



HOSHIZAKI CARE TECH-TIPS

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CONDENSER LINE SET INSTALLATION

by Kirk Goss

As a Technical Advisor for Hoshizaki I receive many questions regarding our specifications on line set installations. The most popular of those questions concerns the proper size and maximum length allowed for lines without altering the original charge.

The factory charge provided in the unit is sufficient for lengths up to 66 feet. If your line set length does not exceed 66 feet, no additional refrigerant is needed. If your line set does exceed 66 feet there are definitely some changes to be made.

On units using a 1/4 in. liquid line and a 3/8 in. discharge line the line sizes must be increased. The entire line run must be increased to a 3/8 in. liquid line and 1/2 in. discharge line. After increasing the line sizes add an additional 21 oz. of the proper refrigerant. Also, on **any line set** over 66 feet add a 1/2 oz. of refrigerant for each additional foot.

Other specifications to be met are as follows. The maximum line drop when the condenser is installed below the unit head is 10 feet. The maximum vertical line run when the condenser is mounted above the unit head is 33 feet. The maximum overall lineset length is 100 feet. These measurements are from fitting to fitting. Exceeding these maximum limitations will affect the warranty coverage.

Hoshizaki offers pre-charged line sets in lengths of 20, 35, and 55 feet. These line sets are insulated with

Armaflex insulation and hold a 15~30 psig. vapor charge. It is important to remember that these pre-charged linesets contain only a vapor charge. The

factory charge is split between the remote condenser and unit head. We also offer an OS-QUICK kit including fittings for hard piped installations. If a pre-charged lineset is too long, it is recommended that any excess line be removed. This helps to prevent crimped tubing and possible oil traps from occurring.

Another question frequently asked is can I install Hoshizaki equipment on non-OEM condensers. The answer is yes, with proper approval. The condenser must be sized properly for the application. In this situation a condenser approval form is required from the Technical Assistance Department in Hoshizaki Care. This allows us to verify proper condenser volume and BTU\H ratings. We will also provide installation information on the correct head master and any adjustments to the refrigerant charge that are needed. Failure to obtain a condenser approval will affect warranty coverage. For more information on remote installations and non-OEM condenser applications see Tech-Tips Volumes 111 & 112.

REPLACEMENT TIMER BOARD FOR FLAKER/DCM

The operational sequence of the auger type ice maker is accomplished by the use of a sequence timer board. This includes both Flaker and DCM models. While the board does have an IC chip, it is not an electronic

processor like the one used on the KM control board. The timers built into the board chip act very similar to a multi switch mechanical timer. The main difference is a higher rate of dependability for an electronic board because there are no moving parts.

Over the years Hoshizaki has made a few changes in these timer boards which have resulted in several part number changes. We now have one universal replacement board for **all model flakers and the DCM-231~240 dispensers.**

The universal timer board number is part number 437305-02. This board comes with an application instruction sheet. This sheet explains what must be done to make the board fit your model number. If you have a part number 437305-02 in inventory, replace the old instruction sheet with a copy of the new one. You will find a copy of the updated instructions included in Service Bulletin SB96-0006.

Some models require the addition of jumpers, others do not. The addition of these jumpers per the instructions will allow the timer board to sequence differently. Follow the instructions and check the start up and shut down sequence to make sure the unit cycles properly.

The start up sequence will vary depending on the model. Some models start the gear motor within 4~6 seconds while others have a 60~90 second delay. "M" series units should shut down within 6 seconds of bin control operation. All other models should shut down on a timed sequence which allows for a 60~90 second delay, the compressor stops, and the gear motor continues for 60 seconds.

The DCM-450 and 700 models use a different timer board. This board is more complex because it includes additional timers for periodic agitation. One replacement board part number 2U0098-02 is used for both models.

F-2000MLE REMOTE LINE INSTALLATION

In the last issue, under "Coming Next Month", we listed a KM-2000MLE. I'm sure you caught the type-o.

Obviously we meant F-2000MLE which is our only low side flaker model.

For those of you who do not know what the low side flaker is, let me explain. It is an F-2000MRE without a compressor and receiver and with some additional refrigeration components. This unit is designed to install on a parallel rack system which is

typically found in supermarket applications.

A rack system already contains a compressor, receiver, and separate condenser. It is supplying refrigeration for several pieces of equipment in different areas of the store. The low side flaker is connected to the rack system by a liquid line and suction line. The liquid line feeds a solid column of liquid to the F-2000MLE. The heat laden refrigerant vapor is returned to the rack system through the suction line, to be compressed and condensed. This low side unit, using the rack refrigeration, makes ice the same as any other flaker.

The low side flaker has a solenoid on both the liquid and suction lines. These solenoids are connected to the compressor circuit so that they open when the timer calls for compressor operation. The solenoid valves act to isolate the rack system when the F-2000MLE is cycled off. It also has an evaporator pressure regulating (EPR) valve. This valve is factory installed in the unit and set to maintain a minimum evaporator temperature of -14° F.

A typical installation will include external manual shut off valves on each line for positive isolation during service. A properly sized refrigeration strainer should also be included externally on the liquid line to protect the F-2000MLE from trash and copper shavings which may be present in the rack system. While these items are not called for in the installation instructions, they are SOP when installing additional pieces of equipment to a rack system.

The refrigerant lines should be sized using standard pipe sizing charts. The F-2000MLE is designed and approved for R-22 applications. When sizing the refrigerant lines you can figure on a maximum load of 13000 BTU/H with AT 90° F / WT 70° F and an

average evaporator temperature of -10° F. While tests have been conducted with other alternative refrigerants, final approvals are pending. We will keep you advised on any low side flaker updates.

COMING NEXT MONTH...

1. KM-800/1200 Compressor Change
2. Adjust Dips For A Cleaner KM
3. Top 10 (Series) Volume 132 Page 2