

15. Look at the monitor screen. Is the screen blank (dark with no image)?

Yes — Have the computer serviced.

No — Continue to the next step.

16. After the computer completes the power-on self test, the normal image should appear on the screen.

Are you having any obvious display problems; for example, jittering, rolling, shifting, or out of focus characters?

Yes — Have the display serviced.

No — Have the computer serviced.

▽ *Servicing Your Monitor*

If you have to deliver your monitor to a reseller to ship it a long distance:

1. Turn off all components.
2. Disconnect all cords and cables.
- △ Pack the monitor in its original carton and use all original packing materials (foam cushions, plastic sleeves, etc.).
- △ If you don't have the box the monitor came in and must use another carton, make sure you cushion the monitor carefully.

▽ *Setting Up Again*

When you're ready to set the monitor up again, do the following:

1. Unpack the monitor with care, and save the packing materials.
2. Follow the instructions for installing the monitor.
3. Make sure the monitor is in working order by following the procedures described in the Troubleshooting Section of this manual on page 13.

Color and Monochrome

Models CMC-1412A
CMC-141M
CM-1402S

Leading Edge Monitors are ideal for a wide variety of uses; from simple word processing to complex graphics programs. With its high quality screen and its compatibility with many types of computers and software, the Leading Edge Monitor is the perfect solution for any computing need.

Additionally, the Leading Edge Monitor's versatility of design allows you to upgrade your video boards and software without having to purchase a new monitor.

This manual contains information for the following Leading Edge Monitors:

Model CMC-1412A
Model CMC-141M
Model CM-1402S

This manual contains:

Specifications	page 1
Pre-installation information	page 5
Installation instructions	page 6
A guide for troubleshooting	page 13
Instructions for servicing your monitor	page 14

Remember: Keep this manual near your computer and monitor at all times.



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This equipment has been certified to comply with the limits for a Class B computing device. Pursuant to Subpart J of part 15 of the FCC Rules. Only computers certified to comply with the class B limits may be attached to this monitor. Operation with a non-certified computer is likely to result in interference to radio and TV reception.

These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Plug the computer into a different outlet so that the computer and the receiver are on different branch circuits.
- Consult your dealer or an experienced radio TV technician for help.
- To maintain FCC compliance, all peripherals used with this equipment must be connected via shielded interface cables.

▽ Testing the Monitor

1. Turn off the Monitor and the computer, as well as all other peripherals.
2. Make sure the monitor power cord is plugged into the monitor and a properly grounded electrical outlet
3. Turn on the display and the computer.
4. Turn the contrast control to its maximum position
Turn the brightness control to its maximum position
5. Does the monitor power-on light come on?
No — Have the monitor serviced.
Yes — Continue to the next step.
6. Look at the monitor screen. Is the screen completely blank (dark with no image)?
No — Have the monitor serviced.
Yes — Continue to the next step.
7. Turn off the monitor
8. Disconnect the monitor signal cable from the connector on the computer.
9. Turn on the monitor.
10. Look at the monitor screen. The screen should be white in the center and have a black strip on either one side or both sides. Some shading may occur near the edges.
11. Is the image present and stable?
No — Have the monitor serviced.
Yes — Continue to the next step.
12. Turn off the monitor.
Reconnect the monitor to the computer.
14. Turn on the monitor and the computer.

13. V Size — Turn this knob for proper vertical size of the display. Turn the knob counterclockwise for a larger display. Turn it clockwise for a smaller.

▽ *Model CM-1402S*

1. Power switch
2. Power indicator — When the power is on, the power indicator is lit.
3. Contrast
4. Brightness
5. Power cable
6. Signal cable
7. V - Size — Adjusts height of display to fill screen.
8. V - Sync — Requires small screwdriver; corrects "rolling."
9. H - Shift — Adjusts position of display left to right.

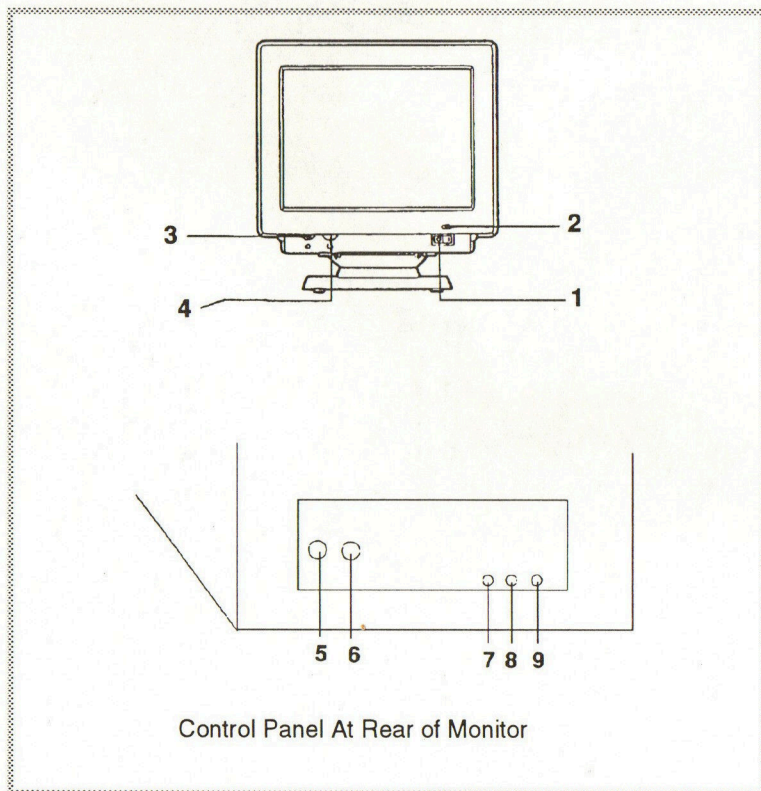


Figure 4 CM-1402S

▽ *Leading Edge Monitors*

▽ *Leading Edge Monitor Features*

	CMC-1412A Color Monitor	CMC-141M Multiscan Color Monitor	CM-1402S Monochrome Monitor
CRT			
Screen	14" diagonal non-glare	14" diagonal non-glare	14" diagonal non-glare
Dot Pitch	0.28 or 0.31, 0.42, 0.52mm	0.28 or 0.31mm	N/A
Light Transmsslon	57% tinted	57% tinted	30% tinted
Video			
Input Signal	Analog	TTL and Analog	Analog
Amp. bandwidth	30 MHz	40 MHz	40 MHz
Display area	240 x 180 (mm) (9.5" x 7.1")		
Graphic Compat- ability	VGA	CGA, EGA, MDA, Hercules, PGC, VGA, Super VGA, 8514/A	VGA, VGA plus, 8514/A
Resolution	640 x 480	800 x 600 - (Non- interlaced mode) 1024 x 768 (Interlaced mode)	640 x 480 800 x 600 1024 x 768
Frequency			
Horizontal	31.5 KHz	15.75KHz / 39KHz	31.47KHz / 35.5 KHz
Vertical	50KHz to 70 KHz	50Hz-90Hz	50KHz to 90KHz
Power			
Input Voltage	120 V, 60Hz, 1.0A		120 V, 60Hz, 0.6A

	CMC-1412A Color Monitor	CMC-141M Multiscan Color Monitor	CM-1402S Monochrome Monitor
Maximum power Consumption	Max. 70 W	Max. 80 W	Max. 40 W
Dimensions/Weight			
Overall dimensions (W x D x H)	13.9" x 15" x 11.4"	14.4" x 15.5" x 12.5"	12.8"x12.4"x11.5"
Weight	12KG(26lbs)	13.9 KG (30 lbs.)	8.5KG (18 lbs)
Signal Cable			
Analog connection	15 pin	15 pin	15 pin
TTL connector		9 pin	
User Controls			
Front	Power switch		Power switch Contrast Brightness
Left Side		Contrast Brightness	
Right Side	Contrast Brightness	Power switch	
Rear	Focus Screen H-Hold H-Phase V-Lin V-Size -(1,2,3)	TTL Analog switch V-Size V-Cent H-Phase Manual preset color Ps2/Text - on H-Width - on	V-Size V-Sync H-Shift
Environmental Considerations			
Operation temperature	0 - 40 degrees		
Operation humidity	30 - 80 degrees		
Storage temperature	20 - 60 degrees		
Storage humidity	10 - 90 degrees		

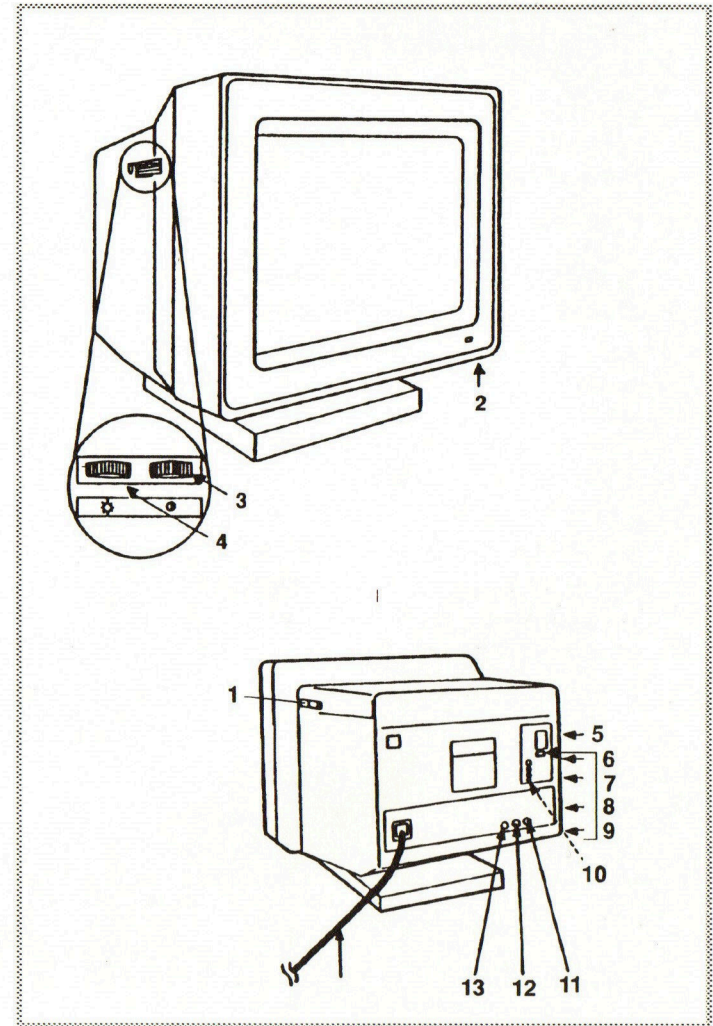


Figure 3 The Model CMC-141M

▽ Model CMC-141M

1. Power Switch
2. Power Indicator - When the power is on, the power indicator is lit.
3. Contrast
4. Brightness
5. Signal Input Connector — D-SUB TYPE 9-Pin. Connect the cable with a 9-pin plug at the opposite end to a TTL video output, or the cable ending in a 15-pin plug to an ANALOG source.
6. TTL/ANALOG Switch — Used to select an input video signal — either TTL or ANALOG — from the graphics adapter. It is important to determine whether the input signal of the graphics adapter used is ANALOG or TTL prior to connecting the adapter with your computer.
7. Manual/Preset Switch — This switch selects MANUAL mode when OFF or the PRESET mode when ON. When it is in the PRESET mode, Multiscan automatically works in the IBM mode and adjusts itself to the scanning frequency, resolution and color requirements of the IBM compatible graphics adapter being used.
8. 16/64 Select Switch — This switch offers 16 or 64 colors. When the MANUAL/PRESET switch is off, then the input signal is 64 color in TTL mode.
9. TEXT ON/PS-2 ON Switch — When the TTL Mode is on, information displayed on the screen will appear in one color (green).
When the ANALOG mode is on, the display is compatible with the IBM PC-2.
10. H. Width Switch — Adjusts width for the horizontal size of display preferred.

Note: When the horizontal frequency is 15.75KHZ or 20KHZ, horizontal width can not be adjusted.

11. H. Position — Turn this knob for the proper horizontal position of the display. Turn the knob clockwise to move the display. Turn it counterclockwise to move to the left.
12. V Cent. — Turn this knob for the proper vertical position of the display. Turn the knob clockwise for a lower display position. Turn it counterclockwise for a higher display position..

▽ Video Cable Pin Assignments

CMC-1412A

Pin Assignment	Video Graphics Array
1	Red
2	Green
3	Blue
4	Not Used
5	Ground
6	Ground
7	Ground
8	Ground
9	Not Used
10	Ground
11	Ground
12	Not Used
13	Horizontal Sync
14	Vertical Sync
15	Not Used

Model CMC-141M -IBM Graphics Adapters

IBM Adapters Pin Assignments	Color Graphics TTL 16 Colors	Enhanced Graphics TTL 64/16 Colors	Professional Graphics ANALOG
1	Ground	Ground	Red
2	Ground	Secondary Red	Green
3	Red	Primary Red	Blue
4	Green	Primary Green	Composite Sync
5	Blue	Primary Blue	Mode Control
6	Intensity	Secondary Green/ Intensity	Red Ground
7	Non-connection	Secondary Blue	Green Ground
8	Horizontal Sync	Horizontal Sync	Blue Ground
9	Vertical Sync	Vertical Sync	Ground

Model CMC-141M-Other Computers

Pin	TTL			ANALOG		
	8 Colors	16 Colors	64 Colors	Separate Sync	Composite Sync	Sync on Green
1	Ground			Red		
2	Secondary	Red		Green		Green H/V Sync
3	Red	Primary Red		Blue		
4	Green	Primary Green		H. Sync	H/V Syn	
5	Blue	Primary Blue		V. Sync		
6	Intensity	Secondary Green				
7	-	Secondary Blue				
8	H. Sync/H/V Sync					
9	V. Sync					

Model CM 1402S

Pin Assignment	Video Graphics Array
1	Not Used
2	Video Signal
3	Not Used
4	Not Used
5	Not Used
6	Not Used
7	Video Ground
8	Not Used
9	Not Used
10	Ground
11	Not Used
12	Not Used
13	Horizontal Sync
14	Vertical Sync
15	Not Used

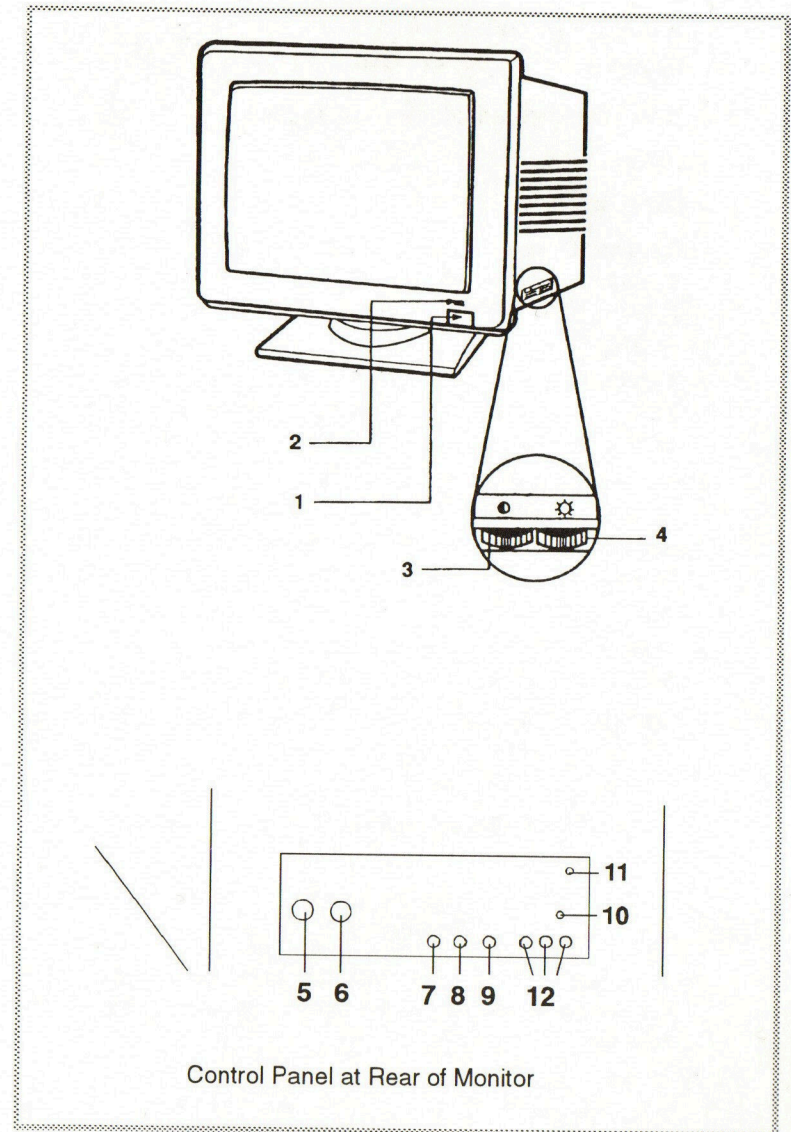


Figure 2 The Model CMC-1412A

▽ *Monitor Components*

▽ *Model CMC-1412A*

1. Power Switch
2. Power Indicator - When the power is on, the power indicator is lit.
3. Contrast
4. Brightness
5. Power Cable
6. Signal Cable
7. H-Hold — To correct picture that is skewed into diagonal lines.
8. H-Phase — Adjusts display placement left to right on screen.
9. V-Lin — Changes height of lines on screen. Effect looks much like V-Size. Use V-Size for most vertical adjustments.
10. V-size — Turn this knob for proper vertical size of the display (to fill the screen, but not cut off lines at top or bottom). Turn the screwdriver counterclockwise for a larger display. Turn it clockwise for a smaller. Adjusting screws numbered 1, 2 and 3 provide different amounts of screen adjustment relative to screwdriver turns.
11. Focus
12. Screen — Successive pushes of this recessed button adjust brightness level. Normally, you should use the Brightness control instead.

Note: Adjustments 7-12 require a small flat-blade screwdriver, preferably plastic rather than metal.

▽ *Pre-installation*

▽ *Selecting a Location for Your Monitor*

- △ Your monitor should be located on a level and stable surface.
- △ Prevent eye fatigue. Do not place the monitor against a bright background, or where the sun or indoor illumination can shine directly on it.
- △ Select an area where sunlight or bright indoor illumination will not fall directly on the monitor screen.
- △ For optimum viewing, the monitor should be just below eye level.
- △ There should be adequate ventilation around the monitor so that heat generated from the monitor can properly dissipate.
- △ Do not locate the monitor near high capacity transformers, electrical motors, or other magnetic fields that can interfere with the consistency of monitor power or video signals.
- △ Do not locate the monitor near extreme sources of heat such as radiators or heat registers.

▽ *When Using Your Monitor*

- △ Do not rest heavy objects on the power cord. A damaged cord can cause fires or electrical shocks.
- △ Make sure the area around the monitor is not damp, dusty, or dirty.
- △ Make sure that the monitor's power source is the same as indicated in this manual. If you are not sure of the power supplied to your home or business, consult your reseller or local power company.
- △ Use only an electrical outlet that will accept the monitor's 3 pin plug. This is a safety feature. Do not use a grounding plug.
- △ Follow the warning and instructions marked on the computer.
- △ Never push objects of any kind into the monitor through the cabinet slots; they could touch dangerous voltage points or short out parts that could result in a fire or electrical shock.

- △ DO NOT REMOVE THE MONITOR COVER. Serious shock hazards exist within the system.

▽ Cleaning Your Monitor

- △ Unplug before cleaning:
- △ Do not use liquid cleaners or aerosol cleaners. Wipe with a damp cloth.

▽ Installing your Monitor

1. Turn off the power switches on your computer and all attached peripherals (printer, scanner, etc.).
2. Remove the monitor from its shipping container. Keep the box and all packing materials in case you ever need to transport your monitor.

Place the monitor on the surface where it will be permanently located, leaving enough space to access the rear panel.

3. Attach the display signal cable to the D-shaped display connector on the rear of the computer. Note the cable attaches only one way. The Model CMC-141M provides a choice of two cables — 15-pin at the computer end to connect to an analog signal, or 9-pin to connect to a TTL signal.

Warning: Make sure the D-shaped display connector on the system unit is a 15-pin (9-pin only if connecting Model CMC-141M to a TTL output) connector. Using any other kind of connector will result in damage to the monitor.

4. Tighten the screws.
5. Plug the power cord into the monitor first. Then plug the other end into a properly grounded electrical outlet.
6. Turn the brightness control to its middle position.

Note: The brightness control has an indent in the middle position which you can feel if you turn the control slowly.

7. Turn the contrast control to its maximum position (counterclockwise).

Installation is complete

Note: On some systems you may need to run the SETUP program after installation. Refer to the manual that came with your computer for instructions.

▽ Installing or Removing a Tilt/Swivel Stand

1. Turn off the monitor, the computer, and all other peripherals.
2. Carefully set the display upside down.

▽ Removing the Tilt/Swivel Stand

1. Push the base of the Tilt/Swivel Stand to the rear of the display.
2. Squeeze and hold the latches.
3. Push the Tilt/Swivel Stand to the rear of the display and lift to remove the stand.

▽ Installing the Tilt/Swivel Stand

1. Align the stand with the slots in the bottom of the monitor and insert the Tilt/Swivel Stand into the slots.
2. Pull the Tilt/Swivel Stand firmly toward the front of the display until the latches click into the locked position.

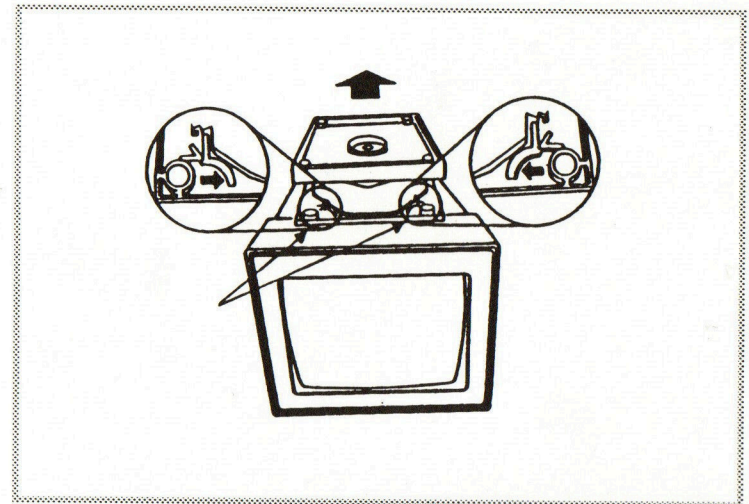


Figure 1 The Tilt/Swivel Stand