



OPERATION AND MAINTENANCE MANUAL

EXPLOSION PROOF / DUST IGNITION PROOF VACUUM CLEANER SYSTEM
ELECTRICALLY OPERATED - IMMERSION SEPARATOR "WET (OIL) MIX"

MODEL 61461 DIVISION 1 **EXP1-IT 85 EX CFE HEPA**



File number: 090716



**Designed and Certified for use in Class I - Group D, T3C
And Class II - Groups E, F & G Hazardous Locations
as defined in the National Electrical Code (NFPA 70)**

**READ ALL INSTRUCTIONS BEFORE OPERATING,
CLEANING OR SERVICING
IMPORTANT - SAVE THESE INSTRUCTIONS**

ROUTINE MAINTENANCE FOR THE IMMERSION SEPARATOR

- This unit must be filled at all times with either mineral oil or any other neutralizing liquid required for the precipitation of the dust being recovered.
- This unit must be filled up to the green liquid level indicator line shown on the immersion separator.
- Do not exceed the below recommended maximum dust recovery capacity.

Max. dust recovery capacity	Volume of liquid required
22 lbs / 10 kg	7.9 gallons / 30 liters

We recommend proceeding with the following maintenance **after each use and after a maximum of 8 hours of consecutive use** (see section for maintenance and clean-up procedure):

- Before any maintenance shut the vacuum cleaner system off
- Drain the liquid by opening the manifold drain valve
- Discard all recovered material from inside of the immersion separator
- Thoroughly clean all parts of the unit, including the suction hoses
- Once unit is clean reinstall the parts inside the immersion separator and fill it with clean neutralizing liquid before use

COALESCING FILTER ELEMENTS (CFE)

A Coalescing Filter Element (CFE) is assembled in the vacuum cleaner system at the exhaust port. Verify if the CFE needs to be replaced as part of routine maintenance.

PLEASE CONSULT THE INSTRUCTION MANUAL AT ALL TIMES

Table of Contents

1.0	INSPECTION	2
2.0	APPLICATIONS	2
3.0	IMPORTANT SAFETY PRECAUTIONS.....	4
4.0	PRE-USAGE INSTRUCTIONS	5
5.0	PRECAUTIONS FOR THE RECOVERY OF HAZARDOUS MATERIALS	7
6.0	GROUNDING INSTRUCTIONS	8
7.0	TESTING FOR GROUND CONTINUITY	9
8.0	FILTRATION SYSTEM	10
9.0	OPERATING INSTRUCTIONS	12
10.0	CLEANING AND MAINTENANCE	20
11.0	REPLACING THE COALESCING FILTER ELEMENTS (CFE)	25
12.0	ASSEMBLING AND REPLACING THE HEPA FILTER.....	29
13.0	MOTOR MAINTENANCE	32
14.0	STORAGE	32
15.0	TROUBLESHOOTING:	32

June 21, 2017

1.0 INSPECTION

Carefully unpack and inspect your vacuum cleaner system for shipping damage. Each vacuum cleaner system is tested and thoroughly inspected before being shipped; therefore, any damage is the responsibility of the delivering carrier, who should be notified.

2.0 APPLICATIONS

WARNING: A full Process Hazard Analysis has to be conducted by the user for the recovery of dusts in hazardous locations. The recommendations in this manual cannot, in any case, supplant the conclusions of a full Process Hazard Analysis.

Model 61461 / EXP1-85 EX CFE HEPA is an explosion proof / dust ignition proof vacuum cleaner system certified for use in Class I - Group D, T3C and Class II - Groups E, F & G Hazardous Locations as defined in the NFPA 70 (National Electrical Code and Canadian Electrical code).

Model 61461 / EXP1-85 EX CFE HEPA is designed for dry recovery only and for use with vacuum assisted sanders and grinders. The dust is precipitated into an immersion bath which neutralizes it.

WARNING: It is the user's responsibility to determine the appropriate liquid to use to neutralize the dust.

WARNING: This vacuum cleaner system is designed for the recovery of dry materials only. Do not recover liquids.

WARNING: Only tools and accessories provided by the manufacturer shall be used with this vacuum cleaner system. The use of other tools and accessories may impair safety.

2.1. APPLICATIONS IN POTENTIALLY EXPLOSIVE ATMOSPHERES IN PRESENCE OF FLAMMABLE GASES, VAPORS OR LIQUIDS

Model 61461 / EXP1-85 EX CFE HEPA can be used in use in Class I, Division 1 - Group D, T3C which representative gas is Propane, Hazardous Locations, where ignitable concentrations of flammable gases, vapors or liquids can exist all of the time or some of the time under normal operating conditions.

WARNING: The maximum surface temperature of the vacuum cleaner (T3C - 160°C) must always be lower than the ignition temperature of the gas present in the hazardous location.

WARNING: This vacuum cleaner is designed for the recovery of dry materials only. Do not recover liquids.

WARNING: It is the user's responsibility to conduct a risk assessment in regard to the compatibility of the dusts recovered and the flammable gases, vapors or liquids and other combustible dusts present in the hazardous location.

2.2. APPLICATIONS IN POTENTIALLY EXPLOSIVE ATMOSPHERES IN PRESENCE OF COMBUSTIBLE DUST

Model 61461 / EXP1-85 EX CFE HEPA can be used in Class II - Groups E, F & G hazardous locations, which representative dusts are metals, coal and grain, Hazardous Locations, where ignitable concentrations of combustible dust can exist all of the time or some of the time under normal operating conditions.

Model 61461 / EXP1-85 EX CFE HEPA **can be used to recover a maximum of 22 lbs / 10 kg of combustible dusts in 7.9 gallons / 30 liters of neutralizing liquid:**

Model 61461 / EXP1-85 EX CFE HEPA can be used to recover combustible dusts such as:

- Combustible flyings
- Combustible carbonaceous dusts (Carbon black, charcoal, coal or coke dusts)
- Flour, grain, wood, plastic and chemicals
- Conductive dusts or metal dusts
- Unspent gun powder, sulphur, heat powder, anode powders or any other explosive dust.

WARNING: It is the user's responsibility to determine the appropriate liquid to use to neutralize the dust.

WARNING: DO NOT RECOVER ANY HOT EMBERS OR IGNITED DUSTS.

3.0 IMPORTANT SAFETY PRECAUTIONS

3.1. DEGASSING VENT (OPTIONAL)

A degassing vent is installed on the immersion separator as an optional safety feature to prevent gas from building up in the immersion separator. Any gas which may develop escapes through the vent.

IMPORTANT: Refer to separate operating & maintenance instructions for the degassing vent.

<u>WARNING:</u>	It is the user's responsibility to conduct a risk assessment as to determine which gas may develop both during operation and idle time caused by chemical reactions between the liquid present in the immersion separator and the dusts recovered and to determine the safety measures to observe in presence of the concerned gas.
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3.2. LAYERS OF DUST

WARNING: Clean regularly the vacuum cleaner system surfaces with a dampened cloth to avoid dust accumulation which could create a potential source of ignition.

3.3. FLAMMABLE LIQUIDS

WARNING: THIS VACUUM CLEANER SYSTEM IS NOT DESIGNED TO RECOVER FLAMMABLE LIQUIDS. DO NOT USE THIS VACUUM CLEANER SYSTEM TO RECOVER FLAMMABLE LIQUIDS.

3.4. IMPORTANT SAFETY PRECAUTIONS IN REGARD TO ELECTROSTATIC CHARGES GENERATION

When the vacuum cleaner system is used as recommended in this manual it has been determined that no significant or continuous electrostatic charge accumulation, which could act as a potential ignition source, can occur.

Nevertheless, it is recommended for safe use not to perform any specific action on the insulating items assembled on the vacuum cleaner system, such as a continuous and intense manual rubbing, which could lead to a significant electrostatic charge accumulation.

The above instructions are to be observed particularly in regard to the paint coating on the vacuum cleaner system.

4.0 PRE-USAGE INSTRUCTIONS

- WARNING:** It is the user's responsibility to determine the appropriate liquid to use to neutralize the dust.
- WARNING:** This vacuum cleaner system must be properly grounded. DO NOT OPERATE UNIT WITHOUT A PROPER GROUND SOURCE.
- WARNING:** Use only original replacement parts from the manufacturer or from one of its authorized distributors.
- WARNING:** The vacuum cleaner system is supplied without an electrical plug. It is the user's responsibility to install a suitable plug certified for the hazardous location classification.
- WARNING:** The plug should be installed by a qualified electrician only. The plug must be plugged into an appropriate outlet that is properly installed and grounded in accordance with all local codes and ordinances.
- WARNING:** This appliance is for dry use only and is not to be used or stored outdoors in wet conditions.
- WARNING:** Before use, operators should be provided with information, instruction and training for the use of the appliance and the substances for which it is to be used, including the safe method of removal and disposal of the material collected
- WARNING:** The immersion separator should be clean and dry before operation.
- WARNING:** Improper use of this vacuum cleaner system will result in the voiding of the warranty.
- WARNING:** Proceed with sound measurements in the working zone while operating the vacuum cleaner. Hearing protection may be required in accordance with the applicable regulations.

- a. Consult local electric code and authority having jurisdiction before operation. Make sure the electrical installation is compatible with the voltage stated on the nameplate.
- b. Examine the vacuum cleaner system's power cable for damage (cracking or ageing) before use. Return to manufacturer for servicing if damaged. Use only the power cable supplied with the unit or one purchased from the manufacturer.
- c. Do not pull vacuum cleaner system by the power cable.
- d. Inspect the vacuum cleaner system's air supply hose before use. Return to manufacturer for servicing if damaged. Use only air supply hose supplied with the unit or purchased from the manufacturer.
- e. Do not pull vacuum cleaner system by the air supply hose.
- f. Turn off the vacuum cleaner system and unplug the power cable before servicing or storing. Clean and service this vacuum cleaner system **only in a NON-HAZARDOUS LOCATION**.
- g. Always shut off main air supply and open ball valve on the vacuum cleaner system to relieve the line pressure before disconnecting the air supply hose.

WARNING: **Use caution when connecting and disconnecting compressed air lines. When static air pressure is suddenly released, it can cause the airline to whip.**

- h. This vacuum cleaner system is designed for indoor use only.
- i. The appliance shall only be operated when all filters are in position and undamaged. (See section regarding the filtration system)
- j. Connect to a properly grounded outlet only. See Grounding Instructions.
- k. Do not use extension cords

5.0 PRECAUTIONS FOR THE RECOVERY OF HAZARDOUS MATERIALS

WARNING: Model 61461 / EXP1-IT 85 EX CFE not equipped with a HEPA filter is not suitable for the recovery of hazardous materials.

DANGER: If the vacuum cleaner is used to recover toxic or nuisance materials, the following safety precautions must be taken:

- a. The vacuum cleaner must be equipped with a HEPA filter.
- b. Service and operation should only be carried out by trained personnel.
- c. Appropriate clothing and personal protective equipment should be worn when operating or servicing the vacuum cleaner.
- d. Dispose of collected materials responsibly. Follow applicable government regulations for the disposal of hazardous materials.

WARNING: This appliance contains dust hazardous to health. Emptying and maintenance operations, including removal of the dust collection means, must only be carried out by authorized personnel wearing suitable personal protection. Do not operate without the full filtration system fitted.

NOTE: Any health hazard associated with the use of this vacuum cleaner in conjunction with the recovery of asbestos and other hazardous substances has not been investigated.

6.0 GROUNDING INSTRUCTIONS

This vacuum cleaner system must be properly 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 vacuum cleaner system is equipped with a cord having an equipment-grounding conductor. The vacuum cleaner system is supplied without an electrical plug. It is the user's responsibility to install a suitable plug certified for the hazardous location classification.

The plug shall be installed by a qualified electrician only. The plug must be plugged into an appropriate outlet which is properly installed and grounded in accordance with all local codes and ordinances. Ensure the fuse/breaker on the electrical panel is of the correct rating and exceeds the maximum current rating shown on the nameplate of the vacuum cleaner system. Test the electrical continuity of the vacuum cleaner system prior use. (See section "Testing for ground continuity").

WARNING: This vacuum cleaner system for hazardous locations is equipped with conductive wheels, which allow for the system to be grounded with the floor. Do not substitute the conductive wheels and use only replacement conductive wheels supplied by the supplier.

WARNING: 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 an outlet is properly grounded. If the plug will not fit the outlet, have a proper plug or outlet installed by a qualified electrician. No adaptor should be used with this vacuum cleaner system.

WARNING: To effectively dissipate static electricity and to ensure spark-free operation, this vacuum cleaner system must be grounded during use.

DANGER: Do not operate the vacuum cleaner system if the electrical outlet is not properly grounded or if the grounding is questionable.

7.0 TESTING FOR GROUND CONTINUITY

WARNING: Test the electrical continuity of the vacuum cleaner before use. This will ensure that any static electricity that is produced while vacuuming will be discharged to ground.

WARNING: Use only original replacement parts from the manufacturer or from one of its authorized distributors.

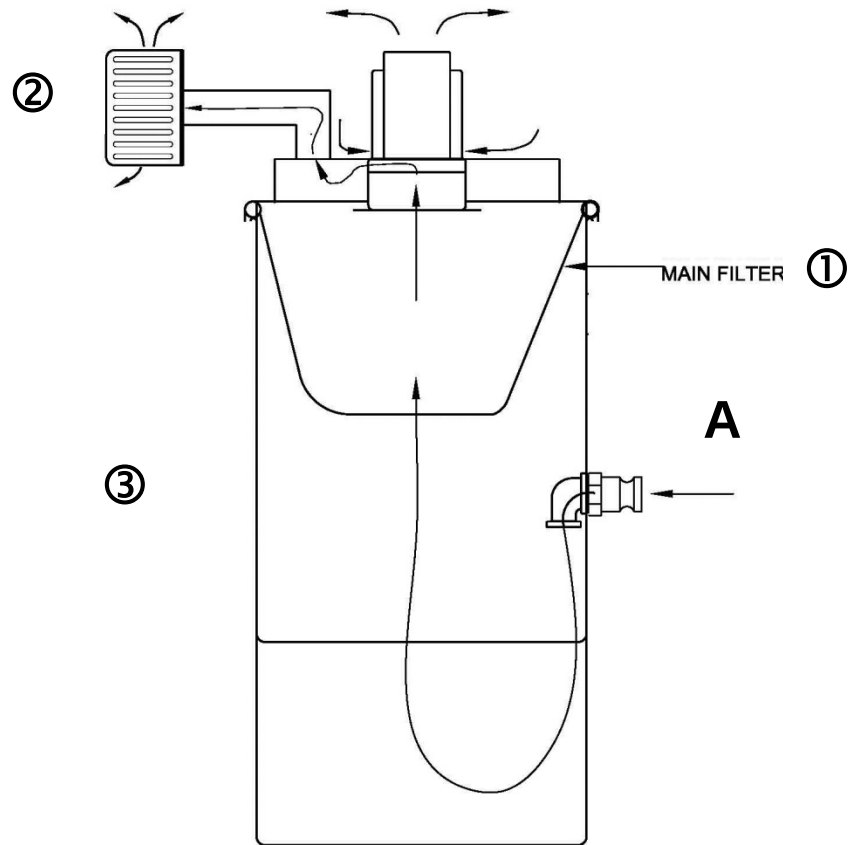
An ohm-meter is required to perform the following electrical continuity test.

- a. Disconnect the power cable from the outlet.
- b. Make sure all the latches on the vacuum cleaner system are fastened and the connecting hose is properly installed between the filter chamber and the immersion separator.
- c. Disconnect the suction hose from the suction intake on the immersion separator.
- d. Using an ohm-meter, test the electrical continuity of the vacuum cleaner system **from the ground pin at the end of the power cable to the suction intake** on the immersion separator. A reading between 10^6 ohms and 10^9 ohms or less is satisfactory to ensure proper grounding and static dissipation.
- e. Using the ohm-meter test for the electrical continuity **of the suction hose from one end to the other.** A reading between 10^6 ohms and 10^9 ohms or less is satisfactory to ensure proper grounding and static dissipation.

IMPORTANT: If you obtain a reading higher than what is indicated above it is possible your vacuum cleaner system could not ensure a proper dissipation of static electricity. In such case some maintenance is needed.

8.0 FILTRATION SYSTEM

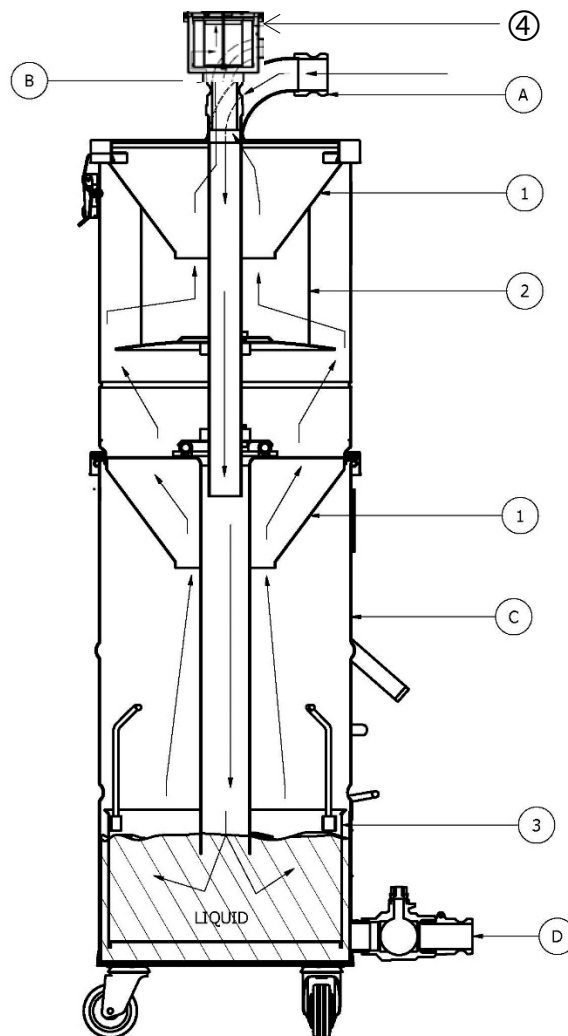
Filter chamber



1. Main cloth filter (Additional pre-filter available as an option)
2. HEPA filter (Efficiency > 99.995% on 0.3 micron.)
3. Filter chamber

A Suction intake

Immersion separator



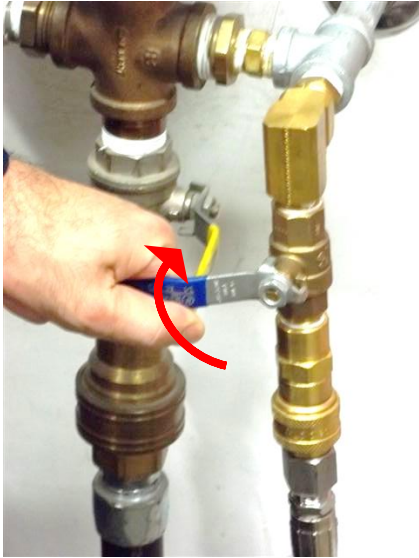
- A Suction inlet
- B Connection inlet
- C Immersion separator
- D Drain valve

- 1 Separator cone
- 2 Stainless steel screen
- 3 Sieve basket
- 4 Coalescing Filter Element (CFE)

9.0 OPERATING INSTRUCTIONS

WARNING: Turn off the vacuum cleaner system and unplug the power cable before servicing.

- a. **Shut off main air supply** and **open ball valve** on the frame of the vacuum cleaner system to relieve the pressure in the air supply hoses.



- b. Once the pressure has been relieved close ball valve on the frame of the vacuum cleaner system



Immersion separator

- a. Detach the immersion separator



b. Remove the baffle system



c. Remove the sieve basket



WARNING: Before use the inside of the immersion separator, the baffle system, the sieve basket and the hose should be clean and dry

- d. Fill the immersion separator with liquid. Check the liquid level indicator for the appropriate level.



WARNING: It is the user's responsibility to determine the appropriate liquid to use to neutralize the dust.

- e. If liquid foams upon agitation, use a de-foaming agent. Add the prescribed amount of de-foaming agent into the immersion separator in order to prevent foam from entering the powerhead.

WARNING: Do not add any foaming agent to liquid. Foam could damage parts located in the powerhead of the vacuum cleaner system.

f. Put back the sieve basket



g. Put back the baffle system in place.



- h. Put back the immersion separator in place:



Filter chamber

- i. Disengage the latches and remove the powerhead from the filter chamber.
- j. *Optional:* Install the pre-filter with elastic in the filter chamber by overlapping the filter's elastic over the lip of the filter chamber. Make certain that the elastic covers the entire circumference of the filter chamber.
- k. Install the main filter in the filter chamber. Make certain that the filter's gasket covers the entire circumference of the filter chamber.

IMPORTANT: Do not use this vacuum cleaner if the main cloth filter is not installed

- l. Place the powerhead on the filter chamber and fasten the latches.

- m. Connect the airline hose of one or two suction/air hose(s) to the air outlets placed on the frame of the vacuum cleaner system



- n. Connect one or two suction / air supply hose(s) to the suction intake(s). If using only one suction hose with the vacuum cleaner, close the unused suction intake with the storage plug to prevent loss of suction.
- o. Connect sander/pneumatic tools to the end of the suction hose of one or two suction/air hose.

WARNING: Always wear eye protection when sanding or grinding even if using vacuum assisted tools.

WARNING: It is the user's responsibility to determine the type of protective clothing and respiratory equipment required.

IMPORTANT: Carefully read and follow the instructions provided with the vacuum assisted sander or grinder to ensure proper operation.

WARNING: This vacuum cleaner is designed for the recovery of dry material only. Do not recover liquids.

- p. Test the electrical continuity of the vacuum cleaner system before use. This will ensure that any static electricity that is produced while vacuuming will be discharged to ground. (see section "TESTING FOR GROUND CONTINUITY")

- q. Connect the vacuum cleaner to a grounded electrical outlet.
- r. Open the main air supply and the ball valve on the vacuum cleaner system.



- s. To turn the vacuum cleaner on, turn switch to the ON position
- t. Operate the sander/pneumatic tools as required.

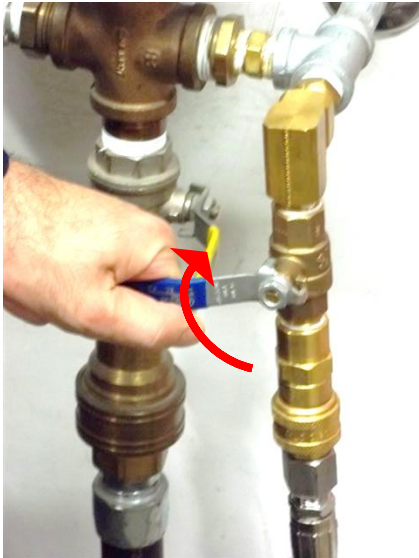
WARNING: Follow the instructions provided with the sander/pneumatic tool to ensure proper operation.

CAUTION: Operating the tools while the vacuum is turned off will allow dust and particulate that would have otherwise been captured to be released into the work location.

10.0 CLEANING AND MAINTENANCE

WARNING: Turn off the vacuum cleaner system and unplug the power cable before servicing or storing.

- a. **Shut off main air supply** and **open ball valve** on the frame of the vacuum cleaner system to relieve the pressure in the air supply hoses.



- b. Once the pressure has been relieved close ball valve on the frame of the vacuum cleaner system



VERIFICATION OF NEUTRALIZING LIQUID LEVEL

After 5 hours of consecutive use turn off the vacuum cleaner system and verify the neutralizing liquid level is still between the indicated minimum and maximum levels. If the neutralizing liquid level is below the indicated minimum level adjust by filling the wet mix immersion separator with neutralizing liquid up to the appropriate level



IMPORTANT: In order to check the level of liquid the vacuum cleaner system needs to be shut down.

- c. Use the drain valve to empty collected material.
- d. To operate drain valve lift the safety ring and turn the handle. Optional drain hoses are available for use with the drain valve.



WARNING: Empty collected materials into suitable container.

WARNING: Empty the immersion separator when necessary but also after each use (8 hours shift). Do not allow recovered materials to sit for extended periods of time. An excessive accumulation of recovered materials can create a dust ignition hazard.

Immersion separator

- a. Clean the baffle system and remove all remaining material with brush



- b. Clean hose to remove any accumulated dust, debris or material recovered.

WARNING: Be sure to remove any remaining materials after use by rinsing and cleaning the immersion separator, the baffle system, the sieve basket and the hose.

- c. Check the Coalescing Filter Element (CFE) on a regular basis and replace when saturated

WARNING: Do not use the Coalescing Filter Element (CFE) after removal.

Filter chamber

- e. Disengage the latches and remove the powerhead from the filter chamber.
- f. Remove filters from the filter chamber.
- g. It is recommended that the cloth filters be cleaned regularly. Dirty cloth filters will reduce the airflow through and reduce the performance of the vacuum cleaner. The cloth filters can be washed with warm water (no detergents required).

IMPORTANT: After washing the filters, make sure that they are completely dry before reinstalling them into the filter chamber. Do not reinstall the cloth filters if they are still wet.

- h. The cloth filters should be replaced every two or three years depending on use.
- i. Inspect the cloth filters regularly. If the cloth filters are torn, replace immediately. A torn filter will allow dust and other materials to enter the motor and may cause pre-mature wear of the motor
- j. The HEPA filter should be replaced yearly, or every two years, depending on the use. (Refer to section for assembling and replacing the HEPA filter.)

WARNING: Do not use the HEPA filter after removal.

WARNING: Keep the power supply cable clean and inspect it regularly for cuts or cracks

WARNING: Keep the air supply hose clean and dry.

WARNING: When carrying out service or repair operations, all contaminated items which cannot be satisfactorily cleaned, are to be disposed of. Such items shall be disposed of in impervious bags in accordance with any applicable regulation for the disposal of such waste;

WARNING: Clean regularly the vacuum cleaner surfaces with a damped cloth to avoid dust accumulation.

11.0 REPLACING THE COALESCING FILTER ELEMENTS (CFE)

For users who wish to implement a conservative protocol it is recommended to replace the coalescing filter element (CFE), once a year.

WARNING: Proper clothing and respiratory equipment are required when replacing the coalescing filter element.

IMPORTANT: Use only original brand replacement coalescing filter elements (CFE).

WARNING: Use caution when connecting and disconnecting compressed air lines. When static air pressure is suddenly released, it can cause the airline to whip.

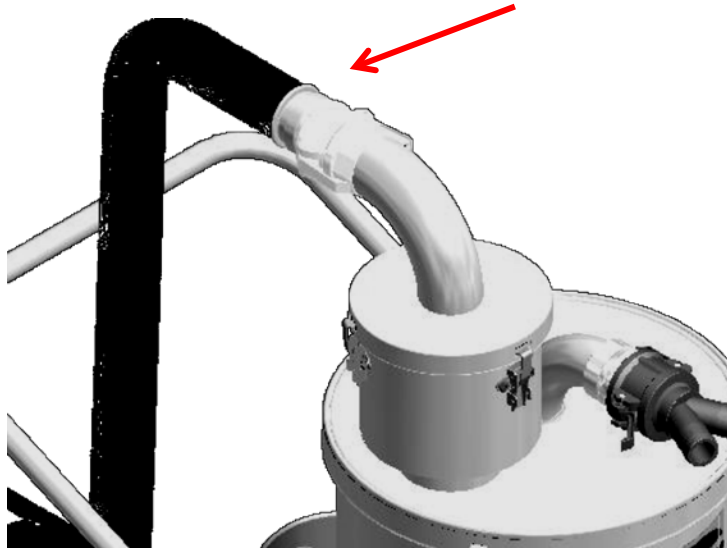
- a. **Shut off main air supply** and **open ball valve** on the frame of the vacuum cleaner system to relieve the pressure in the air supply hoses.



- b. Once the pressure has been relieved close ball valve on the frame of the vacuum cleaner system



- a. Disconnect the connecting hose on the immersion separator



- b. Detach the latches maintaining the coalescing filter element (CFE) housing



- c. Lift the coalescing filter element (CFE) housing and place it on a flat surface

WARNING: Take the necessary safety precautions as there is a mix of neutralizing liquid and dust on the surface of the filter



- d. Remove the used Coalescing Filter Element (CFE) and install a new coalescing filter element (CFE).



- e. Dispose of the used Coalescing Filter Element (CFE) in accordance with applicable government or state regulations.

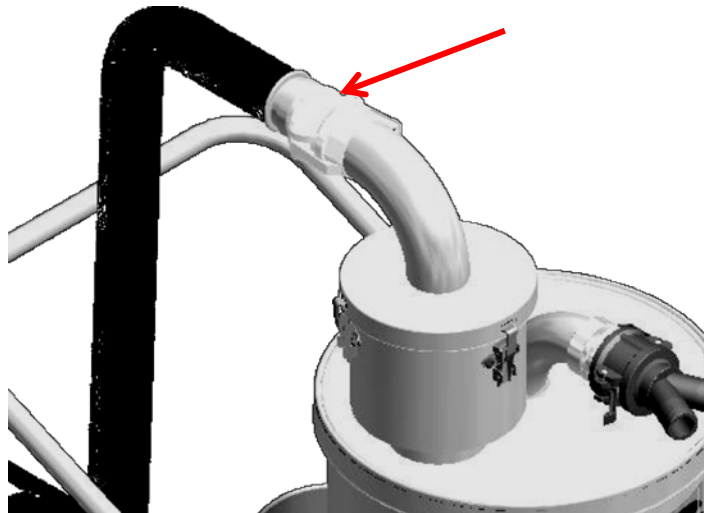
- f. Place back the powerhead on the immersion separator



- g. Fix the powerhead to the immersion separator with latches



- a. Connect the connecting hose on the immersion separator



12.0 ASSEMBLING AND REPLACING THE HEPA FILTER

A HEPA filter is designed for filtration of ultra-fine particles. A clogged HEPA filter will reduce the air flow thereby reducing the vacuum's performance thus requiring replacement.

The life of the HEPA filter depends greatly on the use of the vacuum cleaner system. The best indication of a saturated HEPA filter is a noticeable drop in the performance of the vacuum cleaner system. It is recommended that the HEPA filter be replaced once a year if the vacuum system is used intensively (daily). The filter can be replaced every two years if the vacuum cleaner system is used less frequently (two or three times per week)

WARNING: Changing a filter is considered a low to moderate risk, however proper clothing and the use of an appropriate breathing apparatus is necessary when servicing the HEPA filter housing or any other contaminated part of the unit.

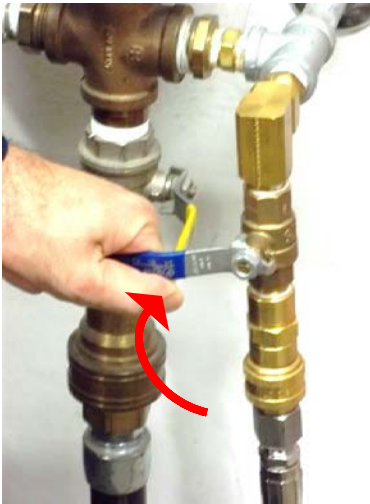


IMPORTANT: Use only original brand replacement HEPA filter.

NOTE: A second vacuum cleaner system, sprays or other power sources are not required for this type of operation.

WARNING: Turn off the vacuum cleaner system and unplug the power cable before servicing or storing the vacuum cleaner system. Clean and service this vacuum cleaner system only in a NON-HAZARDOUS LOCATION.

- a. **Shut off main air supply** and **open ball valve** on the frame of the vacuum cleaner system to relieve the pressure in the air supply hoses.



- b. Once the pressure has been relieved close ball valve on the frame of the vacuum cleaner system



- c. Remove the 3 screws on the HEPA housing using a Philips Screw Driver.



- d. Gently remove the housing and place it on a flat surface.



- e. Place a poly liner around the now exposed HEPA filter. Carefully remove the HEPA filter from the back plate. Place the HEPA filter into the poly liner, gently twist the poly liner and then seal it with a tie wrap.



- f. The HEPA filter is now sealed inside of the poly liner and can be disposed of according to local governmental laws.



13.0 MOTOR MAINTENANCE

The motor used in this vacuum cleaner system is designed for maintenance free operation and it does not need to be serviced. However, clean regularly the vacuum cleaner system surfaces with a dampened cloth to avoid dust accumulation.

14.0 STORAGE

It is recommended that the inside of the immersion separator be clean and dry when storing the vacuum cleaner system.

15.0 TROUBLESHOOTING:

PROBLEM	PROBABLE CAUSE	SOLUTION
Drop in suction power	Cloth filter(s) in the filter chamber may be excessively dirty or covered with dust.	Wash or replace the cloth filter(s) in the filter chamber
	Immersion separator may be full	Empty the immersion separator
	Suction hose or vacuum tools may be blocked	Clear blockage using a broom handle or other appropriate device
	The HEPA filter may be clogged	Change the HEPA filter