

# *PantoStacker*<sup>TM</sup>

PantoStacker allows you to create a single row pantograph, or an alternating staggered double-row pantograph that can be used to sew an entire quilt. You can create the entire quilt layout, which will allow you to sew each row as you roll the quilt. You can use the size of your safety area to create the pantograph, or you can specify the size of the pantograph and apply the size of the patterns and rows later.

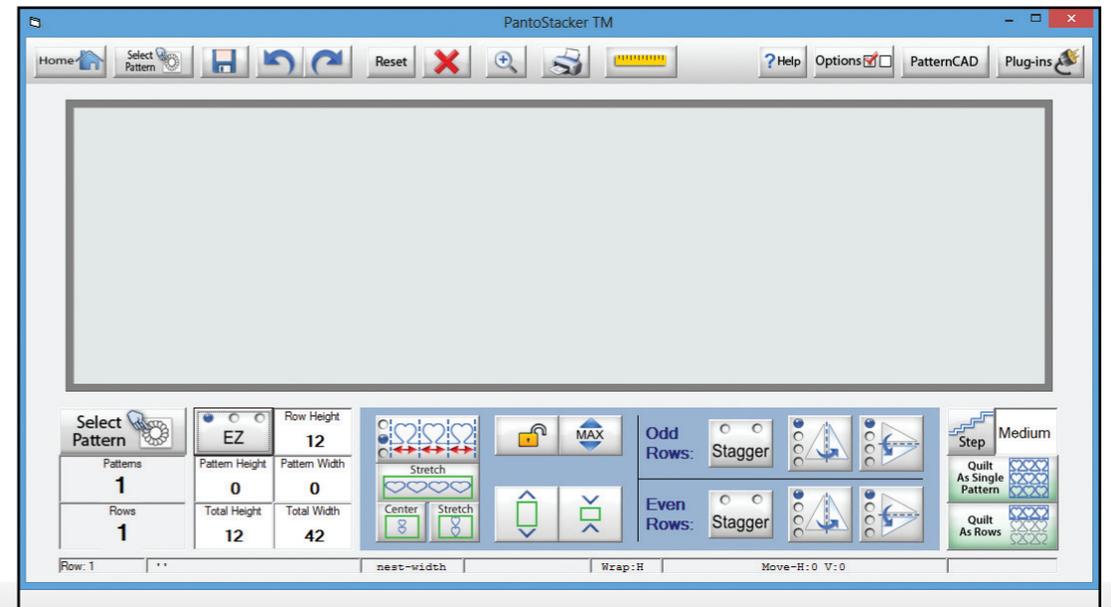


# Design & Create: New Pantograph

In this section we will cover the tools used to create a pantograph under the Design & Create heading while covering each function. You can follow along making your own or just cover a specific setting and function.

When you first tap this button, it will take you to the screen to set your safety area. The dimension of the safety area you set will be the dimension for the new pantograph. This screen will connect to The robotics at first, if you do not set the safe area you will not be able to access this portion of the application.

Some of the options are similar to the New Quilt option with some slight differences as to where they are located. Be aware different modes offer different tools.



# Menu Bar



Lets go over the functions of the menu bar at the top before we proceed.

- 1. Home** — Returns you to the Home screen for the software.
- 2. Select Pattern** — Opens the pattern selection screen.
- 3. Save** — Saves your current pantograph as a pattern so it can be used later.
- 4. Undo** — Will remove the last action preformed.
- 5. Redo** — Will reinstate the last action performed.
- 6. Reset** — Resets all changes within the pantograph.
- 7. Delete All** — Deletes all settings, including selected pattern and sizing.
- 8. Zoom** — Zooms in, tap and drag to move.
- 9. Print** — Opens the print setup screen.
- 10. Ruler** — Used to gather measurement data regarding your quilt. You can also apply the measurements to the quilt or pantograph.
- 11. Help** — Access to this Help file.
- 12. Options** — Access Options Menu.
- 13. PatternCAD** — Opens PatternCAD.
- 14. Plug-ins** — Displays the Plug-ins available, such as the Import/Export module, Virtual Long-arm, and Fonts.

# Ruler

The Ruler function allows you to get measurement data about certain points and distances on your quilt, or the size of a block or pantograph. This data can also be used to set your Quilt size, Block size, and pantograph exactly to the measurement that you acquire by using the Apply Measurement button.

There are three types of rulers Block, Width, and Length.

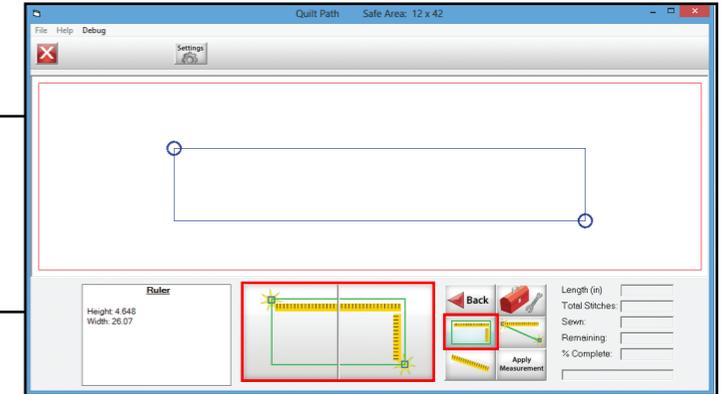
To take a measurement move your machine to the start point of your measurement and click the left button of the ruler screen to set the point. Then move your machine to the end point of your measurement and press the right ruler button. The data will be reported to you in the window on the bottom left. Once you set your points you can then cycle between the three types of rulers and apply the one suited for your needs.

If you apply the measurement while in QuiltCAD, the Block Ruler will apply your measurements to all the blocks on your quilt. You can still modify rows and columns. The Width ruler will change the total width of your quilt. The Length ruler will only report a length.

If you apply the measurement while in PantoStacker the Block ruler applies the measurement to the entire pantograph. The row height will equal the total height divided by the number of rows. The Width ruler will only effect your pantograph width.

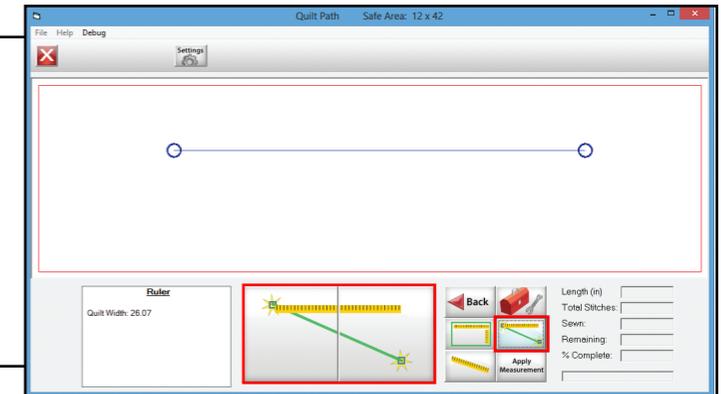
## Block

Provides the height and width of the measurement.



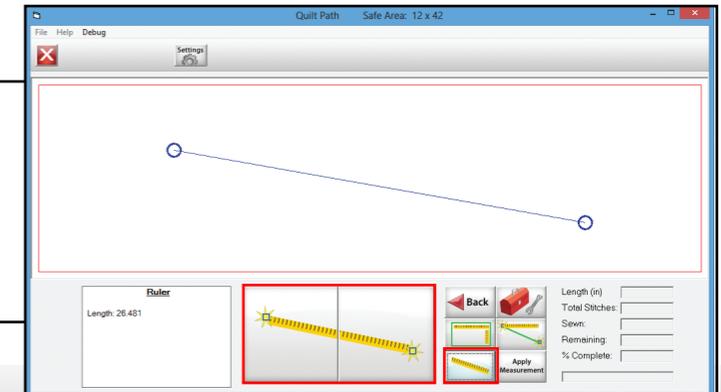
## Width

Provides the horizontal measurement between two points. The end points do not have to be aligned to get the exact measurement.



## Length

Provides the distance between the two points you specify. This is the default ruler setting.



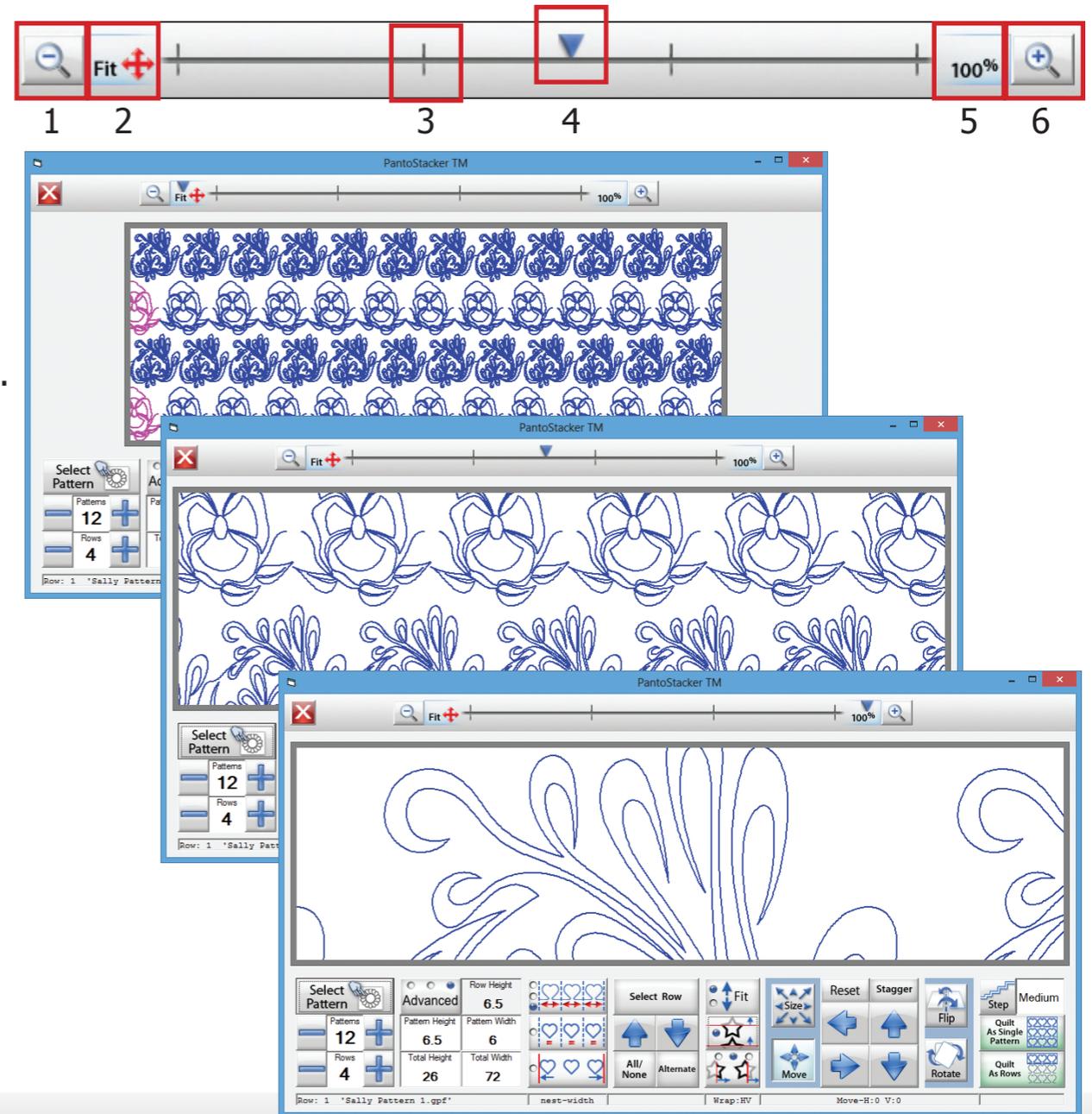
# Zoom

The zoom feature allows you to zoom in and out on your pantograph from viewing a 42" wide pattern that fits on a 10" screen, up to viewing the pattern at 100% of its actual size.

- 1. Zoom Out** - Used to zoom out in smaller increments.
- 2. Fit** - Changes the Zoom to fit the entire pantograph on the screen.
- 3. Quick Zoom Marker** - Each vertical marking on the Zoom bar allows you to quickly jump to a certain zoom increment.
- 4. Current Zoom Level** - This marker represents the current zoom level of your pantograph.
- 5. 100%** - Zooms in on the pantograph and displays it as the actual size it will be sewn.\*\*
- 6. Zoom In** - Used to Zoom in with smaller increments.

\*\*You must set the screen scale setting in the software for the pattern to be represented correctly.

Instructions to set this can be found on the next page.



# Set Screen Scaling

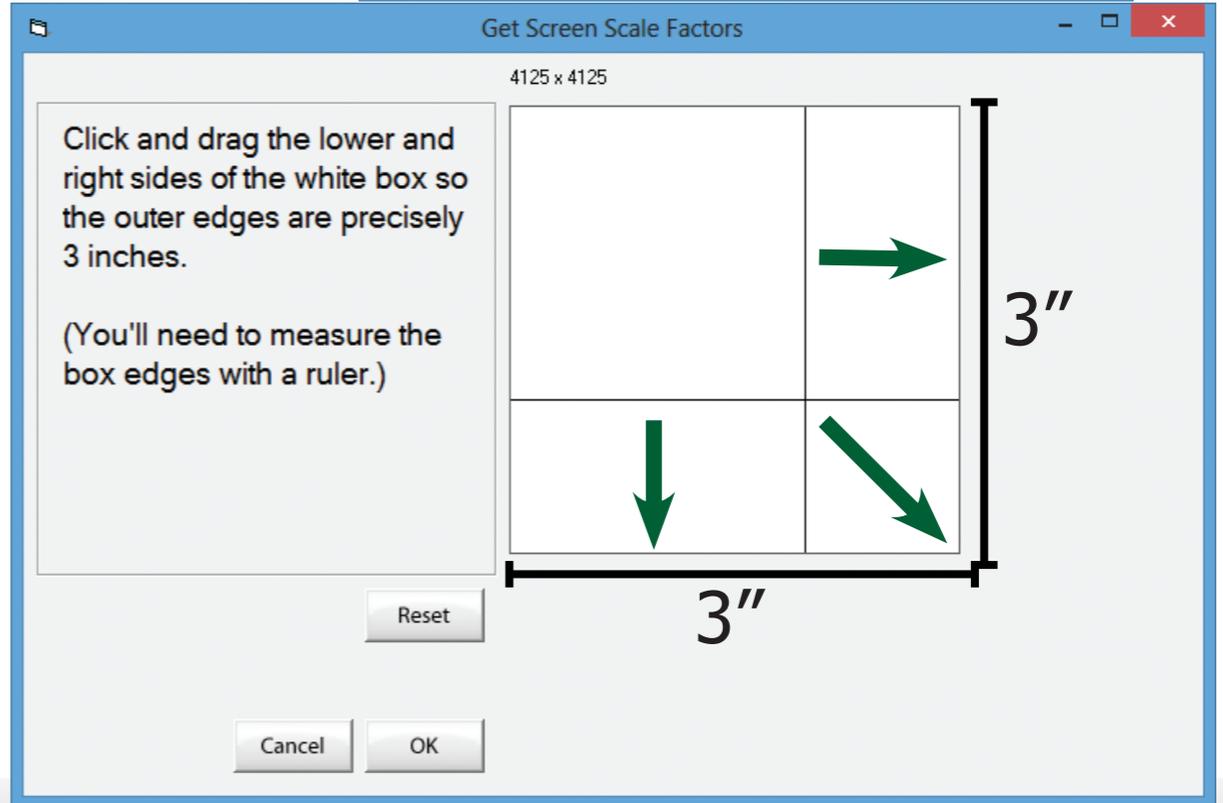
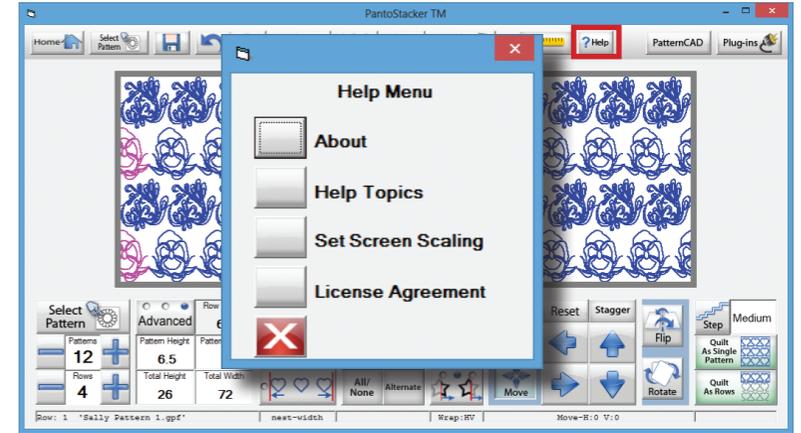
To access the Screen scaling menu click on Help. On the pop-up menu select Set Screen Scaling.

The **Get Screen Scale Factors** will then be displayed.

In order to set the screen scaling you will need a physical ruler that is at least three inches.

1. Place the ruler on the screen and drag the bottom right corner of the block down and out.
2. Once the inside lines shown here, match up to three inches you can click OK to save the setting.

Depending on your screen resolution this setting will vary.

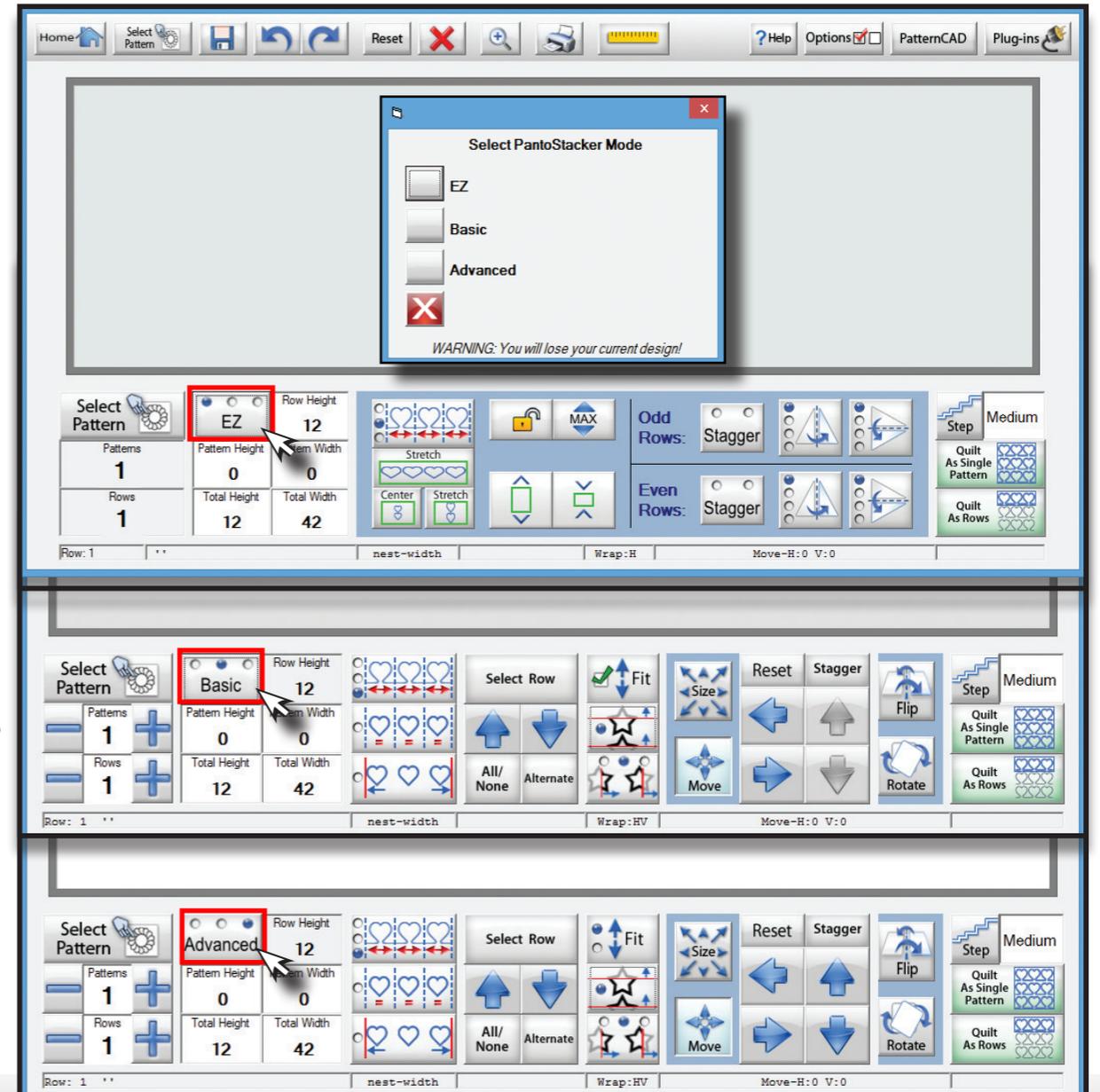


# Pick a Mode

There are 3 modes inside the PantoStacker™ portion of the software. Each mode offers different options to manipulate the pantograph size as well as the patterns inside the pantograph.

To switch between these mode you can click the mode button highlighted in red.

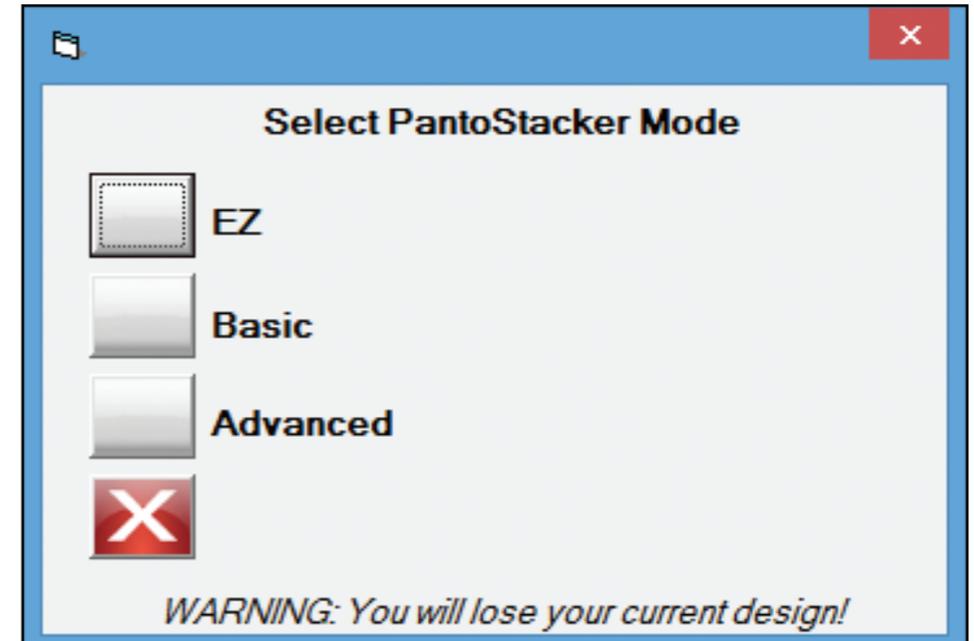
- **EZ** - This mode allows you to set the size of the pattern, the row height and the total size of the pantograph. The Patterns and Rows will change accordingly to fit the best suited number of patterns and rows to fill the pantograph dimensions you create. By default the software will start in this mode.
- **Basic** - In this mode you are able to control all aspects of the patterns and pantograph; Pattern Size, Pantograph size, Pattern count, and left to right position. However you are unable to move the rows up or down. You can have up to 99 rows with a maximum of 50 patterns per row. This mode also allows you to apply changes to a selected row(s) instead of all rows.
- **Advanced** - This mode gives the most control over what you are creating. It is capable of doing all functions offered by two other modes, in addition to being able to move the vertical alignment of the row(s). The fit option also works differently giving you more options for shifting patterns or using a specific size to achieve a specific style of pattern.



When switching between the different types of modes you will see the prompt shown here.

Please note if you click to change your mode, your current design and all the changes made to it will be lost.

If you do not want to lose your current pantograph settings select 'X'  
Save your pantograph and then open it in a different mode.



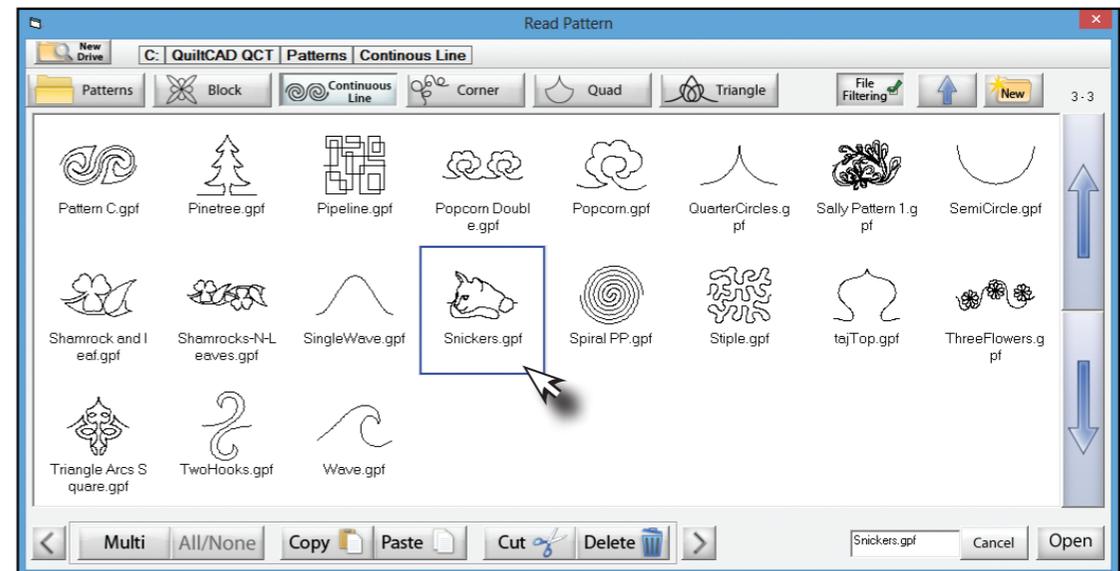
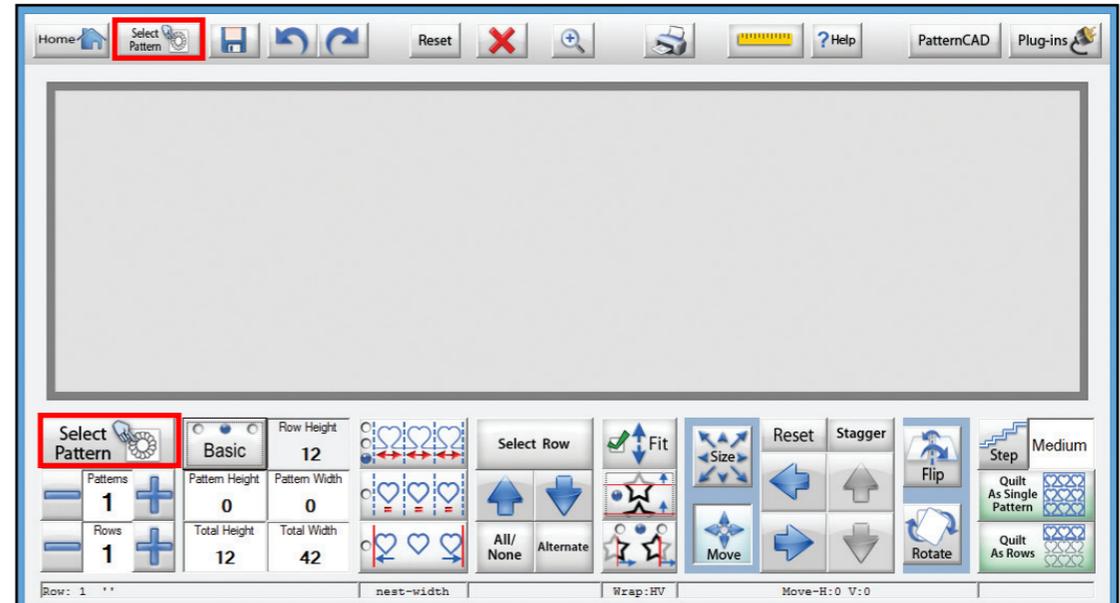
# Pick a Pattern

There are 2 ways to open the pattern selection window. There is one icon at the top on the menu bar as covered previously, and there is another on the bottom left of the pattern options menu bar.

All modes open a pattern the same way.

This will bring up the pattern selection window.

For all of the examples regarding the PantoStacker™ we are going to select the 'Snickers.gpf' pattern under the Continuous Line category. Tap on Open, or double click, once you find the pattern or a different one you wish to use, you can also double tap the pattern to select it.



# EZ Mode: Pantograph Size

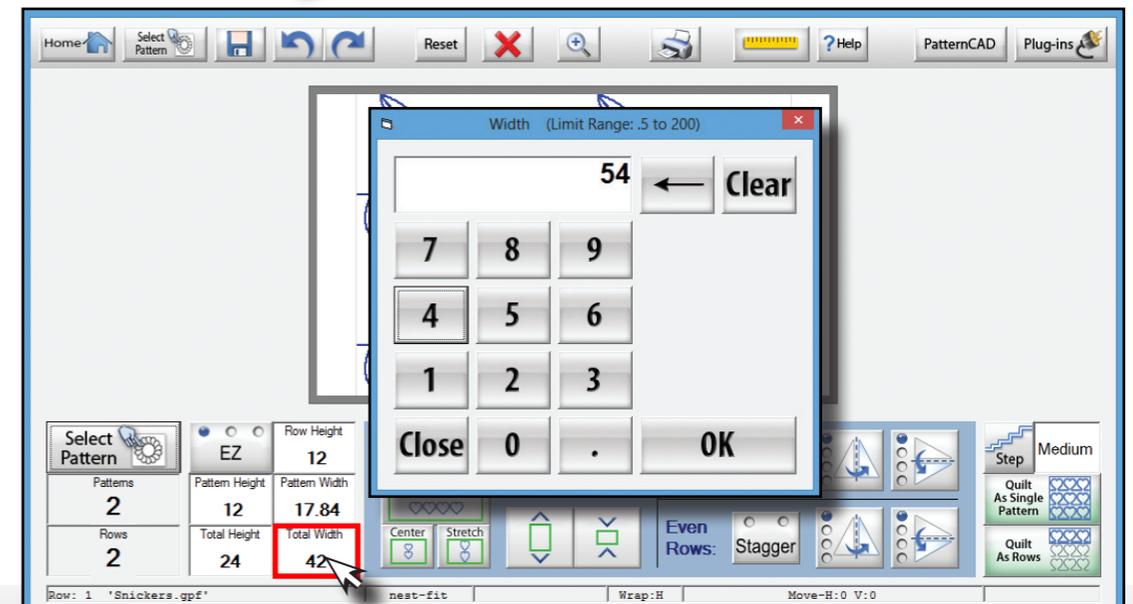
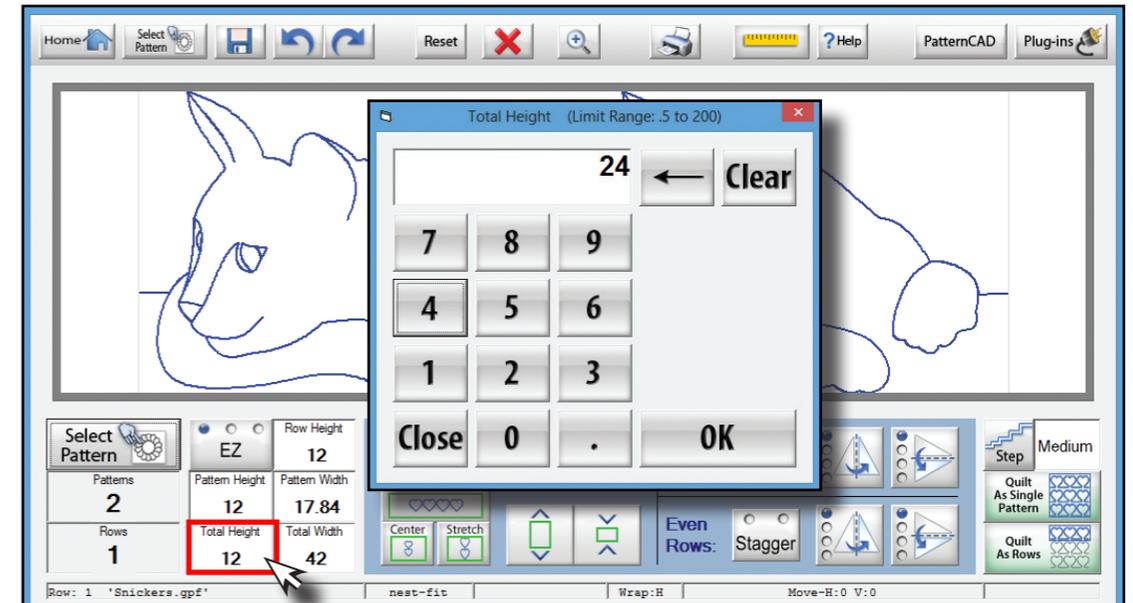
The pattern will now be shown on your pantograph, but you will also notice that the program placed two patterns. You must set your safety area, those dimensions will be used for the pantograph layout. But if the pattern you selected is less than half of the 'Total Width' it will place two patterns automatically to fill the space on the pantograph. The maximum height and width you can set is 200", and the minimum being 1".

## Step 1

Tap on the 'Total Height' box this will display a screen you can enter the total height of your pantograph, the height can be changed at any time. For this example, we want to change the total height of the pantograph to 24". Type in 24 and click OK. Now you will notice that the Pattern Height is now 12" as well as the Row Height. This is because there are two rows now. The value shown in the Pattern Height is Total Height divided by the number of Rows on the pantograph.

## Step 2

Now change the width. Tap on the 'Total Width' box, this will display a screen you can enter the width of your pantograph. Here you are going to set it to 54". Once you click on OK you should now have two rows and three patterns per row.

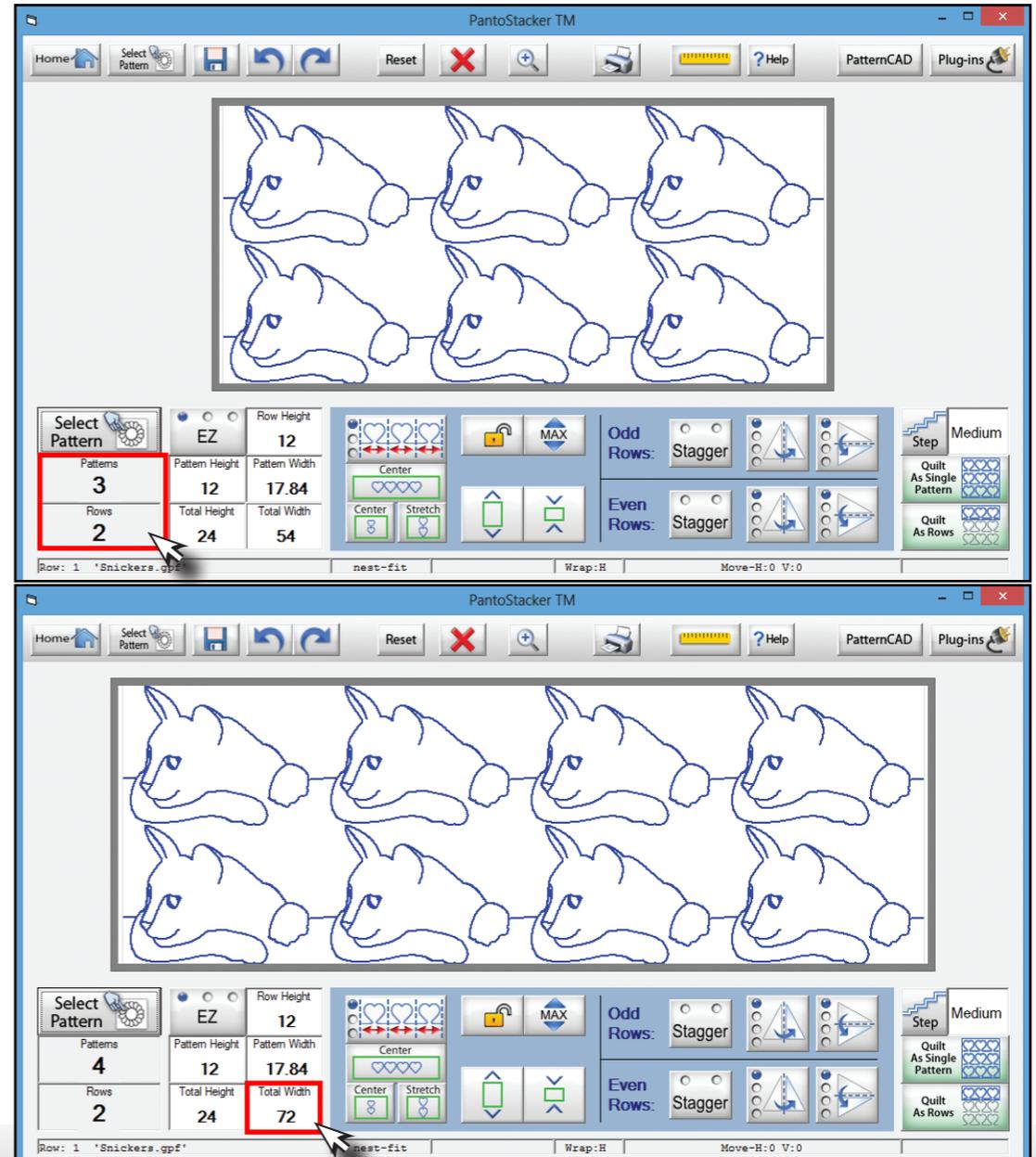


# EZ Mode: Pattern Count

The pattern count in the EZ mode is determined by the Total Width you set in relation to the size of the pattern when the pantograph is created. In this example you can see that we have three patterns per row with two rows. This is because the pattern height when we selected it was set to 12", which in turn makes the pattern width 17.84". If we wanted to add more patterns to this pantograph we would need to increase the Total Width.

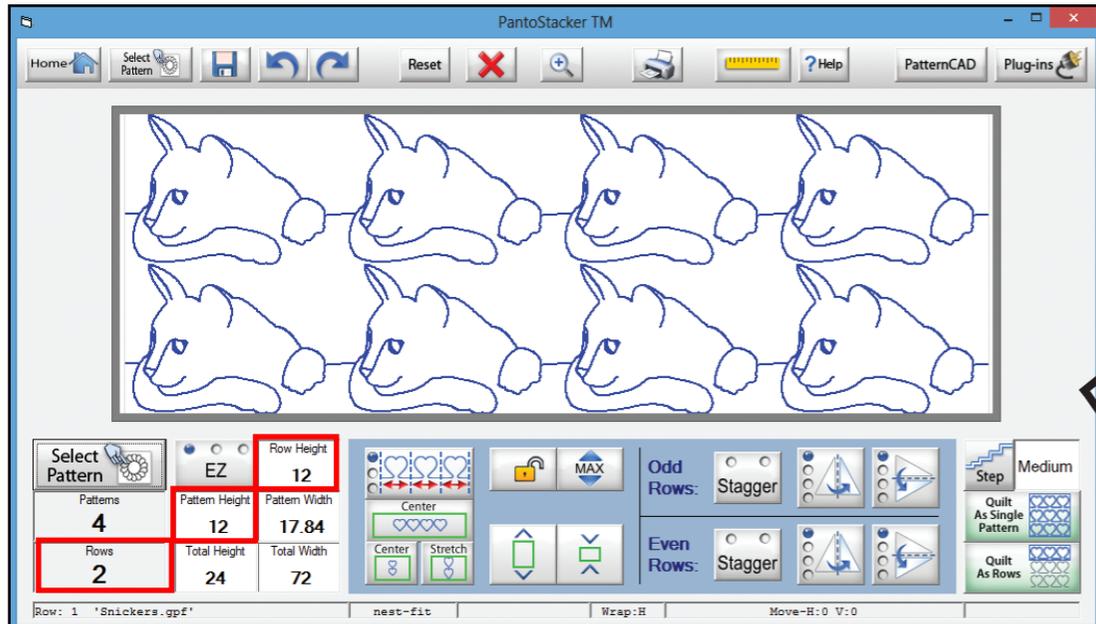
Change the Total Width to 72 and you should now see four cats instead of three. From here you do have the ability to sew what you currently have created, but there are many more things that can be done with this pantograph.

Let's take a look at nested styles, pattern wrapping, pattern flipping, and staggering the pattern.



# EZ Mode: Rows

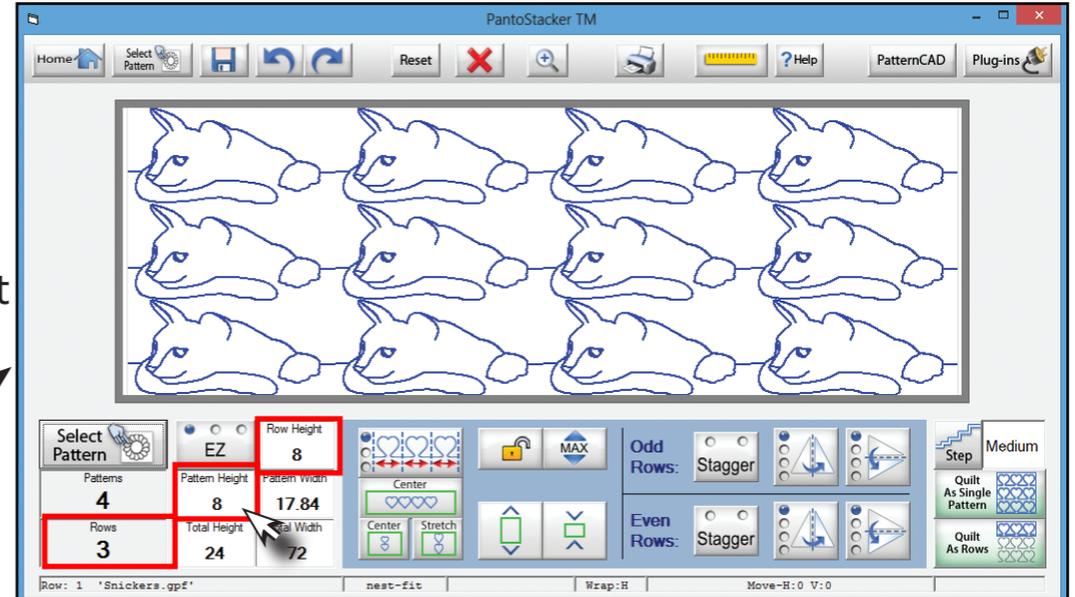
As mentioned earlier, we are not able to choose the amount of rows we want the pantograph to have. But you can add rows by increasing the Total Height **or** modifying the Pattern Height.



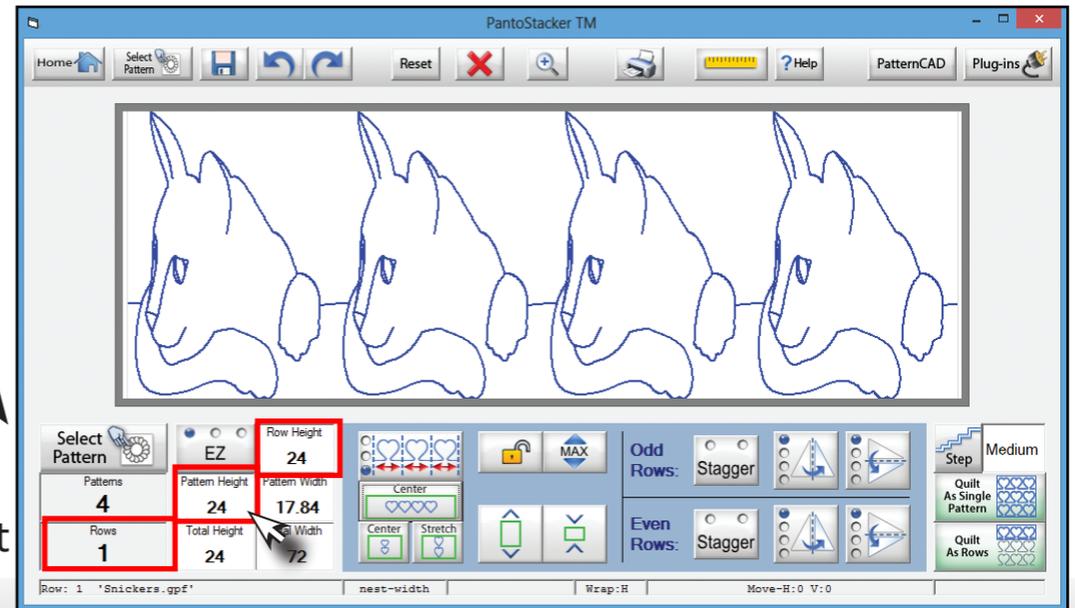
Current Example

You can see that the Row Height is changing in relation to what you set Pattern Height. The software will automatically start filling in or taking away the patterns that will fit within the limits.

Decrease Pattern Height



Increase Pattern Height



# EZ Mode: Nesting

Nesting a pattern is when you stretch multiple patterns and connect them within the pantograph. In this mode the start and end points are used to connect the patterns. You can nest patterns three different ways:

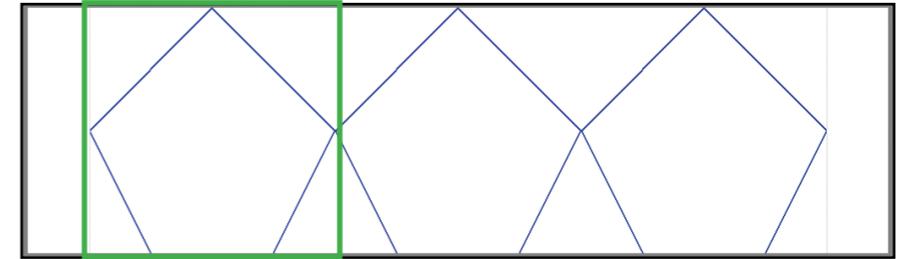
- **Width** - By using the total width of the pattern the pantograph will create a non overlapping repeating pattern.
- **Fit** - Creates an overlapping repeating pattern using the maximum number of patterns that will fit inside the pantograph.
- **By Ends** - Creates an overlapping repeating pattern that will wrap around the pantograph with the maximum number of patterns that are required to fill the entire pantograph.

There are also some patterns that do not display well using the main Nested option, but depending on your pattern there are 3 types of nesting; Fit, By Ends, and By Width. Some might look perfect using the Edge option. Be sure to try all three if the current one you are using just isn't doing what you want it to.

When you have the Nested option selected, the patterns are automatically being sized so that the start and end points connect to make one continuous line. Therefore the system removes the ability to change the width of the pattern.



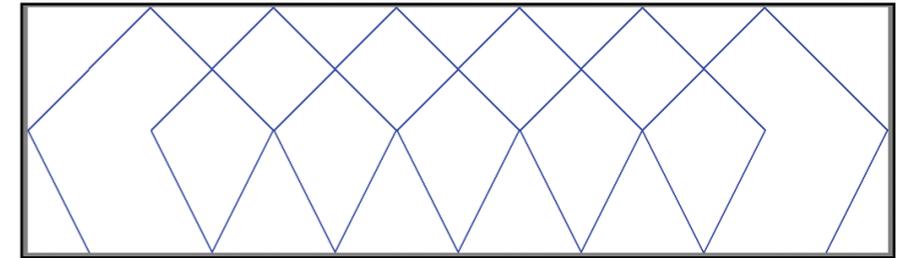
Width



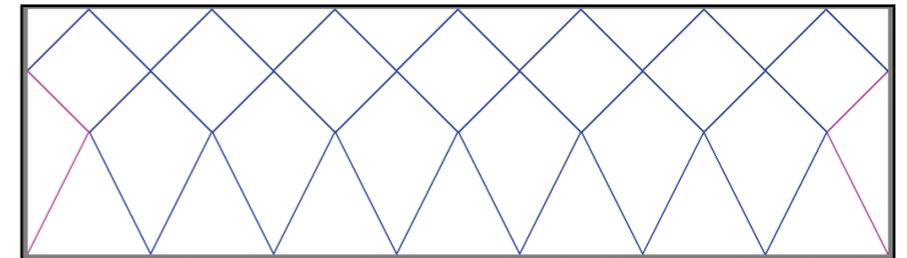
The green box represents the width of the pattern.



Fit



Ends



# EZ Mode: Stretch & Center

The Stretch & Center options coexists with the Nesting options.

These allow you to stretch or center the pattern according to the total width of the pantograph.

- **Center** - Will keep the aspect ratio of the pattern while using the maximum number of patterns allowed in the total width of the pantograph.
- **Stretch** - Will stretch the pattern to fill the total width of the pantograph.

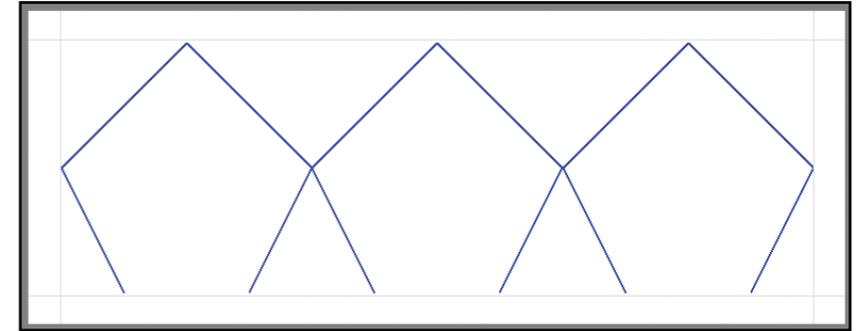
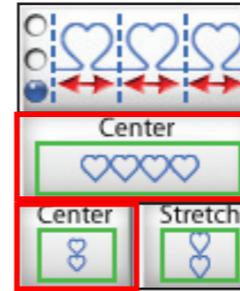
In addition to the Stretch & Center option you can also stretch or center the patterns in the pantograph horizontally. They work in the same fashion as the vertical center and stretch.



- **Center** - Will keep the aspect ratio of the pattern while using the maximum number of patterns allowed in the total height of the pantograph.

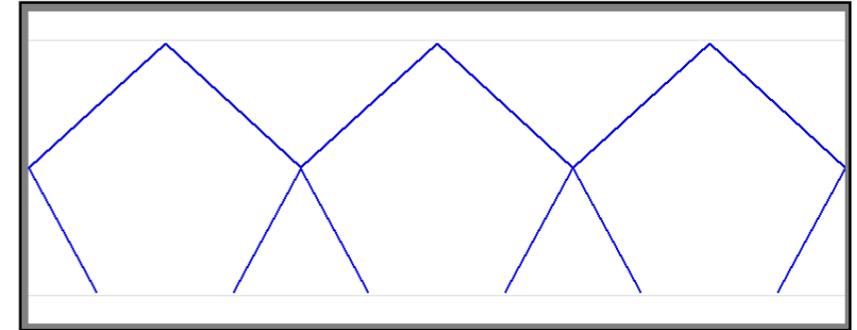
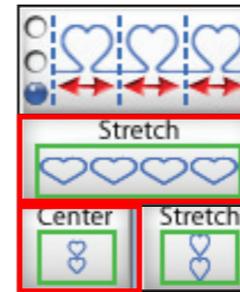


- **Stretch** - Will stretch the pattern to fill the total height of the pantograph.



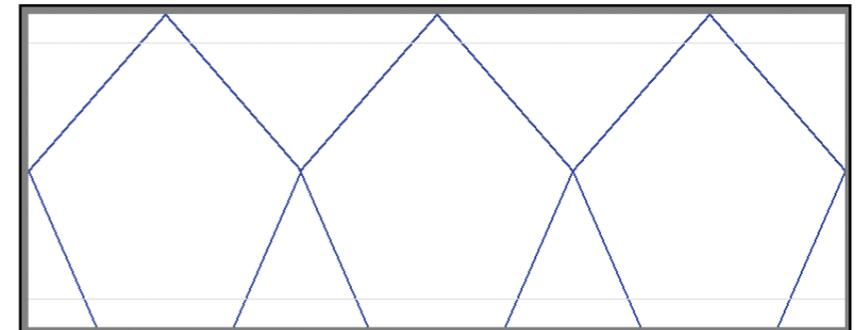
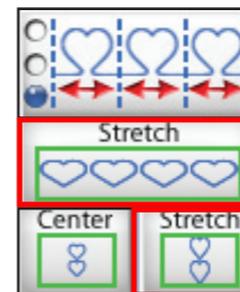
Pantograph 10" x 26"

Pattern 8" x 8"



Pantograph 10" x 26"

Pattern 8" x 8.67"



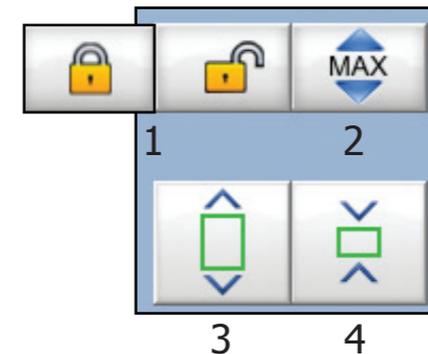
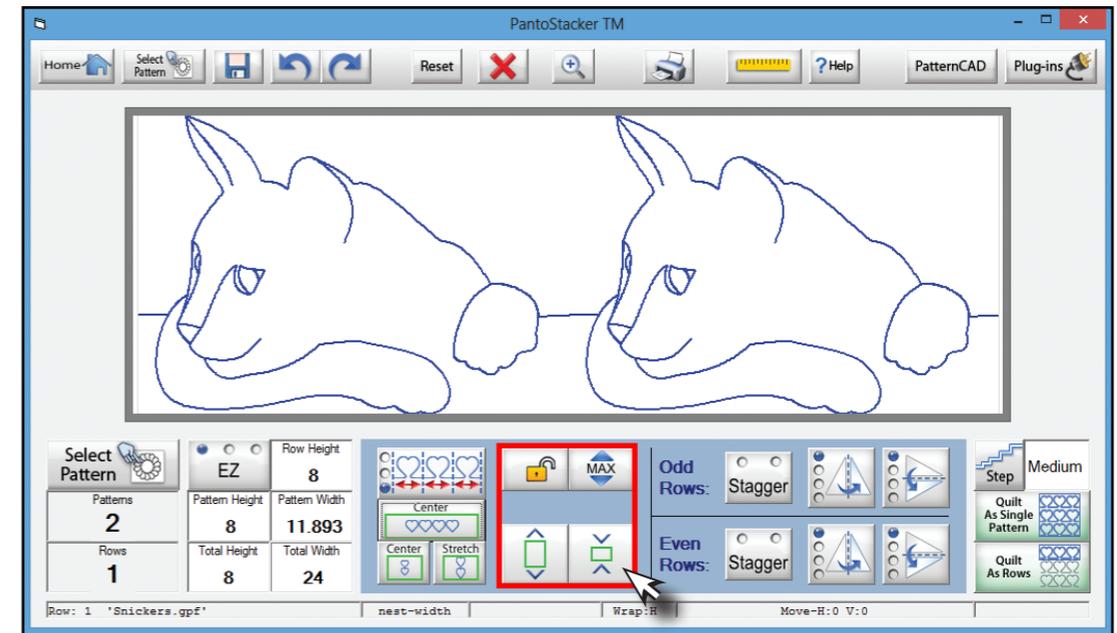
Pantograph 10" x 26"

Pattern 10" x 8.67"

# EZ Mode: Pattern Height

These options allow you to modify the height of the pattern inside the pantograph. The icon with the blue arrows directly relates to the Pattern Height field.

- 1. Aspect Ratio Lock** - When the lock is closed, the aspect ratio of the pattern will not be lost. This means if you decrease or increase the height the width will change as well. When the lock is open, the aspect ratio will not be kept. If you increase the height the width of the pattern will not change.
- 2. Max Height** - Changes the pattern to fill the Total Height available.
- 3. Increase Height** - Used to increase the pattern height one step at a time.
- 4. Decrease Height** - Used to decrease the pattern height one step at a time.

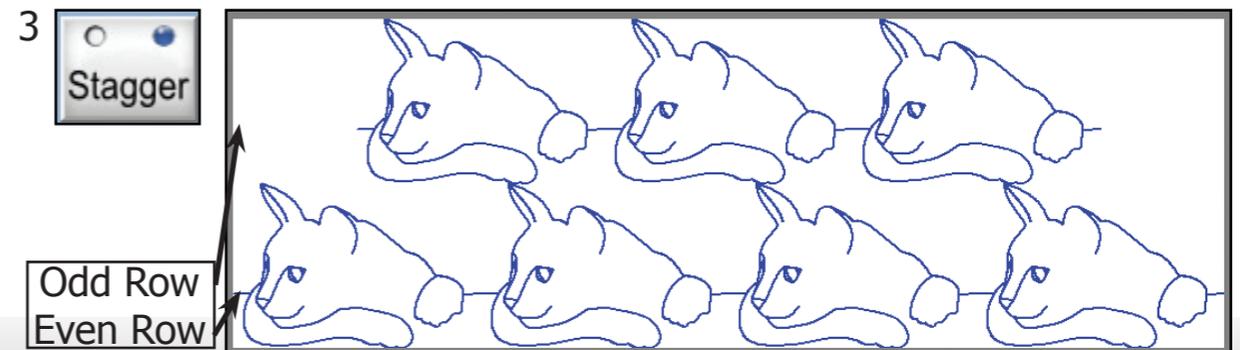
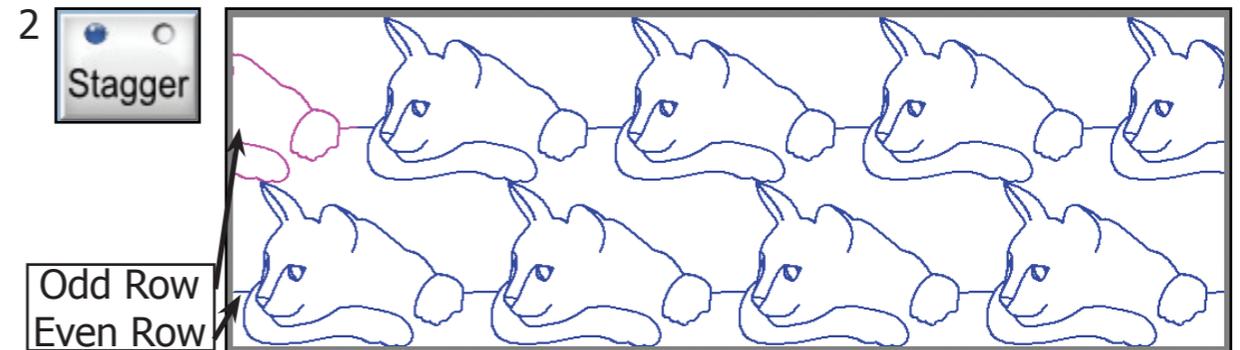
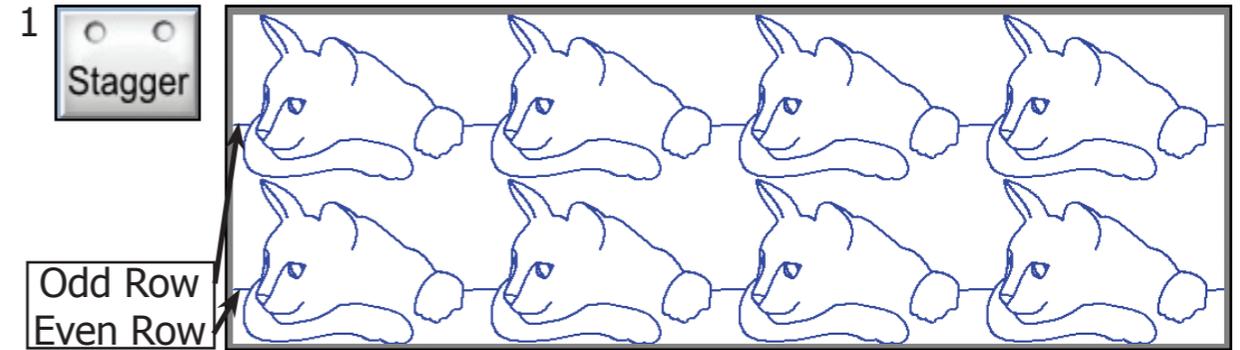


# Staggering Patterns

Staggering is having the application automatically offset the patterns in the pantograph rows by half. This is a great tool to create repeating rows.

Please note, there are 2 options for staggering and flipping, you can apply the changes to the Odd numbers rows, or the Even numbered Rows.

- 1. No Stagger** - Patterns will be centered in the pantograph.
- 2. Stagger with Wrap** - Patterns will be staggered on the row and will wrap around the pantograph.
- 3. Stagger without Wrap** - Patterns will be staggered on the selected row but will not wrap around the pantograph. If the pattern has to be 'cut' it will be removed

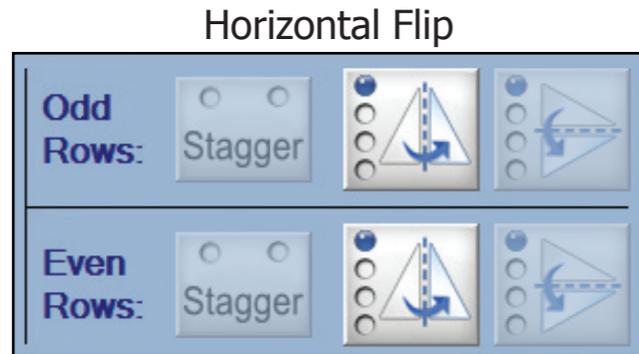


# Flipping Patterns

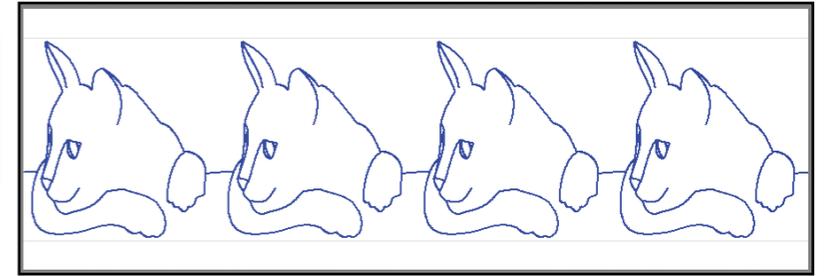
The flip option allows patterns for the entire row, or every other pattern in the row, to be flipped vertically and horizontally. There are three different ways in which the flip feature works, by default there is no flip applied.

- 1. Tap once** — Flips all patterns.
- 2. Tap twice** — Only flips the odd numbered patterns:  
1,3,5,7,9.....
- 3. Tap three times** — Only flips the even numbered patterns:  
2,4,6,8,10.....

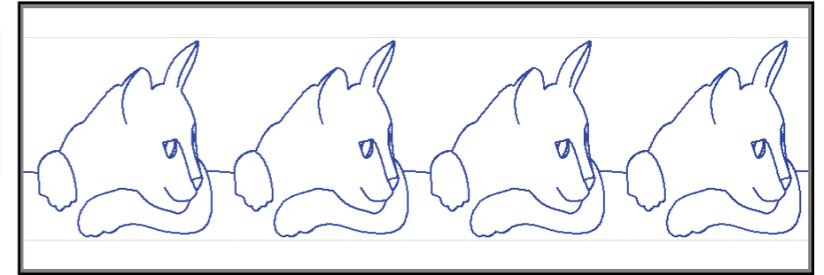
The same rules apply to both Odd and Even Rows



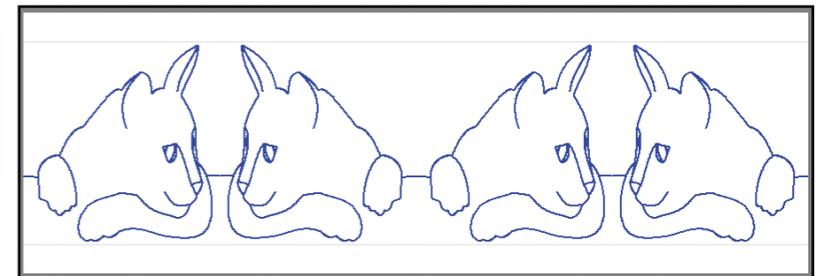
Original Setting



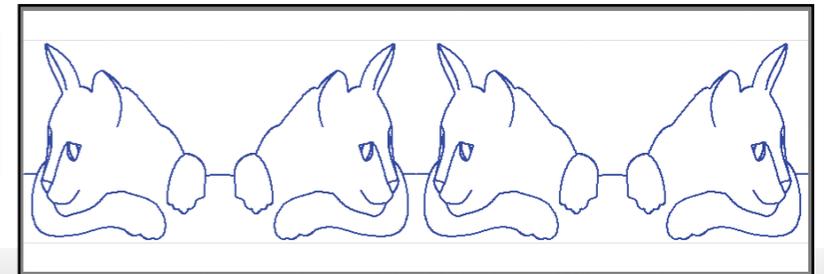
One tap: All



Two Taps: Odd



Three Taps: Even

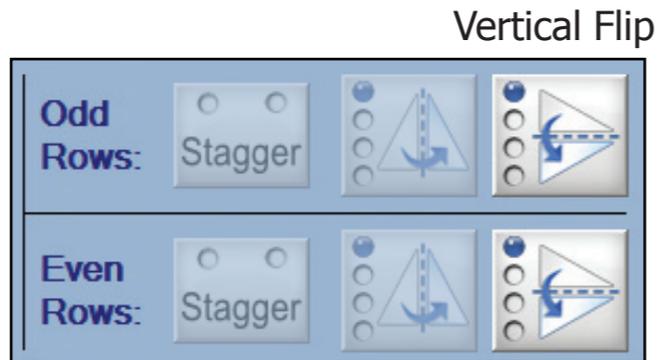


# Flipping Patterns Continued

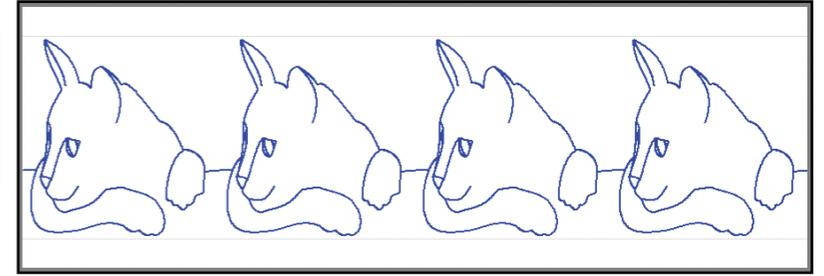
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- 2. Tap twice** — Only flips the odd numbered patterns:  
1,3,5,7,9.....
- 3. Tap three times** — Only flips the even numbered patterns:  
2,4,6,8,10.....

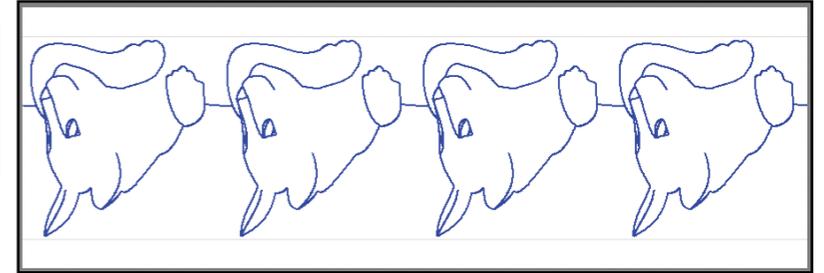
The same rules apply to both Odd and Even Rows



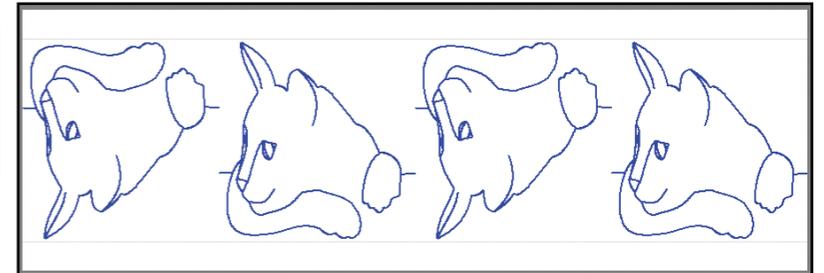
Original Setting



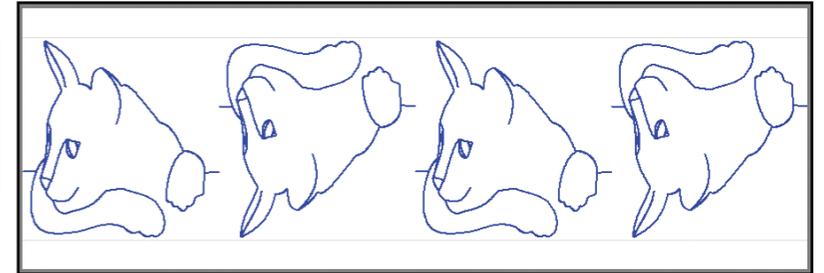
One tap: All



Two Taps: Odd



Three Taps: Even



# Step Size

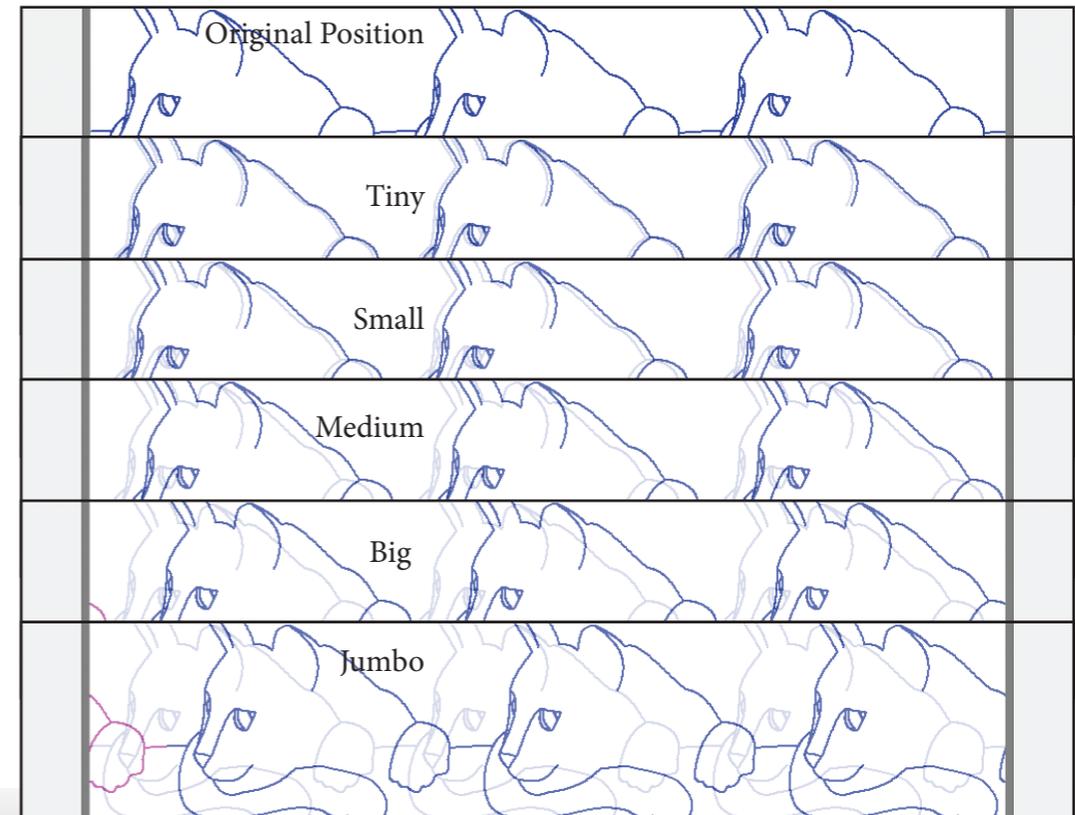
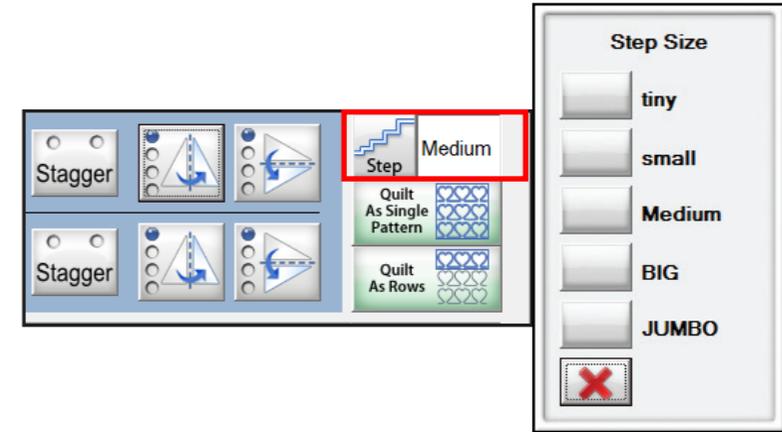
The "Step Size" setting is used to change how much distance or proportion will be effected per tap.

There is no numerical formula associated with the step size, they are simply increments of size according to the pattern or pantograph size.

- **Tiny** — A small increment of movement.
- **Small** — A slightly bigger increment of movement than Tiny.
- **Medium** — A bigger increment than Small.
- **Big** — A larger increment in movement as compared to Medium.
- **Jumbo** — The largest movement increment.

In the examples shown you can see each step size as if tapped once, each step size is from the patterns original position. You can see how the Tiny and Small are best used for fine tuning the pattern, while the Big and Jumbo are best used for larger advancements.

The same rules apply when setting the Step Size to change the size of the pattern.



# Basic Mode: Pantograph Size

Once you select a pattern it will now be shown on your pantograph. You must set your safety area, those dimensions will be used for the pantograph layout.

The maximum height and width you can set is 200", and the minimum being 1".

## Step 1

Tap on the 'Total Height' box this will display a screen you can enter the total height of your pantograph, the height can be changed at any time. For this example, we want to change the total height of the pantograph to 24". Type in 24 and click OK. Now you will notice that the Pattern Height is now 12" but the Row Height is 24".

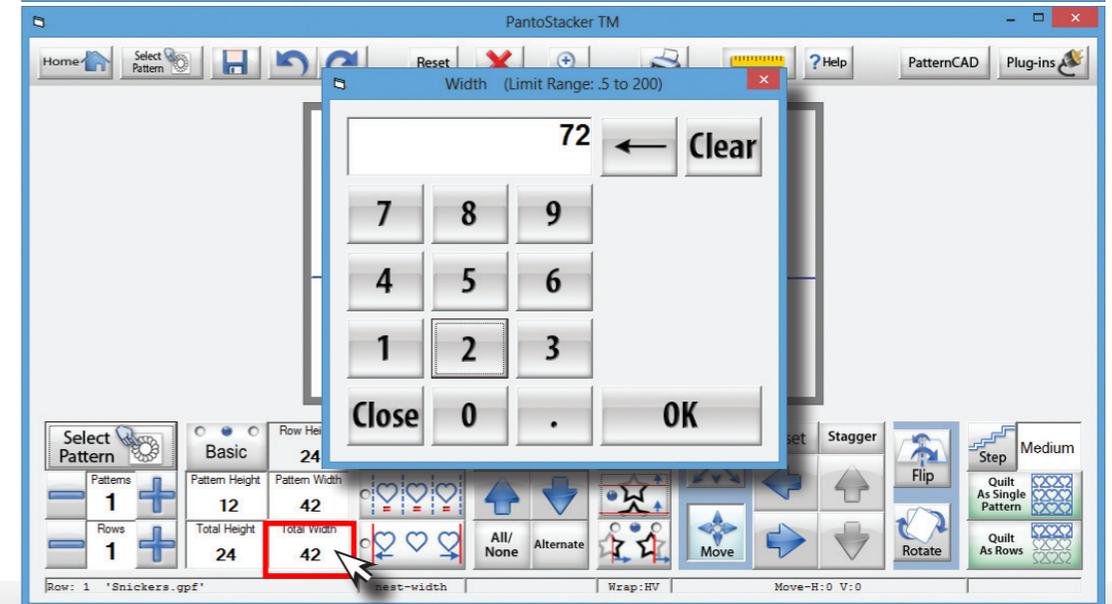
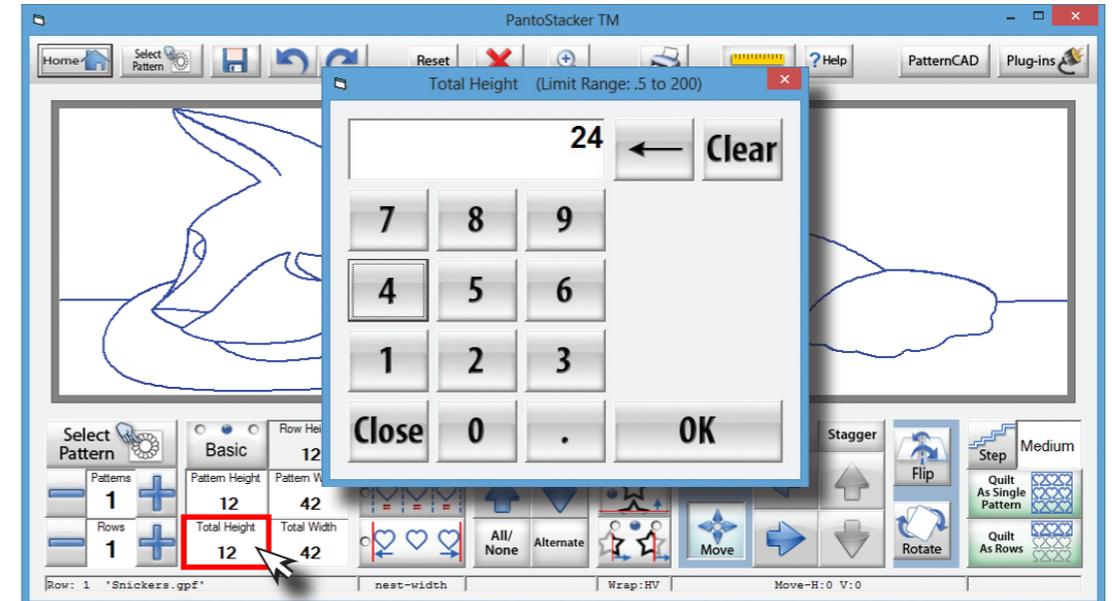
This mode will not automatically add patterns or adjust the pattern dimensions.

## Step 2

Tap on the 'Total Width' box, this will display a screen you can enter the width of your pantograph.

Here you are going to set it to 72.

Once you click OK you should now see your pantograph setup with the size 24" x 72", with one pattern and one row.



# Basic Mode: Pattern Size

The Basic Mode allows you to change the size of your pattern. However, the size of the pattern cannot be changed when the Nested option is selected. By default this option will be set to Nested by Width, to change the pattern width click a different nested style. For this example we will use the Evenly Spaced Nested Option.

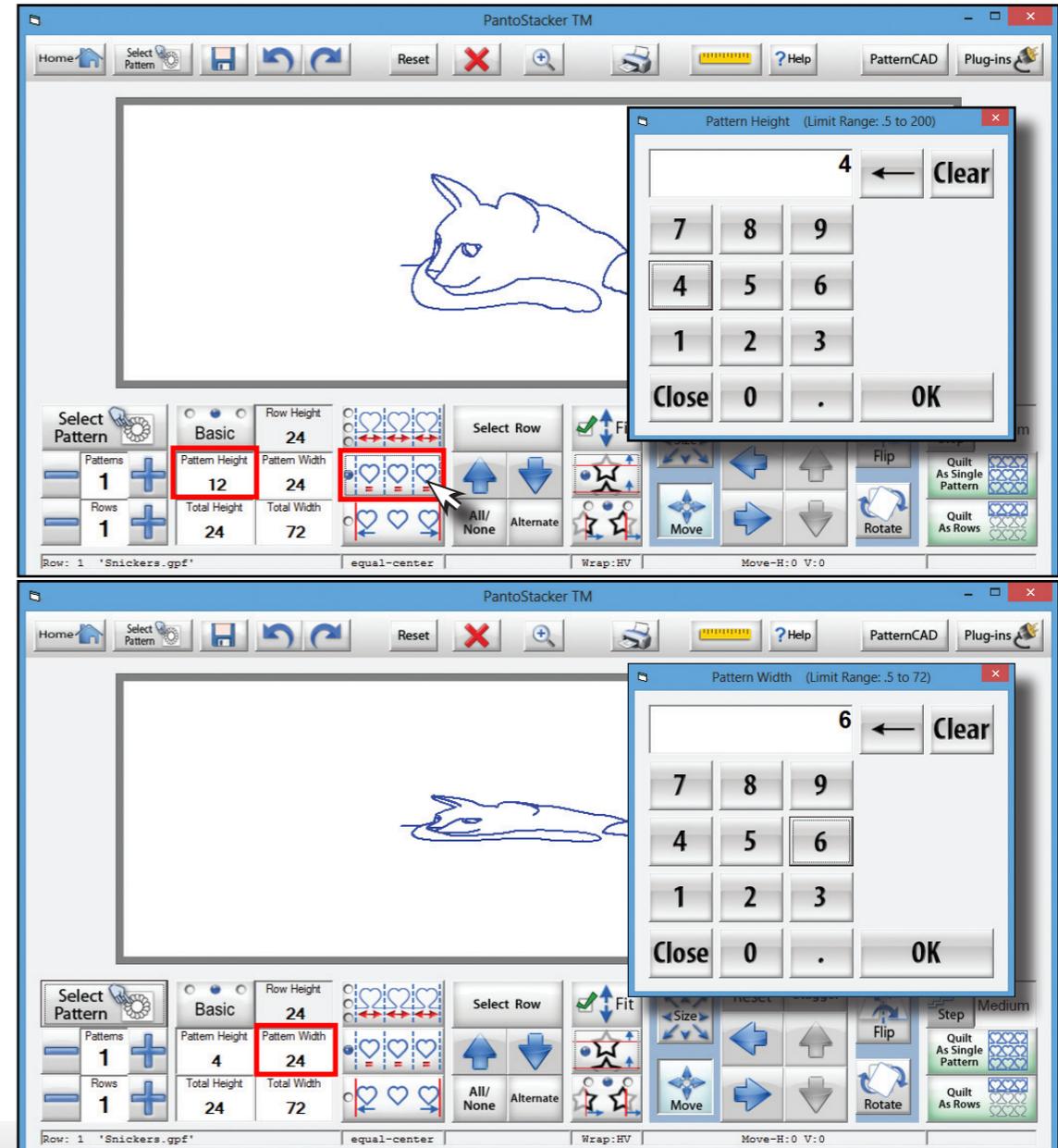
## Step 1

Click the "Pattern Height" box, this will display a screen you can enter the width of your pantograph, type in 4 and click OK.

## Step 2

Tap on the 'Pattern Width' box, this will display a screen you can enter the width of your pantograph. Set the width to 6 and click OK.

Once you click OK you should now see your pattern setup with the size 4" x 6", with one pattern and one row.



# Basic Mode: Pattern Count

Now, one pattern on a pantograph is not that interesting especially that small, so let's add some more.

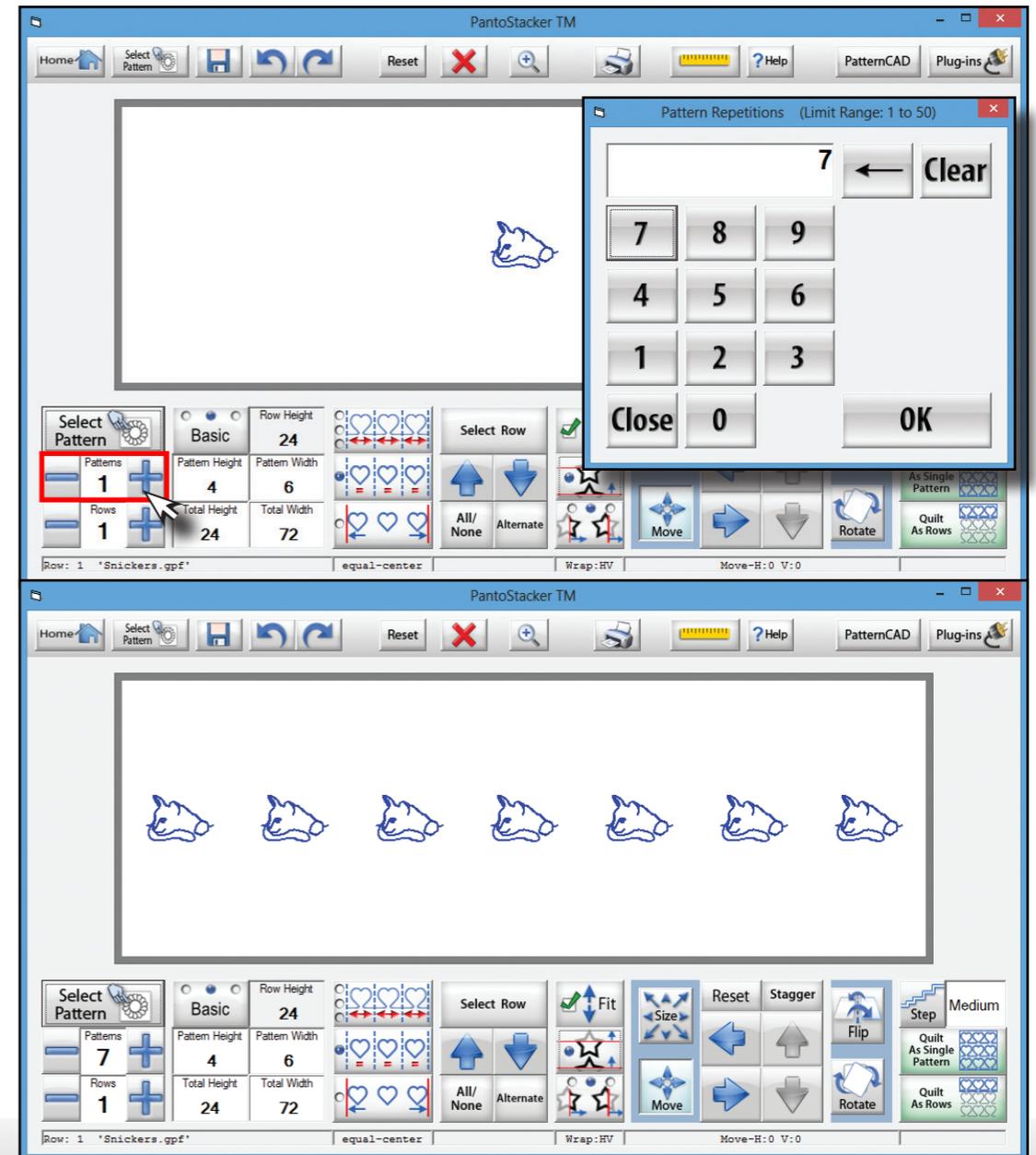
To add or take away patterns you can tap the - or + symbols under the Select Pattern icon. This will add one pattern at a time.

Another way to change the number of patterns on the pantograph is to tap the number that is being displayed for the patterns, this will open a box and allow you to type in a number.

Go ahead and set it to 7 patterns using the + or by typing in the amount.

Looks good for some small cats right? From here you do have the ability to sew what you currently have setup, but there are many more things that can be done with this pantograph.

Let's take a look at rows, nested styles, pattern wrapping, and much more.



# Basic Mode: Rows

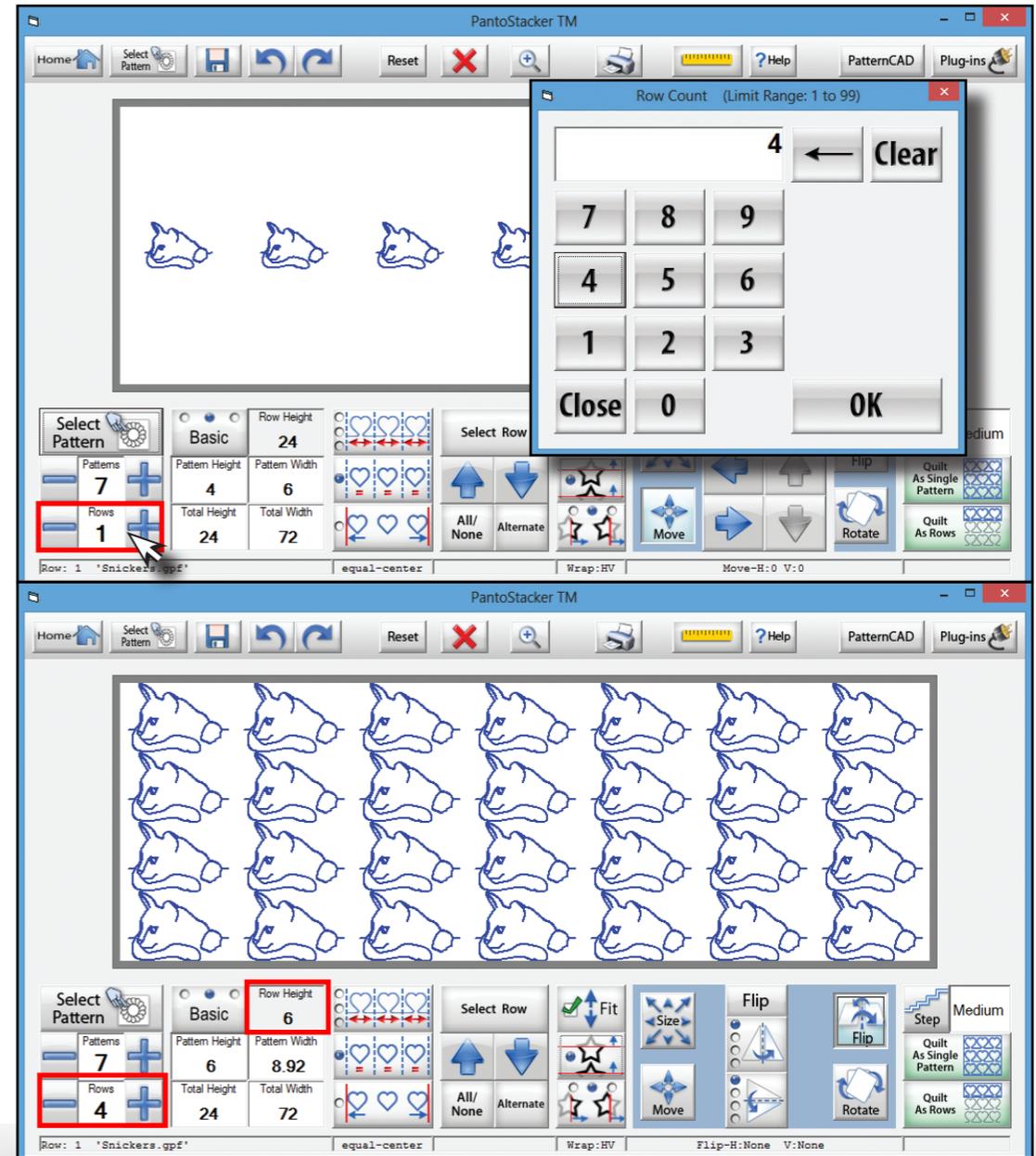
Just below the Pattern Count option there is one that says Rows.

This works similar to the Pattern Count. You can use the - or + key to add a row or remove a row. You can also click on the number that displays the current amount of Rows and type in the number of Rows you want to your pantograph to have.

For this example I want to make four Rows.

- Click the + symbol, or type in the number four for the rows. And you will see that the Pattern Height and Width has changed. This change is related to the rows that have been added, the program is trying to fill the pantograph with the most patterns that it can. You can change the Pattern Height back to whatever you prefer, but you cannot change the Row Height.

The Row Height is your Total Height divided by the number of Rows you have.



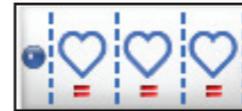
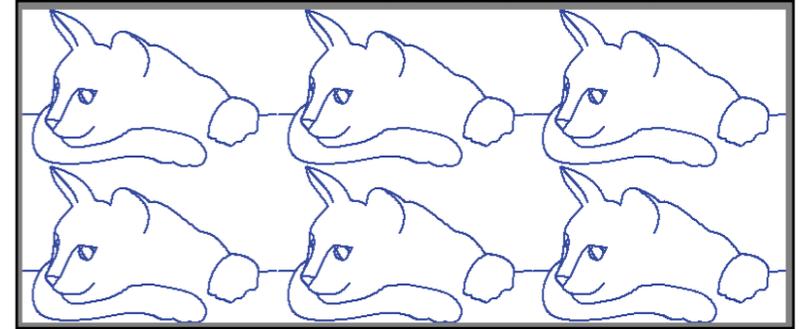
# Basic Mode: Nesting

- **Nested** — The patterns will stretch to connect within the pantograph, and the pattern edges will line up to the next pattern. With this option, the pattern will lose its aspect ratio depending on how many patterns are in the block.
- **Centered** — The patterns are evenly spaced and centered in the pantograph.
- **Edge** — The patterns will be evenly spaced, but the outside patterns will touch the side of the pantograph edge.

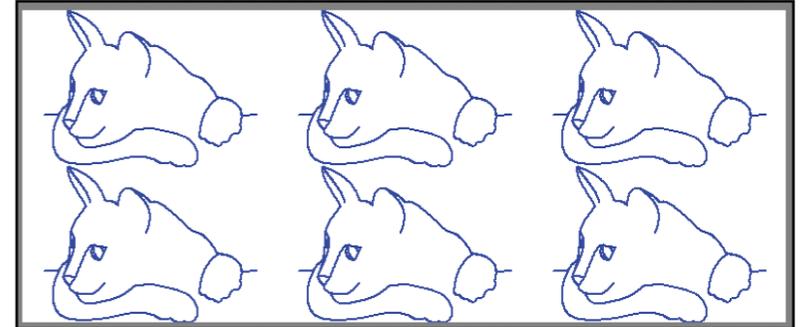
When you have the Nested option selected the patterns are automatically being sized so that the start and end points connect to make one continuous line. Therefore the system removes the ability to change the width of the pattern.



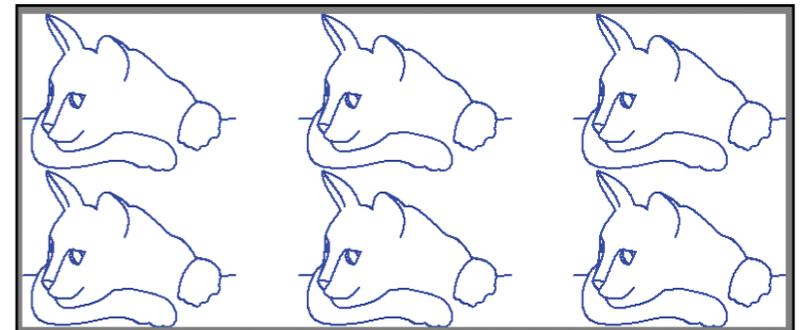
1. Nested



2. Centered



3. Block Edges



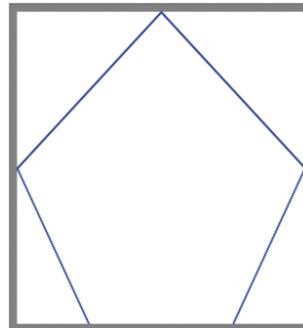
# Basic Mode: Nesting Continued

There are some patterns that do not display well using the main Nested option, but depending on your pattern there are 3 types of Nested options;

- **Fit** - Creates an overlapping repeating pattern using the maximum number of patterns that will fit inside the pantograph.
- **By Ends** - Creates an overlapping repeating pattern that will wrap around the pantograph with the maximum number of patterns that are required to fill the entire pantograph.
- **By Width** - Using the total width of the pattern the pantograph will create a non overlapping repeating pattern.

Be sure to try all three, if the current one you are using just isn't doing what you want it to.

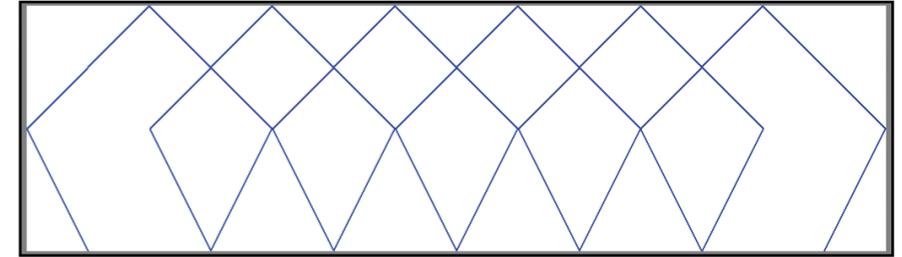
We are going to use a pattern made by someone in this example, as this is the time when the issue will most commonly arise.



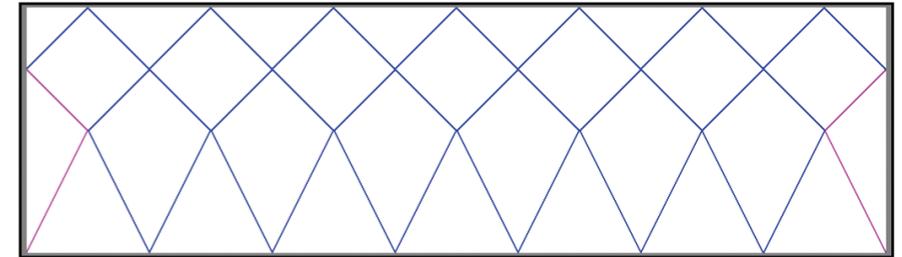
Original Pattern



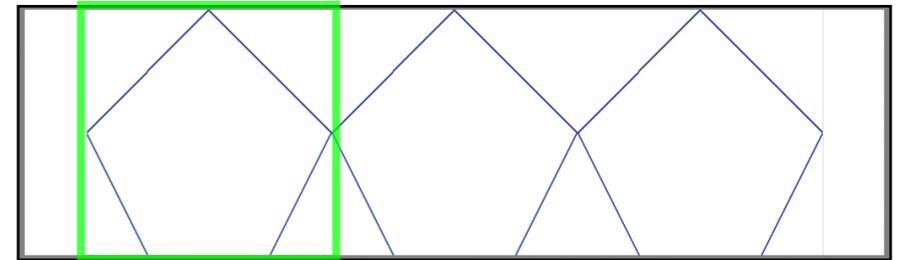
Fit



Ends



Width



The green box represents the width of the pattern.

You can see that the three different Nested Options treat the pattern differently.

# Basic Mode: Row Selection

The Select Row button allows you to individually select a row to modify, you can also navigate up and down the Rows you have created by using the Up and Down arrows.

- **All/None** — This option allows you to select all rows or none of them. A great tool for when things get cluttered.
- **Alternate** — Selects the Alternate rows you currently have selected. This will be used often when staggering rows on a Pantograph.

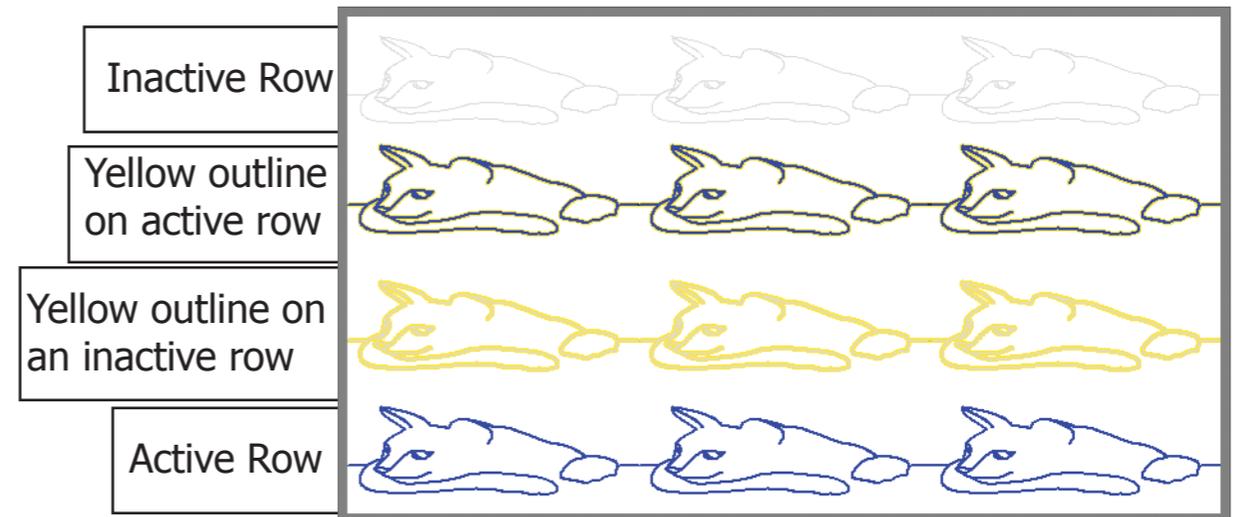
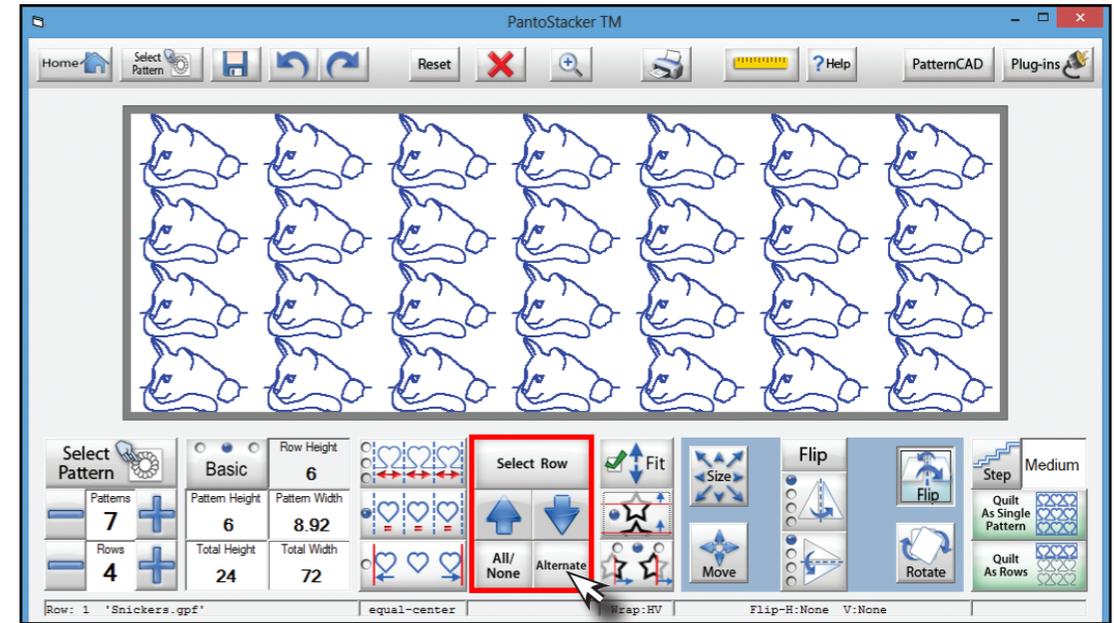
Staggering will be covered here.

By selecting a single row one at a time you are able to change the pattern count, pattern size, and position of the pattern in that row.

You can use the Select Row button in combination with the Up and Down arrows to select or modify the rows, or select a row by tapping on it.

When selecting a row, the yellow outline around the pattern indicates the row can be selected or deselected.

When a row has been selected the pattern will be outlined in blue, and any changes you make to the pantograph will only effect those rows.



# Basic Mode: Fit and Pattern Wrapping

- **The Fit feature**

When enabled: Makes it so the pattern will fit inside the Total Height and Width of the pantograph. This will also effect the unselected patterns as they will change size to accommodate for the patterns that are being modified.

If the option is disabled, or unchecked the pattern will grow in size but will remain centered in it's row.

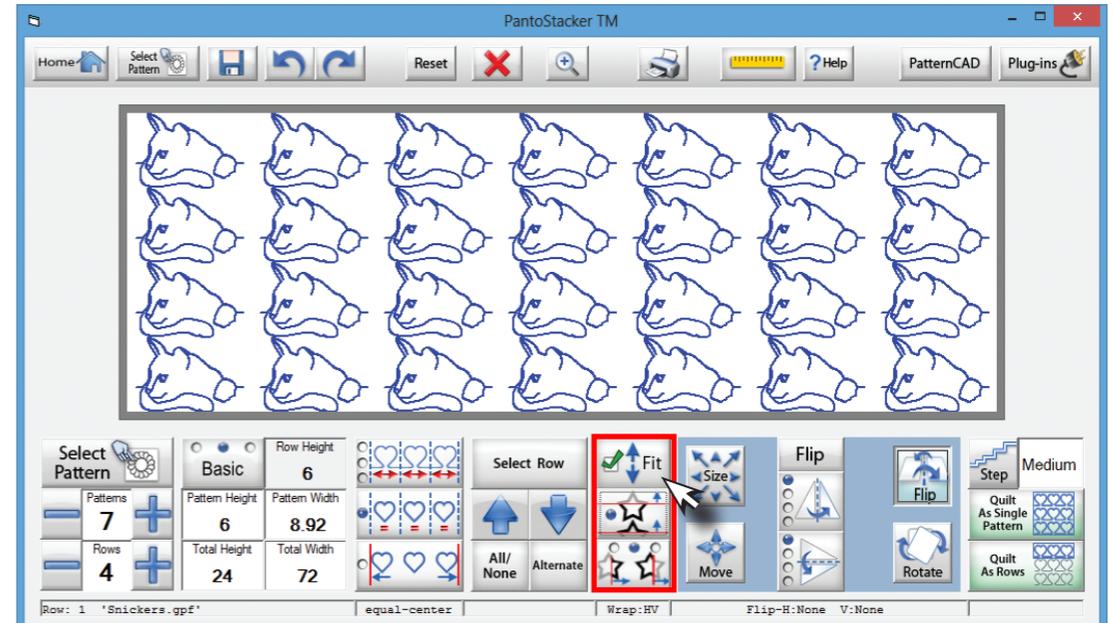
- **Pattern Wrapping: Vertical**

When enabled: If the pattern becomes taller than the Total Height, or is moved to the edge of the pantograph, the pattern will 'wrap' from the top and come through on the bottom of the pantograph. At the same time, the bottom of the pattern will 'wrap' to the top of the pantograph.

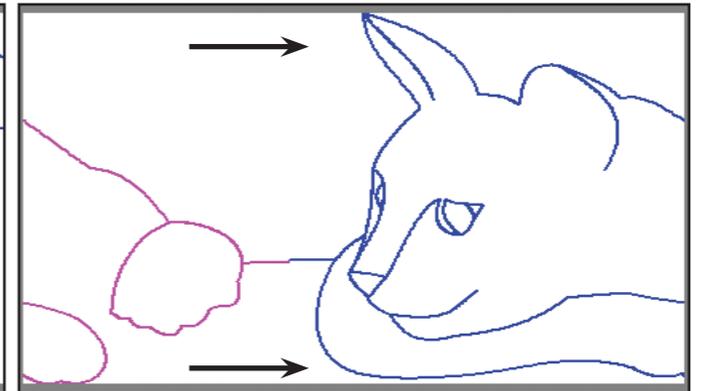
Enabled



Disabled



Vertical Wrapping



Horizontal Wrapping

The portion of the pattern in pink represents what has been wrapped around the pantograph.

# Basic Mode:

## Fit and Pattern Wrapping Continued

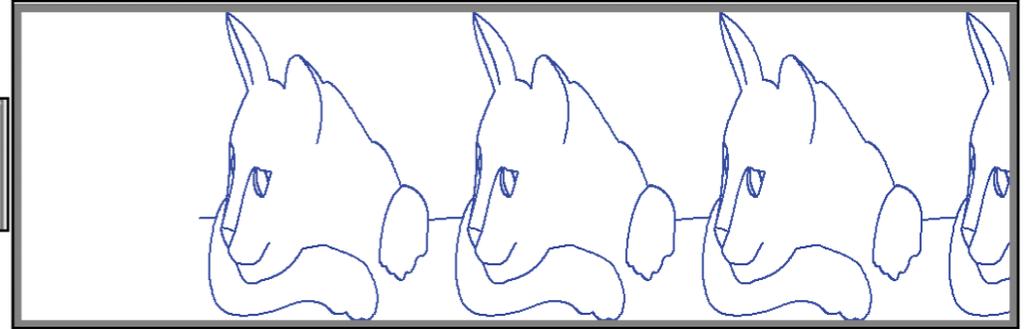
- **Pattern Wrapping: Horizontal**

There are three modes for the Horizontal wrapping:

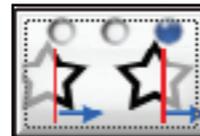
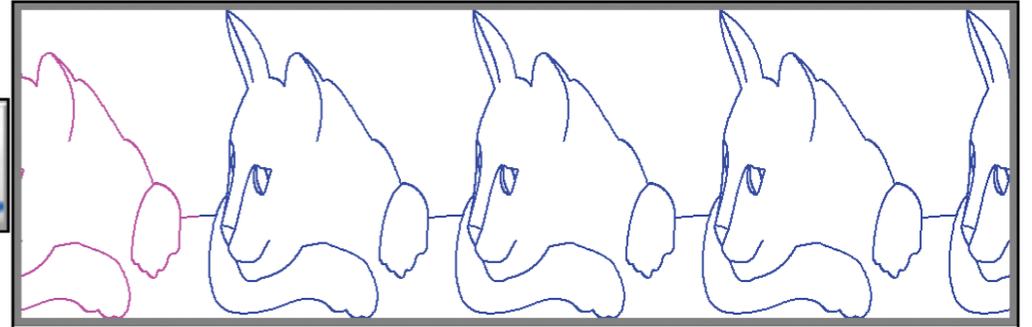
- 1. Disabled** - When this setting is enable no horizontal wrapping will occur, left or right. If part of the pattern is cut off the software will leave it there to be sewn.
- 2. Enabled**- If the pattern becomes wider than the maximum width, or is moved beyond the edge of the pantograph, the pattern will 'wrap' from the right and come through on the left of the pantograph. At the same time, the left of the pattern will 'wrap' to the right of the pantograph. By default this option will be selected.
- 3. Smart Wrap** - This will remove a pattern that is not a complete pattern, any amount of the pattern that is cut off due to wrapping will be removed.



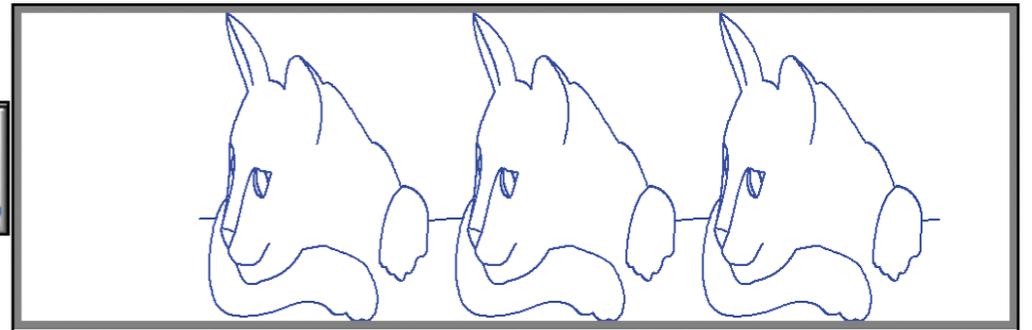
1



2



3

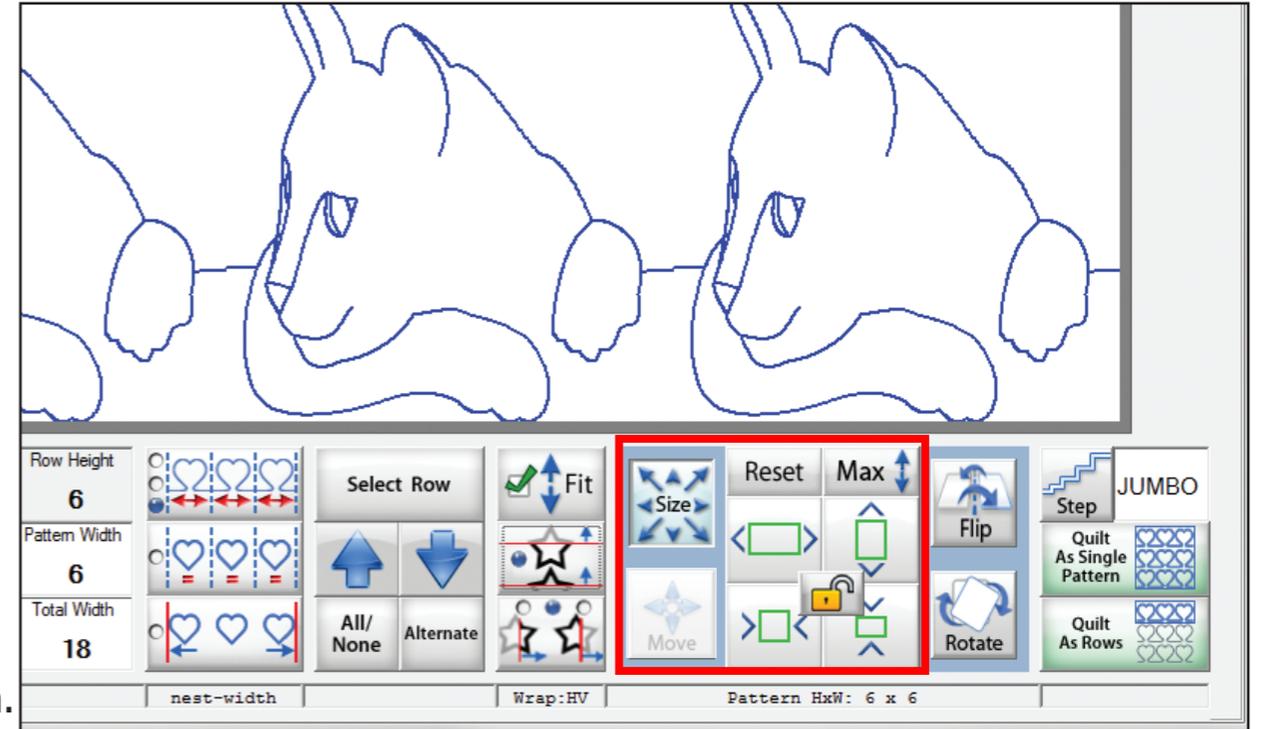


The portion of the pattern in pink represents what has been wrapped around the pantograph.

# Basic Mode: Size

The Size option allows you to change the height and width of a selected pattern, row, or the entire pantograph.

- **Reset** — Resets the pattern to default size.
- **Max** — Changes the pattern size to match the Total Height.
- **Increase Width** — Increases the width of the selected pattern.
- **Increase Height** — Increases the height of the selected pattern.
- **Decrease Width** — Decreases the width of the selected pattern.
- **Decrease Height** — Decreases the height of the selected pattern.
- **Aspect Ratio Lock** — Locks the Aspect Ratio of the pattern, any changes you make to the height will be reflected by the width. And in turn any changes to the width will change the height.

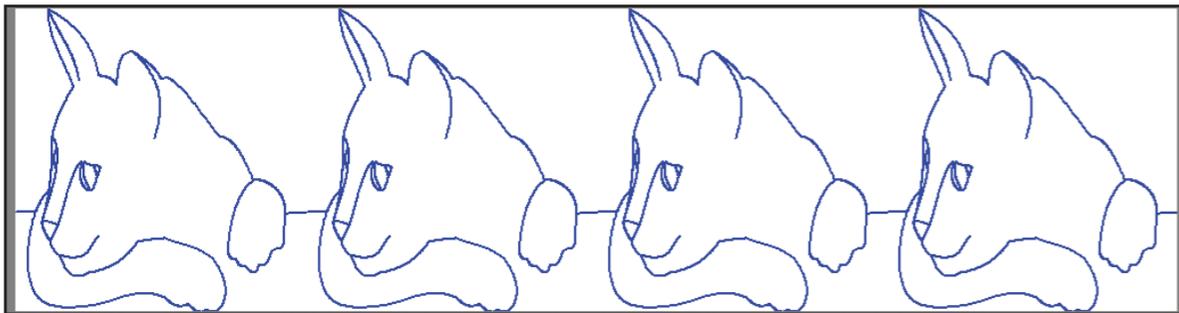


# Basic Mode: Flip

We can flip patterns for the entire row, or every other pattern in the row vertically and horizontally. There are three ways in which the flip feature works.

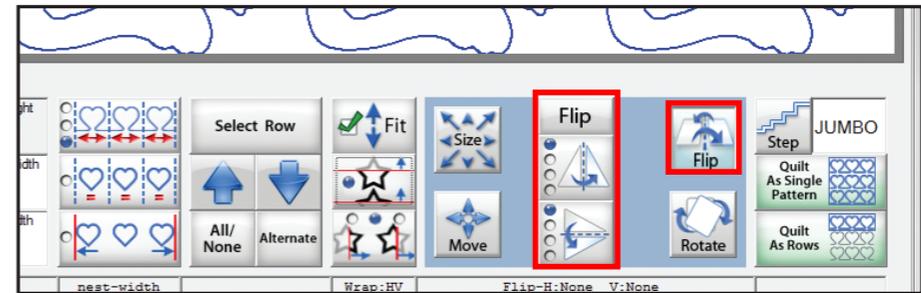
- **Tap once** — Flips all patterns.
- **Tap twice** — Only flips the odd numbered patterns: 1,3,5,7,9.....
- **Tap three times** — Only flips the even numbered patterns: 2,4,6,8,10.....

The same rules apply to both horizontal and vertical.



Original Orientation

If you tap the "Flip" icon all flips that have been added will be reset and the pattern will be set to its original orientation.



Horizontal Flip →

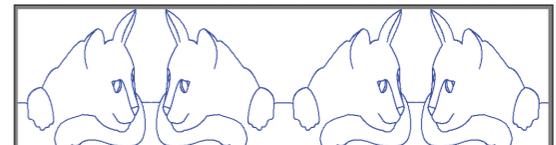


One tap : All

Vertical Flip →



Horizontal Flip →

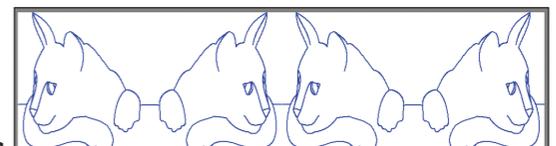


Two Taps : Odds

Vertical Flip →



Horizontal Flip →



Three Taps : Evens

Vertical Flip →

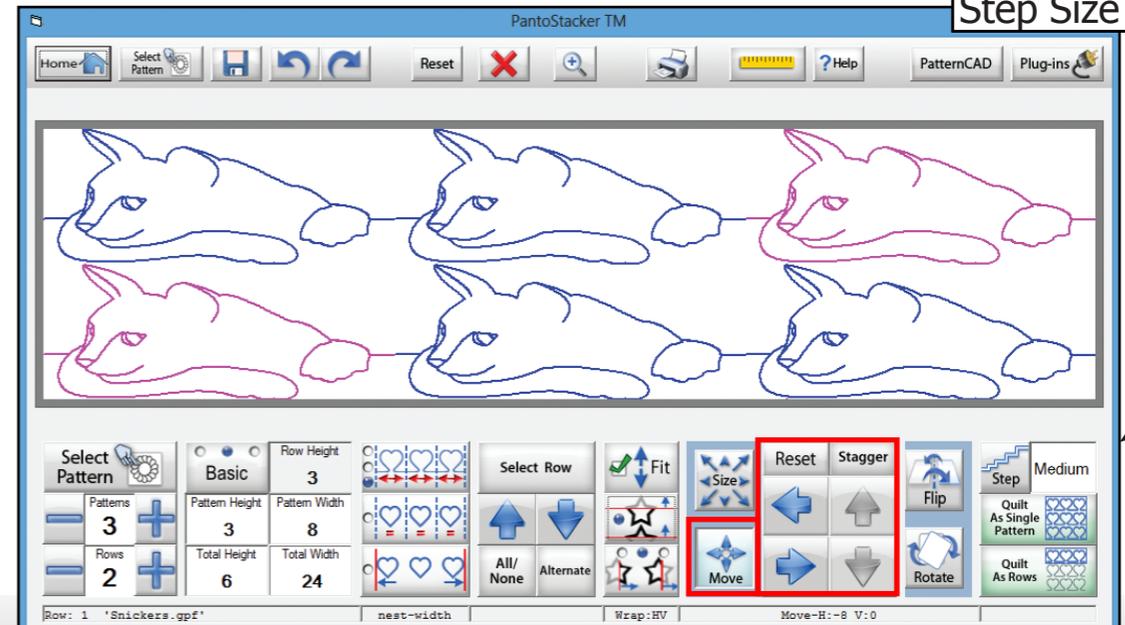
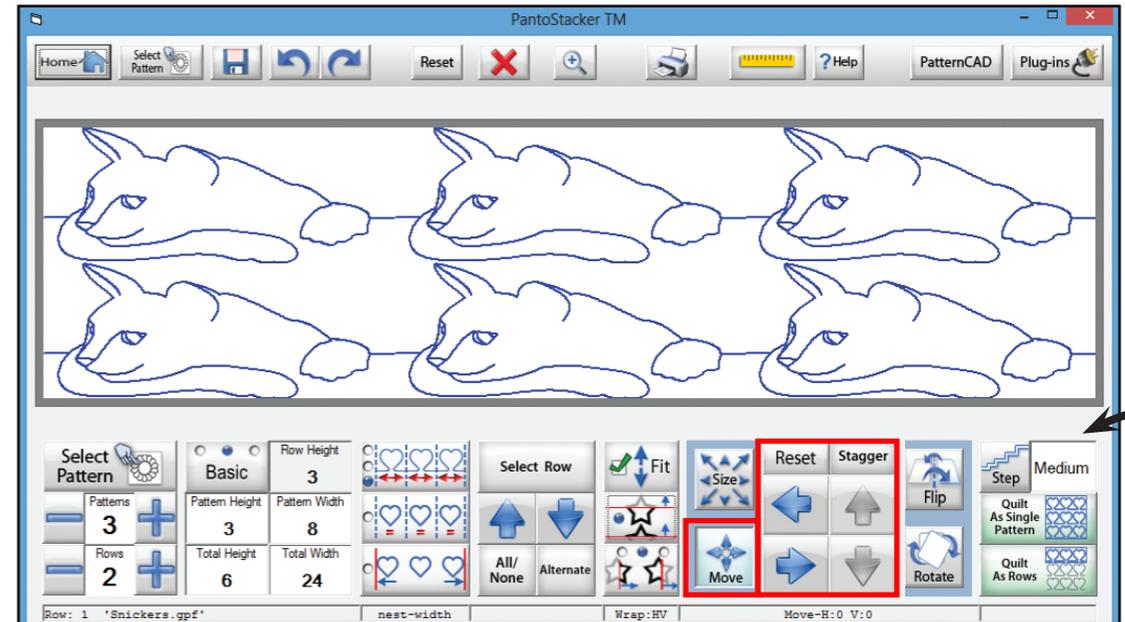


# Basic Mode: Move

You can change the location of the patterns left to right at anytime. There are two key things to point out; Take note of your step size, the movement of the pattern is based on this setting. If you want the pattern to wrap around, please make sure the Pattern Wrapping option is enabled.

In this example we set the Step Size to medium, tapped the right arrow about 10 times. With Row Wrapping enabled you can see the right is now partially on the left side on the top row, and the opposite on the bottom row.

If you tap the "Reset" button, the pattern will move back to its original location.



Step Size

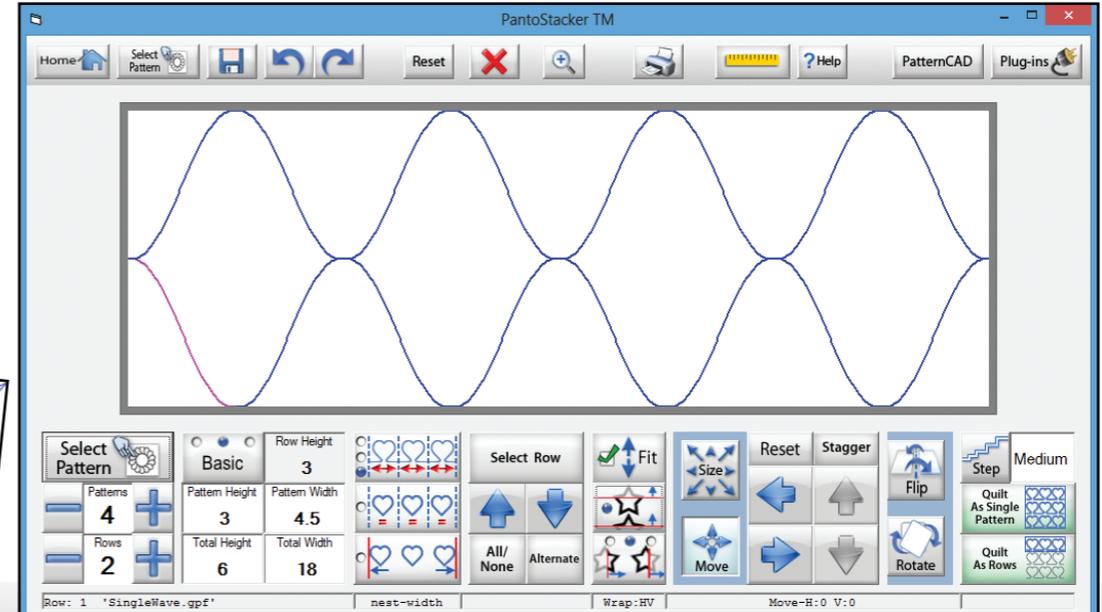
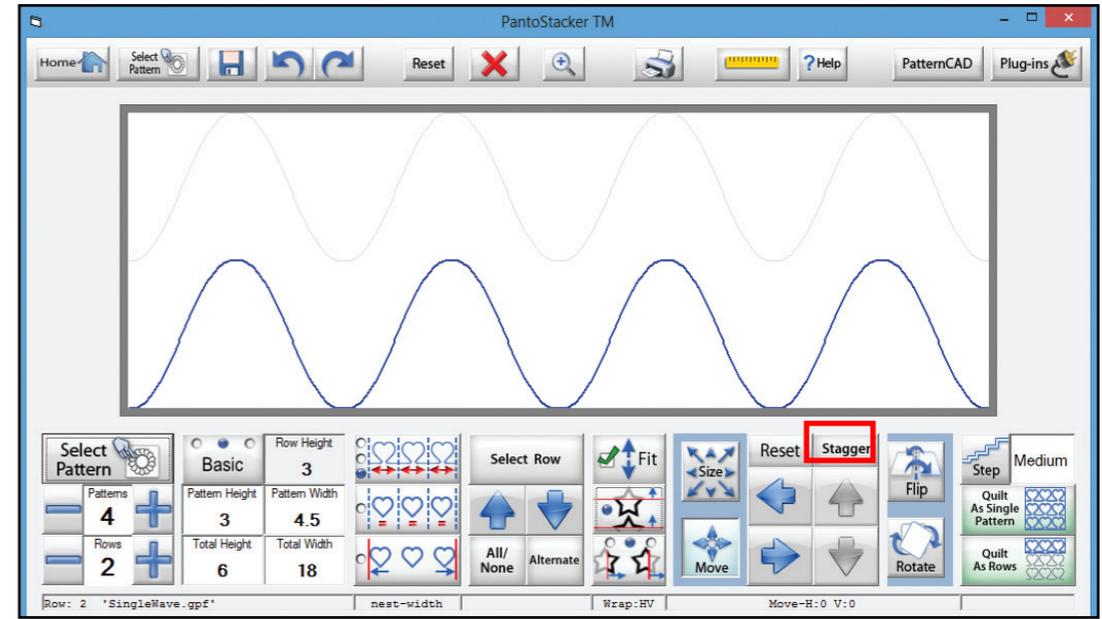
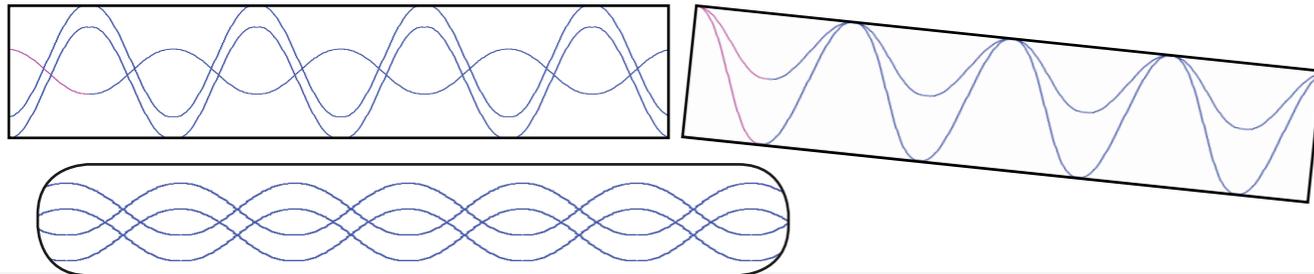
# Basic Mode: Stagger

The Stagger option is a new feature in the PantoStacker™ section of the software.

With one click of the button you can quickly align alternating rows and have the patterns Staggered by centering the row below or above to the middle of the pattern on the opposing row.

1. Choose the pattern file, here we will use SingleWave.gpf.
  2. Set the pantograph to two rows with four patterns per row.
  3. Click the Alternate button under the Select Row option. It will deselect the odd numbered rows and even numbered rows selected.
  4. Click the Stagger option.
  5. Click All under the Select Row option.
- This option makes it possible to use any simple continuous line pattern and turn them into a unique and original creation.

The possibilities are endless.



# Basic Mode: Rotate

You can also rotate the patterns in the pantograph. The value in the middle of the arrows to rotate the pattern is the current degree of rotation the pattern is set to, by default it will be zero.

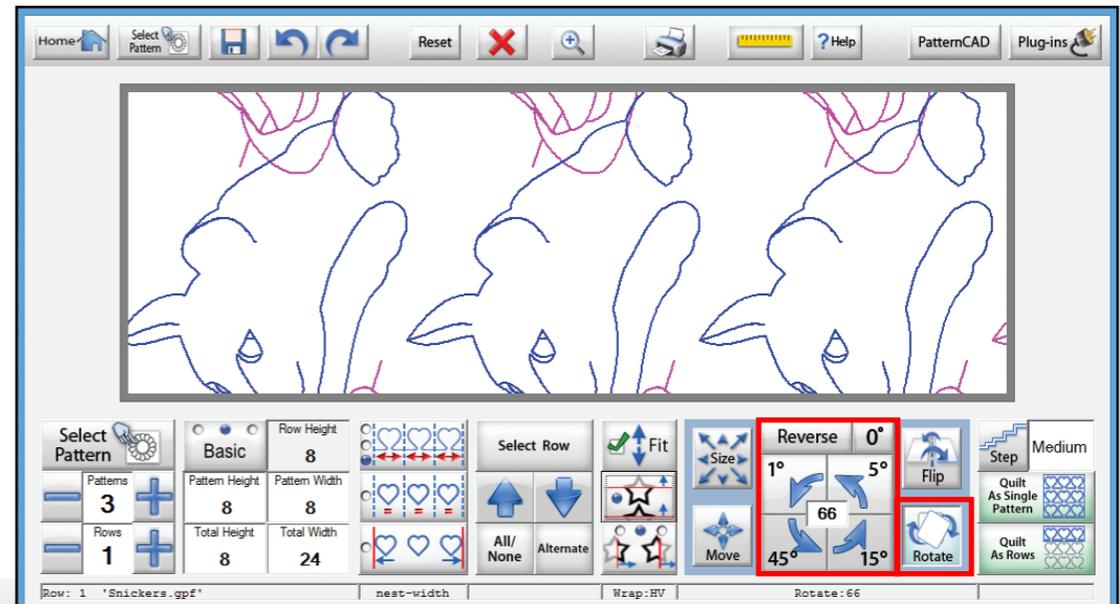
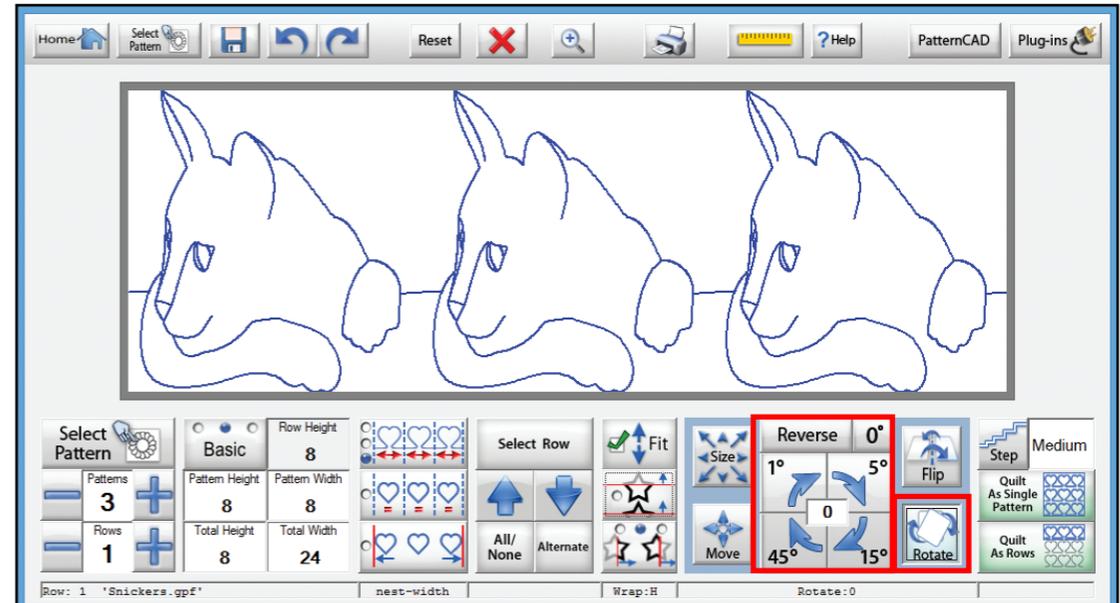
The pattern can be rotated in increments of 1, 5, 15, and 45 degrees. By default the rotation will be set so the pattern rotates to the right, this can be changed by tapping the "Reverse" icon. You will notice the direction of the arrows changes when this icon is tapped.

Just to see how it all works, lets set this pantograph to have a 66° angle to the pattern.

1. First tap the Reverse icon.
2. Now tap each increment one time, 1, 5, 15, and, 45.

Now if you still have Pattern Wrapping enabled you will see the parts of the pattern that were cut off are now coming through the other side of the pantograph.

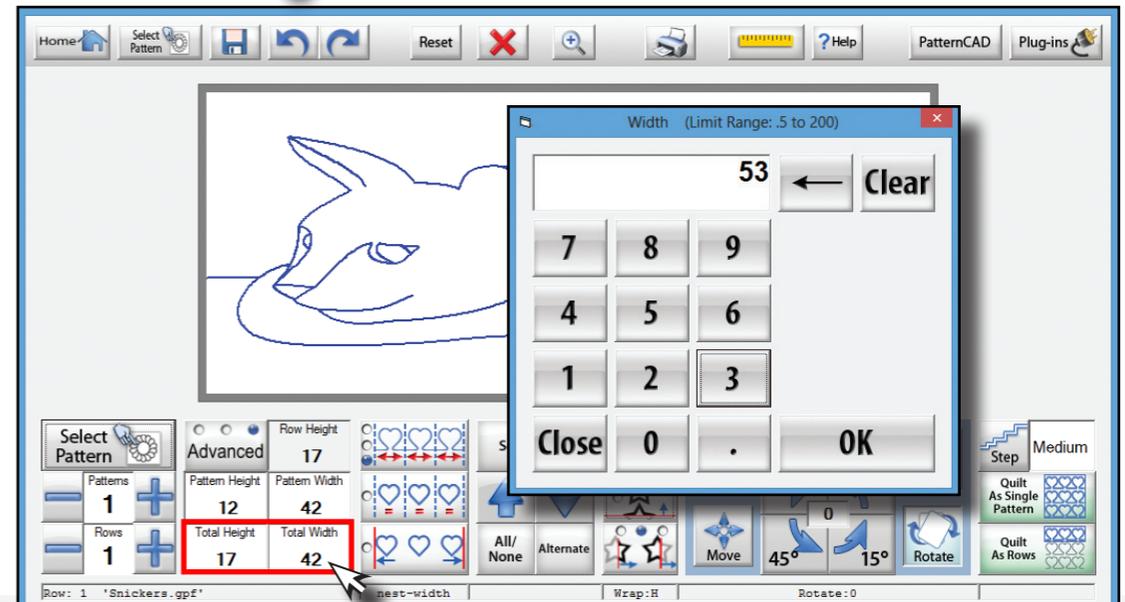
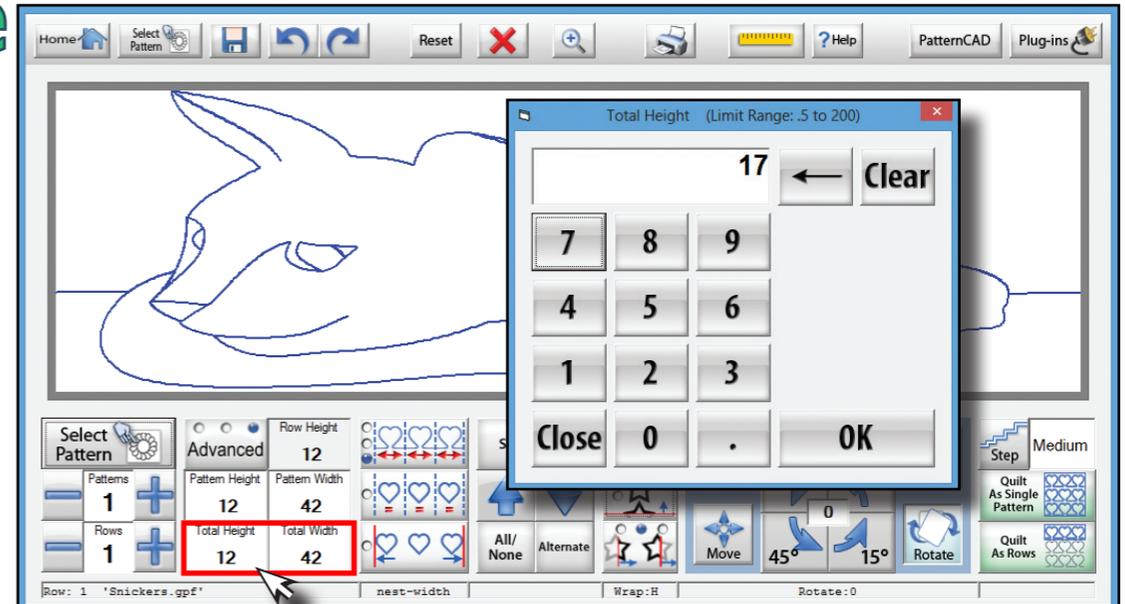
The last option is the 0° icon, by tapping this it will reset the orientation of the pattern back to zero.



# Advanced Mode: Pantograph Size

The Advanced mode offers the most control and features that can be applied to the patterns and pantograph. You must set your safety area, those dimensions will be used for the pantograph layout. The advanced mode will not change the size of the pattern unless prompted to, such as a nested option or changing the size with the aspect ratio checked. The maximum height and width you can set is 200", and the minimum being 1". You can change these settings at any time to accommodate the patterns within the pantograph.

1. Select a Pattern file.
2. Tap on the 'Total Height' box this will display a screen you can enter the total height of your pantograph. For this example, we want to change the total height of the pantograph to 17". Type in 17 and click OK.
3. Notice that the Pattern Height is still 12", but the Row Height is 17". This is because the advanced mode is letting you set the exact size of the patter you want.
4. Now change the width. Tap on the 'Width' box, this will display a screen you can enter the width of our pantograph. Here you are going to set it to 53". The pattern width may change depending on your nested options.



# Advanced Mode: Pattern Count

To add or take away patterns you can tap the + or - symbols under the Select Pattern icon. This will add one or remove one pattern at a time.

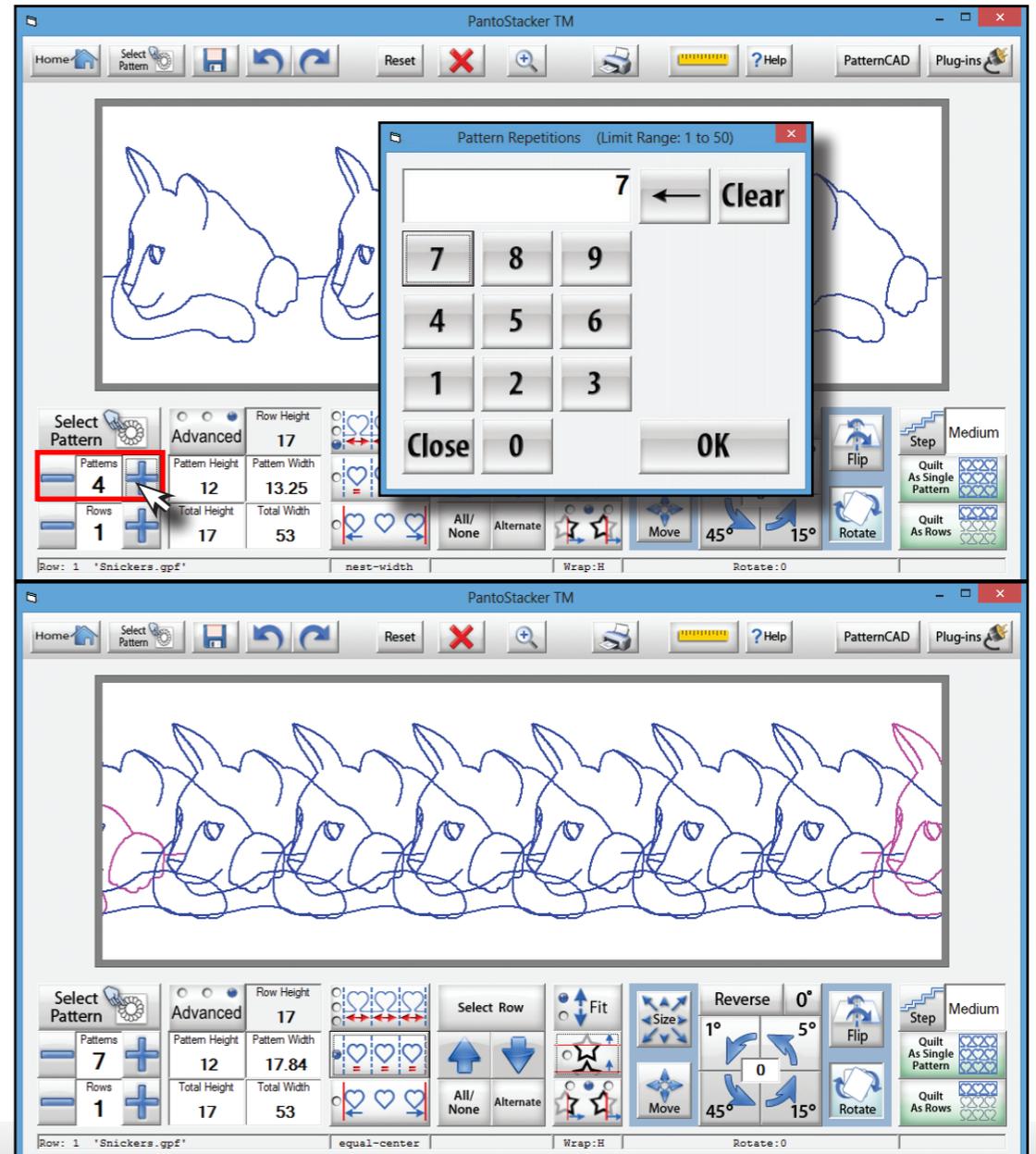
Another way to change the number of patterns on the pantograph is to tap the number that is being displayed for the patterns, this will open a box and allow you to type in a number.

Make sure you change your nested type, or the software will automatically add patterns.

- Change your Nested mode to Center or Edges.
- Set the pattern count to 7 by using the + or by typing in the amount.

You can see how the patterns have stacked on top of each other. This is due to the advanced mode not making changes to the pattern. You can resolve this a couple ways. You could change the nesting option, this would change the size of our pattern by changing the width.

Or you could change the size of the pattern or the pantograph with the dimensions you choose. All options would make the patterns fit better. Lets take a look at these methods and features.



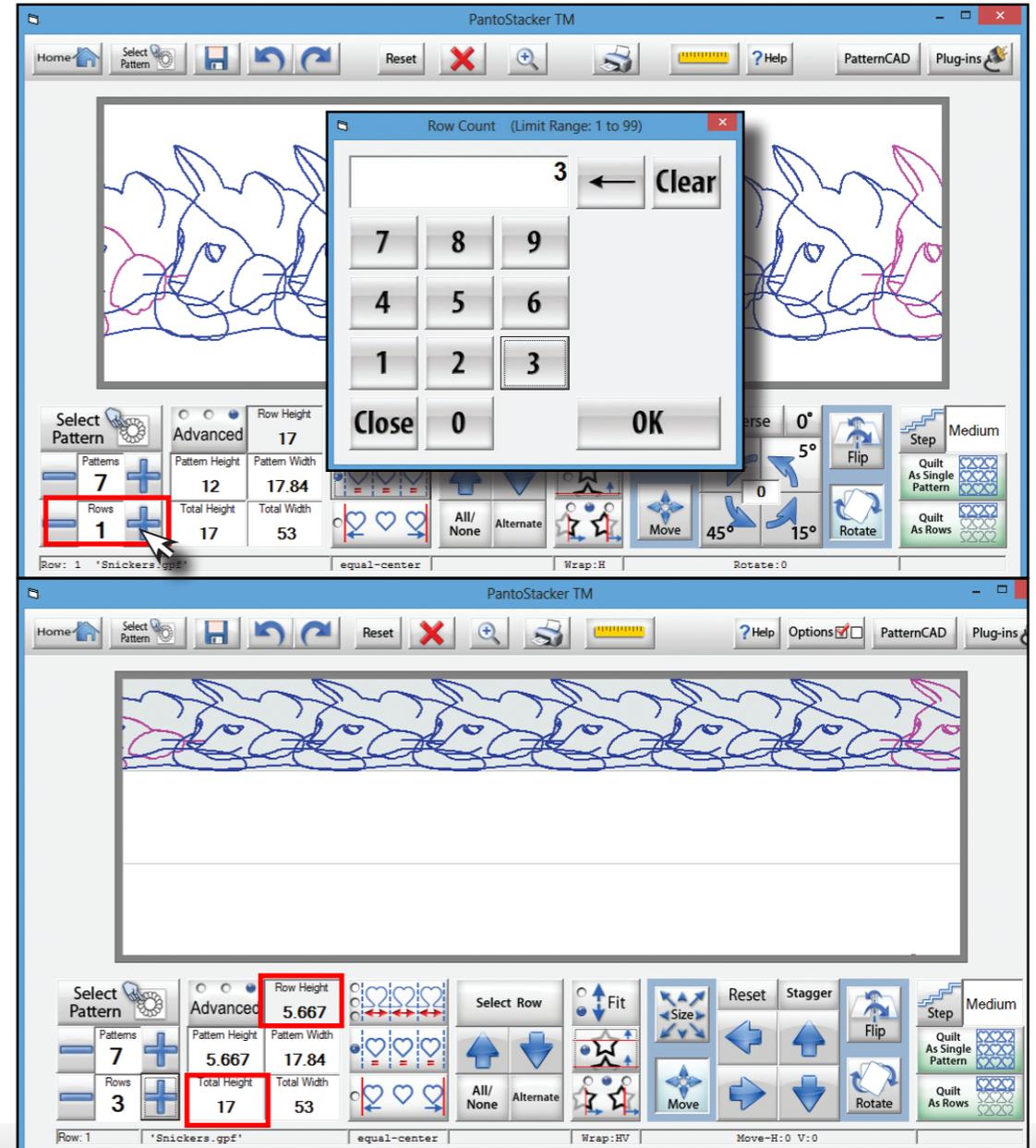
# Advanced Mode: Rows

Just below the Pattern Count option there is one that says Rows. This works similar to the Pattern Count. You can use the - or + key to add a row or remove a row. You can also click on the number that displays the current amount of Rows and type in the number of Rows you want to create.

Click the number in the Rows box or use the + symbol and make three rows.

Note that the Row Height is changing, this is related to the row(s) that have been added, but not the Pattern Height.

You will also see that there is only one pattern on the row. Advanced Mode allows you to choose different patterns for each row, so when a new row is added you have to set up that row's pattern information by selecting that row. You can add the same pattern or a different one.



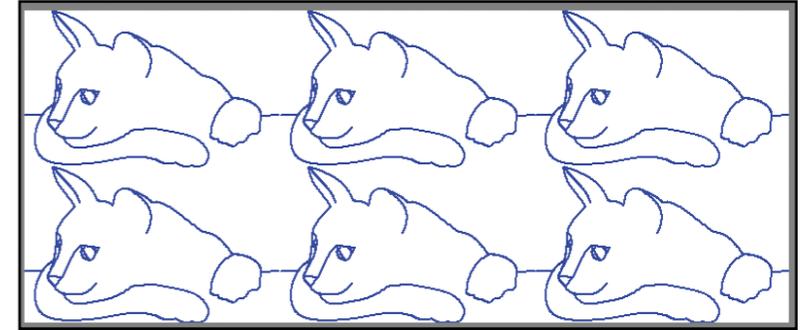
# Advanced Mode: Nesting

- **Nested** — The patterns will stretch to connect within the pantograph, and the pattern edges will line up to the next pattern. With this option, the pattern will lose its aspect ratio depending on how many patterns are in the block.
- **Centered** — The patterns are evenly spaced and centered in the pantograph.
- **Edge** — The patterns will be evenly spaced, but the outside patterns will touch the side of the pantograph edge.

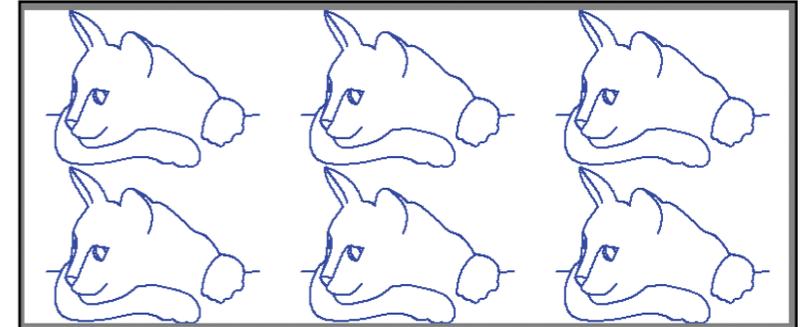
When you have the Nested option selected the patterns are automatically being sized so that the start and end points connect to make one continuous line. Therefore the system removes the ability to change the width of the pattern.



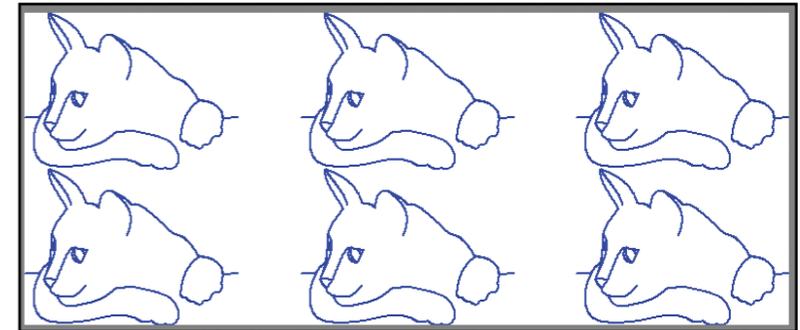
1. Nested



2. Centered



3. Block Edges



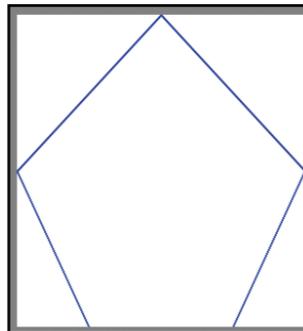
# Advanced Mode: Nesting

There are some patterns that do not display well using the main Nested option, but depending on your pattern there are 3 types of Nested options;

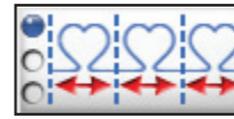
- **Fit** - Creates an overlapping repeating pattern using the maximum number of patterns that will fit inside the pantograph.
- **By Ends** - Creates an overlapping repeating pattern that will wrap around the pantograph with the maximum number of patterns that are required to fill the entire pantograph.
- **By Width** - Using the total width of the pattern the pantograph will create a non overlapping repeating pattern.

Be sure to try all three if it the current one you are using just isn't doing what you want it to.

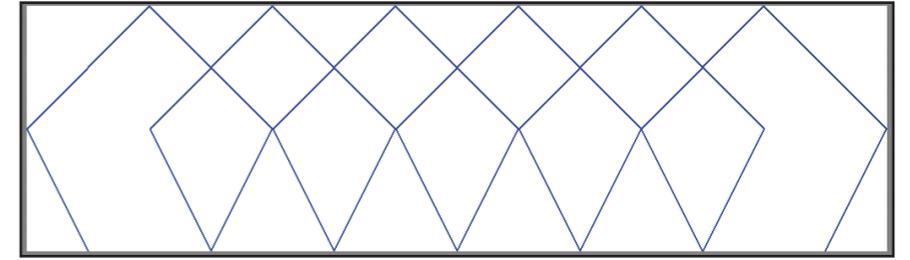
We are going to use a pattern made by someone in this example, as this is the time when the issue will most commonly arise.



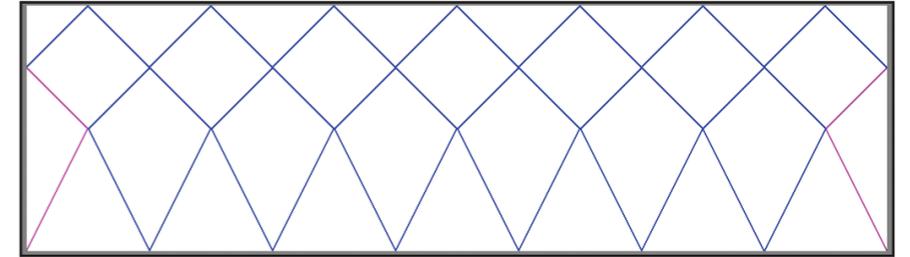
Original Pattern



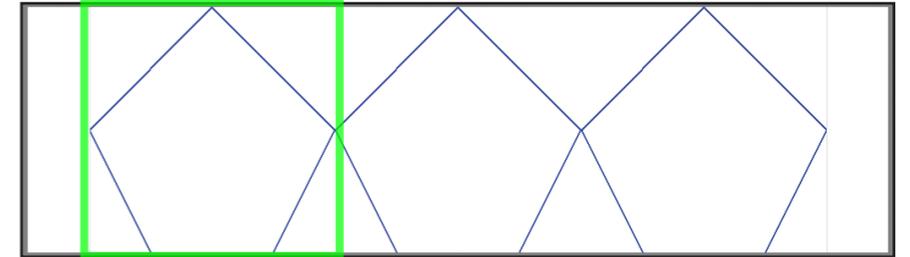
Fit



Ends



Width



The green box represents the width of the pattern.

You can see that the three different Nested Options treat the pattern differently.

# Advanced Mode: Row Selection

The Select Row button allows you to individually select a row to modify, you can also navigate up and down the Rows you have created by using the Up and Down arrows.

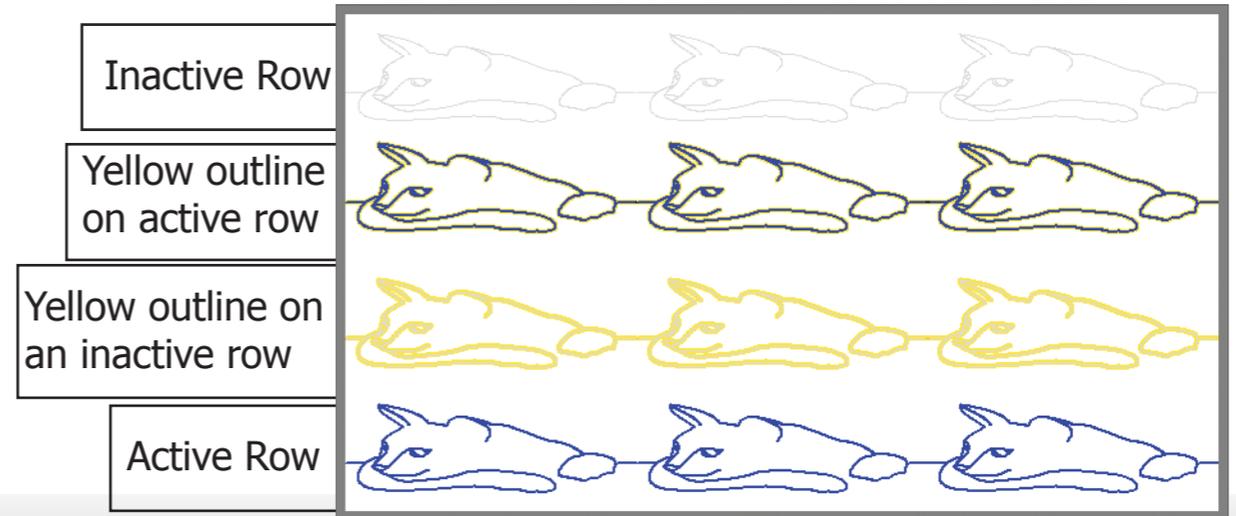
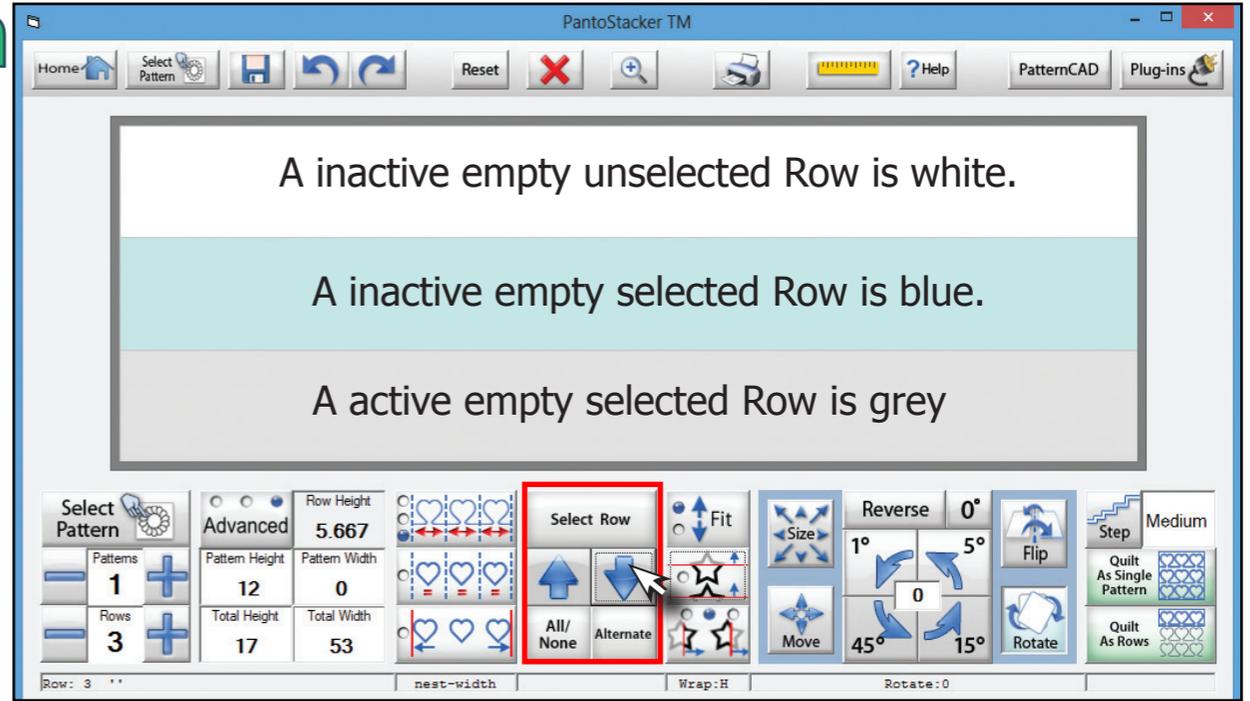
- **All/None** — This option allows you to select all rows or none of them. A great tool for when things get cluttered.
- **Alternate** — Selects the Alternate rows you currently have selected. This will be used often when staggering\* rows on a Pantograph.

By selecting a single row one at a time you are able to change the pattern count, pattern size, and position of the pattern in that row.

You can use the Select Row button in combination with the Up and Down arrows to select or modify the rows, or select a row by tapping on it.

When selecting a row, the yellow outline around the pattern indicates the row can be selected or deselected.

When a row has been selected the pattern will be outlined in blue, and any changes you make to the pantograph will only effect those rows.



# Advanced Mode: Fit and Pattern Wrapping

- **The Fit feature**

**Option 1:** Makes it so the pattern will fit inside the Total Height and Width of the pantograph. This will also effect the unselected pattern as they will change size to accommodate for the patterns that are being modified.

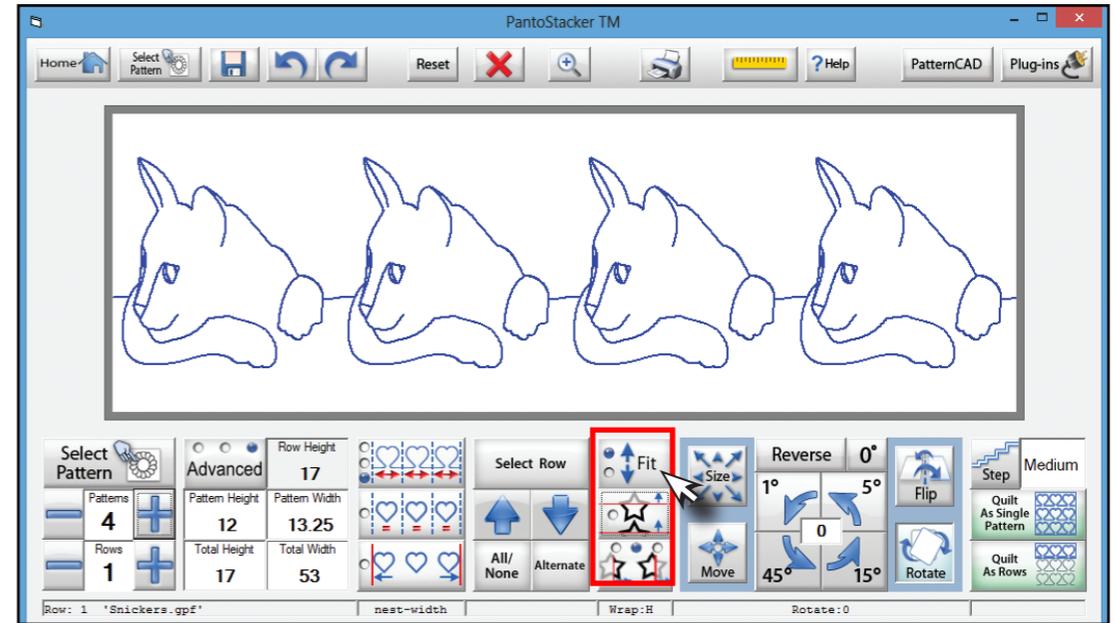
**Option 2:** The pattern will grow in size but will remain centered in it's row. The change in size will not effect unselected rows.

- **Pattern Wrapping: Vertical**

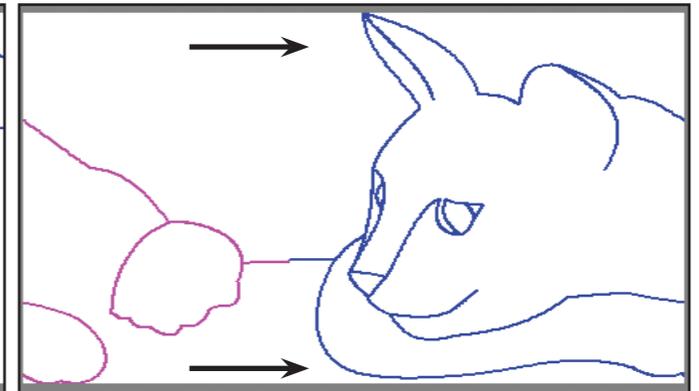
When enabled: If the pattern becomes taller than the Total Height, or is moved to the edge of the pantograph, the pattern will 'wrap' from the top and come through on the bottom of the pantograph. At the same time, the bottom of the pattern will 'wrap' to the top of the pantograph.

- **Pattern Wrapping: Horizontal**

When enabled: If the pattern becomes wider than the maximum width, or is moved beyond the edge of the pantograph, the pattern will 'wrap' from the right and come through on the left of the pantograph. At the same time, the left of the pattern will 'wrap' to the right of the pantograph.



Vertical Wrapping



Horizontal Wrapping

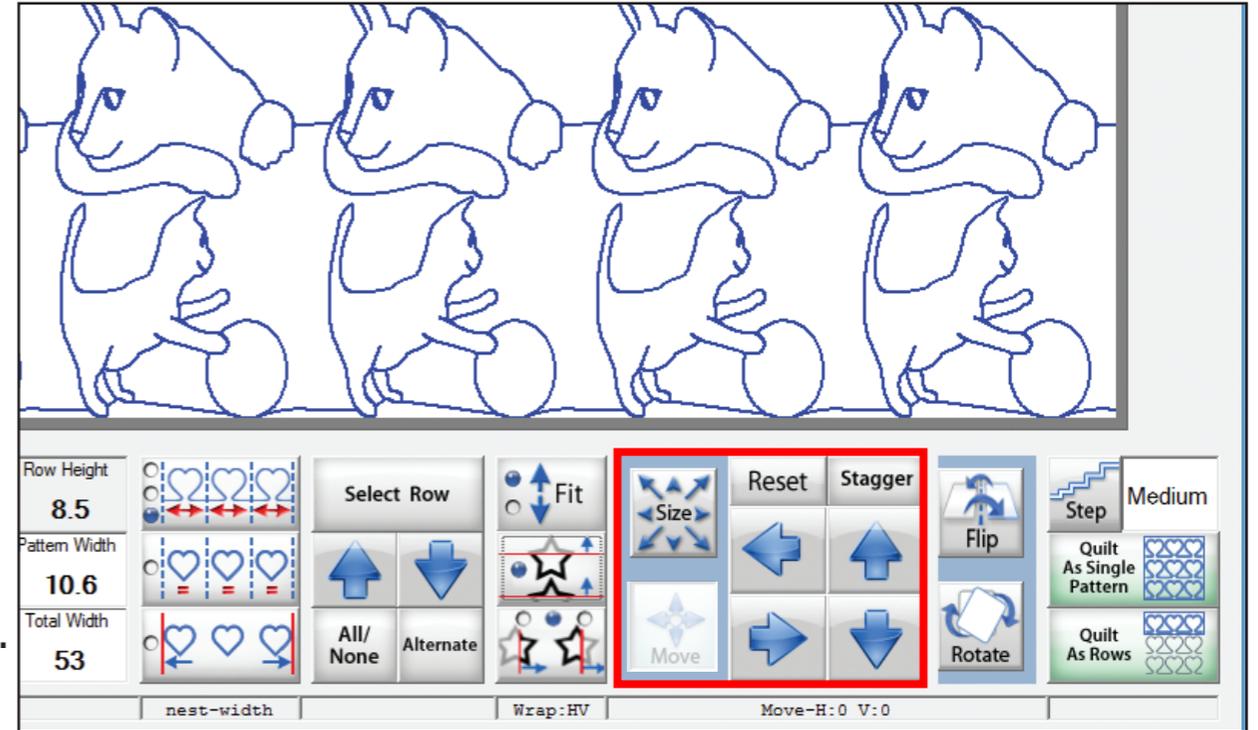
The portion of the pattern in pink represents what has been wrapped around the pantograph.

# Advanced Mode: Pattern Size

The Size option allows you to change the height and width of a selected pattern, row, or the entire pantograph.

To demonstrate, use the All/None feature to deselect all rows. Then click one row to work with. Change the Pattern count down to one.

- **Reset** — Resets the pattern to default size.
- **Max** — Changes the pattern size to match the Row Height.
- **Increase Width** — Increases the width of the selected pattern.
- **Increase Height** — Increases the height of the selected pattern.
- **Decrease Width** — Decreases the width of the selected pattern.
- **Decrease Height** — Decreases the height of the selected pattern.
- **Aspect Ratio Lock** — Locks the Aspect Ratio of the pattern, any changes you make to the height will be reflected by the width. And in turn any changes to the width will change the height.

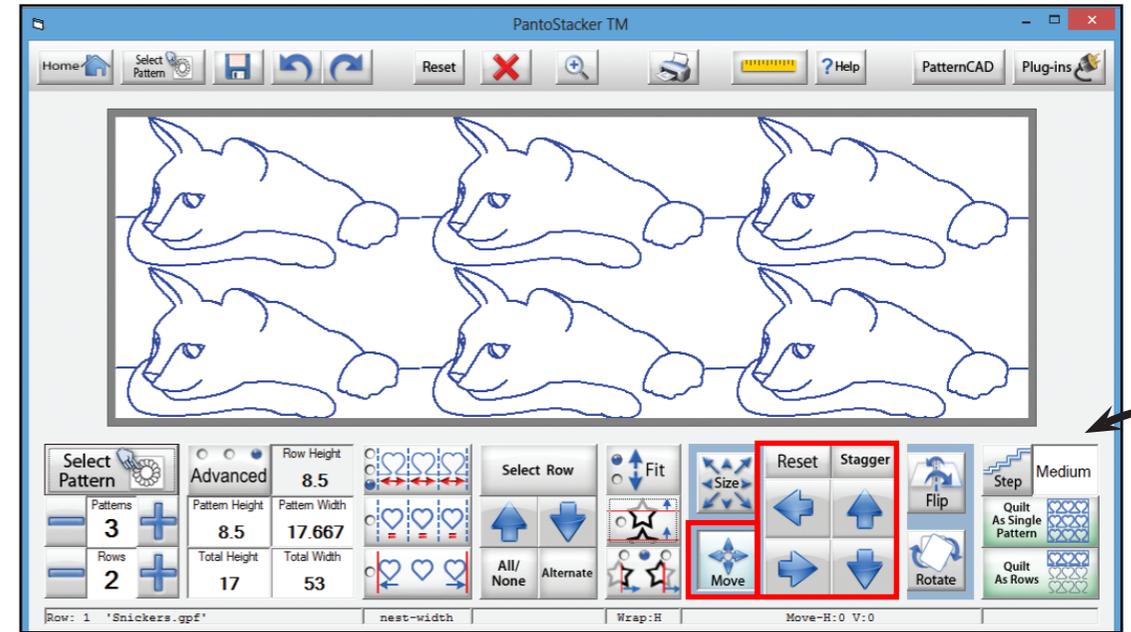


# Advanced Mode: Move

You can change the location of the patterns left to right at anytime, or up and down with the Advanced mode.

There are two key things to point out; Take note of your step size, the movement of the pattern is based on this setting.

If you want the pattern to wrap around, please make sure the Pattern Wrapping option is enabled.

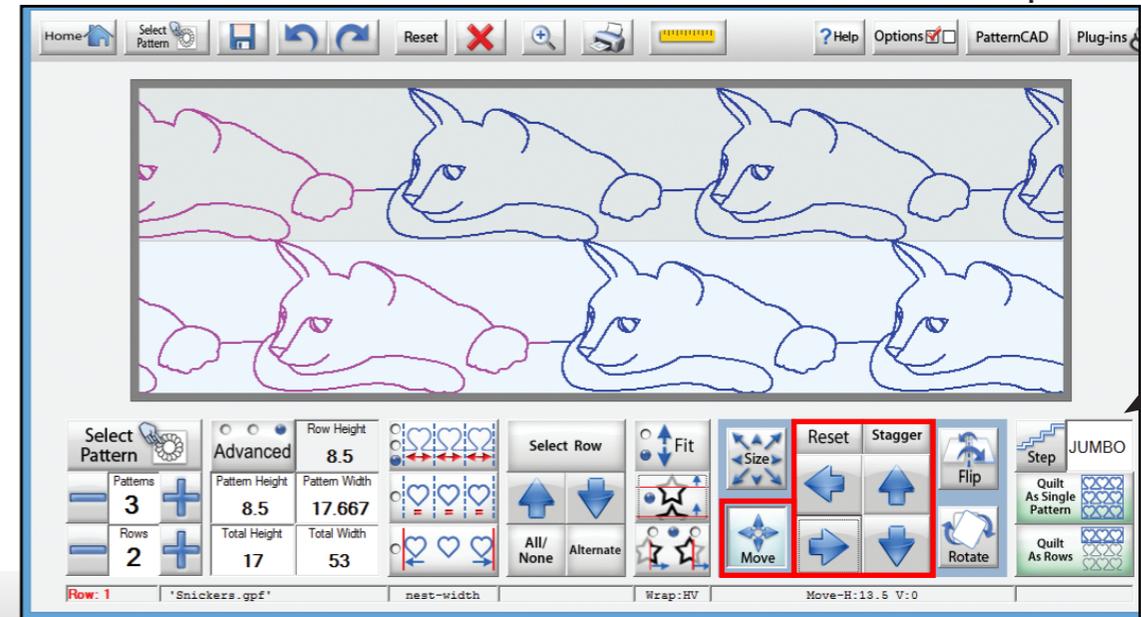


Step Size

In this example we set the Step Size to Jumbo.

With Row Wrapping enabled you can see the right is now partially on the left side on the top row, and the opposite on the bottom row.

If you tap the "Reset" button, the pattern will move back to its original location.



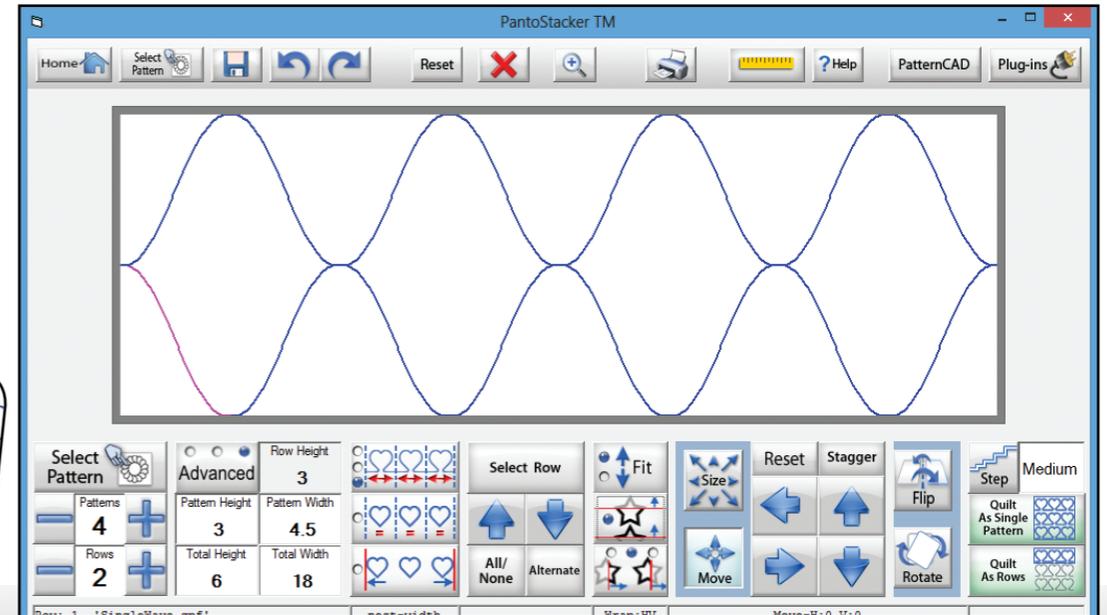
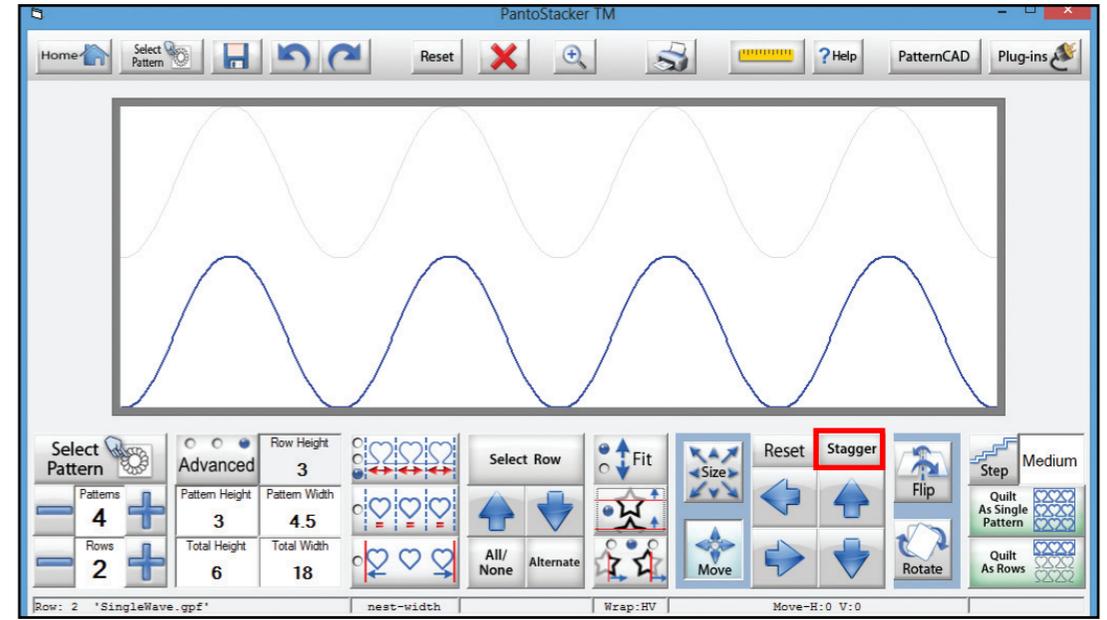
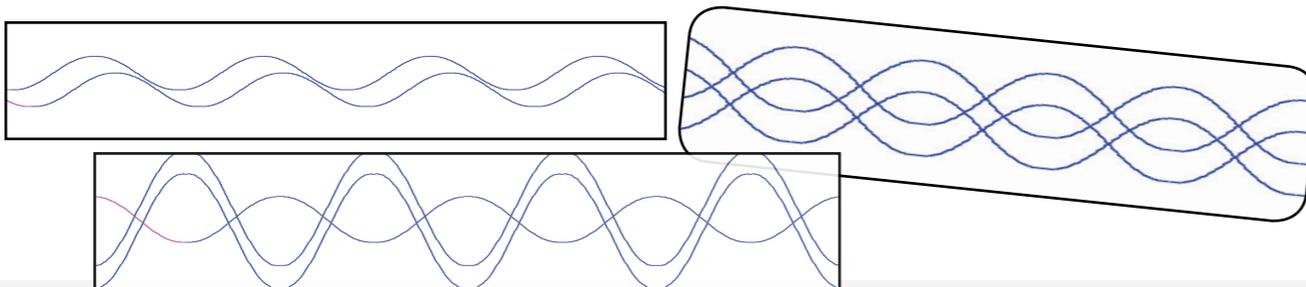
# Advanced Mode: Stagger

The Stagger option is a new feature in the PantoStacker™ section of the software.

With one click of the button you can quickly align alternating rows and have the patterns Staggered by centering the row below or above to the middle of the pattern on the opposing row.

1. Choose the pattern file, here we will use SingleWave.gpf.
  2. Set the pantograph to two rows with four patterns per row.
  3. Click the Alternate button under the Select Row option. It will deselect the odd numbered rows and even numbered rows selected.
  4. Click the Stagger option.
  5. Click All under the Select Row option.
- This option makes it possible to use any simple continuous line pattern and turn them into a unique and original creation.

The possibilities are endless.

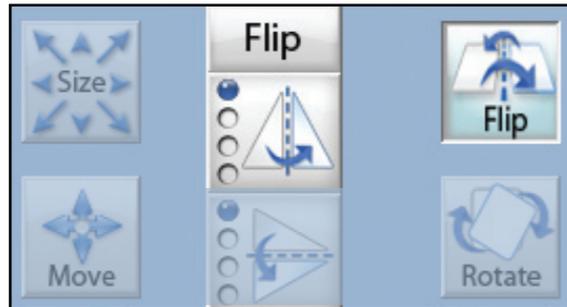


# Advanced Mode: Flipping Patterns - Horizontal

There are three different ways in which the flip feature works, by default there is no flip applied.

- 1. Tap once** — Flips all patterns.
- 2. Tap twice** — Only flips the odd numbered patterns:  
1,3,5,7,9.....
- 3. Tap three times** — Only flips the even numbered patterns:  
2,4,6,8,10.....

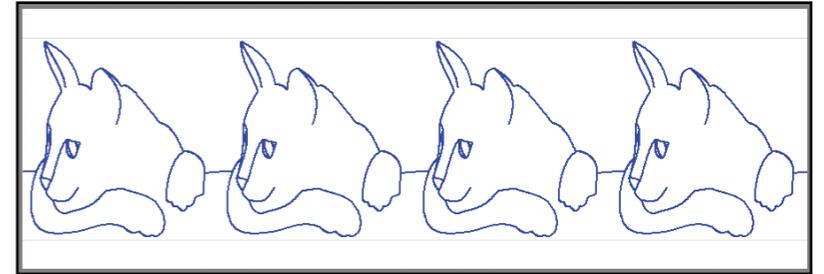
The same rules apply to both Odd and Even Rows



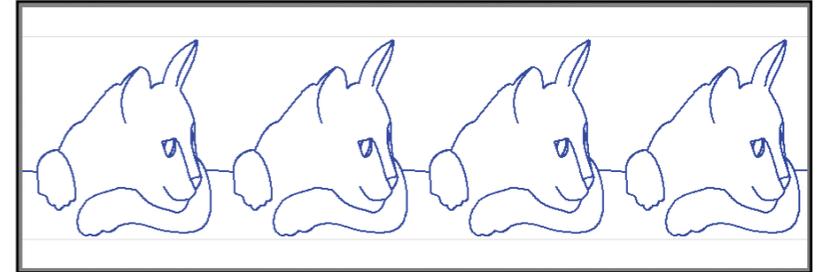
Horizontal Flip



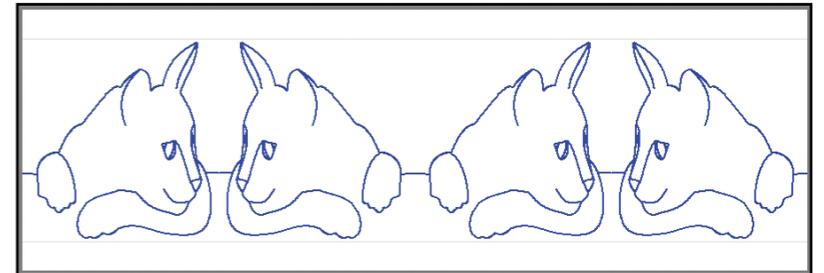
Original Setting



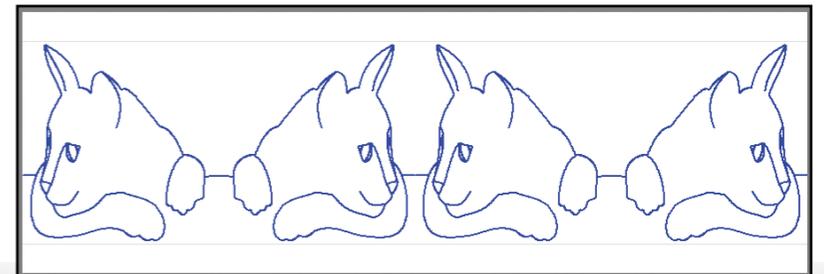
One tap: All



Two Taps: Odd



Three Taps: Even

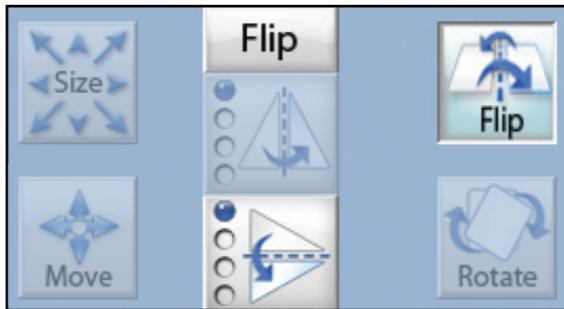


# Advanced Mode: Flipping Patterns - Vertical

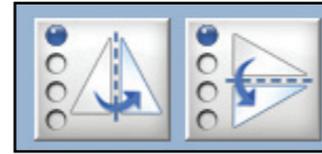
By default there is no flip applied.

- 1. Tap once** — Flips all patterns.
- 2. Tap twice** — Only flips the odd numbered patterns:  
1,3,5,7,9.....
- 3. Tap three times** — Only flips the even numbered patterns:  
2,4,6,8,10.....

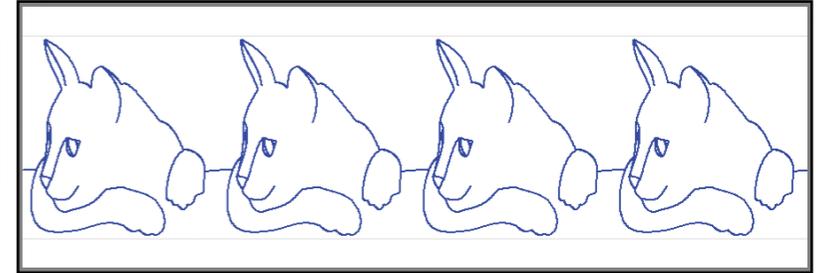
The same rules apply to both Odd and Even Rows



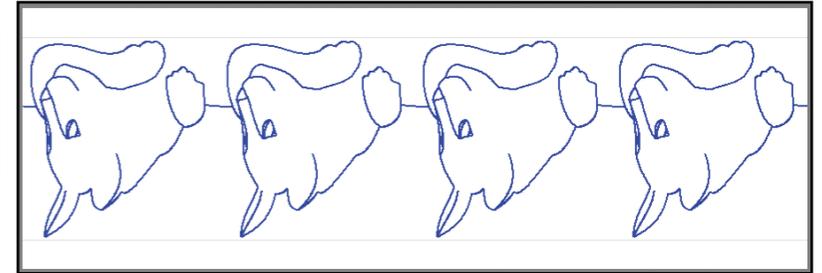
Vertical Flip



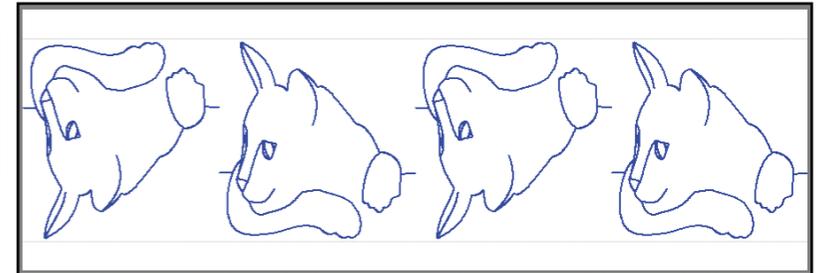
Original Setting



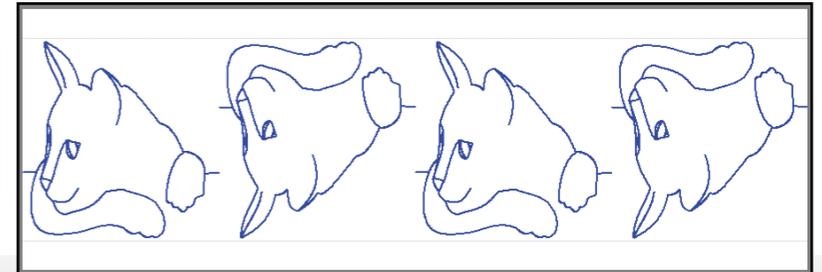
One tap: All



Two Taps: Odd



Three Taps: Even



# Advanced Mode: Rotate

We can also rotate the patterns in the pantograph. The value in the middle of the arrows to rotate the pattern is the current degree the pattern is set to, by default it will be zero.

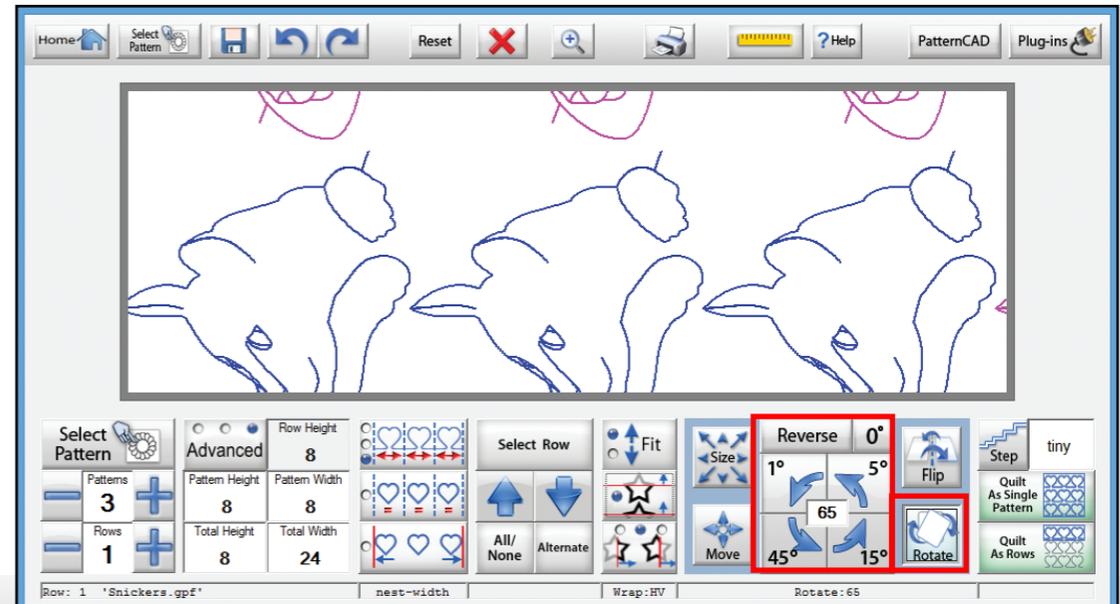
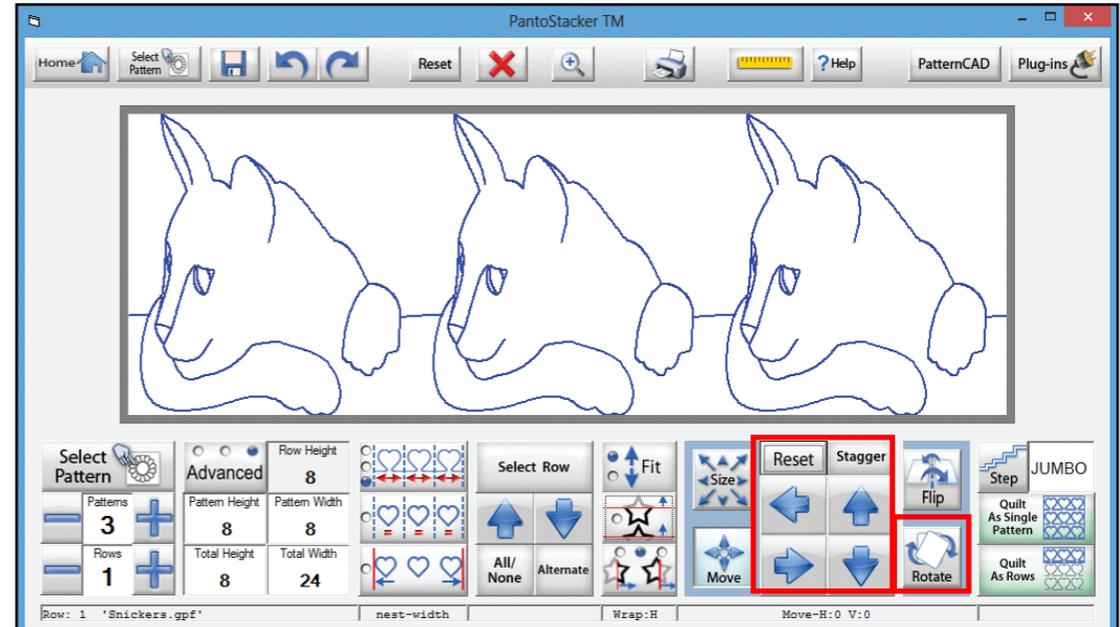
The pattern can be rotated in increments of 1, 5, 15, and 45 degrees. By default the rotation will be set so the pattern rotates to the right, this can be changed by tapping the "Reverse" icon. You will notice the direction of the arrows changes when this icon is tapped.

Just to see how it all works, lets set this pantograph to have a 66° angle to the pattern.

1. First tap the Reverse icon.
2. Now tap each increment one time, 1, 5, 15, and, 45.

Now if you still have Pattern Wrapping enabled you will see the parts of the pattern that were cut off are now coming through the other side of the pantograph.

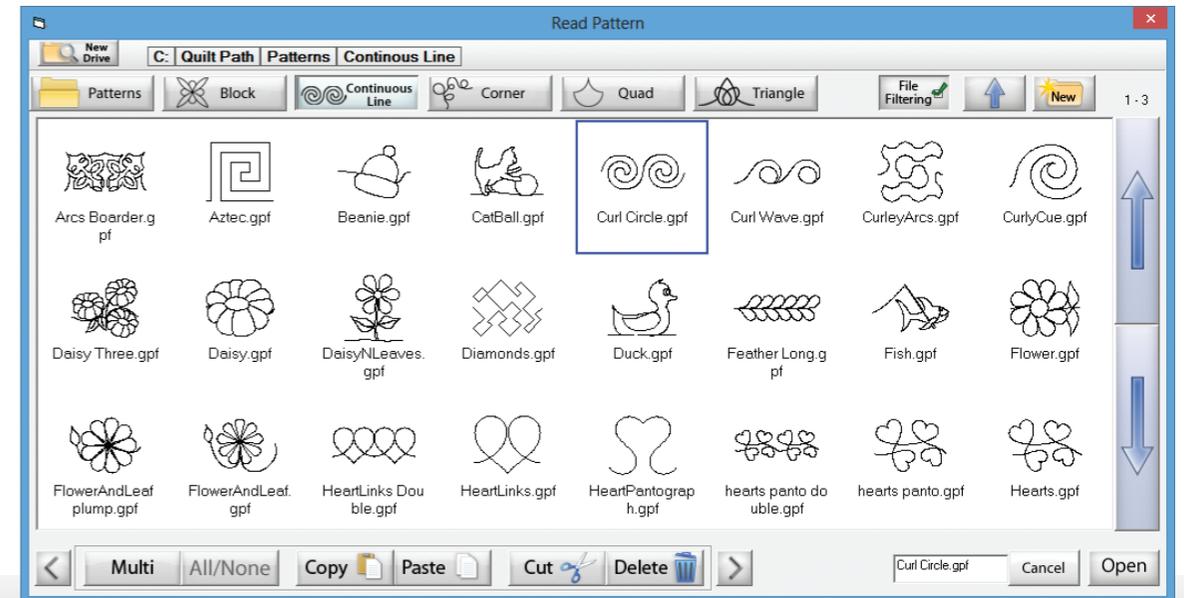
The last option is the 0° icon, by tapping this it will reset the orientation of the pattern back to zero.



# Select & Sew: Pantograph

There are 6 steps to go from creating a pantograph to quilting:

1. Under Select & Sew choose Pantograph.
1. Set your Safety Area.
2. Pick a pattern and adjust pantograph settings, if needed.
3. Place your pantograph.
4. Pull Bobbin.
5. Quilt the pantograph.



# Select & Sew: Pantograph Continued

The software is designed to flow as smoothly as possible, and once you get the basics down you will be amazed how quickly you can create custom Patterns, and Pantographs, and even more amazing Quilts!

**Safe Area - Top Left**  
Position the machine over the top-left corner of the maximum quilting area, then press 'Top Left'.

**Top Left**

Length (in) \_\_\_\_\_  
Total Stitches: \_\_\_\_\_  
Sewn: \_\_\_\_\_  
Remaining: \_\_\_\_\_  
% Complete: \_\_\_\_\_

**Safe Area - Bottom Right**  
Position the sewing machine over the bottom-right corner of the maximum quilting area, then press 'Bottom Right'.

**Bottom Right**

Home | Select Pattern | Reset | Help | PatternCAD | Plug-ins

Row: 1 'Curl Circle.gpf' | nest-width

File | Help | Debug | Select Pattern | Settings | Show Trim | Optimize | Help | Options | Plug-ins

Block - Fit  
Position the sewing machine and press the top-left and bottom-right corners of the block to fit the pattern within the block.

Placement	Block
Fill Method	Fit
Pattern Height	11.306
Pattern Width	39.571
Stitch Per Inch	12
Sew Speed	Medium

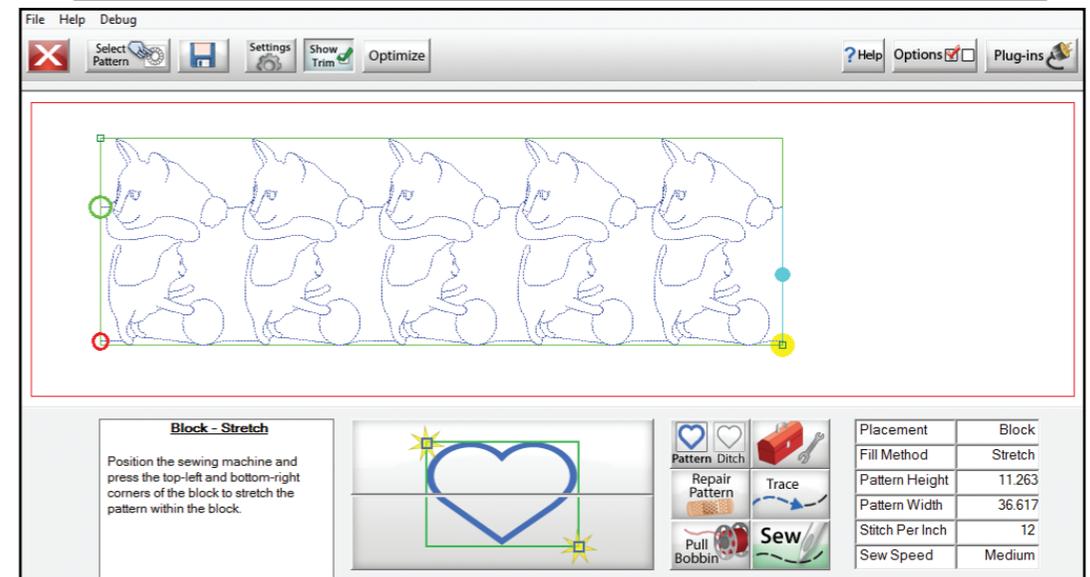
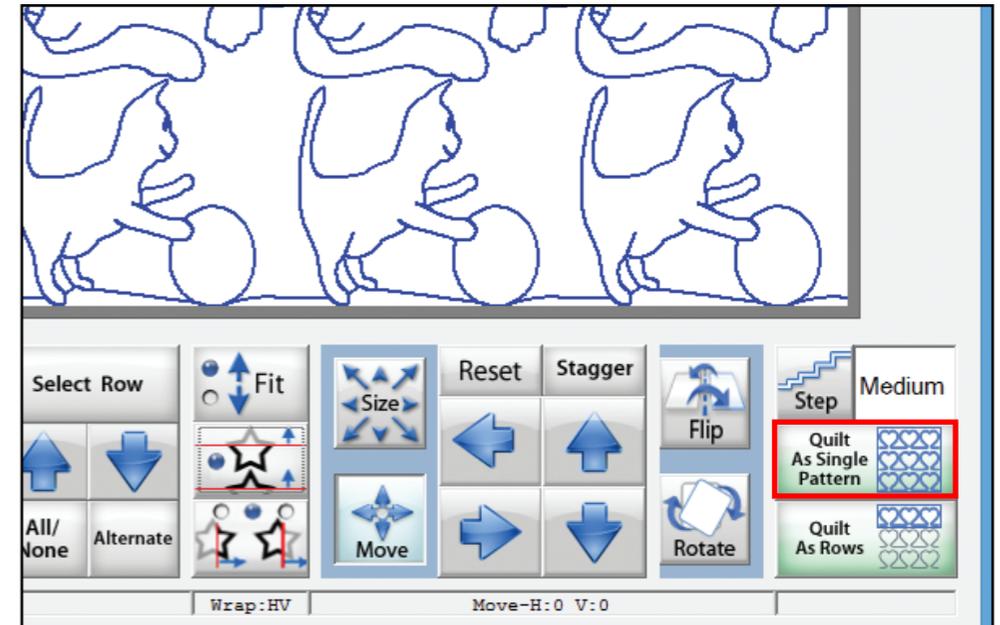
# Quilt as Single Pattern

There are two ways you can sew your pantograph, as a single pattern, or one row at a time.

Quilt as a Single Pattern is the same as the Sew button in QuiltCAD. Using this sew option it will take the entire pantograph and move it to the placement screen. When placing your pantograph, it will be like placing a block or selection from QuiltCAD. You can still use all the different placement methods, but that method will be applied to the whole pantograph.

This sewing method is best used for tall single rows, or if you have a machine with a long arm you can do multiple rows at a time.

Ultimately it all depends on what you are looking to place in that row on your quilt.



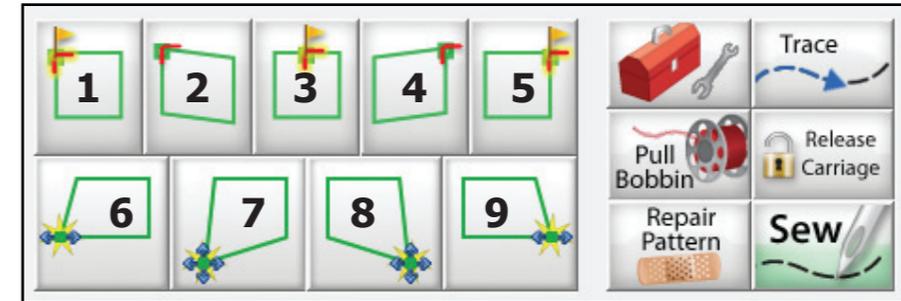
# Quilt as Rows

The Quilt as Rows sewing option allows you to sew one row of the pantograph at a time. This way you can plan out your entire quilt in PantoStacker™ and have it sew one row at a time, allowing you to roll your quilt and sew the next row without going back and creating or selecting the next row of the pantograph.

With this sewing method you are only able to place the pattern using the methods shown. You cannot place them using Two Point or Tilted Block for example.

The methods that are available in this mode:

- 1. Top left Corner** - Uses the Top Left corner of the row as the marker to place the row. This method will not distort or change the size of your row.
- 2. Top Left Corner Distort** - Uses the Top Left corner of the row as the marker to place the row. This method has the ability to distort and change the size of your row.
- 3. Center** - Uses the top Center point of the row as the placement marker. This method will not change the size of your row.
- 4. Top Right Corner Distort** - Uses the Top Right corner of the row as the marker to place the row. This method has the ability to distort and change the size of your row.
- 5. Top Right Corner** - Uses the Top Right corner of the row as the marker to place the row. This method will not distort or change the size of your row.



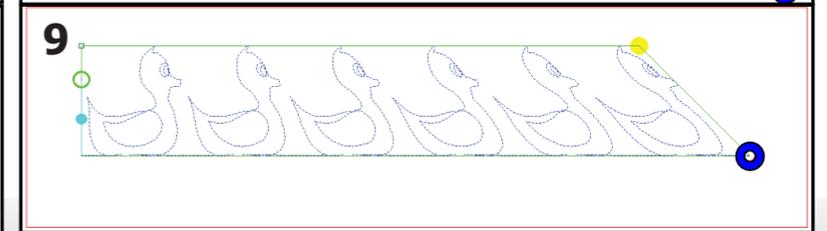
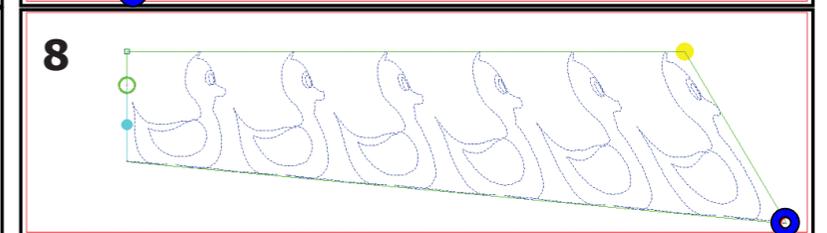
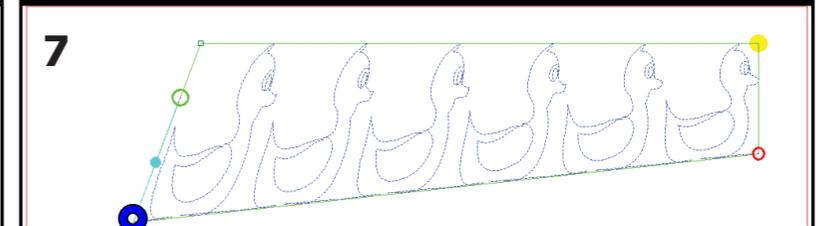
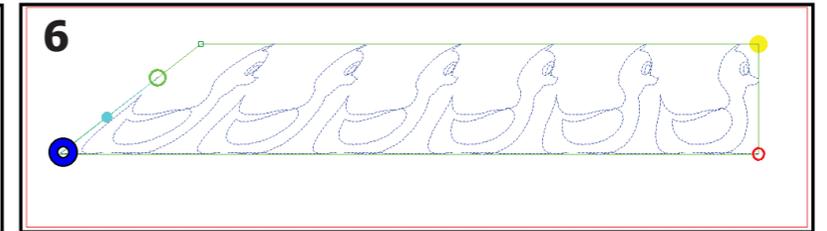
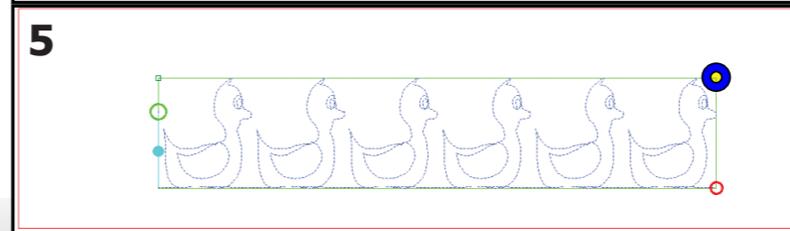
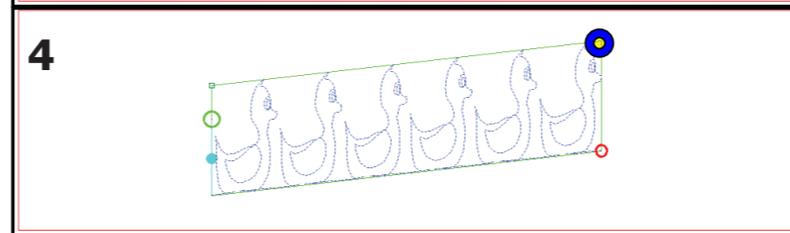
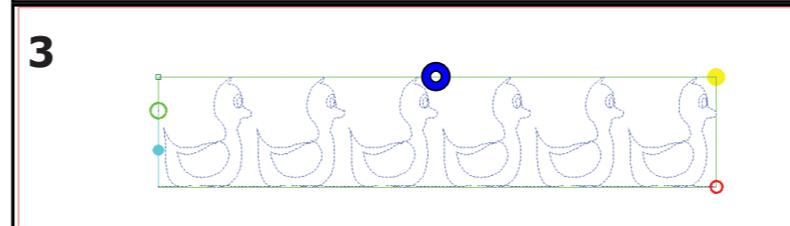
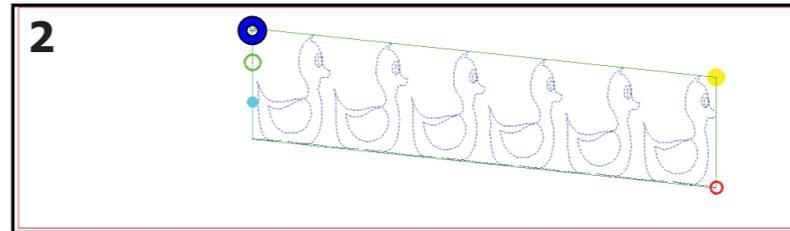
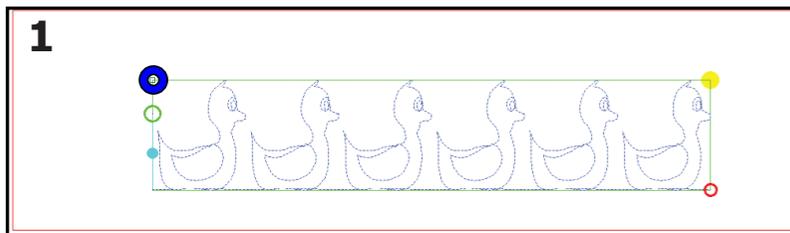
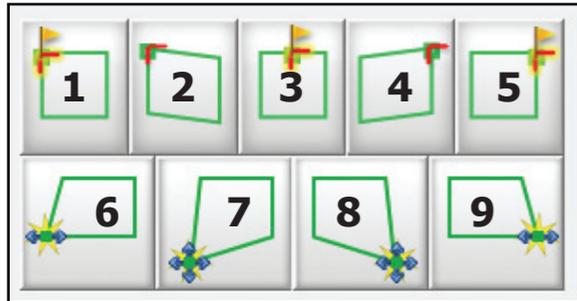
- 6. Move Lower Left** - Extends the bottom left of the pattern, distorting the pattern angle while retaining the pattern height.
- 7. Distort Lower left** - Extends the bottom left of the pattern, distorting the pattern angle and height.
- 8. Distort Lower Right** - Extends the bottom right of the pattern, distorting the pattern angle and height.
- 9. Move Lower Right** - Extends the bottom right of the pattern, distorting the pattern angle while retaining the pattern height.

You must use either 1, 3, or 5 for the first placement option. These are anchor points. They will lock the Pantograph on the placement screen. Once they are set you can then adjust with the other placement options. If you set these points after the placement will reset to the new anchor.

# Quilt as Rows continued

Here are some examples of the different placement buttons being used.

The Distort Top Left and Top Right will change the angle of the pattern, it also has the ability to change the width of the pattern with these buttons. When you use the Distort placement options, they have the ability to skew, stretch, and shrink the pattern. The opposing corner will stay anchored while the corner option you use will adjust the pattern to that position. After you place the corner, you can then use the Align Bottom buttons to align the bottom portion of the row.



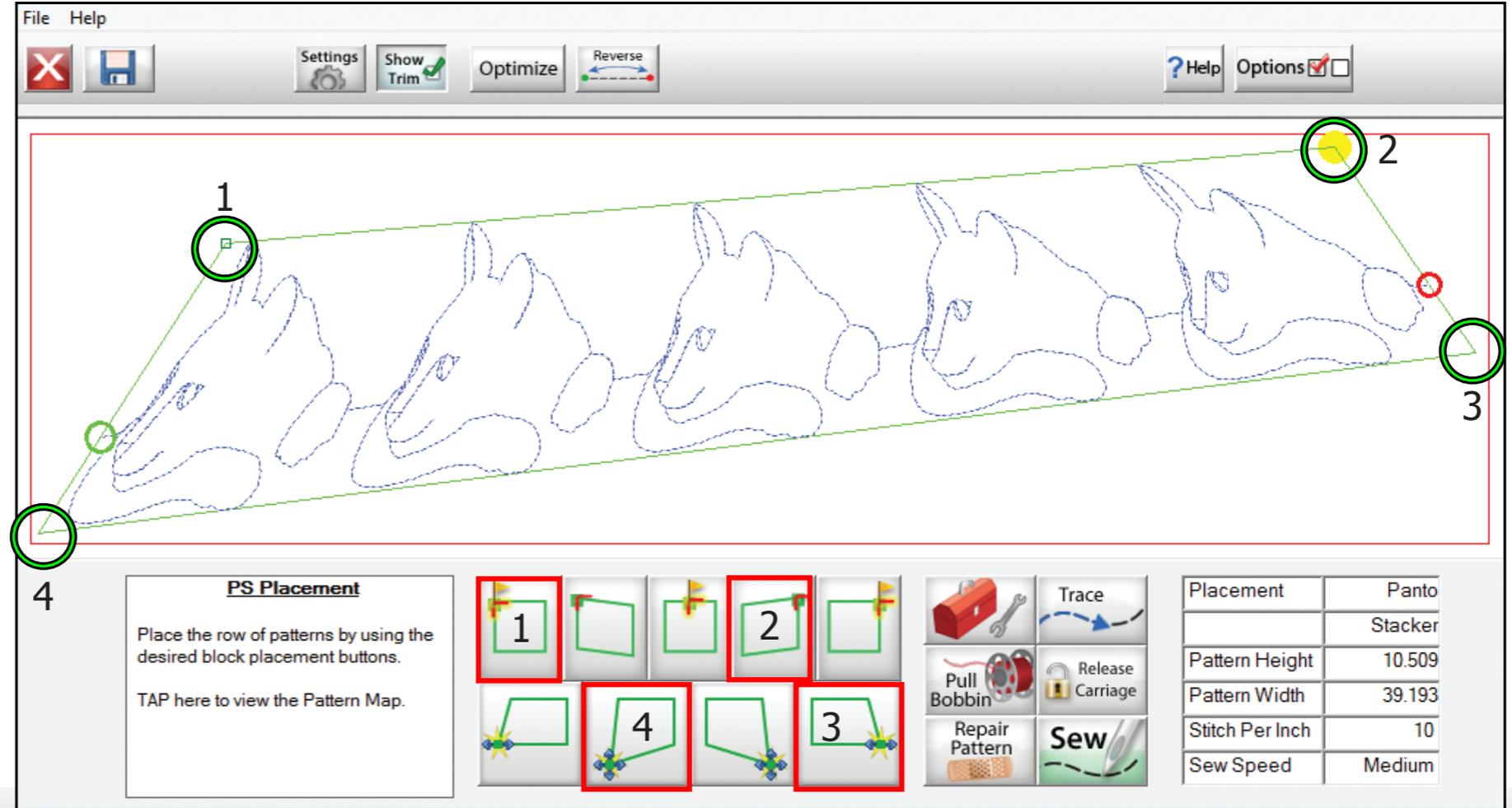
# Quilt as Rows continued

To create an alignment such as this you would:

1. Place the Top Left Corner.
2. Place the Top Right Corner Distort.
3. Use Move Lower Right.
4. Finally Distort Bottom Left.

The bottom alignment buttons allow a more accurate placement. In this example the align feature has been exaggerated to show how much you are able to adjust the pattern.

Another feature that is available in this mode is the Reverse button. This allows you to quickly change the start and end point of your row at any time, allowing you to sew more efficiently.

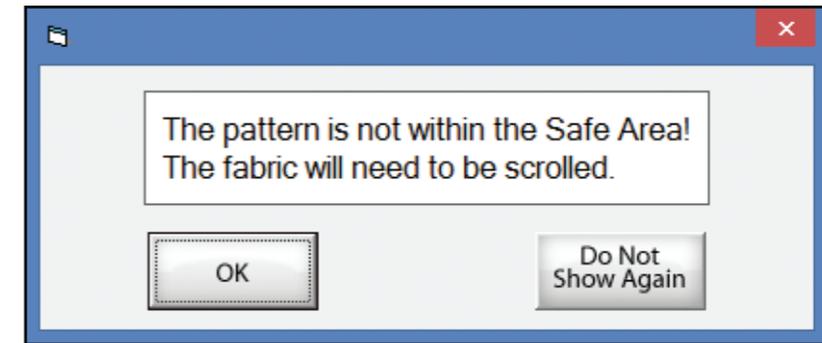
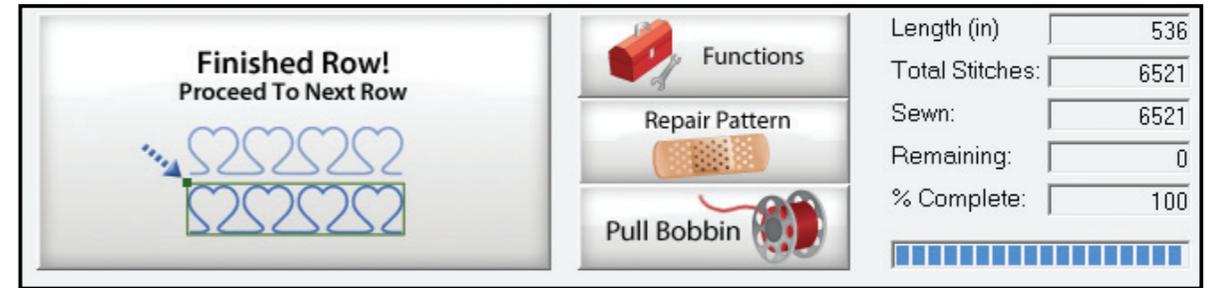


# Quilt as Rows continued

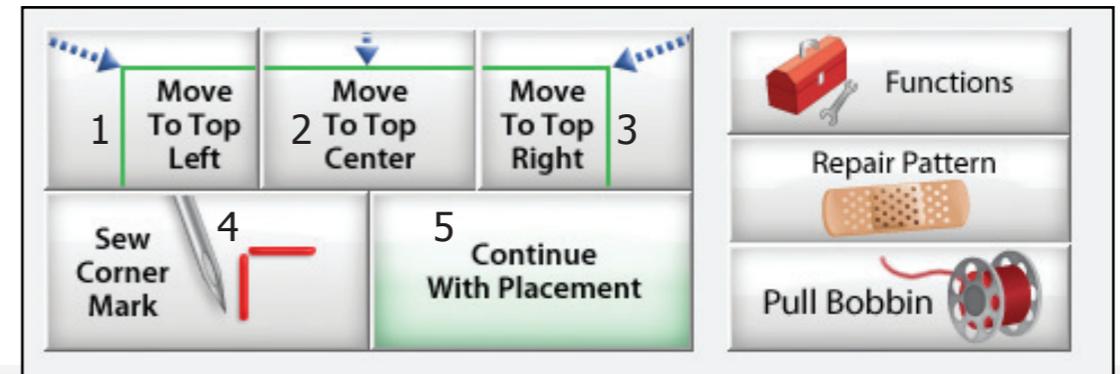
When you finish sewing the first row you will see a message shown here to the right. Once you click the button to proceed. If the software indicates that the next row is outside of the safety area, you will need to roll your fabric in order to continue, and you will need to roll your fabric.

Once you click OK the next screen you will see is the Sew Marker screen. The marker that is sewn is the top left corner, top center, or top right corner of the block for the next row to be sewn. This will be used as a reference marker when you place the next row.

- 1. Move to Top Left** - Moves the sewing machine to the Top Left Corner of the next row.
- 2. Move to Top Center** - Moves the sewing machine to the Top Center of the next row.
- 3. Move to top Right** - Moves the sewing machine to the Top Right Corner of the next row.
- 4. Place Marker** - Sews a marker consisting of three stitches. 
- 5. Continue with Placement** - After you sew the mark, tap this, roll the fabric on your frame, and continue to place the next row.



There is an option to "Do Not Show Again", but we recommend that you do not to push this button until you are comfortable with the Sew as Row method.



# Quilt as Rows continued

After you tap the Continue With Placement button you can continue to place the second row.

Use the Marker that was sewn as your alignment point. Make any adjustments to the pattern that may be needed and sew that row.

You can also choose to go back a row, or forward if you have more than two rows.

Tap on the Box that says VL Placement, this will change that screen and show you a menu where you can select different rows.

You must use the + and - buttons in order to select a different row. When you push either of these buttons you will receive a message that you must place this row in order to continue.

If you click OK, the screen will display the row you selected.

Cancel will take you back to the row selection screen.

If you are familiar with the row selection process you can choose 'Do not Show Again'.

You can also click Back to return to the regular placement screen.

