

enVision Owner's Guide

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Introduction

Thank you for purchasing the Gerber enVision™ plotter. The enVision is a state-of-the-art plotter designed for use with the GRAPHIX ADVANTAGE® and other sign design systems using the HPGL™ command set.

The plotter is available in two models – the enVision 750, which is 30" (762 mm) wide for cutting large format jobs, and the enVision 375, which is 15" (381 mm) wide for cutting GERBER EDGE® printed jobs.

Both enVision plotters deliver outstanding material handling performance for all 15-inch (381 mm) and 30-inch (762 mm) wide format punched vinyl films supplied by Gerber. They achieve speeds and accelerations equal to friction plotters while maintaining the dead-on accuracy of sprocket plotters. They offer dependability, ease of use, minimal maintenance requirements, and setup flexibility.

In this manual

Note: The information in this manual applies to both enVision plotter models. Differences between the plotters are noted in the descriptions and procedures as required.

This manual contains the following sections:

Introduction presents basic information about this manual.

Getting Started tells you how to connect the enVision, use the control panel and menus, load material, and install tools.

enVision Overview describes the plotter features, the plotting process, introduces the concepts of tool settings, discusses using the enVision with the GRAPHIX ADVANTAGE (GA™) Plot32 program, and presents the differences when cutting GERBER EDGE (EDGE®) jobs.

Plotting Jobs presents the procedures for using the enVision keypad for plotting single and multiple jobs.

Choosing Tool Settings shows how to use either the plotter or the GA to choose tool settings to maximize cutting your jobs.

Advanced enVision Functions describes available functions beyond routine job cutting.

Troubleshooting provides a list of error messages and possible solutions.

Maintenance describes routine cleaning and replacement procedures.

HPGL Support presents information about using the HPGL command set to support the enVision plotters.

Manual conventions

The following conventions are used in this manual:

Note: A note contains important information which could affect successful completion of a task.

CAUTION: A caution statement contains information which, if not observed, could result in damage to the equipment.

WARNING: A warning statement contains information which, if not observed, could result in personal injury.

This type style is used to represent what is displayed on the enVision's LCD display screen.

A dotted box  around **Start-Job** is used to indicate that it is blinking.

Customer support

If you require assistance installing or operating your enVision plotter, contact your distributor or Gerber Field Service at:



800-828-5406 (in the USA)

860-645-2448 (fax)



The Gerber web site address is www.gspinc.com.

Getting Started

Before sending a job to the plotter, you need to perform these preliminary steps:

- Unpacking and setting up the plotter
- Connecting the plotter to the computer
- Turning on the plotter
- Setting up the software
- Using the control panel and menus
- Loading material
- Installing tools

Unpacking and setting up the plotter

For the enVision 750, follow the unpacking instructions included with the plotter to unpack it, assemble the stand, and mount the plotter on the stand.

For the enVision 375, follow the unpacking instructions included with the plotter to unpack it.

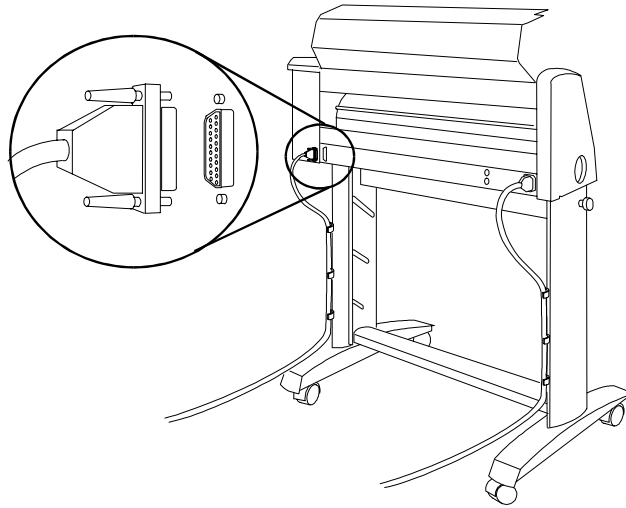
In either case, save the unpacking/packing instructions and the packaging materials in case you need to ship the plotter in the future.

CAUTION: Always repack the plotter using the original packaging materials. Failure to repack the enVision plotter with the original packaging materials may result in damage to the unit during shipping. Gerber is not liable for shipping damage due to improperly packed units. If you do not have the proper packaging materials, contact Gerber Field Service to obtain the materials.

Connecting the plotter to the computer

The enVision is equipped with a null modem serial interface cable and power cord.

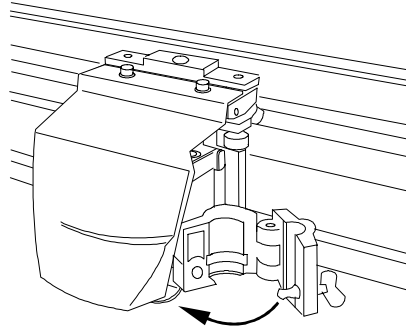
1. Connect the 25-pin connector end of the serial interface cable to the connector on the plotter and tighten the screws.
2. Connect the other end of the serial cable (9-pin connector) to a the computer COM port.
3. Connect the receptacle end of the power cord to the plotter.
4. **For the enVision 750 only**, secure both cables to the side of the plotter stand using the cable clips as shown below.



Turning on the plotter

When you turn on power, the plotter performs a check and initialization sequence. The three closely-spaced material alignment pins move to the up position, the tool head taps the right stop, then moves about 2" (5.08 cm) to the left. When these steps are completed, the Main Menu appears.

1. Close the bail arms.
2. Close and latch the tool clamp as shown below.



3. Close the plotter cover.
4. Plug in the plotter power cord.
5. Turn on the power switch located on the front left side of the plotter. The Main Menu appears.

MAIN MENU	
Mode: Single	Settings
Job Status:	Home
	No Job

Setting up the software

After connecting the plotter to the GA or other sign design system computer, you need to make the plotter available to the computer through your software setup program. If you are not using GA as your sign design system, refer to your software documentation to add the enVision to your system. If you are a GA user, adding the enVision to your computer is a two-step process:

- updating your GA software to add and support the enVision plotter
- adding the enVision to the GA list of available plotting and printing devices

Updating GA software

The enVision plotter is shipped with four 3.5-inch disks. One set of three disks is service pack 3, which is used to update GA version 6.2 so that you can add the enVision plotter and allow it to be fully supported and controlled by GA. The single disk is a driver disk which allows you to add the enVision to your list of available plotters if your GA is version 6.0 or earlier. The following loading rules apply:

<i>If you have GA version</i>	<i>then load</i>	<i>and the result is</i>
6.21	nothing	the GA plot program supports and controls the plotter
6.2	the service pack disks (GA 6.2 service pack 3)	the GA plot program supports and controls the plotter
6.0 or earlier	the driver disk	you can add the enVision to the list of available plotters

Loading the disks is the same for either the service pack disks or the patch disk:

1. Close all GA programs. It is also a good idea to close any Windows® programs that are running.
2. Put disk 1 of the service pack or the driver disk in the 3.5-inch drive (usually the a: drive).
3. In Windows 95, click on Start, Run, type a : \setup, then click on OK. In Windows 3.x, click on Run in the Program Manager File menu, type a : \setup, then press Enter.
4. Follow the onscreen prompts while the setup program loads the files.

Adding the enVision to GA

After you load the disks, the next step is to add the enVision to the list of available plotters in the plot program. This addition is performed in the GSP Setup program.

1. Open the GSP Setup program.
2. Click on Setup, then click on Plotter/Router. The Add or Delete Plotter/Router(s) dialog box appears.

3. From the Devices box, click on enVision 750 or 375 to highlight it. If more than one plotter is connected to your system, highlight the enVision, then click Preferences to set the enVision as the default plotter.
4. Click on the port to which the plotter is connected (COM1, COM2, COM3, or COM4) in the Ports box.
5. Click on Add. The enVision appears in the Ready for Plotting list box.
6. Click on Continue and exit GSP Setup.

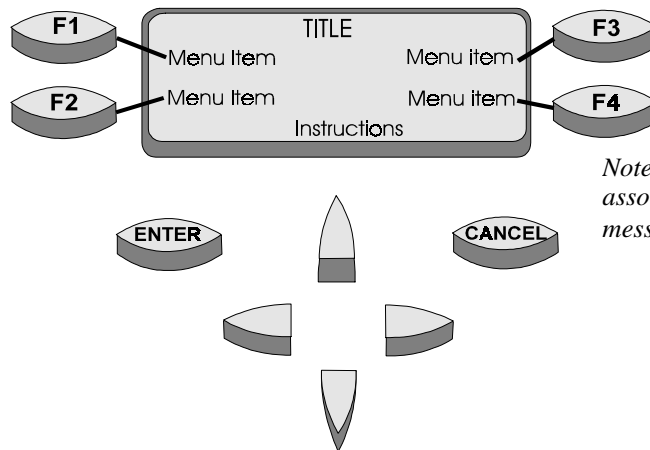
Using the control panel and menus

The plotter's control panel contains 10 keys that perform functions such as positioning the tool head, starting and pausing jobs, and changing settings. The display on the control panel changes to provide information about the status of the plotter and offer menu choices.

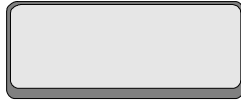
Note: For an outline of the menu structure, please refer to the reference card at the back of this manual.

The control panel consists of:

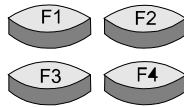
- message display
- control keys (ENTER and CANCEL)
- menu selection keys (F1, F2, F3, F4)
- slew keys



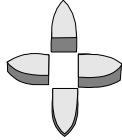
Note: Function keys are associated with text in the message display.



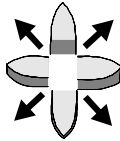
The *message display* shows menus, instructions, system and job status, and messages. Each menu has a title (for example, MAIN MENU). You step through menus by pressing function keys.



The F1, F2, F3, and F4 *function keys* select other menus and change parameter values or settings. Their function is based on the text in the screen associated with each function key.



Slew keys move the tool head and/or the material. The left or right slew keys move the tool head left or right. The up or down slew keys move the material forward or backward. Slewing speed starts slowly. It increases when you continue to hold down the slew key for a few seconds. Quickly pressing and releasing a slew key will move the plotter in increments of 0.001".



Slew diagonally by simultaneously pressing the two slew keys adjacent to the arrow that points in the direction you want to slew.



The *ENTER* key accepts and records settings when in a settings menu, or returns to the MAIN MENU when in a submenu.



When a job is running, the *CANCEL* key stops all motion of the plotter and terminates any job that is in the plotter, clearing it from the plotter memory. When modifying a setting (such as corners, speed, or pull down, for example), pressing CANCEL after changing values will not save the changes nor will it cancel the job. However, in the next menu that appears, pressing CANCEL does cancel the job at that time.

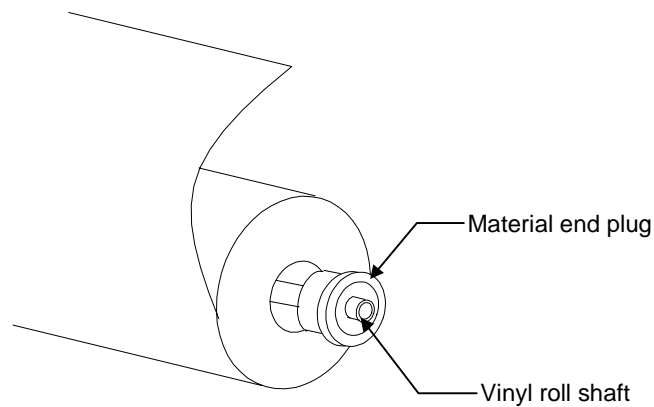
Loading material

The enVision uses the same punched vinyl film, papers, and masks as all Gerber plotters. Always insist on Gerber-authorized materials for highest quality.

Note: The illustrations for loading material depict the enVision 750 plotter. Loading material in the enVision 375 is the same except for the first three steps (putting the material on a vinyl roll shaft and installing the shaft on the plotter stand). For the enVision 375, put the roll of material on the roll holder, then position the holder approximately 10" (25.4 cm) behind the plotter.

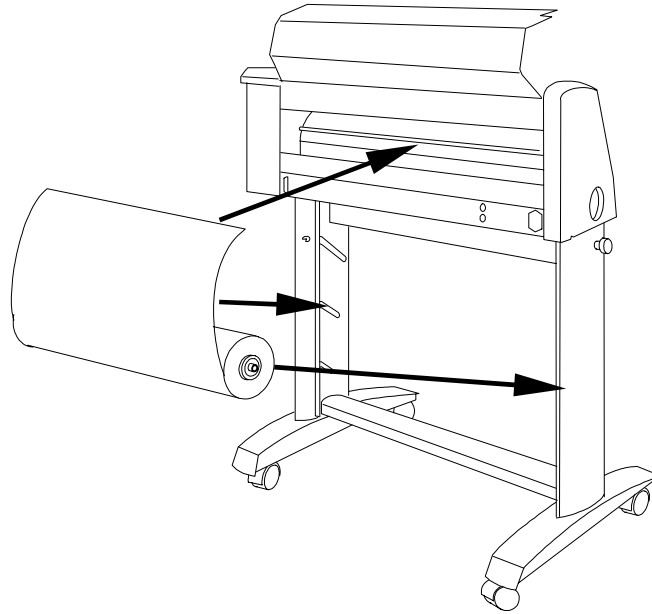
CAUTION: Do not load the material with a tool installed in the tool clamp. Loading material into the plotter with the tool installed can result in damage to the blade or the material.

1. **For the enVision 750 only**, place a material end plug in each end of the roll of material by inserting the end plug into the cardboard tube.



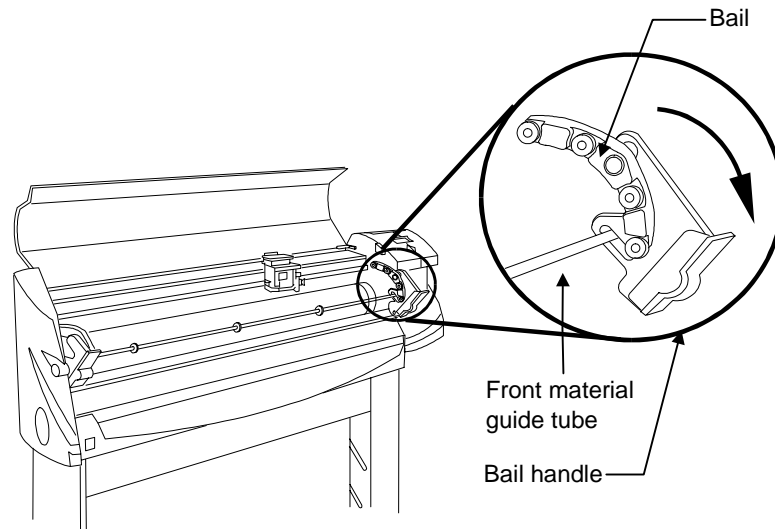
2. **For the enVision 750 only**, insert the vinyl roll shaft tube through each end plug.

3. **For the enVision 750 only**, position the roll of material on the stand by inserting the vinyl roll shaft tube into the slots of the stand as shown below.

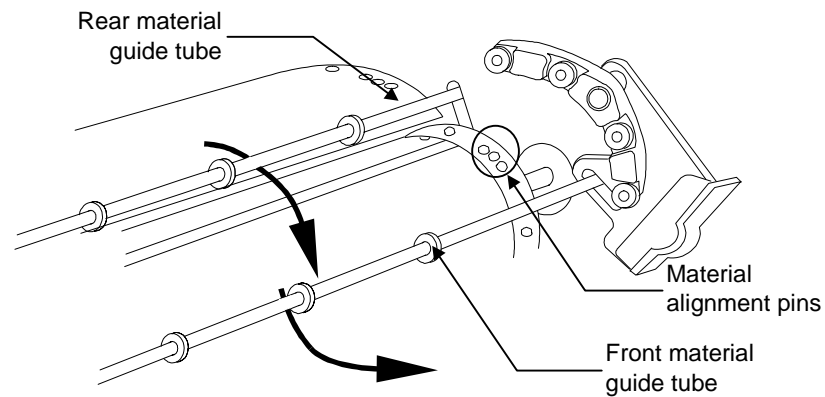


4. Press F4, HOME. The three closely-spaced material alignment pins rotate to the up position and the tool head reorients itself. These three pins match the three closely-spaced holes in the material for perfect alignment.

5. Open the bails and the front material guide tube by simultaneously pulling the bail handles forward and down away from the front of the plotter.

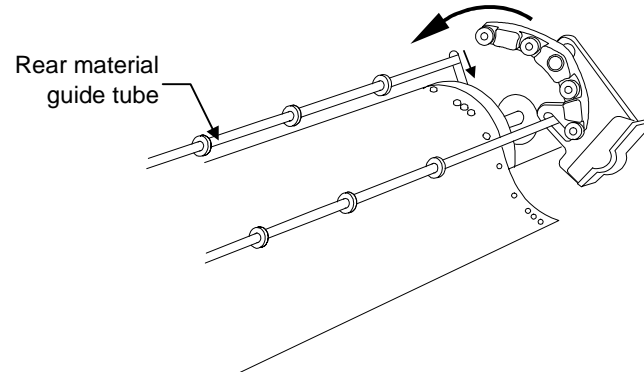


6. Open the rear material guide tube by lifting it up. (See the illustration below.)
7. Pull the material up toward the plotter, feeding the material from back to front as shown in the illustration below, ensuring that the material is underneath the front and rear material guide tubes.



8. Match the three closely-spaced holes in the material with the three material alignment pins on the sliding sprocket at the left end of the plotter. This sprocket may be shifted slightly left or right to accommodate small differences in the material width.

9. On the right end of the plotter, place the three closely-spaced holes on the alignment pins of the fixed sprocket.
10. Close the rear material guide tube, then adjust (slide) the left bail so that it lines up with the sliding sprocket on the left side. Close the bails, which also closes the front material guide tube, making sure that the left bail is seated over the pins of the left sprocket.



Installing tools

The knife, pen, and optional pounce tools are all installed into the tool head the same way. Before installing the knife for the first time, or after changing the blade, adjust the blade exposure, then load the knife. This paragraph provides information on:

- Adjusting the knife blade exposure
- Installing a tool
- Changing the knife blade

Note: The GERBER EDGE eyepiece, used to align the knife with the cutter registration mark printed on the material, is also installed in the tool head the same way as the tools. For more information on using the plotter with the EDGE, refer to the paragraph "Using the enVision with the EDGE."

Adjusting the knife blade exposure

Cut quality is directly related to the correct blade exposure for the material being cut.

The knife tool holder has hash marks around its circumference. Rotating the adjustment cap one hash mark, extends or retracts the blade 0.001" (1 mil) (0.0254 mm). When the blade is pointed towards the ceiling, rotating the adjustment cap clockwise increases the blade exposure. Turning the cap counter clockwise decreases the blade exposure.

Adjusting the blade exposure to the proper amount is a trial and error process. You adjust the blade exposure visually, then perform a hand-held test cut on the material you will be cutting. Evaluate the results, adjust the blade in or out, and perform another hand-held test cut. Keep repeating this procedure until the depth of cut permits easy weeding without cutting the material backing.

► **To set the blade exposure**

1. Hold the tool holder with the blade toward the ceiling. Turn the adjustment cap clockwise (to extend) or counter clockwise (to retract) so that the blade extends beyond the end of the tool holder approximately the thickness of two sheets of paper. (*Note: This is the correct setting for Scotchcal 220™ material. Other materials may require more or less exposure.*)

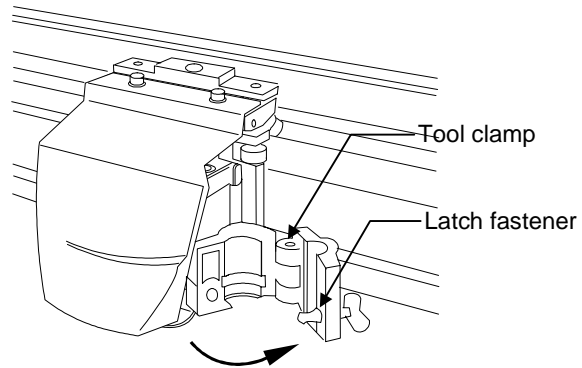
CAUTION: When performing the next step, do not press too hard on the material. Too much pressure can damage the blade.

2. Place a piece of the material you will be cutting on a flat surface and, pressing gently, scribe a circle with the tool by hand.
3. Weed the circle. If it weeds properly without cutting into the backing, the blade exposure is correctly set for that material.
4. If the material has not been cut all the way through, turn the adjustment cap clockwise one or two hash marks to expose more blade. Go back to Step 2. Repeat the procedure until the scribed circle weeds properly without cutting the backing material.
5. If the backing material has been cut, turn the adjustment cap counter clockwise to decrease the blade exposure. Go back to Step 2. Repeat the procedure until the backing material is no longer cut and the scribed circle weeds properly without cutting the backing material.

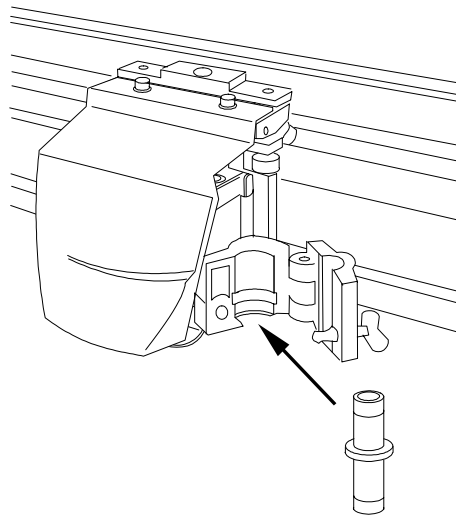
Installing a tool

After you adjust or verify the knife blade exposure:

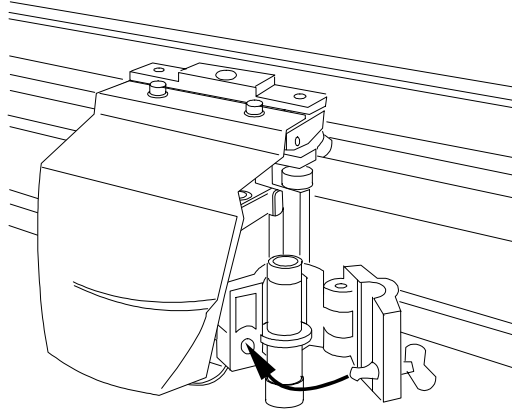
1. Move the tool head to the middle of the plotter by pressing a slew key.
2. Open the tool clamp by turning the latch fastener counterclockwise and gently pulling the clamp open.



3. Place the swivel knife tool into the tool head, making sure that the swivel knife tool collar fits into the groove in the tool head.



4. Close the clamp and secure it by turning the latch fastener clockwise.



Changing the knife blades

Blades are available in 30°, 45°, and 60° angles. The 30° and 60° blades are designed for cutting thin and thick materials respectively; the 45° blade is designed for most materials.

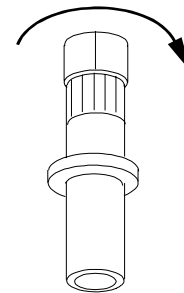
The knife blade will dull slightly after cutting thousands of characters. Blade wear is normal and always a gradual change. Adjusting tool settings, as described in the next section, can extend blade life.

Because they are ground to a controlled length, the blades cannot be resharpened. A sudden decline in cutting quality indicates that the knife blade is chipped. Replace and discard any chipped blade.

WARNING: Handle blades carefully. Carbide blades are brittle so they can easily chip and they are extremely sharp.

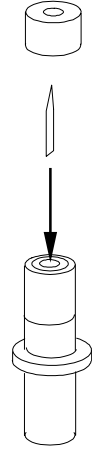
► To change the blade

1. Hold the tool so the blade points toward the ceiling.
2. Remove the adjustment cap by turning it counterclockwise until it comes completely off.
3. Remove the old blade by pulling it straight out with a pair of tweezers.



4. Put in the new blade using tweezers. Press the tip lightly with the flat of your fingernail to ensure that it is all the way in.
5. Put the cap back on carefully and turn it clockwise.

Adjust the blade further as needed by following the directions in the previous paragraph, "Adjusting the knife blade exposure."



enVision Overview

Both Gerber enVision plotters have many features that make them easy and convenient to use:

- The enVision 750 draws, cuts, and pounces designs up to 27.25 inches (692.15mm) high. Using the GRAPHIX ADVANTAGE system Panel feature, the enVision can cut text or graphics in strips up to 96 feet long (29 meters) and 27.25 inches (692.15mm) high. The enVision 375 draws, cuts, and pounces designs up to 13.25 inches (336.55 mm) high and can also cut EDGE print jobs.
- Jobs can be controlled entirely from GRAPHIX ADVANTAGE Version 6.2. Selecting a specific material causes appropriate tool settings for that material to be sent automatically to the enVision.
- Pounce instructions can also be sent from GRAPHIX ADVANTAGE 6.2.
- Tool settings and other parameters can also be set right at the plotter.
- The enVision calculates the job extremities when it receives a job. If the job will not fit on the Y axis or the starting position must be adjusted, it displays an appropriate message.
- Easy material loading with X axis homing which brings the three material alignment pins on the sprockets up to top center for the quickest, easiest loading possible.
- Repeats (up to 9999 copies) of the last job plotted (up to 200 kb) can be run from the enVision.
- You can suspend a job, move the material for easy viewing, and resume the job without affecting the material or job.
- Allows for plotter firmware upgrade by downloading new firmware into the plotter from the PC.

The plotting process

The enVision plotter uses a knife installed in the tool head to cut shapes in the material (usually vinyl). After the job is cut, you remove the excess material (called *weeding the job*) from the design. Cutting accuracy and weeding ease depend on matching the tool settings to the material being cut. Tool settings are:

- force
- corners
- speed
- acceleration

Tool setting tips are described in the following paragraphs.

Tool settings

The four tool settings – force, corners, speed, and acceleration – must be matched to the material being cut. In the back of this manual is a card with recommended tool settings for various materials. These tool settings are starting-point guidelines. Quality cutting is dependent on the job being cut. For example, if a job has many long, straight lines, you can cut at increased speed and acceleration. If a job has many corners and curves, you may want to use less speed and acceleration. In general, the best possible cut quality is achieved by using the minimum tool force that provides easy weeding.

Also note that occasional adjustments need to be made to tool settings based on blade wear. Changing settings up or down do not mean that there is a problem with the plotter. For example, blade wear may require changing the settings to maintain optimum cutting quality. Other factors, such as temperature or humidity changes or cutting small text, may also require changing the tool settings.

Material selection

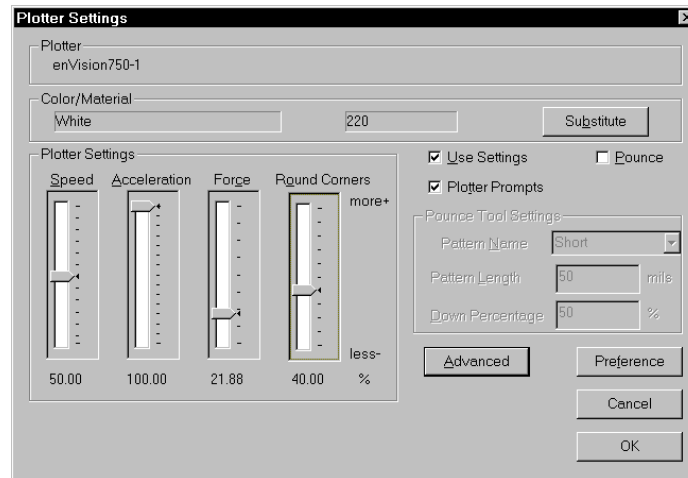
The plotter firmware contains a table of materials (called *rule sets*) with corresponding tool settings for cutting Gerber materials. When you select the material you plan to cut in the plotter Settings Menu, you automatically set the factory default tool settings for that material. A rule sets guide chart is provided on reference cards in the back of this manual.

Note: There are additional rule sets built into and available in the GA plot program as described in the following paragraph.

For more information on setting and changing the rule set values, refer to the section "Choosing Tool Settings" on page 28.

Using the enVision with GA

The enVision can be completely controlled from the GA version 6.2 (and higher) plot program by using controls in the Plotter Settings dialog box.



Use of this dialog box is explained in the *GRAPHIX ADVANTAGE Reference Volume 1* manual. Several comments specific to using the dialog box with the enVision are explained here.

- When an enVision plotter is selected, the color and material (also called the *vinyl family*) is displayed.
- The GA 6.2 plot program has a rule set – as described in the previous paragraph – as part of the program. This rule set is more comprehensive than the rule set built into the plotter. The Plotter Settings slide bars display the default settings for the material, and the settings can be changed using the slide bars.

Note: The plot program in GA version 6.0 and earlier does not contain a rule set. When using these versions, settings may be adjusted at the enVision control pad.

- When the Use Settings check box is turned on, the rule set for the displayed material is transmitted to the plotter and overrides any rule set turned on in the plotter. If the Use Setting check box is turned off, the rule set in the enVision is used to plot the job.

Note: There is also a rule set menu selection item in the enVision (Operational Setup menu, System, Rules, Select Rule Usage menu). If this menu item is set to When Received, the GA overrides the rule set in the plotter. If this menu item is set to Never, the enVision plotter ignores the rule set sent from the GA and uses its own rule set for the material.

- The Plotter Prompts check box is used when cutting EDGE jobs. for a description of this feature, refer to the next paragraph.

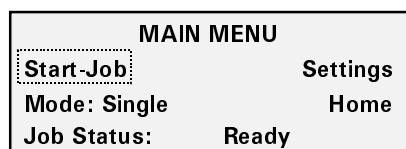
Using the enVision with the EDGE

The enVision 375 is capable of cutting EDGE printed jobs as described in the *GERBER EDGE Owner's Guide*. The following additional capabilities are provided when cutting with the enVision plotter:

- When the Plotter Prompts check box is turned off in the Plotter Settings dialog box, the job starts when you press Start Job (F1 on the enVision control panel). If the check box is turned on, the control panel displays the job name, vinyl color, and vinyl family. At this time, you use the EDGE eyepiece to register the knife with the registration target. After you complete registration, when you press F4 the job starts.
- When you send a job to the EDGE for printing from the plot program in GA version 6.2 or higher, turn on the Center Target check box. This prints the target in the center of the Y axis and makes it easier to install the eyepiece in the tool head.

Plotting Jobs

You can send a job to the plotter to be output with a pen, a pounce tool, or a knife. Jobs sent to the plotter are held in the plotter's memory. The Job Status changes from **No Job** to **Ready**, and **Start-Job** blinks. When a job is in memory, the plotter waits for you to start the job except when in Multi mode (see "Plotting multiple jobs" on page 23).



Job status

Job Status in the bottom line of the display shows the condition of the plotter. The function key choices depend on the Job status as shown in the table below.

Job Status	Condition	Possible Action
No Job	No job data in plotter memory.	Menu
Ready	Plotter is waiting for user to start the job.	Start-Job, Cancel, Menu
Running	Plotter is running a cut job or a pen job.	Pause Job, Cancel, Menu
Paused	Job is temporarily stopped.	Start-Job, Cancel, Menu

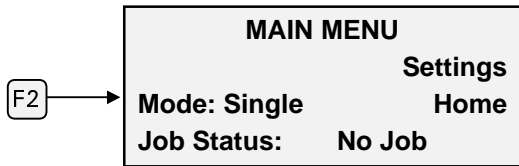
Plotting a single job

Use Single mode to plot a single job. Single mode allows you to:

- change material between jobs
- pen plot using paper before cutting vinyl
- reposition the start of the next job

Each job plots and then waits for you to press Start-Job again to begin the next job.

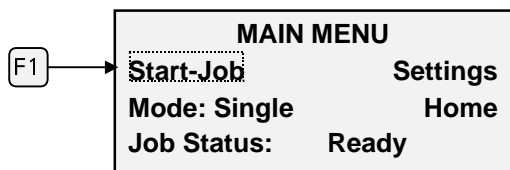
1. Press F2 to toggle between Single mode and Multi mode. Choose SINGLE.



2. Send the job to the plotter. When the job reaches the plotter, the status changes from **No Job** to **Ready**, and **Start-Job** blinks (indicated by the dotted box around Start-Job in the diagram below).
3. Press F4, HOME to rotate the three closely-spaced material alignment pins to the top for easy material loading.
4. Load the material and install a tool in the plotter.

Note: Using the left and right slew keys to move the tool head near the center may make it easier to load the material.

5. Use the slew keys to position the tool where you want plotting to begin.
6. Press F1, Start-Job.



- The plotter displays the vinyl type and color required by the job. This information enables you to verify that you have the correct material loaded for the job. This screen only appears if you are using GA version 6.2 and the Plotter Prompts checkbox turned on.

```

Job: →PLT1474.TMP
Color: White
Type: 220
Press F4
    
```

- Press F4.

The job starts and Job Status alternately displays **Running** and the percent done (GA version 6.2 only). While the job is running, you can press F1 to pause it and F1 to re-start it again.

```

          MAIN MENU
Pause-Job           Settings
Mode: Single
Job Status:      Running
    
```

F1 →

Note: The cover must be closed for the job to run.

After completing the job, the Job Status returns to **No Job**. If you have sent several jobs, the Job Status displays **Ready** and you will need to press F1, Start-Job to plot each job.

Plotting multiple jobs

Multi mode lets you plot several jobs without having to press Start-Job between each one. When one job finishes plotting, the next job begins immediately. When all jobs in memory are plotted, the enVision waits for another job and will plot it as soon as it is received. Multi mode is best used for jobs that require the same material.

- Press F2 to switch between Single mode and Multi mode. Choose **Multi**.

```

          MAIN MENU
Start-Job           Settings
Mode: Multi           Home
Job Status:      Ready
    
```

F2 →

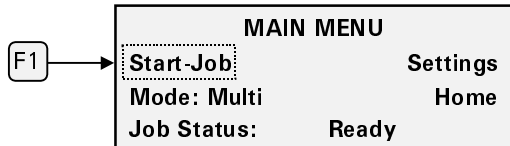
- Send the jobs from your computer to the plotter. When the jobs are received in the plotter's memory the Job Status changes from **No Job** to **Ready** and **Start-Job** blinks (indicated by the dotted box around Start-Job).

Note: If you press F1 before sending the job, it starts immediately when received by the plotter. In this case, you must load the material and install the tool before you send the jobs to the plotter. (See "Running multiple jobs automatically" on page 25.) This feature is convenient if the plotter is in a remote location separate from the computer.

3. Press F4, HOME to rotate the three closely-spaced alignment pins to the top for easy material loading.
4. Load the material and install the tool in the plotter.

Note: Using the left and right slew keys to move the tool head near the center may make it easier to load the material.

5. Use the slew keys to position the tool where you would like plotting to begin.
6. Press F1, Start-Job to begin plotting the first job. Subsequent jobs will not require pressing Start-Job again.



Note: In Multi mode, the job/color/type display is bypassed even if the Plotter Prompts check box is turned on.

While the job is running, you can press F1 to pause the job, and F1 again to restart it just like in Single mode. Job Status alternately displays **Running** and the percent done (GA version 6.2 only). When the jobs are plotted, the Job Status remains at **Running** and Mode remains set to **Multi**. If you send another job to the plotter, it will begin plotting immediately.



Running multiple jobs automatically

In Multi mode, if you press F1, Start-Job before sending a job to the plotter, the job will begin as soon as the plotter receives it without requiring another key press, provided the following conditions are met:

- Material has been loaded and a tool is installed.
- The cover is closed.
- A slew key has not been pressed to reposition the tool head or material. (This is to prevent the plotter from starting while the knife is being positioned.)

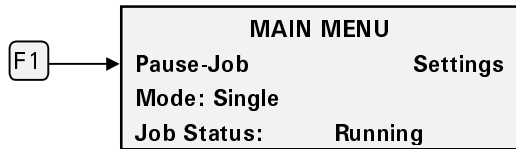
You can also slew between jobs, but must then press the Start-Job key to start the next job when it is received.

Pausing and restarting a job

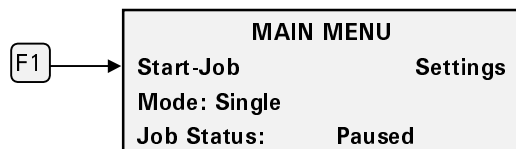
Pausing a job suspends it temporarily. You can pause a job by lifting the cover or pressing F1, Pause-Job. The plotter stops cutting or plotting *at the end of the current shape*. After pause, you can look at your job by using the slew keys to move the material. When you restart the job, the plotter resumes repositions itself and starts cutting at the position where it stopped.

Note: Once a job has begun, slewing will not affect the job.

1. To pause a job, press F1, Pause-Job.



2. The current Job Status changes to **Paused**. To restart the job, press F1, Start-Job. The plotter returns to the previous position and resumes cutting or plotting.



When all jobs have plotted the plotter returns to **No Job** status.

Opening the cover has the same effect as pressing the Pause-Job command. With the cover open, you can use the slew keys to move the material so that you can view the job. Once the cover is closed, you can re-start the job by pressing F1 and the tool returns to where it paused.

Canceling a job

To cancel a job press CANCEL. The **JOB CLEARED!** message displays briefly, then the plotter stops and returns to the MAIN MENU. Multiple jobs in the spooler are cleared one at a time by pressing CANCEL.

Tip: When you clear a job, remember to reposition the tool for plotting the next job.

Automatically fitting a job on the plotter

When the enVision plotter is used with GA version 6.2, a feature is available called *Autofit* which automatically positions the tool head so that it cuts the entire job. This feature only works on cut-only jobs, not EDGE print and cut jobs. For example, if you send a 9" box to the enVision 375 plotter and the carriage is in the middle of the Y axis, the following message appears in the display.

Job will not fit	
Slew right to adjust	
Ignore	Autofit
Slew, F3 F4	Cancel

If you choose Ignore and start the job, the plotter displays a message that the job will be clipped. Only what fits on the plotter will be cut. If you choose Autofit, the tool head moves to where the job will fit and displays a message telling you that the job now fits. Pressing ENTER starts the job.

This feature is for vinyl cut-only jobs. If you get this message with an EDGE job, first check the target alignment, then choose Ignore. If you choose Autofit for an EDGE job, the cut will not be correct.

Job clipped message

If the enVision plotter is used with GA version 6.0 or earlier, if a job is too large for the plotter it displays a "Job clipped" message. This means that the job extends beyond the Y axis boundaries. To remove the message, press any key to continue and start the job. If you are in Multi mode and one of the jobs is too large, the plotter starts automatically cutting until it comes to the job that is too large. It will display the message and cut the job, then stop and not cut any remaining jobs until you press any key.

Missing tool message

If no tool is loaded in the plotter, when it is first turned on the plotter displays a message telling you that there is no tool loaded. If you start the job anyway, the message disappears and the job starts. The message is not repeated even if you send another job.

Choosing Tool Settings

As previously stated, cutting accuracy and weeding ease depend on matching the tool settings to the material being cut. Tool settings are:

- force
- corners
- speed
- acceleration

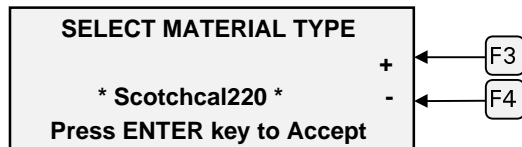
Normally, tool settings are automatically set using the rule sets in the GA as previously described (Use Settings check box in the Plotter Settings dialog box). The tool settings – based on the material being cut – can also be set on the enVision as follows:

1. In the MAIN MENU, press F3, SETTINGS to open the Settings menu. If the material shown is what you are using, press ENTER to return to the MAIN MENU. If it is not the correct material, press F3, MATERIAL to go to the Select Material Type screen.

Note: Pressing F1, (default) on the Settings menu, resets all of the tool settings for the selected material to the factory presets.



2. Use F3 or F4 to toggle up or down through the list of materials. Select the one you are using by pressing ENTER. (See “Fine tuning the enVision” on the next page for more information on using this screen to fine tune your plotter to the job.)



3. The selected material will display on the Settings menu. Press ENTER again to return to the MAIN MENU.

The correct tool settings for that material are now set.

If necessary, you can modify the force and corners settings right in the Settings menu. These modifications to the factory defaults will remain in effect for that material until you:

- manually reset the modifications to zero
- press default in the Settings menu to return the settings for that material back to the factory settings

Note: Tool settings sent from GRAPHIX ADVANTAGE will override enVision tool settings during a job unless this feature is turned off either in GA or in the enVision.

Fine tuning the enVision

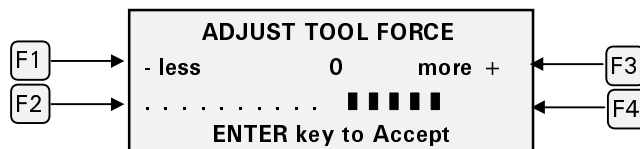
To ensure optimal cutting, it is important that the enVision is properly set up for the specific material to be cut. This is accomplished by:

- Ensuring that the knife blade exposure is correct for the material to be cut. See “Adjusting the blade exposure” on page 12.
- Choosing the correct material in GA or the Settings menu.

In most cases, proper blade exposure and the correct material choice will provide optimal cutting. However, as the blade becomes slightly worn, you may wish to fine tune the Force and Corners settings to provide the best quality cutting.

Note: Use the following procedures for adjusting force and corners only if you are not using GRAPHIX ADVANTAGE rules. The rules will override these adjustments.

Once you have the knife blade exposure correctly set (see “Adjusting the blade exposure” on page 12), you can fine tune the enVision by first adjusting the force, then the corners. You can make the adjustment from GA by means of graphic sliders in the Plotter Setting dialog box. On the enVision, the setting is adjusted by means of a bar graph in the display that either reduces or increases the default setting for that material. In the example below, the F3 (or F4) key has been pressed five times to increase the tool force for the selected material by five clicks.



Pressing the F1 (or F2) key would cause the bar graph to move in the opposite direction, retracting toward the zero point one click for each press. When it reaches the zero point, the factory default has been reset. Continued pressing of the F1 or F2 key will extend the bar graph to the left of the zero point and reduce the factory default by the number of clicks that F1 is pressed.

Keep in mind:

- These settings are retained even after the power has been shut off.
- They apply only to the currently selected material.
- These adjustments will be overridden by GRAPHIX ADVANTAGE rules unless this feature is turned off.

Adjusting the force

You obtain optimum cutting from the plotter by using the least amount of tool force that will cut the material so that it weeds easily. If you conclude that an adjustment of the tool force will improve cutting, you can make the change in GA, or use the following procedure to adjust the force on the enVision if you are not using GRAPHIX ADVANTAGE rules.

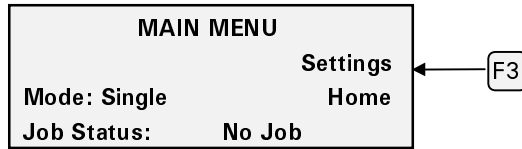
The tool force is the downward pressure that the tool holder applies to the material with the tool. This pressure ensures uniform cuts and pen lines. Increased tool force presses harder on the material. The range is .5 to 16 ounces (14 to 448 gm) in increments of 0.5 oz. (14 gm).

Several factors affect tool force and require setting changes. Below are some initial suggestions:

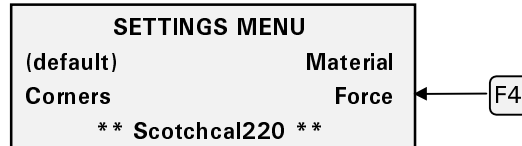
- Blades must be properly installed and adjusted to the correct depth in the tool holder assembly. (See “Adjusting the blade exposure” on page 12.)
- If the pressure is set too high, the knife will not pivot at corners and will begin to cut through the material.
- If your pen does not make a clear dark line, you may wish to increase the tool force setting.
- Worn blades require a higher tool force setting. You may wish to increase the tool force as required for easy weeding. However, before increasing tool force, check to see if the blade is in good condition. Increasing the force may also necessitate changes for the corners and speed settings to maintain a good cut quality.
- Heavier material, such as reflective vinyl, requires increased tool force settings.
- Drawing, pouncing, cutting, and blade angle all affect the tool force setting.

► **To adjust the force**

1. Press F3, SETTINGS.



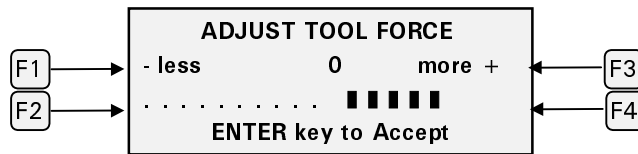
2. On the Settings menu, press F4, FORCE. (Scotchcal 220 is shown as an example only.)



Note: Pressing F1, (default) on the Settings menu will resets all of the tool settings only for the selected material to the factory presets.

Note: This change in tool force applies only to the material shown in the menu above.

3. Press the F1 or F2 keys to decrease the force, or press the F3 or F4 keys to increase the force. For each keypress, the bar graph extends to the left or right one increment to indicate the amount of change.

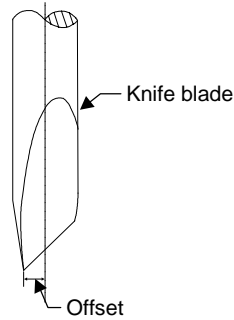


4. Press the ENTER key to accept the new setting and return to the Settings menu.

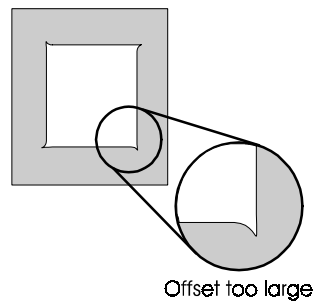
Note: Keep in mind that adjustments made to force in the Settings menu (see “Adjusting the force” on page 30) are added to the new force setting you have just made. If you don’t want that to happen, you must go back to Force in the Settings menu and return the bar graph to its zero point. Also, these changes can be made while a job is running. In this menu, pressing CANCEL does not save the changes and does not cancel the job.

Corners

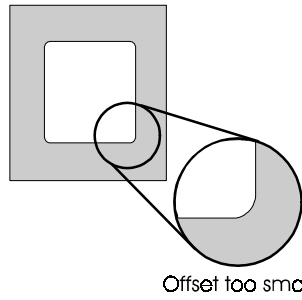
In swivel blade technology, the knife tip is always slightly behind the center of the tool holder and the *knife offset* is the distance between the knife center and the knife tip. Adjusting the amount of corner rounding in the firmware tells the plotter to compensate for this distance. It ensures that the knife is cutting the center line of the shape and that the corners will be precise angles. An inaccurate corner rounding adjustment will cause poor cutting quality and difficult weeding.



The enVision plotter firmware provides a corner rounding adjustment feature (corners) to help you ensure accurate corner cutting. To determine what corners adjustment to make, cut a 1/2" (12 mm) test square. Examine the corners (possibly with a magnifying glass) and compare them to the diagrams below. If you determine that a corners adjustment is necessary, you can make the adjustment in GA or follow the procedure on the next page if you are not using GRAPHIX ADVANTAGE rules. After you have made the adjustment, cut another test square and check it again. Continue to adjust and test until you have precise corners.



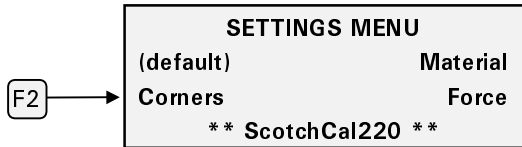
The corners adjustment in the example at the left is too large. In this case, what should be a square corner is not well formed because the plotter cuts too far beyond the corner.



The corners adjustment in the example at the left is too small. In this case, what should be a square corner is not well formed because the plotter did not cut far enough before turning the corner.

► **To adjust the corners**

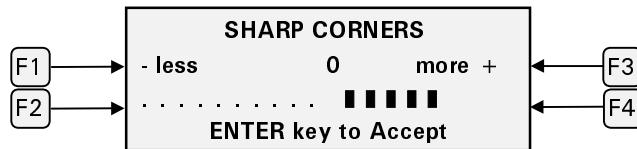
1. On the Settings menu, press F2, Corners.



Note: Pressing F1, (default) on the Settings menu resets all of the tool settings for the selected material to the factory presets.

Note: This corners adjustment applies only to the currently selected material.

2. Press the F1 or F2 keys to decrease the corner sharpness, or press the F3 or F4 keys to increase the corner sharpness. For each keypress, the bar graph extends to the left or right one increment to indicate the amount of change.



3. Press the ENTER key to accept the new setting and return to the Settings menu.

Note: Keep in mind that adjustments made to corners in the Settings menu are added to the new corners (knife offset) setting you have just made. If you don't want that to happen, you must go back to Corners in the Settings menu and return the bar graph to its zero point.

Advanced enVision Functions

Previous sections presented information on basic enVision operations such as loading material, installing tools, plotting a job, and choosing tool settings. This section provides information about additional enVision functions including:

- repeats
- material pull-down
- pouncing
- customizing tool settings
- factory default settings
- communications
- tests

To open the advanced Operational Setup menu so that you can use the advanced functions, hold down the ENTER key and press F3.

CAUTION: You should not attempt these procedures unless you are very sure you understand exactly what you are changing and the effects it will have on the operation of your plotter.

Repeats

Repeats allows you to reproduce the job you have just plotted up to 9999 times. You must run a job first in order to repeat it. There are small differences when you run Repeats in Single mode and Multi mode.

Single mode The plotter stops before it plots each of the repeats. This allows you to change materials or reposition the start of the job before plotting the next repeat.

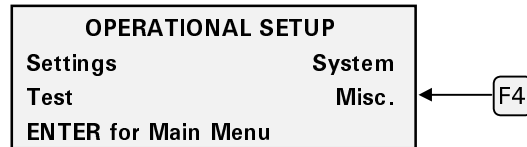
Multi mode The plotter runs all the repeats without stopping between each repeat.

Note: Jobs larger than 200KB cannot be repeated locally. A message appears if this is attempted.

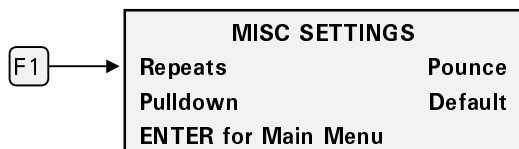
Send a job to the plotter and plot the job. When the job finishes, the job status displays **No Job** if you are running in Single mode and **Running** if you are running in Multi mode.

► **To repeat a job**

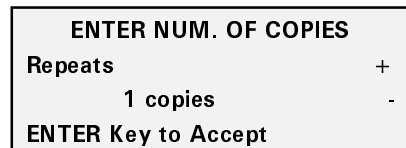
1. Press F3 while holding down the ENTER key for the Operational Setup menu.
2. Press F4, Misc.



3. Press F1, REPEATS.



4. Press F3 to increase or F4 to decrease number of copies.



5. Press ENTER to record the entry and return to the MAIN MENU which now has a counter to show the number of repeats remaining. The counter will decrease as each repeat is completed.

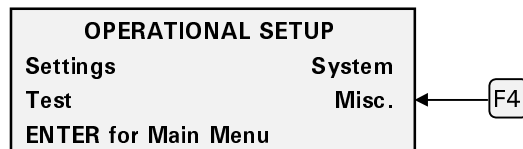
To terminate a repeating job, press CANCEL. The job stops and all repeats are cleared. A new number of repeats may be set without resending the job.

Note: Do not send new jobs to the plotter while running repeats. New jobs will be queued at the end of the repeated job sequence.

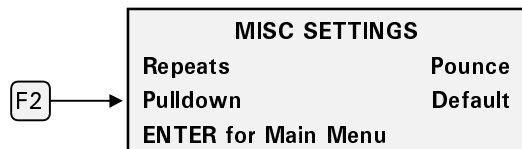
Material pulldown

Prior to plotting, the plotter unrolls (pulls down) a specific length of material from the supply roll. This is an automatic feature that prevents pulling the material directly from the roll at high speeds during the job which could lead to poor cut quality. The enVision will pull down as much material as it needs for a job up to the amount set. (The factory default is 12".) If you are using GA rules, the length to pull down will be sent by GA, otherwise, the enVision calculates the length. The pulldown range is 4" to 48". Shortening the pulldown may result in multiple pull-downs for longer jobs.

1. Press F3 while holding down the ENTER key for the Operational Setup menu.
2. Press F4, Misc.



3. Press F2, PULLDOWN.



4. Press F3 to increase the number of inches or F4 to decrease the number of inches.



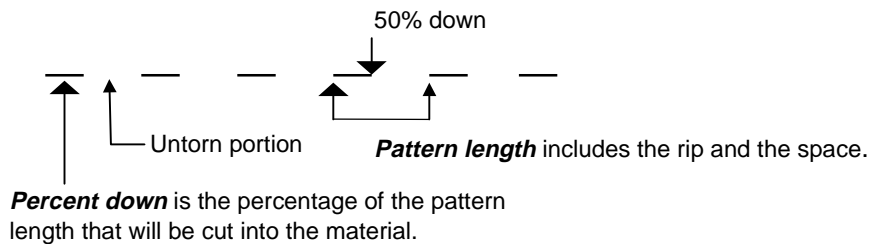
5. Press ENTER to set the value and return to the Misc Settings. Pressing CANCEL restores the previous value.
6. Press ENTER to return to the MAIN MENU.

Pouncing

Pouncing is a technique used to create a perforated graphic outline on paper. Pouncing creates a perforation in the material instead of cutting or drawing on it. It requires a special Gerber tool that can be purchased separately. The pounce tool looks like an awl (or a sewing needle) and is driven down into the paper, then moved to make a small rip in the paper. A pounce pattern can be used to align vinyl letters on a large job or chalk an outline for letters or artwork that will be hand-painted.

Pounce patterns

The pounce pattern is like a dotted line, with the dots representing the tears, and the spaces between the dots representing the untorn areas. The pattern length is the distance from the beginning of one tear to the beginning of the next. (See the diagram below.) The percent down is the proportion of the pattern length represented by the length of the dot.



Note: When pouncing small objects or text, use the short (50% down) setting. Even on a long job, if there is no pounce point at the corner, distortion of the shape can occur.

Using the enVision to pounce is as simple as replacing the swivel knife with a pouncing tool and selecting a pounce pattern in GRAPHIX ADVANTAGE 6.2 or other design software. If necessary, you can also control pouncing from the enVision itself as described on the following page.

► To pounce from GRAPHIX ADVANTAGE 6.2

1. In GA output the job to GAPlot32, activate the Pounce checkbox in the Plotter Setting dialog box. (Refer to *GRAPHIX ADVANTAGE 6.2 Reference Volume 1* for specific instructions. If you are using other design software that sends pouncing instructions, refer to your software manual.)

- Choose the pounce pattern you want to use: short, medium, long, or custom. (If you choose custom, you must choose the pattern length and the percent down.)

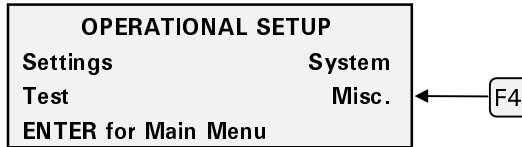
Setting	Pattern Length	Percent down
Short	0.050" (1.27 mm)	50
Medium	0.200" (5.08 mm)	25
Long	0.500" (12.7 mm)	10

- Choose the material you want to pounce.
- Send the job to the plotter.
- Load the material you are going to pounce into the plotter.
- Install the pounce tool.
- Press F1, Start-Job to run the job.

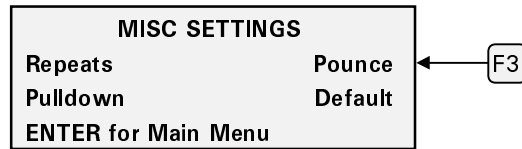
► **To pounce from the enVision**

Turn on pouncing by selecting a pattern according to the procedure below. (Pouncing can also be set from GRAPHIX ADVANTAGE 6.2.)

- Press F3 while holding down the ENTER key for the Operational Setup menu.
- Press F4, Misc.

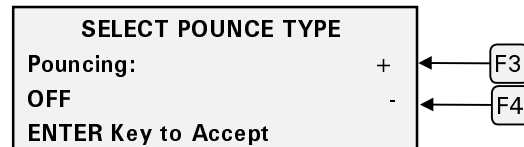


- Press F3, POUNCE.



- Press F3 to step through the available pounce patterns: **SHORT**, **MEDIUM**, **LONG**, and back to **OFF**. Or press F4 to step through them in reverse order. Press ENTER to record the setting and return to the MISC Settings menu.

Setting	Pattern Length	Percent down
Short	0.050" (1.27 mm)	50
Medium	0.200" (5.08 mm)	25
Long	0.500" (12.7 mm)	10



- Press ENTER to return to the MAIN MENU.
- Insert the pounce tool before sending your pounce job to the plotter.

Note: Once you have set up pouncing on the enVision, it will continue until you turn it off again.

Turning Off Pouncing

Pouncing remains on until you turn it off. Follow the procedure below to turn off pouncing before sending a cut or plot job to the plotter.

- Press F3 while holding down the ENTER key for the Operational Setup menu.
- Press F4, Misc. to get the Misc Settings menu.
- Press F3, POUNCE to get the Select Pounce Type screen.
- Press F3 or F4, until the pounce setting reads **OFF**.
- Press Enter to accept the **OFF** setting and return to the Misc Settings menu.
- Press ENTER to return to the MAIN MENU.

Tip: The material speed and tool force for white paper is set for normal plotting. When pouncing, it may be necessary to increase the tool force and decrease the speed.

Tool settings

In addition to correct blade exposure, there are four tool settings that affect the quality of the cut: force, acceleration, speed, and corners. The enVision comes with default settings for many Gerber material types that specify the optimal force, acceleration, speed, and corners. The following paragraphs explain how to change these settings. The changes apply to the currently selected material and are saved when the plotter is turned off. Therefore, they remain in effect until they are changed again or restored to their default values. (See “Factory default settings” on page 47.)

Note: These settings are nominal values only. They are starting positions and can be adjusted to suit any job. Adjusting the values does not necessarily indicate a problem with the plotter.

Setting	Affect	Range of adjustment
Force	Controls the amount of downward pressure applied to the material with the tool.	From .5 to 16 oz. (14 to 448 gm) in increments of 0.5 oz (14 gm)
Acceleration	Controls how fast the carriage and material will get up to speed.	From 0.2 to 3.0 G in increments of 0.2 G
Speed	Controls the maximum speed the plotter can move the material and the carriage.	From 1 to 36 inches per second (ips) (25.4 to 914.4 mm/sec) in increments of 0.5 ips (12 mm/sec)
Corners (knife offset)	Controls the quality of a corner cut. (See the corners examples on page 32.)	From 0.0 to 0.03 inches (0 to 1.27 mm) in 0.001 inch increments (0.0254 mm)

If you are using GRAPHIX ADVANTAGE version 6.2, you can send the correct settings right to the enVision by choosing the material you are using and activating the Use Settings checkbox in the Plotter Settings dialog box. (See *GRAPHIX ADVANTAGE 6.2 Reference Volume 1* for full instructions on sending and modifying settings.)

If you are using other design software that is capable of sending settings to a plotter, follow the directions in your software instruction manual. If you are using an earlier version of GRAPHIX ADVANTAGE, or other software that cannot send settings to a plotter, you can choose the material (and its tool settings) on the enVision by following the procedures in “Fine tuning the enVision” on page 29.

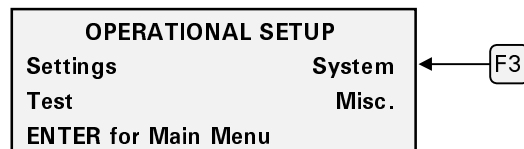
Overriding rules

GRAPHIX ADVANTAGE contains rules that set a combination of acceleration, speed, force, and corners for each different Gerber material. When you send a job from GRAPHIX ADVANTAGE to the enVision, the rule for the chosen material is sent with it and, for the duration of that job, will override any settings you have made at the plotter. When the job ends the plotter's settings are restored.

Note: Rule sets are part of the job sent from the GA. They remain in effect for that job unless you modify the job in Composer.

Under particular circumstances, you may wish to override the rule that is sent with the job and use your own combination of settings.

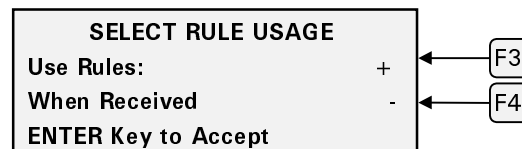
1. Press F3 while holding down the ENTER key for the Operational Setup menu.
2. Press F3, SYSTEM.



3. Press F4, RULES.



4. Press F3 and F4 to toggle back and forth between Use Rules: When Received, or Never.



Press ENTER when the display shows Never. The enVision ignores the rules sent by GRAPHIX ADVANTAGE.

Note: This can also be accomplished by clearing the Use Settings checkbox in the Plotter Settings dialog box in GAPlot32.

Customizing tool settings

The enVision is pre-set with specific tool settings for each type of Gerber material that might be cut. You may occasionally wish to cut a material with different settings. The Settings menu allows you to modify only the Force and Corner adjustment for the selected material. (See “Fine tuning the envision” on page 29.) If the range of adjustment required is outside the limits obtainable from the Settings menu, the Current Settings menu enables you to change the settings for the currently selected material to a new value. You can change the acceleration, force, corners, and speed.

Note: Changes made to the tool settings are for the currently selected material only and are “remembered” by the plotter and remain in effect until they are changed, even if the plotter is turned off and on again.

Note: Most tool settings may be modified during a job. However, they may not take effect immediately.

Viewing the current tool settings

1. Press F3 while holding down the ENTER key for the Operational Setup menu.
2. Press F1, SETTINGS to get the Current Settings menu.
3. Press F1, F2, F3, or F4 to see the current settings for Speed, Acceleration, Force, or Corners. Pressing ENTER to exit the menus accepts the current values and stores them in plotter memory. If you don't wish to make changes, press CANCEL to exit the menus.

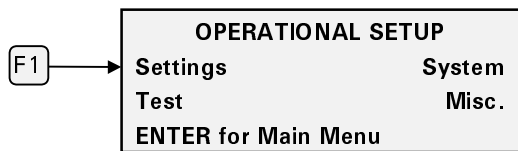
Setting tool force

The tool force is the downward pressure that the tool holder applies to the material with the tool. This pressure ensures uniform cuts and pen lines. Increased tool force presses harder on the material. The range is 0 to 16 ounces (0 to 448 gm) in increments of 0.5 oz. (14 gm).

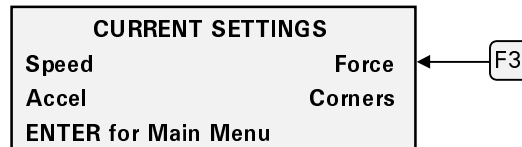
Several factors affect tool force and require setting changes. Below are some initial suggestions:

- Blades must be properly installed and adjusted to the correct depth in the tool holder assembly. (See “Adjusting the blade exposure” on page 12.)
- If the pressure is set too high, the knife will not pivot at corners and will begin to cut through the material.
- If your pen does not make a clear dark line, you may wish to increase the tool force setting.

- Worn blades require a higher tool force setting. You may wish to increase the tool force after many cuts. However, before increasing tool force, check to see if the blade is in good condition. Increasing the force may also necessitate changes for the corners and speed settings to maintain a good cut quality.
 - Tool forces used frequently can be stored internally in the plotter. Refer to page 28 for saving and recalling tool settings.
 - Heavier material, such as reflective vinyl, requires increased tool force settings.
 - Drawing, pouncing, cutting, and blade angle all affect the tool force setting.
1. Use the Settings menu to verify that the material whose settings you want to modify is the one that is currently selected. (Refer to “Adjusting the force” on page 30 for details.)
 2. Press F3 while holding down the ENTER key for the Operational Setup menu.
 3. Press F1, SETTINGS.



4. Press F3, FORCE.



5. Press F3 to increase the force or F4 to decrease it. The maximum setting is 16 oz. (448 gm) in 0.5 oz. (14 gm) increments.



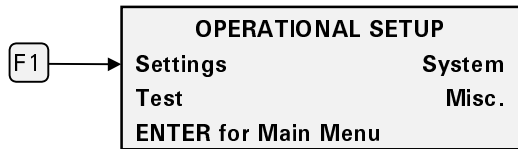
6. Press ENTER to accept the value and return to the Current Settings menu.

Note: Keep in mind that adjustments made to force in the Settings menu (see “Adjusting the force” on page 30) are added to the new force setting you have just made. If you don’t want that to happen, you must go back to Force in the Settings menu and return the bar graph to its zero point.

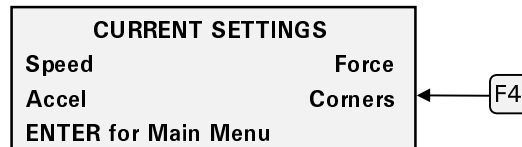
Setting corners

Corners controls the quality of the corners made when cutting a job with the knife. It is one of the most important factors to obtaining good cutting quality. To understand more about corners, please refer to “Corners” on page 32.

1. Use the Settings menu to verify that the material whose settings you want to modify is the one that is currently selected.
2. Press F3 while holding down the ENTER key for the Operational Setup menu.
3. Press F1, SETTINGS.



4. Press F4, CORNERS.



5. Press F3 to increase the corners or F4 to decrease it.



6. Press ENTER to accept the value and return to the Current Settings menu.

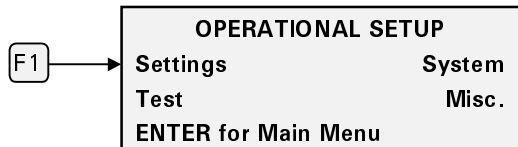
Note: Keep in mind that adjustments made to corners in the Settings menu (See “Corners” on page 32.) are added to the new corners (knife offset) setting you have just made. If you don’t want that to happen, you must go back to Corners in the Settings menu and return the bar graph to its zero point.

Setting acceleration

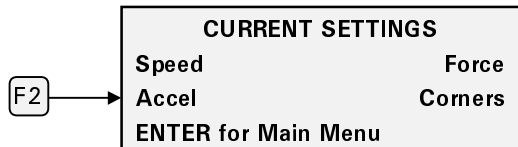
The acceleration setting represents how fast the tool head and material will get up to the speed setting. High acceleration will make the tool head and material move with quick, sudden motion. Low acceleration moves are gentle and smooth. The range is expressed in units of gravity (G) from 0.2G to 3.0G in increments of 0.2G.

You may want to change acceleration for the following reasons:

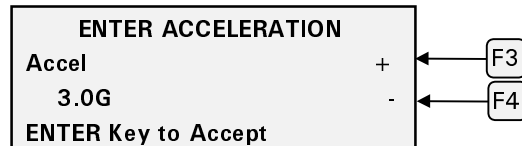
- heavier backed materials require lower acceleration values
 - small characters require lower acceleration values
 - large characters can use higher acceleration values
 - higher acceleration results in faster throughput
1. Use the Settings menu to verify that the material whose settings you want to modify is the one that is currently selected. (Refer to “Fine tuning the enVision” on page 29 for details.)
 2. From the MAIN MENU, Press F3 while holding down the ENTER key for the Operational Setup menu.
 3. Press F1, SETTINGS.



4. Press F2, ACCEL.



5. Press F3 to increase the acceleration or F4 to decrease it. The maximum setting is 3.0G.

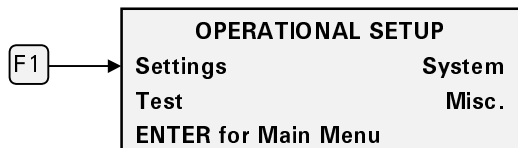


- Press ENTER to accept the value and return to the Current Settings menu.

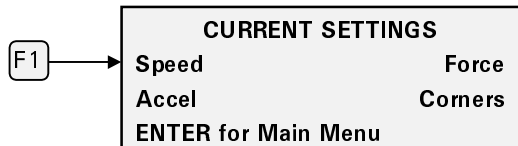
Setting speed

The speed setting represents the maximum speed of the material and tool head. Low speeds are useful for cutting intricate or small graphics. Higher speeds are used for plain or larger graphics. Speed ranges from 1 to 36 inches per second (ips) (25.4 to 914.4 mm/sec) incremented by 0.5 ips (12 mm/sec).

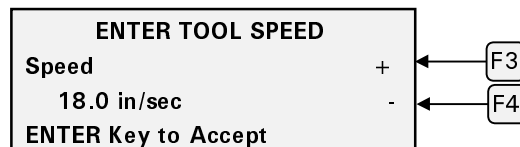
- Use the Settings menu to verify that the material whose settings you want to modify is the one that is currently selected. (Refer to “Fine tuning the enVision” on page 29 for details.)
- Press F3 while holding down the ENTER key for to the Operational Setup menu.
- Press F1, SETTINGS.



- Press F1, SPEED.



- Press F3 to increase the speed or F4 to decrease it. The default setting is 18.0 in/sec (457.2 mm/sec).



- Press ENTER to accept the value and return to the Current Settings menu.

Factory default settings

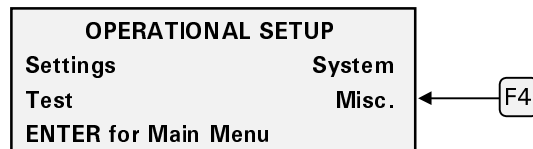
There are three levels of factory default settings that can be restored on the enVision:

- the default settings for the current material (See “Choosing Tool Settings” on page 28.)
- the default settings for all materials (below)
- the defaults for all settings (below)

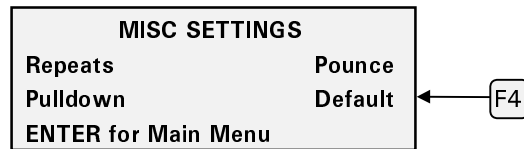
Reloading factory defaults for all materials

Note: All materials are reset to default settings. Custom materials are reset to Scotchcal 220 settings.

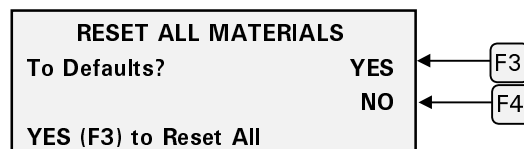
1. Press F3 while holding down the ENTER key for the Operational Setup menu.
2. Press F4, Misc. to get the Misc Settings menu.



3. On the Misc Settings menu, press F4, DEFAULT.



4. Press F3, YES to reset the settings for all materials to the factory defaults, or F4, NO to return to the Misc Settings menu without making any changes.



Reloading factory defaults for all settings

Hold down the F1 and CANCEL keys while powering up the plotter to return all settings to the factory defaults shown on the next page.

Speed	36 in/sec	Pulldown	12 in
Acceleration	3g	HPGL units	0.01 mm/unit
Force	3 oz	Use rule sets	On
Corners	0.020 in	Pounce Type	Off
		Scotchcal 220 material	Selected
Baud	9600	Run mode	Single
Data	8	Text Display	English
Stop	1		
Parity	None		

Communication settings

The communication settings on the plotter are preset at the factory to communicate with GRAPHIX ADVANTAGE. The communication settings on your computer and plotter must match. If you are not using GRAPHIX ADVANTAGE, you can change either the computer settings or the plotter settings. Refer to the manuals that come with your computer and the software for information about communication settings required at the computer.

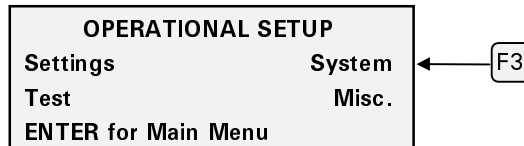
The table below shows the RS-232 interface parameters and possible settings for each parameter.

Parameter	Factory Settings	Optional Settings
Baud Rate	9600	4800, 9600, 19.2K, 38.4K
Data Length	8 bit	5, 6, 7, 8
Parity	None	None Even Odd
Stop bit	1 bit	1, 1.5, 2

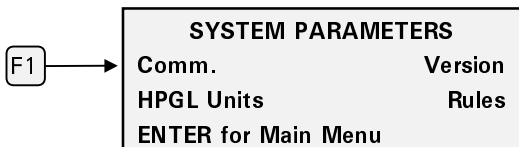
Changing the plotter's communication settings

Follow these steps to change the communication settings for the enVision.

1. Press F3 while holding down the ENTER key for the Operational Setup menu.
2. Press F3, SYSTEM to get the System Parameters menu.



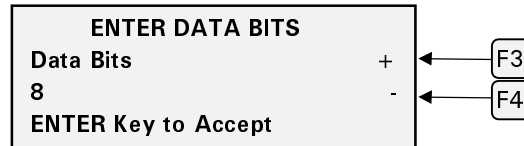
3. Press F1, COMM. To get the Communications menu.



4. To reset the number of data bits, press F1, DATA BITS.



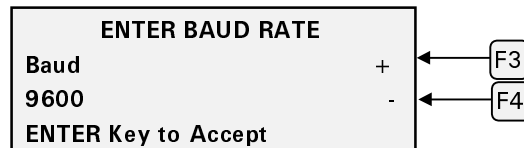
5. Press F3 or F4 to change the Data Bits setting. You can choose from **8,7,6,** or **5** data bits. Press ENTER to record the setting and return to the Communications menu.



6. If you want to change the baud rate, Press F2, BAUD.



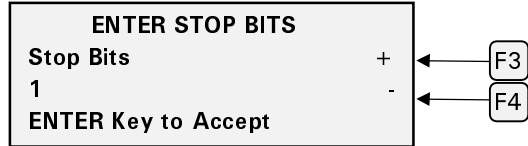
7. Press F3 or F4 to change the baud rate. You can choose from **4,800,** **9,600,** **19,200,** or **38,400.** Press ENTER to record the setting and return to the Communications menu.



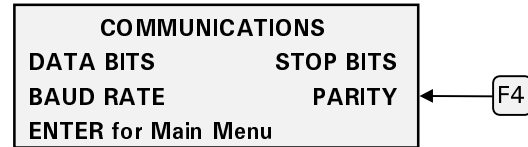
8. If you want to reset the stop bit, press F3, STOPS.



9. Press F3 and F4 to change the number of Stop bits. You can choose between 1, 1.5, and 2. Press ENTER to record setting and return to the Communications menu.



10. If you want to change the Parity setting, press F4, PARITY.



11. Press F3 and F4 to change Parity. You can choose **none**, **even**, or **odd**. Press ENTER to accept the new setting and return to the Communications menu.



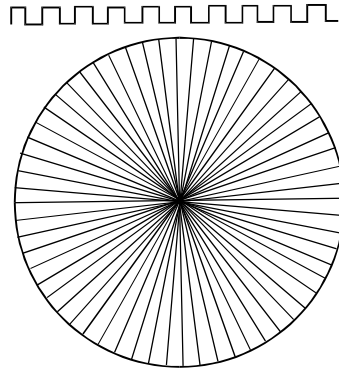
12. Press ENTER to return to the MAIN MENU.

Testing

In addition to self-check tests that are part of the power-up sequence, the enVision plotter contains three built-in test jobs: the wagon wheel pattern (a plot job requiring a pen tool), the X08 pattern (a cut job requiring a knife tool), and the burn-in test which is used at the factory. Except for the shapes cut/plotted, the function of the wagon wheel and X08 tests is the same.

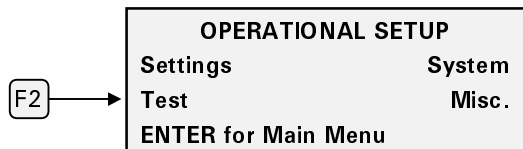
Wagon wheel test plot

The wagon wheel test plot is a pen plot and is used to check the X, Y, and Z axes. Once the job is enabled it will continue to be available until it is disabled. If the plotter is in Single mode, it will plot one test pattern and stop. Another test pattern will be immediately available and Start-Job will be blinking. If the plotter is in Multi mode, it will continuously plot the test pattern.

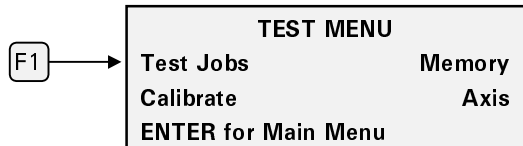


CAUTION: Do not run this job with a knife installed. Install the pen.

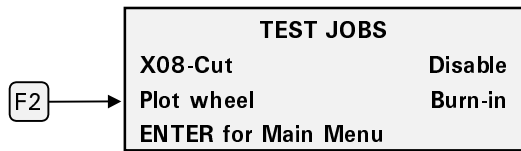
1. Load material in the plotter for pen plotting.
2. Make sure that a pen tool is loaded in the tool head.
3. Choose either Single mode or Multi mode on the MAIN MENU.
4. Press F3 while holding down the ENTER key for the Operation Setup menu.
5. Press F2, TEST.



6. Press F1, TEST JOBS.



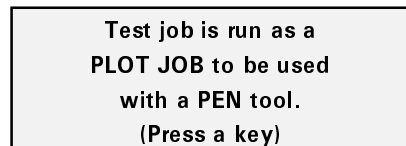
- Press F2, Plot wheel.



- TEST JOB NOW ENABLED** displays. Press any key.



- Test job is run as a **PLOT JOB...** displays. Press any key.



- TEST JOB: ACTIVE** displays. Press F1, Start-Job.



The plotter generates the Wagon Wheel test plot. If the plotter is in Single mode, as above, it will stop when one test pattern has been plotted. If it is in Multi mode, it will continue to plot one test pattern after another until you press CANCEL to stop it or switch back to single. Compare the test plot to the illustration on the previous page.

Perform the following steps to disable the test job.

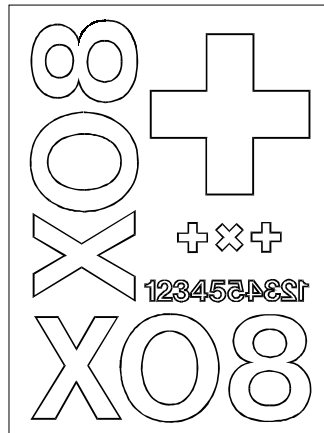
- From the **** Test Job: Active **** screen, Press F3 while holding down the ENTER key for the Operational Setup menu.
- Press F2, TEST.
- Press F1, TEST JOBS.

4. Press F3, DISABLE. You see a message that the test job has been disabled. Press any key to return to the MAIN MENU.

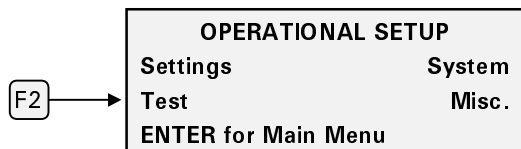
The test job can also be disabled by turning the power off and then on.

X08 cut test

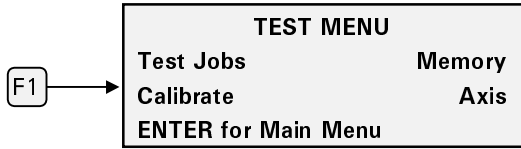
The X08 cut test also tests the X, Y, and Z axes. It requires a knife tool. Once the job is enabled it will continue to be available until it is disabled. If the plotter is in Single mode, it will cut one test pattern and stop. Another test pattern will be immediately available, and Start-Job will be blinking. If the plotter is in Multi mode, it will continuously cut the test pattern.



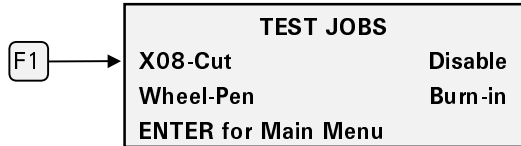
1. Load vinyl.
2. Load a knife tool in the tool head.
3. Choose either Single mode or Multi mode on the MAIN MENU.
4. Press F3 while holding down the ENTER key for the Operational Setup menu.
5. Press F2, TEST.



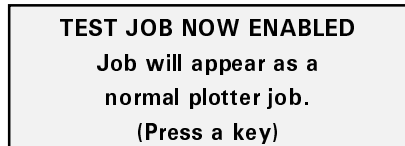
6. Press F1, TEST JOBS.



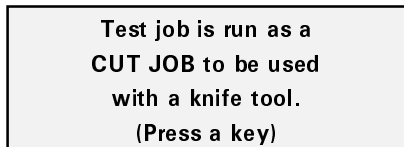
7. Press F1, X08-Cut.



8. **TEST JOB NOW ENABLED** displays. Press any key.



9. **Test job is run as a CUT JOB...** displays. Press any key.



10. **TEST JOB: ACTIVE** displays. Press F1, Start-Job.



The plotter generates the X08 test pattern. If the plotter is in Single mode, as above, it will stop when one test pattern has been cut. If it is in Multi mode, it will continue to cut one test pattern after another until you press CANCEL to stop it. Compare the test cut to the illustration on the previous page.

Perform the following steps to disable the test job.

1. From the ** Test Job: Active ** screen, Press F3 while holding down the ENTER key for the Operational Setup menu.
2. Press F2, TEST.
3. Press F1, TEST JOBS.
4. Press F3, DISABLE. You see a message that the test job has been disabled. Press any key to return to the MAIN MENU.

Troubleshooting

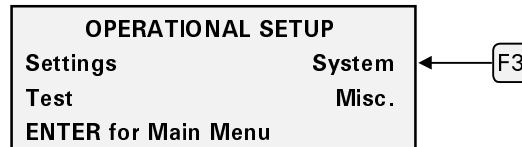
Your enVision plotter will provide you with trouble-free operation and productivity for many years to come. However, if you experience an unexpected or unusual sequence of events, use this section to address:

- Version number
- Error Conditions
- Common Problems/Solutions

Version number

Should a problem occur you may be asked to check the firmware version number. Perform the following steps to view your current version number.

1. Press F3 while holding down the ENTER key for the Operational Setup menu.
2. Press F3, SYSTEM.



3. Press F3, VERSION.



4. The Version number displays. Your Gerber Field Service representative can interpret it for you.

Gerber enVision -750
C.3/D.2/C.0/C
Spanish + , Ver C.0
S/N: E15 - 707007

Note: This display is shown as an example only. The display on your plotter may be different.

Note: There are two other ways to display the version screen.

1. *Hold down any key while the copyright message displays during power up. Press any key to resume the power up sequence.*
2. *From the MAIN MENU, press the slew up and slew down keys simultaneously.*

Error messages

The enVision plotter is programmed to detect certain mechanical/electrical error conditions at power-up or during operation. A repetitive long-short, long-short beeping pattern means that an error has been detected. When an error condition occurs, the plotter may turn off power to the motors. The control panel displays "System Error" followed by an error code number. The error code numbers and their meanings are listed below. Call Gerber Field Service at 800-828-5406 or 860-643-1515, or fax 860-645-2448.

Error/Failure		Meaning	Correction
1	ROM	Read-Only Memory has been corrupted.	Contact Field Service.
2	RAM	Random-Access Memory has been damaged.	Contact Field Service.
3	Plotter Type Invalid	Jumpers indicate an illegal type of plotter.	Retry. Call Field Service if retry fails.
6	MFP Failure	Communication chip malfunction.	Retry. Call Field Service if retry fails.
7	Heartbeat Intr Failure	Electrical control board failure.	Retry. Call Field Service if retry fails.
8	Display Failure	Display not responding.	Retry. Call Field Service if retry fails.
9	Encoder Zeroing Failed	Encoder chip failure.	Retry. Call Field Service if retry fails.
10	X Axis Wiring Failure	Correct X axis wiring.	Contact Field Service.
11	Y Axis Wiring Failure	Correct Y axis wiring.	Contact Field Service.
12	Z Axis Wiring Failure	Correct Z axis wiring.	Contact Field Service.
13	X Axis Encoder Failure	Check X axis encoder and power connectors.	Contact Field Service.
14	Y Axis Encoder Failure	Check Y axis encoder and power connectors.	Contact Field Service.
15	Z Axis Encoder Failure	Check Z axis encoder and power connectors.	Contact Field Service.

Error/Failure		Meaning	Correction
16	Y Axis Encoder Failure	Check encoder and power connectors.	Check for obstructions and retry. Call Field Service if retry fails.
17	Servo System Halt	SYSOK line not asserted.	Contact Field Service.
18	X Axis Overload	Material movement is jammed or obstructed.	Unjam X axis. Retry. Call Field Service if retry fails.
19	Y Axis Overload	Tool head motion moving left and right Motion is jammed or obstructed.	Unjam Y axis. Retry. Call Field Service if retry fails.
20	Z Axis Overload	Tool head moving up and down is jammed or obstructed.	Unjam Z axis. Retry. Call Field Service if retry fails.
21	Axis Overload	Motion is axis is jammed or obstructed.	Unjam all axes. Retry. Call Field Service if retry fails.
22	Bad Ctrl PCB Version	Incompatible driver board.	Contact Field Service.
23	Unknown Plot Data	Plot data corrupted in plotter.	Re-send job.
24	Plotter Overheated	Temperature inside the plotter is too hot.	Power off, let cool. Power on. Check for running fan and clear air vents.
25	Unexpected Interrupt	Elec control board failure.	Retry. Call Field Service if retry fails.
26	Unknown Interrupt	Elec control board failure.	Retry. Call Field Service if retry fails.
27	EEPROM Failure	Non-volatile memory chip not functioning.	Power on holding F1 and CANCEL keys to load factory defaults. Retry. Call Field Service if retry fails.
28	X Axis Home Error	Axis cannot move to home position due to excessive friction or obstruction.	Remove any obstacles to axis movement. Retry. Call Field Service if retry fails.
29	Y Axis Home Error		
30	Z Axis Home Error		
31	Comm Data Overflow Error	Invalid, illegal, or incompatible communication settings.	Check communication setting for compatibility with computer.
32	Comm Overflow Error		
33	Comm Parity Error		
34	Comm Framing Error		

Common problems/solutions

This chart of symptoms can help identify the possible problem and the probable adjustment procedure. Refer to the table below for help when solving a problem.

Symptom	Recommended Procedure
No power	Check power cable, plugs, fuses, and the ON/OFF switch.
Missing tool	You can choose to ignore the warning without consequences. The warning occurs only once. After the warning, the plotter waits for you to start the job again to allow you to cancel the job (if required) or insert a tool. Verify that the tool is properly loaded.
Poor cut quality	Check knife settings (speed, force, acceleration, and corners). Knife blade (chipped, cracked, or worn). Too much or too little blade exposed. Check X axis cutting strip.
“Job Clipped” message	Check the start point of the tool head. When a job is clipped, there is not enough room to run the job. Job clipping occurs with 16 bit applications that have insufficient Y axis room due to a mis-positioned tool head start point.
Job Paused and will not restart	Make sure that the cover is fully closed. Partial job may have been sent. Clear the job and resend.
Material jams	Be sure the vinyl holes are on the sprocket pins correctly. Clean sprockets. Make sure that sufficient space has been provided for the material to flow (run-out) in the back and the front of the plotter and that the material is loaded properly.
Job not received at plotter (no communication between computer and plotter)	Check the connection on the communication port, selection of correct plotter in the design program (driver), and correct cable.
Poor performance	Perform routine cleaning and lubrication. Check corners/force/blade depth settings.
Tool latch binds	Apply a light coating of grease on the male part of the door latch mechanism.
Plotter error	See “Error conditions” on p. 57.
Inconsistent tool/material contact	Check the X axis cutting strip for excessive wear. Make sure that pouncing is turned off.
Thick and thin strokes	Check in this order: <ol style="list-style-type: none"> 1. Material alignment in sprockets. 2. Check the position of the blade in the knife holder. 3. The knife should swivel freely and not wobble.
Jagged or serrated cutting edges	Bad blade or bad tool holder.

Maintenance

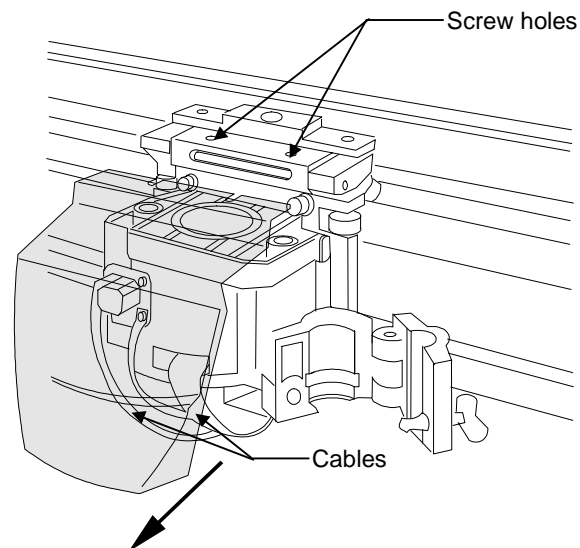
This section includes instructions for routine cleaning and fuse replacement.

Routine cleaning/replacement

Routine cleaning should be done weekly or after every 80 hours of use, whichever occurs first. Use a clean, lint-free cloth and 97% or greater isopropyl alcohol to clean dust and debris.

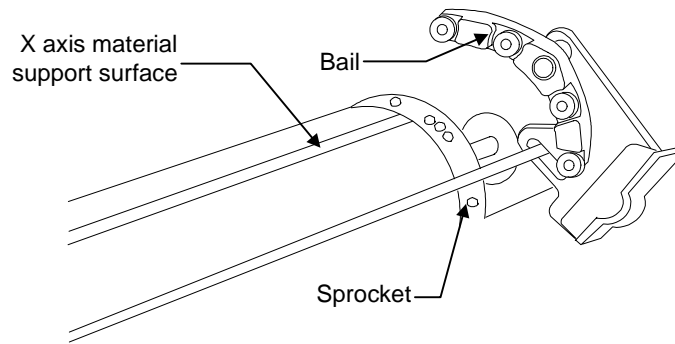
Tool head

1. Remove the tool head cover by removing the two screws on top of the cover and pulling the cover straight out.
2. Gently blow out with canned air.



Note: When replacing the cover, ensure that the cables are not pinched or damaged by the cover and that the flat washers on the cover mounting screws are outside the cover. Slide the cover to the left to avoid contacting the tool door area.

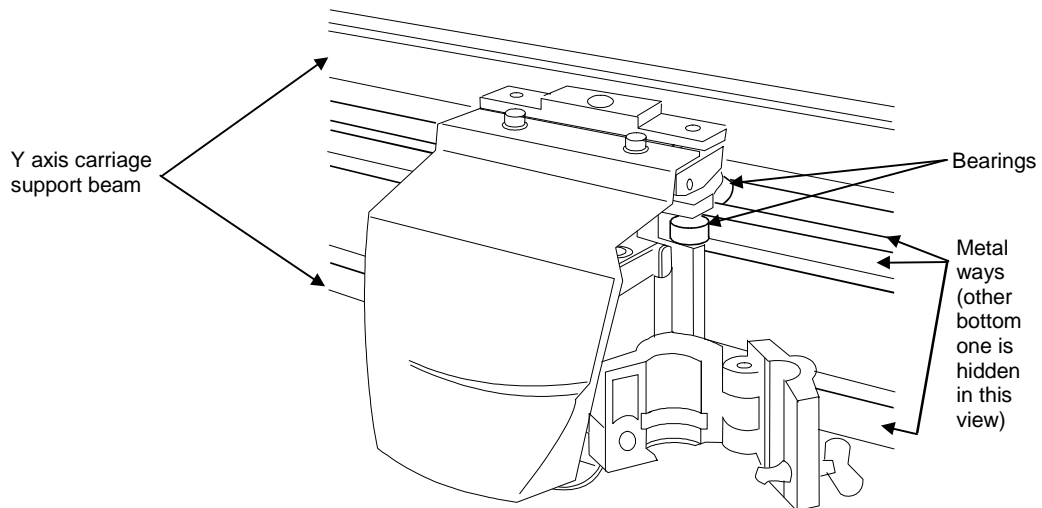
Sprockets and bails



1. Clean the left and right bail wheels and the bail.
2. The left sprocket assembly floats on a pin. Clean the pin so that the sprocket floats freely.
3. Inspect the pins of the sprockets for adhesive buildup from the use of vinyl films. Use a small stiff brush (such as a toothbrush) dipped in isopropyl alcohol to clean the sprockets.
4. After using isopropyl alcohol to clean them, immediately dry the sprockets and x axis material support surface with a lint-free cloth.

Y axis beam and tool assembly

CAUTION: Allowing a build-up of dirt to accumulate on the metal ways can shorten the life of the moving parts and can adversely affect cutting quality. (The metal ways are the four shiny metal surfaces the bearings ride on: two on the top, and two on the bottom.)

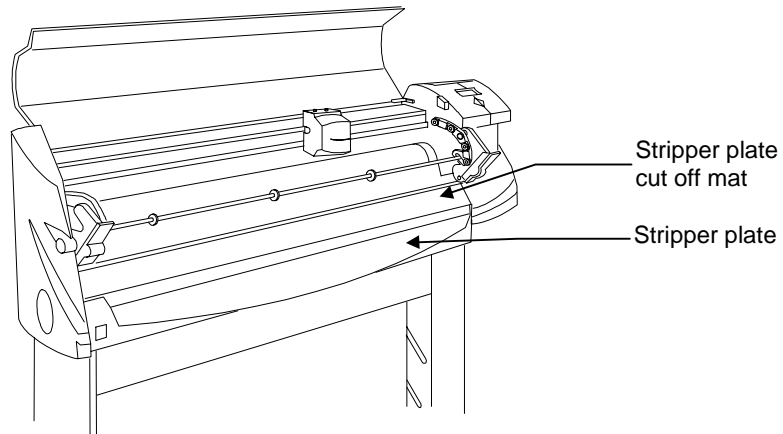


CAUTION: Do not place any alcohol on the bearings. Clean bearings with a lint-free cloth.

1. Keep the Y axis beam free of dirt and debris by periodically wiping down with a lint-free cloth.
2. Use a lint-free cloth and isopropyl alcohol to clean any dust or debris from the metal ways. Pay particular attention to any surface that has bearings in the tracks and bearings underneath and behind a track on the axis beam.
3. Move the carriage to clean the full length of the metal ways.

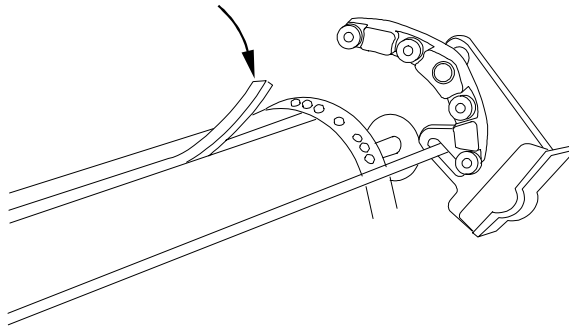
Material support

There are two areas that support material: one on the rear of the plotter and one on the front. The supporting area on the front contains a cut off mat for cutting off material. Clean this mat with a lint-free cloth and isopropyl alcohol.



Cleaning/replacing the cutting strip

The cutting strip is the plastic strip running the length of the plotter. It provides a reliable cutting surface and prevents the knife blade from cutting into the metal surface. Clean it with a lint free cloth and isopropyl alcohol. Replacement strips can be purchased from your distributor. Follow the procedures below to replace the cutting strip.



1. Remove the worn cutting strip by lifting it up at one end and pulling it straight up together with the underlying adhesive.
2. Clean the exposed surface with alcohol to remove any adhesive where the strip was attached.

3. Remove the protective backing from the replacement strip and insert it into the groove.
4. Press the cut strip *firmly* along its entire length to assure tight, even adhesion. The strip must be flat for the entire length.

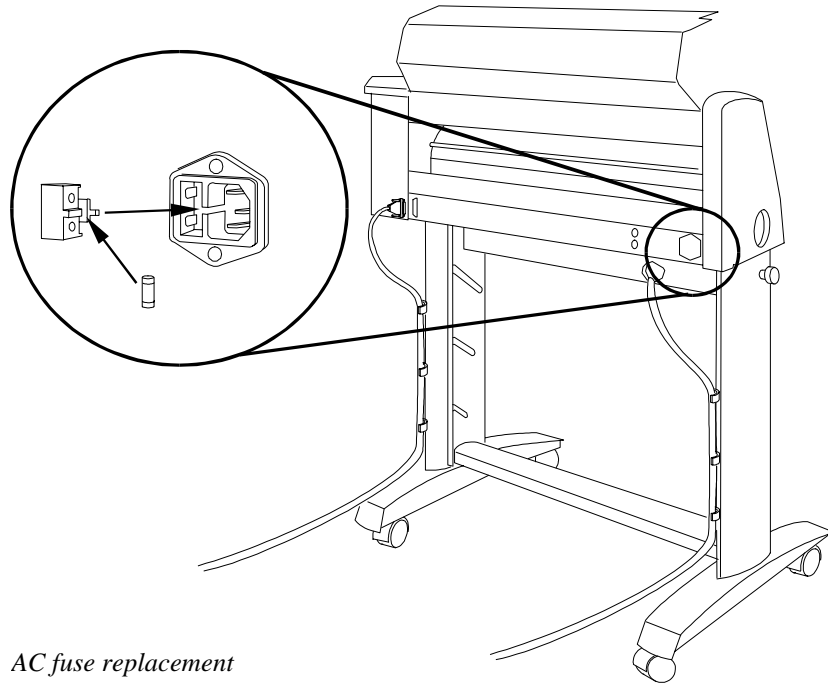
Fuse replacement

The enVision has both AC and DC fuses. Refer to these procedures to replace fuses.

AC fuse replacement

WARNING: Turn off the power switch and disconnect the power cord from the power supply.

The AC fuse is located in the AC power inlet connection on the rear panel where the AC cord plugs into the unit. When this fuse is blown there is no power supplied to the plotter, nothing appears in the display area and the fan will not be on.



AC fuse replacement

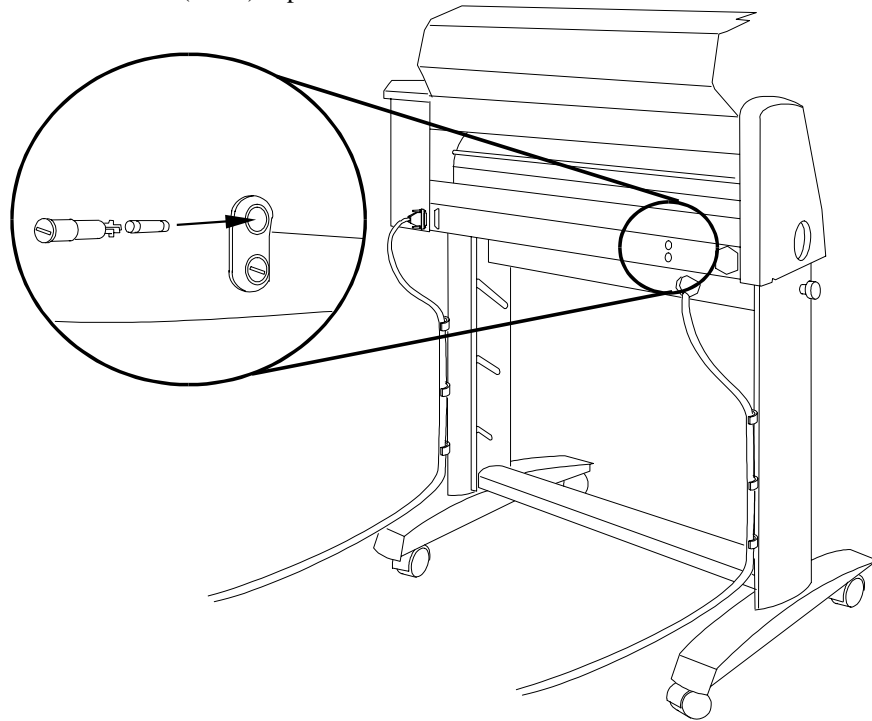
1. Unscrew and remove the serial cable from the rear panel of the enVision.
2. Remove the plotter power cord from the socket.

3. Find the small tab at the right edge of the fuse carrier just to the left of the power cord receptacle. Insert a flat-tip screwdriver under the tab and gently pry outward, loosening the carrier.
4. Pull out the fuse carrier.
5. Remove any blown fuse. The fuse rating is marked on the fuse itself. Be sure to replace a blown fuse with a new fuse of identical size and rating. Reinsert the carrier the same way it came out and press it firmly into place.
6. Reinstall the power cord and serial cable, and turn on the power at the plotter.

DC fuse replacement

WARNING: Turn off the power switch and disconnect the power cord from the power supply.

When the DC fuse is blown the enVision displays a System Error 17. The DC fuse holders are located on the back panel of the enVision and look like two rounded slotted (black) caps.



1. Turn off the unit and unplug the power cord.

2. Insert a flat tipped screwdriver into slotted cap, as shown in the illustration, and rotate counterclockwise about $\frac{1}{2}$ turn. Cap will release spring outward.
3. Take out cap and remove fuse.
4. Remove any blown fuse. The fuse rating is marked on the fuse itself. Be sure to replace a blown fuse with a new fuse of identical size and rating.
5. Replace cap and using a flat tip screwdriver press inward until flush with the carrier.
6. Turn $\frac{1}{2}$ turn clockwise.

HPGL Support

This appendix provides the HPGL commands supported by the enVision. It also describes a test file you can use to verify enVision operation.

The default HPGL plotter unit for the enVision plotter is 0.01mm (0.0003937 inch). To change it to 0.025 mm (0.0009843 inch), follow the procedure in “Changing the HPGL units” on page 69.

HPGL command set

The following are HPGL commands that will be recognized by the enVision plotter.

DF - Set HPGL defaults

IN - Initialize tool settings

OE; - Output Error (first error) Responds with one number: 0= no error, 1= unknown command, 2= wrong number of parameters for command, 3= parameter out of range, 6= parameter value overflow, 7= data buffer overflow.

OH; - Output Hardware travel limits (X_{min} , Y_{min} , X_{max} , Y_{max}). Responds with four numbers (0.005mm per unit) separated by commas: example for enVision 750 0,0,9144000,138430

OI; - Output Identification string

OS; - Output Status of plotter. Responds with one DECIMAL number whose hexadecimal bit pattern is: Bit 0= 0 if tool is up, 1 if tool is down; Bit 1 and Bit 2 are always 0; Bit 3 is 1 if this is the first OS; command received since the last IN; command, else it is 0; Bit 4 is always 1; Bit 5 is 1 if an error exists (see OE; command); Bits 6 and 7 are always 0;

Bit #	7	6	5	4	3	2	1	0
Value	0	0	Error	1	1 st OS?	0	0	Down

PA - Pen Absolute coordinates

PR - Pen Relative coordinates

PU - Pen Up move

PD - Pen Down move

PG; - Page (End of Job) This command is used as the end-of file marker. Failure to use the page command could result in the job stopping with the pen down or successive jobs overcutting an earlier one.

SP - Set Pen type (2 = pen plot, other = cut)

VS - Speed Set (in cm/sec)

HPGL test file

The following procedures will guide you through plotting a one-inch box. This test assures you that your system is communicating with the enVision plotter.

1. Use a plain text editor, such as Notepad, and create the following text.

```
IN;  
      SP1;      (knife)   Pen=  SP2;  
      PU0,0;  
      PD0,2540,2540,2540,0,0;  
      PU2794,0;  
      PG;
```

*Note: There should not be any character in the file after the semicolon following **PG**.*

2. Save the file as HPGLTEST.TXT
3. Place your computer in DOS mode.
4. Set the port parameters using mode command.

```
MODE COMx:9600,n,8,1,p  
      (where x is the COM port number)
```

5. Copy the test file to the COM port.

```
COPY HPGLTEST.TXT COMx:  
      (where x is the COM port number)
```


- Press F1 to Start the job.

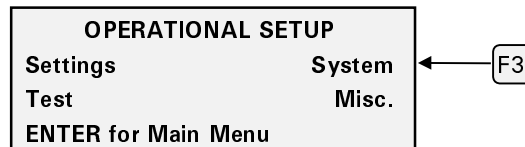


Each time the file is sent to the plotter it should plot a one-inch square and advance .1 inch.

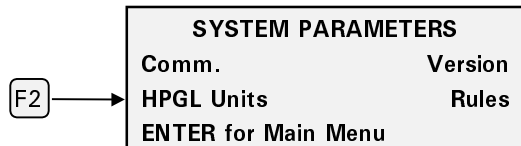
Changing the HPGL units

The enVision is factory set with an HPGL unit of 0.010 mm. You can change it to 0.025 mm by following this procedure.

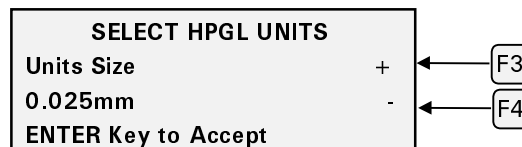
- Press F3 while holding down the ENTER key for the Operational Setup menu.
- Press F3, SYSTEM.



- Press F2, HPGL Units.



- Press F3 and F4 to toggle between 0.025 mm and 0.010 mm.



- Press ENTER to accept the selected value. Press ENTER again to return to the MAIN MENU.

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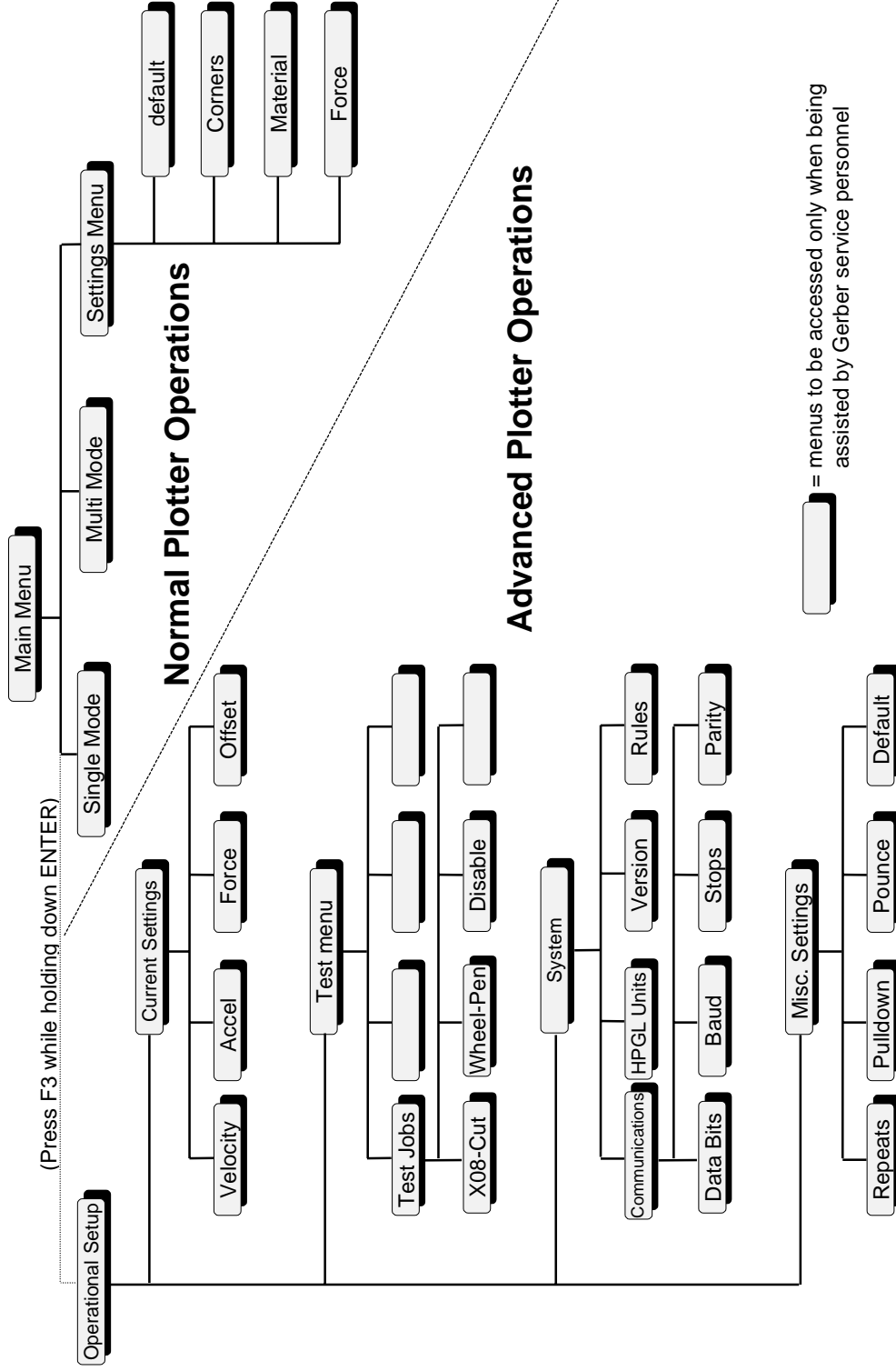
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enVision™ Menu Tree



**enVision Owner's Guide
COMMENT CARD**

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First Name: _____ Last Name: _____

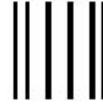
Company: _____ Phone: _____

Street Address: _____ City: _____

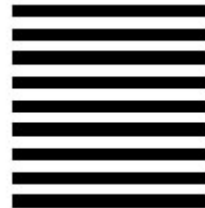
State/Province: _____ Country: _____ Zip/Postal Code: _____

- | | 0 1 2 3 4 5 6 | |
|--|---|--|
| 1. How many years of experience do you have with devices of this type? | none () () () () () over 5 yrs experience | |
| 2. How often do you refer to the manual? | never () () () () () frequently | |
| 3. How easy was it to use? | difficult () () () () () easy | |
| 4. Did you learn what you needed to know? | no () () () () () yes | |
| 5. Was the manual well organized? | poorly organized () () () () () very well organized | |
| 6. Was the manual clearly written? | not clear () () () () () very clear | |
| 7. Were there enough illustrations? | not enough () () () () () enough | |
| 8. Did the illustrations support the procedures? | no () () () () () yes | |
| 9. What is your overall rating of the manual? | poor () () () () () excellent | |
| 10. How many people work in your shop? _____ | | |

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