



# COOK ERV Evaporator Coil Supplement

## ENERGY RECOVERY VENTILATOR INSTALLATION, OPERATION, AND MAINTENANCE MANUAL

This publication contains supplemental installation, operation and maintenance instructions for an ERV-with optional evaporator coil.

Carefully read this publication and the installation, operation, and maintenance instruction for standard units of the ERV- Energy Recovery Ventilators publication prior to any installation or maintenance procedure.

Loren Cook catalog, *ERV*, provides additional information describing the equipment, fan performance, available accessories, and specification data.

For additional safety information, refer to AMCA Publication 410-96, *Safety Practices for Users and Installers of Industrial and Commercial Fans*.

All of the publications listed above can be obtained from Loren Cook Company by phoning (417)869-6474, extension 166; by FAX at (417)832-9431; or by e-mail at [info@lorencook.com](mailto:info@lorencook.com).

For information on special equipment, contact Loren Cook Company Customer Service Department at (417)869-6474.

### Mounting

1. Position the coil such that the suction header is at the entering air-side of the coil and the distributor tubes are at the leaving air-side of the coil. This orientation provides counterflow heat exchange which is required for proper coil performance.

2. The suction connection is located at the bottom of the coil when properly installed.

3. See Figure 1 - Evaporator Coils.

### Coil Types

1. Model EN coils are used for applications where capacity control is not required. Single or multiple dis-

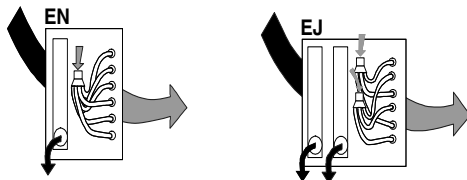


Figure 1 - Evaporator Coils

tributors are available depending on the number of circuits required. Model EN evaporators utilize dual suction connections when multiple distributors are used.

2. EJ coils come with interlaced circuiting. This form of capacity control utilizes two distributors with each feeding every other tube in the first row of the coil. Each distributor has a separate suction connection.

### Installation

1. Inspect the refrigerant distributor and verify that the nozzle is in place. The nozzle is generally held in place by a retaining ring or it is an integral part of the distributor itself (see Figure 2 - Distributor). If a hot gas bypass kit was ordered with the coil, the nozzle

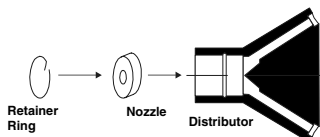


Figure 2 - Distributor

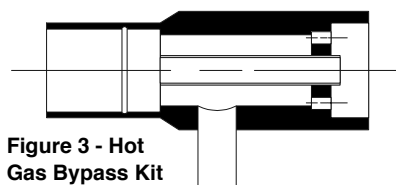


Figure 3 - Hot Gas Bypass Kit

will be located in it rather than the distributor (see Figure 3 - Hot Gas Bypass Kit).

2. All field brazing and welding should be performed using high quality materials and an inert gas purge (such as nitrogen) to reduce oxidation of the internal surface of the coil.

3. If a hot gas bypass kit was ordered with the coil install it now. Complete installation instructions are in the box that contains the hot gas bypass kit. Align the side port with the hot gas line prior to brazing into place.

4. Connect the suction line and suction connection.

5. Install the expansion valve. Follow the expansion valve manufacturer's recommendations for installation to avoid damaging the valve. If the valve is externally equalized, use a tubing cutter to cut off the plugged end of the factory installed equalizer line. Next, use a de-burring tool to remove any loose metal from the equalizer line and attach it to the expansion valve. If the valve is internally equalized, the factory installed equalizer line can be left as is or it can be cut back and sealed.

6. The expansion valve's remote sensing bulb should be securely strapped to the horizontal run of the suction line at the 3 or 9 o'clock position and insulated.

7. Connect the liquid line to the expansion valve. Pressurize the coil, expansion valve assembly and suction connection to 100 psig with dry nitrogen or other suitable gas. The coil should be left pressurized for a minimum of 10 minutes.

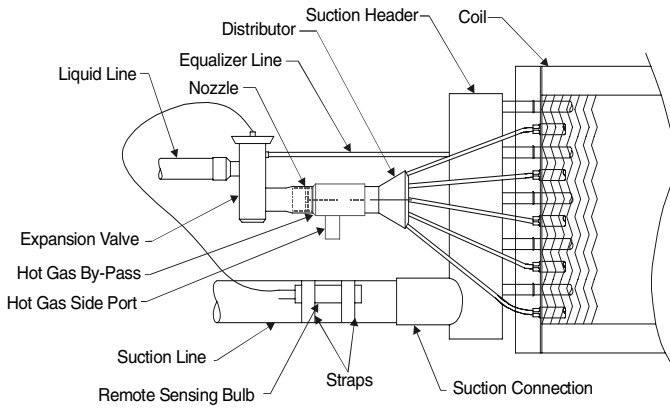
8. If the coil holds pressure, the hook-up can be considered leak free. If the pressure drops by 5 psi or less, repressurize the coil and wait another 10 minutes. If the pressure drops again, there are more than likely one or more small leaks, which should be located and repaired. Pressure losses greater than 5 psi would indicate a larger leak, which should be isolated and repaired. Be sure to check valves and fittings as potential sites for leakage or bleed. If the coil is found to be leaking, contact your local representative. Unauthorized repair of the coil may void the coil's warranty (see warranty policy on back cover).

9. Use a vacuum pump to evacuate the coil and any interconnecting piping that has been open to atmosphere. Measure the vacuum in the piping using a micron gauge located as far from the pump as possible (the vacuum at the pump will be greater than the rest of the system). Evacuate the coil to 500 microns or less then close the valve between the pump and the system. If the vacuum holds to 500 microns or less for one minute, the system is ready to be charged or refrigerant pumped down in another portion of the system can be opened to the coil. A steady rise in microns would indicate that moisture is still present and that the coil should be further vacuumed until the moisture has been removed.

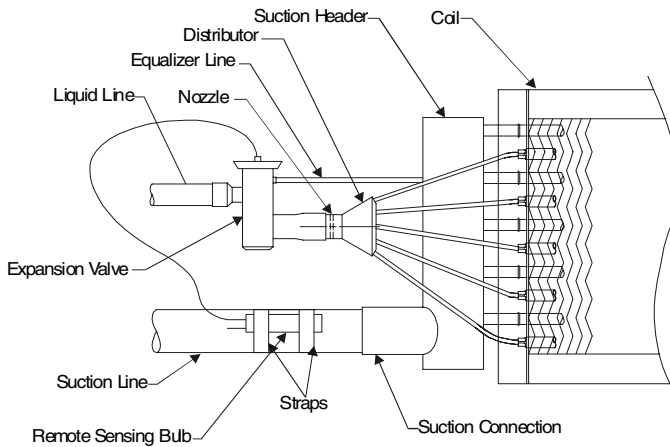
10. Failure to obtain a high vacuum is indicative of a great deal of moisture or a small leak. Break the vacuum with a charge of dry nitrogen or other suitable gas and recheck for leaks (soapy water works well). If no leaks are found, continue vacuuming the coil until the desired vacuum is reached.

11. All field piping must be self-supporting.

12. Refer to Figure 4 - Hot Gas Bypass Kit Installed and Figure 5 - General Diagram, for general piping.



**Figure 4 - Hot Gas Bypass Kit Installed**



**Figure 5 - General Diagram**

## Operation

1. Proper air distribution is vital to coil performance. Air flow anywhere on the coil face should not vary by more than 20%.
2. Air velocities should be maintained between 200 and 550 feet per minute.
3. The drain pan should be designed and installed such that there is no standing water.

## Maintenance

1. Filters should be inspected on a regular basis and changed as needed. Maintaining clean filters is a cost-effective way to help maintain maximum coil performance and service life.
2. Periodic inspection of the coil for signs of corrosion and for leaks is recommended. Small leaks can be detected using a Halide torch. Repair and replacement of the coil and the connecting piping, valves, etc., should be performed as needed by a qualified individual(s).
3. Should the coil surface need cleaning, caution should be exercised in selecting the cleaning solution as well as the cleaning equipment. Improper selection can result in damage to the coil and/or health hazards. Clean the coil from the leaving air-side so that foreign material will be washed out of the coil rather than pushed further in. Be sure to carefully read and follow the manufacturer's recommendations before using any cleaning fluid.
4. The use of filter-dryers in the system piping is recommended along with a sight glass that has a moisture indicator. Replace the filter dryer(s) as needed.

**Note:** Refrigerant conversions are beyond the scope of this manual and should only be performed by qualified parties.

# LOREN COOK COMPANY

Corporate Offices: 2015 E. Dale Street Springfield, MO 65803 417.869.6474  
lorencook.com