

3-Valve Manifold Gauge Set

User Manual

Read Carefully Before Use
Keep for Future Reference



OMT
Orion Motor Tech

UM-DMG-0019-V2

Disclaimer

Read this disclaimer completely and carefully before proceeding with the rest of the manual content.

1. Product Modifications

Any modifications or alterations to Orion Motor Tech (OMT) products void any warranties and may result in damage or injury. OMT shall not be liable for any damages resulting from such modifications or alterations.

2. Compliance with Laws

Customers shall be liable for ensuring that the use of OMT products complies with all applicable laws and regulations in their respective jurisdictions. OMT shall not be responsible for any violations of laws or regulations resulting from the use of OMT products.

3. Correct Use

Always use OMT products only as directed in the accompanying manuals. Failure to follow instructions may result in injury or damage.

Always ensure the assembly, installation, operation, maintenance, or repair of OMT products is carried out by a competent person.

Regular maintenance should be performed throughout the lifecycle of OMT products. You are responsible for ensuring the products operate as intended.

Always wear appropriate protective gear.

4. Third-Party Products

OMT shall not be liable for any damages or losses resulting from the use of third-party products in conjunction with OMT products. Customers shall refer to the third-party's guidelines and/or warranties (if any) for any third-party products used.

5. Limitation of Liability

OMT shall not be liable for any direct, indirect, punitive, incidental, special, or consequential damages to property or life, whatsoever arising out of or connected with the use or misuse of OMT products. In no event shall OMT's liability exceed the value of the products sold.

6. Warranty

Refer to the sales page for warranty information.

This disclaimer states the entire obligation of OMT with respect to OMT products. If any part of this disclaimer is determined to be void, invalid, unenforceable, or illegal, including but not limited to the warranty disclaimers, liability disclaimers, and liability limitations set forth above, the invalid or unenforceable provision will be deemed superseded by a valid and enforceable provision that most closely matches the intent of the original provision and the remainder of the agreement shall remain in full force and effect.

Contact Us

Thank you for choosing our products! If you have any questions or comments, contact us and we'll address your issues ASAP!



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<https://orionmotortech.com>

@OrionMotorTech



Safety Information



- Read these instructions carefully before use and keep them for future reference. Provide them to anyone who will use this product and provide them with this product if it is ever given or sold to a third party. Failure to do so may result in serious property damage and severe personal injury.
- **DO NOT** allow use by children, individuals with mental or physical conditions that may impair safe operation, or persons unfamiliar with this product and its compatible air conditioning, fuel, and transmission systems.
- ALWAYS use with proper personal protective equipment such as a dust mask, goggles, and work gloves in a well-ventilated place, as these refrigerants can irritate your eyes, nose, throat, and skin or cause frostbite, heart arrhythmia, unconsciousness, and even death. Additionally, operating your vehicle in a closed environment may result in carbon monoxide poisoning and other problems.
- If you experience symptoms such as headache, dizziness, or nausea while using this product, turn off the vehicle and seek fresh air **IMMEDIATELY**. **DO NOT** continue working until the vehicle has been relocated to a well-ventilated area.
- **ONLY** use the coupler marked **HIGH** on the **HIGH-PRESSURE** service port. **ONLY** use the coupler marked **LOW** on the **LOW-PRESSURE** port. Using those interchangeably may cause severe property damage and serious personal injuries.
- Turn your air-conditioning (A/C) system off before evacuation.
- **ONLY** use with R1234yf, R134a, or R404a refrigerant and their matching vehicle A/C systems. **DO NOT** use the product with other refrigerants or home A/C systems, which can damage this product and your property.
- **DO NOT** leave this product unattended during use.
- Maintain this product. Check for misalignment, binding, wear, or other damage before use. If any damage is detected, repair or replace the problematic components before further use. In a large shop, mark such tools "**DO NOT USE**" until they have been repaired. **ONLY** replace components with identical parts.



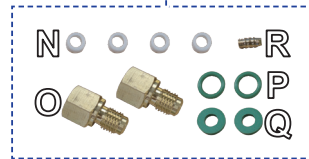
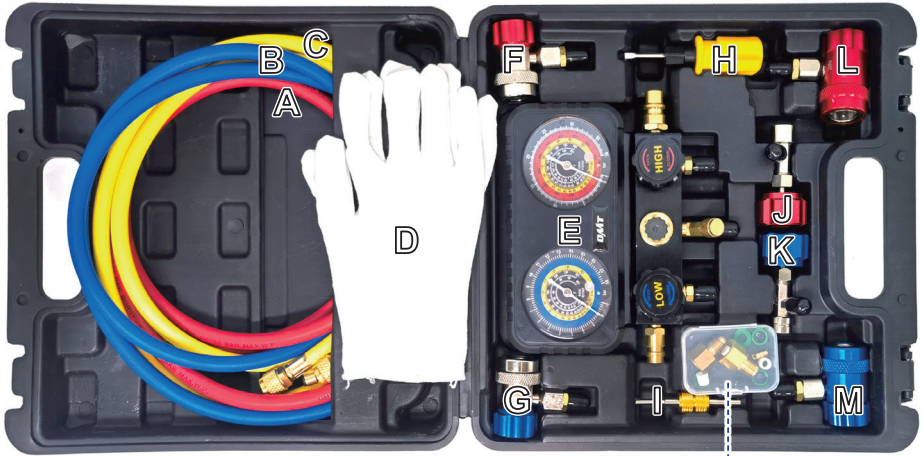
- **ALWAYS** perform leak tests on this product and the A/C system before charging. Address any issues promptly and ensure the system is completely leak-free before proceeding.
- Use **EXTREME** caution when disconnecting the hoses after use, as they may still contain pressurized refrigerant.
- Dress appropriately for automotive servicing. **DO NOT** wear loose clothing or jewelry. Keep hair, clothing, gloves, hoses, and tools away from moving parts during use.
- In case of an accident or injury, keep a first aid kit and a communication device (e.g., a phone) readily available. Be familiar with the location of nearby emergency medical facilities.
- Automotive repair is an inherently dangerous activity. This manual and the separate vehicle service manual cannot cover all possible situations that may arise. **ALWAYS** exercise discretion and good judgement. Seek training if needed.

Specifications

Hoses	Colors	Low-Pressure	Blue		
		High-Pressure	Red		
		Evacuation/ Charging	Yellow		
	Total Length	5 ft	1.5 m		
	Thread Dia.	1/4 in			
	Working Pressure	600 psi	41 bar		
Burst Pressure	3000 psi	206 bar			
Quick Couplers	Colors	Low-Pressure	Blue		
		High-Pressure	Red		
	Thread Dia.	1/4 in			
Refrigerant Can Taps	Colors	R1234yf	Blue		
		R134a	Red		
	Thread Dia.	Male Outlet	1/4 in		
		Female Inlet	1/2 in		
	Compatible Can Type	Self-Sealing			
Gauge Set	Overall Dimensions	7.3 × 6.3 × 2.4 in	18.5 × 16 × 6 cm		
	Net Weight	1.9 lb	840 g		
	Port Thread Dia.	1/4 in			
	Pressure Capacity	Low-Pressure	- 15* to 260 psi	- 1 to 18 bar	
		High-Pressure	- 15* to 550 psi	- 1 to 38 bar	
	Acceptable Refrigerants	R1234yf, R134a, and R404a			

* **Note:** Negative pressure readings are typically measured in inches of mercury (inHg), which roughly equate to half the value in pounds per square inch (psi) or 1.3% of the value in centimeters of mercury (cmHg), kilograms per square centimeter (kg/cm²), or bars.

Package List



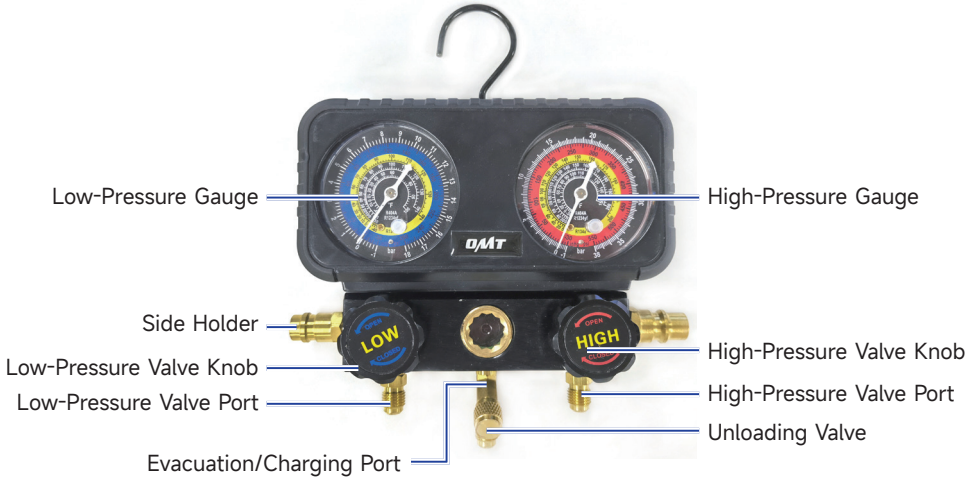
Item	Name	Qty.
A	High-Pressure Hose (Red)	1
B	Low-Pressure Hose (Blue)	1
C	Evacuation/Charging Hose (Yellow)	1
D	Work Gloves	1 Pair
E	Gauge Set	1
F	High-Pressure Quick Coupler (Red, for R134a refrigerant)	1
G	Low-Pressure Quick Coupler (Blue, for R134a refrigerant)	1
H	Dual-Purpose Screwdriver	1
I	Valve Core Wrench	1
J	Self-Sealing Can Tap (Red, for R134a refrigerant)	1
K	Self-Sealing Can Tap (Blue, for R1234yf refrigerant)	1

Item	Name	Qty.
L	High-Pressure Quick Coupler (Red, for R1234yf refrigerant)	1
M	Low-Pressure Quick Coupler (Blue, for R1234yf refrigerant)	1
N	Hose Gaskets	4
O	1/4" Male to 1/2" Female Adapters (Counterclockwise marked LH and Clockwise)	2
P	O-Rings	2
Q	Flat Gaskets	2
R	Copper Core	1

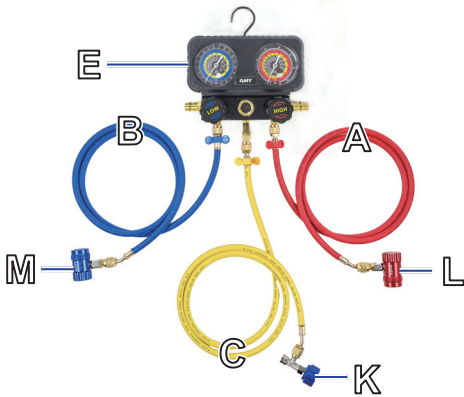
Not Included but Helpful:

- Micron Gauge
- Vacuum Pump
- Refrigerant Can
- Nitrogen Source
- Dust Masks
- Goggles
- Tape
- Leak Detector
- Soapy Water

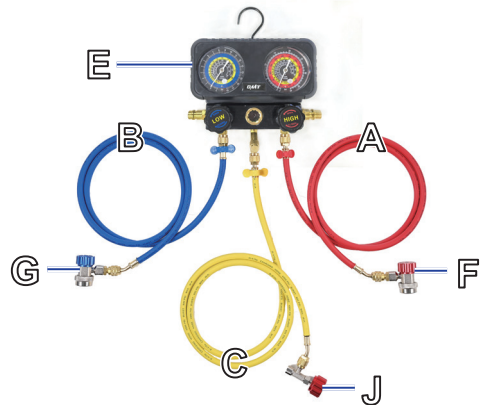
Product Diagram



For R1234yf Systems



For R134a Systems



Preparation

Danger

Refrigerant can irritate your eyes, nose, throat, and skin or cause frostbite, heart arrhythmia, unconsciousness, and **EVEN** death.

Clearing Your Work Area

Make sure the work area meets the following conditions:

- No children, bystanders, or pets
- Clean and clear of any clutter or dirt that may affect operation or pose safety hazards
- Well-lit and ventilated but adequately protected from the elements
- Free of explosives and sources of heat such as firecrackers and open flames

Putting on Proper PPE

Hand, breathing, and eye protection are required and should meet the standards by ANSI (American National Standards Institute) or OSHA (Occupational Safety and Health Administration).

The recommended ones include:

- Work Gloves (D)
- Dust Masks
- Goggles

Checking the Product

After unpacking, check that all items are included and undamaged.

If necessary, ask your local dealer or contractor for new identical replacements.

Danger

Using this product with missing, broken, nonidentical, or unauthorized parts **WILL** pose a series of safety hazards.

Familiarizing Yourself with Your A/C Systems

For optimal safety, be sure to know your A/C system and take sufficient training before using this product.

Failures and accidents could happen due to a lack of training.

Initial Setup

Warning

- Make sure your surroundings **ARE** safe for using this product.
Avoid operating in crowded, dark, or cluttered areas. Ensure **NO** explosives or ignition sources nearby.
- Be sure that **ALL** connections **ARE** tightly secured.
- If working on an HVAC system, check that it has been turned off **BEFORE** starting work.

Note: Wrapping the threads with tape (not included) before making the connection helps prevent leaks.

Connecting the Hoses to the Gauge

1. Turn the knobs on the gauge set (E) completely clockwise, **FULLY** closing its low-pressure (LP) and high-pressure (HP) valves.
2. Unscrew the valve port caps under the knobs, connect the provided hoses to the corresponding ports by hand, and tighten the connections by hand using the hoses' locking nuts. The wrench through the hose helps tighten the locking nut.

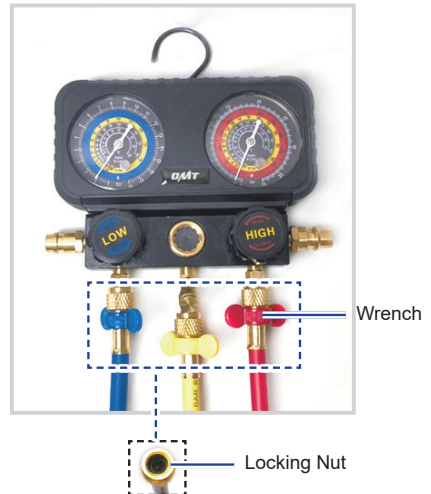


Warning

DO NOT mix up the three hoses, as they are NOT interchangeable.

Note: Use the hose ends **WITHOUT** copper cores inside.

- Connect the blue LP hose (B) to the port below the LP knob (**LOW**).
- Connect the red HP hose (A) to the port below the HP knob (**HIGH**).
- Connect the yellow evacuation/charging (E/C) hose (C) to the remaining port in the middle of the gauge.

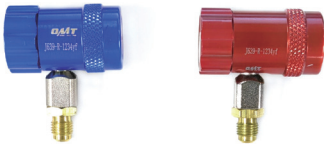


Connecting the Quick Couplers to the Pressure Hoses

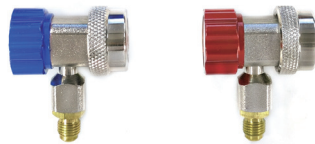
1. Select the quick couplers appropriate for your system.
 - Use the couplers marked **R1234yf** (L and M) for R1234yf refrigerant systems.
 - Use the couplers marked **R134a** (M and N) for R134a refrigerant systems.

Note:

- If your system uses R404a refrigerant, prepare couplers compatible with your system and hoses.
- **ONLY** R1234yf, R134a, and R404a are compatible with the gauge set.



For R1234yf Systems



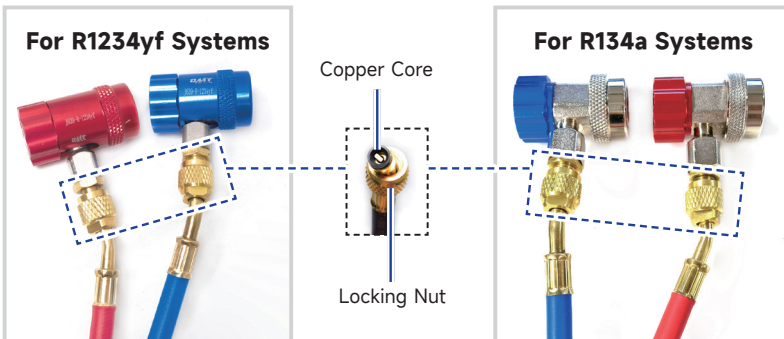
For R134a Systems

2. Connect the blue and red hoses to their identically colored quick couplers, and tighten the connections by hand using the hoses' locking nuts.

Warning

DO NOT mix up these hoses and couplers, as they are **NOT** interchangeable.

Note: Use the hose ends **WITH** copper cores inside.



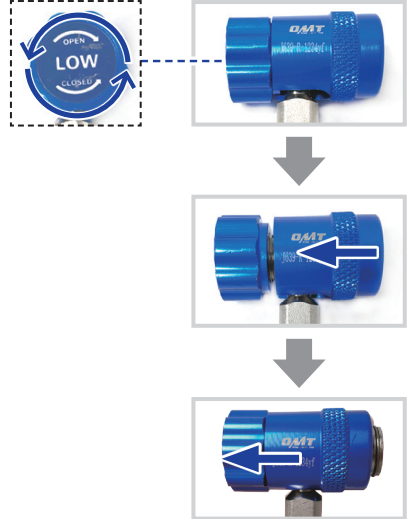
Connecting the Quick Couplers to Your A/C System

Warning

Ensure that your A/C system has been turned off.

1. Hang up the gauge using its hook to ensure optimal safety, stability, and accessibility during use.
2. Turn the blue and red quick couplers' knobs completely counterclockwise.
3. Hold one coupler and pull back the sleeve to the knob.
4. Push the coupler onto its matching service port of your A/C system.
5. Release the sleeve to secure the connection. GENTLY pull the coupler to verify the connection's security.

(Example: R1234yf LP Coupler)

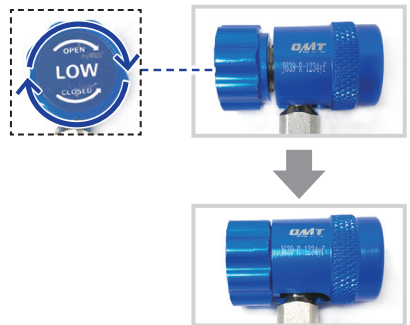


6. Repeat steps 3 – 5 for connecting the other coupler to the A/C system.

Warning

- **DO NOT** connect the two couplers to the INCORRECT service ports to prevent system malfunctions and safety hazards.
- **ALWAYS** refer to the instructions and guidelines provided by the manufacturer of your A/C system for proper installation procedures.

(Example: R1234yf LP Coupler)



7. Turn the blue and red quick couplers' knobs completely clockwise.

Operation

You can evacuate your A/C system, and then charge it with refrigerant.

Note: Wrapping the threads with tape (not included) before making the connection helps prevent leaks.

Performing Leakage Test

1. Connect the yellow hose **WITH** a copper core inside to a nitrogen source (not included).



2. Turn on the nitrogen source and set the pressure value.

Warning

The pressure value must **NOT** exceed your A/C system's maximum pressure.

3. Open the LP and HP valves by turning their knobs **SLOWLY** counterclockwise.

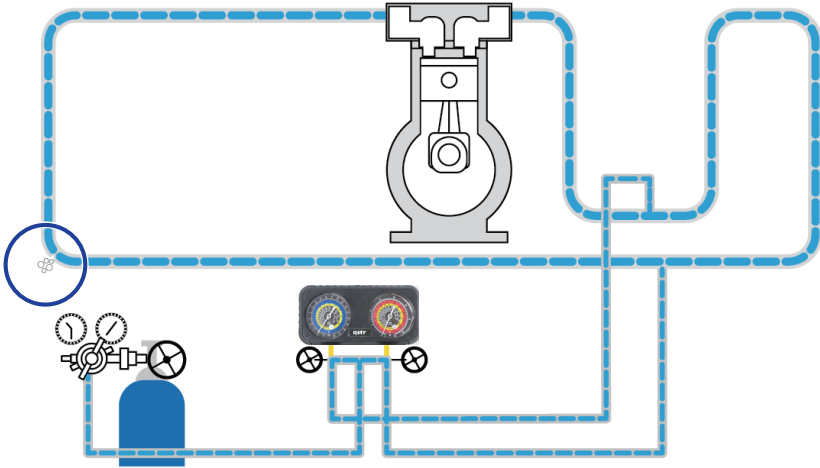


4. Once the gauge set indicates the same pressure values as the nitrogen source, close the LP and HP valves by turning their knobs **COMPLETELY** clockwise.



- It is recommended to observe the gauge set for about 15 to 30 minutes to ensure that the pressure readings remain stable.

If the readings have a significant drop, leakage may exist in the system. Use a leak detector (not included) to detect leakage and apply soapy water (not included) to locate leakage. Repair or replace any detected loose joints or worn parts before further use.



- If the pressure readings remain stable and there is no leakage, turn off the nitrogen source and disconnect the yellow EC hose from the nitrogen source.
- Open the LP valve by turning its knob (LOW) **SLOWLY** counterclockwise to release the nitrogen gas.



- Once the pressure readings indicate 0 psi, close the LP valve by turning its knob (LOW) completely clockwise.



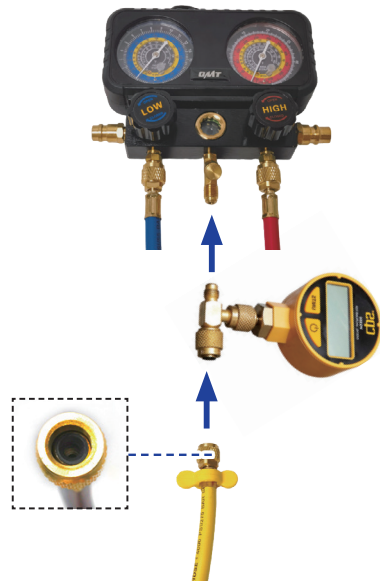
Evacuation

Warning

- Again, check that your A/C system has been **COMPLETELY** turned off.
- DO NOT** vent refrigerant to the atmosphere. Use appropriate recovery equipment.

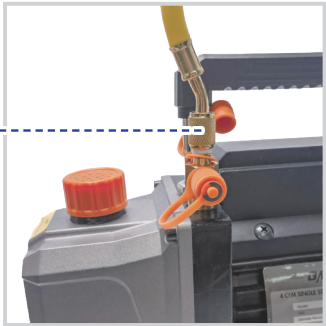
- Connect a micron gauge (not included) to the E/C port and the yellow hose.

Note: Use the hose end **WITHOUT** a copper core inside.



2. Connect the other end of the yellow hose to a vacuum pump (not included) using its copper core end.

Note: If the port of your pump does not fit the hose's 1/4 " threads, use the provided 1/4 " male to 1/2 " female adapter (O) or other suitable adapter to complete the connection.



3. Make sure all connections are tightly joined and turn the micron gauge on.
4. Open the LP valve by turning its knob (LOW) completely counterclockwise. Turn on the pump, and the evacuation begins.



5. When the micron gauge reads less than **500** microns, your A/C system is fully cleared. Close the LP valve by turning its knob (LOW) **COMPLETELY** clockwise and turn off the pump.



6. Disconnect the micron gauge from the gauge set and the yellow hose. Disconnect the yellow hose from the pump.

Charging

Warning

- **ALWAYS** keep your refrigerant cans away from heat sources and direct sunlight.
- Be sure **NOT** to open your refrigerant cans by accident in **ANY** way.
- Ensure that **BOTH** valves on the gauge **ARE** completely closed **BEFORE** starting work.
- **NEVER** leave your refrigerant cans or the gauge unattended when charging A/C systems.
- **ALWAYS** wear proper PPE when disconnecting the couplers and hoses after charging is complete, as they may contain some refrigerant under pressure.

1. Choose a provided self-sealing can tap (J or K) for your refrigerant can as you need.

Note:

- Use the red tap (J) for R134a refrigerant cans. Use the blue tap (K) for R1234yf refrigerant cans.
- Some big refrigerant cans are equipped with taps to regulate the flow of refrigerant.

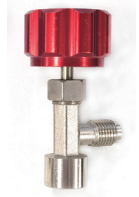
2. Check that the tap has been closed by turning its knob **COMPLETELY** counterclockwise. Connect the outlet of the tap to the yellow hose and its inlet to your refrigerant can.

Note: Use the hose end **WITH** a copper core inside.

For R1234yf Refrigerant



For R134a Refrigerant



3. Connect the yellow hose to the E/C port of the gauge set using the hose end **WITHOUT** a copper core inside.



4. Turn the knob clockwise to allow the refrigerant to flow through the hose.



5. Open the LP valve by turning its knob (LOW) completely counterclockwise and charging begins.



6. To check if the small refrigerant can is empty, invert the can and **GENTLY** shake it. If refrigerant is visible from the glass window, there is still some refrigerant left in the can.

(Example: R134a Refrigerant)



7. To change the small empty refrigerant can, you **MUST** close the LP valve by turning its knob **COMPLETELY** clockwise and the tap's knob **COMPLETELY** counterclockwise before reconnecting a new refrigerant can.

Warning

- **NEVER** discard discarded refrigerant cans at will or put them in ordinary trash cans.
- Discarded refrigerant cans **MUST** be disposed of in accordance with local waste disposal regulations.

(Example: R134a Refrigerant)



8. Consult your A/C system's specifications to find its recommended pressure, usually between 25–80 psi (1.7–5.5 bars).
9. Once the system reaches the recommended pressure, stop charging the system by turning the tap knob **COMPLETELY** counterclockwise and turning the LP valve knob (LOW) **COMPLETELY** clockwise.

(Example: R134a Refrigerant)



10. Disconnect the two quick couplers from your A/C system and take down the gauge set.
11. Open the unloading valve by unscrewing its cap to clear any air or vapor remaining inside the gauge set. Confirm that the pressure readings indicate 0 psi, and then tighten the cap into place.



12. Disconnect the hoses from the quick couplers, the tap, and the gauge set.
13. Keep the tap securing on the partially used refrigerant can, or disconnect it from the empty can or the self-sealing can.

Maintenance

- **NEVER** scrape the hose or drop the gauge set on hard or rough surfaces.
- Check the parts for misalignment, cracks, and any other conditions that may affect the operation accuracy before use.
- If any gasket, O-ring, or copper core in the preinstalled refrigerant cap tap, quick coupler, or any hose is damaged or worn, replace it with its spare part (N, P, Q, or R) using the valve core wrench (I) and/or dual-purpose screwdriver (H). If any other part of the gauge set is damaged or worn, have it repaired or replaced before further use.
- Clean the exterior of the gauge set and hoses with a soft damp cloth using a mild detergent or solvent. **DO NOT** use harsh abrasives or caustic chemicals.
- Store the gauge set in a clean dry place inaccessible to children and away from direct sunlight after use.

Troubleshooting

Problems	Solutions
Pressure readings are unstable or fluctuating.	Check all connections and seals for leaks. Ensure stable ambient temperature conditions.
The gauge set displays abnormally high or low readings.	Check if ambient temperature is affecting the readings. Inspect for any pressure leaks.



User Manual

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