KRA Refrigeration Systems

❖ INSTALLATION • OPERATION

Cruisair®

Refrigeration Systems
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Refrigeration Systems • Introduction

⚠ *Warning*

This manual contains essential safety information concerning the safe and proper installation, operation and maintenance of your refrigeration system. It is very important that you read and understand the contents of this manual thoroughly before using the equipment, and you should keep it on your boat for future reference. Failure to follow company approved installation procedures, and start-up and troubleshooting procedures will void the warranty. If there are any statements in this manual that you do not understand, contact the Dometic Service Department or your local dealer for assistance. Phone 804-746-1313 (8 am - 5 pm US Eastern Time), Fax 804-746-7248, or email sales@dometicusa.com.

Notice

Your refrigeration system uses the refrigerant gas R-134a. Federal law forbids the intentional release of the refrigerant gas to the environment. You should make certain that any field service is performed by a specialist with the proper equipment to prevent any loss of R-134a during servicing.

Drawings and Diagrams

The figures that are referenced throughout this manual can be found immediately after the warranty section. In addition, some equipment may be shipped with specific installation sheets or wiring diagrams that may supersede the information located in this manual.

Refrigeration Basics

The instructions in this manual apply to all KRA refrigeration units. Any variations are noted in the text.

KRA condensing units are combination air and water cooled. The evaporator section may consist of stainless steel plates installed in an insulated box, or may be copper tubing wrapped around the box, and then insulated.

The system works by removing heat from the refrigerator/freezer compartment (box) and transferring that heat to the outside air or seawater (depending on the condenser). Removing heat from the box reduces its temperature. However, whenever the compartment's door is opened, more heat is introduced into the box from the warmer outside air thus increasing the box temperature. This added heat must be removed. Heat is also transferred through the walls of the box; proper insulation will reduce this heat transfer and keep the box cooler for longer periods of time.

The refrigerant used is R-134a. It is EPA approved, but is illegal to vent to the atmosphere. See previous notice.

System Components

The system consists of two main parts; the condensing unit, and the evaporator section (refrigerator/freezer box). They are connected by copper lines or flexible hoses. Other parts include the refrigerant expansion valve (constant pressure or thermal expansion), thermostat, and seawater system for water-cooled condensers.

Condensing Unit

All units have R-134a compressors, air-cooled or air/water-cooled condensers, a receiver/dryer, and a sight glass. See Figure 1.

Current Model:

1. The Cabinet Freezer (KRA) comes in an enclosed, painted aluminum box. It is available with a 1/4 HP, 3/8 HP, or 1/2 HP compressor. There are no service valves. The unit includes Aeroquip quick-connect couplings, a moisture indicating sight glass, a receiver/filter/dryer and a sufficient charge of R-134a for almost all applications. Condenser cooling is either air or a combination of air and water. See Figure 1.

    - Air cooling is beneficial because the unit can operate even with the boat out of water. **However, the unit suffers a drop in performance in ambient temperatures above 100°F/38°C, and the compressor may be damaged.**
    - Water cooled units are not affected by ambient temperature and do not need ventilation. Water flow should be about 250 gph per compressor HP.
    - The combination air/water units provide the best of both applications.

Obsolete Models:

1. The cabinet freezer (ACF, WCF, WACF, or KR types) came in an enclosed, fiberglass box. It was available with a 1/4 HP or a 3/8 HP compressor. There were no service valves; the gauges connected directly to the system. The receiver had a sight glass to aid trouble-shooting. Condenser cooling was either air, water, or combination air/water.
2. The WAAF033T had a 1/3 HP compressor, air and water cooling, and service valves at the gauge connections. A mechanical thermostat was included on the unit.

3. The WAR050T had a 1/2 HP compressor with a water cooled condenser. Service valves were slightly different than the WAAF033T unit. A mechanical thermostat was included on the unit.

Evaporator

The evaporator will be either stainless steel plate(s), or a wrapped box in which the evaporative tubing is located against the outside surface of the box. See Figures 2 and 3.

Stainless plates should be designed to cover about 30% to 40% of the box's interior surface area for good freezer performance. For instance, a box that is 36" long, 16" deep and 20" wide, should use plates that are about 36" x 16". This calculates to about 35% of the box's interior surface area. Less plate area is needed for a box that is to be only a refrigerator.

Box design is extremely important and requires considerations that are mostly outside the scope of this manual. For the power boat industry, where constant power is available, evaporators must have a minimum of 2" of insulation (R7 per inch) for a freezer. When power availability is not constant, 4" of R7 insulation is required. It is best to use as much insulation as is practical.

⚠ Warning

Do not drill through the inside of a wrapped box evaporator. If the refrigerant tubing is punctured by doing so, it will not be covered under warranty.

Suction Line

The suction line returns refrigerant gas from the evaporator to the condenser and should be fully insulated.

Liquid Line

The liquid line is the bare, 1/4" copper line. It may have a filter/dryer and/or a sight glass built into it, and includes the Constant Pressure Valve (CPV) or Thermostatic Expansion Valve (TXV).

Refrigerant Metering Device

Refrigerant metering is handled by either a constant pressure valve (CPV), standard, or a thermostatic expansion valve (TXV), optional. The CPV is a simple device that holds the suction pressure constant, regardless of box or ambient temperature. The TXV regulates the refrigerant flow into the evaporator depending on load. Either valve is set at the factory, or at installation, and does not require further adjusting. A valve which has been severely misadjusted can damage the condensing unit, and will void warranty. **The metering valve must be insulated airtight!**

The CPV simply holds the suction pressure at a constant setting. It is set at the factory and should not need to be adjusted. It has a plastic cover, sealed with an O-ring, to keep moisture away from the valve. If this cover is not present, the system will not operate properly. The system either uses a CPV or a TXV (see next).

The TXV controls the flow rate of liquid refrigerant entering the evaporator in response to the superheat of the refrigerant gas leaving the evaporator. It keeps the entire evaporator active, without permitting unevaporated refrigerant liquid to be returned through the suction line to the compressor. The function on the TXV is to feed liquid into the evaporator coils at a rate that will keep liquid evaporating in all the coils, and to control that feed so that only vapor will reach the outlet (return line to the compressor).

Thermostat

A thermostat controls the operation of the condensing unit, based on box temperature. Easy to use digital thermostats are standard.

Seawater System

Condensing units that are using the water cooled option must be installed with the necessary seawater system. The seawater system consists of a through-hull fitting, seacock, strainer, seawater pump, seawater hose and overboard discharge. If more than one condensing unit is supplied by a single pump, or the air conditioning system pump is being shared for the refrigeration, a pump relay is required.

Refrigerator/Freezer Boxes

The Dometic Applications Department can assist in box design. Box design is very important to the proper operation of a system. A poorly designed and/or built refrigerator/freezer box will result in poor operation of the overall system. Care must be taken to address type of insulation, thickness of insulation, air circulation and drains.

This section covers installation procedures for your refrigeration system. Please read the manual completely before attempting to install any equipment.

This system is designed for certain capabilities and to operate under certain conditions. Any change in design conditions may result in lower capacities. Installer must understand: a) design requirements for the system; and b) conditions under which operation is expected and for which the system was designed. See Figure 6 for tools and accessories.

Installing the Refrigeration Unit

Condensing Unit

Air/Water Combination

Locate in a dry area where a constant source of circulated air is always available. Maximum air temperature for the system to operate at full capacity is: 100°F/38°C. Temperatures above this will result in reduced capacity of the air condensing system and may cause compressor damage. Maximum water temperature for full capacity is 90°F/32°C.

Any time a condensing unit is installed in an engine room, water must be provided to the unit by way of a single station pump, or a multi-station pump and a pump relay. The refrigeration condensing unit must have its own pump trigger. Any time a condensing unit is installed in an enclosed space (i.e. a space that does not have airflow in and out equal to the airflow through the condenser coil or a space that is less than 256 cu. ft. per compressor horsepower), then the customer must provide fresh air or water flow. Provide water flow that is equal to 250 GPH per compressor horsepower.

Cond. Unit	Min. Free Area	Airflow	Water Flow
PMEA05	13 Cu. Ft.	80 CFM	13 GPH
KRA025	64 Cu. Ft.	200 CFM	63 GPH
KRA038	96 Cu. Ft.	200 CFM	94 GPH
KRA050	128 Cu. Ft.	250 CFM	125 GPH

If there are multiple units in a space, then add the minimum free area to get the minimum free area total for all of the units. This also applies to the space airflow. For example, a KRA025 and a KRA038 unit are in an enclosed space, below are the area and airflow calculations:

64 Cu. Ft. + 96 Cu. Ft. = 160 Cu. Ft.
200 CFM + 200 CFM = 400 CFM

Evaporator

Flat Plates

Stainless steel evaporator plates are an excellent choice for use in a bait freezing, fish keeping application. Plates without a back should be mounted firmly and sealed to the box wall to prevent debris from getting behind the plate where they cannot be cleaned. Plates with backs may be mounted directly to the wall, or mounted with stand-offs so that there is an air space behind the plate. Care must be taken to route the connecting tubes carefully to an accessible location outside the box. When installing, consider the necessity of cleaning the box. Seal the tubing exit holes to prevent ambient air intrusion. See Figure 4.

Wrapped Box

This type of box has a clean inside, because the evaporator is wrapped around the outside of the box walls. In order to do a proper installation of this type of wrapped evaporator box, it is important to consider that the box may need to be serviced or replaced at some time. The box must be installed in such a way that it can be serviced or replaced without causing damage to it or to its associated refrigeration lines or other components. Dometic cannot be held liable for any damages caused by moving the box. Service should be done by trained professional technicians only. Please see the Owner's Limited Warranty, Sections I & II, in this manual, for a full explanation of what is and what is not covered under warranty.

Do not drill a hole in this box unless one is certain of the location of the tubing. It is easy to drill a hole in the tubing resulting in loss of refrigerant and the voiding of the warranty. In order to detect location of refrigerant tubing, turn system on and watch for frost lines. Frost lines will appear where there is tubing.

Insulation

Insulate all boxes with a minimum of 2" of R7 insulation. Use 4" of R7 on vessels where power is not constantly available.

Constant Pressure Valve (CPV) and Linesets

The constant pressure valve comes with the liquid line, and should be connected directly to the evaporator plate. **Efficiency will decrease the further the CPV is installed away from the evaporator. The distance between the evaporator and the CPV should be no more than 12".** The other end of the liquid line connects to the condensing unit. The suction line connects the condensing unit to the plate. See Figure 13.

On systems with two plates, the CPV is connected to the inlet side of the first plate, and a jumper line is attached between the plates. The suction line then returns to the condensing unit. See Figure 14. The lineset is in series:

Condensing Unit – CPV – Plate 1 – Jumper – Plate 2 – Condensing Unit

The quick connect fittings "polarize" the connections, so the connections can not be confused as long as the CPV is connected to the plate inlet. The system will be open once the lines are attached.

The CPV is preset at the factory to 2 psi, and no further adjustment should be needed. However, if using the system as a refrigerator only, you can raise the low side pressure to 10-12 psi to increase efficiency. See the table below:

SYSTEM	CPV	SET POINT	DIFF.
Bait Box (Freezer)	2 psi	0°– 10°F/-18°– -12°C	5°F
Catch Box (Refrigerator)	10-12 psi	35°– 40°F/1.7°– 4.4°C	5°F

Note: set point range is meant as an example and does not guarantee box temperature.

The CPV, and all connections after it back to the condensing unit, should be well insulated to prevent condensation and ice from forming on the lines. The plastic adjustment cap must be installed on the CPV to prevent moisture entering the valve and freezing. Refer to *"Setting the CPV"* in the Operation Section, *"Recharging the System."*

Thermostatic Expansion Valve (TXV) Placement

Used in place of the CPV, the Thermostatic Expansion Valves (TXV) must be installed in an accessible location and fastened properly. Do not install TXV with the diaphragm on the bottom. Recommended location of the TXV is near the box with the plate. It may also be located in the box unless it is in a fishbox. The TXV sensing bulb is to be properly located and secured on the outlet (suction line) of the last plate in series as close to the plate as possible. Recommended location is on a horizontal portion of tubing on the top (between eleven and one o'clock). The full length of the bulb should be in good thermal contact with the refrigerant tubing. Attach it to the closest straight piece of tubing exiting the last plate. If either the expansion valve or its sensing bulb is located outside of the box, each part must be properly insulated to protect against condensation, as well as to allow accurate temperature sensing of the bulb. The bulb must be secured to the pipe with a metal clamp to ensure firm contact with the pipe and prevent movement. Plastic ties are not acceptable. Refer to *"Adjusting the TXV"* in the Operation Section, *"Recharging the System."*

Dual Box Applications

Use TXVs if two boxes are used in conjunction with one condenser unit.

Quick-Connect Fittings

All plates and lines have quick-connect fittings. Quick-connect (QC) fittings allow for the connection and disconnection of refrigerant lines with no loss of refrigerant. They also allow for the unit to come factory charged with refrigerant. All connections are polarized so that misconnecting the lines, condensing unit, or evaporator is impossible. If installed correctly, they will not leak. The majority of problems with these have been leaks due to not tightening the connections properly. Over-tightening (especially the coupling to tube adapter on the old, two-piece fittings) can damage the fitting. Newer QCs are a one-piece model and may be tightened securely at the union nut.

For the standard one-piece type, the following procedure for connecting the fittings must be used:

1. Lubricate the gasket seal on the male threaded coupling with refrigeration grade oil.
2. Thread the union nut of the female coupling onto the male threaded coupling by rotating the union nut clockwise.
3. Start the connection by hand, and then tighten the female thread connection with a 15/16" wrench while holding the opposite coupling with a 7/8" wrench. This should be tightened to 10-12 ft-lbs.

For the old two-piece type, the following procedure for connecting the fittings must be used:

1. Lubricate the gasket seal on the male threaded coupling with refrigeration grade oil.
2. Thread the union nut of the female coupling onto the male threaded coupling by rotating the union nut clockwise.

   Important: Do not allow the coupling body to rotate on the tube adaptor during connection.
3. Start the connection by hand, and then tighten the female thread connection with a 3/4" wrench while holding the opposite coupling with a 5/8" wrench. This should be tightened to 6-8 ft-lbs. Do not over-tighten the coupling on the tube adaptor; doing so may destroy the seal.

Sight Glass/Moisture Indicator

On the condensing units, there is a sight glass located directly inside the front cover. This glass will communicate many things about the system's operating condition.

1. The glass should show foam upon start-up. This should clear after a few minutes of running. If it doesn't clear, the charge is low. If there was no foam upon start-up, the system may contain no refrigerant. The glass does not have to be full to operate correctly.

   A. Sight glass is clear, no cooling = no refrigerant in system

   B. Sight glass is clear, cooling = refrigerant charge is good

   C. Sight glass is white or foamy = refrigerant charge may be low

2. There is a colored media around the hole inside the glass. When it is green, the system is dry. When it is yellow, the system is wet. Wet systems are systems that contain moisture. This may not allow your system to work correctly. See the Troubleshooting section.

3. Upon unboxing the condensing unit, the sight glass may be yellow. This generally occurs because the media needs a liquid flow over it to correctly measure the moisture content. Hook up the unit, and let it run for about 30 minutes. The sight glass should turn green.

Thermostat

The thermostat controls the operation of the condensing unit based on box temperature. Set it to a point that conforms to the box and system design. See table with setpoint range in CPV section above. One thermostat is required for each box. Thermostats may be located on the condensing unit, or remotely.

The thermostat should be set to operate for the design conditions. If the box is designed to be a 40°F/4.4°C icebox, it will do no good to set the thermostat at 15°F/-9.4°C. This is because the system is being asked to do what it cannot, and the extended run time will result in a shorter unit life. See Figure 5.

Thermostat bulb or thermistor should be mounted midway to two-thirds of the way up a side wall in the box. Mount it in a position where it can sense average box temperature. Do not mount bulb or thermistor near the box opening. Mounting brackets are available from your dealer.

Refrigerant Charge

All Systems

The system is relatively charge insensitive due to the large receiver that allows the condensing unit to be charged with enough refrigerant to handle most normal plate and line configuration. No further charging is required for most applications.

Linesets and Plates

These have been evacuated and vapor charged.

Repair

If the charge is lost, or is suspected to be incorrect, the system must be evacuated and recharged with the proper amount of R-134a. See "Recharging the System."

See Figure 16 for a typical refrigerant pressure-temperature chart.

Refrigeration Systems • Operation

This section of the manual refers to essential safe operation for all KRA refrigeration systems. For any operational problems call your dealer, or call our service department at 804-746-1313.

KRA Refrigeration Start-Up Check List

A. Before you start the system:

1. Check that all refrigerant connections are tightened to 10-12 ft. lbs.
2. Check to make sure that all refrigerant lines are secured so as not to rub against other objects during operation.
3. Ensure all suction line connections are insulated to prevent ice build-up.
4. Confirm that electrical connections are correct, and are tight.
5. Make sure that thermostat is mounted securely, and wires are routed safely.
6. Make sure that unit is securely mounted.
7. Check to make sure that airflow into and out of the unit is not obstructed.
8. Check water connections (if used) to make sure that they have correct flow direction, and that connections are tight.
9. Confirm that thermostat sensing bulb is mounted in the correct area of the box, and that it is secure.
10. Make sure that the thermostatic expansion valve bulb is mounted correctly and securely.
11. Make sure that frequently accessed parts are easily accessible, i.e. constant pressure valve, TX valve, thermostat, quick connects, condensing unit.
12. Check the seals on the box lid to make sure that they have good contact to the box top.

B) Starting the system:

1. Turn on the designated circuit breaker on the boat's electrical panel.
2. For units with a water-cooled condenser, first open the seacock. If pump is shared with another system, ensure that pump circuit breaker is on.
3. Set thermostat to desired temperature.
4. Watch the sight glass to make sure that refrigerant is flowing.
5. Check the sight glass to make sure the element inside is green (no moisture contamination.)
6. Confirm that water (if used) is flowing out of overboard (see note below).
7. Confirm that condenser fan is running.
8. Visually confirm frost at the metering device valve after a few minutes of running.
9. Watch for temperature decrease inside the box.

C. Systems with two evaporators and one condensing unit:

1. Check all wiring to confirm that both thermostats run through a condensing unit relay (i.e., RR3X-2(C)) to bring the condensing unit and pump (optional) on.
2. To check pressures and refrigerant charge, if necessary, follow these instructions:

   a. Turn on only one box. Make sure that box works correctly. Wait approx. 10 min.

   b. Turn off the first box, turn on the other one. Use the same procedure.

   c. Turn both boxes on, and check sight glass. It should be at least 3/4 full. If not, add refrigerant.

3. Follow procedures for "Starting the system" in section B.

Note:
The seawater pump will cycle automatically whenever the compressor is running. Regularly check for seawater flow by observing the overboard discharge when the system is first turned on. If you do not observe steady water flow, turn off the system and check for obstructions in the seawater cooling system.

Thermostat Operation

A thermostat controls the condensing unit. It monitors box temperature and turns on the compressor when the box temperature rises above the setpoint. See Figure 5.

Standard thermostats have a digital display that normally shows the approximate box temperature. To change the settings of the thermostat, follow these directions:

- Press the SET key and toggle the UP and DOWN arrow keys. The first mode is the Fahrenheit/Celsius mode. Toggle the arrow keys to the desired setpoint.
- The second mode, which is accessed by pressing the SET key again, is the SETPOINT, S1. Change by using the arrow keys.

- The third mode is the differential and is accessed by pressing SET again. The differential is the temperature between when the unit cycles off at SETPOINT and when it cycles back on.
- Pressing the SET key again will bring you to the cooling/heating mode. For correct operation, the thermostat should be set at 'C1'.
- By pressing the SET key once more, you will return to the box temperature display.
- If, after pressing the SET key again, you return to the F/C mode, keep pressing until you return to the temperature display.

If you have a two-stage control (designated by "S2" in the display) and the thermostat has an external toggle switch, then your system is set up to function as a refrigerator or freezer. Set two setpoints, one for use as a refrigerator (S1) and one for use as a freezer (S2) and use the toggle switch to select one or the other. To set the second setpoint (S2) follow the same directions as the first setpoint. See Figure 5.

Servicing Your Refrigeration System

Refrigerant

This refrigeration system uses R-134a refrigerant. With a properly designed system, R-134a will perform well for temperatures down to -6°F/-21°C. **R-134a is a single component refrigerant and should never be charged in the liquid phase while the unit is running.**

R-134a Tools

You should use a dedicated R-134a gauge set. This system uses the common R-134a automotive type quick connects for the gauge connections. They help ensure that only R-134a tools are used. If you need a gauge set to fit the connections, contact your dealer and ask for part A-134A.

Care must be taken when using vacuum pumps and recovery equipment with R-134a and other refrigerants. See the manufacturer's manuals before operating this type of equipment.

Constant Pressure Valve (CPV)

One feature of the CPV is that the system is not overly charge sensitive; the high side pressure does not vary with charge. The downside of this is that you cannot charge by pressure. When charging a unit with liquid, the unit must be off and remain off for at least 20 minutes after charging to assure that no liquid exists at the suction valves of the compressor. The sight glass is also a reliable indicator to use for charging. The high side pressure does not tell you much about the refrigerant charge, but rather reflects the condensing temperature.

Correctly charge the unit by one of the following:

1. Evacuate and re-charge with the correct amount of refrigerant (see dataplate). (**BEST** Method)
2. Listen to the CPV with a mechanic stethoscope or other device. The CPV should make a steady, hissing sound. If the valve is quiet, then the unit is very low on refrigerant. If the valve is making a lot of sputtering noises, then the unit is a little low. Charge until most of the sputtering gives way to constant hissing. (**Very Good** Method)
3. Charge slowly looking for frosting of the CPV. When the frost lines in the box are becoming constant and defined, you are getting close. Never continue charging after the sight glass becomes full. (**Good** Method)

Thermostatic Expansion Valve (TXV)

In the event that the frost line does not settle into a acceptable range within twelve inches past the sensing bulb, and the sight glass does not indicate moisture (in which case a drier change out or re-evacuation of the system is necessary), an adjustment on the valve may be necessary.

Confirm that the sensing bulb is tight and not kinked or ruptured and that the capillary tube is not touching any other components.

Quick-Connect Fittings

QCs may be used in a similar manner as base valves. To check compressor suction valve integrity, remove the liquid line QC from the condensing unit. In 15-20 minutes or less, the unit should be pulling a vacuum in the 25-27 in. HG range. You may also use the QCs to troubleshoot leaks by narrowing down the search to individual parts, such as the liquid line, suction line, box, and condensing unit. Disconnect the QCs, and pressurize all parts separately. Use of the Dometic part A-134VB will allow you to connect your gauges to the QCs on the linesets and the box.

Recharging the System

System Shutdown

It is best if the system can be turned off for 8-12 hours prior to servicing to allow the refrigerant to reach ambient temperature. This will expedite the recovery of the refrigerant.

Evacuate Refrigerant

1. Connect manifold gauges to both high and low side ports. Attach center line of gauge set to recovery apparatus. On the WAAF033T unit, off seat service valves 1 - 2 turns (clockwise). The service ports on the WAR050T unit have a Schrader valve and are always open to the system.

2. Evacuate system per governing EPA regulations.
3. With the manifold gauges still connected to service ports, attach the center line of gauge set to vacuum pump.
4. Turn on vacuum pump. Open both high and low manifolds and allow the pump to run so the vacuum reaches 28" Hg. Close manifold valves and turn off pump.
5. Leave the system for 15 minutes and then observe the gauge. If any vacuum has been lost, check for leaks, especially at the quick connect fittings or service valves.
6. Repeat vacuum process until a vacuum of 200-400 microns is achieved. If the system has been open to the environment, allow a minimum evacuation time of 12 hours. Close manifold valves and turn off the pump. If no vacuum is lost, proceed with charging.

NOTE: If moisture has been a problem, refer to Refrigeration Bulletin 02-1 for instructions on clean up. This bulletin is available on the Customer News and Information website under Technical Field Notices 2002: "Control of Moisture in Refrigeration Systems" (FN#175-I2).

Caution

System contains R-134a refrigerant. Recovery machines containing mineral based oils should not be used.

Charging the System

Refer to Figure 16 at the back of this manual.

1. Remove line from vacuum pump and connect to a 12 oz can of R-134a. If using a large R-134a bottle, the charge must be weighed in.
2. Pressurize the charging lines with refrigerant vapor and purge.
3. Charging on high side, allow the correct amount of R-134a to flow into the system. On the WAAF033T unit, close high side service valve (turn fully counterclockwise).
4. Set the constant pressure valve (CPV) or the thermostatic expansion valve (TXV) if needed.
5. See the Refrigerant Pressure-Temperature Chart, Figure 16.

Setting the CPV

1. Start system and run for 15 minutes. Observe low pressure gauge. The constant pressure valve (CPV) should be adjusted if required as stated in the section "Installing the Refrigeration Unit."
2. Turn valve adjustment knob clockwise (in) to raise pressure and counterclockwise (out) to lower pressure. Only make small adjustments to valve, and allow five minutes between adjustments for the system to equalize.
3. Make sure the valve is dry, and replace cap on constant pressure valve, being careful not to disturb the setting. Insulate valve with foam tape. On the WAAF033T unit, top seat both service valves by turning fully counterclockwise.
4. Remove manifold hoses and replace service port or valve stem caps tightly.

Factory Settings for CPV

Model	Factory Setting
KRA025 .19 Ton TXV	Turn out completely (CCW) and turn in 7-8 times 360° (CW) 9°F superheat R134a
KRA038 .28 Ton TXV	Turn out completely (CCW) and turn in 7-8 times 360° (CW) 9°F superheat R134a
KRA050 .59 Ton TXV	Turn out completely (CCW) and turn in 5-6 times 360° (CW) 9°F superheat R134a
CPV	1 Turn = 5psi, Turn in completely (CW) and turn out 9-10 times 360° (CCW) 1-3 psi low side

Important

The adjusting knob of the CPV must be covered during operation. This is to prevent any moisture from getting under the knob and freezing, which will affect the pressure setting. The CPV must be insulated airtight.

Adjusting the TXV

On rare occasions, expansion valve adjustments will be necessary but these adjustments are slight—never more than a full turn.

Use a 5/32" Allen wrench to remove the nut covering the superheat adjustment valve stem. This exposes the valve stem. Once the system has had sufficient running time to stabilize the frost line, adjustment should be made in 1/4 turn increments only. Use the 5/32" Allen wrench to make adjustments. After each incremental adjustment, allow 15 to 20 minutes for the expansion valve diaphragm to stabilize. Turning the valve stem clockwise opens up the valve and increases the frost line length. Turning the valve stem counterclockwise closes down the valve and shortens the frost line length. One full turn equals 4.5°F. Follow directions with the valve. Replace the outer nut, and tighten to 3 ft-lbs. Insulate valve and bulb fully. See Figure 16 for TXV factory setting chart.

Setting the Thermostat
After the constant pressure valve is set, the condensing unit thermostat needs to be set. The set point temperature should be adjusted as stated in the section “Constant Pressure Valve (CPV) and Linesets”.

Sight Glass
See “Sight Glass/Moisture Indicator” in the “Installing the Refrigeration Unit” section.

Metering Device Replacement

CPV Replacement
The constant pressure valve (CPV) is a very simple and durable metering device. Often small blockages can be cleared by turning the adjustment knob in and out a few times. In the unlikely event that the CPV is blocked or the diaphragm ruptured, it can be replaced as follows:

1. Recover R-134a refrigerant per EPA regulations.
2. Remove CPV from evaporator at quick disconnect fitting.
3. Remove the liquid line (1/4" bare copper tube) from CPV body by removing the flare nut. The flare nut has thread locking compound on it and may require some extra force to loosen.
4. Connect 1/4" line to new CPV. We recommend using threadlock on the 1/4" flare threads.
5. Connect CPV to evaporator. Be careful not to over-tighten quick connect fittings. Check that the body of the fitting is tight to the tube adapter. On the one-piece quick connects, tighten to 10-12 ft lbs.
6. Evacuate system and recharge with the correct amount of R-134a refrigerant.
7. Set suction pressure and insulate CPV as described in section “Recharging the System”.

TXV Replacement
If the TXV needs to be replaced, review section “Thermostatic Expansion Valve (TXV) Placement”, and follow this procedure:

1. Recover R-134a refrigerant per EPA regulations.
2. Remove TXV by sweating off the lines.
3. Solder new TXV in place per manufacturer’s instructions.
4. Evacuate system and recharge with the correct amount of R-134a refrigerant.
5. Set suction pressure and insulate TXV as described in section “Recharging the System”.

User Maintenance

Seawater System
Check the seawater strainer daily. Remove any debris. If you are in waters where jellyfish or other debris are a problem, you may find it necessary to add a strainer on the outside of the through-hull fitting.

Verify that all seawater connections are tight, and check for water flow from the overboard discharge. The centrifugal seawater pump does not need any regular maintenance.

Defrosting
Defrosting of your freezer box is required to keep the unit working at peak performance. Defrost the unit whenever more than 1/4" of ice or frost has accumulated on the plates or box sides. To defrost, remove all refrigerated items, and then disconnect the power to the freezer unit. Leave unit off until all ice has melted.

Be sure to replace drain plug once unit has finished defrosting, if applicable.

Winterizing the System
Make sure all water has drained from the refrigerated box. On seawater cooled units, close the seacock, and remove inlet hose from pump and outlet hose from unit to allow all water to drain from the system. Drain and clean seawater strainer.

Troubleshooting Guide

Before you call for service, review this list. It may save you time and expense. This list contains common occurrences that are not a result of defective workmanship or materials. If you need service after trying these procedures, call your dealer. Note that wiring diagrams for all units are in Figures 7-12.

Fault: Compressor and fan (or pump) does not run

Possible Reason/Correction:

1. **Circuit breaker off.**
   Turn on or reset circuit breaker
2. **Thermostat set incorrectly.**
   Check thermostat. Set for a cooler setting.

Fault: Fan or pump operates but compressor does not (high pressure switch or thermal overload has tripped)

Possible Reason/Correction:

1. **Low voltage to unit.**
   Check for low voltage to unit.
2. **Poor condenser cooling.**
   Check fan and coil for proper airflow. Ventilate area if temperature is above 100°F/38°C. Check seawater system.

Fault: Compressor and fan (or pump) running, but box does not cool.

Possible Reason/Correction:

1. **Poor condenser cooling.**
   Check fan and coil for proper airflow. Ventilate area if temperature is above 100°F/38°C. Check seawater system.
2. **Constant Pressure Valve (CPV) not set correctly**
   Connect R-134a gauge set and check low side pressure. See section “Setting the CPV”.
3. **Thermostatic Expansion Valve (TXV) not set correctly.**
   Adjust superheat following instructions in Section “Adjusting the TXV”.
4. **Low refrigerant charge.**
   Check for a refrigerant leak and repair it. Evacuate unit and recharge with the correct amount of R-134a.
5. **TXV or CPV Mechanical failure.**
   Have technician diagnose and replace.

Fault: Systems starts to cool, but stops as plates freeze.

Possible Reason/Correction:

1. **Moisture in system.**
   Replace liquid line drier. Evacuate unit and recharge with R-134a.

Fault: Compressor operates, but seawater pump doesn’t

Possible Reason/Correction:

1. **Pump relay failure.**
   Turn on or reset pump breaker. Check pump relay and pump relay trigger.

Fault: Unit Does Not Run

Possible Reason/Correction:

1. **Power is OFF at panel.**
   Turn Power ON, check to see if thermostat display comes on.
2. **Thermostat is set incorrectly or may be faulty.**
   If the display is on, check for proper thermostat setting. Ensure the correct voltage at thermostat.

   If the thermostat is showing a fault code, refer to Digital Thermostat Display Error Messages section below.

   If thermostat still does not send voltage to the condensing unit or if fault code is present, replace thermostat.
3. **No voltage is getting to thermostat, but panel switch is on.**
   Check for loose or missing wiring connections. Make sure that there is not another in-line cut-off switch.
4. **Start component failure.**
   Check components for failure. Replace if necessary.
5. **Compressor failure.**
   Check compressor windings.

   Check conductance from windings to ground.

   If compressor windings are good, but unit will not start, try adding a start booster.

Fault: Insufficient Cooling of Box

Possible Reason/Correction:

1. **Excessive frost is in box.**
   Turn unit OFF, and defrost according to the “User Maintenance” section.
2. **Improperly set thermostat.**
   Review Operation Section, or Figure 5, to set thermostat correctly.
3. **Excessive open-box time.**
   Unit requires time to catch up after being opened. Decide what you are going to get before opening the box, then conduct removal quickly to prevent warm air infiltration.
4. **Recent addition of large quantities of warm items.**
   Unit will slowly pull the heat out of the warm items, allow for recovery time.
5. **Poor seals, no drain plug.**
   Poor seals allow ambient air to infiltrate box, bringing moisture with it. Replace seals if necessary.

   Leaving the drain plug out during regular operation allows outside air, possibly even hazardous or bilge gases, to enter box.
6. **Improperly set Constant Pressure Valve (CPV).**
   Have a certified technician check the suction pressure, and set the valve according to the “Recharging the System” section.
7. **Improperly set Thermostatic Expansion Valve (TXV).**
   Have a certified technician check the suction pressure, and set the valve according to the “Recharging the System” section.
8. **Low refrigerant charge.**
   Have a certified technician check for this problem. If the technician finds a low charge condition, he/she should check for leaks using the UV dye system that is built into the KRA Refrigeration System or by using an electronic leak detector.

   Unit should be recharged to rated system capacity.

9. **High condensing temperature.**
   High ambient temperature – introduce cooler air into compartment that houses the condensing unit.

   High water temperature – while you cannot remedy this problem, you can help by introducing cooler air into the compartment that houses the condensing unit.

   Pump not operating – find cause and remedy.

   Condenser fan failure – replace component.

10. **Improperly mounted temperature sensor in refrigerated box.**
    Refer to Installation section for proper location of sensor. If drilling in a wrapped box, be sure to confirm placement of evaporator lines before drilling. This can be accomplished by turning the condensing unit on, and checking for frost lines in the box.

11. **Moisture in system.**
    Have a certified technician check for this problem. If there is moisture present, he/she will decide a course of action to take which should include: leak check, installation of liquid line filter/dryer, evacuation, and recharging. Unit should be checked at later date for any remaining moisture.

12. **Inadequate design.**
    Not every box is designed for every condition. It may be that your box was not designed properly. If this is the problem, replacement of the box or condensing unit may be the only solution.

Digital Thermostat Display Error Messages

E1- Appears when either the up or down key is pressed when not in the programming mode.

To correct: If the E1 message appears even when no keys are being pressed, replace the control.

E2- Appears if the control settings are not properly stored in memory.

To correct: Check all settings and correct if necessary.

EP- Appears when the probe is open, shorted or sensing a temperature that is out of range.

To correct: Check to see if the sensed temperature is out of range. If not, check for probe damage by comparing it to a known ambient temperature between -30°F and 220°F. Replace the probe if necessary.

EE- Appears if the EEPROM data has been corrupted.

To correct: This condition cannot be field repaired. Replace the control.

CL- Appears if calibration mode has been entered.

To correct: Remove power to the control for at least five seconds. Reapply power. If the CL message still appears, replace the control.

BTU Guide - Refrigeration Loss/Gain Specs

BTU loss per hour for various capacity boxes at 100°F difference between inside and outside temperature.

Box Internal Volume (cubic ft)	Insulation Thickness (R-5 Foam)			
	1"	2"	3"	4"
1	190	124	105	97
2	282	176	143	128
3	359	219	174	154
4	441	264	208	182
5	496	294	229	199
6	551	323	250	215
7	602	351	270	231
8	651	378	289	247
9	699	403	307	261
10	745	428	325	275
11	790	452	342	289
12	832	475	358	301
13	875	497	374	314
14	917	520	390	327
15	958	542	405	339
20	1147	642	476	395
25	1323	734	540	445
30	1499	826	604	495
35	1675	918	668	545

Box Internal Volume (cubic ft)	Insulation Thickness (R-7 Foam)			
	1"	2"	3"	4"
1	136	89	75	69
2	201	126	102	92
3	256	156	125	110
4	308	184	145	127
5	350	207	161	140
6	388	229	177	153
7	428	250	192	165
8	464	267	206	176
9	500	289	220	187
10	532	306	232	197
11	565	323	244	206
12	596	340	256	216
13	626	356	267	225
14	655	371	278	233
15	684	387	290	242
20	902	505	374	310
25	1040	577	424	350
30	1178	649	475	389
35	1316	721	525	428

Capacity (in BTU/Hr)[1]

Compressor Horsepower	Evaporating Pressure	Air/Water Cooled	Air Cooled Only[2]
1/4HP	2 psi	1495	1170
	12 psi	2440	1880
3/8HP	2 psi	1980	1545
	12 psi	3230	2485
1/2HP	2 psi	2405	1860
	12 psi	4165	3425

Condensing unit BTU extraction capacities at normal operating conditions with air and water condensing enabled, and a -10°F evaporating surface.

Notes:

(1) Capacities found at the following conditions:

Air/Water and 2 psi – -10°F Evaporating and 100°F Condensing

Air/Water and 12 psi – 10°F Evaporating and 100°F Condensing

Air only and 2 psi – -10°F Evaporating and 120°F Condensing

Air only and 12 psi – 10°F Evaporating and 120°F Condensing

For 50/60 Hz units, use on 50 Hz decreases capacity by 17%.

(2) All units are Air/Water capable, however, the water condenser may not be used in some instances.

Owner's Limited Warranty

As hereinafter described, Dometic Environmental Corporation limits the duration of any implied warranty to the duration of the underlying express warranty and also disclaims any liability for consequential or incidental damages arising from any application, installation, use or malfunction of any warranted product.

Section I

What does the Limited Warranty cover?

Products manufactured by Dometic Environmental Corporation (Dometic) are under limited warranty to be free from defects in workmanship or materials under normal use and service with the obligation of Dometic under this limited warranty being limited to replacing or repairing any component(s) which shall disclose defects within the time limits defined in **Section III** and which, upon examination by Dometic, shall appear to the satisfaction of Dometic to be defective or not up to specifications.

This Limited Warranty is made in lieu of all other express warranties, obligations, or liabilities on the part of Dometic. In addition, Dometic shall not be responsible for any incidental or consequential damages. In those instances in which a cash refund is made, such refund shall effect the cancellation of the contract of sale without reservation of rights on the part of the purchaser. **Such refund shall constitute full and final satisfaction of all claims which purchaser has or may have against Dometic due to any actual or alleged breach of warranty, either express or implied, including, without limitation, any implied warranty of merchantability or fitness for a particular purpose.** Some states do not allow the exclusion or limitation of incidental or consequential damages so the above limitation may not apply to you. The terms and conditions of this warranty shall be governed by the laws of the Commonwealth of Virginia.

The Dealer is not an agent for Dometic except for the purpose of administering the above warranty to the extent herein provided, and Dometic does not authorize the dealer or any other person to assume for Dometic any liability in connection with such warranty, or any liability or expense incurred in the replacement or repair of its products other than those expressly authorized herein. Dometic shall not be responsible for any liability or expense except as is specifically authorized and provided in this section.

Dometic reserves the right to improve its products through changes in design or material without being obligated to incorporate such changes in products of prior manufacture, and to make changes at any time in design, materials, or part of units of any one year's model, without obligation or liability to owners of units of the same year's model of prior manufacture.

This warranty gives you, the purchaser, specific legal rights, and you may also have other rights which vary from state to state. You also have implied warranty rights, including an implied warranty of merchantability, which means that your product must be fit for the ordinary purposes for which such goods are used. ***The duration of any implied warranty rights is limited to the duration of the express warranty as found in Section III.*** Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

Section II

What does this Limited Warranty not cover?

This Warranty Shall Not Apply to:

1. Failures resulting from improper installation or use contrary to instructions.
2. Failures resulting from abuse, misuse, accident, fire, or submergence.
3. Any part manufactured by Dometic which shall have been altered so as to impair its original characteristics.
4. Any parts which fail as a result of misuse, improper application or improper installation.
5. Items not manufactured by Dometic, i.e., items which are purchased from another manufacturer and supplied as received by Dometic without alteration or modification except as any part of an Dometic-manufactured unit or component.
6. Components or parts used by or applied by the purchaser as an integral part of products not manufactured by Dometic.
7. Warranty does not cover damage to components that comprise a Custom Wrapped Box Evaporator refrigeration system (aka: catch boxes, fish boxes, etc.) when the box is installed in such a way that the customer can move it. These damages may include, but are not limited to: crimped refrigerant linesets (copper tubing or flexible linesets), refrigerant leaks, moisture ingression into the refrigeration system, subsequent damage to condensing unit from being operated with low refrigerant charge or moisture in the system, broken refrigerant connections, broken thermostat sensors, and/or broken constant pressure valves.

Installation and application of Dometic components is not warranted by Dometic because Dometic has no control or authority over the selection, location, application, or installation of these components.

Section III

What is the period of coverage?

See the Limited Warranty Periods, document # L-0694, for the period of coverage.

All Dometic components bear a data plate on which there are model and serial numbers. The serial number is date coded.

To determine whether or not any Dometic component is in warranty, proceed as follows:

1. Determine the manufacture date of the component from the serial number on the data plate. If you are not familiar with the date code, write or call the Dometic Customer Service Department at (804)746-1313, to obtain the manufacture date. The hours of the Customer Service Department are 8:00 am - 5:00 pm (USA, Eastern Time Zone) Monday through Friday excluding holidays.
2. It is possible that there might exist a considerable time lag between the date a component is manufactured and the date it is put in service. In such instances, the date of manufacture could indicate that the item is out of warranty. However, based on the date the equipment is first put in service, the item may still be covered by the Dometic warranty described in **Section I**. For proof of date put in service, Dometic will require a copy of the bill of sale of the Dometic equipment from the installer or new boat dealer to the original owner.

Section IV

How do you get service? Please Read the following Warranty Procedure.

WARRANTY PROCEDURE

If the failure of a Dometic component is determined to be covered under the Dometic warranty and the time in service is determined to be within the warranty time limit, the owner has the following three options:

1. Preferred option: Have a Dometic authorized Servicing Dealer perform the work needed. The customer should call Dometic's Service Department for a recommendation as to the closest dealer. If the customer already knows an authorized servicing dealer, the dealer should be contacted directly.
2. If the customer contacts Dometic's Service Department for a Servicing Dealer and Dometic has no one in that particular area, Dometic will authorize the use of a local service company and Dometic will work with the local company to assist in any way possible.
3. The customer may send his equipment back to the factory to have the repair work done. Dometic will make every effort to return the equipment to the customer within a three week time period. If the claim represents a legitimate warranty problem, Dometic will pay the freight both ways. Dometic prefers option one and two, if at all possible.

The customer may contact the Dometic Service Department at (804) 746-1313.

WARNING

Dometic Environmental Corporation (Dometic) manufacturers of Cruisair, Dometic Auxiliary A/C, Dometic Refrigerators and Freezers, Eskimo Ice, Grunert, Marine Air, and Sentry products, makes the following safety warnings concerning the application, installation, use and care of its products. Although these warnings are extensive, there may be specific hazards which may arise out of circumstances which we have not outlined herein. Use this as a guide for developing an awareness of potential hazards of all kinds. Such an awareness will be a key factor in assuring your SAFETY and comfort.

ELECTRICITY - Many Dometic products operate on 115, 230 or 440 volt AC power. Such voltages can be LETHAL; therefore, the chassis, cabinets, bases, etc., on all components must be grounded together and connected to the vessel's grounding system. Sparks can occur as switches, thermostats and relays open and close in the normal operation of the equipment. Since this is the case, ventilating blowers for the removal of hazardous fumes or vapors should be operated at least 5 minutes before and during operation of any Dometic product or group of Dometic products. All electrical connections must be covered and protected so accidental contact cannot be made by persons using the equipment, as such contact could be LETHAL.

ELECTROLYSIS - Electrical leakage of any component can cause electrolytic deterioration (electrolysis) of thru-hull components which could result in leakage serious enough to sink a vessel which could result in loss of life. All Dometic components must be kept clean and dry and checked periodically for electrical leakage. If any electrical leakage is detected, the component should be replaced or the fault causing the leakage corrected before the component is put back into service.

GAS - Dometic Air Conditioning and Refrigeration components utilize R-22 (Chlorodifluoromethane), R134a refrigerant (Tetrafluoroethane), R-407C (which contains Diflouromethane [HFC-32], Pentafluoroethane [HFC125], and 1.1.1.2 -Tetrafluoroethane [HFC134a]), R404A (R125/R143a/R134 [44%/52%/4%]), or R417a, which are non-toxic, non-flammable gases; however, these gases contain no oxygen and will not support life. Refrigerant gas tends to settle in the lowest areas of the compartment. If you experience a leak, evacuate all personnel, and ventilate area. Do not allow open flames in the area of leaks because refrigerant gas, when burned, decomposes into other potentially LETHAL gases. Refrigerant components operate at high pressure and no servicing should be attempted without gloves, long-sleeved clothing and eye protection. Liquid refrigerant gas can cause severe frost burns to the skin and eyes.

VENTILATION - To cool or heat air, Dometic Air Conditioning and Refrigeration components are designed to move air through a heat exchanger by a blower or propeller fan. This design necessarily produces a suction on one side of the air handling component and a pressure on the other side. Air handling components must be installed so that the suction-pressure action does not: (1) pressurize an area to the extent that structural failure occurs which could cause harm to occupants or bystanders, or (2) cause a suction or low pressure in an area where hydrogen gas from batteries, raw fuel vapor from fuel tanks, carbon monoxide from operating propulsion engines, power generators or heaters, methane gas from sewage holding tanks, or any other dangerous gas or vapor could exist. If an air handling unit is installed in such a manner that allows potentially lethal gases or vapors to be discharged by the air handling unit into the living space, this could result in loss of life.

Maximum protection against the introduction of dangerous gases or vapors into living spaces can be obtained by providing living spaces which are sealed from all other spaces by use of airtight bulkheads and decks, etc., and through the introduction of clean air into the living space. Bear in mind that the advent of air conditioning, whether it be for cooling or for heating, naturally leads to the practice of closing a living space tightly. Never close all windows and doors unless auxiliary ventilating systems, which introduce clean outside air into the living space, are used. Always leave enough window and door openings to provide adequate ventilation in the event potentially lethal gases or fumes should escape from any source.

CONDENSATE - All cooling units produce water condensate when operating on the cooling cycle. This water must be drained from the cooling unit overboard. If condensate is allowed to drip on a wooden structure, rotting or decay and structural failure may occur which could result in loss of life. If condensate is allowed to drip on electrical components, deterioration of the electrical components could result in hazardous conditions. When an air conditioning system is in operation, condensate drains may be subjected to negative pressure. Always locate condensate drains as far as possible from points where engine waste and other dangerous gases are exhausted so no such dangerous gases can be drawn into the condensate drains.

Warning

Never sleep in a closed area on a boat when any equipment, which functions as a result of the combustion of a volatile fuel, is in operation (such as engines, generators, power plants, or oil-fired heaters, etc.). At any time, the exhaust system of such devices could fail, resulting in a build-up of LETHAL gases within the closed area.
Warning Revised: 6-5-06

Limited Warranty Periods

Please read and keep this document with your important paperwork. Use it as a reference in the future. If you have any questions, please contact the Dometic Environmental Corporation Service Department at (804)746-1313 for clarification.

Note: Any model or replacement part that has been installed due to a warranty failure will carry **only** the remainder of the original warranty. All warranties begin when the customer takes possession of the equipment. The warranty is extended to all owners of the equipment commencing the date the original owner takes possession of it. Proof of original purchase may be required. **Replacement parts, such as filters**, **fuses** and **MOVs, are not covered under our warranty.** Fuses and MOVs are used as safety devices to protect Cruisair equipment against over-current conditions caused by lightning or inductive switching environments. We reserve the right to change our warranty policies and procedures as well as our warranty allowances without notice.

Cruisair Direct Expansion (DX) and Modulating Systems

- New, complete system installation using any member of the SMX family.

  The warranty includes the pump.

  2 year warranty including Parts and Labor

- New, complete system installation using an electro-mechanical control (3-knob).

  The warranty includes the pump.

  1 year warranty including Parts and Labor

- New, complete model sold as a partial system retrofit to an existing system.

  Includes SMX family.

  1 year warranty including Parts and Labor

Cruisair Tempered Water

- New, complete system installation using any member of the SMX family.

  2 year warranty including Parts and Labor

  NOTE: Excludes pump which has a 1 year warranty

- New, complete model sold as a partial system retrofit to an existing system.

  Includes SMX family.

  1 year warranty including Parts and Labor

Refrigerators/Freezers/Fish Boxes

The below warranty periods do not apply to systems that are installed as described in Section II, item #7, of the Owner's Limited Warranty, document # L-0123.

- New installation of entire system including condensing unit, line sets, evaporator, etc.

  1 year warranty including Parts and Labor

- New complete model sold as a partial system retrofit to an existing Cruisair system.

  1 year warranty including Parts and Labor

- New installation of condensing unit only, with line sets, evaporators, etc. done by others i.e. not Cruisair precharged line sets and evaporators.

  1 year warranty including parts and labor on mechanical and electrical parts of condensing unit only.

Ice Makers, Remote and Self-Contained

- New installation of an entire Self-Contained Ice Maker

  1 year warranty including Parts and Labor, including water pump.

- New installation of an entire Remote Ice Maker, including condensing unit, remote display, auger unit, linesets

  1 year warranty including Parts and Labor, including water pump.

- New installation of an Remote Ice Maker Auger and Condensing unit only, with linesets done by others i.e. not Eskimo pre-charged linesets

  1 year warranty including Parts and Labor on mechanical and electrical parts of the auger and condensing unit only.

- New complete component sold as a partial system retro-fit to an existing Eskimo system

  1 year warranty including Parts and Labor on new component only.

  ***Note**: Use of saltwater as feedwater to make ice will void warranty on the auger section of the unit.*

Sentry Battery Chargers

- New SM and FR series installation.

  2 year warranty including Parts and Labor

- New G-series installation.

  1 year warranty including Parts and Labor

Replacement Parts

- Replacement parts and components
  Example: A-509, 40401-30.

  90 day warranty, Parts only

- Replacement Compressors for other than Tempered Water Systems - example: R3101-16T, DX equipment - installed in an existing Cruisair system or a competitor's system.

  1 year warranty including Parts and Labor

- Replacement compressors for Tempered Water - example: 30130-36 installed in an existing Cruisair system.

  1 year warranty including Parts and Labor

- A Tempered Water compressor - example: 30130-36 installed with competitor's equipment.

  90 day warranty, Parts only

* The box denotes the part of the warranty that pertains to this particular product.

Revised: 7-18-06 L-0694

Description of Figures

Fig. 1 Cabinet Type Condensing Unit – Model KRA

Fig. 2 Flat Plate Evaporators

Fig. 3 Wrapped Box Evaporator

Fig. 4 Flat Evaporator Plate Designs

Fig. 5 Digital Thermostat Settings – Model ETC

Fig. 6 Refrigeration Tools and Technicians Accessories

Fig. 7a Wiring Diagram # 080336 – KRA025 and KRA038 Units (115VAC)

Fig. 7b Wiring Diagram # 080337 – KRA025CK and 038CK Units (230/50)

Fig. 8a Wiring Diagram # 080334 – KRA050 Unit (115VAC)

Fig. 8b Wiring Diagram # 080387 – KRA050CK and 038CK Units (230/50)

Fig. 9 Wiring Diagram # 080319 – Dual Stage Refrigerator/Freezer (1 T-Stat, 2 Setpoints)

Fig. 10 Wiring Diagram # 080321 – Dual/Single Refrigeration Installation (2 T-Stats)

Fig. 11 Wiring Diagram # 080317 – KR025 and 038 Units (Older 115VAC models)

Fig. 12 Wiring Diagram # 080318 – KR025C and 038C Units (Older 230VAC models)

Fig. 13 Typical Installation – Single Plate

Fig. 14 Typical Installation – Dual Plates with Jumper

Fig. 15 Typical Installation – Dual Boxes with "Y" Splitters

Fig. 16 Refrigerant Pressure-Temperature Chart with Charging Methods

Fig 1. Cabinet Type Condensing Unit (KRA)

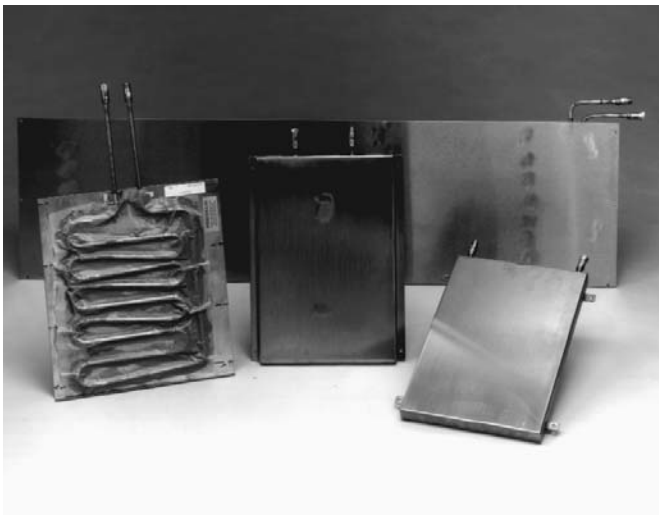


Fig 2. Flat Plate Evaporators

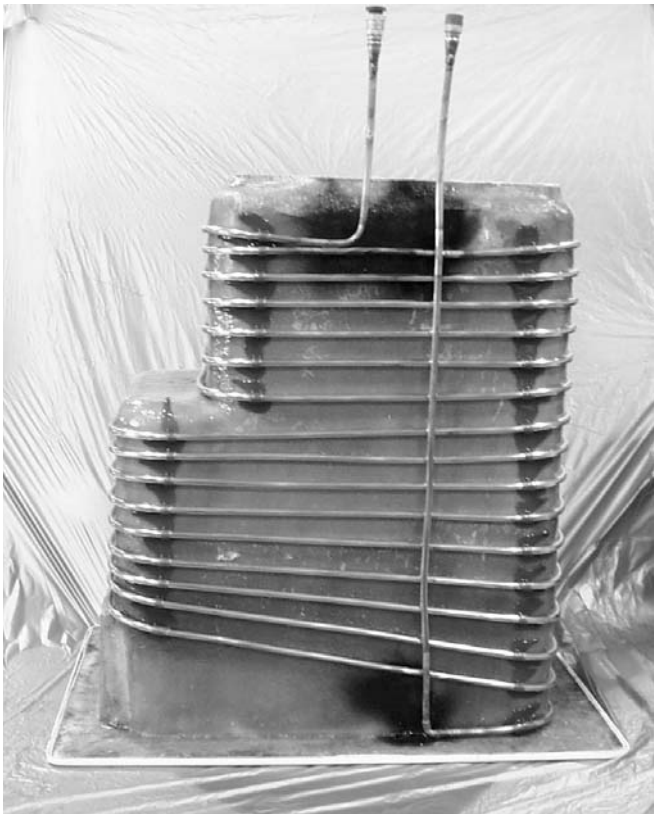


Fig 3. Wrapped Box Evaporator

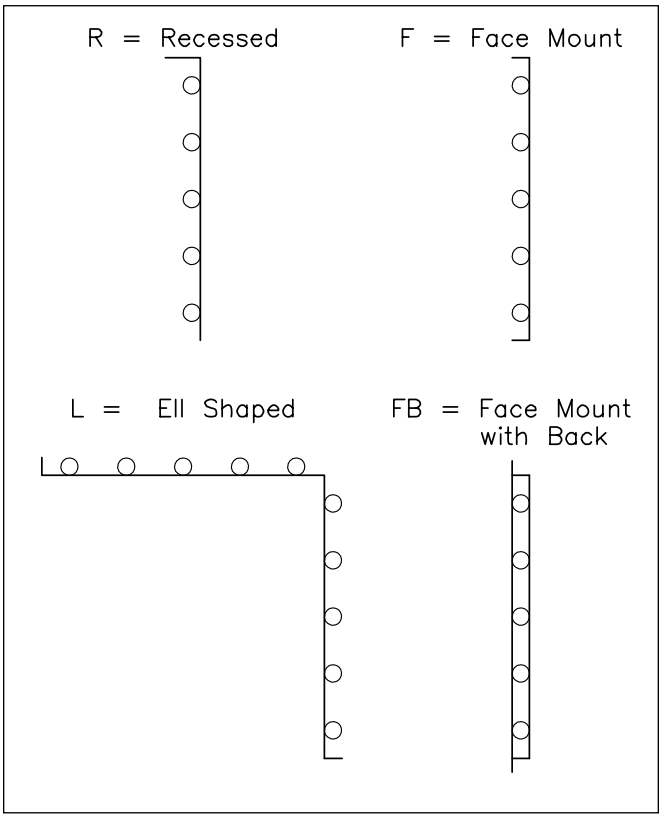
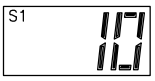


Fig 4. Flat Plate Evaporator Designs

Fig. 5 Digital Thermostat Settings – Model ETC

Step	Designator	Description	Display
1	F or C	Fahrenheit or Celsius	
2	S1 (blinking)	Stage 1 Setpoint Temperature	
3	DIF 1 (blinking)	Stage 1 Differential Temperature	
4	C1 or H1	Stage 1 Cooling or Heating Mode	
5	S2 (blinking)	Stage 2 Setpoint Temperature	
6	DIF 2 (blinking)	Stage 2 Differential Temperature	
7	C2 or H2	Stage 2 Cooling or Heating Mode	

Note: Display settings shown are for example only.

Fig. 6 Refrigeration Tools and Technicians Accessories

Part Description	Model	Description
R-134a gauge set with Quick Couplings	A-134A	Gauge Set R-134A
Adaptor between gauge set and quick connects for charging	A-134VB	Charging Assembly - Gauge Set to New QCs
Mounting kit to set a freezer plate off the box wall	A-135	Mounting Kit-Refrigeration Plate Offset
Retrofit kit to match old QCs to new QCs	A-134QC	Retrofit Refrigerator QCs for Linesets
Adaptor between gauge set and old quick connects for charging	A-134VA	Charging Assembly - Gauge Set to Old QCs
Adaptor between 1/4” male flare and 1/2” female Acme thread	9011430	Adaptor 1/4” Flare to 1/2” Acme
Refrigerant scale with solenoid	9011500	CC Series Compute a Charge - CC700
Electronic vacuum micron gauge	9011600	Gauge, Vacuum Electronic Micron
UV Light - 115 VAC	9040101	UV Light - 115 VAC with Special Glasses
UV Light - 12 VDC	9040102	UV Light - 12 VDC with Special Glasses
UV Dye Kit	9040103	UV Dye Kit - No Glasses

Fig. 7a Wiring Diagram # 080336 – KRA025 and KRA038 Units (115VAC)

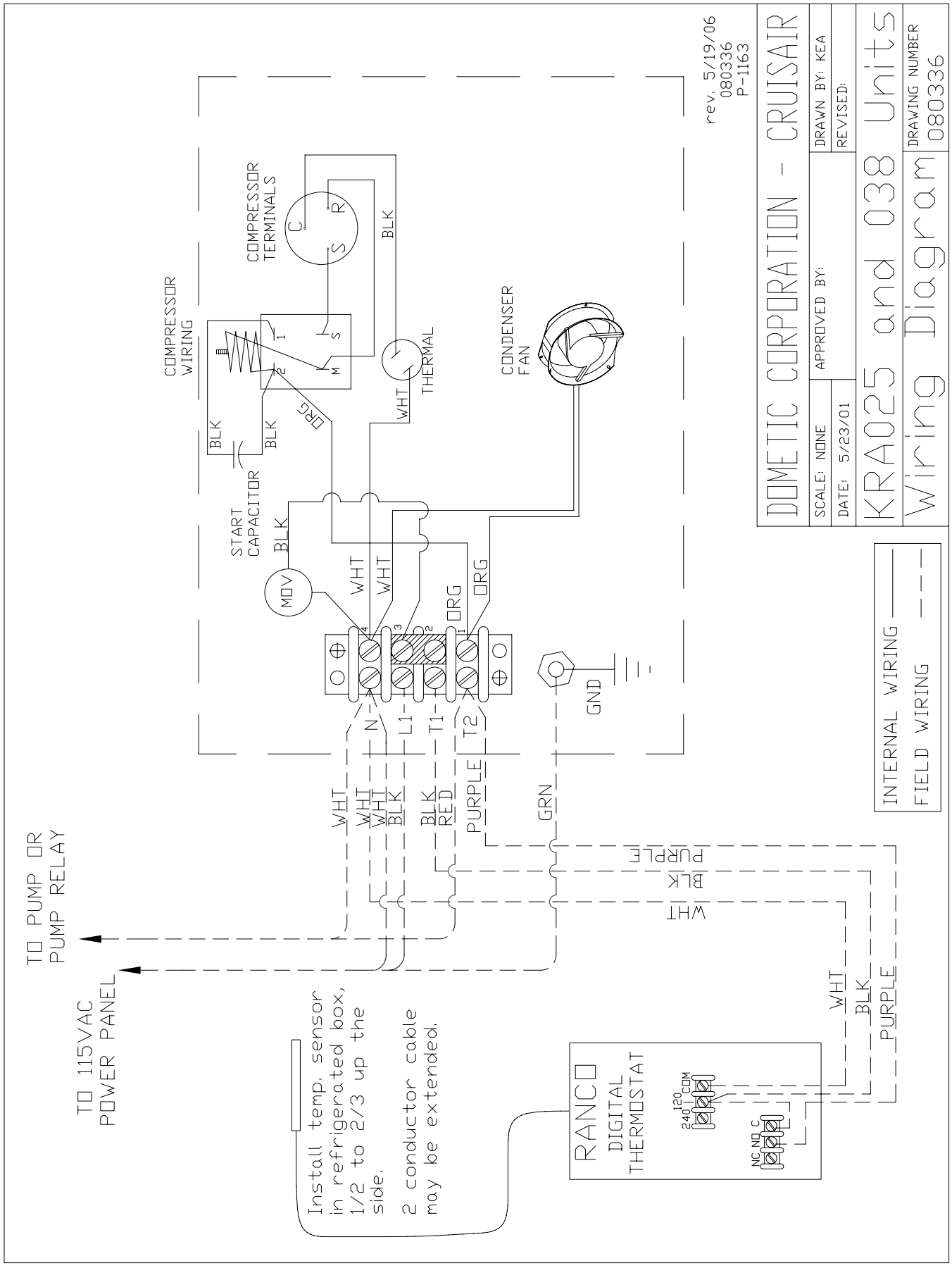


Fig. 7b Wiring Diagram # 080337 – KRA025CK and 038CK Units (230/50)

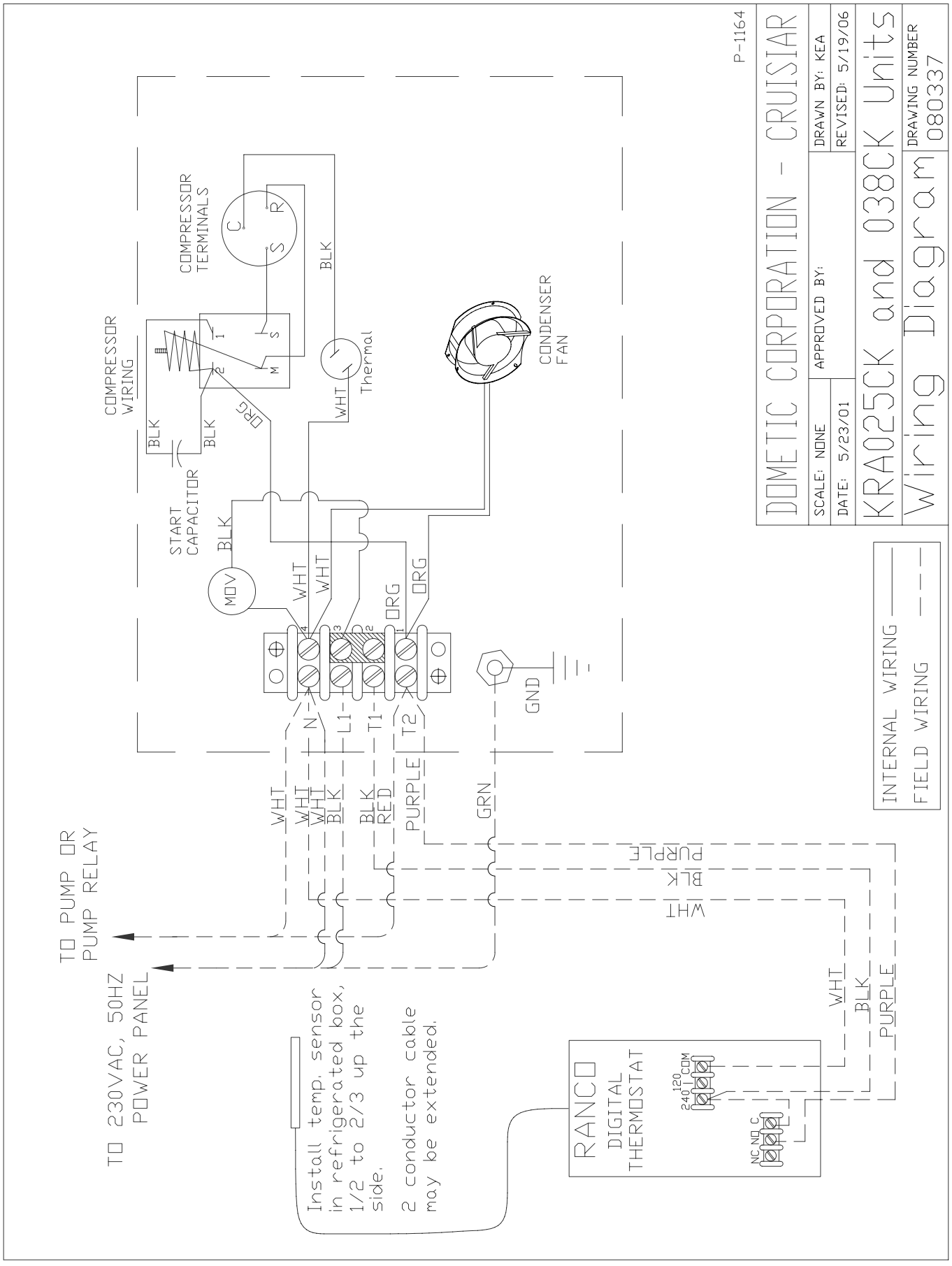


Fig. 8a Wiring Diagram # 080334 – KRA050 Unit (115VAC)

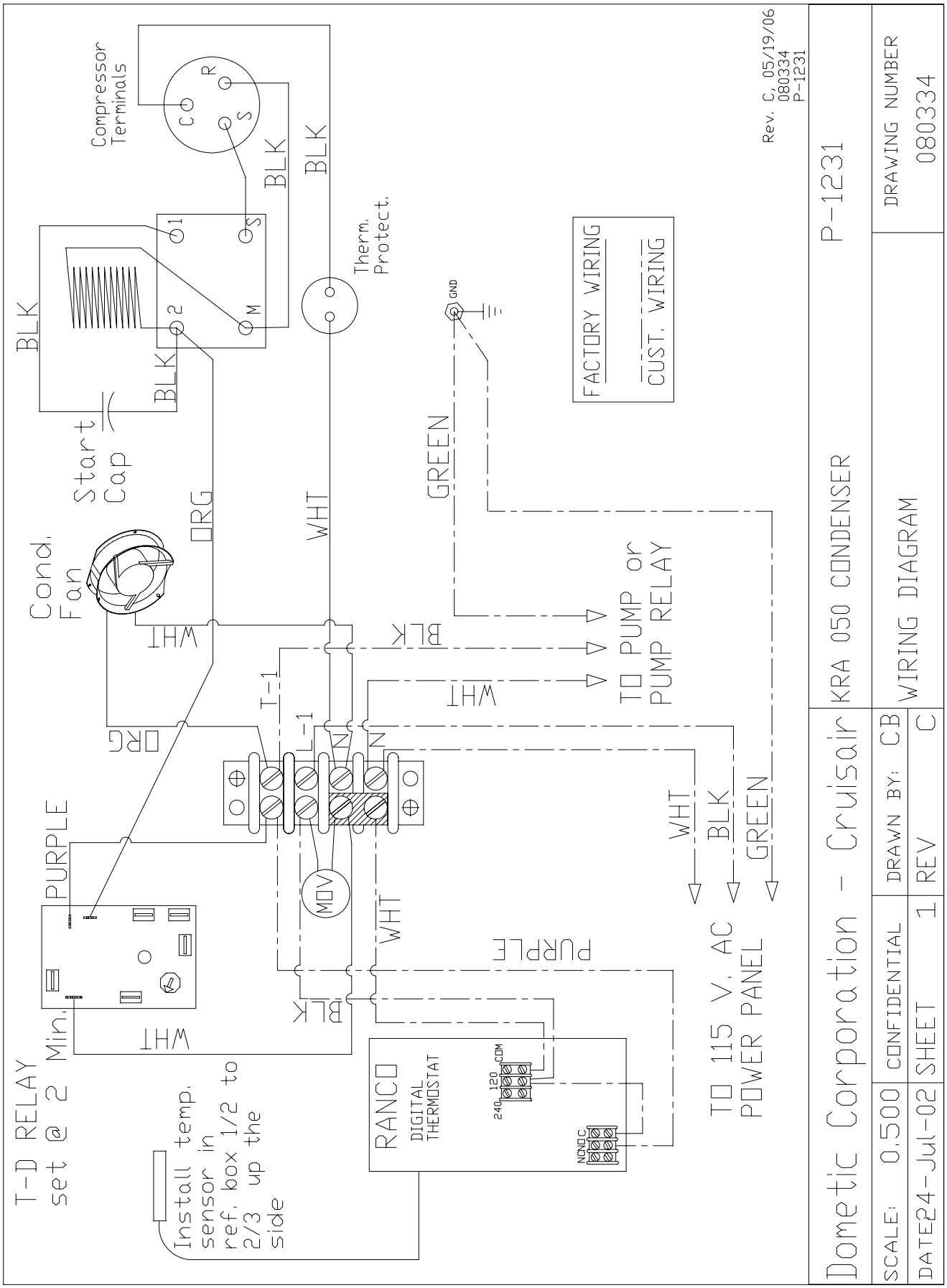


Fig. 8b Wiring Diagram # 080387 – KRA050 Unit (230/50)

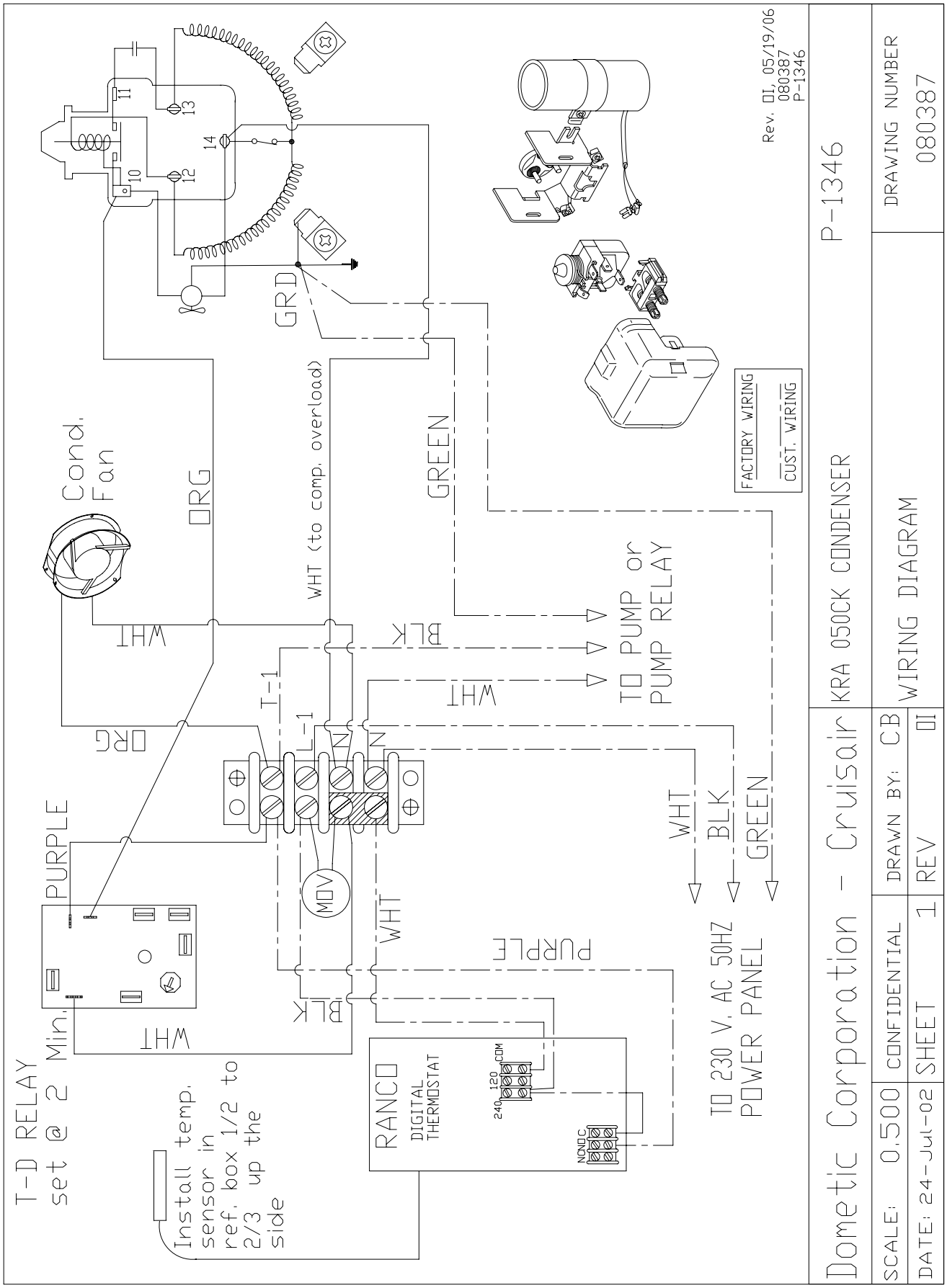


Fig. 9 Wiring Diagram # 080319 – Dual Stage Refrigerator/Freezer (1 T-Stat, 2 Setpoints)

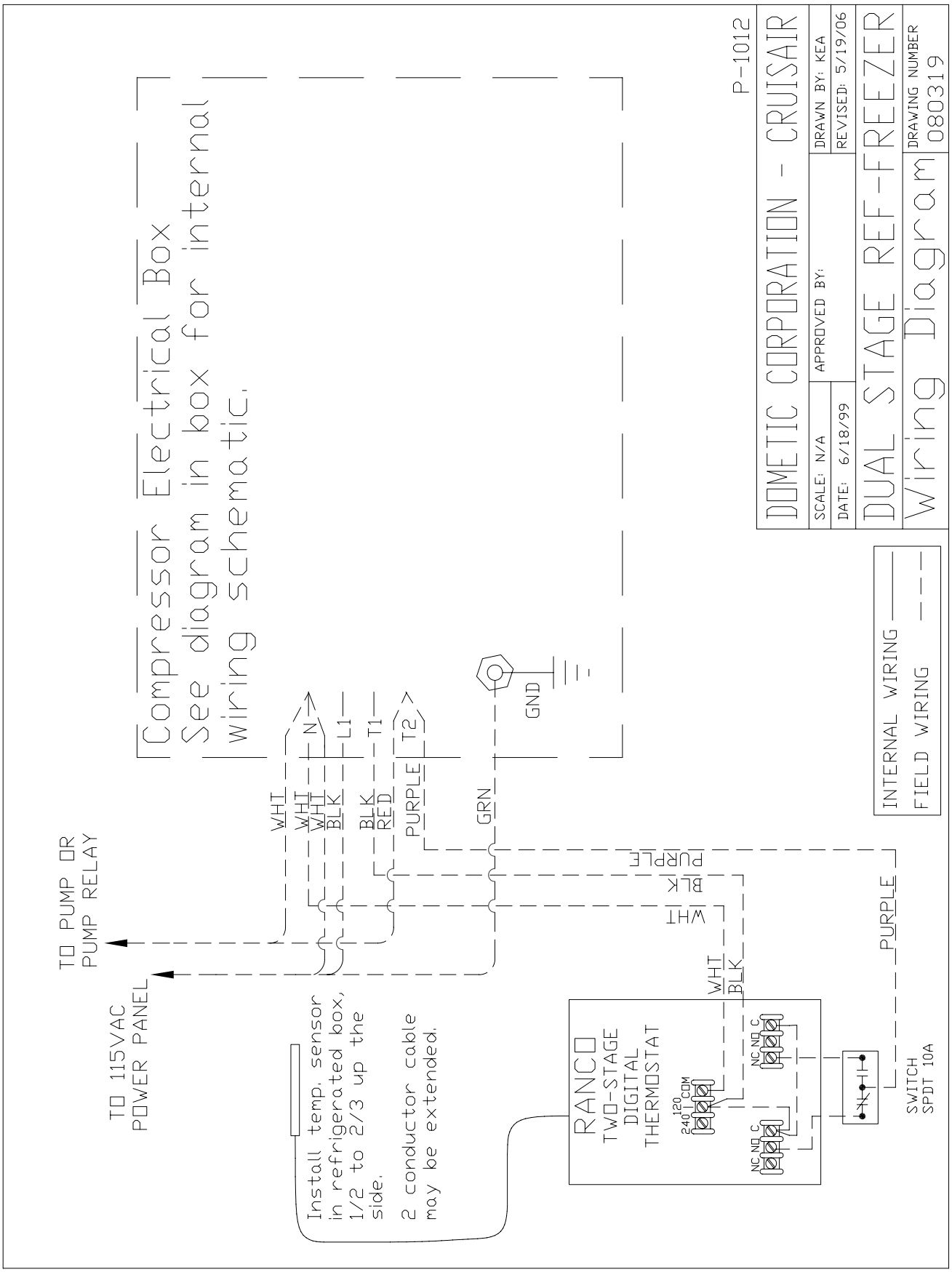


Fig. 10 Wiring Diagram # 080321 – Dual/Single Refrigeration Installation (2 T-Stats)

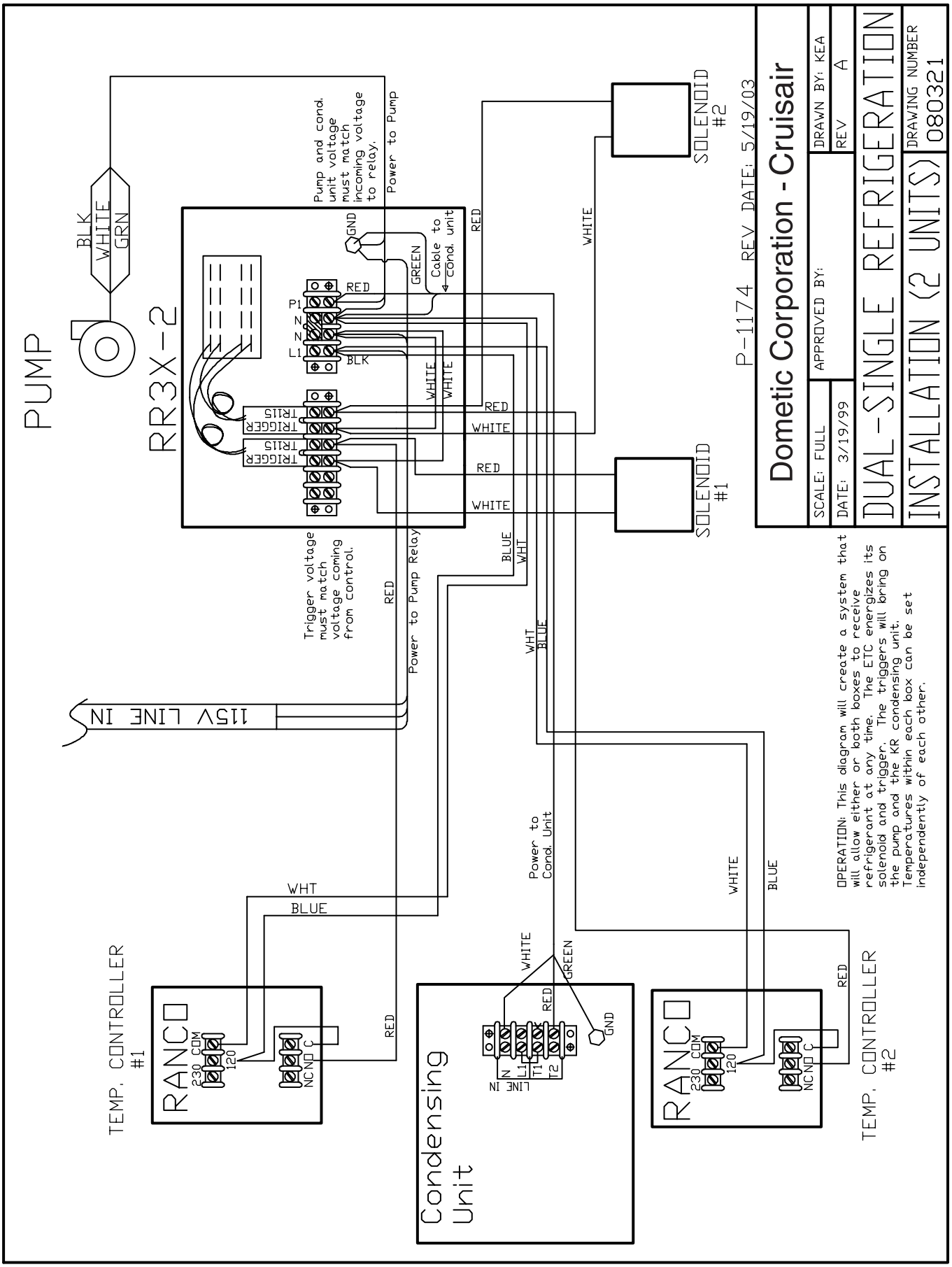


Fig. 11 Wiring Diagram # 080317 – KR025 and 038 Units (Older 115VAC models)

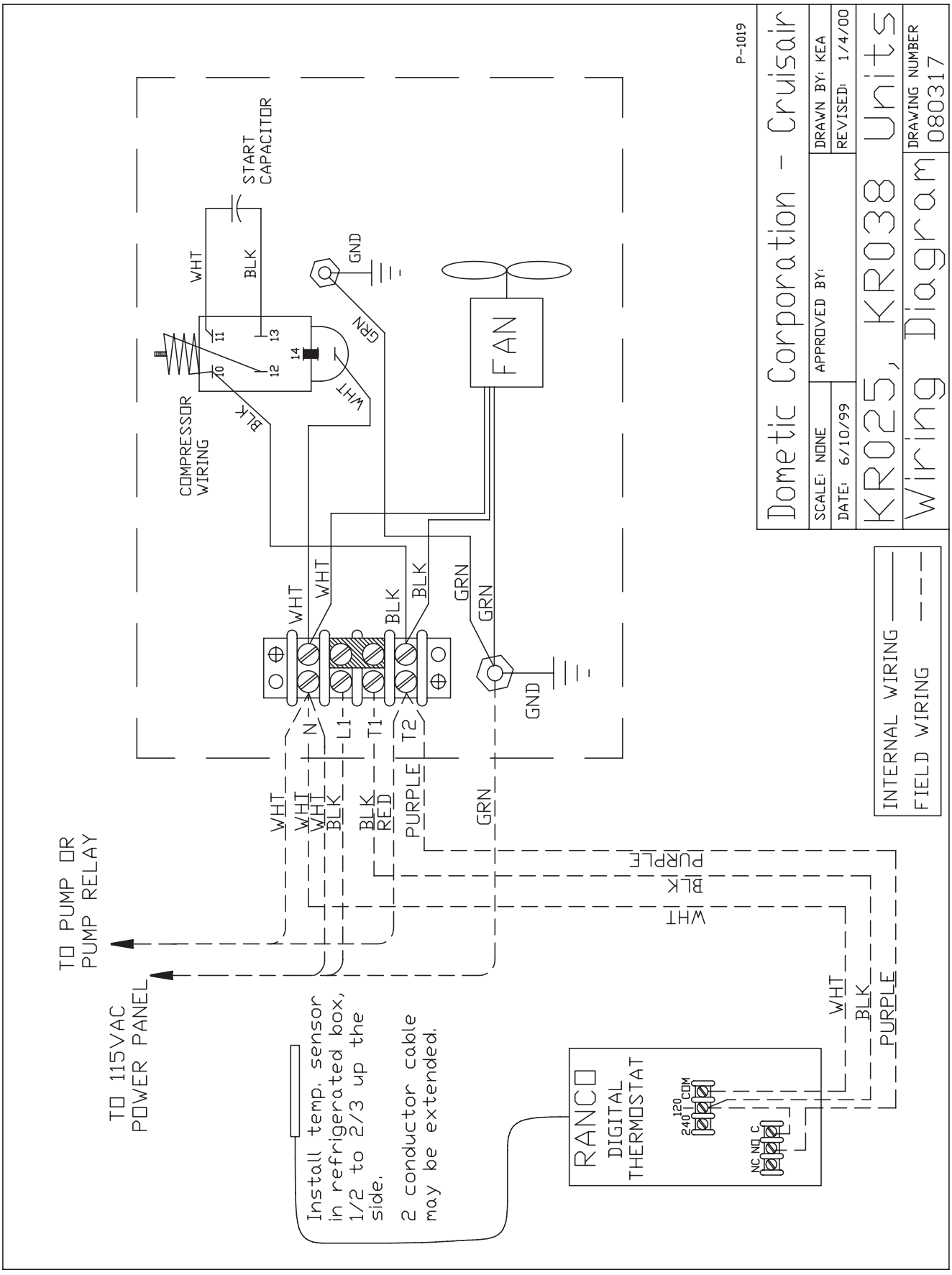


Fig. 12 Wiring Diagram # 080318 – KR025C and 038C Units (Older 230VAC models)

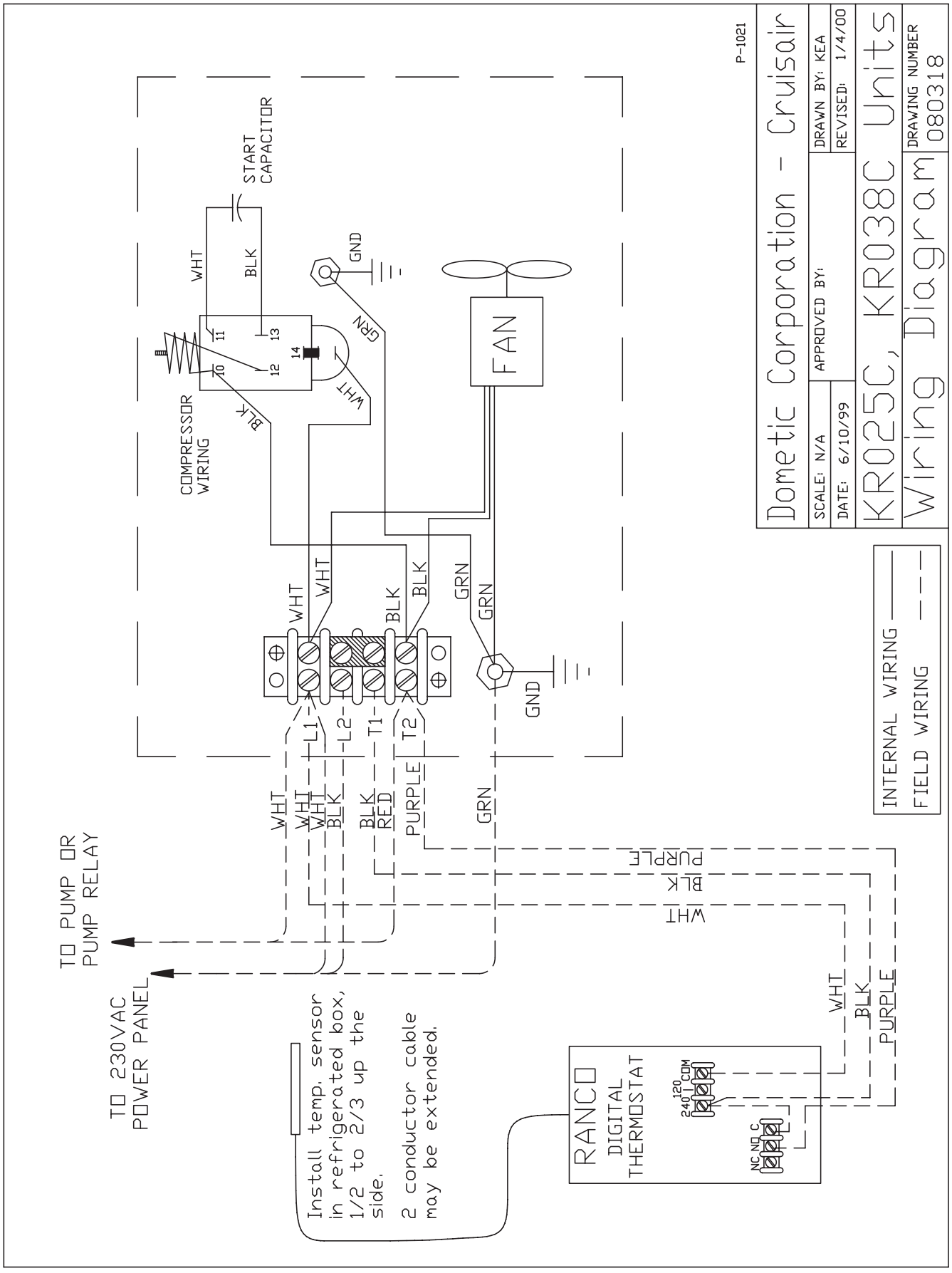


Fig. 13 Typical Installation – Single Plate

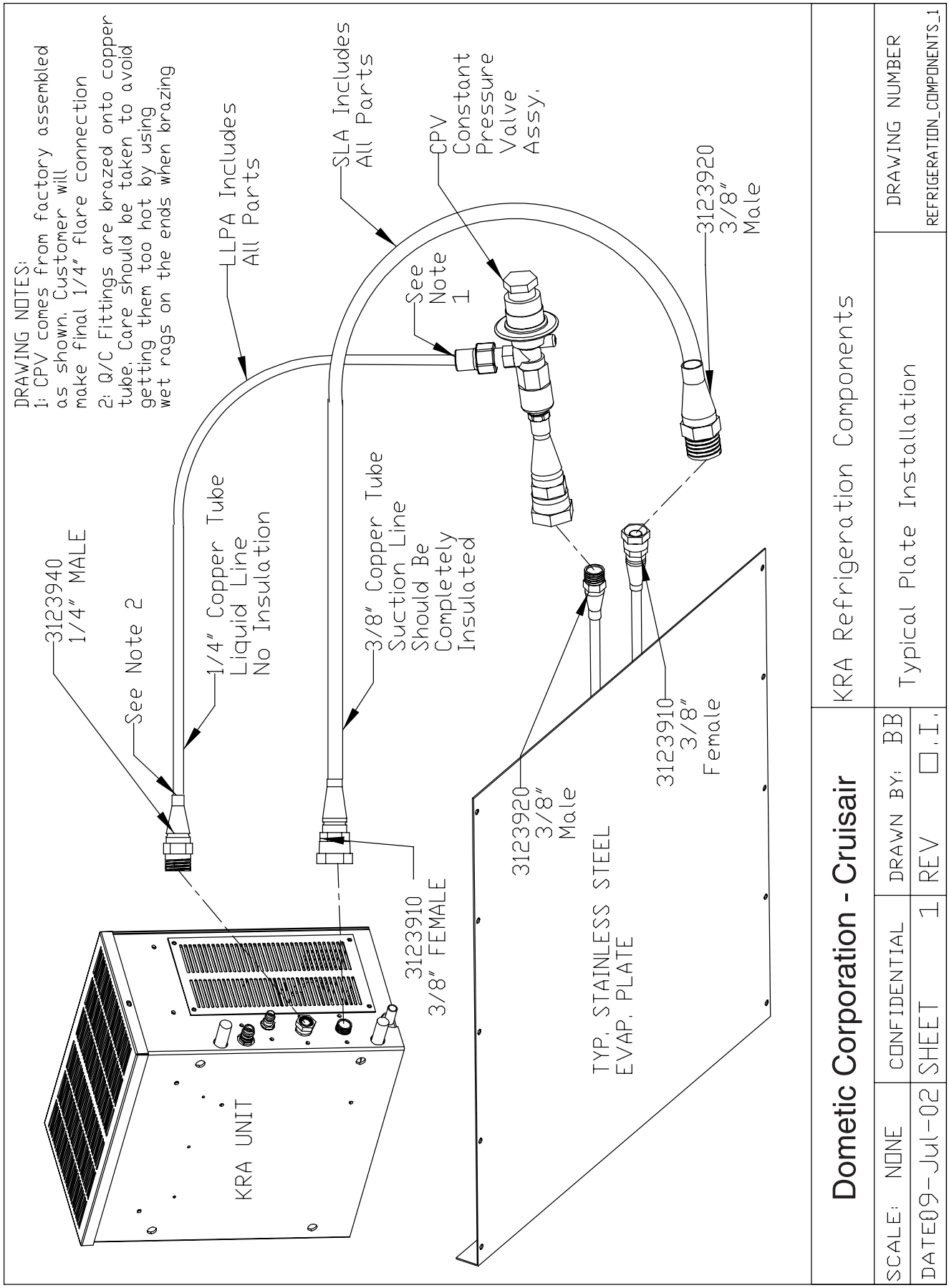


Fig. 14 Typical Installation – Dual Plates with Jumper

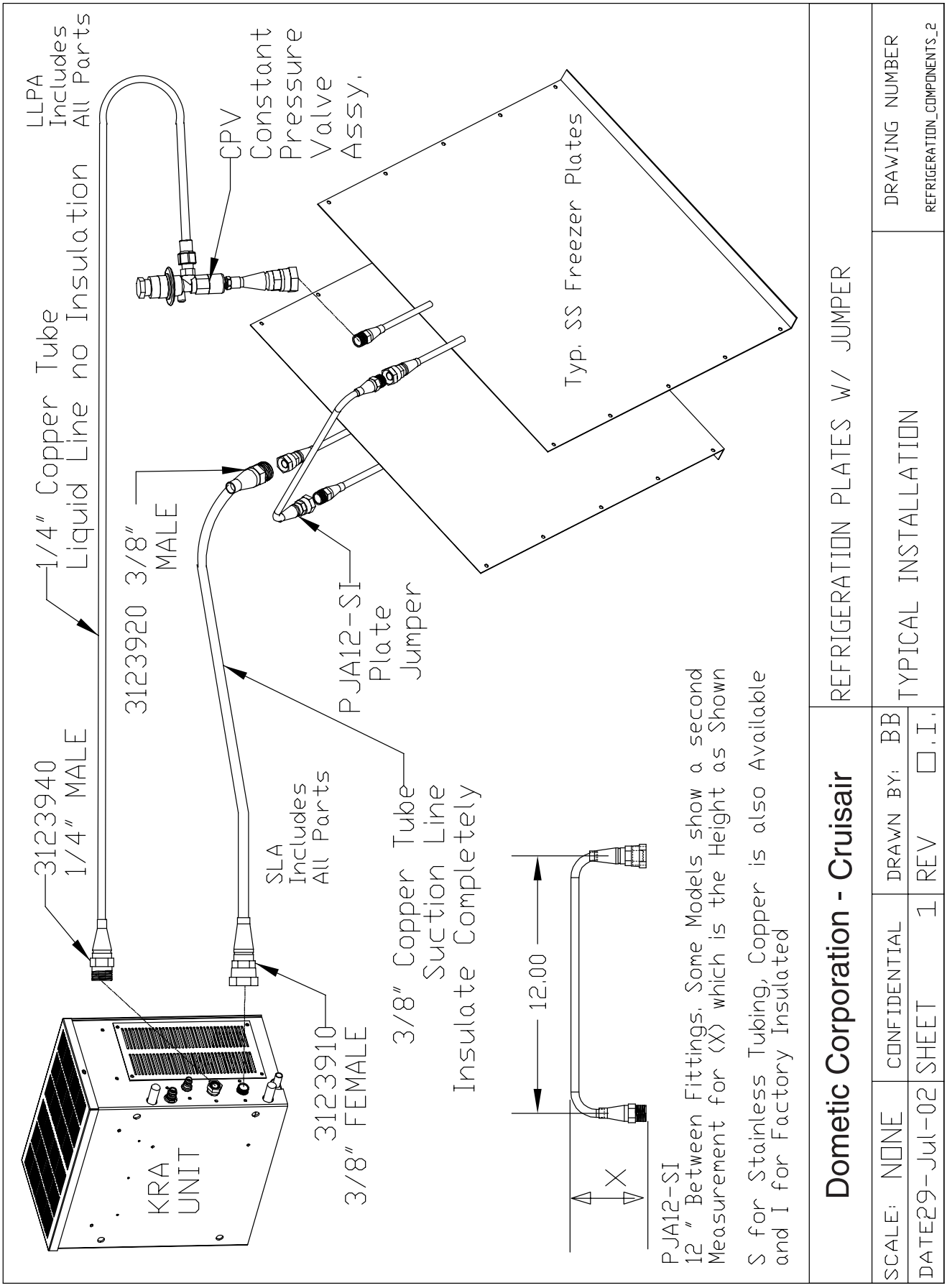


Fig. 15 Typical Installation – Dual Boxes with “Y” Splitters

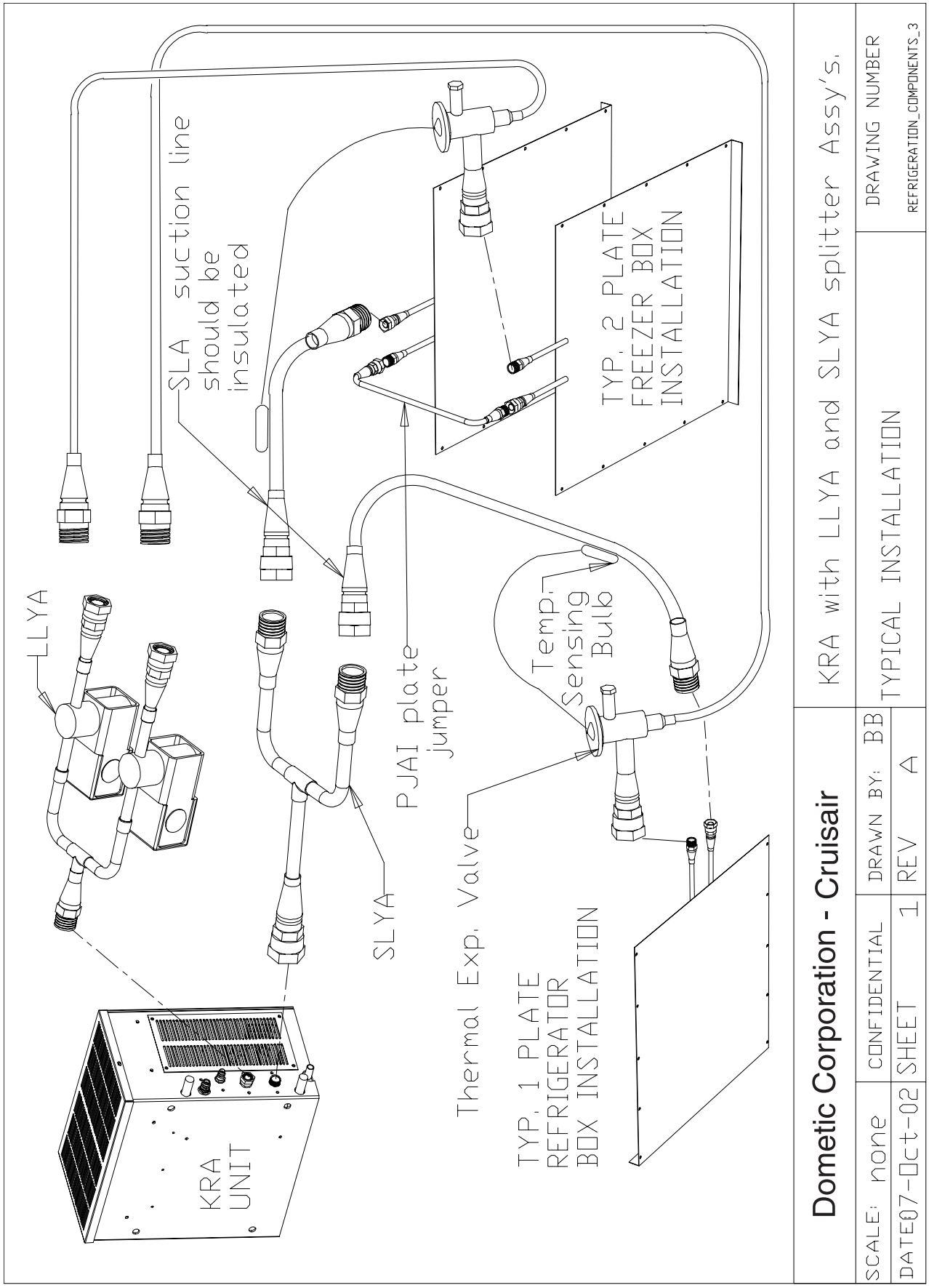
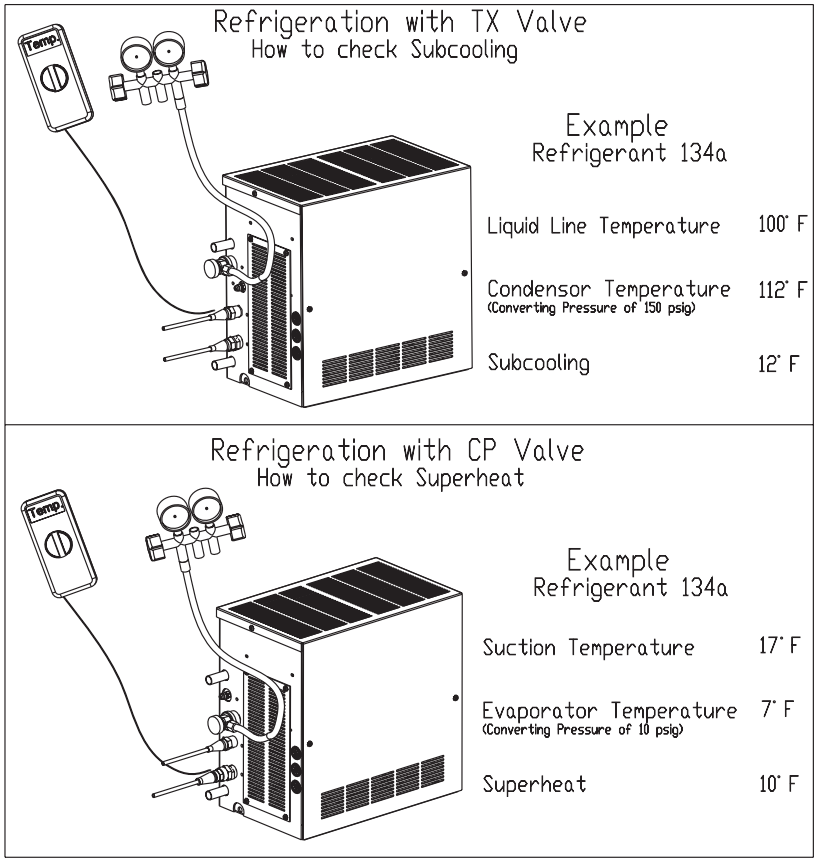


Fig. 16 Refrigerant Pressure-Temperature Chart



** Ideal subcooling/superheat with pump off: 8-12° F**

	Superheat	Subcooling
Undercharge	Hi	Lo
Overcharge	Lo	Hi

PSIG	REFRIGERANT at TEMPERATURE °F																			
	green		blue		orange			lt brown			brown			pink	light green	
	22		134a		HP62 or 404A			407C			FX-56 or 409A			410A	417A	
5*	-48		-22		-57			-48			-22				Dew	Bubble
4*	-47		-21		-56			-45			-20					
3*	-45		-19		-54			-42			-19					
2*	-44		-18		-53			-39			-17					
1*	-43		-16		-52			-36			-16					
0	-41		-15		-50			-34			-15					-40
1	-39		-12		-48			-31			-12				-30	
2	-37		-10		-46			-29			-9					-35
3	-34		-8		-43			-27			-7			-50	-25	
4	-32		-5		-41			-24			-5					-30
5	-30		-3		-39			-22			-2					
6	-28		-1		-37			-20			0				-20	
7	-26		1		-35			-18			2					-25
8	-24		3		-33			-17			4			-45	-15	
9	-22		5		-32			-15			6					-20
10	-20		7		-30			-13			8					
11	-19		8		-28			-12			9			-40	-10	
12	-17		10		-27			-10			11					-15
13	-15		12		-25			-8			13					
14	-14		13		-23			-7			14				-5	
15	-12		15		-22			-5			16			-35		-10
16	-11		16		-20			-4			17					
17	-9		18		-19			-3			19				0	
18	-8		19		-18			-1			20					-5
19	-7		21		-16			0			22			-30		
20	-5		22		-15			1			23					
21	-4		24		-14			3			25				5	
22	-3		25		-12			4			26					0
23	-1		26		-11			5			27			-25		
24	0		27		-10			6			29					
25	1		29		-9			8			30				10	
26	2		30		-8			9			31					5
27	4		31		-7			10			32			-20		
28	5		32		-5			11			34					
29	6		33		-4			12			35				15	
30	7		35		-3			13			36					-10
31	8		36		-2			14			37					
32	9		37		-1			15			38			-15		
33	10		38		0			16			39					
34	11		39		1			17			40				20	
35	12		40		2			18			41					15
36	13		41		3			19			43					
37	14		42		4			20			44			-10		
38	15		43		5			21			45	30				
39	16		44		6			22			46	31			25	
40	17		45		7			23			47	32				20
42	19		47		9			25			48	34		-5		
44	21		49		10			26			50	36			30	
46	23		51		12			28				38				25
48	24		52		14			30				39		0		
50	26		54		15			31				41			35	
52	28		56		17			33				43				
54	29		57		19			34				45				
56	31		59		20			36				46			40	
58	32		60		22			37				48				30
60	34		62		23			39				50				
62	35		64		25			40				51		10		
64	37		65		26			42				53			45	40
66	38		66		27			43				54				
68	40		68		29			44				56				
70	41		69		30			46				57		15	50	45
72	42		71		31		30	47		36		58				
74	44		72		33		32	48		37		60				
76	45		73		34		33	49		38		61			55	50
78	46		75		35		34	51		39		63		20		
80	48		76		36		35			41		64				
85	51		79		39		38			44		67		25	60	
90	54		82		42		41			46		70				55
95	56		85		45		44			49		73		30	65	60
100	59		88		48		47			52		76				
105	62		90		50		50			54		79		35	70	65
110	64		93				52			57		82				
115	67		96				55			59		84		40	75	70
120	69		98				57			62		87				
125	72		100				59			64		89			80	75
130	74		103				61			66		92		45		
135	76		105				64			69		94			85	80
140	78		107				66			71		96		50		
145	81		109				68			73		99			90	85
150	83		112				70			75		101				
155	85		114				72			77		103		55	95	90
160	87		116				74			79		105				
165	89		118				76			81		107				
170	91		120				78			82		109		60	100	95
175	92		122				80			84		111				
180	94		123				81			86		113				100
185	96		125				83			88		115		65	105	
190	98		127				85			90		117				
195	100		129				87			91		119			110	105
200	101		131				88			93		121		70		
205	103		132				90			95		123				
210	105		134				92			96		124		75	115	110
220	108		137				95			99		128				115
230	111		140				98			102		131		80	120	
240	114		143				101			105		134			125	120
250	117		146				104			108		137		85		
260	120		149				107			111		141			130	125
275	124		153				111			115		145		90	135	130
290	128		157				114			119		149		95	140	135
305	132		161				118			123		153				140
320	136		165				122			126		157		100		
335	139		169				125			130		161		105		
350	143		172				129			133		165				

BUBBLE POINT
DEW POINT
BUBBLE POINT
DEW POINT
BUBBLE POINT
DEW POINT

* Inches mercury below one atmosphere

Note: Fold card at blank lines, back-n-forth like an accordion.

Cruisair Worldwide Service Dealer Locator

The majority of the service listings displayed for the United States are key members of the national Cruisair distributor or master dealer network. If you need service, please contact the closest company shown. In most cases they will direct you to a local dealer or service port. We have over 500 Cruisair dealers in the national Cruisair network, and one should be convenient to you.

The **international** companies listed are, in many cases, distributors and are capable of managing the majority of service requests for the countries listed. In some cases they will refer you to a local dealer.

You may also contact us directly via the web site or call us in the US at (804) 746-1313.

For a complete and up-to-date Dealer locator list, please visit our website at http://www.cruisair.com/cruisair/dealer.html

USA

AAP Inc.
Location: Milford, VA, USA
Territory: National Coach & Mobile Products Only
Phone: 804-633-9454
Fax: 804-633-5499
Web: www.aap.com

Alabama

A.E.R. Supply, Inc.
Location: Seabrook, TX, USA
Phone: 281-474-3276
Fax: 281-474-2714
E-mail: rsmiller@aersupply.com
Web: www.aersupply.com

Thom Chase Heating and A/C
Location: Chattanooga, TN, USA
Territory: Northern Alabama, Northern Mississippi, Tennessee, Western Kentucky
Phone: 423-344-6356
Fax: 423-344-6356
E-mail: thomchase@aol.com

Alaska

Southern California Marine Enterprises
Location: San Diego, CA, USA
Phone: 619-224-2869
Fax: 619-226-0496
E-mail: sales@southerncalmarine.com
Web: www.southerncalmarine.com

Arizona

Southern California Marine Enterprises
Location: San Diego, CA, USA
Phone: 619-224-2869
Fax: 619-226-0496
E-mail: sales@southerncalmarine.com
Web: www.southerncalmarine.com

Arkansas

A.E.R. Supply, Inc.
Location: Seabrook, TX, USA
Phone: 281-474-3276
Fax: 281-474-2714
E-mail: rsmiller@aersupply.com
Web: www.aersupply.com

California

Southern California Marine Enterprises
Location: San Diego, CA, USA
Phone: 619-224-2869
Fax: 619-226-0496
E-mail: sales@southerncalmarine.com
Web: www.southerncalmarine.com

Colorado

A.E.R. Supply, Inc.
Location: Seabrook, TX, USA
Phone: 281-474-3276
Fax: 281-474-2714
E-mail: rsmiller@aersupply.com
Web: www.aersupply.com

Connecticut

GDL Services, LLC
Location: Clinton, CT, USA
Territory: Connecticut River Area
Phone: 860-669-5179
Fax: 860-669-5806

Nautical Air, Inc.
Location: Copiague, NY, USA
Territory: CT, DE (N. of Sassafras River), IO, IL, MD (N.of Baltimore), NJ, NY, PA, OH, RI,
Phone: 631-956-3456
Fax: 631-956-3479
E-mail: sales@nauticalair.com
Web: www.nauticalair.com

Delaware

Annapolis Cruisair
Location: Annapolis, MD, USA
Territory: In Md: Baltimore & Areas South; In Delaware: South of the Sassafras River
Phone: 410-224-0970
Fax: 410-224-0050
E-mail: cruisair45@aol.com
Web: www.annapoliscruisair.com

Nautical Air, Inc.
Location: Copiague, NY, USA
Territory: CT, DE (N. of Sassafras River), IO, IL, MD (N.of Baltimore), NJ, NY, PA, OH, RI,
Phone: 631-956-3456
Fax: 631-956-3479
E-mail: sales@nauticalair.com
Web: www.nauticalair.com

Florida

Cruisair Southeast, A Division of T.K. Alley, Inc.
Location: Dania Beach, FL, USA
Territory: Southeast Florida
Phone: 954-920-0300
Fax: 954-920-0301
E-mail: tkalley@aol.com
Web: www.cruisair-southeast.com

Cruisair Suncoast, Inc.
Location: St. Petersburg, FL, USA
Territory: Tampa, St. Petersburg and surrounding areas
Phone: 727-526-7875
Fax: 727-528-9519
E-mail: cruisairsuncoast@yahoo.com

Ward's Marine Electric, Inc.
Location: Ft. Lauderdale, FL, USA
Territory: Battery Chargers Only
Phone: 954-523-2815
Fax: 954-523-1967
E-mail: info@wardsmarine.com

Georgia

Beard Marine/Savannah
Location: Savannah, GA, USA
Phone: (912) 356-5222
Fax: (912) 692-1006
E-mail: infosavannah@beardmarine.com
Web: www.beardmarine.com

Hawaii

Southern California Marine Enterprises
Location: San Diego, CA, USA
Phone: 619-224-2869
Fax: 619-226-0496
E-mail: sales@southerncalmarine.com
Web: www.southerncalmarine.com

Idaho

Sure Marine Services Inc.
Location: Seattle, WA, USA
Phone: 206 -784-9903
Fax: 206-784-0506
E-mail: sales@suremarine.com

Illinois

J & S Marine Sales & Service
Location: Detroit, MI, USA
Phone: (586) 463-3400
Fax: (586) 463-1762
E-mail: jandsmarine@sbcglobal.net
Web: www.jandsmarine.com

Midwest Marine Supply
Location: St. Clair Shores, MI, USA
Phone: 586-778-8950
Fax: 586-778-6108

Nautical Air, Inc.
Location: Copiague, NY, USA
Territory: CT, DE (N. of Sassafras River), IO, IL, MD (N.of Baltimore), NJ, NY, PA, OH, RI,
Phone: 631-956-3456
Fax: 631-956-3479
E-mail: sales@nauticalair.com
Web: www.nauticalair.com

Indiana

J & S Marine Sales & Service
Location: Detroit, MI, USA
Phone: (586) 463-3400
Fax: (586) 463-1762
E-mail: jandsmarine@sbcglobal.net
Web: www.jandsmarine.com

Midwest Marine Supply
Location: St. Clair Shores, MI, USA
Phone: 586-778-8950
Fax: 586-778-6108

Nautical Air, Inc.
Location: Copiague, NY, USA
Territory: CT, DE (N. of Sassafras River), IO, IL, MD (N.of Baltimore), NJ, NY, PA, OH, RI,
Phone: 631-956-3456
Fax: 631-956-3479
E-mail: sales@nauticalair.com
Web: www.nauticalair.com

Iowa

J & S Marine Sales & Service
Location: Detroit, MI, USA
Phone: (586) 463-3400
Fax: (586) 463-1762
E-mail: jandsmarine@sbcglobal.net
Web: www.jandsmarine.com

Iowa

Midwest Marine Supply
Location: St. Clair Shores, MI, USA
Phone: 586-778-8950
Fax: 586-778-6108

Nautical Air, Inc.
Location: Copiague, NY, USA
Territory: CT, DE (N. of Sassafras River), IO, IL, MD (N.of Baltimore), NJ, NY, PA, OH, RI,
Phone: 631-956-3456
Fax: 631-956-3479
E-mail: sales@nauticalair.com
Web: www.nauticalair.com

Kansas

A.E.R. Supply, Inc.
Location: Seabrook, TX, USA
Phone: 281-474-3276
Fax: 281-474-2714
E-mail: rsmiller@aersupply.com
Web: www.aersupply.com

Kentucky

Thom Chase Heating and A/C
Location: Chattanooga, TN, USA
Territory: Northern Alabama, Northern Mississippi, Tennessee, Western Kentucky
Phone: 423-344-6356
Fax: 423-344-6356
E-mail: thomchase@aol.com

Louisiana

A.E.R. Supply, Inc.
Location: Seabrook, TX, USA
Phone: 281-474-3276
Fax: 281-474-2714
E-mail: rsmiller@aersupply.com
Web: www.aersupply.com

Sea Chest Marine Distr.
Location: New Orleans, LA, USA
Territory: Gulf Coast (LA & MS)
Phone: 800-535-8630
Fax: 504-288-1758

Maryland

Annapolis Cruisair
Location: Annapolis, MD, USA
Territory: In Md: Baltimore & Areas South; In Delaware: South of the Sassafras River
Phone: 410-224-0970
Fax: 410-224-0050
E-mail: cruisair45@aol.com
Web: www.annapoliscruisair.com

Maryland (N of Baltimore)

Nautical Air, Inc.
Location: Copiague, NY, USA
Territory: CT, DE (N. of Sassafras River), IO, IL, MD (N.of Baltimore), NJ, NY, PA, OH, RI,
Phone: 631-956-3456
Fax: 631-956-3479
E-mail: sales@nauticalair.com
Web: www.nauticalair.com

Massachusetts

World Wide Enterprises
Location: East Falmouth, MA, USA
Phone: 508-540-0963
E-mail: info@worldwideent.net
Web: www.worldwideent.net

Michigan

J & S Marine Sales & Service
Location: Detroit, MI, USA
Phone: (586) 463-3400
Fax: (586) 463-1762
E-mail: jandsmarine@sbcglobal.net
Web: www.jandsmarine.com

Minnesota

Midwest Cruisair
Location: Red Wing, MN, USA
Territory: Minnesota and Western Wisconsin
Phone: 651-388-4881
Fax: 651-388-9186
E-mail: estelter@redwing.net

Mississippi

A.E.R. Supply, Inc.
Location: Seabrook, TX, USA
Phone: 281-474-3276
Fax: 281-474-2714
E-mail: rsmiller@aersupply.com
Web: www.aersupply.com

Sea Chest Marine Distr.
Location: New Orleans, LA, USA
Territory: Gulf Coast (LA & MS)
Phone: 800-535-8630
Fax: 504-288-1758

Thom Chase Heating and A/C
Location: Chattanooga, TN, USA
Territory: Northern Alabama, Northern Mississippi, Tennessee, Western Kentucky
Phone: 423-344-6356
Fax: 423-344-6356
E-mail: thomchase@aol.com

Missouri

A.E.R. Supply, Inc.
Location: Seabrook, TX, USA
Phone: 281-474-3276
Fax: 281-474-2714
E-mail: rsmiller@aersupply.com
Web: www.aersupply.com

Montana

Sure Marine Services Inc.
Location: Seattle, WA, USA
Phone: 206 -784-9903
Fax: 206-784-0506
E-mail: sales@suremarine.com

Nebraska

A.E.R. Supply, Inc.
Location: Seabrook, TX, USA
Phone: 281-474-3276
Fax: 281-474-2714
E-mail: rsmiller@aersupply.com
Web: www.aersupply.com

Nevada

A.E.R. Supply, Inc.
Location: Seabrook, TX, USA
Phone: 281-474-3276
Fax: 281-474-2714
E-mail: rsmiller@aersupply.com
Web: www.aersupply.com

Southern California Marine Enterprises
Location: San Diego, CA, USA
Phone: 619-224-2869
Fax: 619-226-0496
E-mail: sales@southerncalmarine.com
Web: www.southerncalmarine.com

New Jersey

Nautical Air, Inc.
Location: Copiague, NY, USA
Territory: CT, DE (N. of Sassafras River), IO, IL, MD (N.of Baltimore), NJ, NY, PA, OH, RI,
Phone: 631-956-3456
Fax: 631-956-3479
E-mail: sales@nauticalair.com
Web: www.nauticalair.com

New Mexico

A.E.R. Supply, Inc.
Location: Seabrook, TX, USA
Phone: 281-474-3276
Fax: 281-474-2714
E-mail: rsmiller@aersupply.com
Web: www.aersupply.com

New York

Nautical Air, Inc.
Location: Copiague, NY, USA
Territory: CT, DE (N. of Sassafras River), IO, IL, MD (N.of Baltimore), NJ, NY, PA, OH, RI,
Phone: 631-956-3456
Fax: 631-956-3479
E-mail: sales@nauticalair.com
Web: www.nauticalair.com

North Carolina

Martin's Marine
Location: Wilmington, NC, USA
Territory: North Carolina and Myrtle Beach, SC
Phone: 910-799-9362
Fax: 910-793-4267

North Dakota

A.E.R. Supply, Inc.
Location: Seabrook, TX, USA
Phone: 281-474-3276
Fax: 281-474-2714
E-mail: rsmiller@aersupply.com
Web: www.aersupply.com

Ohio

Nautical Air, Inc.
Location: Copiague, NY, USA
Territory: CT, DE (N. of Sassafras River), IO, IL, MD (N.of Baltimore), NJ, NY, PA, OH, RI,
Phone: 631-956-3456
Fax: 631-956-3479
E-mail: sales@nauticalair.com
Web: www.nauticalair.com

Oklahoma

A.E.R. Supply, Inc.
Location: Seabrook, TX, USA
Phone: 281-474-3276
Fax: 281-474-2714
E-mail: rsmiller@aersupply.com
Web: www.aersupply.com

Oregon

Sure Marine Services Inc.
Location: Seattle, WA, USA
Phone: 206 -784-9903
Fax: 206-784-0506
E-mail: sales@suremarine.com

Pennsylvania

Nautical Air, Inc.
Location: Copiague, NY, USA
Territory: CT, DE (N. of Sassafras River), IO, IL, MD (N.of Baltimore), NJ, NY, PA, OH, RI,
Phone: 631-956-3456
Fax: 631-956-3479
E-mail: sales@nauticalair.com
Web: www.nauticalair.com

Rhode Island

Cay Electronics
Location: Portsmouth, Rhode Island, USA
Territory: Rhode Island
Phone: 401-683-3520
Fax: 401-683-3633
Web: www.cayelectronics.com

Rhode Island

Nautical Air, Inc.

Location: Copiague, NY, USA
Territory: CT, DE (N. of Sassafras River), IO, IL, MD (N.of Baltimore), NJ, NY, PA, OH, RI,
Phone: 631-956-3456
Fax: 631-956-3479
E-mail: sales@nauticalair.com
Web: www.nauticalair.com

South Carolina

Atlantic Boat ACR

Location: Johns Island, SC, USA
Phone: 843-557-0788
Fax: 843-557-0786
E-mail: info@atlanticboatacr.com
Web: www.atlanticboatacr.com

Martin's Marine

Location: Wilmington, NC, USA
Territory: North Carolina and Myrtle Beach, SC
Phone: 910-799-9362
Fax: 910-793-4267

South Dakota

A.E.R. Supply, Inc.

Location: Seabrook, TX, USA
Phone: 281-474-3276
Fax: 281-474-2714
E-mail: rsmiller@aersupply.com
Web: www.aersupply.com

Tennessee

Thom Chase Heating and A/C

Location: Chattanooga, TN, USA
Territory: Northern Alabama, Northern Mississippi, Tennessee, Western Kentucky
Phone: 423-344-6356
Fax: 423-344-6356
E-mail: thomchase@aol.com

Texas

A.E.R. Supply, Inc.

Location: Seabrook, TX, USA
Phone: 281-474-3276
Fax: 281-474-2714
E-mail: rsmiller@aersupply.com
Web: www.aersupply.com

Utah

A.E.R. Supply, Inc.

Location: Seabrook, TX, USA
Phone: 281-474-3276
Fax: 281-474-2714
E-mail: rsmiller@aersupply.com
Web: www.aersupply.com

Southern California Marine Enterprises

Location: San Diego, CA, USA
Phone: 619-224-2869
Fax: 619-226-0496
E-mail: sales@southerncalmarine.com
Web: www.southerncalmarine.com

Virginia

Lamy Marine, Inc.

Location: Chesapeake, VA, USA
Phone: 757-494-3747
Fax: 757-494-3740
E-mail: lamy.marine@verizon.net

Washington

Sure Marine Services Inc.

Location: Seattle, WA, USA
Phone: 206 -784-9903
Fax: 206-784-0506
E-mail: sales@suremarine.com

Wisconsin (East)

J & S Marine Sales & Service

Location: Detroit, MI, USA
Phone: (586) 463-3400
Fax: (586) 463-1762
E-mail: jandsmarine@sbcglobal.net
Web: www.jandsmarine.com

Midwest Marine Supply

Location: St. Clair Shores, MI, USA
Phone: 586-778-8950
Fax: 586-778-6108

Wisconsin (West)

Midwest Cruisair

Location: Red Wing, MN, USA
Territory: Minnesota and Western Wisconsin
Phone: 651-388-4881
Fax: 651-388-9186
E-mail: estelter@redwing.net

Wyoming

A.E.R. Supply, Inc.

Location: Seabrook, TX, USA
Phone: 281-474-3276
Fax: 281-474-2714
E-mail: rsmiller@aersupply.com
Web: www.aersupply.com

Angola

Southern Power Products

Location: Cape Town, South Africa
Phone: 27-21-511-0653
Fax: 27-21-510-3049
E-mail: sales@southernpower.co.za

Antigua

Aboard Refrigeration

Location: English Harbour, Antigua
Phone: 268-460-1690
Fax: 419-858-0544
E-mail: aboardrf@candw.ag

The Signal Locker

Location: English Harbour, Antigua
Phone: 268-460-1528
Fax: 268-460-1148
E-mail: lockers@candw.ag

Argentina

Trimer S.A.

Location: Buenos Aires, Argentina
Phone: 5411-4580-0444
Fax: 5411-4580-0440
E-mail: trimer@trimer.com.ar
Web: www.trimer.com.ar

Australia

Seabreeze Industries

Location: Coomera, Queensland, Australia
Phone: 61-7-55806371
Fax: 61-7-55806372
E-mail: sales@seabreeze-industries.com.au
Web: www.seabreeze-industries.com.au

Austria

Dometic Marine - Italy, Sales Company

Location: Milano, Italy
Phone: 39 0362 44182
Fax: 39 0362 452226
E-mail: marine.info@dometic.it

Nautica Centis di Nespolo Cinzia & C. Sne

Location: Bevazzana de Latisana (UD), Italy
Territory: Northeast Italy, Austria, Croatia, Slovenia
Phone: 390-431-53-644
Fax: 390-431-53-460
E-mail: nautica.centis@nauticacentis.it
Web: www.nauticacentis.it

Bahamas

Freezing Point, Ltd.

Location: Nassau, Bahamas
Phone: 242-325-3589
Fax: 242-356-5271
E-mail: freezingpoint@bahamas.net.bs

Nixon's Refrigeration

Location: Abaco, Bahamas
Territory: Abaco Island only
Phone: 242-367-5219
Fax: 242-367-5219
E-mail: seannixon@email.com

Bahrain

2000 Marine Stores

Location: Manama, Baharain
Phone: 973-742-777
Fax: 973-742-255

Mantech

Location: Dubai, United Arab Emirates
Phone: 971 4 333 25 42
Fax: 971 4 333 06 49
E-mail: mge@emirates.net.ae

Bangladesh

Tripower Corporation Pte Ltd

Location: , Singapore
Phone: (65) 6861 1188
Fax: (65) 6861 4263
E-mail: mgt@tripower.com.sg
Web: www.tritex.com.sg

Belgium

Eberca

Location: , Netherlands
Phone: 31 186621955
Fax: 31 186621818
E-mail: info@eberca.nl

Bermuda

Flatt's Marine

Location: St. Georges, Bermuda
Phone: 441-293-5740
Fax: 441-293-5740

Botswana

Southern Power Products

Location: Cape Town, South Africa
Phone: 27-21-511-0653
Fax: 27-21-510-3049
E-mail: sales@southernpower.co.za

Brazil

Sailing Products

Location: Sao Paulo, Brazil
Phone: 55 (0) 11 81 1985
Fax: 55 (0) 11 81 1936

Sailing Products

Location: Rio de Janeiro, Brazil
Phone: 55 (0) 21 3154-9990
Fax: 55 (0) 21 2494-7223
E-mail: sailing@sailing.com.br

British Virgin Islands

Cay Electronics Ltd.

Location: Tortola, British Virgin Islands
Phone: 284-494-2400
Fax: 284-494-5389
E-mail: caybvi@candwbvi.net
Web: www.cayelectronics.com

Parts And Power
Location: Tortola, British Virgin Islands
Phone: 284-494-2830
Fax: 284-494-1584
E-mail: info@partsandpower.com

British West Indies

Caribbean Marine & Diesel
Location: Turks and Caicos Islands, British West Indies
Phone: 649-941-5903
Fax: 649-941-5902
E-mail: caribmarinediesel@tciway.tc

Marine Power
Location: Grand Cayman Island, British West Indies
Phone: 345-947-1945
Fax: 345-947-1909
E-mail: mpower@candw.ky

Canada

British Columbia

Accutemp Refrigeration and Air Conditioning
Location: Victoria, BC, Canada
Territory: Western Canada
Phone: 250-475-2665
Fax: 250-475-1957
E-mail: info@accutemp.ca
Web: www.accutemp.ca

Airon Heating And Air Conditioning
Location: Richmond, BC, Canada
Territory: Western Canada
Phone: 604-270-2040
Fax: 604-270-3888
E-mail: dmairon@telus.net
Web: www.aironhvac.com

Ontario

J & S Marine Sales & Service
Location: Detroit, MI, USA
Phone: (586) 463-3400
Fax: (586) 463-1762
E-mail: jandsmarine@sbcglobal.net
Web: www.jandsmarine.com

Northland Supply Company
Location: Queensville, ON, Canada
Phone: 905-478-2244
Fax: 905-478-2295
E-mail: norsupco@aol.com
Web: www.norsupco.com

Caribbean Islands

Aboard Refrigeration
Location: English Harbour, Antigua
Phone: 268-460-1690
Fax: 419-858-0544
E-mail: aboardrf@candw.ag

B&R Marine
Location: Santo Domingo, Dominican Republic
Territory: Dominican Republic
Phone: 809-562-1661 ext 7303
Fax: 809-562-1521
E-mail: hsosa@navierasbr.com

C.S. Services
Location: Martinique, French West Indies
Phone: 596-749113
Fax: 596-749174

Caraibe Greemant
Location: Le Marin, Martinique, French West Indies
Phone: 596 596 74 80 33
E-mail: cgmar@wanadoo.fr

Caribbean Marine & Diesel
Location: Turks and Caicos Islands, British West Indies
Phone: 649-941-5903
Fax: 649-941-5902
E-mail: caribmarinediesel@tciway.tc

Cay Electronics Ltd.
Location: Tortola, British Virgin Islands
Phone: 284-494-2400
Fax: 284-494-5389
E-mail: caybvi@candwbvi.net
Web: www.cayelectronics.com

Centro Cruisair de Puerto Rico
Location: Santurce, Puerto Rico
Phone: 787-727-3637
Fax: 787-727-3637

Cool-Tech Air Conditioning
Location: Fajardo, Puerto Rico
Phone: (787) 860-2615
Fax: (787) 801-2050
E-mail: cooltech@isppr.net

Coral Bay Marine Service
Location: St. John, U.S. Virgin Islands
Phone: 340-776-6859
Fax: 340-776-6859

Dr. Ice
Location: St. Thomas, US Virgin Islands
Territory: St. Thomas
Phone: 340-513-9072
Fax: 340-775-6576
E-mail: davidgott@hotmail.com;

Freezing Point, Ltd.
Location: Nassau, Bahamas
Phone: 242-325-3589
Fax: 242-356-5271
E-mail: freezingpoint@bahamas.net.bs

Frostline
Location: , St. Maarten/St. Martin, Netherlands Antilles
Phone: 599 522 9610 (Technical)
Fax: 599 544 3263
E-mail: paul@frostline.biz (technical); glyn@frostline.biz

Hitchcraft Co.
Location: Curacao, Netherlands Antilles
Phone: 5999 667 3349
Fax: 501-641-2708 (US Line)
E-mail: hcraft@attglobal.net; hitchcraft@hotmail.com

Iceberg Refrigeration
Location: Guadeloupe, French West Indies
Phone: 590-24 35 35
Fax: 590-24 35 35
E-mail: iceberg.refrigeration@wanadoo.fr

Marine Power
Location: Grand Cayman Island, British West Indies
Phone: 345-947-1945
Fax: 345-947-1909
E-mail: mpower@candw.ky

May Day Marine
Location: San Juan, Puerto Rico
Territory: Puerto Rico, Dominican Republic
Phone: 787-637-0756
Fax: 787-790-2551

Nau-T-Kol Marine Refrigeration
Location: Chaguaramas, Trinidad
Phone: 868-634-2174
Fax: 868-634-2174
E-mail: nautkol@cablenett.net
Web: www.nautkol.com

Nixon's Refrigeration
Location: Abaco, Bahamas
Territory: Abaco Island only
Phone: 242-367-5219
Fax: 242-367-5219
E-mail: seannixon@email.com

Outfitters International
Location: St. Georges, Grenada
Phone: 473-440-7949
Fax: 473-440-6680
E-mail: footloos@caribsurf.com

Parts And Power
Location: Tortola, British Virgin Islands
Phone: 284-494-2830
Fax: 284-494-1584
E-mail: info@partsandpower.com

Reefco
Location: St. Thomas, U.S. Virgin Islands
Phone: 340-776-0038
Fax: 340-776-0038
E-mail: dennyedy@viaccess.net

Regis Electronics (St Lucia) LTD.
Location: St. Lucia, West Indies
Phone: 758-452-0205
Fax: 758-452-0206
E-mail: stlucia@regiselectronics.com

St. Croix Marine Corp.
Location: St. Croix, U.S. Virgin Islands
Phone: 340-773-0289
Fax: 340-778-8974
E-mail: stcroixmarine@hotmail.com

Sun Cool Air Conditioning Corp
Location: Carolina, Puerto Rico
Phone: 787-791-6971
Fax: 787-791-3885
E-mail: suncool1@coqui.net

Technical House (E.T.S. Inc.)
Location: San Juan, Puerto Rico
Territory: Sentry Battery Chargers Only
Phone: 787-781-1313
Fax: 787-781-2020
E-mail: jdonato@technicalhouse.com
Web: www.technicalhouse.com

The Signal Locker
Location: English Harbour, Antigua
Phone: 268-460-1528
Fax: 268-460-1148
E-mail: lockers@candw.ag

China

Chi-Mo Inc.
Location: Shanghai, China
Phone: 8621-5917-1111
Fax: 8621-5917-1166
E-mail: sales@springfieldmarine.com.cn
Web: www.springfieldmarine.com.cn

Tripower Corporation Pte Ltd
Location: , Singapore
Phone: (65) 6861 1188
Fax: (65) 6861 4263
E-mail: mgt@tripower.com.sg
Web: www.tritex.com.sg

Tripower Corporation Pte Ltd
Location: Shanghai, Beijing, Guangzhou, Wuhan, China
Phone: 8621-5240-2638
Fax: 8621-5240-2153
E-mail: tritex@public.sta.net.cn
Web: www.tritex.com.sg

Costa Rica

Gato Frío
Location: Marina Los Sueños, Costa Rica
Territory: Costa Rica, Panama
Phone: 506-637-7419
Fax: 506-637-7180
E-mail: eric@yachtshare.net

Metro Marine
Location: Herradura Bay, Costa Rica
Phone: 506-643-2409
Fax: 506-643-2409
Web: marinemetro@racsa.co.cr

Croatia

Dometic Marine - Italy, Sales Company
Location: Milano, Italy
Phone: 39 0362 44182
Fax: 39 0362 452226
E-mail: marine.info@dometic.it

Nautica Centis di Nespolo Cinzia & C. Sne
Location: Bevazzana de Latisana (UD), Italy
Territory: Northeast Italy, Austria, Croatia, Slovenia
Phone: 390-431-53-644
Fax: 390-431-53-460
E-mail: nautica.centis@nauticacentis.it
Web: www.nauticacentis.it

Cyprus

Dometic Marine - United Kingdom, Sales Company
Location: Poole, Dorset, United Kingdom
Phone: 44 870 3306101
Fax: 44 870 3306102
E-mail: sales@dometicmarine.com
Web: www.dometic.com

Tuti Mare Trading Ltd
Location: Limassol, Cyprus
Phone: 35 725 431313
Fax: 35 725 431300
E-mail: tutimare@cytanet.com.cy

Dominican Republic

B&R Marine
Location: Santo Domingo, Dominican Republic
Territory: Dominican Republic
Phone: 809-562-1661 ext 7303
Fax: 809-562-1521
E-mail: hsosa@navierasbr.com

May Day Marine
Location: San Juan, Puerto Rico
Territory: Puerto Rico, Dominican Republic
Phone: 787-637-0756
Fax: 787-790-2551

Ecuador

Navas-Bustos Representaciones
Location: Guayaquil, Equador
Phone: 593-2-252542
Fax: 593-2-251-421

Egypt

Climate Company
Location: Cairo, Egypt
Phone: 20-2-2598092
Fax: 20-2-4523028
E-mail: climate@tedata.net.eg

Eritrea

DM Electrical Engineering
Location: Asmara, Eritrea
Phone: 291-1-126737
Fax: 291-1-127650

France

Dometic Marine - France, Sales Company
Location: 60 128 Plailly, France
Phone: Cell: 0033 (0)680 415 543
Fax: 0033 (0)344 633 518
E-mail: marine.sales@dometic.fr

Polymarine Distribution
Location: Cannet, Rocheville, France
Phone: 0033 493463634
Fax: 0033 493463634
E-mail: polymarine.bayle@free.fr

French West Indies

C.S. Services
Location: Martinique, French West Indies
Phone: 596-749113
Fax: 596-749174

Caraibe Greemant
Location: Le Marin, Martinique, French West Indies
Phone: 596 596 74 80 33
E-mail: cgmar@wanadoo.fr

Iceberg Refrigeration
Location: Guadeloupe, French West Indies
Phone: 590-24 35 35
Fax: 590-24 35 35
E-mail: iceberg.refrigeration@wanadoo.fr

Germany

GEMO GmbH
Location: Travemunde, Germany
Phone: 49-4502-2466
Fax: 49-4502-2425
E-mail: gemo_gmbh@t-online.de
Web: www.gemo_online.de

Greece

Aegean Diesel Electric LT
Location: , Piraeus, Greece
Phone: 3014222484
Fax: 3014175201
E-mail: info@ade-marine.gr

Dometic Marine - United Kingdom, Sales Company
Location: Poole, Dorset, United Kingdom
Phone: 44 870 3306101
Fax: 44 870 3306102
E-mail: sales@dometicmarine.com
Web: www.dometic.com

Polfrost Technical Ltd.
Location: Piraeus, Greece
Phone: 30-210-461-3370
Fax: 30-210-461-4376

Grenada

Outfitters International
Location: St. Georges, Grenada
Phone: 473-440-7949
Fax: 473-440-6680
E-mail: footloos@caribsurf.com

Guam

Fentress Refrigeration Service Co.
Location: Tamuning, Guam
Phone: 671-565-4038
Fax: 671-565-3315

Guatemala

Automotores y Marina, S.A.
Location: Villa Nueva, Guatemala
Phone: 502-6631-2033
Fax: 502-6631-2034
E-mail: info@automotoresymarina.com

Hong Kong

Astral Marine, Ltd.
Location: Sai Kung, NT, Hong Kong
Phone: 852-271 959 82
Fax: 852-219 444 63
E-mail: funcle@pacific.net.hk
Web: www.astral.com.hk

Tripower Corporation Pte Ltd
Location: Kowloon, Hong Kong
Phone: 852-2341-3329
Fax: 852-2343-1830
E-mail: tx1607@netvigator.com

Indonesia

Tripower Corporation Pte Ltd
Location: , Singapore
Phone: (65) 6861 1188
Fax: (65) 6861 4263
E-mail: mgt@tripower.com.sg
Web: www.tritex.com.sg

Israel

Yamit Y.S.B. Ltd.
Location: Ramat-Gan, Israel
Phone: 972 3 6123192
Fax: 972 3 6123197
E-mail: mil@yamitysb.co.il

Italy

Cummins Diesel Italia S.P.A
Location: Milan, Italy
Territory: Central & Southern Italy
Phone: 39 02 51 655 856
Fax: 39 02 51 65 58 55
E-mail: luigi.casaburi@cummins.com

Dometic Marine - Italy, Sales Company
Location: Milano, Italy
Phone: 39 0362 44182
Fax: 39 0362 452226
E-mail: marine.info@dometic.it

Nautica Centis di Nespolo Cinzia & C. Sne
Location: Bevazzana de Latisana (UD), Italy
Territory: Northeast Italy, Austria, Croatia, Slovenia
Phone: 390-431-53-644
Fax: 390-431-53-460
E-mail: nautica.centis@nauticacentis.it
Web: www.nauticacentis.it

Japan

Gunji Corporation
Location: Osaka, Japan
Phone: 81-6-6451-5615
Fax: 81-6-6454-0056
E-mail: gunji@gunji.com
Web: www.gunji.com

Kuwait

Mantech
Location: Dubai, United Arab Emirates
Phone: 971 4 333 25 42
Fax: 971 4 333 06 49
E-mail: mge@emirates.net.ae

Seas & Deserts Group
Location: Al-shawikh, Kuwait
Phone: 965-4849212
Fax: 965-4820913

Luxembourg

Eberca
Location: , Netherlands
Phone: 31 186621955
Fax: 31 186621818
E-mail: info@eberca.nl

Malaysia

Tripower Corporation Pte Ltd
Location: , Singapore
Phone: (65) 6861 1188
Fax: (65) 6861 4263
E-mail: mgt@tripower.com.sg
Web: www.tritex.com.sg

Maldives

Tripower Corporation Pte Ltd

Location: , Singapore
Phone: (65) 6861 1188
Fax: (65) 6861 4263
E-mail: mgt@tripower.com.sg
Web: www.tritex.com.sg

Wheel Engineering Services

Location: Malé, Maldives
Territory: Maldives
Phone: 960-3327806
Fax: 960-3324145
E-mail: wes@avasmail.com.mv

Malta

Dometic Marine - United Kingdom, Sales Company

Location: Poole, Dorset, United Kingdom
Phone: 44 870 3306101
Fax: 44 870 3306102
E-mail: sales@dometicmarine.com
Web: www.dometic.com

Inmartech Ltd

Location: Swieqi, STJ 04, Malta
Territory: Malta
Phone: 356 21376476
Fax: 356 21376476
E-mail: inmartech@waldonet.net.mt

Mexico

Southern California Marine Enterprises

Location: San Diego, CA, USA
Phone: 619-224-2869
Fax: 619-226-0496
E-mail: sales@southerncalmarine.com
Web: www.southerncalmarine.com

Monaco

Polymarine Distribution

Location: Cannet, Rocheville, France
Phone: 0033 493463634
Fax: 0033 493463634
E-mail: polymarine.bayle@free.fr

Mozambique

Southern Power Products

Location: Cape Town, South Africa
Phone: 27-21-511-0653
Fax: 27-21-510-3049
E-mail: sales@southernpower.co.za

Myanmar

Tripower Corporation Pte Ltd

Location: , Singapore
Phone: (65) 6861 1188
Fax: (65) 6861 4263
E-mail: mgt@tripower.com.sg
Web: www.tritex.com.sg

Namibia

Southern Power Products

Location: Cape Town, South Africa
Phone: 27-21-511-0653
Fax: 27-21-510-3049
E-mail: sales@southernpower.co.za

Netherlands

Eberca

Location: , Netherlands
Phone: 31 186621955
Fax: 31 186621818
E-mail: info@eberca.nl

Netherlands Antilles

Frostline

Location: , St. Maarten/St. Martin, Netherlands Antilles
Phone: 599 522 9610 (Technical)
Fax: 599 544 3263
E-mail: paul@frostline.biz (technical); glyn@frostline.biz

Hitchcraft Co.

Location: Curacao, Netherlands Antilles
Phone: 5999 667 3349
Fax: 501-641-2708 (US Line)
E-mail: hcraft@attglobal.net; hitchcraft@hotmail.com

New Caledonia

Altomarine

Location: Noumea, New Caledonia
Phone: 687 25 96 12
Fax: 687 25 43 30
E-mail: altomar@altomarine.com

New Zealand

Whiting Power Systems

Location: Auckland, New Zealand
Phone: 64-9-358-2050
Fax: 64-9-358-0285
E-mail: sales@whiting.co.nz
Web: www.whitingpower.com

Norway

Refnor A.S.

Location: Østerås, Norway
Phone: 47-67 14 07 50
Fax: 47-67 14 70 88
E-mail: refnor.as@c2i.net

Oman

Mantech

Location: Dubai, United Arab Emirates
Phone: 971 4 333 25 42
Fax: 971 4 333 06 49
E-mail: mge@emirates.net.ae

OHI Marine LLC

Location: Muscat, Oman
Phone: 968-712240
Fax: 968-712085

Pakistan

Communications & Machinery Corp.

Location: Karachi, Pakistan
Phone: 92-21-5678252
Fax: 92-21-5683283
E-mail: cmcorp@cyber.net.pk

Panama

Compañía Evans Masters

Location: La Chorrea, Panama
Territory: Panama
Phone: 507-232-7648
Fax: 507-232-7648
E-mail: info@evanmasters.com
Web: www.evansmasters.com

Gato Frío

Location: Marina Los Sueños, Costa Rica
Territory: Costa Rica, Panama
Phone: 506-637-7419
Fax: 506-637-7180
E-mail: eric@yachtshare.net

Papua New Guinea

Lohberger Engineering Pty

Location: Pors Moresby, Papau New Guinea
Phone: 675-321-2122
Fax: 675-321-2704
E-mail: loheng@online.net.pg

Peru

Corporación Frío Novo SAC

Location: Lima (La Molina), Peru
Phone: (511) 451-5052
E-mail: frionovo@infonegocio.net.pe

Philippines

Tripower Corporation Pte Ltd

Location: , Singapore
Phone: (65) 6861 1188
Fax: (65) 6861 4263
E-mail: mgt@tripower.com.sg
Web: www.tritex.com.sg

Portugal

PowerCool LDA

Location: Albufeira, Portugal
Phone: 351 917 866 373
Fax: 351 289 587 005
E-mail: info@powercool.org
Web: www.powercool.org

Puerto Rico

Centro Cruisair de Puerto Rico

Location: Santurce, Puerto Rico
Phone: 787-727-3637
Fax: 787-727-3637

Cool-Tech Air Conditioning

Location: Fajardo, Puerto Rico
Phone: (787) 860-2615
Fax: (787) 801-2050
E-mail: cooltech@isppr.net

May Day Marine

Location: San Juan, Puerto Rico
Territory: Puerto Rico, Dominican Republic
Phone: 787-637-0756
Fax: 787-790-2551

Sun Cool Air Conditioning Corp

Location: Carolina, Puerto Rico
Phone: 787-791-6971
Fax: 787-791-3885
E-mail: suncool1@coqui.net

Technical House (E.T.S. Inc.)

Location: San Juan, Puerto Rico
Territory: Sentry Battery Chargers Only
Phone: 787-781-1313
Fax: 787-781-2020
E-mail: jdonato@technicalhouse.com
Web: www.technicalhouse.com

Qatar

Al-Badi Trading Co.

Location: Doha, Qatar
Phone: 9744320715
Fax: 9744442888

Mantech

Location: Dubai, United Arab Emirates
Phone: 971 4 333 25 42
Fax: 971 4 333 06 49
E-mail: mge@emirates.net.ae

Russia

Standarte

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Fax: 7 095 575 39 77
E-mail: info@standarte.ru
Web: www.standarte.ru

Saudi Arabia

Mantech

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Fax: 971 4 333 06 49
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Samaco Marine Division

Location: Jeddah, Saudi Arabia
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Fax: 966-2-6991024

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Refnor A.S.

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E-mail: refnor.as@c2i.net

Singapore

Tripower Corporation Pte Ltd

Location: , Singapore
Phone: (65) 6861 1188
Fax: (65) 6861 4263
E-mail: mgt@tripower.com.sg
Web: www.tritex.com.sg

Slovenia

Dometic Marine - Italy, Sales Company

Location: Milano, Italy
Phone: 39 0362 44182
Fax: 39 0362 452226
E-mail: marine.info@dometic.it

Nautica Centis di Nespolo Cinzia & C. Sne

Location: Bevazzana de Latisana (UD), Italy
Territory: Northeast Italy, Austria, Croatia, Slovenia
Phone: 390-431-53-644
Fax: 390-431-53-460
E-mail: nautica.centis@nauticacentis.it
Web: www.nauticacentis.it

South Africa

Southern Power Products

Location: Cape Town, South Africa
Phone: 27-21-511-0653
Fax: 27-21-510-3049
E-mail: sales@southernpower.co.za

Spain

Acastimar

Location: Tarragona, Spain
Phone: 349-77-362118
Fax: 349-77-362687
E-mail: acastimar@acastimar.com

Sri Lanka

G&M Enterprises

Location: Borella-Colombo 8, Sri Lanka
Phone: 94-11-2691966
Fax: 94-11-2691751
E-mail: gandm@sltnet.lk

Sweden

Dometic Marine - Nordic Sales, Sales Company

Location: Halmstad, Sweden
Phone: +46 35 16 57 00
Fax: +46 35 16 57 10
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Web: www.dometic.com

Switzerland

Marine Parts Heimgartner

Location: Volketswil, Switzerland
Phone: 41-1-997 40 90
Fax: 41-1-997 40 94
E-mail: info@marineparts.ch
Web: www.marineparts.ch

Taiwan

Ing Hai Company, Ltd.

Location: Taipei, Taiwan
Phone: 886-2-2531-2088
Fax: 886-2-2523-6531
E-mail: inghai@tpts6.seed.net.tw

Ing Hai Company, Ltd.

Location: Kaohsiung, Taiwan
Phone: 886-7-802-1809
Fax: 886-7-802-1809

Thailand

Thai Kolon Co. Ltd.

Location: Bangkok, Thailand
Phone: 66-2-745-6468-77 (10 lines)
Fax: 66-2-745-6152
E-mail: thaikolon@thaikolon.com

Trinidad & Tobago

Nau-T-Kol Marine Refrigeration

Location: Chaguaramas, Trinidad
Phone: 868-634-2174
Fax: 868-634-2174
E-mail: nautkol@cablenett.net
Web: www.nautkol.com

Turkey

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Fax: 44 870 3306102
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Web: www.dometic.com

Egemar Mühendislik Ltd

Location: Istanbul, Turkey
Phone: 90 216 494 2168
Fax: 90 216 494 22 18
E-mail: sales@egemar.com.tr
Web: www.egemar.com.tr

U.S. Virgin Islands

Coral Bay Marine Service

Location: St. John, U.S. Virgin Islands
Phone: 340-776-6859
Fax: 340-776-6859

Dr. Ice

Location: St. Thomas, US Virgin Islands
Territory: St. Thomas
Phone: 340-513-9072
Fax: 340-775-6576
E-mail: davidgott@hotmail.com;

Reefco

Location: St. Thomas, U.S. Virgin Islands
Phone: 340-776-0038
Fax: 340-776-0038
E-mail: dennyedy@viaccess.net

St. Croix Marine Corp.

Location: St. Croix, U.S. Virgin Islands
Phone: 340-773-0289
Fax: 340-778-8974
E-mail: stcroixmarine@hotmail.com

Ukraine

Standarte

Location: Starbeevo, Moscow region, Russia
Phone: 7 095 575 67 23
Fax: 7 095 575 39 77
E-mail: info@standarte.ru
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Web: www.trimer.com.ar

Venezuela

Rich Marine Center, C.A.

Location: Puerto La Cruz,, Estado Anzoategui, Venezuela
Phone: 58 281 2811630
Fax: 58 281 2811630
E-mail: richmarine@telcel.net.ve
Web: www.tuyate.net

West Indies

Aboard Refrigeration

Location: English Harbour, Antigua
Phone: 268-460-1690
Fax: 419-858-0544
E-mail: aboardrf@candw.ag

Regis Electronics (St Lucia) LTD.

Location: St. Lucia, West Indies
Phone: 758-452-0205
Fax: 758-452-0206
E-mail: stlucia@regiselectronics.com

Zambia

Southern Power Products

Location: Cape Town, South Africa
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Fax: 27-21-510-3049
E-mail: sales@southernpower.co.za

Zimbabwe

Southern Power Products

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