



Service Manual Built-in Refrigerator

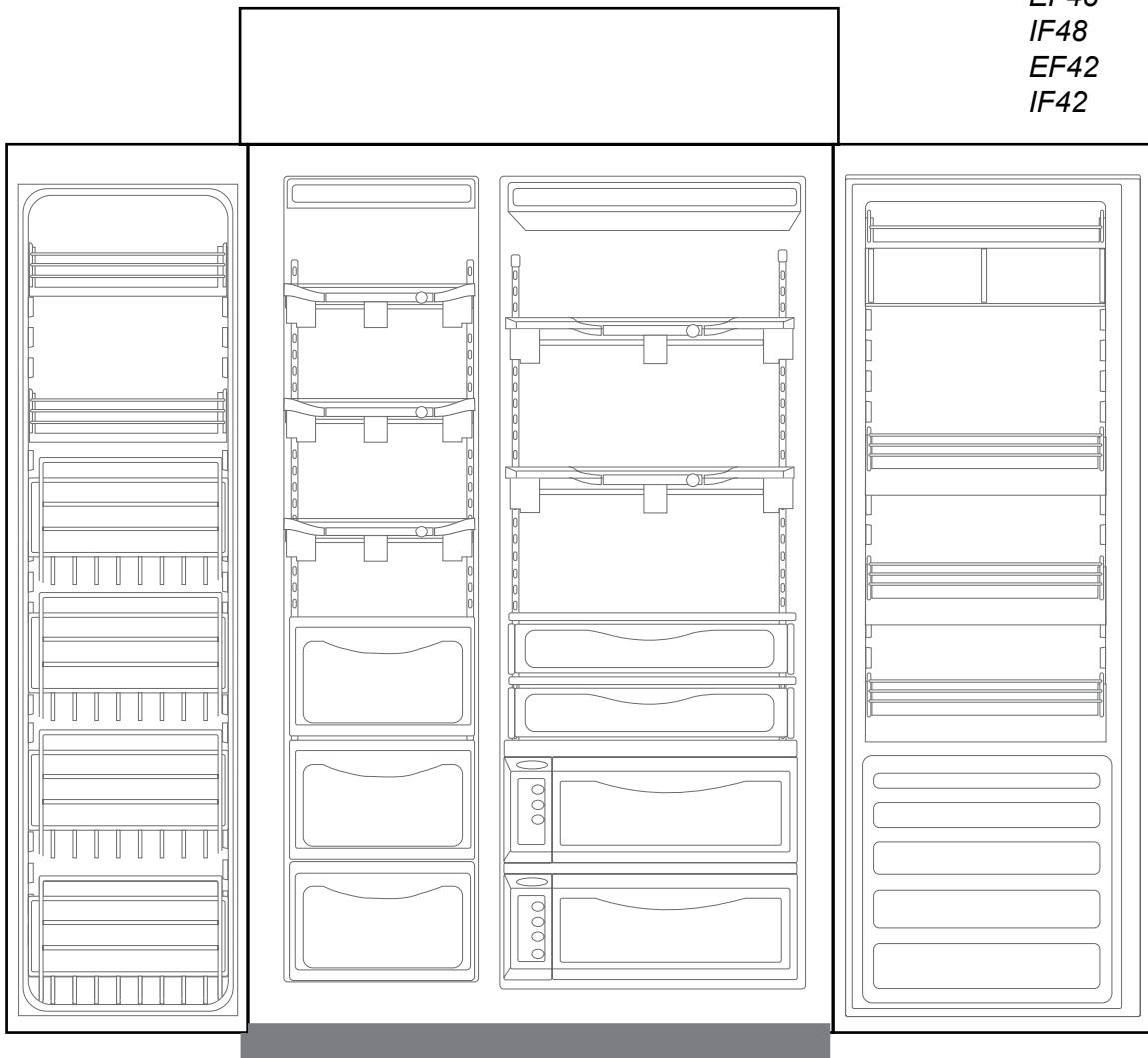
Covers Models:

EF48

IF48

EF42

IF42



The Life of the Kitchen.®

Please read all safety information before installing, operating, or repairing this appliance.

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Section 1 - Product Familiarization

A Refrigerator for a Different Kind of Consumer

The new Dacor Built-in Refrigerators provide a new level of performance for a specialty market. This line of refrigeration products is targeted to enter into a market with little competition.

This market is characterized by custom kitchens that are a gourmet's dream. Imagine the kitchens you see on the Cooking Channel installed in your home. Only without the audience. Countertops that provide preparation space for serving dozens and cooktops that can cook for a crowd as well as a family.

Big kitchens and big plans require a big refrigerator. Simply making a freestanding unit larger introduces new problems. As a cabinet gets larger, temperature control and access to the contents becomes a greater challenge.

Not only are the refrigeration needs different in these dream kitchens but the decorating demands are greater. A refrigerator is either expected to stand out as a statement that the owners have arrived at a particular level of success or blend into the background in a silent testimony to the fact that success means that you no longer need to shout about it. A refrigerator with the ability to change in appearance as the kitchen evolves to a new décor.

The new Dacor Built-in Refrigerator meets these needs and will exceed the customer's expectations for years to come.

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A New Level of Performance for Fresh Food Storage

Warm air rises, cool air falls.

As a refrigerator cabinet increases in size, maintaining temperature control becomes more challenging. As a cabinet becomes taller the air has a greater ability to settle in layers. This is called stratification. The warmer air rises to the top of the cabinet while the cooler air settles to the bottom.

If the temperature control is at the top of the refrigerator, cooling the cabinet enough to satisfy the thermostat can result in the bottom of the refrigerator being too cold for the contents. A common result is frozen lettuce. If the temperature control is in the middle of the cabinet the top of the cabinet may be too warm for optimum shelf life of dairy products.

Temperature stratification can have a major impact on the longevity of fresh foods. To minimize this effect the Dacor Built-in Refrigerators keep the air moving in the fresh food section even when the temperatures are already at their optimum. This results in temperature differences of one degree or less throughout the fresh food compartment.

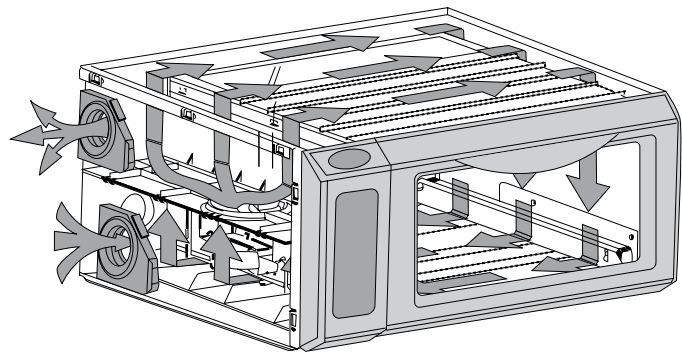
Not all fresh foods are best kept at the same temperature. Fresh cuts of meat will keep longer at a lower temperature (31°F) than vegetables (34°F) and citrus (38°F). If you set the fresh food section for the optimum temperature for one of these products the others will not be at their best storage temperature.

Produce crispers and meat drawers can help this situation but the Dacor Built-in Refrigerator takes this concept a step further. Using a feature known as FoodSaver™ Technology the system allows three different temperatures to be maintained in the fresh food section. The main section can be set for good storage of dairy and condiments as well as other foods. This temperature can be set to whatever the customer wants, which could be approximately 37 degrees. One FoodSaver module can be set to store the citrus at 38 degrees and the other can be set to store meats at 31 degrees. It is almost like getting three refrigerators in one cabinet. Fresh food will remain fresh longer when stored at the right temperature.

The FoodSaver drawers each have a fan motor and temperature control incorporated into their construction. The control can open a damper and allow the fan motor to draw cooler air from the freezer section if needed. If the drawer needs to be warmer than the rest of the fresh food compartment (fresh food 35 and citrus at 38) there is a small heating element that will maintain the temperature selected by the owner.

Besides providing optimum storage temperature, the FoodSaver modules also provide better humidity control. Conventional crisper drawers can often end up with condensation inside. This condensation can result in excessive moisture settling on the produce and cause premature aging. The FoodSaver modules use a space-age polymer to regulate the amount of moisture in the compartment. The pores in this polymer increase in size when too much moisture is present in the drawer and close when the moisture is at the right level. This allows excess moisture to leave the drawer and the correct humidity level is maintained. This eliminates the condensation problem found in many crisper drawers.

These features and their interaction allow the Dacor Built-in Refrigerator to keep contents fresher for a longer period of time than systems without these features. This allows the customer to enjoy increased freshness in the foods they store.



SECTION 1 - PRODUCT FAMILIARIZATION

Long Term Storage With a Higher Level of Performance

One of the most discouraging aspects of long term frozen food storage is freezer burn. Freezer burn is most often the result of the outer layers of the product thawing slightly and refreezing multiple times. One of the most common causes of this thawing is the defrost cycle needed for modern frost-free products.

When the system enters a defrost cycle, a heater is turned on to warm the cooling coil in the freezer and melt any frost off from the coil before it has the opportunity to affect the performance of the system. While the coil is heating, it is not uncommon for the area around the coil to heat enough to thaw the outer layer of product and in-turn create freezer burn.

The Dacor Built-in Refrigerators minimize temperature swings during defrost with two different features. One of the features is Preemptive Adaptive Defrosting while the other is sub-cooling prior to defrost.

Many manufacturers have added adaptive defrost to their product lines. Adaptive defrost adapts to the use and environment of the product and provides defrost cycles only when necessary. Not only does this often result in fewer defrost cycles that could potentially damage the freezer contents, it allows for energy saving.

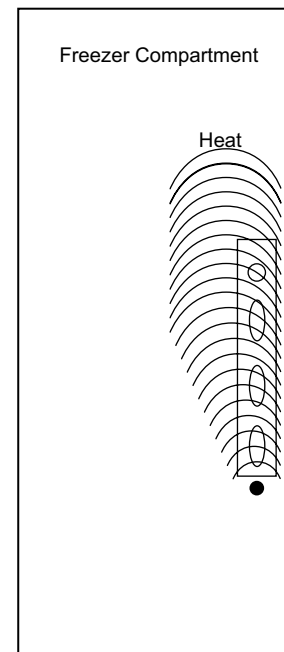
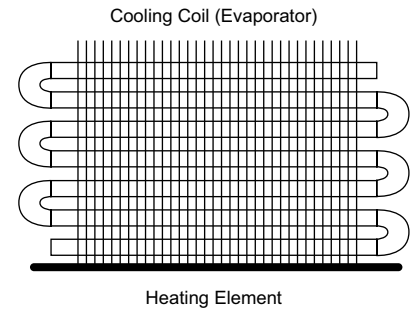
Preemptive adaptive defrost takes this energy and food saving even further by attempting to make sure that the defrost happens when the refrigerator and freezer are not being used. In a normal adaptive defrost, when it is time for a defrost, the defrost starts. This may mean that a defrost cycle could start in the middle of preparing dinner. At a time when refrigerator usage is at maximum, the system is defrosting and cannot provide the cooling needed to maintain optimum temperatures.

With a preemptive adaptive defrost, the system looks forward and anticipates usage patterns to avoid defrosting at a time that may not be best. The control tracks information about how the owners use the refrigerator. The refrigerator has learned that between four and seven in the afternoon there are a large number of door openings. A large number of door openings translates to a high use period. If the system identifies that a defrost is scheduled to happen around five-thirty, it must make a decision. Either perform the defrost at 3 PM, before the high use period, or wait until 8 PM after the high use period. The decision is made by the controller and will be based on the time elapsed since the last defrost, the measured temperatures and the usage since the last defrost. The end result is a defrost cycle happening when it least likely to affect the life of the freezer contents.

Another way to prevent damaging temperature swings is to lower the temperature of the freezer contents below normal before a defrost cycle is started. If the contents are cooler than normal before the defrost cycle begins, there is less chance that the outer layers will thaw during the defrost cycle.

The Dacor Built-in Refrigerators look ahead and before starting defrost provides maximum cooling to the freezer compartment. The result of the maximum cooling period is lower freezer temperature. With a lower starting temperature, the defrost can take place and overall freezer temperature may rise only one degree above normal. This is in comparison to other refrigeration products that may rise ten or more degrees during defrost.

By providing defrost only when needed and sub-cooling before defrost, the Dacor Built-in Refrigerators help protect the owner's investment in fine groceries and allows them to make purchases at their convenience instead of on demand.



DACOR BUILT-IN REFRIGERATOR SERVICE MANUAL

Cooling Performance that Matches the Needs

Most refrigeration products run at two speeds. One of the speeds is high and the other is off. While this has been a suitable technology for many years, the need to conserve energy has recently become more important.

One way to decrease operating costs is to operate the system at a lower speed over a longer period of time. The most efficient operation would occur if the system could be fine tuned to run continuously at a level that constantly matched the cooling requirements.

This is a lot like your car. In stop and go driving in a city environment your mileage will be lower than when you set the cruise control and are out on the open country roads. The energy needed to start your car moving and get it up to twenty-five miles per hour is greater than the energy needed to keep it moving at fifty-five miles per hour. You can always feel comfortable knowing the power is there to quickly accelerate if needed but you can keep it in reserve and save money until the need arises.

Dacor Built-in Refrigerators use variable capacity cooling to match the needs of the user. Variable Capacity Cooling is not brand new technology. It is a more expensive technology. The demand in the US has not been strong enough to encourage refrigerator manufacturers to include this technology in their standard product line. This technology has been in use in Europe and Asia where the power infrastructure is not as well developed and energy conservation is of higher concern. A true luxury product should include the newest technology and features just as a true luxury car should have all the latest features and options available.

By providing Variable Capacity the Dacor Built-in products provide high performance power when needed and high efficiency all of the time.

While this product line is not currently Energy Star™ rated, the performance is just short of the requirements. The testing procedures are very specific and the laboratory tests place this product just under the threshold needed. In actual use, this product line could actually result in lower energy bills than expected, depending on the use patterns.

In the long run, slow and steady will win the race and the customer who is interested in peak performance will not be disappointed with the results of Variable Capacity Cooling.

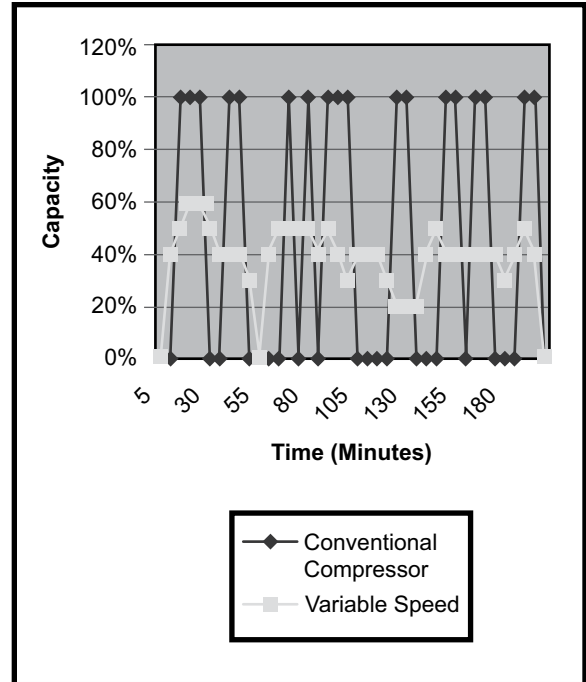
Sound Performance Beyond Many Expectations

About the only time we become concerned with the noise our refrigerator makes is either when the sound drastically changes and service is needed, or when it is loud enough to be heard in a quiet house on a sleepless night.

Dacor Built-in Refrigerators were designed from the start to be some of the quietest on the market. Special insulation is included to limit the noise heard outside of the cabinet. Bumpers have been added to prevent vibration. The Variable Capacity Compressor has a lower volume at a lower speed. Even the control area is insulated so that the relays that switch different circuits are barely audible.

The end result is a system that will only be heard when the user is trying to hear it. It will be seldom that the users will even notice when the system is running.

There are some noises that are normal. The following page identifies some of the normal noises and indicates what the source could be.



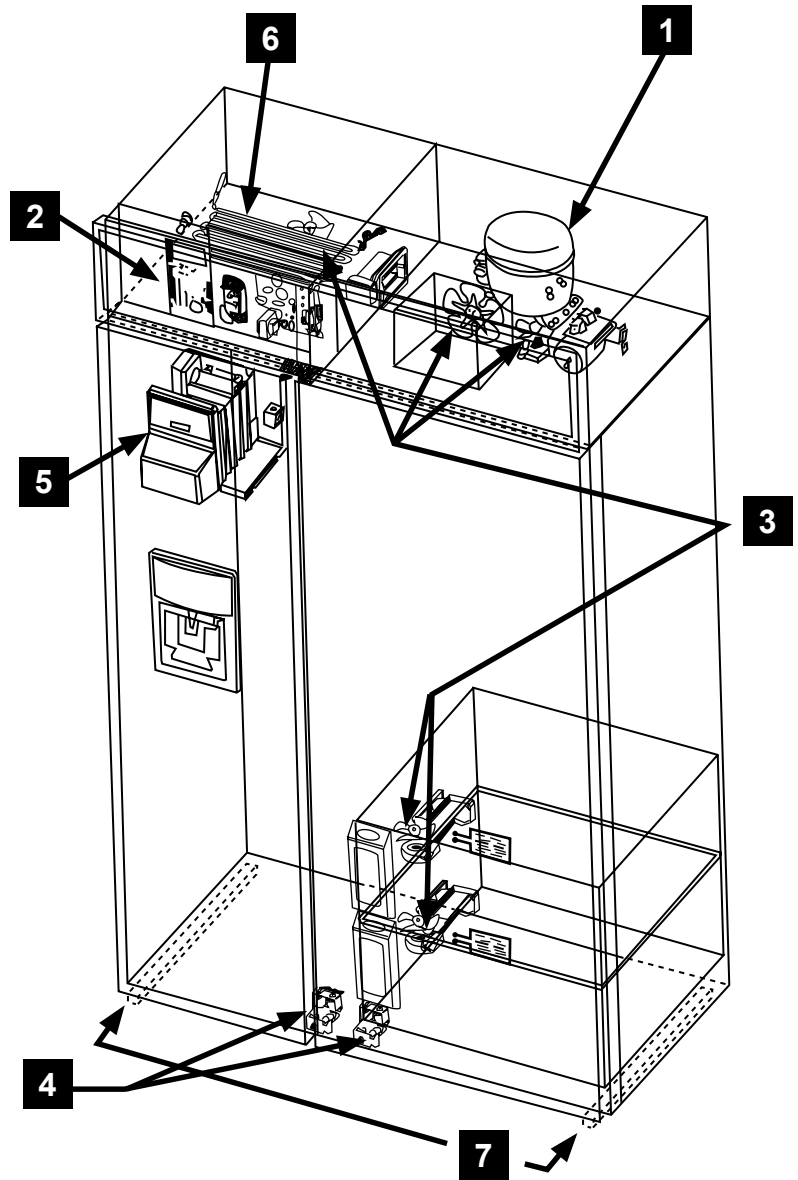
SECTION 1 - PRODUCT FAMILIARIZATION

Sound Performance Beyond Many Expectations (continued)

Normal Operating Sound

Recent improvements in refrigeration design may introduce sounds in your new refrigerator that were not noticed in earlier models. These improvements were made to create a refrigerator that will preserve food better, run more energy efficient, and perform quieter overall. Because new unit designs run quieter than past models you may start to detect sounds that were actually present in your older units but were typically masked by the refrigerator's higher sound levels. Many of these sounds are normal. The following are some of the normal sounds your new refrigerator may make:

- 1 COMPRESSOR:** The compressor on this unit has a variable speed motor. This variability allows the system to adjust to different usage needs and thereby make your cabinet much more energy efficient. This will introduce speed change sounds and some higher pitched humming sounds that are normal for the operation of this type of compressor.
- 2 CONTROL SWITCHES:** In the electronics control area there are numerous control switches that make a quiet clicking sound when you use your refrigerator or during some of the normal system operations.
- 3 AIRFLOW SOUNDS:** There are a number of fans in the unit that make airflow sounds when in operation. The freezer fan circulates cool air throughout the refrigerator. The refrigerator circulating fan helps keep that compartment's temperature more uniform. The condenser fan on top of your unit is utilized to remove the heat generated by the system. Lastly, the FoodSaver™ compartments circulate air to maintain optimum temperatures.
- 4 WATER VALVES (if equipped):** If your unit has an ice dispenser or icemaker you may detect a slight buzzing sound under the unit when water is requested from the ice dispenser or when the icemaker needs water to make ice.
- 5 ICEMAKER:** If equipped with an icemaker the cabinet will occasionally generate a rattling sound when ice cubes are ejected into the freezer ice bin. You may also detect the motor that is ejecting that ice. These are normal sounds necessary for ice making.
- 6 REFRIGERANT FLOW:** The flow of the cooling fluid in your freezer area may cause gurgling or quiet knocking sounds when the unit cycles on or when the unit cycles off. This is just the shock of the system cycling.
- 7 CABINET LEVELING:** An unlevel cabinet may cause rattles and vibration noises. This can be corrected by adjusting the leveling wheels properly.



DACOR BUILT-IN REFRIGERATOR SERVICE MANUAL

Features Should be the Expectation not the Exception

Many of the built-in refrigerators currently in homes across America were designed for storage capacity more than they were designed for ease of use and functionality.

If you want a lot of room for storage, they may be the right choice for you. If you want the same features that are available with even modestly priced refrigerators, you need to look away from them and towards a built-in system designed by a company who understands consumer expectations and convenience.

Some of the common expectations for a refrigerator include spill-proof shelves, adjustable door storage and ample lighting. Some customers want through the door ice and water dispensing.

These types of features are incorporated into the built-in refrigeration products as well as some less common features.

Not only is illumination ample, it is exceptional. There are six lamps in the fresh food compartment alone. Four at the top and one behind each FoodSaver™ drawer. This will put an end to the search for something in the dark rear corners of a refrigerator compartment.

While not often thought of, it is not unreasonable to expect a crisper drawer to hold a head of lettuce. While this may not be possible in some of the competition's crisper drawers, most average heads of lettuce will fit just fine in the FoodSaver drawers. In fact you should be able to fit in three or four heads with a bag of carrots, radishes and some green onions. Who needs salad in a bag when it all fits just fine in the FoodSaver drawer and with the superior storage performance, it will still be fresh when you need it.

A deli tray that keeps a hold of the contents might seem like a prerequisite for a drawer. We have come to expect that a deli drawer is made of plastic and will contain any minor leakage that may occur. One of the last things someone wants is meat juices dripping from the deli drawer onto other products in the cabinet.

Some manufacturers think that a wire basket will do the job just fine. In reality the contents are exposed to too much air and the contents dry out. If something were to leak, the leakage is destined to make a mess elsewhere. The Dacor Built-in Refrigerators include plastic Food Storage drawers. Wide drawers with room for lots of deli products. Wide drawers that allow you to easily see the contents. To top it off, if one Food Storage drawer isn't enough, you can get two.

Meeting the Expectation of a Tall Cool Drink of Water

A feature more commonly found on current refrigeration products is through the door ice and water dispensing. The Dacor Built-in Refrigerators offer this feature. The user has the choice of water, cubed ice or crushed ice.

All of the water is filtered before going to the dispenser or the icemaker. Like any type of water filter, the filter cartridge needs to be replaced on a regular basis. The control system monitors the amount of water flowing through the filter and recommends when it is time to order a new cartridge on the control panel. The cartridge itself is mounted in the equipment compartment on top. By placing the filter above the cabinet, valuable storage space isn't used in the fresh food compartment for the filter.

If a customer already has a reverse osmosis system for filtering their drinking water, the lower pressure often present with this type of system could cause slow dispensing or hollow ice cubes. Since the reverse osmosis system is a better filter than the cartridge filter, a bypass cap is provided to eliminate the cartridge altogether. This bypass cap could improve the dispensing speed and help to reduce the hollow ice cube complaint. For the customer who wants to reduce the number of times the cabinet door is opened to retrieve chilled water or ice cubes this dispenser will meet their expectations. For the customer with no desire for a dispenser, the product is available without the dispenser and the customer can choose whether they want a built-in icemaker by choosing the right combination of shelves for their needs.

Options that Meet the User's Expectations

When you go shopping for a new car you expect that you can select the options that meet your needs. Often, though, the model that almost fits your desires is on the lot and you choose it. Sometimes the dealer has to add a feature or two.

In short the right car for one person may not be the right car for another. The Dacor Built-in Refrigerators allow the customer to get the refrigerator they want and not another cookie-cutter appliance.

When it comes to refrigerators, the manufacturers have been providing different packages for the different needs. The biggest option is usually color. From there you can select feature levels ranging from entry level to deluxe. To truly meet the customer's desires a customizable product is the right option.

The Dacor Built-in Refrigerators can be configured in just about any way that will meet the customer's needs. While there are standard option packages available, if a standard package doesn't meet your needs, add the features you want. On the freezer side, the icemaker and dispenser have specific locations that they need to be installed. On the fresh food section the FoodSaver™ drawers have to be left where they are. Other than that, the consumer is free to configure their appliance to their wishes.

If you want a refrigerator without a deli drawer but with two extra shelves, you can get it. If you want three deli drawers and no icemaker, you can get it.

It is the customer's decision as to what they want in a refrigerator.



48" DISPENSER MODEL

SECTION 1 - PRODUCT FAMILIARIZATION



48" DISPENSER MODEL

DACOR BUILT-IN REFRIGERATOR SERVICE MANUAL



48" NON-DISPENSER MODEL

SECTION 1 - PRODUCT FAMILIARIZATION



48" NON-DISPENSER MODEL

DACOR BUILT-IN REFRIGERATOR SERVICE MANUAL

Features and Benefits are Not All you Should Expect

One of the sad realities of any machine is that it will need service. Just as regular oil changes and tire rotations are needed to keep a car running smooth and efficiently, every appliance deserves regular maintenance.

The biggest need of any refrigeration system is cleaning. The coil that transfers the heat to the outside of the cabinet needs to be dusted out regularly to maintain peak efficiency. This cleaning should be performed every three to six months.

From its inception, the Dacor Built-in Refrigerators were designed with service in mind. Since the appliance is quite large and often built into the wall, it is best if service can be performed where the unit sits.

The only components that cannot be reached from the front of the refrigerator are the water tubes that supply the water filter and the icemaker.

Front serviceability is a key feature. Regular maintenance can be easily performed and peak efficiency maintained. Things that are difficult to do seldom get done. The easy access designed into the Dacor Built-in Refrigerators is important for long and efficient operation.

Progressive thinking will provide an appliance that not only has exceptional performance when new, but will maintain that performance for years to come.

If the need should ever arise for repair, the Dacor Built-in Refrigerators come with one of the best new product warranties available.

Making Sure the Available Space is as Useful as Possible

Most conventional refrigerators have the cooling system mounted in the bottom of the cabinet. The interior space is shaped around the equipment and the end result is that usable space is lost to equipment.

The Dacor Built-in Refrigerators place the cooling system at the top of the unit. This places the equipment package up high and out of the way. This provides the most possible space where people can use it.

The cabinet depth is considerably less than the cabinet depth of a large freestanding system. By reducing the depth, almost every item in the refrigerator or freezer can be reached without moving numerous other items.

Since more of the bottom space is available for storage, drawers are provided to bring the contents out to where they can be easily viewed. Nobody wants to get on their knees to see what is hiding in the back recesses of their refrigerator.

Both the fresh food and the freezer doors provide adjustable baskets for storage of items you always want close at hand. Since the interior is completely customizable, if you want more door shelves, just contact your Dacor retailer and have additional door baskets ordered.

More Space up Front Where you Use It

Most cooks place the things used most often in either the door storage or along the front of the shelves. As new items are placed on the shelves the existing contents gradually move to the rear of the cabinet. This usually means that sooner or later what you are looking for is at the back of the refrigerator.

By increasing the width, the Dacor Built-in Refrigerators allow for more up front space. There are more of the good seats available for the things you use most. Even if something is at the back of the cabinet, the distance to it is less than with a large freestanding unit.

The actual capacity of the cabinet is not much different than the largest conventional refrigerators available today. The space is easier to use and with proper planning, this system fits into the kitchen with increased style and convenience.

SECTION 1 - PRODUCT FAMILIARIZATION

Something this Special Needs Special Considerations

Not every kitchen in America has the right location for a refrigerator like they use in a restaurant but if there is enough space, a Dacor Built-in Refrigerators fill the spot beautifully.

There are two cabinet widths. The larger of the two is approximately 48 inches wide. The smaller cabinet is 42 inches wide. Both units stand almost seven feet tall. The cabinet is about two feet deep. This is the same depth as standard base cabinets so the system can be installed right in line with the countertops and cabinets.

Proper preparation is essential before the system is brought into the kitchen. Location is always important for a refrigerator. The best designs for most kitchens place the cooking area, the cleaning area and the refrigeration system on the points of a triangle. The closer the triangle is to equal on each side, the better. The space between all three points should be free from obstruction with enough room for at least two people to work within the triangle without getting in each other's way. If the kitchen will only be occupied by one person a smaller triangle will work. If a complete cook staff is used or caterers brought in regularly, a larger triangle will be needed, if not two triangles.

Since many kitchens will be in the design stage when an appliance such as the Dacor Built-in Refrigerator is considered, many customers will be able to plan properly. Space can be allocated for as many refrigeration systems as the customer feels is right for their needs.

Because of the forethought invested in design, this product line can be completely enclosed in cabinetry. All airflow is through the front of the unit. Cabinets can be built on either side as well as above the unit.

The location for installation should include an outlet on a dedicated circuit. This outlet should be 75½" above the floor and 2" from the right side of the opening. There is a recessed area in the cabinet to allow the unit to be pushed up against the wall with the plug installed in this location.

A dedicated outlet is a good practice for any refrigerator and is required by the electrical code of many areas of the country. The outlet should be mounted in the back wall of the final location. The space should always leave enough room for both the appliance and the plug in the outlet.

A water supply for the installed icemaker or water dispenser is essential. The water line should come up through the floor or through the lower wall in the rear center of the opening. Since all components were designed to be serviced from the front, the ice and water hook-up is in the front behind the air grill.

The system is pushed into place and then the water line is connected. This is opposite of the connection sequence for a standard refrigerator. Typically the water line would be connected and then the system pushed the last few feet into place. By placing the refrigerator before connecting the water line, there is less flexing of the connection and a reduced chance for a water leak.

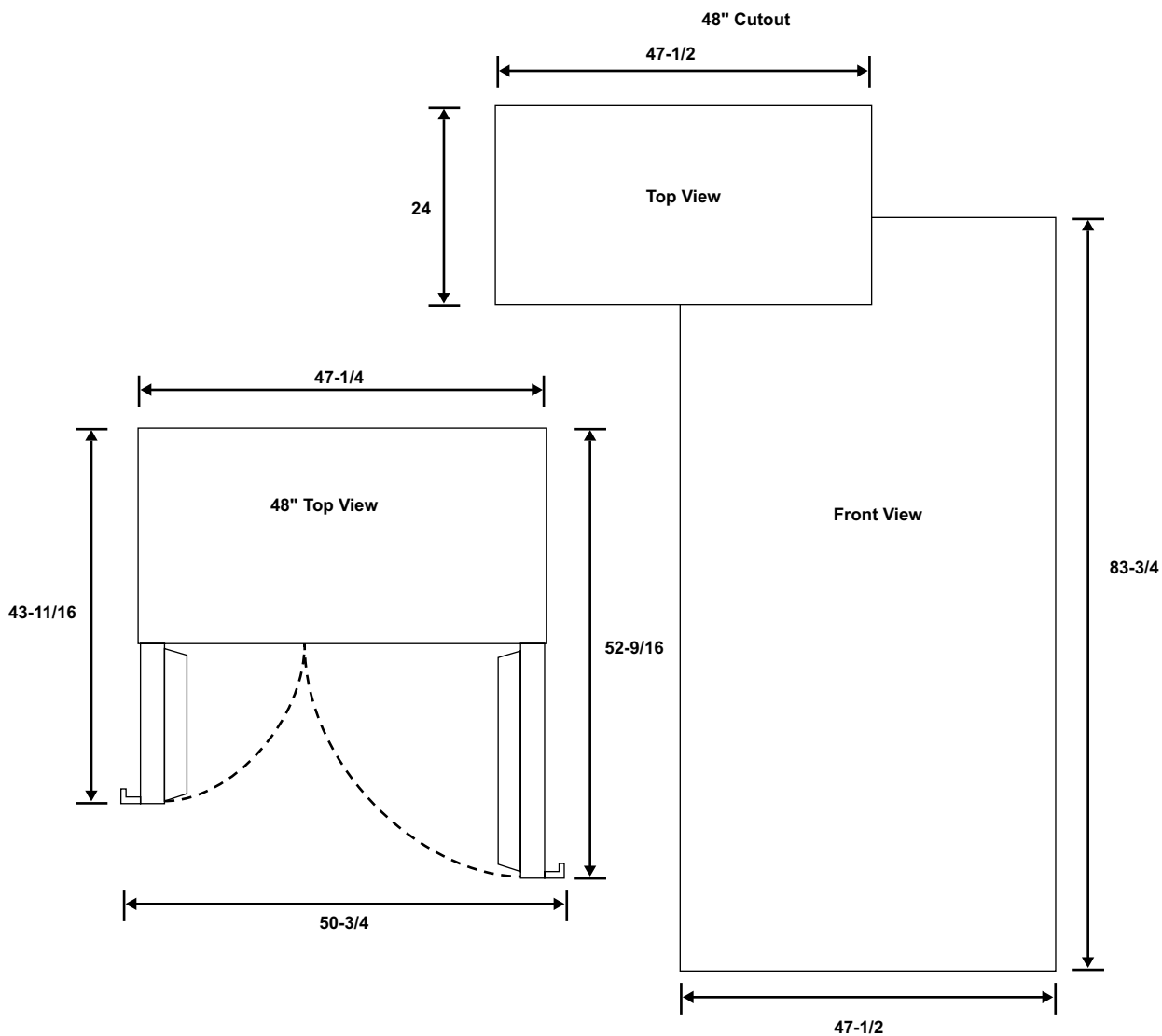
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Setting Aside the Space

Just as with any refrigerator, it is always important that you have enough space to work around the unit. The cabinet depth alone doesn't tell the entire story. You need to consider the length of the open doors to determine the total space you need for use of the appliance.

The 48" product requires an area that is 47½ inches wide and 52½ inches deep. Two feet of the cabinet will be flush with the cabinets or built into the wall. This means that you need at least two feet four and one half inches clear in front of the system. If you want to be able to get past an open refrigerator, you will need even more space.

The 48" cutout needs to be at least 83¾", 47½" wide and at least 24" deep. A little extra depth would allow for some adjustment room. Too much extra depth would make the installation of the anti-tip device difficult.

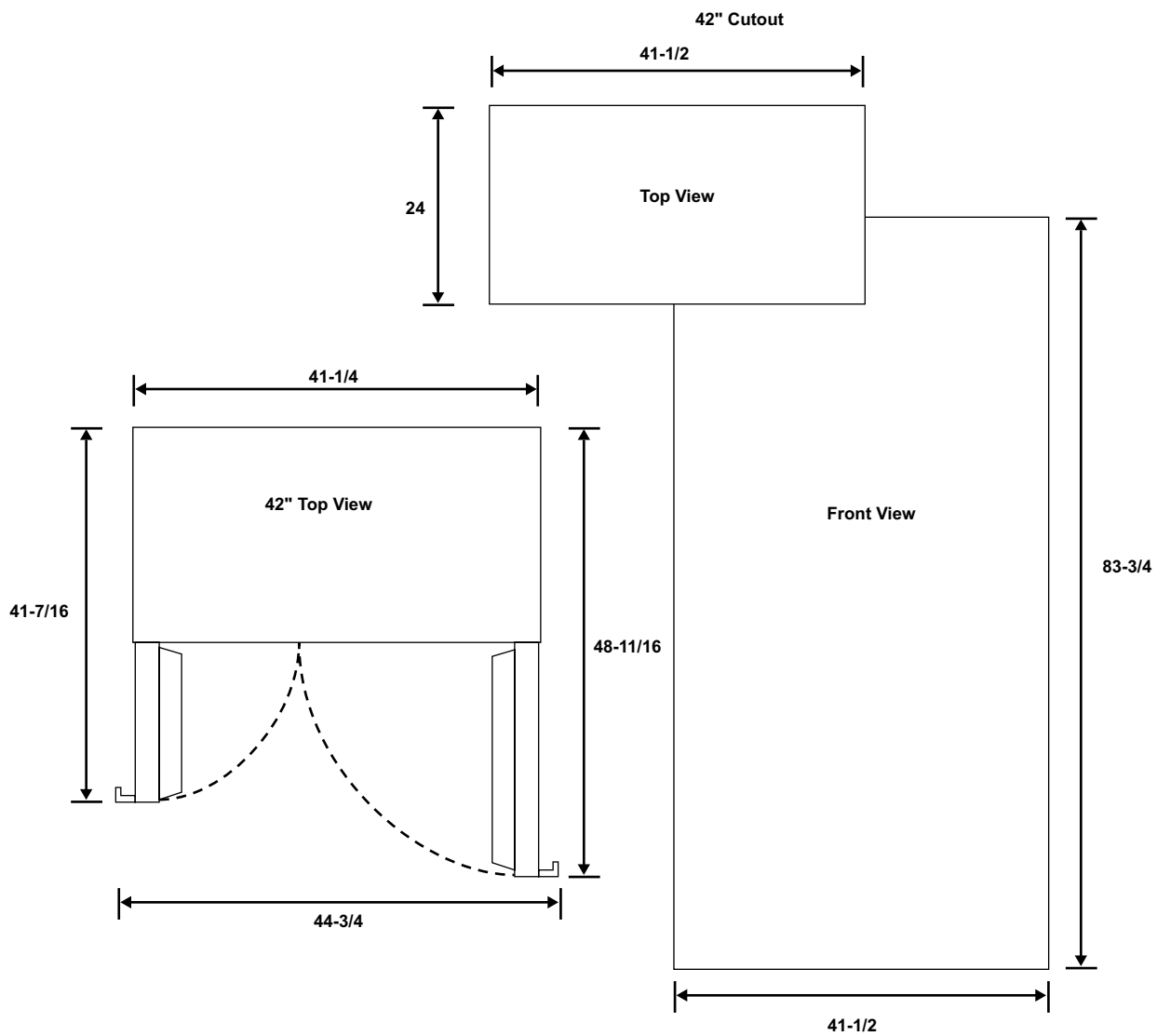


SECTION 1 - PRODUCT FAMILIARIZATION

Setting Aside the Space (continued)

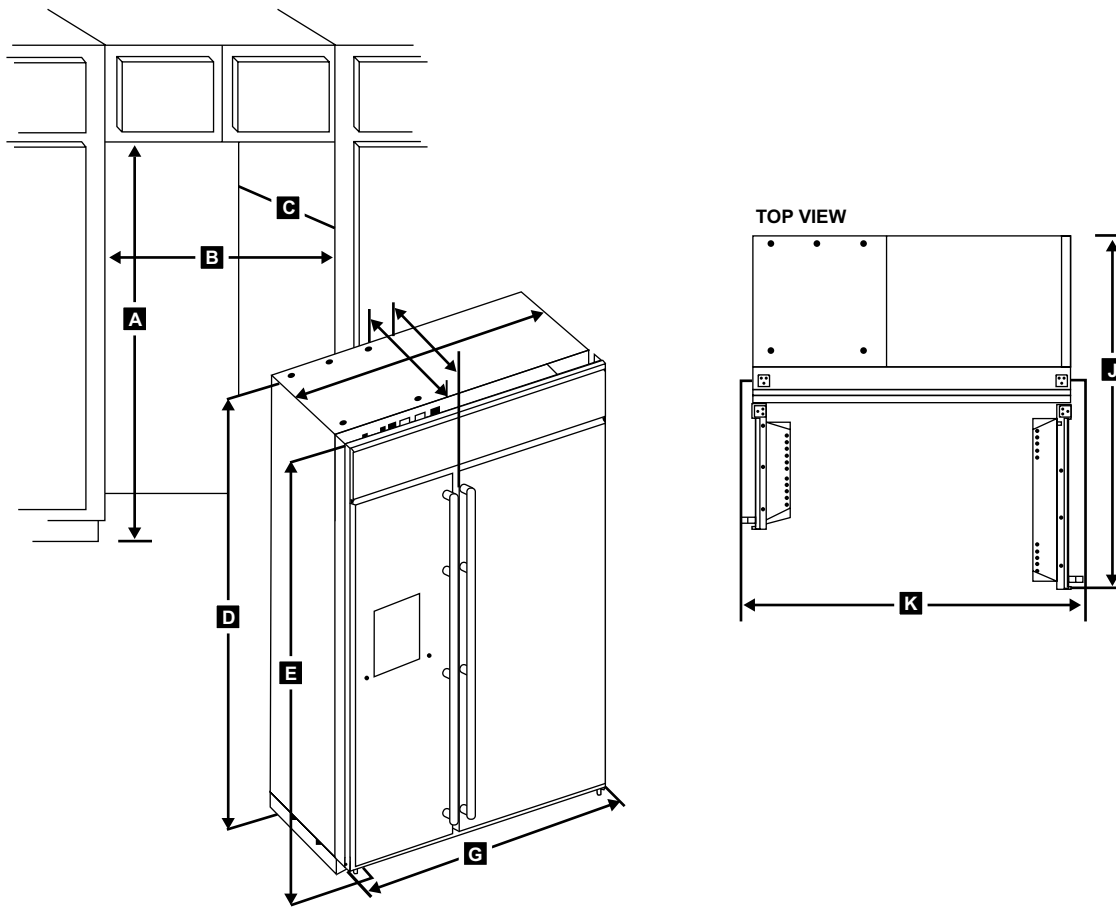
The 42" product requires an area that is $41\frac{1}{2}$ inches wide and $48\frac{11}{16}$ inches deep. Two feet of the cabinet will be flush with the cabinets or built into the wall. This means that you need at least $24\frac{11}{16}$ inches clear in front of the system. If you want to be able to get past an open refrigerator, you will need even more space.

The 42" cutout needs to be at least $83\frac{3}{4}$ ", $41\frac{1}{2}$ " wide and at least 24" deep. A little extra depth would allow for some adjustment room. Too much extra depth would make the installation of the anti-tip device difficult



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Dimension Specifications



EXTERIOR DIMENSIONS

Specifications	EF48 (in/cm)	IF48 (in/cm)	EF42 (in/cm)	IF42 (in/cm)
A. Cutout Height*	83 3/4	212.7	83 3/4	212.7
B. Cutout Width**	47 1/2	120.7	41 1/2	105.4
C. Cutout Depth	24	61	24	61
D. Height to Top of Cabinet	83 1/16	210.9	83 1/16	210.9
E. Height to Top of Grille	83 3/8	211.8	83 3/8	211.8
F. Width (cabinet)	47 1/4	120.0	41 1/4	104.8
G. Width (doors closed)	48 1/16	122.1	42 1/16	106.8
H. Depth Excl. handles (closed)	25 1/4	64.1	25 1/4	64.1
I. Depth Incl. Handles (closed)	26 5/8	67.6	N/A	N/A
J. Depth (fresh food door open 90°)	52 1/2	133.3	52 9/16	133.5
K. Width (doors open 90° including handles)	50 3/4	128.9	N/A	N/A

*A. Add 1" (2.5 cm) for extended handle kit. **B. Add 2" (5.08 cm) for extended handle kit.

SECTION 1 - PRODUCT FAMILIARIZATION

After All's in Place

Once the unit is in place it must be leveled and secured to prevent any out of balance possibilities.

A very important part of the installation process is installation of an anti-tip device. Anti-tip devices have been around for a long time on ranges. The length of the door in relation to the body of range makes it easy for an individual to tip the unit over if excess weight is applied to the open door.

The Dacor Built-in Refrigerators have a similar problem, the refrigerator door is longer than the cabinet is deep. If excess weight is applied on the door, the unit could tip forward.

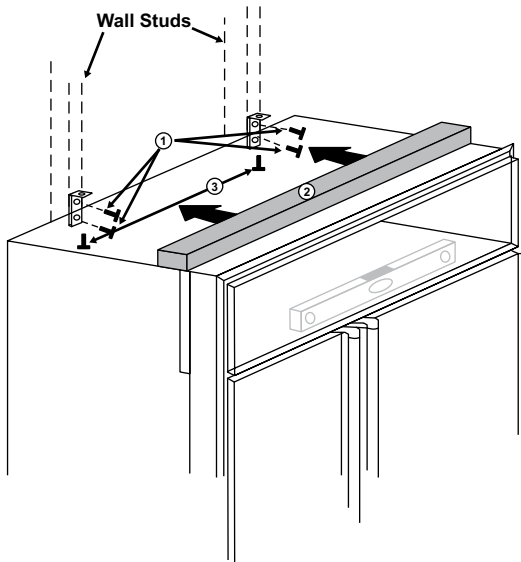


FIGURE 18



FIGURE 19

If the cutout height is very close to the recommended height of 83¾", the cutout itself will prevent any possible forward tipping. If there is more than one inch clear above the cabinet, a section of 2x4 lumber must be mounted to the wall above the cabinet. This 2x4 will keep the back of the cabinet from leaning away from the wall and will help prevent the possibility of injury or damage from a mishap. The 2x4 is even included with the product.

It is also possible to prevent tipping using a section of pipe strap. Attach the pipe strap to the wall and the cabinet. This strap will prevent the unit from tipping away from the wall.

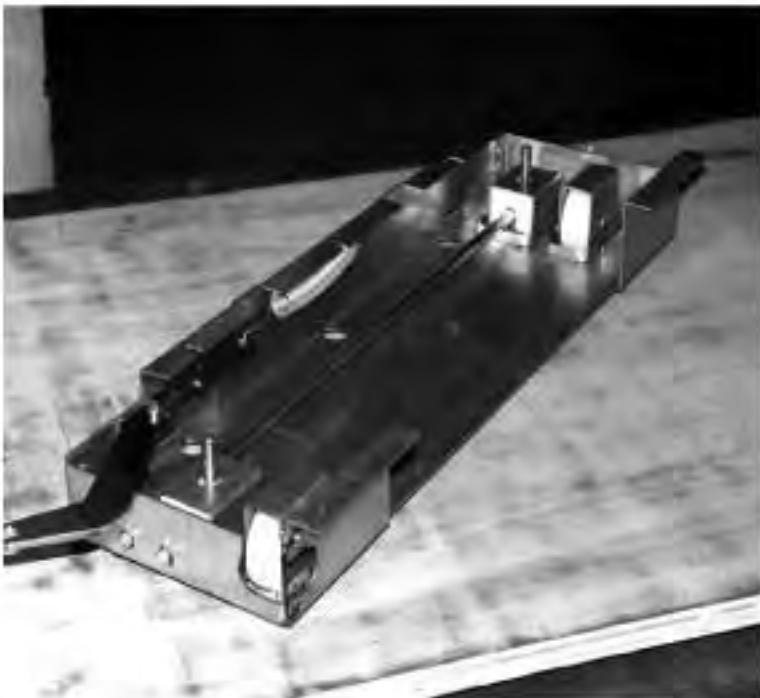
DACOR BUILT-IN REFRIGERATOR SERVICE MANUAL

After All's in Place (continued)

The Dacor Built-in Refrigerators include heavy-duty leveling legs at all four corners. These leveling legs are adjusted from the front of the cabinet just as any other service would be performed. Even with new construction there may be slight unevenness to the flooring the system is installed upon. By including four way leveling it is possible to level the refrigerator regardless of the condition of the floor.



FIGURE 22



SECTION 1 - PRODUCT FAMILIARIZATION

After the Install, the Finishing Touches

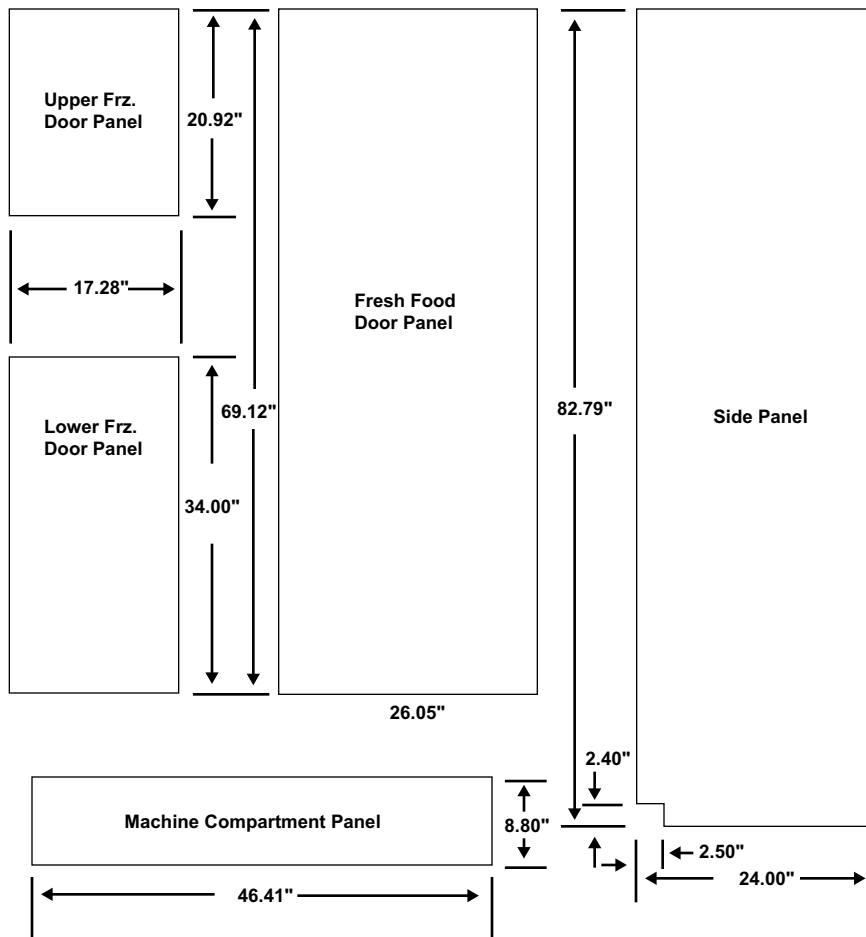
As stated previously, the exterior of the Dacor Built-in Refrigerators is completely customizable.

The stainless steel version of the refrigerator comes ready for use. The exterior is suited for use in any kitchen with the space.

Panels can be manufactured for installation on the doors and sides of both the panel and the overlay version. The panel version comes with full-length extruded handles. The overlay version comes without a handle, allowing the customer to have any type of handle manufactured to match their décor.

From glossy acrylic to rich mahogany, the exterior can be designed to either place the system in the limelight or camouflage this workhorse to blend into its surroundings.

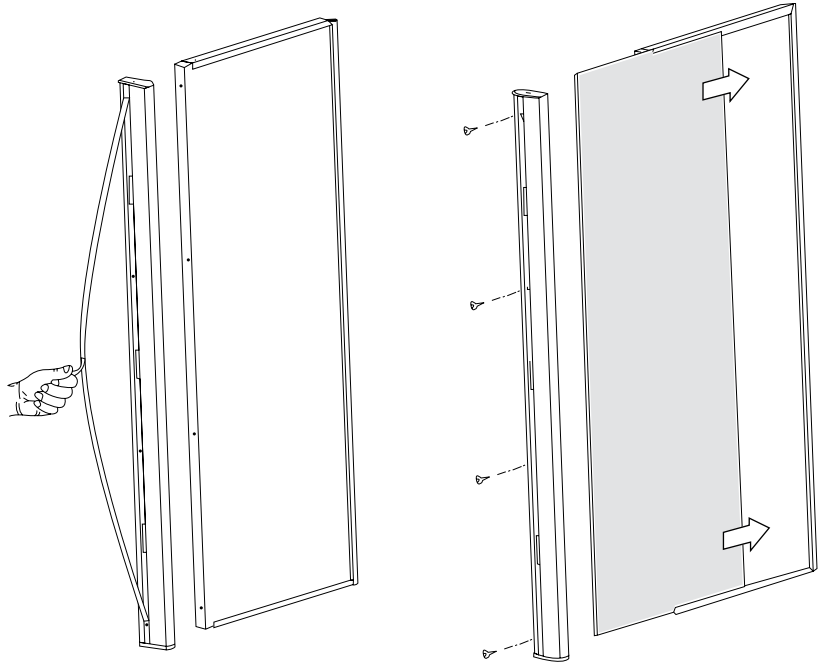
Instructions for the creation of the panels and the necessary dimensions are included with the refrigeration system.



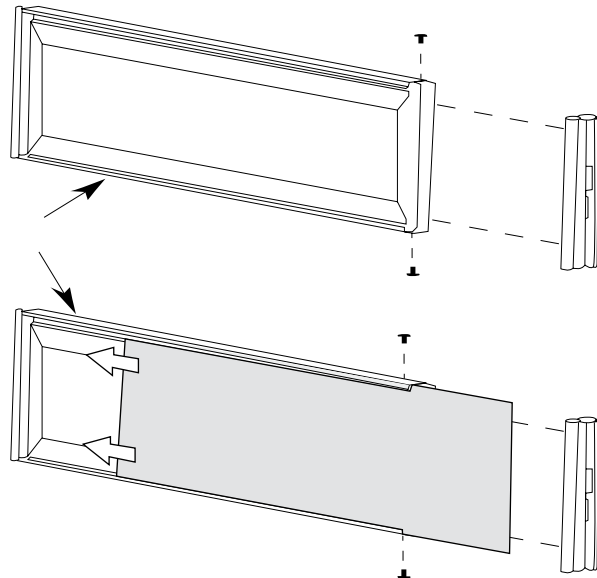
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After the Install, the Finishing Touches (continued)

- The door panels are slid in from the handle side of the door.



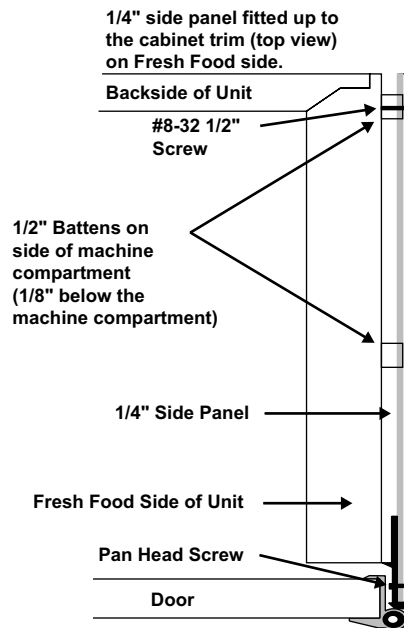
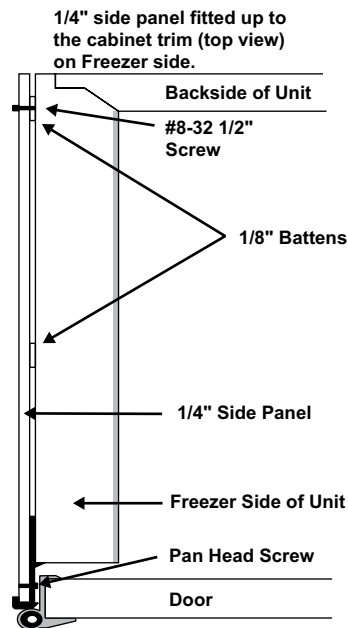
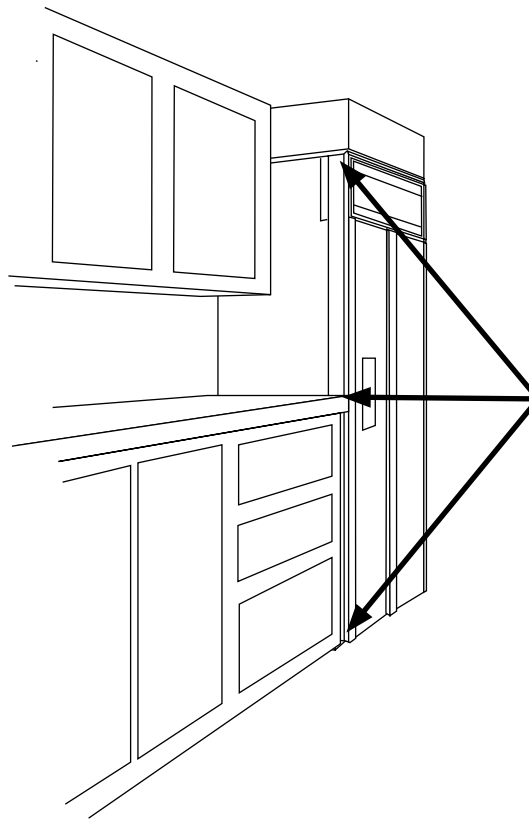
- If the owner wants to replace the black panels on either side of the ice and water dispenser, the freezer door would need to be disassembled to slide in the left trim panel.
- The equipment compartment panel is slid in from the end.
- It is very important that any trim panel is only designed to fit within the frame provided. Airflow for the heat exchange must be able to flow around the panel.



SECTION 1 - PRODUCT FAMILIARIZATION

After the Install, the Finishing Touches (continued)

- Side panels must be screwed into place.
- Spacers need to be added to support the panels for a secure mounting.



DACOR BUILT-IN REFRIGERATOR SERVICE MANUAL

Dacor Built-in Refrigerator Q & A

Why would I buy a Dacor Built-in Refrigerator over the competition's built-in refrigerator?	<ul style="list-style-type: none">• The competition makes a fine product. We believe that the Dacor Built-in Refrigerator does a better job keeping food fresh. With the combination of a variable speed compressor, computer temperature control and FoodSaver™ Technology Drawers the contents will be kept at the optimum temperatures as selected by the customer.• Tests have proven that the temperature control is better in the Dacor Built-in Refrigerator than almost any other product available.
How much space does it take up?	<ul style="list-style-type: none">• The cabinet stands almost seven feet tall.• The 48-inch model takes up approximately four feet of wall space by four and a half feet of depth for the door openings.• The 42-inch model fits in a three and a half foot width by just slightly more than four feet of depth.
What is the storage capacity?	<ul style="list-style-type: none">• The 48-inch model has about as much interior space as the largest side-by-side freestanding refrigerators currently available. The 42-inch model has about the same interior space as a large top or bottom mount refrigerator.• Cubic feet of storage is not the only measure of capacity. With less cabinet depth the contents are easier to reach. There is more width to the cabinet allowing more available space at the front of the shelving.
Can it be customized to match my cabinets?	<ul style="list-style-type: none">• The exterior appearance is only limited by your imagination and the cabinet maker's skill. If you want it to look just like your cabinets, check with your cabinetmaker. Installation and customization information is available from your Dacor dealer so you can plan your exterior before you make a decision to buy.
How much does it weigh?	<ul style="list-style-type: none">• Almost 400 pounds.
Is it Energy Star rated?	<ul style="list-style-type: none">• Not at this time. The testing standards for Energy Star approval are very specific and primarily designed around conventional refrigerators. The Variable Capacity Compressor system does not match the testing criteria very well. In actual use we are confident that your operating costs will be as economical as possible for this type of product.
Is there a dispenser model?	<ul style="list-style-type: none">• Yes. Filtered water, cubed ice and crushed ice are all available through the door. There is a filter monitor to remind you when to order a new filter and when to replace the filter.
Is there a non-dispenser model?	<ul style="list-style-type: none">• Yes. If through the door dispensing is not a priority, the product is available without the dispenser system.

SECTION 1 - PRODUCT FAMILIARIZATION

Dacor Built-in Refrigerator Q & A (continued)

Can I get it in something other than stainless steel?	<ul style="list-style-type: none">The cabinet is available in two different styles for your customization besides the stainless steel version. Your Dacor dealer can help either you or your decorator decide which model is right for your installation.
When will it be available?	<ul style="list-style-type: none">Since each refrigerator is hand built and tested there may be limited availability. Your Dacor dealer should be able to provide more accurate delivery information once you have selected all of the right options for your installation.
What is the price?	<ul style="list-style-type: none">The final price is determined by the dealer. The suggested price is designed to be competitive with the largest competitor in this market.
Is there only one model?	<ul style="list-style-type: none">There are two cabinet widths. The larger is 48-inches wide while the smaller is 42-inches wide. There are several base packages available with or without dispensers. With the ability to customize the shelving system, however, the end result is a multitude of possible combinations. You can design a unit that will meet your needs.
How does the energy use compare to my current refrigerator?	<ul style="list-style-type: none">The energy use is similar to the average refrigerator sold today. If your current refrigerator is more than five years old, the Dacor Built-in Refrigerators should cost less to operate than your current system.
Why would I want to spend so much on a refrigerator?	<ul style="list-style-type: none">This refrigeration system is not intended to be for everyone. For the customer with the need for a built-in refrigerator the superior performance and advanced feature level should make it the right choice for a built-in application.
Does it need any special electrical circuit?	<ul style="list-style-type: none">Just as with any refrigerator, the Dacor Built-in should be connected to a dedicated outlet. Most electrical codes require a fifteen amp circuit. It is recommended that the unit not be attached to a ground fault circuit interrupter.
Does it need to be hard wired?	<ul style="list-style-type: none">No, the system has a cord just like a standard refrigerator.
Does it need a drain?	<ul style="list-style-type: none">No, there is no need for a drain from the product.
How hard is it to level?	<ul style="list-style-type: none">The leveling mechanism is operated from the front of the unit and is very easy to operate.
Are there any special water connections needed?	<ul style="list-style-type: none">The connection for the ice and water system is the same as for a standard freestanding refrigerator. If a reverse osmosis system is used to supply the unit, low pressure can affect dispensing speed and ice cube quality.
Can I take it with me when I move?	<ul style="list-style-type: none">If your new home has the space, yes.

DACOR BUILT-IN REFRIGERATOR SERVICE MANUAL

Installation Instructions

Tool Requirements

- Tape measure
- Level
- Stud finder
- Drill with various bits
- Socket set
- Utility knife
- Magnetic extended screwdriver
- Phillips screwdriver
- Torx Bit
- Cardboard, carpet remnant, or other protective material for flooring
- Steel Hanger Strap

Installation Checklist

INSTALLER

Doors

- Handles are solidly attached to doors.
- Doors seal completely to refrigerator cabinet.
- Assure correct door handle alignment. Frame models.
- Assure doors seals are not pinched.
- Do not drive screws/sharp objects into the door.

Leveling

- L Brackets are secure to 2x4 wood block.
- Stabilizing legs are against floor. Cabinet is secure.
- Toe kickplate is properly attached to refrigerator and aligned with floor.

Ice Maker

- Water supply to refrigerator is turned on and lines flushed.
- Water leaks are not present at connection between household water supply and refrigerator.
- Ice maker arm is down for ice production.
- PuriClean® Ice and Water Filtration System is installed correctly, if applicable.
- Purge water from the fountain on dispenser models.

Preparing the Space

Make sure the opening where the unit will be installed is properly prepared for "Cut Out" dimension. Check placement for electrical outlet and water line. (Fig. 1 on page 1-25)



NOTE

For the door to open properly, it must be able to open at least 90 degrees. For installation in a corner, a 2" filler strip is required to ensure the 90 degree opening. The floor under the refrigerator is to be level with the surrounding floor. To protect the floor when moving the refrigerator, place cardboard, or preferable a carpet remnant (backing up) on the floor.



WARNING

Electrical Connection: This appliance is designed to operate on a normal 115 volt, 15 amp, 60 cycle line. There should be a separate, grounded circuit serving this appliance only. Do not use an extension cord. Do not use any device that will alter the electrical performance of this appliance. For the placement of the electrical outlet refer to Fig. 1 on page 1-25.

***Do not use a ground fault circuit interrupter.**

SECTION 1 - PRODUCT FAMILIARIZATION

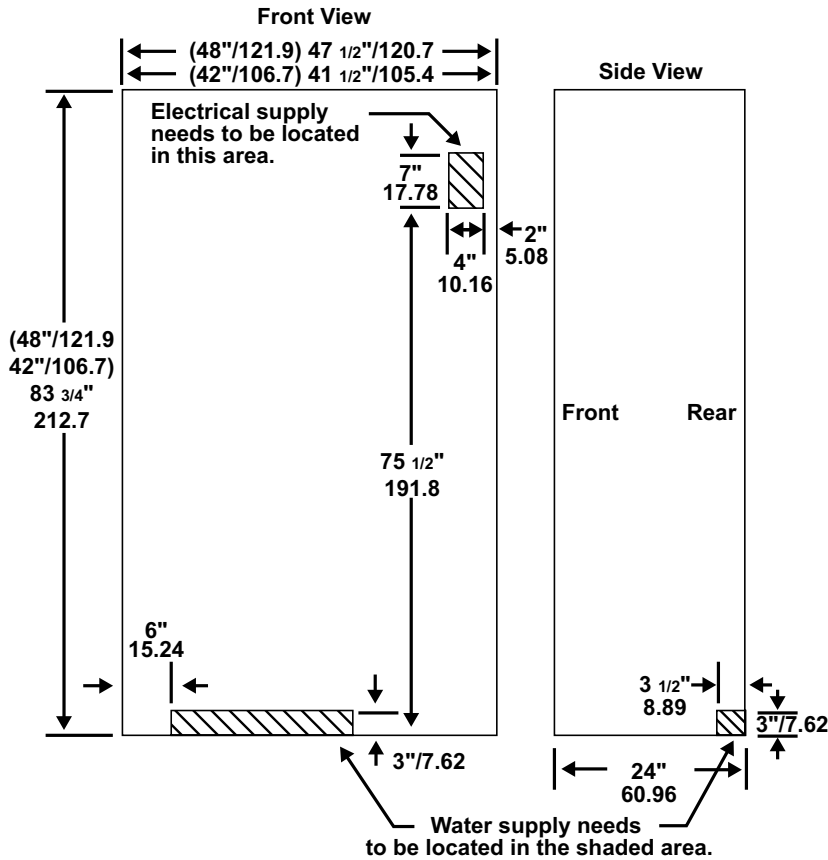


Fig. 1

Plumbing Connection

Rough in the water line for the location (Fig. 1). Connect a 1/4" copper line to the house supply. Use a shut off valve between the refrigerator and supply. The shut off should be a drilled saddle valve. Do not use a self-tapping valve. The ice maker operates on 30 to 120 PSI. Route the water line within a 1/2" of the wall and no higher than 3" from the floor. Allow at least 3' of excess copper tubing outside the wall or floor for easy connection to the water valve. *Prior to connection assure that the supply and the copper tubes have been flushed until the water runs clear.

Reverse Osmosis

Remove the water inlet connector from the "Yellow" valve and attach to the "Blue" valve. Assure that the water filter bypass plug is in place.

DACOR BUILT-IN REFRIGERATOR SERVICE MANUAL

Uncrating the Unit

Uncrate the unit. Remove the lower shipping bolts and brackets. Slide the unit off of the crate base. Remove and save the lower kickplate, anti-tipping brackets and mounting hardware. (Fig. 2a) Remove the grille, this will help when moving the unit. (Fig. 2b)

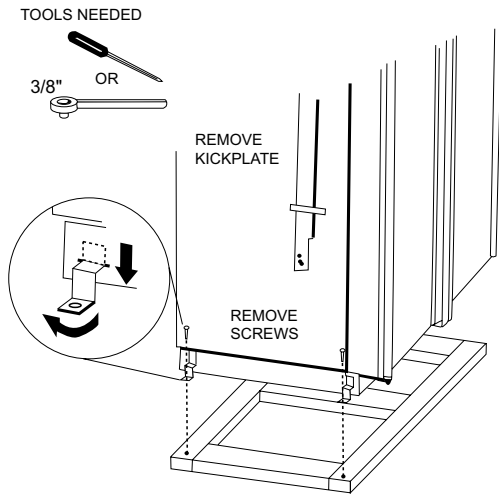


Fig. 2a

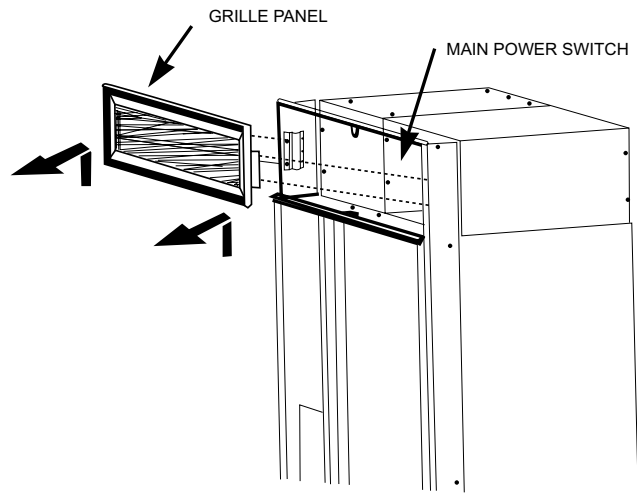


Fig. 2b

Water Line Installation

Connect the water supply to the water valve.
Turn the water on and check for leaks.
Plug the unit in. (Fig. 3)

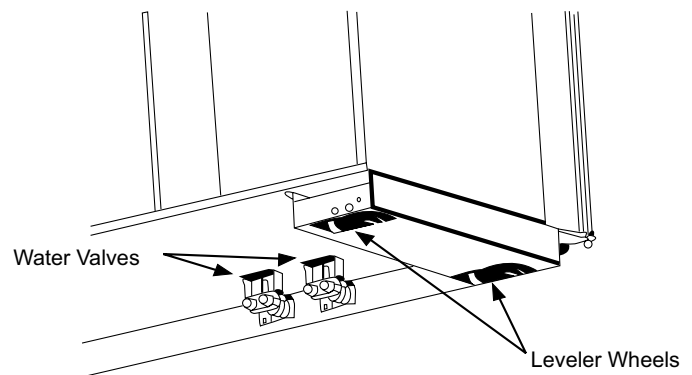


Fig. 3

SECTION 1 - PRODUCT FAMILIARIZATION

Leveling

Slide the unit in place and raise the front and rear levelers until the unit touches the brackets. Use a 3/8" socket for raising and lowering the unit. On each wheel housing there are two 3/8" hex bolts. On the left side, the outside bolt will move the rear leveler and the inside bolt will move the front leveler. On the right side, the outside bolt adjusts the front leveler and the inside bolt will move the rear leveler (Fig. 4). The front levelers must be in contact with the floor. To raise the leveling legs, turn the hex screw in the counter clockwise direction. Place a level on lower ledge of the machine compartment. Level the unit front to back and side to side. This is to prevent tipping of the unit (See Fig. 7). Install the kickplate. Locate the main power switch in the machine compartment and toggle the switch "On". Install the grille panel.

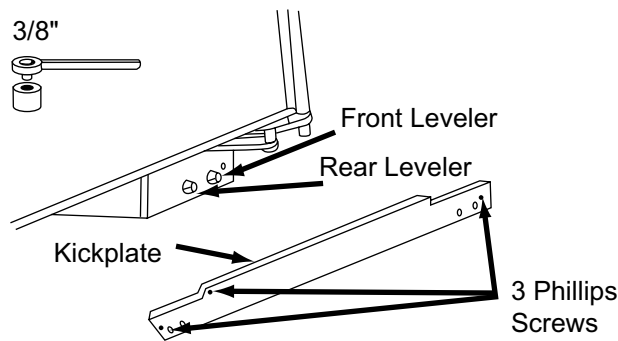


Fig. 4

90° Door Stop

Both doors are designed to open 135 degrees. To restrict one or both doors to a 90 degree opening use the door stops supplied in this kit. With the doors closed, screw a door stop into the underside of the lower hinge plate (Fig. 5).

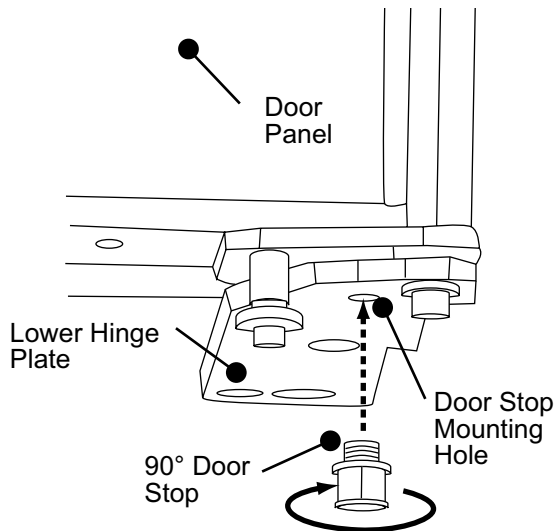


Fig. 5

DACOR BUILT-IN REFRIGERATOR SERVICE MANUAL

Blocking the Unit

If there is a solid soffit above the unit and the clearance is 1" or less you will not need to block the unit. For installations with clearances of more than 1", you must use the anti-tipping 2x4 and brackets provided (Fig. 6).

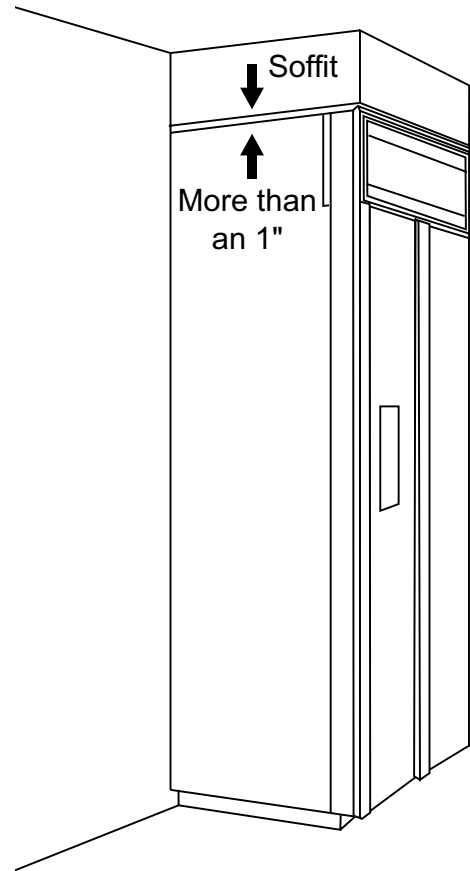


Fig. 6

More than 1" Clearance

Use the anti-tipping kit provided with the shipping crate. Locate and mark the 2 wall studs behind the unit. Mark where the "L" brackets and 2x4 will be located and drill 2 pilot holes 1/8". Locate the proper height to clear the unit. The space between the top of the unit and bottom of the wood block must not exceed 1/4". Secure the "L" brackets, using the provided screws, into the wall studs (①). Make sure the screws will extend 7/8" into the wall studs. Align the pilot holes with the "L" brackets and secure the 2x4 with the screws provided (②, ③).

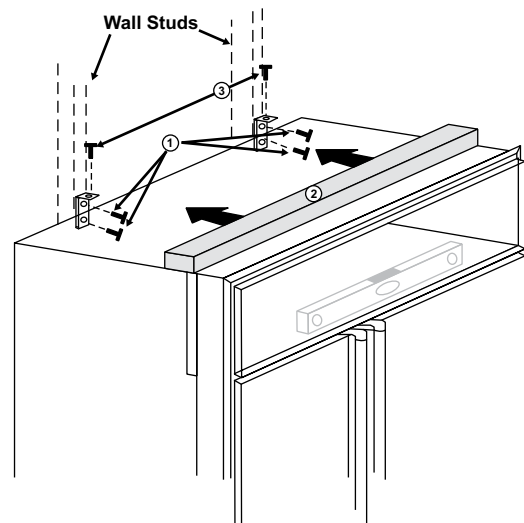


Fig. 7

SECTION 1 - PRODUCT FAMILIARIZATION

Installing Backer Panels

Remove the door handle or trim piece on overlay models. A magnetic backed molding hides the handle or overlay trim screws. Use the adhesive side of the packaging tape on the magnetic backed molding to pull it away from door (Fig. 8a). Remove the screws with a Phillips screwdriver (Fig. 8b). Slide the backer panel into position. The backer panel needs to be under the trim. Install the handle. Replace the molding in the channel, and reset the magnetic backed molding. To install the backer panel on the grille remove the screws on the top and bottom of the upper cover (Fig. 8c). DO NOT REMOVE the foam. Slide the backer panel into place and replace screws (Fig. 8d). If the thickness of the backer panel is less than a ¼", back it up with a sheet of shim material to obtain a ¼" thickness. Cardboard is recommended for Stainless Steel application. For panel size refer to Fig. 10.



CAUTION

Do not drive screws or sharp objects into the doors. Do not pinch door seal when reinstalling handle.

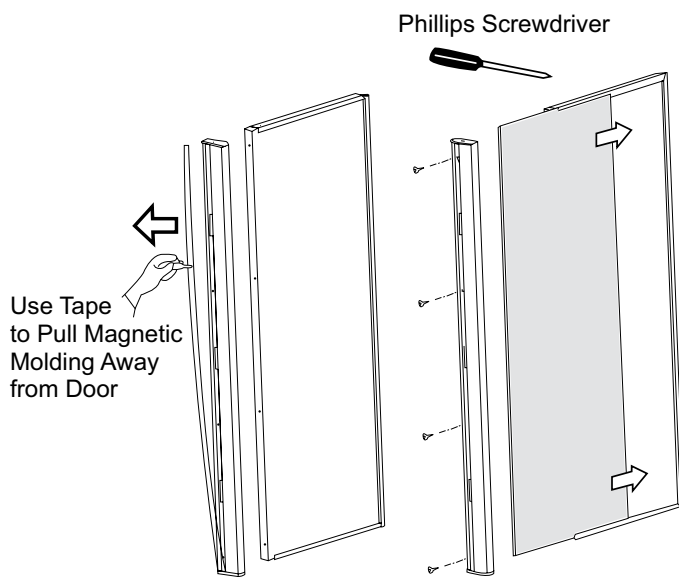


Fig. 8a

Fig. 8b

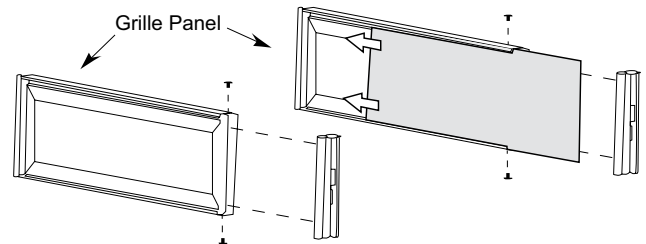


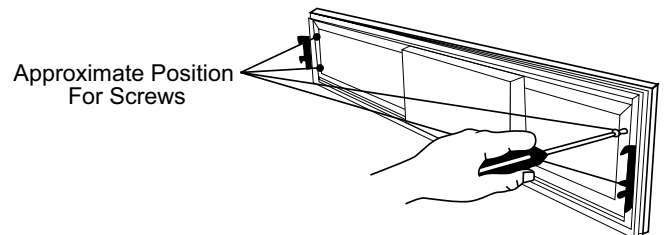
Fig. 8c

Fig. 8d



CAUTION

When attaching a raised wood panel of ½" or thicker, secure the raised panel to the back of the grille cover frame. Use 4 #8 or similar screws. See illustration for approximate locations.



DACOR BUILT-IN REFRIGERATOR SERVICE MANUAL

Panel Installation for Dispenser Models

See section "Installing Backer Panels" for handle/trim piece removal. With handle/trim piece removed slide upper and lower panels in position. To replace dispenser panels, slide out Spill Tray grille and remove 2 Torx screws (see inset). Insert replacement panel. Reinsert Torx screw and reinstall handle/trim piece. To replace second dispenser panel, open freezer door until 4 Phillips screws that hold the door trim in place are accessible. Remove screws and slide out door trim. Close door and insert replacement panel. Reinsert Torx screw and reinstall door trim.

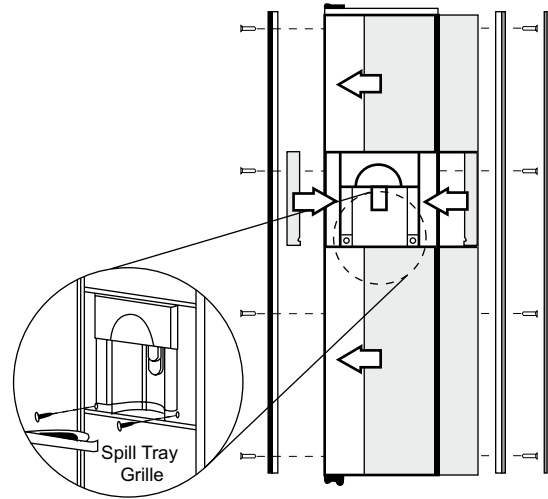


Fig. 9

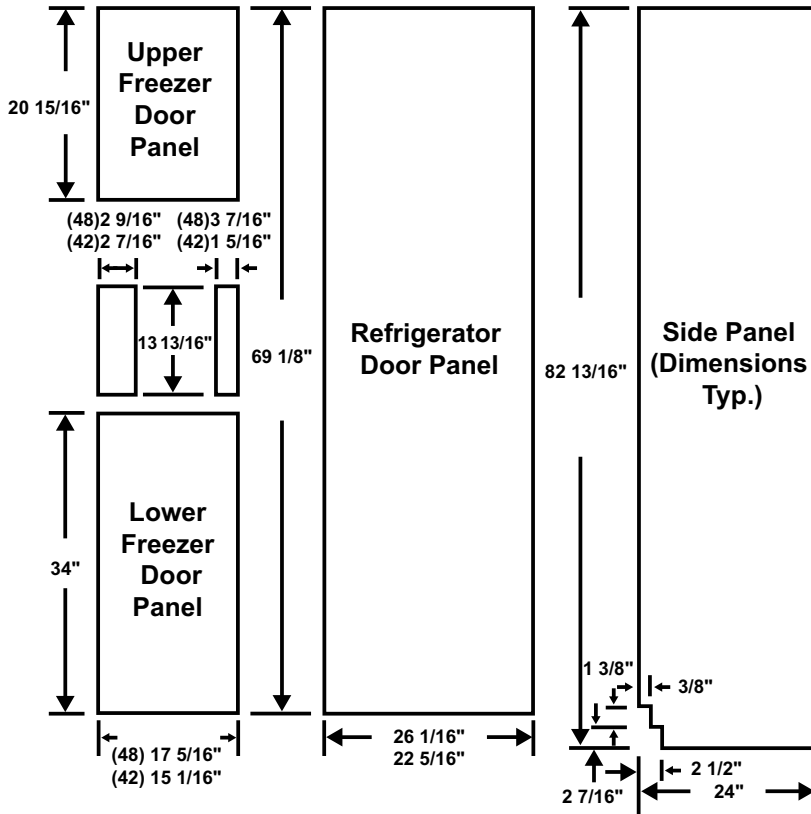
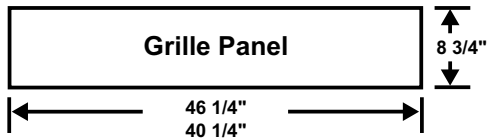
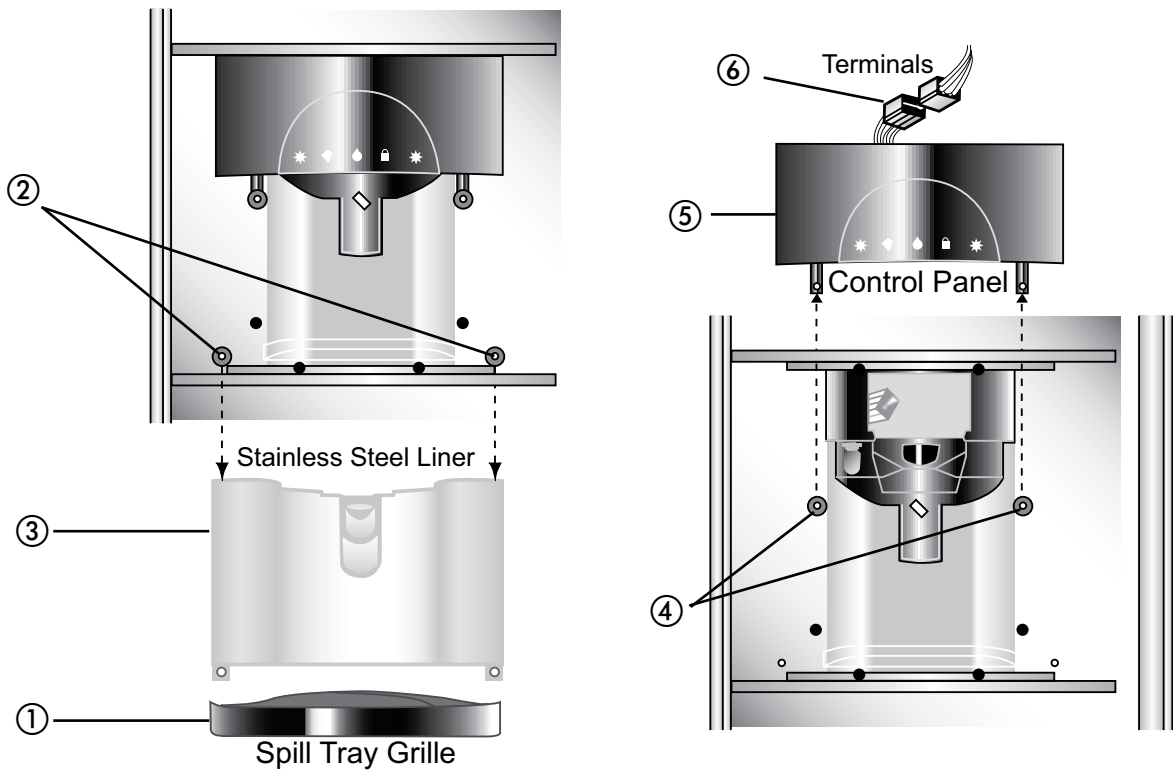


Fig. 10

SECTION 1 - PRODUCT FAMILIARIZATION

One-piece Overlay/Frame Panel Installation

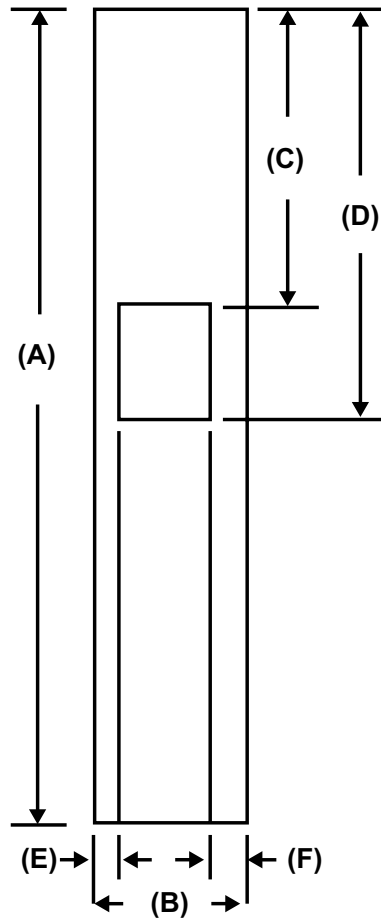
See Owner Manual for switching "OFF / O" the unit. Reference Fig. 9 for door panel removal and installation. With panels removed reattach hinge trim. Life slide out Spill Tray grille and remove 2 Torx screws ①, ②. Remove stainless steel liner ③. Remove 2 Torx screws from the control panel ④. Slide control panel down to remove. Disconnect terminals on back of control panel ⑤. Tuck dispenser terminal inside to avoid interfering with one-piece panel ⑥. Open door and slide one-piece panel into position. Reconnect control panel to dispenser terminal. Reattach control panel with 2 Torx screws. Reposition stainless steel liner into track and secure with 2 Torx screws. Reinstall the Spill Tray grille and door trim. Turn unit on.



DACOR BUILT-IN REFRIGERATOR SERVICE MANUAL

Panel Details

Dispenser One-Piece Freezer Framed Panel



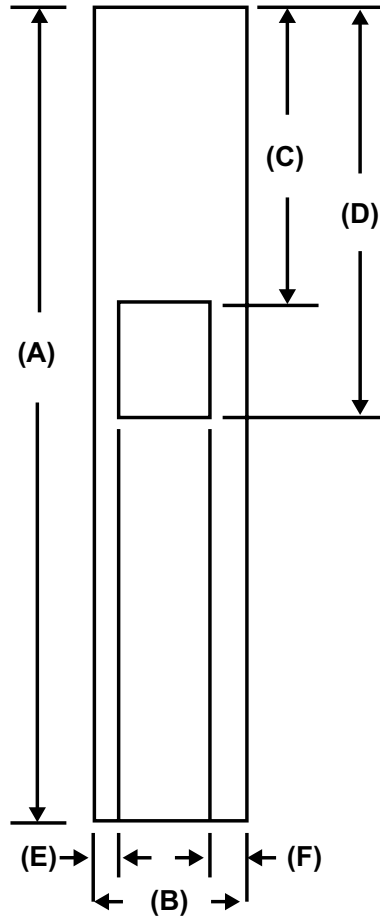
Dispenser One-Piece Freezer Framed Panel

	42" Wide Cabinet		48" Wide Cabinet	
	Inches	Cm	Inches	Cm
(A) Panel Height	69 1/8	175.6	69 1/8	175.6
(B) Panel Width	15 1/16	38.26	17 5/16	43.97
(C) Top of dispenser cutout to top of panel	20 5/8	52.39	20 5/8	52.39
(D) Bottom of dispenser cutout to top of panel	35 7/16	90.01	35 7/16	90.01
(E) Left of dispenser cutout width	2 7/16	6.19	2 9/16	6.51
(F) Right of dispenser cutout width	1 5/16	3.33	3 3/8	8.57

SECTION 1 - PRODUCT FAMILIARIZATION

Panel Details (continued)

Dispenser One-Piece Freezer Overlay Panel



Dispenser One-Piece Freezer Overlay Panel

	42" Wide Cabinet		48" Wide Cabinet	
	Inches	Cm	Inches	Cm
(A) Panel Height	69 1/8	175.6	69 1/8	175.6
(B) Panel Width	16 7/16	41.75	18 11/16	47.47
(C) Top of dispenser cutout to top of panel	21 3/16	53.82	21 3/16	53.82
(D) Bottom of dispenser cutout to top of panel	34 13/16	88.42	34 13/16	88.42
(E) Left of dispenser cutout width	2 1/16	5.24	2 3/16	5.56
(F) Right of dispenser cutout width	2 1/4	5.72	4 3/8	11.11

DACOR BUILT-IN REFRIGERATOR SERVICE MANUAL

Installing Side Panels

Optional side panels need to be 1/4-inch thick. Slide panel into position and secure with screws indicated by the shaded area (Fig 11a). A 3/16-inch batten is required between the cabinet and side panel (Fig. 11b). A 1/2-inch thick by 10 1/4-inch tall batten is required if the side panel extends up into the machine compartment area on the refrigerator side (Fig. 11c).

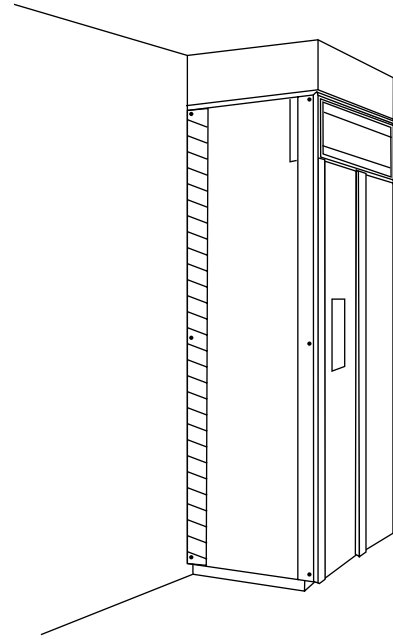


Fig. 11a

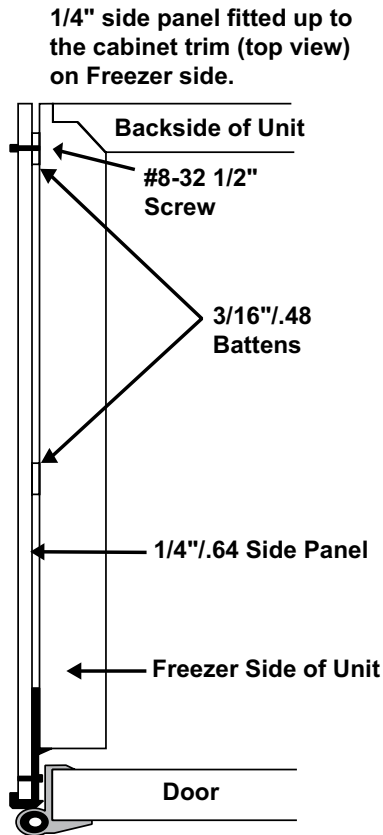


Fig. 11b

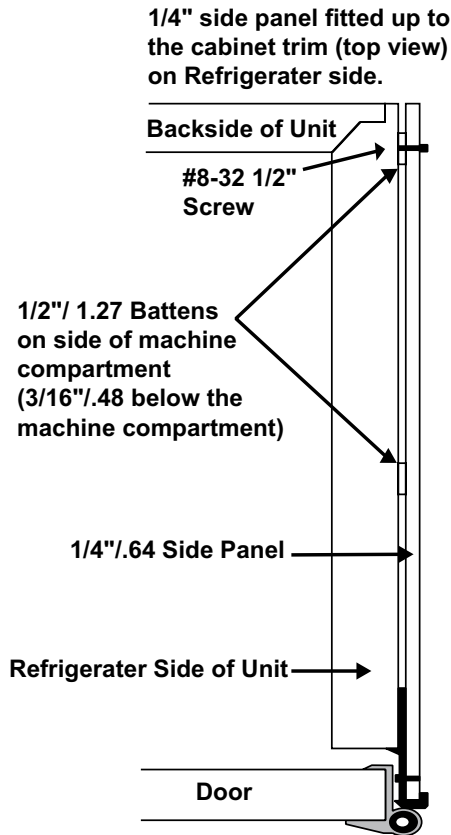


Fig. 11c

SECTION 1 - PRODUCT FAMILIARIZATION

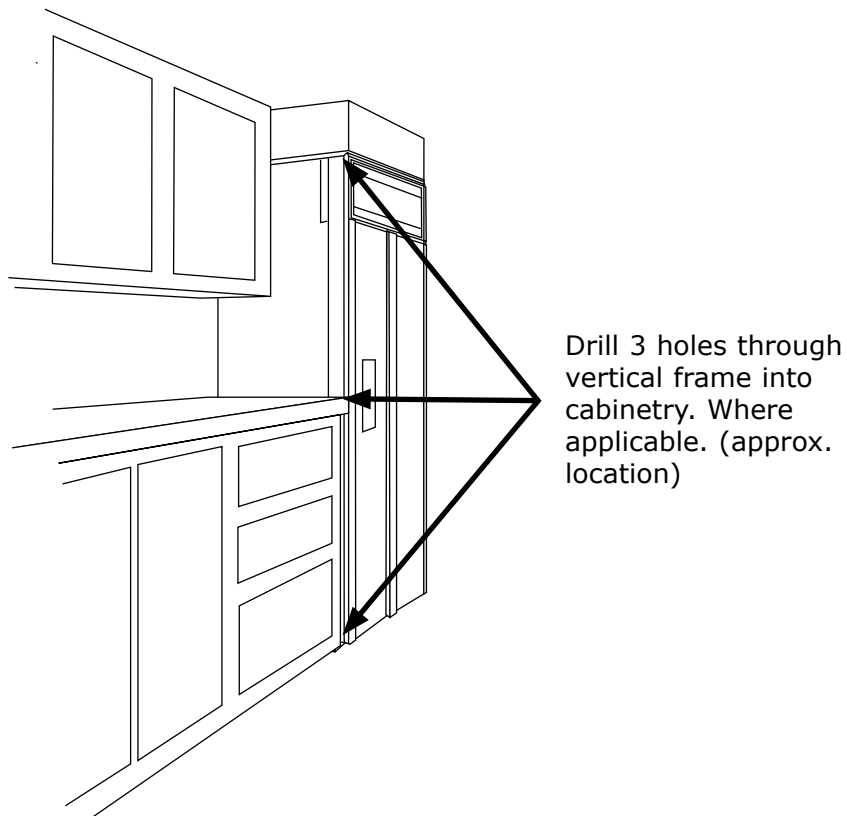
Anchor the Unit (Optional)

If you are attaching the unit to cabinetry, drill three 3/16" holes through both outer trims. Drill 1/8" pilot holes into the cabinetry. Install screws.

Additionally: If the depth/height of opening is excessive use steel hanger strap. Double over strap at the anchor points to secure cabinet.

Adjust Door Hinges

Check to make sure the doors are properly adjusted. If not, adjust the top hinges. The hinges are slotted for side to side movement. Remove and discard the small Phillips screw on the door hinge, which is located on the hinge. Adjust the top hinges by loosening the 3 large Torx screws. Tighten the screws after the doors are adjusted. Extruded door handles can be adjusted for alignment by loosening the screws under the magnetic backed molding (Fig. 8a).

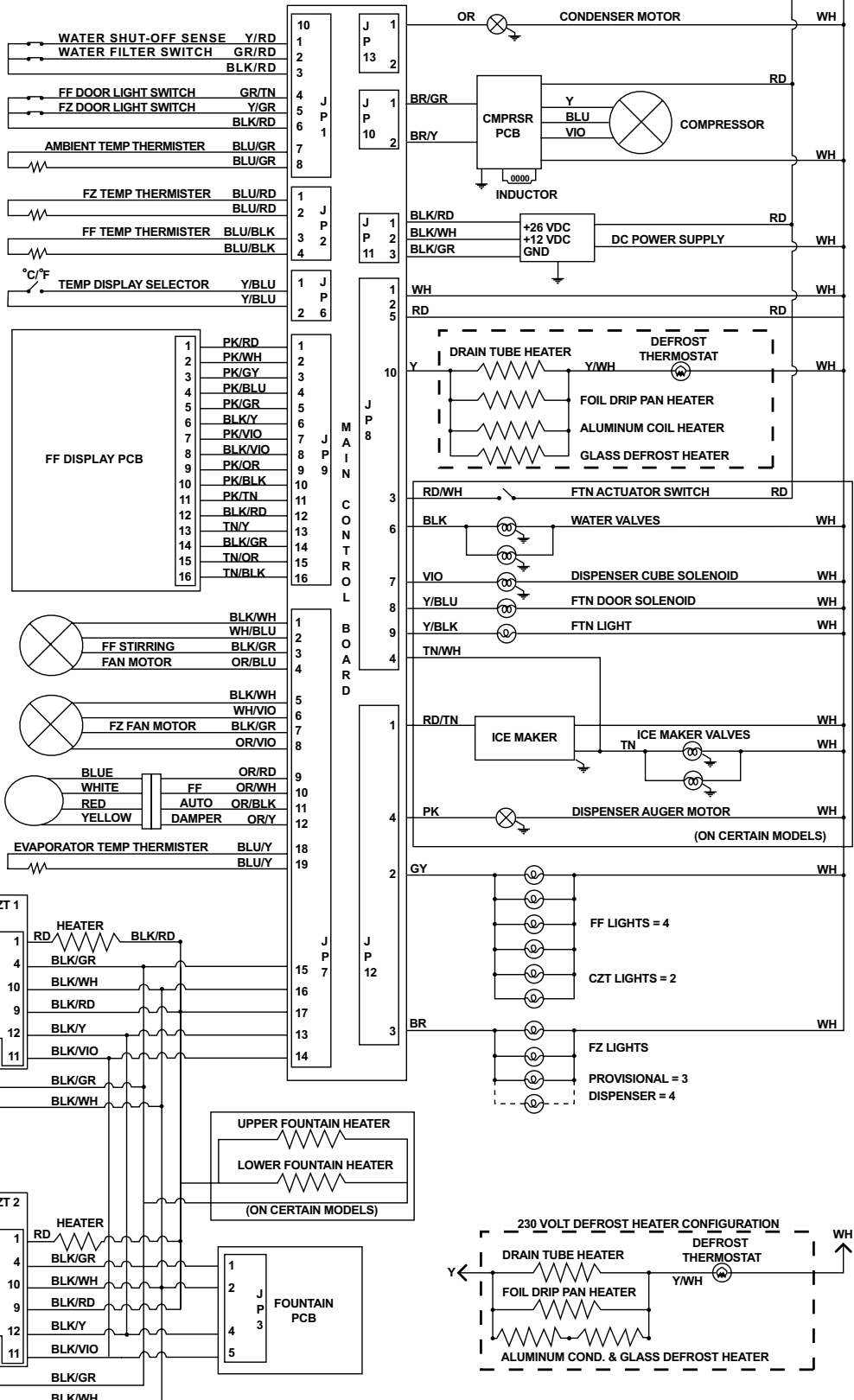


DACOR BUILT-IN REFRIGERATOR SERVICE MANUAL

NOTES:
 POWER SUPPLY DC GROUND AND CABINET EARTH GROUND ARE NOT THE SAME.
 FOUNTAIN HEATERS (IF APPLICABLE) ARE FOAMED IN PLACE AND ARE NOT SERVICEABLE.

COMPONENT RESISTANCES (OHMS)

	115V	230V
DRAIN TUBE HEATER	882	3527
FOIL DRIP PAN HEATER 42"	1653	6613
FOIL DRIP PAN HEATER 48"	1323	5290
ALUMINUM COIL HEATER 42"	44.5	71.4
ALUMINUM COIL HEATER 48"	37.8	60.6
GLASS DEFOST HEATER 42"	72.7	40.4
GLASS DEFOST HEATER 48"	60.6	33.9
CZT HEATER	113	113
DEFOST THERMOSTAT	240K	240K
UPPER FOUNTAIN HEATER	338	338
LOWER FOUNTAIN HEATER	1352	1352



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Section 2 - Technical Orientation

Dacor Built-in Refrigerator Technical Orientation

Do Not remove or install the FoodSaver™Technology (FoodSaver) drawers with power applied to the system. Always disconnect the main power before relamping or removing a FoodSaver assembly. Main power can be disconnected by switching the main power switch to the OFF position.

The Dacor Built-in Refrigeration **MUST** be secured to prevent the possibility of tipping. With the short footprint (24 inches) and long doors it would be easy for heavily loaded doors to create an unbalanced situation. If the system is installed into an opening less than one inch higher than the cabinet, the opening itself can be used to prevent tipping. If the area above the unit is open to the ceiling, an anti-tip bracket must be installed. Use the leveling system to tighten the cabinet against the anti-tip bracket.

System Overview

The Dacor Built-in Refrigeration incorporates solid state control of all functions. All components in the system are controlled by the Main Control Board.

There is a major division between the components used with this refrigeration product. Many of the components are considered low voltage components while the remaining components are powered by the line voltage. (120VAC).

One unified wiring diagram has been created for all versions of this product. When viewing the diagram, all components connected to the left side of the Main Control Board are powered by DC low-voltage. The components connected to the right side of the board are powered by 120VAC.

This means that the fresh food and freezer fans as well as the damper and FoodSaver assemblies are all powered by DC. With this many DC components included in one product a robust power supply is needed. The power supply is shown in the unified wiring diagram just below the compressor in the upper right quadrant of the drawing.

DC Power Supply

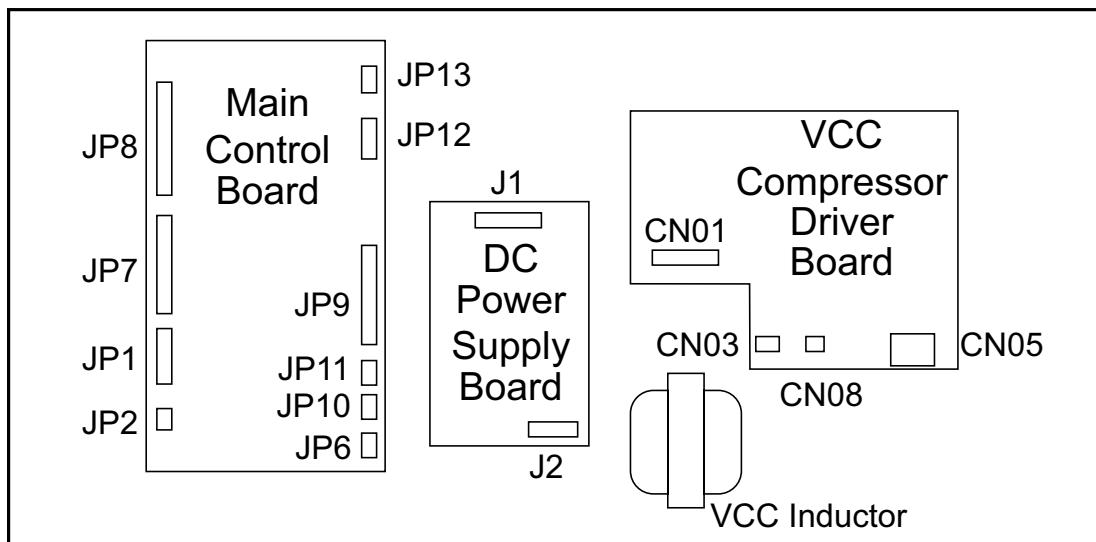
The DC supply is powered by line voltage and provides +12VDC and +26VDC to the appliance. All DC measurements must be referenced to the DC ground. The +12VDC supply is provided through a black wire with a white tracer (BLK/WH), any place throughout the cabinet that a BLK/WH wire is found it will be the +12VDC supply. The black wire with red tracer (BLK/RD) is the +26VDC supply. Anywhere the BLK/RD wire is used it is the +26VDC supply. The black wire with the green tracer (BLK/GR) is the DC ground. It is important that any DC measurements are referenced to this line when diagnosing the refrigeration control system.

Since a consistent color scheme is used throughout the cabinet it is very easy to determine the supply voltage for the DC components. Starting from the top on the left side of the Main Control we find that +26VDC is supplied to the water filter and bypass cap switches as well as the door switches. The display PCB and customer control panel is powered by +26VDC. The fresh food stirring fan and the freezer fan (evaporator fan) are powered by +12VDC. The FoodSaver drawers are supplied with both +12VDC and +26VDC.

DACOR BUILT-IN REFRIGERATOR SERVICE MANUAL

NOTE

- This type of power supply has very sensitive short circuit protection. Should an excessive load be detected on one of the power supply lines the DC supply will shut down. After a short off time the power supply will attempt to restart. If the short is still present on the DC power line it will shut off again and attempt to restart. This cycling will make the supply appear to be pulsing. The DC voltage may be present for a very short time and then it will disappear again. It is hoped that this sensitive protection will help to prevent damage to the DC supply.
- Diagnosis to locate the excessive load is a trial and error process. The first step is to verify that the power supply is indeed capable of providing the needed voltages. With the power disconnected from the appliance (Main power switch off), unplug JP11. If the power supply resumes normal operation, you have verified that the power supply is capable of operation. Disconnect the main power.
- Reinstall JP11 and unplug JP7 and JP9. Reinstall power. If the DC supply resumes normal operation you have eliminated the Main Control Board as the source of the excessive load on the power supply. Disconnect power and reinstall JP9. If the power supply continues normal operation you have eliminated the display as the source of the excessive load.
- JP7 supplies power to the FoodSaver™ modules, the dispenser, the electronic damper and both the evaporator and fresh food fans. Plugging this in will put you back where you had started. You will need to isolate the possible source of the excessive load to progress further. There are two options to progress with from here.
- One method would be to disconnect each individual component from the harness and add them in one at a time. This would require considerable disassembly of the product and would not be an efficient method to isolate the failed component. The second method would involve resistance checks from JP7 itself. Checking for shorts off of the harness can be a quick process to determine what further actions are required. Remember that with JP7 disconnected, the DC ground is disconnected from these components so all resistance checks would need to be taken between two pins in the connector itself.



Circuit Board and Connector Locations

SECTION 2 - TECHNICAL ORIENTATION

Refer to the table below for typical resistances. The main objective is to locate resistances that are considerably lower than the values given in the table.

Pin	Pin	Resistance
JP7-1	JP7-3	1.9KOhm
JP7-5	JP7-7	3KOhm
JP7-15	JP7-16	1KOhm
JP7-15	JP7-17	250Ohm

If the low resistance is found to be between pins JP7-15 and either of pins JP7-16 or JP7-17 you will need to further isolate the source of the low resistance between the two FoodSaver™ assemblies and the dispenser assembly.

System Control

The control system relies heavily upon digital communication. All components communicate with the Main Control Board for proper operation. Some components have dedicated inputs to the Main board. These components will include the door switches, thermistors, and the temperature display selector. These components return voltage levels to govern the actions of the Main board.

The Display PCB, FoodSaver assemblies and the Dispenser (Fountain PCB) all communicate with the Main board using serial data communication. Serial data communication allows several components to use the same input wires for complex operations.

Serial data allows the FoodSaver assemblies to notify the Main board of the current temperature as well as the desired temperature. The Main Board can then determine the level of cooling needed for the entire appliance. Requests for ice and water dispensing are sent via the data lines and the appropriate solenoids are energized.

Loss of communication can result in various faults. If an open or poor connection is at the Main Board, all communication will be affected. If the open is at the opposite end of a wire harness, only the board with the loose connection will be affected.



NOTE

- This type of control system poses a challenge to the service technician. Many problems may go away by resetting the system. A reset can be accomplished by turning off the main power switch for ten seconds and reinstating power. This can result in a system that cannot be diagnosed as the fault is no longer apparent. It might be beneficial to do some troubleshooting before resetting the system to locate an intermittent service issue.
- Faults in the data communication system can result in parts of the system not functioning while others will operate. Determining the location of a fault in the data communication system is a process of deductive reasoning.
- The first step is to verify that the Main Board is capable of sending and receiving data. If the dispenser works, or the FoodSaver displays illuminate when the door is opened, or the temperature can be adjusted, the Main Board is capable of sending and receiving data. Do not replace the Main Board.

NOTE (CONTINUED)

- If you can adjust temperature on one FoodSaver™ assembly but not the other, check the connections to the non-functioning unit. If data is present at the connector, the fault is likely to be in the FoodSaver itself. If data is not present at the connector suspect a fault between the Main Board and the FoodSaver. A similar process can be used with any of the components on the data communication system.
- Verification of the data will be different for almost every model of multimeter. The data signal is a five volt Peak to Peak square wave. The frequency and duty cycle of this wave form will be constantly changing. Many voltmeters will detect this signal as approximately 2.5VAC. Similarly, the DC range on many meters will detect 2.5VDC. If using a frequency counter you will see the frequency vary as the data itself changes. Readings of a constant 0VAC or 0VDC would in most cases indicate an absence of information on the data lines.

Temperature Monitoring

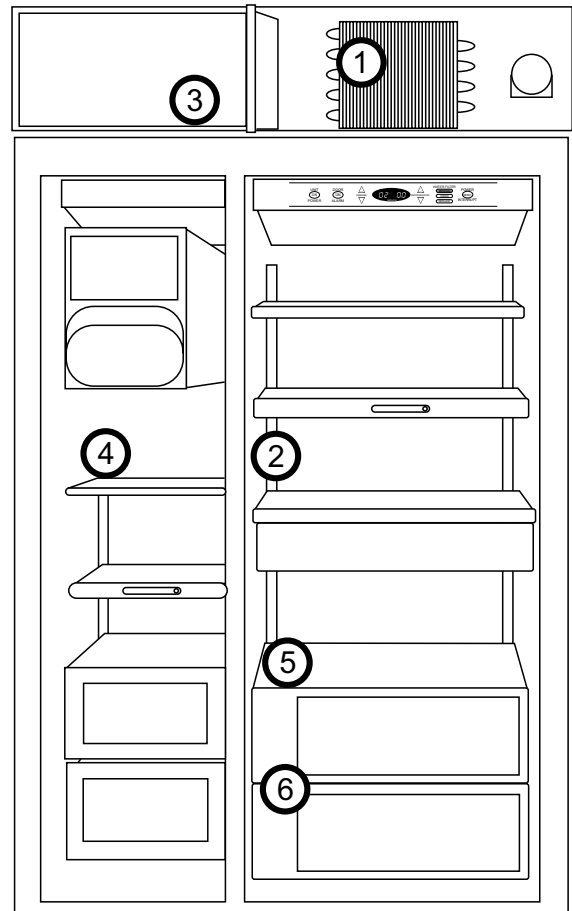
There are a total of six thermistors involved in making decisions that affect the running speed of the compressor. They are:

- ① Ambient Temperature Thermistor
- ② Fresh Food Section Thermistor
- ③ Evaporator Thermistor
- ④ Freezer Section Thermistor
- ⑤ Upper FoodSaver™ Thermistor
- ⑥ Lower FoodSaver™ Thermistor

Information from these six locations is provided to the Main Board and the correct run speed for the compressor is determined. Failure of a thermistor will result in incorrect system operation.

If either the fresh food or freezer thermistor opens the system will assume that the temperature is well below the desired temperature and no cooling will be provided. If the thermistor shorts, the system will assume the temperature in the cabinet is much too warm and the compressor will run constantly in an effort to satisfy the Main Control Board.

The ambient temperature sensor is used to monitor room temperature. The air heading into the condenser is sampled. Since ambient conditions affect the system's ability to transfer heat to the environment, this measurement is used to help set the speed of the compressor. If this thermistor were to fail, the compressor may not run at the most efficient speed to keep the interior cool but the proper cabinet temperatures should be maintained.



SECTION 2 - TECHNICAL ORIENTATION

Temperature Monitoring (continued)

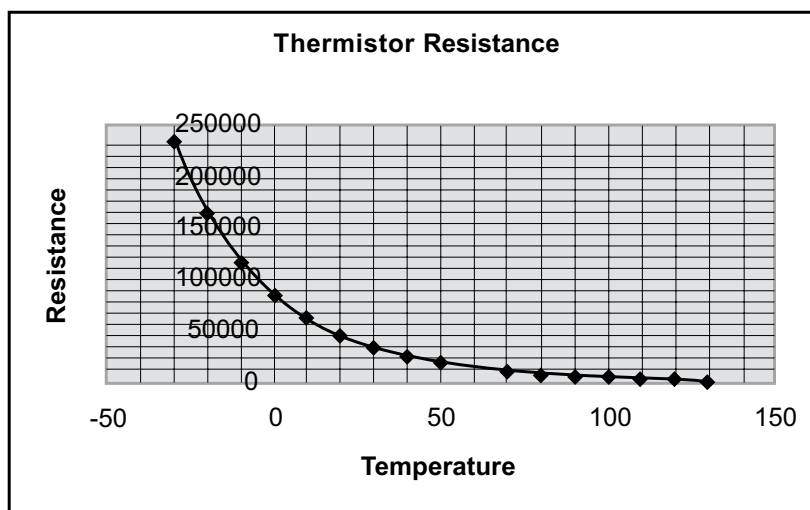
The evaporator thermistor monitors the evaporator temperature and is used in the compressor speed algorithm. A second duty of the evaporator thermistor is termination of the defrost cycle. While there is a safety thermostat available in case of system failure, the end of defrost is determined by the thermistor reading.



NOTE

- All six thermistors can be checked from the control panel by using the service mode. The initial tests will give you a GO-NO GO check of the thermistor. This will determine if the component has either shorted or opened. The secondary check will display the temperature that the system believes the thermistor to be.
- If a thermistor is a few degrees off from your findings with a calibrated digital thermometer, it is not usually a cause for concern. If a thermistor is considerably different than the actual temperature the system will not provide the proper cooling capacity. This could result in frozen items in the fresh food compartment or thawing of frozen goods.
- If you see a temperature display of -99 for either the fresh food or freezer section it is an indication of an open thermistor in that compartment. If you see a temperature reading of 99, it is an indication of a shorted thermistor.

<u>Temperature</u> (Degrees F)	<u>Resistance</u>
0	85KOhm
10	62.5KOhm
20	46KOhm
30	34.5KOhm
40	26KOhm



DACOR BUILT-IN REFRIGERATOR SERVICE MANUAL

Variable Capacity Compressor

The sealed system in the Dacor Built-in Refrigerators incorporate Variable Capacity Cooling.

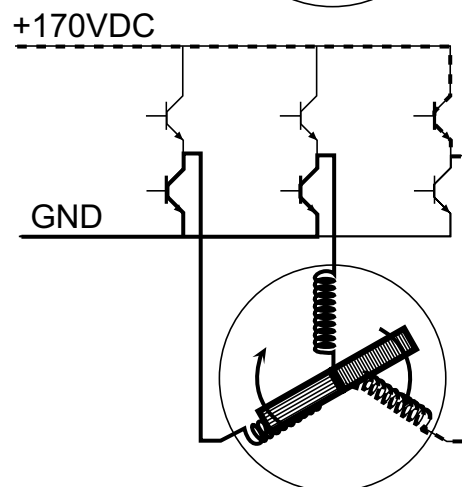
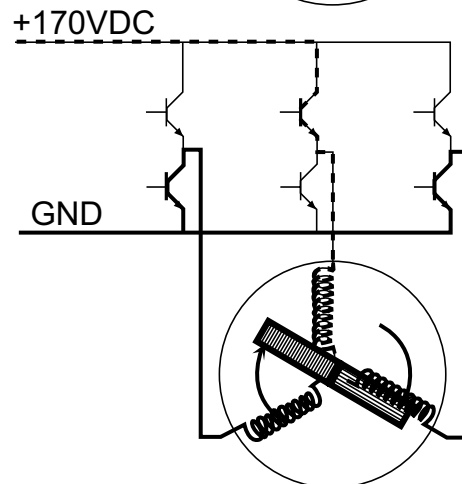
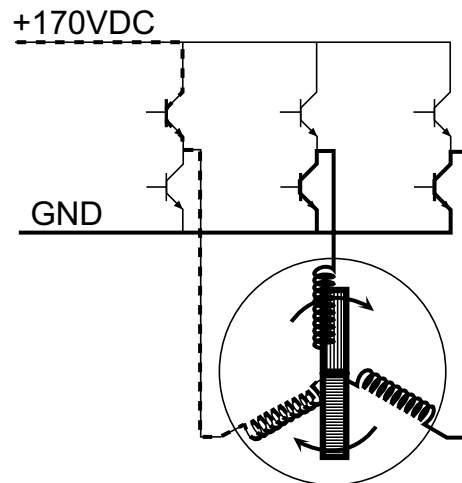
Most conventional refrigeration systems use single speed compressors. The capacity is constant and the controls meet the cooling demand by cycling the compressor on and off. With a Variable Capacity Compressor (VCC), the compressor speed is adjusted to better match the cooling requirements of the refrigerator itself. This results in longer run times at a lower capacity.

Since the most stress and instantaneous energy usage occurs while a motor is starting; by eliminating the number of times the system cycles off, the stress on the system is minimized. The other advantage of operation at a lower speed is reduced sound levels. A compressor running at a lower speed will produce less noise in the vicinity of the refrigerator.

The Main Control Board uses information from all six thermistors to determine the compressor speed. The compressor will always start at high speed but will quickly adjust to the calculated capacity after starting.

The compressor motor is a three-winding motor. These three windings are powered by the Compressor PCB (Printed Circuit Board). The Compressor PCB is controlled by the Main Control Board.

The Compressor PCB is supplied power from the AC line cord. This AC power is converted to DC power on the board. The DC power is sequentially switched to the three motor windings to drive the compressor. By adjusting the speed at which these three windings are switched, the speed of the compressor can be adjusted. The switching speed is determined by the Main Board and is communicated by sending a variable frequency signal from the Main Board to the Compressor PCB. This signal can range from 150 cycles per second (Hz) to 53 cycles per second. The resulting compressor speed will adjust between 4500 RPM to 1600 RPM.





NOTE

- The Variable Capacity Compressor looks very similar to a standard single speed compressor. The three terminals on the outside of the compressor are arranged the same with either style of system. When taking resistance measurements around the terminals on the outside of the case do not let the different motor design cause confusion. The first check is to still verify that there is NO continuity to the case itself. This is the same as with any standard compressor. When checking between the three terminals, the resistance measurements should be equal regardless of which two terminals you are checking. There are three identical windings attached to these terminals so the resistance of the windings should be equal.
- Because of the frequency of the following voltage tests, not all Multimeters may be capable of measuring the correct voltage. These tests were made using a good quality Multimeter. The same checks made with a more economical meter resulted in severely lower voltage readings.
- The voltages read by your meter will most likely not match the readings made with another meter. The goal is to verify the presence of drive signals. The signal from the Main Control board to the VCC board should read around 2.3VAC. This measurement has been quite consistent with several different meters. The drive signal from the VCC control board to the compressor is the one that will vary based upon the meter.
- There are three outputs to the compressor. These are at CN05, pins 1, 3 and 6. The voltage read between any pair of these three wires should be the same. If you read 230VAC between pins 1 and 3 you should also read 230VAC between pins 1 and 6 as well as 230VAC between pins 3 and 6. Likewise, if your meter registers 195VAC between pins 1 and 3 the readings between pins 1 and 6 and pins 3 and 6 should be 195VAC.
- The easiest way to assure that the compressor is being driven at full speed is to activate service test #16 in the service mode. To drive the compressor at the minimum speed, activate service test #17 (see Service Test section). The system must be allowed 5 minutes of off time before activation of service test #16 or test #17. If five minutes have not elapsed, the compressor PCB will not allow drive output to the compressor until the five minutes have elapsed. Service Tests #16 and #17 will automatically cancel after three minutes.
- If the compressor is not operating the first check should be confirmation of a drive signal from the Main Control Board to the Compressor PCB. A check of the AC voltage between pins 1 and 2 of JP10 will give a reading of approximately 2.3VAC. If the 2.3VAC drive signal is present, the Main Control Board is sending the proper drive signal.
- The next step is to verify that the line voltage is available to the Compressor PCB at CN01 between pins 2 and 5. If the AC voltage is available, check for output to the compressor. Referencing CN05, pin 1, an AC voltage check to pin 6 will read approximately 230VAC with the compressor running at full speed. While running at the lowest speed, the measured output voltage may only be 130VAC. If the output voltage is present when checking between pins 1 and 6 on CN05, move the probes to check between pins 1 and 3 of CN05 and finally between pins 3 and 6 on CN05. The readings in all of the three checks should be the same, if the voltage checks are equal and the compressor is not operating, suspect a failed compressor. There is no way to operate this compressor with a compressor start kit. The compressor must be driven by the solid-state control board.

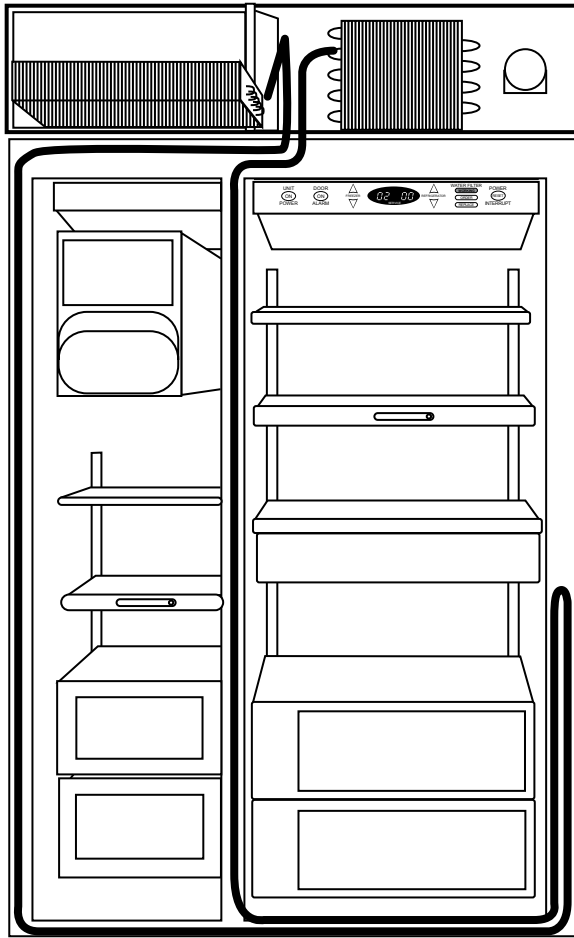
DACOR BUILT-IN REFRIGERATOR SERVICE MANUAL

Sealed System

The cooling system driven by the compressor incorporates a horizontally mounted evaporator mounted in the top of the freezer compartment and a vertical condenser coil mounted in the machine compartment. A post condenser loop (Yoder Loop) is used to minimize cabinet sweating.

Refrigerant flow is from the outlet of the compressor to the condenser. After the condenser the liquid refrigerant flows through the Post Condenser (PC) loop around the freezer door opening and back to the machine compartment. The PC loop empties into a filter/drier and supplies liquid refrigerant to the capillary tube. The capillary tube is part of the heat exchanger that crosses into the evaporator compartment and empties into the evaporator coil. From the evaporator coil the gas returns through the heat exchanger to the inlet of the compressor.

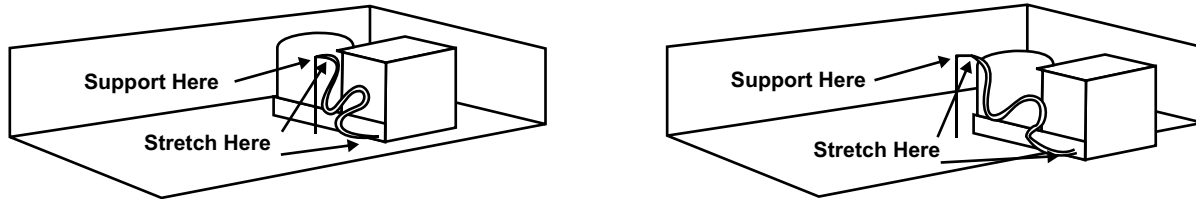
The filter drier is mounted vertically with the inlet at the top. It is critical to maintain proper positioning for both effectiveness and noise reduction. When performing any sealed system service the filter drier must be replaced.



SECTION 2 - TECHNICAL ORIENTATION

Sealed System (continued)

The condenser and compressor can be pulled into a service position by removing two screws, one on either side of the condenser coil, and extending the equipment tray out of the front of the machine compartment. To avoid damage to the PC loop, it is essential that the loop entrance to the cabinet is supported and the condenser outlet is flexed to allow room for the tray to be extended. If sealed system service is to be performed, do not remove the grounding wire on the right side of the equipment tray until after connections have been cut.



In this service position with the grounding wire still in place it is possible to service the condenser fan. The condenser fan motor is the only motor in the system powered directly by 120VAC.

The evaporator coil is accessed through the top of the freezer compartment. After removing the contents of the freezer and the upper shelves or icemaker, depending on model, remove the freezer light lens. Remove four screws and the light mounting panel and you will have access to the evaporator fan and electronic damper. After the damper and fan motor are removed there are four more screws retaining the fan shroud. Once the fan shroud is removed the foam drip tray is accessible. The hose clamp holding the drain hose to the drip pan tray must be loosened and the hose removed as the drip tray is lowered.

You now have access to the evaporator coil and defrost heaters. Should the coil need replacement, the heat exchanger comes with the evaporator.



NOTE

- When reassembling the drip pan and reinstalling heaters pay attention to the wire dressing. There are clips in the freezer compartment to retain the wires. Poorly dressed wires could become a noise problem and require a return service trip for resolution.
- To completely remove the high side of the system (compressor and condenser), pull the equipment into the service position with the ground wire attached. Support the inlet for the Yoder Loop while sliding out the compressor. Recover refrigerant. Open the refrigerant lines in two locations. The first location is at the compressor inlet end of the heat exchanger while the second is the outlet of the condenser. Once the connections have been severed, the grounding wire can be disconnected and the high side removed from the equipment compartment.

DACOR BUILT-IN REFRIGERATOR SERVICE MANUAL

Cabinet Airflow

There are a total of four fans and three dampers for controlling airflow inside of the cabinet.

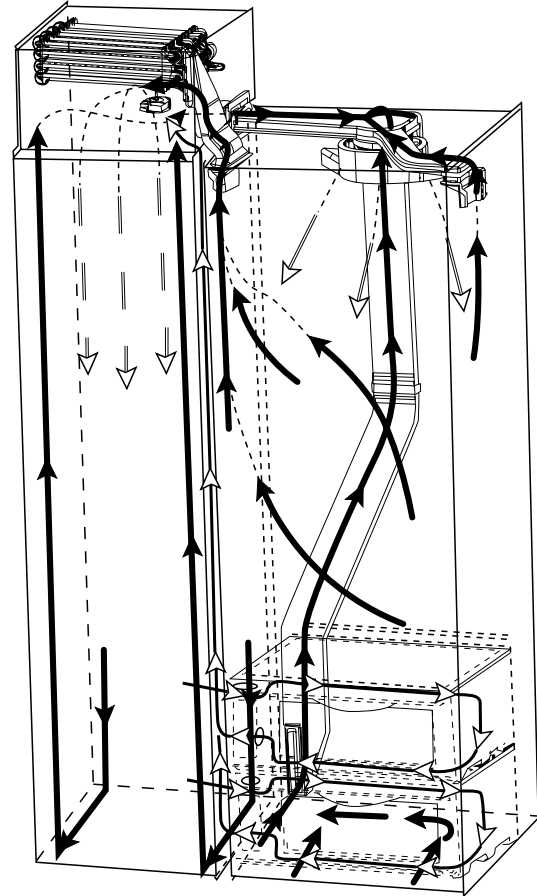
Each FoodSaver™ module has its own circulation fan and damper. The operation of this fan is controlled by the FoodSaver itself based upon the consumer's temperature selection. When there is a call for cooling, the electric damper is opened and the fan energized. This will pull cool air from the freezer section to maintain proper temperature. When the thermistor registers the proper temperature, the damper will close and the fan will cycle off. If the consumer's temperature selection for the FoodSaver is above the current temperature, a low wattage heating element will energize to maintain the desired temperature.

There is a circulating fan incorporated in the top of the fresh food compartment. This fan operates whenever the fresh food door is closed. This circulating fan prevents temperature stratification throughout the fresh food compartment. This is a DC variable speed fan. The speed is determined by the Main Control board.

Air is drawn to the fan through a snorkel in the rear of the cabinet and an air inlet near the top of the cabinet. The air is discharged through the top of the cabinet and allowed to cascade down over the contents. This constant airflow provides temperature control in all areas of the cabinet within one degree of the setpoint.

When there is a call for cooling in the fresh food section, the fresh food damper will open and allow cooler air to be drawn from the freezer compartment. The compressor may not energize at this point if sufficient cooling can be accomplished with the existing air in the freezer compartment. When the thermistor has been satisfied, the damper will close. The fresh food stirrer fan will continue to be energized whenever the fresh food door is closed.

The circulation fan in the freezer compartment is also a DC variable speed fan controlled by the Main Control board. This fan will energize whenever the freezer door is closed and there is a call for cooling from the Main Control board.



NOTE

- The circulation fans and dampers can be operated independently of each other with the service mode. This operation does not rely on the doors being closed or the current cooling demands on the system. Service Test 07 will check the operation of the fresh food fan and Service Test 19 will report the speed of the fan in revolutions per second (RPS). The evaporator fan can be checked with Service Test 08 and the speed reported through Service Test 20.
- The fresh food damper can be cycled to an open state using Service Test 09 and closed using Service Test 10.
- Since these are DC supplied variable speed motors, they cannot be tested using a jumper or cheater cord. Applying 120VAC to the inputs of these components will damage them. Verify proper power to the component and if the motor is not operating, replace the motor.
- The fan blades must be properly installed and oriented for optimum airflow. Seat the blade for placement in the fan shroud openings.

SECTION 2 - TECHNICAL ORIENTATION

Defrost System

The defrost system is both adaptive and preemptive.

The adaptive portion of the system adjusts the run time between defrost cycles to provide the optimum defrost duration.

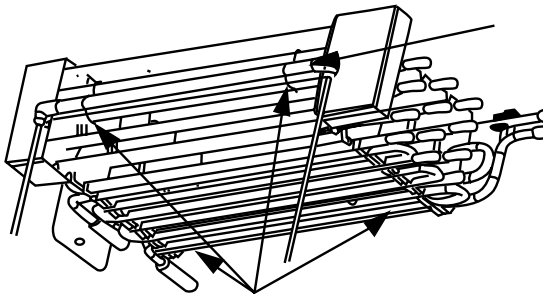
Preemptive defrost will attempt to prevent defrost cycles from occurring during high-use periods.

The Main Control board monitors door openings to track high usage periods. If the system identifies that a defrost cycle is likely to occur during a high use period, it will either begin defrost early or delay defrost until after the high use period.

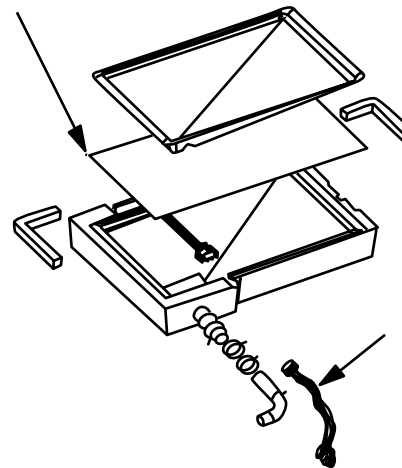
Before initiating a defrost cycle, the system will operate at maximum cooling capacity for 30 minutes. This will sub-cool the freezer section and result in a freezer temperature up to ten degrees below normal. This additional cooling will help to prevent the interior temperatures from rising much beyond the setpoint temperature during defrost.

There are three heaters wired in parallel for the defrost system. The glass defrost heaters are attached to the evaporator coil, the foil drip pan heater is under the drip tray and the tube heater is around the drain tube to prevent freeze-ups leading out of the evaporator section. Defrost termination is provided by the evaporator thermistor readings. There is a mechanical defrost thermostat wired in series with the heaters to act as a safety thermostat should the Main Control board fail to open the defrost circuit.

The defrost water is routed from the evaporator area to the machine compartment through the divider wall. The water flows into an evaporation tray with wicking pads to accelerate evaporation. These pads are located in the airpath after the condenser and the compressor so that warmed air can aid in evaporation.



Defrost Heater Locations



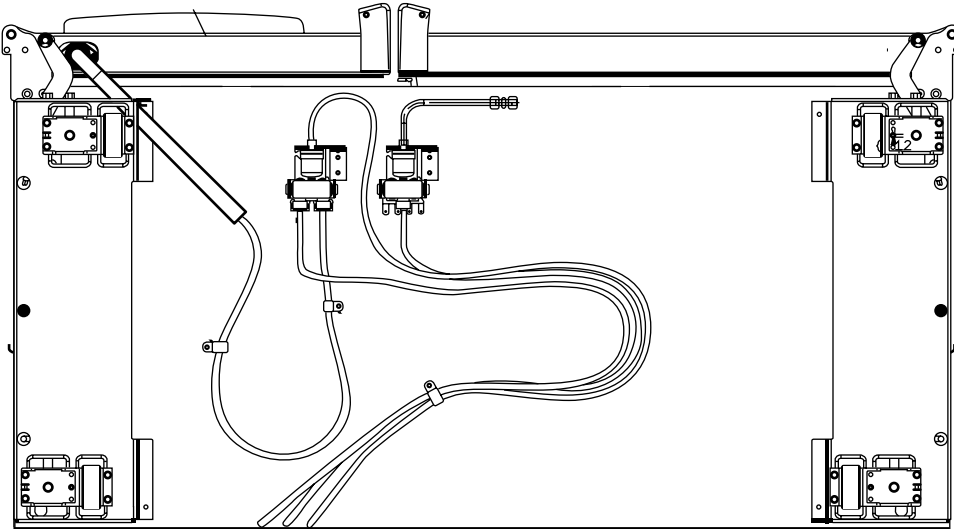
NOTE

- The defrost system can be energized through the Service Tests mode. Service Test 11 will energize the defrost heaters so long as the defrost terminator is closed. The defrost system will draw approximately 3 amps.
- While in Service Test 11 the display will show the evaporator temperature. A rising evaporator temperature will confirm that the defrost heater is energized without the need to access the evaporator.
- The defrost heaters are accessed in the same manner as the evaporator coil.

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Water Dispenser System

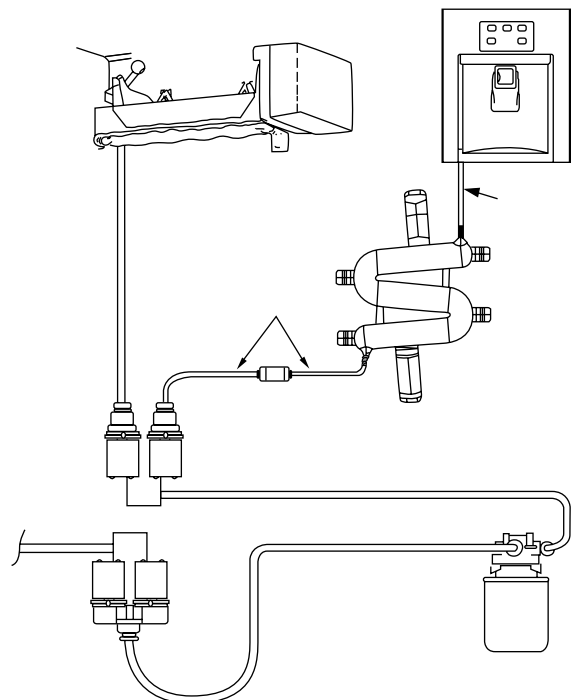
The dispenser system in certain models provides through the door ice and filtered water. The main inlet valve is located in the bottom front center of the cabinet. This allows the cabinet to be placed before the water is connected.



Water flow is from the main water valve to the water filter. From the water filter, the supply hose routes to the secondary valve, which provides water for the icemaker or the water reservoir as needed. The valves for the icemaker are controlled by the icemaker while the Main Control board controls the water dispenser valves.

The water filter is user replaceable and mounted in the machine compartment. There are two switches that monitor for the presence of the water valve or the bypass plug. The inner switch (closest to the filter base) allows the water valves to be energized while the outermost switch will provide water filter monitoring. If the bypass plug is installed, the switch mounted closest to the filter base will allow the water valves to be energized. The outermost switch will not be closed by the bypass plug. With a water filter installed, both switches are actuated.

When the outer switch is actuated, the system monitors water usage and will provide a reminder to the consumer to order a new filter prior to the time a new filter should be installed. The filter should be replaced every six months or 416 gallons, whichever comes first. The filter must be replaced while power is applied to the system. The act of opening the outermost switch and reactivating the switch will provide a reset signal to the filter monitor.



SECTION 2 - TECHNICAL ORIENTATION

Water Dispenser System (continued)

The dispenser control panel allows the consumer to select between water, crushed ice or cubed ice. The appropriate icon will illuminate to indicate the current setting. The freezer door switch must be closed for the dispenser to operate. This will prevent ice dispensing without the door closed. All operation of the dispenser is suspended while the door is opened. The consumer cannot change selections until the door is closed. The dispenser cavity light will not illuminate when the door is opened.

The other controls on the dispenser panel activate the light and the dispenser lock. To activate the light, touch the light icon. To activate the dispenser lock, tap the lock icon three times in rapid succession. When locked, the lock icon will illuminate. To deactivate the lock tap the lock icon three times in rapid succession.

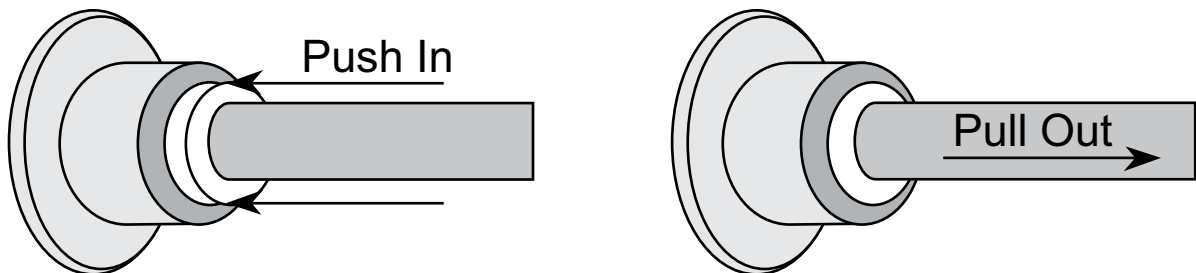
The control panel is touch sensitive glass. There are no actual switches in the control panel. All operations and requests are transmitted via the data lines and the Main Control board changes modes of operations. As an example; touching the light icon sends a signal to the Main Control board. The Main Control board activates the light and the illumination for the icon.

The auger is controlled by the Main Control board. When the dispenser switch is activated, the Main Control board will energize the dispenser auger motor. For crushed ice, the auger drives the cubes through the crusher blades. For ice cubes, the dispenser cube solenoid is energized. The cube solenoid opens the cube door allowing the cubes to bypass the crushing blades.



NOTE

- The connections out of the water valves are John Guest fittings. These fittings provide a positive connection without the need for special tools or hose fittings.



- To release the hose from the fitting, depress the ring directly adjacent to the hose. While pressing the ring in, pull the hose from the fitting. When reinstalling the hose, make sure that the hose is cut squarely and that there are no nicks or scars in the hose end.
- Reverse osmosis systems can reduce water pressure to the point that poor fill speeds may become a consumer complaint. To minimize the overall effect, the bypass cap should be used instead of the filter. If this does not provide sufficient fill rates, the next option is to bypass the first valve assembly that provides water to the filter.
- Move the copper inlet from the primary valves to the secondary valves. This valve assembly will directly feed the icemaker and the dispenser with a minimum of tubing. Even with the filter eliminated from the water flow, the bypass cap must be in place to allow the water valves to energize.
- As with all dispenser systems, if you experience frosting in the dispenser chute, it is an indication of air infiltration around the fountain door (chute flapper). Check for burrs or flashing around all components and gently remove if present. To help locate air leaks, shine a flashlight down the chute and look for light leaks around the exterior of the fountain door.

DACOR BUILT-IN REFRIGERATOR SERVICE MANUAL

Cabinet

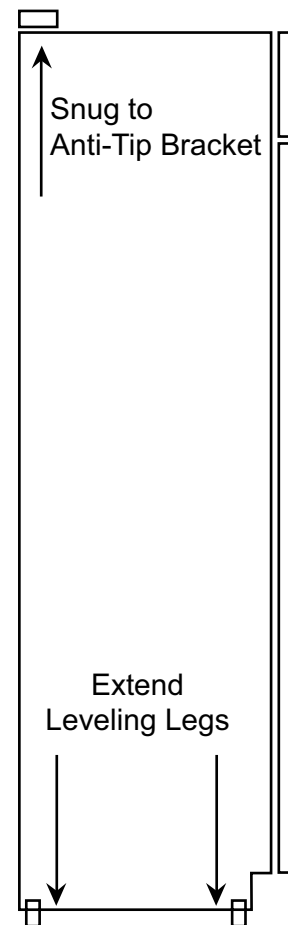
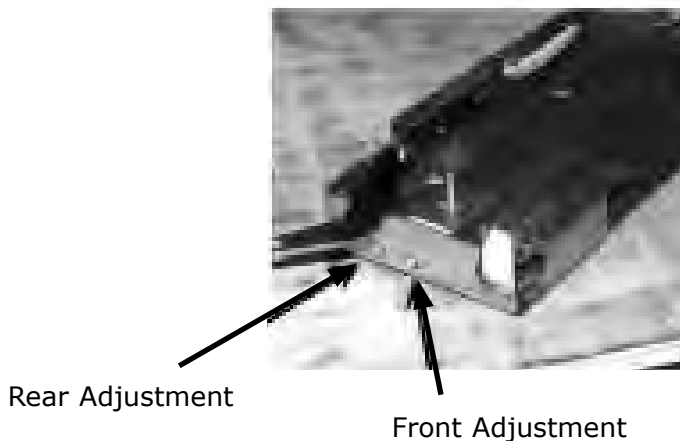
Leveling System

The Dacor Built-in Refrigeration uses a four point leveling system. The leveling legs must be extended down and the wheels lifted off of the floor for a safe installation. Failure to get the wheels off of the floor will result in cabinet walking.

The adjustments for the leveling system are up front. There are two 3/8" bolt heads on either side of the cabinet under the toe grille area. The right adjustments are for the front leveling legs while the left adjustments operate the rear legs.

NOTE

- You can use the leveling legs to keep the cabinet snug against the anti-tip bracket.
- It is very important that the leveling legs are used to support the weight of the cabinet once the cabinet is placed. The wheel assemblies are only to be used for moving the unit into place.
- Because of the weight of the unit, protect the flooring when moving the system.



SECTION 2 - TECHNICAL ORIENTATION

Door Assembly

The fresh food and freezer doors are foam filled doors. This provides a stiff door with good energy efficiency.

The gaskets are a dart design. The gasket slides into the gasket retainer from the side.

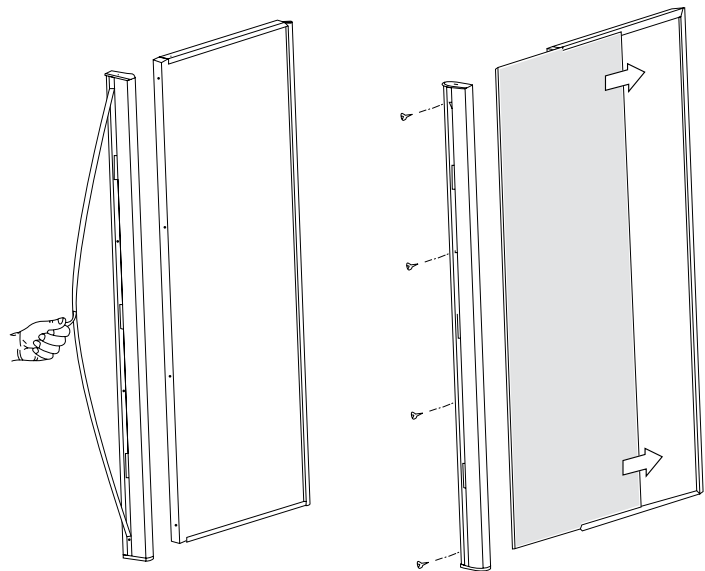
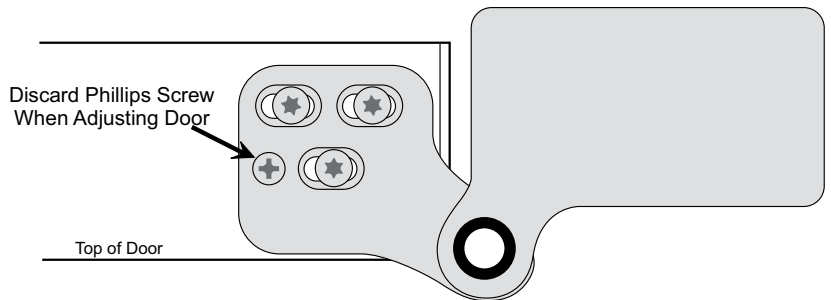
The hinge assemblies are designed to support several hundred pounds. This weight is a combination of the door itself, any external trim the customer has had installed and the contents of the door bins.

The hinges have door closing springs. There are two strengths of door closing springs. The red door spring is for the right side of the cabinet (refrigerator door). The blue hinge is for the freezer door.



NOTE

- There is lateral adjustment for the top of the cabinet doors but no depth adjustment. When observing the top door hinge, there are four screws installed at the time of manufacture. If any adjustments need to be made, remove the Phillips screw and discard. This screw is used as a locator and will not be needed if the other three screws have been adjusted.
- The full-length handles on the frame style models are held in place with screws that are hidden by a magnetic trim piece. To remove the trim piece, use adhesive tape as a temporary handle.
- There is an air relief damper (snorkel) in the roof of the fresh food section. This damper allows air into the cabinet to allow the doors to open. Without this relief air there can be considerable suction inside of the cabinet. If the customer experiences stuck doors with no visible reason, check for a stuck air damper. The damper assembly can be found above the fresh food compartment behind the filter base assembly.



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Shelf Systems

There are several shelf styles available for the interior of both the fresh food and freezer compartments. The consumer has the option of selecting the shelves they feel will fit their needs best. Any shelves outside of the standard packages are options and are purchased through the Dacor dealer.

Standard shelving includes spill-saver shelves in the fresh food section and wire shelves in the freezer section. Food Storage Drawers are used in the fresh food section while wire baskets are used in the freezer section. All models come standard with two FoodSaver™ drawers and two wire baskets in the freezer section.

For door storage, the fresh food section uses either pick-off shelving or dairy bins. The freezer door has the option of pick-off bins or tilt-out baskets.

- To remove the standard shelving, lift the entire shelf straight up and remove.
- To remove the drawer style shelving, lift th entire shelf straight up.

NOTE

There are maximum numbers for the recommended shelving. This maximum is to assure proper airflow throughout the interior of the compartments. While the maximum recommended numbers of shelves are published, this does not necessarily mean that the customer will abide by the guidelines.

The following information will provide the maximum number of recommended shelves.

Non-Dispenser Model Options

Freezer Door Interior

- Pickoff (max 6)
- Tilt out (max 5)
- Total (max 6)

Freezer Interior

- Standard Shelf (max 3)
- Basket (max 1)
- Total (max 3) plus 2 baskets (1 w/ ice maker) that are always included

Fresh Food Door

- Pickoff (max 4)
- Dairy (max 2)
- Total (max 4)

Fresh Food Interior

- Standard Shelf (max 4)
- Food Storage Drawer (max 2)
- Total (max 4 plus the 2 FoodSaver™ drawers that are always included)

Dispenser Model Options

Freezer Door Interior

- Pickoff (max 3)
- Tilt out (max 3)
- Total (max 3)

Freezer Interior

- Standard Shelf (max 2)
- Basket (max 1)
- Total (max 2) plus 2 baskets that are always included

Fresh Food Door

- Pickoff (max 4)
- Dairy (max 2)
- Total (max 4)

Fresh Food Interior

- Standard Shelf (max 4)
- Food Storage Drawer (max 2)
- Total (max 4 plus the 2 FoodSaver™ drawers that are always included)



NOTE (CONTINUED)

- The maximum number of bins in the fresh food door is four. Looking at the chart, if there are four pickoff bins in the fresh food door, it is not recommended to add a dairy bin.
- The maximum number of shelves in the fresh food section is four. If there are two Food Storage Drawer shelves, there should only be two other shelves installed.
- When considering the freezer interior, the recommended number of shelves are in addition to the two wire baskets that are already included with the base models.
- One of the biggest airflow issues would arise from adding too many Food Storage Drawers. It is recommended that no more than two Food Storage Drawers be installed.

FoodSaver™ Drawers

The FoodSaver™ drawers are like having two additional mini-refrigerators in the fresh food compartment. The temperature of these drawers can be controlled independently of the fresh food compartment temperature. There are three settings for the top FoodSaver drawer. The first setting is "Off" or the same temperature as the fresh food compartment. The second setting is "Citrus" which will maintain a FoodSaver temperature of 38°F while the third setting is "Produce" or 34°F.

The lower FoodSaver drawer adds the setting of "Meat" that will provide temperature control at 31°F.

It is possible to have the FoodSaver set at a higher temperature than the fresh food section. To maintain the higher temperature, a small foil heater is included. With the combination of a dedicated temperature monitoring thermistor, an independent damper and a circulation fan, temperature control in the FoodSaver module will be within one degree of the set temperature.

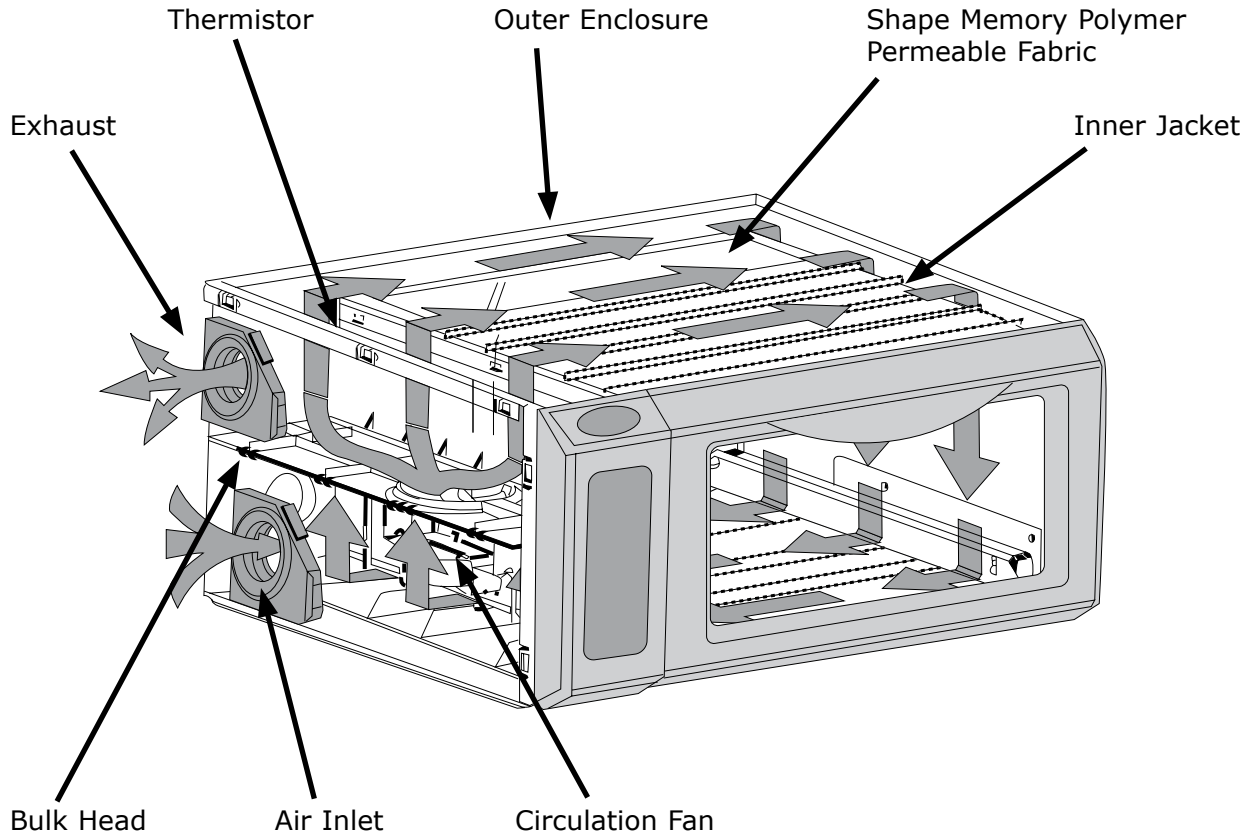
Condensation has always been a problem in crisper drawers. This is one of the main advantages of the FoodSaver drawer over a crisper drawer. The cabinet air does not flow through the drawer itself. The cooling air flows around the drawer in an outer jacket.

Part of the inner liner is a polymer film. This film is sensitive to humidity levels. If the humidity inside of the drawer gets excessive, the pores in this film expand and let the moisture out. This moisture will condense on the evaporator coil and be removed during defrost. When the humidity levels are in the correct range, the pores in the polymer will close.

With the combination of good temperature and humidity control, it is possible for contents in the FoodSaver drawer to last much longer than in a standard crisper drawer.

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FoodSaver™ Drawers (continued)



NOTE

Currently, the FoodSaver™ drawer will be replaced as a module with the old unit returned for analysis. In the future individual components will be available for repair.

Cabinet Lighting

The fresh food and freezer door switches are low voltage switches. The opening and closing of the doors are sensed by the switches and in turn by the Main Control board. The Main Control board actually turns on the relay for the compartment lights.

There are at least three freezer lamps with the possibility for four lamps for a dispenser model. The fresh food section has a total of six lamps. Two of the fresh food lamps are on the FoodSaver™ assemblies.

If the door is open long enough for the door alarm to activate (10 minutes) the lamps will be turned off. This will help minimize the temperature impact on the contents of the compartment should a door be left open.



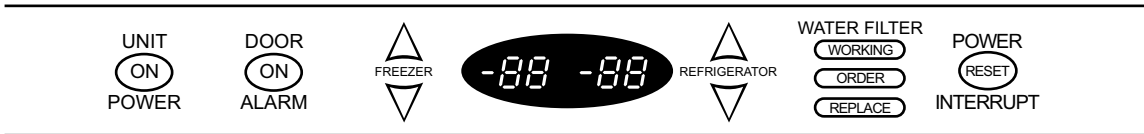
NOTE

- With this many lamps inside of the cabinet, if the relay contacts were to weld together, the compressor would be hard pressed to maintain the desired temperature. If the lamps do not turn off when the door switches are held in the door closed position, enter the Service Test Mode. All lamps should be off in the Service Test Mode unless you are specifically using the Test Mode to turn the lamps on.
- The lamp circuits can be energized from the Service Test Mode. Service Test 13 will energize the fresh food lights while Service Test 14 will energize the freezer lamps.

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User Interface (Controls)

The control panel at the top of the fresh food section is constructed of touch sensitive glass. These switches will not repeat if held. If the consumer touches the switch area, contact must be broken to activate the switch again.



The unit power switch is a “soft” power switch. This switch will turn on the cooling system, the displays, the remainder of the control functions and the dispenser system. This control does not power down the Main Control board. Even in the “Off” mode from use of this switch, the Main Control board is operating waiting for input from the control board. If a complete power down is desired, switch the Power switch off in the equipment compartment.

The Door Alarm will activate after ten minutes of the door switch not being held in the door closed position. If the consumer is not interested in the door alarm monitoring the status of the door, tapping the Door Alarm sense pad will turn off the door alarm. When on, the Door Alarm touch pad will be illuminated. When deactivated the touch pad will not be illuminated.

The up and down arrows either above and below the word FREEZER control the desired freezer temperature. The up and down arrows above and below the word REFRIGERATOR control the fresh food compartment temperature.

When the fresh food door is opened, the display will show the current cabinet temperature for the respective compartments. The first time the UP or DOWN arrows are touched, the display will show the current desired temperature or setpoint. Subsequent taps on the arrow will either raise or lower the desired temperature.

The FILTER indicators will only illuminate if a filter is holding the Water Filter Switch closed. When a filter is installed, the display will start with the WORKING icon illuminated. As the time nears for filter replacement, the ORDER icon will illuminate. When 416 gallons of water has been used or six months have elapsed (whichever comes first) the REPLACE FILTER icon will illuminate.

To reset the filter monitor the filter must be replaced with the system operating. If the main power is turned off during the filter change, the filter monitor will not be aware of the filter change.

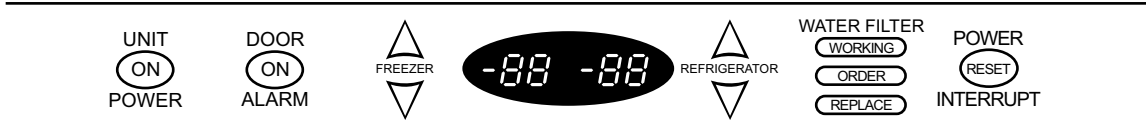
The POWER INTERRUPT icon will illuminate in the case of a power outage. After a power outage, the temperature is recorded in the compartment as soon as power is restored. This high temperature reading will alternate with the current temperature reading in the display. This will let the customer know how warm it was inside of the refrigerator. The customer can then make an educated decision as to whether the contents of the unit should be discarded.

To reset the power monitor, tap the POWER INTERUPT icon.

Section 3 - Service Diagnostics

Service Test Mode

There are several test modes available through the diagnostic system. Use of these test modes can greatly decrease the time needed for troubleshooting. It is to the service technician's advantage to be able to perform many tests in a very short period of time.



- Within the Service Test Mode the controls have alternate functions. The FREEZER up and down buttons (arrows) will move to the next or the previous service test. If you are at Service Test 4 and press the FREEZER up arrow you will move to Service Test 5.
- The REFRIGERATOR up and down arrows will move you through the service tests ten steps at a time. If you are at Service Test 4 and press the REFRIGERATOR up arrow you will move to Service Test 14.
- The POWER INTERRUPT button will activate the selected Service Test. At every test, after selecting the test number with the up and down arrows, you must activate the test using the POWER INTERRUPT button. In many cases the display will change and provide you with additional information for that particular test. To end a test and return to the test selection menu, tap the POWER INTERRUPT button again.
- To enter the Service Test Mode, the door switches must be held in the door closed position. It would be easiest to tape the switch in the closed position.
- Tap the POWER INTERUPT icon three times in succession. The system will switch to the service mode and show the current mode as **NORMAL** or **no** in the fresh food temperature display.

If the system shows a different indication this indicates that the unit was not in the normal operating mode.

- Pressing The FREEZER up arrow will change the display to **Sh**. This is the **Showroom** mode. If the Power Interrupt button is tapped at this point, the system will be in the showroom mode. While in the showroom mode, the lights and display operate but the cooling system does not energize.
- Pressing the FREEZER up arrow again will change the display to **SE**. This is the entrance to the **S**ervice Tests. Tapping the Power Interrupt button will place the unit into service mode and the display will change to 00 00 with the word service illuminated in the display.



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Service Test Mode (continued)

- From this point forward the up and down arrows are used to move forward or backwards through the Service Tests. The Power Interrupt Button will activate the service test.
- If the service mode starts at any location other than 00 00 it is an indication that the Service Tests mode was not properly exited when last serviced.



Service Test 01 – Software Revision

This test will allow you to view the current software version installed on the refrigerator. At the current time there is no method to update the software in the field.

Pressing the Power Interrupt Button will display the current software version.

This display would indicate software version 1.04.

Pressing the Power Interrupt Button will return you to the previous screen.



Service Test 02 – High Ambient Override

This is not really a test but a system setting for special operating conditions. By activating the High Ambient override you will alter the temperature control programming. This setting should only be used in cases of high temperatures and high humidity.



Pressing the Power Interrupt Button will activate this setting. When activated the WORKING lamp will illuminate. The working lamp will return to normal operation when you exit the Service Tests Mode. Upon reentry and selecting Service Test 02 the lamp will indicate whether the High Ambient Override is activated. Pressing the Power Interrupt Button will deactivate the High Ambient Override.

SECTION 3 - SERVICE DIAGNOSTICS

Service Test 03 – Fresh Food Thermistor

This test will give a "GO – NO GO" test of the fresh food thermistor. Pressing the Power Interrupt Button will report the condition of the thermistor. The condition displays that follow apply to the tests for all thermistors.

Fresh Food Thermistor PASSES test.

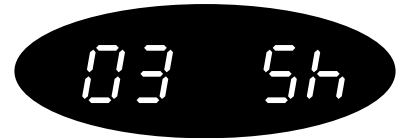
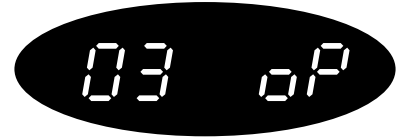
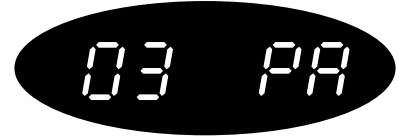
The Freezer (04), evaporator (05) and ambient (06) thermistors will show the appropriate test number in place of the 03.

Fresh Food Thermistor OPEN.

The Freezer (04), evaporator (05) and ambient (06) thermistors will show the appropriate test number in place of the 03.

Fresh Food Thermistor SHORTED.

The Freezer (04), evaporator (05) and ambient (06) thermistors will show the appropriate test number in place of the 03.



Service Test 04 – Evaporator Thermistor

This test will give a "GO – NO GO" test of the evaporator thermistor. Pressing the Power Interrupt Button will report the condition of the thermistor.



Service Test 05 – Freezer Thermistor

This test will give a "GO – NO GO" test of the freezer thermistor. Pressing the Power Interrupt Button will report the condition of the thermistor.



Service Test 06 – Ambient Thermistor

This test will give a "GO – NO GO" test of the ambient thermistor. Pressing the Power Interrupt Button will report the condition of the thermistor.



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Service Test 07 – Fresh Food Fan

This test will give a "GO – NO GO" test of the Fresh Food Stirrer fan. Pressing the Power Interrupt Button will result in one of the following displays. These same displays will apply to the evaporator fan test.

The fan will always initially display Lo for fan too slow. Let the fan spin up to speed for accurate test. This will only take a few seconds.

Fresh Food Fan PASSES test.

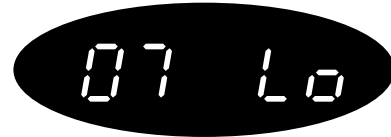
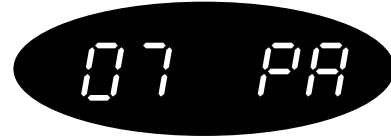
This display will apply to Service Test 08, Evaporator Fan Test except the 07 will be displayed as 08.

Fresh Food Fan too SLOW.

This display will apply to Service Test 08, Evaporator Fan Test except the 07 will be displayed as 08.

Fresh Food Fan too FAST.

This display will apply to Service Test 08, Evaporator Fan Test except the 07 will be displayed as 08.



Service Test 08 – Evaporator / Freezer Fan Test

This test will give a "GO – NO GO" test of the Evaporator / Freezer fan. Pressing the Power Interrupt Button will result in one of the following displays.

The fan will always initially display Lo for fan too slow. Let the fan spin up to speed for accurate test. This will only take a few seconds.



Service Test 09 – Open Damper

This test will drive the electronic damper for the fresh food compartment to the open position. Tap the Power Interrupt Button and the damper will move to the open position. There is no change in the display while the damper opens. It takes between 7 and 15 seconds for the damper to move to the open position.



Service Test 10 – Close Damper

This test will drive the electronic damper for the fresh food compartment to the closed position. Tap the Power Interrupt Button and the damper will move to the closed position. There is no change in the display while the damper closes. It takes between 7 and 15 seconds for the damper to move to the closed position.



Service Test 11 – Defrost Heaters

This test will energize the defrost heaters. If the defrost safety thermostat is closed the defrost system will draw approximately 3 amps.

Pressing the Power Interrupt Button while at Service Test 11 will energize the defrost heaters.

When the Power Interrupt Button is tapped the display will indicate the current evaporator temperature on the fresh food side of the display.

The temperature should begin to quickly rise when the heaters are energized. This can be used to quickly determine if the defrost system is energized.



Service Test 12 – Condenser Fan

This test will energize the condenser fan.

Pressing the Power Interrupt Button will activate the test. Line voltage should be present at JP13 pin 1.



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Service Test 13 – Fresh Food Lights

This test will energize the fresh food lamps.

Pressing the Power Interrupt Button will energize the fresh food light system. Line voltage should be present at JP12 pin 2.



Service Test 14 – Freezer Lights

This test will energize the freezer lamps.

Pressing the Power Interrupt Button will energize the freezer light system. Line voltage should be present at JP 12 pin 3.



Service Test 15 – Fountain Lamp

This test will energize the fountain lamp (dispenser light).

Pressing the Power Interrupt Button will energize the fountain lamp. Line voltage should be present at JP8 pin 9.



Service Test 16 – Compressor Maximum Speed

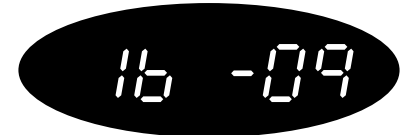
This test will energize the compressor at maximum speed. The compressor should have been off for at least five minutes prior to this test. If the off time is not five minutes, the short cycle protection within the compressor controller will prevent operation until enough time has elapsed.

The Service Test may time out (three minutes) before sufficient time has elapsed for the compressor to start. If the display changes back to this display (16 00) reactivate the test.

Pressing the Power Interrupt Button will start the compressor at maximum speed. The display will show the current evaporator temperature on the fresh food side of the display. If the compressor is working, this temperature should quickly drop.

If the compressor does not eventually start after waiting for at least five minutes check for the following conditions:

- JP10, pins 1 to 2, 2-2.5VAC this is the drive signal from the Main Control Board to the Compressor Controller.
- CN 05 pins 1 to 6, 230VAC, this is the output from the compressor controller to the compressor.



Service Test 17 – Compressor Minimum Speed

This test will energize the compressor at minimum speed. The compressor should have been off for at least five minutes prior to this test. If the off time is not five minutes, the short cycle protection within the compressor controller will prevent operation until enough time has elapsed.

The Service Test may time out (three minutes) before sufficient time has elapsed for the compressor to start. If the display changes back to this display (17 00) reactivate the test.

Pressing the Power Interrupt Button will start the compressor at minimum speed. The display will show the current evaporator temperature on the fresh food side of the display. If the compressor is working, this temperature should quickly drop.

If the compressor does not eventually start after waiting for at least five minutes check for the following conditions:

- JP10, pins 1 to 2, 2-2.5VAC this is the drive signal from the Main Control Board to the Compressor Controller.
- CN 05 pins 1 to 6, 130VAC, this is the output from the compressor controller to the compressor.



Service Test 18 – Fresh Food Fan Speed

This Service Test will verify the feedback signal from the fresh food fan to the Main Control board.

Pressing the Power Interrupt Button will report the fan speed in revolutions per second. This reading would be 39 RPS.



Service Test 19 – Freezer Fan Speed

This Service Test will verify the feedback signal from the freezer fan to the Main Control board.

Pressing the Power Interrupt Button will report the fan speed in revolutions per second.



Service Test 20 – Fresh Food Thermistor Value

This test will provide the current reading for the fresh food thermistor. This reading is real time and does not involve the temperature control algorithm.

This reading should be very close to the actual temperature of the fresh food thermistor. If the reading is drastically different than the reading from a known good and calibrated digital thermometer, consider replacement of the thermistor. Consider any reading within 5 degrees of a known good calibrated thermocouple acceptable.

This display would indicate a reading of 37 degrees.



Service Test 21 – Freezer Thermistor Value

This test will provide the current reading for the freezer thermistor. This reading is real time and does not involve the temperature control algorithm.

This reading should be very close to the actual temperature of the freezer thermistor. If the reading is drastically different than the reading from a known good and calibrated digital thermometer, consider replacement of the thermistor.



Service Test 22 – Ambient Thermistor Value

This test will provide the current reading for the ambient thermistor. This reading is real time and does not involve the temperature control algorithm.

This reading should be very close to the actual temperature of the ambient thermistor. If the reading is drastically different than the reading from a known good and calibrated digital thermometer, consider replacement of the thermistor.



Service Test 23 – Evaporator Thermistor Value

This test will provide the current reading for the evaporator thermistor. This reading is real time and does not involve the temperature control algorithm.

This reading should be very close to the actual temperature of the evaporator. If the reading is drastically different than the reading from a known good and calibrated digital thermometer, consider replacement of the thermistor.



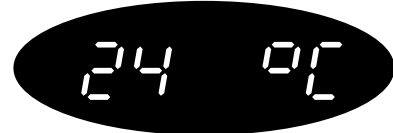
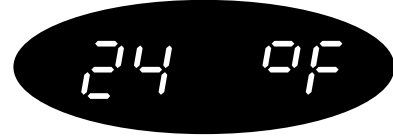
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Service Test 24 – Display Temperature Select

This test reports the temperature selection switch as read by the board.

Pressing the Power Interrupt Button will display the current setting.

- Temperature is set for Fahrenheit
- Temperature is set for Celsius



Service Test 25 – Fountain State

This test reports back the current status of the dispenser. If the dispenser control does not change the output, suspect data communication problems with the dispenser control itself.

Pressing the Power Interrupt Button will indicate the current state of the dispenser.

- Dispenser is Locked
- Dispenser is set for dispensing water (ho from H2O)
- Dispenser is set for crushed ice
- Dispenser is set for cubed ice

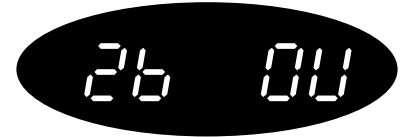


Service Test 26 – Bypass Valve Switch

This test indicates the current state of the bypass switch. This switch must be reported as actuated for any of the water valves to operate.

Pressing the Power Interrupt Button will display the current switch state.

- Bypass plug is installed
- Bypass plug is not installed

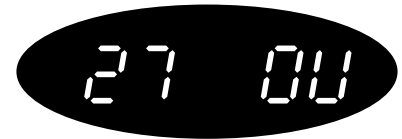
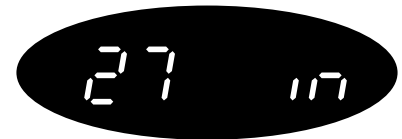


Service Test 27 – Filter Valve Switch

This test indicates the current state of the filter switch. This switch must be reported as actuated for the filter monitor to operate.

Pressing the Power Interrupt Button will display the current switch state.

- Filter is installed
- Filter is not installed

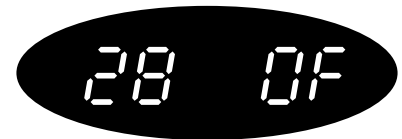


Service Test 28 – Actuator Switch

This test displays the current state of the dispenser actuator (paddle switch) as read by the Main Control board.

Pressing the Power Interrupt Button will display the current state of the switch.

- Switch activated
- Switch released

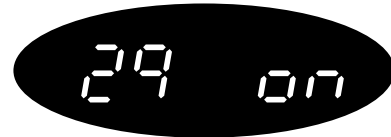


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Service Test 29 – Cube Solenoid

This test will energize the cube solenoid.

Pressing the Power Interrupt Button will energize the cube solenoid when the Dispenser switch is also actuated.



Service Test 30 – Auger Motor

This test will energize the auger motor.

Pressing the Power Interrupt Button will energize the motor when the dispenser switch is also actuated.



Service Test 31 – Chute Solenoid

This test will energize the chute solenoid.

Pressing the Power Interrupt Button will energize the chute solenoid.



Service Test 32 – Water Valve

This test will energize the water valve(s) for the dispenser.

Pressing the Power Interrupt Button will energize the water valve so long as the dispenser switch is activated.



Service Test 33 – Force Defrost and Exit

This test will initiate a defrost cycle and exit the Service Test Mode.

Pressing the Power Interrupt Button will initiate the defrost cycle.

Release the door switch to return to normal operation.



Section 4 - FoodSaver™ Test Mode

FoodSaver™ TEST MODE

To perform the built-in diagnostics that test the FoodSaver™ module, both door switches must be closed. Tape the fresh food compartment door switch closed. With the door switches closed, the FoodSaver display should be blank.

To enter the FoodSaver test module, press and hold the Citrus and Produce keypads for five seconds.

- The LCD should display -88 and be illuminated.
- All keypads should be illuminated.
- The fan should be off.
- The damper should close

Wait seven seconds, touch the Citrus Keypad.

- The fan will begin turning.
If the controller does not sense fan rotation, an F will be displayed.
- The heater will energize.
If the control does not sense heater continuity, an H will be displayed.
- The damper will open.
- The display should be blank yet illuminated unless indicating an F or H.
- The Citrus keypad should be illuminated.

Wait seven seconds, touch the Produce Keypad.

- The control will test the thermistor circuit.
If the circuit is open, OC will show in the display.
If shorted, CC will show in the display.
- The display should be blank yet illuminated unless indicating OC or CC.
- The produce keypad should be illuminated.

Touch the Meat Keypad. (Not applicable to upper FoodSaver)

- The meat keypad will illuminate.

Touch the Normal Keypad

- This will exit the diagnostic mode.

The diagnostic mode will terminate if the refrigerator door switch is opened or if five minutes passes with no activity.