

Model No.

Serial No.

Filter No.

Start-Up Date

PMX500 & PMX500EX



Version: 1.2 3/27/24

Contents	Page
I. Warranty	3
II. Safety	3
III. Start-Up	12
IV. Inspection and Maintenance	15
Electric Instructions	23
V. Trouble Shooting	26
VI. Terms and Conditions	27
Appendix A	30
Appendix B	31

I. _____ Warranty

RUWAC warrants that new equipment which are complete units and are sold and/or manufactured by RUWAC, Inc. will be free from defects in material and workmanship for a period of 18 months from date of shipment or 12 months from date of start-up, whichever come first. RUWAC warrants that replacement parts sold hereunder will be free from defects in material or workmanship for a period of 120-days after the date of shipment. RUWAC machines that have been completely re-built at the factory will carry a 180-day warranty from date of shipment. All field repairs performed by authorized RUWAC service personnel are covered by a 120-day parts only warranty.

RUWAC, Inc. will not assume any responsibility under the terms of this limited warranty on equipment, which has not been paid in full. This warranty does not apply to any equipment that has been disassembled, repaired, or otherwise altered by any person without the written authorization of RUWAC'S service department, nor does it apply to any product that has been subjected to failure sure to corrosive or abrasive attack, misused, damaged, or improperly installed, nor does it apply to motors, controls, and components not manufactured by RUWAC, Inc. Motors, controls, and other Sub vendor's components therefor are warranted only to the extent of the manufacturer's warranty. All warranty work on such products must be authorized by RUWAC, Inc. and must be performed in an authorized shop as designated by the manufacturer. RUWAC sole liability and buyer's sole and exclusive remedy hereunder is the replacement or repair at RUWAC'S option of products not complying with this warranty. Such repair or replacement shall be F.O.B. RUWAC'S factory, and RUWAC reserves the right to invoice all expenses incurred when repairs are made in the field at the request of the customer, except as specifically set forth herein, RUWAC makes no warranty express or implied, with respect to the products and/or service supplied hereunder, this warranty is in lieu of and excludes all other warranties, including without limitation, any warranty of merchantability, fitness for a particular purpose, or conformance to purchaser's specifications.

II. _____ Safety

CAUTION: The PMX units are designed for the removal of dry media except classified gases (combustible/flammable). Please ensure that the media being removed does not have any oil/water reactant properties. If you are unsure about your application requirements, please consult your Ruwac Inc. representative.

CAUTION: Standard Ruwac PMX motor decks are designed for continuous duty if no overload exist. If you are unsure about your application requirements consult your Ruwac representative.

CAUTION: Always check that the motor is rotating in the indicated direction (clockwise) upon start-up. Power polarity can change from power supply to power supply. Operation under a reversed polarity will damage the motor, the turbine and/or the machine.

CAUTION: Disconnect the machine from the power source before and during inspection and/or maintenance.

CAUTION: The components in this machine can be very heavy. Always follow safe lifting procedures.

CAUTION: Allow at least three feet of clearance space above the unit to safely remove or install components.

CAUTION: Make absolutely sure that there are no unsecured objects above the filter after maintenance or inspection. Catastrophic failure is likely to occur, if an object passes through the turbine while running.

CAUTION: This separation system is designed for the separation of sensitive ultra-fine materials. It may also be used for the neutralization of hot or glowing media; however, it may not be used for both materials simultaneously.

CAUTION: The electrical service at the installation site must supply the voltage stamped on the machine's serial tag. Most motors have multiple voltage capabilities that may appear on the motor serial tag but do not apply to the machine. Operating at an incorrect voltage may damage the machine.

CAUTION: Perform a ground continuity test on your PMX unit before each use.

CAUTION: Before each use the operator must perform a continuity test using line ground, additional mandatory grounds and any/all accessories that are connected to the machine.

IMPORTANT SAFETY INSTRUCTIONS

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

READ ALL INSTRUCTIONS BEFORE USING THIS APPLIANCE

The Ruwac PMX500 is designed for use in hazardous (classified) locations rated:
Class II, Division 2, Groups F & G, Zone 22 Group IIIB, T3B/T3C, ambient +40 C.

The Ruwac PMX500EX is designed for use in hazardous (classified) locations rated:
Class I Group D, Class I Zone 1 Group IIA, Class II Groups F & G, Zone 21 IIIB,
T3B/T3C, Max ambient +40 C.

CAUTION!

TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK, OR INJURY

1. Do not leave appliance when plugged in. Unplug from outlet when not in use and before servicing.
2. Use only for the pickup of dry settled material. Do not use for the pickup of liquids.
3. Do not use outdoors or on wet surfaces.
4. Use only as described in the manual. Use only manufacturer recommended attachments.
5. Do not use with damaged cord or plug. If appliance is not working as it should, has been dropped, damaged, left outdoors, or dropped into water, return it to a service center.
6. Do not pull or carry by cord, use cord as a handle, close a door on cord, or pull cord around sharp edges or corners. Do not run appliance over cord. Keep cord away from heated surfaces.
7. Do not unplug cord by pulling on cord. To unplug, grasp the plug, not the cord.
8. Do not handle plug or appliance with wet hands.
9. 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.
10. Keep hair, loose clothing, fingers, and all parts of body away from openings and moving parts.
11. Turn off all controls before unplugging.
12. Make sure that this vacuum is connected to the proper voltage, phase and frequency as stated on the equipment label.
13. Always maintain liquid level.

SAVE THESE INSTRUCTIONS

IMPORTANT SAFETY INSTRUCTIONS (cont'd)

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

READ ALL INSTRUCTIONS BEFORE USING THIS APPLIANCE

14. Pay special attention to the reactive properties of the material being vacuumed. Ensure that the material is not reactive with other materials present in the machine or its materials of construction. Check your MSDS carefully for special hazards.
15. Do not operate this vacuum with missing or damaged filters.
16. Inspect the vacuum for visible damage, especially to the power cord and cord cap. The vacuum must be removed from service and repaired prior to use.
17. Use only Ruwac replacement parts, accessories and hoses specifically designed for your machine.
18. The PMX is a continuous duty point of source extraction system with casters provided for easy transportation and emptying.
19. The PMX unit is not supplied with a cord cap (unless specifically requested). The cord cap must be selected and installed by a qualified electrical technician. Insure that it is rated for the location, voltage, amperage and phase of the vacuum. Use only twist lock style cord caps.
20. The vacuum is supplied with a 30 foot power cord. An extension cord may be used if necessary, but be aware that adding an extension cord even one with the same rating as the power cord provided will result in voltage drop to the vacuum.
21. Connect to a properly grounded outlet only. See Grounding Instructions.
22. When the vacuum is in use, be careful that the cord is not laying in an area where it can be rolled over and / or tripped on. Do not lay the cord in a wet area.
23. When not using the vacuum, coil the cord around the cord holder/handlebar so that it is completely off the ground. Store the vacuum in a dry area.
24. The serial # of your vacuum contains information to identify when your unit was manufactured. The first two digits represent the year, the second two digits represent the month, and the remaining digits represent the sequential unit manufactured that year. Please have your serial # ready when contacting Ruwac about your unit.
25. Hoses and accessories must be checked for continuity prior to each use.
26. The vacuum's base should be emptied after each use. Do not store vacuum with process material and / or liquid still in the base.

SAVE THESE INSTRUCTIONS

IMPORTANT SAFETY INSTRUCTIONS (cont'd)

READ ALL INSTRUCTIONS BEFORE USING THIS APPLIANCE

WARNING:

The electrical service at the installation site must supply the voltage stamped on the machine's serial tag. Most motors have multiple voltage capabilities that may appear on the motor serial tag but do not apply to the specific machine. Operating at an incorrect voltage may damage the machine. The machine should be connected to a dedicated fused service and properly grounded.

WARNING:

1. A qualified electrician in accordance to the NATIONAL ELECTRIC CODE and all local codes should perform all wiring and or electrical adjustments during installation and servicing.
2. Install the proper cord cap on the power cable (see safety instructions #20) following the manufacturer's instructions. Ensure that all terminal screws are properly tightened.
3. Start the machine by turning the selector to the ON position noting the motor direction (clockwise). If the motor is turning in the wrong direction (counter clockwise), shut the machine off by turning the selector to the OFF position. Have your electrician rewire the cord cap to correct the motor rotation.

WARNING:

Always verify that motor is rotating in the right direction (clockwise). Please be aware that using the vacuum with a different power outlet may require rewiring the cord cap to correct the motor rotation.

SAVE THESE INSTRUCTIONS

IMPORTANT SAFETY INSTRUCTIONS (cont'd)

CAUTION

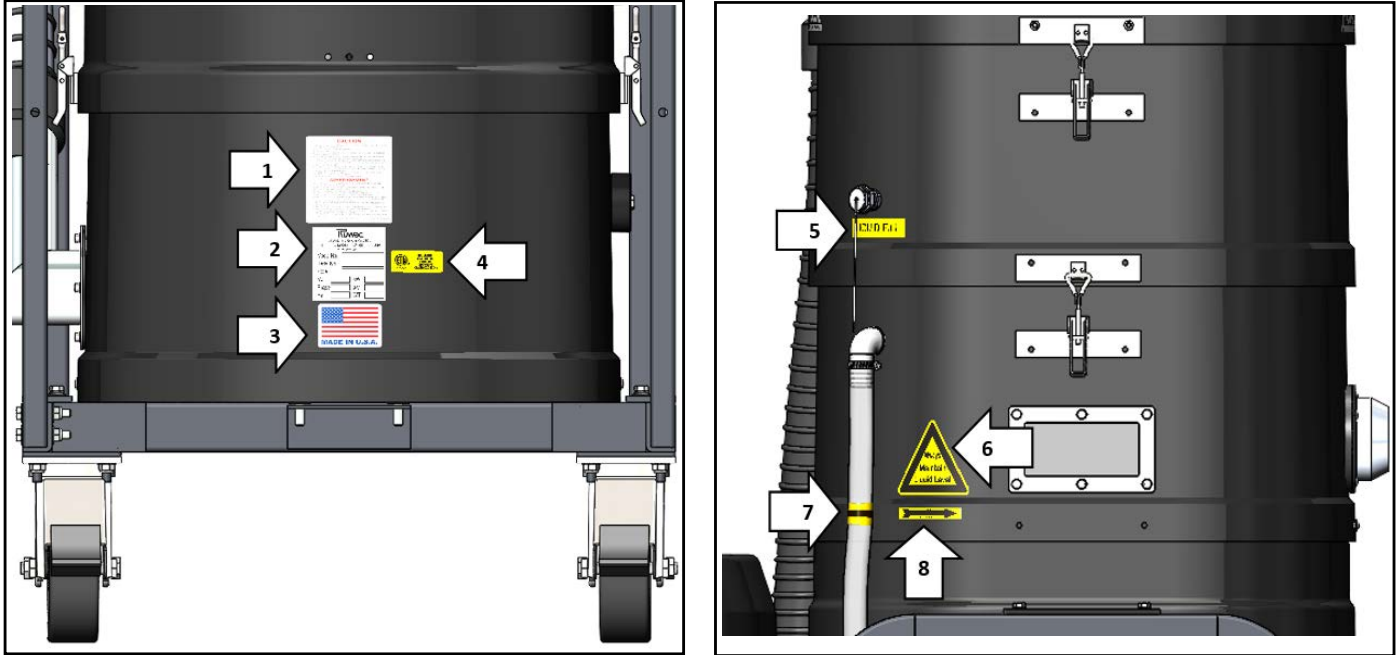
- 1) USE ONLY RUWAC REPLACEMENT PARTS, ACCESSORIES AND HOSES SPECIFICALLY DESIGNED FOR YOUR MACHINE.
- 2) FOR SAFE USE SEE OPERATORS MANUAL
- 3) CLEAN UNIT DAILY
- 4) DO NOT USE WITH FLAMMABLE LIQUIDS, VAPORS OR ON SOLIDS CONTAMINATED WITH FLAMMABLE LIQUIDS.
- 5) DO NOT INSTALL WHERE THE MAXIMUM TEMPERATURE EXCEEDS THE IGNITION TEMPERATURE OF THE HAZARDOUS ATMOSPHERE(S)
- 6) TO PREVENT IGNITION OF HAZARDOUS ATMOSPHERES, DISCONNECT FROM THE POWER SUPPLY CIRCUIT BEFORE OPENING ENCLOSURE. KEEP TIGHTLY CLOSED WHILE CIRCUITS ARE LIVE.
- 7) DISCONNECT ELECTRICAL SUPPLY BEFORE SERVICING OR REPLACING FILTER.
- 8) TO REDUCE RISK OF ELECTRIC SHOCK DO NOT USE ON WET SURFACES. DO NOT EXPOSE TO RAIN. STORE INDOORS.
- 9) IF CONNECTED TO A CIRCUIT PROTECTED BY FUSES, USE TIME DELAY FUSES MARKED TYPE "D" WITH THIS APPLIANCE.
- 10) ANY MODIFICATIONS TO THIS UNIT VOIDS WARRANTY.

AVERTISSEMENT

- 1) N'UTILISER QUE DES PIÈCES DÉTACHÉES ET ACCESSOIRES SPÉCIALEMEN CONÇUS POUR LA MARQUE RUWAC.
- 2) POUR VOTRE SÉCURITÉ, PRENEZ CONNAISSANCE DU MANUEL D'INSTRUCTION.
- 3) NETTOYEZ LA MACHINE JOURNELLEMENT.
- 4) NE PAS UTILISER PRÈS DES MATIÈRES INFLAMMABLES.
- 5) NE PAS UTILISER DANS DES LIEUX A ATMOSPHÈRES DANGEREUSE OÙ LA TEMPÉRATURE EST SUPÉRIEURE A LA TEMPÉRATURE D'IGNITION.
- 6) POUR ÉVITER L'IGNITION EN ATMOSPHÈRE DANGEREUSE, DÉBRANCHER LA PRISE ÉLECTRIQUE AVANT D'OUVRIR LE COUVERCLE. GARDER LE COUVERCLE FERMÉ LORSQUE LES CIRCUITS SONT SOUS TENSION.
- 7) DÉBRANCHER DE TOUTE SOURCE ÉLECTRIQUE AVANT TOUTE INTERVENTION OU REMPLACEMENT DU FILTRE.
- 8) POUR ÉVITER LES RISQUES D'ÉLECTROCUTION, NE PAS UTILISER EN ATMOSPHÈRE HUMIDE. NE PAS EXPOSER A LA PLUIE ET GARDER A L'INTÉRIEUR.
- 9) SI CONNECTÉ À UN CIRCUIT PROTÉGÉ PAR DES FUSIBLES, UTILISEZ DES FUSIBLES TEMPORISÉS DE TYPE « D » AVEC CET APPAREIL.
- 10) TOUTE INTERVENTION PAR UN TECHNICIEN NON QUALIFIÉ PAR RUWAC ANNULERA LA GARANTIE.
- 11) NE PAS APIRIR DE POUSSIERÈS INCANDESCENTERES NI D'AUTRAS SOURCES D'ALLUMAGE!

SAVE THESE INSTRUCTIONS

IMPORTANT SAFETY INSTRUCTIONS (cont'd)



1. Caution Label
2. Serial Tag
3. Made In the USA
4. ETL Listing Label
5. Liquid Fill Label (attach hose here)
6. Always Maintain Liquid Level Label
7. Water Level Indicator (Always verify liquid level through the sight glass, see Page 12, Step 2)
8. Water Level Indicator (Always verify liquid level through the sight glass, see Page 12, Step 2)

SAVE THESE INSTRUCTIONS

GROUNDING INSTRUCTIONS

This appliance must be grounded. If it should malfunction or breakdown, 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 inserted 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. The conductor with insulation having an outer surface that is green with or without yellow stripes is the equipment-grounding conductor. If repair or replacement of the cord or plug is necessary, do not connect the equipment-grounding conductor to a live terminal. Check with a qualified electrical technician if the grounding instructions are not completely understood, or if in doubt as to whether the appliance is properly grounded. Do not modify the plug if provided with the appliance. Make sure the outlet is properly installed by a qualified electrical technician if it does not fit the outlet.

The supply voltage must be equal to the voltage stamped on the machine's serial tag which is factory-equipped with a specific electric cord to permit connection to a proper electric circuit. Make sure that the appliance is connected to an outlet having the same configuration as the plug. No adapter should be used with this appliance. If the appliance must be reconnected for use on a different type of electric circuit, the reconnection should be done by a qualified electrical technician.

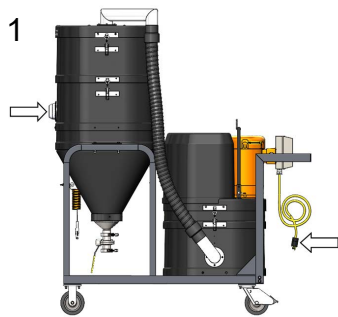
GROUNDING INSTRUCTIONS

ABOUT RUWAC'S PMX UNIT AND GROUND:

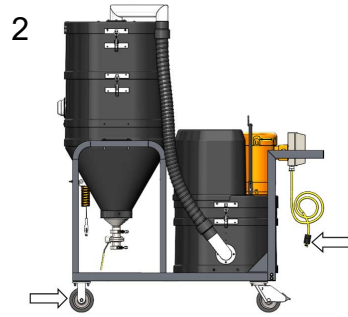
- ALL PMX UNITS ARE CONSTRUCTED OF COMPRESSION CAST COMPOSITE HOUSING TO ENSURE THEY ARE FULLY GROUNDED AND STATIC DISSIPATING DURING OPERATION
- ALL METAL COMPONENTS ARE GROUNDED VIA A SERIES OF INTERNAL GROUND WIRES
- FOR THE GROUNDING-CONTINUITY TEST, THE TEST SHOULD BE DONE BY USING ANY SUITABLE INDICATING DEVICE: SUCH AS AN OHMMETER, A BATTERY-AND-BUZZER COMBINATION, OR THE LIKE TO COMPLY WITH GROUNDING CONTINUITY REQUIREMENTS.

GROUNDING

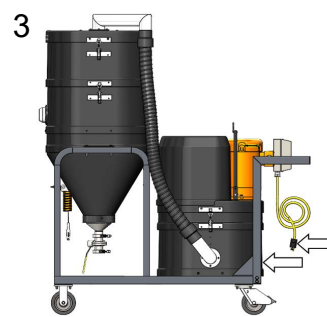
The following is a list of items that should be checked daily for continuity.



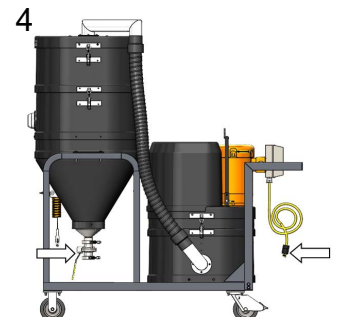
Power cord line ground to inlet.



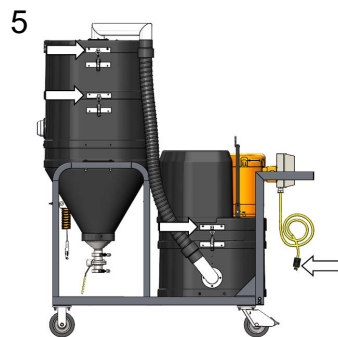
Power cord line ground to all four casters.



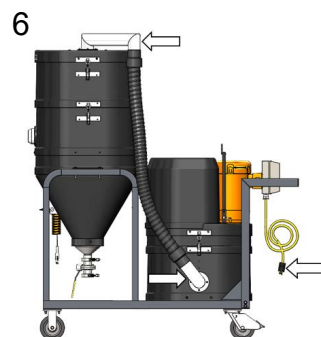
Power cord line ground to handlebar hardware.



Power cord line ground to ball valve.



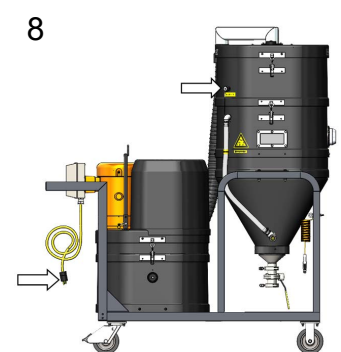
Power cord line ground to all housing clamps.



Power cord line ground to lid and SA module elbow hardware.



Power cord line ground to grounding cable hand clamp.



Power cord line ground to garden hose fit.

GROUNDING INSTRUCTIONS

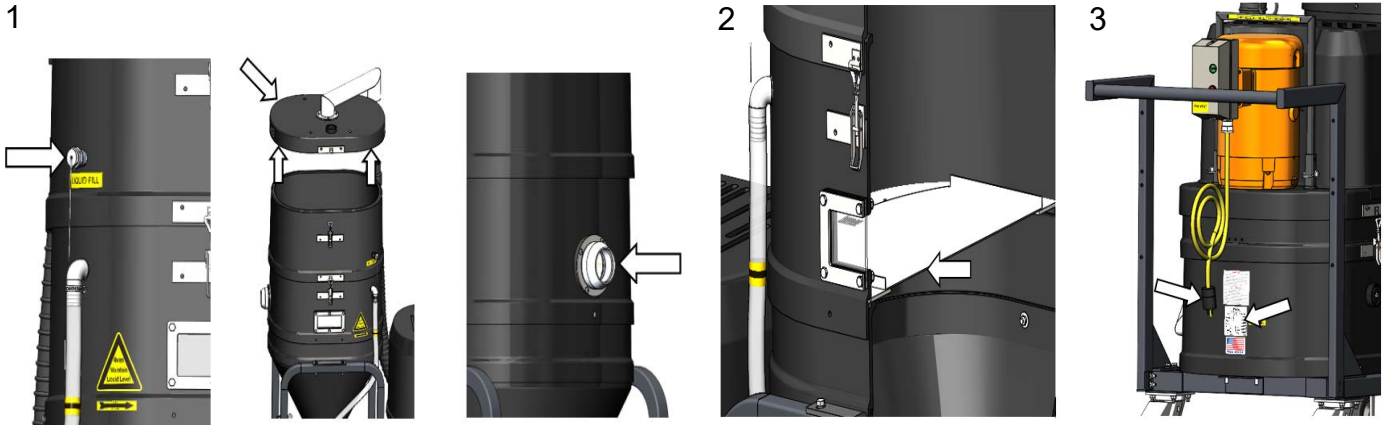
**** To check continuity of any carbon impregnated components, use a Megohmmeter. The resistance rating should be less than 1MΩ.**

BONDING

Two machines that are independently bonded may not have the same electrical potential (voltage). It has been documented that even though the machines are independently grounded, a static discharge can travel from one ground machine to another. In order to ensure that all equipment has the same potential and is equally grounded, your application may require that the machines be bonded together. The PMX's retractable grounding cable installed on the handle bar will provide this extra source of bonding.

Only Ruwac adequate PMX accessories should be used, using any other accessories will compromise the safety of your machine, potentially rendering creating a dangerous environment.

PMX INSTRUCTIONS: START-UP OPERATION



1
Fill unit with liquid to indicated level. Unit may be filled using garden hose connection, or by removing lid from immersion tank, or by pouring in liquid directly using the inlet connection.

2
Ensure liquid level is not above the dispersion screen. (Note: Housing cutaway shown for clarity).

3
Connect machine to appropriate power source as indicated on serial tag.



4
Affix retractable grounding cable (optional) to an adequately grounded structure.

5
“Bump” the motor by quickly pressing start then stop. Check that the motor is spinning in the indicated direction.

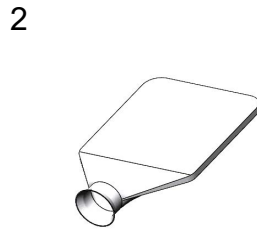
6
If motor is spinning properly, the unit is ready for operation.

CAUTION: Always check that the motor is rotating in the indicated direction upon start-up. Power polarity can change from power supply to power supply. Operation under a reversed polarity will damage the motor, the turbine and / or the machine.

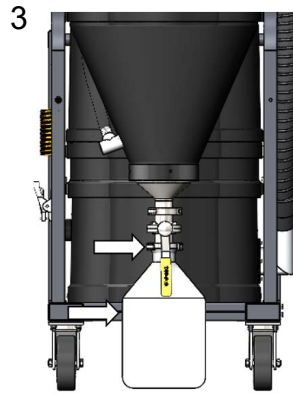
**PMX INSTRUCTIONS:
STANDARD SERIES FILTER BAG INSTALLATION AND BALL VALVE
DISCHARGE**



For best performance, drain unit daily using the ball valve.



If desired, an after filter may be used to separate solids from immersion fluid.



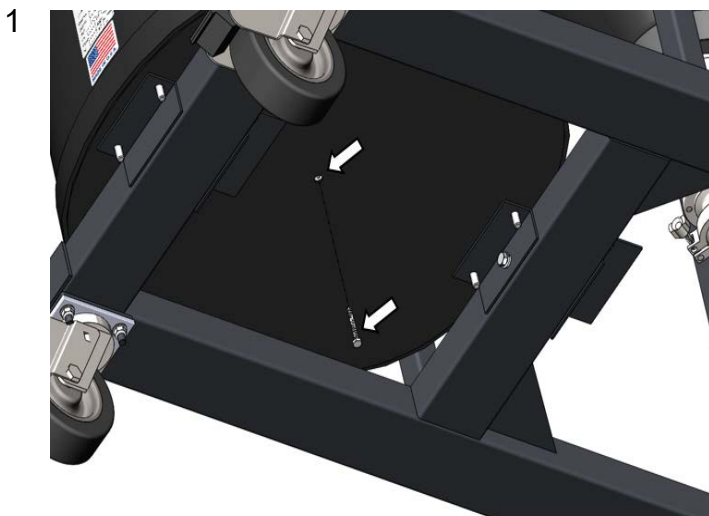
Place the filter bag over the sanitary fitting and secure it with the sanitary clamp.



Drain unit into filter bag. Be sure to rinse filter bag after use. (Recommended: Use a bucket under the filter bag when draining).

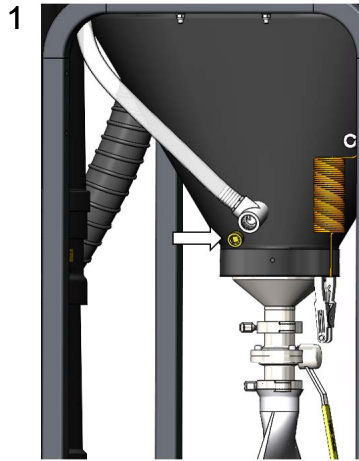
Note: Do not store unit with waste material and / or liquid inside.

FILTER HOUSING DRAIN

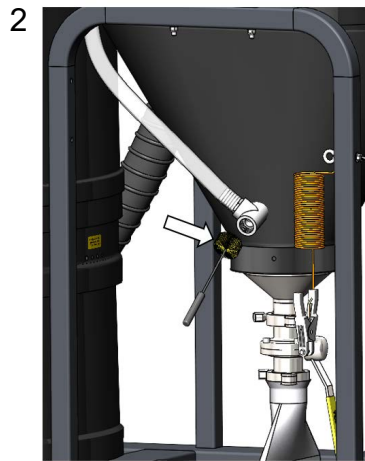


Liquid may collect in the filter housing. It is important that you drain this section completely by removing the hardware on the bottom plate. Be sure to tightly secure the hardware when finished.

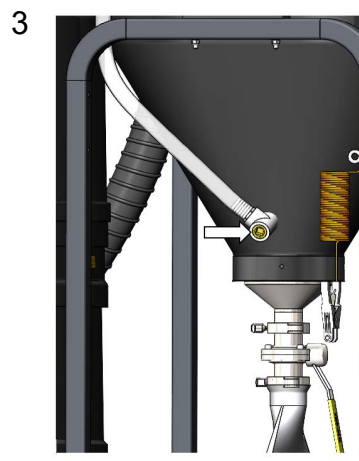
**PMX INSTRUCTIONS:
PMX LEVEL INDICATOR CLEANING**



Unscrew PVC plug.

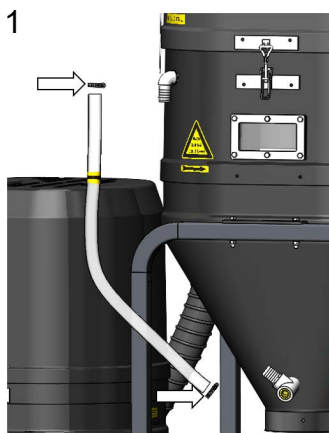


Take a brush and insert into PVC tee. Rotate brush to agitate settled material inside tee.

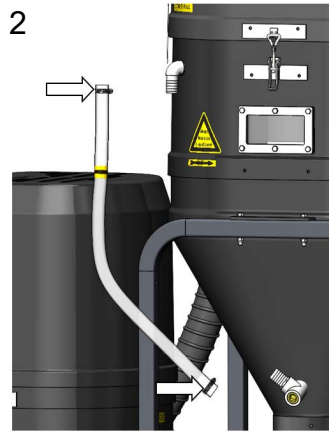


Reinstall PVC plug.

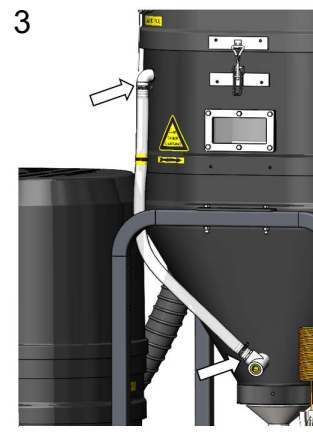
LEVEL INDICATOR HOSE REPLACEMENT



Loosen both hose clamps and remove hose.



Replace hose and reattach hose clamps.



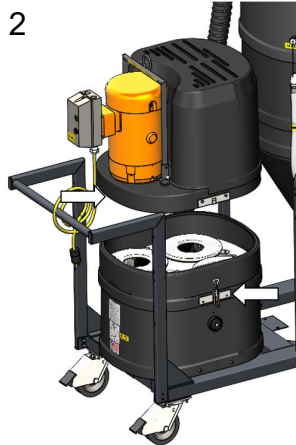
Reattach each end of hose to PVC hose barb and hose barb.

PMX INSTRUCTIONS: STANDARD SERIES CARTRIDGE FILTER & DEMISTING PAD CLEANING

1. The standard PMX should be cleaned after each use to avoid off-gassing.
2. The filters, the demisting pad, and the dispersion screen should be checked on a weekly basis to ensure efficiency.
3. The demisting chamber and filters should be checked for excessive sediment build-up on a regular basis.
Empty and flush out the unit to ensure there is no build up of material on and above the liquid bath. Clean the unit thoroughly.
4. The sight glass window must be free from debris and offer visibility into the vacuum. Replace as required.



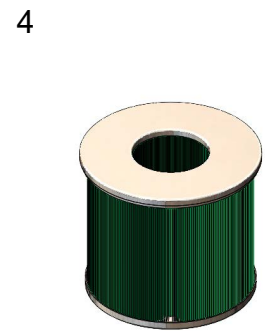
1
Turn machine off and disconnect from power supply.



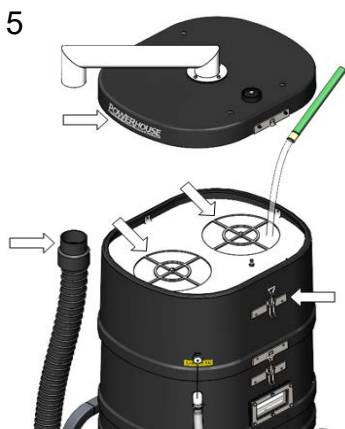
2
Release the clamps and remove motordeck from filter housing.



3
Loosen filter hold-down tabs, and remove cartridge filters.



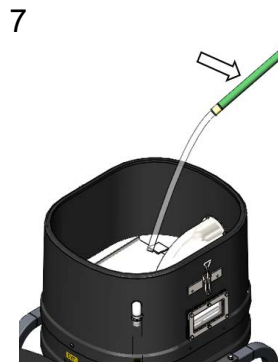
4
Inspect filters for damage or excessive material blockage. Clean filters per instructions in Appendix A.



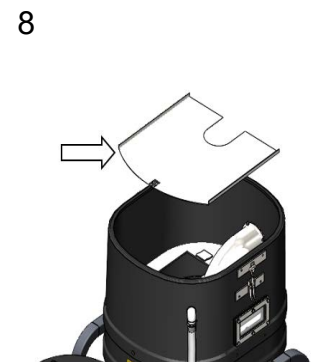
5
Remove the connection hose, release the clamps, and remove the lid. Clean the demisting pad by rinsing it with water. The demisting module and its component should be checked for excessive sediment build-up on a regular basis.



6
Release the clamps and remove the demisting assembly from the immersion tank.



7
Clean the dispersion screen by rinsing thoroughly with water.



8
Remove the dispersion screen.

CAUTION: Motor deck will be heavy and will require a crane to place on top of work bench or table.

PMX INSTRUCTIONS: STANDARD SERIES CARTRIDGE FILTER & DEMISTING PAD CLEANING



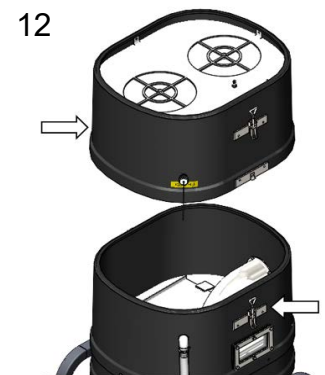
With dispersion screen removed, rinse immersion tank to remove any remaining material. Place a bucket underneath, and open ball valve to allow water to drain.



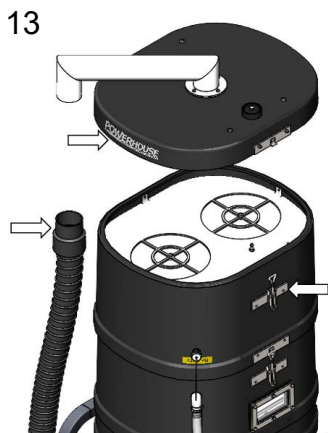
Use a cloth rag to remove excess water from rinsing. Take extra care to make sure demisting pad is dry. Excess water in the demisting pad may reduce filter efficiency over time. The demisting pad will self-drain if clean.



Place back the dispersion screen.



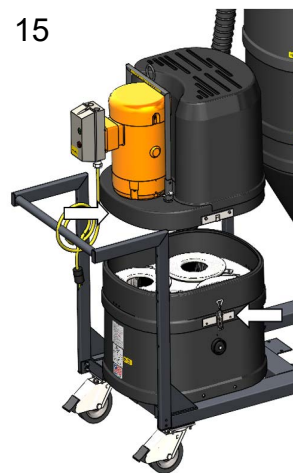
Insert the demisting assembly and secure it with the clamps.



Reconnect the connection hose. Insert the lid and secure it with clamps.



Insert the cartridge filters.



Insert the motor deck and secure it with the clamps.



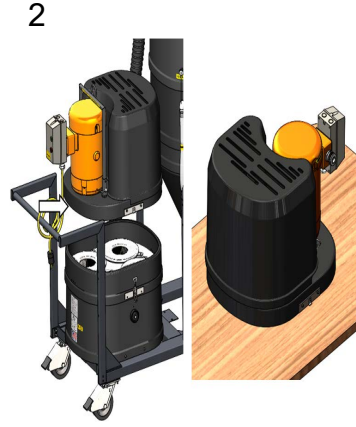
After cleaning, the machine is ready for operation. Be sure to secure all clamps to ensure machine is properly grounded.

PMX INSTRUCTIONS: TURBINE REPLACEMENT

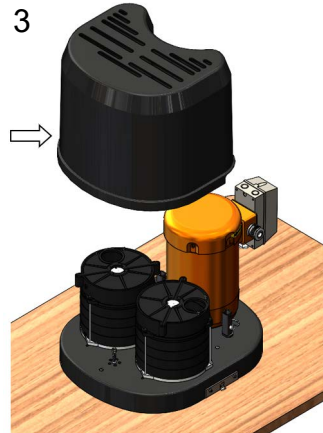
NOTE: The turbine is not field serviceable and must be replaced as one unit if defective. Replacement of the motor belt or turbine will require the turbine seal to be replaced.



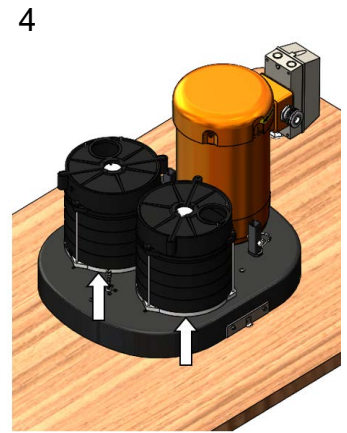
Switch the vacuum off and remove the power cord from the power source.



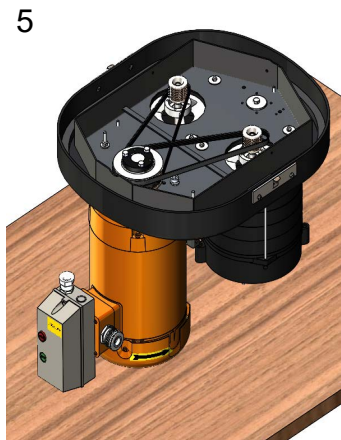
Remove the vacuum from the hazardous area to a service work area where the motor deck can be rested on a work bench or table.



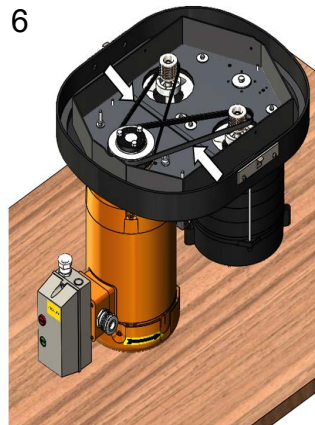
Remove the silencer assembly from the motor deck.



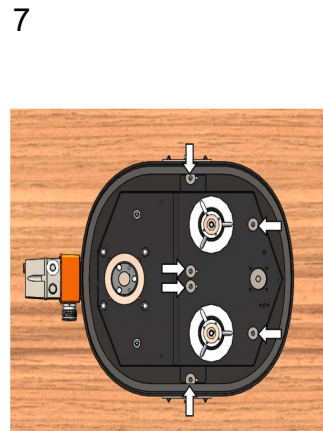
Break the silicone seal surrounding turbine using a sharp edge.



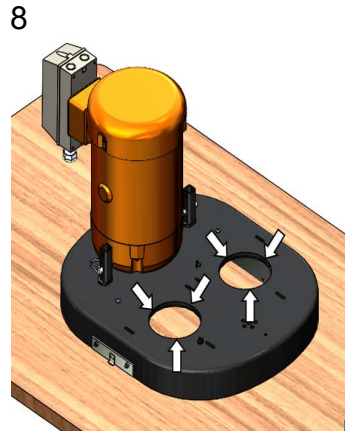
Carefully turn motor deck upside down onto work bench or table.



Remove belt by walking it off.



Loosen the three nuts securing the turbine, supporting it from underneath to ensure it doesn't drop.

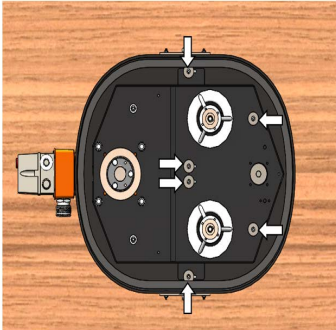


Using a sharp edge, remove the remaining silicone seal from the motor deck.

CAUTION: Motor deck will be heavy and will require a crane to place atop work bench or table.

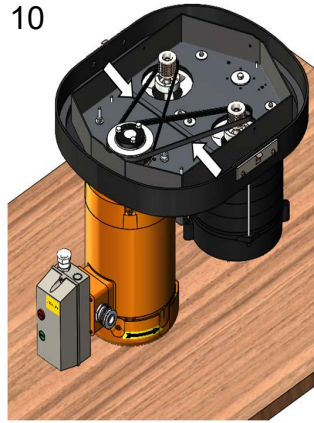
PMX INSTRUCTIONS: TURBINE REPLACEMENT

9



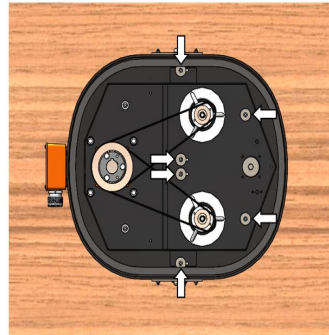
Replace turbine by fastening all nuts and bolts through bottom of motor deck.

10



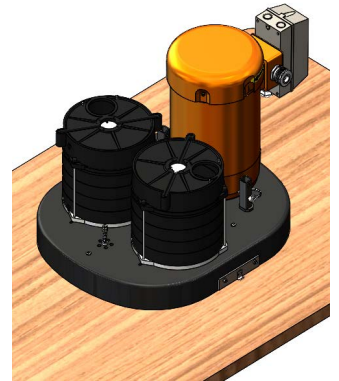
Align and install new motor belt (See pgs.19 & 20 for instructions).

11



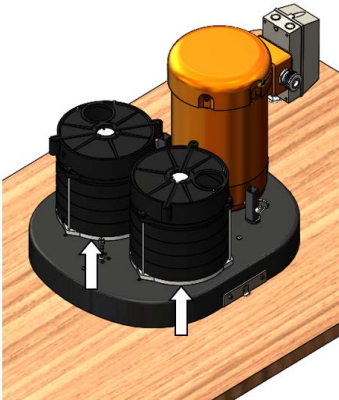
Tighten all nuts and bolts surrounding turbine to ensure they're fastened snug securely. Do not overtighten.

12



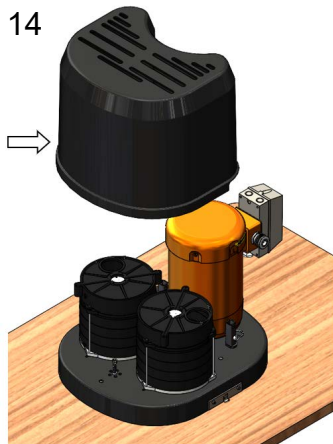
Flip fully assembled motor deck upright, resting front end on a support so as not to move underlying bushing and belt.

13



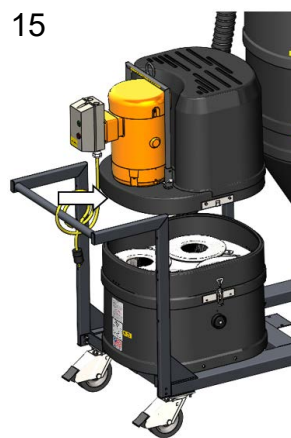
Reapply silicone, and let sit it for 2 hours or until dry (not tacky).

14



Insert back the silencer.

15

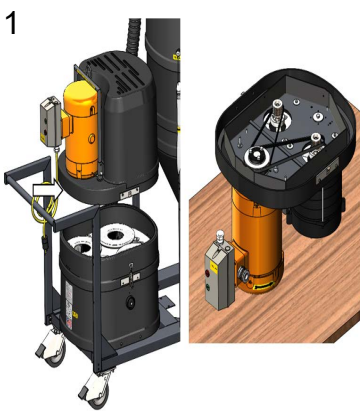


Insert the motor deck.

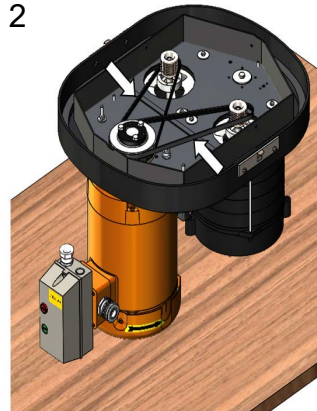
CAUTION: Motor deck will be heavy and will require a crane to place atop work bench or table.

**PMX INSTRUCTIONS:
BELT INSPECTION**

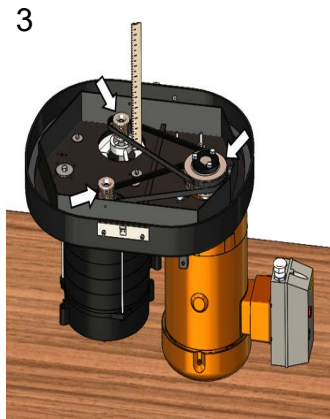
CAUTION: Motor deck will be heavy and will require a hoist to remove. Before any maintenance service is done, follow standard lock out and tag out procedures as well.



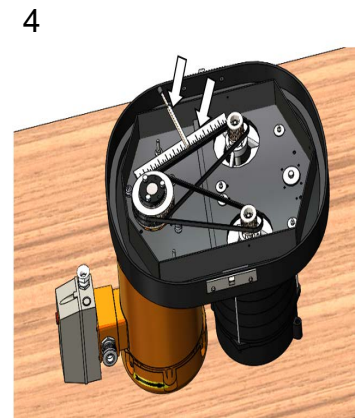
With power disconnected, remove the motor deck. Place the motor deck upside down on a clean working surface.



Inspect the belts for any glazing, cracking or shredding. Any of these will require belt replacement (See pg. 19 for belt replacement instructions).

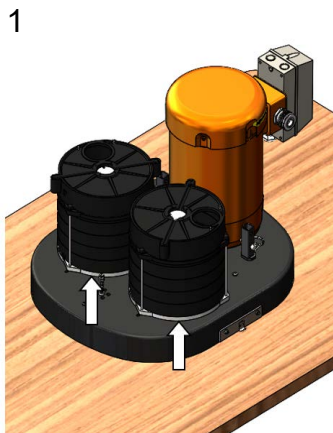


Check that sheaves are properly aligned (See pg. 21 for pulley alignment instructions).

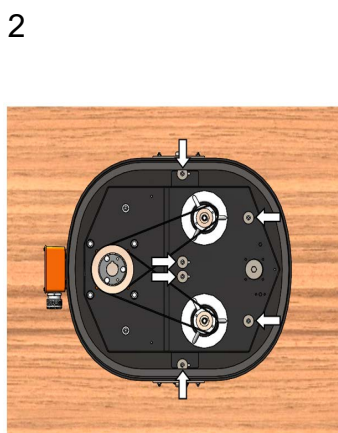


Check tension using a straight edge and tension gauge as shown above. (See pg. 20 for belt tensioning instructions).

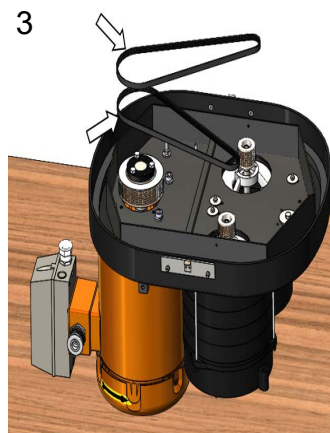
REPLACING THE BELT



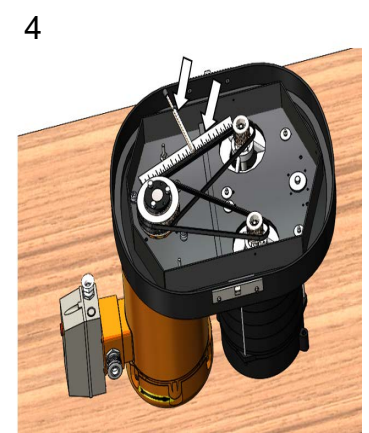
To replace a drive belt, first cut and remove silicone around turbine.



Loosen the turbine hardware, then slide turbine towards the motor to loosen the belt.



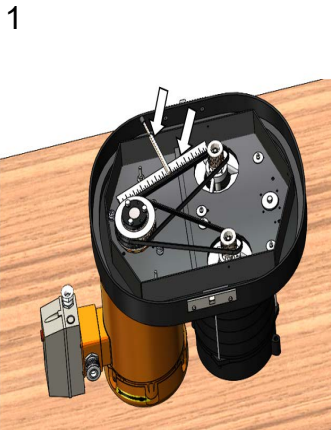
Remove old belt and replace with new one.



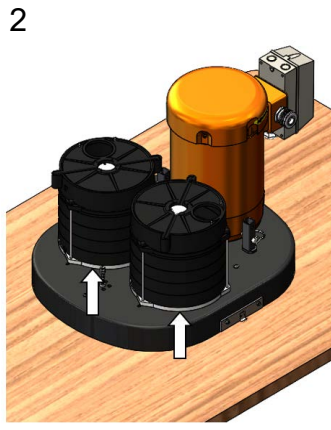
Properly tension belt by following belt tensioning instructions on pg. 20.

**PMX INSTRUCTIONS:
BELT TENSIONING**

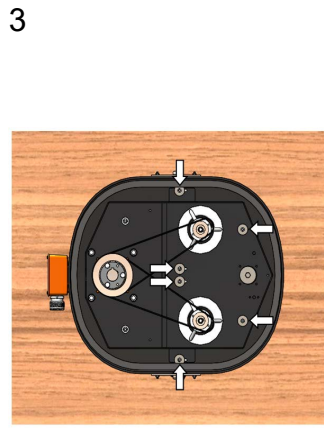
CAUTION: Motor deck will be heavy and will require a hoist to remove. Before any maintenance service is done, follow standard lock out and tag out procedures as well.



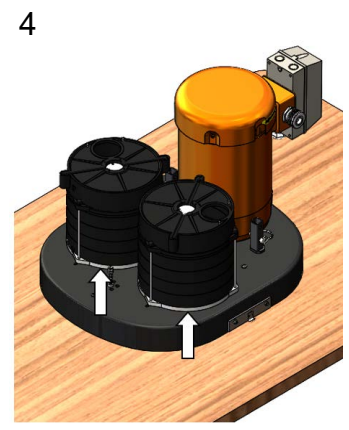
1 Measure belt tension by using a straight edge and tension gauge as shown above. Refer to diagram below for proper tension specifications.



2 To tighten belt, slide turbine away from the motor. Before sliding the turbine, the silicone on the top of the motordeck must be cut and removed.

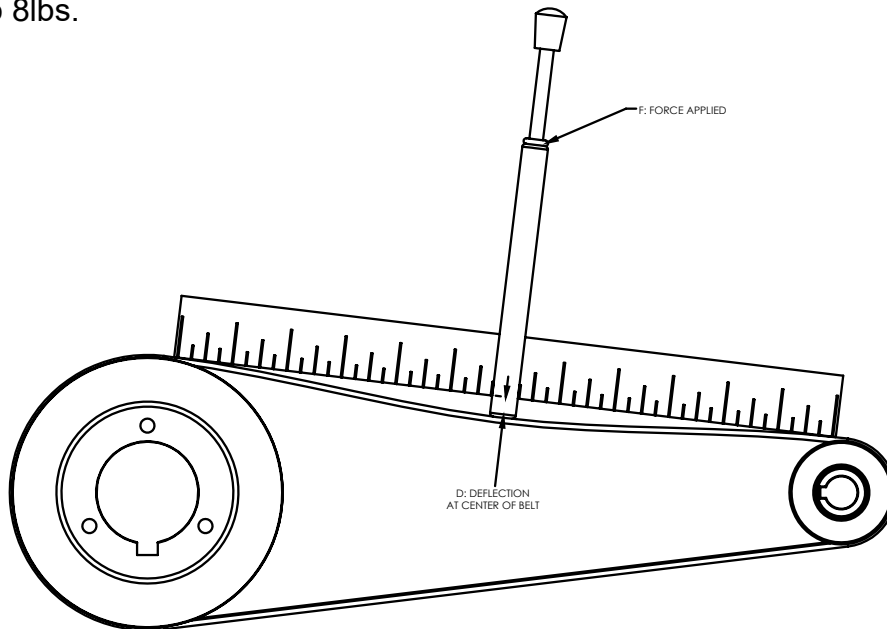


3 After removing the silicone, loosen the turbine hardware and adjust the turbine position as necessary.



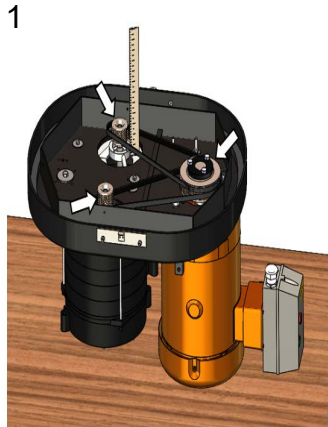
4 Once the belt has been properly tensioned, secure the hardware and re-seal the turbine with silicone.

New 6-groove belts should be set to 6lbs at 3/16" of deflection. New 10-groove belts should be set to 9lbs at 3/16" of deflection. Allow new belts to stretch by running in for several hours. After run-in period, 6-groove belts should be between 4lbs to 5lbs, and 10-groove belts should be between 7lbs to 8lbs.

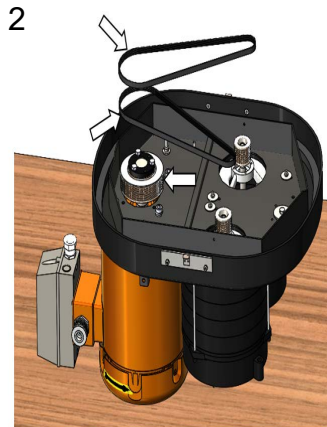


**PMX INSTRUCTIONS:
PULLEY ALIGNMENT**

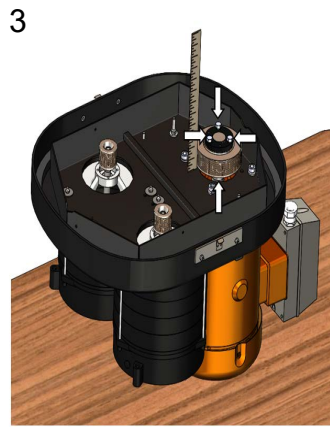
NOTE: Complete the previous operations to prepare the motor deck for service of the motor, turbine or belt. Replace any defective components and secure the motor with bolts before proceeding.



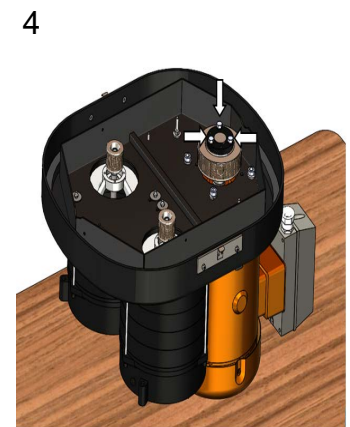
Measure the height of the first groove on the turbine sheave. Check that the first groove of the motor sheave matches this height.



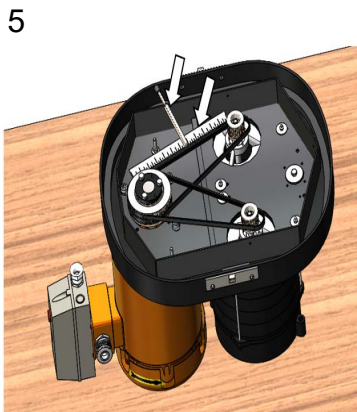
If motor sheave needs adjustment, remove belt and adjust motor sheave (See pg. 19 for belt removal instructions).



Loosen motor sheave hardware, and slide up or down as necessary.



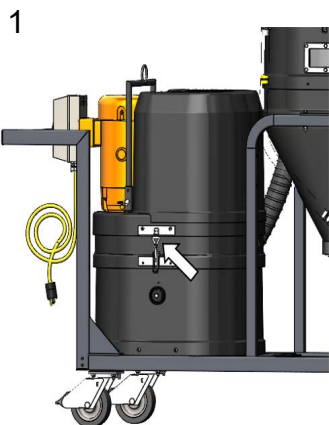
Once motor sheave is at correct height, tighten bolts to 15 ft-lbs of torque.



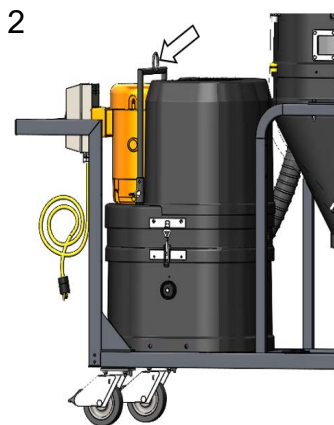
Re-install the belt and adjust to proper tension (See pgs. 19 and 20).

PMX INSTRUCTIONS:

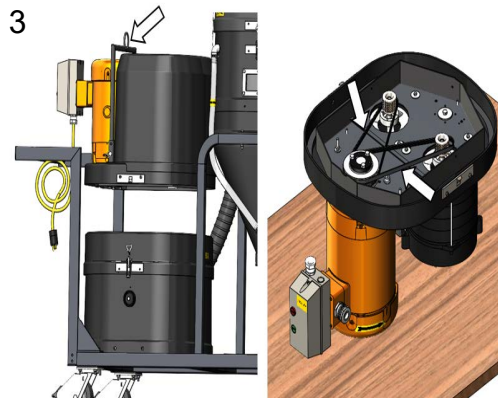
ELECTRIC MOTOR DECK INSPECTION



Unlatch the housing clamps on both sides of the PMX unit.



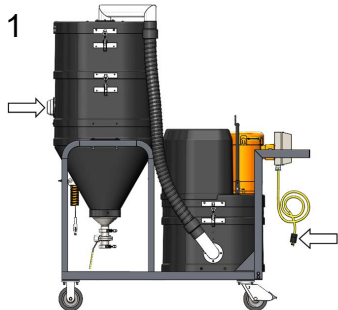
Using either a manual lift or with two people using the handles, lift the motor deck up from the PMX unit.



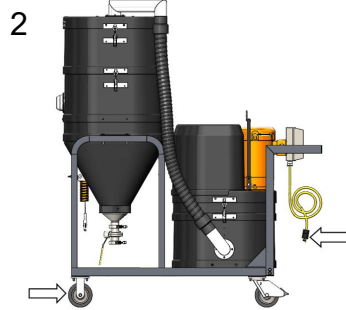
Either from the lift or by turning the motor deck over on a table, inspect the belt for cracks, wear, melt, stretch and tension (Make sure to support the motor and turbine equally). If damaged, see Belt Replacement and / or Belt Tensioning instructions (Pages 19 & 20).

INSPECTION & MAINTENANCE OF PMX ELECTRICAL GROUNDING

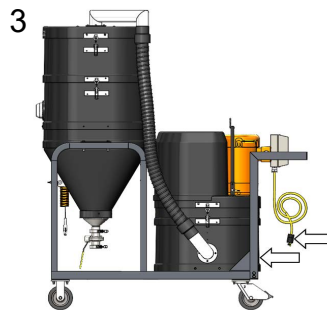
To operate safely, the PMX must be properly grounded. The grounding system of the unit can be tested by checking for electrical continuity as shown below. Grounding should be checked daily and after the machine has been taken apart for any maintenance. If continuity is not found at any of the locations shown below, all the grounding wires and terminals should be inspected.



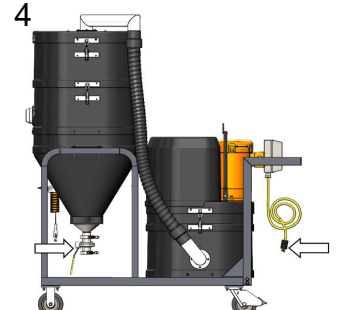
1 Power cord line ground to inlet.



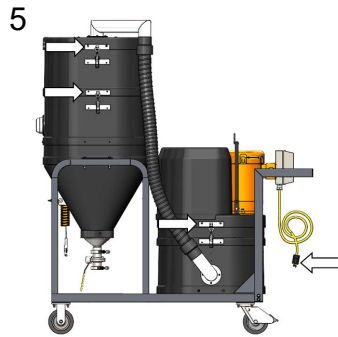
2 Power cord line ground to all four casters.



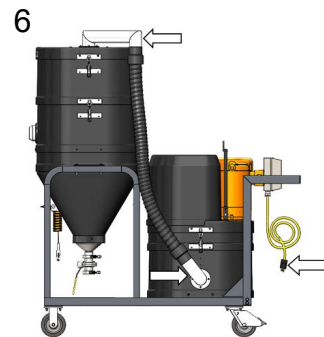
3 Power cord line ground to handlebar hardware.



4 Power cord line ground to ball valve.



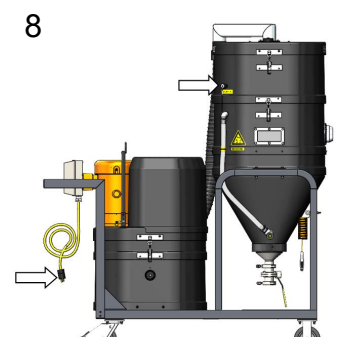
5 Power cord line ground to all housing clamps.



6 Power cord line ground to lid and SA module elbow hardware.



7 Power cord line ground to grounding cable hand clamp.

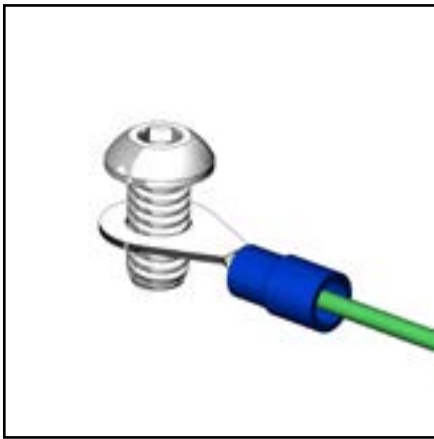


8 Power cord line ground to garden hose fit.

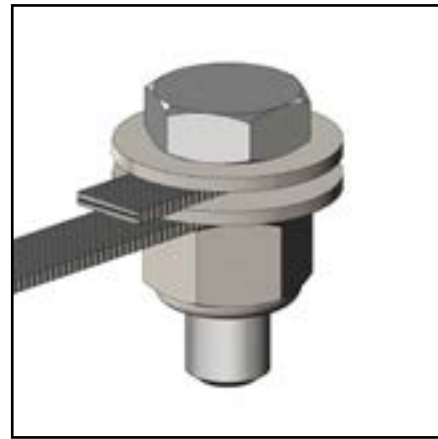
IV. _____ Inspection & Maintenance

**** To check continuity of any carbon impregnated components, use a Megohmmeter. The resistance rating should be less than 1MΩ.**

When checking ground wires, make sure that the terminals at both ends are properly secured. There are two types of terminals used on this unit:



Ring Terminals: Check that the ring terminal is crimped securely to the end of the wire. Check that the terminal is free from corrosion. Ring terminals can corrode if exposed to excessive moisture.

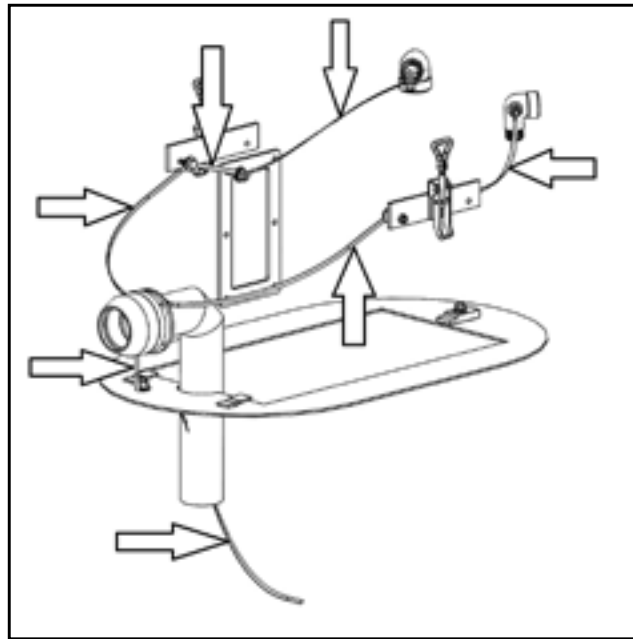


Stainless Wire and Washers: Stainless wire and washers are used in areas exposed to moisture to avoid corrosion. Check that the braided wire is properly looped through the washers as show above.

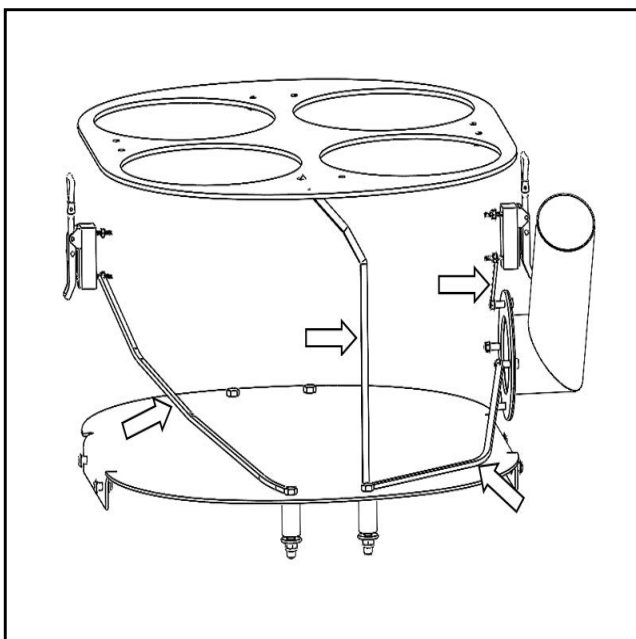
INSPECTION & MAINTENANCE OF PMX ELECTRICAL GROUNDING

1. Drain unit completely and clean it thoroughly.
2. Check that the ground wire terminals are securely fastened and free from excessive corrosion. (See Figures below).

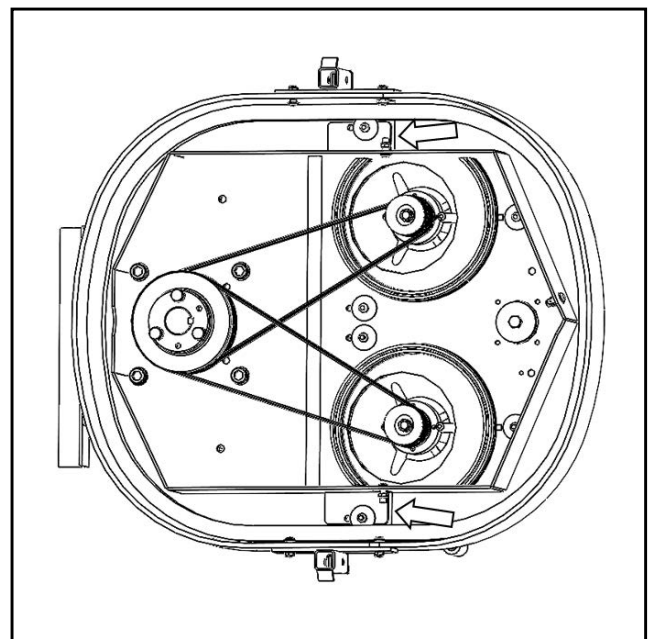
IMMERSION MODULE



FILTER MODULE



MOTOR DECK



PROBLEM	POSSIBLE CAUSE	CORRECTIVE ACTION
Water Leaked from Bottom Discharge	- Seals leaking	- Check and replace if needed. Contact your Ruwac representative for replacement.
Insufficient Vacuum	- Hose blocked	- Unplug hose.
	- Filter clogged or improperly seated	- Follow filter inspection procedure, Section IV.
	- Vacuum leak	- Check that motor deck is properly seated and secured. Also, check all hoses.
Air Leaks	- Worn or poorly seated seals, Retainers improperly installed	- Block the inlet with a flat and rigid material to place the unit under vacuum pressure then remove retainers and turn the unit off. Inspect the seals for completeness, then reseal and secure components again under vacuum pressure.
Unusual or High Pitched Noises	- Motor bearings, turbine bearing	- Follow relevant motor / turbine inspection procedure, Section IV. Check motor bearings for noise by hand.
	- Worn or poorly seated seals, Retainers improperly installed	- Block the inlet with a flat and rigid material to place the unit under vacuum pressure then remove retainers and turn the unit off. Inspect the seals for damage, then reseal and secure components again under vacuum pressure.
	- Belt worn, cracked, damaged	- Follow belt / turbine / motor inspection procedure, Section IV.

VI. _____ Terms & Conditions

ACCEPTANCE: The terms and conditions of sale set forth herein apply to any order accepted or acknowledged by RUWAC, Inc. Buyer's acceptance of RUWAC'S proposal or delivery of all or any part of the goods covered hereunder constitutes acceptance of the terms and conditions of sale contained herein, and RUWAC hereby rejects any additions to or modification to these terms and conditions. Any representations, promises, warranties, or statements by RUWAC or its agents that differ in anyway from these terms and conditions shall be given no force or effect. No contract is final until accepted in writing by RUWAC at its corporate office in Holyoke, Massachusetts.

PRICES: Prices quoted orally expire the same day they are made unless accepted in writing on that day or confirmed by written communication by RUWAC. Written price quotations are guaranteed for thirty (30) days after the date issued, but may be terminated by written notice within that period. After thirty (30) days, any written price quotations are subject to adjustment to reflect prices in effect at the time of shipment, including any changes in packing, storage, or shipping charges. This order or proposal includes only the equipment specified herein, and does not include freight or installation of RUWAC equipment. All prices are F.O.B. RUWAC'S plant in Holyoke, Massachusetts and are exclusive of all taxes, levies, and duties that may be assessed in connection with the sale or delivery of goods, and Buyer shall be responsible for all such taxes, levies, and duties. In the event RUWAC pays any such tax, levy, or duty, Buyer shall promptly reimburse RUWAC therefor. Any packaging requirements other than RUWAC'S standard packaging and commercial container will be invoiced as an extra charge.

PAYMENT: Payment is due in full thirty (30) days after the date of invoice. All invoices paid after the due date will be assessed a late payment charge of one and half percent (1.5%) per month or any portion thereof, or the maximum amount allowed by applicable law, whichever is less. Buyer shall be responsible for all costs of collection, including reasonable legal fees. Sales on the foregoing terms are subject to the approval of RUWAC'S credit department and may be changed at any time at RUWAC'S sole discretion. If RUWAC has reasonable grounds with respect to Buyer's ability or willingness to make timely payments for the goods. RUWAC may at any time suspend performance, decline to ship, or require advance payment in cash or other adequate assurance satisfactory to RUWAC.

SHIPMENTS AND DELIVERY: RUWAC shall use its reasonable efforts to meet all shipment or delivery dates recited in RUWAC'S proposal or in Buyer's order but any such dates are estimated only and are not guaranteed. RUWAC shall have no liability to Buyer for damages or penalties, direct or indirect, for any delay in shipment or delivery, whether such delay is minor or substantial, nor shall Buyer have the right to declare a breach of contract because of any such delay. In any event, delivery schedules are based upon the effective date of the order and are subject to prompt receipt by RUWAC of all necessary down payments, information and instructions from Buyer, including any required approval of drawings. RUWAC shall have the right to make partial shipments, and invoiced covering the same shall be payment terms hereof. RUWAC will attempt to ship in accordance with Buyer's instructions, but RUWAC will make the final selection of a method of shipment and a carrier unless Buyer clearly and conspicuously specifies that shipment must be by a particular method of carrier. RUWAC is not responsible for damage or loss in transit, and all such claims must be by Buyer directly against the carrier.

CHANGE ORDERS: RUWAC shall not be obligated to make any changes in or additions to the scope of the work which are initiated by Buyer or result from circumstances beyond RUWAC'S control unless there is an equitable adjustment in price and or delivery.

CANCELLATION, SUSPENSION OR DELAY: In the event Buyer requests or causes a cancellation, suspension or delay in any RUWAC'S work under this proposal or order based thereon, Buyer shall indemnify and pay to RUWAC all appropriate charges, including but not limited to any costs, expenses, and commitments incurred by RUWAC up to the date of receipt of notice of such cancellation, suspension or delay, plus RUWAC'S overhead and reasonable profit. If shipment is delayed on account of Buyer, the purchase price shall be due and payable as if delivery had been made. Additionally, all charges related to storage, disposition and/or resumption of work, at RUWAC'S plant or elsewhere, shall be for Buyer's sole account and Buyer thereto shall assume all risks incidental.

CLAIMS: NOTICE OF DEFECTS: Buyer shall give written notice of rejection of any shipment or portion thereof within thirty (30) days after the date of shipment specifying the reasons therefor. Failure to give such notice shall be deemed a waiver of any right of rejection and any claim with respect thereto (except as to claims under the warranty) and shall be deemed an acceptance of such shipment. Buyer shall set aside and hold rejected goods without further processing until RUWAC has an opportunity to inspect and advise of the disposition, if any, to be made of such goods. In no event shall any rejected goods be returned reworked, or scrapped by Buyer without the express written authorization of RUWAC.

VI. _____ Terms & Conditions

REMEDIES OF SELLER: In addition to any other remedies of RUWAC provided hereby or by law, in the event Buyer becomes bankrupt, insolvent, assigns assets for the benefit of creditors or its financial condition has substantially deteriorated, RUWAC may, at its sole option, declare a breach of contract, stop all work hereunder or demand payments in advance as security for its performance hereunder.

FACTIONS: GOVERNING LAW: Any dispute, controversy, or claim against RUWAC with respect to the goods or any of RUWAC'S obligations related thereto must be commenced within one year from the date of shipment. All contract between Buyer and RUWAC shall be governed by and construed in accordance with the laws of the state of Massachusetts except that body of laws controlling conflict of laws.

BONDS: In addition to the price specified herein, Buyer shall pay the cost of any bonds, which Buyer requires RUWAC to obtain.

ENTIRE AGREEMENT: These terms and conditions, together with the provisions of the proposal constitute the entire agreement between the parties pertaining to the goods, and they supersede any prior or contemporaneous agreements, representations, or understandings between the parties. No waiver or modification of these terms and conditions is binding unless such waiver or modification is set out in writing signed by an authorized manager or officer of RUWAC. RUWAC'S failure to strictly enforce any right on one occasion does not constitute a waiver of that or any on any other occasion.

HYDRO & OLIOPHOBIC MEDIA FILTER CLEANING

CAUTION: YOU MAY CLEAN THE FILTER. HOWEVER, USE EXTREME CAUTION!

- Any abrasion to the surface will adversely affect filter's performance
- Do not use high-pressure water
- Do not use harsh brushes or similar devices
- Do not use oils, solvents or harsh detergents
- Do not use direct pressure on the dust side of the filter
- Wear appropriate clothing
- Properly contain and discard any residue generated while cleaning

DRY METHOD CLEANING

- Pulse clean the cartridge off line (fan off), for 60 minutes with pulse frequency at 15-second intervals at 60 PSI or as close as you can come to those levels, given your equipment design. Pulse duration at 100 milliseconds.
- Remove the element from the unit and clean with a compressed air wand at 60 PSI. The size of the wand orifice needs to be 3/8" or larger to protect the filter.
- Move the wand up and down, covering the entire area of the filter element. If any contaminate is still visible on the outside (dust side) of the element, clean the outside with the air wand, moving parallel with the pleat at a 45 degree angle to the pleat surface at a sufficient distance away to avoid damage to the media. Try to remove the contaminant from the surface without forcing it into the pores of the filter. When finished, move the wand back to the interior and go over the interior one more time to remove any particulates that may have been forced into the pores from the dust side of cleaning.
- Inspect the clean air side of the collector for any dust buildup or damage and wear to the pulse system components. Clean or repair as necessary.
- Reinstall the units and note the pressure drop. If cleaning makes a significant reduction in the pressure drop and you have to perform manual cleaning frequency, please review your specific operating conditions with Ruwac.

WET METHOD CLEANING

- Remove all excess dust as outlined above.
- Place the filters in a 2 - 3% solution (about 4 oz. per gallon) of mild dish washing soap and let the cartridge soak for 10 minutes.
- Remove the element and rinse the inside of the element with a garden hose, not to exceed 50 PSI. Thoroughly rinse all traces of detergent from both sides of the media.
- Rinsing outside needs to be done with a water stream at a 45 degree angle and parallel to the pleats.
- Let the element dry completely, normally 24 - 48 hours at 70 degrees F or higher. Do not dry in the collector with the fan. Filters must be completely dry before reuse.
- Reinstall the units and note the pressure drop. If cleaning makes a significant reduction in the pressure drop and you have to perform manual cleaning frequency, please review your specific operating conditions with Ruwac.
- NOTE: Hydro and oliophobic units are DESIGNED TO REPEL WATER AND OIL. Generally, water will not freely penetrate the media finish. This is normal and it means that the finish is working.

DISPOSING SLUDGE WASTE

When disposing sludge from a water/oil-based wet collector such as a Ruwac immersion separator, the National Fire Protection Association has outlined a list of standards which operators should follow through their document NFPA 484: Standard for Combustible Metals [most updated edition]. See below for some NFPA's recommended practices on how to safely contain, empty and dispose of sludge material:

- Sludge from water wet-type dust collectors should be removed at least once each day or more if usage and conditions require you to do so.
- Sludge should be collected in covered, vented metal containers during the transportation process.
- Disposal arrangements for sludge from wet-type dust collectors shall be planned in advance with the proper material handlers and follow all applicable federal, state and local regulations.
- Material removed from wet-type dust collectors is permitted to be mixed with inert materials such as sand and others nonreactive in a volume ration of five parts inert material to one part metal dust.
- The recycling or disposal of sludge should be in accordance with all federal, state and local regulations.
- Smoking or open flames on the disposal grounds should be prohibited during the disposal process.
- For more information on determining the characterization of your hazardous sludge waste, the NFPA points to 40 CFR 261 Subpart B of the Title 40 of Protection of Environment handbook. Use information as location reference only.

IS YOUR PMX BEING PROPERLY MAINTAINED?

Ruwac's PMX vacuum systems are the most powerful and safest way to collect conductive metals, explosive and impact sensitive materials or glowing media. With 100% of the intake air being completely submerged in liquids, the chance of an outside ignition source entering the vacuum is safely ruled out. However, in order to ensure an efficient operation, users must do their part in properly maintaining and cleaning their machine of materials. Failure to do so can cause materials to build in the liquid tank over time. If that occurs, this renders your PMX defenseless against combustible dust saturation, potentially setting the stages for an explosion resulting in serious injury or even death.

WHAT CAN YOU DO?

1. Proper Set-Up

- Ensure vacuum is properly grounded before and during each use.
- Use only Ruwac hoses and accessories.
- Determine which liquid should be used for your material based on the application. Fill the unit to the fill level on the sight glass before each use with the proper neutralizing liquid. Review the filling capacity regularly.
- Use only for the application the vacuum was purchased for according to the application worksheet that was sent when the vacuum was received.

2. Empty, clean and inspect your PMX unit

- Empty your PMX unit. It should be cleaned after each use to avoid material build-up and potential off-gassing.
- The demisting chamber and filters should be checked for excessive sediment build-up on a regular basis. Empty and take apart the unit to ensure there is no build up of material above the liquid bath. Clean the unit thoroughly.
- The demisting screen and the filters should be checked on a weekly basis to ensure efficiency.
- The sight glass window must be free from debris and offer visibility into the vacuum. Replace as required.
*Ensure that the fluid level hose is clear of any debris, especially at the bottom of the liquid tank.

3. Monitor material intake

- How long it takes for your PMX unit to fill with material depends upon the application and the amount of dust you are attempting to remove. Pay attention to time and quantity so that you can prevent picking up more material than your PMX can handle.

4. Monitor evaporation

- If your application is determined to use water as a neutralizer, it will evaporate during the usage of the unit. Check levels regularly and record the evaporation rate. Always maintain a proper liquid level. Special high and low water sensors and alarms are available as custom solutions. Contact Ruwac for details.

5. Set up a routine maintenance plan for your unit

- Once you have cleaned and inspected your PMX as well as monitored intake, set up a routine maintenance plan which all users shall abide by when operating the unit. This plan should make everyone aware of the PMX's limits in order to safely keep them and your facility free of any potential accidents if proper maintenance is practiced.



OTHER RECOMMENDATIONS

- Do not alter or repair vacuum without the written approval of Ruwac.
- Only authorized trained personnel should use the PMX unit. Use only as directed by Ruwac. Use only for the application the vacuum was purchased for as per the application worksheet that was sent with vacuum when vacuum was received.