SIZE.



- 6) To adjust the horizontal size, press the  or  button.

- 7) When the size is adjusted, press the  button to return to MAIN CONTROLS window. CLOSE MAIN CONTROLS will be highlighted.

Smart Help After returning to MAIN CONTROLS . . .

. . . to continue to ADJUST VERTICAL, press the  button until ADJUST VERTICAL is highlighted. Next, start with step 3 under ADJUST VERTICAL and follow the directions.

. . . to exit completely, press the  button

ADJUST VERTICAL

ADJUST POSITION under ADJUST VERTICAL shifts the image on your screen either up or down. Use this feature if your image does not appear centered. ADJUST SIZE under ADJUST VERTICAL expands or controls the image on your screen, pushing it out toward the top or bottom or pulling it in toward the center.

- 1) Press the  button on the monitor. The MAIN CONTROLS window appears.

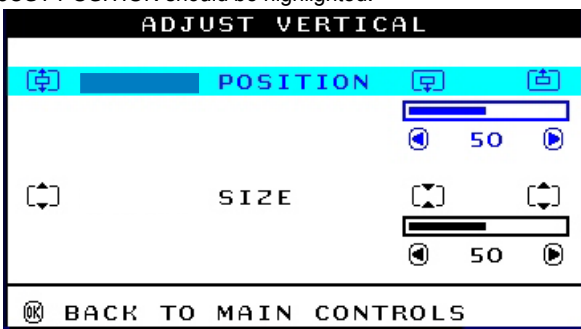
OSD Adjustments (Continued)

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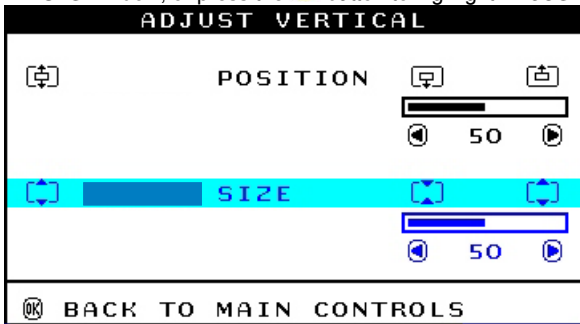
- 2) Press the  button until ADJUST VERTICAL is highlighted.



- 3) Press the  button. The ADJUST VERTICAL window appears. ADJUST POSITION should be highlighted.



- 4) Press the  or  button to move the image up or down.
5) When the position is adjusted, press the  button to return to MAIN CONTROLS window, or press the  button to highlight ADJUST SIZE.



- 6) To adjust the vertical size, press the  or  button.
7) When the size is adjusted, press the  button to return to MAIN CONTROLS window. CLOSE MAIN CONTROLS will be highlighted.

Smart Help After returning to MAIN CONTROLS . . .

. . . to continue to ADJUST SHAPE, press the  button until ADJUST SHAPE is highlighted. Next, start with step 3 under ADJUST SHAPE and follow the directions.

. . . to exit completely, press the  button

ADJUST SHAPE

ADJUST SIDE CURVE

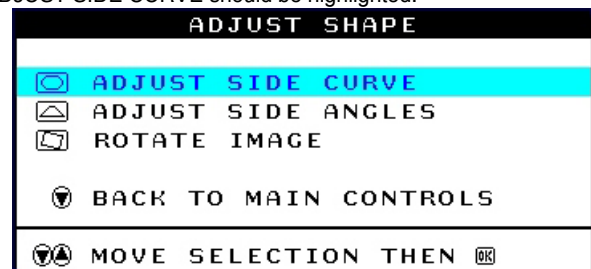
ADJUST SIDE CURVE under ADJUST SHAPE allows you to adjust two of the five preset options. These two options are PINCUSHION and BALANCED pincushion. Note: use these features only when the picture is not square.

- 1) Press the  button on the monitor. The MAIN CONTROLS window appears.

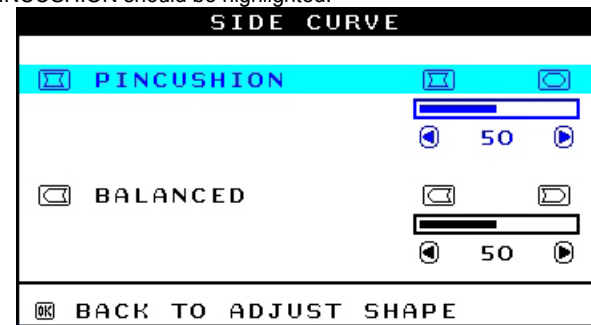
- 2) Press the  button until ADJUST SHAPE is highlighted.



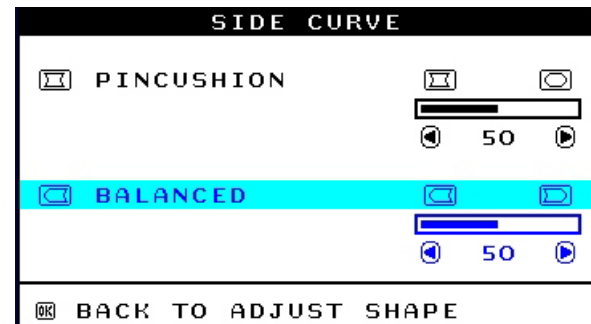
- 3) Press the  button. The ADJUST SHAPE window appears. ADJUST SIDE CURVE should be highlighted.



- 4) Press the  button. The SIDE CURVE window appears. PINCUSHION should be highlighted.



- 5) To adjust the pincushion, press the  or  button.
6) When the pincushion is adjusted, press the  button to highlight BALANCED or press the  button to return to the ADJUST SHAPE window.



- 7) To adjust the balanced pincushion, press the  or  button.
8) When the balanced pincushion is adjusted, press the  button to return to the ADJUST SHAPE window. BACK TO MAIN WINDOWS will be highlighted.
9) Press the  button to return to the MAIN CONTROLS window, or press the  button until ADJUST SIDE ANGLES is highlighted.

Smart Help After returning to MAIN CONTROLS . . .

...to continue to ADJUST SIDE ANGLES, start with step 5 under ADJUST SIDE ANGLES and follow the directions.

...to exit completely, press the  button twice.

...to adjust only the BALANCED pincushion, follow steps 1 - 4 above, then press the  button, and follow steps 7 - 9.

ADJUST SIDE ANGLES

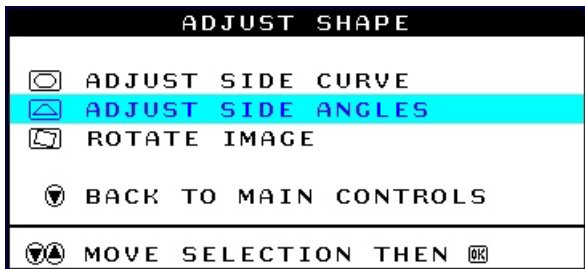
ADJUST SIDE ANGLES under ADJUST SHAPE allows you to adjust two of the five preset options. These two options are TRAPEZOID and PARALLELOGRAM. Note: use these features only when the picture is not square.

1) Press the  button on the monitor. The MAIN CONTROLS window appears.

2) Press the  button until ADJUST SHAPE is highlighted.

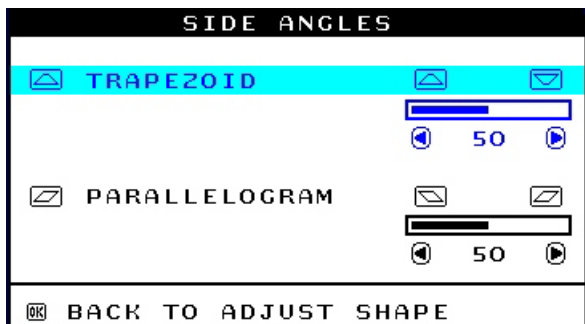


3) Press the  button. The ADJUST SHAPE window appears. ADJUST SIDE CURVE should be highlighted.



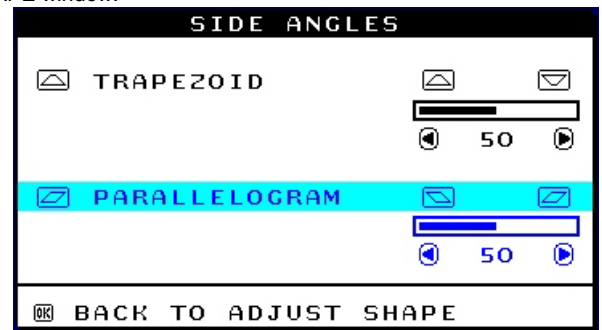
4) Press the  button to highlight ADJUST SIDE ANGLES.

5) Press the  button. The SIDE ANGLES window appears. TRAPEZOID should be highlighted.



6) To adjust the trapezoid, press the  or  button.

7) When the trapezoid is adjusted, press the  button to highlight PARALLELOGRAM or press the  button to return to the ADJUST SHAPE window.



8) To adjust the parallelogram, press the  or  button.

9) When the parallelogram is adjusted, press the  button to return to the ADJUST SHAPE window. BACK TO MAIN WINDOWS will be highlighted.

10) Press the  button to return to the MAIN CONTROLS window, or press the  button until ROTATE IMAGE is highlighted.

Smart Help After returning to MAIN CONTROLS . . .

...to continue to ROTATE IMAGE, start with step 5 under ROTATE IMAGE and follow the directions.

...to exit completely, press the  button twice.

...to adjust only the PARALLELOGRAM, follow steps 1 - 4 above, then press the  button, and follow steps 7 - 9

ROTATE IMAGE

ROTATE IMAGE under ADJUST SHAPE allows you to adjust one of the five preset options. These two options are PINCUSHION and BALANCED pincushion. Note: use this feature only when the picture is not square.

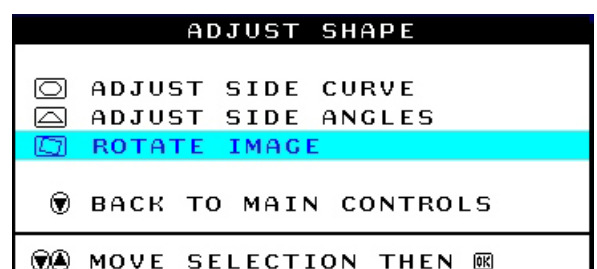
1) Press the  button on the monitor. The MAIN CONTROLS window appears.

2) Press the  button until ADJUST SHAPE is highlighted.



3) Press the  button. The ADJUST SHAPE window appears. ADJUST SIDE CURVE should be highlighted.

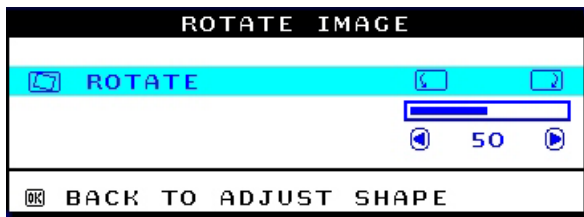
4) Press the  arrow until ROTATE IMAGE is highlighted.



OSD Adjustments (Continued)

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5) Press the  button. The ROTATE IMAGE window appears. ROTATE should be highlighted.



6) To adjust the rotation, press the  or  button.

7) When the rotation is adjusted, press the  button to return to the ADJUST SHAPE window. BACK TO MAIN CONTROLS should be highlighted.

8) Press the  button to return to MAIN CONTROLS.

Smart Help After returning to MAIN CONTROLS . . .

. . . to continue to ADJUST COLOR, press the  button until ADJUST COLOR is highlighted. Next, start with step 3 under ADJUST COLOR and follow the directions.

...to exit completely, press the  button twice.

ADJUST COLOR

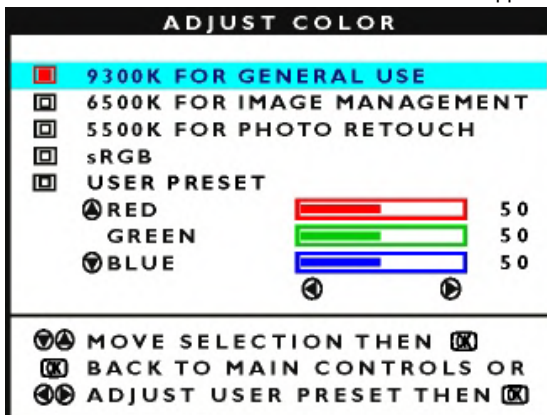
Your monitor has two preset options you can choose from. The first option is for GENERAL USE, which is fine for most applications. The second option is for GAMES, which is for playing computer games. When you select one of these options, the monitor automatically adjusts itself to that option. There is also a third option, USER PRESET, which allows you to adjust the colors on your screen to a setting you desire.

1) Press the  button on the monitor. The MAIN CONTROLS window appears.

2) Press the  button until ADJUST COLOR is highlighted.

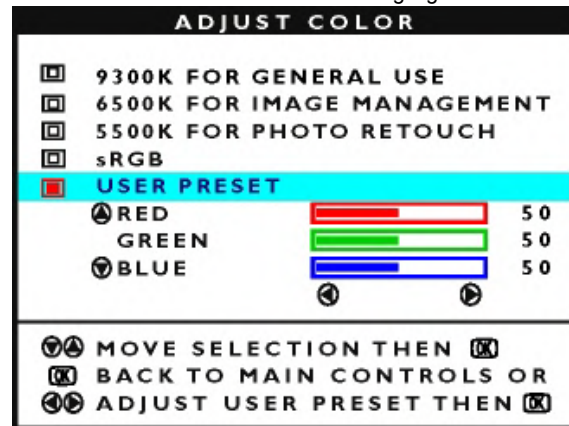


3) Press the  button. The ADJUST COLOR window appears.



4) Press the  or  button to highlight 9300K for GENERAL USE, 6500K for GAMES, or USER PRESET.

5) Once you have highlighted GENERAL USE or GAMES, press the  button to confirm your selection and return to the MAIN CONTROLS window. CLOSE MAIN CONTROLS will be highlighted.



6a) If USER PRESET is highlighted, press the  button to highlight RED. Next, press the LEFT CURSOR or RIGHT CURSOR button to adjust the color red.

6b) When finished with RED, press the  button to highlight GREEN. Next, press the  or  button to adjust the color green.

6c) When finished GREEN, press the  button to highlight BLUE. Next, press the  or  button to adjust the color blue.

6d) When all adjustments are complete, press the  button to confirm your adjustments and return to the MAIN CONTROLS window. CLOSE MAIN CONTROLS will be highlighted.

Smart Help After returning to MAIN CONTROLS. . .

. . . to continue to RESET TO FACTORY SETTINGS, press the  button until RESET TO FACTORY SETTINGS is highlighted. Next, start with step 3 under RESET TO FACTORY SETTINGS.

. . . to exit completely, press the  button.

RESET TO FACTORY SETTINGS

RESET TO FACTORY SETTINGS returns everything in all the windows to factory presets.

1) Press the  button on the monitor. The MAIN CONTROLS window appears.

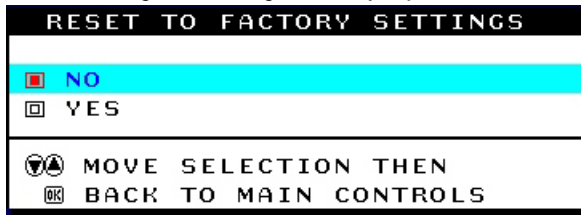
2) Press the  button until RESET TO FACTORY SETTINGS is highlighted.



3) Press the  button. The RESET TO FACTORY SETTINGS window appears.

Go to cover page

- 4) Press the  or  button to select YES or NO. NO is the default. YES returns all settings to their original factory adjustments.



- 5) Press the  button to confirm your selection and return to the MAIN CONTROLS window. CLOSE MAIN CONTROLS will be highlighted.

Smart Help After returning to MAIN CONTROLS...

... to continue to EXTRA CONTROLS, press the  button until EXTRA CONTROLS is highlighted. Next, start with step 3 under EXTRA CONTROLS.

... to exit completely, press the  button.

EXTRA CONTROLS

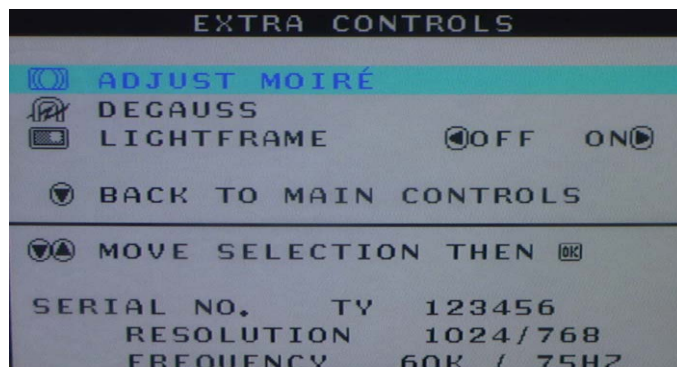
ADJUST MOIRE

EXTRA CONTROLS is a set of three features, including ADJUST MOIRE. Moire is a fringe pattern arising from the interference between two superimposed line patterns. To adjust your moire, follow the steps below. Note: Use only if necessary. By activating ADJUST MOIRE, sharpness can be affected.

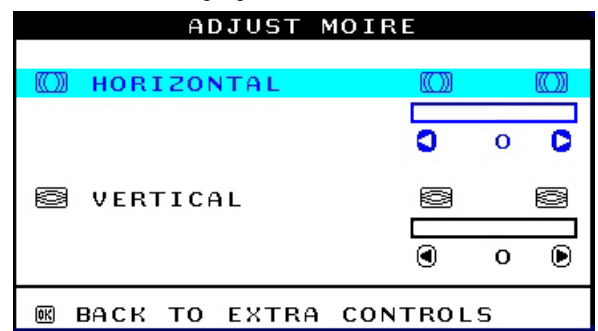
- 1) Press the  button on the monitor. The MAIN CONTROLS window appears.
- 2) Press the DOWN CURSOR button until EXTRA CONTROLS is highlighted.



- 3) Press the  button. The EXTRA CONTROLS window appears. will ADJUST MOIRE will be highlighted.

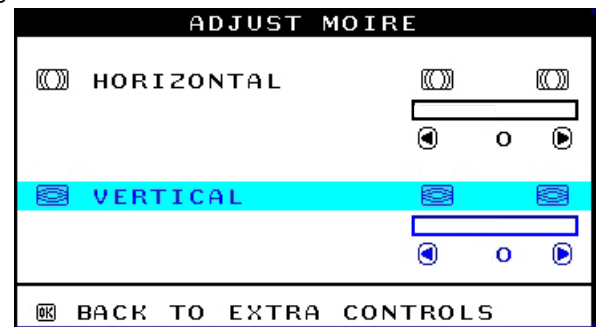


- 4) Press the  button. The ADJUST MOIRE window appears. HORIZONTAL will be highlighted.



- 5) To adjust the horizontal moire, press the  or  button.

- 6) When the horizontal moire is adjusted, press the  button to highlight VERTICAL.



- 7) To adjust the vertical moire, press the  or  button.

- 8) When the vertical moire is adjusted, press the  button to return to the EXTRA CONTROLS window. BACK TO MAIN CONTROLS will be highlighted.

Smart Help After returning to MAIN CONTROLS...

... to continue to DEGAUSS, press the  button until DEGAUSS is highlighted. Next, start with step 3 under EXTRA CONTROLS, DEGAUSS.

... to exit completely, press the  button.

Go to cover page

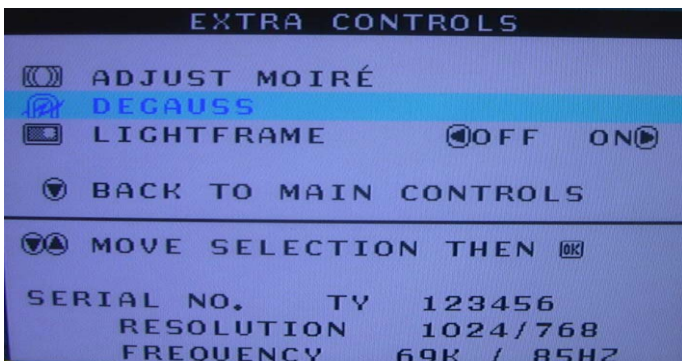
DEGAUSS

EXTRA CONTROLS is a set of three features, including DEGAUSS. Degaussing removes electromagnetic build up that may distort the color on your screen.

- 1) Press the  button on the monitor. The MAIN CONTROLS window appears.
- 2) Press the  button until EXTRA CONTROLS is highlighted.



- 3) Press the  button. The EXTRA CONTROLS window appears. ADJUST MOIRE will be highlighted.
- 4) Press the  button until DEGAUSS is highlighted.



- 5) To degauss your screen, press the  button. Your screen will be degaussed, then the MAIN CONTROLS window will reappear. CLOSE MAIN CONTROLS will be highlighted.

Smart Help After returning to MAIN CONTROLS . . .
 . . . to exit completely, press the  button.

CLOSE MAIN CONTROLS**Monitor Specific Troubleshooting****Self-Test Feature Check (STFC)**

Your monitor provides a self-test feature that allows you to check whether your monitor is functioning properly. If your monitor and computer are properly connected but the monitor screen remains dark, run the monitor self-test by performing the following steps:

1. Turn off both your computer and the monitor.
2. Unplug the video cable from the back of the computer.
3. Turn on the monitor.

If the monitor is functioning properly, you will see a OSD message as shown in the following illustration:



This box also appears during normal system operation if the video cable becomes disconnected or damaged. This box will remain on for one minute, go off five seconds, then on for one minute, and will repeat cycle.

1. Turn off your monitor and reconnect the video cable; then turn on both your computer and the monitor.
2. While in self-test mode, the LED remains green and the pattern remains on and stationary.

If your monitor screen still remains dark after you use the previous procedure, check your video controller and computer system; your monitor is functioning properly.

NO SIGNAL INPUT

If there is something wrong with the input signal, a message appears on the screen although the power indicator LED is still on. The message may indicate that the monitor is NO SIGNAL INPUT or that you need to check the signal cable.



Front Control



- Power button switches your monitor on.
- OK button which when pressed will take you to the OSD controls
- Contrast hotkey. When the UP arrow is pressed, the adjustment controls for the CONTRAST will show up.
- UP and DOWN buttons are used when adjusting the OSD of your monitor
- Brightness hotkey. When the RIGHT arrow is pressed, the adjustment controls for BRIGHTNESS will show up.
- LEFT and RIGHT buttons, like the UP and DOWN buttons, are also used in adjusting the OSD of your monitor.

OSD Lock

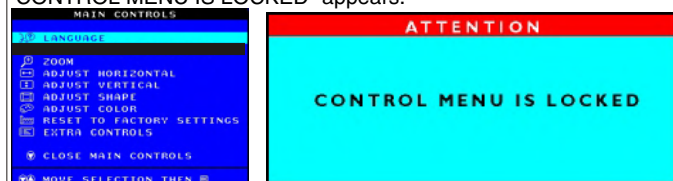
OSD lock is a feature which disables the OSD controls. It can be used when the monitor is set up for demonstration purposes or when adjustment of the OSD is not desirable.

Switch on OSD lock feature:

Press and hold the button continuously for 15 seconds.

Release the button when the message

"CONTROL MENU IS LOCKED" appears.



Switch off OSD lock feature:

Press and hold the button continuously for 15 seconds or until the message window "CONTROL MENU IS LOCKED" disappears, and

"MAIN CONTROLS" appears.



Default setting of MODEL SELECT (Do not change it.)

MODEL SELECT	
	107E4
	107E4 (TILT REVERSE)
	107T4
	107T4 (TILT REVERSE)
	RESERVE
	SWDDC
	LF2
	LF3

To access factory mode

1. Turn off monitor (don't turn off PC)
2. Press " " and " " simultaneously on the front control panel, then press " ", wait till the OSD menu with characters M32 107E/T4P V1.23 20020426 (below OSD menu)" come on the screen of monitor.

Factory Mode Indicator



3. If OSD menu disappears on the screen of monitor, press " " again (anytime), then the OSD menu comes on the screen again.
4. Using " ": to select OSD menu.
5. Using " ": to increase or decrease the setting.
6. Using " " to access/confirm the selection.

To leave factory mode

7. After alignment of factory mode, turn off monitor (if you do not turn off monitor, the OSD menu is always at the factory mode), then turn on monitor again (at this moment, the OSD menu goes back to user mode).

To access BURN IN mode

First of all, monitor displays an image.

1. Disconnect the video cable (interface cable).
2. Turn off monitor
3. Press " " and " " simultaneously on the front control panel, then the BURN IN mode comes on the screen of monitor as below.

50 seconds around



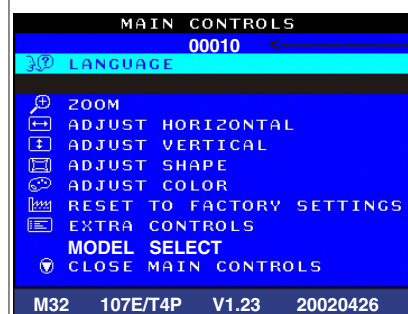
5 seconds around



repeatedly

4. Reconnect the video cable, then return to normal image.

SERVICE MODE (Indication-Factory mode)



00010: stands for

1. using 10 hours already.
2. turn on/off 10 times.
3. using several hours + turn on/off monitor.

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Warnings

1. Safety regulations require that the unit should be returned in its original condition and that components identical to the original components are used. The safety components are indicated by the symbol .
2. In order to prevent damage to ICs and transistors, all high-voltage flash-overs must be avoided. In order to prevent damage to the picture tube, the method shown in Fig. 1 should be used to discharge the picture tube. Use a high-voltage probe and a multimeter (position DC-V). Discharge until the meter reading is **0 V** (after approximately 30 seconds).
3. **ESD** 
All ICs and many other semiconductors are sensitive to electrostatic discharges (ESD). Careless handling during repair can drastically shorten their life. Make sure that during repair you are connected by a pulse band with resistance to the same potential as the ground of the unit. Keep components and tools also at this same potential.
4. When repairing a unit, always connect it to the AC Power voltage via an isolating transformer.
5. Be careful when taking measurements in the high-voltage section and on the picture tube panel.
6. It is recommended that safety goggles be worn when replacing the picture tube.
7. When making adjustments, use plastic rather than metal tools. This will prevent any short-circuit or the danger of a circuit becoming unstable.
8. Never replace modules or other components while the unit is switched on.
9. Together with the deflection unit, the picture tube is used as an integrated unit. Adjustment of this unit during repair is not recommended.
10. After repair, the wiring should be fastened in place with the cable clamps.
11. All units that are returned for service or repair must pass the original manufacturer's safety tests.

Notes

1. The direct voltages and waveforms are average voltages. They have been measured using the Service test software and under the following conditions :
 - Mode : 640 * 480 (31.5kHz / 60Hz)
 - Signal pattern : grey scale
 - Adjust brightness and contrast control for the mechanical mid-position (click position)
2. The picture tube panel has printed spark gaps. Each spark gap is connected between an electrode of the picture tube and the Aquadag coating.
3. The semiconductors indicated in the circuit diagram(s) and in the parts lists are completely interchangeable per position with the semiconductors in the unit, irrespective of the type indication on these semiconductors.

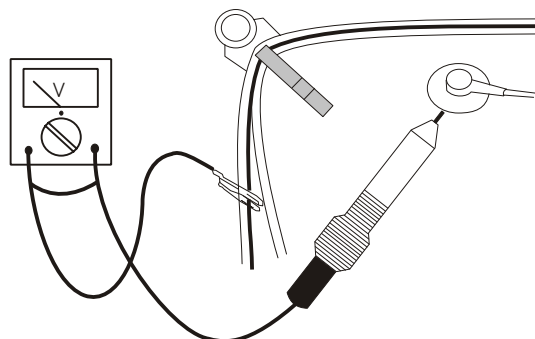


Fig.1

Go to cover page

0. General

To be able to perform measurements and repairs on the "circuit boards", these unit should be placed in the service position first.

1. Remove the rear cover

- Remove right and left lib (screw cover) on the back cover as shown in Fig. 1.
- Remove 4 screws as shown in Fig. 2.
- Remove back cover as shown in Fig. 3.

2. Remove pedestal as shown in Fig. 4.

3. Video panel

- Disconnect the wire between metal shield of Video panel and CRT neck as shown in Fig. 5.
- Disconnect the CRT ground "1703" from Video panel.



lids (screw cover)

Fig. 1

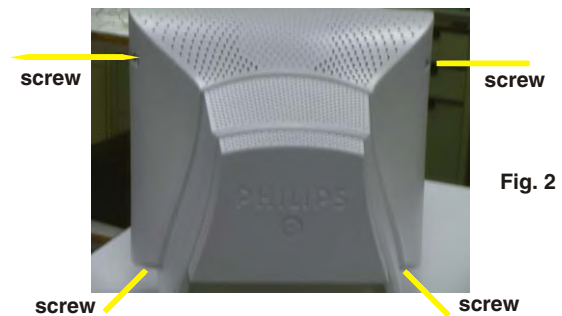
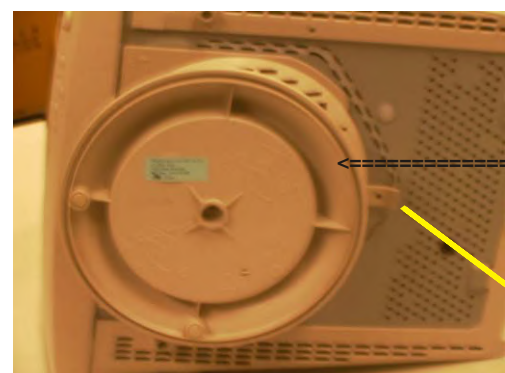


Fig. 2



Fig. 3

Rear cover



Pedestal ass'y

Fig. 4

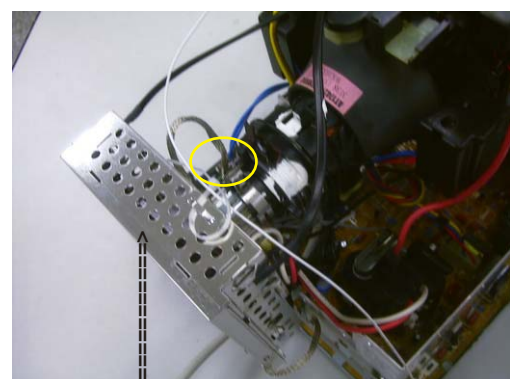


Fig. 5

Video Panel

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4. Main panel with Bottom Tray

- Disconnect the degaussing coil (1113) from Main panel as shown in Fig. 6.
- Remove the video panel from CRT neck.
- Remove the "screw" of I/F cable from Main panel, grounding screw, wire as shown in Fig. 7..
- Disconnect the CRT ground "1703" from Video panel.
- Disconnect the Hi-Pot cap from CRT as shown in Fig. 8..
- Disconnect yoke wire from "1601" (on Main Panel).
- Disconnect cancellation connector "1402" (on Main Panel).
- Disconnect connector "1604" and all the wires as shown in Fig. 9.
- Disconnect connector of "1802".
- Remove main panel with bottom tray as shown in Fig. 10 to Fig. 14.

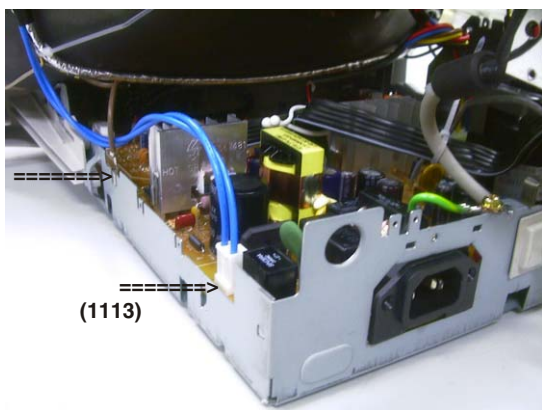


Fig. 6

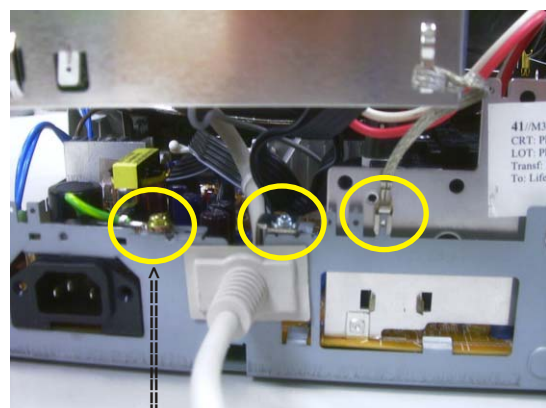


Fig. 7

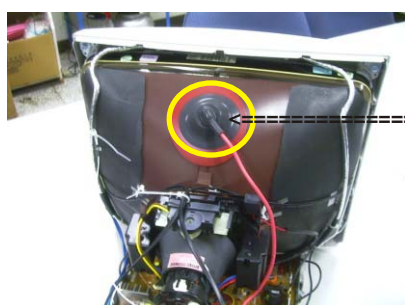


Fig. 8

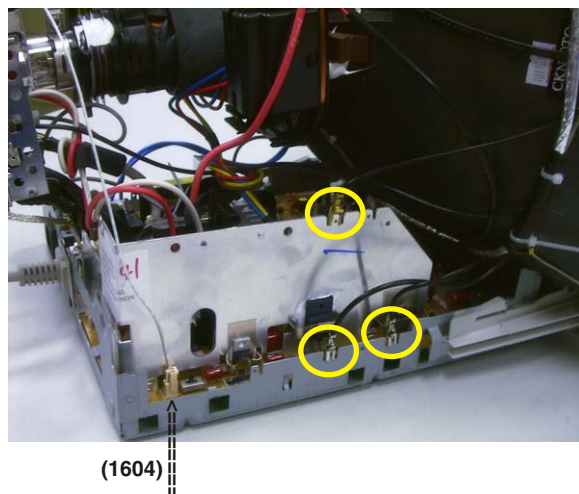


Fig. 9

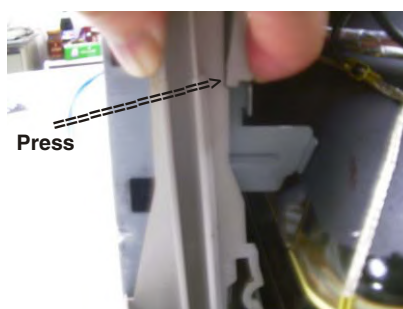


Fig. 10

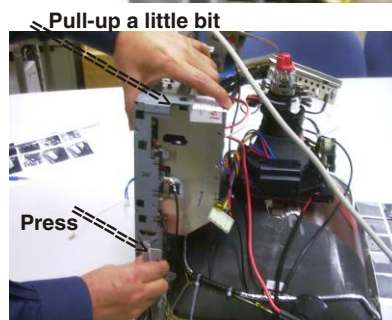


Fig. 11



Fig. 12

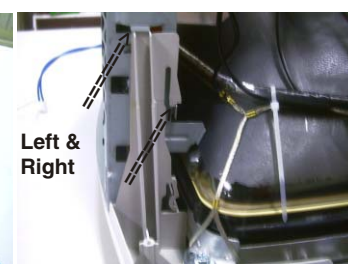


Fig. 13

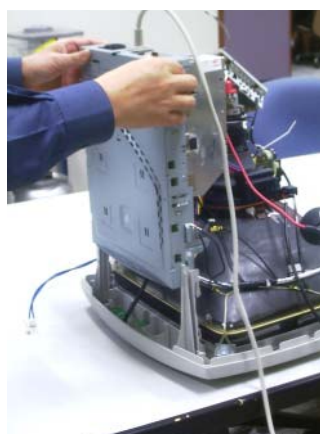


Fig. 14

5. How to remove Main Panel (Chassis)

After remove "Main panel with bottom tray":

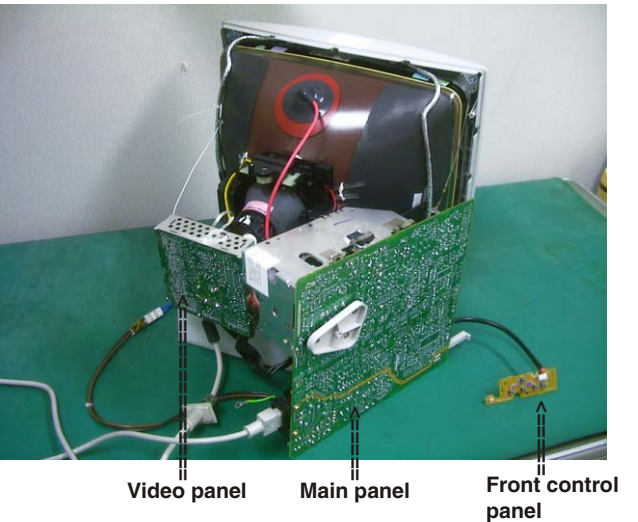
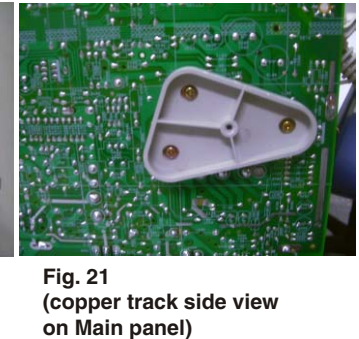
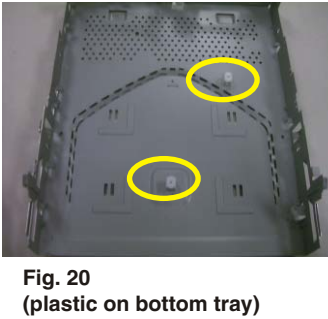
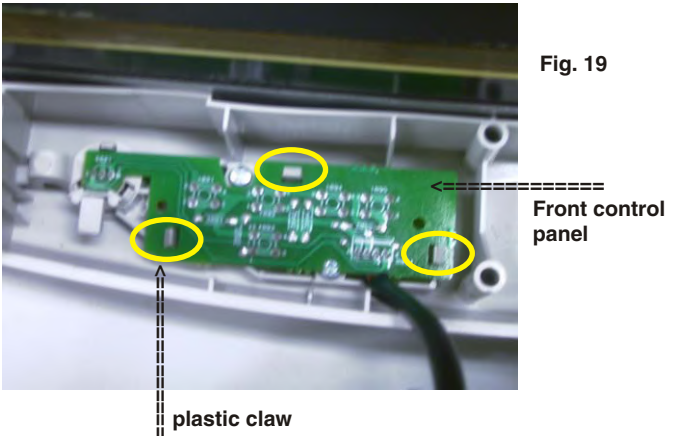
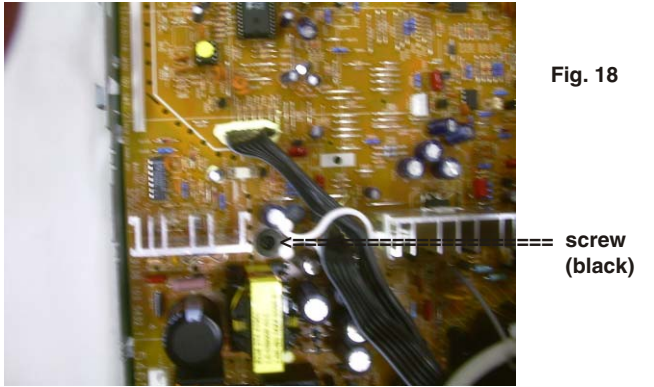
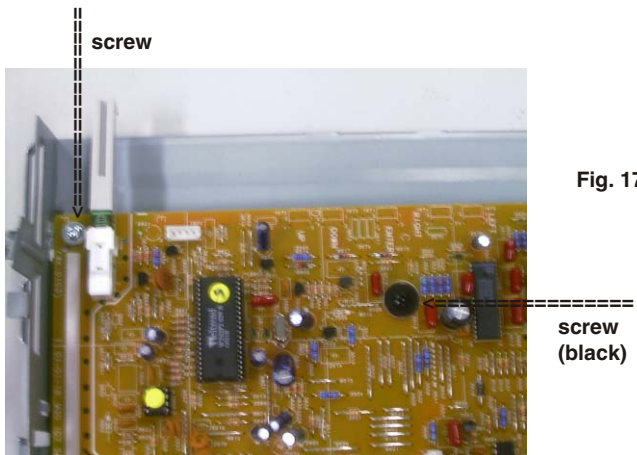
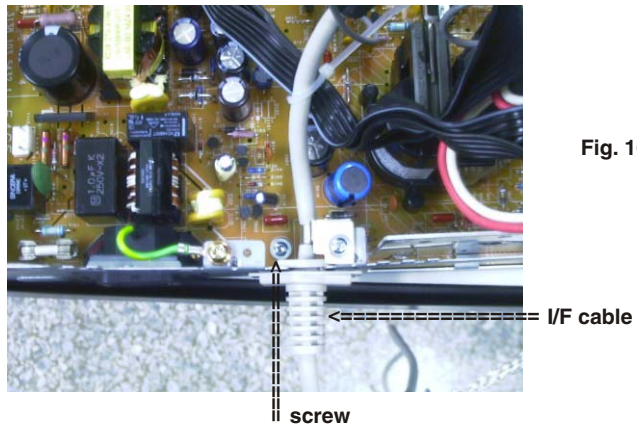
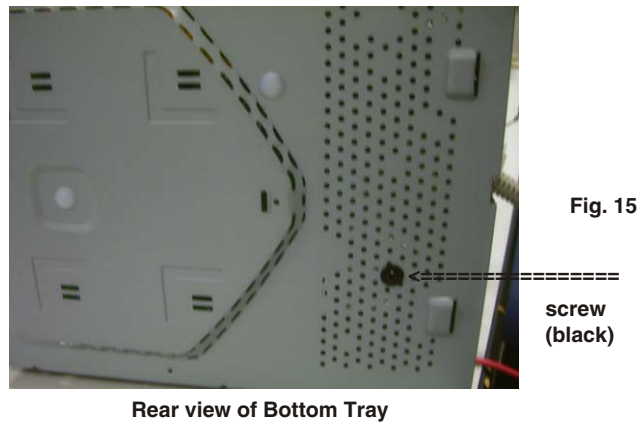
- Remove a screw from back of bottom tray as shown in Fig. 15.
- Remove Interface cable from bottom tray as shown in Fig. 16.
- Remove a screw from Main panel as shown in Fig. 16.
- Remove 2 screws from Main panel as shown in Fig. 17.
- Remove a screw from Main panel as shown in Fig. 18.
- Remove Main panel from bottom tray.

6. How to remove Front Control Panel (Chassis)

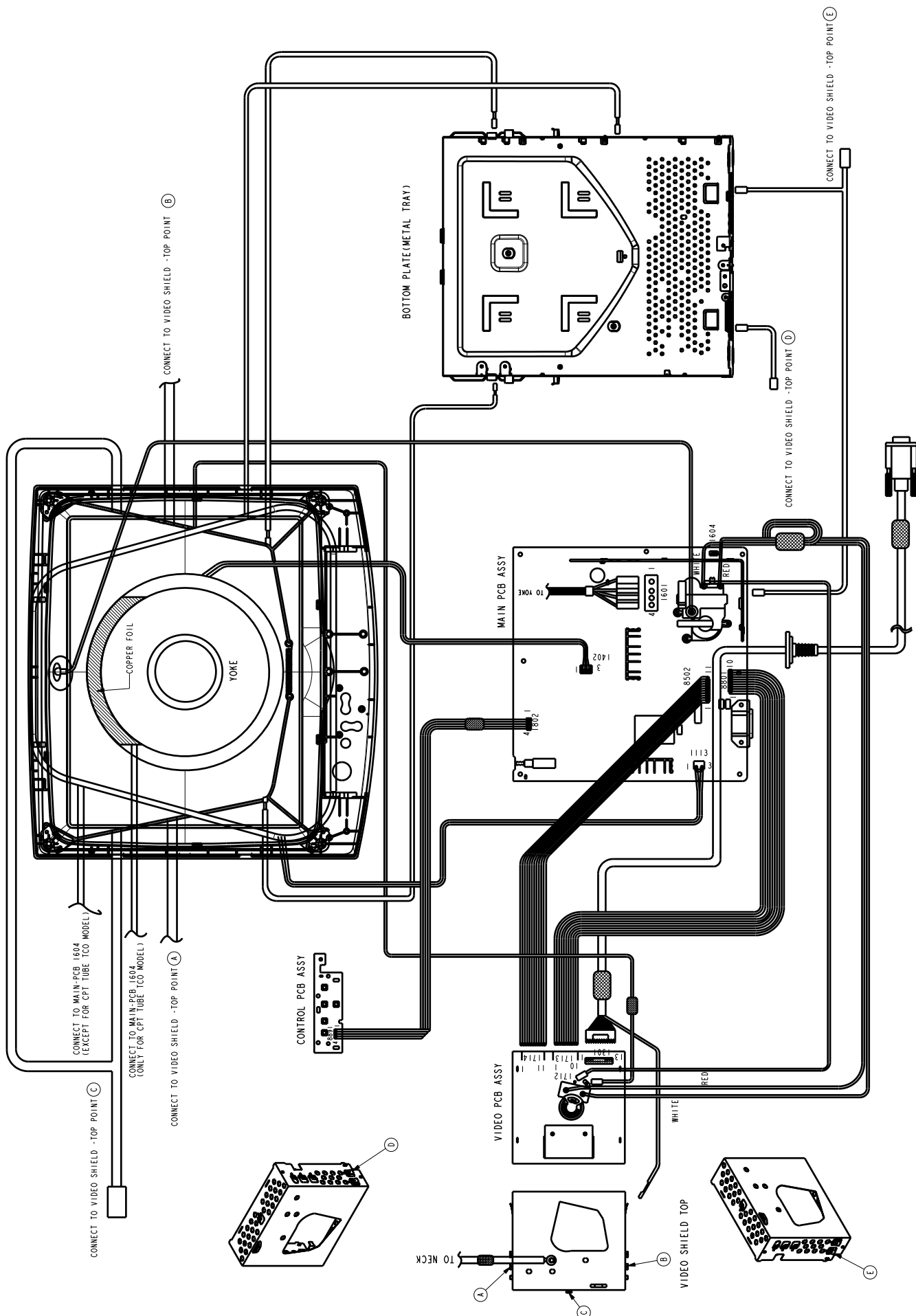
- Release 3 plastic claws as shown in Fig. 19.
- Remove Front control panel from Front Cabinet.

7. SERVICE POSITION

Reconnect connectors, some wires and panels (chassis), service position can be available for DC/AC measurement as shown in Fig. 22.



Wiring Diagram



M32 107E4 70KLG Tube EDID log file

Vendor/Product Identification

ID Manufacturer Name : PHL
ID Product Code : 000B (HEX.)
ID Serial Number : 4D2 (HEX.)
Week of Manufacture : 10
Year of Manufacture : 2002

EDID Version, Revision

Version : 1
Revision : 3

Basic Display Parameters/Features

Video Input Definition : Analog Video Input
0.700V/0.000V (0.70Vpp)
without Blank-to-Black Setup
Separate Sync
without Composite Sync
without Sync on Green
no Serration required

Maximum H Image Size : 31
Maximum V Image Size : 23
Display Transfer Characteristic : 2.83
(gamma)

Feature Support (DPMS): Standby
Suspend
Active Off

Display Type : RGB color display

Color Characteristics

Red X coordinate : 0.62
Red Y coordinate : 0.345
Green X coordinate : 0.29
Green Y coordinate : 0.61
Blue X coordinate : 0.155
Blue Y coordinate : 0.065
White X coordinate : 0.283
White Y coordinate : 0.297

Established Timings

Established Timings I : 720 x 400 @ 70Hz (IBM,VGA)
640 x 480 @ 60Hz (IBM,VGA)
640 x 480 @ 72Hz (VESA)
640 x 480 @ 75Hz (VESA)
800 x 600 @ 60Hz (VESA)
Established Timings II : 800 x 600 @ 72Hz (VESA)
800 x 600 @ 75Hz (VESA)
832 x 624 @ 75Hz (Apple,Mac II)
1024 x 768 @ 60Hz (VESA)
1024 x 768 @ 70Hz (VESA)
1024 x 768 @ 75Hz (VESA)

Manufacturer's timings :

Standard Timing Identification #1

Horizontal active pixels : 640
Aspect Ratio : 4:3
Refresh Rate : 85

Standard Timing Identification #2

Horizontal active pixels : 800
Aspect Ratio : 4:3
Refresh Rate : 85

Standard Timing Identification #3

Horizontal active pixels : 1024
Aspect Ratio : 4:3
Refresh Rate : 85

Standard Timing Identification #4

Horizontal active pixels : 1280
Aspect Ratio : 5:4
Refresh Rate : 60

Standard Timing Identification #5

Horizontal active pixels : 640
Aspect Ratio : 4:3
Refresh Rate : 100

Standard Timing Identification #6

Horizontal active pixels : 800
Aspect Ratio : 4:3
Refresh Rate : 100

Standard Timing Identification #7

Horizontal active pixels : 1280
Aspect Ratio : 4:3
Refresh Rate : 60

Standard Timing Identification #8

Horizontal active pixels : 1152
Aspect Ratio : 4:3
Refresh Rate : 75

Detailed Timing #1

Pixel Clock (MHz) : 25.18
H Active (pixels) : 640
H Blanking (pixels) : 160
V Active (lines) : 350
V Blanking (lines) : 99
H Sync Offset (F Porch) (pixels): 16
H Sync Pulse Width (pixels): 96
V Sync Offset (F Porch) (lines): 37
V Sync Pulse Width (lines): 2
H Image Size (mm) : 306
V Image Size (mm) : 230
H Border (pixels) : 0
V Border (lines) : 0
Flags : Non-interlaced
: Normal Display, No stereo
: Digital Separate sync.
: Negative Vertical Sync.
: Positive Horizontal Sync.

Monitor Descriptor #2

Serial Number : TY 123456

Monitor Descriptor #3

Monitor Name : PHILIPS 107E4

Monitor Descriptor #4

Monitor Range Limits
Min. Vt rate Hz : 50
Max. Vt rate Hz : 160
Min. Horiz. rate kHz : 30
Max. Horiz. rate kHz : 71
Max. Supported Pixel : 110
No secondary GTF timing formula supported.

Extension Flag

: 0

EDID data (128 bytes)

0: 00 1: ff 2: ff 3: ff 4: ff 5: ff 6: ff 7: 00
8: 41 9: 0c 10: 0b 11: 00 12: d2 13: 04 14: 00 15: 00
16: 0a 17: 0c 18: 01 19: 03 20: 68 21: 1f 22: 17 23: b7
24: e8 25: d5 26: f8 27: 9e 28: 58 29: 4a 30: 9c 31: 27
32: 10 33: 48 34: 4c 35: ad 36: ee 37: 00 38: 31 39: 59
40: 45 41: 59 42: 61 43: 59 44: 81 45: 80 46: 31 47: 68
48: 45 49: 68 50: 81 51: 40 52: 71 53: 4f 54: d6 55: 09
56: 80 57: a0 58: 20 59: 5e 60: 63 61: 10 62: 10 63: 60
64: 52 65: 08 66: 32 67: e6 68: 10 69: 00 70: 00 71: 1a
72: 00 73: 00 74: 00 75: ff 76: 00 77: 20 78: 54 79: 59
80: 20 81: 20 82: 31 83: 32 84: 33 85: 34 86: 35 87: 36
88: 0a 89: 20 90: 00 91: 00 92: 00 93: fc 94: 00 95: 50
96: 48 97: 49 98: 4c 99: 49 100: 50 101: 53 102: 20 103: 31
104: 30 105: 37 106: 45 107: 34 108: 00 109: 00 110: 00 111: fd
112: 00 113: 32 114: a0 115: 1e 116: 47 117: 0b 118: 00 119: 0a
120: 20 121: 20 122: 20 123: 20 124: 20 125: 20 126: 00 127: 12
Address 78&79 factory code:
Brazil HC(48h,43h) Chungli TY(54h,59h)
Juarez YA(59h,41h) Shenzhen CX(43h,58h)
Suzhou BZ(42h,5Ah) Szombathely HD(48h,44h)

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M32 107E4 70KCPT TubeEDID log file

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ID Product Code : 000B (HEX.)
ID Serial Number : 4D2 (HEX.)
Week of Manufacture : 10
Year of Manufacture : 2002

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Version : 1
Revision : 3

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Aspect Ratio : 4:3
Refresh Rate : 85

Standard Timing Identification #3

Horizontal active pixels : 1024
Aspect Ratio : 4:3
Refresh Rate : 85

Standard Timing Identification #4

Horizontal active pixels : 1280
Aspect Ratio : 5:4
Refresh Rate : 60

Standard Timing Identification #5

Horizontal active pixels : 640
Aspect Ratio : 4:3
Refresh Rate : 100

Standard Timing Identification #6

Horizontal active pixels : 800
Aspect Ratio : 4:3
Refresh Rate : 100

Standard Timing Identification #7

Horizontal active pixels : 1280
Aspect Ratio : 4:3
Refresh Rate : 60

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Aspect Ratio : 4:3
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Min. Horiz. ratekHz : 30
Max. Horiz. ratekHz : 71
Max. Supported Pixel : 110
No secondary GTF timing formula supported.

Extension Flag

: 0

Check sum

: 0F (HEX.)

EDID data (128 bytes)

0: 00 1: ff 2: ff 3: ff 4: ff 5: ff 6: ff 7: 00
8: 41 9: 0c 10: 0b 11: 00 12: d2 13: 04 14: 00 15: 00
16: 0a 17: 0c 18: 01 19: 03 20: 68 21: 1f 22: 17 23: ba
24: e8 25: d5 26: f8 27: 9e 28: 58 29: 4a 30: 9c 31: 27
32: 10 33: 48 34: 4c 35: ad 36: ee 37: 00 38: 31 39: 59
40: 45 41: 59 42: 61 43: 59 44: 81 45: 80 46: 31 47: 68
48: 45 49: 68 50: 81 51: 40 52: 71 53: 4f 54: d6 55: 09
56: 80 57: a0 58: 20 59: 5e 60: 63 61: 10 62: 10 63: 60
64: 52 65: 08 66: 32 67: e6 68: 10 69: 00 70: 00 71: 1a
72: 00 73: 00 74: 00 75: ff 76: 00 77: 20 78: 54 79: 59
80: 20 81: 20 82: 31 83: 32 84: 33 85: 34 86: 35 87: 36
88: 0a 89: 20 90: 00 91: 00 92: 00 93: fc 94: 00 95: 50
96: 48 97: 49 98: 4c 99: 49 100: 50 101: 53 102: 20 103: 31
104: 30 105: 37 106: 45 107: 34 108: 00 109: 00 110: 00 111: fd
112: 00 113: 32 114: a0 115: 1e 116: 47 117: 0b 118: 00 119: 0a
120: 20 121: 20 122: 20 123: 20 124: 20 125: 20 126: 00 127: 0f
Address 78&79 factory code:
Brazil HC(48h,43h) Chungli TY(54h,59h)
Juarez YA(59h,41h) Shenzhen CX(43h,58h)
Suzhou BZ(42h,5Ah) Szombathely HD(48h,44h)

Hex Data of DDC2B (Continued)

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M32 107E4 70K Philips Tube EDID log file

Vendor/Product Identification

ID Manufacturer Name : PHL
ID Product Code : 000B (HEX.)
ID Serial Number : 4D2 (HEX.)
Week of Manufacture : 10
Year of Manufacture : 2002

EDID Version, Revision

Version : 1
Revision : 3

Basic Display Parameters/Features

Video Input Definition : Analog Video Input
0.700V/0.000V (0.70Vpp)
without Blank-to-Black Setup
Separate Sync
without Composite Sync
without Sync on Green
no Serration required

Maximum H Image Size : 31
Maximum V Image Size : 23
Display Transfer Characteristic : 2.87
(gamma)

Feature Support (DPMS) : Standby
Suspend
Active Off

Display Type : RGB color display

Color Characteristics

Red X coordinate : 0.62
Red Y coordinate : 0.345
Green X coordinate : 0.29
Green Y coordinate : 0.61
Blue X coordinate : 0.155
Blue Y coordinate : 0.065
White X coordinate : 0.283
White Y coordinate : 0.297

Established Timings

Established Timings I : 720 x 400 @70Hz (IBM,VGA)
640 x 480 @60Hz (IBM,VGA)
640 x 480 @72Hz (VESA)
640 x 480 @75Hz (VESA)
800 x 600 @60Hz (VESA)
Established Timings II : 800 x 600 @72Hz (VESA)
800 x 600 @75Hz (VESA)
832 x 624 @75Hz (Apple,Mac II)
1024 x 768 @60Hz (VESA)
1024 x 768 @70Hz (VESA)
1024 x 768 @75Hz (VESA)

Manufacturer's timings :

Standard Timing Identification #1

Horizontal active pixels : 640
Aspect Ratio : 4:3
Refresh Rate : 85

Standard Timing Identification #2

Horizontal active pixels : 800
Aspect Ratio : 4:3
Refresh Rate : 85

Standard Timing Identification #3

Horizontal active pixels : 1024
Aspect Ratio : 4:3
Refresh Rate : 85

Standard Timing Identification #4

Horizontal active pixels : 1280
Aspect Ratio : 5:4
Refresh Rate : 60

Standard Timing Identification #5

Horizontal active pixels : 640
Aspect Ratio : 4:3
Refresh Rate : 100

Standard Timing Identification #6

Horizontal active pixels : 800
Aspect Ratio : 4:3
Refresh Rate : 100

Standard Timing Identification #7

Horizontal active pixels : 1280
Aspect Ratio : 4:3
Refresh Rate : 60

Standard Timing Identification #8

Horizontal active pixels : 1152
Aspect Ratio : 4:3
Refresh Rate : 75

Detailed Timing #1

Pixel Clock (MHz) : 25.18
H Active (pixels) : 640
H Blanking (pixels) : 160
V Active (lines) : 350
V Blanking (lines) : 99
H Sync Offset (F Porch) (pixels): 16
H Sync Pulse Width (pixels): 96
V Sync Offset (F Porch) (lines) : 37
V Sync Pulse Width (lines): 2
H Image Size (mm) : 306
V Image Size (mm) : 230
H Border (pixels) : 0
V Border (lines) : 0
Flags : Non-interlaced
: Normal Display, No stereo
: Digital Separate sync.
: Negative Vertical Sync.
: Positive Horizontal Sync.

Monitor Descriptor #2

Serial Number : TY 123456

Monitor Descriptor #3

Monitor Name : PHILIPS 107E4

Monitor Descriptor #4

Monitor Range Limits
Min. Vt rate Hz : 50
Max. Vt rate Hz : 160
Min. Horiz. rate kHz : 30
Max. Horiz. rate kHz : 71
Max. Supported Pixel : 110
No secondary GTF timing formula supported.

Extension Flag

: 0

Check sum

: 0E (HEX.)

EDID data (128 bytes)

0: 00 1: ff 2: ff 3: ff 4: ff 5: ff 6: ff 7: 00
8: 41 9: 0c 10: 0b 11: 00 12: d2 13: 04 14: 00 15: 00
16: 0a 17: 0c 18: 01 19: 03 20: 68 21: 1f 22: 17 23: bb
24: e8 25: d5 26: f8 27: 9e 28: 58 29: 4a 30: 9c 31: 27
32: 10 33: 48 34: 4c 35: ad 36: ee 37: 00 38: 31 39: 59
40: 45 41: 59 42: 61 43: 59 44: 81 45: 80 46: 31 47: 68
48: 45 49: 68 50: 81 51: 40 52: 71 53: 4f 54: d6 55: 09
56: 80 57: a0 58: 20 59: 5e 60: 63 61: 10 62: 10 63: 60
64: 52 65: 08 66: 32 67: e6 68: 10 69: 00 70: 00 71: 1a
72: 00 73: 00 74: 00 75: ff 76: 00 77: 20 78: 54 79: 59
80: 20 81: 20 82: 31 83: 32 84: 33 85: 34 86: 35 87: 36
88: 0a 89: 20 90: 00 91: 00 92: 00 93: fc 94: 00 95: 50
96: 48 97: 49 98: 4c 99: 49 100: 50 101: 53 102: 20 103: 31
104: 30 105: 37 106: 45 107: 34 108: 00 109: 00 110: 00 111: fd
112: 00 113: 32 114: a0 115: 1e 116: 47 117: 0b 118: 00 119: 0a
120: 20 121: 20 122: 20 123: 20 124: 20 125: 20 126: 00 127: 0e

Address 78&79 factory code:

Brazil	HC(48h,43h)	Chungli	TY(54h,59h)
Juarez	YA(59h,41h)	Shenzhen	CX(43h,58h)
Suzhou	BZ(42h,5Ah)	Szombathely	HD(48h,44h)

1. General

DDC Data Re-programming

In case the main EEPROM with Software DDC which store all factory settings were replaced because a defect, repaired monitor the serial numbers have to be re-programmed.

It is advised to re-soldered the main EEPROM with Software DDC from the old board onto the new board if circuit board have been replaced, in this case the DDC data does not need to be re-programmed.

Additional information

Additional information about DDC (Display Data Channel) may be obtained from Video Electronics Standards Association (VESA). Extended Display Identification Data(EDID) information may be also obtained from VESA.

DDC EDID structure

For the monitor : Standard Version 3.0
Structure Version 1.2

2. System and equipment requirements

- 1. An i486 (or above) personal computer or compatible.
 - 2. Microsoft operation system Windows 95/98.
 - 3. EDID301.EXE program (3138 106 10103) shown as Fig. 1
 - 4. Software DDC Alignment kits (4822 310 11184) shown as Fig. 2.
- The kit contents: a. Alignment box x1
b. Printer cable x1
c. D-Sub cable x1

Note: The EDID301.EXE (Release Version 1.58, 20000818) is a windows-based program, which cannot be run in MS-DOS.

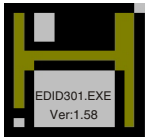


Figure 1 Diskette with EDID301.EXE

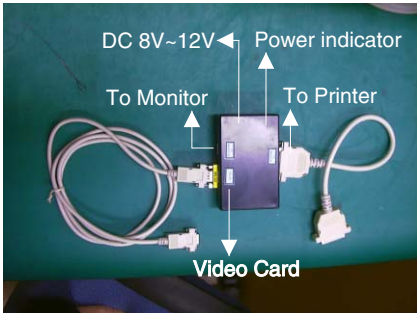
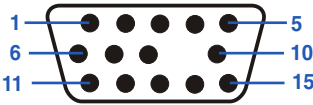


Fig. 2 Alignment Kits

3. Pin assignment

A. 15-pin D-Sub Connector

The 15-pin D-sub connector (male) of the signal cable on the 3rd row for DDC feature :



Pin No.	Assignment	Pin No.	Assignment
1	Red video input	9	No pin
2	Green video input	10	Sync. Ground
3	Blue video input	11	Ground
4	Ground	12	Bi-directional data(SDA)
5	for selftest(PC ground)	13	H.Sync
6	Red video ground	14	V.Sync(VCLK)
7	Green video ground	15	Data clock line(SCL)
8	Blue video ground		

4. Configuration and procedure

There is no Hardware DDC (DDC IC) anymore. Main EEPROM stores all factory settings and DDC data (EDID code) which is so called Software DDC. The following section describes the connection and procedure for Software DDC application. The main EEPROM can be re-programmed by enabling "factory memory data write" function on the DDC program (EDID301.EXE).

*** INITIALIZE ALIGNMENT BOX ***

In order to avoid that monitor entering power saving mode due to sync will cut off by alignment box, it is necessary to initialize alignment box before re-programming DDC Data. Following steps show you the procedures and connection.

Step 1: Supply 8~12V DC power source to the Alignment box by plugging a DC power cord or using batteries.

Step 2: Connecting printer cable and video cable of monitor as shown in Fig.3.

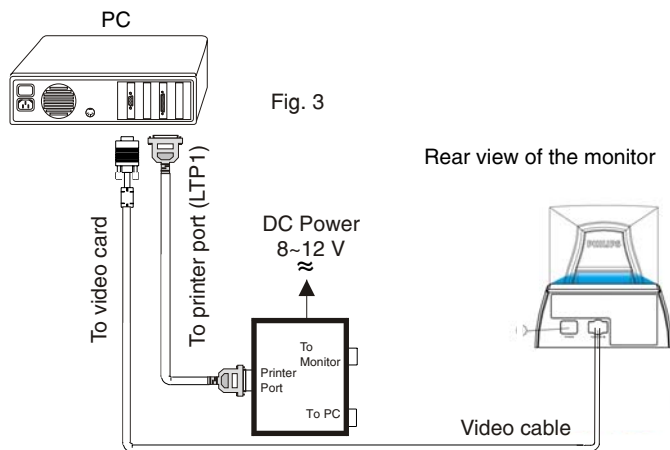


Fig. 3

Step 3: Installation of EDID301.EXE

Method 1: Start on DDC program

Start Microsoft Windows.

1. Insert the disk containing EDID301.EXE program into floppy disk drive.
2. Click Start, choose Run at start menu of Windows 95/98 as shown in Fig. 4.

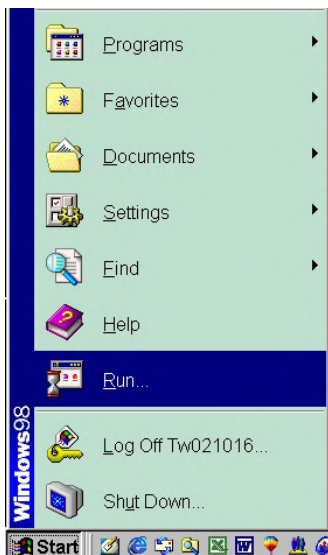


Fig. 4

3. At the submenu, type the letter of your computer's floppy disk drive followed by :EDID301 (for example, A:\EDID301, as shown in Fig. 5).

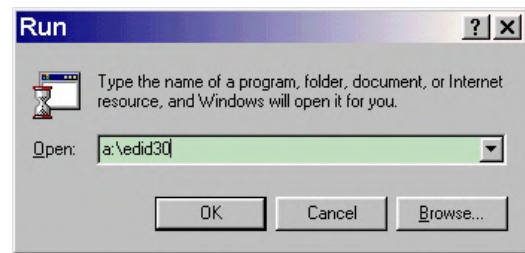


Fig. 5

4. Click **OK** button. The main menu appears (as shown in Fig. 6). **This is for initialize alignment box.**

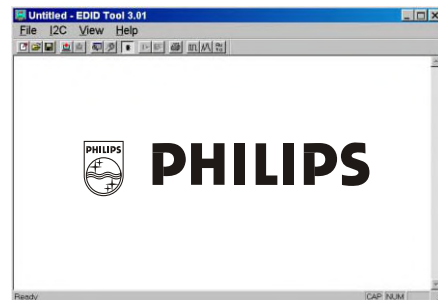


Fig. 6

Note 1: If the connection is improper, you will see the following error message (as shown in Fig. 7) before entering the main menu. Meanwhile, the (read EDID) function will be disabled. At this time, please make sure all cables are connected correctly and fixedly, and the procedure has been performed properly.



Fig. 7

Method 2: After create a shortcut of EDID301.EXE

- : Double click EDID301 icon (as shown in Fig. 8) which is on the screen of Windows Wallpaper. Bring up main menu of EDID301 as shown in Fig. 9. **This is for initialize alignment box.**



Fig. 8

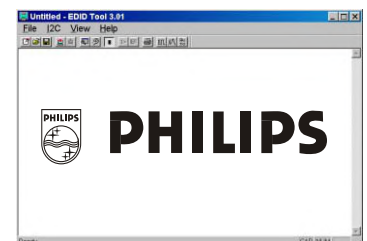
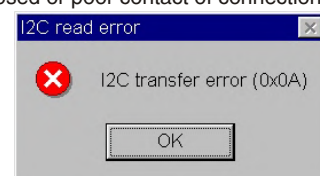


Fig. 9

Note 2: During the loading, EDID301 will verify the EDID data which just loaded from monitor before proceed any further function, once the data structure of EDID can not be recognized, the following error message will appear on the screen as below. Please confirm following steps to avoid this message.

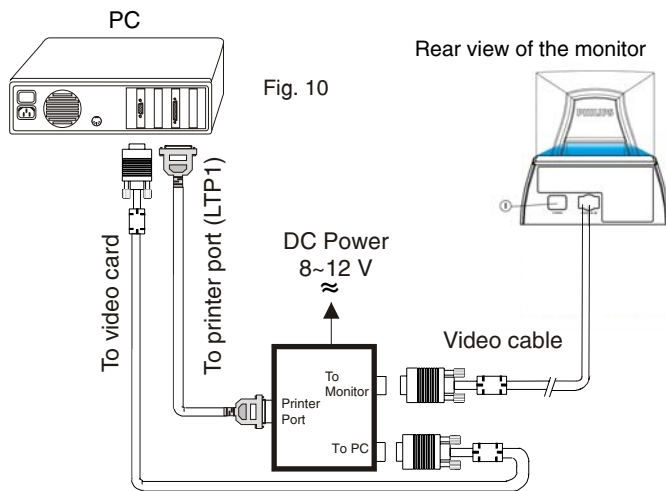
1. The data structure of EDID was incorrect.
2. DDC IC that you are trying to load data is empty.
3. Wrong communication channel has set at configuration setup windows.
4. Cables loosed or poor contact of connection.



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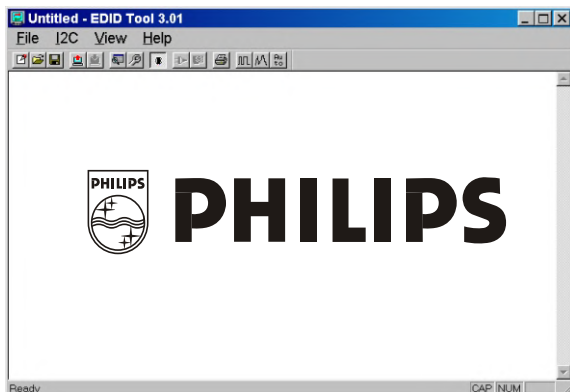
Re-programming EEPROM (Software DDC)

Step 1: After initialize alignment box, connecting all cables and box as shown in Fig. 10

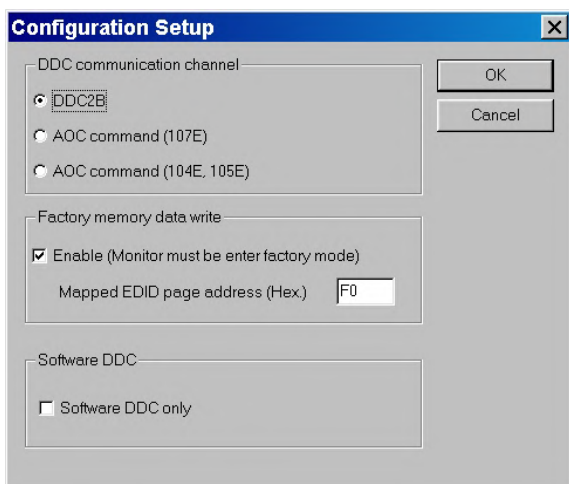


Step 2: Read DDC data from monitor

- 1-1 Click the left key of Mouse, or hit any key on the keyboard, then the characters disappear from the screen.
- 1-2 Click  icon as shown in Fig. 11 from the tool bar to bring up the "Configuration Setup" windows as shown in Fig. 12.

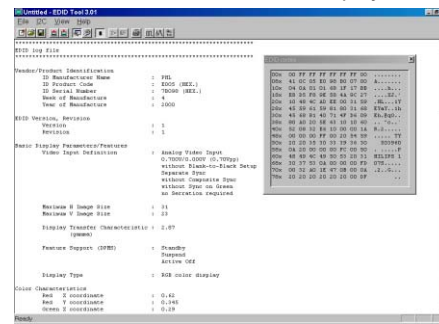


2. Select the DDC2B as the communication channel. Select "Enable" & fill out "F0" for Mapped EDID page address as shown in Fig. 12.



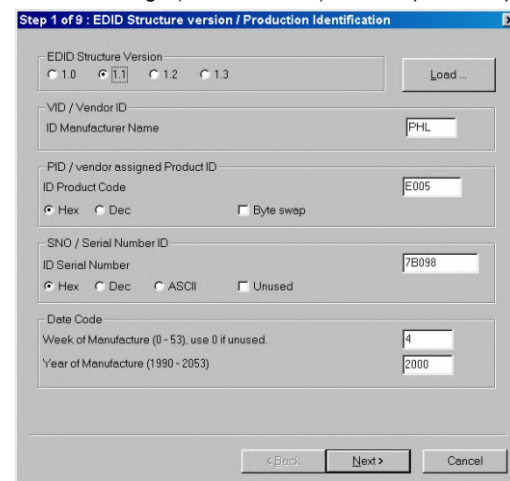
3. Click OK button to confirm your selection.

4. Click  icon (Read EDID function) to read DDC EDID data from monitor. The EDID codes will display on screen as shown in Fig. 13.



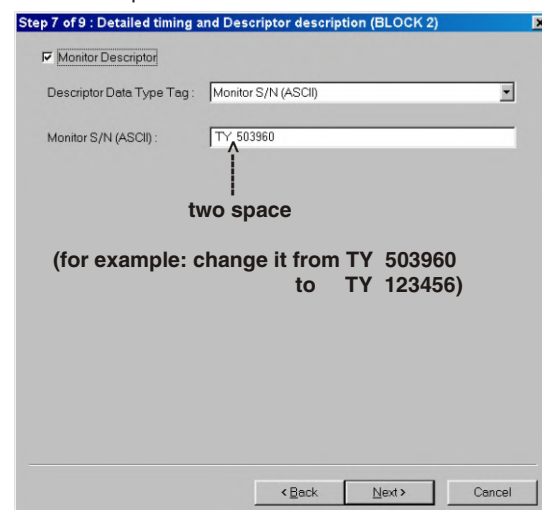
Step 3: Modify DDC data (verify EDID version, week, year)

1. Click  (new function) icon from the tool bar, bring up Step 1 of 9 as shown in Fig. 14. EDID301 DDC application provides the function selection and text change (select & fill out) from Step 1 to Step 9.



Step 4: Modify DDC data (Monitor Serial No.)

1. Click **Next** till the Step 7 of 9 window appears as shown in Fig. 15.
2. Fill out the new Serial No. (for example, TY 503960, TY 123456).
3. Click **Next** till the last step window appears, then click **Finish** to exit the Step window.



Definition of Serial Number (barcode format)

TY 000028000001

- Serial Number (U.S.A: 8 digit)
(Others regions: 6 digit)
- Week
- Year
- TY Code
TY----Chungli
CX----Dong Guan
HD----Hungary
BZ----Suzhou

Step 5: **Configuration Setup & Enter Factory Mode ** for "write EDID data"

1. Click  icon from the tool bar to bring up the Configuration Setup windows again. Then, select "Software DDC only" as shown in Fig. 16. Click "OK".

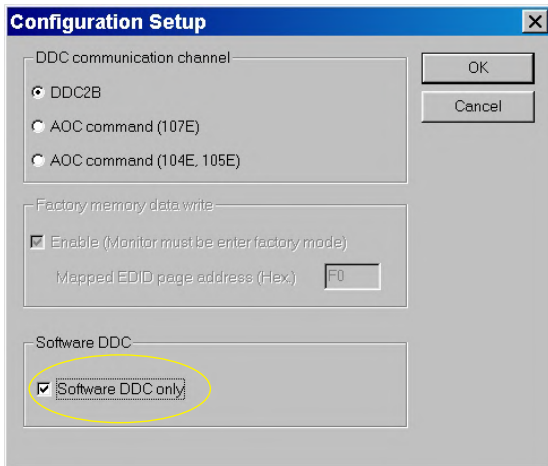


Fig. 16

If you do not select "Software DDC only", when you execute "write EDID", it will bring up an error message as below.



To access factory mode

1. Turn off monitor (don't turn off PC)
2. Press "◀▶" and "⏻" simultaneously on the front control panel, then press "⏻", wait till the OSD menu with characters M30 107S P V0.82 20010207 (below OSD menu) come on the screen of monitor.



Fig. 17

If OSD menu disappears on the screen of monitor, press "⏻" again (anytime), then the OSD menu comes on the screen again.

If you do not access "Factory mode", when you execute "write EDID", it will bring up an error message as below.



Step 6: Write DDC data

1. Click  (Write EDID) icon from the tool bar to write DDC data. Bring up "Writing 0%~100%, ready" a progressing bar on the left down corner.
2. Click  (Read EDID) to confirm it.

Step 7: Confirm Serial Number in User Mode

1. Press the ⏻ button to turn off the monitor. Press the ⏻ button again to turn on the monitor.
2. Press the ⏻ button to bring up the OSD Main Menu.
3. Press the ⏻ button to select Extra Controls, press the ⏻ button to confirm your selection.
4. Confirm the Serial Number "123456" is updated as shown in Fig. 18.



Fig. 18

Step 8: Save DDC data

Sometimes, you may need to save DDC data as a text file for using in other IC chip. To save DDC data, follow the steps below:

1. Click  (Save) icon (or click "file" -> "save as") from the tool bar and give a file name as shown in Fig. 19. The file type is EDID301 file (*.ddc) which can be open in WordPad. By using WordPad, the texts of DDC data & table (128 bytes, hex code) can be modified. If DDC TEXTS & HEX Table are completely correct, it can be saved as .ddc file to re-load it into EEPROM for DDC Data application.

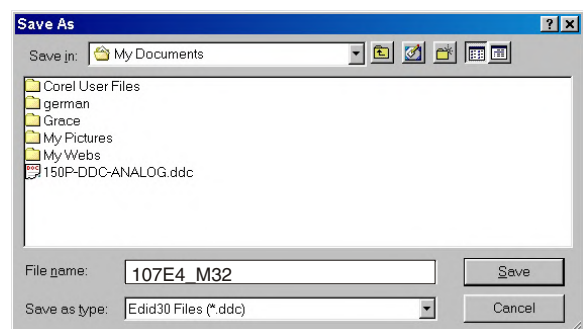


Fig. 19

2. Click **Save**.

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Step 9: Load DDC data

1. Click  from the tool bar.
2. Select the file you want to open as shown in Fig. 20.
3. Click **Open**.
4. Access "Factory Mode" and enable "Software DDC only" as shown in Fig. 17 & Fig. 16.
5. Write EDID (click ).

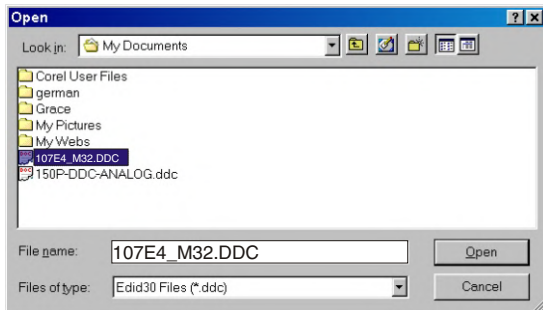


Fig. 20

Note 2 : In Factory Mode: Read/Write DDC data

Before Read/Write EDID code, please confirm that the **Software DDC only** was enabled as shown in Fig. 23.

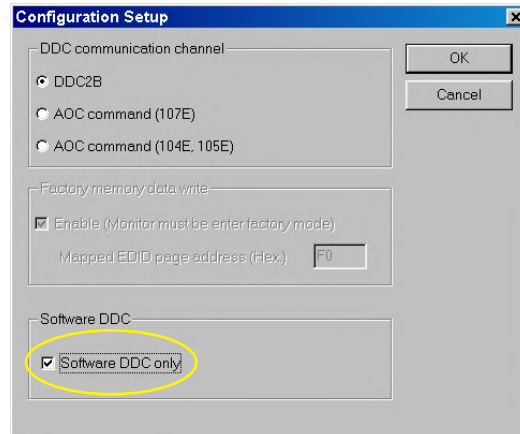


Fig. 23

Step 10: Exit DDC program

Pull down the File menu and select Exit as shown in Fig. 21.
(EDID Tool 3.01)



Fig. 21

Note1 : In User Mode: Read DDC data only

Before read EDID code, please confirm that the **Software DDC only** was disabled as shown in Fig. 22.

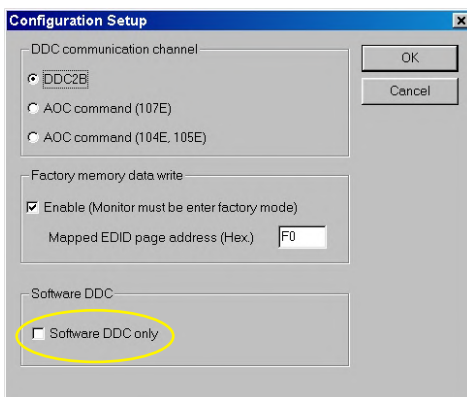
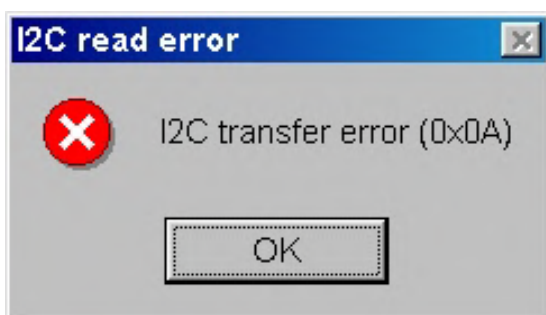


Fig. 22

If you do not disable "Software DDC only", when you execute "read EDID", it will bring up an error message as below.



0. General

When carry-out the electrical settings in many cases a video signal must be applied to the monitor. A computer with :

- ATI GPT-1600 (4822 397 10065), Mach 64 (up to 107kHz)

are used as the video signal source. The signal patterns are selected from the "service test software" package, see user guide 4822 727 21046 (GPT-1600).

0.1 This monitor has **8 factory-preset modes** as below.

720 x 400 31.5 kHz/70 Hz	1024 x 768 68.7 kHz/85 Hz
640 x 480 31.5 kHz/60 Hz	
640 x 480 43.3 kHz/85 Hz	
800 x 600 46.9 kHz/75 Hz	
800 x 600 53.6 kHz/85 Hz	
1024x768 60.0 kHz/75 Hz	
1280 x 1024 64.0kHz/60Hz	

14 factory-preload modes as below

640 x 350 31.5 kHz/70 Hz	800 x 600 48.1 kHz/72 Hz
640 x 350 37.9 kHz/85 Hz	800 x 600 63.9 kHz/100 Hz
640 x 480 37.5 kHz/75 Hz	832 x 624 49.7 kHz/75 Hz
640 x 480 37.9 kHz/72.8 Hz	1024 x 768 48.4 kHz/60 Hz
640 x 480 50.6 kHz/100 Hz	1024 x 768 56.5 kHz/70 Hz
720 x 400 37.9 kHz/85 Hz	1152 x 864 67.5 kHz/75 Hz
800 x 600 37.9kHz/60Hz	1280 x 960 60.0 kHz/60 Hz

1. With normal VGA card:

If not using the ATI card during repair or alignment, The service engineer also can use this service test software adapting with normal standard VGA adaptor and using standard VGA mode 640 x 480, 31.5 kHz/60 Hz (only) as signal source.

2. AC/DC Measurement:

The measurements for AC waveform and DC figure is based on 640 x 480 31.5 kHz/60 Hz resolution mode with test pattern "gray scale".
Power input: 110V AC

3. Monitor the following auxiliary voltages.

SOURCE ACROSS 7114 Pin and GRN	+5 V	+/- 0.25 VDC
SOURCE ACROSS C2155	+6.1 V	+/- 0.5 VDC.
SOURCE ACROSS C2153	+12.2V	+/- 1.0 VDC.
SOURCE ACROSS C2154	- 12.2V	+/- 1.0 VDC.
SOURCE ACROSS C2151	+94.0V	+/- 1.5 VDC.
SOURCE ACROSS C2609	- 182 V	+/- 10.0 VDC.
SOURCE ACROSS C2152(+ to Gnd)	+190.0V	+/-2.0 VDC.

4. General conditions for alignment

4.1 During all alignments, supply a distortion free AC mains voltage to set via an isolating transformer with low internal impedance.

4.2 Align in pre-warmed condition, at least 30 minutes warm-up with nominal picture brightness.

4.3 Purity, geometry and subsequent alignments should be carried out in magnetic cage with correct magnetic field.

Northern hemisphere : H=0, V=450 mG, Z=0
Southern hemisphere : H=0, V=-500 mG, Z=0
Equatorial Support : H=0, V=0 mG, Z=0

4.4 All voltages are to be measured or applied with respect to ground.

Note: Do not use heatsink as ground.

4.5 Adjust brightness controls to center position except for contrast control which should be set to MAX.

5. To access factory mode

5.1 Turn off monitor (don't turn off PC)

5.2 Press "◀▶" and "⏻" simultaneously on the front control panel, then press "EXIT", wait till the OSD menu with characters M32 107E/T4P V1.23 20020426 (below OSD menu) come on the screen of monitor.



5.3 If OSD menu disappears on the screen of monitor, press "EXIT" again (anytime), then the OSD menu comes on the screen again.

5.4 Using "▲▼" : to select OSD menu.

5.5 Using "◀▶" : to increase or decrease the setting.

5.6 Using "EXIT" to access/confirm the selection.

To leave factory mode

5.7 After alignment of factory mode, turn off monitor (if you do not turn off monitor, the OSD menu is always at the factory mode), then turn on monitor again (at this moment, the OSD menu goes back to user mode).

6. Picture geometry setting

- Apply a video signal with cross-hatch pattern.

- Apply a video signal in the 1024 x 768 with 68.7 kHz/85 Hz mode.

- Set contrast control at Max. position, and brightness control in the mid-point.

6.4 Alignment of horizontal geometry and vertical geometry

6.4.1 Adjust the H-width to 306 mm

6.4.2 Adjust the H-phase to center position.

6.4.3 Adjust V-size to 230mm.

6.4.4 Adjust V-Position to center.

Adjust/Trapezoid/pincushion/balance pincushion/parallelogram

6.4.5 Adjust picture tilt via I²C BUS for correct top/bottom lines.

6.4.6 Adjust the top and bottom corner by I²C to get optimum corner geometry.

6.4.7 Adjust the parallelogram by I²C BUS to get optimum vertical line.

6.4.8 Adjust the balance pincushion by I²C BUS to get optimum vertical line.

6.4.9 Adjust the trapezoid to get optimum vertical line.

6.5 Adjust size/centering/trapezium/pincushion/parallelogram of all other preset modes via I²C bus.
(to repeat from step 6.4.1 to step 6.4.9)

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7. Alignment of Vg2 cut-off point, white tracking

Equipment : 1. Video Test Generator-801GC (Quantum Data)
2. Color-analyzer (Minolta CA-100)

VG2 [(screen), at the bottom of the L.O.T.].

7.1 Apply a video signal in the 1024 x 768 with 68.7 kHz/85 Hz mode, select the "full white pattern" (sizes 306 x 230 mm).

* Use color-analyzer (Minolta CA-100) to adjust R/G/B cutoff and gain.

OSD R/G/B cut-off and R/G/B gain can be accessed (for Philips CRT), with initial data:

9300 °K

R cutoff = 50%, R gain = 73% (f° C)

G cutoff = 50%, G gain = 73% (f° C)

B cutoff = 50%, B gain = 73% (f° C)

6500 °K

R cutoff = 50%, R gain = 71% (f° C)

G cutoff = 50%, G gain = 71% (f° C)

B cutoff = 50%, B gain = 71% (f° C)

Brightness = 50%, Sub-Contrast = 86%, ABL = 63% (f° C)

Step 1: To access factory mode

- Turn off monitor (don't turn off PC)
- Press "◀▶" and "ⓘ" simultaneously on the front control panel, then press "ⓘ", wait till the OSD menu with characters "M32 107E/T4P V1.23 20020426 (below OSD menu)" comes on the screen of monitor as shown in Fig. 2.1.



Fig. 2.1

- If OSD menu disappears on the screen of monitor, press "ⓘ" again (anytime), then the OSD menu comes on the screen again.
- Using "▼" to select M32 107E/T4P V1.23 20020426.
- Press "ⓘ" button to access/confirm the selection. Bring up the "function adjustment" as shown in Fig. 2.2.
- Press "▼" or "▲" button for function selection as shown in Fig. 2.2.
- Press "ⓘ" button to access/confirm each item selection (The cursor indicator will be changed from yellow colour to red colour.)
- Using "▶" or "◀" : to increase or decrease the value.

9300 BIAS	R G B	GAIN R G B	(for ref. 152, 38,71,242,202,226)
6500 BIAS	R G B	GAIN R G B	(for ref. 160,41,75,238,174,153)
SRGB BIAS	R G B	GAIN R G B	(for ref. 0,120,95,70)
SRGB	(:)		(for ref. 127,127,255,41,80)
FOCUS(H V)	VLINBAL	USER	(for ref. 170,170,220)
RASTER(H V)	LIN (H V)	SUB	(for ref. 70,65,152,255)
V(OFFSET	GAIN)	SUB	(for ref. 183,152)
CORNER(T B)	ABL	SUB	(for ref. 96,96)
BPLUS (EHT	REGU)		(for ref. 4,4)
LF (BRIGH	SHARP)		(for ref. 230)
48K SUB			
EXIT			

Fig. 2.2
(for example: 152 is value of "BIAS R")

BIAS R G B : R(red) G(green) B(blue) cutoff

GAIN R G B : R(red) G(green) B(blue) gain

V FOCUS : Vertical Focus

VLIN BAL : Vertical Linearity Balance

USER : Horizontal size range

RASTER H: Horizontal DC (raster) Shift

RASTER V: Vertical DC (raster) Shift

HLIN : Horizontal Linearity

V LIN : Vertical Linearity

SUB : Zoom range

SUB : Sub Contrast

SUB : Sub Brightness

V OFFSET : Vertical offset

V GAIN : Vertical Gain

ABL : Auto Beam Limit

T CORNER: Corner Correction of TOP

B CORNER: Corner Correction of BOTTOM

H (EHT REGU): Horizontal Extensive High Tension

LF : Light Frame

48K SUB : H-Size limit

7.2 Connect the video input, set brightness control at center, and contrast control at maximum

7.3

set R,G,B cut-off at 127 9300k and 6500K(EEPROM preload value)

R,G,B gain at 185 9300k and

180 6500K(EEPROM preload value)

ABL at 160 9300k(EEPROM preload value)

SUB-CON at 220 9300k (EEPROM preload value)

7.4 Adjust 9300K color:

With color analyzer CA 100,

set R,G,B cut-off x=0.283, y=0.297, Y=0.10

7.5 Set R,G,B gain Y=41+/- 1FL, x=0.283, y=0.297

7.6 Repeat 7.4, 7.5 until RGB three guns get x=0.283, y=0.297, readings on low Y=0.10+/-0.05FL and high Y=41+/-1FL brightness of 9300.

7.7 Adjust 6500K color:

With color analyzer CA 100,

set R,G,B cut-off x=0.313, y=0.329, Y=0.10

7.8 Set R,G,B gain Y=36+/- 1FL, x=0.313, y=0.329

7.9 Repeat 7.7, 7.8 until RGB three guns get x=0.313, y=0.329, readings on low Y=0.10+/-0.05FL and high Y=36+/-1FL brightness of 6500.

7.10 Adjust SUB-CON to get Y=41+/-1FL.

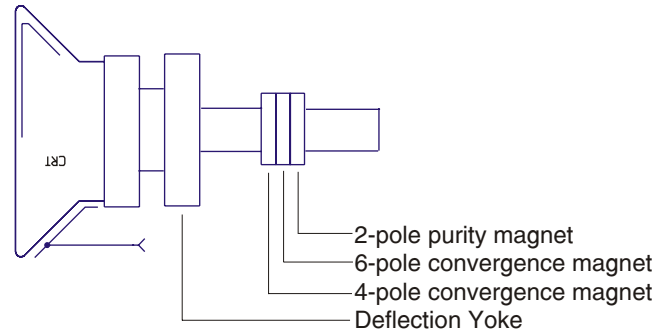
7.11 Apply full white pattern of 9300 mode, adjust ABL to reach 30 +/- 1FL(at 9300 high brightness of R/G/B gain, contrast at 100%)

8. Focus adjustment

Apply a signal of " @ " character. at 68.7 kHz/85 Hz mode set the brightness to mid-position , contrast to max - position and adjust the focus for optimal sharpness in the area within 2/3 from the screen center.

9. Loading DDC code

The DDC HEX data should be written into the EEPROM (7803) by EDID301.EXE Program(3138 106 10103) and software DDC Alignment kits (4822 310 11184).

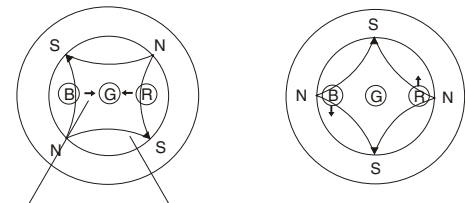


10. Purity adjustment

- Make sure the monitor is not exposed to any external magnetic field.
- Produce a full red pattern on the screen, adjust the purity magnet rings on the PCM assy (on CRT) to obtain a complete field of the color red. This is done by moving the two tabs (2-pole) in such a manner that they advance in an opposite direction but at the same time to obtain the same angle between the two tabs, which should be approximately 180 degree.
- Check by full green pattern and full blue pattern again to observe their respective color purity.

4-pole

Beam motion produced by the 4-pole convergence magnet



Beam displacement direction

Magnetic flux lines

11. Static convergence

Introduction

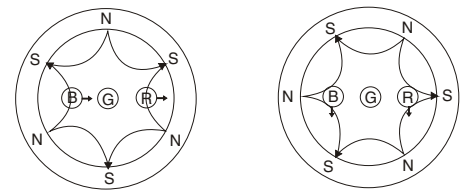
Slight deviation in the static convergence can be corrected by using two permanent pairs of magnets which are fitted around the neck of the CRT. These are the 4-pole magnet and the 6-pole magnet. The 4-pole magnet move the outermost electron beams (R and B) parallel in the opposite direction from the other. The 6-pole magnet moves the outermost electron beam (R, B and G) parallel in the opposite direction from the other. The magnetic field of the above magnets do not affect the center of the CRT neck.

Setting

- Before the static convergence setting can be made, the monitor must be switched on for 30 minutes.
- The focus setting must be made correctly.
- Signal: 640 * 480, 31.5 kHz/60 Hz mode.
- Set the tabs of the 4-pole magnet in the neutral position. This is when the tabs are opposite one another. In this position the magnets do not affect the deflection of the R and B electron beams.
- Set the tabs of the 6-pole magnet in the neutral position. This is when the tabs are opposite one another. In this position the magnets do not affect the deflection of the R, B, and G electron beams.
- First set the 4-pole magnet optimally.
- Then set the 6-pole magnet optimally.
- If the convergence is not now optimal, then adjust to the optimal setting with the 4-pole magnet and then with the 6- Pole magnet again.
- Set the tabs of the 6-pole magnet in the neutral position. This is when the tabs are opposite one another. In this position the magnets do not affect the deflection of the R, B, and G electron beams.
- First set the 4-pole magnet optimally.
- Then set the 6-pole magnet optimally.
- If the convergence is not now optimal, then adjust to the optimal setting with the 4-pole magnet and then with the 6- pole magnet again.

6-pole

Beam motion produced by the 6- pole convergence magnet



◀◀ Go to cover page

All units that are returned for service or repair must pass the original manufactures safety tests. Safety testing requires both **Hipot** and **Ground Continuity** testing.

HI-POT TEST INSTRUCTION

1. Application requirements

- 1.1 All mains operated products must pass the Hi-Pot test as described in this instruction.
- 1.2 This test must be performed again after the covers have been refitted following the repair, inspection or modification of the product.

2. Test method

2.1 Connecting conditions

- 2.1.1 The test specified must be applied between the parallel-blade plug of the mainscord and all accessible metal parts of the product.
- 2.1.2 Before carrying out the test, reliable conductive connections must be ensured and thereafter be maintained throughout the test period.
- 2.1.3 The mains switch(es) must be in the "ON" position.

2.2 Test Requirements

All products should be HiPot and Ground Continuity tested as follows:

Condition	HiPot Test for products where the mains input range is Full range(or 220V AC)	HiPot Test for products where the mains input is 110V AC(USA type)	Ground Continuity Test requirement
Test voltage	2820VDC (2000VAC)	1700VDC (1200VAC)	Test current: 25A,AC Test time: 3 seconds(min.) Resistance required: $\leq 0.09 + R$ ohm, R is the resistance of the mains cord.
Test time (min.)	3 seconds	1 second	
Trip current (Tester)	set at 100 uA for Max. limitation; set at 0.1 uA for Min. limitation	5 mA	
Ramp time	set at 2 seconds		

- 2.2.1 The test with AC voltage is only for production purpose, Service center shall use DC voltage.
- 2.2.2 The minimum test duration for Quality Control Inspector must be 1 minute.No breakdown during the test.
- 2.2.3 The test voltage must be maintained within the specified voltage + 5%.
- 2.2.4 The grounding blade or pin of mains plug must be conducted with accessible metal parts.

3. Equipments and Connection

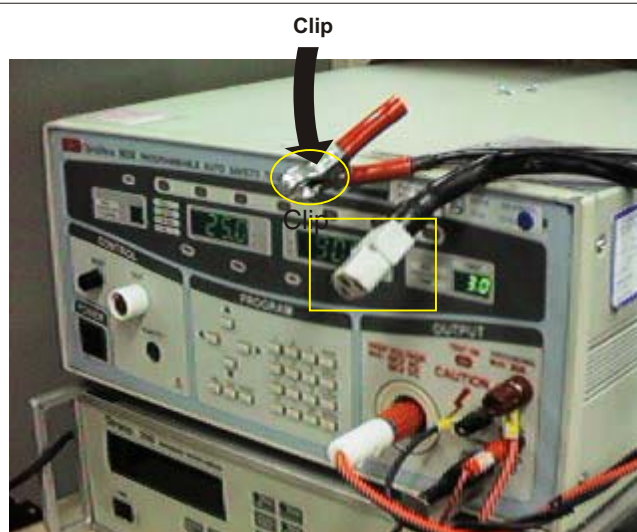
3.1. Equipments

For example :

- ChenHwa 9032 PROGRAMMABLE AUTO SAFETY TESTER
- ChenHwa 510B Digital Grounding Continuity Tester
- ChenHwa 901 (AC Hi-pot test), 902 (AC, DC Hi-pot test) Withstanding Tester

3.2. Connection

- * Turn on the power switch of monitor before Hipot and Ground Continuity testing.



(ChenHwa 9032 tester)

Video cable



Grounding screw



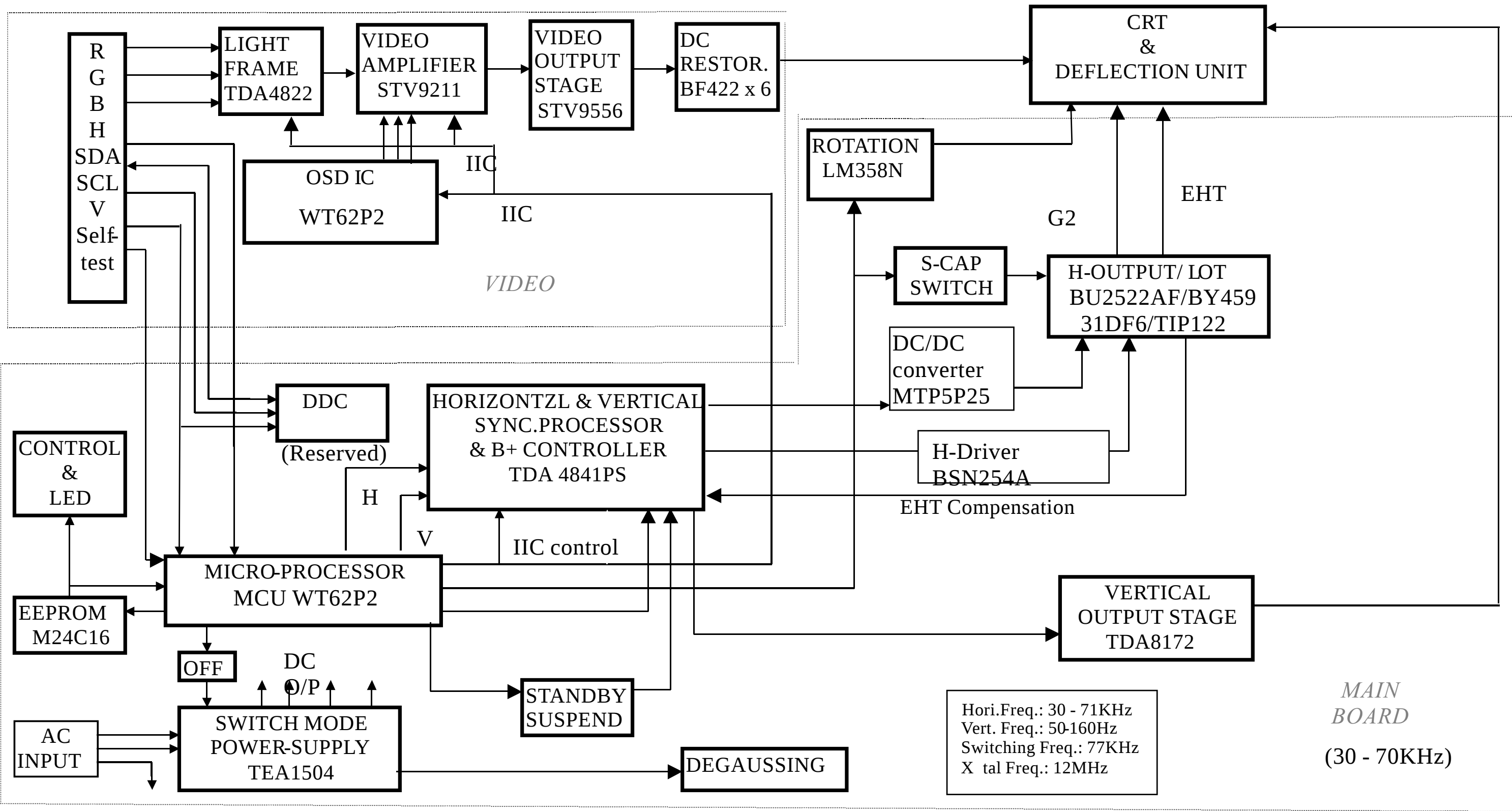
Power outlet

(Rear view of monitor)

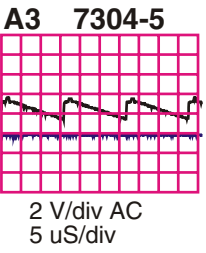
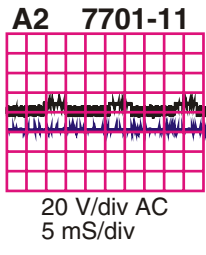
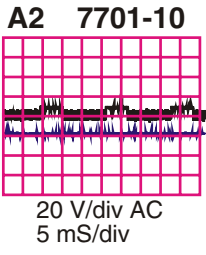
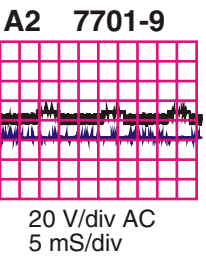
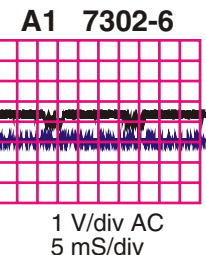
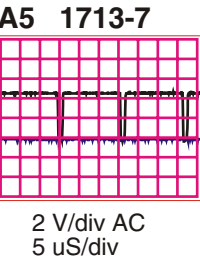
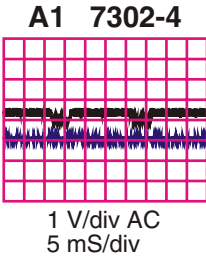
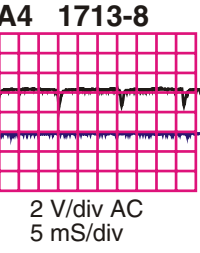
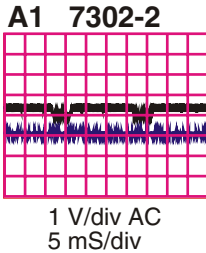
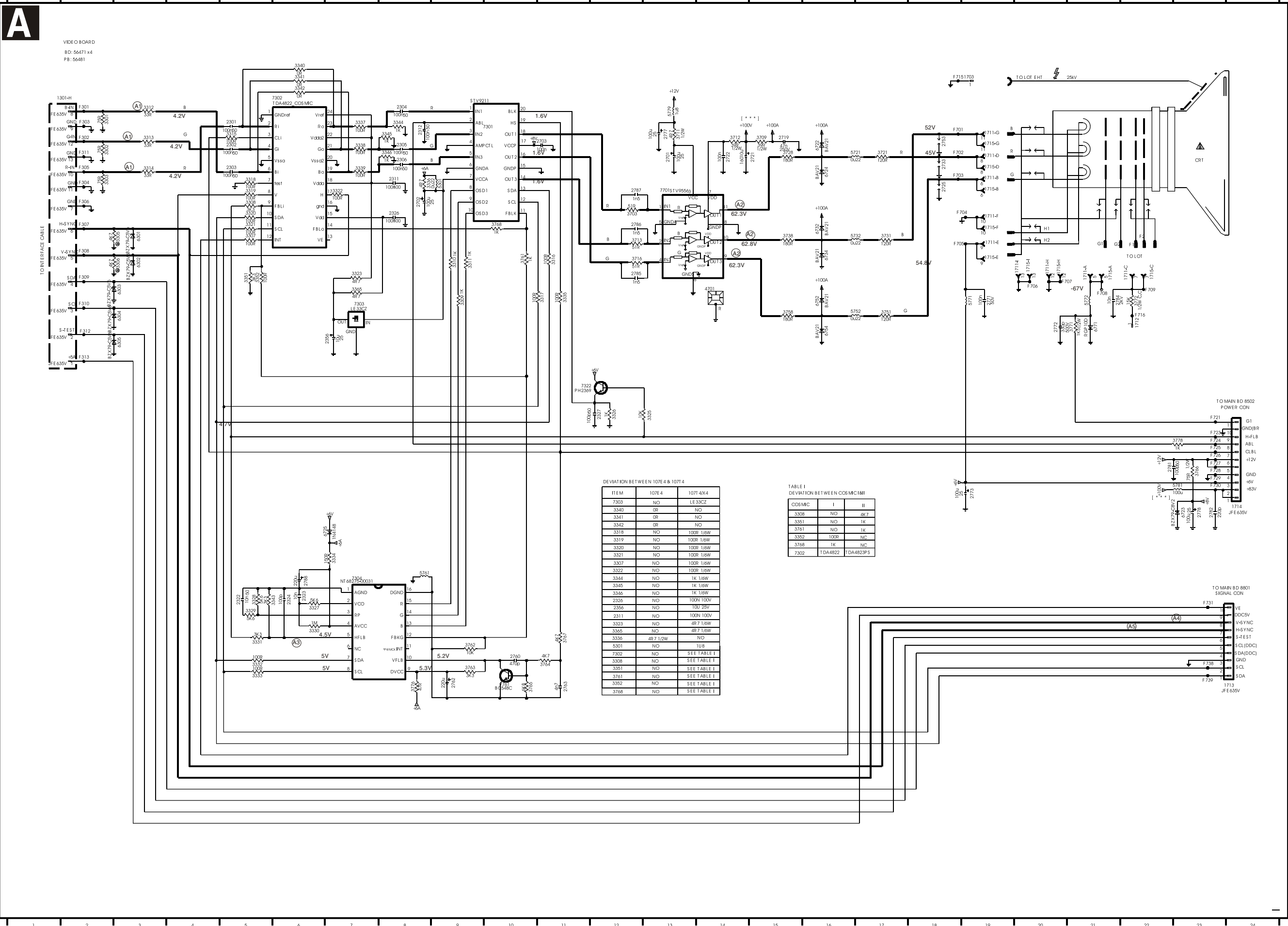
4. Recording

Hipot and Ground Continuity testing records have to be kept for a period of 10 years.

FUNCTION BLOCK OF COCA+ M32 107E4 GS_3



Video Panel Schematic diagram



7



54662smc(

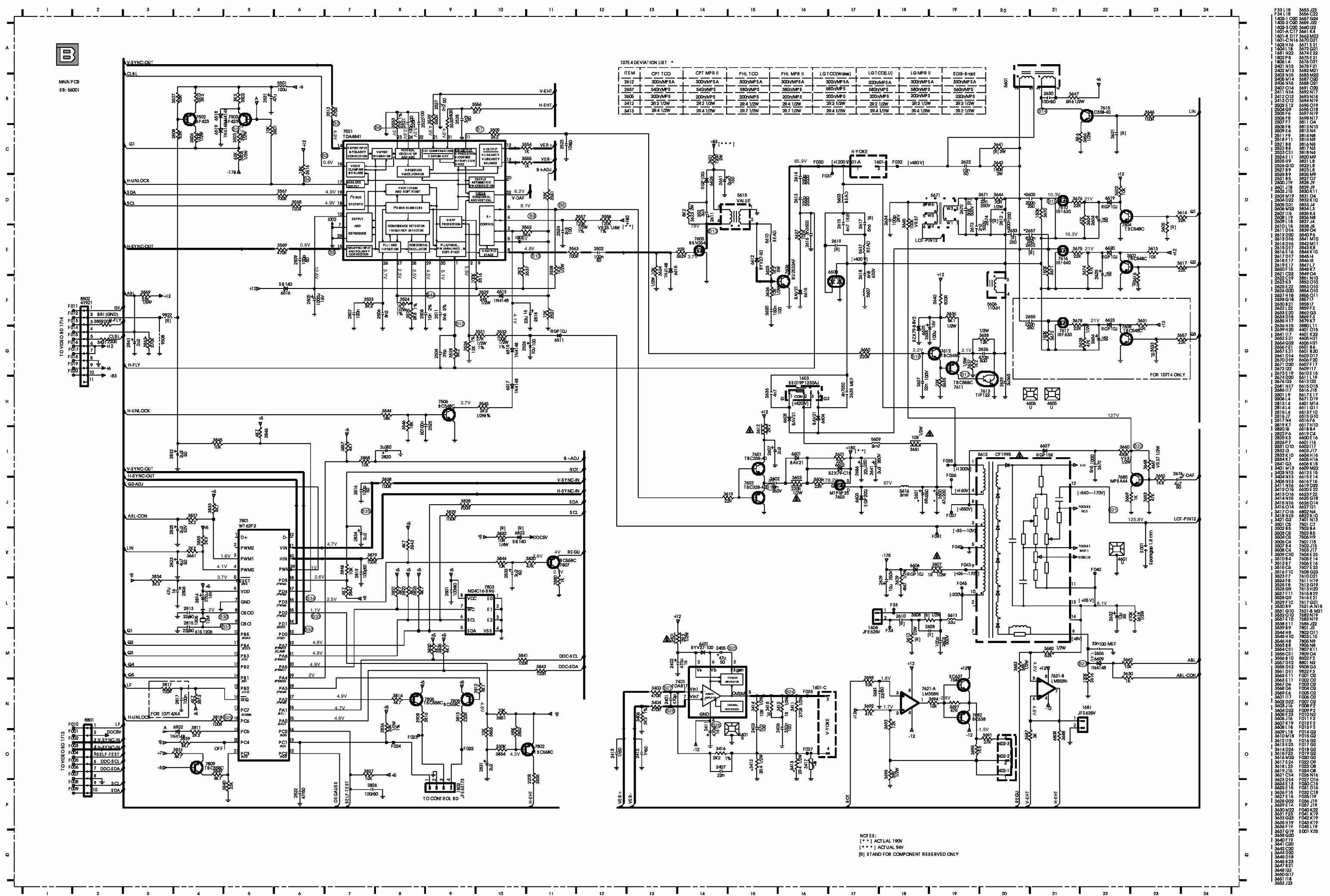
Go to cover page

**54662HMC
(POSITION)**

1301 B1	B	3738 D3	B
1703 D2	B	3751 B4	B
1711 C3	B	3752 B4	B
1712 C2	B	3753 E5	B
1713 C1	B	3754 D5	B
1714 E1	B	3756 E4	B
1715 C3	B	3757 E5	B
2324 B4	B	3758 C5	B
2348 A2	B	3759 E1	B
2721 D5	B	3771 D2	B
2723 D4	B	3772 B2	B
2724 E3	B	3776 D1	B
2725 B3	B	3778 E1	B
2727 D5	B	5301 B5	B
2731 D4	B	5303 B4	B
2732 E2	B	5701 B5	B
2733 C4	B	5702 D5	B
2751 B4	B	5721 D4	B
2752 D5	B	5723 D4	B
2753 D3	B	5732 D4	B
2762 B3	B	5733 D3	B
2764 C4	B	5752 C4	B
2772 B3	B	5753 D5	B
2774 E2	B	5771 D2	B
2775 E2	B	5772 B1	B
2776 D3	B	5773 B1	B
2778 A5	B	5774 D2	B
2779 C1	B	5775 D1	B
2780 C1	B	5779 C5	B
2783 A5	B	5781 D2	B
2786 C2	B	6301 A2	B
3310 A4	B	6302 A1	B
3325 B3	B	6303 A1	B
3332 B3	B	6304 A1	B
3333 B3	B	6711 D1	B
3344 B2	B	6722 E4	B
3345 B2	B	6732 D3	B
3346 B2	B	6751 B5	B
3349 A2	B	6752 B4	B
3351 A2	B	6771 B3	B
3352 B2	B	7301 A5	B
3353 B2	B	7302 A2	B
3354 B3	B	7303 A2	B
3356 A2	B	7304 A4	B
3357 A2	B	7322 B4	B
3358 A3	B	7701 C5	B
3359 B2	B	7721 E4	B
3701 D2	B	7722 E4	B
3702 D1	B	7731 E3	B
3703 B5	B	7732 E3	B
3704 B5	B	7751 E5	B
3705 B4	B	7752 E5	B
3706 B5	B	7761 A3	B
3708 D1	B	9701 D2	B
3709 E2	B	9711 C5	B
3713 B4	B	9712 B5	B
3716 B5	B	9713 B5	B
3718 C1	B	9714 B4	B
3719 C1	B	9715 D5	B
3720 C1	B	9716 A3	B
3721 C4	B	9717 B1	B
3722 E4	B	9718 D1	B
3723 D4	B	9719 D3	B
3724 E4	B	9720 A1	B
3726 E3	B	9721 C5	B
3727 E3	B	9722 E1	B
3728 E4	B	9728 B4	B
3729 B1	B		
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3732 E4	B		
3733 E2	B		
3734 E3	B		
3736 E3	B		
3737 E3	B		

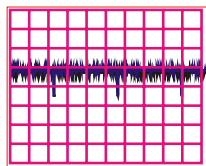
**54662SMC
(SMD)**

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2302 A5	A	3355 A3	A
2304 A1	A	3361 A2	A
2305 A1	A	3362 A2	A
2306 A1	A	3372 A5	A
2307 C1	A	3376 A5	A
2308 B2	A	3378 C4	A
2309 A5	A	3379 A2	A
2310 B2	A	3707 B5	A
2311 B2	A	3725 E4	A
2312 A4	A	3730 B4	A
2313 C4	A	3735 E3	A
2314 D5	A	3740 A4	A
2315 C4	A	3741 C5	A
2316 B1	A	3742 D5	A
2317 B1	A	3743 C4	A
2318 B1	A	3744 C5	A
2319 A5	A	3745 C4	A
2322 B4	A	3755 E5	A
2323 B4	A	3761 A3	A
2325 B4	A	3762 A3	A
2326 A4	A	3763 A3	A
2340 A2	A	3764 A3	A
2341 A3	A	3765 A3	A
2342 A2	A	3767 B3	A
2343 A2	A	3777 D1	A
2344 A2	A	3783 E2	A
2345 A5	A	6721 D4	A
2346 A5	A	6724 D4	A
2347 A5	A	6731 D4	A
2349 E1	A	6734 D4	A
2702 C5	A	6754 B4	A
2722 C5	A		
2726 C5	A		
2760 A3	A		
2761 A3	A		
2763 A3	A		
2771 C3	A		
2781 A1	A		
2782 A1	A		
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3302 B1	A		
3303 B1	A		
3305 A2	A		
3306 A1	A		
3307 C1	A		
3309 A4	A		
3311 A4	A		
3312 B1	A		
3313 B1	A		
3314 B1	A		
3315 A5	A		
3316 B5	A		
3317 B5	A		
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3326 B3	A		
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3337 A4	A		
3338 A3	A		
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3348 A2	A		



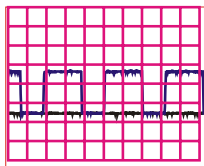
diagram

B1 7503-C



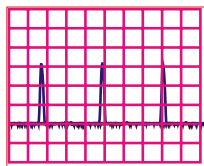
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B8 7501-6



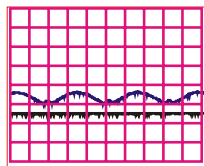
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B15 7610-D



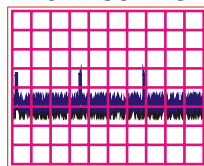
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B22 7685-C



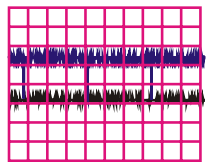
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B29 7801-18



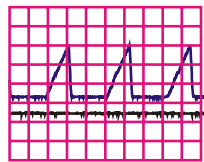
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B2 7501-14



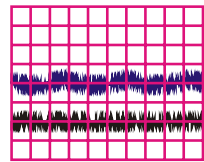
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B9 7501-4



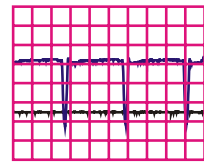
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B16 7612-B



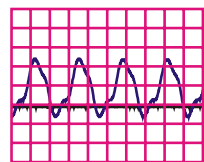
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B23 5612-6



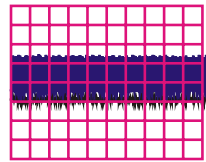
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B30 7801-8



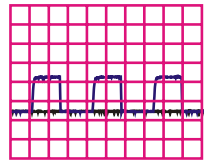
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B3 7501-16



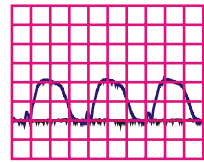
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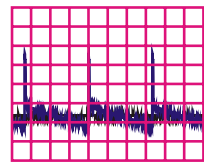
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B17 7611-C



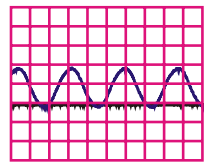
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B24 7401-5



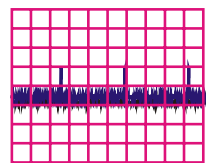
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B31 7801-9



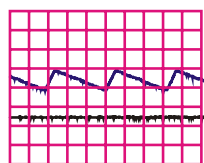
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B4 7501-17



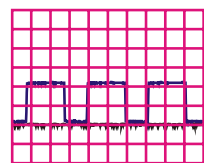
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B11 7501-29



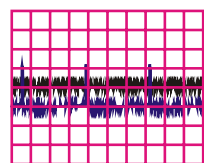
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B18 7602-E



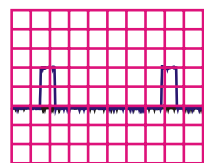
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B25 7401-3



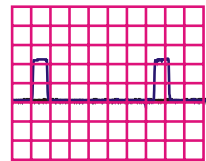
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B32 7801-34



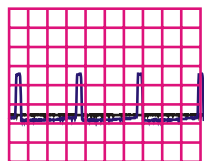
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B5 7501-15



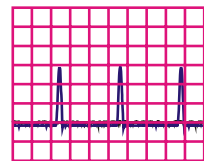
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B12 7501-1



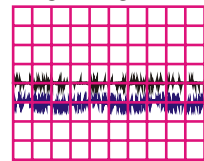
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B19 5612-3



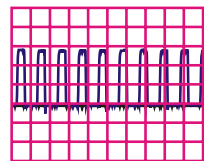
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B26 7401-4



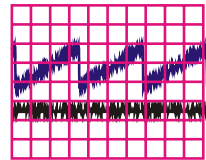
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5 mS/div

B33 7801-35



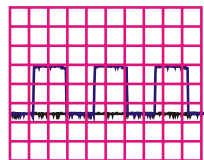
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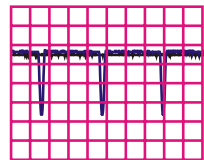
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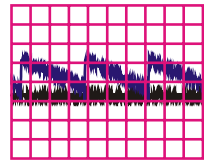
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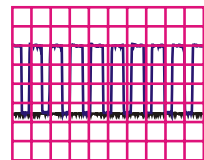
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B27 7401-1



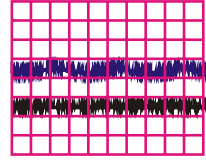
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B34 7801-36



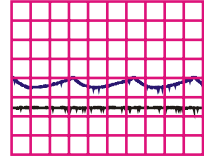
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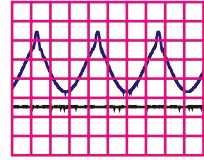
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B14 7615-C



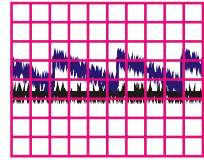
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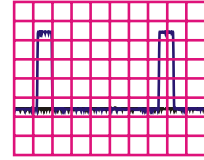
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B28 7401-7



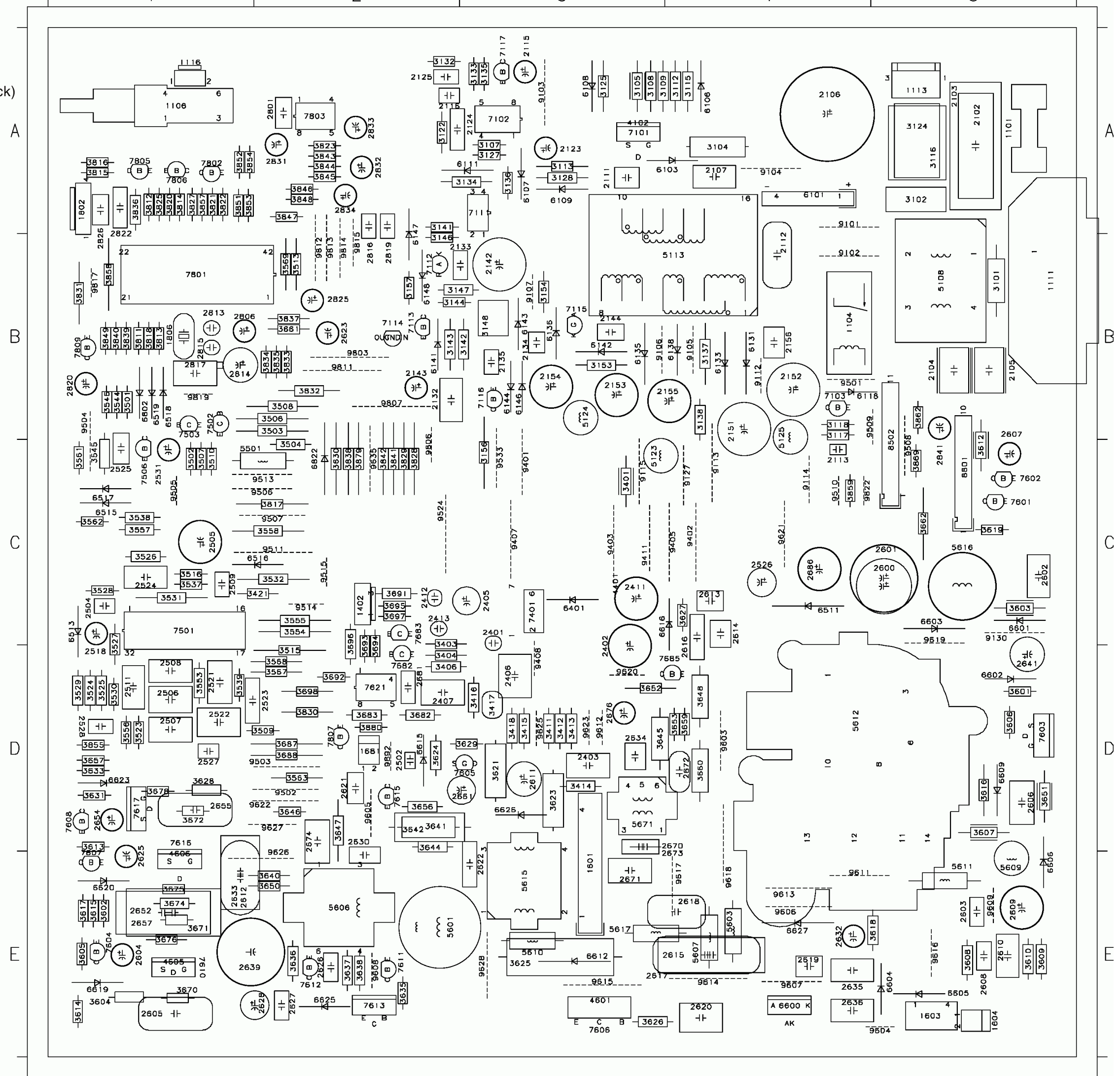
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B35 7801-40



1 V/div AC
5 uS/div

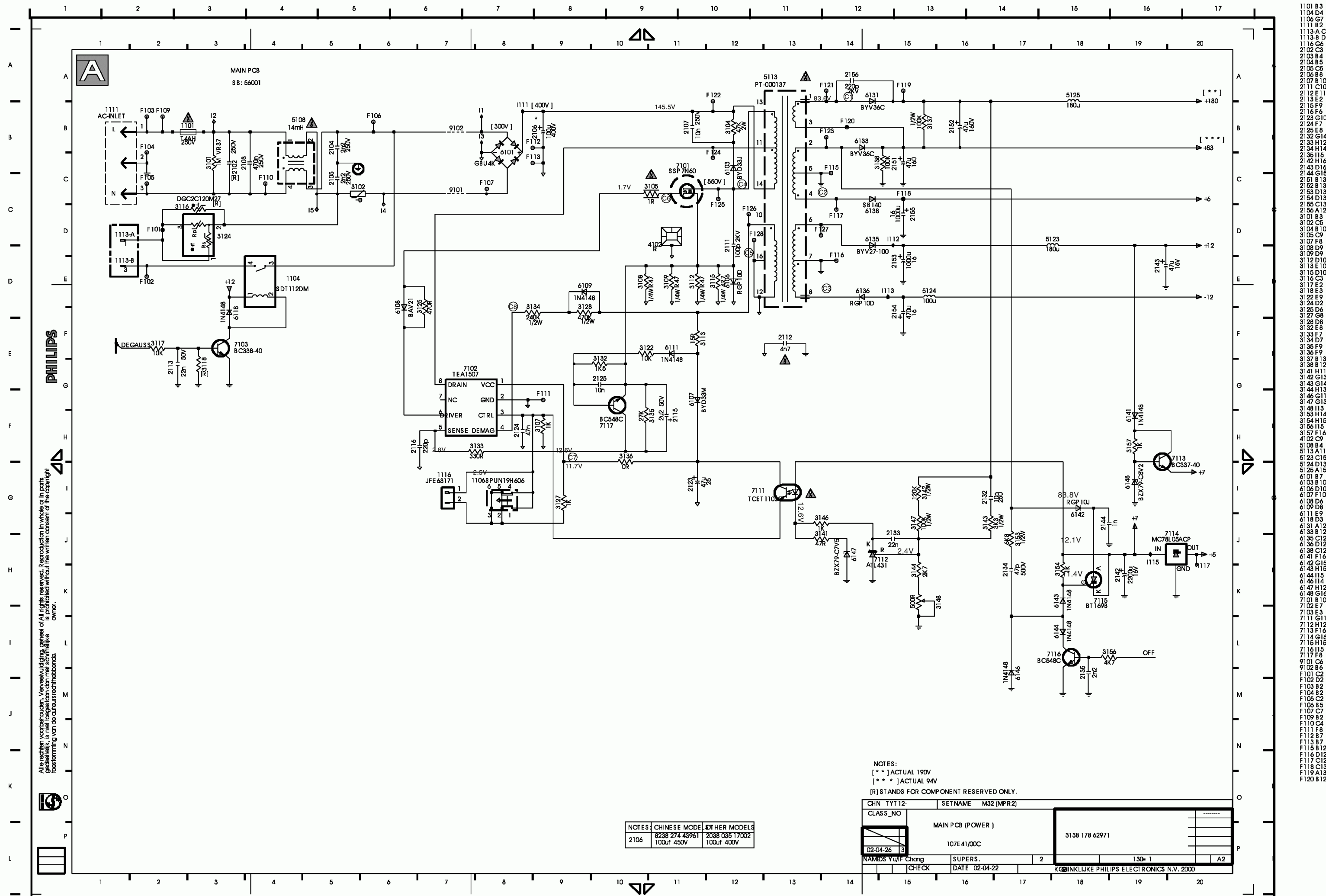
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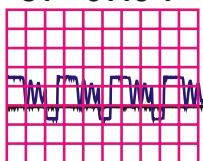
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Power Supply - Main Panel Schematic diagram

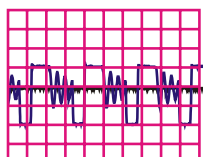


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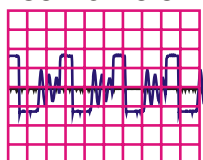
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C2 5113-4



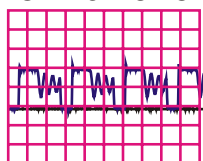
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C3 5113-8



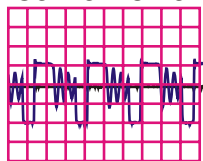
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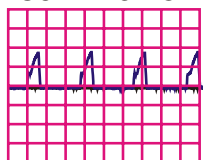
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C5 5113-10



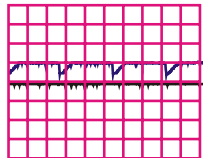
10 V/div AC
5 μ S/div

C6 7101-G



5 V/div AC
5 μ S/div

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10 V/div AC
5 μ S/div

Key Control Schematic diagram

M32 107E4 GS_3

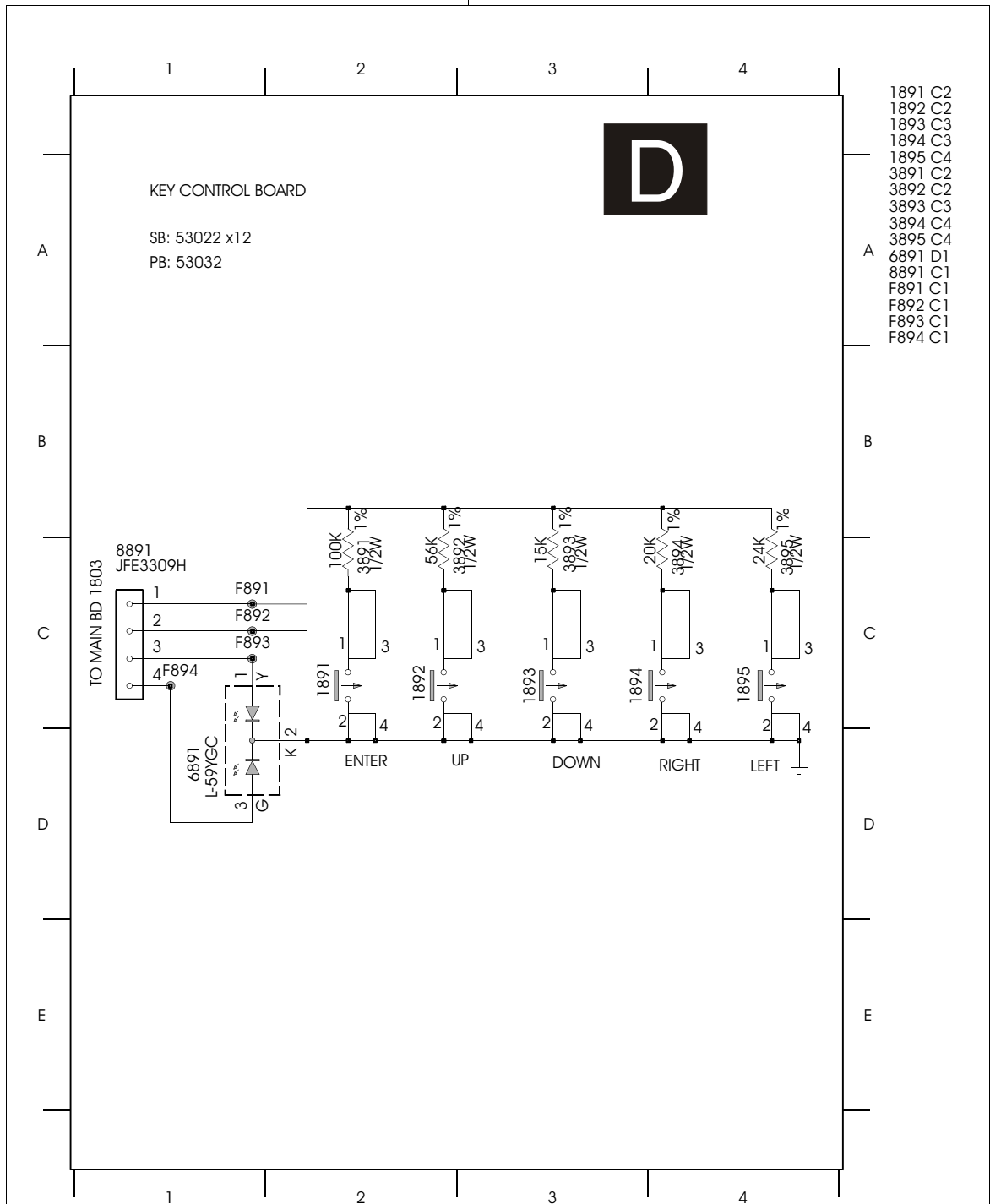
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1891 C2
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1894 C3
1895 C4
3891 C2
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3893 C3
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3895 C4
6891 D1
8891 C1
F891 C1
F892 C1
F893 C1
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CLASS NO.

KEY CONTROL

M32 107E41/00C(MPR2)

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SUPERS

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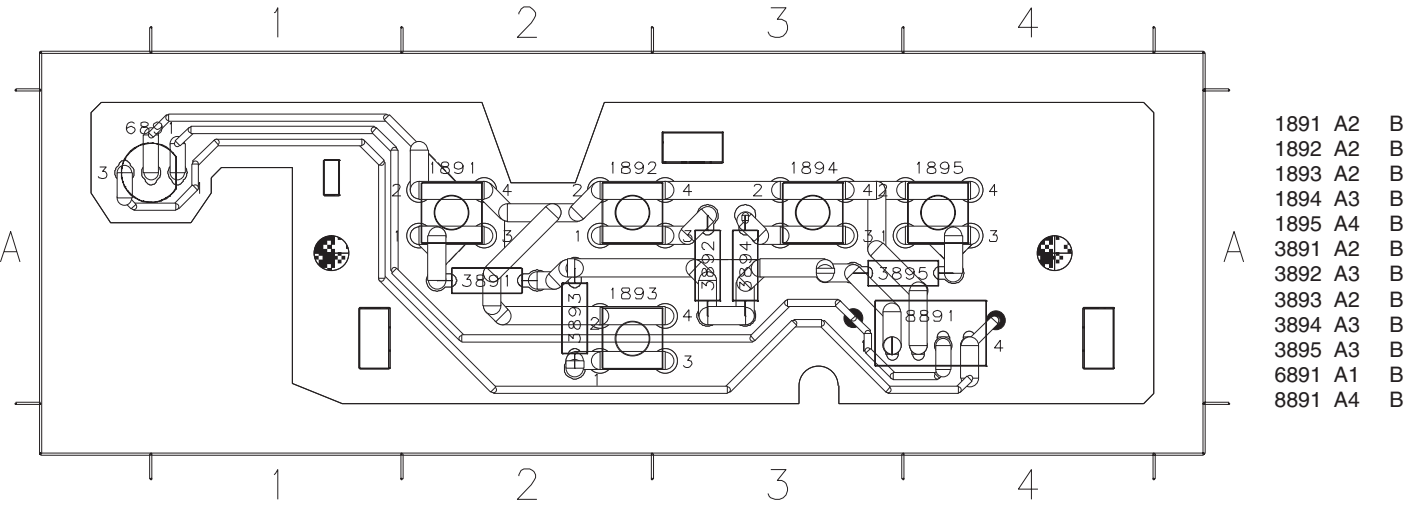
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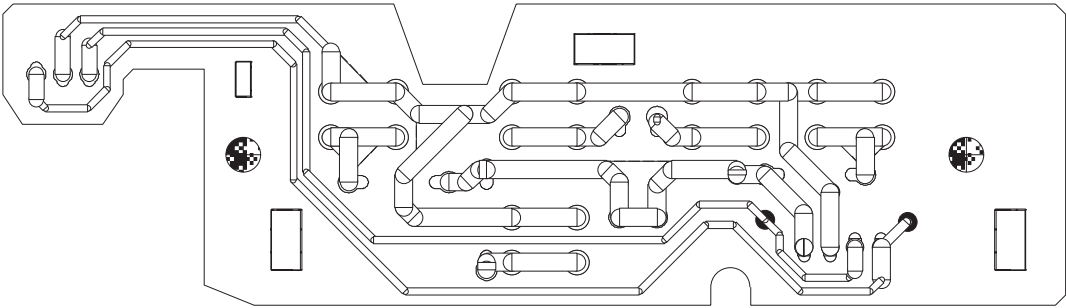
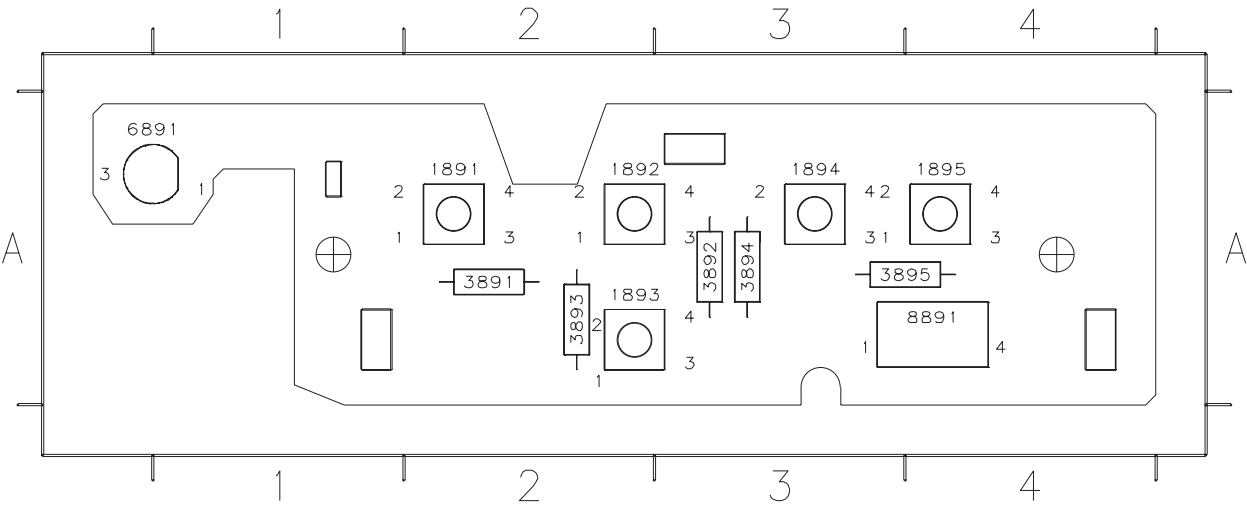
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Key Control Panel C.B.A.(D)



53022cus 53022hmc



0. Warning

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically. When repairing, make sure that you are connected with the same potential as the mass of the unit via a wrist wrap with resistance. Keep components and tools also at the same potential !

1. Servicing of SMDs (Surface Mounted Devices)

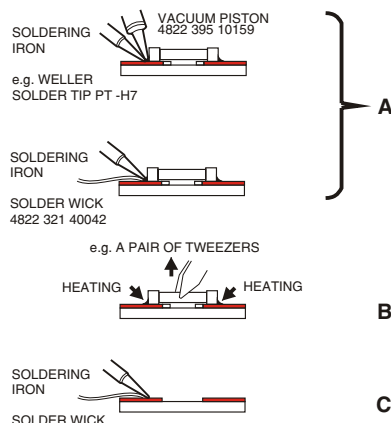
1.1 General cautions on handling and storage

- Oxidation on the terminals of SMDs results in poor soldering. Do not handle SMDs with bare hands.
- Avoid using storage places that are sensitive to oxidation such as places with sulphur or chlorine gas, direct sunlight, high temperatures or a high degree of humidity. The capacitance or resistance value of the SMDs may be affected by this.
- Rough handling of circuit boards containing SMDs may cause damage to the components as well as the circuit boards. Circuit boards containing SMDs should never be bent or flexed. Different circuit board materials expand and contract at different rates when heated or cooled and the components and/or solder connections may be damaged due to the stress. Never rub or scrape chip components as this may cause the value of the component to change. Similarly, do not slide the circuit board across any surface.

1.2 Removal of SMDs

- Heat the solder (for 2-3 seconds) at each terminal of the chip. By means of litz wire and a slight horizontal force, small components can be removed with the soldering iron. They can also be removed with a solder sucker (see Fig. 1A)

Fig. 1 DISMOUNTING



- While holding the SMD with a pair of tweezers, take it off gently using the soldering iron's heat applied to each terminal (see Fig. 1 B).
- Remove the excess solder on the solder lands by means of litz wire or a solder sucker (see Fig. 1C).

1.3 Caution on removal

- When handling the soldering iron, use suitable pressure and be careful.
- When removing the chip, do not use undue force with the pair of tweezers.
- The soldering iron to be used (approx. 30 W) should

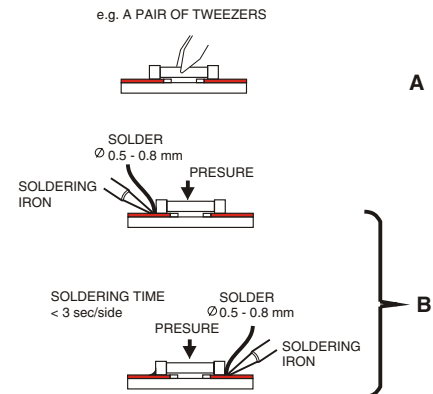
preferably be equipped with a thermal control (soldering temperature: 225 to 250 °C).

- The chip, once removed, must never be reused.

1.4 Attachment of SMDs

- Locate the SMD on the solder lands by means of tweezers and solder the component on one side. Ensure that the component is positioned correctly on the solder lands (see Fig. 2A).
- Next complete the soldering of the terminals of the component (see Fig. 2B).

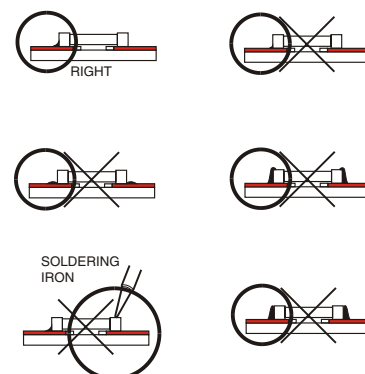
Fig. 2 MOUNTING



2. Caution when attaching SMDs

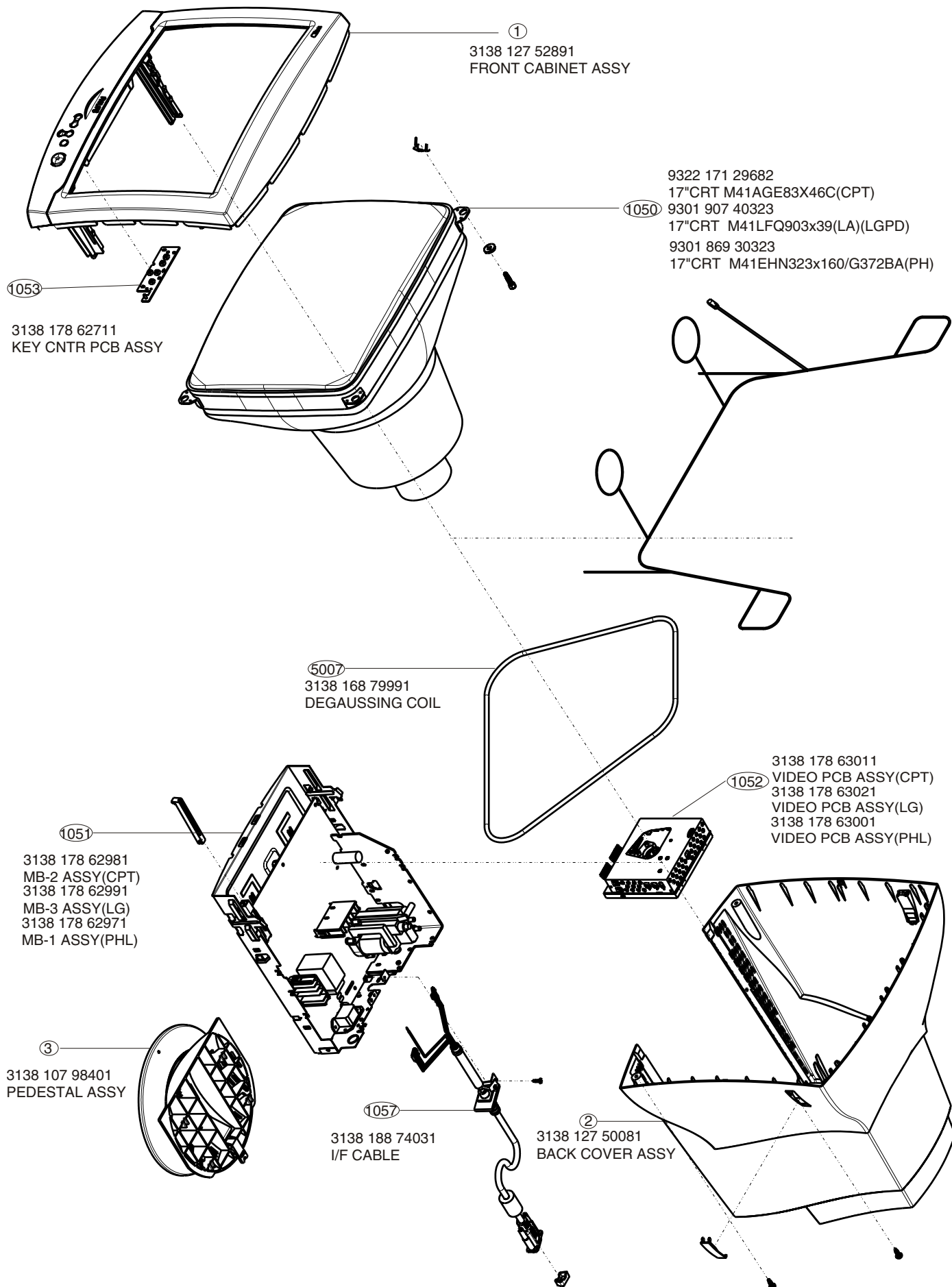
- When soldering the SMD terminals, do not touch them directly with the soldering iron. The soldering should be done as quickly as possible, care must be taken to avoid damage to the terminals of the SMDs themselves.
- Keep the SMD's body in contact with the printed board when soldering.
- The soldering iron to be used (approx. 30 W) should preferably be equipped with a thermal control (soldering temperature: 225 to 250 °C).
- Soldering should not be done outside the solder land.
- Soldering flux (of rosin) may be used, but should not be acidic.
- After soldering, let the SMD cool down gradually at room temperature.
- The quantity of solder must be proportional to the size of the solder land. If the quantity is too great, the SMD might crack or the solder lands might be torn loose from the printed board (see Fig. 3).

Fig. 3 Examples



Exploded view

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Recommended parts list of 107E41/00C

0001	313812752891	FRONT CABINET ASSY
0002	313812750081	BACK COVER ASSY
0003	313810798401	PEDESTAL ASSY
0047	313810454651	BUTTON-POWER
0049	313810454661	BUTTON-FUNCTION
0051	313810454081	SCREW COVER
0178	313810540481	SETTING UP GUIDE
0450	313810667131	CARTON
0451	313810656344	CUSHION - RIGHT
0452	313810656353	CUSHION - LEFT
0454	313810656581	PE BAG
0601	313811704151	E-D.F.U. ASSY
1050	932217129682	CRTM41AGE83X46C(PLL)(CPT0)
1050	930190740323	CRTM41LFQ903X39(LA)(LGPD)
1050	930186930323	CRTM41EHN323X160/G372BA(PHCO)
1051	313817862981	MB-2 ASSY (CPT)
1051	313817862991	MB-3 ASSY (LG)
1051	313817862971	MB-1 ASSY
1052	313817863011	VIDEO PCB ASSY (CPT)
1052	313817863021	VIDEO PCB ASSY (LG)
1052	313817863001	VIDEO PCB ASSY (PHL)
1053	313817862711	CONTROL PCB ASSY
1056	313813971481	BB MAINS CORD
1057	313813971491	BB I/F CABLE
1101	242208600208	FUSE 5X20 HT4A /250V IEC
1104	242213207402	RELAY 1P 12V 10/80A SDT-SS L
1106	243812800183	SWITCH
1161	243807098118	MAINSCORD(220V)-1.5M-CM30
1162	313818874031	CORD SUB-D 15/1M5/12330942 UL
1806	243854300061	RES XTL 12MHZ 30PHC49U B
5007	313816879991	DEGAUSSING COIL
5108	313816872811	LINE FILTER(143Y1R5)
5113	313818874321	TFM SMT LAYER SRW35EC-T80V118
5601	313818874161	LINEARITY COIL 4.4UH HL2455H-077N
5612	313818874261	TFM LOT LAYER 11MM WIRE
5615	313818874181	TFM SIG DRIVER SRW16UM-T12H2
5616	313818871121	DRUM CHOKE
5671	313816877381	DAF XFMR(SRW16EC-T119V3)
5761	243853598025	IND FXD BEADEMI 1MHZ 60R R
6101	932205814682	BRIGE GBU4K
7101	932215891687	FET POW STP6NC60
7102	935267356112	IC TEA1507P/N1
7111	932214014667	PHOTOCOUPLER TCET1103G 4P
7112	933771100686	IC TL431CLPRP3P
7114	932208234676	IC L78L05ACZ
7301	932218450682	IC STV9211
7304	932218565682	IC MT68275-031
7401	933922940682	IC TDA8172
7501	935267455112	IC TDA4841PS/V3 32P
7603	932214234687	FET POW SFP9634 (FSC0)
7605	934003960126	TRANS BSN254A
7606	934029910127	TRANSTER BU2522AF
7613	931101054687	TRA POW TIP122
7616	932203168687	FET POW IRF640
7621	933984890682	IC LM358N
7801	823827443671	CPU,IC6148-K420PH-53A
7803	932212662682	IC M24C16-BN6

Parts List

CTV : 107E41/00C

0001	313812752891	FRONT CABINET ASSY
0002	313812750081	BACK COVER ASSY
0003	313810798401	PEDESTAL ASSY
0047	313810454651	BUTTON-POWER
0049	313810454661	BUTTON-FUNCTION
0051	313810454081	SCREEN COVER
1050▲	932217129682	CRTM41AGE83X46C

1050▲ 930190740323 CRTM41LFQ903X39
(LA)(LGPD)
1050▲ 930186930323 CRTM41EHN323X160
G372BA(PHCQ)

Various

0178	313810540481	SETTING UP GUIDE
0450	313810667131	CARTON
0451	313810656344	CUSHION - RIGHT
0452	313810656353	CUSHION - LEFT
0454	313810656581	PE BAG
0601	313811704151	E-D.F.U. ASSY

Accessories

1056▲	313813971481	BBMAINS CORD
1057	313813971491	BBI/F CABLE
1161▲	243807098118	MAINS CORD(220V)-1.5M
1162	313818874031	Cord SUB-D 15/1M5

1051 MB-1 ASSY(313817862971)

1051	313817862981	MB-2 ASSY (CPT)
1051	313817862991	MB-3 ASSY(LG)
1101A	242208600208	FUSE 5X20 HT 4A /250V IEC
1104A	242213207402	RELAY 1P12V 10/80A SDT-SSL
1106A	243812800183	SWITCH
1252	313817860671	HOR. T/R ASSY(107E4)
1253	313817862891	POWER TRANS ASSY
1255	313817855111	VERT IC ASSY



2103 203831000007	CAP MPP	275VS	470N	PM10	B	
2104 225281295007	CERASF	250V	S 2N2	PM20	B	
2105 225281295007	CERASF	250V	S 2N2	PM20	B	
2106 203803517002	ELCAP	LS	4VS	1U	PM20	B
2107 203830250229	CAP MPOL	250VS	10N	PM5	A	
2111 2252712124016	CERHDT	F-Y5R	2KVS	1P	PM10A	
2112 202055490161	CERASF	DC	250VS	4N7	PM20	B
2113 225265508233	CER2	DC Z5V	50V	S 22N	P8020A	
2115 203803513503	ELCAP	RG	50V	S 2U2	PM20	A
2116 225261508211	CER2	DC Y5F	50V	S 220P	PM10	A
2123 203801750285	ELCAP	REA	25V	S 47U	PM20	A
2124 225279508433	CER2	DC Y5V	50VS	47R	P8020	A
2125 225265508033	CER2	DC Z5V	50V	S 10N	P8020A	
2132 203830250229	CAP MPOL	250VS	10N	PM5	A	
2133 225265508233	CER2	DC Z5V	50V	S 22N	P8020A	
2134 225256108406	CER1	DC SL	1KV	S 47PPM10	A	
2135 225261508221	CER2	DC Y5F	50V	S 2N2	PM10	A
2142 20202000716	ELP	CAPACITOR	47UF	/10V		
2143 203803513203	ELCAP	RG	16V	S 47U	PM20	A
2144 225261808021	CER2	DC Y5P5V	S 1N	PM10A		
2151 20202000717	ELCAP	GS	160VS	47U	PM20	
2152 20202000717	ELCAP	GS	160VS	47U	PM20	
2153 203803511211	ELCAP	REA	16V	S 10U	PM20	B
2154 203803511222	ELCAP	REA	16V	S 470U	PM20	A
2155 203803513205	ELCAP	RG	16V	S 10U	PM20	B
2156 2252712124216	CERHDT	F-Y5R	2KVS	220P	PM10	
A						

2401	225261508411	CER2 DC Y5P 50V S 470P PM10 A
2402	2038030511222	ELCAP REA 16V S 470U PM20 A
2403	222236525473	CAP MPOL 1VS 17N PM10 A
2405	2038030511507	ELCAP REA 50V S 47U PM20 A
2406	222236525334	CAP MPOL 1VS 330N PM10 A
2407	222236585223	CAP MPOL 1VS 22N PM10 A
2411	203803511222	ELCAP REA 16V S 470U PM20 A
2412	225261508021	CER2 DC Y5P 50V S 1N PM10 A
2413	225261508021	CER2 DC Y5P 50V S 1N PM10 A
2502	225279508453	CER2 DC Y5V 50V 1N P8020 A
2504	225265058355	CER1 DC NP0 50VS 39P PM5 A
2505	203803350019	ELCAP V2V 16VS 10U PM20 A
2506	203830150186	CAP PP PPN1V S 8N2 PM5 A
2507	222236526104	CAP MPOL 1VS 1N PM5 A
2508	203803250218	CAP MPOL 1VS 10N PM2 A
2509	225265058015	CER1 DC NP0 50VS 1P PM5 A
2511	203830150143	CAP PP PPN1V S 5N6 PM5 A
2518	203801750216	ELCAP RE 16VS 22U PM20 R
2521	222236526104	CAP MPOL 1VS 1N PM5 A
2522	222236525224	CAP MPOL 1VS 220N PM10 A
2523	225261508031	CER2 DC Y5P 50V S 10N PM10 A
2524	203830150136	CAP PP PPN1V S 3N3 PM5 A
2525	225279508453	CER2 DC Y5V 50V 1N P8020 A
2526	203803511704	ELCAP REA 1V S 10U PM20A
2527	225261508221	CER2 DC Y5P 50V S 2N2 PM10 A
2528	225261508321	CER2 DC Y5P 50V S 3N3 PM10 A
2531	203803513203	ELCAP RGA 16V S 47U PM20 A
2600	203803513912	ELCAP RGA 2V S 47U PM20 B
2602	203830250229	CAP MPOL 250VS 10N PM5 A
2603	225261808011	CER2 DC Y5P5V S 1PPM10 A
2604	203801750221	ELCAP RE 50VS 1U PM20 R
2605	203830100414	CAP MPP MPS250V S 2N PM5 B
2606	222236586333	CAP MPOL 1VS 33N PM5 A
2607	203803513503	ELCAP RGA 50V S 2U2 PM20 A
2609	203803513903	ELCAP RGA 250V S 10U PM20 B
2611	203803513906	ELCAP RGA 250V S 3U3 PM20 A
2612	203830100426	CAP MPP MPSA4V S 3N PM5B
2613	225271214216	CERHDT F-Y5R 2KVS 220P PM10A
2614	225271214216	CERHDT F-Y5R 2KVS 220P PM10A
2616	203830150136	CAP PP PPN1V S 3N3 PM5 A
2617	222237590634	CAP PP-MPOL 2KV5S 4N7 PM5 B
2618	222237590617	CAP PP-MPP 630VS 6N8 PM5 B
2620	222236525154	CAP MPOL 1VS 150N PM10 A
2622	222236585103	CAP MPOL 1VS 10N PM10 A
2623	203803511503	ELCAP REA 50V S 4U7 PM20 A
2625	203801750221	ELCAP RE 50VS 1U PM20 R
2626	225261808411	CER2 DC Y5P5V S 470P PM10 A
2627	225265508233	CER2 DC Z5V 50V S 22N P8020A
2628	203803511204	ELCAP REA 16V S 1U PM20A
2630	225279508453	CER2 DC Y5V 50V 1N P8020 A
2632	203801750283	ELCAP 25V S 10U PM20 R
2634	225271214016	CERHDT F-Y5R 2KVS 1P PM10A
2635	203830150111	CAP PPN 250VS 4N7 PM5
2636	203830150111	CAP PPN 250VS 4N7 PM5
2639	203803300008	ELCAP BP B3V S 3U3 PM20 B
2641	203803513906	ELCAP RGA 250V S 3U3 PM20 A
2657	202233300211	CAP MPP MPS250V S 540N PM5 B
2657	202233300212	CAP MPP MPS250V S 580N PM5 B
2657	202233300211	CAP MPP MPS250V S 540N PM5 B
2657	202233300212	CAP MPP MPS250V S 580N PM5 B
2657	202233300212	CAP MPP MPS250V S 580N PM5 B
2657	202233300211	CAP MPP MPS250V S 540N PM5 B
2657	202233300212	CAP MPP MPS250V S 580N PM5 B
2661	202203100105	ELCAP KF 160VS 0U47 PM20 A
2671	222236545223	CAP MPOL 250VS 22N PM10 A
2672	225264133527	CER2 DC Z5U 1KVS 5N6 PM20 B
2673	225261808221	CER2 DC Y5P5V S 2N2 PM10A
2676	203803511503	ELCAP REA 50V S 4U7 PM20 A
2681	225265508233	CER2 DC Z5V 50V S 22N P8020A
2686	203803513904	ELCAP RGA 250V S 22U PM20 B

2801	225279508453	CER2 DC Y5V 50V 1N P8020 A
2806	203803513203	ELCAP RGA 16V S 47U PM20 A
2813	225250508205	CER1 DC NP0 50VS 22P PM5 A
2814	203803511219	ELCAP REA 16V S 220U PM20 A
2815	225250508205	CER1 DC NP0 50VS 22P PM5 A
2816	225250508015	CER1 DC NP0 50VS 1P PM5 A
2819	225250508015	CER1 DC NP0 50VS 1P PM5 A
2820	203801750222	ELCAP RE 50VS 2U2 PM20 R
2822	225279508433	CER2 DC Y5V 50VS 47N P8020 A
2825	203801750222	ELCAP RE 50VS 2U2 PM20 R
2826	225279508453	CER2 DC Y5V 50V 1N P8020 A
2831	203801750222	ELCAP RE 50VS 2U2 PM20 R
2832	203801750222	ELCAP RE 50VS 2U2 PM20 R
2833	203801750222	ELCAP RE 50VS 2U2 PM20 R
2834	203801750222	ELCAP RE 50VS 2U2 PM20 R
2841	203801750222	ELCAP RE 50VS 2U2 PM20 R



3101	232224213105	RST MGL VR37 A 1M PM5 A
3102	213866000027	NTC DC SCK-104 S 10R PM15 B
3104	313810050011	MET FLM RSTRSS2T 47K 6E
3105	232220533108	RST FUSE NFR25 A 1R PM5 A
3107	213810113102	RST CRB CFR-12 A 1K PM5 A
3108	213811273477	RST CRB CFR-25 A 0R47 PM5 A
3109	213811273477	RST CRB CFR-25 A 0R47 PM5 A
3112	213811273477	RST CRB CFR-25 A 0R47 PM5 A
3113	213810113159	RST CRB CFR-12 A 15R PM5 A
3117	213810113103	RST CRB CFR-12 A 10K PM5 A
3122	213810113103	RST CRB CFR-12 A 10K PM5 A
3124	213866000036	PTC DBL-MONO 270VS 9R PM20
3125	213810113471	RST CRB CFR-12 A 470R PM5 A
3127	213810113102	RST CRB CFR-12 A 1K PM5 A
3128	212211000427	RST MFLM MF1/2WSA 470K PM1
3132	213810113152	RST CRB CFR-12 A 1K5 PM5 A
3133	213810113331	RST CRB CFR-12 A 330R PM5 A
3134	212211000419	RST MFLM MF1/2WSA 240K PM1
3135	213810113273	RST CRB CFR-12 A 27K PM5 A
3136	213810100369	RST JUMP CR-12 A MAX 0R01 A
3137	212211000409	RST MFLM MF1/2WSA 1K PM1 A
3138	212211000409	RST MFLM MF1/2WSA 1K PM1 A
3141	213810113479	RST CRB CFR-12 A 47R PM5 A
3142	212211000412	RST MFLM MF1/2WSA 120K PM1
3143	213810113332	RST CRB CFR-12 A 3K3 PM5 A
3144	213810113272	RST CRB CFR-12 A 2K7 PM5 A
3146	213810113102	RST CRB CFR-12 A 1K PM5 A
3147	212211000409	RST MFLM MF1/2WSA 1K PM1 A
3148	213836500077	RTRM CER LIN5R H VG067TL1B
3153	212211000378	RST MFLM MF1/2WSA 68K PM1 A
3154	213810113102	RST CRB CFR-12 A 1K PM5 A
3156	213810113472	RST CRB CFR-12 A 4K7 PM5 A
3157	213810113102	RST CRB CFR-12 A 1K PM5 A

3401	232220733228	RST FUSE NFR25H A 2R2 PM5 A
3403	213810113471	RST CRB CFR-12 A 470R PM5 A
3404	213810113471	RST CRB CFR-12 A 470R PM5 A
3406	212211000365	RST MFLM MF1/2WSA 2K2 PM1
3411	212211000341	RST MFLM MF1/2WSA 270R PM1
3412	212211000305	RST MFLM MF1/2WSA 2R4 PM1
3413	212211000305	RST MFLM MF1/2WSA 2R4 PM1
3413	212211000305	RST MFLM MF1/2WSA 2R4 PM1
3413	212211000305	RST MFLM MF1/2WSA 2R4 PM1
3413	212211000305	RST MFLM MF1/2WSA 2R4 PM1
3413	212211000306	RST MFLM MF1/2WSA 2R7 PM1
3413	212211000305	RST MFLM MF1/2WSA 2R4 PM1
3413	212211000305	RST MFLM MF1/2WSA 2R4 PM1
3414	212211000315	RST MFLM MF1/2WSA 10R PM1
3415	212211000298	RST MFLM MF1/2WSA 1R PM1 A
3416	212211000365	RST MFLM MF1/2WSA 2K2 PM1
3417	212262100062	NTC DC TTC-501 S 5R PM5 A
3421	213810113221	RST CRB CFR-12 A 220R PM5 A
3501	213810113103	RST CRB CFR-12 A 10K PM5 A
3502	213810113332	RST CRB CFR-12 A 3K3 PM5 A
3503	212211000398	RST MFLM MF1/2WSA 39K PM1
3504	212211000412	RST MFLM MF1/2WSA 120K PM1
3506	212211000409	RST MFLM MF1/2WSA 1K PM1 A
3507	213810113333	RST CRB CFR-12 A 33K PM5 A
3508	212211000404	RST MFLM MF1/2WSA 62K PM1
3509	213810113222	RST CRB CFR-12 A 2K2 PM5 A
3510	213810113332	RST CRB CFR-12 A 3K3 PM5 A
3513	213810113471	RST CRB CFR-12 A 470R PM5 A
3515	213810113183	RST CRB CFR-12 A 18K PM5 A
3516	213810113104	RST CRB CFR-12 A 1K PM5 A
3523	213810113332	RST CRB CFR-12 A 3K3 PM5 A
3524	212211000358	RST MFLM MF1/2WSA 1K2 PM1
3525	231291512802	RST MFLM MBB0207A 2K8 PM1 A
3526	212211000385	RST MFLM MF1/2WSA 12K PM1
3527	213810113123	RST CRB CFR-12 A 12K PM5 A
3528	213810113822	RST CRB CFR-12 A 8K2 PM5 A
3529	212211000393	RST MFLM MF1/2WSA 24K PM1
3530	213810113681	RST CRB CFR-12 A 680R PM5 A
3531	212211000394	RST MFLM MF1/2WSA 27K PM1
3532	212211000409	RST MFLM MF1/2WSA 1K PM1 A
3537	213810113222	RST CRB CFR-12 A 2K2 PM5 A
3538	212211000361	RST MFLM MF1/2WSA 1K5 PM1
3539	213810113561	RST CRB CFR-12 A 560R PM5 A
3544	213810113183	RST CRB CFR-12 A 18K PM5 A
3545	212211000365	RST MFLM MF1/2WSA 2K2 PM1
3546	213810113183	RST CRB CFR-12 A 18K PM5 A
3553	212211000392	RST MFLM MF1/2WSA 22K PM1
3554	213811273102	RST CRB CFR-25 A 1K PM5 A
3555	213811273102	RST CRB CFR-25 A 1K PM5 A
3556	213810113272	RST CRB CFR-12 A 2K7 PM5 A
3557	212211000412	RST MFLM MF1/2WSA 120K PM1
3558	212211000412	RST MFLM MF1/2WSA 120K PM1
3561	213810113333	RST CRB CFR-12 A 33K PM5 A
3562	213810113562	RST CRB CFR-12 A 5K6 PM5 A
3563	213810113101	RST CRB CFR-12 A 1R PM5 A
3567	213810113101	RST CRB CFR-12 A 1R PM5 A
3568	213810113101	RST CRB CFR-12 A 1R PM5 A
3569	213810113471	RST CRB CFR-12 A 470R PM5 A
3601	213810113223	RST CRB CFR-12 A 22K PM5 A
3602	213810113103	RST CRB CFR-12 A 10K PM5 A
3603	232220533221	RST FUSE NFR25 A 220R PM5 A
3604	212211000401	RST MFLM MF1/2WSA 47K PM1
3606	213810113229	RST CRB CFR-12 A 22R PM5 A
3607	232220733108	RST FUSE NFR25H A 1R PM5 A
3609	212211000442	RST MFLM MF1/2WSA 4M PM1

Spare Parts List (Continued)

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3612 232220733228 RST FUSE NFR25H A 2R2 PM5 A
 3613 213810113103 RST CRB CFR-12 A 10K PM5 A
 3614 213810113223 RST CRB CFR-12 A 22K PM5 A
 3616 213810113124 RST CRB CFR-12 A 120K PM5 A
 3617 213810113223 RST CRB CFR-12 A 22K PM5 A
 3618 212211000427 RST MFLM MF1/2WSA 470K PM1
 3619 213810113229 RST CRB CFR-12 A 22R PM5 A
 3621 213810500339 RST MOX 2W RSS S 120R PM5 B
 3623 212010592167 RST MOX 2W RSS S 8K2 PM5 B
 3624 212211000383 RST MFLM MF1/2WSA 10K PM1
 3625 213810500119 RST MOX 5W RSS S 1R2 PM5 B
 3626 212211000315 RST MFLM MF1/2WSA 10R PM1
 3627 213810113101 RST CRB CFR-12 A 1R PM5 A
 3629 213810113229 RST CRB CFR-12 A 22R PM5 A
 3630 213810113102 RST CRB CFR-12 A 1K PM5 A
 3635 213810113223 RST CRB CFR-12 A 22K PM5 A
 3636 212211000375 RST MFLM MF1/2WSA 5K1 PM1
 3637 212211000358 RST MFLM MF1/2WSA 1K2 PM1
 3638 212211000385 RST MFLM MF1/2WSA 12K PM1
 3640 213810113821 RST CRB CFR-12 A 820R PM5 A
 3642 212010592158 RST MOX 2W RSS S 180R PM5 B
 3644 212211000319 RST MFLM MF1/2WSA 20R PM1
 3645 232224213104 RST MGL VR37 A 1K PM5 A
 3646 213810113101 RST CRB CFR-12 A 1R PM5 A
 3647 212211000312 RST MFLM MF1/2WSA 5R6 PM1
 3648 232224213475 RST MGL VR37 A 4M7 PM5 A
 3650 213810113221 RST CRB CFR-12 A 220R PM5 A
 3651 232220733109 RST FUSE NFR25H A 10R PM5 A
 3652 213810113182 RST CRB CFR-12 A 1K8 PM5 A
 3653 213810113473 RST CRB CFR-12 A 47K PM5 A
 3656 212211000312 RST MFLM MF1/2WSA 5R6 PM1
 3659 213810113102 RST CRB CFR-12 A 1K PM5 A
 3660 232224213434 RST MGL VR37 A 430K PM5 A
 3661 213810113222 RST CRB CFR-12 A 2K2 PM5 A
 3662 213810113103 RST CRB CFR-12 A 10K PM5 A
 3670 213810113154 RST CRB CFR-12 A 150K PM5 A
 3671 213810113154 RST CRB CFR-12 A 150K PM5 A
 3674 212211000401 RST MFLM MF1/2WSA 47K PM1
 3675 213810113229 RST CRB CFR-12 A 22R PM5 A
 3676 213810113229 RST CRB CFR-12 A 22R PM5 A
 3682 212211000404 RST MFLM MF1/2WSA 62K PM1
 3683 213810113683 RST CRB CFR-12 A 68K PM5 A
 3687 213810113302 RST CRB CFR-12 A 3K PM5 A
 3688 213810113681 RST CRB CFR-12 A 680R PM5 A
 3691 212211000322 RST MFLM MF1/2WSA 27R PM1
 3692 213810113473 RST CRB CFR-12 A 47K PM5 A
 3693 213810113123 RST CRB CFR-12 A 12K PM5 A
 3694 213810113109 RST CRB CFR-12 A 10R PM5 A
 3695 213810113152 RST CRB CFR-12 A 1K5 PM5 A
 3696 212211000324 RST MFLM MF1/2WSA 39R PM1
 3697 213810113479 RST CRB CFR-12 A 47R PM5 A
 3698 213810113103 RST CRB CFR-12 A 10K PM5 A
 3811 213810113222 RST CRB CFR-12 A 2K2 PM5 A
 3812 213810113472 RST CRB CFR-12 A 4K7 PM5 A
 3813 213810113472 RST CRB CFR-12 A 4K7 PM5 A
 3814 213810113472 RST CRB CFR-12 A 4K7 PM5 A
 3815 213810113221 RST CRB CFR-12 A 220R PM5 A
 3816 213810113391 RST CRB CFR-12 A 390R PM5 A
 3818 213810113101 RST CRB CFR-12 A 1R PM5 A
 3820 213810113472 RST CRB CFR-12 A 4K7 PM5 A
 3821 213810113472 RST CRB CFR-12 A 4K7 PM5 A
 3822 213810113472 RST CRB CFR-12 A 4K7 PM5 A
 3823 213810113472 RST CRB CFR-12 A 4K7 PM5 A
 3825 213810113472 RST CRB CFR-12 A 4K7 PM5 A
 3827 213810113103 RST CRB CFR-12 A 10K PM5 A
 3828 213810113101 RST CRB CFR-12 A 1R PM5 A
 3829 213810113101 RST CRB CFR-12 A 1R PM5 A
 3830 213810113473 RST CRB CFR-12 A 47K PM5 A
 3831 213810113472 RST CRB CFR-12 A 4K7 PM5 A
 3833 213810113472 RST CRB CFR-12 A 4K7 PM5 A
 3834 213810113332 RST CRB CFR-12 A 3K3 PM5 A
 3835 213810113222 RST CRB CFR-12 A 2K2 PM5 A
 3836 212211000396 RST MFLM MF1/2WSA 33K PM1 A
 3837 213810113222 RST CRB CFR-12 A 2K2 PM5 A
 3838 213810113101 RST CRB CFR-12 A 1R PM5 A
 3839 213810113472 RST CRB CFR-12 A 4K7 PM5 A
 3840 213810113333 RST CRB CFR-12 A 33K PM5 A
 3841 213810113101 RST CRB CFR-12 A 1R PM5 A
 3842 213810113101 RST CRB CFR-12 A 1R PM5 A
 3843 213810113472 RST CRB CFR-12 A 4K7 PM5 A
 3844 213810113103 RST CRB CFR-12 A 10K PM5 A
 3845 213810113103 RST CRB CFR-12 A 10K PM5 A
 3846 213810113472 RST CRB CFR-12 A 4K7 PM5 A
 3847 213810113472 RST CRB CFR-12 A 4K7 PM5 A
 3848 213810113103 RST CRB CFR-12 A 10K PM5 A
 3849 213810113472 RST CRB CFR-12 A 4K7 PM5 A
 3851 213810113103 RST CRB CFR-12 A 10K PM5 A
 3852 213810113683 RST CRB CFR-12 A 68K PM5 A
 3853 213810113103 RST CRB CFR-12 A 10K PM5 A
 3854 213810113334 RST CRB CFR-12 A 330K PM5 A
 3855 213810113221 RST CRB CFR-12 A 220R PM5 A
 3857 213810113472 RST CRB CFR-12 A 4K7 PM5 A
 3858 213810113103 RST CRB CFR-12 A 10K PM5 A
 3859 213810113101 RST CRB CFR-12 A 1R PM5 A
 3862 213810113274 RST CRB CFR-12 A 270K PM5 A
 3869 213810113333 RST CRB CFR-12 A 33K PM5 A
 3879 213810113101 RST CRB CFR-12 A 1R PM5 A
 3880 213810113102 RST CRB CFR-12 A 1K PM5 A



5001 243853598018 IND FXD BEAD EMIA 2U5 PM20B
 5007A313816879991 COI DEGAUS
 5108A313816872811 LINE FILTER (143Y1R5)
 5113A313818874321 TFM SMT LAYER SRW35EC-T80V118
 5123 242253600039 IND FXD TSL0808S 180U PM10 A
 5124 242253600036 IND FXD TSL0808S 1U PM10 A
 5125 242253600039 IND FXD TSL0808S 180U PM10 A
 5501 242253597249 IND FXD SP0406A 1U PM10B
 5601 313818874161 COIL LINCOR 4.4UHH12455H-077N
 5603 243853598028 IND FXD BEAD EMI1MHZ 75R R
 5606 313817874761 BRIDGE COIL 110UH PM6
 5607 243853598028 IND FXD BEAD EMI1MHZ 75R R
 5609 242253600037 IND FXD TSL0808S 37U PM5 A
 5610 243853598028 IND FXD BEAD EMI1MHZ 75R R
 5611 242253597416 IND FXD SP0406A 33U PM10B
 5612A313818874261 TFM LOT LAYER 11MMWIRE
 5615 313818874181 TFM SIG DRIVER SRW16UW-T12H2
 5616 313818871121 DRUM CHOKE
 5617 243853598028 IND FXD BEAD EMI1MHZ 75R R
 5671 313816877381 DAF XFMR (SRW16EC-T119V3)



6101 932215736682 BRIDGE GBU4K (PAJI) B
 6103 933723420133 DIO REC BYD33J A (PHSE) A
 6106 933751660683 DIO REC RGP10D A (GI) R
 6107 933741030133 DIO REC BYD33M A (PHSE) A
 6108 319801010070 DIO SIG BAV21 (COL) A
 6109 319801010010 DIO SIG 1N4148 (COL) A
 6111 319801010010 DIO SIG 1N4148 (COL) A
 6118 319801010010 DIO SIG 1N4148 (COL) A
 6131 933730980133 DIO REC BYV36C A (PHSE) A
 6133 933730980133 DIO REC BYV36C A (PHSE) A
 6135 932210346673 DIO REC SBYV27-2 A (GI) A
 6136 933751660683 DIO REC RGP10D A (GI) R
 6138 933957760683 DIO REC SB140 A (GI) R
 6141 319801010010 DIO SIG 1N4148 (COL) A
 6142 933723420133 DIO REC BYD33J A (PHSE) A
 6143 319801010010 DIO SIG 1N4148 (COL) A
 6144 319801010010 DIO SIG 1N4148 (COL) A
 6146 319801010010 DIO SIG 1N4148 (COL) A
 6147 933117760133 DIO REG BZX79-C7V5 A (PHSE) A
 6148 319801028280 DIO REG BZX79-C8V2 A COLA
 6401 932210346673 DIO REC SBYV27-2 A (GI) A
 6511 933723420133 DIO REC BYD33J A (PHSE) A
 6513 319801010010 DIO SIG 1N4148 (COL) A
 6515 319801010010 DIO SIG 1N4148 (COL) A
 6516 933957760683 DIO REC SB140 A (GI) R
 6517 319801010010 DIO SIG 1N4148 (COL) A
 6518 319801010010 DIO SIG 1N4148 (COL) A
 6519 319801010010 DIO SIG 1N4148 (COL) A
 6600 932216961687 DIO REC DMV15M (ST) L
 6601 319801010070 DIO SIG BAV21 (COL) A
 6602 319801021590 DIO REG BZX79-C15 A COLA
 6603 932205787683 DIO REC EGP20G A (GI) R
 6604 319801010070 DIO SIG BAV21 (COL) A
 6605 319801010070 DIO SIG BAV21 (COL) A
 6606 933723420133 DIO REC BYD33J A (PHSE) A
 6609 319801010010 DIO SIG 1N4148 (COL) A
 6612 932210346673 DIO REC SBYV27-2 A (GI) A
 6615 319801010010 DIO SIG 1N4148 (COL) A
 6616 319801010070 DIO SIG BAV21 (COL) A
 6619 933723420133 DIO REC BYD33J A (PHSE) A
 6620 933497950683 DIO REC RGP10J A (GI) R
 6625 933166850133 DIO REG BZX79-B8V2 A (PHSE) A
 6626 933493960683 DIO REC RGP10G A (GI) R
 6627 933751650683 DIO REC RGP15K A (GI) R



7101 932215891687 FET POW STP6NC60 (ST) L
 7102 935267356112 IC TEA1507P/N1 (PHSE) L
 7103 933953420676 TRA SIG TBC338-40 (TOSJ) A
 7111A932214014667 OPT CP TCET1103(G) (VISH) L
 7112 933771100686 IC TL431CLP S(MOTA) R
 7113 933953420676 TRA SIG TBC338-40 (TOSJ) A
 7114 932208234676 IC L78L05ACZ (ST) A
 7115 933826850126 THYRIS BT169B (PHSE) A
 7116 932209011673 TRA SIG BC548C (KECO) A
 7117 932209011673 TRA SIG BC548C (KECO) A
 7401 933922940682 IC TDA8172 (ST) L
 7501 935267455112 IC TDA4841PS/V3 (PHSE) L
 7502 319802043020 TRA SIG BF423 (COL) A
 7503 319802043020 TRA SIG BF423 (COL) A
 7506 932209011673 TRA SIG BC548C (KECO) A
 7601 933953420676 TRA SIG TBC338-40 (TOSJ) A
 7602 933953410676 TRA SIG TBC328-40 (TOSJ) A
 7603 932214234687 FET POW SFP9634 (FSCO) L
 7604 932209011673 TRA SIG BC548C (KECO) A
 7605 934003960126 FET SIG BSN254A (PHSE) A
 7606 934040790127 TRA POW BU4522AF (PHSE) L
 7607 932209011673 TRA SIG BC548C (KECO) A
 7610 932214360687 FET POW IRF630M (ST) L
 7611 932210142676 TRA SIG BC558C (KECO) A
 7612 932209011673 TRA SIG BC548C (KECO) A
 7613 931101054687 TRA POW TIP122 (ST) L
 7615 933953420676 TRA SIG TBC338-40 (TOSJ) A
 7616 932203168687 FET POW IRF640 (ST) L
 7621 933984890682 IC LM358N (ST) L
 7682 93221960126 TRA SIG BC638 (PHSE) A
 7683 933221930126 TRA SIG BC637 (PHSE) A
 7685 934025870126 TRA SIG MPSA44 (PHSE) A
 7701 932218451682 IC STV9556 (ST) L
 7761 932209011673 TRA SIG BC548C (KECO) A
 7801 823827443671 CPU, IC 6148-K420PH-53A
 7802 932210142676 TRA SIG BC558C (KECO) A
 7803 932212662682 IC M24C16-BN6 (ST) L
 7805 932210142676 TRA SIG BC558C (KECO) A
 7806 932210142676 TRA SIG BC558C (KECO) A
 7807 932210142676 TRA SIG BC558C (KECO) A
 7809 932210142676 TRA SIG BC558C (KECO) A

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1052 Video PCB ASSY(313817863001)(PHL)

1052	313817863011	VIDEO PCB ASSY(CPT)
1052	313817863021	VIDEOPCB ASSY(LG)
		
2301	225279508453	CER2 DC Y5V 50V 1N P8020 A
2302	225279508453	CER2 DC Y5V 50V 1N P8020 A
2303	225279508453	CER2 DC Y5V 50V 1N P8020 A
2304	225232512104	CER2 ML X7R 50V S 1N PM10A
2305	225232512104	CER2 ML X7R 50V S 1N PM10A
2306	225232512104	CER2 ML X7R 50V S 1N PM10A
2312	225232512104	CER2 ML X7R 50V S 1N PM10A
2322	225232512103	CER2 ML X7R 50V S 10N PM10 A
2323	225265508033	CER2 DC Z5V 50V S 10N P8020A
2324	225250508015	CER1 DC NP0 50VS 1P PM5 A
2327	225250508015	CER1 DC NP0 50VS 1P PM5 A
2701	203803513304	ELCAP RGA 25V S 1U PM20A
2702	203803513304	ELCAP RGA 25V S 1U PM20A
2703	225232512104	CER2 ML X7R 50V S 1N PM10A
2719	203830250149	CAP POL MEF250V S 47N PM10 A
2721	203803513803	ELCAP RGA 160V S 10U PM20 B
2722	225261808311	CER2 DC Y5P5V S 330PPM10 A
2725	242254944346	SURGE PROTECT DSP-201M-D04F
2733	242254944346	SURGE PROTECT DSP-201M-D04F
2753	242254944346	SURGE PROTECT DSP-201M-D04F
2760	225260114416	CER2 DC X7R 1KVS 470P PM10A
2762	203803511219	ELCAP REA 16V S 220U PM20 A
2763	225261508421	CER2 DC Y5P 50V S 4N7 PM10 A
2771	225232512104	CER2 ML X7R 50V S 1N PM10A
2772	225261808311	CER2 DC Y5P5V S 330PPM10 A
2773	203803513304	ELCAP RGA 25V S 1U PM20A
2777	203803513304	ELCAP RGA 25V S 1U PM20A
2778	203803513304	ELCAP RGA 25V S 1U PM20A
2781	225261808011	CER2 DC Y5P5V S 1PPM10 A
2782	225261808211	CER2 DC Y5P5V S 220PPM10 A
2784	222274390061	CER2 DC Z5U 2KVS 10N PM20 B
2785	225260508121	CER2 DC X7R 50VS 1N5 PM10 A
2786	225260508121	CER2 DC X7R 50VS 1N5 PM10 A
2787	225260508121	CER2 DC X7R 50VS 1N5 PM10 A
2788	203803511219	ELCAP REA 16V S 220U PM20 A



3301	231291517509	RST MFLM MBB0207A 75R PM1
3302	231291517509	RST MFLM MBB0207A 75R PM1
3303	231291517509	RST MFLM MBB0207A 75R PM1
3305	213810113472	RST CRB CFR-12 A 4K7 PM5 A
3306	213810113472	RST CRB CFR-12 A 4K7 PM5 A
3309	213810113102	RST CRB CFR-12 A 1K PM5 A
3310	213810113102	RST CRB CFR-12 A 1K PM5 A
3311	213810113102	RST CRB CFR-12 A 1K PM5 A
3312	213810113339	RST CRB CFR-12 A 33R PM5 A
3313	213810113339	RST CRB CFR-12 A 33R PM5 A
3314	213810113339	RST CRB CFR-12 A 33R PM5 A
3315	213810113101	RST CRB CFR-12 A 1R PM5 A
3316	213810113101	RST CRB CFR-12 A 1R PM5 A
3317	213810113101	RST CRB CFR-12 A 1R PM5 A
3325	213810113103	RST CRB CFR-12 A 10K PM5 A
3326	213810113102	RST CRB CFR-12 A 1K PM5 A
3327	213810113562	RST CRB CFR-12 A 5K6 PM5 A
3328	213810113562	RST CRB CFR-12 A 5K6 PM5 A
3329	213810113562	RST CRB CFR-12 A 5K6 PM5 A
3330	213810113105	RST CRB CFR-12 A 1M PM5 A
3331	213810113332	RST CRB CFR-12 A 3K3 PM5 A
3332	213810113101	RST CRB CFR-12 A 1R PM5 A
3333	213810113101	RST CRB CFR-12 A 1R PM5 A
3334	213810113151	RST CRB CFR-12 A 150R PM5 A
3335	213810113101	RST CRB CFR-12 A 1R PM5 A
3336	212211000311	RST MFLM MF1/2WSA 4R7 PM1
3337	213810113101	RST CRB CFR-12 A 1R PM5 A
3338	213810113101	RST CRB CFR-12 A 1R PM5 A
3339	213810113101	RST CRB CFR-12 A 1R PM5 A
3340	213810100369	RST JUMP CR-12 A MAX 0R01A
3341	213810100369	RST JUMP CR-12 A MAX 0R01A
3342	213810100369	RST JUMP CR-12 A MAX 0R01A
3343	213810113332	RST CRB CFR-12 A 3K3 PM5 A
3703	213811273519	RST CRB CFR-25 A 51R PM5 A
3709	212211000324	RST MFLM MF1/2WSA 39R PM1
3711	212211000311	RST MFLM MF1/2WSA 4R7 PM1
3712	212211000324	RST MFLM MF1/2WSA 39R PM1
3713	213811273519	RST CRB CFR-25 A 51R PM5 A
3716	213811273519	RST CRB CFR-25 A 51R PM5 A
3721	212211000332	RST MFLM MF1/2WSA 120R PM1
3728	213810113181	RST CRB CFR-12 A 180R PM5 A
3731	212211000332	RST MFLM MF1/2WSA 120R PM1
3738	213810113181	RST CRB CFR-12 A 180R PM5 A
3751	212211000332	RST MFLM MF1/2WSA 120R PM1
3758	213810113181	RST CRB CFR-12 A 180R PM5 A
3761	213810113102	RST CRB CFR-12 A 1K PM5 A
3762	213810113103	RST CRB CFR-12 A 10K PM5 A
3763	213810113332	RST CRB CFR-12 A 3K3 PM5 A
3764	213810113472	RST CRB CFR-12 A 4K7 PM5 A
3765	213810113682	RST CRB CFR-12 A 6K8 PM5 A
3766	231291517509	RST MFLM MBB0207A 75R PM1
3767	213810113472	RST CRB CFR-12 A 4K7 PM5 A
3771	212211000361	RST MFLM MF1/2WSA 1K5 PM1
3772	212010128153	RST CMP ERC12 A 15K PM10A
3776	213810113479	RST CRB CFR-12 A 47R PM5 A



5721	242253597725	IND FXD SP0305A 0U22 PM20B
5732	242253597725	IND FXD SP0305A 0U22 PM20B
5752	242253597725	IND FXD SP0305A 0U22 PM20B
5761	243853598025	IND FXD BEAD EMI1MHZ 60R R
5771	243853598028	IND FXD BEAD EMI1MHZ 75R R
5772	243853598025	IND FXD BEAD EMI1MHZ 60R R
5779	242253597608	IND FXD SPT0305A 1U8 PM10R
5781	242253600036	IND FXD TSL0808S 1U PM10 A



6301	319801025680	DIO REG BZX79-C5V6 A COLA
6302	319801025680	DIO REG BZX79-C5V6 A COLA
6303	319801025680	DIO REG BZX79-C5V6 A COLA
6304	319801025680	DIO REG BZX79-C5V6 A COLA
6305	319801025680	DIO REG BZX79-C5V6 A COLA
6722	319801010070	DIO SIG BAV21 (COL) A
6723	319801028280	DIO REG BZX79-C8V2 A COLA
6724	319801010070	DIO SIG BAV21 (COL) A
6725	319801010010	DIO SIG 1N4148 (COL) A
6732	319801010070	DIO SIG BAV21 (COL) A
6734	319801010070	DIO SIG BAV21 (COL) A
6752	319801010070	DIO SIG BAV21 (COL) A
6754	319801010070	DIO SIG BAV21 (COL) A
6771	933751660683	DIO REC RGP10D A (GI) R



7301	932218450682	IC STV9211 (ST) L
7304	932218565682	IC NT68275-031 (NOVA) L
7322	319802043310	TRA SIG PH2369 (COL) A
7601	933953420676	TRA SIG TBC338-40 (TOSJ) A
7602	933953410676	TRA SIG TBC328-40 (TOSJ) A

1053 CONTROL PCB ASSY

1053	313817862711	CONTROL PCB ASSY
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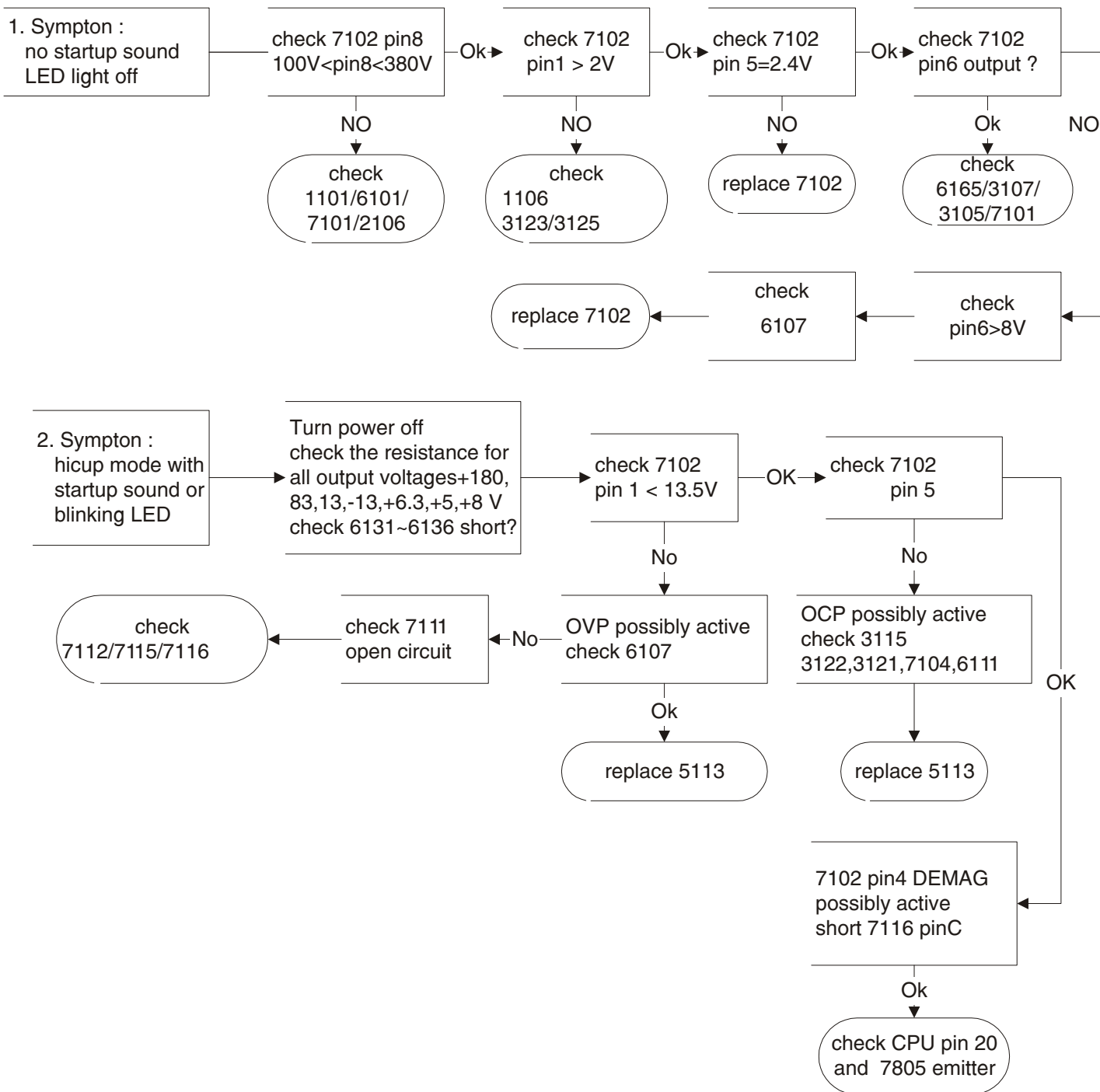


3891	212211000409	RST MFLM MF1/2WSA 1K PM1 A
3892	212211000403	RST MFLM MF1/2WSA 56K PM1 A
3893	212211000374	RST MFLM MF1/2WSA 4K7 PM1 A
3894	212211000387	RST MFLM MF1/2WSA 15K PM1 A
3895	212211000393	RST MFLM MF1/2WSA 24K PM1 A



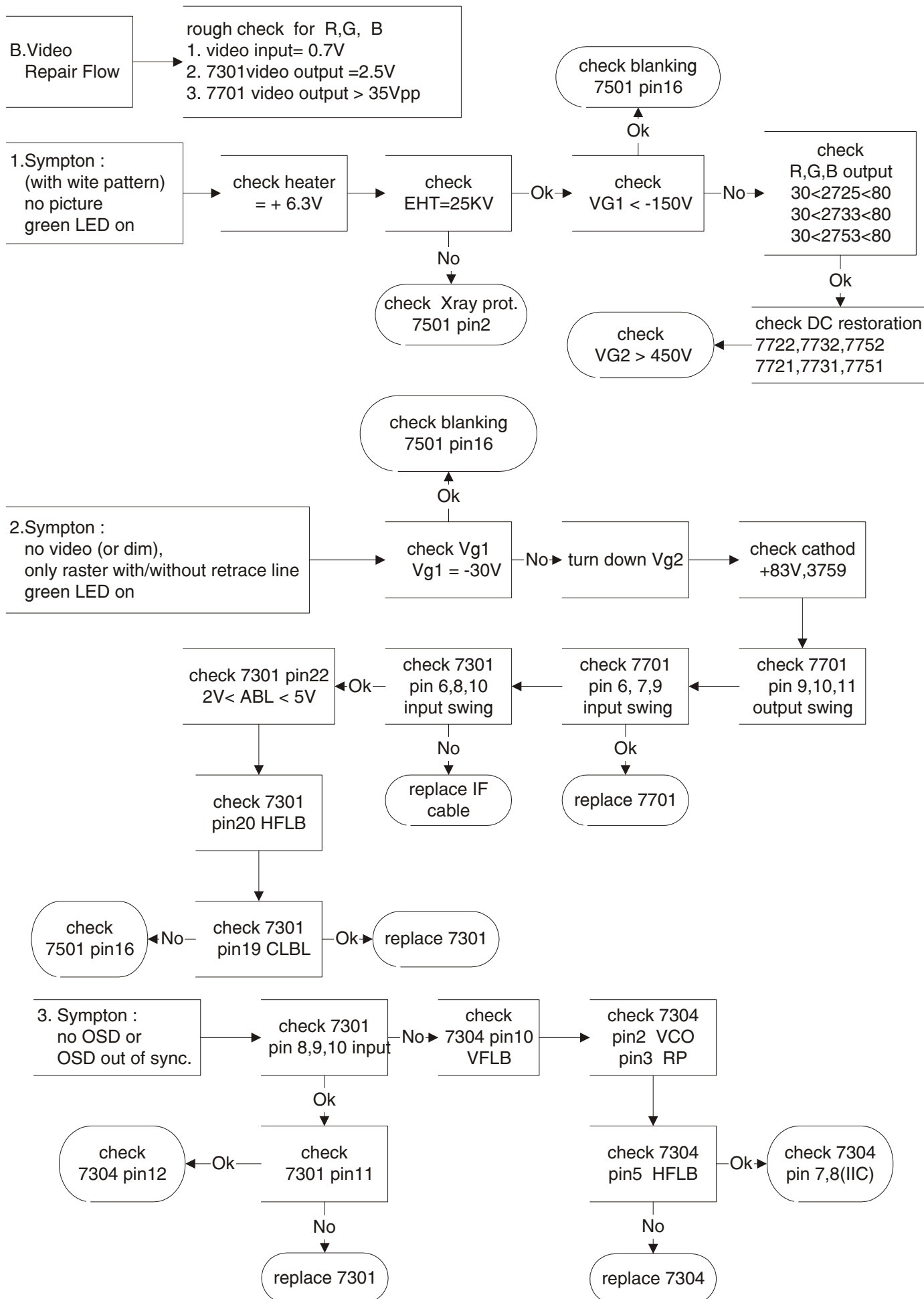
6891	932214603682	LED VSL-3WYGW
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A. Power Supply Failure

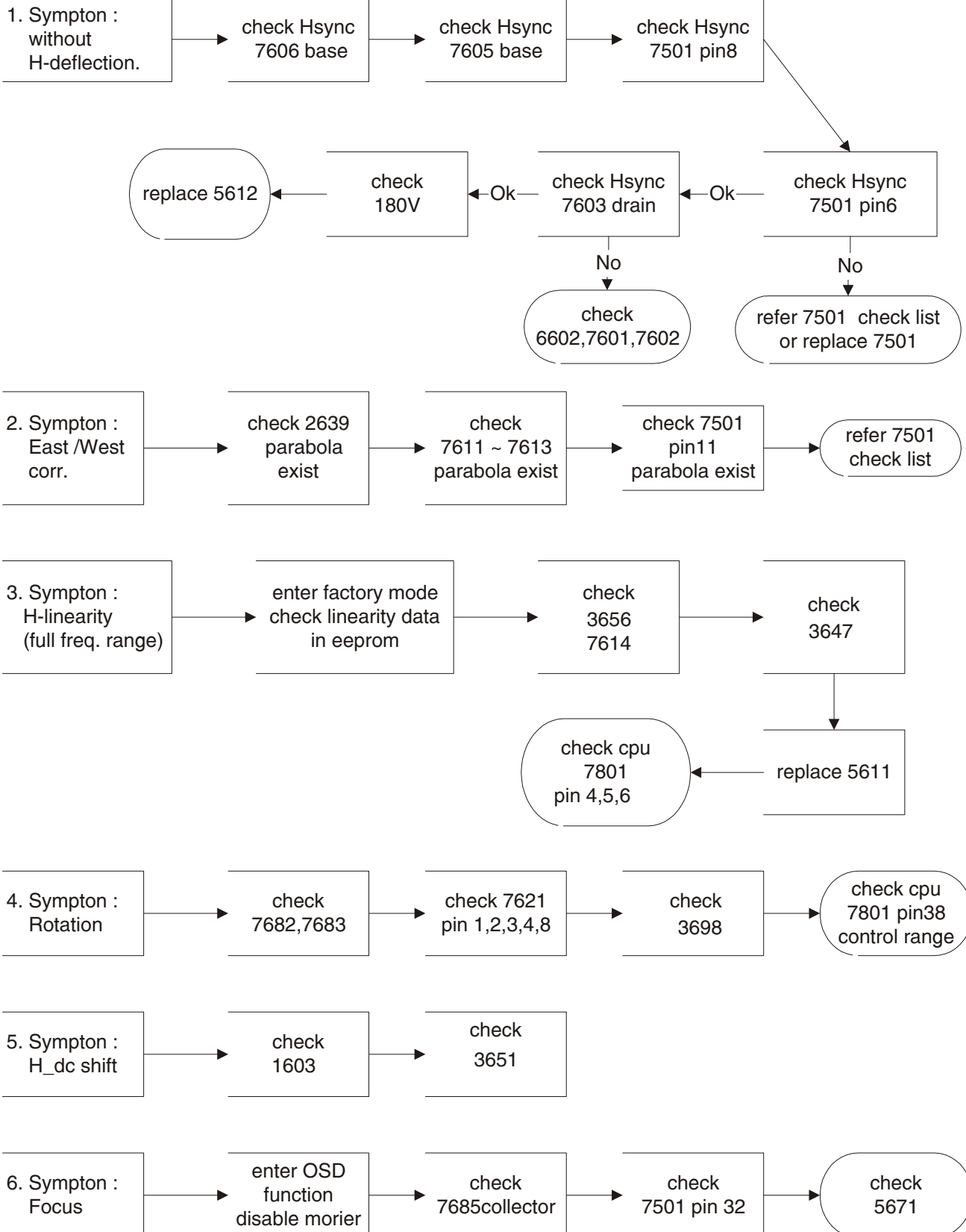


Repair Flow Chart (Continued)

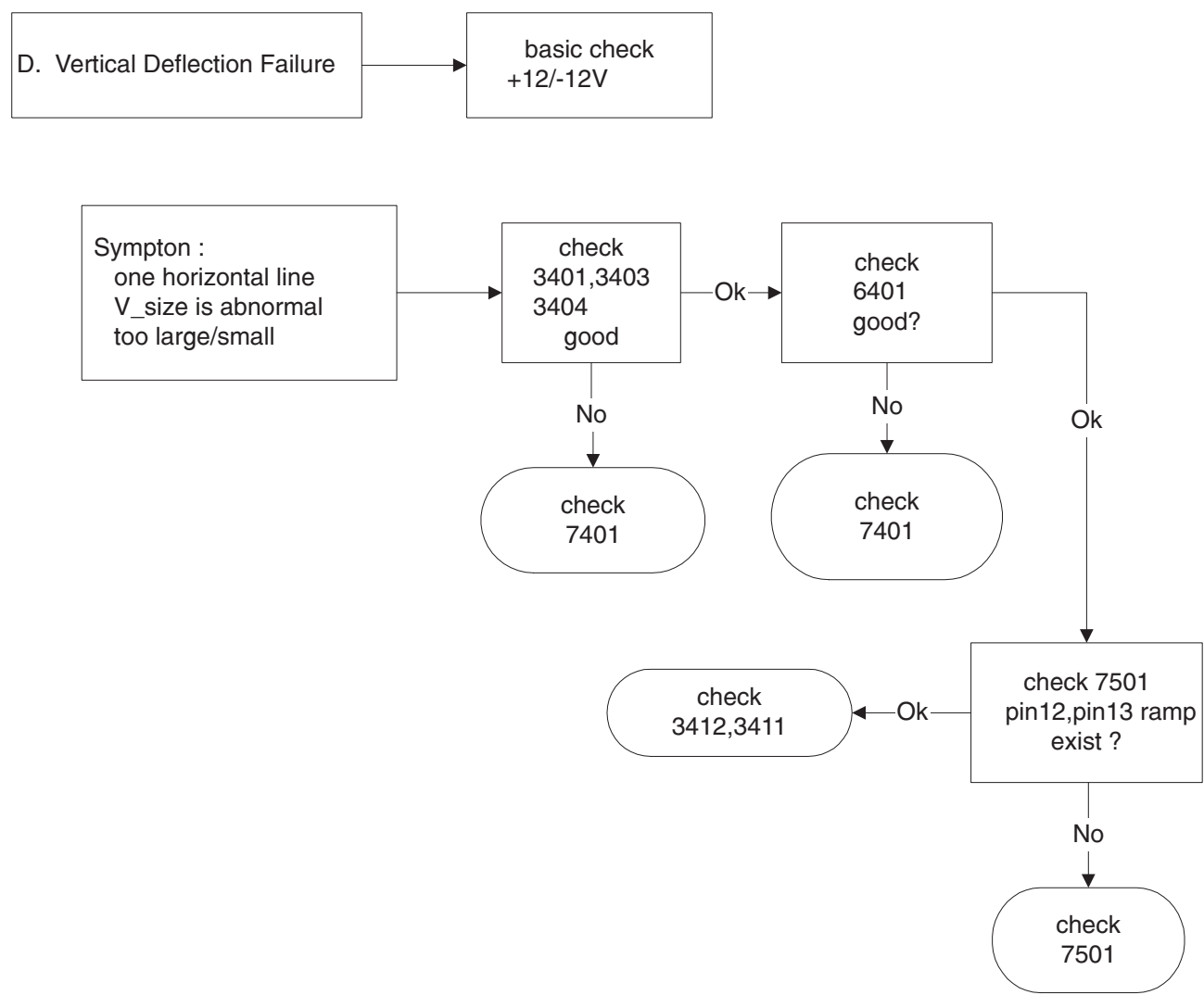
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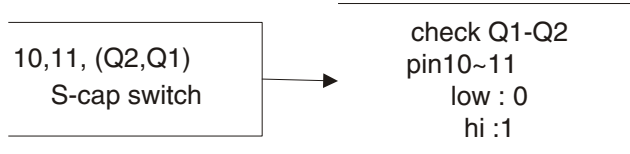
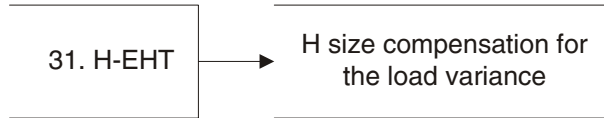
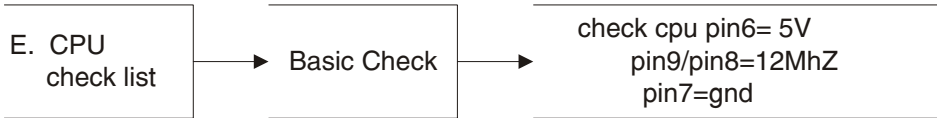


C. Horizontal deflection output repair flow :



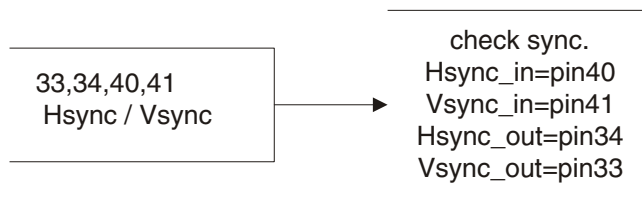
Repair Flow Chart (Continued)



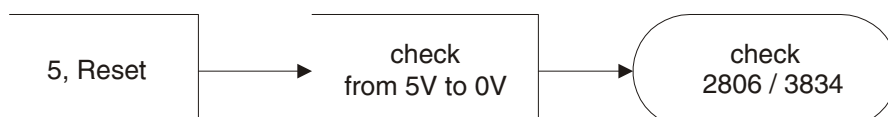
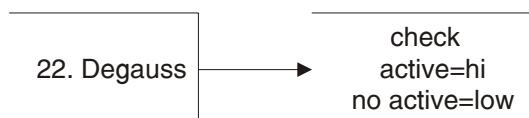
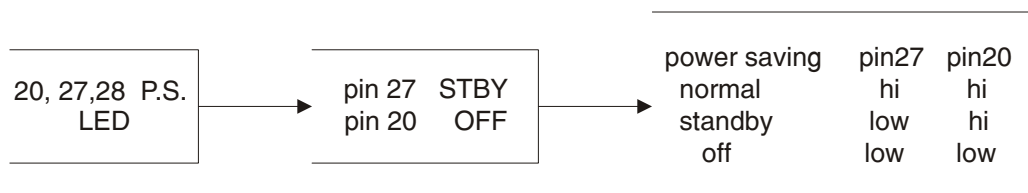
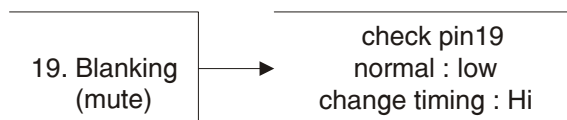
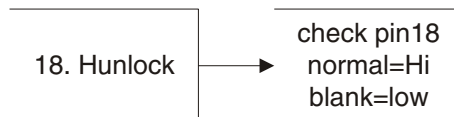


70K S-CAPACITOR SWITCH TABLE

Hor. Freq.(KHz)	Q1	Q2
< 27.00	0	0
27.50-33.24	0	0
33.24-36.51	0	0
36.51-42.38	1	0
42.38-45.07	1	0
45.07-53.10	0	1
53.10-58.25	0	1
58.25-61.89	1	1
61.89-66.00	1	1
> 66.00	1	1

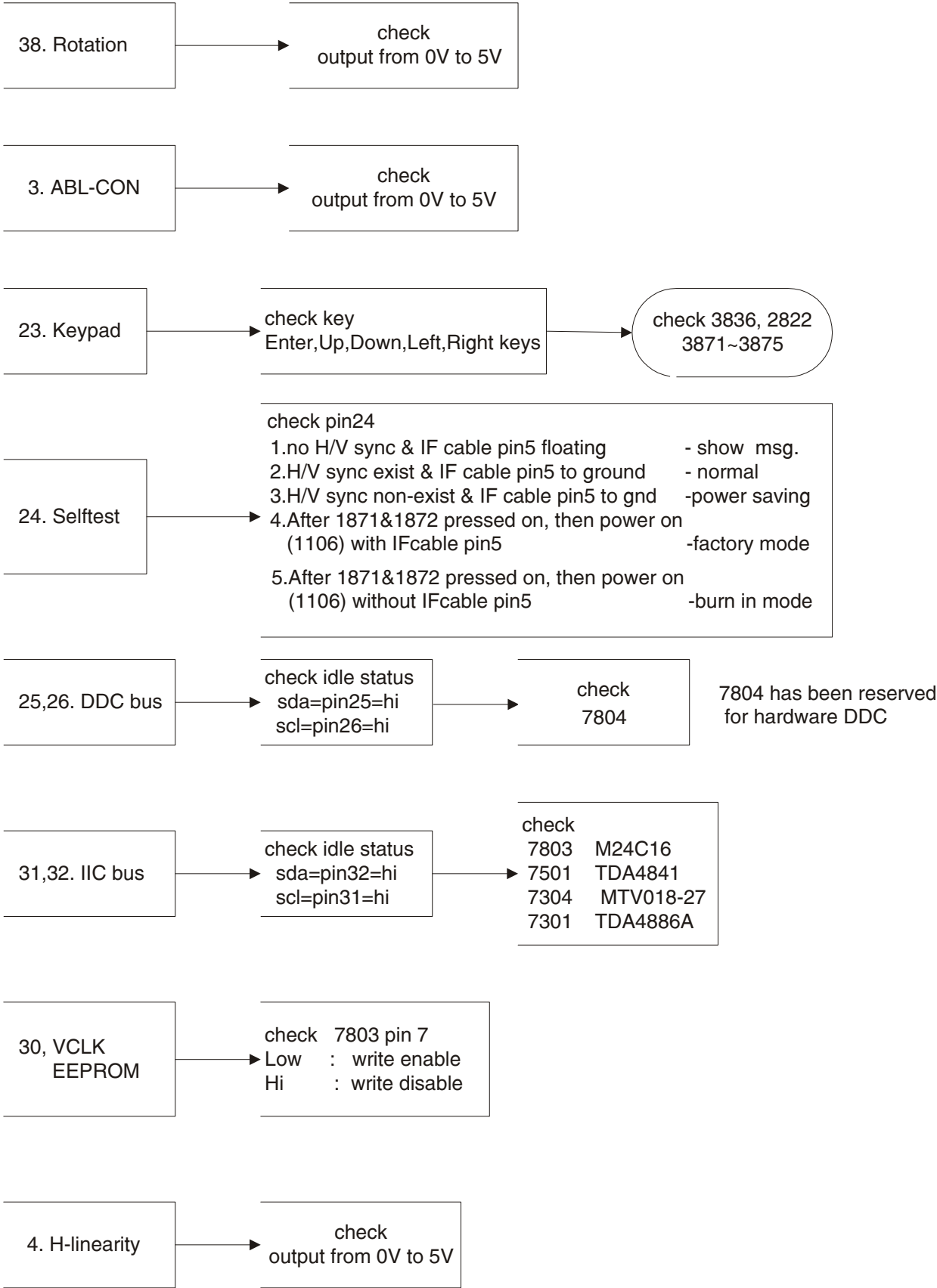


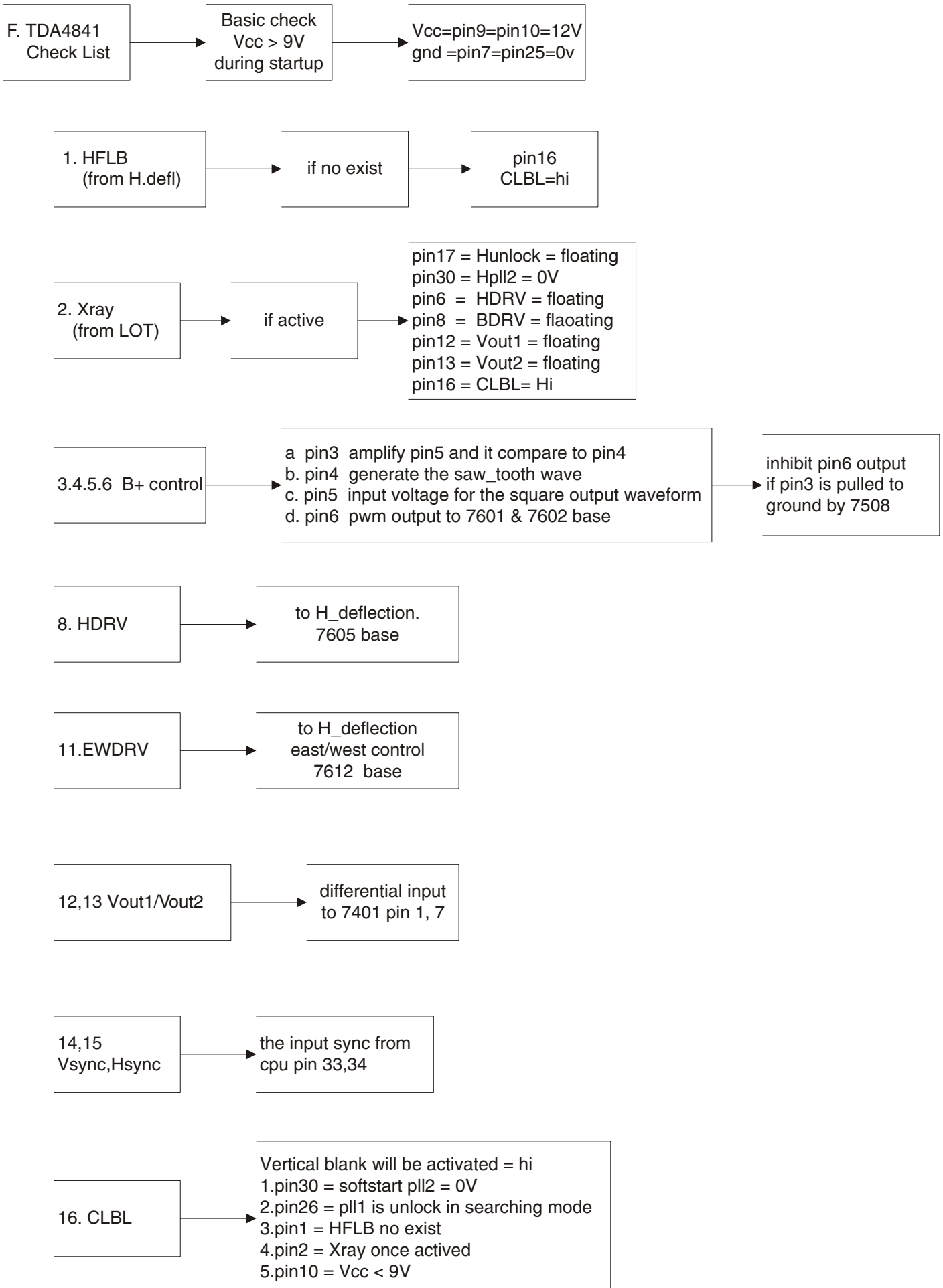
1. Normal
Fhout=Fhin
Fvout=Fvin
2. Self test
Hout=48Khz
Fvout=72Hz
3. sync out of rang
Fhin>72.8kHz, <28kHz
Fvin>168Hz, <45Hz



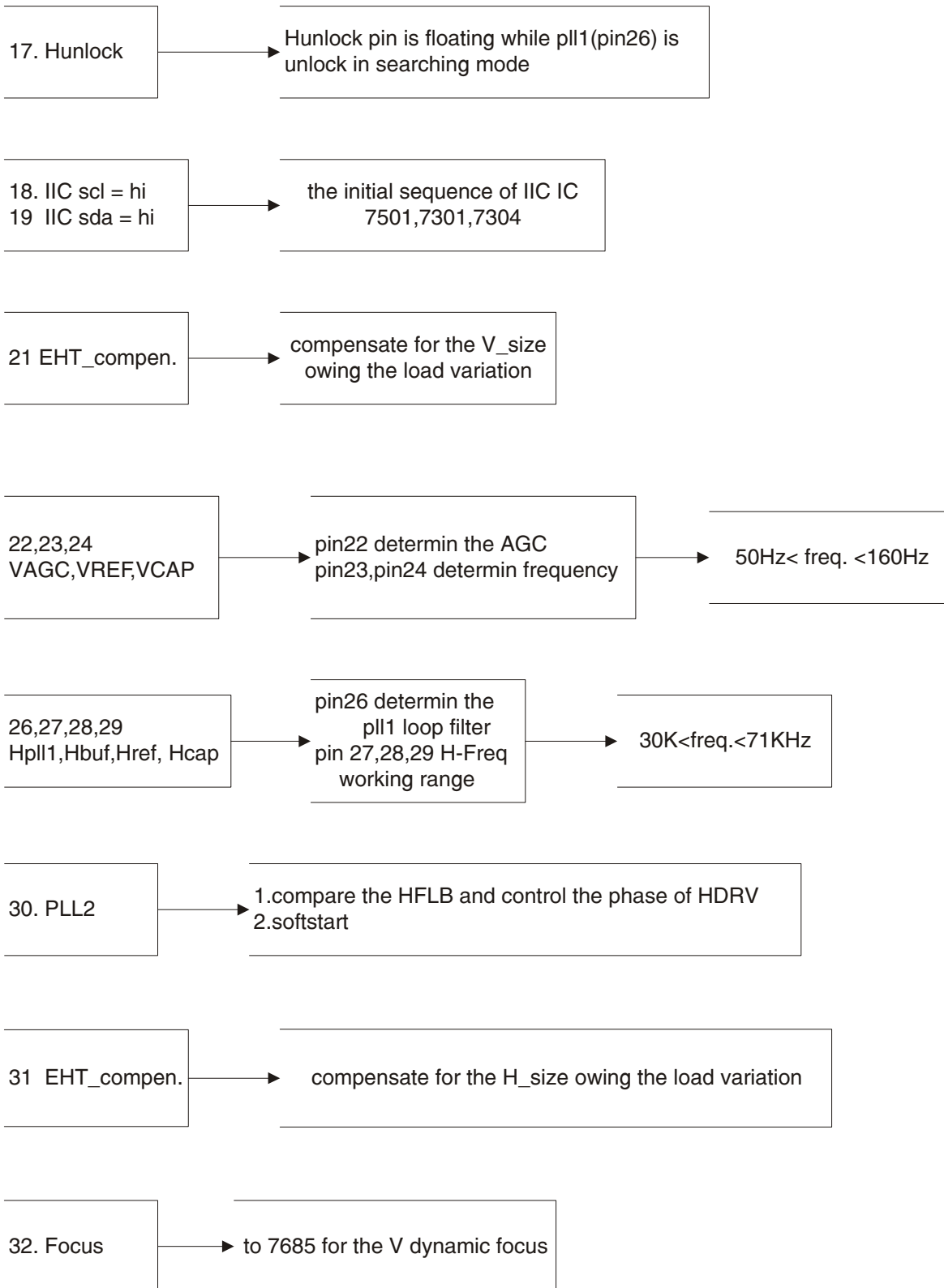
Repair Flow Chart (Continued)

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17 107E4 ;70KHzGeneral Specification (Sheet590)

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FEATURES/ BENEFITS

- EXTREMELY HIGH MTBF (OVER 75KHRS, EXCLUDING CRT)
- PROFESSIONAL LOOK, WITH NON-FLAMMABLE CABINET (94V-0)
- USER'S CONTROLS
 - . FRONT MOUNTED CONTROLS FOR EASY ACCESS
- BETTER DISPLAY PERFORMANCE
 - . FINER CRT DOT PITCH (0.27 MM)
 - . FULL SCREEN SIZE APPLICATION
 - . REAL MULTI-FREQ.
- POWER SAVING MANAGEMENT SYSTEM
- MAXIMIZED CONTAINER LOADING
- VESA DDC2B
- LOW EMISSION MPRII / TCO99/TCO95 (Optional)

CLASS NO.		17" M32 GS3 107E4-70K CMTR					
		TYPE : 107E41/00C		8639 000 12205			
		BRAND : PHILIPS					
2002-04-26							
NAME JIM LIN		SUPERS.		29	590 — 1	10	A4
TY	CHECK	DATE 2002-04-26	Property of PHILIPS ELECTRONICS INDUSTRIES (TAIWAN) LTD.-B.E.				



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		BRAND : PHILIPS			
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1.0 Introduction

This document is related to the 17" AUTOSCAN (VGA above and Max. resolution 1280X1024 by 60HZ refresh) color monitor for world-wide destination.

2.0 General description

The AUTOSCAN analog color monitor is specified as a display peripheral within an IBM PC, PS/2, VGA and advanced VGA compatible system.

The AUTOSCAN analog color monitor is to operate at horizontal line rates between 30 to 70 KHz and refreshment rate between 50 to 160 Hz, can be applied to all RGB analog computers within this scanning frequencies.

The AUTOSCAN analog color monitor is intended to be a finished product, basically a display device mounted inside a plastic enclosure which provides the aesthetic mechanical, ergonomic and safety requirements.

2.1 General condition

The unit will produce a usable image after switching-on, measurements are to be carried out with a full stabilized set after 30 minutes warm-up at room temperature of 25 C. Repetitive power on/off cycles are allowed though should be avoided within 4 sec.

3.0 Electrical characteristics

3.1 Signal interface

The AUTOSCAN analog color display has an analog video interface to operate at a multi-frequencies timing in several display modes.

3.1.1 Input requirements

- A. Input signals
Video : Analog level
Sync. : Separated sync. with TTL level
Polarity : Positive or negative
- B. Signal input level
Video : 0.7 Vp-p 75 ohms (for individual of R, G and B signals must not deviate 0.015 Vp-p from each other for balance of white pattern)
Sync : TTL level
(between 0 and 0.6 V to be considered as low level, between 2.3 and 5.0 V as high level)
- C. Impedance
Video : Terminated with 75 ohms
Sync : Terminated with 4.7K ohms pull down resistors.

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3.1.2 Signals input

The input video signals are applied to the display device through a video cable which is fixed to the monitor (standard cable length 1.5M).

Video input cable :

15 pin D-shell male connector type AMP 211350-1 (3 rows) or equivalent, with pin assignment as follows :

Pin assignment of 15P D-SUB connector

Pin nbr.	Assignment
P1	Red video input
P2	Green video input
P3	Blue video input
P4	GND
P5	For selftest (PC Ground)
P6	Red videoground
P7	Green videoground
P8	Blue videoground
P9	Not connected-- No pin
P10	Sync ground
P11	GND
P12	Bi-directional Data (SDA)
P13	H SYNC
P14	V SYNC (VCLK)
P15	Data clock (SCL)

3.1.3 Factory preset modes:

Factory preset modes : 8

	Resolution	H. freq.	V. freq.	H.	V.
1.	720 x 400	31.5 KHz	70Hz (VGA)	-	+
2.	640 x 480	31.47 KHz	60Hz (VGA)	-	-
3.	640 x 480	43.3 KHz	85Hz (VESA)	-	-
4.	800 x 600	46.9 KHz	75Hz (VESA)	+	+
5.	800 x 600	53.674 KHz	85Hz (VESA)	+	+
6.	1024 x 768	60.0 KHz	75Hz (VESA)	+	+
7.	1024 x 768	68.7 KHz	85Hz (VESA)	+	+
8.	1280 x 1024	64.0 KHz	60Hz (VESA)	+	+

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Factory preload modes: 14

Resolution	H. freq.	V. freq.
9. 640 x350	31.5 KHz	70Hz
10. 640 x350	37.9 KHz	85Hz
11. 640 x 480	37.5 KHz	75Hz
12. 640 x480	37.9 KHz	72.8Hz
13. 640 x480	50.6 KHz	100Hz
14. 720 x400	37.9 KHz	85Hz
15. 800 x600	37.9 KHz	60Hz
16. 800 x600	48.1 KHz	72Hz
17. 800 x600	63.9 KHz	100Hz
18. 832 x624	49.7 KHz	75Hz
19. 1024x 468	48.4 KHz	60Hz
20. 1024x 768	56.5 KHz	70Hz
21. 1152x864	67.5 KHz	75Hz
22. 1280x 960	60 KHz	60Hz

3.2 Timing requirements

The AUTOSCAN color monitor must be capable of displaying standard resolutions within the vertical(refresh) frequency range of 50 to 160 Hz and horizontal scan range of 30 - 70 KHz.

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TIMING FOR GS3 107E4 70K COLORMONITOR

REFERENCE PATTERN GENERATOR: CHROMA2135

* According VESA version 1.0 release 0.6p

Factory preset modes

TABLE 1: 31.469 KHz/70.087 Hz, 720 X 400, pixel=28.325 MHz

Horizontal	Vertical
Frame border = 0	Frame border = 0
Total size = 31.774 us	Total size = 14.268 ms
Display size = 25.422 us	Display size = 12.711 ms
Rear porch = 1.907 us	Rear porch = 1.112 ms
Sync width = 3.813 us	Sync width = 0.064 ms
Sync.polarity = -	Sync.polarity = +

TABLE 2: 31.469KHz/59.940 Hz, 640 X 480, pixel=25.175 MHz

Horizontal	Vertical
Frame border = 0	Frame border = 0
Total size = 31.778 us	Total size = 16.683 ms
Display size = 25.422 us	Display size = 15.253 ms
Rear porch = 1.907 us	Rear porch = 1.049 ms
Sync width = 3.813 us	Sync width = 0.064 ms
Sync.polarity = -	Sync.polarity = -

TABLE 3: 43.269KHz/85.008 Hz, 640 X 480, pixel=36.000 MHz

Horizontal	Vertical
Frame border = 0	Frame border = 0
Total size = 23.111 us	Total size = 11.764 ms
Display size = 17.778 us	Display size = 11.093 ms
Rear porch = 2.222 us	Rear porch = 0.578 ms
Sync width = 1.556 us	Sync width = 0.069 ms
Sync.polarity = -	Sync.polarity = -

TABLE 4: 46.875 KHz/75 Hz, 800 X 600, pixel=49.500 MHz

Horizontal	Vertical
Frame border = 0	Frame border = 0
Total size = 21.333 us	Total size = 13.333 ms
Display size = 16.162 us	Display size = 12.800 ms
Rear porch = 3.232 us	Rear porch = 0.448 ms
Sync width = 1.616 us	Sync width = 0.064 ms
Sync.polarity = +	Sync.polarity = +

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TABLE 5: 53.674 KHz/85.061 Hz, 800 X 600, pixel=56.250 MHz

Horizontal	Vertical
Frame border = 0	Frame border = 0
Totalsize = 18.631 us	Total size = 11.756 ms
Display size = 14.222 us	Displaysize = 11.179 ms
Rear porch = 2.702 us	Rearporch = 0.503 ms
Sync width = 1.138 us	Syncwidth = 0.056 ms
Sync.polarity = +	Sync.polarity = +

TABLE 6: 60.03 KHz/75 Hz, 1024 X 768, pixel=78.750 MHz

Horizontal	Vertical
Frame border = 0	Frame border = 0
Totalsize = 16.660 us	Total size = 13.328 ms
Display size = 13.003 us	Displaysize = 12.795 ms
Rear porch = 2.235 us	Rearporch = 0.466 ms
Sync width = 1.219 us	Syncwidth = 0.050 ms
Sync.polarity = +	Sync.polarity = +

TABLE 7: 63.981 KHz/60 Hz, 1280 X 1024, pixel=108 MHz

Horizontal	Vertical
Frame border = 0	Frame border = 0
Totalsize = 15.630 us	Total size = 16.661 ms
Display size = 11.852 us	Display size = 16.005 ms
Rear porch = 2.296 us	Rearporch = 0.594 ms
Sync width = 1.037 us	Syncwidth = 0.047 ms
Sync.polarity = +	Sync.polarity = +

TABLE 8: 68.677 KHz/85 Hz, 1024 X 768, pixel=94.500 MHz

Horizontal	Vertical
Frame border = 0	Frame border = 0
Totalsize = 14.561 us	Total size = 11.765 ms
Display size = 10.836 us	Displaysize = 11.183 ms
Rear porch = 2.201 us	Rearporch = 0.524 ms
Sync width = 1.016 us	Syncwidth = 0.044 ms
Sync.polarity = +	Sync.polarity = +

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Factory preload modes

TABLE 9: 31.469KHz/70.087 Hz, 640 X 350, pixel=25.175MHz

Horizontal	Vertical
Frame border = 0	Frame border = 0
Total size = 31.778 us	Total size = 14.268 ms
Display size = 25.422 us	Display size = 11.122 ms
Rear porch = 1.907 us	Rear porch = 1.907 ms
Sync width = 3.813 us	Sync width = 0.064 ms
Sync.polarity = +	Sync.polarity = -

TABLE 10: 37.861KHz/85.08 Hz, 640 X 350, pixel=31.5MHz

Horizontal	Vertical
Frame border = 0	Frame border = 0
Total size = 26.413 us	Total size = 11.754 ms
Display size = 20.317 us	Display size = 9.244 ms
Rear porch = 3.048 us	Rear porch = 1.585 ms
Sync width = 2.032 us	Sync width = 0.079 ms
Sync.polarity = +	Sync.polarity = -

TABLE 11: 37.5KHz/75 Hz, 640 X 480, pixel=31.5MHz

Horizontal	Vertical
Frame border = 0	Frame border = 0
Total size = 26.667 us	Total size = 13.333 ms
Display size = 20.317 us	Display size = 12.8 ms
Rear porch = 3.810 us	Rear porch = 0.427 ms
Sync width = 2.032 us	Sync width = 0.08 ms
Sync.polarity = -	Sync.polarity = -

TABLE 12: 37.861KHz/72.809 Hz, 640 X 480, pixel=31.5MHz

Horizontal	Vertical
Frame border = 0	Frame border = 0
Total size = 26.413 us	Total size = 13.735 ms
Display size = 20.317 us	Display size = 12.678 ms
Rear porch = 4.064 us	Rear porch = 0.739 ms
Sync width = 1.270 us	Sync width = 0.079 ms
Sync.polarity = -	Sync.polarity = -

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TABLE 13: 50.625 KHz/100.049Hz, 640 X 480, pixel=40.5MHz

Horizontal	Vertical
Frame border = 0	Frame border = 0
Total size = 19.752 us	Total size = 9.995 ms
Display size = 15.802 us	Display size = 9.481 ms
Rear porch = 1.975 us	Rear porch = 0.435 ms
Sync width = 1.580 us	Sync width = 0.059 ms
Sync.polarity = -	Sync.polarity = -

TABLE 14: 37.927 KHz/85.039Hz, 720 X 400, pixel=35.5 MHz

Horizontal	Vertical
Frame border = 0	Frame border = 0
Total size = 26.366 us	Total size = 11.759 ms
Display size = 20.282 us	Display size = 10.546 ms
Rear porch = 3.042 us	Rear porch = 1.107 ms
Sync width = 2.028 us	Sync width = 0.079 ms
Sync.polarity = -	Sync.polarity = +

TABLE 15: 37.879 KHz/60.317Hz, 800 X 600, pixel=40MHz

Horizontal	Vertical
Frame border = 0	Frame border = 0
Total size = 26.400 us	Total size = 16.579 ms
Display size = 20.000 us	Display size = 15.840 ms
Rear porch = 2.200 us	Rear porch = 0.607 ms
Sync width = 3.200 us	Sync width = 0.106 ms
Sync.polarity = +	Sync.polarity = +

TABLE 16: 48.077 KHz/72.188Hz, 800 X 600, pixel=50MHz

Horizontal	Vertical
Frame border = 0	Frame border = 0
Total size = 20.800 us	Total size = 13.853 ms
Display size = 16.000 us	Display size = 12.480 ms
Rear porch = 1.280 us	Rear porch = 0.478 ms
Sync width = 2.400 us	Sync width = 0.125 ms
Sync.polarity = +	Sync.polarity = +

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TABLE 17: 63.92KHz/100 Hz, 800 X 600, pixel=67.5MHz

Horizontal	Vertical
Frame border = 0	Frame border = 0
Total size = 15.644 us	Total size = 9.997 ms
Display size = 11.852 us	Display size = 9.387 ms
Rear porch = 2.370 us	Rear porch = 0.548 ms
Sync width = 0.948 us	Syncwidth = 0.047 ms
Sync.polarity = +	Sync.polarity = +

TABLE 18: 49.714KHz/74.534 Hz, 832 X 624, pixel=57.27MHz

Horizontal	Vertical
Frame border = 0	Frame border = 0
Total size = 20.115 us	Total size = 13.417 ms
Display size = 14.528 us	Display size = 12.552 ms
Rear porch = 3.911 us	Rear porch = 0.784 ms
Sync width = 1.118 us	Sync width = 0.060 ms
Sync.polarity = -	Sync.polarity = -

TABLE 19: 48.363 KHz/60.004 Hz, 1024 X 768, pixel=65MHz

Horizontal	Vertical
Frame border = 0	Frame border = 0
Total size = 20.677 us	Total size = 16.666 ms
Display size = 15.754 us	Display size = 15.880 ms
Rear porch = 2.462 us	Rear porch = 0.600 ms
Sync width = 2.092 us	Syncwidth = 0.124 ms
Sync.polarity = -	Sync.polarity = -

TABLE 20: 56.476KHz/70.069 Hz, 1024 X 768, pixel=75MHz

Horizontal	Vertical
Frame border = 0	Frame border = 0
Total size = 17.707 us	Total size = 14.272 ms
Display size = 13.653 us	Display size = 13.599 ms
Rear porch = 1.920 us	Rear porch = 0.513 ms
Sync width = 1.813 us	Syncwidth = 0.106 ms
Sync.polarity = -	Sync.polarity = -

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TABLE 21: 67.5 KHz/75Hz, 1152 X 864, pixel=108MHz

Horizontal	Vertical
Frame border = 0	Frame border = 0
Totalsize = 14.815 us	Total size = 13.333 ms
Display size = 10.667 us	Display size = 12.8 ms
Rear porch = 2.370 us	Rear porch = 0.474 ms
Sync width = 1.185 us	Sync width = 0.044 ms
Sync.polarity = +	Sync.polarity = +

TABLE 22: 60.0 KHz/60Hz, 1280 X 960, pixel= 108MHz

Horizontal	Vertical
Frame border = 0	Frame border = 0
Totalsize = 16.667 us	Total size = 16.667 ms
Display size = 11.852 us	Display size = 16.000 ms
Rear porch = 2.889 us	Rear porch = 0.600 ms
Sync width = 1.037 us	Sync width = 0.050 ms
Sync.polarity = +	Sync.polarity = +

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- 3.2.1 Horizontal scanning
Scanning frequency : 30 - 70 KHz
H-shift range : 10 mm Min. (for preset modes only)

- 3.2.2 Vertical scanning
Scanning frequency : 50 - 160 Hz
V-shift range : 10 mm min. (for preset modes only)

3.3 Power supply

The display device maintains the specified performance in the range described as follows :

Type	Mains current	Mains Voltage	Mains freq.
230V version	1.5A Max.	90 - 264 VAC	60 3 Hz
Power consumption : 90 Watts Max. Power cord length : 1.5M Power cord type : 3 leads plug power cord With protective earth plug or IBM Hooded			

3.4 Power saving management system

	Signal			Compliance Requirement	Power
	H-Sync	V-Sync	Video		
On	Active	Active	Active	Mandatory	90w
Off	Inactive	Active	Blanked	Mandatory	2 w
Off	Active	Inactive	Blanked	Mandatory	2 w
Off	Inactive	Inactive	Blanked	Mandatory	2 w

Remark: Transition time from ON to any power saving mode will have 5 seconds delay.

3.5 CRT Description

This display unit employs a high resolution CRT complying with the following specifications :

- Dimensions : 17 inches flat/square screen
- Pitch : 0.27mm dotted with black matrix
- Deflection angle : 90 degrees
- Light transmission : 47%(PH), 46%(CPT), 52(LG) (dark glass)
- Face treatment : Anti-glare, anti-static
- Implosion protection : By P-Mini-rim-band.
- EHT : 25.0 1KV (Ib=0)
- Visible screen area : 327.2 mm x 245.44mm
- CRT Source : PHILIPS tube, CPT tube, LG tube, SDI

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- 3.6 RGB Amplifier
- 3.6.1 Video amplifiers
- Dot Rate : 108 MHz
- Over / undershoot : 15% Max.
(Transient response)
- Sag : 5% Max.(pulses of 0.70H)
- Black level shift : 5% Max.
- 3.6.2 Brightness and Contrast
- Reference mode 68.7 KHZ/85 HZ full white pattern.

DISPLAY LIGHT OUTPUT

Brightness	Contrast	Light output (full white)
Minimum	Minimum	not visible
Center	Maximum	30 5 FL.

100mmx100mm block

Brightness at center and contrast at maximum light output is 41 +/- 6 FL.

sRGB : When sRGB is selected, the light output (Full white pattern) will be 23 +/- 3 FL regardless of main contrast and brightness controls. Adjusting contrast or brightness will auto exit sRGB setting and go to 6500K.

- 3.6.3 Raster light output
- Apply 68.7KHz/85Hz mode with no video pattern, set brightness at center click(50%) and contrast control at minimum
- The light output on the screen center should < 0.2 FL.
- 3.7 Variation of image size (For preset modes only)
- Due to brightness change : 1.0% max
- (Set brightness control at center click(50%), turn contrast control from Min. to Max.)
- Due to aging
(25 C, 300 hrs) : 1.0%
- Due to mains voltage
variation (10%) : 1.0%
- 3.8 Degaussing
- An automatic degaussing circuit is provided which requires no intervention.
- The degaussing activated at the time of switch on or switch on again after switching off degaussing circuits for longer than 30 minutes.
- 3.9 Phosphor protection
- The display device is sufficiently protected against the burning of phosphors in case of repetitive power cycling or absence of horizontal deflection.

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3.10 Low emission requirements.(MPRII/TCO99/TCO95)

Items	Band I ELF (rms)	Band II VLF (rms)
Alternating Electric Field	MPRII < 25 V/M TCO < 10 V/M	MPRII < 2.5 V/M TCO < 1.0 V/M
Magnetic Field	MPRII < 250 nT TCO < 200 nT	MPRII < 25 nT TCO < 25 nT
Electrostatic Potential	< 500 V	

Band I : 5 to 2KHZ.

Band II : 2K to 400KHZ.

Test procedure according to low emission and E.S.P. test method.

3.11 Display data channel: DDC2B (VESASTANDARD)

The DDC HEX Data (refer sheet 190) should be written into the DDC IC (24LC21 or equivalent)

	DDC1	DDC2B
Software		V
Hardware		

4.0 Display image (CRT facing east)

The monitor is aligned in a magnetic cage having the following magnetic field components :

Northern Hemisphere : H = 0, V = 450 mG, Z = 0

Southern Hemisphere : H = 0, V = -500 mG, Z = 0

Equatorial Support : H = 0, V = 0 mG, Z = 0

Conditions for visual testing, unless otherwise stated:

Input video signal - 700 mVpp cross hatch

Brightness control - center position

Contrast control - maximum position

4.1 Display resolutions

See 3.1.3

4.2 Image size (For preset modes only)

The dimensions of guaranteed display area to be measured along the picture center of horizontal and vertical axis of the screen as listed below: (preset modes only, refer to fig. 1)

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Width : 306 3 mm
Height : 230 3 mm

4.3 Image centering deviation (For preset modes only)

With respect to fig. 2, the target relationships are the following :

IA- BI 5 mm IC- DI 5 mm

Note : This centering is adjustable by the end-user.

4.4 Picture shift control range (For preset modes only)

H-shift range : 10 mm min.
V-shift range : 10 mm min.

4.5 Picture tilt

With respect to Fig. 3, Tilt to be measured on extremes of center line from bezel.

IA- BI : 2 mm

4.6 Geometrical distortions (For preset modes only)

It is acceptable that pincushion, trapezoid, rhomboid, rotation and various waves distortions must remain within the limits of tolerance as in fig. 4,
where A = B = 2.0 mm.
C = D = 2.0 mm.

The waviness of any vertical or horizontal shall be less than 1.0 mm over a 50 mm distance.

4.7 Image non-linearity pattern with
12 equal blocks along horizontal axis,
9 equal blocks along vertical axis. (see Fig. 1) (For preset modes only)

H: 12 % (for VGA mode < 45 KHz), other modes < 10%
V: 10% for all modes

Deviation of Two adjacent block:

H: 8 % (for VGA mode < 45 KHz), other modes < 6%
V: 6% for all modes

$$\text{H. non-linearity} = \frac{X. \text{ Max.} - X. \text{ min.}}{X. \text{ Max.}} \times 100\%$$

$$\text{V. non-linearity} = \frac{Y. \text{ Max.} - Y. \text{ min.}}{Y. \text{ Max.}} \times 100\%$$

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- 4.8 Mis-convergence
The maximum convergence error to be measured on a white spot or white display line to represents the maximum distance between the energy centers of any two primary colors. (See Fig. 6) **For VGA mode <45KHz Zone B: 0.4mm.**

CONVERGENCE SPEC.

Zones	0.27 mm CRT
Zone C	0.15 mm
Zone A	0.25 mm
Zone B	0.35 mm

- 4.9 Focus check (68.7 KHZ / 85 HZ)

Adjust brightness control to center click and contrast control to get 25 FL at full white pattern, then generate the characters to cover entire of the picture the characters should be clearly identified in all display area. (See Fig. 7)

- 4.10 Luminance uniformity

condition : With full white pattern, set contrast control at maximum position and brightness control at center click position.

The center of the display is 30 FL +/- 5. , the Max. deviation of the screen should not exceed 25% .

- 4.11 White color adjustment

Based on the 1931 CIE chromatic diagram (x,y) coordinates of white display on screen center should be:

For 9300 K X = 0.283 0.015
Y = 0.297 0.015
For 6500 K X = 0.313 0.015
Y = 0.329 0.015
For sRGB X = 0.313 0.015
Y = 0.329 0.015

Check conditions :

Set brightness control at center click position and contrast at maximum position.

- 4.12 Color tracking on full white pattern

To adjust the luminance output from 3 to 30 FL. By turning the contrast control (brightness control at center click position), the color co-ordinates should not deviate more than the following tolerance when compare to display center:

X = X (center) 0.015
Y = Y (center) 0.015

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- 4.13 Purity
- Test patterns : Full white / Red / Green / Blue.
- Conditions : As stated in item 4.0, the purity must be checked under specific destinations of earth magnetic environments and the monitor to be well degaussed.
- After warming-up time of 30 min., no color stains may occur in above four patterns.
- 4.14 Moir
- Condition: Displaying a full white pattern, at any preset mode, the display size to be set as Fig.1
- The clouding effect must not rise to disturbing levels in anywhere of the screen with luminance setting from 15 to 30 FL.
- 4.15 Blemish
- Blemish shall be in accordance with CRT specification.

5.0 Mechanical characteristics

- 5.1 User controls
- Power ON/OFF switch
 - 5 Key digital user control
- 5.2 Connectors and cables

- 5.2.1 Power cord type: 3 leads plugable power cord with protective earthed plug or IBM Hooded
- Length : 1.5m 50 mm (exc. connector)
- Safety requirements : See following.

Countries	Approval		
	Mains plug	Wire	Connector
Germany	VDE	VDE	VDE
Switzerland	--	SVE	SVE
Belgium	CEBEC	--	--
Sweden	SEMKO	SEMKO	SEMKO
Finland	EI	--	EI
Norway	NEMKO	NEMKO	--
Denmark	DEMKO	DEMKO	DEMKO
Italy	OVE	--	OVE
Netherlands	KEMA	KEMA	KEMA
U.K.	ASTA	HAR	ASTA
U.S.A.	UL	UL	UL
Canada	CSA	CSA	CSA
Australia	SAA	SAA	SAA

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5.2.2 Signal cable

Length of video : 1.5 m 50 mm flying with 15 pin PS/2
D-shell socket

5.3 Tilt and swivel base

Tilt angle : 5 forward and 15 backward
Swivel rotation : 90 leftward or rightward

6.0 Environmental characteristics

The following sections to define the interference and susceptibility condition limits that might occur between external environment and the display device.

6.1 Susceptibility of display to external environment

6.1.1 (A) Operating limits

Temperature : 0C to 40C
Humidity : 10 to 90% (W/O condensation)
Air pressure : 700 ~ 1100 mbar

(B) Non-operating limits (storage)

Temperature : -25C to 65C
Humidity : 5 to 95 % (W/O condensation)
Altitude : 300 to 1100 mbar

6.1.2 Transportation packages

A) Carton box

A-1 Size (with pedestal)
496(W)495(H)518(D)

A-2 Carton paper: double wall AB flute corrugate
board, color brown
Bursting : 19.3 kg/cm² min
Compression : 600 kg min

B) Transportation conditions

B-1 Container loading (separated pedestal)

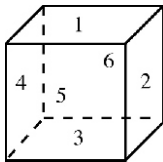
Q'ty	Container size			
	40'		20'	
	W/ pallet		W/ pallet	
	Yes	No	Yes	No
Layers	4	4	4	4
Sets per layer	4	4	4	4
Sets per block	16	16	16	16
Blocks per container	24	24	10	10
Total sets	384	384	160	160

B-2 Transportation standards

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		BRAND : PHILIPS			
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TRANSPORTATION TEST OF BU-MONITORS		
TEST ITEM	TEST CONDITION	STANDARD REFERENCE
1. PACKAGED TEST:		
1.1 Packaged random vibra. test	5~200 Hz, 0.73 Grms, 30 MIN/ AXIS, 3 AXES.,	Ref. ASTM-D4169
1.2 Drop test	Gross weight drop height: 9.53~18.59 kg 76 cm Sequence: 1C-3E-6F, 10 drops,	NSTA NSTA
1.3 Cold drop test (Only for reference)	-10℃ for 16 hours, recovery time after cold test: (during 5 minutes) Gross weight drop height: 9.53~18.59 kg 61cm Sequence: 1C-3F, 4drops, 1 set: C345-F4-F5-F3, 1 set: C261-F2-F6-F1	UN-D1400 NSTA
2. UN-PACKAGED VIBRATION TEST:		
2.1 Operating random vibra. test	5~500Hz, 0.25 Grms, 30 min/axis 3 axes. Frequency: (Hz): 5,350,500 G^2/ Hz: 0.001, 0.0001, 0.00005	Ref. OEM spec.
2.2 Shock test (half sine)	a. 120G, <3 msec, 6 shocks G value measurement filter: 330Hz Exclude CRT impurity	Ref. OEM spec.



- 6.2 Display disturbances from external environment
- 6.2.1 ESD Disturbances
According to EN50082-1 (also refer to IEC801-2 for detail).

- 6.3 Display disturbances to external environment

The disturbances induced by the display and tolerated by the environment are defined as follows :

- 6.3.1 Ionizetic radiation

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		BRAND : PHILIPS					
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- 6.3.2 EMI/EMS
Can comply with FCC part 15, DOCC108.8 and EN55022.
EMS EN61000-4-3 (80% 1KHz AM modulation) Picture jitter 2mm.

7.0 Safety tests

- 7.1 Dielectric strength (Hi-pot test)
According to IEC950, UL1950 and CSA22.2 No 950
- 7.2 Resistance for protective earthing
According to IEC950
- 7.3 Leakage current
According to IEC950, UL1950 and CSA22.2 No. 950
- 7.4 Grounding
According to IEC950, UL1950 and CSA22.2 No. 950

8.0 Certifications

- 8.1 Safety
The monitors comply with the following safety standards:

- IEC950
- UL1950
- DHHS 21 CFR, subchapter J
- CSA-22.2 NO. 950
- GERMANY ZH1/618(GS), ISO9241-3,-8

- 8.2 EMI (Electromagnetic Interference)
The monitor comply with the following EMI standards :

- EN55022
- FCC Part 15
- DOC C108.8

- 8.3 Fulfil approbation requirements
Destination basis, set can fulfil following requirements:

Countries	Safety	EMI
Germany	TUV,GS	CE
Sweden	SEMKO	----
Norway	NEMKO	----
Denmark	DEMKO	----
Finland	FIMKO	----
Spain	HOMOLOGATION	CE
UK	BEAB	CE
U.S.A.	UL, DHHS	FCC
Canada	CSA	DOC
Japan	----	VCCI

CLASS NO.

17" M32 GS3 107E4-70K CMTR

TYPE : 107E41/00C
BRAND : PHILIPS

8639 000 12205

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**9.0 Reliability**

9.1 Mean time between failures
MTBF to be calculated according to Military standard MIL-HDBK-217C.

MTBF 75,000 Hours (Excluding CRT)

$$\text{PRACTICE of MTBF} = \frac{\text{TOTAL HRS (POWER ON)} \times \text{TOTAL SETS}}{\text{NBR. OF FAILURE SETS}}$$

10.0 Quality assurance requirements

10.1 Acceptance test

According to MIL-STD-105D level II,
AQL : 0.4 (Major)
: 1.0 (Minor)

Customer acceptance : UAW 0377/40
criteria

11.0 Service ability

The service ability of this monitor should fulfil the requirements which are prescribed in UAW-0346 and must be checked with the checklist UAT - 0361

CLASS NO.

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TYPE : 107E41/00C
BRAND : PHILIPS

8639 000 12205

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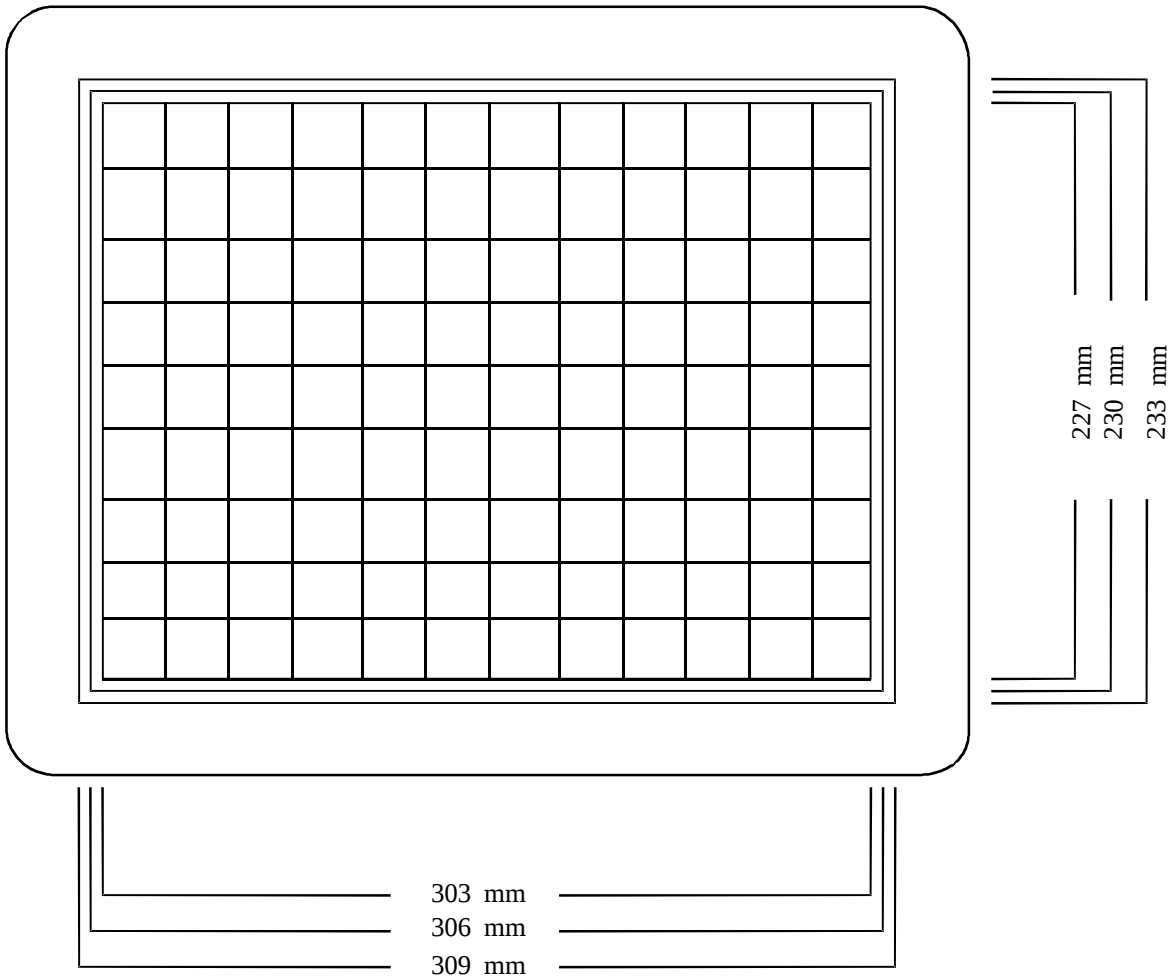


FIG-1 IMAGE DIMENSION

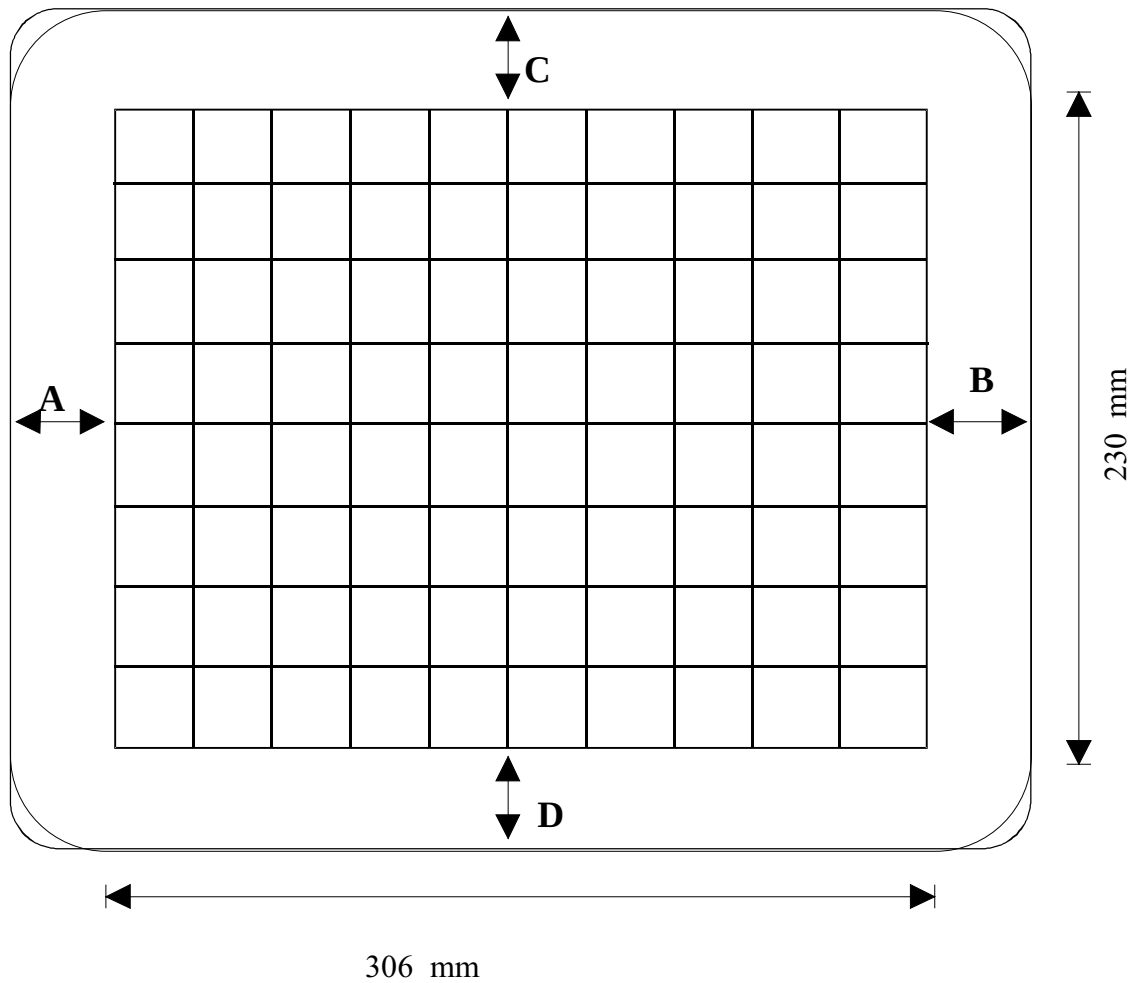
CLASS NO.		17" M32 GS3 107E4-70K CMTR			
		TYPE : 107E41/00C		8639 000 12205	
		BRAND : PHILIPS			
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$|A-B| \text{ AND } |C-D| \leq 5 \text{ mm}$

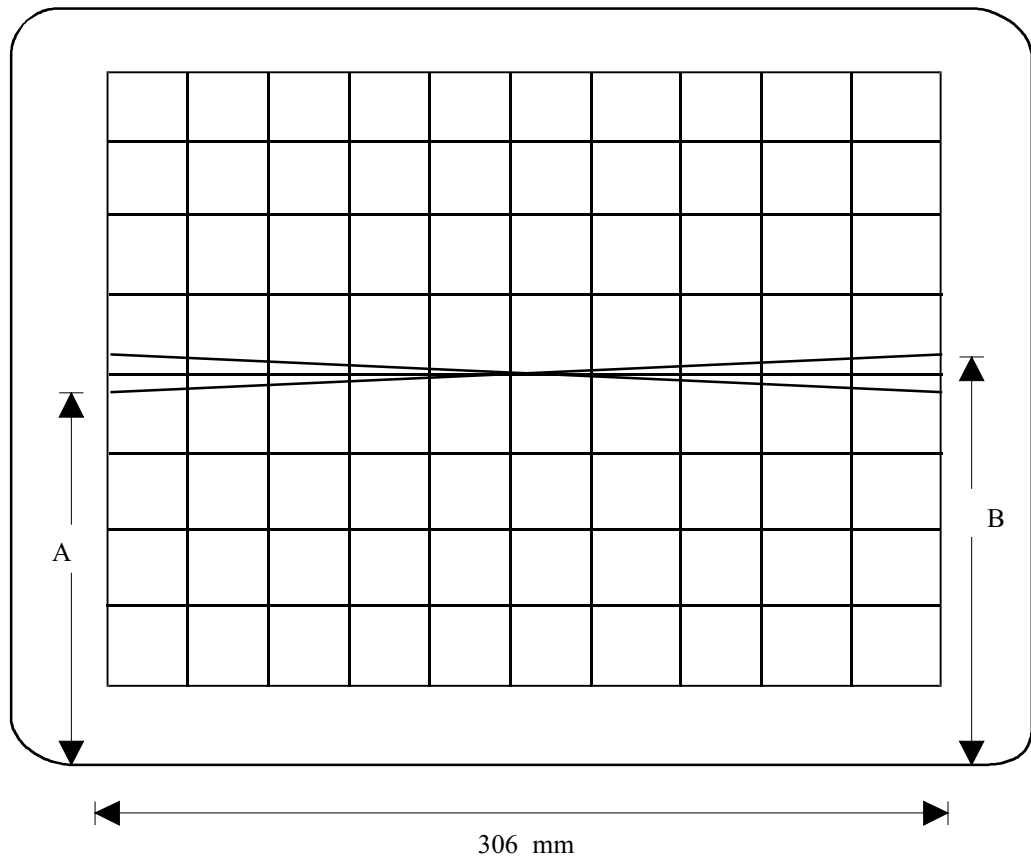
FIG-2 IMAGE CENTERING

CLASS NO.		17" M32 GS3 107E4-70K CMTR			
		TYPE : 107E41/00C		8639 000 12205	
		BRAND : PHILIPS			
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$$|A-B| \leq 2 \text{ mm}$$

FIG-3 IMAGE ROTATION

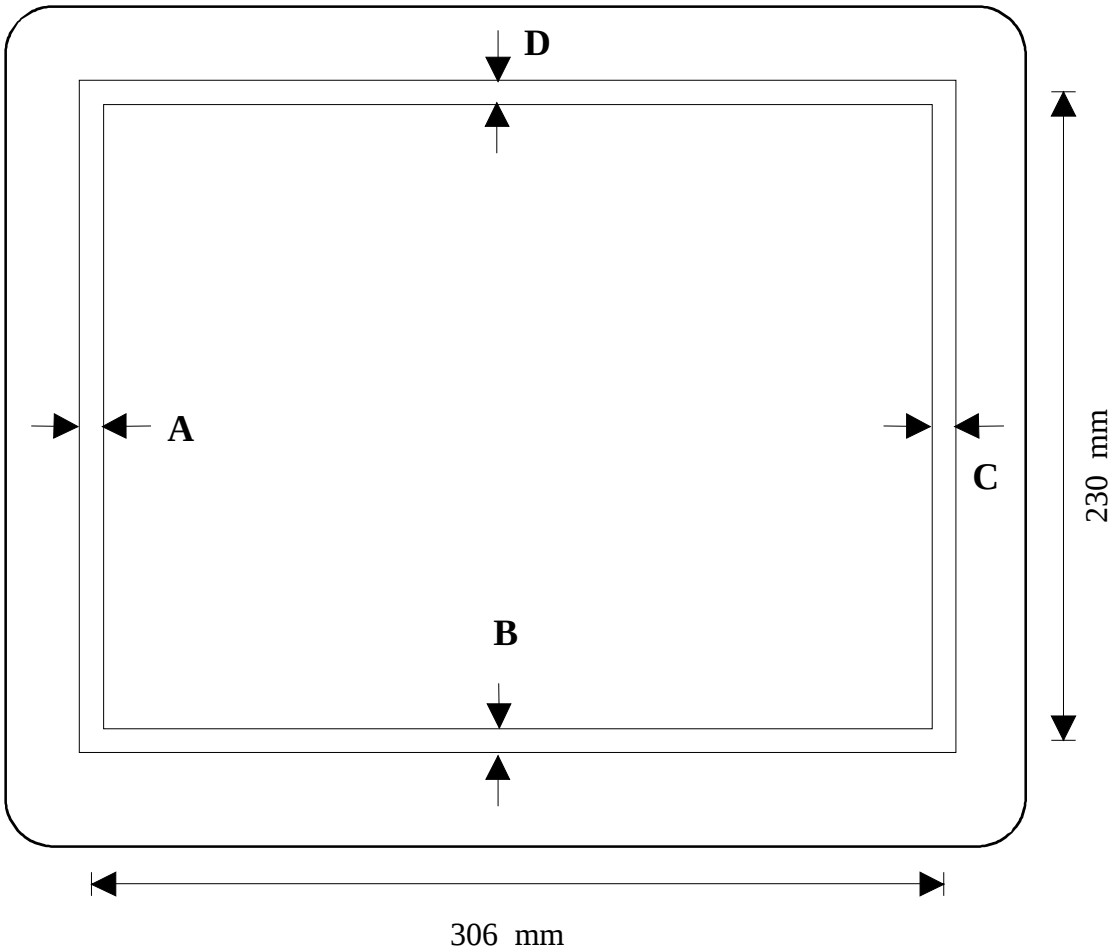
CLASS NO.		17" M32 GS3 107E4-70K CMTR					
		TYPE : 107E41/00C		8639 000 12205			
		BRAND : PHILIPS					
2002-04-26							
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$A=B=C=D \leq 2.0 \text{ mm}$

FIG-4 IMAGE GEOMETRY

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		TYPE : 107E41/00C		8639 000 12205	
		BRAND : PHILIPS			
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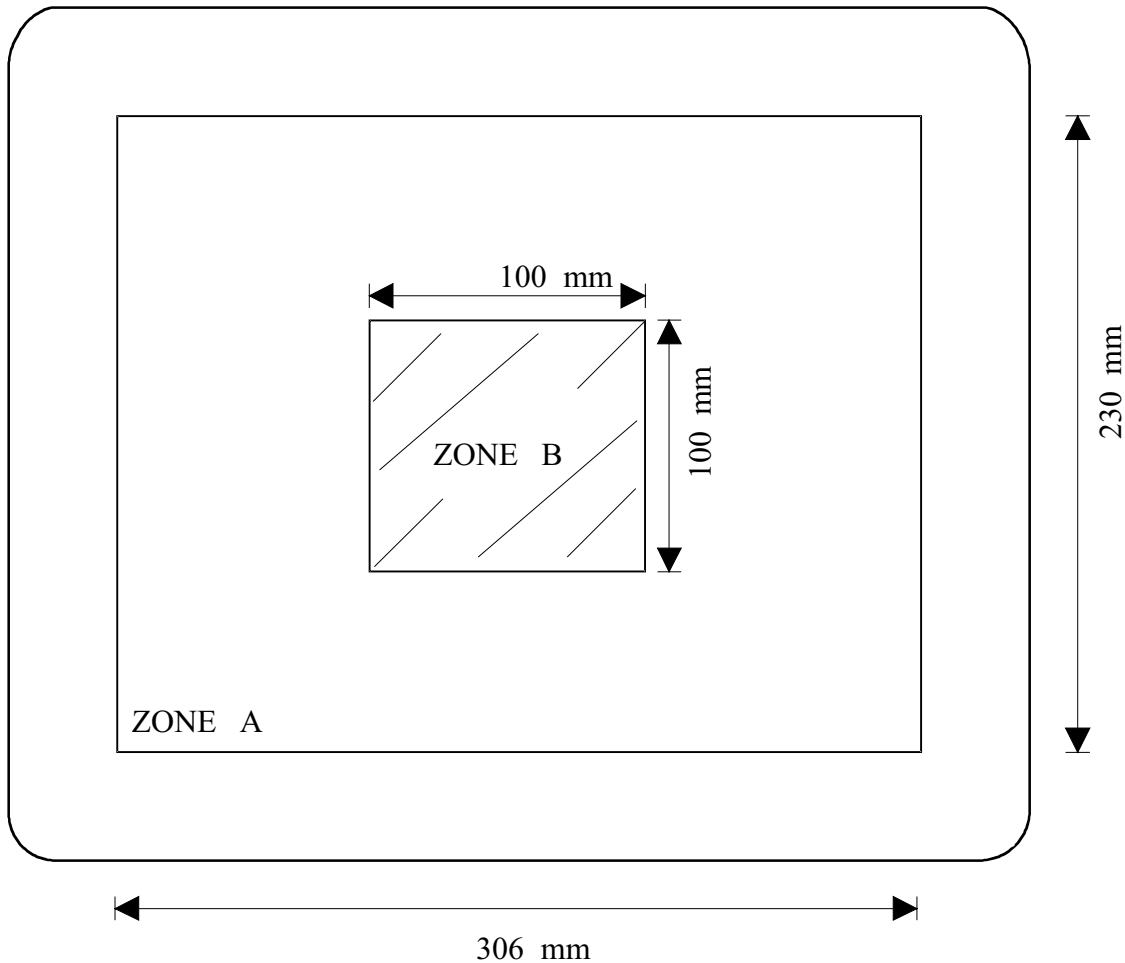


FIG-5 CONTRAST AND BRIGHTNESS MEASUREMENT AREA

CLASS NO.		17" M32 GS3 107E4-70K CMTR					
		TYPE : 107E41/00C		8639 000 12205			
		BRAND : PHILIPS					
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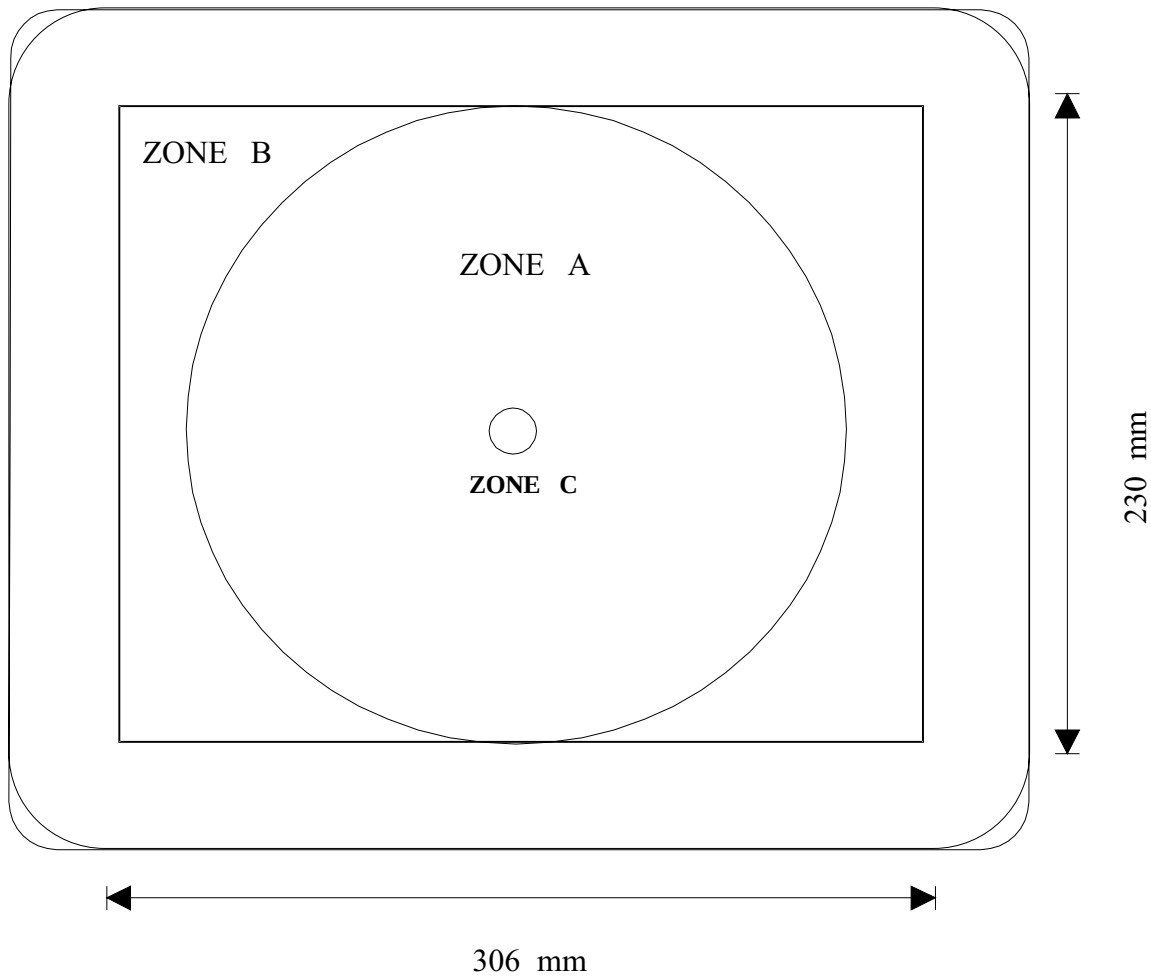


FIG-6 MISCONVERGENCE

CLASS NO.		17" M32 GS3 107E4-70K CMTR			
		TYPE : 107E41/00C		8639 000 12205	
		BRAND : PHILIPS			
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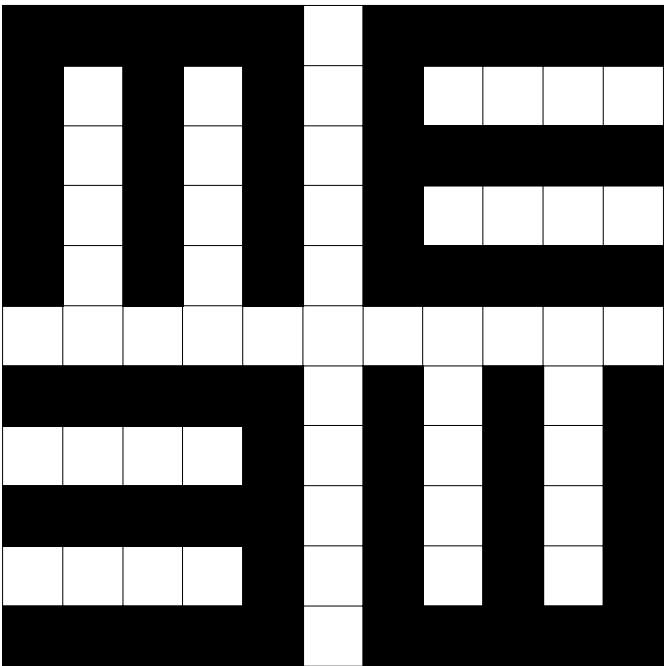
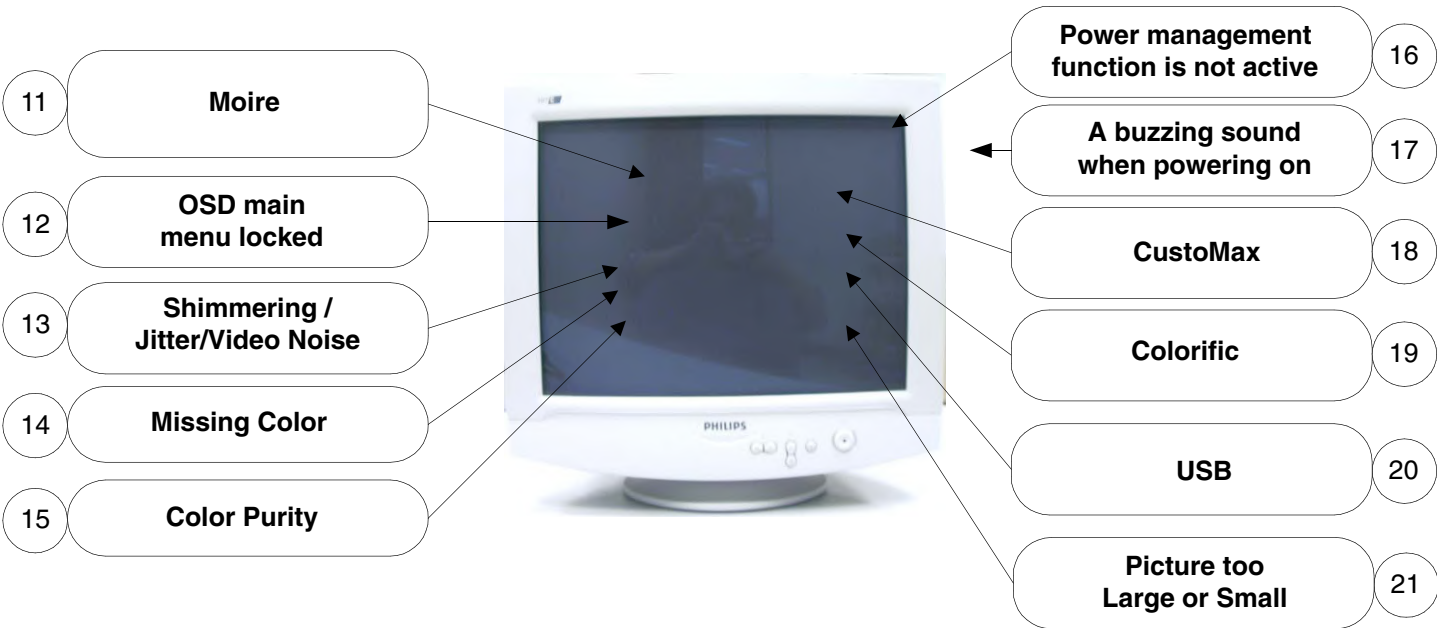
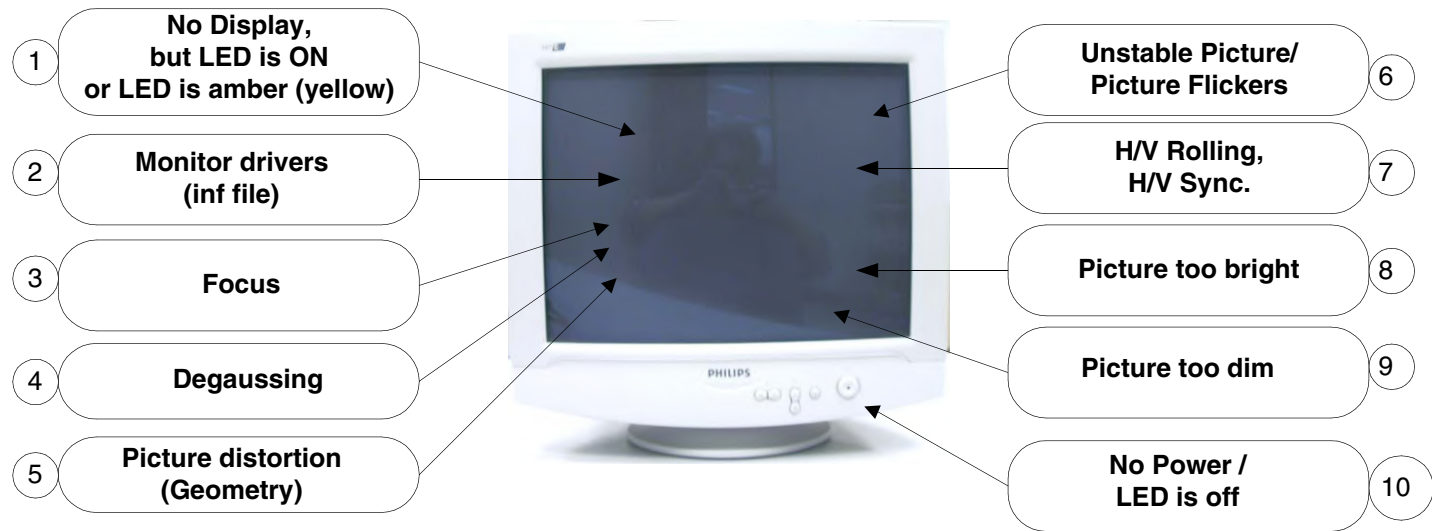


Figure 7

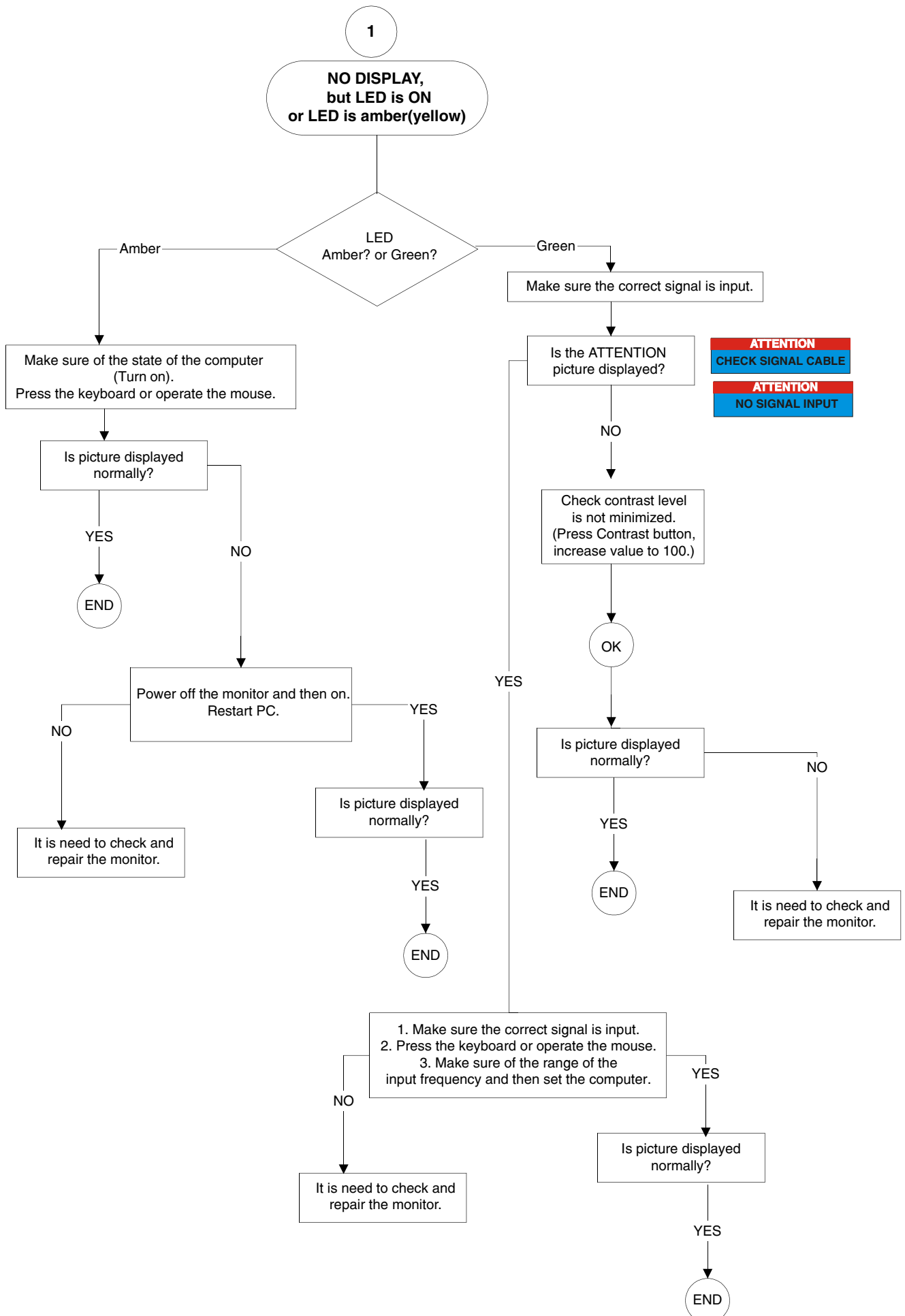
Focus check character

CLASS NO.		17" M32 GS3 107E4-70K CMTR							
		TYPE : 107E41/00C				8639 000 12205			
		BRAND : PHILIPS							
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Note : Not all described feature are applicable for all monitors.



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Picture is too bright or dark

Press the OK  button
Bring up "MAIN CONTROLS" window

NO

YES

Select "RESET TO FACTORY SETTINGS"

Press the OK  button
Bring up "RESET TO FACTORY SETTINGS" window

Make sure of the signal cable connection.
Make sure of the state of the computer
(Turn on).
Press the keyboard or operate the mouse.

YES

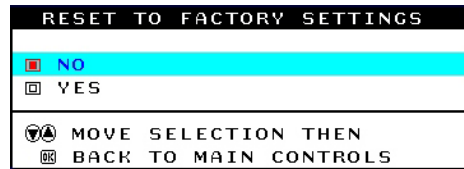
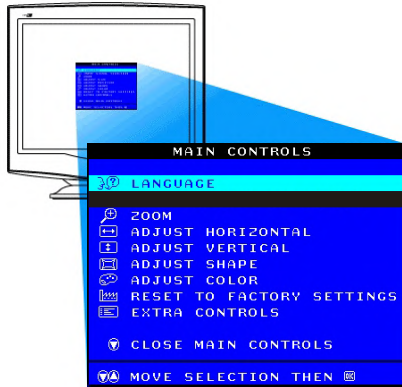
Is picture displayed normally?

YES

END

NO

It is need to check and repair the monitor.



Press the DOWN  button
to select "YES"

Is picture displayed normally?

YES

Press the OK  button
Press the OK  button

YES

END

3

Plug & Play is not active normally

for Windows 95/98/2000/Me or later

Philips' monitors build in VESA DDC2B feature to support Plug & Play requirement for Windows 95/98/2000/Me . You can install the information file (.inf) in order to select your Philips monitor from "Monitor" dialog box in Windows 95/98/2000/Me to activate Plug & Play application. The installation procedure based on

Windows '95 OEM Release 2 , 98 , Me and 2000 is specified as follows,
(In case of connecting the monitor to the PC compliant with VESA standard with the designated signal cable, the PC reads display pixels, frequency, and color feature of this monitor to optimise the picture for the monitor automatically.)
DDC : Abbreviation for Display Data Channel

**** Windows NT 4.0 does not inquire driver (inf file) for monitors.****

For Windows 95

1. Start Windows '95
2. Click the 'Start' button, point to 'Setting', and then click 'Control Panel'.
3. Double Click the 'Display' Icon.
4. Choose the 'Settings' tab then click 'Advanced...'.- 5. Choose 'Monitor' button, point to 'Change...' then click 'Have Disk...'.- 6. Click 'Browse...' button then choose the appropriate drive F: (CD-ROM Drive) then click 'OK' button.
- 7. Click the 'OK' button then choose your monitor model and click the 'OK'.
- 8. Click 'Close' button.

For Windows 98

1. Start Windows 98
2. Click the 'Start' button, point to 'Setting', and then click 'Control Panel'.
3. Double Click the 'Display' Icon.
4. Choose the 'Settings' tab then click 'Advanced...'.- 5. Choose 'Monitor' button, point to 'Change...' then click 'Next'- 6. Choose "Display a list of all the drivers in a specific location, so you can select the driver you want." then click 'Next' and then click 'Have Disk...'.- 7. Click 'Browse...' button then choose the appropriate drive F: (CD-ROM Drive) then click 'OK' button.
- 8. Click the 'OK' button then choose your monitor model and click the 'Next' button then click 'Next' button.
- 9. Click 'Finish' button then the 'Close' button.

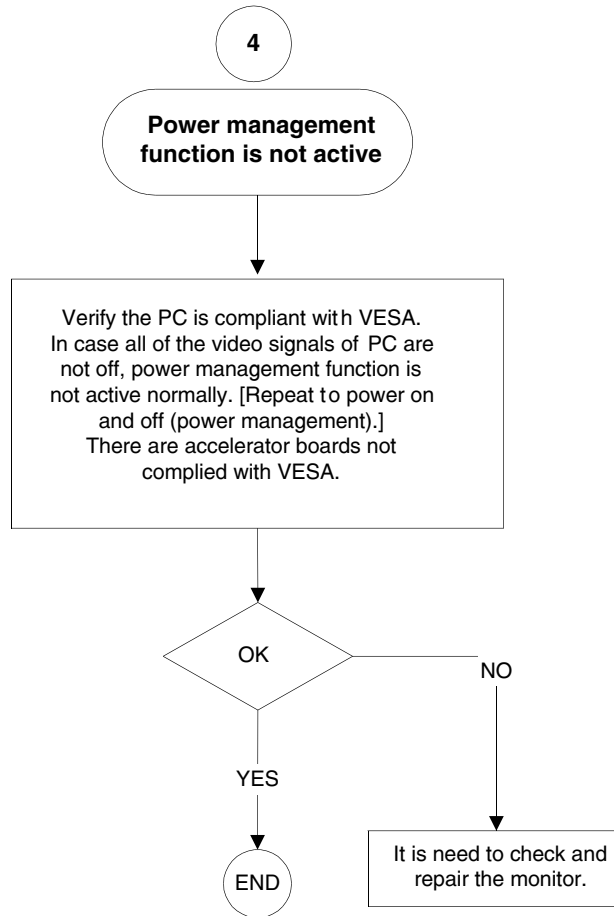
For Windows Me

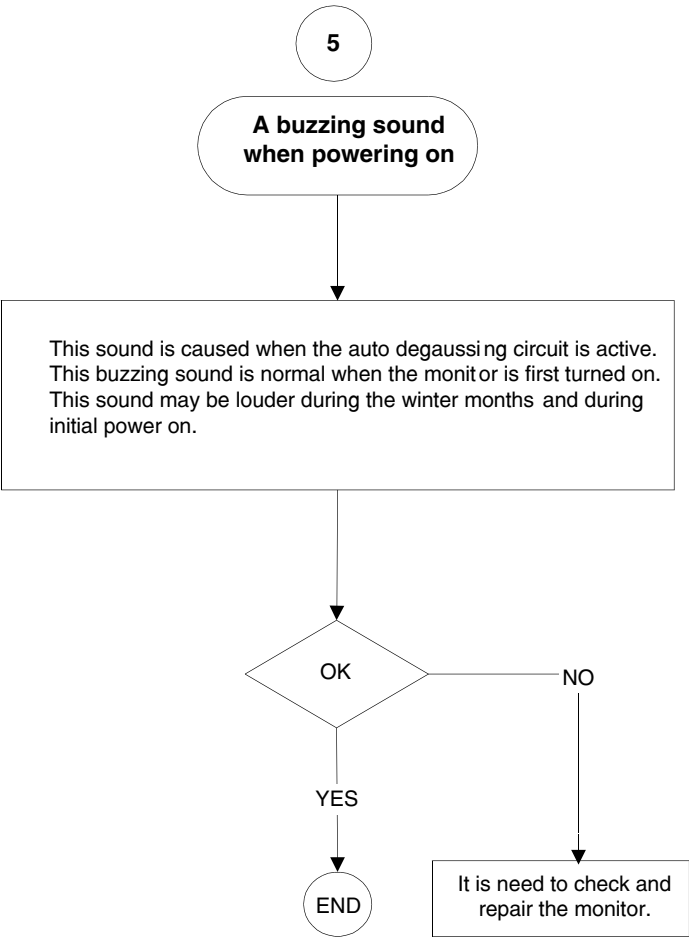
1. Start Windows Me
2. Click the 'Start' button, point to 'Setting', and then click 'Control Panel'.
3. Double Click the 'Display' Icon.
4. Choose the 'Settings' tab then click 'Advanced...'.- 5. Choose 'Monitor' button, then click 'Change...' button.
- 6. Choose "Specify the location of the driver(Advanced)" and click the 'Next' button.
- 7. Choose "Display a list of all the drivers in a specific location, so you can select the driver you want." then click 'Next' and then click 'Have Disk...'.- 8. Click 'Browse...' button then choose the appropriate drive F: (CD-ROM Drive) then click 'OK' button.
- 9. Click the 'OK' button then choose your monitor model and click the 'Next' button then click 'Next' button.
- 10. Click 'Finish' button then the 'Close' button.

For Windows 2000

1. Start Windows 2000
 2. Click the 'Start' button, point to 'Setting', and then click 'Control Panel'.
 3. Double Click the 'Display' Icon.
 4. Choose the 'Settings' tab then click 'Advanced...'. - 5. Choose 'Monitor'
 - If the 'Properties' button is inactive, it means your monitor is properly configured. Please stop installation.
 - If the 'Properties' button is active. Click 'Properties' button. Please follow next step continually.
 - 6. Click 'Driver' and then click on 'Update Driver...' then click on the 'Next' button.
 - 7. Choose "Display a list of the known drivers for this device so that I can choose a specific driver then click 'Next' and then click 'Have disk...'. - 8. Click 'Browse...' button then choose the appropriate drive F: (CD-ROM Drive).
 - 9. Click the 'Open' button, then click the 'OK' button.
 - 10. Choose your monitor model and click the 'Next' button then click 'Next' button.
 - 11. Click 'Finish' button then the 'Close' button.
- If you can see the "Digital Signature Not Found" window then click the 'Yes' button.

If your Windows 95/98/2000/Me version is different or you need more detail installation information, please refer to Windows 95/98/2000/Me user's manual.



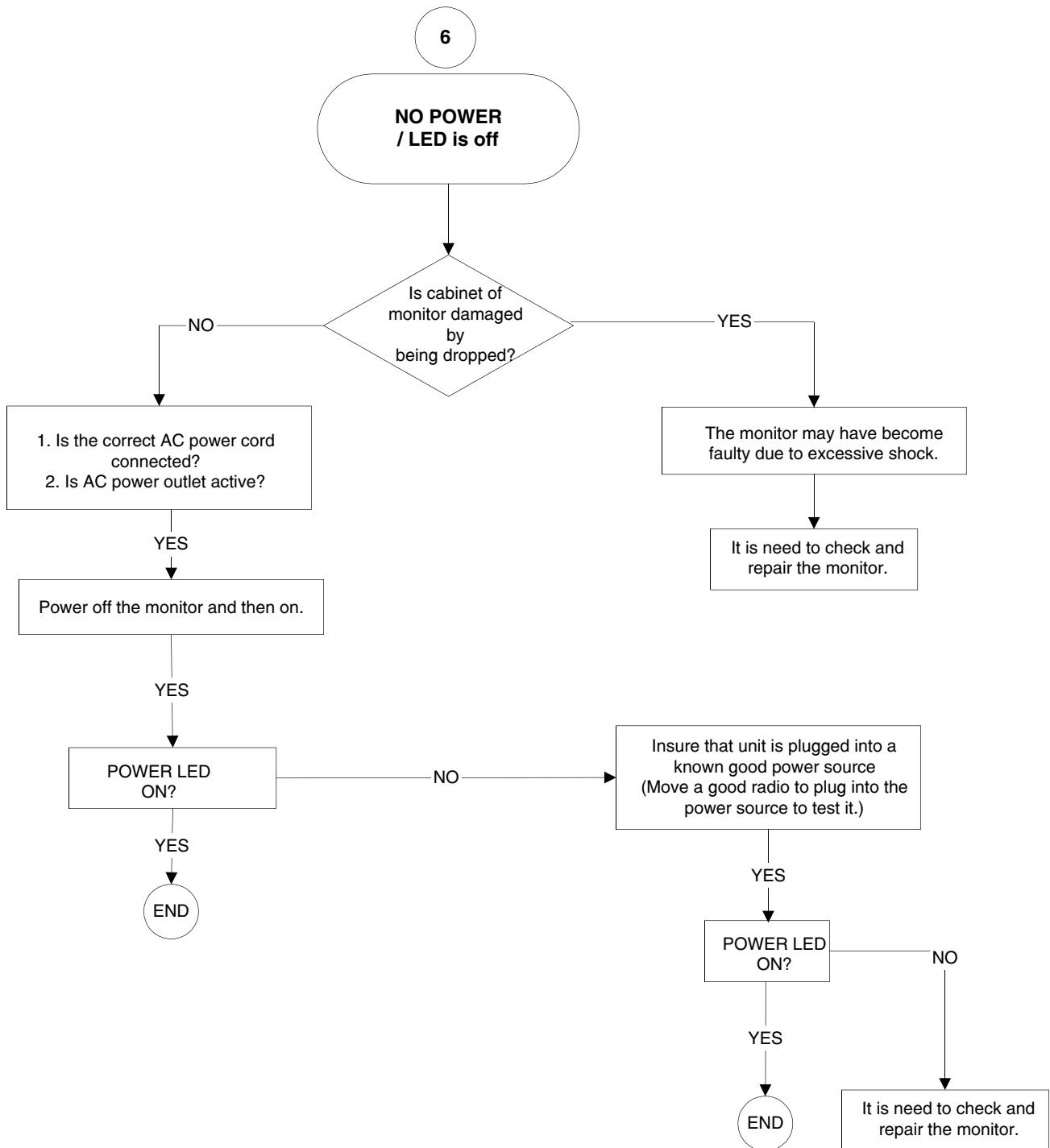


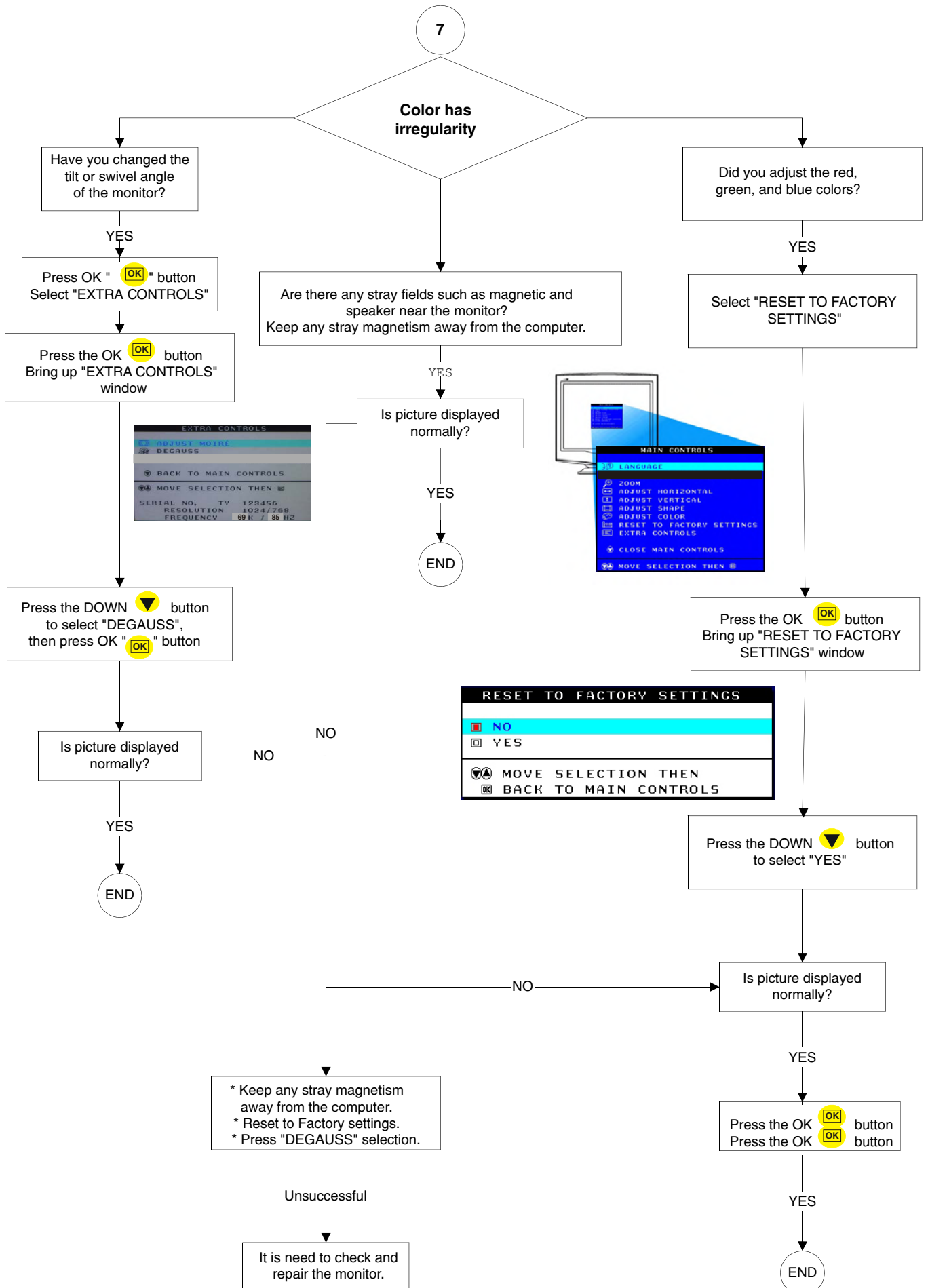
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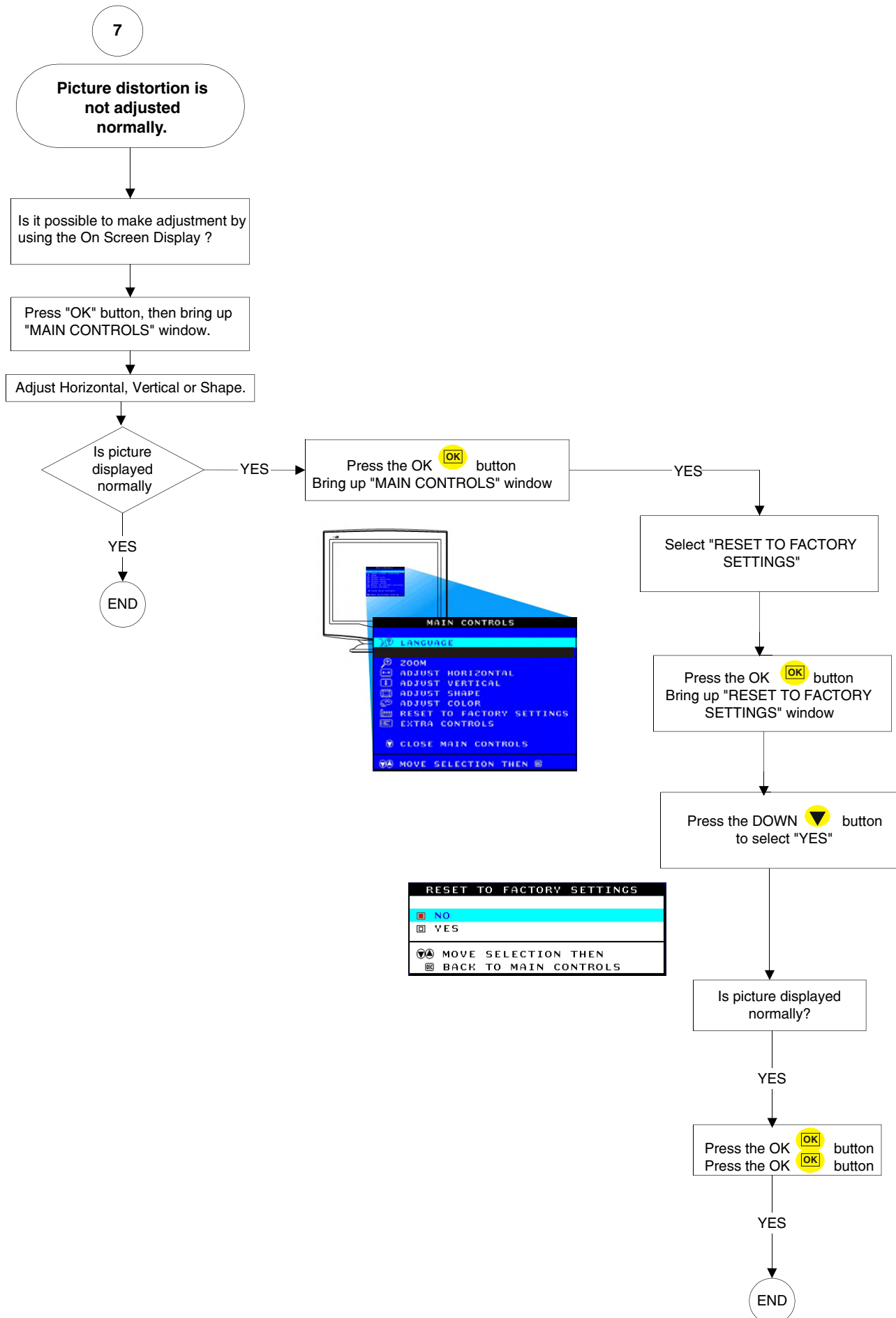


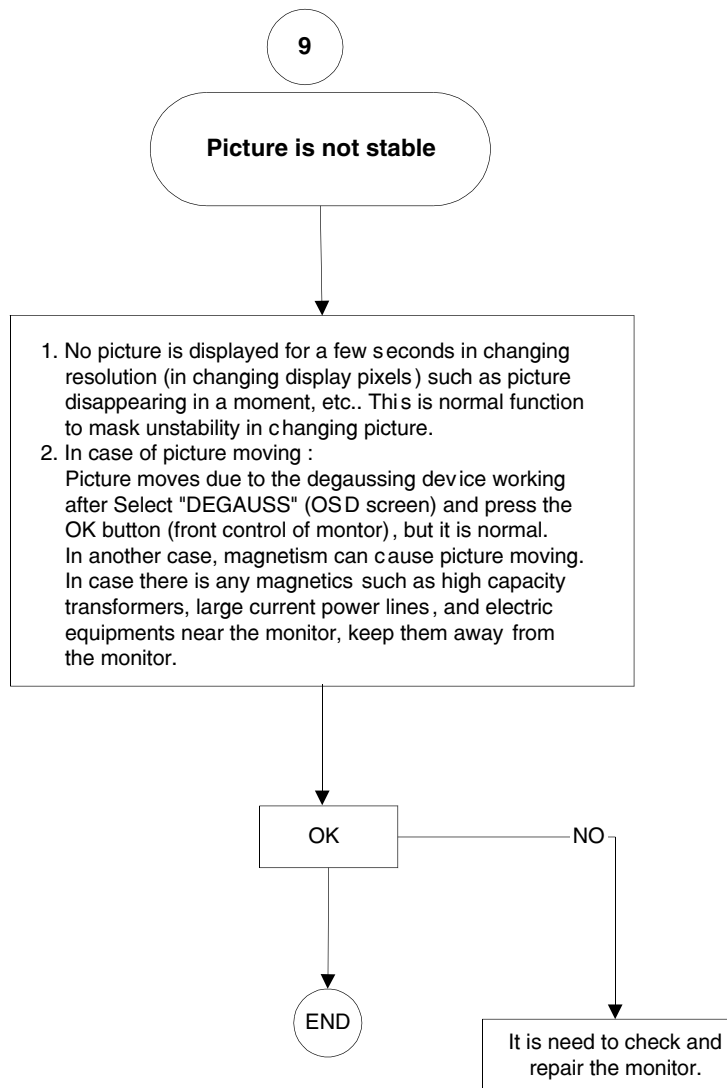


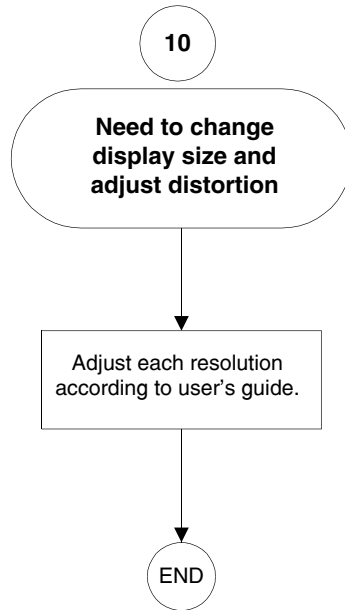
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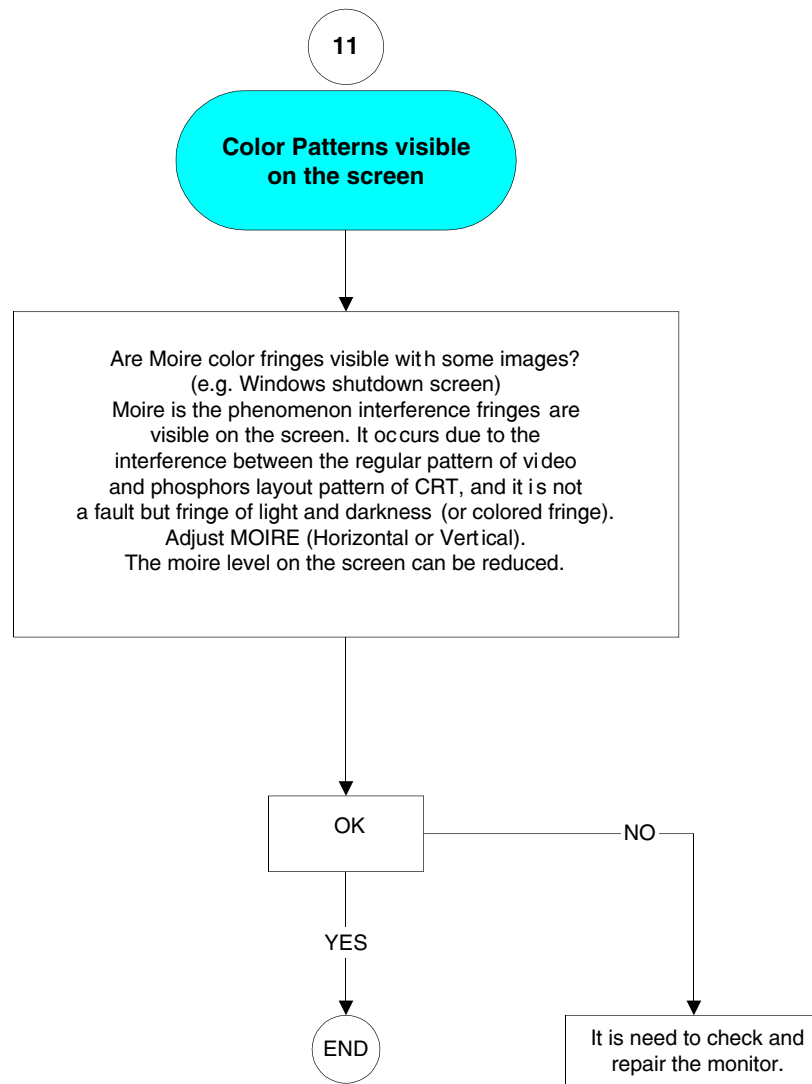
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MOIRE

: Moiré is a natural effect or phenomenon of CRT that has the appearance of a wavy pattern which is repetitive and superimposed on the screen as ripple images. , not just Philips monitor had. These are a few suggestions to help for reducing or minimizing the effect.

- Some monitors have a Moiré cancellation feature, activate it to the on position or adjust the Moire cancellation function via the OSD manipulation on the monitor.
- Change resolution to the recommended standard for the specific monitor size.
- Change Window viewing pattern/scheme to a pattern where the moiré is less visible.
- Change horizontal and vertical size to optimize the reduction of the moiré effect.

OK

NO

YES

END

It is need to check and repair the monitor.

MOIRÉ

A fringe pattern arising from the interference between two superimposed line patterns. In a monitor it comes from the interference between the shadow mask pattern and the video information (video moiré), and between the shadow mask and the horizontal line pattern (scan moiré). It shows itself as wavy patterns on the screen and becomes more noticeable as monitor resolution increases. Since the video signals varies continuously, little can be done about video moiré. Scan moiré depends on the horizontal scanning frequency and can be alleviated by appropriate choice of this frequency. Autoscans (MultiSync) monitors, however, which operate over a range of scanning frequencies, may sometimes exhibit moiré in certain video modes.

Several sources can act as a catalyzer to produce Moire. They are : The CRT, shadow mask, the electron beam spot size, the resolution, video patterns, and the horizontal and vertical size.

**OSD MAIN MENU
LOCKED**



Press and hold the OSD menu key for about 10 seconds ,
until picture displays "OSD MAIN MENU UNLOCKED"



OK

NO

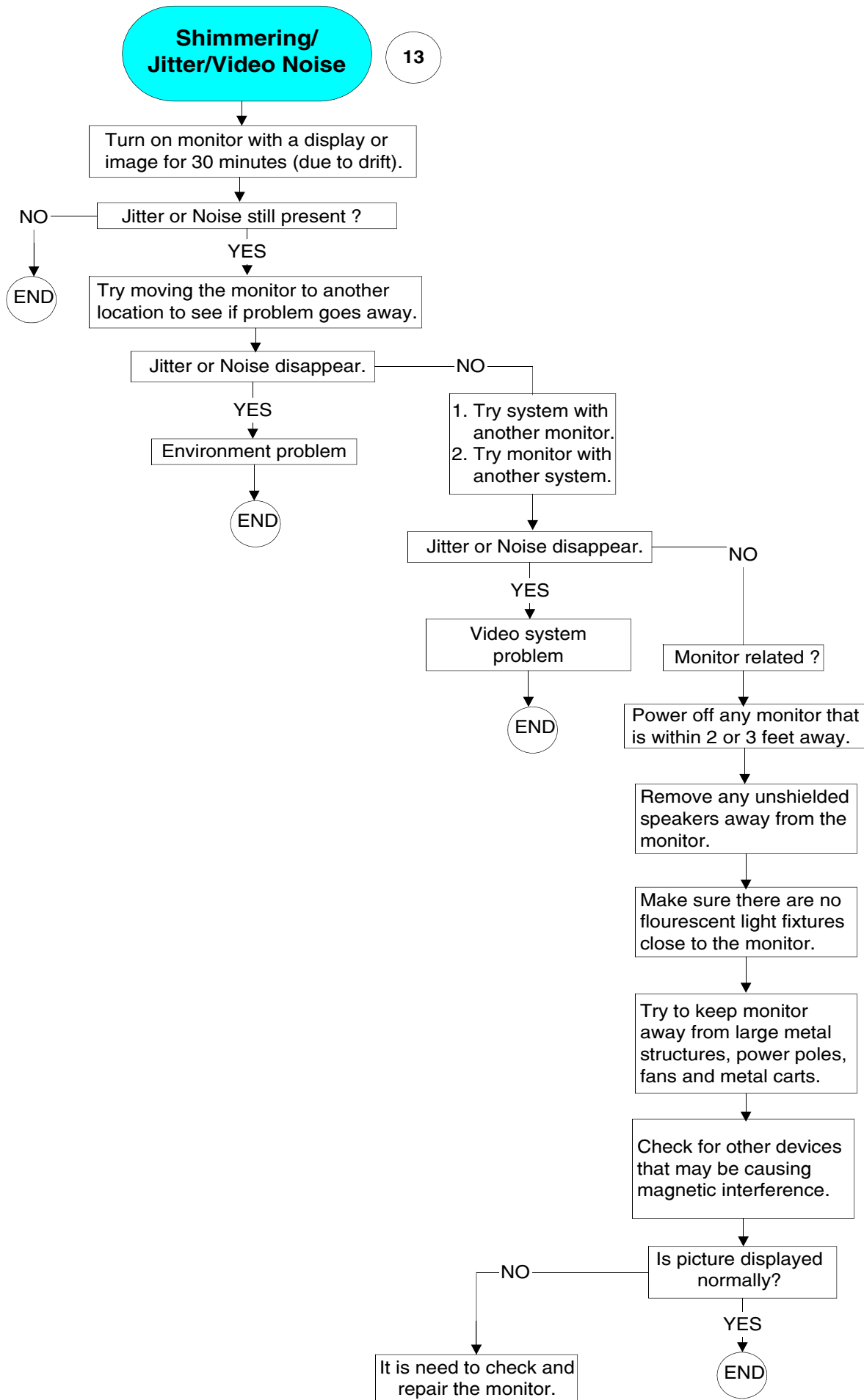
YES

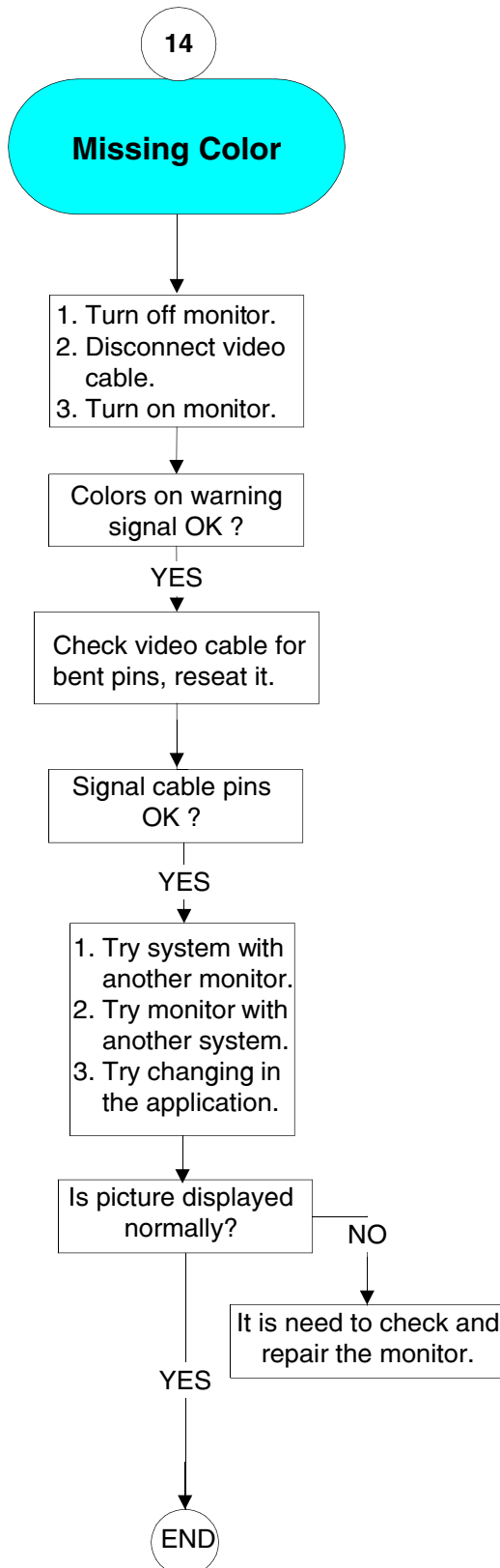
END

Please contact your
dealer/reseller for
more information.

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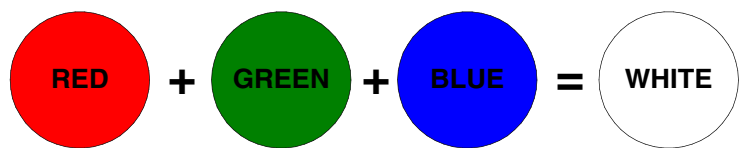
Go to cover page



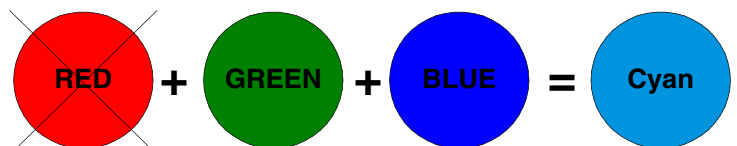


There are 2 easy ways to determine the Missing color problem.

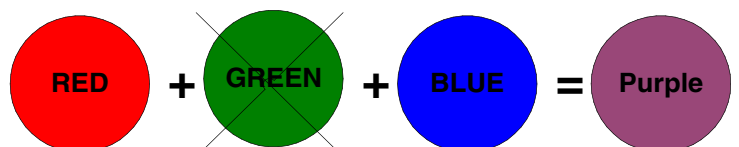
1. View an image that is supposed to be "White".
If one of the colors (RGB) is not functioning.
White can not be produced.
2. View an image that supposed to contain Red, Green and Blue.
Color problems will be apparent when one or more of these
colors can not be displayed.



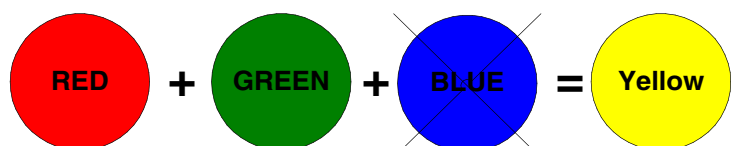
Cyan Color means that the red gun is missing.



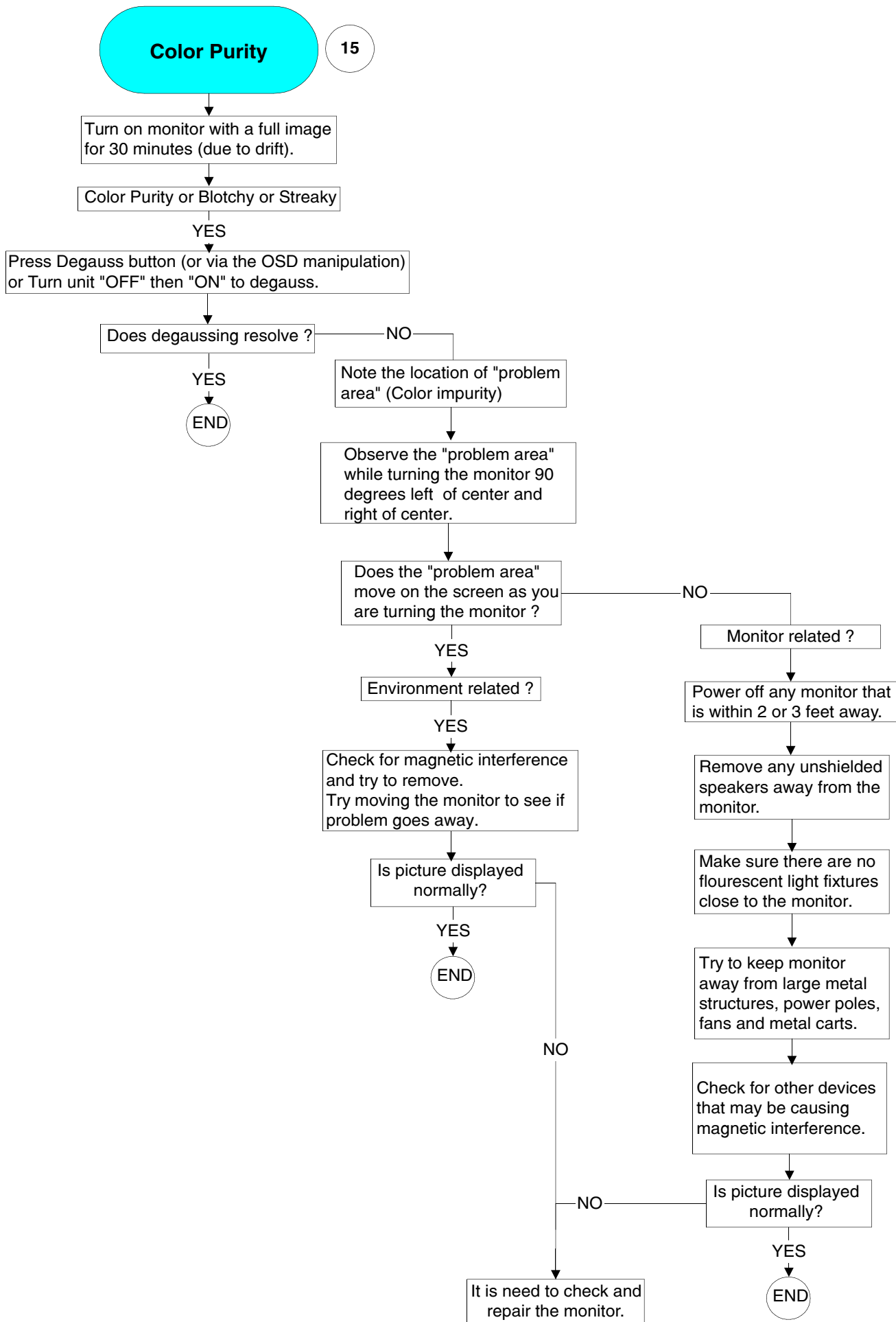
Magenta or Purple Color means that the green gun is missing.

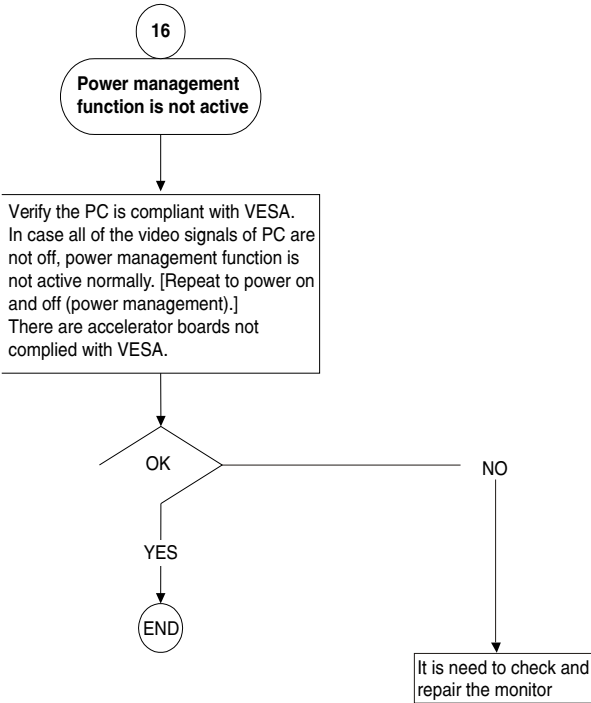


Yellow Color means that the blue gun is missing.

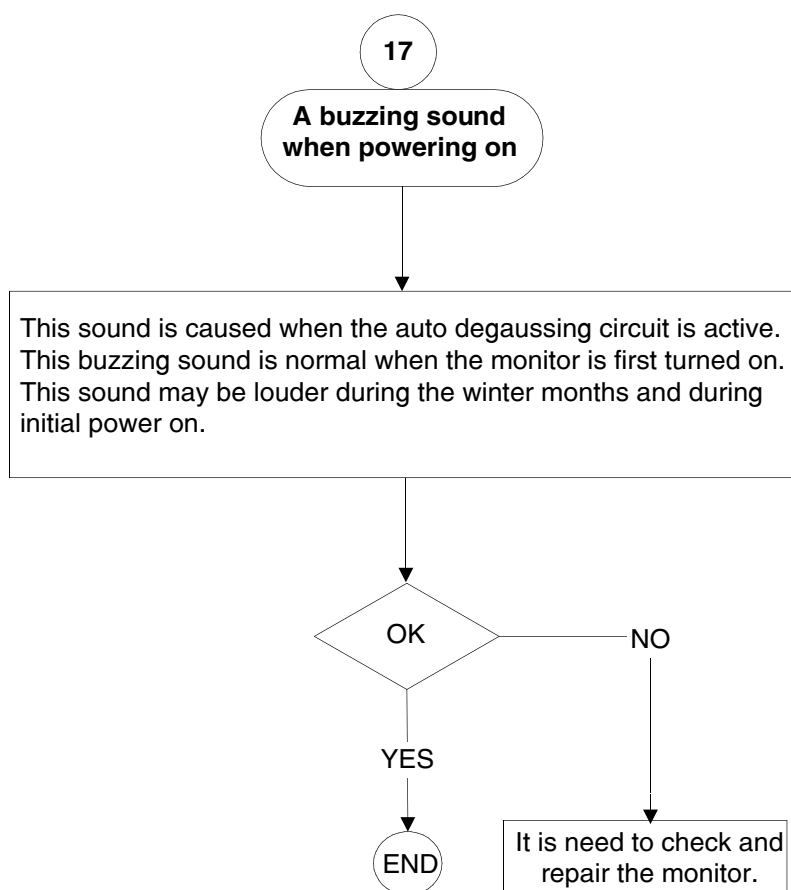


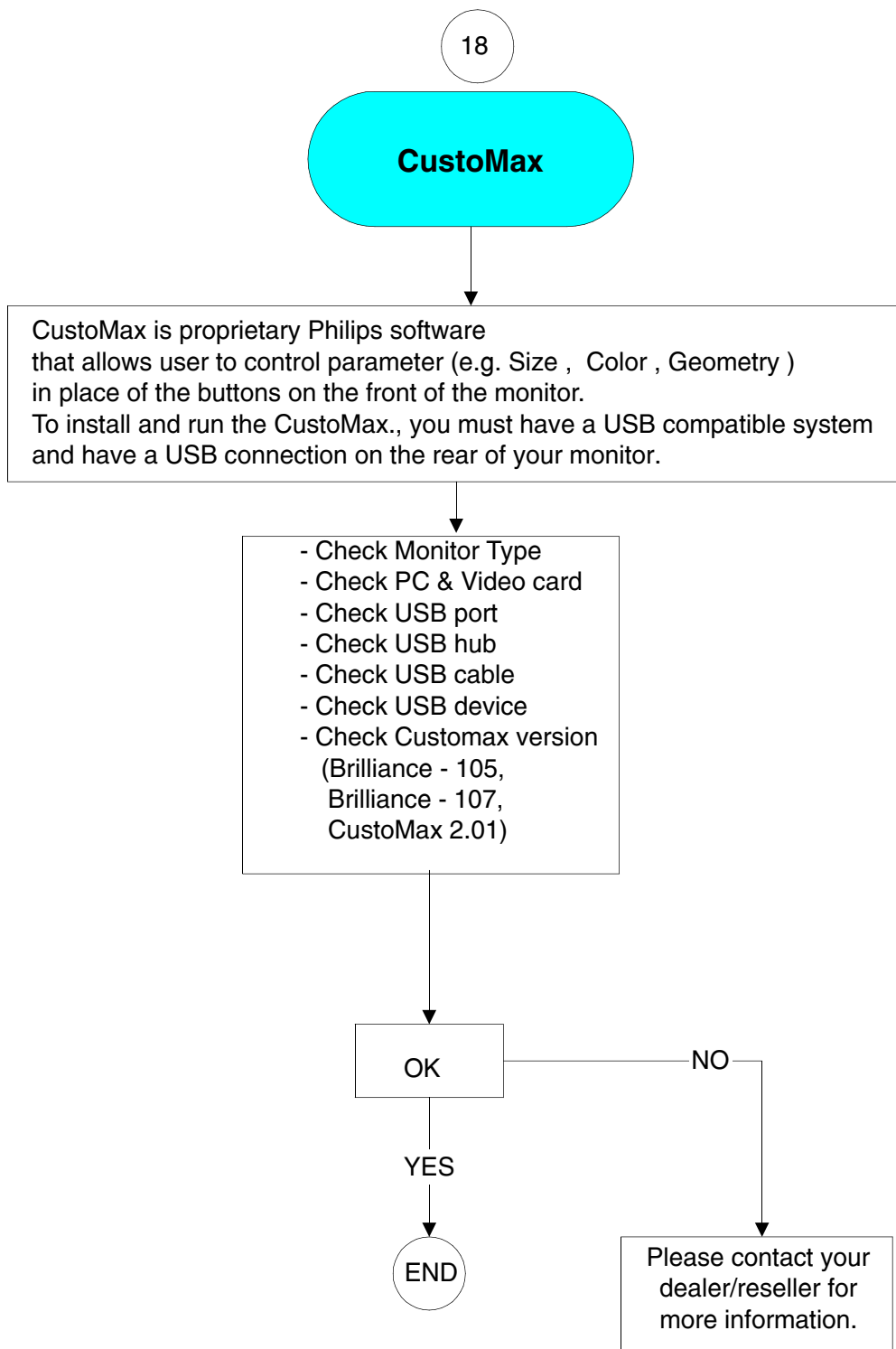
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**Features:**

CustoMax for monitors is a software program for adjusting the screen geometry, color quality, image quality and hardware and software settings of your display.

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Colorific

Colorific is a color matching software that helps user match the monitor and printer to fulfill the requirement of WYSIWYG (what you see is what you get) . The Colorific software is the property of Sonnetech ,Ltd.
Only certain Philips monitor Models are equipped with the software.
If you have special interesting , please hit the web site "<http://www.colorific.com>".

The compatibility problem with Windows :

Colorific 4.2 or below issued before Sept 98 cannot run in Win98.

Colorific 4.24 (CM5800) manufactured before May 1998 and issued by Feb 98 can support Win 98.

Colorific4.3 can fully support in Win 98

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USB

USB = Universal Serial Bus

USB automatically determines resources (like driver software and bus bandwidth) required by peripherals.

USB makes necessary resources available without user intervention.

It is designed to meet Microsoft Plug and Play (PnP) specification, meaning users can install, and hot-swap devices without long installation procedures and reboots.

It allows 127 devices to run at the same time on the bus.

USB bus provides two types of data transfer speed -- 1.5Mbps and 12Mbps and it can provide a maximum of 500mA of current to devices attached on the bus.

Universal means all peripherals share the same connector.

Serial simply defines devices can daisy chain together.

Universal Serial Bus 1.1, the de facto external connectivity standard for Mac and PC, has picked up the speed after its slow adoption by peripheral manufacturers, users and PC OEMs.

USB 2.0 :

Drafted by Compaq, Hewlett Packard, Intel, Lucent, Microsoft, NEC and Philips,

USB Specification version 2.0 will increase device data throughput up to 480Mbps, 40 times faster than USB 1.1 devices.

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