



CHANGE THE OIL AFTER EVERY USE

In order to maintain a vacuum pump's efficiency, it is necessary to change the oil on a regular basis and to test the condition of the oil after each use. Isolate the pump and get a vacuum reading with the use of a micron gauge. Refer to the manufacturer's specifications to determine the pump's

TROUBLESHOOTING:

Use the following steps to get your pump back into operation and running smoothly. If you determined that pump disassembly is required, first check the warranty status. Contact your dealer before returning your pump for service. Always isolate pump and test it separately.

1. PUMP WILL NOT START.

- A.** Check power supply. Eliminate the use of long extension cords.
- B.** Check condition of power cords.
- C.** Wrong type of oil will make pump hard to run.
- D.** The built-in automatic overload protector in the motor may have overheated. Allow to cool; try again.

2. FROZEN, LOCKED OR NOISY PUMP.

- A.** An oil locked pump must be drained*. Remove exhaust dome and tethered caps from intake fittings. Turn pump upside down and drain oil out of the intake fitting and oil fill port.
- B.** If pump has been dropped or severely jarred, it can cause the rotors to jam into the stages at the contact point (the running fit is less than .001" at this point). Disassembly and readjustment by a trained service technician may be required.
- C.** Contaminated oil can cause parts to freeze together; pump head cleaning and service is required for maximum pump performance.

*Properly dispose of oil according to Local, State and Federal procedures.

factory micron rating. It is recommended that the oil be changed while it is still hot and the contaminants are still in suspension. Depending on the severity of oil contamination, several oil changes may be needed to completely purge the pump contaminants. During this process, the pump should be allowed to run approximately 15 to 30 minutes between oil changes.

3. POOR VACUUM AND/OR PUMPING SPEED.

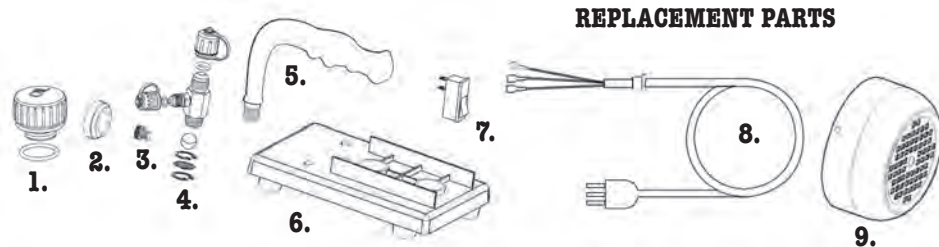
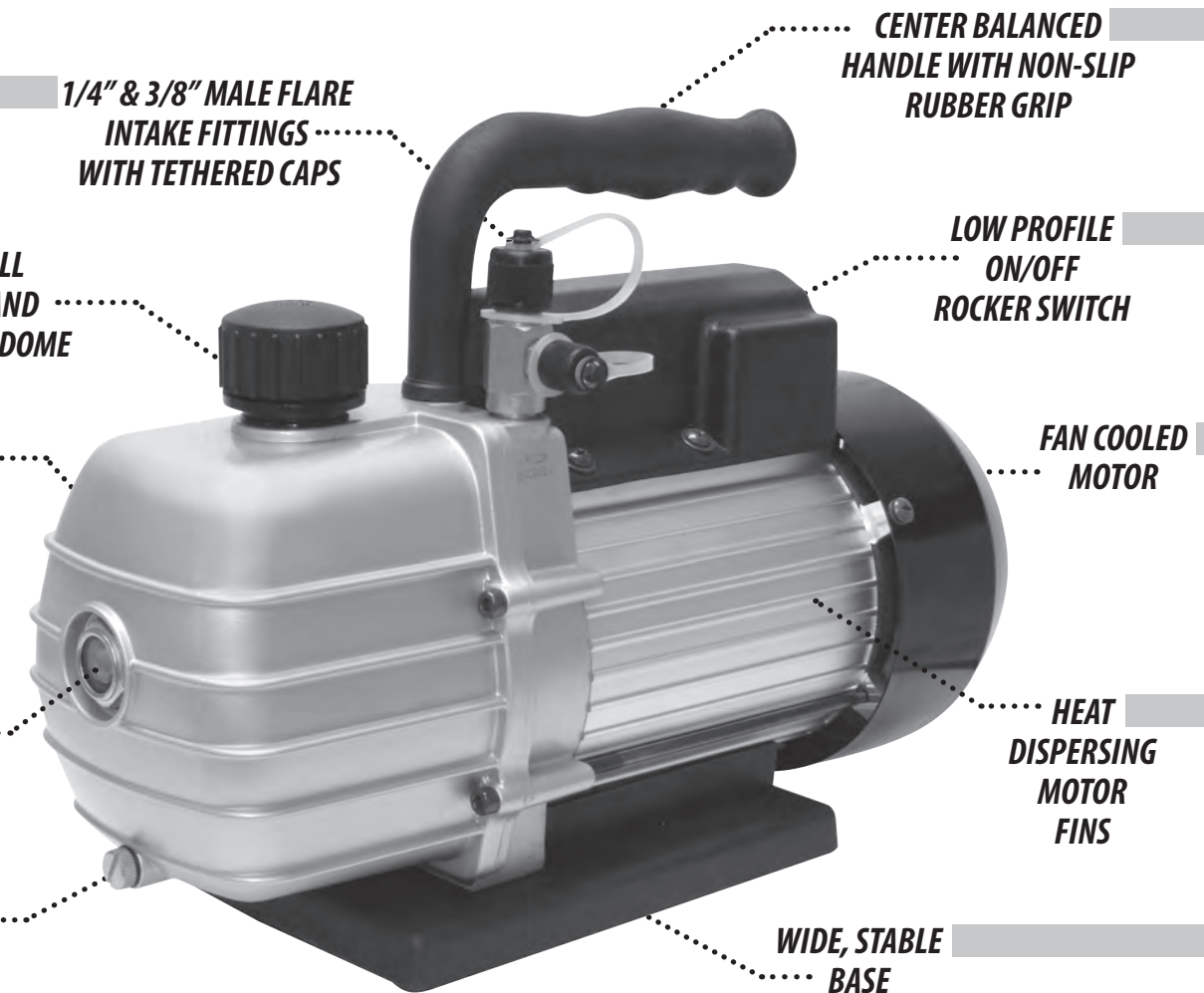
- A.** Contaminated oil: change and purge as necessary.
- B.** Check oil level.
- C.** Check manifold. Replace any worn or leaking parts.
- D.** Check power supply voltage and all lines for low voltage.
- E.** If pump has been dropped or jarred, the running fit may have been disturbed and will need to be re-established. Disassembly of the pump by a trained service technician may be required.
- F.** Isolate the pump from the system and manifold. Check it separately.

4. PUMP RUNS HOT.

- A.** When operating at full temperature, it is normal for the pump and the motor to be hot to the touch. This pump is designed to run hot so as to assist in eliminating water from the system. It can operate with oil temperatures up to 180°F within the oil reservoir. The motor runs hot by manufacturer design.
- B.** The wrong oil can result in excessive temperature and will damage the pump. Keep the oil clean and change as necessary. Only use Uniweld brand Vacuum Pump Oil.
- C.** A vacuum leak will cause the pump to remain at a moderate vacuum level and will cause it to get very hot. Your pump is designed to operate at a maximum vacuum level. Repair all leaks immediately.



5.5CFM VACUUM PUMP



REPLACEMENT PARTS

REF. PART#	DESCRIPTION
1.	42250 Exhaust Dome w/O-Ring
2.	42280 Sight Glass
3.	42282 Oil Drain Screw
4.	42281 1/4" & 3/8" Intake Fitting w/Tethered Caps, Ball, Snap Rings, Filter
5.	42284 Handle
6.	42283 Platform Base w/Rubber Feet
7.	42285 Electrical Switch Assembly
8.	42264 Cord Assembly
9.	42286 Metal Fan Cover

WARRANTY INFORMATION

This product is warranted to be free from defects in workmanship, materials and components for a period of one year from date of purchase. All parts and labor required to repair defective products covered under the warranty will be at no charge. The following restrictions apply:

1. The limited warranty applies to the original purchaser only.
2. The warranty applies to the product in normal usage, as described in the Operating Manual. The product must also be serviced and maintained as specified.
3. If the product fails, it will be repaired or replaced at the option of the manufacturer.
4. Warranty service claims are subject to authorized inspection for product defect(s).

5. The manufacturer shall not be responsible for any additional costs associated with a product failure including, but not limited to, loss of work time, loss of refrigerant, cross-contamination of refrigerant and unauthorized shipping and/or labor charges.

6. All warranty service claims must be made within the specified warranty period. Proof-of-purchase date must be supplied to the manufacturer. This limited warranty DOES NOT APPLY if:

The product, or product part, is broken by accident. The product is misused, tampered with or modified.

NOTE: Most returned pumps simply need service maintenance, such as an oil change. Please refer to the Trouble Shooting Guide in this instruction sheet for solving common problems. If it is determined that the problem cannot be resolved and must be returned to the factory, then contact your local distributor for complete warranty and shipping details.

WARNING! CALIFORNIA PROPOSITION 65

This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.



5.5CFM OPERATION AND MAINTENANCE MANUAL

5.5CFM



VACUUM PUMP OPERATION AND MAINTENANCE MANUAL

This pump has been designed and engineered to provide you with reliable service and the latest in vacuum pump technology. The following operating and maintenance instructions will get you started quickly and help keep your new pump in top operating condition.

This pump is built for deep vacuum service on Air Conditioning and Refrigeration systems using CFC, HCFC and HFC refrigerants in conjunction with mineral oil, ester oil, alkybenzene oil and PAG oil as lubricants.

⚠ WARNING! This vacuum pump is not intended for use with flammable refrigerants, ammonia or lithium bromide systems. ⚠ WARNING! When working with hazardous materials, always wear protective apparel and safety goggles.



WARNING! Your vacuum pump has been shipped without oil in the reservoir. Before starting the pump, fill it with oil. Remove the exhaust dome and fill with vacuum pump oil until oil level is slightly above the center of the sight glass. **DO NOT** underfill the pump. Replace the exhaust dome. The operating temperature of the pump and the oil must be 30°F (-1.1°C) or higher. **DO NOT** operate with defective or broken switch or cord that may cause electric shock. Normal operating temperatures will cause some of the external components of the pump to get hot to the touch. **DO NOT** touch the motor or pump housing during operation.

GETTING STARTED

Prior to plugging the pump motor into an electrical outlet or extension cord, be sure that the motor switch is in the **OFF** position. This pump is equipped with a single voltage motor (115V, 60 Hz); therefore you must determine that the outlet voltage matches the desired operating voltage. The specified operating voltage may vary, plus or minus 10%. If an extension cord or outlet with improper voltage is used, it will cause permanent damage to the motor, that is not covered by warranty.

VACUUM PUMP TO A/C&R SYSTEM HOOKUP

⚠ WARNING! Damage to pump may occur if it is hooked up to a pressurized system of refrigerant or Nitrogen. Prior to connecting your vacuum pump to an A/C & R system, remove the refrigerants in accordance with all Federal, State and Local laws. If Nitrogen has been used to pressure test a system for leaks, then proceed with safely purging and relieving the system of any pressure prior to connecting your vacuum pump.

Following normal service procedures, connect the pump to the automotive, appliance, residential or commercial system to be evacuated using a manifold and hoses (as shown in **Fig. A**). Connect the manifold service hose to the pump's intake fitting. If a micron gauge or instrument for vacuum reading is to be used, install it at this time. Connect the manifold's high and low side hoses to the system's high and low side service fittings.

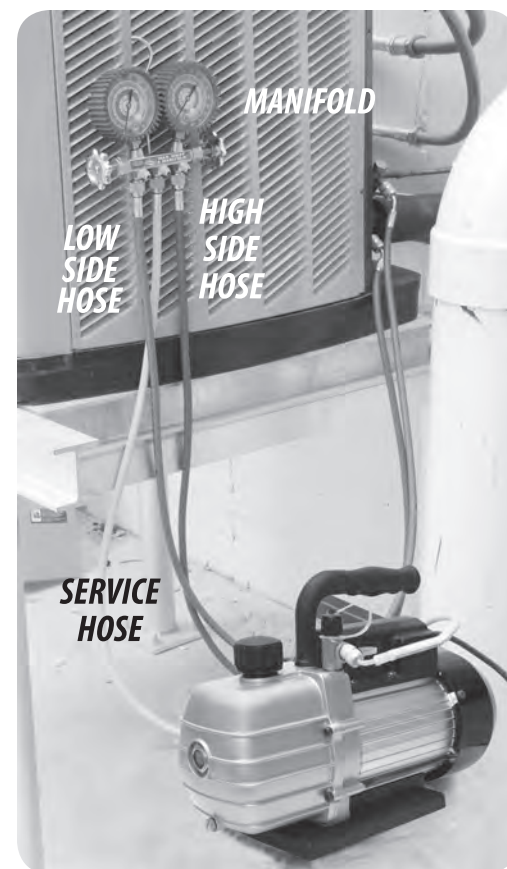


FIG. A

With the manifold valves closed, turn the pump motor ON. Once the pump is running smoothly, open the manifold valves. Run the pump for approximately 10 to 15 minutes and then check the system for leaks. **CLOSE** the manifold valves and check the vacuum gauge reading. It is common for the vacuum reading to rise slightly, however it should stabilize if the system is leak-free. A rapid loss of vacuum indicates that there is a leak in the system. The leak must be repaired and the system evacuation repeated.

When using a micron gauge and the reading is between 500 to 1000 microns, **CLOSE** the manifold valves. Wait for at least 5 minutes to allow the system pressure to equalize. Carefully monitor the micron gauge. If the reading rises rapidly to atmospheric pressure, this indicates that a leak is present. If it rises slowly to around 1500 microns or more, then moisture is still present in the system. If the micron reading is 1000 or less, then the system is properly dehydrated. After successful evacuation, **CLOSE** both manifold valves and disconnect the service hose from the vacuum pump opening to atmosphere and turn **OFF** the pump power switch. Cap the intake fitting to prevent any contamination or particles from entering the pump.



EVACUATING AND DEHYDRATING A SYSTEM

The purpose of a vacuum pump is to remove the air (non-condensable gases) and moisture that's left inside an A/C&R System during installation and service. If non-condensable gases remain in the system, they will cause high head pressure and hotter operating temperatures that can affect system efficiency.

Moisture is the number one enemy of the service technician.

Moisture can form as ice crystals, restricting flow, that may affect equipment efficiency. More importantly, moisture mixed with refrigerants can produce corrosive acids that attack metallic surfaces and will ultimately cause premature compressor failure.

This vacuum pump **removes moisture** by reducing the system pressure and lowering the boiling point of water. This causes the moisture in the system to boil and be removed by the pump through a dehydration process. Measuring the vacuum can determine when all the moisture has been removed from the system. A vacuum can be measured in inches of Hg and Microns. There are various instruments used to measure vacuum, such as a micron gauge. Keep in mind that it is the vacuum and its relationship to the boiling point of water that we are trying to measure. For example, if the ambient temperature is 86°F, a vacuum reading of 31,750 Microns is required before the moisture in the system will begin to boil and the dehydration process can begin. Please refer to **Table "A"** to determine the relationship between pressure, vacuum and the boiling point of water. In most applications, a system is considered dehydrated at 1000 microns or lower and deep vacuum is reached at 500 microns. It should be noted that compressor oil vaporizes at approximately 250 microns and evacuating a system beyond 250 microns is considered impractical.

TABLE "A"

Boiling Point of Water at Various Vacuum Levels

Boiling Point of Water °F	Vacuum Inches of Hg	Vacuum Microns	Vacuum PSI
212	0.00	759,968	14.696
194	9.23	525,526	10.162
158	20.72	233,680	4.519
122	26.28	92,456	1.788
86	28.67	31,750	.614
76	29.02	22,860	.442
69	29.22	17,780	.344
59	29.42	12,700	.246
45	29.62	7,620	.147
32	29.74	4,572	.088
21	29.82	2,540	.049
6	29.87	1,270	.0245
-24	29.91	254	.0049
-35	29.915	127	.00245
-60	29.919	25.4	.00049
-70	29.9195	12.7	.00024