



# REFRIGERANT RECOVERY SYSTEM



MODEL  
CR400  
SERIES

**TO BE OPERATED  
BY QUALIFIED  
PERSONNEL ONLY!**

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## TABLE OF CONTENTS

INTRODUCTION .....	2
SPECIFICATIONS .....	3
GENERAL SAFETY INSTRUCTIONS .....	4
DIRECT LIQUID OR VAPOR RECOVERY .....	5
LIQUID PUSH-PULL RECOVERY .....	5
ROUTINE MAINTENANCE .....	6

# OPERATION MANUAL

# INTRODUCTION

Thank you for purchasing the CPS CR400 series unit. CPS is dedicated to give you the fastest and most reliable equipment to meet all your commercial refrigerant recovery requirements.

The CR400 is designed for servicing commercial and residential refrigeration systems. Simply follow the quick start guide and turn it on.

No need to watch for liquid refrigerant, this unit automatically handles it. Once the recovery is complete, simply turn the center valve to the SELF-CLEARING position. Now the unit is ready for the next type of refrigerant.

The CPS CR400 series utilizes a 1/6 hp (0.35kW) compressor, non-restrictive diaphragm manifold valves, and a liquid regulating valve to make it the first truly direct liquid or vapor refrigerant recovery unit.

The following are additional features:

- "On the Run" SELF-CLEARING valve. No need to turn off the unit when switching from recovery to self-clearing.
- On board SUCTION and DISCHARGE gauges.
- 0 to 55 bar (800-psig) discharge gauge to handle R-410A.
- Small physical size.
- Weighs only 12.6 kg (28 lbs.)
- Integrated easy to use carrying handle.
- High Pressure switch set at 550 psig.
- Easy and secure filter accesses. No dangling filters to be damaged.
- Replaceable or cleanable filter cartridge.
- Heavy-duty powder coated aluminum chassis surrounded by a tough High-Density Polyethylene case.

To help you get a good start, please continue to carefully read the balance of this manual. This manual contains important information on the proper procedures for operating this equipment. Please pay close attention to the safety information, WARNING and CAUTIONS provided throughout this manual. Always remember "SAFETY FIRST".



- Suction Gauge and Valve
- Discharge Gauge and Valve
- DISCHARGE Port
- SELF-CLEARING Valve
- SUCTION Port w/Filter
- POWER Switch
- Fan
- Thermal Circuit Breaker
- IEC 320 Electrical Inlet
- Oil Drain

## CR400 SERIES SPECIFICATIONS

MODELS	CR400	CR400S
Compressor Type	1/2 HP Oil-less Reciprocating Compressor	
Dimensions	20cm (8") wide x 37cm (14.5") long x 30.5cm (12") high	
Weight	12.6 kg (28 lbs.)	
Operating Range	0°C (32°F) to 49°C (120°F)	
Power Source	115 VAC 60 Hz 1Ph	220/240 VAC 50 Hz 1Ph
Power Consumption	350 W	
Suction Pressure Gauge	-30" hg to 350 psig -76 cm hg to 35 kg/cm	
Discharge Pressure Gauge	0 to 800 psig 0 to 55 kg/cm	
Filtration	Cleanable 100-mesh screen integrated into Suction Port	
Shut-off Valves	Suction piston type and Discharge diaphragm type manifold valves	
Construction	Heavy gauge aluminum chassis w/High Density Polyethylene Case	
Overload Protection	12 Amp	6 Amp
High Pressure Shut-off	38 bar (550 psig)	
Refrigerants	R-12, R-134a, R-401C, R-500, R-401A, R-409A, R-401B, R-407D, R-22, R-502, R-407C, R-402B, R408A, R-509, R-407A, R-404A, R-402A, R-507, R-407B, R-410A	
	<u>Flow Rate</u>	
Direct Vapor	Up to 20 kg/h (44 lbs/hr)	
Direct Liquid	Up to 27 kg/h (59 lbs/hr)	
Push-Pull Liquid	Up to 210 kg/h (461 lbs/hr)	

## GENERAL SAFETY INSTRUCTIONS

**ONLY QUALIFIED SERVICE PERSONNEL SHOULD OPERATE THIS UNIT. MOST STATES, COUNTRIES, ETC... MAY REQUIRE THE USER TO BE LICENSED. PLEASE CHECK WITH YOUR LOCAL GOVERNMENT AGENCY.**

**DANGER** - the recovery tank contains liquid refrigerant. Overfilling of the recovery tank may cause a violent explosion resulting in severe injury or even death. As a minimum use a scale to continuously monitor the recovery tank weight.

**DANGER** - Avoid breathing refrigerant vapors and lubricant vapor or mist. Breathing high concentration levels may cause heart arrhythmia, loss of consciousness, or even cause suffocation.

**DANGER** - ELECTRICAL SHOCK HAZARD - **Always disconnect power source when servicing this equipment.**

**DANGER** - EXPLOSION RISK. Do not recover flammable refrigerants.

**CAUTION** - all hoses may contain liquid refrigerant under pressure. Contact with refrigerant may cause frostbite or other related injuries. Wear proper personal protective equipment such as safety goggles and gloves. When disconnecting any hose, please use extreme caution.

**CAUTION** - avoid breathing refrigerant vapors and/or lubricant mist. Exposure may irritate eyes, nose, throat, and skin. Please read the manufacturers Material Safety Data Sheet for further safety information on refrigerants and lubricants.

**CAUTION** - to reduce the risk of fire, avoid the use of extension cords thinner than NO.14 awg. (1,5mm<sup>2</sup>) to prevent the overheating of this cord please keep length to a minimum.

**CAUTION** - do not use this equipment in the vicinity of spilled or open containers of gasoline or other flammable substances. Make certain that all safety devices are functioning properly before operating the equipment.

This equipment is intended for use of one refrigerant at a time until the SELF-CLEARING feature is used. Mixing of different refrigerants will cause your recovered supply of refrigerant to become contaminated. NOTE: It is very expensive to destroy mixed or damaged refrigerants.



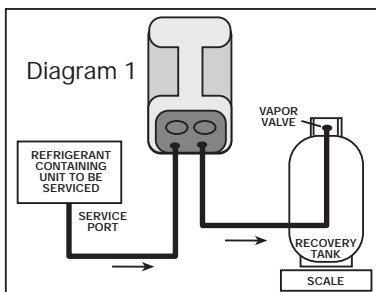
## DIRECT VAPOR OR LIQUID RECOVERY OPERATION

1. Connect the unit as shown in Diagram 1.
2. Open the vapor valve on the Recovery Tank.
3. Open **DISCHARGE** valve on CR400.
4. Rotate the center valve to the **"RECOVERY"** position.
5. Push the Main Power Switch "ON".

**NOTE:** *If the unit fails to start, open the suction valve and rotate the center valve to the "SELF-CLEARING" position for 5-10 seconds. Then rotate back to the "RECOVERY" position. Reset circuit breaker. Push the START switch.*

6. Once unit has started, open the **SUCTION** valve on the CR400 to start the refrigerant flow.
7. Monitor the suction gauge until it falls below the required vacuum level. Close the **SUCTION** valve.
8. Rotate the center valve to the **SELF-CLEARING** position. Again monitor suction gauge. Once the gauge reads a vacuum, turn unit off.

**RECOVERY AND SELF-CLEARING ARE COMPLETE.**

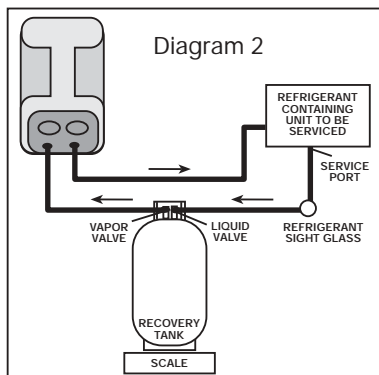


## PUSH-PULL LIQUID RECOVERY OPERATION

1. Connect the unit as shown in Diagram 2.
2. Open both valves on the Recovery Tank.
3. Open **DISCHARGE** valve on CR400.
4. Rotate the center valve to the **"SELF-CLEARING"** position.
5. Push the Main Power Switch "ON".

**NOTE:** *If the unit fails to start, open the suction valve and rotate the center valve to the "SELF-CLEARING" position for 5-10 seconds. Then rotate back to the "RECOVERY" position. Reset circuit breaker. Push the START switch.*

6. Once unit has started, open the **SUCTION** valve on the CR400 to start the refrigerant flow.
7. Monitor the optional inline sight glass for liquid refrigerant movement.
8. Once liquid refrigerant is no longer present, close **SUCTION** valve. When the **SUCTION** gauge falls into vacuum, proceed to Direct Vapor Recovery Operation.



## ROUTINE MAINTENANCE

**FILTER MAINTENANCE** - the CR400 is equipped with a 100 mesh screen filter. This filter should be checked periodically. A partially clogged filter will slow down the recovery rate of this unit.

Replace the filter cartridge as follows:

1. Use a 7/8" socket or boxed end wrench to loosen the suction port as shown in Figure 1.
2. Once loose, remove the suction port- filter cartridge assembly is shown in Figure 2.
3. Either clean the current cartridge or replace with new cartridge.
4. Inspect O-ring. Re-lubricate with compressor oil or equivalent.
5. Place filter back into suction port fitting.
6. Hand tighten this assembly back onto the CR400.
7. Use a 7/8" socket or boxed end wrench to tighten 1/8 of a turn. Do not over tighten, damage to the O-ring may occur.
8. Check the connection for leaks.

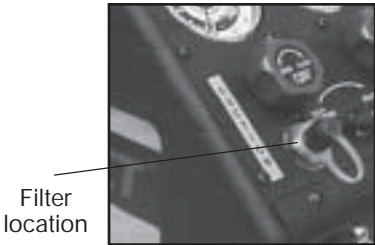


Figure 1



Figure 2

**COMPRESSOR OIL MAINTENANCE** - the CR400 utilizes a hermetically sealed oil filled reciprocating compressor. It will be necessary to completely change the compressor oil periodically.

**Change oil as follows:**

1. The unit should have no pressure in it. If pressure exists, run Recovery until suction gauge reads a slight vacuum.
2. Remove the brass cap on the Oil Drain hose located in the lower left-hand corner of the unit.
3. Lift the unit as shown below in Figure 3. Hold until all the oil has drained out.
4. Inject 8 ounces (240 ml) of SW22 oil back into compressor.



Figure 3



Figure 4

5. Check oil level by tilting the back of the unit up 1.5" (4 cm) as shown in Figure 4. With the Oil Drain cap removed, oil should slowly drip out of the unit's oil drain port. Add oil if necessary.



## WARRANTY & REPAIR POLICY

CPS® Products, INC. guarantees that all products are free of manufacturing and material defects for one year. If the equipment should fail during the guarantee period it will be repaired or replaced (at our option) at no charge. This guarantee does not apply to equipment that have been altered, misused, or returned solely in need of field service maintenance. This repair policy does not include equipment that is determined to be beyond economical repair. All products being returned for warranty repair must be accompanied by an original bill of sale and customer contact information.



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