NOTE: Modifications to the wiring and addition of a reversing switch will void the warranty on your motor and speed control.

SHERLINE PRODUCTS
INCORPORATED 1974

Motor Reversing Modification Instruction Sheet

Modification to Reverse Motor Direction

It is possible to modify the electronics of your Sherline lathe or mill to make the motor run in either forward or reverse. Keep in mind that the brushes are designed to wear best with the motor running in one direction only, and changing directions will shorten their life. This is why we do not offer this feature as standard equipment on our machines. However, if you feel the addition of this feature will offset the disadvantages, the modification is not very difficult.

The modification requires adding a double pole, double throw (DPDT) switch to reverse the A+ and A- leads. The switch should be of at least 6 amp capacity. It is called a "mini toggle DPDT 6A @ 125 VAC." See Figure 1 for the proper way to wire the switch to accomplish this.

Switches of this type can be purchased at most electronics stores or from electronic component catalogs, such as:

McMaster-Carr (mcmaster.com/DPDT_Switches)
SPEMCO (spemco.com/Military Grade Locking Toggle)

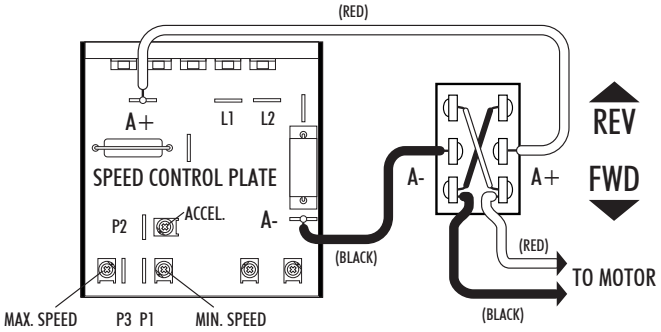

FIGURE 1—Wiring the switch to reverse motor direction. Also shown are lug attachment points and wire colors for the Sherline DC motor.

CAUTION! Make sure machine is unplugged from electrical current before opening speed control housing!

When mounting the new switch, make sure you have enough clearance within the speed control housing to route your wiring. Space is very limited and inadvertent contact with the wrong terminal or component could cause a short circuit. Use the dimensions shown in Figure 2 to drill a hole in the speed control housing to accept the switch. Then wire the switch as follows:

1. Remove the red and black motor wires from terminals A+ and A- on the speed control board and cut the female connectors off the ends of these two wires.
2. Solder the crossover wires from corner to corner on the switch terminals as shown in Figure 1. Cut the wires as short as you can to make this connection as compact as possible.
3. Solder ends of black and red motor wires to end terminals of switch as shown in Figure 1.
4. Solder new red and black wires to side (A+ and A-) terminals on the switch as shown in Figure 1. Crimp or solder on new female connectors to these wires.
5. Connect these to the A- and A+ terminals on the speed control board (See Figure 1 for locations).
6. A label is provided in Figure 2 for you to indicate Forward and Reverse directions. Glue it to the housing, cover it with clear packaging tape to protect it and use a razor knife to cut the tape out of the hole for the switch. (Adjust to proper size in a copy machine if necessary.)
7. Mount the switch to the housing cover, tuck the wires carefully back inside, and reinstall speed control unit to the machine.

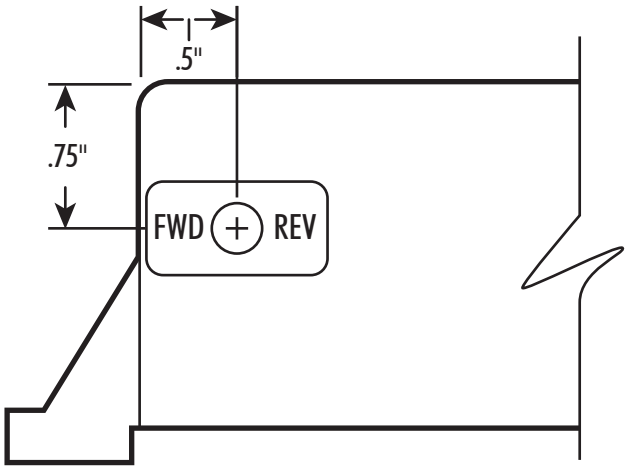

FIGURE 2—This is a template for labeling the speed control switch. Cut out and glue to the housing, or make a copy and use the duplicate if you prefer to save these instructions.

Operation of the Reversing Switch

NOTE: SEE IMPORTANT CAUTIONS ON NEXT PAGE!

It is very important to keep the following caution in mind when operating a motor modified in this manner. If you have operated large machines with 3-phase motors, you may have used the reversing switch to quickly slow down the motor. You CANNOT do that with this machine!

Thank you,
Sherline Products Inc.

CAUTION!!!

Do not reverse direction while the motor is running. Stop the motor completely before switching the current to the other direction. A current surge that can instantly burn out the speed control can occur if the switch is thrown in one direction while the motor is still turning in the other direction.

CAUTION!

Running the motor in reverse can cause an improperly tightened chuck to loosen up or unscrew from the spindle. When operating in reverse direction, take extra precautions to make sure the chuck is securely tightened.