

The Sturdy-Lite

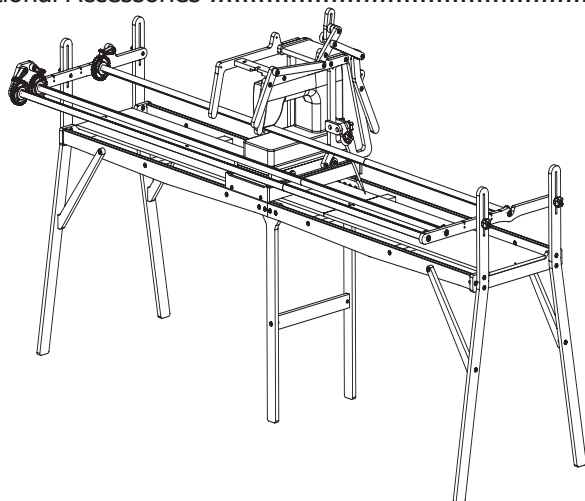
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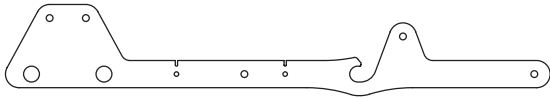
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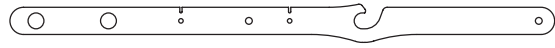


Sturdy-Lite

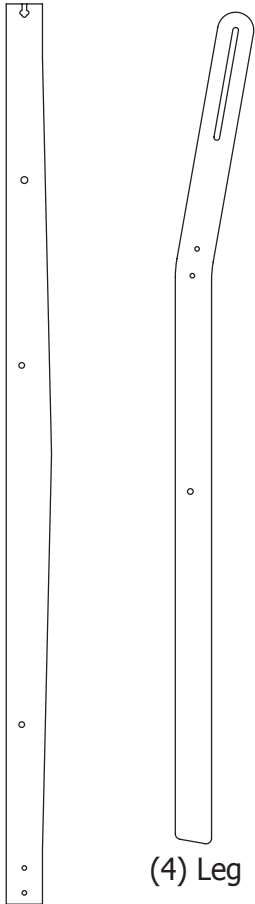
Wood Parts List



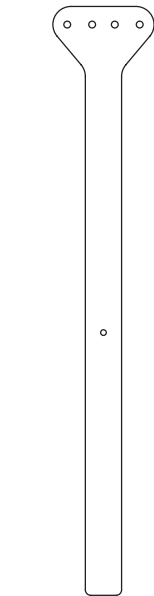
(1) Left Pole Mount End



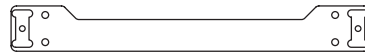
(1) Right Pole Mount End



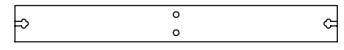
(4) Table Track Support



(2) Middle Leg



(2) Frame End



(4) Table Brace



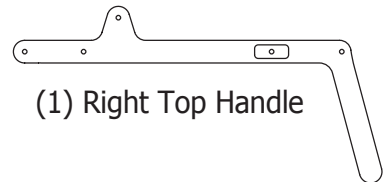
(1) Middle Leg Brace



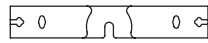
(4) Leg Brace



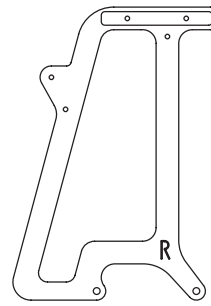
(1) Left Top Handle



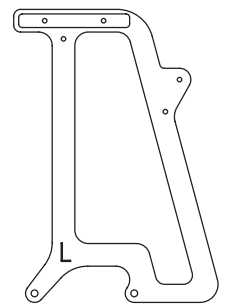
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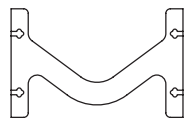
(1) Lamp Holding Cross Brace



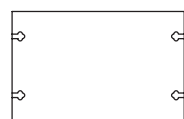
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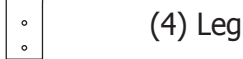
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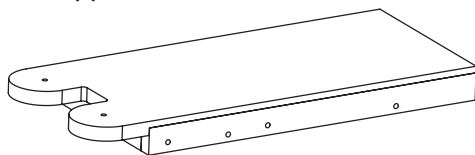
(1) Back Handle Narrow Cross Brace



(1) Back Handle Cross Brace



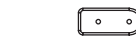
(4) Leg



(1) Top Plate



(1) Bottom Plate



(1) Stylus Base



(1) Stylus Mount



(1) Wooden Stylus



(1) Stylus Clamp



(1) Pedal Clamp



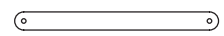
(1) Pedal Clamp Wheel



(3) Pedal Clamp Spacer



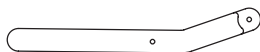
(3) Cone Thread Holder



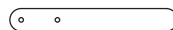
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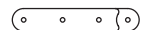
(1) Back Lever Linkage



(1) Back Lever



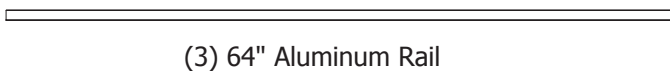
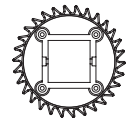
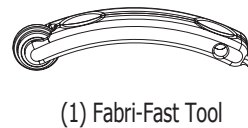
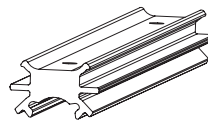
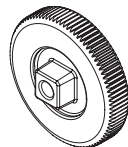
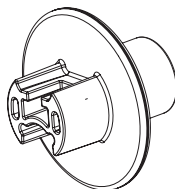
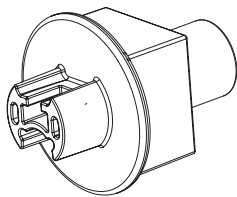
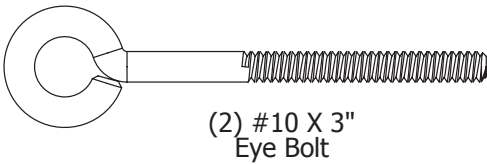
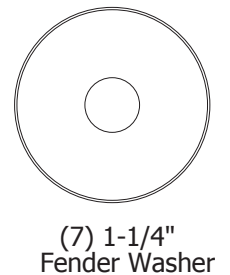
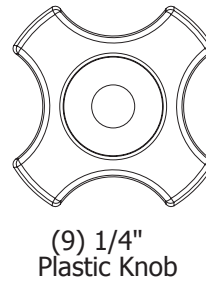
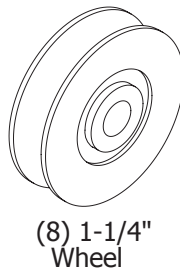
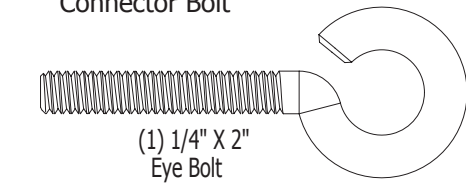
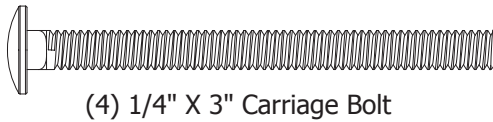
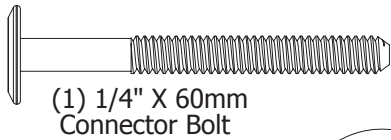
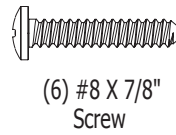
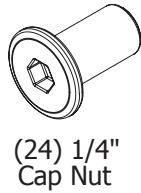
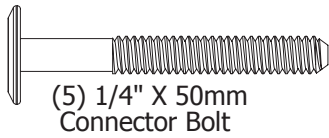
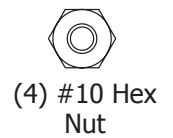
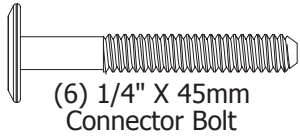
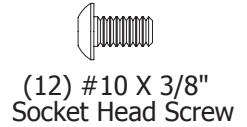
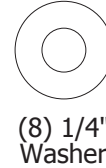
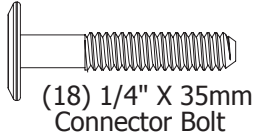
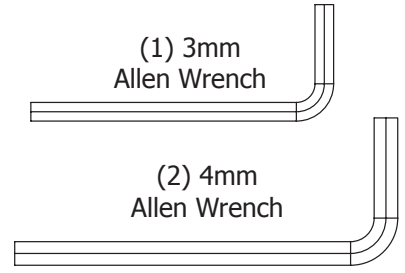
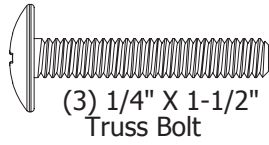
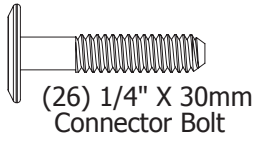
(1) Front Lever



(1) Middle Lever

Sturdy-Lite

Hardware Parts List



CARE OF YOUR STURDY-LITE

Your Sturdy-Lite frame is a machine quilting system that can be used finished or unfinished. Most use it unfinished with no problem, and doing so does not adversely affect warranty coverage. However, for extra protection, or to give it a finished look, you may seal, stain and/or finish the frame using a number of different applications. This is best done BEFORE YOU ASSEMBLE your frame.

To seal the wood, we recommend an application of tung oil or Danish Oil finish that will help preserve the wood and will help to prevent warping. We recommend the McCloskey's Tung Seal, Deft™ or Watco™ brands. Some prefer to use a urethane coat to add a more glossy finish.

Test stain on an inconspicuous place. Many different finishes and/or stains may be suitable for sealing and beautifying your frame. You may want to consult your local paint retailer for finishes that are easy to apply and dry hard—not oily.

Use and Storage Tip

--Store frame in a dry place. Avoid the possibility of moisture coming into contact with your wood.

Five-Year Limited Warranty

GraceWood, Inc. will replace or repair, at our choosing, any part of the Sturdy-Lite Machine Quilting System which may be shown to be defective. This warranty does not cover parts damaged through misuse, improper storage, improper assembly, loss, natural events and willful or accidental destruction. Defective parts may be returned only with a valid RMA# which may be obtained by calling **GraceWood, Inc. at 1-800-264-0644 or 1-801-485-6688.**

NOTE: Warranty card must be filled out, stamped and mailed to the address on the card within 30 days of purchase.

Contact Information

For Technical Support or any other correspondence concerning your Sturdy-Lite, call 1-800-264-0644

~

OR ~ E-mail: paul@graceframe.com ~ OR ~ Fax: (801) 908-8888 ~

OR ~ Write to:

The Grace Company

P.O. Box 27823

Salt Lake City, UT 84127

For details on accessories and other information, see us online at www.graceframe.com

For shipping of materials to The Grace Company address package (postage prepaid) to: The Grace Company, 2225 South 3200 West, SLC, UT 84119. Materials may be returned only with a valid RMA# or Returned Merchandise Authorization Number which may be obtained by calling GraceWood, Inc. at

1-800-264-0644.

If you call after business hours (M-F 8:00 a.m. – 5 p.m., MST) be assured that your call will be returned the next business day if you leave a message. Please report any errors in these instructions or make comments to the following: jaren@graceframe.com

Grace Quilting Frames and Hoops: Innovation and Evolution

Grace Quilting Systems have been developed over the past two decades with several original design innovations. Additionally, because of feedback from many of the thousands of quilters who have purchased and use our machine quilting systems, we have been able to make a frame that will truly enhance the entire process of machine quilting from beginning to end. If you have any suggestions that will help us to improve our product or service, let us know, using one of the above contact methods.

WELCOME!

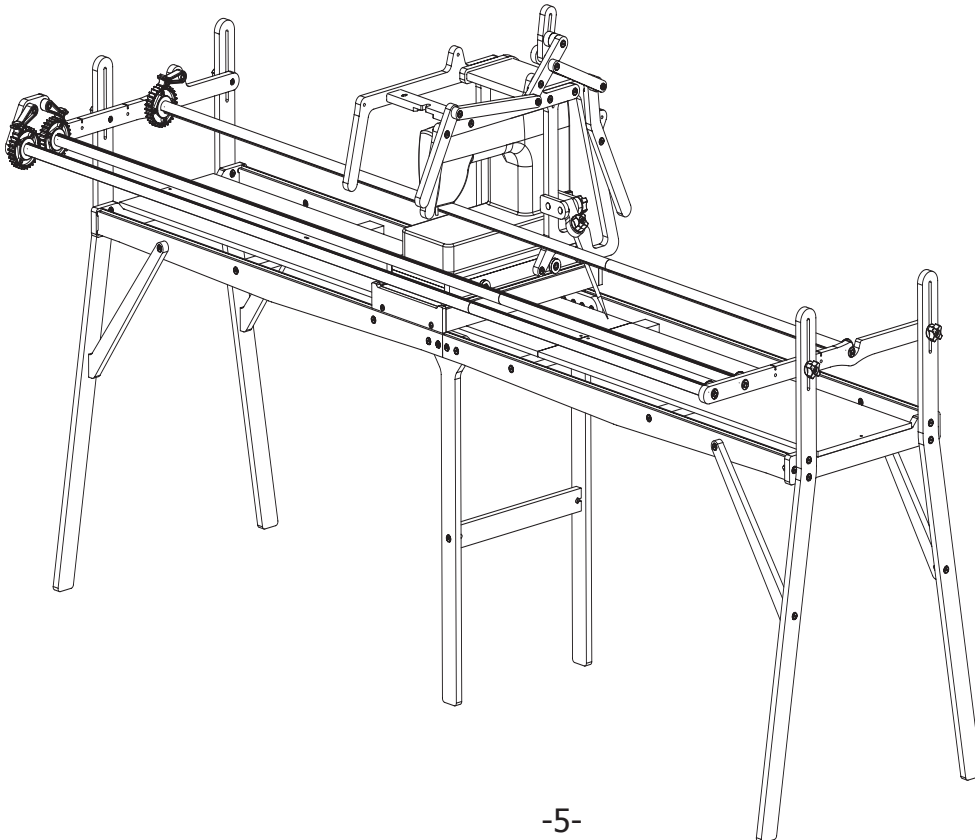
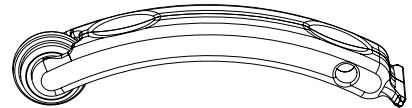


As you begin assembly of your new Sturdy-Lite home machine quilting system, keep in the mind the following:

- 1:** Plan to spend a minimum of 2-4 hours in assembly. This process will be simple and step-by-step.
- 2:** Read through each step completely before beginning that step.
- 3:** Using the parts list as a reference, take the parts out of the box and make sure that you have them all. (If there is something missing or broken, contact the Grace Company at 1-800-264-0644. Our offices are open from 8:00 am-5:00 pm MST Mon.-Fri. If calling after hours, you may leave your message and we will promptly ship any item needed).
- 4:** Identify Hardware Packets: All hardware is separated by type and each packet is labeled for ease in identification you will find packets located in a rectangular box.
- 5:** This is a new product! We welcome your feedback on this product or these instructions. If you encounter a problem during assembly or use of the Sturdy-Lite, and you can't seem to overcome it, call us before frustration sets in!

Tools Needed:

- 7/16" Socket Wrench
- Adjustable wrench
- Phillips Screw Driver (Cordless Preferred)
- Allen wrench (provided)
- Fabri-Fast Tool (to be used when installing your fabric)



Step 1: Table Brace Assembly

Parts Needed:

- 4- Table Brace
- 4- Table Track Supports
- 8- 1/4" x 35mm Connector Bolt
- 8- 1/4 #20 Square Nut

****Square Nuts may need to be pushed in with a screw driver or tapped in with a hammer.****

1-1: Attach two Table Braces to two of the Table Track Supports. Place the Table braces on your working surface with the "T" slots facing up. Also place the Table Track Supports on your working surface with the two holes closest to the end to your left, and the edge with the slot running it's entire length facing down.

1-2: Insert a square nut into all of the "T" slots in each of the Table Braces. Then insert a 35mm connector bolt through each of the appropriate holes in the Table Track Supports. Now thread the bolt into the square nuts already in the "T" slots of the Table Braces. Tighten the bolts with a 4mm Allen wrench (Supplied in hardware kit).

1-3: Repeat steps 1-1 and 1-2 to build another Table Brace Assembly.

Step 2: Frame End Assembly

Parts Needed:

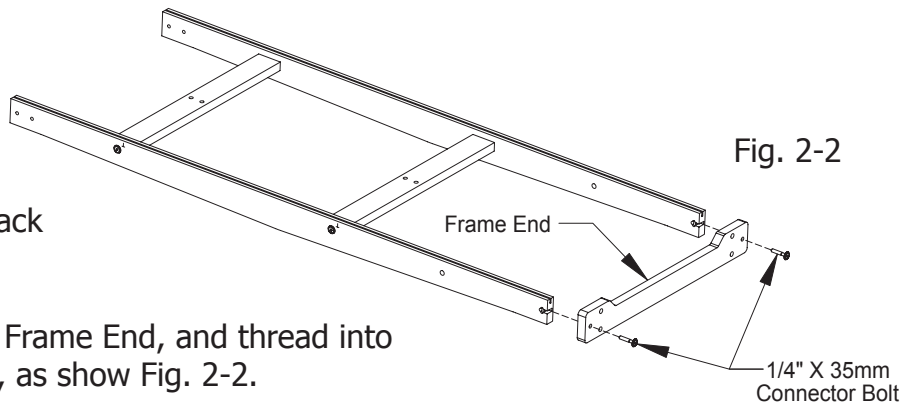
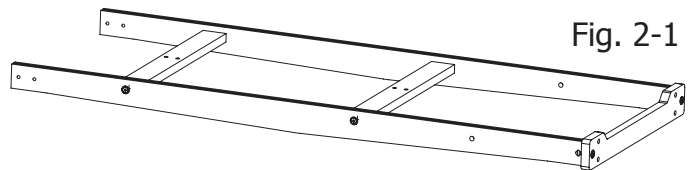
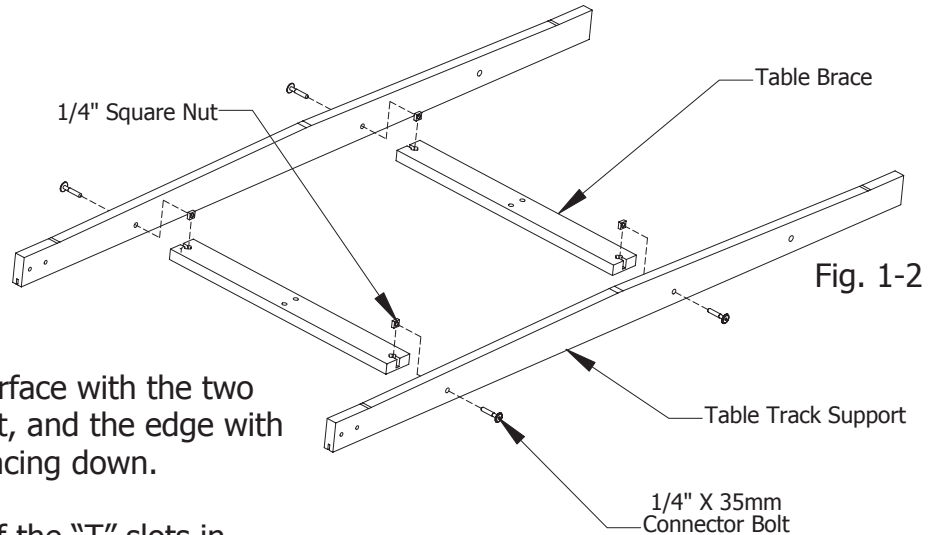
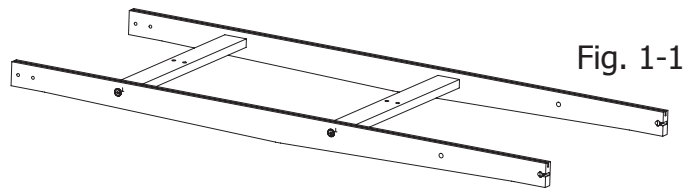
- 2- Frame Ends
- 2- Table Brace Assembly
- 4- 1/4" x 35mm Connector Bolt
- 4- 1/4" Square Nut

2-1: Flip the Table Brace Assembly so the slotted edges face up.

2-2: Place a square nut into the "T" slots at the ends of each Table Track Support.

2-3: Insert 35mm bolts through the Frame End, and thread into the square nuts (previously installed), as show Fig. 2-2.

2-4: Repeat steps 2-1 to 2-3 to build another Frame End Assembly.



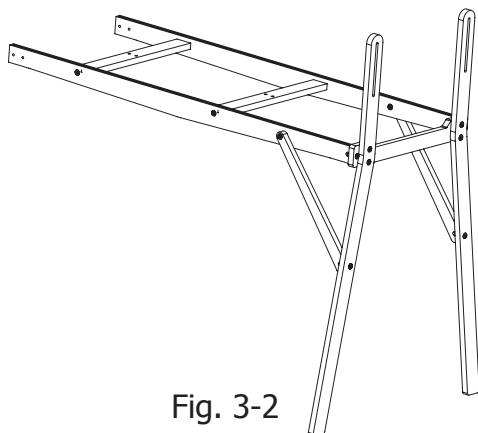
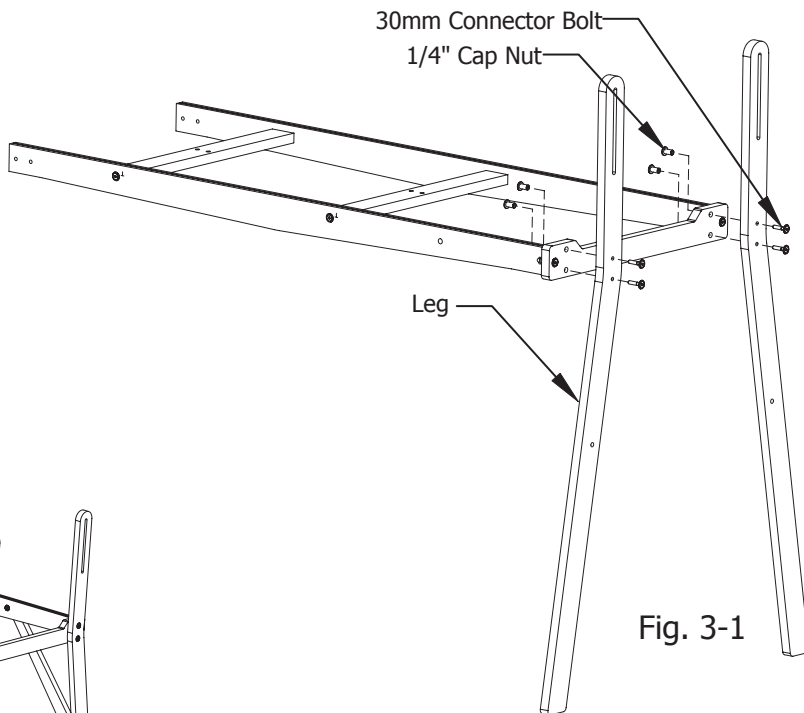
Step 3: Leg to Frame Assembly

Parts Needed:

- 2- Frame End Assembly
- 4- Legs
- 8- 1/4" x 30mm Connector Bolt
- 8- 1/4" Cap Nut

3-1: Attach the Legs to the Frame End Assembly using (2) 30mm Connector Bolts, and (2) 1/4" Cap Nuts per leg, make sure the Legs angle outward as shown.

3-2: Create another Leg to Frame Assembly by repeating this step.



Step 4: Leg Brace Assembly

Parts Needed:

- 4- Braces
- 4- 1/4" x 30mm Connector Bolt
- 4- 1/4" Cap Nut
- 4- 1/4" x 35mm Connector Bolt
- 4- 1/4" Square Nut

4-1: Put a square nut into the "T" slots in each of the Leg Braces.

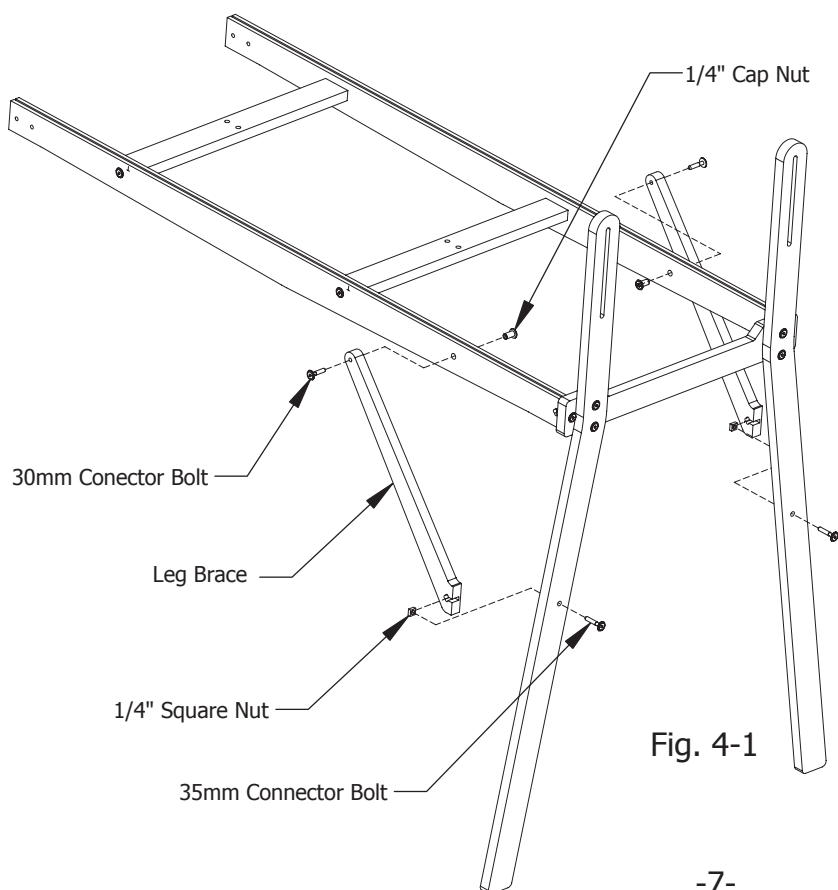
4-2: Put a 35mm connector bolt through the hole on each Leg.

4-3: Now screw the bolt into the nut that you installed in the Leg Brace.

4-4: Insert a 30mm connector bolt through the brace and into the Table Track Support.

4-5: Insert a Cap Nut through the hole in the Table Track Support, then thread onto the end of the bolt.

4-6: Follow the above steps for the remaining three Leg braces.



Step 5: Complete Lower Frame Assembly

Parts Needed:

- 2- Middle Legs
- 1- Middle Leg Brace
- 2- 35mm Connector Bolt
- 8- 30mm Connector Bolt
- 2- 1/4" Square Nut
- 8- 1/4" Cap Nut
- 2- 99" Plastic Track

5-1: Put (2) two 30mm bolts through the (2) two holes on one of the Table Track Supports.

5-2: Attach a Middle Leg to the Leg Frame Assembly with (2) two 1/4" Cap Nuts per leg. Do not completely tighten these bolts yet.

5-3: Attach the other middle leg by following the previous steps.

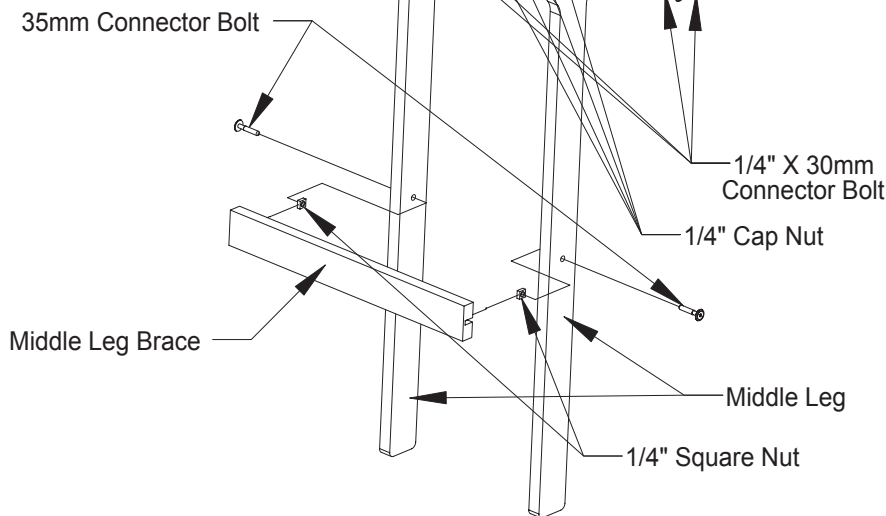


Fig. 5-1

5-4: Insert square nuts into the "T" slots in the Middle Leg Brace.

5-5: Attach the Middle Leg Brace to the Middle Legs by inserting a 35mm bolt through the holes in the middle legs, then screw tightly into the square nuts previously inserted in the middle leg brace

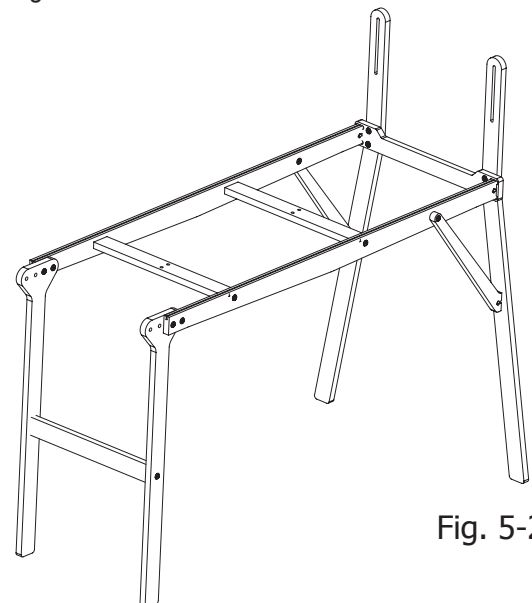


Fig. 5-2

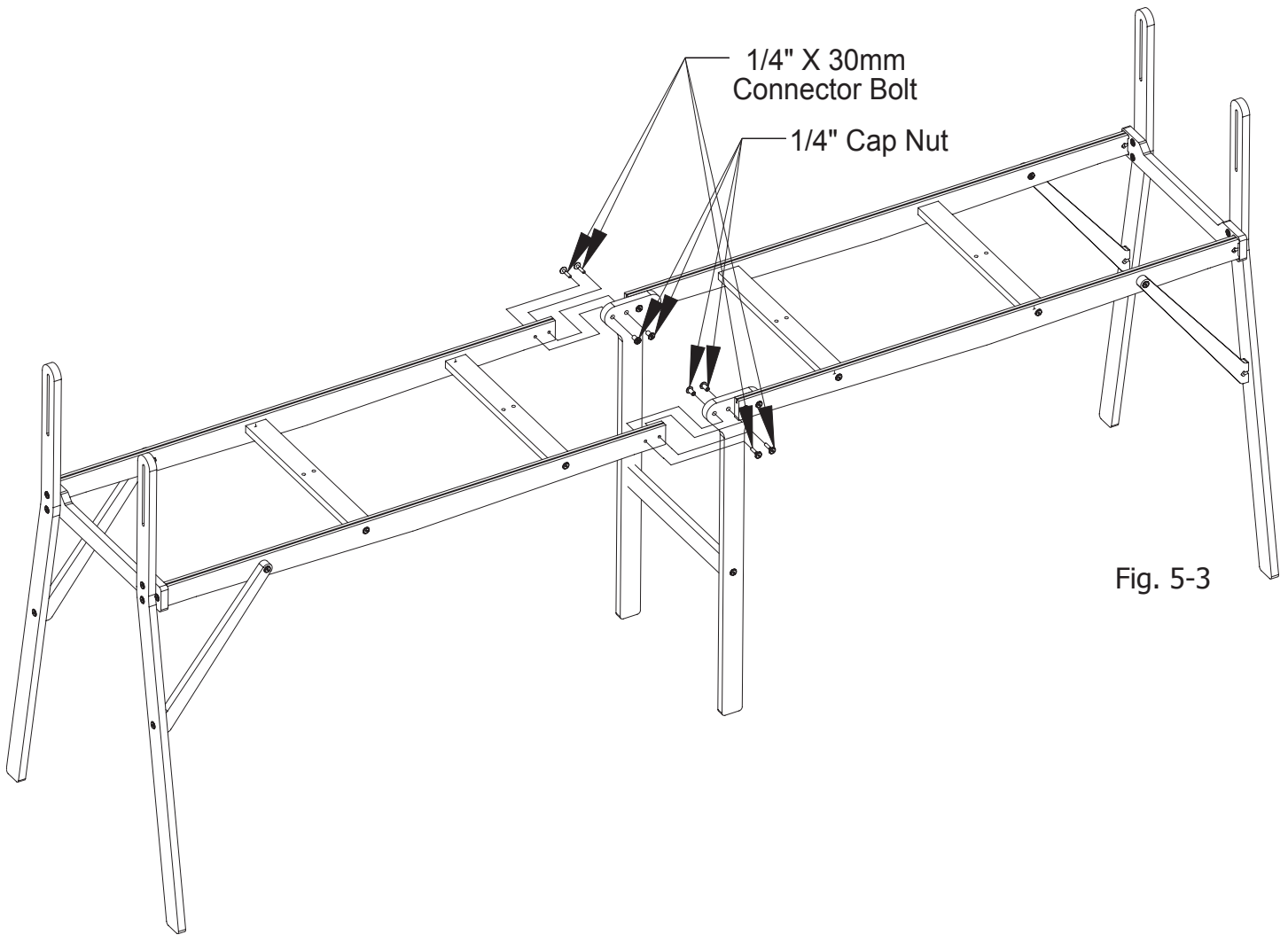


Fig. 5-3

5-6: Attach the other Leg Table Assembly to the Middle Leg and Track Assembly by securing the Table Track Supports to the middle legs using (2) 30mm bolts, and (2) 1/4" Cap Nuts per middle leg.

5-7: Now completely tighten the screws holding the middle legs onto the table assembly.

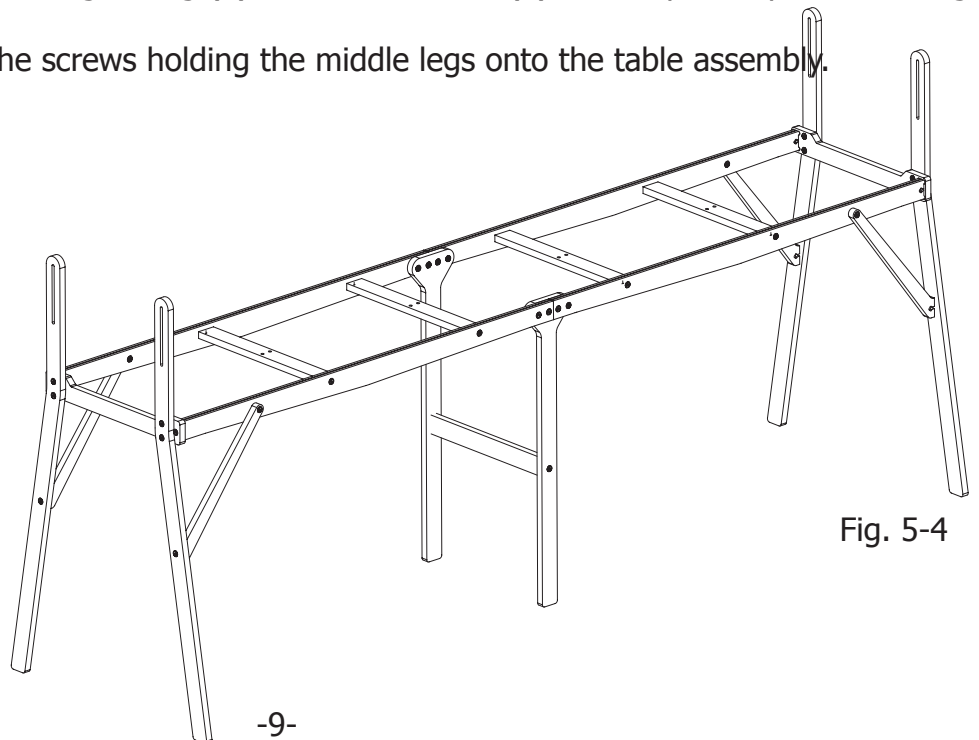


Fig. 5-4

5-8: Once the legs are on, place the two pieces of 99" Plastic Track into the grooves in the Rail Track Supports.

5-9: Run hand across track to ensure track is completely seated into the slot.

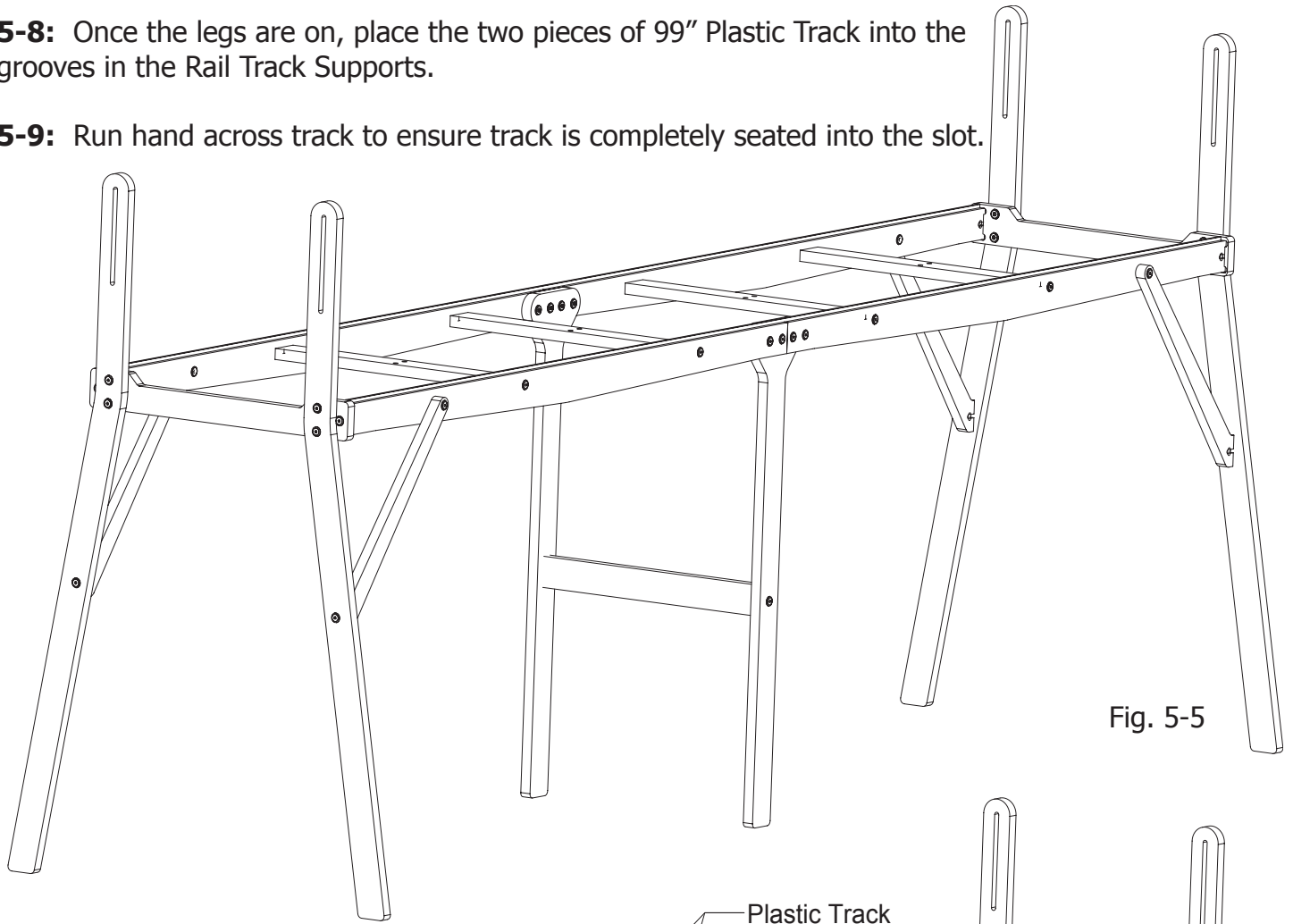


Fig. 5-5

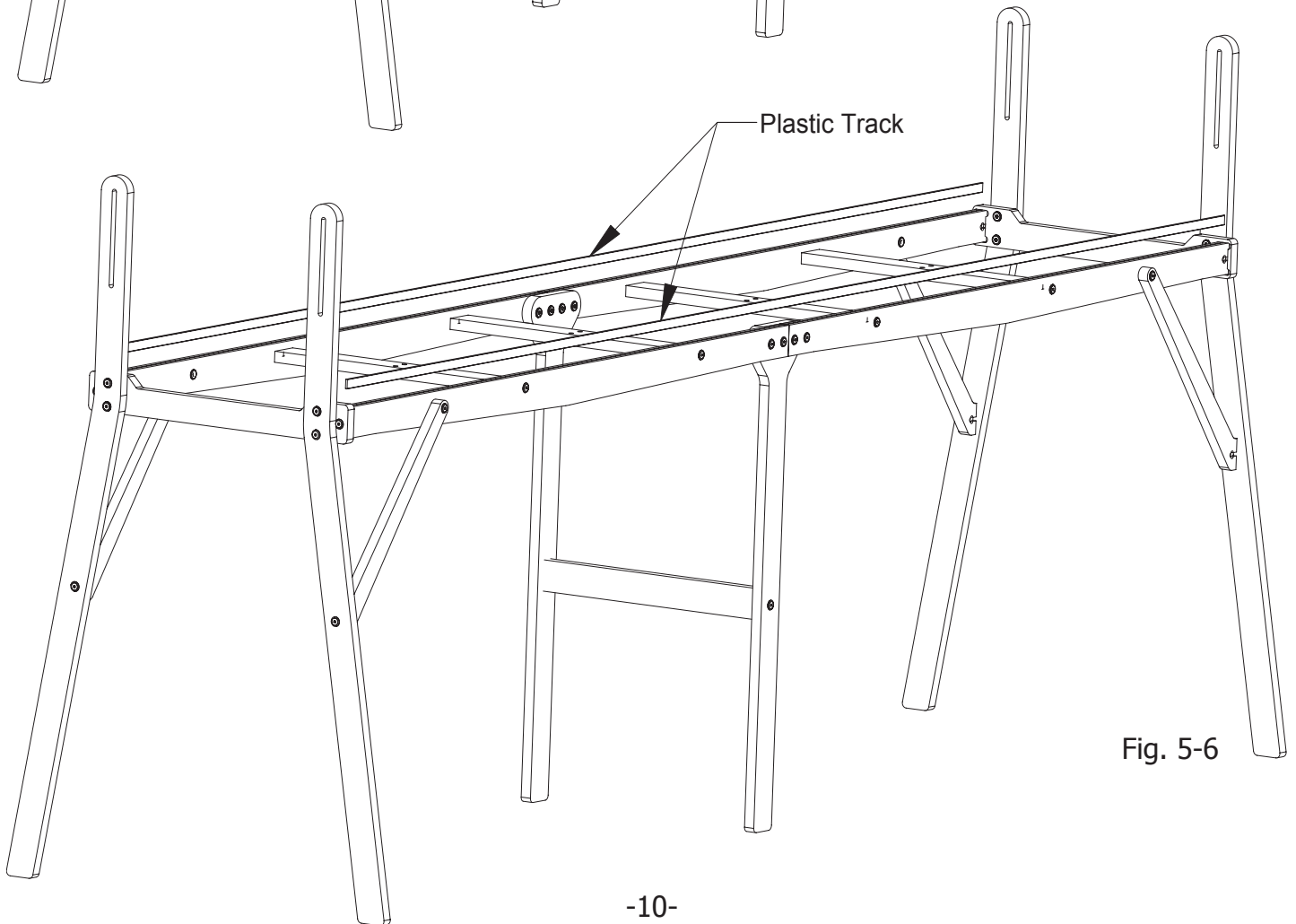
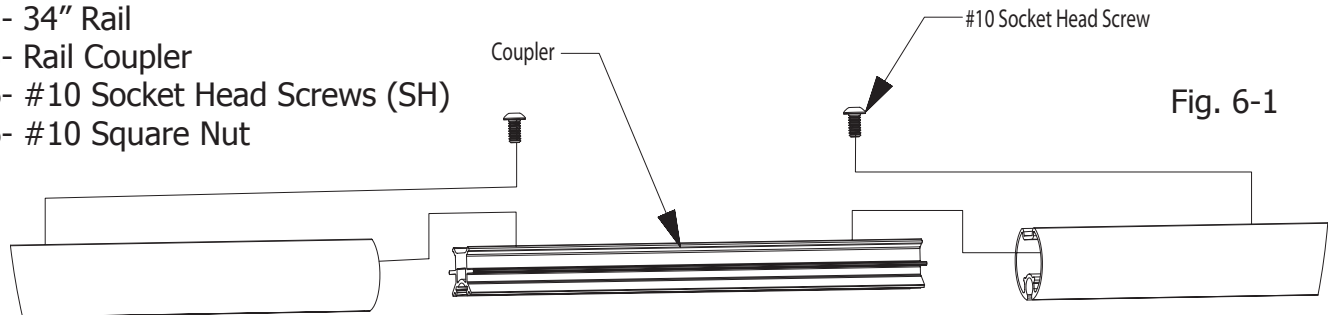


Fig. 5-6

Step 6: Rail Assembly

Parts Needed:

- 3- 64" Rail
- 3- 34" Rail
- 3- Rail Coupler
- 6- #10 Socket Head Screws (SH)
- 6- #10 Square Nut



*** Remove clear plastic tubing from rails, and save for later use.**

6-1: Insert one end of the coupler into the end of the 64" rail. Screw a #10 socket head screw through the second hole from the end of the rail and into the threaded hole of the coupler. Tighten the screw all the way using small Allen wrench.

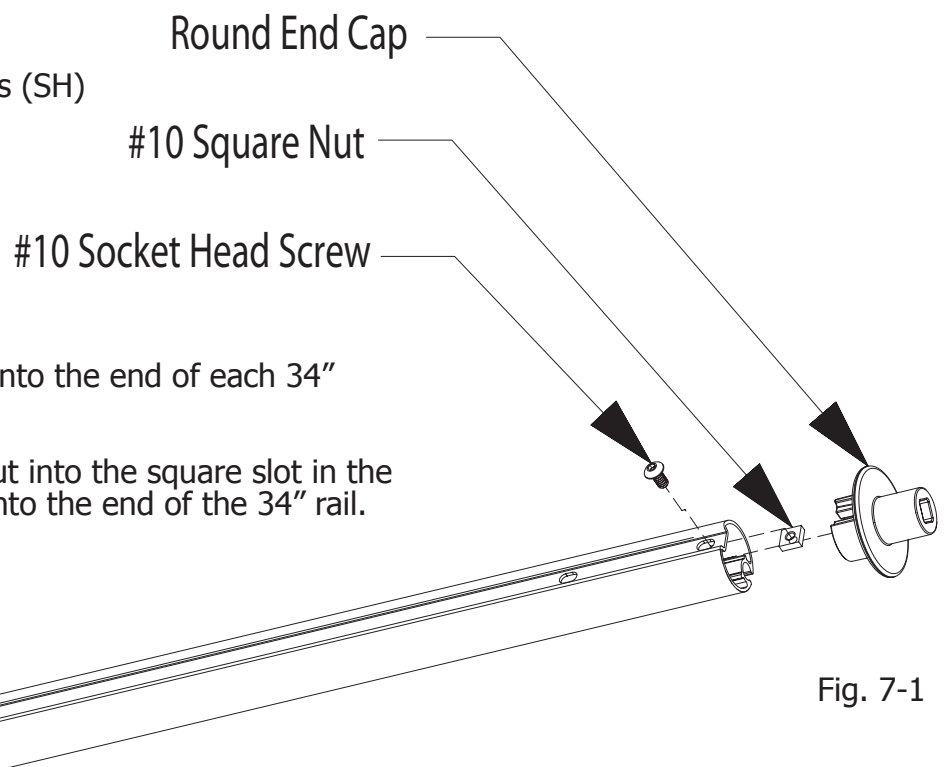
6-2: Slide one end of the 34" rail onto the coupler and screw a #10 socket head screw in the coupler as before.

6-3: Repeat the above steps to assemble two more identical rails.

Step 7: End Cap Assembly

Parts Needed:

- 3- Round End Caps
- 3- Square End Caps
- 6- #10 Socket Head Screws (SH)
- 6- #10 Square Nut



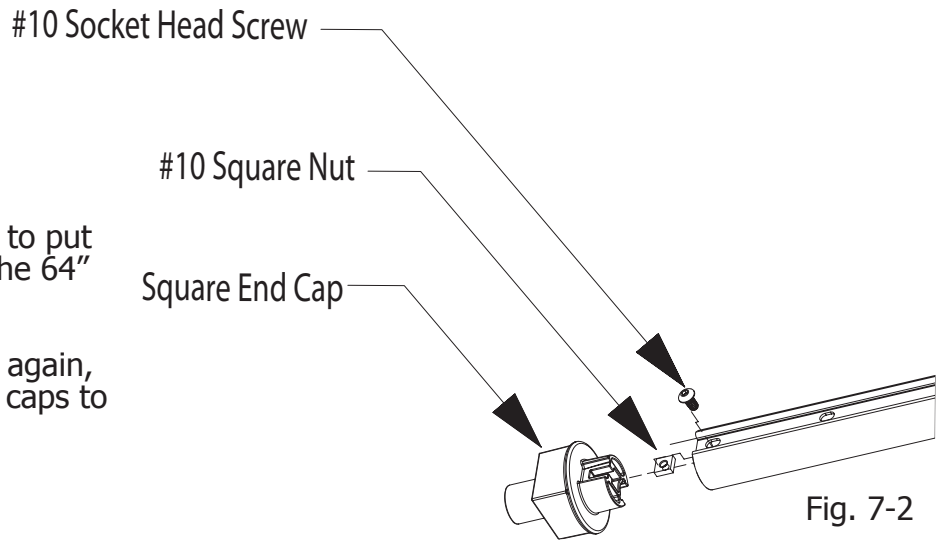
7-1: Install one round end cap onto the end of each 34" Rail.

7-2: To do this place a square nut into the square slot in the end cap then insert the end cap into the end of the 34" rail.

7-3: Next, secure the end cap to the rail by inserting a #10 socket head screw through the hole in the rail and into the square nut in the end cap, (tighten completely).

7-4: Follow the above instructions to put the rest of the round end caps on the 64" Rails.

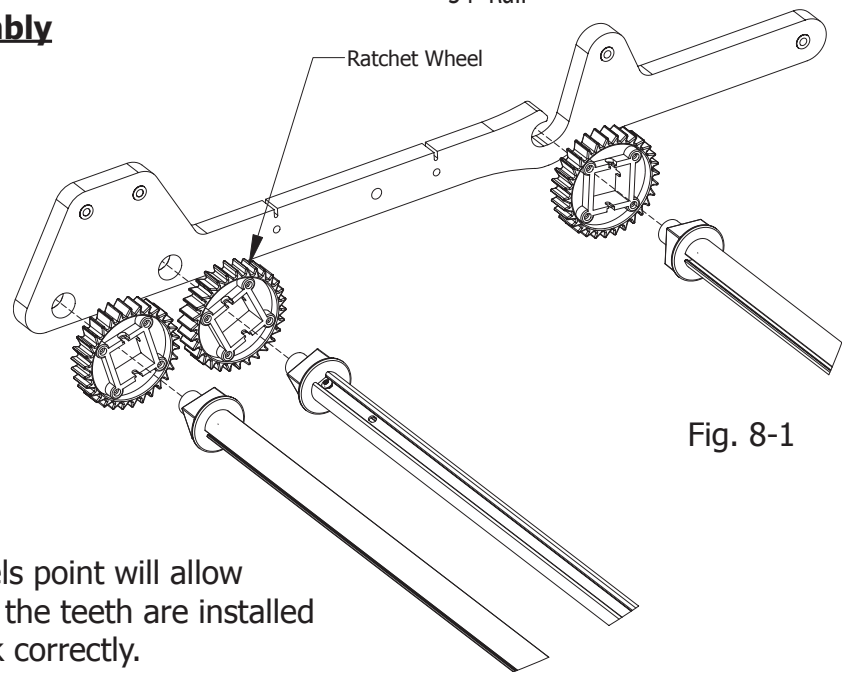
7-5: Follow the above instructions again, this time attaching the square end caps to the other end of the rails.



Step 8: Rail to Pole Mount End Assembly

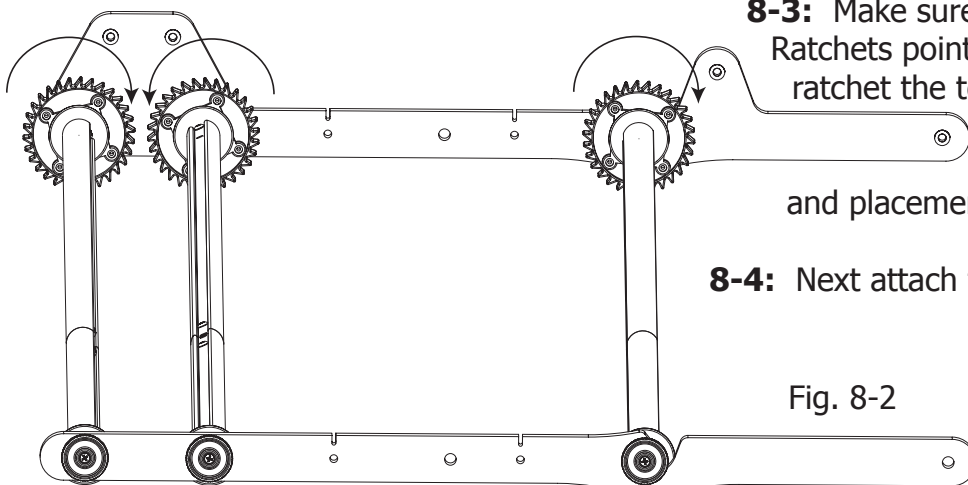
Parts Needed:

- 3- Rail Assembly
- 1- Right Pole Mount End
- 1- Left Pole Mount End
- 3- Ratchet Wheel
- 3- Ratchet Stop
- 6- End Cap Shoulder
- 6- #8 x 7/8" Screw
- 3- 1/4" x 1 1/2" Truss Bolt



8-1: Slide your Ratchet Wheels onto the square end caps that you attached to the aluminum rails in step 7.

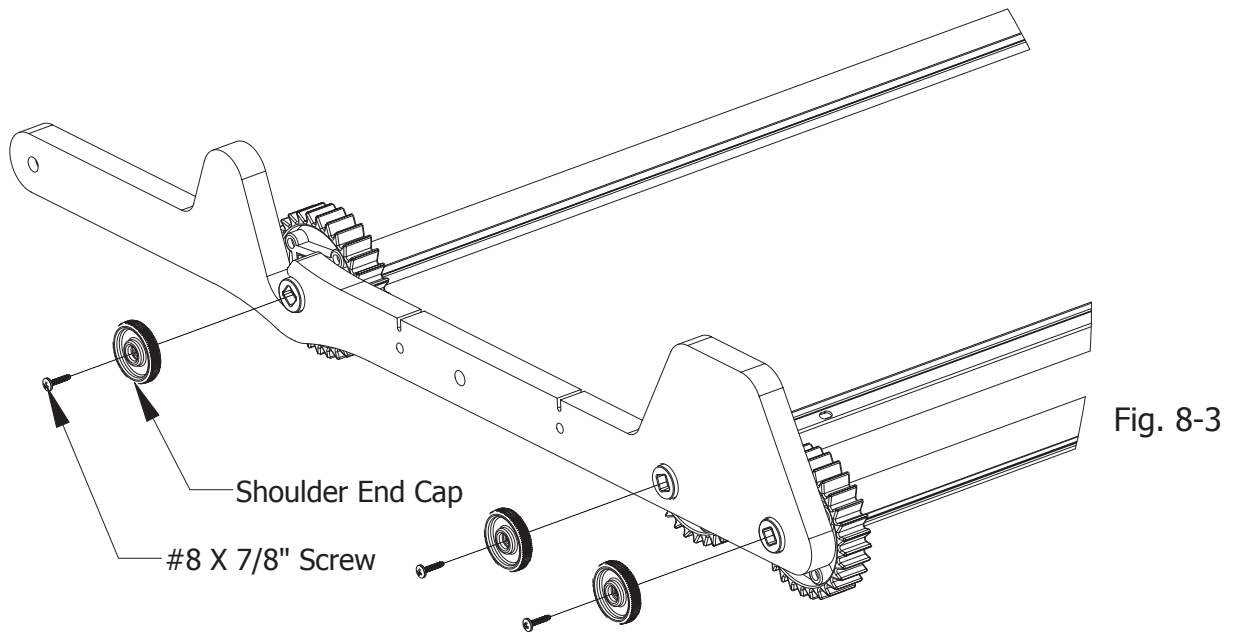
8-2: The direction that the Ratchet Wheels point will allow you to apply tension to your quilt fabric, if the teeth are installed pointing backwards your frame won't work correctly.



8-3: Make sure that the teeth on (2) of the Ratchets point clockwise, and on the other ratchet the teeth need to point counter-clockwise. (Fig 8-2 displays the correct wheel direction, and placement on the frame.)

8-4: Next attach the rails to the Pole Mount Ends.

8-5: Make sure that the ends of the rails with the Ratchet Wheels get attached to the Left Pole Mount End.

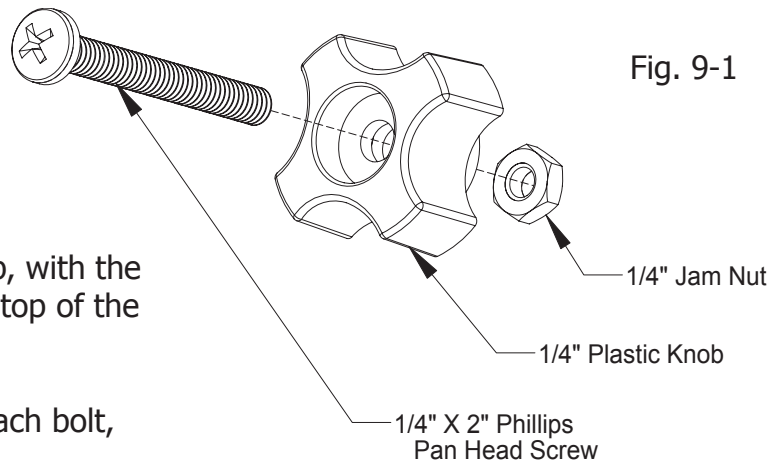


8-6: Securely fasten your rails to the Pole Mount Ends by attaching a Shoulder End Cap to each square, and also each round end cap using a #8 X 7/8 screw. (Fig. 8-3)

Step 9: Plastic Knob Assembly

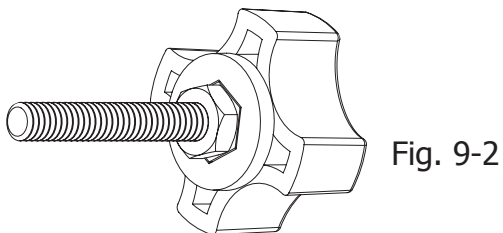
Parts Needed:

- 4- 2" Phillips Pan Head Screw (PPH)
- 4- 1/4" Plastic Knob
- 4- 1/4" Jam Nut



9-1: Thread one bolt through each knob, with the head of the bolt seating down inside the top of the knob. (Fig. 9-1)

9-2: Screw a jam nut onto the end of each bolt, tighten securely using a 7/16" wrench.



Step 10: Complete Frame Assembly

Parts Needed:

- 1- Rail to Pole Mount End Assembly
- 1- Complete Lower Frame Assembly
- 4- Plastic Knob Assembly
- 4- 1-1/4" Fender Washers

10-1: Attach Rail to Pole Mount End Assembly to the Complete Lower Frame Assembly by first placing the Rail to Pole Mount End Assembly between the upper portion of the outer legs of the Complete Lower Frame Assembly.

10-2a: Next insert a Plastic Knob Assembly through the slot in each of the outer Legs, and into the hole in the pole mount end that has a threaded metal insert in it. Tighten the knobs. (You may need to loosen the bolts attached in step 3-1 to get the holes to line up.)

10-2b: Tighten the bolts from step 3-1 in the outer Legs if you loosened them to gain proper hole alignment in step 10-2a.

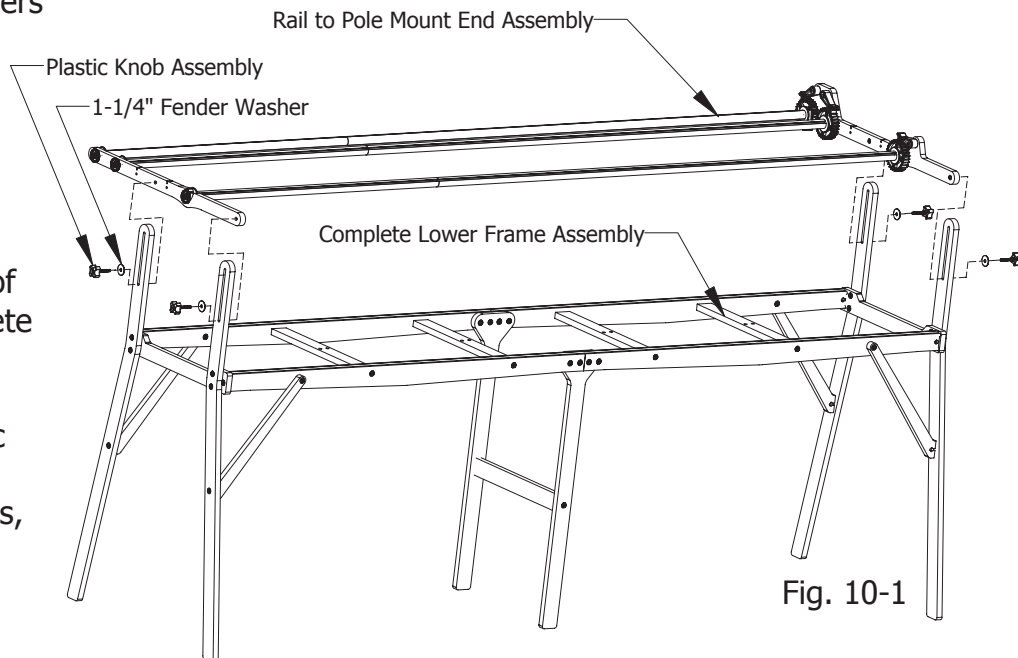


Fig. 10-1

NOTE: Notice that 2 of the rails on the Rail to Pole Mount End assembly are closer together than the other one. When the Rail to Pole mount end assembly is attached to the Complete Lower Frame assembly the side of the frame that has the 2 rails closest together becomes the front of the frame. Be careful to locate the front of the quilting frame away from walls or other obstructions, to allow easy access to the front of the frame while quilting.

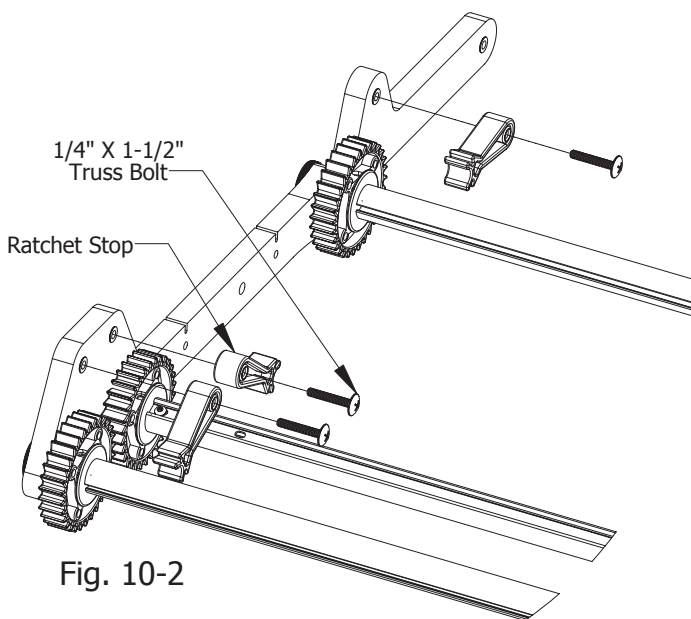


Fig. 10-2

10-3: Attach ratchet stops to the Left Pole Mount End using 1-1/2" Truss Bolts. (Fig. 10-2, Fig. 10-3)

10-4: HAND TIGHTEN ONLY! Over Tightening these bolts may damage the Pole Mount End.

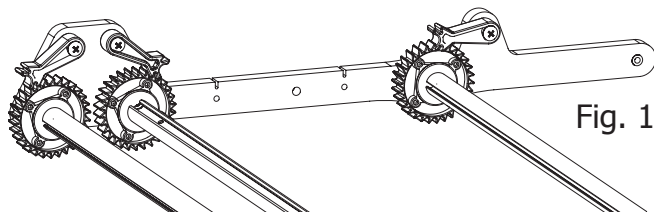


Fig. 10-3

Step 11: Bottom Plate (Carriage) Assembly

Parts Needed:

- 1- Bottom Plate (Carriage), or (BP)
- 4- Wheels
- 8- 1/4" Jam Nut
- 4- 3/16" Flat Washer (FW)
- 2- 1/4" x 2" Phillips Pan Head Screw (PPH)
- 2- 1/4" x 1 1/2" Phillips Pan Head Screw (PPH)
- 2- 20" Plastic Track

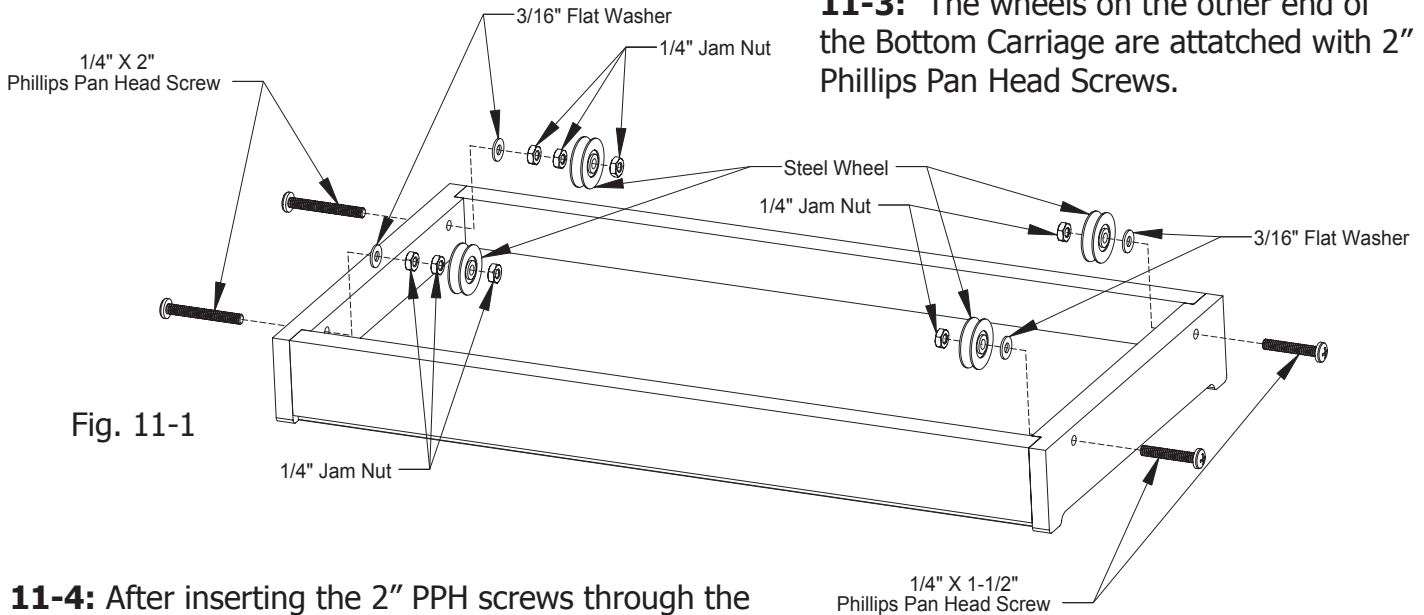


Fig. 11-1

11-4: After inserting the 2" PPH screws through the holes in the carriage apply a 3/16" Flat Washer. Now secure the 2" PPH Screws to the carriage with a 1/4" jam nut.

11-5: Apply a 1/4" Jam Nut, followed by a Wheel, now lock the position of the wheel with another Jam Nut. (Fig. 11-1)

11-6: The wheels on this end of the carriage need to be 18-1/2" from the wheels on the other end of the carriage. This measurement is based on center of wheel to center of wheel distance. If the carriage doesn't roll smoothly when you place it on the frame, further adjustment is required, and will need to be done to this side of the carriage.

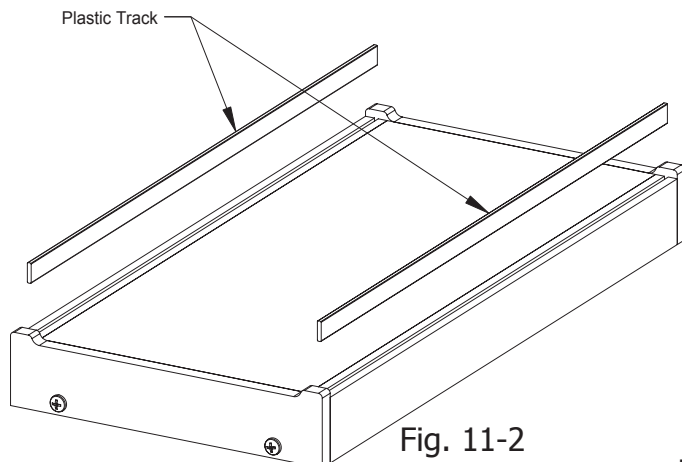


Fig. 11-2

11-1: Wheels are attached to one end of the Bottom Carriage with 1-1/2" Phillips Pan Head Screws.

11-2: After inserting the 1-1/2" screws through the holes in one end of the carriage, apply a 3/16 washer, and then a Wheel. Secure this assembly to the carriage with a 1/4" jam nut. (See right side of illustration, Below)

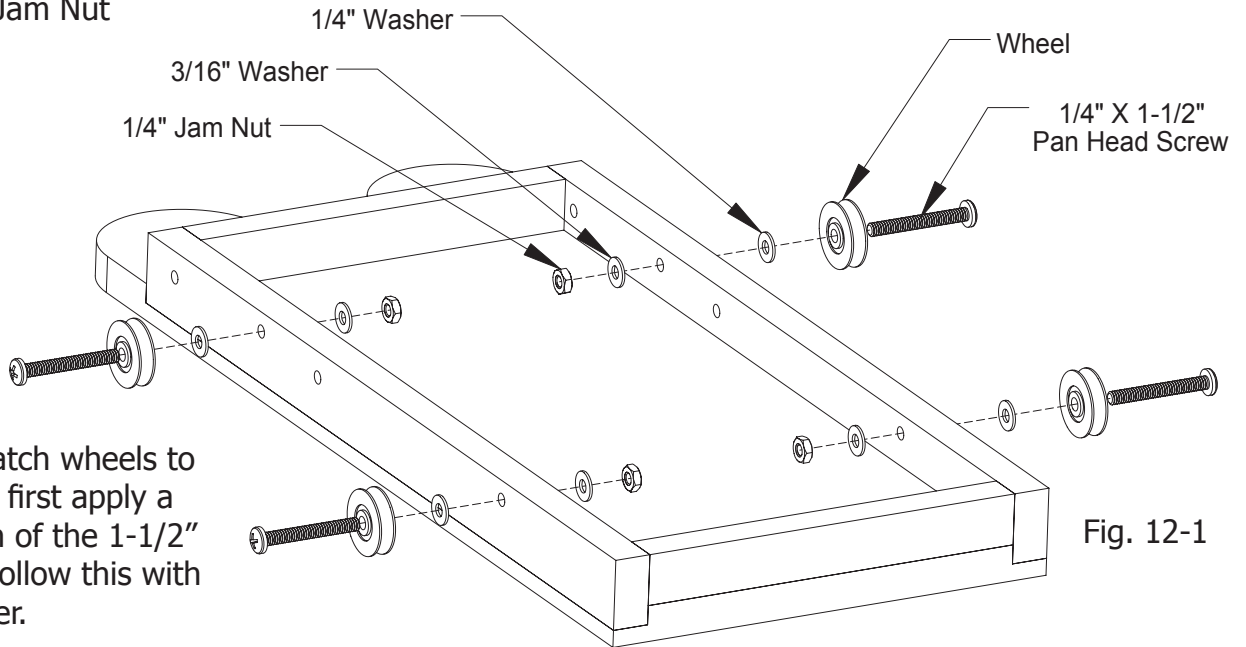
11-3: The wheels on the other end of the Bottom Carriage are attached with 2" Phillips Pan Head Screws.

11-7: Insert the 20" Track into the groove on each side of the Bottom Carriage. (Fig. 11-2)

Step 12: Top Plate Wheel (TPW) Assembly

Parts Needed:

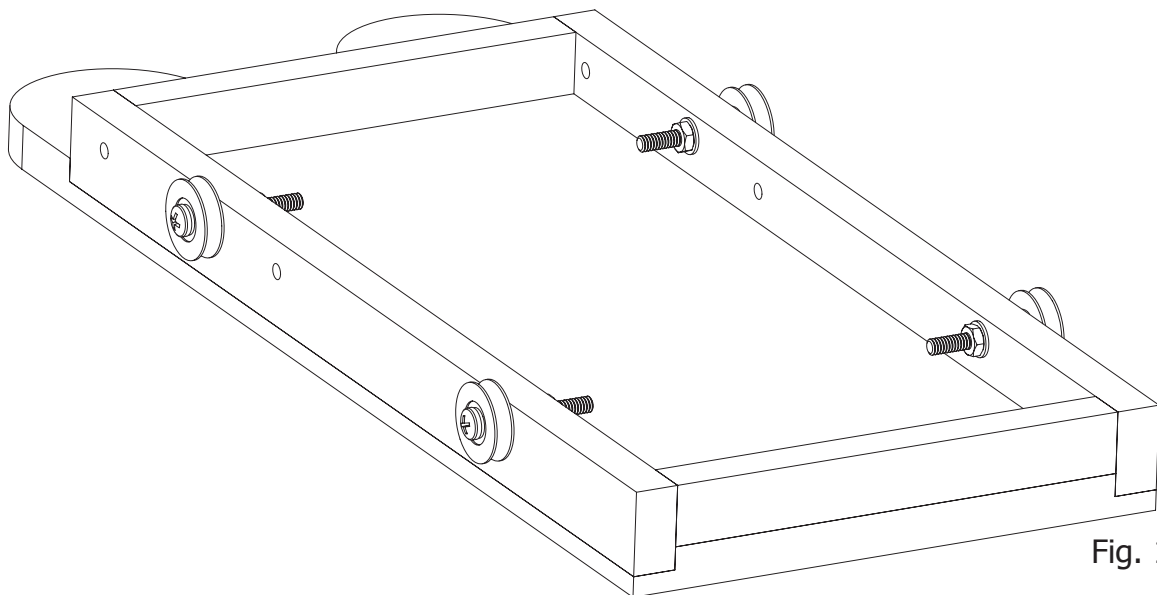
- 1- Top Plate (Carriage), or (TP)
- 4- Wheels
- 4- 1 1/2" Phillips Pan Head Screw (PPH)
- 4- 1/4" Washer
- 8- 3/16" Washer
- 4- 1/4" Jam Nut



12-1: To attach wheels to the Top Plate, first apply a Wheel to each of the 1-1/2" PPH Screws, follow this with a 3/16" Washer.

12-2: Now insert the screws into each of the wheel holes.
(Use Fig. 12-1 to help determine which holes are the wheel holes.)

12-3: Next apply a 3/16" Flat Washer, and finally fasten the assembly to the carriage with a 1/4" Jam Nut.



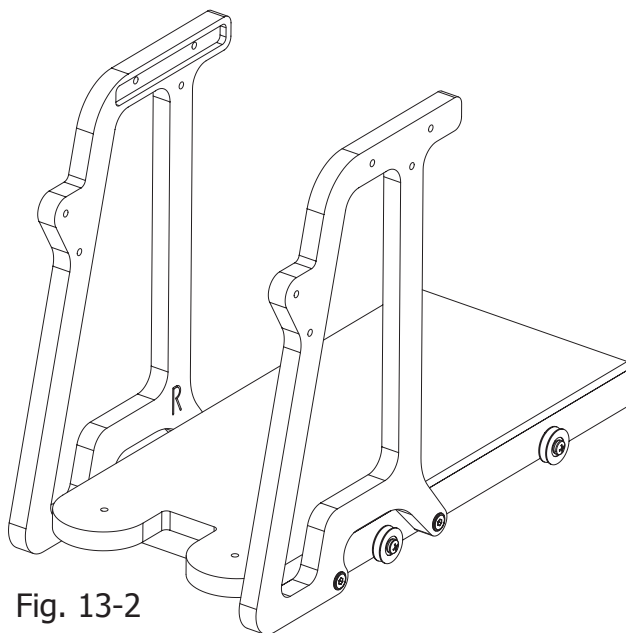
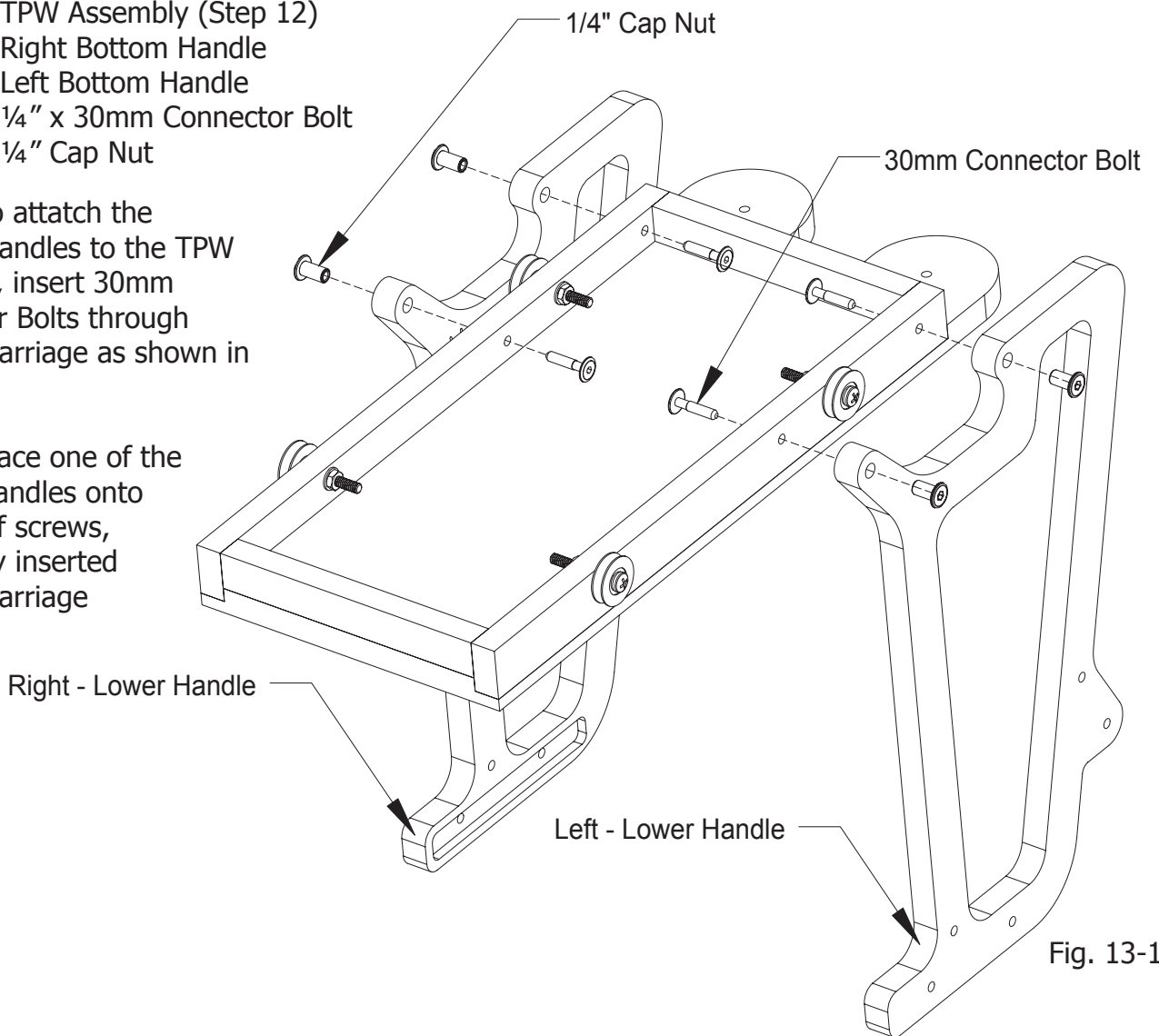
Step 13: Top Plate Lower Handle (TPLH) Assembly

Parts Needed:

- 1- TPW Assembly (Step 12)
- 1- Right Bottom Handle
- 1- Left Bottom Handle
- 4- 1/4" x 30mm Connector Bolt
- 4- 1/4" Cap Nut

13-1: To attach the Bottom Handles to the TPW Assembly, insert 30mm Connector Bolts through holes in carriage as shown in Fig. 13-1.

13-2: Place one of the bottom handles onto one set of screws, previously inserted into the carriage



13-3: The pockets near the top of the handles must face the carriage. This is shown in the upper-left portion of Fig. 13-2.

13-4: Fasten the Bottom Handles to the TPW Assembly with 1/4" Cap Nuts.

13-5: Repeat steps 13-1, to 13-4 to attach the other handle.

Step 14: TP Upper Handle (UH) Assembly

Parts Needed:

- 1- TPLH Assembly (Step 13)
- 1- Right Top Handle
- 1- Left Top Handle
- 1- Lamp Holding Cross Brace (LHCB)
- 1- Back Handle Cross Brace (BHCB)
- 1- Back Handle Narrow Cross Brace (BHNCB)
- 2- 1/4" x 30mm Connector Bolts
- 4- 1/4" x 45mm Connector Bolts
- 6- 1/4" Square Nut

14-1: Place the BHCB between your Bottom Handles with the "T" slots facing down.

NOTE: If you are going to use a speed control device, or stitch regulator use the Back Handle Narrow Cross Brace instead of the Back Handle Cross Brace. **Fig. 18-1** shows the installed Back Handle Narrow Cross Brace installed.

14-2: Take your Right and Left Top Handles and put two of the 45mm connector bolts through the back two holes on each handle, as show below.

14-3: Place a nut inside each of the "T" slots in the BHCB.

14-4: Thread the bolts through the holes on the Right and Left Bottom Handles and into the nut in the BHCB.

14-5: Place a nut inside each of the "T" slots in the LHCB.

14-6: Put the LHCB between the Right and Left Top Handles. ****NOTE** you will have to pry the handles apart to get the Spacer in.**

14-7: Once you have the spacer in put a 30mm connector bolt through the hole and tighten it securely into the nut.

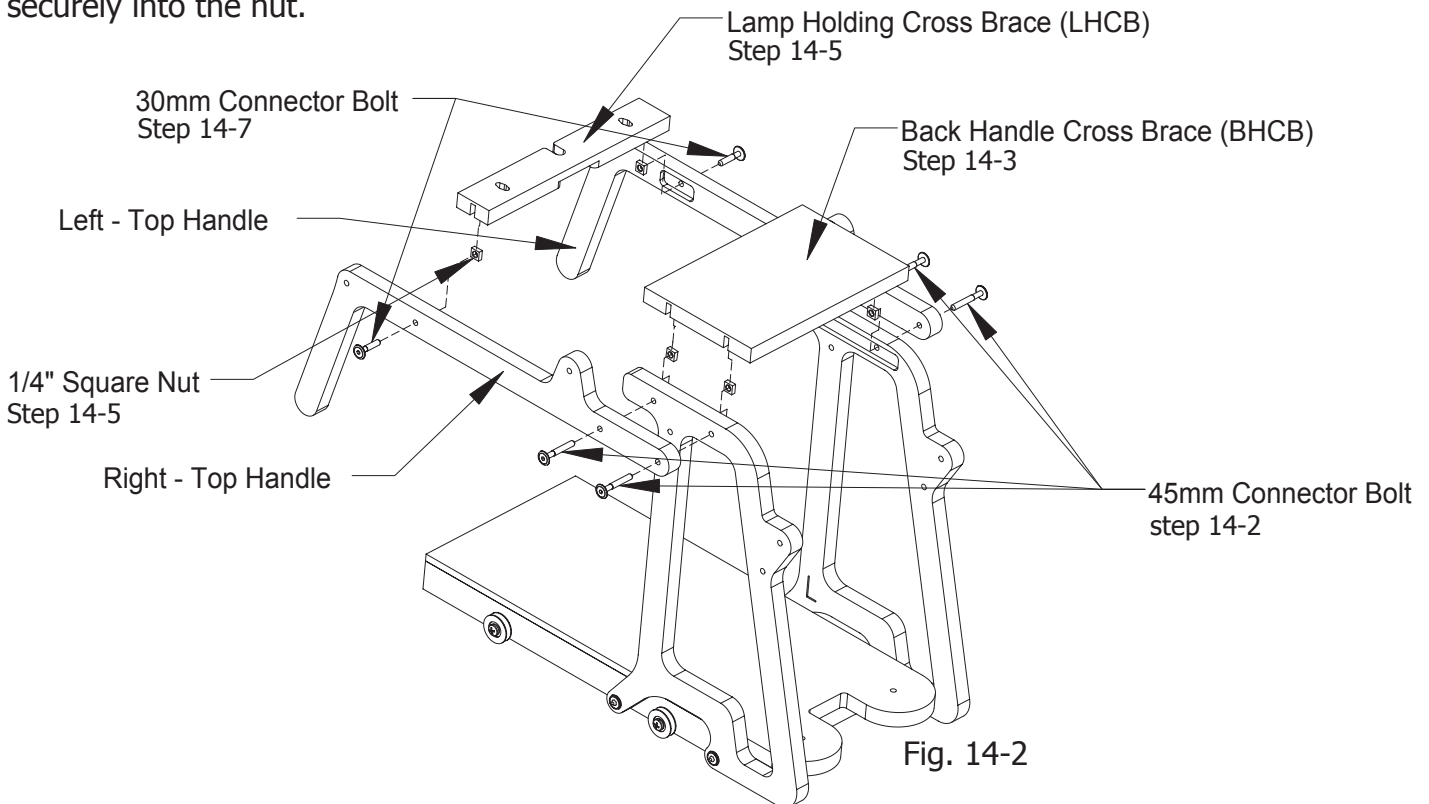


Fig. 14-1

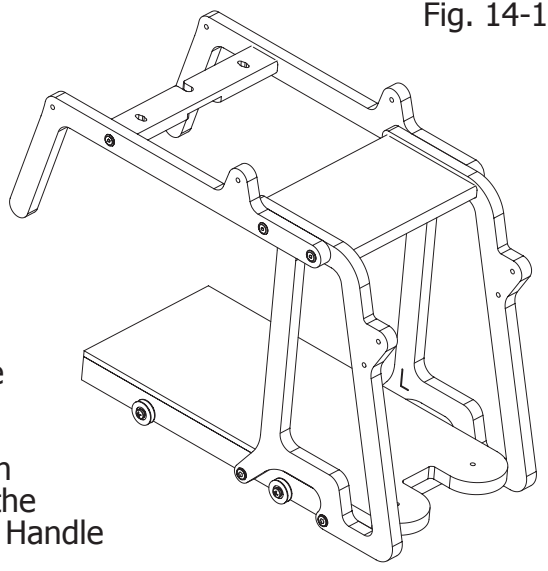


Fig. 14-2

NOTE: Steps 15 -18 are necessary if using your machine foot pedal to run your machine. If you are bypassing your foot pedal by using a speed control device, or stitch regulator you can skip to step 19.
****THE PEDAL PUSHER CAN ONLY BE ATTACHED TO THE RIGHT SIDE OF THE CARRIAGE.****

Step 15: TP Handle Assembly

Parts Needed:

- 1- TPUH Assembly (Step 14)
- 1- Front Lever
- 1- Middle Lever
- 1- Back Lever
- 3- 50mm Connector Bolt
- 3- 1/4" Washer
- 3- 3/16" Washer
- 3- 1/4" Nylock Nut

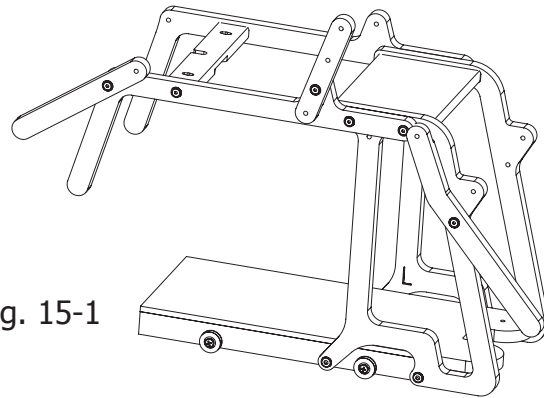


Fig. 15-1

15-1: • **a** - Attach the Back Lever to the Bottom Handle by inserting a 50mm Connector Bolt through the hole near the middle of the lever. • **b** - Put a 1/4" washer onto the bolt. • **c** - Insert the bolt through the hole below the bump on the Bottom Back Handle (Fig. 15.2). • **d** - Place a 3/16" washer onto the bolt. • **e** - Finally fasten the lever to the handle with a 1/4" Nylock nut.

15-2: • **a** - Insert a 50mm connector bolt through the second hole right above the cut out part on the Middle Lever, (as shown below). • **b** - place a 1/4" washer onto the bolt. • **c** - Insert the bolt through the hole on the Right Top Handle, (on the bump towards the right end of the Top Handle.) • **d** - Slide a 3/16" washer on the end of the bolt, and secure into place with a nylock nut.

15-3 • **a** - Insert a 50mm connector bolt through the second hole (closest to the middle) on the Front Lever. • **b** - Place a 1/4" washer onto the bolt. • **c** - Insert the bolt through the furthest forward hole on the Right Top Handle. • **d** - Slide a 3/16" washer onto the end of the bolt followed by a nylock nut.

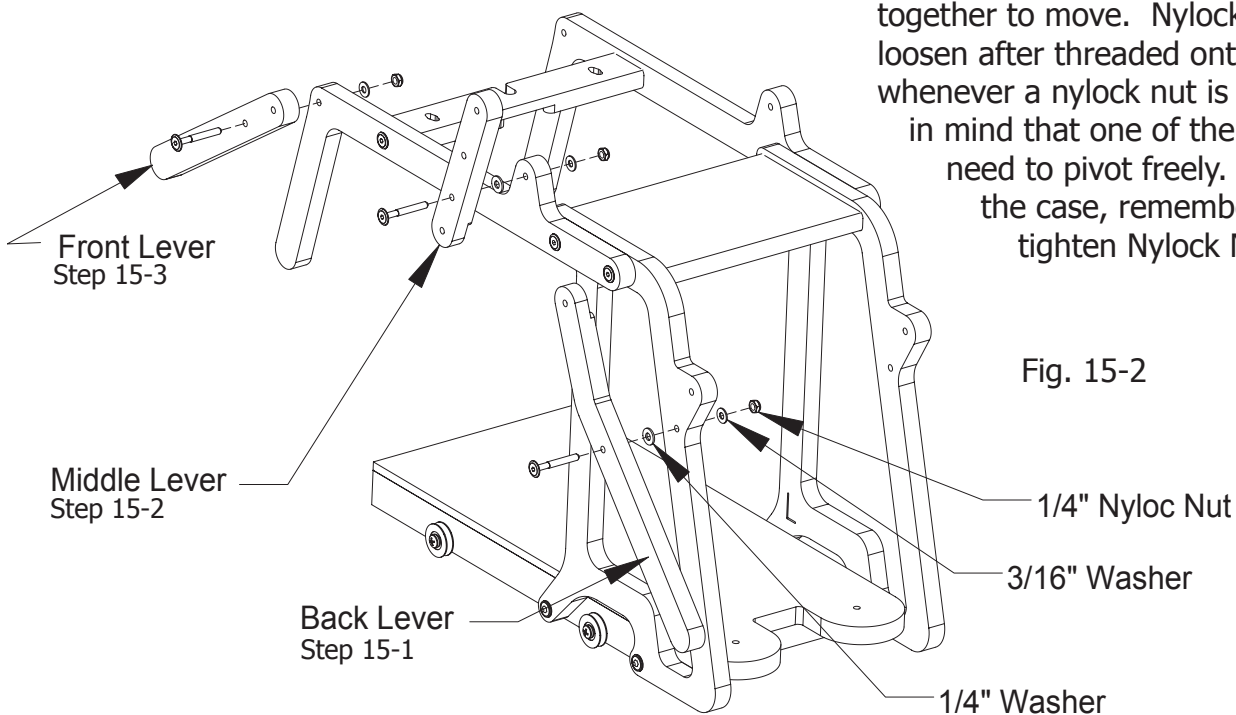


Fig. 15-2

Nylock Nut Rules: Nylock nuts are used to allow the parts being bolted together to move. Nylock nuts will not loosen after threaded onto a bolt. So, whenever a nylock nut is used keep in mind that one of the parts will need to pivot freely. This being the case, remember to not over tighten Nylock Nuts.

Step 16: Handle Linkage Assembly

Parts Needed:

- 1- Front Lever Linkage
- 1- Back Lever Linkage
- 1- Pedal Clamp Spacer
- 1- ¼" x 45mm Connector Bolt
- 2- ¼" x 50mm Connector Bolt
- 1- ¼" x 60mm Connector Bolt
- 4- ¼" Washer
- 4- 3/16" Washer
- 4- ¼" Nylock Nut

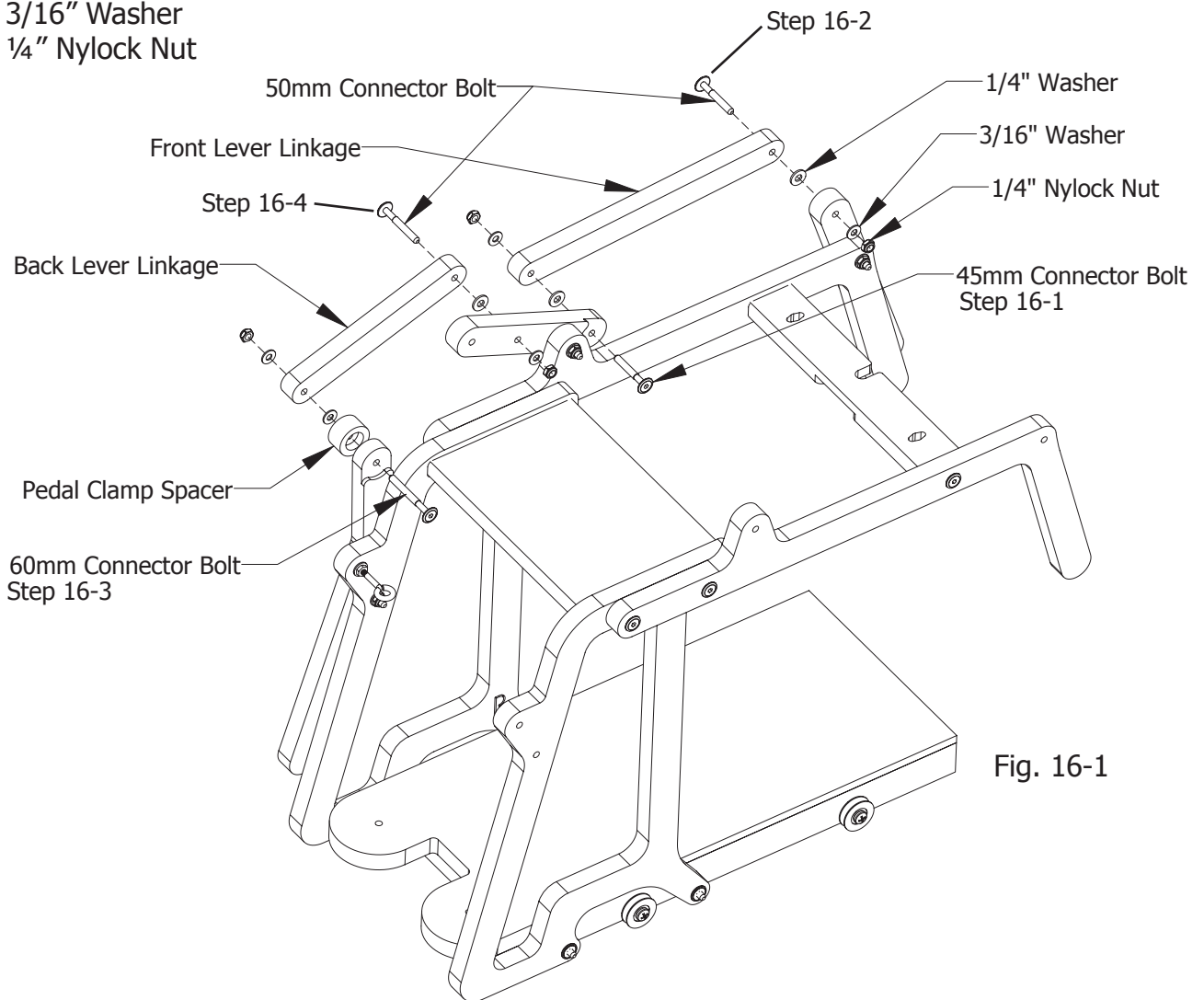


Fig. 16-1

16-1 • **a** - Insert a 45mm connector bolt through the hole in the notched area of the Middle Lever with the head of the bolt on the notched side. • **b** - Place a ¼" washer onto the bolt. • **c** - Slide the left side of the Front Lever Linkage onto the bolt. • **d** - Place a 3/16" washer followed by a nylock nut onto the bolt.

16-2 • **a** - Insert a 50mm connector bolt, through the available hole in the Front Linkage. • **b** - Put a ¼" washer on the end of the bolt. • **c** - Following the washer slide the bolt through the top hole in the Front Lever. • **d** - Place a 3/16" washer onto the bolt. • **e** - Fasten a nylock nut onto the bolt. (Remember the Nylock Nut Rules)

16-3 • a - Insert a 60mm Connector Bolt through the hole towards the top of the Back Lever. • **b -** Slide a Pedal Clamp Spacer (cupped side first) onto the end of the bolt. • **c -** Next apply a 1/4" washer. • **d -** Put the Back Lever Linkage onto the end of the 60mm connector bolt. • **e -** Place a 3/16" washer and then a nylock nut onto the end of the bolt.

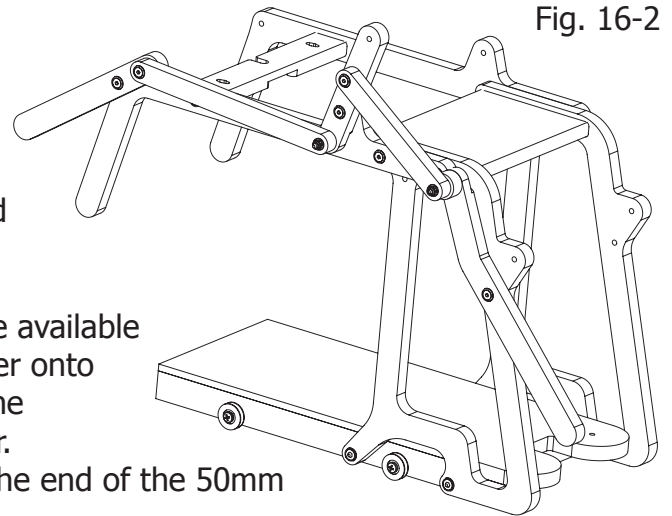


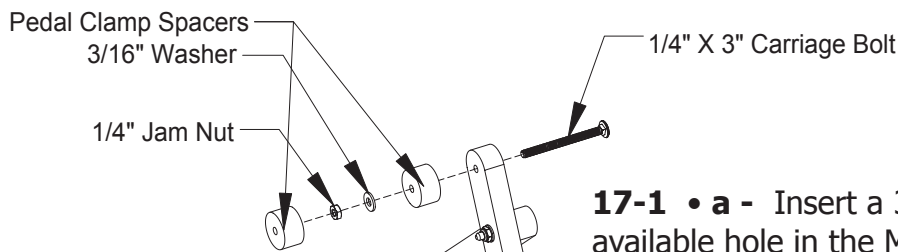
Fig. 16-2

16-4 • a - Insert a 50mm connector bolt through the available hole in the Back Lever Linkage. Next slide a 1/4" washer onto the end of the bolt. • **b -** Now put the bolt through the available hole closest to the middle of the middle Lever. • **c -** Place a 3/16" washer and then a nylock nut on the end of the 50mm connector bolt.

Step 17: Spacer Assembly

Parts Needed:

- 2- Pedal Clamp Spacers
- 1- 1/4" x 3" Carriage Bolt
- 1- 3/16" Washer
- 1- 1/4" Jam Nut



17-1 • a - Insert a 3" Carriage Bolt through the last available hole in the Middle Lever. The head of the bolt needs to be on the outside of the carriage. (Fig. 17-1).

- **b -** Slide one Pedal Clamp Spacer onto the end of the bolt, with the cupped side facing out.
- **c -** Slide a 3/16" Washer onto the bolt.
- **d -** Completely tighten a 1/4" Jam Nut onto the end of the bolt. (The square base of the bolt should pull all the way into the wood.)
- **e -** Slide the other Pedal Clamp Spacer onto the end of the bolt. (Cupped side can face either way.)

Fig. 17-1

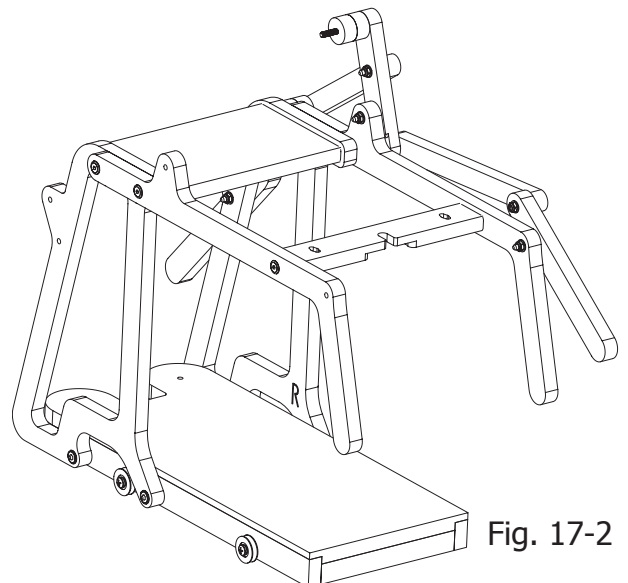


Fig. 17-2

Step 18: Pedal Pusher Assembly

Parts Needed:

- 1- Pedal Clamp
- 1- Pedal Clamp Wheel
- 1- 1/4" x 45mm connector bolt
- 1- 1/4" Plastic Knob
- 1- 1/4" Washer
- 1- 1/4" Nylock Nut
- 1- 3/16" Washer

18-1: Put the slot of the Pedal Clamp onto the bolt installed in the previous step.

18-2: Place a 1/4" Washer onto the end of the bolt and then secure the parts into place with a 1/4" Plastic Knob.

18-3: Insert a 45mm Connector Bolt through the Pedal Clamp Wheel, and then through the hole in the bottom of the Pedal Clamp, with the head of the bolt facing inside the carriage.

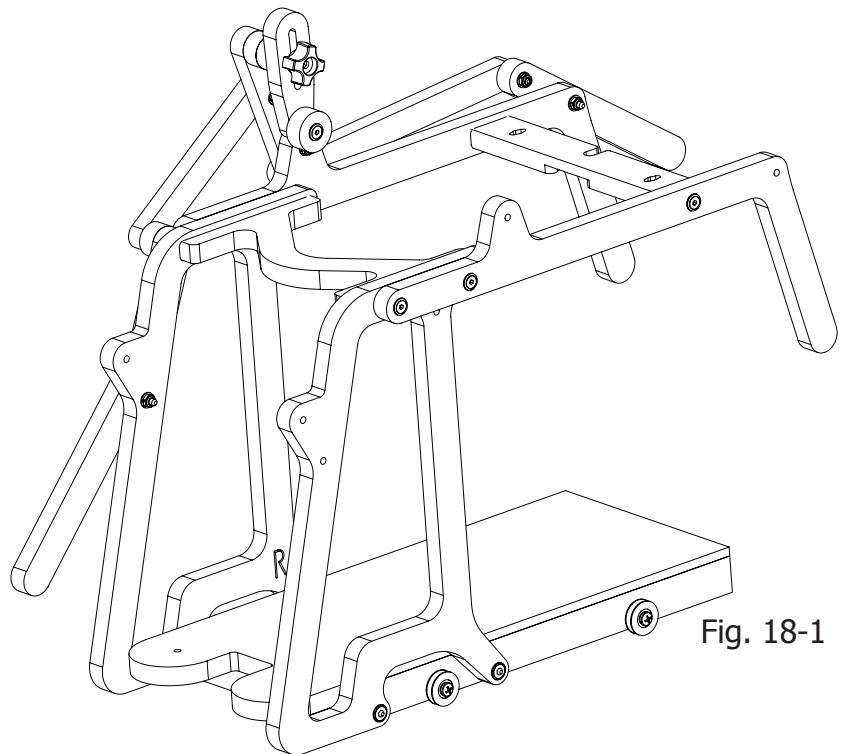


Fig. 18-1

18-4: Place a 3/16" washer onto the end of the bolt. Secure the parts in place with a 1/4" nylock nut. (Remember Nylock Nut Rules.)

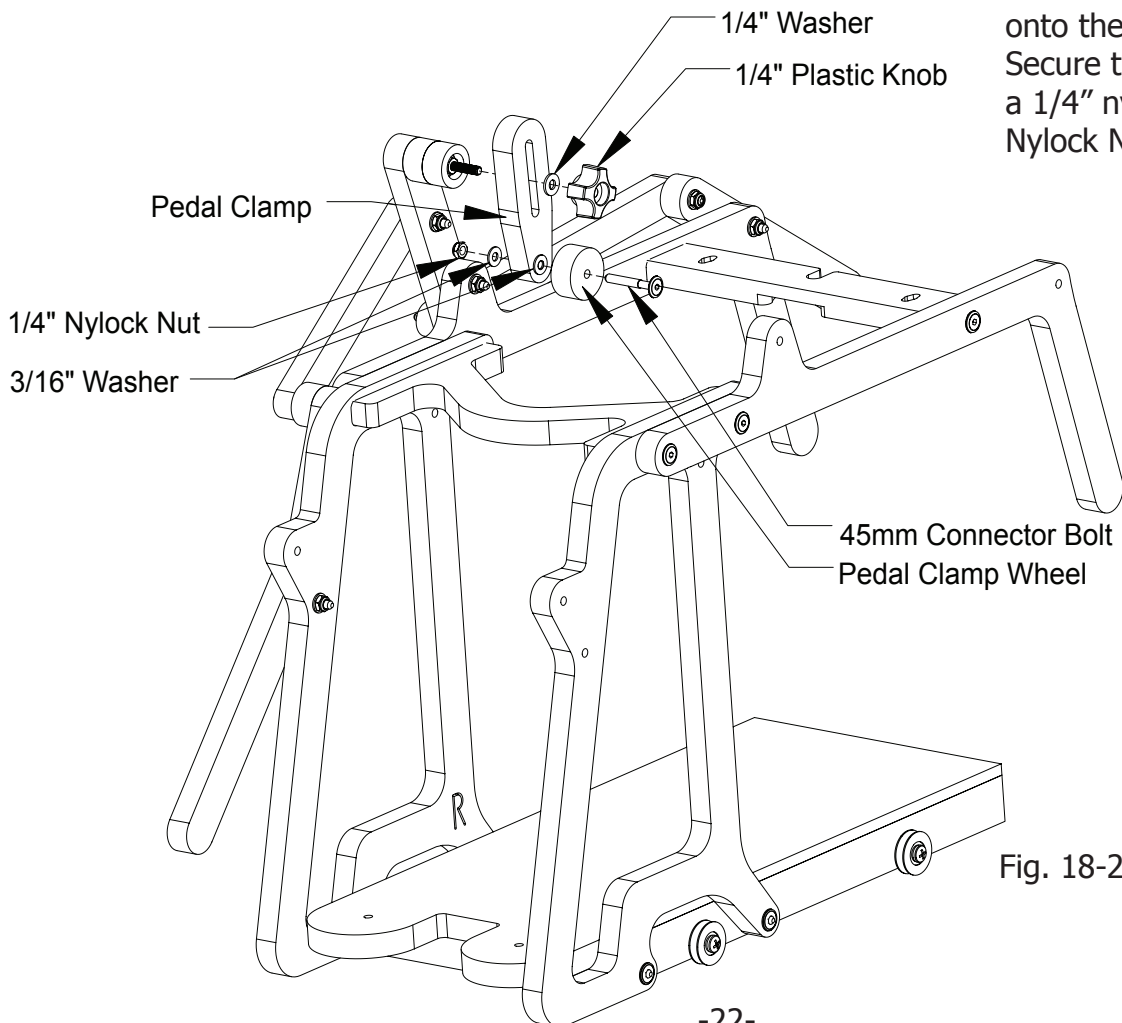


Fig. 18-2

Step 19: Cone Thread Holder Assembly

Parts Needed:

- 1- Top Carriage (complete asm.)
- 3- Cone Thread Holder
- 1- 3" Carriage Bolt
- 1- 1/4" Plastic Knob
- 2- #10 X 3" Eye Bolt
- 4- #10 Hex Nut
- 4- 3/16" Flat Washer

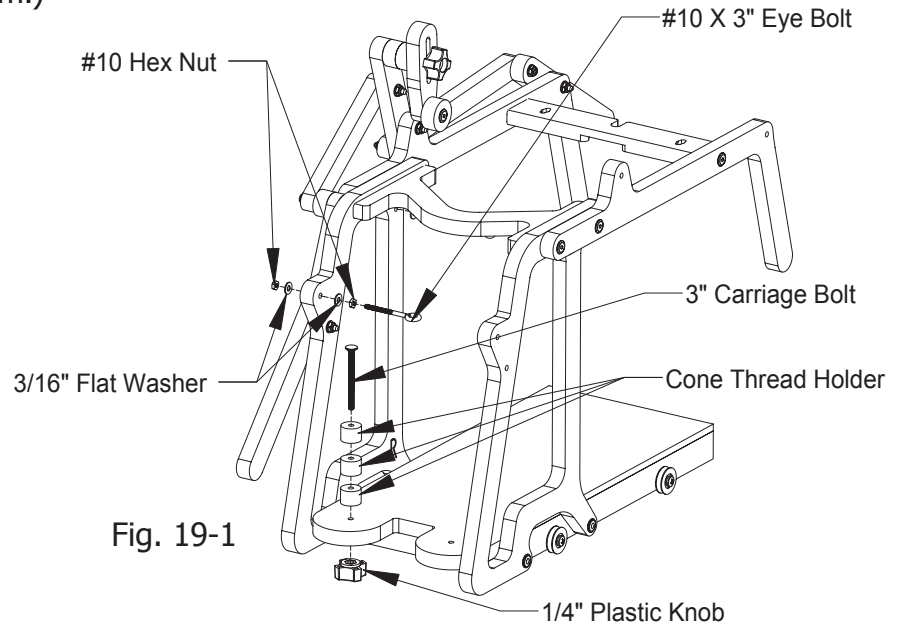


Fig. 19-1

19-1: Insert the 3" Carriage Bolt through all 3 Cone Thread Holders.

19-2: Now insert the bolt through one of the holes near the back of the Top Carriage. • Secure the Cone Thread Holder in place with a 1/4" Plastic Knob.

19-3: • **a** - To assemble the Thread Guides, first thread a #10 Hex Nut about 1-1/2" onto each of the #10 X 3" Eye Bolts. • **b** - Next Place a 3/16" Flat Washer onto each Eye Bolt. • **c** - Now insert the Eye bolt into the Handles on the same side of the platform as the Cone Thread Holder is attached as shown above. • **d** - Finally Place a 3/16" Flat Washer on to each bolt. • **e** - Secure the eye bolts in place by completely tightening a #10 Hex Nut onto each Eye Bolt.

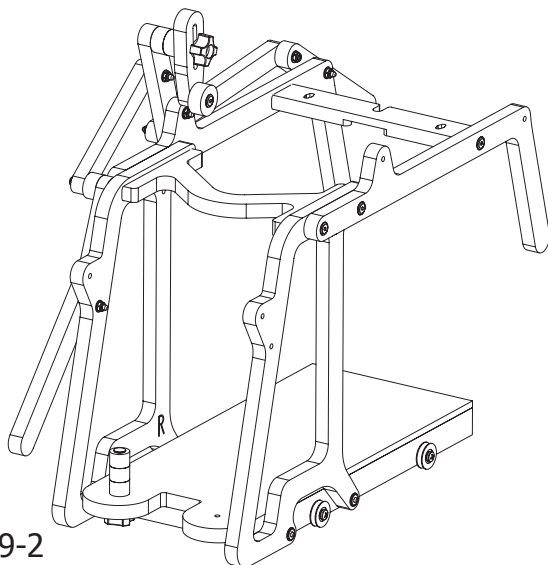


Fig. 19-2

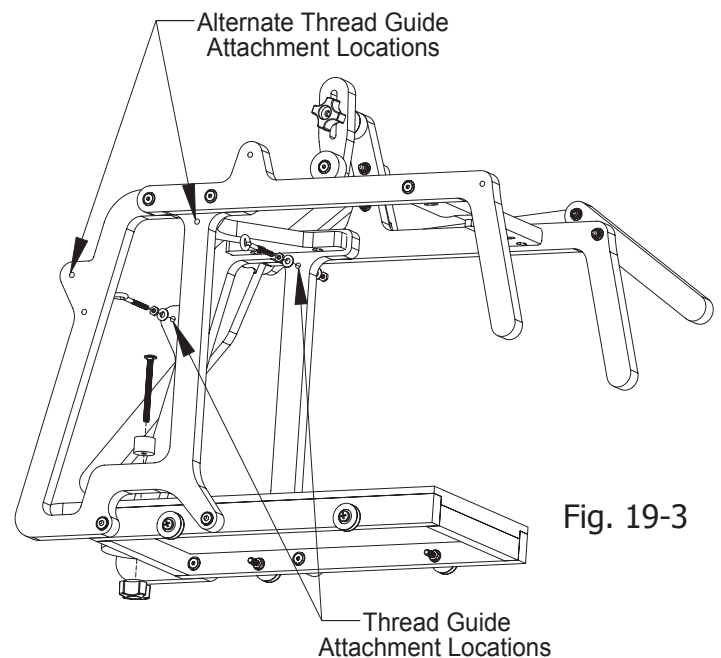


Fig. 19-3

Step 20: Stylus Clamp Base Assembly

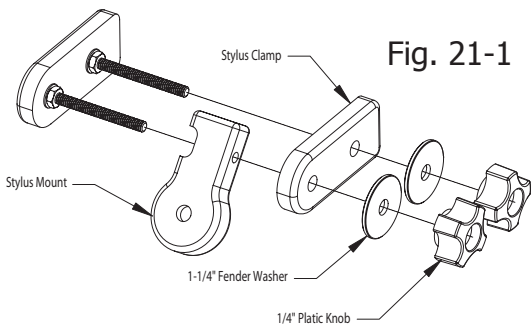
Parts Needed:

- 1- Stylus Clamp Base (Smaller Holes)
- 2- 1/4" X 3" Carriage Bolt
- 2- 1/4" Jam Nut
- 2- 3/16" Flat Washer

20-1: Insert a 3" Carriage Bolt through each hole in your Stylus Clamp Base (NOTE: The Stylus Clamp Base has smaller holes than the Stylus Clamp).

20-2: Place a 3/16" washer onto the end of each bolt. Secure the bolt onto the part using a 1/4" jam nut.

20-3: Use a 7/16" wrench to completely tighten the jam nuts. (The square shoulders on the bolts should pull into the wood completely.)



Step 22: Stylus Assembly (B)

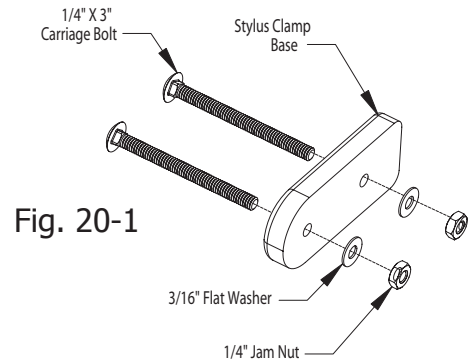
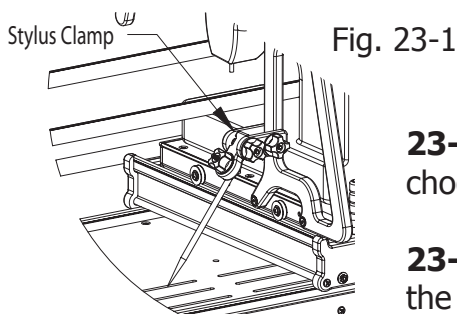
Parts Needed:

- 1- Stylus Clamp Base Assembly (A)
- 1- Wooden Stylus
- 1- 1-1/4" Fender Washer
- 1- 1/4" Plastic Knobs
- 1- 1/4" X 2" Eye Bolt

22-1: Insert the 2" Eye Bolt up through the cupped out side of the Stylus Mount.

22-2: Place a 1-1/4" Fender Washer onto the bolt. **22-3:** Now fasten a 1/4" Plastic knob onto the bolt.

22-4: Before you tighten the knob completely slide the wooden stylus through the eye of the bolt. When you tighten the bolt it will hold the stylus in place so you can follow patterns.



Step 21: Stylus Clamp Assembly (A)

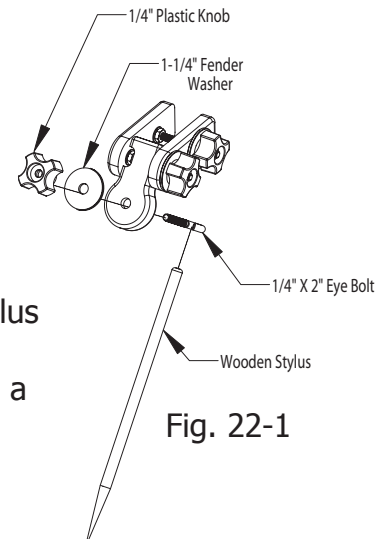
Parts Needed:

- 1- Stylus Clamp Base Assembly
- 1- Stylus Clamp
- 1- Stylus Mount
- 2- 1-1/4" Fender Washer
- 2- 1/4" Plastic Knobs

21-1: Slide the Stylus Mount onto the bolt that goes through the rounded part of the Stylus Clamp Base. (pictured left) The notch in the side of the Stylus mount must face the Stylus Clamp Base.

21-2: Next slide the Stylus Clamp onto the end of both bolts, with its round end pointing the same direction as the Stylus Clamp Base.

21-3: Place a 1-1/4" Fender Washer on each bolt. Now fasten a 1/4" Plastic Knob onto each of the bolts.



Step 23: Stylus to Carriage Assembly

Parts Needed:

- 1- Stylus Assembly (B)
- 1- Top Carriage (assembled)

23-1: Loosen the back knob. (Square Edge of Stylus Assembly) Now choose which side of the Carriage Assembly you want your stylus on

23-2: Slide the stylus onto the handle, (as pictured left), Now tighten the back knob to secure the Stylus Assembly to the Carriage.

Step 24: Placing the Top and Bottom Plates onto the Frame

24-1: Place the Bottom Plate onto the front and back tracks. The groove in the wheel should line up perfectly with the track.

24-2: To confirm proper placement, look at the track eye-level and roll the Platform back and forth. The Platform should glide smoothly along the track and should sit perfectly level on the table.

24-3: Place the Top Plate onto the Bottom Plate, lining up the roller bearings onto the four grooves. Again the bearings should fit perfectly onto the center mound in each groove.

24-4: Remove Take-up rail from frame, and Thread Spool Holder from Top Plate.

24-5: Place Sewing machine on Top Plate.

24-6: Re-insert Take-up rail, and Re-attach Cone Thread Holder.

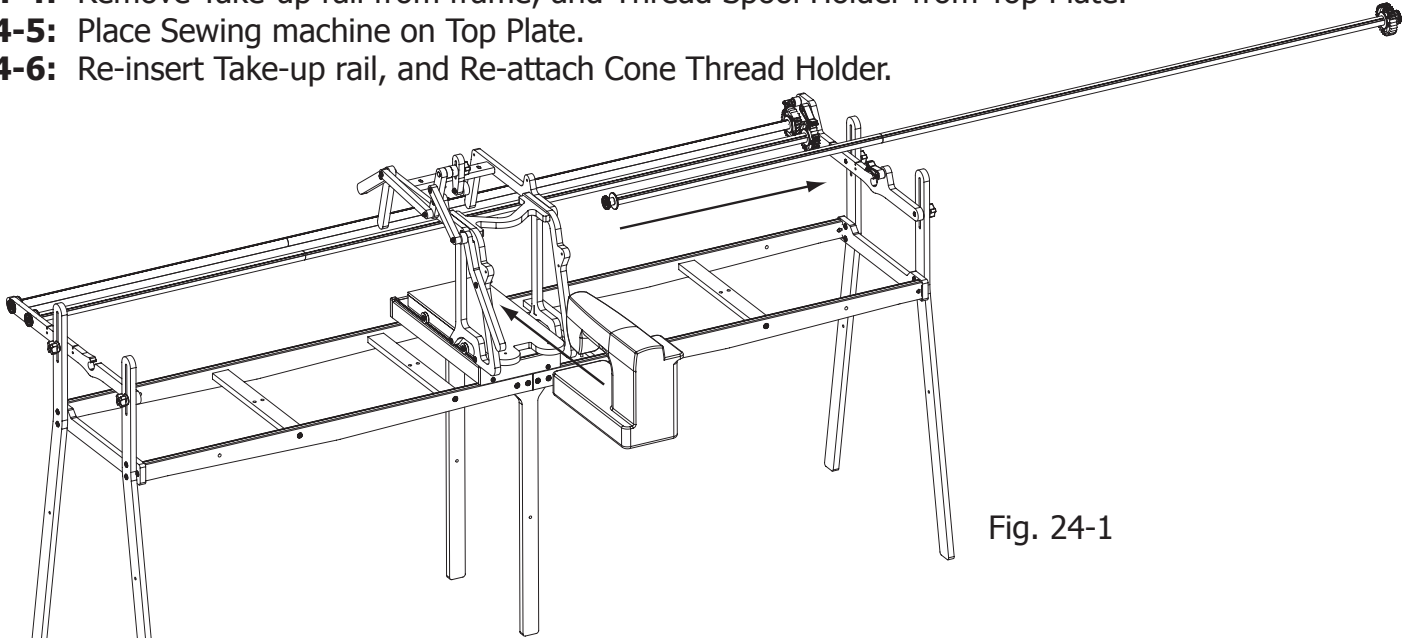


Fig. 24-1

USING YOUR STURDY-LITE QUILTING SYSTEM

Fabric Installation

OVERVIEW:

Step 1: Make Cloth Leaders that are about 94" in length and width according to instructions below.

Step 2: Install Quilt Bottom to Back Rail (illustrated).

Step 3: Install Quilt Top to Middle Rail.

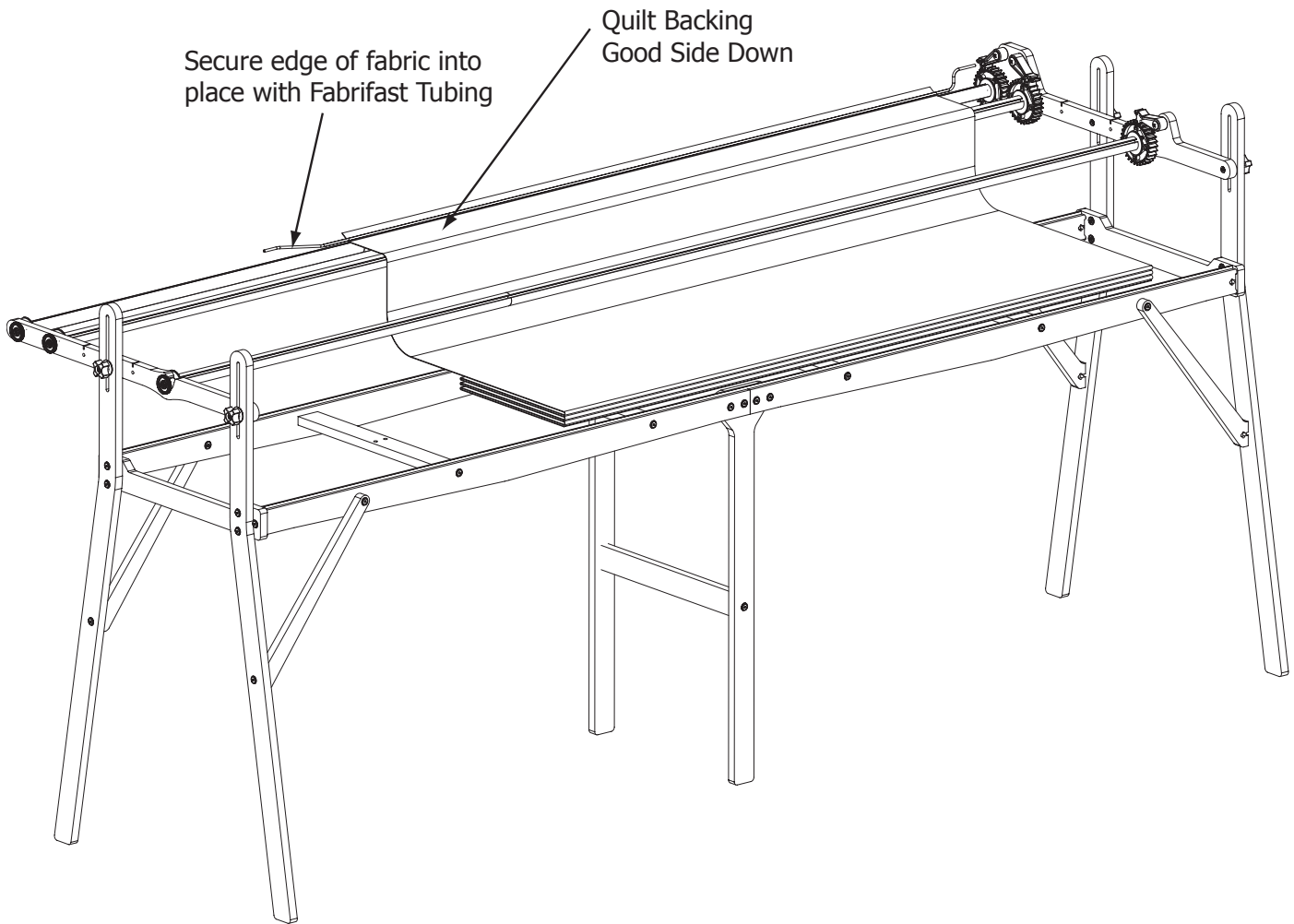
Step 4: Install other edge of Quilt Bottom to Take-up Rail

Step 5: Install Batting over the Quilt Bottom.

Step 6: Install other edge of Top to the Take-up Rail and pin Top and Batting to the leader cloth.

STEP 1: MAKING CLOTH LEADERS

- Using a good quality muslin or similar fabric that has a good thread count, make a leader cloth for each rail according to the dimensions below. You will attach these leaders to the rails using the Fabri-Fast tubing and tool. Later, you will pin your fabric layers to the cloth leaders.
- Cloth leader dimensions: 94" in length for all three rails. Widths: Back rail leader 16", Middle rail 12", Take-up rail 8". (See illustration below).
- Sew along one length of each leader, leaving the edges open on both ends.
- Mark a straight line about one inch in from the loose end of the leader.
- Insert the leaders into the rail slots, using the Fabri-Fast tubing. Insert the side opposite the end with the straight line marked.
- You will pin your quilt layer along the straight line.

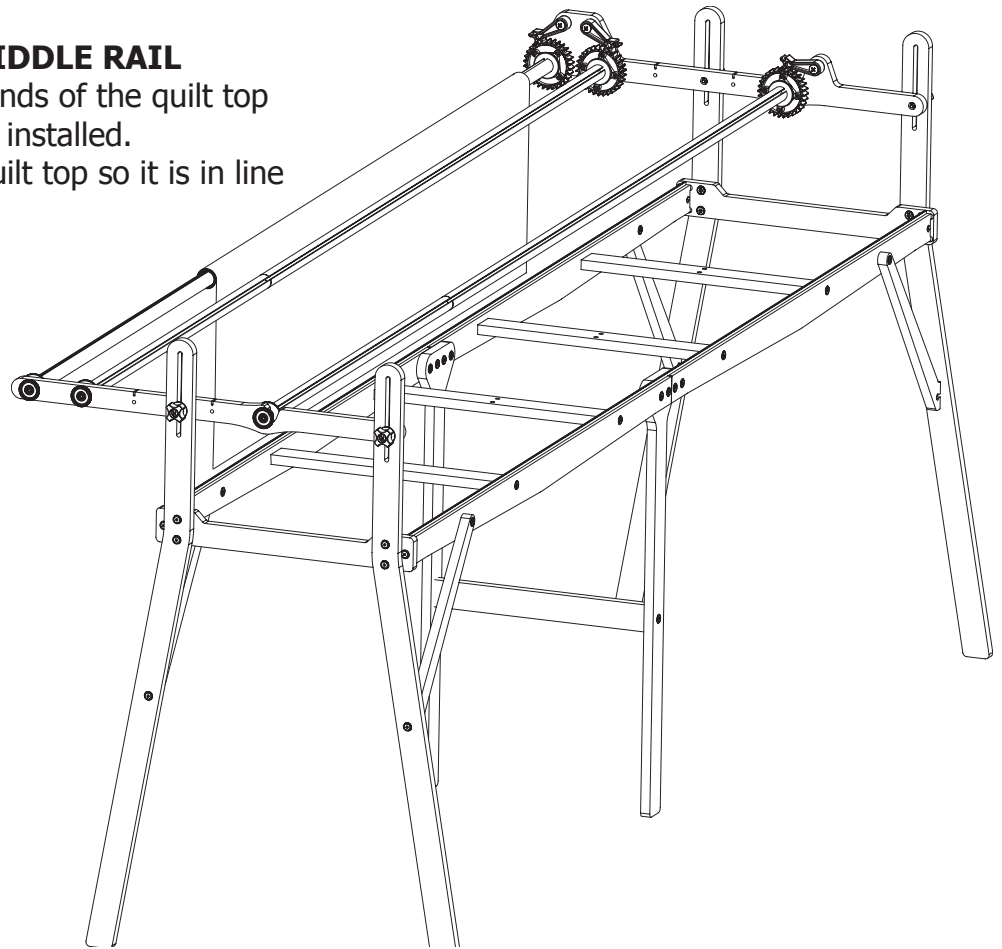


STEP 2: QUILT BOTTOM TO BACK RAIL

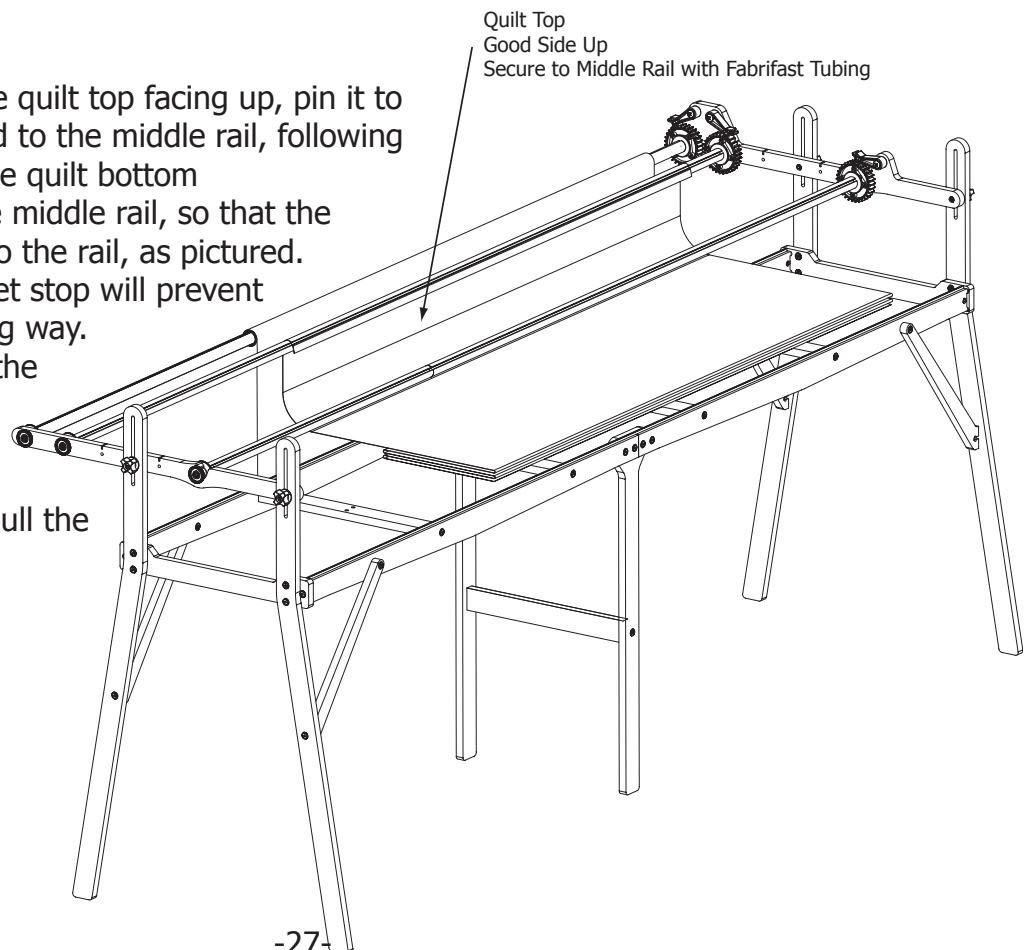
- To begin, determine the front and back edges of your quilt bottom (be sure it will fit within the size of your frame. If your quilt size is much smaller than the frame, that is no problem. You may center it on the frame, or have the quilt off to one side. NOTE! If you have the space available on the frame, it is a good idea to cut your quilt bottom about 4" wider and 8" longer than your quilt top.
- With the "good" side of your bottom facing down, pin the quilt bottom to the cloth leader on the back rail, along the straight line you have marked. Avoid stretching the fabric as you pin. You can mark the center of both the quilt bottom and the cloth leader and begin pinning at the mark, if desiring to center your fabric on the rails.
- Allowing the ratchet stop to rest in the ratchet wheel, slowly and gently roll up your quilt bottom onto the back rail. As you do, make sure the fabric rolls up perfectly natural without wrinkles. NOTE! It is important that you roll the rail so the fabric rolls over and onto the rail, as pictured. The ratchet stop will prevent you from rolling the fabric the wrong way.
- NOTE! As you smooth out any wrinkles, be very careful not to stretch or pull the fabric excessively.
- Looking at the edges, make sure the layers are rolling on top of each other on each end.

STEP 3: QUILT TOP TO MIDDLE RAIL

- Match the back and front ends of the quilt top with the bottom you have installed.
- Be sure you line up your quilt top so it is in line with the quilt bottom.



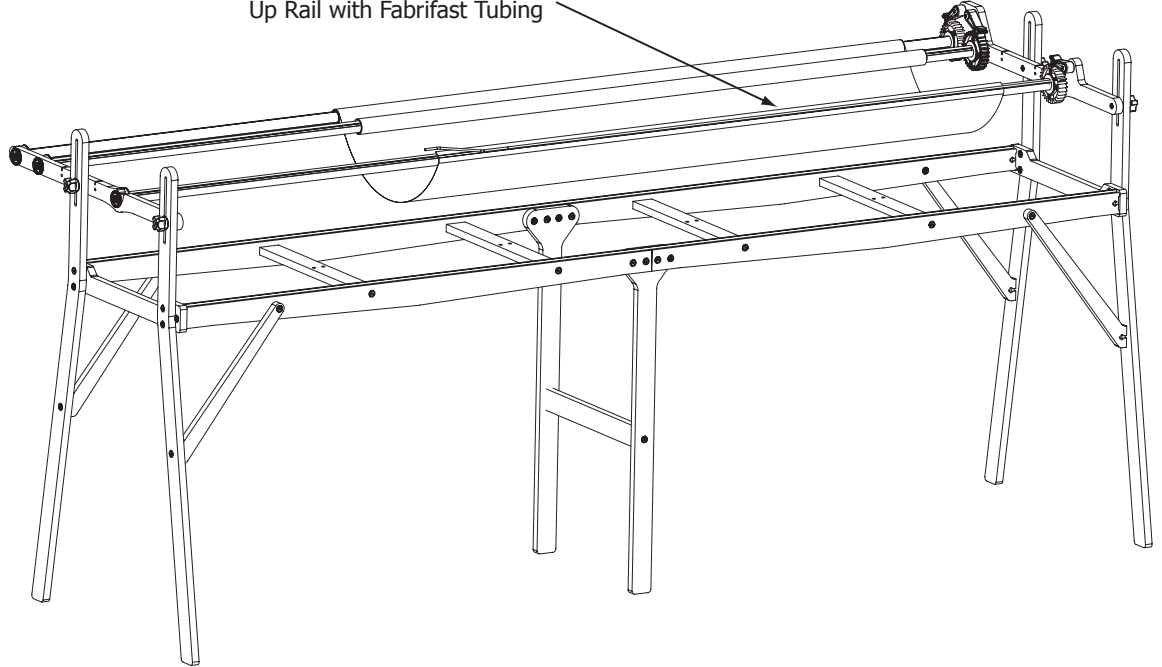
- With the “good” side of the quilt top facing up, pin it to your cloth leader attached to the middle rail, following the same guidelines as the quilt bottom
- Roll your quilt top onto the middle rail, so that the fabric rolls under and onto the rail, as pictured. Again note that the ratchet stop will prevent you from rolling the wrong way.
- Again, make sure you roll the fabric straight.
- As you smooth out any wrinkles, again be very careful not to stretch or pull the fabric excessively.



STEP 4: INSTALL QUILT BOTTOM TO THE TAKE-UP RAIL

- Now take the end of the quilt batting hanging from the back rail, and pull it under the middle rail, to the cloth leader on the take-up rail.
- Pin this end to the take-up rail.

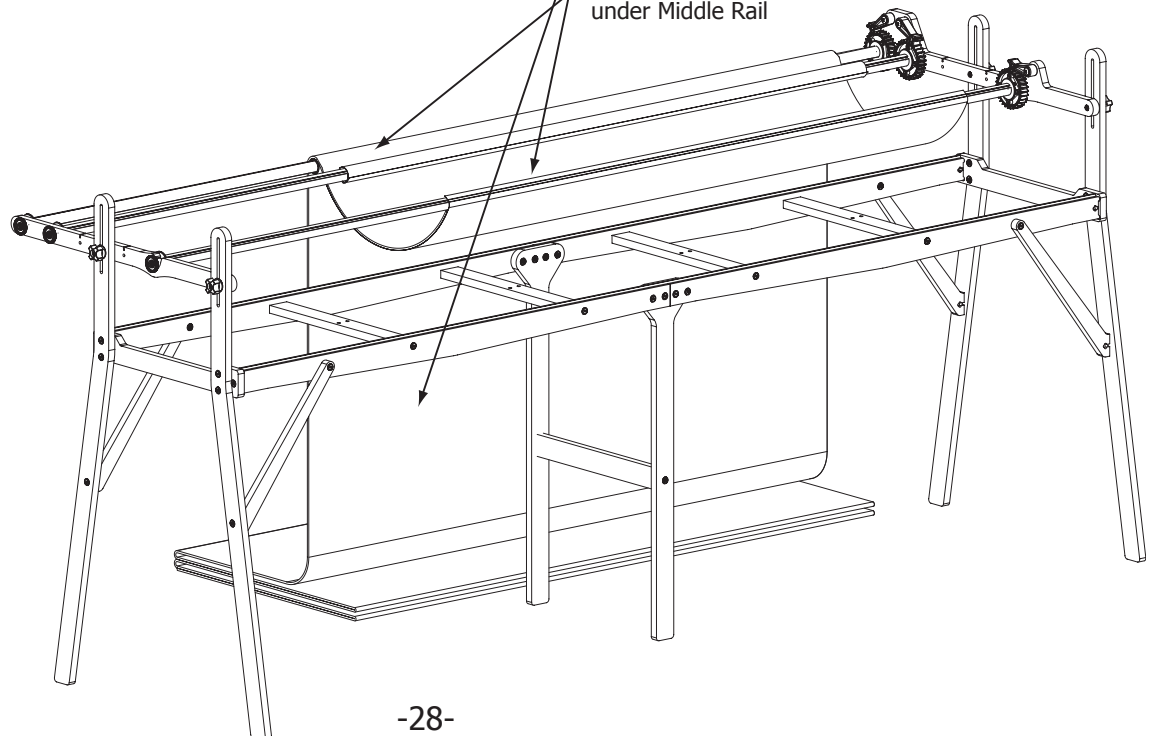
Attach Quilt Backing to Take-Up Rail with Fabrifast Tubing



STEP 5: BATTING OVER THE BACKING

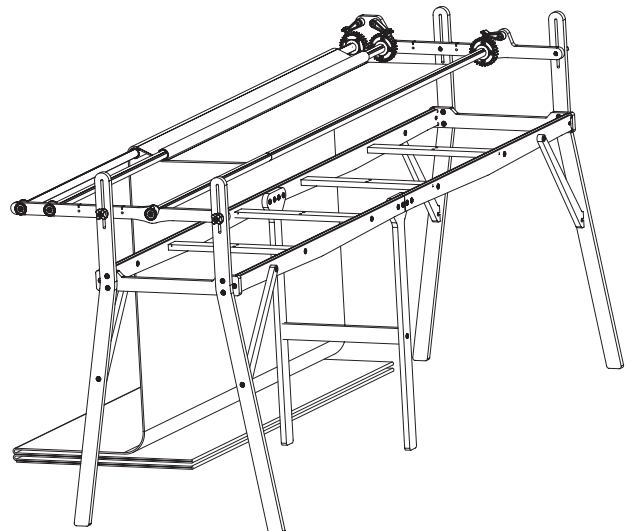
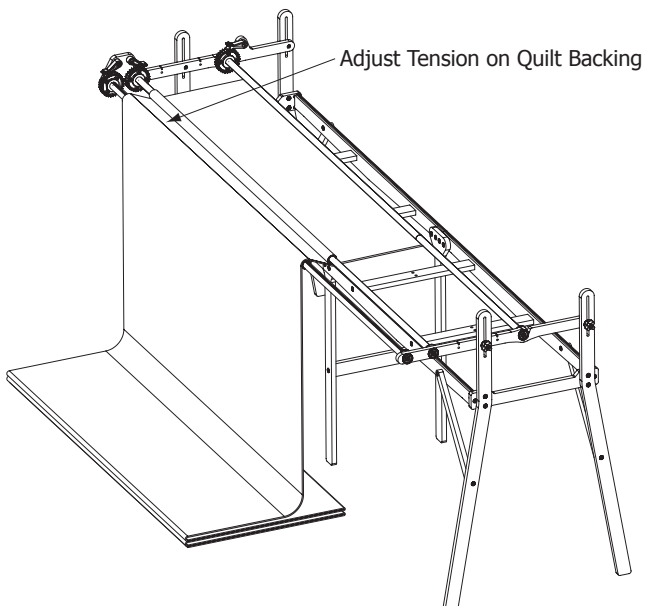
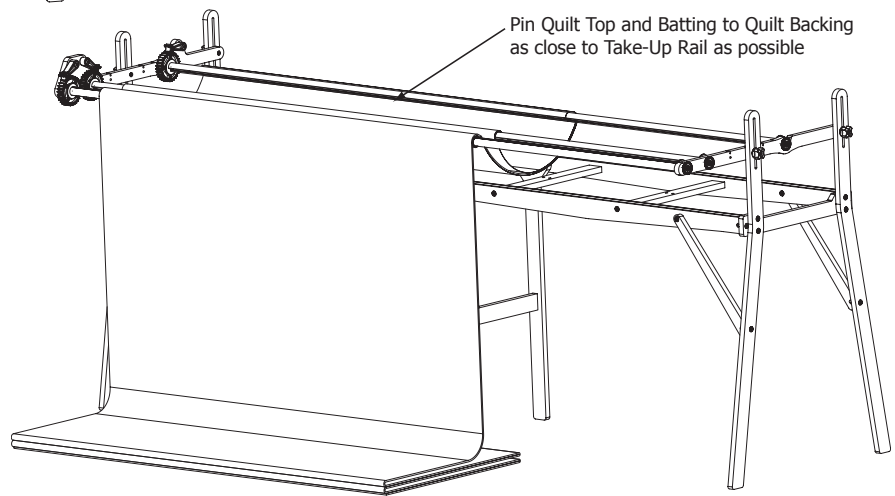
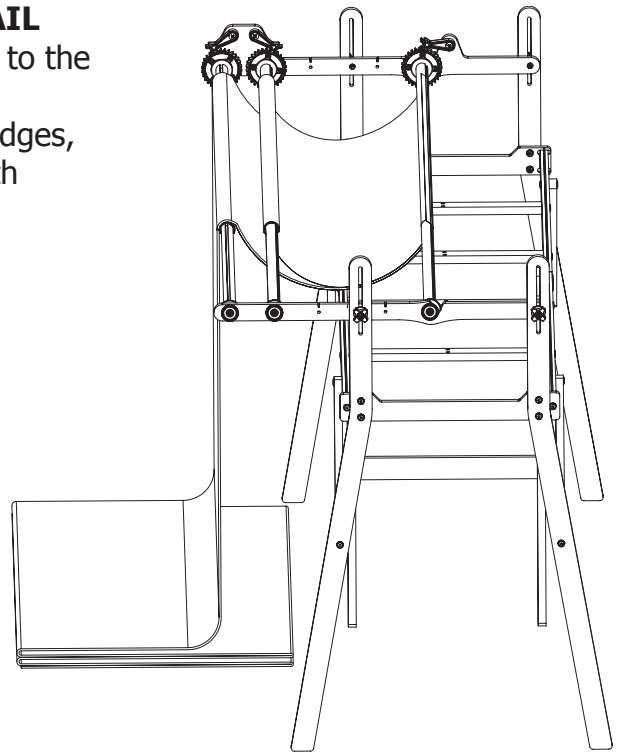
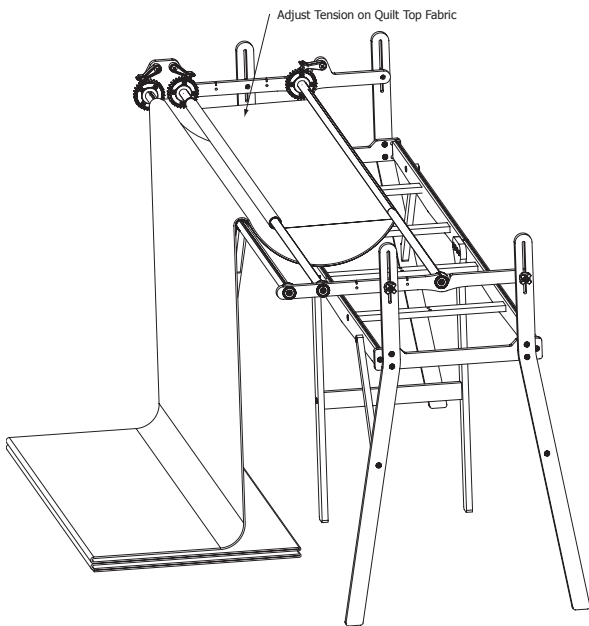
- A light, bonded batting is recommended.
- Take one end of the batting and insert it over the back rail and down under the middle rail. Pull it through so the end of the batting lines up over the backing. Smooth out any wrinkles.
- The other end of the batting can hang freely over the back pole and roll off the floor.

Fold extra batting out of your way.
Place Batting on top of Backing.
Batting goes over Back Rail, and under Middle Rail



STEP 6: INSTALL QUILT TOP TO THE TAKE-UP RAIL

- Take the loose end of the quilt top and pull it forward to the take-up rail.
- Lay it out over the batting and bottom. Line up the edges, and pin the quilt top and batting together to the cloth leader.



Rolling your fabric

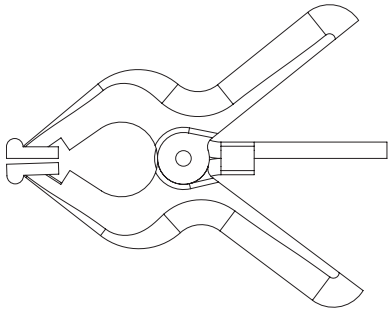
- As you roll forward, the quilt will accumulate on the front rail. Be sure to raise the Pole Mount Ends slightly as needed, so that the bottom of the rolled up fabric stays about 1/16" about the sewing machine base. Failing to do so will cause your Carriage Assembly to roll less smoothly.

The Four-Inch Principle

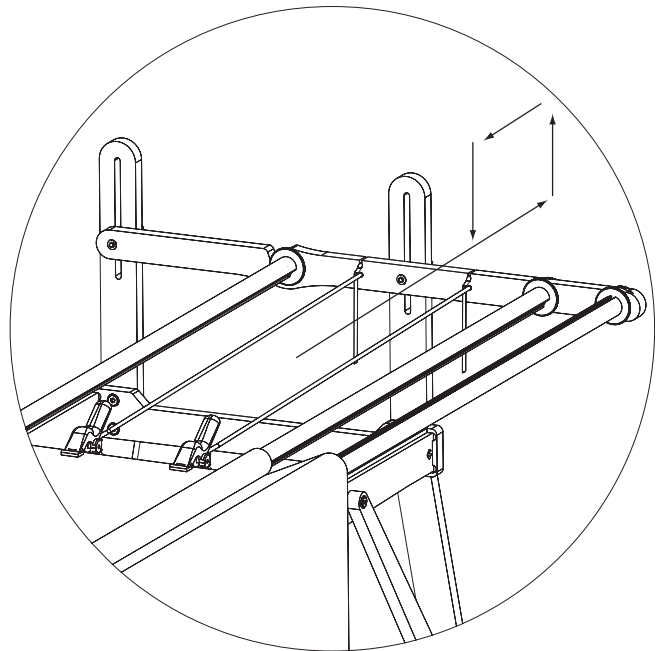
- If you are using a sewing machine with a regular size throat, you will want to follow the four-inch principle: Limit any quilting pattern to four inches or less from front to back.
- The Grace Sturdy-Lite actually gives you about 11" of stroke, but because of a limited throat size, and because the fabric will eventually roll up on the take-up rail, further decreasing space, you will want to keep patterns to a 4" limit.

Available Accessories

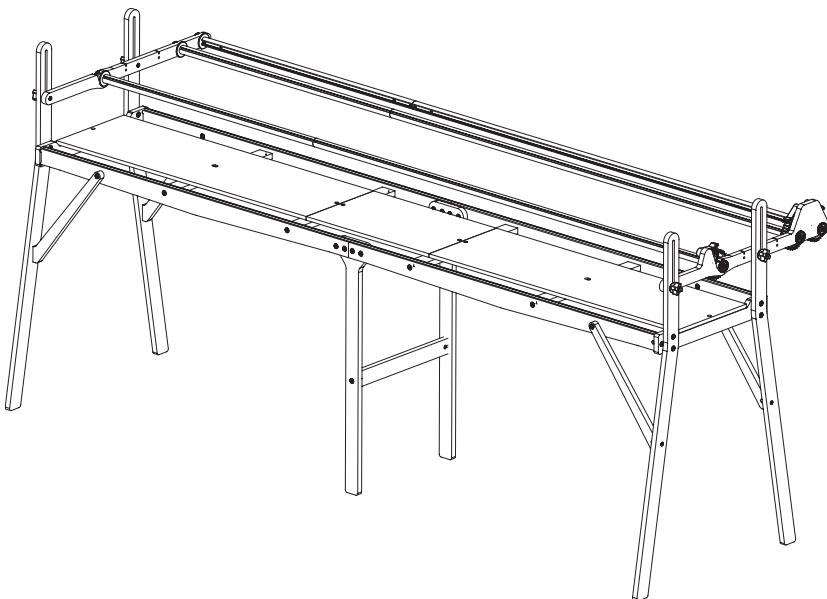
Optional Bungee Clamps



- Excellent for providing side tension on quilts. (Sold as a set of four.)



Optional Table Inserts



- Excellent for providing a convenient surface to attach pantograph patterns.