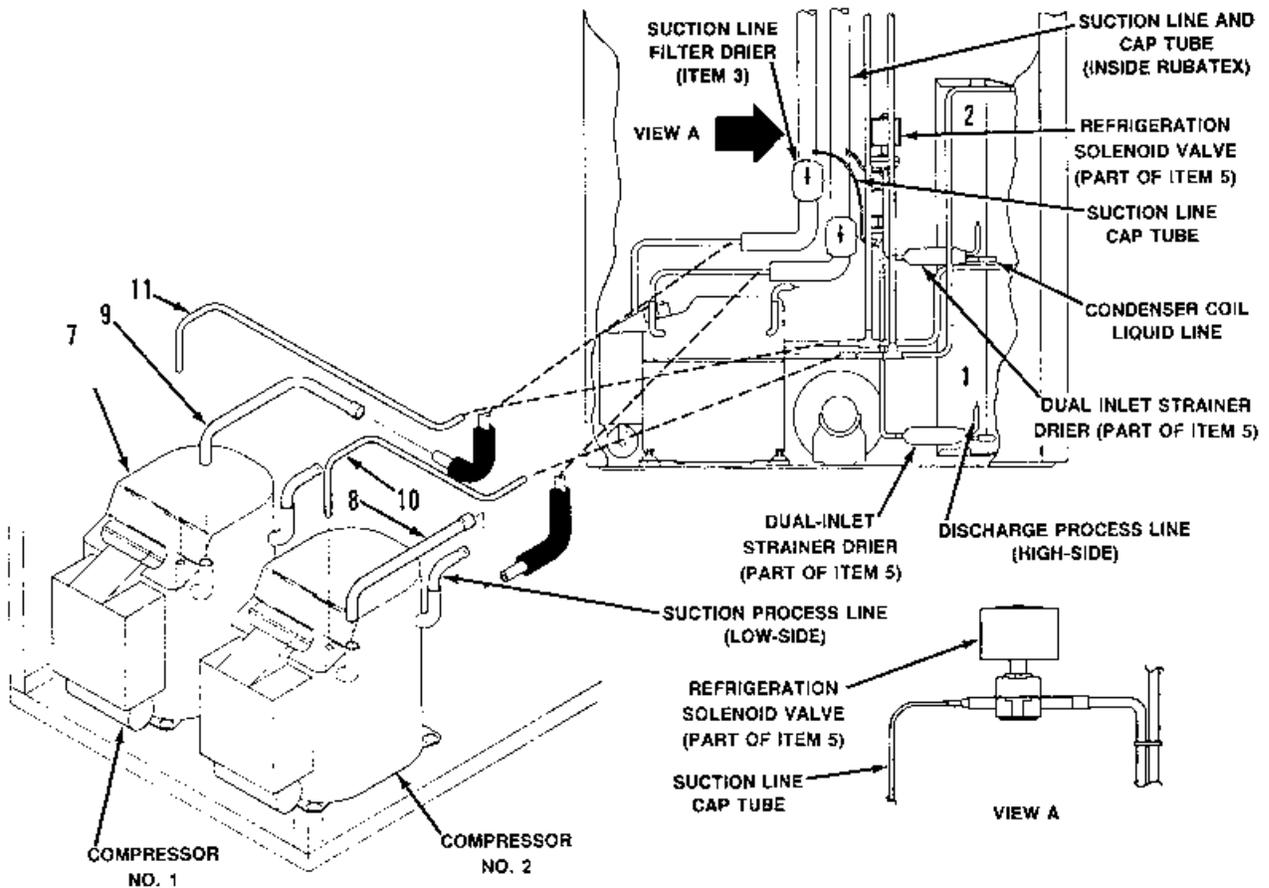




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INSTALLATION INSTRUCTIONS

FREEZE CYLINDER COMPRESSOR KIT (P/N 325976000) ON FCB HIGH-CAPACITY POST-MIX DISPENSER (MODEL NO. 416027)



IMPORTANT: ONLY QUALIFIED PERSONNEL SHOULD INSTALL THIS KIT.

FIGURE 1. INSTALLING REFRIGERATION COMPRESSOR KIT

This instruction gives procedures necessary to install Compressor Kit (P/N 325976000) on an FCB High-Capacity Post-Mix Dispenser (P/N 416027). This Kit consist primarily of a replacement compressor, a suction line filter-drier, and a solenoid/dual inlet strainer-drier assembly.

The solenoid assembly prevents unnecessary cycling of the compressor caused by hot gas entering the freeze cylinder evaporator when the compressor is off.

NOTE: All parts of this kit should be installed on a system of the FCB. Thus, if a system already has a solenoid/dual inlet strainer-drier assembly, this should be replaced using the assembly from the kit.

UNPACKING THE KIT

Unpack and inspect the Kit. Make sure Loose-Shipped Parts are present and in good condition.

Table 1. Loose-Shipped Parts			
Item No.	Part No.	Name	Qty.
1	322916001INS	Kit Installation Instructions	1
2	18031900	Plug, 7/16 CA	2
3	511031000	Filter Drier, Suction Line	1
4	325678000	Wiring Harness	1
5	325749000	Refrigeration Solenoid/Dual-Inlet Strainer Drier Ass'y	1
6	325395011	Decal, Wiring Diagram	1
7	319937000	Compressor, 1 HP 200 VAC 50 Hz or 208/230 VAC 60 Hz	1
8	325975000	Suction Line, No. 1 System	1
9	325974000	Suction Line, No. 2 System	1
10	322886011	Discharge Line, No. 1 System	1
11	322890011	Discharge Line No. 2 System	1

REQUIRED SUPPLIES AND EQUIPMENT

Supplies required are as follows:

Brazing alloy "Phos-Copper", "Silfos" or equivalent is required for copper-to-copper connections. These alloys contain about 15% silver.

Flux for use with copper-to-steel connections.

Principal equipment needed for installing this Kit is listed in the following table. Equivalent items may be substituted.

Required Equipment

Item No.	Name and Description	Use
1	Torch, Oxy-fuel (acetylene) propane, etc.)	Brazing
2	Torch tips size No. 2 or 3	Brazing
3	Vacuum pump and gaging with 50-micron blank-off pressure. Alternately a pump having 28.5 in. HD minimum	Removing air from system

Required Equipment (continued)

Item No.	Name and Description	Use
4	Refrigerant recovery system.	Removing refrigerant from system
5	Charging cylinder, visual indicating type with a refrigerant R-12 or R-502 scale and temperature correction curve, or a closed container with an accurate scale. Charging equipment must be accurate to $\pm .025$ oz.	Charging the reworked system.
6	Pinch-off tool	To seal process lines after charging
7	Ammeter, clamp-on type 0–50 amp range	To measure power consumption
8	Voltmeter, 0–300 VAC	To measure line voltage
9	Ohmmeter, 0–10 and 0–100,000 ohms ranges	To check resistance of electrical circuitry
10	Leak detector, capable of detecting at least 1/2-ounce/year. Alternate: halide torch, or “Snoop” fluid.	To detect refrigerant leaks
11	Dry Nitrogen (-75° F dewpoint)	To purge system before charging

PROCEDURE TO REMOVE A COMPRESSOR

Removal of Refrigerant—In starting work, be advised that the following warnings, cautions, and notes are directly applicable.



WARNING: To avoid possible fatal electrical shock or serious injury, disconnect electrical power to the Unit before starting kit installation.



WARNING: To avoid electrical shock even after electrical power has been disconnected from the Unit, start and run capacitors *must* be discharged by momentarily touching both capacitor terminals at the same time using an insulated screwdriver.



WARNING: To avoid eye injury, wear protective glasses or goggles while working with refrigerant or brazing.



WARNING: To avoid possible personal injury, *do not* apply heat to a charged system



CAUTION: Do not vent refrigerant to atmosphere.

NOTE: Work in a well ventilated area. Refrigerant is not toxic, but will displace air. Fumes from brazing contain toxic fumes.

Remove refrigerant from the Unit as follows:

1. Disconnect electrical power from the Unit.
2. Remove sides, back panels, and control box cover from the Unit.
3. Discharge the start and run capacitors.
4. Tag electrical wires connected to the compressor.

5. Disconnect electrical wires from the compressor.



CAUTION: Do not vent refrigerant to atmosphere.

6. Connect refrigerant recovery system to the refrigeration system and evacuate refrigerant from the system.

REMOVAL OF EXISTING COMPRESSOR

1. Slide suction line insulation as far as possible away from the work area to prevent heat damage.
2. Place heat shield around electric wiring, insulation, and painted surfaces to protect from accidental heat damage.



WARNING: Refrigerant pressure *must* equal atmospheric pressure before heat is applied to the system tubing.

3. With refrigerant pressure at 0- PSI, use heat to separate suction and discharge lines from the compressor.
4. Remove cap tube and liquid lines from the dual inlet dryer.
5. Remove compressor mounting bolts.
6. Cut off suction and discharge lines up close to the compressor, then remove old compressor from inside the Unit.

REMOVAL OF CAPACITORS AND WIRING



WARNING: To avoid electrical shock even after electrical power has been disconnected from the Unit, start and run capacitors *must* be discharged by momentarily touching both capacitor terminals at the same time using an insulated screwdriver.

1. Discharge both start and run capacitors.
2. Remove and discard the old run capacitor and start relay from inside the control box.
3. Remove and discard associated start capacitor, run capacitor, and start relay associated electrical wiring (see Figure 2).

ELECTRICAL BURNOUT OF COMPRESSOR

IMPORTANT: If failure of the compressor was caused by an electrical burnout within the Unit, the refrigerant and oil likely have broken down to form a carbonaceous sludge which is corrosive to the system and may be toxic. These contaminants are corrosive and *must* be completely removed from the system by flushing. If the system uses expansion valves, they *must* be replaced.

Proceed as follows to flush the refrigeration system.

NOTE: Do not use R-11 refrigerant to flush the refrigeration system.



CAUTION: Do not vent refrigerant to atmosphere.

1. Unsolder cap tube from the evaporator coil inlet.
2. Connect refrigerant recovery system.

3. Connect refrigerant source of type noted on the Unit serial plate.
4. Allow refrigerant to flush out the condenser coil and discharge line.

PROCEDURE TO INSTALL KIT

INSTALLATION

1. Polish tubing ends with emery cloth or a wire brush. *Do not* allow grit to enter the tubing. *Carefully* wipe clean.

IMPORTANT: *Make sure* necessary heat shields are installed all around area the torch will be used so as not to burn the electrical wiring, compressor, or any other component.

2. Insert cap tube 3 to 4-inches into the evaporator coil inlet, then braze in place.
3. Fasten kit compressor in operating position in the Unit.

NOTE: To MAINTAIN FACTORY WARRANTY, *do not* use line tapping valves for system processing. These types of valves will cause excessive restriction during refrigerant evacuation and have a leak potential. If it is desired to install processing valves in the refrigeration system, install solder-in-type schrader valves or equivalent.

4. Insert SUCTION LINE (item 8 or 9), DISCHARGE LINE (item 10 or 11) and PROCESS LINES into the kit compressor. Do not braze at this time.

IMPORTANT: Note arrow on the filter drier which indicates flow direction through the filter. The new filter drier is to be installed in the suction line with the filter drier outlet port connected to the compressor.

5. Cut or split rubatex insulation covering suction line and cap (capillary) tube from where suction line was connected to the compressor on up far enough to allow installation of the FILTER DRIER, SUCTION LINE (item 3).
6. Unsolder cap tube from the suction line for a distance of 5 to 10-inches. Cut out 4-inches of suction line tube in preparation to install FILTER DRIER, SUCTION LINE (item 3). ***BE CAREFUL NOT TO CUT OR CRIMP THE CAP TUBE.***
7. Refer to wiring diagram (Figure 3A) and connect the new compressor into the electrical system.

NOTE: The cap tube *must* not be cut off more than 2-inches (Notch with file, then break off).

The cap tube *must* not be inserted more than 1/2-inch into the dual-inlet strainer/drier opening.

The dual-inlet strainer/drier *must* not be uncapped for more than ten minutes before brazing into the refrigeration system.

8. Replace dual-inlet strainer/drier with REFRIGERATION SOLENOID/DUAL-INLET STRAINER DRIER ASS'Y (item 5) as follows:



CAUTION: The dual-inlet strainer/drier *must* be installed in a horizontal position to avoid premature compressor failure.

NOTE: The solenoid/dual-inlet strainer drier *must* not be uncapped for more than ten minutes before brazing into the refrigeration system.

- A. Unsolder and remove suction line cap tube from end of the old dual-inlet strainer drier. Cut 24-inches off end of the cap tube by scoring with a file, then break off the cap tube.
- B. Unsolder and remove old dual-inlet strainer drier from the condenser coil liquid line.

- C. Position REFRIGERATION SOLENOID/DUAL-INLET STRAINER DRIER (item 5) in Unit as shown in Figure 1, then insert strainer drier liquid line into condenser coil liquid line.
- D. Insert suction line cap tube, removed from the old dual-inlet strainer drier, into (no more than 1/2-inch) refrigeration solenoid as shown in Figure 1.
- E. Using WIRING HARNESS (item 4), connect wiring harness between refrigeration solenoid and applicable contactor inside the control box as shown on wiring diagram (see Figure 3A).
- F. Install DECAL, WIRING DIAGRAM (item 6) over top of the old wiring diagram on inside surface of the control box cover.

NITROGEN FLUSHING AND BRAZING

Flush the refrigeration system with “dry” nitrogen (–75° F dewpoint) as follows:

1. Connect nitrogen source to the suction process line, then open the discharge process line to purge the refrigeration system.
2. Purge the refrigeration system at least 10-minutes.
3. Adjust nitrogen flow for not greater than 1-PSI through the system to eliminate oxidation within the tubing while brazing.

NOTE: Work in a well ventilated area. Refrigerant is not toxic, but will displace air. Fumes from brazing contain toxic gasses.

IMPORTANT: When soldering suction line cap tube in refrigeration solenoid, be sure to wrap refrigeration solenoid with wet rag or use heat absorbing jelly to dissipate heat. The refrigeration solenoid may be damaged by excessive heat.

4. While nitrogen is flowing, braze all but the last connection.
5. Disconnect nitrogen source from the refrigeration system.
6. Braze the last connection.
7. Clean flux from brazed connections with cold water.

LEAK CHECK

Pressurize the system and perform leak check as follows:

1. Pressurize the system to saturation with clean refrigerant of the type specified on the Unit serial plate.
2. Leak check the entire refrigeration system.

NOTE: If a refrigeration leak is suspected but cannot be detected, tape a poly bag or heavy paper envelope over the area to capture gas. Wait 10-minutes, then check content of the envelope for refrigerant.

CHARGING

NOTE: To maintain warranty, do not use line-tapping valves or poppet-type valves for system processing. These valves cause excessive restriction during evacuation and have a potential for leaks.

Charge the refrigeration system as follows:

1. Connect refrigerant recovery system.
2. Exhaust refrigerant and evacuate to at least 200-microns (preferably 100-microns).

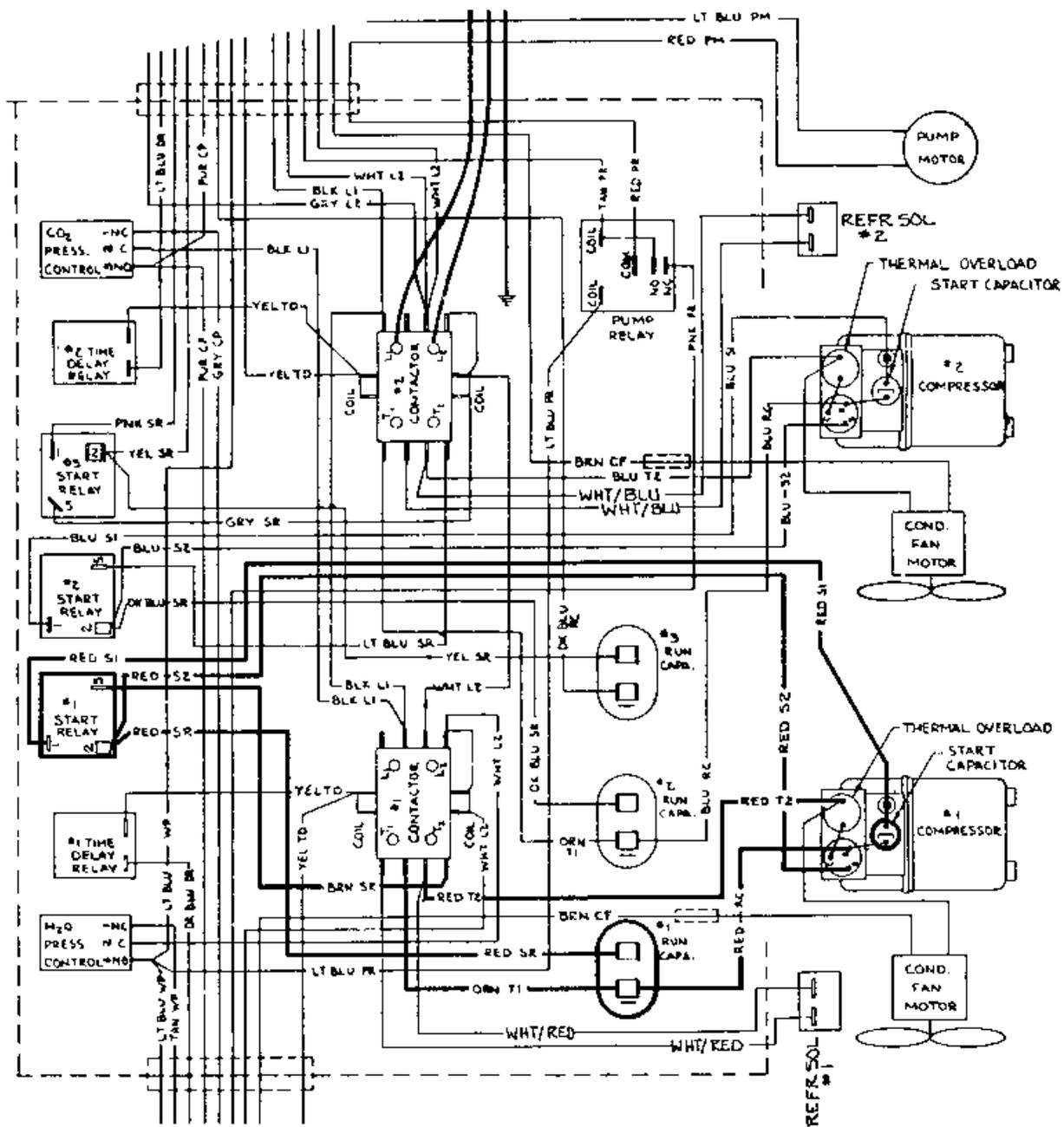
3. Disconnect refrigerant recovery system.

NOTE: It should not be necessary to operate the refrigeration system to recharge it with liquid refrigerant.

4. Charge the system using the type of refrigerant and exact amount specified on the Unit serial plate.
5. Apply electrical power to the Unit.
6. Operate the Unit for a short period of time. The evaporator tank should frost entirely over the contact area.
7. Disconnect electrical power from the Unit.
8. Using a crimp tool, pinch off the suction process line tube twice starting from the free end. Leave the crimp tool applied to the inner pinch.
9. Disconnect the refrigerant source.
10. Cut process line tube approximately 1/2-inch from the outer pinch, then fill open end with copper brazing alloy.
11. Remove crimp tool.
12. Repeat steps 8 and 9 on discharge process line.

TESTING

1. Remove cover from syrup sold-out relay box located directly in front of the carbonator blender jugs.
2. Label wires for identification, then disconnect white wires from the center terminals on the syrup sold-out relays as shown in Wiring Diagram (see Figure 3B).
3. Connect carbon dioxide (CO₂) gas to the Unit.
4. Connect electrical power to the Unit, then test run the Unit to make sure the refrigeration system is operating properly.
5. Disconnect electrical power from the Unit.
6. Connect white electrical wires to center terminals on the syrup sold-out relays, then install cover on the syrup sold-out relay box.
7. Install control box cover and sides and back panels on the Unit.
8. Connect electrical power to the Unit.



IMPORTANT: Remove and discard old start capacitor, run capacitor, start relay and associated electrical wiring (outlined in dark lines on wiring diagram) from unit before installing new compressor kit. If replacing No. 2 compressor, remove and discard the same parts and wiring.

FIGURE 2. REMOVING OLD START CAPACITOR, RUN CAPACITOR, AND START RELAY

