Spindle Brake Precision Matthews PM-30MV Installation Guide

The enclosed Spindle Brake is for use on the Precision Matthews PM-30MV mill. The Spindle Brake locks the spindle to facilitate tool changes. With the Spindle Brake engaged, power to the mill is cut allowing for safe tool changes.

What's Included

1. Quill plate
2. Lock plate
3. Side plate
4. Guide rail
5. Linear guide
6. Spring plunger
7. Contact switch wire assembly

Parts Bag	Use
1. Socket cap screw, 10-24 x 1"	Secure Quill Plate to quill
2. Socket cap screw, 8-32 x 1"	Attach spacer to Lock Plate to use as pull handle
3. Socket cap screw, 8-32 x .375, low head (4)	Attach Linear Guide to Lock Plate, Guide rail to Side Plate
4. Shoulder screw, 3/16 x 3/16 x 8-32 (2)	Attach Quill Plate to Side Plate
5. Pan head machine screw, 4-40 x 5/8 (3)	Attach contact switch & spring to Side Plate
6. Pan head machine screw, 4-40 x 1/4"	Attach spring to Lock Plate
7. Hex nut, 1/2-13	Secure spring plunger to Lock Plate
8. Hex standoff, male/female, 4-40 x 3/8 (2)	Attach contact switch to Side Plate
9. Spacer, #8 x 1/4 x 13/16	Attach spring to Side Plate
10. Spring, .125 x .016 x 1"	Attach Lock Plate to Side Plate
11. Threaded rod, M8-1.25 x 30mm	Quill lock handle assembly
12. Coupling nut, M8-1.25	Quill lock handle assembly
13. Hex nut, M8-1.25 (2)	Quill lock handle assembly

Tools Required

1. Hex keys: 5/64, 3/32, 9/64, 5/32"
2. Wrenches: 3/16, 1/4, 3/4"
3. #1 Phillips screwdriver

The quill lock handle will be extended so it does not interfere with the Spindle Brake plate. Remove the quill lock handle from the mill head. Thread one of the supplied 8mm hex nuts onto the handle thread, then the 8mm coupling nut, then the other 8mm hex nut. Tighten this assembly. Install the quill lock handle.

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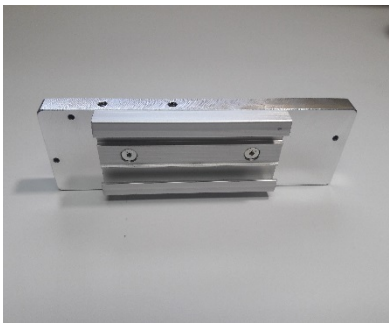
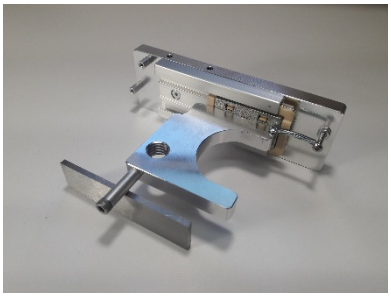
Assemble Spindle Brake



1. Attach the guide rail to side plate with 2 of the low profile 8-32 x 3/8" socket cap screws.
2. Attach the linear guide to the lock plate with 2 of the low profile 8-32 x 3/8" socket cap screws.
3. Attach the 8-32 x 1 socket cap screw and spacer to the lock plate.
4. Attach the spring to the lock plate with the spring facing the rear of the plate using the 4-40 x 1/4" machine screw.
5. Slide the linear guide w/lock plate onto the guide rail with the spring facing the end of the side plate with the one threaded hole.
6. Attach the other end of the spring to side plate with one 4-40 x 5/8" machine screw and 4-40 hex nut.
7. Install the 4-40 hex standoffs.
8. Attach the main plate on top of the side plate using the 3/16" shoulder screws. The shoulder screws create a close fit. Carefully thread these screws until finger tight. When both screws are seated, tighten these screws.
9. Thread the spring plunger up through the bottom of the lock plate. Thread the 1/2-13 hex nut onto the spring plunger as it is being threaded into the lock plate. With the spring plunger retracted, the end of the threaded shaft should be just below the bottom of the lock plate. Tighten the hex nut to secure the spring plunger.
10. Attach the contact switch to hex standoffs mounted on the side plate using (2) 4-40 x 5/8" machine screws.
11. Thread 10-24 x 1 1/8" socket cap screw into slitted hole. Do not tighten.

Install Spindle Brake

1. With the spring plunger engaged (nose extended), slide the lock plate forward until the tip of the spring plunger slides into the receiving hole in the main plate.
2. Lift the Spindle brake up onto the quill sleeve. The guide rail mounted under the main plate acts as a stop to seat the Spindle Brake. Square and level the Spindle Brake with the front of the mill. Lightly tighten the 10-24 socket cap screw which tightens the main plate on the quill sleeve.
3. <u>This step is very important to allow the Spindle Brake to work correctly.</u> Make fine alignment adjustments to the level and seating of the main plate until the lock plate moves back and forth freely and smoothly and engages completely with the bottom of the spindle and its flats. When the alignment is completed, tighten the 10-24 socket cap screw.



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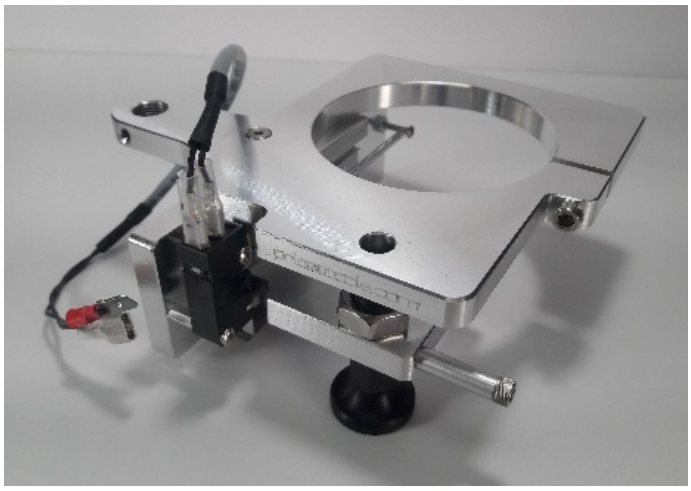
Wire Spindle Brake

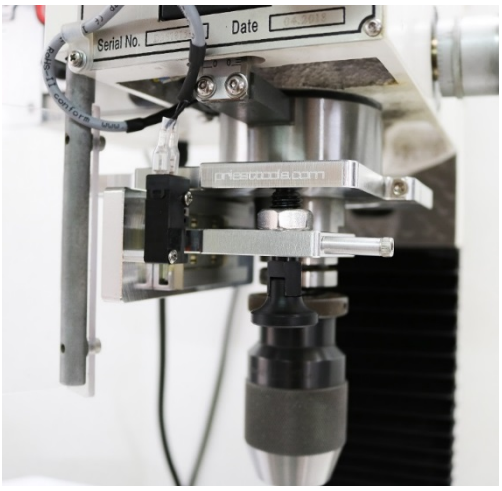
The Spindle Brake contact switch wires connect to the mill's chip guard switch wires. To access the mill's chip guard switch wires, the chip guard, switch enclosure, and switch must be removed. Connect the male disconnects of the Spindle Brake to the female terminals of the mill's chip guard switch wires and tuck these up into the headstock where they will not interfere with the spindle. When the contact switch is released (Spindle Brake lock plate engaged), the circuit is broken and power to the mill is cut.

1. Refer to Page 24 of the PM-25MV Owner's Manual
2. Remove chip guard switch box
3. Disconnect mill Wire #4 female terminal from mill limit switch and insert male terminal of Spindle Brake wire #1 (limit switch NC2)
4. Connect Spindle Brake wire #2 female terminal to mill limit switch
5. Test Spindle Brake limit switch
6. Re-install chip guard switch box
7. Attach wire clip

Spindle Brake Operation

1. With the spring plunger engaged (nose extended) in its receiving hole in the main plate, retract and rotate the knob of the spring plunger to its open locked position.
2. The spring on the lock plate will pull the lock plate back to contact the spindle.
3. Rotate the spindle until the flats on the lock plate align with the flats on the spindle. If aligned correctly, the lock plate should snap back to engage with the spindle.
4. When the tool change is complete, turn the knob of the spring plunger releasing the locked open position. The tip of the spring plunger should now be pressing up against the bottom of the main plate. Pull the lock plate forward until the nose of the spring plunger snaps up into its receiving hole in the main plate. The Spindle Brake is now dis-engaged and power to the mill is restored.





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