Section A

G6 – 300 Kibby Software Operations

Version 1.0.5

Contents

1 Overview

The Kibby is a machine designed to produce samples for Axminister.

The Kibby can produce samples up to 500mm x 500mm.

This Manual is a guide to the use of the Kibby to produce carpet samples.

The Kibby Software runs under Windows 10.
It is assumed that the users and operators have a working knowledge of Windows 10

1.1 Machine Installation Conditions

The Kibby machine must be installed in a position that meets the following criteria:

- Indoors
- Dry environment
- Must have adequate ventilation
- 240v or 110v single phase power
- Clean and dry compressed air
- Hard level floor
- Adequate lighting
- Area to work around the machine (floor plan provided to customer)

1.2 Machine Transport and Handling

When a Forklift is being used to move the Kibby crate, care must be taken not to drop, slide, or push the box as this may damage components of the Kibby machine. Ensure to only lift the crate through the correct forklift tyne holes on the box. Ensure to use appropriate lifting procedures when handling the Kibby crate.

It is important to dispose of all packing material according to local laws and regulations.

2 Machine Operations Guidelines

- **Do** keep Kibby clean and dry.
- **Do** ensure Kibby is shut down and locked out when any part of the body is placed inside the heads.
- **Do** always start the Kibby using single step.
- **Do** ensure that the Kibby is supplied with the correct specification of power.
- **Do** ensure that the Kibby is supplied with the correct specification of air.
- **Do** follow correct maintenance schedule.

- **Do Not** place any part of the body or tools inside the electrical box while power is applied to the Kibby.
- **Do Not** operate the Kibby beyond the recommended maximum speeds.
- **Do Not** use any parts or fluids/lubricants not recommended by *Modra Technology*.
- **Do Not** operate Kibby with any damaged or worn parts/cables.
- **Do Not** allow operation, adjustment or repair of the Kibby by personnel without adequate training.
- **Do Not** run the Kibby machine without all protective devices in place. (Light Curtains and Guards)
- **Do Not** make modifications to the machine that are not certified by Modra Technology.
- **Do Not** Operate the Kibby Machine unless you have adequate training.

3 Safety

Safety must be the foremost consideration in the use of the Kibby.
The Kibby has several very powerful motors controlling movement of the head and pegboard.
Keep clear of all action, and always consider the expected and unexpected motion of the Kibby.
Take note of all safety signage on the machine.
Eye protection is necessary when running the machine.
Compressed air is dangerous, do not use compressed air for any other purpose than that for which it is provided.
Never direct a stream of compressed air towards your body or the body of another person.
Do not use compressed air to cool yourself or to blow dust from your clothes or hair.

BODY PARTS CAN BE STRUCK OR TRAPPED BY THE ACTIONS OF THE MACHINE! SERIOUS OR FATAL INJURY CAN OCCUR!

Several levels of protection are provided on the Kibby depending on what activity is undertaken:

3.1 Remove Power

To totally remove power, turn off the switch on the side of the Kibby.
Alternatively, turn off and remove the power connection from the wall socket.

Power should be removed in the following circumstances:

- When any panels, safety guards or covers are removed
- The electrical enclosure door is opened
- Adjustments are made to X & Y Drive Belt tension

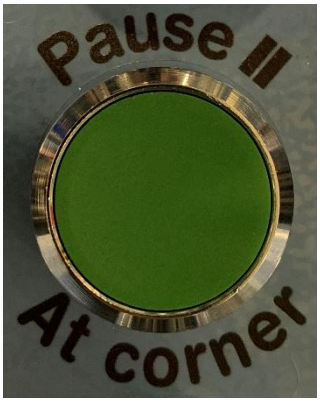
3.2 Emergency Stop

The Emergency Stop should be activated if there is a threat of injury, or some unexpected action occurs on the Kibby.

The Emergency Stop button disconnects power from all motors and the air is dumped, but keeps power connected to:

- The PC, so it is not inadvertently shut down
- The Motion Control Logic power
- 24 v power – providing power to sensors and solenoids

3.3 Pause



Pressing the green START/PAUSE button during running of a sample will cause all actions to pause, pressing the button once again will resume running.

The START/PAUSE button is often activated to momentarily pause the Kibby and review the sample or make some small adjustments.

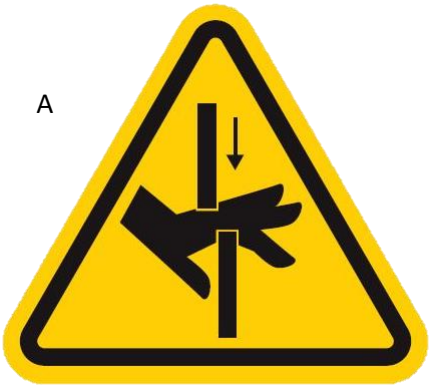
3.4 Light Curtains

Light Curtains are provided to protect the operator from inadvertently touching moving parts. If the Light Curtain is broken, it will have the same effect as the START/PAUSE button being pressed. To restart the Kibby after the light curtain causes a pause, remove the blockage to the beam and press the Safety button on the LCD screen.

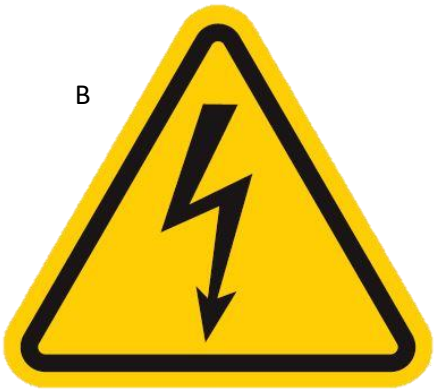
3.5 **Safety Signage**

A) Shear or pinch point, Keep hands clear
B) Electrical, isolate power supply before opening

A



B



3.6 **Machine Noise Level**

The Kibby machine has been designed in such a way that risks resulting from the emission of airborne noise are reduced to the lowest level. The level of noise emission was assessed to be lower then 73dB(A) at one meter from the machine.
The Kibby machine is designed to run unattended and therefore, the operator isn't exposed to the sound levels of the machine for long periods.
It is not necessary to wear ear protection while using the Kibby machine, but is still acceptable.

4 Introduction

4.1 Quick Start

Turn Power on to the Kibby Machine
Start Kibby Software
Load a pattern
Select a pegboard
Load yarn into colour bar
Select Podge, then Podge

4.2 Kibby Machine Software

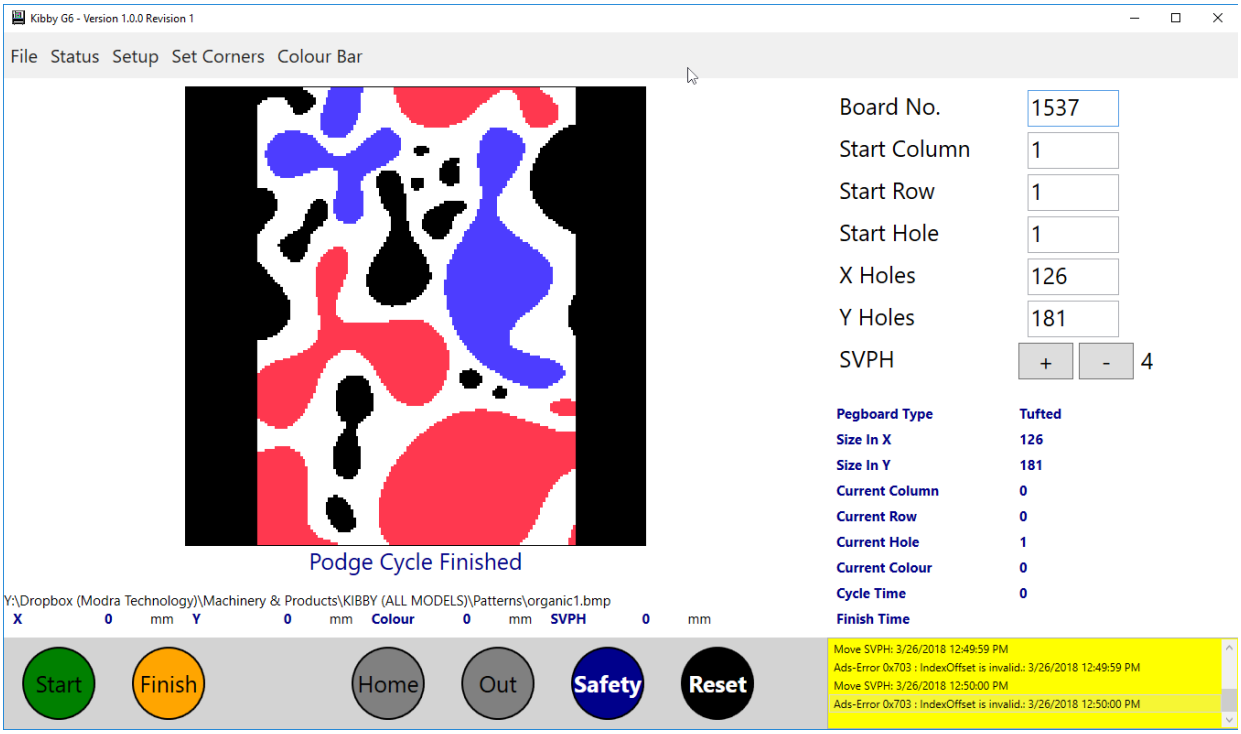
The Control Software for the Kibby Machine is stored on the desktop.

4.3 Definitions

Pegboard – Aluminum board drilled with holes to accommodate tufts of yarn
Podge – Traditional name of action to push a tuft of yarn into a pegboard
X axis – Left and right on pegboards also head movement to left and right
Y axis – Up and down on pegboards also pegboard movement up and down
Z axis – Left and right movement of the Colour Bar
SVPH – Servo Variable Pile Height

5 Main Screen

Below is the main screen for running the G6 Kibby machine. From here all actions related to the machine can be selected.



5.1 Board No.

Board Number lets the operator select a particular pegboard for use in the Kibby Machine. When the Board Number is selected and that particular board has had the corners set, the “Size in X” and “Size in Y” numbers will change reflecting the pegboard information entered during corner set. Pegboard Type is Woven for Axminster samples.

5.2 Start Column and Start Row

Start Col (Column) and Start Row let the operator position a sample at any location on the pegboard. The top left corner of the pegboard is the starting position for a full board sample, and in this case the values of *Start Column = 1* and *Start Row = 1* are entered.

5.3 Start Hole

Start Hole is the position in the sample at which the machine will place the next tuft. For the start of the sample this would be set to *Start Hole = 1*.

5.4 X Holes and Y Holes

The X holes and Y holes displays the size of the pattern selected. Changing this number allows a change to the size of the sample. If you increase it over the pattern size then it will repeat the pattern, if you make it smaller then it will remove the extra rows and columns.

5.5 SVPH+ & -

SVPH refers to maximum needle position when podging.
Selecting + causes the needle to podge the tuft further into the pegboard.
Selecting - causes the needle to podge the tuft into the pegboard less.
The value to the right of the *SV+* and *SV-* is a distance in 10µm (0.01 mm) from the SVPH home position.

5.6 Current…

Current Column, Current Row, Current Hole and Current Colour show information on the progress of the current sample being run.

5.7 Cycle time

Cycle time is the number of podges per minute.

5.8 Finish time

Finish time displays the time remaining for the sample

5.9 Home

Selecting '*Home'* moves the Y axis (up and down) to the uppermost position and moves the X axis (head left and right) to the far-right position.
This moves the machine to a position ready to fit or remove a pegboard. It also allows an entire pegboard to be inspected.

5.10 Out

Selecting '*Out'* moves the colour bar to *the* left most position, enabling the first 10 yarn positions to be loaded.
To move the colour bar to the right, use '*Home'*.

5.11 Colour Bar

Colour Bar displays the COLOUR screen.

5.12 Open

Selecting OPEN allows pattern files to be opened.

5.13 Setup

SETUP displays the SETUP screen.

5.14 **Set Corners**

Selecting SET CORNERS displays the SET CORNERS screen.

6 Podge Operation

"Podge" is the name given to the action of inserting a tuft into a pegboard.

6.1 **Podge**

Selecting *PODGE* starts the machine cycle to select a tuft and insert the tuft in a particular pegboard hole.

6.2 **Pause**

Selecting *PAUSE* forces the machine to run in single step mode.
Repeatedly pressing *PAUSE* (or the center green button) will step the machine through the complete cycle. This is useful to check that the machine is operating as expected.
To run the machine continuously, See above (6.1)

6.3 **Stop**

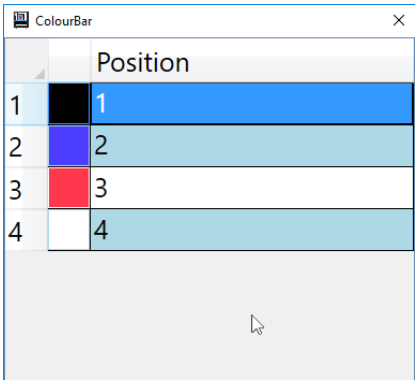
Selecting *STOP* or pressing the red button ends the Podge cycle.

6.4 **Left, Right, Up, Down & At Corner**

See *Set Corners* (9.0) for more information.

7 Colour Bar.

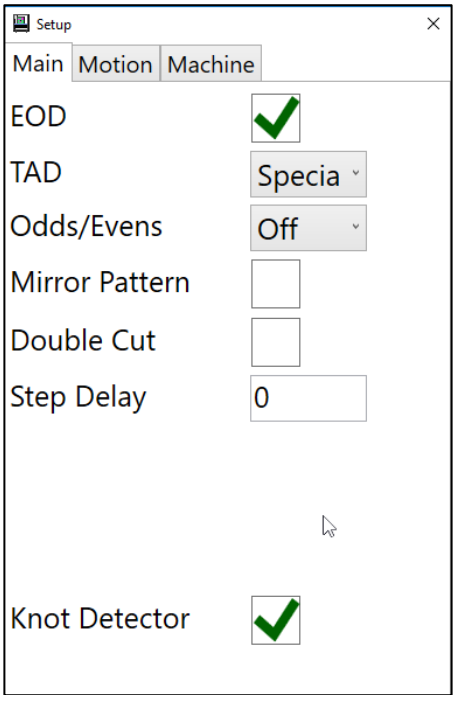
Selecting Colour Bar will display the following screen



This is the default position order of a 4 colour sample.
This table will enable you to change the colours in the sample without changing yarn positions or editing the pattern in the design software.

8 Setup

Selecting SETUP will display the following Screen



8.1 EOD

Select EOD to switch ON or OFF the end out detector function of the Kibby. The end out detector function detects when a tuft is not selected by the gripper.

8.2 TAD

Select TAD to change the function of the Tuft Alignment Device. The TAD blows compressed air via an air connection above the cutter into the colour bar and around the protruding tuft of yarn to attempt to straighten the yarn if an end out is detected. The available functions are

- **Off,** TAD is not used
- **On,** TAD is activated every time a tuft is selected (Every podge)
- **Special,** TAD is activated only when an end out is detected (normal setting)

8.3 Odds/Evens

This mode allows the podging of only the ODD or EVEN holes in the Pegboard.
The available functions are

- **Off,** The Pegboard is podged normally
- **Odds,** Only the odd holes in the Pegboard are podged
- **Evens,** Only the even holes in the Pegboard are podged

The Odds/Evens function is only used in special cases.

8.4 Mirror Pattern

Switching Mirror Pattern ON flips the sample produced in the Left – Right direction.

8.5 Double Cut

Switching Double Cut ON actuates the cutter twice during a cycle, this is used for filament yarns, or if the cutters have become worn.

8.6 Step Delay

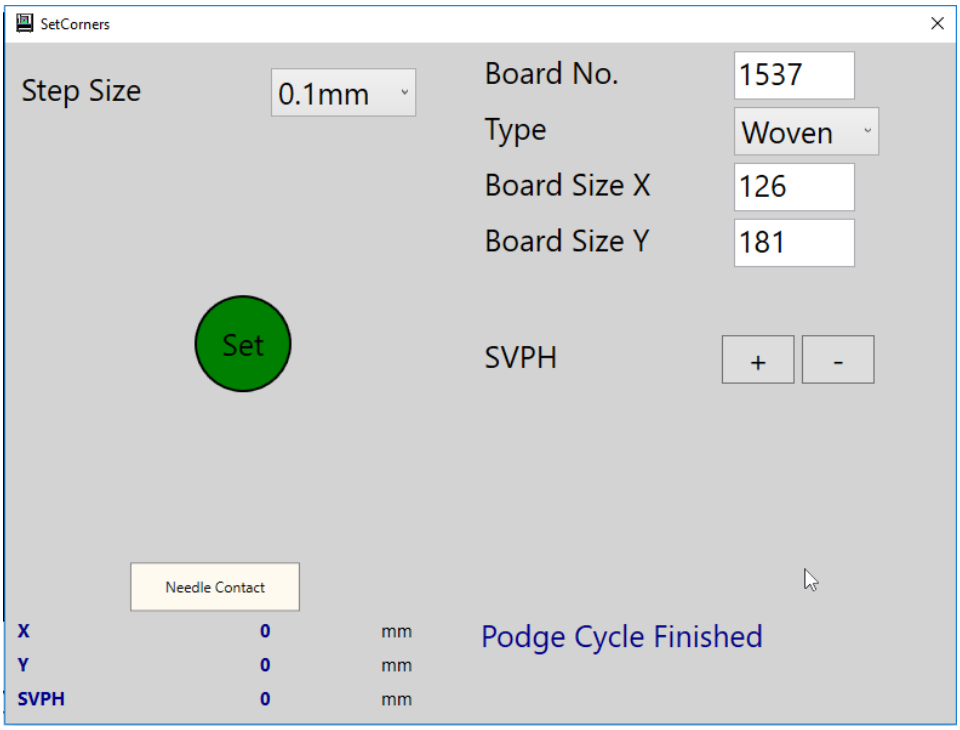
Step Delay will slow the machine running speed, which is useful when testing or after changing settings.
A step delay of 0 means the machine runs at full speed.
A step delay of approximately 200 is good for testing.

8.7 Knot detector

Switching the Knot Detector ON will monitor the yarn and pause the machine if a knot is detected in the yarn.

9 Set Corners

Selecting SET CORNERS displays the following screen:



The *Corner Set* function is used to locate the exact positions of the 4 corner holes of each pegboard to be used on the machine.
The order of setting the corners is very important;

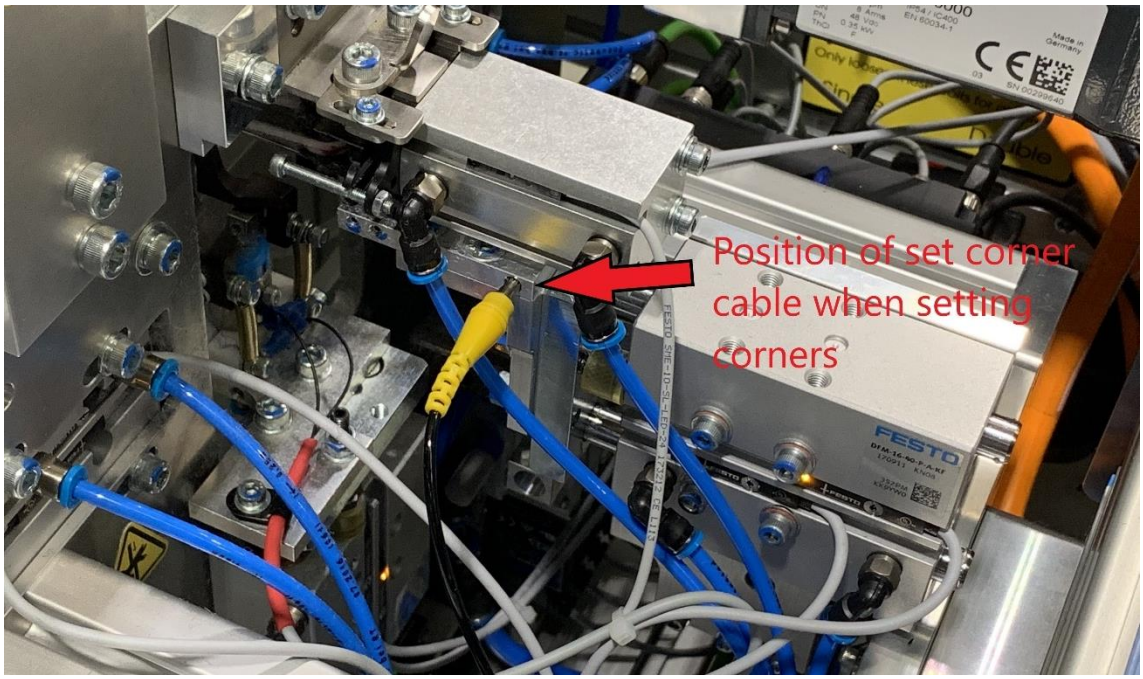
- Top, Left Hand Side Hole
- Top, Right Hand Side Hole
- Bottom, Left Hand Side Hole
- Bottom, Right Hand Side Hole

Normally, the controller will move the pegboard near to the correct hole, but the operator must check the correct order.
Failure to set the corners in the correct order will cause the machine to malfunction.

9.1 Before Setting Corners

Fit the Pegboard to the Machine. Use HOME to move pegboard to the top, making pegboard easier to attach.
Ensure that:

- The needle is in good condition (Not bent or damaged)
- The needle is centered in the stripper plate hole
- The Corner Set cable is connected to the Needle. (See below)



Enter the Board Number and enter the X holes and Y holes of the Pegboard.
X holes is the number of holes in the horizontal direction of the pegboard.
Y holes is the number of holes in the vertical direction of the pegboard.

9.2 Type

Select board type:

- Woven
- Staggered
- Tufted
- Offset
- Fract. Stag. 11
- Fract. Stag. 12

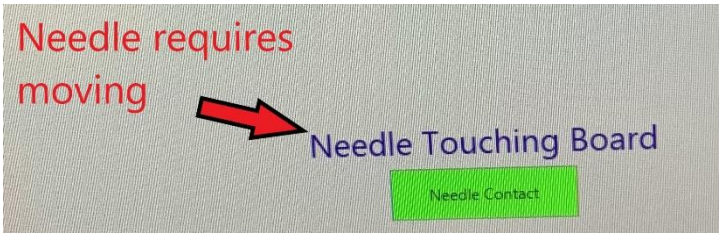
Refer to section C of manual for information on board types.

9.3 Set Corners

Select SET after entering a board number, X Holes and Y Holes information. The Machine will switch the air supply to Low Pressure and move the head and Pegboard, so the needle is near to the top left-hand corner hole of the pegboard.

9.4 Left Right Up Down

Select the **LEFT, RIGHT, UP** and **DOWN** buttons on the button panel to move the head and pegboard so that the needle can be manually inserted into the correct corner hole on the pegboard without it touching the sides of the hole. Is the needle is touching the board, a message will appear on the screen "Needle Touching Board".



When using the panel mounted buttons to set corners you can hold down in a particular direction to move a larger step without having to change the step size on the screen.

9.5 Step Size

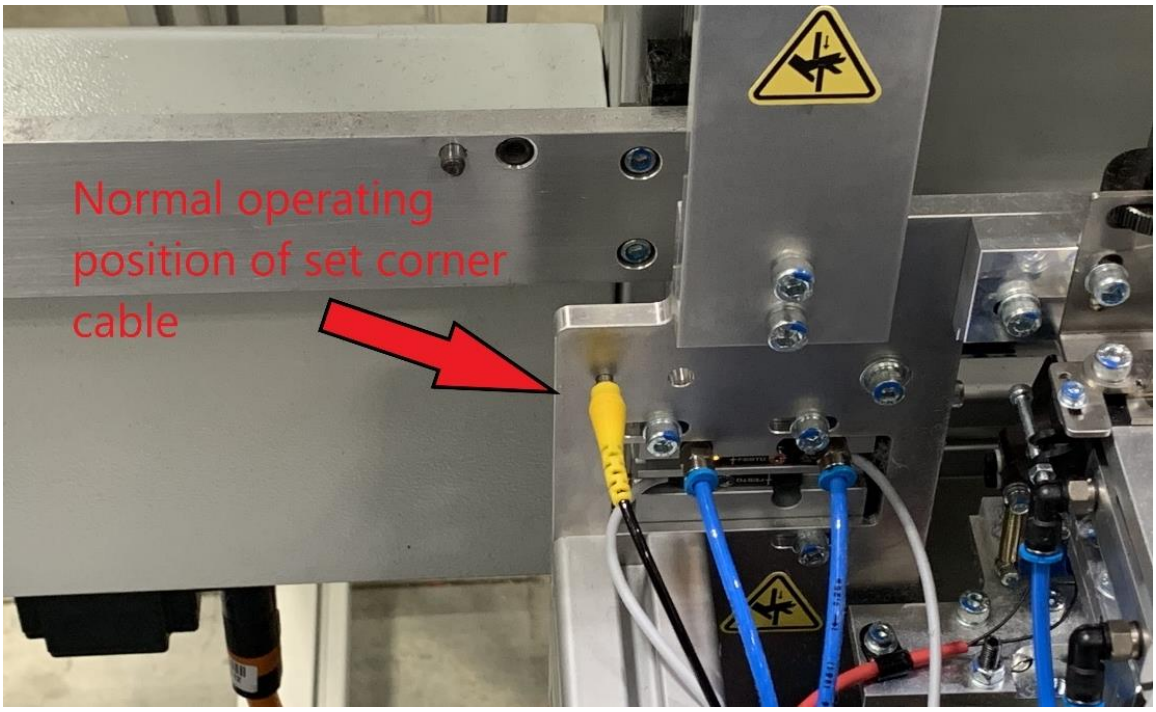
Select the middle dropdown box to change the step size between 0.1mm, 0.5mm 1mm and 5mm. 5 mm movement is useful for making coarse adjustments to put the corner hole close to the needle then fine tune with the smaller steps.

9.6 At Corner

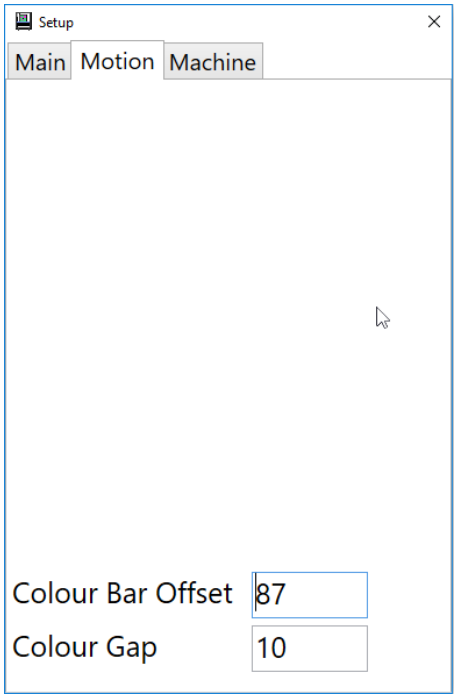
When the needle is pushed all the way into the correct corner hole and not touching the sides of the hole, select the **At Corner** button (Green) on the button panel. With small movements in the X and Y direction, the machine will find the inside edges of the hole automatically. The center of the hole is calculated from the location of these four edges.

9.7 **Corner Set Finish**

When all four corners have been set, remove the **Corner Set Cable** and place back on the head.



10 Setup Motion



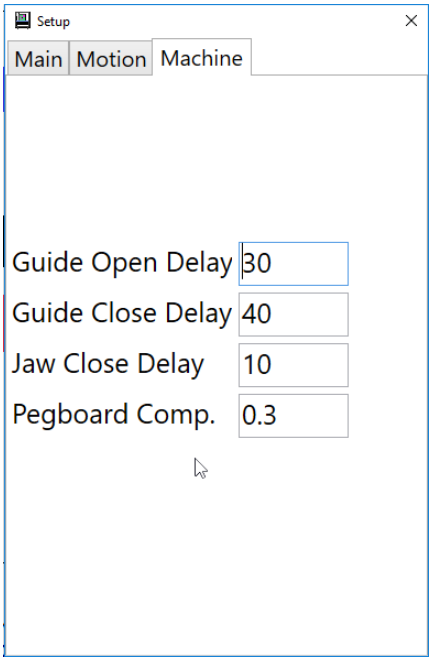
10.1 Colour Bar Offset

This number is the distance from the Colour Bar home position (following calibrate) to the first (leftmost) yarn position.
To move the first yarn position to the **left**, increase this value.
To move the first yarn position to the **right**, decrease the value.
80.5mm is the factory default for colour 1.

10.2 Colour Gap

This is the distance between individual yarn positions on the colour bar. The standard colour bar has 10mm gaps between yarns.

11 Setup Machine



The Settings button in the Configuration menu will display this window. Once many of these are configured, they will never need to be changed.
NOTE: The delay values are in milliseconds.

11.1 Guide Open Delay

Guide Open Delay is used to adjust the timing of the **Guides** opening related to the **Needle** going in.
If the delay is set too short, the **Guides** could drop the yarn before the **Needle** is pushed through and picks up the yarn.
If the delay is set too long, the cycle time is reduced. In some cases, the **Guides** could hold the yarn while the **Needle** is pushed through and could split the yarn.
The default **Guide Open Delay** is 30

11.2 Guide Close Delay

Guide Close Delay is used to adjust the timing of the **Guides** closing related to the **Slide** moving down. The **Guides** close much more quickly than the **Slide** down movement. See section *12. Status (Test Inputs & Outputs)* This screen can show the speed differences between the **Guides** and the **Slide**.
The Value of **Slide Delay** should be such that the guide in and slide down occur at the same time.
If this value is too high, the cycle time will be reduced, and the machine will not run at optimal speed.
If this value is too low, it can cause the **Guides** to hit the **Jaw** causing premature wear.
This can also cause the **Guides** to close before the **Slide** is fully down, which can cause the yarn to be pulled out of the **Jaw** and cause fault end-outs.
This default **Guide Close Delay** is 40.

11.3 Jaw Close Delay

Jaw Close Delay is used to adjust the wait-time after the jaw is closed.
If the time is too short, the **Jaw** could close before the **Slide** is fully up, and the jaw could miss the yarn.
If the time is too long, the cycle time is reduced.
The default **Jaw Close Delay** is 15.

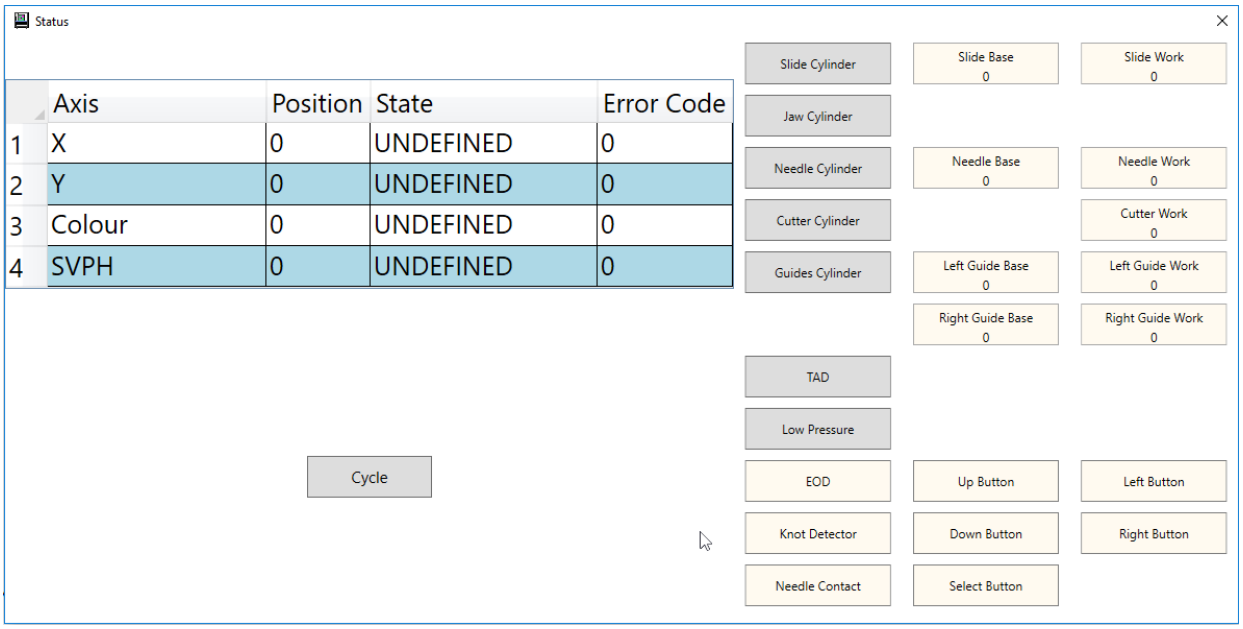
11.4 Pegboard Comp.

Pegboard compensation is used in circumstances where the Pegboard being used is very worn. Theoretically, **Pegboard Comp.** adds a value to the center hole to compensate for a warped/bent Pegboard.

*For example, **Pegboard Comp.** is set to 0.3, the X position of hole 1 is 0, and the last hole in the first row is 100. Hole 50 has a value of 50.3 (not 50.0). **Pegboard Comp.** adds the compensation over the first 50% of the X holes and removes the **Pegboard Comp.** over the last 50%.*

12 Status (Test inputs and outputs)

Selecting **Status** displays the following screen:



This screen enables the operator to switch the outputs **ON** and **OFF** for Kibby machine and reports the status of the inputs. This assists in determination of any Output or Input related problem and assists in the adjustment of cylinder limit switches. The numbers represent how long it takes for the action to be performed in milliseconds, this is used for diagnostic purposes.
Base is the position of the cylinder when the output for the solenoid is OFF.
Work position is the position of the cylinder when the output for the solenoid is ON.

12.1 Slide

Selecting **SLIDE,** cycles the Slide between the up and down states. The status of the **Slide** cylinder reed switches is shown.

12.2 Jaw

Selecting **JAW,** cycles the Jaw between the open and closed states. The Jaw has no reed switches.
The **EOD** (End Out Detector) status is displayed and when the jaw is closed the EOD should be ON with no yarn between the jaws.

12.3 Needle

Selecting **NEEDLE**, cycles the Needle between the in and out states. The status of the **Needle** cylinder reed switches is shown.

12.4 Cutter

Selecting **CUTTER**, cycles the Cutter between the in and out states. The status of the **Cutter** reed switch is shown.

12.5 Guides

Selecting **GUIDES**, cycles the 2 Guide cylinders between the in and out states. The status of the **Guide** cylinder reed switches is shown.

12.6 TAD

Selecting **TAD** activates the Tuft Alignment Solenoid.

12.7 Low Pressure

Selecting **Low Pressure** activates the Hi Low pressure Solenoid.

12.8 EOD

The status of the **EOD** (electrical contact between Jaws).

12.9 Needle Contact

Needle contact is the contact of the needle with the pegboard. This will be off when the needle is not touching the board.

12.10 Knot Detector

The status of the **Knot Detector** shown here.

12.11 Up, Down, Left, Right, Select button

This is the feedback for the panel mount buttons on the machine.

12.12 Cycle

Selecting **Cycle** moves the head to the home position (far right) and runs the complete podging cycle. This can be used for testing and timing checks without podging into a Pegboard or using any yarn.

13 Open

13.1 Loading Patterns into the Kibby Machine

Selecting Open will open an explorer window where new patters can be loaded into the Kibby software

X Holes and Y Holes displays the size of the pattern loaded on the Kibby Machine. This should be equal to or less than Size in X and Size in Y (pegboard size) if the numbers are equal to the Pegboard Size the sample will be a full board sample.

Check the **Size in X** and **Size in Y** Information to confirm that the desired pattern has been loaded and is ready for use.