



## *E-Z Kold Marine Refrigeration*

### INSTALLERS INSTRUCTIONS FOR ALL SERIES EK 12 ICE BOX CONVERSIONS KITS

PLEASE READ CAREFULLY BEFORE COMMENCING INSTALLATION

Your kit includes the following items:

1. Condensing Unit
2. Cold Holding Plate
3. Thermostat (Optional Digital)
4. Wire Ties
5. Stainless Steel Screws
6. Asgum (putty)
7. Water Pump (water cooled only)
8. Toggle Switch (mounted on condensing unit, water cooled only)

Tools Required (Installer Supplied)

Electric Drill  
1 1/2" Hole Saw  
Assorted Drill Bits  
Assorted Screwdrivers

Miscellaneous Items Required (Installer Supplied)

#10 Tinned Marine Cable (battery hookup)  
#14 Tinned Marine Cable (water pump hookup)  
Stainless Steel Bolts or Screws for Mounting Condensing Unit  
Required Length of 3/8" ID Braided Hose for Water Pump Hookup  
Enough Stainless Steel Hose Clamps for Double Clamping All Water Lines  
Par or Equivalent Water Filter  
Electrical Tape

IF ANYTHING IS MISSING FROM THE ABOVE LIST CONTACT E-Z KOLD MFG

## **PLANNING THE INSTALLATION**

Please note that these instructions are for the standard-design cold plate, yours may be modified at your request and if you are unsure of how any of these instructions apply to your installation, please contact us before proceeding. Decide where each component is to be located before commencing work.

The condensing unit must be mounted in a horizontal position to work properly. Be sure to choose a well-ventilated location for the unit so the fan will do an efficient job when the water pump is turned off. The engine room is acceptable but the pump should be running when engine is running.

Your E-Z KOLD is supplied with 12 feet of connecting tubing between the condensing unit and the cold plate. These tubes are made of copper and should not be run where salt water can get at them. (e.g. the bilge.)

When mounting your cold plate consider the fact that all of our systems are designed for a spill over setup, which means that your ice box should be divided into two parts: up to 1/3 for the freezer and the balance for refrigerator. To do this we recommend using a piece of 1" Styrofoam or equivalent insulation and have divider going all the way to the bottom of your box and then leave 3" open at the top of spillover. Seal the divider in so that the cold can not get around it. The idea is that the cold stays in the freezer and just spills over the top. When you're done if you have a drain plug it with a cork so the cold doesn't escape through it. **IF YOU DO NOT USE THE SPILLOVER METHOD YOU WILL NOTICE A GREAT INCREASE IN POWER CONSUMPTION.**

**NOTE:** A properly insulated icebox (at least 3") will greatly improve the performance of your E-Z KOLD system.

## **CONDENSING UNIT INSTALLATION**

**DO NOT** remove the blue protective caps from fitting ends until you are ready to snap them together as specified.

The condensing unit of your E-Z KOLD consists of a compressor, a condensing coil with fan and/or a water coil or heat exchanger and an electronic module.

Remember: If your system is the air/water type it can be run in air cooled mode only or air/water cooled mode and you must supply sufficient air flow to the condensing unit when water is not on. If the unit is installed in a confined location, ventilation must be provided for. An opening of at least 50 sq. in. (5"x10") is recommended. If the unit is installed in a location where things are going to be tossed around we recommend you build a shelf over the top to protect the tubing, etc. from getting damaged.

Secure the condensing unit rails to a convenient horizontal mount. As every installation is different, no mounting screws are provided for this purpose.

## **COLD PLATE INSTALLATION**

### **THIS PORTION OF THE INSTALLATION REQUIRES TWO PEOPLE**

Drill a 1 1/2" diameter hole through the side of your ice box adjacent to where the tubes exit from the cold plate, allowing a loose bend (at least 2 1/2" from the edge of the plate).

Carefully unroll the tubing from the cold plate and with another person assisting you feed the tubing through the hole, routing it to the condensing unit. **CAUTION:** Do not bend the tubing too sharply, or it will kink and/or break. If it is necessary to bend the tubing in the opposite direction to its natural bend, hold the tube at the cold plate while carefully bending the tubing with the other hand.

If there is excess tubing, roll it into a loop of no smaller than 18" in diameter and mount this roll in a horizontal plane above the condensing unit. Do this before connecting the quick connect/disconnect couplers.

Mark the mounting screw locations and pre-drill the holes before securing the cold plate to the ice box wall, using the four stainless screws provided.

## **THERMOSTAT INSTALLATION**

The thermostat should be mounted where it can be easily read and accessed when setting the dial. It does not matter whether it is inside or outside the ice box provided that at least 12" of the capillary tubing is exposed inside the freezing compartment and the end of the capillary tube is inserted as far as it will go into the hole on top of the plate.

Physically mount the thermostat using the four remaining stainless steel screws. If the unit is being mounted outside the ice box, carefully unroll the capillary tubing and feed it through the same hole as the cold plate tubing. Insert the end of the capillary tube into the top of the cold plate.

Attach the electrical line from the thermostat to the pink disconnects on the electronic module.

## **THERMOSTAT INSTALLATION (OPTION DIGITAL)**

The optional digital thermostat is designed for panel mounting or it can be mounted with the supplied Velcro fastening provided. The thermostat comes factory set for the suitable freezer temperature and differential set; if you are not satisfied with these settings contact us and ask for the specifications for setting. The sensor does not go in the hole of the cold plate, as does the manual one. Mount the sensor on the side of the cold plate using a tie wrap on one of the mounting brackets.

## **WATER COOLING INSTALLATION**

Connect the strainer inlet to the through-hull or “T” fitting.

Connect the strainer outlet to the pumps’ intake fitting.

Connect the pump outlet to the heat exchangers inlet fitting, which is the top-most (on the right hand side) fitting.

The discharge water from the condensing unit (from the lower left-hand side) of heat exchanger should discharge from the boat above the waterline.

Make sure all water fittings are tight to prevent leakage and/or airlocks.

Wire the pump to the blue butt connectors on the electronic module. The red wire is positive and should be consistent through out the installation. The black wire from the electronic module is negative and should be connected to the black wire from the pump.

## **CONNECTING THE REFRIGERANT LINES**

Remove the blue plastic protective covers from the ends on the condensing unit and from the cold plate tubing ends. The quick connect/disconnect fittings are the push type not the screw together type used on most other systems. Grasp the female fitting on the condenser unit where it is crimped to the tubing with one hand and the male fitting with the other hand. With firm pressure, push the male fitting into the female. Repeat with the remaining fittings. Some force may be required as the refrigerant is pressurized in the tubes. A click must be heard when the fittings are correctly attached. If you don’t hear a distinctive click, pull the fittings apart and attach them again.

## **CONNECT TO THE BATTERY**

Before connecting the battery, make certain that the thermostat is in the OFF position by turning the dial counter-clockwise until it clicks. Colour coded wires should be connected to the battery or circuit breaker. If using a circuit breaker be sure it is rated for 15 amps as the initial start up current can reach over 10 amps. To avoid a line loss use #10 marine-grade or better wire for hooking up the main supply to unit. Marine deep cycle batteries are strongly recommended as they stand the constant charging and discharging a boater requires. Always be sure to have a dedicated battery for starting the engine in case of battery discharging.

## **TIDYING UP**

Clamp or tie with supplied wire ties the thermostat wire and refrigerant lines in a manner that keeps them out of bilge water and to protect them from damage or entanglement. When tubing and wiring processes are complete fill the hole in the side of the icebox with the asgum putty.

## **OPERATION**

The water pump included in the air/water-cooled systems is self-priming, but it may be necessary to prime the pump initially or after winter storage. To do this, remove the hose from the condensing unit. If it still does not prime itself you may have to draw on it.

## **STARTING YOUR E-Z KOLD SYSTEM**

The higher the number on the thermostat is set the colder the icebox will be. Start with the dial set to the top or #7 and let the unit run overnight at this setting. Then bring dial back down to its middle position or until the unit just shuts off; when the unit shuts off leave dial at that position and monitor your run times and temperatures. Depending on the amount of insulation, the volume of the items in the icebox and your usage of the box you may find a higher or lower setting on the thermostat to better suit your needs.

When the plate is completely covered with frost the unit can be manually switched off and then on again when some or all the frost disappears. This feature allows you to space your freezing cycle 24 or 36 hours apart, should you wish to do so. The unit will continue to freeze water into ice cubes even with little or no frost remaining on the cold plate.

## **WINTERIZING YOUR E-Z KOLD**

When preparing your boat for winter, be sure to protect its water cooling system as you would your auxiliary engine. Drain the water from the water cooling system, pull line off of your through hull fitting and turn pump on long enough to suck an anti freeze solution into the system until you see it coming out discharge fitting then shut down pump and replace line.

## **SETTING UP DIGITAL THERMOSTAT**

Thermostat Sensor should be attached to side of cold plate approximately ½ way up.

Use a piece of the supplied putty to attach.

To set the thermostat, go through the following:

1. Hold the centre button until you see what looks like an upside down F.
2. Release button and the temperature shown is the temperature at which your unit will shut off.
3. Should be Factory set for -12 Celsius.
4. So this means when cold plate temperature reaches -12 it will shut the system down.

5. Next hold top and bottom button together and after 20 seconds or so you will see the letters DIF come up on the display. This is the differential setting which is the difference between the cut out and the cut in, it will be factory set to 4, which means the unit will shut off at -12 and come back on at -8.
6. When cut out is set, hit the centre set button and you will see either HOT or COLD show up on the display. If it says HOT, hit the bottom button until it goes to COLD. Then hit the set button again. If it says COLD, just hit the set button.

The Thermostat is now set and ready to go. If you ever want to change the settings just use this guide.

### **ENJOY YOUR E-Z KOLD**

The last step is the easiest of all. Now that your system is installed and running you have nothing left to do but sit back and enjoy it.

**HAPPY CRUISING FROM YOUR FRIENDS AT E-Z KOLD!**

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