17" Auto scan Colour Monitor

Chassis : M36

Service
Service
Service

EPA POLLUTION PREVENTER

M36 107B3 GS_3

107B30/40C

DDC/Power saving/MPR II/TCO

Service Manual

Horizontal frequencies
30 - 86 kHz

TABLE OF CONTENTS

Description	Page
Important Safety Notice	2
Technical Data	3
Front control & OSD	4
OSD menu tree	5
OSD Adjustments	6~12
Troubleshooting	12
Lock/Unlock, Factory mode & Service mode	13
Warning and Notes	14
Mechanical Instructions	15~17
Wiring Diagram	18
Hex Data of DDC2B	19 ~21
DDC Instructions	22~26
Electrical Adjustments	27~ 29
Safety test requirements (Hipot & Ground)	30
Block Diagram	31

Description	Page
Video Panel (A) Schematic Diagram	32
Video Panel C.B.A.(A)	33
Main Panel-Deflection (B) Schematic Diagram	34
Main Panel C.B.A.(B,C)	35
Power Supply (C) Schematic Diagram	36
Key Control Panel (D) Schematic Diagram	37
Key ControlPanel C.B.A. (D)	38
Repair Tips	39
Exploded View	40
Recommended parts list	41
Spare parts list	42~44
Repair flow chart	45~52
LightFrame for Windows	53~56
General Product Specification	57~81
General Troubleshooting Guide	82~104

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

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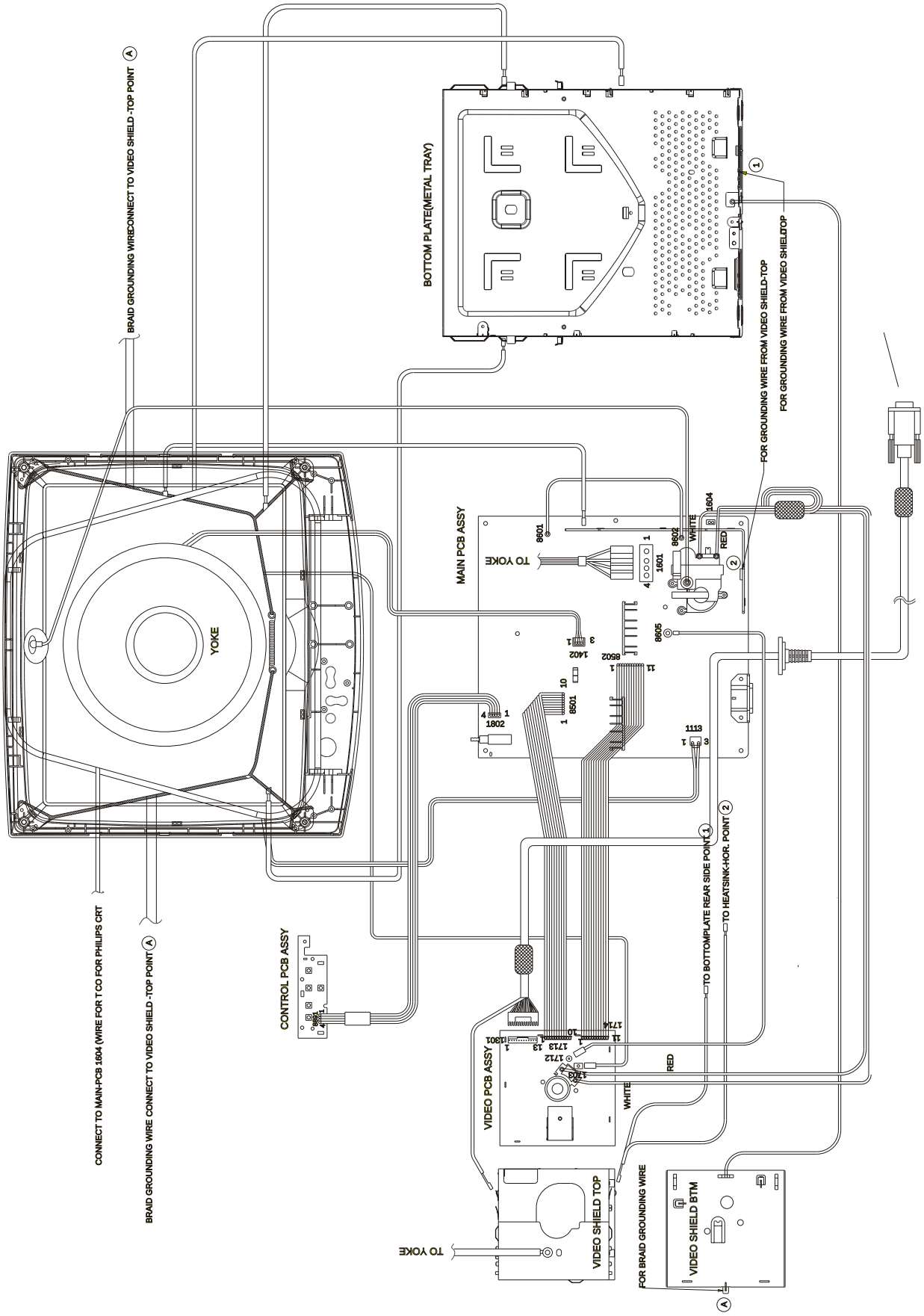
飛利浦 PHILIPS PHILIPS

Wiring Diagram



Safety test requirements

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.

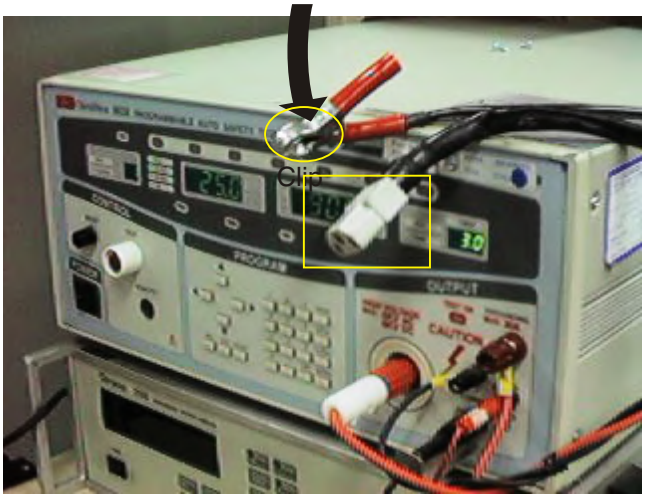
2.2.3 The test voltage must be maintained within the specified voltage + 5%.

2.2.4 The grounding blade or pin of mains plug must be conducted with accessible metal parts.

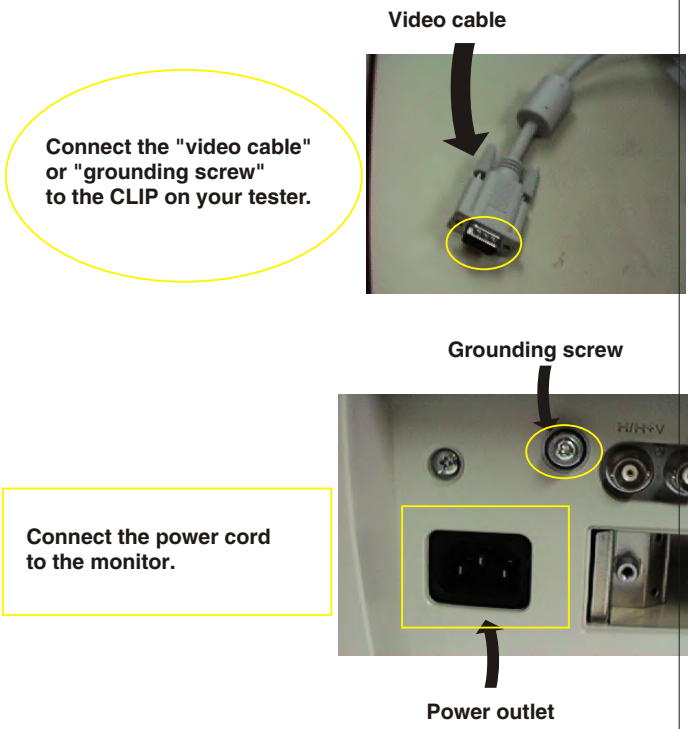
3. Equipments and Connection

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)

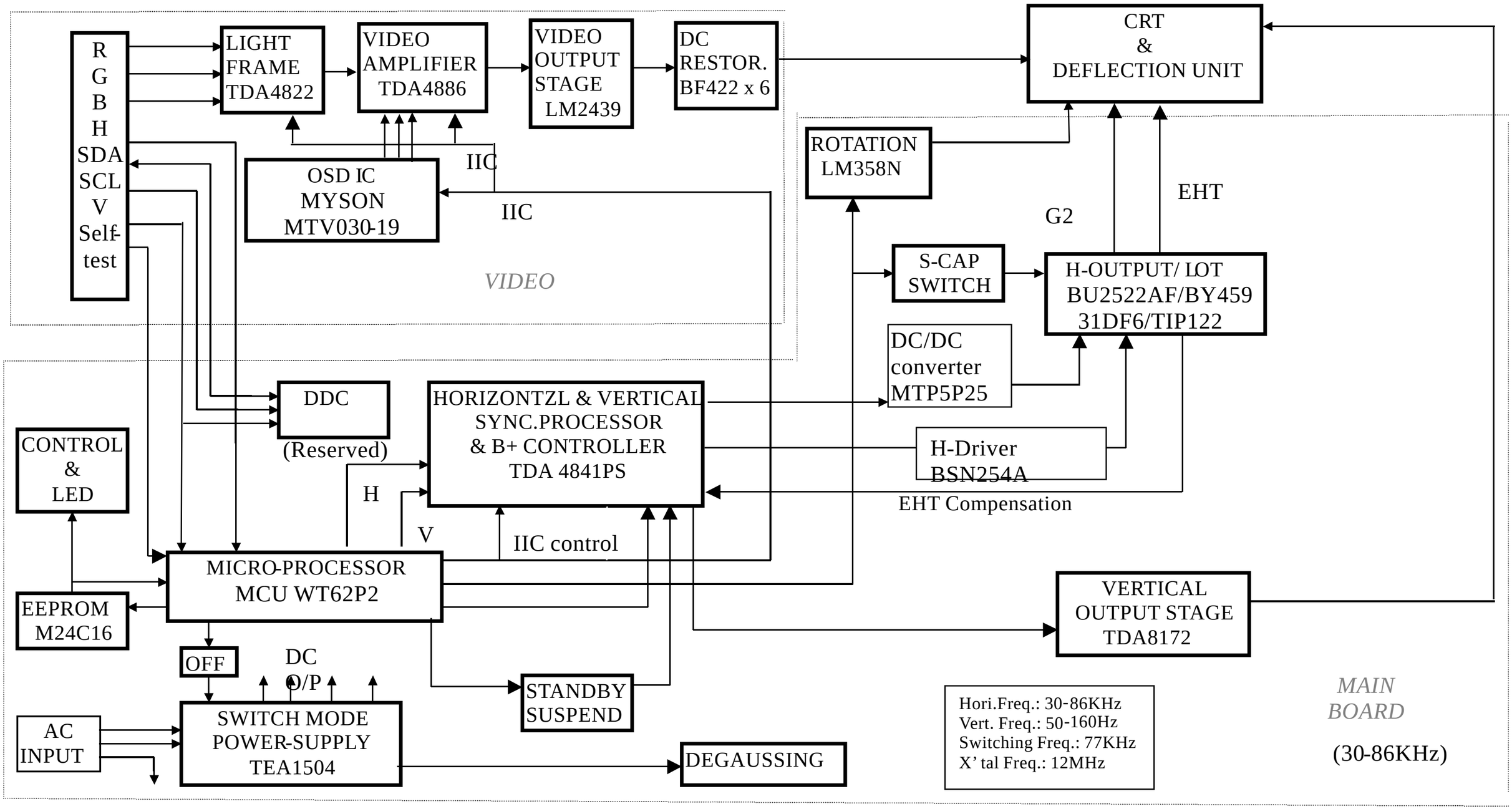


(Rear view of monitor)

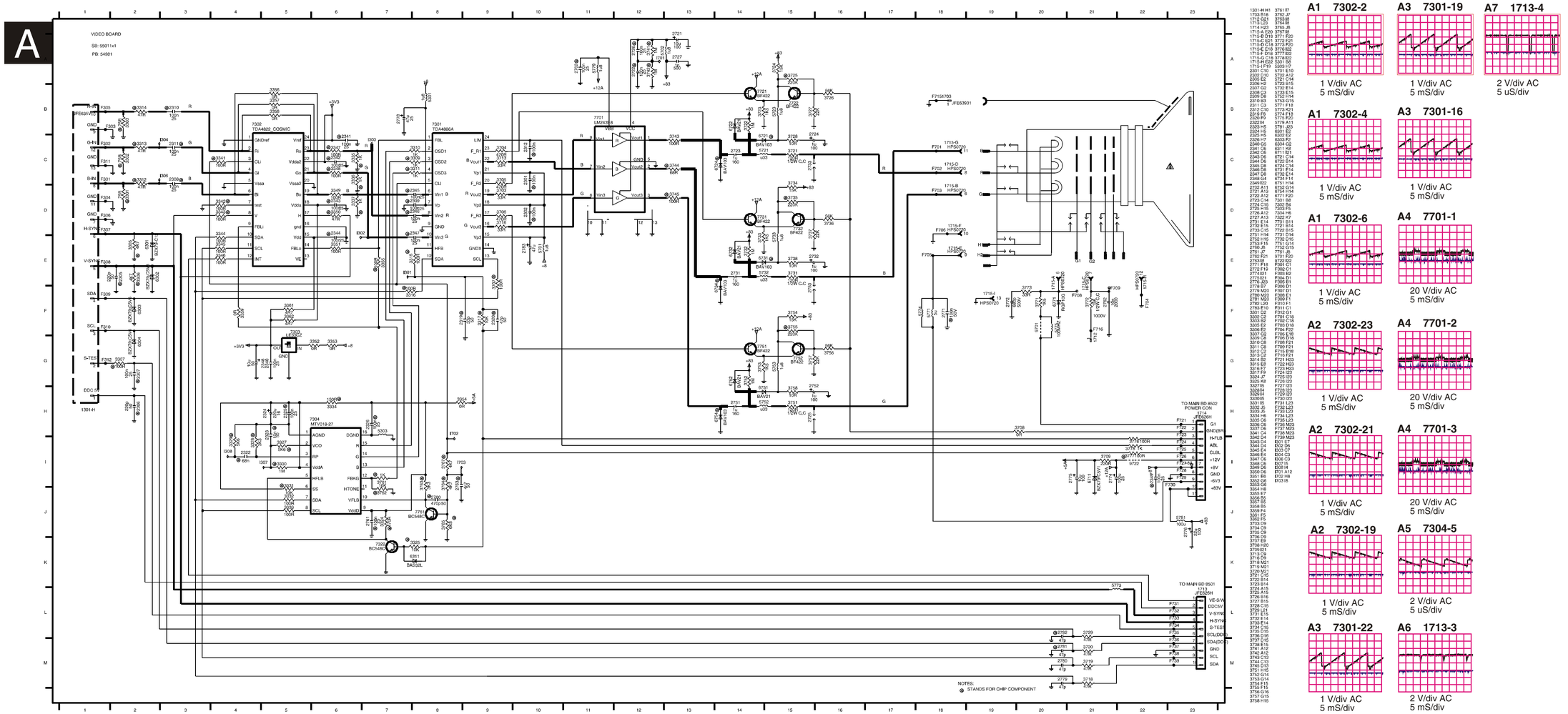
4. Recording

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

FUNCTION BLOCK OF COCA+ M36 107B3 GS_3



Video Panel Schematic diagram



A1 7302-2
1 V/div AC
5 mS/div

A3 7301-19
1 V/div AC
5 mS/div

A7 1713-4
2 V/div AC
5 uS/div

A1 7302-4
1 V/div AC
5 mS/div

A3 7301-16
1 V/div AC
5 mS/div

A1 7302-6
1 V/div AC
5 mS/div

A4 7701-1
20 V/div AC
5 mS/div

A2 7302-23
1 V/div AC
5 mS/div

A4 7701-2
20 V/div AC
5 mS/div

A2 7302-21
1 V/div AC
5 mS/div

A4 7701-3
20 V/div AC
5 mS/div

A2 7302-19
1 V/div AC
5 mS/div

A5 7304-5
2 V/div AC
5 uS/div

A3 7301-22
1 V/div AC
5 mS/div

A6 1713-3
2 V/div AC
5 mS/div

Go to cover page

Deflection - Main Panel Schematic diagram

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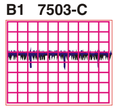
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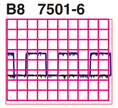
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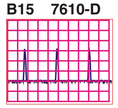
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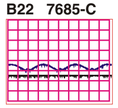
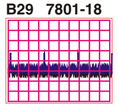

100 V/div AC
10 uS/div

B29 7801-18

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5 mS/div

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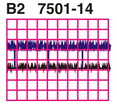
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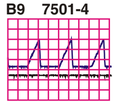
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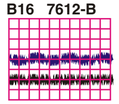
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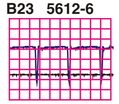
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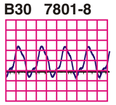
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2 mS/div

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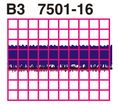
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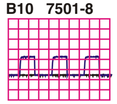
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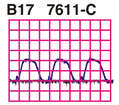
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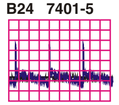
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5 mS/div

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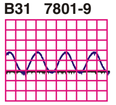
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2 mS/div

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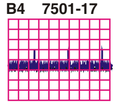
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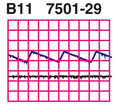
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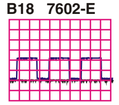
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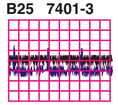
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2 V/div AC
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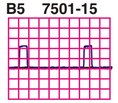
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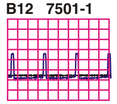
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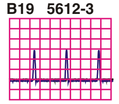
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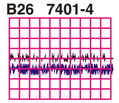
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1 V/div AC
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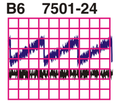
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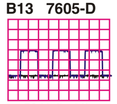
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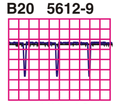
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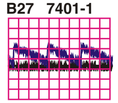
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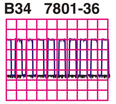
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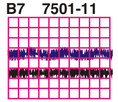
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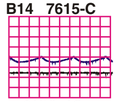
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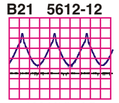
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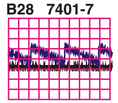
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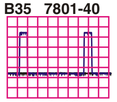
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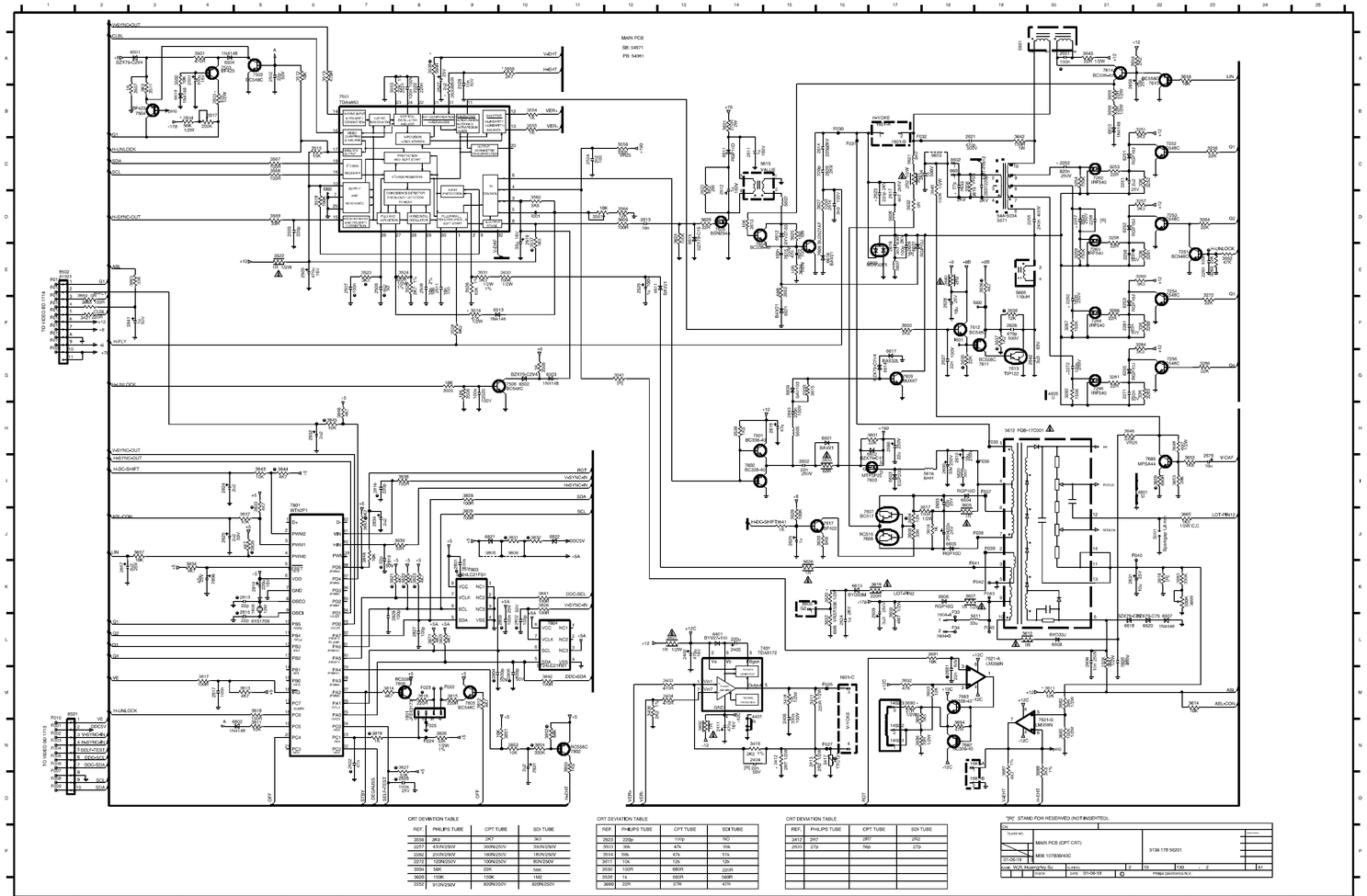
Back

B



Forward

Key Control Schematic diagram

Go to cover page

1891 D3
1892 D3
1893 D4
1894 D5
1895 D5
3891 C3
3892 C4
3893 C4
3894 C5
3895 C5
6891 D2
8891 C2
F891 C3
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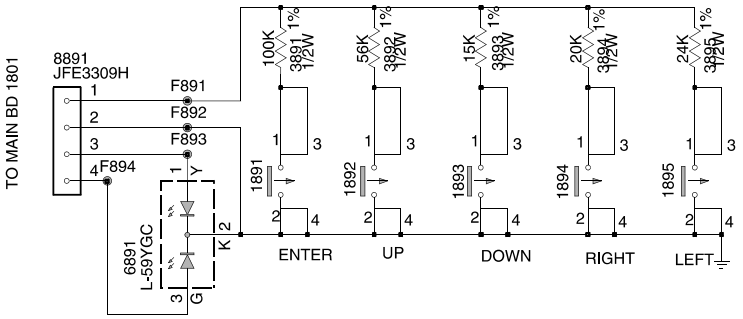
F894 D2

KEY CONTROL BOARD

SB: 53022 x1
PB: 54981



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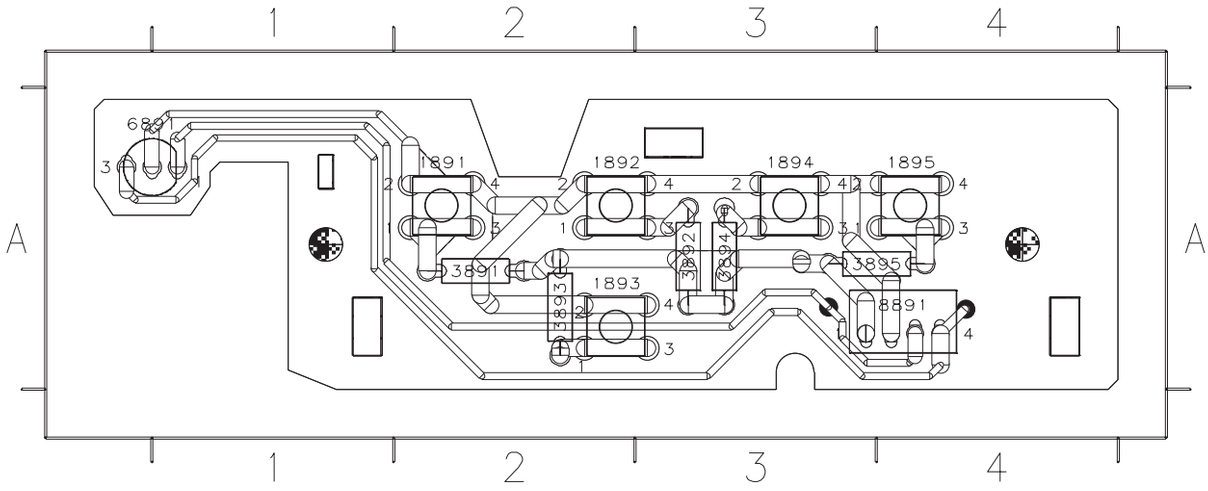
CN:							
CLASS NO.	M36 107B30/40C		3138 178 56221				--------
	KEY CONTROL						
01-06-18	3						
NAME TM Hsiao	SUPERS	1	10	130 - 1			A4
CHECK	DATE 01-06-18	© Philips Electronics N.V.					

Back Forward

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

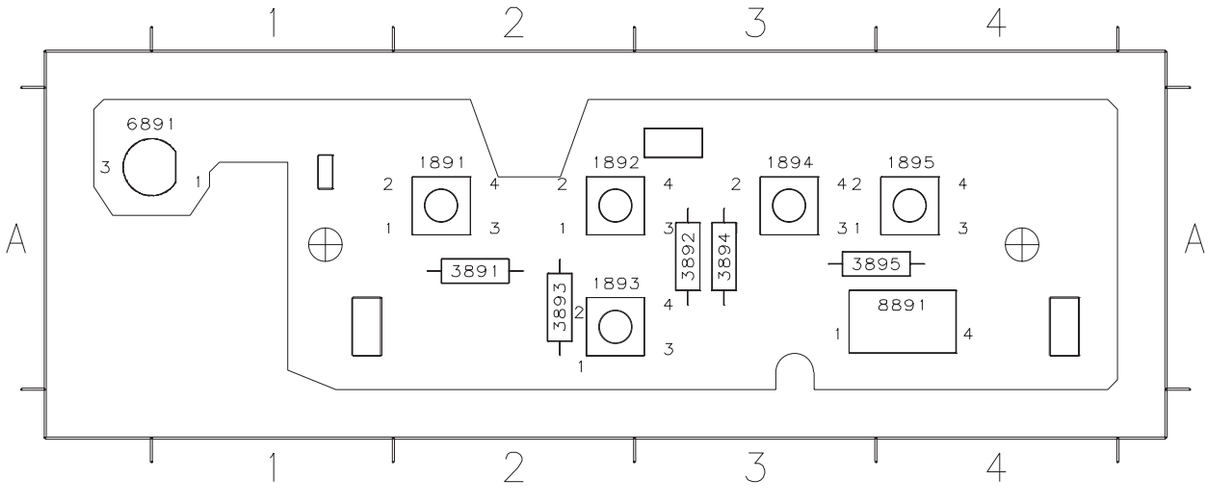
Go to cover page

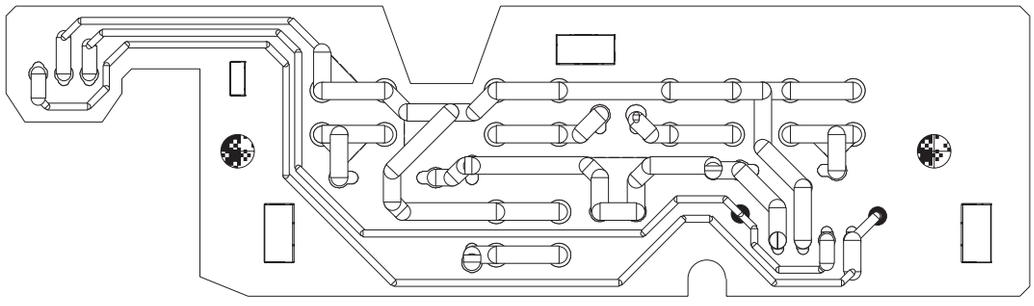


1891	A2	B
1892	A2	B
1893	A2	B
1894	A3	B
1895	A4	B
3891	A2	B
3892	A3	B
3893	A2	B
3894	A3	B
3895	A3	B
6891	A1	B
8891	A4	B

53022cus

53022hmc





Back

Forward

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)

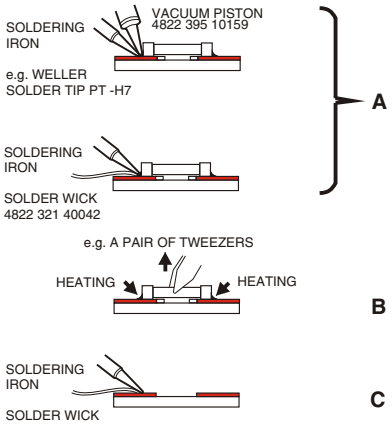
1.1 General cautions on handling and storage

- 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).

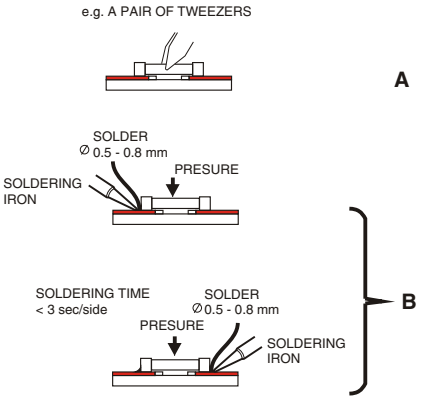
1.3 Caution on removal

- 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 Fiq. 2B).

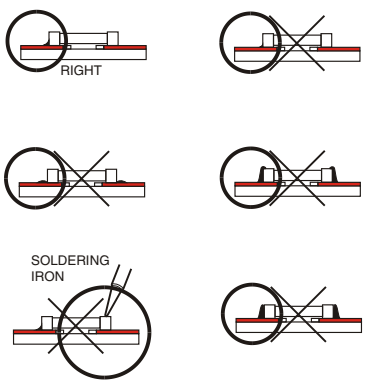
Fig. 2 MOUNTING



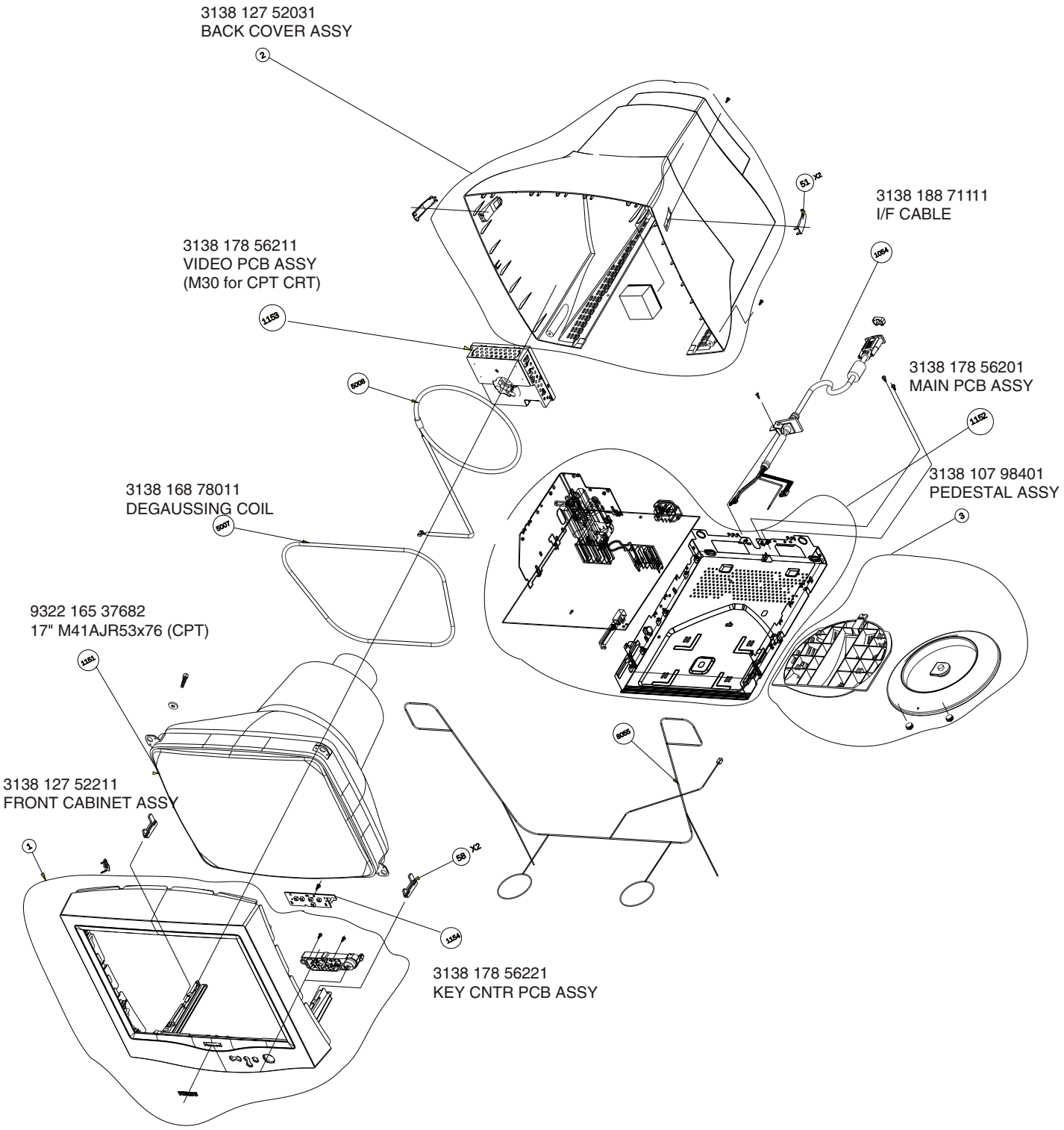
2. Caution when attaching SMDs

- 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



Recommended Parts List

Recommended parts list of 107B30/40C

0001	313812752211	FRONT CAINET ASSY
0002	313812752031	BACK COVER ASSY
0003	313810798401	PEDESTAL ASSY
0044	313810448612	BASE(CHEIL HR-1360)
0047	313810454231	BUTTON-POWER
0049	313810454211	BUTTON-FUNCTION
0053	313810448602	SWIVEL(CHEIL HR-1360)
0178	313810540291	SETTING UP GUIDE
0450	313810660622	CARTON
0451	313810656842	CUSHION - TOP
0452	313810656852	CUSHION - BTM
0454	313810656581	PE BAG
0601	313811703211	E-D.F.U. ASSY (LIGHT FRAME)
1053	243807098118	MAINS CORD (220V)-1.5M-CM300
1054	313818871111	INTERFACE CABLE
1101	242208600208	FUSE 5X20 HT 4A 250V IEC
1104	242213207402	RELAY 1P 12V 10/80A SDT-SS
1106	243812800183	SWI SIGN 2P 0.1A 30V SPUN19
1151	932216537682	CRT M41AJR53X76 (CPT)
1152	313817856201	1152 MB-1 ASSY (CPT)
1153	313817856211	1153 VB-1 ASSY
1154	313817856221	1154 C/B ASSY
1252	313817856291	HOR. T/R ASSY
1253	313817858801	POWER TRANS ASSY-M30 (71 M3
1254	313817855111	VERT IC ASSY -M30(7401)
1752	313817856281	VIDEO IC ASSY
1806	243854300061	RES XTL 12MHZ 30P HC49U B
5007	313816878011	DEGAUSSING COIL
5106	313817879161	BAR COIL 7U5H PM10
5108	313812871291	LINE FILTER
5113	313818871321	SMPS TRANSFORMER
5601	313816878191	LINEARITY COIL
5606	313812871701	BRIDGE COIL 110UH
5612	823827443021	L.O.T.DFBTPH0100D56P
5615	313818870421	HOR. DRIVER XFMR (54A-003)
5616	313818871121	DRUM CHOKE COIL
6101	932205814682	BRIGE GBU4K
7101	932213500687	MOS TRANSTER SSP7N60A
7102	935264503112	IC TEA1504AP/N2 14P
7111	932214014667	PHOTOCOUPLER TCET1103G 4P
7112	933771100686	IC TL431CLPRP 3P
7114	933510720686	IC MC78L05ACPRP 3P
7301	935266857112	IC TDA4886/V2 24P
7302	935267938112	V/E IC TDA4822PS/V1/M5
7303	932210611676	IC LE33CZ-AP 3P
7304	932216297682	OSD IC MTV030N-19
7401	933922940682	IC TDA8172
7501	935267455112	IC TDA4841PS/V3 32P
7603	932214679682	FET POW 2SJ512
7605	934003960126	TRANS BSN254A
7606	934026300127	TRANSTER BU2527AF
7613	931101033687	TRA MOW TIP122
7621	933393510602	IC LM358N

OSD Adjustments

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.

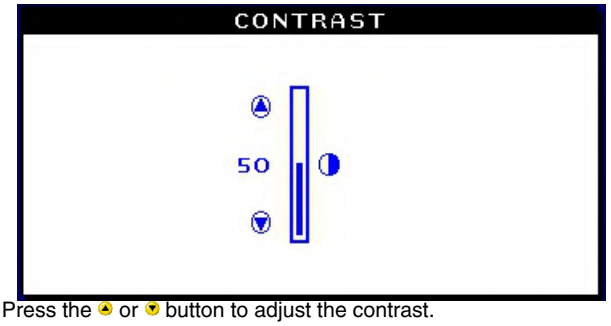
3) When the brightness is adjusted to the level desired, stop pressing the ◀ or ▶ button and after three seconds the BRIGHTNESS window will disappear with the new adjustment saved.

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 bellow. 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 OK button on the monitor. The MAIN CONTROLS window appears. LANGUAGE should be highlighted.

2) Press the OK button again. The LANGUAGE window appears.

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

4) Press the OK 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 OK button

OSD Adjustments (Continued)

Go to cover page

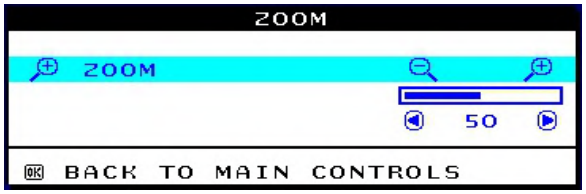
ZOOM

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

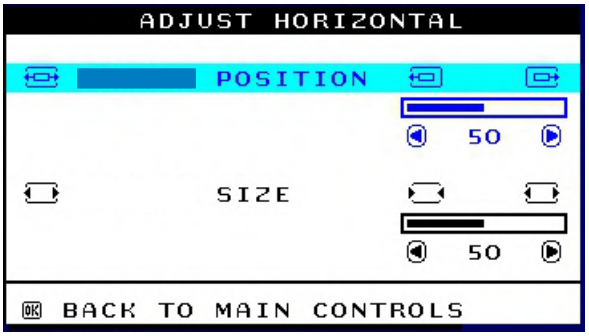
ADJUST HORIZONTAL

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.

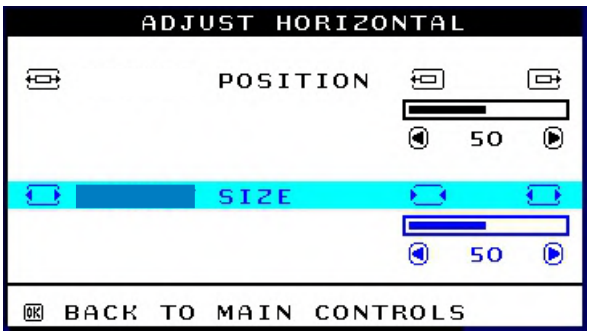
2) Press the button until ADJUST HORIZONTAL is highlighted.

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.

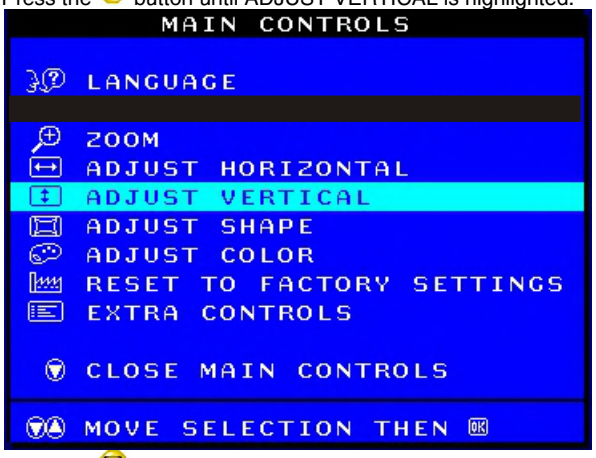
1) Press the button on the monitor. The MAIN CONTROLS window appears.

Back Forward

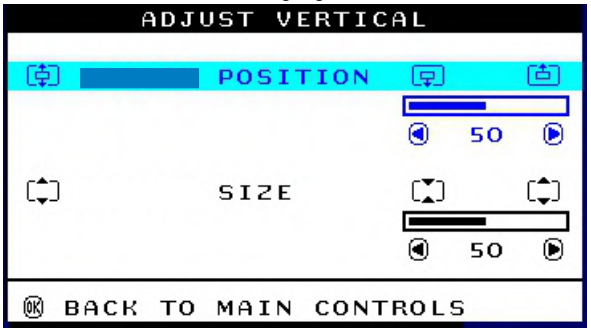
OSD Adjustments (Continued)

Go to cover page

2) Press the button until ADJUST VERTICAL is highlighted.

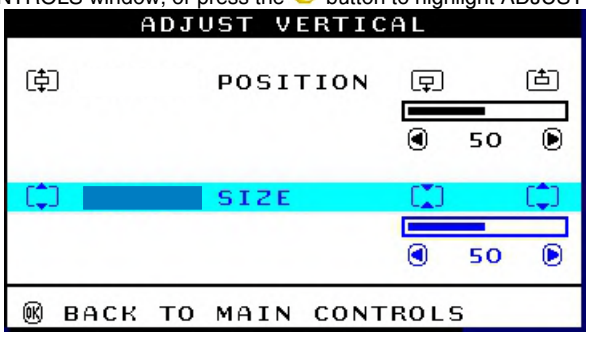


3) Press the button. The ADJUST VERTICAL window appears. ADJUST POSITION should be highlighted.



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

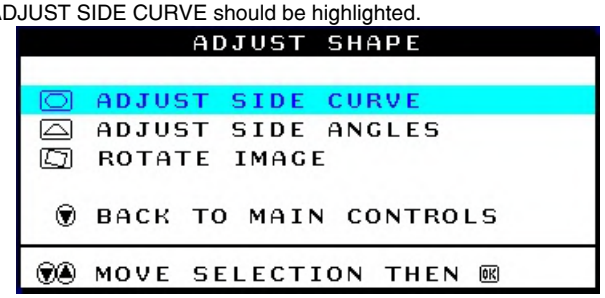
ADJUST SIDE CURVE

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.

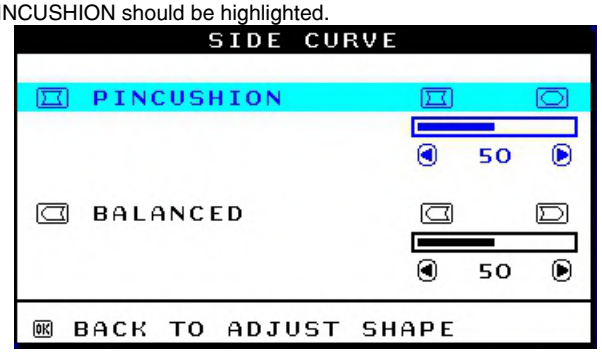
1) Press the button on the monitor. The MAIN CONTROLS window appears.

2) Press the button until ADJUST SHAPE is highlighted.

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

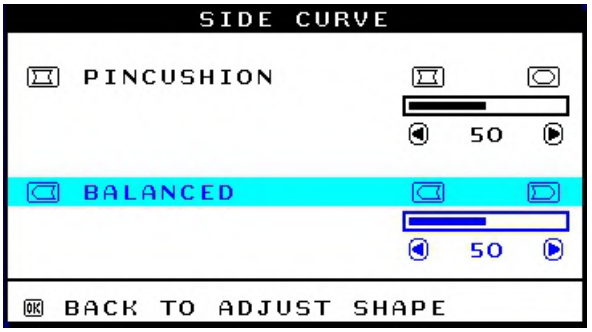


4) Press the button. The SIDE CURVE window appears. PINCUSHION should be highlighted.



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.

Back Forward

OSD Adjustments (Continued)

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.

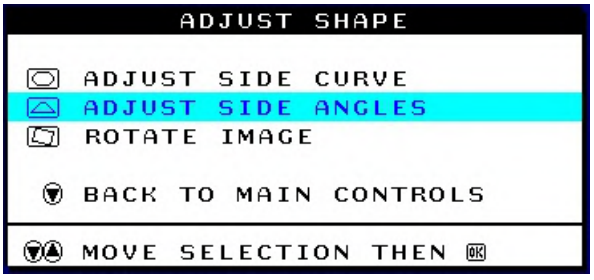
ADJUST SIDE ANGLES

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.

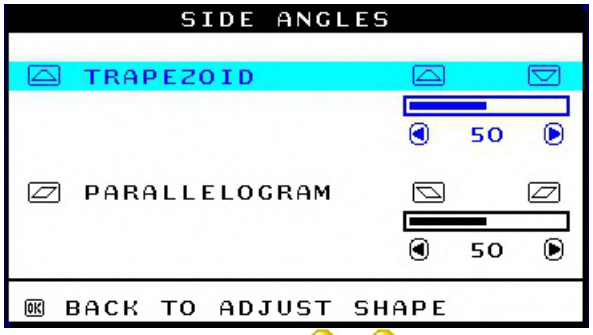
2) Press the button until ADJUST SHAPE is highlighted.

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



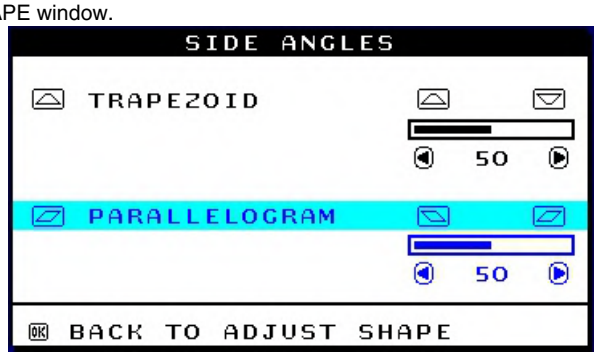
4) Press the button to highlight ADJUST SIDE ANGLES.

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

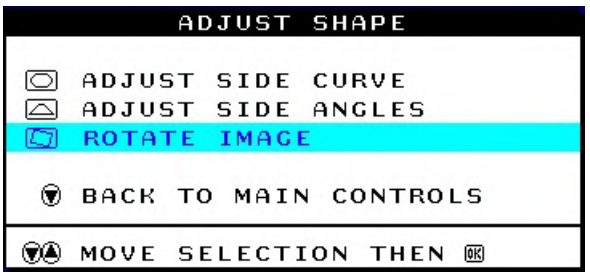
ROTATE IMAGE under ADJUST SHAPE allows you to adjust one of the five preset options. These two options are PINCUSHION and BALANCED pincushion. Note: use this feature only when the picture is not square.

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.

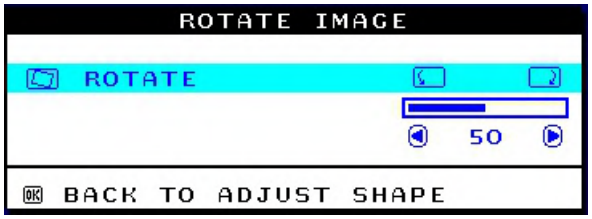
4) Press the arrow until ROTATE IMAGE is highlighted.



OSD Adjustments (Continued)

Go to cover page

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.

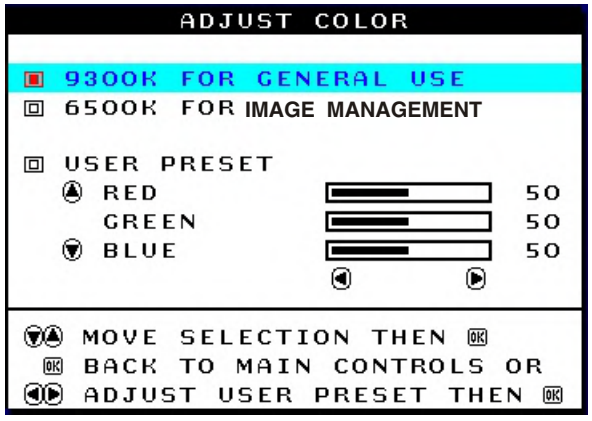
ADJUST COLOR

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 you 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.

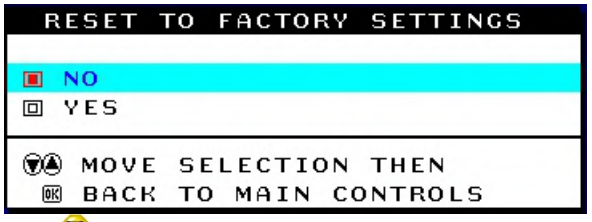
1) Press the button on the monitor. The MAIN CONTROLS window appears.

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)

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

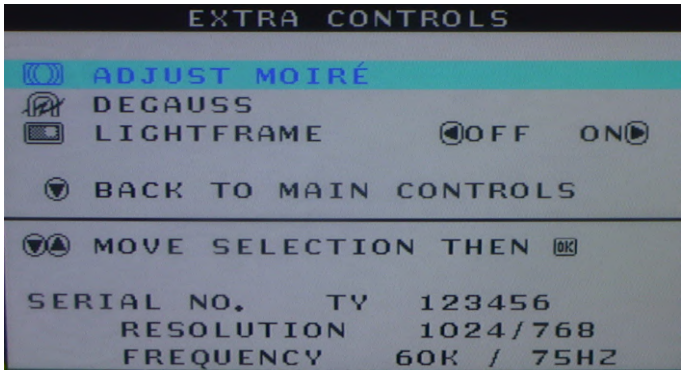
ADJUST MOIRE

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.

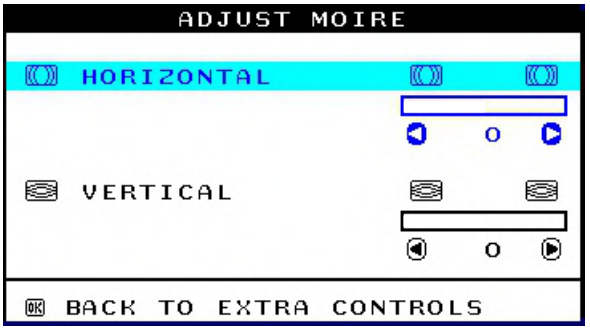
1) Press the button on the monitor. The MAIN CONTROLS window appears.

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.

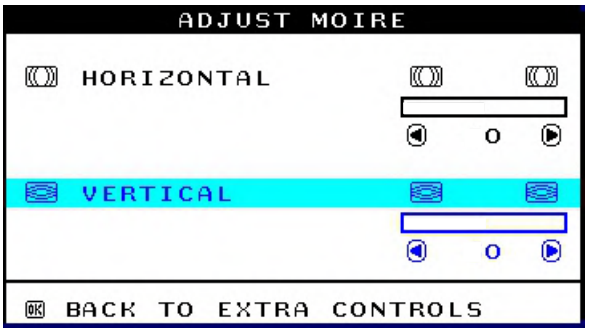


4) Press the button. The ADJUST MOIRE window appears. HORIZONTAL will be highlighted.



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.

OSD Adjustments (Continued), Troubleshooting

Go to cover page

DEGAUSS

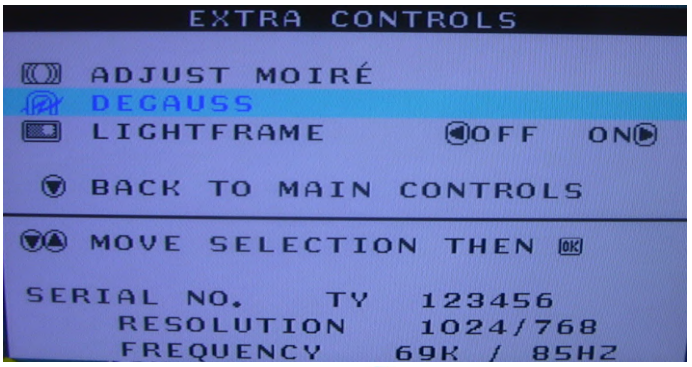
EXTRA CONTROLS is a set of three features, including DEGAUSS. Degaussing removes electromagnetic build up that may distort the color on your screen.

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.

Mechanical Instructions

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 (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.

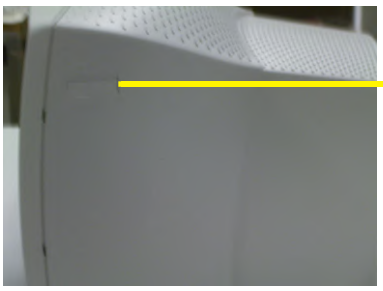


Fig. 1

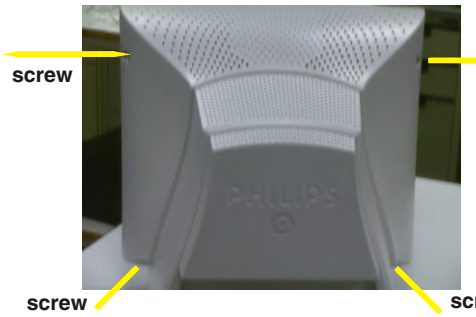


Fig. 2

Fig. 3

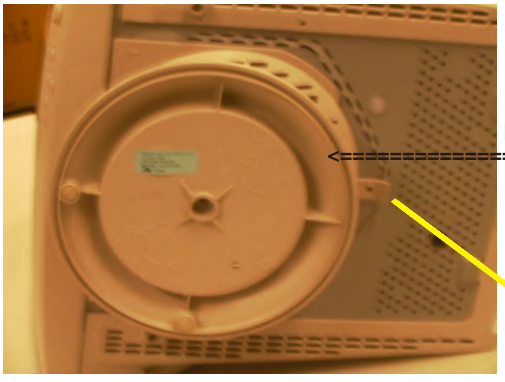


Fig. 4

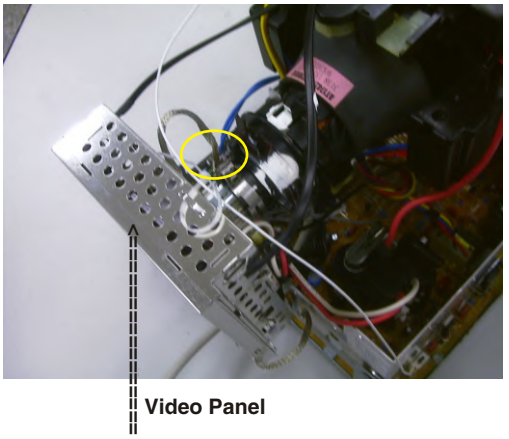


Fig. 5

Mechanical Instructions

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 concellation 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.

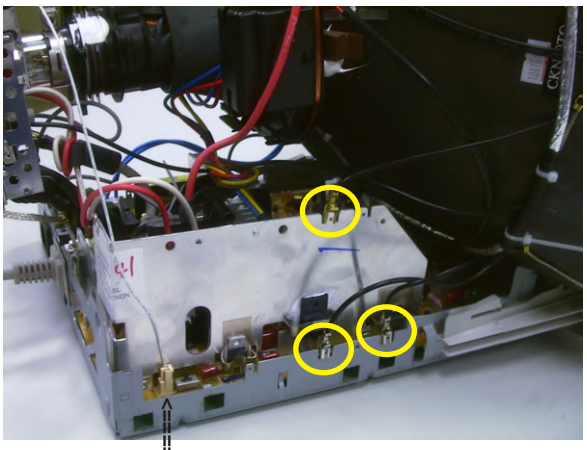


Fig. 9

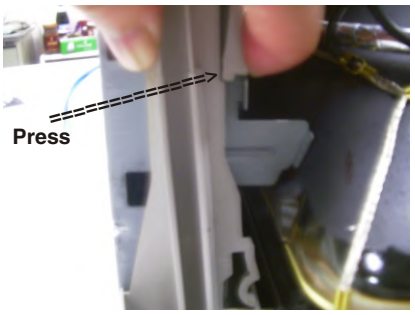


Fig. 10

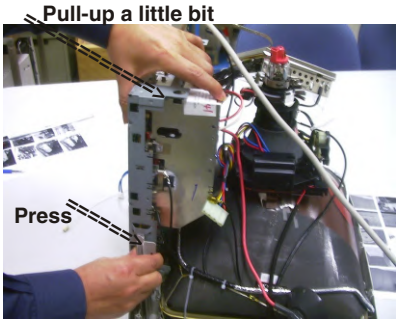


Fig. 11

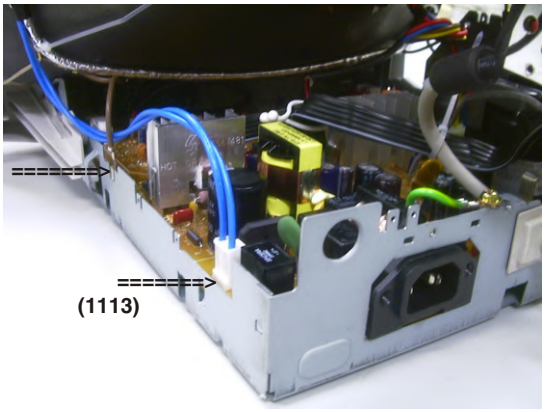


Fig. 6

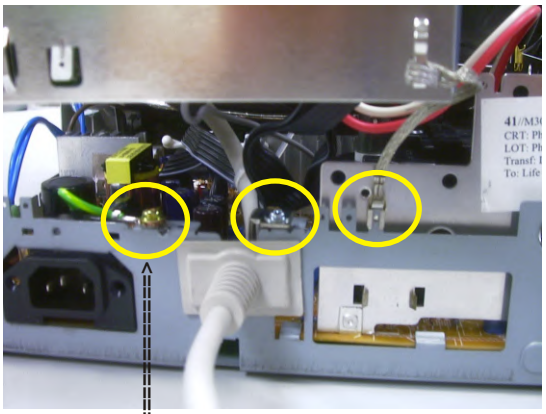


Fig. 7

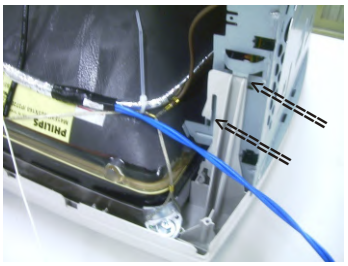


Fig. 12

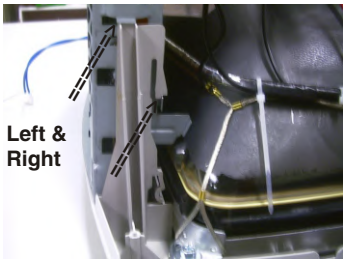


Fig. 13

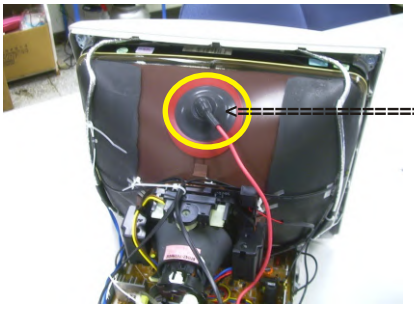


Fig. 8

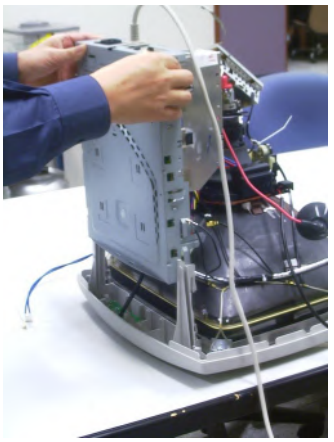


Fig. 14

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.

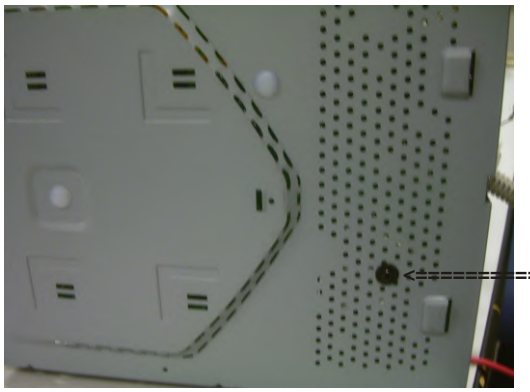


Fig. 15
Rear view of Bottom Tray

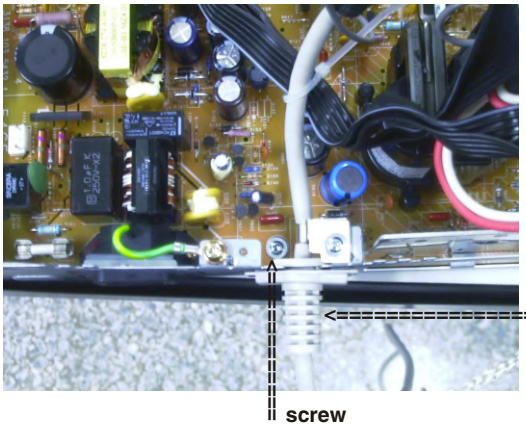


Fig. 16

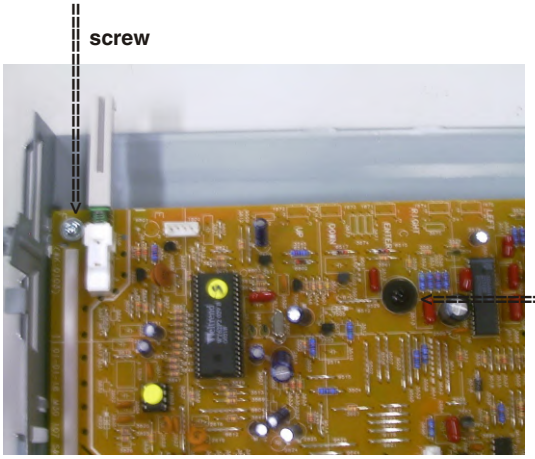


Fig. 17

Fig. 18

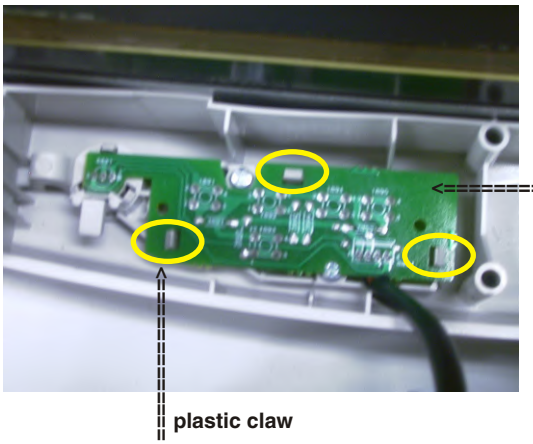


Fig. 19

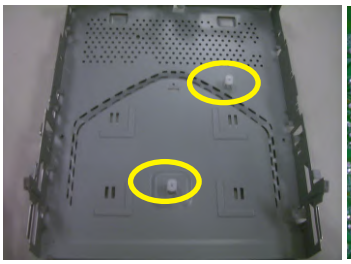


Fig. 20
(plastic on bottom tray)

Fig. 21
(copper track side view on Main panel)

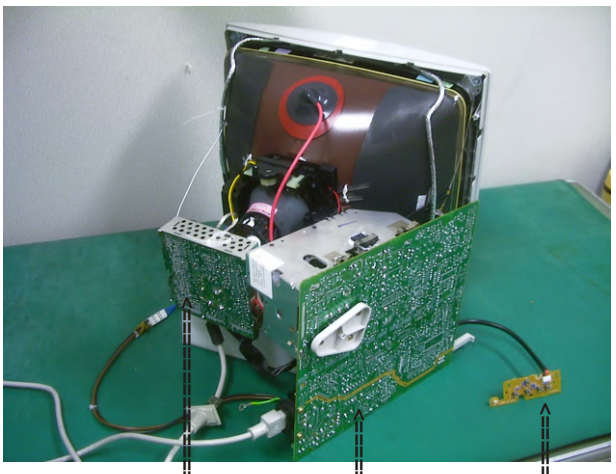


Fig. 22 SERVICE POSITION

Hex Data of DDC2B

```
************************************************************************
                        EDID log file for CPT CRT
************************************************************************
Vendor/Product Identification
        ID Manufacturer Name   : PHL
        ID Product Code        : E004 (HEX.)
        ID Serial Number       : 4D2 (HEX.)
        Week of Manufacture    : 23
        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 : 2.86
             (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             : 99
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 107B3
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                        : 49 (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: 04 11: e0 12: d2 13: 04 14: 00 15: 00
16: 17 17: 0a 18: 01 19: 01 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: 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: 54 107: 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: 20 121: 20 122: 20 123: 20 124: 20 125: 20 126: 00 127: 49

Address 78 & 79 factory code:
  Brazil       HC(48h,43h)          Chungli      TY(54h,59h)
  Delta        GK(47h,4Bh)          Juarez       TA(59h,41h)
  Shenzshen    CX(43h,58h)  same as Dongguan
  Suzhou       BZ(42h,5Ah)          Szombathely  HD(48h,44h)
  Serial no. address: 82,83,84,85,86,87,88,89
```

Hex Data of DDC2B

```
************************************************************************
                EDID log file for Philips Tube
************************************************************************
Vendor/Product Identification
        ID Manufacturer Name    : PHL
        ID Product Code         : E009 (HEX.)
        ID Serial Number        : 4D2 (HEX.)
        Week of Manufacture     : 22
        Year of Manufacture     : 2001
EDID Version, Revision
        Version                 : 1
        Revision                : 1
Basic Display Parameters/Features
        Video Input Definition  : Analog Video Input
                                  0.700V/0.300V (1.00Vpp)
                                  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 : 2.33
             (gamma)
        Feature Support (DPMS): Standby
                                Suspend
                                Active Off
        Display Type            : RGB color display
        Preferred Timing Mode   : Detailed timing block 1
Color Characteristics
        Red   X coordinate      : 0.62
        Red   Y coordinate      : 0.35
        Green X coordinate      : 0.29
        Green Y coordinate      : 0.61
        Blue  X coordinate      : 0.15
        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)
                                 1280 x 1024 @75Hz (VESA)
        Manufacturer's timings : 832 x 624 @75Hz (Apple,Mac II)
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            : 4:3
        Refresh Rate            : 60

Standard Timing Identification #5
        Horizontal active pixels : 1280
        Aspect Ratio            : 4:3
        Refresh Rate            : 85

Standard Timing Identification #6
        Horizontal active pixels : 1600
        Aspect Ratio            : 4:3
        Refresh Rate            : 60

Standard Timing Identification #7
        Horizontal active pixels : 1152
        Aspect Ratio            : 4:3
        Refresh Rate            : 85

Standard Timing Identification #8
        Horizontal active pixels : 1280
        Aspect Ratio            : 5:4
        Refresh Rate            : 60

Detailed Timing #1
        Pixel Clock (MHz)       : 94.5
        H Active (pixels)       : 1024
        H Blanking (pixels)     : 352
        V Active (lines)        : 768
        V Blanking (lines)      : 40
        H Sync Offset (F Porch) (pixels): 48
        H Sync Pulse Width (pixels)     : 96
        V Sync Offset (F Porch) (lines) : 1
        V Sync Pulse Width (lines): 3
        H Image Size (mm)       : 300
        V Image Size (mm)       : 225
        H Border (pixels)       : 0
        V Border (lines)        : 0
        Flags                   : Non-interlaced
                                : Normal Display, No stereo
                                : Digital Separate sync.
                                : Negative Vertical Sync.
                                : Negative Horizontal Sync.

Monitor Descriptor #2
        Serial Number           : TY  123456

Monitor Descriptor #3
        Monitor Name            : PHILIPS 107B3

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    : 86
        Max. Supported Pixel    : 180

Extension Flag                  : 0

Check sum                       : EE (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: 09 11: e0 12: d2 13: 04 14: 00 15: 00
16: 16 17: 0b 18: 01 19: 01 20: 08 21: 1f 22: 17 23: 85
24: ea 25: e5 26: b8 27: 9e 28: 59 29: 4a 30: 9c 31: 26
32: 10 33: 48 34: 4c 35: ad 36: ef 37: 80 38: 31 39: 59
40: 45 41: 59 42: 61 43: 59 44: 81 45: 40 46: 81 47: 59
48: a9 49: 40 50: 71 51: 59 52: 81 53: 80 54: ea 55: 24
56: 00 57: 60 58: 41 59: 00 60: 28 61: 30 62: 30 63: 60
64: 13 65: 00 66: 2c 67: e1 68: 10 69: 00 70: 00 71: 18
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: 42 107: 33 108: 00 109: 00 110: 00 111: fd
112: 00 113: 32 114: a0 115: 1e 116: 56 117: 12 118: 00 119: 0a
120: 20 121: 20 122: 20 123: 20 124: 20 125: 20 126: 00 127: ee
```

Hex Data of DDC2B

****
EDID log file for SAMSUNG CRT
****

Vendor/Product Identification
- ID Manufacturer Name : PHL
- ID Product Code : E004 (HEX.)
- ID Serial Number : 4D2 (HEX.)
- Week of Manufacture : 23
- 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 (gamma) : 2.87
- 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 : 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 107B3

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 : 48 (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: 04 11: e0 12: d2 13: 04 14: 00 15: 00
16: 17 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: 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: 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: 54 107: 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: 20 121: 20 122: 20 123: 20 124: 20 125: 20 126: 00 127: 48
```

Address 78 & 79 factory code:

Brazil	HC(48h,43h)	Chungli	TY(54h,59h)
Delta	GK(47h,4Bh)	Juarez	TA(59h,41h)
Shenzshen	CX(43h,58h)	same as Dongguan	
Suzhou	BZ(42h,5Ah)	Szombathely	HD(48h,44h)

Serial no. address: 82,83,84,85,86,87,88,89

DDC Instructions

Go to cover page

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

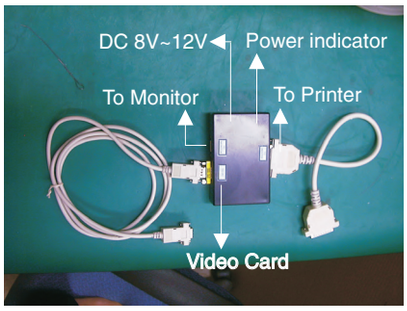
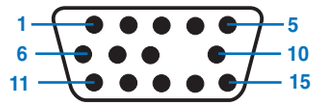


Fig. 2 Alignment Kits

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		

DDC Instructions (Continued)

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-probrammed 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.

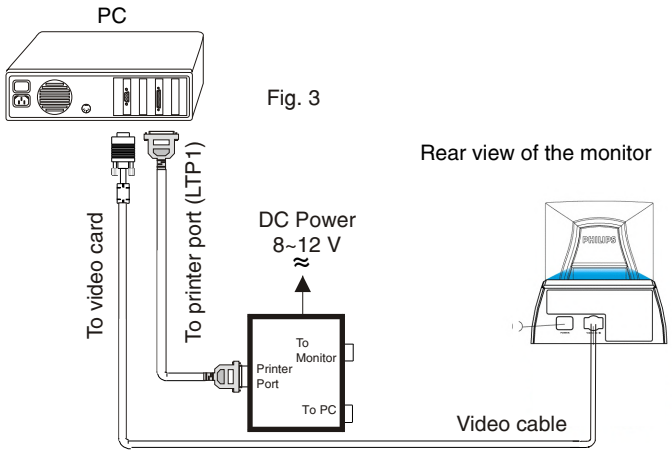


Fig. 3

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.

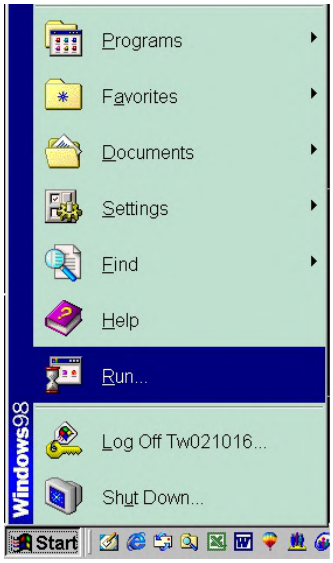


Fig. 4

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.

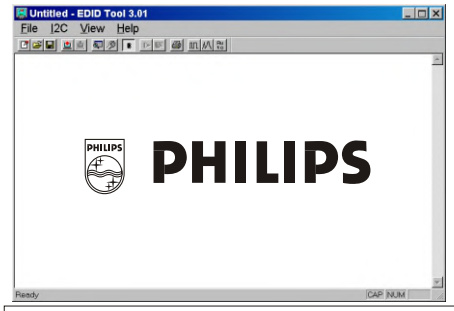


Fig. 6

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 disable. 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

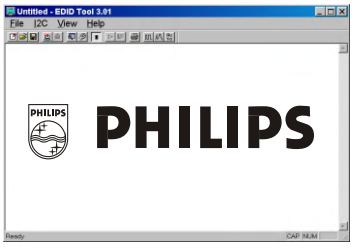
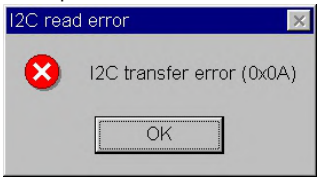


Fig. 9

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.



DDC Instructions (Continued)

Re-programming EEPROM (Software DDC)

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

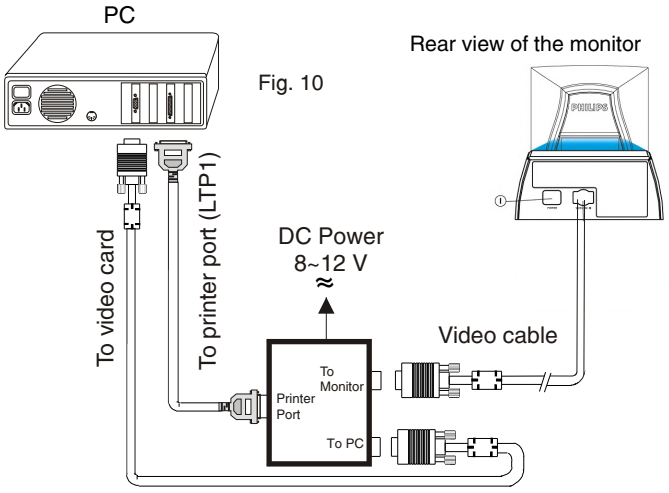


Fig. 10

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 if Fig. 11 from the tool bar to bring up the "Configuration Setup" windows as shown in Fig. 12.

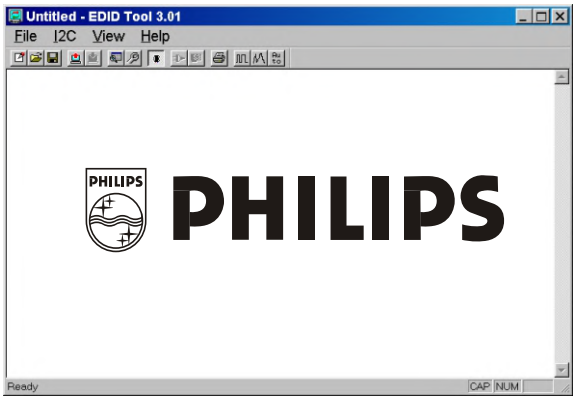


Fig. 11

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

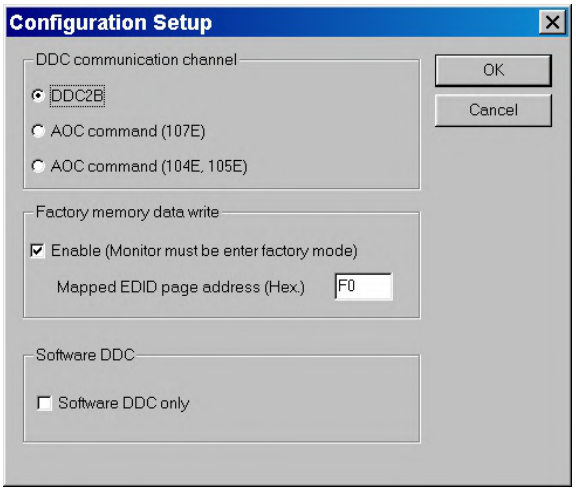


Fig. 12

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.

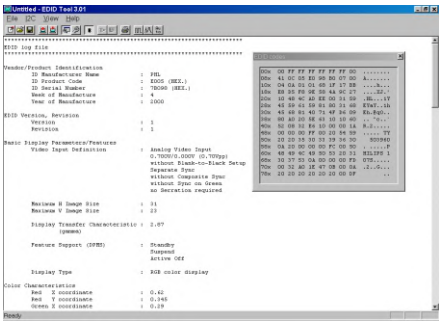


Fig. 13

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.

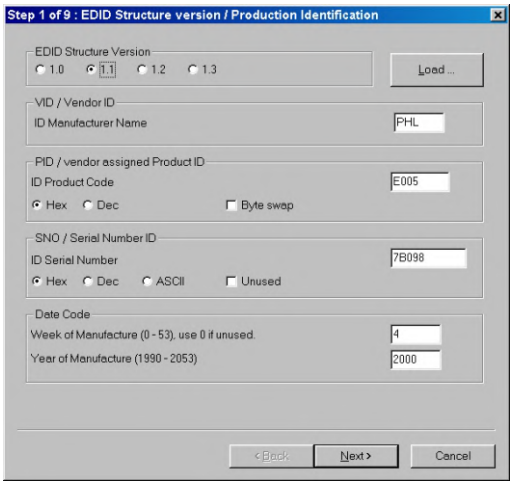


Fig. 14

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.

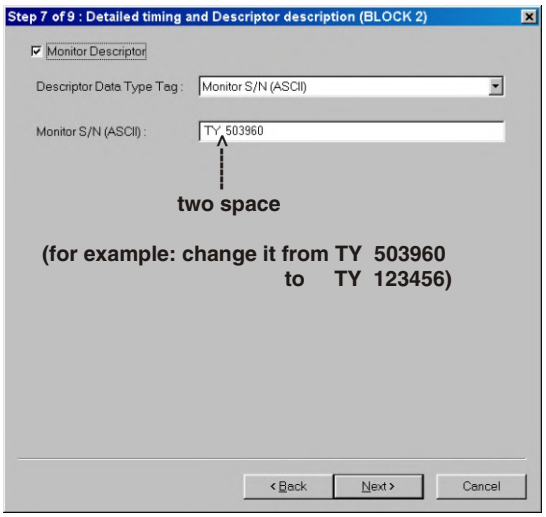
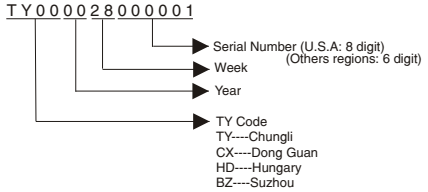


Fig. 15

Definition of Serial Number (barcode format)



DDC Instructions (Continued)

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".

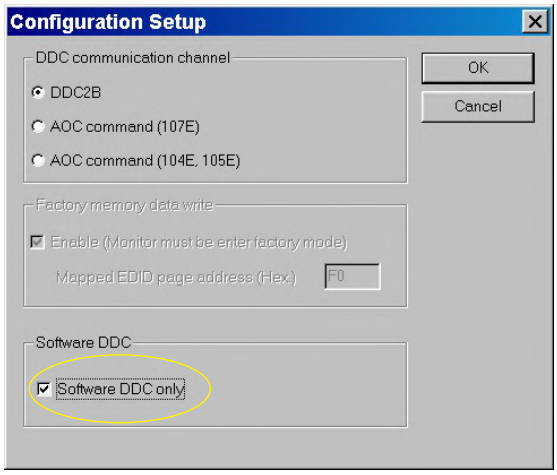


Fig. 16

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.

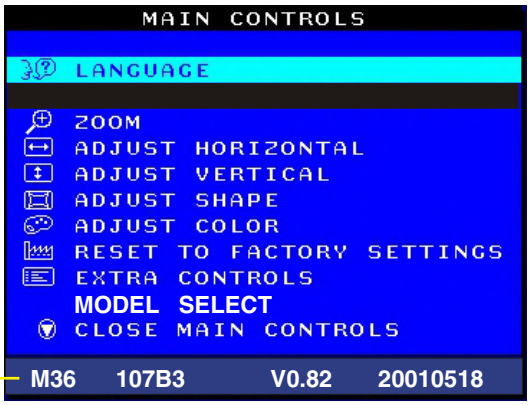


Fig. 17

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.

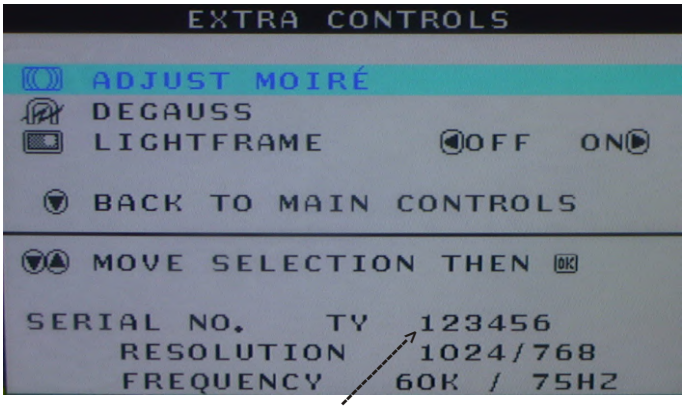


Fig. 18

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 flie to re-load it into EEPROM for DDC Data application.

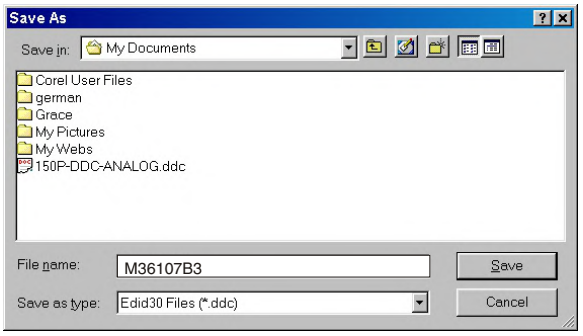


Fig. 19

2. Click **Save**.

DDC Instructions (Continued)

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).

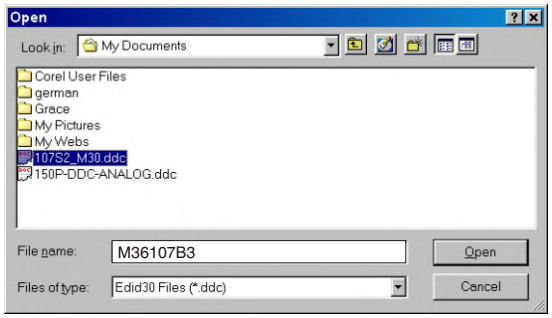


Fig. 20

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.

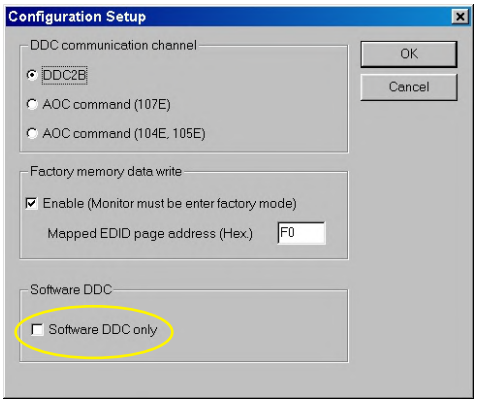


Fig. 22

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

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.

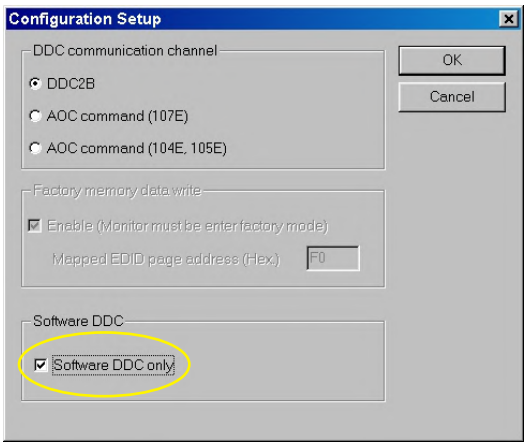


Fig. 23

Electrical Adjustments

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.

1. 720 x 400 31.5 kHz/70 Hz
2. 640 x 480 37.5 kHz/75 Hz
3. 800 x 600 46.9 kHz/75 Hz
4. 800 x 600 53.6 kHz/85 Hz
5. 1024x768 60.0 kHz/75 Hz
6. 1024 x 768 68.7 kHz/85 Hz
7. 1280 x 1024 80.0kHz/75Hz
8. 640 x 480 43.3 kHz/85 Hz

21 factory-preload modes as below

9. 640 x 350 37.8 kHz/85 Hz
10. 640 x 480 50.6 kHz/100 Hz
11. 640 x 480 31.6 kHz/60 Hz
12. 640 x 480 37.9 kHz/72.8 Hz
13. 1280 x 960 85.9 kHz/85 Hz
14. 720 x 400 31.469 kHz/70 Hz
15. 720 x 400 37.92 kHz/85Hz
16. 800 x 600 63.9 kHz/100Hz
17. 800 x 600 37.8 kHz/60.3Hz
18. 800 x 600 48.07 kHz/72.1Hz
19. 832 x 624 49.7 kHz/74.6Hz
20. 1024 x 768 48.36 kHz/60 Hz
21. 1024 x 768 56.47 kHz/70 Hz
22. 1152 x 864 67.5 kHz/75 Hz
23. 1152 x 864 77.1 kHz/85 Hz
24. 1152 x 870 68.68 kHz/75 Hz
25. 1152 x 900 71.8 kHz/76 Hz
26. 1280 x 1024 63.98 kHz/60 Hz
27. 1280 x 960 60kHz/60Hz
28. 1600 x 1200 75 kHz/60 Hz
29. 1600 x 1200 81.25 kHz/65Hz

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 1024 x768, 68.7 kHz/85 Hz (only) as signal source.

2. AC/DC Measurement:
The measurements for AC waveform and DC figure is based on 1024 x 768 68.7kHz/85 Hz resolution mode with test pattern "gray scale". Power input: 110V AC

3.Monitor the following auxiliary voltages.

SOURCE ACROSS C2155	-6.1 V +/- 0.2 VDC.
SOURCE ACROSS C2153	+12.5V +/- 1.0 VDC.
SOURCE ACROSS C2154	- 12.5V +/- 1.0 VDC.
SOURCE ACROSS C2151	+78.5V +/- 1.0 VDC.
SOURCE ACROSS C2152(+ to Gnd)	+190.0V +/- 1.0 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 " ",wait till the OSD menu with characters M30 107S P V0.82 20010207 (below OSD menu)" come on the screen of monitor.

Factory Mode Indicator

5.3 If OSD menu disappears on the screen of monitor, press " " 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 " " 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/paralleogram
6.4.5 Adjust picture tilt via I^2C BUS for correct top/bottom lines.
6.4.6 Adjust the top and bottom corner by I^2C to get optimum corner geometry.
6.4.7 Adjust the parallelogram by I^2C BUS to get optimum vertical line.
6.4.8 Adjust the balance pincushion by I^2C 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 I^2C bus.
(to repeat from step 6.4.1 to step 6.4.9)

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 = 62%, R gain = 71% (I² C)
G cutoff = 62%, G gain = 71% (I² C)
B cutoff = 62%, B gain = 71% (I² C)
6500 °K
R cutoff = 62%, R gain = 71% (I² C)
G cutoff = 62%, G gain = 71% (I² C)
B cutoff = 62%, B gain = 71% (I² C)
5500 °K
R cutoff = 62%, R gain = 71% (I² C)
G cutoff = 62%, G gain = 71% (I² C)
B cutoff = 62%, B gain = 71% (I² C)

Brightness = 50%, Sub-Contrast = 88%, ABL = 58% (I² 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 " OSD ", wait till the OSD menu with characters M30 107S P V0.82 20010207 (below OSD menu)" comes on the screen of monitor as shown in Fig. 2.1.

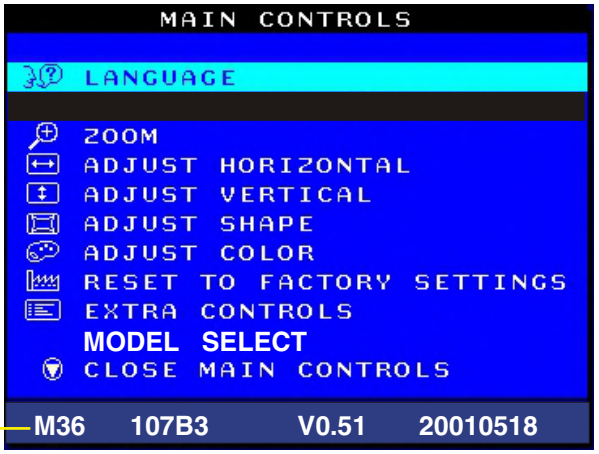


Fig. 2.1

- If OSD menu disappears on the screen of monitor, press " OSD " again (anytime), then the OSD menu comes on the screen again.
- Using " ▼ " to select M30 107S P V0.82 20010207.
- Press " OSD " 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 " OSD " 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.

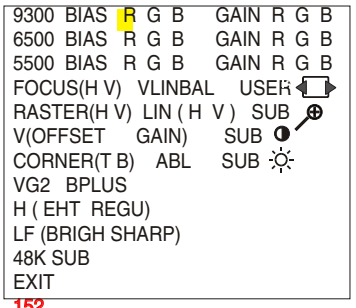


Fig. 2.2

(for ref. 152, 38,71,242,202,226)
(for ref. 160,41,75,238,174,153)
(for ref. 0,120,95,70)
(for ref. 127,127,255,41,80)
(for ref. 170,170,220)
(for ref. 70,65,152,255)
(for ref. 183,152)
(for ref. 96,96)
(for ref. 4,4)
(for ref. 230)

(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 Brigntness
V OFFSET : Vertical offset
V GAIN : Vertical Gain
ABL : Auto Beam Limit
T CORNER: Corner Correctionof TOP
B CORNER: Corner Correctionof 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 bias at 90 for CPT CRT ,at 160 for BGDCCRT,SDI CRT
R,G,B gain at 180 9300°k ,6500°K & 5500°K (EEPROM preload value)
ABL at 150 9300°k ,6500°K & 5500°K (EEPROM preload value)
SUB-CON at 225 (EEPROM preload value)

7.4 Adjust 9300K Color:
Adjust R3517 until raster appear to reach 0.1 FL
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= 40+/- 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=40+/-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=0.10FL

7.8 Adjust 5500K color:
With color analyzer CA 100,
set R,G,B cut-off x=0.332, y=0.347, Y=0.10FL

7.9 Apply full white pattern of 9300 mode, adjust ABL to reach 32 +/- 1FL(at 9300 high brightness of R/G/B gain, contrast at 100%)

7.10 Check full white at contrast and brightness at minimum

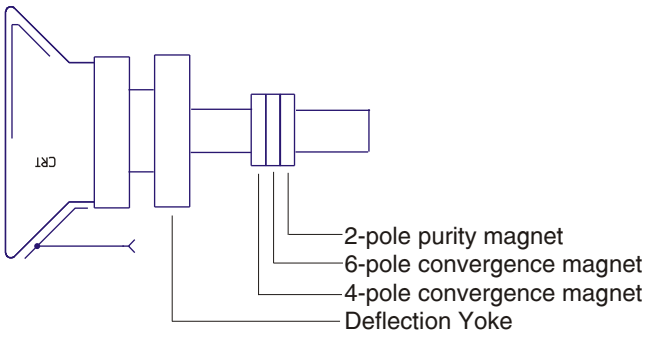
Electrical Adjustments (Continued)

8. Focus adjustment

Apply a signal of " @ " character. at 64 kHz/60 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.

11. Static convergence

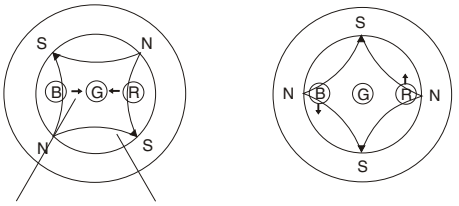
Introduction

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

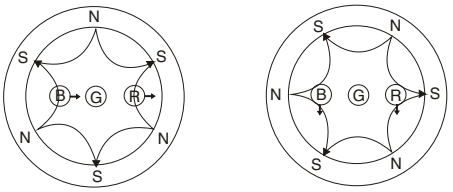
- Before the static convergence setting can be made, the monitor must be switched on for 30 minutes.
- The focus setting must be made correctly.
- Signal: 640 * 480, 31.5 kHz/60 Hz mode.
- Set the tabs of the 4-pole magnet in the neutral position. This is when the tabs are opposite one another. In this 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.

4-pole — Beam motion producced by the 4-pole convergence magnet



Beam displacement direction — Magnetic flux lines

6-pole — Beam motion producced by the 6- pole convergence magnet



Spare Parts List

Parts List
CTV : 107B30/40C

0001 313812752211 FRONT CAINET ASSY
0002 313812752031 BACK COVER ASSY
0003 313810798401 PEDESTAL ASSY
0044 313810448612 BASE(CHEIL HR-1360)
0047 313810454231 BUTTON-POWER
0049 313810454211 BUTTON-FUNCTION
0053 313810448602 SWIVEL(CHEIL HR-1360)
1151 ▲ 932216537682 CRTM41AJR53X76(CPT)

Various

0178 313810540291 SETTING UP GUIDE
0450 313810660622 CARTON
0451 313810656842 CUSHION - TOP
0452 313810656852 CUSHION - BTM
0454 313810656581 PE BAG
0601 313811703211 E-D.F.U.ASSY (LIGHTFRAME)

Accessories

1053▲ 243807098118 MAINS CORD
1054 313818871111 I/F CABLE

1152 Main Panel

1152 313817856201 M36(107B3)CPT MAIN PCB ASSY
1101▲ 242208600208 FUSE 5X20 HT 4A/250V IEC
1104▲ 242213207402 RELAY SDT-SS-112DM
1106▲ 243812800183 SWITCH

2103 202030790006 CAP MPOL UV250V S 1U PM10
2104 202055490139 CERSAF NSB 250V S 4N7 PM20
2105 202055490139 CERSAF NSB 250V S 4N7 PM20
2106 203803500221 ELCAP LZK 400VS 150U PM20
2107 203830250229 CAP MPOL 250VS 10N PM5
2111 225271214316 CERHDT 712 2KVS 330P PM10
2112▲ 202055490138 CERSAF NSA 250VS 4N7 PM20
2113 203803454109 ELCAP VX 25VS 10U PM20
2116 223891015649 CER2 0805 X7R 25V 100N PM10
2118 223858015641 CER2 0805 X7R 50V 22N PM10
2121 202055290798 CER2 DC B 50VS 220P PM10
2123 203803454479 ELCAP VX 25VS 47U PM20
2132 203830250142 CAP MKT 250VS 22N PM20
2133 203830250095 CAP MPOL 100VS 100N PM10
2134 225260808011 CER2 DC X7R 500VS 100P PM10
2135 203830250218 CAP MPOL 100VS 10N PM2
2141 203803454479 ELCAP VX 25VS 47U PM20
2142 203803500083 ELCAP SK 25VS 1000U PM20
2151 203803182101 ELCAP VT 100VS 100U PM20
2152 203803192479 ELCAP VT 160VS 47U PM20
2153 203803135102 ELCAP VT 16VS 1000U PM20
2154 203803135471 ELCAP VT 16VS 470U PM20
2155 203803135102 ELCAP VT 16VS 1000U PM20
2156 203803453221 ELCAP VX 16VS 220U PM20
2251 203803456228 ELCAP VX 50VS 2U2 PM20
2252 203830100222 CAP MPP MPS250V S 820N PM5
2255 203830100424 CAP MPP MPSA400V S 240N PM5
2256 223858015641 CER2 0805 X7R 50V 22N PM10
2257 203830100219 CAP MPP MPS250V S 390N PM5
2260 223891015649 CER2 0805 X7R 25V 100N PM10
2261 202055290834 CER2 DC F 50VS 22N P8020
2262 203830100305 CAP MPP MPS250V S 180N PM5
2271 202055290834 CER2 DC F 50VS 22N P8020
2272 203830100315 CAP MPP MPS250V S 100N PM5
2402 203803453471 ELCAP VX 16VS 470U PM20
2405 203803425221 ELCAP VX 35VS 220U PM20
2406 203830250098 CAP MPOL 100VS 330N PM10
2411 203803453471 ELCAP VX 16VS 470U PM20
2501 203803453101 ELCAP VX 16VS 100U PM20
2502 223886115229 CER1 0805 NP0 50V 22P PM5
2505 203803453471 ELCAP VX 16VS 470U PM20
2506 223858015635 CER2 0805 X7R 50V 8N2 PM10
2507 223891015649 CER2 0805 X7R 25V 100N PM10
2508 203830250218 CAP MPOL 100VS 10N PM2
2509 202055290798 CER2 DC B 50VS 220P PM10
2511 203830250089 CAP MPOL 100VS 10N PM10
2518 203803453339 ELCAP VX 16VS 33U PM20
2520 203830250095 CAP MPOL 100VS 100N PM10
2521 203830250212 CAP POL 100VS 100N PM5
2522 203830250125 CAP POL MEF 100V S 220N PM10
2524 203830150135 CAP PP PPN 100V S 2N2 PM5
2526 203803458108 ELCAP VX 100VS 1U PM20
2527 203803456228 ELCAP VX 50VS 2U2 PM20
2528 202055290821 CER2 DC B 50VS 10N PM10
2600 203803192003 ELCAP VT 250VS 33U PM20
2602 203830250142 CAP MKT 250VS 22N PM20
2603 203803145229 ELCAP VT 25VS 22U PM20
2604 203803145229 ELCAP VT 25VS 22U PM20
2605 203830250166 CAP POL 400VS 10N
2606 203830150301 CAP PP PPN 250V S 10N PM5
2609 203803550209 ELCAP SH 250VS 3U3 PM20
2610 203803195007 ELCAP VT 250VS 10U PM20
2611 203803522801 ELCAP NK 160VS 1U PM20
2612 203803195005 ELCAP VT 160VS 1U PM20
2613 202055290821 CER2 DC B 50VS 10N PM10
2614 202055890561 CERHDT RR 2KVS 220P PM10
2615 203830250095 CAP MPOL 100VS 100N PM10
2616 203830150191 CAP PP PPN 100V S 3N3 PM2
2617 222237590634 CAP PP-MPOL 2KV5S 4N7 PM5
2618 222237590727 CAP PP-MPP 630VS 3N3 PM5
2619 203803454109 ELCAP VX 25VS 10U PM20
2620 202055890561 CERHDT RR 2KVS 220P PM10
2621 225260114416 CER2 DCX7R 1KV S 470P PM10 A
2622 203830250094 CAP MPOL 100VS 47N PM10
2623 202055890604 CERHDT RR 2KVS 100P PM10
2624 225271214026 CERHDT 712 2KVS 1N PM10
2625 203803458108 ELCAP VX 100VS 1U PM20
2626 202055790146 CER2 DC B 500V S 470P PM10
2627 202055290834 CER2 DC F 50VS 22N P8020
2628 203803454109 ELCAP VX 25VS 10U PM20
2631 203803526301 ELCAP LL 25VS 10U PM10
2633 225256108406 CER1 DC SL 1KV S 47P PM10A
2634 202055790151 CER2 DC B 500V S 1N PM10
2637 202055890561 CERHDT RR 2KVS 220P PM10
2651 223891015649 CER2 0805 X7R 25V 100N PM10
2656 203803454109 ELCAP VX 25VS 10U PM20
2657 203803456228 ELCAP VX 50VS 2U2 PM20
2676 203803454109 ELCAP VX 25VS 10U PM20
2681 223858015641 CER2 0805 X7R 50V 22N PM10
2686 203803500101 ELCAP SEK 250VS 22U PM20
2702 223891015649 CER2 0805 X7R 25V 100N PM10
2721 203803185109 ELCAP VT 100VS 10U PM20
2722 222258015649 CER2 0805 X7R 50V 100N PM10
2723 203803522801 ELCAP NK 160VS 1U PM20
2724 203803458108 ELCAP VX 100VS 1U PM20
2725 242254944346 SURGE PROTECT DSP-201M-D04F
2726 222258015649 CER2 0805 X7R 50V 100N PM10
2727 202055790151 CER2 DC B 500V S 1N PM10
2731 203803522801 ELCAP NK 160VS 1U PM20
2732 203803458108 ELCAP VX 100VS 1U PM20
2733 242254944346 SURGE PROTECT DSP-201M-D04F
2751 203803522801 ELCAP NK 160VS 1U PM20
2752 203803458108 ELCAP VX 100VS 1U PM20
2753 242254944346 SURGE PROTECT DSP-201M-D04F
2760 223886115471 CER1 0805 NP0 50V 470P PM5
2761 223891015649 CER2 0805 X7R 25V 100N PM10
2762 223555900099 CER2 DC 2KVS 10N PM20
2763 223858016623 CER2 0805 X7R 50V 4N7 PM10
2771 222258015649 CER2 0805 X7R 50V 100N PM10
2772 225260114416 CER2 DCX7R 1KV S 470P PM10 A
2774 203803145101 ELCAP VT 25VS 100U PM20
2775 203803454109 ELCAP VX 25VS 10U PM20
2776 203803185229 ELCAP VT 100VS 22U PM20
2778 203803145479 ELCAP VT 25VS 47U PM20
2779 202055290598 CER1 DC NP0 50VS 47P PM5
2780 202055290598 CER1 DC NP0 50VS 47P PM5
2781 223886115479 CER1 0805 NP0 50V 47P PM5
2782 223886115479 CER1 0805 NP0 50V 47P PM5
2783 203803145479 ELCAP VT 25VS 47U PM20
2801 223891015649 CER2 0805 X7R 25V 100N PM10
2802 223886115101 CER1 0805 NP0 50V 100P PM5
2804 223886115101 CER1 0805 NP0 50V 100P PM5
2805 223886115101 CER1 0805 NP0 50V 100P PM5
2806 203803454479 ELCAP VX 25VS 47U PM20
2809 223891015649 CER2 0805 X7R 25V 100N PM10
2813 223886115229 CER1 0805 NP0 50V 22P PM5
2814 203803453221 ELCAP VX 16VS 220U PM20
2815 223886115229 CER1 0805 NP0 50V 22P PM5
2816 223886115221 CER1 0805 NP0 50V 220P PM5
2817 203830250212 CAP POL 100VS 100N PM5
2819 223886115229 CER1 0805 NP0 50V 22P PM5
2822 202055290835 CER2 DC F 50VS 47N P8020
2824 203803456228 ELCAP VX 50VS 2U2 PM20
2825 203803456228 ELCAP VX 50VS 2U2 PM20
2826 223891015649 CER2 0805 X7R 25V 100N PM10
2827 202055290603 CER1 DC NP0 50VS 100P PM5
2828 202055290603 CER1 DC NP0 50VS 100P PM5
2831 203803456228 ELCAP VX 50VS 2U2 PM20
2832 203803456228 ELCAP VX 50VS 2U2 PM20
2834 203803456228 ELCAP VX 50VS 2U2 PM20
2841 203803458108 ELCAP VX 100VS 1U PM20
2842 203803300008 ELCAP BP 63VS 3U3 PM20
2843 203830250125 CAP POL MEF 100V S 220N PM10

3101 232224213684 METGLAZ RST AVR37 680K PM5
3101 232224213684 RST MGL VR37 A 680K PM5
3102 213866000027 NTC DC SCK-104 S 10R PM15
3103 232224213105 RST MGL VR37 A 1M PM5
3104 212010592452 RST MOX 3W RSS S 27K PM5
3105▲ 232220533228 RST FUSE NFR25 A 2R2 PM5
3107 213810113103 RST CRB CFR-12 A 10K PM5
3108 213811273477 RST CRB CFR-25 A 0R47 PM5
3109 213811273477 RST CRB CFR-25 A 0R47 PM5
3110▲ 232220533221 RST FUSE NFR25 A 220R PM5
3112 213811604228 RST MFLM MF-50S A 2R2 PM5
3113 213811273477 RST CRB CFR-25 A 0R47 PM5
3114 213810113221 RST CRB CFR-12 A 220R PM5
3115 213810113181 RST CRB CFR-12 A 180R PM5
3117 213810113103 RST CRB CFR-12 A 10K PM5
3118 213810113223 RST CRB CFR-12 A 22K PM5
3119 232220733109 RST FUSE NFR25H A 10R PM5
3120▲ 232220533221 RST FUSE NFR25 A 220R PM5
3121 213811604278 RST MFLM MF-50S A 2R7 PM5
3123 213811604225 RST MFLM MF-50S A 2M2 PM5
3124 213866000036 PTC DBL-MONO 270V S 9R PM20
3125 213810113154 RST CRB CFR-12 A 150K PM5
3126 213810113102 RST CRB CFR-12 A 1K PM5
3127 213811612703 RST MFLM MFR-5S A 27K PM1
3128 319802152220 RST SM 0805 2K2 PM5 COL
3135 213810113562 RST CRB CFR-12 A 5K6 PM5
3138 232273061124 RST SM 0805 RC11 120K PM5 R
3140 232224213224 RST MGL VR37 A 220K PM5
3141 213810113222 RST CRB CFR-12 A 2K2 PM5
3142 232224181004 RST MGL VR25A 100K PM1A
3143 213810113152 RST CRB CFR-12 A 1K5 PM5
3144 213811612702 RST MFLM MFR-5S A 2K7 PM1
3145 213836500077 RTRM CER LIN 500R H VG067TL1
3146 213810113471 RST CRB CFR-12 A 470R PM5
3147 319802151010 RST SM 0805 100R PM5 COL
3148 319802151020 RST SM 0805 1K PM5 COL
3153 212010592364 RST MOX 1W RSS S 10K PM5
3154 213811611002 RST MFLM MFR-5S A 1K PM1
3156 213810113472 RST CRB CFR-12 A 4K7 PM5
3157 213811611002 RST MFLM MFR-5S A 1K PM1
3251 213810113332 RST CRB CFR-12 A 3K3 PM5
3252 213810113333 RST CRB CFR-12 A 33K PM5
3253 213810113229 RST CRB CFR-12 A 22R PM5
3254 213810113154 RST CRB CFR-12 A 150K PM5
3256 213810113223 RST CRB CFR-12 A 22K PM5
3257 213810113332 RST CRB CFR-12 A 3K3 PM5
3258 213810113229 RST CRB CFR-12 A 22R PM5
3259 213810113154 RST CRB CFR-12 A 150K PM5
3260 213810113223 RST CRB CFR-12 A 22K PM5
3261 213810113333 RST CRB CFR-12 A 33K PM5
3264 213810113223 RST CRB CFR-12 A 22K PM5
3266 213810113229 RST CRB CFR-12 A 22R PM5
3267 213810113154 RST CRB CFR-12 A 150K PM5
3268 213810113333 RST CRB CFR-12 A 33K PM5
3269 213810113332 RST CRB CFR-12 A 3K3 PM5
3272 213810113223 RST CRB CFR-12 A 22K PM5
3281 213810113229 RST CRB CFR-12 A 22R PM5
3282 213810113154 RST CRB CFR-12 A 150K PM5
3283 213810113333 RST CRB CFR-12 A 33K PM5
3284 213810113332 RST CRB CFR-12 A 3K3 PM5
3286 213810113223 RST CRB CFR-12 A 22K PM5
3401▲ 232220733108 RST FUSE NFR25H A 1R PM5
3402▲ 232220733108 RST FUSE NFR25H A 1R PM5
3403 213810113471 RST CRB CFR-12 A 470R PM5
3404 213810113471 RST CRB CFR-12 A 470R PM5
3406 213811612202 RST MFLM MFR-5S A 2K2 PM1
3411 213811612201 RST MFLM MFR-5S A 220R PM1
3412 213811604278 RST MFLM MF-50S A 2R7 PM5
3413 213811604228 RST MFLM MF-50S A 2R2 PM5
3416 213811612202 RST MFLM MFR-5S A 2K2 PM1
3417 823827434971 NTC RESISTORS 500R
3418 213811604108 RST MFLM MF-50S A 1R PM5
3421 213810113221 RST CRB CFR-12 A 220R PM5
3501 213810113681 RST CRB CFR-12 A 680R PM5
3502 213810113223 RST CRB CFR-12 A 22K PM5
3503 213811614703 RST MFLM MFR-5S A 47K PM1
3504 213811612203 RST MFLM MFR-5S A 22K PM1
3505 213810113183 RST CRB CFR-12 A 18K PM5
3506 213810113183 RST CRB CFR-12 A 18K PM5
3507 213810113102 RST CRB CFR-12 A 1K PM5
3508 213810113102 RST CRB CFR-12 A 1K PM5
3511 213810113472 RST CRB CFR-12 A 4K7 PM5
3512 213810113103 RST CRB CFR-12 A 10K PM5
3513 213810113471 RST CRB CFR-12 A 470R PM5
3514 213811614703 RST MFLM MFR-5S A 47K PM1
3515 213810113153 RST CRB CFR-12 A 15K PM5
3517 213836500101 RTRM CER LIN 200K V RVM08VP0
3518 319802151040 RST SM 0805 100K PM5 COL
3522 232220533108 RST FUSE NFR25 A 1R PM5
3523 319802153320 RST SM 0805 3K3 PM5 COL
3524 213811618201 RST MFLM MFR-5S A 820R PM1
3525 213811612702 RST MFLM MFR-5S A 2K7 PM1
3526 213811611003 RST MFLM MFR-5S A 10K PM1
3528 213810113822 RST CRB CFR-12 A 8K2 PM5
3530 213810113681 RST CRB CFR-12 A 680R PM5
3531 213811612702 RST MFLM MFR-5S A 2K7 PM1
3537 319802151520 RST SM 0805 1K5 PM5 COL

Spare Parts List (Continued)

3501 213810113333 RST CRB CR12 A 33K PM5 A
3538 213810113152 RST CRB CFR-12 A 1K5 PM5
3539 319802155610 RST SM 0805 560R PM5 COL
3553 213811612203 RST MFLM MFR-5S A 22K PM1
3554 213810113102 RST CRB CFR-12 A 1K PM5
3555 213810113102 RST CRB CFR-12 A 1K PM5
3556 213810113272 RST CRB CFR-12 A 2K7 PM5
3558 232224183304 RST MGL VR25 A 330K PM1
3561 213836500076 RTRM CER LIN 10K H VG067TL1
3562 213810113562 RST CRB CFR-12 A 5K6 PM5
3564 213810113123 RST CRB CFR-12 A 12K PM5
3567 213810113101 RST CRB CFR-12 A 100R PM5
3568 213810113101 RST CRB CFR-12 A 100R PM5
3569 213810113339 RST CRB CFR-12 A 33R PM5
3601 213810113223 RST CRB CFR-12 A 22K PM5
3603▲232220733689 RST FUSE NFR25H A 68R PM5
3604 319802151230 RST SM 0805 12K PM5 COL
3605 232220533108 RST FUSE NFR25 A 1R PM5
3606 213810113333 RST CRB CFR-12 A 33K PM5
3607▲232220733108 RST FUSE NFR25H A 1R PM5
3608 213810113101 RST CRB CFR-12 A 100R PM5
3609 213811604475 RST MFLM MF-50S A 4M7 PM5
3610 232224183304 RST MGL VR25 A 330K PM1
3611 213810113123 RST CRB CFR-12 A 12K PM5
3612 232220533108 RST FUSE NFR25 A 1R PM5
3613 213810113103 RST CRB CFR-12 A 10K PM5
3614 213810113103 RST CRB CFR-12 A 10K PM5
3615 213810113221 RST CRB CFR-12 A 220R PM5
3616 319802151020 RST SM 0805 1K PM5 COL
3617 213811611001 RST MFLM MFR-5S A 100R PM1
3619 232220533221 RST FUSE NFR25 A 220R PM5
3620 213811611504 RST MFLM MFR-5S A 150K PM1
3621 213810500203 RST MOX 2W RSS S 270R PM5
3622 232224213685 RST MGL VR37 A 6M8 PM5
3623 212010592167 RST MOX 2W RSS S 8K2 PM5
3624 213810113104 RST CRB CFR-12 A 100K PM5
3625 213810500119 RST MOX 5W RSS S 1R2 PM5
3626 232220533108 RST FUSE NFR25 A 1R PM5
3627 213810113101 RST CRB CFR-12 A 100R PM5
3628 213810113104 RST CRB CFR-12 A 100K PM5
3629 213810113229 RST CRB CFR-12 A 22R PM5
3630 213811611004 RST MFLM MFR-5S A 100K PM1
3631 232220533228 RST FUSE NFR25 A 2R2 PM5
3632 213810100369 RST JUMP CR-12 A MAX 0R01
3633 213810113682 RST CRB CFR-12 A 6K8 PM5
3634 213811611009 RST MFLM MFR-5S A 10R PM1
3635 319802152230 RST SM 0805 22K PM5 COL
3636 319802154720 RST SM 0805 4K7 PM5 COL
3637 319802151220 RST SM 0805 1K2 PM5 COL
3638 319802151230 RST SM 0805 12K PM5 COL
3639 213810113339 RST CRB CFR-12 A 33R PM5
3640 232220533228 RST FUSE NFR25 A 2R2 PM5
3641 213810113102 RST CRB CFR-12 A 1K PM5
3642 212010592139 RST MOX RSS 1W 270R L12.5
3643 213811612209 RST MFLM MFR-5S A 22R PM1
3645 213811611004 RST MFLM MFR-5S A 100K PM1
3646 232224183304 RST MGL VR25 A 330K PM1
3648 232224184705 RST MGL VR25 A 4M7 PM1
3650 213810113222 RST CRB CFR-12 A 2K2 PM5
3652 213810113182 RST CRB CFR-12 A 1K8 PM5
3653 213810113393 RST CRB CFR-12 A 39K PM5
3654▲213810113222 RST CRB CFR-12 A 2K2 PM5
3655 213811612209 RST MFLM MFR-5S A 22R PM1
3656 213811612209 RST MFLM MFR-5S A 22R PM1
3657 213810113103 RST CRB CFR-12 A 10K PM5
3658 213810113103 RST CRB CFR-12 A 10K PM5
3659 319802156810 RST SM 0805 680R PM5 COL
3662 213810113473 RST CRB CFR-12 A 47K PM5
3663 213810113689 RST CRB CFR-12 A 68R PM5
3665 212010128152 RST CMP ERC12 A 1K5 PM10
3681 213810100369 RST JUMP CR-12 A MAX 0R01
3682 213811613903 RST MFLM MFR-5S A 39K PM1 A
3683 213810113334 RST CRB CFR-12 A 330K PM5 A
3685 213811611004 RST MFLM MFR-5S A 100K PM1
3687 213811614702 RST MFLM MFR-5S A 4K7 PM1
3688 213811613302 RST MFLM MFR-5S A 3K3 PM1
3690 213811612709 RST MFLM MFR-5S A 27R PM1
3691 213810113103 RST CRB CFR-12 A 10K PM5
3692 213810113473 RST CRB CFR-12 A 47K PM5
3693 213810113123 RST CRB CFR-12 A 12K PM5
3694 213810113479 RST CRB CFR-12 A 47R PM5
3695 213810113152 RST CRB CFR-12 A 1K5 PM5
3696 213811613909 RST MFLM MFR-5S A 39R PM1
3699 212037900001 RTRM CER LIN 500K H VG067TL1
3811 213810113103 RST CRB CFR-12 A 10K PM5
3812 213810113472 RST CRB CFR-12 A 4K7 PM5
3813 213810113472 RST CRB CFR-12 A 4K7 PM5
3814 213810113472 RST CRB CFR-12 A 4K7 PM5
3815 213810113221 RST CRB CFR-12 A 220R PM5
3816 319802152210 RST SM 0805 220R PM5 COL
3817 213810113101 RST CRB CFR-12 A 100R PM5
3818 213810113101 RST CRB CFR-12 A 100R PM5
3819 319802151020 RST SM 0805 1K PM5 COL
3821 319802154720 RST SM 0805 4K7 PM5 COL
3822 319802152220 RST SM 0805 2K2 PM5 COL
3823 319802154720 RST SM 0805 4K7 PM5 COL
3825 213810113472 RST CRB CFR-12 A 4K7 PM5
3826 213810113101 RST CRB CFR-12 A 100R PM5
3827 319802151030 RST SM 0805 10K PM5 COL
3828 213810113101 RST CRB CFR-12 A 100R PM5
3829 213810113101 RST CRB CFR-12 A 100R PM5
3831 319802151010 RST SM 0805 100R PM5 COL
3832 319802151010 RST SM 0805 100R PM5 COL
3833 319802154720 RST SM 0805 4K7 PM5 COL
3834 213810113472 RST CRB CFR-12 A 4K7 PM5
3835 319802154720 RST SM 0805 4K7 PM5 COL
3836 213811613303 RST MFLM MFR-5S A 33K PM1
3837 213810113103 RST CRB CFR-12 A 10K PM5
3838 213810113101 RST CRB CFR-12 A 100R PM5
3841 213810113101 RST CRB CFR-12 A 100R PM5
3842 213810113101 RST CRB CFR-12 A 100R PM5
3843 213810113103 RST CRB CFR-12 A 10K PM5
3844 319802154720 RST SM 0805 4K7 PM5 COL
3845 319802151030 RST SM 0805 10K PM5 COL
3846 213810113472 RST CRB CFR-12 A 4K7 PM5
3847 319802154720 RST SM 0805 4K7 PM5 COL
3848 213810113103 RST CRB CFR-12 A 10K PM5
3851 213810113103 RST CRB CFR-12 A 10K PM5
3852 319802156830 RST SM 0805 68K PM5 COL
3853 213810113103 RST CRB CFR-12 A 10K PM5
3854 319802153340 RST SM 0805 330K PM5 COL
3855 213810113152 RST CRB CFR-12 A 1K5 PM5
3859 213810100369 RST JUMP CR-12 A MAX 0R01
3863 213810113333 RST CRB CFR-12 A 33K PM5
3865 213810113101 RST CRB CFR-12 A 100R PM5
3871 213810113472 RST CRB CFR-12 A 4K7 PM5

5007▲313816878011 COI DEGAUS
5008 313817876731 ROTATION COIL MARKING :8423
5106 313817879161 CHOKE OL0415-7R5K2R5
5108▲313812871291 LINE FILTER
5111 313817879161 CHOKE OL0415-7R5K2R5
5113▲313818871321 SMPS TRANSFORMER
5123 242253600039 IND FXD TSL0808 S 180U PM5
5124 242253600036 IND FXD TSL0808 S 100U PM10
5125 242253600039 IND FXD TSL0808 S 180U PM5
5601 313816878191 LINEARITY COIL
5602 313816872621 BEAD COIL (BF30TA-2.5X3X1B)
5605 313816872621 BEAD COIL (BF30TA-2.5X3X1B)
5606 313812871701 BRIDG COIL 110UH
5607 313816872631 BEAD COIL
5608 313816872631 BEAD COIL
5611 242253597416 IND FXD SP0406A 33U PM10
5612▲823827443021 L.O.T. DFBTPH0100D56P
5615 313818870421 HOR. DRIVER XFMR (54A-003
5616 313818871121 DRUM CHOKE
5620 242253600037 IND FXD TSL0808S 3700U PM5
5621 242253600037 IND FXD TSL0808S 3700U PM5
5671 313812874411 DAF TRANSFORMER
5701 242253597608 IND FXD SPT0305A 1U8 PM10
5702 242253597608 IND FXD SPT0305A 1U8 PM10
5721 242253594941 IND FXD SPT0406A 0U33 PM10
5723 242253597608 IND FXD SPT0305A 1U8 PM10
5732 242253594941 IND FXD SPT0406A 0U33 PM10
5733 242253597608 IND FXD SPT0305A 1U8 PM10
5752 242253594941 IND FXD SPT0406A 0U33 PM10
5753 242253597608 IND FXD SPT0305A 1U8 PM10
5771 313817879161 CHOKE OL0415-7R5K2R5

6101 932205814682 BRIDGE GBU4K (GI00)
6102 933118000133 DIO REG BZX79-C75 A (PHSE)
6103 933723420133 DIO REC BYD33J A (PHSE)
6106 319801010070 DIO SIG BAV21 (COL)
6107 319801010070 DIO SIG BAV21 (COL)
6113 933913910115 DIO SIG SM BAS32L (PHSE)
6114 933913910115 DIO SIG SM BAS32L (PHSE)
6118 933913910115 DIO SIG SM BAS32L (PHSE)
6131 933818500133 DIO REC BYM26C A (PHSE)
6133 933818500133 DIO REC BYM26C A (PHSE)
6134 933957760683 DIO REC SB140 A (GI00)
6135 933543500133 DIO REC BYV27-100 A (PHSE)
6136 933751660683 DIO REC RGP10D A (GI00)
6141 319801010070 DIO SIG BAV21 (COL)
6142 933723420133 DIO REC BYD33J A (PHSE)
6143 319801010010 DIO SIG 1N4148 (COL)
6144 319801021590 DIO REG BZX79-C15 A COL
6145 933952580685 DIO SIG SM BAV103 (TEG0)
6146 933913910115 DIO SIG SM BAS32L (PHSE)
6165 319801021590 DIO REG BZX79-C15 A COL
6251 933723420133 DIO REC BYD33J A (PHSE)
6252 933723420133 DIO REC BYD33J A (PHSE)
6253 933723420133 DIO REC BYD33J A (PHSE)
6255 933723420133 DIO REC BYD33J A (PHSE)
6401 933543500133 DIO REC BYV27-100 A (PHSE)
6502 933414680133 DIO REG BZX79-C2V4 A (PHSE)
6503 319801010010 DIO SIG 1N4148 (COL)
6504 319801010010 DIO SIG 1N4148 (COL)
6511 319801010070 DIO SIG BAV21 (COL)
6513 319801010010 DIO SIG 1N4148 (COL)
6600 932216961687 DIO REC DMV1500M (ST00)
6601 319801010070 DIO SIG BAV21 (COL)
6602 319801021590 DIO REG BZX79-C15 A COL
6603 932205787683 DIO REC EGP20G A (GI00)
6604 933751660683 DIO REC RGP10D A (GI00)
6605 933751660683 DIO REC RGP10D A (GI00)
6606 933493960683 DIO REC RGP10G A (GI00)
6607 319801010010 DIO SIG 1N4148 (COL)
6608 933723420133 DIO REC BYD33J A (PHSE)
6609 933952580685 DIO SIG SM BAV103 (TEG0)
6610 319801010010 DIO SIG 1N4148 (COL)
6611 933723400133 DIO REC BYD33D A (PHSE)
6612 933543490133 DIO REC BYV27-50 A (PHSE)
6613 933741030133 DIO REC BYD33M A (PHSE)
6614 933414680133 DIO REG BZX79-C2V4 A (PHSE)
6615 319801021590 DIO REG BZX79-C15 A COL
6616 319801010070 DIO SIG BAV21 (COL)
6617 933913910115 DIO SIG SM BAS32L (PHSE)
6618 933414680133 DIO REG BZX79-C2V4 A (PHSE)
6619 319801010010 DIO SIG 1N4148 (COL)
6620 933414680133 DIO REG BZX79-C2V4 A (PHSE)
6621 319801010070 DIO SIG BAV21 (COL)
6622 933723420133 DIO REC BYD33J A (PHSE)
6802 319801010010 DIO SIG 1N4148 (COL)
6821 319801010010 DIO SIG 1N4148 (COL)
6822 319801010010 DIO SIG 1N4148 (COL)
6891 932214603682 LED VS L-3WYGW (KIEL)

7101 932213500687 FET POW SSP7N60A (SMGK)
7102 935264503112 IC TEA1504AP/N2 (PHSE)
7103 933953420676 TRA SIG TBC338-40 (TOSJ)
7111▲932214014667 OPT CP TCET1103(G) (VISH)
7112 933771100686 IC TL431CLP S (MOTA)
7113 933528290682 IC MC7808CT (MOTA)
7114 933510720686 IC MC78L05ACP (MOTA)
7115 933826850126 THYRIS BT169B (PHSE)
7116 933553530676 TRA SIG TBC548C (TOSJ)
7117 933553530676 TRA SIG TBC548C (TOSJ)
7251 933553530676 TRA SIG TBC548C (TOSJ)
7252 933553530676 TRA SIG TBC548C (TOSJ)
7253 933553530676 TRA SIG TBC548C (TOSJ)
7254 933553530676 TRA SIG TBC548C (TOSJ)
7256 933553530676 TRA SIG TBC548C (TOSJ)
7262 932212802687 FET POW IRF540 (ST00)
7263 932212802687 FET POW IRF540 (ST00)
7264 932212802687 FET POW IRF540 (ST00)
7266 932212802687 FET POW IRF540 (ST00)
7301 935266857112 IC TDA4886/V2 (PHSE)
7302 935267938112 IC TDA4822PS/V1/M5 (PHSE)
7303 932210611676 IC LE33CZ (ST00)
7304 932216297682 IC MTV030N-19 (MYTE)
7322 933553530676 TRA SIG TBC548C (TOSJ)
7401 933922940682 IC TDA8172 (ST00)
7501 935267455112 IC TDA4841PS/V3 (PHSE)
7502 933553530676 TRA SIG TBC548C (TOSJ)
7503 319802043020 TRA SIG BF423 (COL)
7504 319802043020 TRA SIG BF423 (COL)
7506 933553530676 TRA SIG TBC548C (TOSJ)
7601 933953420676 TRA SIG TBC338-40 (TOSJ)
7602 933953410676 TRA SIG TBC328-40 (TOSJ)
7603 932214679682 FET POW 2SJ512 (TOSJ)
7604 933953420676 TRA SIG TBC338-40 (TOSJ)
7605 934003960126 FET SIG BSN254A (PHSE)
7606 934026300127 TRA POW BU2527AF (PHSE)
7607 933567130126 TRA SIG BC517 (PHSE)
7608 933567120126 TRA SIG BC516 (PHSE)
7609 932206519687 TRA POW BUX87 (ST00)
7611 933773860676 TRA SIG TBC558C (TOSJ)
7612 933553530676 TRA SIG TBC548C (TOSJ)
7613 931101033687 TRA POW TIP122 (MOTA)
7614 933953420676 TRA SIG TBC338-40 (TOSJ)
7615 933773860676 TRA SIG TBC558C (TOSJ)
7617 319802043010 TRA SIG BF422 (COL)
7621 933393510602 IC LM358N (PHSE)
7682 933953410676 TRA SIG TBC328-40 (TOSJ)
7683 933953420676 TRA SIG TBC338-40 (TOSJ)
7685 934025870126 TRA SIG MPSA44 (PHSE)
7701 932214602667 IC LM2435T (NSC0)
7721 319802043010 TRA SIG BF422 (COL)
7722 319802043010 TRA SIG BF422 (COL)
7731 319802043010 TRA SIG BF422 (COL)
7732 319802043010 TRA SIG BF422 (COL)
7751 319802043010 TRA SIG BF422 (COL)
7752 319802043010 TRA SIG BF422 (COL)
7761 933553530676 TRA SIG TBC548C (TOSJ)
7801 823827442961 CPU, IC
7802 933773860676 TRA SIG TBC558C (TOSJ)
7803 932212662682 IC M24C16-BN6
7805 933553530676 TRA SIG TBC548C (TOSJ)
7806 933773860676 TRA SIG TBC558C (TOSJ)

Spare Parts List (Continued)

1157 Video Panel

2301 223891015649 CER2 0805 X7R 25V 100N PM10
2302 223891015649 CER2 0805 X7R 25V 100N PM10
2305 223886115221 CER1 0805 NP0 50V 220P PM5
2306 223886115221 CER1 0805 NP0 50V 220P PM5
2307 223891015649 CER2 0805 X7R 25V 100N PM10
2308 223891015649 CER2 0805 X7R 25V 100N PM10
2309 223891015649 CER2 0805 X7R 25V 100N PM10
2310 223891015649 CER2 0805 X7R 25V 100N PM10
2311 223891015649 CER2 0805 X7R 25V 100N PM10
2312 223891015649 CER2 0805 X7R 25V 100N PM10
2319 223886115339 CER1 0805 NP0 50V 33P PM5
2320 223886115479 CER1 0805 NP0 50V 47P PM5
2322 223891015647 CER2 0805 X7R 25V 68N PM10
2323 223858015636 CER2 0805 X7R 50V 10N PM10
2324 203803453221 ELCAP VX 16VS 220U PM20
2325 223891015649 CER2 0805 X7R 25V 100N PM10
2326 223891015649 CER2 0805 X7R 25V 100N PM10
2340 223891015649 CER2 0805 X7R 25V 100N PM10
2341 223891015649 CER2 0805 X7R 25V 100N PM10
2342 223891015649 CER2 0805 X7R 25V 100N PM10
2343 223891015649 CER2 0805 X7R 25V 100N PM10
2344 223891015649 CER2 0805 X7R 25V 100N PM10
2345 223891015649 CER2 0805 X7R 25V 100N PM10
2346 223891015649 CER2 0805 X7R 25V 100N PM10
2347 223891015649 CER2 0805 X7R 25V 100N PM10
2348 203803454109 ELCAP VX 25VS 10U PM20
2349 223891015649 CER2 0805 X7R 25V 100N PM10
2702 223891015649 CER2 0805 X7R25V 100N PM10
2721 203803185109 ELCAP VT 100VS 10U PM20
2722 222258015649 CER2 0805 X7R50V 100N PM10
2723 203803522801 ELCAP NK 160VS 1U PM20
2724 203803458108 ELCAP VX 100VS 1U PM20
2725 242254944346 SURGE PROTECT DSP-201M-
2726 222258015649 CER2 0805 X7R50V 100N PM10
2727 202055790151 CER2 DC B 500V S 1N PM10
2731 203803522801 ELCAP NK 160VS 1U PM20
2732 203803458108 ELCAP VX 100VS 1U PM20
2733 242254944346 SURGE PROTECT DSP-201M-
2751 203803522801 ELCAP NK 160VS 1U PM20
2752 203803458108 ELCAP VX 100VS 1U PM20
2753 242254944346 SURGE PROTECT DSP-201M-
2760 223886115471 CER1 0805 NP050V 470P PM5
2761 223891015649 CER2 0805 X7R25V 100N PM10
2762 223555900099 CER2 DC 2KVS 10N PM20
2763 223858016623 CER2 0805 X7R50V 4N7 PM10
2771 222258015649 CER2 0805 X7R50V 100N PM10
2772 225260114416 CER2 DCX7R 1KV S470P PM10 A
2774 203803145101 ELCAP VT 25VS 100U PM20
2775 203803454109 ELCAP VX 25VS 10U PM20
2776 203803185229 ELCAP VT 100VS 22U PM20
2778 203803145479 ELCAP VT 25VS 47U PM20
2779 202055290598 CER1 DC NP0 50V S 47PPM5
2780 202055290598 CER1 DC NP0 50V S 47PPM5
2781 223886115479 CER1 0805 NP050V 47P PM5
2782 223886115479 CER1 0805 NP050V 47P PM5
2783 203803145479 ELCAP VT 25VS 47U PM20

3301 319802157590 RST SM 0805 75R PM5 COL
3302 319802157590 RST SM 0805 75R PM5 COL
3303 319802157590 RST SM 0805 75R PM5 COL
3305 319802154720 RST SM 0805 4K7 PM5 COL
3306 319802154720 RST SM 0805 4K7 PM5 COL
3307 319802151010 RST SM 0805 100R PM5 COL
3309 319802151020 RST SM 0805 1K PM5 COL
3310 213810113102 RST CRB CFR-12 A 1K PM5
3311 319802151020 RST SM 0805 1K PM5 COL
3312 319802154790 RST SM 0805 47R PM5 COL
3313 319802154790 RST SM 0805 47R PM5 COL
3314 319802154790 RST SM 0805 47R PM5 COL
3315 319802151010 RST SM 0805 100R PM5 COL
3316 319802151010 RST SM 0805 100R PM5 COL
3317 319802151030 RST SM 0805 10K PM5 COL
3324 319802154710 RST SM 0805 470R PM5 COL
3325 319802151030 RST SM 0805 10K PM5 COL
3327 319802155620 RST SM 0805 5K6 PM5 COL
3328 319802153320 RST SM 0805 3K3 PM5 COL
3329 319802155620 RST SM 0805 5K6 PM5 COL
3330 319802151050 RST SM 0805 1M PM5 COL
3332 213810113101 RST CRB CFR-12 A 100R PM5
3333 213810113101 RST CRB CFR-12 A 100R PM5
3334 319802151510 RST SM 0805 150R PM5 COL
3335 319802151020 RST SM 0805 1K PM5 COL
3336 319802151020 RST SM 0805 1K PM5 COL
3337 319802151020 RST SM 0805 1K PM5 COL
3340 319802190020 RST SM 0805JUMP. 0R05 COL
3341 319802151010 RST SM 0805 100R PM5 COL
3342 319802151010 RST SM 0805 100R PM5 COL
3343 319802151010 RST SM 0805 100R PM5 COL
3344 213810113101 RST CRB CFR-12 A 100R PM5
3345 213810113101 RST CRB CFR-12 A 100R PM5
3347 319802151010 RST SM 0805 100R PM5 COL
3348 319802151010 RST SM 0805 100R PM5 COL
3349 213810113101 RST CRB CFR-12 A 100R PM5
3350 319802154790 RST SM 0805 47R PM5 COL
3351 213810113101 RST CRB CFR-12 A 100R PM5
3352 213810100369 RST JUMP CR-12 A MAX 0R01
3353 213810100369 RST JUMP CR-12 A MAX 0R01
3354 213810100369 RST JUMP CR-12 A MAX 0R01
3359 213810100369 RST JUMP CR-12 A MAX 0R01
3361 319802154780 RST SM 0805 4R7 PM5 COL
3362 319802154780 RST SM 0805 4R7 PM5 COL
3703 213810113339 RST CRB CFR-12 A 33R PM5
3704 213810113471 RST CRB CFR-12 A 470R PM5
3705 213810113471 RST CRB CFR-12 A 470R PM5
3706 213810113471 RST CRB CFR-12 A 470R PM5
3707 319802151010 RST SM 0805 100R PM5 COL
3708 213810100369 RST JUMP CR-12 A MAX 0R01
3709 213811612201 RST MFLM MFR-5S A 220R PM1
3713 213810113339 RST CRB CFR-12 A 33R PM5
3716 213810113339 RST CRB CFR-12 A 33R PM5
3718 213810113479 RST CRB CFR-12 A 47R PM5
3719 213810113479 RST CRB CFR-12 A 47R PM5
3720 213810113479 RST CRB CFR-12 A 47R PM5
3721 212010128121 RST CMP ERC12 A 120R PM10
3722 213811273105 RST CRB CFR-25 A 1M PM5
3723 213810113152 RST CRB CFR-12 A 1K5 PM5
3724 213811611503 RST MFLM MFR-5S A 15K PM1
3725 319802152240 RST SM 0805 220K PM5 COL
3726 213810113563 RST CRB CFR-12 A 56K PM5
3727 213810113223 RST CRB CFR-12 A 22K PM5
3728 213811273109 RST CRB CFR-25 A 10R PM5
3729 213810113479 RST CRB CFR-12 A 47R PM5
3731 212010128121 RST CMP ERC12 A 120R PM10
3732 213811273105 RST CRB CFR-25 A 1M PM5
3733 213810113152 RST CRB CFR-12 A 1K5 PM5
3734 213811611503 RST MFLM MFR-5S A 15K PM1
3735 319802152240 RST SM 0805 220K PM5 COL
3736 213810113563 RST CRB CFR-12 A 56K PM5
3737 213810113223 RST CRB CFR-12 A 22K PM5
3738 319802151090 RST SM 0805 10R PM5 COL
3740 319802190020 RST SM 0805JUMP. 0R05 COL
3741 319802151050 RST SM 0805 1M PM5 COL
3742 319802151050 RST SM 0805 1M PM5 COL
3743 213810113101 RST CRB CFR-12 A 100R PM5
3744 319802156890 RST SM 080568R PM5 COLR
3745 319802151010 RST SM 0805 100R PM5 COL
3751 212010128121 RST CMP ERC12 A 120R PM10
3752 213811273105 RST CRB CFR-25 A 1M PM5
3753 213810113152 RST CRB CFR-12 A 1K5 PM5
3754 213811611503 RST MFLM MFR-5S A 15K PM1
3755 319802152240 RST SM 0805 220K PM5 COL
3756 213810113563 RST CRB CFR-12 A 56K PM5
3757 213810113223 RST CRB CFR-12 A 22K PM5
3758 213811273109 RST CRB CFR-25 A 10R PM5
3761 319802151020 RST SM 0805 1K PM5 COL
3762 319802151030 RST SM 0805 10K PM5 COL
3763 319802153320 RST SM 0805 3K3 PM5 COL
3764 319802154720 RST SM 0805 4K7 PM5 COL
3765 319802156820 RST SM 0805 6K8 PM5 COL
3767 319802154720 RST SM 0805 4K7 PM5 COL
3771 212010128152 RST CMP ERC12 A 1K5 PM10
3772 212010128153 RST CMP ERC12 A 15K PM10
3773 319802153390 RST SM 0805 33R PM5 COL
3776 213810113101 RST CRB CFR-12 A 100R PM5
3777 319802151010 RST SM 0805 100R PM5 COL
3778 213810113102 RST CRB CFR-12 A 1K PM5

5301 242253597608 IND FXD SPT0305A 1U8 PM10
5303 313816872621 BEAD COIL (BF30TA-2.5X3X1B)
5701 242253597608 IND FXD SPT0305A 1U8 PM10
5702 242253597608 IND FXD SPT0305A 1U8 PM10
5721 242253594941 IND FXD SPT0406A 0U33 PM10
5723 242253597608 IND FXD SPT0305A 1U8 PM10
5732 242253594941 IND FXD SPT0406A 0U33 PM10
5733 242253597608 IND FXD SPT0305A 1U8 PM10
5752 242253594941 IND FXD SPT0406A 0U33 PM10
5753 242253597608 IND FXD SPT0305A 1U8 PM10
5771 313817879161 CHOKE OL0415-7R5K2R5
5773 313816872621 BEAD COIL (BF30TA-2.5X3X1B)
5779 242253597608 IND FXD SPT0305A 1U8 PM10
5781 242253600036 IND FXD TSL0808 S 100U PM10

6301 319801021290 DIO REG BZX79-C12 A COL
6302 319801025680 DIO REG BZX79-C5V6 A COL
6303 319801025680 DIO REG BZX79-C5V6 A COL
6304 319801025680 DIO REG BZX79-C5V6 A COL
6311 933913910115 DIO SIG SM BAS32L (PHSE)
6711 319801025180 DIO REG BZX79-C5V1 A COL
6721 933952580685 DIO SIG SM BAV103 (TEG0)
6722 319801010070 DIO SIG BAV21 (COL)
6724 933952580685 DIO SIG SM BAV103 (TEG0)
6731 933952580685 DIO SIG SM BAV103 (TEG0)
6732 319801010070 DIO SIG BAV21 (COL)
6734 933952580685 DIO SIG SM BAV103 (TEG0)
6751 319801010070 DIO SIG BAV21 (COL)
6752 319801010070 DIO SIG BAV21 (COL)
6754 933952580685 DIO SIG SM BAV103 (TEG0)
6771 933723410133 DIO REC BYD33G A (PHSE)

7301 935266857112 IC TDA4886/V2 (PHSE)
7302 935267938112 IC TDA4822PS/V1/M5 (PHSE)
7303 932210611676 IC LE33CZ (ST00)
7304 932216297682 IC MTV030N-19 (MYTE)
7322 933553530676 TRA SIG TBC548C (TOSJ)
7701 932214602667 IC LM2435T (NSC0)
7721 319802043010 TRA SIG BF422 (COL)
7722 319802043010 TRA SIG BF422 (COL)
7731 319802043010 TRA SIG BF422 (COL)
7732 319802043010 TRA SIG BF422 (COL)
7751 319802043010 TRA SIG BF422 (COL)
7752 319802043010 TRA SIG BF422 (COL)
7761 933553530676 TRA SIG TBC548C (TOSJ)

1158 KEYCNTR PANEL

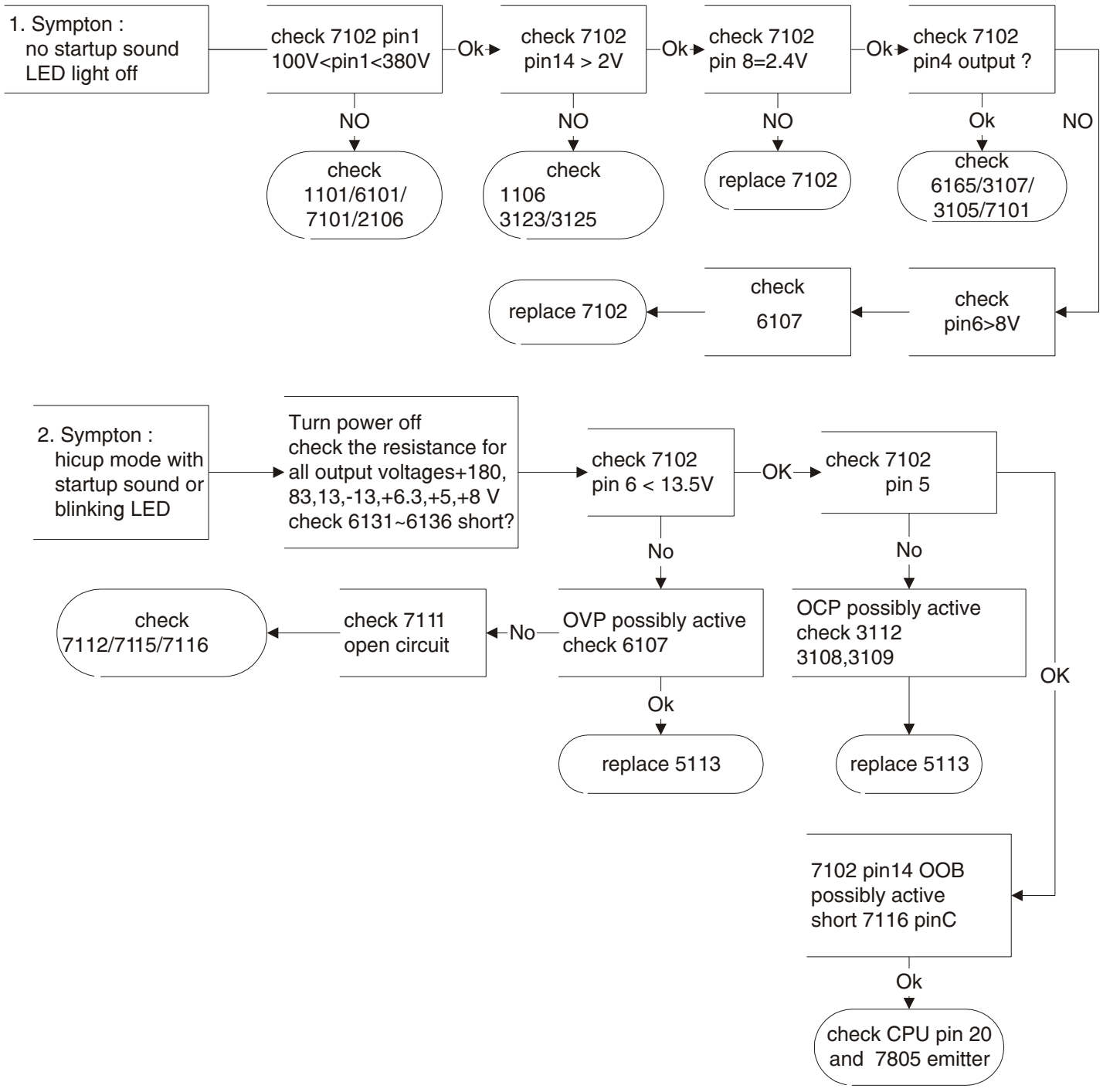
3891 213811611004 RST MFLM MFR-5S A 100K PM1
3892 213811615603 RST MFLM MFR-5S A 56K PM1
3893 213811614702 RST MFLM MFR-5S A 4K7 PM1
3894 213811611503 RST MFLM MFR-5S A 15K PM1
3895 213811612403 RST MFLM MFR-5S A 24K PM1

6891 932214603682 LED L-3WYGW

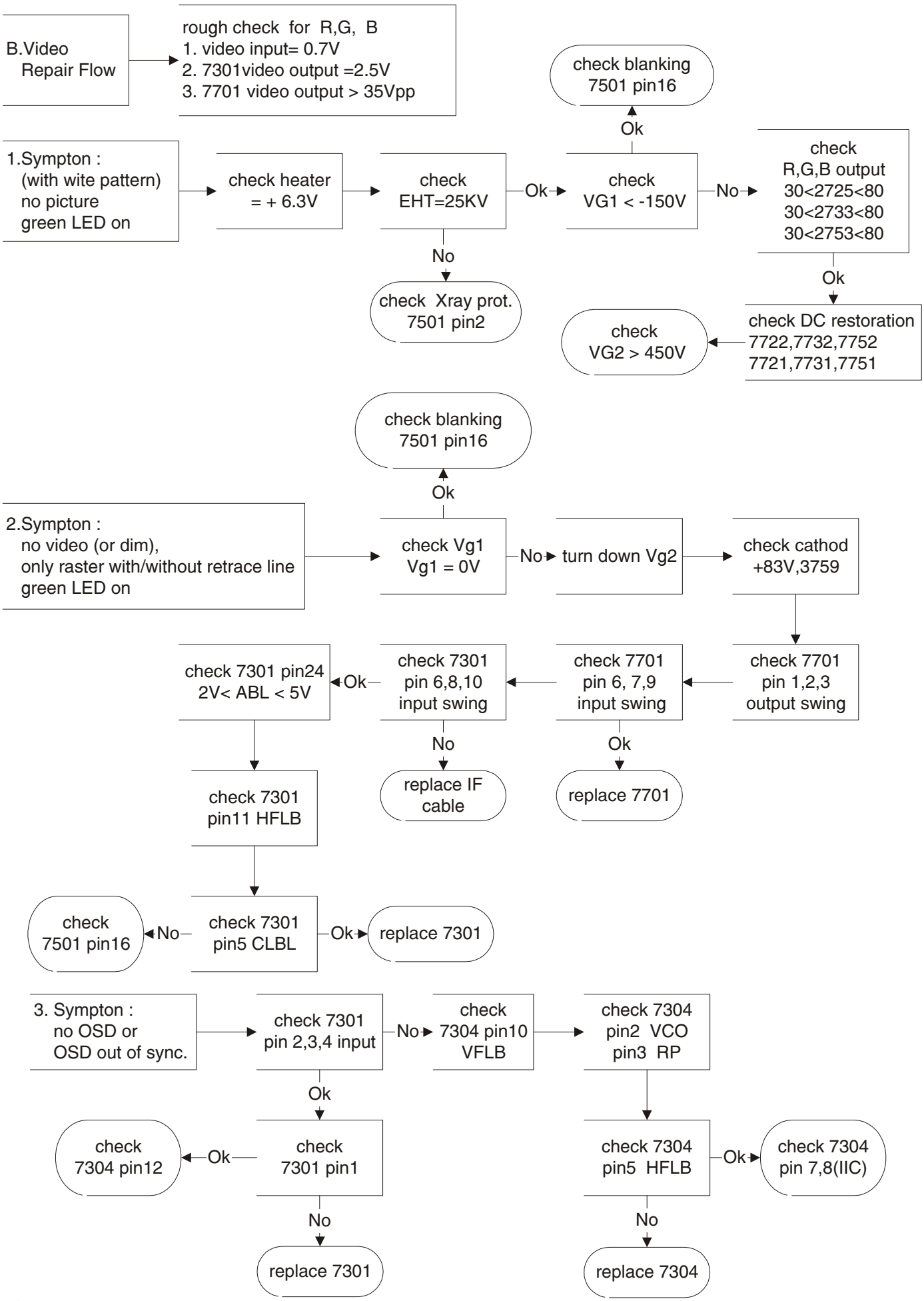
Repair Flow Chart

Go to cover page

A. Power Supply Failure

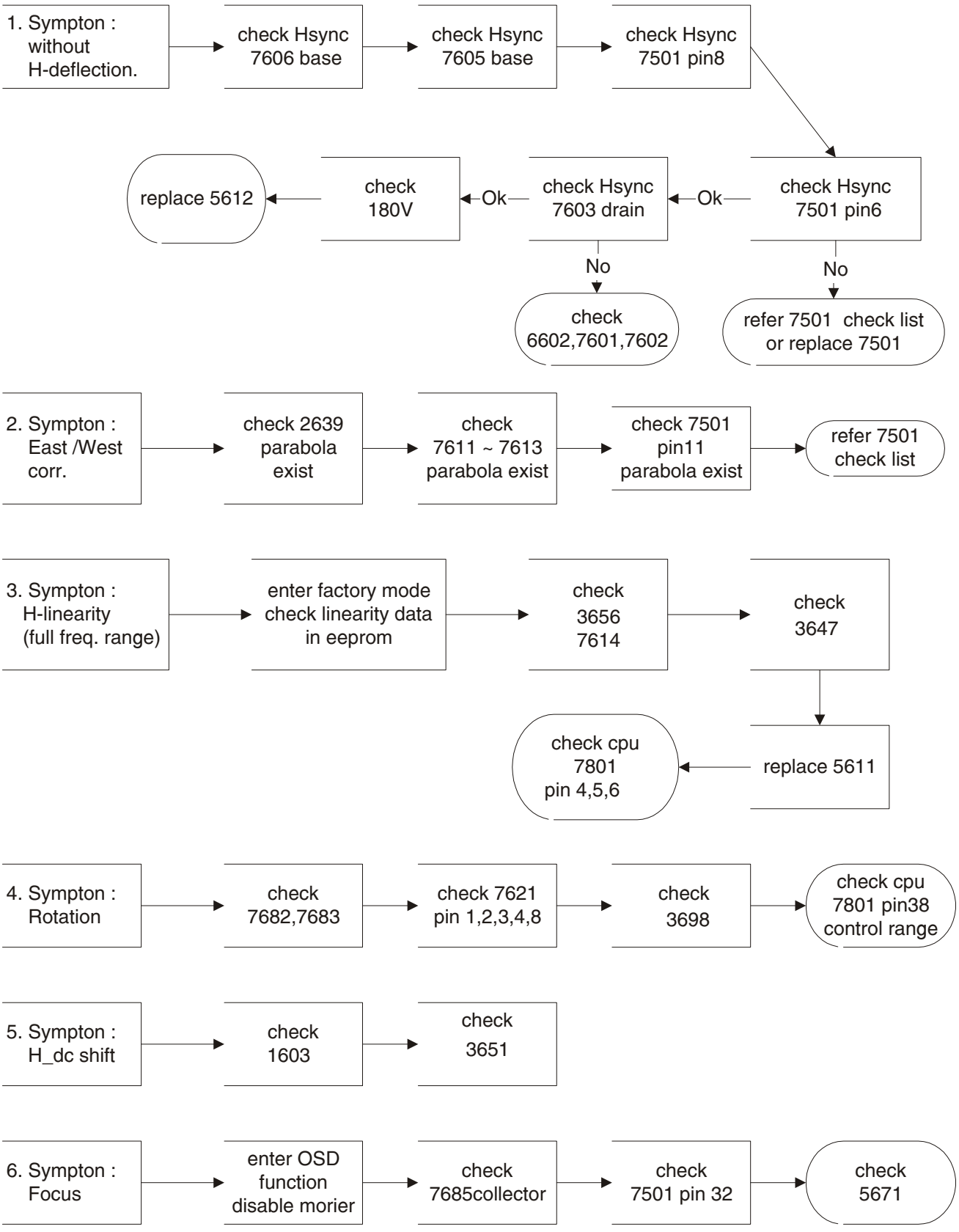


Repair Flow Chart (Continued)

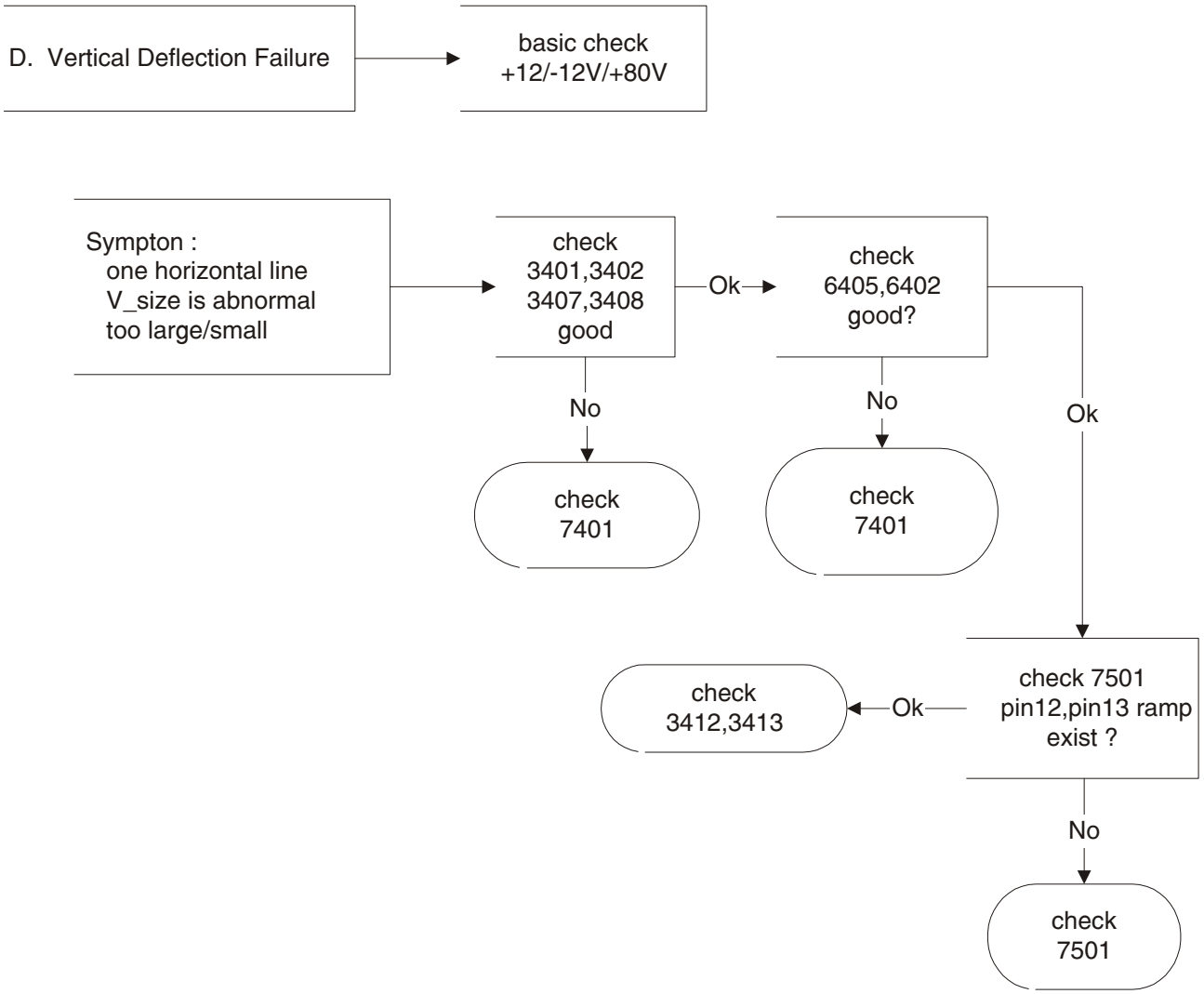


Repair Flow Chart (Continued)

C. Horizontal deflection output repair flow :



Repair Flow Chart (Continued)



Repair Flow Chart (Continued)

E. CPU check list → Basic Check → check cpu pin6/ pin32= 5V
pin9/pin8=12MhZ
pin7=gnd

31. H-EHT → H size compensation for the load variance

10,11,12 (Q3,Q2,Q1) S-cap switch → check Q1-Q4
pin10~14
low : 0
hi :1

86K S-CAPACITOR SWITCH TABLE

Hor. Freq.(KHz)	Q1	Q2	Q3	Q4
< 27.50	0	0	0	0
27.5 ~ 33.24	0	0	0	0
33.24 ~ 36.51	0	0	1	1
36.51~ 40.00	0	1	1	0
40.00~ 45.00	1	0	0	1
45.00~ 50.00	1	0	0	1
50.00~ 57.00	1	0	1	1
57.00~ 61.89	1	1	0	0
61.89 ~ 66.00	1	1	0	1
66.00 ~ 76.00	1	1	1	0
76.00 ~ 82.00	1	1	1	1
>82.00	1	1	1	1

33,34,40,41 Hsync / Vsync → check sync.
Hsync_in=pin40
Vsync_in=pin41
Hsync_out=pin34
Vsync_out=pin33 →
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

18. Hunlock → check pin18
normal=Hi
blank=low

19. Blanking (mute) → check pin3
normal : low
change timing : Hi

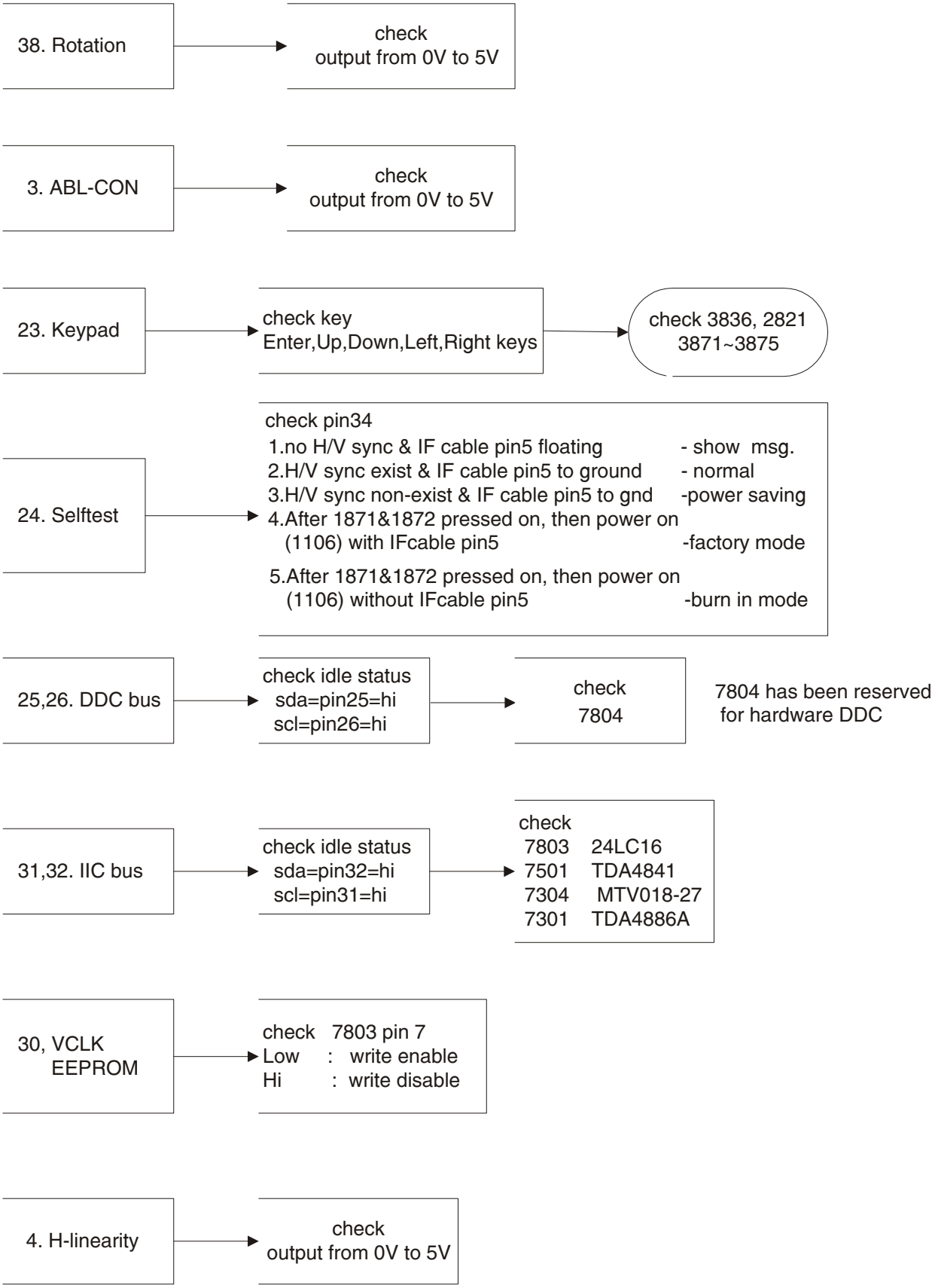
20, 22,27 P.S. LED → pin 27 STBY
pin 20 OFF →

power saving	pin27	pin20
normal	hi	hi
standby	low	hi
off	low	low

22. Degauss → check
active=hi
no active=low

5, Reset → check
from 5V to 0V → check
2814 / 2806 / 3834

Repair Flow Chart (Continued)



Repair Flow Chart (Continued)

F. TDA4841 Check List → Basic check Vcc > 9V during startup → Vcc=pin9=pin10=12V gnd =pin7=pin25=0v

1. HFLB (from H.defl) → if no exist → pin16 CLBL=hi

2. Xray (from LOT) → if active → pin17 = Hunlock = floating
pin30 = Hpll2 = 0V
pin6 = HDRV = floating
pin8 = BDRV = flaoating
pin12 = Vout1 = floating
pin13 = Vout2 = floating
pin16 = CLBL= Hi

3.4.5.6 B+ control → a pin3 amplify pin5 and it compare to pin4
b. pin4 generate the saw_tooth wave
c. pin5 input voltage for the square output waveform
d. pin6 pwm output to 7601 & 7602 base → inhibit pin6 output if pin3 is pulled to ground by 7508

8. HDRV → to H_deflection. 7605 base

11.EWDRV → to H_deflection east/west control 7612 base

12,13 Vout1/Vout2 → differential input to 7401 pin 1, 7

14,15 Vsync,Hsync → the input sync from cpu pin 33,34

16. CLBL → Vertical blank will be activated = hi
1.pin30 = softstart pll2 = 0V
2.pin26 = pll1 is unlock in searching mode
3.pin1 = HFLB no exist
4.pin2 = Xray once actived
5.pin10 = Vcc < 9V

Repair Flow Chart (Continued)

17. Hunlock → Hunlock pin is floating while pll1(pin26) is unlock in searching mode

18. IIC scl = hi
19 IIC sda = hi → the initial sequence of IIC IC 7501,7301,7304

21 EHT_compen. → compensate for the V_size owing the load variation

22,23,24
VAGC,VREF,VCAP → pin22 determin the AGC
pin23,pin24 determin frequency → 50Hz< freq. <160Hz

26,27,28,29
Hpll1,Hbuf,Href, Hcap → pin26 determin the pll1 loop filter
pin 27,28,29 H-Freq working range → 30K<freq.<71KHz

30. PLL2 → 1.compare the HFLB and control the phase of HDRV
2.softstart

31 EHT_compen. → compensate for the H_size owing the load variation

32. Focus → to 7685 for the V dynamic focus

LightFrame for Windows

Introduction

Philips LightFrame feature enriches the experience of pictures and video on a Philips CRT (picture tube) monitor. This highlighting is done by boosting the brightness and sharpness on a selected region of the monitor screen. Since high brightness and sharpness are not preferred for most standard Windows applications, this special feature will only be active in certain circumstances. So that you can control these circumstances, a special program and icons will be installed in your Windows operating systems.

Notes

Philips LightFrame will only work with monitors that have been built to use this software. Earlier Philips monitors or other manufacturers monitors will not work with this special software. It is recommended that you install this software only on a Philips monitor designed to use it. These monitors can be identified by the LightFrame logo

on the front of the monitor.

This software is not designed for use with LCD flat screen monitors.

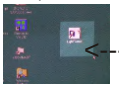
LightFrame will work with true Windows-based programs and DOS-based programs that operate in a Window s environment. It will not work with DOS-based programs operating only in a DOS environment.

Definitions

The following list contains definitions for frequently used words.

Highlighted window:The selected window on which LightFrame is active.

Highlighted area: The selected rectangle (area) on which LightFrame is active.



Compatibility

This version of LightFrame is compatible with
Windows 95
Windows 98
Windows NT
Windows 2000 Professional Edition.

Language Selection

While English is the default language of LightFrame , the User Interface can be set up to operate in Dutch, French, German, Italian, Portuguese, or Spanish.

Installation

1) To install LightFrame , place the CD in the CD-ROM drive.

2) Next, when the menu of items on the CD appears on your screen, click on 'Install LightFrame '.

3) Now, follow the on-screen prompts to properly install the program. The software checks to see if you have a compatible monitor. You must say yes to the license agreement for the software to install.

4) After installation, LightFrame automatically loads and the icon appears in the taskbar.

Notes

LightFrame is installed in the Start menu, under Programs. Unless otherwise selected during installation, LightFrame is installed in C:\Program Files\Philips\LightFrame. A shortcut is installed in the StartUp folder and on the desktop. (If needed, LightFrame can be operated manually from the StartUp folder.)

If LightFrame detects that your monitor is not LightFrame compatible, an message appears on the monitor screen. See Error Message number 1 under the heading Error Messages. If you see this message, you can select to abort or continue the installation. However, if you continue the installation, LightFrame will probably not work on the monitor.

1. Put CD-ROM into CD-ROM Drive, bring up Fig 1.

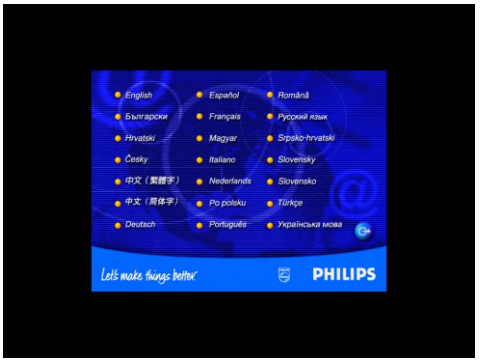


Fig 1.

2. Click one of languages (for example : English) on the screen,bring up Fig.2

Fig 2

3. Click LightFrame, bring up Fig.3

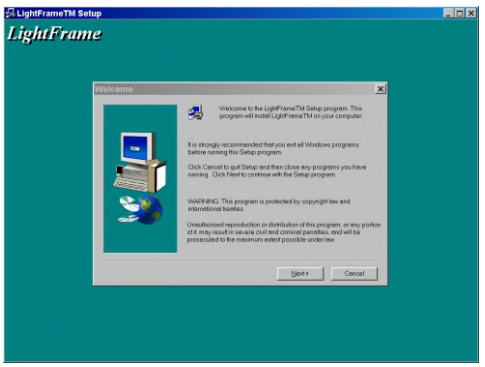


Fig 3

4. Click Next, bring up Fig.4

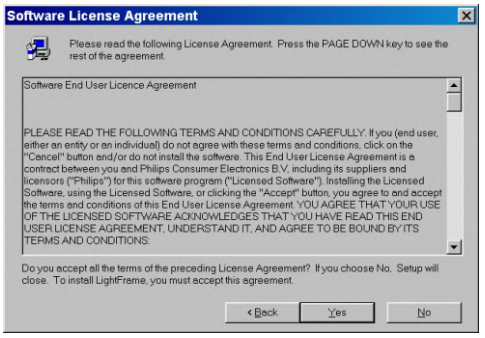


Fig 4

LightFrame for Windows (Continued)

Go to cover page

5. Click Yes,
   bring up Fig.5

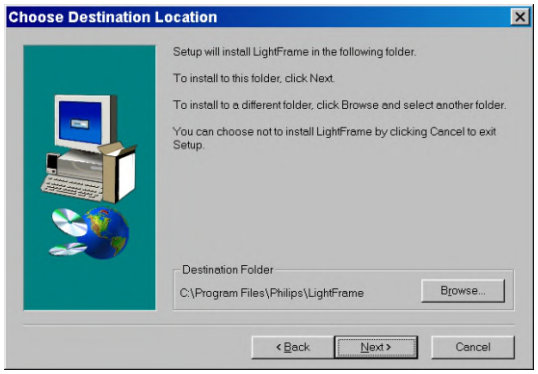


Fig 5

6. Click Next,
   bring up Fig.6

Fig 6

7. Click Next,
   bring up Fig.7

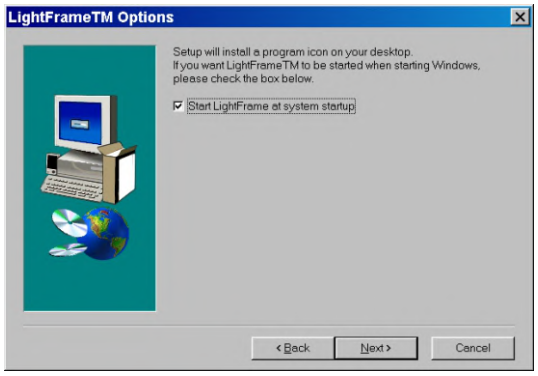


Fig 7

8. Click Next,
   bring up Fig8 & Fig 9

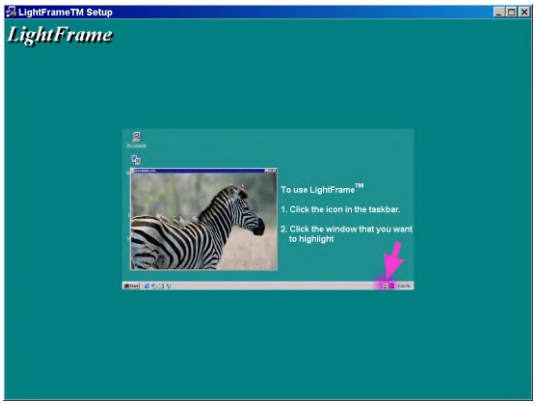


Fig 8

(waiting)

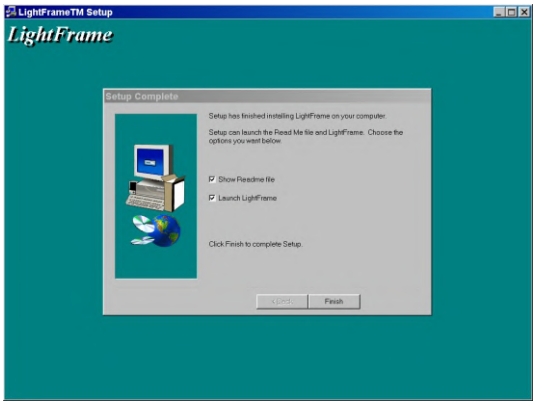


Fig 9

9. Click Finish,
   bring up Fig. 10 & Fig 11 on the desktop.

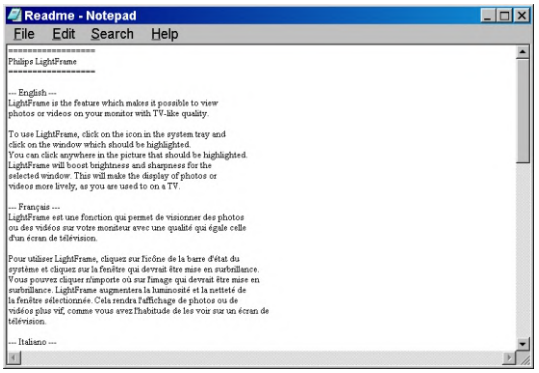


Fig 10

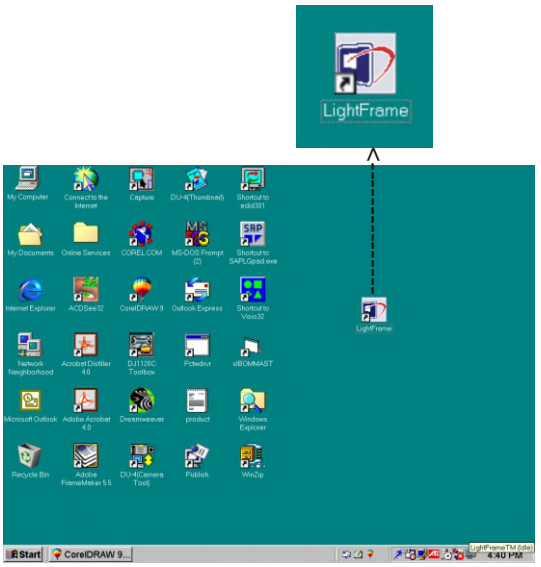


Fig 11

Uninstall

Should you need to remove the LightFrame software, please follow these steps.

1) First, click on the Start Menu.
2) Next, highlight Settings.
3) Then, click on Control Panel.
4) Now, click on Add/Remove Programs
5) Finally, select LightFrame from the list and then click on the Add/Remove button.

Back Forward

LightFrame for Windows (Continued)

Operating LightFrame

After installation, LightFrame starts up automatically whenever the computer is started. At system start up, LightFrame checks the selected resolution of the monitor and if the monitor is LightFrame capable.

Icon and Colors

An icon of a monitor represents LightFrame on your desktop. This icon appears as a shortcut on the Windows desktop. LightFrame has three (3) modes of operation: Active, Inactive, and Suspended. The same icon with a different color in its center represents each mode.
Active = The LightFrame icon has bright green center.

Inactive = The icon has a gray center.

Suspended = The icon has a yellow ce th a red cross.

Notes

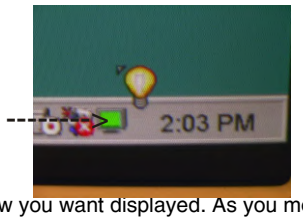
An active window must be 100% visible, i.e. it must be on top of all other windows or areas. If any part of another window or area overlaps a highlighted window, LightFrame automatically suspends operation. That means the icon goes from a green center to a yellow on with a red cross and the feature ceases. Once that window or area is removed and the original highlighted window is on top again, LightFrame automatically re-engages and the icon regains its bright green center.

An active window must also be 100% on the monitor s viewing area. If part of a highlighted window moves off the monitor s viewing area, LightFrame automatically goes into the Suspended mode. If part of a window is off the viewing area, you will not be able to use LightFrame on that window.

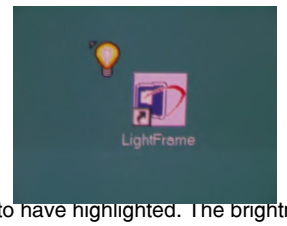
Only one window or area at a time can be highlighted.

How To Activate LightFrame

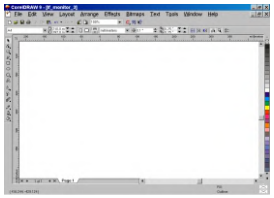
1) Click on the LightFrame icon in the systemtray (the area to the far right in the taskbar). . The icon will turn from gray to a green center.



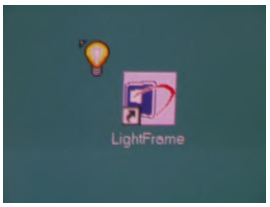
2) Guide the mouse to the window you want displayed. As you move the mouse, the cursor changes to a small arrow with a light bulb.

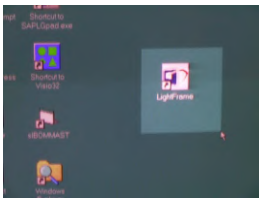


3a) Click on the window you want to have highlighted. The brightness and sharpness are automatically adjusted.



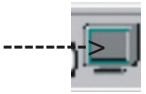
3b) If you want to highlight only an area of a window, click on the left mouse button and drag the cursor over the area to be highlighted while holding the mouse button. A rectangle forms around the area. When the area is encompassed by the rectangle, release the mouse button and the area becomes highlighted.





How to Deactivate LightFrame

To deactivate, click on the LightFrame icon in the System Tray of the Taskbar. The light in the middle of the icon turns gray and LightFrame is deactivated.



Note

If a highlighted window is closed before LightFrame is deactivated, LightFrame is automatically deactivated.

Right-Click Features

On the LightFrame icon in the taskbar, click the right-side mouse button to bring up a menu from which you can select:
About...which tells you something about LightFrame
Help which takes you to the Help screen where you can find additional information
Exit which exits the LightFrame Program.

If you select exit and the color in the center of the icon is green, it will turn gray and LightFrame is deactivated. If you select exit an Exit message appears asking you if are sure you want to exit. Select "Yes" to exit or No to abort the exit. If you select Yes, you can always restart LightFrame by clicking on the desktop shortcut icon.

LightFrame is Suspended When . . .

Screensaver, Sleep mode, Deep Sleep (Power Off) mode is Activated

LightFrame goes into the Suspended mode as soon as a screensaver becomes active on your computer. This is true even though the monitor icon may still have a green center. LightFrame becomes active again as soon as the screen is reawakened and the screensaver quits.

The same is true when the computer goes into Sleep mode or Deep Sleep (Power Off) mode. LightFrame goes into Suspended mode and reawakens when the monitor is reawakened.

Screen or Area is Minimized

LightFrame suspends when a highlighted window is minimized. LightFrame reactivates when the highlighted window is again maximized or restored to its previous size.

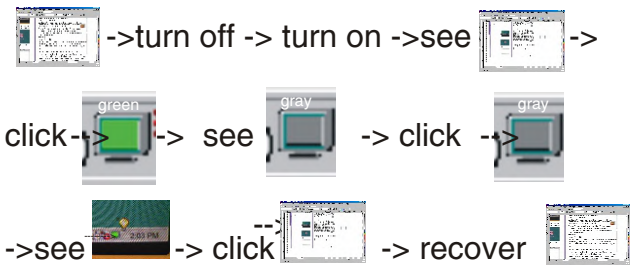
Another Window or Area Overlaps Highlighted Window or Area

LightFrame suspends if a window that is not highlighted overlaps a highlighted window. LightFrame reactivates once the highlighted window is again on top.

Miscellaneous

Monitor Turned Off

If the monitor is hard powered off while a window or area is highlighted and then hard powered on again, LightFrame is no longer active. The icon may still show the feature as still active. In this case, you have to exit LightFrame and restart it via the icon on the desktop or the Start menu.



If the Monitor is Detached and Another Monitor is Attached

If the monitor is detached from the computer while a highlighted window or area is displayed and then another monitor is attached, the system will have to be rebooted so that Philips LightFrame can detect the monitor s LightFrame capabilities and store the setup information about the new monitor. If the monitor is not LightFrame capable, an Error message appears. See Error Message 2 under the heading Error Messages. You can abort or continue the set up. However, if you continue, LightFrame may not work with the monitor.

Error Messages

You may see this message when you install LightFrame .

Error Message 1 dialog box here

LightFrame cannot detect a monitor which supports this feature. You can still proceed with the software installation but LightFrame might not run on your system.

You may see this message when you try to switch monitors.

Error Message 2 dialog box here

LightFrame cannot detect a monitor which supports this feature. You can still start the software but LightFrame may not work.

PHILIPS

M36 107B3 86KHz General Specification (Sheet 590)

FEATURES / BENEFITS

- EXTREMELY HIGH MTBF (OVER 75K HRS, 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 (0.25 MM)
  . FULL SCREEN SIZE APPLICATION
  . REAL MULTI-FREQ.
  . FLAT SQUARE CRT

- POWER SAVING MANAGEMENT SYSTEM

- MAXIMIZED CONTAINER LOADING

- VESA DDC2B

- LOW EMISSION TCO99

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CLASS NO.	17" M36 107B3 86K CMTR TYPE : 107B30/40C BRAND : PHILIPS (86K)		8639 000 11438					
2001-06-18								
NAME WR.Huang	SUPERS.	29	590 — 1	10		A4		
TY	CHECK	DATE 2001-06-18	Property of PHILIPS ELECTRONICS INDUSTRIES (TAIWAN) LTD.-B.E.					

2838 100 05424

PHILIPS

INDEX
=========

1.0 Introduction

2.0 General description
2.1 General condition

3.0 Electrical characteristics
3.1 Signal interface
3.1.1 Input requirements
3.1.2 Signals input
3.1.3 Factory preset modes
3.2 Timing requirements
3.2.1 Horizontal scanning
3.2.2 Vertical scanning
3.3 Power supply
3.4 Power saving management system
3.5 CRT description
3.6 RGB amplifier
3.6.1 Video amplifier
3.6.2 Brightness and Contrast
3.7 Variation of image size
3.8 Degaussing
3.9 Phosphor protection
3.10 Low emission requirements (TCO99)
3.11 Display data channel: DDC2B (VESA STANDARD)

4.0 Display
4.1 Display resolution
4.2 Image size
4.3 Image centering deviation
4.4 Picture shift control range
4.5 Picture tilt
4.6 Geometrical distortion
4.7 Image non-linearity
4.8 Mis-covergence
4.9 Focus check
4.10 Luminance uniformity
4.11 White color adjustment
4.12 Color tracking on full white pattern
4.13 Purity
4.14 Moire
4.15 Blemish

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5.0 Mechanical characteristics
5.1 User controls (at front)
5.2 Connector and cables
5.2.1 Power Cord
5.2.2 Signal Cable
5.3 Tilt and swivel base

6.0 Environmental characteristics
6.1 Susceptibility of display to external environment
6.1.1 Operation limits
6.1.2 Transportation packages
6.2 Display disturbance from external environment
6.2.1 ESD disturbances
6.3 Display disturbance to external environment
6.3.1 Radiation
6.3.2 EMI

7.0 Safety tests
7.1 Dielectric strength
7.2 Resistance for protective earthing
7.3 Leakage current
7.4 Grounding

8.0 Certifications
8.1 Safety
8.2 EMI
8.3 Fulfil approbation requirements

9.0 Reliability
9.1 Mean time between failures

10.0 Quality assurance requirements
10.1 Acceptance test

11.0 Service ability

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CLASS NO.	17" M36 107B3 86K CMTR TYPE : 107B30/40C BRAND : PHILIPS (86K)		8639 000 11438					
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TY	CHECK	DATE 2001-06-18	Property of PHILIPS ELECTRONICS INDUSTRIES (TAIWAN) LTD.-B.E.					

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1.0 Introduction

This document is related to the 17" AUTOSCAN (VGA above and Max. resolution 1600X1200 by 65HZ 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 advance VGA compatible system.

The AUTOSCAN analog color monitor is to operate at horizontal line rates between 30 to 86 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 operates 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 video ground
P7	Green video ground
P8	Blue video ground
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	37.5 KHz	75Hz (VGA)	-	-
3.	800 x 600	46.9 KHz	75Hz (VESA)	+	+
4.	800 x 600	53.7 KHz	85Hz (VESA)	+	+
5.	1024 x 768	60.0 KHz	75Hz (VESA)	+	+
6.	1024 x 768	68.7 KHz	85Hz (VESA)	+	+
7.	1280 x 1024	80.0 KHz	75Hz (VESA)	+	+
8.	640 x 480	43.3 KHz	85Hz (VESA)	-	-

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Factory preload modes: 21 (please see sheet 168 for detail content)

	Resolution	H. freq.	V. freq.	H	V
9.	640 x 350	37.8 KHz	85Hz	+	-
10.	640 x 480	50.6 KHz	100Hz	-	-
11.	640 x 480	31.46 KHz	60Hz	-	-
12.	640 x 480	37.86 KHz	72.8Hz	-	-
13.	1280 x 960	86.0 KHz	85Hz	+	+
14.	640 x 350	31.469 KHz	70Hz	+	-
15.	720 x 400	37.92 KHz	85Hz	-	+
16.	800 x 600	63.9 KHz	100Hz	+	+
17.	800 x 600	37.8 KHz	60.3Hz	+	+
18.	800 x 600	48.07 KHz	72.1Hz	+	+
19.	832 x 624	49.7 KHz	74.6Hz	+	+
20.	1024 x 768	48.36 KHz	60Hz	-	-
21.	1024 x 768	56.47 KHz	70Hz	-	-
22.	1152 x 864	67.5 KHz	75Hz	+	+
23.	1152 x 864	77.1 KHz	85Hz	+	+
24.	1152 x 870	68.68 KHz	75Hz	-	-
25.	1152 x 900	71.8 KHz	76Hz	+	+
26.	1280 x 1024	63.98 KHz	60Hz	+	+
27.	1280 x 960	60 KHz	60Hz	+	+
28.	1600 x 1200	75 KHz	60Hz	+	+
29.	1600 x 1200	81.25 KHz	65Hz	+	+

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 - 86KHz.

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TIMING FOR 107B3 model:

REFERENCE PATTERN GENERATOR: CHROMA 2250

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

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	= 12.800 ms
Rear porch	= 3.810 us	Rear porch	= 0.427 ms
Sync width	= 2.032 us	Sync width	= 0.080 ms
Sync.polarity	= -	Sync.polarity	= -

TABLE 3: 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 4: 53.674 KHz/85.061 Hz, 800 X 600, pixel=56.250 MHz

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

TABLE 5: 60.03 KHz/75.029 Hz, 1024 X 768, pixel=78.750 MHz

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

TABLE 6: 68.677 KHz/84.997 Hz, 1024 X 768, pixel=94.500 MHz

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

TABLE 7: 79.953 KHz/75.003 Hz, 1280 X 1024, pixel=135.600 MHz

Horizontal		Vertical	
Frame border	= 0	Frame border	= 0
Total size	= 12.504 us	Total size	= 13.329 ms
Display size	= 9.481 us	Display size	= 12.804 ms
Rear porch	= 1.837 us	Rear porch	= 0.475 ms
Sync width	= 1.067 us	Sync width	= 0.037 ms
Sync.polarity	= +	Sync.polarity	= +

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TABLE 8: 43.269 KHz/85.00 Hz, 640 X 480, pixel=36.00 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 = -

3.2.1 Horizontal scanning

Scanning frequency : 30 - 86KHz
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 bellows :

Type	Mains current	Mains Voltage	Mains freq.
Universal	1.2A Max.	90 - 264 VAC	47 - 63 Hz
230V version 0.55A Max.		195 - 264 VAC	47 - 63 Hz
115V version 1.2A Max.		90 - 132 VAC	60 3 Hz
Power consumption : 75 Watts Max.(230V AC input) 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	Power	Recovery
	H-Sync	V-Sync	Video	Requirement		Time
On	Active	Active	Active	Mandatory	75w	N/A
Off	Inactive	Inactive	Blanked	Mandatory	<=3w(TCO)	Normal

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

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3.5 CRT Description

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

Dimensions	: 17 inches flat/square screen
Pitch	: 0.25mm dotted with black matrix
Deflection angle	: 90 degrees
Light transmission	: 47% (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	: SAMSUNG,BGDC,CPT tube

3.6 RGB Amplifier

3.6.1 Video amplifiers

Dot Rate	: 176 MHz
Over / undershoot	: 12% Max. (Transient response)
Sag	: 5% Max.(pulses of 0.70H)
Black level shift	: 5% Max.

3.6.2 Brightness and Contrast
Reference mode 68.7KHZ/85HZ full white pattern.

DISPLAY LIGHT OUTPUT

Brightness	Contrast	Light output (full white)
Minimum	Minimum	no visiable
Center	Maximum	32+/- 5 FL.

80mmx80mm block
Brightness at center and contrast at maximum light output is 40+/-5 FL.

3.6.3 Raster light output
Apply 68.7Hz/85Hz mode with no video pattern,
set brightness at center click and contrast control at minimum
The light output on the screen center should <0.15FL.

3.7 Variation of image size (For preset modes only)
Due to brightness change : 1.0% max at < 48Khz
0.8 % max at timing >=48Khz
(Set brightness control at center click, turn contrast control from Min. to Max.)

Due to aging
(25 C, 300hrs) : 1.0%

Due to mains voltage
variation (10%) : 1.0%

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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.

3.10 Low emission requirements TCO

Items	Band I ELF (rms)	Band II VLF (rms)
Alternating Electric Field	TCO <= 10V/m	TCO <= 1.0 V/m
Magnetic Field	TCO <= 200 nT	TCO <= 25 nT
E.S.P	<= 500 V	

Band I : 5 to 2K Hz.
Band II : 2K to 400K Hz.
Test procedure according to Low emission and E.S.P. test method.

3.11 Display data channel: DDC2B (VESA STANDARD)

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

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

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)

Width : 306 +/- 3 mm
Height : 230 +/- 3 mm

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4.3 Image centering deviation (For preset modes only)

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

|A- B|<= 5 mm |C- D|<= 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.

|A- B| : <=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)

Overall : <=10 % (each horizontal and vertical)

Deviation of Two adjacent block : <= 7 %

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

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

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)

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CONVERGENCE SPEC.

Zones	0.25 mm CRT
Zone C	0.15 mm
Zone A	0.25 mm
Zone B	0.35 mm (31K:0.4mm)

4.9 Focus check (80.0 KHZ / 75 HZ)

Adjust brightness control to center click and contrast control to get 25 FL at full white pattern , then generate @ 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 32 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 5500 K x = 0.332 +/- 0.015
y = 0.347 +/- 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 FL to 30FL 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

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.

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4.14 Moire'e

Condition: Displaying a full white pattern, at any preset mode ,
the display size to be set as Fig.1

The moire area should < 1/3 area 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 : 1.5 m +/- 50 mm (exc. connector)
Safety requirements : See following.

	Approval		
Countries	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

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

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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 60C
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)518(D)495(H)

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

B) Transportation conditions
B-1 Container loading (separated pedestal)

Q'ty	Container size			
	40'		20'	
	W/ palette		W/ palette	
	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

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B-2 Transportation standards

Standards		EU / Asia versions PHILIPS's UN-D1400	U.S.A. version NSTA
Drop test	Height	61 cm	61 cm
	Sequence	-10 C for 16 hours, 1 corner, 3 faces Right/Back/Top faces Left/Front/Bottom faces (only for reference)	1 corner. 3 edges. 6 faces
	Result	- Electrical function OK. - Mechanical function OK. - No serious damage in set.	
Vibration Test	Sequence	a . 5~200Hz. 0.25G operating random vibration 30 min/axis, 3 axes b. 5~200Hz. 0.73 packing random vibration 30 min/axis, 3axes	
	Result	- Electrical function OK. - Mechanical function OK. - No serious damage in set.	
Shock test	For design evaluation only. Half sine shock : 120G, <3m sec. 6 shocks Temp. : 23C Humidity : 60 % Air pressure : 100 kpa Standard : Mechanical Guideline		

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 Radiation
Completely fulfilled International Commission of Radio logical Protection (ICRP) requirement 0.5 mR/Hr.

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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), ISO 9241-3,-8

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

- EN55024
- 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

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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)

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

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 criteria : UAW 0377/40

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 check list UAT - 0361

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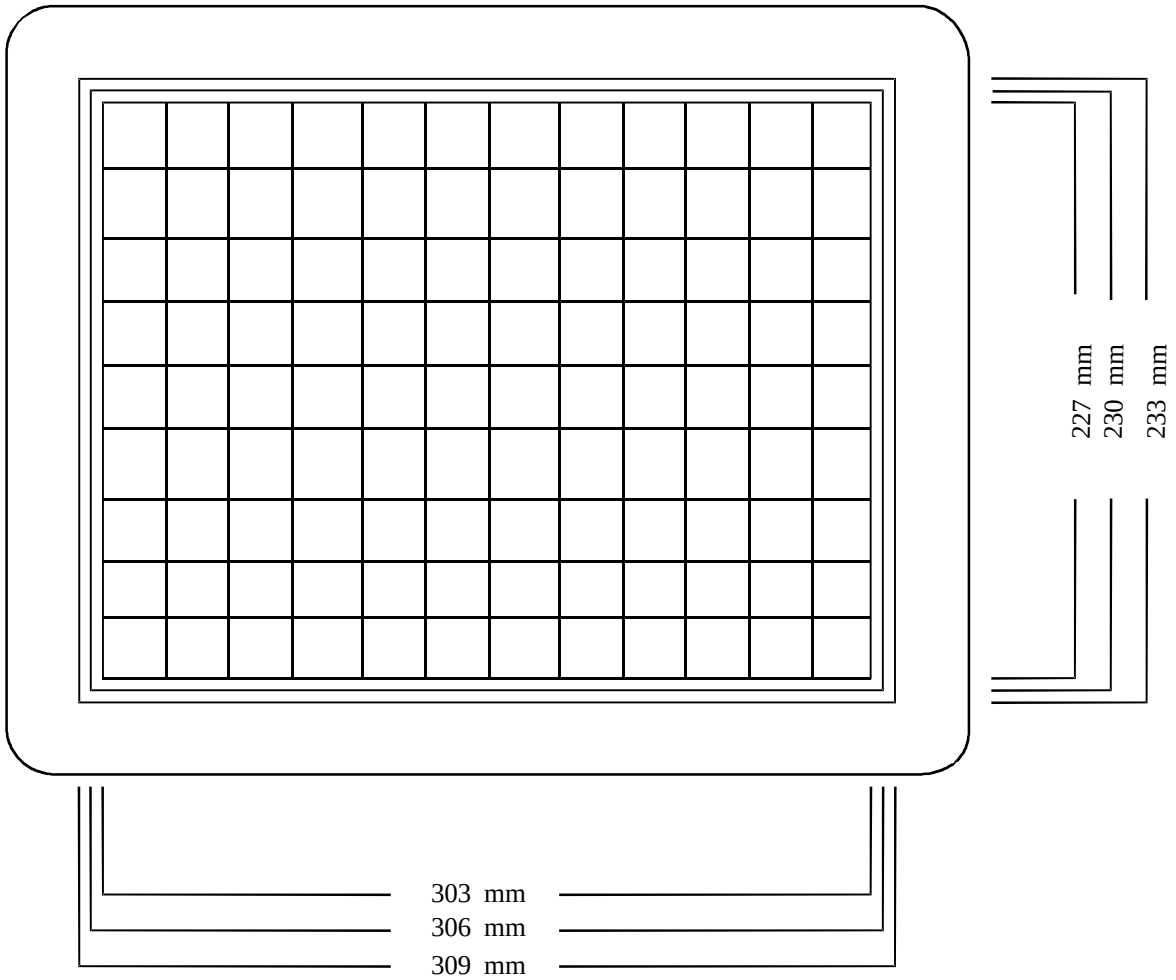

FIG-1 IMAGE DIMENSION

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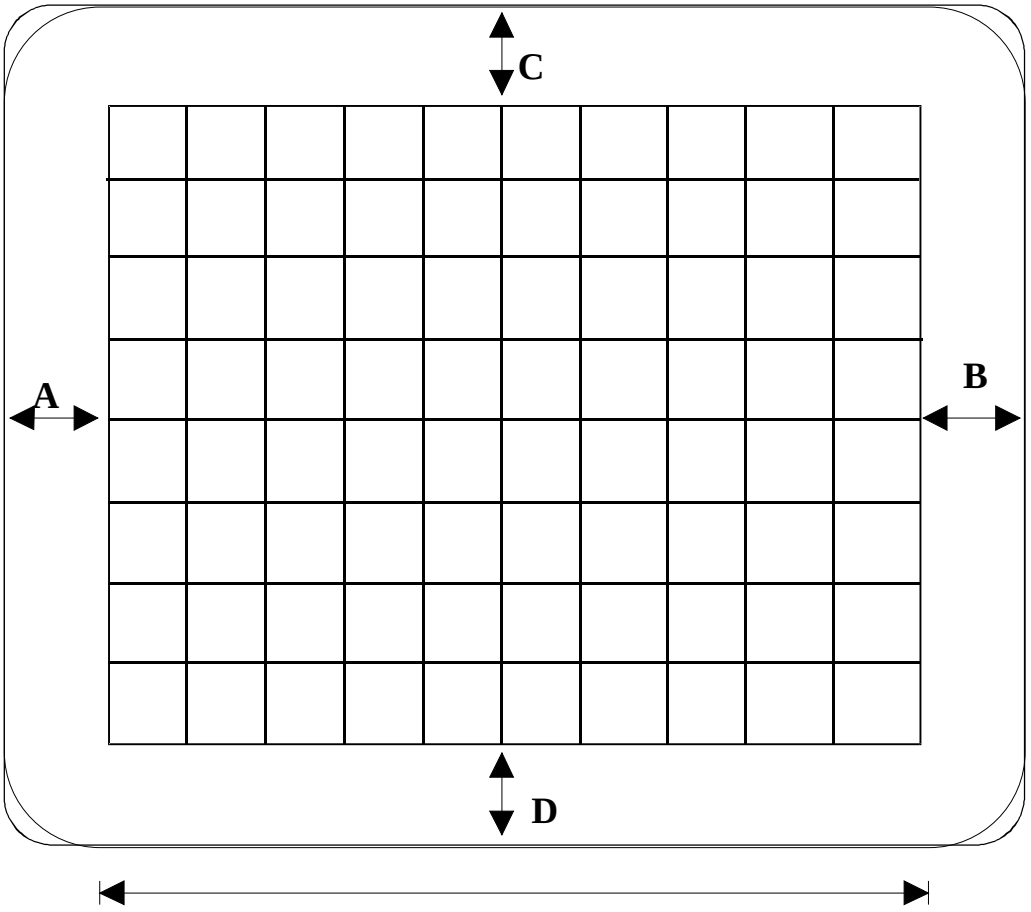
CLASS NO.	17" M36 107B3 86K CMTR TYPE : 107B30/40C BRAND : PHILIPS (86K)	8639 000 11438					
2001-06-18							
NAME WR.Huang	SUPERS.	25	590 — 19	10		A4	
TY CHECK	DATE 2001-06-18	Property of PHILIPS ELECTRONICS INDUSTRIES (TAIWAN) LTD.-B.E.					

2838 100 05424



|A-B| AND |C-D| ≤ 5 mm

FIG-2 IMAGE CENTERING

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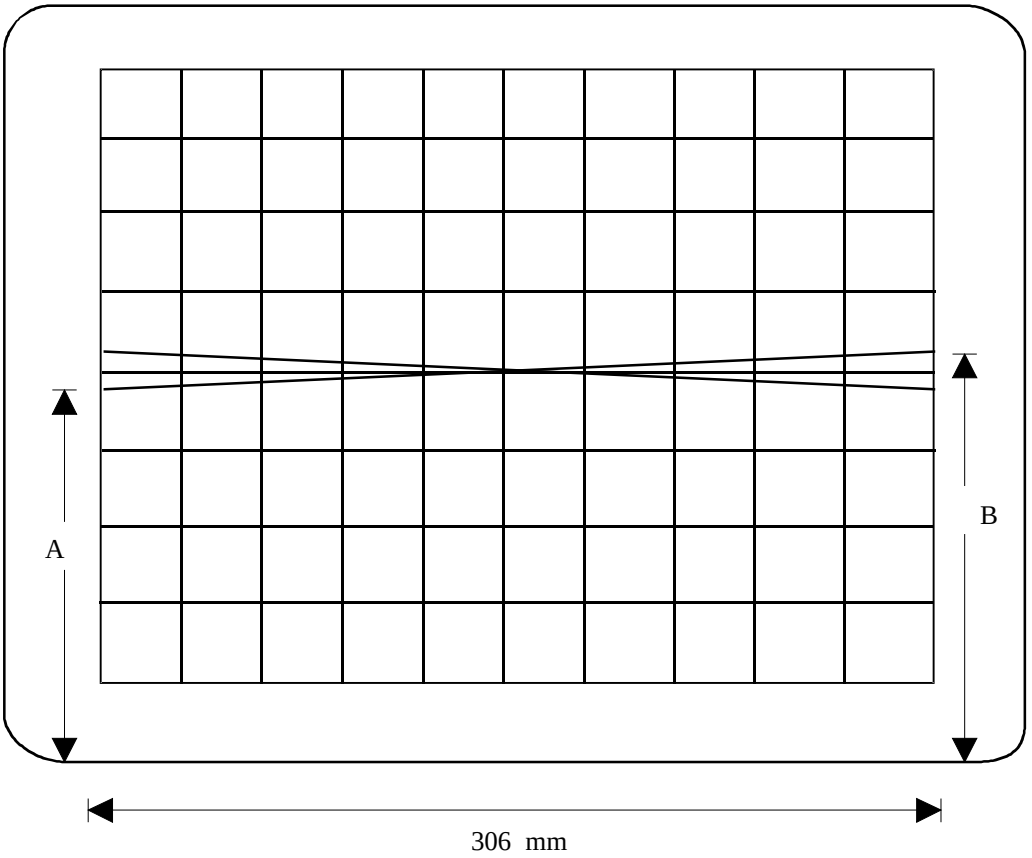
CLASS NO.	17" M36 107B3 86K CMTR TYPE : 107B30/40C BRAND : PHILIPS(86K)		8639 000 11438				
2001-06-18							
NAME WR.Huang	SUPERS.	25	590 — 20	10		A4	
TY CHECK	DATE 2001-06-18	Property of PHILIPS ELECTRONICS INDUSTRIES (TAIWAN) LTD.-B.E.					

2838 100 05424



$$|A\text{-}B| \leq 2 \text{ mm}$$

FIG-3 IMAGE ROTATION

CLASS NO.	17" M36 107B3 86K CMTR TYPE : 107B30/40C BRAND : PHILIPS (86K)		8639 000 11438				
2001-06-18							
NAME WR.Huang	SUPERS.	25	590 — 21	10		A4	
TY CHECK	DATE 2001-06-18	Property of PHILIPS ELECTRONICS INDUSTRIES (TAIWAN) LTD.-B.E.					

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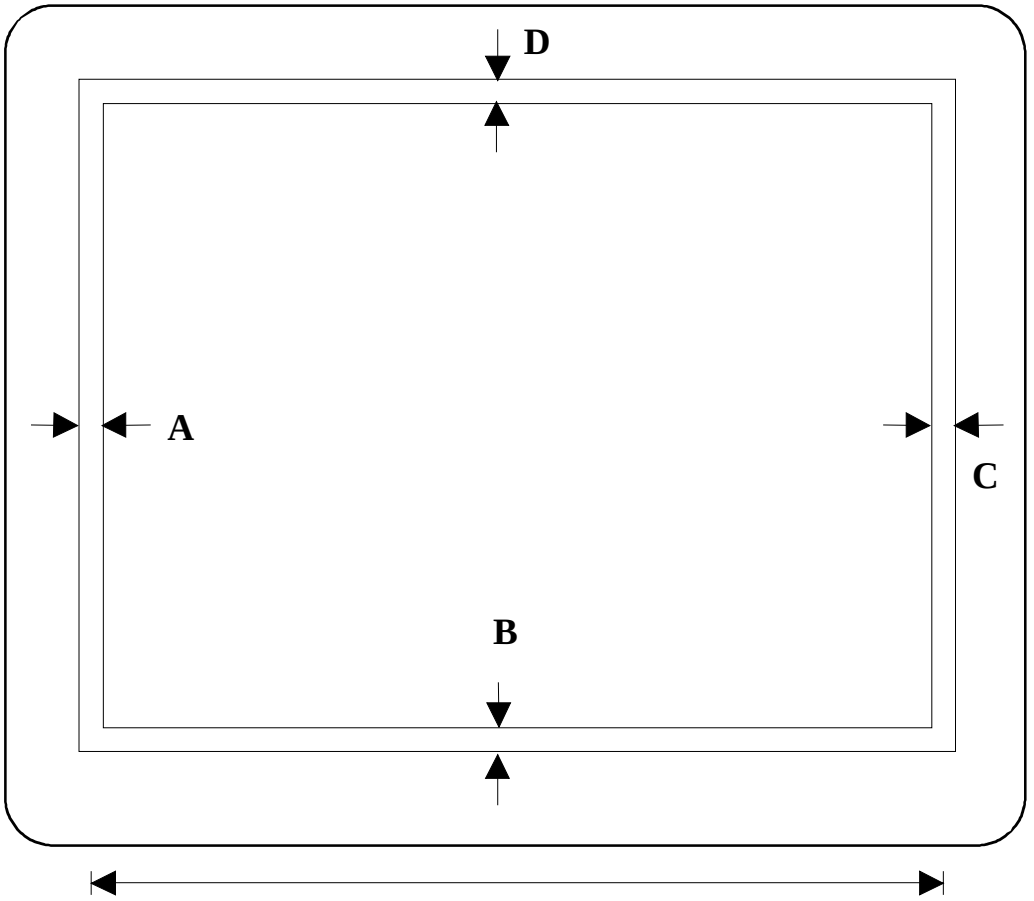

A=B=C=D ≤ 2.0 mm

FIG-4 IMAGE GEOMETRY

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CLASS NO.	17" M36 107B3 86K CMTR TYPE : 107B30/40C BRAND : PHILIPS(86K)		8639 000 11438				
2001-06-18							
NAME WR.Huang	SUPERS.	25	590 — 22	10		A4	
TY CHECK	DATE 2001-06-18	Property of PHILIPS ELECTRONICS INDUSTRIES (TAIWAN) LTD.-B.E.					

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PHILIPS

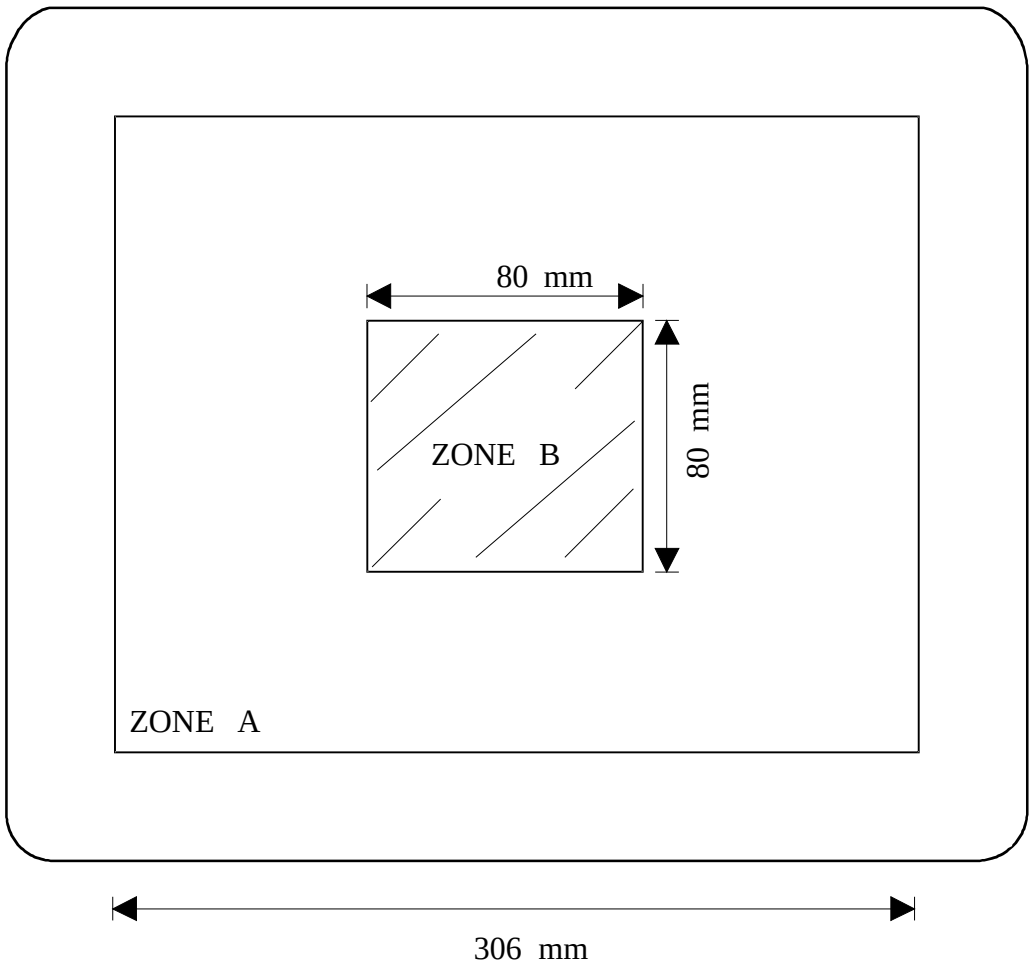

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FIG-5 CONTRAST AND BRIGHTNESS MEASUREMENT AREA

CLASS NO.	17" M36 107B3 86K CMTR TYPE : 107B30/40C BRAND : PHILIPS (86K)			8639 000 11438					
2001-06-18									
NAME WR.Huang	SUPERS.		25	590 — 23		10		A4	
TY	CHECK	DATE 2001-06-18	Property of PHILIPS ELECTRONICS INDUSTRIES (TAIWAN) LTD.-B.E.						

2838 100 05424

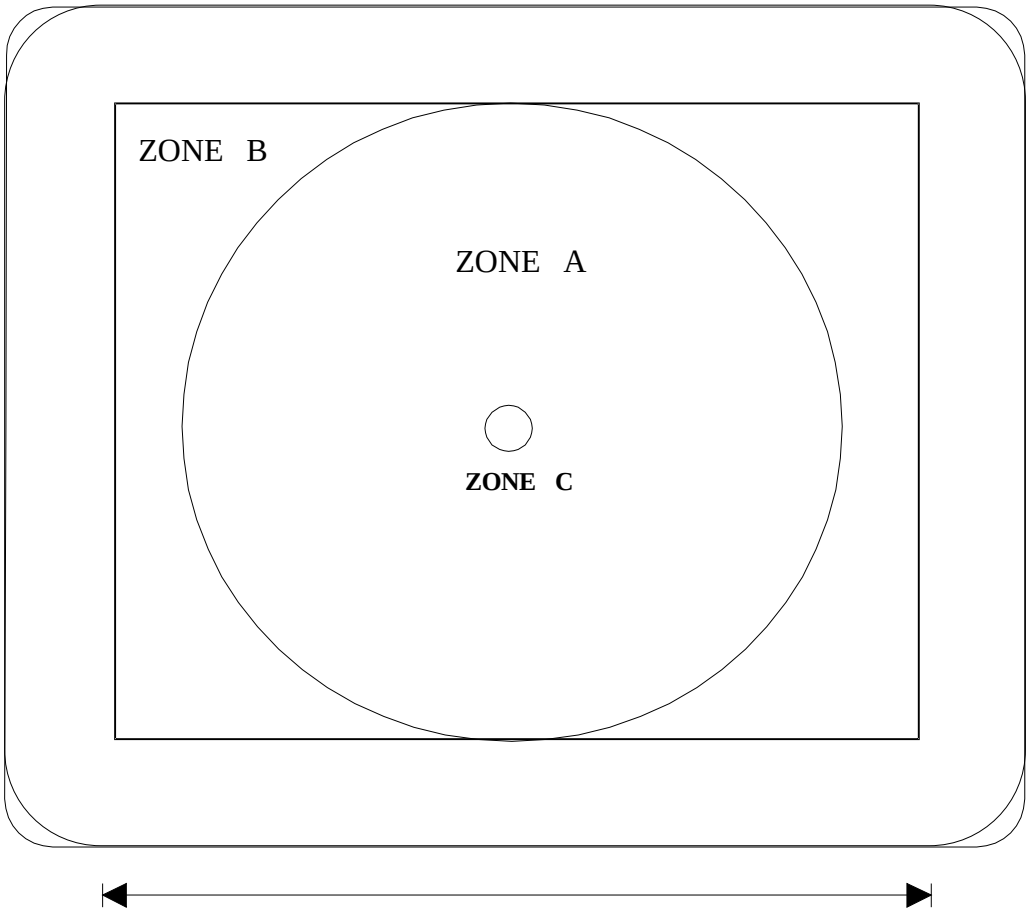

FIG-6 MISCONVERGENCE

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CLASS NO.	17" M36 107B3 86K CMTR TYPE : 107B30/40C BRAND : PHILIPS(86K)		8639 000 11438					
2001-06-18								
NAME WR.Huang	SUPERS.	25	590 — 24	10		A4		
TY	CHECK	DATE 2001-06-18	Property of PHILIPS ELECTRONICS INDUSTRIES (TAIWAN) LTD.-B.E.					

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1 BYTE = 8BITS

LINE	HEX.DATA	
0	0	0
1	0	0
2	7	C
3	8	2
4	8	2
5	9	E
6	9	2
7	9	2
8	9	C
9	8	0
A	7	C
B	0	0
C	0	0
D	0	0
E	0	0
F	0	0

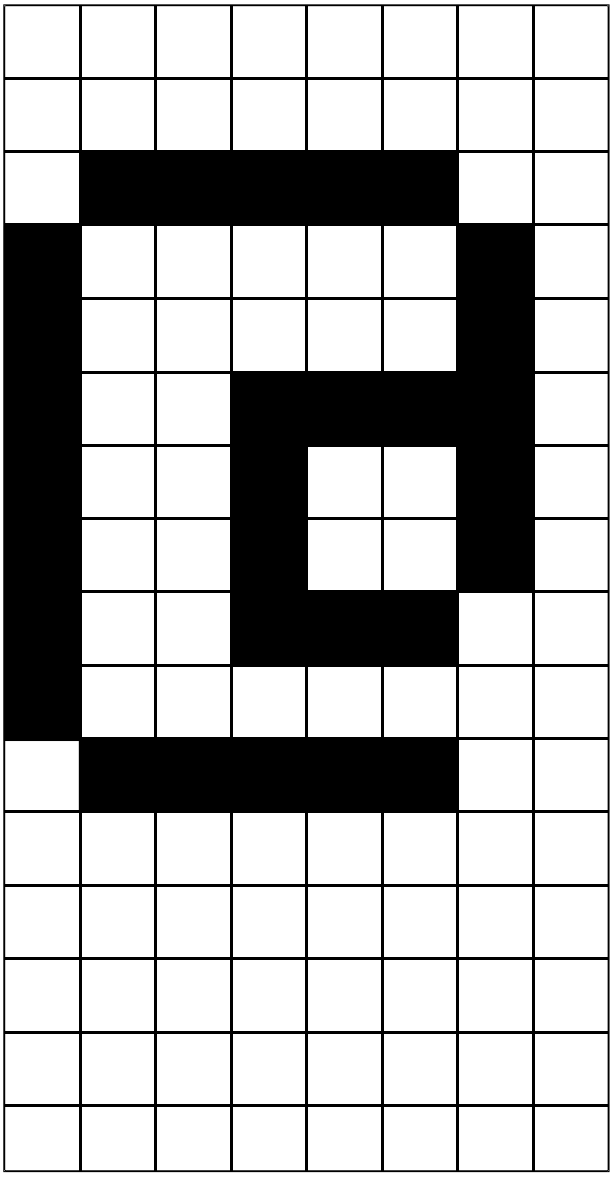

Fig 7 CHARACTER FORMAT FOR FOCUS CHECK

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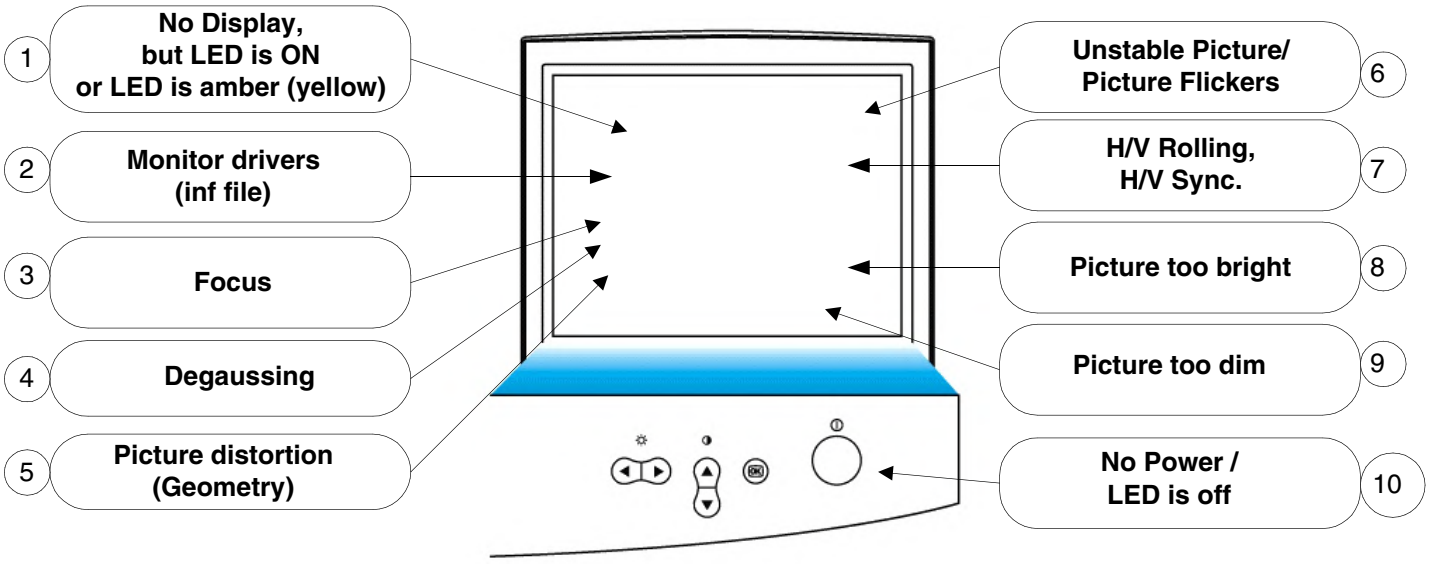
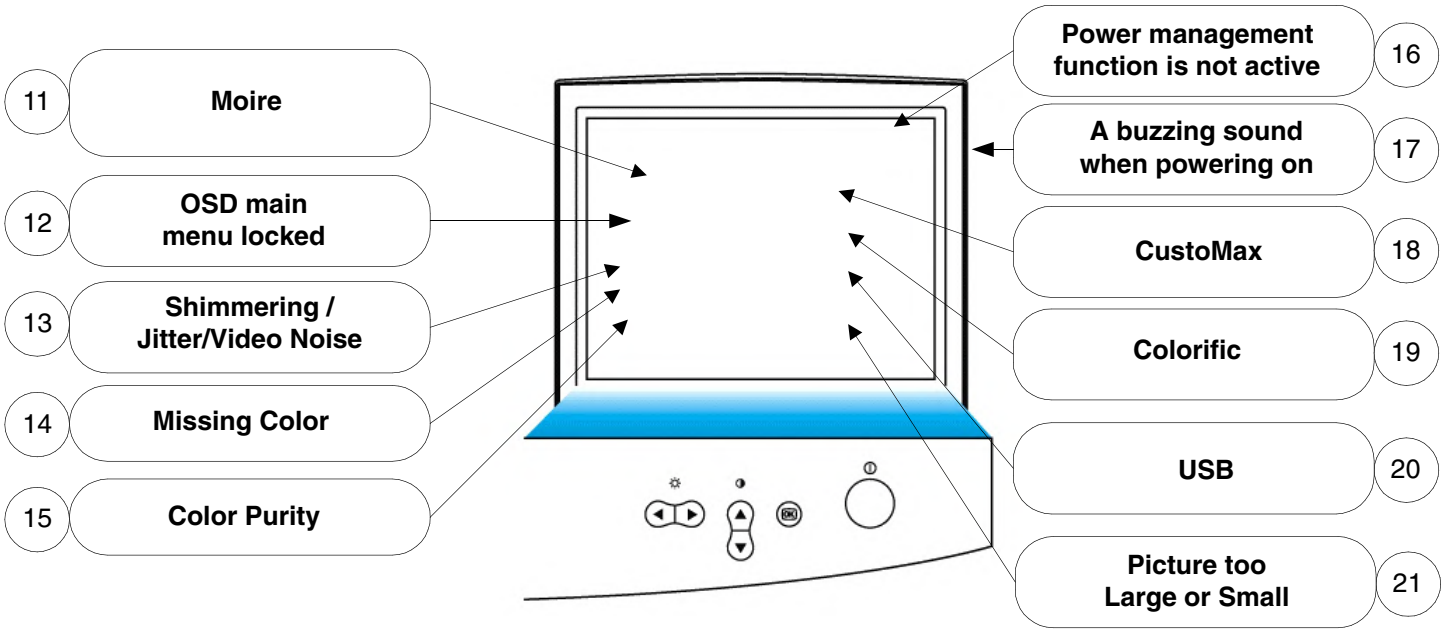
CLASS NO.	17" M36 107B3 86K CMTR TYPE : 107B30/40C BRAND : PHILIPS (86K)	8639 000 11438
2001-06-18		
NAME WR.Huang	SUPERS.	25 / 590 — 25 / 10 / A4
TY / CHECK	DATE 2001-06-18	Property of PHILIPS ELECTRONICS INDUSTRIES (TAIWAN) LTD.-B.E.

2838 100 05424

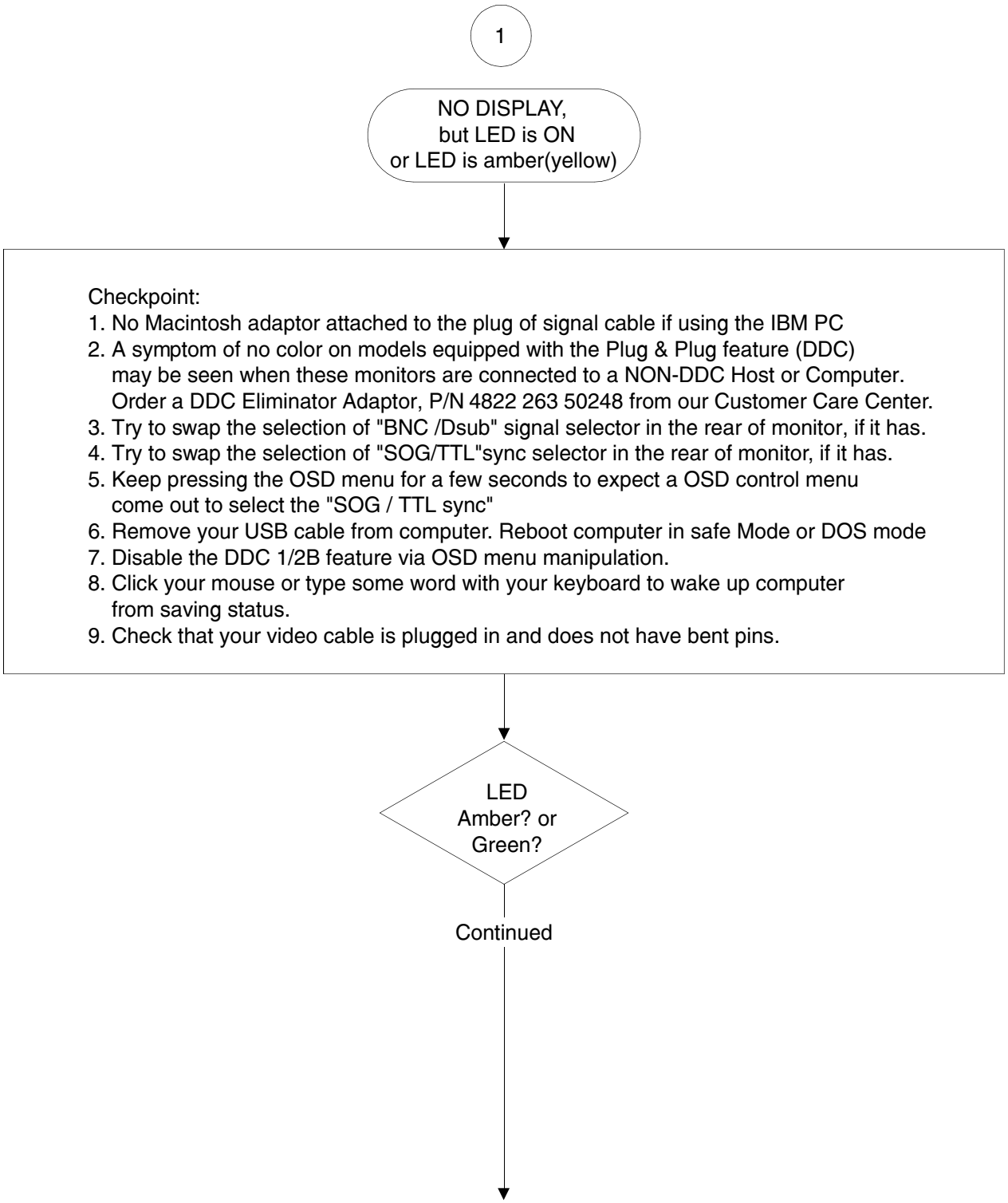
General Troubleshooting Guide

General Troubleshooting Guide

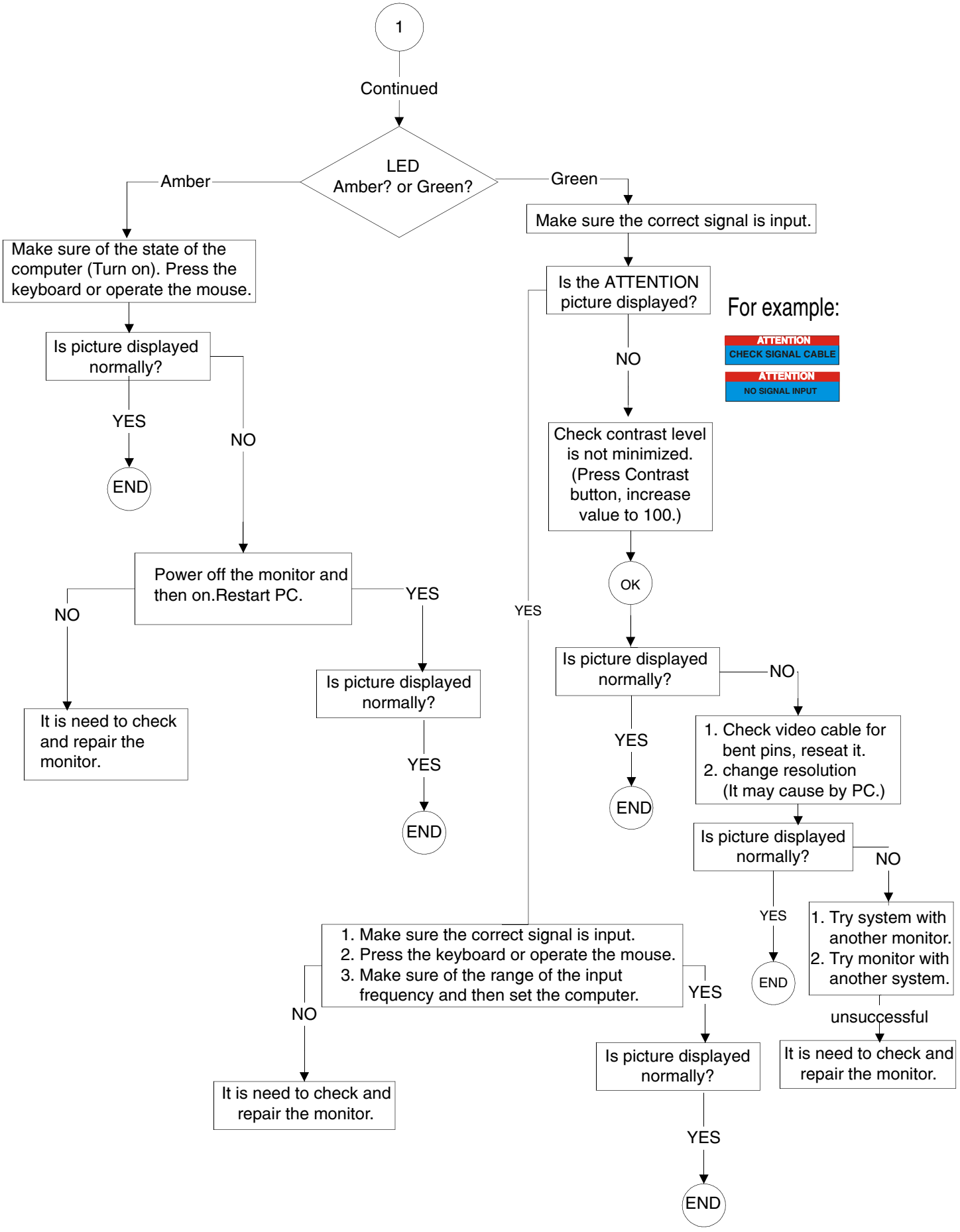




Note : Not all described feature are applicable for all monitors.


1
NO DISPLAY,
but LED is ON
or LED is amber(yellow)
Checkpoint:
1. No Macintosh adaptor attached to the plug of signal cable if using the IBM PC
2. A symptom of no color on models equipped with the Plug & Plug feature (DDC) may be seen when these monitors are connected to a NON-DDC Host or Computer. Order a DDC Eliminator Adaptor, P/N 4822 263 50248 from our Customer Care Center.
3. Try to swap the selection of "BNC /Dsub" signal selector in the rear of monitor, if it has.
4. Try to swap the selection of "SOG/TTL"sync selector in the rear of monitor, if it has.
5. Keep pressing the OSD menu for a few seconds to expect a OSD control menu come out to select the "SOG / TTL sync"
6. Remove your USB cable from computer. Reboot computer in safe Mode or DOS mode
7. Disable the DDC 1/2B feature via OSD menu manipulation.
8. Click your mouse or type some word with your keyboard to wake up computer from saving status.
9. Check that your video cable is plugged in and does not have bent pins.
LED
Amber? or
Green?
Continued

General Troubleshooting Guide



2 **Monitor drivers (inf file)**

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

For Windows95 drivers , our monitor is listed 1 manufacture name "Philips Business Electronics Co.".

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

But for Windows98 drivers, our monitors are listed under 2 manufactures name "Philips", "Philips Consumer Electronics Co". Please select "Philips" when you would like to set up your monitor in Windows setting , unless you can not find the right model name just as the label indication on the back of set. For those set that have been issued since the release of Win98 , drivers can be found in CDROM under the directory path of " \ pc\ driver \" or it may be downloaded at "http: \www.philips.com". Once you have installed the new driver , Windows will add a new manufacture name "Philips Business Electronics" in your system.

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 elect 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.

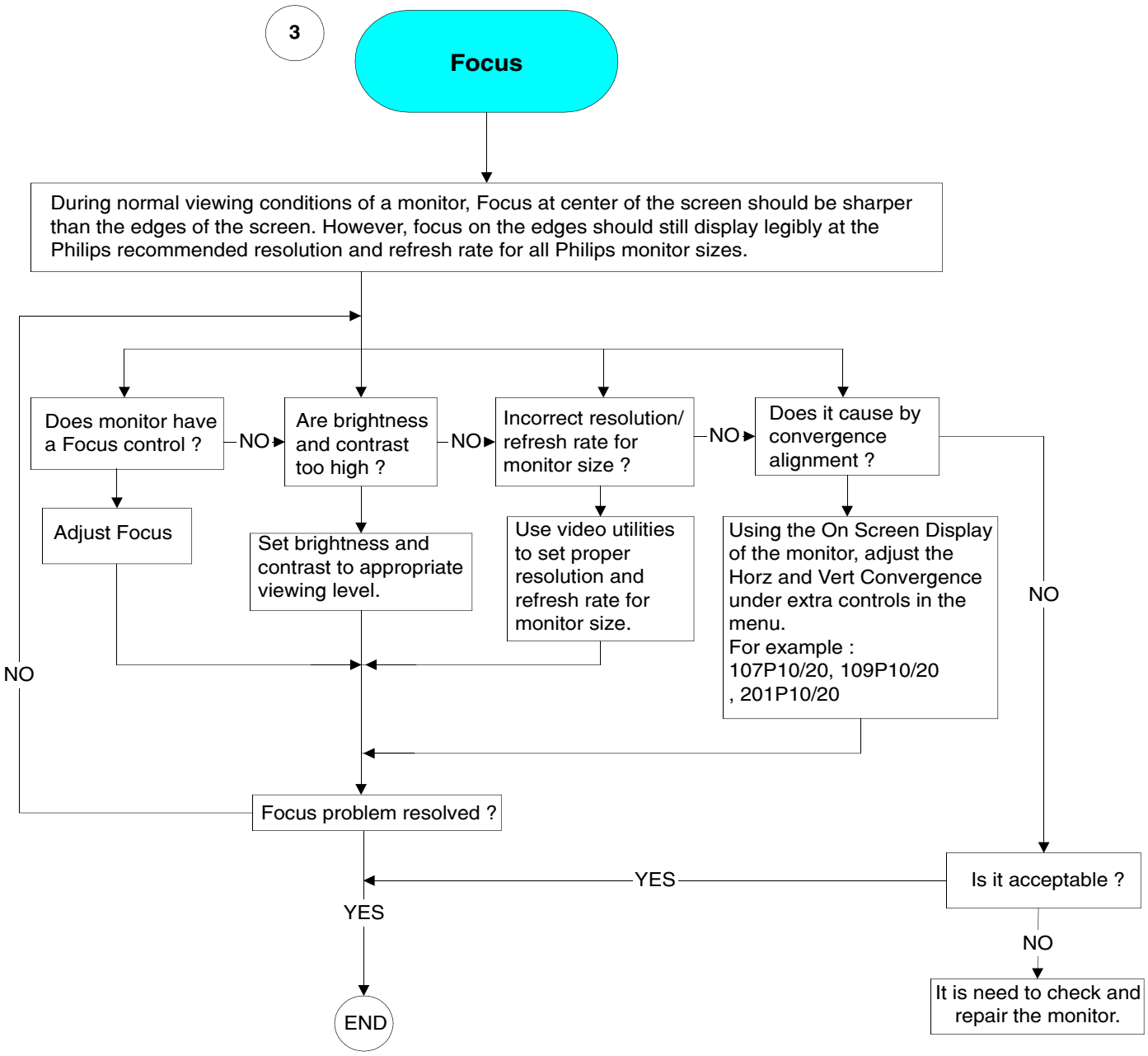
For Windows Me

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.

General Troubleshooting Guide

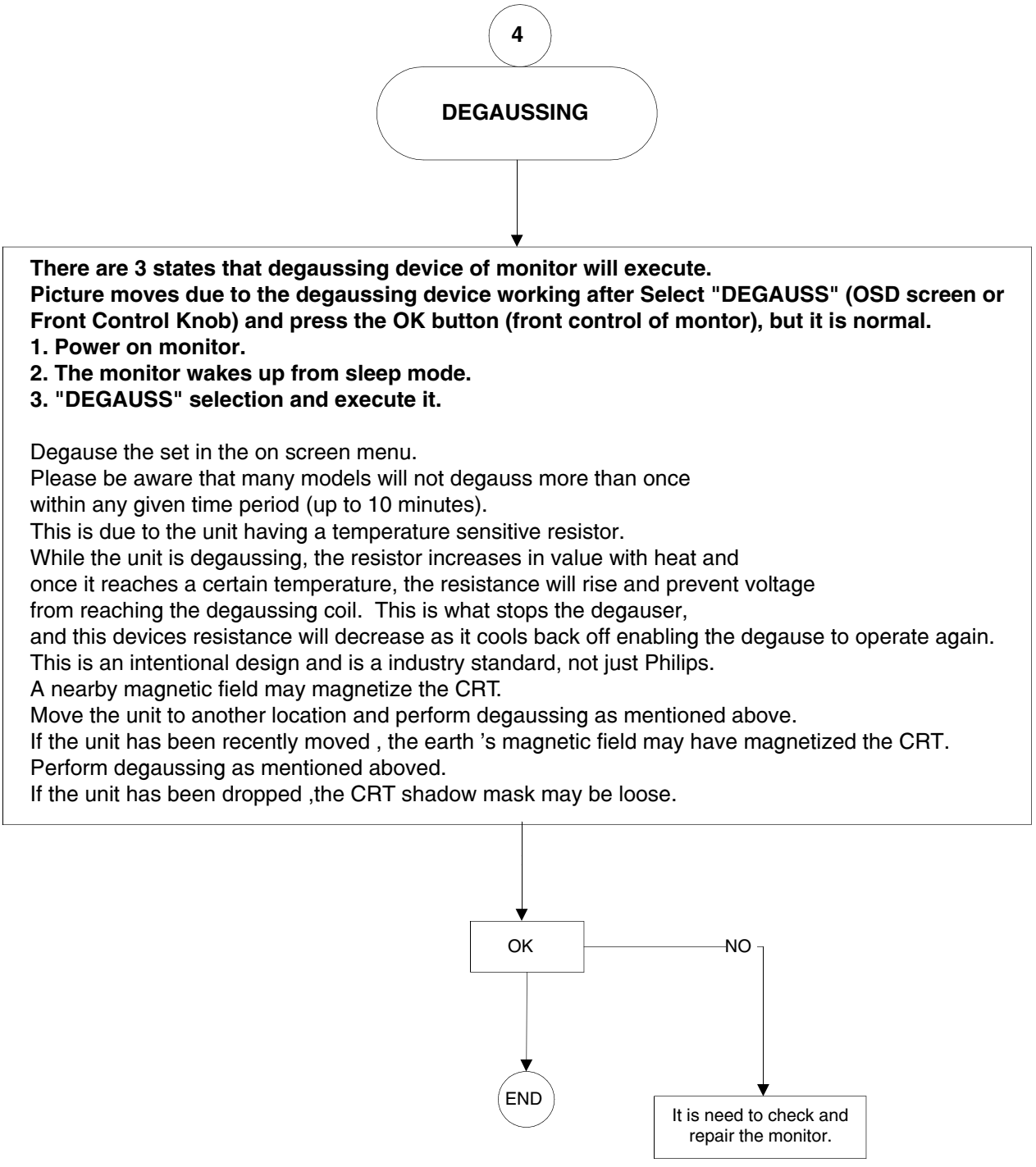


Case study : P-Line Focus issue (107P10/20, 109P10/20, 201P10)

Symptom: Poor Focus, Blurry Picture, colored outlines around characters.
Possible Cause:
Convergence Issues:
What is Convergence : As we know the CRT is comprised of thousands of color phosphor dots, (red, Green, and Blue).
Convergence is the alignment to ensure that the proper electron beam strikes the correct colored phosphor dot
and the correct triad of phosphor dots. (Triad = a group of each colored phosphor dots forming a triangle / Bold below)
For a better photo refer to any of our CD ROM's under glossary of terms and Dot Pitch.

R G B R G B R G B
B R G B R G B R
R G B R G B R G B

Convergence is typically not adjustable by the customer.
On the P-Line with a Diamondtron CRT, Convergence can be found in the main menu under extra controls.
If convergence is misadjusted, it will appear out of focus to the untrained eye.
Looking closely may reveal that characters will have a colored outline around them. (Red, Green or Blue.), if so..
It is not a focus issue but a convergence alignment problem.
Cure: Using the On Screen Display of the monitor, adjust the Horz and Vert Convergence under extra controls in the menu.


4
DEGAUSSING
There are 3 states that degaussing device of monitor will execute.
Picture moves due to the degaussing device working after Select "DEGAUSS" (OSD screen or Front Control Knob) and press the OK button (front control of montor), but it is normal.
1. Power on monitor.
2. The monitor wakes up from sleep mode.
3. "DEGAUSS" selection and execute it.
Degause the set in the on screen menu.
Please be aware that many models will not degauss more than once
within any given time period (up to 10 minutes).
This is due to the unit having a temperature sensitive resistor.
While the unit is degaussing, the resistor increases in value with heat and
once it reaches a certain temperature, the resistance will rise and prevent voltage
from reaching the degaussing coil. This is what stops the degauser,
and this devices resistance will decrease as it cools back off enabling the degause to operate again.
This is an intentional design and is a industry standard, not just Philips.
A nearby magnetic field may magnetize the CRT.
Move the unit to another location and perform degaussing as mentioned above.
If the unit has been recently moved , the earth 's magnetic field may have magnetized the CRT.
Perform degaussing as mentioned aboved.
If the unit has been dropped ,the CRT shadow mask may be loose.
OK
NO
END
It is need to check and repair the monitor.

General Troubleshooting Guide

5

Picture distortion (Geometry)

Tip : *****
The best way to understand "Image control features (by "On Screen Display" or "Front Control Knob") is to minimize and maxmize each control feature while viewing a full image on the screen. By performing this, the customer will immediately understand:
1. How "Image control features" effect the image.
2. How to use "Image control features" to optimize the image.

Some type of magnetic or electrical interference typically causes poor geometry in the picture and is not normally a defective monitor.
Try the monitor in another physical location before suspecting the monitor itself.

: Reset monitor to factory preset via OSD menu maniputlation.

: Change monitor timing to work at the recommanded resolution .

OK

NO

YES

END

Access the Geometry Menu in the "On-Screen-Display" (or "Front Control") of the Monitor. Perform necessary adjustments.

Find out the specific "Image problem"
1. H or V size
2. H or V position
3. Geometry
   a. Pincushion
   b. Balanced
   c. Trapezoid
   d. Parallelogram
   e. Tilt

H or V size

H or V position

Geometry problem

Is the control available ?

YES

Optimize with Image feature controls

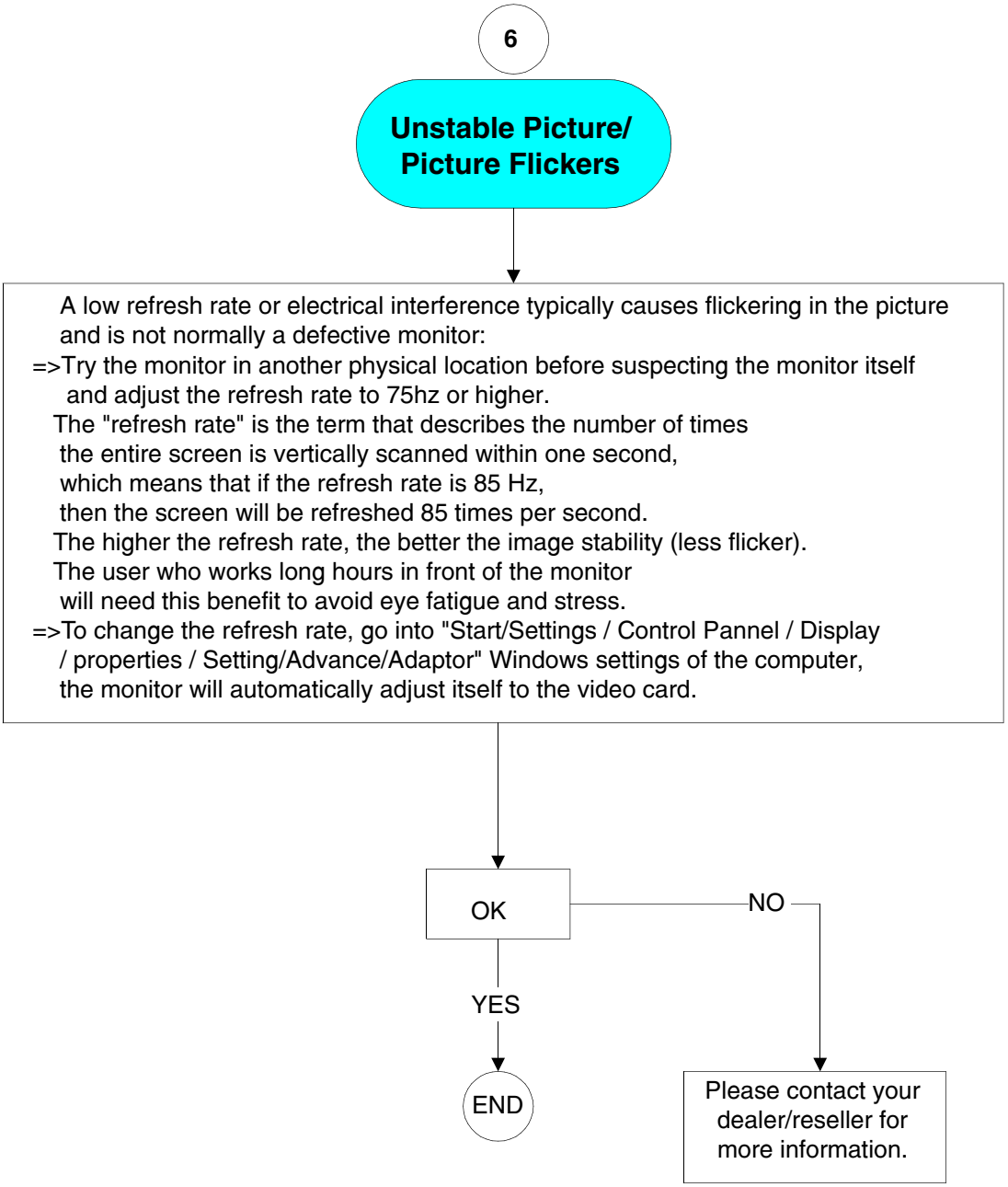
Is picture displayed normally?

NO

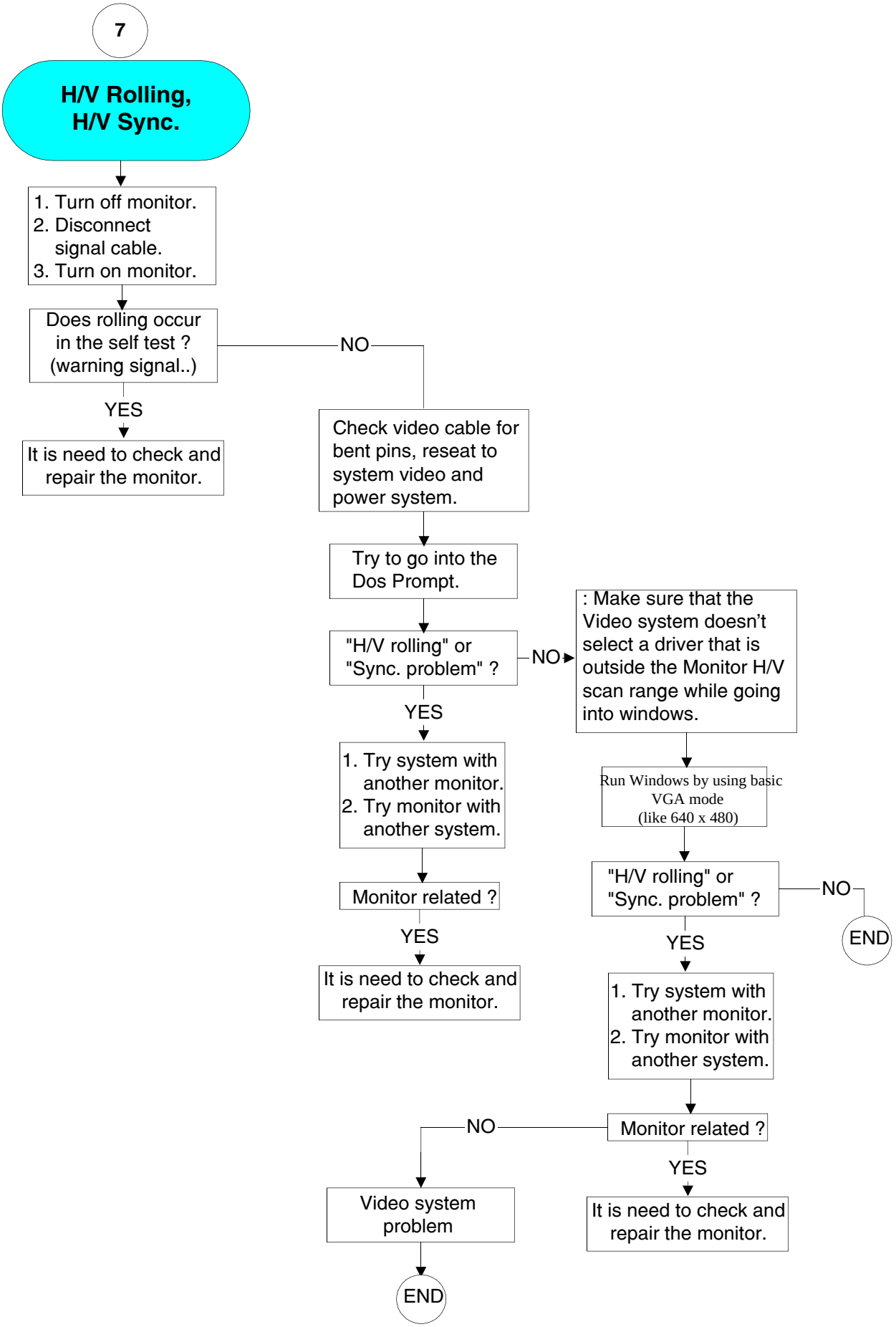
YES

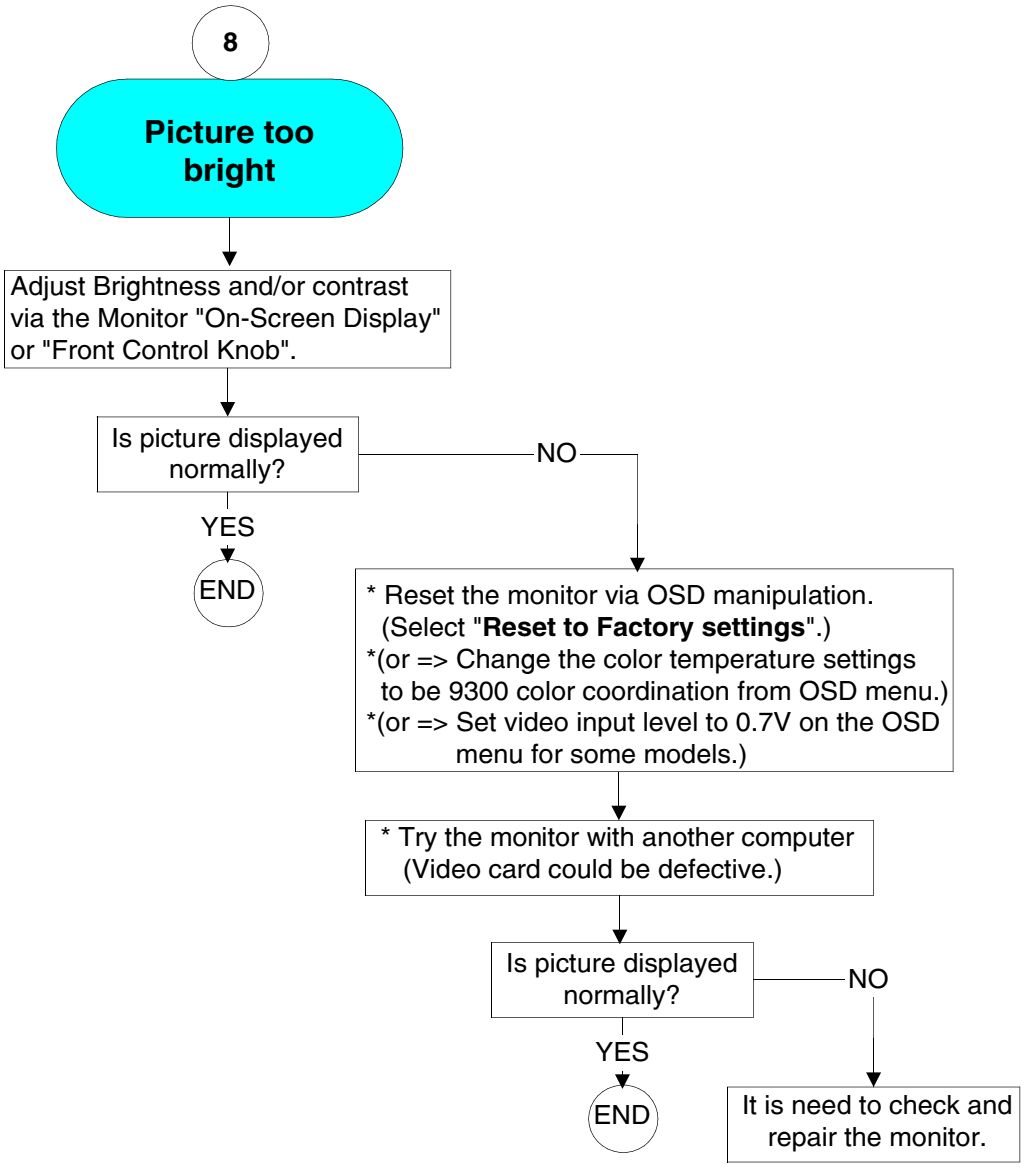
END

It is need to check and repair the monitor.


6
Unstable Picture/
Picture Flickers
A low refresh rate or electrical interference typically causes flickering in the picture and is not normally a defective monitor:
=>Try the monitor in another physical location before suspecting the monitor itself and adjust the refresh rate to 75hz or higher.
The "refresh rate" is the term that describes the number of times the entire screen is vertically scanned within one second, which means that if the refresh rate is 85 Hz, then the screen will be refreshed 85 times per second.
The higher the refresh rate, the better the image stability (less flicker).
The user who works long hours in front of the monitor will need this benefit to avoid eye fatigue and stress.
=>To change the refresh rate, go into "Start/Settings / Control Pannel / Display / properties / Setting/Advance/Adaptor" Windows settings of the computer, the monitor will automatically adjust itself to the video card.
OK
NO
YES
END
Please contact your dealer/reseller for more information.

General Troubleshooting Guide




8
Picture too bright
Adjust Brightness and/or contrast via the Monitor "On-Screen Display" or "Front Control Knob".
Is picture displayed normally?
NO
YES
END
* Reset the monitor via OSD manipulation.
(Select "Reset to Factory settings".)
*(or => Change the color temperature settings to be 9300 color coordination from OSD menu.)
*(or => Set video input level to 0.7V on the OSD menu for some models.)
* Try the monitor with another computer (Video card could be defective.)
Is picture displayed normally?
NO
YES
END
It is need to check and repair the monitor.

General Troubleshooting Guide

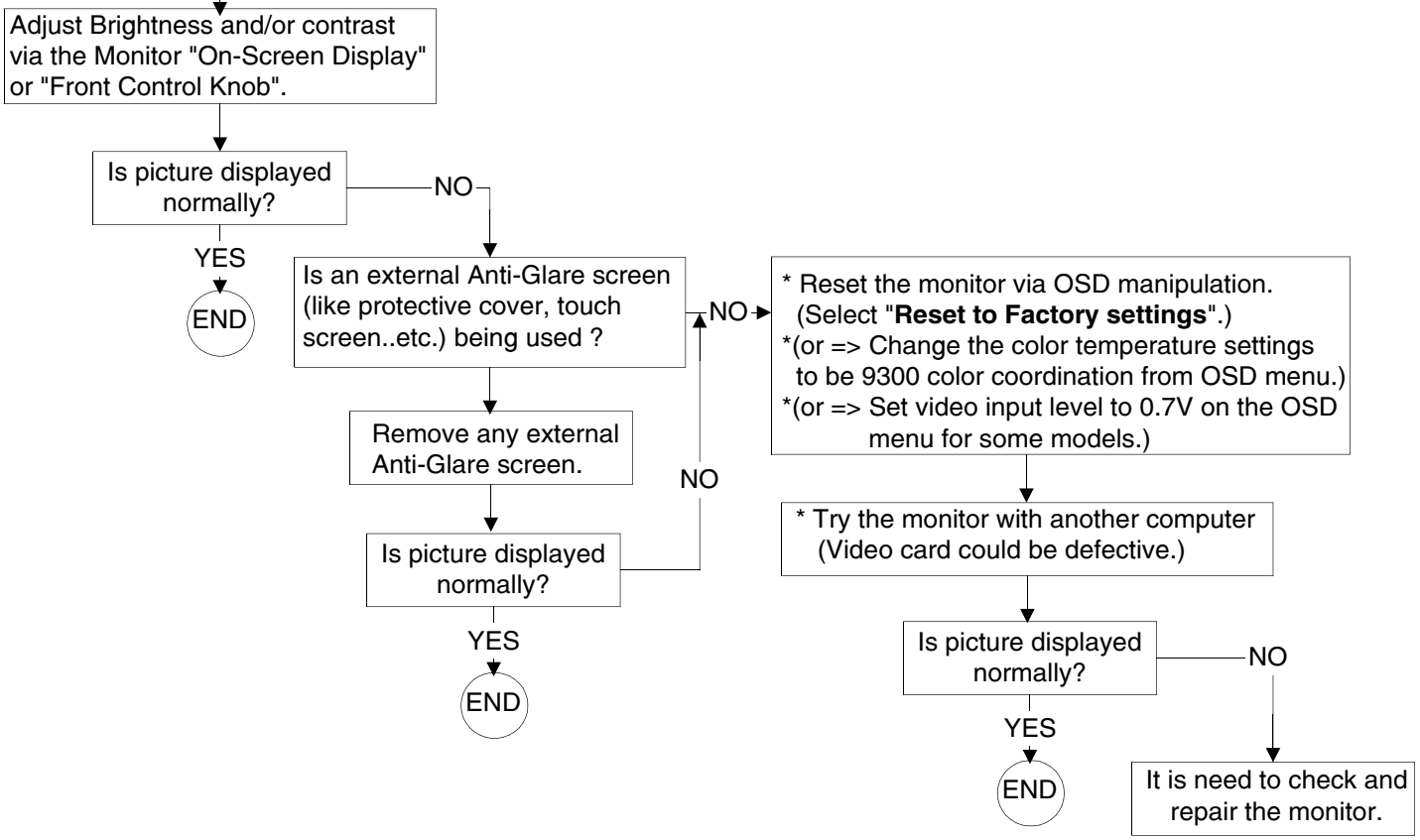
9

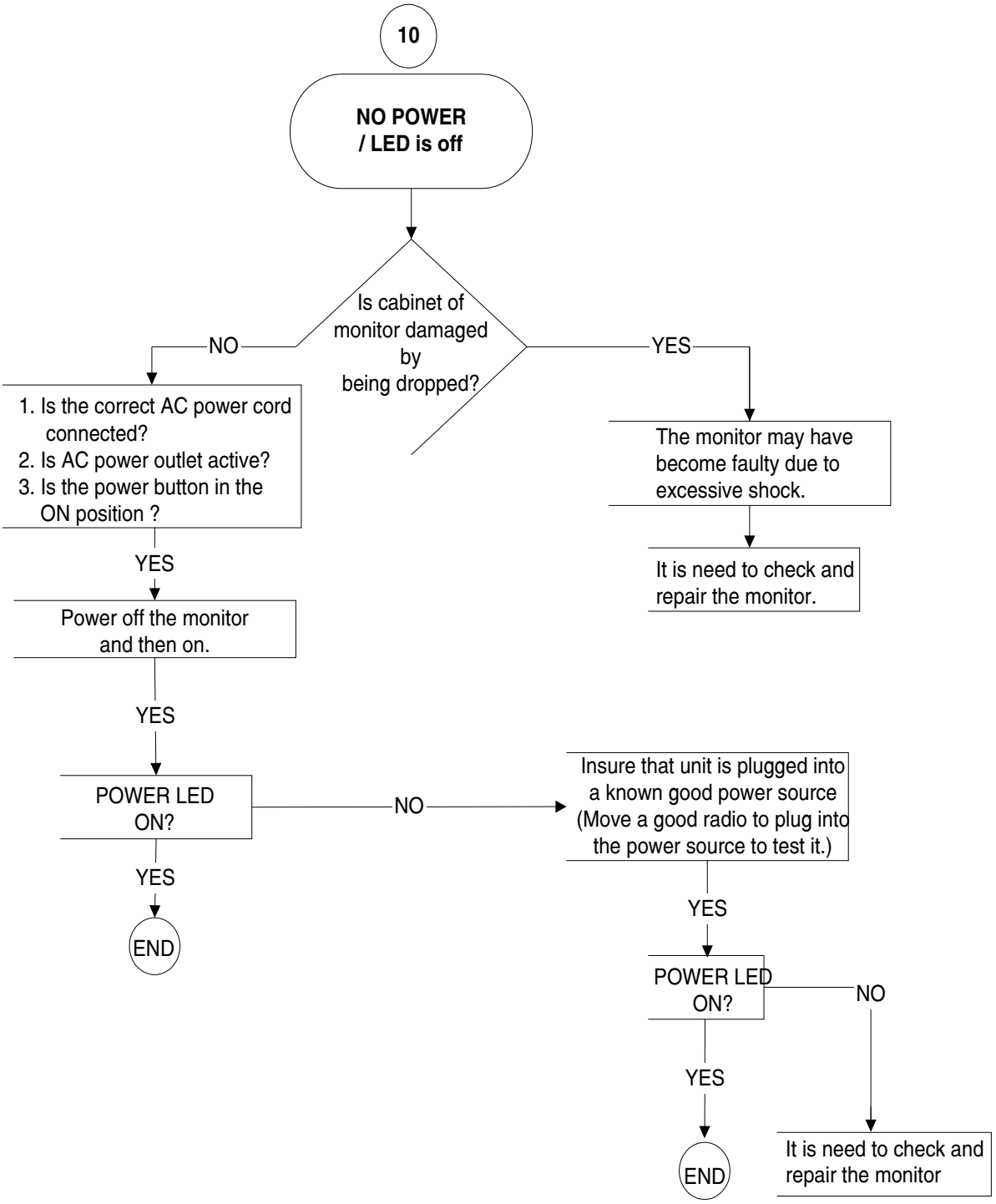
Picture too dim

Note :
1. Sun light passing through a window is much brighter than monitor luminance (Luminance is the measurable quantity which most closely corresponds to brightness), therefore the two worst places for a monitor is directly facing the window or directly behind the window. Position the monitor away from these two areas.

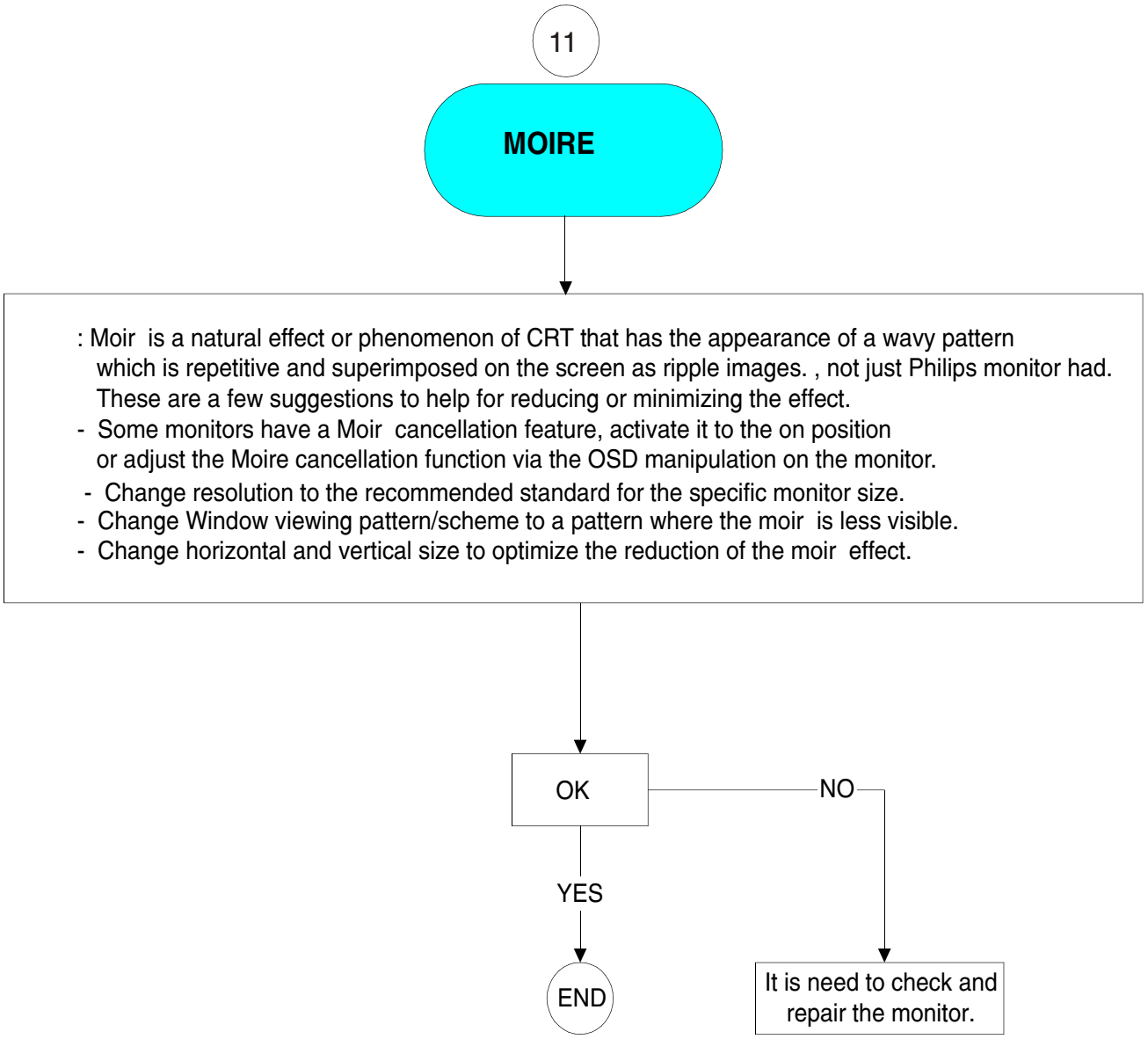
2. External Anti-Glare screens or Mask
These external screens reduce overall monitor brightness and contrast forcing the viewer to maximize too much front screen brightness. Too much front screen brightness degrades focus and continuous use in this manner will shorten CRT life by overdriving the CRT guns and phosphors.

3. Some models have a Video Input Select under Advanced Controls in the Monitor's On-Screen Display. Most computers require it to be set at 0.7V.




10
NO POWER
/ LED is off
Is cabinet of monitor damaged by being dropped?
NO
YES
1. Is the correct AC power cord connected?
2. Is AC power outlet active?
3. Is the power button in the ON position ?
The monitor may have become faulty due to excessive shock.
It is need to check and repair the monitor.
YES
Power off the monitor and then on.
YES
POWER LED ON?
NO
Insure that unit is plugged into a known good power source (Move a good radio to plug into the power source to test it.)
YES
END
YES
POWER LED ON?
NO
YES
END
It is need to check and repair the monitor

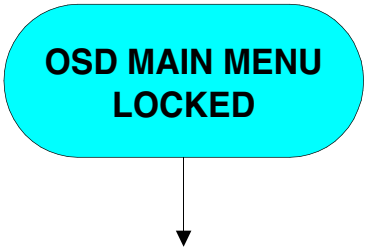
General Troubleshooting Guide



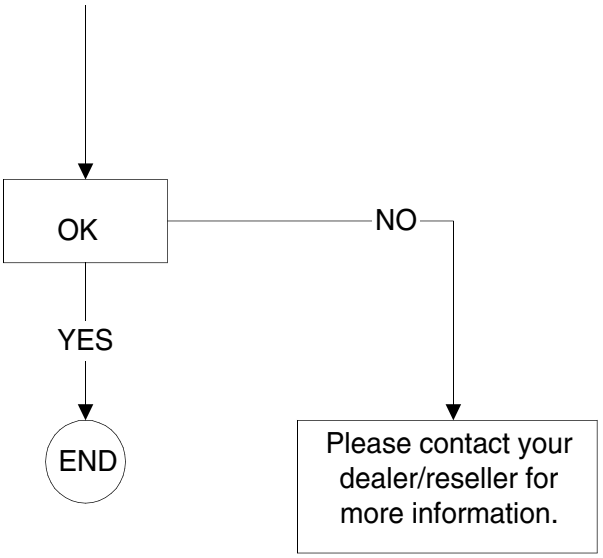
MOIR

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 moir , and between the shadow mask and the horizontal line pattern (scan moir . 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 moir Scan moir depends on the horizontal scanning frequency and can be alleviated by appropriate choice of this frequency. Autoscan (MultiSync) monitors, however, which operate over a range of scanning frequencies, may sometimes exhibit moir in certain video modes.

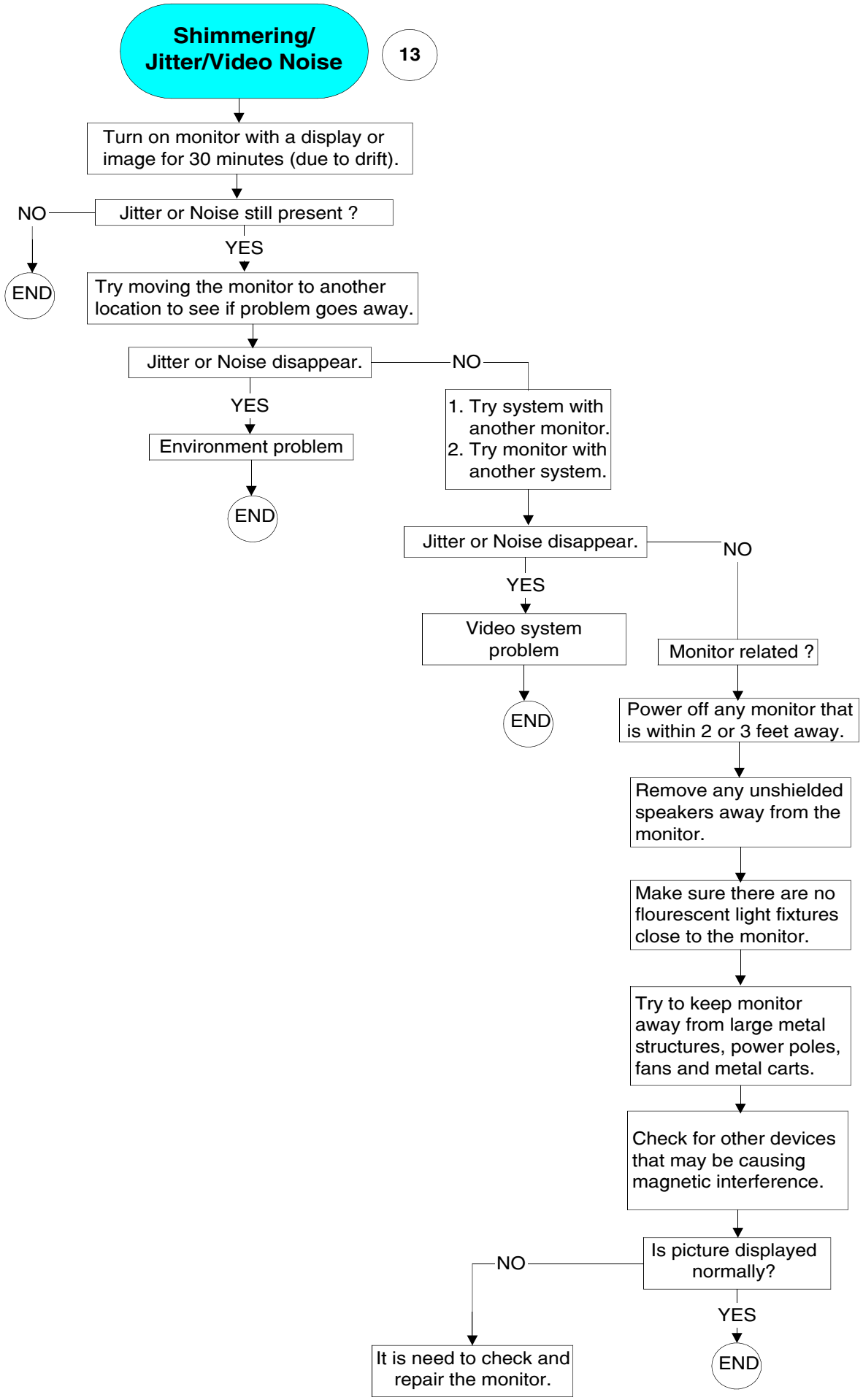
Several sources can act as a catalyzer to produce Moire. They are : The CRT, shadow mask, the electron beam spot size, the resolution, video patterns, and the horizontal and vertical size.

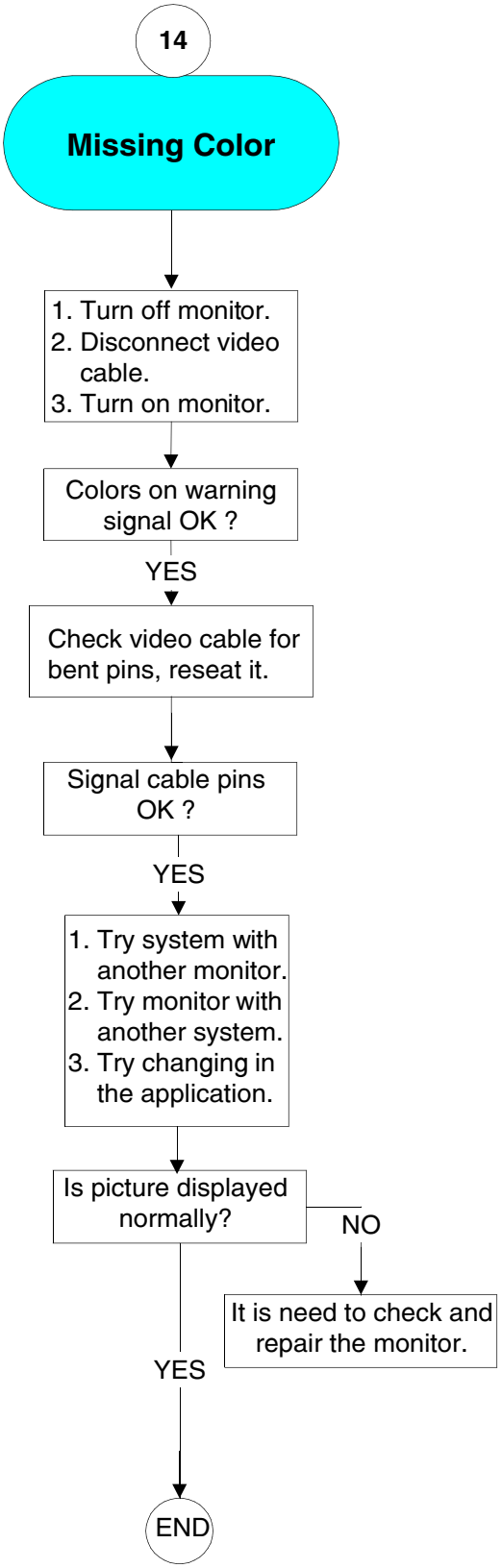


Press and hold the OSD menu key for about 10 seconds ,
until picture displays "OSD MAIN MENU UNLOCKED"



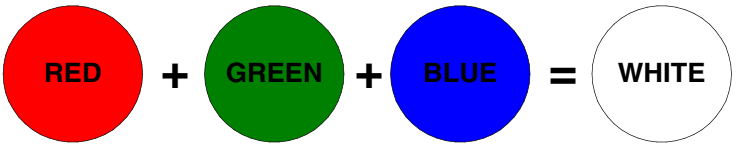
General Troubleshooting Guide



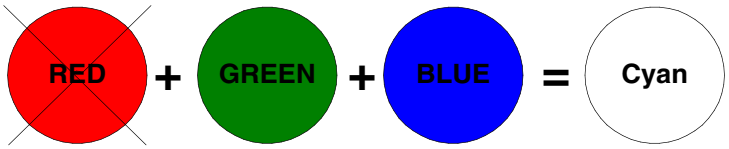


There are 2 easy ways to determine the Missing color problem.

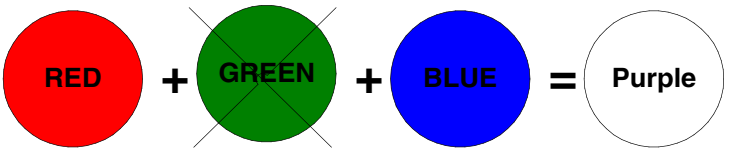
1. View an image that is supposed to be "White".
   If one of the colors (RGB) is not functioning.
   White can not be produced.
2. View an image that supposed to contain Red, Green and Blue.
   Color problems will be apparent when one or more of these colors can not be displayed.



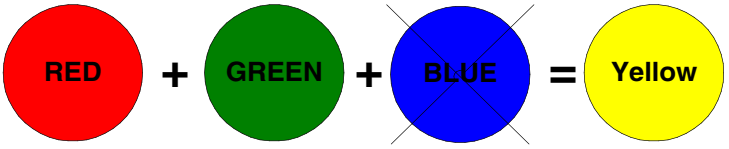
Cyan Color means that the red gun is missing.



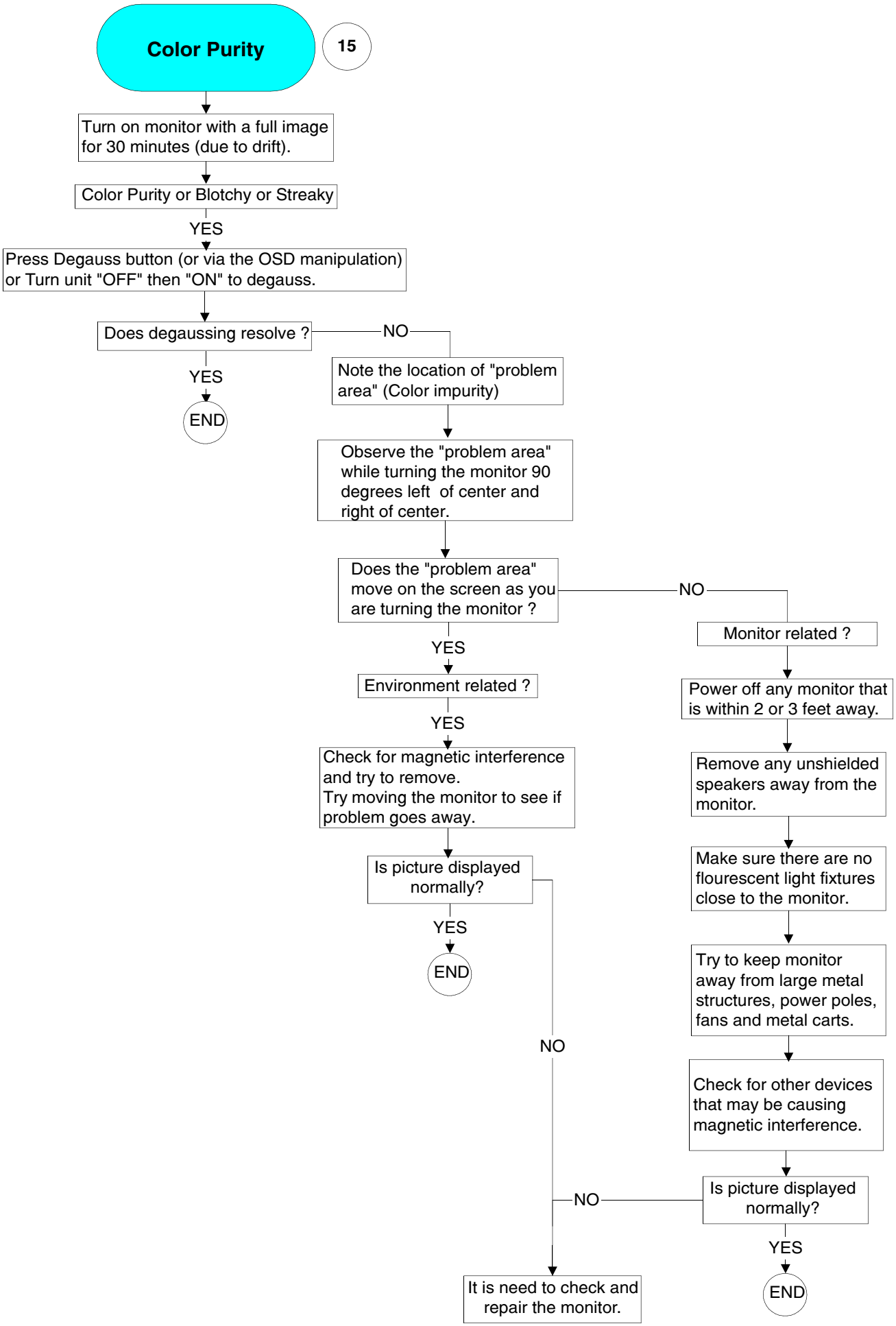
Magenta or Purple Color means that the green gun is missing.

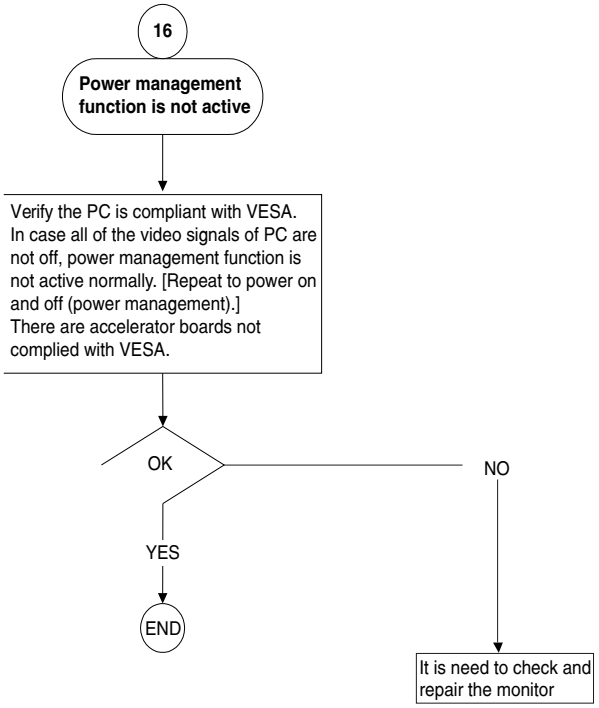


Yellow Color means that the blue gun is missing.

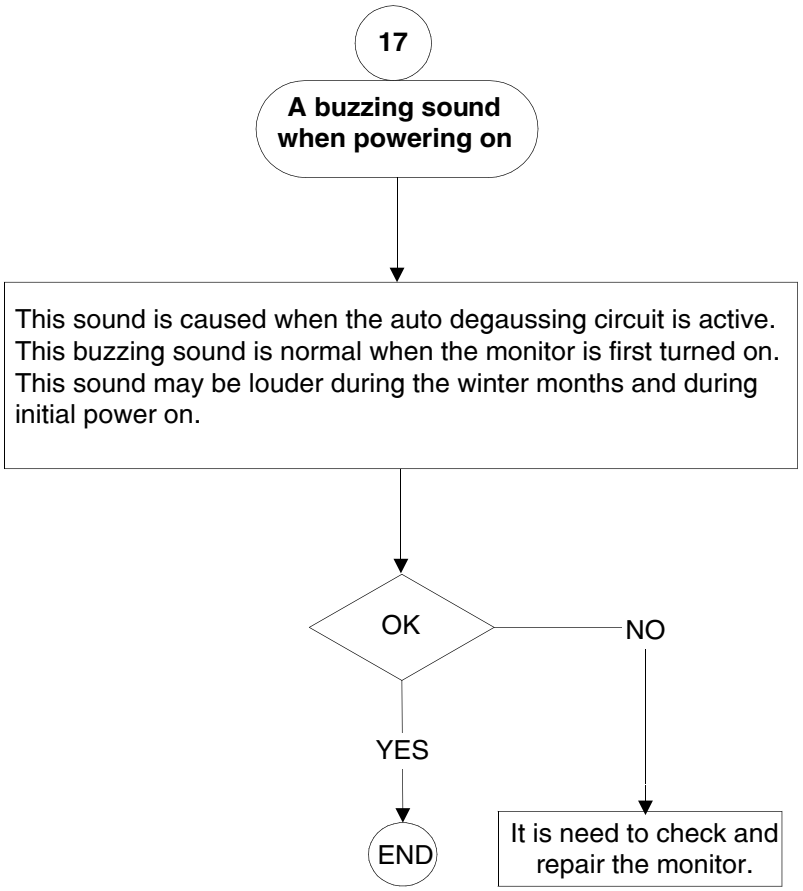


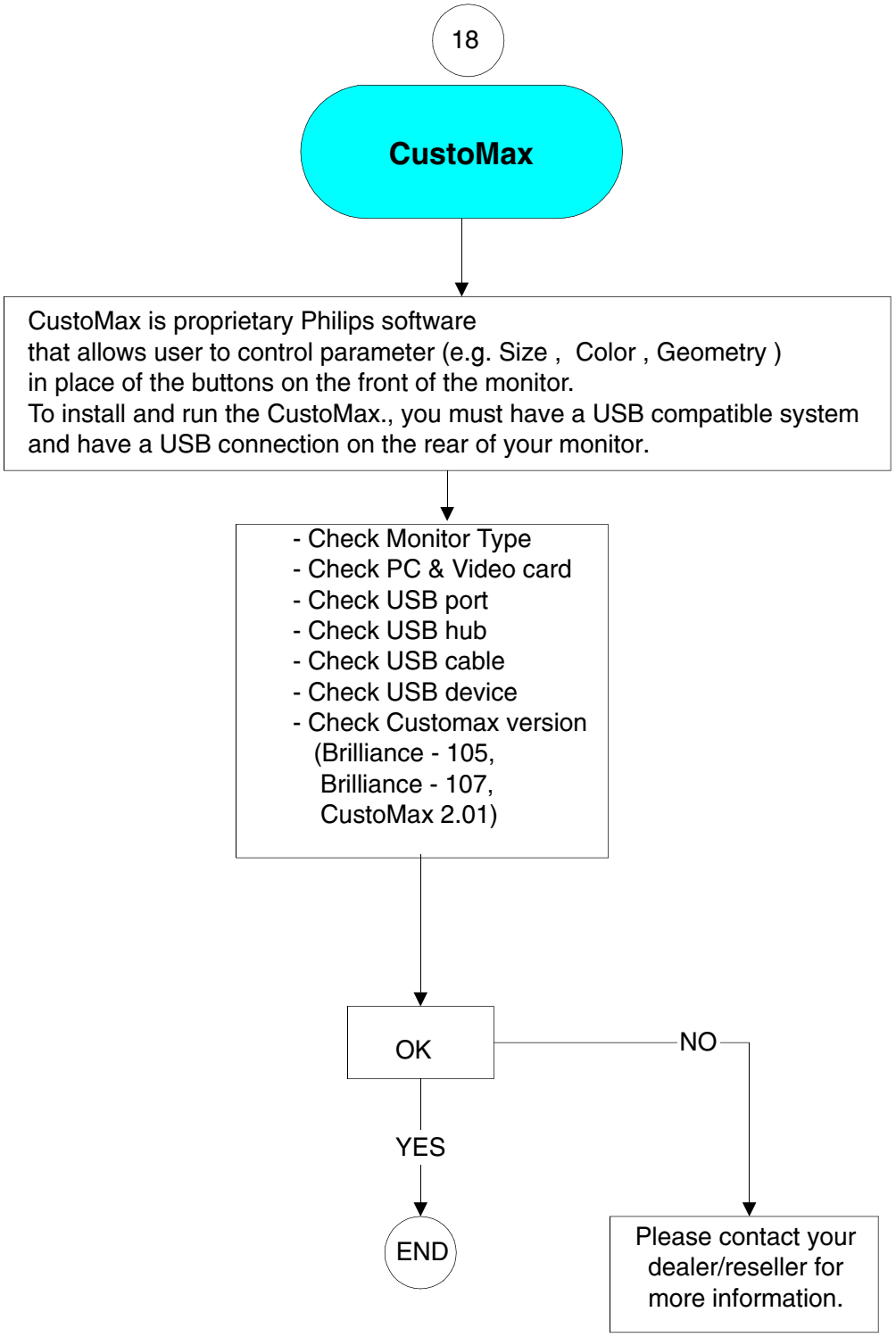
General Troubleshooting Guide




16
Power management function is not active
Verify the PC is compliant with VESA.
In case all of the video signals of PC are not off, power management function is not active normally. [Repeat to power on and off (power management).]
There are accelerator boards not complied with VESA.
OK
NO
YES
END
It is need to check and repair the monitor

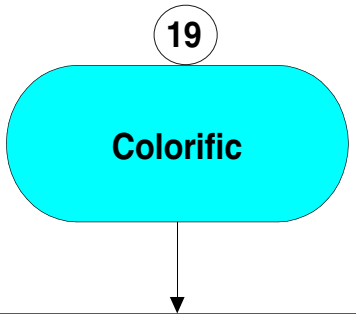
General Troubleshooting Guide





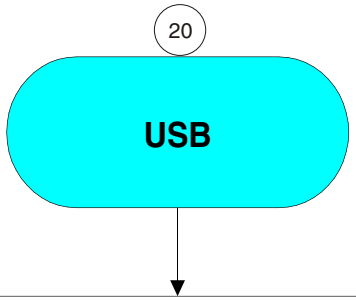
Features:
CustoMax for monitors is a software program for adjusting the screen geometry, color quality, image quality and hardware and software settings of your display.

General Troubleshooting Guide



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 equiped with the software.
If you have special interesting , please hit the web site "http:\www.colorific.com".

The compatibily 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



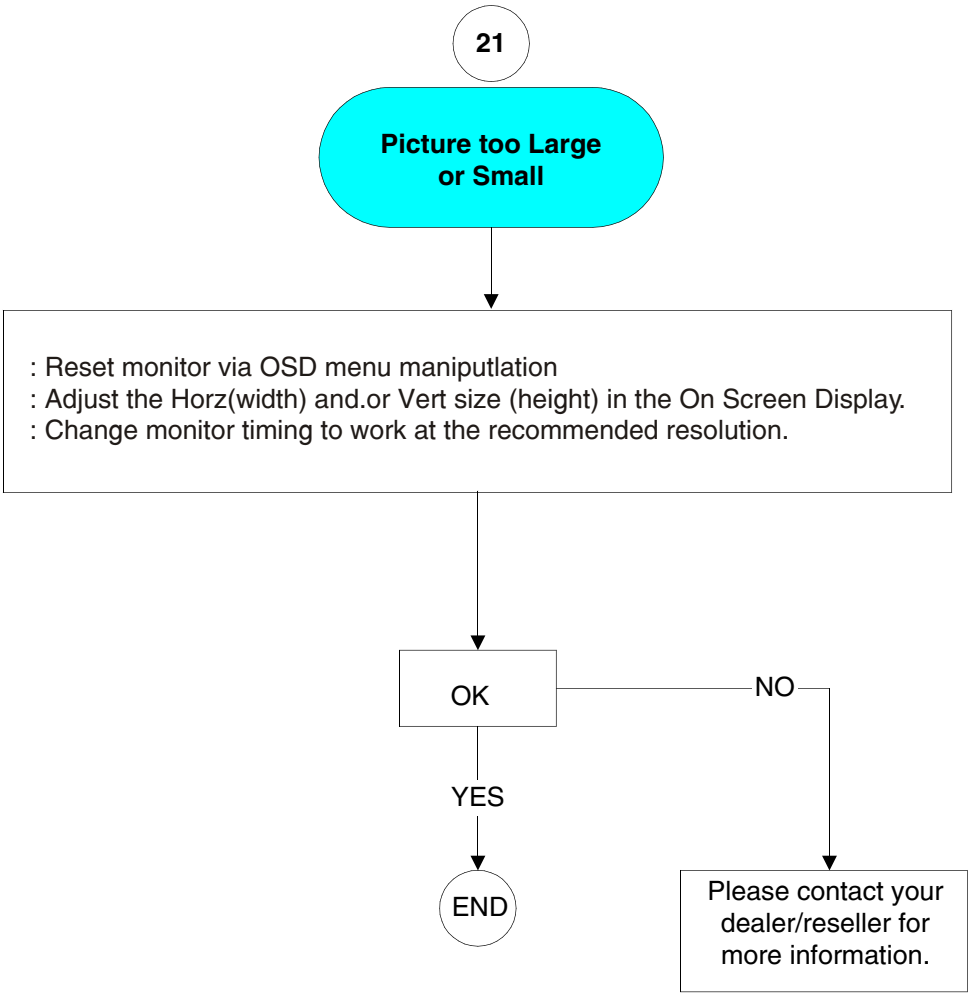
USB = Universal Serial Bus

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 throughout up to 480Mbps, 40 times faster than USB 1.1 devices.

General Troubleshooting Guide



Go to cover page

TELEVISION/MONITOR SAFETY GUIDELINES FOR THE PROFESSIONAL SERVICE TECHNICIAN

Safety Checks
After the original service problem has been corrected, a complete safety check should be made. Be sure to check over the entire set, not just the areas where you have worked. Some previous servicer may have left an unsafe condition, which could be unknowingly passed on to your customer. Be sure to check all of the following:

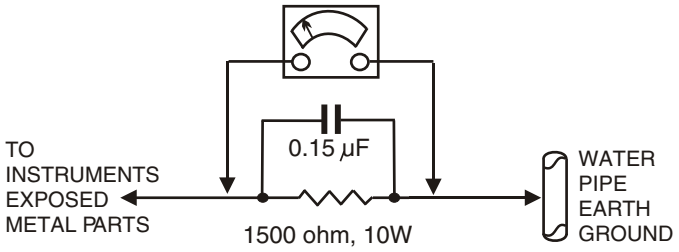
Fire and Shock Hazard
1. Be sure all components are positioned in such a way as to avoid the possibility of adjacent component shorts. This is especially important on those chassis which are transported to and from the service shop.
2. Never release a repaired unit unless all protective devices such as insulators, barries, covers, strain reliefs, and other hardware have been installed in accordance with the original design.
3. Soldering and wiring must be inspected to locate possible cold solder joints, solder splashes, sharp solder points, frayed leads, pinched leads, or damaged insulation (including the ac cord). Be certain to remove loose solder balls and all other loose foreign particles.
4. Check across-the-line components and other components for physical evidence of damage or deterioration and replace if necessary. Follow original layout, lead length, and dress.
5. No lead or component should touch a receiving tube or a resistor rated at 1 watt or more. Lead tension around protruding metal surfaces or edges must be avoided.
6. Critical components having special safety characteristics are identified with ans 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 symbols on the schematic diagrams and/or exploded views.
7. When servicing any unit, always use a separate isolation transformer for the chassis Failure to use a separate isolation transformer may expose you to possible shock hazard, and may cause damage to servicing instruments.
8. Many electronic products use a polarized ac line cord (one wide pin on the plug.) Defeating this safety feature may create a potential hazard to the service and the user. Extension cords which do not incorporate the polarizing feature should never be used.
9. After reassembly of the unit, always perform an leakage test or resistance test from the line cord to all exposed metal parts of the cabinet. Also check all metal control shafts (with knobs removed), antenna terminals, handles, screws, etc. to be sure the unit may be safety operated without danger of electrical shock.

* Broken line

Implosion
1. All picture tubes used in current model receivers are equipped with an integral implosion system. Care should always be used, and safety glasses worn, whenever handling any picture tube. Avoid scratching or otherwise damaging the picture tube during installation.
2. Use only replacement tubes specified by the manufacturer.

X-radiation
1. Be sure procedures and instructions to all your service personnel cover the subject of X-radiation. Potential sources of X-rays in TV receivers are the picture tube and the high voltage circuits. The basic precaution which must be exercised is to keep the high voltage at the factory recommended level.
2. To avoid possible exposure to X-radiation and electrical shock, only the manufacturer's specified anode connectors must be used.
3. It is essential that the service technician has an accurate HV meter available at all times. The calibration of this meter should be checked periodically against a reference standard.
4. When the HV circuitry is operating properly there is no possibility of an x-radiation problem. High voltage should always be kept at the manufacturer's rated value-no higher - for optimum performance. Every time a color set is serviced, the brightness should be run up and down while monitoring the HV with a meter to be certain that the HV is regulated correctly and does not exceed the specified value. We suggest that you and your technicians review test procedures so that HV and HV regulation are always checked as a standard servicing procedure, and the reason for this prudent routine is clearly understood by everyone. It is important to use an accurate and reliable HV meter. It is recommended that the HV recorded on each customer's invoice, which will demonstrate a proper concern for the customer's safety.
5. When troubleshooting and making test measurements in a receiver with a problem of excessive high voltage, reduce the line voltage by means of a Variac to bring the HV into acceptable limits while troubleshooting. Do not operate the chassis longer than necessary to locate the cause of the excessive HV.
6. New picture tubes are specifically designed to withstand higher operathng voltages without creating undesirable X-radiation. It is strongly recommended that any shop test fixture which is to be used with the new higher voltage chassis be equipped with one of the new type tubes designed for this service. Addition of a permanently connected HV meter to the shop test fixture is advisable. The CRT types used in these new sets should never be replaced with any other types, as this may result in excessive X-radiation.
7. It is essential to use the specified picture tube to avoid a possible X-diation problem.
8. Most TV receivers contain some type of emergency "Hold Down" circuit to prevent HV from rising to excessive levels in the presence of a failure mode. These various circuits should be understood by all technicians servicing them, especially since many hold down circuits are inoperative as long as the receiver performs normally.

Leakage Current Cold Check
1. Unplug the ac line cord and connect a jumper between the two prongs of the plug.
2. Turn on the power switch.
3. Measure the resistance value between the jumpered ac plug and all exposed cabinet parts of the receiver, such as screw heads, antennas, and control shafts. When the exposed metallic part has a return path to the chassis, the reading should be between 1 megohm and 5.2 megohms. When the exposed metal does not have a return path to the chassis, the reading must be infinity. Remove the jumper from the ac line cord.



Leakage Current Hot Check
1. Do not use an isolation transformer for this test. Plug the completely reassembled receiver directly into the ac outlet.
2. Connect a 1.5k, 10w resistor paralleled by a 0.15uf. capacitor between each exposed metallic cabinet part and a good earth ground such as a water pipe, as shown above.
3. Use an ac voltmeter with at least 5000 ohms volt sensitivity to measure the potential across the resistor.
4. The potential at any point should not exceed 0.75 volts. A leakage current tester may be used to make this test; leakage current must not exceed 0.5 milliamps. If a measurement is outside of the specified limits, there is a possibility of shock hazard. The receiver should be repaired and rechecked before returning it to the customer.
5. Repeat the above procedure with the ac plug reversed.(Note: An ac adapter is necessary when a polarized plug is used. Do not defeat the polarizing feature of the plug.)

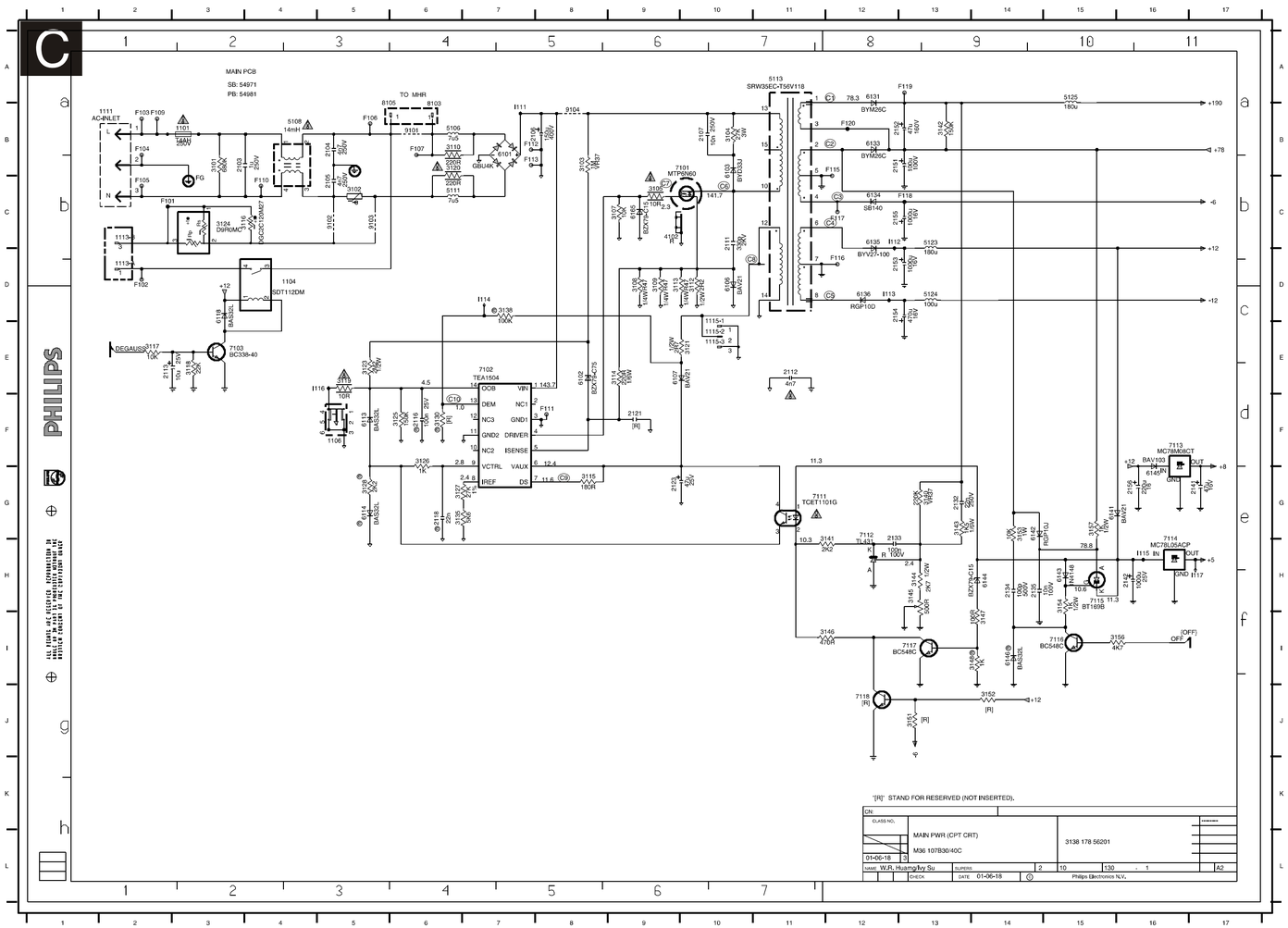
Picture Tube Replacement
The primary source of X-radiation in this television receiver is the picture tube. The picture tube utilized in this chassis is specially constructed to limit X-radiation emissions. For continued X-radiation protection, the replacement tube must be the same type as the original, including suffix letter, or a Philips approved type.

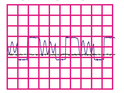
Parts Replacement
Many electrical and mechanical parts in Philips television sets have special safety related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. The use of a substitute part which does not have the same safety characteristics as the Philips recommended replacement part shown in this service manual may create shock, fire, or other hazards

WARNING: Before removing the CRT anode cap, turn the unit **OFF** and short the HIGH VOLTAGE to the CRT DAG ground.
SERVICE NOTE: The CRT DAG is not at chassis ground.

Go to cover page

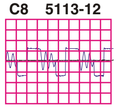
Power Supply - Main Panel Schematic diagram





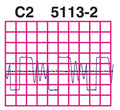
C1 5113-1

100 V/div AC
5 uS/div



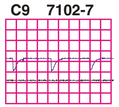
C8 5113-12

10 V/div AC
5 uS/div



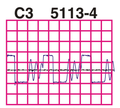
C2 5113-2

50 V/div AC
5 uS/div



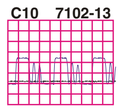
C9 7102-7

5 V/div AC
5 uS/div



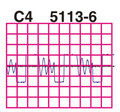
C3 5113-4

5 V/div AC
5 uS/div



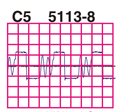
C10 7102-13

1 V/div AC
5 uS/div



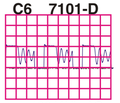
C4 5113-6

10 V/div AC
5 uS/div



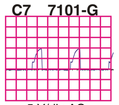
C5 5113-8

10 V/div AC
5 uS/div



C6 7101-D

100 V/div AC
5 uS/div



C7 7101-G

5 V/div AC
5 uS/div

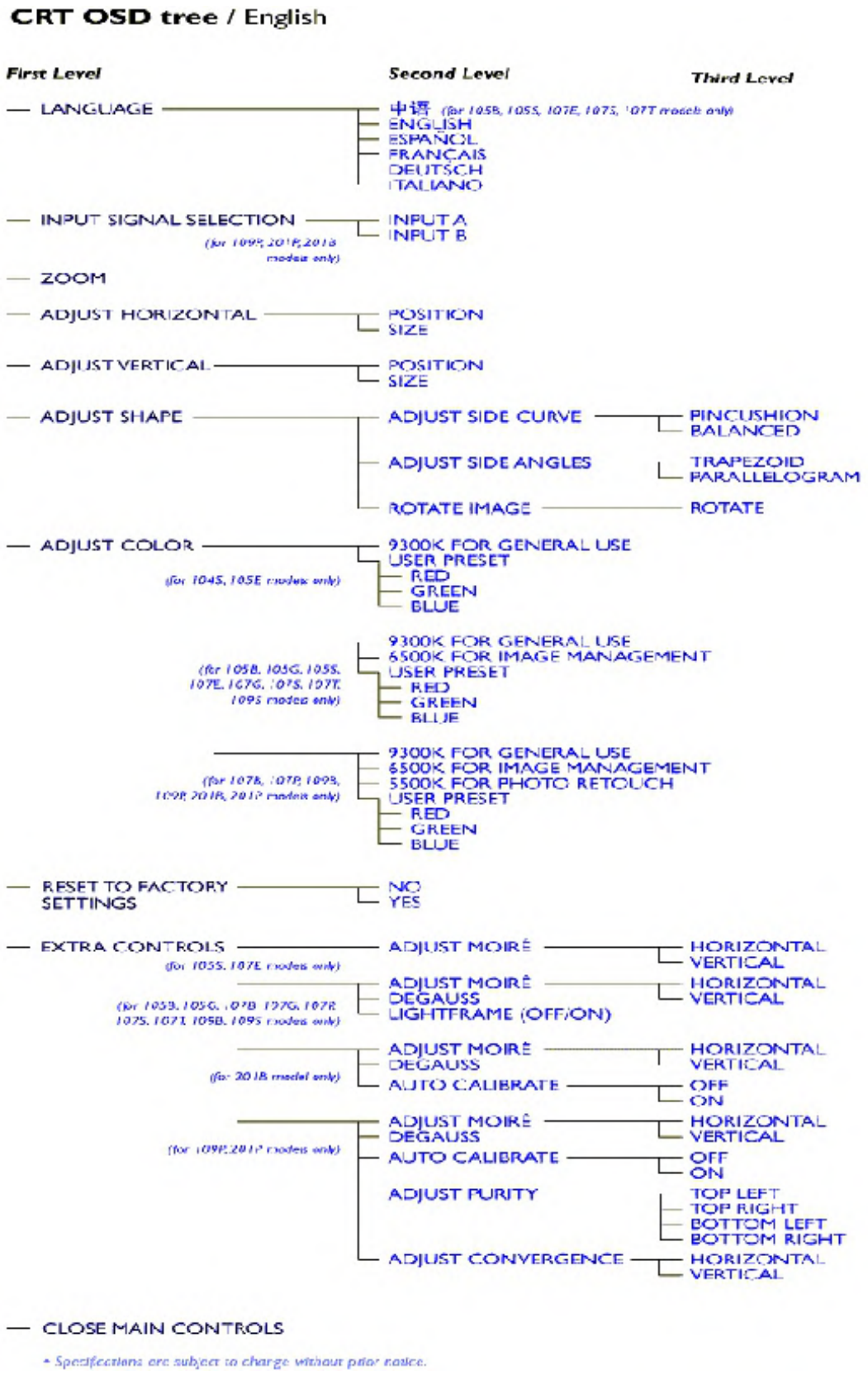
Back

Forward

OSD menu tree

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.



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.

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.

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**

Technical Data

Technical Specification*

CRT

Size and deflection	:17 inch, flat/square
Deflection angle	: 90 degrees
Dot pitch	: 0.25mm with black matrix
Face treatment	: Anti-glare, anti-static,
Light transmission	: 45%

Image size (for preset modes only)

Width	: 306 +/- 3 mm
Height	: 230 +/- 3 mm

Scanning

Horizontal scanning	: 30 - 86 KHz
Vertical scanning	: 50 - 160 Hz

Video

Video dot rate	: 176 Mhz

Input impedance

-Video	: 75 Ohms
- Sync	: 2.2 KOhms
Signal input level	: 0.7Vpp Separate sync
Sync input signal	: Separated sync. with TTL level
Sync polarities	: Positive or negative

White Color Temperature

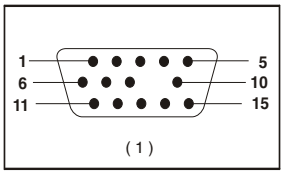
Chromaticity CIE coordinates:

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
at 5500 °k	x = 0.332 +/- 0.015	y = 0.347 +/- 0.015

Carton box

Size (with pedestal)	: 399(W)x410(H)x419(D)
Net weight	: 16.5 Kg
Power supply	: 90 - 264 VAC, 50/60Hz
Power consumption	: 90 Watts Max.
Operating condition	
Temperature	: 0 °C - 40 °C
Relative Humidety	: 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 pin10
4	Identical output - connected to pin10	12	Serial data line(SDA)
5	Fground	13	H.Sync
6	Red video ground	14	V.Sync(VCLK)
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	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 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	< 75 w	0 %	Green
Stand-by	Blanked	No	Yes	< 3 w	96 %	Yellow
Suspend	Blanked	Yes	No	< 3 w	96 %	Yellow
OFF	Blanked	No	No	< 3 w	96 %	Yellow

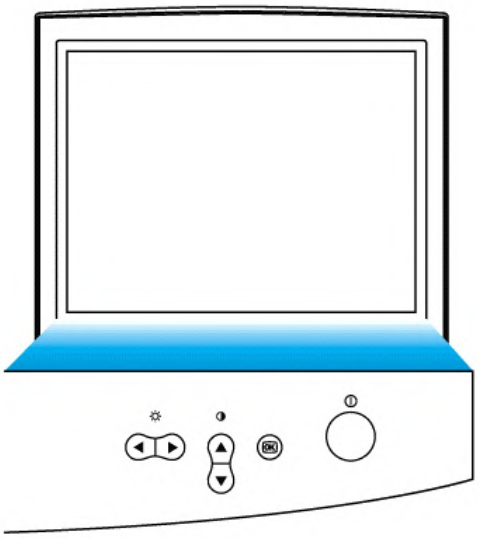
This monitor is ENERGY STAR compliant.

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

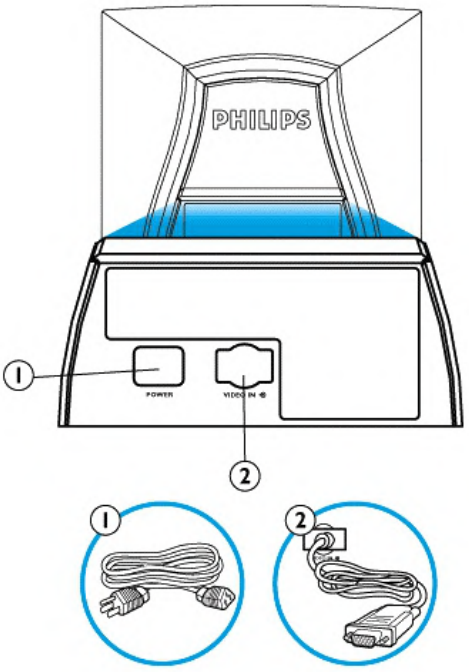
ENERGY STAR® is a U.S. registered mark. AS AN ENERGY STAR PARTNER, DELL Computer Corporation HAS DETERMINED THAT THIS PRODUCT MEETS THE ENERGY STAR GUIDELINES FOR ENERGY EFFICIENCY.

Front control & OSD

Front View

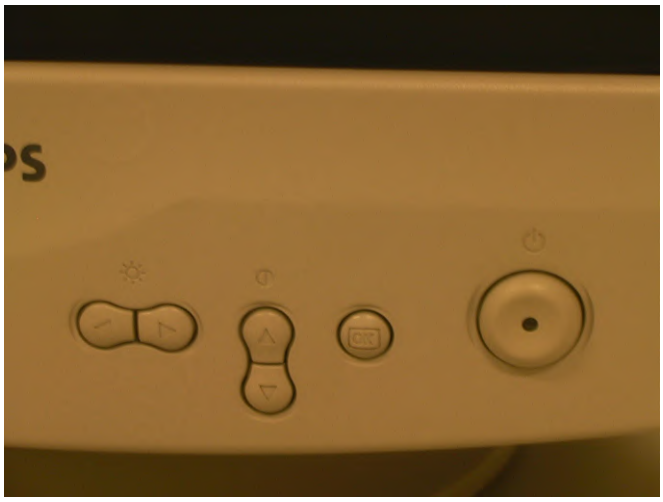


Rear view



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.

Front control



Description of the On Screen Display

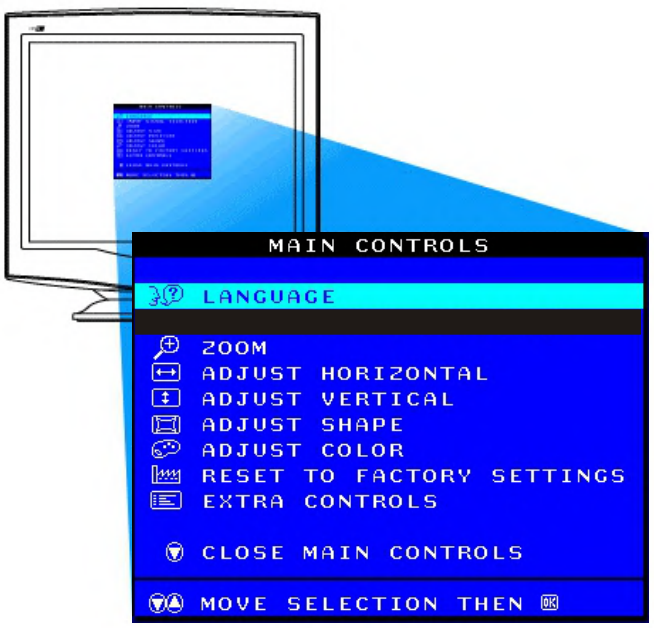
What is the On-Screen Display?

This is a feature in all Philips monitors which allows an end-user to adjust screen performance of monitors directly though 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 OK 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.

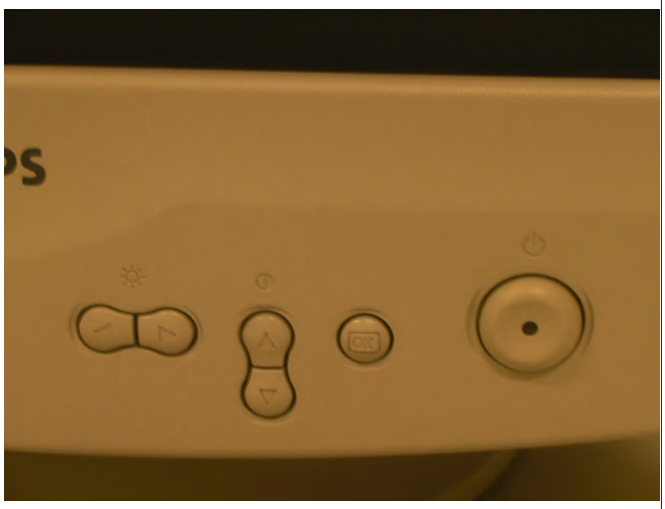
Power button switches your monitor on.
OK button which when pressed will take you to the OSD controls
Contrast hotkey. When the UP arrow is pressed, the adjustment controls for the CONTRAST will show up.
UP and DOWN buttons are used when adjusting the OSD of your monitor
Brightness hotkey. When the RIGHT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



Lock/Unlock, Factory Mode, Burn In, Service Mode

Go to cover page

Front Control



Power button switches your monitor on.
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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:

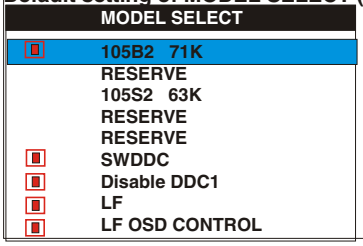
Press and hold the button continuously for 15 seconds.

Release the button when the message "CONTROL MENU IS LOCKED" appears.

Switch off OSD lock feature:

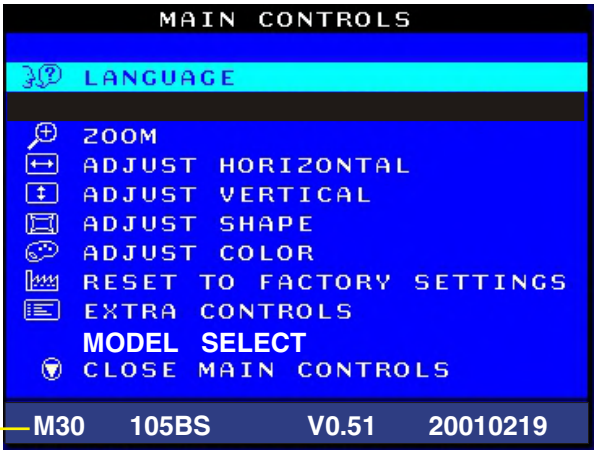
Press and hold the button continuously for 15 seconds or until the message window "CONTROL MENU IS LOCKED" disappears, and "MAIN CONTROLS" appears.

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



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 105BS V0.51 200210219 (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.

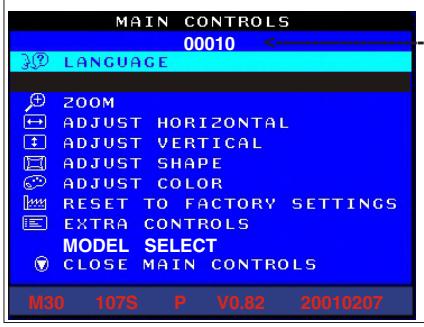
50 seconds around

5 seconds around

repeatly

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.

Back Forward

Warning and Notes

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 saferty 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 defleciton 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 manufactures 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.

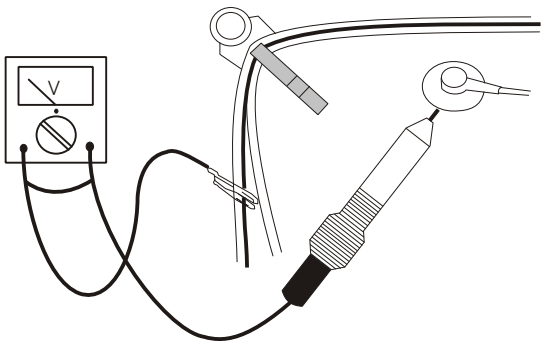


Fig.1