14" CDU 1448/LE COLOUR MONITOR UNIT

This monitor is manufactured by **PANASONIC**.

The monitor has an on/off switch (I) in the position illustrated in the figure.

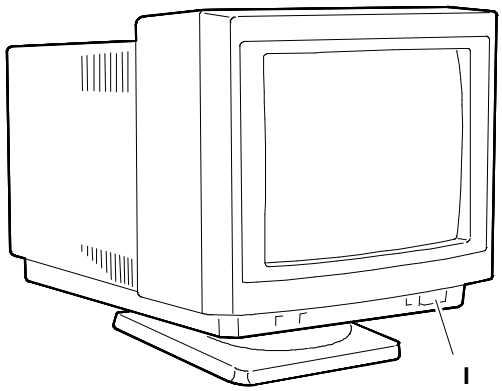


Fig. 10-1 ON/OFF switch position

CHARACTERISTICS

Colour analogous, compatible VGA, high resolution, duale frequency, low emission

- Screen dimensions: 14"
  Horizontal dimension: 240 mm +/- 3 mm
  Vertical dimension: 180 mm +/- 3 mm

- Voltage input: 110 V: 82 - 132 V a.c.
  220 V: 170 - 264 V a.c.
  Network frequency: 50 Hz: 47 - 63 Hz

- Operating resolutions and frequencies:

Resolution	Horizontal frequency	Vertical frequency
640 x 350	31.469 KHz	70.08 Hz
640 x 400	31.469 KHz	70.08 Hz
640 x 480	31.469 KHz	59.64 Hz
1024 x 768	48.363 KHz	60.08 Hz

- Synchronism signals:
  Horizontal synchronism signal: H. SYNC
  Vertical synchronism signal: V. SYNC
  Polarity:

Resolution	Horizontal synchronism	Vertical synchronism
640 x 350	positive	negative
640 x 400	negative	positive
640 x 480	negative	negative
1024 x 768	positive	positive
Level:		TTL

- Monitor signal: Control R, G, B (Red, Green, Blue)
  Level: 0 - 700 mV (impedence 75 Ohm 1%)
  Polarity: Positive

- Displayed resolutions: 640 x 350 lines by columns
  640 x 400 lines by columns
  640 x 480 lines by columns
  1024 x 768 lines by columns

- Absorbed power: 100 W

- External controls: Brightness
  Contrast
  On/off switch

REMOVING THE CASING AND DISASSEMBLY

1. Loosen the two upper screws (V) on the monitor.

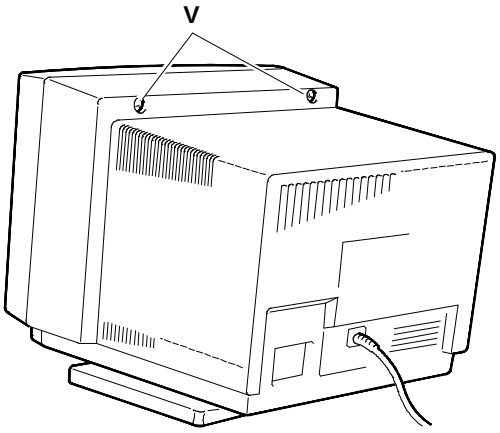


Fig. 10-2 Position of casing screws (V)

2. Position the monitor as illustrated in the figure (place a cloth between the monitor and the work table to avoid scratching the screen). Remove other 2 screws (V).
3. Remove the casing.

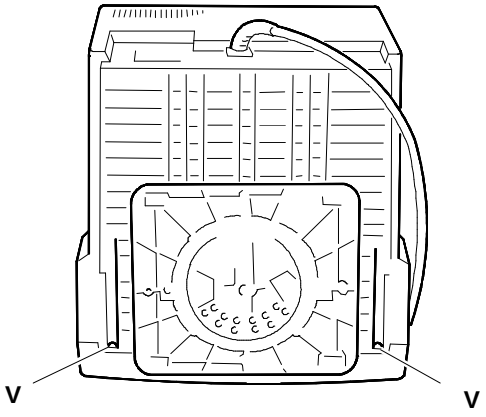


Fig. 10-3 Removal of screws (V) and casing

4. Disconnect cable EHT from the CRT (CRT anode).

NOTE: Discharge the CRT anode before this operation. To discharge the CRT anode: insert a screwdriver, connected to the monitor ground by cable, under the anode suction cap. For further details, consult the monitor disassembly section CDU 1431/E.

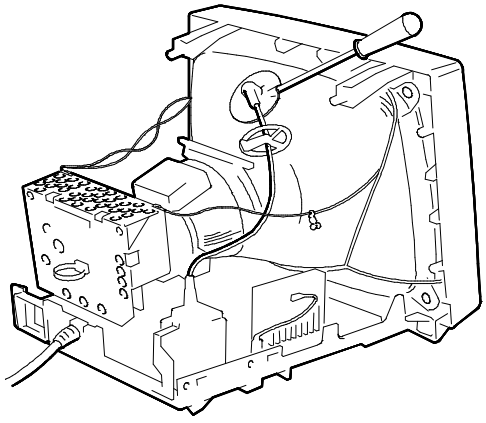


Fig. 10-4 EHT cable disconnection from CRT

5. Disconnect the three ground cables (M) from the metal *anti static* screen and loosen the two screws (V) which secure this screen as in the figure.

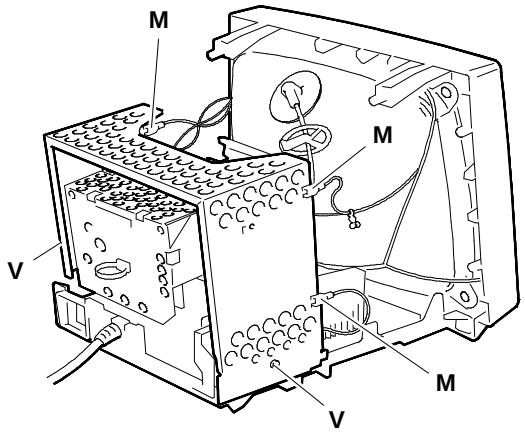


Fig. 10-5 *Anti-static* metal screen removal

6. Disconnect the two ground cables (N) and remove the pre-amplifier board (F) as illustrated in the figure.

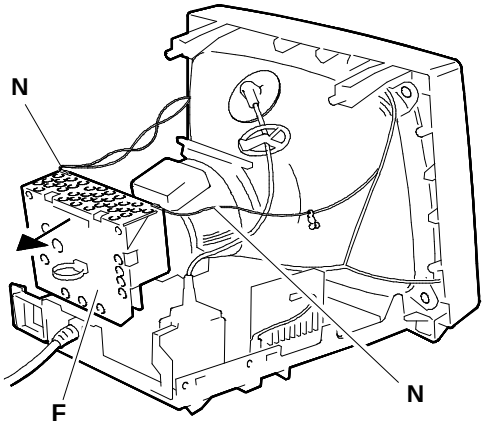


Fig. 10-6 Video pre-amplifier board (F) removal

7. Disconnect the following cables from the pre amplifier board:
   - G2
   - N7B
   - N4B
   - E1 Aquadag
   - N88.
8. Open the casing (C) of the FOCUS signal cable protection box.
9. Unsolder the FOCUS signal cable that is inside the box.

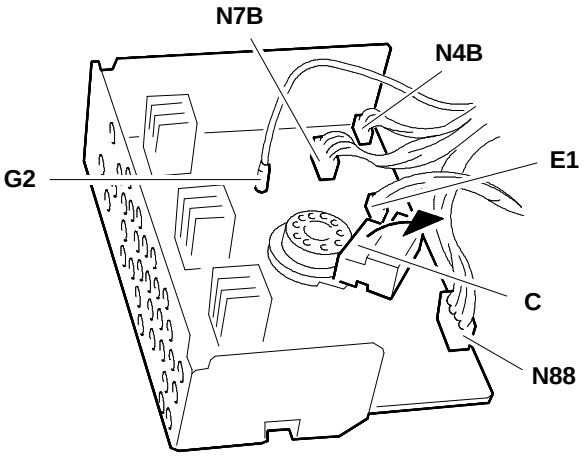


Fig. 10-7 Disconnection of video pre-amplifier board cables

10. Loosen the screws (V) on the signals cable ground tank and disconnect ground cables (A) and (B).

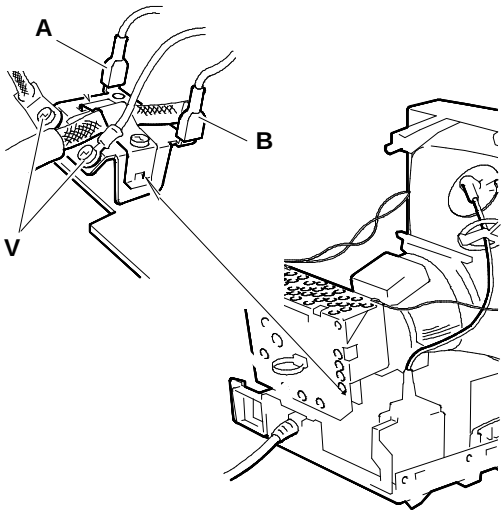


Fig. 10-8 Cable disconnection from ground tank

11. Disconnect the following cables from the motherboard:

- N2 Degauss signal

NOTE: When re-assembling the monitor do not confuse this cable with the aquadag signal cable of the preamplifier board.

- N3A Monitor switch cable
- N12 Deflection yoke signals cable
- N5A
- N7A
- N8A.

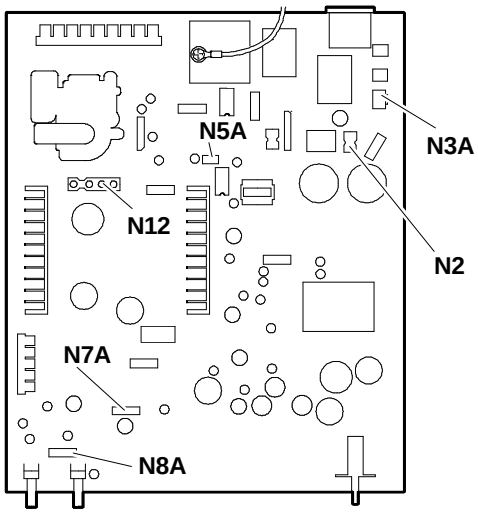


Fig. 10-9 Video motherboard cable disconnection

12. Loosen screw (V) indicated in the figure. This screw fixes the motherboard support structure to the monitor casing.

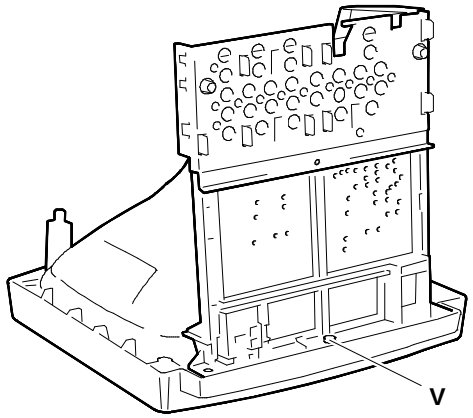


Fig. 10-10 Position of screw that fixes motherboard support structure to video casing

13. Pull the tabs (L) of the metal protection board (M) outwards to release them from the motherboard supporting structure.
14. Remove the metal protection.
15. Remove the metal braces that are released when the metal protection plate is removed.

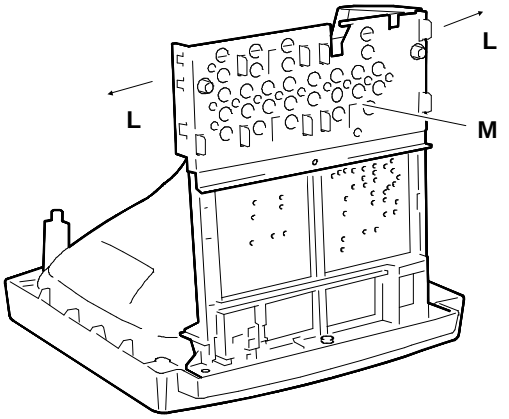


Fig. 10-11 Metal protection (M) removal

16. With a screwdriver press on the pin that fixes the motherboard to its supporting structure as in the figure.

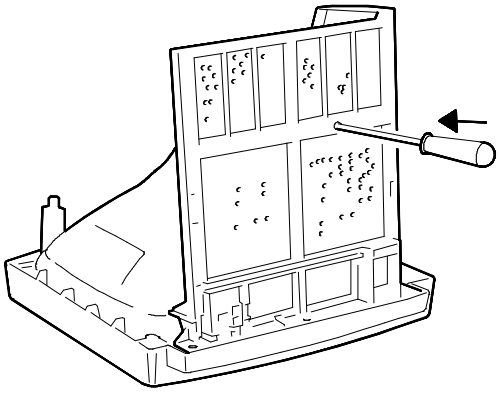


Fig. 10-12 Motherboard fixing pin removal

17. Loosen the screw (V1) that holds the cable clamp (F) and remove it to free the signals cable (S).
18. Press on the cable clamp (F) in the direction indicated by the arrow.
19. Release the cable clamp

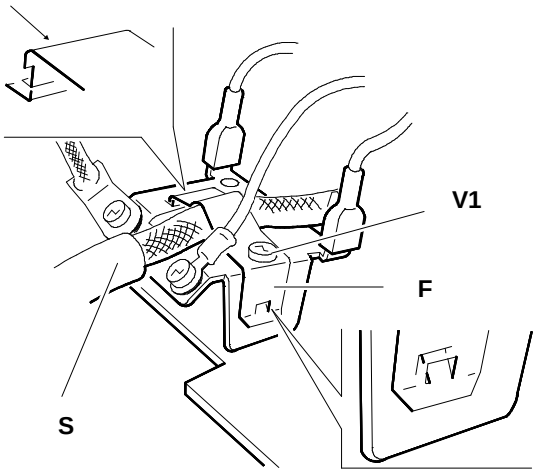


Fig. 10-13 Cable clamp (F) removal

20. Free all the monitor cables from the grips so that the motherboard can be removed.
21. Remove the motherboard support from the monitor casing.

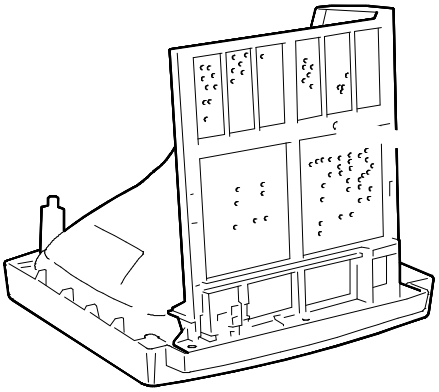


Fig. 10-14 Motherboard support removal

22. Loosen the screw (V) that secures the transformer to the motherboard supporting structure.
23. Remove the plastic grips to release the motherboard from its supporting structure.

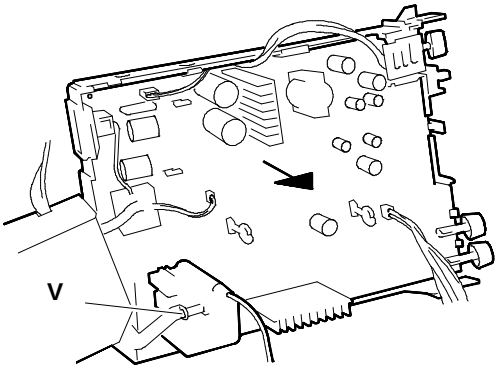


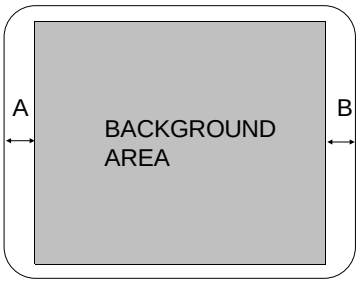
Fig. 10-15 Video motherboard removal

ADJUSTING THE MONITOR

All the monitor adjustment potentiometers are on the **motherboard.**

ADJUSTING THE HORIZONTAL CENTERING

- System Test: *1024x768 GRAPHICS.*
- Adjust the external brightness potentiometer so that the background appears on the screen.
- Adjust VR591 (Horizontal centering) so that the background is centered in respect to the screen bezel (A = B).



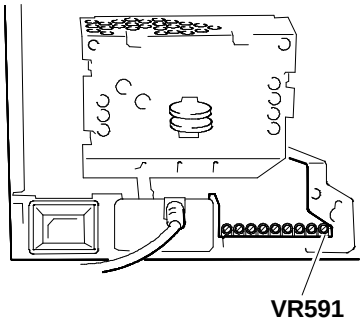
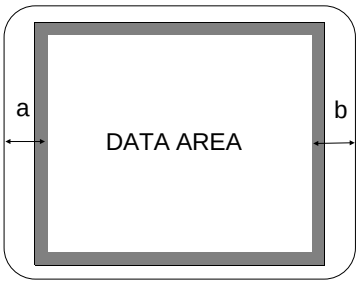


Fig. 10-16 Horizontal centering adjustment

- Adjust VR505 (Horizontal phase 48 KHz) so that the data area is centered in respect to the screen bezel. (a ~ b)



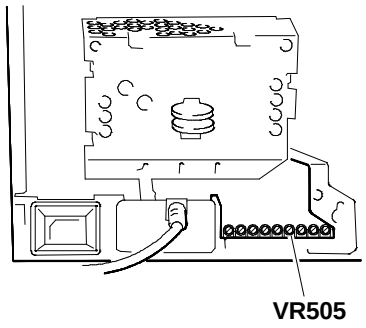
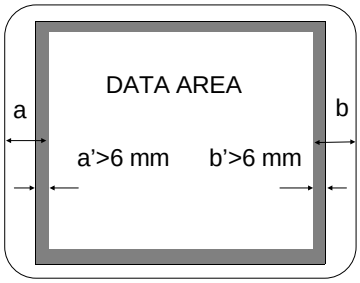


Fig. 10-17 Data area centering adjustment

- System Test: *640x480 GRAPHICS.*
- Adjust VR506 (Horizontal phase 31 KHz) to obtain the picture in the centre of the bezel. (a = b)
- Check that the space between the data area and background is a' >= 6 mm and b' >= 6 mm.



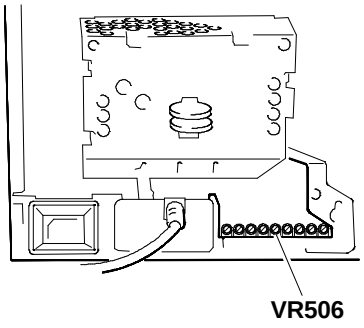
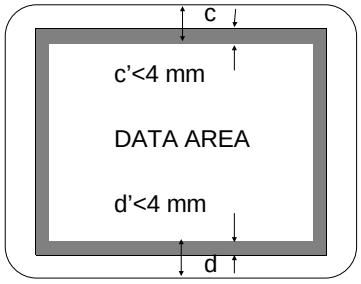


Fig. 10-18 Data area centering adjustment inside the bezel

ADJUSTING THE VERTICAL POSITION

- System Test: *640x480 GRAPHICS.*
- Adjust trimmer VR402 to centre the picture vertically in respect to the bezel C = D.
- Verify with System Tests: *640x350 GRAPHICS, 640x400 GRAPHICS and 1024x768 GRAPHICS* that C' and D' <= 4 mm.



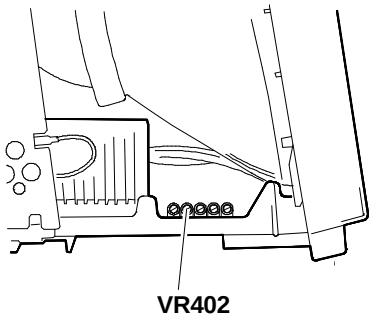


Fig. 10-19 Vertical position adjustment

ADJUSTING THE HORIZONTAL AND VERTICAL WIDTHS

- System Test: *640x480 GRAPHICS.*
- Adjust trimmer VR509 to obtain a horizontal width of 240 mm.

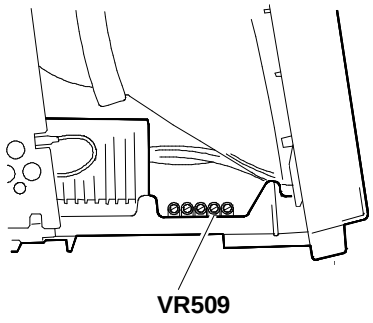


Fig. 10-20 Horizontal width (640x480) adjustment

- Adjust trimmer VR403 to obtain a vertical width of 180 mm.

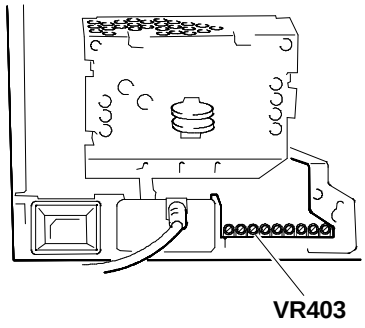


Fig. 10-21 Vertical width (640x480) adjustment

- System Test: *640x400 GRAPHICS.*
- Adjust trimmer VR404 to obtain a vertical width of 180 mm.

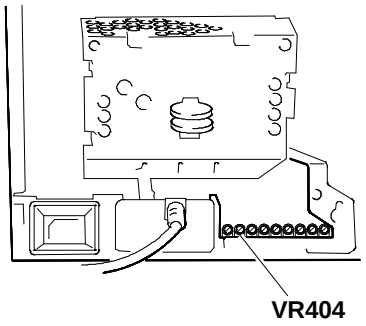


Fig. 10-22 Vertical width (640x400) adjustment

- System Test: *640x350 GRAPHICS.*
- Adjust trimmer VR405 to obtain a vertical width of 180 mm.

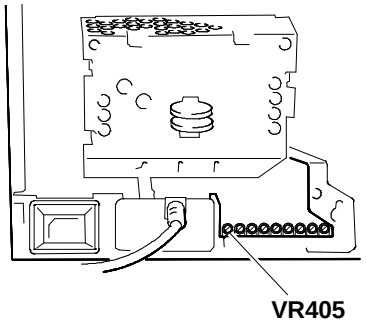


Fig. 10-23 Vertical width (640x350) adjustment

- System Test: *1024x768 GRAPHICS.*
- Adjust trimmer VR508 to obtain a horizontal width of 240 mm.

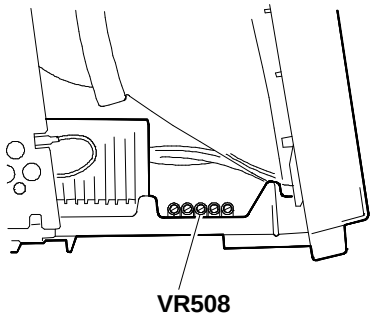


Fig. 10-24 Horizontal width (1024x768) adjustment

- System Test: *1024x768 GRAPHICS.*
- Adjust trimmer VR406 to obtain a vertical width of 180 mm.

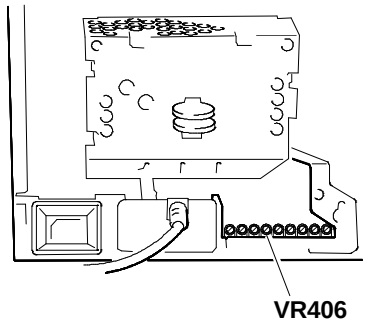


Fig. 10-25 Vertical width (1024x768) adjustment

ADJUSTING THE PINCUSHION DISTORTION

- System Test: *CROSS HATCH WITH CIRCLE AT CENTER OF SCREEN.*
- Adjust trimmer VR701 (V.PCC) to straighten the horizontal and vertical edges of the data area.

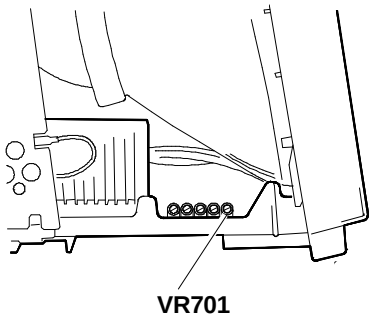


Fig. 10-26 Pincushion distortion adjustment

ADJUSTING THE FOCUS

- System Test: *TEST LINEARITY.*
- Adjust the focus potentiometer through the control on the T551 line transformer.

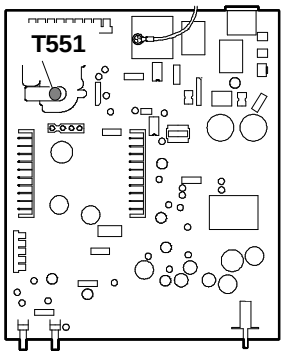


Fig. 10-27 Focus adjustment

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