

Service
Service
Service



EPA POLLUTION PREVENTER

DDC/Power saving/TCO
User-friendliness Control



107S2 CM2300



107S21/97C (COCA+)

Service Manual

Horizontal frequencies
30 - 71 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



PHILIPS

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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 Data

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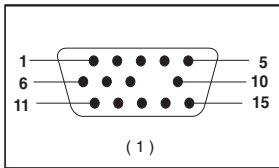
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Technical Specification*

CRT
Size and deflection :17 inch/41cm,90° defection angle
Dot pitch/Grille pitch : 0.27mm
Horizontal pitch : 0.24mm
Tube type : Shadow mask,flat square, high contrast, antiglare, anti-static, anti-reflection, light transmission 47%
Phosphor : P22
Recommended display area : 12.0"x9.0"/306 x 230 mm
Maximum display area : 12.9"x9.7"/327 x 245 mm
Scanning
Horizontal scanning : 30 - 71 KHz
Vertical scanning : 50 - 160 Hz
Video
Video dot rate : 108 Mhz
Input impedance
-Video : 75 Ohm
- Sync : 2.2 kOhm
Input signal levels : 0.7Vpp
Separate sync

Sync input signal : Composite sync
Sync polarities : Positive and negative
White Color Temperature
Chromaticity CIE coordinates:
at 9300 °k x = 0.283 y = 0.297
at 6500 °k x = 0.313 y = 0.329
Power Management
Complies with EPA Energy Star and NUTEK specifications
Typical operation : 75 W
Suspend/Standby Mode : < 8 W
Off Mode : < 2.5 W
Physical Specifications
Dimensions : 399x373x408mm(excluding base)
399x410x408mm(including base)
Net weight : 15 Kg
Power supply : 90 - 264 VAC, 50/60HZ
Power consumption : 105 Watt
Operating condition
Temperature : 0 °C - 40 °C
Relative Humidity : 5 % - 95 %
Storage condition
Temperature : - 25 °C - 65 °C
Relative Humidity : 5 % - 95 %

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 present
2	Green video input	10	Ground
3	Blue video input	11	Ground
4	Ground	12	Serial data line(SDA)
5	Self test	13	H.Sync
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 mode:

This monitor has 10 factory-preset modes as indicated in the following table :

	Mode	Resolution	Frequen		Sync polarity	
			H(KHz)	V(Hz)	H	H
M01	VGA	720 x 400	31.5	70	-	+
M02	VGA	640 x 480	31.5	60	-	-
M03	VGA	640 x 480	43.3	85	-	-
M04	SVGA	800 x 600	46.9	75	+	+
M05	SVGA	800 x 600	53.7	85	+	+
M06	EVGA	1024 x 768	60.0	75	+	+
M07	EVGA	1024 x 768	68.7	85	+	+
M08		1280 x 1024	64.0	60	+	+

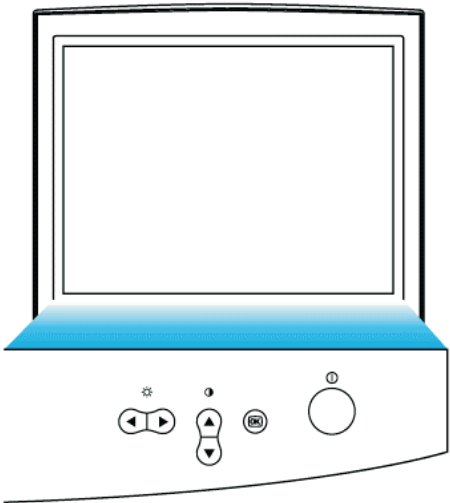
Automatic Power Saving

If you have VESA's DPMS compliance display card or software installed in your PC, the monitor can automatically reduce is power consumption when not in use. 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	< 100 W	0 %	Green
Stand-by	Blanked	No	Yes	< 15 W	>85 %	Yellow
Suspend	Blanked	Yes	No	< 15 W	>85 %	Yellow
OFF	Blanked	No	No	< 5 W	>95 %	Amber
This monitor is Environmental Protection Agency (EPA) Energy Star compliant and TCO'99 power management compatible. *Zero power consumption in OFF mode can only be achieved by disconnecting the mains cable from the monitor.  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.						

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Front View



On-Screen Display

[Description of the On-Screen Display](#) [The OSD Tree](#) [The OSD Controls](#)

Description of the On Screen Display

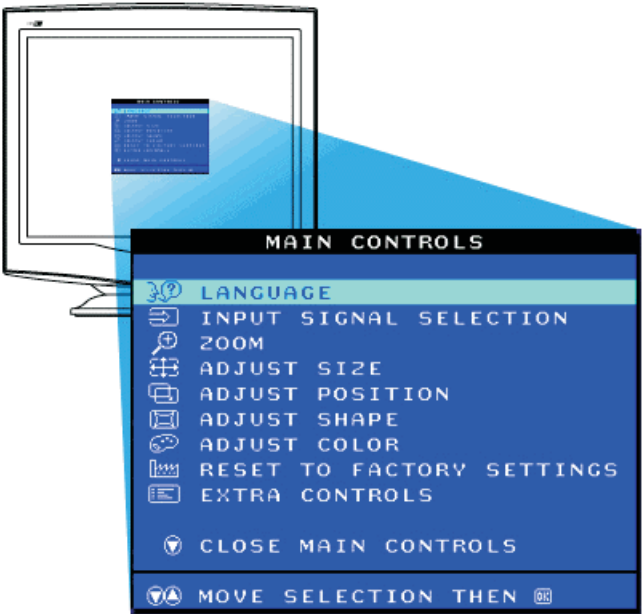
What is the On-Screen Display?

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.

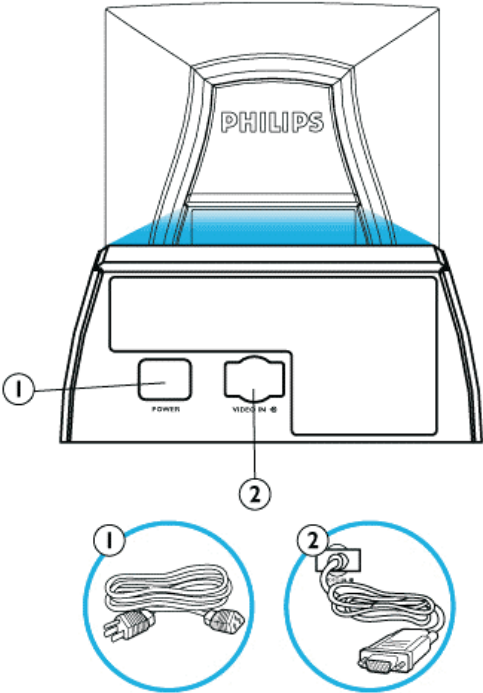
Basic and simple instruction on the control keys.

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.

-  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 both the LEFT and RIGHT arrows are pressed at the same time, then 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 V



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.

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.

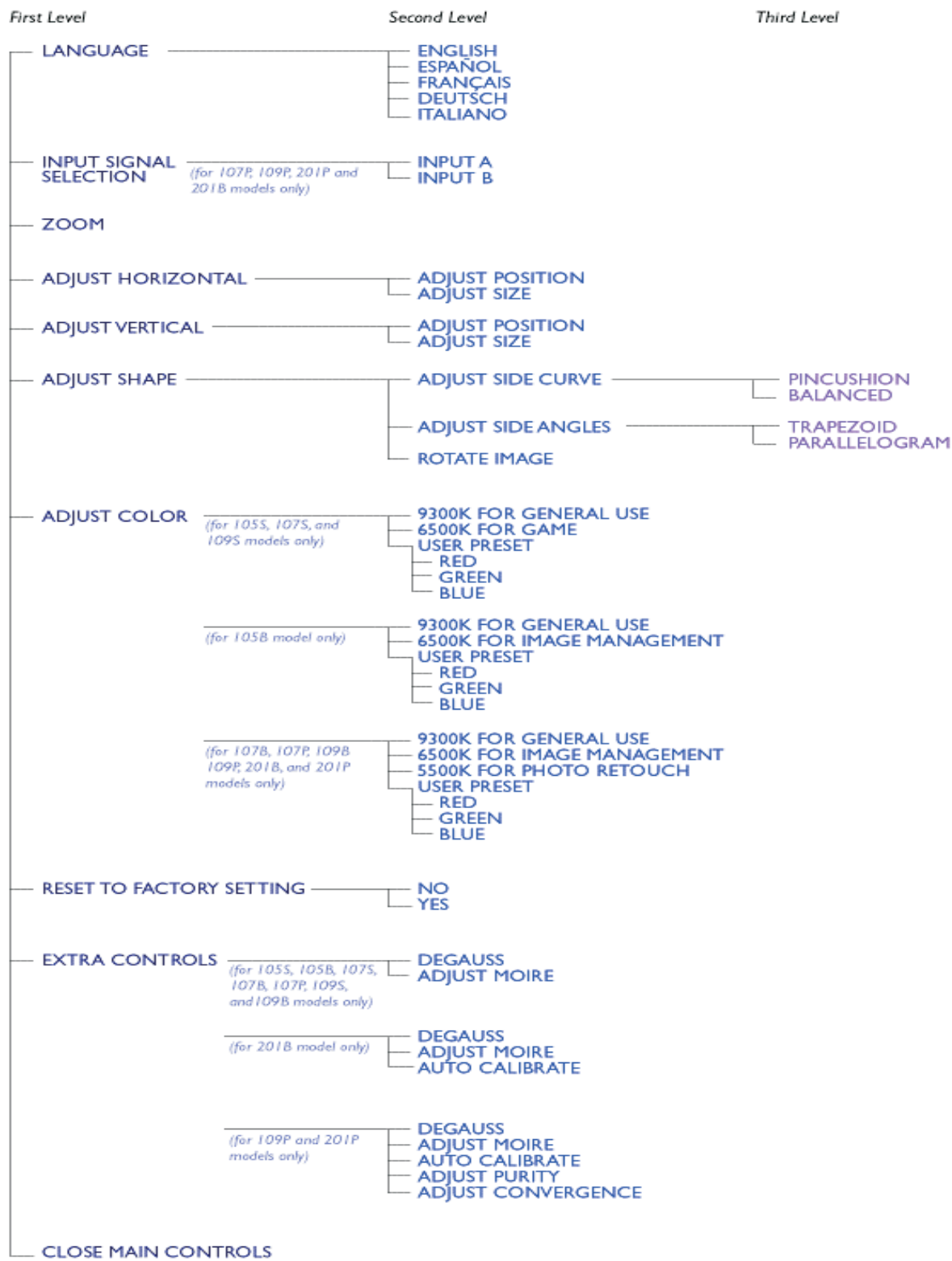
Back

Forward

OSD menu tree atructure

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.



* Specifications are subject to change without prior notice.

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.



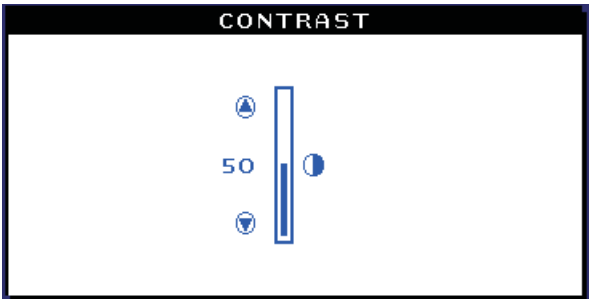
- 2) Press the or button to adjust the brightness.
3) When the brightness is adjusted to the level desired, stop pressing the or button and after three seconds the BRIGHTNESS window will disappear with the new adjustment saved.

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

OSD Adjustments

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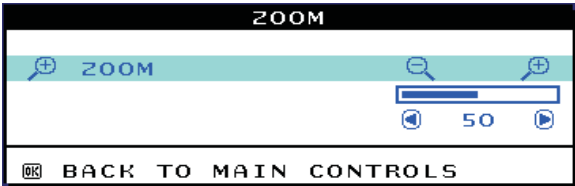
ZOOM

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

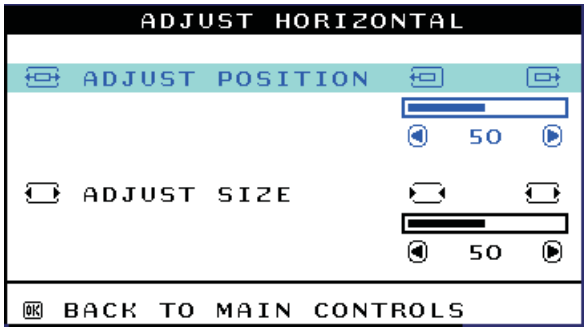
ADJUST HORIZONTAL

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.

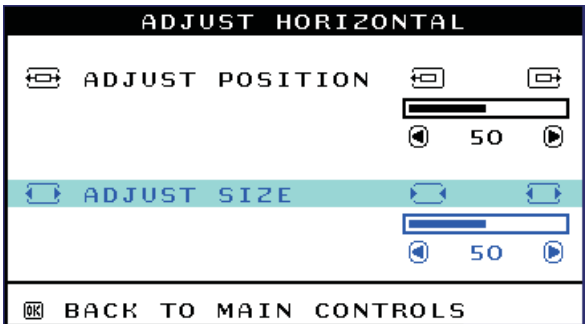
- 1) Press the  button on the monitor. The MAIN CONTROLS window appears.
- 2) Press the  button until ADJUST HORIZONTAL is highlighted.



- 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.

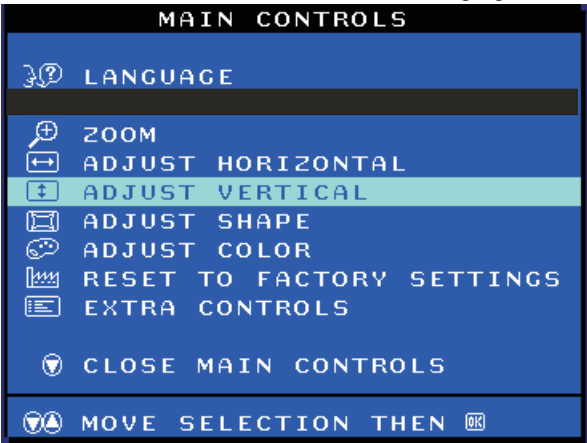
Back

Forward

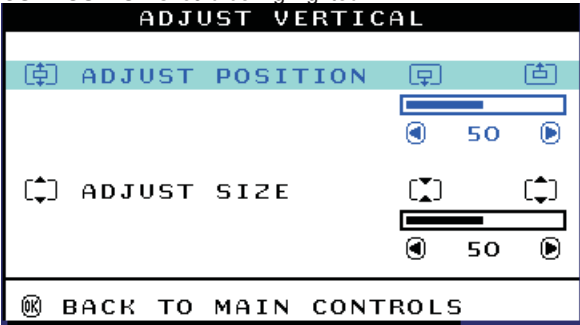
OSD Adjustments

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2) Press the button until ADJUST VERTICAL is highlighted.

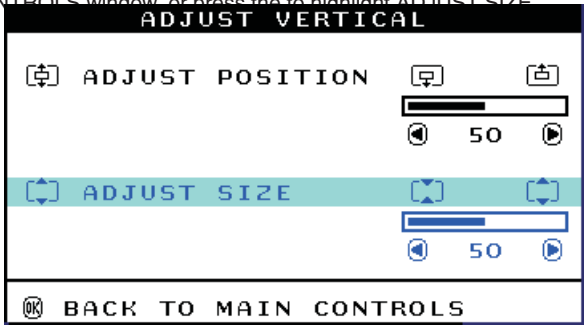


3) Press the button. The ADJUST VERTICAL window appears. ADJUST POSITION should be highlighted.



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 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

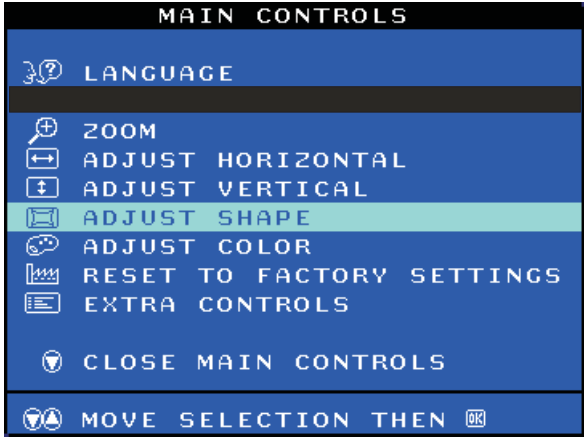
ADJUST SHAPE

ADJUST SIDE CURVE

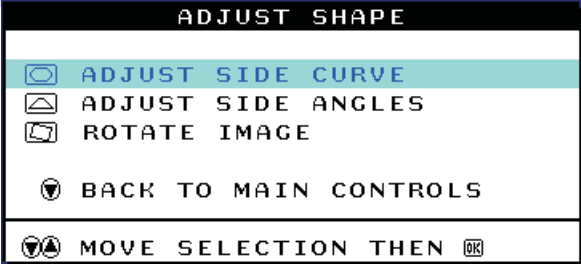
ADJUST SIDE CURVE under ADJUST SHAPE allows you to adjust two of the five preset options. These two options are PINCUSHION and BALANCED pincushion. Note: use these features only when the picture is not square.

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

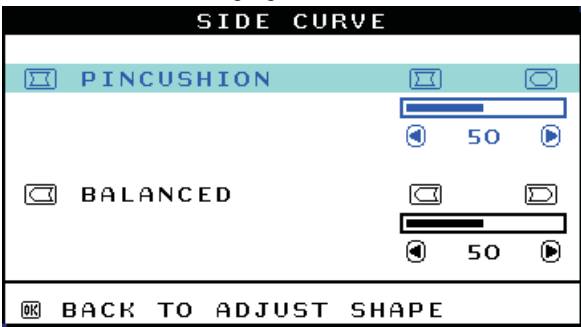
2) Press the button until ADJUST SHAPE is highlighted.



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

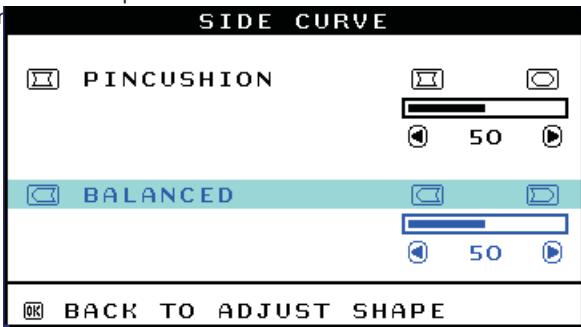


4) Press the button. The SIDE CURVE window appears. PINCUSHION should be highlighted.



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.

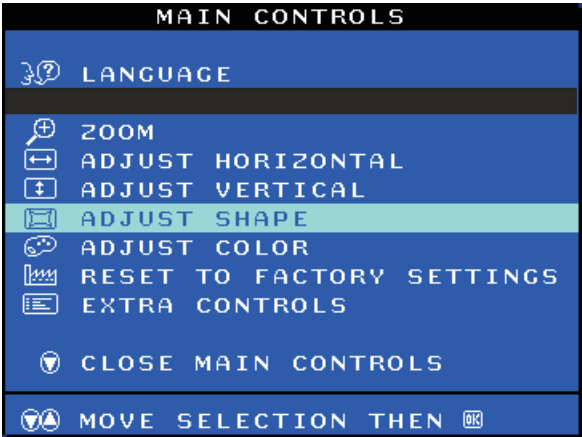
9) Press the button to return to the MAIN CONTROLS window, or

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

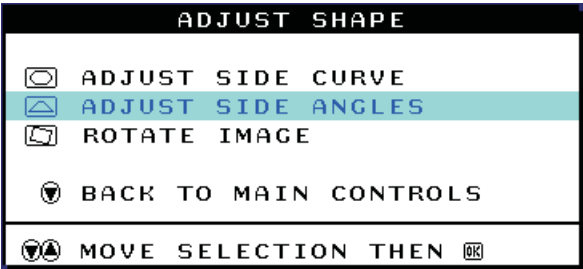
ADJUST SIDE ANGLES

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.

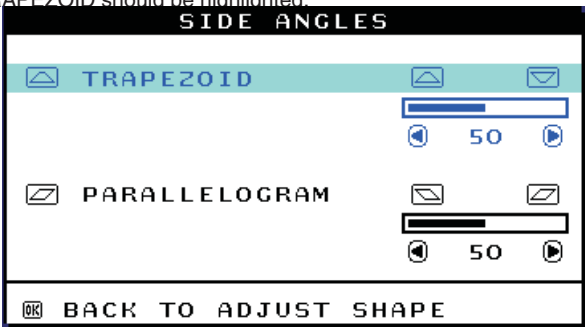
- 1) Press the button on the monitor. The MAIN CONTROLS window appears.
- 2) Press the button until ADJUST SHAPE is highlighted.



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

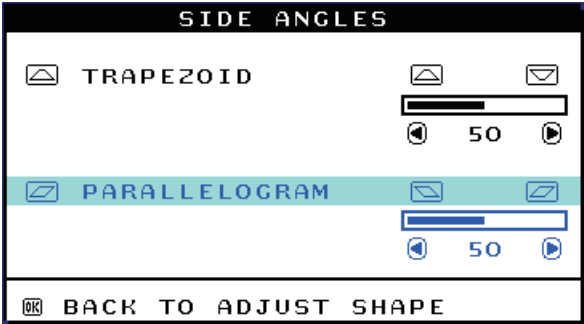


- 4) Press the button to highlight ADJUST SIDE ANGLES.
- 5) Press the button. The SIDE ANGLES window appears. TRAPEZOID should be highlighted.



- 6) To adjust the trapezoid, press the or button. SHAPE window.

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



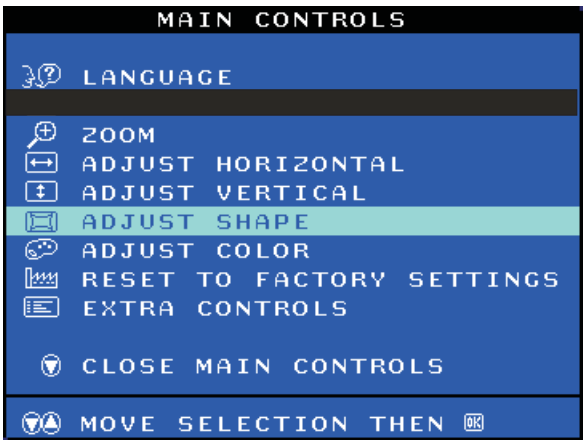
- 8) To adjust the parallelogram, press the or button.
- 9) When the parallelogram is adjusted, press the button to return to the ADJUST SHAPE window. BACK TO MAIN WINDOWS will be highlighted.
- 10) Press the button to return to the MAIN CONTROLS window, or press the button until ROTATE IMAGE is highlighted.

Smart Help After returning to MAIN CONTROLS . . .
...to continue to ROTATE IMAGE, start with step 5 under ROTATE IMAGE and follow the directions.

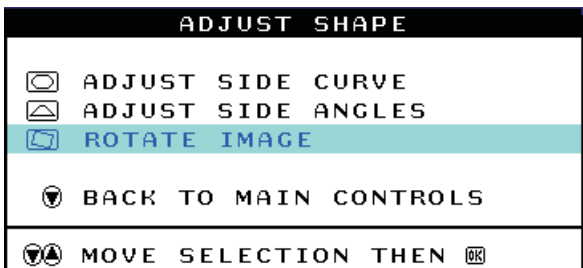
...to exit completely, press the button twice.
...to adjust only the PARALLELOGRAM, follow steps 1 - 4 above, then press the button, and follow steps 7 - 9
ROTATE IMAGE (Not available in all models)

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.



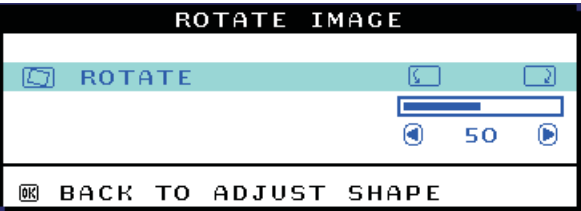
- 3) Press the button. The ADJUST SHAPE window appears. ADJUST SIDE CURVE should be highlighted.
- 4) Press the arrow until ROTATE IMAGE is highlighted.



OSD Adjustments (Continued)

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



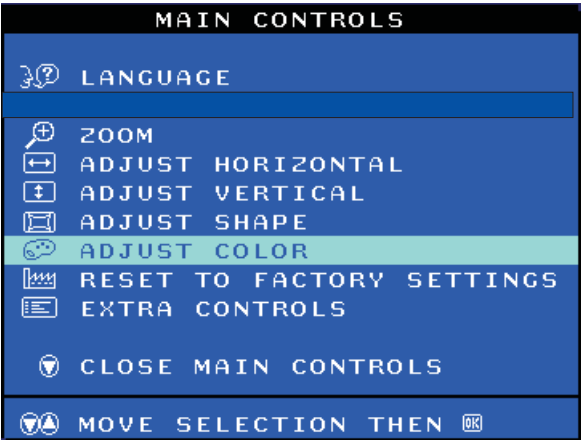
- 6) To adjust the rotation, press the  or  button.
- 7) When the rotation is adjusted, press the  button to return to the ADJUST SHAPE window. BACK TO MAIN CONTROLS should be highlighted.
- 8) Press the  button to return to MAIN CONTROLS.

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.

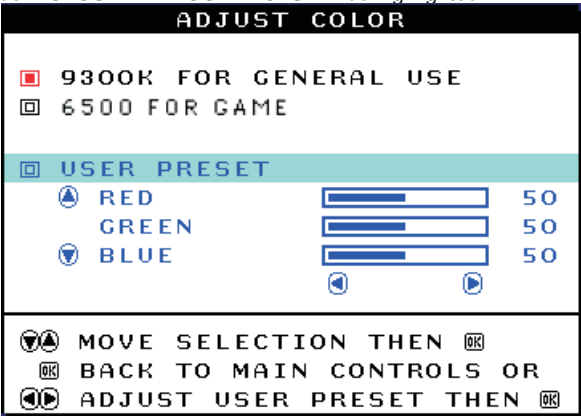


- 3) Press the  button. The ADJUST COLOR window appears.



- 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.



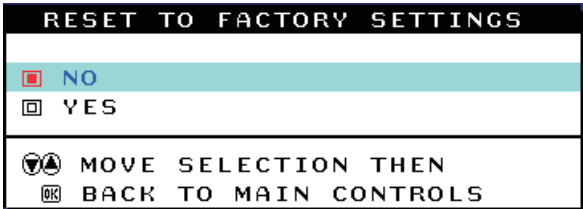
- 3) Press the  button. The RESET TO FACTORY SETTINGS window appears.

OSD Adjustments (Continued)

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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

DEGAUSS

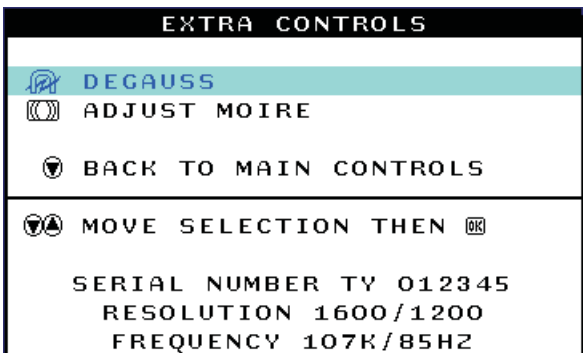
EXTRA CONTROLS is a set of three features, including DEGAUSS. Degaussing removes electromagnetic build up that may distort the color on your screen.

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. DEGAUSS will be highlighted.



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

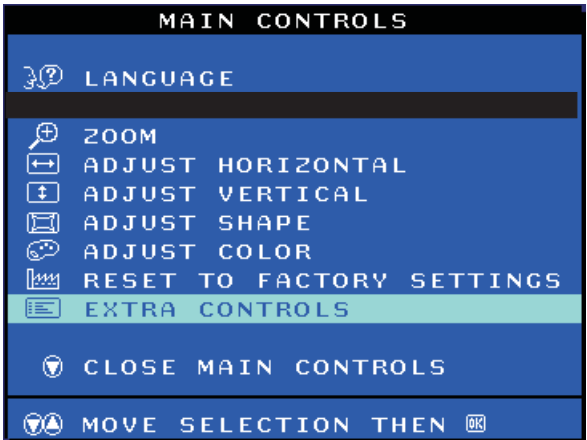
. . . to exit completely, press the button.

ADJUST MOIRE (Not available in all models)

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.

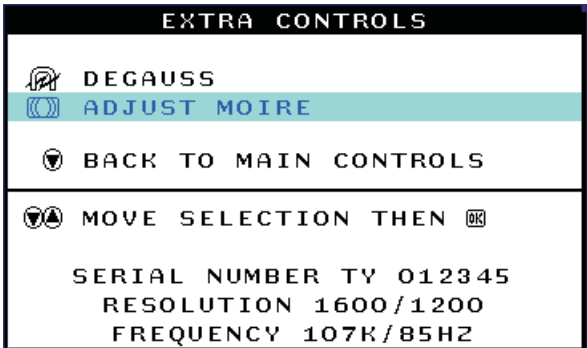
1) Press the button on the monitor. The MAIN CONTROLS window appears.

2) Press the DOWN CURSOR button until EXTRA CONTROLS is highlighted.

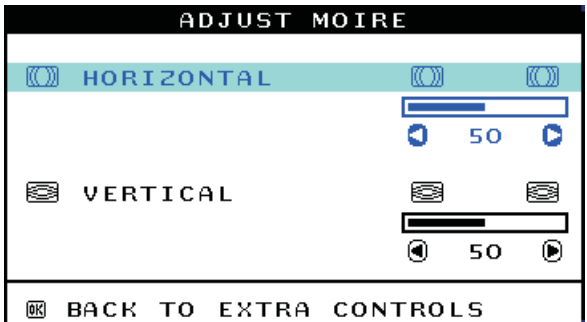


3) Press the button. The EXTRA CONTROLS window appears. DEGAUSS will be highlighted.

4) Press the button until ADJUST MOIRE is highlighted.



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



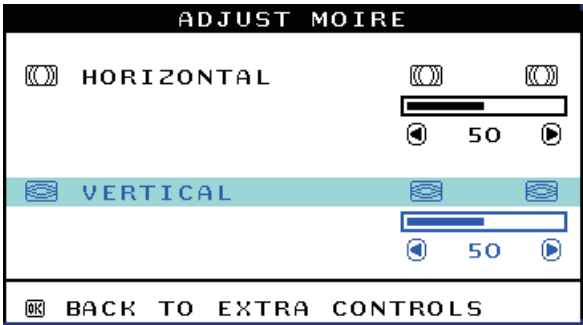
6) To adjust the horizontal moire, press the or button.

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



- 8) To adjust the vertical moire, press the  or  button.
- 9) 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 exit completely, press the  button.

CLOSE MAIN CONTROLS



Warning and Notes

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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.

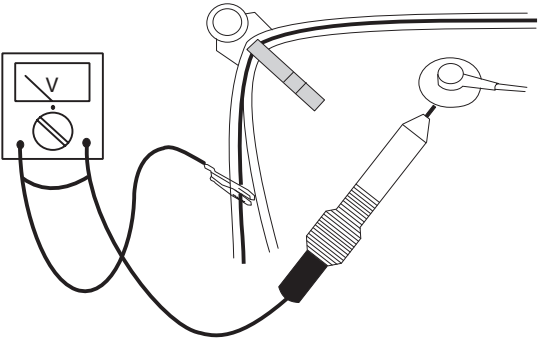


Fig.1

Mechanical Instructions

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0. General

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

1. Remove the rear cover

- Remove right and left lib on the back cover
- Open 4 lids with "-" type screwdriver.
- Remove 4 screws at the bottom cabinet with "+" type screwdriver, refer fig 2.
- Remove out back cover.

2. Video panel

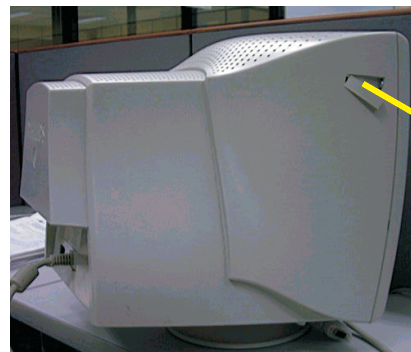
- a. Cutoff all wire cable ties
- b. Remove GRD wire between video shield and CRT rack.
- c. Remove 1 screw between mains board rack and video shield
- d. cutoff 1 cable tie on LOT wire
- e. Remove GRD wire (1604) from video PCB to CRT rack.

3. Main panel

- Disconnect the degaussing coil (1113) from Main panel.
- Remove the video panel from CRT.
- Remove the "screw" of I/F cable from Main panel.
- Disconnect the CRT ground "M312" from Video panel.
- Disconnect the Hi-Pot cap from CRT.
- Disconnect yoke wire from "M401".
- Disconnect cancellation connector (1402).
- Slide the main panel out of bottom tray.
- Connect yoke wire to "M401".
- Connect cancellation connector (1402).
- Place Main panel in service position as shown in Fig.1.
- Mount Video panel again on CRT.
- To connect Hi-Pot cap again.
- To connect "M312" again.



lids



lid

Fig.2

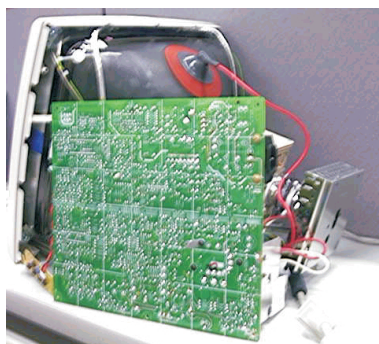
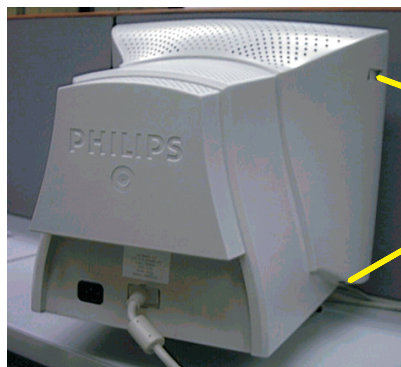
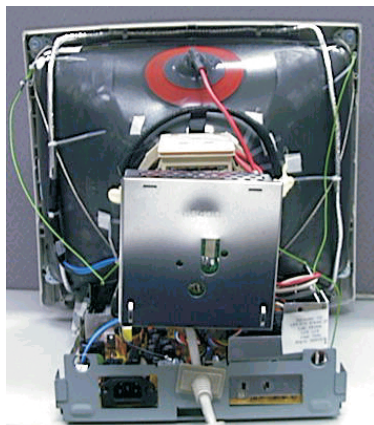


Fig.1



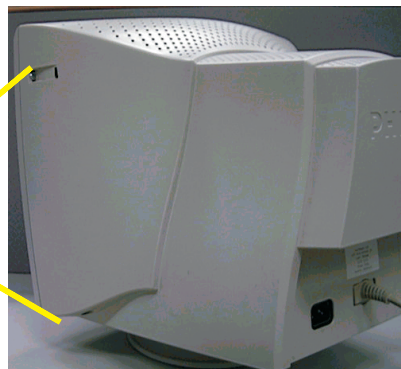
screws

Fig.3



screws

Fig.3



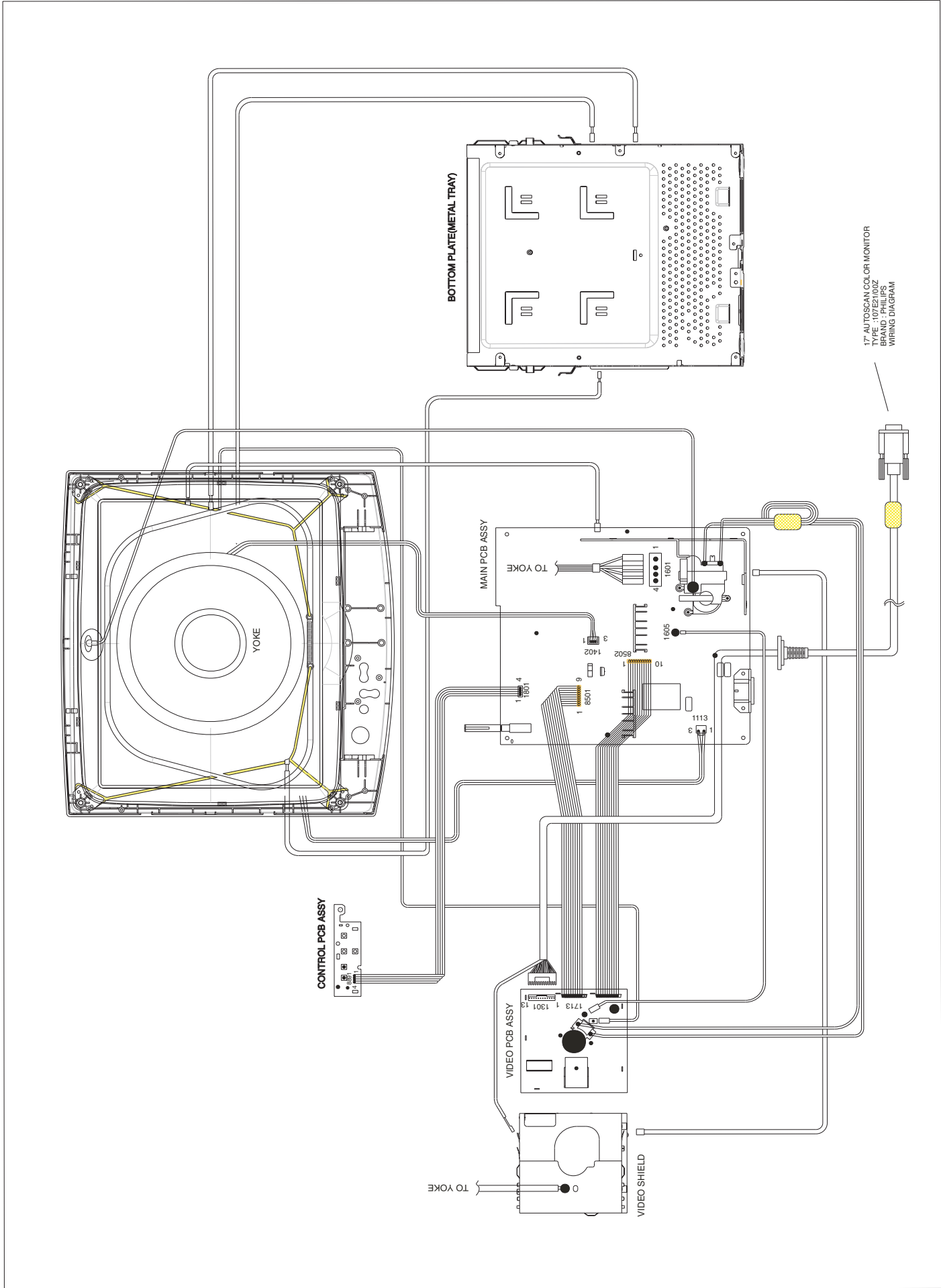
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Wiring Diagram

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EDID log file

Vendor/Product Identification
ID Manufacturer Name : PHL
ID Product Code : E005 (HEX.)
ID Serial Number : 4D2 (HEX.)
Week of Manufacture : 22
Year of Manufacture : 2000
EDID Version, Revision
Version : 1
Revision : 1
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 @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 : 99

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 107S
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
Extension Flag : 0
Check sum : 5A (HEX.)

EDID data (for philips CRT)

0: 00 1: ff 2: ff 3: ff 4: ff 5: ff 6: ff 7: 00
8: 41 9: 0c 10: 05 11: e0 12: d2 13: 04 14: 00 15: 00
16: 16 17: 0a 18: 01 19: 01 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: 0f 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: 67 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: 53 107: 0a 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: 00 121: 20 122: 20 123: 20 124: 20 125: 20 126: 00 127: 5a

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

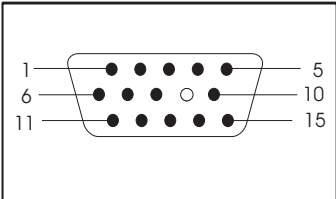
- 1. An i486 (or above) personal computer or compatible.
 - 2. Microsoft operation system Windows 95/98.
 - 3. EDID301.EXE program (3138 106 10103) shown as Fig. 1
 - 4. Software DDC Alignment kits (4822 310 11184) shown as Fig. 2.
- The kit contents: a. Alignment box x1
b. Printer cable x1
c. D-Sub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

Note: The EDID301.EXE (Release Version 1.54, 2000.04.25)is a windows-based program, which cannot be run in MS-DOS.

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	Logic ground
3	Blue video input	11	Identification output - Connected to pin 10
4	Identification output - Connected to pin 10	12	Serial data line(SDA)
5	Ground	13	H.Sync
6	Red video ground	14	V.Sync(VCLK for DDC)
7	Green video ground	15	Data clock line(SCL)
8	Blue video ground		



Figure 1 Diskette with EDID301.EXE

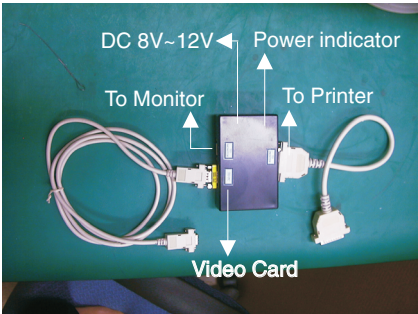


Fig. 2 Alignment Kits

DDC Instructions

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4. Configuration and procedure

Following descriptions are the connection and procedure for Software DDC, the main EEPROM can be re-programmed along with Software DDC 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 running programming software (EDID301.EXE). 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 Fig. A
- Step 3: Run the EDID301.EXE program until the main menu appears. This is for initialize alignment box.

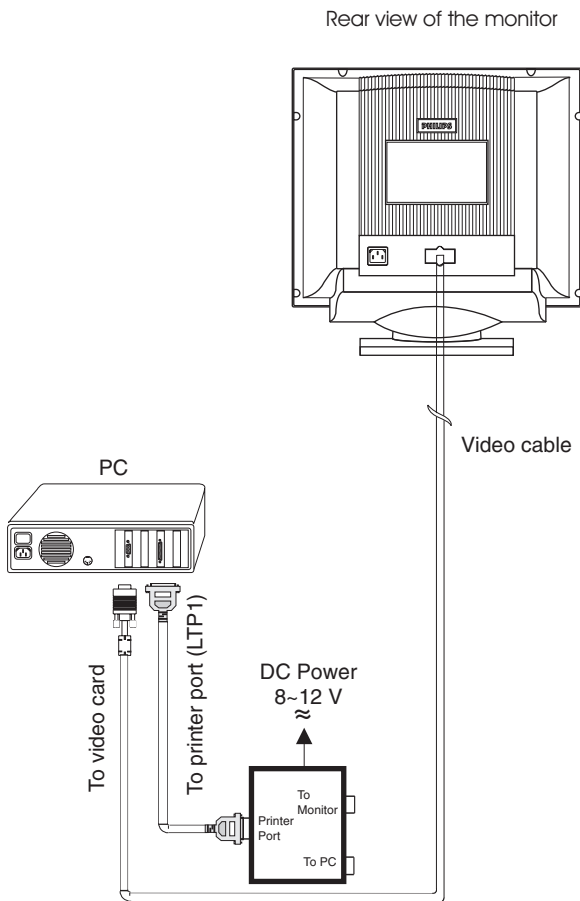


Fig. A

Re-programming Software DDC

- Step 1: After initialize alignment box, connecting all cables and box as Fig. 3
- Step 2: Follow the steps on DDC re-programming instructions to starting re-programming.

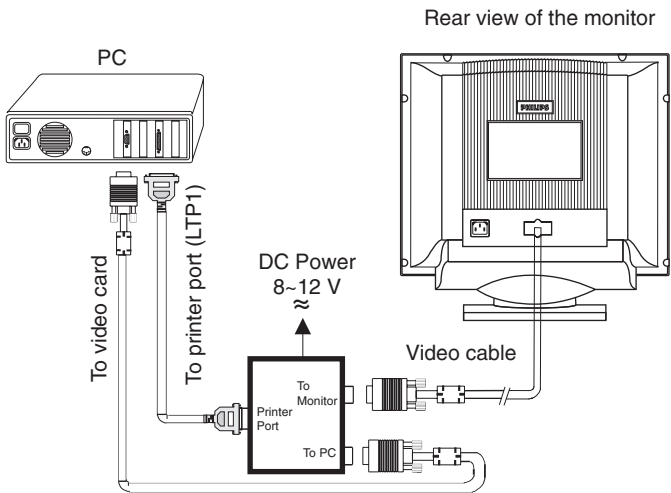
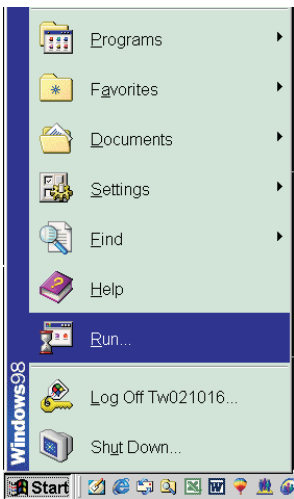


Fig. 3

5. DDC re-programming instructions

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.



- 4. 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).

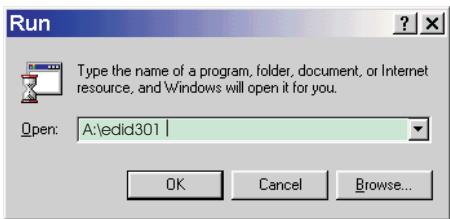


Fig. 5

Back

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5. Click  button. The main menu appears (as shown on Fig. 6).

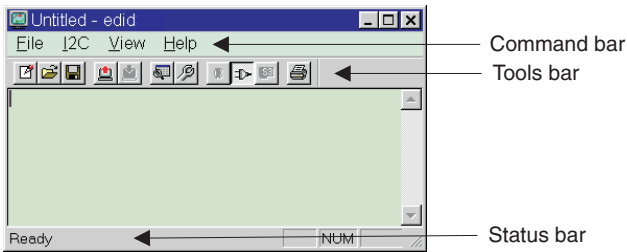


Fig. 6

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



Loading DDC data from monitor

1. Click  icon on the tools bar to bring up the Configuration Setup windows as Fig.7
2. Select the DDC2B as the communication channel.
3. Enable Factory memory data write function and fill in page address "FA" to the block.
- 4.. Click  button to confirm your selection.

Note: The Factory memory data write function will allow EDID301 to rewrite the serial numbers of Software DDC data in main EEPROM.

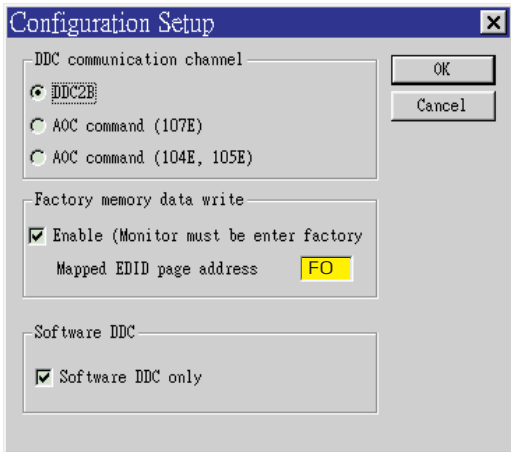
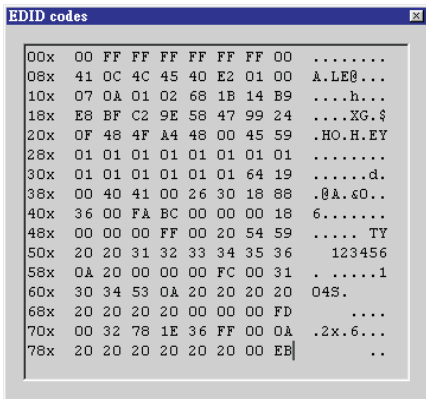


Fig. 7

4. Click  icon to read DDC EDID data from monitor. The EDID codes will display on screen as following. (The EDID codes are dependent on the model.)



Note: 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 (Fig. 8). Please confirm following steps to avoid this message.

1. The data structure of EDID was incorrect.
2. Software DDC Data 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.
5. Software DDC only is disable.

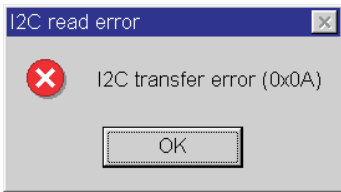
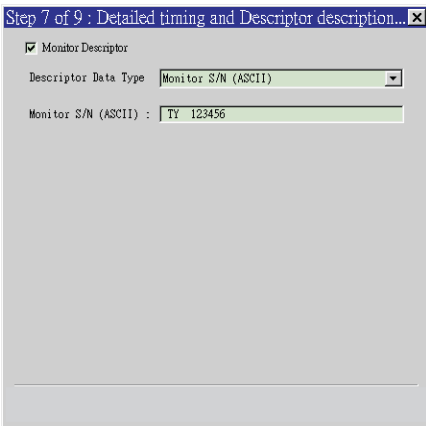


Fig. 8

Modify DDC data (Serial No.)

1. Click  icon on the tool bar.
2. Click  till the Step 7 of 9 window appears.
3. Type the new Serial No. (for example, TY 123456).
4. Click  till the last step window appears, then click  to exit the Step window.



DDC Instructions

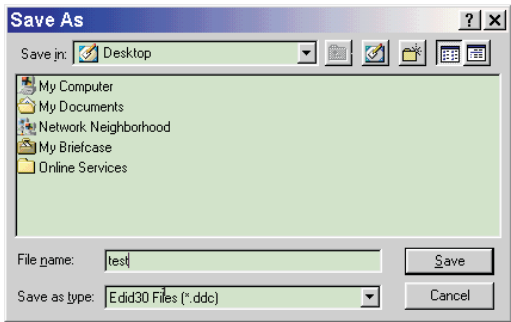
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Write DDC data to monitor

- 1. Click icon from the tools bar to starting rewrite DDC data.
- 2. Click icon for confirmation.

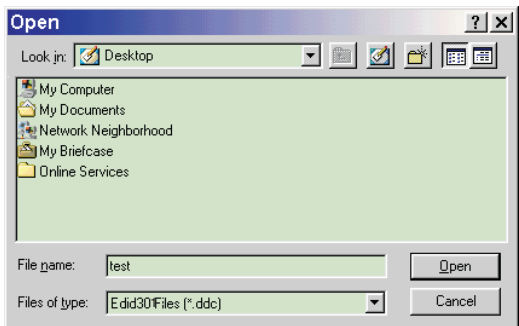
Save DDC data as a file
Sometimes, you maybe need to save DDC data as a text file for using on other DDC chip. To save DDC data, follow the steps below:

- 1. Click icon on the tools bar and type a file name you like. The file format is ddc type which can be open by Microsoft WordPad.
- 2. Click Save button.



Load DDC data from file

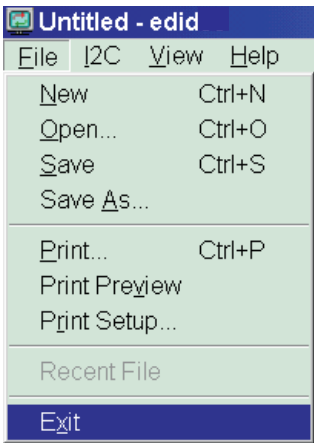
- 1. Click icon from the tools bar.
- 2. Select the file you want to open.
- 3. Click Open Button.



- 4. Now you can re-programming DDC data which you just loaded from a file, please be confirmed that model and serial number are correct and match with the monitor you are trying to re-write.

Exit DDC program

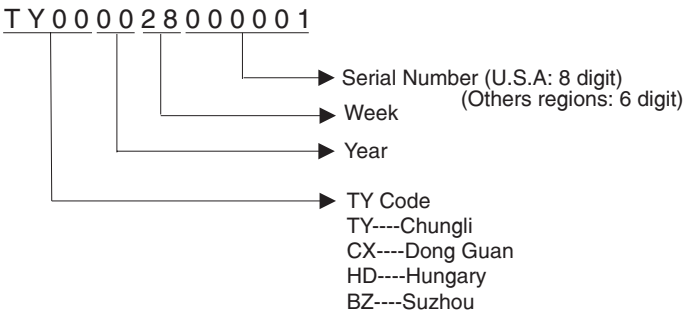
- 1. Click file command on the command bar then select Exit.



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Definition of Serial Number



Electrical Adjustments

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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 43.0 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 48.0 kHz/72 Hz
640 x 350 37.8 kHz/85 Hz 800 x 600 64.0 kHz/100 Hz
640 x 480 37.5 kHz/75 Hz 832 x 624 49.7 kHz/75 Hz
640 x 480 37.8 kHz/72 Hz 1024 x 768 48.3 kHz/60 Hz
640 x 480 50.5 kHz/100 Hz 1024 x 768 56.5 kHz/70 Hz
720 x 400 38.0 kHz/85 Hz 1152 x 864 67.5 kHz/75 Hz
800 x 600 37.90kHz/60Hz 1280 x 960 60.0 kHz/60 Hz

0.2 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.

0.3 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

1. B+ supply voltage (3145) 83Vdc

- Apply a video signal in the 640 x 480 with 31.5 kHz/60Hz mode.
- Select the "cross-hatch" pattern.
- Set the brightness control and the contrast control to the minimum position.
- Pre-set trimming potentiometer 3145(+) and 3561(EHT) in mid-position.
- Set Vg2 (screen) to fully Counter-clockwise (zero beamcurrent).
- Connect a dc voltmeter between the joint of capacitor 2151 and ground (common ground).
- Set the B+ trimming potentiometer 3145 so that the reading on the dc voltmeter is 83 V +/- 0.2 Vdc.

2. High-voltage EHT (3561)

- Apply a video signal in the 640 x 480 with 31.5 kHz/60Hz mode.
- Select the "cross-hatch" pattern.
- Set the brightness control and the contrast control to the minimum position.
- Turn off the power.
- Connect a dc voltmeter between the joint of capacitor c2601 and ground (common ground).
- Turn on the power.
- Set the EHT trimming potentiometer 3561 so that the reading on the dc voltmeter is 66.0V+/-0.2V(for PHL tube) or 67.0V+/- 0.2V (for CPT tube)

3. Monitor the following auxiliary voltages.

SOURCE ACROSS 7114 Pin and GRN	+5 V	+/- 0.25 VDC
SOURCE ACROSS C2155	-6.1 V	+/- 0.3 VDC.
SOURCE ACROSS C2141	+8.0 V	+/- 0.4 VDC.
SOURCE ACROSS C2153	+13.1V	+/- 1.0 VDC.
SOURCE ACROSS C2154	- 13.1V	+/- 1.0 VDC.
SOURCE ACROSS C2151	+83.0V	+/- 1.0 VDC.
SOURCE ACROSS C2609	- 170 V	+/- 15.0 VDC.
SOURCE ACROSS C2152(+ to Gnd)	+180.0V	+/-2.0 VDC.

4. General conditions for alignment

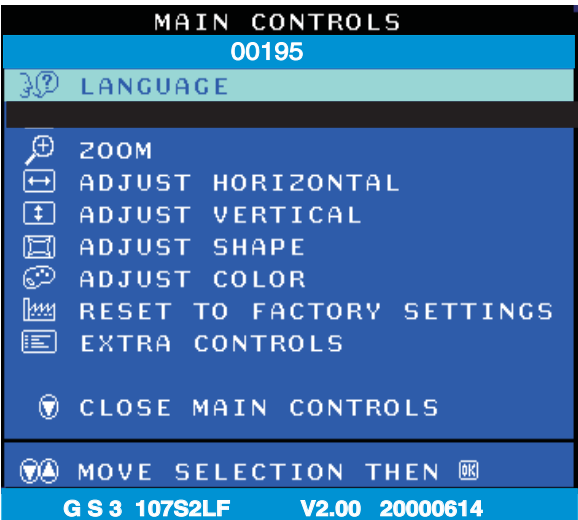
- 4.1 During all alignments, supply a distortion free AC mains voltage to set via an isolating transformer with low internal impedance.
- 4.2 Align in pre-warmed condition, at least 30 minutes warm-up with nominal picture brightness.
- 4.3 Purity, geometry and subsequent alignments should be carried 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:

- 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 " factory mode (below OSD menu)" come on the screen of monitor.



- If OSD menu disappears on the screen of monitor, press " " again (anytime), then the OSD menu comes on the screen again.
- using " " : to select OSD menu.
- using " " : to increase or decrease the setting. (Please also refer to page 8 to page 15 for OSD adjustment)
- Using " " to confirm the selection.

5.1. To leave factory mode

* 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).

Go to cover page

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/Trapezium/pincushion
- 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 straight vertical lines of the left and right edge.
- 6.4.7 Adjust the parallelogram by I²CBUS to get optimum vertical line.
- 6.4.8 Adjust the unbalance pin by I²C BUS to get optimum vertical line.
- 6.4.9 Adjust the unbalance Vertical linearity balance by I²C BUS to get optimum vertical linearity balance.
- 6.4.10 Adjust the unbalance Vertical linearity by I²C to get optimum vertical linearity.
- 6.5 Adjust size/centering/trapezium/pincushion/parallelogram of all other preset modes (TABLE1-TABLE8) via I²C bus.
- 6.6 Preset factory preload timin TABLE9-TABLEE22 according to step 6.5 values.

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.].

* 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 cutoff and white uniformity.

OSD R/G/B cut-off and R/G/B gain can be accessed, with initial data:

9300 °K
R cutoff = 25%, R gain = 65% (I² C)
G cutoff = 25%, G gain = 65% (I² C)
B cutoff = 25%, B gain = 65% (I² C)
6500 °K
R cutoff = 25%, R gain = 55% (I² C)
G cutoff = 25%, G gain = 55% (I² C)
B cutoff = 25%, B gain = 55% (I² C)

Brightness = 50%, Sub-Contrast = 85%, ABL = 50% (I² C)

Step 1: To press power button switch and left & right simultaneously to enter the character "FACTORY MODE" as shown in Fig.2.1, press " " to access the OSD menu for R/G/B gain & cutoff as shown in Fig. 2.2.

Step 2: Press " " for function selection as shown in Fig. 2.2.

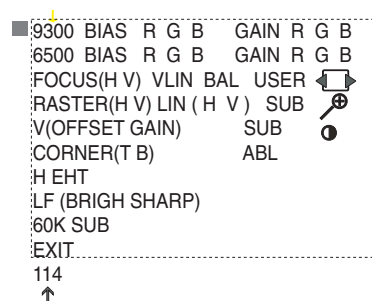


Fig. 2.2

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
V OFFSET : Vertical offset
V GAIN : Vertical Gain
ABL : Auto Beam Limit
T CORNER: Corner Correctionof TOP
B CORNER: Corner Correctionof BOTTOM
H EHT : Horizontal Extensive High Tension
LF : Light Frame
60K 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 180 9300k and 6500K(EEPROM preload value)
ABL at 127 9300k and 6500K(EEPROM preload value)
SUB-CON at 218 (EEPROM preload value)

7.4 Adjust 9300K color:

With the help of a factory calibrated color analyzer CA 100
set low R,G,B scale 100=0.12FL,x=283,y=297
Adjust Vg1 until brightest gun at 100 on low brightness scale.

7.5 Adjust R,G,B cut-off for all gun reading to get 100 on low brightness scale.

7.5 Adjust R,G,B cut-off for all gun reading to get 100 on low brightness scale.

7.6 Set Ca100 high R,G,B scale 100 = 41 +/- 1FL,X=283,y=297
Adjust G gain at 100 scale on high brightness scale.

7.7 Adjust R,B gain so that blue and green havng as red on the high brightness scale

7.8 Set contrast at minimum and repeat 7.5,7.6,7.7,until RGB three guns get same readings on low and high brightness scale.

7.9 Adjust 6500K color:

With the help of a factory calibrated color analyzer CA 100
set low R,G,B scale 100=0.12FL,x=313,y=329
Adjust Vg1 until brightest gun at 100 on low brightness scale.

7.10 Adjust R,G,B cut-off for all gun reading to get 100 on low brightness scale.

7.11 Set CA100 high R,G,B scale 100 = 41 +/- 1FL,X=313,y=329
Adjust G gain at 100 scale on high brightness scale.

7.12 Adjust R,B gain so that blue and green have the same reading as red on the high brightness scale

7.13 Set contrast at minimum and repeat 7.10,7.11,7.12,until RGB three guns get same readings on low and high brightness scale.

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

7.15 Apply full white pattern, adjust ABL to reach 30 +/- 1FL(C MAX.)

7.16 Check full white at contrast and brightness at minimum, the foreground shall be extinguished.

Back

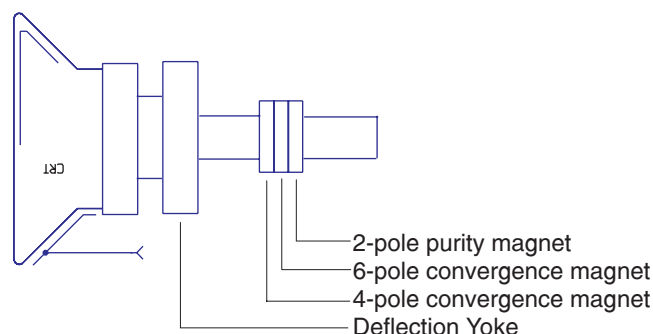
Forward

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 (7803,7804) by EDID301.EXE Program(3138 106 10103) and software DDC Alignment kits (4822 310 11184).

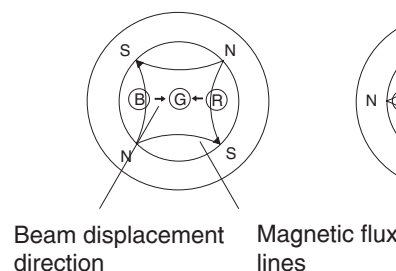


10. Purity adjustment

- 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



11. Static convergence

Introduction

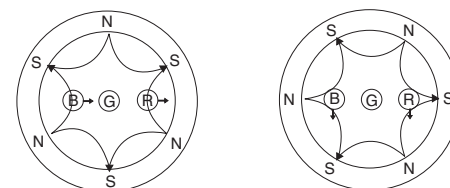
Slight deviation in the static convergence can be corrected by using two permanent pairs of magnets which are fitted around the neck of the CRT. These are the 4-pole magnet and the 6-pole magnet. The 4-pole magnet move the outermost electron beams (R and B) parallel in the opposite direction from the 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



Safety test requirements

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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

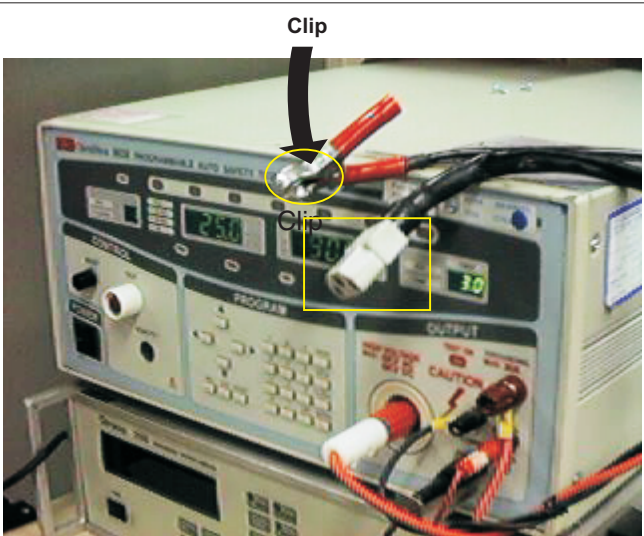
All products should be HiPot and Ground Continuity tested as follows:

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: <=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.

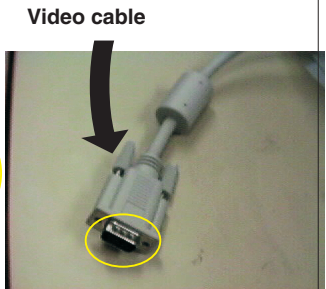
3. Equipments and Connection

- 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.

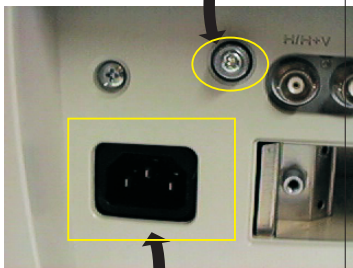


(ChenHwa 9032 tester)

Connect the "video cable" or "grounding screw" to the CLIP on your tester.



Grounding screw



Power outlet

(Rear view of monitor)

4. Recording

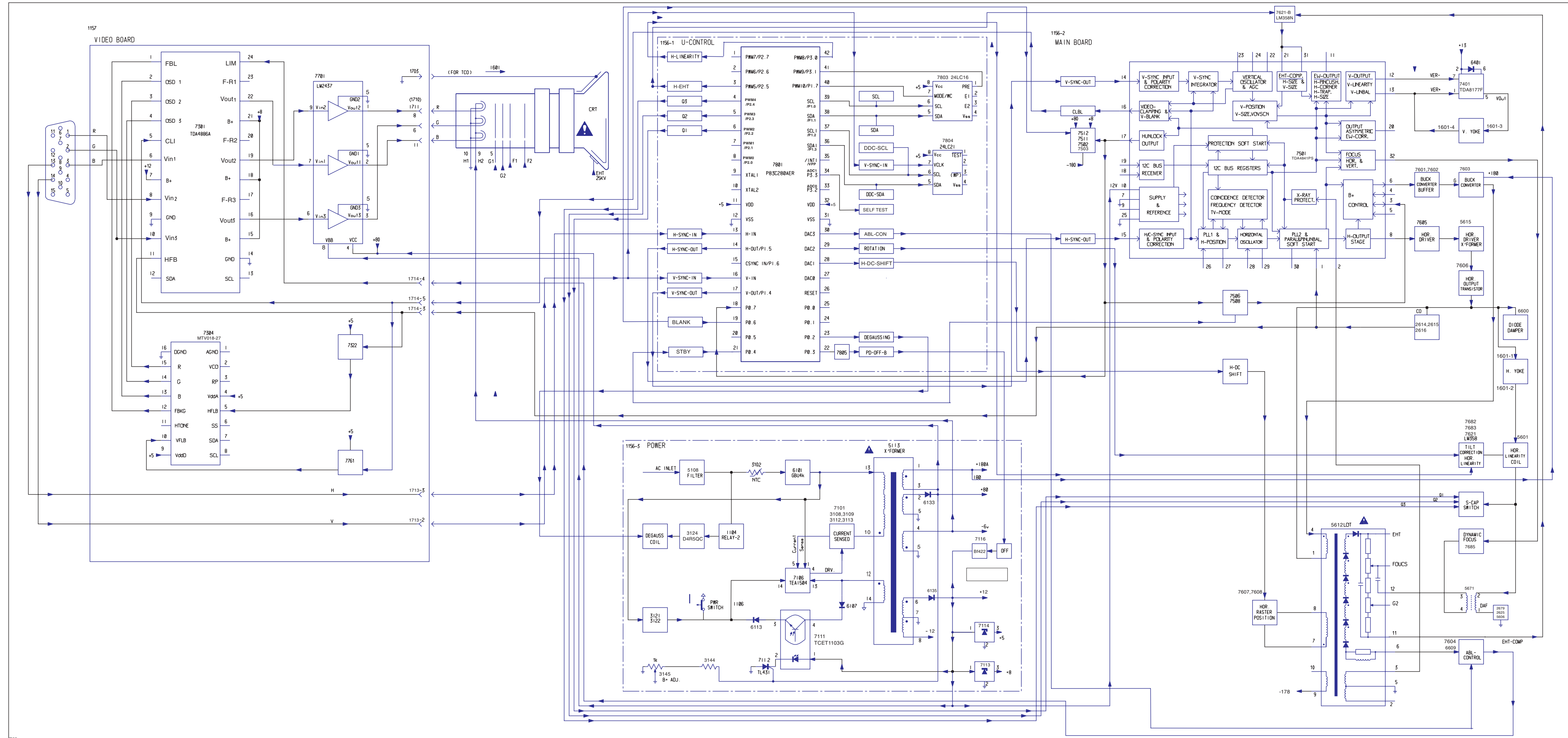
Hipot and Ground Continuity testing records have to be kept for a period of 10 years.

Back

Forward



Block diagram

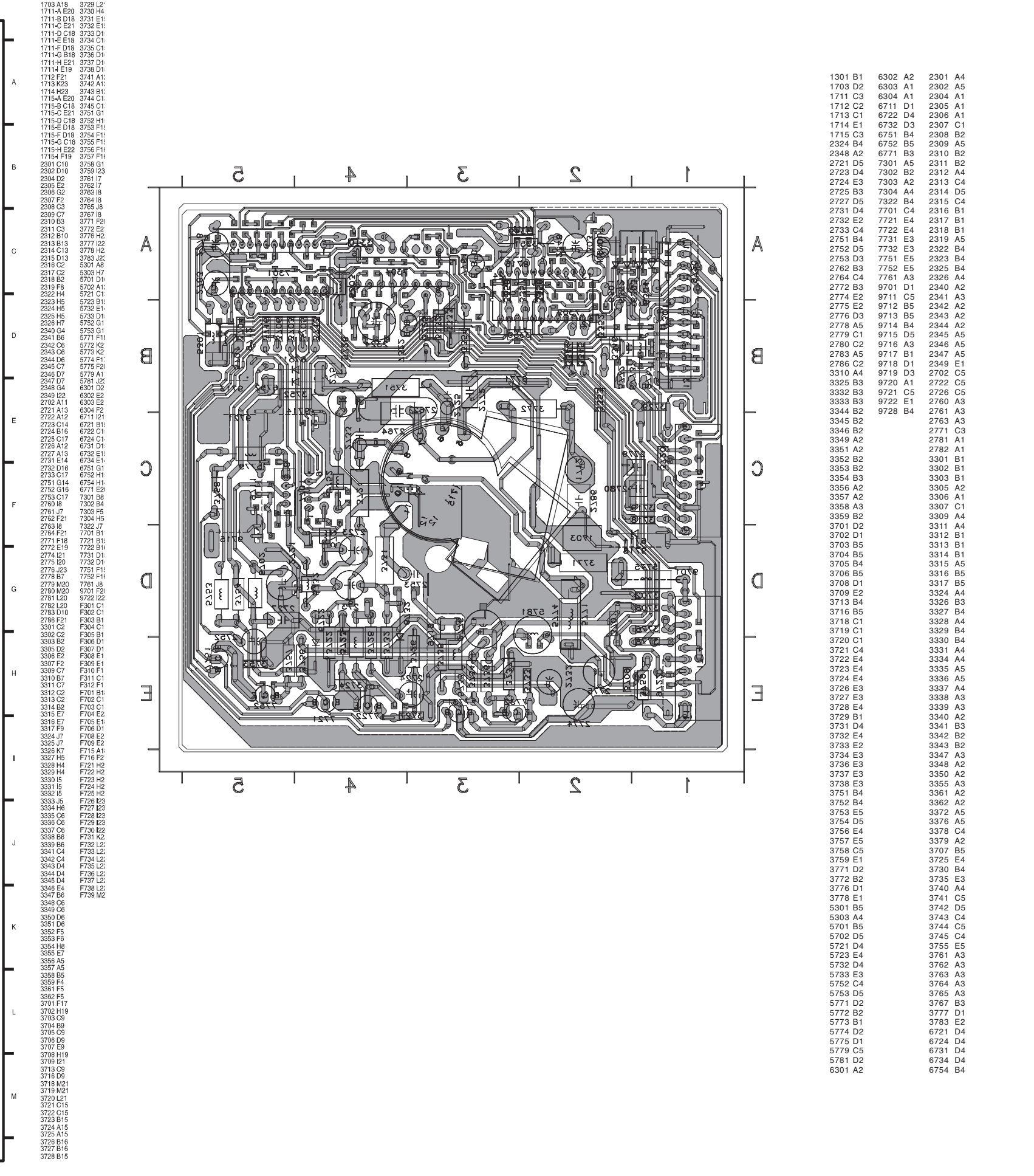
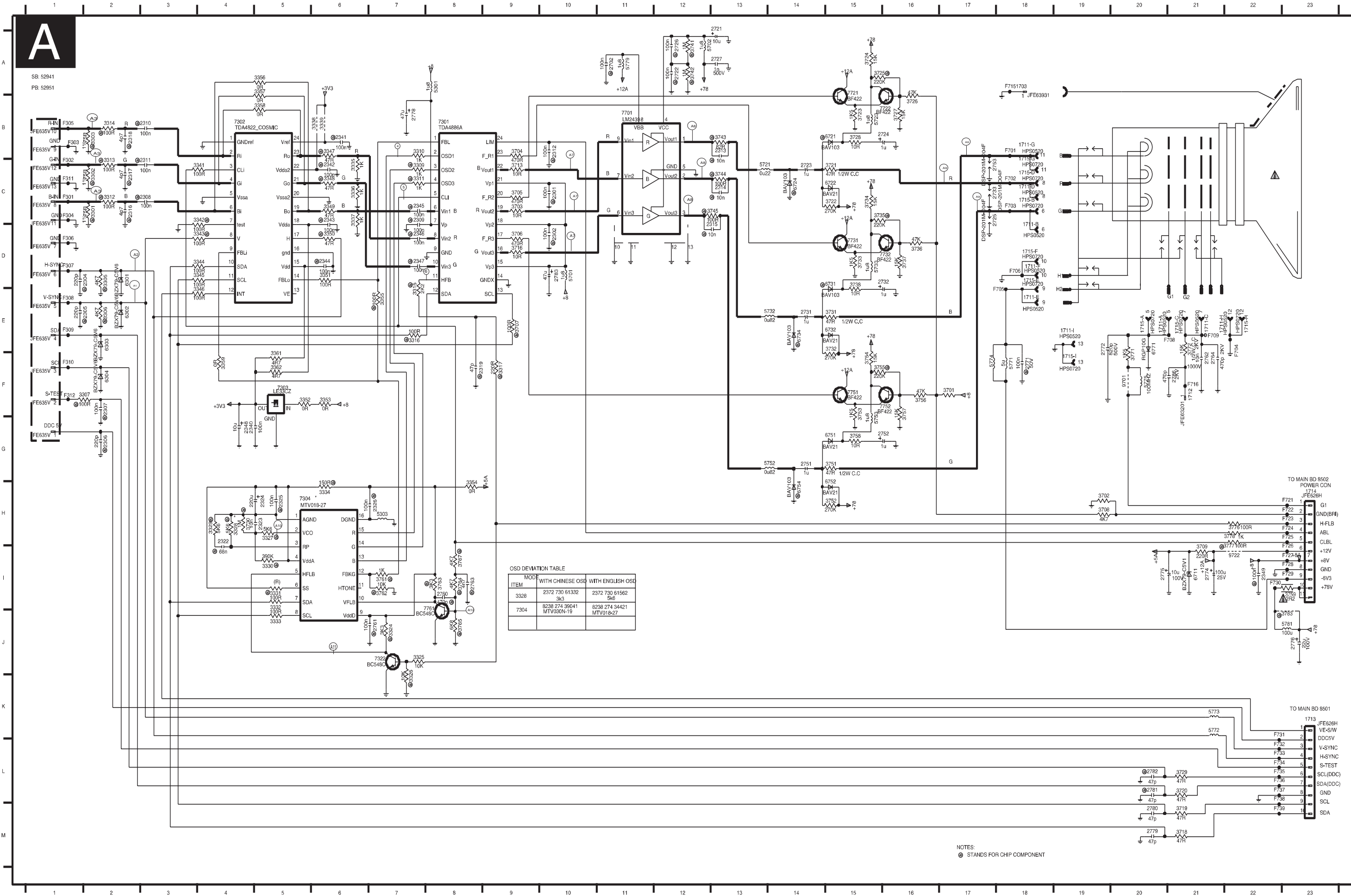


CM26_FLMINGO_11951

Video Schematic Diagram

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Video Panel C.B.A.(A)

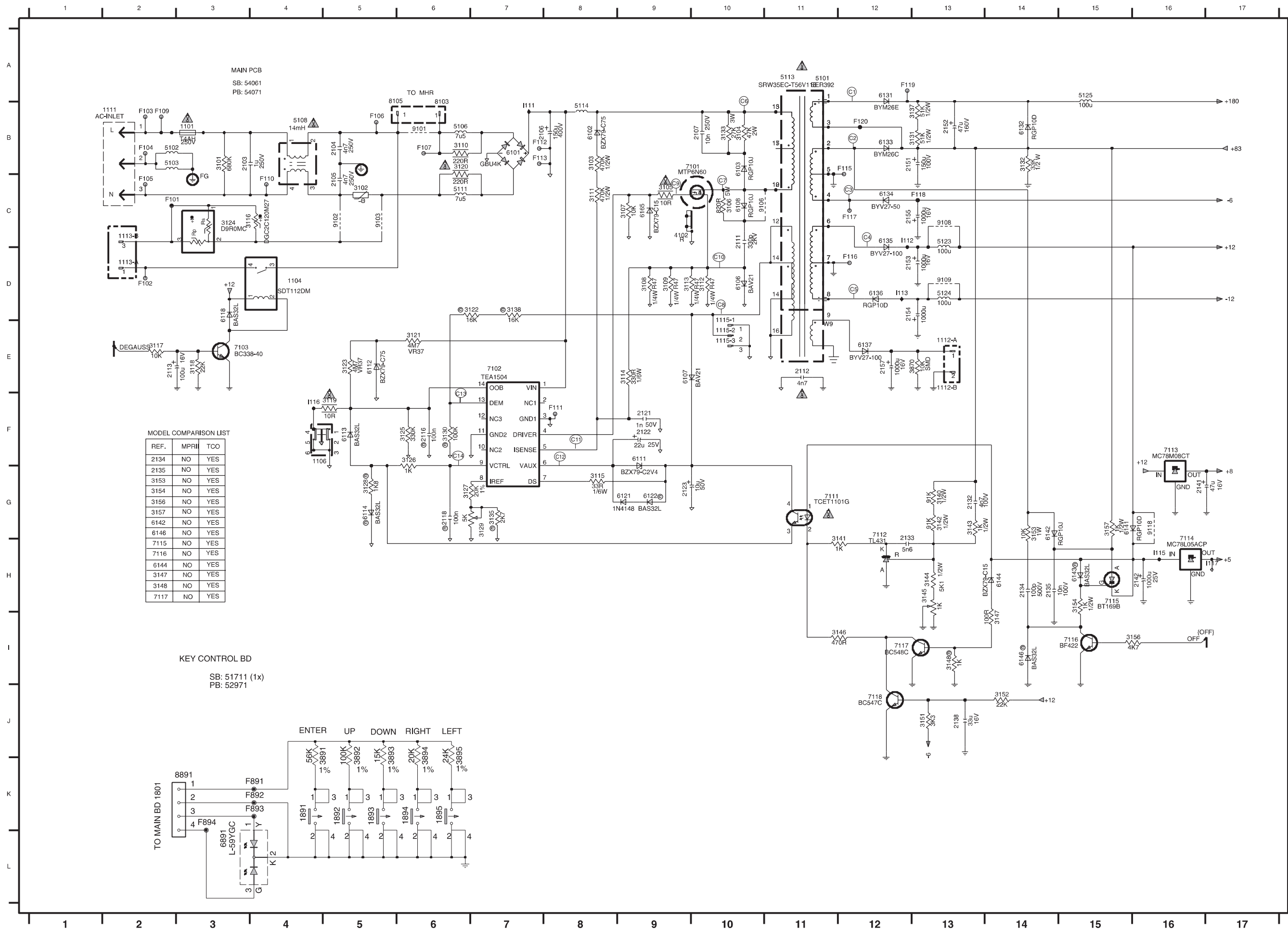


Power Supply Schematic Diagram

107S2 CM23 GSIII 27

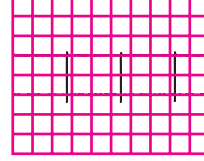
Go to cover page

C



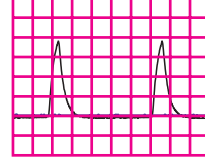
1101 B3
1104 D4
1106 F4
1111 B2
1112-A E13
1112-B E13
1113-A D2
1113-B C2
1113-C C2
1113-D E10
1114 E10
1115-A E10
1115-B E10
1115-C E10
1115-D E10
1116 F4
1117 H1
9109 D1
9118 G1
9101 C2
9102 C2
9103 B2
9104 B2
9105 C2
9106 B2
9107 B2
9108 B2
9109 B2
9110 C4
9111 F8
9112 B7
9113 B7
9114 B7
9115 B1
9116 D1
9117 C1
9118 C1
9119 A1
9120 B1
9121 F9
9122 F9
9123 G9
9124 G9
9125 G9
9126 G9
9127 G9
9128 G9
9129 G9
9130 F6
9131 B13
9132 B14
9133 B10
9134 G7
9135 G7
9136 B7
9137 B13
9138 D7
9139 G13
9140 G13
9141 H12
9142 G13
9143 G13
9144 H13
9145 H13
9146 H12
9147 H14
9148 H13
9149 H13
9150 H13
9151 J13
9152 J14
9153 G14
9154 H14
9155 H16
9156 H16
9157 G15
9158 E13
9159 C9
9160 A11
9161 B2
9162 B2
9163 B2
9164 B2
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9171 B2
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A1 1301-5



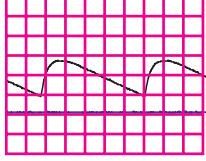
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5 mS/div

A6 7301-11



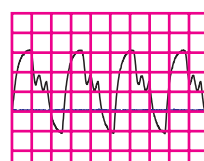
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5 uS/div

A9 1715-11



20 V/div AC
5 uS/div

C1 5113-1



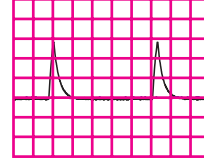
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5 uS/div

C8 5113-12



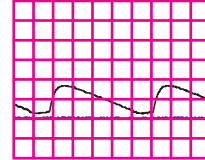
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A2 1301-6



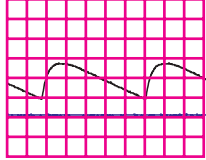
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A7 7301-16



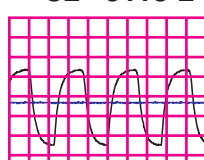
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A9 1715-8



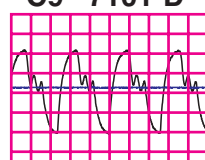
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C2 5113-2



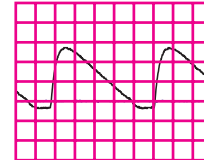
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5 uS/div

C9 7101-D



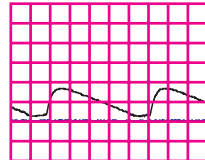
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A3 1301-10



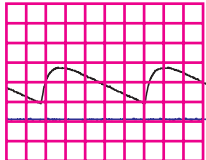
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A7 7301-19



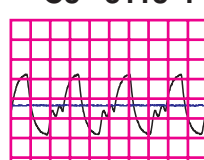
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5 uS/div

A9 1715-6



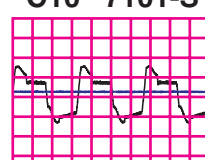
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5 mS/div

C3 5113-4



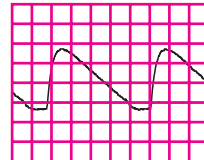
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5 uS/div

C10 7101-S



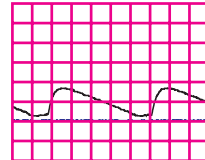
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A3 1301-12



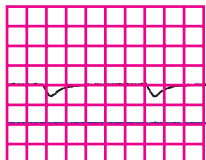
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A7 7301-22



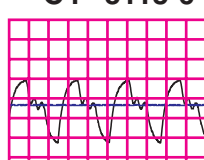
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5 uS/div

A10 7304-2



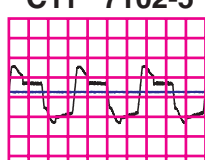
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5 uS/div

C4 5113-6



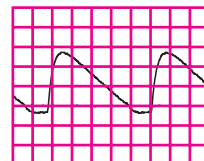
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C11 7102-5



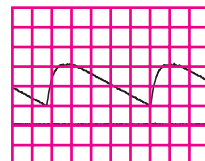
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A3 1301-8



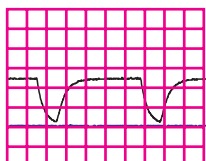
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A8 7701-1



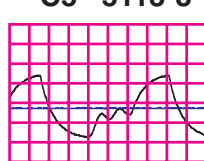
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A11 7304-5



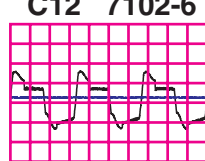
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C5 5113-8



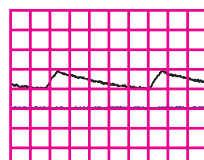
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2 uS/div

C12 7102-6



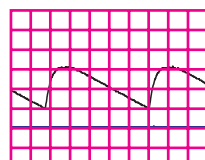
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5 mS/div

A4 7301-2



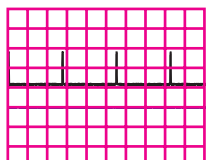
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A8 7701-2



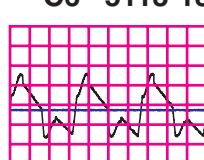
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A12 7761-B



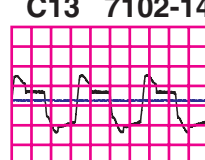
0.2 V/div AC
5 mS/div

C6 5113-13



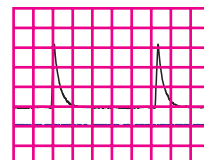
10 V/div AC
5 mS/div

C13 7102-14



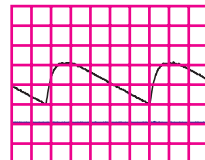
10 V/div AC
5 mS/div

A5 7301-5



50 mV/div AC
5 uS/div

A8 7701-3



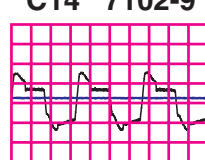
20 V/div AC
5 uS/div

C7 5113-10



50 V/div AC
5 uS/div

C14 7102-9

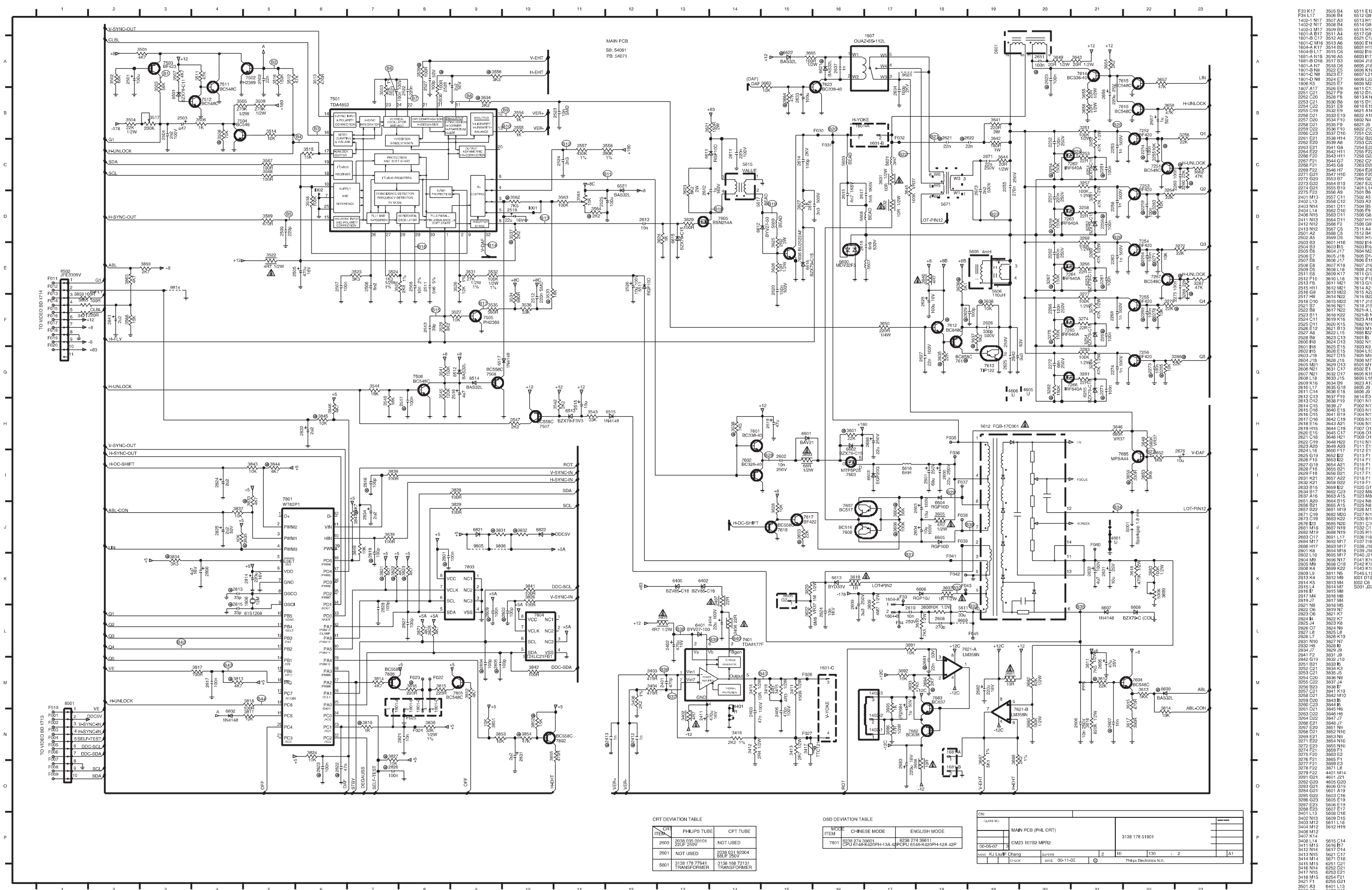


10 V/div AC
5 mS/div

Back

Forward

家电维修资料网，免费下载各种维修资料



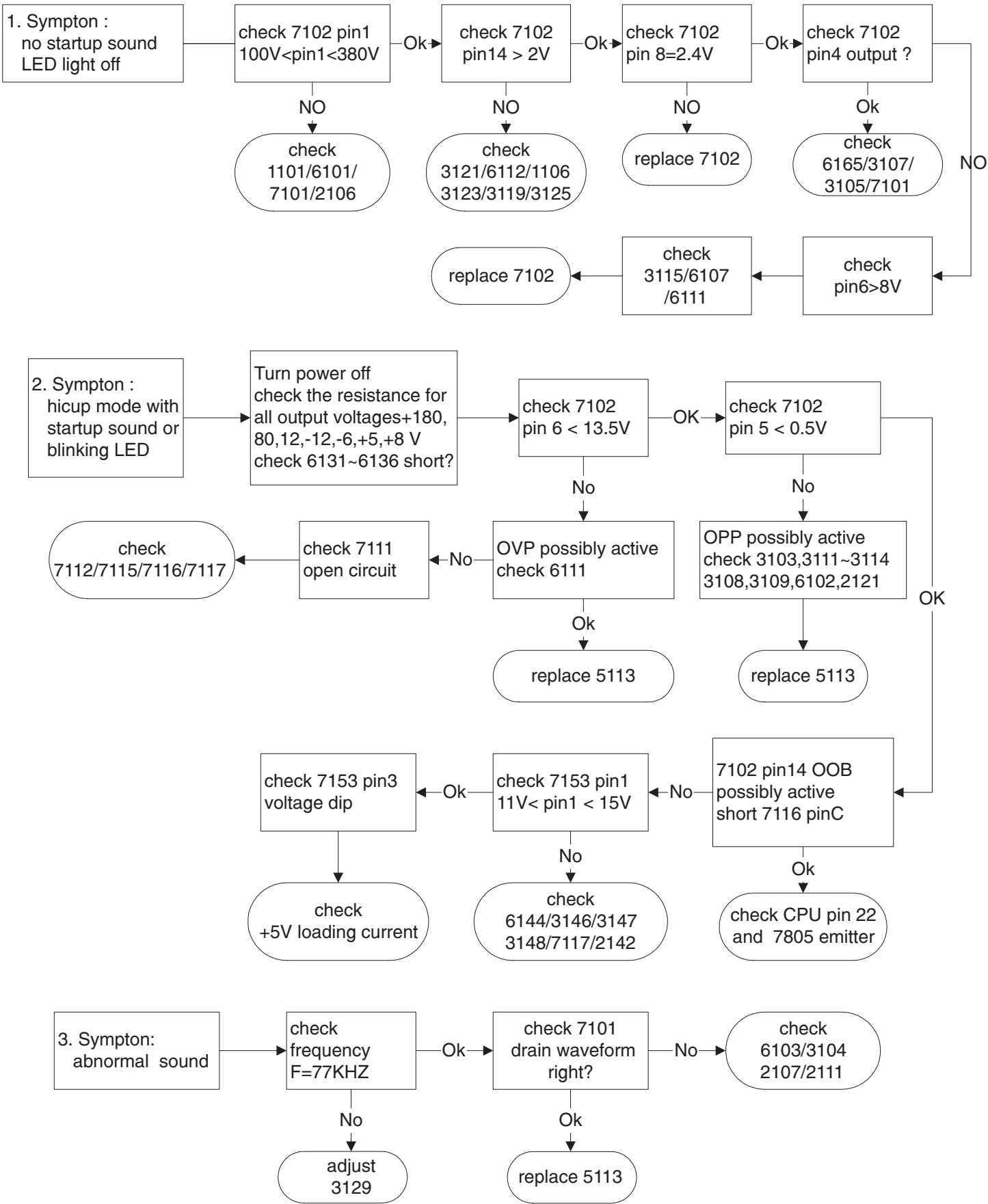
Waveform (B)



Repair Flow Chart

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A. Power Supply Failure

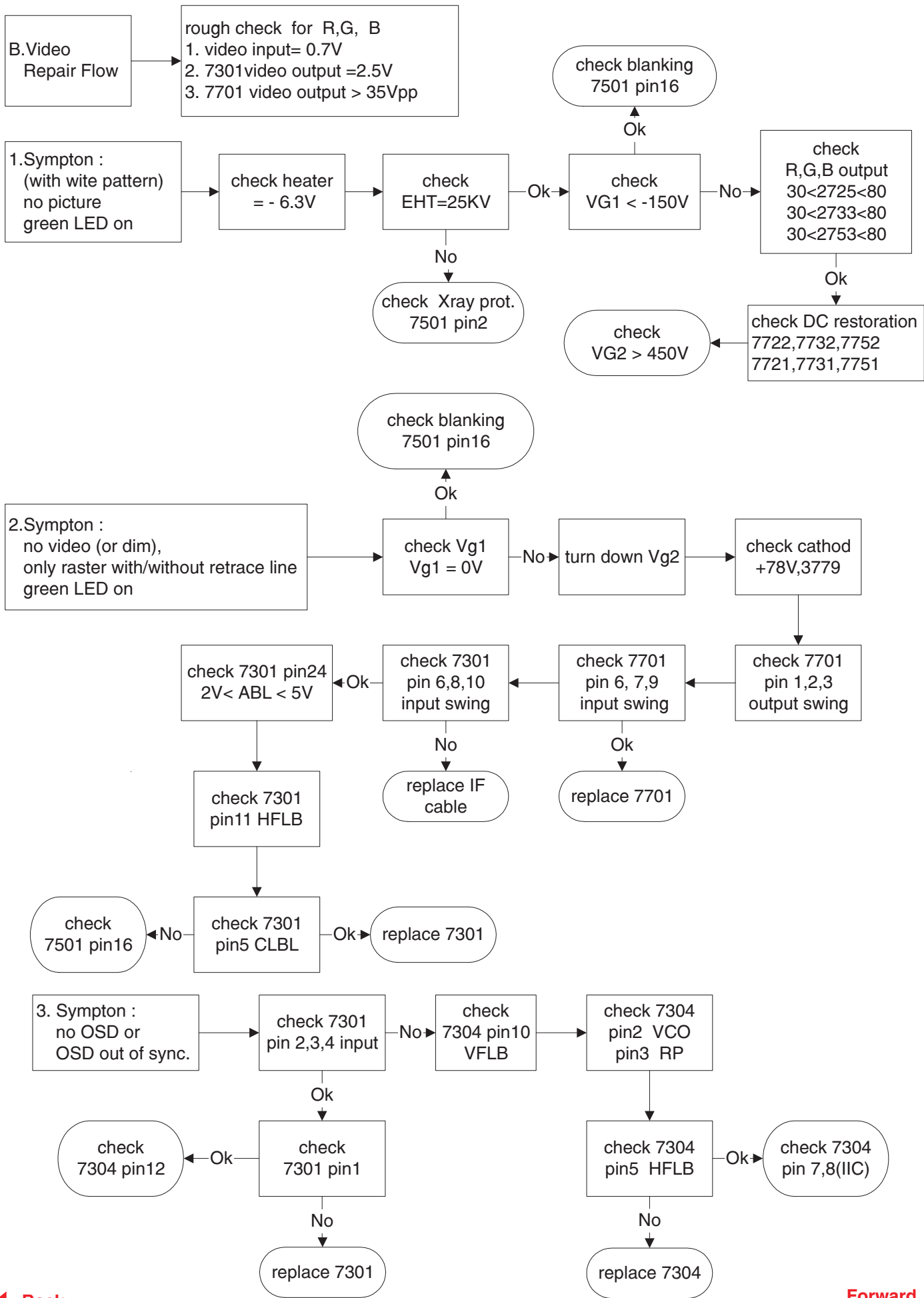


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Repair Flow Chart

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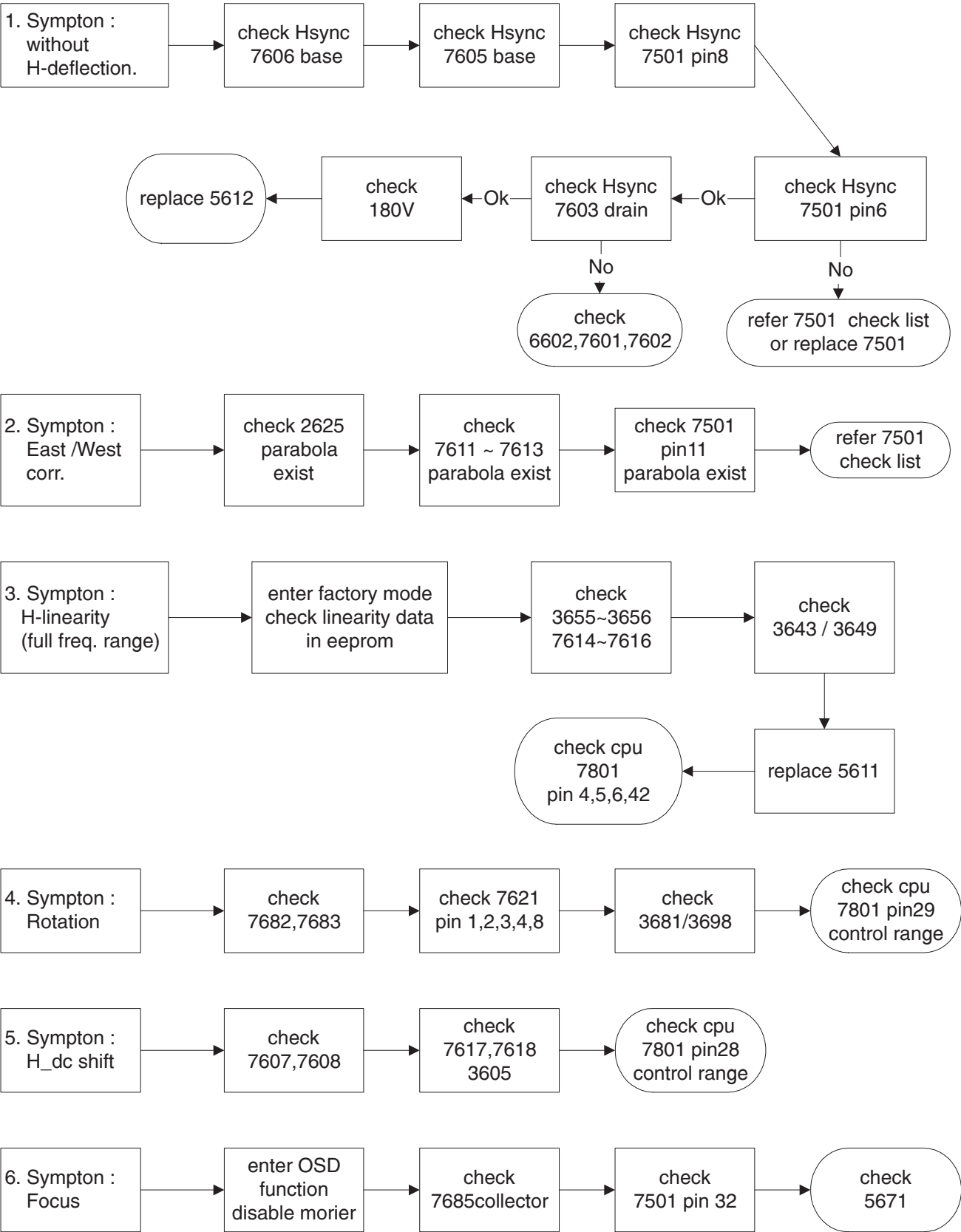
Back

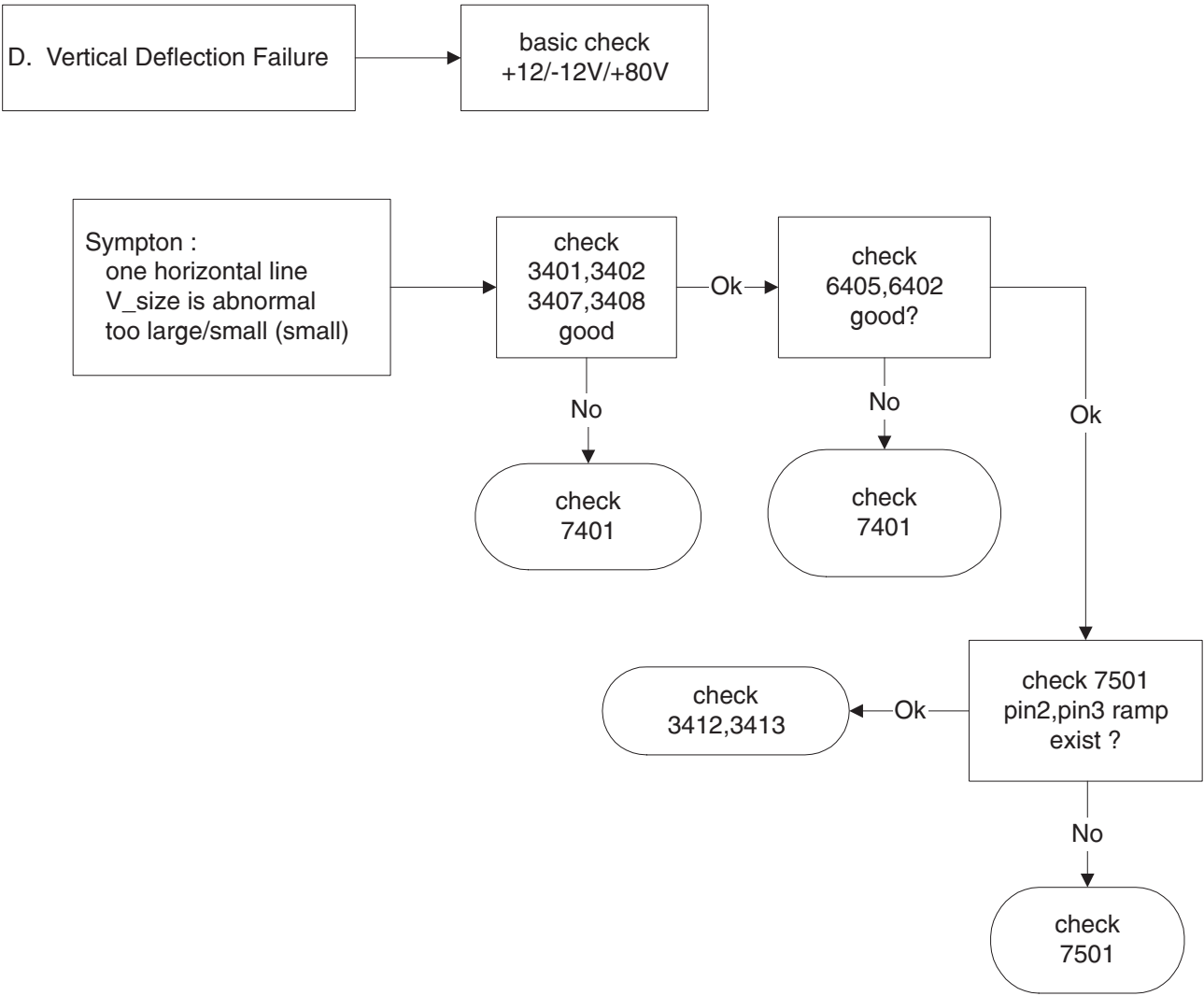
Forward

Repair Flow Chart

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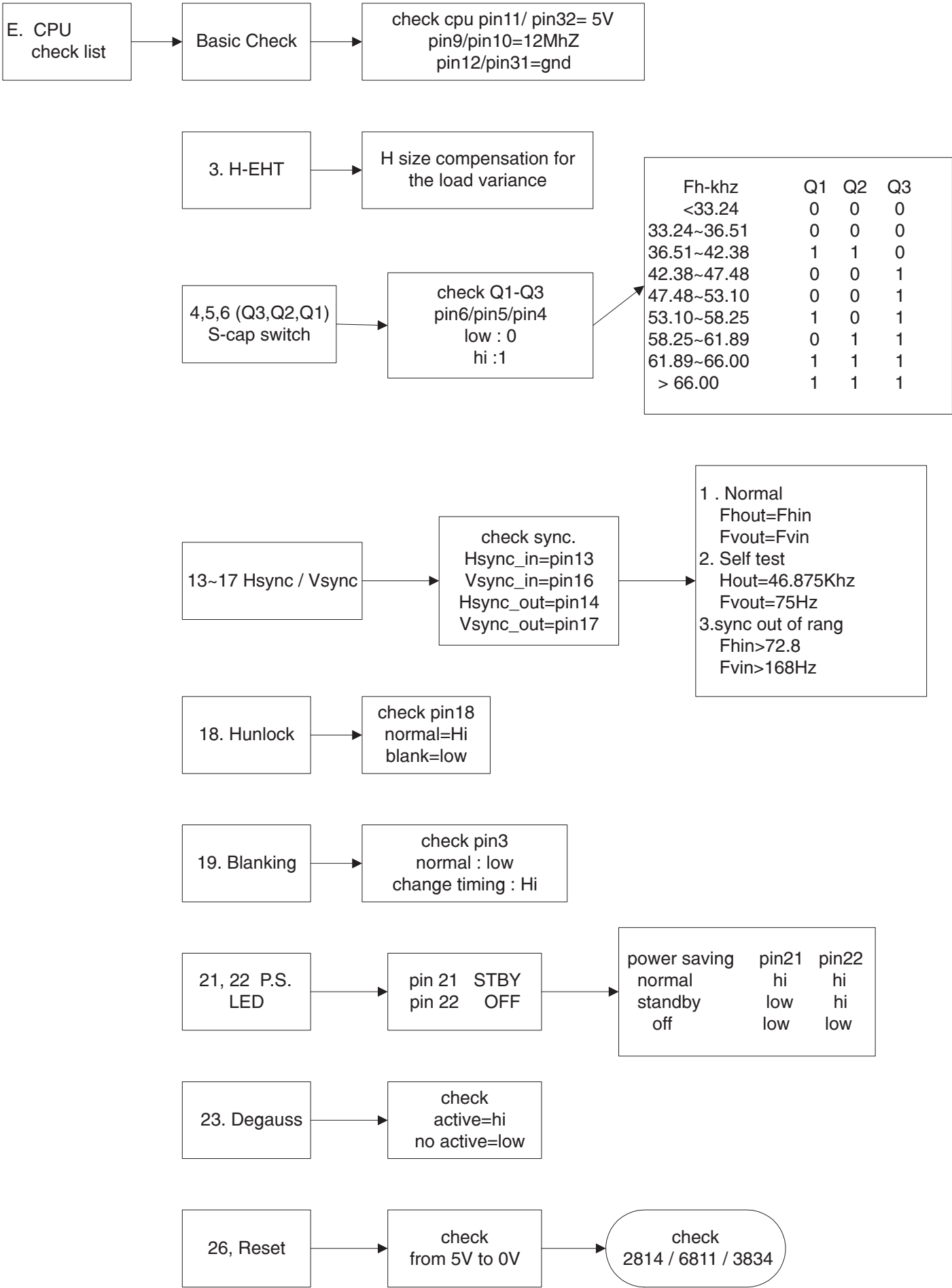
C. Horizontal deflection
output repair flow :



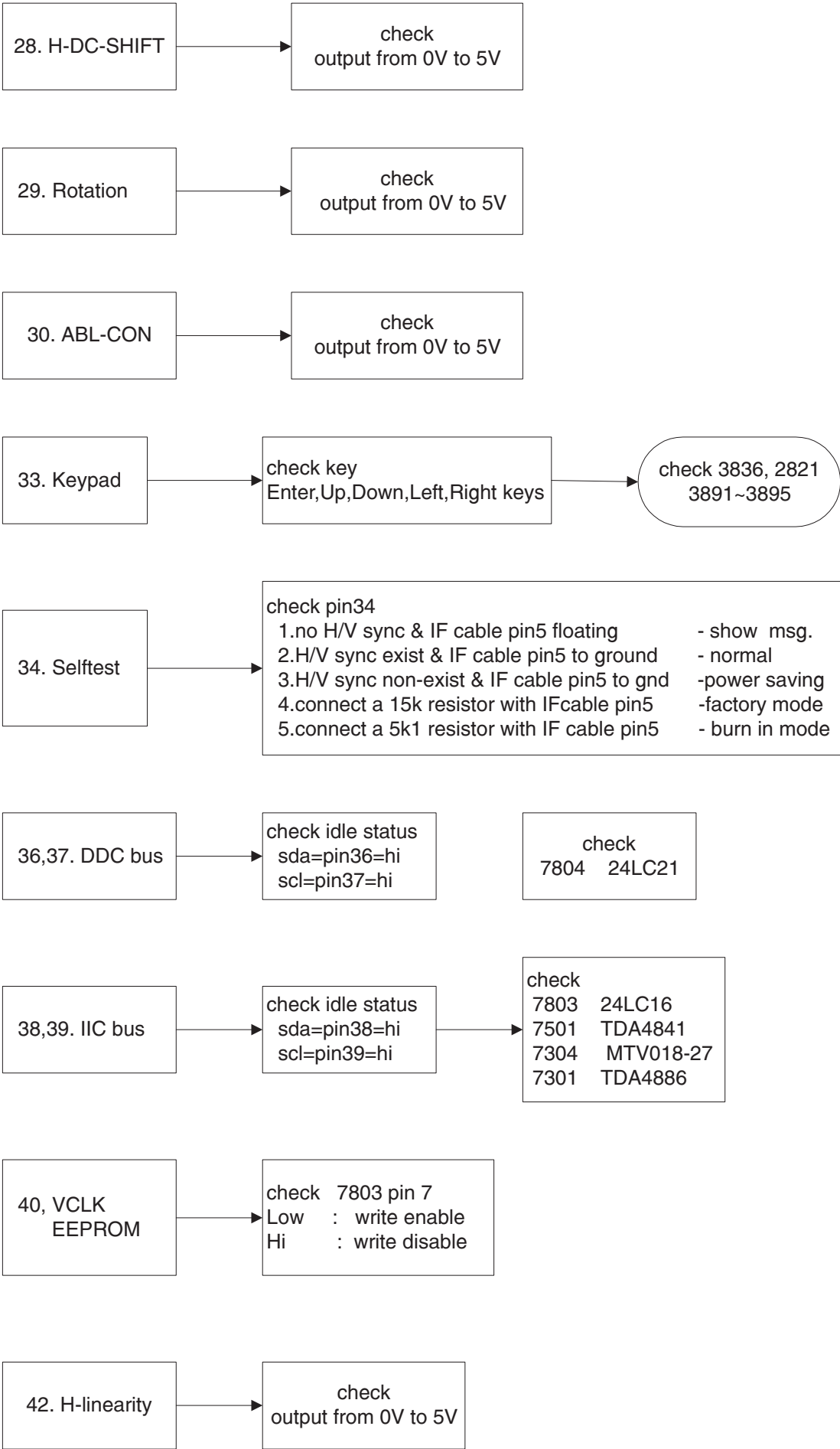


Repair Flow Chart

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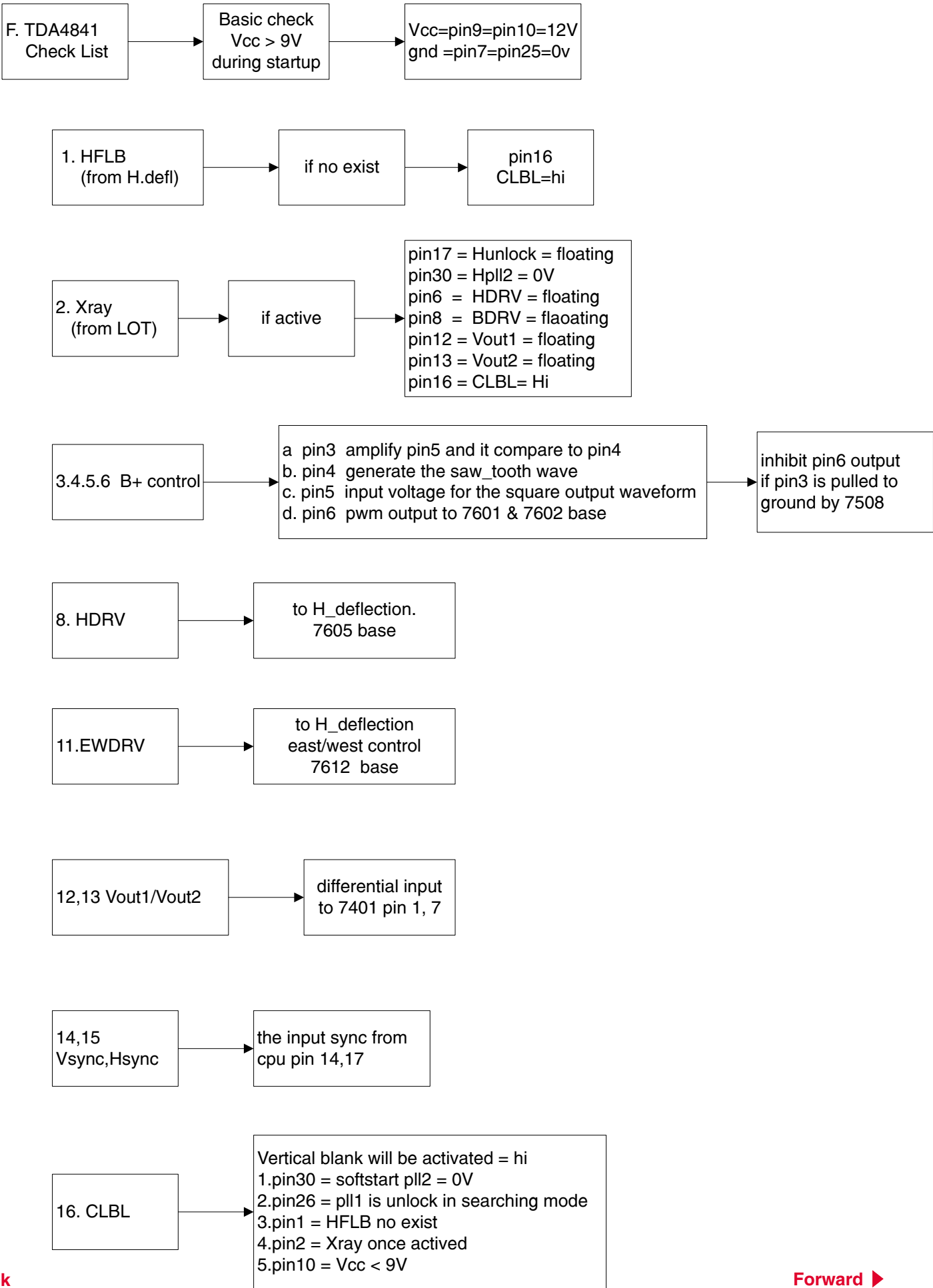


Repair Flow Chart



Repair Flow Chart

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Repair Flow Chart

