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VACUUM PUMP MANIFOLD GAUGE SET

OPERATING MANUAL

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VACUUM PUMP MANIFOLD GAUGE SET

PUMP MODEL: KQ-1K

NEED HELP? CONTACT US!

Have product questions? Need technical support? Please feel free to contact us:

CustomerService@vevor.com

This is the original instruction, please read all manual instructions carefully before operating. VEVOR reserves a clear interpretation of our user manual. The appearance of the product shall be subject to the product you received. Please forgive us that we won't inform you again if there are any technology or software updates on our product.

This product is subject to the provision of European Directive 2012/19/EU. The symbol showing a wheelie bin crossed through indicates that the product requires separate refuse collection in the European Union. This applies to the product and all accessories marked with this symbol. Products marked as such may not be discarded with normal domestic waste but must be taken to a collection point for recycling electrical and electronic devices.

INTRODUCTION

Welcome to the user manual for your Vacuum Pump and Gauge Kit, designed to assist you in maintaining your AC system. This tool kit includes a vacuum pump, vacuum gauge, hoses, and adapters and is essential for vacuuming and recharging the refrigerant in your AC system.

This user manual has been developed to provide you with comprehensive guidance on how to use the tool kit. We will explain the key features and components of the kit, as well as provide important safety guidelines to help you avoid potential risks or damage during maintenance.

Please note that this is a basic user guide for AC maintenance scenarios. We recommend that you familiarize yourself with the operation of AC maintenance and have sufficient knowledge to avoid damage or injury.

By following the instructions and guidelines in this user manual, you can ensure the safe and effective use of your vacuum pump kit and maintain or repair your AC system to guarantee optimal performance.

SAFETY PRECAUTIONS

Please note that while this user manual provides important warnings, precautions, and instructions for using the vacuum pump and gauge kit, it cannot anticipate every possible situation or condition that may arise during use. It is important for the operator to exercise good judgment, common sense, and caution while handling the product. These factors cannot be built into the product but must be supplied by the operator.

Safety guidelines for handling your vacuum pump

- To ensure the safe and proper use of this kit, it is important to note that it is designed only for vacuuming air or small amounts of residual refrigerant. It should not be used to remove refrigerant directly from an AC system.
- If refrigerant recovery is required, a recovery machine is strongly recommended. Using a vacuum pump and recovery tank to recover refrigerant without a recovery machine should only be operated by a trained and certificated AC technician.
- Electrical shock hazard: Do not touch the vacuum pump with wet hands or while standing on a wet surface. Always use the vacuum pump in a dry environment and plug it into a properly grounded outlet.
- Fire hazard: Do not use the vacuum pump near flammable or combustible materials. Keep the pump away from sources of heat or sparks, such as flames, cigarettes, or electrical appliances.
- Explosion hazard: Do not use the vacuum pump with gases that are flammable, explosive, or poisonous. Always check the safety data sheet (SDS) of the gas before using it with the vacuum pump. Additionally, do not exceed the specified pressure range for the pump.
- Corrosion hazard: Do not use the vacuum pump with gases that can corrode metals or exert chemical charges. Check the compatibility of the gas with the materials of the pump and its accessories. Always use protective gloves and eyewear when handling corrosive materials.
- Never operate the pump without oil, as this can damage the pump and

create potential hazards.

- The temperature of the pumped gas should not exceed 80°C, and the environment temperature should be around 5°C to 60°C. This will help prevent damage to the pump and ensure safe operation.
- When unplugging the pump, always pull the plug. Do not unplug the unit by pulling on the wire, as this can cause damage to the cord and create potential hazards.
- Do not use a damaged plug or outlet, as this can cause electrical shock or fire.

Safety guidelines for handling the gauge set

- Wear appropriate personal protective equipment (PPE), such as safety glasses and gloves, when using the gauge set. This is especially important when handling refrigerant, which can cause skin and eye irritation and can be harmful if inhaled.
- Ensure that the gauge set is properly connected and secured before use. Loose connections can lead to leaks, which can cause the refrigerant to escape into the environment and create a hazardous situation.
- Always use the gauge set in a well-ventilated area. This is important to avoid the buildup of refrigerant vapors, which can displace oxygen and create a suffocation hazard. If you feel dizzy or lightheaded while using the gauge set, move to a well-ventilated area immediately.
- Do not exceed the maximum pressure rating of the gauge set and hoses. This information should be clearly labeled on the gauge itself or in the user manual. Exceeding the maximum pressure rating can cause the gauge to malfunction or even rupture, leading to potential hazards.
- Service hoses can not withstand high temperatures or severe mechanical stress. Keep the service hoses away from moving or hot engine parts. Service hoses can split or burst, causing injury.
- Never use the gauge set for purposes other than those specified in the manual. Using the gauge set for other applications can result in damage to the equipment, potential injury, or other hazards.

GETTING STARTED

Introducing the vacuum pump and gauge set series

The product series includes 4 SKUs, with each vacuum pump and gauge set designed for different user scenarios and intended purposes based on the explosion-proof performance of the pump and accessories.

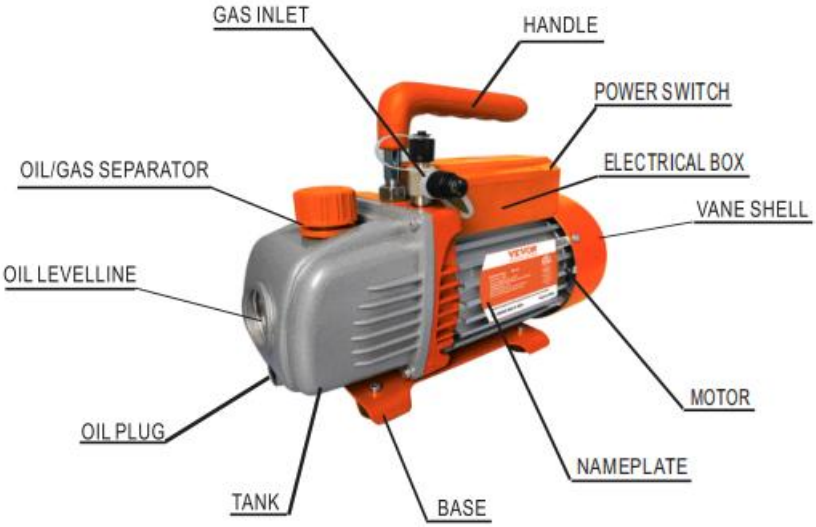
SKU1: 3.5 CFM Kit for AC is designed for maintaining most home/vehicle AC or refrigerant systems using A1 refrigerant. However, it should not be used for maintaining AC systems with R32, R1234yf, or other A2L or above-level refrigerants.

SKU2: 4 CFM Kit for new AC is designed for maintaining most AC or refrigerant systems, and due to its spark-less design, it can also be used to maintain AC systems with R32, R1234yf (quick connect adapter not included), or other A2L level refrigerants, as well as all A1 level refrigerant systems.

SKU3: 4 CFM Kit for AC with leak detector is designed for maintaining most AC or refrigerant systems using A1 refrigerant and includes a leak detector to help the operator find the leak point of the system.

SKU4: 3.5 CFM Kit for new vehicle AC is designed for maintaining most home/vehicle AC or refrigerant systems using A1 refrigerant, as well as systems using A2L refrigerant due to its spark-less design. It comes with R134a quick connectors and R1234yf adapters to make it applicable for both old and newly manufactured vehicles.

Explanation of the vacuum pump's components and specification



Model		KQ-1K		KQ-1.5K		KQ-1K		KQ-1.5K	
Voltage		120V/60Hz	220-240V/50Hz	120V/60Hz	220-240V/50Hz	120V/60Hz	220-240V/50Hz	120V/60Hz	220-240V/50Hz
Free Air Displacement	CFM	3.5	3.5	4	4	3.5	3.5	4	4
Ultimate Vacuum	Pa	8	8	8	8	8	8	8	8
Motor	HP	1/5	1/5	1/4	1/4	1/5	1/5	1/4	1/4
Intake Fitting		1/4"SAE male; 1/2"ACME male;	1/4"SAE male;	1/4"SAE male; 1/2"ACME male;	1/4"SAE male;	1/4"SAE male; 1/2"ACME male;	1/4"SAE male;	1/4"SAE male; 1/2"ACME male;	1/4"SAE male;
Oil Capacity	ml	250	250	200	200	250	250	200	200
Dimensions	mm	290*120*220	290*120*220	305*110*220	305*110*220	290*120*220	290*120*220	305*110*220	305*110*220
Net Weight	Kg	5.5	5.4	5.8	5.8	5.5	5.4	5.8	5.8
Applicable Refrigerant		R134a, R22, R410A and any other A1 refrigerants				R32, R1234yf, R134a, R22, R410A, and any other A1 or A2L refrigerants			

Vacuum pump manifold gauge set package contents

Package Content List

Set Name	3.5 CFM Kit for AC	4 CFM Kit for new AC	4 CFM Kit for AC	3.5 CFM Kit for new vehicle AC
Packing List	3.5CFM Vacuum Pumpx1 Manifold Gaugex1 Charging Hosex3 R410A Adapter x2 R134a Cap Lifterx1 Bagx1 R134a Quick Couplers（High And Low Pressure）x1 Vacuum Pump Oilx1 Manualx1	4CFM Vacuum Pumpx1 Manifold Gaugex1 Charging Hosex3 R410A Adapterx2 R134a Cap Lifterx1 Bagx1 R134a Quick Couplers（High And Low Pressure）x1 Vacuum Pump Oilx1 Manualx1	4CFM Vacuum Pumpx1 Manifold Gaugex1 Charging Hosex3 R410A Adapter x2 R134a Cap Lifterx1 R134a Quick Couplers（High And Low Pressure）x1 Bagx1 Leak Detectorx1 Vacuum Pump Oilx1 Manualx1	3.5CFM Vacuum Pumpx1 Manifold Gaugex1 Charging Hosex3 R410A Adapter x2 R134a Cap Lifterx1 R134a Quick Couplers（High And Low Pressure）x1 R1234yf Cap Lifterx1 Bagx1 R1234yf to R134a coupler adapterx2 Vacuum Pump Pilx1 Manualx1

OPERATION GUIDE FOR PULLING VACUUM TO AC SYSTEM

1. Pump preparation: Insert the pump's plug, and fill it with oil, making sure not to exceed the maximum level.
2. Locate the high and low-pressure service ports of the AC system. These ports are usually situated near the compressor on the lines.
3. Connect the gauge set hoses to the high and low-pressure service ports of the AC system. The high-pressure side is typically marked with red, and the low-pressure side with blue. Choose the appropriate adapter for the refrigerant system and fitting.
4. Shut the valves on the gauge set and attach the hoses from the vacuum pump to the gauge set. Switch on the vacuum pump and allow it to run for a few minutes to ensure that it is functioning correctly.
5. Open the valves on the gauge set and allow the vacuum pump to operate until the system pressure reaches approximately 30 inchHg and stabilizes. Continue pumping for at least 30 minutes to ensure that all remaining air is removed.
6. Shut the valves on the gauge and switch off the vacuum pump. Allow the system to rest for approximately 30 minutes, as recommended, to confirm that there are no leaks. Any increase in the pressure displayed on the gauge set implies the presence of a leak.
7. Once you are convinced that there are no leaks and have attained the desired vacuum level, you can either charge the refrigerant or close the valve for future use.

MAINTENANCE OF VACUUM PUMP

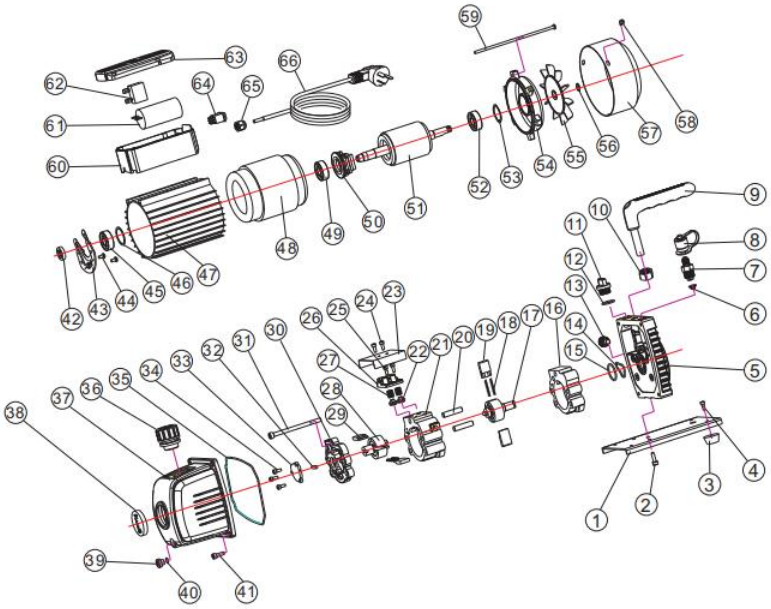
Proper maintenance of the vacuum pump is essential to ensure its optimal performance. Here are some maintenance guidelines:

- Keep the pump clean and free from foreign matter.
- Keep the oil filled to the oil level, and never let the pump run without oil.
- Keep the oil clean. If the oil becomes dirty, muddy, or water or other volatile substances get in, it will affect the performance of the pump, and the oil should be replaced. To replace the oil, start the pump and run it for about 30 minutes to make the oil thin. Then stop the pump and drain the oil from the oil drain plug. Open the gas inlet and run the pump for 1-2 minutes while adding a small quantity of clean oil to the gas inlet. This is to replace the residual oil from the inside of the pump. After ensuring that the pump is clean, put the drain plug back in and fill the clean pump oil from the gas inlet to the oil level.
- To store the pump when not in use for long periods of time, cover the oil cap and exhaust cap (if applicable) and store it in a dry place.
- Repair of the pump should only be done by a qualified service technician.

TROUBLESHOOTING GUIDE

Problem	Possible Cause	Correction
Low Degree Of Vacuum	1. Insufficient oil	1. Add oil up to the oil level line
	2. Dirty oil	2. Replace the oil
	3. Oil intake is blocked	3. Clean the oil intake or filter
	4. Hose or gas inlet is clogged	4. Check the connecting pipes
	5. Pump is unsuitable for the application	5. Get a suitable pump for the application
Oil Leaks	1. Oil seal is damaged	1. Replace the oil seal
	2. Housing gasket is loose or worn out	2. Replace the housing gasket
Oil Spray	1. Too much oil	1. Adjust the oil level to the recommended level
	2. Gas inlet pressure is too high or too much gas has been pumped	2. Use a bigger pump or reduce gas inlet pressure
Starting Difficulty	1. Oil temperature is too low	1. Attempt to start the pump multiple times to warm the oil
	2. Electrical malfunction	2. Check and repair any electrical issues
	3. Foreign matter is in the pump	3. Check and remove any foreign matter from the pump system
Failure To Pull a Good Vacuum	Leakage in vacuum gauge or connections	Confirm leakage by monitoring the vacuum gauge while applying vacuum pump oil at all connections or suspected leak points. The vacuum will improve briefly while the oil is sealing the leak.

EXPLODED DIAGRAM OF THE PUMP



01	Baseboard	18	Spring	35	O-ring	52	Bearing
02	Screw	19	Front-pump vane	36	Oil gas separator	53	Waveform gasket
03	Rubber feet	20	Straight pin	37	Oil tank	54	Motor back cover
04	Screw	21	Back-pump stator	38	Oil level	55	Fan
05	Bracket	22	Exhaust valve core	39	Oil drain plug	56	Snap ring
06	Stainer	23	Cap board	40	O-ring	57	Fan cover
07	Inlet fitting	24	Screw	41	Screw	58	Screw
08	Inlet fitting cap	25	Screw	42	Oil seal	59	Screw
09	Handle	26	Valve set	43	Centrifugal plate	60	Junction box base
10	Nut	27	Valve core spring	44	Screw	61	Capacitor
11	Oil filling port	28	Back-pump rotor	45	Bearing	62	Thermal protector
12	O-ring	29	Back-pump vane	46	Bearing gasket	63	Junction box cover
13	Gas ballast fitting	30	Back cover	47	Motor cover	64	Switch
14	O-ring	31	Screw	48	Motor stator components	65	ply-yarn drill
15	O-ring	32	Oil pump vane	49	Bearing	66	Power cable
16	Front-pump stator	33	Oil pump cover	50	Centrifugal		
17	Front-pump rotor	34	Screw	51	Motor rotor components		

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