



Electronic Service Manuals

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2011 N. High St. -- Lansing, Michigan -- 48906
Fax: (517) 484-9836
Email: CustServ@Michco.com
Web site: www.Michco.Com
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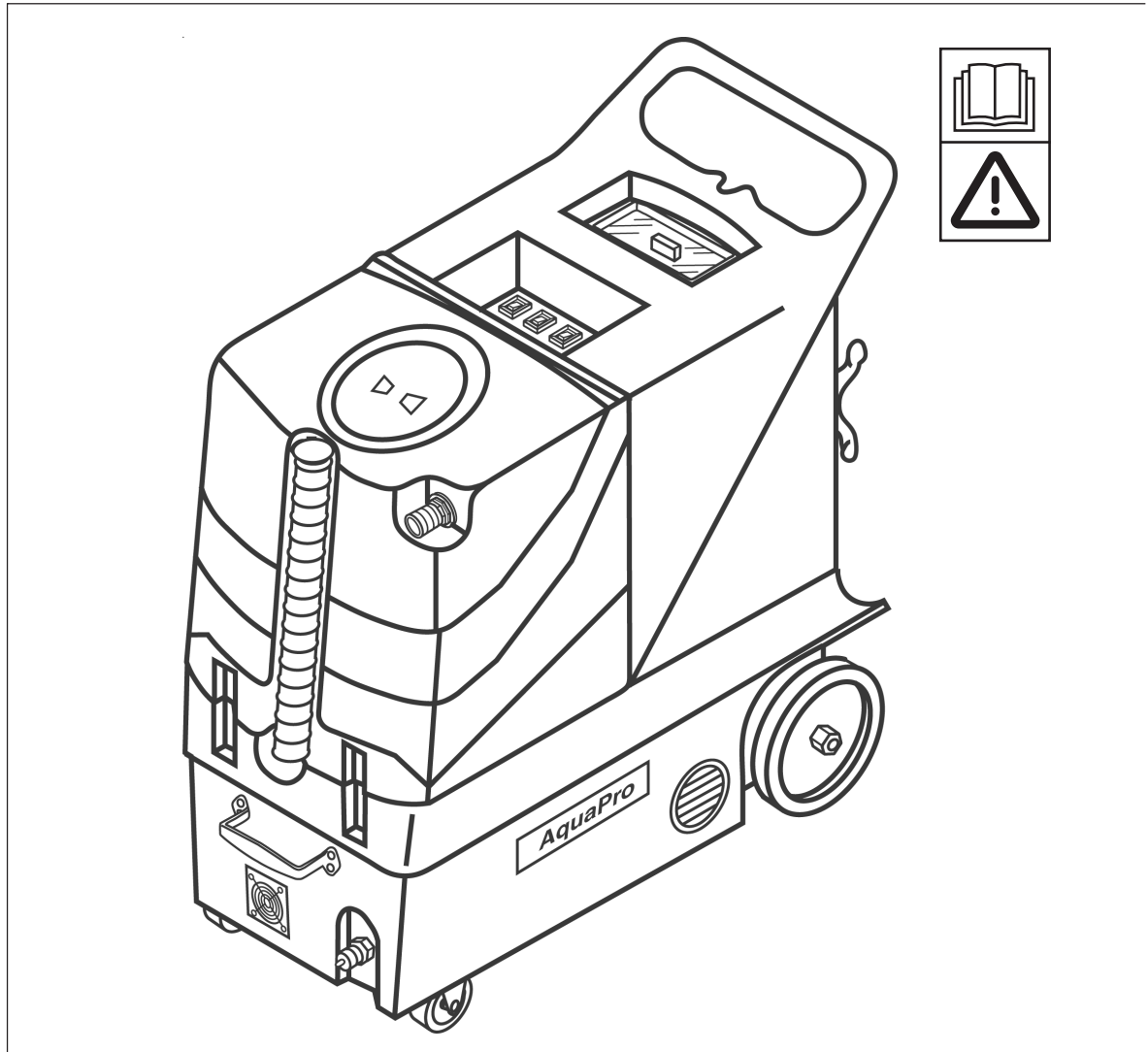
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AquaPro™ C



Instructions for use and parts list

Advance MODEL 56102800



Advance
by Nilfisk-Advance

06/03 revised 11/03 Form Number 56041561

INTRODUCTION

This manual will help you get the most from your **Advance AquaPro™ C**. Read thoroughly before operating the machine.

NOTE: Bold numbers in parenthesis indicate an item illustrated on page 7.

This product is intended for commercial use only.

PARTS AND SERVICE

Repairs, when required, should be performed by your authorized Advance Service Center, who employs factory-trained service personnel, and maintains an inventory of Advance original replacement parts and accessories.

Call the Advance DEALER named below for parts or service. Please specify the Model and Serial Number when discussing your machine.

(Dealer, affix service sticker here)

NAME PLATE

The Model and Serial Number of your machine are shown on the nameplate in the machine. This information is needed when ordering repair parts for the machine. Use the space below to note the Model and Serial Number of your machine for future reference.

MODEL : _____

SERIAL NUMBER : _____

UNCRATING

When the machine is delivered, carefully inspect the shipping carton and the machine for damage. If damage is evident, save the shipping carton so that it can be inspected. Contact Advance Customer Service Department immediately to file a freight damage claim.

DO NOT OPERATE THE MACHINE UNTIL YOU HAVE READ THIS SECTION. IMPROPER USE WILL VOID THE WARRANTY.

- Always use a defoamer when foaming occurs to prevent vacuum motor damage.
- Never use water above 140° F (60°C).
- Do not store outdoors. Avoid extremes in temperature.
- Do not let the pump run dry. Turn the pump off and refill that tank when cleaning solution gets low.
- Use approved chemicals only. All chemicals should be mixed thoroughly. Liquid chemicals are recommended to prevent powder buildups. A pH between 6 and 9 is recommended. The use of high alkaline detergents or strong acids will accelerate the wear of the pump and seals, and will void the warranty.
- All extension cords must have a rating of at least 12/3 (#12 cord). Extension cords should be no longer than 50 feet. Replace the plug immediately if the ground prong becomes damaged or is broken off.

IMPORTANT SAFETY INSTRUCTIONS

This machine is only suitable for commercial use, for example in hotels, schools, hospitals, factories, shops and offices other than normal residential housekeeping purposes.

When using an electrical appliance, basic precautions should always be followed, including the following:

Read all instructions before using this appliance.

WARNING!

To reduce the risk of fire, electric shock, or injury:

- Do not leave the appliance when it is plugged in. Unplug the unit from the outlet when not in use and before servicing.
- To avoid electric shock, do not expose to rain. Store indoors.
- Do not allow to be used as a toy. Close attention is necessary when used near children.
- Use only as described in this manual. Use only the manufacturer's recommended attachments.
- Do not use with damaged cord or plug. If the appliance is not working as it should be, has been dropped, damaged, left outdoors or dropped into water, return it to a service center.
- Do not pull or carry by the cord, use the cord as a handle, close a door on the cord, or pull the cord around sharp edges or corners. Do not run the appliance over the cord. Keep the cord away from heated surfaces.
- Do not unplug by pulling on the cord. To unplug, grasp the plug, not the cord.
- Do not handle the plug, cord or appliance with wet hands.
- Do not put any object into openings. Do not use with any opening blocked; keep free of dust, lint, hair, and anything that may reduce air flow.
- Keep loose clothing, hair, fingers, and all parts of body away from openings and moving parts.
- Do not pick up anything that is burning or smoking, such as cigarettes, matches, or hot ashes, or any health endangering dusts.
- Turn off all controls before unplugging.
- Use extra care when cleaning on stairs.
- Do not use to pick up flammable or combustible liquids such as gasoline or use in areas where they may be present.
- Connect to a properly grounded outlet only. See Grounding Instructions.
- Liquid ejected at the spray nozzle could be dangerous as a result of its temperature, pressure or chemical content.

SAVE THESE INSTRUCTIONS

CONSIGNES DE SECURITE IMPORTANTES

Cette machine ne convient qu'à un usage industriel, par exemple dans des hôtels, écoles, hôpitaux, usines, boutiques et bureaux et autres à l'exclusion de tout usage de maintenance résidentielle normale.

L'utilisation d'un appareil électrique demande certaines précautions:

LIRE TOUTES LES INSTRUCTIONS AVANT DE FAIRE FONCTIONNER (CET APPAREIL)

AVERTISSEMENT!

Pour réduire les risques d'incendie, de choc électrique ou de blessure:

- Ne pas laisser l'appareil sans surveillance lorsqu'il est branché. Débrancher lorsque l'appareil n'est pas utilisé et avant l'entretien.
- Pour réduire les risques de choc électrique, utiliser à l'intérieur seulement.
- Ne pas permettre aux enfants de jouer avec l'appareil. Une attention particulière est nécessaire lorsque l'appareil est utilisé par des enfants ou à proximité de ces derniers.
- N'utiliser que conformément à cette notice avec les accessoires recommandés par le fabricant.
- Ne pas utiliser si le cordon ou la fiche est endommagé. Retourner l'appareil à un atelier de réparation s'il ne fonctionne pas bien, s'il est tombé ou s'il a été endommagé, oublié à l'extérieur ou immergé.
- Ne pas tirer soulever ou traîner l'appareil par le cordon. Ne pas utiliser le cordon comme une poignée, le coincer dans l'embrasure d'une porte ou l'appuyer contre des arêtes vives ou des coins. Ne pas faire rouler l'appareil sur le cordon. Garder le cordon à l'écart des surfaces chaudes.
- Ne pas débrancher en tirant sur le cordon. Tirer plutôt la fiche.
- Ne pas toucher la fiche ou l'appareil lorsque vos mains sont humides.
- N'insérer aucun objet dans les ouvertures. Ne pas utiliser l'appareil lorsqu'une ouverture est bloquée. S'assurer que de la poussière, de la peluche, des cheveux ou d'autres matières ne réduisent pas le débit d'air.
- Maintenir les cheveux, les vêtements amples, les doigts et toutes les parties du corps à l'écart des ouvertures et des pièces mobiles.
- Ne pas aspirer de matières en combustion ou qui dégagent de la fumée, comme des cigarettes, des allumettes ou des cendres chaudes.
- Mettre toutes les commandes à la position ARRÊT avant de débrancher l'appareil.
- User de prudence lors du nettoyage des escaliers.
- Ne pas aspirer des liquides inflammables ou combustibles, comme de l'essence, et ne pas faire fonctionner dans des endroits où peuvent se trouver de tels liquides.
- Ne brancher qu'à une prise de courant avec mise à la terre. Voir les instructions visant la mise à la terre.
- Le liquide qui sort de l'embout de vaporisation peut s'avérer dangereux en raison de sa température, de sa pression ou du produit chimique qu'il contient.

CONSERVER CES INSTRUCTIONS

120VAC GROUNDING INSTRUCTIONS

This appliance must be grounded. If it should electrically malfunction, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. This appliance is equipped with a cord having an equipment-grounding conductor and grounding plug. The plug must be plugged into an appropriate outlet that is properly installed and grounded in accordance with all local codes and ordinances.

DANGER!

Improper connection of the equipment-grounding conductor can result in a risk of electric shock. Check with a qualified electrician or service person if you are in doubt as to whether the outlet is properly grounded. Do not modify the plug provided with the appliance. If it will not fit the outlet, have a proper outlet installed by a qualified electrician.

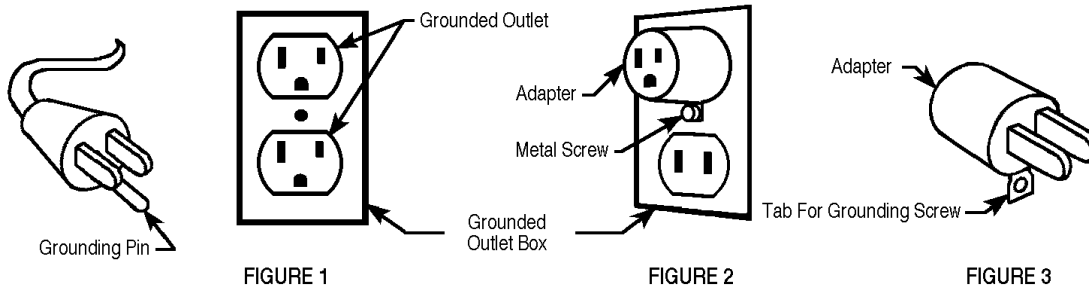
This appliance is for use on a nominal 120-volt circuit, and has a grounding plug that looks like the plug illustrated in Figure 1 below. A temporary adapter illustrated in Figures 2 and 3 may be used to connect this plug to a 2-pole receptacle as shown in Figure 2 if a properly grounded outlet is not available. The temporary adapter should be used only until a properly grounded outlet (Figure 1) can be installed by a qualified electrician. The green-colored rigid ear, tab, or the like extending from the adapter must be connected to a permanent ground such as a properly grounded outlet box cover. Whenever the adapter is used, it must be held in place by a metal screw. Grounding adapters are not approved for use in Canada.

Replace the plug if the grounding pin is damaged or broken.

The Green (or Green/Yellow) wire in the cord is the grounding wire. When replacing a plug, this wire must be attached to the grounding pin only.

Extension cords connected to this machine should be 12 gauge, three-wire cords with three-prong plugs and outlets. DO NOT use extension cords more than 50 feet (15 m) long.

PLEASE NOTE: FOR NORTH AMERICA ONLY



INSTRUCTIONS VISANT LA MISE À LA TERRE (120VAC)

Cet appareil doit être mis à la terre. En cas de défaillance ou de panne éventuelles, la mise à la terre fournit au courant un chemin de moindre résistance qui réduit le risque de choc électrique. Cet appareil est pourvu d'un cordon muni d'un conducteur de terre et d'une fiche avec broche de terre. La fiche doit être branchée dans une prise appropriée correctement installée et mise à la terre conformément aux règlements et ordonnances municipaux.

AVERTISSEMENT !

Un conducteur de terre mal raccordé peut entraîner un risque de choc électrique. Consulter un électricien ou un technicien d'entretien qualifié si vous n'êtes pas certain que la prise est correctement mise à la terre. Ne pas modifier la fiche fournie avec l'appareil - si elle ne peut être insérée dans la prise, faire installer une prise adéquate par un électricien qualifié.

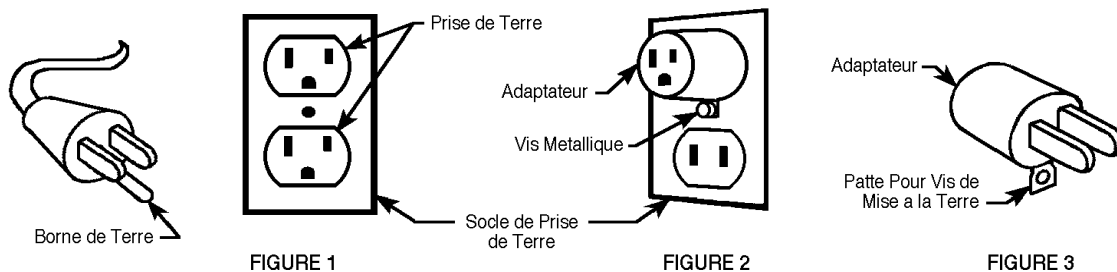
Cet appareil est destiné à un circuit de 120 V et est muni d'une fiche de terre semblable à celle illustrée par le croquis 1. Un adaptateur temporaire semblable à celui illustré par le croquis 2 et C peut être utilisé pour brancher cette fiche à une prise bipolaire comme l'illustre le croquis 2 si une prise avec mise à la terre n'est pas disponible. L'adaptateur temporaire devrait être utilisé seulement jusqu'à ce qu'une prise avec mise à la terre soit installée par un électricien qualifié. L'oreille rigide ou le crochet ou autre dispositif semblable, de couleur verte, prolongeant l'adaptateur doit être raccordé à un élément correctement mis à la terre comme le couvercle d'une boîte de sortie mise à la terre. L'adaptateur doit être fixé par une vis métallique. Note: Au Canada, l'utilisation d'un adaptateur temporaire n'est pas autorisée par le Code canadien de l'électricité.

Remplacez la prise si la prise de terre est abîmée ou cassée.

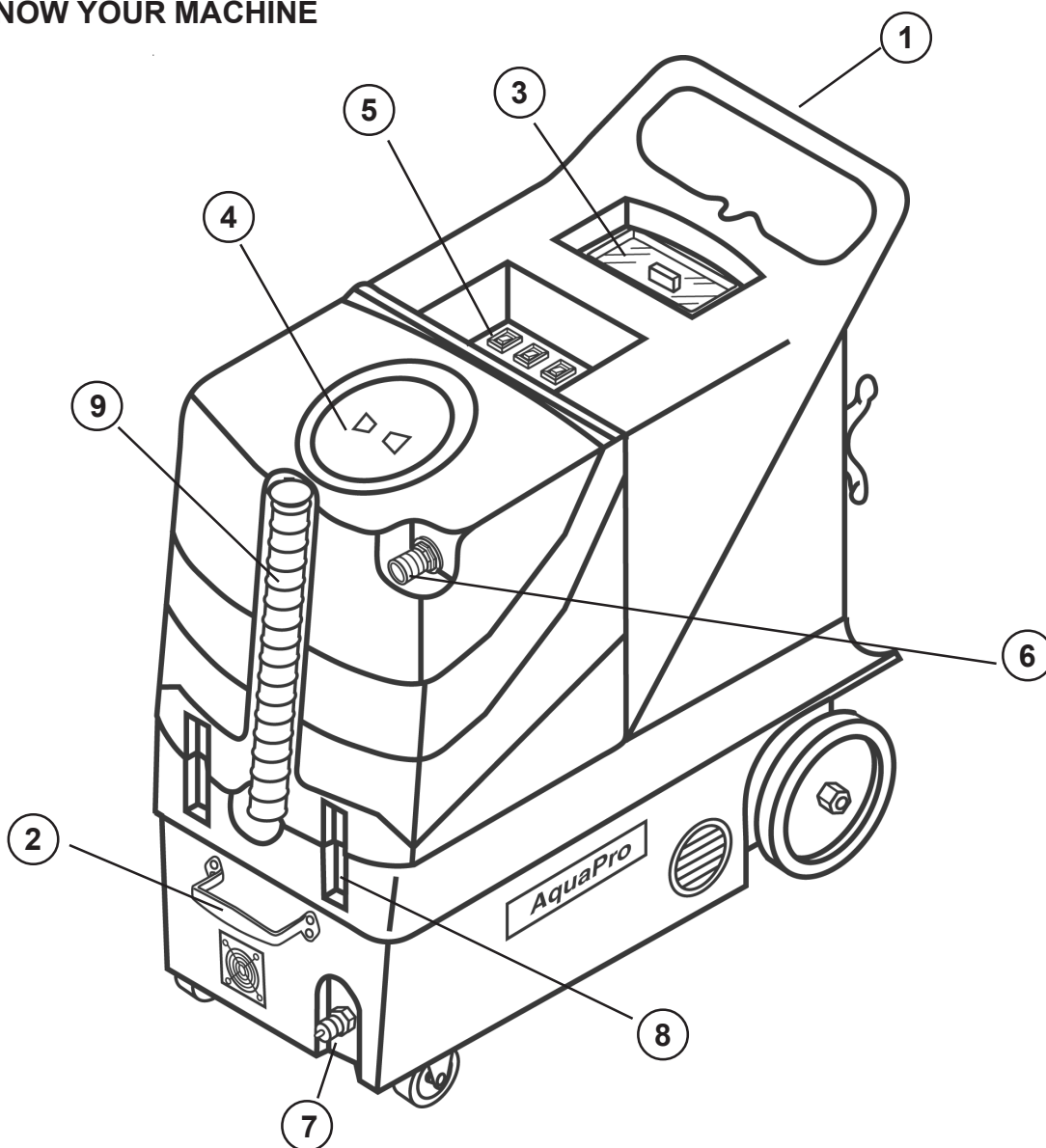
Le fil Vert (ou Vert/Jaune) dans la gaine est le fil de terre. Lors du remplacement d'une prise, ce fil doit être raccordé à la prise de terre uniquement.

Les ralonges connectées à cette machine doivent avoir 12 mesures, trois ganses de fil ayant trois fiches masculines féminines tree-prong plugs and outlets. N'UTILISEZ PAS de ralonge de plus de 15 m (50 pieds) de long.

VEUILLEZ NOTER: CES INSTRUCTIONS CONCERNENT UNIQUEMENT L'AMÉRIQUE DU NORD



KNOW YOUR MACHINE



KNOW YOUR MACHINE DESCRIPTIONS

Operator Handle (1) - Operator holds this to move the machine from one location to another.

Lift Handle (2) - Operator grasps this handle when lifting the machine.

Solution Tank Lid (3) - Fill Solution Tank here with warm water and chemicals.

Recovery Tank Lid (4) - The Recovery Tank can be flushed out by running clean water into this opening with the Recovery Tank Drain Hose open. The vacuum float Shut-OFF can also be accessed through this opening for maintenance.

Switch Plate (5) - The switches that operate the motors are located here

Vacuum Hose Connector (6) - This is where the vacuum hose attaches to the machine.

Solution Hose Connector (7) - This is where the solution hose attaches to the machine.

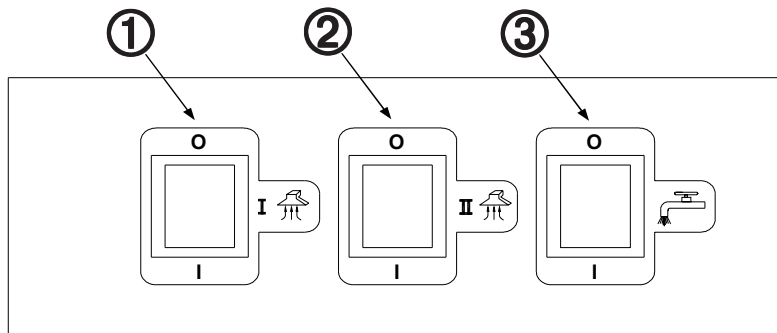
Latches (8) - These latches can be opened if the base compartment needs to be accessed. The latches are normally closed to keep the machine sections held together tightly.

Drain Hose (9) - This hose is used to empty the recovery tank of dirty water.

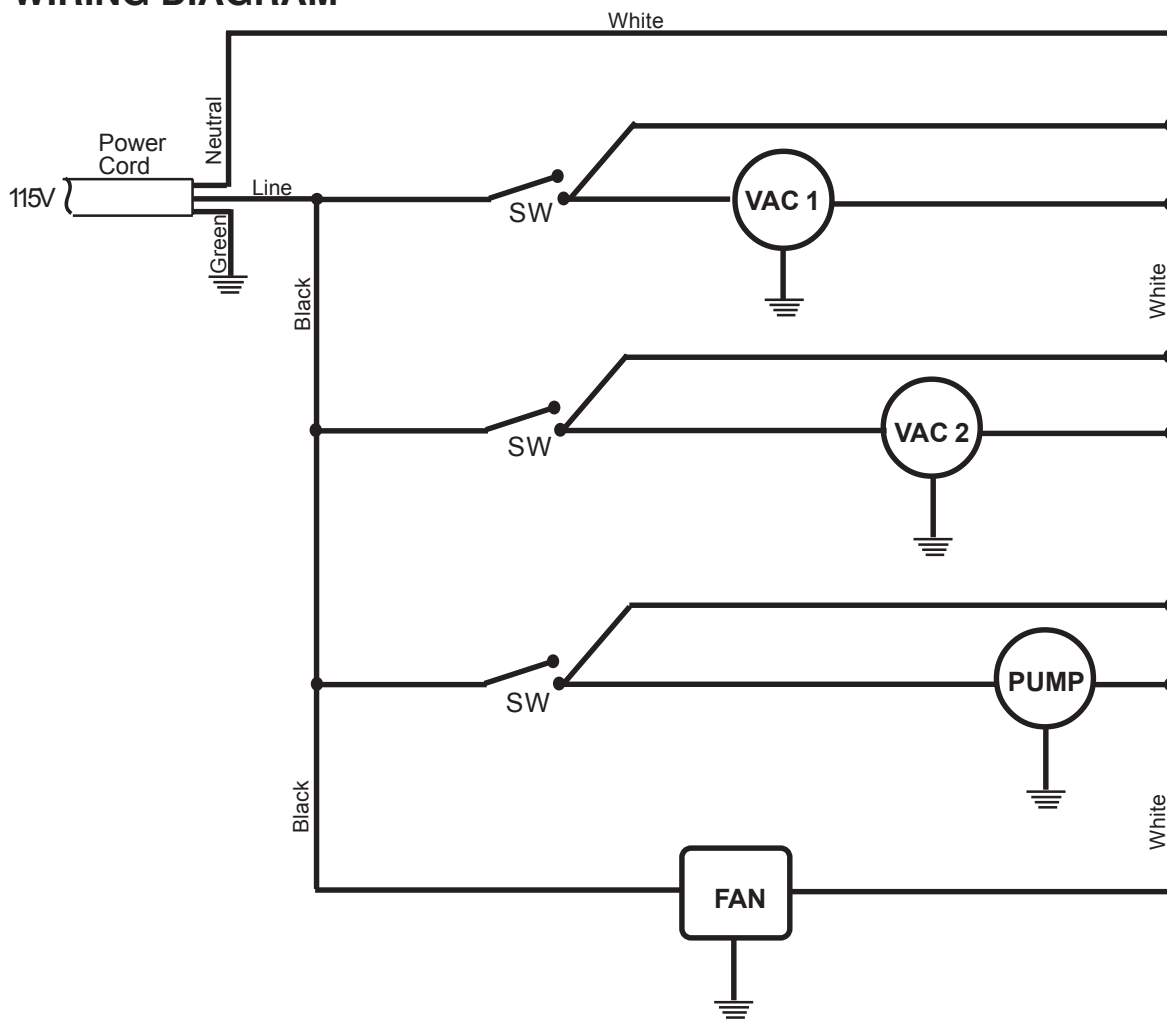
SWITCH PLATE DESCRIPTIONS

Vacuum Switches (1 and 2) - These switches each turn one vacuum on and off. The switches will light when ON. When using just one vacuum, as when cleaning delicate fabric, use vacuum 1.

Pump Switch (3) - This switch turns the pump on and off. The switch will light when ON.



WIRING DIAGRAM



OPERATION

- 1 Inspect the machine, hoses, and cleaning tool(s) for cleanliness and completeness.
- 2 Fill the Solution Tank with warm water. Using warm water may be a benefit in cleaning effectiveness, but do not use hot water (above 140°F / 60°C) in the tank. Add liquid cleaning solution with a pH of between 6 and 9.
- 3 Plug in the power cord.
- 4 Attach the spray hose to the solution quick disconnect and the vacuum hose to the hose barb on the recovery tank. Attach the other ends of the hoses to the cleaning tool.
- 5 Turn the pump on. Turn the vacuum(s) on. NOTE: the pump has a built in pressure switch; the pump only runs when you are spraying.
- 6 Begin cleaning using the correct hoses and tool.
- 7 Use defoamer in the recovery tank if foaming occurs.
- 8 Monitor the water level in the solution tank. Do not let the pump run dry.
- 9 When the solution tank gets low on fluid, turn the pump off, fill the Solution Tank, empty and clean the Recovery Tank.
- 10 When finished with the job, remove any unused solution from the solution tank, and run a few gallons of clean water through the system.

BALL FLOAT VACUUM SHUT-OFF

Prior to using the machine, always check that the float filter is clean and the ball can travel freely. When the recovery tank is full, the ball float will rise and will shut off the vacuum flow to prevent any more water from entering the tank. Turn off the vacuum, and empty the recovery tank. NOTE: if foam is present or if the ball float is prevented from rising, the float will not be able to stop the air flow, and the tank might over fill.

CAUTION!

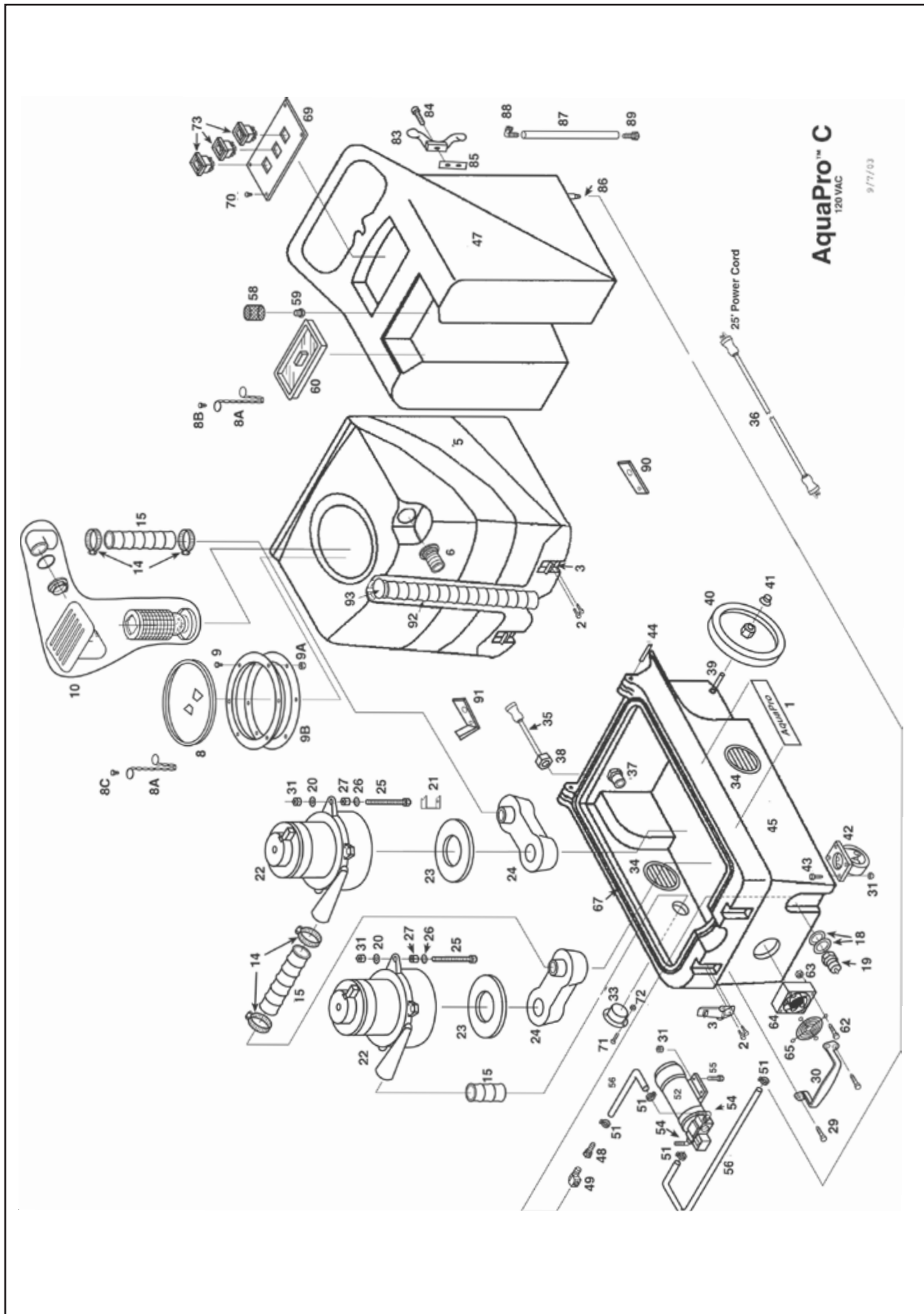
To avoid vacuum motor damage, always make sure the float filter is clean and the ball can travel freely prior to using the machine. And always use a defoamer when foaming occurs.

USE AND MAINTENANCE

- 1 Use only liquid chemicals with a pH between 6 and 9 at the recommended mix ratios. Improper chemicals, or improperly mixed chemicals, can cause possible damage to the pump, seals, and other components.
- 2 Turn the pump "off" when the solution tank is low on fluid. Do not let the pump run dry.
- 3 Regularly clean any mineral or chemical deposits in the heat exchanger, lines and pump with a mild acid descaler. Rinse the descaler out of the machine with a few gallons of clear water.
- 4 Prior to each job, inspect, and clean if needed, the solution filter, the recovery tank float filter, and the drain hose.
- 5 Make sure the airways are not blocked before each use.
- 6 Inspect the carbon brushes on the vacuum motors once a year. Replace if worn down.
- 7 Clean the recovery tank daily. Clean the body and wheels as needed.
- 8 Keep the machine from extremes in temperatures.

MAINTENANCE SCHEDULE	Daily	Monthly	Yearly
FLUSH LINES & PUMP	X		
CLEAN VACUUM FLOAT FILTER	X		
CLEAN SOLUTION FILTER	X		
CHECK INLET AIRWAYS	X		
DESCALE MACHINE		X	
CHECK VACUUM MOTOR BRUSHES			X

NOTES:



AquaPro™ C
120 VAC

9/7/03

[illegible]

TECHNICAL SPECIFICATIONS

Vacuum Motor:	Two, 2-Stage
Water lift:	150"
Air Flow:	100 cfm
Amp Draw:	15 amps
Tank Construction:	Rotationally molded polyethylene
Solution Tank Capacity:	14 Gal. (53.2 L)
Recovery Tank Capacity:	13 Gal.(49.4 L)
Application Flow:	150 psi
Solution Hose Length:	15 ft. (4.5 m)
Recovery Hose Length:	15 ft. (4.5 m)
Power Cord:	One 25 ft. (7.6 m), High visibility yellow, removable
Rear Wheels:	10 in. (25 cm)
Front Castors:	4 in. (10.2 cm)
Height:	38 in. (96.5 cm)
Length:	36 in (91.4 cm)
Width:	17.6 in (44.7 cm)
Machine weight:	72 lb (33 kg)

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**Nilfisk
Advance**

setting standards

Nilfisk-Advance, Inc.

14600 21st Avenue North
Plymouth, MN 55447-3408

www.nilfisk-advance.com

Phone: 800-989-2235

Fax: 800-989-6566

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VACUUM BALL-FLOAT SYSTEM TROUBLESHOOTING

(120V)

NOTE: The motors on these extractor models are controlled by AC voltage passing through the ON/OFF switch.

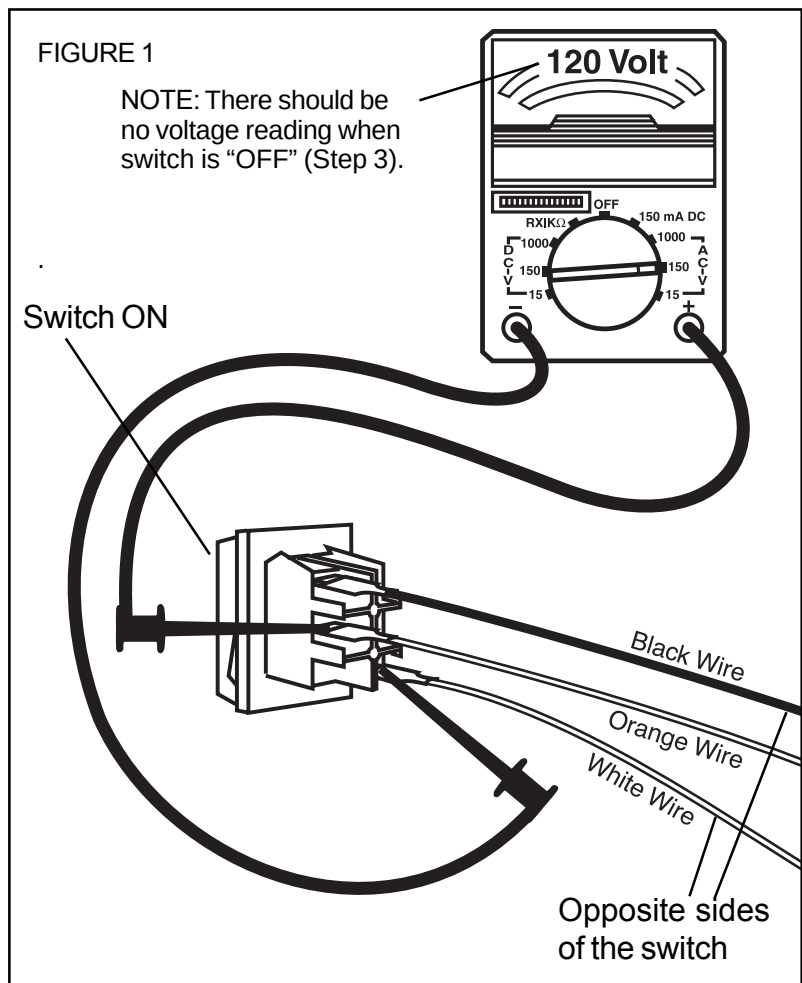
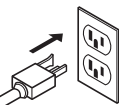
VACUUM MOTOR NOT RUNNING:

1. Always unplug the machine before working on the wiring system.
2. Open the machine to look for damaged or disconnected wires leading to the vac motor.
3. Remove the screws from the switch plate. Gently turn the switch plate over and check the back of the switches to make sure no wires have pulled loose.



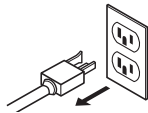
MEASURING THE AC VOLTAGE THROUGH THE SWITCH:

1. Connect a voltmeter to the terminals (with wires) on the vacuum switch being tested. Set the AC voltage in the range of 120 volts, or more. (See Figure 1 to the right).
2. Turn the vacuum switch "OFF".
3. With the switch in the "OFF" position, plug the #1 Cord (red sleeve) into an outlet and measure for NO AC voltage.
4. Turn the switch "ON" and look for an AC voltage reading. (See Figure 1 to the right).
5. If the switch is not working, replace it. Refer to the schematic and parts list for the particular machine you are working on.
6. If the switch is working correctly, test the motor itself by connecting it directly to AC voltage.



TESTING THE MOTOR DIRECTLY TO AC VOLTAGE:

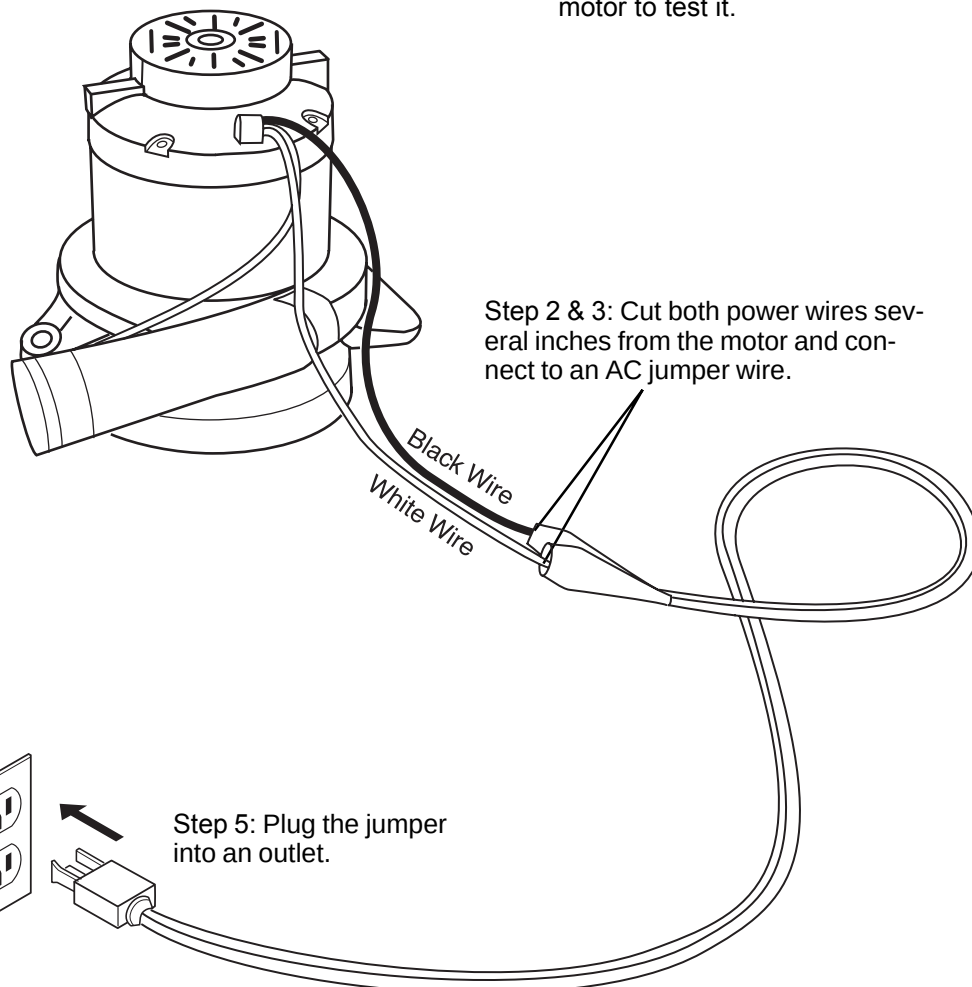
1. Unplug the power cords.



2. Cut both the power wires leading from the vacuum motor, several inches from the motor itself. Leave enough length for reconnecting the wires. See Figure 2 below.
3. Connect the motor wires (leading from the motor) to an AC jumper wire. See Figure 2.
4. Plug the jumper into an outlet. Does the vacuum motor run? If the vacuum motor runs, unplug the jumper, visually inspect and/or use the “continuity tester” or “ohm meter” to find the opening between the switch and motor wires. Refer to the wiring schematic for your machine model. Repair.
5. If the motor does not run, replace it. Refer to the parts list and schematic for your machine for the correct part number. Refer to Vacuum Motor Replacement Instructions for steps on removal and installation.

FIGURE 2

NOTE: Do not remove the motor to test it.



VACUUM BALL-FLOAT SYSTEM TROUBLESHOOTING

AquaPro™ 300
(120V)

NOTE: The motors on these extractor models are controlled by AC voltage passing through the ON/OFF switch.

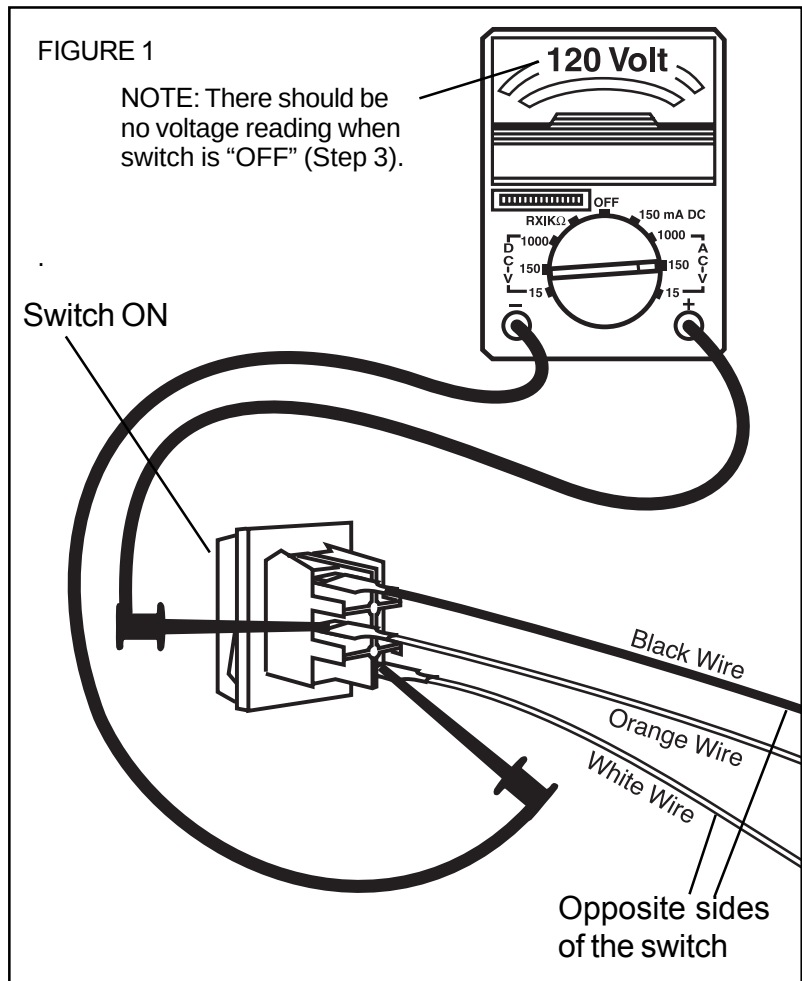
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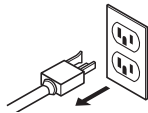
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TESTING THE MOTOR DIRECTLY TO AC VOLTAGE:

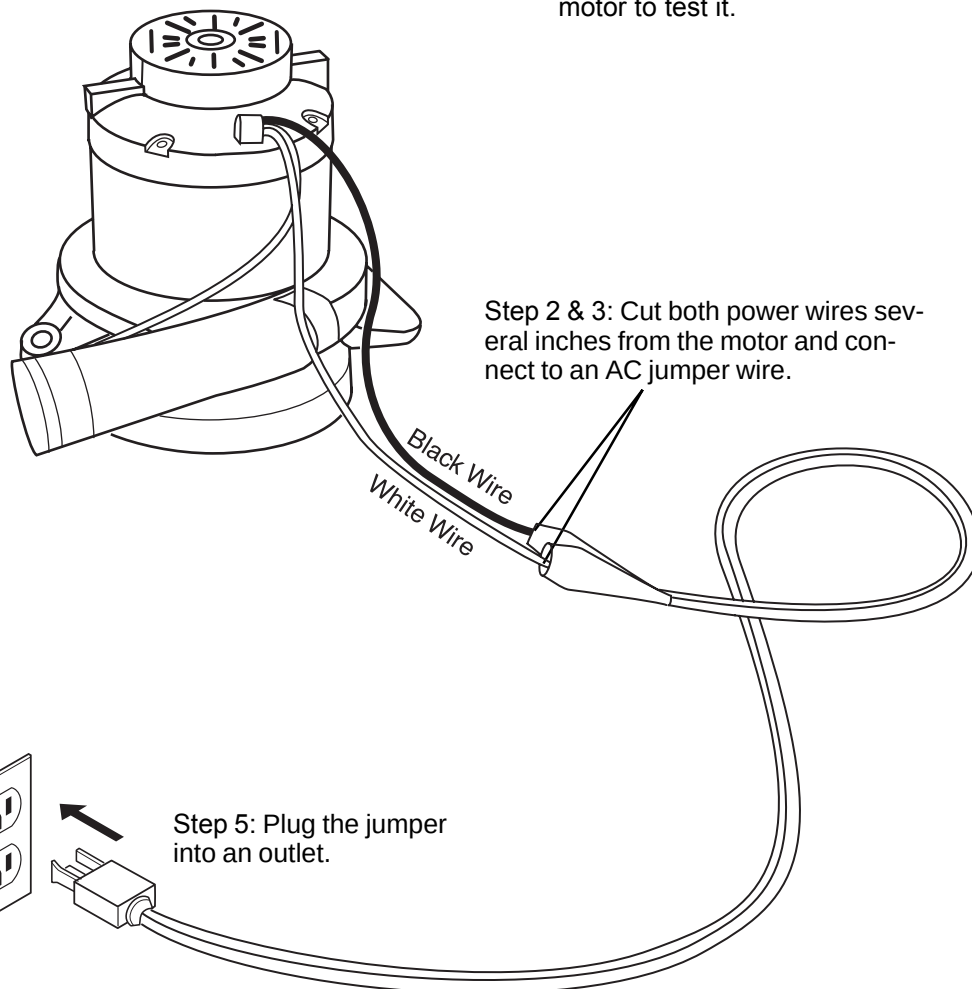
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FIGURE 2

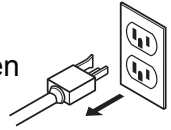
NOTE: Do not remove the motor to test it.



VACUUM MOTOR REPLACEMENT

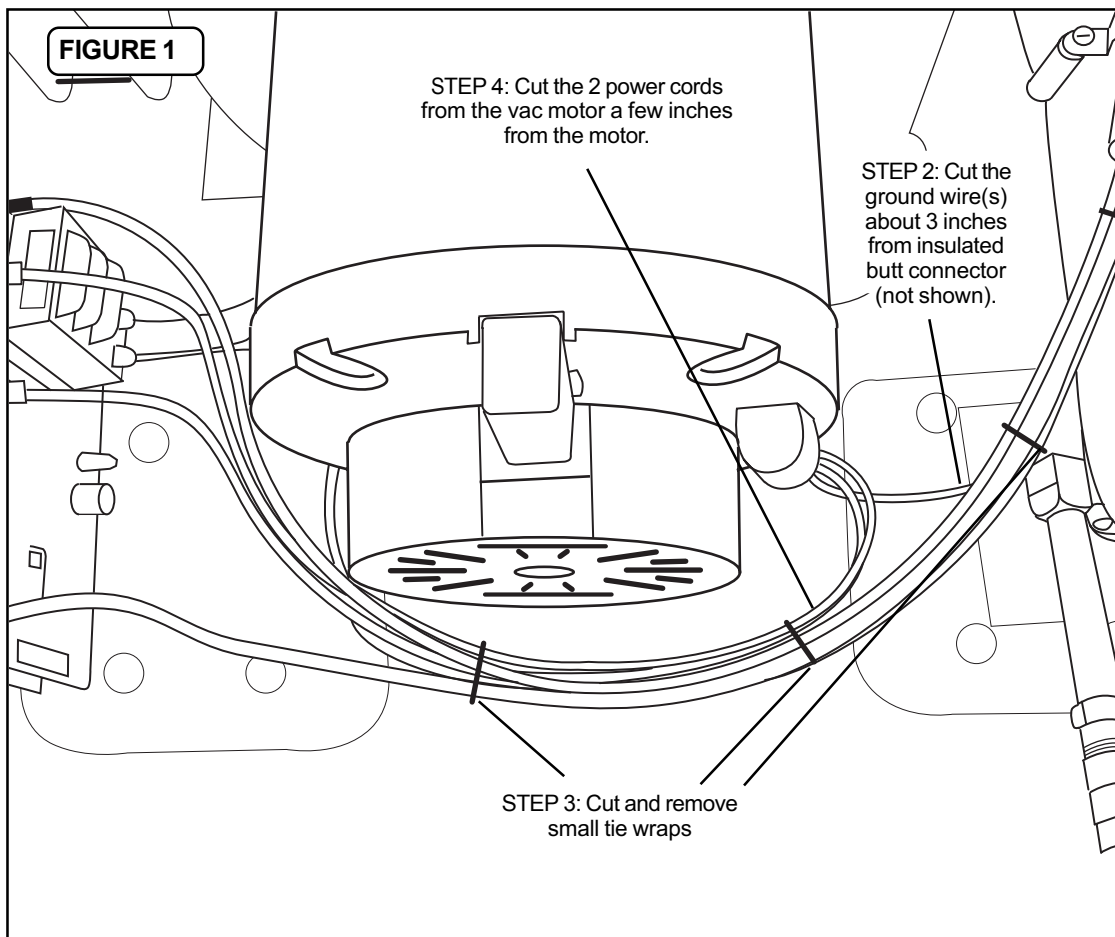
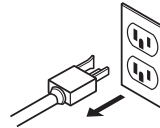
AquaPro™ 300
(120V & 240V)

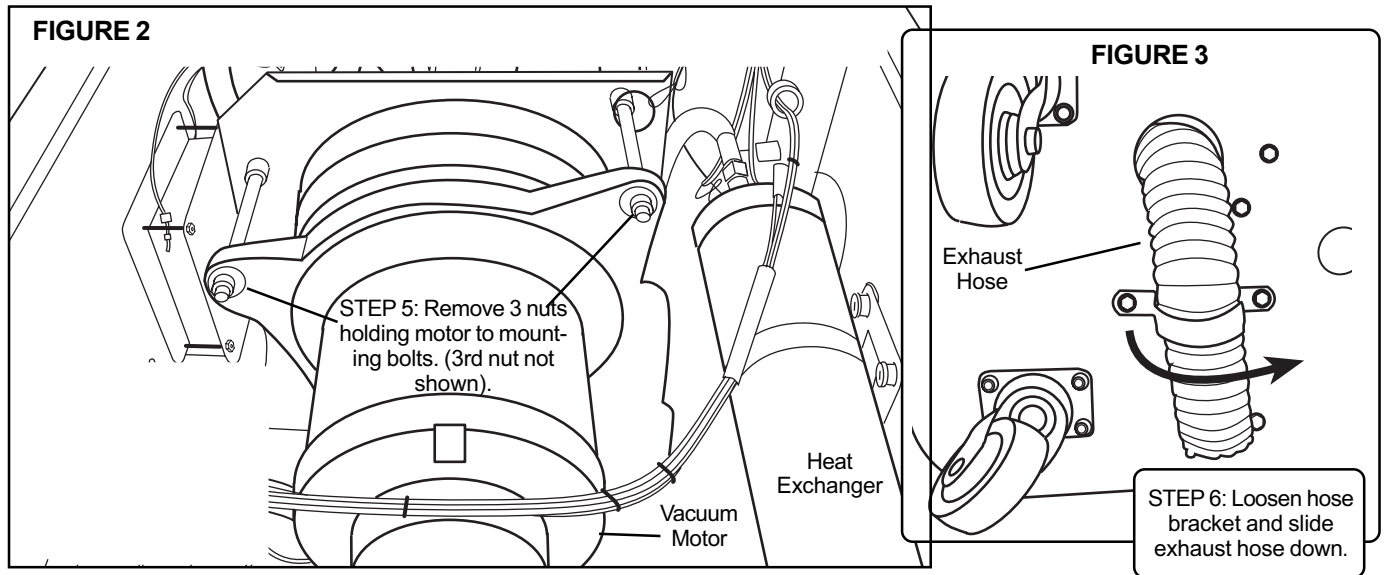
BEFORE BEGINNING REPAIRS: Unplug the machine, empty all water from the tanks, open the latches and prop the tanks up.



VACUUM MOTOR REMOVAL:

1. Check to be sure the machine is unplugged.
2. Cut the ground wires (green/yellow) from the vac motor, about 3 inches from the insulated butt connector. See Figure 1 below. Leave enough wire for re-connection.
3. Cut and remove the small tie wraps that secure the wiring together. See Figure 1.
4. Locate and cut the 2 power wires from the vac motor, a few inches from the motor. See figure 1 below. Note the correct location of wires. Leave enough wire for reconnection. Leave the power wires connected to the vacuum control circuit board (if applicable).





5. Remove the 3 nuts which hold the motor to the mounting bolts. See Figure 2 above.
6. Slide the exhaust vacuum hose (under the machine) down to free the exhaust port on the vacuum motor. You will have to loosen the hose bracket, located underneath the machine, in order to move the bracket aside to free the exhaust hose. See Figure 3 above.
7. Gently pull the vacuum off the mounting bolts. Avoid pulling on the solution line(s) or electrical wires when removing the motor. Replace the vacuum gasket if damaged or worn.

VACUUM MOTOR INSTALLATION:

1. Align the vacuum motor over the 3 mounting bolts and gently slide it towards the gasket.
2. Tighten the mounting nuts in a rotational pattern, until the vacuum gasket just begins to compress evenly. **Do not over-tighten, as motor damage may occur.**
3. Slide the exhaust hose up onto the port on the motor. Tighten the hose bracket under the base.
4. Strip the insulation from the wires, as necessary.
5. Connect the green ground wire by crimping it into the provided butt connector. Make sure you have a tight connection. Do not leave bare wires exposed.
6. Connect the three motor wires to the matching power wires that were previously cut. Make sure you have a tight connection. Do not leave bare wires exposed. Refer to the wiring diagram for your machine.

LOW VACUUM LIFT PRE-TROUBLESHOOTING

**ALL MACHINES
(120V & 240V)**

Before beginning to troubleshoot the vacuum system on your machine, check all the possible causes of low vacuum lift listed below.

ALL EXTRACTORS:

1. The vacuum inlet filter in the recovery tank is dirty.
2. Debris is plugging the cleaning tool and/or vac hose.
3. The lid is cracked or ring gasket is damaged.
4. The drain gate, or drain hose plug, is not closed all the way.
5. The vacuum hose from the recovery tank to the vac motor is damaged.
7. The recovery tank is warped or cracked.
8. Debris is impeding air movement on the impellers in the motor (usually caused by dry vacuuming without the proper filter).

100 & 150 PSI PUMP

ADJUSTMENT

Rainmaker™ and AquaPro™

(120V & 240V)

This pump has an adjustable pressure switch. If the pump pulsates during operation, see step "A" below. If the pump does not shut off after spraying, see step "B" below.

IMPORTANT NOTICE: Older pumps may pulsate when not spraying. This is due to normal wear of the Internal Bleed Back Valve and is not cause for repair unless excessive.

To adjust the pressure switch, use a 5/64" Allen wrench at the pump head, as shown in the diagram below, and follow either step "A" or "B" as necessary.

A. PULSATING DURING OPERATION:

First make sure there are no clogs in either the hose or spray tip. This will cause pulsating during spraying. If no clogs are found, turn the Allen wrench clockwise, **1/4 turn at a time**, and retest.

B. PUMP DOES NOT SHUT OFF COMPLETELY:

First make sure there are no leaks in the hoses, valve or pump. If no leaks are found, turn the Allen wrench counterclockwise, **1/4 turn at a time**, and retest. The pump may need replacing if adjustment does not work.

CAUTION: Excessive adjustment may damage the pump.

