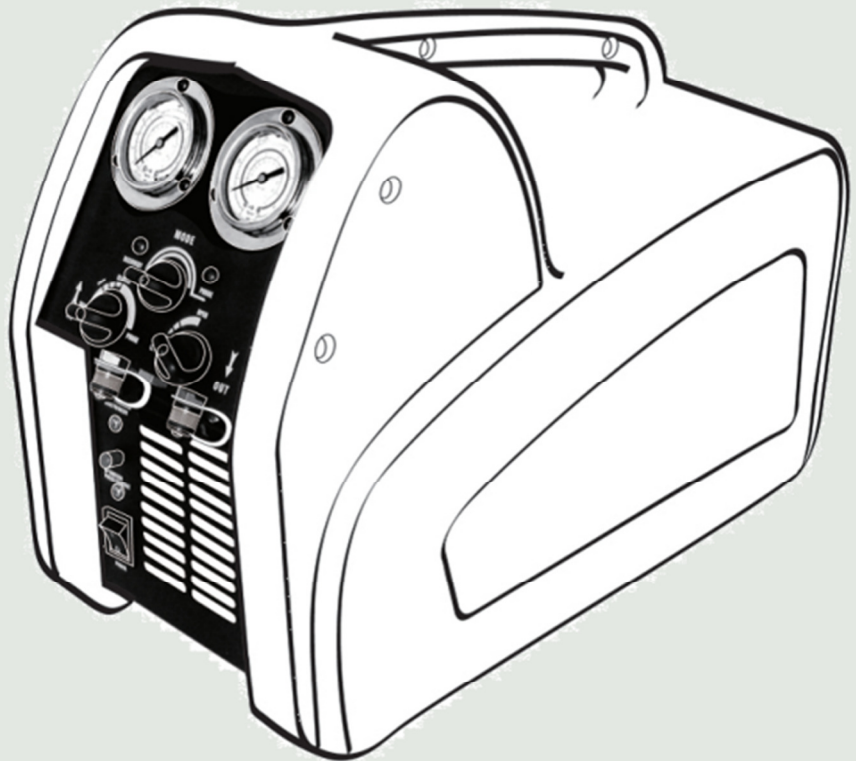


MAHLE ROU250

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Operation Manual
Recovery Only Unit





**EVERY PERSON WHO OPERATES THIS
EQUIPMENT NEEDS TO KNOW AND
UNDERSTAND ALL OF THE INFORMATION IN
THIS MANUAL – FAILURE TO DO SO COULD
RESULT IN SERIOUS INJURY OR DEATH.**

**READ THIS MANUAL
CAREFULLY AND
RETAIN FOR YOUR
RECORDS**

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1. Safety Regulations

1.1 Warnings

- ⚠ **To avoid serious injury or death**, read this manual carefully before operating this unit. Contact the manufacturer using contact information on the back cover of this manual if you have any questions.
- ⚠ **Always think before acting**, familiarity breeds carelessness, and carelessness can result in serious injury or death.
- ⚠ **Only a qualified technician should operate the recovery machine.**
- ⚠ **Read all safety information regarding the safe handling of refrigerant and refrigerant oil.** Including the Material Safety Data Sheet. MSDS sheets can be obtained from your refrigerant supplier.
- ⚠ **Always wear safety goggles and protective gloves when working with refrigerants.** Refrigerants can damage skin and eyes. Avoid touching caustic liquids or gas.
- ⚠ **Make sure the work area is properly ventilated.**
- ⚠ **Use ONLY authorized refillable refrigerant tanks.** The recovery unit requires the use of recovery tanks with a minimum of 27.3 bar (396psi) working pressure.
- ⚠ **Do not overfill the storage tank.** The tank is full at 80% of volume. There should be enough space for liquid expansion---overfilling of the tank may cause a violent explosion. A scale or a 80% O.F.P. switch must be used to avoid overfilling the storage tank.
- ⚠ **Do not exceed the working pressure of the recovery tank cylinder.**
- ⚠ **Before recovering refrigerant the tank should reach a vacuum level of 1000mbar (29.53InHg).** This is for purging non-condensable gases. Each tank was full of nitrogen when produced, thus the nitrogen should be evacuated before recovery.
- ⚠ **When not in use ensure all valves are closed.** This will maximize the lifecycle of the machine, as excess moisture from atmosphere will shorten operating life.
- ⚠ **When using an extension cord, it should be 14AWG minimum and no longer than 7.62 meters (25 feet).** Failure to do so may cause excessive voltage drop and could damage the compressor.
- ⚠ **A dry filter must always be used and should be replaced frequently.** We recommend replacing the dry filter (P/N 026 80774 00) every 3 months when the machine is in regular use. If the machine is used to recovery pure known refrigerant use a different filter for each type of refrigerant.
- ⚠ **Special care should be taken when recovering from a “burned-out” system.** Use two filters in series when recovering from these systems. Flush out the recovery machine with a small amount of clean refrigerant once recovery is complete to purge off any foreign substances left in the machine.
- ⚠ **The system has a high & low pressure shut down switch.** If the pressure inside the system goes above 38bar, the system will automatically shut off. The shutoff will need to be manually reset. The low pressure shutdown occurs at approximately 10 In/Hg (339mbar). The machine will automatically start again when the pressure rises to approximately 5 psi (35bar).
- ⚠ **If the tank pressure exceeds 300psi (20.7bar), use the TANK COOLING PROCEDURE to reduce the tank pressure.**
- ⚠ **When recovering large amounts of liquid, use the LIQUID PUSH/PULL PROCEDURE.**
- ⚠ **After recovering, make sure there is no refrigerant left in the machine. Read the SELF-PURGING PROCEDURE carefully.** Liquid refrigerant left in the machine may expand and destroy components.
- ⚠ **If the recovery machine is to be stored or not used for any substantial length of time we recommend purging with nitrogen.**
- ⚠ **Care should be taken when moving the machine.**

2. Foreword

This recovery machine along with the hose and gauge sets are for recovery of refrigerant from air conditioning systems. The recovery unit itself consists of a valve manifold, compressor, and condenser. The gauge sets are designated for use with either R-1234yf refrigerant or R-134a refrigerant. The DOT tank is approved for all refrigerants listed in this manual. While the accessory kits provided by MAHLE are specifically designed for servicing mobile AC systems the recovery unit itself is approved for multiple refrigerants. For a complete list of applicable refrigerants please see the specification section of this manual.

3. Symbols Use

3.1 Warning notices

Warning notices call attention to a safety message or messages, or a property damage message or messages, and designate a degree or level of hazard seriousness. Warning notices used in this manual include:

Keyword	Probability of occurrence	Severity of danger if instructions not observed
DANGER	Immediate impending danger	Death or severe injury.
WARNING	Possible impending danger	Death or severe injury
CAUTION	Possible dangerous situation	Minor injury
NOTICE	Possible damage to property	Possible property damage

4. Responsibilities

4.1 Receiving inspection

Before attempting to operate this equipment, thoroughly read and understand this manual. Completely remove all tape and packaging. Inspect the equipment immediately upon delivery. If shipping damage is evident, inform the delivery carrier immediately, and contact MAHLE Service Solutions using the contact information on the back cover of this manual.

4.2 Owner and/or operator responsibilities

The owner of this equipment must read these instructions and maintain them for future reference and for instructing any other users of the equipment. The owner is responsible for keeping all warning labels and instruction manuals legible and intact. Replacement labels and literature are available from the MSS. The owner must never authorize or allow anyone to use this equipment until the operator has read and understood the information in this manual and on the accompanying labeling of the equipment itself.

If this equipment is being used in an occupational setting (or workplace), the employer should ensure that all personnel working with and around the equipment know of the risks associated with its use. Personnel involved in the use and operation of this equipment shall be careful, competent, trained, and qualified in the safe operation of the equipment and its proper use when servicing motor vehicles and their components. Safety information provided with this equipment should be emphasized by the employer and understood by each employee. The employer must make this manual available to all personnel using this equipment and all personnel must read and understand the contents of this manual. If the operator is not fluent in English, the manufacturer’s instructions and warnings shall be read to and discussed with the operator in the operator’s native language by the employer, making sure that the operator comprehends its contents and observes the proper procedures for use of this equipment.

5. Specifications

5.1 ROU250

Model ROU250				
Refrigerants	Cat.III: R-12, R-134a, R-1234yf, R-401c, R-406A, R-500			
	Cat.IV: R-22, R-401A, R-401B, R-402B, R-407C, R-407D, R-408A, R-409A, R-411A, R411B, R-412A, R-502, R-509			
	Cat.V: R402A, R-404A, R-407A, R-407B, R-410A, R-507			
Voltage	110-127 VAC 60Hz			
Compressor	1/2HP Oil-less			
Max Current	8 Amps @ 60Hz			
HP Shutdown	38bar/550psi			
LP Shutdown	338mbar (10 In/Hg)			
80% Capacity Shut-off	When OFF cable is connected to tank OFF switch			
Recovery Rate		Cat. III	Cat. IV	Cat. V
	Vapor	0.23 kg/min 0.51 lb/min	0.25 kg/min 0.55 lb/min	0.26 kg/min 0.57 lb/min
	Liquid	1.57 kg/min 3.46 lb/min	1.81 kg/min 3.99 lb/min	1.85 kg/min 4.10 lb/min
	Push Pull	4.64 kg/min 10.23 lb/min	5.57 kg/min 12.28 lb/min	6.22 kg/min 13.71 lb/min
Operating Temp	0-40 °C / 32-104 °F			
Case	Blow Molded High Impact Polyethylene			
Dimensions	19.1"Lx8.7"Wx14.4"H 48.5cm L x 22.1cm W x 36.6cm H			
Net Weight	33lbs (15kg)			

6. Operation

6.1 Standard liquid/vapor recovery procedure.

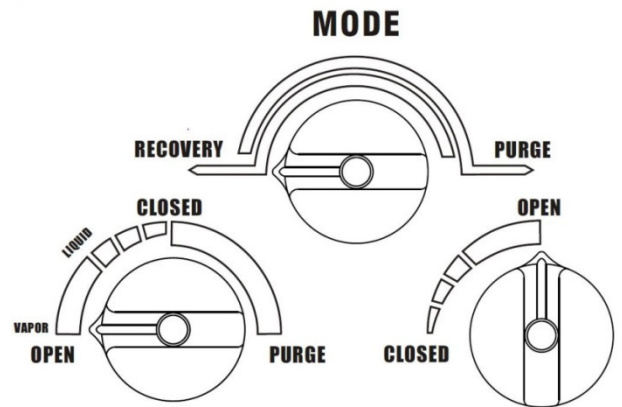
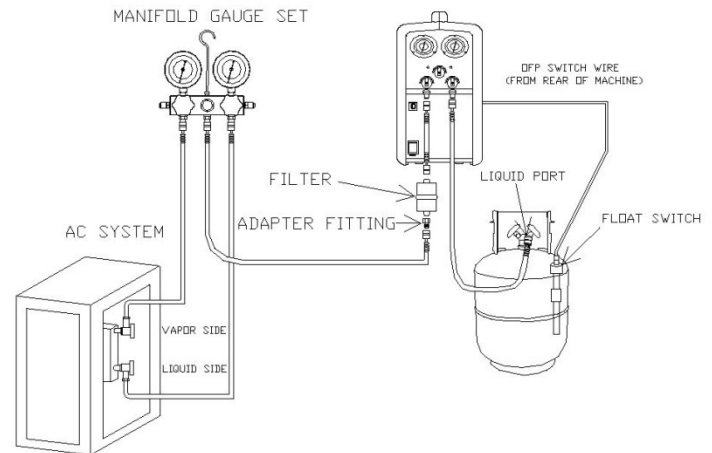
1. Make sure this recovery machine is in good operating condition.
2. Make sure all connections are correct and tight .
3. Open the liquid port of the storage tank.
4. Make sure the MODE valve is set on RECOVER.
5. Open the output port of the recovery machine.
6. Open the liquid port on your manifold gauge set; opening the liquid port will remove the liquid from the system first. After the liquid has been removed, open the manifold vapor port to finish evacuating the system.
7. Connect the recovery unit to an appropriate outlet. (See the nameplate on the machine) Switch the power switch to the ON position to start the compressor.
8. Slowly open the input port on the machine.
 - A) If the compressor starts to knock, slowly throttle back the input valve until the knocking stops.
 - B) If the input valve was throttled back, it should be fully opened once the liquid has been removed from the system (the manifold gauge set vapor port should also be opened at this time).
9. Run until desired vacuum is achieved.
 - A) Close the manifold gauge sets vapor and liquid ports.
 - B) Turn off the machine.
 - C) Close the unit's input port and proceed with the SELF-PURGE PROCEDURE on the next page.

Note:

If the recovery machine fails to start, rotate the INPUT valve and the MODE valve to purge position. Then rotate the MODE valve back to recovery position, and open the INPUT valve.

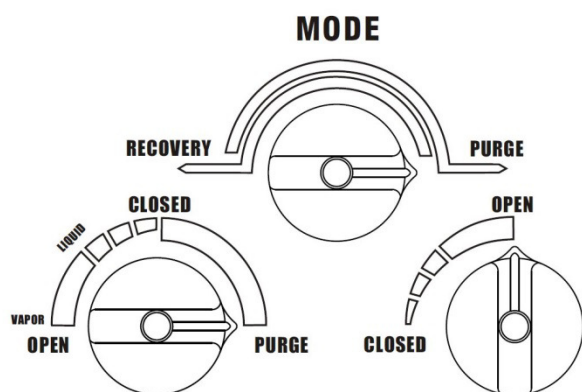
Caution:

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



6.2 Purging Procedure

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



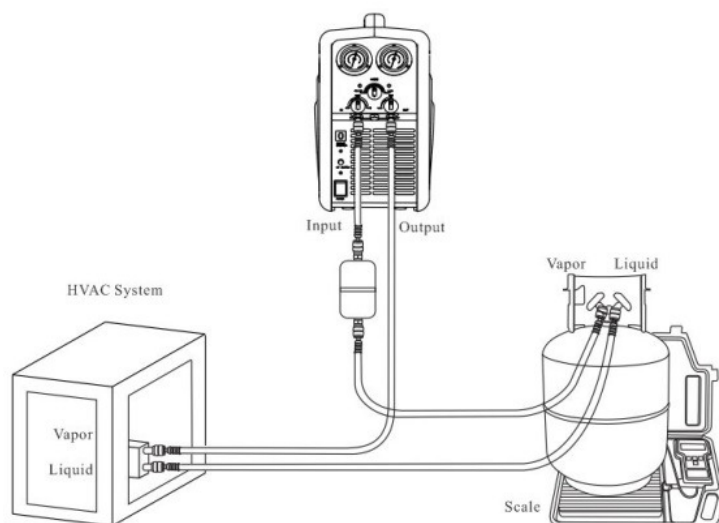
6.3 Liquid push/pull procedure

Push/pull procedure only works with large systems where the liquid refrigerant is no less than 6.8kg (15lbs.).

1. Turn MODE valve knob to RECOVER.
2. Open OUTPUT valve.
3. Open INPUT valve.
4. When the scale stops rising, close all ports.
5. Switch off the machine.

CAUTION:

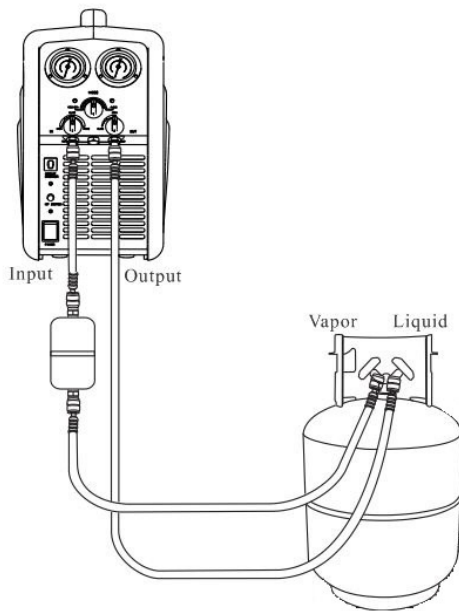
When using the “Push/pull” method, a scale must be used to avoid over filling the storage tank, once the siphon is started, it can continue and overfill the storage tank even if the tank is equipped with a float level sensor. The siphon can continue even when the machine is turned off. You must manually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



6.4 Tank Cooling Procedure

In order for this procedure to work, you must have a minimum of 5 lbs. (2.3kg) of liquid refrigerant in the storage tank.

1. Connect the hoses as shown
2. Turn the MODE valve to the Recover position.
3. Open the Vapor and Liquid valve of the storage tank.
4. Power on, and start the compressor.
5. Open the INPUT valve and OUTPUT valve of the machine.
6. Throttle the OUTPUT valve of the machine so that the output pressure is 100psi (6.89 bar) greater than the input pressure, but never more than 300psi (20.68 bar).
7. Run until tank is cold.



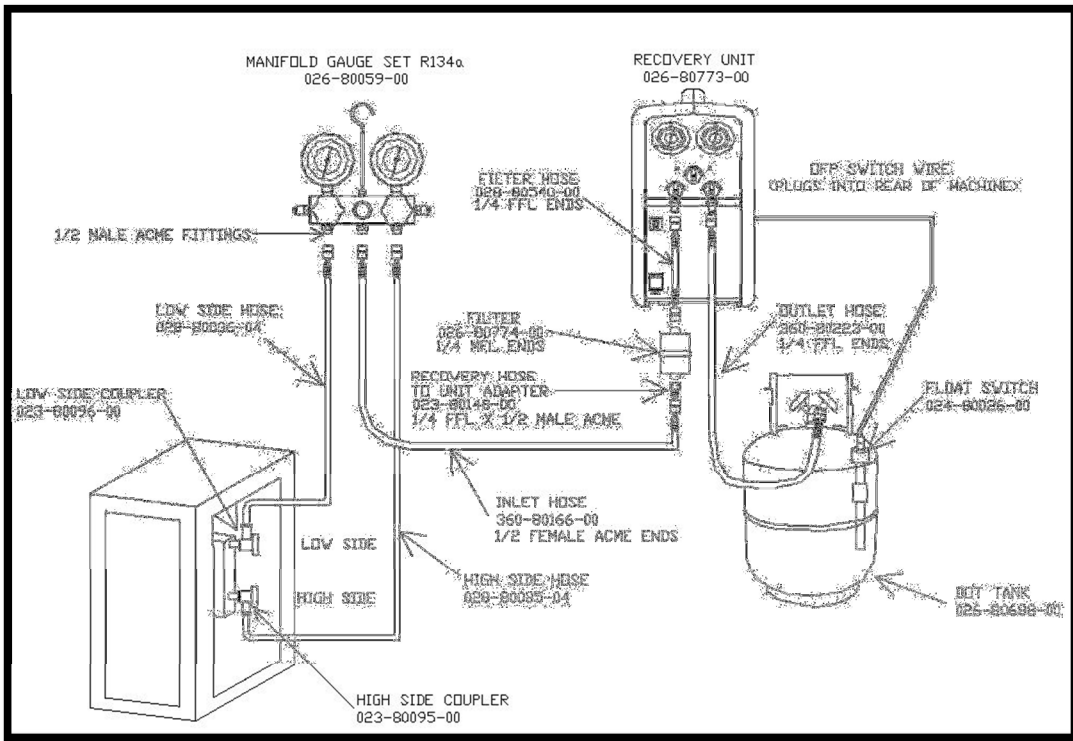
7. Troubleshooting

This section is a list of potential problems and solutions. If the solution listed fails to correct the problem, call the manufacturer at the numbers and address printed on the back cover of this manual. Please have the model number, and serial number of your recovery machine ready. The serial number is located on the silver tag on the front of the machine.

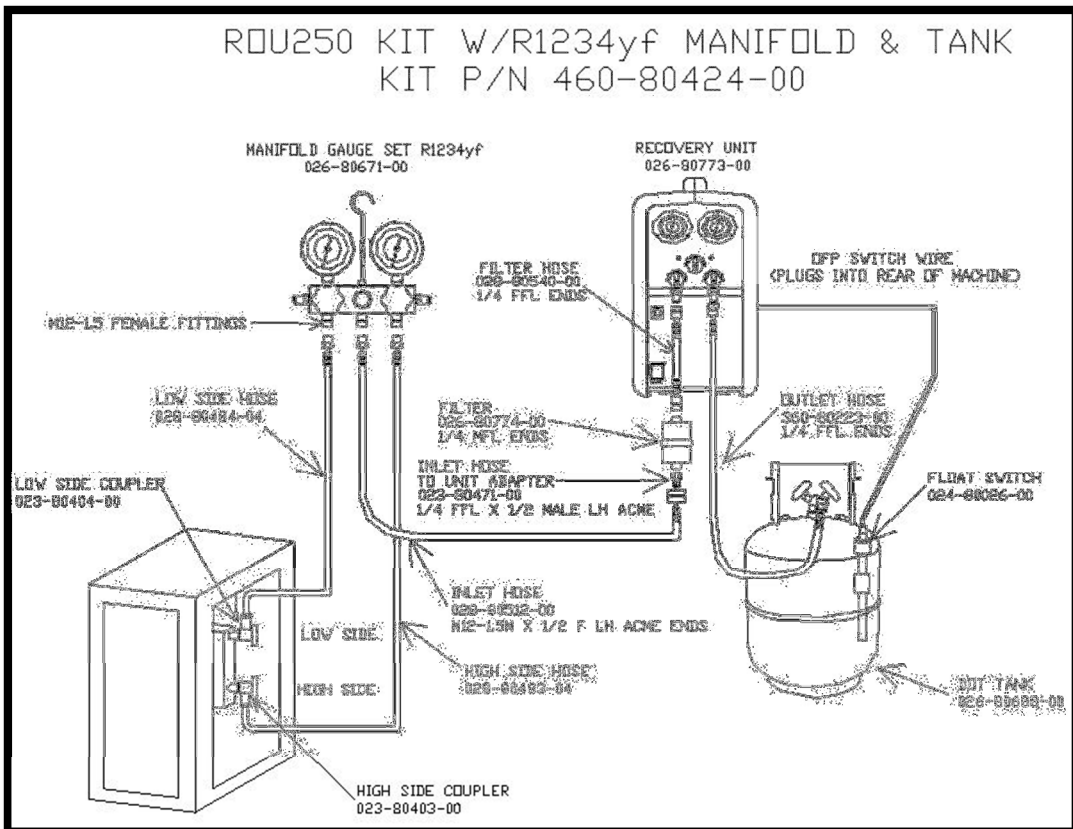
Problem	Cause/Solution
Fan Does not run when power switch is on	<ul style="list-style-type: none"> • Supply voltage incorrect / check power supply for correct voltage. • Circuit breaker has tripped / reset circuit breaker. • Power supply cord not attached / plug in power cord.
Fan runs but compressor does not start	<ul style="list-style-type: none"> • Machine is in high pressure shutdown / Reduce pressure and press "High Pressure Switch". • Output pressure is too high / Rotate INPUT valve and MODE valve to PURGE, then rotate INPUT valve back to OPEN and MODE valve to RECOVER. • Failure in motor, or in other electrical components / Factory service is required
Compressor starts but cuts off within a few minutes	<ul style="list-style-type: none"> • MODE valve is in PURGE position / Rotate MODE valve to RECOVER. • Output valve is not open and high pressure activates / Rotate OUTPUT valve to OPEN. • Recovery tank valve is not open / Open recovery tank valve.
Recovery process too slow	<ul style="list-style-type: none"> • Head pressure too high / Reduce tank temperature • Compressor seals are worn / Factory service required.
Recovery machine does not pull down into a vacuum	<ul style="list-style-type: none"> • Connecting hoses are loose / Tighten the connecting hoses • Leakage in unit / Factory service required

8. ROU250 System Kits

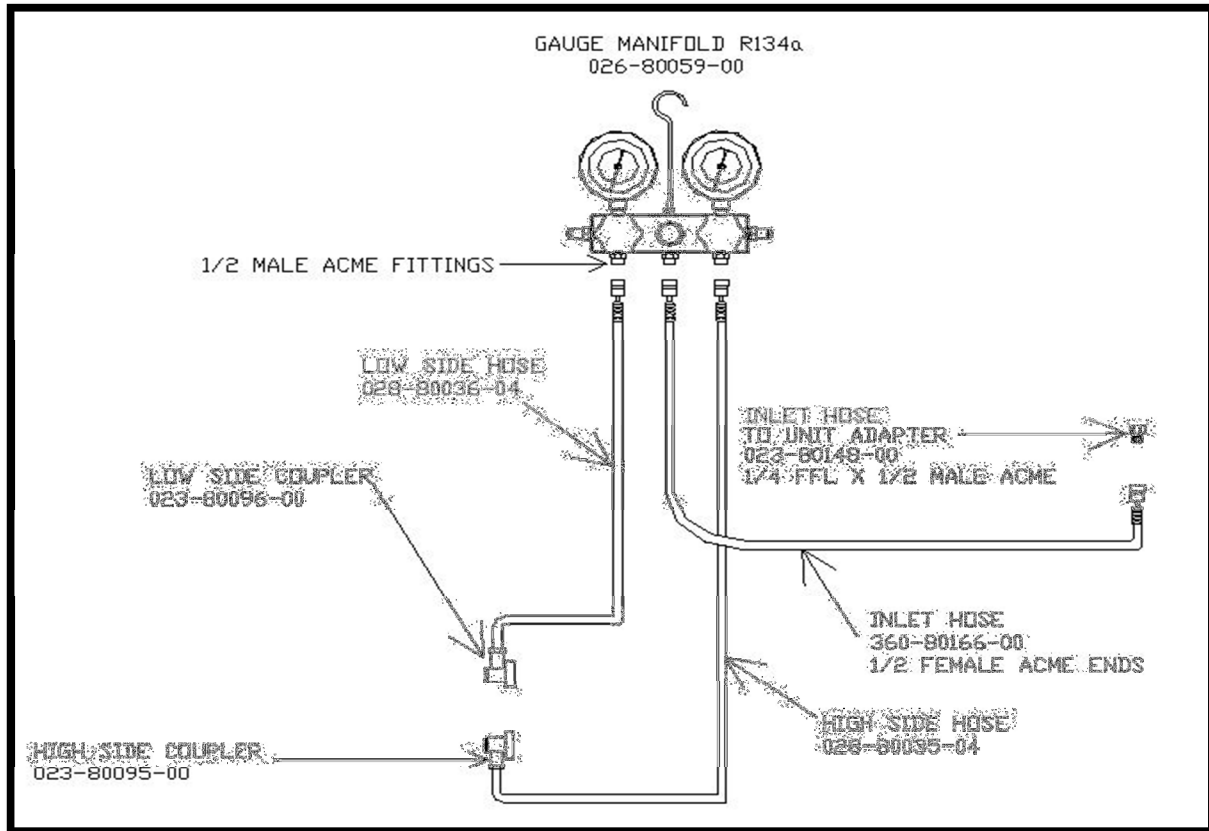
8.1 ROU250 Kit With R134a Manifold & Tank - P/N 460-80423-00



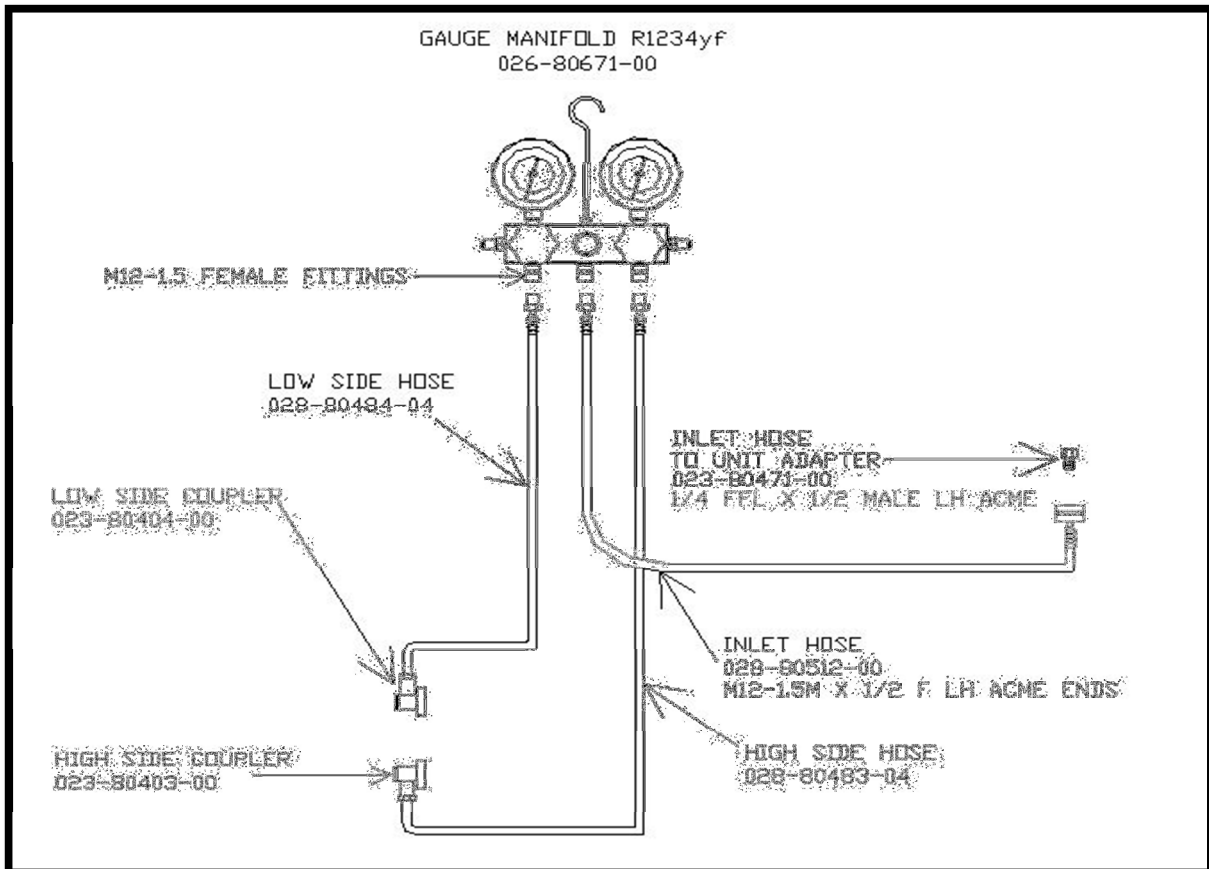
8.2 ROU250 Kit with R1234yf Manifold & Tank - P/N 460-80424-00



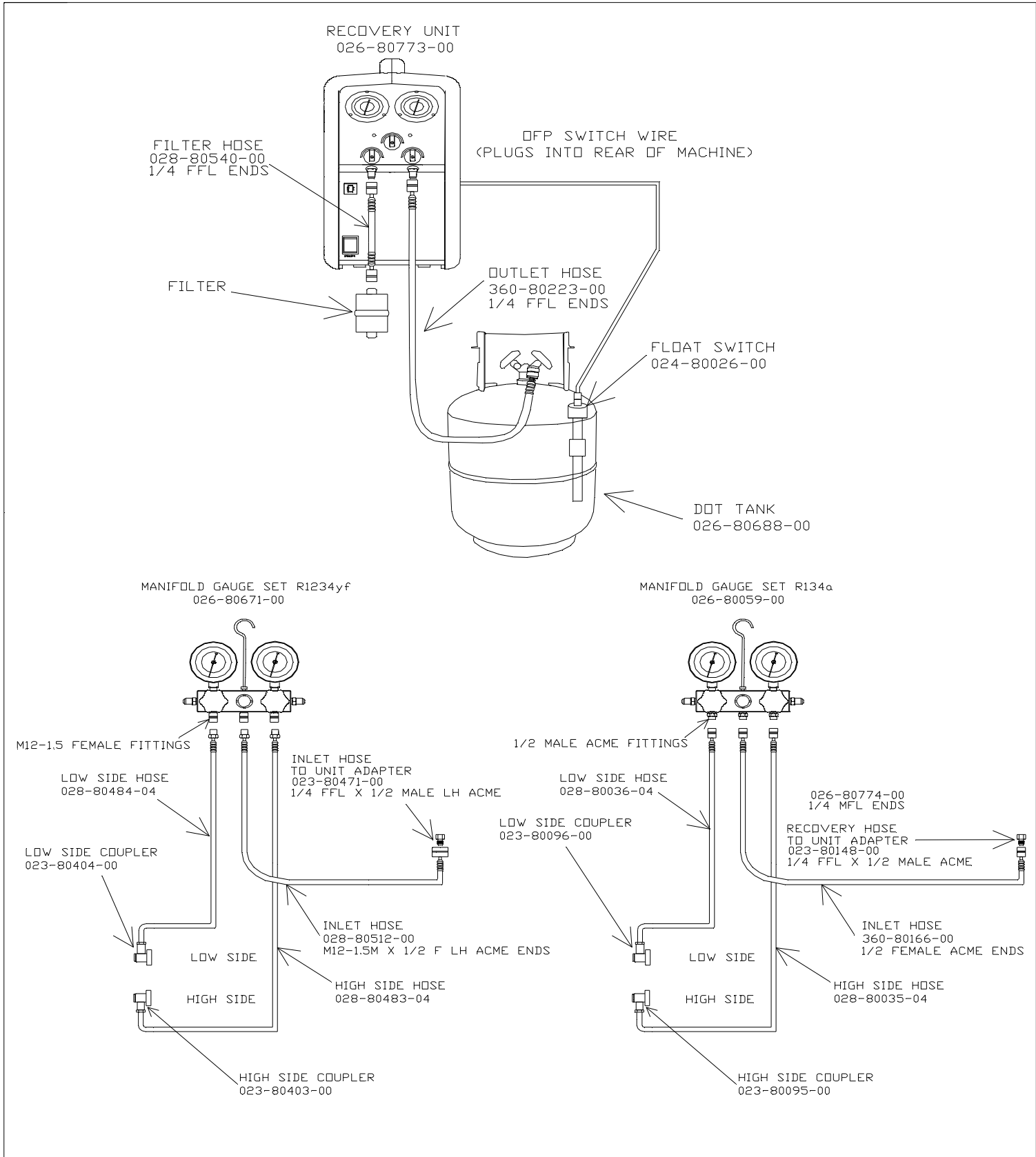
8.3 R134a Manifold Gauge Set Kit - P/N 360-83173-00

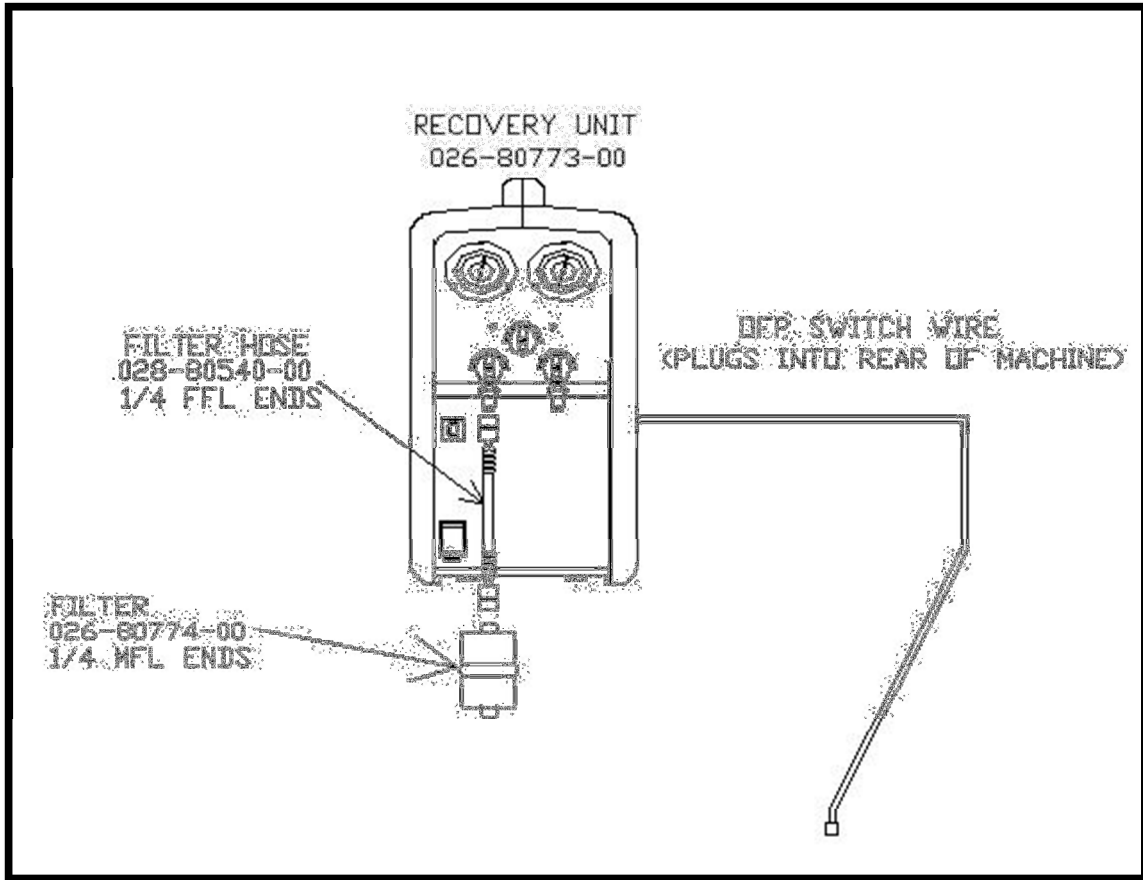
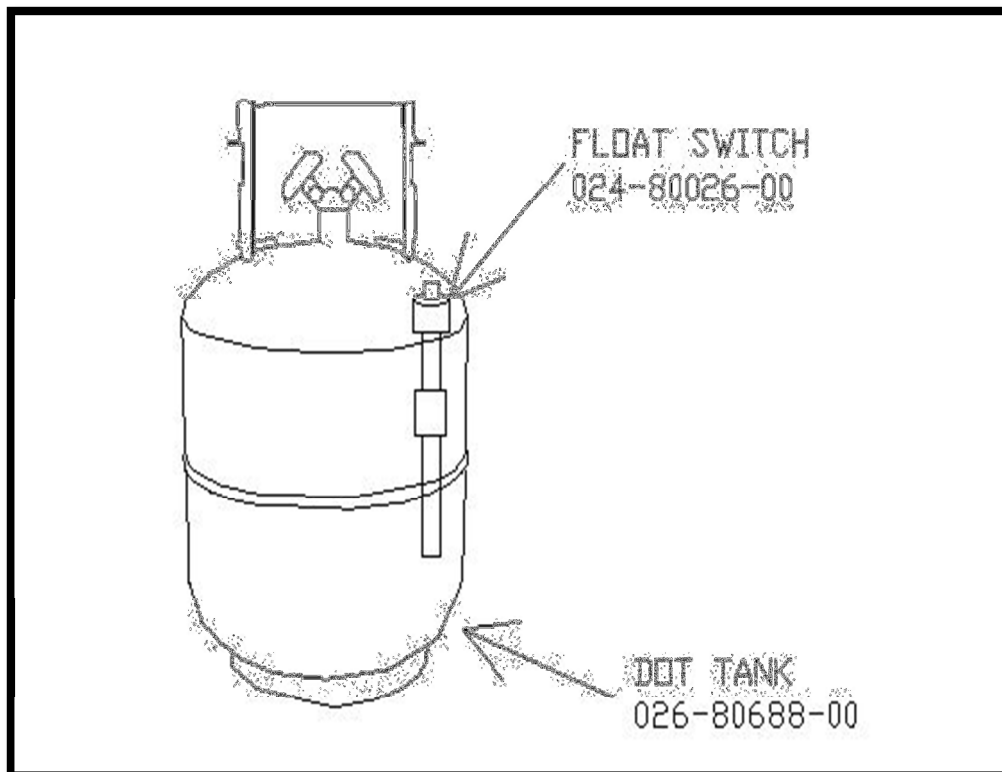


8.4 R1234yf Manifold Gauge Set Kit - P/N 360-83174-00



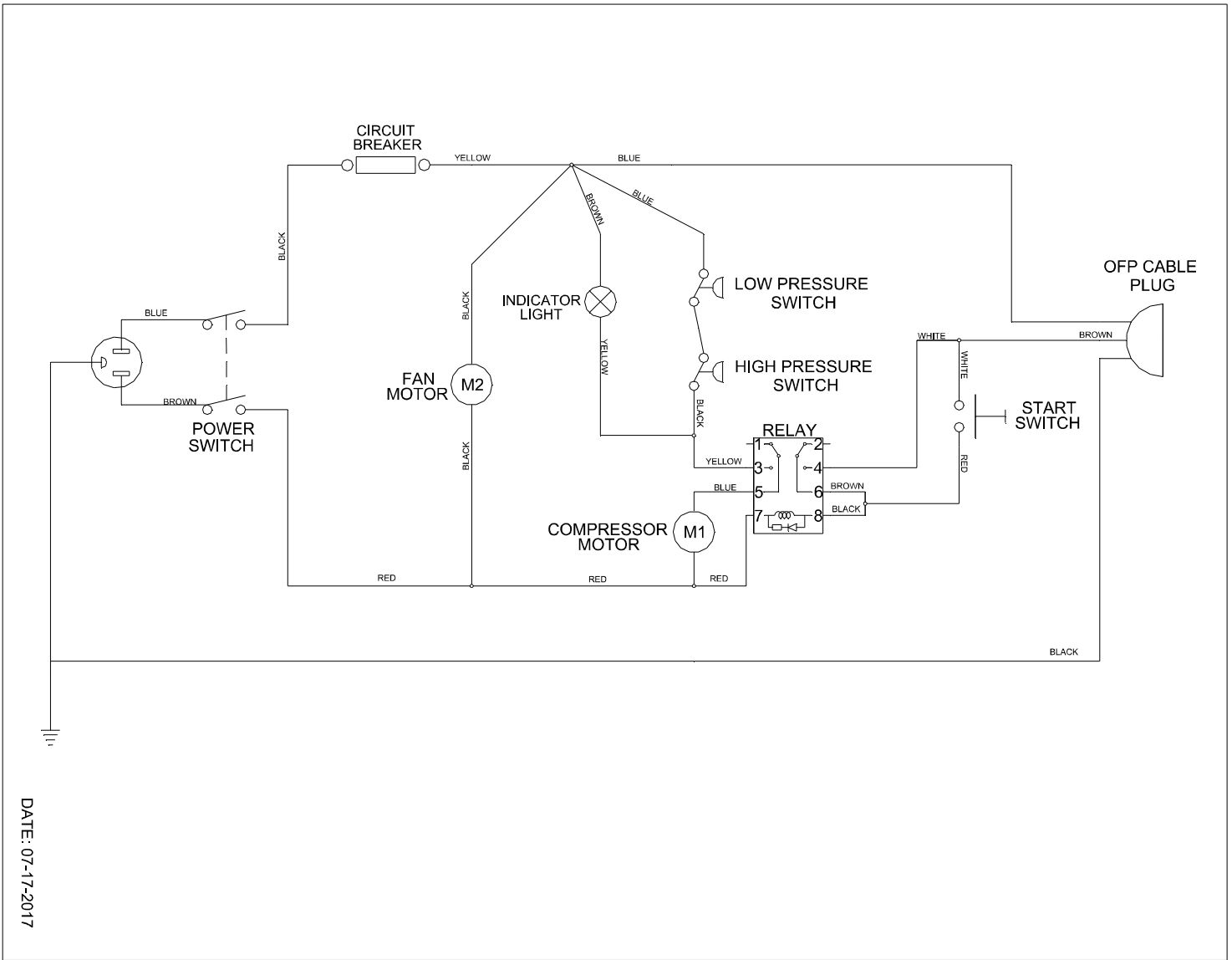
8.5 ROU250 Complete Kit R1234yf & R134a With Tank - P/N 460-80425-00



8.6 Rou250 Unit Only - P/N 460-80422-00**8.7 Dot Cylinder With Float Switch - P/N 360-80310-00**

9. Schematics

9.1 Electrical Schematic

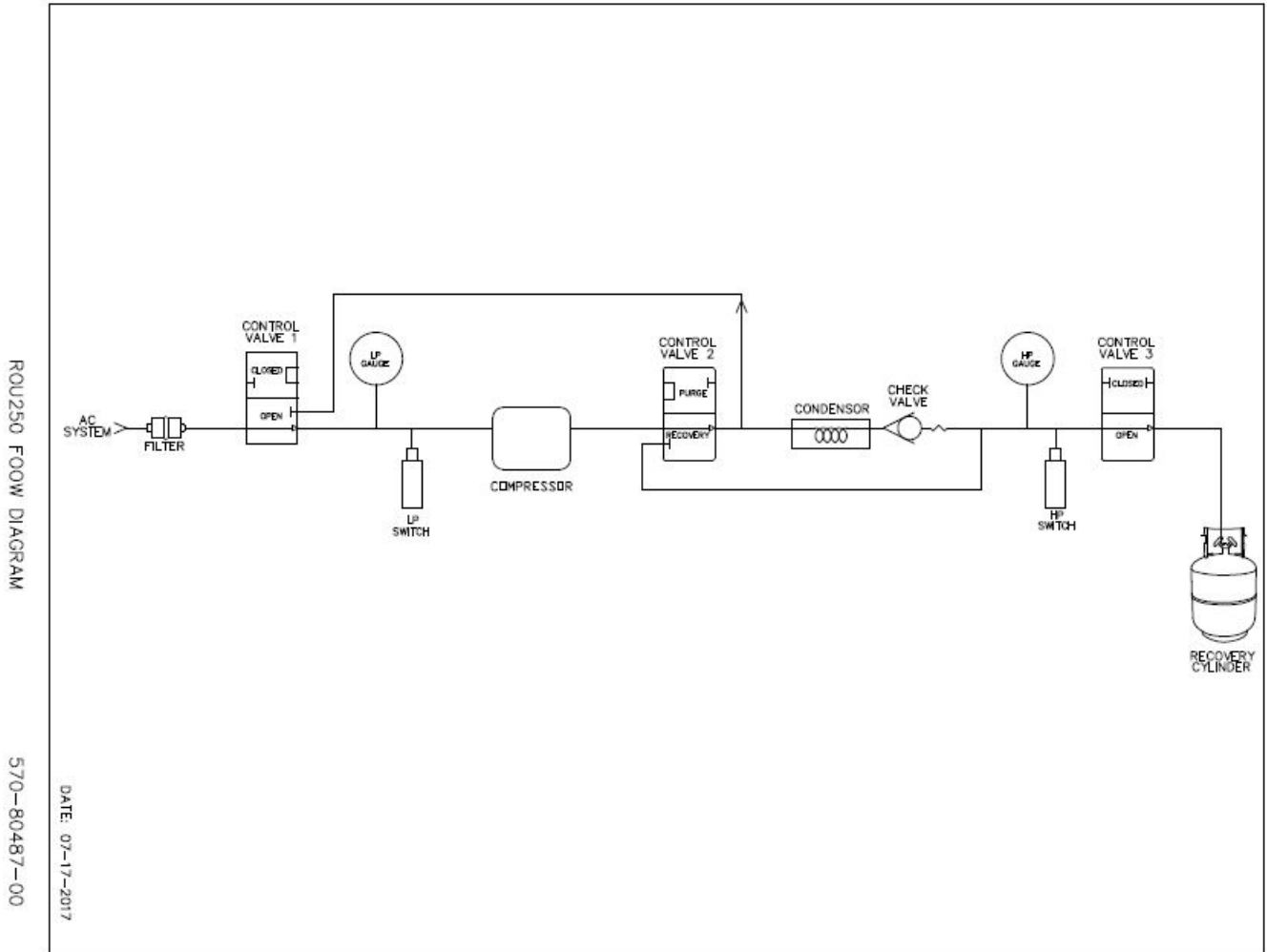


ROU250 ELECTRICAL SCHEMATIC

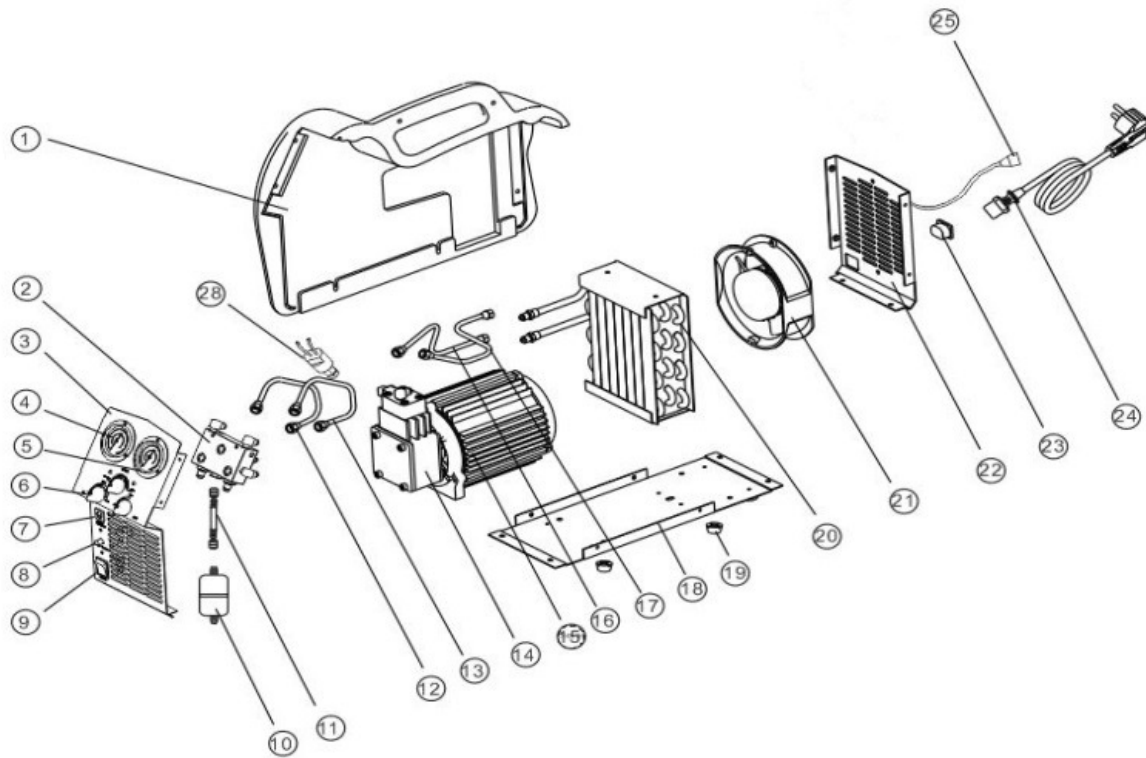
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9.2 Flow Schematic



10. Internal Parts Diagram



1. Plastic Case	9. Power Switch	17. Tube
2. Control Arm	10. Dryer/Filter	18. Base
3. Front Panel	11. Hose	19. Rubber Foot
4. Input Gauge	12. Tube	20. Condenser
5. Output	13. Tube	21. Fan
6. Knob	14. Compressor	22. Back Panel
7. Circuit Breaker	15. Motor	23. Socket
8. Hp Switch	16. Tube	24. Power Supply Cord
		25. 80% O.F.P. Shut Off Cord

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