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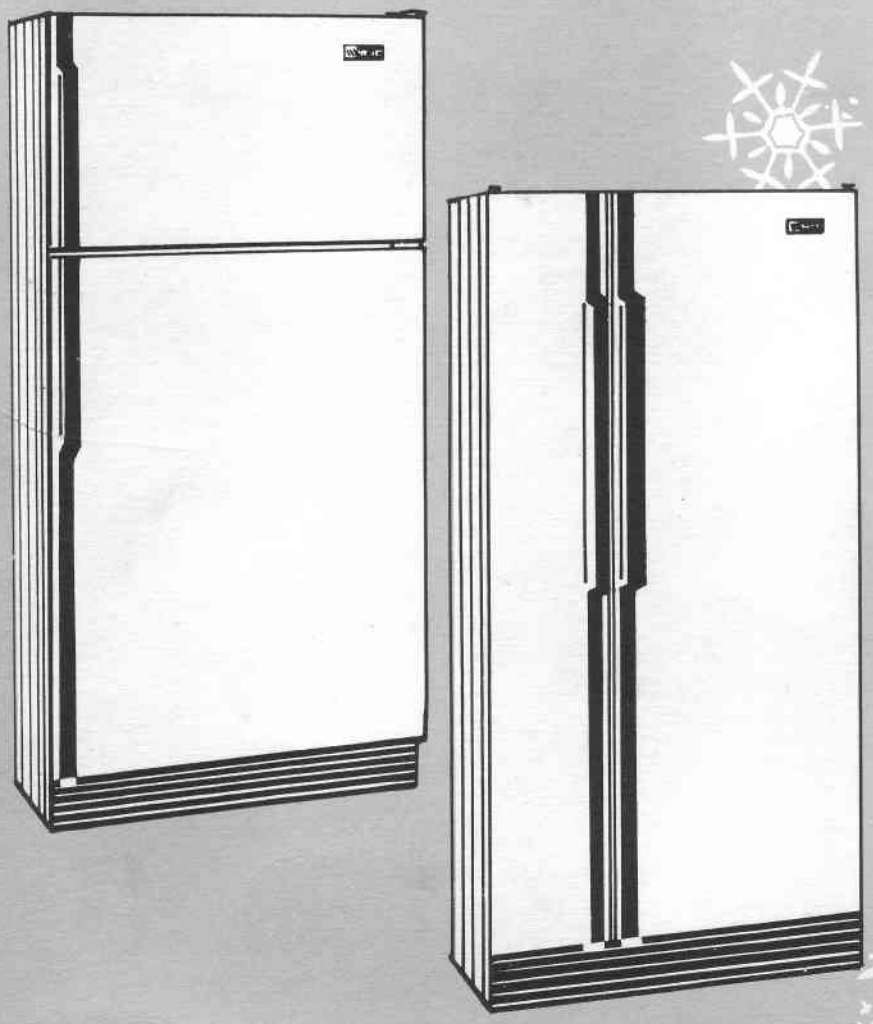
MAYTAG®

Side-By-Side and Top Mount Refrigerator Service Manual



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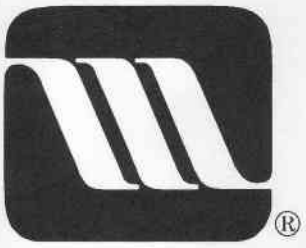


SECTION 1

INTRODUCTION

GENERAL

This manual covers Maytag Refrigerators manufactured beginning in 1989. Those models covered are 15, 17, 19, 20, 21, 22, 23 and 24 cubic foot Side-By-Side and Top Mount refrigerators.

SAFETY PRECAUTIONS

This service information is intended to be used by a qualified service technician, who is familiar with proper and safe procedures to be followed when repairing any electrical appliance. All tests and repairs should be performed by a qualified service technician, using only Genuine Maytag parts.

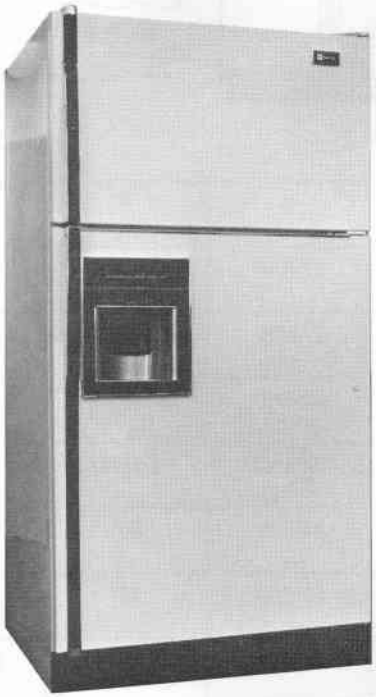
Repairs and servicing attempted by uninformed persons can result in hazards developing due to improper assembly or adjustment. While performing such repairs, persons not having the proper background may subject themselves to the risk of injury or electrical shock which can be serious or even fatal.

MAYTAG

SECTION 2

INSTALLATION

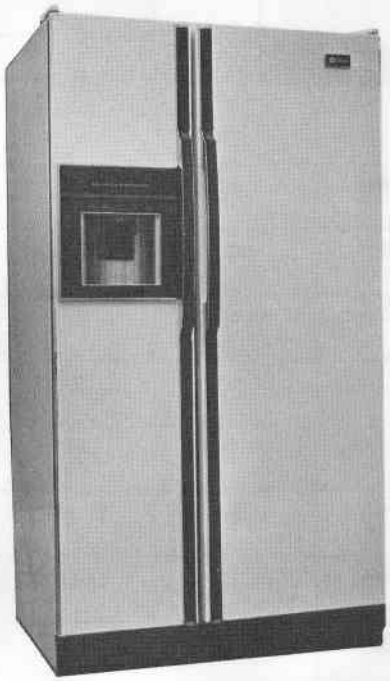
SPECIFICATIONS



TOP MOUNT

Models

RTC15A
RTS17A
RTC17A
RTD17A
RTS19A
RTC19A
RTD19A
RTD21A
RTW22A
RTD23A



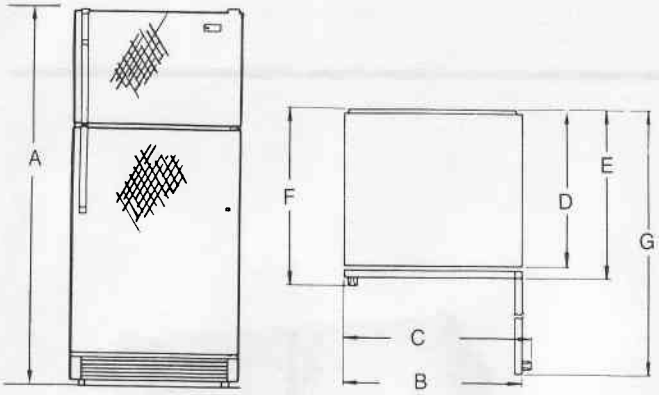
SIDE-BY-SIDE

Models

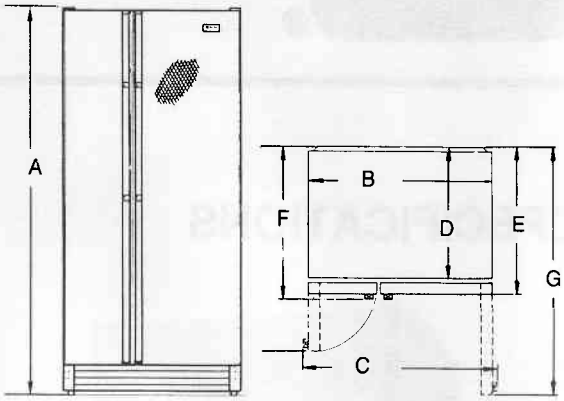
RSC20A
RSD20A
RSD22A
RSW22A
RSD24A
RSW24A

DIMENSIONS

TOP MOUNT



SIDE-BY-SIDE



Mod. No.	A	B	C	D	E	F	G
RTC15A	60″	29″	31 3/10″	25 3/8″	27 5/8″	29 15/16″	55 3/8″
RTS17A	64 1/2″	29″	31 3/10″	25 3/8″	27 5/8″	29 15/16″	55 3/8″
RTC17A	64 1/2″	29″	31 3/10″	25 3/8″	27 5/8″	29 15/16″	55 3/8″
RTD17A	64 1/2″	29″	31 3/10″	25 3/8″	27 5/8″	29 15/16″	55 3/8″
RTC19A	65 1/2″	31 1/2″	33 4/5″	25 3/8″	27 5/8″	30″	57 7/8″
RTS19A	65 1/2″	31 1/2″	33 4/5″	25 3/8″	27 5/8″	30″	57 7/8″
RTD19A	65 1/2″	31 1/2″	33 4/5″	25 3/8″	27 5/8″	30″	57 7/8″
RTD21A	65 1/2″	31 1/2″	33 4/5″	28 3/8″	30 5/8″	32 15/16″	60 7/8″
RTW22A	65 1/2″	33″	35 11/32″	28 3/8″	30 5/8″	32 15/16″	62 3/8″
RTD23A	65 1/2″	33″	35 11/32″	28 3/8″	30 5/8″	32 15/16″	62 3/8″
RSC20A	66 3/8″	31″	34 7/8″	26 3/4″	29″	31 11/32″	46 3/4″
RSD20A	66 3/8″	31″	34 7/8″	26 3/4″	29″	31 11/32″	46 3/4″
RSD22A	66 3/8″	33″	36 7/8″	26 3/4″	29 1/4″	31 11/32″	48 3/4″
RSD24A	66 3/8″	35 3/4″	39 3/5″	26 3/4″	29″	31 11/32″	48 3/4″
RSW22A	66 3/8″	33″	36 7/8″	26 3/4″	29 1/4″	31 11/32″	48 3/4″
RSW24A	66 3/8″	35 3/4″	39 3/5″	26 3/4″	29″	31 11/32″	48 3/4″

CAPACITY

Mod. No.	Total Volume	Fresh Food Vol.	Freezer Vol.	Total Shelf Area
RTC15A	14.7	10.51	4.14	22.6
RTS17A	16.5	11.69	4.83	23.8
RTC17A	16.5	11.69	4.83	24.2
RTD17A	16.5	11.69	4.83	24.2
RTC19A	18.6	12.89	5.70	28.6
RTS19A	18.6	12.90	5.70	26.3
RTD19A	18.5	12.81	5.70	28.4
RTD21A	21.0	14.59	6.42	32.5
RTW22A	21.9	14.98	6.91	32.9
RTD23A	22.5	15.52	6.96	34.6
RSC20A	20.2	13.66	6.57	24.4
RSD20A	20.2	13.58	6.57	24.4
RSD22A	21.8	15.22	6.57	25.3
RSD24A	23.8	15.22	8.53	29.5
RSW22A	21.6	15.22	6.34	24.1
RSW24A	23.5	15.22	8.25	28.1

MAYTAG REFRIGERATOR WARRANTY

Full One Year Warranty

For **one (1) year** from the date of original retail purchase, any part which fails in normal home use will be repaired or replaced free of charge.

Limited Warranty

Second thru Fifth Year - major refrigeration components:

After the first year and through the fifth year after the date of original retail purchase Maytag will repair or replace, at its option, free of charge to the owner for parts and labor any part of the sealed refrigeration system (consisting of the compressor, evaporator, condenser, drier and connecting tubing) and the cabinet liner (exclusive of the door liner) which fails in normal home use. Trip charges, travel and transportation, if required, shall be the responsibility of the owner.

Second year - other parts:

Other parts which fail in normal home use during the second year following date of original retail purchase will be repaired or replace free of charge for the part itself, with the owner paying all other costs, including labor and trip charges.

Ice Maker - when purchased with the refrigerator and installed by the dealer the ice maker will be considered part of the refrigerator for warranty purposes.

This full warranty and the limited warranty apply only when the appliance is located in the United States or Canada.

LIMITATION OF LIABILITY

The warrantor, Maytag Company, shall not be liable for any incidental or consequential damages, including food loss. Some states do not allow the exclusion or limitations of consequential damages, so the above limitations or exclusion may not apply to you.

How and Where to Receive Warranty Service

- Call or write the authorized Maytag dealer from whom the appliance was purchased or the authorized service firm designated by it.
- If the owner moves from the selling dealer's servicing area after purchase, call or write any authorized Maytag dealer or authorized service firm in or near the new location.
- Should the owner not receive satisfactory warranty service from one of the above, call or write MAYCOR Appliance Parts and Service Company, 240 Edwards Street S.E., Cleveland, TN 37311, a division of Maytag Corporation, and arrangements for warranty service will be made.

This Warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

MAYTAG COMPANY ● Newton, Iowa 50208

INSTALLATION INSTRUCTIONS

ELECTRICAL REQUIREMENTS

OBSERVE ALL NATIONAL ELECTRICAL CODES AND LOCAL CODES & ORDINANCES

ELECTRICAL SERVICE - 120 VOLTS, 60 Hz ONLY

A 120 volt, 60 Hz, 15 ampere fused electrical supply is required. An individual branch (or separate circuit serving only this appliance is recommended.) **DO NOT USE EXTENSION CORD** unless it meets all requirements as outlined for grounding, polarizing (3-wire) and capacity. Wire size should be at least No. 14.

BEFORE PLUGGING IN POWER CORD, OPERATING OR TESTING, Follow grounding instructions in Grounding Section.

GROUNDING - 120 VOLTS, 60 Hz

IMPORTANT SAFETY PRECAUTIONS

WARNING *- To prevent unnecessary risk of fire, electrical shock or personal injury, all wiring and grounding must be done in accordance with National Electrical Code and local codes and ordinances. It is the personal responsibility and obligation of the appliance owner to provide adequate electrical service for this appliance.*

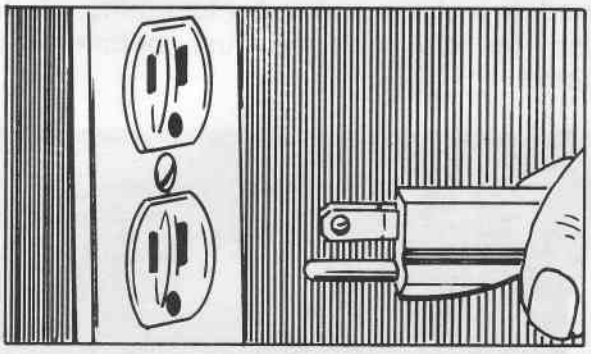
ELECTRICAL GROUND IS REQUIRED ON THIS APPLIANCE

GROUNDING INSTRUCTIONS

This appliance is equipped with a power supply cord having a 3-prong grounding plug. For your safety, this cord must be plugged into a mating 3 prong type wall receptacle which is **properly wired, grounded and polarized.**

If a mating wall receptacle is not available. Contact a qualified electrician to have the wall receptacle replaced. If there is any question, local building officials or electrical utility should be consulted.

DO NOT UNDER ANY CIRCUMSTANCES, REMOVE THE ROUND GROUNDING PRONG FROM POWER SUPPLY CORD.



UNCRATING

1. Lay appliance on back.
2. Remove bottom cap by cutting band and pulling cap away.
3. Remove crate base by removing four (4) bolts.
4. Discard crate base.
5. Return appliance to an upright position
6. Lift carton up and off.
   NOTE: If using a hand truck to move refrigerator. NEVER PLACE STRAP OVER THE HANDLES. Avoid overtightening strap to prevent misaligning doors.
7. Remove all exterior and interior tape, carefully retain old tape. Make a small pad of this tape to pick off any remaining tape residues. This will eliminate the need to use dangerous solvents of any kind.
8. Remove and discard cantilever shelf packing clips located just above each shelf where it hooks onto the frame. To remove a clip, wiggle sideways and pull straight out.

NOTE: Should it be necessary to remove the doors for installation purposes, see page 2-9. In addition, hinges may be removed if necessary. Care MUST be taken since the water and electrical lines will need to be disconnected on those models with ice and water fountains. Both can be disconnected just behind the hinge.



LOCATION

1. Select a location for your new refrigerator away from any heat sources. Allow a free flow of air through the front base grille.
2. *Your model should NOT be installed where the temperature will go below 55°F because it will not run frequently enough to maintain proper temperature in the freezer.*
3. For ease of installation, you should leave a space of about one-half inch between your refrigerator and adjacent walls or cabinets.

WATER CONNECTION

For those models without an Ice Maker.

Most models are designed so an automatic Ice Maker can be easily installed. The Ice Maker kits come with installation instructions, water connection instructions and other information concerning the ice maker operation.

For those models with Ice Maker.

To locate water valve:

For the 22 and 24 cubic foot models, remove the center screw from the right end of the black fiber panel that covers the machine compartment with a socket driver, and fold back the etch marked flap. Save the screw for later reinstallation as this flap is required for proper and safe operation of the refrigerator.

For the 20 cubic foot model, follow above sequence for the left side of the fiber panel.

To connect water:

All installations must be in accordance with local plumbing code requirements.

Copper tubing (1/4″ O.D.) and saddle valve can be purchased from local hardware stores. Sweat or flare connection can be used instead of the compression union, if desired.

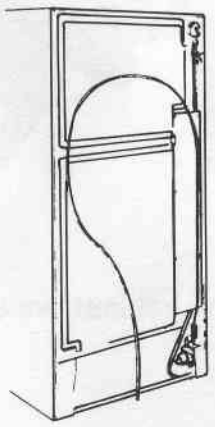
Do not use plastic tubing or plastic fittings because the connection between the water supply and the refrigerator water valve inlet is under constant pressure. Also, certain types of plastic tubing may become brittle with age and crack, resulting in water leakage.

NOTE: When using unfiltered well water, it is advisable to use a filter in the water supply line. This eliminates all possibility of small particles from entering the water valve.

1. Find a 3/8″ to 1″ vertical COLD water pipe near the refrigerator. Water pressure must be between 20 and 120 P.S.I. Vertical pipe is preferable, but a horizontal pipe will work. If a horizontal pipe is used, install the saddle valve on the top or the side of the pipe, not on the bottom.

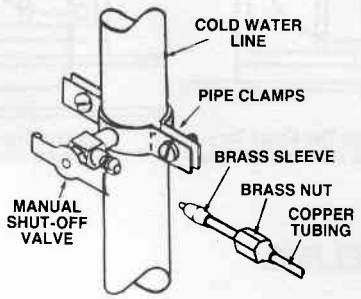
2. Install the saddle valve according to manufacturer's instructions included with the valve.

3. Route the copper tubing through the floor, wall or sink cabinet to the saddle valve location. Form the excess tubing into a large loop.



This allows movement for the refrigerator without disconnecting the tubing. Other routing methods are shown on page 2-8.

4. Slide the brass nut and sleeve onto the 1/4″ copper tubing. Insert the end of the tubing into the saddle valve as far as it will go and tighten the nut with an adjustable wrench. Turn off the saddle valve.



5. Turn ON the main water supply and flush out the water pipe until water runs clear. At the same time, check for leaks at the saddle valve. After the water has cleared, flush out the tubing from the saddle valve to the water valve into a bucket by turning the saddle valve on. When the water has cleared, turn off the saddle valve.

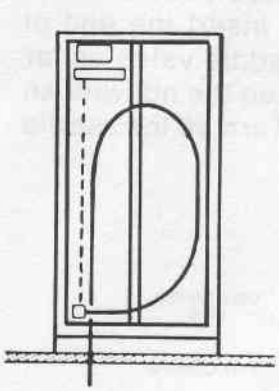
6. Connect the water line from the saddle valve to the water valve as shown in steps 4 and 5. (Also see drawing in step 3.) Insert the water line into the compression union as far as it will go. Tighten each brass nut with one wrench on the nut and the other wrench on the compression union. Rotate water line to vertical. Secure water supply line clamp with one type "C" screw. Tighten hose nut with pliers.

7. Turn on saddle valve. Tighten any connections that leak.

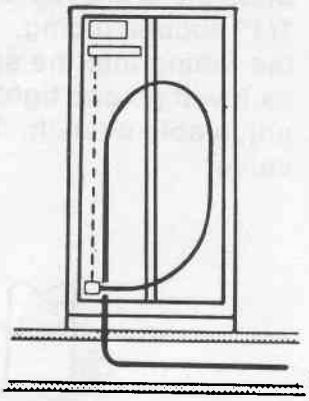
8. Close the hinged access panel and secure with screw.

9. Plug in the power cord and push the refrigerator to the wall, arranging the copper tubing so that it does not vibrate against the back of the refrigerator or against the wall.

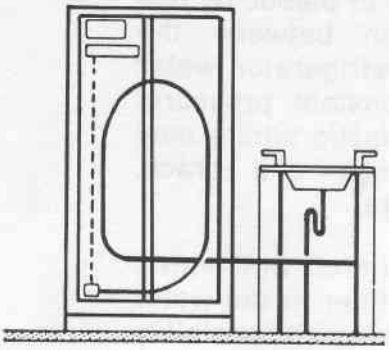
IMPORTANT: *Because the refrigerator and ice maker are warm. It may take up to 12 hours before the ice maker produces the first supply of ice cubes.*



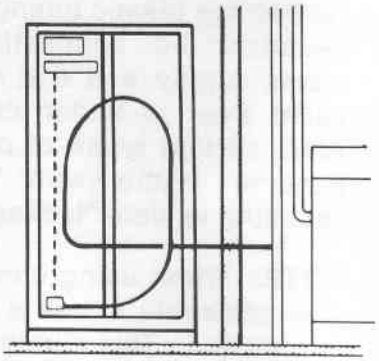
Through The Floor To Basement Cold Water Pipe



In The Crawl Space Under The Home



Under The Sink To The Cold Water Pipe

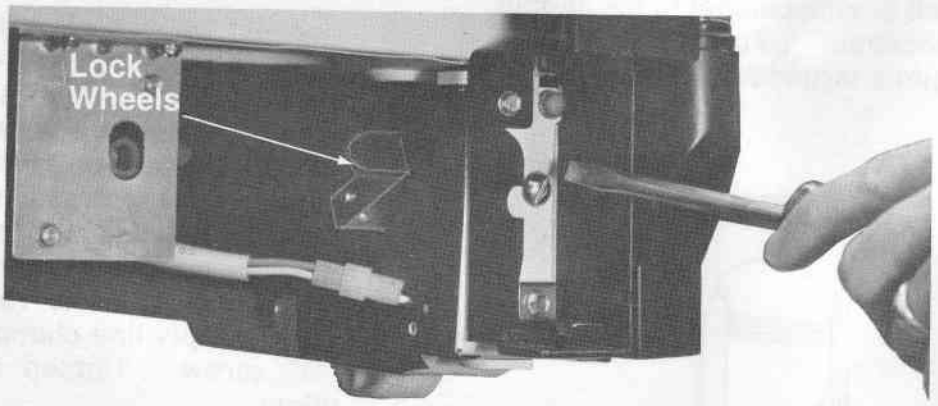


Through The Wall To The Utility Room Cold Water Pipe

LEVELING

To enhance its appearance and maintain efficient performance, your refrigerator should be level. The front wheels were adjusted at the factory so the cabinet would be level. However, jarring in transit, or standing the refrigerator on an uneven floor may cause the cabinet to appear unlevel.

If leveling is necessary, remove the base grille and adjust the wheels with a screwdriver as shown below. Tilt refrigerator back just enough to allow easy turning of the adjusting screws. On Top Mount models only, turn clockwise to raise the cabinet corner and counterclockwise to lower cabinet corner. On Side-by-Side models the procedure is just reversed. Also, lock front wheels to secure refrigerator.



If the floor is not level and it is necessary to raise the rear of the cabinet, we suggest rolling the rear wheels on to a piece of plywood or other shim material.

REVERSING DOORS

Top Mount Models Only

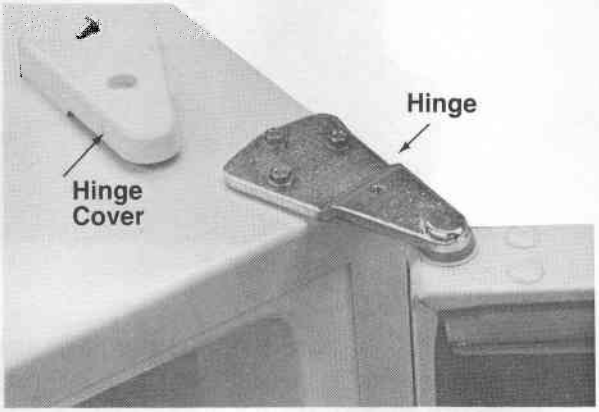
Door reversal is NOT possible on those models that have a built-in ice and water fountain. However, if door removal becomes necessary please see the note in Step 9.

Unplug Refrigerator. If unit is in use, remove food from fresh food compartment and freezer compartment.

Removing doors.

NOTE: Taping doors shut prior to physically removing them may prevent unnecessary damage.

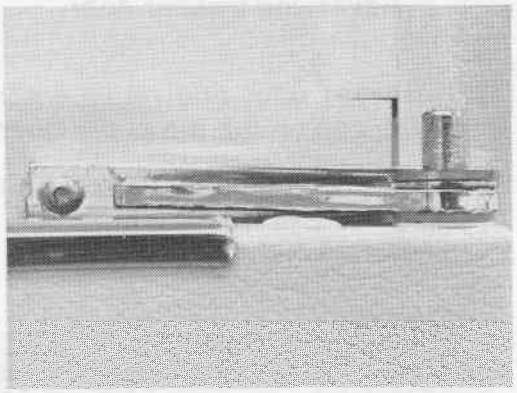
1. Remove hinge cover from top of freezer door by removing screw.
2. Remove three (3) screws from hinge.



3. Lift hinge off of cabinet.
4. Open freezer door, pivot and lift door off of center hinge pin.

   NOTE: Keep track at all times the position of all spacers and pads when removing them from doors.

5. Remove center pin using a 5/16″ wrench.



6. Open refrigerator door and lift door off lower hinge pin and place to the side for now.
7. Remove center hinge by removing two (2) screws using Torx-T27 drive.
8. Remove screws from opposite side of the cabinet.



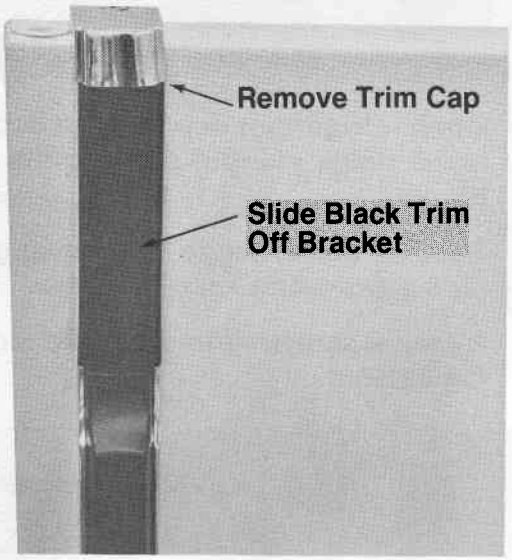
9. Flip center hinge over and reinstall on left side of cabinet using the same screws you just removed from the center hinge. Reinstall screws that were used on the opposite side.

   NOTE: If door removal is necessary on those models with an ice and water fountain, use care in removing the water and electrical lines from the hinge by pulling the water line first followed by the electrical wires.

Reversing freezer door.

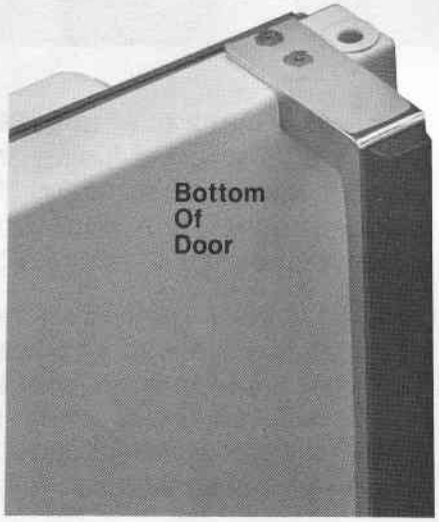
10. Take freezer door and remove screw from trim cap on the top of the door.

11. Slide black trim off of the metal handle bracket.



12. Remove screw holding metal handle bracket at the top of the door.

13. Remove two (2) screws holding handle to bottom of door.



Handle and trim should be completely removed from freezer door.

14. Pry plugs on left side on top off with a flat blade screwdriver, taking care not to damage them or the door.

15. Put plugs into exposed holes on the right hand side of freezer door. These would be the holes you just removed the screws from.

16. Remove door stop on bottom edge of the hinge side and reinstall on opposite side in the original handle holes



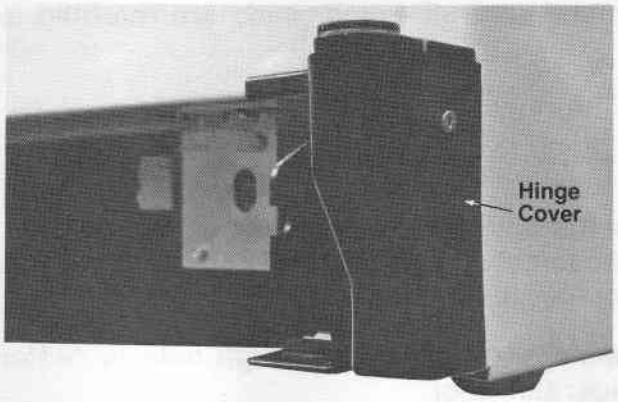
17. Now move handle and all parts to the opposite end of the freezer door and reinstall by reversing steps above.

NOTE: Make sure spacer pad is in proper position. Slide black trim over metal bracket and black gasket which is positioned under metal bracket.

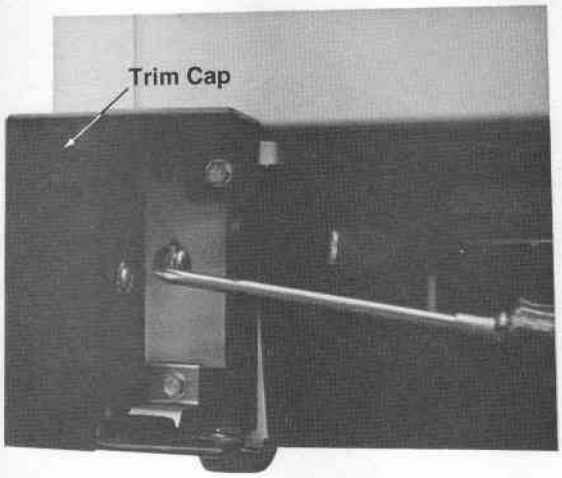
Reversing refrigerator door.

18. Remove grille from bottom of refrigerator by simply grasping both ends and pulling forward.

19. With grille now removed, you have access to the bottom hinge. Remove screw from the side of the hinge cover.



20. From the opposite side of cabinet, remove screw, removing trim cap.



21. Remove bottom hinge using a Torx-T27 drive and move to the opposite side of cabinet and reinstall using the same screws.

22. Reinstall the trim cap and hinge cover on the opposite sides.

23. Now take refrigerator door and remove screw from the trim cap located on the bottom of the door.

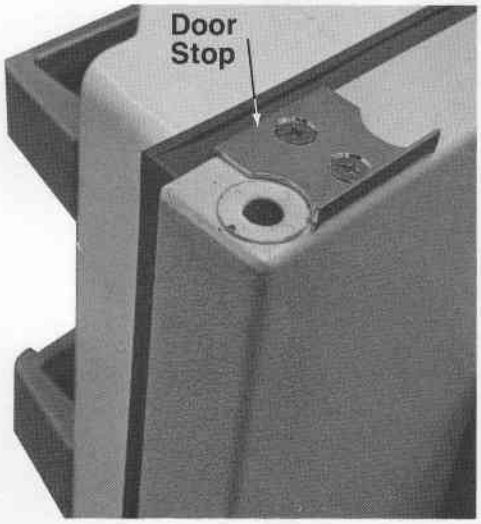
24. Slide black trim off metal door bracket.

25. Remove screw holding metal bracket at the bottom of the door, and the screw located in the center of the door just underneath the handle.

26. Remove two (2) screws holding handle to top of door.

27. Now remove the plugs from opposite side of door taking the same caution in removal you did for the freezer door.

28. Remove two (2) screws securing door stop. Reinstall on the opposite side.



29. Just as you did above for the freezer door, move all of the handle and trim parts to the opposite side of the door and reinstall. This is done by reversing the steps above.

    NOTE: Care must once again be taken to make sure all spacer pads are returned to their proper position.

30. Reinstall plugs into screw holes exposed on the right hand side of the door.

31. Reinstall the refrigerator door.

    Lower refrigerator door so socket on bottom fits onto the pin on bottom hinge bracket. Be sure washer is in place. Tilt door towards cabinet and gently push door under center hinge bracket and align with the hole in the center hinge bracket.

    Reinstall hinge pin with 5/16″ socket and rachet so it extends through hole in center hinge bracket and into bracket on top of refrigerator door.

32. Reinstall the freezer door. Lower freezer door so socket on bottom fits onto the center hinge pin. Be sure washer is in place. Tilt door towards cabinet, lifting the top hinge so the pin fits into the socket on top of the door.

    Tighten the top hinge screws after supporting the door on the handle side and aligning so the gap between the door is even all across the front.

DOOR REMOVAL

Side-By-Side Models Only

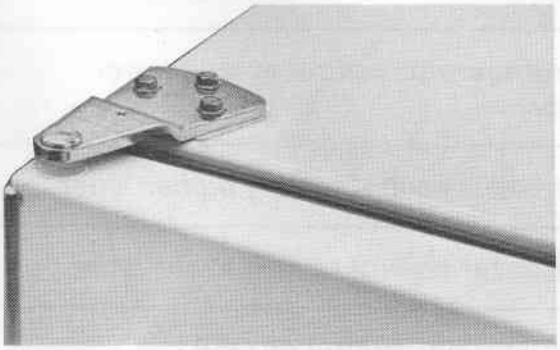
Unplug Refrigerator. If unit is in use, remove food from the fresh food compartment and freezer compartment.

Removing Freezer Door

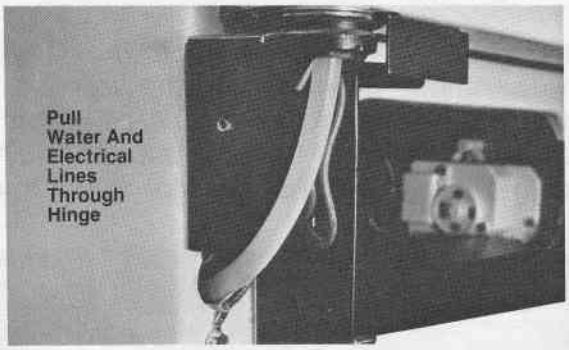
1. Remove grille from bottom of refrigerator by pulling out at bottom of grille to disengage.
2. From behind the hinge on the freezer side, disconnect water line and electrical connection at the connector plug if the unit has an ice and water fountain.



3. Remove hinge cover from top of freezer door hinge by removing screw.
4. Remove three (3) screws from hinge.



5. With assistance from someone else to support the freezer door, remove bottom hinge by first removing screw from side of hinge cover and remove cover.
6. Pull wires and water line through opening in refrigerator frame.



7. Remove bottom hinge using a Torx-T27 drive. If necessary.
8. Tilt freezer door forward and pull away.

   NOTE: Use extreme care as the hinge will remain attached to the water line and wires on those units having an ice and water fountain.

Removing Refrigerator Door

1. Remove hinge cover from top of refrigerator door hinge by removing screw.
2. Remove three (3) screws from hinge.
3. Tilt refrigerator door forward and lift door off of bottom hinge.
4. Remove bottom hinge by first removing screw from side of hinge cover and remove cover.
5. Remove bottom hinge using a Torx-T27 drive. If necessary.

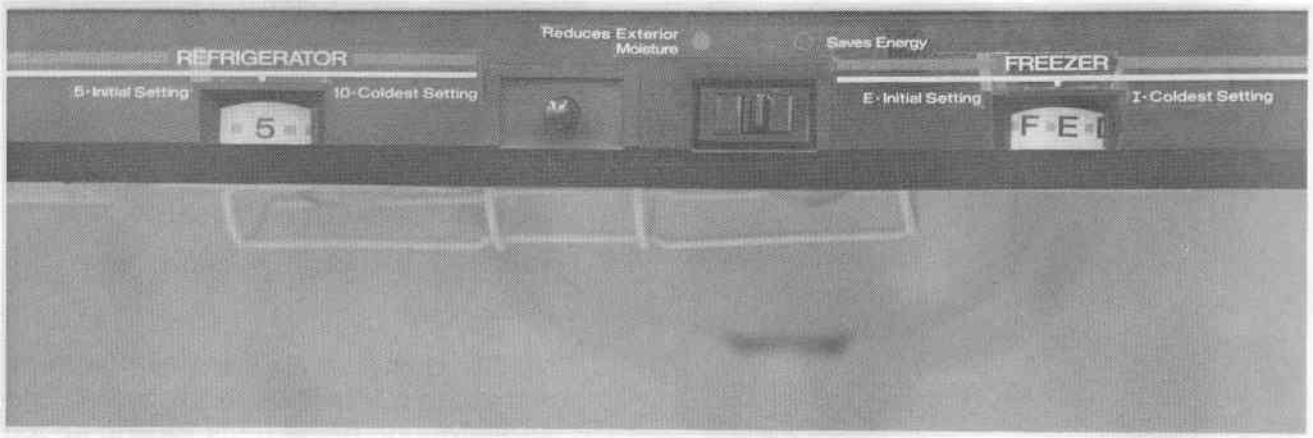
To reinstall both doors just reverse steps above. Be sure to properly realign both doors so they will be even with each other and easy to open and close.

OPERATION

Top Mount Models

Setting Controls

These models have two controls. One for regulating the temperature in the fresh food compartment and one for the freezer. The fresh food compartment and the freezer compartment controls are located at the top front of the fresh food compartment. Turn the refrigerator control to the number "5" and the freezer control to the letter "E" to start the refrigerator. Allow refrigerator to run about 8 to 12 hours before loading with food.



In a day or so, if the consumer decides that one or both compartments should be colder or warmer, adjust the control(s) as instructed in the charts below.

To start:	*Set refrigerator control on "5". Set freezer control on "E".*
Refrigerator too WARM:	*Turn refrigerator control to next higher number.*
Refrigerator too COLD:	*Turn refrigerator control to next lower number.*
Freezer too WARM:	*Turn freezer control to next higher letter.*
Freezer too COLD:	*Turn freezer control to next lower letter.*
Refrigerator OFF:	*Set refrigerator control on OFF.*

USE OF CONTROLS

IMPORTANT: ***Except when starting, do not change either control more than one number at a time. ALLOW 24 HOURS FOR TEMPERATURE TO STABILIZE BEFORE RESETTING.***

Changing either control will have some effect on the temperature of the other compartment.

The number "9" freezer control setting is recommended for short term use ONLY.

Please note: The refrigerator may run for several hours when first started up. This is normal and shouldn't be cause for alarm.

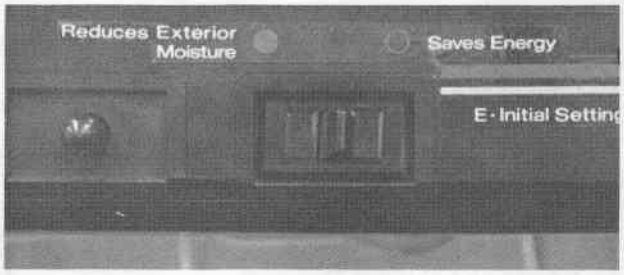
Warm Cabinet Surfaces

At times, the front surfaces of the refrigerator cabinet may be warm to the touch. This is a normal function of the refrigerator. This feature prevents moisture from condensing on the outside of the refrigerator during humid weather. This condition may be noticeable when you first start the refrigerator, during hot weather, and excessive or lenghty door openings.

Energy Saver Control

During extremely humid weather, moisture has a tendency to collect on objects that are cooler than the surrounding air, just as droplets of water accumulate on a glass containing an iced drink during a hot summer day. The refrigerator is built to exacting standards and, therefore, contains condensate driers that are designed to minimize any collection of moisture on the cabinet external surface during periods of high humidity.

If the consumer lives in an area of low humidity, or one in which the humidity is considerably lower during certain seasons, you can set the switch to the "Saves Energy" position which will disconnect the condensate driers and decrease the amount of electricity you use.



In areas of relatively high humidity, set the switch to the "Reduces Exterior Moisture" position which will minimize any collection of moisture on the outside surface of the cabinet. The indicator light will be ON with the switch in this position.

Side-By-Side Models

Setting Controls

The refrigerator has two controls. One for regulating the temperature in the refrigerator compartment and one for the freezer compartment. Both controls are located at the upper rear of the refrigerator compartment, just below the light shield.

To start the refrigerator, set the refrigerator control on "D" and set the freezer control on "6" . Let the refrigerator run at least 8 to 12 hours before loading it with food.



In a day or so, if the consumer decides that one or both compartments should be colder or warmer, adjust the controls(s) as instructed in the charts below.

To start:	*Set refrigerator control on "D".* *Set freezer control on "6".*
Refrigerator too WARM:	*Turn refrigerator control to next higher letter.*
Refrigerator too COLD:	*Turn refrigerator control to next lower letter.*
Freezer too WARM:	*Turn freezer control to next higher number.*
Freezer too COLD:	*Turn freezer control to next lower number.*
Refrigerator OFF:	*Set refrigerator control on OFF.*

USE OF CONTROLS

IMPORTANT: ***Except when starting, DO NOT change either control more than one letter or one number at a time. Allow 24 hours for temperature to stabilize before resetting.***

To turn off the refrigerator, set the refrigerator control on OFF.

Warm Cabinet Surfaces

At times, the front surfaces of the refrigerator cabinet may be warm to the touch. This is a normal function of the refrigerator. This feature prevents moisture from condensing on the outside of the refrigerator during humid weather. This condition may be noticeable when you first start the refrigerator, during hot weather, and excessive or lengthy door openings.

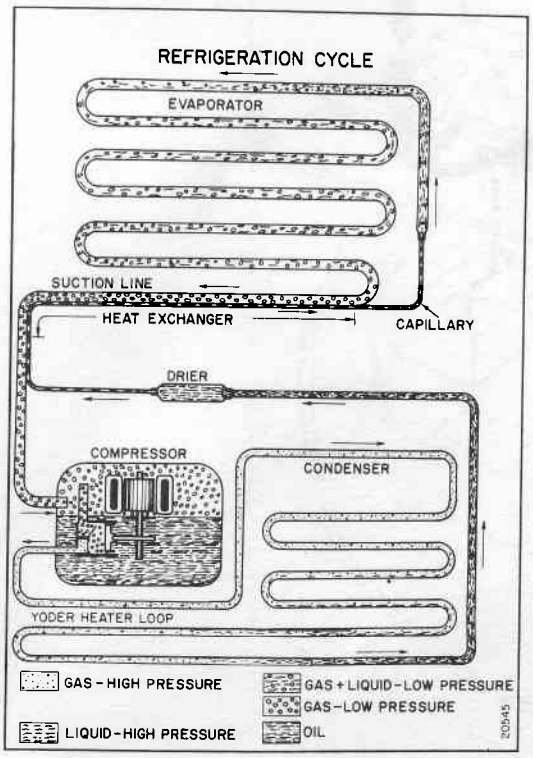
SERVICE PROCEDURES

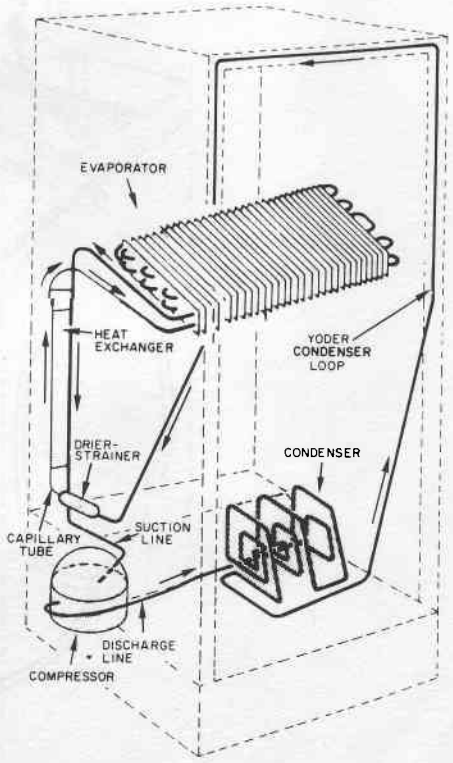
GENERAL INFORMATION

TOP MOUNT MODELS

FORCED AIR SYSTEMS

On all forced air models, an air circulating fan draws cold air from around the evaporator and directs it to the fresh food and freezer compartments. A carefully measured amount of chilled air is directed into the fresh food compartment through a baffle to maintain the desired fresh food compartment temperature. The greater part of chilled air is directed into the freezer compartment to maintain freezer temperature. Forced air models use a fan cooled condenser. The evaporator is automatically defrosted every six or eight hours of compressor run time depending on the model. Defrosting is accomplished by a defrost heater activated by a timer. The accumulated moisture is drained into a defrost pan located in the compressor area of the cabinet.





EVAPORATION OF ICE CUBES (Top Mount & Side-By-Side Models)

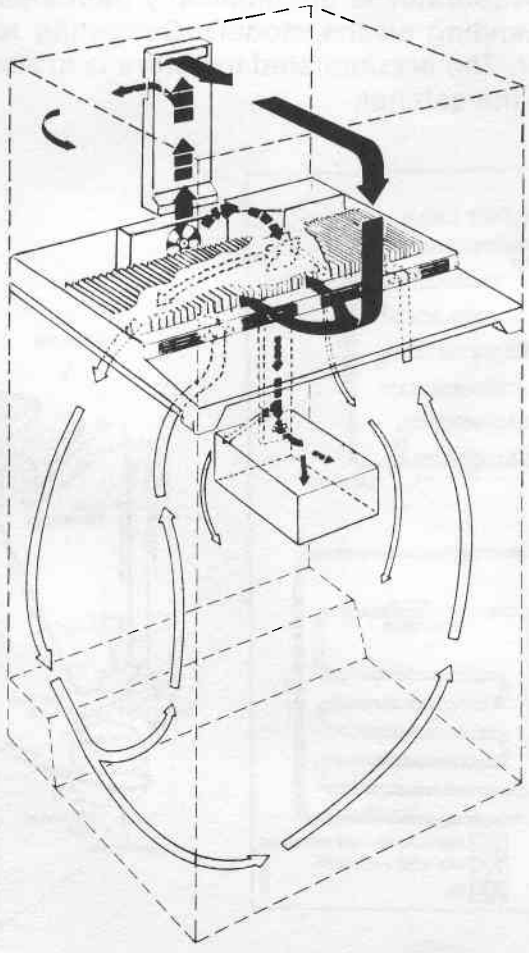
Since ice cubes have a moisture vapor pressure above them, the vapor is constantly being picked up in the dry air stream and deposited on the evaporator. This physical change known as "sublimation", is the changing of a solid to a vapor without going through liquid state. In a forced air freezer compartment, this action will be readily noticed by a customer who does not use ice cubes with regularity.

AIR FLOW - FORCED AIR SYSTEMS

Top Mount Models

The balance between the air flow into the fresh food and freezer compartments is an important factor in maintaining proper compartment temperatures in a forced air refrigeration system. A baffle is used to regulate the amount of chilled air directed into the fresh food compartment. If a colder freezer compartment temperature is desired, the baffle is adjusted so that less air is directed into the fresh food compartment. This causes the compressor to run longer since the compressor thermostat sensing element is located in the fresh food compartment.

Cold air is drawn through the fin and tube evaporator and into the fan. A portion of the air is deflected into the fresh food compartment where it absorbs heat and returns to the fin and tube evaporator through ports in the top of the fresh food compartment Most of the air moving through the fin and tube evaporator, however, is blown through the freezer air tunnel and circulated throughout the freezer compartment and back across the fin and tube evaporator where it starts another cycle.



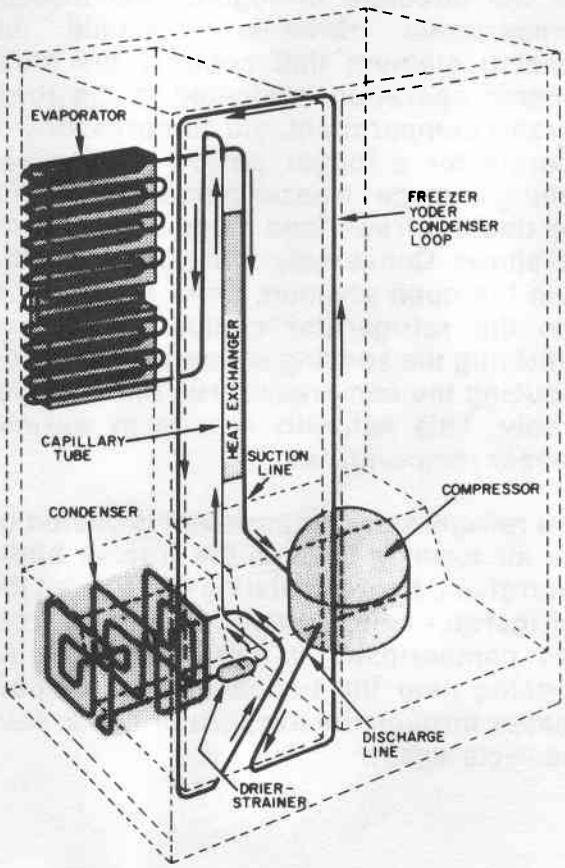
SIDE-BY-SIDE MODELS

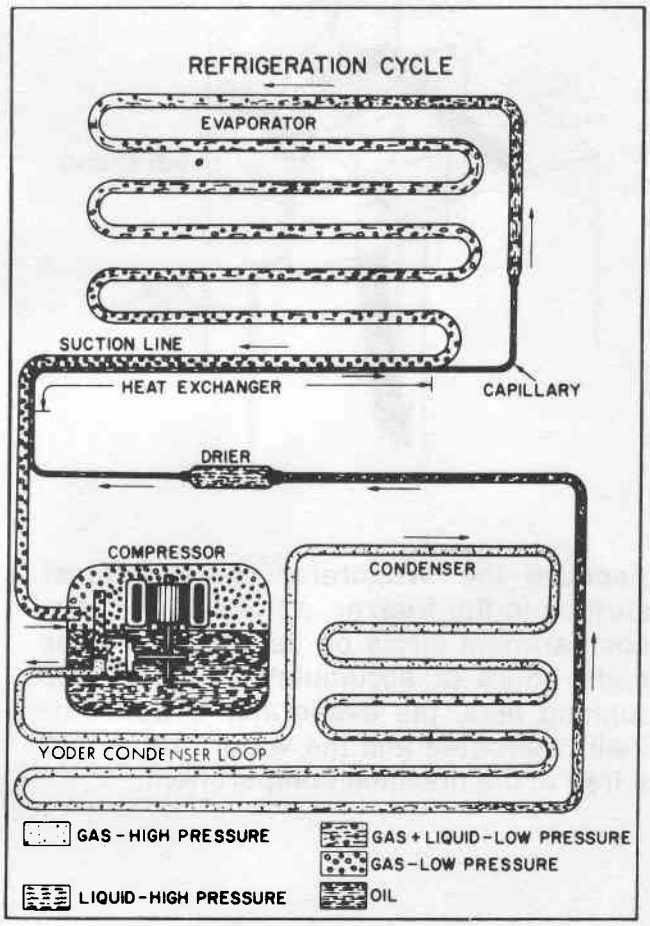
Side-By-Side models are manufactured with a single evaporator. They are automatically defrosted by a radiant heater working in conjunction with an electric timer.

They have a fan cooled condenser with the fan dissipating condenser heat and aiding in the evaporation of defrost water that collects in the defrost pan.

A forced air system is used to distribute chilled air throughout the freezer and fresh food compartments thus utilizing a single evaporator. A temperature control and baffle system are used to control the amount of chilled air distributed to each compartment. Both of the controls are located in the fresh food compartment. The temperature control is used to energize the compressor. The baffle mechanism regulates the flow of chilled air between the freezer compartment and the fresh food compartment.

The drawing illustrates the air flow system typical to the Side-By-Side models.

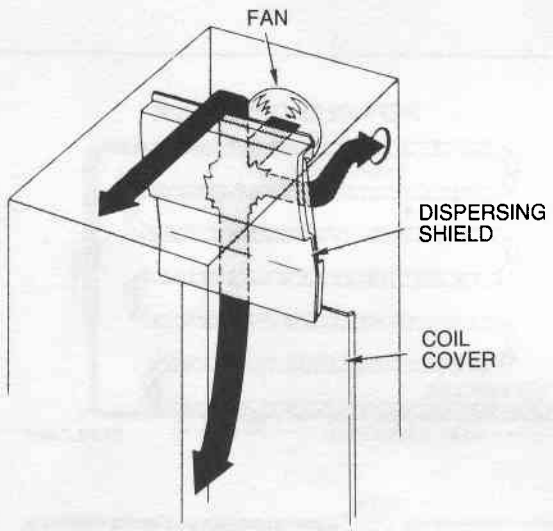




AIR FLOW

Side-By-Side Models

The evaporator is mounted behind the cover at the rear of the freezer compartment. A circulating fan is mounted near the top of the compartment, directly above the evaporator. This fan draws air up over the evaporator and discharges it against a dispersing shield, mounted in front of the fan. As the air hits the dispersing shield, the air is deflected in three directions. The cold air circulates to the bottom of the freezer compartment, absorbing heat and moisture from the packages stored on the shelves. It is then drawn up into the evaporator area to again repeat the cycle.



Because the evaporator is the coldest surface in the freezer, all moisture in the compartment forms on its surfaces. After eight hours of accumulated compressor running time, the evaporator is automatically defrosted and the water drains into a tray in the machine compartment.

The amount of air being moved in each direction in the drawing is broken down as follows:

1. The greatest volume of air is blown out the opening at the bottom of the dispersing shield.
2. Part of the chilled air is blown over the top of the dispersing shield.
3. A small portion of the chilled air is forced through a side opening into the refrigerator compartment.

The air being moved in each direction is depending somewhat on the setting of the freezer baffle control. For example: If the baffle control is turned to the closed position (coldest), a greater volume of chilled air will circulate throughout the freezer compartment. However, because the sensing element that controls the compressor operation is located in the refrigerator compartment, the compressor will operate for a longer period of time, resulting in colder freezer temperatures and the desired fresh food compartment temperatures. Conversely, if the freezer baffle is in the open position, more air will flow into the refrigerator compartment, thus satisfying the sensing element sooner and reducing the compressor run time considerably. This naturally results in warmer freezer temperatures.

The refrigerator compartment is cooled by the air passing through the freezer baffle control and then circulating throughout the refrigerator compartment. Return air from this compartment is drawn through an opening near the bottom, where it again passes through the evaporator coil to start the cycle again.

CHECKING OPERATION - (All Models)

The following general information explains several method for checking operation of the refrigeration system. This information applies to all systems covered in this manual.

The correct operation of a refrigeration system is dependent upon the proper functioning of each of the parts comprising the system. If the system does not operate properly (long run periods, warmer than normal temperatures), the trouble may be caused by one of the following conditions.

RESTRICTED CAPILLARY TUBE

The opening of a capillary tube is about the same diameter as the period at the end of this sentence. This should indicate that it doesn't take much to restrict this tube. It should also tell you to use care when any service procedures involve moving or touching the capillary tube. A very slight kink can cause a complete restriction of the tube.

Restrictions of the capillary tube may be caused by: (1) moisture freeze-up, (2) foreign particles lodged in the tube, or (3) a bend or kink.

If the capillary tube is restricted, there will be a noticeable lack of frost on all of the cooling surfaces; the compressor may operate for a short period of time and then cycle on the overload. Because some models can hold the entire charge in the condenser, the compressor may run continuously and definite vacuum will be noticed in the low side. When moisture freeze-up causes a restriction, it usually occurs at the outlet end of the capillary tube. Normally, a frost build-up can be detected in this area, but insulation wrapped around the tubing may conceal or limit the amount of frost accumulation.

Expose the discharge end of the capillary and apply heat at this point. If there is enough head pressure, and if the restriction is caused by moisture freeze-up, you will be able to hear a gurgling noise as the heat releases the refrigerant through the tubing.

It is possible that this moisture will be absorbed by the drier and remedy the trouble. However, if the freeze-up recurs, you must replace the drier.

A kink in the capillary tube will reveal about the same symptom as a moisture freeze-up except for the accumulation of frost. Check the entire length of the capillary tube and, if possible, straighten the kink to relieve the restrictions. Check the unit operation to see if you have helped the situation. If the trouble persists, replace the defective part.

If the freeze-up condition does not exist and there is not a kink, you can assume that a foreign particle is causing the restrictions -- the only remedy in this case is to replace the restricted part.

PARTIAL RESTRICTION IN LOW SIDE TUBING

Bent tubing, foreign matter, or moisture in the system may cause a partial restriction in the low side tubing. This is usually indicated by frost-free tubing between the restriction and the capillary tube and by frost-covered tubing between the restriction and the suction line. The restriction acts like a second capillary tube, increasing the pressure ahead of it (warming) and decreasing the pressure beyond it (cooling). To confirm the existence of a restriction in the low side tubing, perform operational pressure checks.

SLOW LEAK IN SYSTEM

On forced air models, long run time will be noticed during the early stages of a leak. As the refrigerant continues to escape, both compartments will gradually warm up and the compressor will run continuously. The freezer will probably warm up first.

INCORRECT REFRIGERANT CHARGE

The sealed unit may have too much refrigerant (overcharged system) or too little refrigerant (undercharged system). The following paragraphs will inform you on how to recognize a system with these defects.

An overcharged system may have a frost back condition appearing outside the insulation sleeve on the suction line at the cabinet rear. When the compressor stops, the frost melts and drips on the floor. A heat exchanger separation will also cause this symptom.

An undercharged system depending on the degree of undercharge, will operate with temperatures above normal and the compressor run time will be increased. The greater the undercharge, the higher the temperature will be and the longer the run time.

An undercharged system must be purged, evacuated, and recharged with the proper amount of refrigerant. Before recharging, however, test for refrigerant leaks.

DEFECTIVE COMPRESSOR

A compressor which is not pumping adequately will not cool effectively. All cooling surfaces may be covered with a thin film of frost, but the temperature will not descend to the cut-out temperature of the control, even with continuous running of the compressor.

Because these symptoms are similar to a refrigerant leak, it is advisable to thoroughly leak test at this point. If no leak is indicated, install gauges and check the operating pressures. If the high side pressures are lower than those specified, and low side pressures are higher than specified, suspicions of an inefficient compressor will be confirmed and the compressor must be replaced.

PRESSURE UNLOADING IN SYSTEM

The compressor may stall and cycle on the overload protector if an attempt is made to restart the unit immediately after it has stopped. This is because the refrigerant pressure is high on the condenser side and low on the evaporator side. When the compressor stops running, the liquid slowly passes through the capillary tube and the pressures are said to be "unloading". Pressure unloading in the system may take from 3 to 6 minutes.

PULL DOWN OVERLOAD

If the cabinet compartments are warm when the compressor starts, the "pull down" may temporarily overheat the compressor and cause cycling on the overload protector.

LEAK TESTING

The following general information explains several methods of checking the refrigeration system for leaks. This information applies to all systems covered in this manual.

If there is an undercharge of refrigerant and the system has not been recently opened, there is probably a leak in the system. In that case, it would be only a temporary solution to add refrigerant without first locating and repairing the leak since adding refrigerant will not permanently correct the difficulty. The leak must be located and repaired if possible, after which the entire system must be recharged with the proper amount of refrigerant. Whenever a new charge of refrigerant is added, it is necessary to install a new drier.

Any leak, regardless of its size, must be located before you can determine the operative status of the system components. Do not replace a component because the system is short of refrigerant unless a non-repairable leak is found.

If your analysis indicates a leak, find it before opening the system. You are more likely to pinpoint the leak before discharging than if the surrounding air is contaminated with refrigerant from a newly opened system.

The presence of oil around a tubing joint usually indicates a leak, but don't let this be the determining factor. Always check the area with a leak detector to make sure.

To simplify leak detection, keep the system pressurized to a minimum of 75 P.S.I. This is easily accomplished for high side testing by merely running the compressor. To pressurize the low side, allow the entire system to warm up to room temperature.

Often enough refrigerant may have escaped to make it impossible to raise the pressure enough to leak test effectively. In cases of this nature, clamp a piercing valve to the compressor process tube and add enough refrigerant to conduct the test.

Leak testing with a Halide torch is considered satisfactory in most cases, but for more accurate testing, we recommend the use of a Dielectric Differential Leak Detector.

This transistorized model reduces the guesswork in leak testing because it is more sensitive, faster responding, and capable of detecting a leak even though the surrounding air is contaminated. The leak gun provides an audible indication of a refrigerant leak.

LEAK TESTING YODER LOOP

The following general information explains several methods used in leak testing the yoder loop.

The yoder loop is routed in the front cabinet flange at the top and sides. The yoder condenser loop warms the front of the cabinet and thus reduces the formation of condensation on the cabinet front. By transferring heat to the cabinet front, the loop helps cool the condensing system.

Since the yoder condenser loop cannot be reached for leak testing, it is impossible to check in the normal manner. Instead, it must be disconnected from the system and checked separately.

NOTE: BE SURE A LEAK IS NOT PRESENT IN ANY EXTERNAL TUBING OR JOINT BEFORE PERFORMING THE FOLLOWING TESTS.

USING PRESSURE METHOD

To test for leaks in the yoder loop tubing, a pressurized test using the following equipment is required.

A. An access fitting.

B. A cylinder of dry nitrogen.

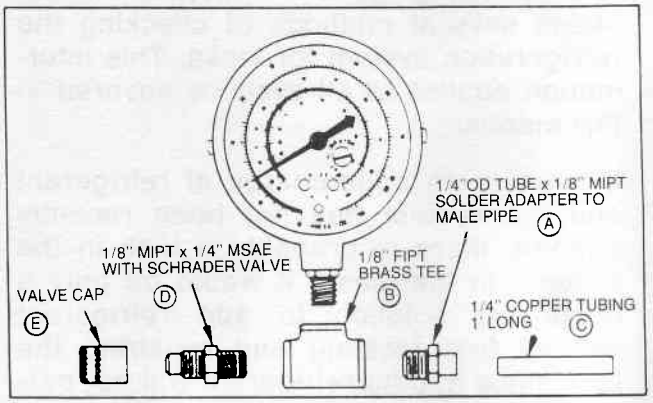
C. Pressure regulator.

D. One gauge.

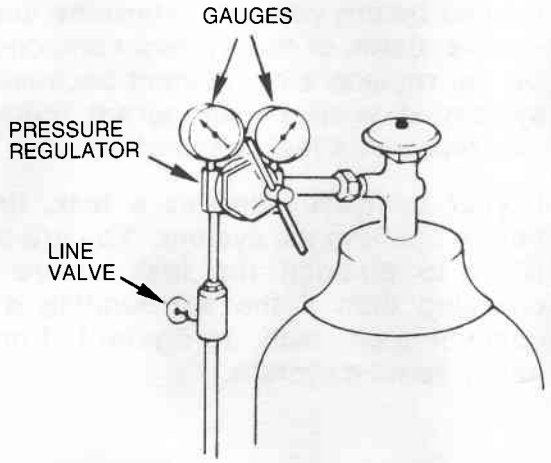
E. Line valve and tubing.

The access fitting should be prepared as follows:

1. Solder the copper tubing (C) to the adaptor (A).
2. Assemble all parts to the "brass tee" (B) using a sealant such as "Leak Lock" to assure a leak-tight joint.
3. Seal the end of the copper tube by crimping and silver-soldering.



4. Apply 200 lbs. pressure at the Schrader valve and leak test the access fitting with a soap solution.
5. If there is no leak, cut the crimped end off the tube (C).

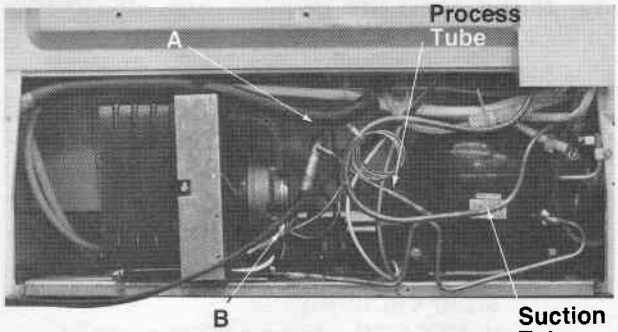


TESTING YODER LOOP

Top Mount Models

1. Disconnect unit from power source.
2. Install a service valve on the process tube and vent the refrigerant outside.

3. Unsolder the yoder loop tubing at points "A" and "B".



4. Crimp and solder the yoder tubing at point "A".

5. Solder the special access fitting to tube removed at point "B".

6. Pressurize the system to 250 lbs. with the dry nitrogen. Leak test the joint, using a soap solution.

7. Check the pressure gauge. If the pressure decreases, a leak exists. It may be necessary to allow up to 24 hours to pass in order to determine this. If a leak does not exist, reconnect the tubing, evacuate and recharge the system.

   If the yoder loop is leaking, a special kit can be ordered for installing a resistance heater wire. Complete instructions are included with the kit. It is not necessary to leave the refrigerator inoperative while you order the kit. You should reconnect the system excluding the yoder loop as follows:

8. Install a new drier. Instead of connecting it to point "A", connect it to point "B". This will exclude the yoder loop from the refrigerant system.

9. Evacuate and recharge the system.

10. Leak test all tubing joints and test run the refrigerator.

11. Pinch the process tube and cut the service valve off the tubing. Solder the joint and check for leaks.

TESTING YODER LOOP

Side-By-Side Models

1. Disconnect unit from power source.

2. Install a service valve on the process tube and vent the refrigerant outside.

3. Unsolder the yoder loop tubing at points "A" and "B". (see drawing).

4. Crimp and solder the yoder tubing at point "A".

5. Solder the special access fitting to tube removed at point "B".

6. Pressurize the system to 250 lbs. with the dry nitrogen. Leak test the joint using a soap solution.

7. Check the pressure gauge. If the pressure decreases, a leak exists. It may be necessary to allow up to 24 hours to pass in order to determine this. If a leak does not exist, reconnect the tubing, evacuate and recharge the system.

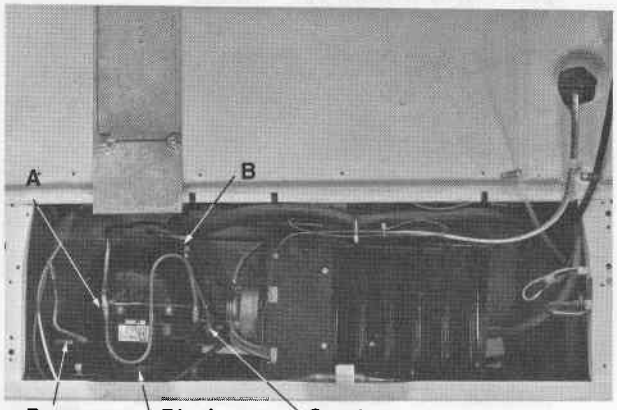
If the yoder loop is leaking, a special kit can be ordered for installing a resistance heater wire. Complete instructions are included with the kit. It is not necessary to leave the refrigerant inoperative while you order the kit. You should reconnect the system excluding the yoder loop.

To exclude the yoder loop, connect compressor discharge line directly to condenser by connecting the tubing at point "A" to point "B".

8. Install a new drier.

9. Evacuate and recharge the system.

10. Leak test all tubing joints and test run the refrigerator.



11. Pinch the process tube and cut the service valve off the tubing. Solder the joint and check for leaks.

CHECKING PRESSURES

If the refrigeration system is not operating properly, check the operating pressures.

Install a piercing valve on the compressor process tube.

NOTE: The only time you should use a piercing valve is to check pressures. If the system is operating properly, pinch off between the valve and the compressor. The refrigerant charge will not be disturbed.

For high side pressures, install another piercing valve about 6 inches from the compressor on the discharge line. However, you will have to evacuate and recharge the system, since the valve must not be left on the tubing and cannot be removed without disturbing the refrigerant charge.

When using gauges to check operating pressures, observe these precautions.

1. Make sure the gauges are accurately calibrated. When not connected into a system, the gauge pointers should indicate 0 pressure. If necessary, turn the recalibrating screw on the dial until the pointer is at 0.

   a. HIGH SIDE - near normal pressure
      LOW SIDE - lower pressure (possible vacuum)
      WATTAGE - lower than normal

   The evaporator tube or other low side tubing is probably restricted (kinked or blocked with foreign particle). This condition is usually accompanied with a frost build-up on the low side of the restriction, and high side pressures will not unload and balance with the low side within the prescribed 7 to 10 minutes after the compressor is stopped.

   b. HIGH SIDE - lower pressure
      LOW SIDE - slightly lower pressure
      WATTAGE - lower than normal

   These results usually indicate a leak in the high side of the system. Both gauges will show progressively less pressure as more refrigerant escapes.

   c. HIGH SIDE - much higher pressure
      LOW SIDE - slightly lower pressure
      WATTAGE - higher than normal

   These gauge readings usually indicate a leak in the low side of the system. High side pressures will continually increase since air drawn in through the leak collects and becomes trapped in the high side tubing. The low side gauge may show a slight pressure because of the air being drawn in through the leak.

d. HIGH SIDE - lower pressure
LOW SIDE - in vacuum
WATTAGE - lower than normal

The system is probably restricted at the entrance of the capillary tube. High side pressures will take much longer than the prescribed 7 to 10 minutes to unload and balance with the low side after the compressor is stopped.

e. HIGH SIDE - higher pressure
LOW SIDE - near normal pressure
WATTAGE - higher than normal

These findings indicate air in the system. This is usually the result of a low side leak being repaired without the system being thoroughly purged and evacuated before recharging.

To confirm the existence of air in the system, check the temperatures of the condenser inlet and outlet. During normal operation, the outlet should be from 15 to 20 degrees colder than the inlet. If these temperatures do not vary at least 15 degrees, the presence of air is almost certain.

Simply purging the air from the system is not practical. This may result in the system being undercharged due to the loss of refrigerant. Purge, replace drier, evacuate, and recharge the system.

f. HIGH SIDE - higher pressure
LOW SIDE - higher pressure
WATTAGE - higher than normal

These gauge readings usually indicate an overcharge of refrigerant. The extent of the pressure increase depends on the amount of overcharge and room temperature. A slight overcharge may not cause trouble in 70 degree temperatures whereas in 90 degree temperatures a considerable rise in pressure will result.

An overcharge may also cause the suction line to be frosted during the run cycle. Evacuate and recharge if the system is overcharged.

g. HIGH SIDE - lower than normal
LOW SIDE - higher than normal
WATTAGE - lower than normal

These results indicate an inefficient compressor. All cooling surfaces may be covered with a thin film of frost, but the temperature will not descend to cut off temperature of the control, even with continuous running. Also the condenser will be noticeably cooler to the touch than normal. Once the confirmation of an inefficient compressor is determined, it should be replaced.

EVACUATING AND RECHARGING

The following general information applies to all systems covered in this manual.

EVACUATING

Any time the sealed system is opened and the refrigerant charge removed, you must install a new service drier and thoroughly evacuate before recharging. Even though a complete evacuation takes additional time, it will save time in the long run.

1. Open the compressor low side process tube as close to the pinched end as possible. This will leave sufficient room for pinching off at the conclusion.

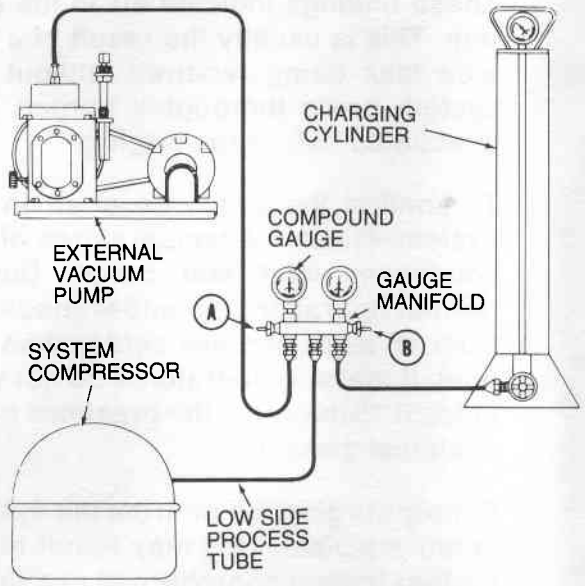
2. Install a service valve on the process tube.

3. Connect your vacuum pump to the service valve through a gauge manifold as shown. Leave the service valve closed. Use a good vacuum pump, one in which you change oil often for the most efficient operation.

4. Start the vacuum pump and open its discharge valve. Then slowly open its suction valve and the service valve on the compressor process tube.

CAUTION: *If you are using an extremely efficient vacuum pump, just crack its suction valve for the first minute - then slowly open it. This will prevent the system oil from foaming and being drawn into the pump in large volume. If this should happen, the system oil, containing trapped refrigerant, will contaminate your pump, and, of course, reduce the amount of oil in the compressor.*

5. Pull a vacuum for about 20 minutes - this should give you a reading of near 500 microns, or 29.6 inches of vacuum on a compound gauge. After pulling a vacuum for 20 minutes, you can close off the valve of the pump while leaving the micron gauge in the system. Then observe the micron gauge (or compound gauge) for a few minutes. If the reading rises, you could have a leak in the system.



6. Close the manifold valve "A" and stop the vacuum pump.

7. Connect your sight glass charging cylinder to the gauge manifold and, after purging the line, open valve "B" and induce a charge of refrigerant into the system until it is pressurized to 35 or 40 P.S.I.G. Then leak test the low side. After leak testing the low side, run the compressor for a few minutes and leak test the high side.

8. Purge the temporary refrigerant charge out the low side. This will help to remove moisture from the system. Keep in mind that the process of flushing clean refrigerant through the system is equivalent to 20 or 25 minutes of pulling a vacuum with a vacuum pump of lower capacity than those specified. Therefore, you can induce another temporary charge and purge, if you desire.

9. Repeat the vacuum pump procedure for another 30 minutes which should again pull down to about 500 microns or 29.6 inches of mercury.

IMPORTANT: Always heat as much of the system as you can while evacuating, preferably with a heat lamp - not a torch. Be careful with the lamp, however, to avoid damaging any nearby plastic parts or system parts.

RECHARGING

It is very essential that you have the proper equipment when charging the system so you can be accurate to within 1/4 ounce of refrigerant. Although there are several methods of charging, we recommend the use of a sight glass charging cylinder which is accurate regardless of the ambient temperature.

We recommend when using the vacuum pump evacuating procedure, that you charge through the low side of the system, either through the process tube or the suction line. Remember, however, that the refrigerant should be introduced slowly. Because the refrigerant will enter the system in a liquid state, you should never run the compressor while charging. Wait at least 5 minutes after the charge has entered before starting the compressor.

1. Connect the hose of the charging cylinder to the system through a gauge manifold as shown in previous drawing. Close valve "A" on the manifold.

2. Open the charging cylinder and purge the hose. As soon as the refrigerant has stabilized in the charging cylinder, check the pressure reading of the cylinder and rotate the sleeve to correct the setting for pressure and the type of refrigerant being used.

3. Consult Section 9 for the amount of charge needed, then open valve "B". As you charge the system, you may notice some bubbles in the cylinder. These can be eliminated by closing your service valve and tipping the cylinder upside-down momentarily. Then continue charging until the correct charge has entered the system.

If at any time you are required to raise the internal pressure of the charging cylinder, or if your charging cylinder does not have an internal heater, place the cylinder in a bucket of warm water (not over 125° F). Never heat a charging cylinder with a flame. Such action could cause hydrostatic pressure to build up to dangerous levels and possibly cause the cylinder to rupture like a bomb.

4. When you are sure the system is correctly charged, stop the flow of refrigerant at valve "B". Then pinch off the low side process tube, close the charging cylinder valve, remove the service valve, and solder the process tube closed.

SEALED SYSTEM SWEEP CHARGE SERVICING PROCEDURES

Sealed system sweep charge processing is a modified procedure different from the evacuation method employing a vacuum pump and micron gauge that were used in the past.

Through extensive evaluation, we have concluded if the sweep charge procedure is properly done there should be no long term adverse affects on product performance.

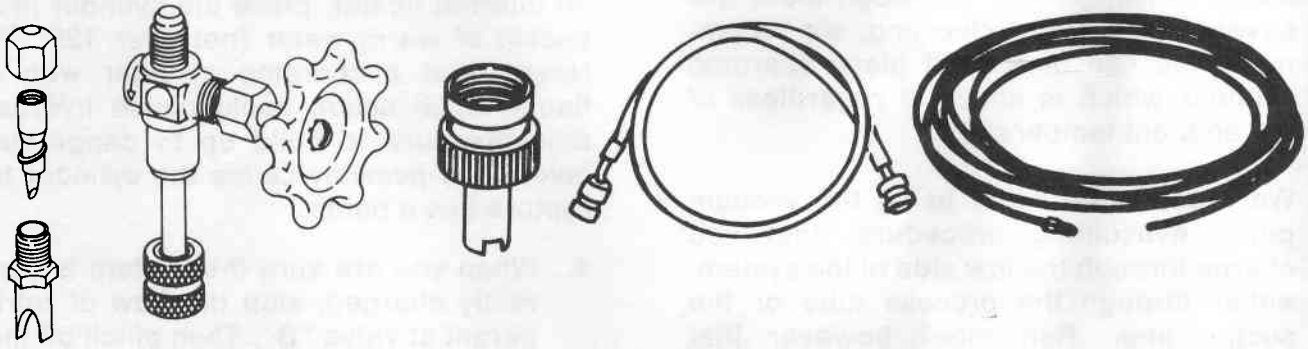
It significantly reduces the amount of equipment and time required to properly complete a sealed system repair.

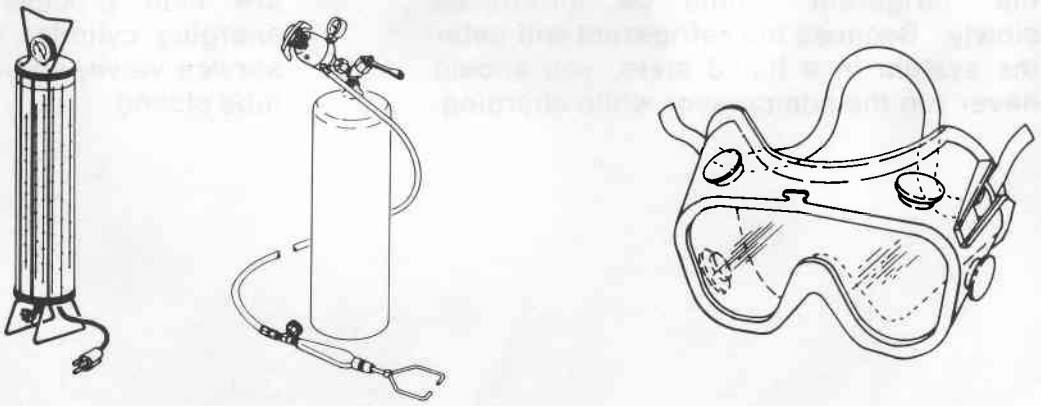
As in the past, technicians using this sweep charge process must be thoroughly familiar with brazing techniques, sealed system diagnosis and repair methods.

COMPRESSOR OPERATIVE

Following is a list of equipment needed for sealed system sweep charge processing:

Permanent Braze Type Piercing Valve
Quick Coupler Hand Valve with Valve Core Depressor
Valve Core Removal Tool
Three Foot Charging Hose
Purge Hose
Heated Charging Cylinder Equipped with Automatic Relief Valve
Brazing Equipment
Goggles





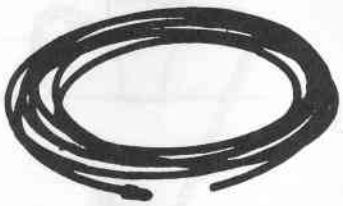
NOTE: Always use a purge hose of sufficient length to discharge the refrigerant out of the work area - preferably out doors. Keep work area well ventilated when purging or discharging refrigerant. WEAR GOGGLES TO PREVENT EYE INJURY when handling refrigerant.

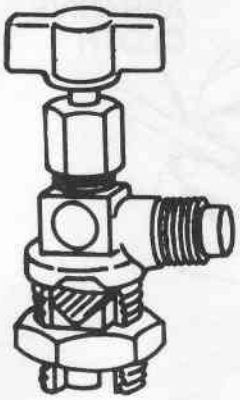
It is important a **heated** charging cylinder equipped with an automatic pressure relief valve be used to enable charging the system properly. Most charging cylinders currently available have heaters or heater kits available. Never use an external heat source such as a heat gun or torch for heating refrigerant in a charging cylinder.

COMPRESSOR INOPERATIVE

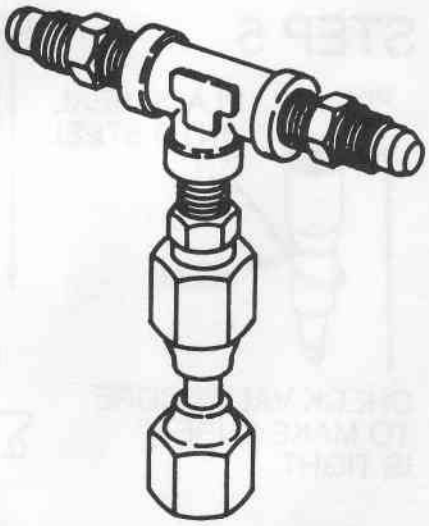
In addition to the previous equipment, the following is needed:

Purge Hose
Temporary Piercing Valve





NOTE: Instead of a second purge hose an additional three foot charging hose and "T" adapter can be used to enable purging both access valves through a common purge hose.



PROCEDURE WITH COMPRESSOR OPERATIVE

1. Fill charging cylinder with at least 6 ounces more refrigerant than needed for final charge of system. Plug in charging cylinder heater to raise pressure to 30 lbs. above ambient cylinder pressure.

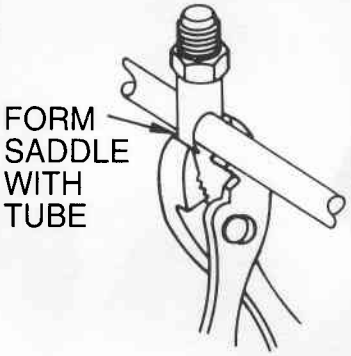
   NOTE: Maintain but do not exceed this 30 pounds above ambient pressure until system is charged.

2. Braze permanent access valve on compressor discharge line at least 4 inches from compressor body (Steps 1,2 & 3).

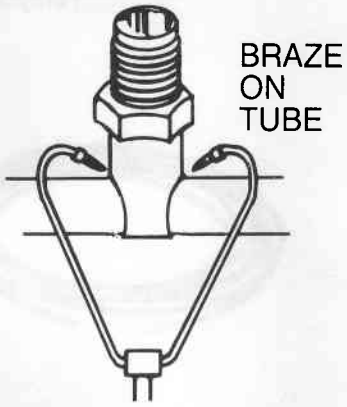
STEP 1



STEP 2



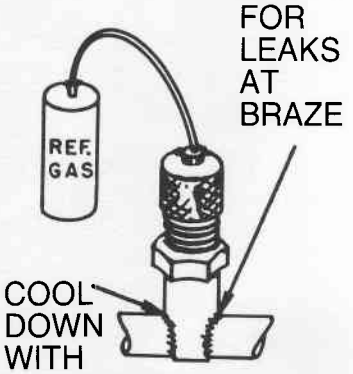
STEP 3



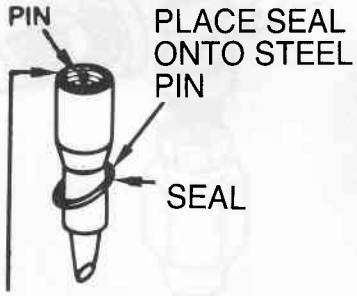
3. Leak check permanent access valve with refrigerant gas from top valve of charging cylinder connected through charging hose and hand valve to access valve (Step 4).

4. Pierce discharge tubing with access valve, make certain valve core is installed to prevent premature discharge of refrigerant (Steps 5 & 6).

STEP 4

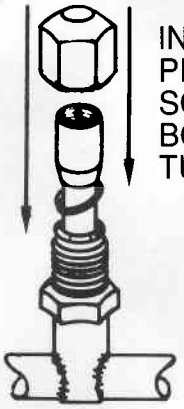


STEP 5



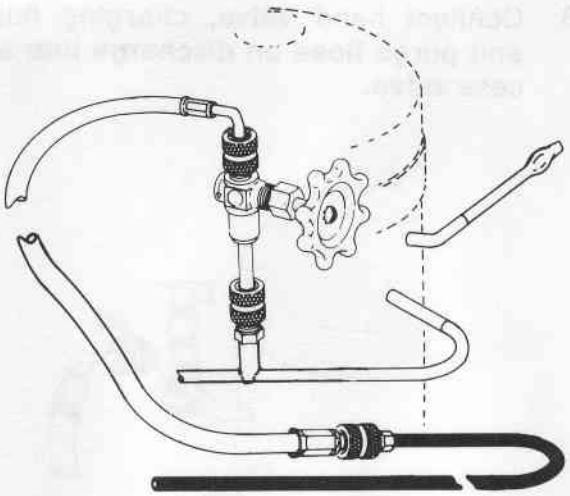
CHECK VALVE CORE
TO MAKE SURE IT
IS TIGHT

STEP 6



USE TWO WRENCHES TO AVOID VALVE FROM TWISTING

5. Install hand valve and purge hose on access valve. Route purge hose away from work area - preferably outdoors.



6. Slowly open hand valve and discharge system for 5 minutes, with compressor not running.

   On units with cold freezer compartments the evaporator can be warmed to aid in purging refrigerant. This is accomplished by advancing the defrost timer to energize the defrost heaters.

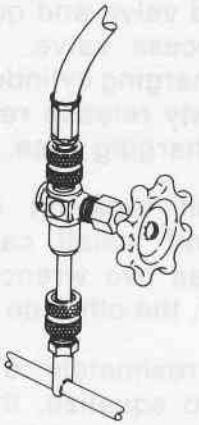
7. Discharge system for additional 3 minutes with compressor running, then turn compressor off. Remove purge hose from charging hose.

8. Remove hand valve from access valve.

9. Remove valve core. Perform the repair. Install a new replacement drier.

10. Connect charging hose to bottom of charging cylinder. Attach hand valve to loose end of charging hose.

11. Purge charging hose with refrigerant and close hand valve.



12. Attach hand valve to access valve. Charge in 4 oz. of refrigerant for leak check. Close hand valve. Wait approximately 5 minutes for pressure to equalize. (Leak check low side).

13. Run compressor for 3 minutes to sweep system. (Leak check high side).

14. Close bottom valve on charging cylinder, slowly release refrigerant contained in charging hose by loosening hose coupler at charging cylinder. After refrigerant is released, disconnect hose at charging cylinder valve.

    CAUTION: *keep refrigerant away from fingers to prevent physical damage.*

15. Connect purge hose to loose end of charging hose, slowly open hand valve and run compressor for additional 5 minutes while discharging 4 oz. sweep charge.

16. Remove hand valve. Install valve core before turning compressor off.

17. Turn compressor off.

18. Replace charging hose on lower valve of charging cylinder, purge hose with refrigerant and close hand valve.

19. Install hand valve on access valve and charge to factory specified charge.

20. Close hand valve and quickly remove it from access valve. Close lower valve on charging cylinder, using hand valve, slowly release refrigerant contained in charging hose.

21. Put Teflon tape on access valve threads and install cap on access valve. (Use two wrenches - one on valve body, the other on cap.)

22. Wait approximately 5 minutes for pressure to equalize, then turn compressor on and check for refrigeration.

PROCEDURE WITH COMPRESSOR INOPERATIVE

1. Fill charging cylinder with at least 6 ounces more refrigerant than needed for final charge of system. Plug in charging cylinder heater to raise pressure to 30 lbs. above ambient cylinder pressure.

   NOTE: Maintain but do not exceed this 30 pound above ambient pressure until system is charged.

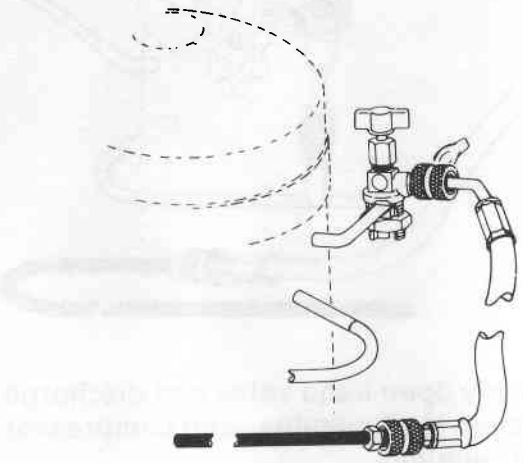
2. Braze permanent access valve on compressor discharge line at least 4 inches from compressor body. (See page 3-16, Steps 1,2, & 3.)

3. Leak check permanent access valve with refrigerant gas from top valve of charging cylinder connected through charging hose and hand valve to access valve. (See page 3-16, Step 4.)

4. Pierce discharge tubing with access valve, make certain valve core is installed to prevent premature discharge of refrigerant. (See page 3-16, Steps 5 & 6.)

5. Install temporary piercing valve on compressor process stub.

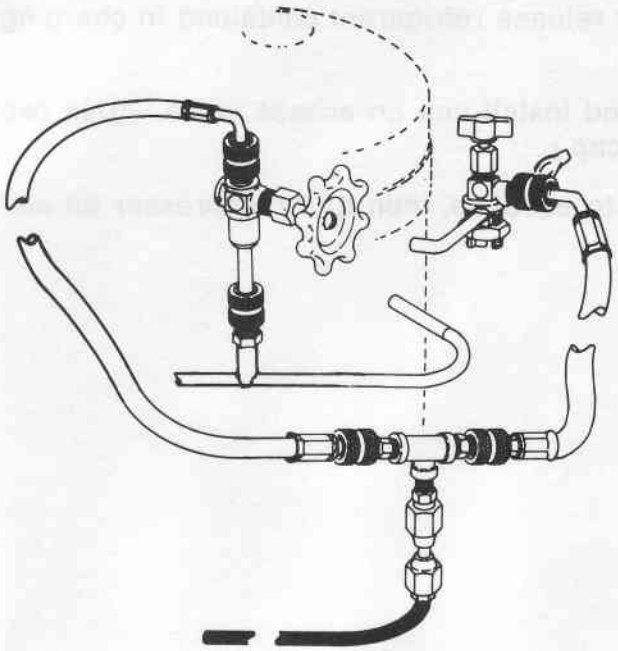
6. Connect hand valve, charging hose and purge hose on discharge line access valve.



7. Connect purge hose to the temporary piercing valve on compressor process stub.

8. Route purge hoses away from work area - preferably outdoors.

   NOTE:. An alternate method of purging using a single purge hose plus an additional three foot charging hose and "T" adapter can be accomplished by connecting a three foot charging hose to the discharge access valve and another three foot charging hose to the piercing valve. Connect both charging hoses and the purge hose to the appropriate connections on the "T" adapter and route the open end of the purge hose away from the work area preferably outdoors.



9. Slowly open hand valve and temporary piercing valve and discharge system for at least five minutes or until refrigerant is completely released.

   On units with cold freezer compartments the evaporator can be warmed to aid in purging refrigerant. This is accomplished on by advancing the defrost timer to energize the defrost heaters.

10. Remove hand valve and purge hoses. Remove valve core from discharge line access valve.

11. Remove and replace compressor. When brazing use a heat sink on the discharge line to prevent damage to the "O" ring seal in the access valve body. Remember to remove the temporary piercing valve from the inoperative compressor process stub. *Do not install it on the replacement compressor process stub or suction line.*

    Install a new replacement drier.

12. Connect charging hose to bottom of charging cylinder. Attach hand valve to loose end of charging hose.

13. Purge charging hose with refrigerant and close hand valve.

14. Attach hand valve to access valve.

15. Charge in 4 oz. of refrigerant for leak check. Close hand valve. Wait approximately 5 minutes for pressure to equalize. (Leak check low side.)

16. Run compressor for 3 minutes to sweep system. (Leak check high side.)

17. Close bottom valve on charging cylinder, slowly release refrigerant contained in charging hose by loosening hose coupler at charging cylinder. After refrigerant is released, disconnect hose at charging cylinder valve.

    CAUTION: *keep refrigerant away from fingers to prevent physical damage.*

18. Connect purge hose to loose end of charging hose, slowly open hand valve and run compressor for additional 5 minutes while discharging 4 oz. sweep charge.

19. Remove hand valve, install valve core before turning compressor off.

20. Turn compressor off.

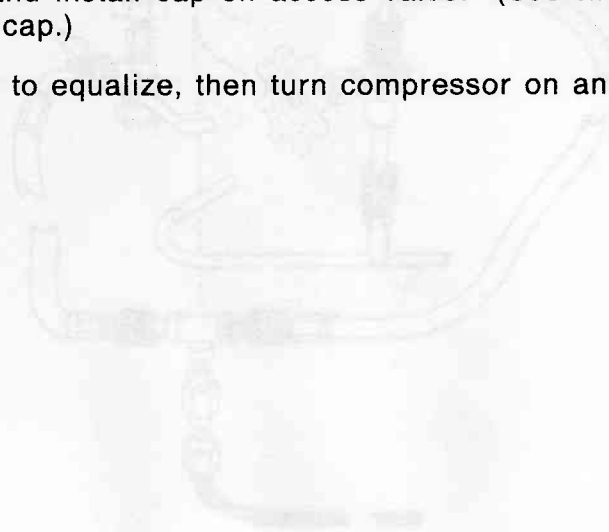
21. Replace charging hose on lower valve of charging cylinder, purge hose with refrigerant and close hand valve.

22. Install hand valve on access valve and charge to factory specified charge.

23. Close hand valve and quickly remove it from access valve. Close lower valve on charging cylinder, using hand valve, slowly release refrigerant contained in charging hose.

24. Put Teflon tape on access valve threads and install cap on access valve. (Use two wrenches - one on valve body, the other on cap.)

25. Wait approximately 5 minutes for pressure to equalize, then turn compressor on and check for refrigerant.



COMPONENTS

COMPRESSOR

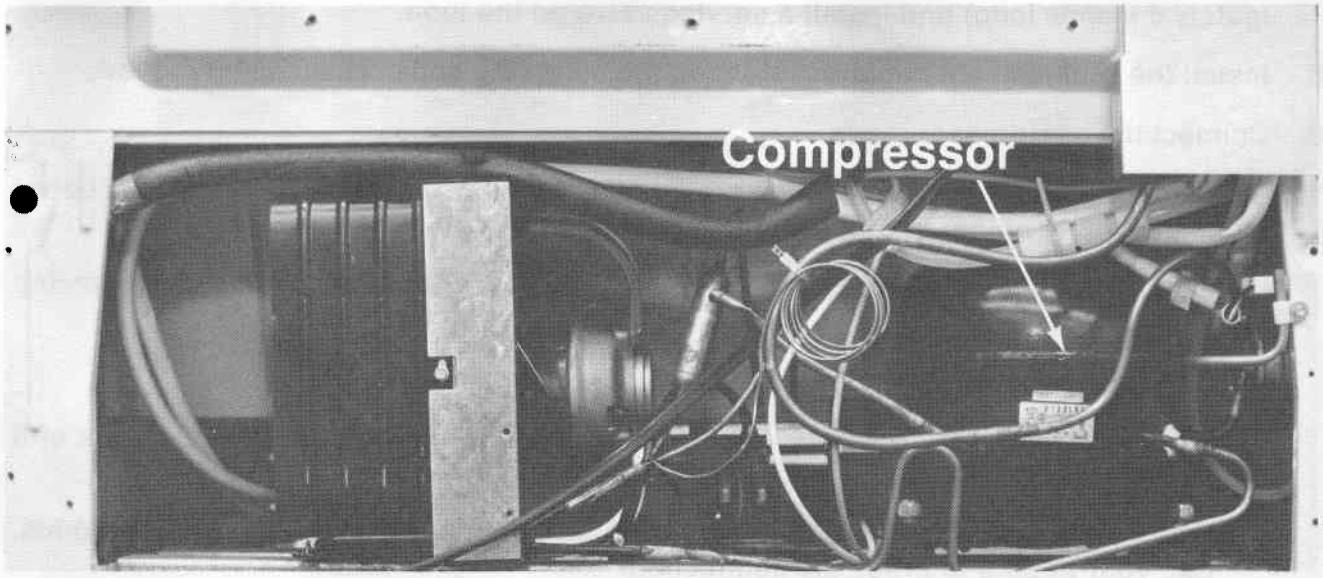
GENERAL INFORMATION

The following general information explains how to successfully replace compressors for any model covered in this manual.

All replacement compressors are charged with the correct amount of oil and a holding charge of either dry nitrogen or refrigerant.

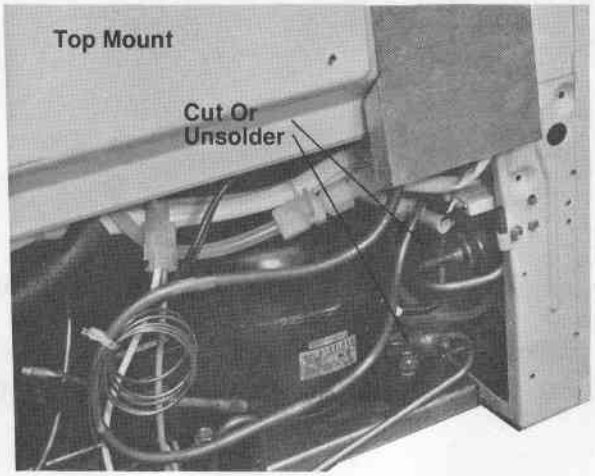
The holding charge is your assurance that the compressor is dry and ready to install. If you receive a replacement compressor that shows no evidence of a holding charge when you cut the lines or remove the plugs, return it.

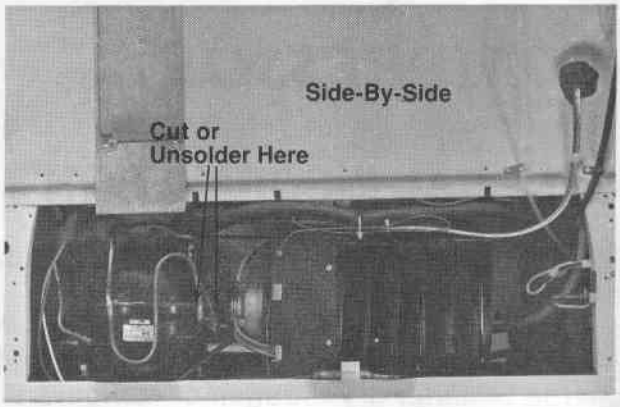
NOTE: A NEW DRYER MUST BE INSTALLED EACH TIME ANY COMPONENT OF THE SYSTEM IS OPENED OR REPLACED.



REPLACING THE COMPRESSOR

1. Disconnect the unit from the power source.
2. Locate defective compressor and install a piercing valve on the process tube.
3. **IMPORTANT** CONNECT A HOSE TO THE PIERCING VALVE AND DIRECT IT OUT OF DOORS. OPEN THE VALVE AND RELEASE THE REFRIGERANT.
4. Unsolder or cut the refrigerant tubes as close as possible to the compressor stubs making sure there is enough length to install the replacement compressor. Clean tubing in area to be unsoldered or cut.





5. Disconnect the lead wires from the compressor terminals.
6. Remove retaining bolts from compressor mounts. Remove defective compressor from cabinet and install rubber grommets on replacement compressor.
7. Open compressor stubs. Solder a short piece of tubing to the process tube (approximately 6 inches long) and install a service valve on the tube.
8. Install the replacement compressor using the mounting bolts previously removed.
9. Connect the compressor leads.
10. Connect the refrigerant tubing to the compressor stubs using silfos on copper to copper joints and silver solder and flux on steel to copper joints.

    Locate and remove old drier. Install new drier. The new drier is installed in the following manner:

    a. Carefully bend the old drier and tubing away from electrical parts.

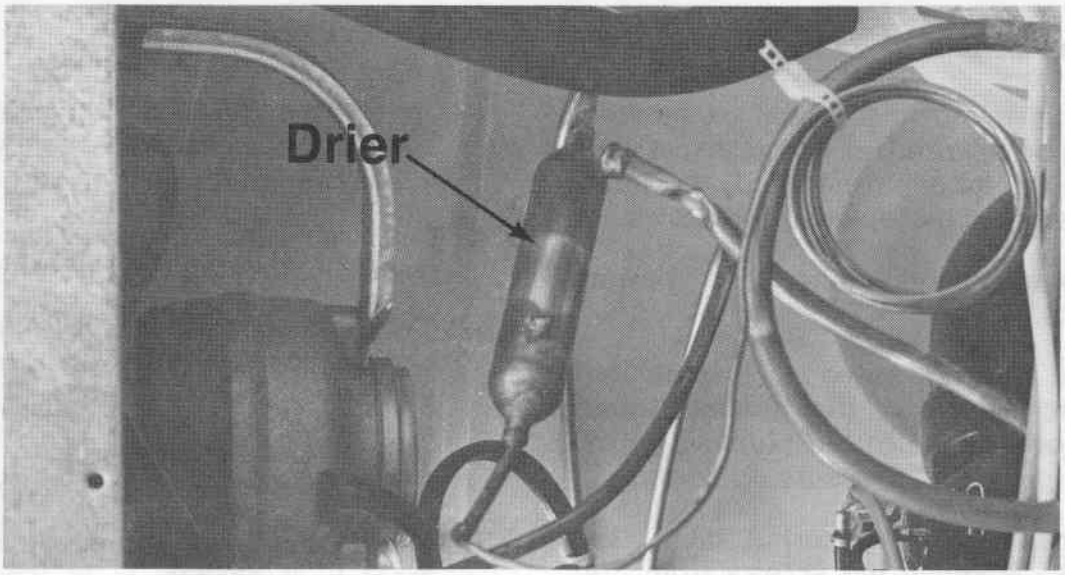
    b. Use steel wool or fine emery paper to clean the capillary tube for a distance of 3 inches from the original joints.

    c. Use a knife or file to score the capillary tube about 1 inch from the original joints. Use your fingers to break the connection.

d. Make an offset 1/2 inch from the end of the cap tube to prevent it from penetrating too far into the drier.

e. Cut the inlet tube of the replacement drier and use pliers to snap off the scored end.

f. Install the new drier using silver solder with the proper flux.



11. Evacuate, leak test and recharge the system.

12. Pinch off the process tube and remove the service valve and braze the end shut. Leak test the process tube.

HEAT EXCHANGER

The following general information explains how to successfully replace the heat exchanger for any model covered in this manual.

REPLACING HEAT EXCHANGER

Top Mount Models

If a leak is found in the heat exchanger that can't be repaired, or if tests prove that the capillary tube is restricted, the heat exchanger must be replaced as follows:

1. Disconnect the unit from power source.
2. Install a service valve as close as you can to the tip of the process tube. Connect a hose to the piercing valve and release the pressure outdoors.
3. Remove screws securing facia (facade). Remove the screws from the divider channel. Carefully pull the divider out from under the center hinge.
4. Pull and slide the freezer chest bottom out of the cabinet.
5. Lift and pull out the freezer coil cover. It is very important that this cover be reinstalled exactly as it was originally.
6. Remove the air tunnel from the freezer back.
7. Disconnect the defrost heater and thermostat wire leads.
8. Lift the freezer coil until it clears the foam drip tray.
9. Working at the cabinet rear, remove the screws that retain the wire cover. Cut the ties that secure the wire harness to the heat exchanger.
10. Cut the heat exchanger at the point where rubber sleeve is taped.
11. Straighten the heat exchanger and bend it up about 45 degrees away from the cabinet at the suction seal plug.
12. Pull the freezer coil and heat exchanger tubing out the cabinet front.
13. Twist one bracket to disengage evaporator drip tray from evaporator tubing.
14. Unsolder the capillary tube and the suction line from the freezer coil.
15. Clean the tubing. Connect the replacement heat exchanger to the freezer coil and solder all the joints. Be careful when unsoldering and soldering the joints on the freezer coil to prevent overheating the copper to aluminum butt welds.
16. Visually check the joints for leaks. Reinstall evaporator drip tray by engaging brackets to evaporator tubing.



17. Transfer the rubber sleeve to the replacement heat exchanger and tape both ends.

18. Insert the heat exchanger into the tube entry hole by working it through from the front of the cabinet. Push it all the way in until the freezer coil lines up with the foam drip tray.

19. Working at the rear of the cabinet, shape the heat exchanger as the original was.

20. Clean and connect the suction line to the suction stub of the compressor.

21. Cut or unsolder the old drier.

22. Clean the tube where the original drier was connected and install the new drier.

23. Make an offset 1/2″ from the end of the capillary tube and insert into the new drier.

24. Solder all connections. Application of flux is required when using silver solder.

25. Visually check all soldered joints for leaks. Clean the flux from the tubing. Then evacuate and recharge the system as instructed under "Evacuating and Recharging."

26. Assemble all the parts in the reverse order of removal.

27. Test run the refrigerator to make sure it is operating properly.

28. Pinch the process tube and cut off the service valve. Solder the joint and test for leaks.

REPLACING HEAT EXCHANGER

Side-By-Side Models

If a leak is found in the heat exchanger that can't be repaired, or if tests prove that the capillary tube is restricted, the heat exchanger must be replaced as follows:

1. Disconnect the unit from power source.

2. Remove the machine compartment cover.

3. Remove the tube clamp from the heat exchanger.

4. Install a service valve as close as possible to the tip of the process tube. This will allow easy pinch-off after recharging the system.

5. Connect a hose to the service valve and slowly release the pressure, directing the hose outdoors. Leave the valve open.

6. Unsolder suction line from the suction stub of the compressor.

7. Unsolder the drier from the condenser outlet tube and clean the outlet. Remove the drier from the capillary tube so the tubing assembly can be pulled through the tube entry opening.

8. Remove the sealer and grommet from the tubing entrance at the cabinet rear. The sealer and grommet must be retained for replacement.

9. Working inside the cabinet, remove the following items from the freezer compartment.

   a. The freezer shelves and the freezer basket.

   b. Ice tray rack, or ice maker if so equipped.

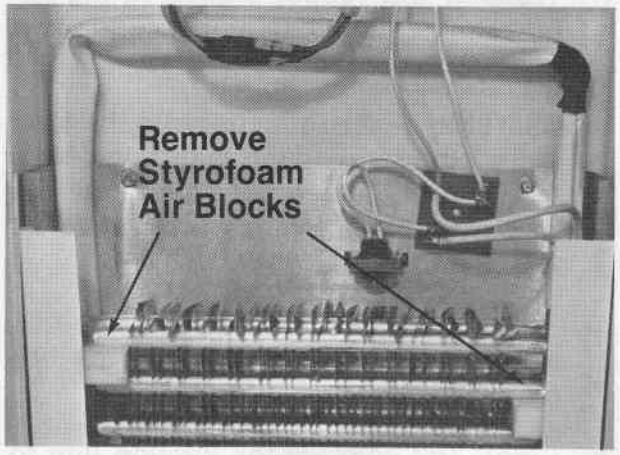
   c. The dispersing shield from in front of the freezer fan.

   d. Freezer evaporator cover, and the freezer fan ground wire.

10. Disconnect the radiant heater and defrost thermostat leads.

11. Remove the freezer evaporator mounting screws.

12. Remove the two styrofoam blocks from the top corners of the freezer evaporator.



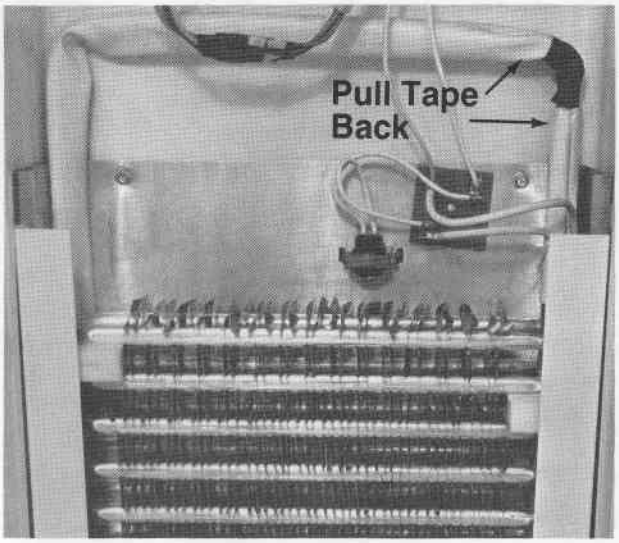
These blocks must be reinstalled the same way as they were before removal.

13. Pull the heat exchanger through the tube entry opening. Pull carefully to avoid tearing the sponge roll on the heat exchanger.

14. Remove the sponge roll from the heat exchanger. Be careful because this roll must be installed on the replacement heat exchanger.

IMPORTANT: *CAUTION MUST BE TAKEN TO PROTECT THE COPPER -TO- ALUMINUM WELDS, WET RAGS WRAPPED AROUND THE TUBING AT THESE POINTS WILL HELP PREVENT DAMAGE.*

IF YOU SECURE THE FREEZER COIL AND TUBING TO PREVENT MOVEMENT OF THESE CONNECTIONS, YOUR POSSIBILITY OF DAMAGE IS FAR LESS BECAUSE IT WILL RELIEVE THE STRAIN THAT COULD CRACK A WELD.

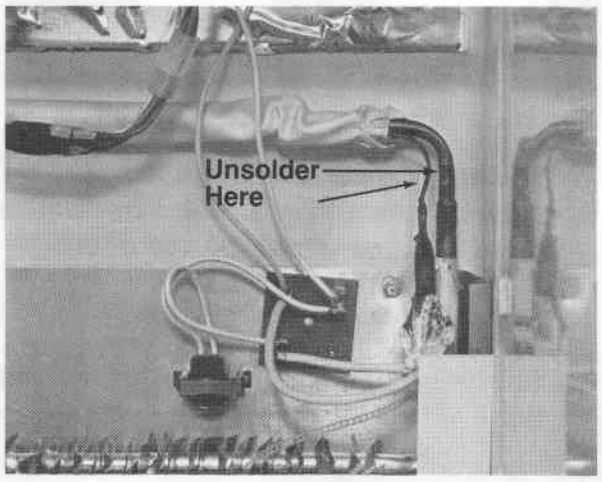


15. Unsolder the heat exchanger tubing at the points as indicated. This will free the old heat exchanger.

16. Clean the new and old tubing for a distance of about 3 inches around prospective joints.

17. Swedge the compressor end of the new heat exchanger suction line to fit the compressor tube.

18. Install the new heat exchanger on the freezer coil and silver solder the joints using the proper flux. Flux must be wiped off of the tubing after soldering.



19. Install the sponge roll on the new heat exchanger. Seal both ends with butyl sealer, overwrapped with tape.

20. Carefully push the heat exchanger suction line through the tube entry hole at the rear of the freezer liner.

21. Connect the electrical components disconnected in Step 10. When installing the radiant heaters, do not touch the heater glass. Fingerprints not wiped off could cause the glass to crack at heater operating temperature.

22. Bend the heat exchanger into the proper position and solder the suction line to the compressor. Remember to shape the tubing so it won't rub against the cabinet or other tubing.

23. Install the new drier as instructed under "Replacing Drier".

24. Evacuate and recharge the system as instructed under "Evacuating and Recharging".

25. Test run the unit to make sure it is operating properly.

26. Pinch off the process tube and cut off the service valve. Solder the joint and test for leaks.

27. Reseal the heat exchanger entrance hole with butyl sealer.

28. Reinstall the tubing clamp on the heat exchanger.

29. Reinstall the freezer interior parts in reverse order of their removal in Step 9.

30. Reinstall the machine compartment cover exactly as it was before removal to maintain proper air flow across the compressor and defrost water pan.

CONDENSER

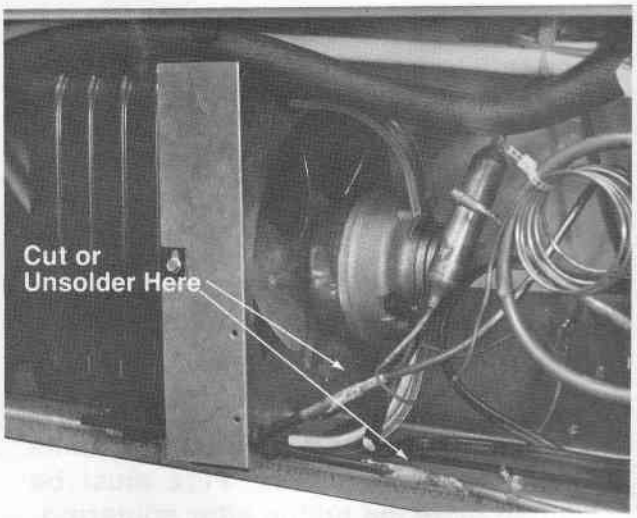
The following general information explains how to successfully replace the condenser for any model covered in this manual.

REPLACING CONDENSER

Top Mount Models

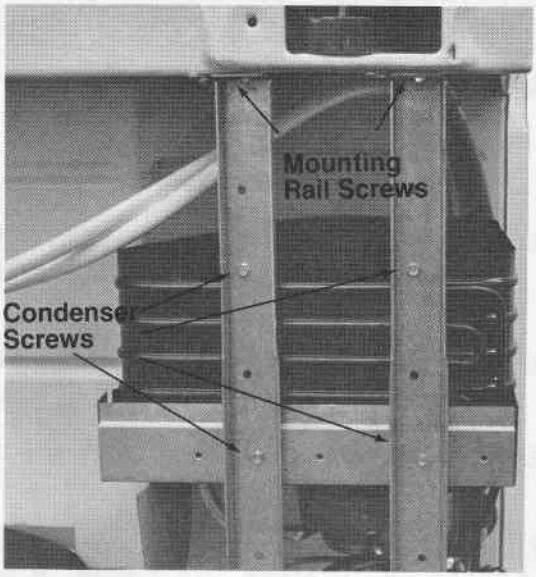
IMPORTANT: THE FOLLOWING PROCEDURE REQUIRES THE PLACEMENT OF BLOCKS OR BRACES UNDER THE CABINET AND LAYING THE CABINET ON ITS SIDE IN ORDER FOR YOU TO REACH CERTAIN BOLTS AND SCREWS. WE WISH TO EMPHASIZE THAT YOU SHOULD MAKE SURE THE BRACES ARE POSITIONED FIRMLY SO THAT THERE WILL BE NO DANGER OF THE CABINET FALLING ON YOUR HANDS.

1. Remove all loose items from the refrigerator interior.
2. Remove the grille and defrost pan.
3. Working at the rear of the cabinet, remove the black insulated cover from the machine compartment. It is necessary to reinstall this cover after the job is completed.
4. Install a service valve as close as possible to the tip of the process tube to allow easy pinch off after recharging the system.
5. Connect a hose to the service valve and release the pressure, directing the hose outdoors.
6. Unsolder the condenser joint as shown. When unsoldering and soldering the joints, make sure not to over heat the rubber sleeve in the fan motor shroud.



7. Facing the rear of the cabinet, lay the cabinet down on its left side with a block of wood under the top edge.
8. Remove the screws as shown below.
9. Carefully pull the compressor rails out.

10. Remove the condenser screws.



11. Disconnect the fan motor wire leads from the compressor terminals.

12. Remove the condenser assembly from the compressor mounting rails and set it on a workable surface.

13. Remove the screws which secure the fan motor shroud to the condenser.

14. Transfer all clips to the replacement condenser and make sure that the condenser tubing goes through the rubber sleeve on the fan motor shroud. Install the screws.

15. Set the replacement condenser on the compressor mounting rail and install the screws.

16. Clean the condenser tubing and connect the discharge line to the inner tubing. Connect the yoder loop to the other tube of the condenser.

17. Cut and install the new drier. When inserting the cap tube, do not allow more than 1/2 inch of the cap tube to penetrate the drier.

18. Solder all the joints. Silver solder and proper flux should be used on copper to steel or steel to steel joints. Flux should be wiped off the tubing after soldering.

19. Visually check the joints for leaks.

20. Connect the fan motor wire leads to the compressor terminals.

21. Install the screws removed in Step 8.

22. Lift the refrigerator to its normal upright position.

23. Evacuate, recharge and leak test system.

24. Test run the refrigerator to make sure it is operating properly.

25. Pinch the process tube and cut off the service valve. Solder the joint and test for leaks.

REPLACING CONDENSER

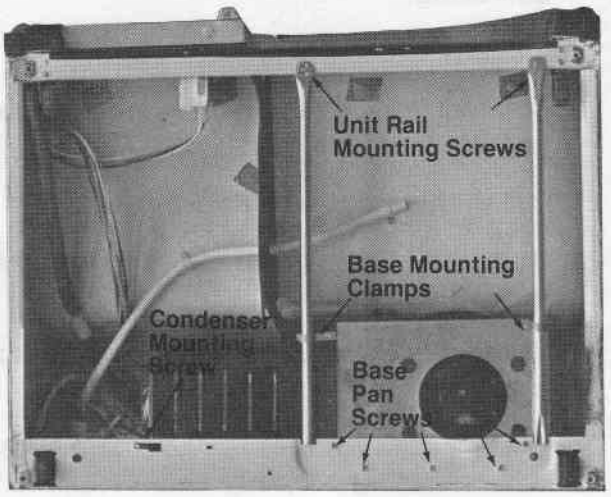
Side-By-Side Models

IMPORTANT: THE FOLLOWING PROCEDURE REQUIRES THE PLACEMENT OF BLOCKS OR BRACES UNDER THE CABINET IN ORDER FOR YOU TO REACH CERTAIN BOLTS AND SCREWS. WE WISH TO EMPHASIZE THAT YOU SHOULD MAKE SURE THE BRACES ARE POSITIONED FIRMLY SO THAT THERE WILL BE NO DANGER OF THE CABINET FALLING ON YOUR HANDS.

1. Disconnect the unit from power source. Disconnect the condenser fan ground wire.

2. Remove the machine compartment cover.

3. Place a three inch block under the front of the cabinet. Remove the two unit rail mounting screws.



4. Remove the rear mounting screw from the air divider baffle.

5. Remove the 3 inch block from the front of the cabinet and place it under the rear of the cabinet. Remove the screws and clamps mounting the compressor base pan.

6. Remove the screw holding the condenser leg on the right end.

7. Remove the relay and overload from the compressor, but leave the wires connected to the terminals.

8. Install service valve as close as possible to the tip of the process tube. This will allow easy pinch off after recharging the system.

9. Connect a hose to the service valve and slowly release the pressure, directing the hose outdoors. Leave the valve open.

10. Clean the discharge tubing for a distance of about 3 inches at the points you intend to cut or unsolder. Cut or unsolder the discharge line.

11. Remove the screws from the top of the condenser, and from the back of the condenser.

12. Remove the tubing clamps from the top and bottom of the fan shroud.

13. Remove the condenser from the fan shroud.

14. Set the replacement condenser assembly in place and secure it with the screws removed in Step 11.

15. Silver solder the discharge line to its respective condenser line.

16. Install the new drier as instructed under "Replacing Drier".

17. Reassemble the high side unit in the machine compartment in the reverse order of the removal procedure.

18. Evacuate, leak test, and recharge the system as instructed under "Evacuating and Recharging".

19. Reinstall the ground wires where removed.

20. Reinstall the machine compartment cover exactly as it was before removal so that proper air flow is maintained across the compressor and defrost pan.

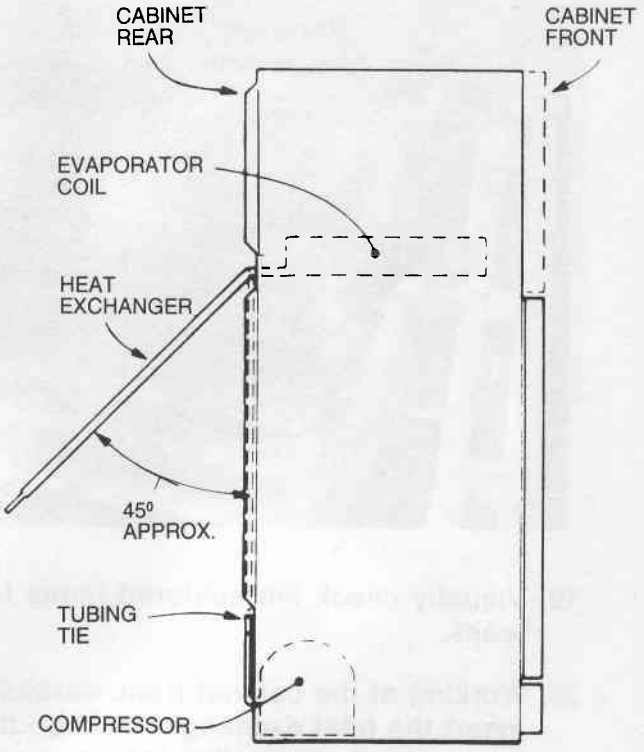
21. Test run the refrigerator to make sure it is operating properly.

FREEZER EVAPORATOR

REPLACING FREEZER EVAPORATOR

Top Mount Models

1. Disconnect the unit from power source.
2. Remove the shelf divider from the freezer compartment.
3. Install a service valve as close as you can to the tip of the process tube, connect a hose and release the pressure outdoors.
4. Remove six (6) screws from the divider channel (one at each end and four (4) along the bottom). Carefully pull the divider out from under the center hinge.
5. Slide the plastic freezer chest bottom all the way out of the cabinet.
6. Lift the styrofoam coil cover out. It is important that this cover be returned exactly as it was when you reassemble the model.
7. Remove the air tunnel from the freezer back.
8. Disconnect the wire leads from the radiant heater and the termination thermostat.
9. Remove the radiant heater and the termination thermostat from the coil. Disconnect the ground wire from the drip trough tray.
10. Lift the freezer coil unit until it clears the foam drip tray.
11. Working at the cabinet rear, remove the screws and the wire cover. Cut the plastic ties that secure the wiring harness to the heat exchanger.
12. Unsolder the suction line from the compressor, and the capillary tube from the old drier. Remove the old drier.
13. Straighten the bottom of the heat exchanger and bend it up about 45 degrees away from the cabinet back.



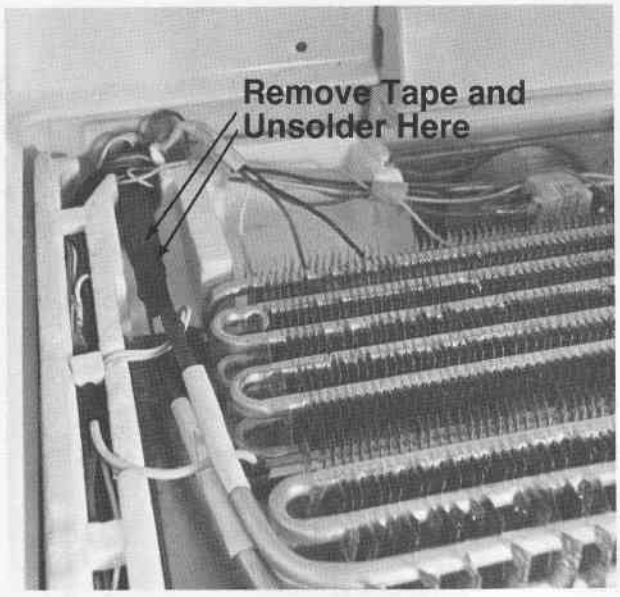
14. Pull the evaporator all the way out of the cabinet front and set it on a more workable surface.

15. Twist one bracket to disengage evaporator drip tray from evaporator tubing.

16. Unsolder the capillary tube and the suction line from the freezer coil.

17. Clean the tubes with emery cloth. Make sure the cap tube is not plugged up before inserting it into the freezer coil.

18. Connect the heat exchanger to the replacement freezer coil and solder all the joints. When soldering the joints, make sure you protect the aluminum to copper joints.



19. Visually check the soldered joints for leaks.

20. Working at the cabinet front, carefully insert the heat exchanger through the tube entry hole (in the cabinet back) and push it all the way in until the freezer coil is properly lined up with the foam drip tray.

21. Bend the freezer coil toward the foam drip tray and connect the ground wire to the drip trough tray.

22. Install the radiant heater and termination thermostat. Then connect the wire leads.

23. Working at the rear of the cabinet, form the heat exchanger as the original was, down the cabinet back and into the machine compartment.

24. Make a 1/2″ offset from the end of the capillary tube and insert it into the new drier. Install the new drier.

    Solder the joints and visually check the joint for leaks.

    Evacuate, leak test and recharge the system.

    Test run the unit to make sure it is operating properly.

    Pinch the process tube and cut off the service valves. Solder the joint and test for leaks.

REPLACING FREEZER EVAPORATOR

Side-By-Side Models

The following general information explains how to successfully replace the freezer evaporator for any side-by-side model covered in this manual.

1. Disconnect the unit from power source.
2. Remove the machine compartment cover.
3. Remove the tube clamp from the heat exchanger.
4. Install a service valve as close as possible to the tip of the process tube. This will allow easy pinch off when recharging the system.

5. Connect a hose to the service valve and slowly release the pressure, directing the hose outdoors.

6. Unsolder the suction line from the suction tube of the compressor.

7. Unsolder the drier from the condenser outlet tube and clean the outlet. Remove the drier from the capillary tube so the tubing assembly can be pulled through the tube entry opening.

8. Remove the sealer and grommet from the tubing entrance at the cabinet rear. The sealer and grommet must be retained for replacement.

9. Working inside the cabinet, remove the following items from the freezer compartment:

   a. The freezer shelves and the freezer basket.

   b. Ice tray rack, or ice maker.

   c. The dispersing shield from in front of the freezer fan.

   d. Freezer coil cover and the fan ground wire.

10. Disconnect the radiant heater and defrost thermostat leads.

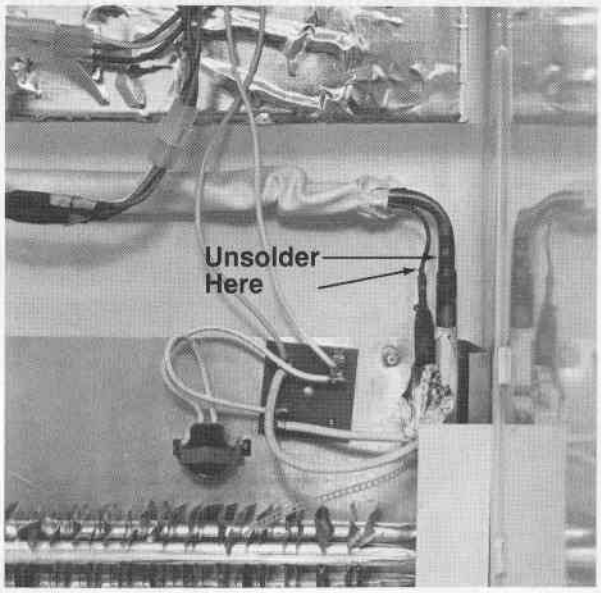
11. Remove the freezer coil mounting screws.

12. Remove the two styrofoam blocks from the top corners of the freezer coil. These blocks must be reinstalled the same way as they were before removal.

13. Pull the heat exchanger through the tube entry opening. Pull carefully to avoid tearing the sponge roll on the heat exchanger.

14. Remove the tape and butyl (rubber) sealer from both ends of the sponge roll that enclosed much of the heat exchanger. Then slide the sponge roll toward the compressor end of the heat exchanger to prevent overheating it during soldering operations.

15. Cut the heat exchanger suction line and the capillary tube from the freezer coil and clean the two ends.



16. Connect the heat exchanger to the new freezer coil and solder the joints. Use Silfos or silver solder and the proper flux. Flux must be wiped off the tubing after soldering.

17. Slide the sponge roll back to its original position and reseal with butyl sealer and tape at both ends.

18. Carefully push the heat exchanger tubing through the tube entry hole at the rear of the freezer liner.

19. Position the coil and install the mounting screws.

20. Transfer the radiant heaters to the replacement coil. When installing the radiant heaters, do not touch the heater glass. Fingerprints not wiped off could cause the glass to crack at heater operating temperature.

21. Connect the electrical components that you disconnected in Step 10.

22. Carefully bend the lower portion of the heat exchanger into the machine compartment and resolder the suction line to the compressor. Remember to shape the tubing so it won't rub against the cabinet or other wiring.

23. Install a new drier as instructed under "Replacing Drier". Then leak test all joints.

24. Evacuate and recharge the system as instructed under "Evacuating and Recharging".

25. Test run the unit to make sure it is operating properly.

26. Pinch off the process tube and cut off the service valve. Solder the joint and test for leaks.

27. Reseal the heat exchanger entrance hole with butyl sealer, making sure you have a good seal.

28. Reinstall the tubing clamp on the heat exchanger.

29. Reinstall the machine compartment cover exactly as it was before removal to maintain proper air flow across the compressor and defrost pan.

30. Reinstall the freezer parts in reverse order of their removal in Step 9.

ELECTRICAL SYSTEM

THE RELATED COMPONENTS

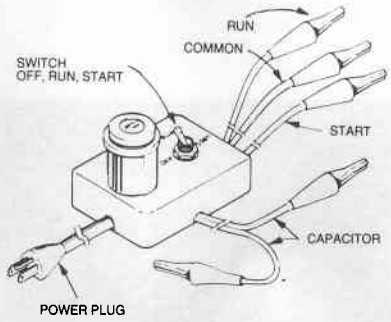
The wiring diagram located on the cabinet back or behind the grille depicts the electrical system for that model. All electrical components are grounded to the cabinet. The green center conductor in the power cord is attached to the cabinet to provide a grounding circuit when the cord is plugged into a properly grounded outlet. After making a replacement of an electrical component, always make sure the ground wire is reconnected.

The electrical outlet should be checked to make sure it is properly wired. Check the outlet with a circuit tester.

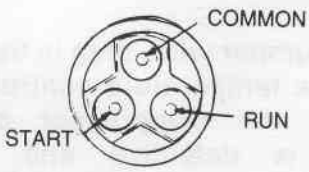
COMPRESSOR

TESTING THE COMPRESSOR DIRECT

Testing the compressor with no other wiring in the circuit is called the direct test method. The relay and overload protector must be removed in order to perform this test. It is recommended that a compressor tester illustrated below, be used to make this test.



The tester leads are marked RUN, START, and COMMON. Connect the common lead to the common terminal of the compressor, the start lead to the start terminal and the run lead to the run terminal. The compressor terminal arrangements are illustrated below. The other two leads are for a start capacitor (if used). When not in use, attach the two leads together and place the toggle switch in the OFF position. Make sure there are no bare leads touching the cabinet. Plug in the tester and flip the switch to the start position. As soon as the compressor starts, release the switch to the run position. If the compressor is operative, it will continue operating on the run windings. If the compressor fails to run, the compressor is defective and must be replaced.



OVERLOAD PROTECTOR

The overload protector prevents the compressor from burning out its electrical windings in the event the compressor becomes overheated or draws too much current. The overload trips, opening the circuit to the compressor. If it does this repeatedly, the compressor is said to be cycling on the overload.

Cycling on the overload may be caused by:

1. Insufficient air circulation around the compressor and condenser.
2. Pull-down on the overload, caused by a large quantity of warm food placed in the refrigerator.
3. Compressor stalling due to lack of pressure unloading.
4. Low line voltage.
5. Defective starting relay.
6. Defective compressor - shorted windings.

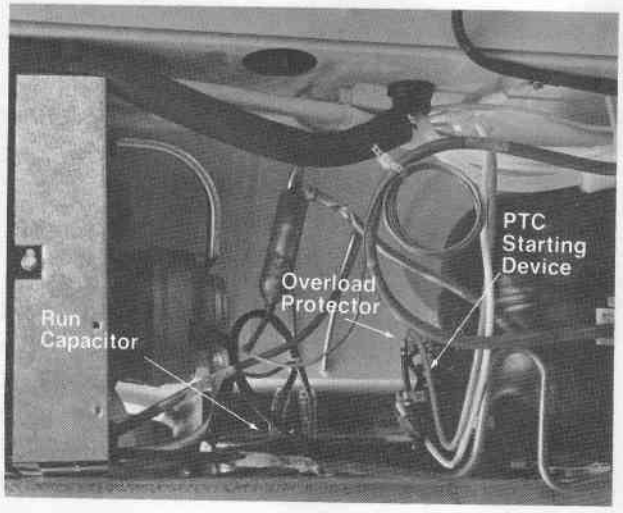
TESTING THE OVERLOAD PROTECTOR

To test the overload protector, remove the compressor terminal cover. Examine the bottom of the overload for signs of arcing. If signs of arcing are not present, either check for continuity or connect a jumper wire across the terminals.

If using a jumper wire, plug in the line cord and set the temperature control to a cold setting. If the compressor starts, the overload is defective and must be replaced. If the compressor fails to start, check for a defective starting relay or compressor.

If there is evidence of arcing, do not connect a jumper wire, but proceed as follows:

1. Disconnect unit from power source.
2. Remove the relay and overload from the compressor.
3. Connect one ohmmeter probe to the compressor shell. Make sure the probe makes good contact with bare metal. Connect the other ohmmeter probe to each of the three compressor terminals, one at a time.
4. If the meter shows no continuity to ground, install the relay and overload protector to the compressor terminals. If the meter indicates that the compressor terminals are grounded, replace the compressor.
5. Attach a jumper wire across the overload terminals.
6. Make sure the jumper wire does not short to ground.
7. Reconnect the unit to power source. If the compressor starts, the overload protector is defective and must be replaced.

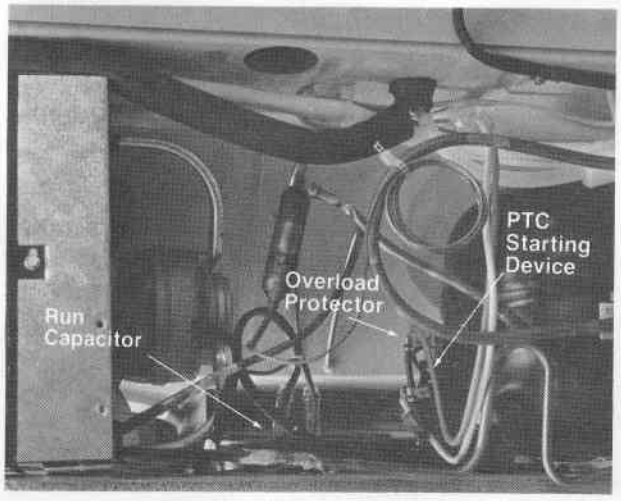


STARTING RELAY

The starting relay energizes the compressor start winding. When current is applied to the compressor, the magnetic coil will raise the relay plunger to close the starting contacts, thus connecting the start winding in parallel with the run winding. As the compressor motor approaches full running speed, the current in the run winding and in the relay coil decreases and the plunger drops out, opening the start winding circuit. The compressor continues to operate on the run winding.

NOTE: A replacement relay must match with the compressor windings. It is important to replace a defective starting relay with the replacement relay specified in the parts manual.

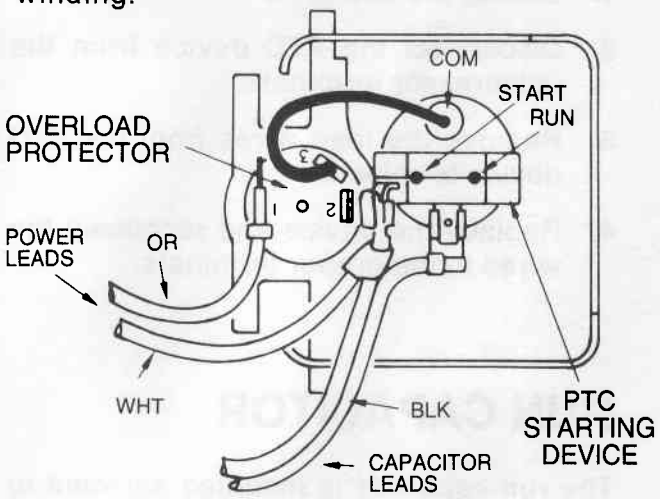
PTC STARTING DEVICE & RUN CAPACITOR



The PTC solid state starting device is a push-on component mounted to the start and run terminals of the compressor. This device is connected in parallel with the run capacitor and in series with the compressor start windings. This will produce a short circuit across the run capacitor during the compressor starting sequence, and full current is applied to the start winding as well as the main winding.

Since the PTC device is temperature sensitive, a variance in its temperature causes a change in its resistance. When current is first applied to the compressor, the PTC device's low resistance shorts out the run capacitor, thus producing adequate motor starting torque.

As the compressor motor approaches running speed, the current through the PTC device causes the temperature and resistance of the PTC device to increase to where it appears to be an open circuit. The compressor continues to operate on the run winding in parallel with the series combination of the run capacitor and start winding.



CHECKING PTC DEVICE

1. Unplug the line cord.
2. Discharge the capacitor.
3. Remove the wires from the PTC device terminals.
4. Allow the PTC device to cool to room temperature.

5. Remove the PTC device from the compressor.

6. Using an ohmmeter, check the resistance between the PTC device terminals. The ohmmeter should register between 3 and 20 ohms.

An extreme variance from between 3 and 20 ohms indicates a defective PTC device which must be replaced.

NOTE: WE DISCOURAGE USING A VOLTMETER TO CHECK THE PERFORMANCE OF THE PTC DEVICE BECAUSE THE TEST RESULTS ARE INFLUENCED BY SEVERAL FACTORS, SUCH AS ITS DEPENDENCE ON THE LINE VOLTAGE TO THE COMPRESSOR, THE RESPONSE CHARACTERISTIC OF THE VOLTMETER AND THE PTC DEVICE TEMPERATURE AT THE TIME THE COMPRESSOR IS ENERGIZED.

REPLACING PTC DEVICE

1. Unplug the line cord.

2. Disconnect the PTC device from the compressor terminals.

3. Remove the lead wires from the PTC device terminals.

4. Replace the device and reconnect the wires to the proper terminals.

RUN CAPACITOR

The run capacitor is mounted adjacent to the compressor. It is electrically connected between the run and start windings and in parallel with the PTC device. The capacitor is connected to the compressor circuit to provide the required phase difference between the start and run windings for running the compressor.

CAPACITOR FAILURES

Failure of the capacitor may be caused by (1) a short circuit, (2) open circuit, (3) a capacitor that is low in capacitance.

A short circuit will cause the start windings to be energized in the start mode all the time. The compressor could start but the overload protector would eventually trip, and sooner or later, trip continuously.

An open circuit should, under normal conditions, allow the compressor to start. Under a heavy running load, however, the compressor will usually trip on the overload.

A capacitor may lose capacitance by a loss of its electrolytic properties. The compressor would run under a light load, but would trip on the overload in high ambient conditions.

TESTING CAPACITOR

CAUTION: *DISCHARGE A CAPACITOR BEFORE HANDLING. SHORT ACROSS ITS TERMINALS, USING A RESISTOR WITH A MINIMUM RESISTANCE OF 1000 OHMS.*

We recommend using a capacitor analyzer when testing. Preferably a solid state unit that measures capacitance and power factor of any capacitor, and has an automatic means of discharging the capacitor through resistance.

ALTERNATE METHOD USING OHMMETER

1. Unplug the line cord.

2. Disconnect the capacitor lead wires.

3. Short across the terminals using a resistor with a minimum resistance of 1000 ohms to be sure no charge remains to damage the ohmmeter.

4. Set the ohmmeter selector switch to the 10,000 ohm scale (Rx10K).

5. Connect the ohmmeter leads to the capacitor terminals and observe the meter pointer low end.

   a. If the pointer deflects to the low end and remains there, the capacitor is shorted and must be replaced.

   b. If there is no deflection of the pointer, the capacitor is open and must be replaced.

   c. If the pointer deflects toward the high end of the scale and then slowly returns toward the low end, the capacitor is good.

TEMPERATURE CONTROL

Top Mount Models



These models have two temperature controls: fresh food and freezer compartment. The fresh food temperature control senses the temperature of its compartment and governs the compressor operation accordingly. The freezer compartment control adjusts a baffle which regulates the amount of air allowed to enter the fresh food compartment.

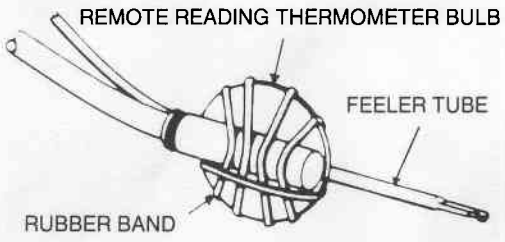
Turning the freezer temperature control toward the coldest setting reduces the flow of chilled air to the fresh food compartment. Because the fresh food temperature control uses a sensing element that must be cooled sufficiently before stopping the compressor, the reduced air flow causes longer compressor run time and colder freezer temperatures, while maintaining the required fresh food compartment temperatures.

Conversely by turning the freezer temperature control toward the warmest setting, you increase the flow of air into the fresh food compartment and decrease the flow to the freezer. This cools the fresh food compartment temperature control sensing element faster, resulting in shorter compressor run times and warmer freezer compartment temperatures. The fresh food compartment will stay near the recommended fresh food temperature unless the freezer temperature is turned to an extreme temperature.

The differential between cut-in/cut-out temperature will vary approximately 10° F.

CHECKING OPERATING TEMPERATURES

The temperature control feeler tube is located in the fresh food compartment behind the slotted cover which allows air to circulate over the feeler tube. To check the cut-in/cut-out temperatures attach the bulb of a thermistor temperature tester to the control feeler tube.



Allow the compressor to complete two or three complete cycles. If the temperature readings are not within two degrees of requirements the control is defective and must be replaced. DO NOT ATTEMPT TO RECALIBRATE.

A defective control may cause the compressor to run continuously or not at all.

If either of these conditions exist, check as follows:

COMPRESSOR WON'T RUN

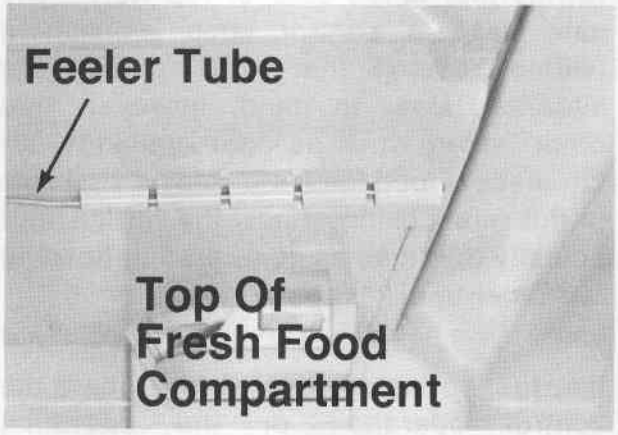
1. Remove the control enough to expose its terminals.
2. Short across the control terminals. If the compressor starts, install a new control. If the compressor fails to start, check the defrost timer, compressor receptacle, and unit wiring for defects.

COMPRESSOR RUNS CONTINUOUSLY

1. Turn the control knob to OFF. If the compressor continues to run, proceed to Step 2. If the compressor stops, check the feeler tube to make sure it is positioned properly and that the air flow through the feeler tube housing not restricted. If the feeler tube is positioned properly and there is no air restriction, check the control operating temperatures.
2. Remove the control far enough to remove one of the wires from its terminal. If the compressor continues to run, there is a short in the unit wiring.

REPLACING THE CONTROL

1. Disconnect the unit from its power source.
2. Remove the control knob by pulling it straight down.
3. Remove the three screws that retain the thermostat housing.
4. Remove the screws that secure the control to the mounting bracket. Carefully work the control out through the opening.
5. Disconnect the wire leads. Measure and record distance feeler tube is inserted in housing.
6. Pull the feeler tube from its housing.
7. If replacement control doesn't have a plastic sleeve on feeler tube, remove the plastic sleeve from the original control feeler tube and install it on the new control in the same manner.
8. Insert feeler tube same distance into housing as original.
9. Install the replacement control in the reverse order of removal.



TEMPERATURE CONTROL

Side-By-Side Models



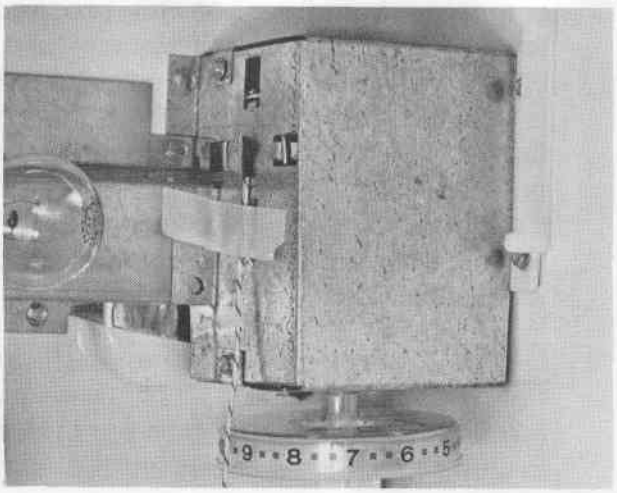
The temperature control regulates the compressor running time while maintaining the proper temperature range in the refrigerator compartment. This control is located in the fresh food compartment.

If your customer complains that the refrigerator is too cold, or too warm, you can make a control knob adjustment (within reason) that may remedy the situation. Bear in mind, however, that other factors such as door openings, air circulation, food load, etc. play a vital role in the relationship of how the refrigerator actually operates as compared to how the customer thinks it operates.

If further servicing is necessary, check the control operation or the operating temperature of the control.

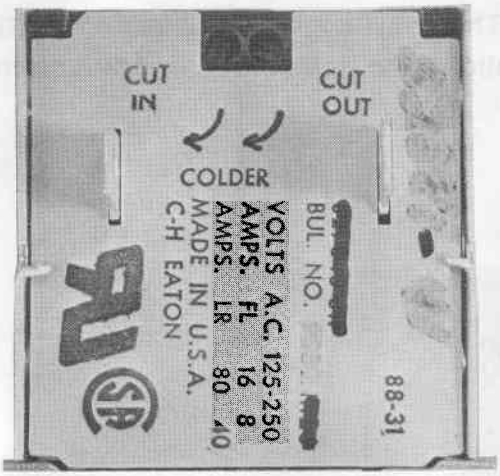
CHECK OPERATING TEMPERATURES

A check of operating temperature of the REFRIGERATOR COLD CONTROL can be made by securely attaching the bulb of a remote reading thermometer to the control housing.



The cut-in temperature will be approximately 1-2 degrees higher than the specified temperatures.

The cut-out temperature will be approximately the same as specified. DO NOT ATTEMPT TO RECALIBRATE THIS CONTROL. The adjustment screws are for altitude adjustment only, never for correcting the cut-in and cut-out temperatures.



CHECKING CONTROL OPERATION

COMPRESSOR WON'T RUN

1. Disconnect the unit from power source. Remove the light shield, remove the mounting screws from the control housing and let it hang down on the top shelf.
2. Connect an ohmmeter across the control terminals and check for continuity. If the control indicates continuity, check the defrost timer and cabinet wiring for defects.

COMPRESSOR RUNS CONTINUOUSLY

1. Turn the control knob to OFF. If the compressor continues to run, proceed to Step 2. If the compressor stops, check the control operating temperatures. However, do not overlook the possibilities of a malfunctioning freezer fan or defective fan blade causing reduced air flow to the control feeler tube.
2. Unplug the line cord from the electrical outlet. Remove the light shield. Remove the mounting screws from the control housing and let it hang down on the top shelf.
3. Remove either the red or the blue wire from the control terminals.
4. Plug in the line cord. If the compressor does not start, the control is defective and must be replaced. If the compressor starts and continues to run, there is a short in the cabinet wiring.
5. Install the new control in reverse order of the removal procedure. Reinstall ground wire.

REPLACING CONTROL

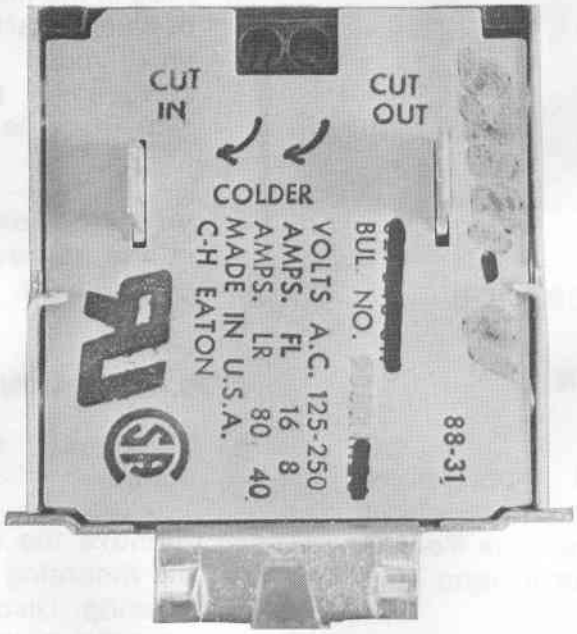
1. Disconnect the unit from power source.
2. Remove the light shield and remove the mounting screws from the control housing. Disconnect the ground wire from the wiring cover.
3. Disconnect the electrical leads from the control terminals.
4. Straighten the metal tabs that retain the feeler tube loop. Unsnap the control from the housing and remove it with a twisting motion.
5. Install the new control in reverse order of removal procedure. Reinstall ground wire.

ALTITUDE ADJUSTMENTS

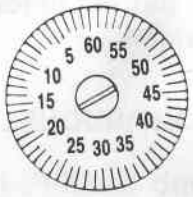
All Models

The temperature controls used on these units have two adjustment screws both which must be turned to compensate for variances in altitude. The chart shows the exact screw turns for each 1000 feet of elevation. Note the screw rotations are designated in graduations of sixtieths. These screw turns ARE very critical.

When making altitude adjustments:



ALTITUDE IN FEET	COUNTERCLOCKWISE TURNS OF	
	CUT-IN SCREW	CUT-OUT SCREW
2000	7/60	7/60
3000	13/60	13/60
4000	19/60	19/60
5000	25/60	25/60
6000	31/60	31/60
7000	39/60	39/60
8000	43/60	43/60
9000	49/60	49/60
10000	55/60	55/60

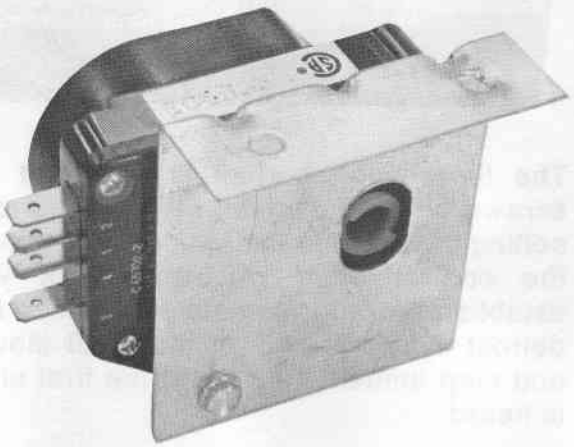


1/60 OF A TURN EQUALS 6° OF ROTATION

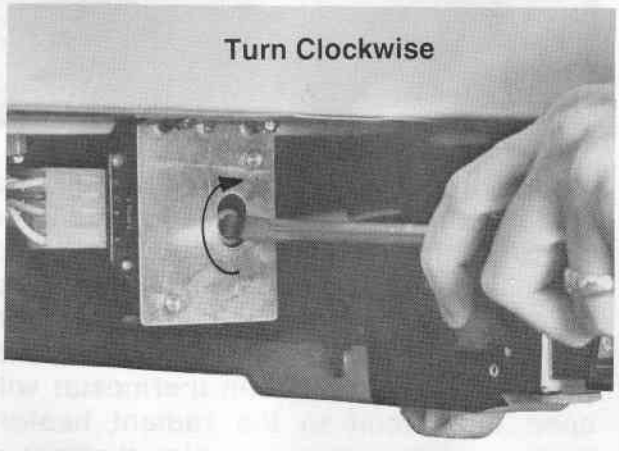
DEFROST TIMER

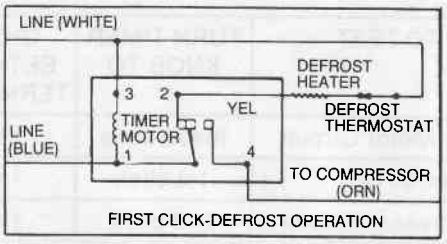
Top Mount Models

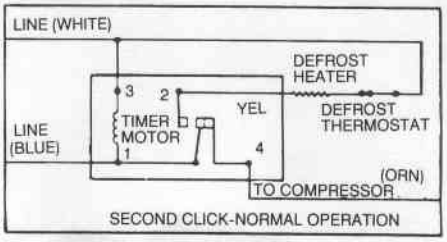
The freezer evaporator defrosting system is actuated by an electric timer. The timer is fastened under the cabinet, behind the grille.



The timer control shaft is designed for screwdriver adjustment. When manually setting the timer to initiate defrosting, turn the control shaft clockwise until you establish the approximate location of the defrost cycle. Then turn the shaft slowly and stop immediately when the first click is heard. The schematic illustrates the timer circuits in sequence.







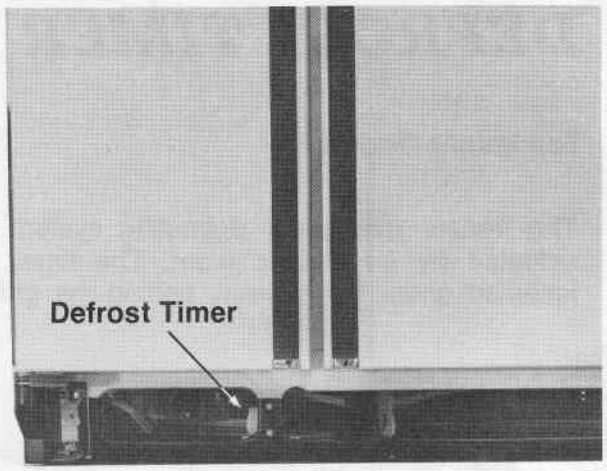
1st Click - The timer switches off the compressor and freezer fan circuit for approximately 21 minutes with the 6 hour timer, and 23 minutes with the 8 hour timer. At the same time, it energizes the radiant heater. Once the temperature of the defrost termination thermostat reaches the cut-out point, the termination thermostat will open the circuit to the radiant heater. However, the compressor circuit remains open for the duration of the defrost interval. Again, that is dependent on whether it is a 6 or 8 hour timer.

2nd Click - The timer switches off the defrost circuit and starts the compressor, freezer fan, and the condenser fan motor. The compressor and fan motors are now governed by the temperature control for a period of approximately six or eight hours of compressor run time, (depending on the model) after which a new defrost cycle begins.

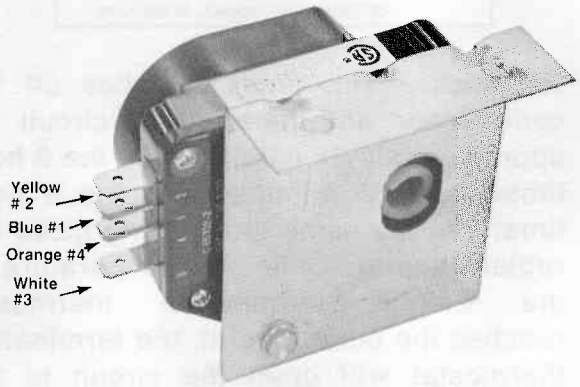
CHECKING DEFROST TIMER

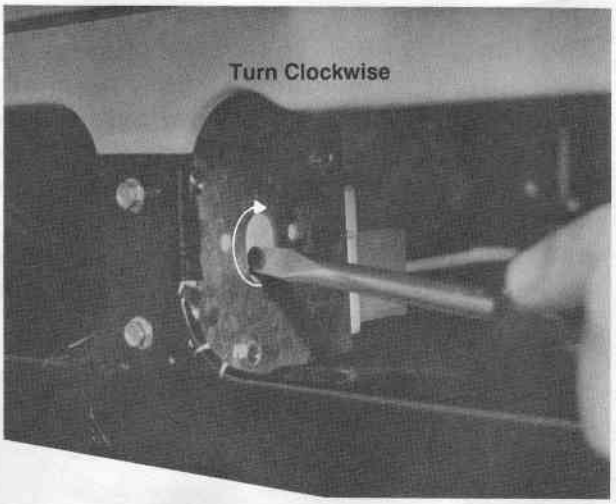
Disconnect all wires from the timer and attach ohmmeter probes to the terminals specified in the accompanying chart. If no continuity is indicated the timer is defective.

TO TEST	TURN TIMER KNOB TO **	CHECK BETWEEN TERMINALS
Timer Motor Circuit	leave as is	1 & 3
Defrost Circuit	1st click	1 & 2
Compressor Circuit	2nd click	1 & 4



The timer control shaft is designed for screwdriver adjustment. When manually setting the timer to initiate defrosting, turn the control shaft clockwise until you establish the approximate location of the defrost cycle. Then turn the shaft slowly and stop immediately when the first click is heard.





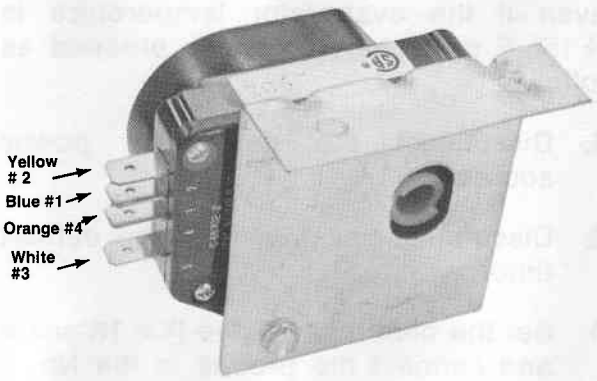
DEFROST TIMER

Side-By-Side Models

The freezer evaporator defrosting system is actuated by an electric timer. The electric timer is located behind the grille.

1st Click - The timer switches off the compressor and freezer fan circuit for approximately 23 minutes. At the same time, it energizes the radiant heater. Once the temperature of the defrost termination thermostat reaches the cut-out point (+40° F), the termination thermostat will open the circuit to the radiant heater. However, the compressor circuit remains open for the duration of the 23 minutes.

2nd Click - The timer switches off the defrost circuit and starts the compressor, freezer fan, and the condenser fan motor. The compressor and fan motors are now governed by the temperature control for a period of approximately eight hours of compressor run time, after which a new defrost cycle begins.



CHECKING DEFROST TIMER

Disconnect all wires from the timer and attach ohmmeter probes to the terminals specified in the accompanying chart. If no continuity is indicated the timer is defective.

TO TEST	TURN TIMER KNOB TO **	CHECK BETWEEN TERMINALS
Timer Motor Circuit	leave as is	1 & 3
Defrost Circuit	1st click	1 & 2
Compressor Circuit	2nd click	1 & 4

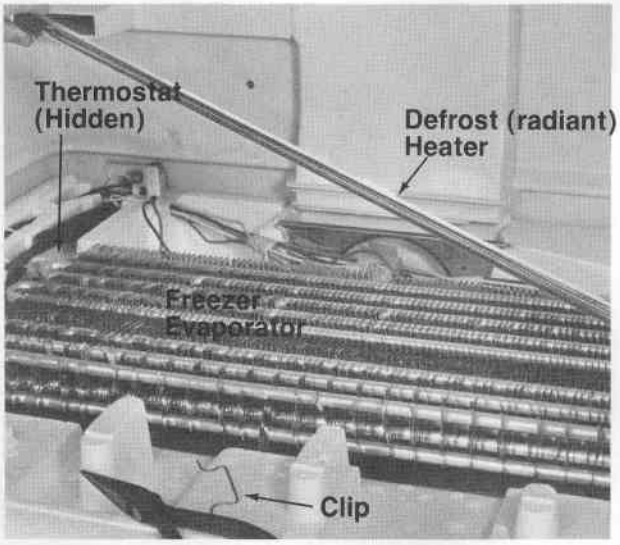
DEFROST HEATER AND THERMOSTAT

Top Mount Models

These models use a radiant heater to remove accumulated frost from the freezer evaporator and drain trough during a defrost cycle.

The defrost timer energizes the defrost heater every six or eight hours of accumulated compressor run time. When the temperature in the thermostat area reaches approximately +47° F the thermostat contacts open the circuit to the defrost heater.

The defrost heater is a spiral wound resistance wire enclosed in a heat resistant glass tube. It is mounted in the middle of the evaporator beneath an aluminum shield.



An ohmmeter check will determine if all phases of the defrost cycle are functioning properly. The defrost thermostat contacts open at approximately +47° F and close at approximately +15° F.

The defrost thermostat may have either a 47K or 56K ohms resistor connected internally across the two terminals. If so, this resistor permits checking the defrost heater even when the evaporator temperature is +15° F or higher.

An ohmmeter can be used to test the defrost heater and thermostat without disassembling the freezer compartment even if the evaporator temperature is +15° F or higher. To check proceed as follows:

1. Disconnect the unit from power source.
2. Disconnect the plug from the defrost timer.
3. Set the ohmmeter to the R x 1K scale and connect the probes to the No. 2 and No. 3 terminals of the disconnect plug.
4. The meter should read between 42K and 63K ohms. The resistance is not critical. As long as there is continuity between Terminals No. 2 and 3 the defrost heater is in operative condition.

If there is no resistance reading (open circuit) the defrost heater and thermostat must be checked individually. **NOTE:** When using the meter avoid touching the probes since this could result in a false reading and misdiagnosis.

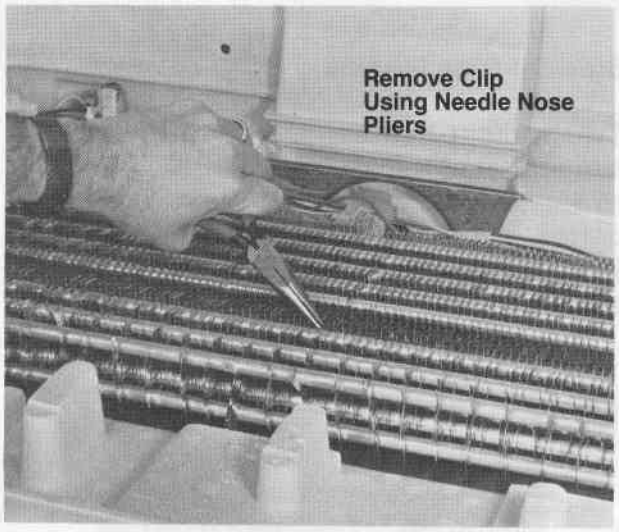
To test the defrost heater and thermostat when the evaporator temperature is + 15° F or below proceed as follows:

1. Disconnect the unit from power source and plug it into a wattmeter.
2. Plug wattmeter into power source and manually advance the defrost timer to the defrost cycle. See the defrost timer section for information on manually advancing the timer.
3. The wattmeter should read between 400 and 510 watts depending on the model (total wattage of the divider heater, timer motor and defrost heater). Should the reading be 10 watts the defrost heater or thermostat is defective. To further isolate the defective part proceed to Step 4.
4. Disconnect unit from wattmeter.
5. Follow Steps 2 and 3 of testing the heater and thermostat when the evaporator temperature is above + 15° F or higher.
6. If the meter reads between 42K and 63K ohms, the defrost thermostat is defective.

To use an ohmmeter set the meter to R x 1K scale. If the reading is approximately 25 to 31 ohms, the defrost heater and thermostat are operative.

REPLACING RADIANT DEFROST HEATER

1. Disconnect the unit from power source.
2. Remove the facade mounting screws and the facade (facia).
3. Remove the divider channel mounting screws. Carefully pull the channel out from under the center hinge.
4. Slide the freezer bottom out of the cabinet.
5. Remove the evaporator cover. It is very important that this part be reinstalled in the same manner as it was originally.
6. Disconnect the radiant heater wire leads.
7. Remove the heater retainer clip with long nose pliers.



8. Pull the shield and the heater out.
9. Install the replacement heater in the reverse order of removal.

NOTE: When installing the replacement heater do not touch glass. Salt from finger tips could cause damage.

REPLACING THE DEFROST THERMOSTAT

The defrost termination thermostat is located beside the evaporator on the back, left hand side.

1. Follow the first five steps in replacing the heater.
2. Disconnect the leads from the thermostat.

3. Remove the defrost thermostat and mounting clip. This is done by squeezing "in" on clip and pulling up to disengage.

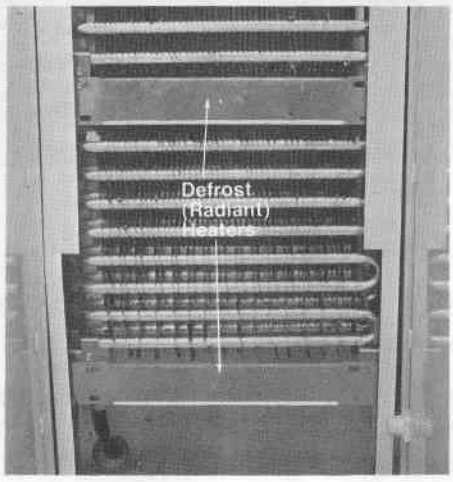
4. Install the defrost thermostat in the reverse order of removal.

NOTE: When reinstalling, make sure you snap thermostat back into position with wires facing back of refrigerator. Route wires between the liquid and suction lines on evaporator before connecting.

DEFROST HEATER AND THERMOSTAT

Side-By-Side Models

Two radiant heaters are used to remove accumulated frost from the freezer evaporator and drain trough during a defrost cycle. These heaters are wired in series, thus comprising the defrost heater system.



The defrost timer energizes the defrost heater every eight hours of accumulated compressor run time. When the temperature in the thermostat area reaches approximately +40° F the thermostat contacts open the circuit to the defrost heater.

Each defrost heater is a spiral wound resistance wire enclosed in a heat resistant glass tube. One is mounted in the middle of the evaporator behind an aluminum shield. The other is mounted just below the evaporator.

An ohmmeter check will determine if all phases of the defrost cycle are functioning properly. The defrost thermostat contacts open at approximately +40° F and close at approximately +15° F.

The defrost thermostat has either a 47K or 56K ohms resistor connected internally across the two terminals. The resistor permits checking the defrost heater even when the evaporator temperature is +15° F or higher.

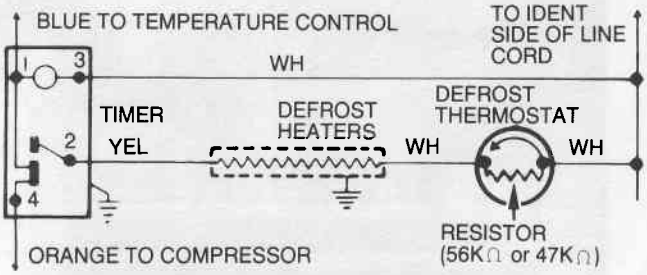
An ohmmeter can be used to test the defrost heater and thermostat without disassembling the freezer compartment even if the evaporator temperature is +15° F or higher. To check proceed as follows:

1. Disconnect the unit from power source.

2. Disconnect the plug from the defrost timer.

3. Set the ohmmeter to the R x 1K scale and connect the probes to the No. 2 and No. 3 terminals of the disconnect plug.

4. The meter should read between 42K and 63K ohms. The resistance is not critical. As long as there is continuity between Terminals No. 2 and 3 the defrost heater is in operative condition.



If there is no resistance reading (open circuit) the defrost heater and thermostat must be checked individually. **NOTE:** When using the meter avoid touching the probes since this could result in a false reading and misdiagnosis.

To test the defrost heater and thermostat when the evaporator temperature is +15° F or below proceed as follows:

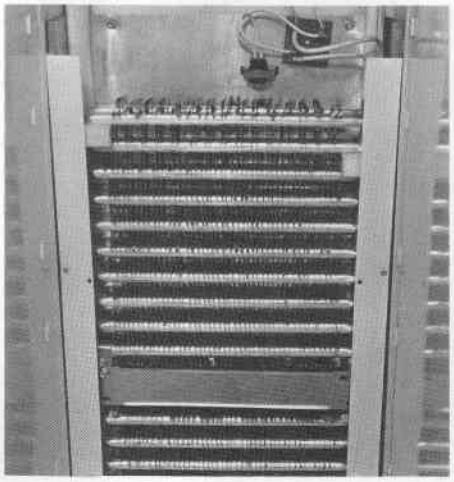
1. Disconnect the unit from power source and plug it into a wattmeter.
2. Plug wattmeter into power source and manually advance the defrost timer to the defrost cycle. See the defrost timer section for information on manually advancing the timer.
3. The wattmeter should read 550 to 600 watts depending on the model (total wattage of the divider heater, timer motor and defrost heater). Should the reading be 0 to 4.5 watts the defrost heater or thermostat is defective. To further isolate the defective part proceed to Step 4.
4. Disconnect unit from wattmeter.
5. Follow Steps 2, 3 and 4 of testing the heater and thermostat when the evaporator temperature is above +15° F or higher.
6. If the meter reads between 42K and 63K ohms, the defrost thermostat is defective.

To use an ohmmeter set the meter to R x 1K scale. If the reading is approximately 20 to 23 ohms, the defrost heater and thermostat are operative.

REPLACING RADIANT DEFROST HEATER

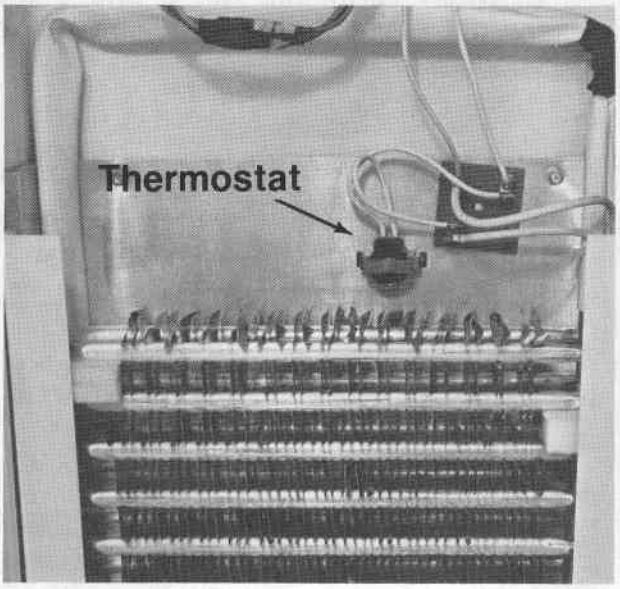
To reach the heater for replacement, it is necessary to remove the following items:

1. Disconnect the unit from power source.
2. Remove the freezer shelves and the freezer basket.
3. Remove ice tray rack, if used. On models with an ice maker, it must be removed.



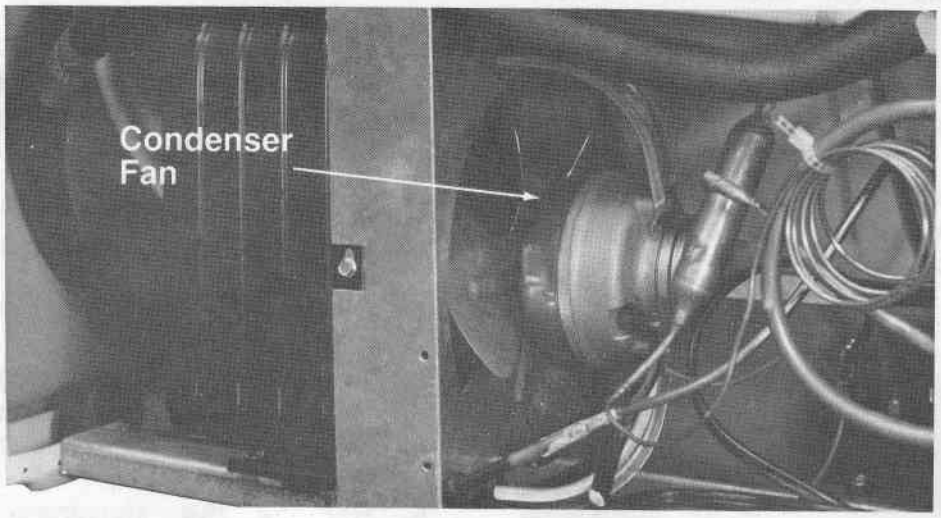
4. Remove the auger and some shelf retainer clips.
5. Remove the lower freezer evaporator cover.
6. Disconnect the defrost heater electrical leads from the cabinet wiring.
7. Remove the mounting screws from the radiant heater deflectors and pull the heaters out of the housing. Move the deflector to the right, the left side will clear the flange for easy removal.
8. Install the new radiant heaters in the reverse order of the removal procedure. Connect the electrical leads disconnected in Step 6.

When replacing a thermostat, it must be clamped to the coil housing as shown. You can loosen a thermostat for replacement by merely springing either side of the clip out.



CONDENSER FAN

All Models



The condenser fan is connected in parallel with the compressor. If the compressor runs but the fan doesn't, the fan is either defective or disconnected. If neither operates, check the cold control, defrost timer, and the cabinet wiring.

TO CHECK THE CONDENSER MOTOR DIRECT

1. Disconnect the unit from power source.
2. Remove the black insulated cover from the rear of the cabinet.
3. Remove the compressor terminal cover.
4. Disconnect the condenser fan motor leads.
5. Attach a 115 V test cord to the condenser motor leads and plug into a power source. If the motor fails to operate it is defective and must be replaced.

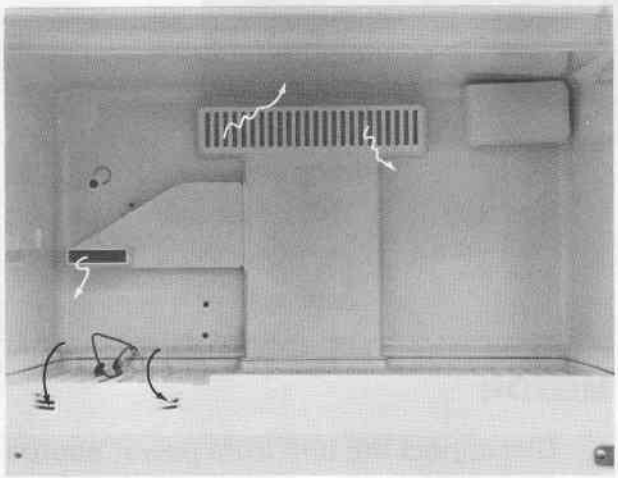
REPLACING THE CONDENSER FAN MOTOR

1. Disconnect the unit from power source and remove the insulation cover from rear of cabinet.
2. Remove the screws that mount the fan motor to the brackets.
3. Carefully remove the fan motor from the cabinet.
4. Transfer the fan blade to the replacement motor and make sure it is installed in the same manner as the original.
5. Install the motor leads and ground wire.
6. Install those parts previously removed and test run the unit.

FREEZER FAN

Top Mount Models

The freezer fan circulates cooled air throughout the fresh food and freezer compartment. The fan blade is made of polyethylene and is pushed onto the shaft. It is important when replacing the fan blade that the hub of the fan blade face the front of the cabinet. If the fan fails or operates erratically, the reduced air circulation will result in poor cooling characteristics.



CHECKING FREEZER FAN

Using an ohmmeter, the freezer fan can be checked without having to disassemble the freezer.

1. Disconnect the unit from power source.
2. Make sure that the door is closed and attach the ohmmeter probes to the service cord terminal blades.
3. Disconnect the relay from the compressor.
4. If the condenser and freezer fan motors are operative the meter should read about 40 ohms. If the freezer fan is inoperative the meter should read approximately 150 ohms.

   NOTE: Ohm and wattage readings are just approximates and may vary in either direction.

The freezer fan motor can be tested by the direct method by proceeding as follows:

1. Disconnect the unit from power source.
2. Remove the facade (facia).
3. Remove the divider channel.
4. Slide the plastic freezer bottom out of the cabinet.
5. Remove the styrofoam evaporator cover. It is important that this be replaced in the original position.
6. Pull the fan motor assembly half way out and disconnect the leads. The wire leads are self-locking and it is important to squeeze the clip before pulling it out.
7. Pull the motor assembly out of the cabinet and place it on a work surface.
8. Connect the motor terminals to a service cord and plug the service cord to the power source.
9. If the motor fails to operate it is defective and must be replaced.



REPLACING THE FREEZER FAN

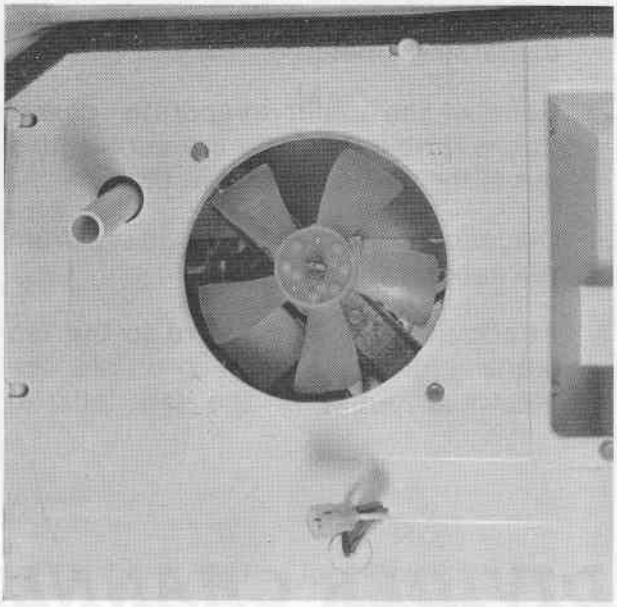
1. Follow Steps 1 through 7 of checking the freezer fan.
2. Remove the fan blade by pulling it off the shaft.
3. Remove the screws that secure the motor to the mounting bracket.
4. Install the motor in the mounting bracket.
5. Install the fan blade on the replacement in the same position as on the original motor shaft.
6. Set the fan motor assembly into the slot in the styrofoam drip tray.
7. Connect the wire leads and the ground wire to the motor.
8. Reassemble those parts previously removed and test the unit.

The fan blade is provided with a stop on the face of the hub. When the blade is positioned so the stop rests against the end of the shaft it is properly installed.

FREEZER FAN

Side-By-Side Models

If the freezer fan fails to operate, or runs erratically, the reduced air circulation will cause unsatisfactory temperatures throughout both food compartments. If the fan runs, but erratically, you may notice that the compressor run time increases as the fan RPM decreases.



The freezer fan is designed to draw air up from the bottom of the freezer compartment; pull it through the coil area and blow it out at the top against a dispersing shield, thus creating a pressure chamber behind the shield, From here the air is dispersed in three directions. The fan is wired to run simultaneously with the compressor.

CHECKING & REPLACING FAN MOTOR

Before checking the fan circuit for defects, remove the dispersing shield and spin the blade to make sure nothing has lodged against it which could prevent normal fan operation. If the blade spins freely, check the fan motor.

You can test a fan motor by connecting the leads directly to a 110 volt source. To do this, proceed as follows:

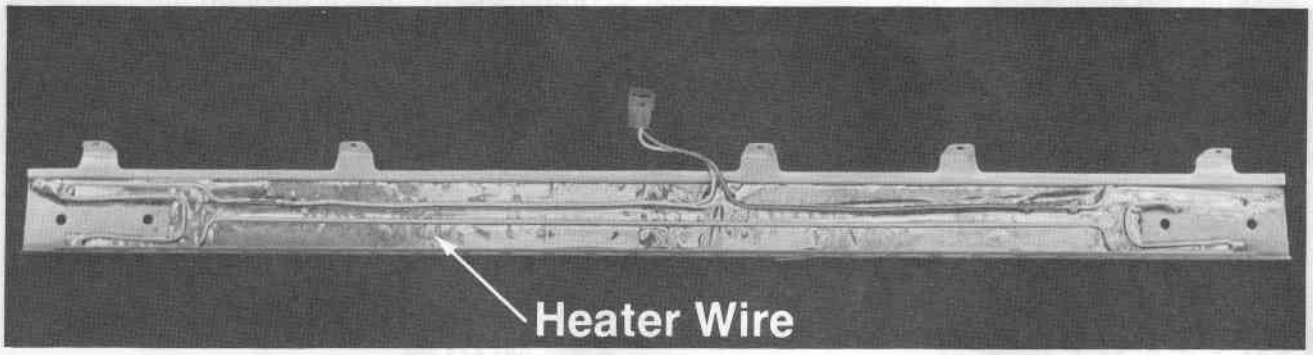
1. Disconnect the unit from the power source. Remove the freezer fan dispersing shield.
2. Remove the upper evaporator cover. You will have to drive the center pins out of the rivets to remove them.
3. Disconnect the fan motor leads from the cabinet wiring.
4. Attach a 110 volt test cord to the fan leads - plug the test cord into the electrical outlet. If the fan fails to operate, the motor or its leads is defective.
5. The replacement motor will be attached to the bracket in the same manner as the original.

FAN BLADE ALIGNMENT

In the event that the freezer fan blade is removed or loosened, reposition it on the shaft by pushing it on until the stop resets against the end of the shaft.

DIVIDER CHANNEL HEATER

Top Mount Models Only



CHECKING THE DIVIDER CHANNEL HEATER WIRE

The divider channel heater wire can be checked without disassembling the unit.

1. Disconnect the unit from the power source.
2. Make a continuity check of the switch and heater across terminals 2 - 3, and 3 - 1.

REPLACING DIVIDER HEATER WIRE

The foil mounted divider channel heater wire is stuck to the rear surface of the divider face plate. The wire is replaced by peeling the old one off the divider channel and sticking the replacement one on. To replace the wire proceed as follows.

1. Disconnect the unit from power source.
2. Remove the facade and the divider channel and disconnect the heater leads and ground wire.
3. Remove the old heater wire and replace.
4. Reconnect the heater wire and reassemble those parts previously removed.

CABINET AND RELATED COMPONENTS

FOOD LINER

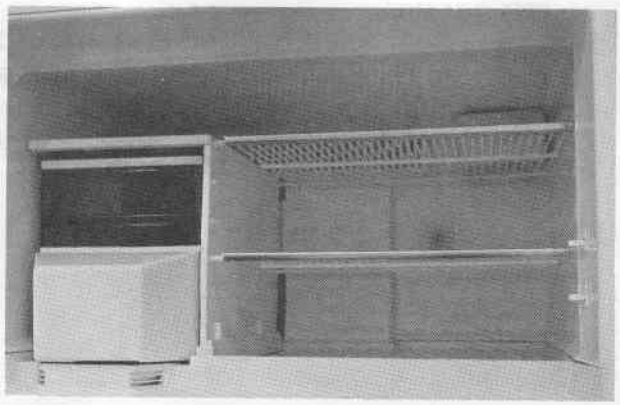
All food liners are made of a sturdy plastic material which has a glossy surface similar in appearance to porcelain liners. All models are produced with foamed-in-place insulation and their liners cannot be replaced due to the bonding properties of the foam. *Models with foamed-in-place insulation can be repaired, using a liner patch kit or a tape kit, if the liner becomes cracked.*

COMPARTMENT ACCESSORIES/MOUNTING HARDWARE

SHELVES

There are several different types of shelving used on the models covered in this manual. The following information can be used to determine which type you are working on and how it can be serviced.

FREEZER (STATIONARY) SHELVES



Top Mount Models

To Remove:

1. Lift up on right side of shelf and push to right.
2. Swing left side of shelf up and pull to left. Remove shelf.

To reinstall:

1. With side of shelf tilted upward, position right rod ends into upper part of the oblong holes in the freezer side wall. Push to the right.
2. Lower the left side of the shelf and push shelf to left into left shelf supports. Make sure shelf is secure before loading.

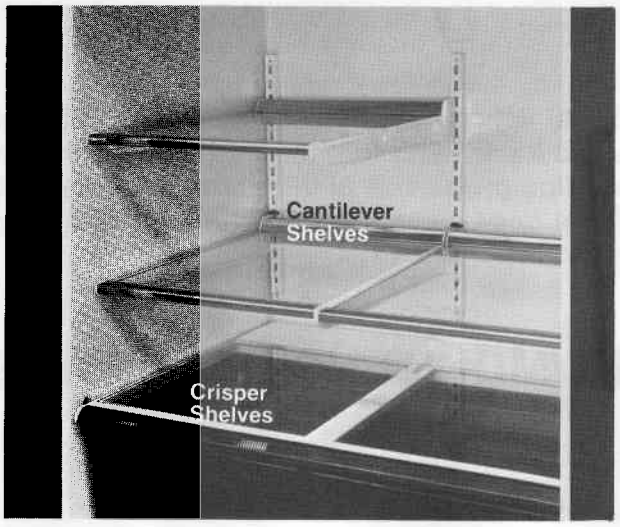
Side-By-Side Models

To remove:

1. LIft the right end up slightly and push the shelf as far to the right as it will go.
2. Lift the left end up approximately three (3) inches out of sockets and pull the right out of the sockets.

Reverse procedure to reinstall.

CANTILEVER (FRESH FOOD) SHELVES



To Remove:

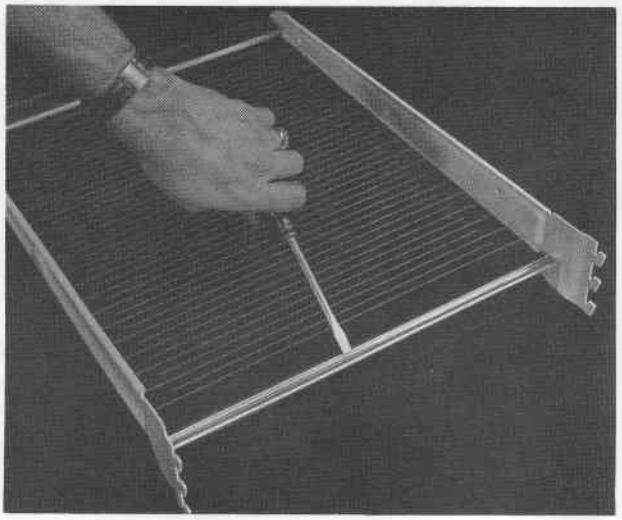
The cantilever shelves are adjustable and mount onto brackets attached to the liner rear. The shelves are removed by lifting up on the shelf at the rear and front, then pull out of brackets.

To reinstall:

Insert shelf so the insert hooks fit into selected openings in brackets. Let shelf settle down into position.

CANTILEVER SHELF TRIM

The cantilever shelf trim is easily removed by placing the shelf on a flat work surface and using a straight screwdriver to carefully pry on the rolled edge. The trim is installed by placing the shelf in a vertical position and forcing the trim onto the metal piece until it snaps securely in place.



CRISPER SHELVES

To remove:

1. Remove all cantilever shelves in order to allow removal of crisper.
2. Remove crisper drawers by pulling out to the stop. Lift and pull again.
3. Carefully remove glass. The glass just lays on the shelf.
4. Lift crisper shelf and pull forward. Tilt to one side to remove from refrigerator.
5. The crisper shelf rod can be removed by lifting up on the rod until it is in the top of the grooves, Push in on one side and lift up the other side of the rod to clear.

Reverse procedure to reinstall.

REFRIGERATED MEAT KEEPER

The meat keeper has a shutter control to adjust the amount of air admitted into the pan interior. **NOTE:** Make sure meat keeper is installed in the refrigerator so the arm on meat keeper can come in contact with baffle.

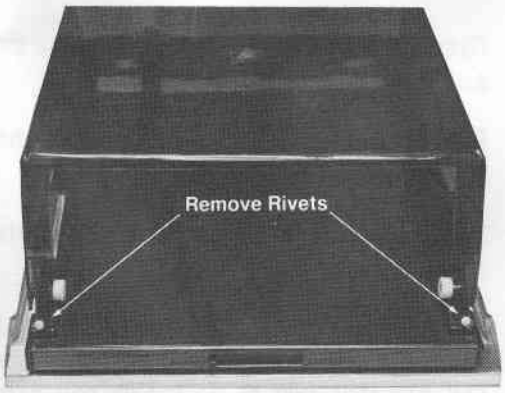
CHECKING OPERATION

Most problems concerning the meat keeper will result from improper operation of the air shutter. However, don't overlook the possibility that frozen packages may have blocked the air inlet from the freezer compartment.

REPLACING THE REFRIGERATED MEAT KEEPER COVER

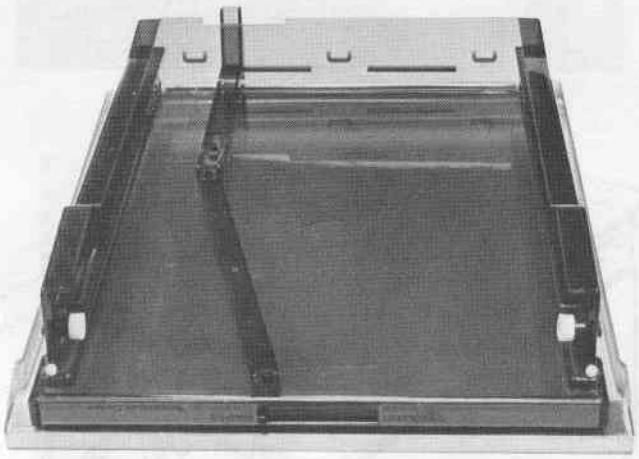
The plastic cover of the meat keeper can withstand a great deal of stress but if it becomes necessary to replace the part, proceed as follows:

1. Pull the pan out until it stops, lift it slightly and at the same time pull the pan completely out.
2. Lift and remove the shelf assembly out of the refrigerator.
3. Set the shelf upside-down on a work surface. Insert a straight screwdriver under the front corner of drawer and remove the plastic rivets.



4. Lift the front of the drawer and pull it out of the shelf frame.
5. The drawer is installed in the reverse order of removal.

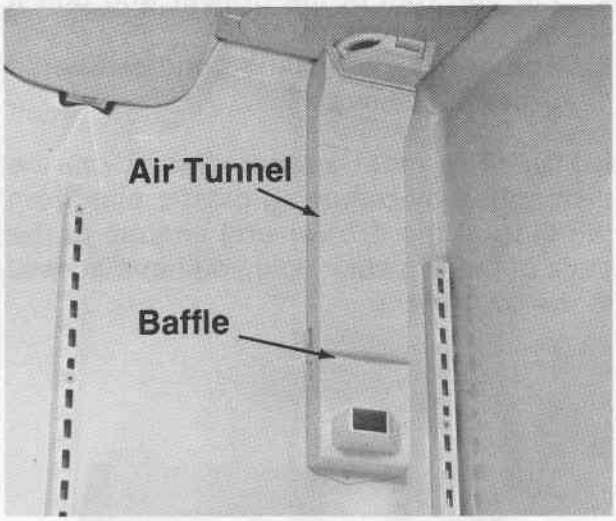
NOTE: The meat keeper drawer can be dismantled by removing plastic pins from the side of the drawer and unsnap at the back of the drawer. Now you have access to the control bar.

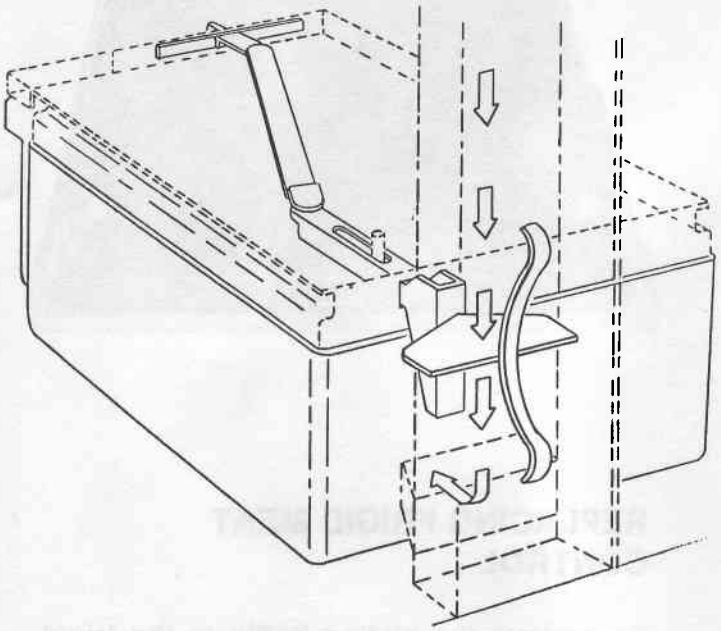


REPLACING FRIGID MEAT CONTROL

To remove the sliding baffle in the frigid meat control:

1. Lift off the meat pan housing assembly.
2. Remove the air tunnel from the freezer back by removing one rivet at the bottom.
3. Lift the styrofoam insulation to get at the sliding baffle.
4. Slide the baffle out of the tunnel.





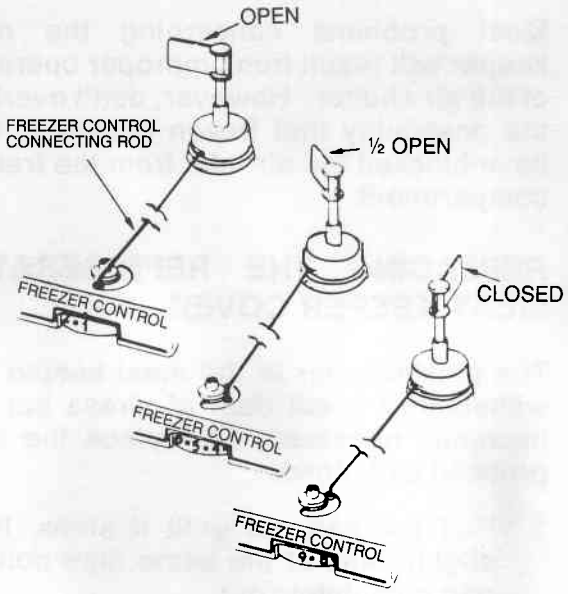
FREEZER COLD CONTROL

Top Mount Models

The freezer cold control is located in the top of the fresh food compartment. The control knob is connected to a damper by a rod.

The control knob operates the damper which, when turned to a higher number, reduces the flow of chilled air into the fresh food compartment and increases the air flow to the freezer compartment which, therefore, further lowers the temperature of the freezer compartment.

By turning the freezer cold control knob toward a lower number, you increase the air flow of chilled air into the fresh food compartment. This will increase the flow of chilled air to the fresh food compartment and raise the temperature in the freezer.



REPLACING FREEZER CONTROL CONNECTING ROD

Top Mount Models

1. Disconnect the unit from power source.
2. Remove the doors and center hinge. Remove facade.
3. Remove the screws from the divider channel.
4. Disconnect the ground wire and the wire leads from the divider channel. Be careful not to scratch the surface when laying it down.
5. If necessary, you can remove the two tapping plates for easy styrofoam removal.

6. Pull the freezer chest bottom out of the cabinet.

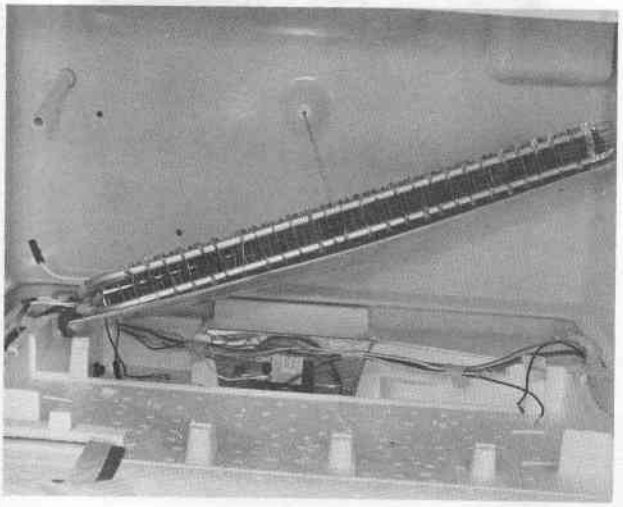
7. Remove the styrofoam freezer coil cover. It is very important to return this cover exactly as it was originally.

8. Remove the air tunnel from the freezer back.

9. Lift the freezer coil until it clears the styrofoam drip tray. Form a piece of wire into the shape of letter "S" to fit the freezer liner. This wire will serve as the freezer coil support while replacing the connecting rod.

10. Disconnect the plug-in connector to the control wire harness.

11. Pull the styrofoam assembly out. It is recommended that the styrofoam drip tray and the top of the fresh food compartment be pulled at the same time. Pulling separately will result in damaging one or the other.



12. Place the styrofoam assembly on a work surface and remove the orifice and damper assembly by pulling up to free damper shaft from crank.

13. Lift the styrofoam drip tray and set it where it will not be damaged.

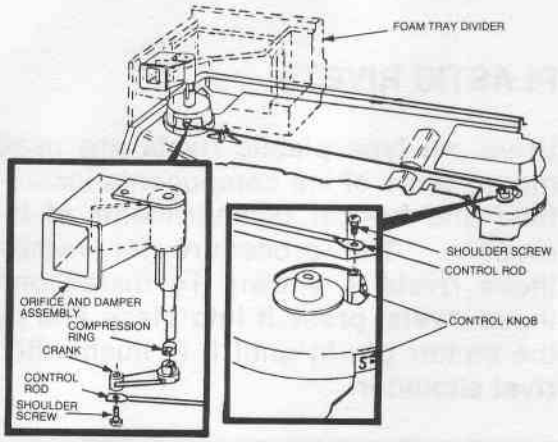
14. Install the new rod and set the styrofoam drip tray on top of the fresh food compartment top.

15. Insert the orifice and damper assembly in the styrofoam drip tray.

16. Insert the damper shaft in the crank and press the damper into crank until it is in place.

17. Assemble the parts in the refrigerator by following the reverse order of removal.

NOTE: MAKE SURE THE WIRE LEAD TO THE RADIANT HEATER WILL NOT BE IN THE WAY OF THE FREEZER FAN MOTOR.



FREEZER COLD CONTROL

Side-By-Side Models

The freezer control is a mechanical baffle that can be adjusted to regulate the amount of chilled air that is allow to enter the fresh food compartment.

This control is also located at the back and top of the fresh food compartment. It is held in place by two (2) screws (lower front and and upper rear).

MOUNTING HARDWARE

NYLON SNAP NUTS

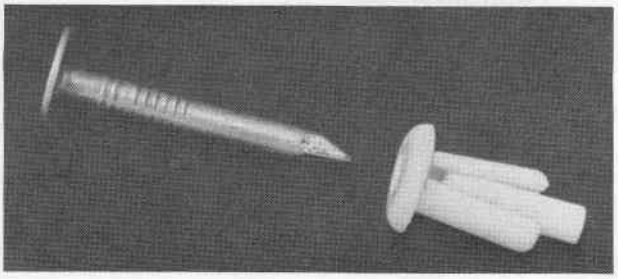
Snap nuts are used in places where a screw must mount into the liner.

To remove a snap nut, pry it loose with a small screwdriver or a putty knife.

Install a snap nut by pressing the nut into the opening until it snaps into place.

PLASTIC RIVETS

Drive pin type plastic rivets are used to mount some of the components inside the food and freezer compartments of these models. The procedure for removing these rivets is shown. To install one of these rivets, press it into place and drive the center pin in until it is flush with the rivet shoulder.



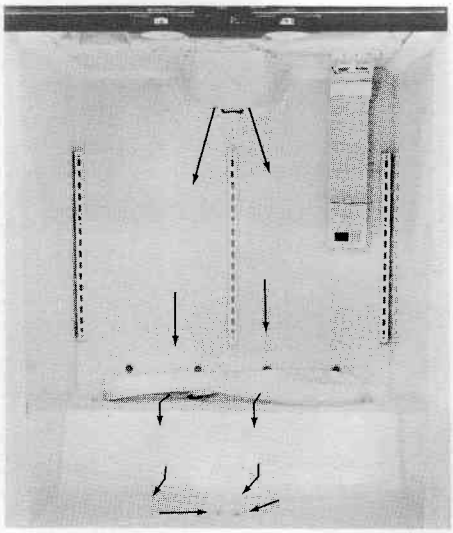
TWIST NUTS

This type of nut is used to mount parts in the refrigerator and freezer compartment. They are installed before the cabinet is foam insulated so if one becomes damaged it must be replaced with a snap nut.

DRAIN TUBES

Top Mount Models

During the defrost cycle, water from the freezer coil collects in the drip tray, and runs through the hole in the drip tray and along the upper surface of the fresh food compartment ceiling. This water is channeled to run in two different directions down the back wall of the refrigerator. This prevents it from running directly to the cantilever shell support as it flows to the drain tube.



DRAIN TUBE

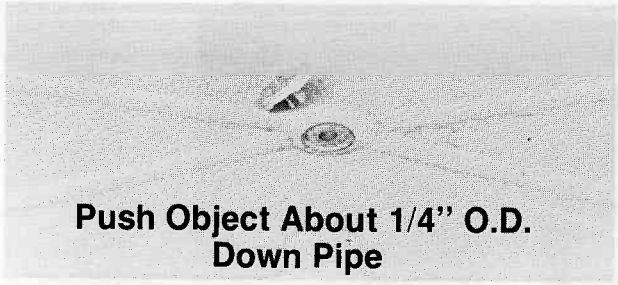
Side-By-Side Models

Side-by-side models have a drain tube that attaches to the drain trough, passes through a grommet in the freezer liner and extends out the cabinet bottom.

SERVICE ON DRAIN TUBE

All Models

If the drain tube is clogged, carefully push a round object about 1/4" O.D. down the pipe. Then flush it with warm water until the food particles, causing the problem, are washed into the pan.



Push Object About 1/4" O.D. Down Pipe

DRAIN GROMMETS

Drain tube grommets should never need replacement unless they have deteriorated. Should it ever be necessary to replace the grommets, lubricate the new grommet with petroleum jelly or water. Place the tube on a long screwdriver and push it in place, forcing the flange into the hole in the cabinet.

DRAIN TUBE REPLACEMENT

Before the drain tube can be removed on these models, the aluminum sleeve inside the tube must be removed.

Before you attempt to push a drain tube through a grommet, lubricate the tube with petroleum jelly or water. Place the tube on a long screwdriver and push it into the grommet. If the tube is to extend through the insulation to the cabinet exterior, the screwdriver will act as a guide to line it up with the hole and the grommet in the cabinet bottom.

STYROFOAM DRIP TRAY

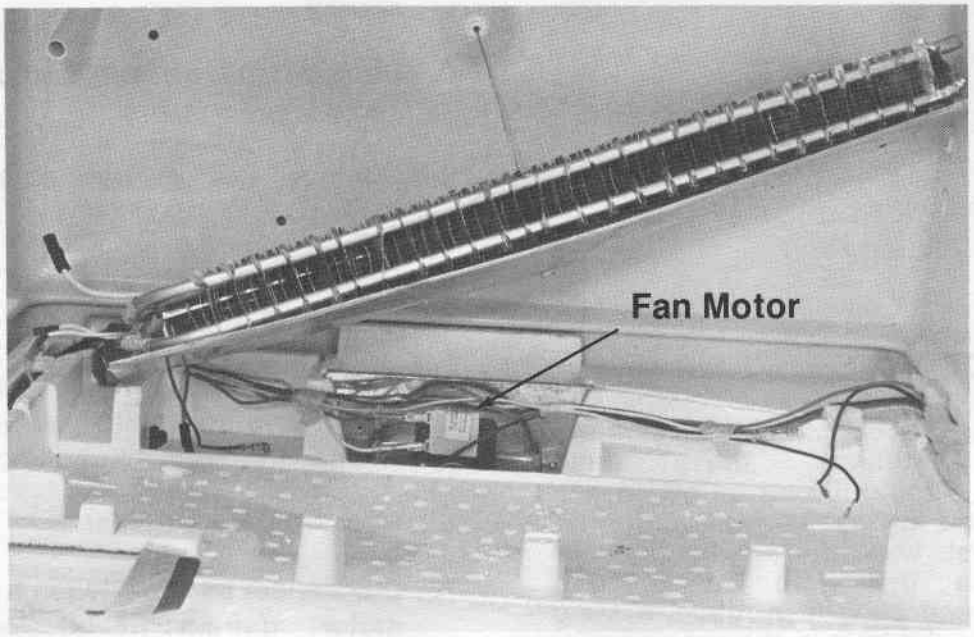
Top Mount Models Only

1. Disconnect the unit from power source.
2. Remove the freezer and fresh food compartment doors.
3. Remove the divider channel from cabinet.
4. Remove the freezer chest bottom by pulling up and out.
5. Remove the styrofoam freezer coil cover. It is important that this part be replaced in the same position.
6. Remove the air tunnel.
7. Disconnect the wire leads from the fan motor, defrost heater, termination thermostat, and plug-in type connector at the wiring harness.
8. Form a piece of wire into the shape of the letter "S" and fit it into the vertical air tunnel drive pin rivet hole in the rear liner wall. Lift the evaporator and hook to the S-shaped piece of wire. This will hold the evaporator out of the way while removing and replacing the drip tray.
9. Pull the styrofoam assembly out of the cabinet and place on flat work surface.

10. Separate the styrofoam drip tray from the fresh food compartment top by removing the damper and orifice assembly. This is done by pulling damper and orifice assembly up to free damper shaft from crank.

11. Position the replacement drip tray on the fresh food compartment top.

12. Transfer the fan motor assembly from the defective drip tray to the replacement drip tray.



13. Insert the orifice and damper assembly in the styrofoam drip tray and insert the damper shaft into the crank. Press the damper into the crank until it is in place.

14. Replace the drip tray in the reverse order of removal making all connections.

CABINET DOORS AND ASSOCIATED PARTS

PAINT TOUCH-UP

Painted areas of the cabinet or doors that become scratched or marred can be touched up with enamel. When manufactured a high solids polyester is used.

WARNING: NEVER USE LACQUER ANY PLACE ON THE CABINET WHERE IT WILL CONTACT THE DOOR GASKET. LACQUER WILL DETERIORATE THE VINYL MATERIAL IN THE GASKET.

DOOR LINER

Top Mount Models

REMOVING AND REPLACING DOOR LINER

The polystyrene inner door liner and the door gasket are mounted to the outer panel by screws placed around the door flange. The inner door liner could be replaced without removing the door from the cabinet. If it is necessary to remove the door liner, proceed as follows:

1. Turn the control to the off position.
2. Open the freezer door and remove the screws and metal bracket from around the door flange.
3. Remove the door liner and transfer the gasket and metal bracket to the replacement liner. Make sure that lip "A" of the door gasket will be sandwiched between the inner panel and the retainer strip.
4. Position the replacement door liner and loosely install all the screws around the door flange.
5. Close and open the door several times and check the gasket for proper seal.
6. Carefully open the door by pulling on the middle section of the door panel.

NOTE: DO NOT PULL THE DOOR BY THE HANDLE OR THE PANEL WILL SHIFT OUT OF ALIGNMENT.



7. Tighten all corner screws snug tight.
8. Close and open the door several times. Recheck the door gasket for proper seal. If it is good, tighten the rest of the screws. Avoid overtightening the screws. Tighten the screws until they are just snug, then turn them clockwise another one-half turn.

NOTE: DO NOT ATTEMPT TO TWIST THE DOOR PANEL AFTER ALL THE SCREWS HAVE BEEN TIGHTENED.

9. Transfer the shelf trim to the replacement liner.

DOOR LINER

Side-By-Side Models

The inner door liner and the door gasket are mounted to the outer door panel by screws placed approximately every four inches around the door flange. Although the procedure for reassembling these items seems obvious, the following facts should be kept in mind:

1. Always lay the door on a flat, well padded surface during reassembly.
2. Position the gasket around the inner panel so that it will be sandwiched between the door liner and the metal bracket.
3. Tighten all inner panel mounting screws until they are just snug.
4. Don't tighten the inner panel mounting screws unevenly, or attempt to twist the door after the screws have been tightened. Such action may permanently damage the inner panel.
5. Always align the door as instructed under "Cabinet Door Alignment", whenever any inner panel mounting screws have been removed.

DOOR PANEL

Top Mount Models

REMOVING AND REPLACING DOOR PANEL

UPPER DOOR

1. Turn cold control to off position.
2. Remove door handle and trim.
3. Use a soft lead pencil to trace around the upper hinge. This will aid in replacing the hinge.
4. Remove the upper hinge and place on top of unit with newspaper or cloth underneath to prevent scratching. The door will remain held in place by the magnetic gasket. Do not misplace the plastic spacers.
5. Carefully open the door and lift it up and off the center hinge pin. Care should be taken not to misplace the center hinge pin spacers. Place door on flat work surface.
6. Transfer handle, trim, insulation, plug button, bushings, gasket and liner to replacement panel.
7. Position door onto center hinge pin and carefully close door. The magnetic gasket will hold the door in place.
8. Install the top hinge using the tracing to help align the hinge. Make sure the plastic spacers are installed.
9. Open and close the door several times and tighten the liner mounting screws. Do not twist the door after the screws have been tightened.

LOWER DOOR

1. Remove upper door.
2. Remove center hinge pin. Make sure not to misplace the plastic spacers.
3. Carefully open the door and lift it up and off the lower hinge. Place door on flat work surface. **NOTE:** If unit has an ice and water fountain, pull wires and water line through the hinge.
4. Transfer handle, trim, insulation, plug button, bushings, gasket and liner to replacement panel.Do not tighten the liner mounting screws.
5. Position door onto bottom hinge, position center hinge into bushing. Close door.
6. Install the upper door and hinge.
7. Open and close the doors and tighten the liner mounting screws.

REVERSING DOORS

Top Mount models, with the exception of models having ice or water through the door, are manufactured with reversible opening doors. The instructions for this are covered in SECTION 2 - INSTALLATION.

DOOR REMOVAL

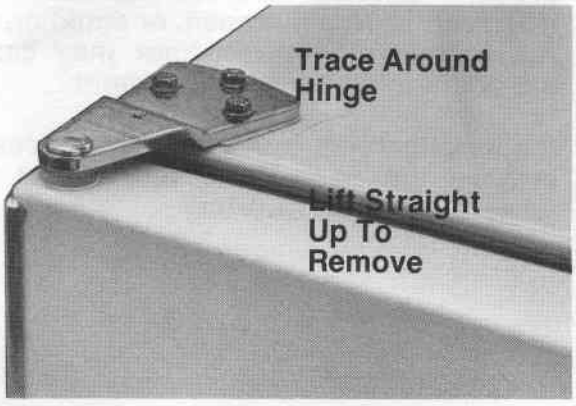
Door removal is covered in SECTION 2 - INSTALLATION. Care should always be taken when removing doors on models having an ice or water fountain.

TOP HINGE AND DOOR CLOSER

Side-By-Side Models

To remove the upper hinge from either cabinet door, proceed as follows:

1. Trace around the upper hinge and remove the mounting screws. The hinge on the freezer door is under a small amount of tension and will push toward the center of the cabinet when the mounting screws are released.
2. Pull the hinge straight out until it clears the door. When installing the top hinge, install it as shown. You will have to pull it toward the outside edge of the cabinet to line up the mounting screws.



DOOR CLOSER

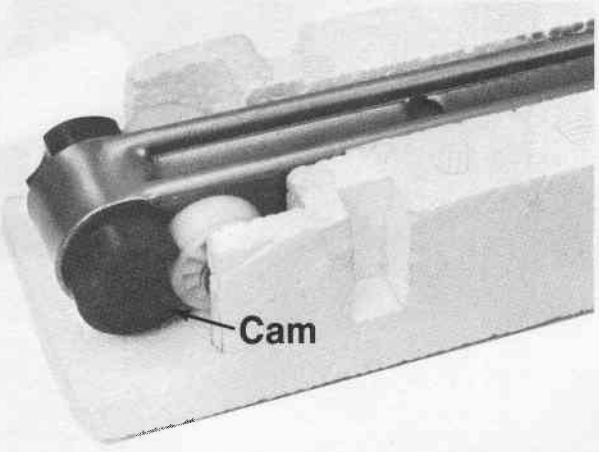
Side-By-Side Models

There are no specific door closer adjustments with which you can improve the door closer operation. If it seems to be operating improperly, you should make sure the cabinet is level and that the doors are properly aligned. The cabinet must be level or tilted back slightly, so the door closer doesn't have to pull the door uphill when closing it.

If leveling and door alignment adjustments don't help, and you are sure the doors are properly spaced out from the cabinet so the gaskets aren't binding, the door closer is probably defective and must be replaced.

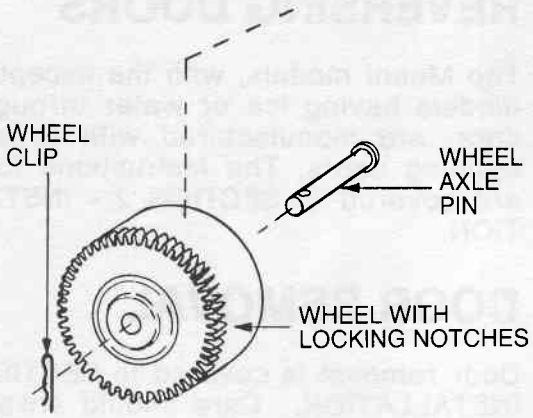
To replace the door closer, remove the top hinge, inner door panel, and the two door closer mounting screws.

As you install the replacement door closer, make sure that the nylon cam is positioned as shown. If the cam is turned 180 degrees, the door closer action will be reversed.



REMOVABLE SHELF GUARDS

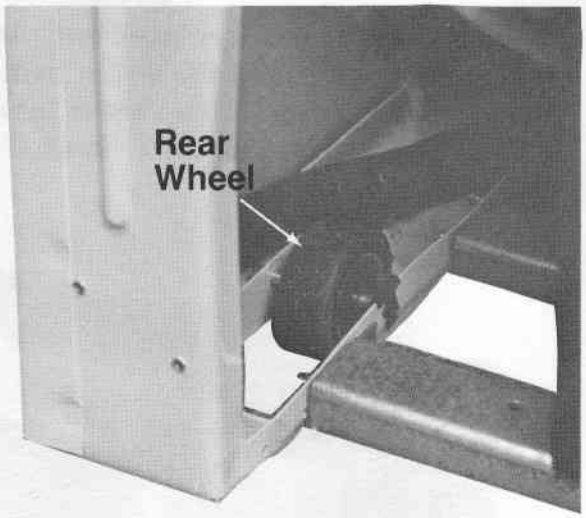
All door shelf guards are easily removed. The model you service may have a wide and also a narrow guard. Each type is mounted basically the same except for the number of clips.



CABINET WHEELS

Majority of the models covered in this manual have non-adjustable rear wheels and adjustable front wheels.

The rear wheels are securely fastened in place by an axle held in place by a retaining clip attached to the cabinet flange.



The adjustable wheels are securely fastened by a clip located at the tip of the axle. To remove the clip use a long nose pliers, pull the clip out of the axle. To install, push it is in the hole at the tip of the axle.

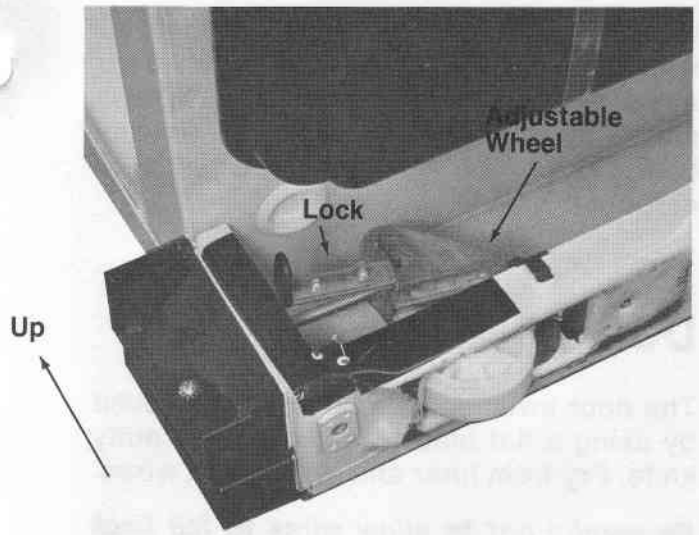
To lock cabinet in place, lock adjustable wheel assembly.

CABINET LEVELING

To enhance its appearance and maintain efficient performance, the refrigerator should be level. The front wheels were adjusted at the factory so the doors were properly aligned and the cabinet level. However, jarring in transit, or standing the refrigerator on uneven floor may cause the doors to shift out of alignment.

If door alignment or leveling is necessary, remove the base grille and adjust the wheels with a screwdriver.

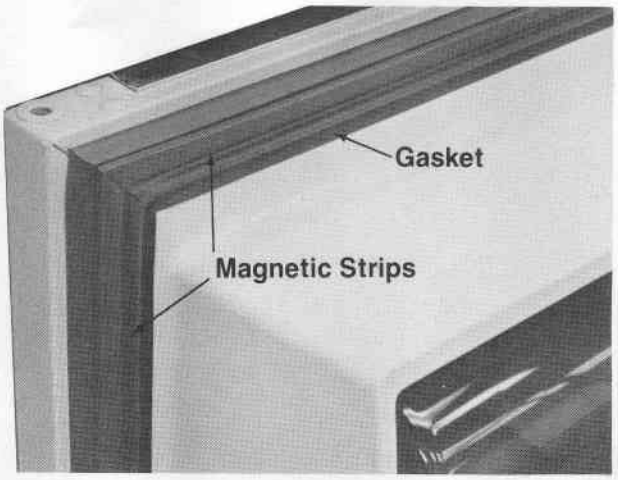
To lock the cabinet in place, lock wheels.



CHECKING GASKET SEAL

The photo below shows a view of the magnetic door gasket used on all models mentioned in this manual. The magnetic strips are attracted to the metal cabinet front, providing an excellent seal around the entire door.

A visual inspection of the door gaskets while opening and closing the door will reveal any areas of poor seal. You should be able to notice a slight expansion and compression of the gasket as the door is opened and closed.



IMPROVING GASKET SEAL

TOE-IN & TOE-OUT ADJUSTMENTS

In order for the gasket to seal evenly around the entire door, it must make contact at the top and bottom at the same time. For this reason the door, when ajar, should not toe-in or toe-out.

To correct a toe-in or toe-out condition, make sure the hinge side of the door is parallel with the cabinet and proceed as follows:

1. Check the cabinet levelers and adjustable wheels. Raising the handle side may correct a toe-out; lowering may correct a toe-in.
2. Loosen all inner panel mounting screws along the top, bottom and handle side of the door. DO NOT LOOSEN THE SCREWS ALONG THE HINGE SIDE.
3. Hold the corner that toes-in stationary, and push in on the toe-out corner until the door is lined up parallel with the cabinet. Tighten a few screws on the handle side to hold the door in this position.
4. Open and close the door several times to assure a proper fit. If necessary, repeat Steps 2 and 3.
5. Tighten all loosened screws until they are just snug.

HINGE ADJUSTMENTS

Hinge adjustments are necessary when:

a. The gasket is not sealed sufficiently along the hinge side of the door.

b. The gasket is compressed more than 1/16″ on the hinge side (causing a poor seal elsewhere around the door).

c. The distance between the door and cabinet is greater at the top than it is at the bottom, or vice versa.

d. The handle side of the door does not line up with the cabinet side (viewed from the front), or when the door panel top is not parallel with the cabinet top.

If one or more of these conditions exist, adjust one or both hinges to correct the trouble. Raising the hinge side may correct a door sag.

DOOR ALIGNMENT

The cabinet door on each model covered in this manual is in correct alignment when:

a. The hinge side of the door is equal distant from the cabinet flange at the top and bottom.

b. The gasket seals smoothly and is compressed no more than 1/16″ along the hinge side with the door closed.

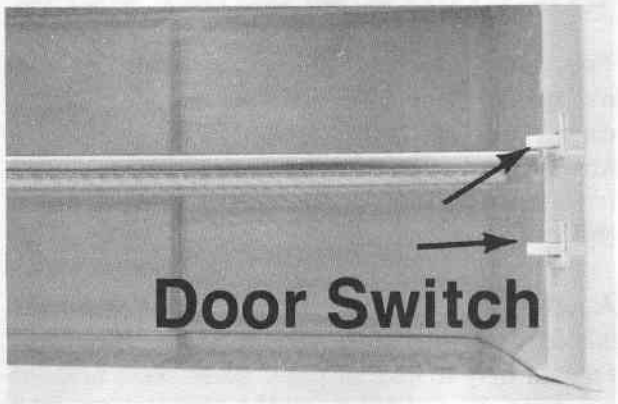
c. The handle side of the door lines up with the handle side of the cabinet (viewed from the front). The door panel is parallel with the cabinet top.

In many cases, leveling the refrigerator will eliminate the need for cabinet door adjustments. Make sure the refrigerator is plumb by checking all edges as well as both sides of the cabinet with a carpenter's level.

DOOR SWITCH

The door switches can be easily removed by using a flat blade screwdriver or putty knife. Pry from liner and disconnect wires.

Be careful not to allow wires to fall back inside of liner.



WATER COMPONENTS

WATER SUPPLY

Certain models are equipped with "through the door" chilled water/ice dispensers and/or automatic ice maker. Models which have these options require the installation of a cold water supply line.

For installation of the water supply, please refer to SECTION 2 - INSTALLATION.

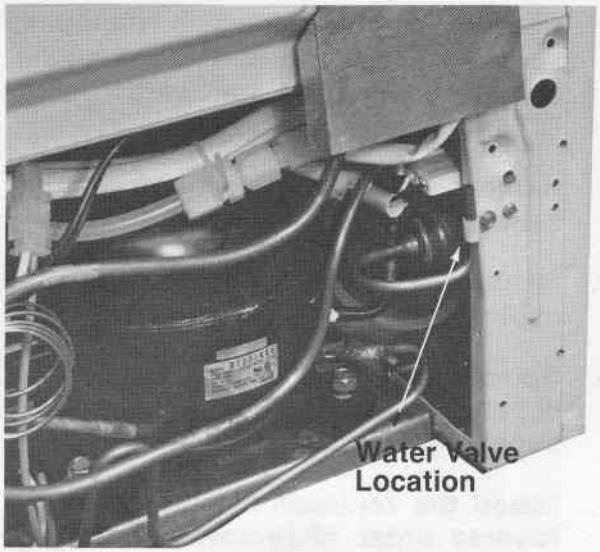
WATER VALVE

Models equipped with ice maker only have a single solenoid valve and the valve is wired in series with the ice maker fill switch. Models equipped with ice and water dispensers have dual solenoid valves with one valve in series with the ice maker fill switch and the other valve in series with the water actuator switches. Check the coils in the following manner:

1. Disconnect the unit from power source.
2. Remove those parts necessary to expose the solenoid valve(s) for removal. Disconnect valve(s) terminals and attach ohmmeter probes. The meter should show continuity.

REPLACING THE WATER VALVE

1. Shut off water and electrical supply to the unit.
2. Remove the machine compartment cover from the rear of the unit.
3. Locate the water valve(s) and remove the mounting screw.



4. Disconnect the water inlet fitting from the water valve and drain the water into a container.
5. Disconnect the water valve outlet lines. Drain water into a container.
6. Transfer the wire leads from the defective water valve(s) to the replacement.
7. Install the replacement valve(s) in the reverse order of removal and replace those parts previously removed. Check all connections for leaks.

WATER FILL TUBING

Care should be taken when removing or replacing the water fill tubing not to cause a kink, crimp or bend that will result in a restriction.

REPLACING TUBING FROM THE WATER VALVE TO THE ICE MAKER

1. Shut off the electrical supply to the unit.
2. Remove the machine compartment cover from the rear of the unit.
3. Remove the water valve mounting screw and disconnect the ice maker supply tubing from the water valve. Drain the water into a container.
4. Remove the wire cover from the cabinet back.
5. Remove the tubing clamps from the cabinet back.
6. Remove the clamp which fastens the supply tubing to the fill grommet supplying the ice maker.
7. Install the replacement tubing in the reverse order of removal and check all connections for leaks.

NOTE: When installing the supply tubing care should be taken not to crimp, kink or bend the tubing so that a restriction is formed.

REPLACING TUBING FROM WATER VALVE TO WATER RESERVOIR

1. Shut off the electrical supply to the unit.
2. Remove the machine compartment cover from the rear of the unit.
3. Remove the water valve mounting screw and disconnect the compression nut from the water valve supplying the chilled water fountain.
4. Remove the crisper shelf.
5. From the back of the refrigerator, disconnect the compression nut from the bottom reservoir connection. Drain the water into a container.
6. Pull the compression nut off of the supply tubing and pull the supply tubing from the back of the unit through the bottom. (To pull new tubing, tie to the old and pull with old tubing.)
7. Install the replacement tubing in the reverse order of removal.
8. Turn on the electrical and water supply and activate the chilled water dispenser. Draw six or seven glasses of water to remove any trapped air in the system. Check all fittings for leaks.

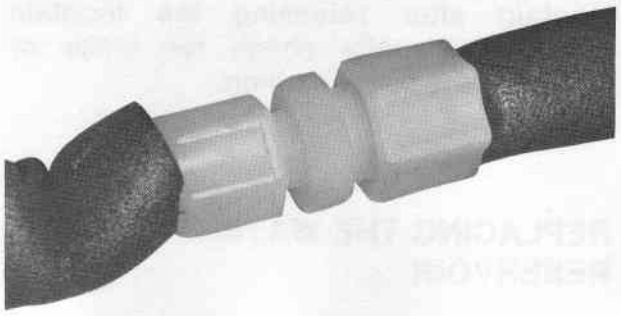
REPLACING THE TUBING FROM THE RESERVOIR TO THE FOUNTAIN

The supply tubing from the reservoir to the fountain is composed of two sections and extends from:

1. Reservoir to a connection at the bottom of the cabinet behind the right side of the grille.
2. Then, from the connection behing the grille to the fountain.

RESERVOIR TO PLASTIC UNION

1. Disconnect the unit from power source.
2. Remove those parts necessary to expose the reservoir (shelves).
3. Disconnect the union connection at the bottom of the cabinet behind the grille. Drain the water into a container.



Union Connection

4. Disconnect the compression nut from the reservoir connection.
5. Pull the compression nut off the tubing and pull the tubing from the back of the unit through the bottom.
6. The replacement tubing is installed by pushing it through the grommet inside the fresh food compartment and pulling the tubing from the back of the unit through the grommet. Leave enough slack to make necessary connections. Installation may be facilitated by coating the tubing with silicone grease to help ease the tubing through the grommet.
7. Install the parts in the reverse order of removal and avoid any crimps, bends or kinks that might cause a restriction in the tubing.
8. Turn on the electrical supply and activate the chilled water dispenser. Draw six or seven glasses of water to remove any trapped air and check all connections for leaks.

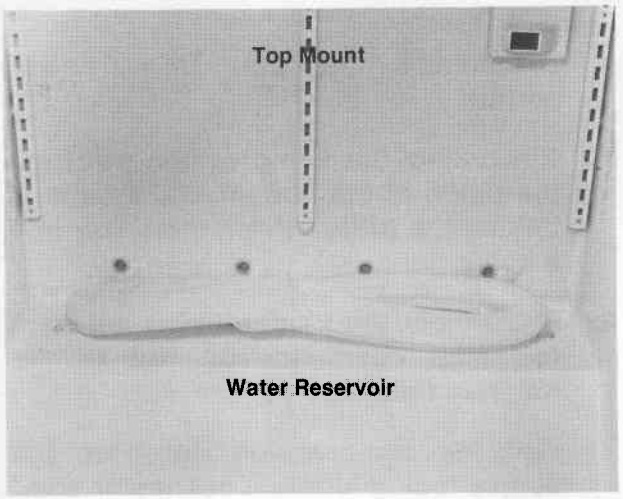
PLASTIC UNION TO FOUNTAIN

1. Disconnect the unit from power source.
2. Disconnect the compression nut from the union at the bottom of the cabinet behind the grille. Drain the water into a container.
3. Disconnect the compression nut from the tube connector on top of the fountain housing.
4. Pull the compression nut from the supply tubing fountain connector end.
5. Pull the supply tubing down through the door bushing and hollow hinge pin.
6. Install the replacement supply tubing by pushing it up through the bottom door bushing and hollow hinge pin. Pull enough through to make the connections.
7. After all connections have been made, reconnect the unit to the power supply and activate the chilled water dispenser. Draw six or seven glasses of water to remove any trapped air and check all connections for leaks.
8. Install any remaining parts previously removed.

WATER RESERVOIR

REPLACING THE WATER RESERVOIR

Top Mount Models

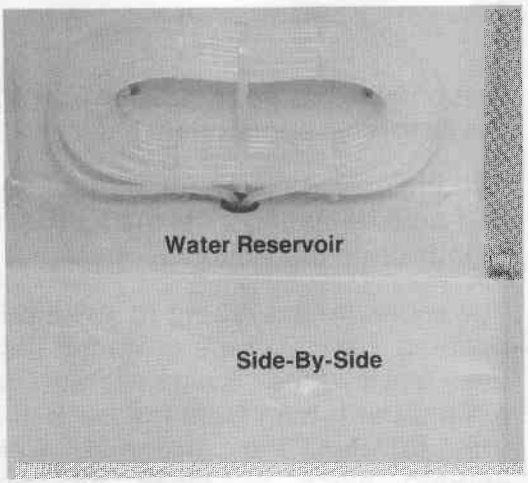


1. Disconnect the unit from power source.
2. Remove the crisper shelf. You now have access to reservoir.
3. From back of unit, disconnect the reservoir inlet and outlet compression nuts and drain the water into a container.
4. Remove compression nuts from inlet and outlet water lines.
5. Pull inlet and outlet water lines into refrigerator (fresh food) compartment.
6. Remove screws securing reservoir to cabinet.
7. Install the replacement reservoir in the reverse order of removal. You may need to lubricate lines with a silicone grease.
8. Reconnect the unit to power source and activate the chilled water dispenser. Draw six or seven glasses of water to remove any trapped air. Check each connection for leaks.
9. Reinstall any parts previously removed.

NOTE: If water continues to drip from the fountain after releasing the fountain activator, visually check for kinks or crimps in the supply tubing.

REPLACING THE WATER RESERVOIR

Side-By-Side Models

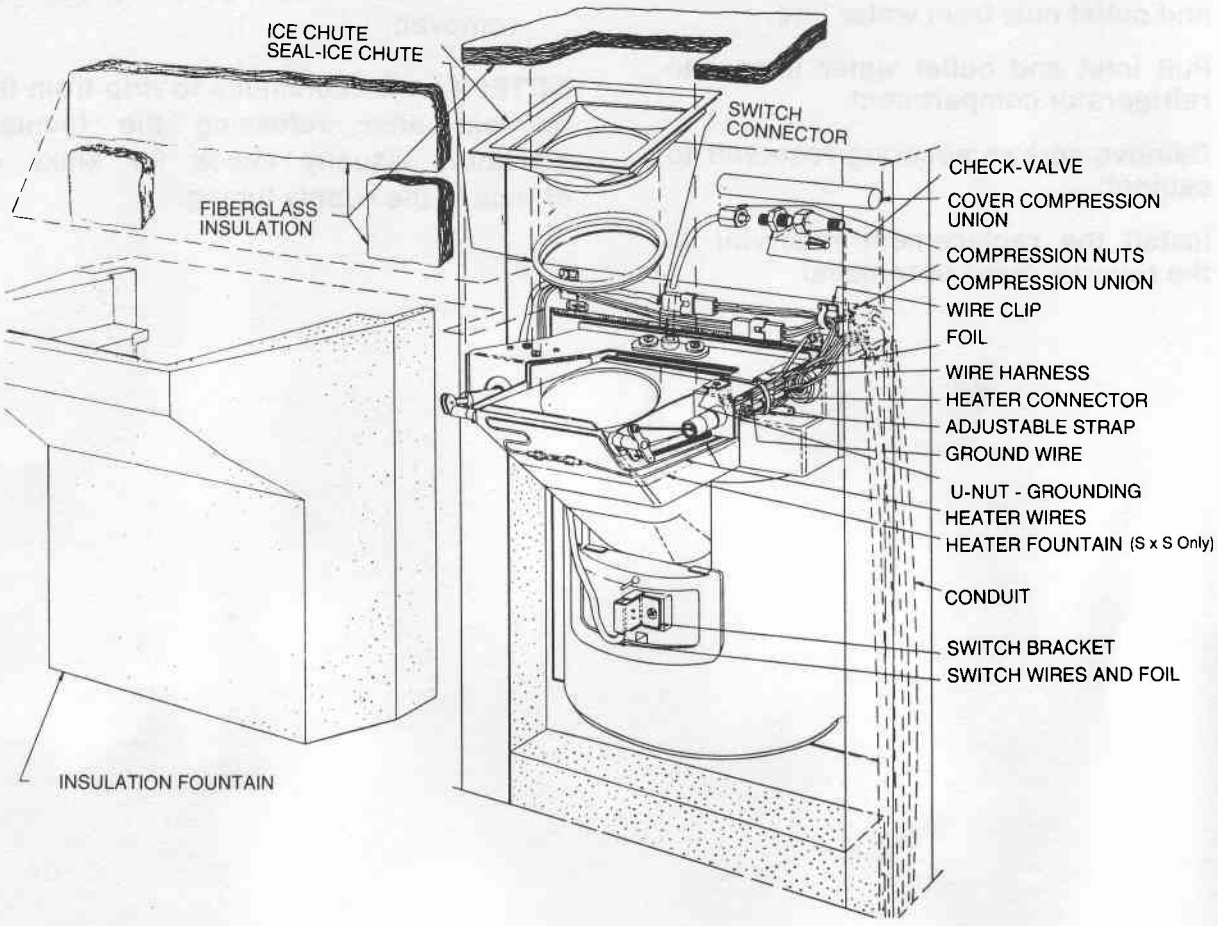


1. Disconnect the unit from power source.
2. Remove enough shelves from the fresh food compartment to allow access.

3. Remove the crisper shelf.
4. From the back, disconnect the reservoir inlet and outlet compression nuts and drain the water into a container.
5. Remove compression nuts from inlet and outlet nuts from water line.
6. Pull inlet and outlet water lines into refrigerator compartment.
7. Remove screws securing reservoir to cabinet.
8. Install the replacement reservoir in the reverse order of removal.
9. Reconnect the unit to power source and activate the chilled water dispenser. Draw six or seven glasses of water to remove any trapped air. Check each connection for leaks.
10. Reinstall any parts previously removed.

NOTE: If water continues to drip from the fountain after releasing the fountain activator, visually check for kinks or crimps in the supply tubing.

FOUNTAIN ASSEMBLY



ICE AND WATER FOUNTAIN

To Remove:

1. Remove grill from fountain sump.
2. Squeeze the sides of the clear shroud and pull to remove.
3. Remove screw from underneath fountain escutcheon.

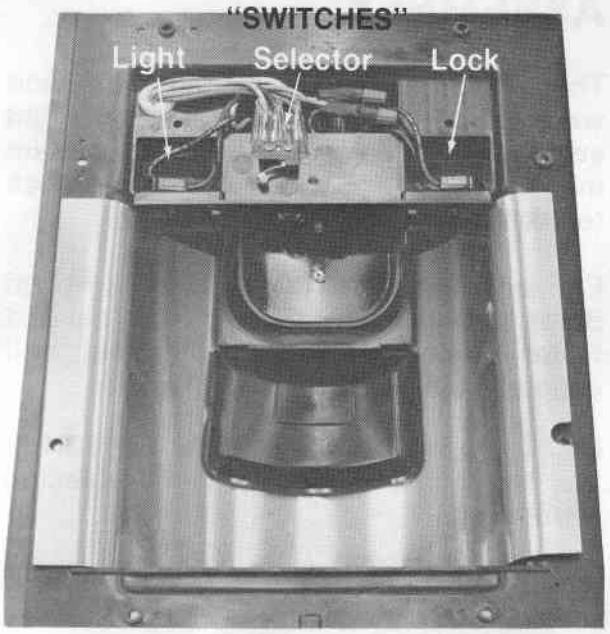
   NOTE: Make sure the selector switch is set on "ice" before proceeding.

4. Pull the escutcheon towards the door handle to snap, or disengage from fasteners.

   On Side-By-Side models, pull escutcheon away from door handle.

5. Remove wire cover by removing two screws.

   You now have access to the selector, light and lock switches.

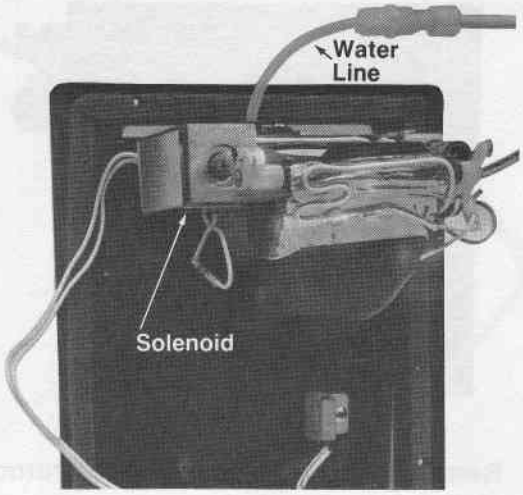


6. Remove screw from side of fountain that will allow removal of well trim. Carefully pull the trim out of the fountain so you do not damage it.

7. Now remove all the screws from around the fountain assembly and carefully pull the assembly out of the refrigerator door.

   You now have full access to solenoid, dispenser mechanism and remaining switch.

8. To replace the entire assembly disconnect water and electrical lines.



NOTE: To check trap door for ice chute, activate solenoid by using switch on dispenser.

NOTE: When reinstalling fountain assembly, make sure water tube is positioned so that the insulation is between the tubing and the inside panel.

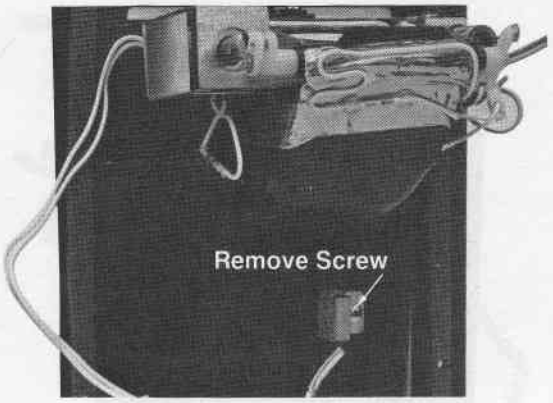
REPLACING ICE AND WATER ACTUATOR SWITCH

When the ice and water actuator pad is depressed, a switch located behind the pad is closed completing a circuit through a blue wire connected at the selector switch, through the actuator switch and then passing through a gray wire to the child-proof switch.

To Remove:

1. Remove fountain assembly from front of refrigerator.

2. The switch is located on the back of the assembly as shown on next page. Remove one (1) screw to remove switch and switch bracket.



3. Remove two (2) screws to remove switch from bracket.

REPLACING THE DASH-POT

The dash-pot piston is drawn forward when the ice actuator arm is depressed and the resulting vacuum causes the spring to slowly draw the actuator arm back to the start position.



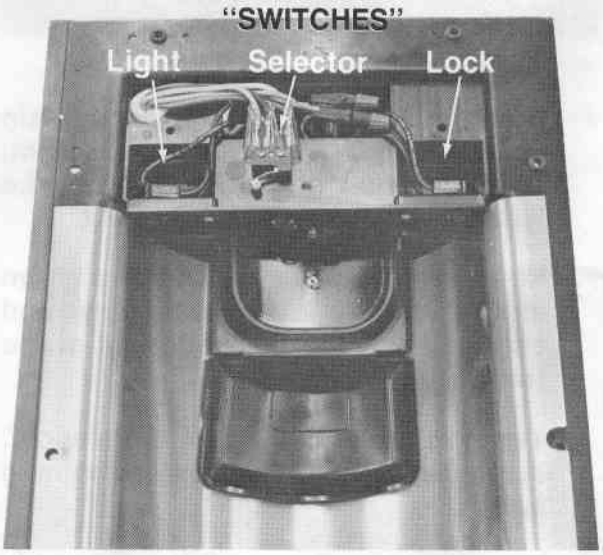
1. Remove ice and water fountain assembly from refrigerator.
2. Remove the dash-pot piston from mounting bracket by removing tru-arc ring and spring washer.
3. Remove piston arm by prying clip off.
4. Replace the dash-pot in the reverse order of removal.

REPLACING THE SWITCH ASSEMBLY

The switch assembly includes ice and water activating switches, fountain light switch, light holder socket and on certain models a child-proof safety switch (electrical or mechanical).

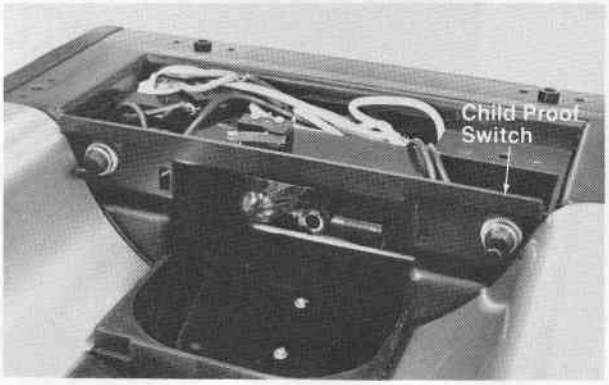
For easy removal of the switches, perform Steps 1 through 5 of removing the "Ice And Water Fountain Assembly". This will expose the switches for removal.

NOTE: ALWAYS MAKE SURE SWITCH IS IN "ICE" POSITION when replacing escutheon.



WATER AND ICE ACTIVATING SWITCHES

(CHILD-PROOF SAFETY SWITCH)



1. Disconnect the unit from power source.
2. Remove those parts necessary to expose the switches for testing.
3. Disconnect the leads from the switch being tested and attach ohmmeter leads.
4. Activate the switch and take a reading. If the meter does not show continuity it can be assumed the switch is defective. **IMPORTANT:** The ice dispensing switch is in series with the freezer interlock switch and if the ice dispenser switch proves to be operative, it will be necessary to check the interlock switch.

REPLACING THE ICE DISPENSER SAFETY DOOR

The door is designed to prevent entry into the ice dispenser chute when the auger is rotating. Remove the screws that mount the ice chute collar assembly. The door can be removed from the collar.

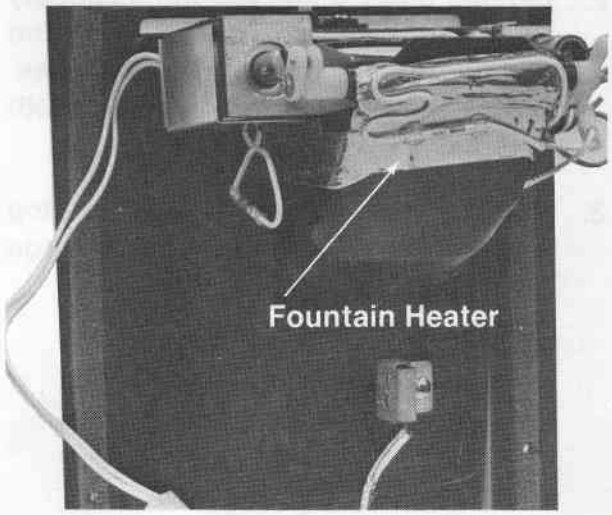
FOUNTAIN HEATER

NOTE: The fountain heater is only on Side-By-Side models.

The fountain heater is a resistance type heater used to evaporate any moisture that might accumulate from condensation.

The fountain heater is bonded to a self-adhesive aluminum foil which is shaped to fit the outside of the fountain housing.

1. Disconnect the unit from power source.
2. Remove the ice and water fountain assembly as discussed earlier.
3. Disconnect the wire connectors and remove the wire harness grommet. Disconnect the water supply tubing. In some cases it may be necessary to remove the door from the unit and disassemble liner and gasket. See door, liner and gasket removal section.
4. Carefully remove the foam seal and disconnect the heater wire terminals.
5. Pull the foil heater backing from the fountain.
6. Reassemble the parts in the reverse order of removal.



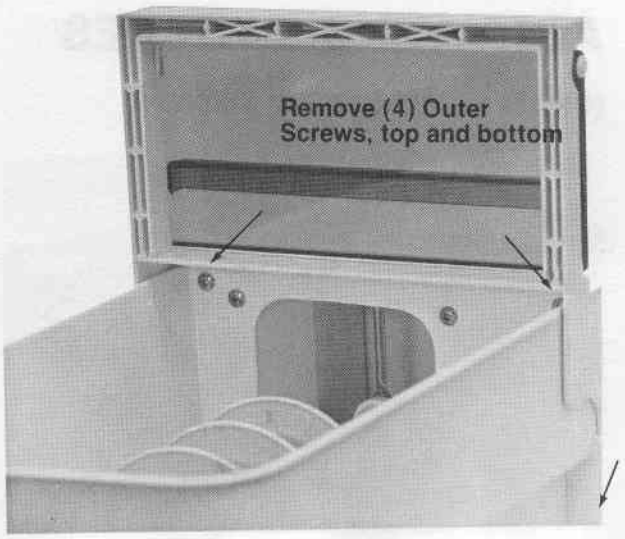
CHECKING FOUNTAIN HEATER WIRE

If a faulty heater wire is suspected it can easily be checked through the connection at the bottom door hinge behind the grille.

1. Disconnect the unit from power source.
2. Remove the grille.
3. For Side-By-Side models, remove the White and Red wire connectors and separate the wires.
4. Make certain the fountain light is turned off.
5. Connect the probes of an ohmmeter to the wires and perform a continuity test. If the meter does not show continuity it can be assumed the wire is defective and must be replaced.

DISASSEMBLING ICE STORAGE BIN

1. Open freezer compartment door.
2. Lift and pull ice storage bin assembly from the freezer compartment and empty any accumulated ice cubes. Place the assembly on a smooth surface.
3. Remove four (4) screws from the top and bottom corners of the ice storage bin, releasing front.



4. Remove four (4) inner screws to remove impeller assembly.
5. Pull auger impeller assembly from bin. Drive ring will disengage.
6. Unscrew impeller retainer.
7. Remove pin and auger will disengage.
8. Install and reassemble in reverse order of removal.

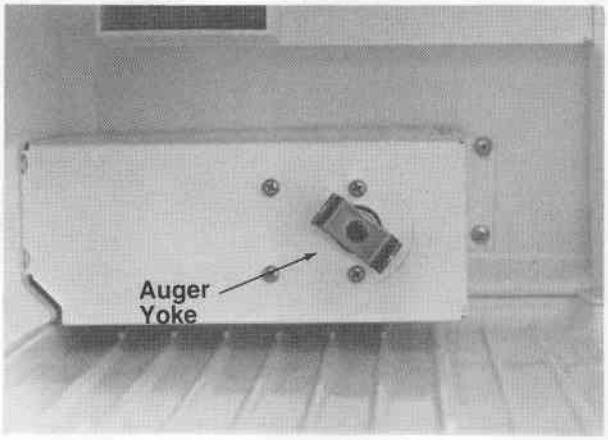
INTERLOCK SWITCH

The interlock switch is checked by the following:

1. Disconnect the unit from power source.
2. Open the freezer door and locate the interlock switch.
3. Use a putty knife to pry the switch out of the liner. Cover the knife blade with tape or with a cloth to prevent scratching the liner surface.

Remove the wire connections and attach the meter probes to the switch terminations. Depress the switch plunger. The meter will show continuity if it is operative. If the switch proves operative and the problem is still present, check freezer door alignment. The door may not be aligned and the switch plunger may not be activated.

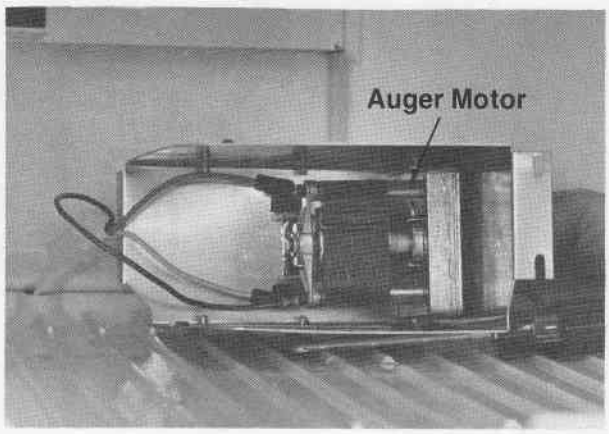
AUGER



The auger motor is located behind the ice storage bin. The yoke fastened to the motor engages the drive ring and turns auger in a clockwise direction. Both the yoke and drive ring are designed to prevent a loosening of the yoke by exerting counter pressure while in operation.

The auger motor makes one revolution every three seconds and makes one "dump" every one and half seconds. To determine the free movement of the auger motor open the freezer door and push in and hold the cabinet switch in the closed position while pushing in the ice dispenser activator.

AUGER MOTOR



The auger motor is easily be removed:

1. Disconnect the unit from power source.
2. Remove ice storage bin from the freezer compartment.
3. Remove the screws from the auger motor mounting bracket, releasing the auger motor and bracket.
4. Disconnect the auger motor terminals and remove the motor and bracket.
5. Hold the auger motor armature and turn the yoke clockwise releasing yoke from motor shaft.
6. Remove screws that fasten the motor to the mounting bracket.
7. Remove the auger motor from the unit.
8. Install the replacement in the reverse order.

When checking auger motor, remove auger motor from unit and attach meter probes to the auger motor terminals. The meter should show continuity. If the meter does not show continuity, the motor should be replaced.

MAYTAG

SECTION 6

ICE MAKER

INSTALLATION

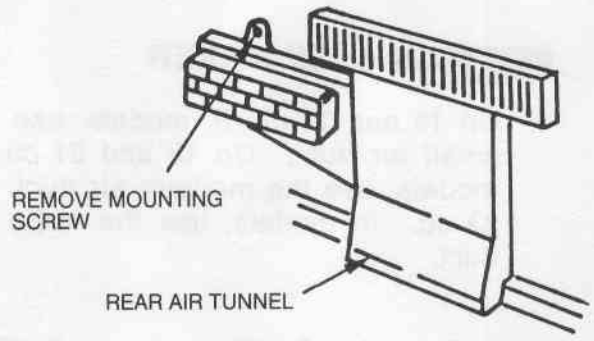
Top Mount Models

PREPARING THE FREEZER

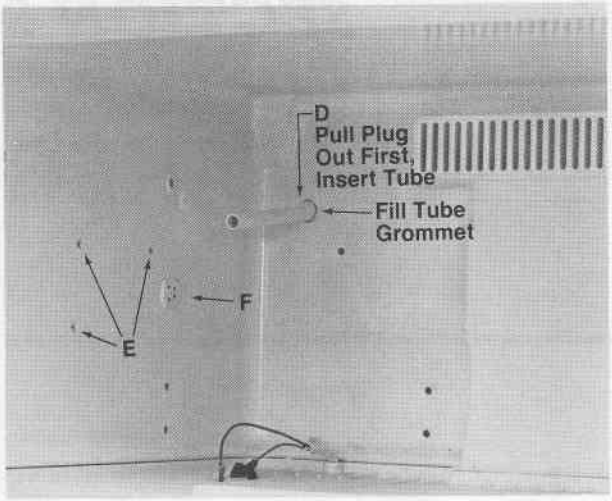
1. Unplug the refrigerator power cord from the wall outlet.
2. Move the refrigerator out from the wall so you can work at the rear of the cabinet.
3. On 15 and 17 cubic foot models, remove the right end of the wire shelf by pushing it up out of the two shelf brackets. Then the shelf will slide in slightly to the left and the shelf can be lowered and removed by pulling it to the right.
4. On 19, 21 and 23 cubic ft. models, remove the upper wire shelf by sliding it to the right, then lift up on the left end, and pull out of right side. Repeat same motion for the bottom wire shelf.

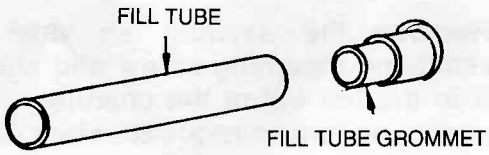
   Remove the ice storage tray. With a phillips screwdriver, remove the two (2) screws on the freezer divider located on the bottom left side and save for reinsertion. Gently move the left end of the top plastic shelf out of the left cabinet wall and carefully lift assembly out of grooved channel.

   Remove the existing air duct by removing mounting screw and sliding it to the left out of the channel. This part is no longer required when using the icemaker.



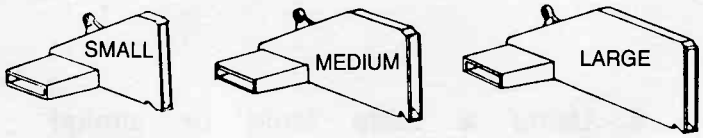
5. Using a table knife or similar instrument, pry out plug buttons "E".
6. Unscrew Icemaker electrical receptacle cap "F".
7. Pull out the plug "D" from the fill tube grommet.
8. With a twisting motion, push fill tube over the icemaker fill tube grommet as far as it will go, approximately 1 inch.



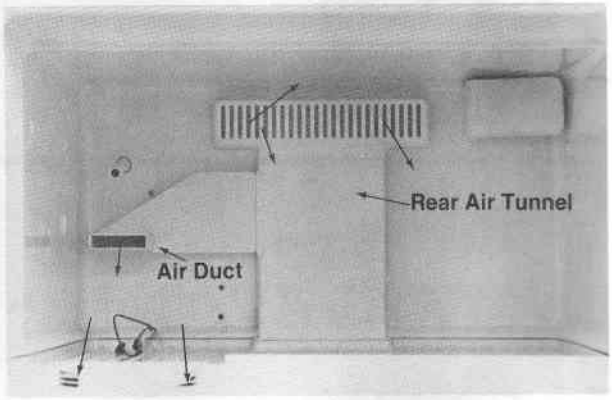


INSTALLING ICE MAKER

1. On 15 and 17 cu. ft. models, use the small air duct. On 19 and 21 cu. ft. models, use the medium air duct. On 23 cu. ft. models, use the large air duct.

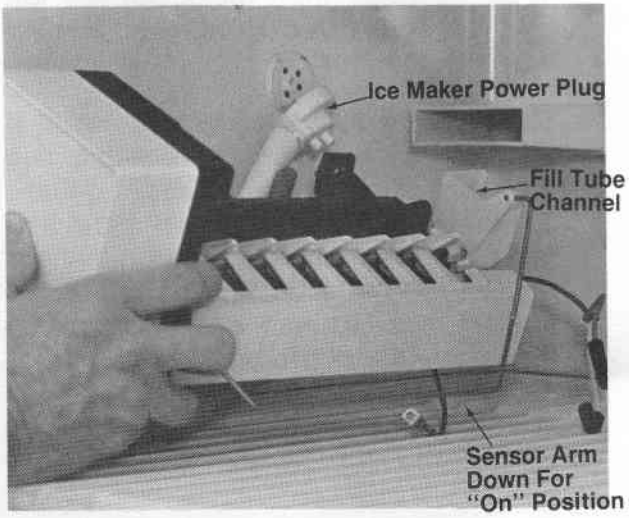


2. After selection, slide the air duct, bottom corner first, into the slot on the left side of the rear air tunnel. Fasten the air duct to the rear freezer wall with one Type "A" screw.



3. Plug the ice maker power plug into the ice maker electrical receptacle in the left side of the cabinet. Observe the pattern of the metal pins. They must be positioned properly to fit the ice maker receptacle. Be sure that the plug is firmly seated in receptacle.

4. Mount the ice maker to the side wall with 3 Type "A" screws taking care so that the fill tube rests in the fill tube channel. Start with the back screw first, then the bottom screw, and finally the top front screw. Do not fully tighten any screw until all 3 screws are in place. Make sure the ice maker sensor arm is down. Again, make sure that the ice maker power plug is firmly seated in receptacle.



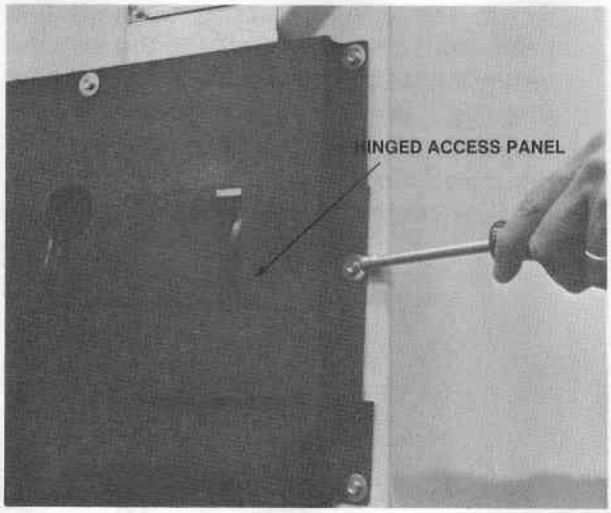
5. Reassemble the plastic freezer divider and shelves. Replace the 2 screws in the freezer divider. Make sure freezer divider is level and tighten screws.

6. Reinstall the ice storage tray sliding it all the way to the back and to the right.

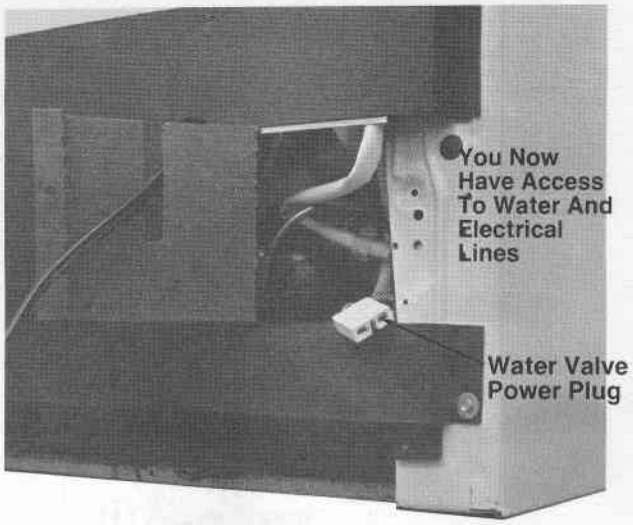
INSTALLING WATER VALVE AND CONNECTING TUBING

WORKING AT THE REAR

1. Working at the right rear of cabinet, remove the center screw from the right end of the black fiber panel that covers the machine compartment with a socket driver, and fold back the etch marked flap. Save the screw for later reinstallation as this flap is required for proper and safe operation of the refrigerator.



2. Locate water valve power plug and water line inside machine compartment. Remove both the protective cap from water line and the tape from the power plug and discard. Slip the plastic nut on water line.



3. Fit the plastic tubing into the water valve as far as it will go and tighten the compression nut, finger tight. Then with a wrench, tighten the nut 3/4 of a turn.

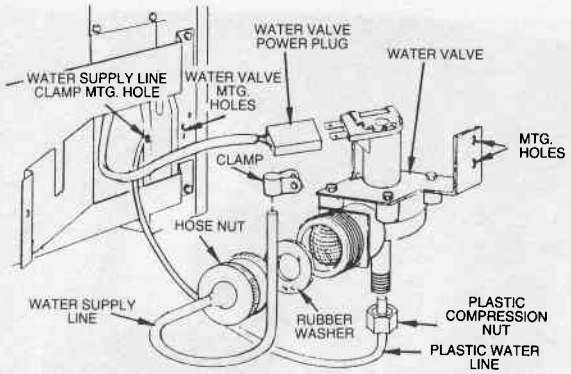
4. Connect the water valve power plug to the water valve. Either wire can go on either terminal.

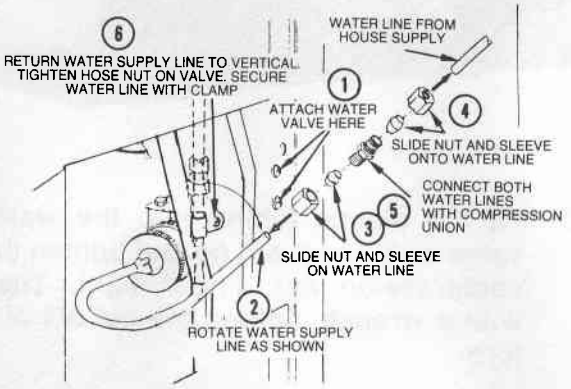
5. Attach the water valve to the inside leg of the cabinet with 2 Type "B" screws and tighten (see Step 1). Take care not to pinch plastic tubing or let it come in contact with the compressor or its associated tubing.

6. Install the hose nut, rubber washer, water supply line, and water supply line clamp onto the water valve. Do not tighten the hose nut at this time.

7. Rotate water line as shown in Step 2.

8. Slide nut and sleeve onto the water supply line (Step 3.) Insert the end of the tubing into the compression union as far as it will go. Screw in compression union. Do not tighten. <u>This will be done later.</u>





CONNECTING ICE MAKER TO WATER SUPPLY

All installations must be in accordance with local plumbing code requirements.

Do not use plastic tubing or plastic fittings because the connection between the water supply and the refrigerator water valve inlet is under constant pressure. Also, certain types of plastic tubing may become brittle with age and crack, resulting in water leakage.

Tubing (1/4″ O.D.) and saddle valve can be purchased from local hardware stores. Sweat or flare connection can be used instead of the compression union, if desired.

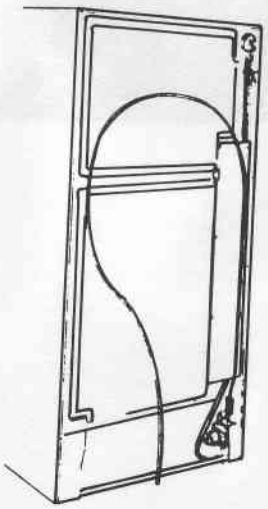
NOTE: When using unfiltered well water, it is advisable to use a filter in the water supply line. This eliminates all possibility of small particles from entering the water valve.

1. Find a 3/8″ to 1″ vertical COLD water pipe near the refrigerator. Water pressure must be between 20 and 120 p.s.i. Vertical pipe is preferable, but a horizontal pipe will work. If a horizontal pipe is used, install the saddle valve on the top or the side of the pipe, not on the bottom.

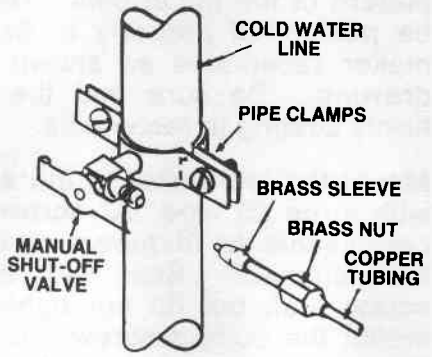
2. Turn OFF the main water supply and drain the selected pipe.

3. Follow the installation instructions that are supplied with the saddle valve for proper and safe installation.

4. Route the copper tubing through the floor, wall or sink cabinet to the saddle valve location. Form the excess tubing into a large loop. This allows movement of the refrigerator without disconnecting the tubing. Other routing methods are shown on Page 6-5.



5. Locate the brass nut and sleeve which come with the saddle valve. Slide them onto the 1/4″ copper tubing. Insert the end of the tubing into the saddle valve as far as it will go and tighten the nut with an adjustable wrench. Turn off the saddle valve.



6. Turn ON the main water supply and flush out the tubing until the water runs clear. At the same time, check for leaks at the saddle valve. Next, prepare to flush out the 1/4″ tubing. Position a bucket or other container at the open end of the 1/4″ tubing so it will catch the water. Turn on the saddle valve and allow water to flow until it has cleared. Turn off saddle valve.

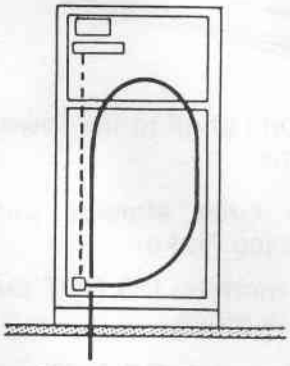
7. Connect the water line from the saddle valve to the water valve as shown in Step 4 and 5. Insert the water line into the compression union as far as it will go. Tighten each brass nut with one wrench on the nut and the other wrench on the compression union. Return water line to vertical. Secure water supply line clamp with one Type "C" screw, Step 6. Tighten hose nut with pliers.

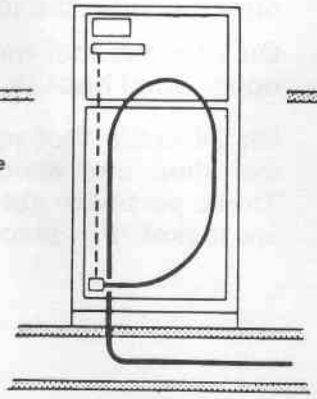
8. Turn on saddle valve. Tighten any connections that leak.

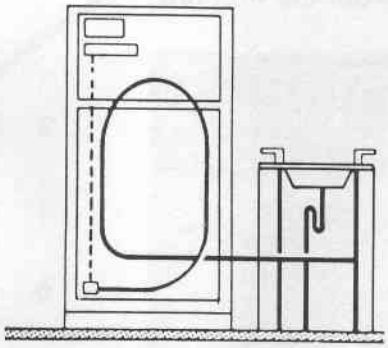
9. Close the hinged access panel and secure with screw removed and saved in Step 1.

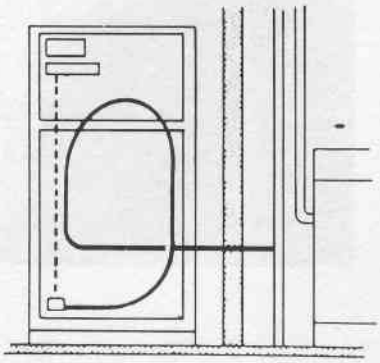
10. Plug in the power cord and push the refrigerator into place, arranging the copper tubing so that it does not vibrate against the back of the refrigerator or against the wall.

IMPORTANT: Because the refrigerator and ice maker are warm, it may take up to 12 hours before the ice maker produces the first supply of ice cubes. Then you can discard the extra parts supplied in the kit. PLEASE READ the use and care instructions.


Through The Floor To Basement Cold Water Pipe


In The Crawl Space Under The Home

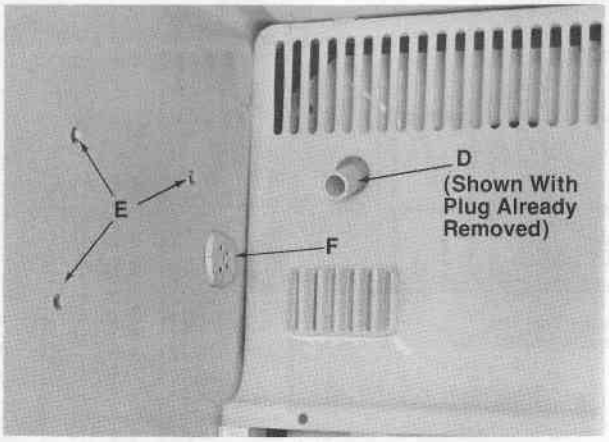

Under The Sink To The Cold Water Pipe


Through The Wall To The Utility Room Cold Water Pipe

PREPARING FREEZER

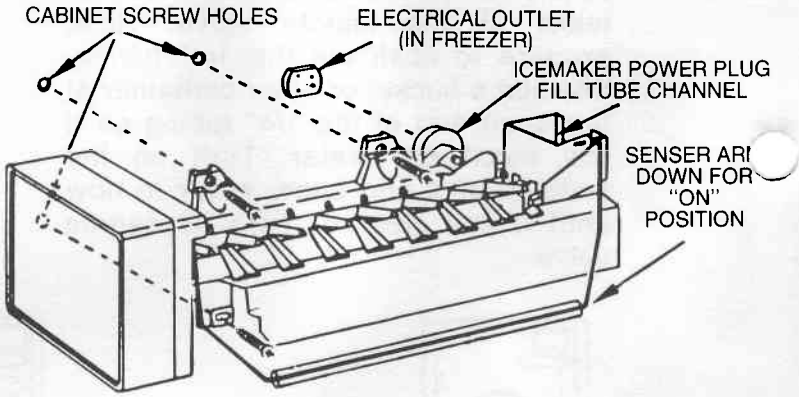
1. *UNPLUG THE REFRIGERATOR POWER CORD from the wall outlet.*
2. Move the refrigerator out from the wall so you can work at the rear of the cabinet.
3. On the 20 and 22 cubic foot models, remove the upper shelf by lifting straight up on both sides and pull out.

   On the 24 cubic foot model, slide shelf and divider assembly to the right and pull out.
4. Remove second shelf by sliding shelf to the left. Then raise shelf up on the right and pull out.
5. Using a table knife or similar instrument, pry out plug buttons "E".
6. Using a screw driver or coin, unscrew ice maker electrical receptacle cap "F".
7. Pull out the plug "D" from the fill tube.



INSTALLING ICE MAKER

1. Plug the ice maker power plug into the ice maker electrical receptacle in the left side of the cabinet. Observe the pattern of the metal pins. They must be positioned properly to fit the ice maker receptacle as shown in next drawing. Be sure that the plug is firmly seating in receptacle.
2. Mount the ice maker to the side wall with three (3) type "A" screws taking care so that the fill tube rests in the fill tube channel. Start with the back screw first, but do not tighten, then install the bottom screw loosely and then the top front screw. All three (3) screws may now be fully tightened. Make sure the ice maker sensor arm is down.



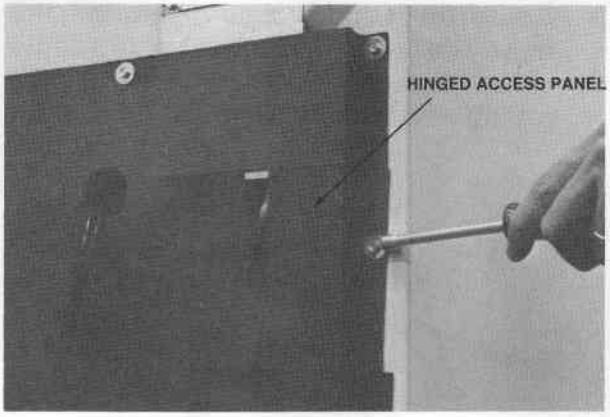
3. Reinstall the second shelf in the lower of the two positions.
4. Position the ice cube storage pan directly under the ice maker.
5. On 20 cubic foot models, DO NOT put upper shelf back in place.

   On 24 cubic foot model, DO NOT put the shelf and divider back in place. These parts are not required when the ice maker is in place.

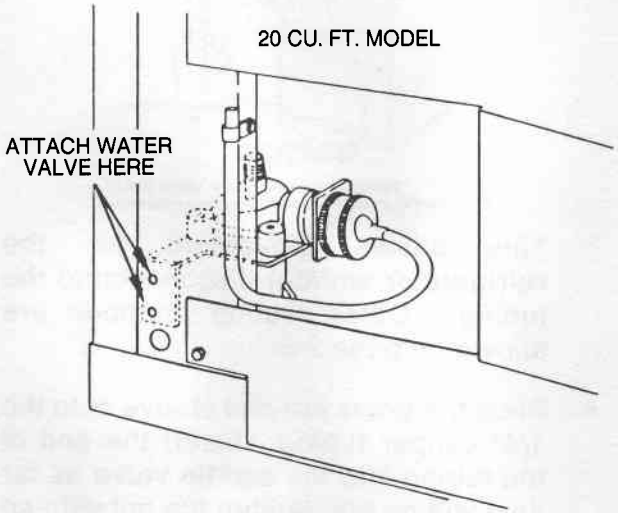
INSTALLING WATER VALVE AND CONNECTING TUBING

Working from the rear:

1. For the 22 and 24 cubic foot models, remove the center screw from the right end of the black fiber panel that covers the machine compartment with an adjustable wrench, and fold back the etch marked flap. Save the screw for later reinstallation as this flap is required for proper and safe operation of the refrigerator.



2. For the 20 cubic foot model, follow above sequence for the left side of the fiber panel.



3. Locate water valve power plug and water line inside machine compartment. Remove protective cap from water line and discard. Slip the plastic nut on water line.

4. Fit the plastic tubing into the water valve as far as it will go and tighten the compression nut, finger tight. Then with a wrench, tighten the nut 3/4″ of a turn.

5. Connect the water valve power plug to the water valve. Either wire can go on either terminal.

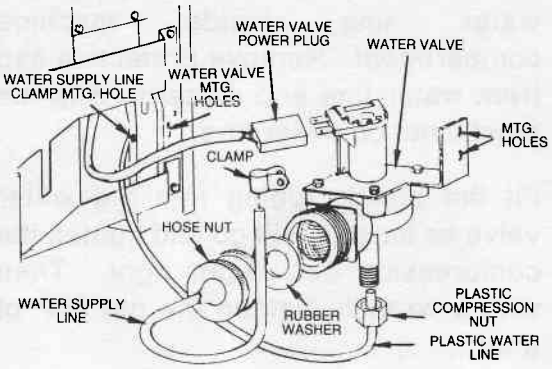
6. Attach the water valve to the inside leg of the cabinet with two (2) type "B" screws and tighten. Take care not to pinch plastic tubing or let it come in contact with the compressor or its associated tubing.

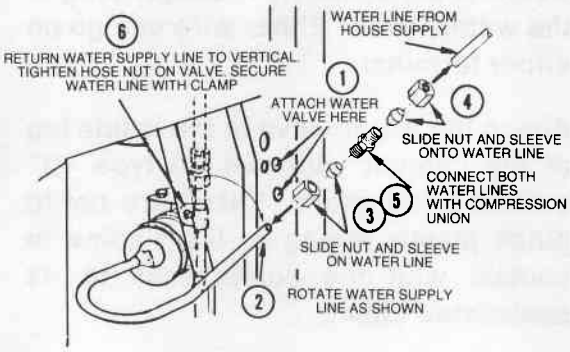
7. Select the proper water supply line. For the 22 and 24 cubic foot models, the correct water supply line is shown in drawing. For the 20 cubic foot model, the opposite water supply line should be used as shown in drawing.

8. Install the hose nut, rubber washer, supply line, and water supply line clamp onto the water valve. Do not tighten the hose nut at this time.

9. Rotate water line.

10. Slide nut and sleeve on to the water supply line. Insert the end of the tubing into the compression union as far as it will go. Do not tighten, this will be done later.





CONNECTING ICE MAKER TO WATER SUPPLY

All installations must be in accordance with local plumbing code requirements.

Tubing (1/4″ O.D.) and saddle valve can be purchased from local hardware stores. Sweat or flare connection can be used instead of the compression union, if desired.

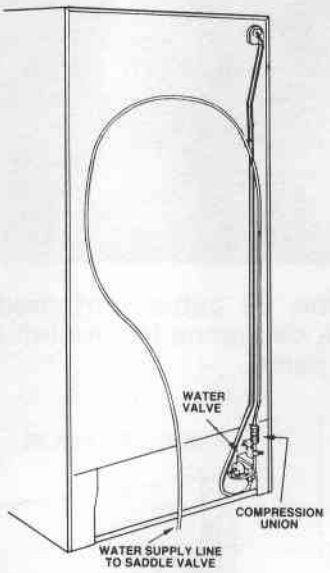
Do not use plastic tubing or plastic fittings because the connection between the water supply and the refrigerator water valve inlet is under constant pressure. Also, certain types of plastic tubing may become brittle with age and crack, resulting in water leakage.

NOTE: When using unfiltered well water, it is advisable to use a filter in the water supply line. This eliminates all possibility of small particles from entering the water valve.

1. Find a 3/8″ to 1″ vertical COLD water pipe near the refrigerator. Water pressure must be between 20 and 120 P.S.I. Vertical pipe is preferable, but a horizontal pipe will work. If a horizontal pipe is used, install the saddle valve on the top or the side of the pipe, not on the bottom. Turn off water supply and drain selected pipe.

2. Install the saddle valve according to manufacturer's instructions included with the valve.

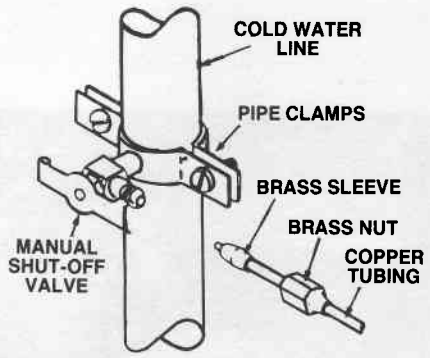
3. Route the copper tubing through the floor, wall or sink cabinet to the saddle valve location. Form the excess tubing into a large loop.



Supply Line Connection to Water Valve
(Note loop of tubing necessary for cabinet movement)

This allows movement for the refrigerator without disconnecting the tubing. Other routing methods are shown on page 2-8.

4. Slide the brass nut and sleeve onto the 1/4″ copper tubing. Insert the end of the tubing into the saddle valve as far as it will go and tighten the nut with an adjustable wrench. Turn off the saddle valve.



5. Turn ON the main water supply and flush out the water pipe until water runs clear. At the same time, check for leaks at the saddle valve. After the water has cleared, flush out the tubing from the saddle valve to the water valve into a bucket by turning the saddle valve on. When the water has cleared, turn off the saddle valve.

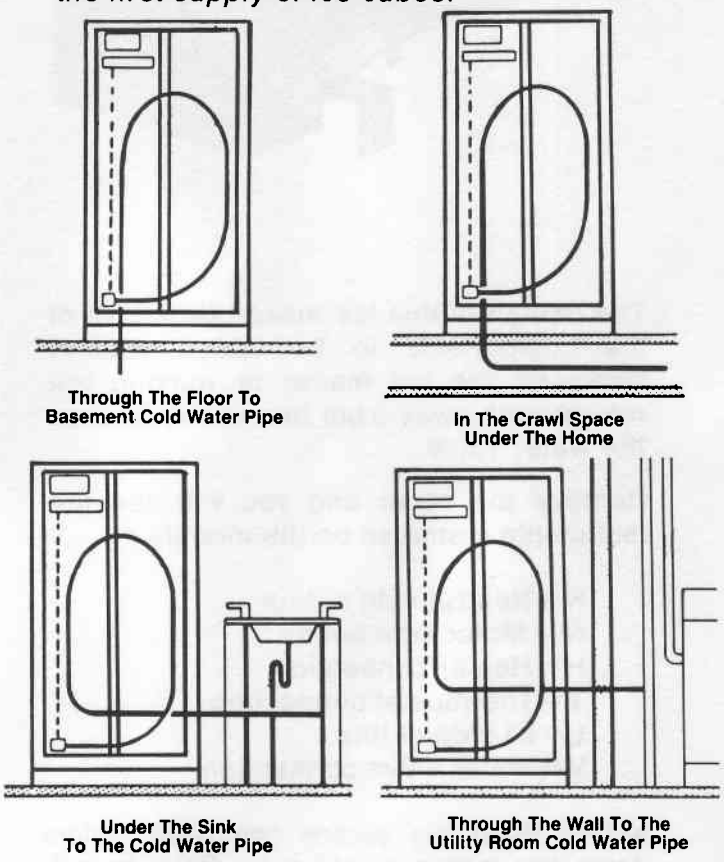
6. Connect the water line from the saddle valve to the water valve as shown in steps 4 and 5. (Also see drawing in step 3.) Insert the water line into the compression union as far as it will go. Tighten each brass nut with one wrench on the nut and the other wrench on the compression union. Rotate water line to vertical. Secure water supply line clamp with one type "C" screw. Tighten hose nut with pliers.

7. Turn on saddle valve. Tighten any connections that leak.

8. Close the hinged access panel and secure with screw.

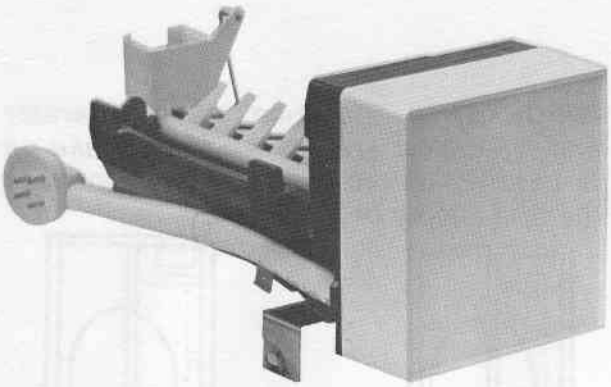
9. Plug in the power cord and push the refrigerator to the wall, arranging the copper tubing so that it does not vibrate against the back of the refrigerator or against the wall.

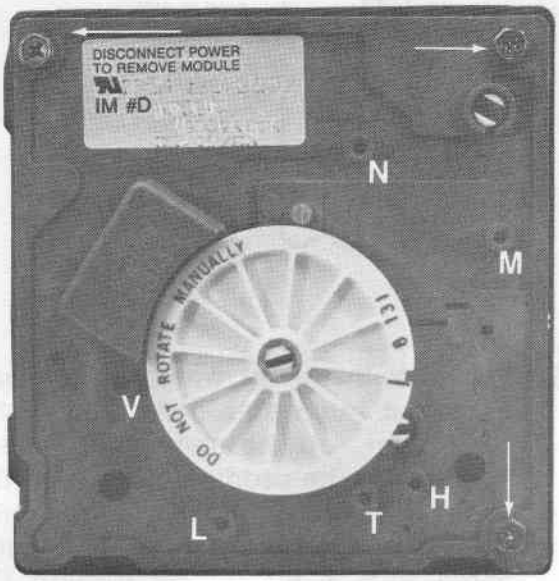
IMPORTANT: *Because the refrigerator and ice maker are warm. It may take up to 12 hours before the ice maker produces the first supply of ice cubes.*



Supply line connection to water valve. **NOTE:** loop tubing if necessary for cabinet movement.

SERVICING





The design of this ice maker allows all of the components to be tested without removing the ice maker or moving the refrigerator away from the wall to access the water valve.

Remove the cover and you will see the test points identified on the module.

N = Neutral side of line
M = Motor connection
H = Heater connection
T = Thermostat connection
L = L1 side of line
V = Water valve connection

NOTE: Read this section completely before doing any testing or adjusting. Refer to tech sheet for complete testing information.

The test holes are identified as "N," "M," "V," etc.

TEST PROCEDURES

Ice Maker Plugged In To Power
Shut-Off Arm Down-Freezer Cold

- Test points L & N will verify 120 volts to Ice Maker module.

  (Make sure your test probes go into the test points 1/2".)

- Test points T & H will verify if the bimetal thermostat is open or closed.

  Short T & H with an insulated piece of wire (14 gauge) to run the motor. If the motor doesn't run, replace the module assembly.

  If the motor runs, replace the bimetal thermostat.

- If you leave the jumper in for a half of a revolution, you can feel the heater in the mold heat up..if it's good.

  Remove the jumper and the water valve will be energized in the last half of the revolution.

(Make sure that the freezer temperature is cold enough to close the bimetal.)

NOTE: Do not short any contacts other than those specified. Damage to ice maker can result.

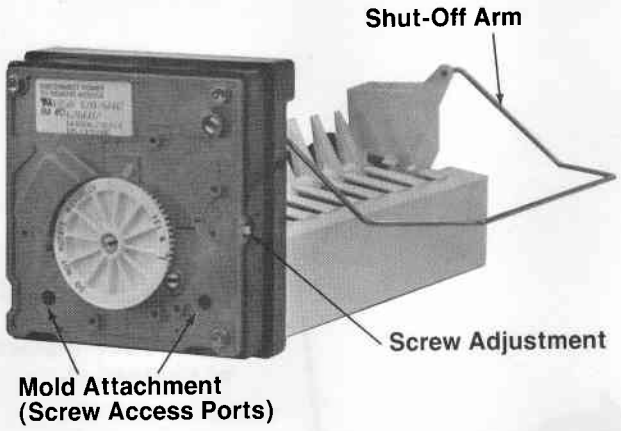
Ice Maker Unplugged

- Test points L & H will check the resistance of the heater (72 ohms). Replace the mold and heater assembly if not near this value (+ or - 10 ohms).

  (Ejector blades should be at the end of the cycle position.)

SERVICE PROCEDURES

COVER -
Pull water adjustment knob first and snap off cover. Index knob and reinstall in same position for same water fill.
(Some units may not have index knobs.)



MODULE, MOTOR AND SUPPORT ASSEMBLY -
Insert phillips driver in access ports in module. Loosen both screws. Disconnect shut-off arm. Pull mold from support assembly. To remove module only, remove 3 phillips screws and pull module out of housing.

SHUT-OFF ARM -
Pull out from white bushing. Reinsert to full depth. See page 6-15 for detailed procedure.

MOLD & HEATER -
Remove module and support assembly. Install on new mold & heater assembly.

BIMETAL -
Remove module and support assembly. Pull out retaining clips with bimetal. See page 6-14 for detailed explanation.

FILL CUP -
Remove module and support assembly. Remove ejector blades and shut-off arm. Pull fill cup up from mold. See page 6-16 for complete procedure.

EJECTOR BLADES OR STRIPPER -
Remove module and support assembly. When reinstalling ejector blades, realign "D" coupling with module cam.

ACCESSING THE CONTROL BOX

To remove motor and contact assembly from control box, take out 3 screws (arrows) and pull free after disconnecting the shut-off arm.



CAUTION

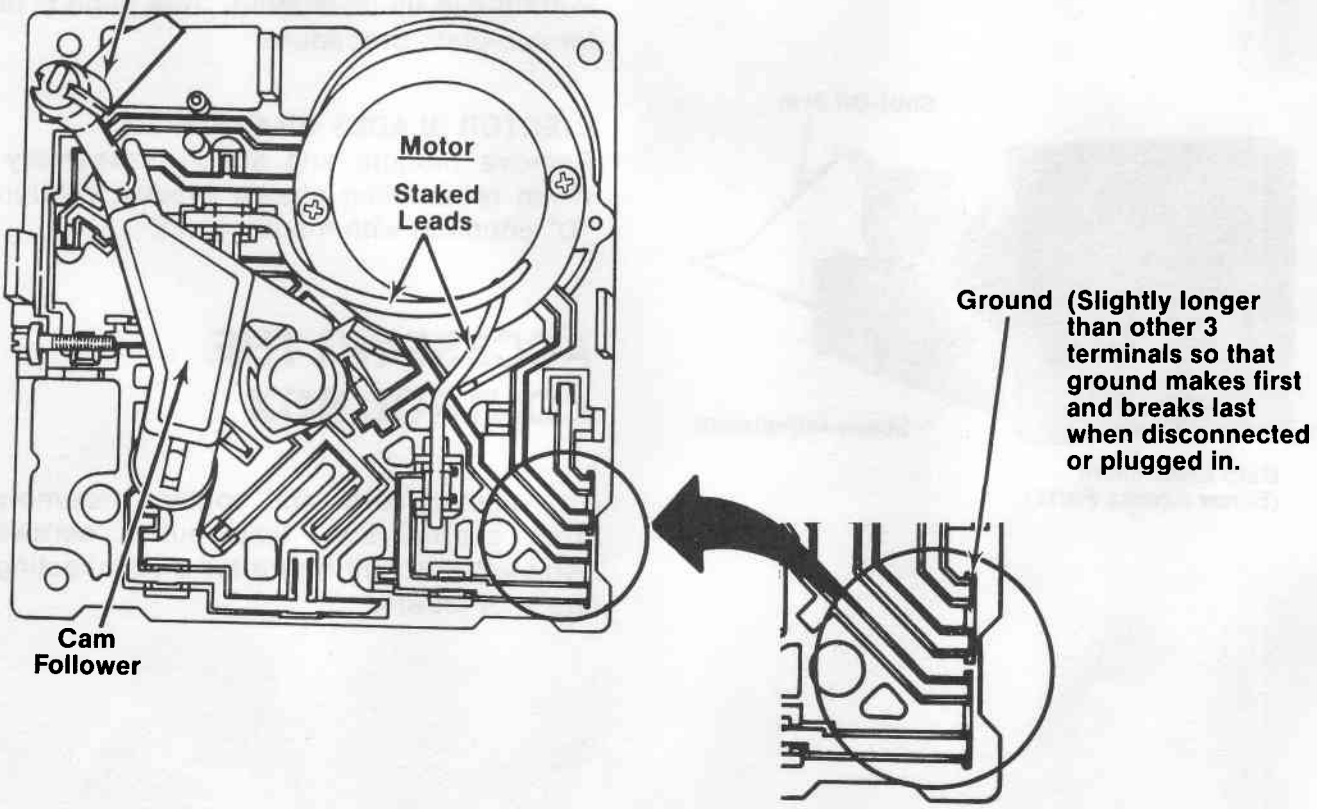
NEVER ROTATE THE BLADE OR THE DRIVE GEAR...IT WILL RUIN THE MAIN ASSEMBLY.

There are several switches which will jam if manually turned counterclockwise and the gears will be destroyed if turned clockwise.) If you need to advance the ice maker into the cycle, use a jumper to bridge H to T and unless the motor is defective, it will run. (The shut-off arm must be in the "On" position.)

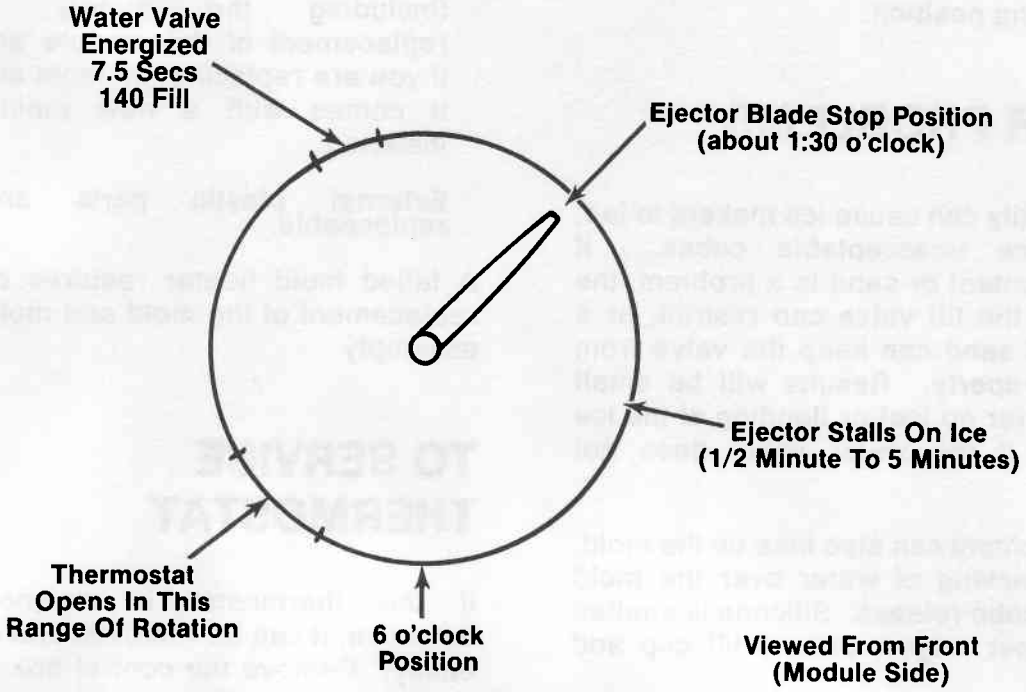
NOTE: There are several slotted shafts on the motor assembly board. Do not under any circumstances insert a screwdriver and attempt to turn these shafts. The slots are to permit assembly only.

NOTE: There are no repairable or replaceable components in the module. Unless you are replacing the module, there should be no need to remove it when diagnosing or repairing the ice maker.

MODULE COMPONENTS



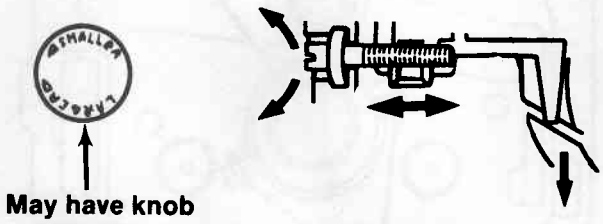
WHAT HAPPENS DURING BLADE ROTATION



NOTE: Do not test if blades are past rest position.

WATER FILL ADJUSTMENT

Turning the water level adjustment screw will move the contact in its relationship with the contact ring segment. This causes the contact to vary the time that the water valve is energized, since the contact ring is tapered at the end of the fill time.



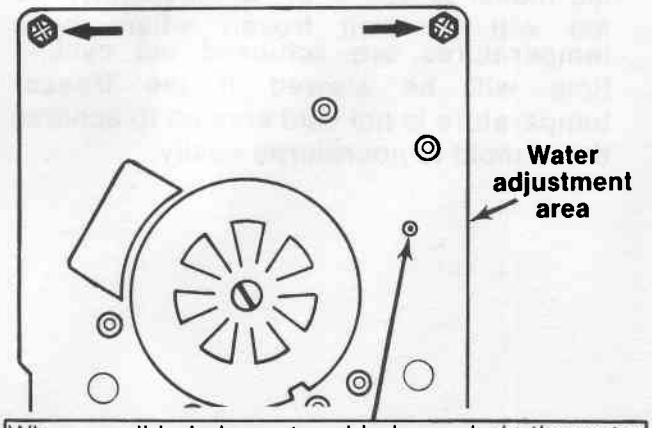
Turning the knob or screw clockwise decreases fill; counterclockwise increases the fill amount.

Only one revolution is possible with the cover on due to a stop molded on cover.

360° will affect fill by 40cc. 180° varies the fill by 20cc.

Further adjustment could damage module.

If water valve adjustment screw falls out, just put it back in and align the hole in the hole as shown.



When small hole is centered in larger hole the water fill adjustment is for 7.5 seconds fill time (normal).

NOTE: Some ice makers will have a water adjustment knob. Pull off the knob to remove cover. Be sure to replace knob in same setting position.

WATER PROBLEMS

Water quality can cause ice makers to fail, or produce unacceptable cubes. If mineral content or sand is a problem, the screen in the fill valve can restrict, or a particle of sand can keep the valve from seating properly. Results will be small crescents (or no ice) or flooding of the ice container if the water valve does not close.

Mineral content can also lime up the mold, causing wicking of water over the mold and poor cube release. Silicone is applied at the upper edges, around fill cup and stripper.

TEMPERATURE PROBLEMS

Temperatures in the freezer section which average above the normal 0° +-5° will slow the production of ice. Complaints of inadequate crescent production may be corrected by simply setting the freezer to a colder temperature. The thermostat cycling temperature in this 1-revolution ice maker is 17° + or -3. Obviously, the ice will be well frozen when these temperatures are achieved but cycling time will be slowed if the freezer temperature is not cold enough to achieve these mold temperatures easily.

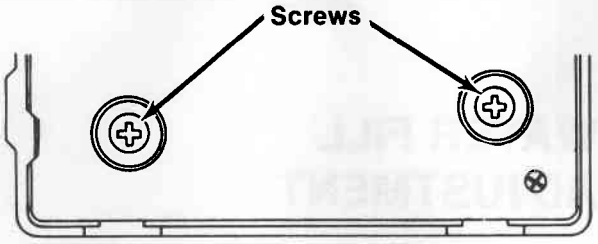
NOTE: Only the thermostat, mold, with heater & wiring harness are replaceable. Any other failure (including the motor) requires replacement of the module assembly. If you are replacing the mold assembly, it comes with a new mold heater installed.

External plastic parts are also replaceable.

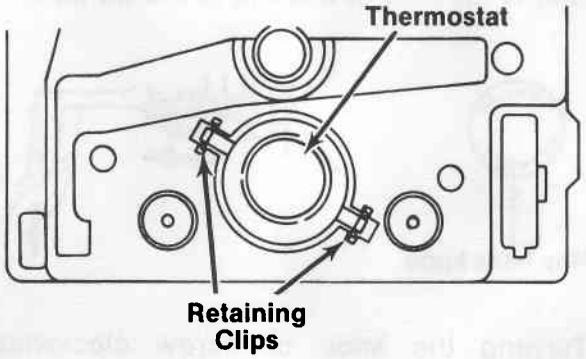
A failed mold heater requires complete replacement of the mold and mold heater assembly.

TO SERVICE THERMOSTAT

If the thermostat is diagnosed as defective, it can be removed and replaced easily. Remove the control box from the mold by taking out two Phillips screws.



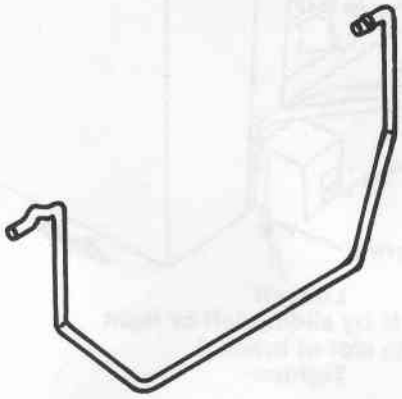
Pull the housing free of the mold, and you will see the thermostat on mold side.



Using needle nose pliers, grasp one of the thermostat clips and pull out. Press in new thermostat, making sure that pins are properly indexed. Using this procedure, it is not necessary to remove the electrical assembly. If you are replacing the module, transfer the clips to the new mold support. (Use new thermal bonding material.)

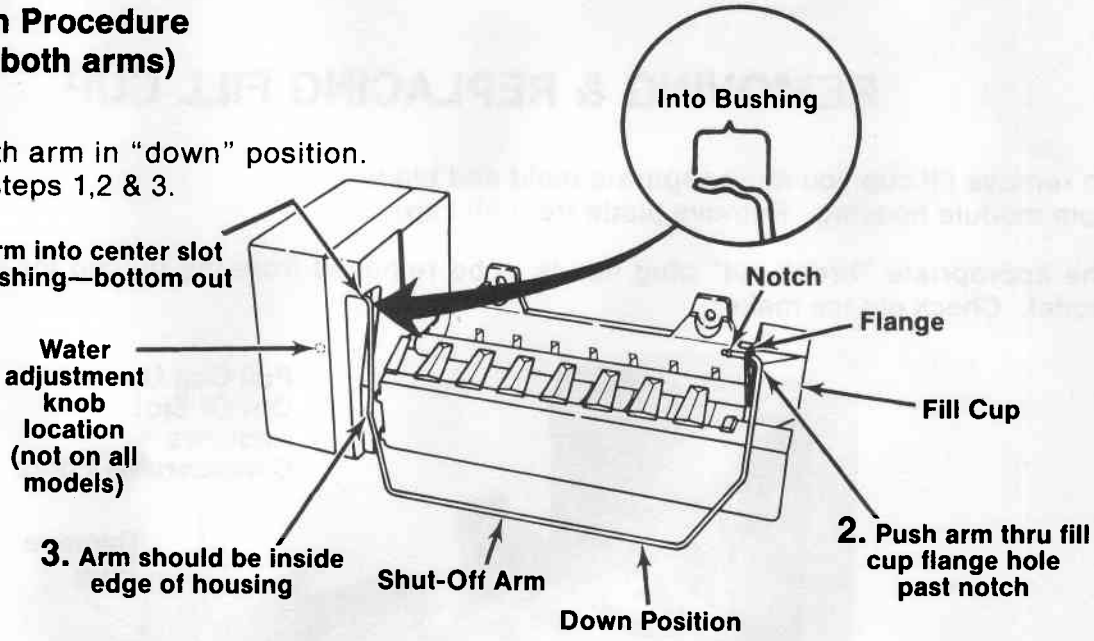
SHUT OFF ARM

SHORT ARM—REGULAR I/M



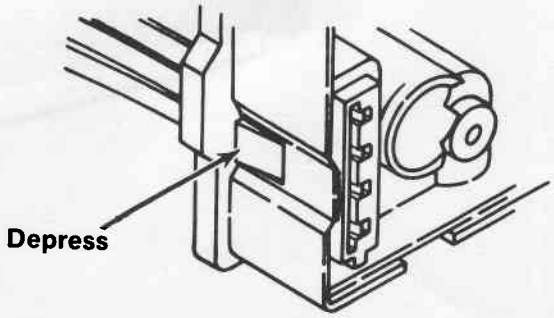
Installation Procedure (Same for both arms)

1. Start with arm in "down" position.
2. Follow steps 1,2 & 3.



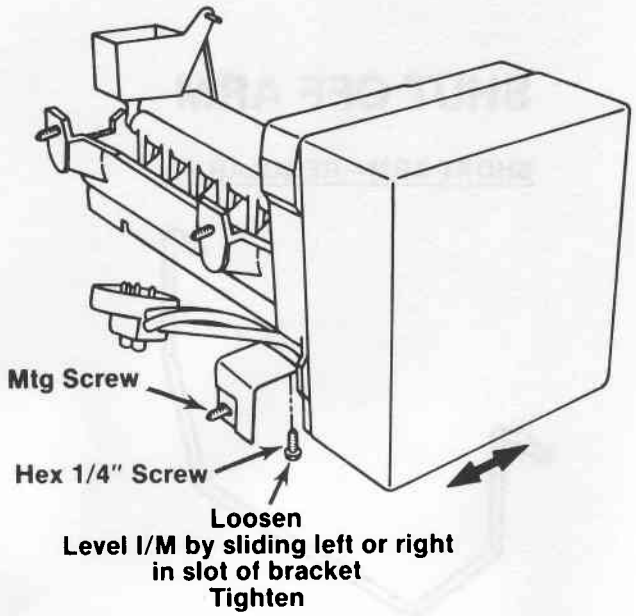
TO SERVICE HARNESS

To remove the wiring harness, depress the retaining tab and pull the plug free.



LEVELING OF ICEMAKER

Assure uniform ice crescents

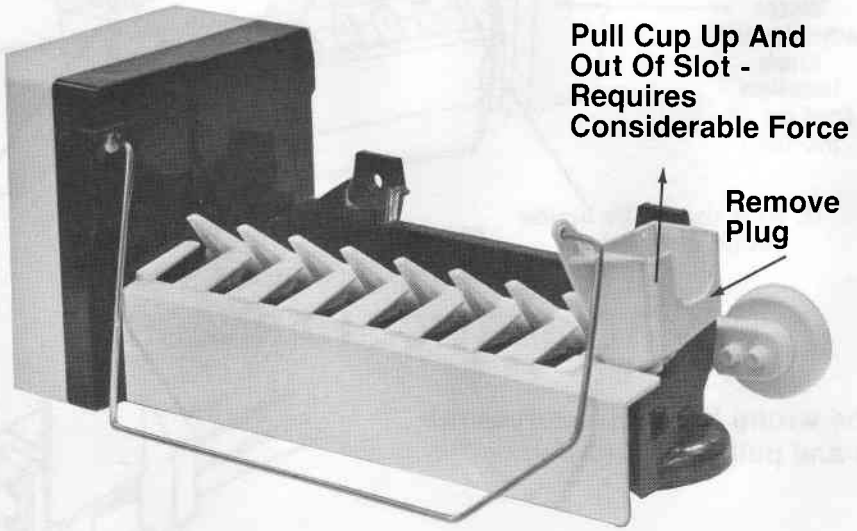


Make sure refrigerator is level front to back (Adjust legs or rollers.)

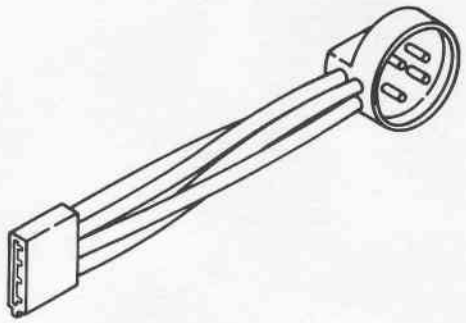
REMOVING & REPLACING FILL CUP

To remove fill cup you must separate mold and blade from module housing. Remove blade from fill cup.

The appropriate "break-out" plug needs to be removed from the fill cup for your specific model. Check old ice maker.



WIRING HARNESS



This harness plugs directly into liner receptacle.

OTHER INFORMATION

Motor connectors can be damaged if leads are removed.

The motor is available only as part of the complete module assembly.

One (1) revolution of blade takes 3 minutes (+ stall time on ice).

Bench test cord can be made from cabinet socket.

Tan & black wires on socket plug are water valve leads.

SPECIFICATIONS

MOLD HEATER	185 Watts, 72 ohms
THERMOSTAT (BIMETAL)	Close 17° (+ -) 3°
	Open 32°(+ -) 3°
WATER FILL	125cc, 7.5 seconds
MOTOR	3 Watts, 4400 ohms
MODULE	Stamped circuit, Plug-in connectors
CYCLE	One revolution (ejects & water fill)

MAYTAG



SECTION 7

TROUBLE SHOOTING

TOP MOUNT AND SIDE-BY-SIDE MODELS

TROUBLE	POSSIBLE CAUSE	REMEDY
A. Unit does not run. No light in refrigerator.	1. No power at AC distribution panel of house. 2. AC outlet. a. Defective outlet. b. Open circuit to AC outlet. 3. Defective service cord plug. 4. Open service cord or open machine compartment wiring harness. 5. Two simultaneous problems - light bulb out and open AC circuit to compressor.	1. Check and advise customer to call an electrician. 2. a. Advise customer to have defective outlet replaced. b. Replace fuse. If problem not corrected, advise customer to call electrician. 3. Replace. 4. Repair or replace if necessary. Refer to wiring diagrams and check circuit. 5. Replace light bulb. Refer to wiring diagrams and check circuit.
B. Unit does not run, light in refrigerator works.	1. Temperature control. a. Defective or misadjusted. b. AC circuit open to control. 2. Defrost timer. a. Defective (contacts completing compressor circuit are open). b. AC circuits open to timer (motor winding or contacts). c. May be defrosting. 3. Overload protector. a. AC circuit open to overload. b. Defective overload. 4. Starting relay. a. AC circuit open to coil (overload does not click). b. Defective relay. 5. Compressor motor. a. AC circuit open to compressor. b. Defective compressor (overload may or may not click depending upon what is wrong with compressor). 6. Low line voltage (overload will click on and off as unit tries to start). 7. Complete or possible partial restriction under high ambient (cycles on overload protector after unit stops and tries to restart).	1. a. Replace or adjust if necessary. b. Refer to wiring diagrams and check circuit. 2. a. Replace. b. Refer to wiring diagrams and check circuit. c. Repair or replace. 3. a. Refer to wiring diagrams and check circuit. b. Replace 4. a. Refer to wiring diagrams and check circuit. b. Replace 5. a. Refer to wiring diagrams and check circuits. b. Replace. 6. Check voltage. Must be at least 100V with all other load on the line. 7. See "Checking operating pressure".
C. Unit runs excessively or continuously.	1. Check to insure light does not stay on continuously. 2. Dirty or restricted condenser. 3. Defective cold control. 4. Condenser fan not running.	1. Check light switch and replace if needed. Check door adjustment. 2. Advise customer that it must be cleaned at least periodically. 3. Repair or replace. 4. Repair or replace.
D. Unit does not run for period of time after defrost.	1. Defrost timer is defective (does not advance to cool cycle).	1. Replace.

TROUBLE	POSSIBLE CAUSE	REMEDY
E. Unit runs continuously but there is no cooling in refrigerator and freezer compartments.	1. Substantial loss of sealed system charge (low wattage readings). 2. Restricted capillary or drier on high side (low wattage readings while running). Will cycle on overload when unit tries to start after defrost cycle, or after having been shut off and restriction is still present. 3. Defective compressor.	1. Locate and repair leak before recharging. 2. Replace defective part or parts. 3. Repair or replace.
F. Unit runs continuously. The refrigerator and freezer compartment are both too cold (normal wattage reading).	1. Temperature control is defective (shorted contacts or not adjusted. 2. Freezer control not adjusted properly.	1. Replace or adjust as required. 2. See "Freezer Cold Control" for proper adjustment.
G. Unit runs continuously. Refrigerator compartment not cold enough but freezer compartment is colder than normal.	1. Air duct from freezer to refrigerator is blocked (normal wattage readings).	1. Remove what is blocking the air duct. See "Air Flow Diagram".

TROUBLE	POSSIBLE CAUSE	REMEDY
H. Unit runs excessively or continuously. The refrigerator and freezer compartments are cooling but are not cold enough.	1. Freezer fan. a. Defective fan motor. b. AC circuit to fan open (lower wattage readings).	1. a. Replace. b. Refer to wiring diagrams and check circuit.
	2. Not defrosting (lower wattage readings than normal and frost build-up on evaporator). a. Defective defrost timer, defrost heater or defrost terminating thermostat. b. AC circuit to defrost system open.	2. a. Replace defective part or parts. b. Refer to wiring diagrams and check circuit.
	3. Temperature control. a. High setting of temperature control may result in these conditions under very severe environmental and usage conditions (high humidity and large number of freezer and refrigerator door openings).	3. a. Check and adjust for proper setting.
	4. Sealed system. a. Overcharge (high wattage readings). b. Undercharged (low wattage readings). c. Partial restriction.	4. a. Evacuate and recharge with proper amount of refrigerant. b. Check and see "Checking Operating Pressure". c. Check and see "Checking Operating Pressure".
	5. Compressor motor defective. Inefficient compressor (low wattage readings).	5. Replace.
	6. Condenser fan. a. AC circuit to fan open (high wattage reading). b. Defective fan (high wattage reading).	6. a. Refer to wiring diagrams and check circuit. b. Replace.
	7. Lint build-up on condenser, or improper ventilation of condenser (high wattage reading).	7. Clean and advise customer.
	8. Too much warm food placed in refrigerator at one time.	8. Advise customer.
	9. Air (no leak) in sealed system.	9. Replace drier and evacuate system thoroughly, recharge with proper amount of refrigerant.
	10. Separation of heat exchanger.	10. Install Heat Exchanger Separation Kit, RA43302.

TROUBLE	POSSIBLE CAUSE	REMEDY
I. Unit runs excessively. Refrigerator compartment eventually gets cold enough but freezer compartment is too cold.	1. Partial restriction in air duct from freezer to refrigerator. 2. Freezer cold control setting too cold. 3. High usage of refrigerator, especially in high ambient. 4. Freezer light shield not in place.	1. Check and remove what is causing the restriction. See "Air Flow Diagram". 2. Adjust control for proper adjustment, see "Freezer Cold Control". 3. Advise customer. 4. Replace light shield.
J. Unit runs excessively. The refrigerator compartment and freezer compartment both too cold (normal wattage readings).	1. Setting of temperature control too high for prevailing environmental and usage conditions. 2. Defective temperature control.	1. Reset control. 2. Replace.
K. Unit runs excessively but temperature appears to be normal in refrigerator.	1. Door seals may be leaking. 2. Problem is one of customer usage and education with severe environmental conditions after confirmation by a temperature recording. Frequent door openings. 3. Light may stay on constantly in refrigerator. 4. Inefficient compressor.	1. Adjust door or replace door gasket. 2. Advise customer. 3. Check light switch and replace if needed. Check door adjustment. 4. Replace.
L. Short running cycle. Refrigerator and freezer compartment are cooling but are not cold enough.	1. Temperature control. a. Defective control (normal wattage readings). b. Improper setting of temperature control for prevailing environmental and usage conditions. 2. Air circulation. a. Ventilation around condenser is blocked. b. Condenser fan is defective. c. Condenser is dirty. d. AC circuit to condenser fan is defective (high wattage readings, unit may be cycling on the overload protector). 3. Compressor motor defective (high wattage readings. Unit may be cycling on the overload protector). 4. High resistance contacts or too many broken wire strands in compressor motor AC circuit (high wattage readings, unit may be cycling on the overload protector). 5. Overload protector defective (normal wattage readings). 6. Too much warm food placed in unit at one time. May be cycling on overload.	1. a. Replace. b. Reset control. 2. a. Check and advise customer. b. Replace. c. Advise customer that it must be cleaned at least periodically. d. Refer to wiring diagrams and check circuit. 3. Replace. 4. Check and replace broken part. Refer to wiring diagrams and check circuit. 5. Replace. 6. Advise customer.

TROUBLE	POSSIBLE CAUSE	REMEDY
M. Unit runs and cycle about normally. Both compartments cooling, but not enough.	1. Defective or misadjusted temperature control.	1. Adjust control or replace if necessary.
N. Unit runs and cycles. Refrigerator is normal but freezer is not cold enough (normal wattage readings).	1. Poor freezer door seal. 2. Freezer air baffle control setting too warm. 3. Room temperature too cold. 4. Excessive freezer door openings. 5. Too much warm food placed in freezer at one time. 6. Few refrigerator door openings (low usage in low ambient temperature). 7. Check for refrigerant leaks.	1. Adjust door or replace if necessary. 2. Reset control. For proper setting see "Freezer Cold Control". 3. Advise customer. 4. Advise customer. 5. Advise customer. 6. Advise customer. 7. Repair or replace.
O. Run time normal. Refrigerator compartment is not cold enough but freezer compartment is normal or possibly colder than normal.	1. Air flow problem.	1. Check and remove what is causing the restriction. See "Air Flow Diagram".
P. Sweating but refrigerator and freezer are working normally otherwise.	1. Interior sweating. a. Bad door seals. b. Excessive door openings during hot humid weather. c. Storage of excessive uncovered liquids especially if they are inserted into refrigerator while warm. 2. Exterior sweating. a. Divider channel heater wire open. b. Void in insulation. c. Overcharged. d. Bad door seals. e. Condenser fan not running. f. Suction line touching the cabinet. 3. Wet insulation.	1. a. Replace. b. Advise customer. c. Advise customer. 2. a. Replace. b. Check and add insulation if possible. c. Evacuate system and recharge with proper amount of refrigerant. d. Replace. e. Check fan motor and replace part if needed. f. Bend line so it does not touch. 3. Replace.
Q. Excessive dehydration of foods.	1. Condition requires covering of food. 2. Sublimation of ice cubes is normal in no frost freezers but should not be a problem in these units equipped with covered ice storage bins.	1. Advise customer. 2. Advise customer.

TROUBLE	POSSIBLE CAUSE	REMEDY
R. Excessively noisy but works normally otherwise.	1. Refrigerator not level or firmly setting on all four corners. 2. Structural weakness in floor. 3. Compressor mounting defective. 4. Poor tubing dress. 5. Compressor operation is noisy due to inherent conditions. 6. Unit base mounting loose. 7. Defrost water pan rattles. 8. Freezer or condenser fan is noisy. May have defective motor. 9. Containers inside refrigerator rattle.	1. Level the unit, lower the leveling legs if necessary to make sure that unit is firmly on the floor. 2. Advise customer. 3. Check and replace if necessary. 4. Adjust tubes so they do not touch. 5. Advise customer. 6. Tighten loose part or parts. 7. Adjust pan or install foam pad if necessary. 8. Replace. 9. Advise customer.
S. Defrost water disposal problem.	1. Water frozen in drain trough (defective defrost timer, radiant heater or defrost thermostat). 2. Restriction in drain system. 3. May need heater kit installed in evaporator pan. 4. Separation of heat exchanger.	1. Replace defective part or parts. 2. Clean drain system. 3. Check and install part if needed. 4. Install Heat Exchanger Separation Kit, RA43302.

MAYTAG



SECTION 8

SCHEMATICS

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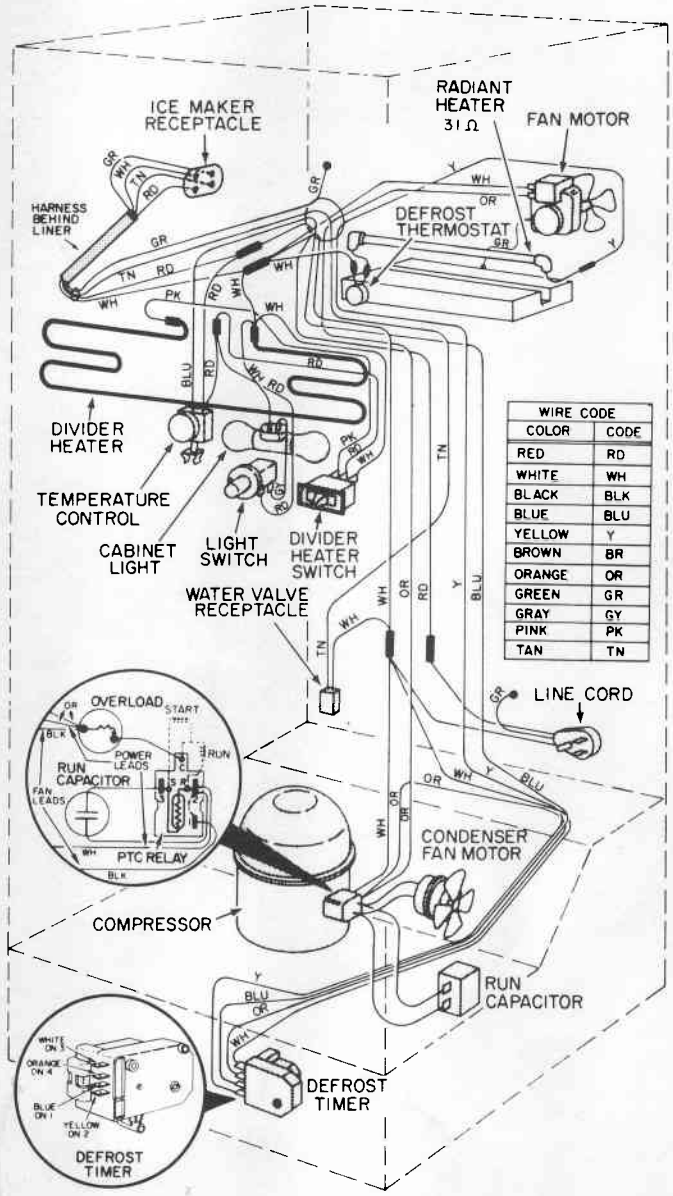
PICTORIAL WIRING DIAGRAM

Allow 10 percent tolerance on all resistances



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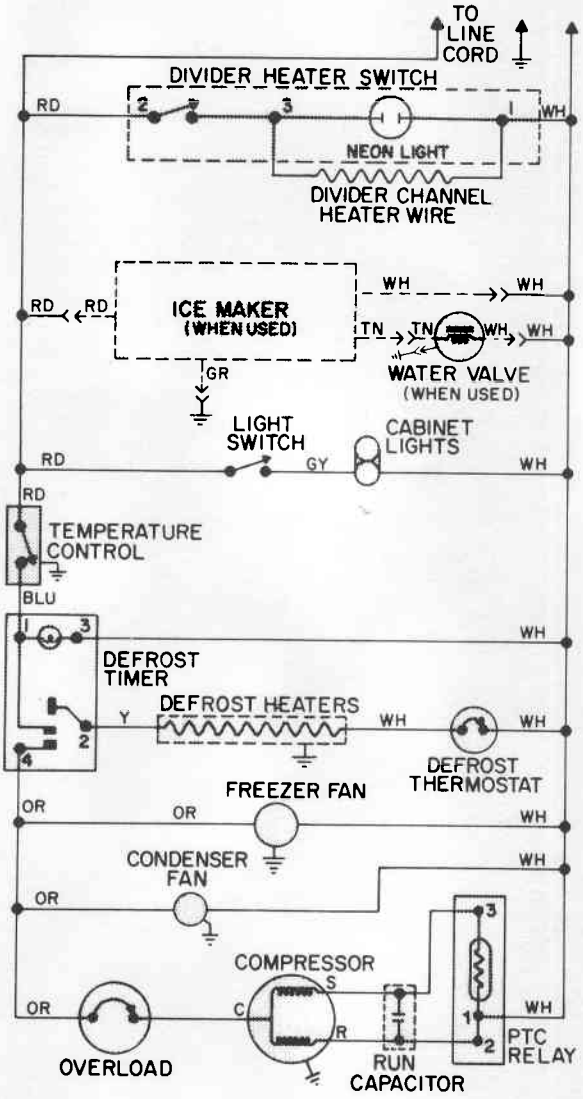
SCHEMATIC WIRING DIAGRAM



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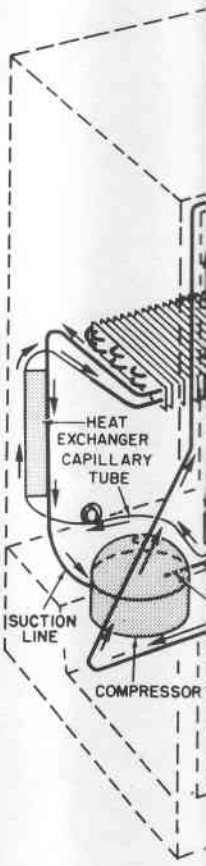


REFRIGE

5.0 oz.

CAUTION

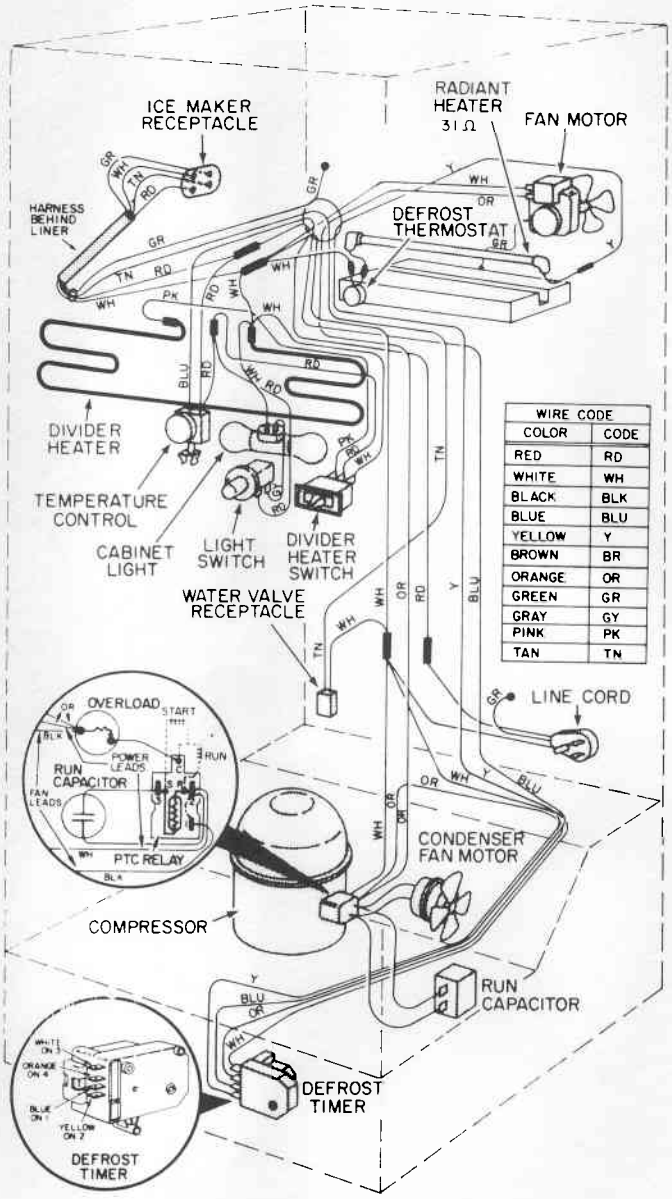
This information is intended for use by qualified service personnel only. Repairs performed by persons unfamiliar with this product could result in reduced performance or a safety hazard.

SEE SERIAL PLATE FOR SERIES NUMBER.

Model RTC15A

PICTORIAL WIRING DIAGRAM

Allow 10 percent tolerance on all resistances



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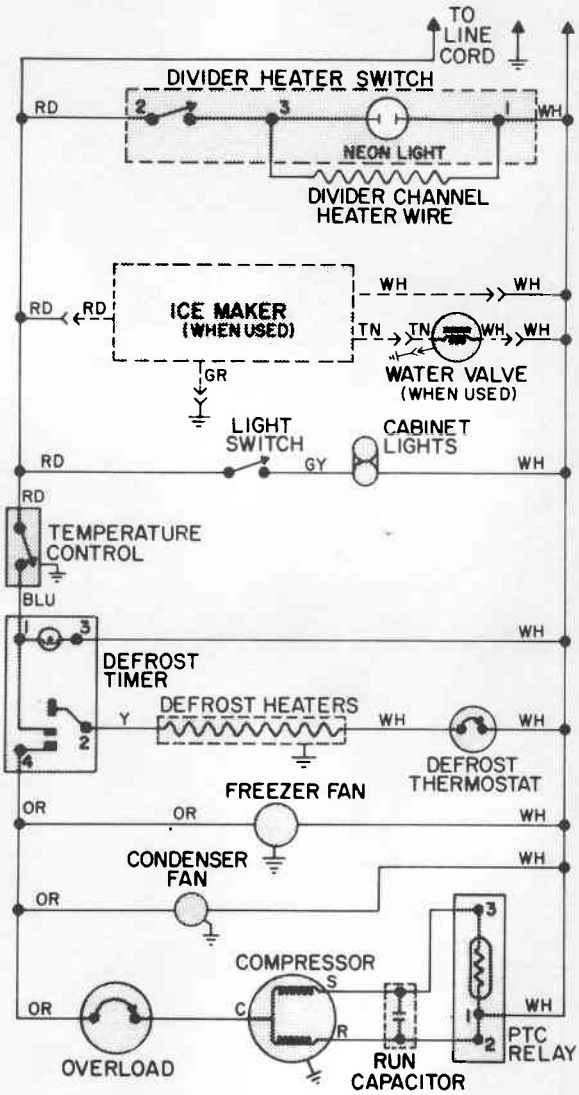
TAN	TN

SCHEMATIC WIRING DIAGRAM



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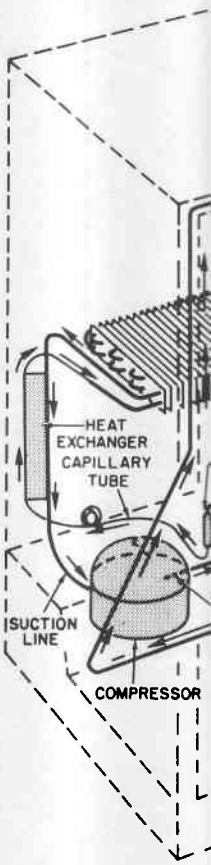

REFRIGE

5.0 oz.

CAUTION

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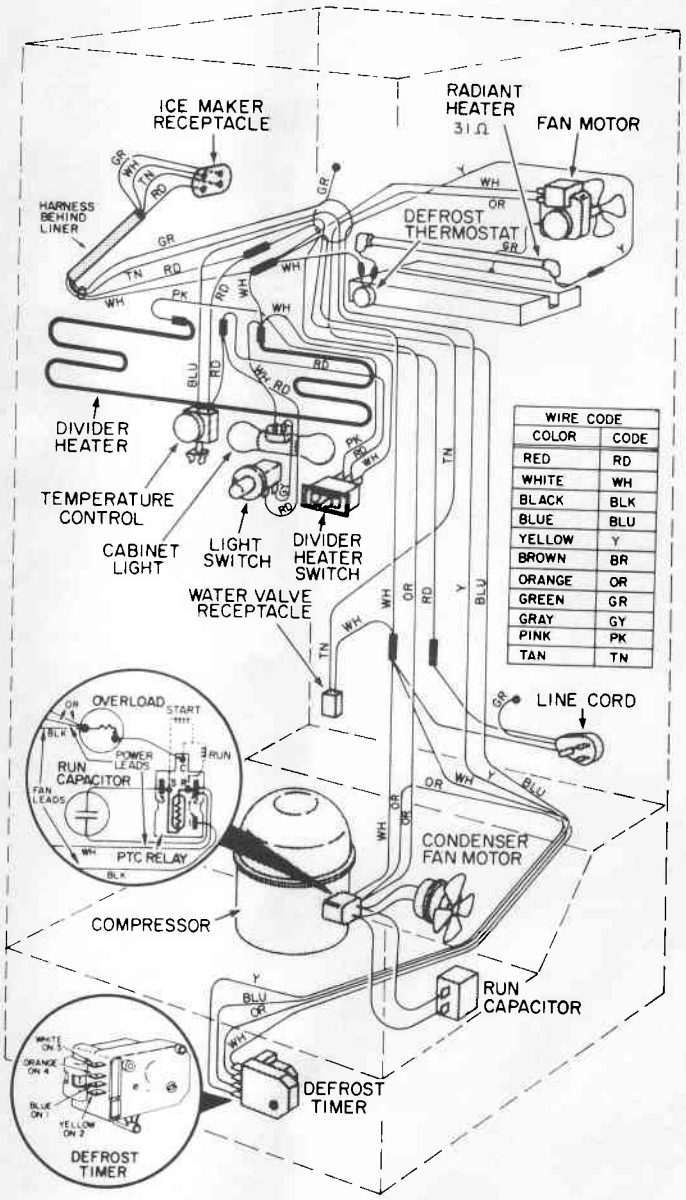
SEE SERIAL PLATE FOR SERIES NUMBE

Model RTS17

PICTORIAL WIRING DIAGRAM

Allow 10 percent tolerance on all resistances



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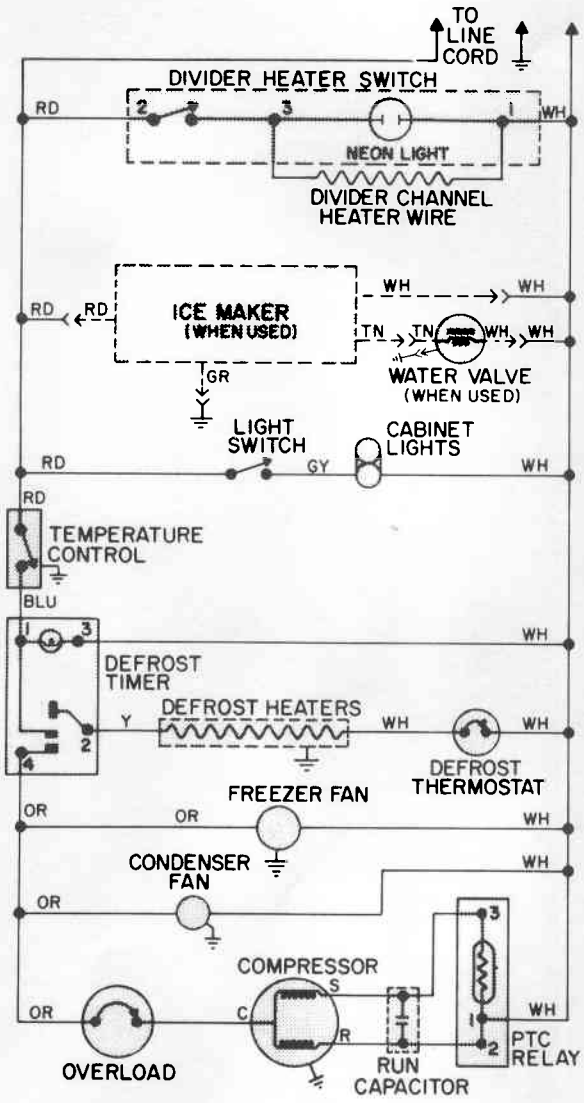

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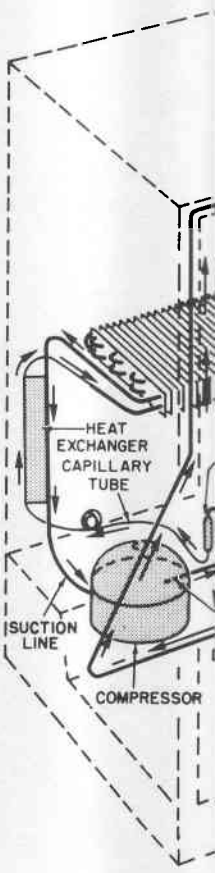

REFRIGE
5.0 oz.

CAUTION

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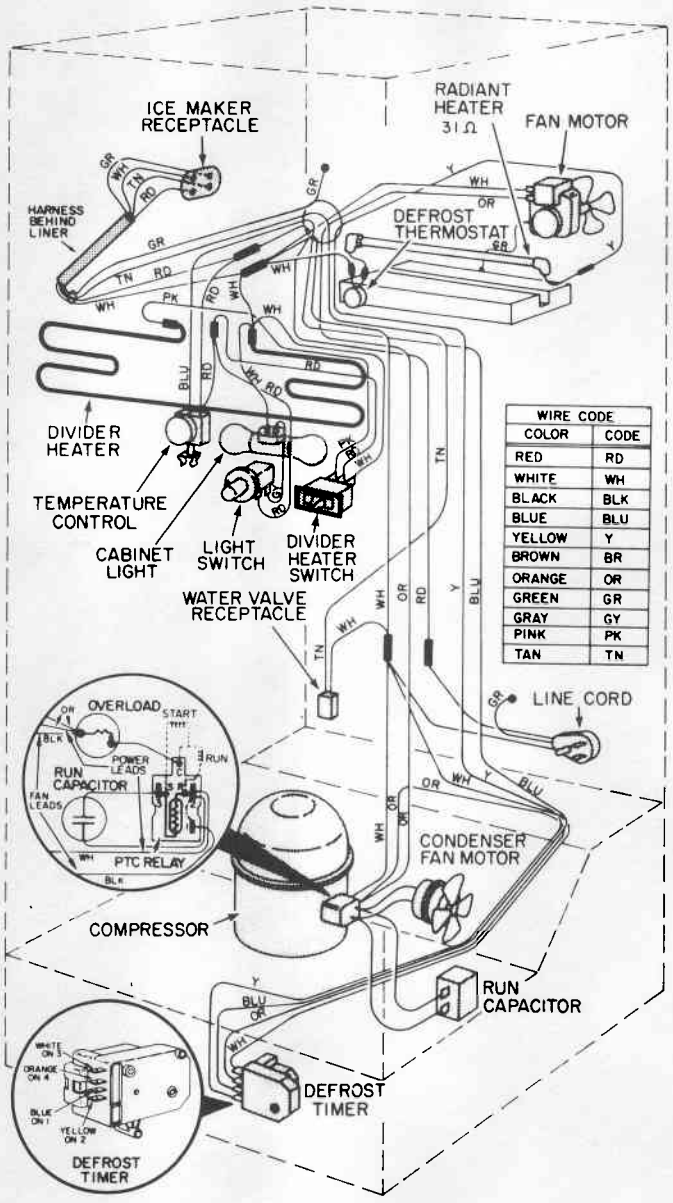
SEE SERIAL PLATE FOR SERIES NUMBER

Model RTC17

PICTORIAL WIRING DIAGRAM

Allow 10 percent tolerance on all resistances



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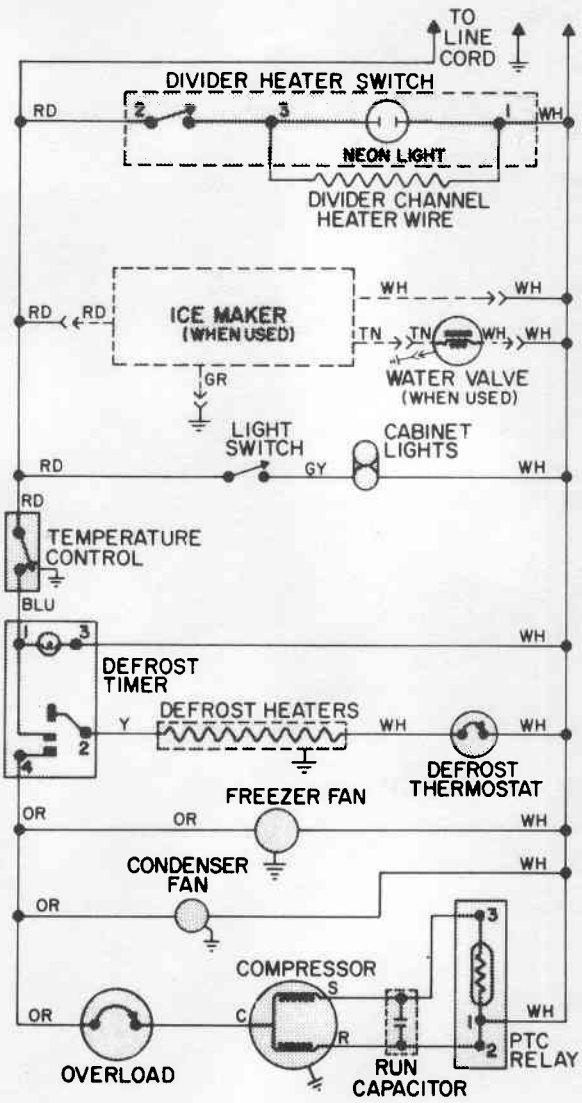
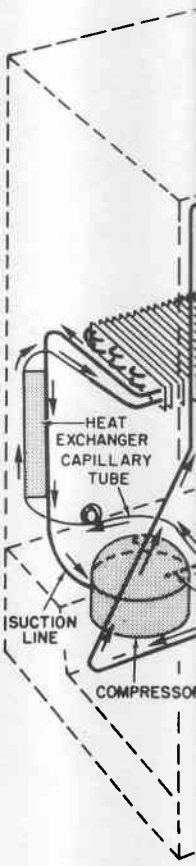
SCHEMATIC WIRING DIAGRAM





REFRIG
5.0 oz

CAUTION

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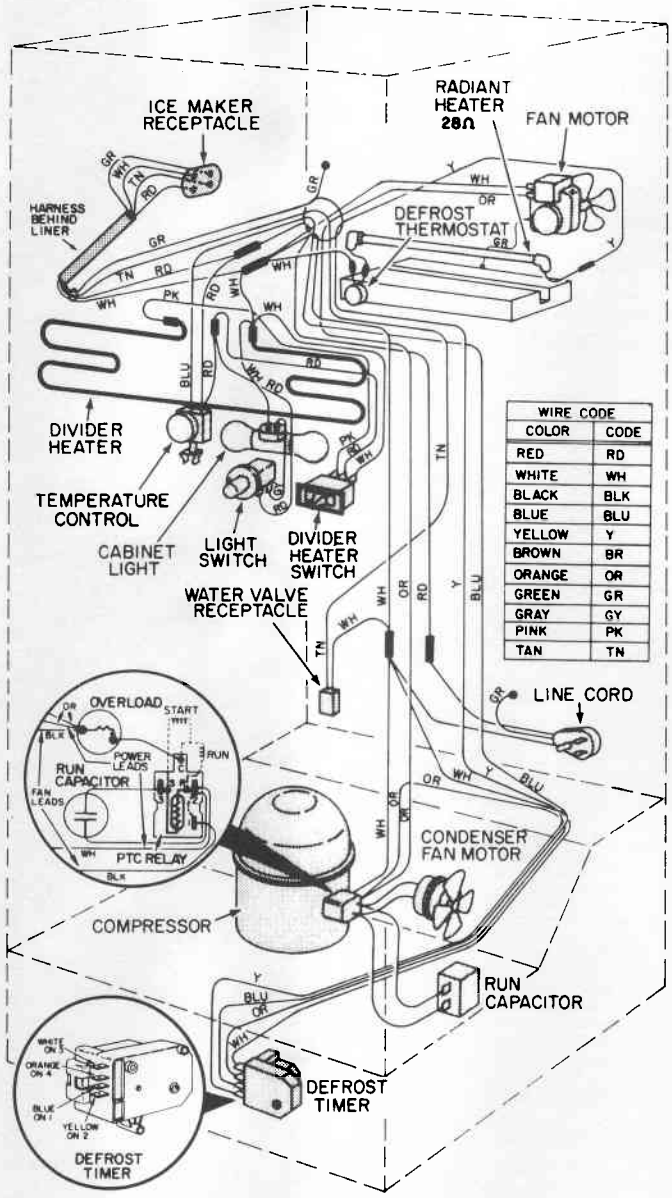
SEE SERIAL PLATE FOR SERIES NUMBE

Model RTD17

PICTORIAL WIRING DIAGRAM

Allow 10 percent tolerance on all resistances



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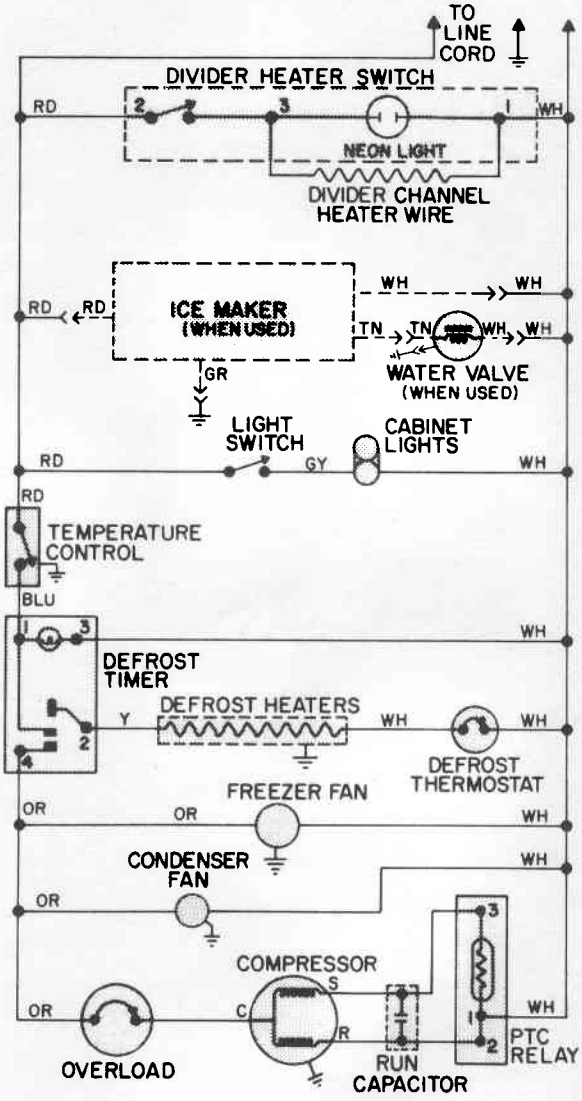

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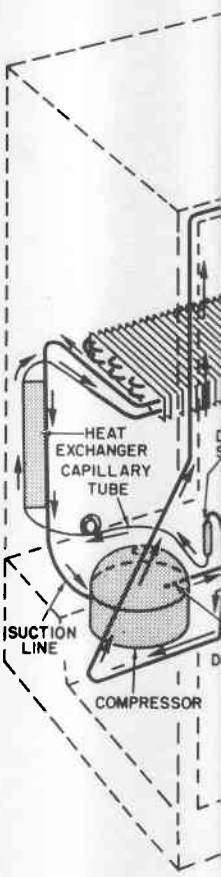

REFRIGER

5.0 oz. R

CAUTION

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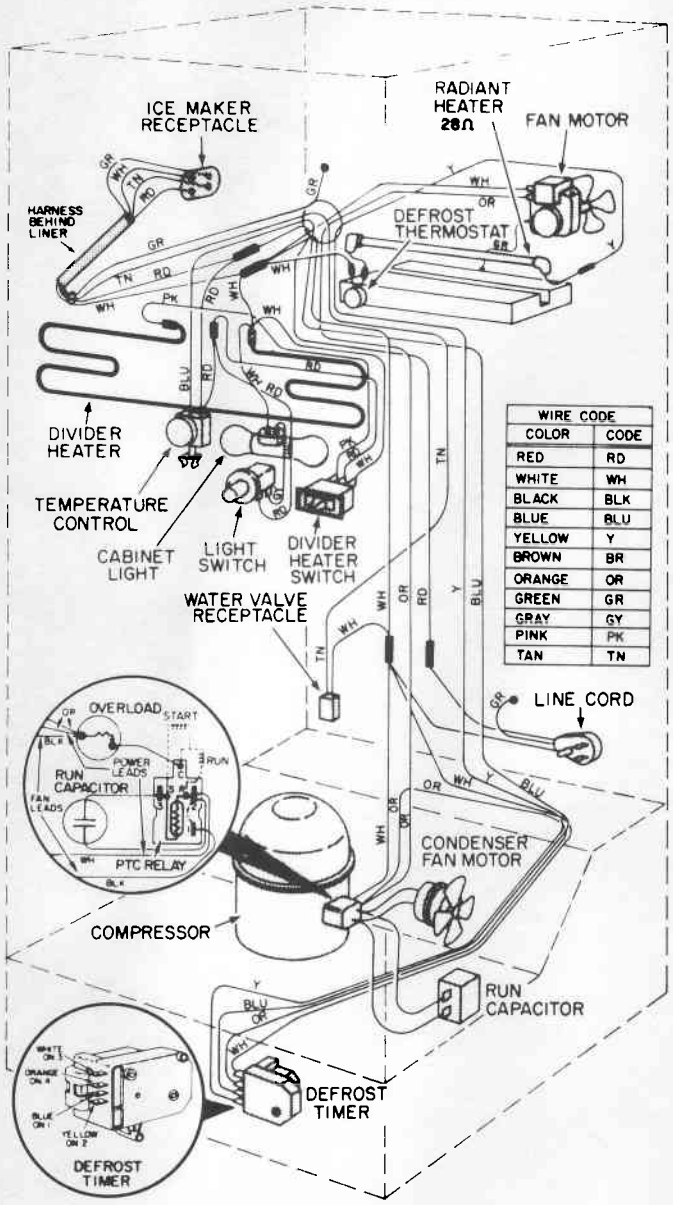
SEE SERIAL PLATE FOR SERIES NUMBER.

Model RTS19A

PICTORIAL WIRING DIAGRAM

Allow 10 percent tolerance on all resistances



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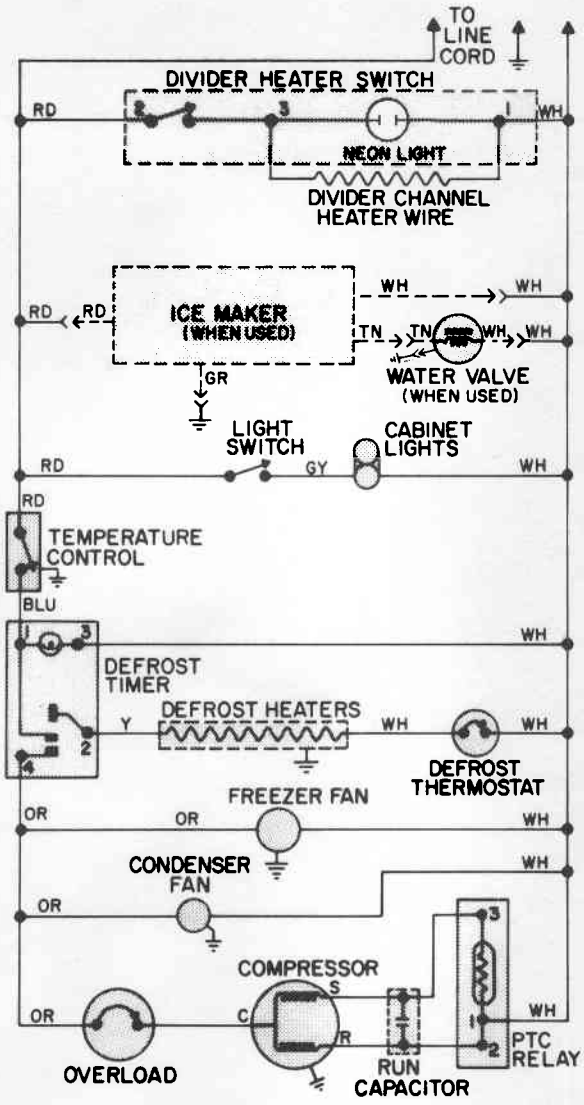

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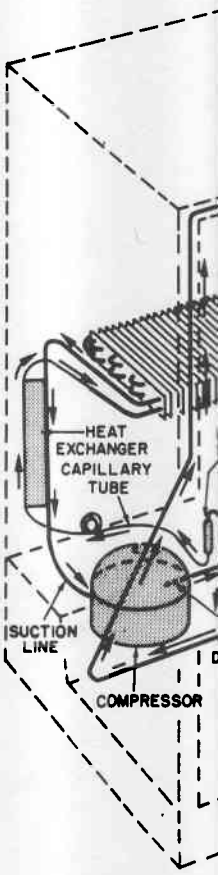

REFRIGER
5.0 oz.

CAUTION

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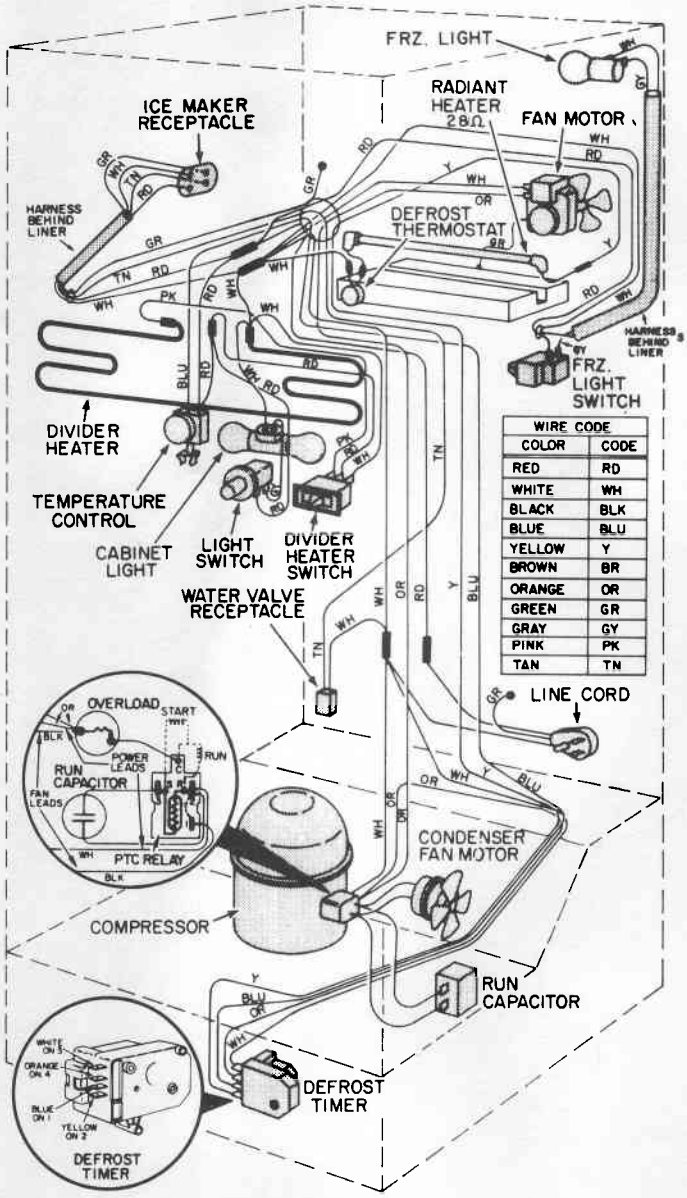
SEE SERIAL PLATE FOR SERIES NUMBER

Model RTC19A

PICTORIAL WIRING DIAGRAM

Allow 10 percent tolerance on all resistances



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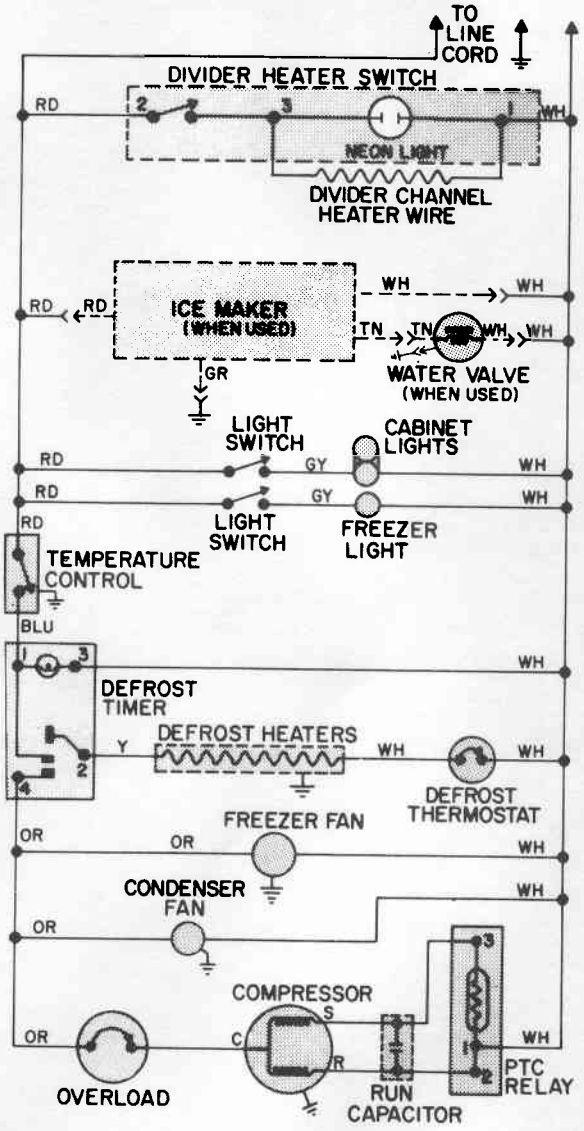
SCHEMATIC WIRING DIAGRAM



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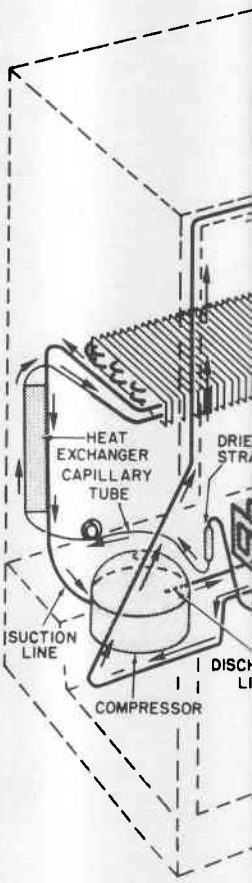

REFRIGE
5.0 oz.

CAUTION

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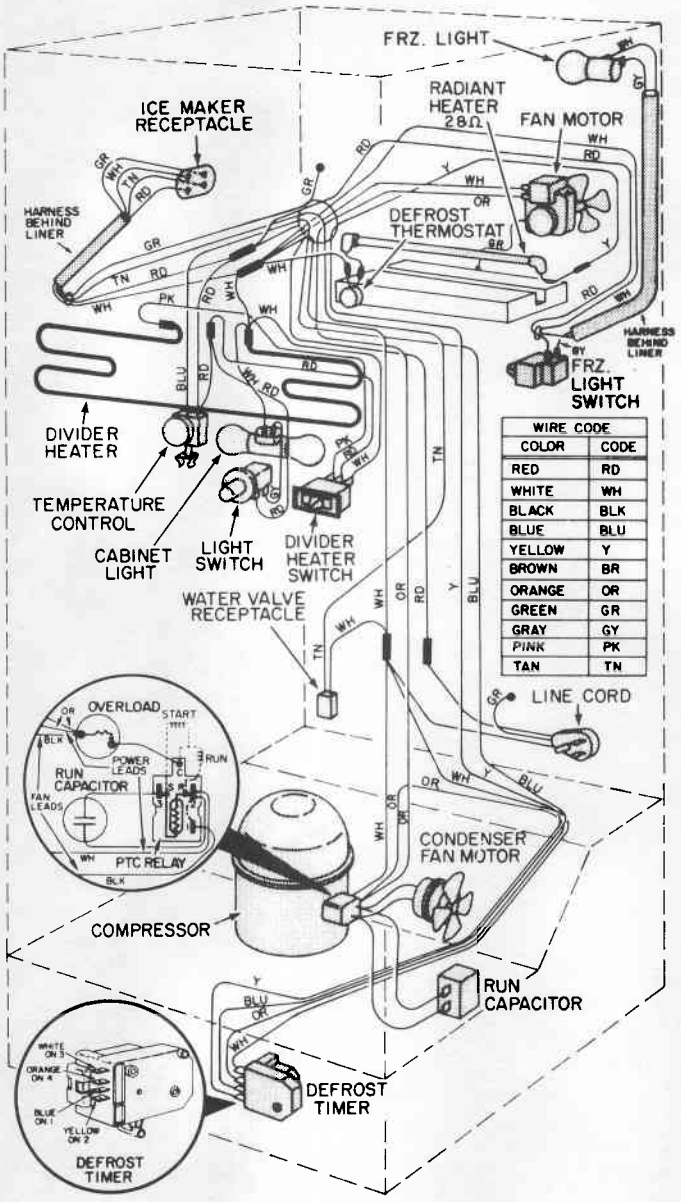
SEE SERIAL PLATE FOR SERIES NUMBER.

Model RTD19A

PICTORIAL WIRING DIAGRAM

Allow 10 percent tolerance on all resistances



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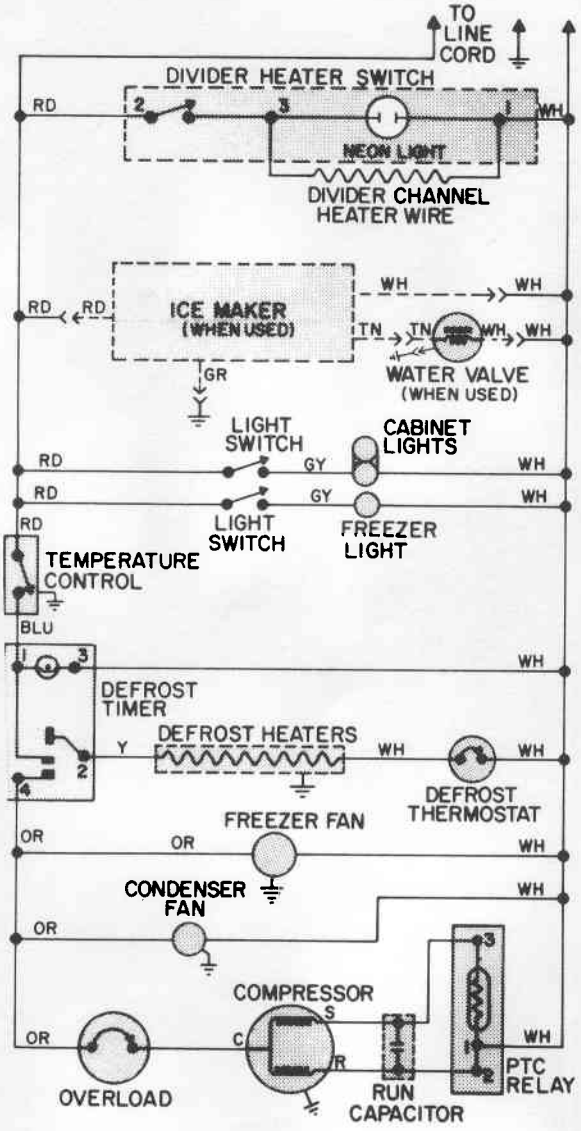
SCHEMATIC WIRING DIAGRAM



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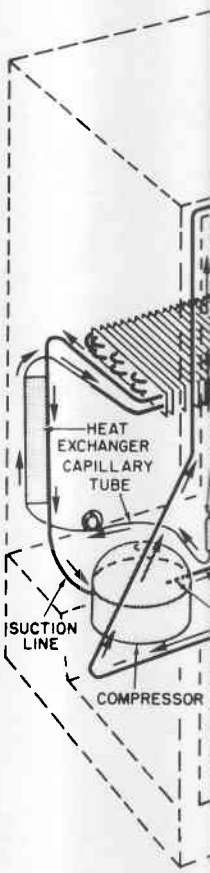


REFR
5.0

CAUTION

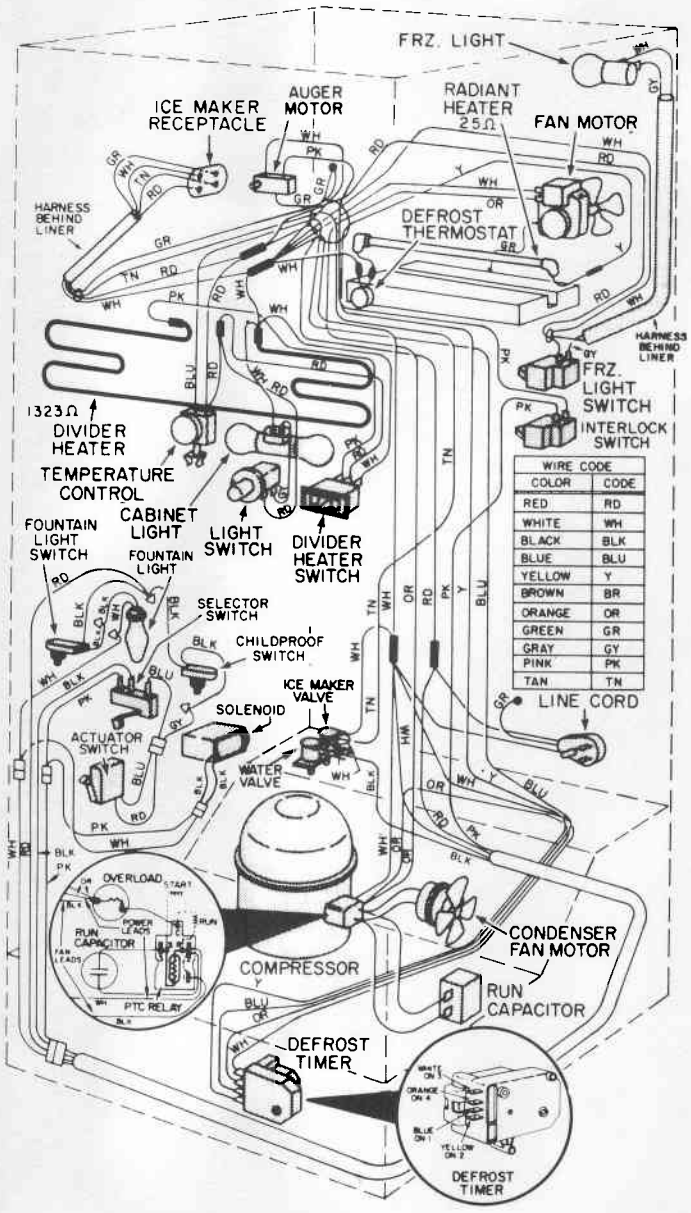
This information is intended for use by qualified service personnel only. Repairs performed by persons unfamiliar with this product could result in reduced performance or a safety hazard.

SEE SERIAL PLATE FOR SERIES NUMBE

Model RTD21

PICTORIAL WIRING DIAGRAM

Allow 10 percent tolerance on all resistances



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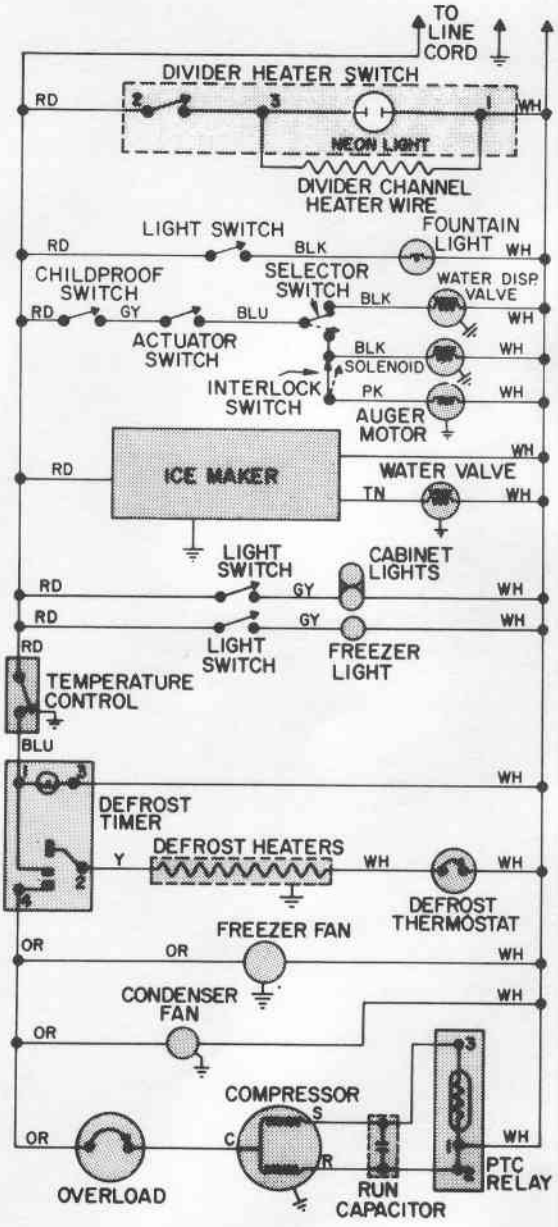

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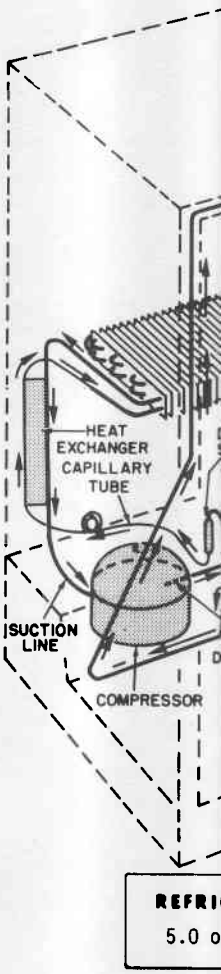


SEE SERIAL PLATE FOR SERIES I

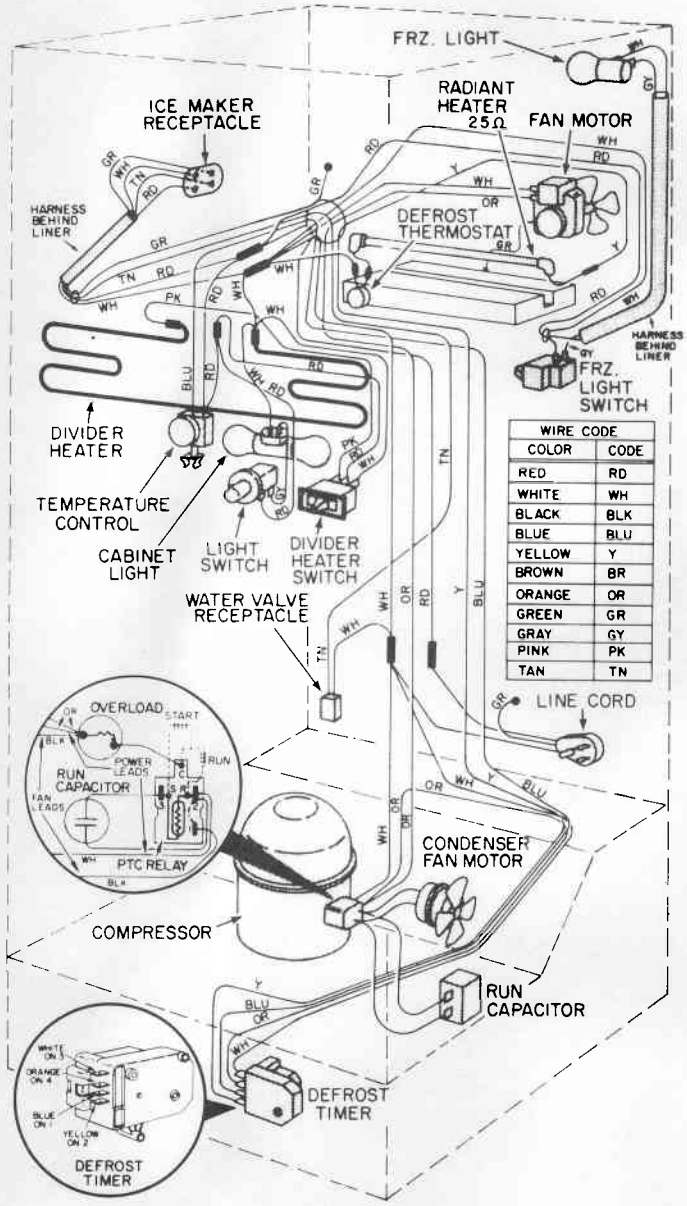
Model RTW2

CAUTION

This information is intended for use by qualified service personnel only. Repairs performed by persons unfamiliar with this product could result in reduced performance or a safety hazard.

PICTORIAL WIRING DIAGRAM

Allow 10 percent tolerance on all resistances



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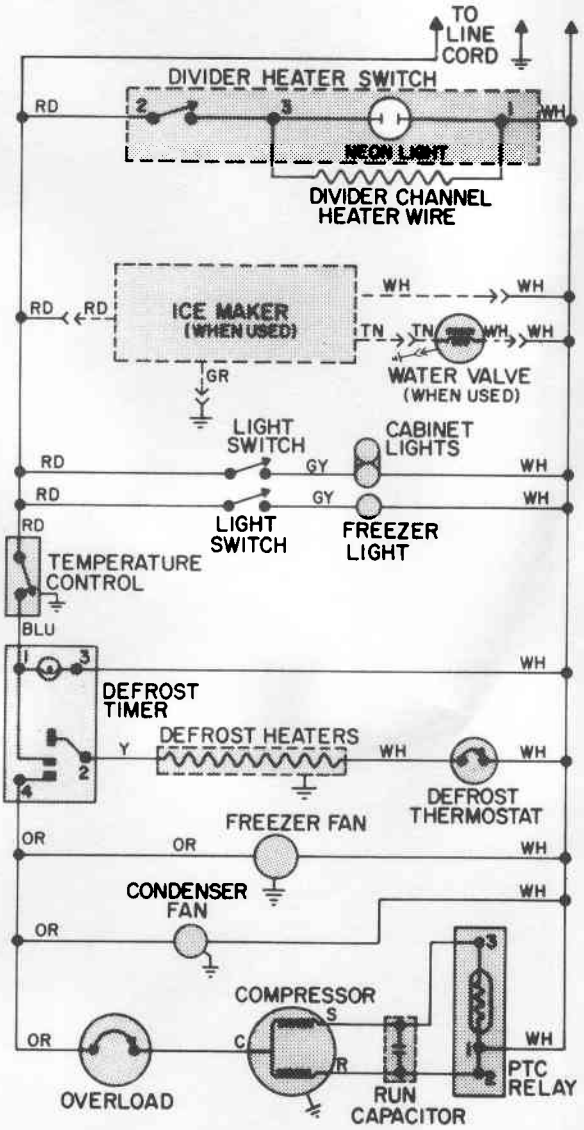




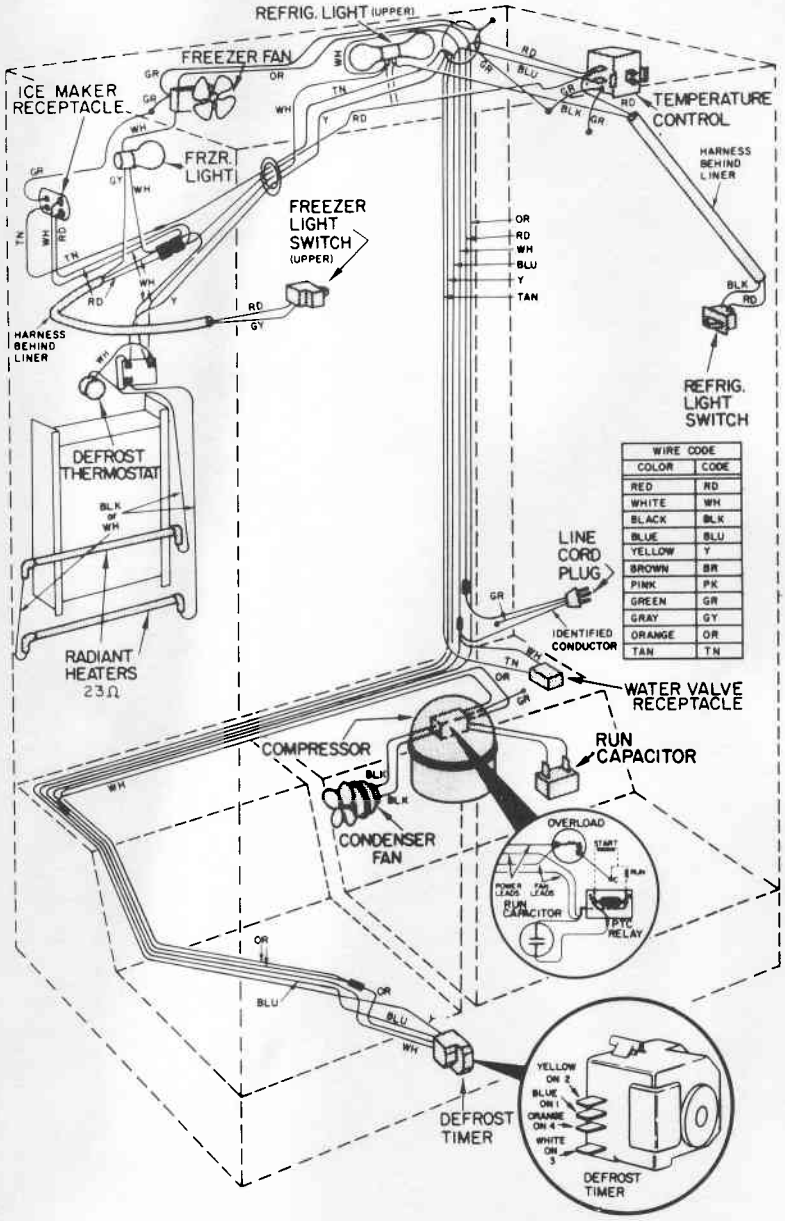
CAUTION

This information is intended for use by qualified service personnel only. Repairs performed by persons unfamiliar with this product could result in reduced performance or a safety hazard.

SEE SERIAL PLATE FOR SERIES NUMBER

Model RTD23

PICTORIAL WIRING DIAGRAM
Allow 10 percent tolerance on all resistances



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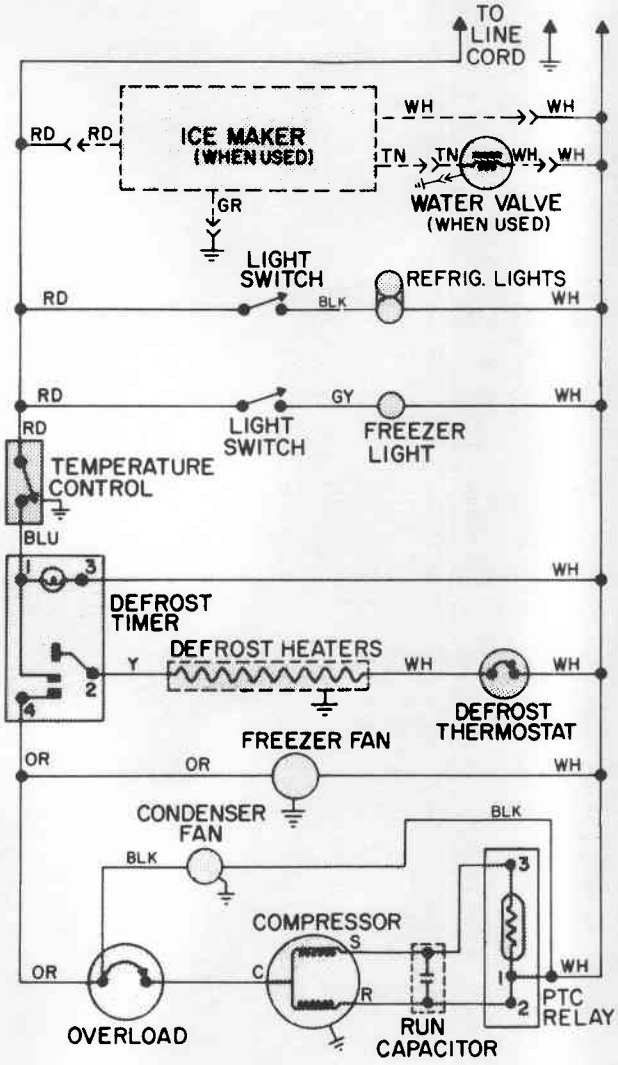


CAUTION

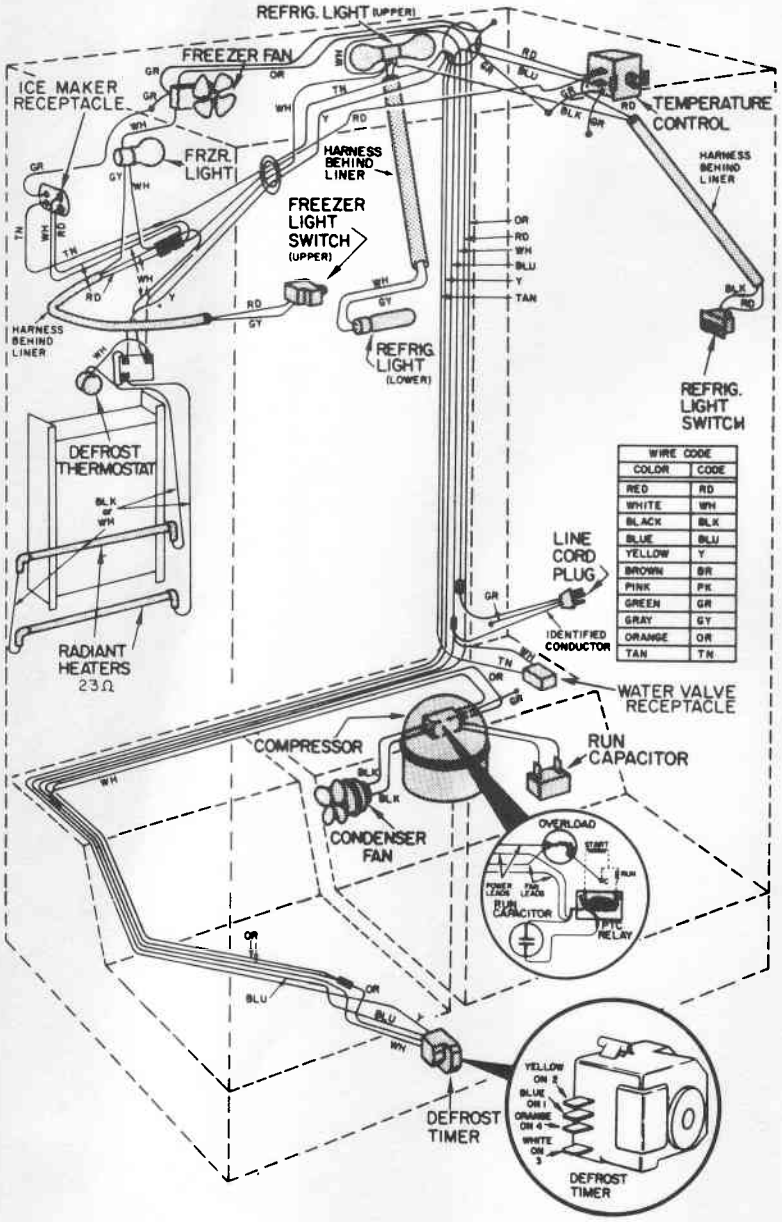
This information is intended for use by qualified service personnel only. Repairs performed by persons unfamiliar with this product could result in reduced performance or a safety hazard.

SEE SERIAL PLATE FOR SERIES NUMBER.

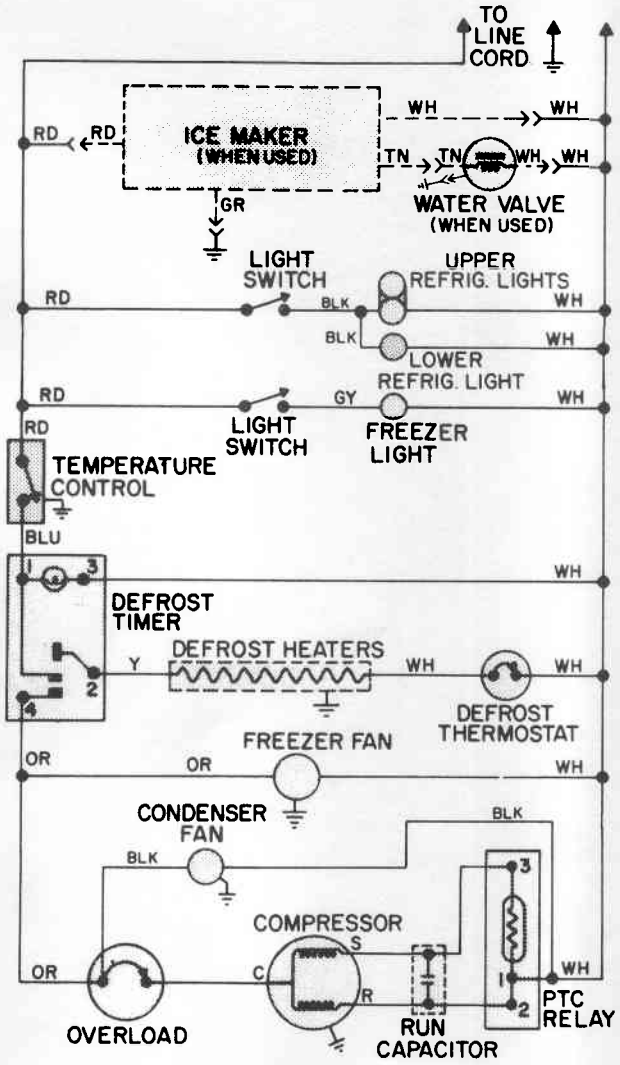
Model RSC20A

PICTORIAL WIRING DIAGRAM

Allow 10 percent tolerance on all resistances



SCHEMATIC WIRING DIAGRAM



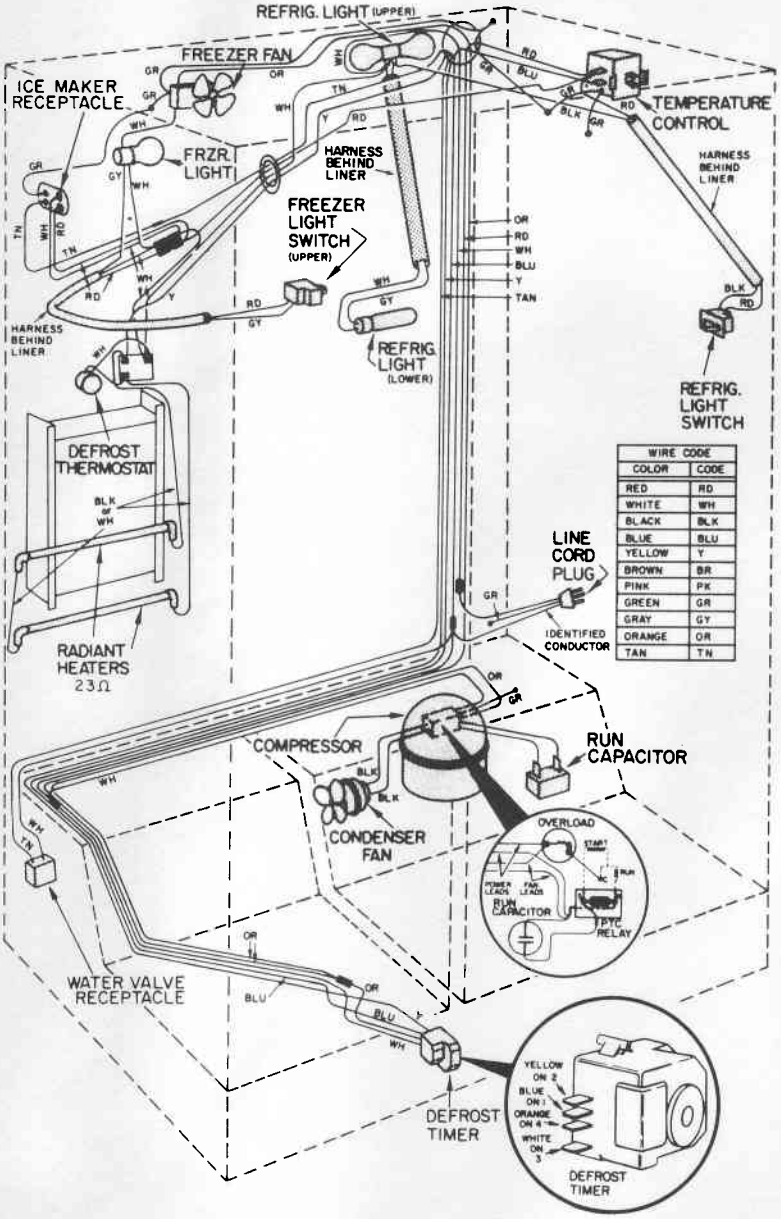
CAUTION

This information is intended for use by qualified service personnel only. Repairs performed by persons unfamiliar with this product could result in reduced performance or a safety hazard.

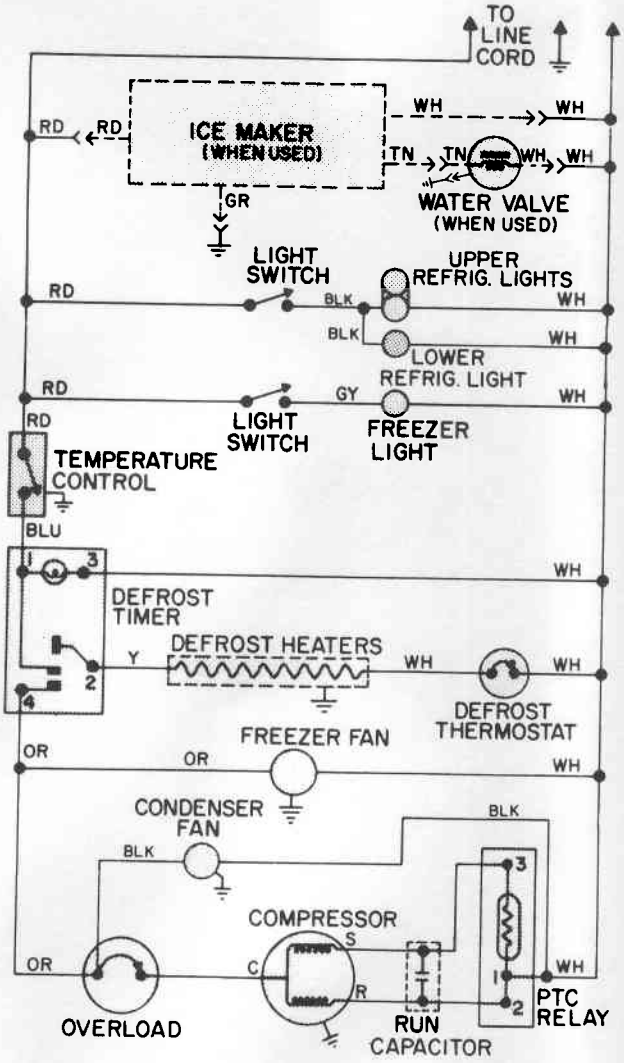
SEE SERIAL PLATE FOR SERIES NUMBER.

Model RSD20A

PICTORIAL WIRING DIAGRAM
Allow 10 percent tolerance on all resistances



SCHEMATIC WIRING DIAGRAM



SEE SERIAL PLATE FOR SERIES NUMBER.

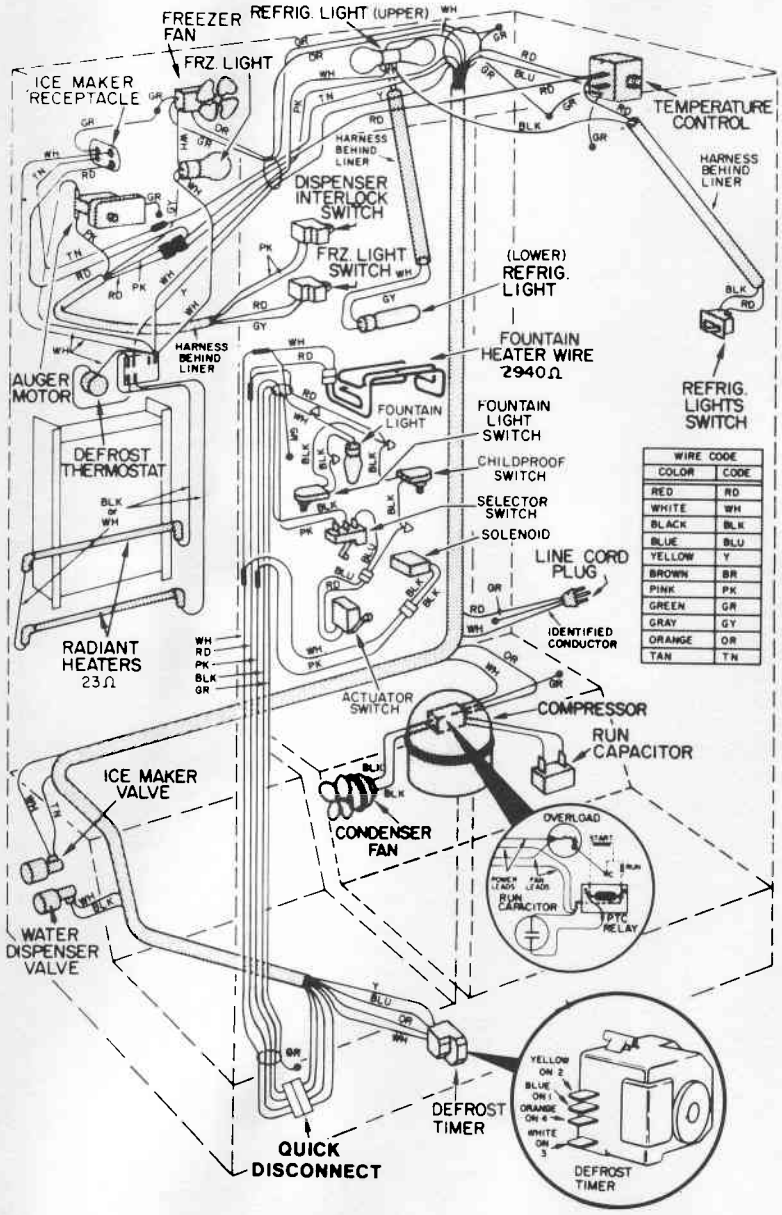
CAUTION

This information is intended for use by qualified service personnel only. Repairs performed by persons unfamiliar with this product could result in reduced performance or a safety hazard.

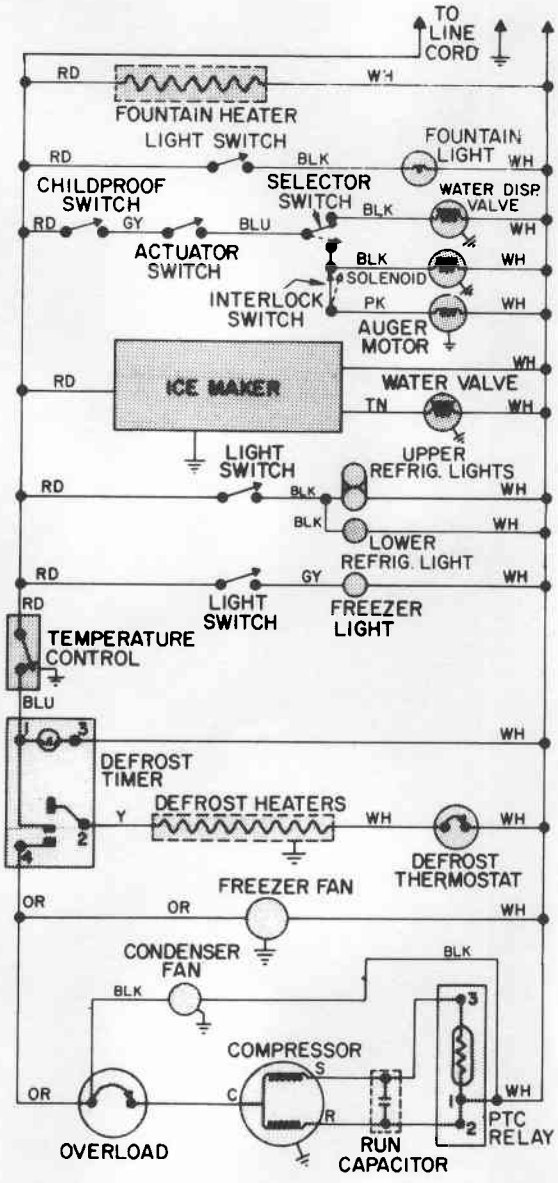
Model RSD22A

PICTORIAL WIRING DIAGRAM

Allow 10 percent tolerance on all resistances



SCHEMATIC WIRING DIAGRAM



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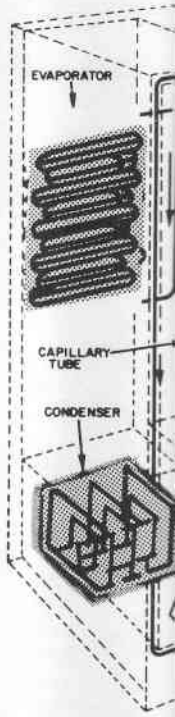


CAUTION

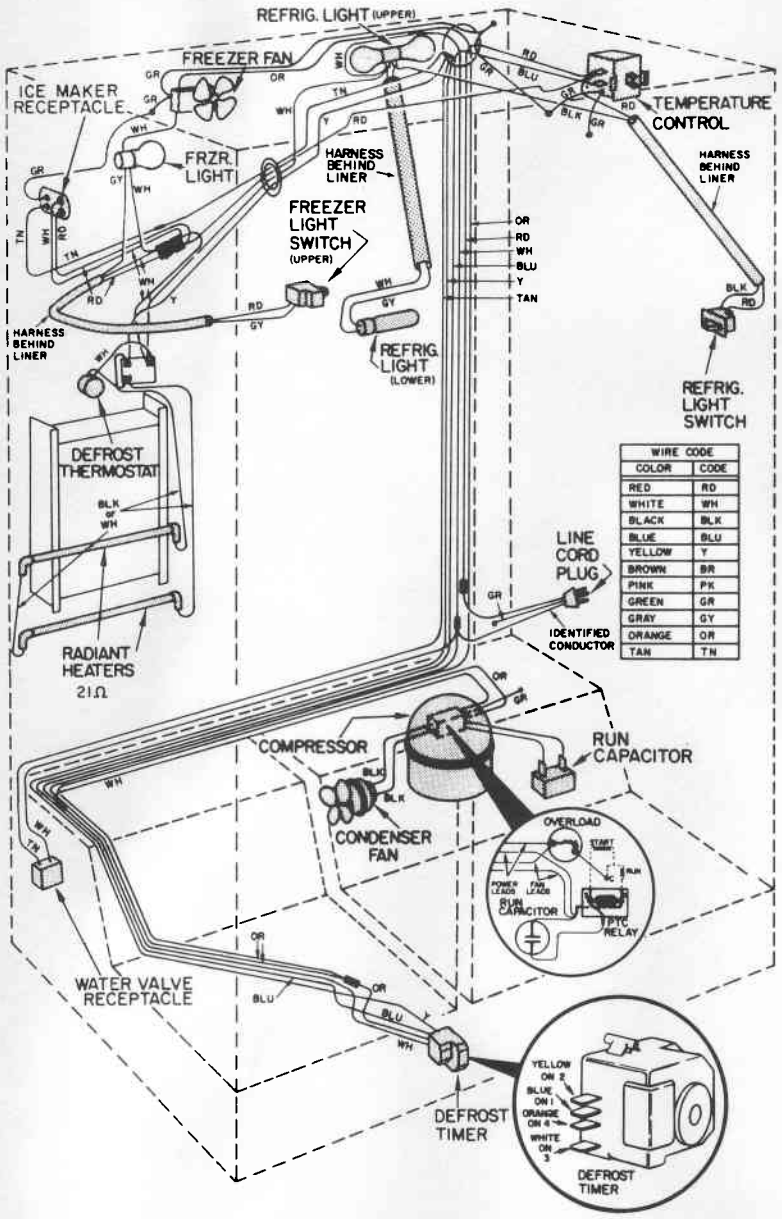
This information is intended for use by qualified service personnel only. Repairs performed by persons unfamiliar with this product could result in reduced performance or a safety hazard.

SEE SERIAL PLATE FOR SERIES NUMBE

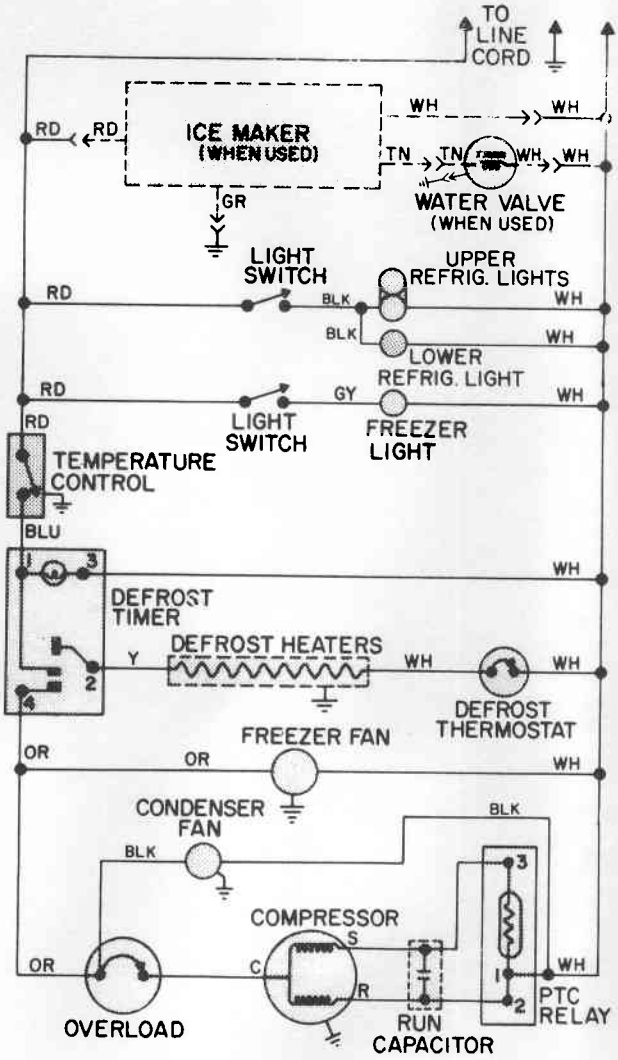
Model RSW22

PICTORIAL WIRING DIAGRAM

Allow 10 percent tolerance on all resistances



SCHEMATIC WIRING DIAGRAM



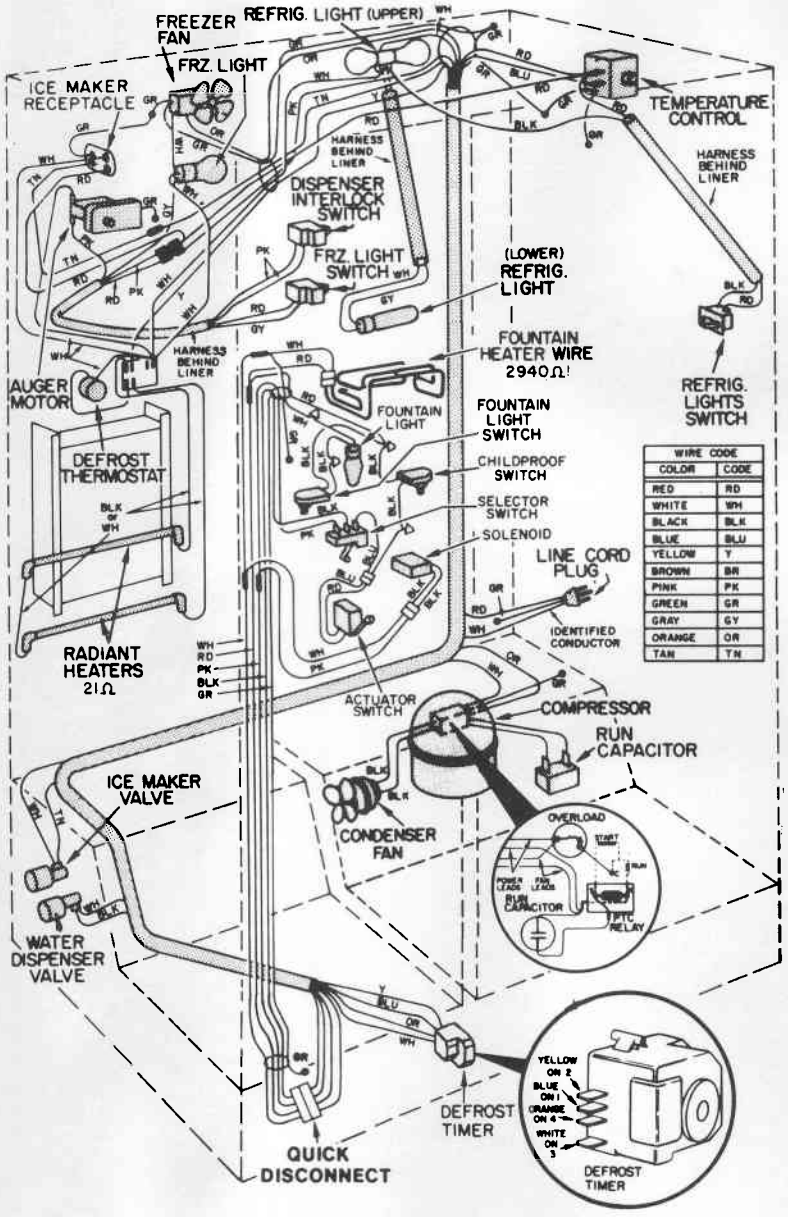
SEE SERIAL PLATE FOR SERIES NUMBER.

CAUTION

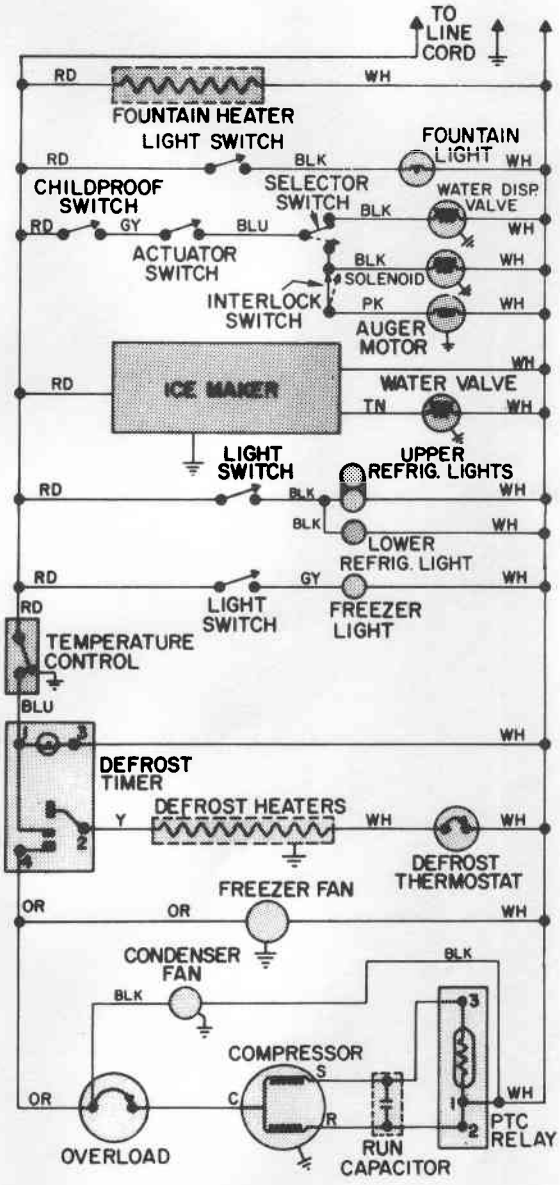
This information is intended for use by qualified service personnel only. Repairs performed by persons unfamiliar with this product could result in reduced performance or a safety hazard.

Model RSD24A

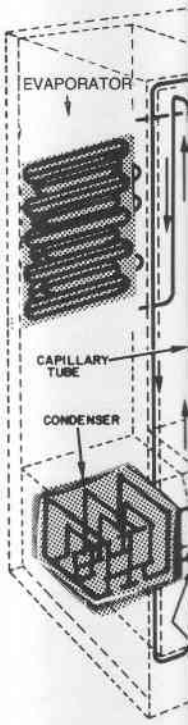
PICTORIAL WIRING DIAGRAM
Allow 10 percent tolerance on all resistances



SCHEMATIC WIRING DIAGRAM



REFRIGE



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SEE SERIAL PLATE FOR SERIES NUME

Model RSW24

CAUTION
This information is intended for use by qualified service personnel only. Repairs performed by persons unfamiliar with this product could result in reduced performance or a safety hazard.

SECTION 9

SPECIFICATIONS

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RTC15A

POWER REQUIREMENT	115VAC 60 Hz
OPERATING AMPS. (MAX)	6.6
REFRIGERANT CHARGE R-12(OZ)	5.0
COMPRESSOR OIL CHARGE (OZ)	8.5
COMPRESSOR	690 BTU
CABINET LINER	HIGH IMPACT LAMINATED POLYSTYRENE
DOOR LINERS	HIGH IMPACT LAMINATED POLYSTYRENE
FOUNTAIN HEATER Ohms Watts	NONE
CABINET INSULATION	FOAM

TEMPERATURE CONTROL (At Normal) Cut-Out (Plus or Minus 1.5°F) Cut-In (Plus or Minus 1.5°F)	 +23°F +33°F
CONDENSER	FAN COOLED
CAPILLARY TUBE Length Diameter	 5.5 ft. .026″ I.D.
DEFROST THERMOSTAT Cut-Out (Plus or minus 6°F) Cut-In (Plus or minus 6°F)	 +47°F +15°F
DEFROST TIMER Defrost Cycle Defrost Time	 AFTER COMPRESSOR RUNS 6 HRS. (TOTAL) 21 MIN.
DEFROST HEATER Ohms Watts	 31 400
DEFROST AMPS. (MAX.)	-
DIVIDER CHANNEL HEATER Ohms Watts	 1323 10

PERFORMANCE TEST DATA

The laboratory test data in this chart was obtained under the following conditions: (1) power source of 115V AC, 60 Hz, (2) no door openings, (3) no load, (4) customer control(s) set at mid-point. The pressures and wattages shown were taken: (a) during a normal running cycle, (b) with freezer temperature near 0°F (refrigerator temperature, if applicable, near +38°F), (c) no sooner than 5 minutes after compressor start-up. In the home, measurements will vary depending upon environmental and usage conditions.

	70°F (Ambient)	90°F (Ambient)	110°F (Ambient)
% Operating Time	30-40	55-70	100
KWH/24 Hours	1.6-2.0	2.5-3.3	3.8-4.9
Suction Pressure (psig)	0-3	0-3	0-4
High Side Pressure (psig)	100-120	130-150	140-170
Running Watts	165-200	165-210	155-200

RTS17A

POWER REQUIREMENT	115VAC 60 Hz
OPERATING AMPS. (MAX)	6.6
REFRIGERANT CHARGE R-12(OZ)	5.0
COMPRESSOR OIL CHARGE (OZ)	8.5
COMPRESSOR	690 BTU
CABINET LINER	HIGH IMPACT LAMINATED POLYSTYRENE
DOOR LINERS	HIGH IMPACT LAMINATED POLYSTYRENE
FOUNTAIN HEATER Ohms Watts	NONE
CABINET INSULATION	FOAM

TEMPERATURE CONTROL (At Normal) Cut-Out (Plus or Minus 1.5°F) Cut-In (Plus or Minus 1.5°F)	 +23°F +33°F
CONDENSER	FAN COOLED
CAPILLARY TUBE Length Diameter	 5.5 ft. .026" I.D.
DEFROST THERMOSTAT Cut-Out (Plus or minus 6°F) Cut-In (Plus or minus 6°F)	 +47°F +15°F
DEFROST TIMER Defrost Cycle Defrost Time	 AFTER COMPRESSOR RUNS 6 HRS. (TOTAL) 21 MIN.
DEFROST HEATER Ohms Watts	 31 400
DEFROST AMPS. (MAX.)	-
DIVIDER CHANNEL HEATER Ohms Watts	 1323 10

PERFORMANCE TEST DATA

The laboratory test data in this chart was obtained under the following conditions: (1) power source of 115V AC, 60 Hz, (2) no door openings, (3) no load, (4) customer control(s) set at mid-point. The pressures and wattages shown were taken: (a) during a normal running cycle, (b) with freezer temperature near 0°F (refrigerator temperature, if applicable, near +38°F), (c) no sooner than 5 minutes after compressor start-up. In the home, measurements will vary depending upon environmental and usage conditions.

	70°F (Ambient)	90°F (Ambient)	110°F (Ambient)
% Operating Time	30-40	55-70	100
KWH/24 Hours	1.6-2.0	2.5-3.3	3.8-4.9
Suction Pressure (psig)	0-3	0-3	0-4
High Side Pressure (psig)	100-120	130-150	140-170
Running Watts	165-200	165-210	155-200

RTC17A

POWER REQUIREMENT	115VAC 60 Hz
OPERATING AMPS. (MAX)	6.6
REFRIGERANT CHARGE R-12(OZ)	5.0
COMPRESSOR OIL CHARGE (OZ)	8.5
COMPRESSOR	690 BTU
CABINET LINER	HIGH IMPACT LAMINATED POLYSTYRENE
DOOR LINERS	HIGH IMPACT LAMINATED POLYSTYRENE
FOUNTAIN HEATER Ohms Watts	NONE
CABINET INSULATION	FOAM

TEMPERATURE CONTROL (At Normal) Cut-Out (Plus or Minus 1.5°F) Cut-In (Plus or Minus 1.5°F)	 +23°F +33°F
CONDENSER	FAN COOLED
CAPILLARY TUBE Length Diameter	 5.5 ft. .026" I.D.
DEFROST THERMOSTAT Cut-Out (Plus or minus 6°F) Cut-In (Plus or minus 6°F)	 +47°F +15°F
DEFROST TIMER Defrost Cycle Defrost Time	AFTER COMPRESSOR RUNS 6 HRS. (TOTAL) 21 MIN.
DEFROST HEATER Ohms Watts	 31 400
DEFROST AMPS. (MAX.)	-
DIVIDER CHANNEL HEATER Ohms Watts	 1323 10

PERFORMANCE TEST DATA

The laboratory test data in this chart was obtained under the following conditions: (1) power source of 115V AC, 60 Hz, (2) no door openings, (3) no load, (4) customer control(s) set at mid-point. The pressures and wattages shown were taken: (a) during a normal running cycle, (b) with freezer temperature near 0°F (refrigerator temperature, if applicable, near +38°F), (c) no sooner than 5 minutes after compressor start-up. In the home, measurements will vary depending upon environmental and usage conditions.

	70°F (Ambient)	90°F (Ambient)	110°F (Ambient)
% Operating Time	30-40	55-70	100
KWH/24 Hours	1.6-2.0	2.5-3.3	3.8-4.9
Suction Pressure (psig)	0-3	0-3	0-4
High Side Pressure (psig)	100-120	130-150	140-170
Running Watts	165-200	165-210	155-200

RTD17A

POWER REQUIREMENT	115VAC 60 Hz
OPERATING AMPS. (MAX)	6.6
REFRIGERANT CHARGE R-12(OZ)	5.0
COMPRESSOR OIL CHARGE (OZ)	8.5
COMPRESSOR	690 BTU
CABINET LINER	HIGH IMPACT LAMINATED POLYSTYRENE
DOOR LINERS	HIGH IMPACT LAMINATED POLYSTYRENE
FOUNTAIN HEATER Ohms Watts	NONE
CABINET INSULATION	FOAM

TEMPERATURE CONTROL (At Normal) Cut-Out (Plus or Minus 1.5°F) Cut-In (Plus or Minus 1.5°F)	 +23°F +33°F
CONDENSER	FAN COOLED
CAPILLARY TUBE Length Diameter	 5.5 ft. .026″ I.D.
DEFROST THERMOSTAT Cut-Out (Plus or minus 6°F) Cut-In (Plus or minus 6°F)	 +47°F +15°F
DEFROST TIMER Defrost Cycle Defrost Time	 AFTER COMPRESSOR RUNS 6 HRS. (TOTAL) 21 MIN.
DEFROST HEATER Ohms Watts	 31 400
DEFROST AMPS. (MAX.)	-
DIVIDER CHANNEL HEATER Ohms Watts	 1323 10

PERFORMANCE TEST DATA

The laboratory test data in this chart was obtained under the following conditions: (1) power source of 115V AC, 60 Hz, (2) no door openings, (3) no load, (4) customer control(s) set at mid-point. The pressures and wattages shown were taken: (a) during a normal running cycle, (b) with freezer temperature near 0°F (refrigerator temperature, if applicable, near +38°F), (c) no sooner than 5 minutes after compressor start-up. In the home, measurements will vary depending upon environmental and usage conditions.

	70°F (Ambient)	90°F (Ambient)	110°F (Ambient)
% Operating Time	30-40	55-70	100
KWH/24 Hours	1.6-2.0	2.5-3.3	3.8-4.9
Suction Pressure (psig)	0-3	0-3	0-4
High Side Pressure (psig)	100-120	130-150	140-170
Running Watts	165-200	165-210	155-200

RTS19A

POWER REQUIREMENT	115VAC 60 Hz
OPERATING AMPS. (MAX)	6.6
REFRIGERANT CHARGE R-12(OZ)	5.0
COMPRESSOR OIL CHARGE (OZ)	8.5
COMPRESSOR	775 BTU
CABINET LINER	HIGH IMPACT LAMINATED POLYSTYRENE
DOOR LINERS	HIGH IMPACT LAMINATED POLYSTYRENE
FOUNTAIN HEATER Ohms Watts	NONE
CABINET INSULATION	FOAM

TEMPERATURE CONTROL (At Normal) Cut-Out (Plus or Minus 1.5°F) Cut-In (Plus or Minus 1.5°F)	 +23°F +33°F
CONDENSER	FAN COOLED
CAPILLARY TUBE Length Diameter	 8 ft. .036" I.D.
DEFROST THERMOSTAT Cut-Out (Plus or minus 6°F) Cut-In (Plus or minus 6°F)	 +47°F +15°F
DEFROST TIMER Defrost Cycle Defrost Time	 AFTER COMPRESSOR RUNS 8 HRS. (TOTAL) 23 MIN.
DEFROST HEATER Ohms Watts	 28 450
DEFROST AMPS. (MAX.)	-
DIVIDER CHANNEL HEATER Ohms Watts	 1323 10

PERFORMANCE TEST DATA

The laboratory test data in this chart was obtained under the following conditions: (1) power source of 115V AC, 60 Hz, (2) no door openings, (3) no load, (4) customer control(s) set at mid-point. The pressures and wattages shown were taken: (a) during a normal running cycle, (b) with freezer temperature near 0°F (refrigerator temperature, if applicable, near +38°F), (c) no sooner than 5 minutes after compressor start-up. In the home, measurements will vary depending upon environmental and usage conditions.

	70°F (Ambient)	90°F (Ambient)	110°F (Ambient)
% Operating Time	30-40	55-70	100
KWH/24 Hours	1.6-2.0	2.5-3.3	3.8-4.9
Suction Pressure (psig)	0-3	0-3	0-4
High Side Pressure (psig)	100-120	130-150	140-170
Running Watts	165-200	165-210	155-200

RTC19A

POWER REQUIREMENT	115VAC 60 Hz
OPERATING AMPS. (MAX)	6.6
REFRIGERANT CHARGE R-12(OZ)	5.0
COMPRESSOR OIL CHARGE (OZ)	8.5
COMPRESSOR	775 BTU
CABINET LINER	HIGH IMPACT LAMINATED POLYSTYRENE
DOOR LINERS	HIGH IMPACT LAMINATED POLYSTYRENE
FOUNTAIN HEATER Ohms Watts	NONE
CABINET INSULATION	FOAM

TEMPERATURE CONTROL (At Normal) Cut-Qut (Plus or Minus 1.5°F) Cut-In (Plus or Minus 1.5°F)	 +23°F +33°F
CONDENSER	FAN COOLED
CAPILLARY TUBE Length Diameter	 8 ft. .036″ I.D.
DEFROST THERMOSTAT Cut-Out (Plus or minus 6°F) Cut-In (Plus or minus 6°F)	 +47°F +15°F
DEFROST TIMER Defrost Cycle Defrost Time	 AFTER COMPRESSOR RUNS 8 HRS. (TOTAL) 8 HRS.
DEFROST HEATER Ohms Watts	 28 450
DEFROST AMPS. (MAX.)	-
DIVIDER CHANNEL HEATER Ohms Watts	 1323 10

PERFORMANCE TEST DATA

The laboratory test data in this chart was obtained under the following conditions: (1) power source of 115V AC, 60 Hz, (2) no door openings, (3) no load, (4) customer control(s) set at mid-point. The pressures and wattages shown were taken: (a) during a normal running cycle, (b) with freezer temperature near 0°F (refrigerator temperature, if applicable, near +38°F), (c) no sooner than 5 minutes after compressor start-up. In the home, measurements will vary depending upon environmental and usage conditions.

	70°F (Ambient)	90°F (Ambient)	110°F (Ambient)
% Operating Time	30-40	55-70	100
KWH/24 Hours	1.6-2.0	2.5-3.3	3.8-4.9
Suction Pressure (psig)	0-3	0-3	0-4
High Side Pressure (psig)	100-120	130-150	140-170
Running Watts	165-200	165-210	155-200

RTD19A

POWER REQUIREMENT	115VAC 60 Hz
OPERATING AMPS. (MAX)	6.6
REFRIGERANT CHARGE R-12(OZ)	5.0
COMPRESSOR OIL CHARGE (OZ)	8.5
COMPRESSOR	775 BTU
CABINET LINER	HIGH IMPACT LAMINATED POLYSTYRENE
DOOR LINERS	HIGH IMPACT LAMINATED POLYSTYRENE
FOUNTAIN HEATER Ohms Watts	NONE
CABINET INSULATION	FOAM

TEMPERATURE CONTROL (At Normal) Cut-Out (Plus or Minus 1.5°F) Cut-In (Plus or Minus 1.5°F)	 +23°F +33°F
CONDENSER	FAN COOLED
CAPILLARY TUBE Length Diameter	 8 ft. .036" I.D.
DEFROST THERMOSTAT Cut-Out (Plus or minus 6°F) Cut-In (Plus or minus 6°F)	 +47°F +15°F
DEFROST TIMER Defrost Cycle Defrost Time	 AFTER COMPRESSOR RUNS 8 HRS. (TOTAL) 23 MIN.
DEFROST HEATER Ohms Watts	 28 450
DEFROST AMPS. (MAX.)	-
DIVIDER CHANNEL HEATER Ohms Watts	 1323 10

PERFORMANCE TEST DATA

The laboratory test data in this chart was obtained under the following conditions: (1) power source of 115V AC, 60 Hz, (2) no door openings, (3) no load, (4) customer control(s) set at mid-point. The pressures and wattages shown were taken: (a) during a normal running cycle, (b) with freezer temperature near 0°F (refrigerator temperature, if applicable, near +38°F), (c) no sooner than 5 minutes after compressor start-up. In the home, measurements will vary depending upon environmental and usage conditions.

	70°F (Ambient)	90°F (Ambient)	110°F (Ambient)
% Operating Time	30-40	55-70	100
KWH/24 Hours	1.6-2.0	2.5-3.3	3.8-4.9
Suction Pressure (psig)	0-3	0-3	0-4
High Side Pressure (psig)	100-120	130-150	140-170
Running Watts	165-200	165-210	155-200

RTD21A

POWER REQUIREMENT	115VAC 60 Hz
OPERATING AMPS. (MAX)	6.6
REFRIGERANT CHARGE R-12(OZ)	5.0
COMPRESSOR OIL CHARGE (OZ)	8.5
COMPRESSOR	893 BTU
CABINET LINER	HIGH IMPACT LAMINATED POLYSTYRENE
DOOR LINERS	HIGH IMPACT LAMINATED POLYSTYRENE
FOUNTAIN HEATER Ohms Watts	NONE
CABINET INSULATION	FOAM

TEMPERATURE CONTROL (At Normal) Cut-Out (Plus or Minus 1.5°F) Cut-In (Plus or Minus 1.5°F)	 +23°F +33°F
CONDENSER	FAN COOLED
CAPILLARY TUBE Length Diameter	 8 ft. .036" I.D.
DEFROST THERMOSTAT Cut-Out (Plus or minus 6°F) Cut-In (Plus or minus 6°F)	 +47°F +15°F
DEFROST TIMER Defrost Cycle Defrost Time	 AFTER COMPRESSOR RUNS 8 HRS. (TOTAL) 23 MIN.
DEFROST HEATER Ohms Watts	 28 450
DEFROST AMPS. (MAX.)	-
DIVIDER CHANNEL HEATER Ohms Watts	 1323 10

PERFORMANCE TEST DATA

The laboratory test data in this chart was obtained under the following conditions: (1) power source of 115V AC, 60 Hz, (2) no door openings, (3) no load, (4) customer control(s) set at mid-point. The pressures and wattages shown were taken: (a) during a normal running cycle, (b) with freezer temperature near 0°F (refrigerator temperature, if applicable, near +38°F), (c) no sooner than 5 minutes after compressor start-up. In the home, measurements will vary depending upon environmental and usage conditions.

	70°F (Ambient)	90°F (Ambient)	110°F (Ambient)
% Operating Time	30-40	55-70	100
KWH/24 Hours	1.6-2.0	2.5-3.3	3.8-4.9
Suction Pressure (psig)	0-3	0-3	0-4
High Side Pressure (psig)	100-120	130-150	140-170
Running Watts	165-200	165-210	155-200

RTW22A

POWER REQUIREMENT	115VAC 60 Hz
OPERATING AMPS. (MAX)	7.2
REFRIGERANT CHARGE R-12(OZ)	5.0
COMPRESSOR OIL CHARGE (OZ)	8.5
COMPRESSOR	893 BTU
CABINET LINER	HIGH IMPACT LAMINATED POLYSTYRENE
DOOR LINERS	HIGH IMPACT LAMINATED POLYSTYRENE
FOUNTAIN HEATER Onms Watts	NONE
CABINET INSULATION	FOAM

TEMPERATURE CONTROL (At Normal) Cut-Out (Plus or Minus 1.5°F) Cut-In (Plus or Minus 1.5°F)	 +23°F +33°F
CONDENSER	FAN COOLED
CAPILLARY TUBE Length Diameter	 8 ft. .036" I.D.
DEFROST THERMOSTAT Cut-Out (Plus or minus 6°F) Cut-In (Plus or minus 6°F)	 +47°F +15°F
DEFROST TIMER Defrost Cycle Defrost Time	 AFTER COMPRESSOR RUNS 8 HRS. (TOTAL) 23 MIN.
DEFROST HEATER Ohms Watts	 25 500
DEFROST AMPS. (MAX.)	-
DIVIDER CHANNEL HEATER Ohms Watts	 1323 10

PERFORMANCE TEST DATA

The laboratory test data in this chart was obtained under the following conditions: (1) power source of 115V AC, 60 Hz, (2) no door openings, (3) no load, (4) customer control(s) set at mid-point. The pressures and wattages shown were taken: (a) during a normal running cycle, (b) with freezer temperature near 0°F (refrigerator temperature, if applicable, near +38°F), (c) no sooner than 5 minutes after compressor start-up. In the home, measurements will vary depending upon environmental and usage conditions.

	70°F (Ambient)	90°F (Ambient)	110°F (Ambient)
% Operating Time	30-40	55-70	100
KWH/24 Hours	1.6-2.0	2.5-3.3	3.8-4.9
Suction Pressure (psig)	0-3	0-3	0-4
High Side Pressure (psig)	100-120	130-150	140-170
Running Watts	165-200	165-210	155-200

RTD23A

POWER REQUIREMENT	115VAC 60 Hz
OPERATING AMPS. (MAX)	6.6
REFRIGERANT CHARGE R-12(OZ)	5.0
COMPRESSOR OIL CHARGE (OZ)	8.5
COMPRESSOR	893 BTU
CABINET LINER	HIGH IMPACT LAMINATED POLYSTYRENE
DOOR LINERS	HIGH IMPACT LAMINATED POLYSTYRENE
FOUNTAIN HEATER Ohms Watts	NONE
CABINET INSULATION	FOAM

TEMPERATURE CONTROL (At Normai) Cut-Out (Plus or Minus 1.5°F) Cut-In (Plus or Minus 1.5°F)	 +23°F +33°F
CONDENSER	FAN COOLED
CAPILLARY TUBE Length Diameter	 8 ft. .036" I.D.
DEFROST THERMOSTAT Cut-Out (Plus or minus 6°F) Cut-In (Plus or minus 6°F)	 +47°F +15°F
DEFROST TIMER Defrost Cycle Defrost Time	 AFTER COMPRESSOR RUNS 8 HRS. (TOTAL) 23 MIN.
DEFROST HEATER Ohms Watts	 25 500
DEFROST AMPS. (MAX.)	-
DIVIDER CHANNEL HEATER Ohms Watts	 1323 10

PERFORMANCE TEST DATA

The laboratory test data in this chart was obtained under the following conditions: (1) power source of 115V AC, 60 Hz, (2) no door openings, (3) no load, (4) customer control(s) set at mid-point. The pressures and wattages shown were taken: (a) during a normal running cycle, (b) with freezer temperature near 0°F (refrigerator temperature, if applicable, near +38°F), (c) no sooner than 5 minutes after compressor start-up. In the home, measurements will vary depending upon environmental and usage conditions.

	70°F (Ambient)	90°F (Ambient)	110°F (Ambient)
% Operating Time	30-40	55-70	100
KWH/24 Hours	1.6-2.0	2.5-3.3	3.8-4.9
Suction Pressure (psig)	0-3	0-3	0-4
High Side Pressure (psig)	100-120	130-150	140-170
Running Watts	165-200	165-210	155-200

RSC20A

POWER REQUIREMENT	115VAC 60 Hz
OPERATING AMPS. (MAX)	6.5
REFRIGERANT CHARGE R-12(OZ)	6.5
COMPRESSOR OIL CHARGE (OZ)	8.5
COMPRESSOR	1092 BTU
CABINET LINER	HIGH IMPACT LAMINATED POLYSTYRENE
DOOR LINERS	HIGH IMPACT LAMINATED POLYSTYRENE
FOUNTAIN HEATER Ohms Watts	NONE
CABINET INSULATION	FOAM

TEMPERATURE CONTROL (At Normal) Cut-Out (Plus or Minus 1.5°F) Cut-In (Plus or Minus 1.5°F)	 +22°F +34°F
CONDENSER	FAN COOLED
CAPILLARY TUBE Length Diameter	 8 ft. .031" I.D.
DEFROST THERMOSTAT Cut-Out (Plus or minus 6°F) Cut-In (Plus or minus 6°F)	 +40°F +10°F
DEFROST TIMER Defrost Cycle Defrost Time	 AFTER COMPRESSOR RUNS 8 HRS. (TOTAL) 23 MIN.
DEFROST HEATER Ohms Watts	 23 550
DEFROST AMPS. (MAX.)	-
DIVIDER CHANNEL HEATER Ohms Watts	 NONE

PERFORMANCE TEST DATA

The laboratory test data in this chart was obtained under the following conditions: (1) power source of 115V AC, 60 Hz, (2) no door openings, (3) no load, (4) customer control(s) set at mid-point. The pressures and wattages shown were taken: (a) during a normal running cycle, (b) with freezer temperature near 0°F (refrigerator temperature, if applicable, near +38°F), (c) no sooner than 5 minutes after compressor start-up. In the home, measurements will vary depending upon environmental and usage conditions.

	70°F (Ambient)	90°F (Ambient)	110°F (Ambient)
% Operating Time	30-40	60-80	100
KWH/24 Hours	2.1-2.4	3.1-4.2	4.8-5.6
Suction Pressure (psig)	0-3	0-3	0-4
High Side Pressure (psig)	95-110	125-160	160-185
Running Watts	205-240	205-240	205-240

RSD20A

POWER REQUIREMENT	115VAC 60 Hz
OPERATING AMPS. (MAX)	6.5
REFRIGERANT CHARGE R-12(OZ)	6.5
COMPRESSOR OIL CHARGE (OZ)	8.5
COMPRESSOR	1092 BTU
CABINET LINER	HIGH IMPACT LAMINATED POLYSTYRENE
DOOR LINERS	HIGH IMPACT LAMINATED POLYSTYRENE
FOUNTAIN HEATER Ohms Watts	NONE
CABINET INSULATION	FOAM

TEMPERATURE CONTROL (At Normal) Cut-Out (Plus or Minus 1.5°F) Cut-In (Plus or Minus 1.5°F)	 +22°F +34°F
CONDENSER	FAN COOLED
CAPILLARY TUBE Length Diameter	 8 ft. .031" I.D.
DEFROST THERMOSTAT Cut-Out (Plus or minus 6°F) Cut-In (Plus or minus 6°F)	 +40°F +10°F
DEFROST TIMER Defrost Cycle Defrost Time	 AFTER COMPRESSOR RUNS 8 HRS. (TOTAL) 23 MIN.
DEFROST HEATER Ohms Watts	 23 550
DEFROST AMPS. (MAX.)	-
DIVIDER CHANNEL HEATER Ohms Watts	 NONE

PERFORMANCE TEST DATA

The laboratory test data in this chart was obtained under the following conditions: (1) power source of 115V AC, 60 Hz, (2) no door openings, (3) no load, (4) customer control(s) set at mid-point. The pressures and wattages shown were taken: (a) during a normal running cycle, (b) with freezer temperature near 0°F (refrigerator temperature, if applicable, near +38°F), (c) no sooner than 5 minutes after compressor start-up. In the home, measurements will vary depending upon environmental and usage conditions.

	70°F (Ambient)	90°F (Ambient)	110°F (Ambient)
% Operating Time	30-40	60-80	100
KWH/24 Hours	2.1-2.4	3.1-4.2	4.8-5.6
Suction Pressure (psig)	0-3	0-3	0-4
High Side Pressure (psig)	95-110	125-160	160-185
Running Watts	205-240	205-240	205-240

RSD22A

POWER REQUIREMENT	115VAC 60 Hz
OPERATING AMPS. (MAX)	6.5
REFRIGERANT CHARGE R-12(OZ)	6.5
COMPRESSOR OIL CHARGE (OZ)	8.5
COMPRESSOR	1092 BTU
CABINET LINER	HIGH IMPACT LAMINATED POLYSTYRENE
DOOR LINERS	HIGH IMPACT LAMINATED POLYSTYRENE
FOUNTAIN HEATER Ohms Watts	NONE
CABINET INSULATION	FOAM

TEMPERATURE CONTROL (At Normal) Cut-Out (Plus or Minus 1.5°F) Cut-In (Plus or Minus 1.5°F)	 +20°F +35°F
CONDENSER	FAN COOLED
CAPILLARY TUBE Length Diameter	 8 ft. .031" I.D.
DEFROST THERMOSTAT Cut-Out (Plus or minus 6°F) Cut-In (Plus or minus 6°F)	 +40°F +10°F
DEFROST TIMER Defrost Cycle Defrost Time	 AFTER COMPRESSOR RUNS 8 HRS. (TOTAL) 23 MIN.
DEFROST HEATER Ohms Watts	 23 550
DEFROST AMPS. (MAX.)	-
DIVIDER CHANNEL HEATER Ohms Watts	 NONE

PERFORMANCE TEST DATA

The laboratory test data in this chart was obtained under the following conditions: (1) power source of 115V AC, 60 Hz, (2) no door openings, (3) no load, (4) customer control(s) set at mid-point. The pressures and wattages shown were taken: (a) during a normal running cycle, (b) with freezer temperature near 0°F (refrigerator temperature, if applicable, near +38°F), (c) no sooner than 5 minutes after compressor start-up. In the home, measurements will vary depending upon environmental and usage conditions.

	70°F (Ambient)	90°F (Ambient)	110°F (Ambient)
% Operating Time	30-40	60-80	100
KWH/24 Hours	2.1-2.4	3.1-4.2	4.8-5.6
Suction Pressure (psig)	0-3	0-3	0-4
High Side Pressure (psig)	95-110	125-160	160-185
Running Watts	205-240	205-240	205-240

RSW22A

POWER REQUIREMENT	115VAC 60 Hz
OPERATING AMPS. (MAX)	7.2
REFRIGERANT CHARGE R-12(OZ)	6.5
COMPRESSOR OIL CHARGE (OZ)	8.5
COMPRESSOR	1092 BTU
CABINET LINER	HIGH IMPACT LAMINATED POLYSTYRENE
DOOR LINERS	HIGH IMPACT LAMINATED POLYSTYRENE
FOUNTAIN HEATER Ohms Watts	 2940 4.5
CABINET INSULATION	FOAM

TEMPERATURE CONTROL (At Normal) Cut-Out (Plus or Minus 1.5°F) Cut-In (Plus or Minus 1.5°F)	 +20°F +35°F
CONDENSER	FAN COOLED
CAPILLARY TUBE Length Diameter	 8 ft. .031" I.D.
DEFROST THERMOSTAT Cut-Out (Plus or minus 6°F) Cut-In (Plus or minus 6°F)	 +40°F +10°F
DEFROST TIMER Defrost Cycle Defrost Time	 AFTER COMPRESSOR RUNS 8 HRS. (TOTAL) 23 MIN.
DEFROST HEATER Ohms Watts	 23 550
DEFROST AMPS. (MAX.)	-
DIVIDER CHANNEL HEATER Ohms Watts	 NONE

PERFORMANCE TEST DATA

The laboratory test data in this chart was obtained under the following conditions: (1) power source of 115V AC, 60 Hz, (2) no door openings, (3) no load, (4) customer control(s) set at mid-point. The pressures and wattages shown were taken: (a) during a normal running cycle, (b) with freezer temperature near 0°F (refrigerator temperature, if applicable, near +38°F), (c) no sooner than 5 minutes after compressor start-up. In the home, measurements will vary depending upon environmental and usage conditions.

	70°F (Ambient)	90°F (Ambient)	110°F (Ambient)
% Operating Time	30-40	60-80	100
KWH/24 Hours	2.1-2.4	3.1-4.2	4.8-5.6
Suction Pressure (psig)	0-3	0-3	0-4
High Side Pressure (psig)	95-110	125-160	160-185
Running Watts	205-240	205-240	205-240

RSD24A

POWER REQUIREMENT	115VAC 60 Hz
OPERATING AMPS. (MAX)	6.5
REFRIGERANT CHARGE R-12(OZ)	6.75
COMPRESSOR OIL CHARGE (OZ)	8.5
COMPRESSOR	1092 BTU
CABINET LINER	HIGH IMPACT LAMINATED POLYSTYRENE
DOOR LINERS	HIGH IMPACT LAMINATED POLYSTYRENE
FOUNTAIN HEATER Ohms Watts	NONE
CABINET INSULATION	FOAM

TEMPERATURE CONTROL (At Normal) Cut-Out (Plus or Minus 1.5°F) Cut-In (Plus or Minus 1.5°F)	 +23°F +36°F
CONDENSER	FAN COOLED
CAPILLARY TUBE Length Diameter	 8 ft. .031" I.D.
DEFROST THERMOSTAT Cut-Out (Plus or minus 6°F) Cut-In (Plus or minus 6°F)	 +40°F +10°F
DEFROST TIMER Defrost Cycle Defrost Time	 AFTER COMPRESSOR RUNS 8 HRS. (TOTAL) 23 MIN.
DEFROST HEATER Ohms Watts	 20 600
DEFROST AMPS. (MAX.)	-
DIVIDER CHANNEL HEATER Ohms Watts	NONE

PERFORMANCE TEST DATA

The laboratory test data in this chart was obtained under the following conditions: (1) power source of 115V AC, 60 Hz, (2) no door openings, (3) no load, (4) customer control(s) set at mid-point. The pressures and wattages shown were taken: (a) during a normal running cycle, (b) with freezer temperature near 0°F (refrigerator temperature, if applicable, near +38°F), (c) no sooner than 5 minutes after compressor start-up. In the home, measurements will vary depending upon environmental and usage conditions.

	70°F (Ambient)	90°F (Ambient)	110°F (Ambient)
% Operating Time	30-40	60-80	100
KWH/24 Hours	2.1-2.4	3.1-4.2	4.8-5.6
Suction Pressure (psig)	0-3	0-3	0-4
High Side Pressure (psig)	95-110	125-160	160-185
Running Watts	205-240	205-240	205-240

RSW24A

POWER REQUIREMENT	115VAC 60 Hz
OPERATING AMPS. (MAX)	7.2
REFRIGERANT CHARGE R-12(OZ)	6.75
COMPRESSOR OIL CHARGE (OZ)	8.5
COMPRESSOR	1092 BTU
CABINET LINER	HIGH IMPACT LAMINATED POLYSTYRENE
DOOR LINERS	HIGH IMPACT LAMINATED POLYSTYRENE
FOUNTAIN HEATER Ohms Watts	 2940 4.5
CABINET INSULATION	FOAM

TEMPERATURE CONTROL (At Normal) Cut-Out (Plus or Minus 1.5°F) Cut-In (Plus or Minus 1.5°F)	 +22°F +34°F
CONDENSER	FAN COOLED
CAPILLARY TUBE Length Diameter	 8 ft. .031" I.D.
DEFROST THERMOSTAT Cut-Out (Plus or minus 6°F) Cut-In (Plus or minus 6°F)	 +40°F +10°F
DEFROST TIMER Defrost Cycle Defrost Time	 AFTER COMPRESSOR RUNS 8 HRS. (TOTAL) 23 MIN.
DEFROST HEATER Ohms Watts	 20 600
DEFROST AMPS. (MAX.)	-
DIVIDER CHANNEL HEATER Ohms Watts	 NONE

PERFORMANCE TEST DATA

The laboratory test data in this chart was obtained under the following conditions: (1) power source of 115V AC, 60 Hz, (2) no door openings, (3) no load, (4) customer control(s) set at mid-point. The pressures and wattages shown were taken: (a) during a normal running cycle, (b) with freezer temperature near 0°F (refrigerator temperature, if applicable, near +38°F), (c) no sooner than 5 minutes after compressor start-up. In the home, measurements will vary depending upon environmental and usage conditions.

	70°F (Ambient)	90°F (Ambient)	110°F (Ambient)
% Operating Time	30-40	60-80	100
KWH/24 Hours	2.1-2.4	3.1-4.2	4.8-5.6
Suction Pressure (psig)	0-3	0-3	0-4
High Side Pressure (psig)	95-110	125-160	160-185
Running Watts	205-240	205-240	205-240