

How to remove an old pump assembly and install a new pump assembly on the Badger vacuum pump.



BADGER



Procedures

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BADGER PUMP EXCHANGE

Preparation And Inspection Of Pump Exchange Kit

1. Open the Pump Exchange Kit box and check that all items are present. If any items are missing, contact RAMVAC support.

Items included with pump exchange kit:

- Replacement pump with fans
- New shaft hub
- New rubber coupling
- Spare 3/4" NPT close nipple
- Glue



2. Tools needed for pump exchange:

- 1/2" wrench
- 3/4" wrench
- 5/32" hex key
- 5/16" nut driver
- 12" Pipe wrench
- 1 3/8" wrench
(optional adjustable wrench)

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Removing Old Pump From Badger Unit

1. Remove power to the unit by turning the unit's circuit breaker switch to the off position and unplugging the unit from the facility's power supply.

IMPORTANT:

DO NOT PRESS THE "SHUTDOWN" BUTTON ON THE E1 AND PROCEED WITH THE PUMP REMOVAL. THE UNIT WILL ATTEMPT TO RESTART AND SERIOUS INJURY COULD OCCUR. THE PUMP MUST BE UNPLUGGED TO PROCEED WITH PUMP REMOVAL.



2. Using a 5/16" nut driver, loosen the top clamp on the pump intake assembly coupling.



3. Free the intake plumbing from the pump intake assembly. (If needed, the vacuum gauge hose can be removed to assist in this step.)



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4. Using a 5/16" nut driver, loosen the top clamp on the pump exhaust assembly coupling.



5. Free the facility's exhaust plumbing from the pump exhaust assembly. (*Insure that the facility's exhaust plumbing is properly supported during this step.*)



6. Using a 1/2" wrench, remove the two bolts securing the front fan guard and remove the front fan guard.



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7. Using a $\frac{3}{4}$ " wrench, remove the air filter housing from the vacuum level control valve.



8. While the pump is still bolted to the pump mounting plate use the $1\frac{3}{8}$ " wrench, or optional adjustable wrench, to loosen the pump exhaust assembly by turning the hex located on the exhaust check valve. *(This step is to assist in the replacement pump preparation steps).*



9. Using a $\frac{1}{2}$ " wrench, remove the four bolts securing the pump to the pump mounting plate.



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10. Holding the pump by the main pump body, remove the pump, intake assembly, and exhaust assembly from the unit by bringing the pump out "bottom first" as shown. *(Do not hold the pump by the fan)*



11. Remove the rubber coupling from the unit and discard.



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Preparing Replacement Pump For Installation

*** ENSURE THAT NO DEBRIS ENTERS THE PUMP'S PORTS DURING THE FOLLOWING STEPS ***

1. Using the 1 3/8" wrench, or optional adjustable wrench, remove the pump exhaust assembly from the old pump



2. Using a pipe wrench, remove the pump intake assembly from the old pump. To assist in removal, turn the old pump on its side and hold the base with one hand while loosening the pump intake assembly with the other as shown.



3. Remove the replacement pump from the packaging box. Using a 1/2" wrench, remove the replacement pump from the shipping pallet.

NOTE: (Do not discard the shipping box and pallet. It will be used to return the old pump to RAMVAC.)



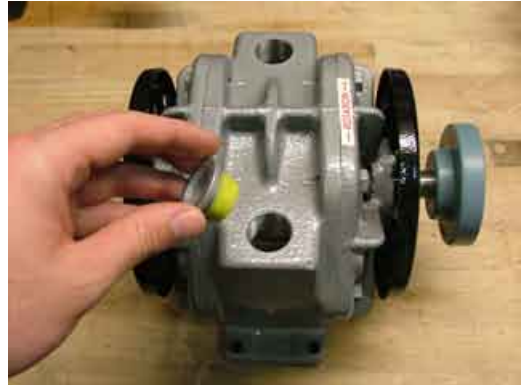
4. Ensure that the coupling hub is installed on the replacement pump shaft with approximately 1/16" distance between the end of the replacement pump shaft and the coupling hub outer face as shown.



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5. Remove the port plugs from the replacement pump.

Note: Do not discard port plugs. Immediately install them into the old pump so it is ready to return to RAMVAC.



6. Using the 12" pipe wrench, install the pump intake assembly onto the replacement pump. Tighten the pump intake assembly to a final orientation of 45 degrees relative to the front of the pump as shown.



7. Using the 1 3/8" wrench, or optional adjustable wrench, install the pump exhaust assembly onto the replacement pump. If the bottom pipe nipple was not removed with the pump exhaust assembly, an extra one is included with the pump exchange kit.



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Installing Replacement Pump Into Badger

1. Install new rubber coupling onto the coupling hub located on the motor shaft. If the rubber coupling will not remain seated in hub, a small amount of glue (included with kit) can be used to hold the rubber coupling in place. *(Avoid overusing glue on rubber coupling)*



2. Ensure the pump mounting plate is clean and clear of debris. Insert replacement pump, intake assembly, and exhaust assembly into unit top side first as shown until pump sits flat on the pump mounting plate.



3. Slide the pump forward until the pump coupling hub seats over the rubber coupling. If hub will not seat, slowly turn the pump by the front fan as shown.



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4. Once the hub is seated, check the pump mounting holes relative to the pump mounting positions on the pump mounting plate. If holes cannot be aligned or must be aligned by applying force, the pump must be removed and the pump shaft hub re-positioned. If further assistance is needed, contact RAMVAC support.

5. Using a $\frac{1}{2}$ " wrench, reinstall the 4 pump mounting bolts. Ensure that the pump remains aligned in parallel to the motor shaft while tightening the mounting bolts.



6. Turn the pump by hand using the front fan. The pump should turn freely. If any binding is detected, contact RAMVAC support.

7. Reinstall the intake plumbing into the pump intake assembly coupling and tighten the clamp using a $\frac{5}{16}$ " nut driver. *(Reinstall the vacuum gauge hose if it was removed during the old pump removal.)*



8. Reinstall the facility's exhaust plumbing into the pump exhaust assembly coupling and tighten the clamp using a $\frac{5}{16}$ " nut driver.



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9. Using a $\frac{1}{2}$ " wrench, reinstall the front fan guard with the 2 guard mounting bolts. Ensure that the guard is not touching and does not interfere with the front fan during rotation.



10. Using a $\frac{3}{4}$ " wrench, reinstall the air filter housing into the vacuum level control valve. Ensure that the intake opening of the housing is pointing down as shown when installation is complete.



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Returning Old Pump To RAMVAC

1. Reuse the shipping hardware to mount the old pump to the shipping pallet.



2. Place pallet in shipping carton and install the cardboard liner. Seal the carton.



3. Send package along with your RA number to the following address:

NOTE: (If you do not have an RA number, contact RAMVAC Customer Service.)

DentalEZ
R.O.P.E. Program
2500 Highway 31 S
Bay Minette, AL 36507

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Notes



710 Colorado Blvd
Spearfish SD 57783 USA
Web: ramvac.com

Phone: 1-800-5-RAMVAC
1-605-642-4614
Fax: 1-605-642-3776

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