

Craftool Pro

STITCH MASTER®

S SAILRITE



CE

Set-Up • Use • Maintenance • Troubleshooting • Schematics

Welcome to Your Stitch Master® Sewing Machine!

You are now the proud owner of one of the toughest, most versatile sewing machines around.

With the Stitch Master, you can sew up projects from leather to upholstery. This guidebook will give you an in-depth look at your machine, its assembly and features, as well as teach you proper use and maintenance and give helpful troubleshooting advice.

Craftool Pro
STITCH MASTER
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Table Top and Legs



Table Top and Legs Hardware



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Servo Motor Box



Accessories Box



Stitch Master® Safety

Please observe the following when using your Stitch Master sewing machine:

1. Do not operate if you or the machine are wet or may become wet.
2. Operate the machine on a firm, level surface with adequate room for safe operation.
3. Observe caution when placing your hands, other body parts, or clothing near any moving parts including but not limited to the walking foot, needle, Power Plus™ Flywheel, and belts.
4. Do not run the machine without its covers in place.
5. Do not stop the movement of the Power Plus Flywheel with your hands.
6. Always use the proper voltage required for the motor and light.
7. Do not pull yourself toward the table when using the machine as this is a tip over hazard.
8. Wear protective eye wear when sewing.
9. Wear shoes when operating the foot treadle.
10. Provide supervision when allowing those unfamiliar with the Stitch Master operations to use the machine.
11. Do not use the machine around flammable materials.
12. Wire the light in a manner to keep it clear of belts and other moving parts.

Workhorse™ Servo Motor Safety Precautions

The Workhorse Servo Motor is designed specifically for sewing machines and is not warranted for other uses. Please follow the guidelines below to prevent injury or damage to the motor/sewing machine.

1. Confirm the shaft of the motor rotates counterclockwise before operating the sewing machine (See pg. 19 “Changing Motor Rotation” if the shaft rotates clockwise).
2. Do not operate the machine without the belt covers installed.
3. Do not touch any moving parts when operating the Workhorse Servo Motor.
4. Remove foot from the treadle when turning the power ON.
5. Turn the motor power switch OFF before replacing or threading the sewing machine needle.
6. Turn the motor power switch OFF when leaving the machine.
7. When performing maintenance on the sewing machine, turn the motor power switch to the OFF position and remove the power cord from the wall.
8. To avoid injury or damage to the motor, do not alter or tamper with the internal components of the motor.
9. Do not cover the motor’s ventilation; it can cause the motor to overheat.

Work Environment for Workhorse™ Servo Motor

1. Power Voltage: Do not use any Voltage but the one specified on the motor.
2. Electromagnetic Pulse Interference: Keep the motor away from high electromagnetic machinery and electro pulse generators.
3. Temperature:
 - a. Do not operate in temperatures above 115°F (46°C) or under 40°F (4°C).
 - b. Avoid operating in direct sunlight.
 - c. Avoid operating near a heater.
 - d. Avoid operating in areas with low and high humidity.
4. Atmosphere:
 - a. Avoid operating in dusty areas.
5. Power Cord:
 - b. Avoid operating near combustible or flammable items.
 - c. Avoid water coming into contact with the motor/outlet.
 - a. Avoid placing heavy objects, excessive force or bends in the power cord.
 - b. Ensure the power cord cannot be caught in the timing belt.
 - c. Check that the outlet voltage matches the motor voltage before plugging in the power cord.



WARNING: This product can expose you to chemicals including Nickel (Metallic), which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

WARNING: CHOKING HAZARD: Small parts. Not for children under 3 years. CONTAINS FUNCTIONAL SHARP POINT. Adult supervision recommended.

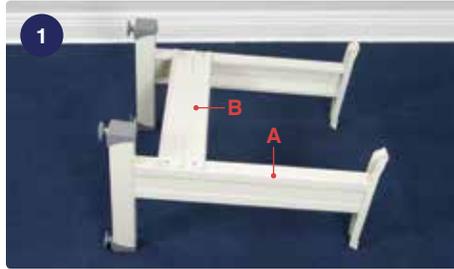
Assembling the Stitch Master

Basic tools required:

- Mallet or Hammer
- 3/8 inch Socket Wrench
- 14 mm Socket Wrench
- Crescent Wrench
- #2 Phillips Screwdriver
- #1 Stubby Phillips Screwdriver
- Flat Screwdriver (included)
- Box End Wrench (included)
- Tape Measure
- A Triangle or Square

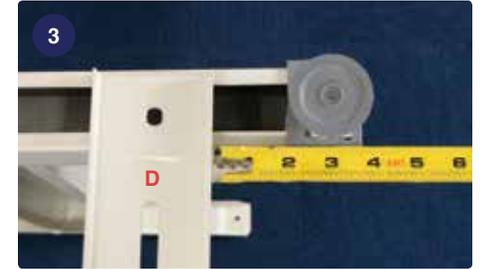
Assembling the Legs

1. Position legs (A) on their side, unfinished sides facing in, with the feet facing you. Line up the back brace (B) with the corresponding threaded holes (1).
2. To connect the back brace, find parts (C) and loosely thread them through each of the four holes (2). Use a #2 Phillips screwdriver to make these snug but do not tighten completely.



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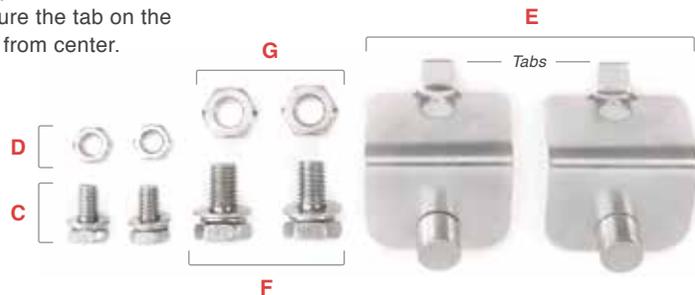
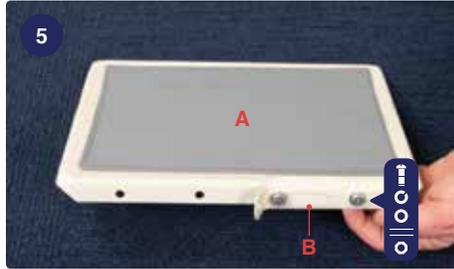
3. Flip the legs upside down and lay the bottom brace (D) into the desired position across the bottom of the legs. This will determine the distance the treadle will be from the operator once seated. We recommend installing it 3-1/2 inches from the front end of the legs (3). Find two more bolts, lock washers and washers (C) and rectangular nuts (E). Slide the rectangular nut (E) into position inside the leg cavity. While holding the rectangular nut in the desired position, slide the bottom brace into position and thread in the corresponding bolt (4). Do this for both sides.
4. Use a tape measure to confirm the bottom brace is squarely positioned. Tighten the bolts.



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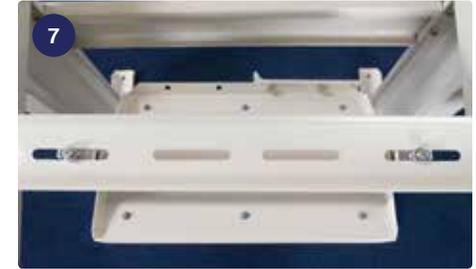
Assemble and Attach Treadle

1. Hold the treadle (A) so that the bolt holes are facing toward you with the rubber pad up. Next, place the treadle-bracket (B) over the two right-most holes and thread the two bolts (C) through each hole. Position the bolts all the way to the left in the treadle-bracket slots and tighten each bolt (C) with a nut (D) on the back side (5).
2. Find the two pivots (E), bolts, lock washers and washers (F) and nuts (G). With the stand upside down, place one pivot underneath the far right slot of the bottom brace making sure the tab is facing up, away from center and through the slot. Run the bolt up through the hole in pivot (E) from underneath the bottom brace, then place the nut on top and loosely thread together (6). Repeat this step with the other pivot on the furthest opposite hole of the bottom brace making sure the tab is facing up away from center.



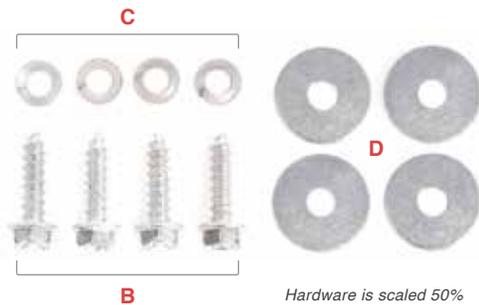
Hardware is scaled 50%

3. To attach the treadle to the bottom brace, flip the treadle upside down with the treadle-bracket facing the back leg brace. Line up the holes on the sides of the treadle with the pivots and slide the pivots into the treadle. Center the treadle with the stand and tighten the pivots (7). The treadle must be able to pivot freely without left and right play.



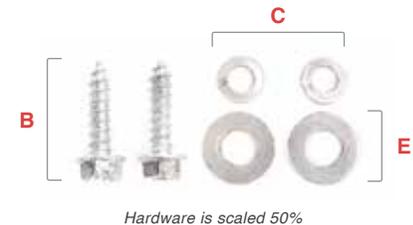
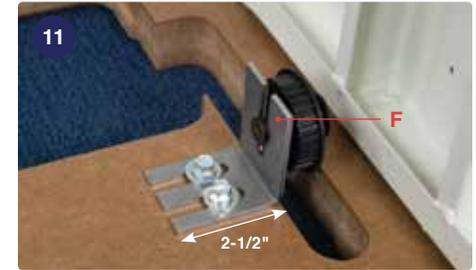
Assemble and Attach Tabletop

1. Place the tabletop (A) on the floor with the top side down on a soft surface to avoid scratching it. The belt slot of the tabletop should be to your right. With the back of the legs facing you, place them on top of the tabletop and line up the back pilot holes in the table with the leg mount holes. Loosely thread a hex head lag screw (B), lock washer (C), and large flat washer (D) into each back pilot hole first. Then align the front leg holes to their corresponding tabletop pilot holes and thread in their screws, lock washers, and flat washers (8).
2. Use a 3/8 inch socket wrench to tightly drive all four of the hex head lag screws (B), lock washers (C) and large flat washers (D) into the tabletop.
3. The legs have adjustable feet. Rotate the locking nut in a manner allowing each foot to be threaded all the way in (9). Once the table is upright this makes it easier to adjust one or two feet to stabilize the table. Once adjusted, use the nut to lock the position permanently.



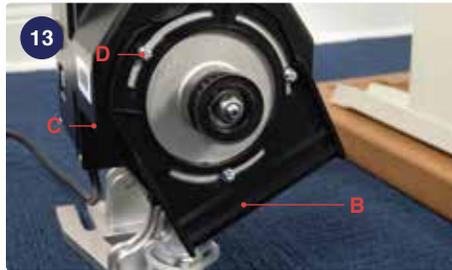
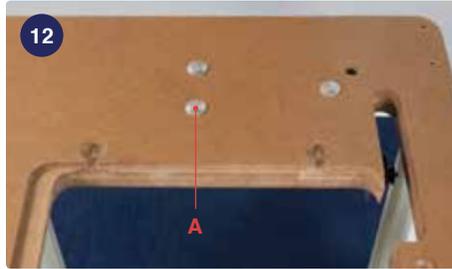
Attach Idler Pulley

1. Partially thread the two remaining hex head lag screws (B), lock washers (C) with two small washers (E) into the two pilot holes next to the belt slot of the tabletop (10).
2. Slide the two parallel slots of the Idler Pulley L-bracket (F) under the washers (E) so that the wheel portion is facing the belt slot of the tabletop. Tighten the lag screws (B) with a 3/8 inch socket wrench. Position the lag screws within the slots as shown (11).
3. Flip the table structure on its feet and tighten all the bolts on the treadle with a #2 Phillips screwdriver and tighten the bolts on the legs with a 14mm socket wrench, while ensuring the upright legs are vertical.

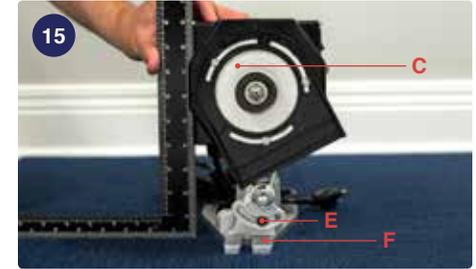
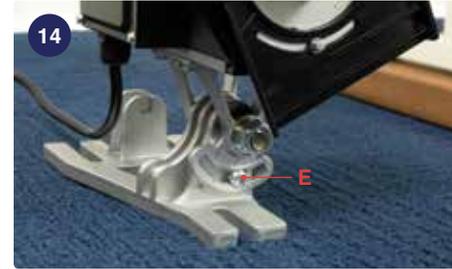


Tabletop Motor Attachment

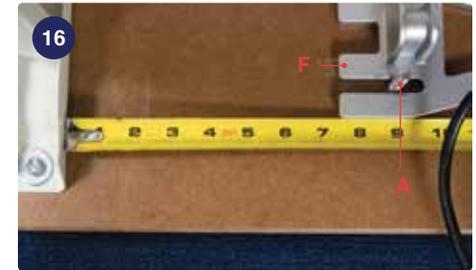
1. Use a mallet or hammer to pound the three carriage bolts (A) into the three through-holes in the tabletop (12).
2. Flip the table over again, legs up.
3. Within the motor box find the plastic belt cover and its mounting bracket. Secure the belt bracket (B) to the end of the Workhorse™ Servo Motor (C) using the three small screws (D). Orient the bracket as shown using the screw locations in the slots as a reference (13).



Hardware is scaled 50%

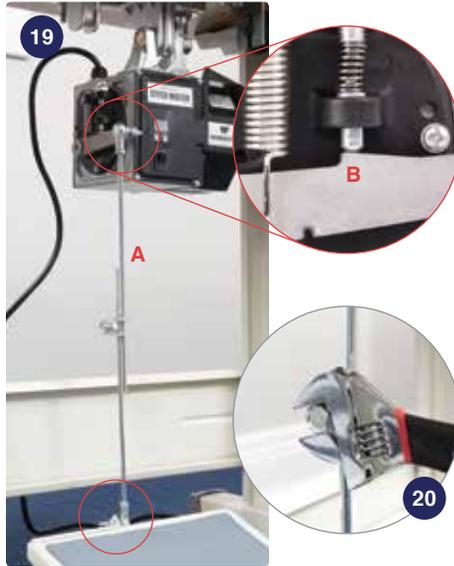
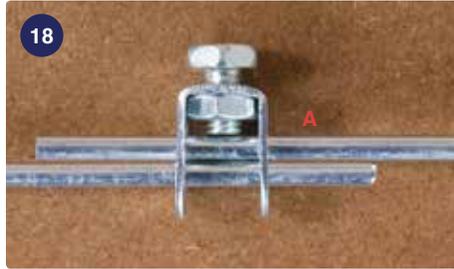


4. Loosen the pivot screw (E) on the Workhorse Servo Motor (14). When the motor bracket (F) is placed flat on the ground, the side of the Workhorse Servo (C) should be perfectly vertical with the ground. Use a Triangle or Square to set the angle and tighten the pivot screw (E) (15).
5. Slip the Workhorse Servo (C) and motor bracket (F) onto the three carriage bolts (A). Use a tape measure to measure 7-1/4 inches to the inside of the table leg from the motor bracket (16). Once in the desired position, drop one washer (G) onto each carriage bolt (A), then a lock washer (H), and finally thread on a nut (I). Tighten each with crescent wrench or a 14mm deep socket wrench (17).
6. Flip the table so that it is upright before continuing to the next step.



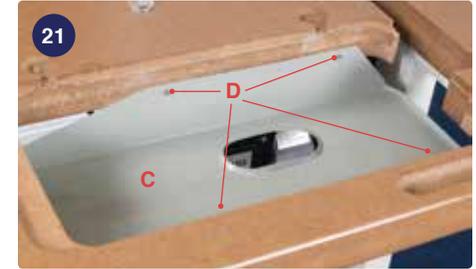
Linkage Bar Installation

1. Loosen the center nut on the linkage bar (A) so that it will slide apart (18). Slide into furthest position so the linkage bar is at its longest length and re-snug the nut. On each end of linkage bar take off the first nut and lock washer.
2. Bolt the linkage bar (A) to the outer-most holes of the motor operation lever on the Workhorse™ Servo Motor and the treadle-bracket of the treadle (19). By increasing or decreasing the overlap of the linkage bar, different treadle pedal angles can be achieved depending on user preference. Use a crescent wrench to set the angle (20).
3. If the linkage bar overlap is too aggressive, the pedal angle will be extreme preventing the operation lever to make contact with its resting stop. When this happens, the motor will not run. Image (B) is correct with the pedal not actuated.



Install Oil Tray and Hinges

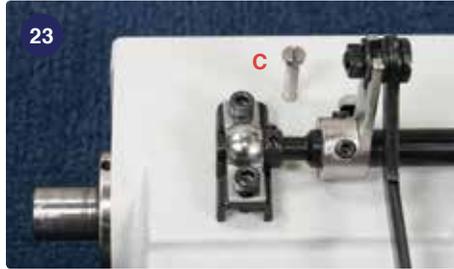
1. Find the metal oil tray (C) and reference the belt slot of the tabletop (21). Place the oil tray (C) under the tabletop and line up the pilot holes inside the rim of the tabletop cutout. Next, thread in the four flat head tapping screws (D) to attach the oil tray (Due to small size, extras are included in the package). Use a #1 Stubby Phillips screwdriver.
2. Place the two hinges (E) into the pre-made hinge holes in the tabletop. Secure with included wood screws (F) (22).



Hardware is scaled 50%

Install Sewing Machine and Belt Bracket

1. Remove the sewing machine from its styrofoam shell and place the face of the machine on a soft, flat surface. Loosen the hinge hole set screws (A) so that the holes (B) are not obstructed.
2. Remove the long screw (C) from the head of the sewing machine (23). Take the smaller part of the belt cover assembly (D) and secure with the screw (C) as shown (24).
3. Carefully lift the sewing machine and place the hinge holes (B) over the hinge pins of the hinges previously screwed to the tabletop (25). Allow the sewing machine to slide all the way back/down on the hinge pins and rest the machine on the tabletop. Tighten the set screws (A) (26). Pivot the sewing machine upright.



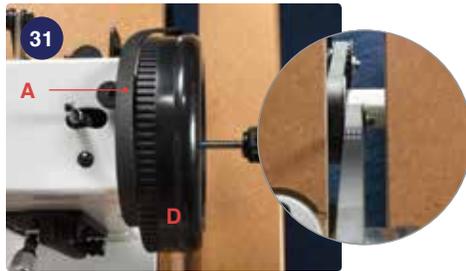
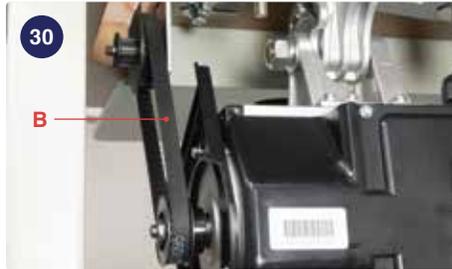
Attach Power Plus™ Flywheel

1. Set the Posi-Pin® (E) aside and unscrew the reverse-threaded Posi-Pin Nut (F) (27). Slide the Power Plus Flywheel (G) onto the Posi-Pin Wheel Bushing (H) and rethread nut, spinning counter clockwise. Push the Posi-Pin (E) into the center hole of the Nut for safekeeping (28).

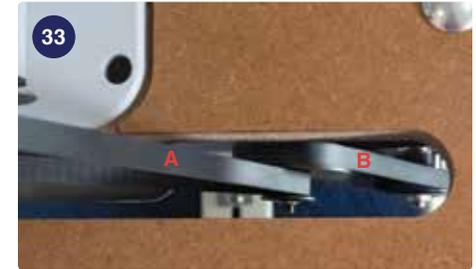


Installing Timing Belts

1. Find the long and short timing belts (**A** & **B**) and box end wrench in the accessory box. Use the box end wrench to loosen the shaft of the idler pulley (**C**) so that the pulley shaft will be able to move up and down (**29**). Take the shorter timing belt (**B**) and place it over the big pulley of idler pulley (**30**) and around the motor pulley. Then push the shaft and pulley up, tensioning the belt and tighten with the box end wrench.
2. Place the larger timing belt (**A**) over, and to the left of, the Power Plus™ Flywheel (**D**). Feed the belt through the belt slot and onto the small pulley of the idler pulley (**31**). Turn the Flywheel while guiding the belt into place around the Power Plus wheel from the inside (just like a bicycle chain). Rotate the Power Plus Flywheel to make sure that both belts are aligned correctly. The position of the Idler Pulley L-bracket and the Workhorse™ Servo Motor can be adjusted for perfect alignment.



3. Check the tension of both timing belts by pressing at the middle of each belt. There should be equal tension between the two belts. If one is more loose, use the box end wrench to loosen and tighten the idler pulley accordingly (**32**).
4. To check the belts at speed plug in the Workhorse Servo Motor and turn on the motor by toggling the power switch. Press the treadle to make sure the Power Plus Flywheel is rotating from the top toward you. Both timing belts (**A** and **B**) should track without side-to-side movement and be well clear of the belt slot edges (**33**). The needle will not move since the Posi-Pin® is not yet in the engaged position. If you find you need to change the motor rotation, the steps below will assist you.



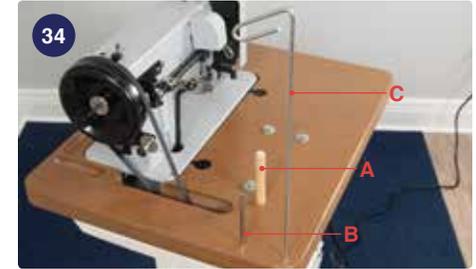
Changing Motor Rotation

Do not run the Workhorse™ in a clockwise direction as it will bind the sewing machine and cause other problems. Make sure the motor is always running in a counterclockwise direction. If the motor shaft is spinning clockwise, follow the instructions below to reverse the direction.

1. Press the “P” button 4 times until the LED display reads “n3”.
2. Press the “S” button to select between “0” and “1”.
3. Select “1” and the motor will run clockwise.
4. Select “0” and the motor will run counterclockwise (this is the setting the motor should be on).
5. Press the “P” button to save the selection of “0”.

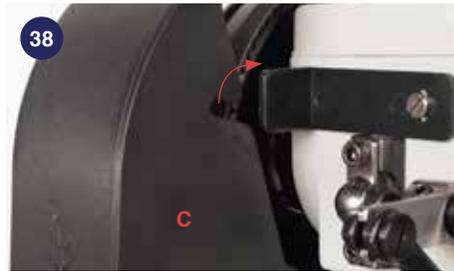
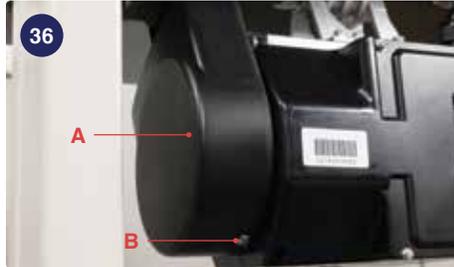
Insert Support Pin and Thread Stand Post

1. Locate the support pin (**A**) and thread stand posts (**B** and **C**) (34). The longest thread stand post with looped end (**C**) will drop into the back corner hole on the tabletop. Gently tap the non-tapered end of the short post (**B**) in the table top corner hole just in front of the taller post. The support pin (**A**) goes in the remaining hole, and is used to rest the machine on when it is tipped back (35).



Install Motor Cover and Belt Cover

1. Find the motor belt cover (A) and the included small screw (B). Slide the motor cover (A) over the belt bracket on the Workhorse™ Servo Motor. Thread the small screw (B) through the hole in the motor belt cover and tighten with a #1 Stubby Phillips screwdriver to connect it to the motor bracket (36).
2. The final belt cover part (C) has a pointed forked end that will slide between the washer and the black bracket (37). The keyway cut on the belt cover (C) will lock onto the shaft of the key of its mating component (38).

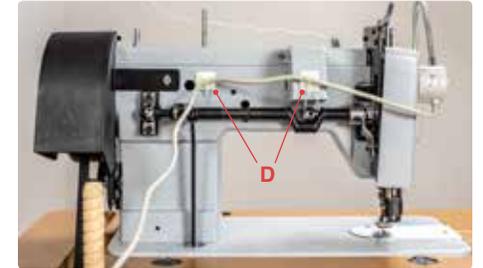


B

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Install Light and Wire

1. To attach the LED light, place the magnetic light in your desired location (39). If it is a 110-volt sewing machine, the light will plug into the back of the Workhorse Servo Motor. If it is a 220-240 volt machine, the light will plug into a wall outlet.
2. Use the included adhesive pieces and wire ties (D) to secure the light cord in your desired locations. Make sure to keep the cord out of the way of any machine moving parts.



Install Spool Pin and Felt

1. Screw the spool pin (A) into the threaded hole on top of the sewing machine. Slide the red felt disc over the pin (40).



Stitch Master Set-Up

Thread

Stitch Master sewing machines can handle most polyester, nylon, cotton or monofilament thread from general purpose to heavy-duty V-92 (T-90).

THREAD SIZE	TEXTILE SIZE	NEEDLE SIZE	FABRIC WEIGHT RECOMMENDED	LEATHER WEIGHT RECOMMENDED
V-69	T-70	#18	3-8 oz.	< 6 oz.
V-92	T-90	#20	8-14 oz.	4-10 oz.

Needles

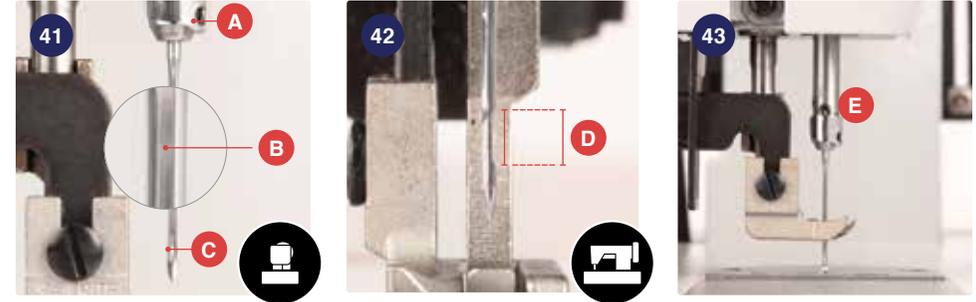
Stitch Master sewing machines require system 135x16 leather needles sizes #18 or #20. A size #20 needle is used for most medium to heavy leather sewing.

Needle Type

Use of the wrong needle type can contribute to unattractive or skipped stitches.

DI needles are ideal for working with leather (system numbers 135X16 or DPX16).

A “diamond point needle”, should be used for leather, nonwoven material or two or more layers of hard leather. These allow for proper thread entry and help it lay consistently. The cutting point also keeps the back side of the material free from a mound or budge at each penetration.



Needle Installation

Stitch Master needles are round on top, unlike home sewing machine needles. As a result, proper installation must be exercised carefully. **Improperly installed needles are the main reason users call for help.** Please be sure that the needle eye is not twisted.

The needles have two distinct sides (**41** & **42**). One side has a long channel or groove (**B**) (locate this groove with your fingernail if you cannot see it), and the other side has a scarf (**D**) i.e., a carved out area, just above the needle eye (**C**).

When installed, the side with the needle eye and groove should be facing outward i.e. to the left as you face the machine.

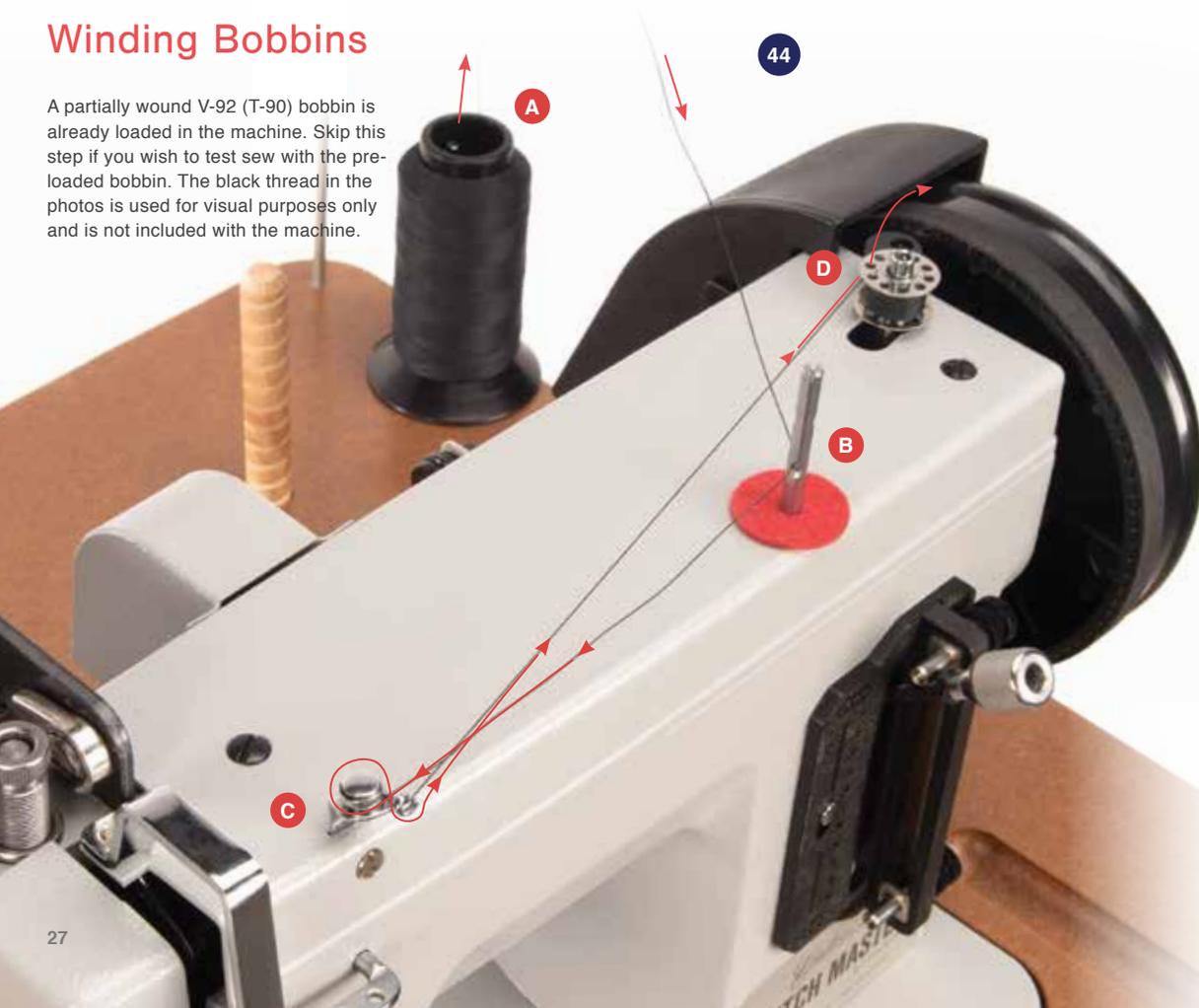
CAUTION: If the needle is inserted the wrong way, the machine will skip stitches and break thread.

To make sure your needle is inserted far enough, you can look through the sighting hole (**43, E**) near the bottom of the needle bar. The top of the needle should be fully visible in the sighting hole and pushed all the way to the top.

- A** Needle bar thread guide hole
- B** Needle groove
- C** Needle eye
- D** 3/16 inch (5mm) ~ height of scarf
- E** Sighting Hole

Winding Bobbins

A partially wound V-92 (T-90) bobbin is already loaded in the machine. Skip this step if you wish to test sew with the pre-loaded bobbin. The black thread in the photos is used for visual purposes only and is not included with the machine.



Disengage the Clutch i.e. Posi-Pin® Clutch System:

To prepare your machine to wind bobbins, first disengage the Posi-Pin Clutch System, to allow for bobbin winding without running the machine (45).

Simply pull the pin out of the Power Plus™ Flywheel and place it in the center hole as shown to store (46). It may already be in the stored position if you are using the machine for the first time.

To continue sewing, re-engage the clutch:

1. Push the Posi-Pin gently into any of the three Posi-Pin holes in the Power Plus Flywheel.
2. Rotate the Power Plus Flywheel while lightly pushing on the Posi-Pin until you feel it connect with any of the 4 bushing holes.
3. Push the pin all the way in and release.



> Posi-Pin clutch ENGAGED



> Posi-Pin clutch DISENGAGED

Thread the Bobbin on the machine:

1. Thread comes off top of cone to thread stand arm (A).
2. Pass through thread post (B). Use whichever hole provides the most direct path to the bobbin tensioner (C).
3. Wrap around bobbin tensioner (C).
4. Run under and up through a hole in top of bobbin (D). Place bobbin on post and push to the right. Hold onto thread tail briefly and power machine with the clutch disengaged to wind bobbin. Stop after several rotations and cut the thread tail off flush with the bobbin side.
5. Continue winding until the bobbin is full. Then remove the bobbin from the winder post by pushing the post to the left and pulling the bobbin off. Cut the thread.

It's faster to wind while you sew!

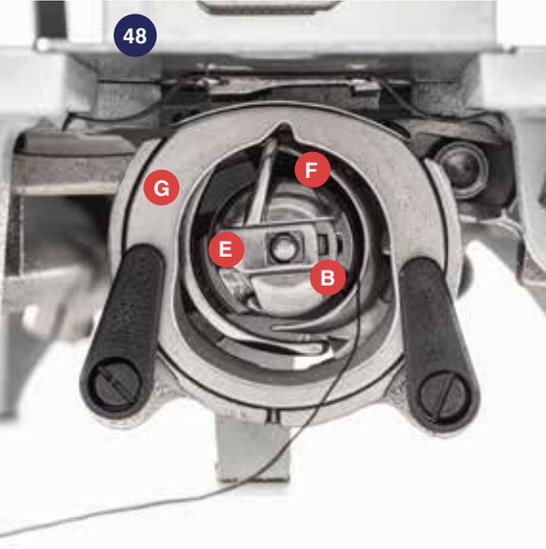
Run thread to the bobbin winder from an extra cone of thread. Simply place the second cone beside the primary cone and lead the thread up through the same guides. Follow normal bobbin winding instructions but do not disengage the clutch.

Threading the Machine

The black thread in the photos is used for visual purposes only and is not included with the machine.

1. Thread comes off top of cone to thread stand arm hook (A).
2. Pass the thread through one hole in the thread post (most direct route to bobbin tensioner) (B).
3. Pass through pig tail of bobbin tensioner (C).
4. Loop through ear holes (D).
5. Thread through upper tension (shown without cover knob) (E). Make sure lift lever (F) is raised up to release tension plates so thread can pass through. Be sure to catch the hooked spring end with the thread last.
6. Pass through take-up arm (right to left) (G) and then under end cover.
7. Pass through the needle bar thread guide hole (H) and then down through the needle eye from left to right (I).





Removing & Installing the Bobbin Case

The bobbin case (B) is located on the underside of the machine beneath the presser foot (48).

Removing — Lift the spring loaded lever (E) and pull the bobbin case out. With the lever held open the bobbin is captive in the bobbin case. Release the lever and the bobbin will fall out.

Installing — Pull and hold the spring-loaded lever outward (to keep the bobbin from falling out) and push the case onto the axle of the gib hook. The finger of the bobbin case (F) should point upward.

If the lever (E) is held up until the bobbin case is completely installed, the lever, when released, will lock onto the axle and there will be no clicking sound. If the lever is released before the bobbin case is pushed completely in place, there is a clicking sound when the case is pushed all the way on. The finger of the bobbin case will drop into the notch in the hook's retaining ring (G). The bobbin thread should loosely dangle.

Installing Bobbin in Bobbin Case

1. Insert a threaded bobbin (A) into the bobbin case (B) with thread coming off the left side in a clockwise rotation.
2. Hold the tail of the thread while pushing the bobbin into the bobbin case.
3. Pull the thread through the slit (C) in the edge of the bobbin case.
4. Continue pulling the thread under the tension plate (D).
5. Snap thread into position under tension plate and pull out about a 6 inch tail of thread.



- A Bobbin
- B Bobbin Case
- C Slit
- D Tension Plate
- E Spring-loaded Lever
- F Finger
- G Retaining Ring

The black thread in the photos is used for visual purposes only and is not included with the machine.

Picking Up Bobbin Thread

After the machine is threaded and the bobbin case (with bobbin) is installed, pick up the bobbin thread as follows:



1. Hold the needle thread loosely to the side (50) and rotate the Power Plus™ Flywheel by hand toward you until the needle moves down and then back up.
2. As the needle nears its highest point, pull the needle thread gently. The bobbin thread should come up through the needle hole, with the needle thread, in the form of a loop (51).
3. Pass a screwdriver under the presser foot from right to left to pull the thread out away from the machine (52).

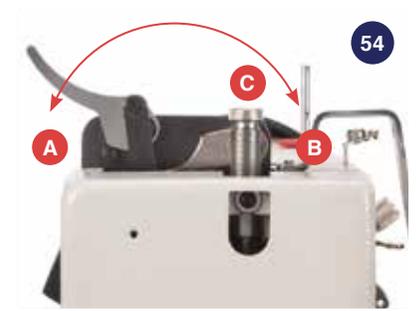
- NOTE:** If the bobbin thread does not appear when the needle is lowered and raised, check to make sure 5 to 6 inches of bobbin thread is hanging loosely from the bobbin case and repeat steps 1-3 again.
4. Completed set-up should look similar to (53). Now you're ready to sew!

Using the Stitch Master

Stitch Master Sewing Machines arrive tuned and optimized for sewing leather.

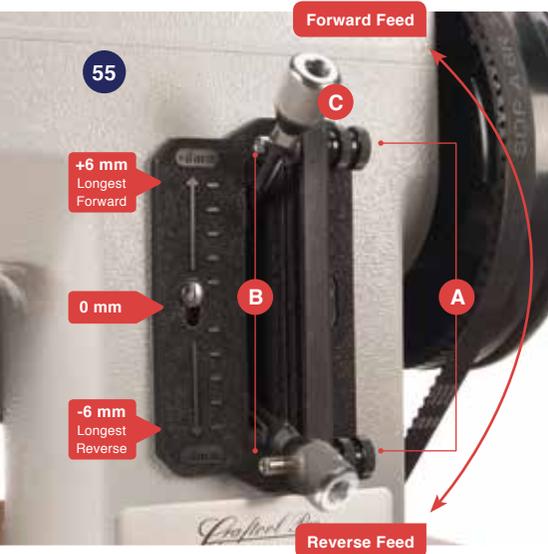
Starting to Sew

1. Plug the machine into an outlet and switch the Workhorse™ Servo Motor on.
2. Use the lift lever (54) to raise and lower the presser foot onto the material.
3. The thread from the needle and the bobbin should be behind the foot as you start to sew. Hold them down with your finger to the bed of the machine.
4. To mark your starting position, you may want to rotate the Power Plus Flywheel towards you until the needle is buried in the material.
5. Press the foot treadle to begin sewing and release the trapped threads after the first few stitches. If the thread ends are not held down for the first few stitches, a rats nest at the beginning of sewing may occur.
6. Operation is easiest when your foot rests fully on the treadle. Applying heel pressure activates the motor brake to stop instantly.



- A Raise
- B Lower
- C Pressure Regulating Thumb Screw

DO NOT operate the machine when threaded without material under the presser foot (and foot lowered). The machine will most likely “lock up” and be inoperable until the thread jam is cleared.



Regulating Stitch Length

The EZ Set™ Stitch Length Plate (55) sets both forward and reverse stitch length. To set the stitch length, loosen the two thumb screws (A), slide the posts up or down and tighten the screws. The thumb screw stops (B) restrict the movement of the Feed Regulator Lever (C), which is spring loaded to always rest against the upper stop.

Sewing in Reverse

Position the needle fully up or fully down and push the stitch length lever all the way down. Hold the lever down until the reverse sewing is completed. The lever is spring loaded and will return to its forward position when you release it. When the machine is operating at 1/4-speed or faster, reverse can be engaged on the fly.

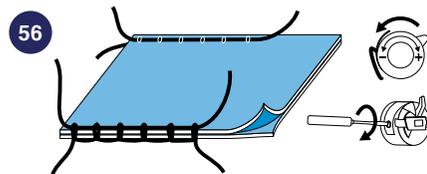
DO NOT rotate the Power Plus™ Flywheel in the wrong direction. Always turn it towards you (from the top) to avoid thread jams in the lower mechanism.

Turning Corners

First turn the Power Plus Flywheel toward you until the needle passes its lowest point and rises about 1/8 inch. Then lift the presser foot, turn the material to the new direction (the needle acts as an axis), drop the foot and start sewing in the new direction.

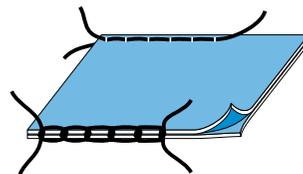
DO NOT attempt to change sewing directions when the machine is at rest with the needle positioned mid-stroke. This will cause a skipped stitch or needle deflection.

Rotating the leather work while the machine is at rest with the presser foot down may bend the needle.

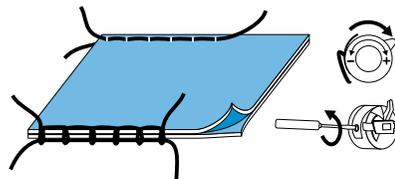


Knots pulled to top:

1. Decrease upper tension
2. Increase bobbin case tension



Knots centered — PERFECT STITCH



Knots visible on bottom:

1. Increase upper tension
2. Decrease bobbin case tension

Thread Tension Adjustment

Tension adjustment refers to the combination of tension on both the upper thread and the bobbin thread.

The correct combination of thread tension (56) results in a stitch that looks identical on both sides of the material (i.e., the knots of the stitches are pulled into the leather and are no more visible on the top than on the bottom).

The primary problem when using a heavy thread is incorrect upper thread tension. When stitch tension is a problem, it is usually a consequence of too much or too little tension on the upper thread.

Tension changes to the bobbin thread should only be made when upper tension changes alone do not solve stitch tension. In general, bobbin tension requires just about a two ounce drag on the thread (similar to what you feel when pulling dental floss off a spool).

The Stitch Master has a thread tensioning knob on the front that the upper thread runs through (57).

The upper tension knob can be turned up to five revolutions to compress a spring that squeezes two disks together.

When the presser foot is lifted the upper tension disks are pushed apart. This releases the top thread tension so leather work can be removed from under the machine foot without fighting thread tension.

DO NOT lift the presser foot when the upper tension knob is less than a 1/2 turn from maximum (turned snugly clockwise).

If upper tension is tightened all the way down, raising the presser foot may bend the lever inside the machine that separates the disks, preventing the disks from opening correctly.



Adjusting Presser Foot Tension

The amount of downward pressure put on the material by the presser foot is controlled by the Pressure Regulating Thumb Screw (A). This screw compresses a long coil spring above the presser foot. Turn the screw clockwise to increase the downward foot pressure (58). Turn the screw counterclockwise to decrease the foot pressure (59).

When sewing a thick leather assembly, set the regulating thumb screw to be very loose. To do this, turn the thumb screw until it comes free of the machine and then rethread it about three complete rotations. Even with this setting, downward foot pressure is significant because the thickness of the material will raise the feet higher than normal, creating substantial spring compression.

The sewn assembly may be so dense that the needle's extraction overcomes the presser foot's downward force. If this is the case, you may notice the assembly popping up and down while being sewn and you may be skipping stitches. To fix this, you will need to increase the pressure by screwing the thumb screw down further.



Removing Material from Under the Presser Foot

1. Stop the machine with the needle at its upward most position (**60**).
2. Raise the lift lever (p. 34, **54**).
3. Pull the material straight back to remove it from under the foot (**61**). It may be helpful to rock the Power Plus™ Flywheel forward and back to free the thread from the tension assembly.
4. Cut the two threads to free the material, leaving at least 3 inches of length of thread coming out of the machine.



Motor Speed Adjustment

Depending on the type of project you are sewing you may want to change the top end speed of the machine. A slower speed is generally better for sewing more intricate projects, while a faster speed may be better for sewing larger project.

To change the motor speed:

1. Press the “P” button and the LED display will change to “n0”.
2. Press the “S” button to select a speed.
3. Continue to press the “S” button until the desired speed between 5 and 45 is displayed. See p. 85 for speed settings.
4. Press the “P” button to save the displayed speed.

Once a setting is selected and saved, the motor will remember the selection even when turned off and unplugged. Set it once and forget about it! The default setting is 30.

Stitch Master® Maintenance

Lubrication

The machine was thoroughly oiled prior to shipment. Oil all metal to metal working parts frequently!

Use only sewing machine oil.

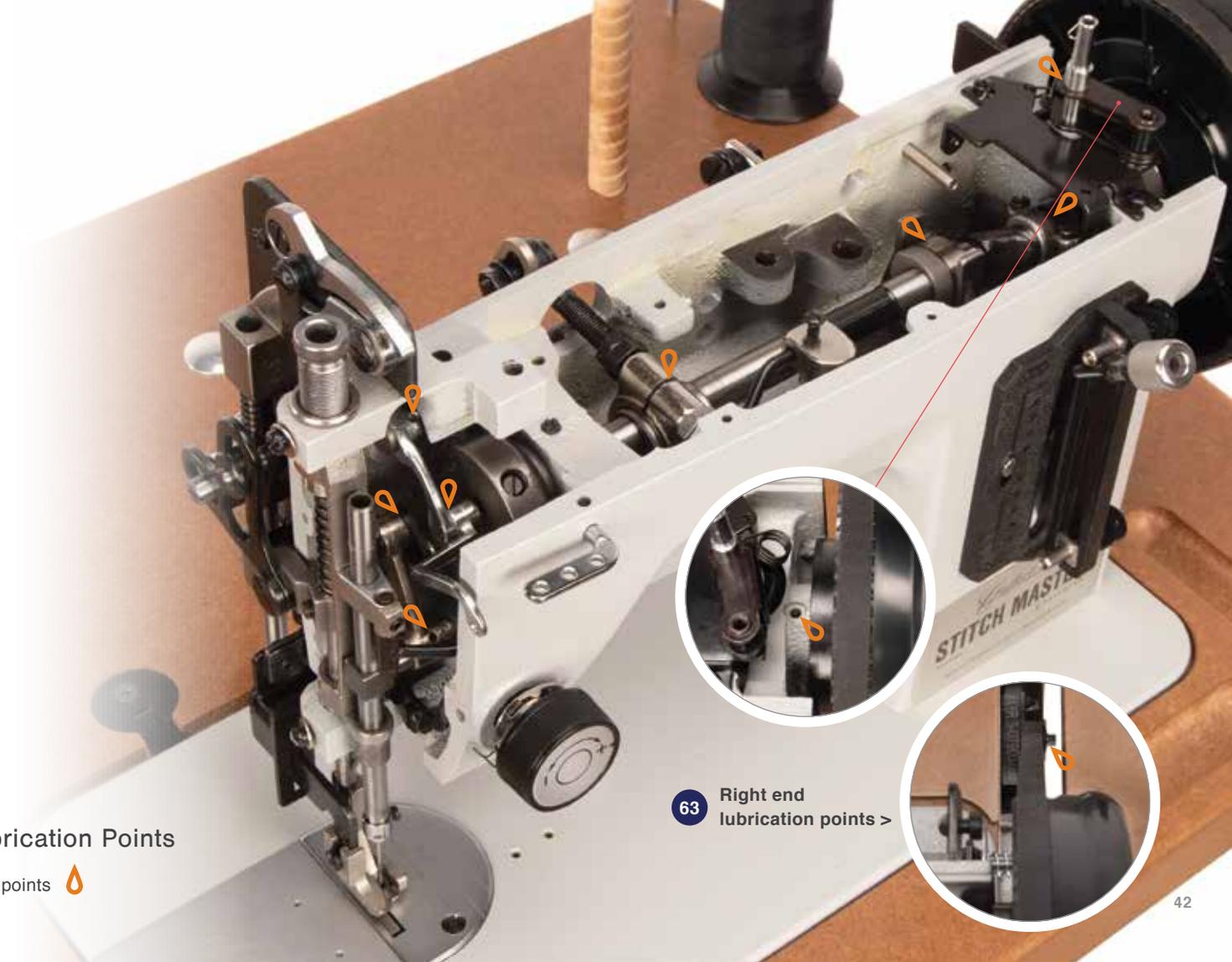
After oiling, briefly sew with scrap material to prevent soiling your work.

For good maintenance of your machine, you should oil it at least: twice yearly, before it is put in storage, or anytime the machine sounds like it is running roughly.

Stitch Master Lubrication Points

62 Top side lubrication points 

63 Right end lubrication points >



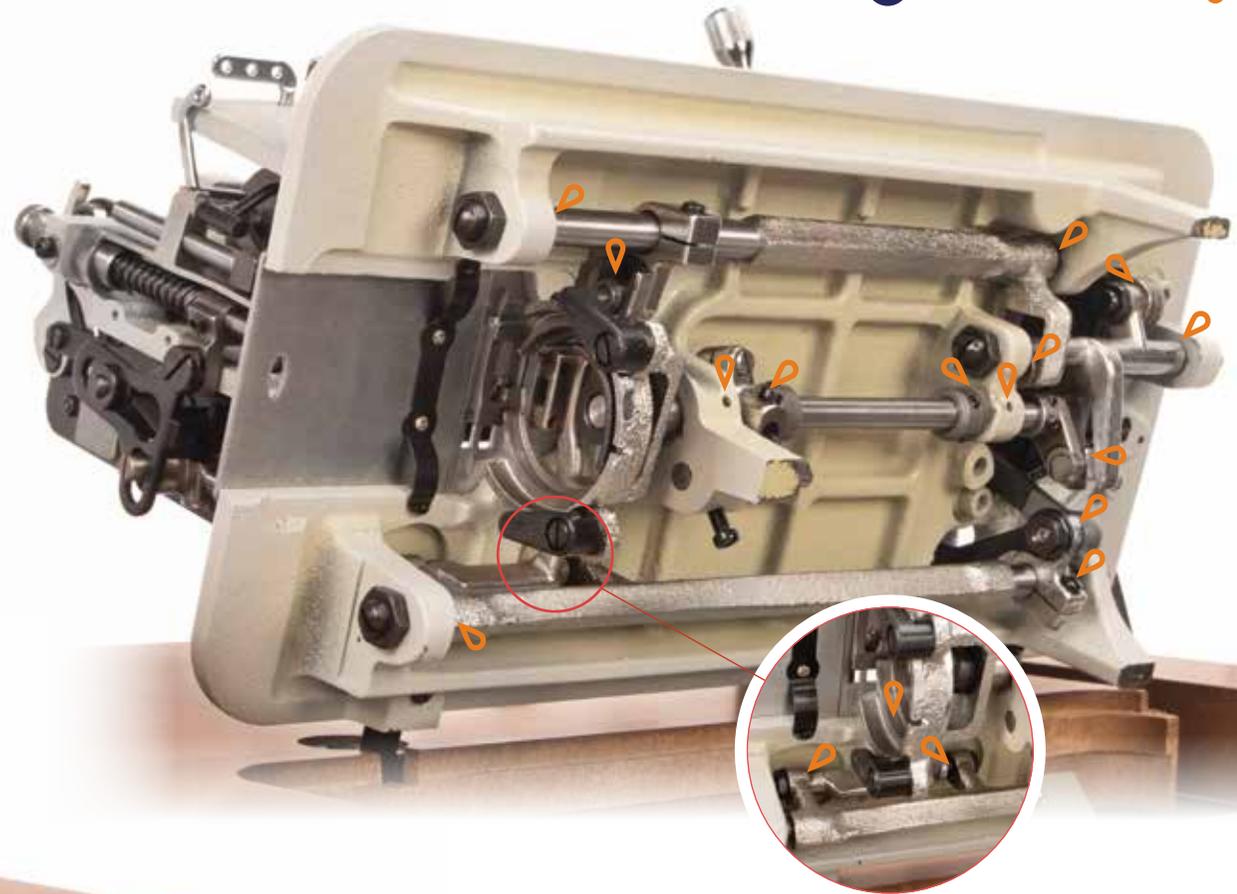
64

Left end and back side
lubrication points



65

Underside lubrication points



Troubleshooting the Stitch Master®

The more we understand our machines, the better they work for us. Stitch Master Sewing machines are actually rather simple, and adjustments can be easy if you take a little time to get to know your machine. Use this next section as a guide to better understand your Stitch Master and to help fine tune and resolve common sewing machine problems.

Material Surface is Being Damaged

Surface marring is damage to leather and other delicate material surfaces. The Stitch Master sewing machine has special knurled surface feet and feed dogs to reduce marring. To further avoid marring, reduce the amount of pressure down on the presser feet by nearly unthreading the pressure regulating thumb screw from the machine. See “Adjusting Presser Foot Tension” (p. 38).

Inconsistent Stitch Tension

If you notice that you are getting inconsistent stitch tension or if your thread looks loose and sloppy near the tension assembly under operation, check your take up spring (66 H). If the wire hook has broken off, you'll need to replace the take-up spring. To do this, you'll need to disassemble the upper tension assembly. Keep track of how the parts are removed as they will be replaced in the same manner (66).

1. Pull the cover knob (A) straight off (wiggle a bit if needed).
2. Unscrew and remove the threaded knob (B).
3. Remove the big spring (C), the spring holder (D), the two tension disks (E & F), and the keyway washer with pip (G).
4. Remove the old take-up spring (H) by pulling it straight out.
5. Slide the new take-up spring over the core post (I) so that the pip on the back faces in towards the machine and the straight arm of the spring faces down (approximately at a 6 o'clock position). Push the spring in all the way.
6. Spin the arm of the spring clockwise past the slot in the core.
7. While holding the spring arm in place, slide the keyway washer (G) back onto the core with the pip facing in, so the take-up spring arm rests on the metal pip of the washer.
8. Replace the first tension disk (F) with the convex side facing out. Add the second tension disk (E) with the concave side facing out.
9. Replace the spring holder (D) with the concave side facing out and the spring (C). Screw the threaded knob (B) back on the post and add the cover knob (A).



Removing the Hook to Clean the Shuttle Race Guide Shaft and Free Thread Jams

Perform these steps with care:

1. Move the needle to its highest point by turning the Power Plus™ Flywheel toward you.
2. Remove the bobbin case/bobbin.
3. Turn each lever (67 A) one half turn away from the retaining ring (B).
4. Pull the axle of the hook to remove retaining ring (B) and hook (C).
5. Gently remove the accumulated lint and thread from the retaining ring (B), hook (C), and driver (D). Use a small brush to clean the parts or blow out the debris.
6. Replace hook (C) opposite driver (D). The hook just rests in place. Be sure the axle is facing out.
7. Replace retaining ring (B) so that both pins are under the black levers (A) when turned. The polished side of the retaining ring should be facing out.
8. Replace the bobbin and bobbin case before beginning to sew.



Skipped Stitches

If your machine is skipping stitches, straight stitches will have stitch lengths that look exceptionally long at times.

A skipped stitch means the gib hook is not catching the thread consistently. There are a number of causes for skipped stitches.

Start with Step 1 and stop as soon as the problem is resolved.

1. Incorrectly Installed, Bent, or Dirty Needle

A bent needle will cause skipped stitches because the loop is not where the gib hook (p. 71, **16**) “expects” it to be. Adhesive residue on the needle will cause the thread to stick to the needle instead of moving through the eye to form a loop.

Make sure your needle is installed correctly (p. 26), is not bent or damaged, and is free of any residue from sewing adhesive material. Fouled needles may be cleaned with rubbing alcohol. Bent or damaged needles must be replaced.

2. Turning Corners Correctly

You can turn gentle corners while sewing at slow, consistent speeds. If motion is stopped and a change of direction is desired, set the needle position and raise the presser foot prior to the turn.

Bury the needle going to the bottom position of the needle bar stroke and continue until the needle comes up 1/8 inch.

Stop and lift the foot to twist the sewn assembly and make a direction change. Drop the presser feet and continue sewing. Follow these directions to avoid badly tensioned corner stitches and reduce the chance of a skipped stitch.

3. Not Enough Foot Pressure

Materials like dense, vegetable tanned leather, can make the withdrawal of the needle from the material difficult.

If the presser foot is being lifted as the needle comes out of the leather the loop that the needle forms will be too small.

Increase the downward pressure on the presser foot by tightening the pressure regulating thumb screw (p. 38, **58**).

4. Burred Gib Hook or Retaining Ring Cap Spring (68)

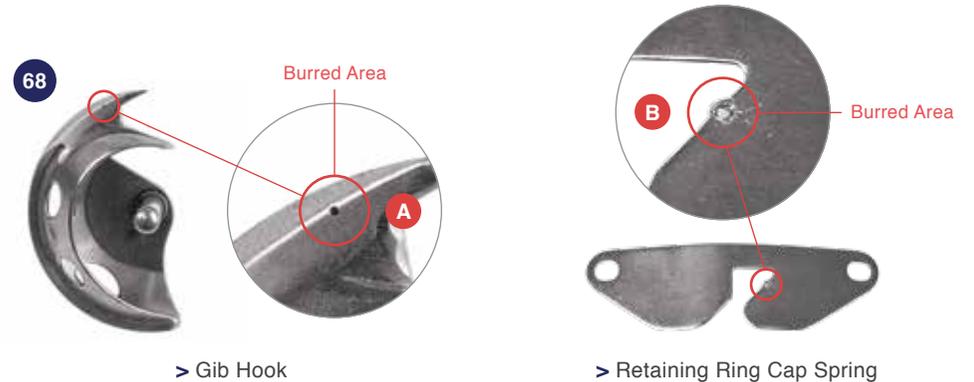
A needle strike to the gib hook (**A**) or the edge of the retaining ring cap spring’s “triangular” opening (**B**) may result in a burr which can cause the thread to snag as it pulls through.

Remove any burrs by polishing them with emery paper or a fine file. If badly damaged, replace with a new retaining ring cap spring (#1603). One spare cap spring is included.

5. Machine Has Gone Out of Timing

If skipped stitches continue, the machine has probably gone out of timing. The timing is checked by determining the relationship of the needle to the gib hook point.

To reset the timing on your Stitch Master, follow the steps outlined on p. 58 “Stitch Master Timing”.



Thread Issues

Thread is shredding, balling or breaking:

There are a number of causes for breaking thread. Start with Step 1 and stop as soon as the problem is resolved.

1. Incorrectly Installed or Damaged Needle

Make sure your needle is installed correctly (p. 26, **41**, **42** & **43**). Carefully inspect the needle for burrs, warping or damage to the point that may be causing needle deflection and shredding the thread. Bent or damaged needles must be replaced.

2. Wrong Needle Type

Use of the wrong needle type can contribute to thread shredding issues. Always use a leather “diamond point” needle when sewing leather or other non-woven materials (system numbers 135X16 or DPX16). Always use a diamond needle for two or more layers of hard leather for better thread entry and material condition.

3. Incompatible Needle Size & Thread Weight

If the thread is too thick for the needle it will not pass through the needle eye and form a loop and will instead ball at the needle. Check the compatibility of the needle size and thread weight (p. 24).

4. Burred Gib Hook or Retaining Ring Cap Spring

A needle strike to the gib hook or the edge of the retaining ring cap spring’s “triangular” opening may result in a burr which can cause the thread to snag as it pulls through (p. 50, **68 A & B**). Remove any burrs by polishing them with emery paper or a fine file. If badly damaged, replace with a new retaining ring cap spring (#1603) and/or new gib hook (#9601).

5. Machine Has Gone Out of Timing

If the machine is out of timing it may cause the gib hook point to cut or shred the thread. To reset the timing on your Stitch Master, follow the steps outlined on p. 58 “Stitch Master Timing”.

There are thread loops on the underside of the material:

A tangle on the bottom side of the material means there is not enough upper tension. More than likely, the thread is not being pulled snugly between the tension disks (p. 47, **66 E & F**) on the upper tension assembly or is not between them at all.

1. Lift the presser foot (to push the two tension disks apart) (p. 34, **54**).
2. Firmly pull the thread against the center shaft between the disks.
3. Drop the presser foot. The disks should close on the thread creating plenty of tension. Gently pull on the thread to feel the tension.
4. If this did not solve the problem, pull the cover knob off the upper tension assembly and turn the knob found underneath to the point where its outer surface has three threads of the end of the tension post showing. Then repeat steps 1–3.

Thread loops could also be caused by a burr on the retaining ring cap spring (p. 50, **68 B**). Remove any burrs by polishing them with emery paper or a fine file. If badly damaged, replace with a new retaining ring cap spring (#1603).

Thread pulls out of the needle eye when starting to sew:

Confirm that the needle eye is threaded from left to right (p. 29, **47 I**). Then pull out a longer thread tail and trap it with your finger to the bed of the sewing machine. Release the thread tail after the first few stitches.

A rat's nest forms in the first few inches of sewing and then clears up:

Eliminate this formation by trapping the thread tails from the needle and the bobbin to the bed of the sewing machine as you start to sew.

When stopping to turn a corner, the machine skips a stitch even with the needle buried:

Bury the needle to the bottom of its travel and allow it to rise 1/8 inch. In this spot, raise the presser foot and then pivot the work on the needle to change sewing direction. Drop the foot to continue sewing. Follow this process to achieve the best quality corner stitch and minimize skipping of stitches at turns.

When removing fabric from under the machine it pulls hard and three strands of thread come up through the throat plate:

Typically this happens when material is being removed during the middle of a stitch. The hook under the machine still has a loop of thread around it.

Before removing material from under the machine, manually turn the machine forward until the take-up arm has just passed the top of its travel. This allows the hook to release the thread loop and proper upper tension to be applied to finish the stitch (see p. 39).

Needle Issues

The needle is breaking:

Ensure the needle is large enough for the thickness and type of leather being sewn. Also make sure the point of the needle is the correct type for the material being sewn.

Needles will also snap if there are jams or tangles in the bobbin. Before installing your bobbin make sure it is wound correctly and unwinds smoothly.

The needle hits the needle throat plate when reversing sewing directions:

This is most likely caused by a bent needle. To avoid bending needles when changing sewing direction, stop the machine with the needle positioned either at the top or bottom of its stroke. When the needle is completely up, the foot can move the material but cannot bend the needle. When the needle is completely down, the outer portion of the walking presser foot is up and cannot move the material which also would bend the needle.

The Power Plus™ Flywheel rotates, but the needle does not penetrate the fabric:

The Posi-Pin® clutch may slip if the pin is not pushed all the way into the bushing hole that locks the bushing to the Power Plus Flywheel or if the bushing itself is loose.

1. Make sure the spring-pin is properly inserted.
2. If slipping still occurs, remove the Posi-Pin nut (p. 77, **2**), pull out the spring-pin (**1, 3 & 5**), and slide the Power Plus Flywheel (**6**) off the bushing.
3. Use a 2.5mm Allen wrench to tighten the two set screws (**17**) that fasten the bushing to the machine's upper shaft, then reinstall the Power Plus Flywheel and check for proper operation.

Bobbin Winding Issues

The bobbin is not filling evenly, either too much thread on the top or bottom:

Refer to p. 27 on “Winding Bobbins”. Locate the bobbin tensioner (p. 27, **44 C**) and loosen the screw just under the tensioner on the front of the machine. Move the tensioner down if the bobbin is filling with too much thread on the top. Move the tensioner up if there is too much thread on the bottom. Tighten the screw after correct positioning.

The bobbin winder stops before the bobbin is full or after the bobbin has too much thread:

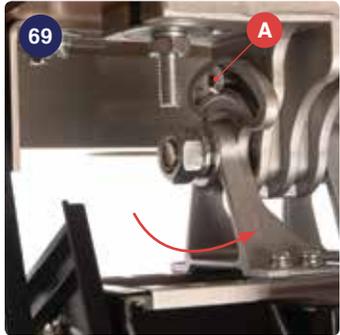
There is a bobbin stop (p. 67, **3**) right next to the bobbin winder. It disengages the bobbin winder when a certain thread level is reached. Simply loosen the screw found on top of the black lobe and turn the stop to change the thread level. Turning it will either push the bobbin away earlier or later. Tighten the screw once the correct position is found.

Belt Issues

The belts slip or come off the pulleys:

If belts stretch after prolonged use, you may need to adjust the belt tension. To do this, loosen the screw (A) in the curved slot above the motor (pulley end) in the aluminum bracket (69). Pivoting the motor back will tighten the belt between the motor and the idler pulley, which is attached under the table top.

If the longer belt also requires adjustment, it should be done first. Move the idler pulley down to tighten the long belt. To do so, loosen the pulley shaft (B) using the box wrench provided and slide the pulley on its bracket (70). Tighten when done.



Stitch Master Timing

The timing of your machine is determined by the relationship of the needle to the gib hook. The gib hook picks up the upper thread at the needle and carries it down around the bottom of the bobbin case where the upper thread loop is pulled tight by the take up arm above the needle bar.

Starting on p. 59, follow these steps to adjust the timing on your Stitch Master:

About the Class 15 Shuttle Hook System

The Stitch Master has a class 15 shuttle hook system. In this system the gib hook oscillates back and forth around the bobbin case in half turns (71) carrying the upper thread around the bottom of the bobbin case. Once this is completed, the hook reverses direction and returns to its original location. This movement is geared by a simple yoke and cam arrangement on the top shaft of the machine. It is a relatively simple design but is both reliable and satisfactory for leather work.



Check the Needle Bar Height

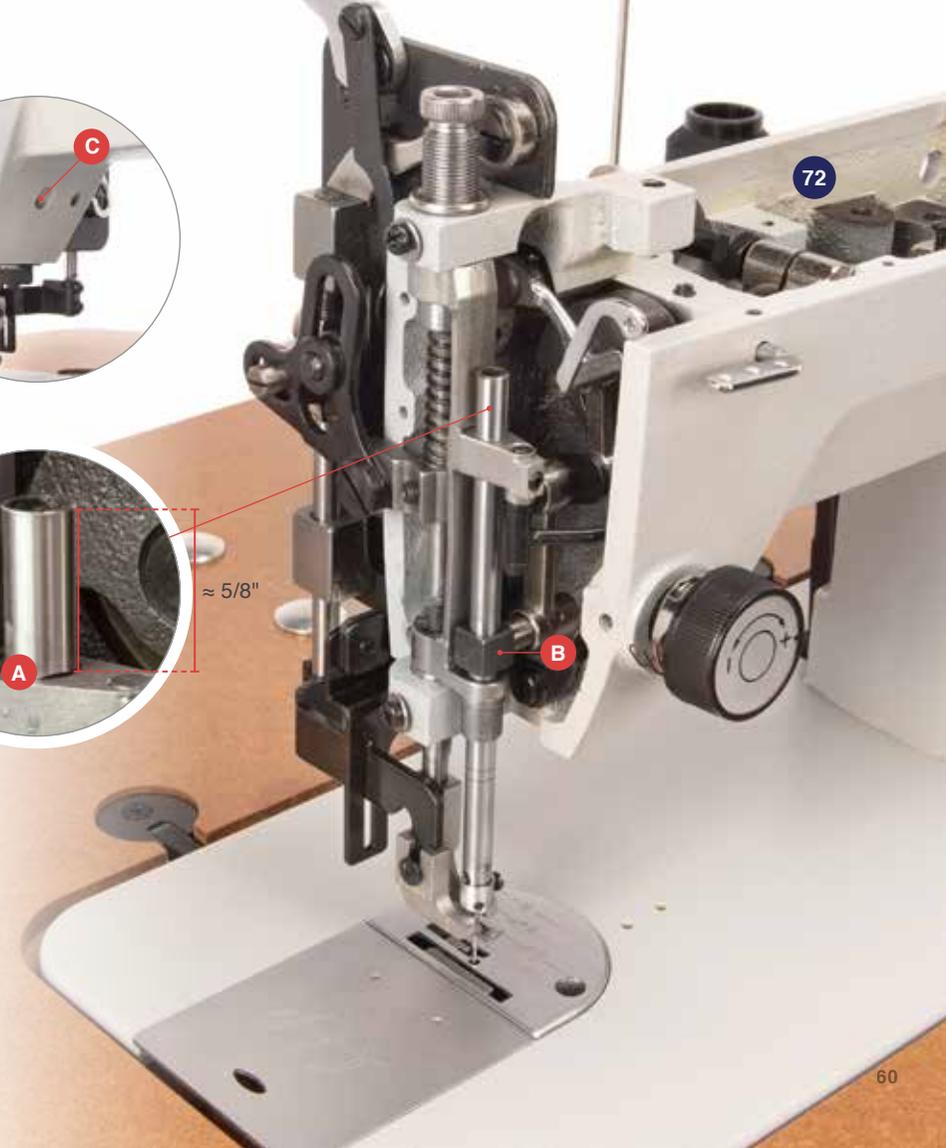
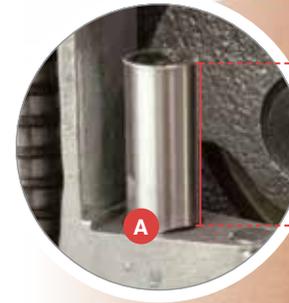
1. Remove the left end cover of the sewing machine as shown (72).
2. Manually lower the needle bar to its lowest position by turning the Power Plus™ Flywheel toward you.
3. We mark the proper height of the needle bar for your machine by putting a small scratch on the needle bar (A). Check to see if the mark is level with the top surface of the upper needle bar guide.

If aligned properly, the needle bar is set correctly. If not, continue on to adjust the needle bar height.

4. Manually operate the machine to move the needle bar to the bottom of its stroke (all the way down). Unlock the needle bar from the drive collar by loosening the set screw located either in the front or the side of the pillow block (B). If the screw is in the side of the pillow block, it can be accessed through a hole in the machine casting (C).
5. With the needle bar at the bottom of its stroke, reposition the needle bar so the mark lines up with the top surface of the upper needle bar guide. Gently twist the

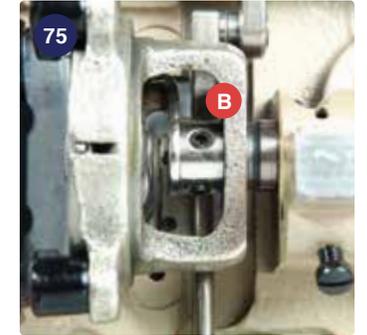
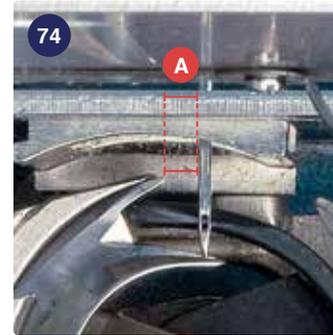
needle bar up or down to position the mark making sure the screw that secures the needle is facing the inside of the sewing machine arm. Tighten the drive collar set screw very tightly.

If your Stitch Master is still not performing properly after adjusting the needle bar height, proceed to check the rotational timing.



Hook/Driver Gap

Oscillating hook sewing machines have loose tolerances between the Shuttle Gib Hook and the Shuttle Driver. This play between the parts is intentional and allows the Stitch Master to sew heavier denier threads than many larger rotary hook machines. The typical gap between parts is 0.04" (73).



Check the Rotational Timing of the Shuttle Gib Hook

The shuttle gib hook (p. 71, 16) is driven by the shuttle driver (15). To change the rotation of the hook, the driver must be repositioned on the lower shaft (14).

1. Turn the Power Plus™ Flywheel so the gib hook point is at its furthest position counterclockwise (74).
2. Measure the distance between the gib hook point and the needle. The driver is correctly positioned when the point is between 1/8 inch and 3/16 inch counterclockwise of the needle with the hook held fully counterclockwise, closing the gap mentioned in the prior section (A).
3. The driver is secured to the lower shaft with two set screws (75). Loosen the screws (B) and gently twist the shuttle driver. Keep the driver from sliding left or right on the shaft. If the fit is tight, carefully use a screwdriver as leverage.

After adjusting the rotational timing of the gib hook, you may need to adjust the rotational positioning of the shuttle race guide shaft or the left-right positioning of the shuttle gib hook.

If spaced properly, the driver is set correctly. If not, continue on to adjust the driver.

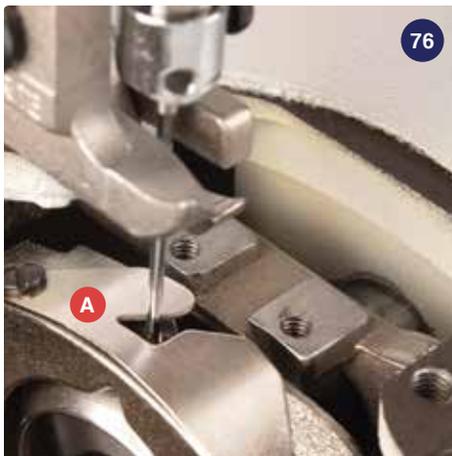
Check the Rotational Positioning of the Shuttle Race Guide Shaft

Before making any adjustments to the left-right positioning of the shuttle assembly, check the rotational positioning of the shuttle race guide shaft.

1. Remove the needle plate (p. 67, **17**) and feed dog (p. 73, **18**).
2. Remove the bobbin case.
3. Rotate the Power Plus™ Flywheel until the needle enters the shuttle (**76**).

If positioned properly, the needle is centered in the “triangular” opening of the retaining ring cap spring from front to back (A). If not, you'll need to adjust the rotational positioning of the shuttle race guide shaft.

4. Loosen the compressible timing clamp screw (p. 66, **78 C**) just a little.
5. Twist the shuttle race guide shaft carefully without moving it left or right. If it will not



move, loosen the compressible timing clamp screw a little more.

6. Verify that the needle is now positioned correctly within the retaining ring cap spring.
7. Tighten the compressible timing clamp screw.

Check the Left-Right Positioning of the Shuttle Gib Hook

If the shuttle assembly and lower shaft have slipped left or right of the factory setting, the gib hook will not be in position to catch the loop. Fortunately, this is an adjustment that rarely requires attention.

1. Re-install the gib hook (p. 48)
2. Make sure you have a #20 needle installed.
3. Remove the presser foot, needle plate and feed dog.
4. Looking from the top down in to the machine (**77**), slowly rotate the Power Plus Flywheel. As the gib hook swings past the needle, the hook should be as close as possible to the right side of the needle without deflecting it (**A**).

If the gap between the needle and the hook is too large, the hook must be moved to the left to close the gap.

If the needle is being deflected by the hook, then the hook must be moved to the right.



> For the sake of clarity (**77**) shows the machine without the retaining ring installed. While this makes it easier to see the timing, the hook must be held in place with light finger pressure to keep it from falling out of the shuttle assembly when rotating the Power Plus Flywheel.

Adjusting the Left-Right Positioning of the Shuttle Gib Hook

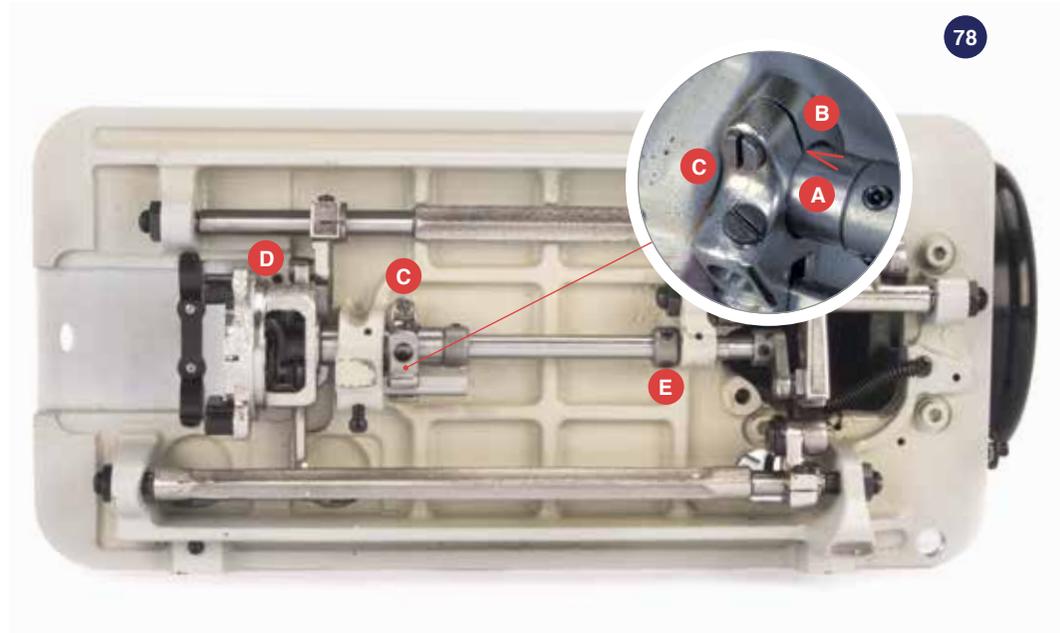
1. Make a mark on the shuttle race guide shaft (p. 66, **78 A**) where the halves of the compressible clamp meet (**B**). If the shaft should accidentally rotate, realign the mark with the clamp gap.

To move the hook to the left —

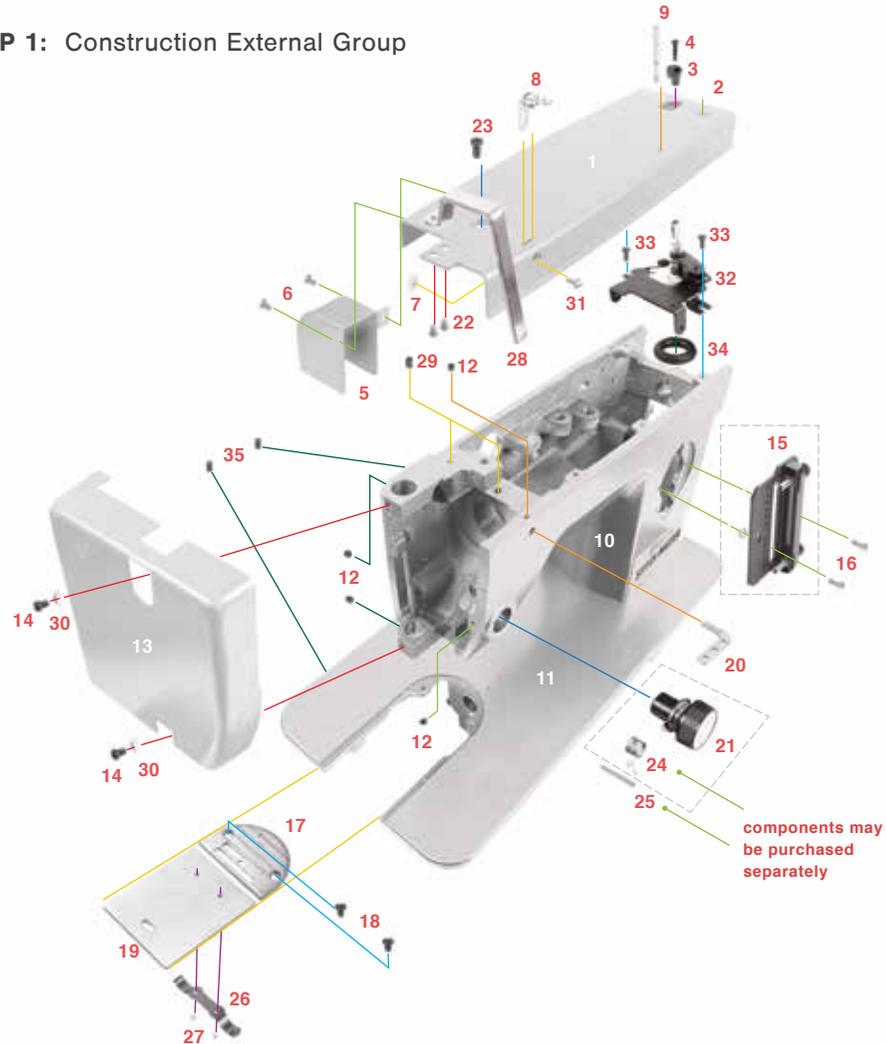
2. Incrementally loosen the compressible timing clamp screw (**C**) on the compressible timing clamp until light taps will move the shuttle assembly. Carefully move the shuttle assembly (**D**) to the left.
3. Move the assembly to position the hook as close to the needle as possible without deflecting (p. 64, **77**).
4. With the clamp gap (**B**) and reference mark (**A**) aligned, hold the clamp to the far left firmly against the cast iron foot and tighten its screw (**C**).
5. Holding the gib hook in place, loosen the right collar (**E**) and move it as far right as possible just resting on the frame.
6. Tighten the two collar screws. There should be practically no side-to-side play in the center shaft.

To move the hook to the right —

7. Loosen the two screws in the right collar (**E**) and move it to the left on its shaft and move the shuttle assembly (**D**) to the right.
8. Move the assembly to position the hook as close to the needle as possible without deflecting (p. 64, **77**).
9. Holding the correct position of the shaft move the right collar (**E**) as far right as possible just resting on the frame and tighten its screws.
10. Holding the gib hook in place, loosen the compressible timing clamp screw and move the timing clamp all the way to the left.
11. With the clamp gap (**B**) and reference mark (**A**) aligned, tighten the clamp screw (**C**). There should be practically no side-to-side play in the shaft.

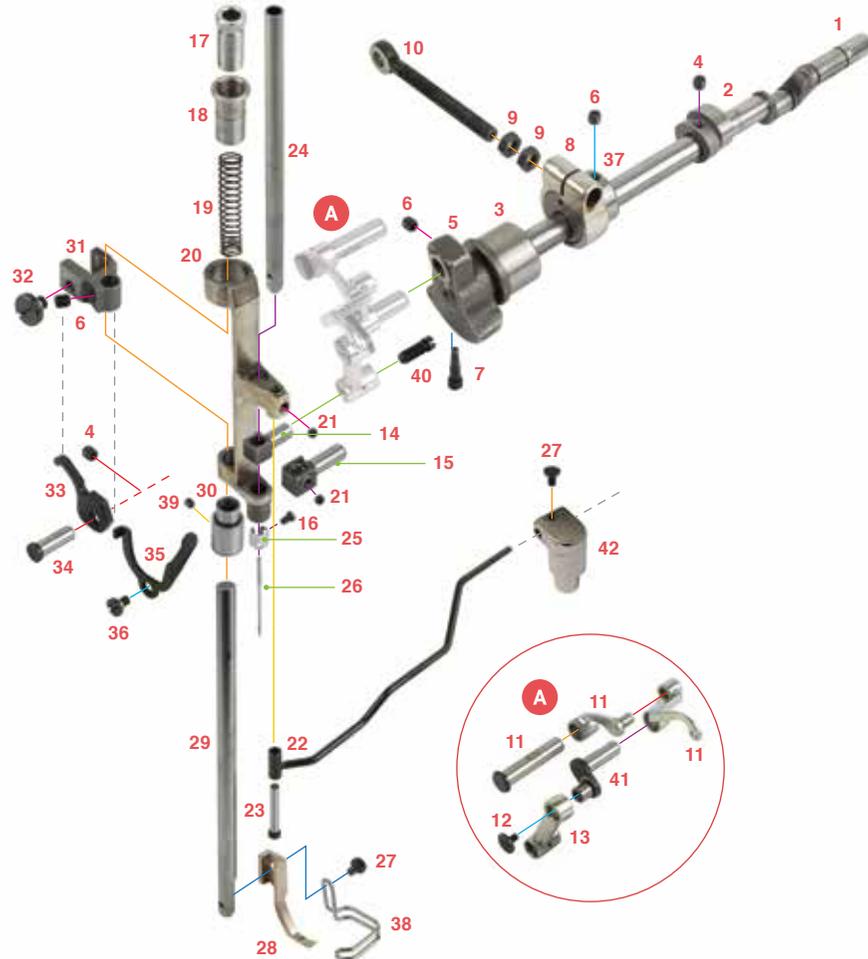


GROUP 1: Construction External Group



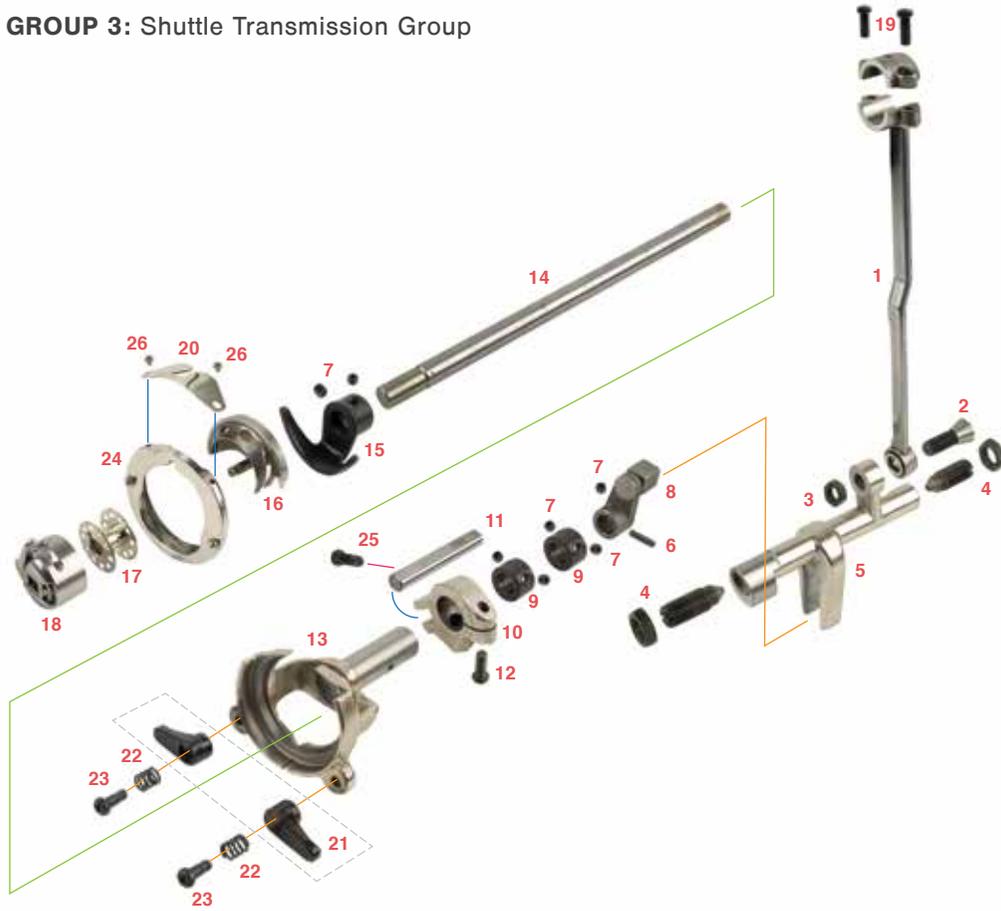
KEY PART NAME	PART #	KEY PART NAME	PART #
1 Top Plate _____	121530	24 Thread Take-Up Spring (included in 21) _____	5332
2 Top Plate Screw _____	B071	25 Tension Release Pin _____	W184-2
3 Bobbin Winder Stopper _____	E066	26 Shuttle Race Slide Spring _____	A049
4 Bobbin Winder Stopper Screw _____	E066-2	27 Shuttle Race Slide Spring Screw _____	A050
5 Small Plate Cover _____	121531	28 Take Up Arm Guard _____	102626
6 Screw _____	100577	29 Set Screw _____	A012
7 Bobbin Winder Assembly Nut _____	E070-1	30 Left End Plate Washer _____	103252
8 Bobbin Winder Assembly _____	E070	31 Bobbin Winder Assembly Screw _____	103255
9 Spool Pin _____	149	32 Bobbin Winder _____	W030
10 Arm Body _____	N/A	33 Bobbin Winder Set Screw _____	B010
11 Bed _____	N/A	34 Bobbin Winder Ring _____	120181
12 Set Screw _____	103640	35 Hinge Pin Set Screw _____	120061
13 Left End Plate _____	121532		
14 Screw _____	C097		
15 EZ Set™ Stitch Length Plate _____	105511		
16 Stitch Length Plate Screw _____	103263		
17 Needle Plate (5mm) _____	W032		
18 Needle Plate Screw _____	A052		
19 Shuttle Race Slide Plate _____	121534		
20 Three Hole Thread Guide _____	W029		
21 Upper Tension Assembly (includes 24) _____	8511		
22 Thread Guard Screw _____	103253		
23 Top Plate Set Screw _____	E072		

GROUP 2: Sewing Transmission Group



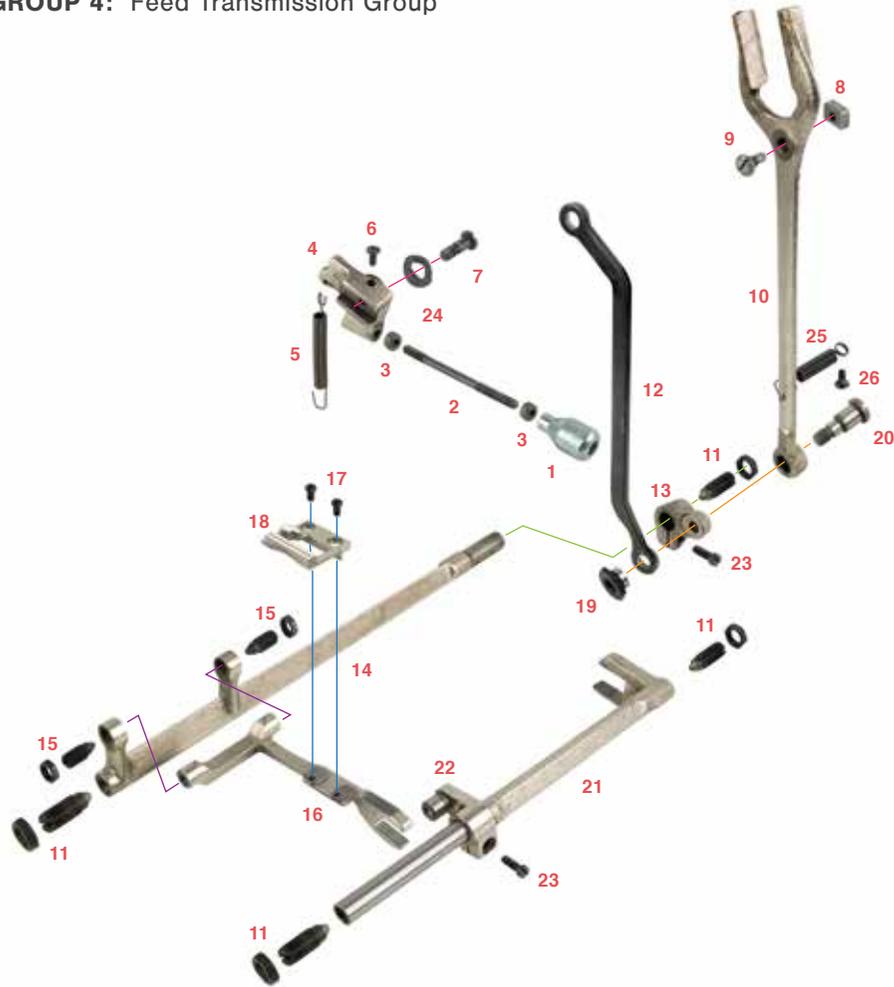
KEY PART NAME	PART #	KEY PART NAME	PART #
1 Arm Shaft	E053	28 Inside Presser Foot	W012
2 Feed Cam	B007	29 Presser Bar	A035-1
3 Arm Shaft Bushing	B051	30 Presser Bar Lower Bushing	B028
4 Set Screw	A012	31 Presser Bar Bracket	W039
5 Thread Take-Up Lever Cam	B048	32 Presser Bar Feed Actuator Pivot Screw	103257
6 Thread Take-Up Assembly Set Screw	A029	33 Tension Release Lever Drag Link	W043
7 Thread Take-Up Lever Cam Screw	103256	34 Tension Release Lever Drag Link Set Pin	D020
8 Crank Rod Lever Cam Follower	W028-4	35 Tension Release Lever	W045
9 Crank Rod Lever Cam Follower Adjust Nut	W028-2	36 Tension Release Lever Set Screw	B046
10 Crank Rod Lever Cam Follower Bolt	W028-1	37 Presser Bar Actuator Cam	W065
11 Thread Take-Up Assembly	E020	38 Needle Guard (220-240 Volt Stitch Master® Only)	102627
12 Needle Bar Connecting Rod Set Screw - Reverse Thread	E020-2	39 Set Screw	W052-1
13 Needle Bar Connecting Rod	B018	40 Needle Bar Set Screw with 2.5mm Hex Head	121695
14 Needle Bar Connecting Stud	A042S	41 Needle Crank Arm	103269
15 Needle Bar Connecting Stud (Face Screw Alternate)	A042	42 Connecting Rod Set Base	W016
16 Needle Screw	A092		
17 Presser Regulating Thumb Screw	A031		
18 Presser Regulating Thumb Screw Socket	W010		
19 Presser Bar Spring	A032		
20 Needle Bar Support	B016		
21 Needle Bar Set Screw	D097		
22 Zigzag Connecting Rod	W015		
23 Needle Bar Connecting Joint Pin	B099		
24 Needle Bar	W066		
25 Needle Thread Guide	W067		
26 Needle (135X16)	N/A		
27 Presser Foot Screw	A036		

GROUP 3: Shuttle Transmission Group



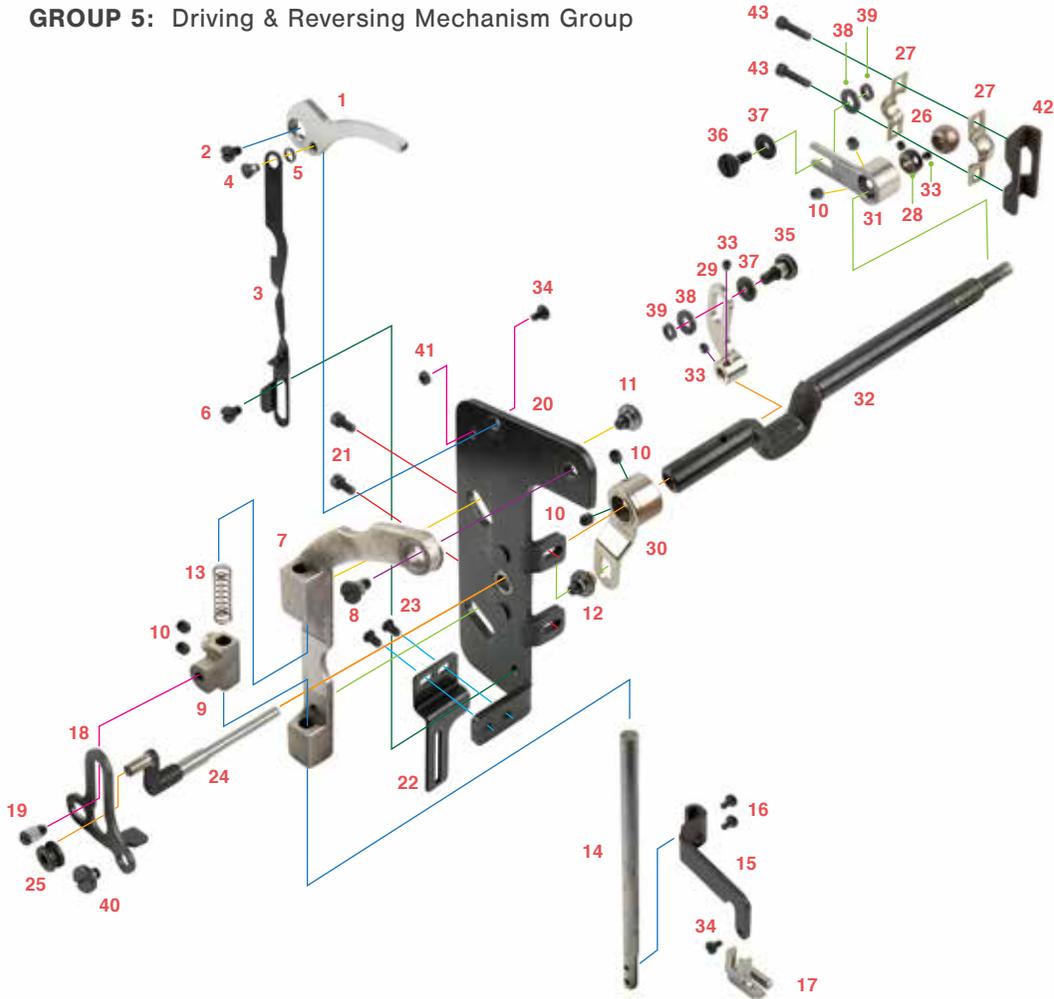
KEY PART NAME	PART #	KEY PART NAME	PART #
1 Crank Connecting Rod	B139	22 Retaining Ring Clip Spring	103273
2 Crank Connecting Rod Set Screw	A027A	23 Retaining Ring Clip Screw	103274
3 Crank Connecting Rod Set Nut	A027B	24 Retaining Ring	102241
4 Oscillating Shaft Set Screw & Nut	A023	25 Timing Clamp Pin Screw	103259
5 Oscillating Shaft	A024	26 Retaining Ring Screw	102496
6 Oscillating Shaft Crank Set Pin	A018		
7 Set Screw	103640		
8 Oscillating Shaft Crank With Slide Block	B179		
9 Lower Shaft Collar	B177		
10 Compressible Timing Clamp	B155		
11 Compressible Timing Clamp Pin	A084		
12 Compressible Timing Clamp Screw	B153		
13 Shuttle Race Guide Shaft	B170		
14 Lower Shaft	B172		
15 Shuttle Driver	W172		
16 Shuttle Gib Hook	9601		
17 Bobbin	123100		
18 Bobbin Case Assembly	1232		
19 Screw	B139-2		
20 Retaining Ring Cap Spring	1603		
21 Retaining Ring Clip Set	123011		

GROUP 4: Feed Transmission Group



KEY PART NAME	PART #	KEY PART NAME	PART #
1 Feed Regulator Thumb Nut	W109	24 Feed Regulator Wavy Washer	A067
2 Feed Regulator Lever	W105	25 Forked Rod Support Spring	B103U
3 Feed Regulator Lever Nut	A053B-2	26 Forked Rod Support Spring Screw	B103US
4 Feed Regulator	W107		
5 Feed Regulator Spring	W106		
6 Feed Regulator Screw	B010		
7 Feed Regulator Pivot Screw	W108		
8 Feed Connection Slide Block	A069B		
9 Feed Connection Slide Block Stud	A069A		
10 Forked Rod	B103		
11 Oscillating Shaft Set Screw and Nut	A023		
12 Driving Crank	W046		
13 Feed Rock Shaft Crank	A071B		
14 Feed Rock Shaft	A071A		
15 Feed Bar Center Screw & Nut	A076		
16 Feed Bar	A075		
17 Feed Dog Screw	A078		
18 Feed Dog	121265		
19 Driving Crank Guide Nut	W046-1		
20 Driving Crank Guide Screw	A061		
21 Feed Lifting Rock Shaft	A072		
22 Feed Lifting Rock Shaft Crank	A073		
23 Screw	B139-2		

GROUP 5: Driving & Reversing Mechanism Group



KEY PART NAME	PART #	KEY PART NAME	PART #
1 Presser Foot Lift Lever	W042	24 Presser Bar Feed Rod	W036
2 Presser Foot Lift Lever Hinge Screw	W042-3	25 Presser Bar Actuator Spacer	W024-1
3 Lift Bar	W026	26 Bearing Bracket Bushing	W021
4 Upper Lift Bar Screw	W042-2	27 Lift Crank Rod Bearing Plate	W023
5 Spacer	W042-1	28 Rocker End Set Ring	W052
6 Lift Bar Guide Screw	W026-1	29 Presser Bar Actuator Rocker	W033
7 Presser Bar Track	W018	30 Presser Bar Actuator Feed Rocker	W034
8 Presser Bar Track Hinge Screw	W018-1	31 Crank Rod Rocker	W035
9 Rear Presser Bar Bracket	W020	32 Crank Rod	W053
10 Set Screw	A029	33 Set Screw	103640
11 Presser Bar Track Guide Screw	W018-2	34 Screw	A036 or 100576
12 Presser Bar Track Feed Stud	W018-3	35 Presser Bar Actuator Rocker Screw	103272
13 Presser Bar Load Spring (Rear)	W019-1	36 Guide Screw	W046-2
14 Rear Presser Bar	W019	37 Lock Spacer	W046-3
15 Outside Presser Foot Bracket	W017	38 Washer	W046-4
16 Screw	B010	39 Lock Nut	A061-B
17 Outside Presser Foot	120183	40 Presser Bar Actuator Pivot Screw	103257
18 Presser Bar Actuator	W024	41 Presser Foot Lift Lever Stop Nut	103267
19 Presser Bar Actuator Feed Screw	W020-1	42 Crank Rod Bearing Set Base	W025
20 End Plate	W041	43 Crank Rod Bearing Set Base Screw	W025-1
21 End Plate Set Screw	W041-1		
22 Presser Foot Bracket Limiter	W014		
23 Screw	C097		



KEY PART NAME	PART #
---------------	--------

- | | | |
|----|-----------------------------------|---|
| 1 | Legs for Stitch Master® _____ | 121455 |
| 2 | Workhorse™ Servo Motor | 121616 (110V)
or 121617 (220-240V European Union)
or 121618 (220-240V Australia)
or 121619 (220-240V United Kingdom) |
| 3 | Oil Tray _____ | 120864 |
| 4 | Table Top for Stitch Master _____ | 121454 |
| 5 | Support Pin _____ | 120866 |
| 6 | Thread Stand _____ | 18303 |
| 7 | Hinge _____ | 432100 |
| 8 | Flat Head Wood Screw _____ | 103528 |
| 9 | Flat Head Screw _____ | 120462 |
| 10 | LED Light _____ | 121551 (110V)
or 121552 (220-240V European Union)
or 121553 (220-240V Australia)
or 121554 (220-240V United Kingdom) |

Stitch Master Specifications

Max. Sewing Speed	Stitch-by-Stitch up to 412 stitches/minute	Needle Size Range	#10-22
Shuttle	Oscillating (Cam/Rocker Arm Driven)	Thread Range	Home Sizes to V-92 (T-90)
Max. Straight Stitch Length	6mm	Voltage	110-120V or 220-240V (check motor to confirm voltage)
Needle Bar Stroke	34mm	H.P.	0.75
Needle System	135 x 17, 135 x 16	Power	550W
Bed Size	14.5" x 7"	Power Consumption	4.5 amps
Underarm Space	7" x 4.5"	Motor RPM	4,500
Presser Foot Lift	3/8" (0.375")	Speed Control	Digital
Bobbin Size	Class 15/ Style A (20.5mm Dia. x 10.8mm H)	Motor Dimensions (Bracket Included)	9.75" L x 9" H x 6" W

Workhorse™ Servo Motor Error Codes

ERROR CODE (WILL SHOW ON LED DISPLAY)	SOLUTION
"E1": Operational failure	Machine is locked. Check to see if the machine is difficult to turn by hand with the Power Plus™ Flywheel. Remove material and attempt to operate, if it works, material was too heavy for motor.
"E2": Over current or under voltage	Check the power source to ensure that the motor voltage matches the outlet voltage.
"E3": The board cannot read the parameter.	Turn the power off and on twice, and try again. If the problem still occurs, contact Sailrite®.
"E4": Hall signal error	Replace the main fuse. To do this, turn off and unplug the motor, remove the front external plastic cover and replace the main fuse with one of the extras sent with the motor. If the problem continues to persist, please contact Sailrite.
"E5": Needle position problem	<ol style="list-style-type: none"> 1. Press and release the "S" button and the LED display will change to "P." 2. Press the "P" button 2 times and the display will change to "n1." 3. Press the "S" button and the display will change to "1." 4. Press the "S" button again and the display will change to "0" (disable needle positioner). 5. Press the "P" button to save the value. 6. Turn the power off and then on again to complete the programming.

Stitch Master Speed Settings

With Sailrite® Power Plus™ Flywheel and Workhorse™ Servo Motor with 21-Tooth Pulley

SPEED SETTING	WORKHORSE SPM	SPEED SETTING	WORKHORSE SPM	SPEED SETTING	WORKHORSE SPM
5	45	19	174	33	302
6	55	20	183	34	311
7	64	21	192	35	320
8	73	22	201	36	330
9	82	23	210	37	339
10	91	24	220	38	348
11	100	25	229	39	357
12	110	26	238	40	366
13	119	27	247	41	375
14	128	28	256	42	385
15	137	29	265	43	394
16	146	30	275	44	403
17	155	31	284	45	412
18	165	32	293		

Warranty and Customer Service Policy

Sailrite will do their best to satisfy every support request accurately, completely and in a timely fashion. The Stitch Master Sewing Machine comes with personalized support for the lifetime of the machine and motor. A 2-year limited warranty, to the original purchaser, covers replacement parts (excluding consumable items, like needles) starting at the date of sale. Sailrite support comes in several forms and generally in this order (as required):

1. Creation of a support case to be assigned to a machine technician.
2. Email answers with relevant videos for resolution.
3. Phone support with a qualified technician.
4. Shipment of warranty parts for user installation.
5. Repair/service of actual product at our facility.

In the event that a machine must be sent in for repairs/service, the machine owner will pay to return just the machine head, insured, to Sailrite in Indiana (or motor, etc.). Sailrite will pay the return shipping after resolution of any issues that cannot be solved in steps 1 through 4 above. The warranted component should be shipped in the original packaging to ensure safe transport. This policy is exclusive to the contiguous United States and Canada. Sailrite will work diligently to solve issues with machines in more distant locations to avoid shipping issues. But should shipping be required, shipping charges will be the machine owner's responsibility. Sailrite will ship warranty parts at no charge, regardless of destination.

Customer Service Questions or Concerns

Support: [Sailrite.com/stitchmaster](https://www.sailrite.com/stitchmaster)
 Email: stitchmaster@sailrite.com

The Stitch Master Sewing Machine and Sailrite Workhorse Servo Motor's limited warranty does not cover any damage that results from improper installation, accident, abuse, misuse, natural disaster, insufficient/excessive electrical supply, abnormal mechanical or environmental conditions, wear and tear resulting from normal use of the product, or any unauthorized disassembly, repair, or modification. This limited warranty does not extend to any indirect, consequential or incidental damages that may be suffered by a user or from the use of the motor, including without limitation, any liability for third party claims for damage, and is limited to the amount paid by the original purchaser with respect to which this limited warranty protection applies. This limited warranty does not apply with respect to products that have been altered or which are missing serial numbers or for products not purchased directly from Sailrite or a dealer authorized by Sailrite. Tandy Leather, Inc. is Sailrite's authorized Stitch Master dealer. Any product returns/exchanges must be done with the original machine seller in accordance with their policies. Stitch Master Sewing Machines purchased from Tandy Leather must be returned/exchanged at Tandy Leather. Likewise, a machine purchased through Sailrite must be returned to Sailrite. Product support and service is provided by Sailrite Enterprises, Inc.



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Sailrite patent #7438009



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Guidebook for Craftool Pro Stitch Master
Sewing Machine

Qty: 1

Version V1-1