

CENTRAL MACHINERY

®

AUTO A/C RECOVERY / RECHARGE MACHINE

Model 95951

SET UP AND OPERATING INSTRUCTIONS



Diagrams within this manual may not be drawn proportionally.

Due to continuing improvements, actual product may differ slightly from the product described herein.

Distributed exclusively by Harbor Freight Tools®.

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Visit our website at: <http://www.harborfreight.com>



**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.

SPECIFICATIONS

Construction	Sheet Steel Housing, Reinforced Braided Rubber Hoses with Brass Fittings, Polypropylene Valves, Copper Tubing, Thermoplastic Oil Bottle and Carbon Steel Hardware
Electrical Requirements	110 V~, 60 Hz
Compressor	1/3 HP Input Power
Vacuum Maximum Capacity	60 Liters per Minute (15.9 Gallons per minute)
Suitable for	R134A Refrigerant
Refrigerant Tank Capacity	14 kg (30.8 lb)
Maximum Scale Weight	30 kg (66 lb)
Recovery Speed	250 Grams/Min (8.82 Ounces per Minute)
Refilling Speed	800 G/Min (28 Ounces per Minute)
Overall Dimensions	18-1/8" W x 22" D x 43-1/8" H
Net Weight	160.8 lb.

Save This Manual

You will need this manual for the safety warnings and precautions, assembly, operating, inspection, maintenance and cleaning procedures, parts list and assembly diagram. Keep your invoice with this manual. Write the invoice number on the inside of the front cover. Write the product's serial number in the back of the manual near the assembly diagram, or write month and year of purchase if product has no number. Keep this manual and invoice in a safe and dry place for future reference.

GENERAL SAFETY RULES

⚠WARNING!


READ AND UNDERSTAND ALL INSTRUCTIONS
Failure to follow all instructions listed below may result in
electric shock, fire, and/or serious injury.
SAVE THESE INSTRUCTIONS

WORK AREA

1. **Keep your work area clean and well lit.** Cluttered benches and dark areas invite accidents.
2. **Do not operate powered machines in explosive atmospheres, such as in the presence of flammable liquids, gases, or dust.** Power machines create sparks which may ignite the dust or fumes.

3. **Keep bystanders, children, and visitors away while operating a powered machine.** Distractions can cause you to lose control. Protect others in the work area from debris fumes and oil. Provide barriers or shields as needed.

ELECTRICAL SAFETY

1. **Grounded machines must be plugged into an outlet properly installed and grounded in accordance with all codes and ordinances. Never remove the grounding prong or modify the plug in any way. Do not use any adapter plugs. Check with a qualified electrician if you are in doubt as to whether the outlet is properly grounded.** If the machines should electrically malfunction or break down, grounding provides a low resistance path to carry electricity away from the user.
2. **Double insulated machines are equipped with a polarized plug (one blade is wider than the other). This plug will fit in a polarized outlet only one way. If the plug does not fit fully in the outlet, reverse the plug. If it still does not fit, contact a qualified electrician to install a polarized outlet. Do not change the plug in any way.** Double insulation  eliminates the need for the three wire grounded power cord and grounded power supply system.
3. **Avoid body contact with grounded surfaces such as pipes, radiators, ranges, and refrigerators.** There is an increased risk of electric shock if your body is grounded.
4. **Do not expose powered machines to rain or wet conditions.** Water entering a powered machine will increase the risk of electric shock.
5. **Do not abuse the Power Cord. Never use the Power Cord to carry the machines or pull the Plug from an outlet. Keep the Power Cord away from heat, oil, sharp edges, or moving parts. Replace damaged Power Cords immediately.** Damaged Power Cords increase the risk of electric shock.
6. **When operating a powered machine outside, use an outdoor extension cord marked "W-A" or "W".** These extension cords are rated for outdoor use, and reduce the risk of electric shock.

PERSONAL SAFETY

1. **Stay alert. Watch what you are doing, and use common sense when operating a powered machine. Do not use a powered machine while tired or under the influence of drugs, alcohol, or medication.** A moment of inattention while operating powered machines may result in serious personal injury.
2. **Dress properly. Do not wear loose clothing or jewelry. Contain long hair. Keep your hair, clothing, and gloves away from moving parts in engine compartment.** Loose clothes, jewelry, or long hair can be caught in moving parts in the machine.

3. **Avoid accidental starting. Be sure the Power Switch is off before plugging in.** Leaving the Power Switch on while the machine is unattended invites accidents.
4. **Remove adjusting keys or wrenches before turning the powered machine on.** A wrench or a key that is left attached to a rotating part of the powered machine may result in personal injury.
5. **Do not overreach. Keep proper footing and balance at all times.** Proper footing and balance enables better control of the powered machine in unexpected situations.
6. **Use safety equipment. Always wear eye protection.** Dust mask, nonskid safety shoes, hard hat, or hearing protection must be used for appropriate conditions. Always wear ANSI-approved safety goggles and a dust mask/respirator when using or performing maintenance on this machine. Keep the work area well ventilated.

TOOL USE AND CARE

1. **Do not force the machine. Use the correct machine for your application.** The correct machine will do the job better and safer at the rate for which it is designed. Do not force the machine and do not use the machine for a purpose for which it is not intended.
2. **Do not use the powered machine if the Power Switch does not turn it on or off.** Any machine that cannot be controlled with the Power Switch is dangerous and must be replaced.
3. **Disconnect the Power Cord Plug from the power source before making any adjustments, changing accessories, or storing the machine.** Such preventive safety measures reduce the risk of starting the machine accidentally. **Always unplug the machine from its electrical outlet before performing any inspection, maintenance, or cleaning procedures.**
4. **Store idle machines out of reach of children and other untrained persons.** Tools are dangerous in the hands of untrained users.
5. **Maintain machines with care.** Properly maintained machines are less likely to fail and are easier to control. Do not use a damaged machine. Tag damaged machines "Do not use" until repaired.
6. **Check for misalignment or binding of moving parts, breakage of parts, and any other condition that may affect the machine's operation. If damaged, have the machine serviced before using.** Many accidents are caused by poorly maintained machines.
7. **Use only accessories that are recommended by the manufacturer for your model.** Accessories that may be suitable for one machine may become hazardous when used on another machine.

SERVICE

1. **Tool service must be performed only by qualified repair personnel.** Service or maintenance performed by unqualified personnel could result in a risk of injury.
2. **When servicing a machine, use only identical replacement parts. Follow instructions in the “*Inspection, Maintenance, And Cleaning*” section of this manual.** Use of unauthorized parts or failure to follow maintenance instructions may create a risk of electric shock or injury.

SPECIFIC SAFETY RULES

1. **Maintain labels and nameplates on the machine.** These carry important information. If unreadable or missing, contact Harbor Freight Tools for a replacement.
2. **Maintain a safe working environment.** Make sure there is adequate surrounding workspace. Do not use this product in a damp or wet location. Be sure there is adequate ventilation. Do not operate machine or vehicle in enclosed space.
3. **When using a handheld powered machine, always maintain a firm grip on the machine with both hands to resist starting torque.**
4. **Avoid unintentional starting.** Make sure you are prepared to begin work before turning on the machine.
5. **Always keep the extension cord away from moving parts on the machine or the vehicle.**
6. **People with pacemakers should consult their physician(s) before using this product.** Electromagnetic fields in close proximity to a heart pacemaker could cause interference to or failure of the pacemaker. In addition, people with pacemakers should adhere to the following:
 - Avoid operating powered machines alone.
 - Don't use a powered machine with the power switch locked on.
 - If powered via a power cord be certain that the machine is properly grounded. A ground fault interrupt (GFCI) system is also a good precaution. This inexpensive device is a good safety measure because it prevents a sustained electrical shock.
 - Properly maintain and inspect all machines before use to avoid electrical shock.
7. **Only use R134A refrigerant with this machine.** Do not use other refrigerants. Please see refrigerant discussion on page 12 of this manual for more information. Before servicing, check vehicle owner's manual to confirm that A/C system will operate on R134A refrigerant.
8. **Before starting service, check to see that the recovery tank has space for additional coolant, there is replacement refrigerant in the coolant tank, and there**

- is cooling oil in the cooling oil bottle. Check compressor oil level to determine it is within safe limits before starting service.
9. **Do not expose this machine to direct sunlight or rain.** Keep it in a well ventilated sheltered area.
 10. **The refrigerant tank may only be filled to 80% capacity during the recovery operation.** Check tank level before starting service to ensure that there is sufficient recovery space.
 11. **There must be at least 1 kg (2.2 lb) of refrigerant in the coolant tank to perform the refilling operation.** Do not attempt the refilling operation if there is less than 1 kg (2.2 lb) of refrigerant in the coolant tank.
 12. **The HP and LP Valves on the Control Panel must be in the CLOSED position when attaching the machine to the auto A/C system.**
 13. **When servicing, keep all hoses away from hot parts and moving components of vehicle engine area to prevent hose damage.**
 14. **When running the vehicle, be sure it is in PARK or NEUTRAL with parking brakes locked and wheels chocked.**
 15. **Never start the vehicle or operate the vehicle A/C system if the hose is connected to the HP system and the HP Valve on the Control Panel is open.**
 16. **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.*)

GROUNDING

⚠WARNING!

Improperly connecting the grounding wire can result in the risk of electric shock. 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.

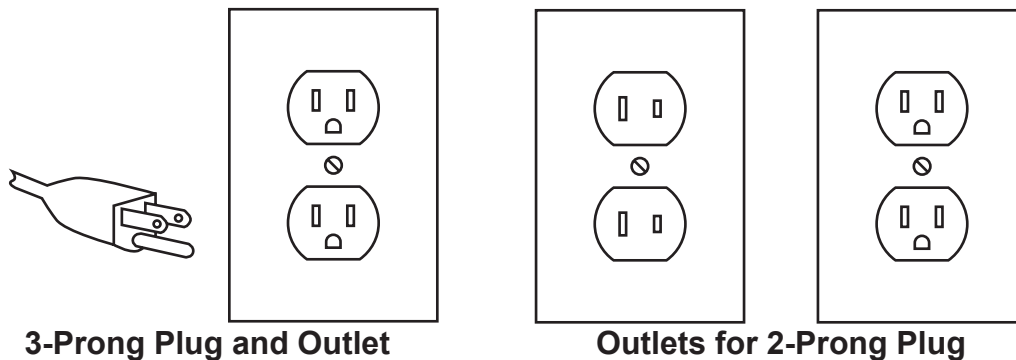
GROUNDING TOOLS: TOOLS WITH THREE PRONG PLUGS

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 machine should electrically malfunction or break down, grounding provides a low

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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 machine. The green wire in the cord must be the only wire connected to the machine's grounding system and must never be attached to an electrically "live" terminal. **(See 3-Prong Plug and Outlet.)**
3. Your machine 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 following illustration. **(See 3-Prong Plug and Outlet.)**



DOUBLE INSULATED TOOLS: TOOLS WITH TWO PRONG PLUGS

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

EXTENSION CORDS




1. **Grounded** machines require a three wire extension cord. **Double Insulated** machines can use either a two or three wire extension cord.
2. 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 machine damage. **(See Table A.)**
3. 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.)**
4. 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.)**

5. If you are using one extension cord for more than one machine, add the nameplate amperes and use the sum to determine the required minimum cord size.
(See Table A.)
6. 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.
7. Make sure your extension cord is properly wired and in good electrical condition. Always replace a damaged extension cord or have it repaired by a qualified electrician before using it.
8. Protect your extension cords from sharp objects, excessive heat, and damp or wet areas.

RECOMMENDED MINIMUM WIRE GAUGE FOR EXTENSION CORDS* (120 OR 240 VOLT)					
NAMEPLATE AMPERES (at full load)	EXTENSION CORD LENGTH				
	25 Feet	50 Feet	75 Feet	100 Feet	150 Feet
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.

SYMBOLOLOGY

	Double Insulated
	Canadian Standards Association
	Underwriters Laboratories, Inc.
V~	Volts Alternating Current
A	Amperes
n ₀ xxxx/min.	No Load Revolutions per Minute (RPM)

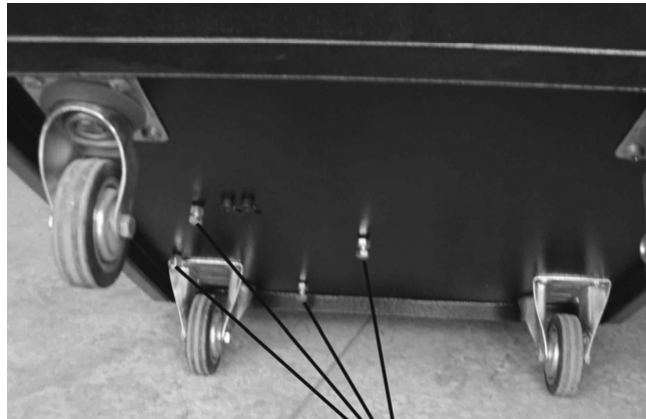
UNPACKING

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.

ASSEMBLY INSTRUCTIONS

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

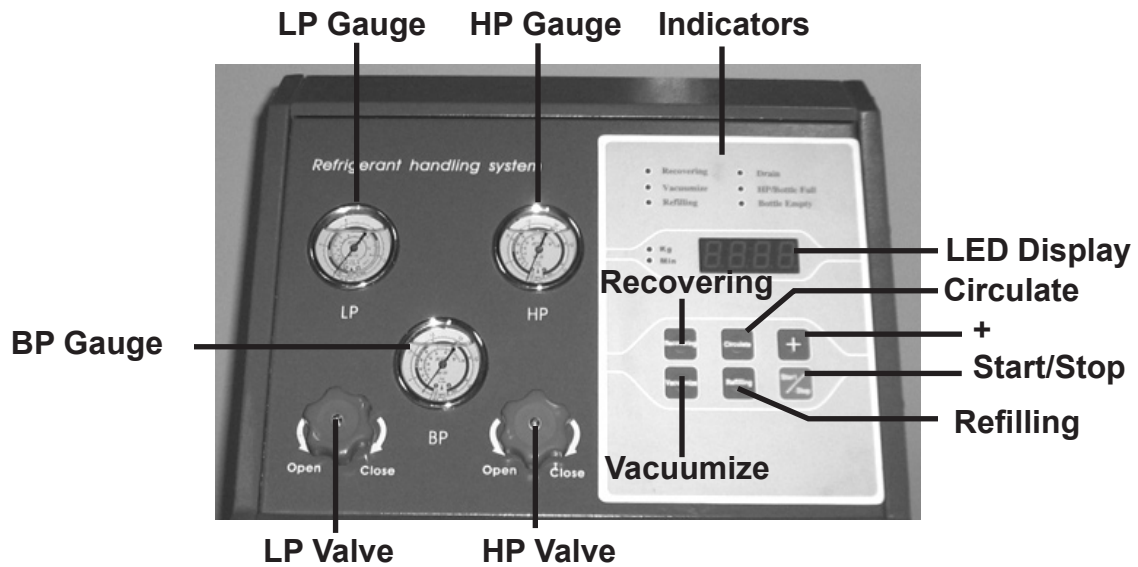
1. **⚠WARNING!** Make sure the Power Switch of the tool is in its “OFF” position and that the tool is unplugged from the electrical outlet before making any adjustments to the tool.
2. Remove the (4) Protection Bolts from the Electronic Scale before using this machine for the first time. The four Protection Bolts (see photo below) are fastened to the bottom of the machine. To do this:
 - a. Use a 6mm wrench to remove the bolts. Turn them counterclockwise to loosen. Store the bolts in a safe place for future use.
 - b. Use the Power ON/OFF Switch to turn on the machine.
 - c. Press the “Recovering” and “Circulate” keys at the same time to reset the scale. The word “Good” will appear in the LED display if the scale is working properly.



Protection Bolts

3. Prior to shipping this machine, replace the Protection Bolts to lock the scale in place to prevent damage.
4. Optional external coolant tank is discussed in this manual. This accessory is NOT INCLUDED with this machine and must be purchased separately. It is discussed here for your convenience.

OPERATING INFORMATION



Control Panel Gauges

Please refer to the drawing on page 9 for Control Panel items.

1. **HP Gauge:** Displays pressure of the high pressure end of the auto A/C system.
2. **LP Gauge:** Displays pressure of the low pressure end of the auto A/C system.
3. **BP Gauge:** Displays pressure of the refrigerant tank of this machine.

Indicator Lights

1. **Recovering:** When lighted, indicates that the machine is performing the recovery operation.
2. **Vacuumize:** When lighted, indicates that the machine is generating vacuum.
3. **Refilling:** When lighted, indicates that the machine is refilling the auto system. New refrigerant is being added.
4. **Drain:** When lighted, indicates that the machine is draining used cooling oil from the auto A/C system.
5. **HP / Bottle Full:** During the Recovery process when the light is on, it indicates either that the HP pressure has reached or exceeded 240 PSI. The Recovery process will halt until the pressure has automatically lowered to 180 PSI or less. If the pressure is within safe bounds and this light comes on, it indicates that the Refrigerant Tank is full, weighing over 14 kg. The Refrigerant Tank must be partially emptied to continue the recovery process.

6. **Bottle Empty:** During the Refilling Process, if the Refrigerant Tank contains less than 1 kg of fluid, the process will stop and the indicator light will come on. The bottle must be refilled before continuing the Refilling Process.

LCD Display

1. When the “kg” indicator light is on, the value shown in the LCD Display is the recovered or refilled refrigerant weight.
2. When the “MIN” indicator light is on the LCD Display shows the Vacuuming Time in Minutes.

Valve Controls

1. **LP Valve:** Low Pressure Control Valve.
2. **HP Valve:** High Pressure Control Valve.

Function Keys

1. **“+” Key:** Press this Key to adjust the setup value. Each press of the Key increases the set value by 1.
2. **“Circulate”:** Press this Key to lock in the value set using the + Key.
3. **“Recovering”:** Press this Key to initiate the refrigerant recovery operation. During the Recovery operation, pressing this Key will toggle the LCD display between “Setup Value” and “Actual Recovery Value.”
4. **“Vacuumize”:** Press this Key to initiate the vacuum generation operation.
5. **“Refilling”:** Press this Key to initiate the Refilling operation.
6. **“Start / Stop” :** Press this Key to start or stop the current operation.

WARNING: Do not use any refrigerant other than factory specified R134A (also identified as 134A, Forane 134a or HFC-134a) in an automotive A/C system. Use of Freon or other Fluorocarbons is prohibited by US law.

WARNING: DO NOT INHALE or HANDLE REFRIGERANT. Inhalation of high concentrations of refrigerant is harmful and may cause heart irregularities, dizziness, central nervous effects, unconsciousness or death. Intentional misuse or deliberate inhalation may cause death without warning. Vapor reduces oxygen available for breathing and is heavier than air. Decomposition products of refrigerant are also hazardous. Contact with liquid refrigerant can cause injury including frostbite.

OPERATION

Preparation

1. Before operation, check the Vacuum Pump oil level. Do this by looking through the opening on the lower right side of the back panel. You will be able to see the vacuum pump oil reservoir. The level must be between the MIN and MAX markings. If the oil level is low, open the back of the machine, remove the cap of the oil reservoir and fill to the MAX line with good quality compressor oil. Replace the oil cap and back of machine before beginning operation. **DO NOT OPERATE THIS MACHINE WITHOUT ADEQUATE OIL IN THE VACUUM PUMP, SEVERE DAMAGE WILL RESULT.**
2. **WARNING:** The A/C (air conditioning) system is under high pressure. Do not loosen any hose fittings or remove any components until after the system has been completely discharged and depressurized. Removal or loosening of a component while the system is under pressure can cause severe personal and property damage or injury.

Checking the Vehicle A/C System

1. Check the vehicle compressor drive belt. If it is worn or cracked, it should be replaced before any other service is performed.
2. Check the vehicle system hoses. Look for cracks, bubbles, hard spots and deterioration. Inspect all hoses and fittings for leaks and refrigerant seepage. If there is any evidence of wear, replace the damaged parts before performing any other service.

Note: Use of a leak detector kit (not included) is recommended.

3. Inspect the compressor fins for debris that may be impeding heat dispersion of the compressor. Clean between the fins with a tool or compressed air.

Attaching the Recovery / Recharge Machine

1. Operate the vehicle A/C system on "High" for a few minutes to pressurize the system. Turn the vehicle OFF. **WARNING: Opening the HP valve while the vehicle is running with the A/C system on can cause the refrigerant tank to break or explode.**
2. Close the LP and HP valves on the Control Panel of the machine.

WARNING: Check vehicle service manual to identify with certainty the correct system connections.

3. Connect the High Pressure hose to the high pressure connector of the machine and high pressure connector of the vehicle A/C system, and the Low Pressure hose to

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the low pressure connector of the machine and the low pressure connector of the vehicle A/C system.

4. Turn the Power Switch to the ON position. The Power Switch is located on the upper left side of the machine.
5. The “kg” Indicator light will come on, and the LCD Display will show the net weight of refrigerant in the tank. If the tank is nearly full, (capacity 14 kg) you may not be able to recover the refrigerant in the vehicle A/C system.
6. Open the HP and LP Valves located on the Control Panel of the machine.
7. Read pressure shown on the HP and LP Pressure Gauges on the Control Panel.

Note: If the pressure on either gauge is less than 22 PSI, it indicates that the system needs repair. There is probably a leak which does not allow the automotive system to maintain pressure.

Clearing the Hoses

1. With the vehicle turned OFF, and the hoses connected, it is necessary to remove air from the hoses and machine before beginning the recovery process. To do this, run the Vacuuming process.
2. Press the “Vacuumize” Key on the control panel. The LED Display will show the default time setting for the Vacuuming process.
3. Press “+” to set Vacuuming time. 3-5 minutes is recommended.
4. Close the HP and LP Valves on the Control Panel.
5. Press the “Start / Stop” Key to begin the vacuuming process.

Recovery

1. Once the hoses have been cleared, you can run the “Recovery” process.
2. Open the HP and LP valves on the Control Panel.
3. Press the “Recovering” Key on the Control Panel.
4. The LCD Display will show the default number of kilograms of refrigerant to be recovered. Check the vehicle specifications to determine the correct amount for that vehicle. Press the “+” Key repeatedly to set the correct value.
5. Press the “Start / Stop” Key to begin the recovery process.
6. During the recovery process, you can monitor progress by pressing the “Recovering” Key. The LCD Display will toggle between the preset recovery target value and the current recovery value.

7. Machine will run automatically until correct amount of refrigerant is removed.
8. When the pressure of both the HP and LP system are near "0", the system will automatically reset to run approximately 1 minute longer. After that, there is a 20 second oil drain period. The machine will then automatically shut off.
9. Machine will shut off and alarm will sound to signal process is completed.

Understanding and resolving problems during the recovery process

1. If during the recovery process the pressure exceeds safe limits, the refrigerant bottle becomes full, or no refrigerant is recovered for a minute, the system will stop automatically. Depending on the reason for shut down, an alarm may sound, and the "HP/Bottle Full" indicator may light. If this happens, resolve the problem before restarting the process.
2. If the system pressure exceeds 240 PSI, the machine will shut down an alarm will sound, and the "HP / Bottle Full" light will come on. Reduce the pressure to below 180 PSI, then press the "Start / Stop" Key to restart the process.
3. If the Refrigerant Bottle becomes full during the recovery process, the operation will shut down, an alarm will sound, and the "HP / Bottle Full" light will come on. Remove some refrigerant from the bottle before restarting the process.
4. If weight of refrigerant tank does not increase for a minute, it indicates that no refrigerant is being recovered. This may mean the auto A/C system is empty, the HP or LP valve is closed, a hose is blocked, or other problem. The process will shut down, and an alarm will sound. Resolve the problem before restarting the process.
5. Do not operate machine more than 10 times in an hour. Doing so may overheat compressor. If overheated, machine will automatically shut down and alarm will sound. Allow machine to rest for at least 5 minutes before attempting restart.

Vacuumping the System

1. After recovering the refrigerant in the auto A/C system, you must vacuum the system to remove all remaining contaminants.
2. The LP and HP hoses are still connected from running the Recovery Process. The HP and LP Valves are open on the Control Panel. NOTE: The Vacuuming Process will not run if the system pressure is above 35 PSI. The recovery process must be run to reduce system pressure.
3. Press "Vacuumize" Key on the Control Panel. The LCD Display will show the default time preset for the vacuum process. Using the "+" Key adjust the time as required. Typically, vacuuming should proceed for 20-30 minutes. Newer or more regularly serviced systems can run 20 minutes. Dirtier systems should run 30 minutes.
4. Press "Start / Stop" Key on the Control Panel to begin the Vacuuming Process.

5. The LCD Display will count down the time remaining in the process. When the time reaches "0" the process will automatically stop.

Refilling the Automotive System with Oil and Refrigerant

1. Vehicle manufacturers design for and specify a specific amount of refrigerant for best operation of your vehicle A/C system. This amount is specified in weight. Too much or too little refrigerant will adversely effect the operation of the A/C system. Some newer vehicles will shut down the A/C system if too much refrigerant is in the system.
2. After recovery, check the amount of used oil separated from the automotive system, and be sure there is at least 20 ml more new oil in the New Oil bottle than the amount removed. If there is not enough oil in the bottle, close the Oil Charge Valve (I-9) and add oil to the new oil bottle.
3. Check to be sure the HP and LP valves on the Control Panel are open.
4. Slowly open the Oil Charge Valve (I-9) allowing new oil to be sucked into the automotive A/C system. Do not open the valve all the way, rather, use it carefully to control the flow of oil. Allow oil to flow into the system until 10 ml more than the amount removed has been added back.
5. When sufficient oil has flowed back into system, close Oil Charge Valve.
6. Press the "Refilling" Key on the Control Panel. The machine will begin to replace refrigerant in the vehicle A/C system. The Refilling Indicator light will be on.
7. NOTE: If the refilling process is taking too long, you can speed the process by using the vehicle A/C compressor. Turn off the HP valve on the machine Control Panel.

WARNING! Never turn the vehicle A/C system on if the HP valve is open. Turn the vehicle A/C system on. The refilling process will go faster.

8. After system has been completely refilled, the machine will stop automatically.
9. Close both the HP and LP valves on the Control Panel. Move the Power Switch to the OFF position. If the vehicle A/C system is running, turn it off.
10. Slightly loosen the hose connector, allow a few seconds to stabilize any existing pressure in the hoses, and then back off the hose connectors and remove the hoses.
11. Always test the vehicle A/C system before returning the vehicle to the customer.

Refilling Using an External Refrigerant Tank (Not Included)

Note: For more accurate refilling, use the internal tank process as discussed pages 15 - 16.

Note: Make sure the LP and HP Valves on the control panel on the machine are closed.

1. Connect the Low Pressure hose to the vehicle A/C system.
2. Disconnect the High Pressure (HP) hose from the auto A/C system.
3. Disconnect HP hose from the High Pressure Connector on the Left Side Panel.
4. Using the High Pressure Hose, connect the Oil Drain Valve (I-13) to the valve of the External Tank (not included).
5. Open the HP and LP Valves on the Control Panel. If the gauges show more than 29 PSI, perform the recovery operation discussed on page 14 before proceeding.
6. Close Oil Drain Valve and Tank Filling Valve. Run Vacuuming Process for the HP and LP Hoses and auto A/C system as discussed on page 13 "Clearing the Hoses".
7. Add new cooling oil by opening the oil valve as discussed on page 15 "Refilling the Automotive System with Oil and Refrigerant". NOTE: Always add cooling oil before adding refrigerant.
8. Open the Oil Drain Valve (I-13). Gradually open the External Tank Valve.
9. The new refrigerant will be drawn into the vehicle A/C system due to the vacuum created in step 6 above.
10. If the refilling process is slow, you may speed things up by starting the vehicle and turning on the A/C system.

INSPECTION, MAINTENANCE, AND CLEANING

1. **⚠WARNING!** Make sure the Power Switch of the tool is in its "OFF" position and that the tool is unplugged from the electrical outlet before performing any inspection, maintenance, or cleaning procedures.
2. **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, leaking valves, damaged hoses, and any other condition that may affect its safe operation. If abnormal noise, leaking or vibration occurs, have the problem corrected before further use. **Do not use damaged equipment.**

MAINTENANCE CHART		
Maintenance Type	Before Use	After Use
Inspect tool for damage (see #2, above)	X	
Wipe off with clean, moist cloth		X
Check Refrigerant and Cooling Oil level	X	
Check Compressor Oil Level	X	

PARTS LIST

For ease of understanding, the components of this machine are displayed in groups. Each group is identified with a Roman Numeral. Components within each group are identified with the group numeral plus a part number. For example "IV-3" is Part 3 in Group IV.

Group I : Left Panel Assembly Group II : Bottom Panel Assembly

Group III : Front Panel Assembly Group IV : Right Panel Assembly

Group V : Control Panel Assembly Group VI : Back Panel Assembly

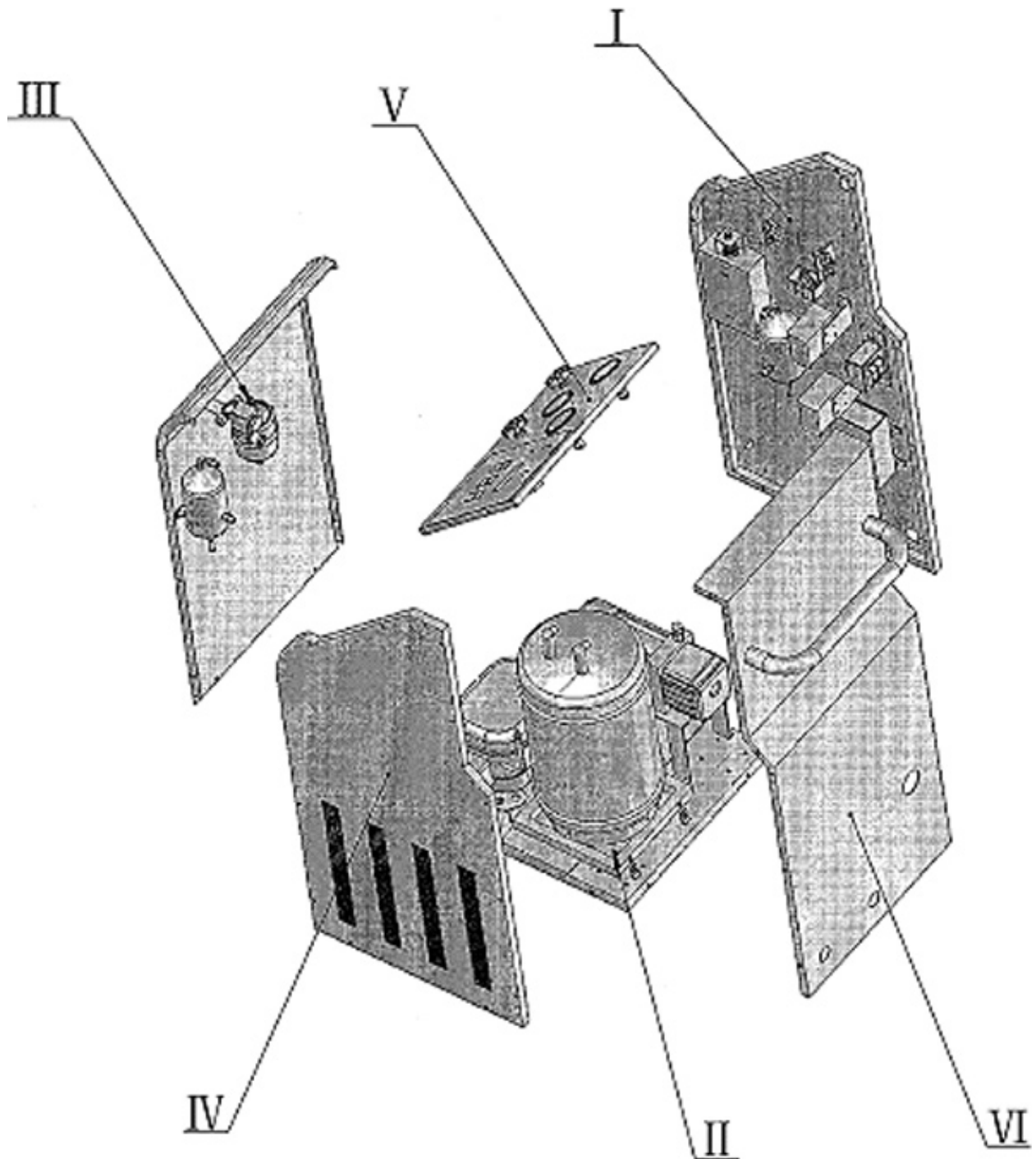
Part	Description	Q'ty
I-1	Left Side Panel	1
I-2	Load Cell Controller	1
I-3	Pressure Controller A	1
I-4	Mounting Bracket 1	1
I-5	Transformer	1
I-6	Pressure Controller B	1
I-7	Mounting Bracket 2	1
I-8	Hose Connector	4
I-9	Oil Charge Valve	1
I-10	Quick Coupler	1
I-11	Oil Bottle	1
I-12	Separator	1
I-13	Oil Drain Valve	1
II-1	Bottom Panel	1
II-2	Vacuum Pump	1
II-3	Caster Wheel	4
II-4	Compressor	1
II-5	Scale Weight Sensor	1

Part	Description	Q'ty
II-6	Mat	1
II-7	Scale Tray	1
II-8	Refrigerant Cylinder	1
III-1	Front Panel	1
III-2	Dryer and Filter	1
III-3	Separator	1
III-4	Solenoid	1
IV	Right Side Panel	1
V-1	Control Panel	1
V-2	Main Control Board with LCD	1
V-3	Key Pad	1
V-4	High Pressure (HP) Gauge	1
V-5	Low Pressure (LP) Gauge	1
V-6	Cylinder Gauge	1
V-7	Low Pressure (LP) Valve	1
V-8	High Pressure (HP) Valve	1
VI-1	Back Panel	1

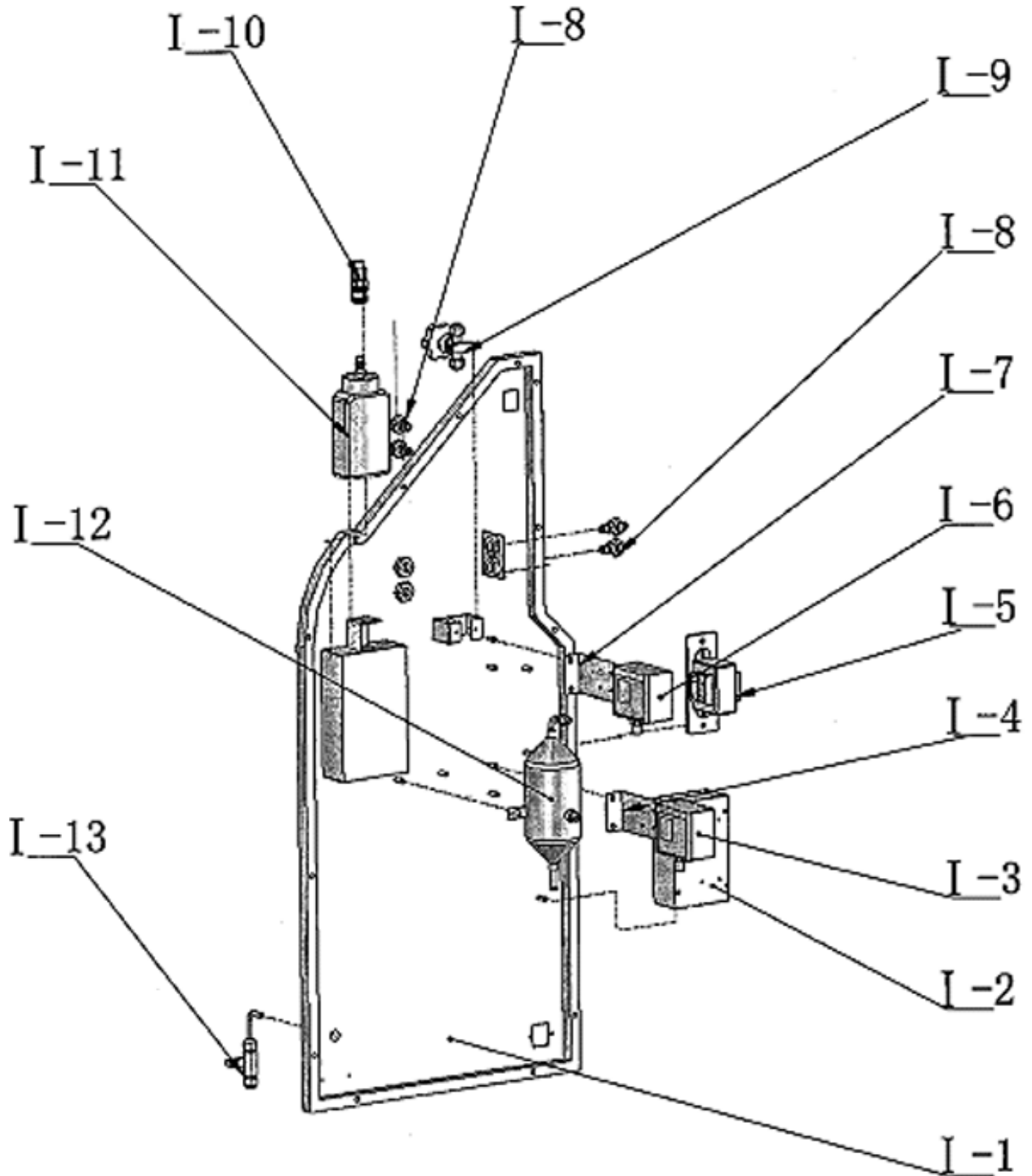
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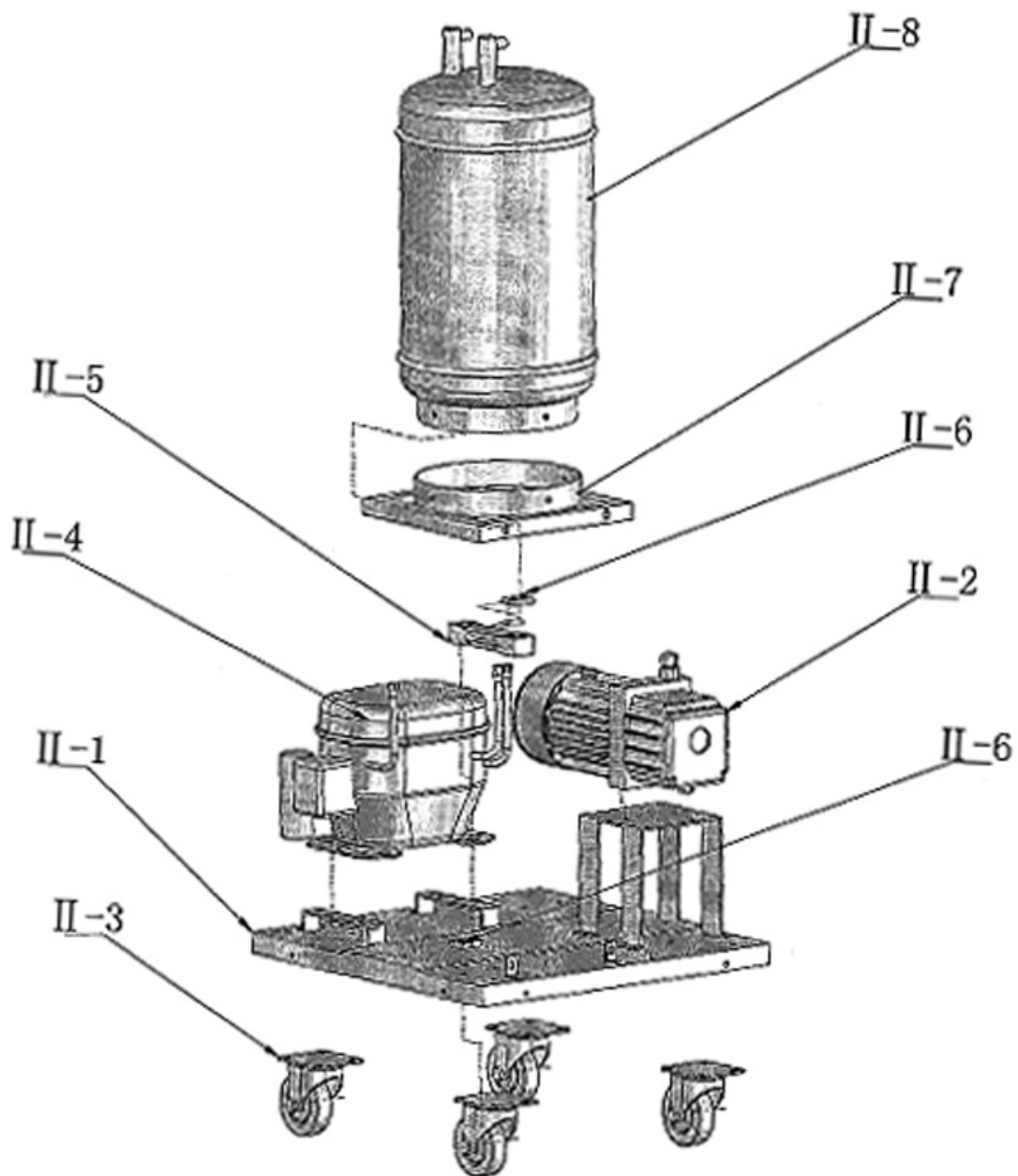
Auto A/C Recovery / Recharge Machine Component Groups



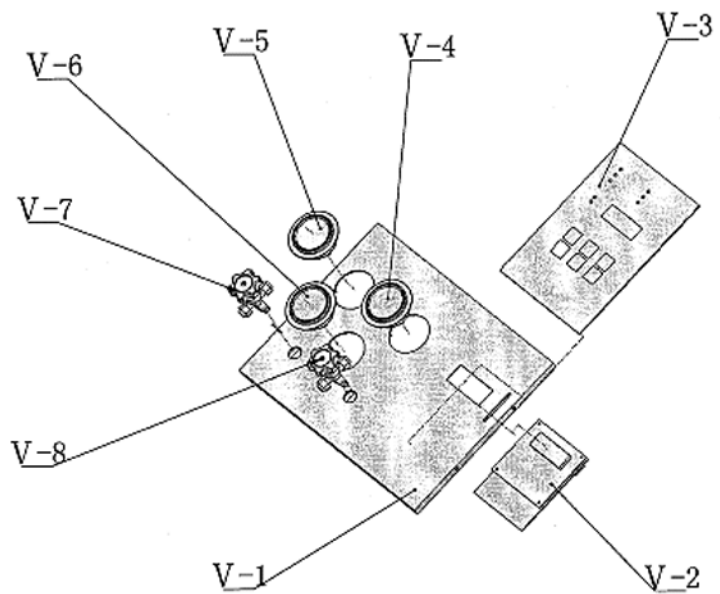
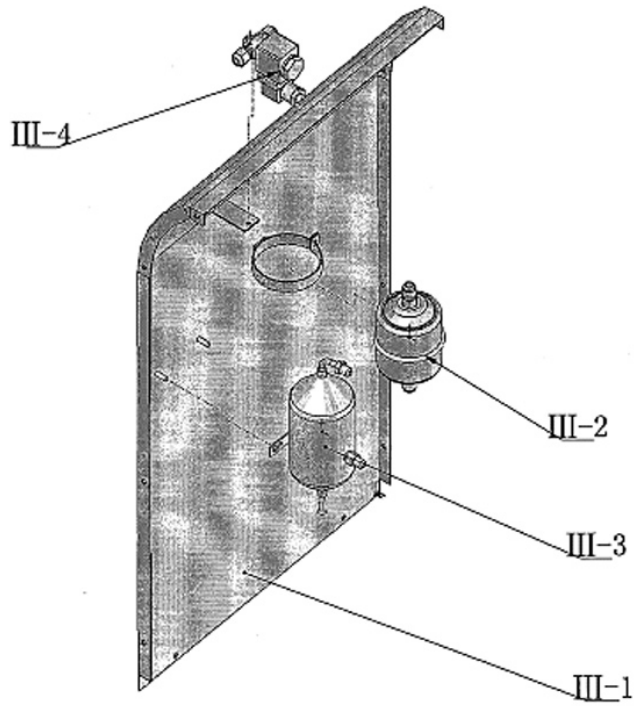
Group I Left Side Panel Assembly



Group II Bottom Panel Assembly



Group III Front Panel Assembly and Group V Control Panel Assembly



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

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