

## **Release Note**



### **Phaser™ 140 Color Printer**

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February 1995

Part Number 070-9069-IA

# Shipping your printer

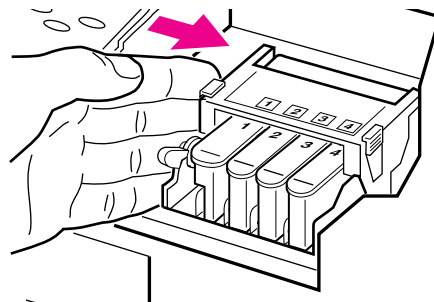
Follow these instructions for shipping a printer for servicing. These instructions replace those given in Appendix C of the *Phaser 140 Color Printer User Manual*.

## Does the printer power up?

1. Remove the interface cable.
2. Make sure the printer is turned on (if the printer powers up). If the printer does not power up, remove the power cord now.

## Park the carriage in the home position

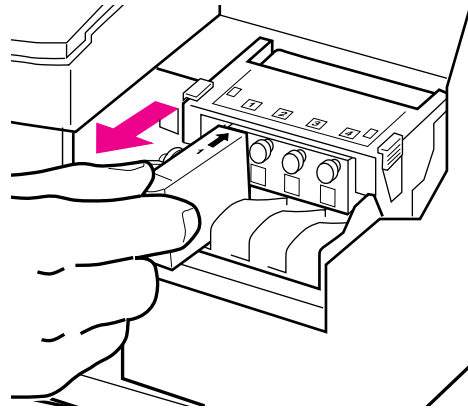
1. Open the top cover.
2. Make sure that the carriage is in its home position (at the right front of the printer). If not, move it to the home position by hand.



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## Remove all ink cartridges

1. To remove an ink cartridge, lift the end of the cartridge, then pull it out.



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2. Store the cartridges individually in plastic bags to avoid spilling ink. *Do not ship the ink cartridges with the printer.*

## Clean the ink jets

If the front panel display is working, clean the ink jets as described in this procedure. If the printer is damaged such that the ink jets cannot be cleaned, go on to “Remove the print head.”

1. Close the top cover.
2. On the front panel, press the down arrow (⇓) key until the front panel displays this message:

CLEAN HEADS

3. Press the right arrow (⇒) key until the front panel displays this message:

clean heads

**SELECT**



4. Press the **SELECT** button. The printer cleans the ink jets. During the cleaning process, you cannot display other menus or menu choices. When the cleaning is complete, the front panel continues to display the `clean heads` message.
5. Press the right (⇒) arrow key until the front panel displays this message:

quit menu

6. Press the **SELECT** button; the front panel displays this message:

ready

**POWER**

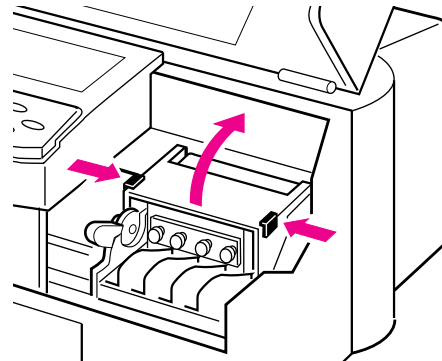


7. Press the **POWER** button to turn off the printer.

## Remove the print head

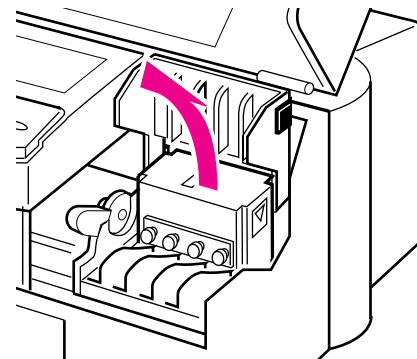
**Note** Remove the printhead with the printer plugged in and the power turned off via the **POWER** button. Otherwise, a printhead error may occur.

1. Open the printer's cover. While pressing the tabs on either side of the printhead compartment cover, lift open the cover until it stops.



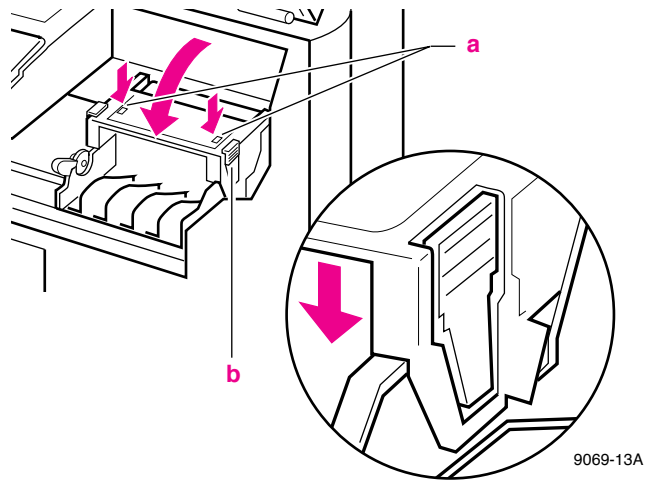
9069-48

2. Remove the printhead. Store the print head in a plastic bag. *Do not ship the print head with the printer.*



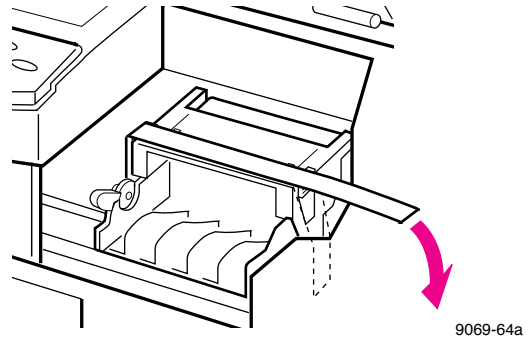
9069-49

3. Close the compartment cover by pressing down on the white marks (a) until the cover's sides reach the upper part of the frame sides (b).

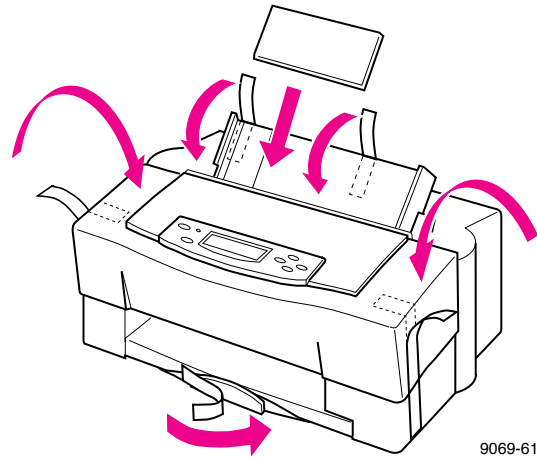


## Pack the printer for shipment

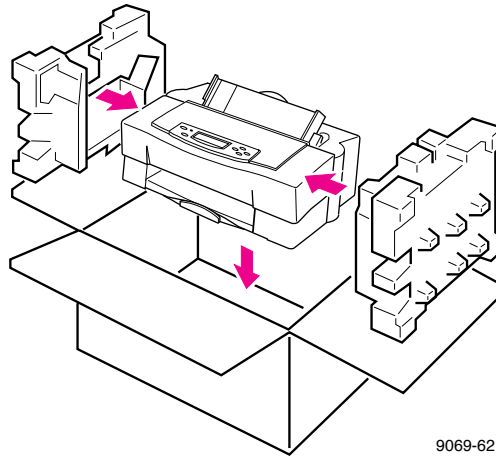
1. If you have not already done so, remove the power cord.
2. Secure the carriage with tape.



3. Secure the top cover, the output tray, and the input tray with tape.



4. Place the printer in its original carton, making sure that it is well cushioned with the packing materials.



**To obtain the appropriate shipping address and procedure:**

- In the U.S.A. and Canada, call the Tektronix Customer Support Hotline at **1-800-835-6100**.
- Outside the U.S.A. and Canada, contact your local Tektronix dealer or Tektronix sales representative.



# **User Manual**

**Tektronix**

**Phaser™ 140  
Color Printer**

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Tektronix warrants that this product will be free from defects in materials and workmanship for a period of one (1) year from the date of shipment. If this product proves defective during this warranty period, Tektronix, at its option, will either repair the defective product without charge for parts and labor, or provide a replacement in exchange for the defective product.

This warranty applies only to products returned to the designated Tektronix depot or the Tektronix authorized representative from which the product was originally purchased. For products returned to other locations, Customer will be assessed the applicable service charge. The above limitation shall not apply within the European Economic Area, where products may be returned for warranty service to the nearest designated service depot regardless of the place of purchase.

In order to obtain service under this warranty, Customer must provide the applicable office of Tektronix or its authorized representative with notice of the defect before the expiration of the warranty period and make suitable arrangements for the performance of service. Customer shall be responsible for packaging and shipping the defective product to the service center designated by Tektronix or its representative, with shipping charges prepaid. Tektronix or its representative shall pay for the return of the product to Customer. Customer shall be responsible for paying any associated taxes or duties.

This warranty shall not apply to any defect, failure or damage caused by improper use or improper or inadequate maintenance and care. Tektronix shall not be obligated to furnish service under this warranty a) to repair damage resulting from attempts by personnel other than Tektronix representatives to install, repair or service the product; b) to repair damage resulting from improper use or connection to incompatible equipment; or c) to repair any damage or malfunction caused by the use of non-Tektronix supplies; d) to service a product that has been modified or integrated with other products when the effect of such modification or integration increases the time or difficulty of servicing the product; or e) to repair damage or malfunction resulting from failure to perform user maintenance and cleaning at the frequency and as prescribed in the user manual.

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## Users safety summary

**Terms in manual:** CAUTION Conditions that can result in damage to the product.  
WARNING Conditions that can result in personal injury or loss of life.

**Power source:** Do not apply more than 250 volts RMS between the supply conductors or between either supply conductor and ground. Use only the specified power cord and connector. Refer to a qualified service technician for changes to the cord or connector.

**Operation of product:** Avoid electric shock by contacting a qualified service technician to replace fuses inside the product. Do not operate without the covers and panels properly installed. Do not operate in an atmosphere of explosive gases.

**Safety instructions:** Read all installation instructions carefully before you plug the product into a power source.

**Terms on product:** CAUTION A personal injury hazard exists that may not be apparent. For example, a panel may cover the hazardous area. Also applies to a hazard to property including the product itself.  
DANGER A personal injury hazard exists in the area where you see the sign.

**Care of product:** Disconnect the power plug by pulling the plug, not the cord. Disconnect the power plug if the power cord or plug is frayed or otherwise damaged, if you spill anything into the case, if product is exposed to any excess moisture, if product is dropped or damaged, if you suspect that the product needs servicing or repair, and whenever you clean the product.

**Ground the product:** Plug the three-wire power cord (with grounding prong) into grounded AC outlets only. If necessary, contact a licensed electrician to install a properly grounded outlet.

Symbols as marked on product:

DANGER high voltage:



Protective ground (earth) terminal:



Use caution. Refer to the manual(s) for information:



**WARNING:** If the product loses the ground connection, usage of knobs and controls (and other conductive parts) can cause an electrical shock. Electrical product may be hazardous if misused.

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# *Introduction*

The Tektronix Phaser 140 is a compact color printer that provides quality color prints on a variety of papers and transparencies.

You can make color prints from a variety of software applications, because the Phaser 140 incorporates Adobe's PostScript Level 2 software (based on Adobe PostScript code revision 2013).

The Phaser 140 provides great color on plain paper, coated paper, glossy paper, back-print film, transparencies, and envelopes.

Apple Macintosh computers, IBM personal computers and compatibles, and various workstations can all work with the printer at the same time because the parallel, LocalTalk (AppleTalk) and optional Ethernet ports are simultaneously active. The optional Ethernet interface provides Ethernet connectivity with EtherTalk and Novell NetWare protocols. TCP/IP (Transmission Control Protocol/Internet Protocol) is also available by purchasing an additional option.

TekColor Dynamic Correction provides built-in color adjustment modes to provide vivid color, simulate screen colors, and simulate the colors of a printing press. A monochrome adjustment produces prints optimized for photocopying.

Besides its 17 resident PostScript fonts, the printer accepts Adobe Type 1 and Type 3 downloadable fonts, TrueType fonts, and a variety of user-defined fonts.

The printer delivers 360 x 360 dots-per inch (dpi) color resolution and a color printing speed up to 1 Letter-size page per minute on paper (actual speed depends on the image and the print mode).

With the standard 8 Mbytes of memory, the printer produces color prints in the following sizes:

- Letter (8.5 x 11 ins.)
- A4 (210 x 297 mm)
- #10 Envelope (241 x 105 mm; 9.5 x 4.125 ins.)
- DL Envelope (220 x 110 mm; 8.66 x 4.33 ins.)
- Custom page sizes from 152 x 102 mm (6 x 4 ins.) to 216 x 279 mm (8.5 x 11 ins.). (Custom page sizes are available through the Tektronix Phaser 140 Windows driver; some PPD-driven Macintosh drivers also support custom page sizes.)

With an additional 4 Mbytes of optional memory, you can also print on the following page sizes:

- Legal-size (8.5 x 14 ins.)
- Custom page sizes larger than 216 x 279 mm or 8.5 x 11 ins. (up to 216 x 356 mm or 8.5 x 14 ins.).

With an additional 16 Mbytes of optional memory, you can print on custom page sizes up to 216 x 559 mm or 8.5 x 22 ins.

To order supplies such as paper, transparencies, or ink, refer to the supplies information sheet that is shipped with the printer and contact your local dealer or, in the U.S.A., call Tektronix at **1-800-835-6100**.

# Getting Set Up

## At a glance

To install your printer, perform the steps listed here. This chapter provides detailed installation instructions.

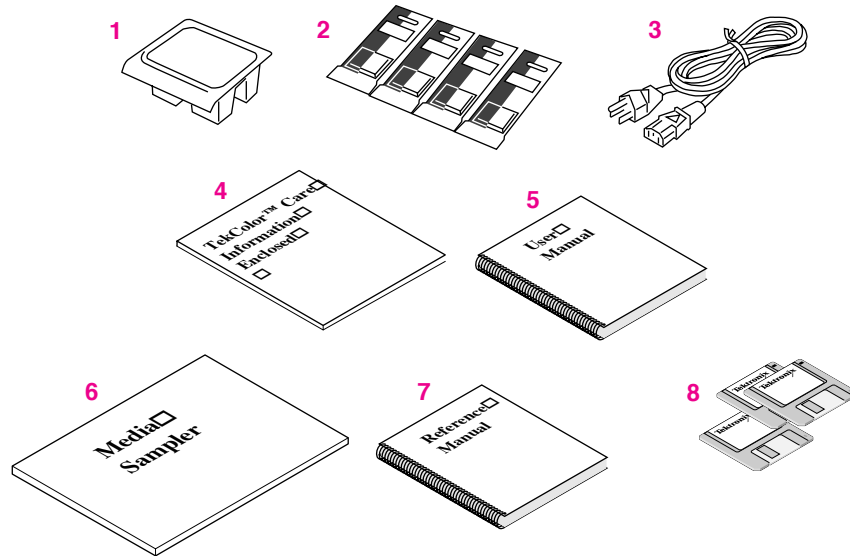
- 1. Setting up the printer**  
Putting all the pieces together: unpacking the printer and accessories, checking the inventory, removing the packing material, installing the printhead and ink, and loading paper.
- 2. Connecting the printer**  
Connecting all necessary cables and turning on the printer.
- 3. Selecting a language for the front panel**
- 4. Checking the printhead and the registration**
- 5. Installing a driver on your computer**  
Using the Phaser 140 driver diskettes to install a driver on your computer (Macintosh or Windows).

## Setting up the printer

### What you get with your printer

1. Printhead
2. Ink cartridges
3. Power cord
4. TekColor Care information
5. Phaser 140 Color Printer User Manual
6. Media sampler kit
7. *Phaser 140 Drivers and Utilities Printing Reference* (manual)
8. Tektronix Phaser 140 drivers and utilities diskettes

**Note** *This list is for the standard printer and accessories; extra memory and Ethernet upgrades are packaged separately.*



9069-01

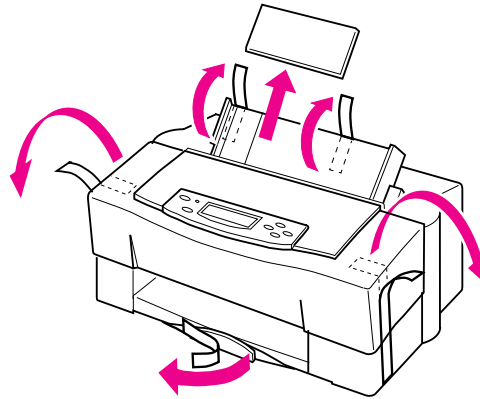
## Registering your printer

The TekColor Care information envelope (4) contains your product registration card. Be sure to fill out the card and mail it. Sending in the registration card ensures that your printer is registered with Tektronix and that you will be sent information about upgrades, service, and accessories as it becomes available.

## Removing the packing material from the printer

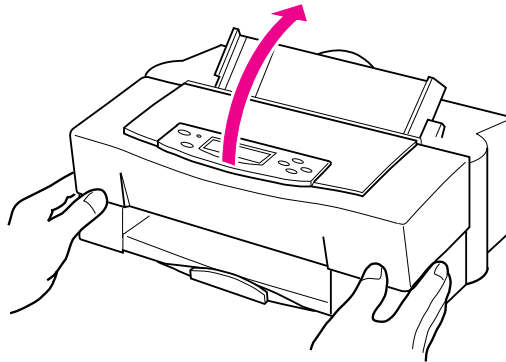
**Note** Save **all** packing material in case moving or subsequent shipment is necessary.

1. Remove the packing tape and remove the packing material from the input tray.



9069-02

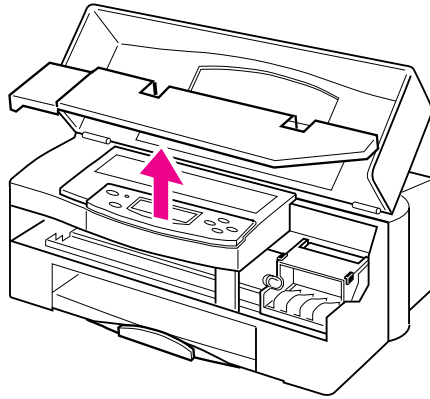
2. Open the cover.



9069-03



3. Remove the protective paper sheet from inside the printer. Read the sheet and observe the precautions listed on the sheet as you perform the installation.

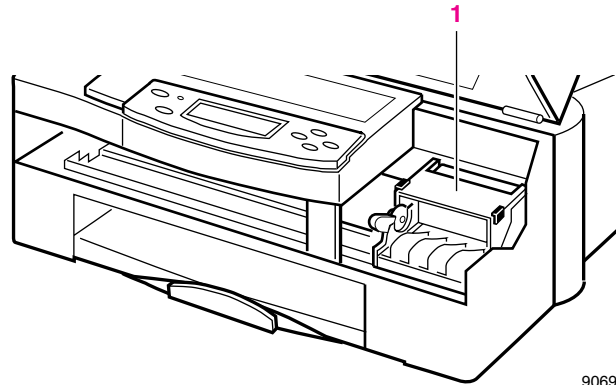


9069-04

## Installing the printhead

You must install the printhead before you can start printing.

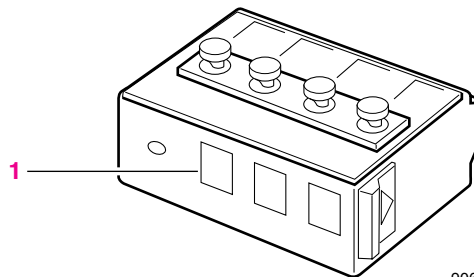
**Caution** Do not move the carriage (1). Moving the carriage at this time could damage the printer.



9069-05

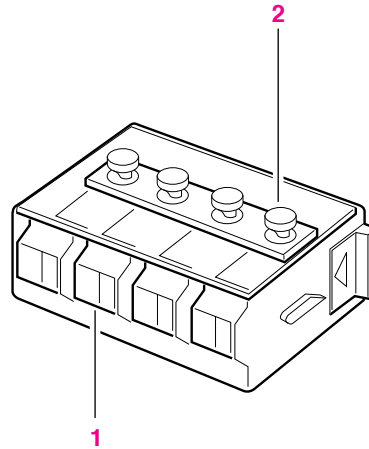
Observe the following precautions when handling the printhead:

**Caution** Avoid touching the terminals (1); static electricity from your fingers could damage the printhead.



9069-06

**Caution** *Avoid touching the ink jets (1) and filters (2); they are delicate, and damage or contamination could degrade print quality.*



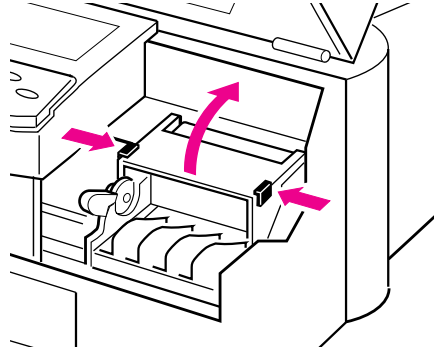
9069-07

**Caution** *If you set the printhead down, make sure that the filters are facing up.*

**Note** *For information on storage, refer to the printhead package.*

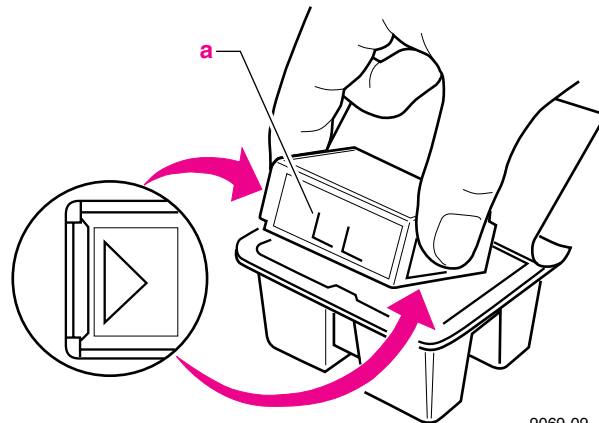
To install the printhead, follow these steps:

1. While pressing the tabs on both sides of the printhead compartment cover, lift open the cover.



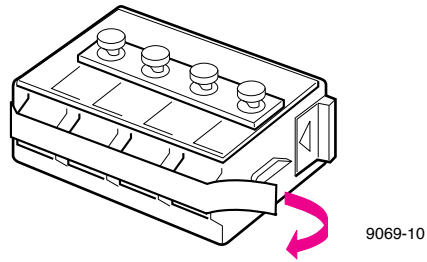
9069-11

2. Remove the printhead from its plastic box. Do not touch the terminals (a).

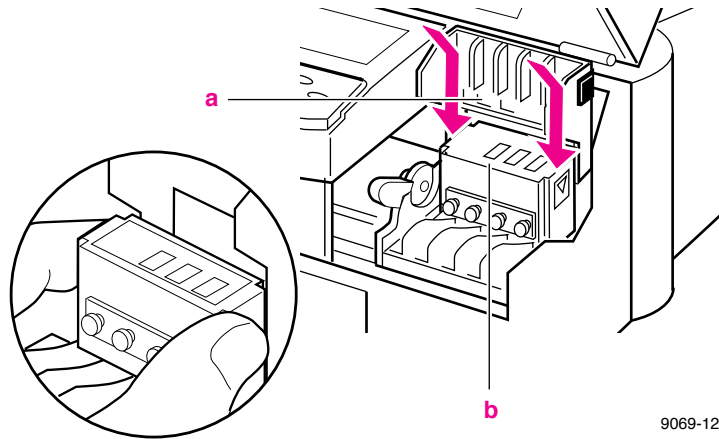


9069-09

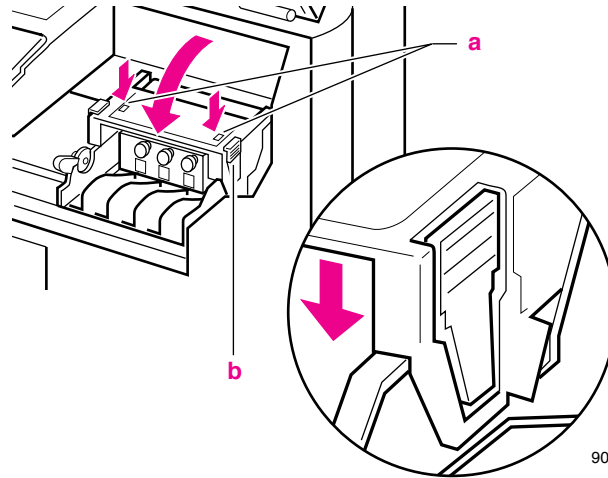
3. Remove the tape from the printhead.



4. Insert the printhead carefully into the compartment with the ink jets facing down and the filters facing out. Do not touch the terminals on the back of the printhead compartment cover (a) or on the printhead (b), as the resulting static electricity could damage the printhead.



5. Close the compartment cover by pressing down on the white marks (a) until the cover's sides reach the upper part of the frame sides (b).



9069-13

This completes the printhead installation.

## Installing ink cartridges

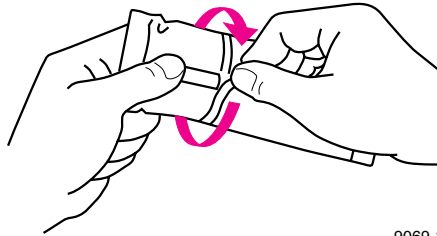
The printer uses four ink colors: cyan, magenta, yellow, and black. When you install an ink cartridge, make sure that it is in the correct location.

Observe the following precautions when handling ink cartridges:

- Use only Tektronix ink cartridges. Use of other ink may damage the printhead or the printer and void the warranty.
- Do not attempt to disassemble or refill the cartridges.
- To avoid spilling ink, do not tilt or shake the ink cartridges.
- Do not unpack an ink cartridge until you are ready to install it.

To install an ink cartridge, follow these steps:

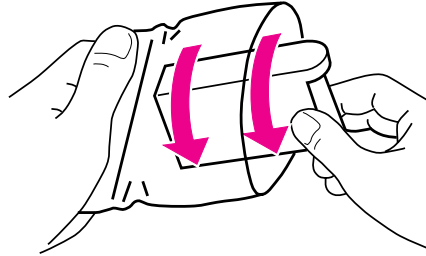
1. Peel off the tape in the center of the package and pull off the top of the plastic bag.



9069-14

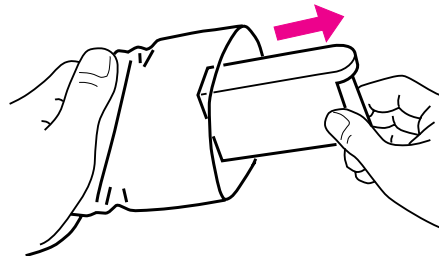
## 2 Getting Set Up

2. Holding the bottom of the plastic bag, twist the cartridge in the direction of the arrow to remove protective tape on the opening.



9069-15

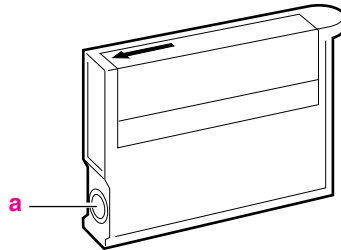
3. Pull the cartridge up and out. Part of the seal may remain around the opening; this is not a problem and the printer will still operate correctly.



9069-16

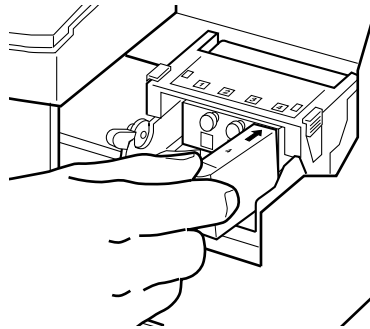


**Note** Do not touch the opening (a); this may degrade print quality and stain your fingers with ink.



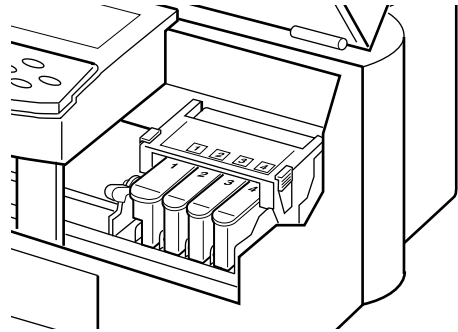
9069-17

4. Locate the slot marked for this color ink cartridge. The slots are coded with colors and numbers: black (1), cyan (2), magenta (3), and yellow (4).
5. Make sure that the number and color on the cartridge match the number and color on the slot. Then slide the cartridge all the way into the slot and press the end to snap the cartridge into place.



9069-18

6. Repeat Steps 1 through 5 for the other color ink cartridges. When you finish, close the printer's cover.



9069-19

This completes the ink cartridge installation. If you have installed the ink cartridges in the wrong slots, see “Ink cartridges are installed in the wrong slots” on page 6-14.

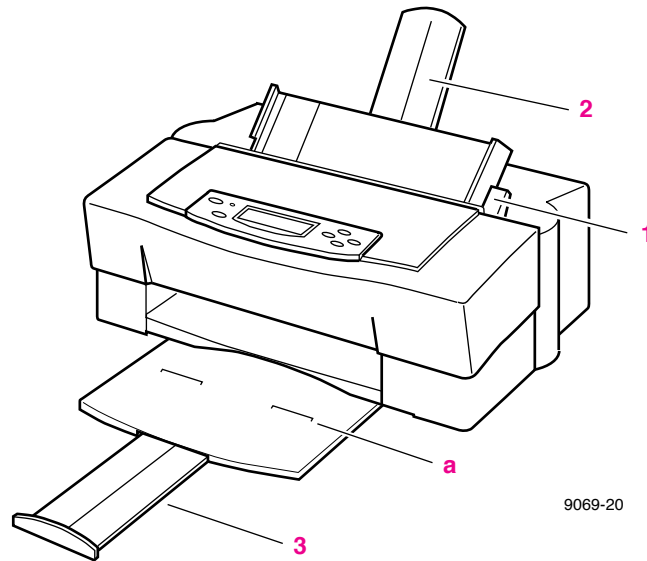
## Loading plain paper

The printer accepts plain paper, coated paper, glossy paper, envelopes, back-print film, and transparencies. This procedure describes how to load plain paper. For information on how to load all print media, see “About media” on page 3-14.

### Back position

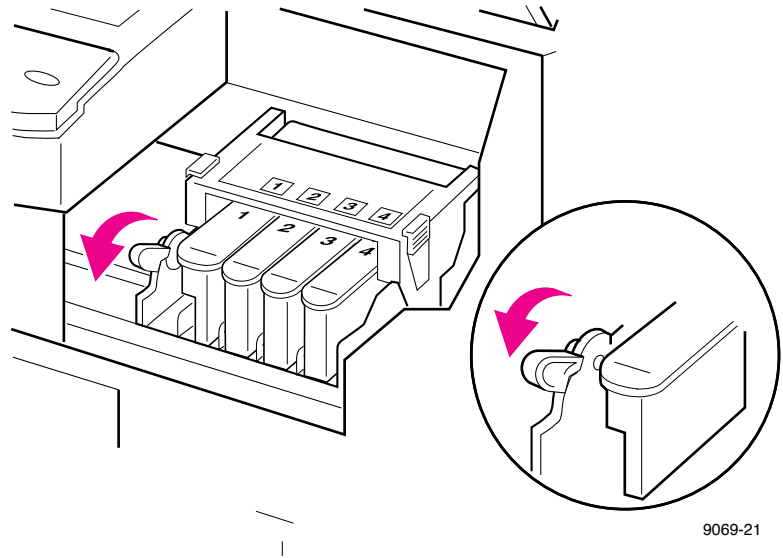


1. Set the paper selection lever toward the back of the printer.
2. Pull out the paper support.
3. Pull out the output tray and the extension. The first position (a) is for Letter- or A4-size paper; when fully extended, the tray accepts Legal-size paper.

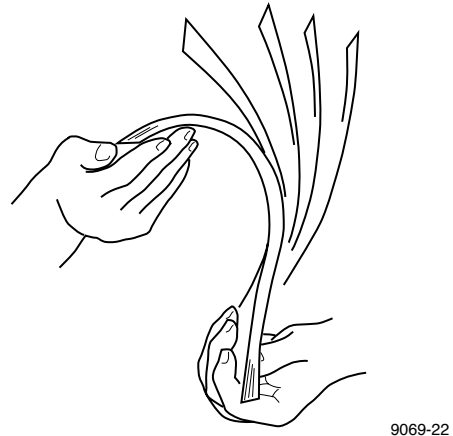


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4. Open the cover and move the paper thickness lever (near the printhead) toward the front of the printer. Close the printer's cover.



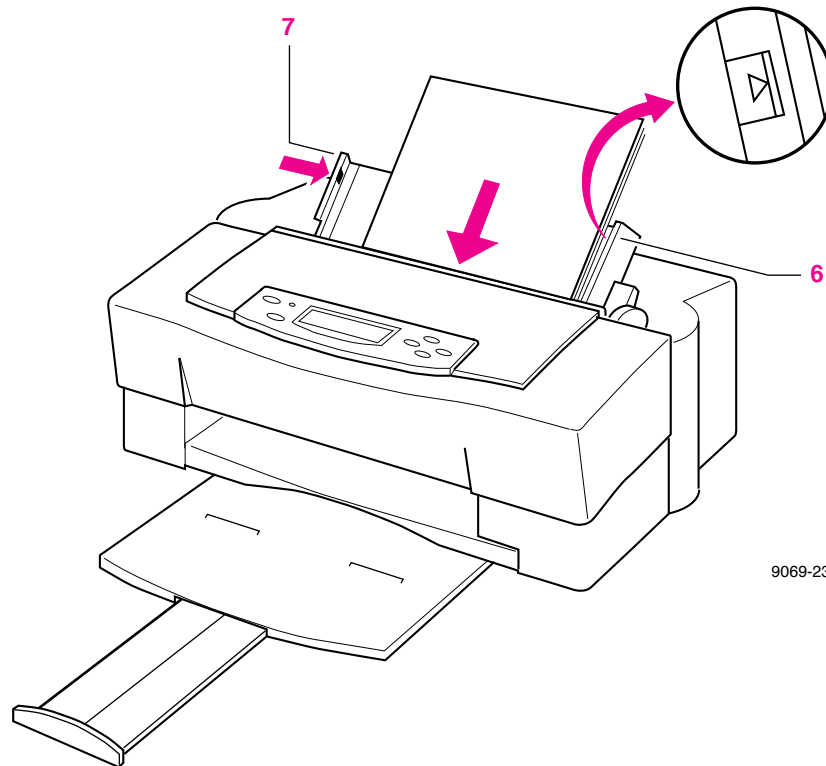
5. Fan the paper.



6. Align the stack of paper with the right edge of the input tray, and slide in the stack until it stops. Do not force the paper down into the printer. Make sure the stack of paper does not exceed the paper limit mark on the right side of the input tray; loading too much paper will cause paper feeding problems.

Insert the paper with the printing side facing you. If you are using pre-printed paper, such as letterhead, insert the top of the paper into the input tray first.

7. Adjust the paper guide to the width of the stack of paper.



9069-23

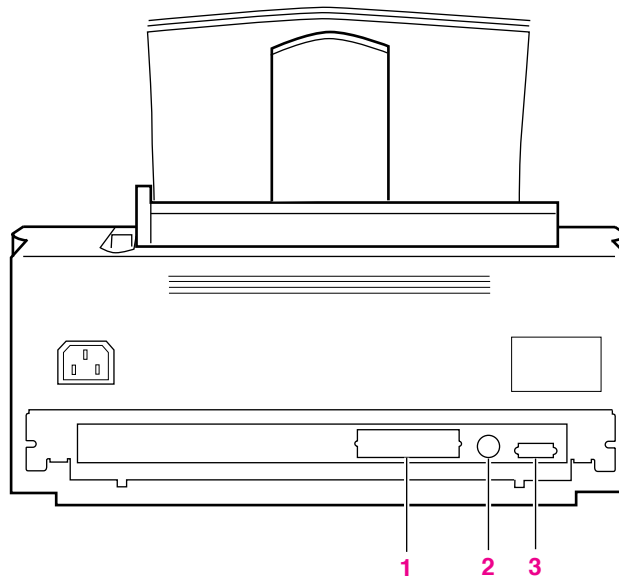
## Connecting the printer

### Printer ports

The Phaser 140 accepts data through these ports:

1. Parallel
2. LocalTalk (AppleTalk)
3. Ethernet

**Note** *An optional Ethernet interface is required to activate the Ethernet connector. The optional Ethernet interface provides Ethernet connectivity with EtherTalk and Novell NetWare protocols. The TCP/IP protocol is available by purchasing an additional upgrade kit.*



9069-24b

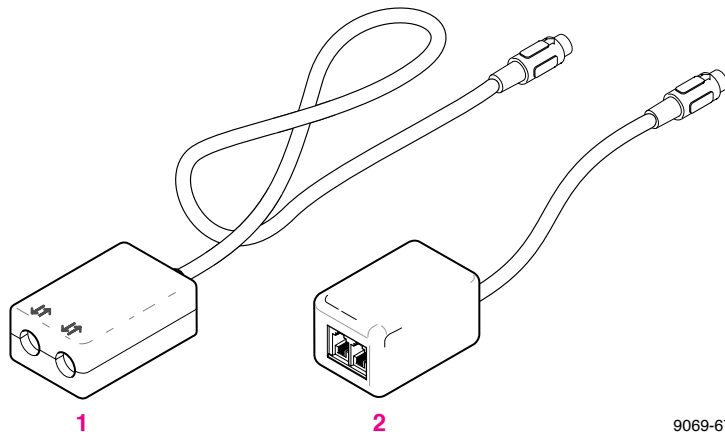
## LocalTalk connection

**Note** *LocalTalk is sometimes referred to as AppleTalk. LocalTalk refers to the physical connection; AppleTalk is the protocol.*

You can make LocalTalk connections between the printer and a single computer or on a LocalTalk network using a *daisy-chain* setup. If your LocalTalk installation is complex, or if you need assistance, contact your network system administrator.

LocalTalk connectors and cables are available through your dealer. This illustration shows two commonly used types of LocalTalk connectors:

1. Self-terminating connector
2. Connector that requires an external terminator, depending on your network configuration



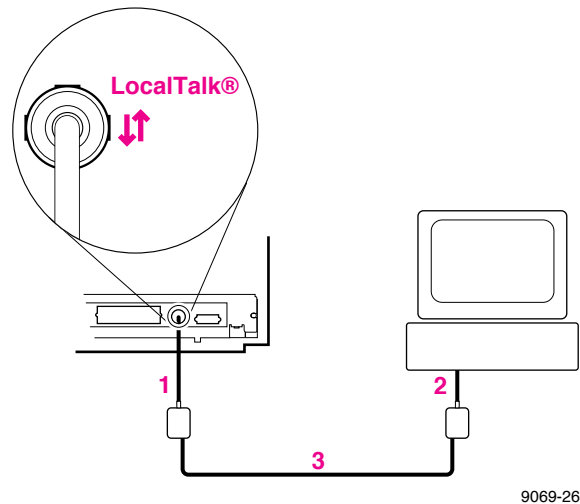
9069-67

**Note** *Depending on the type of LocalTalk cables you use and your network configuration, you might need to use terminators at certain points in the installation. Refer to the documentation for your LocalTalk connectors and cables for details.*

### Connecting the printer to a single computer using LocalTalk

You can use LocalTalk connectors and cables to connect the printer directly to your computer, without connecting it to any other network. Make sure that the printer is turned *off* before making any LocalTalk connections.

1. Connect the short cable of a LocalTalk connector to the printer's LocalTalk port.
2. Connect the short cable of another LocalTalk connector to your computer's LocalTalk port.
3. Connect a LocalTalk cable from the LocalTalk connector that you have just attached to your computer to the printer's LocalTalk connector.

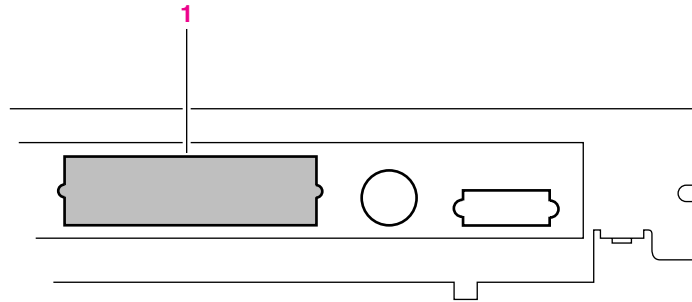


If you have no other connections to make, turn immediately to “Connecting the power and turning on the printer” on page 2-23.



## Parallel connection

1. Connect a parallel interface cable to your computer and to the printer's parallel port.



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2. If you have no other connections to make, turn immediately to “Connecting the power and turning on the printer” on page 2-23.

## Ethernet connection

Ethernet is a communication standard that supports very high speed data transmission. Make sure that you connect your printer to an EtherTalk network *before* you turn on the printer.

To use the Ethernet connection, optional hardware must be installed in the printer. The optional hardware is an upgrade kit that can be purchased initially with the printer or added later.

To order the optional hardware, contact your local Tektronix reseller or call Tektronix toll-free in the United States and Canada at **1-800-835-6100**. Ask for upgrade kit 4686FP1.

For complete information on installing the printer on Ethernet networks, refer to the manual *Network Utilities for Phaser Color Printers*.

**Note** *For information on connecting your printer in VMS environments, contact Tektronix Customer Support at 1-800-835-6100.*

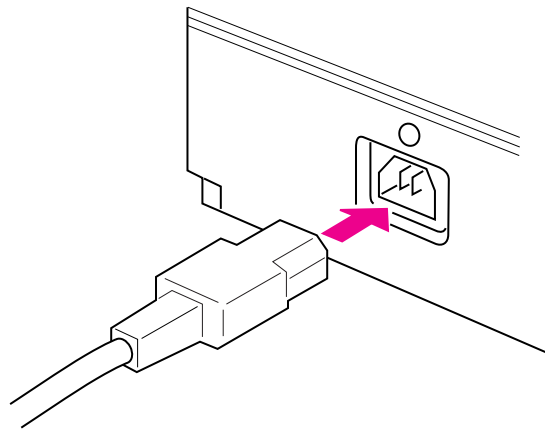
## Connecting the power and turning on the printer

### POWER



**Caution** Always turn the printer off by pressing the **POWER** button. Do not turn the printer off by unplugging it. If the printer is plugged into a switched power strip, do not turn the printer off by switching off the power strip. When you turn the printer off by pressing the **POWER** button, the printer returns the printhead to the home position (extreme right) and seals the ink-jets to prevent clogging. If you turn off the printer by other methods, the ink jets may not be properly sealed and may become clogged with dried ink.

1. Plug the power cord into the printer and into a grounded outlet.

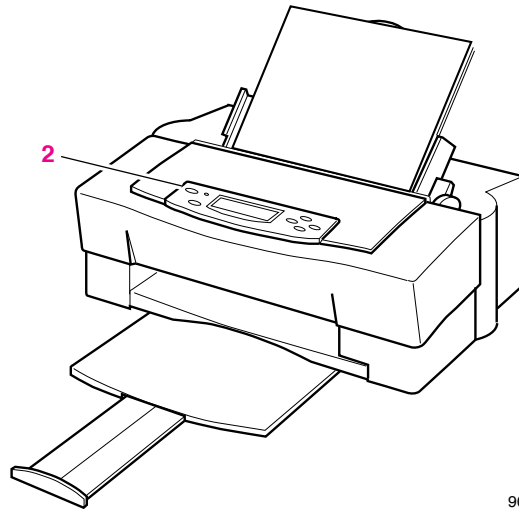


9069-28

### POWER



2. Press the **POWER** button to turn on the printer.



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### Printhead initialization (first-time power-up only)

During the first power-up after printhead installation, the printer purges the ink jets. This first-time printhead initialization takes a few minutes and is executed only on the first power-up after printhead installation.

**Note** *Do not turn off the printer during initialization. Turning off the printer during initialization prevents it from printing properly when it is turned on again.*

### Printer power-up sequence

Every time you turn on the printer, it executes a series of self-tests to determine if there are any problems. The front panel indicators turn on and off during the self-tests. After running self-tests, the printer prints a startup page, if the startup page is enabled. (The factory default is to have the startup page enabled.) After running self-tests and printing the startup page, the printer is ready for operation.

## Startup page

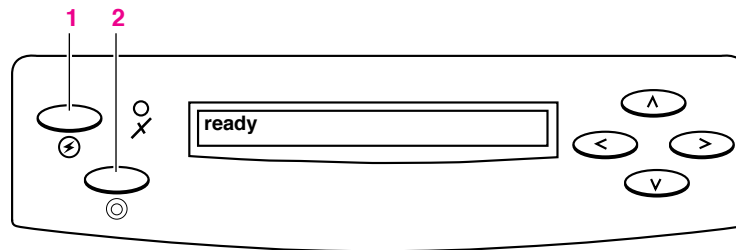
After the self-tests run successfully, the printer produces a startup page, if the startup page is enabled.

The startup page contains information on printer configuration, print count, and error messages (if any). When enabled, the startup page prints whenever you turn on the printer. For details on how to disable the startup page, see “Turning off the startup page” on page 2-34.

**Note** *After the startup page prints, a registration page prints if the printer has made between six and eight prints since it was built. If you have not already registered your printer, please do so by filling out the registration page and mailing it to Tektronix, Inc. P.O. Box 1000, MS 63-583, Wilsonville, Oregon 97070-1000.*

## When the printer is ready for operation

When the power-up sequence is complete and the printer is ready for operation, the **POWER** (1) indicator and the **SELECT** indicator (2) are on, the front panel displays this message:



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## Selecting a language for the front panel

You can set up the printer to display front panel messages in English, French, German, Spanish, or Italian. The factory default is English. To select a language for the front panel, follow these steps:

1. Press the down (↓) arrow key until the front panel displays this message:

SET LANGUAGE

2. Press the right (⇒) arrow key until the front panel displays the language you want:

English  
français  
Deutsch  
español  
italiano

**SELECT**



3. Press the **SELECT** button; the front panel displays an asterisk (\*) after your selection.

4. To return the printer to normal operation:

- a. Press the right (⇒) arrow key until the front panel displays this message:

quit menu *(in the selected language)*

- b. Press the **SELECT** button; the front panel displays this message:

ready *(in the selected language)*

## Checking the printhead

Print the printhead test pattern to check for clogged ink jets:

1. Press the down (↓) arrow key until the front panel displays this message:

CLEAN HEADS

2. Press the right (⇒) arrow key until the front panel displays this message:

print head test

**SELECT**



3. Press the **SELECT** button. The printer prints the head test pattern:

(Black)   
 (Cyan)   
 (Magenta)   
 (Yellow) 

9069-31

4. Inspect the test pattern. There should be four horizontal lines between each pair of vertical lines. If any of the horizontal lines is missing, clean the ink jets as described under “Cleaning the ink jets” on page 4-10.
5. Return the printer to normal operation:
  - a. Press the right (⇒) arrow key until the front panel displays this message:

quit menu

- b. Press the **SELECT** button; the front panel displays this message:

ready

## Checking the registration

Registration is the printer's ability to put the four colors on the page in proper horizontal alignment. To check and adjust the registration, follow these steps:

1. Press the down (↓) arrow key until the front panel displays this message:

PICK FILLED AREA

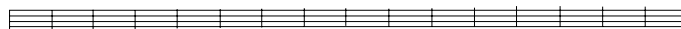
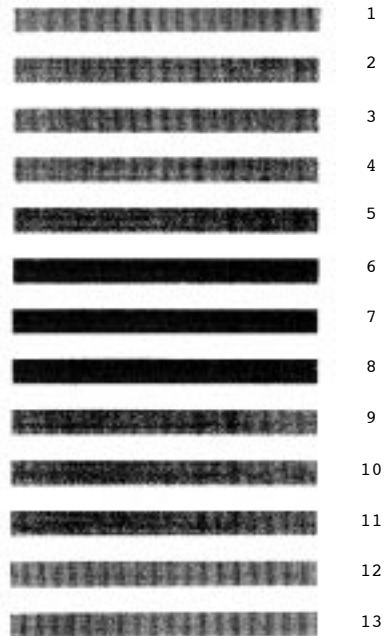
2. Press the right (⇒) arrow key until the front panel displays this message:

print fill test

SELECT



3. Press the **SELECT** button. The printer prints the fill test pattern:



9069-32



**SELECT**

4. Inspect the fill test pattern. Determine which of the 13 patterns looks the most like a solid band, and note its corresponding number (1 – 13). (If several patterns look good, choose the middle one.)
5. Press the right ( $\Rightarrow$ ) arrow key until the front panel displays the number of the pattern you have chosen as best. Press the **SELECT** button to enter the number of the pattern you have displayed on the front panel.
6. Return the printer to normal operation:
  - a. Press the right ( $\Rightarrow$ ) arrow key until the front panel displays this message:

quit menu

- b. Press the **SELECT** button; the front panel displays this message:

ready

## Installing a driver on your computer

### Phaser 140 drivers and utilities diskettes

Packaged with your printer are the Phaser 140 drivers and utilities diskettes for PC and Macintosh.

For complete details on the contents of the Phaser 140 drivers and utilities diskettes and how to use them, refer to the manual *Phaser 140 Drivers and Utilities Printing Reference*, which is shipped with the diskettes.

### PC users: Microsoft Windows

The Phaser 140 diskettes include a Microsoft Windows 3.1 driver for this printer. If you want to use Microsoft Windows applications with this printer, install the driver onto your PC.

1. Start Windows on your PC.
2. Insert the Tektronix Windows 3.1 Printer Driver diskette into your computer's disk drive.
3. Open the **Control Panel**. Double-click the **Printers** icon; the **Printers** dialog box appears.
4. Choose the **Add** button.
5. In the **List of Printers**, select **Install Unlisted or Updated Printer**.
6. Choose the **Install** button.
7. Type in the drive that the PC diskette is in (for example, drive **B:**) and click on the **OK** button.
8. Select your printer and click **OK**.
9. The driver software you need is automatically installed.

10. Assign the printer to a port:
  - a. Select the printer from the list of installed printers.
  - b. Choose the **Connect** button to display the **Connect** dialog box.
  - c. Set the **Transmission Retry** value to **850**. Refer to your Windows documentation for details.
  - d. Select a port:

<u>Interface</u>	<u>Select</u>
Parallel	<b>LPT1 or LPT2</b>
Network	<b>Network</b> button

If you selected a parallel port, go on to Step e.

If you clicked on the **Network** button, the **Printers – Network Connections** dialog box appears. Fill in each item according to your configuration. Refer to your Windows documentation for details or ask your network administrator for help.

**Note** *The printer's configuration page contains the information you need to set up the printer port. For information on generating a configuration page, see "Printing the configuration page" on page 6-17.*

- e. Click **OK** in the **Connect** dialog box and close the **Printers** dialog box.

**Note** *If you are using Windows 3.1, you can use the Phaser 140 with the standard Microsoft Windows PostScript driver (by adding a WPD specific to the Phaser 140). With the standard driver, you get the printer page size information, but you do not get color corrections and other PostScript Level 2 features; those features are only available through the Tektronix driver for Windows 3.1. For details on updating the standard Microsoft Windows PostScript driver, refer to the manual **Phaser 140 Drivers and Utilities Printing Reference**.*

The manual *Phaser 140 Drivers and Utilities Printing Reference* provides a detailed driver installation procedure and complete information on using the Tektronix driver or the standard Windows PostScript driver with the printer.

## PC users: DOS and setting up ports

Check the list of supported printers in your DOS application for support of the Phaser 140. If the list does not include the Phaser 140, use a generic color PostScript driver.

### Parallel port setup

If you are using the printer's parallel port, you should disable timeouts on your computer's parallel port. Disabling timeouts ensures that large files will print, even if data transmission is slow.

The DOS **MODE** command is used to disable timeouts on your computer's parallel port. Type this command at the DOS prompt (if LPT1 is not available, use LPT2):

```
MODE LPT1:,,P > NUL
```

See your DOS documentation for details on the **MODE** command.

You may want to add the **MODE** command to your *AUTOEXEC.BAT* file, so that it takes effect every time you turn on your computer.

## Macintosh users

The Phaser 140 diskettes include a Macintosh printer driver. The driver, which allows you to select Tektronix Phaser page sizes and color adjustments, works with Macintosh system software versions 6.0.7, 7.0.x, and above.

1. Before installing the driver, disable all virus protection software that you may have running. Virus protection software interferes with the driver installation. Refer to the program's documentation for instructions.
2. Insert the Macintosh Printer Driver diskette into the disk drive.
3. Double-click on the **Installer** icon.
4. Follow the directions on the screen to complete the driver installation.

The manual *Phaser 140 Drivers and Utilities Printing Reference* provides a detailed driver installation procedure and complete information on using the Tektronix driver with the printer.

In addition to installing the driver, you may also need to install application-specific files (such as PPDs or PDFs) for such applications as PageMaker and QuarkXpress. For more details on application-specific setups, refer to the manual *Phaser 140 Drivers and Utilities Printing Reference*.

## Workstation users

Some of the files on the Phaser 140 utilities PC diskettes are in text format and can be used by Unix workstations to control Tektronix printer features. Files are also available through electronic mail. You can copy these files to your workstation as you would other PC-format files (log on as *root*, mount the drive, and use the **cp** command). For detailed information on accessing and using these utility files, refer to the *Phaser 140 Drivers and Utilities Printing Reference*.

## Turning off the startup page

To turn off the startup page, follow these steps:

1. Press the down (↓) arrow key until the front panel displays this message:

```
SET STARTPAGE
```

2. Press the right (⇒) arrow key until the front panel displays this message:

```
startpage off
```

**SELECT**



3. Press the **SELECT** button.

4. Return the printer to normal operation:

- a. Press the right (⇒) arrow key until the front panel displays this message:

```
quit menu
```

- b. Press the **SELECT** button; the front panel displays this message:

```
ready
```

## What next?

When you have set up all the hardware and connectors, installed the software on your computer, and turned on the power, you are ready to print. Chapter 3, “Printing,” contains useful information on printing features such as color adjustment, fonts, and printing hints. For detailed information on printing options, refer to *Phaser 140 Drivers and Utilities Printing Reference*.

# Printing

## Printing from a Macintosh

1. Make sure that the Tektronix printer driver for the Macintosh has been installed.
2. Select the driver:
  - a. Select **Chooser** from the Apple menu.
  - b. Select the Tektronix driver by clicking on the **Phaser 140** printer icon. (If it did not appear in the list of drivers, restart your Macintosh and repeat the driver installation procedure.)

A list of printers available in the current zone appears.
  - c. Select the zone where your Phaser 140 is connected.
  - d. Select the printer by name (default name is **Phaser 140**).

You can change the default printer name and EtherTalk zone with the *LaserWriter Utility*, which is on the drivers and utilities diskettes. See the *Phaser 140 Drivers and Utilities Printing Reference* for instructions.

3. To print a file, use the **Page Setup** and **Print** commands from the **File** menu within your application:
  - a. In the **Page Setup** dialog box, select the desired Tektronix paper size so that the application uses the correct margins for the printer. To see the Tektronix paper sizes in the **Page Setup** dialog box, use the pop-up menu to the right of the standard LaserWriter page sizes.
  - b. Click the **TekColor** button in the **Print** dialog box to open the **TekColor Options** dialog box, in which you can select TekColor color adjustments and media types. For more information on color adjustments, see “Color adjustments” on page 3-6. For more details on the driver options, refer to *Phaser 140 Drivers and Utilities Printing Reference*.



## Printing from a PC (Windows)

1. Make sure that the Windows printer driver has been installed.
2. Click on the **Printer Setup** command from the **File** menu (or the similar command in your application). Select **Tek Phaser 140 (TekColor)** from the list. If you have previously set the Phaser 140 as the default printer, it will already be selected on the list.
3. Use the **Setup** dialog box to select the paper size and other printing options.
4. Click on the **Options** button to display the **Options** dialog box. Then, click on the **Printer Features** button to display the **Tektronix Printer Features** dialog box. Use the **Tektronix Printer Features** dialog box to select TekColor color corrections and print quality options. If the **Printer Features** button does not appear in the **Options** dialog box, the Tektronix Windows driver probably is not installed or the Phaser 140 has not been selected.

For more information on color adjustments, see “Color adjustments” on page 3-6. For details on the Tektronix driver, refer to *Phaser 140 Drivers and Utilities Printing Reference*.

## Printing from a PC (DOS)

1. Set up the printing options in your application software for a color printer driver and a communications port. Refer to your application software user manual for details on how to make these selections.
2. Select the printer driver for the Phaser 140, or a general color PostScript driver.
  - a. Select an LPT port if you have the printer connected to the parallel port.
  - b. Set the page margins in your application software as needed. For details on the printer's paper and margin sizes, refer to "Print area and margins" on page 3-24.
3. Execute the application software's print command. Refer to the software's user manual for details.

## Printing from a workstation

You send files to this printer as you would any PostScript printer such as the Apple LaserWriter II NTX. Workstation users can print from any application that generates PostScript (Level 1 or 2).

Tektronix offers raster files and screen copy printing solutions for Tektronix PostScript printers. For more information, contact Tektronix Customer Support at 1-800-835-6100.

For more information on setting up spooling systems and printing from workstations, contact HAL, the Tektronix automated FAX system. Refer to "Whom to call for help" on page 6-20 for details on using the HAL system.

## Getting information on printing from specific applications

You can get information on printing from specific applications by contacting HAL or EuroHAL, the Tektronix automated information systems. HAL and EuroHAL fax you information immediately on applications and other topics. For complete information on HAL and EuroHAL, see "Whom to call for help" on page 6-20.

## Selecting printing features

You can control printing features from your computer using the Phaser 140 driver or you can use the printer's front panel. Selections made from the driver override front panel selections on a job-by-job basis.

You can also select other printer control features from the front panel. For a complete list of all front panel choices and instructions for controlling the printer from the front panel, see "Making menu selections from the front panel" on page 7-4.

For complete instructions on installing and using the Phaser 140 drivers, see the manual *Phaser 140 Drivers and Utilities Printing Reference*.

## Color adjustments

### Using a printer driver

For details on making color adjustments through a printer driver, refer to *Phaser 140 Drivers and Utilities Printing Reference*.

### Using the front panel

**Note** *Color adjustments are generally made from the printer driver, rather than the front panel. The front panel is intended for use when a Tektronix driver cannot be used.*

To make color adjustments using the printer's front panel, follow these steps:

1. Press the down (↓) arrow key until the front panel displays this message:

ADJUST COLOR

2. Press the right (⇒) arrow key until the front panel displays the color adjustment you want to use.

no color adjust  
vivid color  
simulate screen  
simulate press  
monochrome

**SELECT**



3. Press the **SELECT** button; the front panel displays an asterisk (\*) after your selection.

4. To return the printer to normal operation:

- a. Press the right (⇒) arrow key until the front panel displays this message:

quit menu

- a. Press the **SELECT** button; the front panel displays this message:

ready

The following color adjustment choices are available from the front panel:

- **No color adjust.** The printer does not perform any color adjustment.
- **Vivid color.** The printer adjusts some of the colors to achieve the most vivid effect. In particular, the printer's blue appears less purple. This is best for most presentation printing (transparencies).
- **Simulate screen.** The printer attempts to match the colors displayed on a computer screen.
- **Simulate press.** The printer adjusts the colors to more closely match the colors produced by a commercial printing press.
- **Monochrome.** This option produces gray scale prints. This is useful when the prints are to be photocopied.

#### Using color sampler charts

The Phaser 140 utilities diskettes contain color sampler charts for CMYK, RGB, HSB, and PANTONE Colors. The charts consist of colored rectangles and coordinate values. Print out the appropriate chart for your application, and use the coordinate values to select colors within an application. For details on printing the charts, refer to the manual *Phaser 140 Drivers and Utilities Printing Reference*.

When you use your printer with software applications that support PANTONE Colors, the printer produces Pantone-approved process color simulations. The software application selects the process color values used to approximate PANTONE Colors.

For complete information on color adjustments, refer to the manual *Phaser 140 Drivers and Utilities Printing Reference*.

## Finepoint

Finepoint uses a special halftoning technique to produce sharper images with crisp edges and smooth color detail on scanned or bitmapped images.

**Note** *Finepoint affects only bitmaps whose orientation is parallel to the edges of the paper. In other words, Finepoint does not affect bitmaps that have been rotated, except for rotations that are multiples of 90°.*

### Using a printer driver

For details on using Finepoint through a printer driver, refer to the manual *Phaser 140 Drivers and Utilities Printing Reference*.

### Using the front panel

To control Finepoint using the printer's front panel, follow these steps:

1. Press the down (↓) arrow key until the front panel displays this message:

```
SET FINEPOINT
```

2. Press the right (⇒) arrow key until the front panel displays this message:

```
Finepoint on
or
Finepoint off
```

**SELECT**



3. Press the **SELECT** button; the front panel displays an asterisk (\*) after your selection.
4. To return the printer to normal operation:

- a. Press the right (⇒) arrow key until the front panel displays this message:

```
quit menu
```

- b. Press the **SELECT** button; the front panel displays this message:

```
ready
```

## Selecting media type and print modes

### Using a printer driver

For details on selecting media type and print modes through a printer driver, refer to the manual *Phaser 140 Drivers and Utilities Printing Reference*.

### Using the front panel

To select media type and print modes using the printer's front panel, follow these steps:

1. Press the down (↓) arrow key until the front panel displays this message:

```
SET MEDIA TYPE
```

2. Press the right (⇒) arrow key until the front panel displays the media type and/or print mode you want to use.

```
plain (draft)  
plain (standard)  
plain (premium)  
coated paper  
glossy paper  
transparency  
back print film
```

SELECT



3. Press the **SELECT** button; the front panel displays an asterisk (\*) after your selection.

4. To return the printer to normal operation:

- a. Press the right (⇒) arrow key until the front panel displays this message:

```
quit menu
```

- b. Press the **SELECT** button; the front panel displays this message:

```
ready
```



The following media types and print modes are available from the front panel:

- **Plain (draft).** This mode provides the fastest plain-paper printing. It uses less ink and produces less saturated (lighter) colors.
- **Plain (standard).** This mode provides improved plain-paper print quality, but print time is increased over draft mode.
- **Plain (premium).** Provides the best plain-paper print quality; print time is increased over standard mode.
- **Coated paper.** Provides the best print quality on Tektronix coated paper.
- **Glossy paper.** Provides the best print quality on Tektronix glossy paper.
- **Transparency.** Provides the best print quality on Tektronix transparencies.
- **Back-print film.** Provides the best print quality on Tektronix back-print film.

## Selecting page sizes

### Using a printer driver

For details on selecting page sizes through a printer driver, refer to the *Phaser 140 Drivers and Utilities Printing Reference*.

### Using the front panel

**Note** *To print on envelopes or custom page sizes, use the Phaser 140 driver. (Custom page sizes are available through the Phaser 140 Windows driver; some PPD-driven Macintosh drivers also support custom page sizes.)*

To select page sizes using the printer's front panel, follow these steps:

1. Press the down (↓) arrow key until the front panel displays this message:

SET PAGE SIZES

2. Press the right (⇒) arrow key until the front panel displays the page size you want.

Letter

A4

Legal

**SELECT**

3. Press the **SELECT** button; the front panel displays an asterisk (\*) after your selection.
4. To return the printer to normal operation:
  - a. Press the right (⇒) arrow key until the front panel displays:  
`quit menu`
  - b. Press the **SELECT** button; the front panel displays this message:  
`ready`

**Note** *The Legal page size option is only displayed when the printer has at least 4 Mbytes of optional additional memory installed (required for printing on Legal-size paper).*

## About media

### Handling media

- Handle paper and transparencies at the edges to avoid fingerprints.
- Store paper and transparencies in their original, dust-free packages.
- Handle transparencies with both hands to avoid creases, which can result in poor print quality.
- To avoid paper or transparencies sticking together, fan them before loading them into the paper tray.
- Avoid storing transparencies under conditions of high temperature and humidity (see “Specifications” on page A-3).

#### For best results, handle printed transparencies as follows:

- Remove each transparency after it is printed. Do not leave them stacked up.
- Let the printed transparencies dry completely before storing them (about 15 minutes).

## Loading media

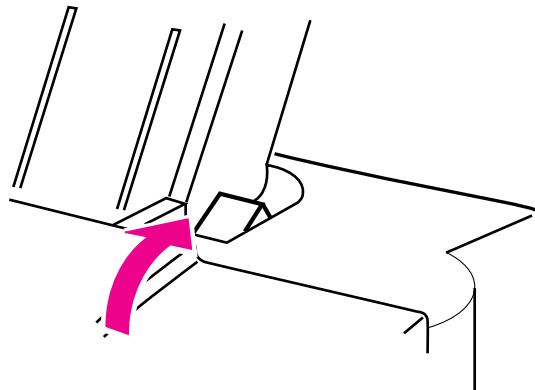
**Note** *The printer can automatically feed multiple Tektronix transparencies, back-print film, and glossy paper. However, under certain environmental conditions, the printer may have difficulty automatically feeding these media. If this occurs, try putting fewer sheets in the input tray, or manually feed the sheets one at a time (see “Manual feed” on page 3-22).*

The instructions in this topic describe how to load paper, back-print film, and transparencies for automatic sheet feeding. For information on loading envelopes, see “Loading envelopes” on page 3-19; for information on how to load individual sheets for manual feed, see “Manual feed” on page 3-22.

**Back position**



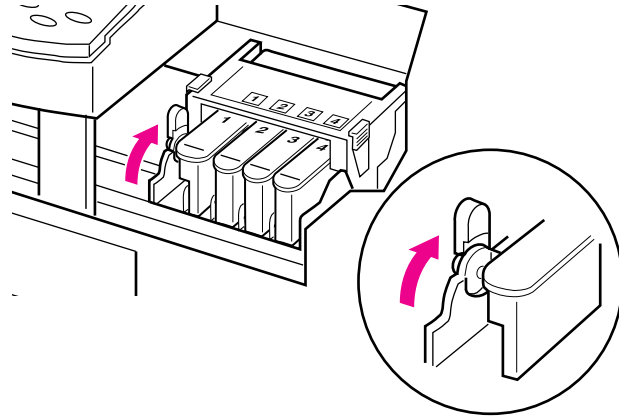
1. Set the paper selection lever toward the back of the printer.



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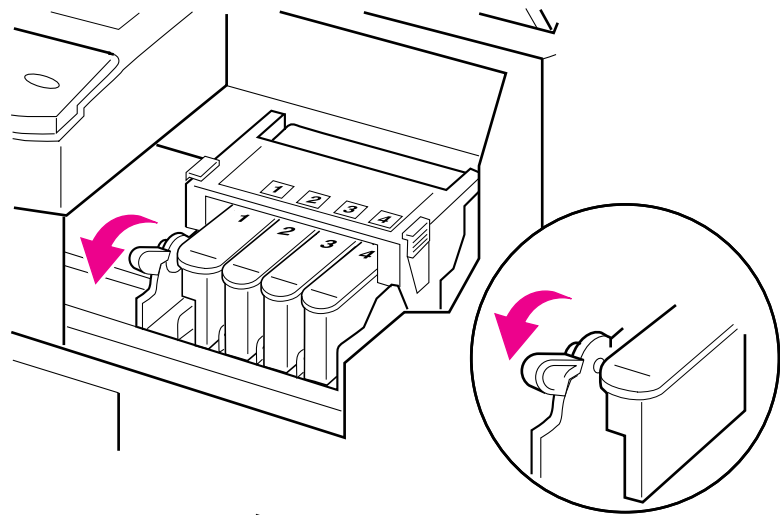
2. Open the cover and set the paper thickness lever (near the printhead):

- For plain paper, glossy paper, back-print film, and transparencies, set the lever to the upright position.



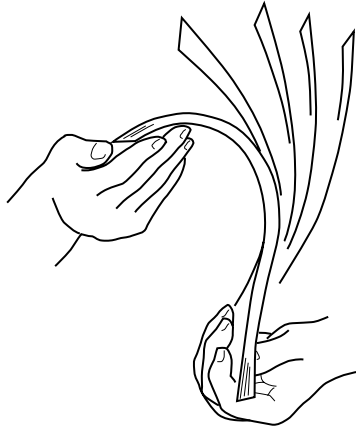
9069-37

- For coated paper, set the lever toward the front of the printer.



9069-21

**3.** Fan the paper.

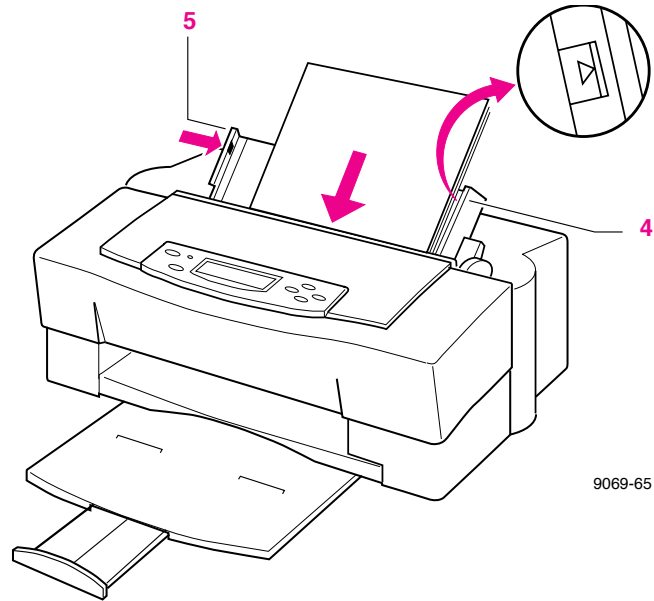


9069-22

4. Align the stack of paper with the right edge of the input tray, and slide in the stack until it stops. Make sure the stack of paper does not exceed the paper limit mark on the right side of the input tray; loading too much paper will cause paper feeding problems.

Insert the paper with the printing side facing you (see the table below). If you are using pre-printed paper, such as letterhead, insert the top of the paper into the input tray first. The top of a transparency is the side with the line of glue connecting the film to the backing sheet.

5. Adjust the paper guide to the width of the stack of paper.



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### Printing sides for media types

Media type	Printing side
Coated paper	Shiny side
Glossy paper	Slightly whiter and rougher (refer to the information sheet in the paper package)
Transparency	Film side (not paper backing)
Back-print film	Dull side



## Loading envelopes

Use #10-size (241 x 105 mm; 9.5 x 4.125 ins.) or DL-size (220 x 110 mm) envelopes.

**Caution** Do **not** use the following types of envelopes. They are not recommended because they may cause jams or smears, or because they may damage the printer:

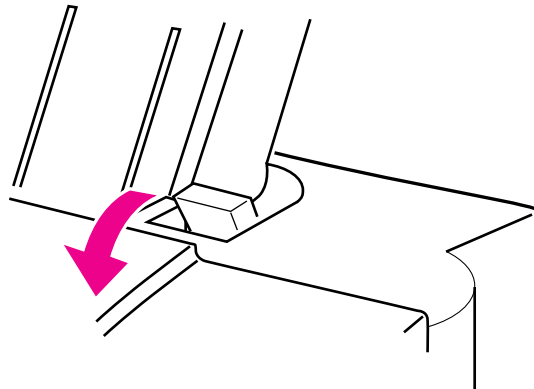
- Envelopes with windows, metal clasps, holes, perforations, cutouts, double flaps, or peel-off sealing strips.
- Envelopes that are specially coated or deeply embossed.
- Envelopes with letters enclosed.

To load envelopes, follow these steps:

Front position



1. Move the paper selection lever toward the front of the printer.

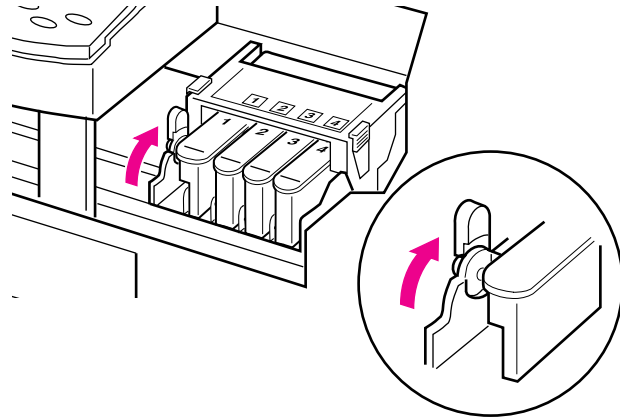


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### 3 Printing

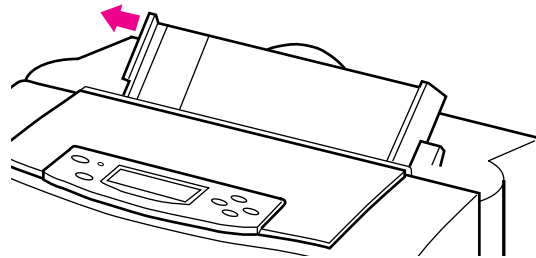
2. Open the cover and move the paper thickness lever (near the printhead) to the upright position.

**Caution** *Be sure to set the paper thickness lever to the upright position when printing on envelopes. Otherwise, the printhead may rub against the envelopes and be damaged.*



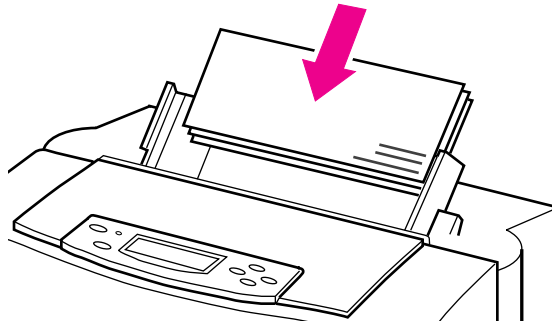
9069-37

3. Move the paper guide to match the envelope's width.



9069-38

4. Prepare a stack of envelopes. Arrange the stack on a flat surface and press down firmly on the edges to make the folds crisp. Press all the way around the envelopes to remove any curls and expel air from inside the envelopes.
5. Put the stack of envelopes into the tray with the top of the envelopes entering the printer first and printing side facing up. Align the stack of envelopes with the right edge of the input tray, and slide in the stack until it stops.



9069-39

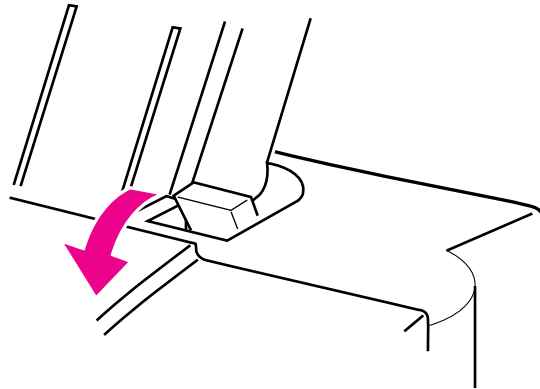
## Manual feed

Some types of thick paper must be loaded manually, one sheet at a time. You may also have to load transparencies, glossy paper, and back-print film manually under certain environmental conditions. To load media manually, follow these steps:

Front position

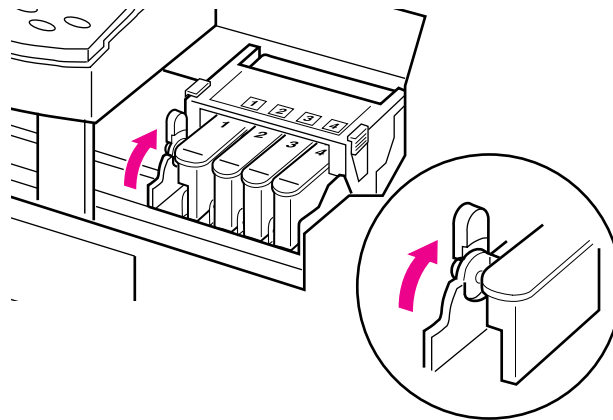


1. Move the paper selection lever toward the front of the printer.



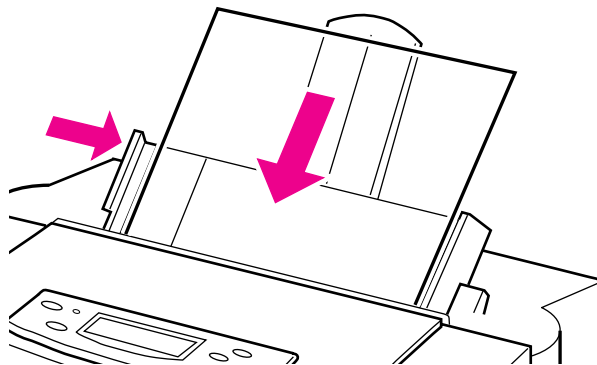
9069-36

2. Open the printer's cover and move the paper thickness lever (near the printhead) to the upright position. Close the cover.



9069-37

3. Align the sheet with the right edge of the input tray, and adjust the paper guide to the width of the sheet. Make sure that the top of the sheet goes into the input tray first, with the printing side facing up. (The top of a transparency is the side with the line of glue connecting the film to the backing sheet.) Slide in the sheet until it stops.



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## Print area and margins

When the printer places an image on paper, the image is a bit smaller than the paper size. You may need to adjust the page margins in your application software to match the print area.

### Print areas

This table shows the largest print areas for the supported page sizes.

<b>Page size (width x height)</b>	<b>Print area (width x height)</b>
Letter 8.5 x 11 ins.	8.1 x 10.4 ins.
A4 210 x 297 mm	200 x 282 mm
Legal* 8.5 x 14 ins.	8.1 x 13.4 ins.
#10 Envelope 9.5 x 4.125 ins. (241 x 105 mm)	8.1 x 3.43 ins. (206 x 87 mm)
DL Envelope 8.66 x 4.33 ins. (220 x 110 mm)	8.1 x 3.63 ins. (206 x 92 mm)
Smallest custom page size 152 x 102 mm (6 x 4 ins.)	142 x 86 mm (5.6 x 3.4 ins.)
Largest custom page size* 216 x 559 mm (8.5 x 22 ins.)	206 x 544 mm (8.1 x 21.4 ins.)

\* Sizes larger than 8.5 x 11 ins. require at least 4 Mbytes optional additional memory. Custom page sizes are available through the Phaser 140 Windows driver; some PPD-driven Macintosh drivers also support custom page sizes.

## Margins

The following table lists the margins for all page sizes when the maximum print area is used:

<b>Page size</b>	<b>Left margin</b>	<b>Right margin</b>	<b>Top margin</b>	<b>Bottom margin</b>
#10 Envelope	5 mm (0.2 ins.)	31 mm (1.2 ins.)	5 mm (0.2 ins.)	13 mm (0.5 ins.)
DL Envelope	5 mm (0.2 ins.)	9 mm (0.37 ins.)	5 mm (0.2 ins.)	13 mm (0.5 ins.)
All other page sizes (including custom sizes)	5 mm (0.2 ins.)	8 mm (0.3 ins.)	5 mm (0.2 ins.)	10 mm (0.4 ins.)

## Fonts

### Resident typefaces (PostScript)

The Phaser 140 supports the 17 PostScript fonts shown here.

Courier□  
**Courier Bold**□  
Courier Oblique□  
**Courier Bold Oblique**

Helvetica□  
**Helvetica Bold**□  
Helvetica Oblique□  
**Helvetica Bold Oblique**

Helvetica Narrow□  
**Helvetica Narrow Bold**□  
Helvetica Narrow Oblique□  
**Helvetica Narrow Bold Oblique**□  
□

Times Roman□  
**Times Bold**□  
*Times Italic*□  
***Times Bold Italic***

Symbol (□Σ ψ μ β ο λ )

9069-66



## Downloading fonts

The printer accepts Type 1 and TrueType downloadable fonts including those from Adobe, AGFA, Bitstream, and many others. TrueType fonts are scalable to any point size and look the same on the screen as they do when printed.

You can use utilities on the Phaser 140 printer utilities diskettes to download fonts to the printer. For details, see the manual *Phaser 140 Drivers and Utilities Printing Reference*.

## Installing Macintosh screen fonts

Phaser 140 Macintosh diskettes include screen fonts for these typeface families: Times, Helvetica, Courier, Symbol, Helvetica Condensed, Helvetica Narrow, Palatino, ITC Avant Garde Gothic, ITC Bookman, ITC Zapf Chancery, ITC Zapf Dingbats, and New Century Schoolbook.

If they are not already installed, you must install these screen fonts if you want to see the printer's resident typefaces on the Macintosh screen. For information on how to install fonts, see the *Phaser 140 Drivers and Utilities Printing Reference* or your Macintosh documentation.

## Printing hints

### Getting the largest printed picture

Use the Tektronix Phaser 140 driver to get the largest print areas. You may also have to adjust the margins in your application software.

### How long does it take to make a print?

The total print time depends on the image complexity, the type of port used, and the printer's paper-marking speed. The paper-marking speed is the time it takes the printer to put ink on the paper, after it has received the processed image.

All of these three elements can vary greatly depending on your system configuration and the type of image you are printing. However, the Phaser 140 combines very fast image processing and communication with optimized printhead movement to keep the total print time to a minimum.

## *Caring for Your Printer*

### Overview

To ensure the best print quality and the most reliable printer operation, follow these two simple guidelines:

- If you are using coated paper, glossy paper, back-print film, or transparencies, use *only* Tektronix media. Use *only* Tektronix ink cartridges.
- If print quality degrades, perform the ink jet cleaning described in this chapter.

## Replacing an ink cartridge

If your prints show a missing or faded color, you may need to replace an ink cartridge, or the printer may have a clogged ink jet. Open the printer's top cover and look at the ink cartridges. If you can see ink in the cartridges, you need to clean the ink jets (see "Cleaning the ink jets" on page 4-10). If the cartridge looks empty, you need to replace it.

The printer reports an empty ink cartridge with a front panel message, although the message may not appear immediately. The printer may produce a few poor-quality prints before reporting the following message:

```
ink out: color
```

where `color` is replaced with **cyan**, **magenta**, **yellow**, or **black**, depending on which cartridge is out of ink.

Observe the following precautions when handling ink cartridges:

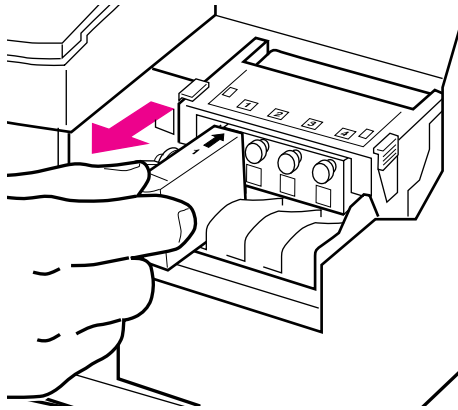
- Do not remove an ink cartridge unless the cartridge or the printhead has to be replaced or you are shipping the printer for repair.
- Do not attempt to disassemble or refill the cartridges.
- Do not unpack an ink cartridge until you are ready to install it.
- To avoid spilling ink, do not tilt or shake the ink cartridges.
- Use all the ink in the ink cartridge within 6 months from the date of purchase to ensure the best print quality.
- The ink in the cartridges has been carefully formulated to ensure superior print quality and compatibility with the printer. For optimum printing results, use *only* Tektronix ink cartridges.

## Removing a used ink cartridge

**POWER**



1. Press the **POWER** button to turn off the printer.
2. Open the top cover.
3. Lift the end of the cartridge, then pull it out. Immediately dispose of the cartridge in a plastic bag.

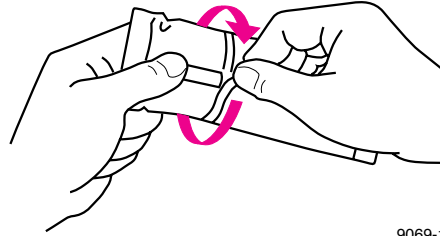


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## Installing a new ink cartridge

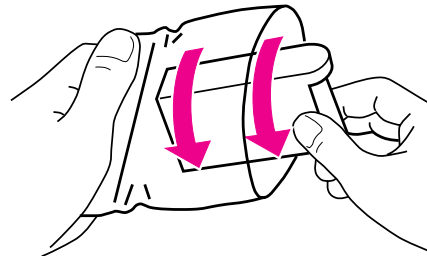
To install an ink cartridge, follow these steps:

1. Peel off the tape in the center of the package and pull off the top of the plastic bag.



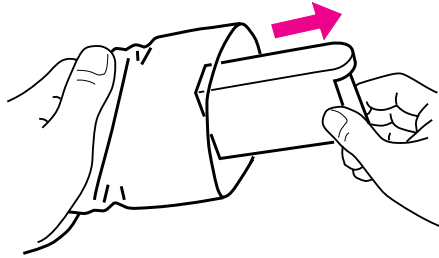
9069-14

2. Holding the bottom of the plastic bag, twist the cartridge in the direction of the arrow to remove protective tape on the opening.



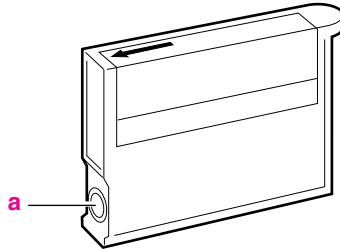
9069-15

3. Pull the cartridge up and out. Part of the seal may remain around the opening; this is not a problem and the printer will still operate correctly.



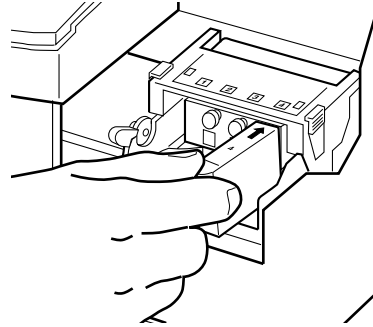
9069-16

**Note** Do not touch the opening (a). This may degrade print quality and stain your fingers with ink.



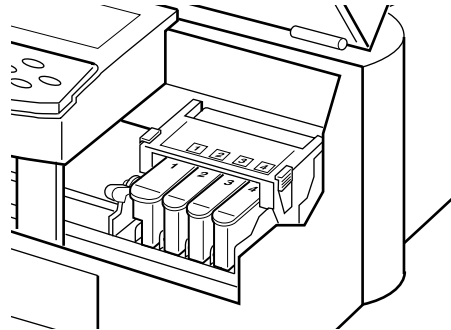
9069-17

4. Locate the slot marked for this color ink cartridge. The slots are coded with colors and numbers: black (1), cyan (2), magenta (3), and yellow (4).
5. Make sure that the number and color on the cartridge match the number and color on the slot. Then slide the cartridge all the way into the slot and press the end to snap the cartridge into place.



9069-18

6. Repeat Steps 1 through 5 for the other color ink cartridges. When you finish, close the printer's cover.



9069-19

This completes the ink cartridge installation. If you have installed the ink cartridges in the wrong slots, see “Ink cartridges are installed in the wrong slots” on page 14.

After installing a new ink cartridge, you should clean the ink jets. See “Cleaning the ink jets” on page 4-10.



## Replacing the printhead

If the printhead becomes damaged or worn, the print quality deteriorates, as evidenced by persistent appearances of irregular or missing dots on prints, even after executing printhead cleaning several times. If this happens, replace the printhead with a new one. To obtain a new printhead, contact your dealer or Tektronix and order part number 118-9120-00.

Under normal usage, the printhead may last the life of the printer. However, several factors can shorten the life of the printhead:

- Dusty or dirty operating conditions.
- Use of non-Tektronix inks or inks that have been stored more than 6 months.
- Severe paper jams under the printhead.

## Removing the used printhead

1. Open the top cover (with the printer still turned on).
2. Remove all ink cartridges installed in the printer and store them away for later use (see “Replacing an ink cartridge” on page 4-2). To avoid spilling ink, place the ink cartridges on a clean sheet of paper with the numbered label sides facing up.
3. Close the top cover and perform the ink jet cleaning procedure to empty all ink from the ink jets. See “Cleaning the ink jets” on page 4-10.
4. Press the **POWER** button to turn off the printer.

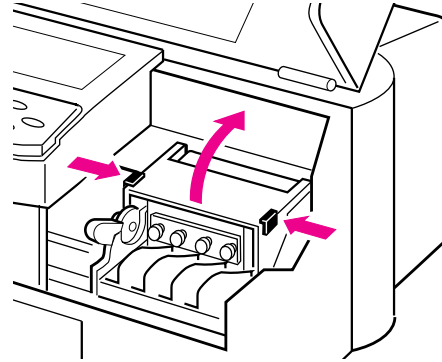
**POWER**



**Note** *Remove and install the printhead with the printer plugged in and the power turned off via the **POWER** button. Otherwise, a printhead error may occur.*

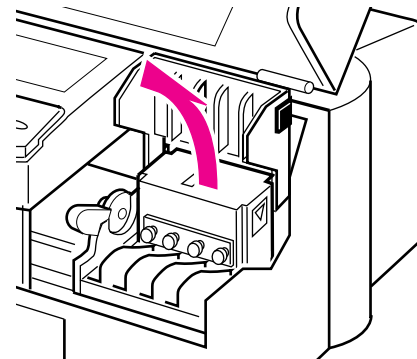
## 4 *Caring for Your Printer*

5. Open the printer's cover. While pressing the tabs on either side of the printhead compartment cover, lift open the cover until it stops.



9069-48

6. Remove the printhead and discard it.



9069-49

## Installing the new printhead

1. To install the printhead, follow the steps under “Installing the printhead” on page 2-6:
2. After you have installed the printhead, re-install the ink cartridges removed earlier (see “Installing ink cartridges” on page 2-11).
3. Turn on the printer.

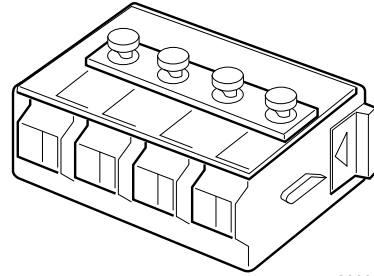
During the first power-up after printhead installation, the printer purges the ink jets. This first-time printhead initialization takes a few minutes and is executed only on the first power-up after printhead installation.

**Note** *Do not turn off the printer during initialization. Turning off the printer during initialization prevents it from printing properly when it is turned on again.*

Clean the ink jets as described in the next topic.

## Cleaning the ink jets

On the printhead are four ink jets through which individual color ink droplets are propelled onto the paper. The ink jets must be kept free from paper particles and dust in order to maintain a high degree of print quality.



9069-54

### POWER



**Note** *The printer regularly performs the ink jet cleaning automatically to clear away paper particles or dust accumulated on the four ink jets. This automatic cleaning takes about 70 seconds. During automatic cleaning, the **POWER** indicator blinks. The printer may perform automatic cleaning during print jobs.*

To clean the ink jets:

1. On the front panel, press the down arrow (↓) key until the front panel displays this message:

CLEAN HEADS

2. Press the right arrow (⇒) key until the front panel displays this message:

clean heads

### SELECT



3. Press the **SELECT** button. The printer cleans the ink jets. During the cleaning process, you cannot display other menus or menu choices. When the cleaning is complete, the front panel continues to display the clean heads message.

After the ink jets are cleaned, print the printhead test pattern to make sure that no ink jets are still clogged:

1. Press the left ( $\Leftarrow$ ) arrow key until the front panel displays this message:

print head test

While the test pattern is being printed, you cannot display other menus or menu choices. When the test pattern is printed, the front panel continues to display the `print head test` message

**SELECT**



2. Press the **SELECT** button. The printer prints the print head test pattern, which is shown here.



9069-31

3. Inspect the test pattern. There should be four horizontal lines between each pair of vertical lines. If any of the horizontal lines are missing, clean the ink jets again.
4. Return the printer to normal operation:
  - a. Press the right ( $\Rightarrow$ ) arrow key until the front panel displays this message:

quit menu

- b. Press the **SELECT** button; the front panel displays this message:

ready

## Cleaning the printer

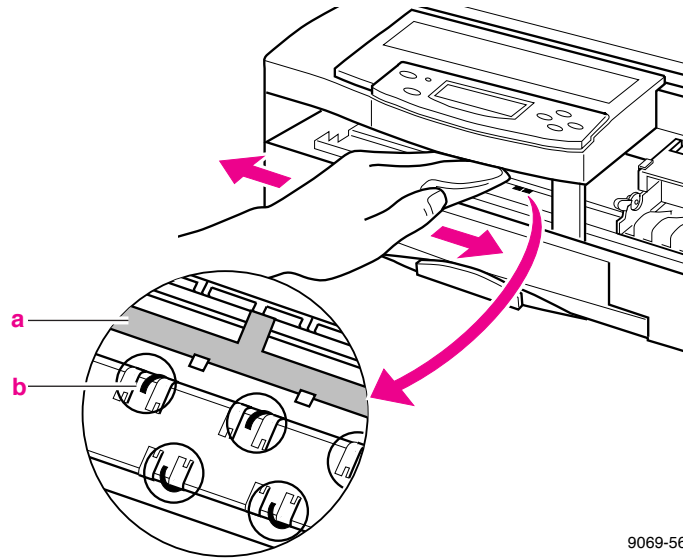
When cleaning the printer, observe the following precautions:

- Do not clean the exterior of the printer with volatile liquids, such as thinner or benzine, or any other spray-type or chemical cleaners. Chemicals may damage the printer's finish.
- Do not use any cleaning fluids or water to clean inside the printer.
- Use a soft, lint-free cloth to clean the printer; do not use paper towels or tissues.
- When cleaning inside the printer, avoid the area near the printhead.

**To clean the printer**

1. Turn the printer off.
2. Clean the inside of the printer, including the platen (a), using a soft, lint-free cloth to remove any ink mist or paper debris.

**Caution** Do **not** rub the gear wheels (b); they are easily damaged.



3. Clean the exterior of the printer with a soft, lint-free cloth moistened with water. Remove any smudges or dust.





## Supplies

### Always use Tektronix supplies

Tektronix supplies for the Phaser 140 printer are developed and tested as a total *system*: printer, ink, and media. These components work together to produce consistent, high-quality color images.

If you are using coated paper, glossy paper, back-print film, or transparencies, use *only* Tektronix media. Use *only* Tektronix ink cartridges.

### Ordering information

To order supplies or upgrade kits, refer to the supplies information sheet that was shipped with the printer and contact your local dealer or, in the U.S.A., call Tektronix at **1-800-835-6100**.

### Supplies kits

4686FSS	Supplies startup kit.
4686FSS01	Supplies startup kit, metric version.

## Printer supplies

<b>Item</b>	<b>Part number</b>
Ink cartridges, cyan (package of six)	016-1334-00
Ink cartridges, magenta (package of six)	016-1335-00
Ink cartridges, yellow (package of six)	016-1336-00
Ink cartridges, black (package of six)	016-1333-00
Coated paper	
Letter (8.5 x 11 ins.)	016-1346-00
A4 (210 x 297 mm)	016-1347-00
Glossy paper	
Letter (8.5 x 11 ins.)	016-1348-00
A4 (210 x 297 mm)	016-1349-00
Transparencies	
Letter (8.5 x 11 ins.)	016-1350-00
A4 (210 x 297 mm)	016-1351-00
Back-print film	
Letter (8.5 x 11 ins.)	016-1352-00
A4 (210 x 297 mm)	016-1353-00

## Troubleshooting

### If you can't make a print

#### Printer not operating

- Make sure that you plugged in the printer and turned it on. Make sure that you connected the interface cable properly.
- Make sure that the sealing tape on the printhead unit has been removed.
- Make sure that the front panel displays this message:

ready

If the front panel displays another message, refer to “Error messages displayed on the front panel” on page 6-18. If the front panel fails to display any message, the printer may require service. Reset the printer by turning it off, then on again. If the problem persists, call for service.

**Note** *You can call for service at 1-800-835-6100 in the U.S.A. and Canada, or call your Tektronix dealer.*

## Test the printer by making a sample print

1. Press the down (↓) arrow key until the front panel displays this message:

PRINT SAMPLES

2. Press the right (⇒) arrow key until the front panel displays this message:

print supplies

SELECT



3. Press the **SELECT** button. The printer exits the menu and prints the sample page (in this example, it is a list of printer supplies). After the page is printed, the printer is ready for normal operation.

If the printer fails to produce a test print, make sure that paper and ink cartridges are loaded. Check the front panel for any reported errors. If you have paper and ink loaded and the printer does not produce a sample print, the printer requires service.

## Verifying communication between your computer and the printer

If the printer produces a sample print, the printer is functional, and the next step is to verify that your computer can communicate with the printer.

To verify that your computer can communicate with the printer, use one of these methods:

- If you have a Macintosh, make sure that you have the correct driver installed and that you have selected the printer in the **Chooser**. If the printer's name does not appear in the Chooser, your LocalTalk or EtherTalk connection may be faulty. See also "Printer doesn't appear in the Chooser (Macintosh)" on page 6-5.

You can use the **Print Window** or **Print Desktop** command to send a file to the printer without using an application. If the communication link between your computer and the printer is working, the printer produces a directory listing of the active window on the desktop.

- If you have a PC, type these DOS **ECHO** commands:

```
echo %! > port
```

```
echo showpage[CTRL-D] > port
```

Where [CTRL-D] indicates pressing the **D** key while holding down the **CTRL** key. Substitute the name of the printer port (for example, **LPT1**, **LPT2**;) for the variable *port* in this command. For example, if you are testing a parallel connection on **LPT1**, type:

```
echo %! > LPT1:
```

```
echo showpage[CTRL-D] > LPT1:
```

If the communication link between your computer and the printer is working, the printer ejects a blank page. If this works, but you cannot print from your application or through Windows, make sure that the appropriate driver is installed and that you have selected the printer correctly.

## Front panel displays “processing data” or “waiting for data,” but the file does not print

This is probably the result of a PostScript error. Reset the printer by turning it off, then on again. Then load the PostScript error handler from the front panel. For more information on using the PostScript error handler, see the manual *Phaser 140 Drivers and Utilities Printing Reference*.

1. Press the down (↓) arrow key until the front panel displays this message:

PRINT SAMPLES

2. Press the right (⇒) arrow key until the front panel displays this message:

load error page

SELECT



3. Press the **SELECT** button. The printer exits the menu and loads the PostScript error handler. After the error handler is loaded, the printer should be ready for normal operation.
4. Send the print job again. If there is a PostScript error, the printer will print a page reporting the specific error.

## Printer doesn't appear in the Chooser (Macintosh)

- Make sure that the printer is turned on. Make sure that the front panel displays *ready*. Make sure that the cables are correctly attached.
- Check the termination (refer to the documentation for your Ethernet adapter or LocalTalk connector for information on termination).
- Reset the printer by turning it off, then on again.
- Make sure that you have the correct zone selected in the **Chooser** before looking for the printer's name in the list of printers. If you have changed the printer's name, make sure that you have given it a unique name (not the same as any other printer in the zone). If two printers in the same zone are given the same name, one of the names will appear in the **Chooser** with a suffix added.

To verify the printer's name, print the configuration page (see "Printing the configuration page" on page 6-17). The configuration page reports the printer's name and other useful information.

## Print job does not finish (the printer times out)

### Check your computer's timeout value

**Windows.** If you are using Windows 3.1, make sure the **Transmission Retry** value for the printer's assigned port is set to **850**. For more information, see "PC users: Microsoft Windows" on page 2-30.

**DOS.** If you are using the parallel port from a PC, make sure that you used the **MODE** command to set the PC's communication parameters. For example:

```
MODE LPT1:,,P > NUL
```

The **P** parameter in these commands sets the port timeout to **Infinite Retry** and must be part of the command.

### Check the printer's timeout value

You may also need to adjust the printer's timeout values. The printer's timeout values are reported on the configuration page (see "Printing the configuration page" on page 6-17). For more information on the printer's timeout values, see the *Phaser 140 Drivers and Utilities Printing Reference*.



## Media problems

### Frequent paper jams

- If you are using transparencies, make sure that you use the Tektronix transparency film listed in the supplies information sheet.
- If the printer is having difficulty automatically feeding transparencies, back-print film, or glossy paper, try feeding the sheets manually, one at a time.
- Do not overfill the paper tray.
- Be sure to fan the paper before loading it into the input tray.
- Make sure that the paper you are using is compatible with the printer.

### Printing is skewed

- Make sure that the stack of paper is straight in the input tray.
- Make sure that the right side of the stack of paper is aligned against the right side of the input tray and the left side is aligned against the paper guide.

## Media does not load

**Back position**



**Front position**



- Make sure that the paper selection lever is set to the correct position:
  - For automatic feeding of all media except envelopes, set the lever toward the back of the printer. If the printer still has difficulty feeding transparencies, glossy paper, or back-print film, try feeding the sheets manually, one at a time.
  - For automatic feeding of thick paper, set the lever toward the front of the printer. If the printer still has difficulty feeding thick paper, try feeding the sheets manually, one at a time.
  - For manual feed, set the lever toward the front of the printer.
  - For manual feed, be sure to insert a single sheet all the way into the feeder. If the sheet is not inserted far enough, the printer cannot feed the sheet properly.
- If back-print film jams during manual feed, try putting a sheet of plain paper behind the sheet of back-print film in the input tray.

## If more than one sheet loads at a time

- Make sure that the paper guide on the input tray is set exactly to width of the paper; if the paper guide is too loose, paper feeding problems can result (see “Loading media” on page 3-15).
- Be sure to fan the paper before loading it. This keeps the sheets from sticking together.
- Check that the paper selection lever is set toward the back of the printer for automatic paper feeding.
- Make sure that the stack of paper does not exceed the paper limit mark in the right side of the input tray. If necessary, remove a few sheets from the tray.
- If the input tray contains several types of paper, try loading one type of paper.

Back position



## Problems with image size and position

### Off-set images

Check your application for correct image sizing.

### Cut-off images

Check for correct page size setting in the driver.

### Image shifts or margins are incorrect (Macintosh)

For details on how to print from a Macintosh, refer to “Printing from a Macintosh” on page 3-1. You should install the Phaser 140 printer driver onto your Macintosh so that you can select the correct page sizes from the driver. For details on the Phaser 140 drivers, refer to the manual *Phaser 140 Drivers and Utilities Printing Reference*.

## Print quality problems

### White streaks or missing dots

- An ink cartridge may be empty. If the printer senses that an ink cartridge is empty, the front panel displays:

```
ink out: color
```

where `color` is replaced with **cyan**, **magenta**, **yellow**, or **black**, depending on which cartridge is low on ink. The printer does not always sense an out-of-ink condition immediately. The printer may produce a few poor-quality prints before reporting the out-of-ink message.

- Ink jets may be clogged. Clean the ink jets (see “Cleaning the ink jets” on page 4-10). If the clog is severe, it may be necessary to perform the cleaning procedure several times.
- The printhead may be installed incorrectly. Make sure that the printhead is installed correctly and that there are no obstacles around the printhead (see “Installing the printhead” on page 2-6).
- The printhead is defective.

### Smudges

- The paper thickness lever (near the printhead) may be set incorrectly. Make sure that the lever is set toward the front of the printer for coated paper and to the upright position for envelopes, thick paper, and other media.
- If you are printing high-density graphics on coated paper and the prints are smudged, try setting the paper thickness lever (near the printhead) to the upright position.
- Clean the printhead (see “Cleaning the ink jets” on page 4-10).

## Blurred or too light

- The selected print mode does not meet your needs, for example you may be printing in draft mode (see “Selecting media type and print modes” on page 3-10).
- The print media is not compatible with the printer. If you are using coated paper, glossy paper, back-print film, or transparencies, use *only* Tektronix media.
- You may be printing on the wrong side of the paper.

## Ink on paper edge

- The inside of the printer may be soiled with ink (see “Cleaning the printer” on page 4-12).

## Prints are curled

- Remove the print immediately and let it dry. Then roll it in the direction opposite the curl.

## Black-and-white instead of color

- Make sure that the printer is set up for color printing (the **Adjust Color** setting should not be **monochrome**).
- If you have a Macintosh, make sure that you are using the Phaser 140 driver or the latest Apple LaserWriter printer driver (version 6.0.7 or higher), which supports color PostScript. Make sure that **Color/Grayscale** is selected in the **Print** dialog box. Some applications require special files to print in color. Make sure that these files are properly installed. For information, refer to the manual *Phaser 140 Drivers and Utilities Printing Reference*.
- If you have a PC, be sure to use a driver that supports color PostScript. If you are using Windows 3.1, use the Phaser 140 driver. If you are using Windows, make sure that the **Color** box in the **Options** dialog box is checked. For information on the drivers, refer to the manual *Phaser 140 Drivers and Utilities Printing Reference*.

## The inside of the printer is soiled with ink

- This problem can be the result of a paper jam. Clean the printer carefully after clearing the jam (see “Cleaning the printer” on page 4-12).
- This problem can also be caused by selecting a paper size (from the driver or the front panel) that does not match the size of the paper in the printer. Clean the printer carefully (see “Cleaning the printer” on page 4-12). Check that the paper in the printer matches the selected paper size before printing again.

## Ink cartridges are installed in the wrong slots

1. Remove the misplaced ink cartridges.
2. Clean the ink jets (see “Cleaning the ink jets” on page 4-10).
3. Check to see if any of the wrong color ink has gotten into the cartridges that you removed in Step 1. If so, discard them and obtain a new ones. Re-install the cartridges in the correct slots.
4. If the incorrect color problem persists, repeat the ink jet cleaning two or three times.



## Startup page prints even though it is disabled

The printer's power-up self-test can detect problems that do not necessarily make the printer completely inoperable. Examples of these *non-fatal* errors include faulty printer ports and some memory failures.

If the printer detects a non-fatal error at power-up, the startup page prints, even if you have disabled it. In this case, the page contains one or more of the error messages listed in the following table. Depending on your needs, you may not need to call for service immediately.

### Error messages on the startup page

Message	Description
Parallel Port failed	The named port is not working; the other ports can still be used.
LocalTalk Port failed	
Ethernet Port failed	
DRAM SIMM failed	The additional optional memory SIMM is not working. Since the printer's base memory is still working, the printer can still be used, but images larger than Letter-size cannot be printed, and throughput may suffer.

## Clearing paper jams

**ERROR**

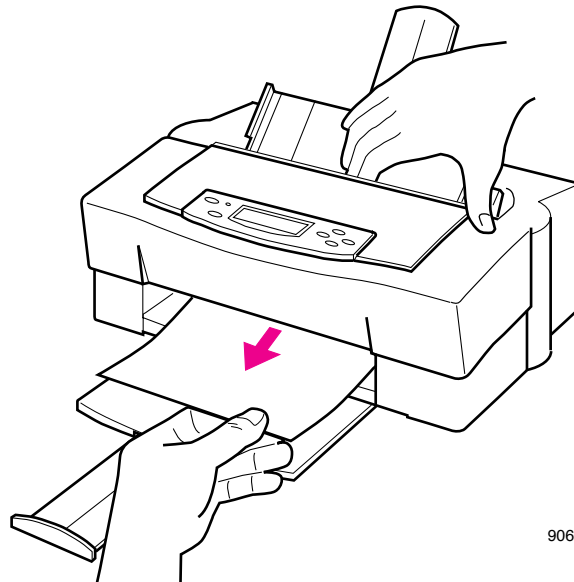


If a paper jam occurs, the **ERROR** indicator blinks and the front panel displays this message:

paper jam

Follow these steps to remove the jam:

1. With one hand, press down on the input tray to release the sheet of paper; gently pull out the sheet with your other hand.



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2. After you remove the jammed paper, look inside the printer to see if it is soiled with ink. If there is ink inside the printer, clean it carefully (see “Cleaning the printer” on page 4-12).

**SELECT**



3. Press the **SELECT** button to clear the error and resume printing (the page will be reprinted).

## Printing the configuration page

The Phaser 140 can print a configuration page that contains useful information for installation and troubleshooting.

To print the configuration page, follow these steps:

1. Press the down (↓) arrow key until the front panel displays this message:

```
PRINT SAMPLES
```

2. Press the right (⇒) arrow key until the front panel displays this message:

```
print config
```

**SELECT**



3. Press the **SELECT** button. The printer exits the menu and prints the configuration page. After the page is printed, the printer is ready for normal operation.

## Error messages displayed on the front panel

The following table provides a list of messages that can appear on the front panel. The messages are also reported to the Macintosh driver in a slightly different form.

<b>Front panel message</b>	<b>Macintosh driver message</b>	<b>Description</b>
ready	idle	There are no print jobs pending or printing and no errors.
not ready	printer is not ready	The printer is not ready to print, but no error exists (for example, during power-up).
processing data	processing data	The printer is receiving and processing an image, but is not yet printing.
printing	printing	Printing is in progress; this includes feeding and ejecting paper.
waiting for data	waiting for data	The printer is receiving an image, but the image is not being transmitted as fast as the printer can accept it.
resetting	resetting printer	The controller is resetting the print engine because of a condition that would not clear.
cleaning heads	cleaning heads	Head cleaning is in progress.
out of paper	out of paper	There is no paper in the input tray, or the paper is not inserted correctly.
ink out: color	add ink: color	One or more ink cartridges are out of ink. The color that is out of ink appears in the message.
paper jam	paper jam	The printer is reporting a media jam due to a media jam or an incorrect page size.
empty waste ink	waste ink tank full	The waste ink tank is almost full. When it becomes full, the printer will not operate until the waste ink tank is replaced (see “Special notes regarding the empty waste ink message” on page 6-19).
internal error	internal interface error	The controller and print engine are not communicating correctly. Reset the printer; if the error persists, the printer requires service.
service call: xx	service call: xx	The print engine has reported an unrecoverable error; the print engine reports a two-digit hexadecimal error code. These codes are described in the table “Service call error codes” on page 6-19. Reset the printer; if the error persists, the printer requires service.

**Service call error codes**

<b>Code</b>	<b>Description</b>
01	LF error.
02	Abnormal temperature.
04	Carriage error.
08	Waste ink tank full.
10	Cleaning unit error.
20	Home position error.
40	Printhead error.
11	Reserved.
12	ASF sensor error.
14	Encoder error.
18	GA error.
90	EEPROM error.
A0	RAM error.
C0	ROM error.

**Special notes regarding the empty waste ink message**

This is a warning that the waste ink tank is almost full. This warning means that the printer will eventually cease printing when that waste ink tank is full. As soon as the printer displays this message, contact a Tektronix service representative or your dealer for assistance. The waste ink tank is not customer-replaceable.

**Caution** *To avoid possible ink spillage, do not tip the printer when the empty waste ink message is displayed.*

**Note** *The waste ink tank has a long life; most users will never see the empty waste ink message.*

## Whom to call for help

Call your dealer or a Tektronix sales representative for assistance, or in the U.S.A. and Canada, call the Tektronix Customer Support Hotline at **1-800-835-6100**. The Customer Support Hotline is staffed from 6:00 am to 5:00 pm Pacific Time. To avoid peak hours, call before 11:00 am or after 2:00 pm Pacific Time.

When calling for technical support, please note your printer's model number and serial number. If possible, print out a startup page. The model number, serial number, and the information on the startup page can help technical support to assist you more quickly.

For technical support outside the United States and Canada, contact your local Tektronix dealer or Tektronix sales representative.

## Using the automated fax systems

As an alternative to the Customer Support Hotline, and to provide up-to-date information quickly, Tektronix has set up HAL (Highly Automated Library) and EuroHAL, two interactive, automated fax systems. These automated fax systems provide Macintosh, PC, and workstation users with the latest technical hints and tips (like color adjustments), solutions to common technical problems, and application notes for software problems (such as CorelDRAW! and QuarkXpress).

You may call HAL or EuroHAL from anywhere in the world. The fax systems are available 24 hours a day, seven days a week.

### Use HAL to order a catalog or individual documents in the U.S.A. and Canada

If you have a fax machine and a touch-tone voice telephone, you can order a HAL catalog, listing all of the information offered by HAL, by calling (503) 682-7450 (direct) or, in the U.S. and Canada, call 1-800-835-6100.

1. Before you call, write down the area code and telephone number for your fax machine. HAL will ask you to key this number through the keypad on your voice telephone. If you are calling from outside the United States or Canada, you'll need to know the international access code to reach your country from the United States. Without a complete fax number, HAL cannot call your fax machine.
2. Call only from a touch-tone voice telephone.
3. Follow through the voice-prompted menu.
4. Order individual documents by entering the desired document's number as listed in the HAL catalog. Enter the number by using the telephone's keypad.
5. You can order up to three documents per call.
6. The HAL catalog or documents you request are faxed to you in a matter of minutes.

### Use EuroHAL to order a catalog or individual documents in Europe

EuroHAL includes many documents, some in English and some in other European languages. If a local version of the document you want is available, EuroHAL will send it in your language. Otherwise, it will send English documents.

If you have a tone-dial telephone and a fax machine, then you can use EuroHAL. If your telephone has star (\*) and hash mark (#) keys then it can probably use tones; ask your local telephone supplier if you are not sure.

If your telephone does not have these keys or has a dial, you will need to buy a *tone dialer* from your local telephone or electronics shop. This small box is held to the phone and will send the standard tones that you need to talk to EuroHAL.



1. To use EuroHAL, dial one of the numbers listed in the following table.

Country	Number
Austria	00 44 1628 478 347
Belgium	00 44 1628 478 347
Denmark	00 44 1628 478 347
Finland	990 44 1628 478 347
France	05 90 81 86
Germany	0130 819 220
Holland	00 44 1628 478 347
Italy	00 44 1628 478 347
Norway	0 95 44 1628 478 347
Spain	07 44 1628 478 347
Sweden	0 09 44 1628 478 347
Switzerland	00 44 1628 478 347
UK	01628 478 347
Other countries	+44 1628 478 347 (where + is your country's International Access Code)

2. EuroHAL answers and asks which language you want to use.

For English	Press 1
For French	Press 2
For German	Press 3

3. The first time you use EuroHAL, you should order a catalog. This lists all the documents that are available and is constantly updated.

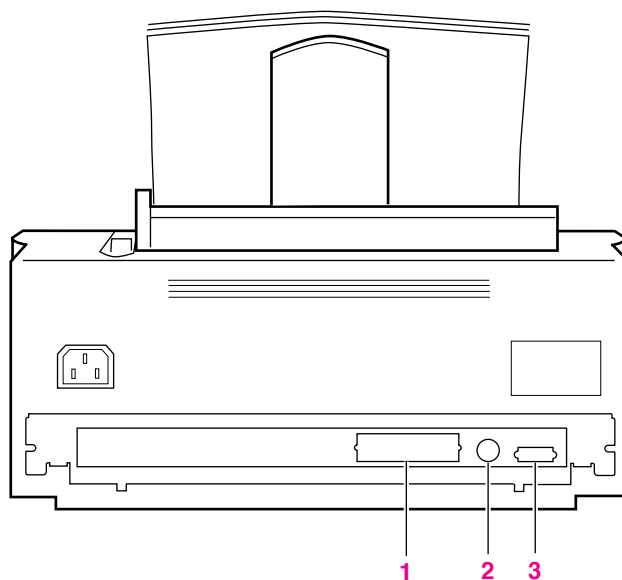
4. EuroHAL asks you for your fax machine number. If you are calling from outside the UK, add your country code first, as shown in the following table.

<b>Country</b>	<b>Country code</b>	<b>Your area code and fax number</b>	<b>Press # when finished</b>
Austria	00 43	area code fax number	#
Belgium	00 32	area code fax number	#
Denmark	00 45	area code fax number	#
Finland	00 358	area code fax number	#
France	00 33	area code fax number	#
Germany	00 49	area code fax number	#
Holland	00 31	area code fax number	#
Italy	00 39	area code fax number	#
Norway	00 47	area code fax number	#
Spain	00 34	area code fax number	#
Sweden	00 46	area code fax number	#
Switzerland	00 41	area code fax number	#
UK		just enter your fax number	#
Other countries	00 xx	area code number	#

## *Front and Rear Panels*

### Rear panel

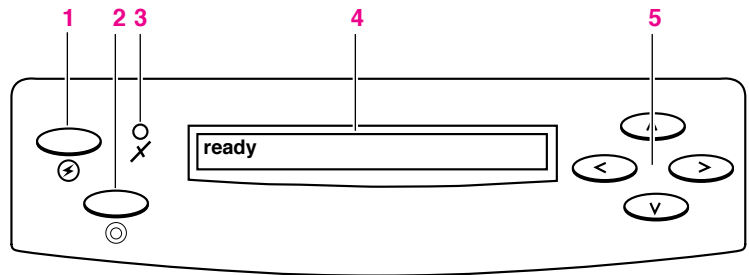
1. Parallel connector
2. LocalTalk connector
3. Ethernet connector



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## Front panel

1. **POWER** button and indicator
2. **SELECT** button and indicator
3. **ERROR** indicator
4. Display
5. Arrow keys



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## Front panel indicators

The following table describes the front panel indicators.

Indicator	On	Off	Blinking
<b>ERROR</b>	An error condition exists that does not prevent printing and will correct itself. See front panel display for message.	Normal operation.	An error condition exists that prevents printing and will not correct itself (for example, a paper jam). See front panel display for message.
<b>POWER</b>	The <b>POWER</b> button is on.	The <b>POWER</b> button is off, the printer is unplugged, or the power supply has failed.	Power up or reset is in progress.  Automatic ink jet cleaning is in progress.
<b>SELECT</b>	Normal operation; printer is ready to receive print jobs.	Choices from the displayed menu can be viewed by pressing the arrow keys (← → ↑ ↓).	<p><b>Blinking slowly:</b></p> <p>Printer is receiving data, waiting for data, or printing. A PostScript print job is in progress.</p> <p><b>Blinking fast:</b></p> <p>If a menu choice is displayed on the front panel: Displayed front panel choice can be selected by pressing the <b>SELECT</b> button.</p> <p>If no menu choice is displayed on the front panel: An error condition exists involving media or ink. When problem is corrected, press the <b>SELECT</b> button to resume printing.</p>

## Making menu selections from the front panel

### SELECT

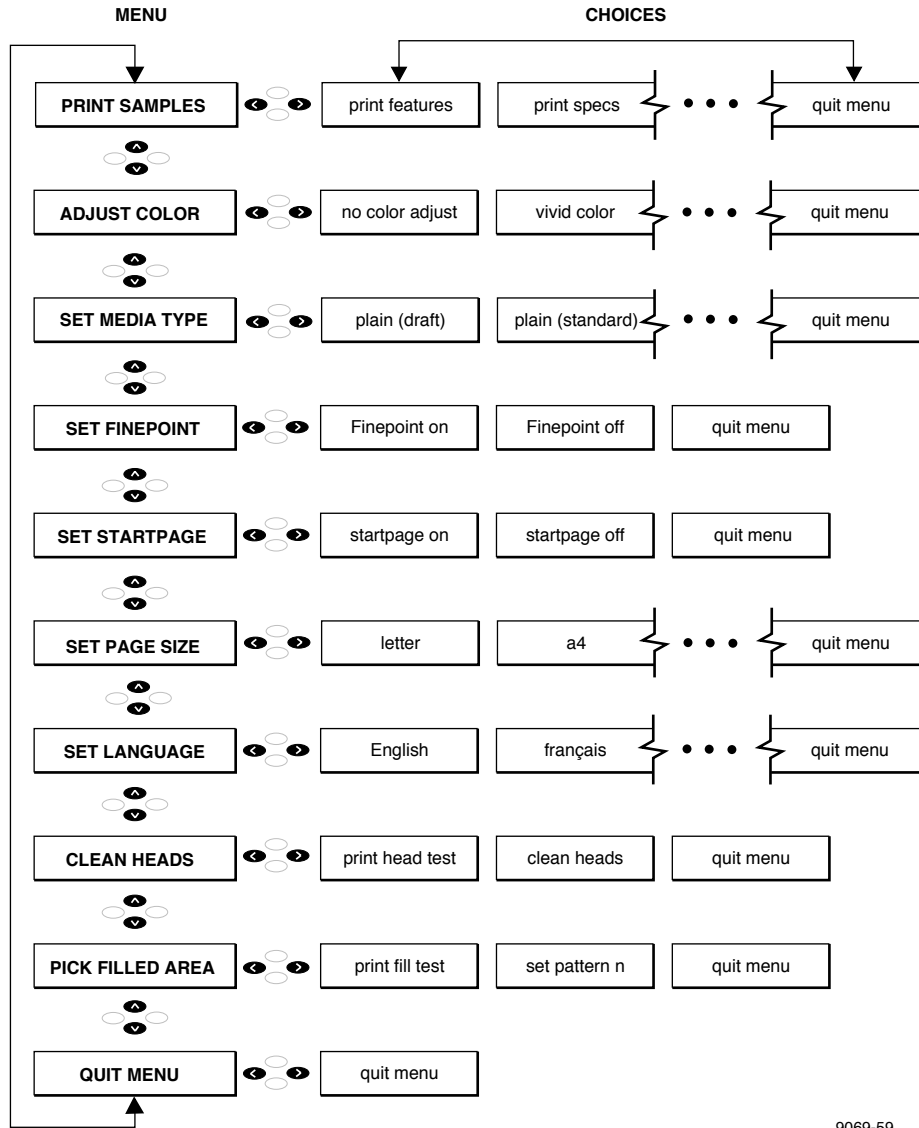


You can control some printer operations from the front panel. The front panel display provides several menus from which you can select choices that control the printer. You use the front panel arrow keys and **SELECT** button to select menus and choices:

- Press the down (↓) or up (↑) arrow keys to scroll through the menus.
- Press the right (⇒) or (⇐) left arrow keys to see the choices available in a menu. When choices are displayed on the front panel, the Select indicator is on, indicating that you can select the displayed option by pressing the **SELECT** button.
- When the option you want is displayed, press the **SELECT** button to select that option.
- For choices that remain in effect after you resume printing (for example, color adjustments) the currently selected option is marked with an asterisk (\*) on the display. For choices that initiate immediate action by the printer (for example, sample prints) no asterisks are displayed.

**Note** *Printer control choices selected through the printer driver override those selected from the front panel.*

The next illustration shows the arrangement of front panel menus and choices. It also shows how the arrow keys are used to scroll through the menus and choices. Notice how the menus and choices “wrap around.” For example, when the last menu in the list is displayed, pressing the down (↓) arrow key again displays the first item on the list.



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**Front panel menus and choices**

<b>Menu</b>	<b>Option</b>	<b>Description</b>
PRINT SAMPLES	print features	Prints a sample page listing the printer's features and benefits.
	print specs	Prints a sample page listing the printer's specifications.
	print color use	Prints a sample page that explains why and how color should be used in documents. (This sample page is available only when <b>SET LANGUAGE</b> is set to <b>English</b> .)
	print supplies	Prints a sample page listing the printer's supplies. (This sample page is available only when <b>SET LANGUAGE</b> is set to <b>English</b> .)
	print startpage	Prints the startup page.
	print config	Prints the configuration page.
	print limit test	Prints the limit test page, which exercises the printer and reveals printing problems.
	load error page	Loads the Tektronix error handler.
	quit menu	Returns the printer to normal operation.
ADJUST COLOR*	no color adjust	The printer performs no color adjustments. Blues appear somewhat purple.
	vivid color	The printer adjusts some of the colors to achieve the most vivid effect. In particular, the printer's blue appears less purple. This is best for most presentation printing (transparencies).
	simulate screen	The printer's colors more nearly match your computer's screen.
	simulate press	The printer's colors more nearly match a commercial printing press.
	monochrome	The printer prints in gray scale. This is useful when prints are to be photocopied.
	quit menu	Returns the printer to normal operation.
SET MEDIA TYPE*	plain (draft)	Provides draft-quality plain-paper prints with the fastest print time.
	plain (standard)	Provides improved plain-paper print quality; print time is increased over <b>draft</b> mode.
	plain (premium)	Provides the best plain-paper print quality; print time is increased over <b>standard</b> mode.
	coated paper	Provides the best print quality for Tektronix coated paper.
	glossy paper	Provides the best print quality for Tektronix glossy paper.
	transparency	Provides the best print quality for Tektronix transparencies.
	back print film	Provides the best print quality for Tektronix back-print film.
	quit menu	Returns the printer to normal operation.

\*In these menus, the currently selected option is marked with an asterisk (\*) on the front panel display.



**Front panel menus and choices (cont'd.)**

<b>Menu</b>	<b>Option</b>	<b>Description</b>
SET FINEPOINT*	Finepoint on	Enables Finepoint.
	Finepoint off	Disables Finepoint.
	quit menu	Returns the printer to normal operation.
SET STARTUP PAGE*	startpage on	Enables the startup page.
	startpage off	Disables the startup page.
	quit menu	Returns the printer to normal operation.
SET PAGE SIZE*	letter	Use for Letter-size media (8.5 x 11 ins.).
	a4	Use for A4-size media (210 x 297 mm).
	legal	Use for Legal-size media (8.5 x 14 ins.).
	quit menu	(Only displayed when at least 4 Mbytes of optional memory are installed in the printer.) Returns the printer to normal operation.
SET LANGUAGE*	English	Displays all front-panel messages in English.
	français	Displays all front-panel messages in French.
	Deutsch	Displays all front-panel messages in German.
	español	Displays all front-panel messages in Spanish.
	italiano	Displays all front-panel messages in Italian.
	quit menu	Returns the printer to normal operation.
CLEAN HEADS	print head test	Prints a test pattern that displays ink jet problems (ink jets clogged with ink).
	clean heads	Cleans all ink jets.
	quit menu	Returns the printer to normal operation.
PICK FILLED AREA	print fill test	Prints registration test page containing 13 patterns.
	set pattern n	Adjusts printhead registration according to selected pattern n (1–13).
	quit menu	Returns the printer to normal operation.
QUIT MENU	quit menu	Returns the printer to normal operation.

\*In these menus, the currently selected option is marked with an asterisk (\*) on the front panel display.



# A

## *Technical Notes*

### **Parallel port**

The printer has a standard unidirectional, byte-wide parallel, synchronous port.

The table on the next page shows the parallel port's connected pins. Other pins are not connected. Signal names ending with a dash (-) are asserted low.

**Parallel port signal descriptions**

<b>Signal name</b>	<b>Pin #</b>	<b>Return pin</b>	<b>Signal source</b>	<b>Description</b>
DSTRB-	1	19	Host	Pulsed low for .5 microseconds; clocks data into printer
DATA1	2	20	Host	Positive true data input
DATA2	3	21	Host	Positive true data input
DATA3	4	22	Host	Positive true data input
DATA4	5	23	Host	Positive true data input
DATA5	6	24	Host	Positive true data input
DATA6	7	25	Host	Positive true data input
DATA7	8	26	Host	Positive true data input
DATA8	9	27	Host	Positive true data input
ACK-	10	28	Printer	Data acknowledge pulsed low for 3-4 microseconds; ends bus transaction
BUSY	11	29	Printer	Positive true = cannot accept data
PE	12	-	Printer	Positive true = out of paper or ink
SLCT	13	-	Printer	Positive true = printer selected
INPRIME-	31	30	Host	Negative true = printer port reset
FAULT-	32	-	Printer	Negative true = printer fault indicator
Frame Gnd	-	17	Printer	Frame ground
SGnd	-	14,16,33	Printer	Signal ground

## Specifications

### Temperature

*Operating:* 15° C to 30° C (59° F to 86° F)

*Non-operating:* 0° C to 35° C (32° F to 95° F)

*Storage:* (without media):

For 6 months: 0° C to 35° C (32° F to 95° F)

For 10 days: -30° C to 60° C (-22° F to 140° F)

### Humidity

*Operating:*

Plain paper: 10% to 80% Relative Humidity

Transparency: 10% to 70% Relative Humidity

*Non-operating:* 5% to 95% Relative Humidity, non-condensing

*Storage:* (without media):

For 6 months: 35% to 85% Relative Humidity

For 10 days: 10% to 95% Relative Humidity

### Altitude

*Operating:* 0.8942 kg/m. Minimum air density (about 0 to 10,000 feet at 25° F; -4° C)

*Non-operating/Storage:* 0 to 13,500 ft. pressure alt.

### Primary voltage ranges

85 - 132 VAC, 110 VAC nominal

187 - 264 VAC, 220/240 VAC nominal

### Frequency range

110 VAC, 57 to 63 Hz

220 VAC, 47 to 53

### Primary fusing

110 VAC, 0.31 Amps

220 VAC, 0.2 Amps

(Not user-accessible)

### Heat dissipation

*Power off:* 20 BTU/hour (6 Watts/hour)

*Idle (Energy Star):* 82 BTU/hour (45 Watts/hour)

*Continuous printing:* 147 BTU/hour (53 Watts/hour)

**Dimensions**

*Height:* 19.1 cm (7.5 ins.)

*Depth:* 31.8 cm (12.5 ins.)

*Width:* 41.9 cm (16.5 ins.)

**Weight**

6.4 kg (14.2 lbs.)

**Printing**

Ink-jet on-demand

360 x 360 dots-per-inch

**Ink cartridge capacity**

*Black:* 14 ml (15.5 g) of ink

*Other colors:* 9 ml (10 g) of ink

**Safety and emissions standards**

FCC Part 15, Subpart J "Class B" verified.

CISPR 22 Class B, verified.

UL 1950, listed.

CSA 220, certified.

EN60950/IEC 950, TUV licensed.

EN55022.

Vfg 243.

# B

## *Expanding Your Printing System*

### Upgrade kits

4690F4M	4-Mbyte SIMM for adding memory.
4685F16	16-Mbyte SIMM for adding memory.
4686FP1	Ethernet hardware upgrade kit; includes EtherTalk and Novell NetWare protocols.
4680FP2	Add TCP/IP support (requires 4686FP1 already installed).

## Advantages of adding memory

The following table summarizes the memory configurations for the Phaser 140 printer:

<b>Memory configuration</b>	<b>Total memory</b>
Standard	8 Mbytes
Add one 4-Mbyte SIMM*	12 Mbytes
Add one 16-Mbyte SIMM*	24 Mbytes (max.)

\* You can add either one 4-Mbyte SIMM or one 16-Mbyte SIMM, but not both.

The total amount of memory installed in the printer is reported on the startup page and on the configuration page.

In general, more memory improves throughput, provides more storage for downloadable fonts, and allows printing of the most complex images. Additional memory can also reduce offload time by increasing the size of input buffers for the parallel port. Adding a 4-Mbyte SIMM to a Phaser 140 provides the following specific benefits:

- Larger input buffer (128 Kbytes).
- Improved imaging performance.
- Improved network performance.
- Ability to print on Legal-size media.
- Ability to print custom page sizes larger than 216 x 279 mm or 8.5 x 11 ins. (up to 216 x 356 mm or 8.5 x 14 ins.). (Custom page sizes are available through the Tektronix Phaser 140 Windows driver; some PPD-driven Macintosh drivers also support custom page sizes.)



Adding a 16-Mbyte SIMM to a Phaser 140 provides the following specific benefits:

- Largest input buffer (512 Kbytes).
- Best imaging performance.
- Best network performance.
- Ability to print custom page sizes up to 216 x 559 mm or 8.5 x 22 ins. (Custom page sizes are available through the Tektronix Phaser 140 Windows driver; some PPD-driven Macintosh drivers also support custom page sizes.)
- Substantially increased virtual memory for complex PostScript and downloaded fonts.



## C

# Shipping Your Printer

## If the printhead is operational

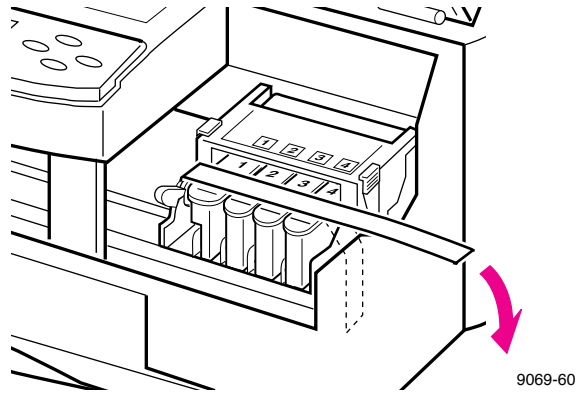
**POWER**

Follow these instructions if the printer is in working order. You should also use these instructions for shipping a damaged printer for servicing, *if the carriage containing the printhead still returns to the far right position when you turn off the printer using the **POWER** button*. If the carriage containing the printhead does not return to the far right position when you turn off the printer, follow the instructions under the topic, “If the printhead is not operational” on page C-4.

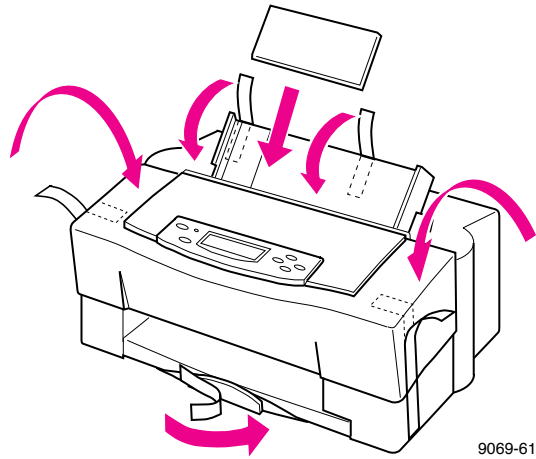
1. Remove the interface cables and make sure the printer is turned on.
2. Open the cover and remove all ink cartridges (see “Removing a used ink cartridge” on page 4-3). To avoid spilling ink, place the ink cartridges on a sheet of clean paper with the numbered (1 to 4) label sides facing up.
3. Close the top cover and perform the ink jet cleaning procedure to empty all ink from the printhead unit (“Cleaning the ink jets” on page 4-10).
4. Re-install the ink cartridges (see “Installing a new ink cartridge” on page 4-4).

## C Shipping Your Printer

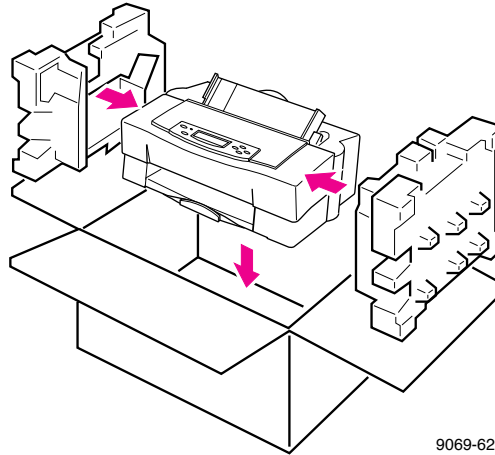
5. Secure the ink cartridges with tape.



6. Close the cover.
7. Turn off the printer and remove the power cord.
8. Secure the top cover, the output tray, and the input tray with tape.



9. Place the printer in its original carton, making sure that it is well cushioned with the packing materials.



10. To obtain the appropriate shipping address and procedure:
  - In the U.S.A. and Canada, call the Tektronix Customer Support Hotline at **1-800-835-6100**.
  - Outside the U.S.A. and Canada, contact your local Tektronix dealer or Tektronix sales representative.

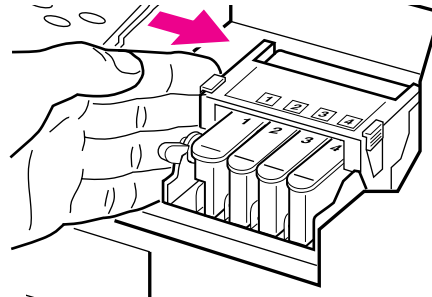
## If the printhead is not operational

**POWER**



Follow these instructions for shipping a damaged printer for servicing, *if the carriage containing the printhead **does not** return to the far right position when you turn off the printer using the **POWER** button.*

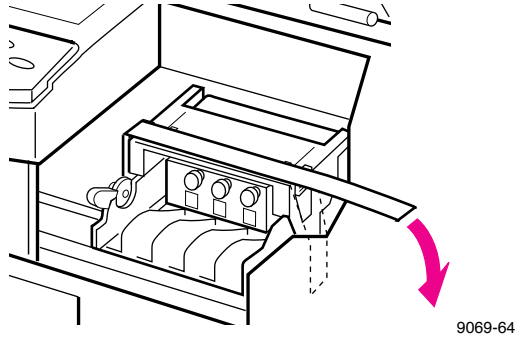
1. Press the **POWER** button to turn off the printer.
2. Remove the power cable and the interface cable.
3. Open the top cover and make sure that the carriage is in its home position (at the right front of the printer). If not, move it to the home position by hand.



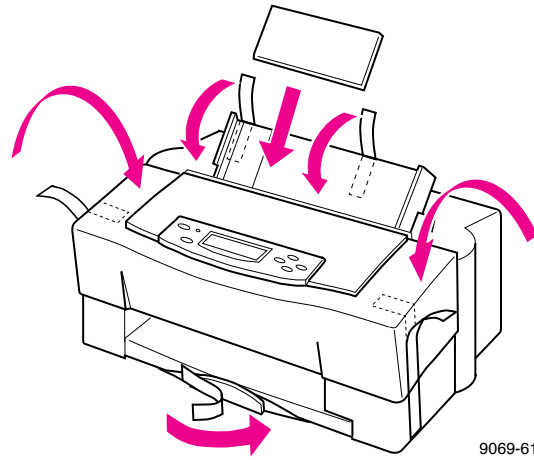
9069-63

4. Remove all ink cartridges (see “Removing a used ink cartridge” on page 4-3).
5. Wrap the ink cartridges individually with clear plastic wrap or similar material. Pack them together in a plastic bag to avoid spilling ink.

6. Secure the carriage with tape.

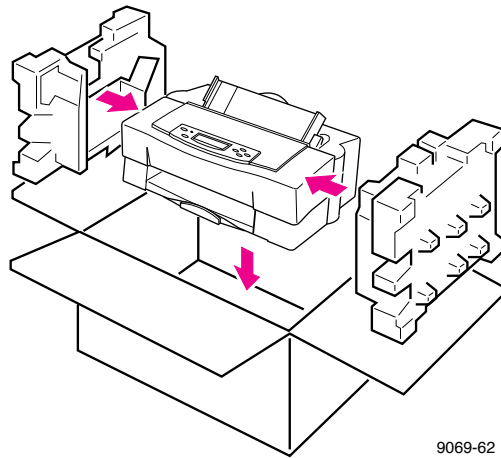


7. Secure the top cover, the output tray, and the input tray with tape.



8. Place the printer in its original carton, making sure that it is well cushioned with the packing materials.

**Caution** *Do not turn the printer upside down; otherwise ink may spill out.*



9. To obtain the appropriate shipping address and procedure:
  - In the U.S.A. and Canada, call the Tektronix Customer Support Hotline at **1-800-835-6100**.
  - Outside the U.S.A. and Canada, contact your local Tektronix dealer or Tektronix sales representative.



# D

## *Regulatory Information*

### **Canadian EMC (Electromagnetic Compatibility) regulatory standards**

- This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.
- Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe B prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

## Declaration of conformity

Tektronix, Inc.  
Graphics Printing and Imaging Division  
P.O. Box 1000  
Wilsonville, Oregon 97070-1000 U.S.A.

declares, under our sole responsibility, that the products

Phaser 140

to which this declaration relates, are in conformity with the following standard(s) or other normative document(s):

For the EC EN60950	Safety of Information Technology Equipment including Electrical Business Equipment
For the EC EN55022	Limits and methods of measurement of radio Interference characteristics of Information Technology Equipment
For the EC 50 0821-1	The Generic Immunity Standard for electrical and electronic apparatus intended for use in the residential, commercial, and light industrial environment.
For Germany Vfg 243	Radio Interference suppression of Radio-Frequency Equipment for Industrial, Scientific, Medical (ISM) and similar purposes and Equipment used in Information Processing Systems; General License

following the provision of the

Low Voltage Directive 73/23/EEC, the Electromagnetic Compatibility  
Directive 89/336/EEC, Machinery Directive 89/392/EEC, and the law  
governing the operation of radio-frequency equipment (HFfG)  
9 August 1949.

## FCC Class B device (for 110 VAC equipment)

The equipment described in this manual generates and uses radio frequency energy. If it is not installed and used properly in strict accordance with Tektronix' instructions, it may cause interference with radio and television reception.

This equipment has been tested and verified to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interferences 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 of more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into 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.

**Warning** *Changes or modifications not expressly approved by Tektronix can affect emission compliance and could void the user's authority to operate this product.*

## Material Safety Data Sheet

*Proper management of environmental resources protects the well-being of our employees, customers, shareholders, and the communities we are a part of worldwide.*

*Tektronix establishes and maintains sound environmental management practices to accomplish this goal and to assure compliance with the laws, regulations, and orders of the responsible governmental authorities wherever Tektronix and its subsidiaries operate.*

*Tektronix, Incorporated is complying with government regulations by providing Material Safety Data Sheets for our products.*

*Graphics Printing and Imaging Division  
Tektronix, Incorporated*

### Section I – Product identification

**Trade name and Tektronix part number:**

<i>Cyan Ink Cartridge</i>	016-1334-20
<i>Magenta Ink Cartridge</i>	016-1335-20
<i>Yellow Ink Cartridge</i>	016-1336-20
<i>Black Ink Cartridge</i>	016-1333-20

**Product use:** Used in the Phaser 140 color printer.

### Section II – Information on ingredients

<b>Ingredients</b>	<b>CAS No.</b>	<b>Wt. %</b>
Water	7732-18-5	60 – 80
Glycerin	56-81-5	5 – 10
Water-soluble Organic Solvent		10 – 15
Water-soluble Organic Pigment		5 – 10

**Hazardous Ingredients:** None.

### Section III – Hazards identification

**Potential Health Effects:**

**Eyes:** May cause slight irritation.

**Skin:** May cause temporary discoloration.

**Inhalation:** Not applicable in usual use and storage.

**Ingestion:** May be harmful if swallowed.

### Section IV – First aid measures

**Eyes:** Flush with plenty of water. If irritation persists, get medical attention.

**Skin:** Wash with soap and water. Launder contaminated clothes before wearing.

**Inhalation:** If person breathes large amounts, remove to fresh air. Get medical attention.

**Ingestion:** Obtain immediate medical assistance. Call a physician.

### Section V – Fire fighting measures

**Flammable Properties:**

**Flash point:** Not applicable. Closed cup.

**Fire & explosion hazards:** None.

### Section VI – Accidental release measures

**Spill Or Leak:** Wipe off with paper or wet cloth

### Section VII – Handling and storage

**Handling:** Keep out of reach of children.

**Storage:** Store in a cool, dry area.

## Section VIII – Exposure control – personal protection

**Exposure Guidelines:** Glycerin as mist.  
OSHA (PEL) TWA: 10 mg/m<sup>3</sup> (Total Dust).  
5 mg/m<sup>3</sup> (Respiration Fraction).  
ACGIH (PEL) TWA: 10 mg/m<sup>3</sup> (Total Dust).  
**Engineering Controls:** No special controls necessary.  
**Eye Protection:** Not required.  
**Skin Protection:** Not required.  
**Inhalation:** Not required.  
**Ventilation:** Standard ventilation.

## Section IX – Physical and chemical properties

**Appearance:** Cyan, magenta, yellow, or black liquid.  
**Odor:** Mild.  
**Solubility in Water:** Miscible.  
**Solubility in Organic Solvents:** Glycerin.

## Section X – Stability and reactivity

**Stability:** Stable.  
**Incompatibility With Other Materials:** None.  
**Hazardous Decomposition Products:** Ammonia.  
**Hazardous Polymerization:** Will not occur.

## Section XI – Toxicological information

**Mutagenicity:** Negative (test strain: S. Typhimurium) Ames Test.

## Section XII – Ecological information

No data available.

## Section XIII – Disposal considerations

Empty cartridge is mainly composed of plastic. The cartridge may be discarded as plastic waste. Check federal, state, and local disposal regulations.

## Section XIV – Transport information

**D.O.T.:** Not a hazardous material for DOT shipping.

## Section XV – Regulatory information

**SARA Title III:**

**311/312 Hazard Categories:** None applicable.

**313 Reportable Ingredients:** None.

**TSCA:** All components are included in the Toxic Substances Control Act inventory as verified by our suppliers.

**OSHA:** Not applicable.

## Section XVI – Other information

**Original preparation date:** 6/10/94

Tektronix, Incorporated  
P.O. Box 500  
Chemical Documentation  
Mail stop 22-069  
Beaverton, Oregon 97077  
Printer information: 1-800-835-6100  
MSDS information: (503) 627-7255  
Emergency: (503) 627-7255





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