

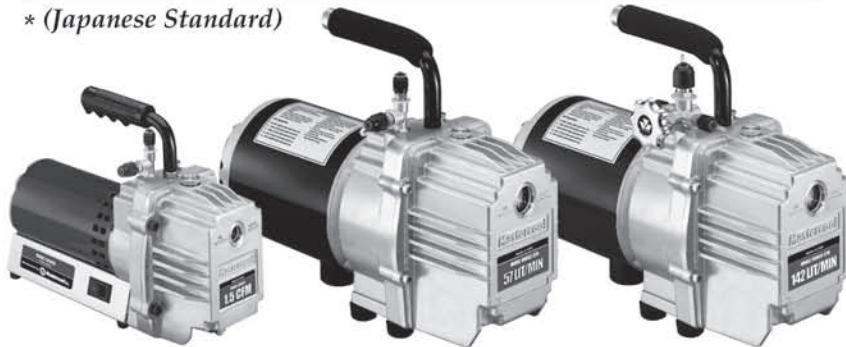
**REPLACEMENT PARTS FOR
1/4"FL CONNECTION 4-WAY MANIFOLD SET**

MBL	Compound (low side) 3 1/8" gauge (R134a, 404A, R22 & 507A)
MBH	Pressure (high side) 3 1/8" gauge (R134a, 404A, R22 & 507A)
91253-E	Blue gauge protector
91503-E	Red gauge protector
95103	Manifold gauge set only, less hoses & couplers
42016	Service hose replacement depressor
42010	Service hose replacement gasket
90336	Shut-off valve female hose replacement gasket

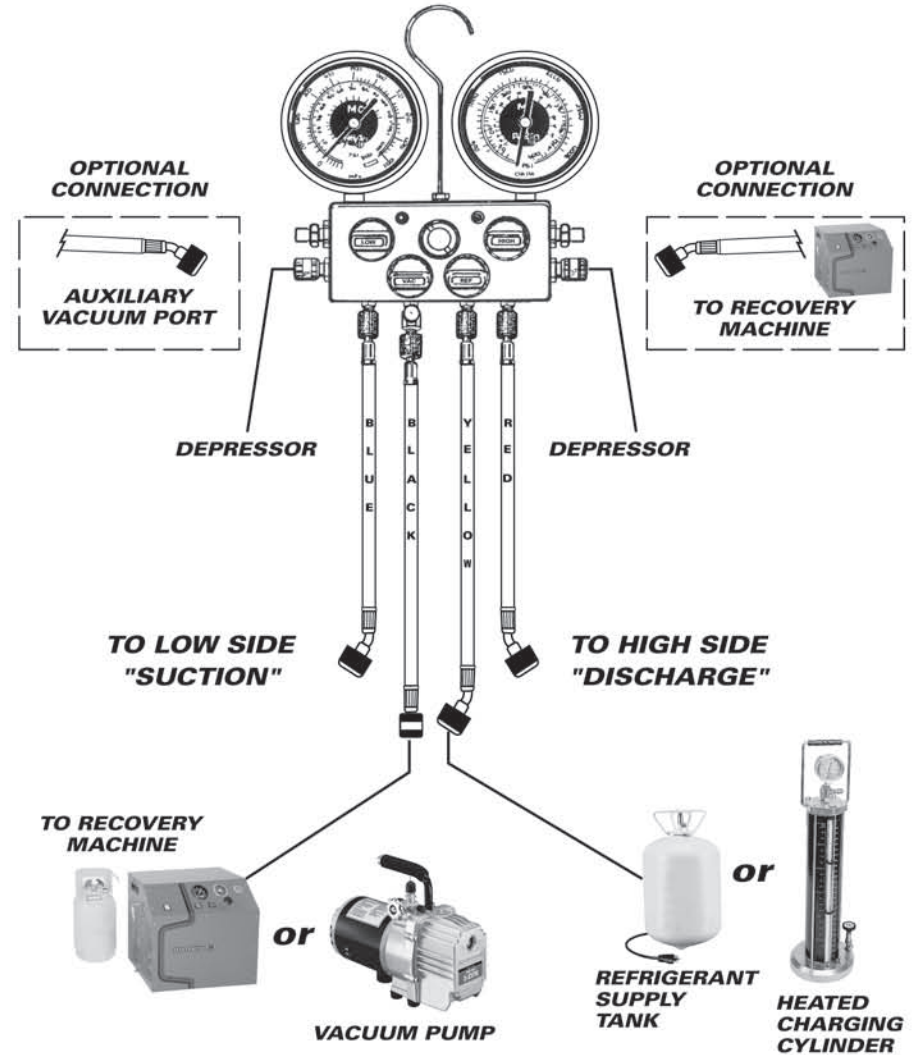
**Also Available...
ROTARY VANE DEEP VACUUM PUMPS**

90060	1.5CFM VACUUM PUMP (TWO STAGE)
90062	2CFM VACUUM PUMP (SINGLE STAGE)
90065	5CFM VACUUM PUMP (TWO STAGE)
90067	7.5CFM VACUUM PUMP (TWO STAGE)
90070	10CFM VACUUM PUMP (TWO STAGE)
90060-220	220 / 240V VACUUM PUMP (TWO STAGE)
90062-220	220 / 240V VACUUM PUMP (SINGLE STAGE)
90065-220	220 / 240V VACUUM PUMP (TWO STAGE)
90067-220	220 / 240V VACUUM PUMP (TWO STAGE)
90070-220	220 / 240V VACUUM PUMP (TWO STAGE)
90060-J*	100V / 50HZ VACUUM PUMP (TWO STAGE)
90062-J*	100V / 50HZ VACUUM PUMP (SINGLE STAGE)
90065-J*	100V / 50HZ VACUUM PUMP (TWO STAGE)
90067-J*	100V / 50HZ VACUUM PUMP (TWO STAGE)
90070-J*	100V / 50HZ VACUUM PUMP (TWO STAGE)

* (Japanese Standard)



**CHARGING & TESTING
ALUMINUM 4-WAY MANIFOLD**



WARNING

Wear Safety Goggles

Avoid Contact with Refrigerant

PRE-SERVICE INSTRUCTIONS

- Do not use the gauge set on systems containing refrigerants other than those listed on the gauge face.
- Close all valves on the manifold by turning them horizontal to the block.

EVALUATING THE A/C SYSTEM

Detailed information on troubleshooting A/C systems can be found in Mastercool's *Automotive A/C Basic Service Training Manual #91183*. To properly diagnose the problem in the A/C system, first check the overall system performance. Start the car and operate the A/C system on MAX. Note the interior temperature. Look for obvious indications of trouble such as a non-functioning compressor or a leaky hose or connection. Further testing includes monitoring the system's pressure and refrigerant flow, which can be done using the manifold gauge set.

WARNING - Be sure that the hand valves on the manifold gauge set are in the closed position. Always wear gloves and safety glasses when working with refrigerant!

1. Remove the protective caps at the high and low refrigerant ports. Make sure the ports are in fact used for the A/C system. Fuel injection ports are often mistaken for A/C ports. If unsure, consult the system flow diagram.
2. Connect the low side service hose (Blue) to the suction (Low) side of the A/C system.
3. Connect the high side service hose (Red) to the discharge (High) side of the A/C system.
4. Start the car, operate the A/C on MAX and monitor the High and Low side pressures.

Depending on the pressures observed on the manifold gauge set, you must either add refrigerant or remove refrigerant and repair or replace a component.

ADDING REFRIGERANT (High side charging)

Close all manifold hand valves! Turn off the A/C system!

1. Connect the HIGH and LOW service hoses to the A/C system.
2. Connect a refrigerant supply to the black hose.
3. Open the REF hand valve and the valve of the refrigerant supply. Add a measured amount of refrigerant to the system using a calibrated heated charging cylinder or D.O.T. tank and electronic scale.
4. Close the REF hand valve and the valve on the refrigerant supply.

RECOVERING REFRIGERANT

**Close all manifold hand valves!
MAKE SURE THE VALVE ON THE REFRIGERANT SUPPLY IS
CLOSED!**

1. Connect the HIGH and LOW service hoses to the A/C system.
2. Connect a recovery machine to the yellow hose from the manifold.
3. Operate the A/C system on MAX to warm the refrigerant and oil.
4. STOP the A/C system and shut off the car.
5. Open the HIGH, LOW and VAC hand valves and operate the recovery machine.
6. When the recovery machine stops and you are certain that no refrigerant remains, you can vacuum the system.

VACUUMING THE SYSTEM!

Close all the manifold hand valves!

1. Connect the HIGH and LOW service hoses to the A/C system. **The system pressure must be zero or less before vacuuming. If not, you must first recover any remaining refrigerant!**
2. Connect the yellow hose from the manifold to the vacuum pump.
3. Open the HIGH, LOW and VAC valves on the manifold.
4. Start the vacuum pump and observe the LOW side gauge.
5. Evacuate the system for thirty minutes. Close the HIGH, LOW and VAC valves. Turn off the vacuum pump. Note the reading on the LOW side gauge. A drop in vacuum indicates a leak. Make necessary repairs and retest.

ADDITIONAL INFORMATION

- The additional port on the RIGHT side of the manifold is an auxiliary recovery port and can be used in conjunction with the REF, HIGH and LOW valves.
- The additional port on the LEFT side of the manifold is an auxiliary VACUUM port and can be used in conjunction with the VAC, HIGH and LOW valves.

HAND VALVE POSITIONS				
LOW	VAC	REF	HIGH	OPERATION
closed	closed	closed	closed	measure system pressure
opened	opened	closed	opened	recover refrigerant through black hose
opened	opened	closed	opened	vacuum system through black hose
closed	closed	opened	opened	high side charging
opened	closed	opened	opened	evacuate hoses using aux. recovery port