CLN Quick Trim

User's Manual



CLN Quick Trim

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Chapter 1

Introduction, Requirements & Safety

1. **Introduction**
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1. Introduction

Everyone at CLN of South Florida, Inc. wants to thank you for purchasing the CLN Brand notching machine, we understand that you had a chose and you picked ours. Before you get started, there are a few things that we need to go over. First thing, read this manual and pay close attention to the safety segment.

2. Systems logic

The main purpose of the Trim program is to translate a DXF file. The program tells the machine how to lay out the return based on the information in the file. The program moves through the file one control point at a time, making complicated calculations as it travels from one point to the next.

The machine receives commands sent from the Trim program, so that the machine can process the return properly.

3. Requirements

A. Compressed air
Air compressor with a minimum capacity of 1 CFM at 80 PSI

B. Electricity
110 V 10 Amp outlet
230 V 7 Amp outlet

C. Information
Software capable of producing DXF files see “File preparation”

D. Space
Maintain an area 2 feet behind the machine for maintenance and service. 4 feet in front of the machine, 2 feet on the left side for coil clearance, and 6 feet on the right for a catch table.

4. Safety

YOUR RESPONSIBILITIES ARE:

As an operator of the Quick-Trim machine, you are responsible to follow all safety procedures. Any person who operates or does any maintenance on this machine must be aware of all safety procedures.

Personal safety precautions:

1. Do not wear any loose fit clothing such as scarves or hanging jewelry.
2. Do not put hands in or on any moving parts at any time.
3. Do not operate machinery while under the influence of alcohol, drugs or any other substance that may impair or alert your judgment.
4. Always wear gloves when handling sharp materials.
5. Always wear eye and hearing protection when operating equipment.
6. Do not operate the machine without the cover in the closed position.
7. Keep hands, head and body out of the way of moving parts, such as the cover.
8. When doing maintenance work on the machine always unplug the incoming electric power and disconnect the compressed air supply. Make sure that the air is completely drained out of the system.
9. Be sure to stay clear of the cover when turning on the air supply, the Cover will open quickly during the initial connection.

Removing the side access cover

When removing the side access cover. You must first unplug the machines electricity. Disconnect the compressed air line and completely drain the air out of the system. **If you do not disconnect the electric power and the compressed air line and drain the system you will put yourself at serious risk causing permit damage to yourself or death.**

Follow the safety rules at all time. Under no circumstance should equipment be used for anything other than what it is designed to do. Any person who operates or does maintenance on this equipment should be aware of all safety and operation procedures. It is extremely important that this equipment is handled with care! Distractions such as horseplay, carelessness, loud noises and sudden movements can result in unsafe conditions, therefore should be avoided at all times when operating equipment.

It is important to always keep the work area clean! Oil, water or debris on the floor or around the work area can cause unsafe conditions. Always keep the work area free of hazardous obstructions. Return tools and other items used during operation to their proper storage when finished. The CLN is equipped with very sharp cutting mechanisms and should be handled with care. Failure to follow safety precautions could result in serious injury. When installing equipment parts, the person handling the installation must read and understand all the operation schematics prior to connecting the machine to the local power source. Connecting the wrong voltage will void the warranty and cause serious injury or death. Place all switches in the off position before connecting power. Always turn off the machine, when left unattended.

5. Caution labels

Understand owner's manual before operating this equipment
Read the owner's manual completely before using this machine, if you are confused about anything stop and get help from the manufacturer.



Pinch point
This label means there is an extreme danger of your hand or fingers being cut off.



Electrical Shock
Electrical shock is possible with any machine. Only authorized certified personnel should service the machine.



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Chapter 2

System Overview

1. **Tool stations & functions**
2. **Power connections**

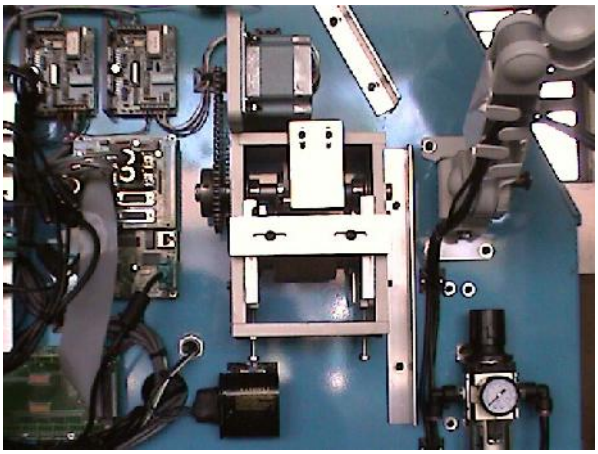
1. Tool Stations & Functions

A. Decoiler arm

The purpose for the decoiler arm, is to manage the coiled stock material.

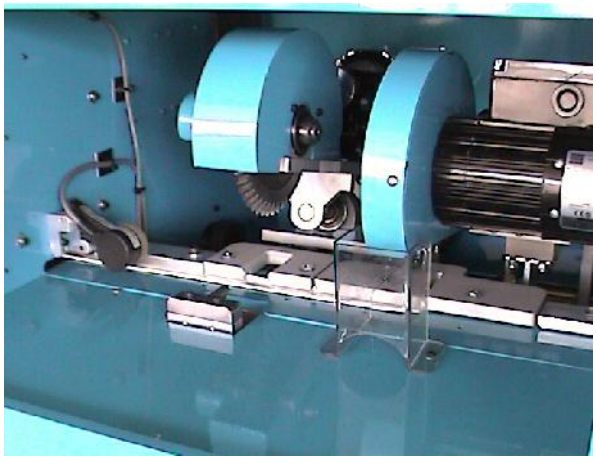
B. Drive Box

The drive box simply moves the material through the machine.

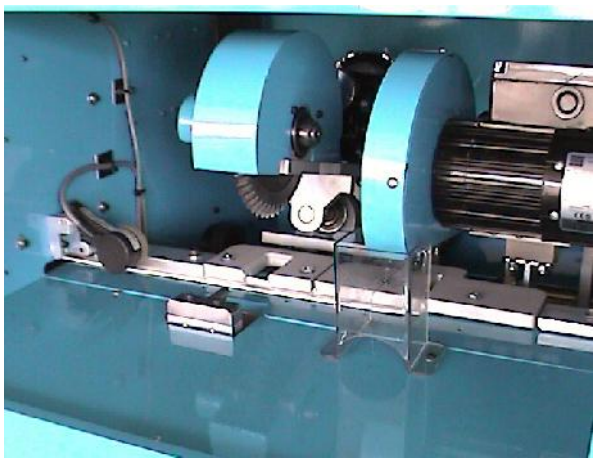


C. Encoder

When the step motor feeds material through the machine, the encoder keeps track of all the measurements. If there is a discrepancy the encoder tells the motor to make a correction.



D. Dimpling Tool
The dimpling tool is located in front of the notching blade. The dimple tool, lines up with the notching blade. A reverse or “negative” bend is the only bend that receives this.

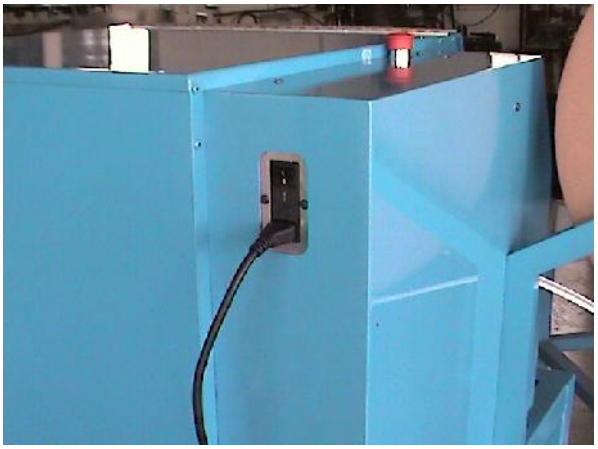


E. Notching Station
This is where the machine cut the notch for forward bends or ” positive” sharp bends. The blade rotates left and right, cutting out the exact amount of material needed so you can bend the trim around the letter. Minimum angle is 66.5 degrees maximum angle is 165.

F. Saw
The saw cuts the trim from the coiled stock .It is located all the way to the right of the machine. The blade is a 7.25-inch carbide tipped saw blade, with a 5/8 arbor hole.

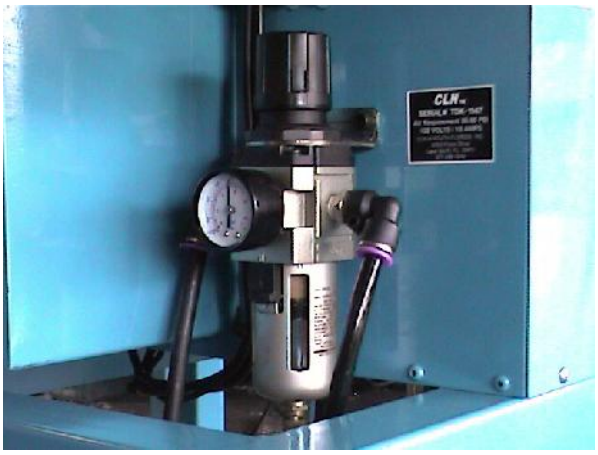
2. Power Connections

A. Electrical power
The main power that comes from the house receptacle, plugs into the power module switch that is located on the right side of the machine. There are two fuses located inside the power module for the machines internal protection.



B. Compressed air

The machine uses compressed air to power cylinders that are needed to operate tools in the machine. The air filter water separator regulator is located on the left side of the machine. The pressure needs to be set at the recommended setting that is printed on the label that is on the machine.

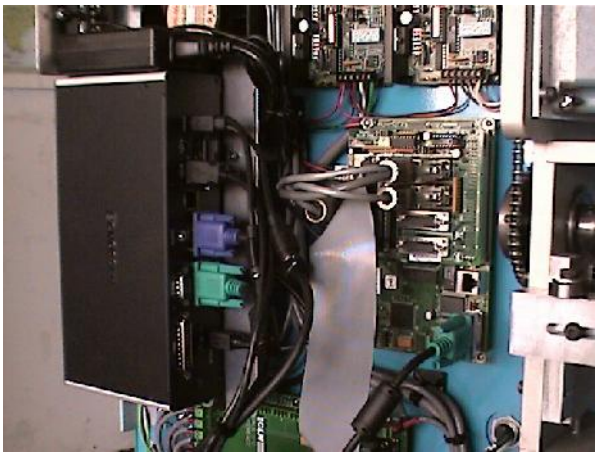


3. USB & Ethernet connection

The external USB port is a convenient way to transfer data directly to the machines hard drive. You can also plug in a keyboard that has a USB connection on it.

Observe all safety precautions when doing this next step (Read Chapter 1 Section 4).

Connecting to other computers by using the internal inherent connection is your responsibility. Remove the side access cover for access to the computer.



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Chapter 3

Machine Setup

1. **Location**
2. **Assembly**
3. **Electric power**
4. **Compressed air**

1. Location

1. Maintain an area 2 feet behind the machine for maintenance and service. 4 feet in front of the machine, 2 feet on the left side for coil clearance, and 8 feet on the right for a runoff table.

2. Set the height of your runoff table, below the lowest part of the output hole on the machine. Table should be 8’ long.

2. Assembly

1. Set the Quick Trim in place first. Then thread in the leveling feet, there will be threads cut in the bottom of the leg. Don’t put them in the hole used for shipping.

2. Bolt the monitor arm and the decoiler arm, on the left side of the machine. Use the supplied hardware, the bolts are usually threaded in the machine where the part needs to be bolted.

3. Bolt the air filter regulator to the left side of the machine and push the air hose into the push connect fitting on the air filter regulator.

4. Bolt the monitor to the monitor arm and plug the power cable, video cable and USB cable in their proper locations.

3. Electric Power

Plug the power cord that came with the machine into a Power outlet (see requirements B. electricity) and make absolutely sure the outlet is properly wired. DO NOT use extension cords.

4. Compressed Air

Connect air supply to the regulator on the machine, set gauge at recommended pressure (see label on machine to find recommended pressure). Your machine is now under pressure.

Chapter 4

DXF File Generation

1. **DXF file**
2. **Sign making software**

1. DXF File

A DXF file, is a file used to record X and Y coordinates. Some programs export better than others. Our Trim program uses the information in the file to calculate the letter or shape. If the DXF file is not consistent and predictable you will have problems.

You have to think about this machine, as if it was a router table. If you tell your router table to cut a 12 inch letter, with the proper tool path the letter will measure 12 inches. Your router table just did what you told it to do. It is no different than sending a DXF file to the Trim software.

File Direction

The direction is generated by the direction of the DXF file when it was outputted. It must be sent clockwise.

Artwork Problems

1. If there are three or four control points all bunched together in the same place, the program may give false directional dimple and or wrong notch, but it will not shorten the total length. There is a control point filter in the program but it doesn't catch everything. What you need to remember, is that the system will do what you tell it through the DXF file. "Garbage in garbage out"
2. Another possible problem that could occur is the machine notches or marks in the middle of two radiuses and there are no extra control points in the artwork. This is because the two adjoining radiuses need a couple of extra points inserted in them to minimize the angle of the two adjacent radiuses. Remember this is a DXF translator, it converts control point coordinates to angles. Most of the time the points in the artwork are close enough together and the minimum notch angle setting in "tools/setup" will take care of the problem.

2. Sign Making Software

Sign Wizard export process

This is a general process on how to export DXF files, refer to your, Sign Wizard manual, for more details.

1. Select the artwork that is on the screen.
2. Move it so that the bottom left corner is just above Y 0 and to the right of X 0.
3. Make sure that the artwork has sharp corners.
4. Set start point by double clicking on the location and the edit menu box will pop up, then click set start / end.

5. For letters that are, too long to handle you can cut the letter into sections. Double click on the spot that you want to cut and the edit menu box will pop up, then click break loop.
6. Select the artwork and click arrange, combine.
7. Select the artwork and click file, export.
8. Click file type DXF AutoCAD and click export. The file data format must be set to polyline - lines and arcs.

Chapter 5

Machine Start Up Procedure

1. **Power up**
2. **Loading coil stock**

1. Power Up

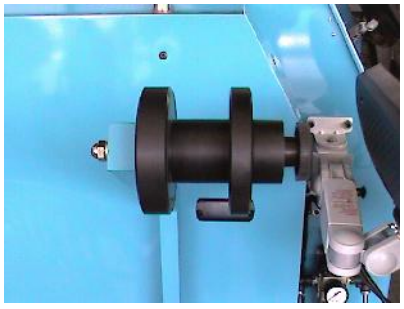
A. Compressed air
Turn on Compressed air supply slowly.

B. Electricity
Turn on main power switch, then pull out the red emergency stop. Turn on computer and monitor if they have not already turned on. Wait until the computer becomes stable, then start the CLN program. If the program starts with no error message you now are powered up and the machine is ready.

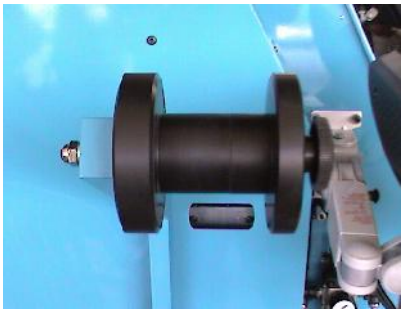
2. Loading coil stock

1. Push the disable button that is located on the front panel of the machine. The red light will light up indicating that the drive box is disable.
2. Put the coil stock on the decoiler arm then tighten the capture nut.
3. Push the trim material through the drive box until the edge is just under the cut off saw.
4. Close the cover and press load tool. The machine will make a fresh cut and then back up to the start position. The machine is now ready for operation.

1 Inch trim



2 Inch trim



Chapter 6

Software Functions

1. **CLN Operator software**
2. **Galil motion control software**

1. CLN Operator Software

The purpose of the CLN software is to give the operator, a way to view the artwork that was sent via, DXF and convert it so that the machine can process the information correctly. You can alter the start point, split the letter into two parts but that's it. It has nothing to do with artwork generation or modification; it is only a DXF translator.

Sharp Bends

A sharp bend is two lines meeting together with one point. The program calculates the two adjacent lines and provides an angle. This routine is called, line angle dimensions. If the angle is between 20 and 170 degrees and is a positive angle, the program tells the machine to notch the exact angle. If the angle is 20 degrees or more and is a negative angle it marks with a dimple.

Program Definitions:

File\

Open: Brings you into an open screen so you can open DXF files.
Exit: Closes the program.

Options\

Test: A dialog box will pop up, inside you can type a length and the machine will make a piece with two notches in it so you can measure to see if the machine is measuring correctly.

Setup:
Dialog box definitions:
Comport: Communication port, enter the port number that is assigned to the RS 232 comport.

Rewind to start distance: This is where you can adjust the location of the cut or the seam of the letter. make the number smaller for a longer seem.

Steps per degree: This is how many steps equal a degree. This number can be increased for more of a gap between the seam of the notch.

Delay: Controls the speed at which the computer communicates to the machine.

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Bit size: When the router cuts the back out, the bit cannot get down in the crotch of some letters, like W or V. We calculate that difference and subtract it out from each side of the crotch. Insert the router bit size that you used to cut the backs out with. The program will

automatically do the calculations for you.

Minimum mark angle: This is minimum angle that the machine will mark. This prevents excess marking and can be set from 30 -70.

Minimum notch angle: This is minimum angle that the machine will notch. This prevents excess notching and can be set from 30 -70.

X Offset: Positing of graphics (setting used to match computers resolutions)
Y Offset: positing of graphics (setting used to match computers resolutions)

Inside trim factor: When you bend trim around a radius it grows. This is where you can adjust for it. Increasing the number subtracts the distance by the percentage of the radius. In other words a large radius will subtracts less material than a small radius based on the setting. The setting can be adjusted from 0 to .10

Outside trim factor: Works the same way as inside trim factor but in the other direction.

Close figure 1=YES 0=NO: Different kinds of DXF files close the figure differently. You will notice this if you send an open path. If the path is open and it appears closed in the CLN program then switch this setting.

Segment length on: This feature turns on a note pad, by touching image length and then touch ok. This allows you to view the dimensions of the image, it displays the dimensions accumulatively and segmented. This is a very important tool when you are having problems. These dimensions can be used to prove the machine right or wrong. If the return does not match these dimensions the machine is at fault, if it does it means the DXF file is incorrect.

Segment length off: This is the default setting for the image length, for when you want to look at the image length without looking at the segments.

Image Length: Calculates the total length around letter, it does not include the tab or bender output distance.

Job Length: Calculates the total length of everything on the screen.

Verify start points: This feature check to see if there is a conflict in the starting position. You should use this if you are going to process all of the letters continuously.

Move: Moves the material with the aid of the encoder.

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Run Job: Processes the whole job continuously. Set the start points where you want them. Touch continuous job and then touch run tool. The images on the screen will be processed in the order they were exported. They will automatically highlight themselves so

the operator knows what is being processed.

Multiple image copies: Processes one letter multiple times. Touch the up or down button in the dialog box to the desired number of letters you want. Then touch run tool, the number of letters that you selected will be processed.

View log: This is a record of the machines output functions and the material that was ran through it. It also has a timer code that is set at the factory it will not be cleared until the machine is paid for in full.

Image\

Select next: Selects the next letter in the file

Start Point Plus: Moves the start point around letter clockwise. Start point alteration cannot be saved in the CLN program. If you want to save the start point location, than you have to do it in the cad program before you export it.

Start Point Neg.: Moves the start point around letter counterclockwise. The same rule that applies to start point plus applies to start point neg.

Control Points On: Turns on the ability to view the control points.
Control Points Off: Turns off the ability to view the control points.

Help\

About: Information about the program.

Shortcut keys\

Next: Selects the next letter in the file.
Start Point Plus: Moves the start point around letter clockwise.
Start Point Neg.: Moves the start point around letter counterclockwise.
Load Tool: Turns on the motors and does a cut cycle to then backs up to start.
Zoom +: Enlarges the image.
Zoom -: Decreases the image.
Run Tool: Begins processing the letter or letters that you selected.

2. Galil Motion Control Software

Galil DMC motion control terminal is where you can talk directly to the machine, and download updates.

Connect with the DMC Smart Terminal

Close all open programs. Double click on Direct Terminal, type 99 then press enter, then close Direct Terminal. Double click on the DMC Smart terminal. If three screens popped up in front of you, then you are connected to the machine correctly. If not close the program and try it again.

Galil screen terminology

The screen that is in the top left corner, is where you can type in commands, this is called the data entry screen. The screen in the bottom left corner is where you receive feedback from the controller, this is called the data receive screen. The big white screen is where you can write programs for the controller, this is called the editor.

Communication between CLN program and Galil

When the CLN Program wants the machine to do a function it sends a command string to the Galil controller. A command string can be anything we use numbers, when Galil receives a number, Galil does what it was programmed to do and sends back a D to the CLN program for done, or if the command requires further information it will send an L for length. If there is no responses within 30 seconds, then the CLN program will time out. When a time out occurs the CLN program will tell you, it is not responding. Close the program and start it again.

Controller Commands

You can manually type commands in the data entry screen. The only time you need to do this is when you are calibrating the machine.

Commands
1 = Reset Controller
2 = Material feed with the auxiliary encoder
3 = Notcher down.
4 = AC motors off.
5 = Notcher up
6 = Cut off saw
7 = Rotate the notcher blade
8 = Dimple tool
10 = AC motors on
12 = Computer timing delay
13 = Material feed without the auxiliary encoder
99 = End the program

Chapter 7

Calibrations

1. **Material feed**
2. **Tool timing**
3. **Mechanical adjustments**

1. Material feed

The drive system uses a step motor with an auxiliary encoder. If the material slips while being pushed through the machine then there will be an error. The encoder keeps tract of this and makes sure that the error is corrected automatically. Let's say the step motor moves the material 100 inches. The encoder keeps track of this move, if the material does not move correctly the first time, then the encoder tells the step motor to make a correction until the encoder agrees with 100 inches. Making adjustments to the step motor will eliminate any extra moves. Making adjustments to the encoder will make the material measure correctly.

Is Calibration needed?

1. Measure from the outside edge of the right side of the machine and put a mark at 18 inches inside the machine just to the right of the encoder. Put a small piece of masking tape down before you place your mark, this will help you see the mark. Get help with this step, hold the tape flat and straight, also burn an inch on the tape. This is the distance that we are going to calibrate to, so make sure it is done correctly.
2. Go to Options / move, type 18 and click ok.
3. Observe the move closely. Look for two things, any error corrections that the encoder picked up and the overall length. Your material should line up exactly at the end of the machine. If you did not see any error corrections and the material moved exactly 18" then there is no need for adjustment. If the machine did not move correctly then follow these steps.

Calibrate encoder

1.Close all open programs. Press reset on the machine. Double click on Direct Terminal located on the desk top, then type 99 "End" and press enter. Close the Direct Terminal. Click yes to "are you sure you want to disconnect now" message. Double click on the DMC Smart terminal. If three screens popped up in front of you, then you are connected to the machine correctly. If not close the program and try it again.
2. In the editor screen, go to file open and open the file called gtrimenc.DMC.
3. In the data send screen, type RS "Reset" then press enter.
4. Line up the edge of the material to the mark that you put in the machine. Make sure the drive motor is enabled.
5. Type 2 "Material feed with auxiliary encoder" then press enter, an "L" for length, will appear in the data receive screen.
6. Type 18 and press enter. Observe the distance that the material moved.
7. In the editor screen, make an adjustment to line 9, CPI = number.
8. In the editor screen, go to file, click "download to controller". Click yes to "program is

executing on controller" message. Click ok to "the file was download to controller" message. In the data send screen type, capital BP and press enter, wait 4 seconds and allow the DMC smart terminal to burn the program to the controller.
9. In the data send screen type RS "Reset" then press enter.
10. Repeat step 4 through 9 until the material moves correctly, Once the material moves correctly, then go to "Tuning the error correction". If tuning the error correction is not needed then go to step 11.
11. In the editor screen, go to file click save then close the DMC smart terminal program.

Tuning the error correction
1. Line up the edge of the material to the mark that you put in the machine. Make sure the drive motor is enabled.
2. In the data send screen, type 13 "Material feed without auxiliary encoder" then press enter an "L" for length, will appear in the data receive screen.
3. Type 18 and press enter. Observe the distance that the material moved. In the editor screen, make an adjustment to line 10 SPCNT=number.
4. In the editor screen, go to file, click "down load to controller". Click yes to "program is executing on controller" message. Click ok to "the file was download to controller" message. In the data send screen type capital BP and press enter, wait 4 seconds and allow the DMC smart terminal to burn the program to the controller.
5. In the data send screen type RS "Reset" then press enter.
6. Repeat step 1 through 5 until the material moves correctly.
7. In the editor screen, go to file click save then close the DMC smart terminal program.

Helpful tip
The material can be a little on the long side approximately .01 of an inch to allow for any extra drag that might occur during normal operation. Remember this is the step motor feed not the encoder.

2. Tool timing
Tool timing is the time it takes for the tools to make one complete cycle. There are two timing settings. The first timing setting is for how long it takes for the tool to move through the material. The second timing setting is for how long it takes for the tool to retract before the machine begins feeding again. These settings may need some adjustment, due to a restricted air flow to the machine or your air compressor can't keep up with the machines factory settings. Slowing the timing settings down slightly is not usually noticeable, only a few tenths of a second is all that is needed to make the machine work properly.

Adjusting timing cycle
1.Close all open programs. Press reset on the machine. Double click on Direct Terminal located on the desk top, then type 99 "End" and press enter. Close the Direct Terminal. Click yes to "are you sure you want to disconnect now" message. Double click on the DMC Smart terminal. If three screens popped up in front of you, then you are connected to the machine correctly. If not close the program and try it again.

2. In the editor screen, go to file open and open the file called gtrimenc.DMC.
3. In the data send screen, type capital RS “Reset” then press enter.
3. In the editor screen, find the routine that needs adjusting, make changes to the routine by adjusting the WT= number for example.

```
'NOTCHER DOWN
#NOTCH
SB 1         Clamp down
SB 5         Notcher down
WT 1000      Delay for tools down
EN
'NOTCHER UP
#UP
CB 1         Clamp up
WT 500       Delay for clamp up
CB 5         Notcher up
WT 200       Delay for notcher up

EN
'CUT SAW ROUTINE
#SHEER
SB 4         Saw down
WT 2000      Delay for saw down
CB 4         Saw up
WT 3000      Delay for saw up
EN

'MARK ROUTINE
#BACK
SB 2         Mark tool in
WT 200       Delay for mark tool in
SB 3         Mark tool down
WT 200       Delay for mark tool down
CB 3         Mark tool up
WT 100       Delay for tool up
CB 2         Mark tool out
EN
```

4. In the editor screen, go to file, click “download to controller”. Click yes to “program is executing on controller” message. Click ok to “the file was downloaded to the controller” message. In the data send screen type BP and press enter, wait 4 seconds and allow the program to burn the file to the controller. BP must be capitalized.
5. In the data send screen type RS “Reset” then press enter.
6. If the machine still hangs up repeat step, 1 through 5 until the material stops hanging up on the tool.
7. In the editor screen, go to file click save then close the DMC smart terminal program.

3. Mechanical adjustments

Encoder tension

1. Remove the rubber cap with your fingers.

2. Insert a 3/32 hex L key into the setscrew on the spring adjustment collar. Using the hex key for leverage, rotate the collar around the pivot shaft in the direction necessary to increase the spring force that holds the measuring wheel against the surface to be measured. While maintaining pressure, tighten the setscrew very securely to avoid lose of spring pressure. (A torque of 15-18 in-lbs is recommended, however a torque wrench is not required as long as the setscrew is good and tight.) You should be able to lift the wheel 1/8 to ¼ of an inch above the material.

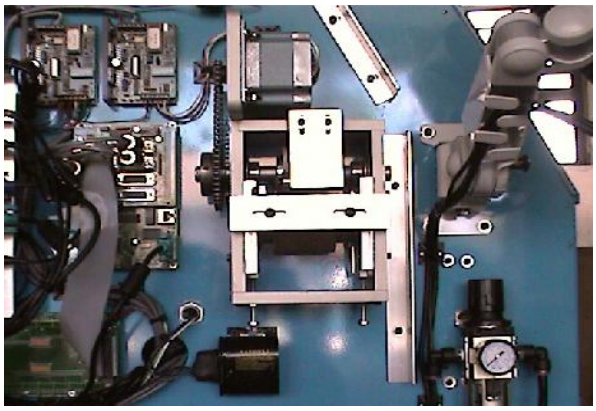
Notcher depth

1. Disconnect the compressed airline and the electricity by unplugging the electric cord from the machine, then remove the rear cover.
2. Locate the piston that raises and lowers the notching blade.
3. Loosen the jam nut on the rod, then turn the rod with a 3/8 wrench. Threading into the rod clevis will make the notch deeper.
4. Retighten the jam nut, reconnect the power. Run the machine and inspect notch depth.

Drive box tension

Observe all safety precautions when doing this next step (Read Chapter 1 Section 4).

1. Remove the side access cover for access to the drive box.
2. Loosen the clamps that hold the idler roller.
3. Loosen the jam nut on the jack bolts, then turn each jack bolt a 1/4 turn. Do this until the material has an impression of the drive wheel in it, or the material cannot be pulled through the machine when the motor is locked.



Pneumatic flow controller

A flow controller is a metering device that regulates the air that is being exhausted out of the cylinder, it is how the speed of the cylinder is controlled. There is one on the flanging cylinder, two on the clamp cylinders, one on the shearing cylinder and four on the cover cylinders. To adjust these flow controllers you must loosen the jam nut and turn the center screw until the cylinder speed is satisfactory then retighten the jam nut.



Chapter 8

Maintenance

1. **Weekly**
2. **Monthly**
3. **Six months**

1. Weekly

1. Clean the chips out of the machine.

2. Monthly

1. Clean the fan filter

3. Six Months

1. Use a grease gun and grease the notching blade spindle bearings. Remove the blade cover there is one grease fitting on each side of the blade.

Chapter 9

Troubleshooting

Mechanical

Problem: The machine notched in the middle of a radius and the artwork looks good.
Answer: The control points need to be closer together about 2 to 3 inches. The Trim program calculates the two radiuses by converting them into three point angles if the angle is greater than “minimum notch angle” setting then the program will tell the machine to notch.

Problem: Trim length is too long.
Answer: The DXF file is outlined to much compare it against image length.

Problem: Trim length is too short.
Answer: Encoder is slipping, adjust the spring tension on the encoder arm or the DXF files inline is too small.

Problem: The shear is not cutting all the way through the material.
Answer: Turn to Chapter 7 Calibrations Section 2, Tool timing.

Software
Problem: The artwork appears scrambled on the screen or a domain error message appears on the screen.
Answer: Look for control points on top of each other or points that form a loop.

Problem: The file is not on the screen or is partially on the screen.
Answer: Turn to Chapter 4 DXF file generation Section 2, Sign making software.

Technical support
If you need further assistance call 561-996-5900. Please be prepared to explain exactly what is not working property. Gather as many details on the problem as you can, so that the technician can help you more efficiently.

Chapter 10

Glossary

Coiled Stock: Is the material used to run through the machine.
Notcher: Tool that is controlled by an air cylinder used to notch the material.
Dimple: Dimple is a small dent used to identify a direction.
Decoiler: Device used to uncoil coiled stock material.
Segment: Segment is one dimension of many.
Accumulative: Accumulative is all of the dimensions added up.
Calibrate: Way of making measurements true and exact.
Step motor: Type of motor which turns by incremental movements called steps.
Encoder: The encoder is a device used for measuring.
Controller: Circuit board that stores data that is used to operate and control other devices.