

# **OPERATION & MAINTENANCE MANUAL**

for

# **Pegasus MasMill**

**Control System** 

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# 1 Introduction

The computerised Control System fitted to this machine has been designed and manufactured by *Pegasus Designs Pty Ltd*, 10/176 Redland Bay Road, Capalaba.

The system is preconfigured to suit any Roll forming machine configuration. The Pegasus MAS Mill is capable of running manually entered pieces, Library components or Custom data files. For a Steel Framing System, a Library is used to import .CSV files, .CNC files or .Partslist files.

# 2 System Overview

The Pegasus Mas Mill uses a standard Windows 10 Computer Control System that connects via USB or Parallel port to our Custom Built Interface System installed in the Electrical Cabinets.

The HMI used is an off the shelf Touch Screen and can be replaced by any make or model of monitor.

Recommended System Requirements

- Intel I3 or equivalent
- Windows 10 (clean installation)
- 4GB RAM or greater
- 200MB free disk space or more
- SVGA display, 1024x768 or higher
- CD-ROM drive or USB Storage Device
- Mouse or other pointing device

Alternatively Pegasus Designs can supply a computer installed and fully tested for the Controller Software.

Relevant machine control information is displayed on the monitor and the machine may be controlled generally from the on-screen buttons via the touch screen or mouse or via industrial push buttons. The computer controls the Pegasus Designs Input/Output System via the parallel printer port or USB port.

The I/O System is fitted with LED indicators on all inputs and outputs. Inputs may be monitored and outputs may be switched in the diagnostics section of the program.



# **3 Operating Procedure**

# 3.1 Getting Started

Before the machine can be operated, the power must be fully connected. Check the Machine Manual and ensure the operator has knowledge of the interlocking system and has the ability to Enable or Reset the Machine.

The program opens on the Cut List page.

Pegasus Designs mill for Pegasus           C Cut List I ➡ Job Files I ✔ Settings I II Statistics I ➡ Print	ter   🏟 Diagnostics   🎔 Security		Vesio 24.3.205 Comple 13-01-7 13.44
Line 🗁 Invoice	Pack Name	Mark Length Qty Done ToGo Op mm Done	Auto Controls  Set  Set  Set  Set  Set  Set  Set  Se
			Manual Controls Jog Fwd Jog Rev Manual Cut
Profile: Gauge: TEST MODE TEST Coverator Cl4156AL4i MOT Loaded			150532 0.0 BPALATION MODE

Figure 1: Cut List Page

# 3.2 Interlocks

If the machine **ESR reset/ready light** does not illuminate when the reset button is pressed there is an interlock that is not correctly set.

To close the interlocks circuit all Emergency Stop switches must be released and the Guard Switches must be closed.

Before any part of a job can be run, the **Emergency Stop** circuit must be ready. The status of this can be seen by **ESR reset/ready light** on the machine as well as in the Controller Software as shown below.

_	_	_	_	
Profile:	Gauge:			
PROFILE				
	Operator CL4150 LOADED	AL42		

Machine will not operate

Figure 2: ESR warning in Status Bar – bottom left of the screen

Profile:	Gauge:		
PROFILE	GAUGE		
, , , ,		, _ ,	Machine ready to opera

Ĩ

# 3.3 Loading a Job

This procedure outlines how to load a job from a file.

Check that the gauge selected corresponds to the gauge of material which is loaded into the machine. Note that the computer will select only items of that gauge from the file.

Select the "Job Files" tab in the Pegasus Mas Mill Software.



Figure 3: Job Files Tab

On the left hand side of the screen you will see arrows pointing to the right (see Figure 4) click on the arrows and it will expand a side tab.



#### Figure 4: Opening Directory Tab

Next step is to find and set the directory in which files can be loaded from. There are three different directories that can be configured individually; Local Directory (see Figure 5), USB



folder (see Figure 6), or Network folder (see Figure 7). The small tab with an image on it will have a white background to signify it is selected (see Figure 5).



Figure 5: Local Directory

Pegasus Dasigns mill for Demo It List D Job Files / P Setting	s 🖬 Statistics 🖨 Printer 🏝 Diagnostics	Security				Version 24.3.2016 Compile 28/07/16 9:12
t Folder:	Piece	Length	Status			
e)	Local					
	US8					
	Net					
Set USB Folder						
Hide Finished Pieces?	<					
	<					
Load ALL Gauges?	<					
			Load	Options		Load Status
			Make next	t?	? NO PIECES CHOSEN	Waiting to Load
	History					
				-	09:52:10	
Coll NOT Loaded	L.D		m to 0.	Run: mm Last Cut	DO Rem Position- 0.0 - 5mm SIMULATION MODE	с Г
6 📋 0	🧿 🖸 🛄 🌠					- 😼 🏲 🗊 🍓 9.52

Figure 6: USB Directory





Figure 7: Network Directory

The window on the left allows you to select the directory where your job files are located on the computer. To do this, navigate using the expand arrows next to a location name (or double click the folder to expand) and find where you have placed your job files. Once the folder has been located, click "Set Local Folder" (see Figure 8). This button will save which directory you are viewing. Once you have set the folder, collapse the side tab using the arrow indicator button (see Figure 4) to close the directory tab for better viewing of the job files.

Pegasus Designs mill for Demo □ Cut List □ Job Files ≯ Settin	ngs   🖬 Statistics   🖶 Printer   🛳 Diagnostics   🛡 Secur	ty				Version 24.3.2015 Comple 28/07/16 9.12
Current Folder: C: ljob files	Piece	Length	Status			
> Cesktop	Local - 1601151_1B Nth 1st_F NLBW T		[NEW]			
Control of the second sec	<		[NEW]			
				Load Options		Load Status Waiting to Load
	History			Make next?	? No Pieces Chosen	waiting to Load
Gauge: TX90-0.55				m to Run: mm Last Cut	09.59.08	£ //;
Coll NOT Loaded				0.0 0	OO Postion- + 5 mm 0.0 - 5 mm SIMULATION MODE	
🚳 🙆 📋 🖸	o 🖻 🛄 🖉					N 🔺 🔁 🏲 😂 🍓 9:59 AM

Figure 8: Set Local Folder

Check that the Profile and Gauge which is selected corresponds to the Profile and Gauge of material which is loaded into the machine. The computer will only let you tick and display the files that match Profile and Gauge selected. The files will be greyed out if it does not match and in the Status column will indicate why the file can't be selected. Once a job file matches, the file name will become black and the box on the left side of the file name can be checked.



When the box is checked the file will be loaded and a drawing/mimic of the frame/s are shown on the right hand side of the screen, this will also create a tree view. The tree view will begin with the Whole Job (see Figure 9), then Pack/Frames (see Figure 10), and then Individual Pieces (see Figure 11).

To select the next branch in the tree view click on the small arrow next to the tick. This will open up the next branch in the display.

Another way to select an individual Frame is to click on the mimic of the required frame and that frame will become the focus in the display window.

Individual pieces within the frame can now be removed/added by clicking on the piece in the mimic.



Figure 9: Whole Job



Figure 10: Packs/Frames



Piece	Length	Status	Current Pack: Multiple Packs		
1601151_1B Nth 1st_F NLBW T	x90_055.c	[DONE 0 OF 1]			
ENOGGERA Rev A		[DONE 0 OF 14]			
1F_47		[DONE 0 OF 26]	1F_50	/1F_62/	
Piece 1 (SN1)	2712	[DONE 0 OF 1]			
Piece 2 (PB1)	3516	[DONE 0 OF 1]			
Piece 3 (NG1)	332	[DONE 0 OF 1]			
Piece 4 (NG4)	2662	[DONE 0 OF 1]			
Piece 5 (NG2)	332	[DONE 0 OF 1]	15 49	1F 53 1F 61	
Piece 6 (NG5)	2662	[DONE 0 OF 1]	1 - 49		
Piece 7 (NG3)	332	[DONE 0 OF 1]			
Piece 8 (PT1)	3516	[DONE 0 OF 1]			
- Piece 9 (SN10)	2712	[DONE 0 OF 1]			
- Piece 10 (SN2)	2712	[DONE 0 OF 1]			
- Piece 11 (SN3)	2712	[DONE 0 OF 1]	1F_48	1F_52 1F_59	
Piece 12 (SN4)	2712	[DONE 0 OF 1]			
- Piece 13 (SN5)	2712	[DONE 0 OF 1]			16
Piece 14 (NG6)	162	[DONE 0 OF 1]			
Piece 15 (SN6)	2712	[DONE 0 OF 1]			
- Piece 16 (NG7)	162	[DONE 0 OF 1]			
Piece 17 (SN7)	2712	[DONE 0 OF 1]		1-51	
- Piece 18 (NG8)	162	[DONE 0 OF 1]		1F_58	16
- Piece 19 (SN8)	2712	[DONE 0 OF 1]			
- Piece 20 (LT1)	842	[DONE 0 OF 1]	Load Options		Load Status Waiting to Load
- Piece 21 (JS1)	562	[DONE 0 OF 1]	Make next?	Add to CutList (204 Pieces)	watering to Load
- Piece 22 (JS2)	562	[DONE 0 OF 1]			

Figure 11: Individual Pieces

You have complete freedom of what Jobs, Packs and Pieces can be loaded into the CutList, as boxes are ticked the total number of pieces will increase, letting you know how many pieces will be added to the CutList (see Figure 12).

ce	Length	Status	Current Pack: Multiple Packs			
1601151_1B Nth 1st_F NLBW Tx90_055.csv		[DONE 0 OF 1]				
ENOGGERA Rev A		[DONE 0 OF 14]				
1F_47		[DONE 0 OF 26]	1F_50		/1F_62/	
1F_48		[DONE 0 OF 14]		1F_54		
1F_49		[DONE 0 OF 7]				
Piece 41 (SN1)	2712	[DONE 0 OF 1]				
- Piece 42 (PB1)	816	[DONE 0 OF 1]				
Piece 43 (NG1)	812	[DONE 0 OF 1]	1F 49	1F 53	1F 61	
Piece 44 (NG2)	812	[DONE 0 OF 1]				
- Piece 45 (PT1)	816	[DONE 0 OF 1]				
Piece 46 (SN3)	2712	[DONE 0 OF 1]				
Piece 47 (SN2)	2712	[DONE 0 OF 1]				
1F_50		[DONE 0 OF 6]				
→ ✓ 1F_51		[DONE 0 OF 21]	<u>1</u> F_48	1F_52	1F_59	
1F_52		[DONE 0 OF 34]				1
1F_53		[DONE 0 OF 25]				-
1F_54		[DONE 0 OF 8]				
1F_58		[DONE 0 OF 7]				
✓ 1F_59 ✓ 1F_61		[DONE 0 OF 7]	1F 47	1F 51		
1F_62		[DONE 0 OF 8] [DONE 0 OF 29]				
1F_62		[DONE 0 OF 6]			1F_58	1
1F_64		[DONE 0 OF 6]	Load Options			Load Status
1601151_1B Sth 1st_F NLBW Tx90_055.csv		[NEW]	Make next?	Add to CutL	ist	Waiting to Load
1001151_10 501150_P NLDW 1X50_055.05V				(98 Pieces)	•)	
1			_		L. 29.00	

Figure 12: Total Pieces to be Added

Once all pieces have been selected and are ready to add to the CutList, you have two options in where the pieces will be added into the CutList, either at the bottom of the CutList or to be made next. If made next is required slide "Make Next" bar to the right and it will become green (see Figure 13).

Piece	Length Status	Current Pack: Multiple Packs		
1601151_1B Nth 1st_F NLBW Tx90_055.csv	[DONE 0 OF 1]	п		Π
ENOGGERA Rev A	[DONE 0 OF 14]			
1F_47	[DONE 0 OF 26]	1F_50	/1F_62/	
■ IF_48	[DONE 0 OF 14]			İ
1F_49	[DONE 0 OF 7]		1F_54	
1F_50	[DONE 0 OF 6]			
1F_51	[DONE 0 OF 21]			
1F_52	[DONE 0 OF 34]	15 / 9	1F 53 1F 61	
1F_53	[DONE 0 OF 25]			
■ 1F_54	[DONE 0 OF 8]			
1F_58	[DONE 0 OF 7]			
1F_59	[DONE 0 OF 7]			
1F_61	[DONE 0 OF 8]		┝╅╬╾┶┦┥┥┝╴╢	
1F_62	[DONE 0 OF 29]	1F_48	1F_52 1F_59	
1F_63	[DONE 0 OF 6]			1.5
1F_64	[DONE 0 OF 6]			<u>1 F</u>
1601151_18 Sth 1st_F NLBW Tx90_055.csv	(NEW)	- 1F-47	1F_51 1F_51	<u>1F</u>
		Load Options		Load Status
		Make next?	Add to CutList (87 Pieces)	Waiting to Load
s Col			mm Last Cut COC America America Color Colo	

Figure 13: Load Options

Next click on the "Add to CutList" button (see Figure 12), Load status will show the progress of the files that are being loaded, once done click on the CutList tab in MasMill Software. The pieces added to the CutList from the Job Files tab will now be visible in the CutList. Depending on whether Make Next was selected/unselected will determine where in the CutList the new jobs are (see Figure 14). Operator can begin running the job by checking interlocks and selecting Start of Coil.







# 3.4 Manually Inserting a Piece

To manually insert a piece to be run, ensure that the Cut List tab is selected, right mouse click underneath the headings of the Cut List, then select the **insert new job** option. If there are existing pieces in the Cut List, making this selection by right mouse clicking on a piece in the Cut List will insert the new piece below that piece.



Figure 15: Manually Inserting a Job

## 3.5 Editing the Cut List

Pieces can be loaded into the Cut List via either of the two methods specified above. It is not possible to edit any of the details of pieces in the Cut List that were entered from a file. The only change which can be made is to the "quantity". That is to say, if a piece has been loaded into the Cut List from a file, the operations performed and the locations on the piece cannot be manually edited by the machine operator from within the Pegasus Mas Mill software.

Punching and cutting details of items can be entered manually by following the procedure outlined below:

- Ensure that the Cut List tab has been selected.
- Enter the quantity and length of the item. (Enable the on screen keyboard.)
- Highlight the piece you wish to add or delete operations to. (This cannot be an item which was loaded from a file).
- Right mouse click on the right hand side of the window below the following figure.



e 🗁 👘	Invoice	Pack Name	Mark	Length Q	ty Done To	Go Op mm Done		Auto Controls
				3200	5 0	5 Insert H		Stop after each:
						Delete H	iole	Line Pack Invoice
								Salvage A Piece
								Start Of Coil
ack:						Recent Pieces	Waste	
							Music	Jog Fwd
						Next Pack		
								Jog Rev
								Manual Cut

Figure 16: Edit Operations for Current Piece

- Select insert hole to add an operation to the piece selected in the cutting list.
- Highlight the position corresponding to the op code.

Line       Pack Name       Mark       Length       Oty Done       Dore       Add Other       Pack         3200       5       0       5       0       1       200       0       Pack       Pack <td< th=""><th>Pegasus Designs mill for Pogasus           ○ Cut List         ▷ Job Files         ✓ Settings         III Statistics         ♥ Prin</th><th>ter 🛍 Diagnostics 🛡 Security</th><th></th><th></th><th>Version 24.1.2016 Comple 24.01-07 10-16</th></td<>	Pegasus Designs mill for Pogasus           ○ Cut List         ▷ Job Files         ✓ Settings         III Statistics         ♥ Prin	ter 🛍 Diagnostics 🛡 Security			Version 24.1.2016 Comple 24.01-07 10-16
Porfler: Gauge: Description:	Line 🗁 Invoice		Mark Length Qty Done To 3200 5 0	Go <u>Op mm Done</u> 5 1 200 0	Step after anote: Une Pack Invoce Salvage A Piece
	Comment Pack			0 Waste	Jog Fwd       Jog Rev       Manual Cut

#### Figure 17: Select Op-code

- Use the keyboard to insert the desired op code. For a list of op codes refer to Diagnostics Tab Shear/Punches.
- Then highlight the **mm** column of the new op code and again use the on screen keyboard to enter the position of the operation from the start of the piece (Leading Edge). (For most operations the position of the operation refers to the centre point of that operation.)



# 3.6 Adding/Removing Gauge

Pegasus Designs mill for Pegasus		💷 🛛 🚬
🗅 Cut List 🖿 Job Files 🥻 Settings 📊 Statistics 🖶 Printer 🏟 Dia	agnostics 🕈 Security	Version 24.3.2016 Compile 24-07-17 10:18
Parameters         Profe           1         10         100         Test State         100           1200         19995         0         mc Cut off pent         100         100           13         13         0         Matter Spit         100<		
Profile: Gauge: PROFILE GAUGE XINOT Loaded		c VIII
NOT Loaded	0.0 0.0 0.0 0.0	SIMULATION MODE

Figure 18: Adding/Removing Gauges

To add a new gauge or remove an existing gauge from the list of available gauges

- Select the Settings screen by "left clicking" the tab marked Settings.
- Right mouse click below the Gauge heading in the List of Gauges section of the window. If you wish to delete a gauge right mouse click on that gauge in the list.
- Select the desired option from the menu that appears
- If adding a new gauge enter the name of the gauge.
- Note that this name will need to correspond precisely with the gauge description of a part in the data file.

# 3.7 Changing Gauge

To change the current gauge

- Ensure the Cut List is empty (it will only be possible to change gauge if the cut list is empty)
- Delete the cut list by right clicking in the Cut List screen and select **Delete to end**. See Figure 19.



A       2505       1       0       1       4       26       0         A       2505       1       0       1       3       184.9       0         A       2505       1       0       1       3       184.9       0         A       2505       1       0       1       3       348.5       0         A       895x37x10x0       Delete 1 entry       E       1273       1       0       1       1       980.5       0         A       895x37x10x0       Delete 1 entry       E       1273       1       0       1       1       1       189.5       0         A       895x37x10x0       A       T       971       1       0       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1	🗁 Invoice	Pack Name	Mark	Length	Qty D	one ToGo	Op mm Done	Auto Controls
A       2505       1       0       1       3       184.9       0         /       895x37x10x00       Move entry to too       K       2505       1       0       1       3       184.9       0         /       895x37x10x00       Move entry to too       K       2505       1       0       1       1       348.5       0         /       895x37x10x00       Delete 1 sentry       E       1273       1       0       1       1       980.5       0         /       895x37x10x00       Delete to end       M       673       1       0       1       1       980.5       0       3       1266.9       0       1       1589.5       0       3       1266.9       0       1       1589.5       0       3       1720.9       0       1       4       1589.5       0       3       1266.9       0       1       1848.5       0       3       1266.9       0       1       1848.5       0       3       1266.9       0       1       1       1848.5       0       3       2167       0       1       4       1848.5       0       3       2167       0       3       2614			L	3902	1	0 1	1 18.5 0 4 26 0	Stop after each:
K       C	✓ 895x37x10x0. Insert new	iob	Α	2505	1	0 1		
K       2505       1       0       1       3       661.9       0         /       895x37x10x0.       E       1273       1       0       1       1980.5       0         /       895x37x10x0.       Detete to end       M       673       1       0       1       1980.5       0       3       1266.9       0       1       1980.5       0       3       1266.9       0       1       1589.5       0       3       1266.9       0       1       1589.5       0       1       1       1589.5       0       1       1       1589.5       0       1       1       188.5       0       1       1       188.5       0       1       1       188.5       0       1       1       184.85       0       3       2167.0       0       1       1       1248.95       0       3       2614.0       0       3       2614.0       0       3       2614.0       0       3       2614.0       0       3       2614.0       0       3       2614.0       0       3       2614.0       0       3       2614.0       0       3       2614.0       0       242489.5       0       3 <td< td=""><td></td><td></td><td>В</td><td>2505</td><td>1</td><td>0 1</td><td></td><td></td></td<>			В	2505	1	0 1		
(* 895x37x10x0)         (* 895x37x10x0	895x37x10x0. Move entry to	o top	K	2505	1	0 1		
B       2303       1       0       1       390.5       0       1         /       895x37x10x0.       M       673       1       0       1       1589.5       0         /       895x37x10x0.       Finthow       G       159       1       0       1       1589.5       0         /       895x37x10x0.       T       971       1       0       1       1589.5       0         /       895x37x10x0.6mm       W3       G       159       1       0       1       14848.5       0         /       895x37x10x0.6mm       W3       G       159       1       0       1       12489.5       0         /       895x37x10x0.6mm       W3       F       1273       1       0       1       12489.5       0       3       2614       0       2614.0       0       285x37x10x0.6mm       W3       2614.0       0       1       2810.5       0       1       2810.5       0       1       2810.5       0       1       2810.5       0       1       2810.5       0       1       2810.5       0       1       2810.5       0       1       2810.5       0       1	/ 895x37x10x0. Delete 1 en	try	E	1273	1	0 1		
M       675       1       0       1       1589.5       0         /       895x37x10x0.       G       159       1       0       1       1589.5       0         /       895x37x10x0.       T       7       971       1       0       1       1589.5       0         /       895x37x10x0.       T       7       971       1       0       1       1589.5       0         /       895x37x10x0.6mm       W3       G       159       1       0       1       1848.5       0         /       895x37x10x0.6mm       W3       G       159       1       0       1       12489.5       0         /       895x37x10x0.6mm       W3       F       1273       1       0       1       12489.5       0         /       895x37x10x0.6mm       W3       K       2505       1       0       1       12810.5       0         /       895x37x10x0.6mm       W3       P       2505       1       1       13280.5       0         /       895x37x10x0.6mm       W3       P       2505       1       1       1       12810.5       0         /	/ 895x37x10x0. Delete to e	nd	В	2505	1	0 1		Salvage A Piece
G       159       1       0       1         /       895x37x10x0       Image: Control of the second se			М	673	1	0 1		Start Of Coil
/       895x37x10x0.6mm       W3       G       159       1       0       1       1       1848.5       0         /       895x37x10x0.6mm       W3       N       673       1       0       1       1       1848.5       0         /       895x37x10x0.6mm       W3       G       159       1       0       1       1       12489.5       0         /       895x37x10x0.6mm       W3       F       1273       1       0       1       1       2489.5       0         /       895x37x10x0.6mm       W3       K       2505       1       0       1       1       2810.5       0         /       895x37x10x0.6mm       W3       P       2505       1       0       1       2       2       3       2614       0       1       2810.5       0       3       2614       0       1       2       3	/ 895x37x10x0.		G	159	1	0 1		
/ 895x37x10x0.6mm       W3       G       159       1       0       1         / 895x37x10x0.6mm       W3       N       673       1       0       1         / 895x37x10x0.6mm       W3       G       159       1       0       1         / 895x37x10x0.6mm       W3       F       1273       1       0       1         / 895x37x10x0.6mm       W3       F       1273       1       0       1         / 895x37x10x0.6mm       W3       K       2505       1       0       1         / 895x37x10x0.6mm       W3       P       2505       1       0       1         // 895x37x10x0.6mm       W3       P       2505       1       0       1         // 895x37x10x0.6mm       W3       P       2505       1       0       1         // 895x37x10x0.6mm       W3       P       2505       1       0       1       2810.5       0         // 9       // 1       // 1       // 1       // 1       // 1       // 1       // 1       // 1       // 1       // 1       // 1       // 1       // 1       // 1       // 1       // 1       // 1       // 1       // 1	∕ 89Sx37x10x0. 🔺	V	Т	971	1	0 1		
/ 895x37x10x0.6mm       W3       N       673       1       0       1       3       2167       0         / 895x37x10x0.6mm       W3       G       159       1       0       1       2489.5       0         / 895x37x10x0.6mm       W3       F       1273       1       0       1       2489.5       0         / 895x37x10x0.6mm       W3       F       1273       1       0       1       2614       0         / 895x37x10x0.6mm       W3       P       2505       1       0       1       2810.5       0         // 895x37x10x0.6mm       W3       P       2505       1       0       1       2810.5       0         // 895x37x10x0.6mm       W3       P       2505       1       0       1       2810.5       0         // 895x37x10x0.6mm       W3       P       2505       1       0       1       340.5       0         // 9       // 1       // 1       // 1       // 1       // 1       1       1       3// 10       1       3// 10       1       3// 10       1       3// 10       1       3// 10       1       1       3// 10       1       1       1 <td>/ 895x37x10x0.6mm W3</td> <td></td> <td>G</td> <td>159</td> <td>1</td> <td>0 1</td> <td></td> <td></td>	/ 895x37x10x0.6mm W3		G	159	1	0 1		
/       895x37x10x0.6mm       W3       F       1273       0       1       4       2489.5       0         /       895x37x10x0.6mm       W3       K       2505       1       0       1       2       2614       0         /       895x37x10x0.6mm       W3       P       2505       1       0       1       2       810.5       0         -       V3       F       2505       1       0       1       2       810.5       0         -       V3       F       2505       1       0       1       2       810.5       0         -       V3       F       1	/ 895x37x10x0.6mm W3		Ν	673	1	0 1		
X 935X37X10x0.6mm     W3     F     1 273     1     0     1       / 895X37X10x0.6mm     W3     K     2505     1     0     1       / 895X37X10x0.6mm     W3     K     2505     1     0     1       / 895X37X10x0.6mm     W3     P     2505     1     0     1       / 805X10x00     Image: 1     Image: 1     Image: 1     Image: 1     1       / 805X10x00     Image: 1     Image: 1     Image: 1     Image: 1     1       / 805X10x00     Image: 1     Image: 1	/ 895x37x10x0.6mm W3		G	159	1	0 1		
/ 895x37x10x0.6mm W3 K 2505 1 0 1 1 2810.5 0 / 895x37x10x0.6mm W3 P 2505 1 0 1 4 2810.5 0 / 895x37x10x0.6mm W3 P 2505 1 0 1 4 2810.5 0 / 805x37x10x0.6mm W3 P 2505 1 0 1 4 2810.5 0 / 90 Feed Pack Mana Controls / 1 2810.5 0 / 2810.5	/ 895x37x10x0.6mm W3		F	1273	1	0 1		
eW3 Recent Pieces Hanual Controls Dog Rev	/ 895x37x10x0.6mm W3		K	2505	1	0 1		
Image: Sector	/ 895x37x10x0.6mm W3		Р	2505	1	0 1	4 2810.5 0	
Image: Specific transmission     Image: Specif	k W3					1	Recent Pieces	
							Next Pack	Jog Fwd Jog Rev

#### Figure 19: Deleting Cutlist

Left mouse click on "GAUGE" in the status bar of the Pegasus Mas Mill software

Pegasus Designs mill for Pegasus           □ Cut List    □ Job Files	inter 🏝 Diagnostics 🕈 Security			Version 24.3.2015 Compile 24-07-17 10-18
Line	inter   ≌ Diagnostics   ♥ Security   Pack Name	Mark Length Qty Done ToGo Op	mm Done	Salvage A Piece
Profile: PROFILE CLA CA CA CA CA CA CA CA CA CA C	19	12 13	17544	Hanal Controls
# 🗢 🛤 🧕 🏂 🛷 📕 👔				∧ 📮 ENG 12-58 PM 28-Jul-17

Figure 20: Changing Gauge

• Select the new gauge

**NB:** if the desired gauge is not available, follow the directions to add a new gauge.



# 3.8 Running a Job

## 3.8.1 First Job

Once a job is loaded into the cutting list, the operator can begin the job by firstly selecting the **Cut List** tab. Select the **Start of coil** button on the **Cut List** screen. This will operate one cycle of the shear and set the starting point of the first piece in the cutting list.

If the first piece to be produced has operations closer to the front edge than the machine is permitted to reverse then a dialog box will appear when the **Start** button is pressed displaying the message **Can't Reverse that Far**.

Reversing
Can't reverse that far.
Do you want a short scrap piece to be created?
Yes No

Figure 21: Start of Coil, Can't Reverse That Far Warning

By selecting 'Yes' a scrap piece will automatically be entered at the top of the cutlist, the length of this can be varied by a parameter in the settings tab, 'Length of Scrap Piece'. If you produce a stock length it is useful to insert this length in here.

ame	ters			Profiles G	auges	Colours
alue	Max	Min	Description	Profile	Gauge	Colour
000	99999	0	Length of scrap piece to be made at start of coil		0.6	
1	1	0	Picture	1	.0 .2 .5	
3	25	0	ms Loop Time	1	.2	
500	19999.9	0	mm Cut off point	1	.5	
1	1	0	Classic Mode			
15	15	0	Colour of cutlist text			
1	1	0	Multi Pack Upload			

Figure 22: Settings Tab



	Invoice		Pack Name	Mark	Length (	Qty D	one T	oGo Op m	im Dor	1e		Auto Controls
				Scrap	5000	1	0	1				Stop after each:
√ 89	Sx37x10x0.6mm	W4		R	771	1	0	1				Line Pack Invoice
√ 89	Sx37x10x0.6mm	W4		AA	2505	1	0	1				
	Sx37x10x0.6mm	W4		G	1273	1	0	1				
	Sx37x10x0.6mm	W4		AB	2505	1	0	1				
	Sx37x10x0.6mm	W4		D	928	1	0	1				
	Sx37x10x0.6mm	W4		E	370	1	0	1 _				
	Sx37x10x0.6mm	W4			370	1	0	1				
	Sx37x10x0.6mm	W4		М	194	1	0	1				
	Sx37x10x0.6mm	W4		Р	405	1	0	1				
ece: Scrap									ne.	ent Pieces	٥	Waste
5	5000										0	Waste
ack:												
аск:												
			Scrap									
			Scrap						Na	rt Packs W/I		
			Scrap						Ne	kt Pack: W4	Ē.	
			Scrap						Ne	kt Pack: W4		=

Figure 23: Auto Running Screen

# 3.8.2 Different ways to stop production

Production can be stopped in three different ways. After each line, each pack and each invoice.

The red Stop button can be configured in three different ways. Stop after operation, stop after piece or stop immediately.

-Auto Cont	rols		Speed
	Stop		100%
			Peak Speed
Stop after e	ach:		
Line	Pack	Invoice	

Figure 24: Stop production selection



# 3.8.3 Production Speed Bar

Speed can be adjusted while running, to any speed required. The speed will change for the next piece in production. To adjust speed, click and drag the speed indicator block.



Figure 25: Speed Bar



# 3.8.4 End of Coil Warning

The machine will be stopped and the operator will be advised to enter more jobs or cut the coil off when the length of material in the cutting list is equal to the amount specified as the **mm to Cut Off** parameter. This feature prevents excess wastage by allowing minimal wastage at changes of coil as well as allowing the operator to add to the cutting list so that there is no wastage between jobs.



Figure 26: Coil Cut-off Warning

# 3.8.5 History and Remaking Pieces

Every piece that is produced by the roll former is saved in a production file within the MasMill software, which records the time and date at which the piece was produced. To access the history of the machine click on the "Job Files" tab in the MasMill Software (see Figure 3). On the bottom left hand side of the screen click on the History Tab. All the pieces that were produced on the selected date are shown. To change the produced on date shown or to search by an Invoice or Pack, click the arrows pointing to the right and it will expand a side tab. See Figure 27 next page.





Figure 27: Cutlist History Button

To use this feature stop the machine. Click "Job Files" tab, then History and the history will be displayed.



### Figure 28: Cutlist History File

Click on a recent piece and click 'Re-add to CutList'

Click and drag over a section of pieces and choose 'Add to copy list'





Figure 29: Adding Previously Run Pieces back into Cutlist from History

Add multiple pieces back into the Cut List easily by selecting as many pieces as needed and pressing the Re-add to CutList button. If you wish to make these re-added pieces immediately, slide the "Make next?" button across.

To find pieces made further back in history you can:

- use the calendar
- use the Invoice number
- use the Pack number.



# 3.8.6 Statistics Page

By clicking on the Statistics tab you are able to see how many hours and metres the Rollformer has rolled and view how many cycles the Shear and Punches have performed. Toggle the alarm ON or OFF as required. When any alarm value is reached a notification is displayed in the warning box. This warning can be ignored but it is suggested that suitable preventative maintenance is performed. Once complete. Double click on the Alarm Value. Press backspace and set a new alarm limit.

101       1	aily Usage	Machine Sta	atistics				
Image: State Stat					Total Since Reset		
1       2       3	Fri Sat Sun						Coggle T
10       20       10       20       99999         20       20       99999       20       10       99999         20       20       99999       20       10       99999         20       20       99999       20       10       99999         20       20       99999       20       20       99999         20       20       99999       20       20       99999         20       20       99999       20       20       99999         20       20       99999       20       20       99999         20       20       99999       20       20       99999         20       20       99999       20       20       99999         20       20       0       0       99999         20       20       0       0       99999         20       20       0       0       99999         20       20       0       0       99999         20       20       0       0       99999         20       20       0       0       99999         20       20       0	4 5 6						Alarms On
12         12<			MACHINE/Operation/Shear	Cycles 17		999999	
1       2       1       3       3       3       1       9       99999         2       3       3       3       3       9       99999       99999         2       3       3       3       1       1       9       99999         2       3       3       3       9       99999       9       3       4       9       99999         2       3       3       3       9	25 26 27						
12       Dial of MacDie Construction       Cone 19       9       99999         0       Dial of MacDie Construction       Cone 19       9       99999         20-107       MacDie Construction       Cone 10       0       99999         20-107       MacDie Construction       Cone 0       0       <	1 2 3						
0       0							
0       Ski147       MACHEC/Spectrov/Lag       Cole 0       9 99999         2ki147       MACHEC/Spectrov/Lag       Cole 0       9 99999         2ki147       MACHEC/Spectrov/Lag       Cole 0       0       99999 <tr< td=""><td></td><td></td><td></td><td></td><td></td><td></td><th></th></tr<>							
V       20.417       MC08E(Dpension(Left) Copies       0       99999         20.417       MC08E(Dpension(Left) Species       0       99999         20.417       PROC/ModoinGraphere       Carl       0       999999         20.417       PROC/M							
B.M.17       MCHIELGenericsAc       Gen 0       0       9999         B.M.17       MCHIELGenericsAc							
20-M17       MOIRECpaes/or/Norman 1       Option 0       99999         20-M17       MOIRECpaes/or/Norman 0       Option 0       99999         20-M17       PROCAus/Norman 0       Option 0       99999         20-M17       PROCAus/Norman 0       Option 0       99999         20-M17       PROCAus/Norman 0							
2bJd7       McHitCipperformehr       Opt       0       99999         2bJd7       PC/Chrodicion/Regriffree       Opt       0       99999         2bJd7       PC/Chrodicion/Regriffre			MACHINE/Operation/Lip	Cycles 0	0	999999	
20.417       MC0BE(Departor/Pech       0       99999         20.417       PCOC/Partor/Pech       0       99999 <td></td> <td>28-Jul-17</td> <td>MACHINE/Operation/Chamfer</td> <td>Cycles 0</td> <td>0</td> <td>999999</td> <th></th>		28-Jul-17	MACHINE/Operation/Chamfer	Cycles 0	0	999999	
2bJuir       McDRECoperiorAndm       Option       0       99999         2bJuir       McDRECoperiorAndmark       Option       0       99999         2bJuir       PicCoProductorAndmark       Option       0       99999         2bJuir       PicCoProductorAndmark       Option       0       99999			MACHINE/Operation/Punch 10	Cycles 0	0		
20.417       Mc0RE(Destroint)       Option       0       99999         20.417       McORE(Destroint)       Option       0       99999         20.417       McORE(Destroint)       Option       0       99999         20.417       McORE(Destroint)       Option       0       99999         20.417       PCO/Destroint)       Option       0       99999         20.417       PCO/Destroint)       Option       0       99999         20.417       PCO/Destroint)       Option       0       99999         20.417       PCO/		28-Jul-17	MACHINE/Operation/Punch 11	Cycles 0	0	999999	
20.417       Mc0Bit Destroyed Prop       Opt       0       99999         20.417       McOsenbrowed Prop       Opt       0       99999         20.417       PicOxenbrowed Prop       Opt       0       99999         20.417       PicOxenbrowed Prop       Opt       0       99999         20.417       PicOxenbrowed Prop       Opt       0       99999         20.		28Jul-17	MACHINE/Operation/Index	Cycles 0	0	999999	
20.417       Mc0RE(Destrong Fregore       Cole       0       99999         20.417       Mc0RE(Destrong Cole       0       99999         20.417       Mc0Restrong Cole       0       99999         20.417       PCOChoolson/Houghine       Cole       0       99999		28-Jul-17	MACHINE/Operation/Truss 150	Cycles 0	0	999999	
20.417       Mc0Bit Opension, Leg Senior, Open 0       0       99999         20.417       Mc0Bit Opension, State       Open 0       0       99999         20.417       McOBit Opension, State       Open 0       0       99999         20.417       McOBit Opension, State       Open 0       0       99999         20.417       McOBit Opension, State       Open 0       0       99999         20.417       PMCO-Machine, State       Cort 0       0		28Jul-17	MACHINE/Operation/Left Flange	Cycles 0	0	999999	
20.417       MC0RE(Demix0v)       Qie       0       99999         20.417       PC0C/bace/face/face       Cor       0       99999         20.417       PCO/bace/face/face		28-Jul-17	MACHINE/Operation/Right Flange	Cycles 0	0	999999	
20.417         McOBE (Densition/Stacket         Optic         0         99999           20.417         PMCOBase/RespRes         Cart         0         99999           20.4		28Jul-17	MACHINE/Operation/Large Service	Cycles 0	0	999999	
20-Jai 7       McDRECoperatory       Opto       0       99999         20-Jai 7       PCDCRedoctoryRegathers       Cost 0       0       99999		28-Jul-17	MACHINE/Operation/Lip 89		0	999999	
20.417         PACIDE Closenskow         Open         0         99999           20.417         PACIDE Androws         Cart         0         99999           20.417         PACID Androws <t< td=""><td></td><td>28Jul-17</td><td>MACHINE/Operation/Stacker</td><td>Cycles 0</td><td>0</td><td>999999</td><th></th></t<>		28Jul-17	MACHINE/Operation/Stacker	Cycles 0	0	999999	
20.417         PACAbae/Max/Peer         Corr         0         99999           20.417         PACAbac/Max/Peer         Corr         0         99999		28-Jul-17	MACHINE/Operation/	Cycles 0	0	999999	
20.417       PACAus/Reporte       Curl       0       0       99999         20.417       PACAus/Reporte       Curl       0       99999         20.417       PACAus/Report       Curl       0 <td></td> <td>28Jul-17</td> <td>MACHINE/Operation/</td> <td>Cycles 0</td> <td>0</td> <td>999999</td> <th></th>		28Jul-17	MACHINE/Operation/	Cycles 0	0	999999	
20.417       PACA-QuarGouphes       Curl       0       99999         20.417       PACA-QuarGouphesPece       Curl       0       99999         20.417       PACA-QuarGouphesPece       Curl       0       99999         20.417       PACA-QuarGouphesPece       Curl       0       99999         20.417       PACA-Publick/PasePece       Curl       0       99999		28-Jul-17	PACK/Queue/ManualPiece	Count 0	0	999999	
23.417 POC/Podzion/RecuriPera Cont 2 0 99999 23.417 POC/Podzion/RecuriPera Cont 0 0 99999 23.417 POC/Podzion/ScorgPice Cont 0 0 99999 24.417 POC/Podzion/ScorgPice Cont 0 0 99999 25.417 POC/Podzion/		28Jul-17	PACK/Queue/RepeatPiece	Count 0	0	999999	
29.bJ17       PACK/Poduction/ReceiPters       Court       0       99999         29.bJ17       PACK/Poduction/ScorePters       Court       0       99999		28Jul-17	PACK/Queue/ScrapPiece	Count 0	0	999999	
28.1417 PACK-Production/ScopPices Curri 0 0 99999		28Jul-17	PACK/Production/ManualPiece	Count 2	0	999999	
		28Jul-17	PACK/Production/RepeatPiece	Count 0	0	999999	
14/27/37		28Jul-17	PACK/Production/ScrapPiece	Count 0	0	999999	
14/27/37							
14/27/37							
14/27/37							
14/27/37							
14/27/37							
14/27/37							
14/27/37							
14/27/37							
14/27/37	1	_		_			
							1427.37
	· · · · · · · · · · · · · · · · · · ·	- Inc. 17		_			

Figure 30: Statistics Page

The Alarms and statistics are designed to assist with preventative maintenance or as a tool to monitor tool quality or sharpness.

Maintenance managers are able to log failures of components VS number of cycles, Meters or Hours to improve maintenance procedures.

# **4** Functions and Diagnostics

There are many diagnostic features included in the Pegasus Mas Mill software to assist in fault finding, setting up, optimising the machine and for other general information on the status of the machine. Some of the more important statistical functions can be seen on the status bar of the program, located across the bottom of the screen. For example the status of interlocks and the current position of the current piece as well as the printer status and type and position of the last operation are always visible on the Pegasus Mas Mill software on the status bar.

_					
Profile:	Gauge:	- A	Shear @	15:23:18 Can't backup	
PROFILE	0.6		2505.0 mm 15:58:17	15:44:12 Can't backup	
	Liz 388	m to Run: mm Last Cut	000 - Position=	15:44:20 Can't backup	~ ///.
				15:52:42 Cut List Is Finished	
		13.3 2505.0	000 0.0	15:52:50 Cut List Is Finished	

Figure 31: Status Bar

Other information and diagnostic tests are available on the **Diagnostics** screen



Pegasus Designs mill for Pegasus Cut List D Job Files & Settings II Statistics & Print	ter 🛎 Diagnostics  🗣 S	ecurity					Version 24.3.2015 Compile 24-07-17 10:18
Select View Summary View		Elapsed sec=10436 ms/1K scans=3228 Err Reset 746	Boards Connected           1         3         5         7           2         4         6         8         7				
	Horng Horney Horney Pacho-40 one Pacho-40 one → Horn Horney → Horney Horney → Horney Horney → Horney → H	jopeda M-1 Length Peakoning-0	Share Save Save Save De Dom (104 Sheer Dow Up 0103 Sheer Up Up 0103 Sheer Up	Perchai			
Profile: Gauge: PROFILE 0.6 O Lt 388 LOADED					m to Run: mm Last Cut 000 13.3 2505.0 000	hear	C //
					13.3 2505.0	0.0 15:52:50 Cut List Is Finished	∧ I ENG 4:06 PM 28-Jul-17



This screen shows a complete overview of all the inputs and outputs of the controller.

View Calibrate	Log	Elapsed sec=10580 ms/1K scans=3045 Err Reset 746	Boards Connected				
House Function of the second secon							
:: Gauge: LE 0.6 O Liz 388 O Liz 388				m to Run: mm La	2505.0 mm 16:08:48 15: st Cut 000	3:18 Can't backup 4:12 Can't backup 4:20 Can't backup 2:42 Cut List Is Finished 2:50 Cut List Is Finished	

Figure 33: Diagnostics Page Calibrate View

This screen shows the calibration of the encoder in counts per millimetres and also the position of all the punches (mm from Shear). From here you can recalibrate the encoder and move the punches when necessary. To recalibrate double click on the word Calibration a new window will open. You can also recalibrate from any screen by clicking inside the "**mm Last Cut**" panel.

Prior to carrying out the re-calibration of the wheel it is strongly recommended that the mechanical integrity of the measuring wheel and sprung support be checked to ensure that no problem exists in this area.



Pegasus Designs mill for Steel Framing Machine           O Cut List         D Job Files	er i ✿ Diagnostics	Version: 8/6/2012
Calibrate Pulse Wheel		
Calibrate Pulse Wheel  1. Set a small positioning tolerance. 2. Run several long pieces of the same length. 3. Use a tape to measure the lengths produced. 4. Average the measured values. 5. Fill in the blanks. The length in mm that was requested is The everage of the measured values in mm is 6. Press the Ok button when the values are entered. (The Ok button will appear only if the entered values are acceptable.)	I you do not want to fill in the blanks at this time, press the Cancel button. OR Cancel	
Col LOADED	🔶 RUNNING 🕂 Pooloom 🚺 🗰	40.45 : Can't reverse that far 43.39 Stat

#### Figure 34: Recalibration Screen

On this screen enter the values as requested, you will only be allowed to change the calibration if it falls within 10% of the current value.

The correct set-up, adjustment and calibration of the measuring wheel system is **unquestionably** the **most important** requirement to ensure that satisfactory results will be achieved. The length of product should be checked regularly and after each coil change.

Experience has shown that the following are common causes of measuring inaccuracy:-

- Spring loading system not properly in place or not moving freely.
- Measuring wheel not firmly attached to the shaft of the encoder support assembly.
- Wheel support system not moving freely.
- Build-up of dirt or tape on the measuring wheel.
- Wheel slipping on the feed material.
- Wheel not in full line contact with the feed material (i.e., shaft not parallel to product.)
- Wheel "jumping" and moving due to vibrations when the shear or punches operate.

**Note**: The measuring wheel **must** be observed **very** carefully during an **actual** metal cutting operation to detect this problem.

If re-calibration of the wheel is carried out in the presence of mechanical faults in the wheel mounting system the entire exercise will prove to be useless and the results to be most unsatisfactory and confusing.

It is important to note that changes to surface finish of the material can affect the calibration of the wheel. This problem applies to **all** measuring systems of this type. The recalibration of the system is easily achieved by applying a simple mathematical formula.



An accumulation of zinc to a thickness of 0.05mm on the wheel will generate an error of 15mm over a 10 metre long piece.

Calibration errors and errors due to surface finish or wheel slip will be proportional to the length which is cut, e.g., an error of 2mm on a 3 metre length will become a 10mm error on a 15 metre long piece. If the error is not proportional to the length the problem is most certainly not related to the calibration factor and the fault must be identified in other areas. Experience has identified **slippage**, which is proportional to length. This can be most confusing and misleading should the circumstance arise.

#### To Move a Punch Position

Ensure that the Length calibration is correct and within tolerance. DO NOT attempt to change a punch position until you are confident that the lengths are correct. Click on the "Move Punch" under the Punch that needs to be moved it will be highlighted in red, press Enter and a new window will open.



#### Figure 35: Move Punch Position

Enter the millimetres that the punch needs to move and choose the direction in which it needs to move. Click OK to move the position.





Figure 36: Diagnostics Page Shear/Punches

In the **Shear** diagnostic menu the shear cycle can be optimised and tested. To operate the shear cycle select the cycle option and press the enter key. To optimise the speed of the cycle select the settings menu within the **shear** menu. The **ms up time** and the **ms down time** refer to the length of time in milliseconds that is allowed for the shear to return to the "up" position and the time for which the shear "down" output is turned "on" respectively. If these times are set too short the up or down stroke may be incomplete.

#### Slug Width

The slug width is configurable in this section of the program this determines the width of the slug removed by the shear and consequently how much the length must be altered automatically by the computer to allow for this slug. It is **essential** that this parameter is correctly set otherwise the length and position results will be incorrect.



Figure 37: Diagnostics Page Drive Motors



This screen shows the settings used for the positioning of the rollformer and also the jogging of the rollformer. If the machine is not positioning well certain values may need to be changed on this page. If the controller is cutting the pieces at the length it thinks it should and they are correct when measured with a tape measure, but are too long or too short the tolerance may be set incorrectly. You can adjust this but if it is too small the machine will hunt excessivley.

Pegasus Designs mill for Steel Framing Machine Cut List 🗗 Job Files 🕸 Settings 🔒	s 📶 Statistics 🖶 Printer 🚔 Diagnostics	Venior: 8/6/2012 💷 💽 💽
Select View		- 265 rosme=1000 rosme=101
Al Mara Cut Brance Cut The Construction The	de-107     de-2     de-2	
isoge: S000 LIPPED CEE	1	∮         Scare         3.0           ● Stacped         100 m         100 m         100 m

Figure 38: Diagnostics Page All Operations

This screen shows the settings for everything available on all other diagnostics tabs.



# 4.1 Current Position and Position of Last Operation

The current position of the piece being run is displayed in the status bar on the bottom of the

window; it is denoted by the **1** (ruler) symbol. The location of the next operation and its op code is also displayed in the status bar and is located directly beside the current position of the piece.



Figure 39: Position of next operation

## 4.2 Printer

To perform maintenance and to check that the printer is operating correctly you will need to select the Printer Tab. Should the printer loose comms with the controller you will see the icon flashing in the status bar. To reset the printer, click on the reset button in the icon. If the printer does not reset there may be another problem.

essages from Printer lessage Code	Message Text	Print Mode	Purge Ink	
		Enable Prot Mode	Mode Discussion	
(here)	r Message Boxes	_		
Gear	message boxes			
ie: Gauge: FLE 0.6 C Liz 388 (O Liz 388			m to Run: mm Last Out 000	11.08.45

Figure 40: Printer Tab – Evolution Printer-Comms Failed



Figure 41: Evolution Printer Enabled

When the machine is running messages that are transmitted to the printer will be displayed in the message box on the printer tab. You will also see when the printer is sent a print trigger as well.

Pegasus Designs mill for Steel Framing Machine	
🗅 Cut List 🖿 Job Files 🕸 Settings 📶 Sta	atistics 🖶 Printer 🚔 Diagnostics
Messages from Printer Message Code Message Text	Print Mode
	Disabled Disable Print Mode
	Printer Setup Options Diagnostic Log Printer Settings
	Command:
	Command:
	Command - 01900 - CONFIRMED Command - 01904 - CONFIRMED Command - 01904 - CONFIRMED - CONFIRMED - CONFIRMED
	Print message Line1 Pegasus Line2 Designs Upload Message Upload Message Upload Message
[Clear Message Boxes]	Test Print Status Check 0 is 0K Auto purge after 5 Minutes

#### Figure 42: Evolution Printer Disabled

To perform maintenance on the printer, click on the Disable Print Mode button. The printer is now disabled and will not print any messages if you continue to run the machine. On the icon to the right of the Disable Print Mode button, double click and type 'evo' you should now see so more functions available on the screen. From here you can purge in the printer by clicking on the Purge Ink button this will cause the printer to spray some ink out of the cartridge, this is a good way to make the cartridge is not clogged with ink. Once you have performed any maintenance on the printer, you will need to click Enable Print Mode to allow the printer to print messages on the material in the machine.



# 5 Testing

# 5.1 Encoder Tests

If it is suspected that the encoder is not working correctly, or the encoder has been changed, there are three tests to be performed. For proper measurement to occur all tests **must** be successful. Do not attempt to run product otherwise. Incorrect lengths will be produced resulting in product wastage.

# 5.1.1 Encoder LED Test

1. Display the number of COUNTS using by changing the units to counts and viewing position on the **diagnostics** screen in the **Quadrature** sub-menu.



- 2. Rotate the measuring wheel **very** slowly. Study the LED's on the CTL-600 board **shown above in the red circle marked with A and B**. If the rotation is too rapid, both LEDs will appear to be permanently on.
- 3. Both Channel A and Channel B LEDs on the CTL-600 Board should be seen to turn on and off sequentially. The number of counts displayed should increase or decrease (depending on the direction of rotation), steadily as the encoder is rotated. If the counts vary by only  $\pm 1$  it is a sure indication that one of the channels is not functioning or is not being read correctly.
- 4. If problems are experienced with this test check the following:
  - Disconnect the encoder from the CTL-600 board.
  - Verify the wiring.



• Check that +24V DC is available at the four-way encoder connector **as shown in the above picture, circled in red and white**.

## 5.1.2 Encoder Direction Test

- 1. Display the number of COUNTS using the same method as previously described. Note that negative numbers can be displayed. Hence rotate the wheel until the displayed number of counts is positive. This will avoid confusion during the test.
- 2. Turn the measuring wheel in the direction it moves when the material moves forwards.
- 3. The number of counts showing on the display should increase.
- 4. Turn the wheel in the other direction and the counts should decrease.
- 5. If the counting direction is wrong:
  - Swap the Channel A and Channel B wires at the four way encoder plug on the CTL-600 board.

Repeat this test until the correct outcome is achieved. The controller will not work properly if the direction is incorrect.

## 5.1.3 Encoder Displacement Test

- 1. Make matching marks on the measuring wheel and a fixed point on the machine (use a fine felt tipped pen for example). These marks must align very accurately.
- 2. Display the number of COUNTS using same method as previously described.
- 3. Write down the number of counts shown. (Note that the value may be a **negative** number). If a Manual Cut is performed the count will be **set to MINUS the number of counts which represent the slug width.**
- 4. Rotate the measuring wheel at approximately the maximum sheet running speed for about 50 revolutions in the forward direction. In most systems this is equivalent to about ten metres of length.
- 5. Align the match marks **very accurately** when the wheel is placed in contact with the sheet.
- 6. Write down number of counts shown. The difference between the two positions (remember to **correctly** account for any negative sign) should be an **exact** multiple of Encoder pulses per revolution (ppr) x 4. For a 500ppr encoder this is 2000, for a 600ppr encoder it is 2400 and so on.
- 7. Now rotate the wheel in the reverse direction the same number of turns and the number of counts should return precisely to the original number of counts. Note that one count nominally represents a movement of 0.1mm at the outside diameter of the wheel.
- 8. If this test is passed there is a very high probability that the entire measurement system is **electronically** correct. There is only a **very small** chance that the operation of the encoder can be adversely effected by vibrations when running or cutting is in progress, or by electrical noise generated by the variable frequency drive.



# 5.2 Input and Output Testing

To test the inputs simply check that when an input is active, both the LED indicator on the CTL-600 board and the indicator on the **Diagnostic** screen of the Pegasus MAS Mill Software is matching.

Two types of test are available for punches and the shear.

The first system employs a static technique. From the diagnostics screen any output can be turned on or off at will by pressing the space bar when the output is highlighted.



Click on the diagnostics tab up the top of the page. See below

Click on input and output tabs

Cut List Dob Files	ter 🖆 Diagnostics  🗣 Se	curity				Version 24.3. Compile 24.0	
Select View Inputs / Outputs ts	Log	Elapsed sec=345 ms/1K scans=3095 Err Reset 82	Boards Connected           1         3         5         7           2         4         6         8         8			1	
Name         Output           1         0 1 50 Arc filtering trans.           0         0 20 Arc filtering trans.           0							
Profile: 0.6 PROFILE 0.6 October 1234				m to Run: mm Las	Cut 000 - 0.0 SIMU	ATION MODE	Ĩ
= O 📄 🌖 🍂 🖊 🔀 🌠				,, .	, , , , , , , , , , , , , , , , , , , ,	^ <b>₽</b> ₽	2:19 PM 11-Aug-17



Use the mouse to select the desired output to test. Once highlighted, push the space bar once. Do not hold the space bar down or the output selected will turn on and off rapidly.



The corresponding LED on the CTL-600 board should light when the output is turned on. To identify the correct LED note that the LED outputs are on the left side of the CTL-600 board, numbers 1 and 2 outputs are relay outputs, outputs 3 to 14 are transistor outputs which relate to Punches and Shears. Outputs are numbered similarly on the diagnostic screen. This diagnostic technique is extremely powerful and allows ample time for fault tracing and testing.

The second technique is dynamic and applies to the punches and the shear and will test the complete cycle by turning on the relevant outputs for the time set by the parameters. To use this system in diagnostics, select the punch or shear to be tested and find the corresponding "Cycle" box. Press "Enter" to perform the automatic cycle for the selected device. The various timing parameters for the device may be modified at this stage.

The hydraulic system sometimes requires that a "loading" valve is energised at the same time as another operation valve to cause the system to deliver hydraulic power. This can be configured in the software, but will only automatically operate with the punch in the second technique described above.



# 6 Communications

The Pegasus MAS Mill uses Windows Operating environment can use any networking system most suited to the factory environment. A variety of customers use a mixture of Windows Networking solutions

- Wireless
- Ethernet
- USB (Manually walk from office to Machine)

# 7 Maintenance and Cleaning

The most essential component of the system is the measuring wheel and as such it must be regarded with the utmost care and respect.

Please see Section 5 regarding the encoder wheel.

The Printer Heads require constant Maintenance cleaning and respect. Refer to the printer manufacturers instructions to achieve reliable operation.



# 8 Pay Per Use/Royalty

Copy Pay Per Use/Royalty Code into the Pay Per Use/Royalty Folder, there is a shortcut to this folder on the desktop.

Start the Pegasus Mas Mill Software and select the Security Tab.



Type Password 'SUPERVISOR'. Then press Enter

ut List 🗈 Job Files 🖌 Settings 📊 Statistics 🖶 Printer 🏟 Diagnostics 🛡 Security	Version: 8/6/2012
word	
ssword: supervisor	
reck Guardi	Stopped     Stopped     The Position*     Stopped     Stopped

#### Figure 44: Supervisor Password

Enter the Filename and the amount of metres purchased. This needs to match the information that is in the Pay Per Use/Royalty Code that was copied in the Folder in the previous step.



Password: Password: Access Level SUPERVISOR access level Public transmer Supervision access level Password: Supervision access level Public transmer Solicit transmer • .00	🗅 Cut List 🖿 Job Files 🌶 Setting	gs 📊 Statistics 🖶 Printer 🏟 Diagnostics 🛡 Security	Version 8/6/2012
	Password Password: Access Level	Pay Per Use (PRI) - Administrative Controls           Per Use (PRI) - Administrative Controls           Medicine Namber         ODD1           PPU-0001001         Medicine PPU-001001           Meters to out         ODD2           Diameters to out         ODD2         Meters to out           PPU-0001001         Meters to out         Load PPU Code           PPU-0001001         Meters to out         Code PPU Code           PPU-0001001         Meters to out         Meters to out           Statect number to view.         Meters to out         Meters	Verieri Bridditz
	A Deci Secto DC/Col	•	

Figure 45: Loading Metres

If there is a file with the meters and filename matching you will be able to load this file. You can now select the code number, and select activate. If successful your Meters to run will now display the meters that were purchased plus any remaining on the machine.

🗋 Cut List 🗈 Job Files 🖌 Settin	ngs 💵 Statistics 🖶 Printer 🏟 Diagnostics 🛡 Security	Version: 8/6/2012
Pasword Pasword SUPERVISOR access lovel	Textures the up of the first terms       PPU of the first terms         PV for the first terms       PPU code         PV for terms       10000         PV for terms       10000         Select aumber to viex       10000	
Check Guards Col Insteaded OK	Source         Source         Source           © Support         Total Source         Total Source         Total Source	Ċ.

Figure 46: Metres Loaded



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