

# U.S. GENERAL®

## VACUUM PUMP

### 2 STAGE - 3CFM

### Model 66466

#### SET UP AND OPERATING INSTRUCTIONS



#### **⚠ WARNING**

**To prevent explosion, serious injury, and death:**

- \* Service of air conditioning systems must be done only by trained and experienced technician to avoid overfilling.
- \* Technicians opening refrigeration circuit in automotive air conditioning systems MUST be certified in refrigerant recovery and recycling procedures in compliance with section 609 of Clean Air Act Amendments of 1990.
- \* For additional information regarding ozone depletion and air conditioning service regulations, visit EPA's website:

[www.epa.gov/ozone](http://www.epa.gov/ozone)

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3491 Mission Oaks Blvd., Camarillo, CA 93011

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**Read this material before using this product.  
Failure to do so can result in serious injury.  
SAVE THIS MANUAL.**

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**For technical questions or replacement parts, please call 1-800-444-3353.**

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## SAVE THIS MANUAL

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Keep this manual for the safety warnings and precautions, assembly, operating, inspection, maintenance and cleaning procedures. Write the product's serial number in the back of the manual (or month and year of purchase if product has no number). Keep this manual and the receipt in a safe and dry place for future reference.

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## IMPORTANT SAFETY INFORMATION

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In this manual, on the labeling, and all other information provided with this product:



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

### **DANGER**

**DANGER** indicates a hazardous situation which, if not avoided, will result in death or serious injury.

### **WARNING**

**WARNING** indicates a hazardous situation which, if not avoided, could result in death or serious injury.

### **CAUTION**

**CAUTION**, used with the safety alert symbol, indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

### **NOTICE**

**NOTICE** is used to address practices not related to personal injury.

### **CAUTION**

**CAUTION**, without the safety alert symbol, is used to address practices not related to personal injury.

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## General Power Tool Safety Warnings



**WARNING** Read all safety warnings and instructions. Failure to follow the warnings and instructions may result in electric shock, fire and/or serious injury. Save all warnings and instructions for future reference. The term "power tool" in the warnings refers to your (corded) pneumatic power tool.

1. **Work area safety**
  - a. **Keep work area clean and well lit.** Cluttered or dark areas invite accidents.
  - b. **NEVER use this Vacuum Pump to vent refrigerants into the air.** It is illegal to do so, harmful to the environment, and poses a serious health risk.
  - c. **Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases or dust.** Power tools create sparks which may ignite the dust or fumes.
  - d. **Keep children and bystanders away while operating a power tool.** Distractions can cause you to lose control.

## 2. Electrical safety

- a. **Power tool plugs must match the outlet. Never modify the plug in any way. Do not use any adapter plugs with grounded power tools. Unmodified plugs and matching outlets will reduce risk of electric shock. NOTE: This Vacuum Pump has a 3-prong grounded plug.**
- b. **Do not expose this Vacuum Pump to rain or wet conditions. Use in dry locations only.**
- c. **Do not abuse the cord. Never use the cord for carrying, pulling or unplugging the power tool. Keep cord away from heat, oil, sharp edges or moving parts. Damaged or entangled cords increase the risk of electric shock.**
- d. **When operating this Vacuum Pump outdoors, use an extension cord suitable for outdoor use. Use of a cord suitable for outdoor use reduces the risk of electric shock.**

## 3. Personal safety

- a. **Stay alert, watch what you are doing and use common sense when operating this Vacuum Pump. Do not use a power tool while you are tired or under the influence of drugs, alcohol or medication. A moment of inattention while operating power tools may result in serious personal injury.**
- b. **Use personal protective equipment. Always wear ANSI-approved eye protection. Safety equipment such as dust mask, non-skid safety shoes, hard hat, or hearing protection used for appropriate conditions will reduce personal injuries.**

## 4. Power tool use and care

- a. **Do not use this Vacuum Pump if the switch does not turn it on and off. Any tool that cannot be controlled with the switch is dangerous and must be repaired.**
- b. **Disconnect the plug from the power source before storing the power tool. Such preventive safety measures reduce the risk of starting the Vacuum Pump accidentally.**
- c. **Store idle power tools out of the reach of children and do not allow persons unfamiliar with this Vacuum Pump or these instructions to operate. Power tools are dangerous in the hands of untrained users.**
- d. **Maintain power tools. Check for any condition that may affect the Vacuum Pump's operation. If damaged, have it repaired before use. Many accidents are caused by poorly maintained power tools.**
- e. **Use the Vacuum Pump in accordance with these instructions, taking into account the working conditions and the work to be performed. Use of this Vacuum Pump for operations different from those intended could result in a hazardous situation.**
- f. **Have your Vacuum Pump serviced by a qualified repair person. This will ensure the safety of the Pump is maintained.**

### Specific Safety Warnings

1. Avoid overfilling. Do not service air conditioning systems improperly.
2. Read this entire manual before set up and/or use.

3. Wear ANSI-approved safety goggles during set up and/or use.
4. Certification is required by law for technicians opening refrigeration circuit.
5. Use in dry locations only.
6. Do not cover this unit. This Vacuum Pump gets very hot when in use. Do not use near combustibles and allow the unit to cool down completely after using, and/or before moving or storage.
7. Maintain labels and nameplates on the tool. These carry important safety information. If unreadable or missing, contact Harbor Freight Tools for a replacement.
8. Do not leave this Vacuum Pump unattended when it is plugged into an electrical outlet. Turn off the Pump and unplug it from its electrical outlet before leaving.
9. This product is not a toy. Keep it out of reach of children.
10. People with pacemakers should consult their physician(s) before use. Electromagnetic fields in close proximity to heart pacemaker could cause pacemaker interference or pacemaker failure. In addition, people with pacemakers should:
  - Avoid operating alone.
  - Do not use with power switch locked on.
  - Properly maintain and inspect to avoid electrical shock.
  - Any power cord must be properly grounded. Ground Fault Circuit Interrupter (GFCI) should also be implemented – it prevents sustained electrical shock.
11. **WARNING:** The brass components of this product contain lead, a chemical known to the State of California to cause birth defects (or other reproductive harm). (California Health & Safety Code § 25249.5, *et seq.*)
12. **WARNING:** Handling the cord on this product will expose you to lead, a chemical known to the State of California to cause cancer, and birth defects or other reproductive harm. Wash hands after handling. (California Health & Safety Code § 25249.5, *et seq.*)
13. The warnings, precautions, and instructions discussed in this instruction manual cannot cover all possible conditions and situations that may occur. It must be understood by the operator that common sense and caution are factors which cannot be built into this product, but must be supplied by the operator.



**SAVE THESE INSTRUCTIONS.**

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## GROUNDING

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### **⚠️ WARNING** TO PREVENT ELECTRIC SHOCK

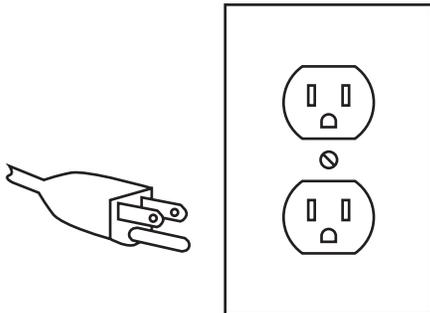


#### AND DEATH FROM INCORRECT GROUNDING WIRE CONNECTION:

Check with a qualified electrician if you are in doubt as to whether the outlet is properly grounded. Do not modify the power cord plug provided with the tool. Never remove the grounding prong from the plug. Do not use the tool if the power cord or plug is damaged. If damaged, have it repaired by a service facility before use. If the plug will not fit the outlet, have a proper outlet installed by a qualified electrician.

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### Grounded Tools: Tools with Three Prong Plugs



**3-Prong Plug and Outlet**

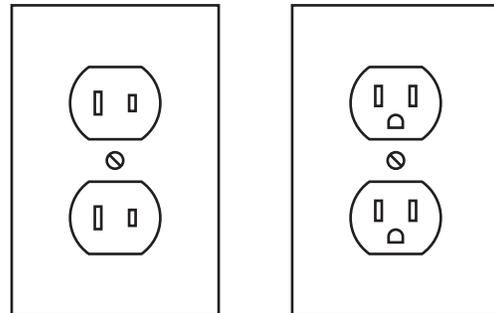
1. Tools marked with “Grounding Required” have a three wire cord and three prong grounding plug. The plug must be connected to a properly grounded outlet. If the tool should electrically malfunction or break down, grounding provides a low resistance path to carry electricity away from the user, reducing the risk

of electric shock. (See **3-Prong Plug and Outlet.**)

2. The grounding prong in the plug is connected through the green wire inside the cord to the grounding system in the tool. The green wire in the cord must be the only wire connected to the tool’s grounding system and must never be attached to an electrically “live” terminal. (See **3-Prong Plug and Outlet.**)
3. The tool must be plugged into an appropriate outlet, properly installed and grounded in accordance with all codes and ordinances. The plug and outlet should look like those in the preceding illustration. (See **3-Prong Plug and Outlet.**)

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### Double Insulated Tools: Tools with Two Prong Plugs



**Outlets for 2-Prong Plug**

1. Tools marked “Double Insulated” do not require grounding. They have a special double insulation system which satisfies OSHA requirements and complies with the applicable standards of Underwriters Laboratories, Inc., the Canadian Standard Association, and the National Electrical Code. (See **Outlets for 2-Prong Plug.**)

- Double insulated tools may be used in either of the 120 volt outlets shown in the preceding illustration. **(See Outlets for 2-Prong Plug.)**

### Extension Cords

- Grounded tools require a three wire extension cord. **Double Insulated** tools can use either a two or three wire extension cord.
- As the distance from the supply outlet increases, you must use a heavier gauge extension cord. Using extension cords with inadequately sized wire causes a serious drop in voltage, resulting in loss of power and possible tool damage. **(See Table A.)**
- The smaller the gauge number of the wire, the greater the capacity of the cord. For example, a 14 gauge cord can carry a higher current than a 16 gauge cord. **(See Table A.)**
- When using more than one extension cord to make up the total length, make sure each cord contains at least the minimum wire size required. **(See Table A.)**
- If you are using one extension cord for more than one tool, add the nameplate amperes and use the sum to determine the required minimum cord size. **(See Table A.)**
- If you are using an extension cord outdoors, make sure it is marked with the suffix "W-A" ("W" in Canada) to indicate it is acceptable for outdoor use.
- Make sure the extension cord is properly wired and in good electrical con-

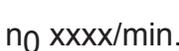
dition. Always replace a damaged extension cord or have it repaired by a qualified electrician before using it.

- Protect the extension cords from sharp objects, excessive heat, and damp or wet areas.

<b>RECOMMENDED MINIMUM WIRE GAUGE FOR EXTENSION CORDS* (120/240 VOLT)</b>					
<b>NAMEPLATE AMPERES (at full load)</b>	<b>EXTENSION CORD LENGTH</b>				
	<b>25'</b>	<b>50'</b>	<b>75'</b>	<b>100'</b>	<b>150'</b>
0 – 2.0	18	18	18	18	16
2.1 – 3.4	18	18	18	16	14
3.5 – 5.0	18	18	16	14	12
5.1 – 7.0	18	16	14	12	12
7.1 – 12.0	18	14	12	10	-
12.1 – 16.0	14	12	10	-	-
16.1 – 20.0	12	10	-	-	-

**TABLE A** \* Based on limiting the line voltage drop to five volts at 150% of the rated amperes.

### Symbology

	Double Insulated
	Canadian Standards Association
	Underwriters Laboratories, Inc.
	Volts Alternating Current
	Amperes
	No Load Revolutions per Minute (RPM)

## SPECIFICATIONS

Electrical Requirements	120 V~ / 60 Hz Power Plug: 3-Prong, Grounded Motor: Rotary Vane, 1/3 HP, 2-Stage
Free Air Displacement	3 CFM
Intake Port	1/4" SAE & 1/2" Acme
Discharge Port	1/2"
Service	R134A & R12/R22 Systems
Ultimate Vacuum	25 Microns 3 Pa (8.86 x 10 <sup>-4</sup> in Hg)
Oil Capacity	10 Ounces (300 ML)

## UNPACKING

When unpacking, check to make sure that the item is intact and undamaged. If any parts are missing or broken, please call Harbor Freight Tools at the number shown on the cover of this manual as soon as possible.

## INSTRUCTIONS FOR PUTTING INTO USE



Read the **ENTIRE IMPORTANT SAFETY INFORMATION** section at the beginning of this manual including all text under subheadings therein before set up or use of this product.



### **TO PREVENT SERIOUS INJURY**

#### **FROM ACCIDENTAL OPERATION:**

Turn the Power Switch (9) of the Vacuum Pump to its "OFF" position and unplug the Pump from its electrical outlet before assembling or making any adjustments to the tool.

**Note:** For additional information regarding the parts listed in the following pages, refer to the Assembly Diagram near the end of this manual.

## Functions

1. This Vacuum Pump is designed for pumping gas from sealed containers such as; refrigerators, medical appliances, printing machinery, vacuum packing, and many different types of high-vacuum equipment.

## OPERATING INSTRUCTIONS



### **TO PREVENT SERIOUS INJURY**

#### **FROM ACCIDENTAL OPERATION:**

Turn the Power Switch (9) of the Vacuum Pump to its "OFF" position and unplug the tool from its electrical outlet before performing any inspection, maintenance, or cleaning procedures.

## Work Piece and Work Area Set Up

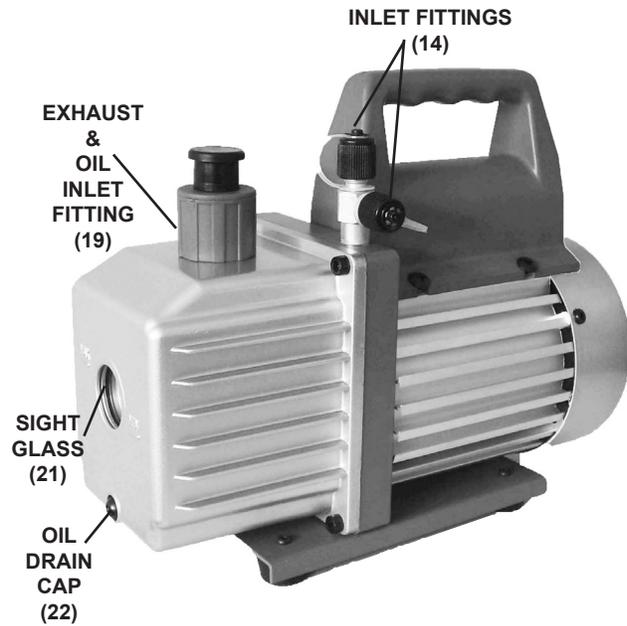
1. Designate a work area that is clean and well-lit. The work area must not allow access by children or pets to prevent injury and distraction.
2. Route the Power Cord (8) along a safe route to reach the work area without creating a tripping hazard or exposing the Power Cord to possible damage. The Power Cord must reach the work area with enough extra length to allow free movement while working.

## General Operating Instructions

1. **IMPORTANT:** It is unlawful and hazardous to discharge refrigerants into the atmosphere. Before beginning work with this Vacuum Pump, safely capture refrigerants using an approved refrigerant recovery system (not included) and dispose of them properly. Contact the EPA (Environmental Protection Agency) for important certification regulations and other regulations that apply.  
**(See front cover of this manual.)**

2. Before operating the Vacuum Pump, always check the oil level through the Sight Glass (21). If necessary, add a low viscosity vacuum pump oil through the Exhaust & Oil Inlet Fitting (19) before each use of the Vacuum Pump. To do so:

- Check the oil level by placing the Vacuum Pump on a flat, level surface. Observe the Sight Glass (21) located on the end of the Pump. The oil should be at the fill line on the Pump Cover. If oil is needed, unscrew the Exhaust & Oil Inlet Fitting (19) and add oil through the hole under the fitting. Use a low viscosity vacuum pump oil (i.e., HFV-46). **(See Figure A.)**
- Replace the Exhaust & Oil Inlet Fitting (19) and tighten securely to prevent oil from escaping under pressure during use. Inspect the sealing “O” Rings each time the Exhaust & Oil Inlet Fitting is removed. Look for possible tears, cracks, or damage. Replace if needed.  
**(See Figure A.)**



3. Use only one of the “L” shaped brass Inlet Fittings (14) at a time. Keep the other Fitting capped while not in use.  
**(See Figure A.)**
4. Turn the vehicle/appliance and AC system OFF.
5. Attach the shop AC refrigerant recovery system. Then drain the refrigerant.
6. After reaching 26 to 28 in/hg vacuum, stop and disconnect the recovery system.
7. Attach this Vacuum Pump and run for 10 minutes to further raise the vacuum level inside the AC system.
8. As appropriate, attach the R-12, R-22, or R-134A manifold to the AC drain port of the vehicle/appliance. This is a “quick release” fitting. The drain port is generally the lower of the two manifold ports and will be located downstream from the compressor in the vehicle/appliance. Refer to the vehicle/appliance owner’s manual for

vehicle-specific information. Make sure to tightly cap the unused port.

9. Turn on the Vacuum Pump, using the Power Switch (9).
10. The vacuum will build for approximately 2 minutes before reaching full power. Allow the Pump to draw vacuum on the system for approximately 10 minutes to thoroughly remove all moisture and any gas from the system.
11. The Gauge (not included) should show negative pressure and maintain that reading for 10 minutes. If, during that time the pressure reading rises back toward “0”, there may be a leak in the system.
12. Turn the Vacuum Pump OFF with the Power Switch (9) before disconnecting the hose from the vacuum fitting.
13. To prevent accidents, turn off the tool and disconnect its Power Cord from the electrical outlet after use.
14. Allow the Vacuum Pump to completely cool before wiping down and storing indoors out of children’s reach.
15. NOTE: The operational process is the same for both vehicle and/or other refrigeration systems.

## **⚠️ WARNING**

### **TO PREVENT SERIOUS INJURY**

#### **FROM ACCIDENTAL OPERATION:**

**Turn the Power Switch (9) of the Vacuum Pump to its “OFF” position and unplug the tool from its electrical outlet before performing any inspection, maintenance, or cleaning procedures.**

#### **TO PREVENT SERIOUS INJURY FROM TOOL FAILURE:**

**Do not use damaged equipment. If abnormal noise or vibration occurs, have the problem corrected before further use.**

### **Cleaning, Maintenance, and Lubrication**

1. BEFORE EACH USE, inspect the general condition of the tool. Check for loose screws, misalignment or binding of moving parts, cracked or broken parts, damaged electrical wiring, and any other condition that may affect its safe operation.

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## **MAINTENANCE AND SERVICING**

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**Procedures not specifically explained in this manual must be performed only by a qualified technician.**

2. AFTER USE, clean external surfaces of the tool with clean cloth.
3. **⚠WARNING!** If the supply cord of this power tool is damaged, it must be replaced only by a qualified service technician.

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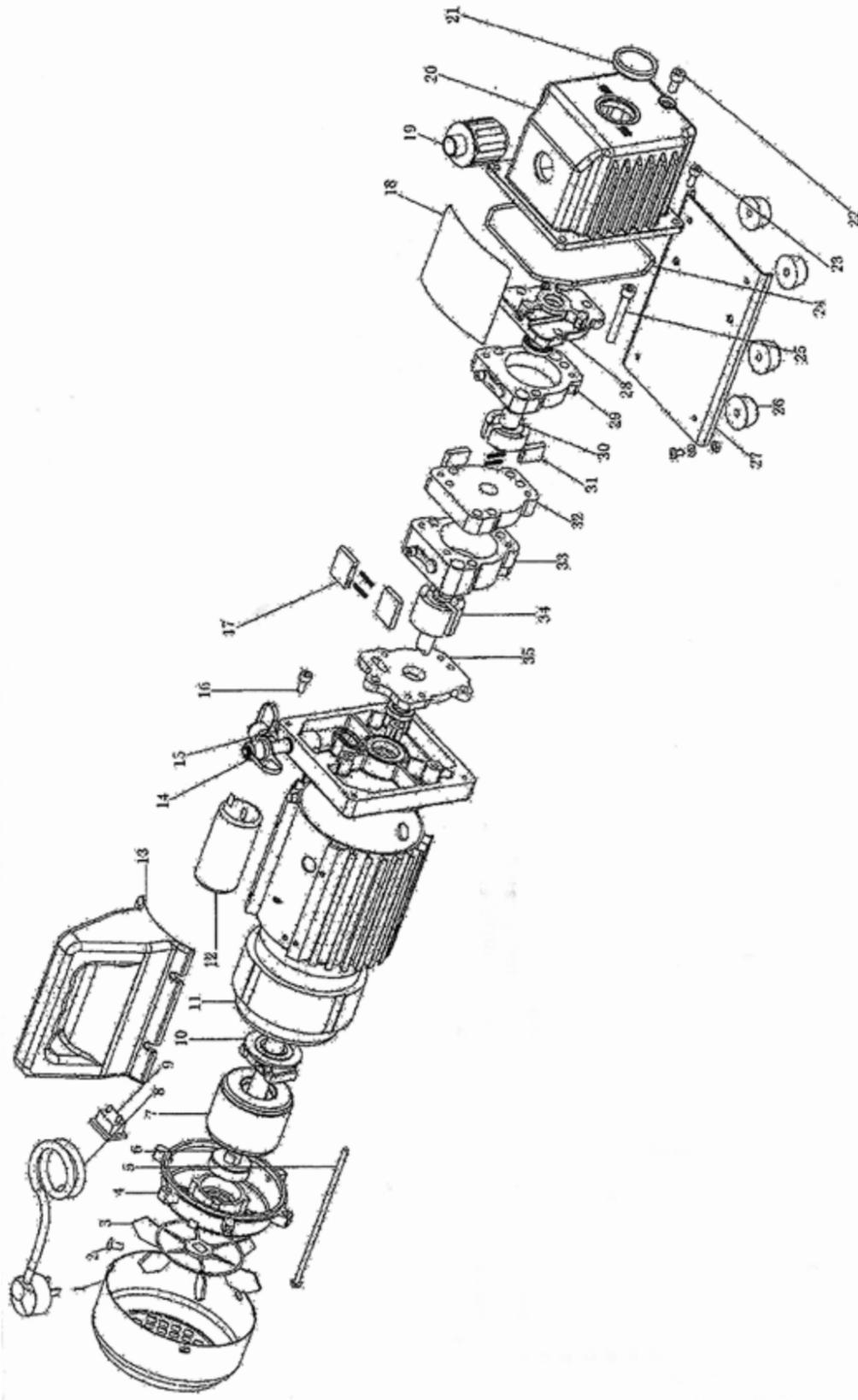
**PLEASE READ THE  
FOLLOWING CAREFULLY**

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THE MANUFACTURER AND/OR DISTRIBUTOR HAS PROVIDED THE PARTS LIST AND ASSEMBLY DIAGRAM IN THIS MANUAL AS A REFERENCE TOOL ONLY. NEITHER THE MANUFACTURER OR DISTRIBUTOR MAKES ANY REPRESENTATION OR WARRANTY OF ANY KIND TO THE BUYER THAT HE OR SHE IS QUALIFIED TO MAKE ANY REPAIRS TO THE PRODUCT, OR THAT HE OR SHE IS QUALIFIED TO REPLACE ANY PARTS OF THE PRODUCT. IN FACT, THE MANUFACTURER AND/OR DISTRIBUTOR EXPRESSLY STATES THAT ALL REPAIRS AND PARTS REPLACEMENTS SHOULD BE UNDERTAKEN BY CERTIFIED AND LICENSED TECHNICIANS, AND NOT BY THE BUYER. THE BUYER ASSUMES ALL RISK AND LIABILITY ARISING OUT OF HIS OR HER REPAIRS TO THE ORIGINAL PRODUCT OR REPLACEMENT PARTS THERETO, OR ARISING OUT OF HIS OR HER INSTALLATION OF REPLACEMENT PARTS THERETO.

<b>PARTS LIST</b>	
<b>Part #</b>	<b>Description</b>
1	Fan Cover
2	Cross Screw
3	Fan
4	Motor Cover
5	Cross Screw
6	Bearing
7	Motor Rotor
8	Power Cord
9	Power Switch
10	Centrifugal Switch
11	Motor Stator
12	Capacitor
13	Handle
14	Inlet Fittings
15	Trestle
16	Screw
17	Rotary Vane (Front)
18	Cap Board
19	Exhaust & Oil Inlet Fitting
20	Die Cast Aluminum Housing
21	Sight Glass
22	Oil Drain Cap
23	Screw
24	Seal
25	Screw
26	Rubber Foot
27	Base
28	Pump Cover (Back)
29	Pump Body (Back)
30	Pump Rotor (Back)
31	Rotary Vane (Back)
32	Middle Fence
33	Pump Body (Front)
34	Pump Rotor (Front)
35	Front Cover

# ASSEMBLY DIAGRAM



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## LIMITED 90 DAY WARRANTY

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Harbor Freight Tools Co. makes every effort to assure that its products meet high quality and durability standards, and warrants to the original purchaser that this product is free from defects in materials and workmanship for the period of 90 days from the date of purchase. This warranty does not apply to damage due directly or indirectly, to misuse, abuse, negligence or accidents, repairs or alterations outside our facilities, criminal activity, improper installation, normal wear and tear, or to lack of maintenance. We shall in no event be liable for death, injuries to persons or property, or for incidental, contingent, special or consequential damages arising from the use of our product. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation of exclusion may not apply to you. THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS.

To take advantage of this warranty, the product or part must be returned to us with transportation charges prepaid. Proof of purchase date and an explanation of the complaint must accompany the merchandise. If our inspection verifies the defect, we will either repair or replace the product at our election or we may elect to refund the purchase price if we cannot readily and quickly provide you with a replacement. We will return repaired products at our expense, but if we determine there is no defect, or that the defect resulted from causes not within the scope of our warranty, then you must bear the cost of returning the product.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

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**Record Product's Serial Number Here:** \_\_\_\_\_

**Note:** If product has no serial number, record month and year of purchase instead.

**Note:** Some parts are listed and shown for illustration purposes only, and are not available individually as replacement parts.