MY19 Millie – Millie 30 – Freddie Installation Manual

Welcome to The APQS Family!

Thank you for selecting APQS as your longarm quilting company! As a family-owned company, we work hard to make our "new" family members feel welcome, and we provide lifetime customer support. We are honored to serve you.

This manual includes the necessary information to assemble your Millie or Freddie Quilting System.

If you are missing any parts or have received incorrect or damaged parts, please call our Customer Service Team at 800-426-7233 so we can resolve the problem quickly for you. You can also reach us by email at service@apqs.com.

Even if you are not assembling the machine yourself, please read the assembly instructions and familiarize yourself with their contents. You'll learn the different part names and will better understand your setup should you ever need to call us for service.

Every machine purchased directly from APQS includes a free, 6-hour beginner class. Visit our Event Calendar to locate a beginner class near you, or contact your local dealer for more information.

Be sure to join the APQS Quilting Channel on YouTube – you'll find video tutorials on everything from how to thread your machine to how to quilt feathers, along with helpful maintenance videos. Don't forget to "like" us on Facebook and follow the "We Love APQS" Facebook page!

You'll also find helpful tips on the APQS website at www.apqs.com. Visit the "Resources" and the "Service and Support" tabs for more videos, our blog, and the answers to the most frequently asked service questions.

If you have any questions, please contact us. We are here to help!

APQS

800-426-7233

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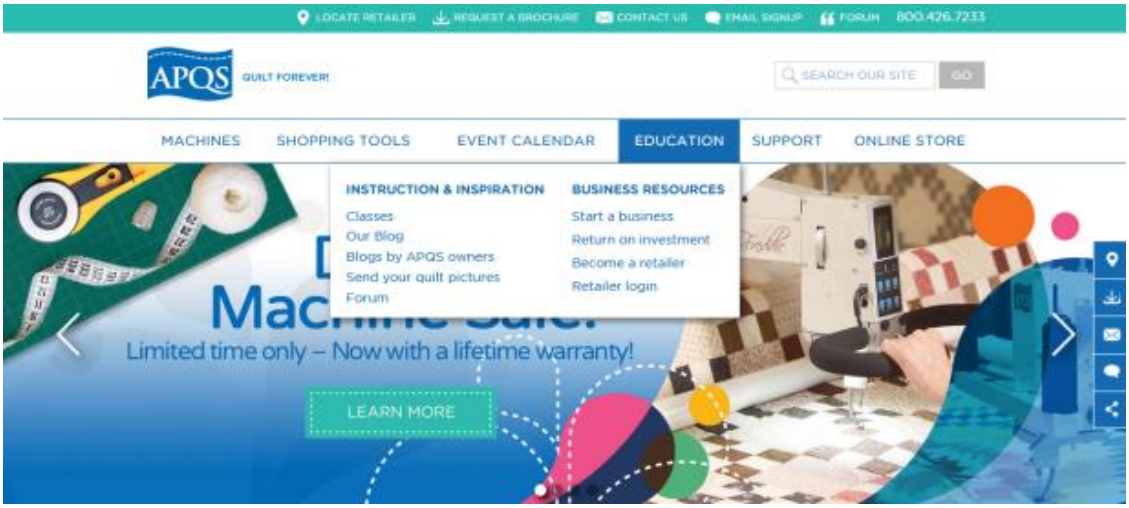
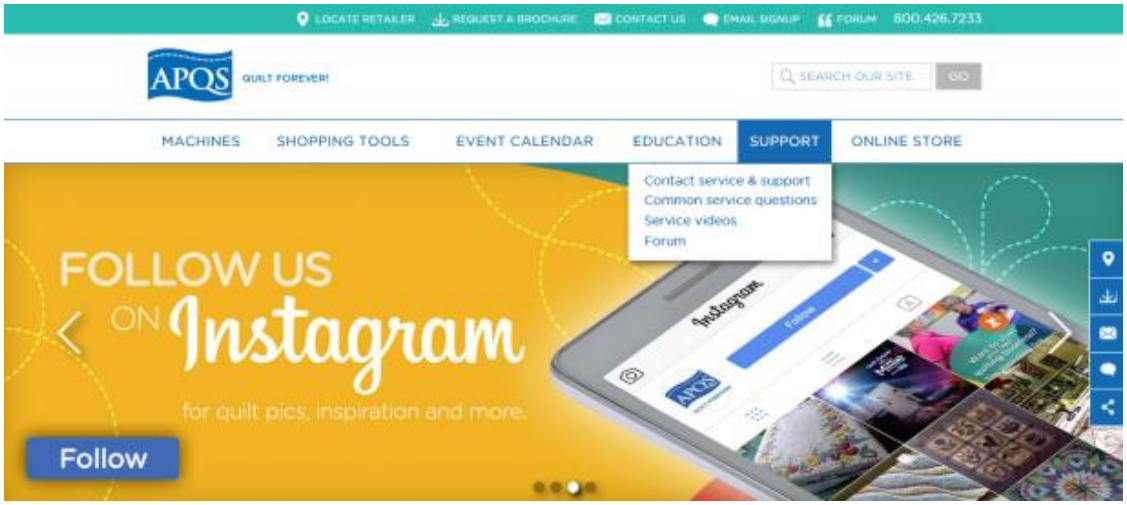
Learn more about your APQS Machine

- Click on the Education Tab on our website for information about Beginner Classes in your area, starting a business, inspiration, blogs and more.



- Need help? Click on our Support Tab for FAQs, service information and helpful how-to videos.



- Ready to quilt? Want some design ideas? Subscribe to the APQS Quilting Channel on YouTube to see hundreds of APQS videos that show you everything from loading the machine to quilting feathers!

- Join us on the APQS Forum for fun conversation, information sharing and everyday tips and hints. Everyone is welcome; we'd love to see photos of your projects, hear about your successes, and even welcome your questions and suggestions on improving our machine and company. To join, visit the APQS website at www.apqs.com. Select the "Education" tab on the home page and click on "Forum" in the drop-down menu. Or, "like" us on Facebook at "We Love APQS".

Need More Help?

APQS Customer Service & Support

We want you to have the best possible quilting experience. We take pride in leading the industry with our superior customer service and support, and we can't help you if we don't hear from you.

Monday–Friday, 8 a.m. – 5 p.m. CST
800-426-7233

service@apqs.com

APQS Online Store

Visit our Online Store for needles, bobbins, thread, oil, replacement parts and accessories for your APQS Longarm machine.

APQS Certified Technicians

In addition to factory-direct support, APQS has trained several APQS Dealers with advanced troubleshooting and support skills. These APQS Certified Technicians work closely with the factory team to solve problems and help you get back to quilting as quickly as possible. Look for the Certified Technician symbol on the APQS Retailer listings to see if one is near you.

Warranty Information

New APQS Machines sold directly through APQS include a Limited Lifetime Warranty to the original owner. Demo machines and Certified Used machines carry different warranties. For information about your warranty coverage or how to make a warranty claim, consult the warranty document included with your machine, visit our Lifetime Warranty Page, or contact APQS Customer Service at 800-426-7233.

Assembly Preparation Tips

Even if you are not assembling the machine yourself, please read through the assembly instructions thoroughly to better understand your machine.

Before assembling your machine, answer these questions:

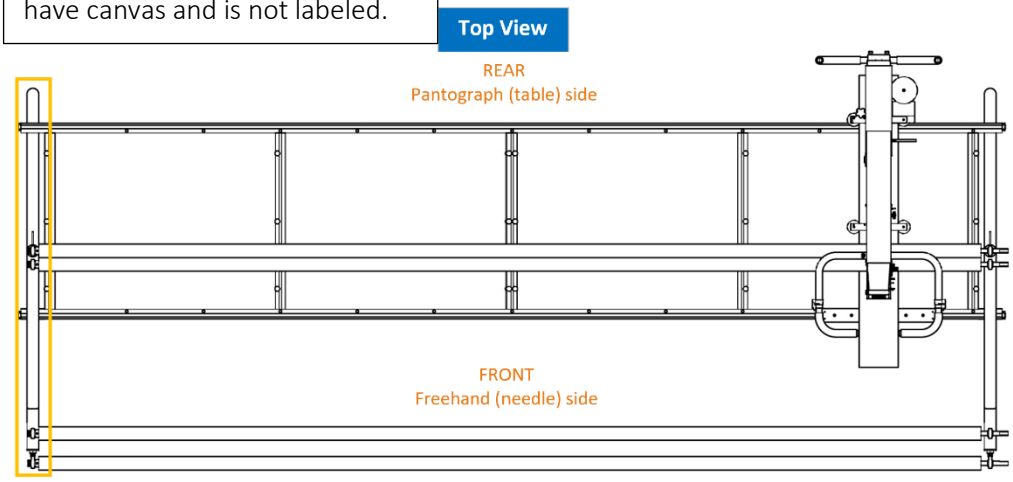
Where will the machine be located, and how will it be oriented in the room?

It is important before you move the shipping boxes into your sewing room to identify where your longarm will be placed. Consider where you want the "needle side" of your machine placed in relation to your space. When facing the "needle side" of the machine, the left or right side of the table can rest next to a wall giving you more space on the opposite side.

Before bringing in the long roller/rail boxes (shipping boxes 1 & 2), these boxes are heavy, and it is easiest to open the boxes and move the rollers and rails separately (see page 9). The three rollers with canvas are labeled on the right side of the roller, the left side of each roller has a threaded end. The roller with no canvas is the Leveler Bar and is not labeled, be sure the threaded end of this bar is brought into your sewing space with the threaded end going toward the left of your "needle side" of the table.

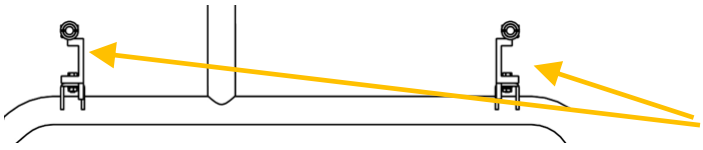
Be aware of your chosen orientation and which way the rollers need to be carried into your sewing space (you may need to flip the rollers around in your room if they were brought in incorrectly and if you don't have room to flip them, you may need to take them to a space where they can be flipped around).

The **threaded end** of each roller is placed to the left side of your table. The Leveler Bar does not have canvas and is not labeled.



Rollers are labeled on the right side of each canvas. These labels need to be placed to the right of the "needle side" of the table.

Pick-Up Roller
Leveler Bar (no label)
Quilt Top Roller
Backing Roller



The table rails are also directional in that the flat side of both rails should face each other when bringing them into your sewing space. In other words, the C shape of the rails should face outward.

Do you have easy access to electrical outlets?

Your quilting machine draws no more power than a normal household appliance. However, a surge protector can reduce the damage risk from electrical spikes. If you need to use an extension cord to reach an outlet, use a standard “heavy duty” 14-gauge extension cord. It should be a three-prong grounded cord. Do not bypass the grounding feature by using a two-prong adapter for your outlet. To protect yourself and your machine, have a certified electrician re-wire your outlet if it is not properly grounded. Even with a surge protector, consider unplugging your machine from the outlet during severe electrical storms to prevent a surge from damaging the electronics. The fabric advance should be plugged into a separate outlet from the machine to avoid crosstalk between the power cables.

Are you adding Quilt Path computerized system?

See Quilt Path Installation Manual. We strongly encourage you to invest in a Dual-Conversion, Pure Sine Wave Uninterruptible Power Supply (UPS). This auxiliary unit protects your machine and computer from power drops and surges, but also provides clean power to the system if your power fails, allowing you enough time to properly save your work and shut down the system. The UPS MUST be a Pure Sine Wave model to work correctly with your machine. Here are two models recommended by APQS Engineers:

Opti-UPS Durable Series DS1500B 1500VA
Tripp Lite SU1000XLA

Are you adding the optional hydraulic lift or overhead lighting to your table?

See Hydraulic Lift or Overhead Lighting Instillation Manuals. These instructions will tell you when it will be best to add those parts and are referenced so you can go to the appropriate Installation Manuals. Full instructions for accessory installations are included ONLINE and are in your shipping material.

What flooring material is in your room?

Wood or parquet floors may be easily scratched if you try to move the machine after putting it together. Consider cutting a small square of tightly woven carpet to act as a “coaster” for each leg, then placing the carpet face down under each leg as you put the table together. If your room has plush carpet and padding, the table’s weight may eventually break down the pad under the legs. You may want to place additional padding under the legs, just as you might under a heavy sofa.

If you park your machine at one end of your table routinely, heavy carpet pad could eventually break down on that end, throwing your machine out of level. Re-check the table if you have difficulty moving the machine. In addition, machines on hard concrete or tile floors benefit from padding under the legs to reduce residual vibration reflected back up the legs from the hard flooring.

General Assembly Order

Your new quilting machine is not difficult to assemble. It can usually be accomplished in just a few hours. While the basic assembly is possible alone, extra hands are very helpful throughout the process.

Assembly Process Overview

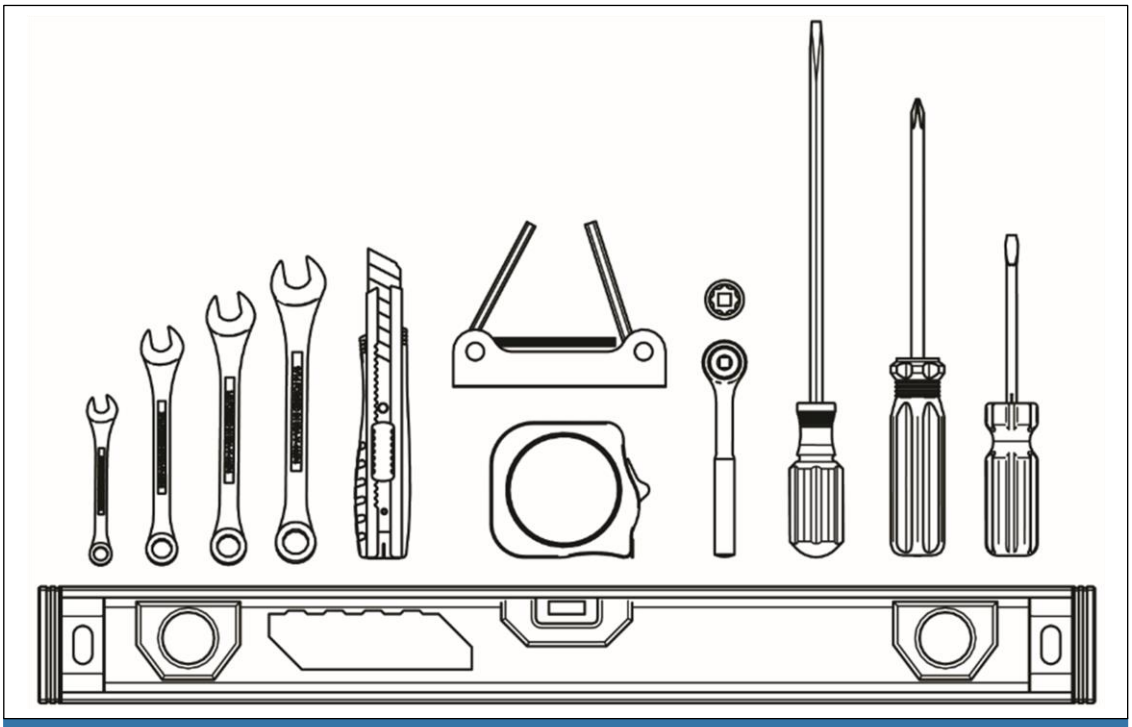
1. Add the rear Aluminum Table Rail to the two Table Legs
   If installing optional casters, put them on before this step.
2. Install the Rail Cross Tubes
3. Add the front Aluminum Table Rail to the two Table Legs
   If installing optional Quilt Path, Overhead Lighting or a Hydraulic Lift, add those BEFORE installing the Table Top.
4. Install the Tabletop pads and bumpers, then add the Table Top
5. Assemble and mount the Carriage
6. Assemble and install the Sewing Head
7. Install the Pick-Up Roller and Leveler Bar
8. Deluxe or Standard Table
9. Deluxe Table – add the optional Auto Quilt Advance
10. Standard Table – install one Roller Brake
11. Install the Quilt Top and Quilt Backing Rollers
12. Add the Roller Brake to these two Rollers
13. Complete the electrical connections

Assembly Tools

Required Tools	Table Style		Optional Accessories		
	Bliss	Non-Bliss	Quilt Path	Hydraulic Lift	Overhead Lighting
1/2" Box & Open-End Wrench	x	x	x		x
1/2" Socket Wrench (extension is helpful)	x	x	x		x
3/4" Box & Open-End Wrench	x	x	x		
Allen Wrench Set (5/32" to 1/4")	x	x	x		x
Long #2 Phillips Screwdriver	x	x	x	x	x
Utility Knife	x	x			
Tape Measure	x	x			
Level	x	x			
Small Flate Blade Screwdriver	x	x			
Leg Wrench (included)	x	x			
9/64" Allen Wrench (included)	x	x			
Pliers or Crescent Wrench			x		
9/16" Box & Open-End Wrench		x		x	
7/16" Box & Open-End Wrench		x	x		
3/8" Box & Open-End Wrench				x	

Helpful but not required

Wire Cutter to cut zip ties
Power Screwdriver with #2 Bit



Assembly Tools (includes tools for optional accessories)

Shipping Box Contents

Box ID	Contents
1	(2) Aluminum Rails
2	(3) Fabric Rollers (1) Leveler Bar
3	Lexan Table Top
4	Carriage, Table Assembly Hardware, Cross Tubes, Optional Accessories (e.g. Auto Quilt Advance)
5	Table Leg
6	Table Leg
7	Sewing Head (Handles, Thread Stand, Power Cord, Optional Bliss Carriage Axle, Optional Accessories)
8, 9, 10	(optional accessories not shown) – Overhead Lighting, Hydraulic Lift, Quilt Path *(Quilt Path will be labeled as the highest number in the shipment. For example, if you do not order the Overhead Lighting or Lift, but you DO order Quilt Path, "Box 8" will be your Quilt Path unit. If you order Overhead Lighting AND Quilt Path, the lighting will be "Box 8" and your Quilt Path will be "Box 9.")*

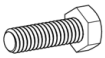
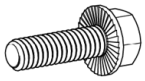
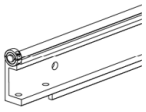
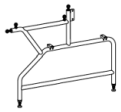
IMPORTANT: Please keep the sewing head box ⑦ plus all foam inserts and all packing boxes/materials that were inside the head box. These are necessary to protect your machine for moving or to safely ship the head to your APQS Certified Technician or back to APQS for factory service.

All other packing boxes can be recycled or discarded.

Deluxe Table

Step 1: Assemble the Rails & Legs

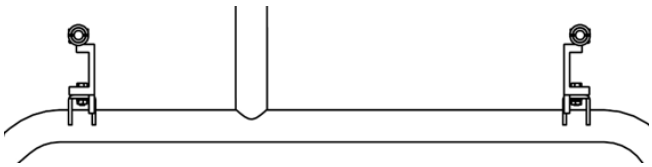
Tools Required: Utility Knife
Wire Cutter or Scissors
Phillips Screwdriver
½'' Box & Open-End Wrench
½'' Socket Wrench
¾'' Box & Open-End Wrench
or Crescent Wrench

Parts Required			
Item	**Description**	**Image**	**Qty**
B	5/16" x 1" Bolt		8
C	Lock Washer		8
D	5/16" Nut		8
K	5/16" x 1" Serrated Bolt		10
L	5/16" x 9/32" Spacer		10
A	Aluminum Rail		2
H	Table Leg		2
I	Cross Tube		5

Rail Box (Box 1)

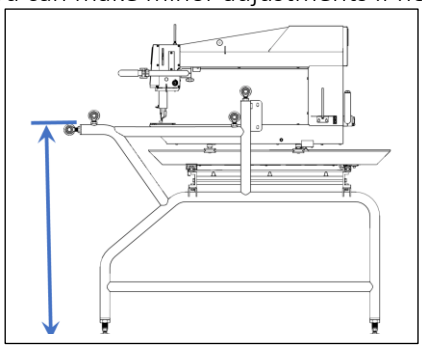
THE RAIL BOX DOES NOT NEED TO BE MOVED TO YOUR SEWING AREA IMMEDIATELY; it is a heavy box and can be opened before moving.

1. Remove two Phillips-head screws from each side of the top cover of box.
2. Using utility knife, cut packing tape on box.
3. Once open, cut zip ties from rails using wire cutters or scissors.
4. Locate all hardware. (Attached to rails under a zip tie, packed in plastic. Do not throw this away.)
5. MOVE rails to sewing area individually; be aware of sewing table orientation before moving the rollers and rails. Each roller is stamped for the use of each: "Backing," "Pick-Up," "Quilt Top." The stamped portion of the roller will be installed to the right or needle side of the frame. The rails will be installed with the flat side of each rail facing each other.



Leg Box (Boxes 5 & 6)

1. Tilt each box on its side to make it easier to pull each leg out of the box (opening box so "up" stamped on box is horizontal). Discard any packing sleeves on the base of each leg.
2. Adjust Table Height.
    a. Measure the distance between the front roller support to your naval or as your arm bends straight across your body. Each of the four leg adjusting rods should be moved to this height. Once the table is assembled completely, you can make minor adjustments if needed.

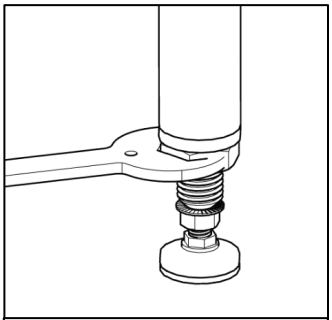


Measure from the floor to your naval as your arm crosses your mid-section across your body. This is the height your table legs should be set to on the first roller (Backing Roller).

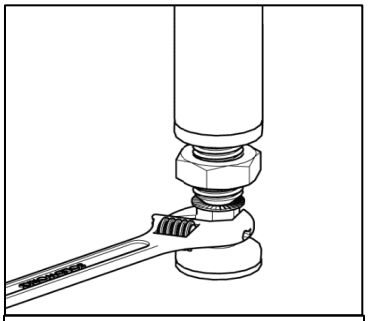
b. Loosen the leg jam nut with the leg wrench; the leg wrench is included in shipping contents.

1. Leg Jam Nut
    a. Use the large black leg wrench that is included in your shipping boxes
2. Threaded Leg
3. ¾'' Nut

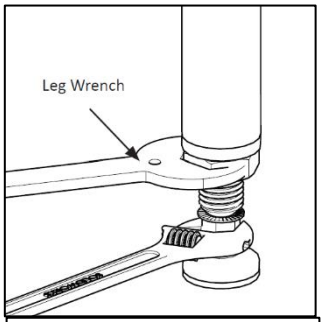
c. Once you have loosened the leg jam nut with the leg wrench, you can turn the threaded leg counterclockwise to extend the leg to the correct distance. Re-tighten the jam nut when you are at your desired height. Repeat the process for each leg.



3. To adjust the leg levelers, loosen the leg jam nut directly underneath the leg with the leg wrench.



4. Place a ¾''open-end wrench (or crescent wrench) on the foot pad nut. Turn the nut clockwise to lower the leg; counterclockwise will raise the leg.

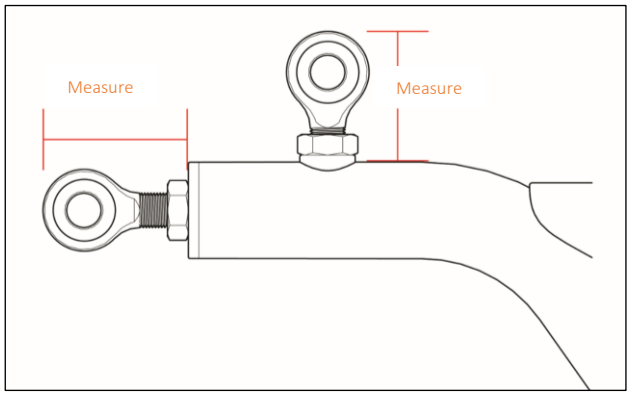


5. When the table is level in all directions, tighten the jam nut against the top of the leg with the leg wrench.

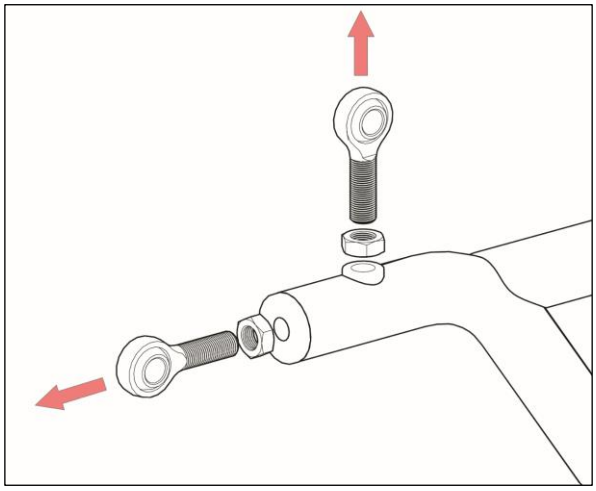
Step 1 (a): Millie 30 Leg Extensions

Tools Required:
- Leg Wrench (included
- 1/8'' Allen® Wrench (included)
- 9/16'' Wrench
- Tape Measure or Ruler

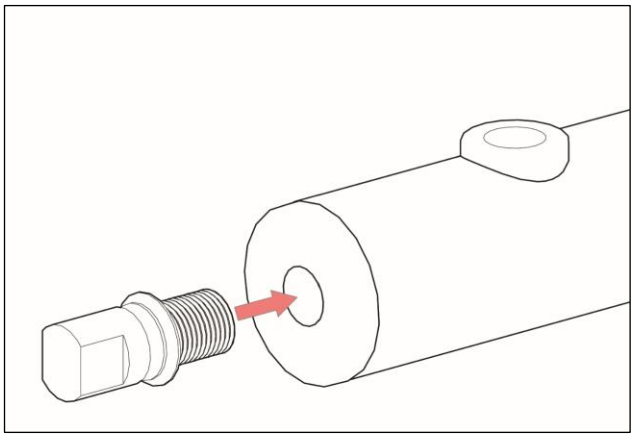
Parts Required			
Item	Description	Image	Qty
H	Table Leg		2
M3-A	Leg Extension		2
M3-B	Extension Coupler		2
M3-C	Cap		2
BB	Table Leg Wrench (supplied with your table)		1

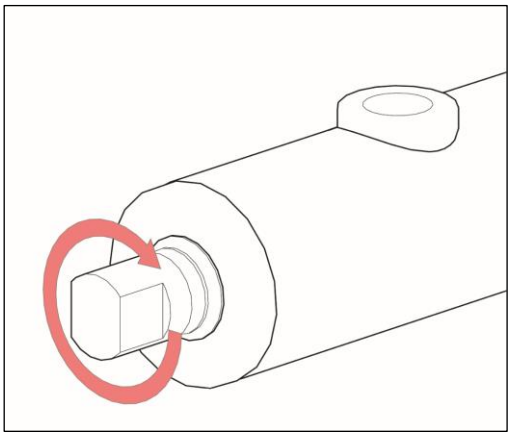


4. Remove one of the table legs from the box. Using a tape measure or ruler, measure the distances shown above and record them for later use.

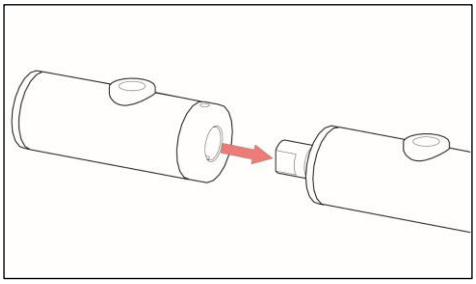


5. Using the small side of the leg wrench that has been included, loosen the nuts on each of the ball joints. Unscrew the ball joints and place aside with nuts for now.

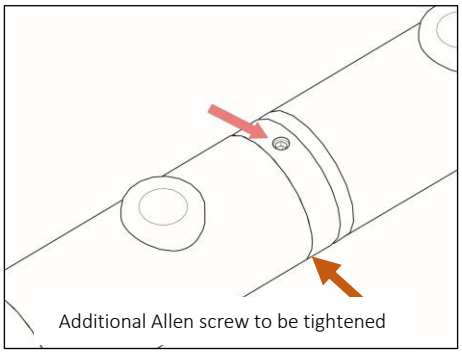




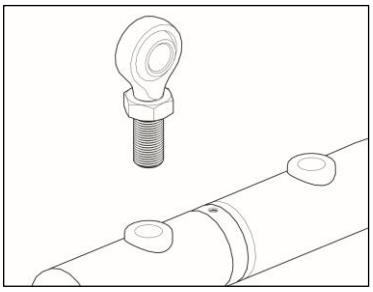
3. Screw the extension coupler (M3-B) into the end of the leg as shown above. Tighten the coupler firmly with a 9/16'' wrench.



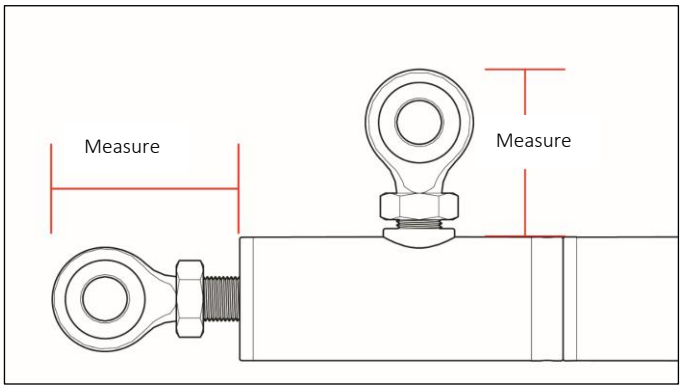
8. Slide the leg extension (M3-A) onto the coupler. If the leg extension does not slide easily onto the coupler, loosen the set screws in the lex extension using the 1/8'' Allen wrench.



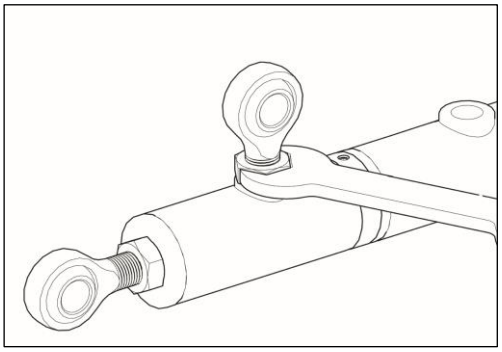
9. Align the leg extension so the threaded insert for the ball joint is pointed up. Make sure the leg extension is inserted firmly onto the coupler. Tighten both the set screws (on each side of the leg extension) with the 1/8" Allen wrench.



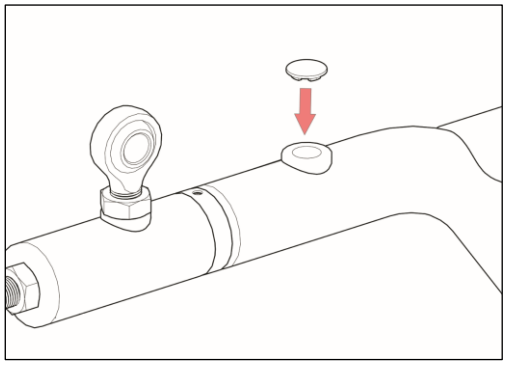
6. Screw the nut all the way onto the ball joint. Screw the ball joint into the threaded insert on the leg extension until it is close to the measurement taken in the first step.



7. Using a tape measure or ruler, screw or unscrew the ball joint into the threaded stud until the height of the ball joint matches that of the measurement taken in the first step.



8. Hold the ball joint in place while using the included leg wrench to tighten the nut against the threaded insert. Make sure the ball joint is pointing in the correct direction as shown above and does not move while tightening.



9. Insert the cap (M3-C) into the open threaded insert on the leg.

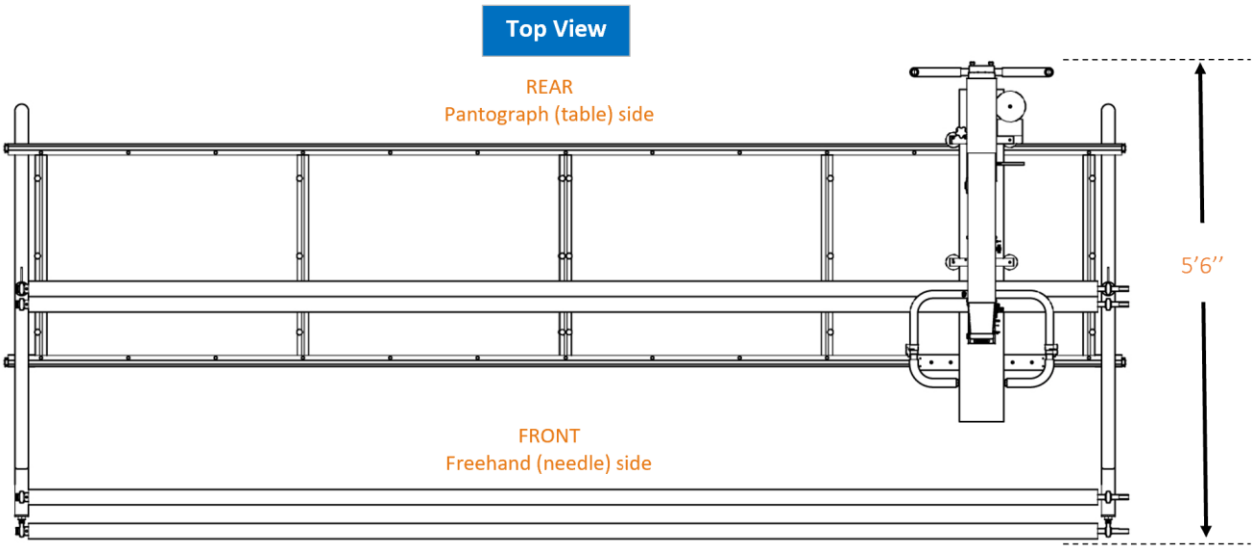
Step 2 (a): Determine Table Orientation and Assemble Table Frame

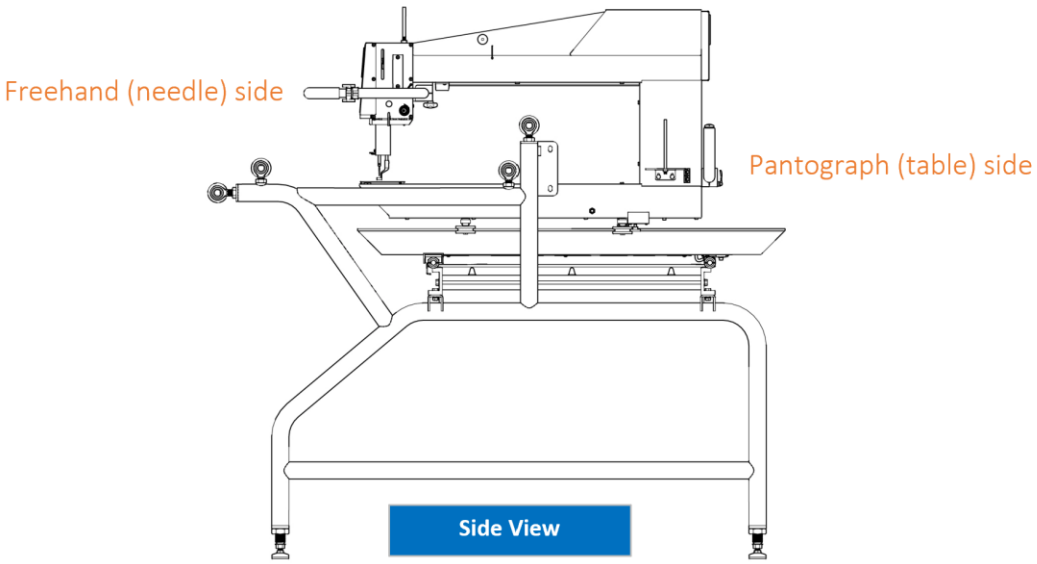
Table Orientation

The two deluxe table legs are identical. However, the table's orientation in your room will determine which becomes the "right" and "left" leg and which way the machine faces (as reviewed in "how will your table be oriented"). When assembling the machine, the "freehand (needle) side" represents the "front" of the system. Decide which direction you want the needle side of the machine to face, and then use the side-view diagram below to orient your two legs in the correct direction to match.

The table footprint is 5'6'' deep with the head pushed as far back as possible toward the rear (Pantograph side). If you have the optional automatic quilt advance, add 8'' to the table *length* you ordered (e.g., a 12' table with the advance will measure 12'8''.)

With the machine oriented as shown below, the left side of the table can be against a wall if desired. Plan on another 2 feet on the remaining sides of the quilting system for comfort.

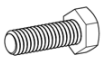




Step 2 (b): Attach Legs to Rear Table Rail

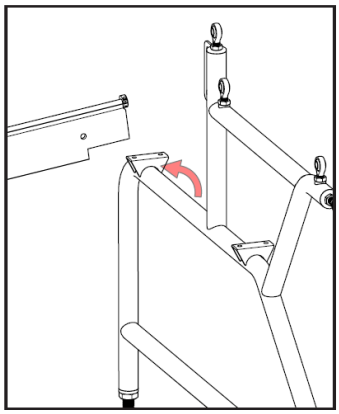
Tools Required: ½’’Box & Open-End Wrench
½’’Socket Wrench

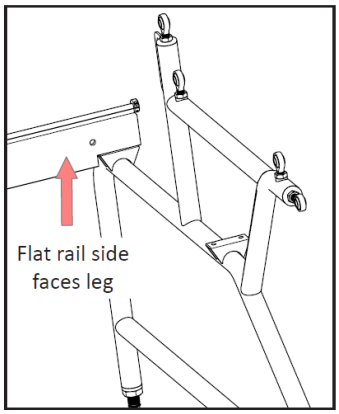
Parts Required: 2 Rails
2 Leg Ends

Parts Required				
Section	**Item**	**Description**	**Image**	**Qty**
Rails & Legs	B	5/16" x 1" Bolt		8
Rails & Legs	C	Lock Washer		8
Rails & Legs	D	5/16" Nut		8

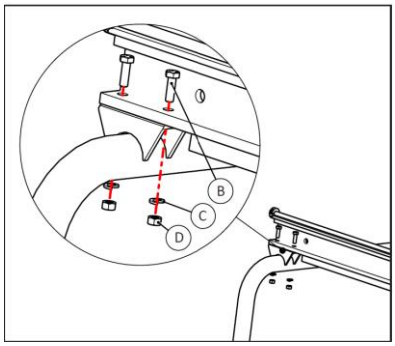
Install the Rear Rail to the Table Legs

Images below show adding the rear rail to the right leg first, based on the orientation described above. However, you could start with the left leg if it is more convenient, but keep in mind the photo orientation.

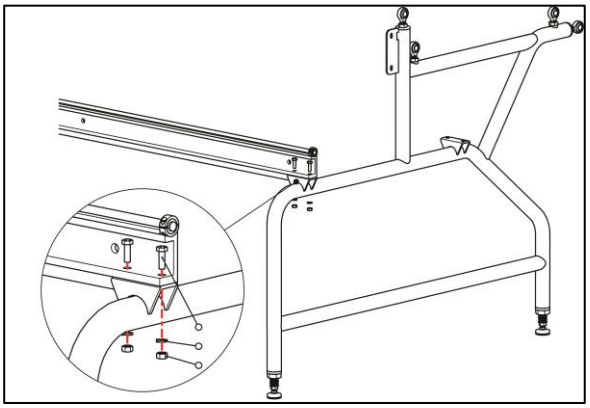




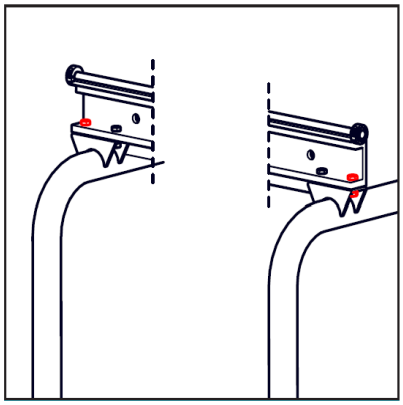
1. The flat rail side faces the leg’s center. Lift the rail end on to the leg’s rear mounting bracket. Tilt the leg toward the rail so that the rail is flush with the mounting bracket on the leg.



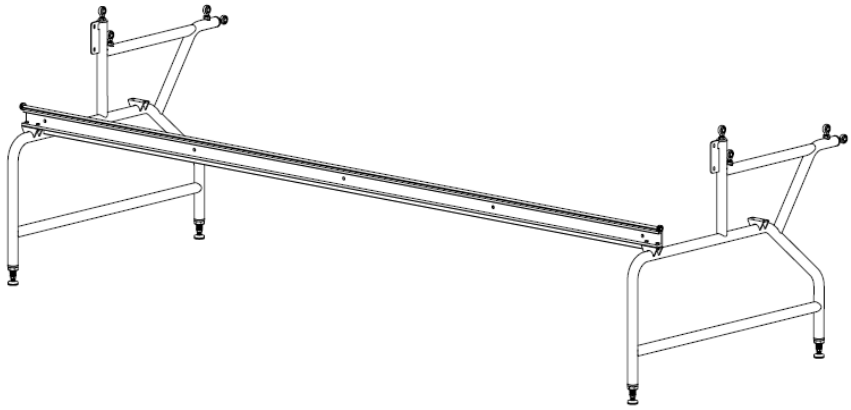
2. Insert two bolts (B) through the rail and leg mounting bracket. Add lock washers (C) and nuts (D). HAND TIGHTEN FOR NOW.



3. Move to the opposite table leg and attach the rail to the other back leg using two of the bolts through the rail leg mounting bracket along with the lock washers and nuts.



4. Using a ½'' socket wrench and a ½'' open-end wrench, ***temporarily*** snug up the **outermost bolts** on each end of the rear rail. This will keep the rail and legs solid as you install the cross tubes in the next step.

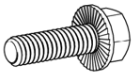


5. Table with rear rail installed.

Step 2 (c): Attach Cross Tubes

Tools Required: ½'' Open-End Wrench
½'' Socket Wrench

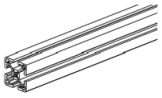
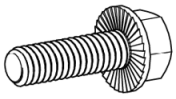
Cross Tube Box Contents

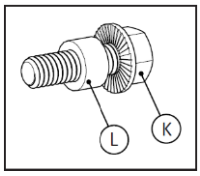
Parts Required				
Section	**Item**	**Description**	**Image**	**Qty**
Cross Tube	I	Cross Tube		5
Cross Tube	K	5/16" x 1" Serrated Bolt		10
Cross Tube	L	5/16" x 9/32" Spacer		10
Cross Tube	O	Table Top Bumpers		20
Cross Tube	P	Felt Dots		30

Open the Carriage Box 4and unpack the Cross Tube Box and Hardware. You will need the cross tubes, serrated bolts and spacers for this step. You will only need 10 bolts and spacers – we have included an extra bolt and spacer. Set the felt dots and bumpers aside for now.

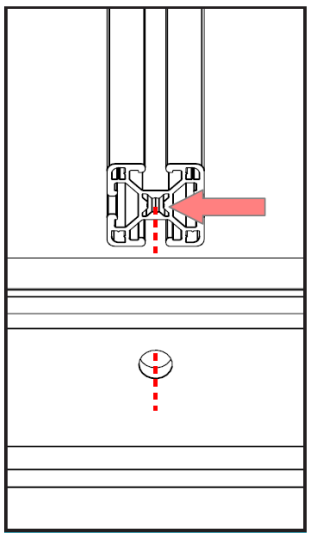
NOTE: Ignore the labels on the cross tubes; our vendor uses that information to package the tubes for APQS.

The 5 cross tubes keep the rails parallel and support the pantograph table top. Install the cross tubes to the rear table rail as shown in the next steps.

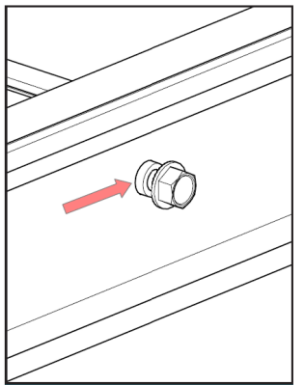
Parts Required				
Section	**Item**	**Description**	**Image**	**Qty**
Cross Tube	I	Cross Tube		5
Cross Tube	K	5/16" x 1" Serrated Bolt		10
Cross Tube	L	5/16" x 9/32" Spacer		10



Slip one spacer (L) onto one serrated bolt (K).

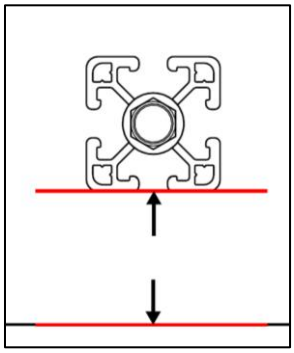


2. The cross tube has a threaded center hole. Align this with the rail mounting hole.



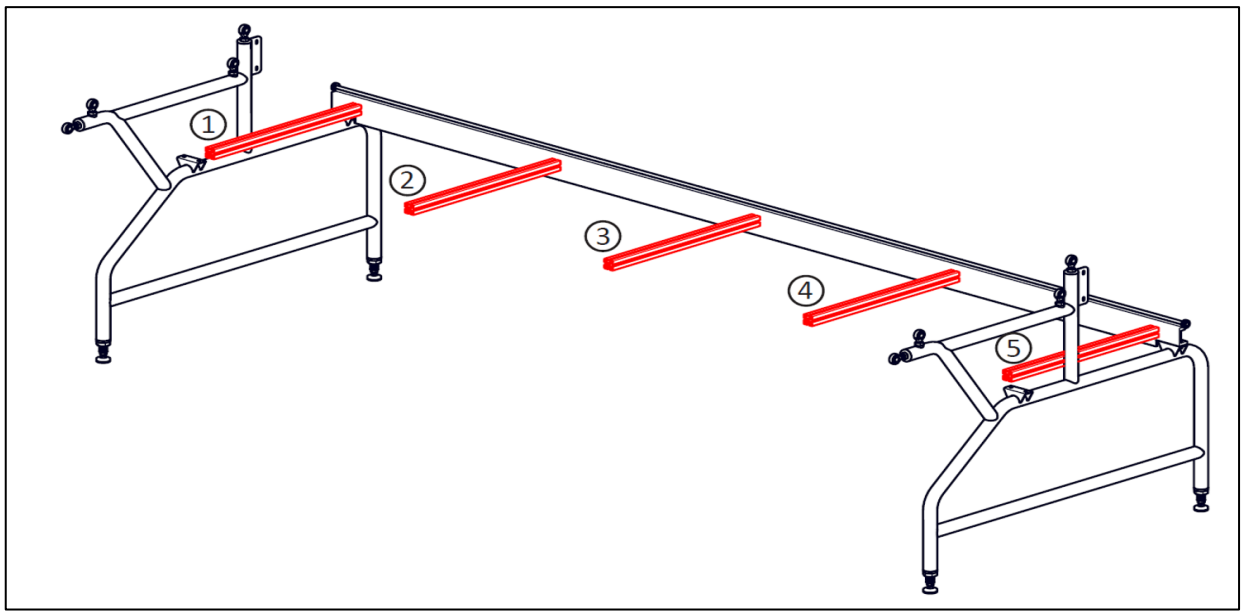
3. Hold the cross tube on the inside of the rail and start the bolt into the threaded mounting hole.

   After you start the bolt, slip the spacer into the rail hole.



4. Keep the cross tubes “square” or parallel with the top and bottom of the rail. Hold the cross tube in place as you HAND TIGHTEN the serrated bolt.

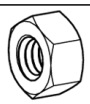
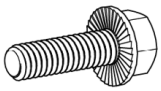
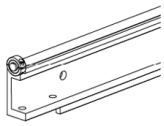
   After you start the bolt, slip the spacer into the rail hole.

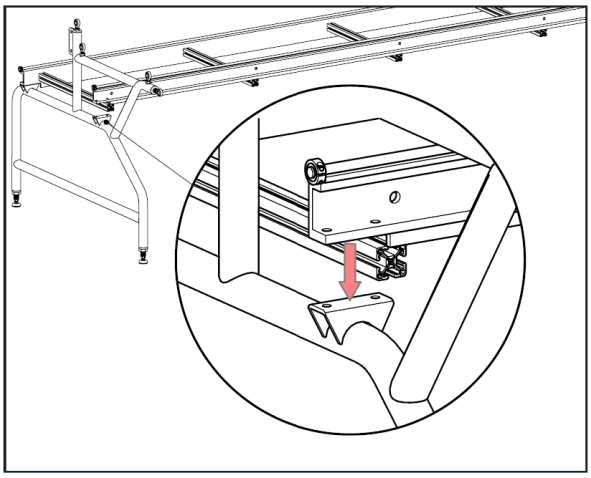


5. Repeat steps 1–4 for the remaining cross tubes along the rear rail. Be sure that the spacers remain inside the rail holes as you hand tighten each serrated bolt.

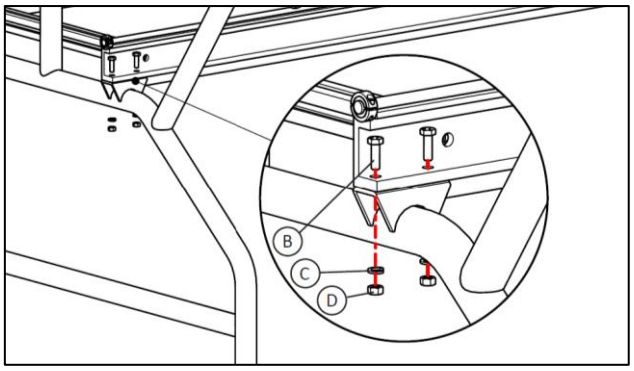
Step 2 (d): Install the Front Rail

Tools ½’’Open-End Wrench
½’’ Socket Wrench

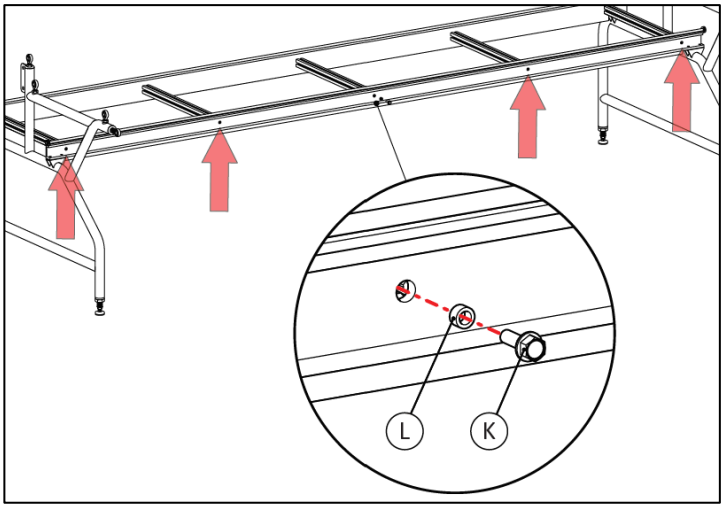
Parts Required				
Section	**Item**	**Description**	**Image**	**Qty**
Front Rail	C	Lock Washer		4
Front Rail	D	5/16" Nut		4
Front Rail	K	5/16" x 1" Serrated Bolt		5
Front Rail	L	5/16" x 9/32" Spacer		5
Front Rail	A	Aluminum Rail		1



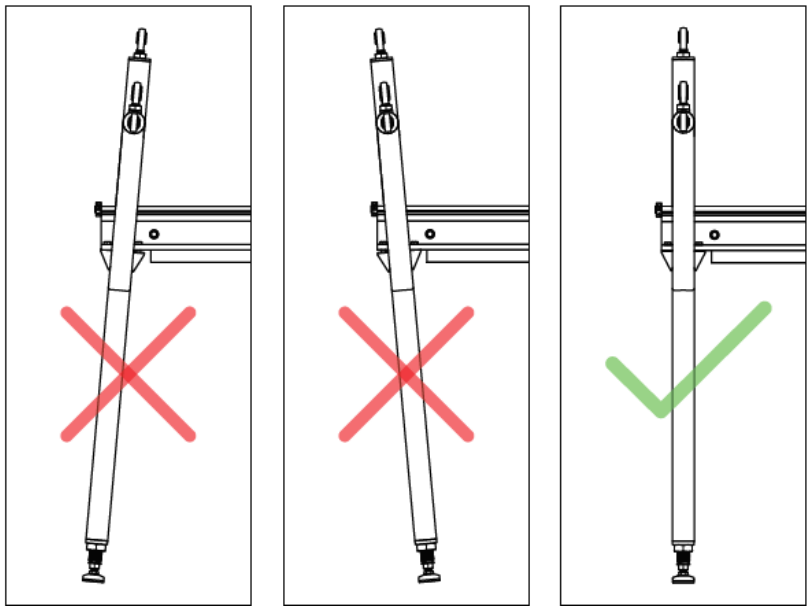
1. Lift the front rail in place with the flat side toward the cross tubes. Slide one end into one leg opening; center rail between both legs.



2. Align the rail mounting holes with each leg bracket. Move the leg slightly left or right if necessary. Slip a 5/16’’ x 1’’ bolt (B) into the mounting holes on both rail ends. Add the lock washer (C) and nut (D) to each rail mounting bolt, HAND TIGHTEN ONLY at this point.



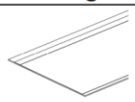
1. Slip a 5/16'' x 9/32'' spacer (L) on a 5/16'' x 1'' serrated bolt (K). Insert the bolt and spacer through the front rail and into the center cross tube. Push the rail toward the cross tube if necessary.
2. Screw the bolt into the cross tube **just far enough to keep the spacer in place**.
3. Insert the 4 remaining spacers and serrated bolts through the rail and into the corresponding cross tubes. Double-check that each cross tube is square with the rail.
4. Use a ½'' open-end wrench to tighten the 5 serrated bolts for both the front and rear rails.



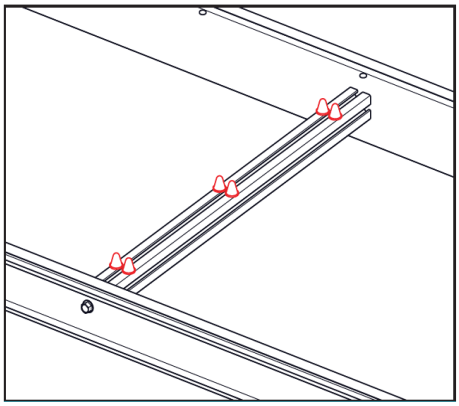
5. Check that the table legs are straight vertically.

Step 3: Install the Table Top

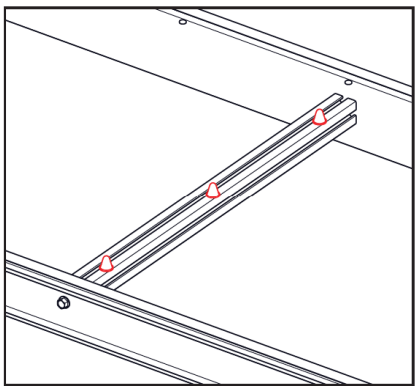
NOTE: If you are installing Quilt Path computerized system, Hydraulic Lift or Overhead Lighting, go to those manuals before going forward.

Parts Required				
Section	**Item**	**Description**	**Image**	**Qty**
Table Top	G	Table Top (Box 3)		2 sections
Table Top	O	Table Top Bumpers		18
Table Top	P	Felt Dots		26

Peel the paper backing off the table top bumpers (O). Press firmly into position as instructed in the next steps.

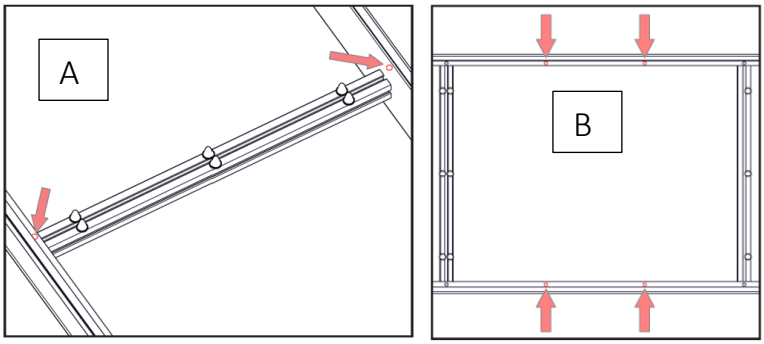


1. Position 6 bumpers on the center cross tube straddling the cross tube's center channel. The table top sections will meet at the center cross tube.

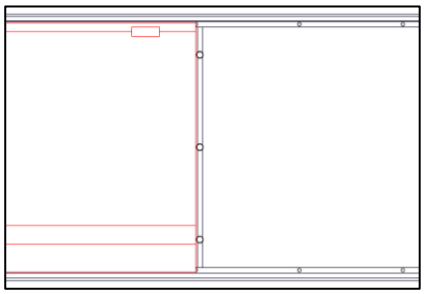


2. Stick 3 bumpers on each of the 4 remaining cross tubes. Put them on one side of the cross tube's center channel or the other. Press into place.

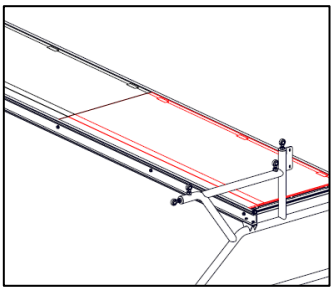
Position the Table Top



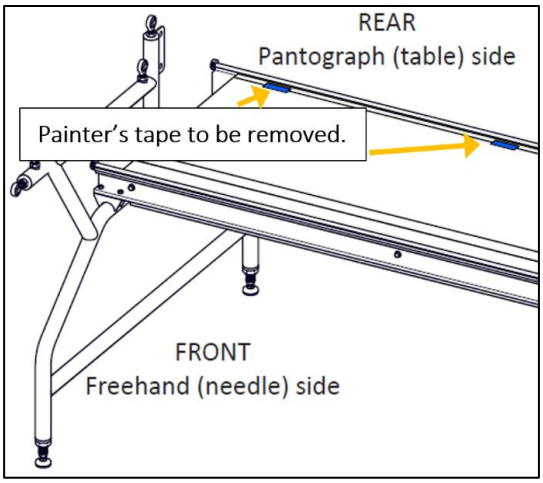
1. Place an adhesive felt dot on top of the rail directly in line with each cross tube (image A). Place two more felt dots on each rail equally spaced between the dots that are in line with the cross tubes (image B).



2. Carefully open Box 3 and remove the table top sections.
3. Place one table top section on the table, taking care to place the center sections over one set of bumpers on the center cross tube.



4. Place the painter's tape side of the plastic pantograph cover facing the rear (pantograph) side of the table.
5. Make sure the sections meet in the center with each half supported on the center cross tube bumpers.



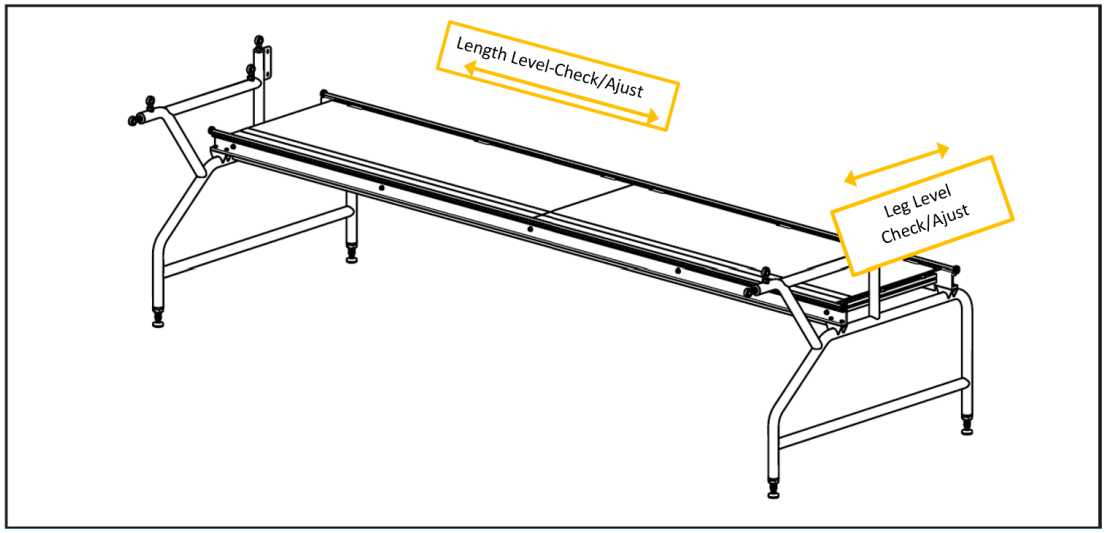
6. Remove the painter's tape from the plastic pantograph cover. (Paper patterns will be placed under the plastic cover when quilting from the pantograph side of the frame.)

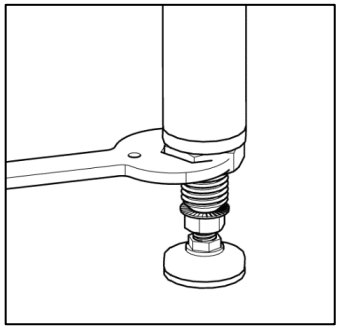
Step 4: Level the Table

Tools Required: Leg Wrench
¾’’Open-End Wrench or Crescent Wrench
Long Level

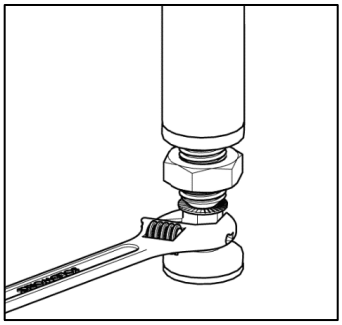
For optimum movement, the table should be level both left-to-right and front-to-back. *(Bliss Table Owners – see the special note at the end of this section.)* You can adjust each leg independently to get the table as close to level as possible. While this section describes the leveling process, you can also use it to adjust the table’s working height. The leg extensions allow 9 inches of upward adjustment.

1. Move the table close to its final location.
2. Place a level across the two rails near the end of the table (parallel to the leg). Adjust legs as described below.

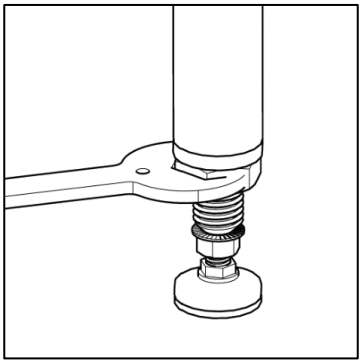




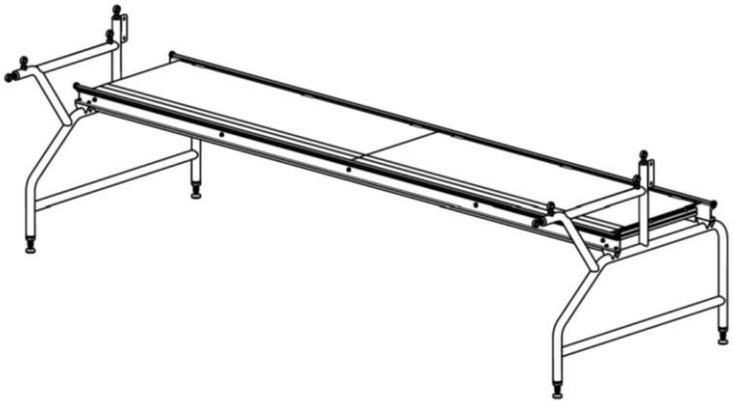
1. To adjust the leg levelers, loosen the large jam nut directly underneath the leg with the leg wrench.



2. Place a ¾’’ open-end wrench (or crescent wrench) on the foot pad nut. Turn the nut clockwise to lower the leg; counterclockwise will raise the leg.



3. When the table is level in all directions, tighten the jam nut against the top of the leg with the leg wrench.



APQS Deluxe Table

BLISS TABLE NOTE:

Do you have a Bliss Track system?

On Bliss tables, the machine carriage is extremely sensitive. Even the gentle tug of the power cord dragging on the floor can make the machine drift. A small amount of drift is normal. However, if your machine is moving more than a few inches, you'll need to actually "un-level" the table slightly to prevent it. *Make the adjustments described below after your system is fully assembled.*

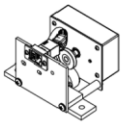
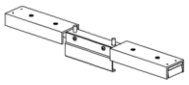
Since the Bliss carriage rides on *top* of the rails, you will not notice the difference as you quilt. In this case, the goal is to put a slight "twist" in the table so that the carriage cannot coast on its own. Try slightly raising or lowering just ONE leg on one end of the table to stop the drift. If necessary, move to the opposite leg and adjust the individual legs until the machine holds its position as consistently as possible.

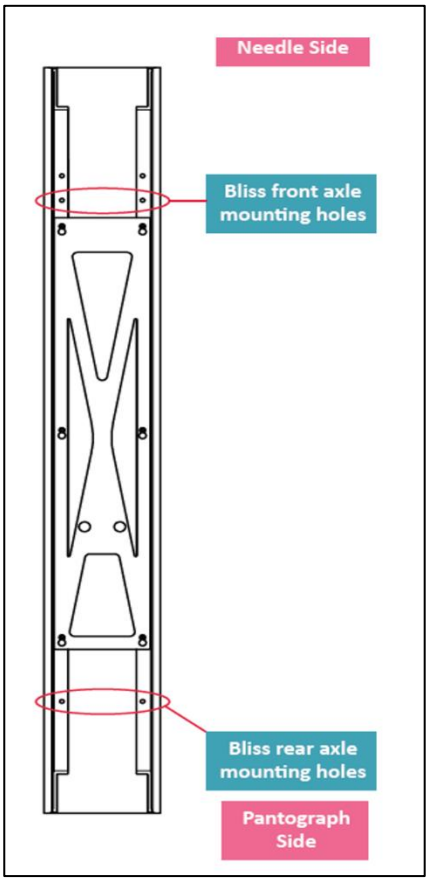
YES, I have a Bliss Carriage – Install the carriage following the instructions in Step 5 (a) on the next page.

NO, I do not have a Bliss Carriage – Follow the instructions in Step 5 (b) to install the carriage on page 28.

Step 5 (a): Install the Carriage (Bliss Track)

Tools Required: 3/16'' Allen Wrench
Pliers

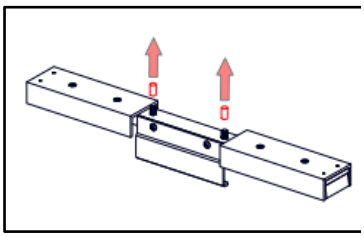
Parts Required				
Section	**Item**	**Description**	**Image**	**Qty**
Bliss Track Carriage	J	Carriage		1
Bliss Track Carriage	AA	Bliss Rear Carriage Axle		1
Bliss Track Carriage	BB	Bliss Front Carriage Axle		1



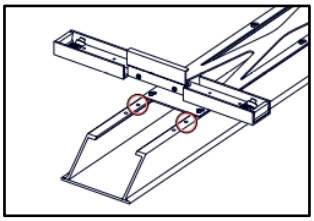
Install the Bliss Carriage Axles

To protect your table top and carriage, you can leave the carriage inside the Styrofoam packaging until you have installed the axles.

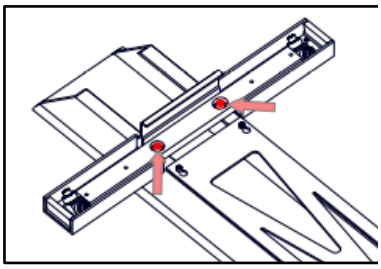
Note: The needle side of the carriage has two sets of axle mounting holes. Install the Bliss front axle in the second "inner" set of holes as indicated in the image above.



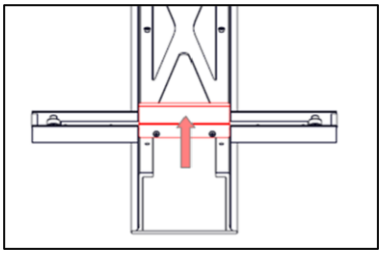
1. Remove the rubber packing sleeves from the axle bolts.



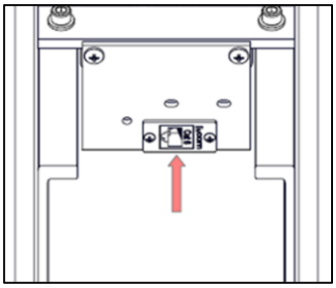
2. At the rear of the carriage, locate the two "inner" set of holes and start bolts by hand.



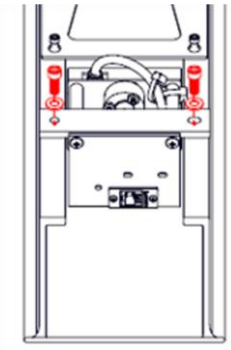
3. Tighten the mounting screws securely with a 3/16'' Allen wrench.



4. Double check that the “rail guard” on the axle faces the carriage front.

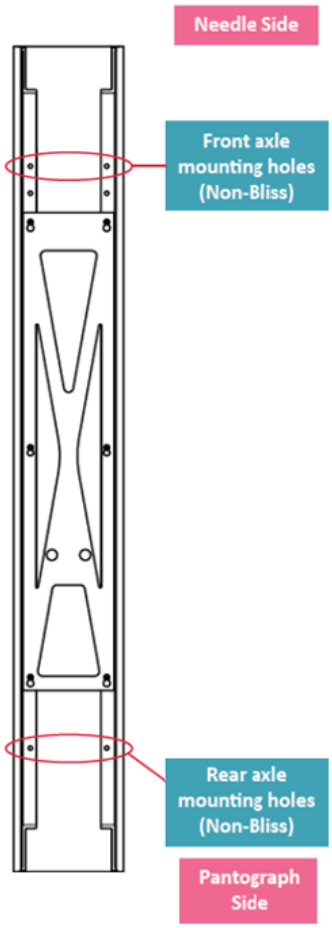


5. Place the Bliss rear carriage axle over the rear mounting holes. Make sure the jack faces the rear of the carriage.

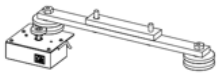
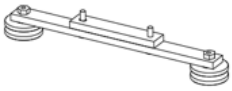


6. Tighten the mounting screws securely with a 3/16’’ Allen wrench.

Step 5 (b): Install the Carriage (Non-Bliss Track)



Tools Required: 7/16'' Open-End Wrench
9/16'' Open-End Wrench
Pliers

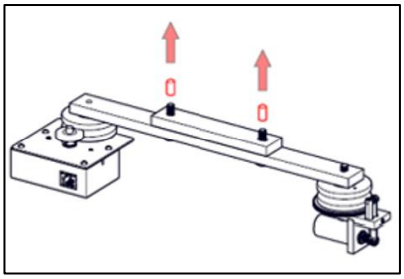
Parts Required			
Section	**Description**	**Image**	**Qty**
Non-Bliss Track Carriage	Carriage		1
Non-Bliss Track Carriage	Rear Carriage Axle (Non-Bliss)		1
Non-Bliss Track Carriage	Front Carriage Axle (Non-Bliss)		1

The Non-Bliss Carriage Axles are packed in a box inside of the head box. Carefully remove the hardware box that is placed next to the sewing head to access the carriage axles.

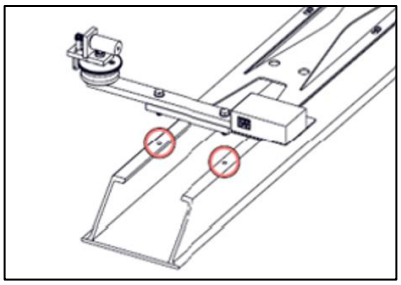
Install the Rear Carriage Axle

To protect your table top and carriage, you can leave the carriage inside the Styrofoam packaging until you have installed the axles.

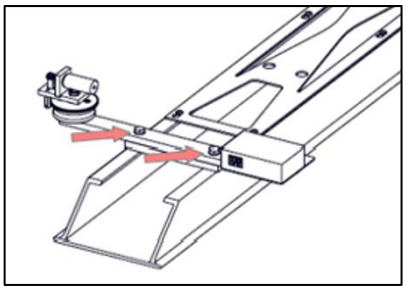
Orient the rear axle using the images below.



1. Remove the rubber packing sleeves from the axle bolts.



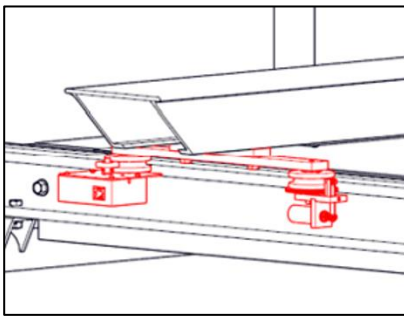
2. Locate the two holes at the rear of the carriage.



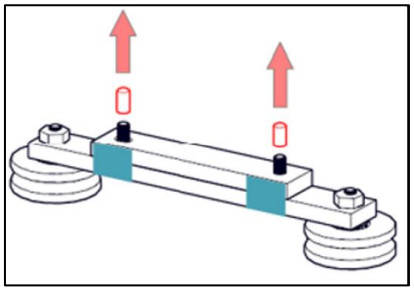
3. Tighten the mounting screws securely with a 3/16'' Allen wrench.

Install the Carriage and Front Carriage Axle

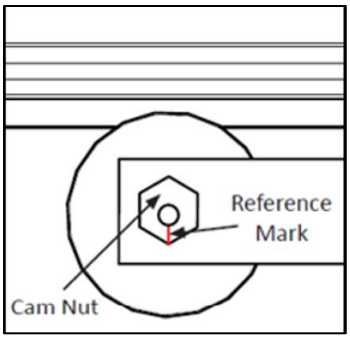
An extra set of hands is very helpful for this step. Align the rear axle wheels to the rear rail lip as showin in Step 1. Be sure the rail stays in the wheel grooves as you install the front axle. Have a helper ready to hold the rear axle in place while you install the front axle as directed below.



1. Place the carriage on the table in the correct orientation. Align the rear axle wheels to the rear rail lip.

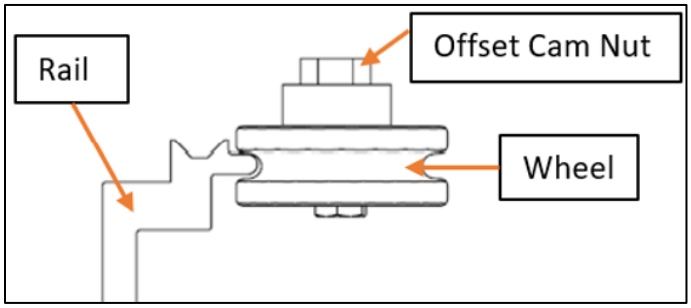


2. Remove the rubber packing sleeve and tape from just one axle bolt.



NOTE: For axle installation, the cam reference marks should point directly away from the rails to their loosest setting.

Front Axle Installation

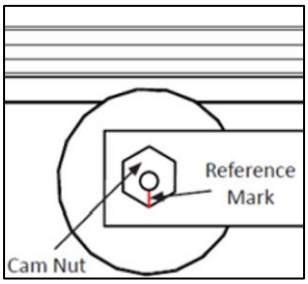


1. The front wheel grooves fit over the front rail lip as shown above. These front wheels are adjustable for a custom table fit and feel. The “offset cam nut” holds each wheel to the axle.

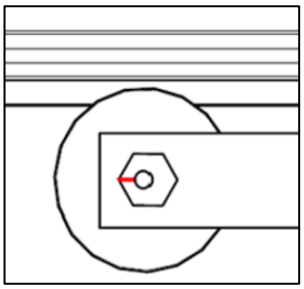
Rotating the cam nut makes the wheel move closer or farther away from the rail. Note the reference mark on the cam nut shown below.

When the reference mark points directly away from the table rail, the wheels are as loose as possible (Step 2). As you turn the cam nut and move the reference mark closer to the rail, the wheel gets tighter. When the mark points directly at the rail, the wheel is as tight as possible (Step 4).

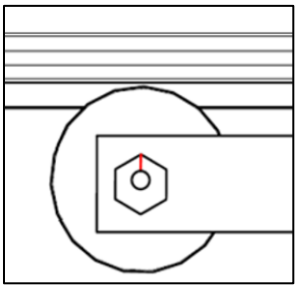
NOTE: **Always set the left and right wheel cams to the same position**.



2. Wheel is as loose as possible.

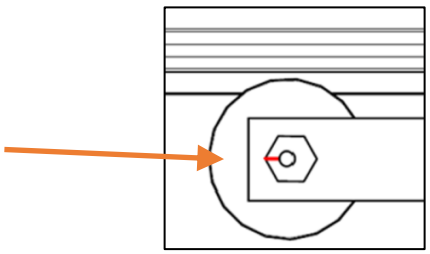


3. Wheel is set to medium grip on the rail.



4. Wheel is as tight as possible.

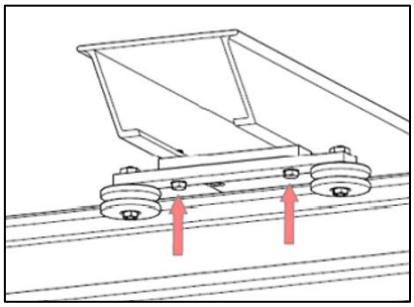
Adjust the Front Axle Cam Nuts



Once the front axle mounting bolts are tight, use a 9/16'' box or open-end wrench to adjust both the left and right cam nuts so the reference marks are set at the "medium grip" setting as shown in Step 3 in the previous section (not as loose as possible nor as tight as possible).

If the cam nut is too difficult to turn, use a 7/16'' wrench to loosen the bolt's head (underneath the wheel). Turn the cam nut to the medium grip setting and hold it in place with a 9/16" wrench while you tighten the bolt head with the 7/16'' wrench.

Once you have installed the machine head on the carriage, you can fine-tune the carriage movement by adjusting these cams slightly tighter or looser. The cam reference marks should point the same way for each cam.

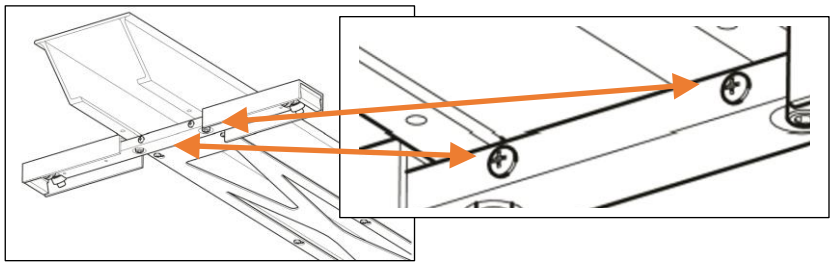


Tighten the axle mounting bolts with a 7/16'' wrench.

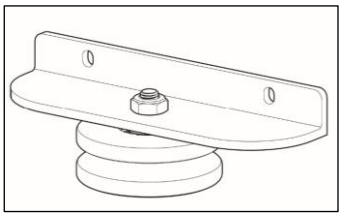
Make sure that the bottom bolt is tight after adjusting the cams.

Step 5 (c): Millie 30 Carriage – Bliss

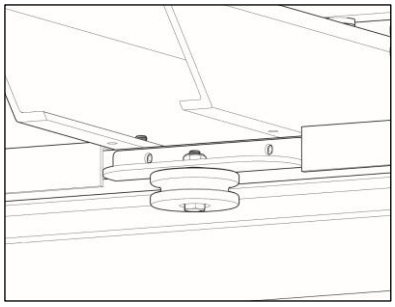
For the Millie 30, a Carriage Stabilizer needs to be installed on the front side of the carriage axle. There are two screws on the front axle that need to be removed and the Carriage Stabilizer is to be installed in this section as shown below. This item will ensure that your Millie 30 will be stable as you quilt.

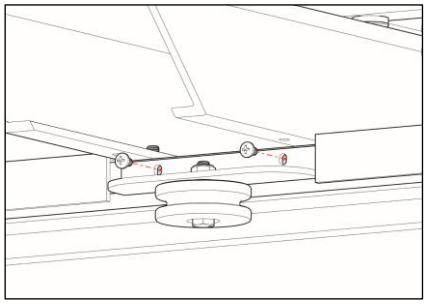


1. Remove two Phillips-head screws from front axle. Set these two screws aside for Step 4 below.

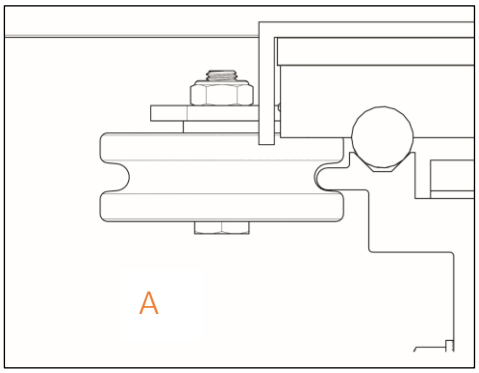


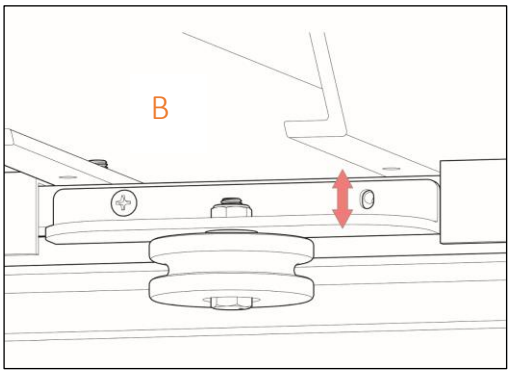
2. Locate Carriage Stabilizer (shown above).





3. Place Carriage Stabilizer onto the front carriage axle.
4. Insert the two Phillips-head screws that you removed in Step 1 (do not tighten yet).
5. The image with the screws and arrows is how it's adjusted. The holes are slotted so you can adjust the stabilizer up or down to contact the edge correctly.

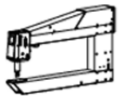




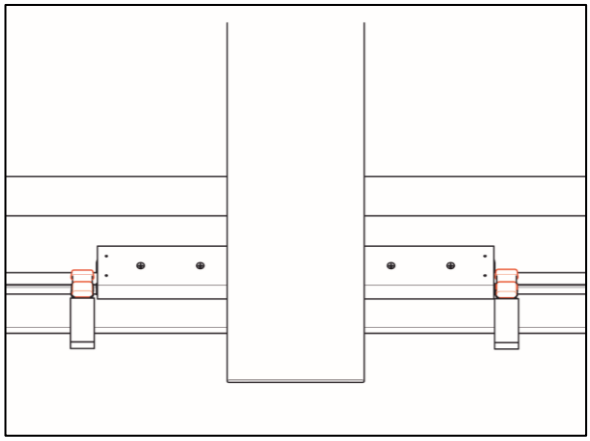
6. As you install the Carriage Stabilizer, make sure the bottom lip of the wheel is contacting the bottom edge of the rail (image A).
7. Once the up or down adjustment has been made (Image B), tighten the two screws to keep the Carriage Stabilizer in place.

Step 6: Install the Sewing Head

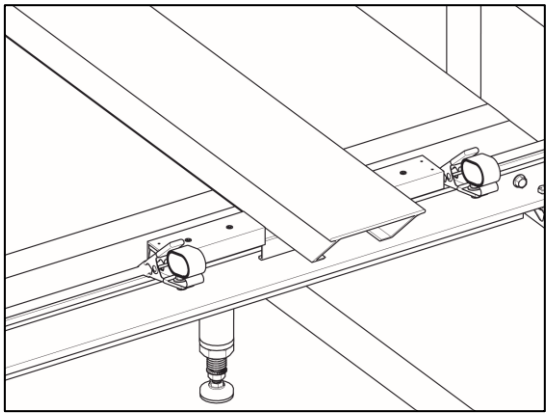
Tools Required: Phillips Screwdriver

Parts Required				
Section	**Item**	**Description**	**Image**	**Qty**
Sewing Head	Y	Sewing Head		1
Sewing Head	FF	Front Handles		1
Sewing Head	HH	¼-20 x 1" screw		1
Sewing Head	W	Pony Clamps (Inside Carriage Box)		4

Secure Carriage on Table



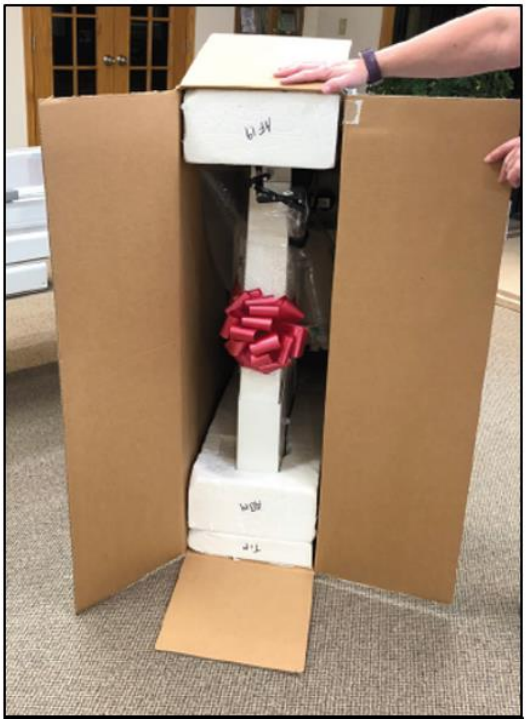
Use the Pony Clamps (W) to secure your sewing head to the table rail.



Use a Pony Clamp for each side of the carriage's front axle to keep the sewing head from rolling as you mount the sewing head onto the carriage.

Unpacking the Sewing Head Box

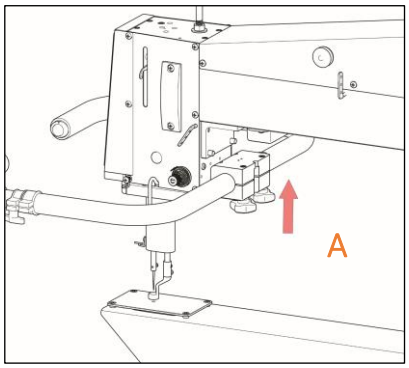
1. Carefully open the sewing head box. The head box includes custom foam inserts to protect the machine during shipping. Sometimes the box's handle holds get stuck in the foam molds, making it difficult to remove the head from the box. If this happens, just slide a flat head screwdriver between the foam insert and the box's side to force the cardboard flap out of the foam insert.
2. Remove all accessories and supplies from the head box.

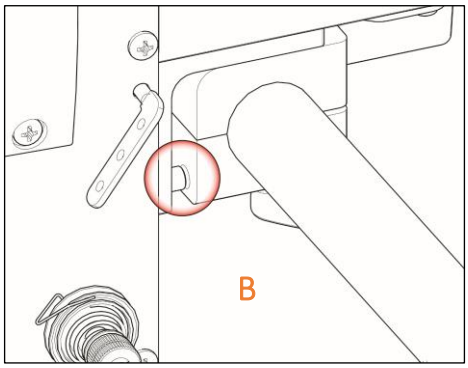


3. Tip the box so that the machine's back side rests on the floor. Pull the machine carefully out of the box leaving the machine head to sit in the foam that is on the back side of the machine.

Keep the sewing head box and packing material for any future factory or service needs.

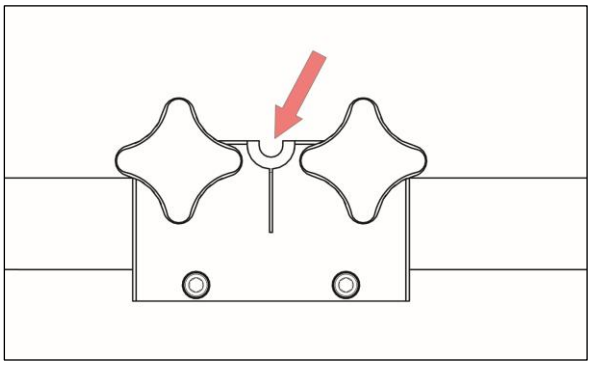
Install the Front Handles

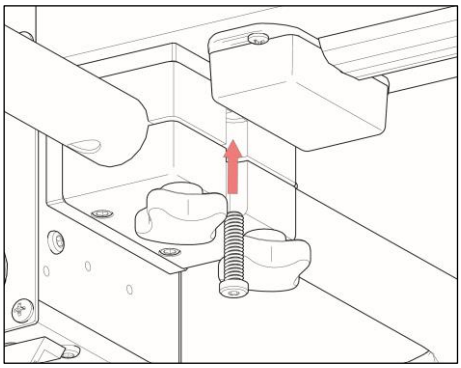




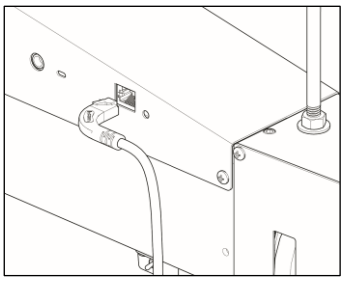
1. Locate the front handles inside of the sewing head box.
2. Carefully remove any packing foam and plastic from the handles.
3. Remove the foam from the front of the machine (top side as machine comes out of box).
4. Place the handle (FF) behind the crank housing as shown above in Image A. You may need to rotate the handles in the center clamp to align the handles correctly.
5. There are two holes on the mounting face of the clamps. Position these over the matching studs on the brace. Slide into place as shown in Image B.

NOTE: Black hand knobs can be loosened so that you can adjust the handles to a more comfortable



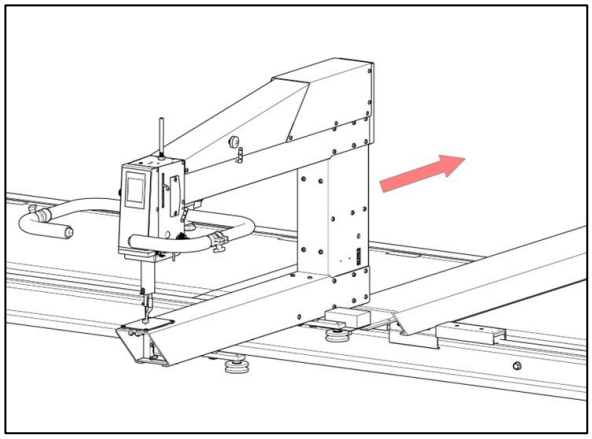


6. The cutout in the handle clamp lines up with the threads on the underside of the top tube. Screw the ¼-20 bolt into the threads and tighten with a 1/8’’Allen wrench (provided).

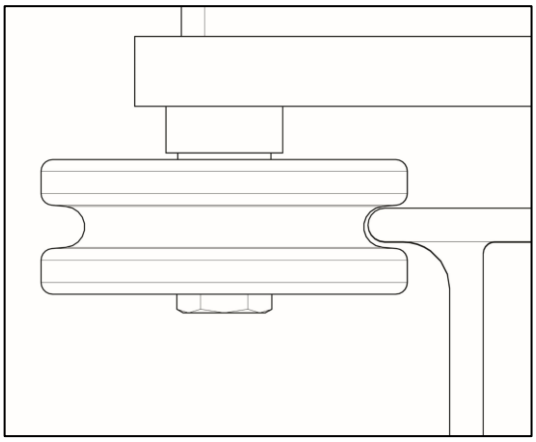


7. Plug the cable into the jack on the left side of the top cover.

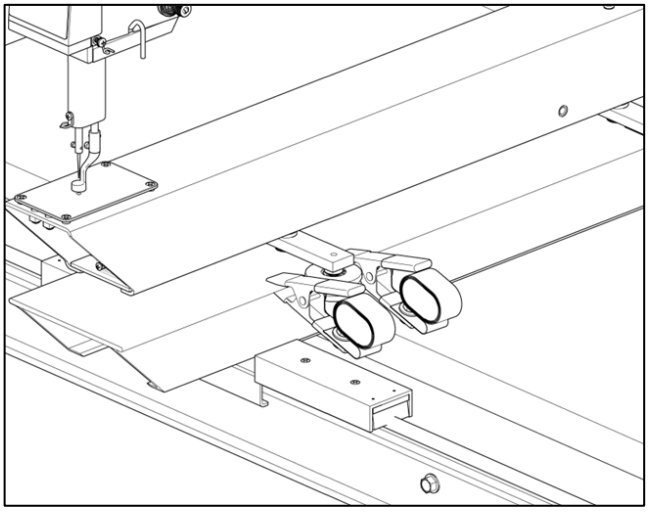
Place the Quilting Head on the Carriage



1. From either the front or back of your table, lift the quilting head and guide the axle wheels onto the carriage.



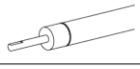
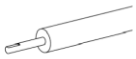
2. Be sure to keep the sewing head level as you align the wheels with the carriage.



3. To keep the head from rolling off the carriage, use the clamps by placing one clamp on each side of the sewing head's front axle wheel as shown above.

Step 7: Install the Rollers

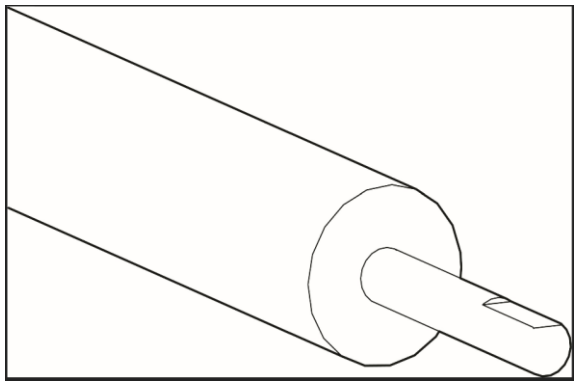
Tools Required: Phillips Screwdriver
Utility Knife

Parts Required				
Section	**Item**	**Description**	**Image**	**Qty**
Rollers	OO	Fabric Roller		3
Rollers	PP	Leveler Bar		1
Rollers	QQ	Shoulder Bolt		4
Rollers	RR	5/8" Collar		4

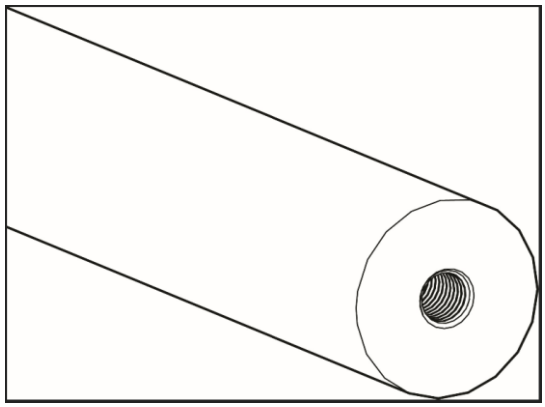
Unpacking Box 2 – Roller Tubes

1. Open Box 2 as you did the Rail Box (Box 1), removing two screws from each end and cutting the strapping tape. Locate the roller labled “Pick Up.” (Each of the fabric rollers have stamped labels of “Pick Up,” “Backing” and “Quilt Top.” The Leveler Bar has no canvas attached and is not labeled.)

   Each roller has a shaft end and a threaded end.



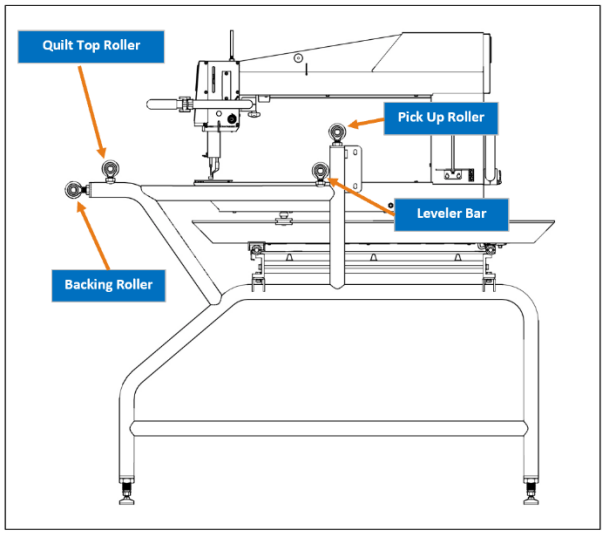
The shaft ends fit into ball (heim) joints on the RIGHT table leg (when viewed from the needle side of the machine).



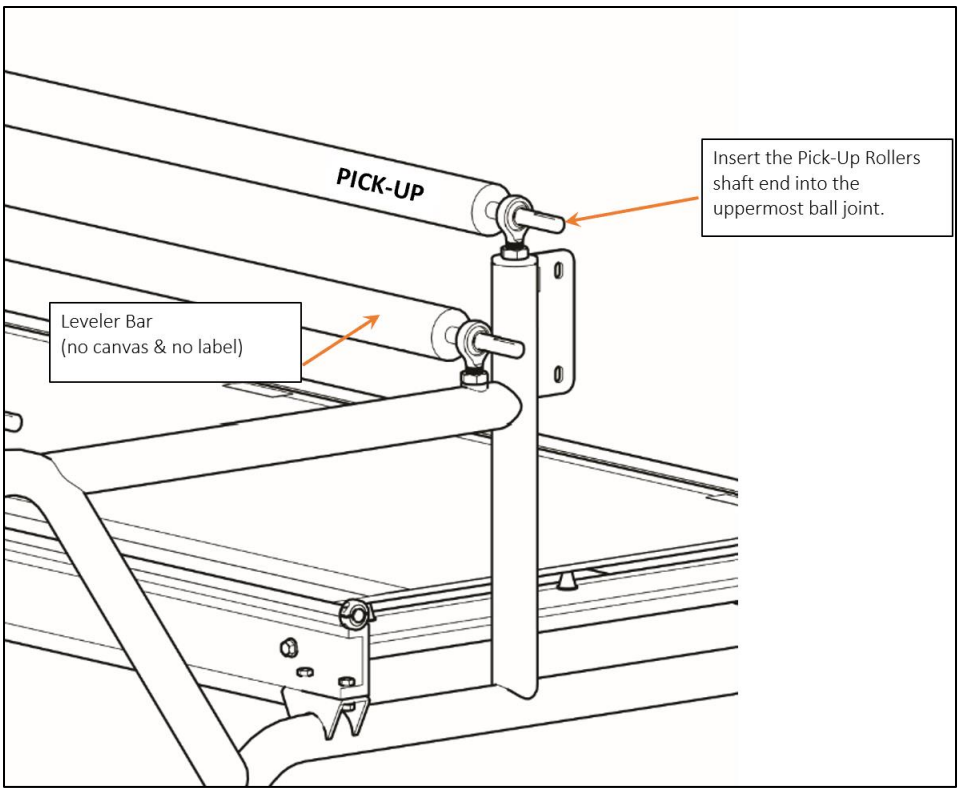
The threaded ends face the LEFT table leg. The shoulder bolts and collar spacers will mount the threaded end of the left table leg.

2. Move the machine head toward the left table leg. Place the shoulder bolts and spacers near this side of the table.

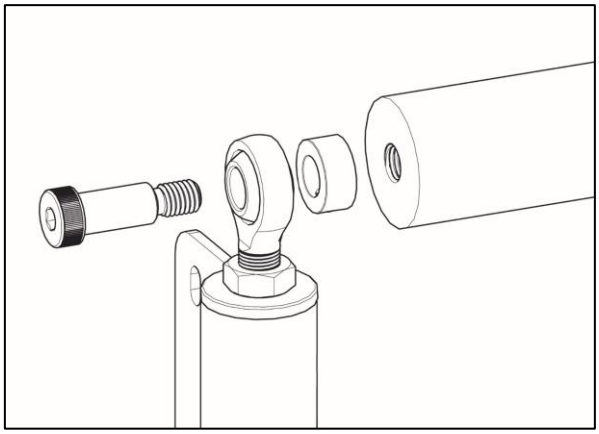
3. Rollers will be placed in the following positions of the table legs.



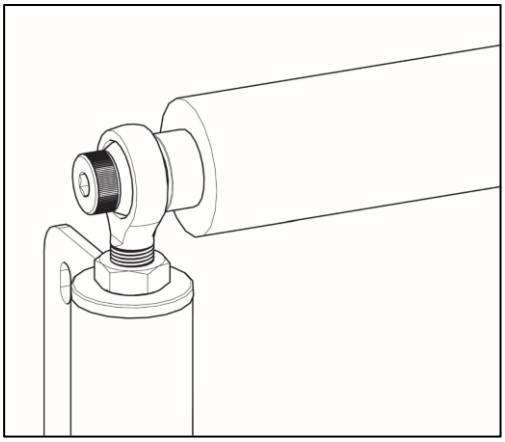
4. The shaft end of each roller mounts to the right table leg.
5. With the machine head on the left side of the table, insert the Pick-Up Roller's threaded end into the machine's throat and rest the roller on the machine's throat if necessary while you begin to install the shaft end.
6. Move to the right side of your table and insert the Pick-Up Roller's shaft end into the uppermost ball joint.



7. On the left side of the front of your machine:



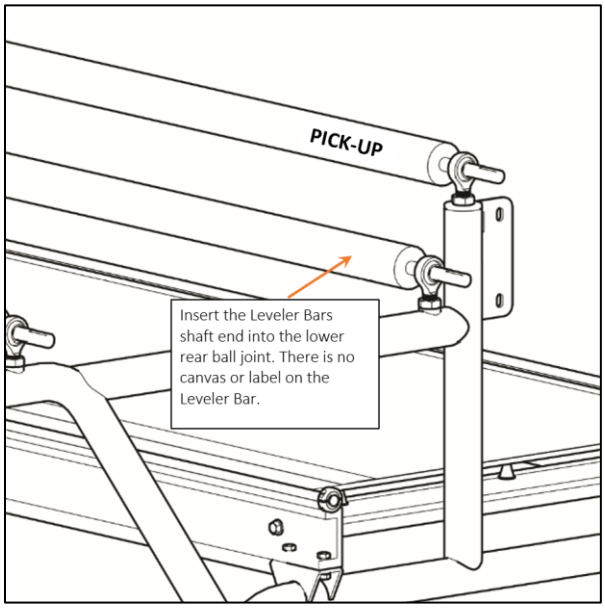
a. Place a spacer collar between the roller and the ball joint. Insert a shoulder bolt through the ball joint, then through the collar spacer into the roller.

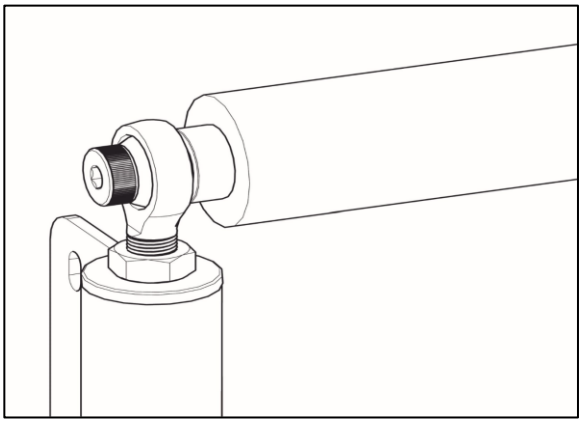


b. Screw the shoulder bolt in until it is flush with the ball joint. Hand tightening is sufficient. You will see an empty set screw space on the collar; it is intentionally removed. You do not need to lock the collar in place.

Install the Leveler Bar

1. As you did with the Pick-Up Roller, with the machine head on the left side of the table, insert the Leveler Bar's (roller with no canvas) threaded end into the machine's throat and rest the roller on the machine's throat if necessary while you begin to install the shaft end.
2. Move to the right side of your table and insert the Leveler Bar's shaft end into the lower rear ball joint.

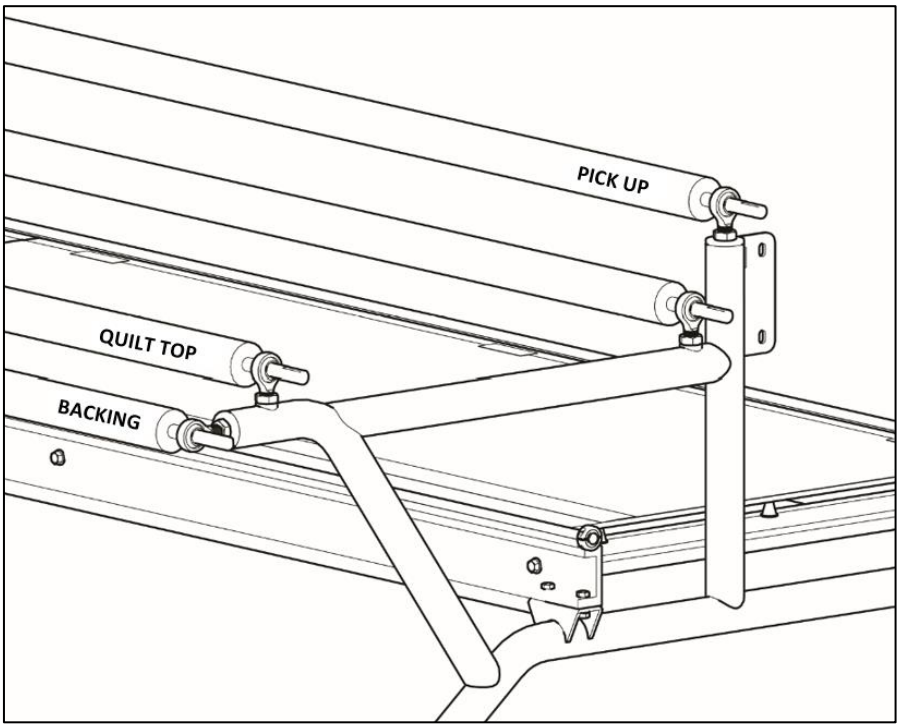




3. Install the shoulder bolt and collar, the same as the Pick-Up Roller.

Install the Quilt Top Roller & Quilt Backing Roller

1. Locate both the Quilt Top & Quilt Backing Rollers and perform these steps for each roller:
2. Rest the roller's threaded end on the floor. Take note of each of the roller's placement in the image below.
3. Insert both the Quilt Top and Backing Rollers shaft ends into the right leg's ball joint as shown in the following image.



4. On the left side of the table, raise the left side of the roller and install the shoulder bolt and collar as with the previous two rollers that you have already installed.

Step 8 (a): Install the Tension Brake(s)

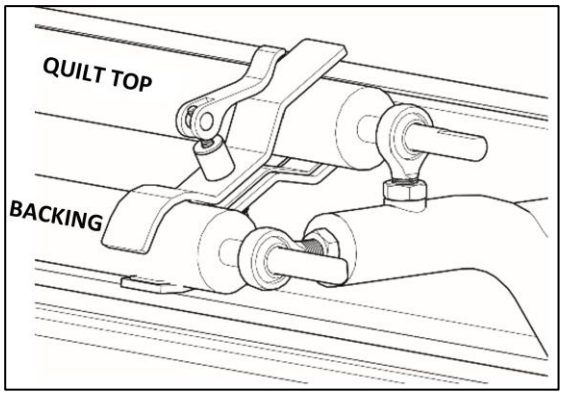
Tools Required: 3/16’’Allen Wrench
5/32’’Allen Wrench
Phillips Screwdriver
(for Automatic Quilt Advance)

Parts Required: 2 Roller Brakes
3 Roller Handles
-OR-
1 Roller Brake
2 Roller Handles
Optional Automatic Quilt Advance

Install the Quilt Top Backing Brake

1. Hold the blue handle; turn the brake bolt counterclockwise to loosen it using a 3/16’’Allen wrench.

2. Loosen the brake bolt enough to slip the brake over the Quilt Top and Quilt Backing Rollers.



3. Place the curved end of the two brake plates over the Quilt Backing Roller as shown above.

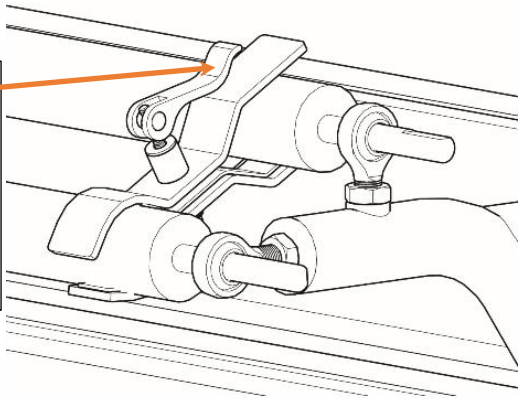
Adjusting the Brake

1. Insert a 3/16’’Allen wrench into the long bolt under the brake.
2. Hold the screw steady with the Allen wrench.
3. Lift the blue handle from its locked position, then rotate the handle clockwise to tighten the brake or counterclockwise to loosen the brake.
4. Test the brake pressure by engaging the handle; repeat the process if more pressure is needed. The handle is engaged when its tip points down toward the brake.

Roller Brake Operation

THE blue handle’s outward rounded (convex) side engages the brake.

The blue handle can swing around 360 degrees; therefore, your brake can be locked with the handle pointing toward the top part of the brake OR the bottom part.

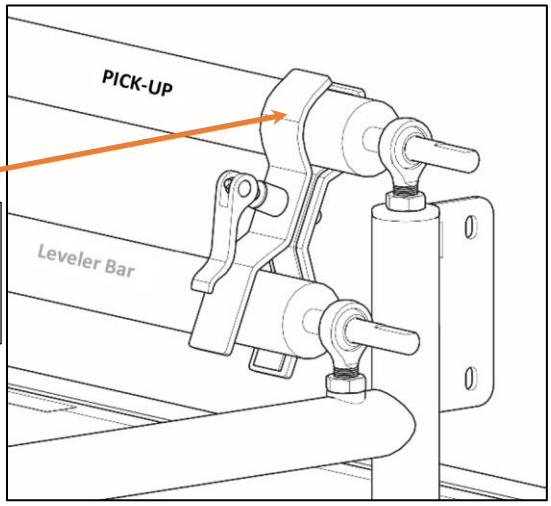


Install the Pick-Up/Leveler Bar Brake

NOTE: **If you purchased the optional Automatic Quilt Advance, you would not install a second roller brake**. Move ahead to the section titled “Install the Automatic Quilt Advance” on page 45.

Follow the same process to install the second brake to the Leveler Bar and Pick-Up Roller.

Install the curved end of the brake to the Pick-Up Roller.

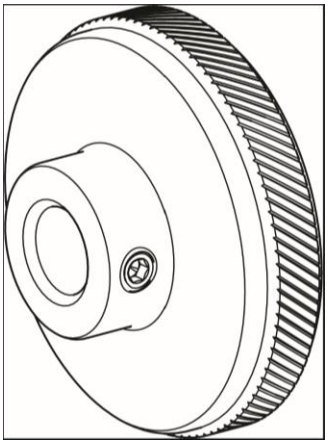


Step 8 (b) Install the Roller Handles

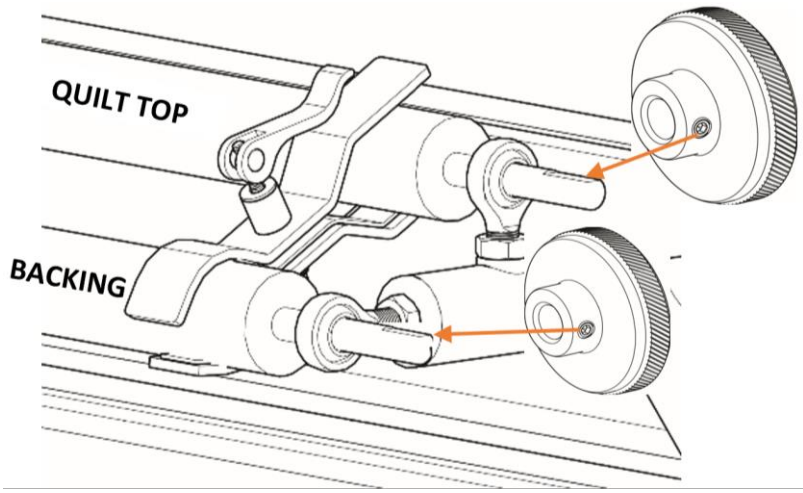
Tools Required: 5/32'' Allen Wrench

Parts Required: 3 Roller Handles (2 for optional Automatic Quilt Advance)

Roller handles are installed on the three canvas covered rollers, not on the Leveler Bar (no canvas). If you purchased the optional Automatic Quilt Advance, the Pick-Up Roller will not need a roller handle.

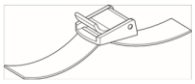


1. Each handle is installed using a 5/32''Allen wrench. Make sure the Allen set screw is not extending into the handle mounting hole.



2. Align the handle set screw with the flat side of the Roller Shaft. Push the handle on to the shaft and tighten the set screw for both the Quilt Top and Backing Rollers.

Step 8 (c):Install the Fabric Clamps

Parts Required				
Section	**Item**	**Description**	**Image**	**Qty**
Fabric Clamps	II	Clamps with Elastic		4
Fabric Clamps	JJ	Hook & Loop Fastener		4

1. Attach each hook and loop faster strap with buckle (JJ) to the loop tape that is pre-installed

2. The buckle should be on the outside of the leg, the lever should open “up.”

3. Unroll clamp with elastic (II). Hold the clamp so the side with the elastic attached is facing the floor.

4. Raise the buckle lever and slide the elastic end into it as shown above.

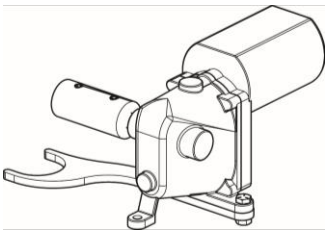
5. Pull the elastic through to the desired length for your quilt.

6. Push the lever down to hold the elastic in position.

Step 8 (d):Install the Optional Automatic Quilt Advance

Tools Required: Phillips Screwdriver
½'' Box & Open-End Wrench
½'' Socket Wrench
5/32''Allen Wrench

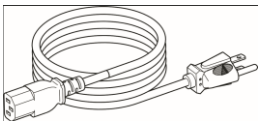
Parts Required:



Automatic Quilt Advance Motor

Motor Controller

Foot Pedal



Power Cord

Install the Automatic Fabric Advance Motor

1. Locate the flat side on the Pick-Up Roller Shaft.

2. Locate the set screws in the motor coupler. Rotate the Pick-Up Roller until the flat side on the shaft aligns with the motor coupler set screw.

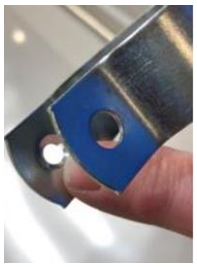
3. Push the motor toward the table leg as far as it will go, aligning the mounting fork with the opening in the leg bracket.

4. Make sure that the roller shaft flat side is still in line with the set screws. Tighten the set screws with a 5/32'' Allen wrench.

Install the Motor Controller

1. Locate the Motor Controller.

2. Remove the screw from the mounting bracket.



3. The threaded hole should stay toward the table.

4. Spread the bracket apart to clear the table leg.

5. Slide the bracket onto the right table leg.

6. Pinch the bracket ends back together.

7. Reinsert the bracket screw.

8. Hold the controller in place and tighten the bracket screw.

9. The grounding wire from the controller must be installed on one of the two rail mounting bolts on the table leg. Use a ½'' socket wrench and a ½'' open-end wrench to remove the nut and lock washer from one of the bolts.
10. Place the grounding ring on the bolt, then replace the washer/nut and tighten securely.

Make the Electrical Connections

1. 
Plug the motor cable to the white connector on the motor controller.

2. Place the foot pedal under the quilting table and feed the wire up to the controller.

3. Plug the foot pedal into the pedal jack on the motor controller.

4. Insert the power cord. Press the switch to the solid line to turn on the Automatic Quilt Advance. It is advised to plug the fabric advance into a separate outlet from the machine to avoid cross-talk between the power cords.

5. The blue pedal advances the quilt; the white pedal unwinds the quilt. This can be placed under your table either in the front or the back of the table.

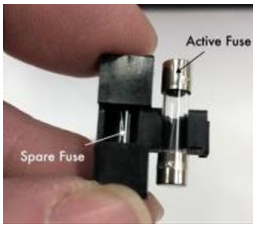
6. The toggle switch on the motor controller can be used instead of the foot pedal.

NOTE: Release pressure on the Roller Brake when engaging the Automatic Quilt Advance by lifting the brake handle. This will reduce fabric strain and reduce motor wear.

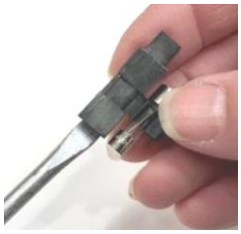
Automatic Quilt Advance Care & Maintenance

Your APQS Automatic Quilt Advance control box is protected by a fuse in the event of a power surge or other electrical issue. If the unit is not operating correctly, first ensure that it is plugged in to a working wall outlet and that the power cord is firmly seated in the control box before proceeding. Make sure the power switch on the control box is turned to the “on” position (toward the straight line on the switch—the “O” indicates the “off” position). If it still will not operate, check the fuse in the controller.

1. Turn the unit’s power off and remove the power cord. Use a flat blade screwdriver to pull the fuse drawer from the motor controller as shown.



2. The “active” fuse is exposed in the fuse holder box. If it appears cloudy or black inside, the fuse has blown.



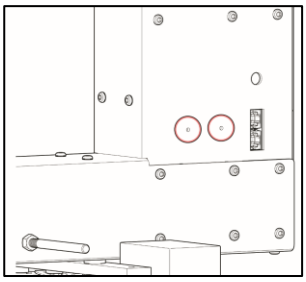
3. A spare fuse is included in the small “drawer” on the fuse holder. Use the tip of the screwdriver to slide the drawer open.

4. Replace the blown fuse with the new fuse and reinsert the fuse holder into the motor control box.

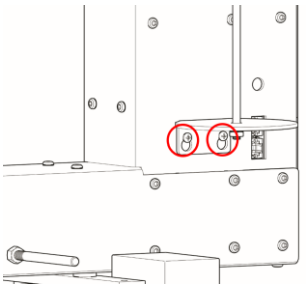
Step 9: Install the Thread Stand & Laser Light Bolt

Parts Required				
Section	**Item**	**Description**	**Image**	**Qty**
Thread Stand	KK	Thread Stand		1
Thread Stand	LL	Foam Disc		1
Laser Bolt	MM	Laser Bolt		1

Thread Stand
Tools Required: Phillips Screwdriver



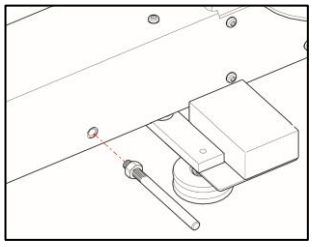
1. The thread stand mounts on the thread path side of the machine. Loosen these two mounting screws.



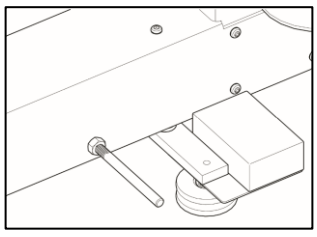
2. Slip the thread stand over the mounting screws; slide the stand down so the screw slots engage; tighten securely.

3. Place the thread stand foam disc on the thread stand.

Laser Light Bolt
Tools Required: ½'' Open-End Wrench



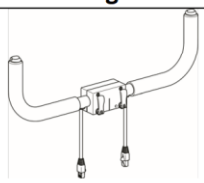
1. Thread the laser light bolt into the mounting hole on the thread path side of the machine.



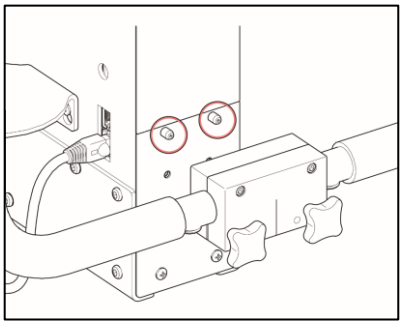
2. Tighten the nut against the machine with a ½'' open-end wrench.

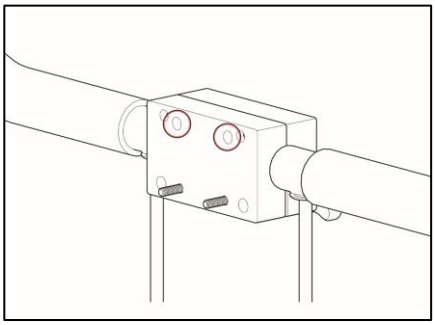
Step 10: Install the Rear Handles

Tools Required: 9/64'' Allen wrench (provided)

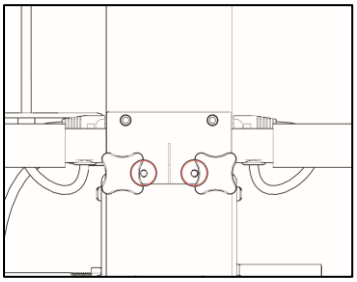
Parts Required				
Section	**Item**	**Description**	**Image**	**Qty**
Rear Handles	NN	Rear Handles		1

The rear handle assembly screws are permanently installed in the mounting bracket on the back of the machine head.

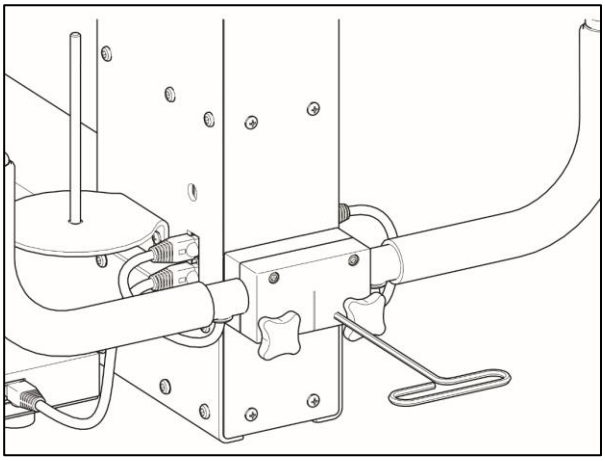




1. Align the handle mounting bracket with the silver guide posts on the machine.



2. Push the mounting bracket on to the guide posts until the bracket is flush with the machine.

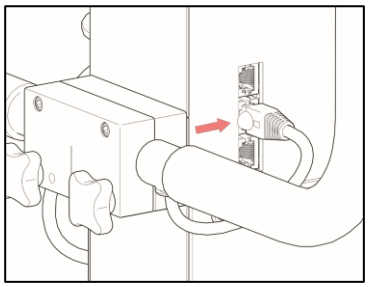


3. Insert the included 9/64'' Allen wrench into the lower hole on the mounting bracket. The wrench will align with the bolt sealed inside the bracket. Tighten the screw securely.
4. Repeat with the second mounting screw.
5. To adjust a handle, loosen the corresponding knob and position it where you like, then tighten the knob again to lock it in place.

Step 11: Connect Cables and Power (Non-Quilt Path)

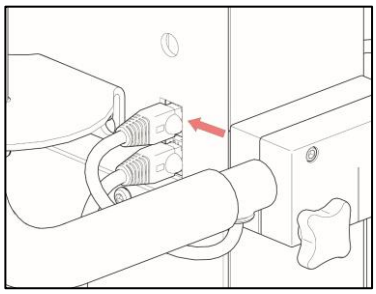
Tools Needed: Phillips Screwdriver
Scissors

Parts Required: Sewing Head CAT-5 Cable (1 foot cable)
Carriage Encoder CAT-5 Cable (3 foot cable)
Power Cord
Zip Ties
Cushion Clamp & Mounting Screw



1. Plug the RIGHT rear handle into the Right handle jack (middle outlet).

2. Plug one end of the 3-foot CAT-5 cable into the CARRIAGE ENCODER jack.



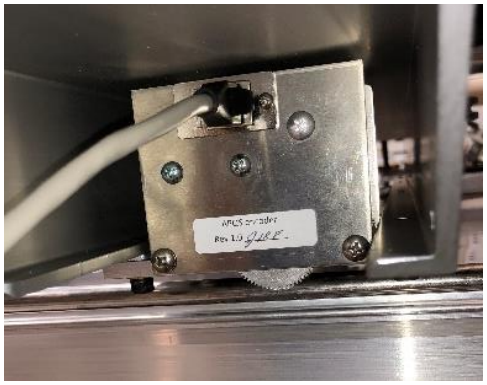
3. Plug the blue LEFT rear handle cable into the Left handle jack.

4. Locate the Sewing Head CAT-5 cable taped to the machine's throat. It will connect the head encoder pictured above to the side of the machine.

5. Plug one end into the encoder jack and the other end into the Head Encoder jack on the machine.

If you are installing Quilt Path, skip this step and move to the Quilt Path Manual to complete your setup.

Bliss Track Carriage Connection



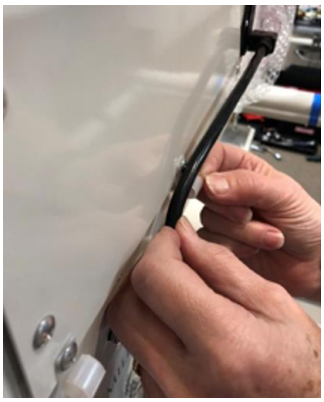
1. (a) Plug the other end of the CAT-5 cable into the jack inside the carriage.

Non-Bliss Carriage Encoder Connection

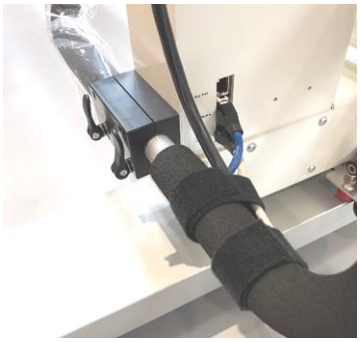
2. (b) Plug the other end of the 3-foot CAT-5 cable into the encoder on the carriage's rear axle.

Cord Management (Bliss or Non-Bliss, without Quilt Path)

1. Plug the power cord into the machine.



2. Feed the power cord into the plastic cord supports.

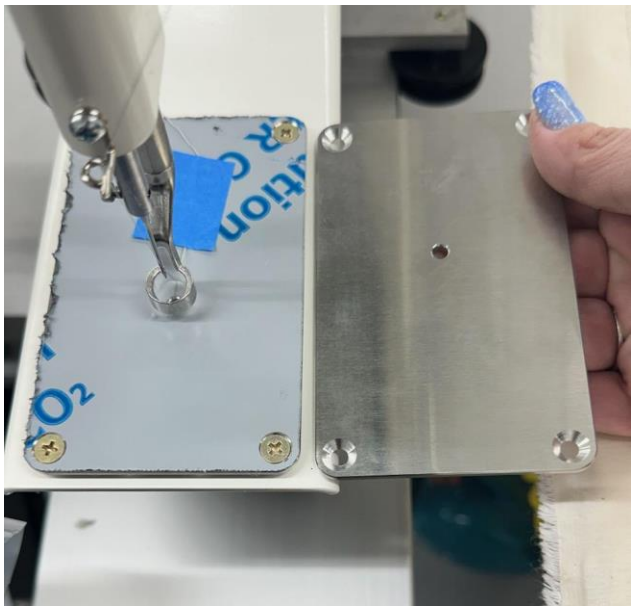


3. Use the two hook and loop fastener strips attached to the right handle to support the power cord and CAT-5 Carriage Encoder Cable.

4. Slip the cushion clamp over the power cord. Insert the mounting screw into the mounting hole. Just get it started for now.

5. Push the machine all the way forward to check the cord travel. Adjust the cushion clamp on the carriage to allow free movement without binding the cords or having them rub on the table. Tighten the cushion clamp. Use zip ties to hold the carriage encoder cable and main power cable together. Trim zip tie ends.

NOTE: Prior to using your machine, please remove the protective coating that is on the needle plate. It is usually white or grey and is applied by the manufacturer to protect the plate from damage during the building process.



Turning Machine On/Off

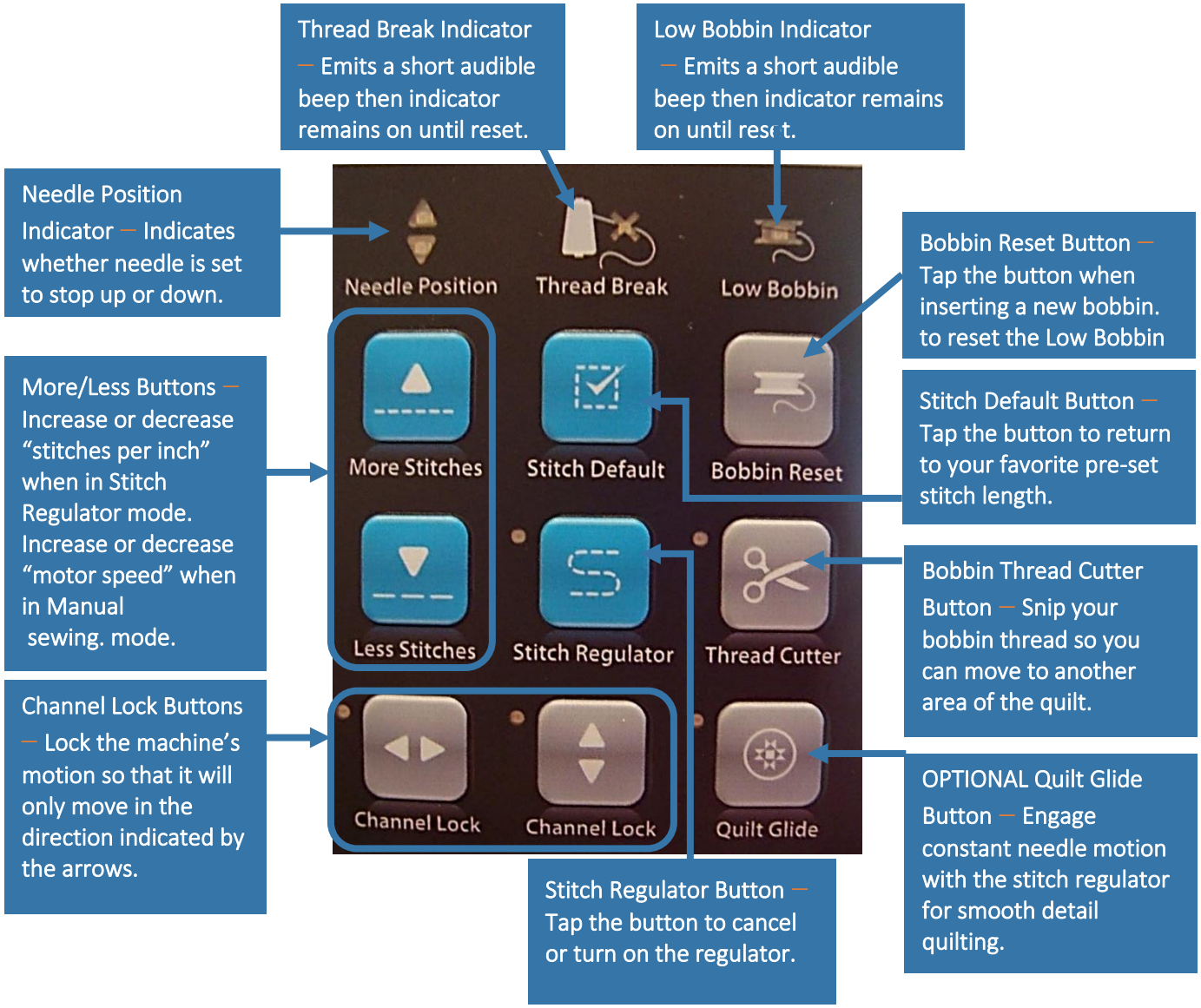
The on/off switch for the quilting machine is located in the center of the machine right above where the power cord plugs into the machine. The switch has two markings on it – when the half of the switch with the 'O' is pushed down flat against the machine, the machine is off. If the switch that has the 'I' is flat against the machine, the machine is on.

HINT: It may be helpful to remember this by thinking about how the power gets to the machine. If the I is pushed down, the power gets straight thru the power cord to the machine. If the 'O' is down, the power gets 'turned around' and doesn't get to the machine.

Machine Operations – Millie 30/Millie/Freddie

Your new Millie or Freddie machine uses simple controls and has features to make your quilting more fun and enjoyable. The images below give you an overview of each machine's functions. Press the buttons to change a setting or switch a feature on or off as described below. The APQS Smart Touch Pad is the same whether you are working on the needle side of the machine or the pantograph side of the machine. Read the definitions that follow the charts to fully understand how your machine works, including how to change factory presets to suit your quilting preferences.

Millennium Smart Touch Pad Features



Freedom Smart Touch Pad Features

Function/Button Definitions:

Stitch Regulated Mode:

Stitches will be the same length as you move the machine across the quilt regardless of how quickly you move the machine. The sewing motor will speed up and slow down to adjust to your motion.

Manual Mode:

Stitches will vary in length as you move the machine across the quilt, depending on how quickly or slowly you move the machine. The sewing motor will operate at a constant speed and your needle will continuously move regardless of your motion.

Smart Touch Pad Buttons:

Stitch Regulator On.

When the blue LED light is on, the Stitch Regulator is engaged. Stitch Regulated Mode is the default mode when you turn on the machine's power. Tap this button to turn off the Stitch Regulator to place the machine in Manual Sewing Mode. When the Stitch Regulator is ON, you'll hear a beep about every 7-8 seconds to remind you that you are in regulated mode.

Stitch Regulator Off = Manual Sewing Mode.

When the LED light is off, your machine is in Manual Sewing Mode. Tap this button to place the machine in Stitch Regulated Mode.

Stitch Default. *(Stitch Regulator Mode)*

Your machine is set for a default stitch length of approximately 11 stitches per inch, a common length used by quilters for general quilting. You can override the default stitch length by pressing either the "More Stitches" or "Less Stitches" button.
To return to the default stitch length setting, tap the Stitch Default button.

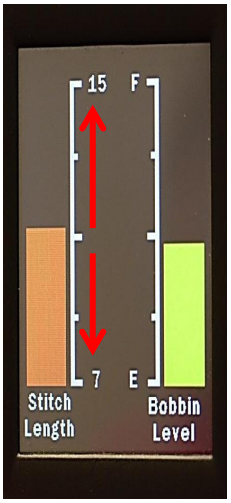
Stitch Default. *(Manual Sewing Mode)*

If you have turned the Stitch Regulator off, the sewing motor will default to run at a constant "medium" sewing speed. You can override the default sewing motor speed by pressing the "More Stitches" or Less Stitches" button.

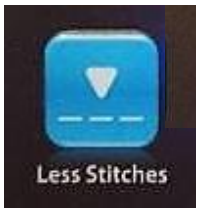
To return to the default medium sewing speed while in Manual Sewing Mode, tap the Stitch Default button.

More Stitches. *

Increases the stitches per inch from the current setting.
As you tap the More Stitches button, the stitch length indicator bar on the LCD Screen will rise to indicate the change. *Press the Stitch Default button to return to your preset default stitch length.*

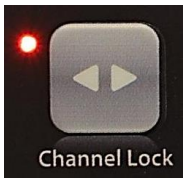


Less Stitches. *



Decreases the stitches per inch from the current setting. As you tap the Less Stitches button, the stitch length indicator bar on the LCD Screen will drop to indicate the change. *Press the Stitch Default button to return to your preset default stitch length.*

**When you turn off the Stitch Regulator, these buttons now increase or decrease the motor speed in Manual Sewing Mode. The stitch length indicator bar will rise or fall to indicate the change. Tap the Stitch Default button to return to the default motor speed when sewing in Manual Mode.*



Channel Lock – Left to Right.*

Tap this button to lock the machine so that it only sews left to right (horizontally) across the table's length as indicated by the arrows on the button. When the red LED light is on, the Channel Lock is active. Tap the button to release the lock.
**Electronic Channel Locks are only found on Millennium models.*

Channel Lock – Front to Back.*

Tap this button to lock the machine so that it only sews forward and backward (vertically) as indicated by the arrows on the button. When the red LED light is on, the Channel Lock is active. Tap the button to release the lock.
**Electronic Channel Locks are only found on Millennium models.*

Thread Cutter.*

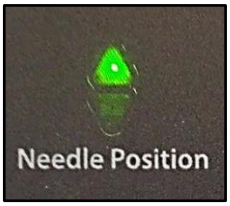
Raise the needle to the "UP" position (see the "Handle Switches" information beginning on page 69) and tap this button to trim the bobbin thread. A red LED light indicates the cutter's puller arm is cycling. When the red LED light is on, the handle switches are inoperable. The red LED light will turn off when it is safe to resume quilting. The thread cutter will leave a short bobbin thread tail on the quilt back of the quilt.

**The Thread Cutter is only available on Millennium models.*

Optional Quilt Glide.

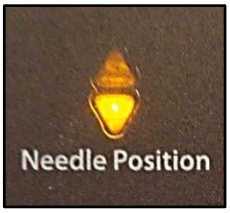
This is a “micro quilting assistant.” This feature combines continuous needle motion with stitch regulation to make micro quilting more fluid. It is best used for detail and close quilting work. Tap this button to engage the Quilt Glide. When active, the red LED indicator light glows. The needle will continue to move up and down even when you’ve paused your movement while in stitch regulated mode. To avoid thread build-up or breaks, continue moving the machine or turn off the sewing motor using a handle’s GREEN button. Tap this button again to cancel the Quilt Glide feature and return to standard stitch regulated mode. *(The Quilt Glide function will not affect needle motion in manual sewing mode.)*

Smart Touch Pad Indicator Lights



Needle Up Indicator.

Green UP arrow indicates the needle will stop in the “up” position when you tap the GREEN button on any handle, canceling the sewing motor. Tap any handle’s WHITE button to change the needle position to the “down” position.

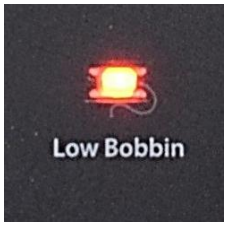


Needle Down Indicator.

Yellow DOWN arrow indicates the needle will stop in the “down” position when you tap the GREEN button on any handle, canceling the sewing motor. Tap any handle’s WHITE button to change the needle position to the “up” position.

Top Thread Break Indicator.

Red “X” illuminates and a short series of audible beeps sound when the top thread break sensor detects a possible break. Stop the sewing motor using the GREEN buttons on any hande and re-thread if necessary. The indicator will reset when you stop the sewing motor and then start it again to resume quilting. *(See the “Top Thread Break Sensor Operation” on the next page for more information.)*



Low Bobbin Indicator.

Red LED light flashes and a short series of audible beeps sound when the bobbin reaches a preset low level. Insert a new bobbin and tap the “Bobbin Reset” button. The Low Bobbin Indicator will not work if the Top Thread Break Sensor is off or bypassed. *(See “Bobbin Reset Procedure” for information.)*

Top Thread Break Sensor Operation

The Top Thread Break Sensor is a useful tool for quilters who work on the pantograph side of the machine or who use an optional computerized system such as the APQS Quilt Path. An encoder reads the motion of the thread break sensor wheel. If the wheel stops turning, the encoder "assumes" that the top thread has broken. You'll hear a short series of beeps and the Top Thread Break Indicator Light located on each Smart Touch Pad will come on.

The machine will NOT stop sewing; the Top Thread Break Sensor is an alert system only. Turn off the sewing motor by pushing the GREEN button on any handle and re-thread your machine if necessary. **The thread sensor will reset when you stop the sewing motor to check for the thread break**.

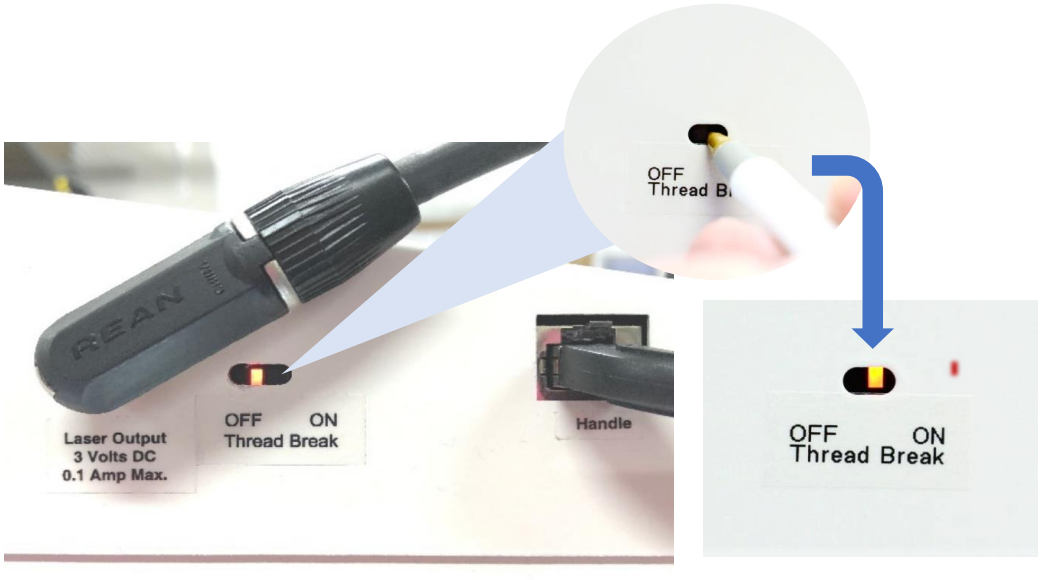
(*Using the Top Thread Break Sensor is optional, unless you wish to use the Low Bobbin Indicator.* If you are working on the needle side of the machine where you will obviously see the top thread break, you may choose to turn the sensor off, and then thread your machine in the standard format as indicated on page 73 in this manual.)

The Top Thread Break Sensor MUST be used if you wish to use the Low Bobbin Indicator.

Turn On the Top Thread Break Sensor.

Locate the Thread Break Sensor Switch on the machine's top cover (on the thread path side of the machine). Use a pen (**not** a pencil) or other blunt point instrument to slide the small toggle switch toward the "ON" position. The LED light illuminates indicating the sensor is active.

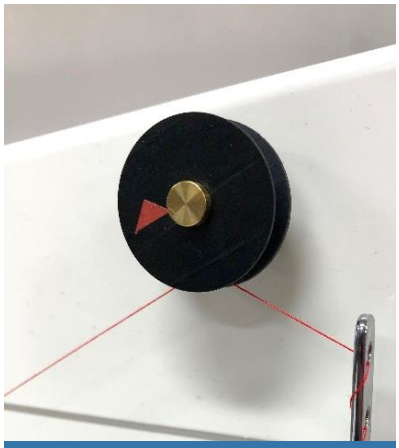
NOTE: Do not be forceful with this switch as it may break. Use a flashlight to best see this switch.



Low Bobbin Indicator Operation

The Low Bobbin Indicator is a wonderful way to monitor how much thread remains on your bobbin. However, it's important to remember that the indicator provides an *approximation* only.

The Low Bobbin Indicator works in conjunction with the Top Thread Break Sensor (see photo at right). You MUST use the Top Thread Break Sensor together with the Low Bobbin Indicator or the Low Bobbin Indicator will not work.



Top Thread Break Sensor

The Low Bobbin Indicator works by measuring how much thread travels through the Top Thread Break Sensor. In simple terms, if you use 10 yards of thread on top of the quilt, then you are also using 10 yards of thread on the back of the quilt.

However, many factors affect the accuracy of the Low Bobbin Indicator, including:

- Top and bobbin tension
- The method you use to start and stop your stitches (for example, how much bobbin thread you pull to the surface of the quilt independently from the top thread)
- Top thread breaks where you re-thread the top thread, pulling more through the Top Thread Break Sensor than the bobbin uses while stitching
- Changing the top thread (pulling more through the Top Thread Break Sensor) without pulling an equal amount of bobbin thread through at the same time)

In essence, any situation where you pull more top thread through the Top Thread Break Sensor than you pull up from the bobbin, or vice versa.

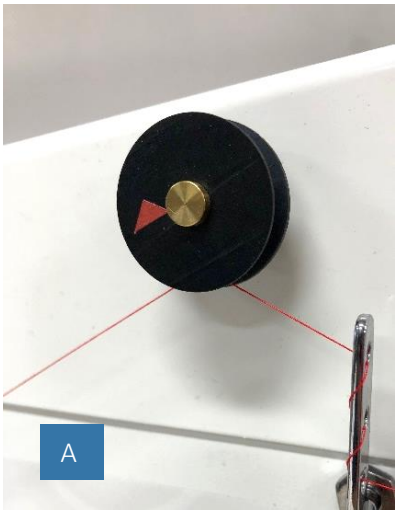
Your APQS machine does not "know" how many yards of thread are on the bobbin you are using. The thread yardage on a bobbin will vary by thread weight, thickness and tension applied during the winding process. The yardage will also be affected by how soon your bobbin winder disengages.

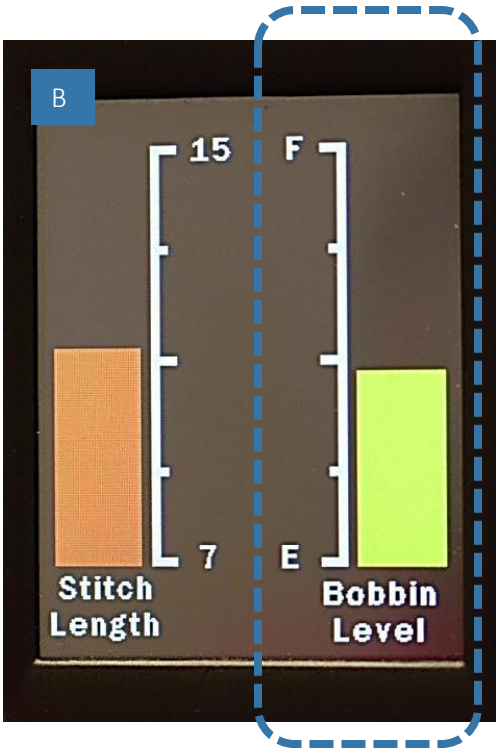
In concept, the low bobbin indicator on your machine works much like the gas gauge on your car. As you drive, the gas gauge shows you how much fuel is left in the tank. When it reaches a certain predetermined point, the car's low fuel indicator comes on to remind you to fill up soon.

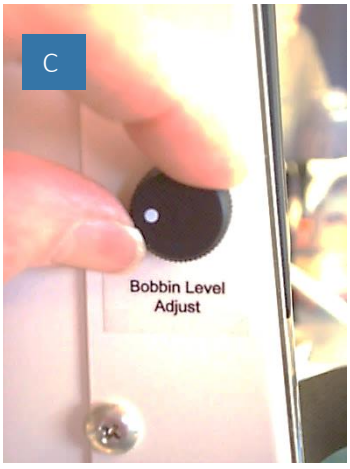
Many late model cars also come with an indicator panel that tells you how many miles you can drive before hitting "empty." It's up to you to determine how far you want to "push" that estimation before it's time to fill up the gas tank again. That reading is based on an average fuel consumption and is affected by how full your gas tank was to begin with. Therefore, you'll need to learn how much farther you can actually quilt (or want to "risk" quilting) once the low indicator triggers, based on experience and the type of thread you're using.

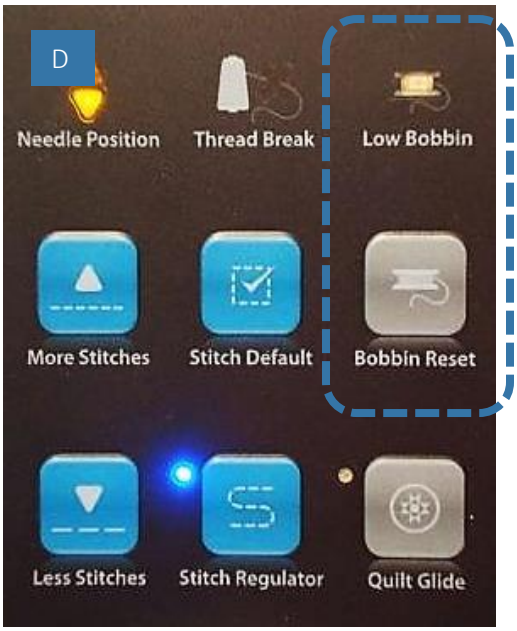
The Low Bobbin Indicator uses these parts on your machine:

Top Thread Break Sensor (Photo A)
Bobbin Level Gauge on the LCD Panel (Photo B)
Bobbin Level Adjustment Knob on the Left Side Panel (Photo C)
Low Bobbin Warning Light and Audible Signal (Photo D)
Bobbin Reset Button on the Touch Pad (Photo D)









Step 1: Set a Preliminary "Full Bobbin Level" for a Bobbin Style or Thread Type.

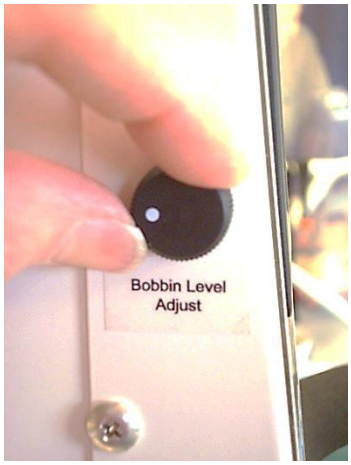
Note: Each bobbin type and thread type that you use will require a different "full level" setting on the low bobbin indicator gauge. For example, a pre-wound bobbin with 60-weight thread will have more yardage on it than a self-wound bobbin with 40-weight cotton thread. Once you determine a single "full level" for a given type of bobbin/thread combination, you can assume that any future bobbins you use with the same combination will have a similar approximate "full level setting." You will NOT need to repeat Steps 1-4 in this process unless you switch to a different type of bobbin or a different thread in the bobbin.

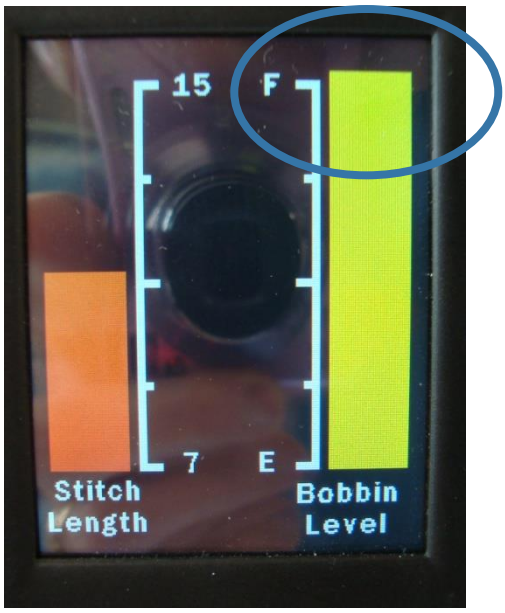
For example, if you complete Step 1 and determine the "full bobbin level" for a cardboard pre-wound bobbin, all bobbins of that type will use a similar setting.

Complete preliminary tension adjustments on the machine first, since thread tension will affect the sensor's accuracy.
Use a bobbin that contains the thread type you wish to use and do some practice sewing on a sample piece, adjusting your tension on the top and bottom until you are satisfied with the stitches.

Insert a full bobbin containing that thread type into the machine.

Turn the "Bobbin Level Adjust" knob fully ***clockwise*** until the Bobbin Level Gauge reaches all the way up to the "Full" (F) mark on the LCD screen. (Note: "M" bobbin machines have a different color Bobbin Level Gauge on the screen.)





Step 2: Quilt until you run out of thread on this first bobbin.

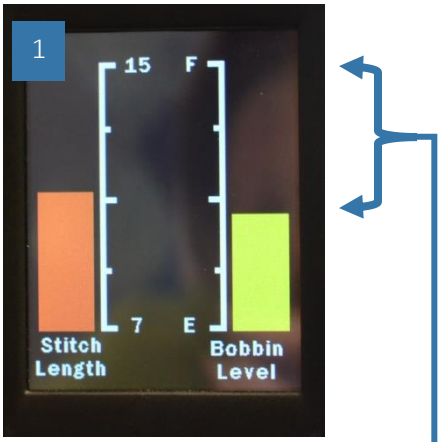
Yes, you read that right. ☺ The very first time you use a particular bobbin and thread type, you'll need to sew until you run out of thread! Basically, you'll need to tell the machine how big your "gas tank" is – or how much thread happens to be on this particular bobbin. You must reset where the new "full" line is for each new thread or bobbin style as described in the next steps. That means using a full bobbin and then sewing until it's empty. When it runs out proceed to Step 3.

Step 3: Reset the "Empty Level" for your bobbin.

As you sew, the Bobbin Level Gauge on your LCD screen will fall. However, when you finally run out of thread in Step 2 with your first bobbin, the Bobbin Level Gauge will not typically be all the way down to the "E" (empty) mark on the screen (Photo 1 below).

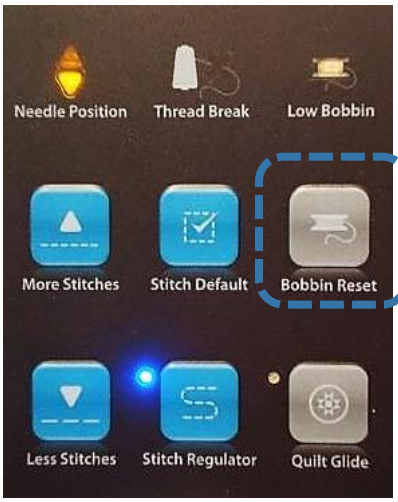
Now that you've run out of bobbin thread, you need to adjust the Bobbin Level Gauge down to the "E" (empty) mark to match your newly empty bobbin. Rotate the Bobbin Level Adjust Knob ***counterclockwise*** this time until the Bobbin Level Gauge drops even with the "E" on the indicator bar as in Photo 2 below. Leave a little bit of the Gauge's colored line visible on the screen across from the "E" so that you are alerted in plenty of time.

NOTE: It's possible to turn the Bobbin Level Adjust knob until the colored Bobbin Level Gauge becomes a very thin line and nearly disappears from the screen. **Only turn it this far if you want to be alerted when the bobbin is very, very low and you are nearly out of thread.** *You may run out of thread before the indicator can alert you if this is set too low due to variables mentioned previously. If you'd like to be alerted sooner, be sure to leave a little colored portion of the Bobbin Level Gauge line visible as you see in Photo 2.*



In this example, a full bobbin used up this much of the "gas tank" before it ran out of thread.

Step 4: Reset the “Bobbin Full” Level.



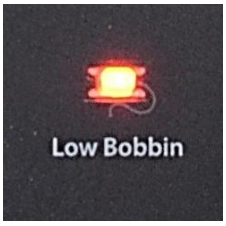
Touch the “Bobbin Reset” button on either the front or back Smart Touch Pad.

Now that the machine knows your bobbin is empty, it will adjust the “full” level to match the quantity of thread on the bobbin when you touch the Bobbin Reset button.

The Bobbin Level Gauge will rise up from the “Empty” setting, but the line will not be all the way up to the “Full” line this time. The top of the colored bar on the Bobbin Level Gauge now reflects a new “full” setting for this particular thread/bobbin combination (see Photo A below right).

Step 5: Quilt!

Quilt until you hear the audible “bobbin low” signal or you see the “low bobbin” light flashing on the Smart Touch Pad as
shown below.



Step 6: Check the Bobbin.

When you hear or see the low bobbin alert, stop quilting and check the bobbin. You may decide to quilt for a little while longer depending on your project and the remaining thread on the bobbin, or you may choose to change it. Move to Step 7 when you actually decide to change the bobbin.

Step 7: Replace the Bobbin and Tap the “Bobbin Reset” button.

When you decide to replace your bobbin, use another ***full*** bobbin. Press the “Bobbin Reset” button on either the front or back Smart Touch Pad. The Bobbin Level Gauge will rise back up again to the “full” level for that bobbin. (Continued on next page.)

Repeat Steps 5–7 for each bobbin change.

You must hit the "bobbin reset" button every time you insert a new full bobbin, or the Low Bobbin Gauge will not work.

The only time you need to repeat Steps 1–4 is when you change to a different type of bobbin or bobbin thread. For example, if you only use pre-wound bobbins from one manufacturer exclusively, you'll never need to repeat Steps 1–4 to reset the initial "bobbin full" level, as long as you always replace the empty bobbin with a full one. However, if you switch to a different pre-wound bobbin manufacturer, you will need to start the process from the beginning to set the new "full level" for your new bobbin style.

Reminder: *Any time you change from one bobbin style or thread type to another, you must repeat Steps 1–4 to set the intial "bobbin full"level.*

Important Notes:

The Low Bobbin Indicator does NOT stop the sewing motor. The machine will continue to sew even after the Low Bobbin Signal sounds and the indicator light flashes. You must manually stop the machine to check the actual bobbin level.

If you use the same type of bobbins and bobbin thread a lot, you may want to place a mark along the outside edge of the LCD screen that identifies the "full" setting for that particular bobbin thread. (To avoid marring the surface of your machine, consider a non-permanent marking solution such as adding a piece of masking tape on which to write or mark.)

If you change to a different bobbin thread, you'll need to start with Step 1 to reset your "bobbin full" level. However, once you return to your previous thread, you can simply turn the Bobbin Level Adjust Knob until the Bobbin Level Gauge is in line with your reference mark for that thread, and start with a full bobbin once again. You may have several different markings near your LCD screen that represent the "full bobbin level" for a number of different thread combinations.

To make the low bobbin alert happen sooner (with more thread remaining on the bobbin), set the Low Bobbin Gauge indicator bar slightly ABOVE the "E" (empty) line on the LCD panel as described in Step 3 above.

To make the alert happen later, set the Low Bobbin Gauge indicator bar BELOW the "E" (empty) line on the LCD panel as described in Step 3 above.

Once you've set your "full level" initially for a particular bobbin style and bobbin thread type, you will not need to change the Bobbin Level Adjust Knob. The knob is only used when changing to a different bobbin thread or if you have turned off your machine before using an entire bobbin.

If you use a partial bobbin instead of a full bobbin, the Low Bobbin Indicator will not be accurate.

Helpful Hints when Using the Low Bobbin Indicator:

You only need to recalibrate the fullness level for the indicator if you change to different bobbin thread types/thicknesses. If you frequently change bobbin thread thickness, it may be helpful to make a note of where the “bobbin full” dial should be set for your different threads to save time. You can use our Personal Low Bobbin Indicator Reference Chart to keep track of different threads.

If you are finished quilting for the day and need to turn off your quilting machine before you have used up a complete bobbin, use this process to refresh the settings for the partial bobbin in your machine when you turn the power back on:

- First make note of where the bobbin indicator level is before you shut off the machine.

  When you turn the machine off, it will remember where you had set the “full” mark for your particular bobbin thread, but it will not know how much thread you have already used on that particular bobbin.

  When you turn the machine back on, the bobbin indicator will rise up to wherever “full” was for your
  bobbin type.

- Next turn the bobbin level knob on the side of the machine to drop the bobbin indicator bar down to the location you noted for your partial bobbin before you turned off the machine.

  Now continue sewing until you get the low bobbin indicator audible or visual alert.

- Insert a new FULL bobbin.

- Press “Bobbin Reset.”

Now you will need to rotate the bobbin level dial to raise the indicator to where the original “full” level is for your bobbin so that your machine knows you are back to using a full bobbin.

Use the helpful chart on the next page to keep track of your “full bobbin” settings for your most commonly used bobbin thread types.

Personal Low Bobbin Indicator Reference Chart

Thread Type/Brand:

____

Thread Weight: ________

Bobbin Type:

____

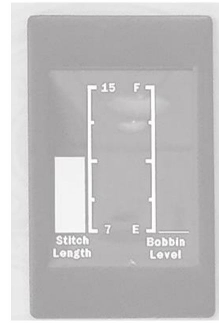
Thread Type/Brand:

____

Thread Weight: ________

Bobbin Type:

____



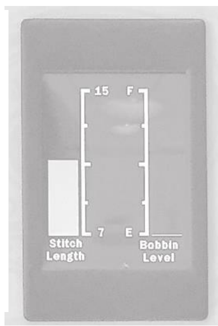
Thread Type/Brand:

____

Thread Weight: ________

Bobbin Type:

____



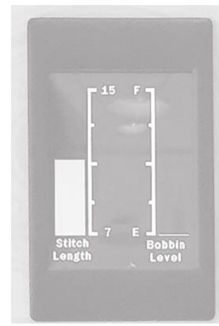
Thread Type/Brand:

____

Thread Weight: ________

Bobbin Type:

____



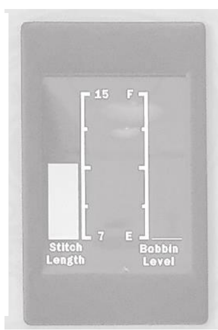
Thread Type/Brand:

____

Thread Weight: ________

Bobbin Type:

____



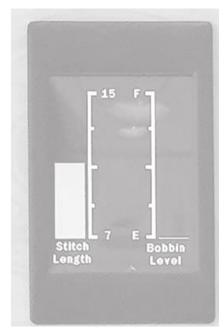
Thread Type/Brand:

____

Thread Weight: ________

Bobbin Type:

____



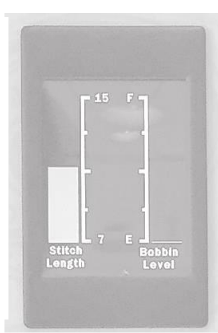
Thread Type/Brand:

____

Thread Weight: ________

Bobbin Type:

____



Thread Type/Brand:

____

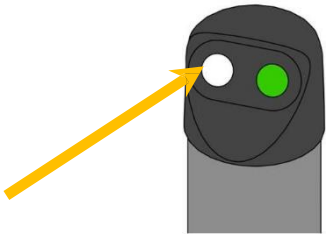
Thread Weight: ________

Bobbin Type:

____

Mark where to set the "full level" for different bobbin threads brands and thicknesses and bobbin types (aluminum, pre-wound cardboard, magnetic, etc.)

Handle Switches



1. To change the Needle Position (up or down) using any handle and/or perform a single stitch, press the WHITE button on any handle for needle to move up or down.
    a. If you start sewing with the needle in the "UP" position, as you stop sewing, the needle will stop in the "UP" position. The needle will stop in the same position as you start (if you start sewing with the needle in the "DOWN" position, when you stop sewing the needle will be in the "DOWN" position.

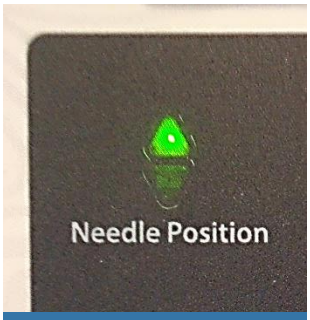


Photo A: Needle will stop "UP"

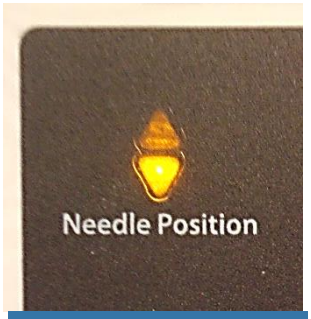
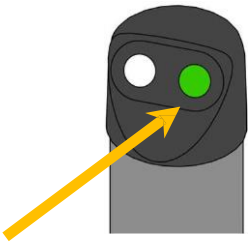


Photo B: Needle will stop "DOWN"



2. To START SEWING or to STOP/PAUSE SEWING, press the GREEN button on any handle.

If you start with the needle in the "UP" position and begin sewing, when you stop the machine and turn off the sewing motor by pressing the GREEN button, the needle will cycle back to the "UP" position.

If you start with the needle in the "DOWN" position, the needle will cycle back to the "DOWN" position when you stop the sewing motor (on page 71).

You can change your mind while you quilt! If you begin quilting with the needle in the "UP" position, and decide while you're quilting that you'd like the needle to end in the "DOWN" position, tap the WHITE button once. Each tap alternates the "UP" and "DOWN" position. Watch the indicator lights on your machine's Smart Touch Pad to be sure the needle is set to stop where you want it to stop.

Single Stitch Tips and Securing Your Threads:

Move the quilting machine to the location you wish to begin stitching. To bring up your bobbin thread, hold on to the top thread tail. Tap any handle WHITE button one time to move the needle into the fabric, and then tap once more to raise it up again. Move the machine slightly away from the needle hole and gently tug on the top thread tail. This will bring up a loop of bobbin thread. Grasp the loop and pull the bobbin thread tail to the surface of your quilt.

With each tap of the WHITE button, the machine will make a "half stitch". You may continue tapping the button to place precise stitches where you want them. You can also keep the WHITE button pressed down rather than tapping it repeatedly. This will make the machine cycle through a complete "UP-DOWN" sequence so that you can make full stitches. Place these stitches very close together to secure your stitches. Place at least 8–10 stitches right next to each other for a firm, secure start.

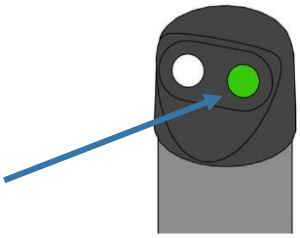
When you release the WHITE button, the machine will cycle the needle into the position indicated on the Smart Touch Pad. If you wish to change the needle position, tap the WHITE button once more.

To end your stitches, stop sewing about ¼-inch away from your actual intended stopping point. Use the "Needle Up/Down" WHITE button again to place very close stitches for securing the thread.

NOTE: The Single Stitch button will NOT operate if the machine's sewing motor is active. Stop the sewing motor as described on the next page, then tap the WHITE button to perform single stitch functions.

Activate the Sewing Motor

*Quick Start Tip: Tap the **GREEN** button on any handle to start or stop the "sewing motor." Once the sewing motor is on, simply move the machine to begin quilting. Tap the **GREEN** button once more to stop the sewing motor and pause your quilting.*



NOTE: When you tap the sewing motor button, you will hear an audible "beep" about once every 8–10 seconds to remind you that the sewing motor is active. This safety feature reminds you to turn off the sewing motor before checking/changing the bobbin, performing maintenance, etc.

When you first turn on the power switch for your quilting machine, ***the machine will automatically power up in Stitch Regulated Mode at a pre-set stitch length***. A blue LED light next to the "Stitch Regulator" icon on the Smart Touch Pad reminds you that the Stitch Regulator is active (see photo at right).

In Stitch Regulated Mode, the machine will not start sewing until you press the GREEN button on any handle, and then start moving the machine.

If you stop moving the machine in Stitch Regulated Mode, but do not tap the GREEN button, the machine is still active but will not stitch until you move it again.

Tap the GREEN button on any handle away from the white dot to stop the sewing motor completely.

You can place the machine in ***Manual Sewing Mode*** (constant speed mode) by tapping the "Stitch Regulator" icon on the touch pad. The blue LED light next to the icon will turn off, indicating that the Stitch Regulator is no longer engaged.

*In Manual Sewing Mode, the needle will immediately begin moving up and down at a constant speed when you tap any handle's **GREEN** button* (see the next section for more information).

Tap the GREEN button again to turn off the sewing motor.

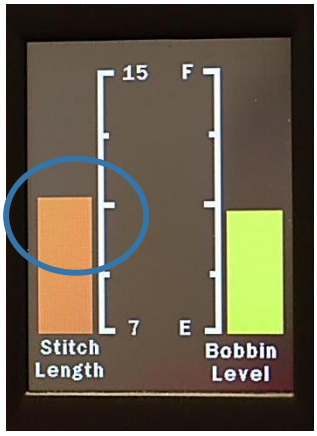
Manual Sewing Mode Operation (constant speed)

Your Millennium or Freedom machine will power up in Stitch Regulated mode each time you turn it on. The blue LED light next to the Stitch Regulator button will illuminate when the Stitch Regulator is engaged.

Some quilters prefer to use the manual sewing mode for certain quilting techniques such as stitching in the ditch or background quilting, especially if they did not purchase the optional Quilt Glide feature. You will need to experiment to discover what works best for your style of quilting.

To put the machine in manual mode, simply tap the Stitch Regulator button one time. The blue LED light will disappear, signaling that the machine is now in Manual Sewing Mode.

When you tap one of the GREEN buttons to start the sewing motor, the machine will immediately begin stitching at whatever motor speed corresponds to the stitch length you had previously selected. Take a look at the Stitches Per Inch (SPI) gauge on the LCD screen shown at right. The “Stitch Length Gauge” currently lines up with the middle mark on the gauge, right at about 11 stitches per inch—half way between the minimum of 7 SPI and the maximum of 15 SPI.

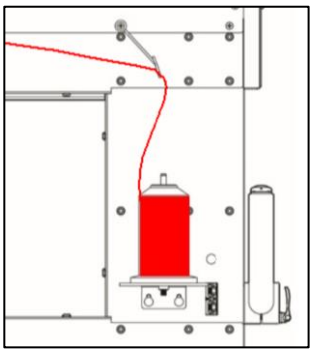


When you tap the Stitch Regulator button on the LCD screen to turn of the Regulator, that same “Stitch Length Gauge” now refers to your *motor speed.* Since the Stitch Length Gauge is right in the middle of the graph, your motor is set at a “medium” sewing speed. The needle moves at a constant speed and will not stop until you tap the sewing motor button on any handle.

You can adjust the motor speed by tapping the “More Stitches” button to make the needle go faster, or “Less Stitches” button to slow it down.

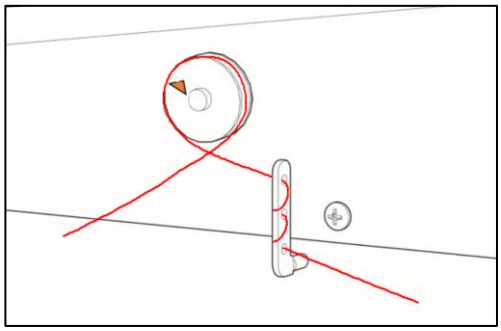
When you re-engage the Stitch Regulator by tapping the Stitch Regulator button, the stitch length will correspond to wherever you have the “Stitch Length Gauge” set on the LCD panel. For example, if you are sewing in manual mode and you slow the sewing motor down until the Stitch Length Gauge is near the 7 on the LCD screen, your stitches will now be 7 SPI when you tap the Stitch Regulator button and put the machine back in regulated mode. *To return to the original stitch length (factory set at 11 SPI), tap the “Stitch Default” button on the Smart Touch Pad.*

Threading Your Machine

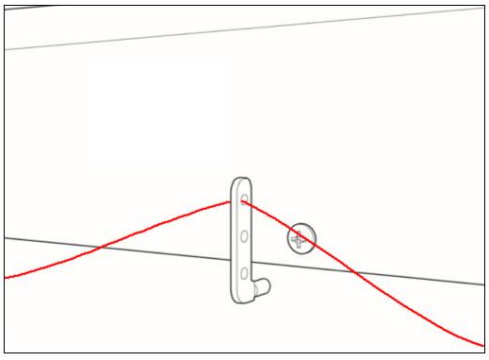


1. Place your thread cone on the thread stand, pull thread tail through the large wire thread guide (this guide should be centered directly over the thread cone).
2. Place a small piece of batting in your wire thread guide, place thread under the batting (not through it) to prevent the thread from jumping off the spool or puddling on the bottom of the spool holder.

3. Placing a wrapped piece of batting into the thread guide and then passing the thread under the batting will help to keep unruly thread from jumping off the spool.



4. *IF you have a Thread Break Sensor*, thread the three-hole thread guide directly below the Thread Break Sensor Wheel, spiraling around the vertical three-hole thread guide.

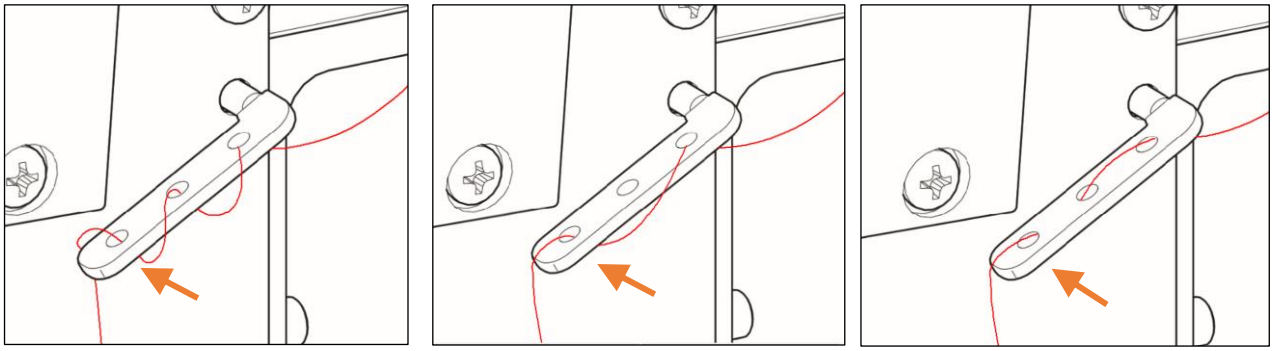


5. *IF you DO NOT have a Thread Break Sensor,* place thread in any hole to pass through once.

Three-hole guide near the Tension Assembly

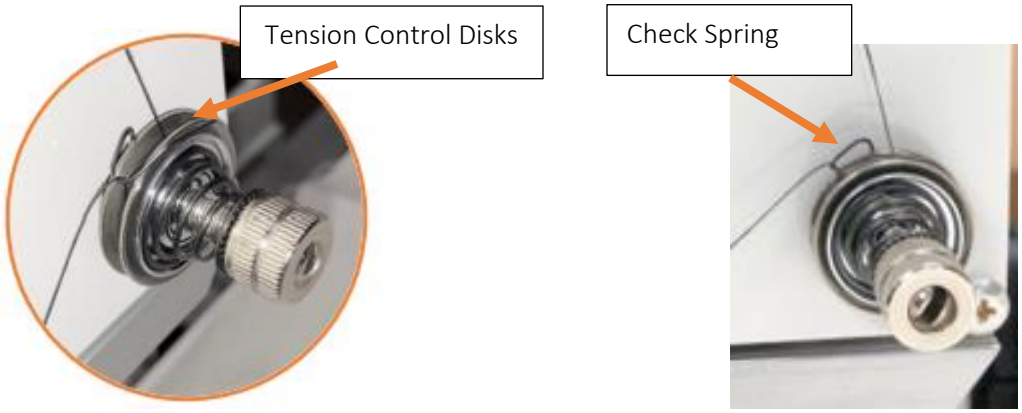
The three-hole thread guide near the tension assembly provides pre-tension to your thread and also helps manage “thread twist” before your thread enters the tension disks on the tensioner.

Occasionally you should check the three-hole guide’s angle. It should point down to “8:00” if you imagine the lower hole as the hands on a clock. This position also helps ensure the thread travels through the tension disks correctly.

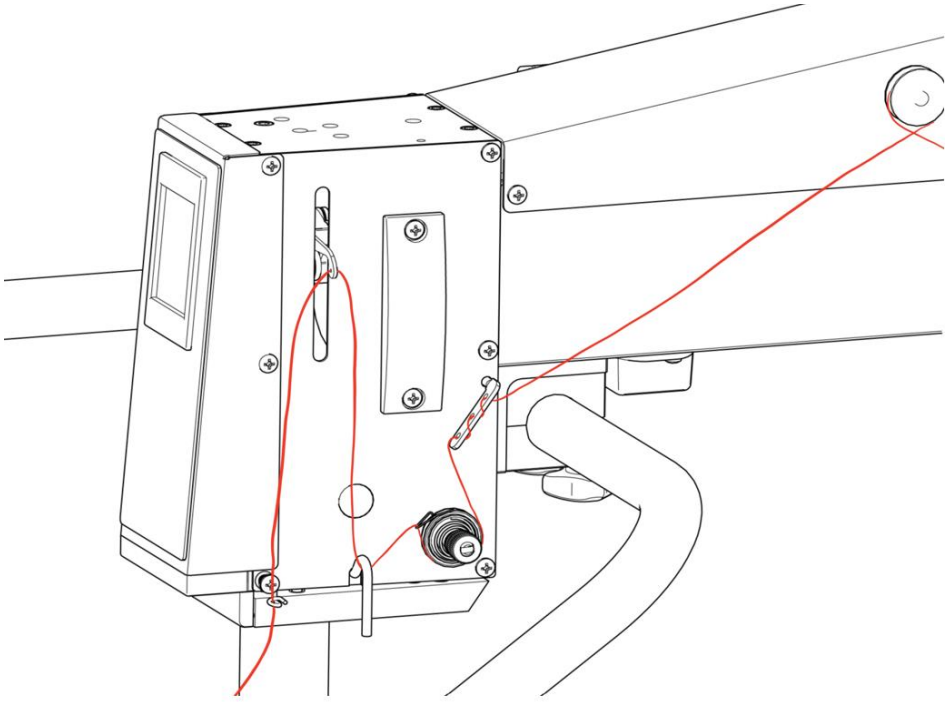


It’s okay to experiment with the thread path next to the tension assembly if your thread requires more pre-tension, or if the thread appears to twist too much, causing tangling or looping around the needle. Images above show some optional thread paths through the three-hole guide next to the tension assembly.

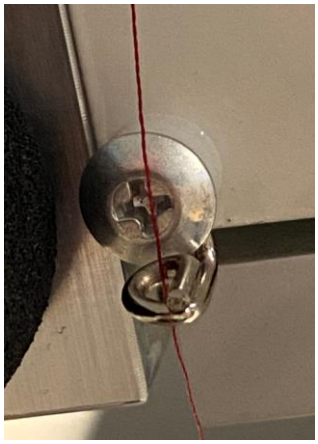
Be sure to use the bottom-most hole in the guide (illustrated with arrows above). This last hole ensures that your thread stays deeply between the tension disks and does not slide in and out as you sew.

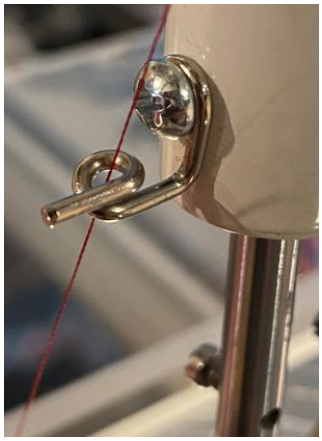


6. Pull the thread between the tension control disks and ***over*** the check spring as shown. Hold on to the thread just before it enters the tension disks and pull on the remaining tail firmly to be sure the thread is seated completely between the tension disks.
    a. If your stitch quality appears to have changed, such as loops of thread on the quilt surface, this is one of the first places to check. The thread must be completely seated between the two tension disks for proper operation.



7. From the check spring on the tension disks, feed the thread down and under the L-shaped guide ("shepherd's hook"), up through the take-up lever and down through the side pigtail thread guide as illustrated.

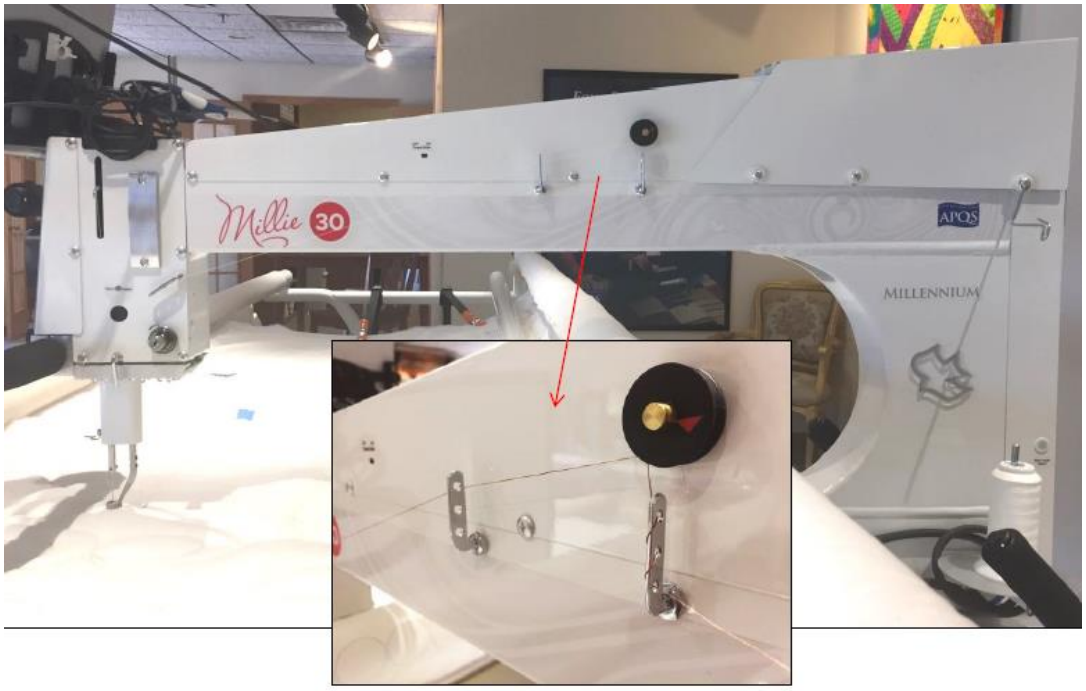




9. To insert the thread into the pigtail guides, take the thread behind the guide on its rounded side, as shown in center photo. Next, grab the portion of thread that is coming down from the top and pull it forward past the sharp edge of the pigtail guide, from the right. This will slip the thread inside the guide without having to poke it down into the guide.
10. The first pigtail guide is on the right side of your machine's head and the next two photos show the pigtail guide that is directly above your needle.

11. Make sure the needle is inserted correctly. You can either pass the thread inside and under the hopping foot at this point, or you can wait until your quilt is loaded and you take your first stitch.

Threading Millie 30



Due to the generous size of the throat, your Millie 30 thread path includes one additional thread guide after the thread passes over the thread break sensor wheel. The photo above shows a close-up of that area. Refer to the additional directions for Millie on previous page for more information.

Change Thread Spools & Re-Thread

To quickly change thread colors, cut the thread currently being used just above the spool on the back of your longarm.

- Remove the spool and replace it with the new color.
- Tie the new thread to the old thread with an overhand knot.
- Pull on the old thread while at the needle side of your longarm.
- Continue pulling the thread through the thread guides (including the Top Thread Break Sensor Wheel if equipped).
- Depending on the thread thickness, you may be able to pull the knot through the needle. If the knot will not pass through the needle hole, cut the knot off the thread and re-thread the needle.

NOTE: Take a moment to double check that the thread passed correctly through all thread guides, is correctly wrapped clockwise around 1 and up to up to 3 times (if needed for thinner/slick threads) around the Top Thread Break Sensor (if your machine is equipped) and is firmly pulled between the tension disks before sewing.

Install Laser Pointer

The laser pointer included with your APQS machine is included in the hardware bag with your machine.

The laser can be mounted to the back of your sewing head if you plan to trace pantographs (See Photo 1), or it can be mounted to the top of your sewing head if you plan to trace patterns on the quilt top from the freehand side of the machine (See Photo 2).

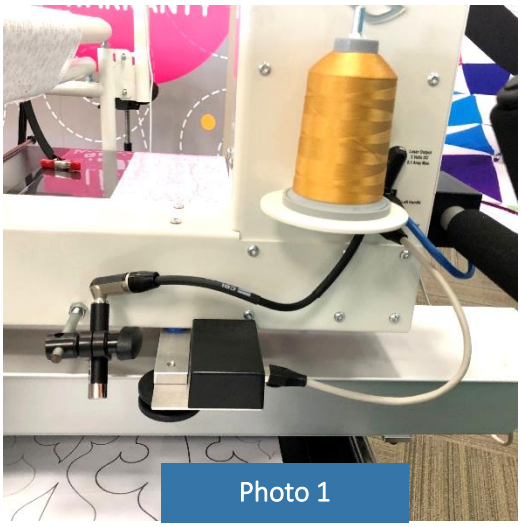
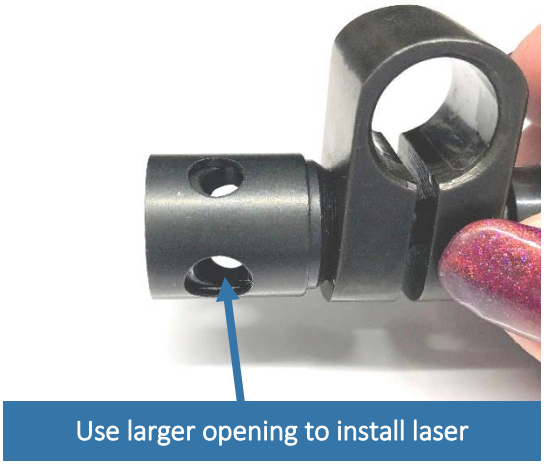


Photo 1


Photo 2

Remove the clamp from the laser case. It has 2 openings in the end of the clamp with different diameters. You will need to use the larger diameter opening to mount the laser on the laser post.



Use larger opening to install laser

The laser may have shipped out with a ‘locating pin’ in the larger hole. This will need to be removed prior to placing the clamp on the laser post.

Locator pin to be removed prior to installing clamp on laser post

Loosen the knob on the clamp roughly 2 rotations. This will allow you to push the clamp knob towards the mounting end to open the hole for the laser post.

Loosen knob two full turns

Pull end towards knob

Pull out pin from clamp end

The clamp should be installed on the laser post of your choosing before adding the laser pointer to the clamp. Loosen the knob on the clamp roughly 2 full rotations. You may need to push downwards on the end of the clamp at the same time to get the opening for the laser bolt to open wide enough to fit on the post.

Opening for laser post misaligned initially

Push ends towards each other to line up opening for post

Push clamp onto end of laser post

Once the clamp is installed on the post of your choice, you can then insert the laser itself into the opening on the clamp, and then plug the included cable into the back of the laser.

Insert laser into opening on clamp

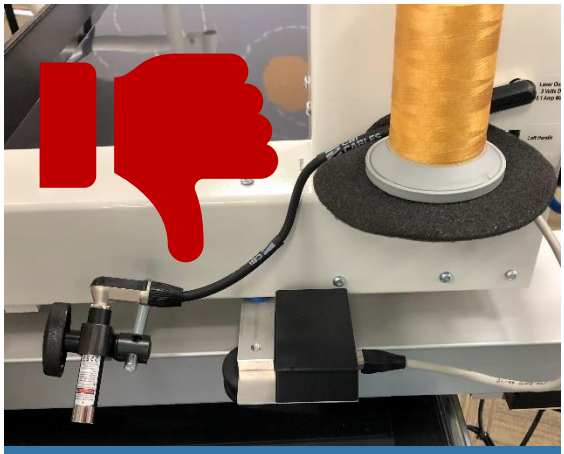
Plug cable into end of laser pointer

Point the laser towards the pattern you want to trace and tighten the holder knob to position the laser. If you are using the laser for pantographs, make sure the laser is positioned behind the mounting bolt to ensure the cord will reach the outlet in the machine.

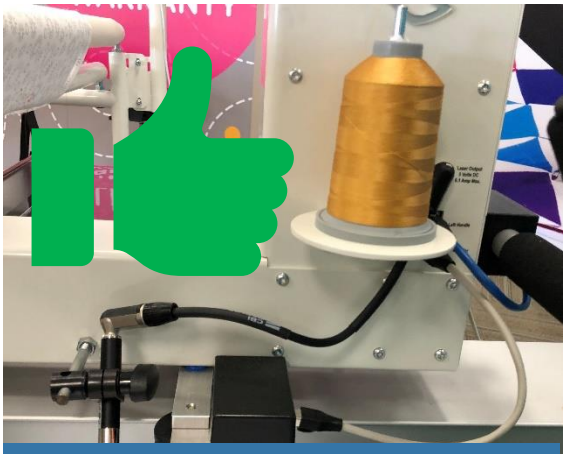
Positioning for usage on quilt top to trace patterns

Positioning for usage for pantograph patterns

Connect the other end of the laser cable into the outlet on the machine. For pantograph usage, the cable should go UNDER the thread stand, and not OVER it.



INCORRECT POSITION for laser pointer cable – thread will catch on cable if connected in this manner



CORRECT POSITION for laser pointer cable – cable is running under thread stand and away from thread path

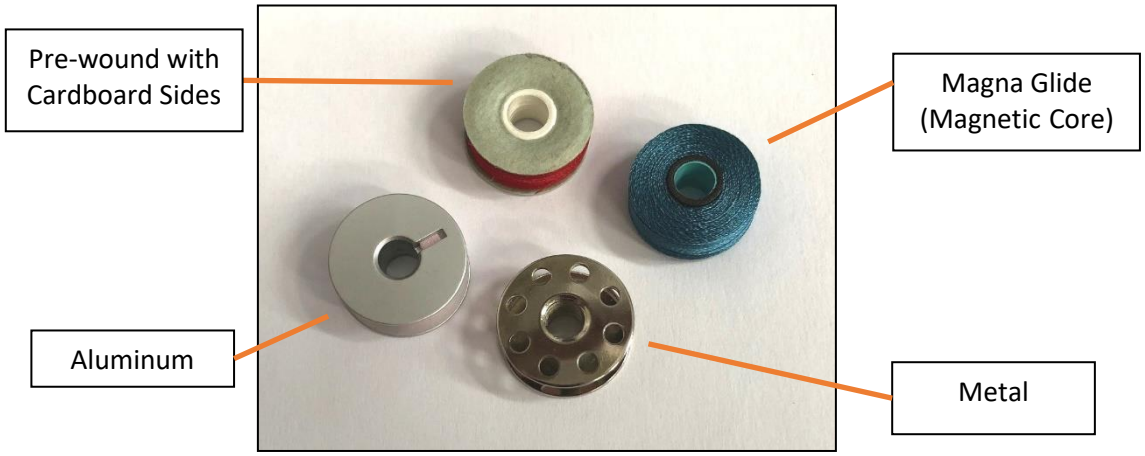
Push end of cable into outlet firmly – laser will be on as soon as this connection is made and will stay on as long as the cable is connected. To extend the life of the laser pointer, disconnect the cable and store in a safe location.

Plug end of cable into outlet on left side of top cover near the front handle connection for usage on quilt top

Plug end of cable into outlet near thread stand for pantograph usage

Style “L” Smart Bobbins

NOTE: You may use metal, aluminum, magnetic core bobbins and even pre-wound bobbins with your machine, as long as they are this style. Refer to the photo below for examples of Style “L” bobbins.



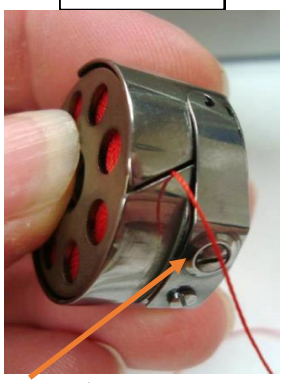
Metal bobbins will normally require looser bobbin tension to compensate for their weight. Aluminum and pre-wound bobbins are similar in weight. Some pre-wound bobbins have cardboard sides; others have no sides and contain a magnet on the core that substitutes for the bobbin brake or check spring (see photos below for more information about the brake spring).

Inserting “L” Bobbin into Bobbin Case

Place the bobbin into the bobbin case so that the bobbin rotates clockwise when it is inside of the bobbin case.

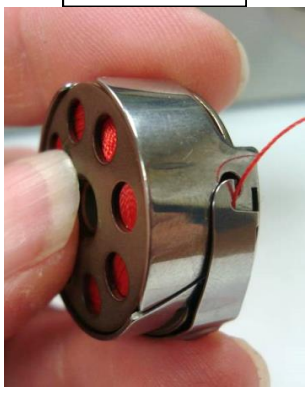
Guide the thread tail through the slot on the bobbin case (Photo A), and then under the flat tension finger on the outside of the case (Photo B).

Photo C



Tension Adjustment Screw

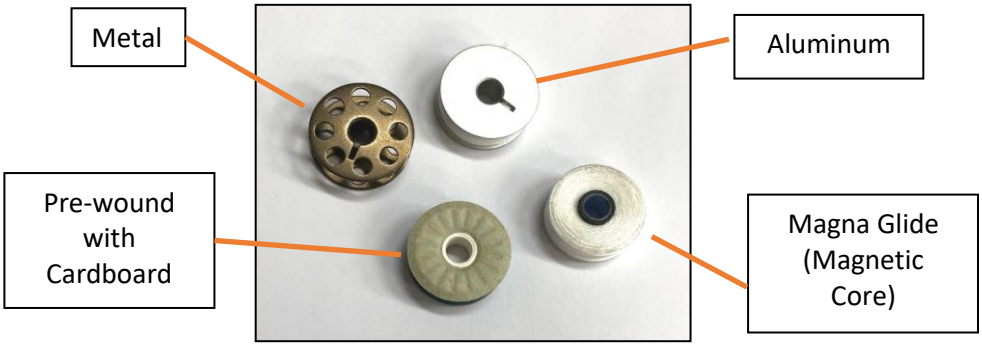
Photo D



If you need to adjust the bobbin tension, use a small screwdriver to rotate the larger screw (Photo A – tension adjustment screw) in small 5-minute increments. Turn the screw to the right to increase bobbin tension and to the left to decrease tension.

Style “M” Big Bobbins in Your Machine

NOTE: You may use metal, aluminum, magnetic core bobbins and even pre-wound bobbins with your machine, as long as they are this style. Refer to the photo below for examples of Style “M” bobbins.

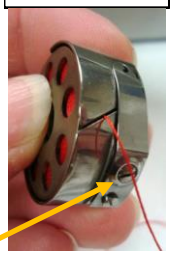


The photos below describe how to insert the thread into the guide (be sure to place your bobbin into the case so that it rotates clockwise when you pull the thread through the exit hole).

When inserting a bobbin into the case, the thread should exit the bobbin in a clockwise manner.

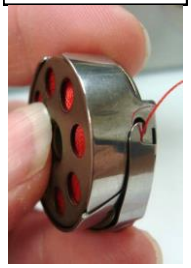
Guide the tail through the slot on the case (Photo C below), and then under the flat tension finger on the outside of the case (Photo D below). If you need to adjust the bobbin tension, use a small screwdriver to rotate the larger screw in small increments (5-minute turns, turning left to loosen and right to tighten tension).

Photo C



Tension Adjustment Screw

Photo D



Threading the Pigtail Guide on an "M" Big Bobbin Case

'M' Bobbin cases will have a pigtail thread guide in the center of the opening. This helps keep the bobbin thread in line with the needle on larger bobbins, producing a better stitch. You can choose to bypass the pigtail thread guide on the case if you find it exerts too much pressure for some threads.

1. Hold the thread close to the bobbin and pull it behind the pigtail guide, then around toward the outside of the pigtail guide in a spiral motion.

2. Pull the thread tail up, which will wrap the thread into the first loop of the pigtail guide. Repeat process to wrap thread through the second loop of the pigtail guide.

3. The thread should pass through the pigtail guide as you see in the photo above. When you turn the bobbin case around so that you can see the entire bobbin, verify that the bobbin is spinning clockwise before inserting the bobbin case in the machine.

Adjusting Bobbin Tension for "L" or "M" Bobbin

Your Beginner Longarm Quilting Class instruction manual includes details about setting your bobbin tension for different thread combinations in the top and bottom. It is always a good idea to test your tension on fabric and batting similar to your quilting project so that you can make adjustments before you begin quilting on a quilt top. Bobbins are available in several different materials, including aluminum, metal, pre-wound versions and magnetic core.

There are a lot of quilters who have different ways of adjusting their tension – some have entire day-long classes on the subject! The end goal is to get the stitching to look how you want it to look.

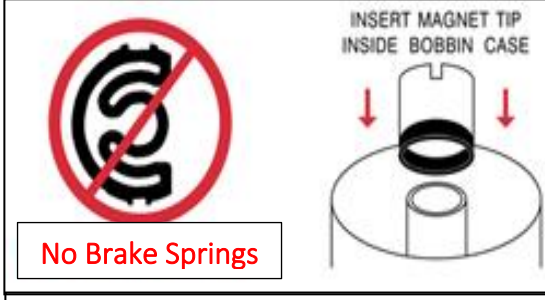
As a rule, when customers call with bobbin tension questions, the Service Team will have them adjust so that the bobbin will fall on its own – like a spider down a web – for L style bobbins that are not magnetic. Magnetic core bobbins are adjusted so they drop 3-4" when doing a yo-yo test. M style bobbins have much more mass to them, so the tension is usually adjusted much more loosely. They should fall on their own with much less resistance than the 'spider down a web', but not 'zing' to the floor.

APQS does not recommend using bobbin cases that are purchased outside of APQS. The cases are 'matched' to the hook assemblies to get the best tension possible. After-market products like the Bobbin Genie are also not recommended. If you have questions prior to your Beginner Class, please call the Service Team!

Bobbin Case Brake Spring

- Bobbin Case Brake Spring Removal

To use magnetic bobbins, you must remove the bobbin brake spring from your bobbin case. Use a small screwdriver or other flat tool to gently pry the brake spring out of the case. Put the spring in a safe place and reinsert it when you switch to any other bobbin style (it's a good idea to purchase a second bobbin case if you like the magnetic core bobbins so that you can leave the brake spring out of the case permanently on one of them).



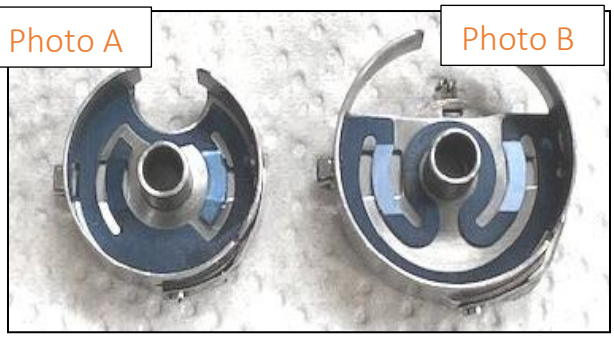
For magnetic core bobbins only!

- Bobbin Case Brake Spring Replacement

To reinsert the brake spring into the bobbin case, position it so that the small "fingers" point out. These will be slightly raised compared to the rest of the brake spring. In the photos that follow, the Smart Bobbin case (Photo A below) has a brake spring that has two straight pieces of metal that look like fingers bending slightly up from the bottom of the case. The Big Bobbin case in Photo B has U-shaped fingers that also bend up slightly. These "fingers" apply pressure on the bobbin once it is inserted into the bobbin case; it will stop the bobbin from over-spinning when you stop sewing or change directions.

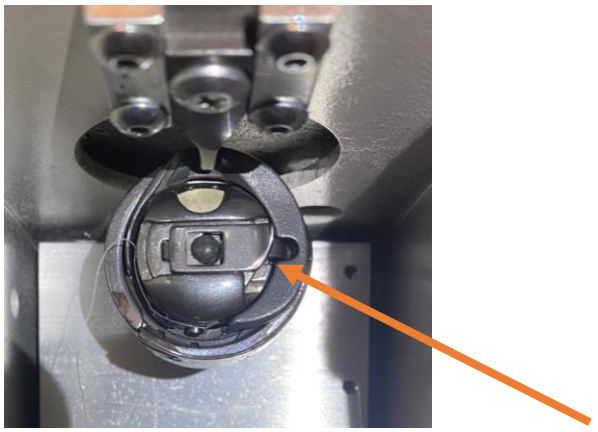
Align the shorter "cut out" edge or rounded edge of the brake spring with the cut-out opening in the bobbin case as shown below, making sure the brake "fingers" point out away from the case. Use a small screwdriver to force the outermost "pins" on the spring back into the slots that are on the outer rim of the bobbin case. The brake spring should snap firmly in place with the small brake fingers facing outward.

Photo A Photo B



Depending on the size of bobbin case you have, your bobbin case brake spring will look like either example above. The one on the left is from a Style "L" bobbin case and the one on the right is for a Style "M" bobbin case.

Inserting Bobbin into your Longarm (“L” or “M” Bobbin)



1. To insert the bobbin into the machine, hold the case so that the bobbin removing latch is parallel to the floor and the bobbin opening faces the ceiling as shown.
2. Position the case over the bobbin post in the hook assembly, leaving the removing latch ***closed***. Press the bobbin case firmly into the assembly until you ***hear it clearly click into place***.
3. Avoid opening the lever to insert the bobbin (unlike some home sewing machines, it is not necessary to open the latch to insert the bobbin). If you do use the latch, there is a greater chance that the bobbin case will not get properly seated into the assembly. When the machine is running, the bobbin case could fall out and cause damage to the hook assembly. Using the lever to insert the bobbin case can also allow the bobbin thread to get caught under the lever and cause tension problems.

To learn more about your APQS longarm and quilting, please contact your closest APQS Dealer for your Free Beginner Longarm Quilting Class.

The class is free for students who purchase a quilting machine from APQS, or tuition is $200 for anyone wanting to learn more about longarm quilting.

With the beginner class offered at APQS, our goal is to teach you the skills you will need to accomplish a typical quilting project on your new longarm machine. Whether you intend to start a business or just want to get your quilts done faster, you will learn valuable techniques to accomplish your projects creatively and efficiently. We will also review basic APQS machine maintenance. This class is mostly "demonstration" so we can squeeze in as much information as possible.

Below is a summary on how to begin your longarm quilting journey.

Loading a Quilt

As you gain experience with your new APQS quilting machine, you'll discover that there are really several ways to load a quilt top, including pinning, floating, and even using zippers (discussed in a bit more detail below). We'll demonstrate the two most common types of loading here, but don't be afraid to experiment until the method feels ***right to you***.

We recommend that you first load "practice" fabric and batting such as muslin, old sheets, etc. Spend time and practice, practice, practice. If you want to develop your skills quickly, plan on at least an hour a day with your machine. The more you practice, the more "second nature" things will become. Once you develop muscle memory, you will find that quilting is sometimes easier than drawing designs.

Loading styles can be divided into three broad types: "partial float," "full float" and "full attachment." When a quilt "floats" as part of the loading process, it means that one or more sides of the quilt simply rest (or "float") on top of the batting and backing. It may be held to the batting or backing fabric with pins or basting, but it is not attached directly to the frame or canvas. When discussing quilt loading method with your friends, make sure your terminology matches theirs, so you are comparing accurately. If a person says she "floats" her quilt top, she may use a "partial float" or a "full float."

Method #1: Partial Float

Quilters who "partially float" their quilt tops attach one edge of their quilt to the frame, but not the opposite end. These quilters attach one edge of their quilt to the Quilt Top Roller so that they can wind it up and control the top during the quilting process. However, the opposite end of the top is not attached to the Pick-Up Roller. Instead, it rests on the batting and backing, and may be held down with basting stitches or pins.

The "partial float" method is most common for pantograph quilters because it allows you to quilt off the edge of the quilt without running on to the frame's canvas. When you reach the bottom of the quilt, you remove the quilt from the quilt top roller and then smooth it out on the backing and batting so that you can quilt off the bottom of the quilt just as you did on the top edge. To prevent shifting, the bottom edge may also be pinned, or machine basted in place on the backing and batting.

Method #2: Full Float

By contrast, when a person uses the "full float" method to load a quilt, no part of the quilt is ever attached to the frame. The quilt drapes over the batting and backing but hangs to the floor. This method is fastest for loading a quilt since only the backing fabric is attached to the frame. Some quilters who prefer this method completely remove their Quilt Top Roller from the frame, and use an optional accessory for APQS machines called a "Texas Hold'em Bracket" (available for both standard and deluxe tables; check it out on our Online Store). However, this method does not provide a lot of control over the quilt top and it could shift quite a bit unless you use other clamping methods to hold it securely on the Quilt Back Roller.

Method #3: Full Attachment

The "full attachment" method involves pinning the quilt top to the Pick-Up Roller in addition to the backing fabric. This allows the top and backing fabric to be adjusted independently from each other and affords great control over the three layers – it is easier to ease the quilt edges if necessary, with fewer preparatory steps. However, you should not use this method if you're doing a pantograph that must travel past the quilt's raw edge. Otherwise, you'll be stitching on the canvas itself. This is a popular method for custom quilters who want ultimate control over the quilt top.

As you can see, each method has positive and negative aspects. It's good to know how to use all of them so that you can choose the method that makes sense for any given project. For example, it may be easier to use a common backing fabric and quilt four placemats side by side using the full floating method. But it might make sense to use the pinning method when your borders have too much fabric compared to the rest of the quilt. You can "ease in" the top as you pin it to the rollers, and then allow your quilting to help absorb the extra fabric. (Thicker batting and a dense quilting design also help.)

Remember that none of these methods is the one "right" way to load your quilt. Explore all of them to determine which one makes sense for your project, your style of quilting and your patience level!

Attaching Fabric to the Frame

No matter which loading method you choose – "full float," "partial float" or "full attachment" – you'll even discover several different methods for holding the fabric to your frame. These include pins of all types, zippers, VELCRO®, staples, even magnets.

Gadgets that work similar to the closure on a Ziploc® bag are also popular (Leader Grips and Red Snappers are two brands.) With those products, a plastic rod slips into a hem or pocket you create on each canvas. Your fabric lies across this rod. You then press another piece of curved plastic down over the fabric and the rod (like closing the Ziploc bag), securing it in place. Each attachment method also includes advantages and disadvantages.

Step-by-Step Quilt Loading Guide

Over time, you will try several different products and methods before you settle on one method that's right for you. However, since it would be a rare quilter who didn't have ANY pins in her studio, we show you how to get started with straight pins. Visit our YouTube quilting channel for videos showing how to partially float your quilt top (the most common method for loading a quilt).

Step 1: Prepare Your Quilt Layers

- Press the top and backing fabric.
- Trim stray threads.
- Check for loose or open seams.
- Make sure the batting is 4 inches larger than your quilt on all sides.
- Make sure the backing is at least 4 inches larger than your quilt on all sides (you'll need 4–6 inches more than that if you use Red Snappers or Leader Grips).
- Mark the top of the quilt with a safety pin.
- Mark the top of the backing with a safety pin.

Step 2: Choose Your Loading Method

While all three methods are options with advantages and disadvantages as earlier described, we'll concentrate on the most popular method to get you started – which is partially floating your quilt top.

Step 3: Choose Your Loading Device

Every loading device can present its own unique challenges as well as advantages. We encourage you to start out with pins since they're often already in your sewing room, but also so that you can get the process down and understand what you like and don't like about the loading process before investing in other loading gadgets.

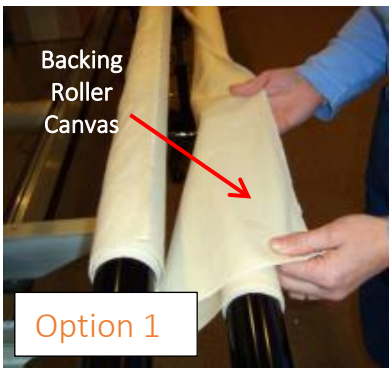
The pin type you choose is often dictated by what is readily available to you, as well as by whatever type or brand your longarm instructor personally favors. Experiment, and don't feel that you have to use a specific brand or type of pin. The Clover Flower Head Pins are handy because you may find yourself turning a lot of your quilts and re-mounting them to your frame. These pins help make that process easy and quick since you can leave them in the quilt as you go and not worry about them bending or snagging your quilt.

Step 4: Prepare the Backing Fabric for Loading

- Measure the backing fabric – is it large enough for the entire quilt?
- Trim two parallel sides which will mount to the frame (should be the same sides to match the way your top will be pinned, e.g., if mounting the quilt sideways, then the backing sides need to be trimmed parallel to each other).
- Find the center of the backing fabric; mark with a pin or make a tiny snip to mark each parallel edge.
- Check the seam allowances of the seam – have selvedges been removed? If not, snip the selvedge every four inches or so to allow stretch. *Note: selvedges along the outer edges of the backing do not necessarily need to be removed, but loading may be easier if the selvedges are cut off.*
- Press out heavy wrinkles, especially any bolt creases or fold lines.
- Determine which side is the "right side" and which is the "wrong side" of the backing fabric.
- Place a safety pin on the edge that represents the "top" of your backing, even if you're going to mount it sideways on your frame. You'll also put a safety pin in the "top" of your quilt. When it's time to load the layers on your frame, make sure the safety pins end up on the same side of the frame.

No matter what loading method or attachment device you use, the backing fabric must always be loaded to the Quilt Back Roller and the Pick-Up Roller. While your backing does not need to be completely "square," it DOES need to have two straight, parallel edges – the ones you decided to attach to the rollers as described in the previous paragraph. Find the center of each of those edges and mark them.

Step 5: Partially Attach the Backing Fabric



Option 1: Loosen your front brake and unroll about 8 inches of canvas leader fabric from the Backing Roller. Reach down between the rollers and grab the canvas edge, then flip the canvas back upon itself, resting it upon the roller. This makes pinning easier, since both the Quilt Top Roller and the Pick-Up Roller act as "smoothers" for the backing as you wind it on the roller. Re-engage the brake.

Option 2: Loosen the brake. Unroll several inches of canvas from the Backing Roller, then pass the backing canvas UNDER the Quilt Top Roller and around it, so that the backing canvas edge rests on the Backing Roller (photos above).

Re-engage the brake. With this method, the backing fabric will eventually drape under the Quilt Top Roller, once you start winding the backing fabric on to the Backing Roller. It doesn't provide quite the same amount of "smoothing" as the first option but works fine.

Check that the backing orientation will match the way you intend to pin on the quilt top (match directional backing fabric to the top's direction).

Stand at the needle side of your machine. Hold your backing fabric *wrong side up*. Align one of the straight edges so that it's parallel to your Quilt Backing Roller. Place the excess backing across the frame and over the Pick-Up Roller on the back of the table. This will help smooth it as you wind it on the Backing Roller and will keep it off your floor.

Align the center mark you made on the backing fabric with the center mark on your Backing Roller. Begin in the center and align the raw edge of the backing with the raw edge of your canvas.

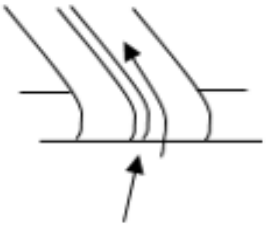
Start in the center of your backing fabric and pin it to the canvas center mark on your Backing Roller, keeping the pins close but not overlapping. Position the pins about ¼-inch in from the raw edge with pins going in the same direction. Work from the center to one end, then return to the center and pin to the other end of the fabric.

For Both Methods

Engage the brake after positioning the backing canvas in preparation for loading, then lift the brake handle slightly so that you can turn the roller, but you still want to feel resistance from the brake. If you have not yet engaged the brake, now engage it to apply some pressure to the roller.

Turn the Backing Roller one complete revolution until your pins are covered. This puts the pins under the canvas so you can't get poked. Use your hands to smooth the canvas and pins flat, and then smooth the backing fabric from the center out to the edges.

If you completely squared your backing and had all four sides parallel, the edges of the backing fabric should line up as you roll. However, if you only cut two straight edges, don't be alarmed if the backing fabric edges do not line up as you roll the backing on to the Backing Roller.



Seam Twist on Backing

Continue rolling the fabric on to the Quilt Backing Roller, smoothing the fabric as you wind, working from the center out toward each edge.

If you have backing seams that wrap around the roller, grasp each seam and twist it tightly on the roller. Since three layers of fabric build up on this seam as it encircles the roller, the backing may distort in this area. ***You want to smash the seam as tightly as possible on the roller to keep the backing smooth.*** When you tighten this seam on the roller it helps compress the layers there, reducing the chance for puckers and tucks on the back.

Continue smoothing and rolling until the backing fabric drops off your Pick-Up Roller.

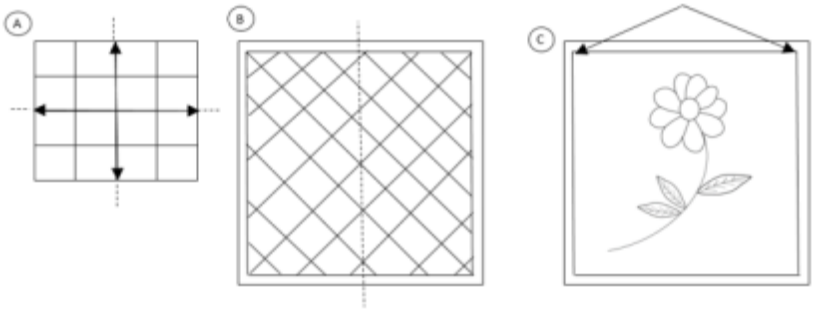
If you used "Option 1" to load the backing fabric by flipping the Backing Roller canvas back upon itself, take the backing fabric ***over*** the Quilt Top Roller and drop it down between the two rollers.

If you used "Option 2," then your quilt backing will already be between the Quilt Top Roller and the Backing Roller. You may now move on to the quilt top preparation and loading.

NOTE: *New quilters often over-tighten the backing on the side of the roller corresponding to their dominant hand. One way to check is to roll the backing fabric back off the Backing Roller until it just meets your floor. Assuming your floor is straight, the backing fabric should also be straight and parallel to the floor. If not, begin rolling it on again, striving for consistent pressure from both hands as you wrap it on the roller.*

Step 6: Prepare and Mount the Quilt Top

- Press the quilt if necessary and trim any threads that might "shadow through" to the quilt's surface. Check for holes or seams that are not secure and repair if needed.
- Remember that if you're mounting your quilt sideways to conserve quilting time, you'll need to find the center of the *sides* of your quilt, not the top and bottom edges.
- Make sure that the safety pin you added to the side of your quilt that represents its "top" edge is on the same side of the frame as the pin you used to mark the "top" edge of the backing. If you're loading the quilt sideways these safety pins will either be on the left or right side of the quilt.



- Locate the "true center" of the quilt, ***not*** the center of the border, and mark this center with a straight or safety pin on the edges of the quilt that you have chosen to mount to the frame.
    - Rather than folding the quilt top in half, use one of the following methods to find the "true center" of the quilt (illustration on the next page):

- Follow a center piecing seam out to the edges of the quilt.
- Split an on-point block in half and follow the imaginary line to the edge of the quilt.
- Match inner corners of patchwork instead of outer borders if there is no distinguishable center seam .

- If you will be turning the quilt to do side borders, repeat the process to find the center of the sides and mark with a safety pin.

- Stand at the needle side of the frame and hold the quilt top ***right side up***. Find the safety pin you added to the backing fabric which designated its "top" edge. Hold your quilt so that the safety pin you added to it is located in the same position. For example, if you loaded your quilt sideways and the safety pin in your backing is on the left side of the frame, hold the quilt top so its safety pin is also on the left side.

Place the excess body of the quilt top across the frame and over the Pick-Up Roller. Then align the straight edge with the Quilt Top Roller's canvas edge, matching your center mark from the quilt top with the center mark on the canvas.

If the quilt is square and wavy borders are not a concern, pin as you did the backing fabric, working from the center out.
You should come out to the same numbers on the left and right along your canvas leader, if you have marked your canvases.

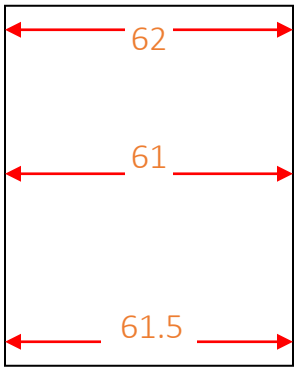
Ease In the Quilt Top If Needed

Some quilts aren't quite perfect, but you CAN help them out. One way is to measure across the quilt's middle for the quilt's accurate size; note any difference between this measurement and the border sizes. While you don't HAVE to adjust the quilt to make it square, if you choose to quilt the top "as is" then any excess fabric along the border areas will result in wavy edges when you are finished. You will need to mark your canvases as described in the "Marking Your Canvases" section before easing in the quilt top.

- First, determine the amount to be eased, from ½ inch on small quilts to up to 2 inches or more on large quilts.

- In the example at right, the smallest measurement (usually across the middle) is 61 inches. When pinning this quilt to the Quilt Top Roller, you can "ease in" the excess along the two edges. Pin the quilt right side up, aligning the "true center" of the quilt at "zero" on the Quilt Top Roller.

- Now divide the smallest measurement by 2 (61 divided by 2 = 30.5 inches). Follow the markings you added to your Quilt Top Roller, and place one edge of the quilt at "30.5 inches" and secure with a pin. Repeat for the other quilt edge (you'll have three pins in the quilt and canvas at this point).

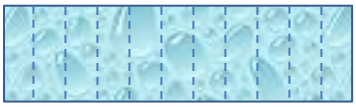


- Now start "easing in" the border by splitting the difference between the center pin and the outer-most pins and securing the quilt to the roller with another pin. Continue in this manner until you've evenly distributed the quilt top and have secured the entire quilt to the canvas.

- Your pins now hold the quilt to the new size, and your quilting will lock it in place on the batting and backing. Consider a tighter or denser quilting design in this situation, as well as a slightly loftier batting if need be, to fill in the excess fabric in the eased border.

- A quilting design that moves backward as well as forward is a good choice, since it evenly distributes the excess fabric instead of pushing it all to one side of the quilt.

HINT: "Piano key" quilting (straight parallel lines extending from the quilt's body through the border to the outer edge) can help ease in border fullness since it evenly distributes the excess fabric.



Roll the Quilt Top on the Roller

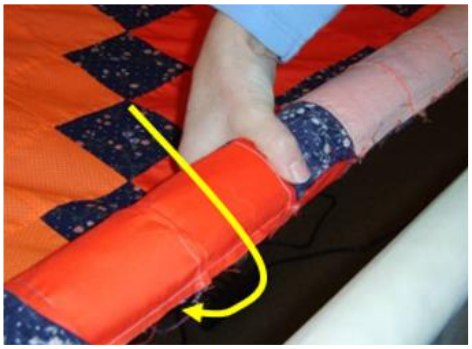
Once your quilt top is attached to the quilt top roller, begin winding the quilt on to the roller using the following checks and balances:

- Check that the quilt's sides are winding evenly and are staying in line with each other. (If your quilt was not "square" to start, then the quilt's left and right edges may not align.)

- Use horizontal seams in the quilt to check that it is rolling straight – the seams should stay parallel to the roller. If not, twist the seams that are wrapping *around* the roller to tighten them, until the horizontal seam stays parallel with the roller.

- With each seam that wraps around the roller, twist the seam as if to "tighten" it onto the roller. This allows the quilt to stay flat and prevents sagging side borders. Work the seams as shown below until the horizontal seams again align parallel to the roller. The larger the quilt, the more important this critical step becomes.

Horizontal seams should not twist. Photo above is showing twisting.



Step 7: Finish Attaching the Backing Fabric

- Your APQS quilting machine uses a leveler bar to keep your quilt sandwich level as you work, and to keep your quilting space consistent from beginning to end. You will need to make sure your backing fabric passes ***under*** this bar before mounting it to the Pick-Up Roller.

- To make this easier to do, unwind enough of the canvas from the Pick-Up Roller so that you can pass it under the leveler bar toward the Quilt Top and Quilt Backing Rollers.

- Then bring it up *over* the leveler bar and back over the top of the Pick-Up Roller, wrapping the leveler bar inside the Pick-Up Roller canvas. The leveler bar will be hiding inside the wrap-over of the Pick-Up Roller canvas.

- Now bring your quilt backing across the table and over the top of the Pick-Up Roller.

- Line up the backing's straight edge with the edge of the Pick-Up Roller canvas, again matching the center marks. Pin it in place just as you did on the Quilt Backing Roller.

- Once you have it completely pinned in place, wind the excess backing on to the Quilt Back Roller once more, smoothing as you go. The edge you attached to the Pick-Up Roller will drop down off that roller and will automatically be underneath the leveler bar for you. Wind up the backing until the edge attached to the Pick-Up Roller is just inside your quilting space, next to the leveler bar.

Step 8: Position the Batting

- Pay attention to batting grain line, based on how the quilt will be used.
- Remove any excess batting on left and right sides of the quilt until only about 3–4 inches remain past the raw edges of the quilt.
- Find the right side of the batting and hold it with the right side face up. Slide it between the Quilt Backing Roller and Quilt Top Roller toward the throat of the machine. If it binds on the backing, unwind the backing slightly to reduce friction.

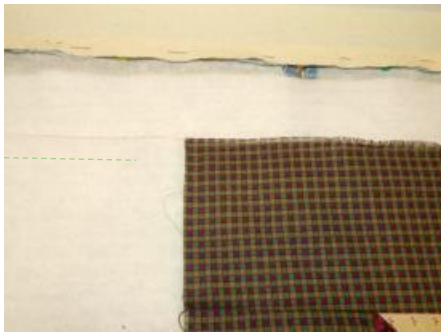
- Align the batting raw edge near the edge of the Pick-Up Roller and the opposite end of the backing, close to where it is attached to the Pick-Up Roller canvas. Adjust the batting and backing until they are smooth. Allow the excess batting to drape on the floor under the frame.

Step 9: Align the Quilt Top and Secure it to the Batting

Remember, partially floating a top means that it is NOT attached to the Pick-Up Roller Canvas – it will rest on the backing and batting instead. However, you'll want to keep the quilt straight, and if you're going to stitch off the quilt and back on again, you'll need the edges to be secure.

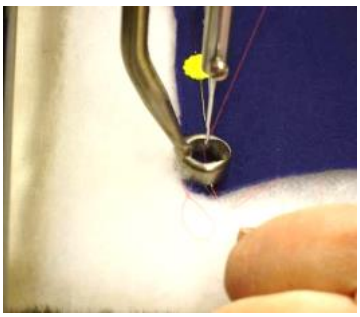
- Stand on the needle side of your machine. Move your machine's needle until it is on the left side of your backing and batting, about two inches below the pins holding the backing fabric to your Pick-Up Roller. **Engage your horizontal channel lock and stitch a straight line all the way across the backing and batting.** This will give you a straight reference line for your quilt top.

- Unwind the quilt top and bring it across the batting and backing until it's aligned with your referenced sewn line in the batting. Be sure to place the quilt's center mark in line with the center line on the Pick-Up Roller canvas (extend that center mark down to your reference line in your mind's eye or use a ruler to mark it). Now you can secure the quilt along this reference line.



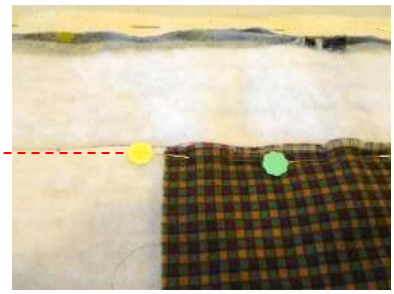
    - If you need to "ease in" this side of the quilt, measure out from your center mark along your stitched reference line. Since you don't have marks along this line, use a ruler and pin the outer edges of the quilt top to the "eased size." Continue adding pins in between, easing the top as you go but pinning about ½-inch away from the quilt's edge. Then you can use the machine's needle up/down button to place close tacking stitches that hold this top border to its new width.

- Disengage your channel lock and move the sewing head over the quilt top, just inside the ¼-inch seam allowance, then re-engage the channel lock. If you will be quilting off the edge with a pantograph, baste the top of the quilt in place using a long stitch setting, taking care not to stretch the fabric. (You might wish to start in the center and baste out to the left and right if your batting is puffy, to keep the quilt from creeping to the right as you baste.)



- If your quilting will stay on the quilt top (such as a border design that stays inside the border) you can use pins along the reference line instead.

- For the most control, use your needle up/down button to place single stitches about one inch apart along the quilt top edge. (This allows you to "ease in" the quilt top if it's necessary to square it up.) However, unless you are using the optional "scoop foot" you'll need to be careful when stitching off the quilt top and then back on again as the foot might catch on the longer basting stitches.



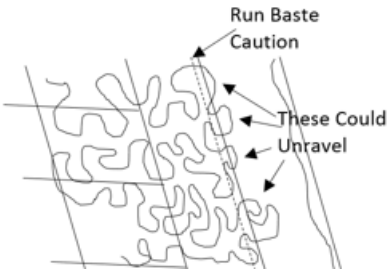
Step 10: Stabilize the Quilt's Left and Right Edges

Stabilize the quilt's edges before you add the clamps to the quilt backing. This step is important whether you are doing a pantograph design, all-over freehand design or custom work.

NOTE: If you choose to quilt "off the edge" of your quilt and back on again, be sure that you've left enough backing and batting to do so, and that the quilt edges won't get flipped over as you move on and off. (An optional "scoop foot" is ideal for this quilting type as its rounded bottom prevents it from catching on the quilt's edge or tacking baste stitches, or when using a zigzag basting stitch on the edge as described in Option 1 on the next page.)

- **Option 1:** Use a tighter stitch to attach the binding. There is a greater risk that those stitches will work loose from under the binding and begin to unravel.

- **Option 2:** Quilt into the ¼'' seam allowance and back on to the quilt's main surface, rather than to quilt completely off the quilt and back on to the top again, if you are concerned about the quilting stitches coming undone.



Attach the Side Clamps

After you've secured the quilt edges using one of the methods described in "Stabilizing the Quilt's Left and Right Edges," place your side clamps on to the backing fabric. Adjust their pressure so that they don't distort your backing fabric; they should keep your backing smooth.

If you find that the machine runs into the clamps, one easy trick is to reverse them. Use a straight pin and attach the loose elastic ends to the backing fabric, then lift the clamp buckle, and tighten up the elastic. The clamp itself will hang free.

Method 1 – Machine Basting the Quilt Edges

Use the quilting machine to run a basting stitch along the outer edges of the quilt, just as you did for the quilt's top edge. If you choose this method, begin by securing your thread in the seam allowance of the quilt's outer border, along one side edge. Carefully stitch along the edge, trying to stay inside the seam allowance for the binding.

To help keep the side edges from scooting as you work down the quilt, try stitching the left edge of the quilt from "top to bottom" (move from the leveler bar toward the quilt top roller), and then stitch the right border from "bottom to top" (from the quilt top roller to the leveler bar).

A word of caution – the straight basting stitch method locks the quilt edges in place at a taut, stretched-out stage, and allows for no shrinkage from quilting on the quilt top's interior. When the quilt is removed from the machine, the result can be a wavy border edge. If your side borders are generous, then consider using the "tacking baste" method where you put one stitch every inch or so instead of sewing down the edge. This still allows fabric movement as you quilt. (You'll still need to use pins to re-mount the quilt if you decide to turn it on the frame to do the sides.)

Method 2 – Pin Basting the Quilt Edges

This method is quick and has less impact on the quilt's edges once the binding is attached, since the outer raw edges can relax once the quilt is off the frame. Place pins inside the ¼-inch seam allowance, keeping them tip to head.

Pinning isn't practical if you plan to do an edge-to-edge design that will spill off the quilt's outer edges as you will run into the pins. Pinning is used more for custom quilting where you can watch the needle. Pinning is also helpful if you are going to turn the quilt and re-mount it to do the side borders.

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