



Pre-assembled Remote Refrigeration Installations

1. Receiving

Check shipment against specification sheet to see if any shortage exists. Inspect equipment for shipping damage. In the event of any shortage or damage, file claims with shipper at once.

2. Description of refrigeration equipment

A. Evaporator Coils

All evaporator coils are forced-air evaporator coils constructed with copper tubing and aluminum fins. Factory-installed components include fan motors and blades, filter drier, solenoid valve, and thermostatic expansion valve, liquid-to-suction heat exchanger, temperature control, fan guards, and a field wiring connection box. Electric defrost models also include electric defrost heaters embedded in fin slots on the rear face of the coil, as well as a heater clipped to the inside of the drain pan; fan delay/defrost controls and heater limit safety thermostats. Air flow of these evaporator coils is as follows: air enters over the exposed fin surface at the rear and is discharged off the fans at the front.

CAUTION: Under no circumstances may evaporator coils weighing more than 150 pounds or condensing units weighing more than 100 pounds be directly supported by Bally prefab ceiling panels. Equipment may neither be hung directly from the ceiling panels nor placed directly on top of ceiling panels.

3. Installing evaporator coils

To insure proper air return, maintain a minimum distance of 6 inches between the wall and the rear of the coil. Determine the method to be used to suspend the evaporator coil. Three approved methods are as follows:

Method A.

Evaporator coil weighing less than 150 pounds may be suspended directly from the ceiling panels using through-bolts and load-bearing plates. *See Figures 1 or 2.*

Method B.

Coil support channels supplied by Bally may be used. *See Figures 3, 4, or 5 for two different methods.*

Method C.

Coil may be suspended from building structure. *See Figure 6.* After the coil is hung, seal all penetrations of the insulated panels on the exterior to prevent vapor leaks.

4. Installing evaporator coil drain line

A 3/4" ODM fitting is provided on the drain pan to connect drain tubing. Swedging of the drain tubing or the use of a flexible coupling, are the two methods of installation. The recommended slope is 3" to the foot.

All drain lines inside a freezer must be either copper or aluminum tubing. These lines must also be heated and insulated to prevent freezing, regardless of their length.

METHOD A

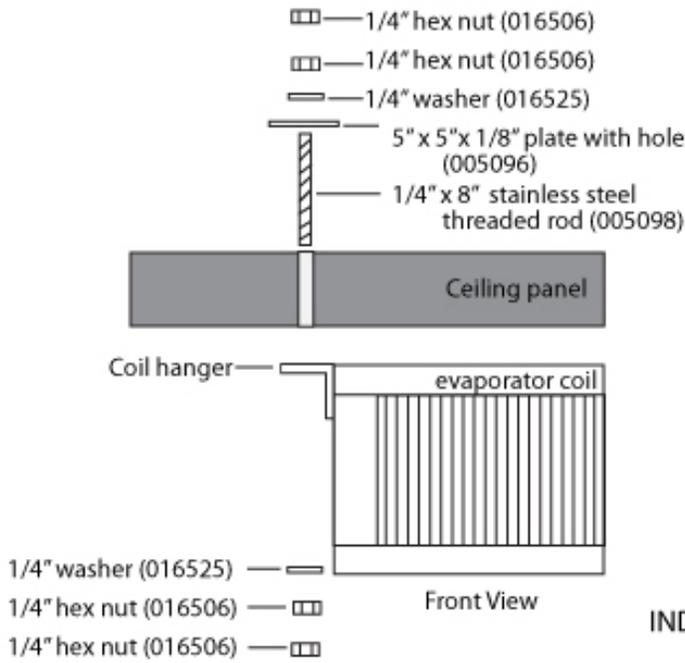


FIGURE 1
 INDOORS ONLY

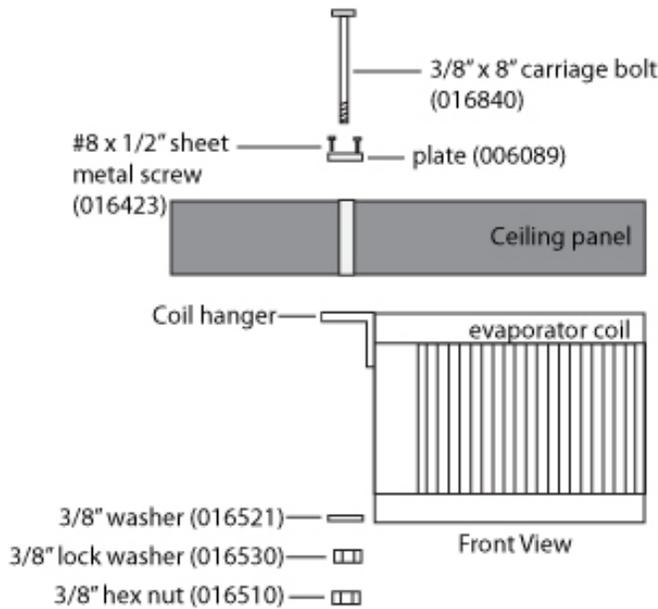
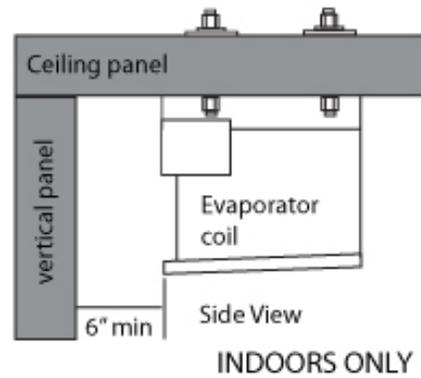
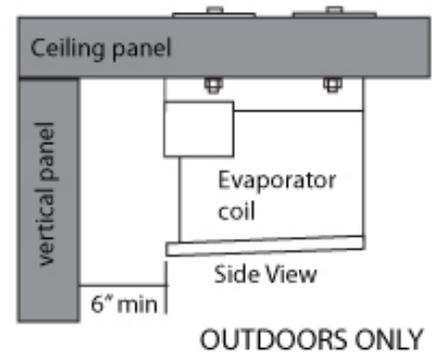


FIGURE 2
 OUTDOORS ONLY



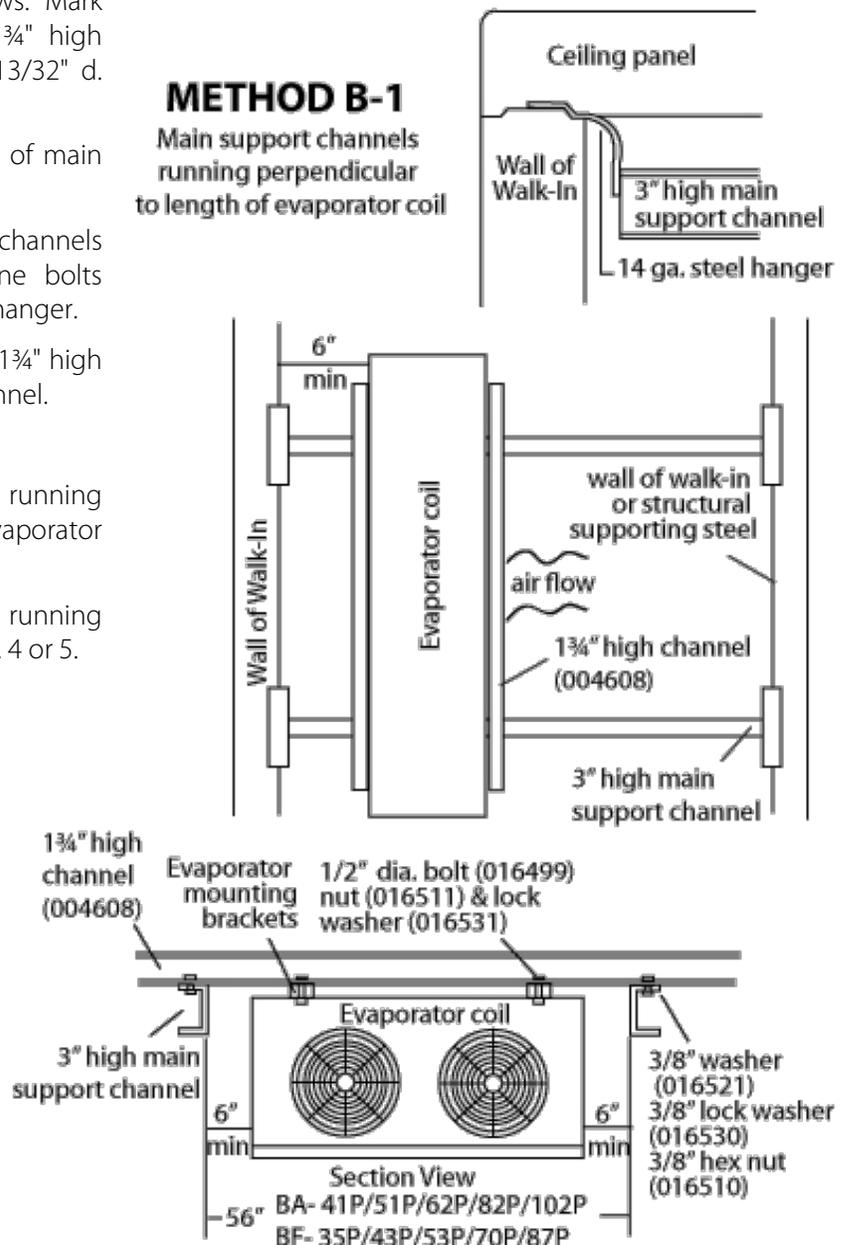
INSTALLING REMOTE REFRIGERATION SYSTEMS IN WALK-INS OR WAREHOUSES

Under no circumstances is it permissible to hang evaporator coils or to support condensing units weighing more than 150 lbs. directly on Bally prefab ceiling panels.

1. Mounting evaporator coils weighing more than 150 lbs. (indoor or outdoor)
2. Determine if main support channels are to be positioned as described in B-1 or B-2. This can be done by studying your plan view enclosed with the walk-in erection manual.
3. For proper spacing of the angles, see section views.
4. When both ends of these channels are supported on the vertical walls, merely place angles in proper position.
5. Position 1 3/4" high channels (004608) on coil hanger as shown on section views. Mark center of coil hanger holes on 1 3/4" high channels. Center punch and drill 13/32" d. Holes.
6. Position 1 3/4" high channels on top of main support channels.
7. Lift evaporator coil up to 1 3/4" high channels and insert 3/8" d. X 1 1/2" machine bolts through 1 3/4" high channel and coil hanger.
8. Position "C" clamp at points where 1 3/4" high channel intersect main support channel.
9. Install remaining ceiling panels.

METHOD B-1 Main support channels running perpendicular to length of evaporator coil. See Fig. 3 below

METHOD B-2 Main support channels running parallel to length of coil. See Fig. 4 or 5.



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7. Lift evaporator coil up to 1 3/4" high channels and insert 3/8" d. X 1 1/2" machine bolts through 1 3/4" high channel and coil hanger.
8. Position "c" clamp at points where 1-3/4" high channel intersects main support channel.
9. Install remaining ceiling panels.

METHOD B-2 Main support channels running parallel to length of coil. See Figures 4 or 5.

METHOD B-2

(Main support channels running parallel to length of coil)

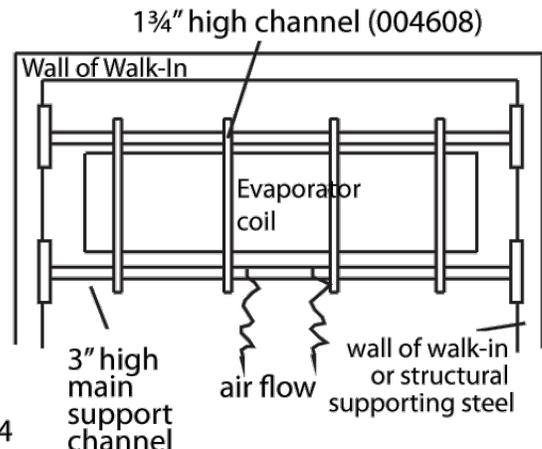
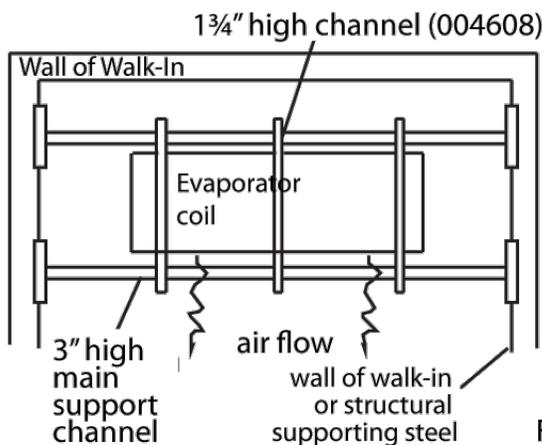
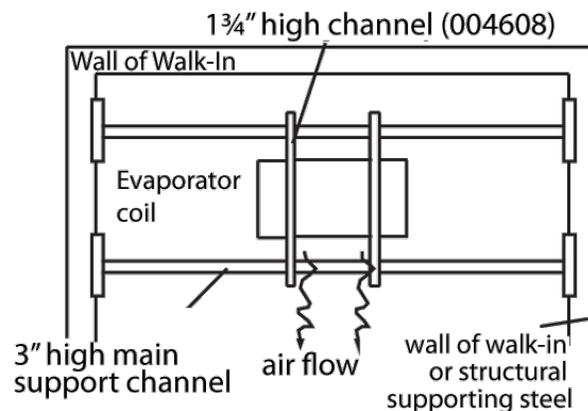
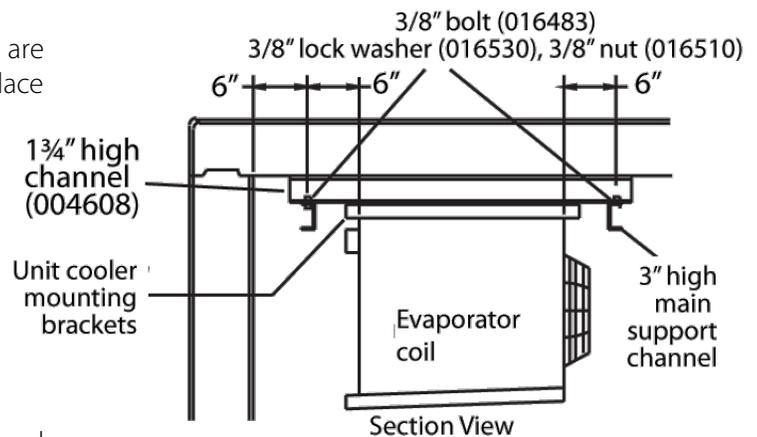
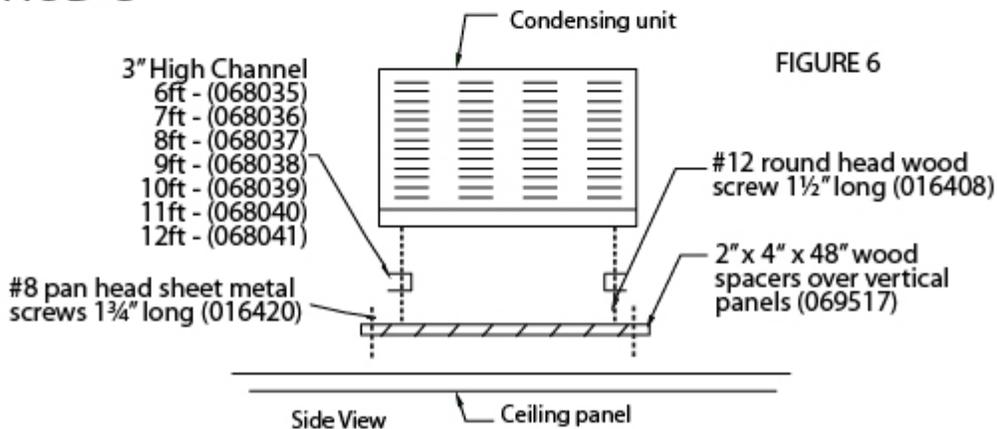
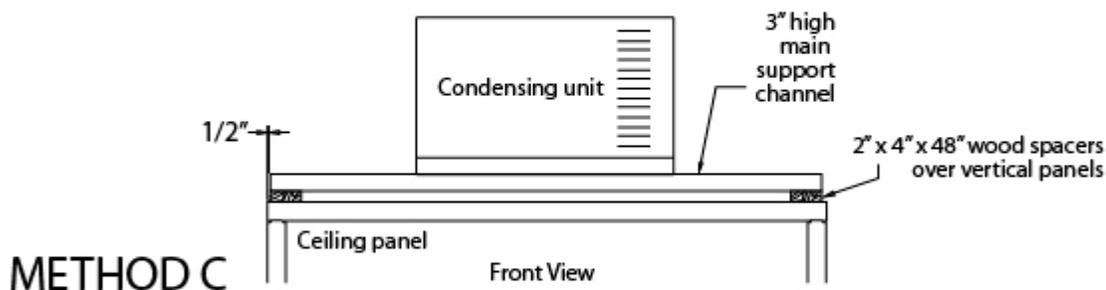
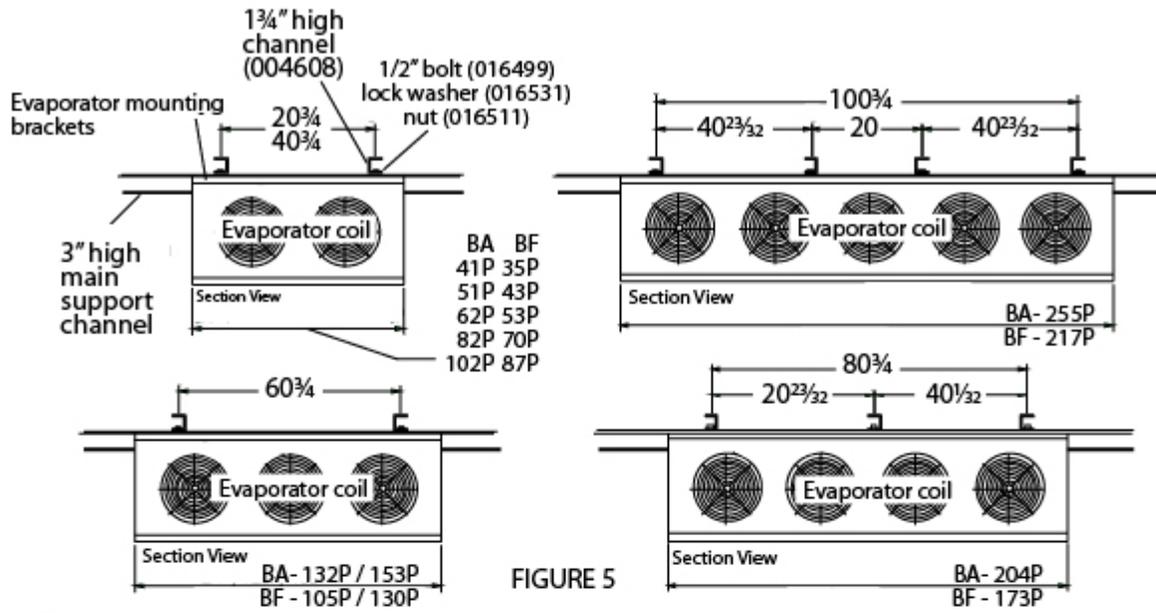


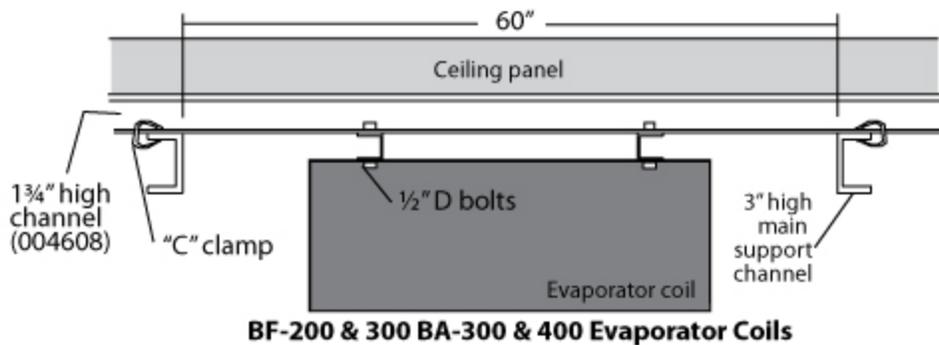
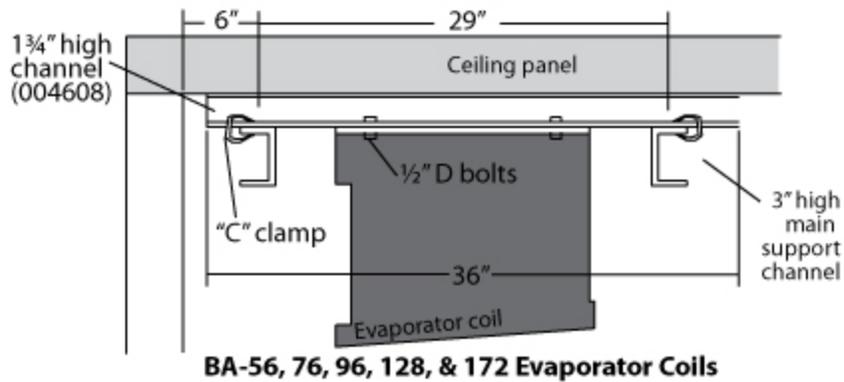
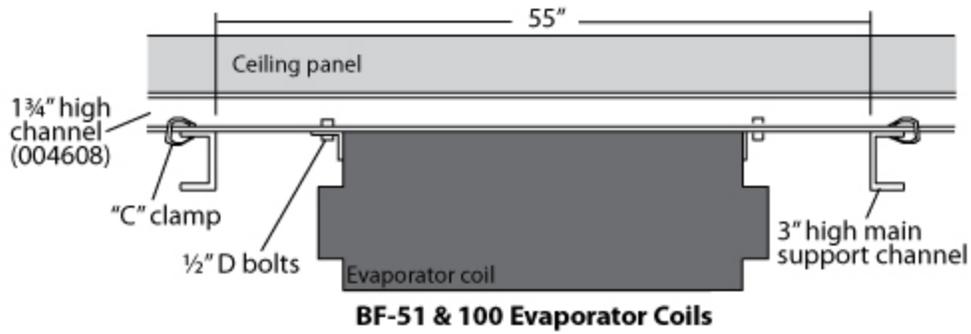
FIGURE 4



Caution: never support equipment weighing more than 100 lbs. directly on Bally prefab panels.

5. Installing the condensing unit

Location of the condensing unit depends upon circumstances of each individual job site. In general, the condensing unit should be located close to evaporator coil of best operating efficiency and lowest installation cost. If the condensing unit is to be located next to a building wall, the coil surface should face this wall. The distance between the wall and the unit should be at least 24 inches. Set the unit level for proper lubrication. Condensing units up to 2 HP may be located on the top of Bally insulated structures if the weight is supported by channels which will distribute the weight to the vertical wall panels as shown in Figure 6.



6. Installing refrigerant tubing

Use only clean, moisture-free refrigerant-grade copper tubing. All lines should be brazed with high-temperature silver solder. Size all lines properly to avoid excessive pressure drop and maintain adequate return - gas velocities for proper oil return. All horizontal suction lines must be sloped toward the compressor at the rate of 1 inch per 20 feet. All vertical risers greater than 5 feet in the suction line must be trapped at the bottom and every 10 feet thereafter. Some installations may require a double riser.

7. Electrical connections

Refer to the wiring diagram supplied with the equipment. Always comply with the National Electrical Code and any local codes. Refer to the nameplates on the equipment to determine the proper voltage, phase, circuit, ampacity, and branch circuit fuse size.

8. Leak testing

The system must be pressurized to a maximum of 175 psig with refrigerant and dry nitrogen. All flare and solder connections must be checked; regardless of whether they were made in the field or the factory. As a further check the system should be evacuated to 1 psig or less and sealed for 30 minutes. Any air leaking into the system will decrease the vacuum reading.

9. Evacuation

Use the triple evacuation method. Evacuate the system twice to 1500 microns (29.0 inches of vacuum) and once to 500 microns (29.9 inches of vacuum). The vacuum should be broken to 2 psig each time with the same refrigerant to be used in the system.

10. Insulating refrigerant piping

Refrigerant lines exposed to high ambients should be insulated to reduce heat transfer and prevent the formation of flash gas in the liquid line. Suction lines should be insulated both inside and outside the refrigerated space. The thickness of the insulation required depends upon the temperature of the line, the ambient temperature and the relative humidity. Care should be taken to insure that the lines will not sweat through the insulation.

11. Charging

Be sure to use clean, dry refrigerant of the correct type. Liquid charging must be done through the high pressure side of the system only. A clear sight glass free of bubbles while the system is running indicates a fully charged system.

12. Start-up

- A.** Check all electrical connections. Make sure they are tight.
- B.** If the compressor is spring mounted, loosen the hold-down nuts until the compressor is free-floating on the springs.
- C.** Check the compressor oil level. Correct oil level is at or slightly above the center of the sight glass.
- D.** Check control settings
 - 1.** Time clock
 - a.** Systems with electric defrost should have two defrost pins in the outer dial at 12 hours apart. The inner dial setting is fixed at 60 minutes.
 - b.** Systems using air defrost require one defrost per day at the minimum time of 1½ hours.
 - 2.** Dual Pressure Control Settings
 - a.** R-12, 15 psig cut-in and 0 psig cut-out High Side is non-adjustable at 295 psig.

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