



Preferred Service

Service Manual

This manual is to be used by qualified appliance technicians only. Viking does not assume any responsibility for property damage or personal injury for improper service procedures done by an unqualified person.

Viking Downdraft

This Base Manual covers general and specific information including, but not limited to the following models:

Models
RDIPR101R
RDIPR151R
RDIPR161R



SMV-0003
July 2012

Important Information	3
Safety Information	3
Warnings	4
Electrical Requirements	4
RDIPR Operation	5
UP/DOWN	5
Delay	5
Blower speeds	5
Filter Light	5
General Information	5
Controls	5
Disassembly	6
Gear Motor	6
Kit Assembly	6
Crank Assembly	6
Lower PCB	6
Filters	6
Gear motor kit assembly	7
Lower PCB board removal	8
Troubleshooting	9
Full Down Positon (Unit Off)	9
Full down (at rest) schematic	10
Full Down Positon (Up/Down Switch Pressed)	11
Full Down Positon (Up/Down Switch Pressed) - contin- ued	12
Full down (Up/Dwn switch pressed) schematic ..	13
Downdraft starting up (Up/Dwn switch released) schematic	14
Full UP Positon	15
Downdraft Full Up schematic	16
Full UP Positon, UP/Down switch pressed	17
Downdraft starting down (Up/Dwn switch pressed) schematic	18
Downdraft halfway down (Up/Dwn switch released) schematic	19
Wiring Diagram	20

SAVE THESE INSTRUCTIONS

REVIEW ALL SERVICE INFORMATION IN THE APPROPRIATE SERVICE MANUAL AND TECHNICAL SHEETS BEFORE BEGINNING REPAIRS.

Pride and workmanship go into every product to provide our customers with quality products. It is possible, however, that during its lifetime, a product may require service. Products should be serviced only by a qualified service technician that is familiar with the safety procedures required in the repair and who is equipped with the proper tools, parts, testing instruments, and the appropriate service manual.

Safety Information

We have provided many important safety messages in this manual and on the appliance. Always read and obey all safety messages. This is the safety alert symbol.



This symbol alerts you to hazards that can kill or hurt you and others. All safety messages will be preceded by the safety alert symbol and the word "DANGER", "WARNING", or "CAUTION". These words mean:

DANGER

IMMEDIATE HAZARDS WHICH WILL RESULT IN SEVERE PERSONAL INJURY OR DEATH.

WARNING

Hazards or unsafe practices which COULD result in severe personal injury or death.

CAUTION

Hazards or unsafe practices which COULD result in minor personal injury or product or property damage.

All safety messages will identify the hazard, tell you how to reduce the chance of injury, and tell you what can happen if the instructions are not followed.

WARNING

To avoid risk of serious injury or death, repairs should not be attempted by unauthorized personnel.

CAUTION

VIKING will not be responsible for any injury or property damage from improper service procedures. If performing service on your own product, you must assume responsibility for any personal injury or property damage which may result.

Technical support for authorized servicers:

1-800-914-4799

Address your written correspondence to:

Viking Preferred Service
 1803 HWY 82 West
 Greenwood, MS 38930

Warnings

Read and follow all instructions before using this appliance to prevent the potential risk of fire, electric shock, personal injury, or damage to the appliance as a result of improper usage of the appliance. Use appliance only for its intended purpose as described in this manual.

To ensure proper and safe operation: appliance must be properly installed and grounded by a qualified technician. DO NOT attempt to adjust, repair, service, or replace any part of your appliance unless it is specifically recommended in this manual. All other servicing should be referred to a qualified servicer.

Make sure that incoming voltage is the same as unit rating. An electric rating plate specifying voltage, frequency, wattage, amperage, and phase is attached to the product.

Electrical Requirements

Assure that the electrical installation is adequate and in conformance with the National Electrical Code, ANSI/NFPA 70-latest edition or Canadian Electrical Code C22.1-1998 and C22.2 No. 0-M91 (or latest edition), and all local codes and ordinances. A 115 volt, 60-Hz, 15 amp, fused, electrical supply is required. It is required that

a separate circuit serving only this appliance be provided. This appliance is equipped with a power supply cord having a 3-prong grounding plug.

To minimize possible shock hazard, the cord must be plugged into a mating 3-prong, grounding-type wall receptacle. DO NOT use an extension cord.



WARNING

ELECTRICAL SHOCK HAZARD

Plug into a grounded 3-prong outlet. If a 2-prong wall receptacle is encountered, contact a qualified electrician.

DO NOT remove ground prong. Unit must be grounded at all times. DO NOT use an adapter. DO NOT use an extension cord.

Failure to follow these instructions can result in death, fire, or electrical shock.

The information contained in this service manual is intended for use by a qualified service technician who is familiar with the application of all safety procedures required in the repair of any gas or electrical appliance, and who is equipped with the proper tools and testing equipment.

Repairs covered in this manual and made by unqualified persons can result in hazards developing due to improper assembly or adjustment.

Inexperienced persons making such repairs subject themselves to the risk of injury or electrical shock which can be serious or even fatal.

RDIPR Operation

UP/DOWN

The Up/Down switch raises and lowers the vent. The Blower in turn comes on when the vent is raised and the blower is turned Off when the vent is lowered.

Delay

Allows blower to run for 10 minutes after button is pressed. This delay is activated by holding down any speed control button until the LED indicator flashes. The blower runs for 10 minutes then shuts Off. VENT WILL NOT LOWER. You must press UP/DWN to lower vent. When delay is active, the speed level light will blink.

Blower speeds

Blower operates at four different speed levels. Press button ONCE to turn blower on to desired speed. Press button again to turn blower off.

NOTE: *Blower speed changes should be verified with an amp probe showing different amp draws for each speed. Detecting changes in the sound is not always a reliable indication of speed changes due to duct lengths and angles.*

Filter Light

Filter light comes on after 30 hours of operation to remind you that filter needs to be cleaned. Press the filter button to reset.

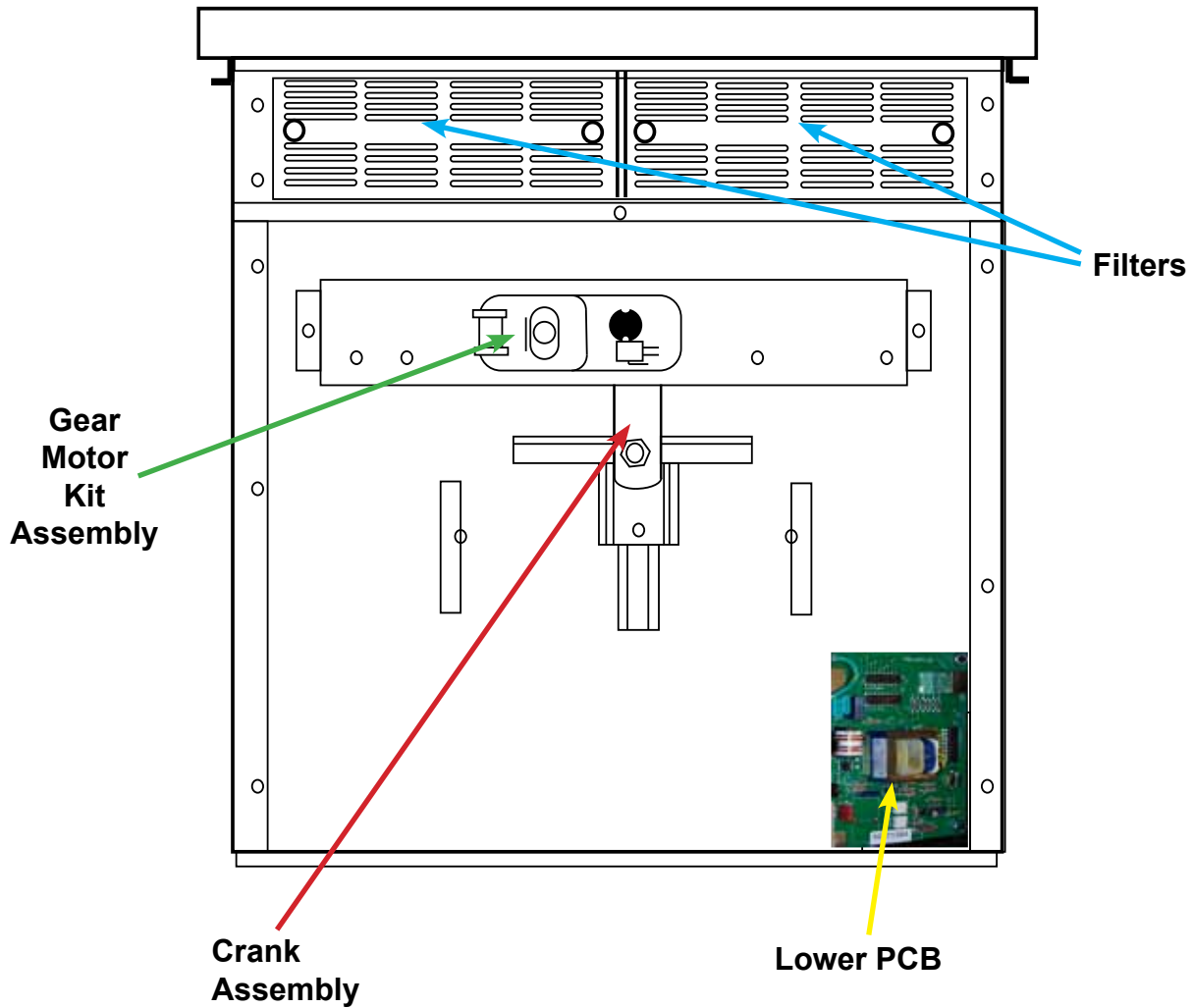
Controls



Remote control for models:
RDIPR101RSS, RDIPR161RSS,
RDIPR151RSS

WARNING

To avoid risk of electrical shock, personal injury, or death, disconnect electrical power source to unit, unless test procedures require power to be connected. Discharge capacitor through a resistor before attempting to service. Ensure all ground wires are connected before certifying unit as repaired and/or operational.

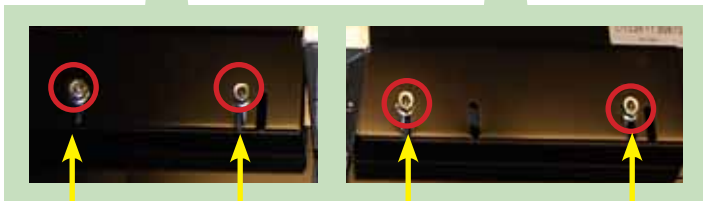


⚠ WARNING

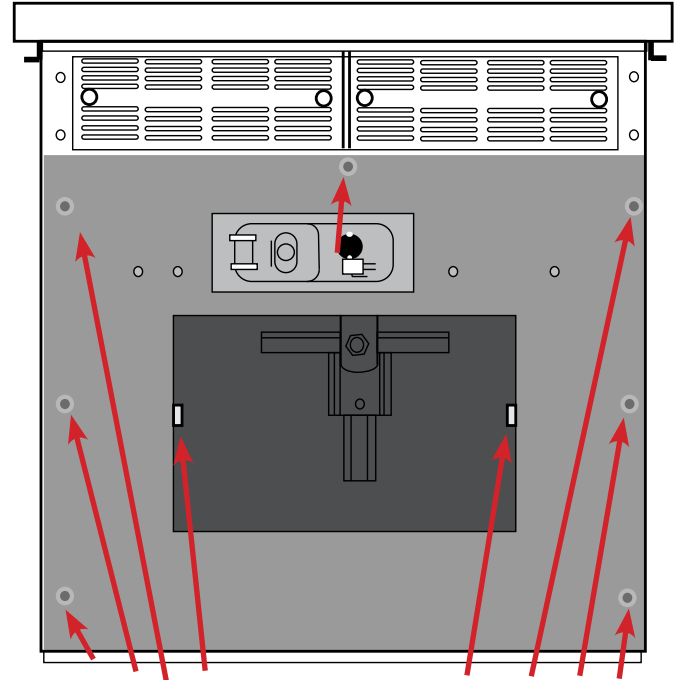
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Gear motor kit assembly

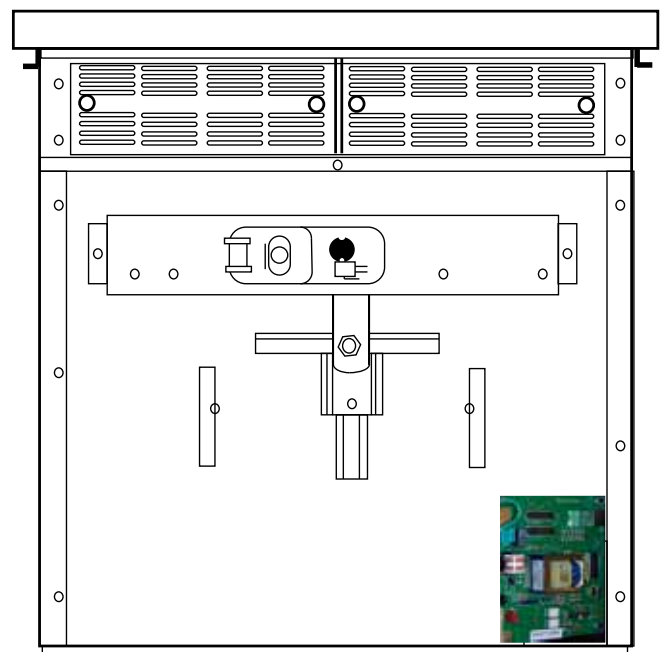
1. Remove power from ventilator and blower motor by unplugging power cord from source.
2. To gain access to gear motor kit which includes positioning switches and cam, you must first remove the blower motor assembly if it is installed internally.
3. Remove four 3/8" nuts, shown in photos below.



4. Remove left and right brackets, set aside in a protected area to prevent damage to brackets and household.
5. Next remove the 9 screws indicated to remove the back panel, see photo in next column.



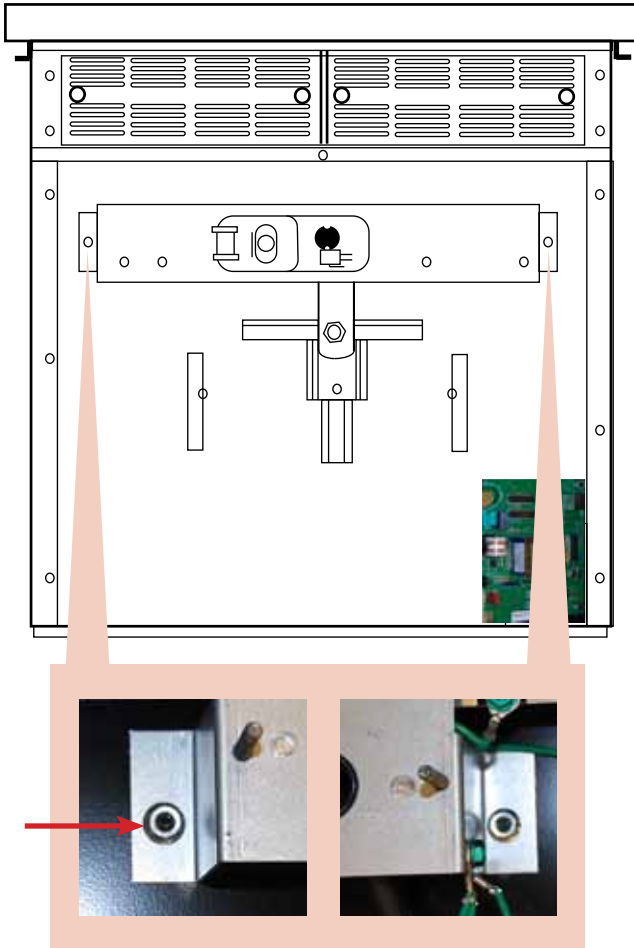
6. Remove outer panel to expose the inner mechanism and lower electronic board, see illustration below.



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7. Remove the two 3/8 inch nuts to remove the gear motor bracket and gear motor assembly, see illustration below



8. The figure below shows gear motor assembly removed from downdraft.



Lower PCB board removal

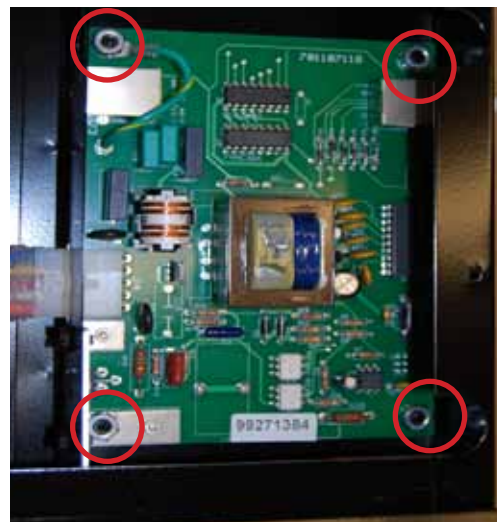
1. Remove outer panel see Page 7, Steps 1 thru 6, to gain access to control board.
2. Remove connectors (2) going to control board, see photo below.



Connector and harness to Ventilation motor

Cable from Remote Switch Assy

3. Remove the four nuts securing board to frame and lift board out of unit.

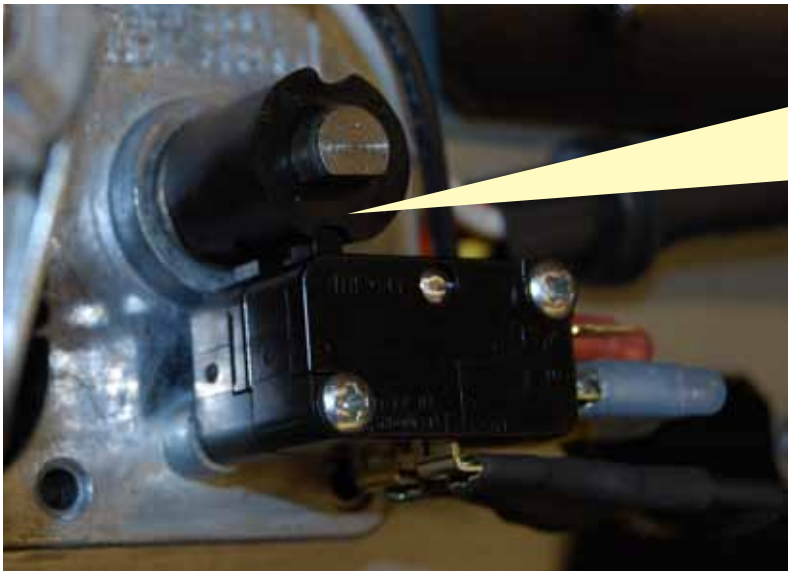


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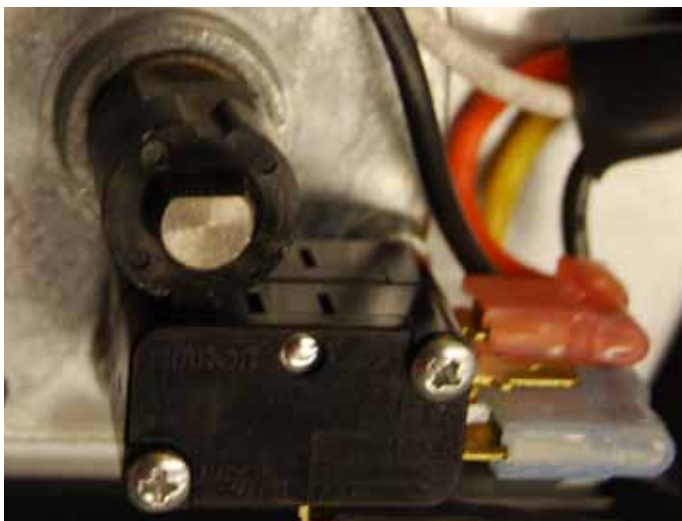
Full Down Positon (Unit Off)

The cam switches ride on the bottom of the cam as shown in photo below. In the down position the rear switch is depressed (common and normally open contacts shorted) and the front switch is sitting in the slot allowing the common and normally closed contacts to be shorted.



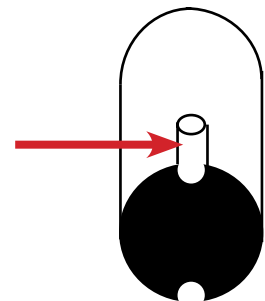
Front switch is in groove, rear switch is depressed by cam.

120 VAC input voltage is present on both switches on the common terminal of each switch, any time that the unit is plugged into the wall socket. The picture of the cam in the full down position is shown in the picture below left.



Cam shown when downdraft is in fully down position.

This illustration shows the groove that is actually on the bottom when in full down position

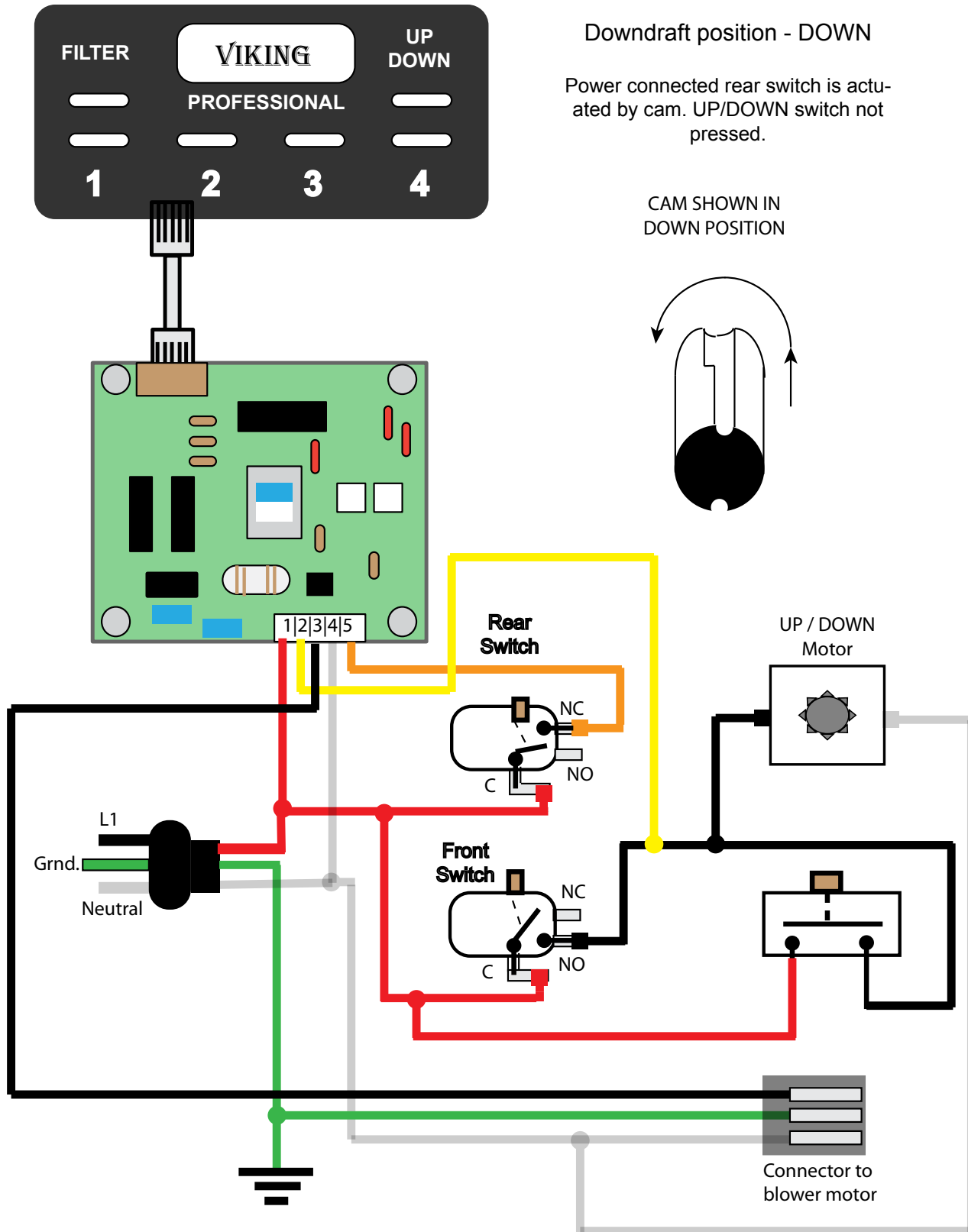


Troubleshooting



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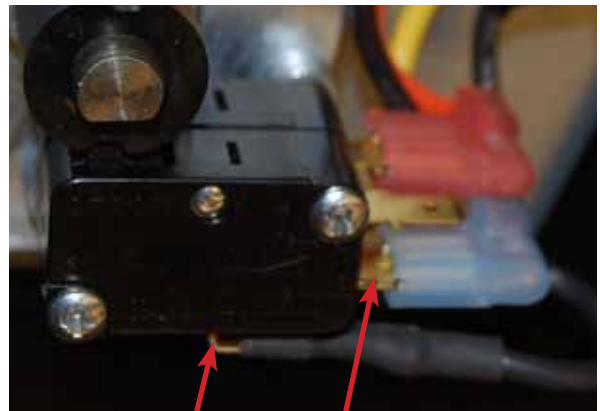
Full Down Positon (Up/Down Switch Pressed)

When the Up/Down switch is pressed the 120 VAC on input side of switch is sent to the Up/Down motor, causing the cam to turn in a counterclockwise direction, see schematic on Page 13. The rear switch is already depressed, the front switch is now depressed and 120 VAC is routed to the Up / Down motor so that when UP/Down switch is released the hood will continue to rise to it's full extension. See wiring schematic on Page 14, wires in red show the actual path of voltage during the actions explained above.

1. Check voltage at common terminals of cam switches, voltage should be 120 VAC, if good proceed, if voltage is missing troubleshoot input voltage to downdraft and wiring to common terminals of cam switches.
2. When UP/DOWN switch is pressed, the downdraft should rise if not proceed to step 3.
3. If UP/DOWN motor doesn't do anything and voltage is good at common terminals on cam switches, using a jumper wire carefully jump the front switch common terminal to the front switch normally open terminal for approximately 1 second and then remove the jumper. See photo below right for clarification.
4. If the vent extends to the full up position then you have eliminated the wiring from front cam switch to the Up/Down motor, and the Up/Down motor, proceed to step 6, if the motor doesnot run then either the wiring from the front cam switch to the



Should measure 120 VAC between these contacts when UP/DOWN switch is pressed.



120 VAC Hot, whenever unit is connected to input power.

Temporarily jumping the 120 VAC from the common terminal to here should cause the UP/Down motor to run the vent to the full UP position.



WARNING

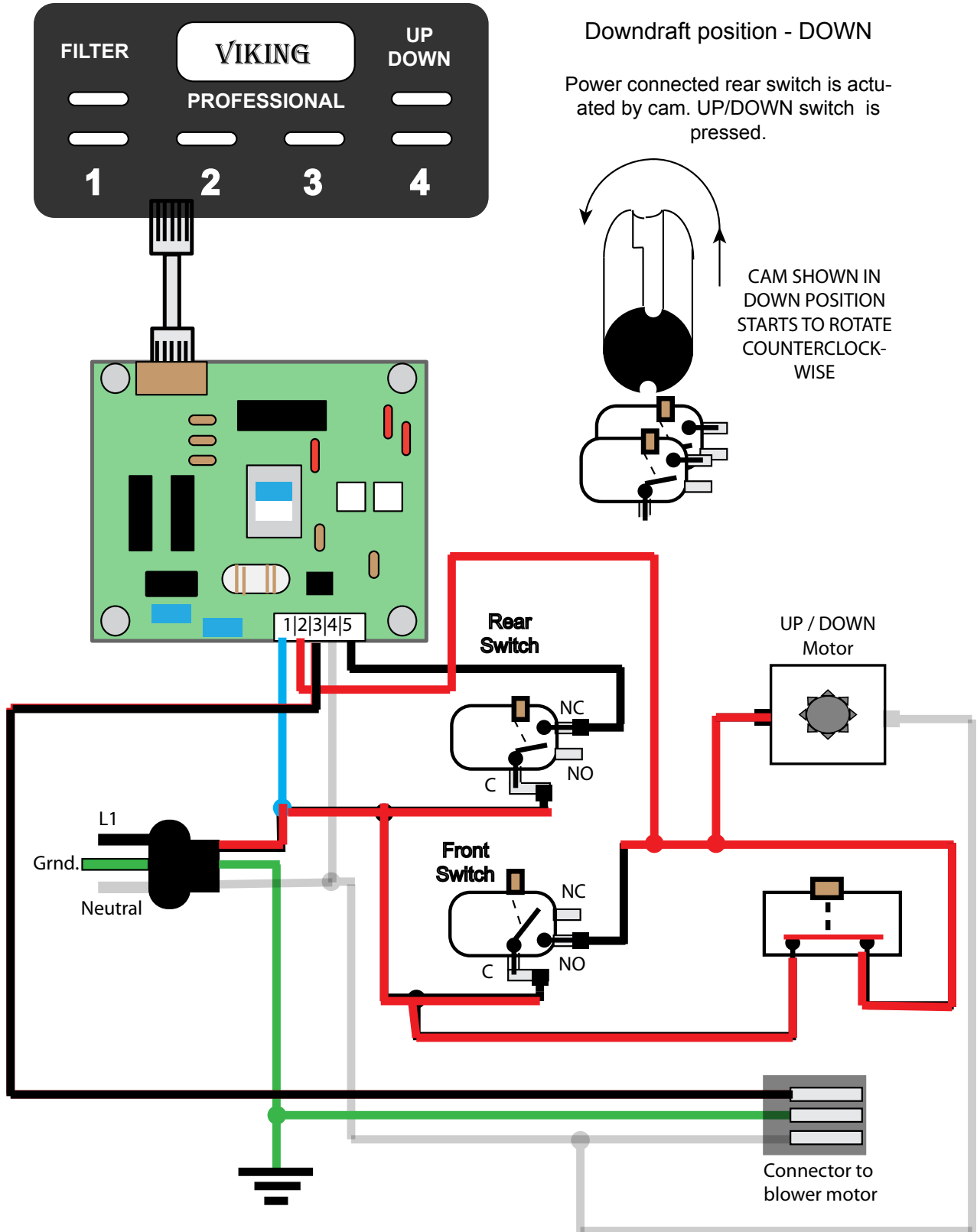
To avoid risk of electrical shock, personal injury, or death, disconnect electrical power source to unit, unless test procedures require power to be connected. Ensure all ground wires are connected before certifying unit as repaired and/or operational.

Full Down Positon (Up/Down Switch Pressed) - continued

- motor is open, the neutral to the motor is open or the motor winding is open.
5. Remove power from downdraft and using an ohmmeter determine the faulty component, wiring from front cam switch normally open contact to L1 (black wire) input to Up/Down motor, should be a direct short (0 ohms). If good check continuity between neutral (white wire) on Up/Down motor to neutral on power plug, should be a direct short (0 ohms). If good check motor winding , should be XX ohms, if bad replace motor.
 6. When you jumped the 120 VAC at common terminal to normally open terminal of front cam switch and downdraft went up you simulated pressing the UP/Down switch and sending 120 VAC to UP/Down motor, check for bad UP/Down switch or wiring between switch and UP/Down motor.

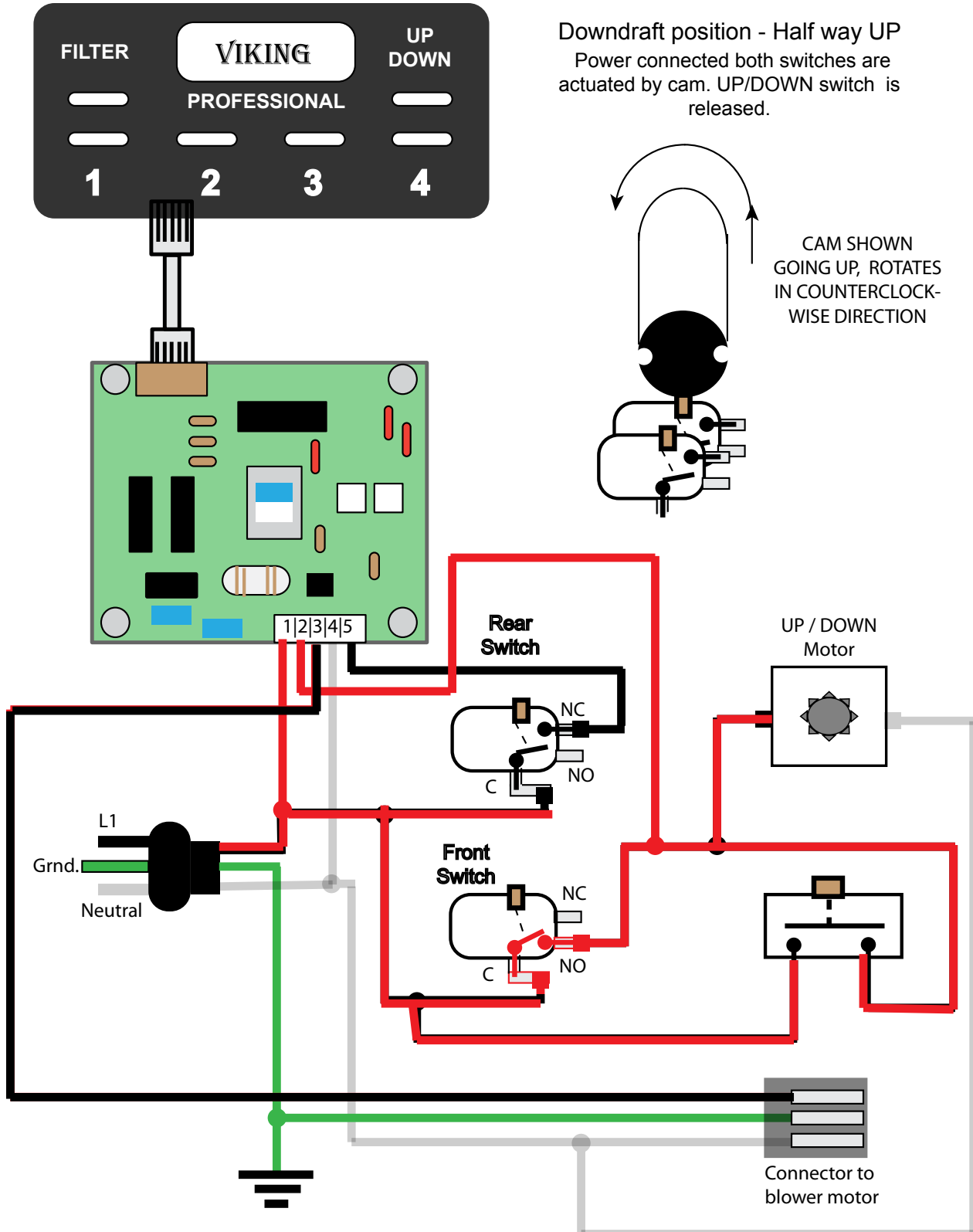
WARNING

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Full UP Positon

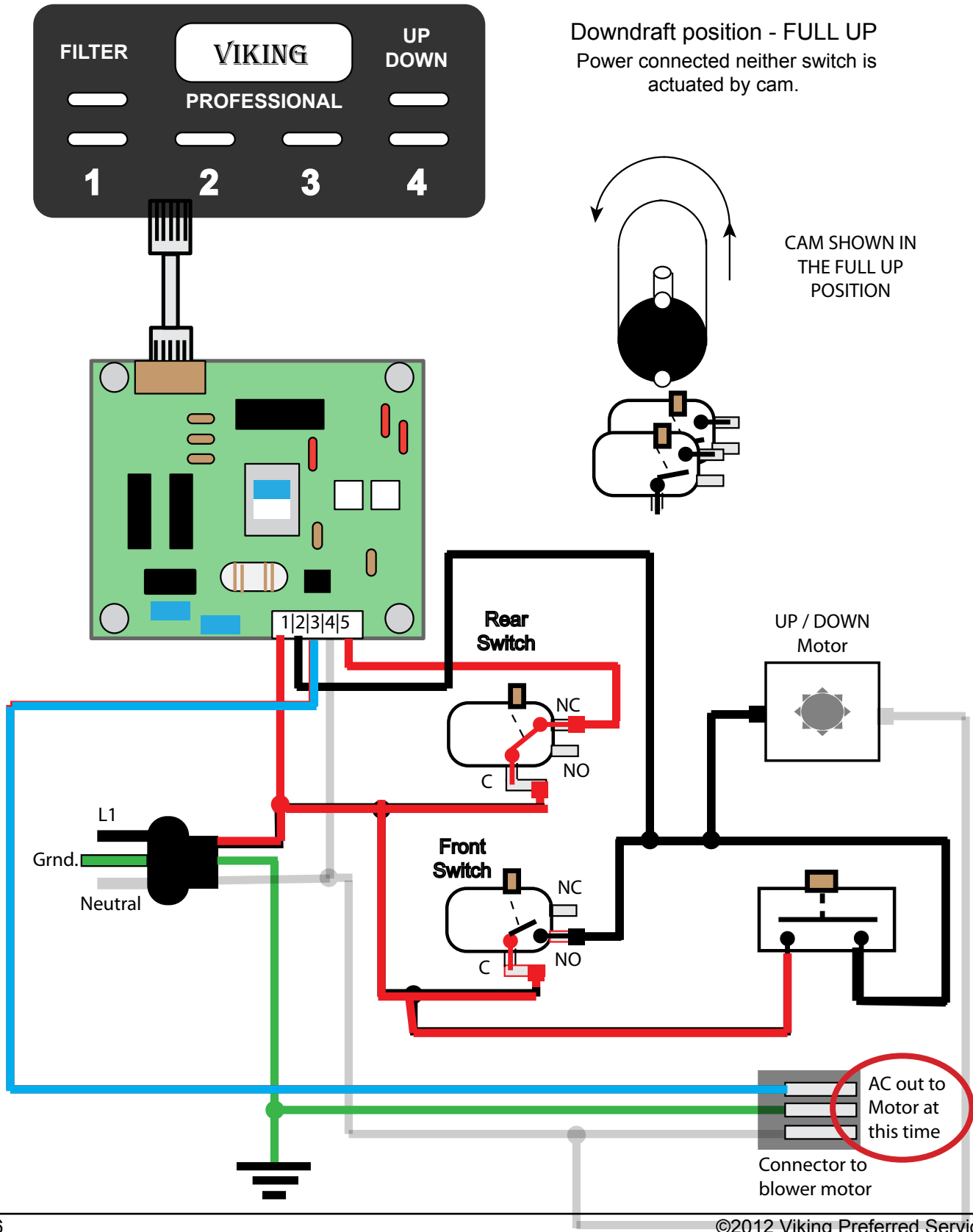
The downdraft has finished rising to the full up position at which time both cam switches are not actuated due to the fact that they are both in the groove. The front cam switch now has continuity between the common terminal and the normally closed terminal which removes voltage to the UP/Down motor. The rear cam switch also has continuity between the common terminal and the normally closed terminal which sends 120 VAC to pin 5 of the control board. The presence of this voltage causes the board to send the AC voltage out Pin 3 of the control board to the ventilation motor. NOTE: this AC voltage value is determined by the speed input (1 thru 4) to the board from the remote control Switch. The schematic on Page 16 illustrates the circuit described above, the energized circuit is shown in red and the AC voltage out to ventilation motor is shown in blue..

Troubleshooting



WARNING

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**WARNING**

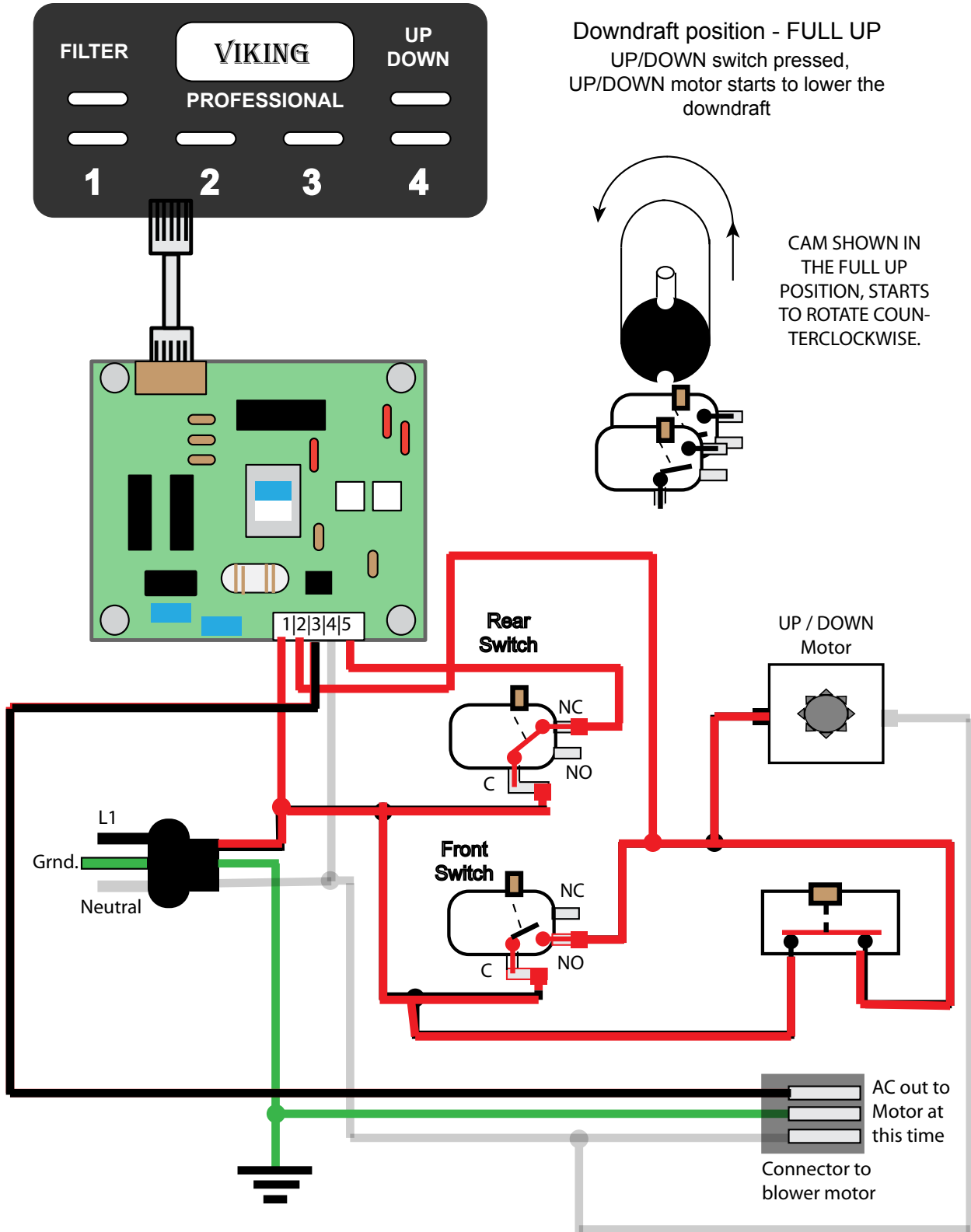
To avoid risk of electrical shock, personal injury, or death, disconnect electrical power source to unit, unless test procedures require power to be connected. Ensure all ground wires are connected before certifying unit as repaired and/or operational.

Full UP Position, UP/Down switch pressed

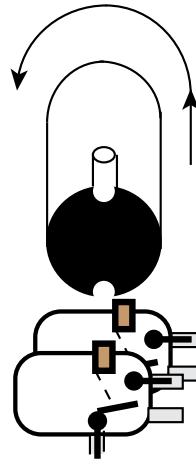
With the downdraft in the full UP position the UP/Down switch is pressed, sending 120 VAC through the switch to the UP/Down motor, as shown on schematic on Page 18. As the vent hood starts down the front cam switch is depressed, allowing voltage from common terminal to the normally open terminal which supplies continued voltage to motor after UP/Down switch is released. Shortly thereafter the rear switch is depressed by cam which is still rotating in a counterclockwise direction. The rear cam switch now removes voltage from pin 5 of the control board which in turn shuts off the AC voltage going out pin 3 of the control board to the ventilation motor. The schematic on Page 19 illustrates the before mentioned circuit. When downdraft reaches the full down position the unit is back in the condition represented by the schematic on Page 10.

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Downdraft position - FULL UP
UP/DOWN switch pressed,
UP/DOWN motor starts to lower the
downdraft



CAM SHOWN IN
THE FULL UP
POSITION, STARTS
TO ROTATE COUN-
TERCLOCKWISE.

WARNING

To avoid risk of electrical shock, personal injury, or death, disconnect electrical power source to unit, unless test procedures require power to be connected. Ensure all ground wires are connected before certifying unit as repaired and/or operational.

