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CHILLER

Models: CH1502A–LP

Operator's Manual

Part No. 92074
July 24, 2002
Revision C

THIS DOCUMENT CONTAINS IMPORTANT INFORMATION
This Manual must be read and understood before installing or operating this equipment

IMI Cornelius Inc.; 1997–2002

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GENERAL DESCRIPTION

This section gives the Unit description, theory of operation, and design data.

IMPORTANT: *To the user of this manual* – This manual is a guide for installing, operating, and maintaining this equipment. Refer to the Table of Contents for page location for detailed information pertaining to questions that arise during installation, operation, service, or maintenance of this equipment.

NAMING CONVENTION CH–1502–A

CH – Denotes “CH” series chiller product.
15 – Denotes 18,000 BTU/Hr. Nominal capacity. “1.5 TON”.
02 – Voltage 230/3/60,
OD – 230/1/60
03 – 460/3/60
A – Denotes Air-Cooled Condenser
W – Denotes Water Cooled Condenser

The CH-1502-A model chiller from Remcor is designed to provide a continuous flow of clean cooling water at a constant temperature.

The unit incorporates a refrigeration system with all necessary operating controls and safety devices. The housing is constructed of painted cold rolled steel panels, angles and a galvanized base with optional casters. All flow requirements must be externally provided as there is no pump or tank provided with the CH-1502-A.

The chiller is designed to operate in a clean industrial or laboratory environment where ambient temperatures range from 40 - 110°F. For applications which reject dirt or particles to the cooling fluid (i.e. EDM’s) it is necessary to filter the fluid before it enters the chiller (#20 mesh strainer, not supplied with unit). Fluid contaminated with metal particles or dirt can clog the evaporator causing a decrease in capacity. There is an air filter installed to keep the condenser fins clean. A dirty condenser leads to a decrease in capacity and higher than normal refrigerant pressure.

WARNING: Allow unit to sit in ambient for 24 hours before starting out of box. Never operate the chiller with panels removed. Verify that air flow is unobstructed.

Table 1. SPECIFICATION

Cooling Capacity @ 70°F Ambient:	18,000 BTU/Hr.
Compressor:	Copeland Corporation CRA1-0150-TF5 1-1/2 Horsepower
Power Requirements:	230 Volts - 60 Hz, 7.3 Amps, 3 Phase
Condenser: Total Heat Rejection to room	Air Cooled, 25,000 BTU/Hr.
Refrigerant:	HCFC–22 6.0 Lbs.
Temperature Control: Set Point Range: Temperature probe type: Probe location: Differential:	Eliwell digital display 40 – 100°F Thermistor Water inlet ± 1°F
Dimensions:	20”L x 20”W x 25”H
Water Connections:	3/4” FPT stainless steel couplings

CONTROL SETTINGS

High Pressure Cut-Out:	350 PSI
Low Pressure Cut-Out:	44 PSI
Freeze Thermostat:	35°F (Probe on evaporator outlet)
Hot Gas By-Pass	This option feeds hot gas to the evaporator when the water reaches set-point. The hot gas forces the water temperature to increase 1°F quicker, which turns the cooling back on.

INSTALLATION

LOCATION:

- Indoors.
- Adequately ventilated area.
  (2 ft. of space on air intake and discharge sides).
- Ambient temperature range (40°F – 100°F). (Optimum 80°F)

ELECTRICAL:

All wiring must conform to the National Electric Code and any applicable local codes. The Chiller must be permanently wired by means of electrical conduit to a properly fused disconnect of proper amperage or wired to a properly rated power cord and plugged into an outlet with the appropriate disconnect and amperage rating. The electrical junction box, located on top of the condenser fan shroud (must remove wrapper) includes a four-terminal strip for power supply connections.

NOTE: The power harness currently supplied with the unit is not accepted within the National Electrical Code standards for permanent power hook-up. It is supplied by request of the customer only.

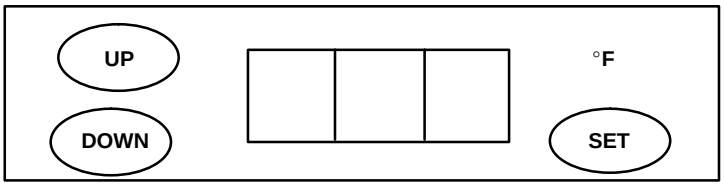
PLUMBING

- Follow standard plumbing practices and codes.
- 3/4” FPT S.S. inlet/out couplings.
- Use AT LEAST 3/4” I.D.. hose and fittings.
- Install #20 mesh strainer in line. Clean monthly.
- Insulate any lines susceptible to condensation or significant heat gain.

START–UP

Once the electrical and plumbing is hooked up, the unit is ready to operate (See Fluid Recommendations page). By request, the CH–1502–A has no on/off switch so the unit is wired directly to the application that controls it. When power is turned on to the Chiller it will operate continuously until either the operator turns it off or a safety cut-out is triggered.

THERMOSTAT ADJUSTMENT



1. Push “SET” button on right side of display. The current set-point will be displayed.
2. While hold the “SET” button, push the “UP” or “DOWN” button until desired set-point is displayed.
3. Release “SET” button and display will show current Chiller inlet temperature.

MAINTENANCE

CAUTION: Disconnect electrical power before performing any maintenance.

1. Keep condenser fins clean by blowing compressed air through the fins from the fan side as required to eliminate any dirt or debris.
2. Drain and flush circulation system periodically to reduce the chance of restriction due to contaminants in the water.
3. Clean strainer monthly.

SERVICE

When servicing the Chiller, it is important to note the information on the Data Plate located on the rear of the unit. If necessary, call the service number on the Data Plate and have all information ready to give the technician on the telephone.

The Serial Number is required to order parts or make any warranty claims.

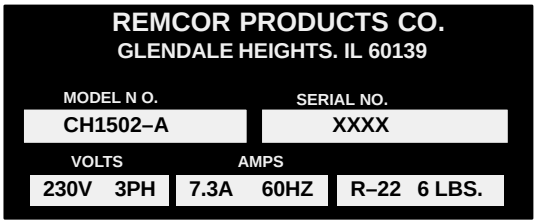


FIGURE 1. SAMPLE DATA PLATE FOR CH–1502–A

Removing Wrapper

1. Disconnect power to unit.
2. Loosen all screws that secure wrapper, quantity 16.
3. Lift wrapper straight up.

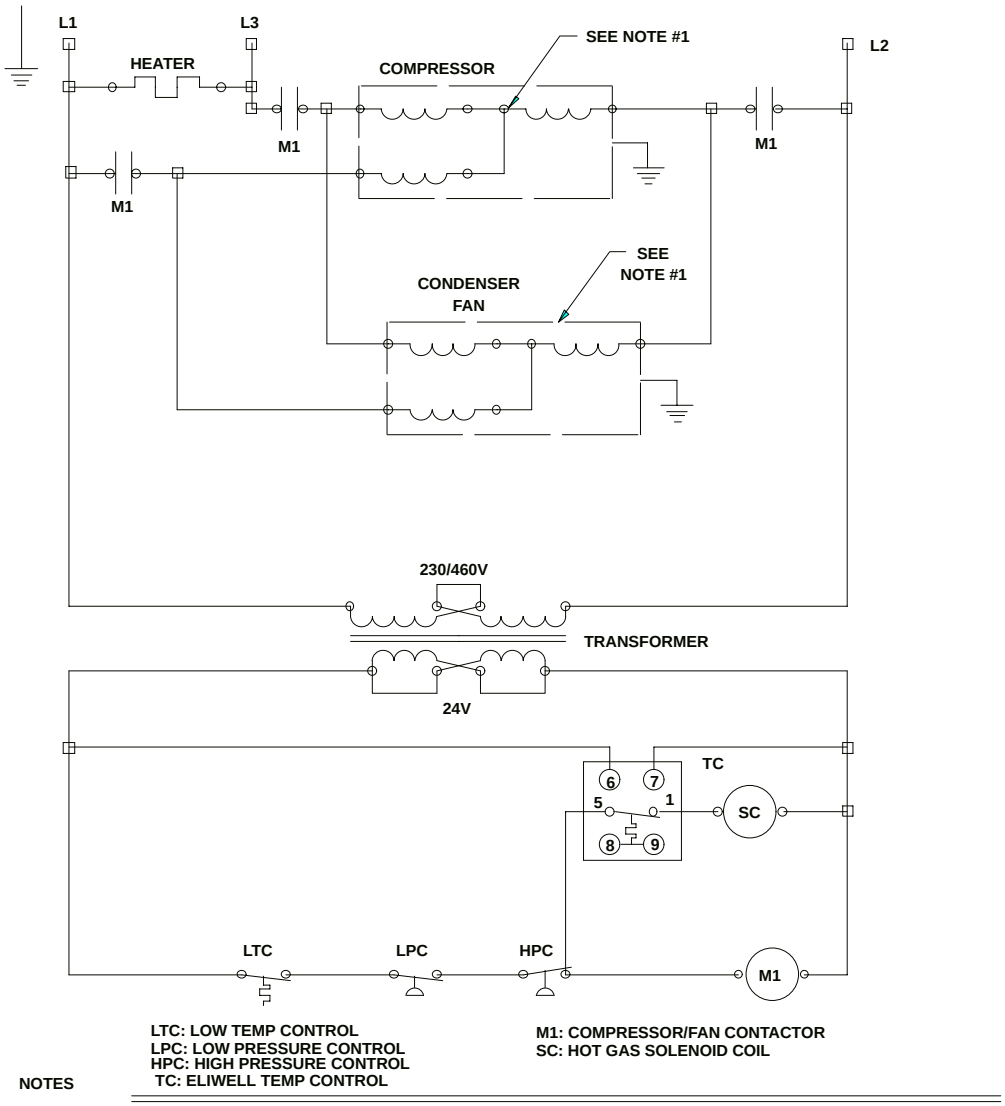
Replacing Thermostat

1. Remove wrapper as stated above.
2. Note the location of all wires coming out of the back of thermostat.
3. Loosen screw terminals securing the wires at the rear of the thermostat and remove wires.
4. Loosen the mounting bracket with the phillips head screw in back of the thermostat.
5. Remove thermostat through front of panel.
6. Reverse for installation.

Access Electrical Hook-Up

1. Remove wrapper.
2. Box is located on top of fan shroud.
3. Remove 2 screws in lid to access.

NOTE: For any other service requirements on this unit, a Remcor Service Technician should be contacted.



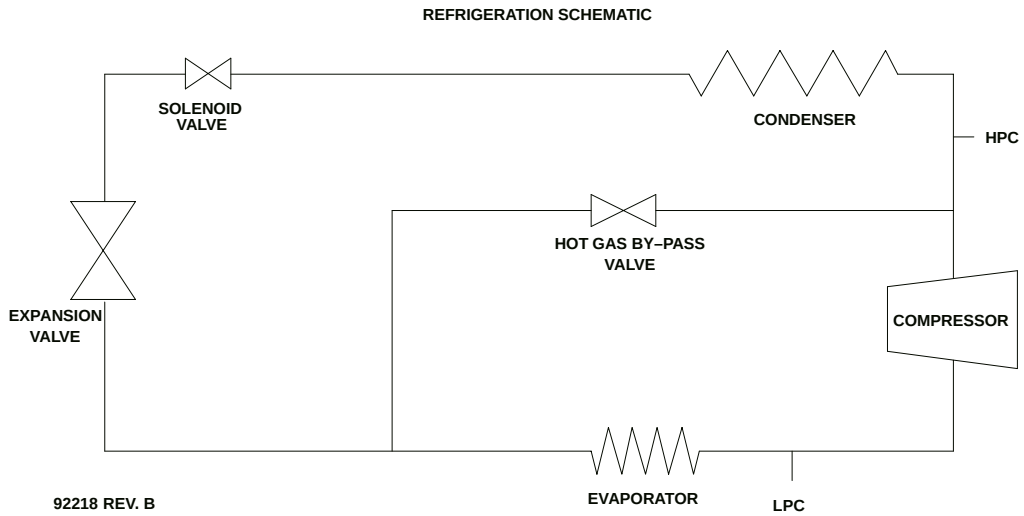


FIGURE 2. WIRING DIAGRAM

FLUID RECOMMENDATION

Remcor Chillers are designed to operate with water to provide maximum performance for temperatures of 40°F–100°F.

Distilled Water	Acceptable
De–Ionized Water (1–5 MEG/OHMS)	Acceptable
De–Ionized Water (5+MEG/OHMS)	Acceptable with Stainless Steel & PVC only *No Copper or Brass
Propylene Glycol (Lab & Industrial Grade)	Acceptable – 30% Glycol/70% Water *For Applications with Temperatures below 40°F
Lab & Industrial Grade Ethylene Glycol	Acceptable – 30% Glycol/70% Water *For Applications with Temperatures below 40°F
Mineral/Hydraulic Oils (Viscosity<50 Centistrokes)	Acceptable
Ethylene Glycol **(Commercial/Automotive Antifreeze)**	**NOT Acceptable** ***Silicate Rust Inhibitors in Automotive/Commercial Antifreeze will damage pump seals and housing which lead to failure.**
Acidic/Basic Solutions (Above 8/Below 6 PH)	Not Acceptable
Mineral/Hydraulic Oils (Viscosity>50 Centistrokes)	Not Acceptable

For questions regarding special or other fluids contact IMI Cornelius Remcor at 800–551–4423.

To Purchase Lab or Industrial Glycol contact:

Hubbard Hall	(800) 648–3412 – Dow Therm SR1 available in 5 gallon
IMI Cornelius	(800) 551–4423 – Part# 111521000 5 gallons

TROUBLESHOOTING

IMPORTANT: Only qualified personnel should service internal components or electrical wiring.

WARNING: If repairs are to be made to a product system, remove quick disconnects from the applicable product tank, then relieve the system pressure before proceeding. If repairs are to be made to the CO_2 system, stop dispensing, shut off the CO_2 supply, then relieve the system pressure before proceeding. If repairs are to be made to the refrigeration system, make sure electrical power is disconnected from the unit.

Trouble	Probable Cause	Remedy
CHILLER DOES NOT OPERATE	A. Power not hooked up.	A. Verify that the power is hooked up properly.
	B. High Pressure Cut-Out has tripped.	B. Reset High Pressure Cut-Out If refrigeration pressure gets above 350 psi, this switch will shut uint off. Follow procedure above for removing wrapper. Then locate the circular punch out in the cover of the electrical box. Press button inside this punch out to reset the high pressure control. Could result from a dirty, clogged condenser or too high of an ambient air temperature.
	C. Low Pressure Cut-Out has tripped.	C. (Call Service) This has an automatic reset. In order for the low pressure safety to cut out the unit, the low side pressure must drop below the settint (44psi). If this happens it could mean a bad hot-gas valve or bad low pressure switch.
	D. Freeze Thermostat.	D. If the freeze thermostat probe located in the water discharge line senses a temperature below 35°F it will shut the unit off. It will automatically reset when temperature rises.
UNIT OPERATES, BUT DOES NOT COOL.	A. Low refrigeration charge.	A. Call service unit could have a leak.
	B. Clogged condenser.	B. Clean any dirt or debris from condenser fins. Open the airway.

PART LIST

Item No.	Part No.	Description	Qty.
1	15118	Wrapper	1
2	32386	Thermostat	1
3	32589	Temperature Probe	1
4	60506	Receiver	1
5	60537	TX-Valve R22	1
6	61139	Compressor	1
7	61029	Condenser	1
8	61051	Evaporator Assembly	1
9	61053	Fan	1
10	70480	Caster	4
11	32992	Compressor Contactor	1
12	60687	Sight Glass	1
13	31001	Freeze Thermostat	1
14	60501	High Pressure Control	1
15	60502	Low Pressure Control	1

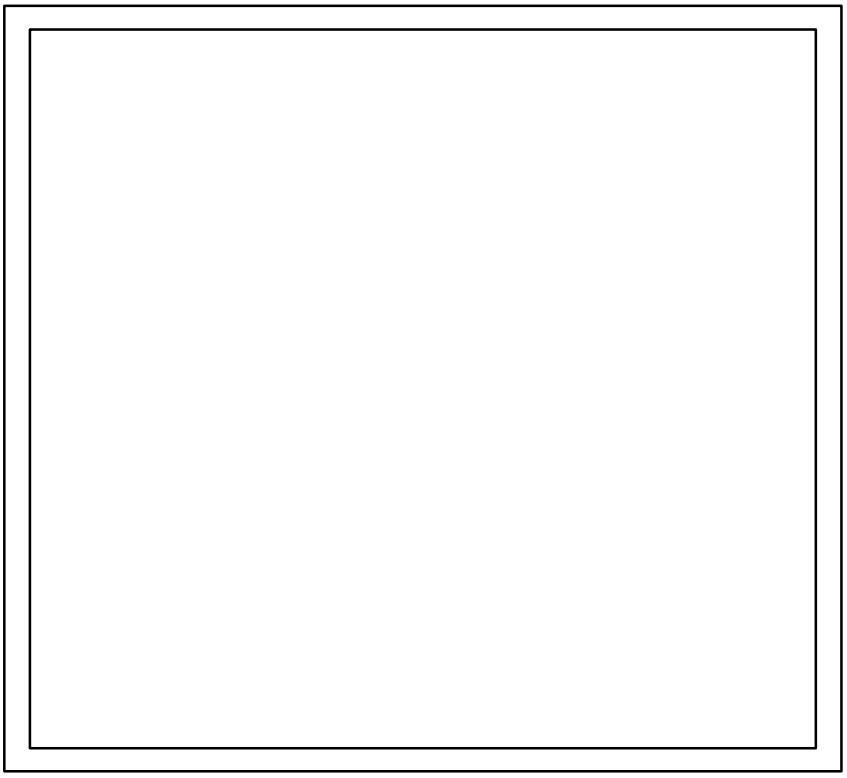
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WARRANTY

IMI Cornelius Inc. and Remcor Products Company warrants that all equipment and parts are free from defects in material and workmanship under normal use and service. For a copy of the warranty applicable to your Cornelius and or Remcor product, in your country, please write, fax or telephone the IMI Cornelius office nearest you. Please provide the equipment model number, serial number and the date of purchase.

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