14" COLOUR DISPLAY UNIT CDU 1435S/GS01

This unit is manufactured by **GOLDSTAR** and bears the marking **CDU 1435S/GS01** on the rear and **DSM 27-140/LE** on the Progetto di Gestione.

Followings are the video characteristics.

CHARACTERISTICS

Ergonomic, hogh resolution, VGA-compatible, analog video.

- Screen dimensions: 14"
  Horizontal dimension: 240 mm ± 3 mm
  Vertical dimension: 180 mm ± 3 mm
- Input voltage: 100 - 120 V: 90 - 132 V c.a.
  220 - 240 V: 180 - 264 V c.a.
  Mains frequency: 50 Hz: 47 - 63 Hz
  Degauss: At power-on time
- Horizontal synchronism:
  Frequency: 31,469 KHz ± 300 Hz (VGA standard mode)
  35,2 KHz ± 300 Hz (Super VGA mode)
  35,524 KHz ± 300 Hz (XGA mode)
  Polarity: Negative or positive
  Level: TTL
- Vertical synchronism:
  Frequency: 59,94 - 70,08 Hz (VGA standard mode)
  56,3 Hz (Super VGA mode)
  87 Hz (XGA mode)
  Polarity: Negative or positive
  Level: TTL
- Input signals:
  Video: R, G, B (Red, Green, Blue) driving
  Signal: Linear voltage steps (63 steps of 11 mV)
  Level: 0 - 700 mV
  Polarity: Positive
- Resolutions displayed: 640 x 350 dots x lines (VGA standard mode)
  640 x 400 dots x lines (VGA standard mode)
  640 x 480 dots x lines (VGA standard mode)
  800 x 600 dots x lines (Super VGA mode)
  1024 x 768 dots x lines (XGA mode)
- External controls: Brightness - Contrast - Horizontal size - Vertical size - Horizontal shift

REMOVING THE COVER AND DISASSEMBLY

1. Disconnect the power supply and video signal cables from the connectors on the rear of the video unit. Lift and remove the two plastic tabs (A) as shown in the figure.

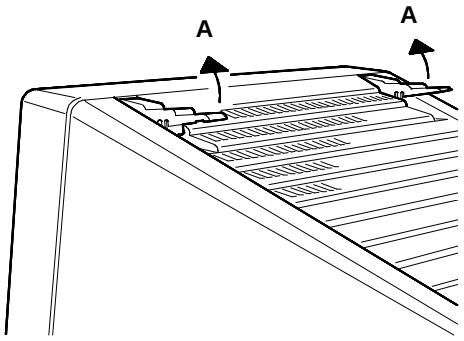


Fig. 23-1 Removing the Plastic tags Covering the Screws

2. Position the display as shown in the figure; put a cloth on the table under the unit so as not to scratch the CRT glass screen. Remove the 4 cover (V) screws.

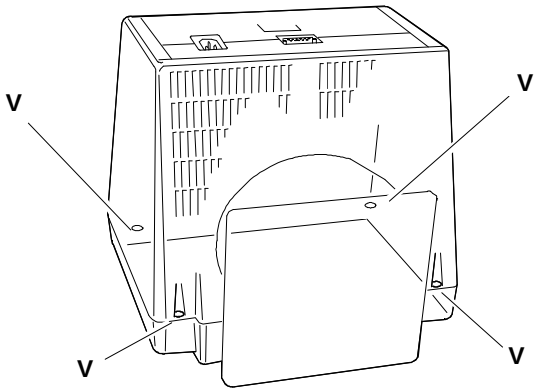


Fig. 23-2 Removal Screws Securing the Video Cover

3. Remove the cover.

DISCHARGING THE HIGH VOLTAGE

4. Before removing any board, you must first discharge the high voltages (25 KV CRT anode voltage). To discharge the CRT anode, use a screwdriver, connecting it with a wire conductor to the monitor chassis ground.
5. Put the point of the screwdriver under the rubber suction cap of the anode until it touches the two contacts of the CRT anode. Hold the screwdriver in contact with the anode for a few seconds until the high voltage is fully discharged.

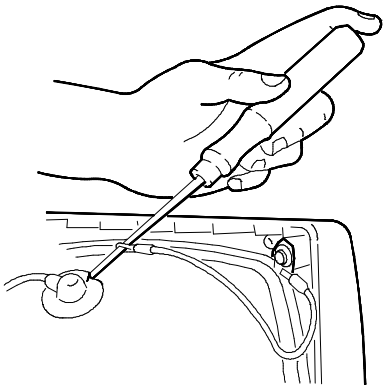


Fig. 23-3 Connection of Screwdriver to Ground

REMOVING THE VIDEO AMPLIFIER BOARD

6. Remove the silicon solution attaching the CRT to the connector of the video amplifier board (used for security of transport).
7. Unplug the CRT ground cables from connectors A, B and C and unsolder from point D.

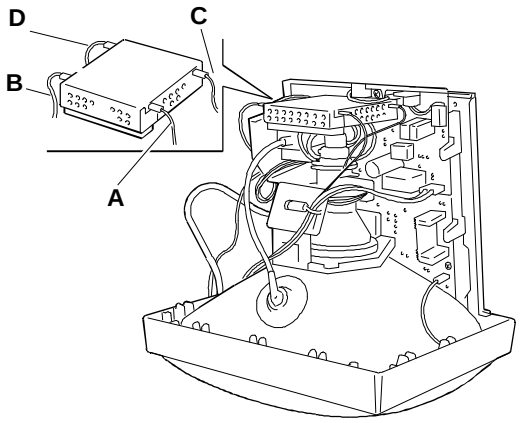


Fig. 23-4 Disconnecting the Video Amplifier Board Cables

8. Withdraw and overturn the video amplifier board to release it from the CRT.
9. Disconnect the motherboard interface cables from P301 and P302.
10. Disconnect the cable from P304.
11. Lift the G3 grid connection cover and unsolder the connection.
12. Disconnect the G2 grid cable.
13. The video board is now free of all connection.

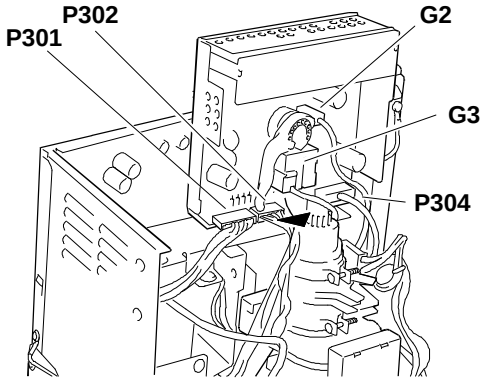


Fig. 23-5 Removing the Video Amplifier Board

REMOVING THE MAIN BOARD

14. Remove the screws that hold the motherboard support.
15. Remove all the cables from the motherboard connectors, to free it from the connections.
    The connectors involved are:
    - P702 and P502 that interface with the video amplifier.
    - P701 that interfaces with the deflection yoke.
    - P3 and P4 that interface with the external adjustments.
    - E2 and E4 that interface with the CRT ground cable.
    - E5 that interfaces with the casing ground.
    - P901 that interfaces with the power supply board.
16. Disconnect the anode sucker from the CRT. To do so, proceed as follows:
    - Turn the anode plastic cover over.
    - Bring the two hooks for the anode contact close together.
    - Withdraw the anode sucker.
17. To separate the motherboard from its support, lift the support from its housing, remove the three screws (V) and take the motherboard out of its catches (G) on the support.

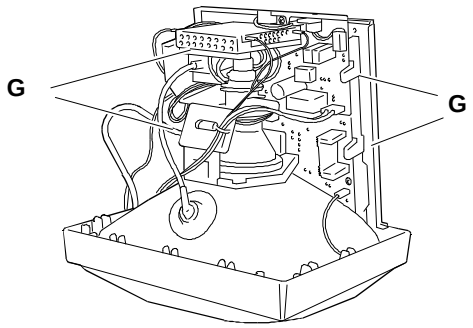


Fig. 23-6 Removing the Main Board

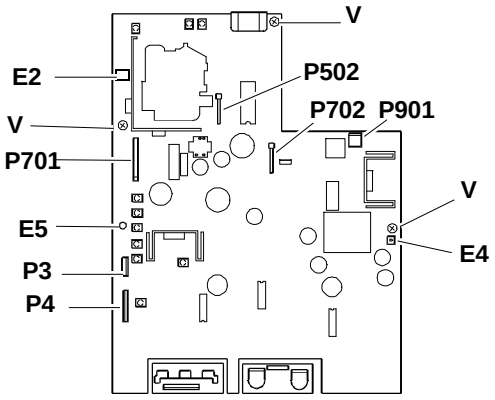


Fig. 23-7 Removing the Main Board Connector Positions

REMOVING THE POWER SUPPLY BOARD

18. Remove the degauss cable from connector P904.
19. Remove the cable from motherboard connector P901
20. Remove the two cables from connector P910
21. Remove the power supply connector ground cable screw (V) and the two screws (V) that fasten the power supply connector.
22. Remove the board from the support, pressing the two clasps (G).

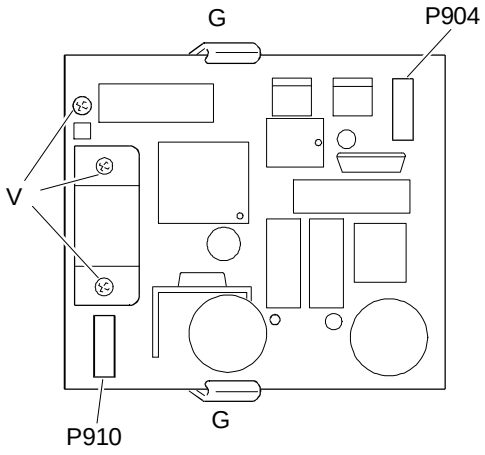


Fig. 23-8 Removing the Power Supply Board

REMOVING THE CRT

NOTE: In addition to the cathode ray tube, the CRT also comprises the deflection yoke and the geometric distortion regulation magnets. These magnets should not need to be adjusted.

23. Remove the 4 screws V securing the CRT to the front casing of the monitor.
24. Take off the clamping bands (P) that fasten the degauss winding (D).
25. Lift the CRT from the front casing of the video and free the degauss winding
26. Remove the CRT ground cable releasing the spring that tensions it and release it from the fixing brackets.

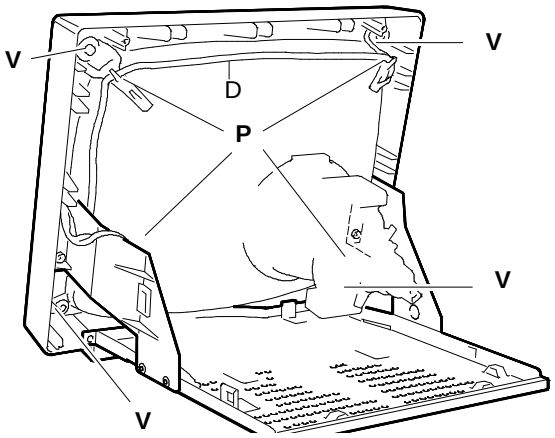


Fig. 23-9 Removing the CRT

EXTERNAL VIDEO ADJUSTMENT

On the CDU 1435S/GS01 video unit front panel there are trimmers that can be used by the user or service engineer to adjust:

- Contrast
- Brightness
- Horizontal size
- Vertical size
- Horizontal shift

The last three trimmers are in a control panel.

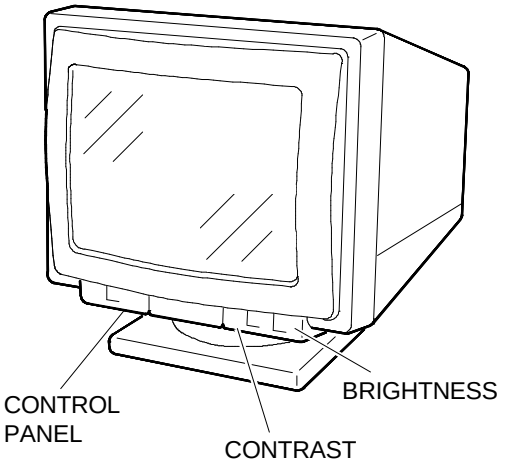


Fig. 23-10 Video External Adjustment

CONTRAST AND BRIGHTNESS TRIMMERS

CONTRAST - By turning the trimmer knob to the right or the left the picture contrast is increased or decreased.

BRIGHTNESS - By turning the trimmer knob to the right or the left, the picture brightness is increased or decreased. When turning a "click" will be heard that indicates that the best position has been obtained (click point), if desired this point can be changed.

CONTROL PANEL

To have access to the control panel commands, lightly press the hatch cover, pushing downwards. The control panel contains three trimmers to adjust the following:

- Horizontal size
- Vertical size
- Horizontal shift

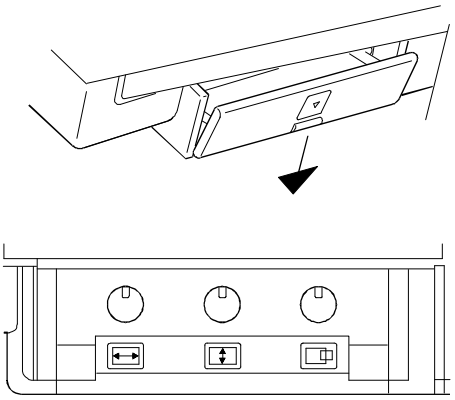
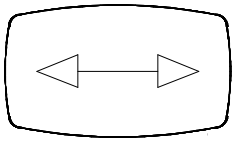
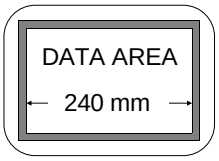
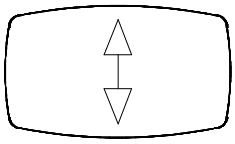


Fig. 23-11 Control Panel

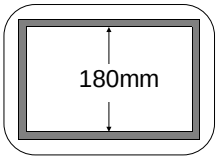


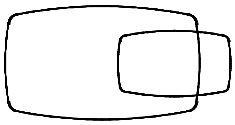
HORIZONTAL SIZE
Use the trimmer to obtain a picture width of 240 mm ± 2 mm.



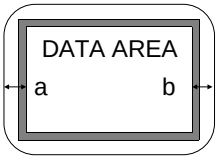


VERTICAL SIZE
Use the trimmer to obtain a picture heigth of 180 mm ± 2 mm.





HORIZONTAL SHIFT
Use the trimmer to centre the picture horizontally. |a-b|< 4 mm.



INTERNAL VIDEO ADJUSTMENTS

ADJUSTMENT TRIMMERS

The following is a list of the trimmer to use during the video adjustments. The sequence illustrated must be followed in the order because some of the adjustments influence those coming afterwards.

VIDEO AMPLIFIER BOARD

VR301 Green cut-off
VR303 Blue cut-off

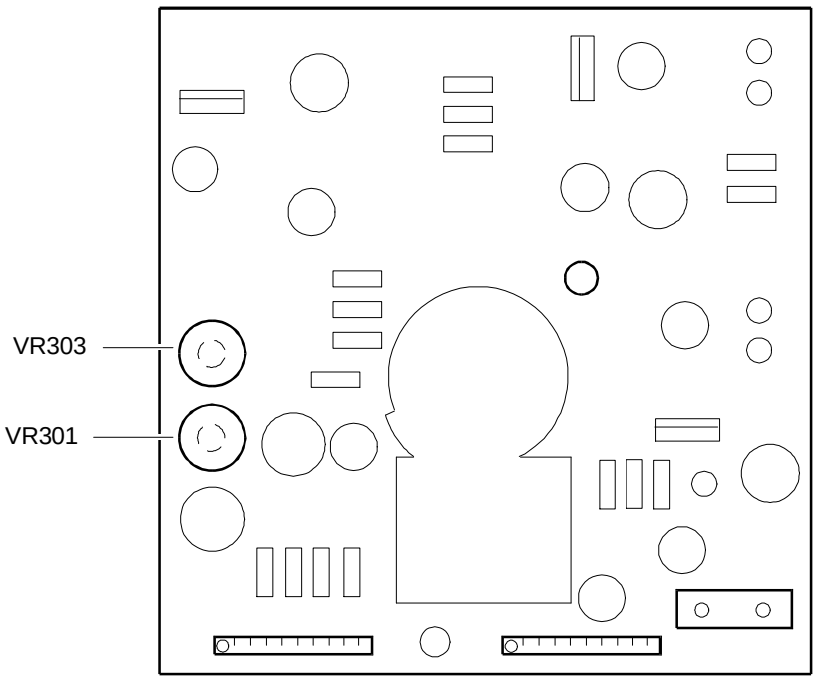


Fig. 23-12 Video Amplifier Board Adjustments

MAIN BOARD

VR800	Horizontal phase 123 adjustment
VR702	Horizontal frequency adjustment
VR710	Side pincushion adjustment
VR705	Sub-brightness adjustment
VR703	Sub-contrast adjustment
VR603	Vertical center adjustment
VR707	Horizontal center adjustment
VR501	Green drive adjustment
VR502	Blue driving adjustment
R604	Vertical size adjustment
VR706	Brightness adjustment (external sccess)
VR704	Contrast adjustment (external sccess)
VR701	Horizontal shift adjustment (external access)
VR602	Vertical size adjustment (external access)
VR708	Horizontal size adjustment (external access).

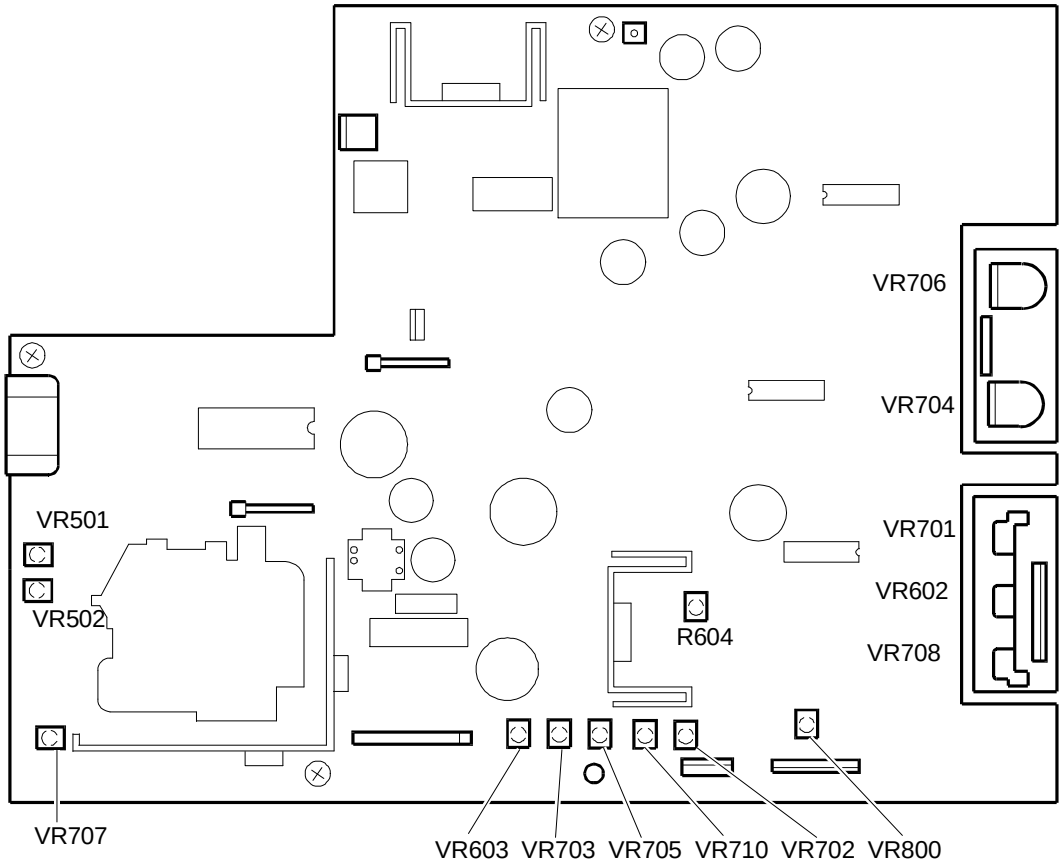


Fig. 23-13 Main Board Adjustments

MAIN BOARD ADJUSTMENTS

The main board procedures described in this section guarantee correct setting of the video unit. It is important to respect the order in which the procedures are listed for best results.

NOTE: In performing these setting an **electrostatic voltmeter** and an **electrostatic voltmeter** must be used. In view of the high voltages being measured proceed with extreme caution and take care at all times.

HORIZONTAL FREQUENCY ADJUSTMENT

- Set PC or signal generator to VGA mode.
- Connect the TP2 pin (or C701 capacitor) on main board to GND with short clip.
- Connect the frequency counter between GND and R776 lead which is adjacent to pulse transformer T901.
- Adjust the frequency to 31.45 KHz ± 100 Hz, using VR702.

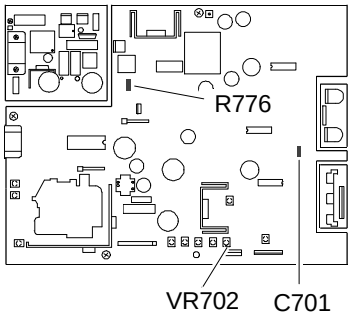
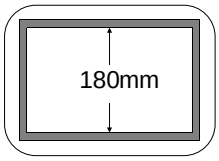


Fig. 23-14 Locating R776

VERTICAL SIZE ADJUSTMENT

- System Test: *640 BY 480 GRAPHICS.*
- Set the external V-SIZE VR602 at center position.
- Adjust the vertical size to 180 ± 2 mm using the R604 internal trimmer.



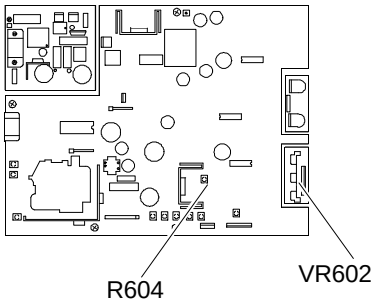


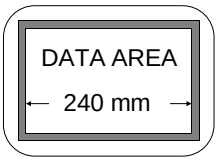
Fig. 23-15 Vertical Size Adjustment

SIDE PINCUSHION DISTORTION

- System Test: *CROSS HATCH PATTERN*.
- Adjust the VR710 so as to minimize the pincushion distortion.

HORIZONTAL SIZE ADJUSTMENT

- System Test: *CROSS HATCH PATTERN*.
- Adjust the external trimmer VR708 for the horizontal size as to be within 240 ± 2 mm.



- The the Brightness control should be set at the center, and the Contrast control should be set at the Max.

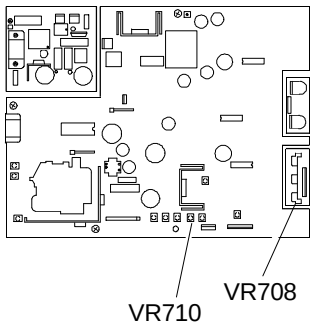


Fig. 23-16 Side PIncushion and Horizontal Size Adjustment

BRIGHTNESS ADJUSTMENT

- Set the external brightness VR706 at center and the external contrast VR704 at minimum.
- Display the Cut-Off level (color 0.0).
- Adjust the Sub-Brightness VR705 until the back raster disappears.
- Confirm that back raster appears when the Brightness VR706 is at maximum.

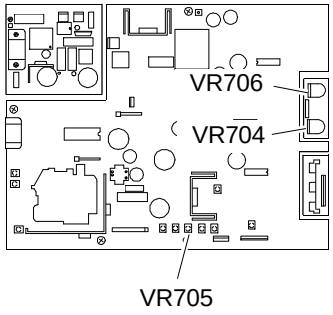


Fig. 23-17 Brightness Adjustment

CONTRAST ADJUSTMENT

- Set the external brightness VR706 at center and the external contrast VR704 at maximum.
- Display White Pattern (700 mV input voltage) of which the size is 90 x 90 on the monitor.
- At the center of the screen, adjust the Sub-Contrast VR703, so that the brightness should be ≥ 95 NIT.

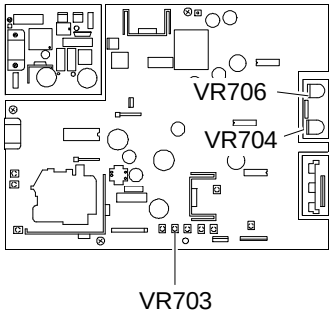


Fig. 23-18 Contrast Adjustment

FOCUS ADJUSTMENT

- System Test: *CHECK LINEARITY*, that display the "H" character in full screen.
- Set the brightness trimmer at the center and the contrast trimmer at maximum.
- Adjust "FOCUS" trimmer on T702 transformer, so that the focus should be best condition.

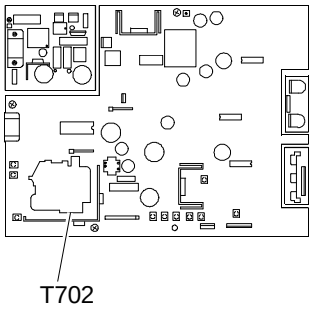


Fig. 23-19 Focus Adjustment