Value
VRR24M-C Recovery Machine Unit

VALUE VRR24M-C Recovery Machine Unit User Manual

Contents

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GENERAL SAFETY

Use information

- To prolong the usage of the recovery un19„ please read the manual carefully before using. Which can help you to fully understand the safety. specifications as well as the operating procedure of the recovery unit-
- Please check the product received is the same as you ordered.
- Please check the product if there is any damage during transportation.
- Contact with local distributor if the above problem is found,
- Please read the manual carefully and use the unit according to the product operating procedures.

Safety indication

- **Warning**
  This mark indicates procedures that must be strictly observed to prevent hazards to people.
- **Notice**
  This mark indicates procedures must be strictly observed to prevent damage or destruction of the unit.

Matters needing attention

Warning

- Only a qualified technician can operate this recovery unit.
- Before starting the equipment, make sure that it is well grounded.
- While using electrical wire, the wire must be well connected and grounded,
- Only a qualified electrician can do the wire connection according to the technical standard and circuit diagram.
- The power must be cut off and no display in the LCD before inspecting or repairing.
- If the original power supply cord is damaged. Choose carefully for the replacement one, or you may directly buy from the distributor.
- Please take the power supply and the capacity of your ammeter and electrical wire.

GENERAL SAFETY

- Only authorized refillable refrigerant tanks can be used. It requires the use of recovery tanks with a minimum working pressure of 45 bar(652.6 psi). Do not overfill the recovery tank, maximum capacity to make sure that there is enough space for liquid expansion. Overfilling of the tank may cause an explosion.
- Always wear safety goggles and protective gloves while working with refrigerants to protect your skin and eye from hurting by refrigerant gases or liquid.
- Do not use this equipment near flammable liquid or gasoline.
- An electric scale is needed to prevent overfilling.
- Be sure that the place where you are working is thoroughly ventilated,

Notice

- Be sure the unit is working under the right power supply.

- When using an extension cord it should be a minimum of 14 AWG and no longer than 25 feet, otherwise, it may cause the voltage drop and damage the compressor,
- The input pressure of the unit should not exceed 26 bar (377 .Opsi).
- The unit needs to be laid horizontally. Otherwise, it will lead to unexpected vibrations. Noise or ever abrasion,
- Do not expose the equipment to sun or rain,
- The ventilation opening of the unit must not be blocked,
- If the overload protector pops, reposition it after 5 minutes.
- When doing a salt purging operation, the knob must be turned slowly to “PURGE” to ensure the inlet pressure is less than S bar(72.5 psi),
- If a fluid hammer happens in the recovery, please turn the knob slowly to the “SLOW ” position and do not let the reading pressure drop to zero.
- To ensure the stable running of the machine, close the knob to the close position when the outlet pressure is over 27 bar (391.6 psi), to decrease the inlet pressure (not reach O). This action is to make the outlet pressure stable or decreasing, the controlled pressure less than 30bar(435. I psi),
- The equipment is intended for serving air-conditioning and refrigeration systems containing more than 200 lbs of high-pressure refrigerant.
- The tank and hose used must comply with the local regulations.

OPERATION MANUAL

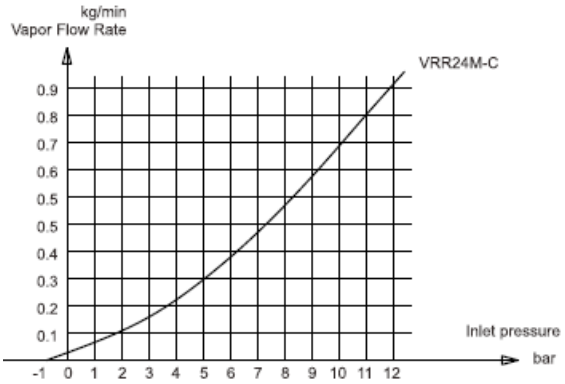
- Do not mix different refrigerants in one tank. Otherwise, they could not be separated or used,
- Before recovering the refrigerant, the tank should achieve the vacuum level: of —29.6inHg purging non-condensable gases, Each tank was full of nitrogen when it was manufactured in the factory, thus the nitrogen should be evacuated before first use.
- The knob should be at “Close’ Position before operation. All the valves must be closed, the input and output fittings should be covered with protective caps when the unit is not in operation. The air moisture is harmful to the recovery result and will shorten the life span of the unit.
- A filter drier should always be used and should be replaced regularly. Each type of refrigerant must have its filter. For the sake of ensuring the normal operation of the unit, please use the filter specified by our company. High-quality filter driers will bring high-quality services.
- Special caution is needed when recovering from the system, and two dry filters are needed.
- The unit has an Internal High-Pressure protector. If the pressure inside the system is above-rated shut-off pressure (see specification), the compressor will automatically shut off and the HP cutoff shows. To restart the compressor, please lower the internal pressure (Output gauge indicates lower than 30 bar/435.O PSI), after the HP cutoff blinks, then Press the “START • button to restart the compressor. When high-pressure protection initiates. Please find out the cause and deal with it before restarting the unit,
- The input valve of the refrigerant tank is closed—opening the valve will help solve the problem.
- The connecting hose between the recovery unit and refrigerant tank is stuck—close all the valves and replace the connecting hose.
- The temperature of the refrigerant tank is too high. Pressure is too high causing high pressure— make the tank cool,

SPECIFICATION

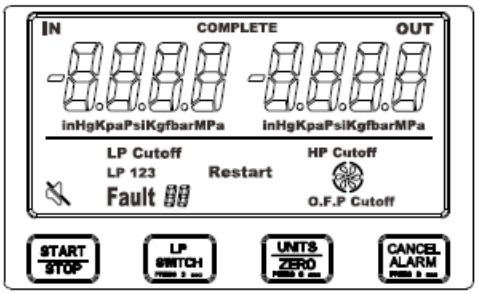
	VRR24M-C
Refrigerants	Categorylll: R12, R 134a , R401C,R406A , R500,1234YF CategoryIV : R22, R401 A, R401B, R402B, R407C , R407D , R408A , R409A , R502 , R 509 Category V : R402A, R404A , R407 A, R407B ,R41 QA, R507,R32
Power	220V-230V AC, 50/ 60Hz 11 SV AC, 60Hz
Maximal Current Draw	6.5A 12A
Motor	Brushless Motor 1 HP
Motor Speed	3000 RPM
Compressor	Oil-less, Air-cooled, Piston
High-Pressure Protector	38.5bar/3850kPa(558psi)
Operating Temperature	32- 104′ F
Dimensions	14.5×9.9×11.7 inch
Net Weight	25 lbs

NRDD

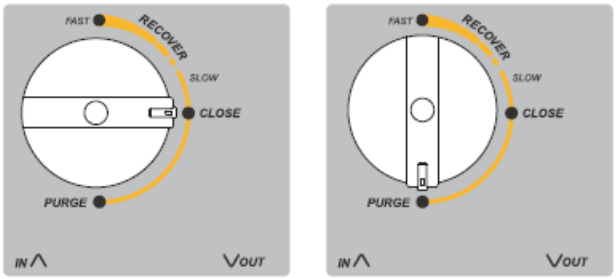
Refrigerants	R134a	R22	R410A
Liquid	2.6 kg /min	2.9 kg /min	3.9 kg/min
Push/Pull	7.5 kg/min	8.5 kg/min	9.5 kg /min



INTRODUCTION OF OPERATION PANEL



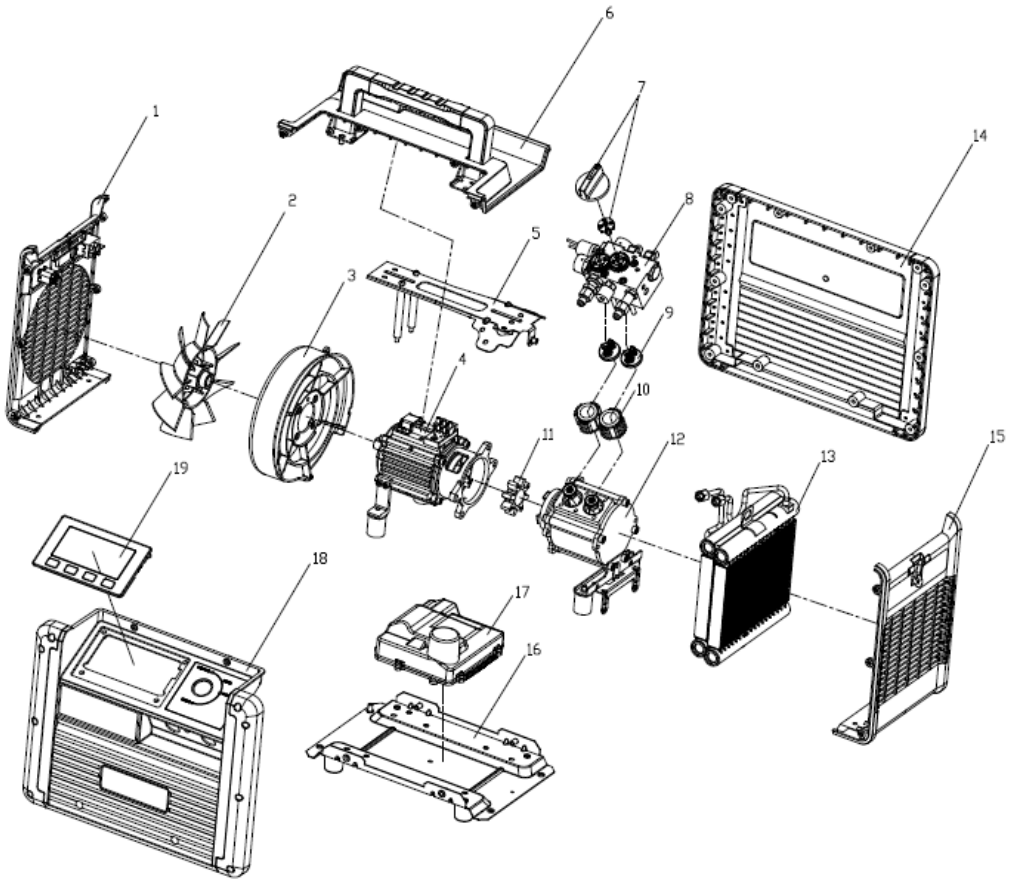
- **Start/Stop**:
  Starts and Stops recovery unit
- **LP Switch:**
  Hold for 3 seconds to switch between LPl, LP2, LP3
- **Units/Zero:**
- Press to change units to InHg. Kpa. Psi, Kg/f, Bar, Mpa. Hold for 3 seconds to zero out readings.
- **Cancel Alarm:**
  Hold for 3 Seconds to mute the recovery unit
- **LPI: (Auto shutoff with manual restart)**
  If the inlet pressure is lower than -20inHg for 20 seconds, the unit will shut down,
- **“LP Cutoff will be displayed.**
  When LP 2 0 inHg you must press START to restart the recovery unit
- **LP2: (Auto Shutoff with automatic restart)**
  If the inlet pressure is lower than -20 inHg for 20 seconds the unit will shutdown.
- **“LP Cutoff is displayed.**
  When LP 0 inHg the unit will restart automatically
- **LP3: (Continuous Run)**
  The recovery unit will run continuously, no matter what the level of the input pressure (LP)
- **O.F.P Cutoff:**
  Will Light up when the recovery cylinder is 80% filled, or if the OFP cable is shorted. The machine will stop running.
- **LP Cutoff:**
  Will light up when the low-pressure switch is activated for more than 20 seconds below -20 inHg
- **HP Cutoff ;**
  Will Light up when the high-pressure switch is activated above 560 Psi



- **Close:** The inlet valve is closed
- **Recover:** The input valve is partially opened
- **Fast:** The input valve is fully opened
- **Purge:** Input closed, and output is opened to allow the unit to remove most of the refrigerant inside the recovery machine

- **Fault:** Error Codes
- **EI:** The pressure sensor is disconnected
- **Fault 2:** Input voltage is too low
- **Fault 3:** High input voltage
- **Fault 4:** Overcurrent protection
- **Fault 5**: Temperature Sensor Breaker
- **Fault 6:** Temperature sensor Short Circuit
- **Fault 7:** Temperature protector breaker.
- **Vvlute:** Audible alerts and beeps are turned off
- **Fan;** This icon rotates while the machine is running. When the machine stops, the icon is still.
- **Restart:** It will nash after an error has occurred and settled. Pressing START will resume the activity.
- **Mute**: Audible alerts and beeps are turned off
- **Fan:** This icon rotates while the machine is running. When the machine stops, the icon is still
- **Restart:** It will nash after an error has occurred and settled. Pressing START will resume the activity.

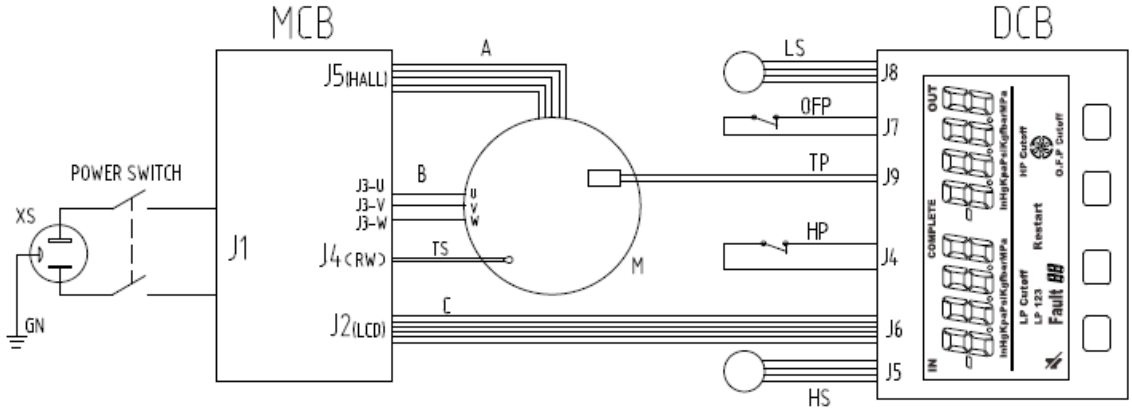
PARTS DIAGRAM



Parts name
Left Side Plate
Fan
Wind Guide Cover
Motor
Support Assy
Top Plate
Knob
Control Ass y
ValveAssy
Cylinder
Coupling

Parts name
Compressor
Condenser
Rear Plate
Right Side Plate
Base
Motor Control
Front Side Plate
Gauge

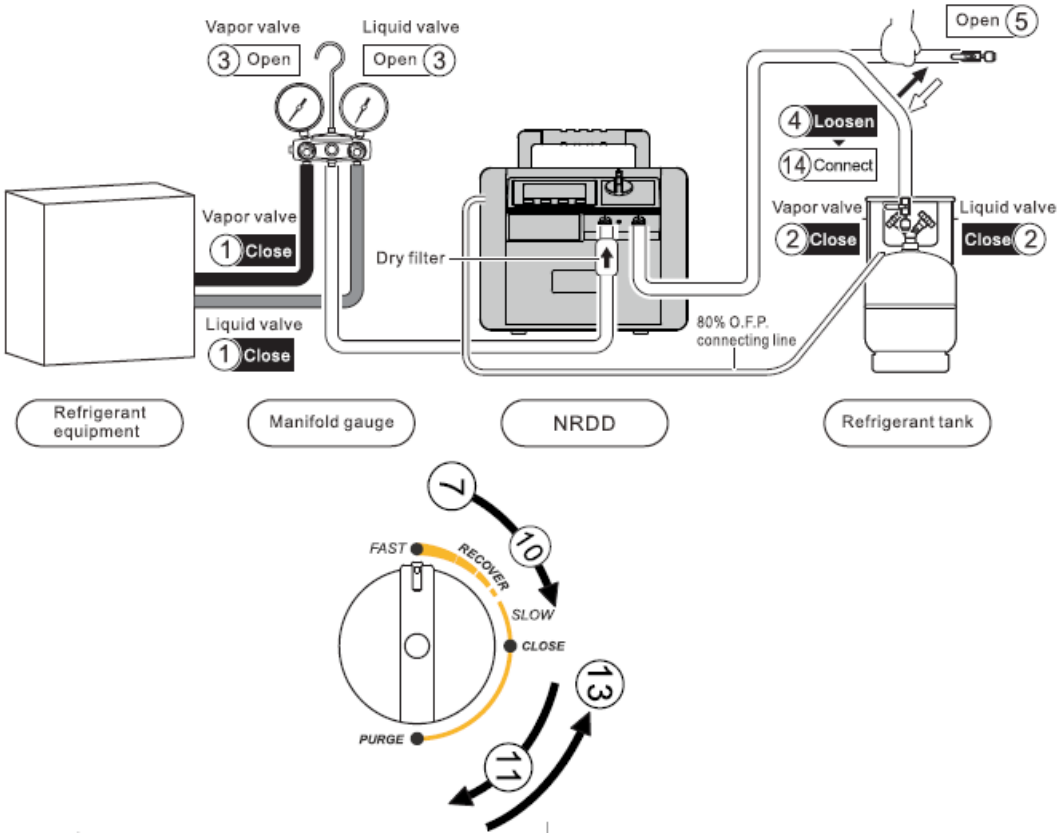
WIRING DIAGRAM



Graphics Code	ITEM
HS	High-pressure sensor
M	Motor
MCB	Motor control board
XS	Socket
DCB	Digital gauge control board
LS	Low-pressure sensor
OFP	Over filling protector
TP	Temperature protector
HP	High-pressure switch
TS	Temperature sensor

OPERATING INSTRUCTION

Refrigerant hoses exhaust



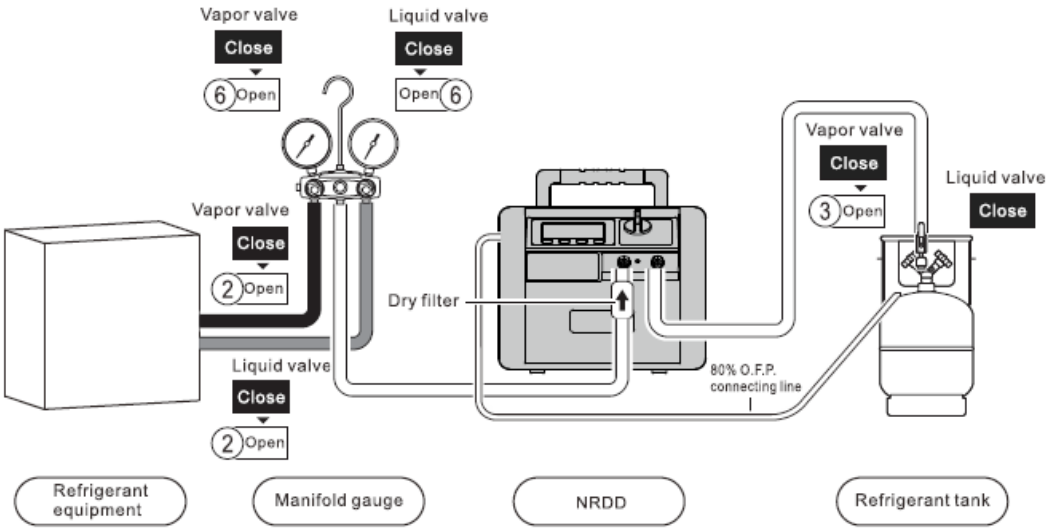
Ready for operation

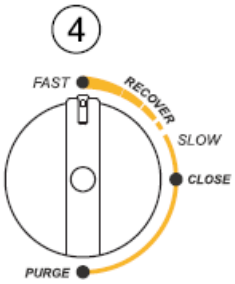
Connect the hoses correctly and firmly. (Please refer to the connection diagram)

1. Confirm the vapor valve and liquid valve of the AC system are in close position.
2. Confirm the vapor valve and liquid valve of the recovery tank are in close position.
3. 0pen the vapor and liquid valves of the manifold gauge,

4. Loosen the connecting pipes of the refrigerant tank-
5. Open the check valve of the pipes,
    - **Start operation**
6. Plug in the machine, turn on the power, and the LCD shows pressures.
7. Turn the knob to “Recover’.
8. Press the START button to start the machine, it begins to purge the inner air of the hose.
9. Observe the reading of the low-pressure gauge when it roaches to •20nHg. After 20 seconds. LP cutoff turns on and the machine stops work.
10. Turn the knob to “Close-y LP cutoff blinks, press the power button and start the machine,
11. Turn the knob slowly to “Purge’ and start self-purging.
12. O observe the reading of the the low-pressure gauge when it reaches .20inHg the second time, after 20 seconds, LP CUtOff turns on and the machine stops working.
    - **Finish operation**
13. Turn the knob to •Close” and stop self-purging.
14. Connect the refrigerant hose to the tank.

Recovery mode Vapor





Ready for operation
Connect the hoses correctly and firmly. (Please refer to the connection diagram) Make sure all valves are closed.

1. Switch off the power of the refrigerant equi pm nt.
2. 0pen the vapor and liquid valves of refrigerant equipment.
3. 0pen the vapor valve of the refrigerant tank.
    - **Start operation**

4. Turn the knob to ‘Recover”.
5. Press the • START • button to start the machine.
6. a. If recover liquid refrigerant, please open the liquid valve Of the manifold gauge.
7. b. If recover vapor refrigerant, please open the vapor valve of the manifold gauge.
8. , The mode Will be when the machine is to a certain vacuum degree or automatic close of low-pressure protection„
9. Do not turn off the power after recovery is finished and directly run purging mode,

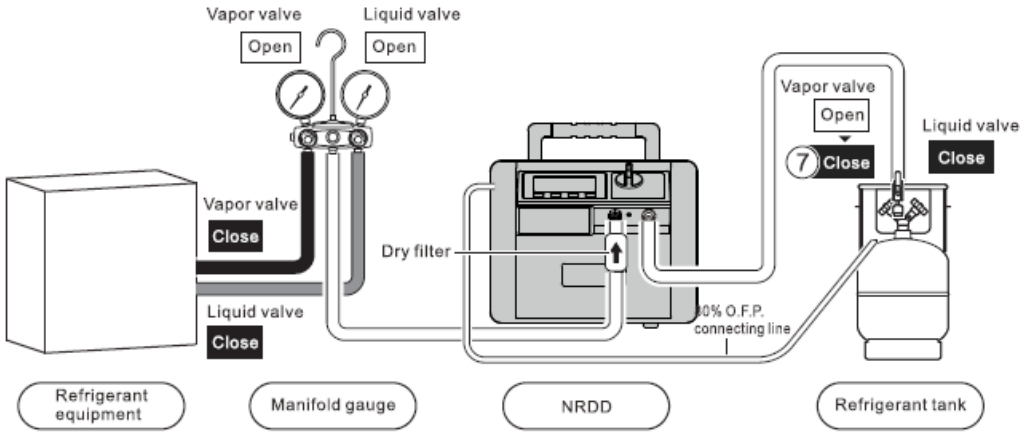
Notice

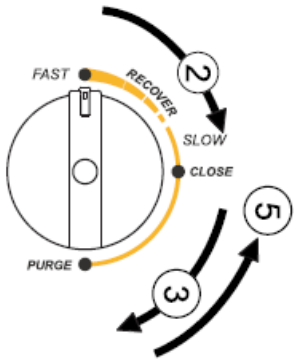
10. If the fluid hammer happens in the recovery, please turn the knob to the Slow • position slowly, Then the reading of the low-pressure gauge drops until the fluid hammer stops; but do not let the reading pressure drop to zero, otherwise inlet port iot pumping once at zero pressure.
11. If it is difficult to start, turn to • CLOSE when liquid, turn to • PURGE • when vapor, then press START •to restart the machine. And turn to the required position-

Self-purge mode

Notice

The unit must be purged after each use; the Liquid refrigerant remaining may expand and damage the components and pollute the environment.





Start operation

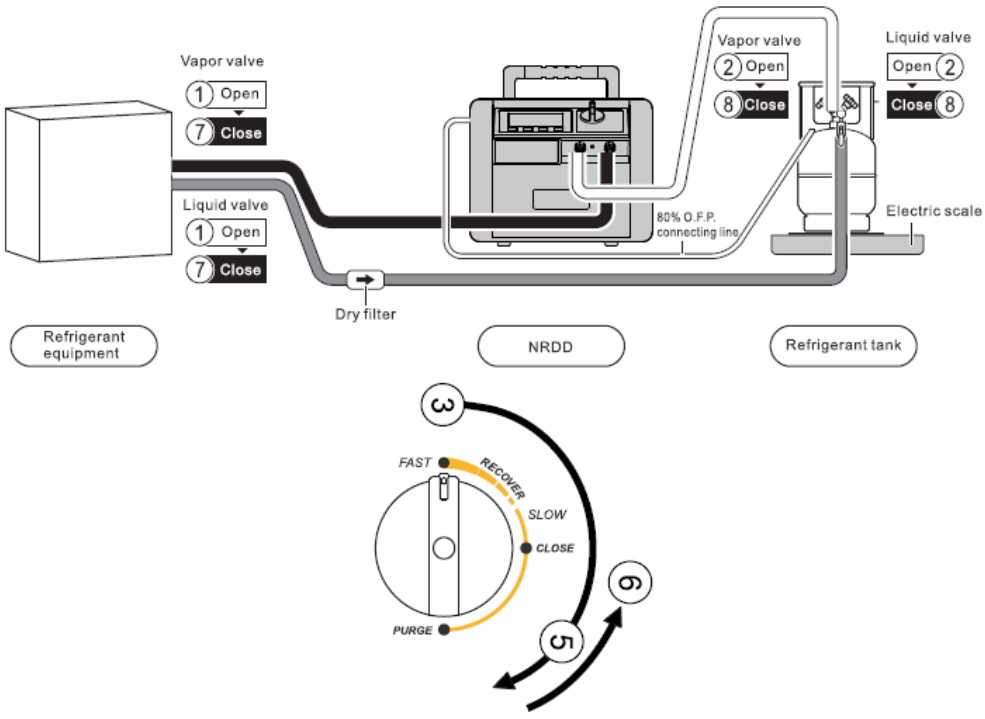
1. The machine stops automatically after recovery is finished with the LP cutoff.
2. Turn the knob to ‘Close’ and the LP cutoff blinks, press the • START button to start the machine.
3. Turn the knob to •purge” and start self-purging,
4. The self-purging mode will be finished when the machine runs to a certain vacuum degree.

Finish operation

1. Turn the knob to Close.
2. Turn off the power switch. Disconnect the power cord.
3. Close the check valve which is connected to the exhaust.
4. Close the vapor valve of the tank,
5. Disconnect all hoses,

Liquid push/pull mode

Notice
An electric scale is needed to monitor the recovery process to prevent overfilling.



Ready for operation
Connect the hoses correctly and firmly.
(Please refer to the connection diagram) Make sure all valves are closed.
Start operation

1. Open the vapor valve, liquid valve, or the HVAC system.
2. Open the vapor valve. Liquid valve of the tank.
3. Turn the knob to ‘Recover”.
4. Press the START button to start the machine, and then it starts liquid push/pull mode.
5. If the reading on the scale remains the same or changes slowly, it means the liquid •n HVAC system has been recovered and vapor recovery mode can be underway.
6. S. Turn the knob slowly to •purge’ and start self-purging mode for the liquid.
7. Turn the knob to “Close’.

8. Close the vapor valve, and liquid valve of the HVAC system-
9. Close the vapor valve, the liquid valve of the tank,
10. Reconnect the hoses and start recovery mode for the vapor

Finish operation

TROUBLESHOOTING

PROBLEM	CAUSE	SOLUTION
LCD does not work after power is on	1- The power cord is damaged. 2, Inner connection is loose. 3, Connect to J6 is damaged. 4, Malfunction of the circuit board.	1, Replace cord. 2, Check the connection. 3, Replace the connect. ,4 Replace MCB or DCN circuit board. Contact VALUE tech support.
The machine does not run after pressing START.	1- HP Cutoff or OFP Cutoff works (screen shows.) 2, Fault 2 or Fault 3 3, Fault 4, too much start-overload 4, Fault 5 5, Fault 6 6, Fault 7 7, The button is damaged. 8, the Circuit board is damaged.	,1 Check if the connection between HP or OFP to DCB is good. 2, Adjust to correct voltage. 3, Turn the knob two rounds to close. Press START. 4, Check if the connection between TS and MCB is good. If good, contact VALUE tech support. 5, Check if the TS connection is damaged. If not, contact NAVAC tech support. 6, Check if the connection between TP and MCB is good. If good, contact NAVAC tech support. 7, Replace digital gauge. 8, Replace the circuit board.
The machine stops after running for a period	1- Misoperation causes HP Cutoff. 2, The thermal protector is on and shows Fault 7. 3, Refrigerant is 80% in the tank, and O.F.P Cutoff shows. 4, Recovery work is finished. LP Cutoff shows.	,1 Refer the clause 6 of OPERATION MANUAL. 2, When Fault 7 and Restart flash, press START. 3, Replace the tank. When O.F.P Cutoff and Restart flash, press START. ,4 Could restart for other work.

E1 shows at LP o r HP.	The pressure sensor is not connected well o r is short-circuit.	Check if the connection between LS or HS t o DCB is good. If good, replace the pressure sensor.
Slow recovery rat e	,1 The pressure of the refrigerant tank is too high. ,2 Pisringsring of the compresarer is damaged.	1- Cooling the tank helps decrease the pressure. 2, Contact VALUE tech support.
Not evacuate	1- The connection hose is loose. 2, Machine leaks.	,1 Tighten the connection hoses. 2, Contact VALUE tech support.

Documents / Resources

	VALUE VRR24M-C Recovery Machine Unit [pdf] User Manual 81001828, 534K00101045, VRR24M-C Recovery Machine Unit, VRR24M-C, Recovery Machine Unit, Machine Unit

References

- User Manual