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## Mini Mill Tweaks & Enhancements Kit™

The mini mill Tweaks & Enhancements Kit™ includes some inexpensive parts that make a big difference to the use of the mini mill. Installing all the kit components should take no more than 15 minutes.

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|---|---|
| Heavy duty locking levers for all three axes | The locking levers that come on the mini mill are prone to stripping out, and just don't work very well. These German-made levers are a great improvement. |
| Self-locking nuts for the hand wheels | Replace both nuts on each hand wheel with one of these self-locking nuts. |
| Self-locking setscrews for the gib adjustments | These setscrews have a nylon strip embedded in the threads, so they won't move under vibration. You can forget the locking nuts. |
| T-slot cleaner | Everyone needs one or two of these to clean the swarf out of the T-slots on the mill table. |

## *Before You Start*

1. Unplug the power cord.
2. Remove any cutting tools from the mill.

## *Installing the Heavy Duty Locking Levers*

1. Locate the following items in the kit:
   - Three locking levers
2. Turn the X-axis locking lever counterclockwise as far as you can. This loosens the screw.
3. Remove the screw from the center of the locking lever. Catch the lever, screw, and spring as they come free.
4. Unscrew the remaining center screw from the mill.
5. Reassemble the old locking lever.
6. Remove the socket head cap screw from one of the new locking levers. Catch the lever, screw, and spring as they come free.
7. Screw the center screw from the new locking lever into the hole from which you removed the old locking lever.
8. Put the handle on the new locking lever and reinstall the spring and socket head cap screw. Tighten the socket head cap screw securely.
9. Turn the new locking lever clockwise to lock the axis. You can adjust the handle position by pulling out on the handle and then turning it.
10. Repeat steps 2 though 9 for the Y- and Z-axes (but not for the Z-axis travel stop).

Now you have three spare locking levers for the Z-axis travel stop. ☺

## *Installing the Locking Nuts for the Hand Wheels*

1. Locate the following items in the kit:
   - Two M8 self-locking hex nuts
2. Remove the two nuts that secure the X-axis hand wheel.
3. Install one of the new self-locking nuts.
4. Tighten until there is no play, but not so tight that you can't turn the hand wheel.
5. Repeat steps 2 through 4 for the Y-axis hand wheel.

## *Installing the Self-Locking Setscrews for the X-axis Gibs*

1. Locate the following items in the kit:
   - Four (out of ten) M6x22 dog point setscrews
2. Remove the four lock nuts on the front of the carriage.
3. One at a time, replace the old setscrews with the self-locking setscrews from the kit.
4. Snug each setscrew equally. This will lock the table in position.

5. Loosen each setscrew 1/8 turn to allow the table to move.
6. Test by turning the handle. Loosen or tighten all the setscrews the same amount until the table moves freely, but without play in the dovetail.
7. Optionally, you can reinstall the lock nuts.

## *Installing the Self-Locking Setscrews for the Y-axis Gibs*

1. Locate the following items in the kit:
   - Three (out of ten) M6x22 dog point setscrews
2. Remove the three lock nuts on the right side of the saddle.
3. One at a time, replace the old setscrews with the self-locking setscrews from the kit.
4. Snug each setscrew equally. This will lock the saddle in position.
5. Loosen each setscrew 1/8 turn to allow the saddle to move.
6. Test by turning the handle. Loosen or tighten all the setscrews the same amount until the saddle moves freely, but without play in the dovetail.
7. Optionally, you can reinstall the lock nuts.

## *Installing the Self-Locking Setscrews for the Z-axis Gibs*

1. Locate the following items in the kit:
   - Three (out of ten) M6x22 dog point setscrews
2. Remove the three lock nuts on the right side of the head assembly.
3. One at a time, replace the old setscrews with the self-locking setscrews from the kit.
4. Snug each setscrew equally. This will lock the head in position.
5. Loosen each setscrew 1/8 turn to allow the head assembly to move.
6. Test by turning the Z-axis coarse feed handles. Loosen or tighten all the setscrews the same amount until the head assembly moves freely, but without play in the dovetail.
7. Optionally, you can reinstall the lock nuts.

## *Using the T-slot Cleaner*

1. Locate the following item in the kit:
   - T-slot cleaner
2. Loosen the two fillister head screws that secure the cover on the left end of the mill table.
3. Lift the cover off the screws.
4. With the T-shape down, drag the T-slot cleaner from right to left through the T-slots to clear the swarf.
5. Optionally, replace the end cover and tighten the screws.