

User's Guide

Studio 7 Signcutter

HOW TO CUT SIGNS WITH YOUR STUDIO 7

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1 INTRODUCTION

YOUR SIGN-MAKING SYSTEM

Congratulations on purchasing a Studio 7 sign-cutting plotter. This manual will teach you how to install and use this machine. To make signs, you also need a computer and sign-making software. If you have any questions about your computer or your software, you will need to call the computer or software distributor or manufacturer directly.

The computer must have the sign-making software installed on it to create the signs for your Studio 7 to cut.

The **sign-making software** helps you design graphics and text to make signs, turning your computer into a design tool. The design software must be loaded into the computer according to the instructions in the software box. To learn to use the software, follow the directions in the software manual.

There is also software that comes with your Studio 7 (the Studio 7 Control Center program). You can load this software into your computer.

The **computer** sends plot instructions to the Studio 7 to cut your signs. The computer must be assembled and installed correctly. It must be connected by cable to your Studio 7.

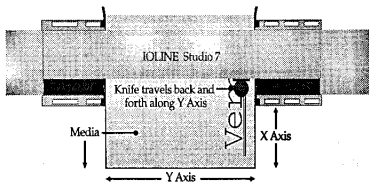
Your **Ioline Studio 7** will cut the sign, as you have designed it.

Media is the vinyl, paper, or whatever you are using in your Studio 7. The sign will be cut out of the media that you have loaded into your Studio 7.

The rest of this book will focus on your Studio 7. If you have questions about your computer or your software, you need to call the distributor or manufacturer directly.

HOW YOUR STUDIO 7 WORKS

Think of your Studio 7 as a platform. Your media is on the platform. When your Studio 7 makes a sign, it moves the media back and forth (along the X-axis) and moves the knife from side to side (along the Y-axis). The combination of the movements cuts out the sign you have designed.



You will learn to adjust various settings, such as the force and extension of the knife so that the pressure is not too much or too little for the type of media you are using.

SAFETY AND PRECAUTIONS

Your Studio 7 is a cutting machine that has a very sharp knife. The parts can move quickly. Always observe the following safety precautions:

- Be careful of your hair, jewelry, or loose clothing near your Studio 7. They can become caught in the mechanical parts.

- Never move the cutter by hand. Use the keypad arrow keys and let the machine do it.
- Use caution when you are changing a knife. See Chapter 7 of this manual.
- Keep your hands away from the cutter when your Studio 7 is working. The cutter will automatically move to its right end position when you turn on your Studio 7.
- **Do not try to repair the machine yourself, without factory authorization.** If you need to make mechanical adjustments, turn off your Studio 7 and disconnect it from all power sources (both the computer and the wall outlet).
- Never lift your Studio 7 by the dust cover or traverse rail, always use the hand-holds at either end of your Studio 7. If you lift your Studio 7 by the dust cover or traverse rail, you may permanently damage it.

2 INSTALLATION

UNPACKING AND ASSEMBLING YOUR STUDIO 7

Carefully remove your Studio 7 from the box by holding the handles on each end. Put your Studio 7 on a flat surface until you're ready to attach it to the stand. Save all packing materials and your box. Check your packing slip to assure that you have all of your accessories.

ATTACHING YOUR STUDIO 7 TO THE STAND

Make sure the stand is completely assembled and stable (see the assembly instructions in your stand box).

1. Find the four 1/4-20 button head screws included with your stand.
2. Place your Studio 7 on the stand. Using the four screws, attach your Studio 7 to the mounting plates on the stand.

You can use your Studio 7 without a stand. Just put it on a flat surface.

There is already a knife installed in your Studio 7. There are spare knives in your accessory kit.

INSTALLING THE MEDIA CHANNELS AND GUIDES

Your Studio 7 comes with two media channels and four guides to help you align your media. You will have to attach one of these media channels to the front and one to the rear of your Studio 7. After you attach them you will be able to use the media guides to keep your media correctly aligned while you are cutting signs.

1. Remove the four screws from the front of the black platen on your Studio 7.
2. Insert one #8-32 black screw (from your accessory kit) into each of the four screw holes. Use the Allen hex wrench (also from your accessory kit) to start the screws into the holes. Don't screw them all the way in.
3. Identify the front media channel. It's the one with the smaller notches on the right-hand side when the screw slots face your Studio 7.
4. Slide the screw slots of the front media channel onto the four extended screws.
5. Tighten the four extended screws and secure the front media channel to your Studio 7.
6. Repeat this procedure for the rear media channel. Make sure, however, that the smaller notches of the rear media channel are on the left-hand side as you face the back of your Studio 7.
7. Slip two of the four media guides into the notches on the front media channel. Space them slightly farther apart than the width of your media.
8. Slip the other two media guides into the notches on the rear media channel. Make sure the front and rear media guides are aligned.

CONNECTING YOUR STUDIO 7 TO YOUR COMPUTER

Make sure your computer and your Studio 7 have the power turned off.

Then, use the cable to connect the serial port on the back of your Studio 7 with the serial port on the back of your computer.

The serial port on your Studio 7 is a receptacle for a 25-pin cable, so use the "male" end of the cable to plug into your Studio 7.

Plug the other end, with the 25-pin receptacle, into the matching port on the back of the computer.

If your computer has a nine-pin port, you will need to buy an adapter. Adapters are available at any computer store.

CONNECTING YOUR STUDIO 7 TO AN AC POWER SOURCE

Use the power cord in your accessory kit to plug into a 3-prong (grounded) wall outlet.

POWER ON

The power switch is in back of your Studio 7. Turn your Studio 7 and the computer on to make sure they work.

The cutter will move when the power comes on. Keep your hands and loose clothing away from all moving parts of your Studio 7.

The green Power light and the red Pause light on the front panel will come on.

LOADING MEDIA INTO YOUR STUDIO 7

To load a roll of media into your Studio 7, follow this procedure:

1. Lift the dust cover on top of your Studio 7.
2. Lift the chartwheels by raising the lever on the left-hand side of your Studio 7.
3. Load the media by placing the roll tube in the media roll and fitting the ends of the tube in the brackets on the stand. Center the media in your Studio 7.
4. Set the chartwheels half an inch from each edge of the media. If you are using punched media, do not place the chartwheels on the punched edges.
5. If you are making a long sign (where the media reaches the floor), you will need to use the media guides to keep the media aligned.
6. Use the arrow keys to move the cutter onto the media. Manually lift up the cutter so it doesn't catch on the edge of the media.

7. **Make sure you pull enough media from the roll to make your sign. Do not make your Studio 7 pull the media from the roll. This may cause tracking problems.**

ADJUSTING THE MEDIA GUIDES

The media guides are designed to keep your media tracking evenly. You should use them if you want to create longer signs. Make sure you pull enough media off the roll for the entire sign. Do not allow your Studio 7 to pull media off the roll because this may cause tracking errors. If you want to create a very long sign, you may get better results if two people guide the media through your Studio 7. One person should stand in front of the Studio 7 and the other person should stand behind it.

The media guides will work correctly if you follow these guidelines:

1. **Lift the chartwheels by raising the lever on the left-hand side of your Studio 7.**
2. **Make sure the media roll is centered between the end plates of your Studio 7. Then feed the media over the platen of your Studio 7.**
3. **From the front of your Studio 7, move the right-hand front and rear media guides to the small media channel notches that are closest to the right-hand edge of the media.**
4. **Tighten the right-hand media guide thumbscrews.**
5. **Square the media against the right-hand guides.**
6. **Clamp the chartwheels to the media by lowering the lever on the left-hand side of your Studio 7.**

- 7. From the front of your Studio 7, move the left-hand front and rear media guides to the large media channel notches that are closest to the left-hand edge of the media. Make sure the guides are slightly farther apart than the width of your media.**
- 8. Tighten the left-hand media guide thumbscrews.**

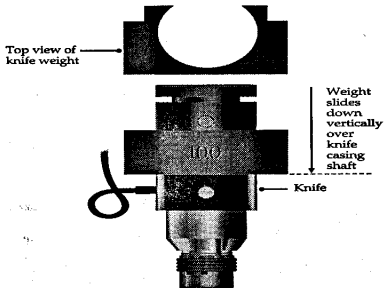
3 CUTTING ADJUSTMENTS

ADJUSTING THE KNIFE

Press the cap on top of the cutter tool to extend the knife to its full knife-down position. See how much of the tip of the knife is exposed. You can adjust the extension of the knife by rotating the cutter foot. Rotate the cutter foot counter-clockwise to make the knife stick out more or clockwise to make the knife stick out less. You may need to adjust the knife extension for varying media thickness, so the knife will cleanly cut the media but not the backing.

Your Studio 7 comes with a knife already installed. Adjust the knife extension before you make your first test cut.

You can increase the knife force by placing one or more of the supplied weights directly into your Studio 7 cutter. One 50-gram weight and one 100-gram weight comes with your Studio 7. You may need to increase the knife force to cut thicker media.

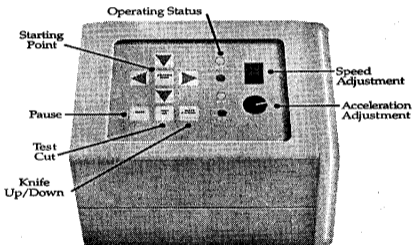


FRONT PANEL CONTROLS

Now that the entire system is assembled, connected, configured, and ready to go, you need to learn to use the controls on the front panel.

If you have a problem, simply stop and go back over all the steps to see if you have left something out.

Here is the control panel.



Pause

Pressing this key causes your Studio 7 to alternate between two states: communicating with the computer (ready) or not communicating with the computer (pause). You might want to use the Pause key while you are testing the unit or to set up your Studio 7 before you begin cutting a sign. If you press the Pause

key during the cutting of a sign, your Studio 7 will stop. If you press the Pause key again, your Studio 7 will continue cutting.

When your Studio 7 is in Pause mode, the red light will be ON. In Pause mode, the keypad of your Studio 7 is enabled and you will be able to move the cutter and the media, raise or lower the knife, set the starting point, or produce a test cut.

When your Studio 7 is in Ready mode, the green light will be ON. In Ready mode, your computer can communicate with your Studio 7 and the keypad of your Studio 7 is disabled, except for the Pause key.

Arrow Keys

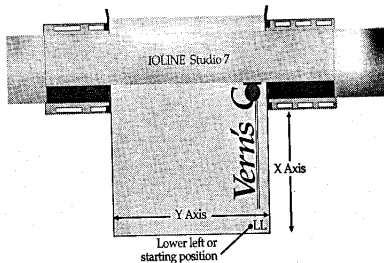
Make sure your Studio 7 is in Pause mode, and use the arrow keys to move the media back or forth or the cutter from side to side. The longer you press any of these arrows, the greater the speed of the movement. To move diagonally, press two keys simultaneously.

Knife Up/Down

Occasionally, you might want to make a manual cut. To do this, you can press the Knife Up/Down key to lower the knife into your media and the Arrow keys to move the cutter. Before you press the Knife Up/Down key, make sure you have media loaded in your Studio 7. Pressing the Knife Up/Down key will raise the knife from the media, or lower it into the media surface. The cutter foot will remain in contact with the surface of the media even when the knife is in the up position. If you don't use the arrow keys, the knife will automatically lift after a few seconds. Then, when you press an arrow key, the knife will drop back down.

Starting Point

You must set a new starting point before cutting each new sign. With your Studio 7 in Pause mode, use the arrow keys to move the cutter to the intended lower left position of your plot. Then press the Starting Point key.



Acceleration

Acceleration is the rate at which your Studio 7 can reach the speed you have set for it. If the speed or acceleration are set incorrectly, your Studio 7 may not cut the sign properly. The acceleration of your Studio 7 can be set either high or low. Start with a low acceleration setting and a low speed setting and gradually increase these two settings. Generally, you will want to set the acceleration and speed in similar positions. If you are using heavy media you may get better results with a low speed and low acceleration setting. If you are using thin media, you will be able produce high quality cuts with a high speed and high acceleration setting.

Try your Studio 7 first on High acceleration. If you are not satisfied with the test cut, try switching this setting to Low. If the media is slipping, set your Studio 7 acceleration to Low.

Speed

You can set the speed by using the dial on the front panel. The setting can be from 1-15 inches per second (ips). The speed should be set according to the type of media you are using. You can use faster speeds with thinner, high-grade media. If your speed is set too fast for a thick media, the media may tear or buckle. A slower speed assures a better cut.

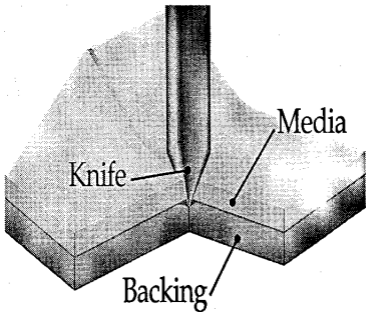
Test Cut

Turn on your Studio 7. The green Power light will come on. The cutter will move to the right end plate and, a few seconds later, the red Pause light will come on. To make a test cut, follow this procedure:

1. Make sure the media is loaded in your Studio 7 and the cutter is positioned on the media.
2. Press the Test Cut key. Your Studio 7 will cut a test design into the media. The pattern will be a one-inch square with a circle and an X inside.

Study the quality of the cut.

Did the knife cut too deeply, cutting into the backing? If so, readjust your knife force and extension.



Is the cut too shallow? If the knife is not cutting all the way through the media, adjust the knife extension to make the tip of the knife stick out more or add more weight to increase the force.

4 SENDING A FILE TO YOUR STUDIO 7

When you have completed a design, using your sign-making software, it is time to send the plot file from your computer to your Studio 7. Before you send the plot file to your Studio 7, make sure your Studio 7 is ON and media is loaded. Also be sure to set the starting point and put your Studio 7 in Ready mode.

In most cases you will use your sign-making software to create a plot and then send the completed plot directly to your Studio 7. You can do this from within the sign-making software environment. If you use this method, be sure to follow the sign-making software's instructions for sending the completed plot to a plotter. Your Studio 7 will receive the plot and cut the design that you have created.

You may choose to use the Studio 7 control center software to send a completed plot file to your Studio 7. To do this you must first make sure you know the name and path of the plot file. Open the Studio 7 Control Center program, as described in Chapter 6.

1. Select FILE.
2. Select SEND CUT FILE.

Enter the path and the name of the file that you want to send to your Studio 7. For example, your path might be:

C:\SCC\filename)

CANCELING YOUR PLOT

You may want to cancel a plot after you've sent it to your Studio 7. If you have sent a plot to your Studio 7 from within your sign-making software environment and you want to cancel the plot,

refer to your sign-making software manual or consult your software dealer.

If you have sent a plot to your Studio 7 from the Studio 7 Control Center, you can cancel the plot from the Studio 7 Control Center in the following manner:

1. Make sure your Studio 7 is in Pause mode. (Use the Pause key, as described earlier.)
2. From the Studio 7 Control Center screen, press Escape (if you are using Windows, select ABORT).
3. Use the arrow keys to move the knife to the original starting point of the plot.
4. Press the Starting Point key to make your Studio 7 forget the plot data it has already received but has not yet cut.
5. Press the Pause key to switch your Studio 7 back to Ready mode.
6. Press the Pause key again to switch your Studio 7 back to Pause mode.
7. Repeat steps 4, 5, and 6 of this procedure to clear any remaining plot data from your computer's buffer.

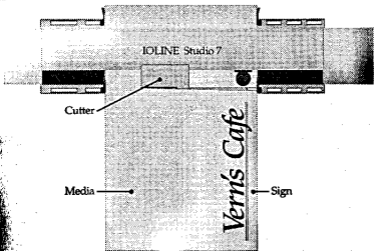
This will completely cancel your plot. You can load new media and send a new plot to your Studio 7.

5 TRANSFERRING AND MOUNTING YOUR SIGN

After your Studio 7 has produced a completed sign, follow these procedures to separate your sign from its backing and then mount it on the surface that you have selected.

SEPARATING THE FINISHED SIGN FROM THE MEDIA

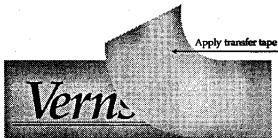
1. Remove the sign and all of its surrounding media from your Studio 7.



Very carefully peel away the extra media surrounding your sign. This is called "weeding." Take care to carefully weed around the intricate details of your sign. You may wish to use tweezers or an exacto knife for this.



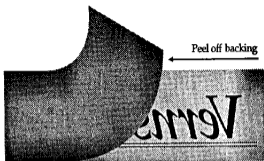
3. Cut a large enough piece of transfer tape to cover your entire sign. Smoothly apply the transfer tape to your sign. Squeegee the transfer tape over your sign surface. The sign will stick to the transfer tape. Now you can transport the sign to the place where it is to be mounted.



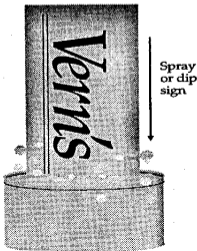
MOUNTING THE SIGN

1. Decide where you want the sign. Clean the surface carefully.
2. Using a water-soluble marker, draw a guideline.
3. Turn the sign over (face down).

4. Carefully peel the backing away from the transfer tape and the attached sign.



5. Spray the surface with an application solution or dip the sign and transfer tape into a solution. You can make your own solution with 1/4 cup of detergent to one gallon of water.



6. Position the sign on the surface, according to the guideline. Be very careful about positioning. Start with one side and gently press the sign down onto the surface.

Use the guide to keep your sign straight

Draw a guideline

Vern's Cafe



7. Working from the center towards the edge, use a squeegee or a wet sponge to press the sign firmly onto the surface, squeezing out the excess solution. Make sure the characters are positioned correctly and that there are no bubbles or wrinkles. If bubbles appear, you can puncture them with a needle. Let the sign dry.



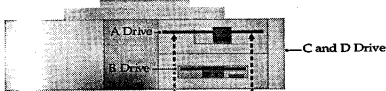
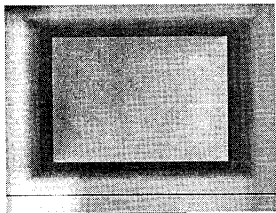
8. Gently peel off the transfer tape.

Congratulations! You have mounted your sign.

6 THE STUDIO 7 CONTROL CENTER

The Studio 7 Control Center is a host utility program that comes on a diskette with your Studio 7. It does three things:

1. It allows you to adjust a variety of Studio 7 settings that you can use to specifically tailor Studio 7 output from your computer.
2. It allows you to send a completed plot file to your Studio 7.
3. It has several diagnostic tests for troubleshooting.



LOADING THE STUDIO 7 CONTROL CENTER

This procedure applies to DOS and WINDOWS based computers only.

1. Turn on your computer and Studio 7.
2. Insert the Studio 7 Control Center diskette in your A: drive.
3. Your computer screen should say this:

```
C:\>
```

4. Now type,

```
MD SCC <Enter>
```

You have made a directory for the Studio 7 Control Center and completed plot files.

5. Now type,

```
CD\SCC <Enter>
```

You have entered the special directory for the Studio 7 Control Center.

6. Now type,

```
Copy A: *.* <Enter>
```

You have just loaded the Studio 7 Control Center into your computer's C: SCC directory. Remove the diskette from the drive and put it away.

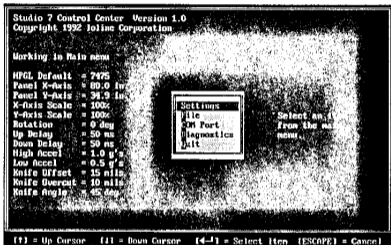
Save this disk in case your computer fails and loses the software.

7. Now type,

SCC

(Windows users: read the file "README.TXT" for Windows installation instructions.)

You will see this "main menu" screen:



CHANGING YOUR SYSTEM SETTINGS

Your Studio 7 must be in the Ready mode when you change system settings. Press the pause key and make sure the green (Ready) light is on before you change any settings.

Look at the main menu. You will see that the Settings line is highlighted. This menu selection is what you will use to change a variety of settings for your Studio 7.

You will probably never need to change any of the factory (default) settings. However, we have provided you with the ability to customize a variety of settings to fit your exact needs. To send a plot file to your Studio 7, go to page 19 of this manual.

To select a menu item, use the arrow keys to highlight your selection and then press enter. Or you can press the key that corresponds to the highlighted letter of the setting that you want to select.

English or Metric Measurement Units

You have a choice of using English or metric settings.

Studio 7 Control Center Version 1.0
Copyright 1992 Ioline Corporation

Working in Settings menu

HPGL Default = 7475
Panel X-Axis = 80.0 in.
Panel Y-Axis = 34.9 in.
X-axis Scale = 100%
Y-axis Scale = 100%
Rotation = 0 deg
Up Delay = 50 ms
Down Delay = 50 ms
High Accel = 1.0 g's
Low Accel = 0.5 g's
Knife Offset = 15 mils
Knife Overcut = 10 mils
Knife Angle = 45 deg

HPGL 7475/7596
Panel Size
Scale
Rotation
Up/Down Delays
Acceleration
Knife

Send Settings
Send As New Defaults
Set Factory Defaults

Calibration

Use this menu
to change Studio 7
settings.

[↑] = Up Cursor [↓] = Down Cursor [↵] = Select Item [ESCAPE] = Cancel

HPGL 7475 or 7596 Plotter Language/DMPL

Your Studio 7 supports three industry standard plotter languages: HPGL 7475, HPGL 7596, and DMPL. HPGL stands for Hewlett Packard Graphics Language and DMPL stands for Digital Microprocessor Plotter Language. Your Studio 7 will automatically switch from DMPL to HPGL (7475 or 7596) and

vice versa. If your sign-making software uses HPGL, you must select the version (7475 or 7596) of HPGL that your software uses.

HPGL 7475 is the default plotter language. It has a lower left origin and it is the most commonly used language. A lower left origin means that your Studio 7 begins plotting from the lower left starting point of the panel and measures everything from this location.

Your Studio 7 also supports HPGL 7596. This is a plotter language with a center origin and it is a less commonly used language. A center origin means that your Studio 7 begins plotting from the center of the panel and measures everything from this location.

Panel Size

Sign-making software creates long signs by dividing them into smaller, more manageable panels. The default maximum panel size of your Studio 7 is 80 inches long by 34.9 inches wide.

Scale

The default scale is 100%. Your Studio 7 will produce a cut in the exact size of any plot file that you send. If you set the scale to 50%, your Studio 7 will produce a cut that is half the size of any plot file that you send. You can set the scale of your Studio 7 from 1% to 999%.

Rotation

Your Studio 7 can rotate a panel 90 degrees, 180 degrees, or 270 degrees. The default rotation is 0 degrees. If you change the rotation to 90 degrees, your Studio 7 will produce a cut panel that

is rotated 90 degrees clockwise. Use your sign-making software if you want to rotate multi-panel drawings.

Up/Down Delays

The default up and down delay settings are both 50 milliseconds (ms) or 50 thousandths of a second. The knife of your Studio 7 will take 50 milliseconds to raise up from, or lower into, the media at the end of each segment of the cut. A shorter up or down delay setting will make the knife move faster but it could also reduce the quality of your cut.

Acceleration

The default high acceleration setting is 1.0 g and the default low acceleration setting is 0.5 g. The acceleration setting determines how quickly the knife will reach full speed when starting or ending a cut line. Generally, you will use the high acceleration setting when you use a faster speed setting. You can select high or low acceleration from the keypad of your Studio 7. You can use the Studio 7 Control Center to change either the high or low settings within a range of 0.1 to 1.0 g. Normally, you will not adjust this setting.

Knife Offset

The default knife offset setting is 15 mils or 15 thousandths of an inch. Because the cutting edge of the knife is slightly behind the center point of the cutter foot, the center point is offset slightly to compensate. This slight compensation or offset allows your Studio 7 to produce consistently accurate cuts. This setting must match the actual offset of the knife. For standard knives, the offset is usually 15 mils.

Knife Overcut

The default knife overcut setting is 10 mils. Knife overcut is your Studio 7's way of making sure that each cut actually reaches the point where one cut line meets or overlaps another cut line. Knife overcut is the distance the knife travels beyond the end of each segment of the cut. This ensures that all of the pieces of your sign will be cut completely, with no bridges.

Knife Angle

The default knife angle setting is 45 degrees. This is the minimum angle for which your Studio 7 knife will perform a knife steering arc. Changes in direction that are less than this angle will not cause a knife steering arc.

Send Settings

After you have changed any setting, you must send the changes to your Studio 7. If you choose this menu selection, your Studio 7 will use the new settings. You may also save your settings to a file and send them to your Studio 7 at a later time. Select "File" from the main Control Center menu to use this option. When you turn off your Studio 7, these settings will be lost and the factory default settings will be in effect when you turn on your Studio 7 again.

Send As New Defaults

If you choose this menu selection, all of the displayed settings will be sent to your Studio 7 and they will be saved by your Studio 7 for all subsequent sessions, even after you turn off your Studio 7.

Set Factory Defaults

If you choose this menu selection, all of the displayed settings will be replaced by the original factory default settings. You must select "Send Settings" or "Send as New Defaults" if you want to send any new settings to your Studio 7.

Calibration

The purpose of the calibration section of the settings menu is to generate and then measure a calibration plot so you can test the accuracy of the X-axis and Y-axis measurements produced by your Studio 7. You can then adjust your Studio 7 for increased accuracy.

Calibrate your Studio 7 in the following manner:

1. Select **SETTINGS**.
2. Select either **ENGLISH** or **METRIC** measurements.
3. Select **CALIBRATION**. Make sure your media is at least 42 inches long by 30 inches wide, and that it is the type of media that you most commonly use.
4. Select **CALIBRATION PLOT**. Your Studio 7 will cut four ruled lines: 40 inches and 101 centimeters long and 28 inches and 71 centimeters wide. Precisely measure one length and one width line (either inches or centimeters) and record your results.
5. Select **SET CALIBRATION**.
6. Enter the measured X value.
7. Enter the measured Y value.

Your Studio 7 is now recalibrated.

Only use RESET CALIBRATION if you want to restore the original factory calibration values.

SUGGESTED SETTINGS

There are five key variables that determine output quality from your Studio 7. These five variables are: speed, acceleration, weight, knife depth, and media type. We recommend that you use low speed, acceleration, knife depth, and weight settings when you make your initial test cuts. Then you should gradually increase these settings until you find the best ones for the media that you are using. Refer to the media table below for our suggested settings for a variety of media types.

Media	Speed	Acceleration*	Weights	Knife Angle	Knife Offset
2 mil High Performance	15	High	0	45	15 mils
Intermediate	15	High	0	45	15 mils
Rubylith	10	Low	0	45	15 mils
Reflective	7	Low	150	60	47 mils
Metallic	7	Low	0	45	15 mils
10 mil Stencil	7	Low	100	60	47 mils
Translucent	15	High	0	45	15 mils
Banner Vinyl	15	High	50	45	15 mils
Polyester Film	10	Low	150	45	15 mils

These are suggested starting values for cutting the listed media. Actual performance may vary.

* Assumes factory default acceleration settings: high = 1 g, low = 0.5 g.

7 TESTING AND TROUBLESHOOTING

DIAGNOSTIC TESTING

There are three diagnostic tests that you can run from the Studio 7 Control Center. These tests are designed to help you determine if you are having a communications problem and to isolate where the problem is occurring.

To run two of these tests, you will have to connect the diagnostic module (in your accessory kit) to either your computer's serial port or to your Studio 7's serial port. The diagnostic module is a tool that you can use to determine whether there is a problem with either serial port. You won't need to use the diagnostic module for the first of these tests.

Testing Your Studio 7/Computer Communications

Run this test from your Studio 7 Control Center. You will not need to use the diagnostic module to run this test.

1. Connect one end of the cable to the serial port on your Studio 7 and the other end of the cable to your computer's serial port.
2. From the Studio 7 Control Center screen, select **DIAGNOSTICS**.
3. Select **SERIAL TEST**.
4. Turn on your Studio 7, while you hold down the Test Cut key on the keypad. Hold down the Test Cut key until your Studio 7 beeps and the lights flash three times.

5. Press the Pause key on your Studio 7 and verify that the handshake line (CTS) displayed on your computer screen toggles ON/OFF. Leave the handshake lines ON.
6. Press the Knife Up/Down key to switch your Studio 7 into ECHO mode. The ready light will come on.
7. Press any key on your computer and verify that the character transmitted equals the character received. If your Studio 7 and your computer pass all of these tests, you should not have any problems producing accurate cuts from your plot files.
8. Hold down the Ctrl key and press the X key on your keyboard to exit the serial test.
9. **Turn off your Studio 7 at the end of the test.** This will clear the memory of your Studio 7 and restore normal communications between your Studio 7 and your computer.
10. If this test is successful, you do not need to perform the next two tests.

Testing Your Studio 7 Port

Connect the diagnostic module directly to your Studio 7 serial port.

1. From the Studio 7 Control Center screen, select **DIAGNOSTICS**.
2. Select **STUDIO 7 PORT**. This will display the following instructions:
3. Turn on your Studio 7, while you hold down the Test Cut key on the keypad. Hold down the Test Cut key

until your Studio 7 beeps and the lights flash three times.

4. Press any arrow key to transmit and receive characters. Verify that the Error light flashes and your Studio 7 beeps.
5. **Turn off your Studio 7 at the end of the test.** This will clear the memory of your Studio 7 and restore normal communications between your Studio 7 and your computer.

Testing Your Computer Port

Use the DOS MODE command to install the communications settings. For example, to install serial port 2 type:

```
MODE COM2:96,N,8,1,P
```

Connect the diagnostic module directly to the serial port on your computer.

If your computer's serial port has a 9 pin connector, you will need to use a nine to 25 pin adapter between the serial port and diagnostic module.

1. From the Studio 7 Control Center screen, select **DIAGNOSTICS**.
2. Select **COMPUTER PORT**.
3. Verify the COM port displayed is the correct one. If it is not, press **Escape** twice and select **COM Port**. If you press any key other than **Escape** the computer serial test screen will be displayed.

4. The handshake line (CTS) should be on. Hold down the Ctrl key and press the H key on your computer keyboard. This will toggle the handshake line ON/OFF. Leave CTS in the ON position.
5. Press any key on the computer keyboard and verify that the character transmitted is the same as the character received.
6. Hold down the Ctrl key and press the X key on your keyboard to exit the computer port test.

TROUBLESHOOTING

If your system isn't working correctly, your first job is to figure out which component is causing the problem. The problem could be with your computer, your cable, your sign-making software, or with your Studio 7.

First make sure the cable between the machines is connected correctly. Make sure the power is on.

If the problem is with your computer or your sign-making software, consult your computer or software manuals. If you still can't solve the problem, call the appropriate manufacturer or dealer.

If the problem is with your Studio 7, consult the following Troubleshooting Chart.

TROUBLESHOOTING CHART

Problem	Possible Cause	Solution
Your plot doesn't start at the correct point on the media	You haven't set the starting point	Set the starting point
You've sent a plot file, but nothing happens	A communication problem	Run the diagnostic procedures (described in Chapter 7 of this manual)

Problem	Possible Cause	Solution
You've sent a plot file, and the output is erratic	Your Studio 7 is in Pause mode	Press the Pause key to put your Studio 7 in Ready mode
The knife tears the media or skips	You've sent your plot file with the wrong plotter language setting	Make sure that your sign-making software and your Studio 7 are set to the same plotter language (either HP7475, HP7596, or DMPL)
The knife tears the media or skips	The knife is dull	Replace the knife (refer to the Replacing the Knife procedure, later in this chapter)
The knife tears the media or skips	There is not enough knife weight	Increase the knife weight and refer to the Suggested Settings Table (in Chapter 6 of this manual)
The corners of the knife cuts are not completely meeting	Dirt or debris is stuck on the knife	Clean or replace the knife
The corners of the knife cuts are not completely meeting	The media is slipping	Create a large enough media loop so your Studio 7 doesn't have to pull media off the roll

Problem	Possible Cause	Solution
You have difficulty weeding the completed sign	The knife overcut value is set too low	Clean the grit shaft (refer to the Cleaning the Grit Shaft procedure, later in this chapter)
	The up/down delay values are set incorrectly	Use a higher knife overcut value (refer to Chapter 6 of this manual)
	The knife is not adequately extended	Adjust the up/down delay values (refer to Chapter 6 of this manual)
	Not enough knife weight	Increase the knife extension (refer to Chapter 3 of this manual)
	The knife overcut value is set too low	Increase the knife weight and refer to the Suggested Settings Chart (in Chapter 6 of this manual)
	The knife overcut value is set too low	Use a higher knife overcut value (refer to Chapter 6 of this manual)

Problem	Possible Cause	Solution
Steady, red, front panel error light	The knife is dull	Replace the knife (refer to Chapter 7 of this manual)
Steady, red, front panel error light	A major communication error	<p>Make sure that your sign-making software and your Studio 7 are set to the same plotter language (either HP7475, HP7596, or DMPL)</p> <p>Run the diagnostic procedures (described in Chapter 7 of this manual)</p>

Problem	Possible Cause	Solution
Alternating red/green, blinking front panel error light	Plotter language syntax error	<p data-bbox="812 194 1126 364">Check your completed sign for accuracy and press any key to continue</p> <p data-bbox="812 422 1126 774">Make sure that your sign-making software and your Studio 7 are set to the same plotter language (either HP7475, HP7596, or DMPL)</p>

If you are sure the problem is with your Studio 7 itself, and you can't find a solution in this manual, contact your dealer.

ROUTINE MAINTENANCE

Here are two procedures that will help you continue to produce high quality signs with your Studio 7.

Replacing the Knife

If you have been using your Studio 7 for a while and suddenly aren't getting clean cuts, you may have a dull or broken knife. There are extra knives in your accessory kit. You can order additional knives from your dealer. Replace the knife as follows:

1. Turn off your Studio 7.
2. Disconnect the cutter cable and remove the cutter.
3. Unscrew the foot.
4. Very carefully, pull the knife out.
5. Put the new knife in. Wiggle it in a circle pattern to get it into the right position.
6. Use something to protect your hands and push the knife in as far as it will go. (You can use a pencil eraser.)
7. Screw the foot back in and adjust the knife extension.

Whenever you insert a new knife, try a test cut before you do any actual signs.

Cleaning the Grit Shaft

You will need to clean the grit shaft regularly to make sure your cut lines remain accurate. Clean the grit shaft in the following manner:

- 1. Turn off your Studio 7 and disconnect the power cord.**
- 2. Using a soft bristle toothbrush, remove any accumulated dust and media residue from the grit shaft.**
- 3. Reconnect the power cord and turn on your Studio 7**