



SAILRITE

Est. 1969

ULTRAFEED[®] LS-1 & LSZ-1
GUIDEBOOK

SET-UP • USE • MAINTENANCE • TROUBLESHOOTING • SCHEMATICS



Welcome to Your Ultrafeed® Sewing Machine!

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

With the Ultrafeed, you can go from your home to the dock and sew up projects from sails and boat covers to upholstery. This guidebook will give you an in-depth look at your machine, all its power and features, as well as teach you proper use and maintenance and give helpful troubleshooting advice.

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Ultrafeed® Safety

Please observe the following when using your Sailrite 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, balance wheel, and belts.
4. Do not run the machine without its covers in place.
5. Do not stop the movement of the balance wheel with your hands.
6. Always use the proper voltage required for the motor.
7. Do not drop the machine.
8. Wear protective eye wear when sewing.
9. Wear shoes when operating the foot pedal.
10. Provide supervision when allowing children or those unfamiliar with the Ultrafeed® operations to use the machine.
11. Do not use the machine around flammable materials.
12. Do not use a plug adapter or extension cord that bypasses the ground pin.
13. When plugging the foot control wiring into the machine, be cautious to connect the receptacles correctly to avoid electric shock.

WARNING: Some products may be fabricated from materials which may contain chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

Ultrafeed® Set-Up

Thread

Ultrafeed® sewing machines can handle any polyester, nylon, cotton, Profilen or monofilament thread from general purpose to heavy-duty V-92.

Recommended needle sizes are roughly one size larger than those recommended for household machines.

THREAD SIZE	GOV. SIZE	TEXTILE SIZE	TENSILE STRENGTH	NEEDLE SIZE	FABRIC WEIGHT RECOMMENDED
Gen. Purpose	N/A	N/A	N/A	#10 or 12	< 6 oz.
V-30	AA	30	4.5 lb.	#12 or 14	< 1.5 oz.
V-46	B	45	7.1 lb.	#14 or 16	< 3 oz.
V-69	E	70	10.6 lb.	#16 or 18	3–6 oz. & Sunbrella
V-92	F	90	14.2 lb.	#18 or 20	6–10 oz. & Sunbrella
Profilen	N/A	N/A	6.7 lb.	#14 or 16	3–20 oz. & Sunbrella

This chart offers needle and thread size recommendations for sewing standard, woven fabrics. Needle and thread recommendations for sewing speciality fabrics are available online in our Thread & Needle Recommendation Guide, downloadable from every fabric detail page.

Needles

Ultrafeed® sewing machines require 135x17 needles sizes #12 to 22 or 135x16 leather needles, all available at Sailrite. A size #20 needle is used for most medium to heavy sewing.

Needle Types

Round point needles are used for most standard sewing. **Serv7 needles** are modified round point needles that have a humped scarf for optimal loop formation and prevent skipped stitches.



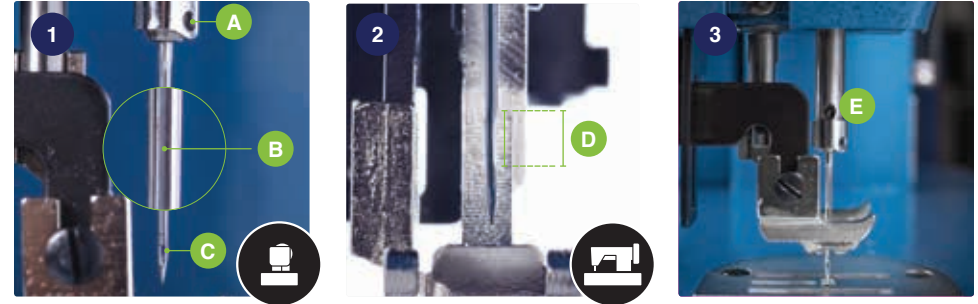
Ball point needles are specifically designed for use with knit or stretchy materials.



SD1 needles are optimized for sewing heavy, dense assemblies.



DI needles are ideal for working with leather.



Needle Installation

Ultrafeed® 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 (1 & 2). 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.

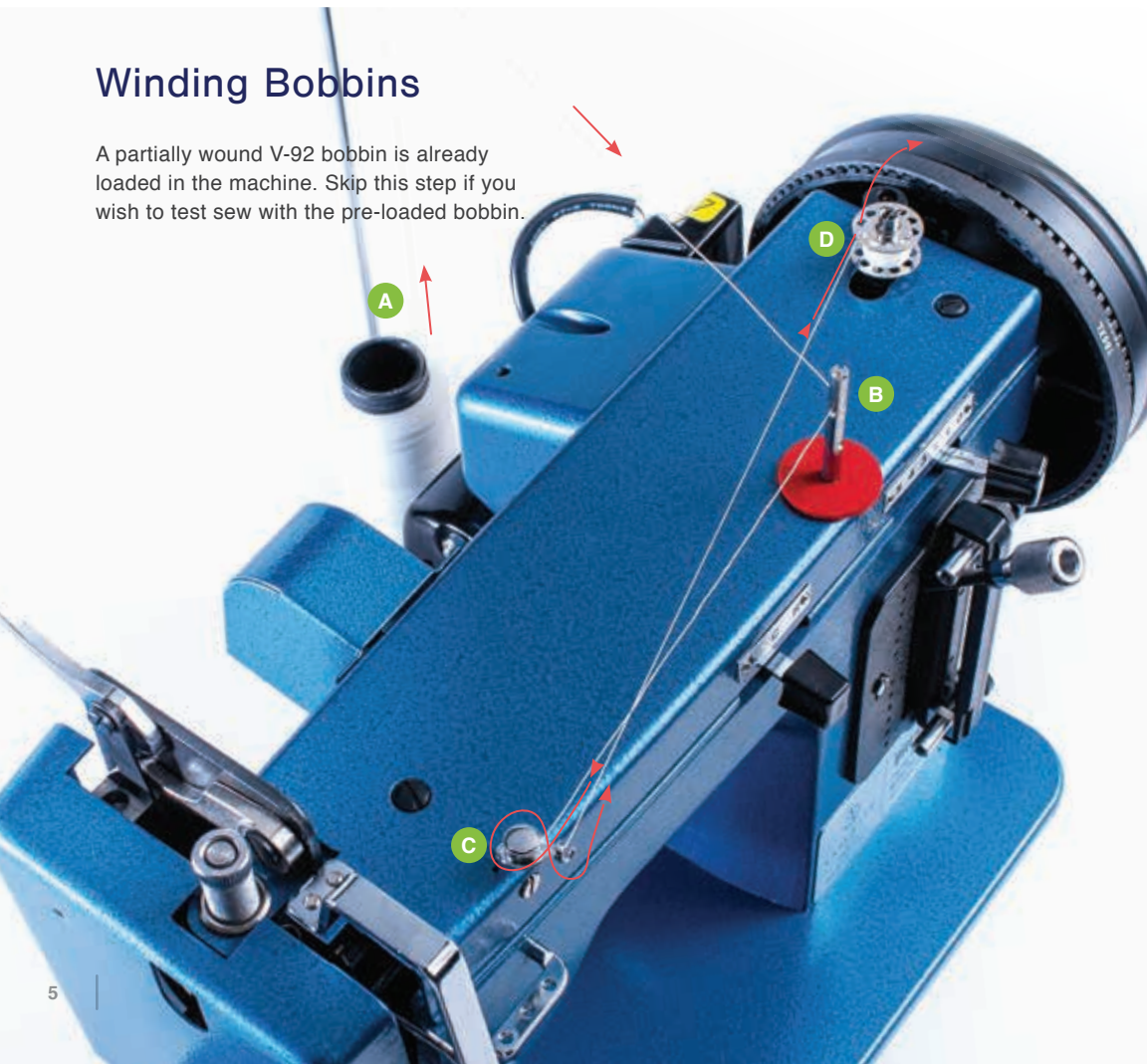
CAUTION: If the needle is inserted the wrong way, the machine will skip stitches and break thread.

To make sure your needle is inserted far enough, you can look through the sighting hole (3, 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 bobbin is already loaded in the machine. Skip this step if you wish to test sew with the pre-loaded bobbin.



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 (4).

Simply pull the pin out of the balance wheel and place it in the center hole as shown to store (5).

To continue sewing, re-engage the clutch:

1. Push the Posi-Pin gently into any of the three Posi-Pin holes in the balance wheel.
2. Rotate the balance wheel 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:

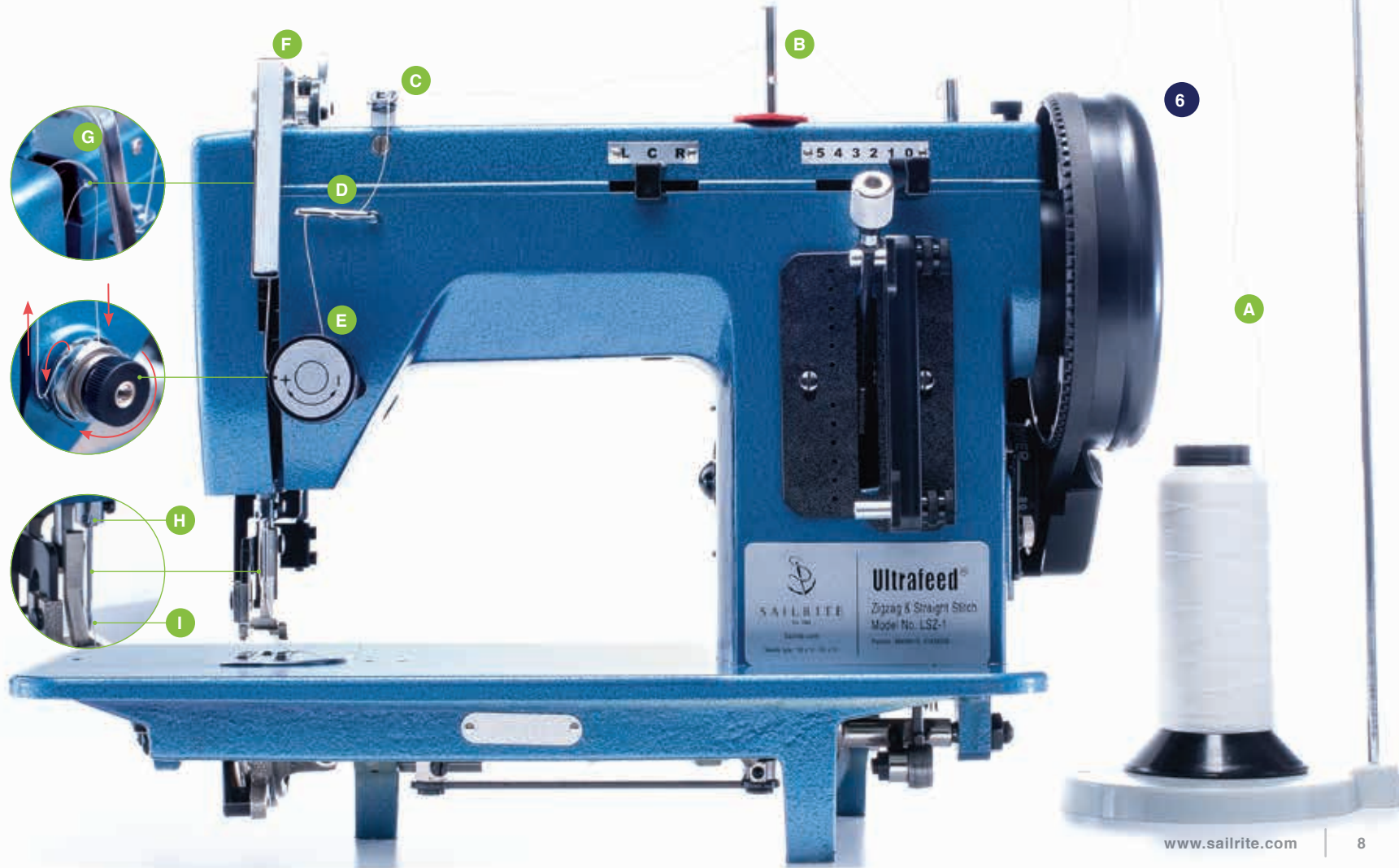
1. Thread comes off top of cone to thread stand arm (A).
2. Pass through thread post (B).
3. Wrap around bobbin tensioner (C).
4. Run under and up through a hole in top of bobbin (D). Place bobbin on post and push to the right. Hold onto thread tail briefly and power machine with the clutch disengaged 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

1. Thread comes off top of cone to thread stand arm (A).
2. Pass the thread through one hole in the thread post (most direct route to bobbin tensioner) (B). For home sewing, use the post to hold the thread spool.
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.
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 (7).

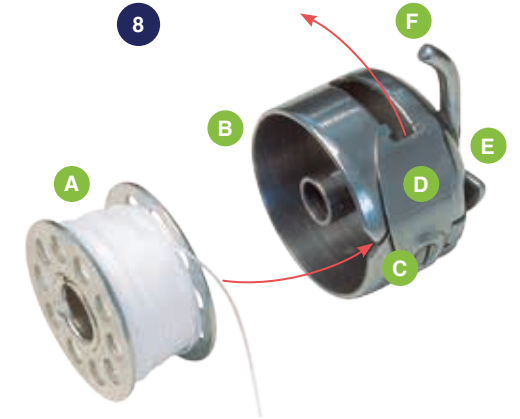
Removing — Lift the spring loaded lever (E) and pull the bobbin case out. With the lever held open the bobbin is captive in the bobbin case. Release the lever and the bobbin will fall out.

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).

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

Picking Up Bobbin Thread

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



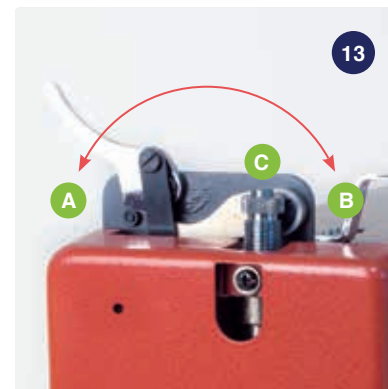
1. Hold the needle thread loosely to the side (9) and rotate the balance wheel toward you until the needle moves down and then back up.
2. As the needle nears its highest point, pull the needle thread gently. The bobbin thread should come up through the needle hole, with the needle thread, in the form of a loop (10).
3. Pass a screwdriver under the presser foot from right to left to pull the thread out away from the machine (11).
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 (12). Now you're ready to sew!

Using the Ultrafeed®

Ultrafeed® Sewing Machines arrive tuned and optimized for sewing heavy materials like sailcloth and marine canvas. If you want to sew lighter, home fabrics you will need to make adjustments to the machine, which are outlined in the Home Sewing section (p. 18).

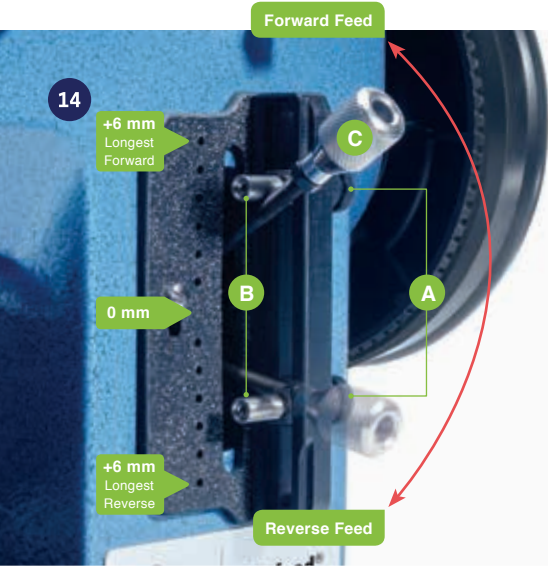
Starting to Sew

1. Plug the machine into an outlet.
2. Use the lift lever (13) 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.
4. To mark your starting position, you may want to rotate the balance wheel towards you until the needle is buried in the fabric.
5. Press the foot control pedal 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.



- 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 (14) 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 balance wheel 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 balance wheel toward you until the needle is at its lowest point. 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 fabric while the machine is at rest with the presser foot down may bend the needle.

Switching from Straight to Zigzag Stitch ●

The stitch width adjustment lever controls the stitch type as well as the width of your zigzag stitch (15). When the lever is on “0” the machine is in straight stitch. Moving the lever to “1” produces a 1mm zigzag stitch and so on through “5”.

DO NOT change the position of the stitch width lever when the needle is in the fabric or the needle may bend.

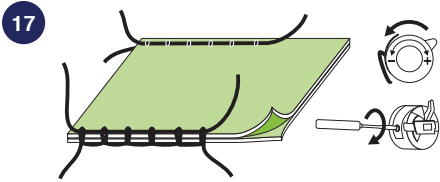


Straight Stitch Needle Positioning ●

In straight stitch mode (stitch width adjustment lever at “0”), the needle can be moved left, right, or center (16). This is very helpful when installing zippers where it is best to have the needle as close to the zipper teeth as possible. Gently push down on the lever before moving it left, right or center. It may also be helpful to move the balance wheel a little while moving the lever.

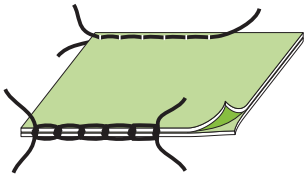
DO NOT change the needle positioning when the needle is in the fabric or the needle may bend.



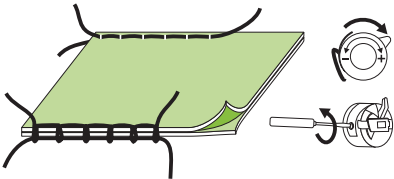


Knots pulled to top:

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 (17) results in a stitch that looks identical on both sides of the material (i.e., the knots of the stitches are pulled into the fabric 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 Ultrafeed® has a thread tensioning knob on the front that the upper thread runs through (18).

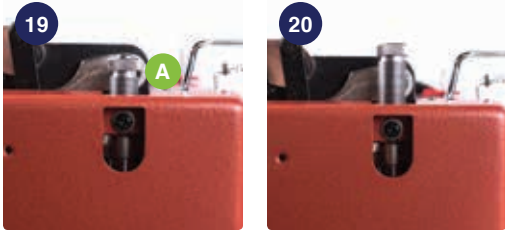
The upper tension knob can be turned up to five revolutions to compress a spring that squeezes two disks together.

When the presser foot is lifted the upper tension disks are pushed apart. This releases the top thread tension so fabric 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.

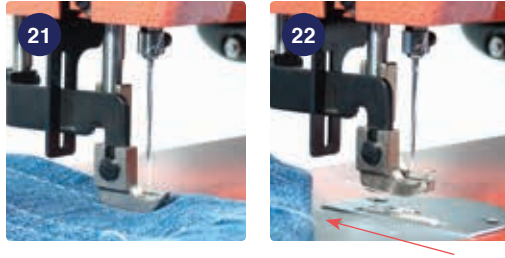




Adjusting Presser Foot Tension

The amount of downward pressure put on the fabric 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. Turn the screw counterclockwise to decrease the foot pressure.

1. For sewing heavy, hard-to-feed materials, it is best to have very high pressure on the foot for optimum feeding. For these materials, tighten the screw until only 1/2" of the screw's threads are showing (19). When sewing delicate or spongy materials, reduce the foot pressure. Turn the thumb screw until it comes free of the machine and then rethread it about 3 complete rotations for the lightest spring setting (20).



Removing Material from Under the Presser Foot

1. Stop the machine with the needle at its upward most position (21).
2. Raise the lift lever.
3. Pull the material straight back to remove it from under the foot (22). It may be helpful to rock the balance wheel forward and back to free the thread from the tension assembly.
4. Cut the two threads to free the material, leaving at least a three inch length of thread coming out of the machine.

Home Sewing

The Ultrafeed® is a great sewing machine for those who enjoy crafting; quilting; home, auto & RV upholstery; and general sewing.

Several of the same characteristics that make this machine great for sail and canvas work also make the machine suitable for upholstery fabrics and most home fabrics. However, as a heavy-duty machine, the Ultrafeed® is not ideal for sewing very light and delicate fabrics like silk, light sheers or chiffon.

Use this simple checklist before sewing light to moderate weight fabrics:

1. Use an appropriate thread.

Home sewing machine thread should be used in clothing or general home sewing. Nylon thread is often preferred for interior upholstery.

2. Select an appropriately sized needle.

Match the fabric and thread weight to the needle size (p. 2).

3. Decrease pressure on the foot.

Too much pressure, if sewing lighter fabrics, can scuff the material.

Adjust the foot pressure by loosening the pressure regulating thumb screw (p. 12, 13). If it comes out, just screw it back in a few turns. See "Adjusting Presser Foot Tension" (p. 17).

Decrease the upper thread tension and, if necessary, increase the bobbin tension (p. 15, 17).

Too much upper thread tension will cause the fabric to pucker. When using light weight thread it may also be necessary to increase the bobbin tension if the spring is not clamping down like it does on heavier thread.

4. Check for clockwise rotation of the thread spool.

When placing home sewing machine spools on the thread post, be sure the thread spool is turning in a clockwise manner to ensure the post it rides on is tightened, not loosened.

Welting & Cording Application

The standard presser foot on Ultrafeed® sewing machines includes a 1/4" welting tunnel that makes installing 5/32" foam piping quick, easy, and more accurate.

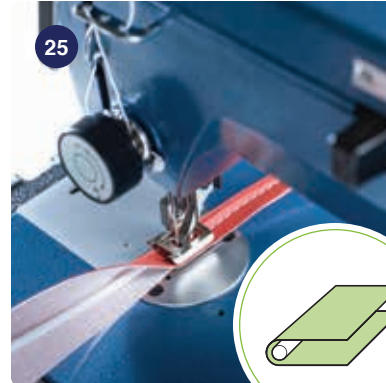
If looking from the back at the upper presser foot, there is a groove (tunnel) under the foot just to the right of the needle (23 & 24).



> LS-1 welting tunnel in presser foot (back view)



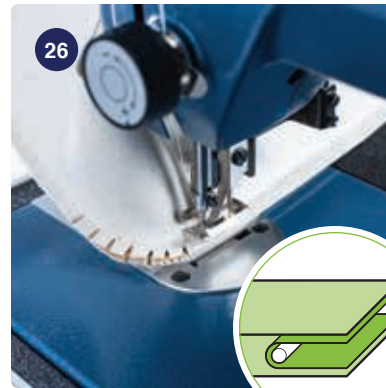
> LSZ-1 welting tunnel in presser foot (back view)



- If using the LSZ-1, first put the machine in straight stitch and center the needle bar.

Put the welting assembly under the groove so the cord is accommodated by the groove (25). The groove under the foot works to keep the bulk of the material outside the arm of the machine.

When sewing welting on an assembly, work clockwise to ensure the bulk of the assembly stays clear of the machine, i.e. out from under the sewing machine arm (26).



Make Your Own Welting, Cording and Piping

For how-to instructions, tips and advice on making and sewing with welting, cording and piping visit www.sailrite.com

Ultrafeed® 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.


Marine Use & Potential for Rust

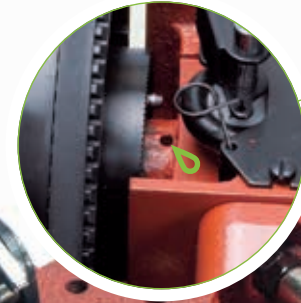
If the machine will be used or stored in a harsh environment, lubricate the working parts of the machine with regular sewing machine oil prior to storage and before each use.

We also recommend using Boeshield's T-9, a paraffin based protectant, to protect metal surfaces and control knobs. Use even on the painted surfaces, metal parts, needle plates, and presser feet.

T-9 leaves a thin protective layer of wax. Use sparingly as a lubricant as wax buildup can create gumming friction over time.

LS-1 Lubrication Points

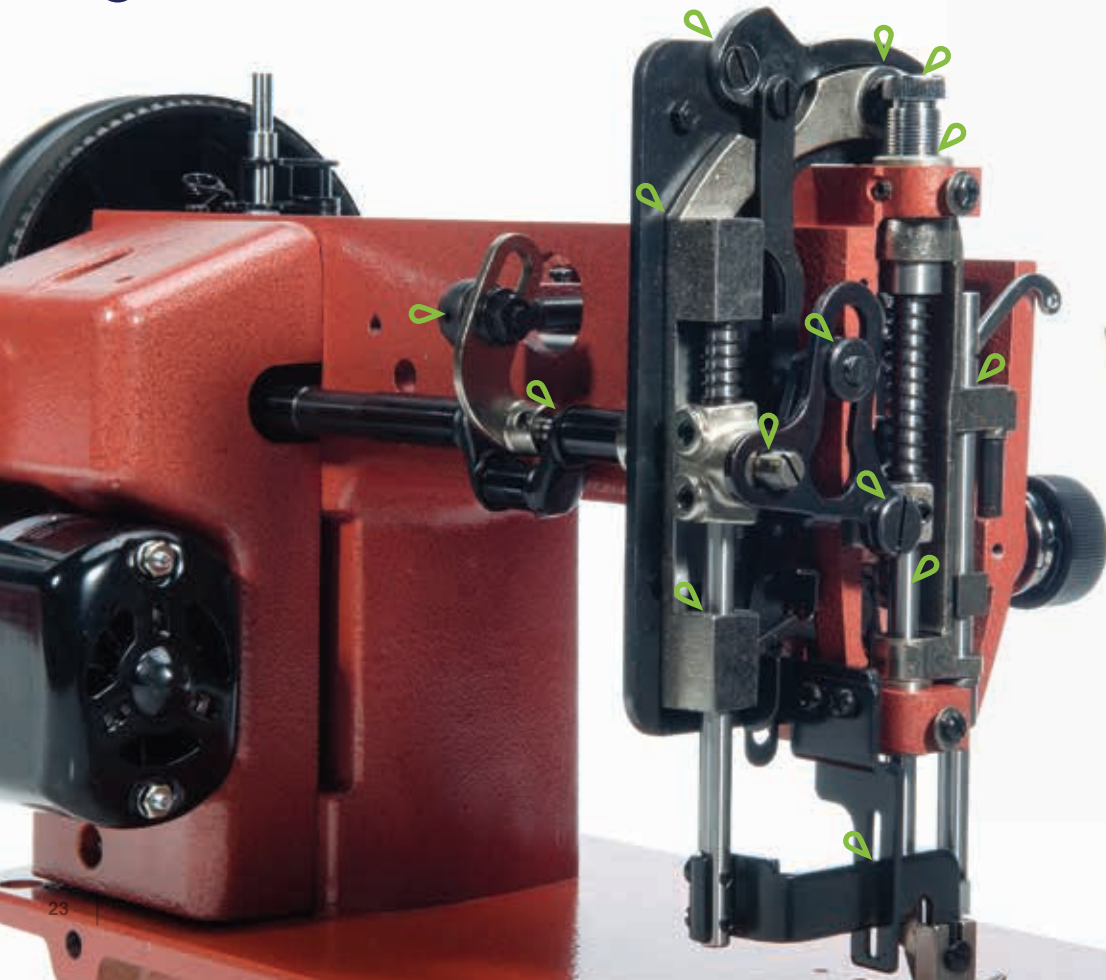
27 Top side lubrication points 



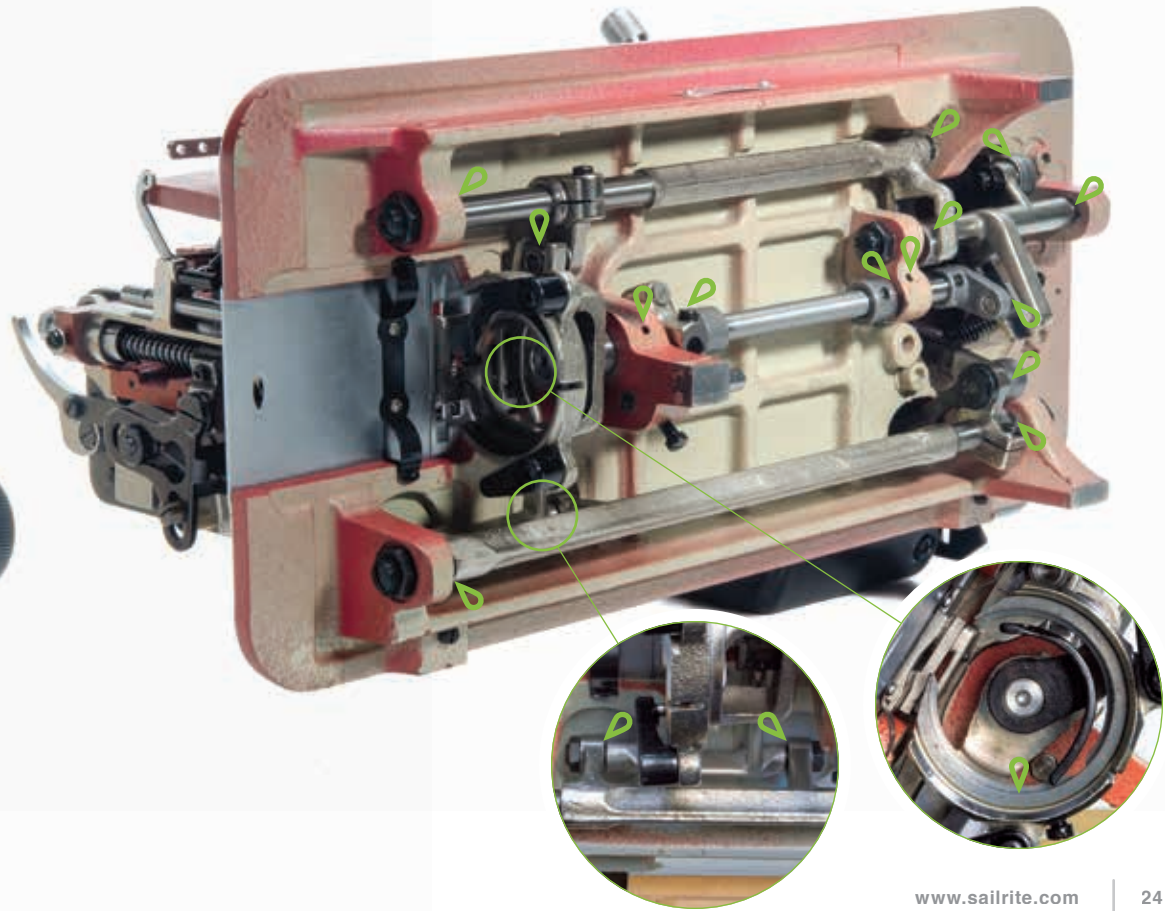
28 Right end lubrication points >



29 Left end and back side lubrication points

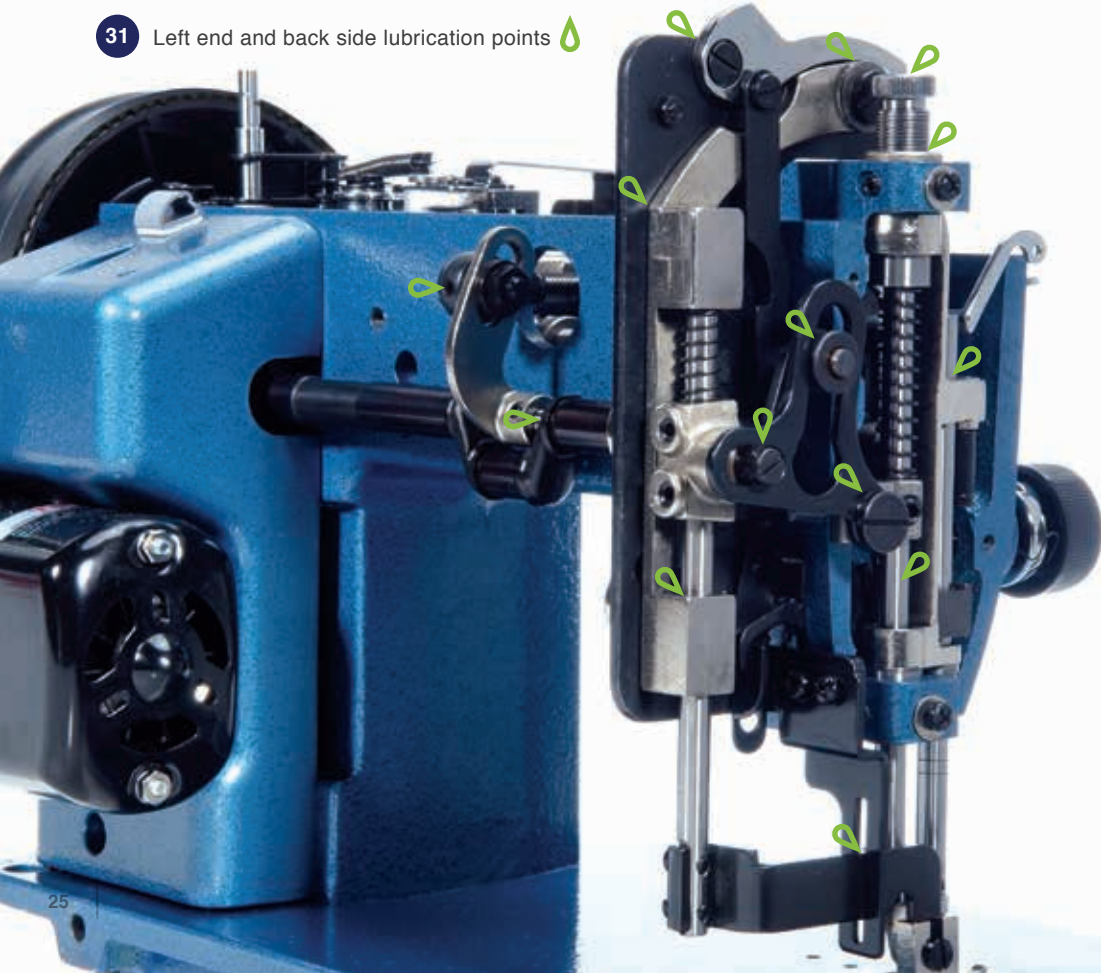


30 Underside lubrication points



LSZ-1 Lubrication Points

31 Left end and back side lubrication points




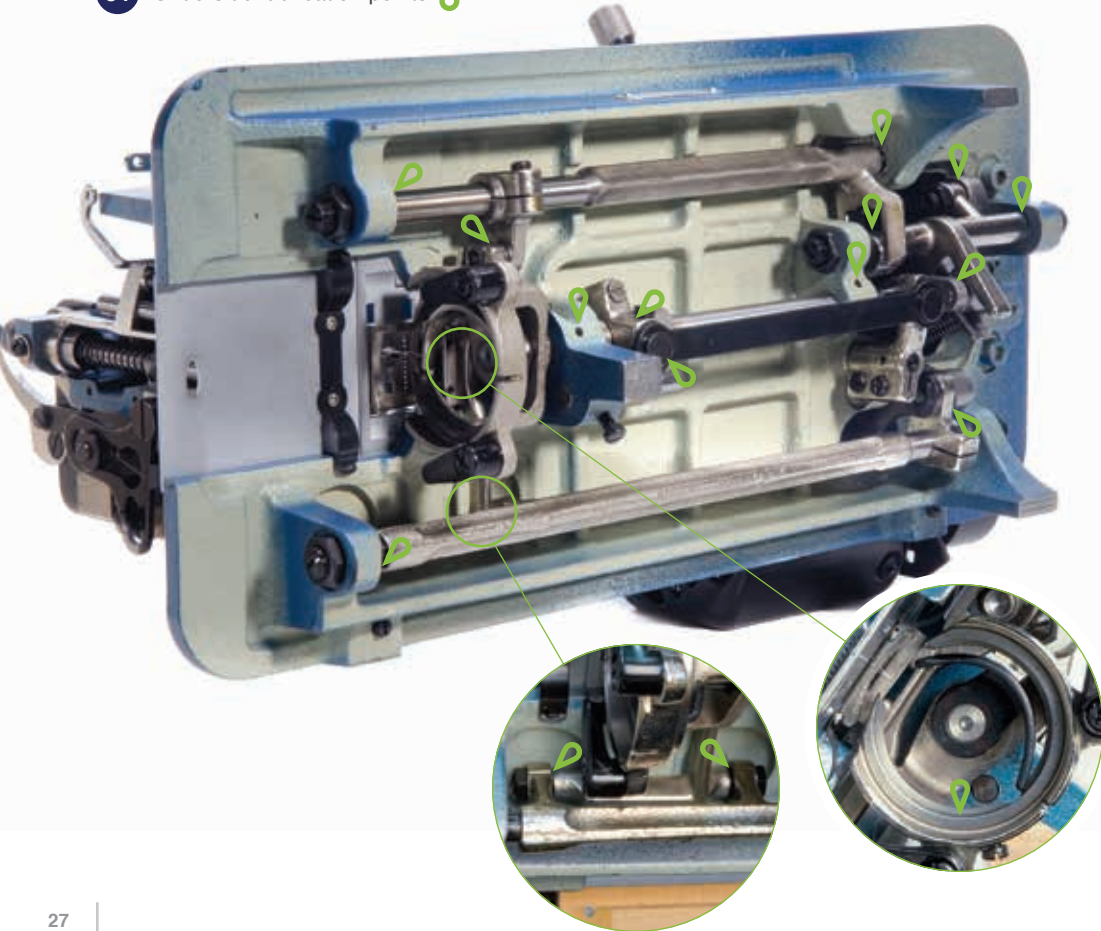
32 Top side lubrication points



33 Right end lubrication points

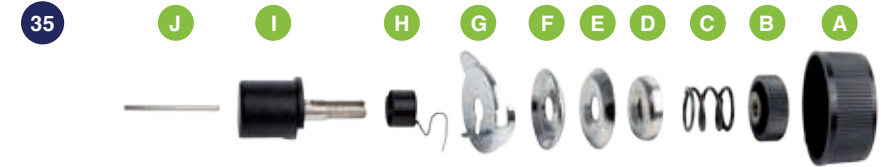


34 Underside lubrication points 



Troubleshooting the Ultrafeed®

The more we understand our machines, the better they work for us. Ultrafeed® 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 Ultrafeed® and to help fine tune and resolve common sewing machine problems.



Thread Tension Doesn't Release

If your thread won't pull out of the top of the machine, even after you've raised the presser foot, the core (I) of your upper tension assembly (35) might have pulled away from the machine. To fix the tension, you will need to move the core closer to the machine.

1. Remove the left end cover (p. 49, 13) of the machine, exposing the internal parts.
2. Using an Allen wrench, loosen the set screw located directly behind the tension assembly (p. 49, 12).
3. With the presser foot up, push the upper tension assembly in until you feel the first signs of resistance.
4. Check to make sure the tension disks (E & F) are open and that the thread moves smoothly.
5. Tighten the set screw.
6. Put the presser foot down to check that the tension disks properly tighten. The thread should not easily pull through.
7. Replace the cover.

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 (p. 28, **35 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 (p. 28, **35**).

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**).

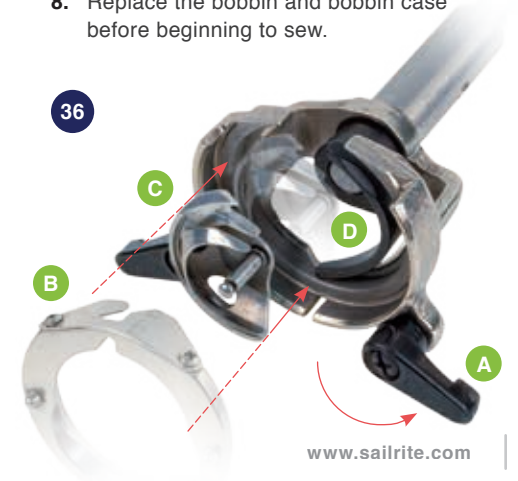
Clutch Will Not Disengage

If the clutch will not disengage, first remove the reverse threaded Posi-Pin nut (p. 61, **2**) from the balance wheel (**6**). Remove the balance wheel. Polish and lubricate the Posi-Pin bushing shaft (**4**). Slide the balance wheel back on and screw the Posi-Pin nut (**2**) down.

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 balance wheel toward you.
2. Remove the bobbin case/bobbin.
3. Turn each lever (**36 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, zigzag stitches will look like a straight stitch on either the right or left side with proper zigzag stitches being formed only occasionally. 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. 55, **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.

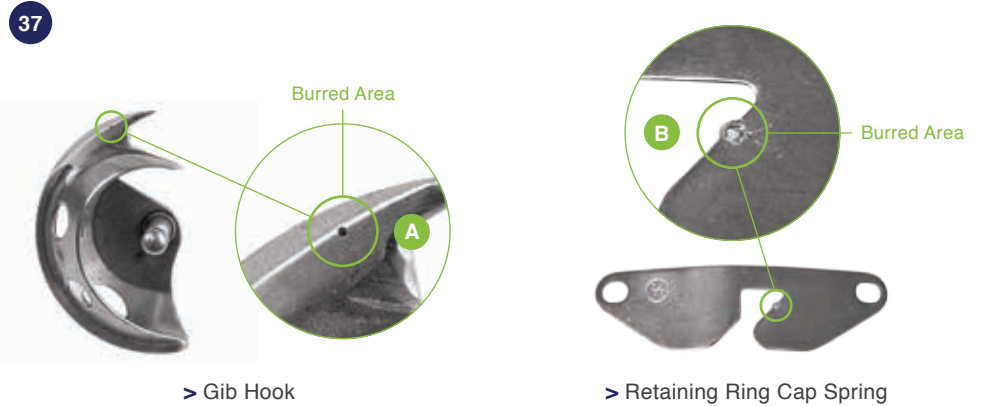
Make sure your needle is installed correctly (p. 4), is not bent or damaged, and is free of any residue from sewing adhesive material. Fouled needles may be cleaned with rubbing alcohol. Bent or damaged needles must be replaced.

2. Not Enough Foot Pressure

Heavy, closely-woven materials like sailcloth and canvas can make the withdrawal of the needle from the fabric difficult.

If the presser foot is being lifted as the needle comes out of the cloth 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. 12, **13**).



3. Burred Gib Hook or Retaining Ring Cap Spring (37)

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).

4. 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 Ultrafeed®, follow the steps outlined on p. 40 "Ultrafeed® 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. 4, **1 & 2**). 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. 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. 32, **37 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).

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. 2).

4. 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 Ultrafeed®, follow the steps outlined on p. 40 "Ultrafeed® Timing".

There are thread loops on the underside of the fabric:

A tangle on the bottom side of the fabric means there is not enough upper tension. More than likely, the thread is not being pulled snugly between the tension disks (p. 28, **35 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. 12, **13**)
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 is flush with the end of the tension post. Then repeat steps 1–3.

Thread loops could also be caused by a burr on the retaining ring cap spring (p. 32, **37 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. 7, **6 H & I**). Then pull out a longer thread tail and trap it with your finger. 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 as you start to sew.

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

Bury only the needle tip in the cloth. This allows the machine to create the appropriately sized loop for the gib hook to pickup. See p. 13 for helpful advice on turning corners.

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 fabric is being removed during the middle of a stitch. The hook under the machine still has a loop of thread around it.

Before removing fabric 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. 17).

Using Profilen Thread (PFTE)

Sewing with a lifetime (PFTE) thread can be difficult and frustrating at times. Try making a few easy adjustments to your Ultrafeed® to improve the stitch quality when using Profilen. These are general guidelines, feel free to experiment with these adjustments to fine tune your Ultrafeed®.

Stitches are skipped in straight or zigzag operation:

- 1. Mount the thread spool horizontally.** Every time the thread pulls off the top of the cone, a twist is put in the thread. Eventually, these twists add up and an erratic loop forms at the hook. When the hook misses catching the thread loop, the machine skips a stitch. Make a roller out of a dowel rod or an old coat hanger that will support the spool horizontally and mount the spool on it. Pulling the thread off this way will reduce twists and kinks.
- 2. Further reduce the chance of twists and kinks** in your thread by running it through all three holes in the three hole thread guide (p. 50, **21**) when threading the machine.
- 3. Use a #14 or #16 needle.** PTFE thread is very slippery and often requires the use of a smaller needle. If you are using a needle that is too large, the needle shaft cannot hold the slippery thread firmly enough against the fabric to form a proper loop. This prevents the hook from catching the thread loop and forming a stitch.
- 4. Lower the needle by 1/16".** Lowering the needle has a tendency to increase the size of the thread loop. Adjust the needle only if a smaller needle does not help.

Needle Issues

The needle is breaking:

Needles often break if left in the fabric while toggling the stitch width or alternating between left, center, and right positions (LSZ-1 only). Raise the needle out of the fabric before making these changes.

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 fabric which also would bend the needle.

The balance wheel 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 balance wheel 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. 61, **2**), pull out the spring-pin (**1, 3 & 5**), and slide the balance wheel off the bushing.
3. Use a 2.5 mm Allen wrench to tighten the two set screws (**34**) that fasten the bushing to the machine's upper shaft, then reinstall the balance wheel 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. 5 on "Winding Bobbins". Locate the bobbin tensioner (p. 5, **3 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. 49, **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:

The sewing machine belts may require tension adjustment. The longer belt should be tensioned to deflect 1/4" when pressed down using a little pressure by your finger (38). Tension on the belt can be adjusted by loosening the bolt (A) located directly below the balance wheel. This bolt attaches the idler pulley (B) to the machine. Move the idler pulley up or down to properly tension the belt and, then, tighten the bolt.

The short belt should appear to be much looser, but its deflection should also be about 1/4" (39). This belt should not require adjustment unless an adjustment to the longer belt has been made. If adjustment is ever required, slide the idler pulley forward and backward in its slotted bracket. The pulley shaft (p. 61, 10) of the idler pulley is pressed flat at its outer end so that it can be rotated (loosened) with a small wrench. After loosening the shaft, the pulley may be moved to re-tension the belt. Tighten the shaft to complete the adjustment.



Ultrafeed® 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. 41, follow these steps to adjust the timing on your Ultrafeed®:

About the Class 15 Shuttle Hook System

The Ultrafeed® has a class 15 shuttle hook system. In this system the gib hook oscillates back and forth around the bobbin case in half turns (40) 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 canvas work.



Check the Needle Bar Height

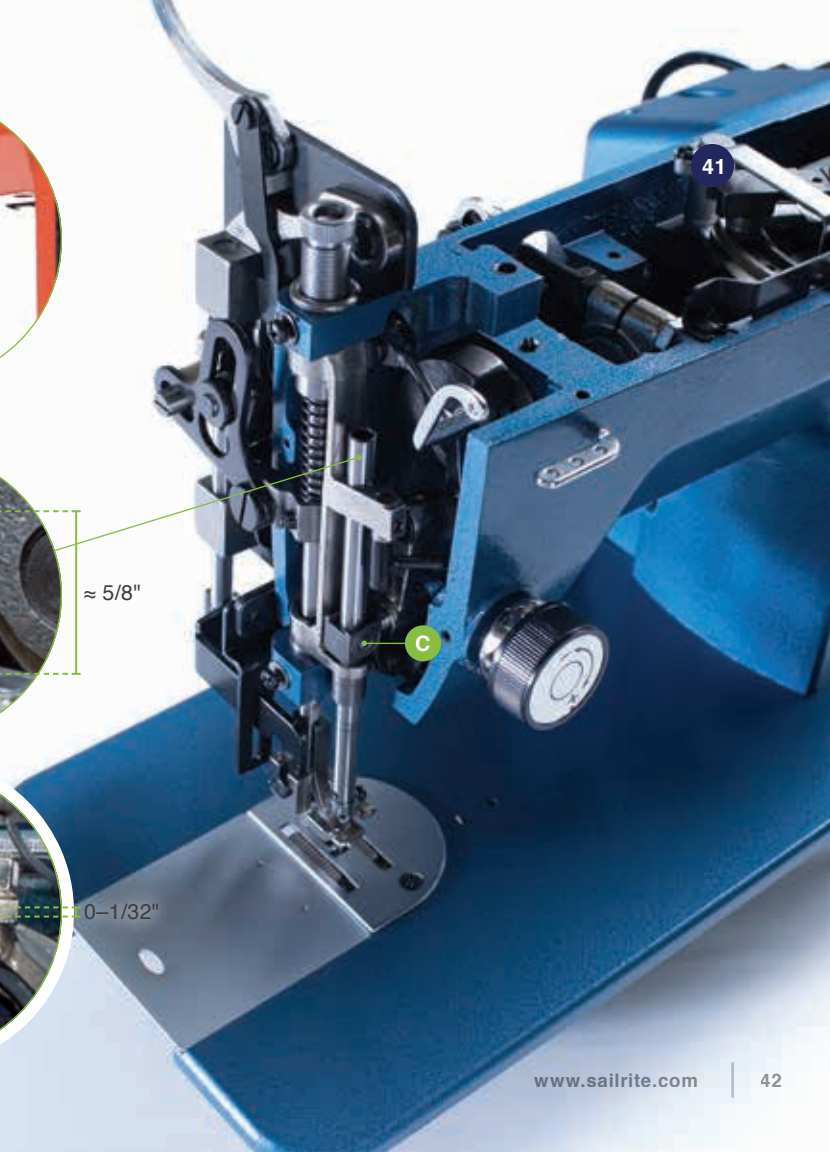
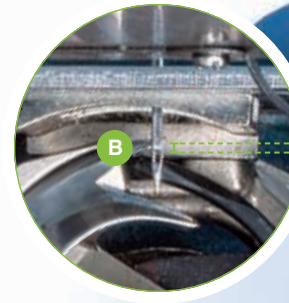
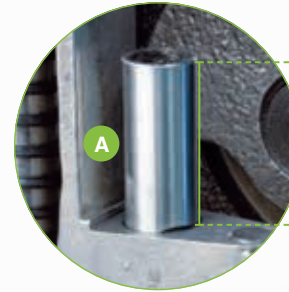
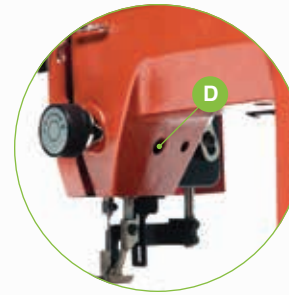
1. Remove the left end cover of the sewing machine as shown (41).
2. Manually lower the needle bar to its lowest position by turning the balance wheel toward you.
3. We mark the proper height of the needle bar for your machine by putting a small scratch on the needle bar (A). Check to see if the mark is level with the top surface of the upper needle bar guide.

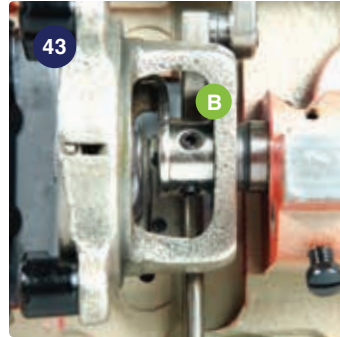
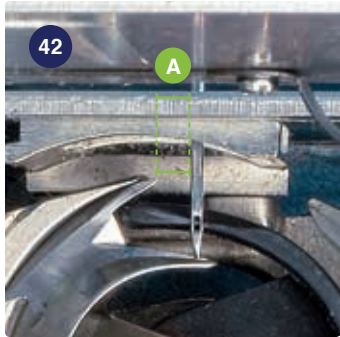
You can also determine the proper height by measuring the distance between the top of the needle eye and the gib hook when the gib hook is directly behind the needle and the needle is on its way up. The distance should measure between 0 and 1/32" (B).

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 (C). If the screw is in the side of the pillow block, it can be accessed through a hole in the machine casting (D). Use a 1/8" flat blade screwdriver to loosen. Do not use the screwdriver that comes with the machine, it is not a proper fit.
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.

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





Check the Rotational Timing of the Shuttle Gib Hook

The shuttle gib hook (p. 55, **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 balance wheel so the gib hook point is at its furthest position counterclockwise (**42**).
2. Measure the distance between the gib hook point and the needle. The driver is correctly positioned when the point is between 1/8" and 3/16" counterclockwise of the needle (**A**).
3. The driver is secured to the lower shaft with two set screws (**43**). 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.

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

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.

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. 49, **18**) and feed dog (p. 57, **17** or **19**)
2. Remove the bobbin case and hook, re-install the retaining ring.
3. Rotate the balance wheel until the needle enters the shuttle (**44**).

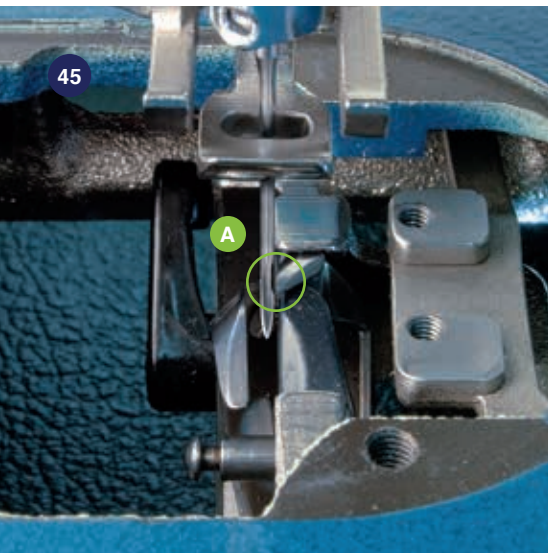
If positioned properly, the needle is centered in the "triangular" opening of the retaining ring cap spring from front to back (C**).**

If not, you'll need to adjust the rotational positioning of the shuttle race guide shaft.

4. Loosen the compressible timing clamp screw (p. 46, **46 D**) 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.



> For the sake of clarity (45) 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 balance wheel.

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.

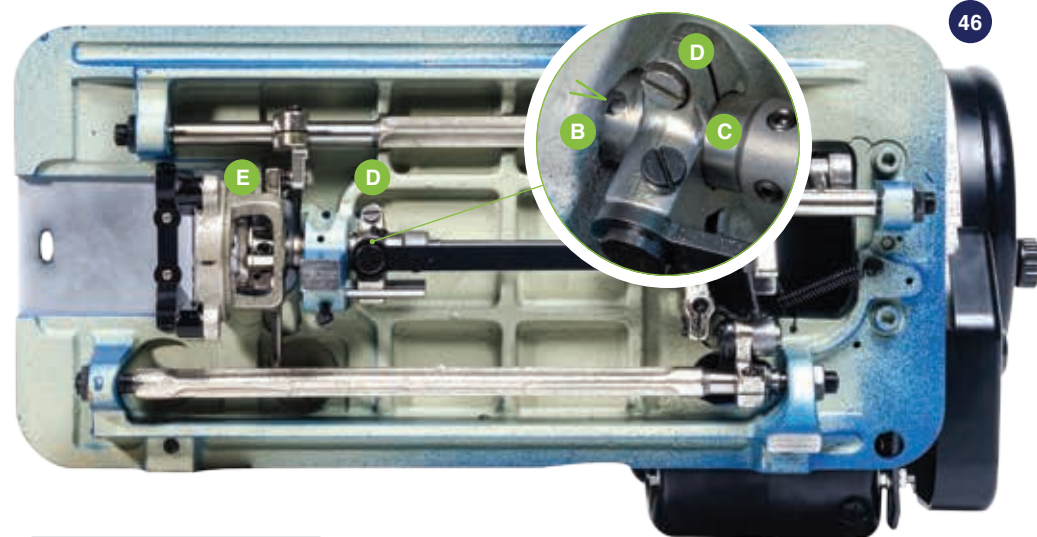
1. Re-install the gib hook (p. 30)
2. Make sure you have a #20 needle installed.
3. Set the machine in straight stitch, center the needle (LSZ-1 only), and grab a flashlight.
4. Remove the presser foot, needle plate and feed dog.
5. Looking from the top down in to the machine (45), slowly rotate the balance wheel. 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.

Adjusting the Left-Right Positioning of the Shuttle Gib Hook ●

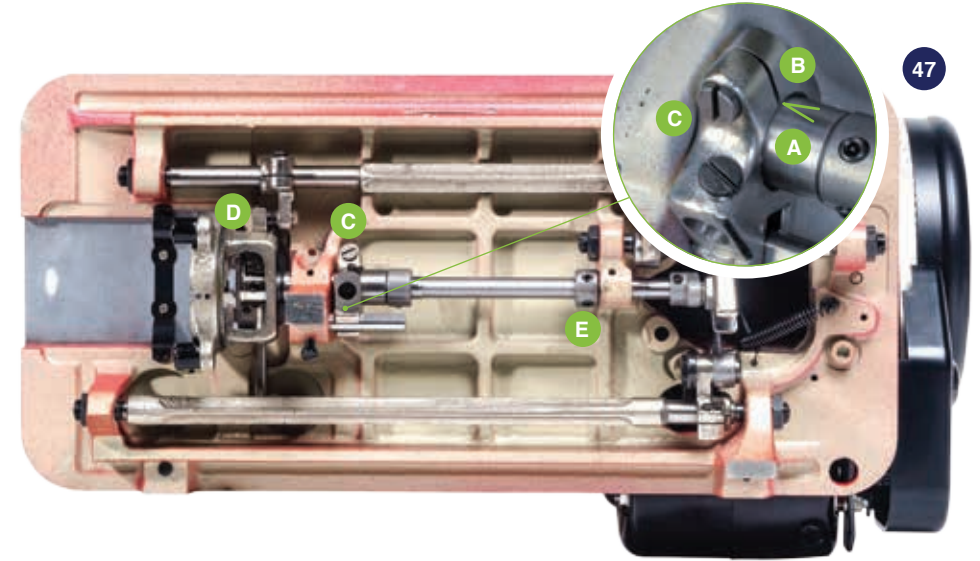
1. Set the machine to straight stitch.
2. Make a mark on the cast iron bearing surface next to the large oil hole (46 B) in the shuttle race guide shaft (C). If the shaft should accidentally rotate, realign the mark with the oil hole.
3. Loosen slightly the compressible timing clamp screw (D) on the compressible timing clamp that drives the entire assembly back and forth with the zigzag
4. Carefully move the assembly to position the hook as close to the needle as possible without deflecting (p. 45, 45).
5. With the mark on the bearing surface and oil hole aligned, tighten the compressible timing clamp screw (D).



● Applies to LSZ-1 Model Only

Adjusting the Left-Right Positioning of the Shuttle Gib Hook ●

1. Make a mark on the shuttle race guide shaft (p. 48, **47 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. 45, **45**).
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 without touching 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. 45, **45**).
9. Holding the correct position of the shaft move the right collar (**E**) as far right as possible without touching 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.

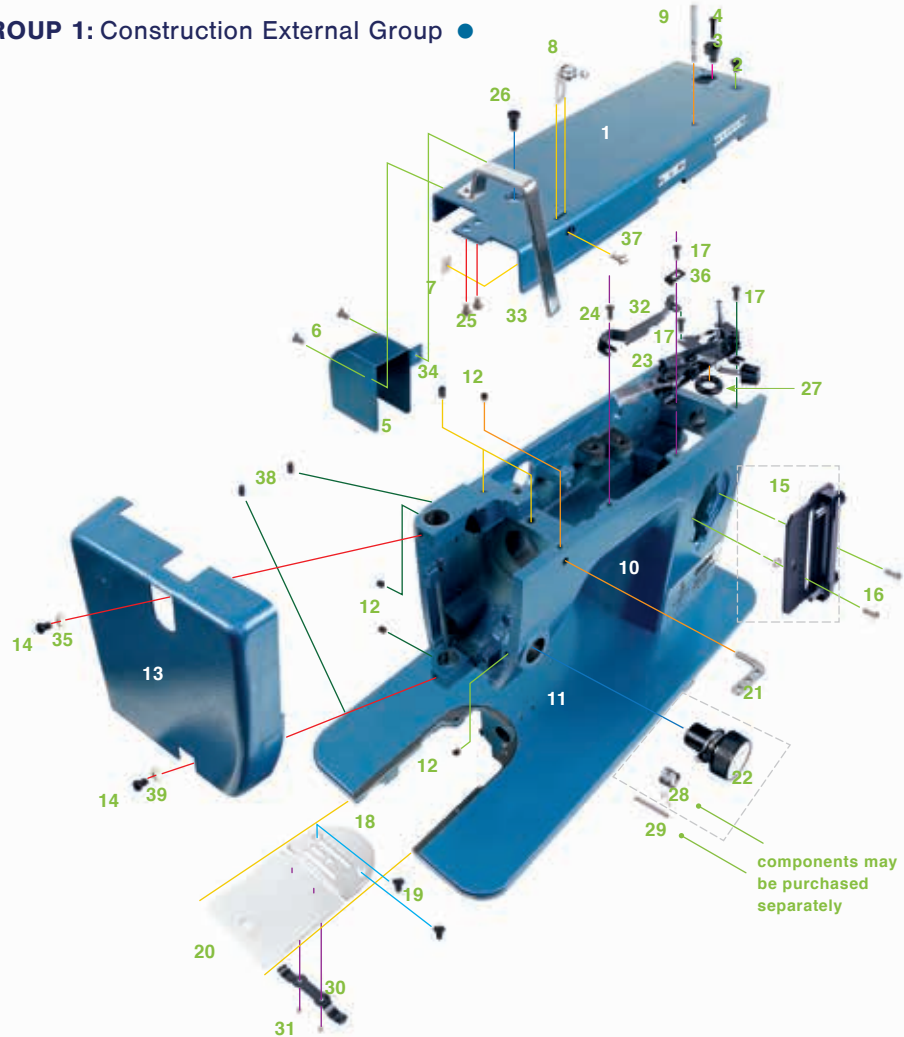


Hook/Driver Gap

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 Ultrafeed to sew heavier denier threads than many larger rotary hook machines. The typical gap between parts is 0.04" (**48**).



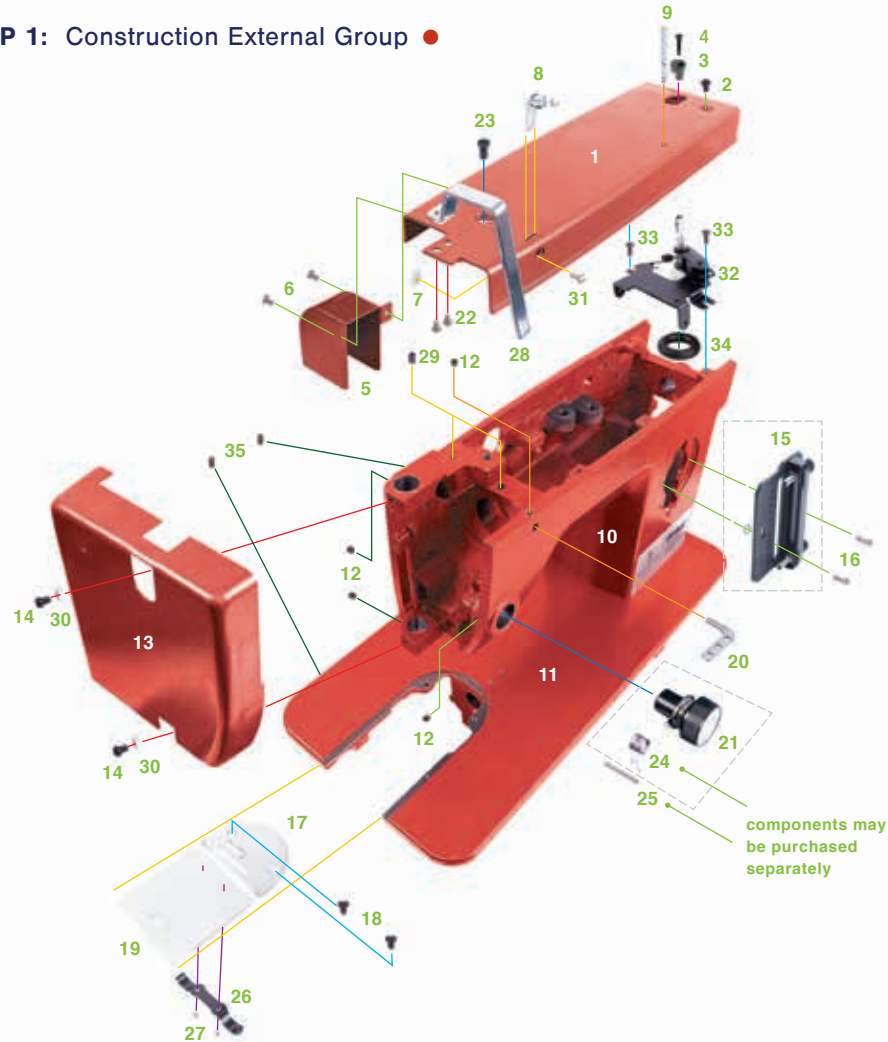
GROUP 1: Construction External Group ●



KEY PART NAME	PART #	KEY PART NAME	PART #
1 Top Plate	W047Z	25 Thread Guard Screw	103253
2 Top Plate Screw	B071	26 Top Plate Set Screw	E072
3 Bobbin Winder Stopper	E066	27 Bobbin Winder Ring	120181
4 Bobbin Winder Stopper Screw	E066-2	28 Thread Take-Up Spring (included in 22)	5332
5 Small Plate Cover	W047-1Z	29 Tension Release Pin	W184-2
6 Screw	100577	30 Shuttle Race Slide Spring	A049
7 Bobbin Winder Assembly Nut	E070-1	31 Shuttle Race Slide Spring Screw	A050
8 Bobbin Winder Assembly	E070	32 Straight Stitch Position Guide	W001Z
9 Spool Pin	149	33 Take Up Arm Guard	102626
10 Arm Body	N/A	34 Set Screw	A012
11 Bed	N/A	35 Left End Plate Washer	103252
12 Set Screw	103640	36 L, R, C Lever Stop	103254
13 Left End Plate	W048Z	37 Bobbin Winder Assembly Screw	103255
14 Screw	C097	38 Hinge Pin Set Screw	120061
15 EZ Set Stitch Length Plate	105511		
16 Stitch Length Plate Screw	103263		
17 Bobbin Winder Set Screw	B010		
18 Needle Plate (5mm)	W032Z		
19 Needle Plate Screw	A052		
20 Shuttle Race Slide	A048-B		
21 Three Hole Thread Guide	W029		
22 Upper Tension Assembly (includes 28)	8511		
23 Bobbin Winder	W030Z		
24 Screw	100576 or A036		

● Applies to LSZ-1 Model Only

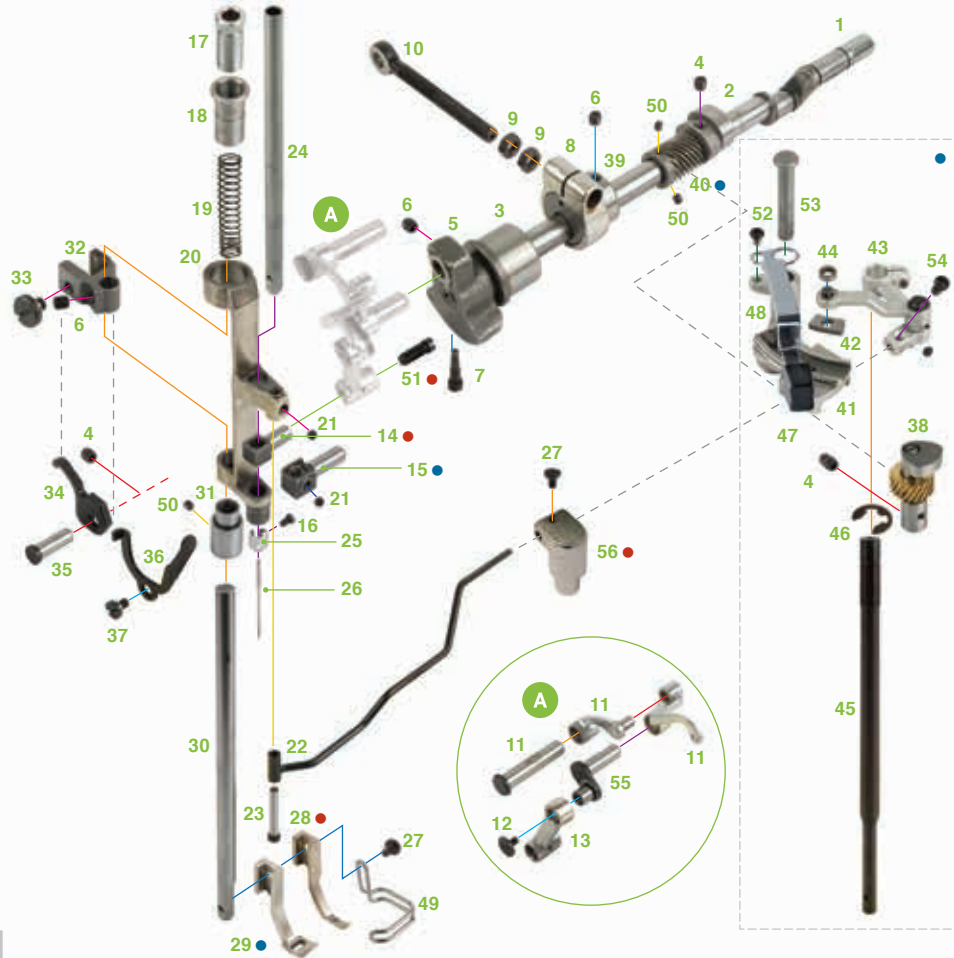
GROUP 1: Construction External Group ●



KEY PART NAME	PART #	KEY PART NAME	PART #
1 Top Plate	W047	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	W047-1	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	W048		
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	120346		
20 Three Hole Thread Guide	W029		
21 Upper Tension Assembly (includes 24)	8511		
22 Thread Guard Screw	103253		
23 Top Plate Set Screw	E072		

● Applies to LS-1 Model Only

GROUP 2: Sewing Transmission Group

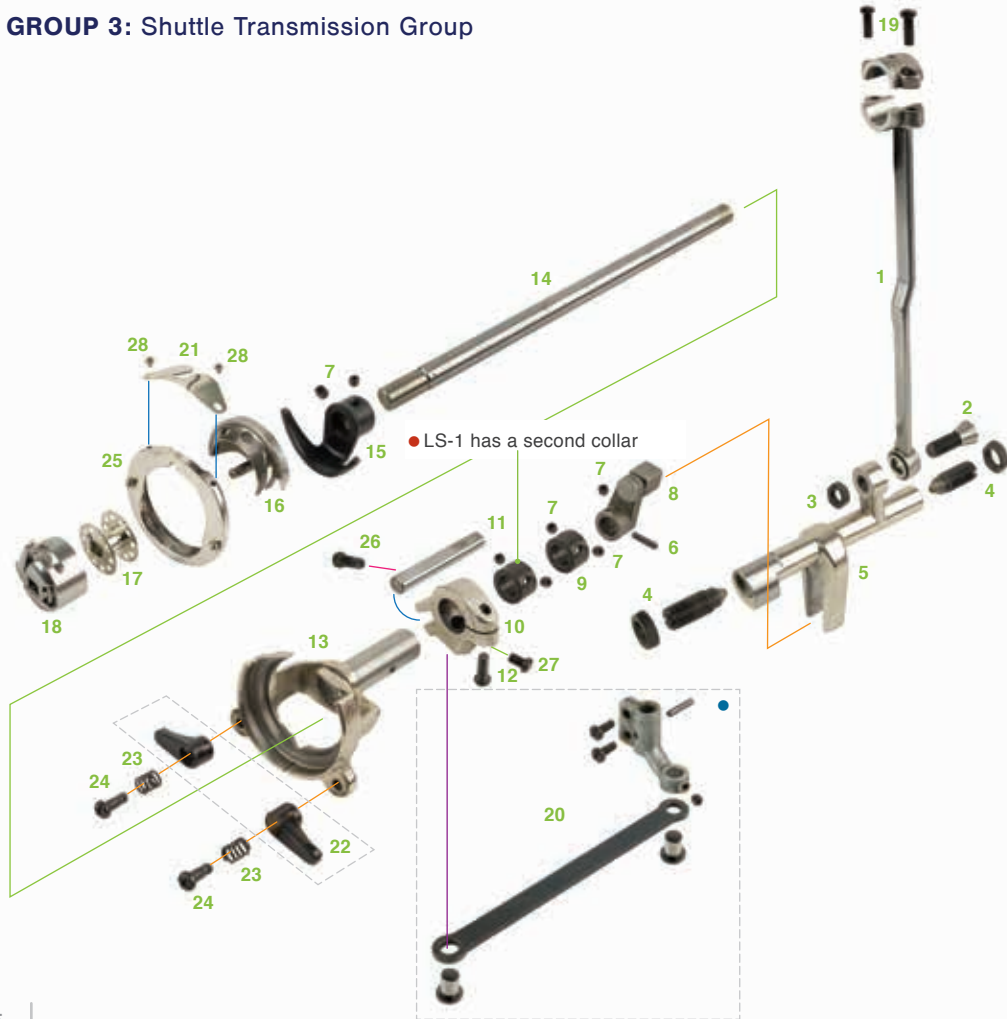


KEY PART NAME	PART #	KEY PART NAME	PART #
1 Arm Shaft	E053	29 Inside Presser Foot	W012Z
2 Feed Cam	B007	30 Presser Bar	A035-1
3 Arm Shaft Bushing	B051	31 Presser Bar Lower Bushing	B028
4 Set Screw	A012	32 Presser Bar Bracket	W039
5 Thread Take-Up Lever Cam	B048	33 Presser Bar Feed Actuator Pivot Screw	103257
6 Thread Take-Up Assembly Set Screw	A029	34 Tension Release Lever Drag Link	W043
7 Thread Take-Up Lever Cam Screw	103256	35 Tension Release Lever Drag Link Set Pin	D020
8 Crank Rod Lever Cam Follower	W028-4	36 Tension Release Lever	W045
9 Crank Rod Lever Cam Follower Adjust Nut	W028-2	37 Tension Release Lever Set Screw	B046
10 Crank Rod Lever Cam Follower Bolt	W028-1	38 Zigzag Drive Gear Cam	W016Z
11 Thread Take-Up Assembly	E020	39 Presser Bar Actuator Cam	W065
12 Needle Bar Connecting Rod Set Screw - Reverse Thread	E020-2	40 Helical Gear	W000Z
13 Needle Bar Connecting Rod	B018	41 Needle Displacement Regulator Assembly	W003Z
14 Needle Bar Connecting Stud	A042S	42 Block Slide	W004Z
15 Needle Bar Connecting Stud	A042	43 Zigzag Connecting Link and Screws	W005Z
16 Needle Screw	A092	44 Collar For Zigzag Connecting Link	W006Z
17 Presser Regulating Thumb Screw	A031	45 Zigzag Vertical Shaft	W007Z
18 Presser Regulating Thumb Screw Socket	W010	46 Snap Ring For Zigzag Vertical Shaft	W008Z
19 Presser Bar Spring	A032	47 L, R, C Lever Cap	W003ZC
20 Needle Bar Support	B016	48 L, R, C Lever	W003ZL
21 Needle Bar Set Screw	D097	49 Needle Guard (220-240 Volt Ultrafeed® Only)	102627
22 Zigzag Connecting Rod	W015	50 Set Screw	W052-1
23 Needle Bar Connecting Joint Pin	B099	51 Pillow Block Screw	103258
24 Needle Bar	W066	52 Screw	B103US
25 Needle Thread Guide	W067	53 L, R, C Lever Pin	103270
26 Needle #20 (135X17)	7010	54 Screw	103264
27 Presser Foot Screw	A036	55 Needle Crank Arm	103269
28 Inside Presser Foot	W012	56 Connecting Rod Set Base	W016

● Applies to LSZ-1 Model Only

● Applies to LS-1 Model Only

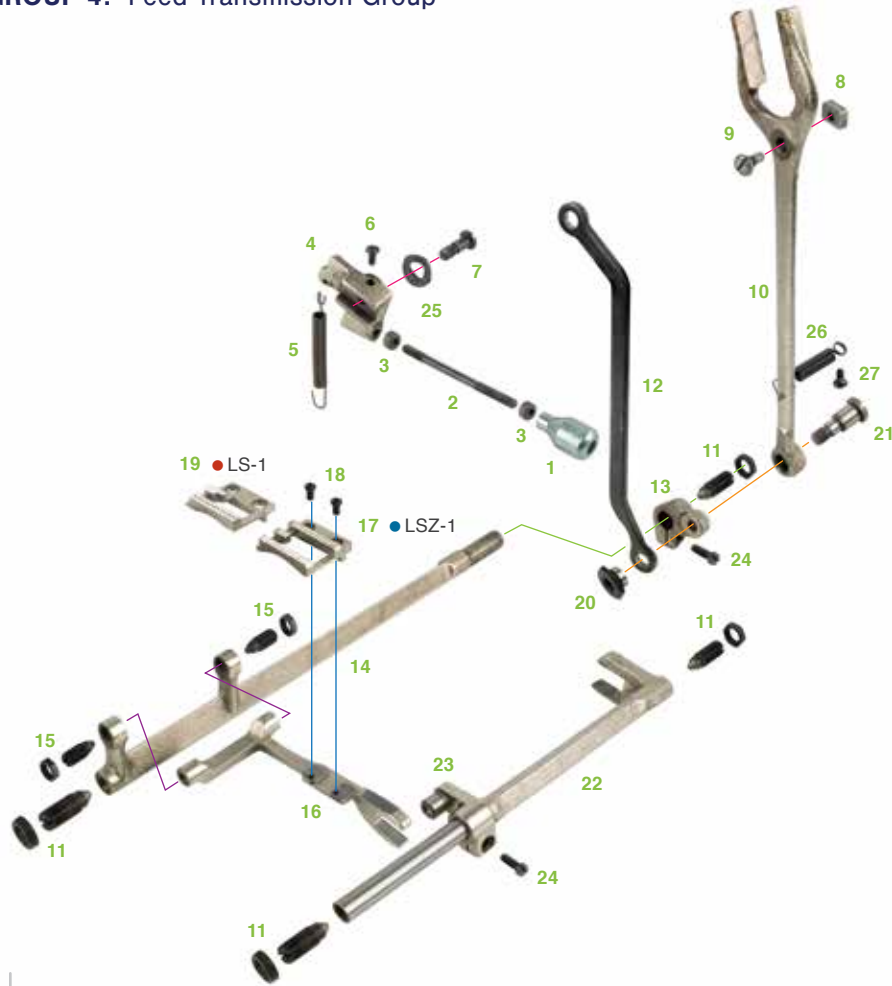
GROUP 3: Shuttle Transmission Group



KEY PART NAME	PART #	KEY PART NAME	PART #
1 Crank Connecting Rod	B139	21 Retaining Ring Cap Spring	1603
2 Crank Connecting Rod Set Screw	A027A	22 Retaining Ring Clip Set	123011
3 Crank Connecting Rod Set Nut	A027B	23 Retaining Ring Clip Spring	103273
4 Oscillating Shaft Set Screw & Nut	A023	24 Retaining Ring Clip Screw	103274
5 Oscillating Shaft	A024	25 Retaining Ring for Ultrafeed®	102241
6 Oscillating Shaft Crank Set Pin	A018	26 Timing Clamp Pin Screw	103259
7 Set Screw	103640	27 Screw ●	103264
8 Oscillating Shaft Crank With Slide Block	B179	28 Retaining Ring Screw	102496
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 Zigzag Shuttle Drive Assembly ●	W002Z		

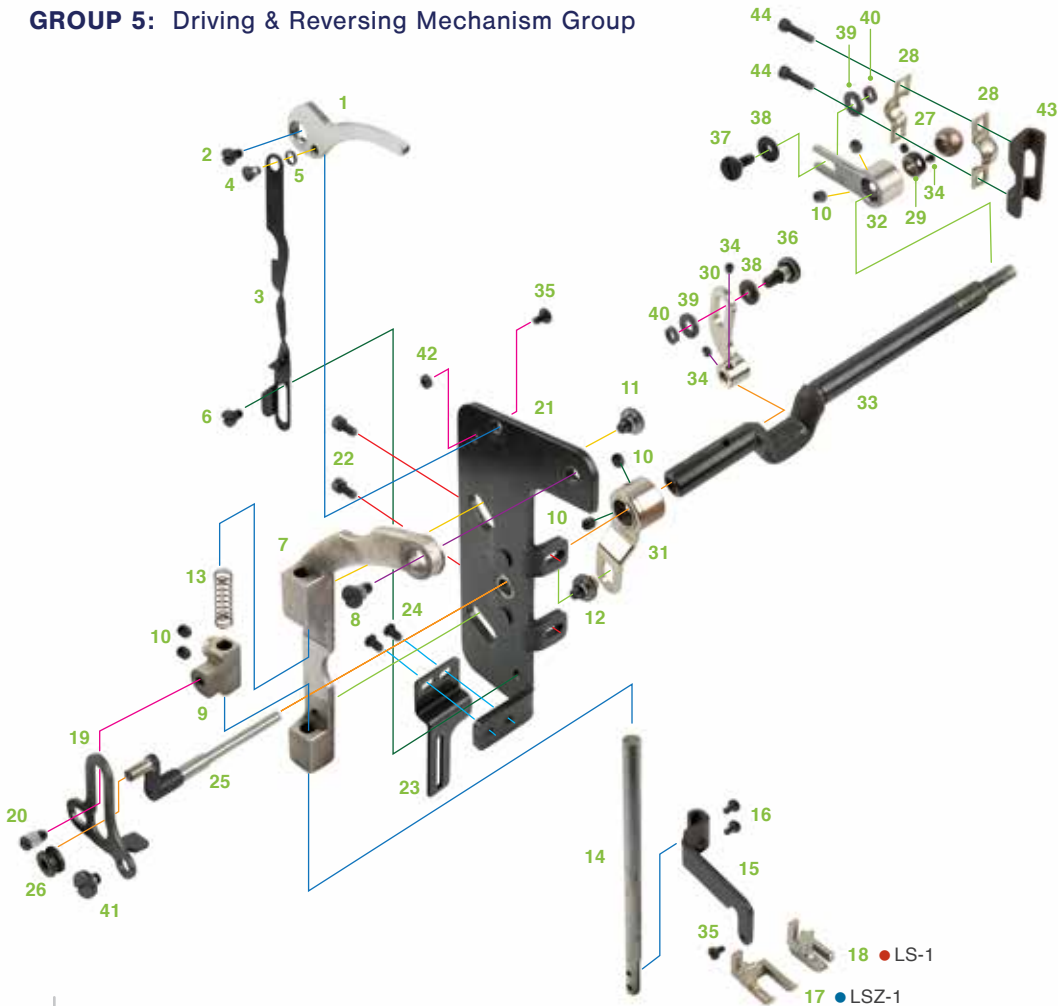
● Applies to LSZ-1 Model Only ● Applies to LS-1 Model Only

GROUP 4: Feed Transmission Group



KEY PART NAME	PART #	KEY PART NAME	PART #
1 Feed Regulator Thumb Nut	W109	24 Screw	B139-2
2 Feed Regulator Lever	W105	25 Feed Regulator Wavy Washer	A067
3 Feed Regulator Lever Nut	A053B-2	26 Forked Rod Support Spring	B103U
4 Feed Regulator	W107	27 Forked Rod Support Spring Screw	B103US
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 ●	W011Z		
18 Feed Dog Screw	A078		
19 Feed Dog ●	W011		
20 Driving Crank Guide Nut	W046-1		
21 Driving Crank Guide Screw	A061		
22 Feed Lifting Rock Shaft	A072		
23 Feed Lifting Rock Shaft Crank	A073		

GROUP 5: Driving & Reversing Mechanism Group



KEY PART NAME	PART #	KEY PART NAME	PART #
1 Presser Foot Lift Lever	W042	24 Screw	C097
2 Presser Foot Lift Lever Hinge Screw	W042-3	25 Presser Bar Feed Rod	W036
3 Lift Bar	W026	26 Presser Bar Actuator Spacer	W024-1
4 Upper Lift Bar Screw	W042-2	27 Bearing Bracket Bushing	W021
5 Spacer	W042-1	28 Lift Crank Rod Bearing Plate	W023
6 Lift Bar Guide Screw	W026-1	29 Rocker End Set Ring	W052
7 Presser Bar Track	W018	30 Presser Bar Actuator Rocker	W033
8 Presser Bar Track Hinge Screw	W018-1	31 Presser Bar Actuator Feed Rocker	W034
9 Rear Presser Bar Bracket	W020	32 Crank Rod Rocker	W035
10 Set Screw	A029	33 Crank Rod	W053
11 Presser Bar Track Guide Screw	W018-2	34 Set Screw	103640
12 Presser Bar Track Feed Stud	W018-3	35 Screw	A036 or 100576
13 Presser Bar Load Spring (Rear)	W019-1	36 Presser Bar Actuator Rocker Screw	103272
14 Rear Presser Bar	W019	37 Guide Screw	W046-2
15 Outside Presser Foot Bracket	W017	38 Lock Spacer	W046-3
16 Screw	B010	39 Washer	W046-4
17 Outside Presser Foot ● LSZ-1	W013Z	40 Lock Nut	A061-B
18 Outside Presser Foot ● LS-1	W013	41 Presser Bar Actuator Pivot Screw	103257
19 Presser Bar Actuator	W024	42 Presser Foot Lift Lever Stop Nut	103267
20 Presser Bar Actuator Feed Screw	W020-1	43 Crank Rod Bearing Set Base	W025
21 End Plate	W041	44 Crank Rod Bearing Set Base Screw	W025-1
22 End Plate Set Screw	W041-1		
23 Presser Foot Bracket Limiter	W014		

● Applies to LSZ-1 Model Only

● Applies to LS-1 Model Only

GROUP 6: Electric Power & Dynamic Transmission



KEY PART NAME	PART #	KEY PART NAME	PART #
1 Posi-Pin Knob For Shaft	100540	23 Motor Bracket Washer	103266
2 Posi-Pin Nut - Reverse Thread	100536	24 Motor Bracket Nut	103268
3 Posi-Pin Spring	100539	25 Motor	102630 (110V) 102731 (220-240V)
4 Posi-Pin Wheel Bushing	100537	26 Motor Pulley	W062-1
5 Posi-Pin Quick Release Shaft 3/16"	100538	27 Set Screw	W052-1
6 Power Plus Flywheel	100181	28 Bracket	102712
7 Cogged Sewing Machine Timing Belt 18.6"	56535	29 Top Bracket Mount Screw	103260
8 Cogged Sewing Machine Timing Belt 8"	56539	30 Bottom Bracket Mount Screw	103261
9 E5 Ring	D116	31 Motor Plug Screw & Washer	103262
10 Idler Pulley Shaft	W061-1	32 Foot Control 110V with Grounded Wiring	102594
11 Idler Pulley	W061-A	33 Foot Control 220-240V with Grounded Wiring	102730
12 Idler Pulley Washer	W061-6	34 Set Screw	713100
13 Idler Pulley Set Nut	W061-2		
14 Pulley Bracket	W059		
15 Motor Bracket Washer	LT-2M-4		
16 Motor Bracket Lock Washer	LT-2M-3		
17 Motor Bracket Bolt	LT-2M-2		
18 Belt Cover	W050BL		
19 Belt Cover Screw	100576 or A036		
20 Motor Base ●	W049Z		
21 Motor Base ●	W049		
22 Motor Base Screw	W049-1		

● Applies to LSZ-1 Model Only ● Applies to LS-1 Model Only

Specifications

POWER	1/10th Hp, 110V US/220-240V EU, AC Motor, 1.5 Amp US/0.7 Amp EU, 50/60 Hz
MAX. SEWING SPEED	500 (Stitches/Minute)
SHUTTLE	Oscillating (Cam/Rocker Arm Driven)
MAX. STRAIGHT STITCH LENGTH	6 mm
NEEDLE BAR STROKE	30 mm ● / 34mm ●
NEEDLE SYSTEM	135 x 17, 135 x 16
BED SIZE	14.5" x 7"
UNDERARM SPACE	7" x 4.5"
PRESSER FOOT LIFT	3/8"
BOBBIN SIZE	Class 15 / Style A (20.5 mm Dia. x 10.8 mm H)
NEEDLE SIZE RANGE	#10–#22
THREAD RANGE	Home Sizes to V-92
HEAD WEIGHT	35 lbs.



All parts and labor are fully guaranteed for 2 years by Sailrite.

We are proud to provide you with everything you need to successfully maintain and repair your Ultrafeed®. Should you choose to return your machine for repairs, you will be responsible for delivery both ways.

PLEASE NOTE:

Damage due to improper use or neglect, impact damage, and normal wear from use of the sewing machine as well as sacrificial components and notions (needles, retaining ring cap spring, and gib hook) are not covered under this warranty.



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Guidebook for Sailrite Ultrafeed LS-1 & LSZ-1

Qty: 1

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