

Sherline DC Motor

Motor Mounting Instructions

1. Mount the Inner Belt Guard to the Motor using the two Standoffs (P/N 43100). Next install the Motor Pulley (P/N 43360) to the Motor Shaft and tighten the set screw.
2. Place the Drive Belt over the Motor Pulley.
3. Place the round post on the Speed Control Hinge Plate in hole on the Inner Belt Guard.
4. Set the Outer Belt Guard in place locating the other post of the Hinge Plate in its pivot hole. The Motor Standoff ends will register in the holes in the Outer Belt Guard. Make sure the Drive Belt is routed properly. Then secure the cover with (2) 1-3/8" pan head screws which go into nuts pressed into the back of the Inner Belt Guard. Don't fully tighten until everything is aligned.

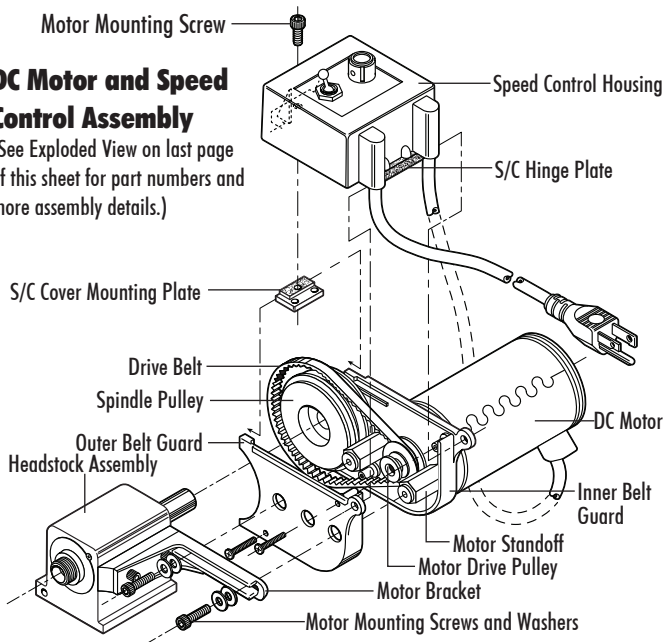
small diameter groove on the Spindle Pulley. Use of the other (low RPM) position is discussed in the instructions below.

6. Tighten the Motor Mount Screws, tilt the Speed Control Unit out of the way and check the alignment of the Drive Belt. It should be perpendicular to the Drive Pulleys. If it is not, loosen the set screw on the Motor Pulley and adjust it in or out on its shaft until the Drive Belt is square with the Motor.
7. Pull desired tension into the Drive Belt by sliding the Motor Unit out in the Bracket Slot. Tighten the Mounting Screws to hold the Motor/Speed Control unit in place.

NOTE: Do not over tension the Drive Belt. Just make sure it has enough tension to drive the Spindle Pulley without slipping under normal load. By not overtightening the belt you will not only extend its life, but will also provide a margin of safety for belt slippage should a tool jam in a part or an accident occur. The belt must be a little tighter when used in the low speed range because small diameter pulleys are not as efficient.

DC Motor and Speed Control Assembly

(See Exploded View on last page of this sheet for part numbers and more assembly details.)



5. Place the Drive Belt over the Spindle Pulley and insert the 10-32 x 3/4" socket head screws (with 2 washers on each) through the Motor Mount slot and into the holes in the ends of the Motor Standoffs. (These Standoff ends should be exposed through locating holes in the Outer Belt Guard.)

NOTE: The normal operating position for the Drive Belt is on the large diameter groove on the Motor Pulley and the

8. Set the Mounting Plate into top of the Belt Guard Housing so it rests on rails molded onto inside surfaces of housing. (The pressed-in nut goes down and to the outside.) Slide the plate toward the outside (toward the Spindle Pulley) until it stops. **NOTE:** The Mounting Plate was designed to be easily removable so it is out of the way when adjusting the Drive Belt position.

9. Rotate the Speed Control unit into place and insert the single 10-32 x 3/8" socket head screw through the hole in the Speed Control Housing and into the Nut in the Mounting Plate. Tighten enough to hold in place. Do not overtighten.

10. **NOTE:** Those of you who machine a lot of wood or brass may want to purchase and install a switch cover (P/N 3015) to keep the fine dust out of the power switch. The wood dust can gum up the switch causing intermittent operation. Brass dust can short out the switch or cause a risk of electric shock to the operator. The cost of the cover is under \$10.00.

Why Sherline Uses a DC Motor

The DC motor is much quieter than the AC motors provided before 1992. When you begin to take cuts with it, you will also notice that DC power offers a significant advantage in

torque. The DC motor provides much more usable power than the previous 1/2 HP AC motor. You still get a smooth, continuous adjustment to 2,800 RPM with the electronic speed control. The two-position pulley system offers even further speed range by giving you the option to gear the motor down even further using the new low speed/high power position. This position is beneficial when turning large parts or when low RPM is needed.

CAUTION —Motor Is Thermally Protected

Thermal protection means there is a built-in circuit breaker that will shut down the motor if it gets too hot. This keeps the motor from burning out. The breaker will automatically reset as soon as the motor cools and you can go back to cutting, but you should be aware of how it works and what to do if the machine suddenly shuts itself down. If your motor is shutting down from overheating on a regular basis, it means you are taking too heavy a cut or operating at too high an RPM for long periods. Slow your speed down, reduce your cut or feed rate, and you should have no further problems.

Due to the nature of miniature machining, overloading the machine is a common problem. It is often tempting to try to speed up the process by working faster. Keep in mind this is a small machine and precision work requires patience—don't be in a hurry. Your parts will come out better and your machine will last much longer if it is not overstressed.

What to Do if the Motor Shuts Down

If your thermal protection circuit shuts down the motor while work is in progress, immediately shut off the power switch and then back the tool out of the work. It should only take 10 seconds or less for the circuit breaker to reset. You should also disengage the tool from your part before resetting the circuit breaker. If you leave the tool engaged in the part and the power on, when the circuit breaker kicks back on, the motor must start under load; this can be very hard on your motor. You can then turn the motor on and start the cut again, this time putting a little less stress on the motor.

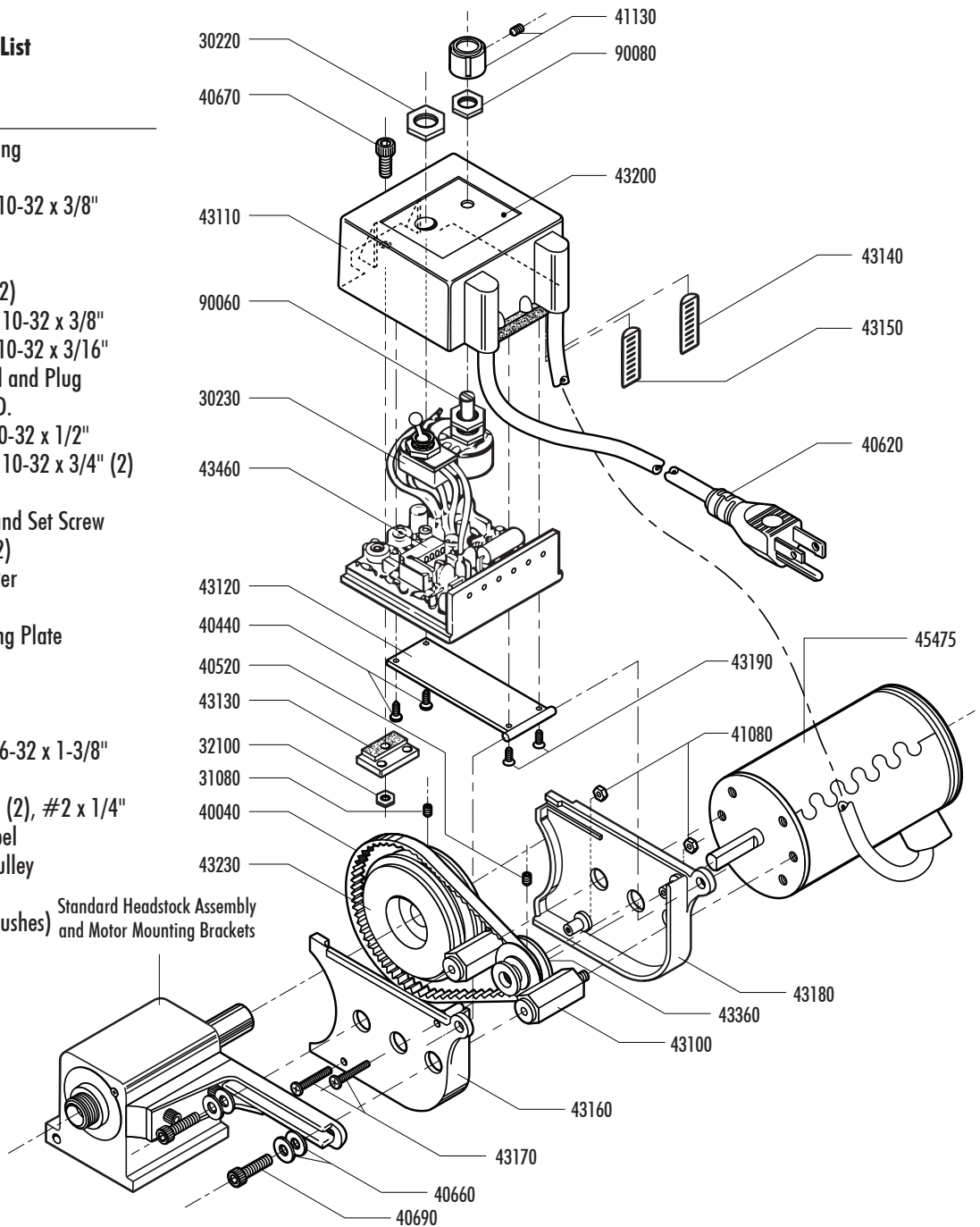
Thermal protection is built into your motor to make sure it is not damaged by overloading. Use good common sense when operating the motor, and it will provide many years of trouble free operation.

Thank you,
Sherline Products Inc.

Exploded View

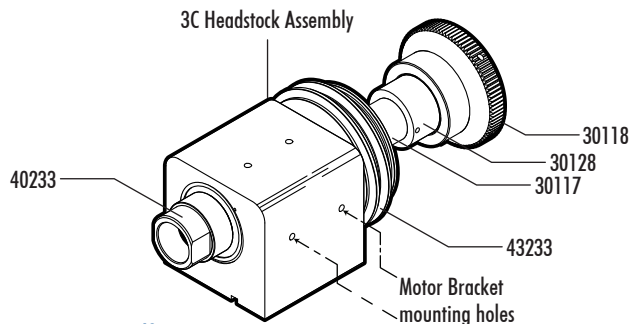
DC Motor Parts List

PART NO.	DESCRIPTION
30220	Toggle Switch Lock Ring
30230	Toggle Switch
31080	Cup Point Set Screw, 10-32 x 3/8"
32100	Hex Nut, 10-32
40040	Drive Belt
40440	Self Tapping Screws (2)
40510	Skt. Head Cap Screw, 10-32 x 3/8"
40520	Cup Point Set Screw, 10-32 x 3/16"
40620	110 V. AC Power Cord and Plug
40660	Washers (4), 3/16" I.D.
40670	Skt. Hd. Cap Screw, 10-32 x 1/2"
40690	Skt. Head Cap Screw, 10-32 x 3/4" (2)
41080	Hex Nuts (2), 6-32
41130	Speed Control Knob and Set Screw
43100	DC Motor Standoffs (2)
43110	DC Speed Control Cover
43120	DC S/C Hinge Plate
43130	DC S/C Cover mounting Plate
43140	S/C Tab, Small
43150	S/C Tab, Large
43160	Belt Guard (Outer)
43170	Pan Head Screws(2), 6-32 x 1-3/8"
43180	Belt Guard (Inner)
43190	Flat Head S/M Screws (2), #2 x 1/4"
43200	DC Speed Control Label
43230	Stepped Headstock Pulley
43360	Stepped Motor Pulley
45475	DC Motor (internal brushes)
43460	DC Electronics
90060	5K Potentiometer
90080	Hex Nut, 3/8" x 32



3C Collet Headstock Assembly Parts List*

PART NO.	DESCRIPTION
30117	3C Collet Draw Bar
30118	3C Collet Draw Bar Knob
30128	3C Spindle "End Cap"
40233	3C Headstock Spindle
43233	3C Main Spindle Pulley



* For a detailed list of the 3C headstock assembly see the P/N 30113 3C Collet Headstock instructions <http://sherline.com/Wordpress/wp-content/uploads/2016/04/30113inst.pdf>