

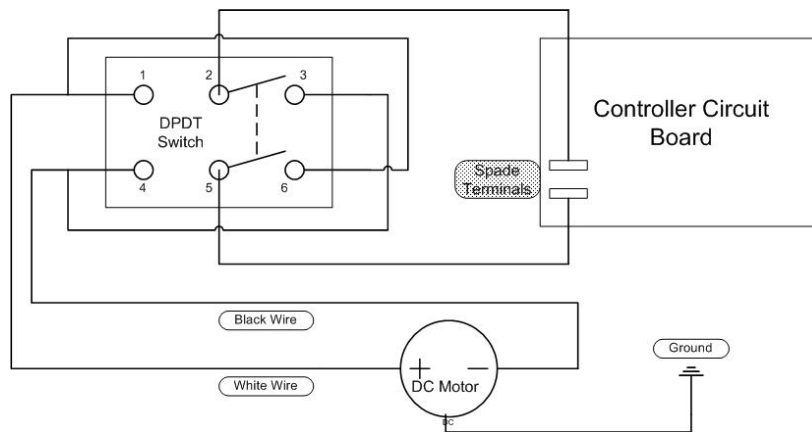
Reversing Switch for Variable Speed Jet Mini Lathe

By: Mack DeBose

The new Variable Speed Jet Mini Lathe is a welcomed upgrade from the standard Mini Lathe that has been so widely accepted among woodturning enthusiasts. It offers a wide band of speeds within three pulley ranges from 500 RPM to 3000 RPM. This is accomplished by a ½ HP DC motor and a SCR controller. Unfortunately, it does not have a spindle reverse function. It would also be nice if the low speed could be reduced to near zero RPM.

The spindle reverse function can be easily added, the zero speed may not be attainable. Further research will determine if the speed reduction can be obtained without damaged the electronics or the motor.

To add the spindle reverse function all that is needed is a DPDT two position toggle switch, some 16 gauge stranded wire, some crimp-on spade terminals and a small electronics enclosure box. This switch has 6 terminals on the back and a bat handle. Wire the switch as shown below:



- 1) On the back of the DPDT switch, connect wires (preferably soldered) as follows:
 - a) between terminals 1 and 6
 - b) between terminals 3 and 4
 - c) length of wire from terminals 1 & 4 *
 - d) length of wire from terminals 2 & 5 *

* Wire lengths will be determined by where the switch is located in relation to the existing circuit board connectors and the motor leads. Start off with approximately 8" of wire to be cut to length later.

- 2) Mount the switch in a small plastic or metal box and extend the wire leads through a hole in the box. If the box is metal, a grommet should be installed in the hole to protect the wires. The box should be as small as possible but still allowing room inside for the body of the switch and wire connections. Mount the box near the controller so that the wire leads can be kept short and unobtrusive. The best position is on the back of the controller and attached with double-sided foam tape. There should be some existing cutouts on the backside of the controller housing that will facilitate the routing of the wire leads into the housing without modifying the housing.
- 3) Be sure to unplug the power cable from the AC power source. Remove 4 screws from the Controller housing to open it and expose the circuit board.
- 4) Determine the lengths required for the 4 leads from the switch. Cut to length, strip ends and crimp on spade connectors as follows:
 - a) Wires from terminals 1 & 4 - use male spade terminals
 - b) Wires from terminals 2 & 5 - use female spade terminals (fully insulated type)
- 5) Disconnect the 2 motor leads from the spade connectors on the Controller Circuit Board. Connect these two wires (black and white) to the male connectors on the wires attached to terminals 1 & 4 of the switch. It is a wise idea to wrap these connections with electrical tape to ensure that there will be no possible electrical shorts.

- 6) Connect the 2 wires with the female connectors from terminals 2 & 5 of the switch to the spade terminals on the Controller Circuit Board.
- 7) Make sure there are no possibilities for shorts and that it is safe to power up the controller and motor. Apply power and determine at which position the switch lever will be when the spindle has forward rotation. The Forward Rotation position of the switch lever should be UP. If not, disconnect the power; swap the two wires connected to the circuit board, and re-test.
- 8) Disconnect the power cable. Use cable ties as necessary to arrange the wires in a neat and orderly manner. Close the Controller housing and re-install the screws.
- 9) Reconnect the power cable. The reversing switch should now work properly. DO NOT reverse the spindle while in motion. ALWAYS turn the controller OFF before changing direction of rotation.
- 10) BE AWARE too, that reversing the spindle will tend to unscrew a chuck or face plate if not securely tight on the threaded spindle nose.

This modification may have an effect on Jet's warranty for the lathe. There have been no permanent modifications of the lathe, motor or controller so it is reasonable to assume that the warranty will not be affected. If in doubt, the reversing switch can always be removed and the original circuitry re-connected.

