REFRIGERANT RECOVERY STATION

VRE12P

OPERATING MANUAL

TABLE OF CONTENT

1 GENERAL SAFETY GUIDELINES

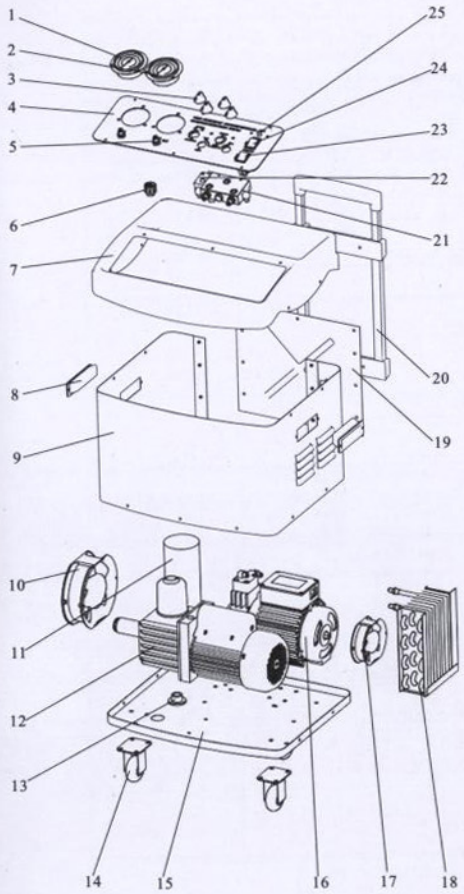
1. Read all safety, operating guidelines and instructions before operating your VRE12P.
2. Only a qualified technician should operate this Recovery unit!
3. Always wear safety goggles and protective gloves when working with refrigerants to protect your skins and eyes from refrigerant gases and refrigerant liquid. Avoid getting in touch with causticity liquid or gas.
4. Do not expose the equipment in the sun or rain.
5. Be sure that any room where you are working is thoroughly ventilated.
6. Use ONLY authorized refillable refrigerant tanks. It requires the use of recovering tanks with a minimum of 27.6bar working pressure.
7. Do not overfill the storage tank. Tank is full at 80% volume. There should be enough space for liquid expansion——overfilling of the tank may cause a violent explosion. A scale must be used to avoid over filling the storage tank.
8. Do not exceed the working pressure of Recovering Tank cylinder.
9. Don't mix different refrigerants together in one tank, or they could not be separated or used.
10. Before recovering the refrigerant, the tank should achieve the vacuum level: -0.1mpa, which is for purging non-condensable gases. Each tank was full of nitrogen when it was manufactured in the factory, thus the nitrogen should be evacuated before the first use.
11. When the unit is not used, all the valves should be closed. Because the air or the moisture of the air may harm the recovery result and shorten the service life of the unit.
12. When using an extension cord it should be a 14AWG minimum and no longer than 7.6meters, or it may make the voltage drop and damage the compressor.

13. A dry filter must always be used and should replaced frequently. And each type of refrigerant must have its own filter. For the sake of assuring the normal operation of the unit, please use the filter specified by our company. High quality dry filters will bring high quality services.
14. Special care should be taken when recovering from a "burned-out" system. Use two high acid capacity filters, in series. When you have finished recovering from the system, flush the unit with a small amount of clean refrigerant and refrigerant oil to purge off any foreign substances left in the unit.
15. This unit has an Internal Pressure Shut Off Switch. If the pressure inside the system should go above 38.5bars, the system will automatically shut itself off. The shut off switch must be manually reset. (Access to the Shut -Off switch is through the hole located in the lower left front panel.)
16. If the tank pressure exceeds 20.7bar, use the Storage Tank Cooling Method to reduce the tank pressure.
17. To maximize recovery rates, use the shortest possible length of 3/8" or larger hose. A hose no longer than 0.9meter is recommended.
18. When recovering large amounts of liquid, use the Liquid Push/Pull method .
19. After recovering, make sure there's no refrigerant left in the unit. Read the Self -Purging Method carefully. Liquid refrigerant remained may be expanded and destroy the components.
20. If the unit is to be stored or not used for any length of time, we recommend that it be completely evacuated of any residual refrigerant and purged with dry nitrogen.

2 SPECIFICATIONS

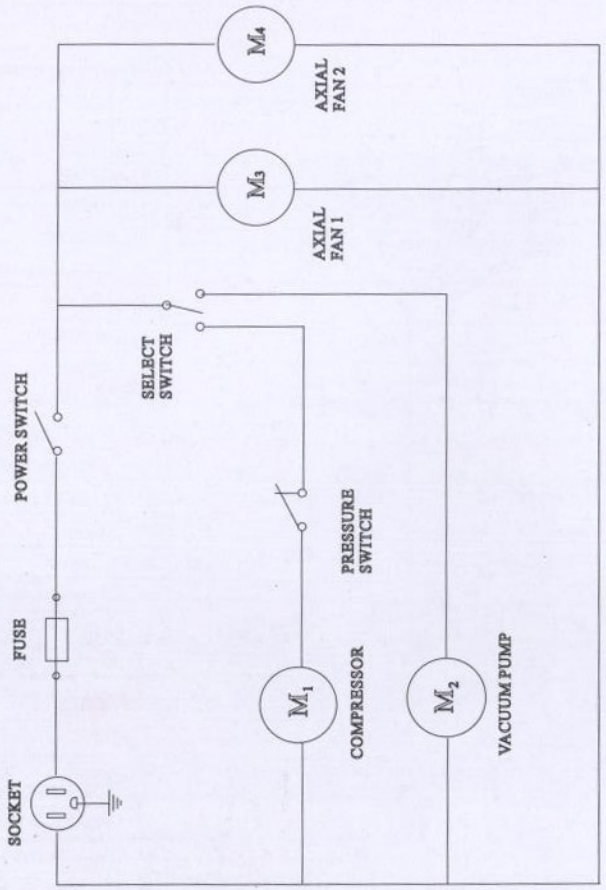
		Recovery unit			Vacuum unit
Refrigerants		Cat.III: R-12,R-134a,R-401C,R-406A,R-500.			
		Cat.IV: R-22,R-401A,R-401B,R-402B,R-407C,R-407D,R-408A,R-409A,R-411A,R-412A,R-502,R-509			
		Cat.V: R-402A,R-404A,R-407A,R-407B,R-410A,R-507.			
Power		110-120V 60Hz			
		220-240V 50Hz			
Motor		1/2HP			1/3HP
Motor Speed		1450RPM @ 50Hz			
		1750RPM @ 60Hz			
Max Current		4A @ 50Hz			3.5A @ 50Hz
		8A @ 60Hz			6.5A @ 60Hz
Compressor		Oil-less, Air cooled, Piston style			
High Pressure Shut-off Switch		38.5bar/558psi			
Recovery Rate (Kg/min)		Cat. III	Cat. IV	Cat. V	
	Vapor	0.23	0.25	0.26	
	Liquid	1.57	1.81	1.85	
	Push/Pull	4.64	5.57	6.22	
Vacuum Pump					Offset rotary vane, 2 Stage
Free Air Displacement					5 CFM
Ultimate Vacuum					30 mircons
Oil Capacity					10.8 oz
Operating Temp.		0-40℃			
		VRE12			VRE12P
Dimensions		460(L)) x380(W) x365(H) mm			460(L)) x400(W) x420(H) mm
Net Weight		33Kg			36Kg

3 PARTS DIAGRAM AND PARTS LIST



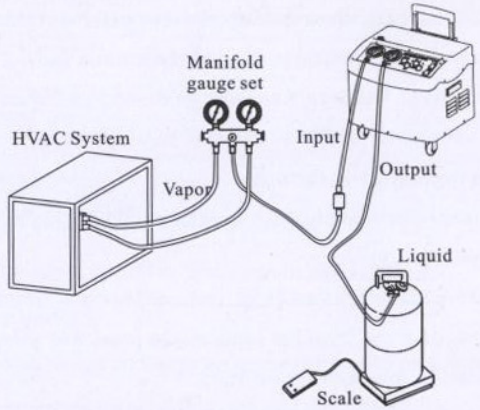
ITEM	DESCRIPTION
1	INPUT GAUGE
2	OUTPUT GAUGE
3	KNOB
4	PANEL
5	FITTING
6	OIL FILLING CAP
7	COVER
8	HANDLE
9	FRAME
10	AXIAL FAN1
11	OIL SEPARATOR
12	VACUUM PUMP
13	EXHAUST FITTING
14	WHEEL
15	BASE
16	COMPRESSOR
17	AXIAL FAN2
18	CONDENSER
19	BACK FRAME
20	EXTENSION HANDLE
21	CONTROL VALVE
22	SELECT VALVE
23	POWER SWITCH
24	SELECT SWITCH
25	PRESSURE SWITCH

4 WIRING DIAGRAM

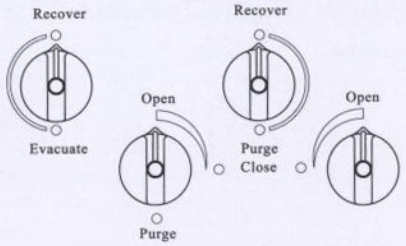


5 STANDARD LIQUID/VAPOR RECOVERY METHOD

1. Make sure the unit is in good operating condition.
2. Make sure all connections are correct and tight .



3. Open the liquid port of the storage tank.
4. Make sure the Recover/Evacuate valve is set on Recover.
5. Make sure the Recover/Purge valve is set on Recover.
6. Open the output port of the unit.
7. Open the liquid port on your manifold gauge set; opening the liquid port will remove the liquid from the system first. After the liquid has been removed, open the manifold vapor port to finish evacuating the system.



8. Connect the unit to a right outlet.(See the nameplate on the unit)

1) Switch the Power switch to the ON position. You should hear the fan running.

2) Switch the Mode switch to the RECOVER position.

Note:If the unit fails to start, close the Input valve and rotate the Recover/ Purge valve to Purge position, then restart your unit. Then rotate the Recover/Purge valve to Recover position, and open the Input valve.

9. Slowly open the input port on the unit.

1) If the compressor starts to knock, slowly throttle back the input valve until the knocking stops.

2) If the input valve was throttled back, it should be fully opened once the liquid has been removed from the system (the manifold gauge set vapor port should also be opened at this time).

10. Run until desired vacuum is achieved.

1) Close the manifold gauge sets vapor and liquid ports.

2) Turn off the unit.

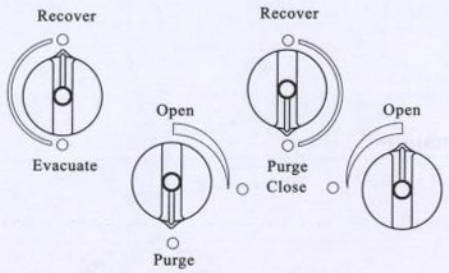
3) Close the unit's input port and proceed with the Self-Purge Method on the next page.

CAUTION: Always purge the unit after each use. Failure to purge the remaining refrigerant from the unit could result in the acidic degradation of internal components, ultimately causing premature.

6 SELF-PURGING METHOD

Procedure for purging remaining refrigerant from this unit

1. Close the ports of the system being serviced that are connected to the input port of the unit.
2. Turn off the unit.
3. Close the input port on the unit.
4. Turn the Recover/Purge valve to the Purge position.
5. Restart the unit.
6. Run until desired vacuum is achieved.
7. Close the ports on the recovery tank and the unit.
8. Turn the unit off.
9. Return the Recover/Purge valve to the Recover position.
10. Disconnect and store all hoses and dry filter.

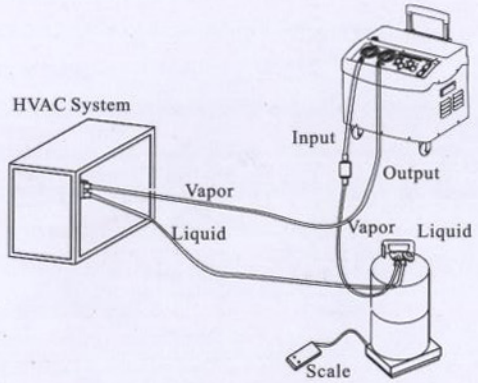


7 LIQUID PUSH/PULL METHOD

Push/pull method only works with large systems where the liquid refrigerant is no less than 10kg.

CAUTION: When using the "Push/pull" method, a scale must be used to avoid over filling the storage tank, once the siphon is started, it can continue and overfill the storage tank even if the tank is equipped with a float level sensor. The siphon can continue even when the machine is turned off. You must manually close the valves on the tank and the unit to prevent overfilling of the recovery tank.

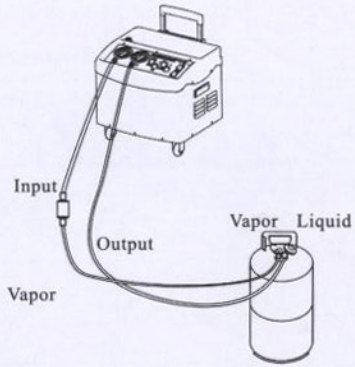
1. Put Recover/Purge knob on Recover.
2. Open Output valve.
3. Open Input valve.
4. When the scale stops rising close all ports.
5. Switch off the machine.



8 STORAGE TANK COOLING METHOD

Pre-work Cooling Procedure

1. To start you must have a minimum of 0.5kg of liquid refrigerant in the tank.
2. Turn the Recover/Purge valve to the Recover position.
3. Open the Vapor and Liquid valve of the storage tank.
4. Power on, and start the compressor.
5. Open the Input valve and Output valve of the unit.
6. Throttle the Output valve of the unit so that the output pressure is 100psi greater than the input pressure, but never more than 300psi.
7. Run until tank is cold.

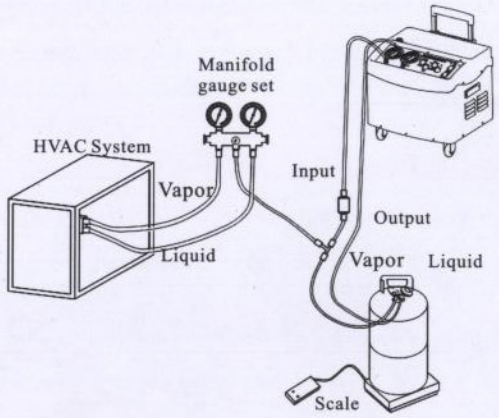


Tank Cooling Procedure in the recovering process

1. Open the vapor valve of the storage tank (it is closed while recovering).

2. Close the two valves of the manifold gauge set.

3. Follow the sixth and seventh items of the Pre-work Cooling Procedure.

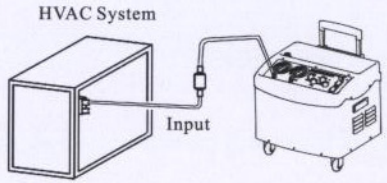


9 EVACUATION MODE

1.Turn RECOVER/EVACUATE valve to EVACUATION position.

2.Switch POWER switch to ON position, you will hear the fan running.

3.Switch MODE switch to EVACUATE position.

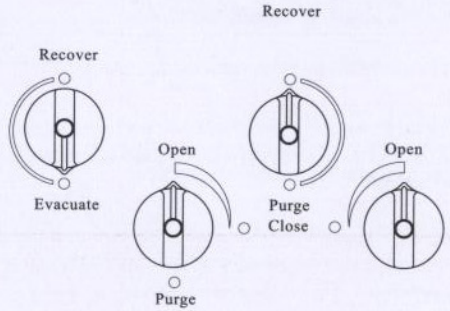


4.Run until desired vacuum is reached.

5.Switch off the machine .

6.Disconnect and store all hoses.

7.Cap the inlet and outlet port to prevent contamination.



10 VACUUM PUMP MAINTENANCE

Vacuum Pump Oil

The condition and type of oil used in any vacuum pump are extremely important in determining the ultimate attainable vacuum. We recommends the use of High Vacuum Pump Oil.

The oil has been specifically blended to maintain maximum viscosity at normal running temperatures and to improve cold weather starts.

Vacuum pump oil change procedure

1. Warm up the vacuum pump by running.
2. Turn the POWER switch off, and unplug the unit from power source.
3. Place the unit on a raise surface, and place a suitable container under drain plug.
4. Remove the OIL FILL cap and OIL DRAIN cap.
5. Drain oil into container until flow of oil has completely stopped.
6. Replace the OIL DRAIN cap.
7. Fill oil reservoir with new vacuum pump oil until oil just shows at the bottom of the sight glass. The approximate oil capacity is 20 ounces.
8. Be sure the inlet port is capped and turn vacuum pump.
9. Allow pump to run for one minute, then check the oil level. If the oil below the sight glass OIL FILL line, add oil slowly(while pump is running) until the oil reaches the OIL LEVEL line.
10. Replace the OIL FILL cap, make sure the inlet is capped and the drain cap is tight.

11 TROUBLESHOOTING

PROBLEM	CAUSE	ACTION
Fan does not run when Power Switch is in "ON" position	Power supply cord not attached Voltage is not right The fuse has opened	Attach the power supply cord. Check the power supply at job site. Change another new fuse.
Fan runs but compressor does not start when the Mode Switch is in "Recovery" position	The unit is in high pressure shut off Output pressure is too high Failure in motor, or other electrical components	Reduce pressure and then press the button of the High Pressure Switch. Rotate Input valve to "CLOSED", Purge valve to "PURGE"; then rotate Input valve back to "OPEN", Purge valve to "RECOVER". Factory service required
Compressor starts but cuts off within a few minutes	Purge valve is in "PURGE" position Output valve is not open and high pressure activates Recovery tank valve is not open	Rotate Purge valve to "RECOVER" Rotate Output valve to "OPEN" Open recovery tank valve
Recovery process too slow	Head pressure too high Compressor seals are worn	Reduce tank temperature with Storage Tank Cooling Method Factory service required
Unit does not pull out a vacuum	Connecting hoses are loose Leakage in unit	Tighten the connecting hoses Factory service required