



**Mastercool<sup>®</sup> 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 only to continuously monitor the recovery tank weight. Use only approved tanks for refrigerant recovery. An overfilled tank can explode causing serious injury or death.
6. Do not breathe 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



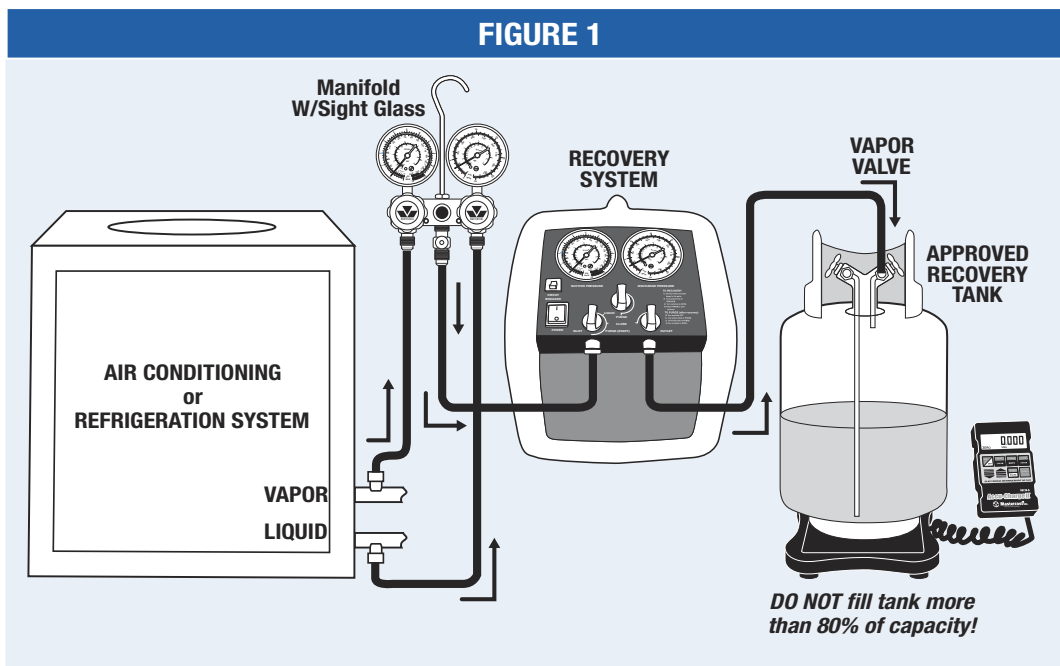
### FOR DIRECT VAPOR OR LIQUID RECOVERY

*(Refer to fig.1) Connect System per fig. 1 and following instructions*

1. Make sure on-off switch is off, "O" pushed in. Connect system to grounded power connection. If equipped, push "HPCO" reset button on front panel of system. This switch will "trip" (shut Recovery System off) if Recovery System is pressurized above 38 bar (550 psi).
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 (per fig. 1). 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. Recovery tank must have a minimum pressure rating of 38 bar (550 psi).

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. Start Recovery System.
9. Once Recovery System has started turn center valve to **RECOVER** position and **INLET** valve to **OPEN** position.
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 (-.4 bar) below atmospheric pressure. When system shuts down automatically, turn inlet valve to **CLOSE** position and turn power switch off. Proceed to "Recovery System Purge" section to purge Recovery System of remaining refrigerant.



## 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. If system does not start due to pressure difference between inlet and outlet, turn center valve slowly to recover position and slowly back to purge position. The inlet and outlet pressure gauges should read the same pressure. 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. System will shut-off automatically when proper vacuum level is reached.
3. Shut **OFF** Recovery System power switch. If system is to be used with the same refrigerant next operation, shut outlet valve and disconnect outlet hose. If opening of Recovery System is required, disconnect outlet hose to relieve residual pressure.
4. The inlet port has a fine screen filter. Remove inlet nut and clean or replace filter after every use. A clean

filter is very important for the proper operation of the System. See “Routine Maintenance” section.

## **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.

**Note:** Some systems may not have liquid service port. This prevents the push-pull technique from being used.

### **Procedure for Push-Pull technique (Connect system per fig. 2 and following instructions).**

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 to prevent refrigerant release when disconnecting.
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 gauge set with sight glass to verify liquid flow. Recovery tank must have a minimum pressure rating of 38 bar (550 psi).
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 to be evacuated. 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, turn **OFF** the power switch. Reconnect system for direct vapor recovery following instructions listed under “Operating Guide for Direct Vapor or Liquid Recovery”.

