

### PACKING LIST

- 1 - Replacement Motor
- 1 - Motor Gasket
- 2 - Wire Lead Adapters (If needed)
- 3 - Motor Mounting Clips

#### Tools Required:

- 1/4", 5/16", & 11/32" Socket Drive or Wrench
- Phillips Head Screwdriver
- Flat Head Screwdriver (Optional)
- Pliers

### INSTALLATION INSTRUCTIONS

1. For all units, start by flipping the Power Switch on the unit into the *Off* position. Once the Motor has stopped running, remove the Power Cord from the unit so power cannot be inadvertently supplied to the unit during maintenance.
2. With the Power Cord disconnected, use your Phillips Head Screwdriver to remove the mounting screws that secure the Motor Compartment Panel to the case. Set these screws aside as you will need them later to remount the panel.
3. With the Motor Compartment Panel removed, the motor connection type will be exposed. There will be either 1 of 2 motor connection types:

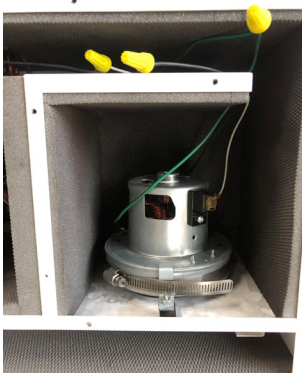
#### **A. Wire nut connections**

#### **B. Male-to-female quick-connector connections**

After determining the type of electrical connections your model uses, adhere to the following instructions that correspond to your particular model on the subsequent pages:

### **A. All units (except Vanguard Mobile 2.0) with Wire Nuts Connections:**

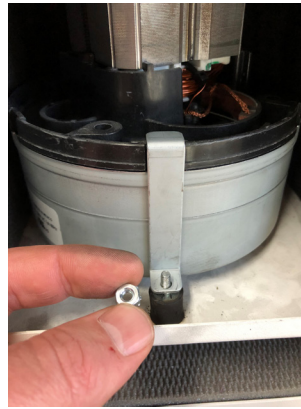
1. Locate the 3 yellow wire nuts that connect the motor's lead wires (black, white, and green) to the rest of the electrical system. Once you have located them, remove them by holding the wires with one hand and twisting the wire nut counterclockwise until it comes off. Repeat this processes on the remaining 2 wire nuts and set all wires nuts aside for use later.
2. With the motor disconnected from the electrical system, use your 5/16" Socket Drive, Wrench or a Flat Head Screwdriver and loosen the silver clamp around the circumference of the motor enough to be able to slide it up and over the motor (Fig. 1 & 2). Set the Motor Clamp aside for use later.



**Fig. 1**



**Fig. 2**



**Fig. 3**



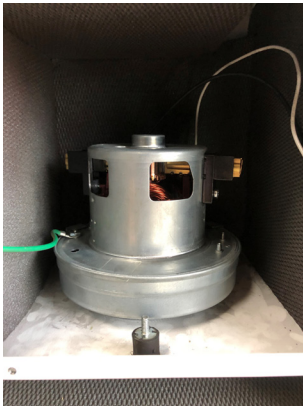
**Fig. 4**

3. Once the Motor Clamp has been removed, use your 11/32" Socket Drive or Wrench to remove the nut securing the front z-shaped Motor Clip mounted on the rubber Motor Mount (Fig. 3). With the front Motor Clip removed, the Motor should be easily removed from the unit. Discard the old motor appropriately.
  - a. If you are replacing a Red Dot Motor in your unit, you will need to exchange all 3 taller, z-shaped motor clips with the shorter, z-shaped Motor Clips supplied in this replacement kit. While the motor is out of the unit, take this time to change the 2 rear existing z-shaped Motor Clips with the new, shorter clips provided.
  - b. Additionally, you will need to exchange the older Motor Gasket for the new one supplied in this kit (Fig. 4). To do so, peel off the existing Motor Gasket that surrounds the inlet hole in the bulkhead and properly discard. Peel the adhesive backing from the new Motor Gasket, and carefully apply to the bulkhead ensuring that the gasket is as even around the inlet hole as possible. Press down on the gasket firmly to properly adhere.
4. Next, grab the replacement motor and the wire lead adapters supplied in the kit. Connect the black, white and green wire adapters to their matching color wire from the motor by sliding the red connector end of the wire adapter into the red connector on the motor lead wires. The free end of the wire adapters are already pre-stripped. Remove the current grounding wire from the motor housing, and replace it with the 1-terminal ring grounding wire supplied in this kit.
5. Carefully install the Motor onto the Motor Gasket, then install the shorter Motor Clip onto the front rubber Motor Mount. Ensure that all three z-shaped clips are facing in towards the motor housing (Fig. 5 & 6).

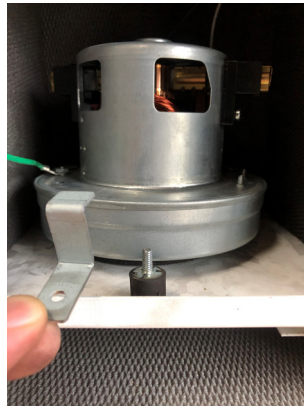
## REPLACEMENT MOTOR

6. Collect all 3 motor lead wires (black, white, & green), feed them through the silver Motor Clamp, then slide the Motor Clamp down over the Motor and on the outside of the z-shaped Motor Clips (Fig. 7). Holding the clamp with one hand and using your 5/16" Socket Drive, Wrench or Flat Head Screwdriver with the other hand, tighten the screw on the Motor Clamp making sure the clamp is on the outside of all 3 Motor Clips.

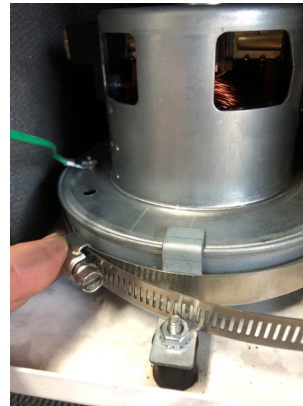
**WARNING: Overtightening the Motor Clamp may cause it to break. Tighten the Motor Clamp enough so that the motor is secure and cannot move.**



**Fig. 5**



**Fig. 6**



**Fig. 7**



**Fig. 8**

7. Next, collect the wire leads from the motor, as well as the wire leads from the electrical system, and one at a time twist the uninsulated ends of similar-color wires together (Fig. 8). With the matching colors twisted together, hold the pair of wires in one hand and twist the yellow wires nuts clockwise until tight. Repeat this process for each of the 3 wire pairs.

**NOTE:** Test the connection by pulling on each wire. If one of the wires comes loose, repeat this step until both wires remain in the wire nut.

8. Before remounting the Motor Compartment panel to the case, test that the motor is properly connected by plugging the power cord into the unit, and turning the unit On. If the motor does not, run check the wire nut connections. If the motor does run, turn the unit off, unplug the power cord and remount the Motor Compartment panel to the case. Your unit is ready for use.

### **B. All units (except Vanguard Mobile 2.0) with Quick Connector Connections:**

1. Locate the 2 red connectors that connect the motor's black & white lead wires to the rest of the electrical system. Once you have located them, disconnect them by holding the base of the red connectors and pulling in opposite directions (Fig. 9 & 10). To make this process easier, use two pliers to disconnect the male from the female connector.



**Fig. 9**



**Fig. 10**



**Fig. 11**

2. Locate the green wire that leads from the motor to the grounding stud on the unit's case. Remove the nut securing the grounding wire to the case and remove wire from grounding stud (Fig. 11).



3. With the motor disconnected from the electrical system, use your 5/16" Socket Drive, Wrench or a Flat Head Screwdriver and loosen the silver clamp around the circumference of the motor enough to be able to slide it up and over the motor (Fig. 1 & 2). Set the Motor Clamp aside for use later.
4. Once the Motor Clamp has been removed, use your 11/32" Socket Drive or Wrench to remove the nut securing the front z-shaped Motor Clip mounted on the rubber Motor Mount (Fig. 3). With the front Motor Clip removed, the Motor should be easily removed from the unit. Before discarding the motor, remove the screw securing the grounding wire to the motor housing and set the screw and grounding wire aside for use later.
  - a. Take this time to exchange the older Motor Gasket for the new one supplied in this kit (Fig. 4). To do so, peel off the existing Motor Gasket that surrounds the inlet hole in the bulkhead and properly discard. Peel the adhesive backing from the new Motor Gasket, and carefully apply to the bulkhead ensuring that the gasket is as even around the inlet hole as possible. Press down on the gasket firmly to properly adhere.
5. From the factory, the white and black motor leads should already have the red connectors on the free ends. Remove the grounding wire that is currently mounted to your replacement motor and discard. Take the grounding wire and screw that were removed from the old motor (step 4), and mount it to the replacement motor in the same location using the same screw. With the grounding wire secured, mount the replacement motor onto the new motor gasket and remount the z-shaped motor clips to the motor mounts (Fig. 12).
6. Collect all 3 motor lead wires (black, white, & green), feed them through the silver Motor Clamp, then slide the Motor Clamp down over the Motor and on the outside of the z-shaped Motor Clips (Fig 6.). Make sure that all 3 z-shaped clips are facing in towards the motor housing. Holding the clamp with one hand and using your 11/32" Socket Drive, Wrench or Flat Head Screwdriver with the other, tighten the screw on the Motor Clamp making sure the clamp is on the outside of all 3 Motor Clips.



**Fig. 12**

**WARNING: Overtightening the Motor Clamp may cause it to break. Tighten the Motor Clamp enough so that the motor is secure and cannot move.**

7. Next, collect the black and white wire leads from the motor, as well as the black and white wire leads from the electrical system. One at a time, connect the male connectors of the electrical system to the female connectors of the motor leads for both black and white wires. Route the grounding wire to the grounding stud and secure the ring terminal to the case with the nut removed in step 2.
8. Before remounting the Motor Compartment panel to the case, test that the motor is properly connected by plugging the power cord into the unit, and turning the unit On. If the motor does not run check the male-female connectors to make sure the internal metal pieces of the connectors are properly touching (Fig. 13). If the motor does run, turn the unit off, unplug the power cord and remount the Motor Compartment panel to the case. Your unit is ready for use.



**Fig. 13**

### MOTOR REMOVAL AND INSTALLATION IN THE VANGUARD MOBILE 2.0

This section is dedicated to the process of removing the existing motor and mounting the replacement motor from the Vanguard Mobile 2.0. The Vanguard Mobile 2.0 has 2 different motor mounting system types:

**A. Traditional (with clips, clamps, and motor mounts)**

**B. Motor Gasket Slide**

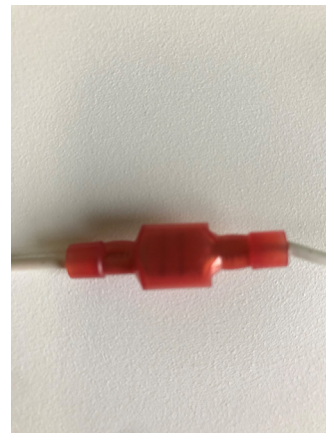
The electrical connections remain the same as stated in the steps above with respect to either using wire nuts or male-female connectors. After determining the type of motor mounting system your Vanguard Mobile 2.0 has, adhere to the following instructions that correspond to your particular system below:

**A. Traditional Motor Mounting System:**

1. With the motor completely disconnected from the electrical system of the unit (see pages 2 & 3), use your 5/16" Socket Drive, Wrench or a Flat Head Screwdriver and loosen the silver clamp around the circumference of the motor enough to be able to slide it down towards the motor support located on the motor baffle. You can leave the motor clamp on the baffle with the motor support in the middle of the clamp so it can be slid up when the replacement motor is installed (Fig. 14).



**Fig. 14**



**Fig. 15**

2. Once the Motor Clamp has been moved down, use your 11/32" Socket Drive or Wrench to remove the nut securing the front z-shaped Motor Clip mounted on the rubber Motor Mount (Fig. 3). With the front Motor Clip removed, grab the motor with one hand and the thick rubber gasket underneath the motor with your other hand, and slide both out of the motor compartment entirely. Discard the motor properly but save the thick rubber gasket for use in the next step.
3. To mount the replacement motor, using the same two hand process outlined in step 2, slide the motor and thick rubber gasket into position. The motor should be centered on the inlet gasket and the thick rubber gasket should be centered on the motor support. The thick rubber gasket should be orientated so that the flat side is against the motor, and its length is front-to-back (Fig. 14).

**NOTE:** The motor and thick rubber gasket should fit very snug when in position. This provides extra support for the motor to maintain proper suction. The baffle below the motor does flex slightly to allow this tight fit.

4. With the motor and thick rubber gasket in place, remount the front motor clip to the motor mount, ensure all 3 motor clips are facing in towards the motor housing, and slide the motor clamp up from the baffle to around the motor (Fig. 15). Ensure the clamp is on the outside of all 3 motor clips. Holding the clamp with one hand and using your 5/16" Socket Drive, Wrench or Flat Head Screwdriver, tighten the screw on the Motor Clamp. **DO NOT OVER-TIGHTEN MOTOR CLAMP.**
5. After testing the motor to ensure all electrical connections are correct, remount the motor compartment panel to the case.

### **B. Motor Gasket-Slide Mounting System:**

1. With the motor completely disconnected from the electrical system of the unit (see pages 2 & 3), slide the motor out of the motor compartment. This mounting system is designed to maintain the suction of the motor and prevent it from spinning during use, therefore if you are struggling to remove the motor from the guide rails apply a small amount of dish soap, Simple Green cleaner, or something similar to the side of the rubber gasket. This should help make the removal of the motor easier.
2. With the motor and rubber gasket out of the unit, remove the gasket completely from the motor housing. Grab the replacement motor from this kit, and attach the gasket to the inlet side of the motor housing. Orientate the gasket so that the screws on the motor meet with the gasket flanges as seen in (Fig. 16).
3. Once the gasket is mounted on the replacement motor, reapply a small amount of dish soap or household cleaner to the sides of the gasket (Fig. 16), and slide the motor and gasket into the guide rails. Make sure that the gasket base is properly seated on all 3 guide rails (Fig. 17).
4. Reconnect the motor leads to the leads from the electrical system using the wire nuts or quick connectors based on your specific product model. Once connected, plug in your power cord and test that the motor is properly connected.
5. Place the Motor Compartment Door back on the unit, and secure with the screws removed at the start of this install.



**Fig. 16**



**Fig. 17**