

VIDEO INSTRUCTIONS AVAILABLE
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**SHERLINE
PRODUCTS**
INCORPORATED 1974

NOTE
The 10,000 RPM Pulley Set (P/N 4335) does not work with the 3C Collet Headstock (P/N 30113)

Sherline/MASSO Controller Changes for the 10,000 RPM Pulley

Instructions for Using the 10,000 RPM Pulley with the Sherline/MASSO Controller

The Sherline/MASSO controller is set up to run our standard RPM range of 70 – 2800 RPM. The controller can run your 10,000 RPM pulley. However, you will need to make some changes to the “Spindle” settings on the controller setup page.

Modifying the 10,000 RPM Pulley Hardware

You will need to add the special tach washer (P/N 87809) to the 10K pulley set with double-sided tape. This aluminum washer is the same diameter as the tach spindle pulley RPM sticker (P/N 68060), and is used to mount the sticker for use with the MASSO optical encoder.

First, remove any dirt, oil, or grease from the mounting surfaces of the washer and pulley. You can use rubbing alcohol on a clean cloth or paper towel. Then, place the Tach/Encoder sticker on the washer.

Next, adhere the double-sided tape to the pulley surface as indicated in the diagram and then firmly secure the tach washer onto the pulley (see Figure 1).

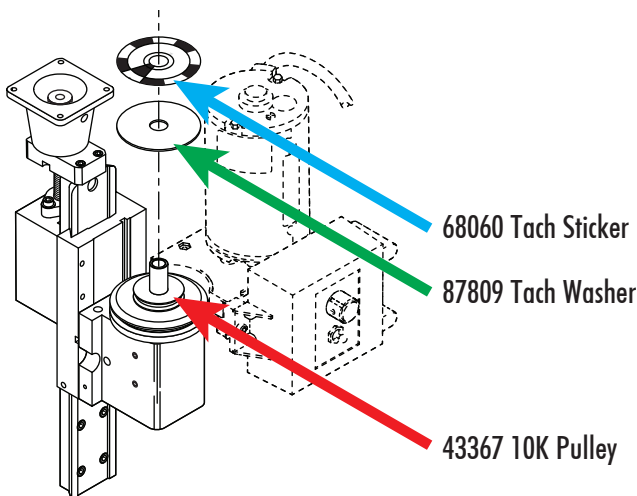


FIGURE 1—The red arrow points to the pulley surface where you need to adhere the double-sided tape.

Modifying the Spindle Speed

- Click on the F1 – SETUP tab in the lower-left corner of the monitor.

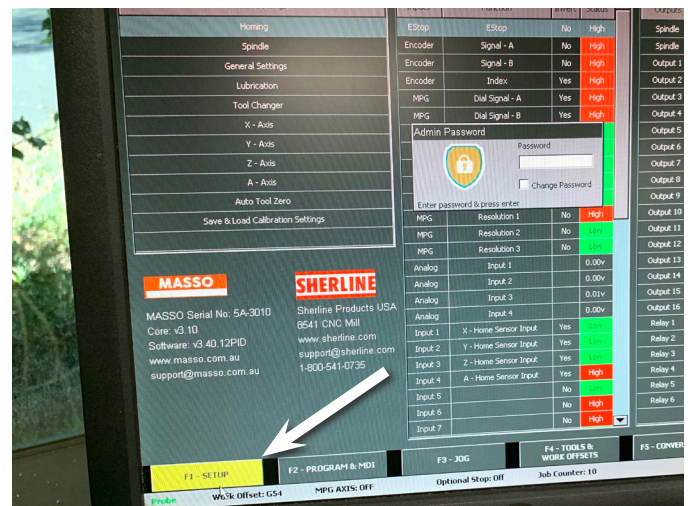


PHOTO 1

- Enter the password.

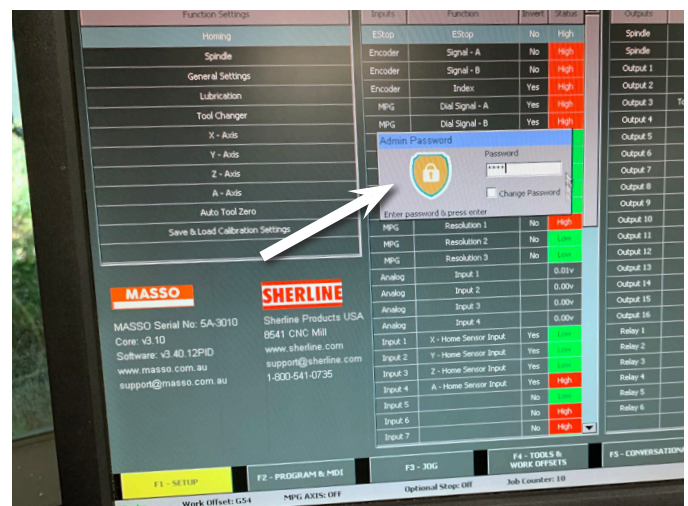


PHOTO 2

3. Click on “Spindle” in the Function Settings window.

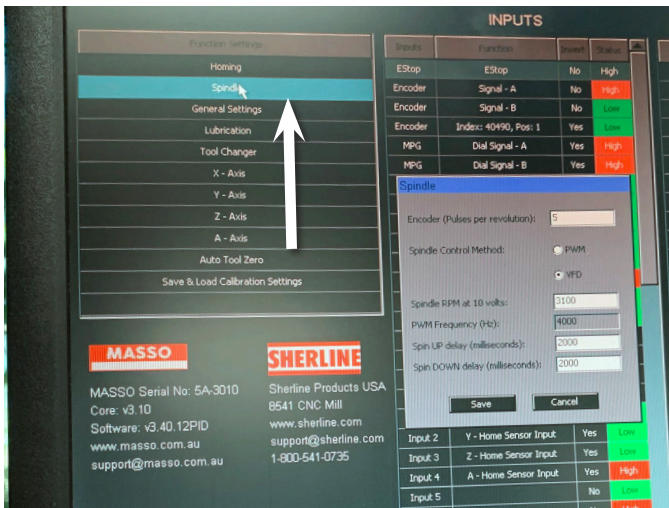


PHOTO 3

6. Click on the F2 – PROGRAM & MDI tab.

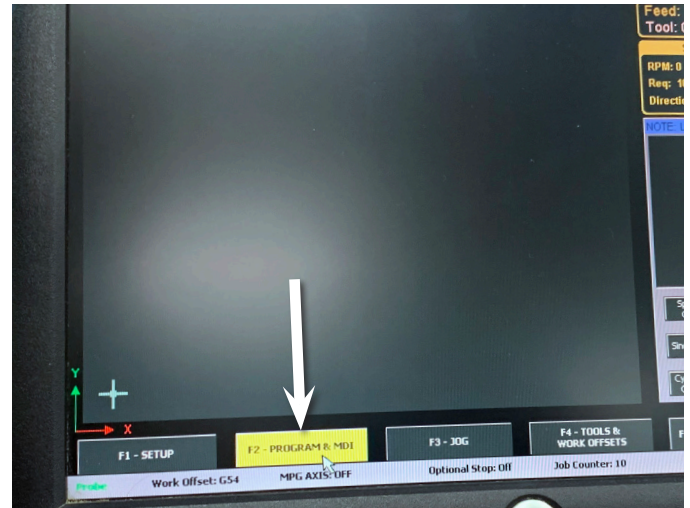


PHOTO 6

4. Set the Spindle RPM to 10000 in the Spindle dialog box.

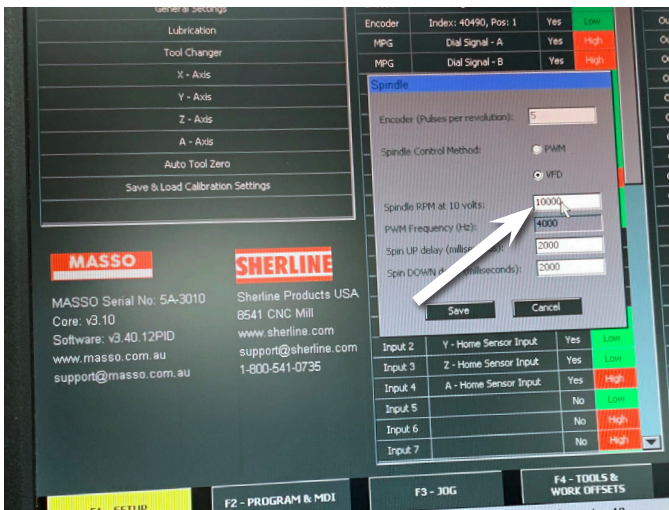


PHOTO 4

7. Click in the blank box.



PHOTO 7

5. Click “Save.”

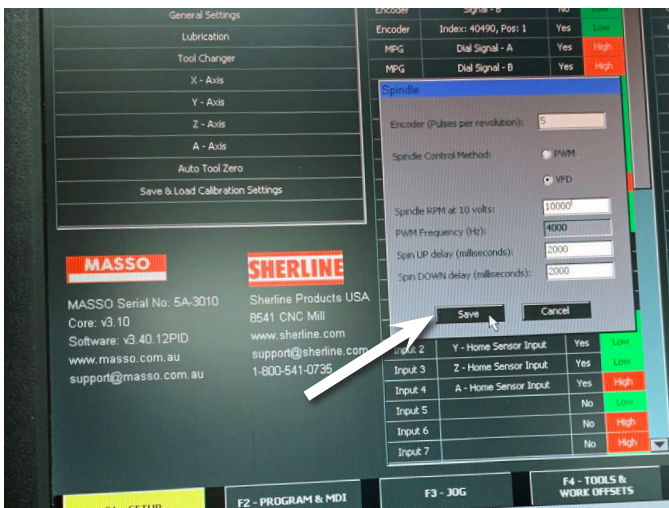


PHOTO 5

8. Enter “10000.”



PHOTO 8

9. Click the “Spindle CW” button.



PHOTO 9

10. Monitor the Spindle RPM to make sure it is spinning within an acceptable range.

NOTE: The RPM will fluctuate up and down a bit until it settles out. This will take a few seconds. After the RPM have settled, they will still fluctuate slightly above and below the given RPM by an amount that is acceptable.

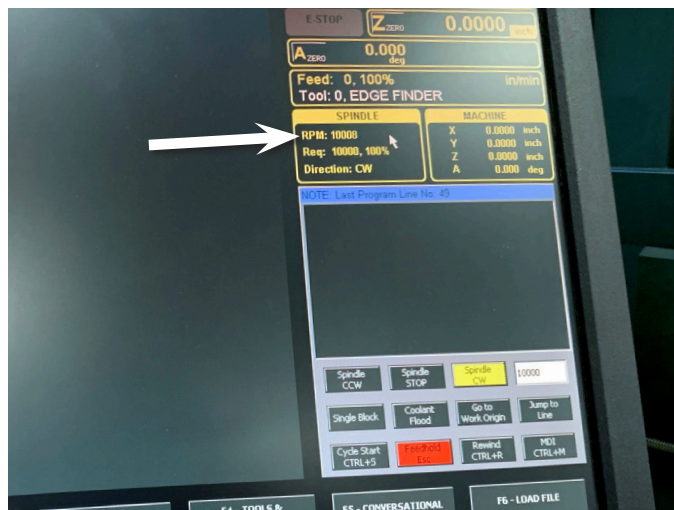


PHOTO 10

Thank you,
Sherline Products Inc.

CAUTION

Do not connect or disconnect the optical encoder connector or the ground wire with the power on or you will do irreparable damage to the optical encoder!

The power must be off while adjusting the encoder.

Troubleshooting the 10,000 RPM Pulley with the MASSO Control

We have recently been informed that there is a problem with the 10,000 RPM pulley working with our MASSO control.

NOTE: The 10,000 RPM pulley is mechanically and electronically capable of achieving 10,000 RPM max. However, without the ability to use an oscilloscope to fine tune the encoder orientation, the maximum “programmable RPM” may be limited to 8,000 or 9,000 RPM.

Stating the Problem

What we found was that using the optical encoder headstock spacer (P/N 87816) and the encoder gap gauge (P/N 87813, .129”), the encoder orientation was fine when the maximum RPM was 2,800. However, we found the following problems when using the same encoder orientation with the 10,000 RPM pulley:

1. At RPM above 3,000-4,000, the RPM would first increase above the entered RPM value. Then instead of coming down to the entered value, the RPM would go to the maximum of 10,000. The RPM read-out on the MASSO control would read “0,” while the actual RPM was at 10,000.
2. If you turned the spindle off and then tried to turn it back on, the spindle continued to go to the maximum RPM of 10,000 (regardless of the value entered).
3. The only way to reset the spindle RPM was to power the control off and back on.

The Solution to the Problem

1. Using an oscilloscope, we altered both the encoder gap and the spacer thickness until we achieved an encoder orientation that allowed the full RPM range up to 10,000 without any issues.
2. The encoder gap is .055” from the tach sticker to the encoder A & B readers on the bottom of the encoder (see Figure 2), or .005”-.010” between the tach sticker and the bottom of the encoder cover (see Figure 3).

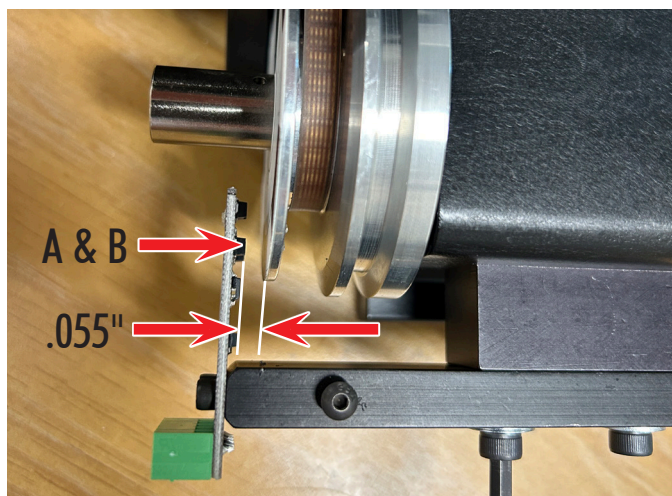


FIGURE 2—Showing .055” gap between the tach sticker and the A & B LEDs.

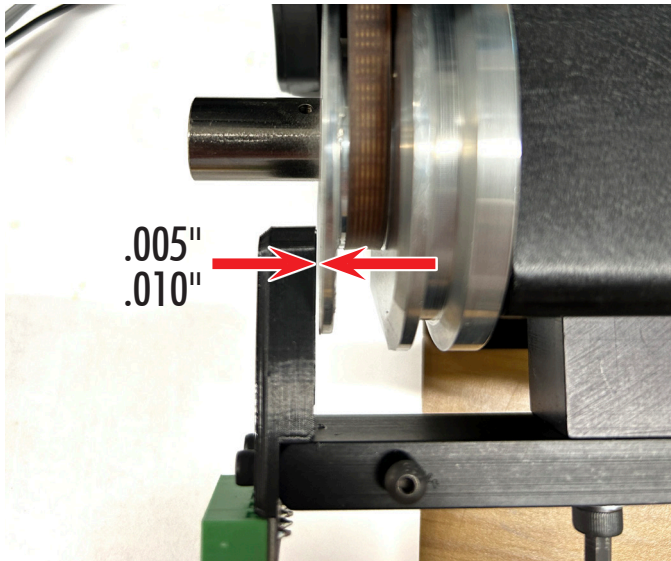


FIGURE 3—Showing the .005"-.010" gap between the MASSO encoder cover and the tach sticker.

3. The encoder headstock spacer (P/N 87816) thickness has been changed to (.790"-.795"). This is an increase of approximately .085" from the original spacer thickness.
4. Customers who are having a problem with their 10,000 RPM pulley with the MASSO control can either add a .075"-.085" spacer piece (or shim stock) under the existing headstock spacer (see Figure 4), or contact us for a new spacer (P/N 87816) that is .790"-.795". Then they will need to adjust the encoder gap to .055".

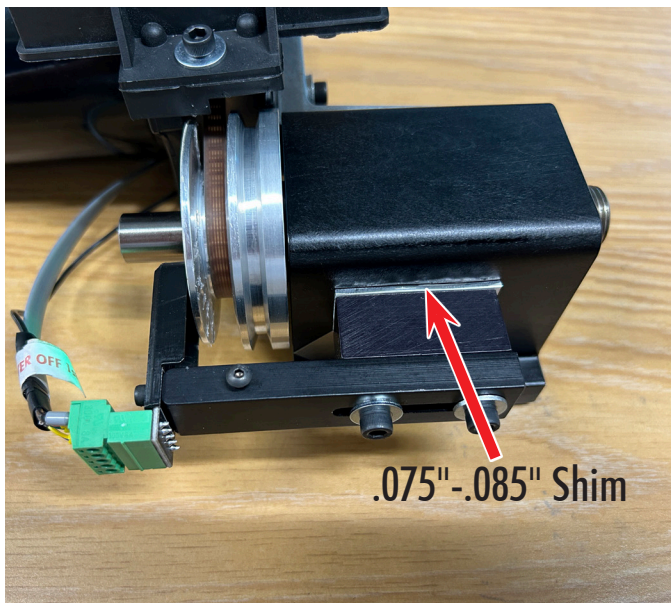


FIGURE 4—Showing the .075"-.085" shim stock installed between the headstock and the encoder headstock spacer.

5. If you have the new MASSO injection-molded optical encoder cover, no further modifications are necessary (see Figure 5). If, however, you have an older 3D-printed optical encoder cover, you will have to trim .075" from the bottom of the 3D-printed cover (see Figure 6). This is to ensure the proper gap of .005"-.010" between the cover and the tach sticker shown in Figure 3.

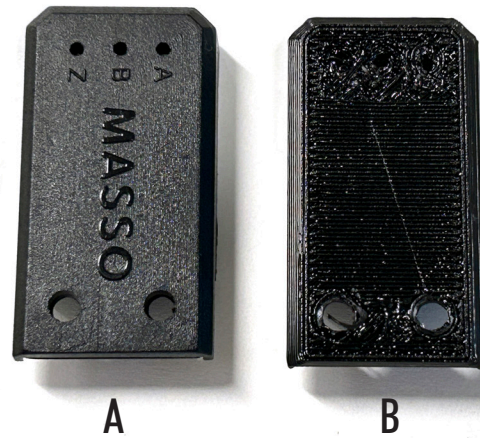


FIGURE 5—Showing the difference between the MASSO injection-molded cover (A) and the original 3D-printed cover (B).

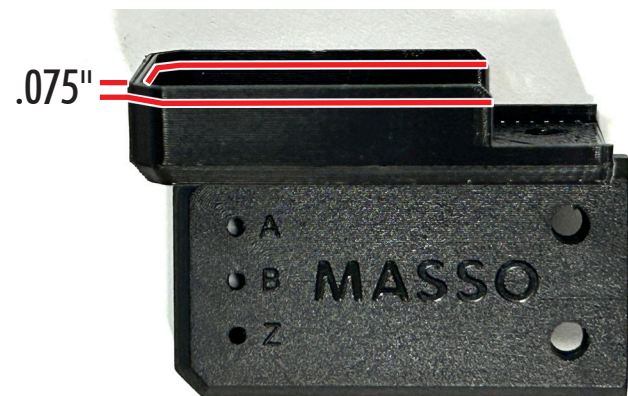


FIGURE 5—The red lines show where to trim the .075" off of the 3D-printed cover. The 3D-printed cover has been turned on its side to show where to trim.

6. Once the spacer and the gap have been reset, enter the RPM starting at 3,000 and then increase the RPM in increments of 1,000 until you reach 10,000. The RPM should climb up to the entered value and a bit higher, then come down and settle at about + or - 20 or 30 RPM of the entered value.

NOTE: You may find that the maximum RPM that you will be able to achieve "without the spindle racing to the max RPM of 10,000," may be 8,000 or 9,000. See the settings changes below that may help you to achieve a higher "programmable RPM" range.

7. Setting changes:

- A. Go to the F1 screen and click on “Main Spindle Settings”.
- B. When the Main Spindle box opens, change the Maximum RPM to (20,000). Change the Spin Up to (8000) or (10000).

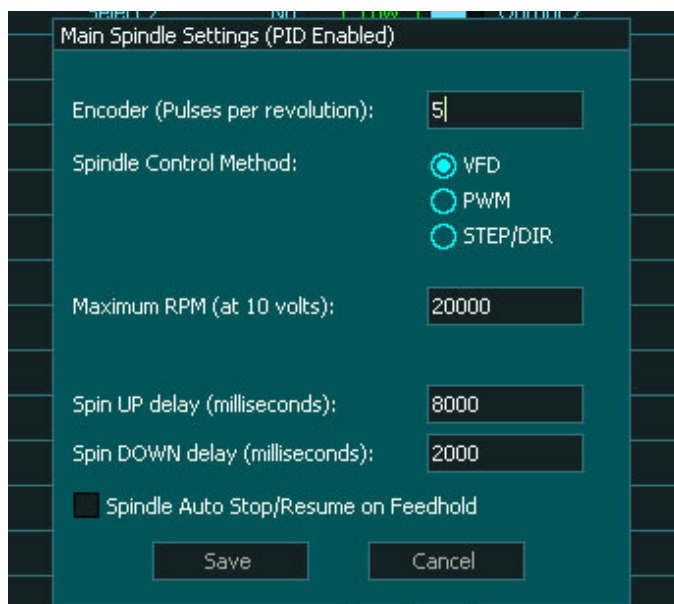


FIGURE 7—The Main Spindle Settings dialog box.