

INSTALLATION, OPERATION & MAINTENANCE INSTRUCTIONS

FOR

**REFRIGERATION KOOL-AIR INC.
DIRECT DRIVE AIR COOLED CONDENSERS
AND HEAT RECOVERY UNITS**



JUNE 2004

WARNING: ELECTRICAL POWER MUST BE SWITCHED OFF / DISCONNECTED BEFORE STARTING ANY SERVICE WORK ON THE UNIT.

RECEIVING & INSPECTION

You have purchased one of the best units available in the market today. It has some very unique features. Congratulations and thank you for using Kool-Air Inc.

A thorough inspection of the condenser and all component parts should be made immediately on delivery and any damage in transit or any missing parts must be reported at once to the carrier. **As consignee, you must make any claim for damage or losses.**

Our shipment is thoroughly inspected before it is handed over to the transport driver.

HANDLING

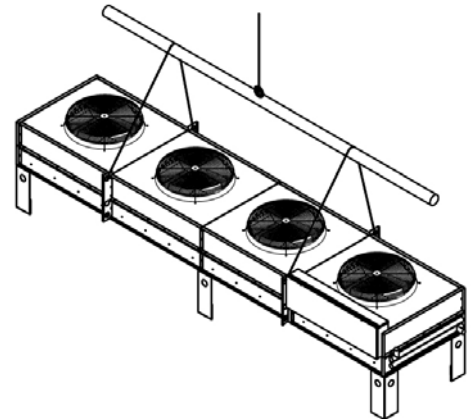
Please do not use a forklift truck to handle units. Use only chains with hooks and spread bars to lift units.

When a unit is shipped on its side, two or three hangers are installed. Use them to unload the unit from the truck. A lift truck can be used with the wood base in that position only to lower the unit on the ground.

Two other hangers, four, six or eight legs (depending on the size of the unit) and the required hardware are supplied attached to the cabinet.

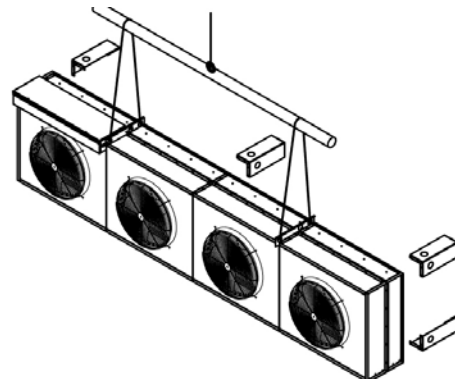
Lifting method 1:

- Install all the legs on the same side as hangers.
- Gently lower the unit on those legs.
- Install hangers on opposite side.
- Raise the other side and install other legs.
- Install chains and spread bars to raise the unit to its final position.



Lifting method 2:

- Gently lower the unit on a flat surface.
- Install hangers on opposite side.
- Install chains and spread bars to raise the unit.
- Lift the unit and install all the legs.
- Lift the unit to its final position.



LOCATION

Condensers are installed outside on the roof or on the ground. If the unit is installed on the ground it must be fenced to prevent possible damage. Heat recovery units are installed inside at the ceiling level.

Check loading capacity of the roof, the ceiling or the floor before installation.

In selecting a location for the condenser, consideration should be given to provide enough space for adequate air circulation and to avoid air recirculation. It should have convenient and safe accessibility for maintenance. It must also comply with local building codes.

If a unit is to be placed close to a wall, the minimum distance between the wall and the unit must be at least equal to the width of the unit. If two units are to be placed side by side, the minimum distance between the two units must be at least equal to the width of the wider unit.

Units are usually placed on a steel frame on the roof. They must be bolted down using all the holes provided on the supplied legs. The frame must be straight and level for proper operation of the unit.

WIRING

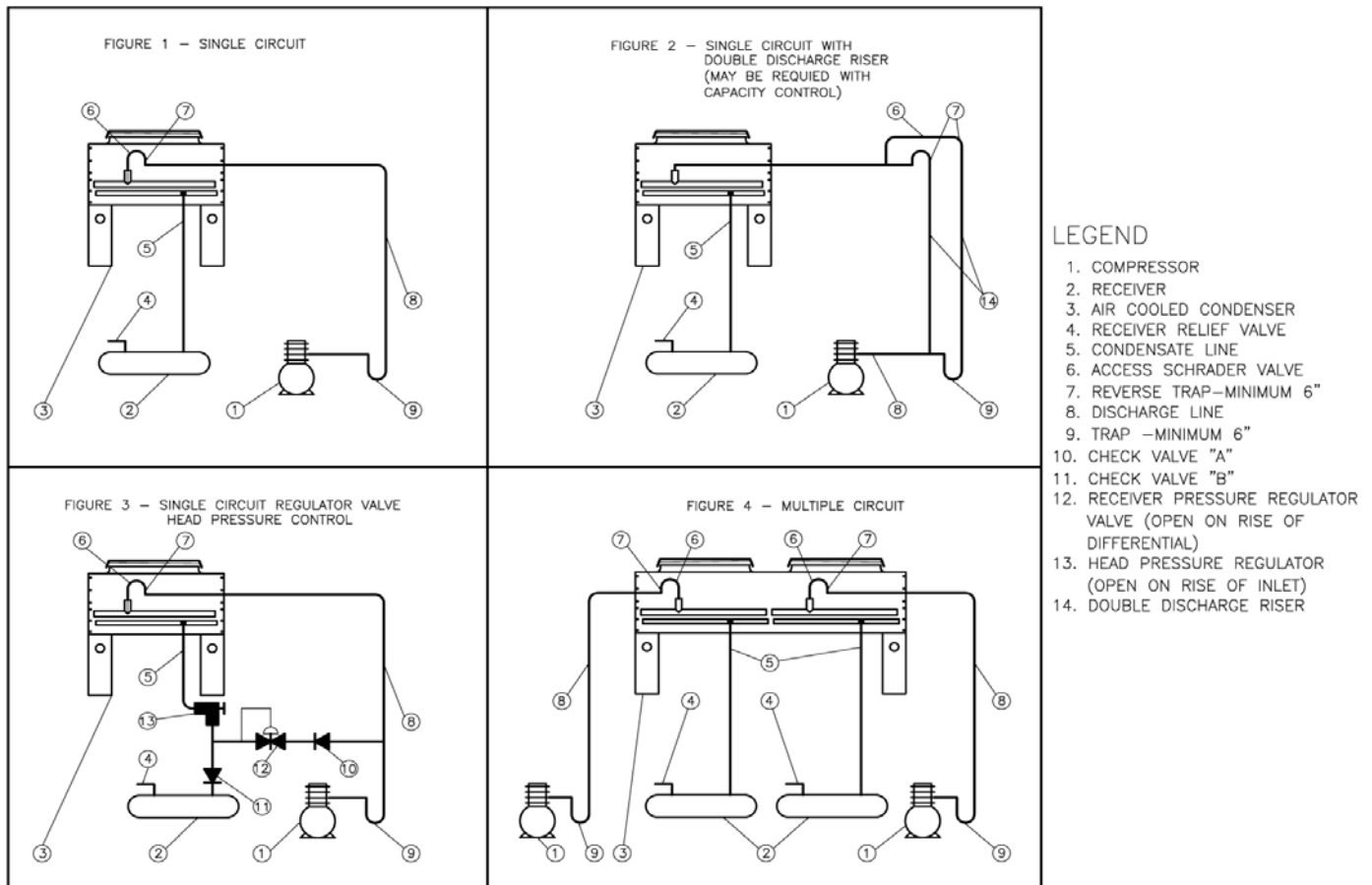
All wiring must be done in accordance with national and local Codes. Check the nameplate with the current characteristics to be used for wiring the unit. Internal wiring connections of the fan motors, optional controls and contactors have been completed at the factory.

All wiring connections terminate on a single terminal block in the control panel. The terminals are clearly labelled and correspond to the wiring diagram supplied. The unit must be grounded. Disconnect switch at the unit must be provided.

On air cooled condensers with flooding valve, one fan (single width unit) or one pair of fans (double width unit) must operate when a compressor is operating to avoid internal damage to the condenser coil.

REFRIGERATION PIPING

All refrigerant piping must be installed in accordance with applicable local and national codes and in accordance with A.S.H.R.A.E. recommendations for proper operation of the system. Here are some suggestions:



OPERATION

For a refrigeration system to function properly, the condensing pressure and temperature must be maintained within certain limits.

To prevent excessively low head pressure during winter operation, two basic control methods are used.

- (1) Refrigerant side control and
 - (2) Air side control
- (1) Refrigerant side control is accomplished by modulating the amount of active condensing surface available by flooding the coil with liquid refrigerant. This method requires a receiver and a larger charge of refrigerant.

- (2) Air side control is accomplished by cycling fans in response to condensing pressure (single circuit applications) or outdoor ambient temperature (single or multiple circuits). See wiring diagram.

To reduce stress on the condenser coil, one fan or one pair of fans must operate when a compressor is operating. Speed control on the constant operating fan may be used to reduce motor cycling and stabilize the operating pressure.

For low ambient operation this method must be combined with refrigerant side control.

Optional fan cycling controls (temperature or pressure) are located in the control box. Air temperature sensors are located in the air flow and pressure controls are directly connected to the circuit in a return bend.

FAN MOTORS

Please disconnect all power before servicing. The fan motors are permanently lubricated for service free operation. The motor may restart on automatic thermal overload protection. Motors are readily serviced by removing fan guards and fans. If a motor is inoperative or it cycles on thermal protection, check supply voltage at the motor leads. Fan motors may cycle on thermal protection if the coil is blocked.

CLEANING & MAINTENANCE

After one day of operation, check for any vibrations that might have developed in the unit. It is recommended that the unit be inspected periodically for dirt accumulation. Grease and dust should be removed from the fans and fan guards.

Periodical cleaning of the finned surface can be done by washing down dust with warm water spray and a mild detergent. **Do not use alkaline or acidic solution as it will attack the coil material.**

The inner face of the coil may be cleaned by the access panels on the side of the unit or by removing the fan guards.

HEAD OFFICE:

**REFRIGERATION KOOL-AIR INC.
100 Conrad Gosselin
Saint-Jean-sur-Richelieu, Quebec Canada
J2X 5L5
Tel: (450) 346-5007
Tollfree: 1-866-346-5007
Fax: (450) 346-7631**

ONTARIO SALES OFFICE:

**REFRIGERATION KOOL-AIR INC.
237 Valleymede Drive
Richmond Hill, Ontario Canada
L4B 2A3
Tel: (905) 771-8972
Fax: (905) 771-8908**

Due to Kool-Air policies to continuously improve the quality of its products, specifications are subject to change without notice.