

Installing the Economy Air Spring Kit

The air spring kit replaces the torsion-spring head support on the mini mill and provides greater travel on the Z-axis.



The economy air spring kit includes the following parts:

- One air spring
- One head support shaft
- One air spring lower mount
- One air spring upper mount
- One long Z-axis rack
- Four M6x12 flat socket head machine screws
- Two M6x16 socket head cap screws
- One M8x20 socket head cap screw
- One M8x30 socket head cap screw
- Two M8 hex nuts
- Two M10 hex nuts
- One M8 flat washer

You will need the following tools:

- Hex (Allen) wrenches (2.5, 4, 5, and 6 mm)
- The end wrenches that came with your mill (14 and 17 mm)
- An M6x1.0 metric tap and tap drill (5.0 mm or #9)

- A 9 mm, letter T, or 23/64" drill bit
- An electric hand drill

Expect to spend about one hour on this project.

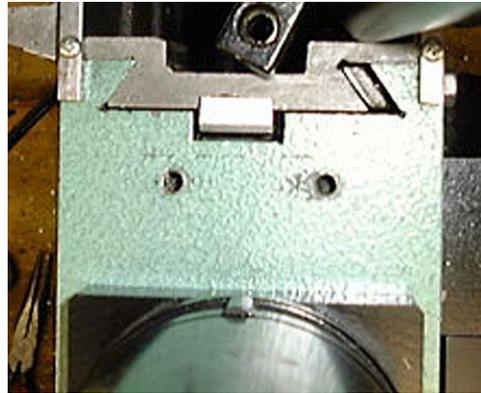
Installation

Follow these steps to install the kit.

1. Remove the cover from the column.
2. Drill a hole 15.0" below the top of the column casting, centered in the back of the column. Use a 9 mm, letter T, or 23/64" drill bit.



3. Drill and tap two M6 holes into the top of the spindle housing mount casting positioned as shown on the Air Spring Mounting Holes drawing at the end of this document. Use a 5.0 mm or #9 (0.196") drill bit. Use an M6x1.0 tap to thread the holes.



4. Drill and tap one M6 hole into the front of the column casting positioned as shown on the Z-Axis Stop Mounting Hole drawing at the end of this document. Use a 5.0 mm or #9 (0.196") drill bit. Use an M6x1.0 tap to thread the hole.



5. Assemble the M8x30 socket head cap screw and an M8 hex nut on the rod end of the air spring. Tighten the nut and cap screw securely.

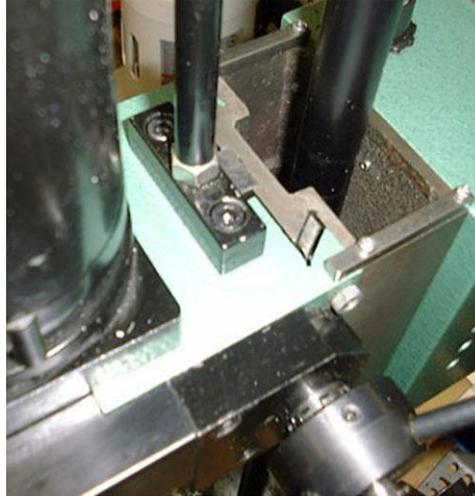


6. Put an M10 nut on each end of the head support shaft.
7. Put the air spring lower mount on one end of the head support shaft, and the air spring upper mount on the other end.



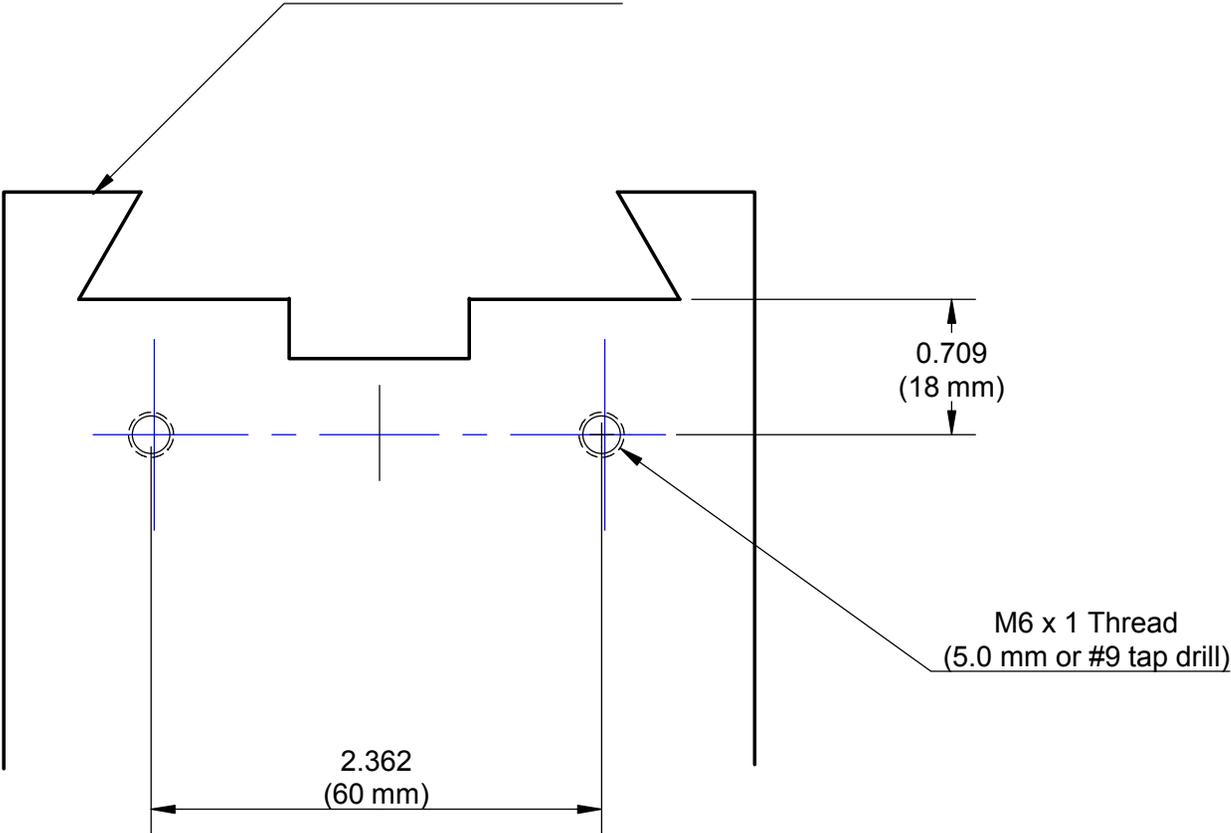
8. Attach the air spring to the upper mount with the M8x20 socket head cap screw.
9. Remove the cap screw and plastic bushing that limits the upward travel of the Z-axis.
10. Move the head so the top is flush with the top of the column.
11. Remove the two flat head screws securing the rack and remove the rack.
12. Feed the new long rack into the slot in the column from the top. Use the Z-axis feed to run the rack down into position.
13. Install the two bottom M6x12 flat socket head machine screws to secure the rack.
14. Move the head to its lowest position and install the two top M6x12 flat socket head machine screws to finish securing the rack.
15. Move the head so the top is flush with the top of the column. Lock the head in this position with the locking lever on the right side.
16. Put the air spring assembly into the column with the M8x30 socket head cap screw through the hole in the back of the casting. Secure with the M8 nut and washer.

17. Attach the air spring mounting block to the top of the spindle-housing mount with two M6x16 socket head cap screws.



18. Move the head down and install the cap screw and plastic bushing that limits the upward travel of the Z-axis.
19. Move the head to the top position and lock it in place. Remove the torsion spring assembly. Remove the anchor pin at the end of the arm first. You can control the spring by pressing down on the end of the arm. Then disassemble the spring pivot shaft and remove it.

Spindle Housing Mount



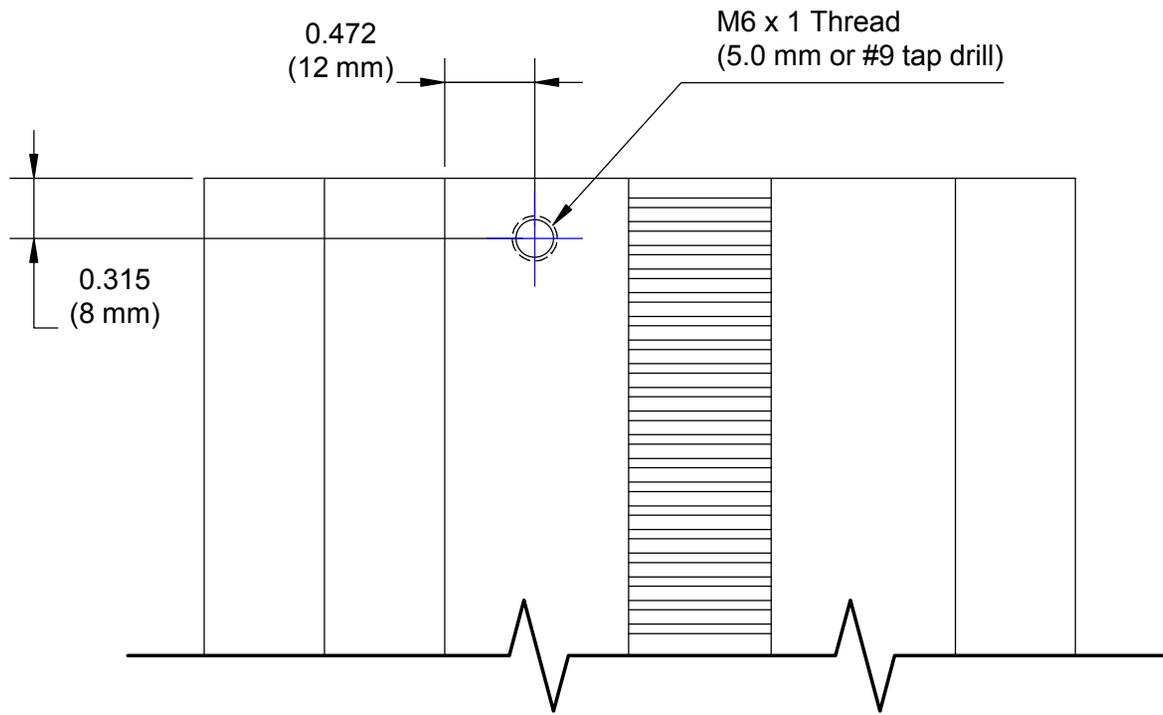
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Air Spring Mounting Holes

Revision 1

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Z-Axis Stop Mounting Hole

Revision 0

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