



# PCXBV-Ex, -Fx Auto-Scanning Color Monitor

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## Installation Guide

Digital Equipment Corporation

**May 1997**

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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 and television reception; 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 of the following measures:

- Re-orient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

DO NOT attempt to modify this equipment. If modified, the FCC may void your authority to operate this equipment.

#### Canadian Department of Communications Statement

This Class B digital apparatus meets all requirements of the Canadian Interference Causing Equipment Regulations.

VCCI Class 2 - Japan

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## Audience

This guide is intended for user's who wish to install the monitor.

## Conventions

The following conventions are used in this document:

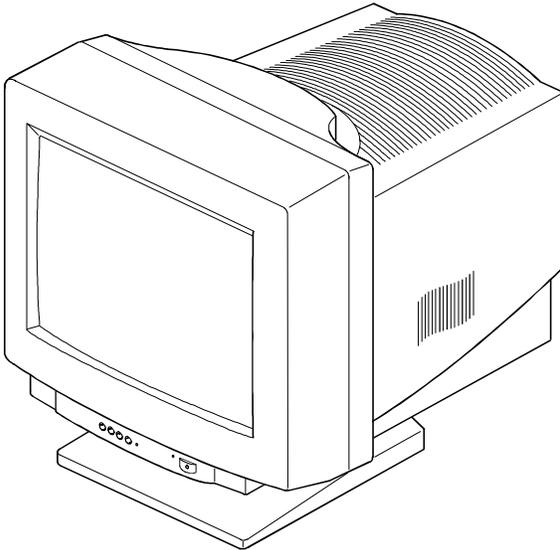
<b>Convention</b>	<b>Meaning</b>
<b>Note</b>	Provides general information.
<b>Caution</b>	Provides information to prevent damage to equipment.
<b>Warning</b>	Provides information to prevent injury.

## Introduction

### Overview

The PCXBV-Ex, -Fx monitors are auto-scanning color monitor with high resolution. These monitors offer the following features:

- Up to 30 display modes, including VESA 85, 1024 x 768, and 1280 x 1024 non-interlaced resolution.
- 85 Hz refresh with 1024 x 768 mode
- Power Management system that exceeds EPA ENERGY STAR™ requirements for saving energy.
- VESA Data Display Channel - DDC1/2B
- Complies with Swedish MPRII and TCO'95 standards for the environment, health and safety
- Anti-glare screen with anti-static coating



DEC00712

**Figure 1. PCXBV-Ex, -Fx Monitor**

## **DDC (Display Data Channel)**

DDC is a communication channel over which the monitor automatically informs the host system about its capabilities. DDC uses formerly unconnected signal pins in the 15-pin VGA connector. The system will perform the “Plug and Play” feature if both the monitor and the host implement DDC protocol.

## **Installation**

### **Installation/Operating Guidelines**

Observe the following basic rules for installation and use.

#### **Do . . .**

- Use the power cord supplied with the monitor, which is UL-, CSA-, and VDE-approved.
- Turn the monitor off when not being used for an extended period of time, or use Power Management if applicable.

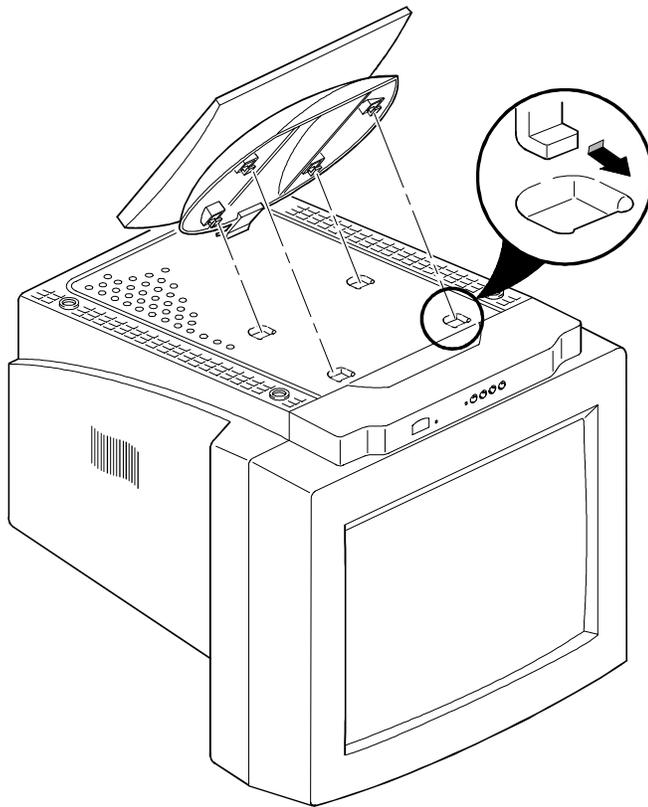
#### **Do Not . . .**

- Overload the ac outlet.
- Move the monitor on a stand over carpet or thresholds.
- Push objects into the monitor’s openings.
- Add accessories that are not designed for this monitor.
- Operate the monitor near water or in a damp environment, which could cause an electrical hazard.
- Operate the monitor near magnets, motor devices, transformers, high power lines, or large steel pillars, which can cause distortion in the picture.
- Obstruct the ventilation openings in the monitor’s cabinet, such as placing the monitor on a rug or within an enclosure.
- Place the monitor near a radiator or heat source.

## Tilt/Swivel Stand Installation

To install the stand:

1. Insert the hooks on the stand into the slots in the bottom of the monitor.
2. Apply pressure near the latch so it is secure. (To remove the stand, pull on the latch).



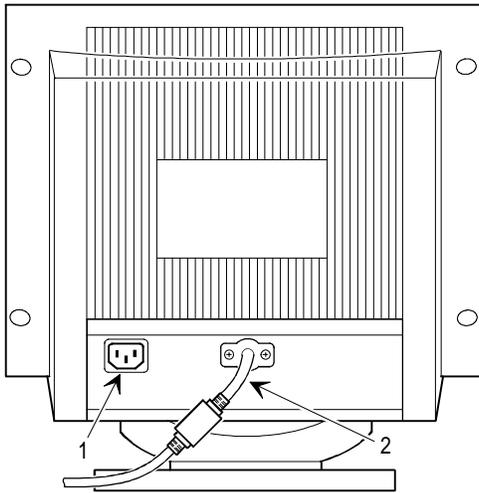
DEC00713

**Figure 2. Tilt/Swivel Stand Installation**

## Monitor Installation

To install the monitor:

1. Make sure the power to the monitor and the computer is off.
2. Connect the monitor's signal cable (1) to the 15-pin interface connector on the High Resolution Graphic Video Adapter on the back of the computer.
3. Plug the ac power cord to the monitor (2), then to a properly-grounded ac electrical outlet.



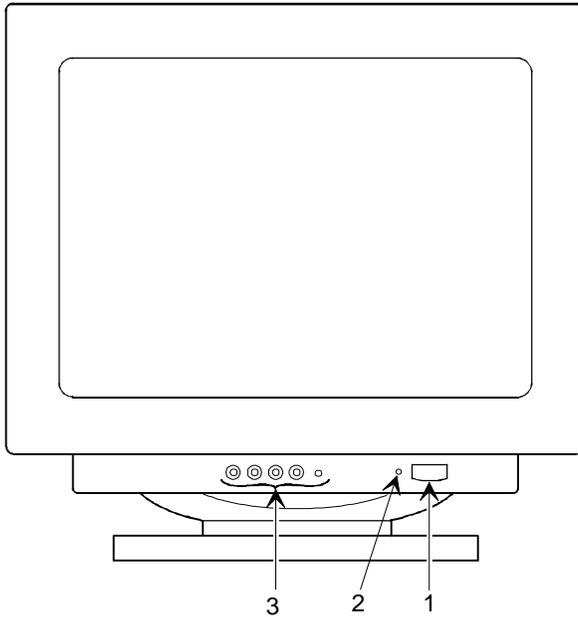
DEC00638

**Figure 3. PCXBV-Ex, -Fx Monitor (Rear View)**

**NOTE:** The signal cable is captive on the 34.5 cm (13.6 in) monitor and detachable on the 39.8 cm (15.7 in) monitor.

### Turn On Power to Monitor

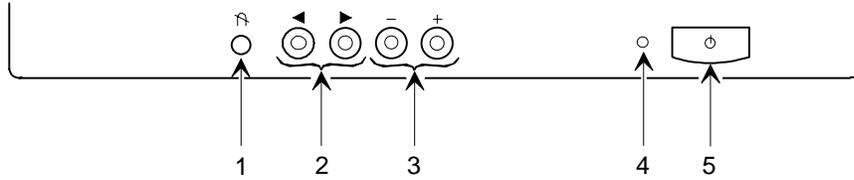
Push the power switch button (1) to turn on the monitor. The power indicator LED (2) to the left of the switch should light green. The control panel (3) is described on the next page.



DEC00714

**Figure 4. Control Panel, LED, and Power Switch**

## Control Panel



DEC00715

**Figure 5. Monitor Controls**

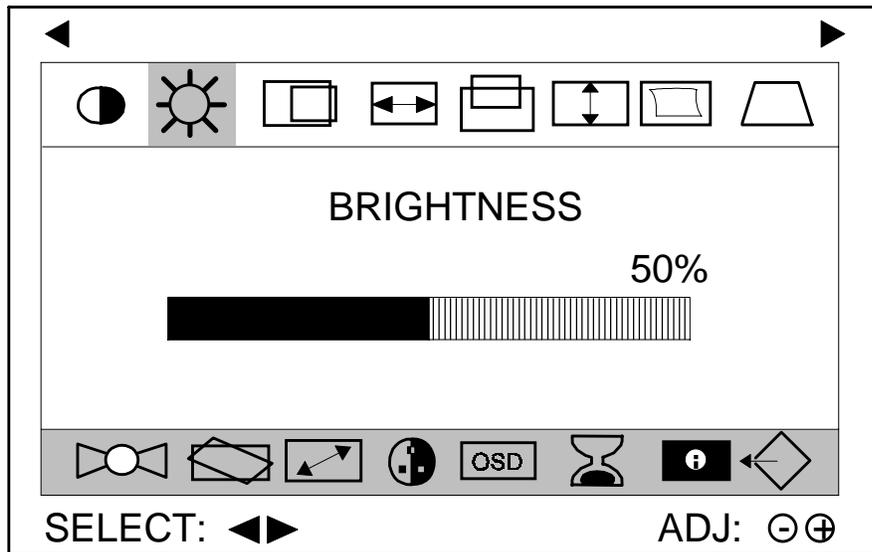
**Table 1. User Controls and Functions**

	<b>Control</b>	<b>Use to ...</b>
<b>1</b>	<b>Degauss*</b>	Demagnetize the picture to give a more accurate image and color when the monitor has been moved.
<b>2</b>	<b>Menu select</b>	Select a menu item.
<b>3</b>	<b>+/-</b>	Increase or decrease a menu item.
<b>4</b>	<b>Power indicator LED</b>	Indicate power on state: green is full power on; amber is a power-saving state.
<b>5</b>	<b>Power switch</b>	Turn on/off the monitor.

\* Location may be different on some monitors.

## Monitor Adjustments

When you press either of the Select buttons on the monitor, the monitor adjustments are shown in an On Screen Display (OSD), Figure 6. You choose the adjustment needed by using the Select keys to highlight the desired icon. Then use the + and - buttons to make the necessary adjustment. Once you make an adjustment to one or more of these, the monitor automatically maintains it even when it is off. Table 2 lists these icons and their meaning.



DEC01080-2

**Figure 6. On-Screen Display**

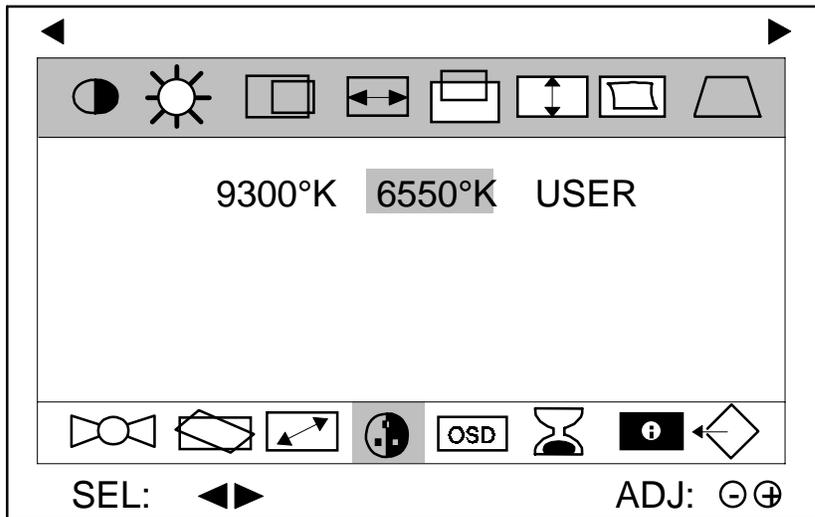
The only time you may need to change the image settings is if you change display modes (for example, you go from a 640 x 480 display mode in DOS to a 800 x 600 display mode in Windows). In this case, you may need to adjust the monitor controls to meet the display you desire. The monitor stores the new display settings for the new mode. When you switch between the two display modes, the monitor recalls each of the settings you specified.

**Table 2. On-Screen Display Icons**

Icon	Name	Use
	Contrast	Selects the contrast level screen display.
	Brightness	Selects the brightness level screen display.
	Horizontal Position	Adjusts the horizontal position.
	Horizontal Size	Adjusts the image width.
	Vertical Position	Adjusts the vertical position.
	Vertical Size	Adjusts the image height.
	Side Pincushion	Corrects the bowing in and out.
	Trapezoid	Corrects the geometric distortion.
	Recall	Recalls all factory preset modes.
	Rotation	Rotates the raster image
	Zoom	Simultaneously adjusts horizontal and vertical image.
	Color Select	Select the color temperature: 9300°K/6550°K/User.
	On Screen Display	Turns the On Screen Display (OSD) on or off and selects the language on the 43 cm (17 in) monitor.
	Timer	Select the amount of time the OSD remains displayed.
	Information	Provides operating information about the monitor. This icon displays three sequential on-screen displays. The first shows the total number of preset, user mode, and current mode information. The second shows the preset mode data stored. And the third shows user mode data. The "+" key displays next and the "-" key the previous.
	Exit	Shuts off the OSD.

## Color Selection

The color selection icon, at the bottom of the screen, displays two color temperature settings 9300°K and 6550°K, shown in Figure 7. These are the normal settings for optimum color. If you wish to change the individual colors, select “User” and press the + key to display the color adjustments, shown in Figure 8.

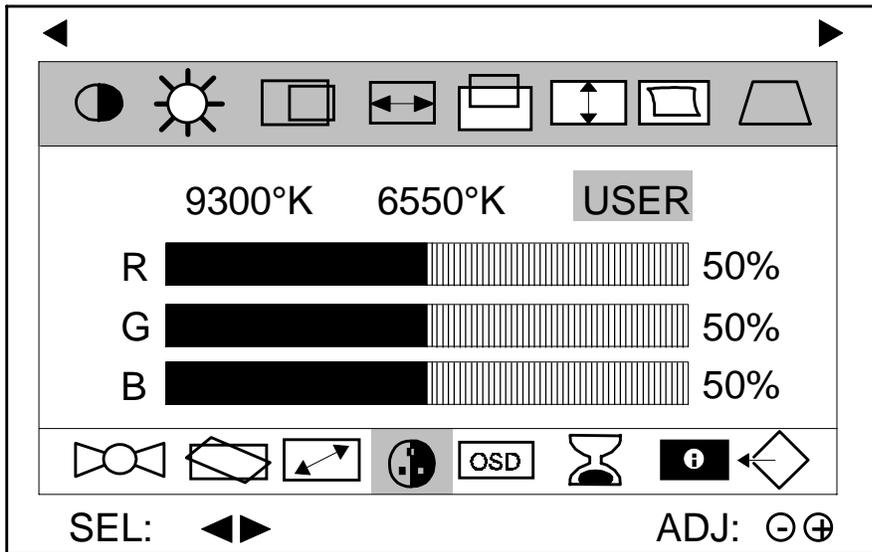


DEC01081-2

**Figure 7. Color Selection**

## Color Adjustments

Use the Select keys ◀▶ to choose the Red, Green, or Blue bar. Then use the + and - keys to adjust the gain (temperature) of the color.



DEC01082-2

Figure 8. Color Adjustments

## Display Modes

### Preset Modes

The monitor has 30 memory locations for display modes, nine of which are factory preset to popular video modes. Seven of these are accurately aligned to popular standards, and two are pre-loaded to align the image within the bezel opening.

**Table 3. Display Modes and Addressability**

	<b>Display Mode</b>	<b>Addressability</b>	<b>Horizontal Freq (kHz)</b>	<b>V Refresh (Hz)</b>	<b>H Sync</b>	<b>V Sync</b>
1	DOS, 70	720 x 400	31.47	70.08	-	+
2	VGA	640 x 480	31.47	59.94	-	-
3	VGA, VESA 85	640 x 480	43.27	85.00	-	-
4	SVGA*	800 x 600	37.88	60.32	+	+
5	SVGA, VESA 85	800 x 600	53.67	85.06	+	+
6	1024 x 768, 60 *	1024 x 768	48.36	60.00	-	-
7	1024 x 768, VESA 75	1024 x 768	60.02	75.03	+	+
8	1024 x 768, VESA 85	1024 x 768	68.68	85.00	+	+
9	1280 x 1024	1280 x 1024	63.98	60.02	+	+

\* These two modes are pre-set to align the image within the screen.

If the monitor detects one of these frequencies from your computer's video card or system, it recalls that mode and any stored image adjustments you may have made.

### **User Modes**

Modes 10 – 30 are empty and can accept new video data. If the monitor detects a new video mode that has not been present before or is not one of the preset modes, it stores the new mode automatically in one of the empty modes starting with mode 10.

If you use up the 21 blank modes and still have more new video modes, the monitor replaces the information in the user modes starting with mode 10.

### **Recalling Display Modes**

When your monitor detects a mode it has seen before, it automatically recalls the image settings you may have made the last time you used that mode.

You may, however, manually force a recall of each of the seven preset modes by pressing the Recall button. Pressing the Recall button again, recalls the next preset mode. All preset modes are automatically recalled as the monitor senses the incoming signal.

The ability to recall the preset modes is dependent on the signal coming from your PC's video card or system. If this signal does not match any of the factory modes, the monitor automatically sets itself to display the image.

**NOTE:** You may customize the factory modes by following the same procedure used for image adjustment.

## Servicing

### Cleaning the Monitor

To clean the monitor:

1. Unplug the monitor.
2. Clean the monitor with a soft, slightly damp cloth. **Do not** use an aerosol cleaner directly on the screen.

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#### CAUTION

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Do not use benzene, thinner, or any volatile substance to clean the monitor, as these products may discolor the monitor's cabinet. Likewise, do not place rubber or vinyl on the monitor.

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## Maintenance and Troubleshooting

### Identifying and Correcting Problems

The following can be sources of problems:

- Communications cables
- Host system
- Nearby power or electrical sources

### Self Diagnostics

This monitor can sense when there is a possible problem present and informs you of this condition by presenting you with a *Self Diagnostic* OSD. This OSD may pop up when it is *on*, but no signal is detected. In this case, the message "CHECK S/CABLE" is highlighted alerting you to check the signal cable connections.

## Troubleshooting Table

Use Table 3 to identify and correct any problems areas.

**Table 4. Identifying and Correcting Problems**

<b>Symptom</b>	<b>Possible Cause</b>	<b>Suggested Solution</b>
Display does not appear.	Brightness or contrast control is set too low. Power Management feature is active in the off state. There is no power.	Increase the brightness and contrast control settings to suit you. Press any key and allow 20 seconds for monitor to warm up. Check the power cord. Use another ac outlet.
Color impurity	Magnetic fields can build up on the CRT.	Press the degauss switch to demagnetize the CRT.
Video displays has moving dots and distorted lines. The display rolls or flickers.	There is electromagnetic interference.	Move any electromagnetic device, such as a fan or motor, away from the monitor or move the monitor.

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### **WARNING**

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Serious shock hazards exist inside this display. There are no user serviceable parts inside. DO NOT remove the covers under any circumstances or attempt to service the monitor yourself. Call a qualified service representative.

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## Specifications

### Monitor Specifications

Table 5. Monitor Specifications

Monitor	PCXBV-EY, -EZ	PCXBV-FY, -FZ
Diagonal	38.1 cm (15 in, 13.6 inch maximum viewable)	43.18 cm (17 in, 15.7 inch maximum viewable)
Active Area	26.0 x 19.0 cm (10.2 x 7.5 in)	30.0 x 22.5 cm (11.8 x 8.85 in)
<b>Cabinet</b>		
Height	37.2 cm (14.6 in)	44.4 cm (17.48 in)
Width	36.0 cm (14.2 in)	41.4 cm (16.3 in)
Depth	38.5 cm (15.2)	41.9 cm (16.5 in)
Weight	13.4 Kg (29.5 lb)	17.5 Kg (35.58 lb)
Swivel	±45°	
Tilt	-5° to +13.5°	
<b>Video Signal</b>	0.7 V p-p R, G, B color; separate Sync (positive or negative); 75 Ω TTL	
Horizontal Scan Rate	30 - 69 kHz	
Vertical Scan Rate	50 - 110 Hz	
Connector	15-pin D-sub	
<b>Power input</b>	90 - 132, 176-264 Vac, 2.0 A. maximum, 50/60 Hz.	
<b>Environment</b>		
Operating Temperature	10 - 40°C	
Humidity	10 - 90% relative humidity (noncondensing)	

## Power Management System

The monitor has three power-saving states indicated by the LED on the front panel. For proper operation of this Power Management System, make sure that the monitor signal cable is connected to the host system and that the host is On.

**Table 6. Power Saving States**

LED	State	Power Consumption (Watts)*	Recovery Time
Green (Normal)	On	110 (max)	n/a
Amber	Standby or Suspend	< 15	3 s
Amber	Off	< 8	15 s

\*These power-saving states exceed the Environmental Protection Agency (EPA) Energy Star requirements using the Video Electronics Standards Association (VESA) methodology for Display Power Management Signals.

## Environment, Health and Safety

This monitor has been designed and manufactured to minimize the impact to the environment.

## Acoustic Levels

Preliminary declared values per ISO 9296 and ISO 7779:

	Sound Power Level <sup>1</sup>		Sound Pressure Level <sup>2</sup>	
	$L_{Wad}$ B		$L_{pAm}$ dBA	
	Idle	Operate	Idle	Operate
PCXBV-Ex, -Fx	N/A	3.0	N/A	21

<sup>1</sup> 1 B = 10 dBA

<sup>2</sup> Operator position

**Asbestos**

This monitor does not use asbestos in any form.

**Chlorinated Solvents**

No chlorinated solvents are used in the manufacture of components in these monitors.

**Cadmium Content in CRT**

The surface layer of CRTs in these monitors do not contain cadmium in any form.

**Flame Retardants**

The enclosures for these monitors do not contain organically bound chlorine or bromine and do not emit toxic dibenzofuran or dibenzodioxin gases.

**Ozone Depleting Substances (ODS)**

These monitors are in full compliance with the labelling requirements in the U.S. Clean Air Act Amendments of 1990. They do not contain, nor are they manufactured with, a Class 1 ODS, as defined in Title VI section 611 of this act.

**Enclosure Plastics**

The plastic enclosures are not made of rigid PVC. The material has a non-halogenated, flame-retardant system and is cadmium free.



## **Environmental Labelling of Personal Computers**

Congratulations! You have just purchased a TCO'95 approved and labelled product! Your choice has provided you with a product developed for professional use. Your purchase has also contributed to reducing the burden on the environment and to the further development of environmentally-adapted electronic products.

### **Why do we have environmentally-labelled computers?**

In many countries, environmental labelling has become an established method for encouraging the adaptation of goods and services to the environment. The main problem as far as computers and other electronic equipment are concerned is that environmentally harmful substances are used both in the products and during their manufacture. Since it has not been possible so far for the majority of electronic equipment to be recycled in a satisfactory way, most of these potentially damaging substances sooner or later enter Nature.

There are also other characteristics of a computer, such as energy consumption levels, that are important from both the working and natural environment viewpoints. Since all types of conventional electricity generation have a negative effect on the environment (acidic- and climatic-influencing emissions, radioactive waste, etc.), it is vital to conserve energy. Electronic equipment in offices consumes an enormous amount of energy, since it is often routinely left running continuously.

### **What does labelling involve?**

This product meets the requirements for the TCO'95 scheme, which provides for international environmental labelling of personal computers. The labelling scheme was developed as a joint effort by the TCO (The Swedish Confederation of Professional Employees), Naturkyddsföreningen (The Swedish Society for Nature Conservation), and NUTFK (The National Board for Industrial and Technical Development in Sweden), and SEMKO AB (an international certification agency).

The requirements cover a wide range of issues: environment, ergonomics, usability, emission of electrical and magnetic fields, energy consumption and electrical and fire safety.

The environmental demands concern, among other things, restriction on the presence and use of heavy metals, brominated and chlorinated flame retardants, CFCs (freons), and chlorinated solvents. The product must be prepared for recycling, and the manufacturer is obliged to have an environmental plan, which must be adhered to in each country where the company implements its operational policy.

The energy requirements include a demand that the computer and/or display, after a certain period of inactivity, shall reduce its power consumption to a lower level, in one or more stages. The length of time to reactivate the computer shall be reasonable for the user.

Labelled products must meet strict environmental demands, for example, in respect of the reduction of electric and magnetic fields, along with physical and visual ergonomics and good usability.

The following is a brief summary of the environmental requirements met by this product. The complete environmental criteria document may be ordered from:

TCO Development Unit  
Linnegatan 14, S-11494 Stockholm, Sweden  
FAX +46-8 782 92 07  
E-mail (Internet): [development@tco.se](mailto:development@tco.se)

Current information regarding TCO'95 approved and labelled products may also be obtained on the Internet using the address:

<http://www.tco-info.com/>

TCO'95 is a co-operative project between:



Naturskydds  
föreningen



**NUTEK**

Närings- och teknikutvecklingsverket

**SEMKO**

## TCO'95 Environmental Requirements

**Brominated flame retardants** are present in printed circuit boards, cabling, casings, and housings, and are added to delay the spread of fire. Up to 30% of the plastic in a computer casing can consist of flame-retardant substances. These are related to another group of environmental toxins, PCBs, and are suspected of giving rise to similar harm, including reproductive damage in fish-eating birds and mammals. Flame retardants have been found in human blood, and researchers fear that they can disturb fetus development.

Bio-accumulative<sup>1</sup> TCO'95 demands require that plastic components weighing more than 25 grams must not contain flame retardants with organically bound chlorine or bromine.

**Lead** can be found in picture tubes, display screens, solder, and capacitors. Lead damages the nervous system and in higher doses causes lead poisoning. The relevant bio-accumulative TCO'95 requirement permits the inclusion of lead, as no replacement has yet been developed.

**Cadmium** is present in rechargeable batteries and in the color-generating layers of certain computer displays. Cadmium damages the nervous system and is toxic in high doses. The relevant bio-accumulative TCO'95 requirement states that batteries may not contain more than 25 ppm (parts per million) of cadmium. The color-generating layers of display screens must not contain any cadmium.

**Mercury** is sometimes found in batteries, relays and switches. Mercury damages the nervous system and is toxic in high doses. The relevant bio-accumulative TCO'95 requirement states that batteries may not contain more than 25 ppm of mercury and that no mercury is present in any of the electrical or electronic components concerned with the display unit.

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<sup>1</sup> Bio-accumulative means that the substance accumulates within living organisms.

**CFCs** (freons) are sometimes used for washing printed circuit boards and in the manufacture of expanded foam for packaging. CFCs break down ozone and thereby damage the ozone layer in the atmosphere, causing increased reception on Earth of ultra-violet light with consequent increased risks of skin cancer (malignant melanoma). The relevant TCO'95 requirement: Neither CFCs nor HCFCs may be used during the manufacture of the product or its packaging.

### **Shipping Package**

The packaging material can be recycled, or you can save it to return the monitor to a service center for repair or disposal.

### **CFC Compounds in Distribution Packaging**

Cushioning material used for shipping finished monitors are not manufactured with nor do they contain any CFC compounds.

### **Design for Disassembly/Recycling**

These monitors have been designed for easy end-of-life disassembly and recycling. Fasteners are generally of the same type for efficient disassembly. Components made of different materials can be easily separated and plastics have been identified using international symbols to aid in recycling.

### **Monitor Disposal**

**WARNING:** If you need to dispose of a monitor, ask a qualified service representative for the proper procedure. Improper disposal could result in personal injury from implosion.