



F13 Series

Service and Installation Manual

Please read this manual completely before attempting to install or operate this equipment!
Notify carrier of damage! Inspect all components immediately.



Ice Cream Cabinets



Important Information
Read Before Use
Please Save These Instructions!

February 2013

Important Warning And Safety Information



WARNING

Read This Manual Thoroughly Before Operating, Installing, Or Performing Maintenance On The Equipment.



WARNING

Failure To Follow Instructions In This Manual Can Cause Property Damage, Injury Or Death.



WARNING

Do Not Store Or Use Gasoline Or Other Flammable Vapors Or Liquids In The Vicinity Of This Or Any Other Appliance.



WARNING

Unless All Cover And Access Panels Are In Place And Properly Secured, Do Not Operate This Equipment.



WARNING

This Appliance Is Not Intended For Use By Persons Who Lack Experience Or Knowledge, Unless They Have Been Given Supervision Or Instruction Concerning Use Of The Appliance By A Person Responsible For Their Safety.



WARNING

This Appliance Is Not To Be Played With.



WARNING

Do Not Clean With Water Jet.



WARNING

Do Not Use Electrical Appliances Inside The Food Storage Compartment Of This Appliance.



CAUTION

Observe the following:

- Minimum clearances must be maintained from all walls and combustible materials.
- Keep the equipment area free and clear of combustible material.
- Allow adequate clearance for air openings.
- Operate equipment only on the type of electricity indicated on the specification plate.
- Unplug the unit before making any repairs.
- Retain this manual for future reference.

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RECEIVING AND INSPECTING THE EQUIPMENT

Even though most equipment is shipped crated, care should be taken during unloading so the equipment is not damaged while being moved into the building.

1. Visually inspect the exterior of the package and skid or container. Any damage should be noted and reported to the delivering carrier immediately.
2. If damaged, open and inspect the contents with the carrier.
3. In the event that the exterior is not damaged, yet upon opening, there is concealed damage to the equipment notify the carrier. Notification should be made verbally as well as in written form.
4. Request an inspection by the shipping company of the damaged equipment. This should be done within 10 days from receipt of the equipment.
5. Check the lower portion of the unit to be sure legs or casters are not bent.

6. Also open the machine compartment housing and visually inspect the refrigeration package. Be sure lines are secure and base is still intact.
7. Freight carriers can supply the necessary damage forms upon request.
8. Retain all crating material until an inspection has been made or waived.

Uncrating the Equipment

First cut and remove the banding from around the crate. Remove the front of the crate material, use of some tools will be required. If the unit is on legs remove the top of the crate as well and lift the unit off the skid. If the unit is on casters it can be "rolled" off the skid.

SERIAL NUMBER LOCATION

The serial number on self-contained units is located behind the louver near the compressor. The serial number on remote units is located in the mechanical area on the right side.

Always have the serial number of your unit available when calling for parts or service.

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Warranty Information

Visit http://www.delfield.com/minisite/service/warranty_info to:

- Register your product for warranty.
- Verify warranty information.
- View and download a copy of your warranty.

Regulatory Certifications

Models are certified by:



National Sanitation Foundation (NSF)



Underwriters Laboratories (UL)

Underwriters Laboratories of Canada (ULC)

SPECIFICATIONS

MODEL NUMBER	GALLON CAPACITY	NUMBER OF COVERS	H.P.	VOLTS/HERTZ PHASE	AMPS	BTU DESIGN LOAD	BTU SYS. CAP.	REF CHARGE OZ.	SHIP WEIGHT
Self-Contained Low Temp, Ice Cream Cabinet									
F13WC32	12	2	1/3	115/60/1	8.0	322	818	24	311 lbs/141 kg
F13WC44	24	4	1/3	115/60/1	8.0	506	983	24	380 lbs/173 kg
F13WC56	36	6	1/3	115/60/1	8.0	638	1073	24	408 lbs/185 kg
F13WC68	48	8	1/3	115/60/1	8.0	796	1160	24	475 lbs/216 kg

5-15P NEMA plug used on all lengths

MODEL NUMBER	GALLON CAPACITY	NUMBER OF COVERS	H.P.	VOLTS/HERTZ PHASE	AMPS	BTU DESIGN LOAD	EVAP. CAP. BTU/°TD	SHIP WEIGHT
Remote Low Temp, Ice Cream Cabinet								
F13WR24	12	2	N/A	115/60/1	1.5	322	27/29	195 lbs/89 kg
F13WR36	24	4	N/A	115/60/1	1.5	506	38/26	255 lbs/116 kg
F13WR48	36	6	N/A	115/60/1	1.5	638	46/23	295 lbs/134 kg
F13WR60	48	8	N/A	115/60/1	1.5	796	56/21	345 lbs/157 kg

*Recommended horsepower

MODEL NUMBER	GALLON CAPACITY	NUMBER OF COVERS	H.P.	VOLTS/HERTZ PHASE	AMPS	BTU DESIGN LOAD FRZR./RAIL	BTU SYS. CAP. FRZR./RAIL	REF CHARGE OZ.	SHIP WEIGHT
Self-Contained Low Temp, Ice Cream Cabinet With Syrup Rail									
F13BC44	24	4	1/3	115/60/1	8.0	506/192	983/828	24	435 lbs/197 kg
F13BC56	36	6	1/3	115/60/1	8.0	638/250	1073/979	24	480 lbs/218 kg
F13BC72	48	8	1/2	115/60/1	10.0	796/307	1309/1174	40	540 lbs/245 kg

5-15P NEMA plug used on all lengths

MODEL NUMBER	GALLON CAPACITY	NUMBER OF COVERS	H.P.	VOLTS/HERTZ PHASE	AMPS	BTU DESIGN LOAD FRZR./RAIL	BTU SYS. CAP. FRZR./RAIL	SHIP WEIGHT
Remote Low Temp, Ice Cream Cabinet With Syrup Rail								
F13BR36	24	4	N/A	115/60/1	1.5	506/192	38/11	285 lbs/129 kg
F13BR48	36	6	N/A	115/60/1	1.5	638/250	46/14	340 lbs/154 kg
F13BR60	48	8	N/A	115/60/1	1.5	796/307	56/17	400 lbs/182 kg

STANDARD REFRIGERANT CHARGES

1/3 low — 1/3 H.P. 24 oz. 404A

1/2 low — 1/2 H.P. 40 oz. 404A



There may be exceptions on specific models.
Charge amount should match serial tag data.

INSTALLATION

Location

These units are for indoor use only. Be sure the location chosen has a floor strong enough to support the total weight of the cabinet and contents. Reinforce the floor if necessary to provide for maximum loading.

For the most efficient refrigeration, be sure to provide good air circulation inside and out.

Outside cabinet: Be sure that the unit has access to ample air. It is suggested that the rear of the unit be no less than two inches from any wall, partition or any other object which will restrict exhaust air flow. Avoid hot corners and locations near stoves and ovens.

Leveling

A level cabinet looks better and will perform better because the cabinet will not be subject to undue strain.



Electrical connection

Refer to the amperage data on the serial tag and your local code or the National Electrical Code to be sure the unit is connected to the proper power source. A protected circuit of the correct voltage and amperage must be run for connection of the line cord or permanent connection to the unit.

Self-contained models are provided with an a **ON/OFF** power switch located directly behind the louvered panel of the

compressor section. Also located behind the louver panel in the compressor section is the On/Off switch for the heater wires. On the remote units the thermostat may be provided with an **OFF** position which shuts off only the solenoid valve.



The power switch must be turned to the OFF position and power disconnected whenever doing the following:

- 1) Performing maintenance functions.
- 2) Cleaning the refrigerated cabinet area.
- 3) Performing service or repair functions.

Under no circumstances should the unit be operated without the louvered panel in place!

If receptacles are to be mounted in the unit backsplash, the power must be supplied from a separate electrical source and installed in accordance with the national Electrical Code and local electrical codes.

OPERATION

These units use a “cold wall” design — heat is removed from the storage compartments through the liner walls. Products next to or touching the walls of the compartment will often be colder than items at the center of the compartment. For best results, store items loosely and keep them away from the side walls as much as possible.

The units are not designed to reduce temperature quickly. When overloaded with warm items, it may take several hours to return to normal temperature, Also, frequent or

continuous opening of the lids can affect the temperature in the storage compartment.

Freezer compartments

Freezer compartments are designed to hold ice cream at 0°F to 5°F (-18°C to -15°C).

MAINTENANCE

Cleaning

The interior and exterior can be cleaned using soap and warm water. If this is not sufficient, try ammonia and water or non-abrasive liquid cleaner. When cleaning the exterior, always rub with the “grain” of the stainless steel to avoid marring the finish. Do not use an abrasive cleaner because it will scratch the stainless steel and plastic.

In order to maintain proper refrigeration performance, the condenser fins must be cleaned of dust, dirt, and grease regularly. It is recommended that this be done at least every three months. If conditions are such that the condenser is totally blocked in three months, the frequency of cleaning should be increased. Clean the condenser with a vacuum cleaner or stiff brush. If extremely dirty, a commercially available condenser cleaner may be required.

The compartment lids should be cleaned as required to maintain their ability to seal properly. A bristle brush and solution of soap and water should be all that is required to keep the lids clean. Do not use full strength degreasing agents on the rubber parts as they can cause the rubber to crack and become brittle.

Cleaning solutions need to be alkaline based or non-chloride cleaners. Any cleaner containing chlorides will damage the protective film of the stainless steel. Chlorides are also commonly found in hard water, salts, and household and industrial cleaners. If cleaners containing chlorides are used be sure to rinse repeatedly and dry thoroughly upon completion. Routine cleaning of stainless steel can be done with soap and water. Extreme stains or grease should be cleaned with a non-abrasive cleaner and plastic scrub pad. It is always good to rub with the grain of the steel. There are also stainless steel cleaners available which can restore and preserve the finish of the steels protective layer. Early signs of stainless steel breakdown can consist of small pits and cracks. If this has begun, clean thoroughly and start to apply stainless steel cleaners in attempt to restore the passivity of the steel.

Defrosting

These units do not have an automatic defrost system. Defrosting must be done manually after 3/8” frost accumulation. To defrost, turn the power switch to OFF. Allow the frost to melt and mop up with a sponge or soft cloth. When the defrost is complete, turn the power switch back to ON.



Do not use sharp utensils to scrape frost because they can damage important refrigeration components and scratch or dent the liner.

Expansion Valve Location

The expansion valve location for remote and self-contained models is located in the machine compartment of the unit.

Pressure Control

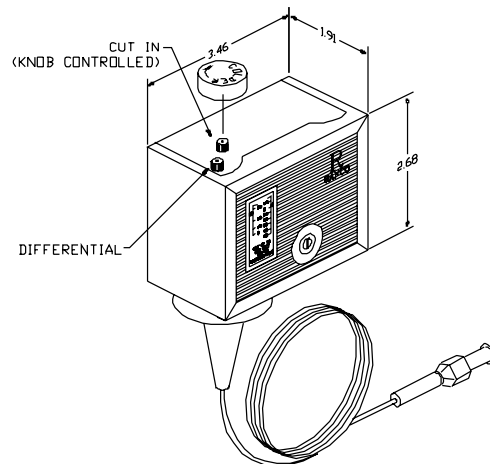
The temperature on self contained units is controlled by an adjustable pressure control located in the machine compartment. An adjustable control has the word COLDER near the knob, with an arrow to indicate the adjustment direction. These controls are field adjustable and do not require a service agent. If you have any questions, feel free to contact the Delfield Service Department.



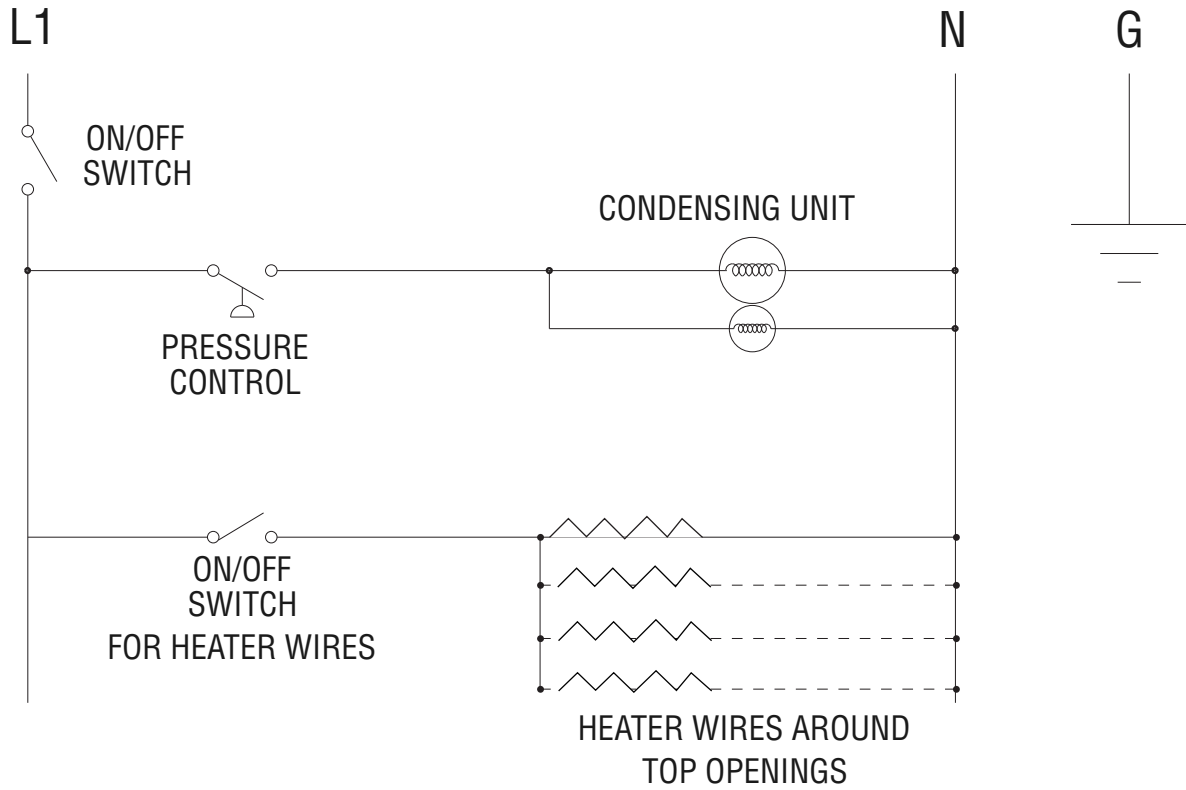
In attempting to adjust the pressure control, you can do damage to your unit by accidentally adjusting the differential. Please make small incremental adjustments if a temperature adjustment is necessary, please contact the service department at Delfield (800) 733-8829 or your local service agent. Delfield is not responsible for charges incurred while having the pressure control adjusted.

Factory recommended low-pressure control settings for self-contained models are as follows:

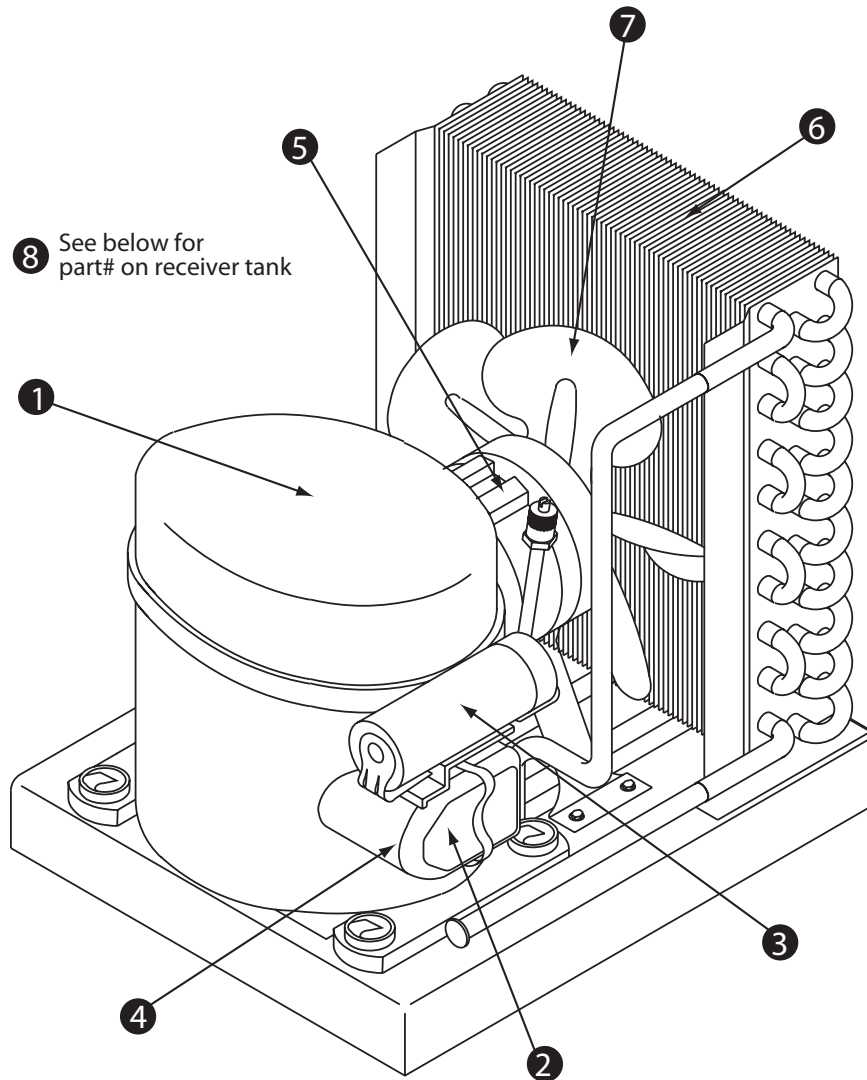
Cut in 27# — cut out 11#
EPR valve for syrup rail is set at 65#



WIRING DIAGRAM: 13BC & WC SERIES



CONDENSING UNITS



1/3 H.P. Condensing Units

KEY	DELFIELD PART#	COPELAND PART#	DESCRIPTION
	3526710	M4YL-0035-IAA-201	1/3 H.P. low condensing unit 404A
1	3526749	AS13C1E-1AA-908	compressor
2	2194469	040-C411-83	relay, current
3	2194452	014-0038-04	capacitor, starting
4	2194462	071-C100-38	overload protector
5	—	050-0259-10	motor fan
6	—	066-C223-00	coil, condenser
7	—	083-0122-00	blade, fan
8	—	077-C221-03	receiver tank

Used on all F13WC units and on F13BC44 and F13BC56.

1/2 H.P. Condensing Units

KEY	DELFIELD PART#	COPELAND PART#	DESCRIPTION
	3526711	FJAF-A050-IAA-201	1/2 H.P. low condensing unit 404A
1	3526760	RS43C1E-IAA-958	compressor
2	2194473	040-0102-00	relay, current
3	2194458	014-0008-57	capacitor, starting
4	2194466	071-0329-15	overload protector
5	—	050-0259-10	motor fan
6	—	066-0303-00	coil, condenser
7	—	083-0130-00	blade, fan
8	—	577-0346-02	receiver tank

Used on F13BC72 only.

REPLACEMENT PARTS LISTS

F13WR MODELS

REMOTE

Lid, large	3234188
Leg, 6" S/S, w/mount plate (4)	3234645
Valve, expansion, 1/4 Low, 404A	3516225
ON/OFF switch	2194099

F13WC MODELS

SELF-CONTAINED

Lid, large	3234188
Louver, 14"	356-303-0030
Leg, 6" S/S, w/mount plate (4)	3234645
Condensing unit, 1/3 H.P., Low 404A	3526710
Valve, expansion, 1/4 Low, 404A	3516225
Cord & plug	2183348
ON/OFF switch	2194099

F13BR MODELS

REMOTE

Lid, small	3234187
Pump, chocolate	3234113
Jar, syrup, white "poly"	3234100
Pump, regular syrup	3234114
Cover, lift, lid & spoon	3234051
Jar, crushed fruit	3234099
Leg, 6" S/S, w/mount plate (4)	3234645
Valve, expansion, 1/4 Low, 404A	3516225
ON/OFF switch	2194099

F13BC MODELS

SELF-CONTAINED

Lid, small	3234187
Pump, chocolate	3234113
Jar, syrup, white "poly"	3234100
Pump, regular syrup	3234114
Cover, lift, lid & spoon	3234051
Jar, crushed fruit	3234099
Louver, 14"	356-303-0030
Louver, 18"	356-303-0031
Leg, 6" S/S, w/mount plate (4)	3234645
Condensing unit, 1/3 H.P., Low 404A	3526710
Condensing unit, 1/2 H.P., Low 404A (72" only)	3526711
Valve, expansion, 1/4 Low, 404A	3516225
Valve, EPR 3/8 ODF, inlet/outlet	3516265
Control, low pressure	2193927
Cord & plug	2183348
ON/OFF switch	2194099

STANDARD LABOR GUIDELINES TO REPAIR OR REPLACE PARTS ON DELFIELD EQUIPMENT

Advice and recommendations given by Delfield Service Technicians do not constitute or guarantee any special coverage.

- A maximum of 1-hour is allowed to **diagnose a defective component**.
- A maximum of 1-hour is allowed for **retrieval of parts** not in stock.
- A maximum **travel distance** of 100 miles round trip and 2-hours will be reimbursed.
- Overtime, installation/start-up, normal control adjustments, general maintenance, glass breakage, freight damage, and/or correcting and end-user installation error will not be reimbursed under warranty unless pre-approved with a **Service Work Authorization** from Delfield. You must submit the number with the service claim.

LABOR OF 1-HOUR IS ALLOWED TO REPLACE:

- Thermostat
- Transformer
- Solenoid Coil
- Hi-limit/Thermal Protector Switch
- Compressor Start Components and Overload Protector
- Defrost Timer
- Thermometer
- Contactor/Relay
- Evaporator/Condenser Fan Motor and Blade
- Circulating Fan Motor and Blade
- Fan Delay/Defrost Termination Switch
- Door Hinges, Locks, and Gaskets
- Condensate Element

LABOR OF 2 HOURS TO REPLACE:

- Defrost Element
- Solenoid Valve
- Pressure Control
- Locate/Repair Leak

LABOR OF 3 HOURS TO REPLACE:

- EPR or CPR Valve
- Expansion Valve
- Condenser or Evaporator Coil

LABOR OF 4 HOURS TO REPLACE

- Compressor

This includes recovery of refrigerant and leak check.

\$55.00 maximum reimbursement for refrigerant recovery (includes recovery machine, pump, torch, oil, flux, minor fittings, solder, brazing rod, nitrogen, or similar fees.)

REFRIGERANTS

- R404A A maximum of \$12.00/lb. or 75¢/oz. will be reimbursed.





Mt. Pleasant, MI



Covington, TN

Thank you for choosing Delfield!

Help is a phone call away. Help our team of professional, courteous customer service reps by having your model number and serial number available at the time of your call (800) 733-8829.

Model: _____ S/N: _____

Installation Date: _____



For a list of Delfield's authorized parts depots, visit our website at www.delfield.com

Register your Delfield warranty online. Go to www.delfield.com under the service tab to complete.

