

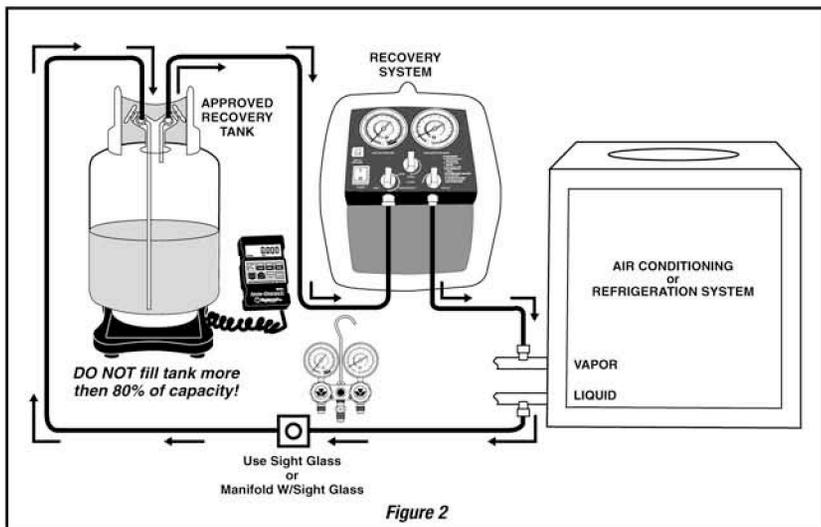
## **PUSH – PULL LIQUID RECOVERY METHOD**

*(Refer to fig. 2)*

The push –pull liquid recovery technique permits recovery of large volumes of liquid refrigerant from HVAC or refrigeration systems. The Recovery System pulls vapor from the recovery cylinder and produces high pressure vapor that is discharged into vapor service port of system being evacuated. The liquid service port is connected to liquid inlet on recovery tank. Note, Recovery tank must be used with a scale that shuts off refrigerant flow when tank reaches 80% of its capacity. When the Recovery System is started vapor from the recovery tank is compressed and sent, at high pressure, to HVAC or refrigeration system. As pressure builds, the liquid is “pushed” out of unit into recovery tank. Vapor from recovery tank is “pulled” out of recovery tank, compressed, and then pressurizes unit.

Please note, some systems may not have liquid service port. This prevents the push-pull technique from being used.

1. Connect outlet port of Recovery System to vapor port of unit to be serviced. Use hoses with automatic or manual valves on both ends
2. Connect liquid port on unit to be serviced to liquid port on recovery tank. Recovery tank should be on a scale that stops flow when 80% tank capacity is reached. This Connection should be made with a manifold set with sight glass to verify liquid flow.
3. Connect vapor port of recovery tank to inlet port of Recovery System. Use hose with automatic or manual valve on both ends.
4. Open valves on unit under repair. Open valves on recovery tank.
5. On Recovery System, rotate outlet valve to “OPEN” position. Rotate center valve to “RECOVER” position. Rotate inlet valve to “OPEN” position.
6. Start Recovery System.
7. Check the sight glass for the presence of liquid flow. When liquid stops flowing, rotate inlet valve on Recovery System to “CLOSED” position. When Recovery system shuts down due to vacuum, reconnect for direct vapor recovery. See recovery instructions.



**Mastercool**® Inc.  
*"World Class Quality"*

## **OPERATING INSTRUCTIONS** **REFRIGERANT RECOVERY SYSTEM**



**MODEL – 69000** (110V/60Hz)  
**69000-220** (220V/50-60Hz)  
**69000-J** (100V/50Hz) Japan

## SAFETY INFORMATION!

### READ CAREFULLY BEFORE USING MASTERCool RECOVERY SYSTEM!

1. This equipment is designed to be used by qualified service personnel. The operator of this equipment must be familiar with air conditioning and refrigeration systems. Do not attempt to operate this equipment until all safety instructions and operating instructions are read and understood.
2. Always use eye protection (safety goggles) and hand protection (gloves) when working with refrigerants. Other types of personal protective equipment should also be used.
3. All hoses used for interconnecting system should have shut off valves (manual or automatic) on both ends. Treat all hoses and connections with caution. Hoses or connections will contain liquid refrigerant or gas under pressure. Connect and disconnect fittings with caution.
4. Do not pressure test system with air. Some mixtures of air and refrigerant can be combustible or explosive.
5. Recovery tank contains liquid refrigerant under high pressure. Never over fill recovery tank. Tanks should be filled to a maximum of 80 % of capacity only. Use scale or other sensing device to make sure tank is not over filled. Use only approved tanks for refrigerant recovery. An over filled tank can explode causing serious injury or death.
6. Do not breath refrigerant vapors and/or lubricant vapor or mist. Breathing high concentrations of these substances will cause severe health problems. Always use Recovery system in a well-ventilated area.
7. Do not use this Recovery System in the vicinity of spilled or open containers of flammable substances (gasoline, solvents, etc.).
8. If electrical extension cord is used, it must be 14 AWG or larger and 50 feet maximum length. If lower amperage capacity extensions are used an over heat condition and fire hazard could occur.
9. Make sure system is electrically connected to a properly grounded power source. Always disconnect system from power source when servicing system.
10. Some governmental agencies require licenses or certification to work with refrigerants and this recovery equipment. Use this system only if operator has proper license or certification.
11. This recovery system is not to be used with any type flammable refrigerant or flammable gas.
12. The Recovery System includes a fine screen filter at the inlet port. Since many recovery operations involve transferring contaminated refrigerants a filter should be used. It is recommended that an in line suction filter be used on the inlet side of Recovery System. A recommended type is Sporlan "Catch-All" series of proper size. Filter should be changed often.

### DANGER! – EXPLOSION RISK!!!

#### DO NOT RECOVER FLAMMABLE REFRIGERANTS



## OPERATING GUIDE FOR DIRECT VAPOR OR LIQUID RECOVERY

(Refer to fig.1)

1. Make sure on-off switch is off, "0" pushed in. Connect system to grounded power connection.
2. Turn INLET (blue color) valve to CLOSE position. Turn center valve (yellow color) to RECOVER position.
3. Turn OUTLET (red color) valve to OPEN position.
4. Connect the inlet and outlet hoses to the Recovery System. The inlet hose should be connected to the unit to be serviced. The outlet hose should be connected to vapor valve on recovery tank. Recovery tank must be used on a scale that can be set to shut off refrigerant flow when tank reaches 80% of capacity.
5. Open the valve on the unit being serviced (feeding inlet hose).
6. Open the vapor valve on the recovery tank.
7. Turn INLET valve on Recovery System to OPEN.
8. Turn on Recovery System (push power switch "I"). If Recovery System fails to start, rotate center valve to PURGE position. Rotate inlet valve to PURGE position. Wait about 10 seconds for pressure to equalize. If circuit breaker has tripped, reset it.
9. Turn center valve back to "Recover" position. Start recovery system. Open inlet valve.
10. Observe operation of system. In rare instances "slugging" may be apparent (loud compressor noise or high vibration). If this condition is apparent turn inlet valve to LIQUID position. System can be run with this setting continuously. It is suggested that operator periodically turn inlet valve to OPEN position and check for proper operation of system. Best operation of the system is with inlet valve OPEN and automatic pressure regulating valve controlling flow conditions.
11. System has automatic vacuum shut down switch. After recovery is complete system will turn off when inlet pressure reading is about 14 inches of mercury below atmospheric pressure. When system shuts down automatically, turn inlet valve to CLOSE position and turn power switch off. Recovery is now complete.

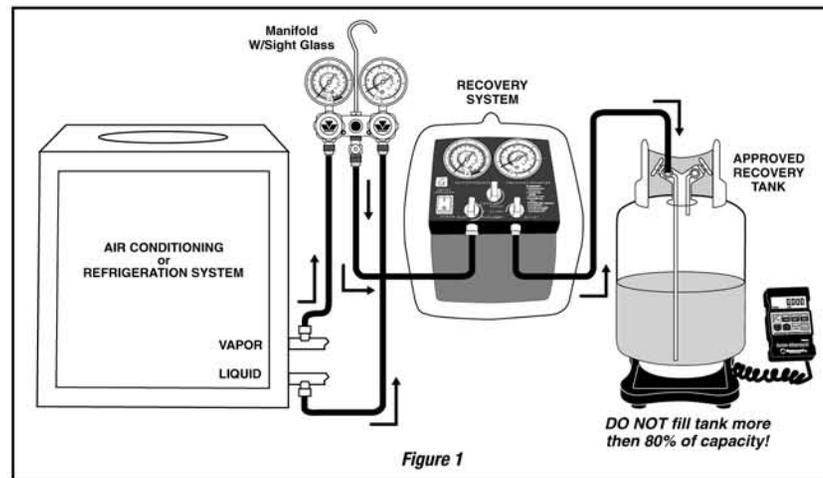


Figure 1

### RECOVERY SYSTEM PURGE

1. Turn off power switch. Turn inlet valve to PURGE position. Turn center valve to PURGE position. Make sure outlet valve is in OPEN position. Start System.
2. System will run until vacuum switch shuts System off automatically. Purge may take a few minutes as some liquid refrigerant may be in the Recovery System. The liquid must become vapor, which may require some time.
3. Shut OFF Recovery System. If System is to be used with the same refrigerant next operation, shut outlet valve and disconnect outlet hose. If venting of system is required, disconnect outlet hose to relieve residual pressure.
4. The inlet port has a fine screen filter. Remove inlet nut and clean filter after every use. A clean filter is very important for the proper operation of the System.