

INSTALLATION OF MOTOR BRUSHES

Products No. E101, E105, E106 and E107

1.0 OVERVIEW

Motor brushes need to be replaced periodically. Brush life depends on the amount and type of use as well as the age of the motor and other factors. Typical brush life for large brush motors is nine months to over a year when used continuously (40 hrs per week). Typical brush life for small brush motors is five to seven months when used continuously. Inspect the brushes periodically to detect worn out brushes which can cause erratic motor operation and damage to the commutator.

2.0 DISCONNECT THE POWER CORD

3.0 REMOVE THE HOOD

3.1 Remove the belt and arm assembly from the hood. Remove the pulley guard and pulley.

3.2 Turn the hood & motor upside down and remove the four rubber feet. **Do not** remove the four pan head screws in the center of the motor base.

3.3 Carefully turn the hood & motor right side up and set it on a bench. Slowly lift the hood and note how the wires are routed around the motor so they do not touch the shaft. Lay the hood on its side next to the motor. **Do not** remove any of the wires.

4.0 INSPECT THE MOTOR WIRING

4.1 Examine the entire length of each wire for pinched, cut or abraded areas. Repair or replace any damaged wires.

4.2 Carefully inspect each connection. Wiggle each wire to confirm that it is secure. Any loose or frayed wire must be repaired.

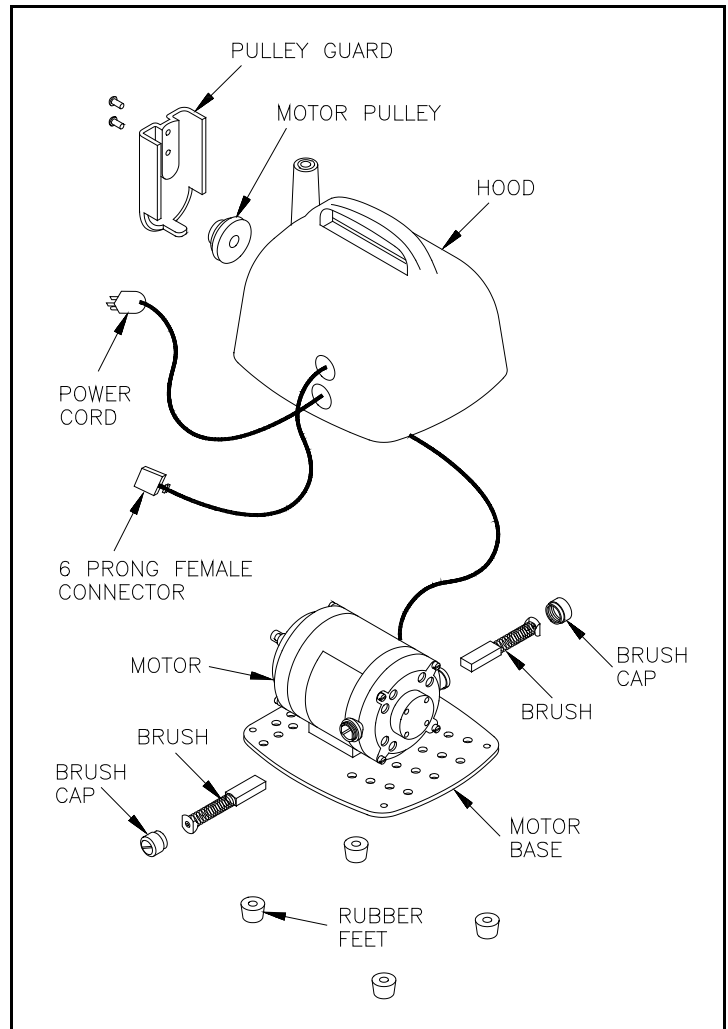


Figure 1. Hood & Motor

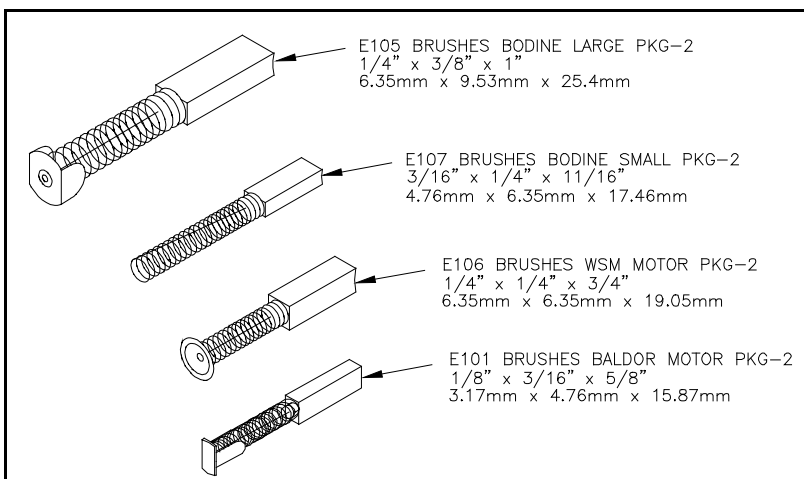


Figure 2 Replacement brushes

5.0 INSPECT THE BRUSHES

5.1 Remove both brush caps and brushes.
5.2 The brushes will stop working when they are about 1/4" long. If the length of the carbon brushes is less than 3/8" or the brushes are unequal lengths, replace **BOTH** brushes as a set. Use the brushes supplied in the accessory kit or order Wells part number **E105 BRUSHES BODINE LARGE PKG-2** unless you have a small brush motor. The small brush motor may be found in older engine units (before 1983), 230 volt models and special order units. See Figure 2.

- 5.3 Install the brushes making sure that they slide freely and make contact with the commutator. Do not over tighten the caps. (If installing E106 brushes make sure the curved end of the brush matches the curve of the commutator.)
- 5.4 Place the hood over the motor routing the wires around the base of the motor.

CAUTION: Take extreme care that the wires do not lay on the motor shaft or get pinched under the hood.

- 5.5 Fasten the four rubber feet. Do not over tighten.
- 5.6 Apply the brush replacement label provided to the bottom of the motor base for easy reference. See Figure 3. Use the Product No. on this label when ordering brushes again.



Figure 3.

- 5.7 Install the pulley, pulley guard, arm assembly and belt. Adjust the belt tension. Refer to the User's Manual for Wells Engine Unit.
- 5.8 If the motor will not run after replacing the brushes, disconnect the power cord and replace the fuse in the foot control. You may order Wells part number **F109 FUSE 5 AMP PKG-2**. Use a type 3AG normal blow 250 volt 5 amp cartridge fuse **ONLY**.

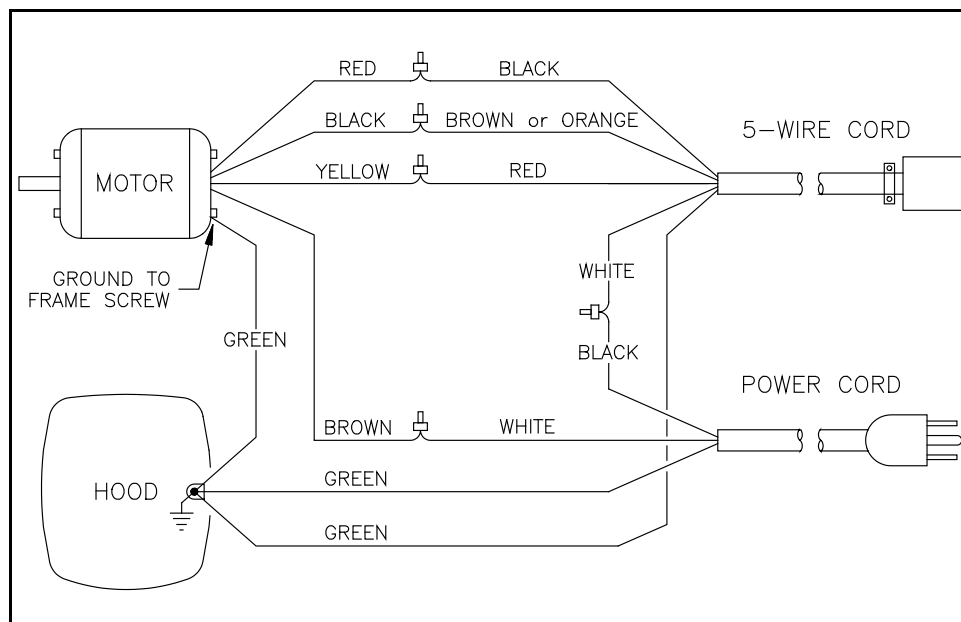


Figure 4. Wiring diagram for Hood & Motor