

14" CDU 1431/E COLOUR MONITOR UNIT

This monitor is manufactured by **GOLDSTAR** and is available in several models that can be identified by the label on the rear of the monitors.

- GS01 Mask pitch 0.31
- GS02 Mask pitch 0.28
- GS03 Mask pitch 0.28 Low emission.

2

CHARACTERISTICS

Analogous colour monitor compatible VGA

- Screen dimensions: 14"
Horizontal dimensions: 240 mm +/- 4 mm
Vertical dimensions: 180 mm +/- 4 mm
- Input voltage: 110 V: 90 - 132 V a.c.
220 V: 198 - 264 V a.c.
Network frequency: 50 Hz: 47 - 63 Hz
Degauss: At switch-on
- Horizontal synchronism:
Frequency: 31.469 KHz
Polarity: Negative or positive
Level: TTL
- Vertical synchronism:
Frequency: 50 - 70 Hz
Polarity: Negative or positive
Level: TTL
- Input signals:
Monitor: Control R, G, B (Red, Green, Blue)
Signal: Linear voltage steps (63 steps of 11 mV)
Level: 0 - 700 mV
Polarity: Positive
- Displayed resolutions: 640 x 350 lines by columns
640 x 400 lines by columns
640 x 480 lines by columns
- External controls: Brightness
Contrast

REMOVING THE CASING AND DISASSEMBLY

1. Lift and remove the two plastic tabs (A) as illustrated in the figure.

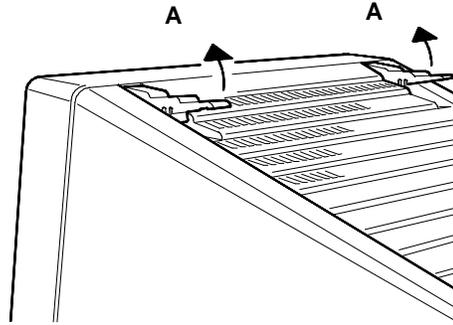


Fig. 2-1 Removal of plastic tabs covering screws

2. Position the monitor as indicated in the figure; place a cloth between the monitor and the work table to avoid scratching the CRT screen. Remove the 4 securing screws (V1, V2, V3 e V4).

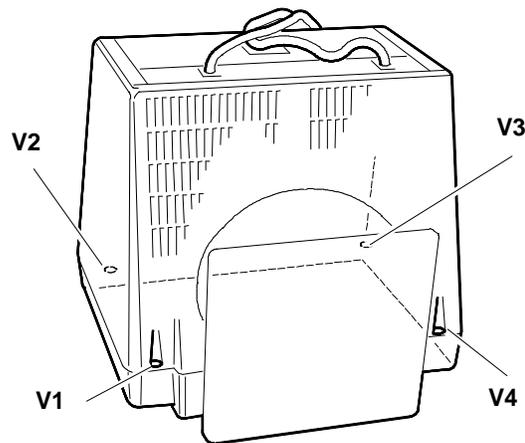


Fig. 2-2 Removal of casing screws

3. Remove the casing, slipping the cables through the passage slot. Take care not to damage the cables or the board components.

HIGH VOLTAGE DISCHARGE

4. Before removing any board, discharge the high voltage (25 KV CRT anode voltage) using a screwdriver connected to a ground cable on the monitor frame.

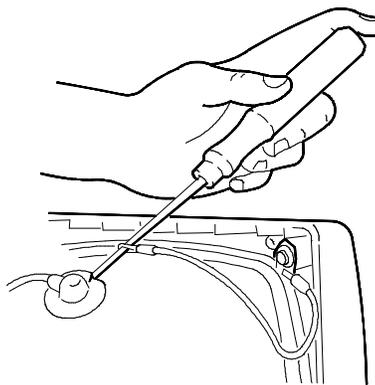
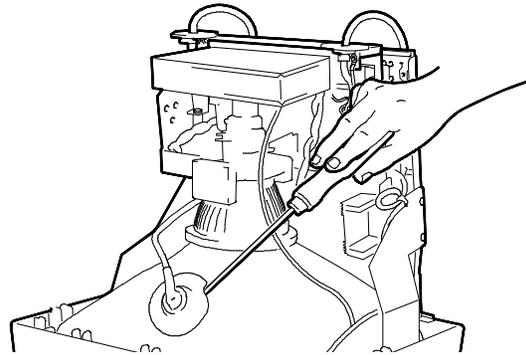


Fig. 2-3 Screwdriver to ground connection

5. Insert the tip of the screwdriver under the anodic rubber suction cup so that it touches the two CRT anode contacts. Maintain this contact with the anode for a few seconds.



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Fig. 2-4 Voltage discharge

REMOVING THE VIDEO AMPLIFIER BOARD

6. Remove the silicone adhesive which secures the CRT to the video amplifier board connector (this is a transport precaution).
7. Loosen the screws (V).
8. Disconnect A and B as illustrated in the figure.

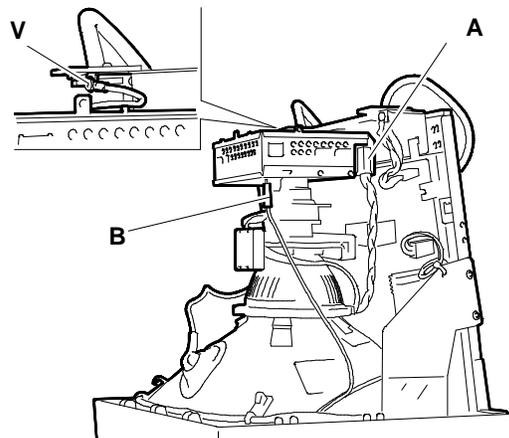


Fig. 2-5 Video amplifier board cable disconnection

9. Slide the video amplifier board off the CRT connector.
10. Disconnect the cables (C and D) from the video amplifier board.
11. Raise the G3 grid connection cover and unsolder the connection.
12. Straighten the four tabs (S) that secure the video amplifier board cover and remove this to have access to the soldered side.
13. Unsolder G2 grid connection from soldered side.

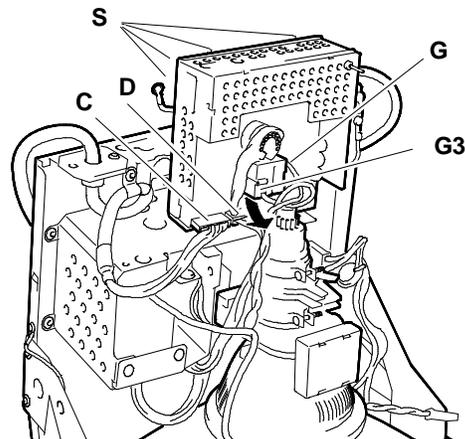


Fig. 2-6 Video amplifier board removal

REMOVING THE MOTHERBOARD

14. Disconnect cables (A and B).
15. Loosen the screws (V).
16. Raise the motherboard securing tabs (S).
17. Disconnect the anode suction cap (W) from the CRT, proceeding as follows:
 - Turn the plastic anode cover upside-down.
 - Draw the two anode contact hooks together.
 - Slide the anode suction cup off

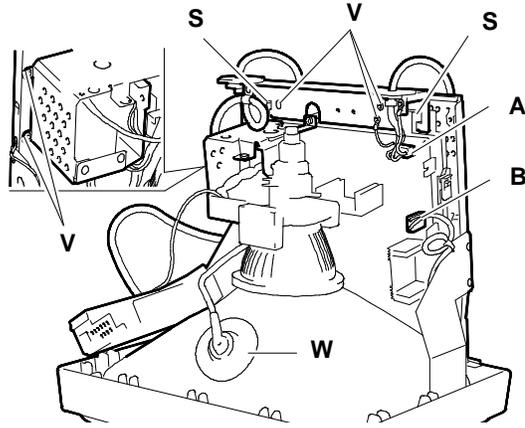


Fig. 2-7 Motherboard removal

NOTE: The motherboard is secured to a support that must not be removed.

18. Disconnect the deflection yoke connector (C).
19. Disconnect the potentiometer connector (D).
20. Press the tabs (R) on the right-hand side of the monitor and lift the motherboard from this side.
21. Press the tab (R) on the other side and slide out the motherboard.

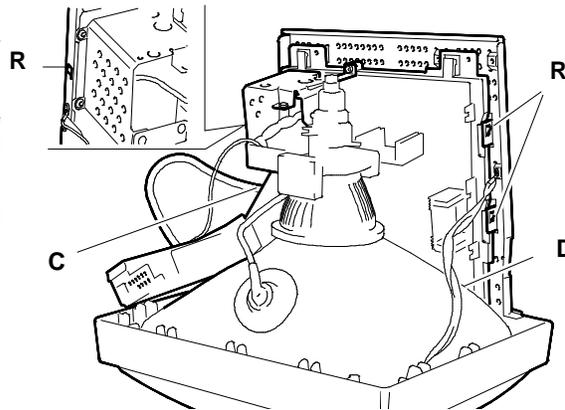


Fig. 2-8 Motherboard removal

REMOVING THE CRT

NOTE: In addition to the cathode-ray tube, the CRT also integrates the deflection yoke and the adjustment magnets for geometric distortion. These magnets should not require adjustment.

22. Remove the 4 plates (P) that secure the degaussing coil, opening them.
23. Remove screws (V5 e V6) that secure the metal support of the motherboard to the monitor front casing.
24. Loosen the 4 screws (V) that secure the CRT to the front casing of the monitor in order to free it.

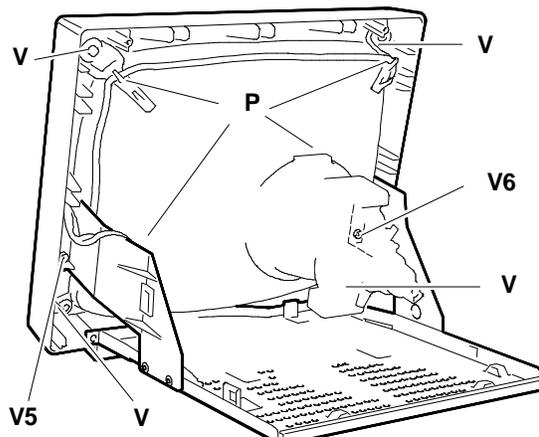
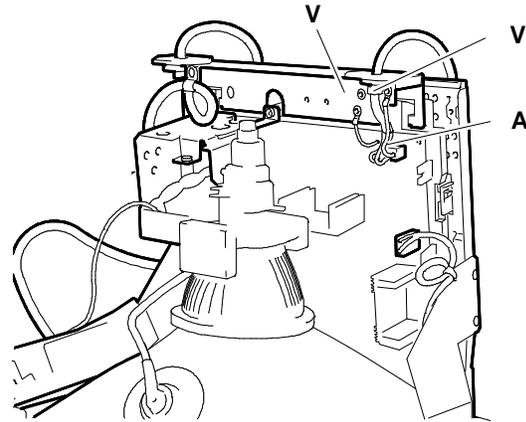


Fig. 2-9 CRT removal

CHANGING THE MONITOR POWER AND SIGNAL CABLES

To change the power cable, follow the procedure below:

25. Disconnect power cable connector (A) from the motherboard.
26. Loosen the two screws (V) that secure the power cable to the monitor casing.



2

Fig. 2-10 Video power cable removal

To change the signals cable, follow the procedure below:

27. Disconnect the signals cable connector (B) from the video amplifier board.
28. Loosen the two screws (V) that secure the signals cable to the monitor casing.

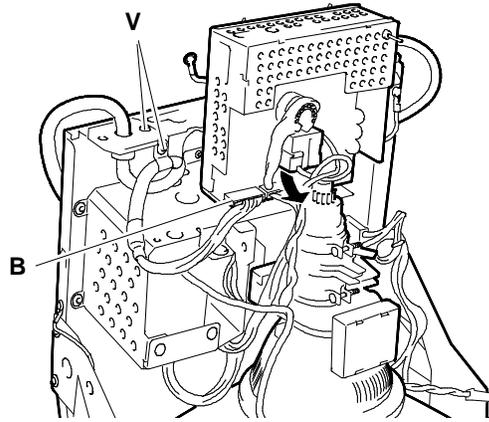


Fig. 2-11 Video signal cable removal

ADJUSTING THE MONITOR

The sequence illustrated below must be followed step by step because some adjustments affect the subsequent modifications.

GOLDSTAR GS01 MONITOR

Video amplifier board adjustment points

- VR350 - Red cut-off
- VR370 - Green cut-off
- VR390 - Blue cut-off
- VR332 - Red adjustment
- VR352 - Blue adjustment.

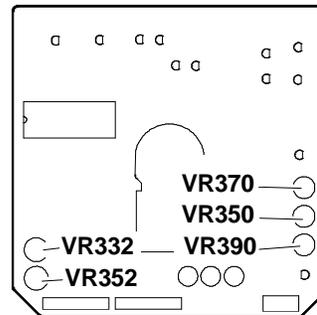


Fig. 2-12 Video amplifier board

Motherboard adjustment points

ADJUSTING THE HORIZONTAL FREQUENCY

- System Test: *640 BY 480 GRAPHICS REVERSE PATTERN.*
- Connect pin 1 on IC 701 (GL1151) to ground.
- Adjust RV703 (H FREQ) until the picture is as stable as possible.

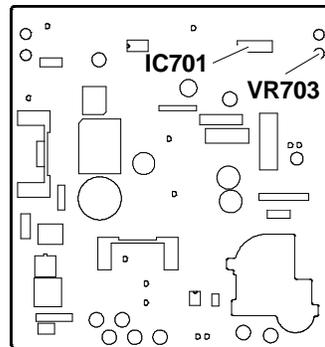


Fig. 2-13 Horizontal frequency adjustment

ADJUSTING THE VERTICAL LINEARITY

- System Test: *640 BY 480 GRAPHICS. CROSS HATCH PATTERN.*
- Use potentiometer VR603 to adjust the vertical linearity.

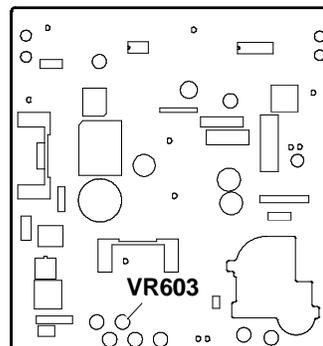


Fig. 2-14 Vertical linearity adjustment

ADJUSTING THE VERTICAL WIDTH

- System Test: *640 BY 480 GRAPHICS*.
- Adjust VR601 to obtain a vertical width of 180 mm +/- 2 mm.
- System Test: *640 BY 350 GRAPHICS*.
- Adjust VR602 to obtain a vertical width of 180 mm +/- 2 mm.

NOTE: The 640x400 resolution is adjusted automatically.

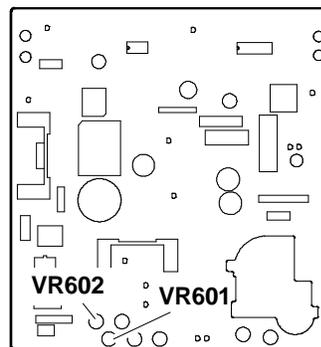


Fig. 2-15 Vertical width adjustment for 640 x350,640x400 and 640x480 resolutions

ADJUSTING THE VERTICAL CENTERING

- System Test: *CROSS HATCH WITH CIRCLE AT CENTER OF SCREEN*.
- Adjust potentiometer VR607 until the picture is centered vertically on the screen.

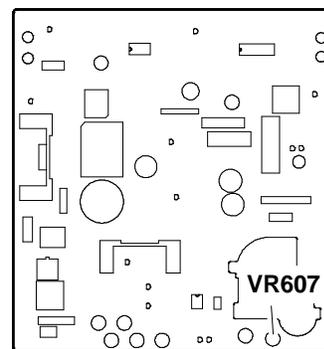


Fig. 2-16 Vertical centering adjustment

ADJUSTING THE DISTORTION (PINCUSHION)

- System Test: *CROSS HATCH PATTERN*.
- Adjust potentiometer VR605 to reduce the distortion.

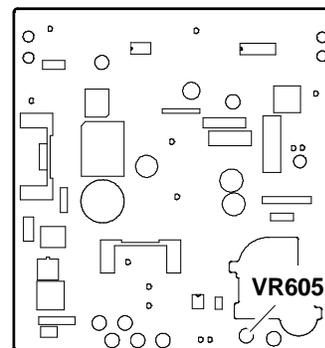


Fig. 2-17 Distortion (pincushion) adjustment

ADJUSTING THE HORIZONTAL WIDTH

- System Test: *CROSS HATCH PATTERN.*
- Adjust VR608 to obtain a horizontal width of 240 mm +/- 2 mm.
- Position the brightness adjustment potentiometer half way along its stroke, and the contrast at maximum.

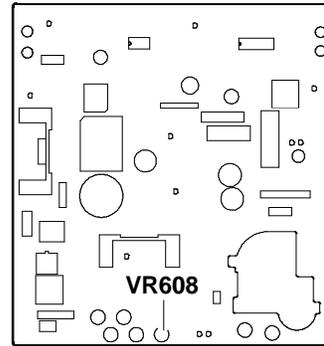


Fig. 2-18 Horizontal width adjustment

ADJUSTING THE FOCUS

- System Test: *CHECK LINEARITY.*
- Position the brightness potentiometer half way along its stroke and the contrast at maximum.
- Adjust the "FOCUS" potentiometer on the T702 transformer to obtain the best picture focus.

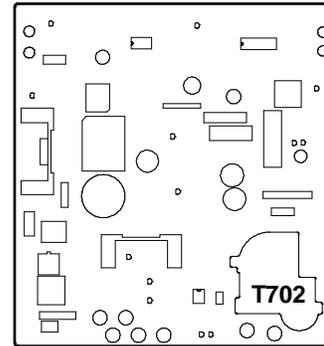


Fig. 2-19 Focus adjustment

GOLDSTAR GS02 MONITOR

The adjustments on this monitor are identical to those made on GOLDSTAR GS01. The only difference being the **DYNAMIC DISTORTION**. The potentiometer for this adjustment is on the 111-G93A board which is not installed on the GOLDSTAR GS01 model.

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ADJUSTING THE DYNAMIC DISTORTION

- Switch on the monitor.
- Connect a voltmeter between Test Point TP2 and ground.
- Adjust potentiometer VR801 until the voltmeter measures a voltage of + 5 V +/- 5%.

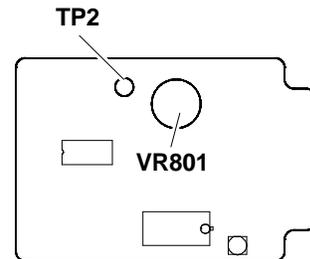


Fig. 2-20 Dynamic distortion adjustment on 111-G93A board

- Adjust potentiometer VR603 (on the motherboard) to restore the correct dimensions of the video mask.

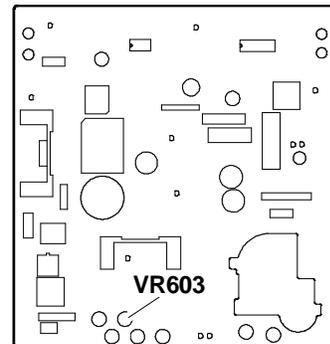


Fig. 2-21 Video mask dimension correction on motherboard

GOLDSTAR GS03 MONITOR

The adjustments for this monitor are identical to those for GOLDSTAR GS01. The only difference being the **DYNAMIC DISTORTION**. The potentiometer for this adjustment is on the motherboard.

ADJUSTING THE DYNAMIC DISTORTION

- Switch on the monitor.
- Connect a voltmeter between Test Point TP2 and ground.
- Adjust potentiometer VR801 until the voltmeter measures a voltage of + 5 V +/- 5%.
- Adjust potentiometer VR603 (on the motherboard) to restore the correct dimensions of the monitor picture.

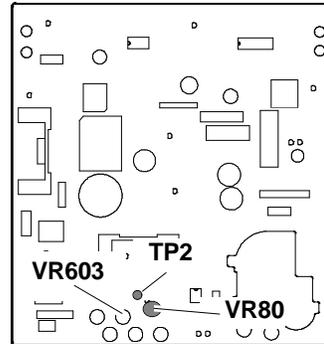


Fig. 2-22 Dynamic distortion adjustment