

This instruction manual is applicable to the Vacmobile MICRO 8/2 vacuum system fitted with the PVR EM8/B pump. The system may be supplied with or without the optional mobile docking cart.

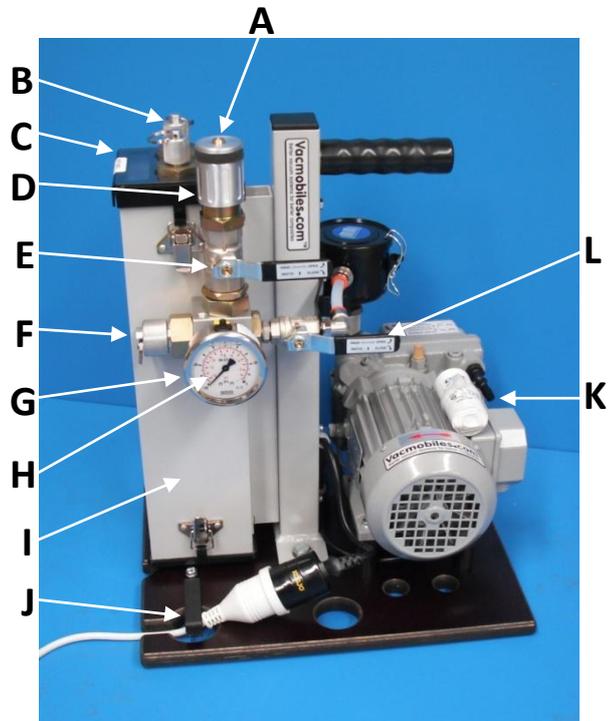
Bench-top format	Transport mode in docking station	Working mode on docking station
		
Length - 373 mm (14.7") Width - 345 mm (13.6") Height - 468 mm (18.4") Weight - 20.5 kg (45.2 lb)	Length - 465 mm (18.3") Width - 345 mm (13.6") Height - 623 mm (24.5") Weight - 30 kg (66.1 lb)	Length - 465 mm (18.3") Width - 345 mm (13.6") Height - 1,055 mm (41.5") Weight - 30 kg (66.1 lb)

Machine data	
Vacuum pump	PVR, model EM8/B
Pumping capacity	50 Hz - 8.5 m ³ /h (5 cfm) 60 Hz - 10 m ³ /h (5.9 cfm)
Maximum vacuum	20 mbar, 98% vacuum, 15 Torr, 29.3" Hg, -14.4 psi, -99.3 kPa.
Resin catchpot	2 litres (4.2 US pints)
Trap lid connections	2 connections in 4 optional sizes to suit the following outside diameter extruded tubes: 3/8" to 10 mm, 1/2" to 13 mm, 5/8" to 16 mm, or 19 mm to 3/4".
Power supply	230 V \pm 5%, 50/60 Hz single phase, or 110 V \pm 5%, 60 Hz single phase Maximum power consumption, 0.25 kW
Oil capacity	225 ml (0.47 US pints)
Oil grade	ISO46 (rated for vacuum pump duty)

Main parts – viewed from gauge side

Key

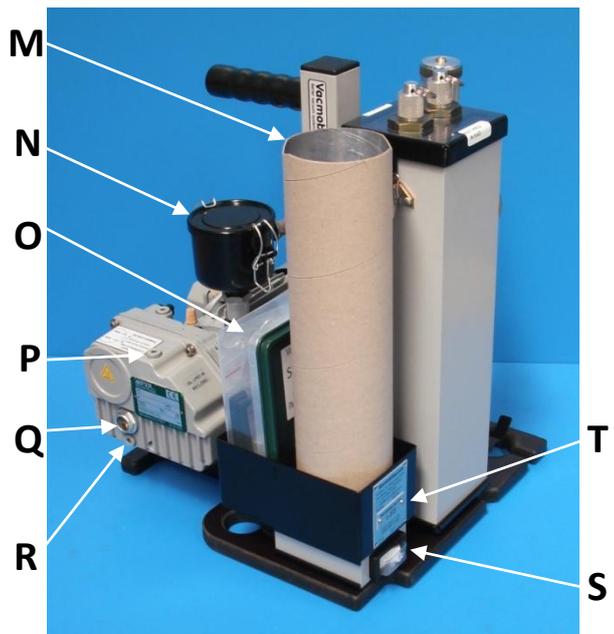
- A Air admit knob
- B Vacuum tube connection (2)
- C Resin trap lid
- D Vacuum regulation valve
- E Regulation isolation valve
- F Auxiliary connection (19 mm)
- G Auxiliary connection (8 mm)
(Hidden behind gauge)
- H Vacuum gauge
- I Resin trap outer body
- J Power cord retainer clip
- K Vacuum pump exhaust
- L Pump isolation valve



Main parts – viewed from pump side

Key

- M Spare resin catchpot
- N Pump inlet filter
- O Spare parts kit
- P Oil filler plug
(requires 5 mm Allen wrench)
- Q Oil level indicator
- R Oil drain plug
(requires 5 mm Allen wrench)
- S On/off switch and
motor overload
- T Model & serial number plate



SAFETY

Disconnect the power supply before servicing the pump or its motor. If the power cord is damaged replace it immediately.

A high level of vacuum is generated. **Hoses from the machine should not be applied to any part of the body, especially sensitive tissue such as the eyes or ears.**

When used for clamping or lifting, large forces can be generated. **Care should be taken to avoid trapping any part of the body between clamping surfaces.**

Vacuum may be lost in the event of power or mechanical failure. **Vacmobiles must not be used for any lifting operation where loss of vacuum could be dangerous.**

This machine is intended for use in dry environments. **Do not use in wet conditions and do not clean by washing with a liquid spray.**

The electrical components of this machine are not explosion proof. **Do not use in a potentially explosive atmosphere.**

LIMITATIONS & CAUTIONS

The vacuum pump must not be allowed to ingest resin or other liquids.

The system must not be operated without a resin catchpot in the resin trap.

The vacuum pump must be filled with oil before start-up.

The machine must only be transported and operated with its base panel horizontal.

The Vacmobile must not be used as a vacuum cleaner. It is designed for use in composite manufacturing processes such as vacuum infusion, vacuum bagging over wet laminate, vacuum bagging over pre-preg and similar applications.

Do not lift machine by its pipe work, or attempt to re-tighten any internal joints. Lift from the base panel or the handle only.

Ambient temperature limits.

MINIMUM allowable operating temperature 10°C (50°F)

MAXIMUM allowable operating temperature 40°C (100°F).

ADD OIL TO THE VACUUM PUMP!

The standard oil for the MICRO 8/2 is ISO46 vacuum pump oil.

Add 225 ml of oil from the small oil bottle with the spout. To empty the bottle, repeatedly squeeze then release the bottle, to allow the bottle to vent.

DO NOT THROW THE BOTTLE WITH THE SPOUT AWAY! It will be required for future oil fills.



DO NOT OVERFILL! Fill to a maximum of $\frac{3}{4}$ level on the sight glass.

CHECK THERE IS A CATCHPOT IN THE TRAP!

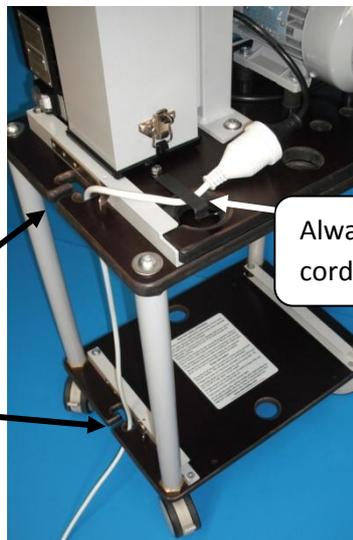
The machine must not be used without a catchpot in the resin trap!



Connect and retain the power cord

Connect the power cord and retain as shown.

If used with docking station, route the power cord to the floor via the 2 recesses

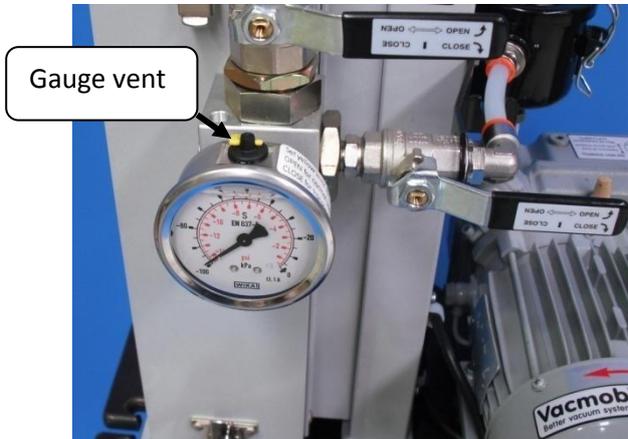


Always make sure the power cord is retained under the clip

Vacuum gauge and vacuum gauge vent

The gauge is of the vented/liquid filled type. The gauge is transported with the gauge vent closed. To ensure the gauge reads correctly, flip the yellow vent lever on top of the gauge to **OPEN**.

When transporting the machine, flip the yellow vent lever to **CLOSE** to avoid fluid loss.

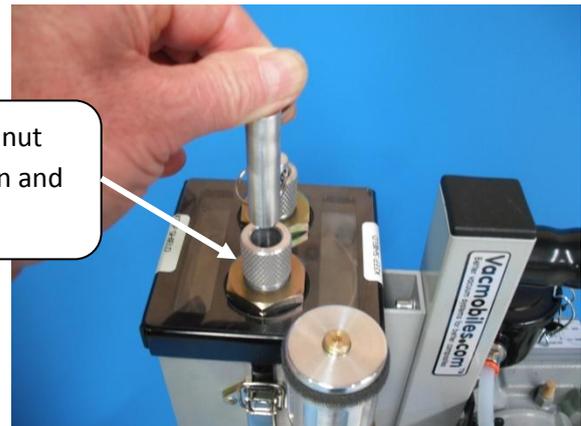


Remove test plugs from resin trap lid

One or two vacuum tubes can be fitted to the resin trap lid. Remove either one or two blanking plugs as required.

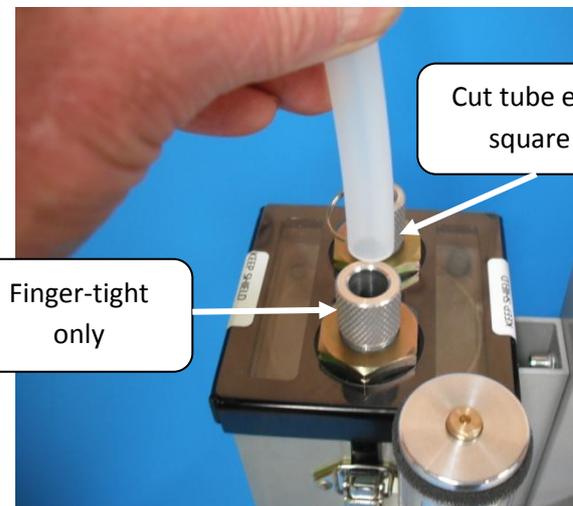
Keep plug for future use!

Loosen aluminium nut approximately $\frac{1}{2}$ turn and withdraw plug



Vacuum tubing connections

Make sure tube end is cut square.
Insert tube through the loosened gland nut
Tighten gland nut finger tight only.

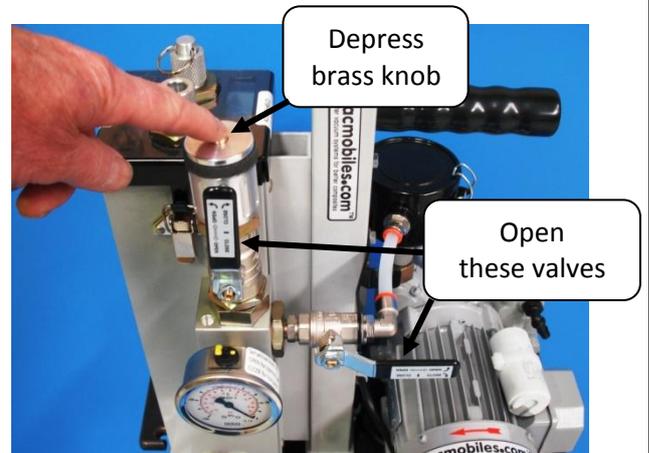


Cold start-up (less than 15°C/60°F)

To ease the motor starting load when the pump is cold:

1. Open the valve below the vacuum regulation valve
2. Open the pump valve
3. Depress the brass knob on the vacuum regulation valve and fully release any vacuum
4. Operate the start switch

If ambient temperature is above 15°C (60°F), the pump may be started with the valves in any position.

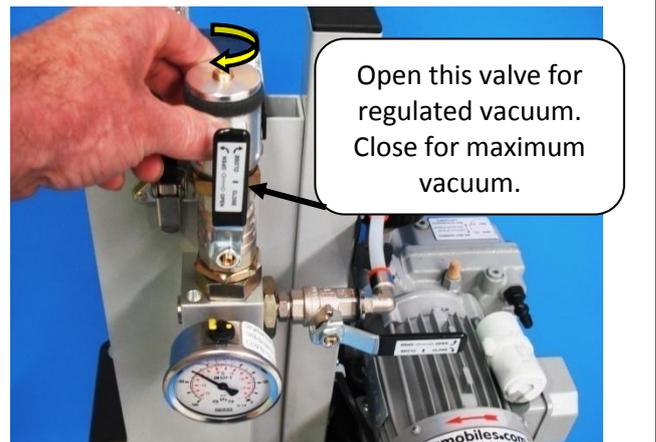


Adjusting the vacuum level

For a regulated level of vacuum, open the valve below the vacuum regulation valve. Adjust the vacuum level by rotating the aluminium cap on the vacuum regulation valve.

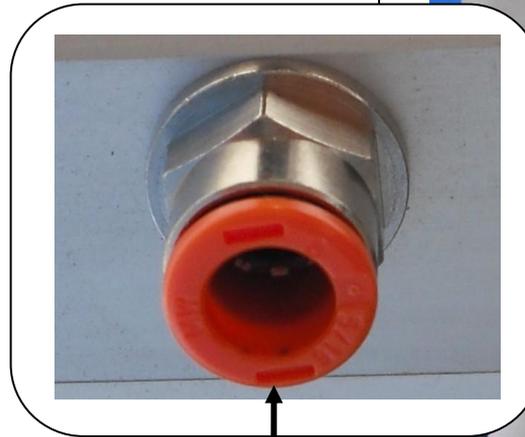
Some resin systems such as polyester and vinyl ester may require a reduced level of vacuum to avoid resin "boil-off". Check with resin supplier, or set vacuum to -75 kPa (22.5" Hg).

For maximum vacuum, close the valve below the vacuum regulator.

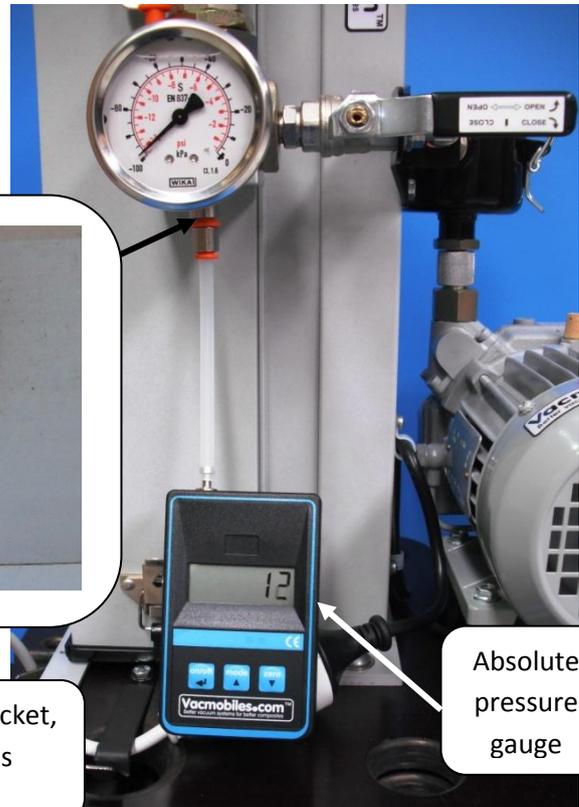


Fitting of absolute pressure gauge (optional accessory)

Absolute gauges are useful for precision vacuum measurement, faster detection of vacuum leaks and the detection of water vapour. Plug the gauge into accessory socket provided underneath the aluminium manifold block.



To release accessory from socket, push orange ring upwards



Absolute pressure gauge

OIL CHANGING – EVERY 500 HOURS, OR WHEN OIL IS NOTICEABLY DISCOLOURED

Regular pump oil changes and dust removal from the motor and pump services will prolong pump life. While 500 hours is the maximum recommended service interval, the pump should be serviced as soon as the oil becomes noticeably discoloured.

Draining the oil

Make sure the old oil is hot before draining it – after the pump has been running for at least 1 hour.

1. If draining the oil with the machine on the cart, lock the castors on the cart.
2. Place the 500 ml oil collection tray provided with the machine under the drain outlet.
3. Undo the oil drain plug, using the 5 mm AF Allen wrench provided with the machine. A sharp downwards tap with a soft hammer will help release the plug.
4. To speed oil drainage, also remove the oil filler plug.
5. Dispose of old oil carefully, bearing in mind that it will be hot.



500 ml (1/2 pint)
collection tray

Add new oil

The standard oil for the MICRO 8/2 is ISO46 vacuum pump oil.

Add 225 ml of oil from the small oil bottle with the spout. To empty the bottle, repeatedly squeeze then release the bottle, to allow the bottle to vent.

DO NOT THROW THE BOTTLE WITH THE SPOUT AWAY! It will be required for future oil fills.



DO NOT OVERFILL! Fill to a maximum of $\frac{3}{4}$ level on the sight glass.

Remove surface dust at each oil change

Use a compressed air nozzle to remove dust from pump and motor surfaces whenever the oil is changed. This is most effective when the pump is running but do not insert nozzle into moving motor fan!

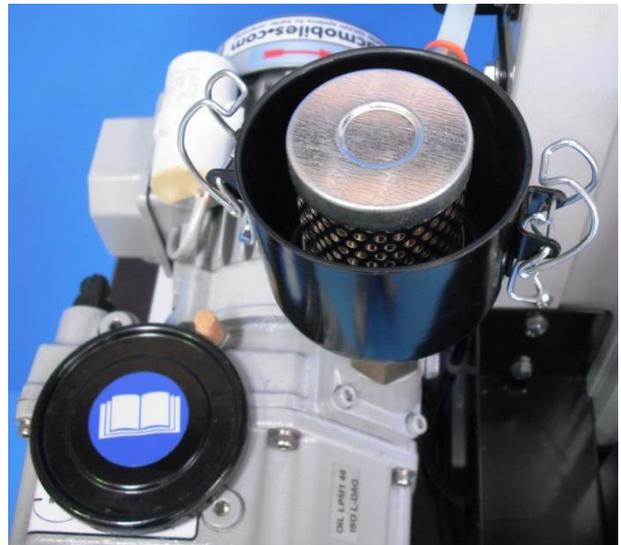


**DO NOT POKE NOZZLE
INTO MOVING MOTOR FAN!**

Inspect the inlet filter element at each oil change

Unclip the filter cap and inspect the inlet filter element. Replace if badly contaminated.

Make sure that loose dust does not fall into the inlet of the pump! If badly contaminated, remove the complete filter unit before removing the filter element.



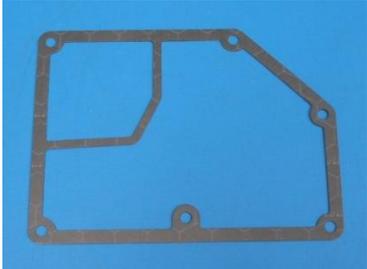
REPLACE EXHAUST OIL MIST FILTER – EVERY 2,000 HOURS, OR WHEN MOTOR OVERLOAD TRIPS

A very fine filter is fitted inside the exhaust cavity of the vacuum pump. (Position 19 on the exploded parts drawing included with the PVR pump service information). In heavy use, with insufficient oil changes, or with contamination in the incoming air stream this filter will become blocked. Blockage of the filter may show up in the following ways:

- Electric motor overload tripping out (especially on start-up)
- Oil becoming black and replacement oil discolouring rapidly.

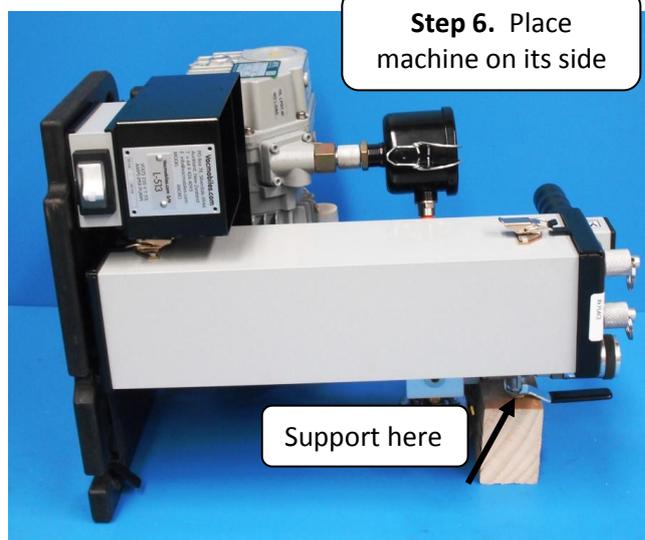
The filter should be replaced whenever these problems occur, or as routine maintenance at approximately 2,000 operating hours.

Parts required for exhaust oil mist filter change

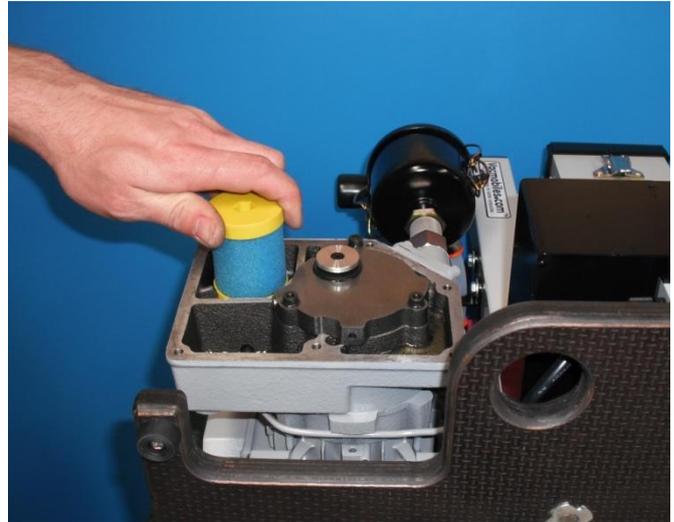
<p>The illustrated parts are required for this service.</p> <p>Also have access to the exploded parts drawing for the PVR model EM8-EM8/B pump. Refer to pump section of this manual.</p>	 <p>Exhaust oil mist filter Part PVR 004525</p>	 <p>Cover gasket Part PVR 004528</p>
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Procedure for replacing the exhaust oil mist filter (numbers in brackets from exploded parts drawing of pump)

1. If the machine is on the docking cart, remove it and place it on a convenient height workbench or table.
2. If the pump oil is dirty, first run the pump until hot - ideally about 1 hour. Stop the pump and drain the oil by removing the drain plug (#23), using a 5 mm Allen wrench.
3. To maximise oil drainage, tilt the machine by lifting the motor fan side of the base panel.
4. If the oil is very dirty, replace the drain plug loosely and run the pump briefly (less than 5 seconds). This will remove oil from the pumping chamber. After stopping the pump, remove the drain plug and drain the remaining oil. **Do not run the pump with the drain plug removed!**
5. Disconnect the pump from the power supply and flip the gauge vent lever to CLOSE.
6. Turn the machine on its side, so that the pump cover (#20) faces upwards. Support the valve stem under vacuum regulator on a block of wood or similar. See photo.
7. Barely loosen the six cap screws (#24 and #26) on the pump cover plate (#20).
8. Give the cover (#20) a sharp sideways tap with a soft faced hammer to break the paint film over the gasket which seals the cover to the exhaust box casting. This may reduce the risk of breaking the gasket (#18) when the cover plate is removed.
9. Completely remove the cap screws (#24 and #26.)



10. Remove the cover plate (#20). Try to avoid damaging the gasket, although this may be difficult. If the gasket does adhere to the metal faces, carefully scrape off any adhering gasket.
11. Unscrew the oil mist filter element by hand, or using a 10 mm AF Allen wrench.
12. Discard the old filter. (It is not cleanable.)
13. Fit a new exhaust oil mist filter (part # PVR 004525) and reverse the disassembly procedure.
14. If the cover plate gasket has been damaged, replace it with new part (PVR 004528).
15. Fill the pump with 0.225 ml (0.47 US pint) of clean oil.



The machine should now be ready for use.

Regular oil changes important

Regular oil changes will help prolong the service life of the exhaust oil mist filter. The oil should be changed whenever it is noticeably discoloured, or every 500 hours, whichever is the sooner.

Clean the gas ballast filter – annually and whenever oil mist is replaced

Mounted on top of the pump is a small external filter (#38 on the exploded parts drawing). Its purpose is to introduce a small flow of filtered air into the pump to help discharge contaminants such as water vapour and styrene vapour from the pump. In dusty atmospheres, this external filter may block. When the gas ballast filter becomes blocked the pump oil will contaminate more quickly. In most environments, the gas ballast filter should be cleaned annually. In very dusty atmospheres, more frequent cleaning may be necessary.

To clean the filter.

1. Using compressed air, first blow all loose dust from all external surfaces of the vacuum pump – including around the gas ballast filter.
2. Unscrew the gas ballast filter (#38).
3. Blow the filter clean with compressed air from the inside and check that air passes freely through the filter.
4. Replace the filter.

