

Making Your Job More Enjoyable

Recovery Unit
VRR12N/VRR24N



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CONTENT

General Safety	1
Operation Manual	3
Specification	4
Control Panel Introduction	5
Parts Diagram	6
Wiring Diagram	7
VRR12N/VRR24N Operating Instruction	
1). Refrigerant Hoses Exhaust	8
2). Recovery Mode	9
3). Self-purge Mode	10
4). Liquid Push/Pull Mode	11
Trouble Shooting	12

GENERAL SAFETY

Use information

- In order to prolong the life cycle of the recovery unit, please read the manual carefully before using to fully understand the safety, specification as well as operating procedure of the recovery unit.
- Please check the product received is 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 should operate this recovery unit.

Before starting the equipment, make sure that it is well grounded.

If using electrical extension cord, the cord must be in good condition and properly 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 LCD before inspecting or repairing.

If the original power supply cord is damaged, must select a replacement power supply cord with a grounding wire or one purchased from our company.

Please take power supply and the capacity of your ammeter and electrical wire.

GENERAL SAFETY

When this equipment is used indoors, the site must ensure that no less than 4 times per hour of forced air exchange or 0.5m above the ground to use.

Only authorized refillable refrigerant tanks can be used. The setting of the pressure limiting device shall not be lower than 45 bar(653psi). Do not overfill the recovery tank, maximum at 80% capacity to make sure that there is enough space for liquid expansion. Overfilling of the tank may cause a violent 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.

This equipment can not be used to suck the refrigeration oil directly, if you want to fill the refrigeration oil to the pressurized system, please put the refrigeration oil container on the exhaust side of the recycling machine, and use the refrigerant to flush into the system!

When recovering refrigerant, refrigerant storage tanks must be monitored by electronic scales to prevent overcharging!

Turn on the machine and check before starting to connect the refrigerant

- ① Whether there is air on the condenser side to determine whether the fan is normal or not
- ① Exhaust port shut-off valve, the recycling machine rotates to the "FAST" position, playing air, within 40 seconds the exhaust pressure should be able to rise to about 38.5 bar, high pressure switch action, the recycling machine automatically stops.

Notice

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

When using an extension cord it should be minimum 2.0mm² AWG and no longer than 7.5 m, otherwise it may cause the voltage drop and damage the compressor.

The input pressure of the unit should not exceed 26bar (377.0psi) .

The unit need to be laid in horizontally, otherwise it will lead to unexpected vibration, noise or even abrasion.

Do not expose the equipment to sun or rain.

OPERATION MANUAL

1. Connect the power supply, the indicator light is on for 2 seconds and then off, press the button "①" to keep it for more than 0.2 seconds and then release it to start the device; after an interval of more than 0.5s, press the button "①" to keep it for more than 0.2 seconds and then release it to turn off the device, after an interval of more than 2 seconds, press the button "①" to start the device.
2. Do not mix different refrigerants together in one tank, otherwise they could not be separated or used.
3. Before recovering the refrigerant, the tank should achieve the vacuum level: -29.6inHg, for purge 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.
4. The knob should be in the "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.
5. A filter drier should always be used and should be replaced regularly. And each type of refrigerant must have its own filter. For the sake of ensuring the normal operation of the unit, please use high quality filter drier specified. A high quality filter drier will help protect machine.
6. Special-caution is needed when recovering from system, and two dry filters are needed.
7. The unit has an Internal High Pressure protector. If the pressure inside the system is above rated shut-off pressure (see specification), compressor will automatically shut off and the HP cutoff shows: To restart the compressor, please lower the internal pressure (Output gauge indicates lower than 35 bar/507.6 PSI), after the HP cutoff blinks, then Press the "START" button to restart the compressor. When high pressure protection initiates, please determine the cause and deal with it before restarting the unit.
 - ① The input valve of the refrigerant tank is closed—opening the valve will help solve the problem.
 - ② The connecting hose between the recovery unit and refrigerant tank is plugged —close all the valves and replace the connecting hose.
 - ③ The temperature of the refrigerant tank is too high, causing high pressure— cool the tank down.
8. The unit is equipped with an O.F.P. socket and can be connected to a cylinder with a full liquid protection output using the O.F.P. connection cable. When the O.F.P. cable is not plugged in, the unit automatically blocks the O.F.P. function.
9. When recovering a large amount of liquid refrigerant, it is recommended to use the "push-pull mode".
10. To ensure that there is no refrigerant in the equipment after recovery, please read the "self-cleaning" operation procedure in this instruction manual carefully. The residual liquid refrigerant in the condenser may expand and cause damage to the components.
11. The low pressure gauge of this equipment indicates the pressure of the compressor inlet in the recovery machine; the high pressure gauge indicates the pressure of the outlet.
12. After using the equipment, please turn the knob back to the "CLOSE" position.

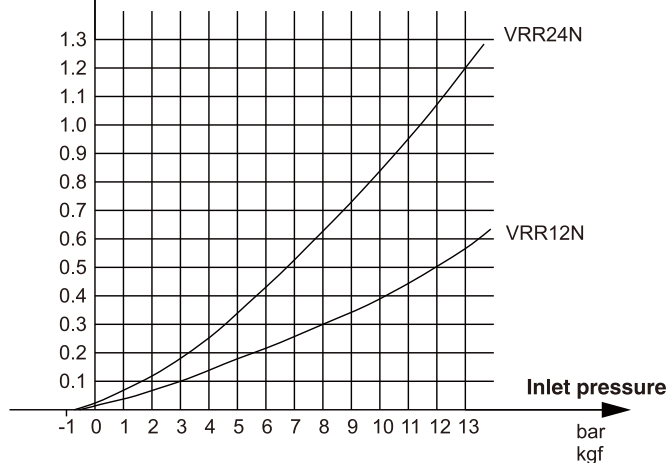
SPECIFICATION

	VRR12N	VRR24N
Refrigerants	Category III: R12, R134a, R401C, R500 Category IV: R22, R401A, R401B, R402B, R407C, R407D, R408A, R409A, R502, R509 Category V: R402A, R404A, R407A, R407B, R410A, R507	
Power	220-240V~50/60Hz	
Rated Current	5A	7.5A
Motor	Brushless Motor 1HP	
Motor Speed	3000 RPM	
Compressor	Oil-less, Air-cooled, Piston	
High Pressure Protector	38.5bar	
Operating Temperature	0 ~ 40°C	
Dimensions	311mm×240mm×245mm	
Net Weight	8.9 kg	9.2 kg

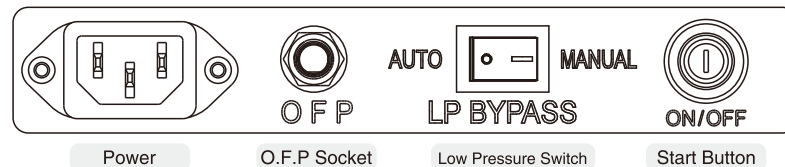
Flow Rate
Kg/min

Notice

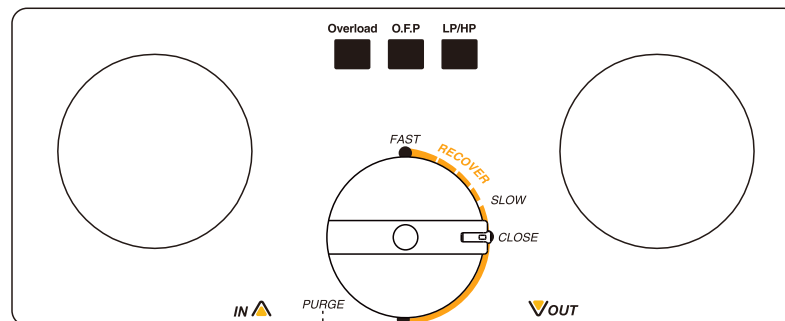
The vapor flow rate is proportioned to inlet pressure.



CONTROL PANEL INTRODUCTION

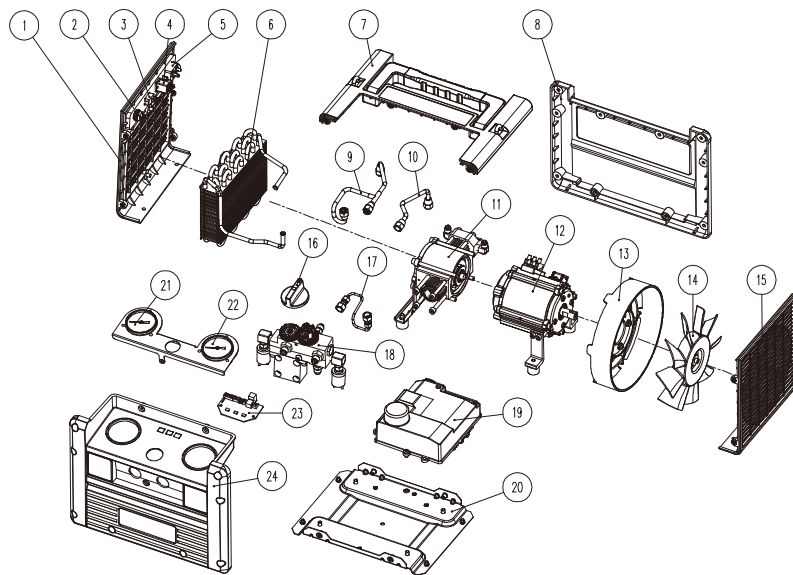


Start Button: Starts and stops the unit; press and hold for 0.3 seconds then release to start the unit, press again after 0.5 seconds to stop the unit.



- **OVERLOAD:** Overload, drive board, motor fault indication
- **O.F.P :** Full liquid protection indication
- **LP :** Low voltage protection indication
- **HP :** High voltage protection indication
- **CLOSE:** Intake valve closed
- **RECOVER:** Intake valve partially open
- **FAST:** Inlet valve fully open
- **PURGE:** The input valve is closed and the output valve is open, so that the refrigerant in the equipment can be recovered

PARTS DIAGRAM

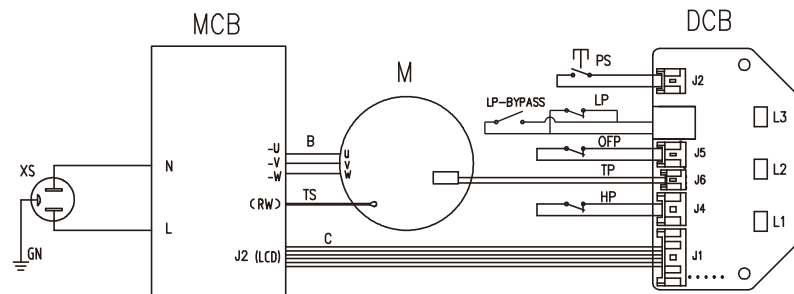


NO.	Parts name
1	Left Side Panel
2	Start Switch
3	Low Pressure Switch
4	O.F.P Socket
5	Power
6	Condenser
7	Top Panel
8	Rear Panel
9	Input Pipe
10	Output Pipe
11	Compressor
12	Motor

NO.	Parts name
13	Fan Blade Cover
14	Fan Blade
15	Right Side Panel
16	Knob
17	Pipe
18	Control Assy
19	Motor Control PCB
20	Base
21	Input Gauge
22	Output Gauge
23	Indicator board
24	Front Side Panel

Notes: VRR24N: 11 compressor units (twin cylinder) ;
VRR12N: 11 compressor units (single cylinder) 。

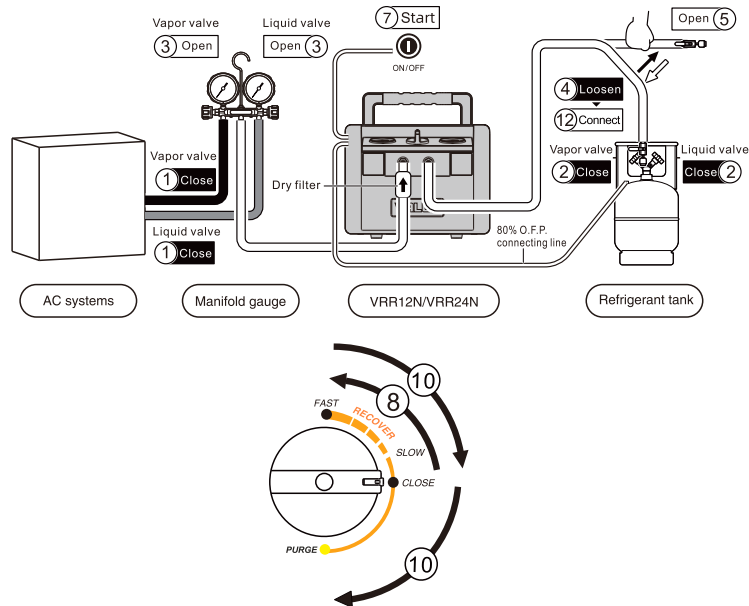
WIRING DIAGRAM



Graphics Code	Item
M	Motor
MCB	Motor control board
XS	Socket
DCB	Indicator board
OFP	Over filling protector
TP	Thermal protector
HP	High pressure switch
TS	Temperature sensor
LP	Low Pressure Switch
PS	Start/Stop Button

OPERATING INSTRUCTION

1). Refrigerant hoses exhaust



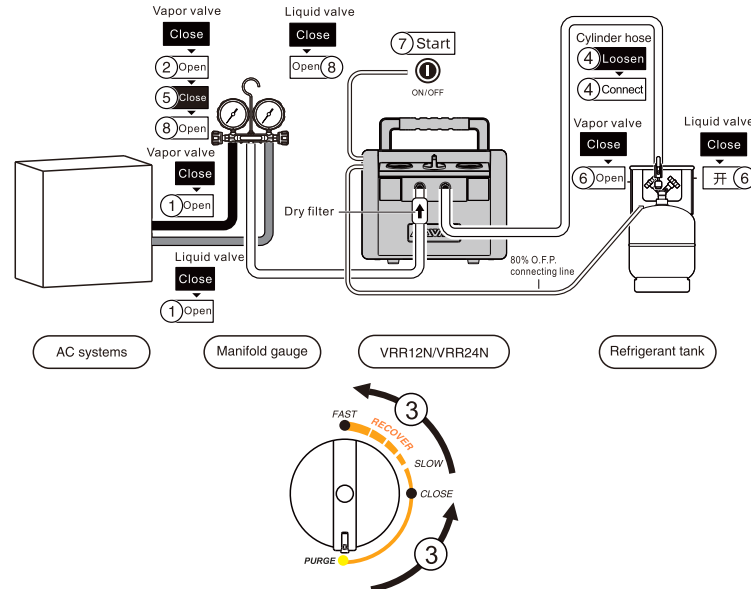
Connect the hoses correctly and firmly.
(Please refer to the connection diagram)

1. Confirm the vapor valve and liquid valve of AC system are in close position.
2. Confirm the vapor valve and liquid valve of recovery tank are in close position.
3. Open the vapor and liquid valves of manifold gauge.
4. Loosen the connecting hoses of refrigerant tank.
5. Open the check valve of hoses.
6. Plugged in, the indicator light is fully illuminated for 2 seconds before going out.
7. With the knob in the "CLOSE" position, press the "Start" switch to start the machine.

8. Slowly turn the knob to "FAST" to start emptying the air inside the pipe.
9. Observe the low voltage meter display, the display drops to "-76cmHg".
10. Turn the knob to "CLOSE" position, then slowly turn to the "PURGE" position to start purging.
11. Observe the low voltage meter display again, the display drops to "-76cmHg".
12. Connect the outlet hose to the valve of the refrigerant tank.

OPERATING INSTRUCTION

2). Recovery mode



Please refer to the connection diagram

1. Open the gaseous and liquid valves of the refrigeration unit.
2. Open the gas valve of the meter set.
3. Turn the switch to the position "FAST".
4. Slightly loosen the hose connector connected to the cylinder to remove the air inside. Then tighten the connector immediately.
5. Close the gas valve of the meter set.
6. Open the corresponding ports of the cylinder (gas recovery to liquid port, and Liquid recovery to gas port).
7. Press the "Start" switch to start this equipment.
8. a. Open the liquid valve for liquid recovery.
b. Open the vapor valve for vapor recovery.
9. When the recovery is finished, the unit gets the needed vacuum or automatically stop with low pressure protection.

There is no need to turn off the power and it can do the self-purge work directly.

▲ Notice

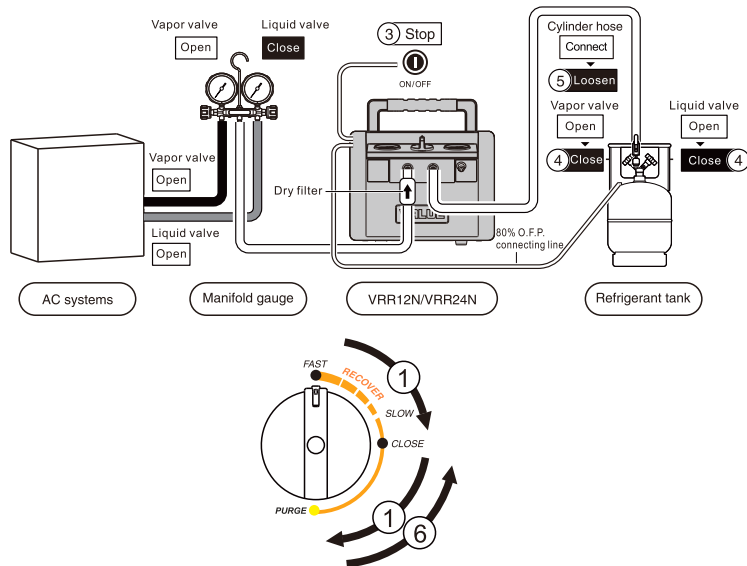
- ① If the compressor in the "FAST" position of the liquid impact, you can slowly knob to the "SLOW" position, this time the low-pressure meter display value down, until the impact stops, but do not make the pressure value fall to The air inlet will not pump when it reaches zero.
- ② In case of restart after a power failure or in case of difficulty in starting, turn the knob to the "CLOSE" position for liquid and to the "PURGE" position for gas, then press the "START" switch to start the unit, and then turn the knob to the "FAST" position.

OPERATING INSTRUCTION

3). Purge mode

▲ Notice

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



Start operation

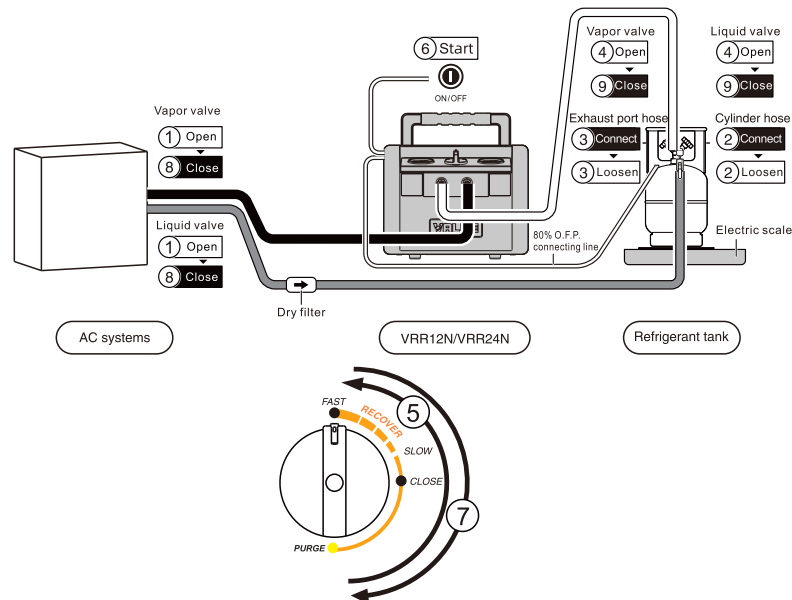
1. To reach the desired vacuum level, slowly turn the knob to the "PURGE" position to start self-cleaning.
2. Run to the desired vacuum level to end the self-cleaning.
3. Turn off the machine.
4. Close the valve of the refrigerant tank.
5. Remove the exhaust connection pipe.
6. Turn the knob to "CLOSE" position.
7. Disconnect the power cord.
8. Remove all connecting pipes.

OPERATING INSTRUCTION

4). 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.

Exhaust the air in the recovery first: open the recovery machine and loosen the exhaust port, turn the knob to the "FAST" first, and then to the "PURGE" to finish, then turn off the machine.

1. Open the gas valve and liquid valve of the refrigeration unit;
2. Slightly loosen the liquid pipe connector at the cylinder, after having released the refrigerant quickly tighten the joint;
3. Slightly loosen the exhaust pipe connector at the recycling machine, after releasing refrigerant, tighten

the connector quickly. After releasing refrigerant, tighten the joint quickly;

4. Open the gas valve and liquid valve of the refrigerant storage tank;
 5. Turn the knob to "FAST".
 6. Press "6 Start" button to start machine, then it starts liquid push/pull mode.
- When the data displayed on the electronic scale remains constant or changes slowly, it means that the liquid inside the refrigerant has been recovered and is ready for gaseous recovery.
8. Close the vapor valve, liquid valve of the HVAC.
 9. Close the vapor valve, liquid valve of the tank.
 10. Reconnect the hoses and start recovery mode for the vapor.

PROBLEM	CAUSE	SOLUTION
Power on, indicator light no response	<ol style="list-style-type: none"> 1. Power cord is damaged. 2. Inner connection is loose. 3. Connect to J1 is damaged. 4. Malfunction of circuit board. 	<ol style="list-style-type: none"> 1. Replace cord. 2. Check the connection. 3. Replace the connect. 4. Replace MCB or DCN circuit board. Contact VALUE tech support.
Machine does not run after pressing Start switch	<ol style="list-style-type: none"> 1. Pressing the button is not maintained for more than 0.3 s. 2. High pressure protection switch is broken, HP light is on. 3. OFP switch is off, OFP light is on. 4. Overload lamp is on. 5. Button is damaged. 6. Circuit board is damaged. 	<ol style="list-style-type: none"> 1. Re-press the button. 2. Test whether the connection of the high-voltage switch is good. 3. Test if the connection of OFP switch is good. 4.1. Check if the input voltage is correct. 4.2. Check if the connection between TS and MCB is good or not. 4.3. Check if the connection between TP and DCB is good or not. 4.4. Check if the connection between PS and DCB is good. 4.5. No-load also error, power failure, such as can not rotate the wind blade, is a mechanical stagnation, return to the factory for repair; if it can rotate, replace the control board. 4.6. with load, liquid recovery knob rotated to "CLOSE" position, gas knob rotated to "PURGE" position, and then press the button to start the equipment 5. Replace the button. 6. Replace the circuit board and contact VALUE tech support.
Machine stops after running a period of time	<ol style="list-style-type: none"> 1. Misoperation causes high pressure switch to operate, HP light up. 2. Thermal protector action, overload lamp lights up 3. Refrigerant is 80% in the tank, and O.F.P Cutoff shows. 	<ol style="list-style-type: none"> 1. Please read the OPERATION MANUAL carefully. 2. When the switch is reset and the Overload light is blinking, you can reboot the device. 3. Replace the tank. When O.F.P Cutoff and Restart flash, press Start Switch.
Slow recovery rate	<ol style="list-style-type: none"> 1. The pressure of the refrigerant tank is too high. 2. Valve opening too small 3. Piston ring of compressor is damaged. 	<ol style="list-style-type: none"> 1. Cooling the tank help decrease the pressure. 2. Turn the knob to "FAST" 3. Contact VALUE tech support.
Not evacuate	<ol style="list-style-type: none"> 1. Connection hose is loose. 2. Machine leaks. 	<ol style="list-style-type: none"> 1. Tighten the connection hoses. 2. Contact VALUE tech support.



114

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