

VentVac and DuctMaster

Vacuum Motor Upgrade Instructions

Original Motor Configuration



New Production Motor Configuration



PLEASE READ UPGRADE OPTIONS FIRST

The NEW motors have 2 variations, one has a TALL section of PVC attached, p/n SAO0084 Rev A, and the other has a SHORT section of PVC attached p/n SAO0017 Rev B.

The Original Motors only had ONE version, p/n SAO0017 Rev A which is no longer available.

To Simplify ordering, we have added Cut Line to the TALL version so that it can be cut in the field with a PVC cutter or Hack Saw supplied by the technician.



The Motors for the Air Care Vent Vac and Air Care DuctMaster are being upgraded to a bypass type of motor. The original motors used the air flow from the vacuum hose, after filtering, to cool each motor. When the hose was closed off, the motors run faster but the cooling air is shut off which leads to overheating and early failure.

The New Motors have a dedicated fan on the top of the motor for cooling under all conditions. These are called BYPASS Motors and will be more reliable in the field.

The Conversion Instructions require Removing the Original Motor, Motor Bracket, Wiring to the Motor and the PVC pipes and Check Valve. Save the Check Valve to install on the new Motor.

Usually only ONE Motor will fail at a time and need to be replaced. Depending on if it is a TALL or SHORT Motor, the procedure will have some variations.

The New Motors are configured with a TALL or a SHORT set of PVC Tubes just as the Original Motors, but they are arranged differently to provide clearance with the Circuit Breaker on the panel for Motor #4 on the left Side. **The Instruction Below will keep the Tall and Short Motors in the ORIGINAL configuration machines the SAME but require that the Panel Circuit Breaker above Motor #4 be Turned 90 Degrees to provide clearance for the wires above the new, larger Motor.**

The Latest Production Vent Vac and DuctMasters have the New style motors with the fan on top and Louvers around the outside of the fan housing as shown in the Pictures at the top of page 1.

There is only ONE version of the Upgrade Kit. It requires cutting the PVC tube if the Shorter Motor is to be replaced.
Kit P/N RP0319

NOTE: You will Require an Extension Drill, 5/32" x 12" Drill, or extension for a 5/32" drill bit.

It is also Recommended a Silicone spray or similar lubricant be used on the PVC joints.

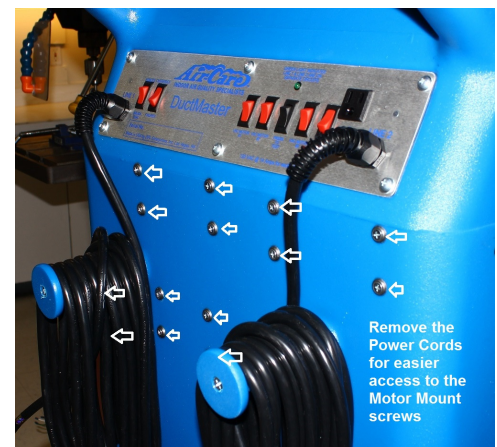
A PVC Cutter or hack saw will be required if a SHORT motor is being replaced.

The New Motor Brackets are attached to the motor with the Mounting surface DOWN, and only 2 screws are required for holding each motor bracket. If replacing a "TALL" original Motor with a NEW style Tall Motor, you must remove the one or 2 SHORT motors next to it and remove their Motor Brackets and reinstall them with the Mounting Surface to the bottom of the motor. Details are in the instructions.

UPGRADE Instructions

1. Unplug both power cords before starting work.
2. Unlatch the 3 clamps holding the Vacuum Unit to the "L" Unit and set it aside.
3. Remove the HEPA filter and set it aside.
4. **NOTE:** The Motors are Numbered from RIGHT to LEFT with #1 to your Right side as seen in the pictures above.
5. The **DuctMaster** has an electronic unit in the bottom of the Motor area that must be moved out of the way, but the wires can remain attached. Remove the 4 screws that attach the electronics to the cabinet and save the screws.
6. Remove the Black Wires from the Switch to the Motor at the switch end. These are quick Disconnect connectors and can be pulled off -- if they are tight, don't pull so hard as to damage the switch terminals. This wire and the Thermal Switch can be discarded.
7. Disconnect the White (Neutral) and Green (Ground) wires from the motor to be replaced, at the MOTOR. SAVE THESE WIRES which will be used with the New Motor.
8. Go to the rear of the machine and remove 4 flat head screws with finishing washers from the Motor Mounts for the motor to be replaced.
9. If the motor being replaced is a TALL one, you will need to also remove the Motor Plate screws for the Short Motor(s) next to it.

- 9A. NOTE:** The motors are supported by the white PVC pipes and will not fall when the screws are removed.
10. Go Back to the Motor side of the machine now and check that the wires to the Vacuum Motor to be replace have been removed, then remove the motor to be replaced and its PVC tubes.
 11. The PVC Joints are pressed together, so twisting and pulling the motors up should free them enough to be removed. It may be necessary to use Channel Locks or other large pliers to work them loose.
 12. There are an upper and lower piece of 1-1/4" PVC, and a **CHECK VALVE** that MUST be oriented with the Arrow UPWARD for each motor position.





13. Remove the White tubes and the White Check Valves. Save the Check Valves and note that the Flow Direction ARROW is installed pointing UPWARD.

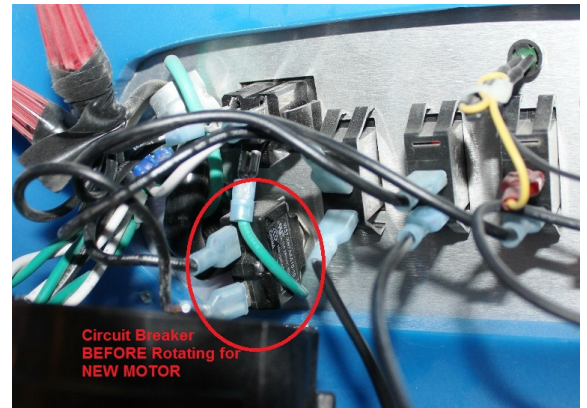
13A. NOTE: If you are replacing a "TALL" motor and the "Short" motors are the Original type, you will need to remove the one or two Short Motors to Flip their Brackets UPSIDE DOWN then Re-Install them by drilling 2 holes.



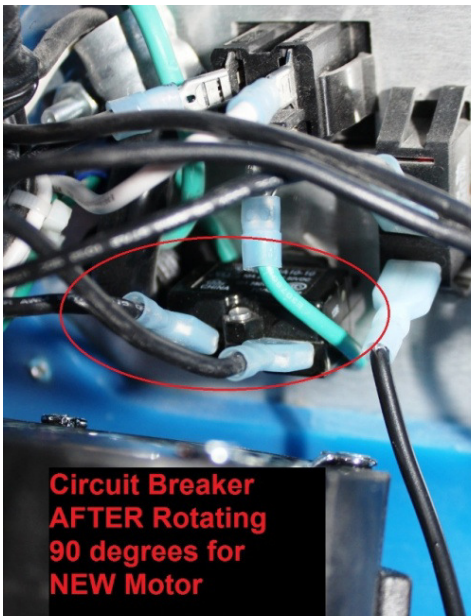
Remove TALL Motor #4 to be Replaced & Short Motor #3 to flip its Bracket upside down. Circuit Breaker can be rotated now.

14. Once the Original #4 Motor has been Removed, there is room to access the 10 Amp Circuit breaker. This breaker must be rotated 90 Degrees to provide space between the new Motor and the Circuit Breaker Wires.

The Outer Nut on the Circuit Breaker may need to be loosened to rotate it, then Tightened to hold it in place after it is moved.



Circuit Breaker BEFORE Rotating for NEW MOTOR



Circuit Breaker AFTER Rotating 90 degrees for NEW Motor



15. Installing the New Motor.



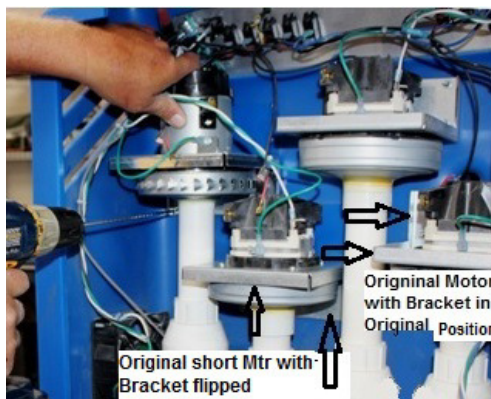
NOTE: Using a Spray Silicone, or WD40 or other lubricant on the PVC Joints will help them slip together with minimum need to "TAP THEM INTO PLACE".

- a. Install the Check Valve to the Motor tube with the **Flow Arrow pointing toward the Motor**.
- b. **Motor #2 and #4** will have the **LONGER PVC tubes**.
- b. Install one of the 4.5" Long PVC Tubes to the lower ends of the Check valve.
- c. Tap the tubes so that they bottom into the PVC fittings. **DO NOT HIT THEM SO HARD AS TO DAMAGE THEM.**
- d. **Motor #1 & #3** will have the **Shorter PVC tube** that will fit into the Check Valves, with the Flow Arrow pointing toward the Motor.
- e. Install the 3" Long (Shorter) PVC tubes into the bottom of the Check Valves.
- f. Tap the tubes so that they bottom into the PVC fittings. **DO NOT HIT THEM SO HARD AS TO DAMAGE THEM.**



16. The **Shorter Motor** assemblies will fit into the couplers (Positions #1 & #3).

- a. Apply silicone or other lubricant to the inside of the coupler
- b. Double check that the arrow on the Check Valve is Pointing UP in the Motor, tubing assembly.
- c. Install the Motor assembly with the mounting bracket facing the inside of the cabinet.
- d. Twist the unit back and forth to get it to fully seat into the coupler. If you did not apply lubricant, it may be necessary to tap it in place. **DO NOT TAP ON THE TOP OF THE MOTOR, IT WILL BEND THE HOUSING AND THE FAN BLADES WILL BIND. USE Large channel locks or other wrench around the top of the Check Valve and Tap on the Wrench to apply force to seat the PVC into the coupling.**



To Drill New Screw Holes to Match the NEW MOTOR Position, you will require an "Extension Drill" Sometimes call an Air-Craft Drill, 5/32" Dia x 12" Long.

When the New Motor is in Place and the PVC joints all fully seated, Align the Motor to be evenly spaced on both sides, Insert the Drill in one of the Lower Mounting holes and drill through. Only 2 screws are required. Install the first Screw, then drill the second hole.

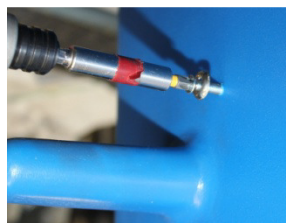
- e. When the motor and PVC are fully seated, align the motor in the center of the available space. This is needed for upgrading the other motors in the future, since the new motors are slightly larger than the original motors they will require equal spacing to fit.
- f. Use the 5/32" x 12" Extension drill to drill through 1 of the bottom threaded holes in the Motor Mounting bracket. The threads are 10-32, and the drill is small enough to not damage the threads.
- g. Use a Phillips screwdriver with the 10-32 x 1" screws and a finishing washer to install one of the mounting screws from the back side. Do not tighten all the way until after the second hole is drilled and the screw installed. The first screw will help hold the bracket in place while the second hole is being drilled.
- h. Drill the second hole with the extension drill through the other threaded, bottom hole, then install another 10-32 x 1" screw and finishing washer. Tighten both screws now.

17. To Install the TALLER Motor (#2 and #4), install the 4.5" long PVC Tube to the bottom of the Check Valve. The Arrow on the Check Valve must be pointing UP, away from the tube you are installing. It must be fully seated into the Check Valve, so if it did not seat, use a large pair of Channel Locks or other large wrench and place it over the Check Valve and tap it with a mallet to seat it. **DO NOT HIT THEM SO HARD AS TO DAMAGE THEM.**

18. Once the new motor assembly is ready, it can be inserted into the Coupler in the bottom of the cabinet.

18A. NOTE: An alternate way to install the Motor is to install the PVC tube Into the Cabinet first and add the Check Valve (with Arrow pointing UP) and finally add the Motor Last.

19. Motor Brackets will be mounted in place with 2 screws each.



20. With the Motor & Bracket in position and fully seated, Use the Extension drill, 5/32" x 10" to drill Through ONE of the bottom holes in the Motor Bracket. Install the screw with washer from the back side into the bracket to keep it in place.

21. Now Drill through the 2nd bottom hole in the bracket and install the second screw with finishing washer. Both be tightened now.

22. It is time to connecting the wires to the new motor.

- a. Install the NEW BLACK wire in the Kit to the Tab on the Panel Switch for that Number Motor.

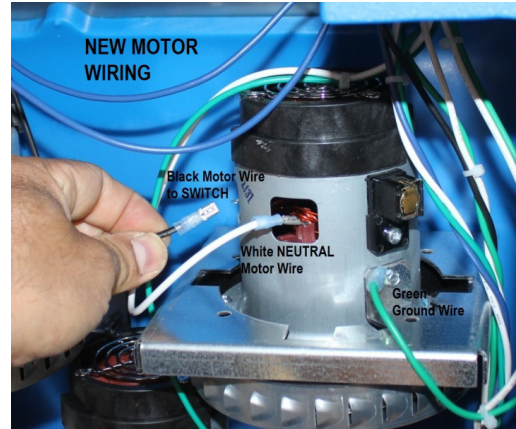
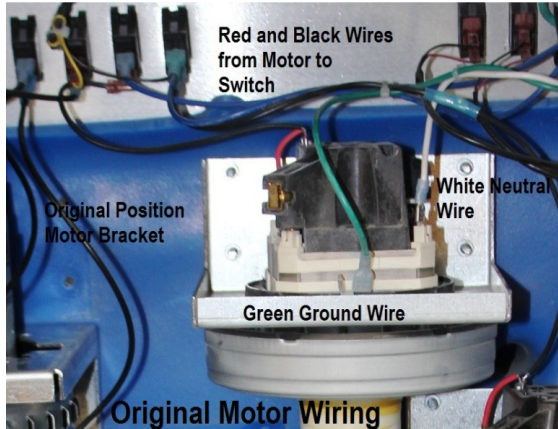
Use the Larger push-on connector for the switch.

b. Install the other end of this black wire to one of the 2 small Motor tabs.

Be careful to push it straight on to the tab to avoid bending it.

c. Now you can install the White Wire that was on the Original Motor to the other tab on the Motor.

d. The Green wire that was connected to the original Motor may not be long enough to reach some positions on the new motors. If this is the case, use one of the Green Extension wires in the Kit to extend the ground wire and attach the other end to the Larger Tab screwed to the body of the Motor.



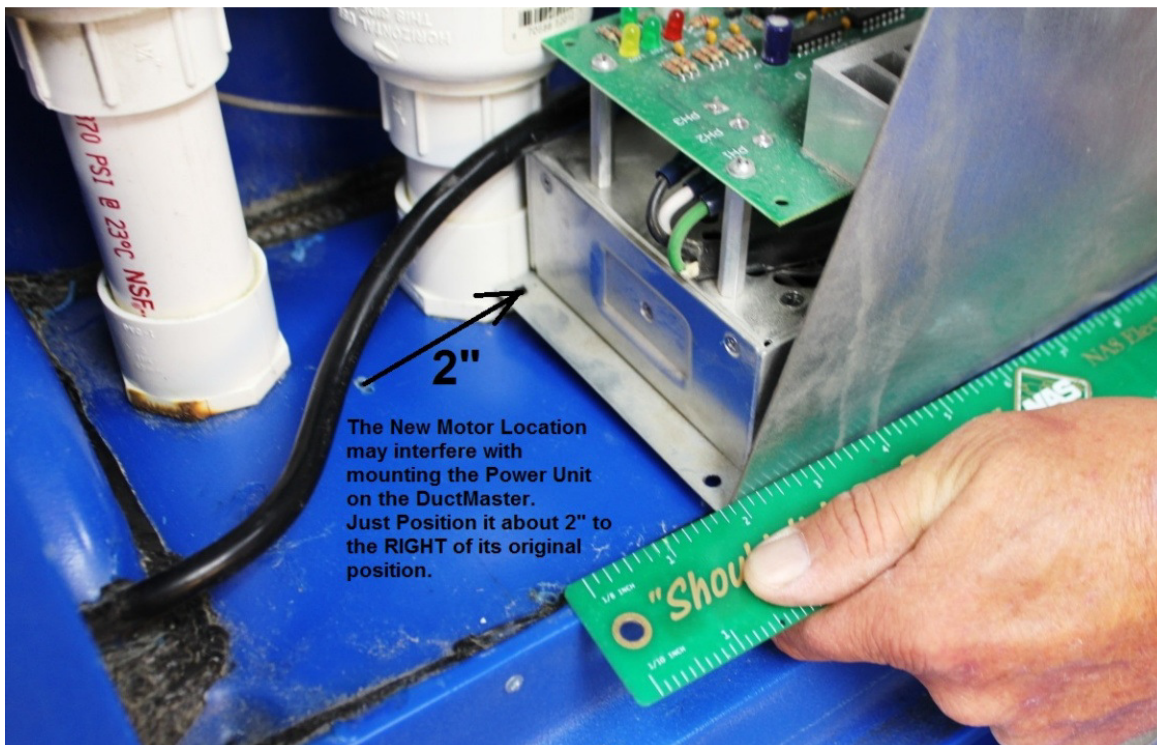
23. If you removed one of the SHORT motors to allow the New Tall Motor to fit by Flipping its Motor bracket upside down, you can reinstall that motor with the flipped bracket now.

a. Drill the Mounting holes one at a time as you did for the NEW Motor.

b. When Both screws are in place and tight, Reinstall the wire to the Original Short Motor.

24. If your machine is a VentVac, it is ready to test. If it is a DuctMaster, you can now reinstall the Electronic Unit.

25. In some cases the New short motor may interfere with the electronic unit in the DuctMaster. If this is the case, you may move the Electronic unit to the Right 2", and it should fit.



Parts List.

The TALL Motor (Positions 2 and 4) use this Motor with the LONG PVC Tube (P/N SAO0084), For the SHORT Motors, (Position 1 & 3) The PVC Tube Must be CUT at the Mark to make it the length of the Short Motor (SADM0017 Rev B) to fit.

TALL Vacuum Motor Upgrade Kit for Vent Vac and DuctMaster 120 Volt	Part Number for Kit P/N RP0319		
24-Sep-19			
Mike S.			
Part Number	Part Description	Qty	Notes
MM0216	Instructions with pictures	1	Should be ONLINE also
COM0275 Rev A	Motor Bracket, New Style	1	Install Motor into each Bracket with 2 screws (NBS0297) BEFORE SHIPPING
NBS0296	8-32 x 5/16 thread forming`	2	Mounts motor to bracket
SADM0084 Rev A	Motors, TALL PVC Tube 5.75"	1	(PVC tube can be cut at Line to work as Short Motor SADM0017 Rev B)
SADM0064	1-1/4" x 4.5" PVC Tube	1	For TALL Motor asm.
SADM0063	1-1/4" x 3" PVC tube	1	For SHORT Motor asm.
NBS0304	Screws 10-32 x 1" Flat head Phillips	4	NEED SS Screws for this McMaster https://www.mcmaster.com/91771A833
NBS0036	#10 Finish Washers	4	Could use original Washers
NBS0304	Wire Extension Kit (6- Wires)	1	
WC0067, 13" x2 EC0039 x2 EC0028 x2	B. Motor #2 and #4, 14G, BLK, 13" Long, Female Disconnect 1/4" and Female Disconnect 3/16"	in Kit	Qty 2
WC0070, 10" x2 EC0028 x2 Bio0258 x2	C. Motor #2 & #4 Ground, 14G, GRN, 10" Long, Male and Female Disconnect 1/4".	in Kit	Qty 2
OPTIONAL COM0515	Check Valve	0	Cust will use their old Check Valve.
Customer Supplied	Extension Drill Bit 5/32" x 12"	0	To Drill holes for Motor Plate. 5/32" Extension Drill x 12" Long. \$4.35 Online.
Customer Supplied	Silicone Spray or similar Lubricant	0	M1 P/N SHOP0145