

THE ENERGY CONSERVATION UNIT (E.C.U.)

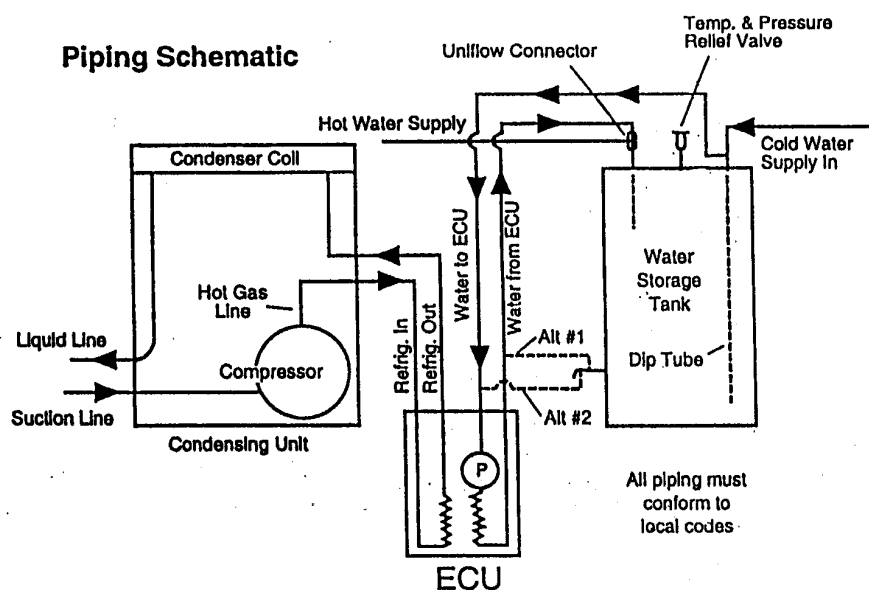
Heat Recovery Unit

Installation instructions

Models HR06

Special equipment suggested: In addition to the normal tools used by air conditioning technicians, the following should be available. A precision thermometer - thermocouple type, a vacuum pump, and a refrigerant recovery unit.

Caution: Check each installation in advance. Make sure the air conditioning system is operating within the manufacturer's specifications. Do not proceed until equipment is operating correctly.



Nominal Cooling Capacity Btu/Hr	Refrigerant Lines Maximum Length (FT) One Way Compressor to ECU				
	3/8 O.D.	1/2 O.D.	5/8 O.D.	3/4 O.D.	7/8 O.D.
18,000	6	20	40	-	-
24,000	-	10	30	-	-
30,000	-	7	25	-	-
36,000	-	5	15	50	-
42,000	-	-	12	40	-
48,000	-	-	10	30	-
54,000	-	-	-	25	40
60,000	-	-	-	20	30

Note: If high pressure switch and/or external mufflers are present in the discharge line, they should remain in line between compressor and ECU.

Note: The "Uniflow Connector" is actually an Installation Fitting such as the IK-5.

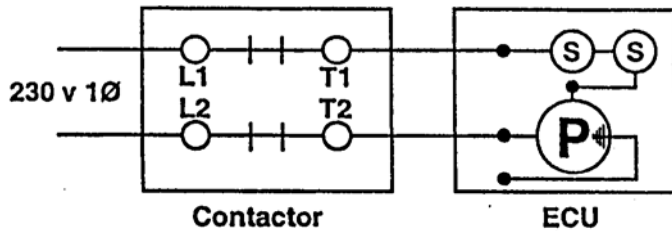
1. Turn off power to water heater (if gas, turn off gas valve), and air conditioning equipment.
2. Turn off water supply to water heater.
3. Drain tank if necessary with hot water faucet open.
4. Locate ECU as close to condensing unit as possible.
5. Mount unit. Unit should be vertically **wall mounted** with tubes down and be **above the height of the compressor**. Never with tubes upward or horizontally pad mounted.
6. Recover refrigerant charge. Cut hot gas line as close as practical to compressor (before the four way valve on heat pumps). Cut openings in condensing unit for hot gas lines. Attach "Gas In" line to compressor discharge line. Attach "Gas Out" line to other side of cut leading to condenser coil. This unit is designed for heat pump or straight cool application.
Note: Hot gas lines and water lines must be insulated with armaflex, rubatex, or similar material. Do not combine any lines within the same insulation sleeve or in a chase that may become filled with water.
7. When refrigerant connections are complete, pressurize system and leak check. Replace or install standard filter dryer in liquid line (optional but recommended). Openings in condensing unit must be large enough to pull armaflex through, or high temperature grommets installed to prevent contact and abrasion of copper lines.
8. Evacuate system to remove air and moisture. Recharge to manufacturer's specifications. **Water Circulating Pump Must Be Shut Off Before Charging Begins.**
9. Connect tubing to "Water In" line of unit. Extend this line to the cold water supply line at the water tank as close to the tank as possible. Attach cold water supply with a tee soldered into the line, or a saddle valve of not less than 5/16" opening. **Note:** Less than 50' one way use 1/2" O.D., 50'-90' one way use 5/8" O.D. water lines.

10. Connect tubing to "Water Out" line of ECU. Extend this line to installation fitting in hot water outlet at the tank. As an alternate connection, **on new water heater tanks only**, remove drain fitting and install 3/4" nipple and tee. Reinstall drain valve in straight run of tee (a brass hose bib is recommended). Connect 'water out' line to the other tee opening. An IK-5 Installation Fitting may be installed in place of the drain valve as shown on the IK-5 instructions with both water in and water out lines on new water heater tanks.
11. Set thermostats as shown.

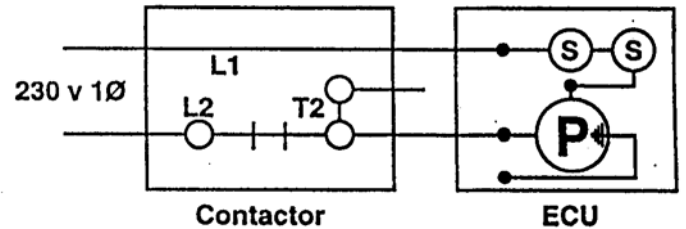
Thermostat wiring for HR06

Electric, double element - upper element 125°
lower element minimum

Gas, oil or single element - 125°



A. With External Crankcase Heat



B. With Internal Crankcase Heat

Two Pole Compressor Contactor Breaks Both Incoming Legs. One Incoming Leg, Other Feeds Straight Through.

12. Wiring: The wiring must meet all local and national codes using the electric schematic above as a guide. Between the ECU and 230v power disconnect run two (2) #14 wires with ground, in liquid tight cable.
13. The piping and wiring are now complete. Turn on water to heater. With a hot water faucet open, allow tank to fill. When filled, bleed all air from water circuit. Loosen plug at center of pump (optional) to bleed air and verify water to bearings. Start the air conditioning unit and allow to run.

Check List:

- Pump runs only when compressor runs long enough to close hot gas switch.
- Verify all air is purged from the water lines.
- Verify water circulation to tank. Carefully check temperature of 'Water Out' line approximately 1-1/2 to 2 feet away from ECU. Check the "Water Out" line at the water heater. It should be the same relative temperature at the water heater as it is at the ECU unit. If line is not hot, repeat step 13.
- Restore power to the water heater.

Warning: This unit may not contain freeze protection. Install ECU so entire system can be isolated and water drained from system.



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Rev. 09/04

THE ECU UNIT

Operating and Service Instructions

Model HR06

Operations Check:

1. To determine if the ECU is functioning, allow the air conditioning system to operate some ten minutes or more, Then go to the water tank location, and identify the line entering the water tank from the ECU unit. Grasp this line with the bare hand, as far away from the tank as possible. In normal installations, this line will be warmer than the line going to the ECU. If it is not, read the service notes below, and if the problem is not solved, call your dealer.
2. To determine if the ECU is producing hot water, pick one week of warm summer weather, and put the water heater breaker on "off." In an average residential installation there should be ample water for all concerned. Water tank capacity, and use patterns must be considered. The ECU produces hot water during air conditioning operating time only; high use at night could exhaust the tank and minimum A/C run time at night would not replenish the tank even though the ECU was producing normally.

Service Notes:

1. No circulation in the ECU water lines:
 - a. Pump Failure. Open ECU cabinet and visually verify ECU pump operation while air conditioning system is operating.
 - b. Air Lock. Any time the residential water system is serviced, or any time the supply mains are serviced, air may enter the ECU water circuit, and an air pocket in the system will disable it completely, though without damage. Manually open the temperature and pressure relief valve at the water tank, and try to bleed the air from the system. If the output from the relief valve contains air, continue the bleed operation until a solid flow of water is observed.
 - c. If this measure does not solve the problem, check for mechanical damage to the lines.
 - d. If this check does not provide a solution, call your dealer, and ask for a serviceman to give the installation a complete technical check.
2. If the ECU is circulating, but the production is below normal, there are two possibilities.
 - a. If the unit is three or more years old, mineral buildup may occur in the heat exchanger in some areas of hard water or well water. If this problem is suspected, call your serviceman, and he will flush the heat exchanger with an approved solvent that will dissolve the deposits and restore the heat exchanger to the same performance as when new
 - b. If the heat exchanger is clear, the most probable cause of low ECU performance is a malfunction in the air conditioning system itself. Any condition lowering the net load and decreasing the superheat will reduce ECU performance. Typical of these are dirt clogged evaporators, clogged filters, slipping belts on the blower and many others. This type of problem may only be solved by a competent air conditioning technician.
3. Freeze Protection:
 - a. Model numbers with "F" (Freeze) designation protect the heat recovery system during freeze conditions. It also allows ECU units to operate either from a power disconnect or the line side of the A/C contactor and must be checked by a certified A/C technician only.

WARNING:

This important notice must be given to the homeowner if this heat recovery system is installed outside. The potential for water lines freezing and rupturing exists. Even though the ECU may be equipped with freeze protection devices, they will be useless if electric power is off. Isolate the outside water lines and drain the water from the system. Disconnect the power to the pump.

DO NOT RUN THE PUMP WITHOUT WATER!



LIMITED WARRANTY

All ECU products are warranted against defects in workmanship and materials for 12 months from date of installation. In the absence of suitable proof of date of installation (Bill of Sale), the specified warranty period will commence 30 days after the date of manufacture. This constitutes the only warranty in connection with this sale, and is in lieu of all other warranties, expressed or implied, written, or oral. **THERE ARE NO IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE THAT APPLY TO THIS SALE.** The circulator pump cartridge has a three-year limited warranty. The Trevor-Martin Corporation heat exchanger has a five-year limited warranty.

No employee, agent, dealer or other person is authorized to give any warranties on behalf of Trevor-Martin Corporation, nor to assume for Trevor-Martin Corporation any other liability in connection with any of their products, except as authorized by an officer of Trevor-Martin Corporation, in a signed written document. Units not protected against freezing are not warranted.

LIMITATION OF REMEDY

Trevor-Martin Corporation will replace or repair, at Trevor-Martin Corporations option, F.O.B. Factory, freight prepaid, any ECU product, defective in workmanship or material if such product is returned to our plant, freight prepaid, within 12 months of date of installation. It is agreed that such replacement or repair is the exclusive remedy available from Trevor-Martin Corporation, should any of our products prove to be defective. Trevor-Martin Corporation is not liable for damage of any sort whatsoever, including incidental and consequential damages. Product returns, under the terms of this warranty, must be approved by Trevor-Martin Corporation. Products or parts thereof replaced or repaired under the conditions of this warranty will be returned, transportation charges prepaid within the United States by best and most economical means.