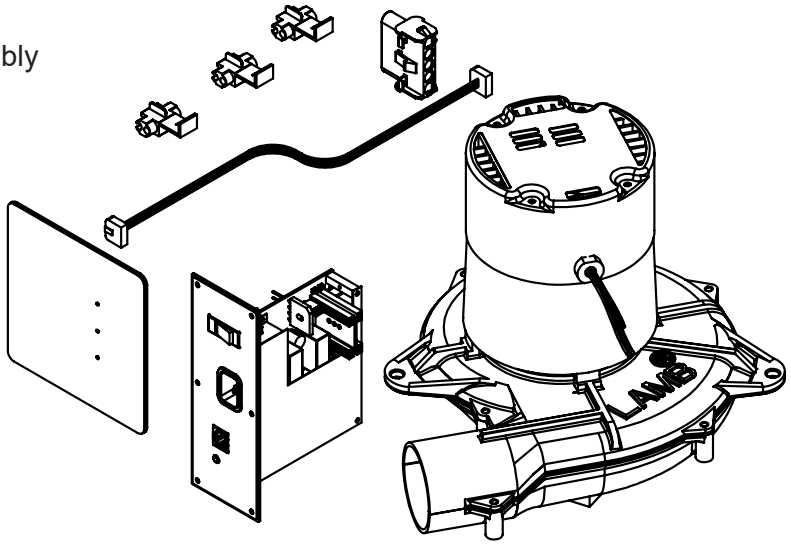
VANIMAN MANUFACTURING CO.

V-SIX MOTOR REPLACEMENT KIT - 120V

PACKING LIST

1 - 120V Brushed V-Six Motor Assembly
1 - Power Module
1 - Control Module
1 - Ribbon Cable
1 - Connector Housing
3 - Splice Connectors
4 - 4-40 Philips Flat Head Screws
6 - 4-40 Philips Pan Head Screws

Tools Required:
Phillips Head Screwdriver
Cutting Pliers
Pliers
1/2” Socket or Wrench



EXISITING ELECTRONICS REMOVAL INSTRUCTIONS

1. Flip the *On/Off/Remote* switch on the *Control Panel* that is currently mounted on the front of your V-Six into the *Off* position. Next, flip the *Main Power Disconnect* swtich on the *Power Panel* that is currently mounted on the back of your V-Six into the *Off* position. Ensure that both switches are in the *Off* position, then remove the power cord from the unit.

NOTE: Reference Figure 1 and Table 1 for components mentioned in the subsequent steps.

Table 1: Mentioned Components		
Item No.	**Description**	**Step No.**
1	Case Lid	2 & 19
2	External Cooling Filter	3 & 18
3	External Filter Mounting Plate	3 & 18
4	Cooling Inlet Tube	3 & 18
5	Cool-Air Divider Plate	4 & 18
6	Power Panel	6A, 6B & 12
7	Control Panel	6A, 6B & 9

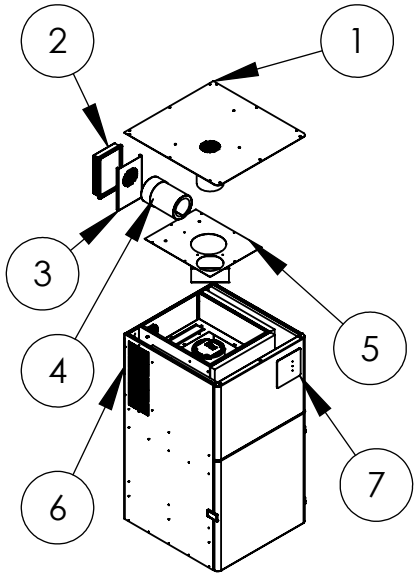


Fig. 1

2. Take the *Case Lid* off of the V-Six by removing the 15 flat head screws securing it in place, then carefully lift up and set the lid and the screws aside for use later.

3. If applicable to your V-Six, remove the *External Cooling Filter* from the *Filter Mounting Plate* on the back of the unit by sliding it upwards, then remove the *Filter Mounting Plate* by unscrewing the two screws near the vent. This will also allow you to remove the *Inlet Muffler Tube* from inside the case. Set the *Filter Mounting Plate*, *External Cooling Filter*, *Screws* and *Inlet Muffler Tube* aside.

4. Next, remove the 7 screws from the *Cool Air Divider Plate* and lift the plate out of the unit to expose the motor compartment. Set the *Cool Air Divider Plate* and the mounting screws aside.

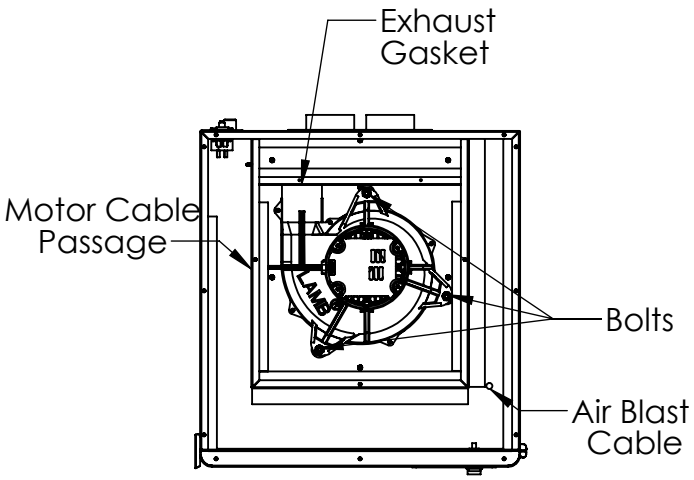


Fig. 2

5. Disconnect the motor cables at the white connectors and locate the 3 mounting bolts that secure the motor in place (Fig. 2). Use a 1/2” socket or wrench to remove the motor mounting bolts. Once the bolts have been removed, you can take out the motor. Make sure to save the 3 bolts and 3 metal standoffs for mounting the replacement motor.

6. Next, you will need to remove all of the electronics from the unit. Follow the steps below that corresponds to your current V-Six version:

   A. <u>Option 1</u> - Brushless V-Six:

   i. At the front of the unit, remove all the connectors from the back of the *On/Off/Remote* switch, the *Air Blast* button, as well as the *Speed Control Slider*. Once all wires are disconnected, peel back the label and remove the 4 screws at each corner of the *Control Panel*, then pull off the panel.

   ii. In the front right corner of the unit you will see a black cable routed through the sheet metal bulkhead and up to the back of the *Control Panel (Fig. 2)*. Follow this black cable upwards from the bulkhead until you find two, red, double crimped connectors. Once they have been located, remove them by cutting the wires at both ends of the connector (Fig. 3). You can discard these connectors.

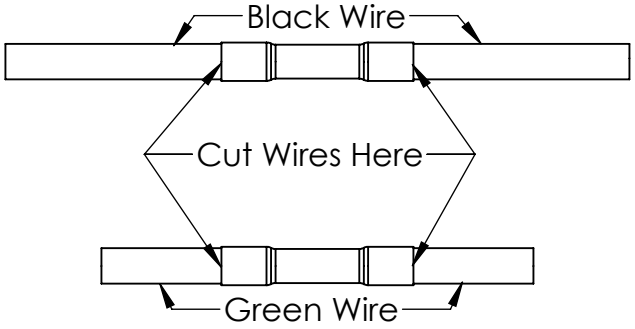


Fig. 3

iii. Next, in order to pass the cables from the motor comparment through the passage in the sheet metal wall, cut the 5 wires (black, green, white, yellow & blue) of the motor wire harness at the base of the white connector housing. Discard the connector housing, and pull the 5 free wires from the motor compartment.

iv. At the back of the unit, unplug the two grounding connectors (with green wires) from the grounding tabs located on the inner wall. Remove the 6 screws holding the power panel in place, then pull the panel off of the unit along with all the wires and cables attached. You may discard this old electronics system as the only cable remaining should be the Air Blast cable in the front of the unit.

B. Option 2 - Brushed V-Six without Speed Control:

i. At the front of the unit, remove all the connectors from the back of the *On/Off/Remote* switch, the *Air Blast* button, as well as the *Remote PCB*. If applicable to your V-Six model, remove the nut securing the grounding wire to the outer wall of the motor compartment opposite of the control panel (save the nut). Once all wires are disconnected, peel back the label and remove the 4 screws at each corner of the *Control Panel*, then pull off the panel.

ii. In the front right corner of the unit you will see a black cable (Air Blast cable) routed through the sheet metal bulkhead and up to the back of the *Control Panel* (Fig. 2). Follow this black cable upwards from the bulkhead until you find two, red, splice connectors. Once they have been located, cutt the black and green wires at the base of the connectors attached to those wires. Once completed correctly, the Air Blast cable coming up through the bulkhead should be free of any connectors. You can now discard the connectors.

iii. Next, in order to pass the cables from the motor comparment through the passage in the sheet metal wall, cut the 3 wires (black, green, white) at the base of the white connector housing. Discard the connector housing, and pull the 3 free wires from the motor compartment.

iv. At the back of the unit, unplug the two grounding connectors (with green wires) from the grounding tabs located on the inner wall. Remove the 6 screws holding the power panel in place, then pull the panel off of the unit along with all the wires and cables attached. You may discard this old electronics system as the only cable remaining should be the Air Blast cable in the front of the unit.

REPLACEMENT KIT INSTALLATION INSTRUCTIONS

7. Remove all components from packaging and check them against the packing list above on Page 1.

8. Insert the replacement motor into the motor compartment, and align the 3 mounting holes on the motor housing with the 3 rubber motor mounts on the bulkhead below. One at a time, place the metal standoff between the rubber motor mounts and the motor housing mounting holes, and feed the bolt through the motor housing and standoff. Once all three bolts are in position, firmly press down on the top of the motor and begin tightening the bolts until the motor is secure.

   NOTE: Make sure that the gasket that seals the motor's exhaust port (in the motor compartment towards the back of the unit - see Fig. 2) is not compromised and is still in proper position. If you feel that your current gasket is compromised and need a replacement, please contact Vaniman.

9. Taking the new *Power Module* from the replacement kit, feed the cables and wires into the case through the rectangular opening where the previous *Power Panel* was located. mount the new panel to the case using the six 4-40 Philips pan head screws provided.

10. Locate the motor compartment cable passage hole by reaching your hand down in the chanel (between the foam) and will feel for an opening in the soundfoam, along with a hole in the sheet metal (Fig. 1). Next, take the three wire (black, white, and green) cable with metal connector pins on the end of it and feed it through the cable passage into the motor compartment.

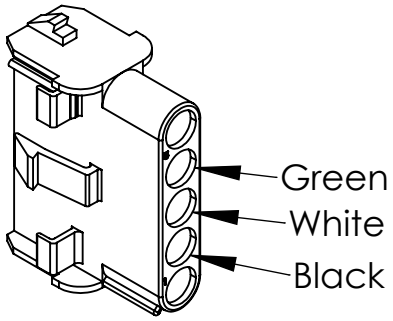


Fig 4.

11. Once you have successfully fed the cable through, attach the new connector housing (included in the kit) to the three wires by simply pushing each wire into the corresponding openings on the housing until you feel it click. Pull on each inserted wire to ensure that they are secure within the housing. **NOTE: MAKE SURE TO INSERT THE CORRECT WIRE INTO THE CORRECT PORT IN THE HOUSING. ONCE THE WIRES ARE INSERTED INTO THE HOUSING, THEY CANNOT BE REMOVED (Fig. 4).** When all three wires have been inserted into the cable housing, connect the male housing (connected to the motor) to the female housing (connected to the electrical system).

12. At the front of the unit, ensure that the wording on the *Control Panel* label is upright and legible. Slightly peel back each corner of the label, then secure the *Control Panel* by using the supplied four 4-40 Philips flat head screws at each corner. Next, remove the adhesive backing from each corner of the label and apply to the *Control Panel*.

13. With the *Control Panel secured* to the unit, grab the *Ribbon Cable* that is already plugged into the *Power Module* and plug the free end into the port on the back of the *Control Panel*.

14. Next, grab the 3 wire cable from the Power Module and route it to the front of the unit. Also grab the 3 wire cable that is routed upwards through the bulkhead. You will be connecting these two cables together using the new *Tap Splice Connectors* provided in this kit.

NOTE: If you have a newer V-Six, there will be a threaded stud where the grounding wire should be secured (Fig. 5). Slide the tongue ring attached to the ground wire over the threaded stud, and secure it with the nut removed in step 6.B.i. If your V-Six model does not have this grounding stud, use the supplied splice connectors to mate the two cables.


Fig. 5

15. Looking at the *Tap Splice Connectors* provided you will notice two wire channels - one that is open and one that is closed (Fig. 6). Slide the black wire of the Air Blast cable coming from the *Power Module* into the open channel, ensuring that the wire reaches the end of the splice connector. Then slide the black wire from the Air Blast cable coming through the bulkhead into the closed channel until it hits the backstop. Holding both wires securely in place, use a pair of pliers and squeeze down on the metal connecting protrusion on the splice connector. Gently pull on both wires to confirm that they are secure and connected. Once the wires are securely connected, fold the protective latch over the connecting protrusion on the connector until it latches. Failure to latch the cover could result in injury and/or product failure. Perform the same operation for the remaining white wires (and green if applicable).

16. Once step 19 is completed, there should be no more unconnected wires in the unit. Test that everything is connected correctly by plugging the power cord in to the *Power Module* and flipping the *Main Power Disconnect* switch into the *ON* position. If everything is connected correctly and once the *Main Disconnect Switch* is in the *ON* position, a solid red light should appear on the *Control Module* on the front of the unit. If this indicator light does not appear, double check all your connections inside the unit and the power cord.

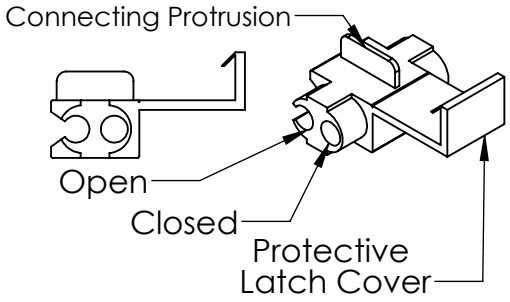


Fig. 6

17. With the indicator lights showing on the Control Panel, press the *START/STOP* button to turn on the motor. The motor will begin running at the lowest speed. Once you confirm the motor is correctly connected, press the *START/STOP* button again to stop the motor. Flip the Main Disconnect Switch to the *OFF* position and disconnect the power cable from the unit.

WARNING: This motor will be exceedingly loud while it is running without the top of the case being closed. Only run the motor with the case open for a short period of time to ensure the electronics are properly connected, then turn off immediately.

18. After successfully testing, powering down the unit, and unplugging it from the power supply, remount the *Cool Air Divider Plate* on top of the motor compartment with the 7 screws removed previously. If applicable to your V-Six, secure the Inlet Filter Plate to the back of the unit by tightening the two screws through the plate and case, and into the two mounting holes on the *Inlet Muffler Tube*. Slide the *External Cooling Filter* down into the *External Filter Mounting Plate*. If having trouble sliding the *External Cooling Filter* into the mounting plate, apply a small amount of dish soap or household cleaner to the sides of the filter frame and it should slide in please easily.

19. Place the *Case Lid* on top of the unit, making sure that the exhuast tube is aligned with the hole in the *Cool Air Divider Plate*, and secure the lid with the 15 screws removed at the start. Once finished, test the motor again using the same process described in step 16 & 17.

OPERATION INSTRUCTIONS

1. With the unit plugged into a wall outlet, and the Main Disconnect Switch flipped into the *ON* position, ensure that the indicator light on the Control Panel is *ON* (see Fig. 7 and “Assembly Instructions” section step #16).
2. To begin suction, press the *START/STOP* button on the Control Panel and the motor will begin running at the lowest speed. The green *MOTOR RUNNING* indicator light will turn *ON*.
3. You can increase suction by pressing the *SPEED UP* button to choose which of the 10 available speeds provides the correct amount of suction for your application.
4. Decrease suction by pressing the *SPEED DOWN* button until the proper amount of suction is achieved.
5. To stop suction altogether, simply press the *START/STOP* button again and the motor will stop running and the *MOTOR RUNNING* inidcator light will turn *OFF*.

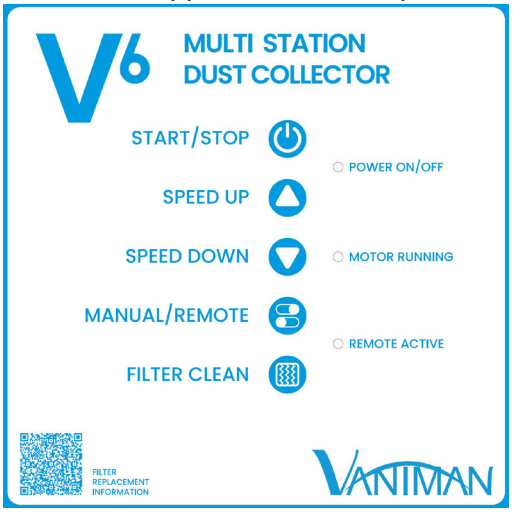


Fig. 7

Note: When the motor is started and stopped with the *START/STOP* button, it will always return to the speed that was set before the previous stop command. If the unit is disconnected from power entirely, the system's memory will clear and will start at the lowest motor speed once the unit is reconnected to power and the *START* command is given.

6. The V-Six also offers an Air Blast filter cleaning system to help prolong the life of your filter. The V-Six Speed Control system will automatically Air Blast your filter every 4 hours of motor run time. if the manual Air Blast button is pressed, it will reset the automatic Air Blast timer back to zero. The manual Air Blast button can be used either while the motor is idle or running:
   - **A. While the motor is idle** - simply press the *FILTER CLEAN* button on the Control Panel and you should hear the Air Blast activate inside of the unit.
   - **B. While the motor is running** - at any time while the motor is actively running you can press the *FILTER CLEAN* button and the motor will pause, the Air Blast will activate, and a few seconds afterwards the motor will automatically continue running again. Please wait until the filter cleaning process has cycled through and the motor turns back on before pressing any other button.
7. The V-Six has two different run modes - Manual and Remote:

IMPORTANT: Only use Vaniman remotes and switches with this unit to prevent damage and failure of the unit. Use of any non-Vaniman products will void this unit's warranty.

- **A. Manual Mode:** Whenever the unit is first supplied power, it will automatically default to Manual Mode.
  - i. Manual Mode will allow you to start and stop the motor, as well as increase and decrease the motor speed, from the unit's Control Panel **ONLY**.
  - ii. **Standard Remote Mode:** The Standard Remote feature will only operate while the system is in Manual Mode, and can only turn the unit ON or OFF at the set speed. To use this feature:
    - a. With the unit's Main Disconnect Switch *OFF*, plug in the *Standard Remote* headphone jack into the port on the back of the unit labeled *STANDARD REMOTE (Fig. 8)*. Plug in up to 6 stations into the ports on top of the *Standard Remote* box.
    - b. Flip the Main Disconnect Switch to *ON* and press the *START/STOP* button on the Control Panel to start the motor. Increase or decrease the speed of the motor to set the desired suction level. Once you have reached the desired suction level, press the *START/STOP* button on the Control Panel again to stop the motor.
    - c. When a switch at one of the 6 connected stations is flipped into the *ON* position, the V-Six will run the motor at the speed set by the user in step b. The unit will continue running at the same set speed regardless of how many subsequent stations are turned *ON*.
    - d. The V-Six will turn off only once all stations that are plugged into the Standard Remote Hub are turned off as well.

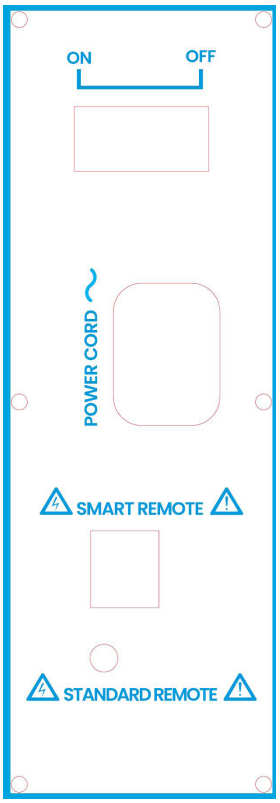


Fig. 8

B. Smart Remote Mode: To enable Smart Remote Mode, press the *MANUAL/REMOTE* button on the Control Panel. This will cause the *REMOTE ACTIVE* blue indicator light on the front panel to turn *ON*.

i. V-Six Smart Remote: Automatically changes the speed of the motor and amount of suction provided to each station based on how many of the stations are open at the same time.

a. With the unit's Main Disconnect Switch *OFF,* plug in one end of the Smart Remote Hub's ethernet cable into the port labeled *SMART REMOTE* on back of the V-Six (Fig. 8), and the other end into the V-Six Smart Remote box. Plug in up to 6 stations into the ports on top of the V-Six Smart Remote box.

b. Flip the unit's Main Disconnect Switch *ON*. With no stations turned *ON*, the V-Six will not be running. Once one station is turned *ON*, the unit will start running at a speed that will provide adaquate suction for that one station.

c. As more stations are used and turned *ON*, the V-Six will automatically speed up the motor to provide adaquate suction for the corresponding number of stations that are being used at the time.

d. Subsequently, as stations begin to turn *OFF* and less suction is needed, the V-Six will slow the motor down to maintain the proper amount of suction needed for the number of stations that are being used at the time.

e. When all of the stations that are plugged into the V-Six Smart Remote box are turned *OFF*, the V-Six will stop running altogether.

REPLACEMENT PARTS & ACCESSORIES

1. Replacement Parts

V-Six Motor Brush Replacement Kit	**PN: 97091**
V-Six Motor Replacement Assembly	**P/N: 97103**

2. Automated Accessories

Smart Switch	**P/N: 96068**
V-Six Standard Remote Hub	**P/N: 96109**
V-Six Smart Remote Hub	**P/N: 96111**
Pneumatic Valve*	**P/N: 10518**
Smart Auto Pilot	**P/N: 96073**

INSTALLATION WIRING DIAGRAM

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10281 V-Six with Speed Control
Wiring Diagram