Spindle Brake Deluxe Little Machine Shop HiTorque Mini Mill Installation Instructions

The enclosed Spindle Brake Deluxe is for use on the Little Machine Shop HiTorque Mini Mill and all Sieg SX2 compatible mills. The Spindle Brake provides a semi-automatic method of locking the spindle freeing both hands to complete a tool change. A safety switch (electromagnetic interlock) ensures that power to the motor is disabled with the spring plunger in the engaged position.

What's Included

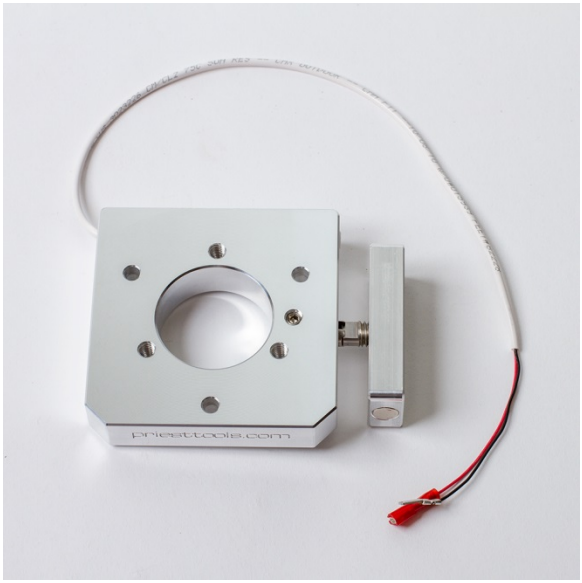
1 Spindle Brake Deluxe plate
2 Switch
3 Knob with magnets
4 Spring plunger
5 M5-.8x25mm socket cap screws (3)
6 1/4-20x.75" socket set screws (3)
7 1/4-20x.25" socket set screws (2)
8 1/4-20x.25" socket set screws (nylon)
9 Insulator
10 Installation instructions

Tools Required for Installation

4mm and 1/8" hex wrenches

CAUTION! NEVER OPERATE THE MILL WITH THE SPRING PLUNGER ENGAGED WITH THE MILL SPINDLE.

Installation



1. Disconnect power to mill, remove tooling from spindle, and raise mill head to near its highest point.

2. Thread the knob (short) end of the spring plunger into the supplied knob. Secure the spring plunger with one of the supplied 1/4-20x.25" socket set screws.

3. Thread the other (nose) end of the spring plunger into the Spindle Brake plate until the nose of the spring plunger in the retracted position is flush with the plane of the spindle hole in the plate. Align the length of the knob with the length of the Spindle Brake plate with the spring plunger retracted keeping the nose of the spring plunger even with, or slightly back from the plane of the spindle hole of the plate.

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Important! With the spring plunger retracted (nose flush with the end of the plunger body), the knob should be parallel with the side of the plate, and the magnet on the end of the knob in close proximity to the end of the switch as shown in the picture.

When the spring plunger is compressed (nose extending out from the end of the body), the knob should be perpendicular to the side of the plate.

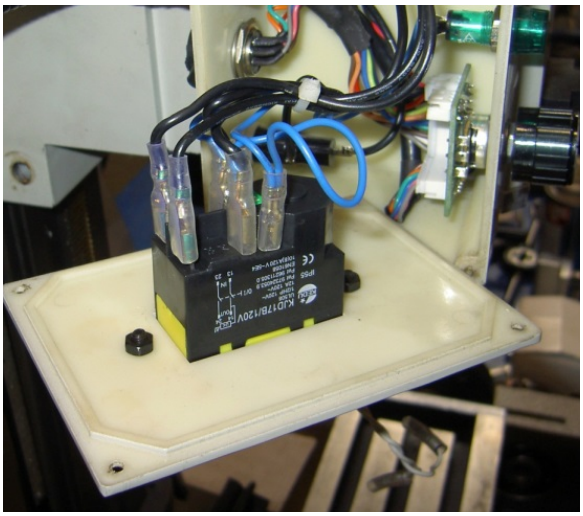
4. Insert the wire leads of the switch through the 1/4" hole which runs the width of the plate. The Spindle Brake should look like the picture above at this point in the installation.

5. Remove 3 M5-.8x8 cap screws and plastic bearing cover from the underside of the mill around the spindle.

6. Slide the Spindle Brake Plate over the spindle with the rounded-edge facing down and the spring plunger to the right. Install the supplied Socket Cap Screws (SCS) only finger tight. Pull, rotate, and release the Spring Plunger so the tip rests against the side of the spindle. Rotate the spindle until the tip engages.

7. With the pin engaged with the spindle, align the Spindle Brake Plate so that the spring plunger operates smoothly, and then completely tighten the plate.

   If the tip of the spring plunger does not engage with the spindle lock pin hole, follow the Height Adjustment procedure at the end of these instructions.



8. Remove the 4 screws holding the cover of the electrical box and remove the cover.

9. Locate a 1/4” hole on the bottom of the box 1” forward from the back of the box and 3/4" out from the headstock. Center punch and drill the 1/4” hole.

10. Run the wires from the Spindle Brake Safety Switch up through the 1/4" hole that was drilled into the electrical box.

11. Disconnect the wire pair from the small terminal on the side of the mill power switch.

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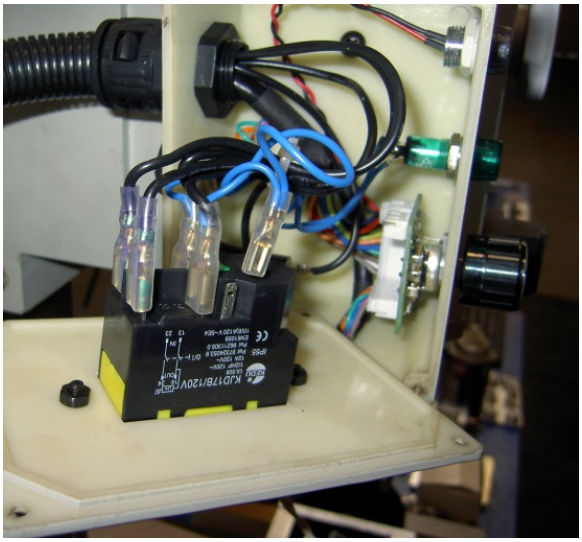
12. Place the plastic insulator over the male connector and onto the wire of the Safety Switch.



13. Plug the Safety Switch male connector into the female connector that was just disconnected and twist the insulator up over the edge of the insulation on the female connector. This is a tight fit.

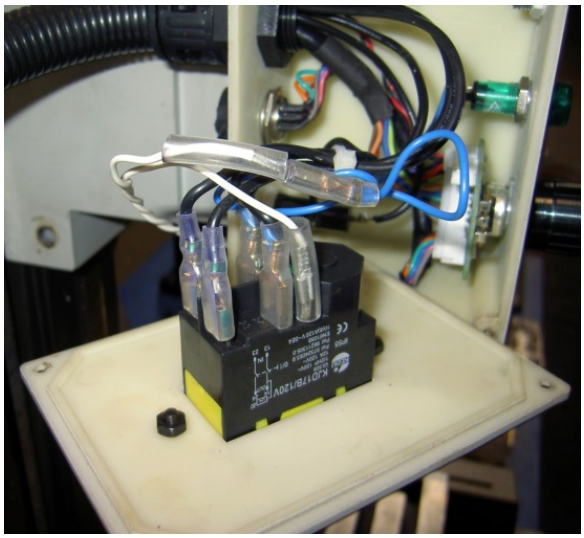
14. Slide the insulated female connector of the Safety Switch down onto the male connector of the power switch. This is a tight connection and the male connector on the power switch may have to be gently bent outward slightly from the switch to enable this connection.

15. Gently tuck the wires back into the electrical box and re-install the cover.

16. Restore power to the mill. Check the operation of the Spindle Brake Spring Plunger. The mill should operate only when the magnet in the Spring Plunger is pointing at the Safety Switch.

17. With the spindle stopped, pull, turn, and release the spring plunger against the spindle. Rotate the spindle until the Spring Plunger engages with the hole in the spindle. In this position, with the magnets pointing up and down, power to the mill should be disabled

    Congratulations, installation of your new Spindle Brake is complete!



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Height Adjustment

Use this procedure if the spring plunger of the Spindle Brake is not in alignment with the spindle lock pin hole causing the Spindle Brake to not engage (lock) the spindle.

Due to manufacturing variance of the vertical position of the spindle lock pin hole, it may be necessary to use the 3 Socket Set Screws (SSS's) located in the Spindle Brake plate to space the plate slightly away from the mill head so that the spindle lock pin hole aligns with the plunger tip of the Spindle Brake.

a. Start with the Spindle Brake mounted to the mill.
b. Remove the set screw holding the spring plunger.
c. Remove the spring plunger from the Spindle Brake.
d. Sight through the spring plunger hole to see how far off-center the spindle lock pin hole is relative to the spring plunger hole.
e. Unscrew all 3 Socket Cap Screws (SCS's) that hold the Spindle Brake plate to the mill head, <u>evenly</u> and far enough so that the spindle lock pin hole is in the center of the Spindle Brake spring plunger hole.
f. Tighten the Socket Set Screws (SSS) <u>evenly</u> until they come in contact with the spindle bearing surface recessed within the mill head.
g. Tighten the SCS's.
h. Reinstall the spring plunger and it's set screw with the orientation (slot in the body running vertically) as shown in the picture on Page 1
i. Check the operation of the Spindle Brake spring plunger to see if it engages properly with the spindle lock pin hole.
j. If the spring plunger engages properly with the spindle lock pin hole, then this procedure is completed. If not, then repeat this procedure making fine adjustments with the SSS's/SCS's until the spring plunger engages properly with the spindle lock pin hole.

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