

Checking and Adjusting Your Needle Bar Height

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Summary:

Prior to doing ANYTHING with your timing, it is absolutely necessary to check the needle bar height. The needle bar is the long cylinder that holds your needle. Provided the needle is seated in it properly (the needle is not backwards, not slightly rotated, and/or not fully inserted) this is the first check and adjustment made before anything else. If you time the hook to a needle that is not inserted fully into the bar, you've wasted your time (no pun intended). The next needle might be seated properly, but now the needle will be too high, resulting in the hook hitting the scarf too low, skipped or broken stitches, potential hook damage and general frustration.

What you'll see if it's incorrect:

Incorrect needle bar height can look like incorrect timing. You might hear a ticking noise (needle is in backward, is too low or too high) and see skipped stitches or be unable to draw up the bobbin thread consistently. There can also be frequent thread breaks or your needle can heat up due to increased friction. In extreme cases, you might also see damage to your anti-backlash spring from the needle actually coming into contact with it.

What causes it to move?

The most common issue is that you didn't seat the needle correctly. If your needle bar is older, it might have been drilled to handle Singer needles, which are no longer available. Singer has been acquired by Groz-Beckert, and those needles have been discontinued. The G-B needles work great, but their shaft is slightly larger.

Sometimes, you can use a small drill bit and hand turn it in the needle bar to remove any small burrs, allowing the needle to be inserted without difficulty. If it is still tight or you have grip problems, you can use a pair of needle nose pliers covered in felt to push the needle all of the way in. Hold the needle on the smooth shaft – not where the vertical slot is that runs down the lower portion of the front of the needle. You can damage this, which would lead to thread breaks and further problems.

You'll know the needle is all of the way in if you look through the small hole above your needle set screw. The top of the needle should be seated at the top of the hole. If you can see space above the needle, it is not properly seated.



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If the needle is so tight you can't seat it properly, you might need a new needle bar. These are not terribly expensive, but the work should be done by your dealer. The older needle bars were heavier and longer, and you might find you really like the newer shorter aluminum versions. Changing them can eliminate a lot of vibration at the front of the machine.

Other causes of the needle bar no longer being at the right height include the collar and screw that hold it in place not being as tight as possible, or you might have hit a stack of seams, layers of fusibles, pin, needle plate (if your needle was deflected into the plate while sewing) or something else that jammed the needle bar out of position. Thick seams and other obstructions can also cause it to be lower if the needle was stuck down, and the machine tried to yank the needle bar up. This is one of those screws that needs to be very tight to prevent movement either way.

Tools that you'll need:

- Flat head screwdriver (with sharp tip)
- New needle
- Needle alignment magnet (optional)
- Small screwdriver or Allen wrench to replace your needle
- Flashlight

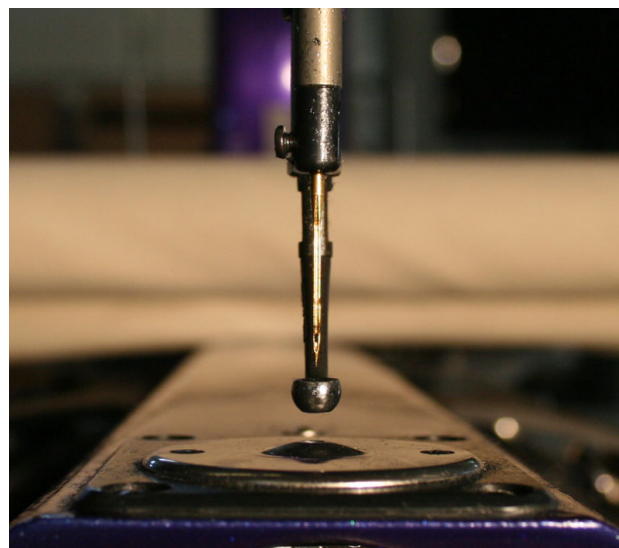
How to set it correctly:

Step 1

Put in a new needle. Make sure it is in appropriately and properly seated. Use a needle alignment magnet to make sure the needle is in perfectly straight.



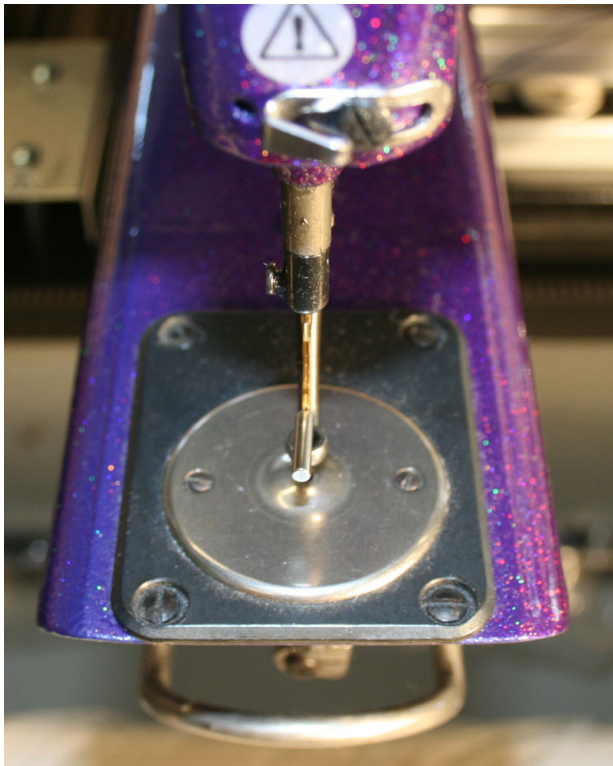
Needle showing through hole above needle set screw. The top of the needle is firmly and visibly seated at the top of the hole.



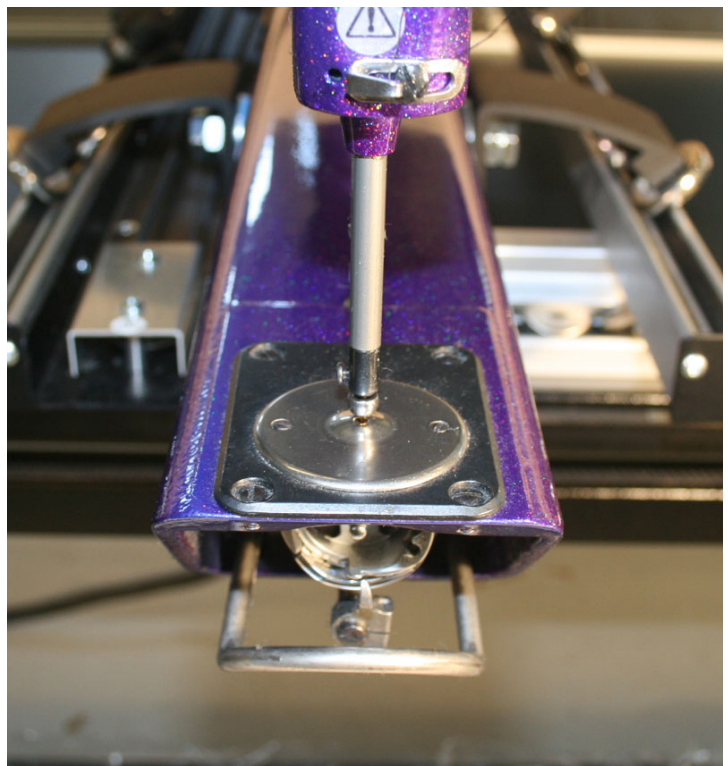
The needle is in properly - note that there is a vertical channel along the front of the needle.



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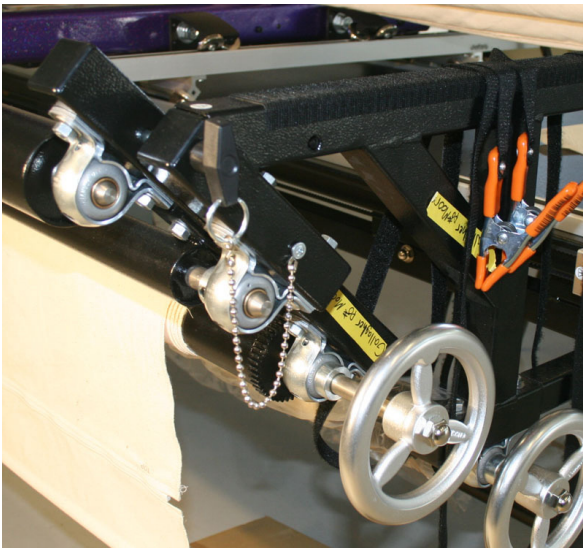
Needle alignment magnet showing needle is in proper position.



Needle in the lowest position.

Step 2

Remove the bobbin case. Lower the needle to the lowest possible position. Using the flashlight (and your reading glasses, if needed) look straight into the bobbin area. This is important! You want your eye to be perfectly level with the eye of the needle. On the new sit or stand tables, the belly bar might be in your line of vision. Tilt it outward and hold it in place with the pin on the right side of the frame. Now, you can look above the belly bar and be at the correct angle. Again, check that the needle is in its lowest position.



The pivotal access in the normal position on the sit or stand tables on the left, on the right is it tilted outward and held in place by the pin for the best view of the bobbin area.



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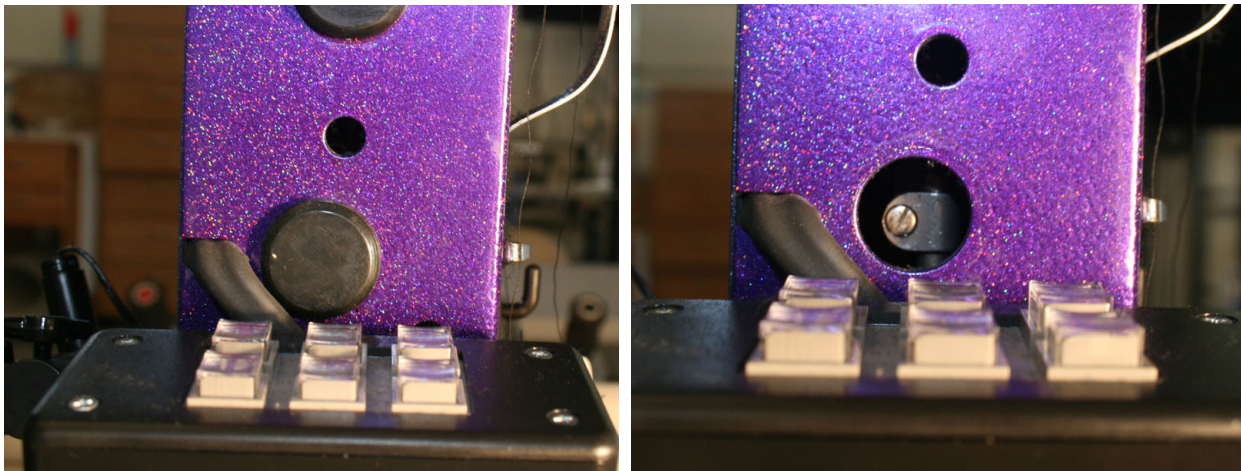


In the image on the left, the needle bar is too high, it's perfect in the center, and on the right it is too low.

You should be able to see 95 percent of the eye of the needle. If you see the top edge of the eye, the needle bar is down too far. To see this, look for the flashlight to reflect on the metal at the top of the eye. If you don't see nearly all of eye, the needle bar isn't down far enough.

Step 3

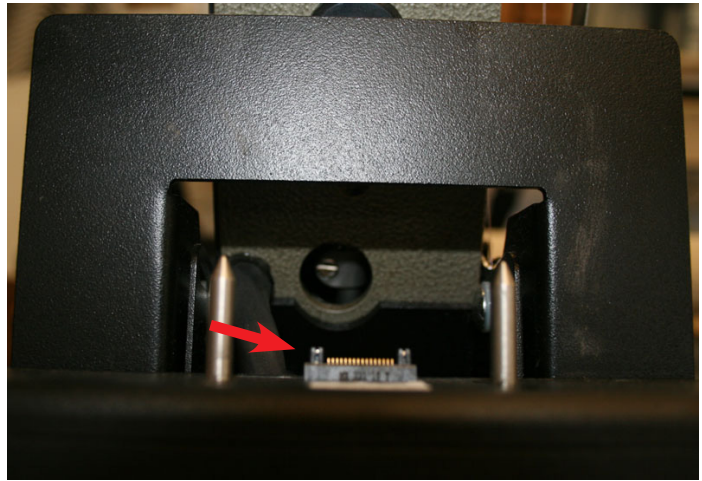
If the needle bar isn't set correctly, you'll need to adjust it. To do this, remove the plug in the front of the machine to expose the hole where you can access the screw holding the needle bar in place. If you have a plus machine, you'll need to remove the front display. On a Vision, remove the module to get to this hole (there may not be a plug in these machines).



The plug shown is on a Statler, when the plug is removed, you can see the screw that holds the needle bar in place.



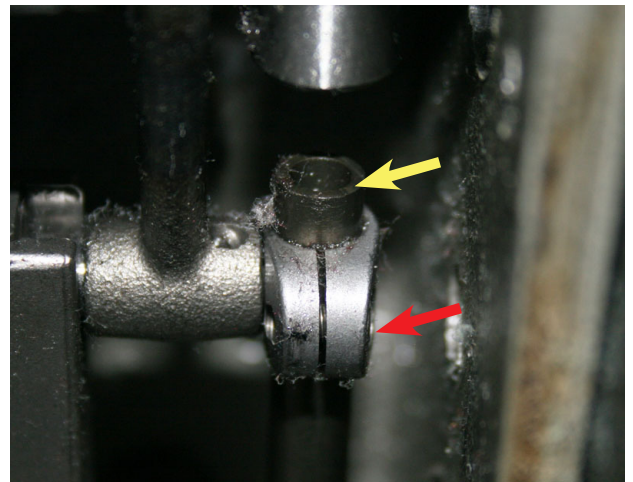
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Remove the front display on a Plus machine by removing the Allen screws shown by the arrows in the image on the left. On the Visions (right), you'll remove a plug, and you can see the screw holding the needle bar. Use **EXTREME** caution to make sure you don't allow your screwdriver to touch the contacts indicated by the red arrow.

Hold the needle bar in place with your non-dominant hand. With your dominant hand, turn the screw counterclockwise just until the needle bar will rotate. Tighten it slightly to prevent the needle bar from moving freely, or worse, dropping. (Caution: if you loosen the screw too far, and take your hand off the needle bar, the bar can slip down and out of the collar that holds it in place. If that happens, you might want to speak with your dealer to get it back in the proper position.)

CAUTION: IF YOU ARE WORKING ON A VISION, DO NOT ALLOW THE SCREWDRIVER TO REST ON THE MODULE CONTACTS!!! THIS CAN SERIOUSLY DAMAGE YOUR MACHINE!



With the plate on the left of the machine removed, this is an image of the collar that holds the needle bar in place. Note that the screw is to the left of the needle bar (in this photo the screw is shown with the red arrow and the needle bar with the yellow). If you drop the needle bar, it will need to be returned to this position.

Now, this is where you'll need a third hand unless your light can be positioned to shine in place without you holding it. Drop to where you're looking at the eye of the needle while your screwdriver is still held in place in the screw with one hand, and your other hand is holding the needle bar. Loosen the screw and position the needle bar in the proper place. Tighten the screw. Double check the placement, then **really** tighten the screw securely.

Hint: this is a great time to have someone assist you. If you can adjust the needle bar and hold the light, the second person can tighten the screw.



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Step 4

Replace the bobbin case/bobbin and thread the top of the machine. Hold the thread under the foot at 9 o'clock. Turn the hand wheel clockwise and pull up the bobbin thread. Take a few stitches to make sure that the hook is grabbing the top thread and is completing a stitch.

Step 5

Put a fabric sandwich on and test the stitch by hand turning the wheel. If satisfied, double check that the screw is tight and replace the rubber plug (or the display on Plus machines, or module on Visions). If your plug is loose, you can get an inexpensive replacement from your dealer. Sometimes oil can cause them to shrink. Turn on the machine and test the stitch.

If you are still getting skipped stitches or thread breaks, the timing might truly be incorrect. ***Only after you have confirmed that the needle bar is correct should you ever attempt to adjust the timing.***



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