

# 14" MDU 1441/LE POSITIVE MONITOR UNIT

This monitor is manufactured by **PHILIPS**.

Through a switch (S) on the rear of the monitor the monochrome or positive operating mode can be selected.

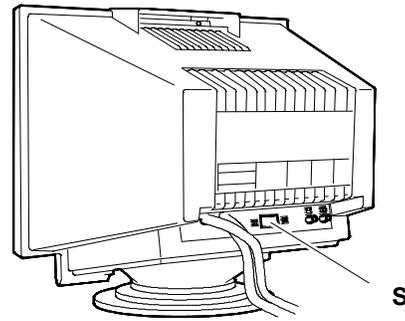


Fig. 9-1 Monochrome-positive mode switch position

## CHARACTERISTICS

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Monochrome/positive monitor, compatible VGA

- Screen dimensions: 14" flat screen  
Horizontal dimension: 240 mm +/- 4 mm  
Vertical dimension: 180 mm +/- 4 mm
- Input voltage: 187 - 264 V a.c.  
Network frequency: 47 - 63 Hz
- Dissipated power: 35 W
- Horizontal synchronism:  
Frequency: 31.469 KHz  
Polarity: Negative or positive  
Level: TTL
- Vertical synchronism:  
Frequency: 59.94 Hz (resolution 640 x 480)  
70.08 Hz (resolutions 640 x 350 and 640 x 400)  
Polarity: Negative or positive  
Level: TTL
- Monitor input signals:  
Monitor signal: Analog  
Level: 0 - 700 mV (impedence 75 Ohm)  
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  
Operating mode selection(positive or monochrome)  
Horizontal centering adjustment  
Vertical centering adjustment

## REMOVING THE CASING AND DISASSEMBLY

1. Disconnect the power cable.
2. Remove the 4 screws (V) that secure the casing.

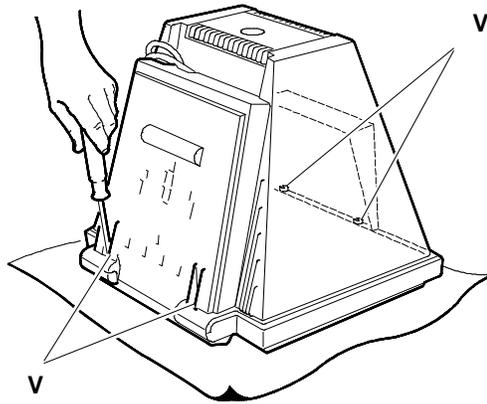


Fig. 9-2 Casing screw position

3. Remove the monitor pre-amplifier board (P) and disconnect cable EHT as illustrated in the figure.

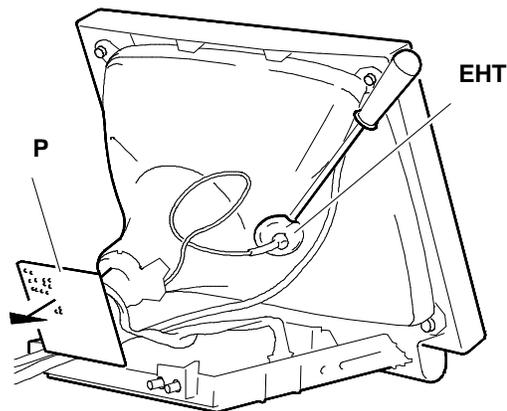


Fig. 9-3 Video pre-amplifier board and EHT cable removal

4. Unhook the motherboard supporting plate from the monitor frame.

**NOTE:** The motherboard and pre-amplifier board cables are soldered, therefore if there is a fault, both the pre-amplifier board and the motherboard have to be changed.

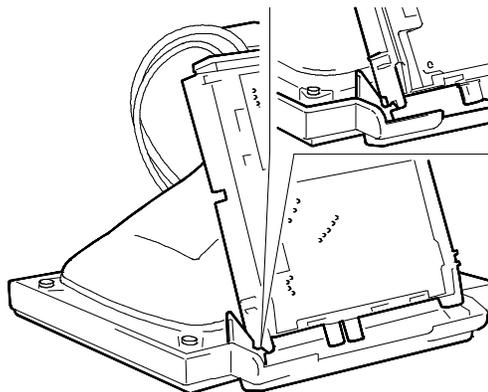


Fig. 9-4 Mechanical detail of motherboard support latching to video frame

5. Remove the motherboard supporting plate together with the mother board.

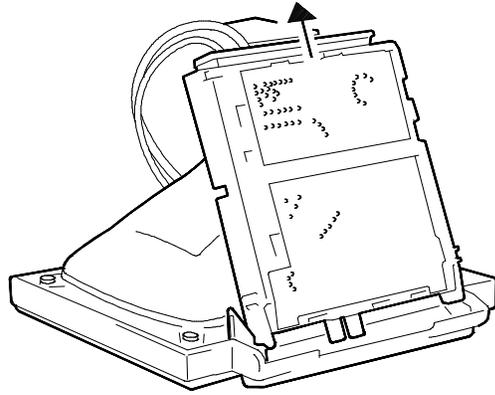


Fig. 9-5 Motherboard support removal from video frame

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6. Remove the motherboard from its support.

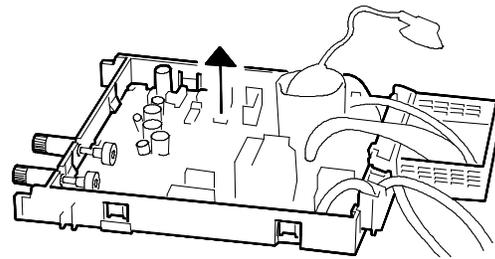


Fig. 9-6 Motherboard removal from its support

## ADJUSTING THE MONITOR

Adjusting points **accessible from outside the monitor.** (Without removing the casing).

### POSITIVE OR MONOCHROME MONITOR SELECTION

- This selection is made through the switch (S) on the rear of the monitor

### ADJUSTING THE HORIZONTAL CENTERING

- Switch on the monitor
- Adjust potentiometer (O) on the rear of the monitor to horizontally centre the picture on the screen.

### ADJUSTING THE VERTICAL CENTERING

- Switch on the monitor.
- Adjust potentiometer (V) on the rear of the monitor to vertically centre the picture on the screen.

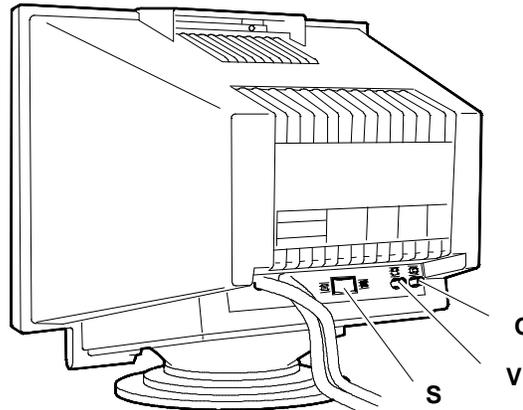


Fig. 9-7 - Positive or monochrome video selection  
- Horizontal centering adjustment  
- Vertical centering adjustment

**Motherboard** adjusting points

### ADJUSTING THE VOLTAGE

This adjustment is valid for both positive and monochrome monitor settings.

- Switch on the monitor.
- Connect a digital voltmeter between ground and pin 8 on EHT 5534 on the soldered side of the motherboard.
- Adjust potentiometer 3106 until the voltmeter measures a voltage of 45 V.

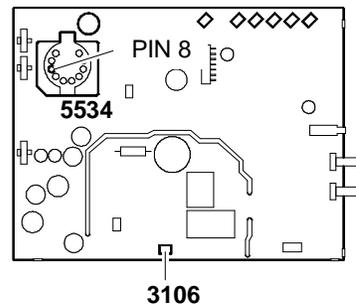


Fig. 9-8 Voltage adjustment

### ADJUSTING THE VERTICAL SYNCHRONISM

This adjustment is valid for both positive and monochromatic monitor settings.

- Switch on the monitor.
- System Test: *CROSS HATCH WITH CIRCLE AT CENTRE OF SCREEN.*
- Adjust 3402 to obtain a steady picture on the screen.
- System Test: *640 x 200.*
- System Test: *640 x 400.*
- System Test: *640 x 480.*
- Check that the picture is always steady in the three resolutions called up by the system.

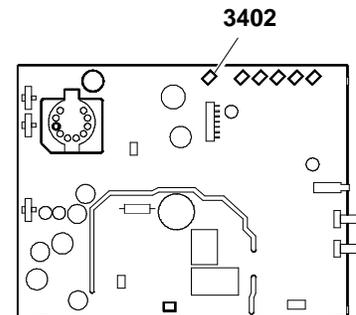


Fig. 9-9 Vertical synchronism adjustment

### ADJUSTING THE VERTICAL WIDTH

This adjustment is valid for both positive and monochromatic monitor settings.

- System Test: *CROSS HATCH WITH CIRCLE AT CENTRE OF SCREEN.*
- Adjust coil 3408 to obtain a picture with a vertical dimension of 170 mm.

### ADJUSTING THE HORIZONTAL WIDTH

This adjustment is valid for both positive and monochromatic monitor settings.

- System Test: *CROSS HATCH WITH CIRCLE AT CENTRE OF SCREEN.*
- Adjust coil 5531 to obtain a picture with a horizontal dimension of 232 mm.

**NOTE:** A diamagnetic Allen wrench should be used for this adjustment.

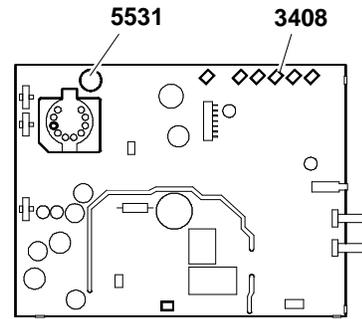


Fig. 9-10 - Vertical width adjustment  
- Horizontal width adjustment

### ADJUSTING THE HORIZONTAL SYNCHRONISM

This adjustment is valid for both positive and monochromatic monitor settings.

- System Test: *CROSS HATCH WITH CIRCLE AT CENTRE OF SCREEN.*
- Adjust 3510 to obtain a steady picture on the screen.

### ADJUSTING THE HORIZONTAL PHASE

This adjustment centers the picture within the raster, and is valid for both positive and monochromatic monitor settings.

- System Test: *CROSS HATCH WITH CIRCLE AT CENTRE OF SCREEN.*
- Adjust potentiometer 3509 to obtain a picture centered in the raster.

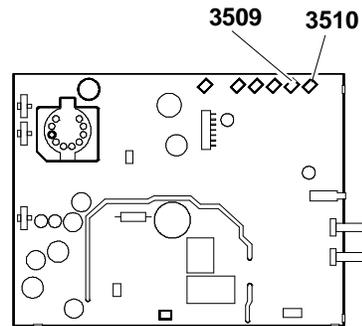


Fig. 9-11 - Horizontal synchronism adjustment  
- Horizontal phase adjustment

### ADJUSTING THE MONOCHROMATIC MONITOR BRIGHTNESS

- Switch the monitor to monochromatic.
- Set the contrast and brightness potentiometers to maximum.
- System Test: *CHECK LINEARITY.*
- Adjust potentiometer 3537 to adjust the maximum background brightness.
- Adjust potentiometer 3539 to adjust the minimum background brightness.

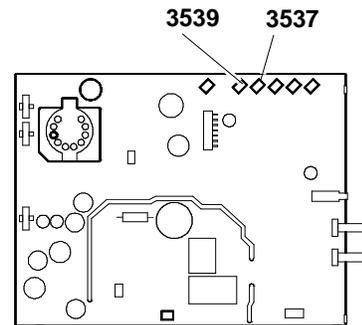


Fig. 9-12 Monochrome video brightness adjustment

- Adjust potentiometer A on the **preamplification board** to adjust character brightness.

#### ADJUSTING THE POSITIVE MONITOR BRIGHTNESS

- Set the monitor to positive by means of the switch.
- Carry out the same adjustments as described previously.

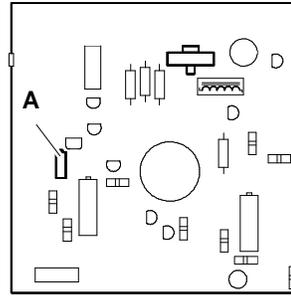


Fig. 9-13 Character brightness adjustment

#### ADJUSTING THE FOCUS

- System Test: *CHECK LINEARITY.*
- Use 3711 on the monitor preamplifier board to obtain the best focussing.

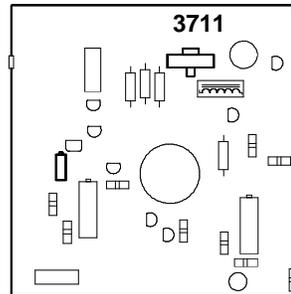


Fig. 9-14 Focus adjustment