500
Service Manual

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INTRODUCTION

This manual has been prepared for your use in servicing Sub-Zero 500 Series units. Included are helpful facts on service, troubleshooting, specifications and parts information.

It is important that you familiarize yourself with the product as much as possible before initiating any maintenance, troubleshooting or repairs.

IMPORTANT: Always refer to the Parts Price List for any parts that may have been superceded by serial number.

NOTE: *Always have the model & serial number available when ordering parts. The model and serial number tag is located:*

- by the top door hinge of the freezer section in SIDE-BY-SIDE models.
- by the top door hinge of the refrigerator section in OVER-AND-UNDER models.
- by the top door hinge in ALL-FREEZER and ALL-REFRIGERATOR models.

TECHNICAL ASSISTANCE

We encourage you to review this manual and get acquainted with the information. If you should have any questions regarding this equipment, please contact:

Sub-Zero Freezer Co., Inc.
Attn: Service Department
4693 West Beltline Hwy.
Madison, WI 53711-2798

Customer Service
&
Parts Warranty Claims Phone
Phone (800) 222-7820
Phone (608) 271-2233

Technical Assistance
Phone (800) 919-8324

Customer Service
&
Technical Assistance
Facsimile (608) 270-3355

Parts Warranty Claims
Facsimile (608) 270-3365

Service Department E-Mail Address
customerservice@subzero.com

Office Hours
7:00 AM to 7:00 PM Central Time
Monday - Friday

IMPORTANT SAFETY INFORMATION

At right are the Product Safety Labels used in this manual. The "Signal Words" used are WARNING or CAUTION.

Below the Product Safety Labels is a description of the precautions to be taken when the signal word is observed.

When reviewing this manual, please note these different safety labels places in areas where awareness of personal safety and product safety should be taken.

⚠WARNING

Indicates that hazards or unsafe practices could result in severe personal injury or death.

⚠ CAUTION

Indicates hazards or unsafe practices could result in minor personal injury or product and/or property damage.

This manual is designed to be used by Authorized Service Personnel only. Sub-Zero Freezer Co., Inc. assumes no responsibility for any repairs made on Sub-Zero refrigeration units by anyone other than Authorized Service Technicians.

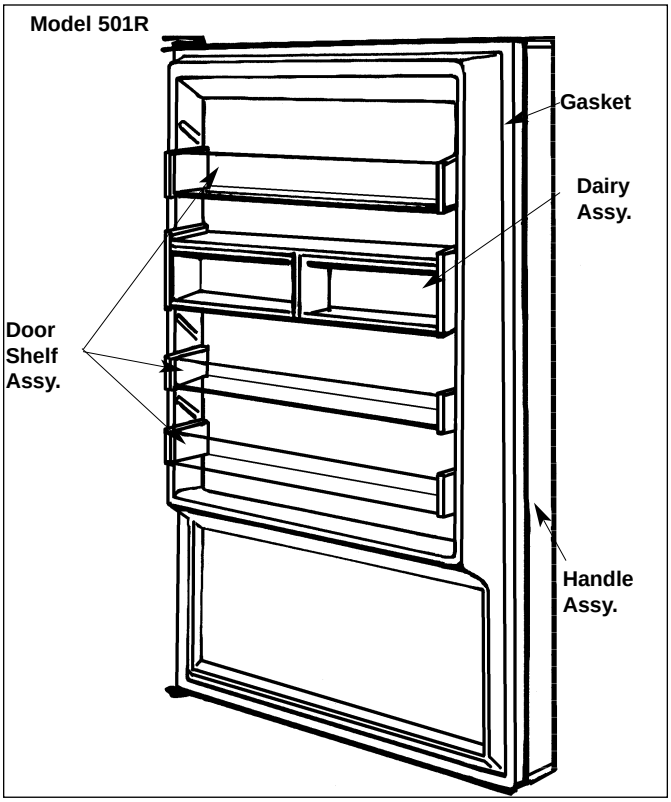


Figure 2-1. Refrigerator Door

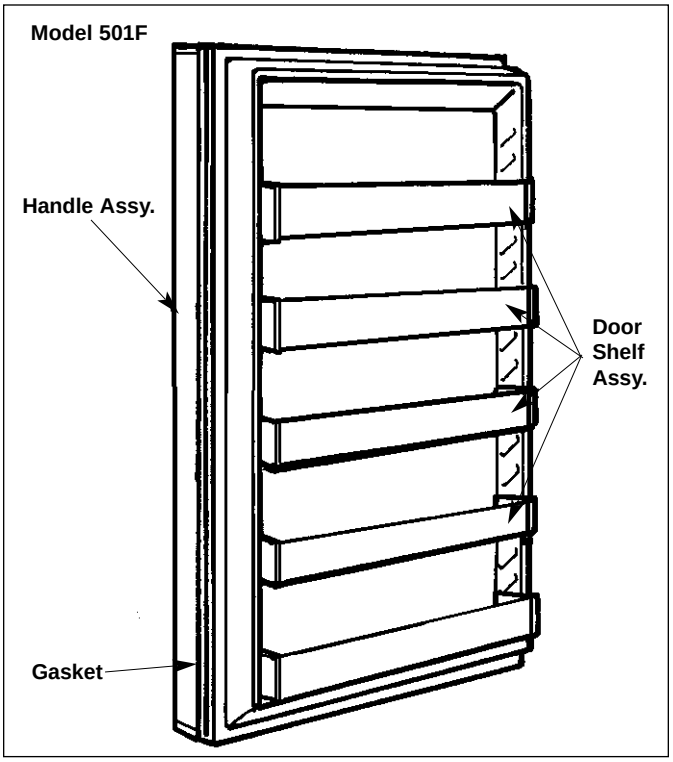


Figure 2-2. Freezer Door

DOORS AND DRAWERS

Refrigerator/Freezer Door Assembly

See Figures 2-1 thru 2-7. Door assemblies consist of the following parts:

- Door shell and liner with solid foam core
- Door gasket
- Door trim
- Door handle assy.

NOTE: *Service replacement doors do not include handle assemblies.*

NOTE: *The dairy assy. and door shelf assy. are independent from the door assy.*

NOTE: ***Models 501R, 501F, 511, 532, 542 & 561:*** *Extended Door Handle Packages are available for raised panel applications. Contact your parts or product distributor.*

If either the door handle end caps should happen to crack or break, order standard Handle End Cap Package, part no. 4-20-049-0 or Extended Handle End Cap Package, part no. 4-20-070-0.

NOTE: ***Model 590:*** *If either the door handle end caps should happen to crack or break, order 590 Handle End Cap Package, part no. 4-20-092-0.*

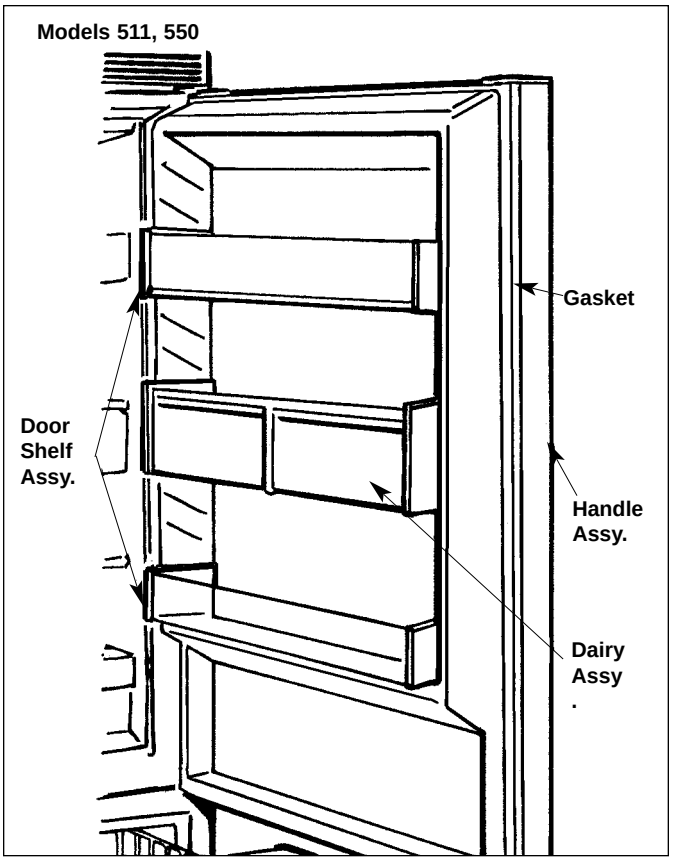


Figure 2-3. Refrigerator Door

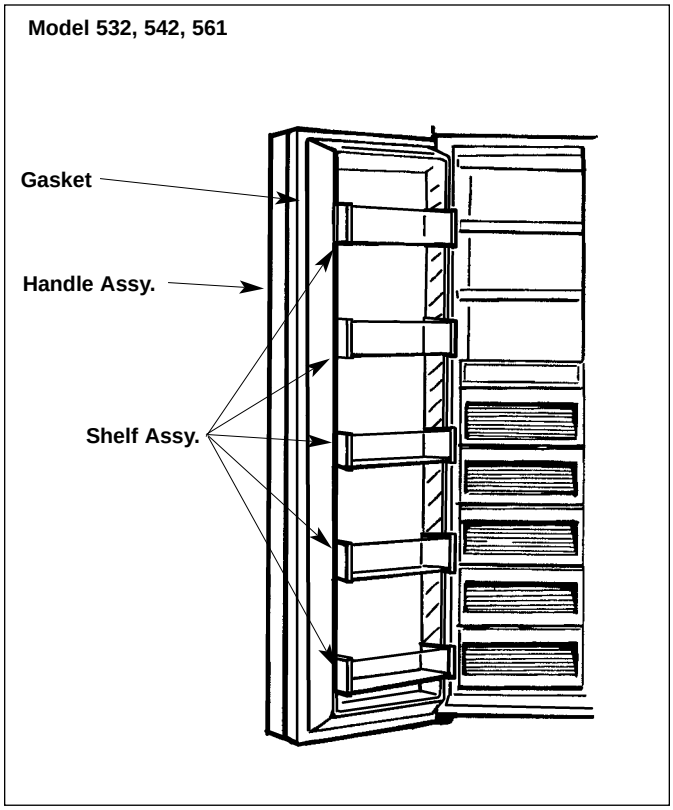


Figure 2-4. Freezer Doors

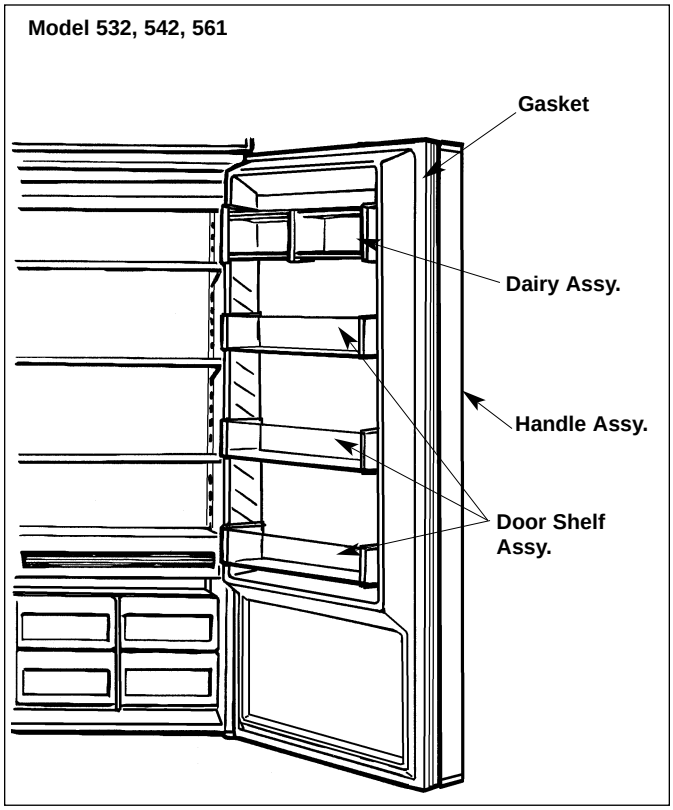


Figure 2-5. Refrigerator Doors

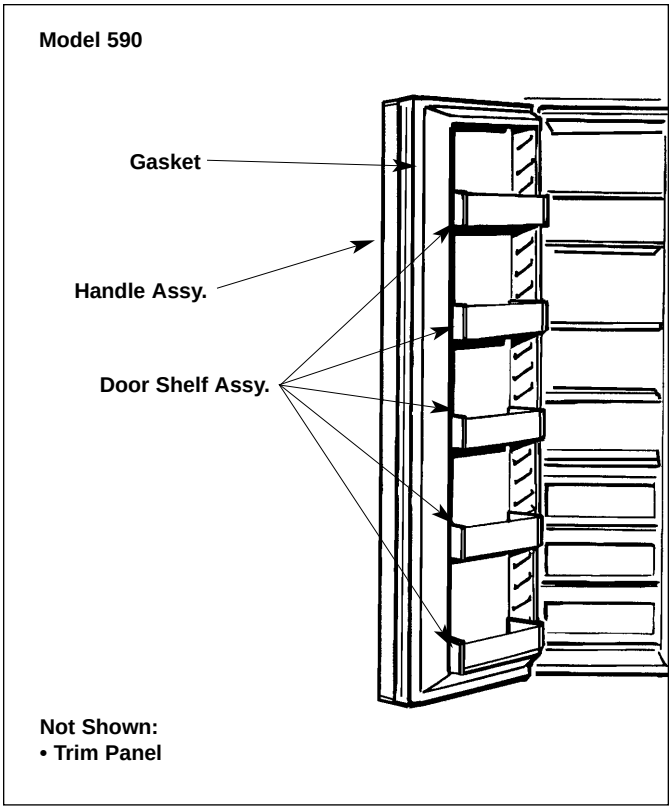


Figure 2-6. Freezer Door

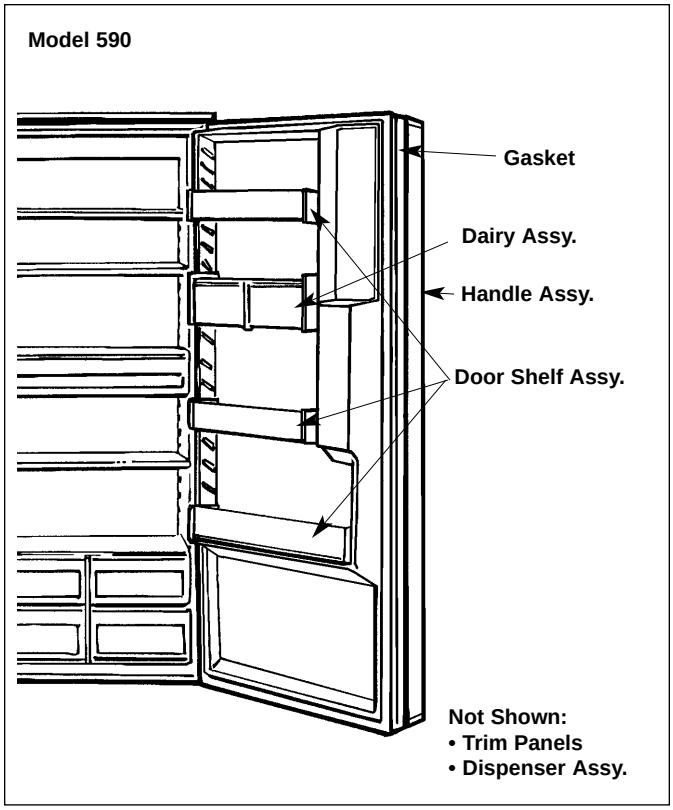


Figure 2-7. Refrigerator Door

Freezer Drawer Assembly - Models 511, 550

⚠ CAUTION

Freezer drawer is heavy. Use proper lifting techniques when removing drawer assy.

The freezer drawer assembly pulls out, providing access to the food and ice. The drawer consists of the following:

- Foamed drawer shell
- Door liner
- Drawer trim and handle
- Gasket
- Upper basket
- Lower basket

The drawer slides have a built-in self-closing incline feature. The complete drawer assembly can be removed by lifting up and out while holding the upper basket (Figure 2-8).

The lower basket is fixed to the frame assy. The upper basket rolls in and out on the frame assy. and drawer slides (Figure 2-9).

NOTE: ***A****ttached to the back of the bottom freezer basket frame is a restraint clip (not shown). This clip holds the upper roll-out basket to the frame. This clip is* ***not*** *to be removed or discarded; it is installed to prevent child entrapment.*

FREEZER DRAWER ADJUSTMENT-MODELS 511 & 550

1. Loosen the two rear screws of each cabinet drawer slide, and remove the screw at the slide front (Figure 2-10).
2. Relocate the front screw to the desired position (Figure 2-10). After adjustment, tighten all screws and reinstall the drawer. Check door seal for proper gasket seating.
3. To adjust the drawer pitch, remove the two plastic plugs on each side of the liner (Figure 2-11). Use a socket wrench to loosen all four

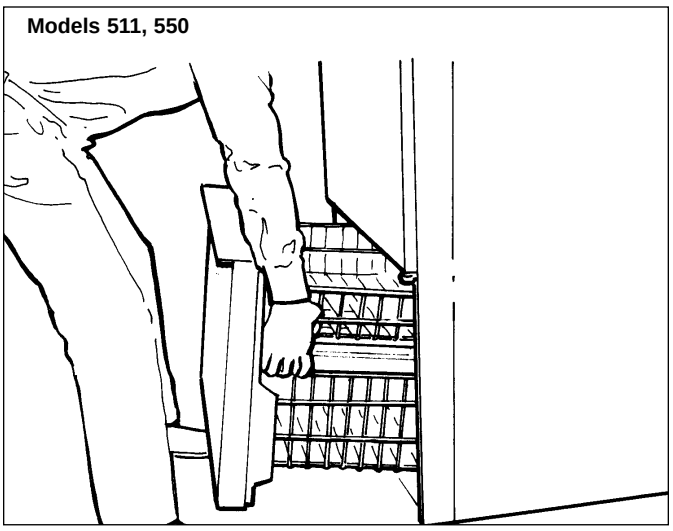


Figure 2-8 Removing Freezer Drawer

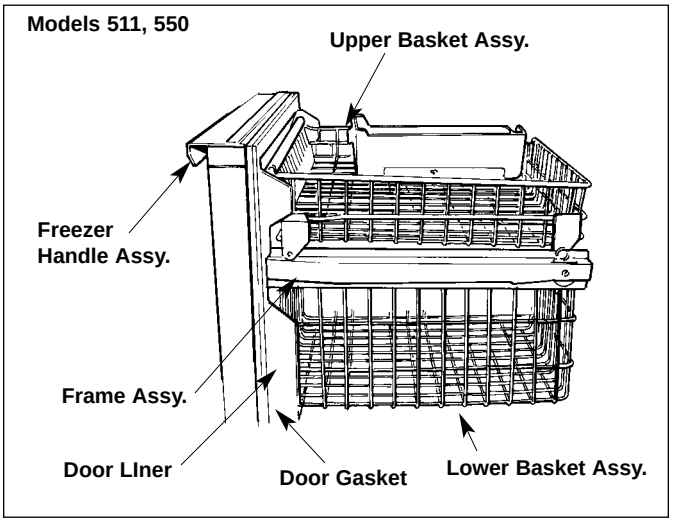


Figure 2-9. Freezer Drawer Assy.

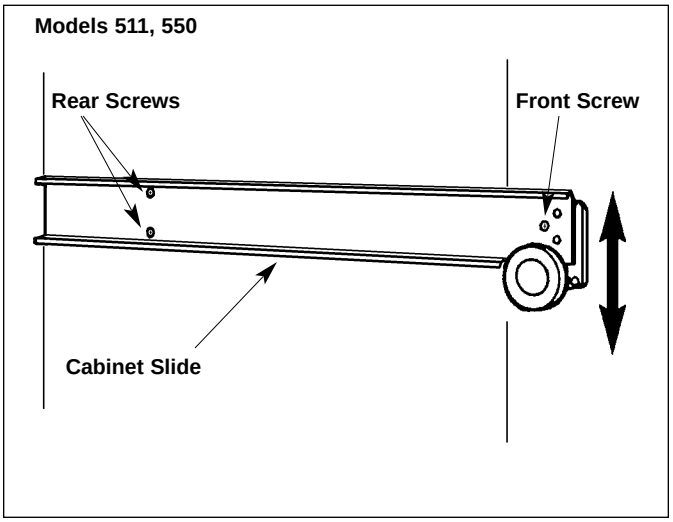


Figure 2-10. Drawer Up-And-Down Adjustment

1/2” bolts (two on each side). Make the necessary adjustment, then retighten all bolts. Reinstall plastic plugs.

NOTE: *If there is too much side-to-side movement, the cabinet slides may be spaced out. To fine tune the drawer tracking, the following shims are available:*

- *Front Shim, part no. 0232300*
- *Rear Shim, part no. 0232310*

Door Shelf Assembly - All Models

The door shelf assy. slides into the molded tracks of the door liner. To disassemble the door shelf:

1. Place a flat-bladed screwdriver into the outside end cap and pry the end cap away from the shelf assembly (Figure 2-12).
2. This will release the end caps from the door shelf, allowing the door shelf support to slide off the open end (Figure 2-13).

Dairy Compartment - All Models

The dairy compartment assy. slides into the molded tracks of the door liner in the same manner as the door shelves. To disassemble the dairy compartment:

1. Insert a flat blade screwdriver into the outside end cap and pry away from the dairy compartment (Figure 2-12).
2. Release the two lock tabs and remove the inside end caps.
3. The dairy doors with the magnetic catch strip pivots between the center divider and the inside end caps. To remove the center divider, release the lower tab from the back side of the compartment and drop it down to release the upper tab.
4. The door gasket pushes into the channel around the dairy compartment.

NOTE: *The bottom strip of the gasket contains the magnet.*

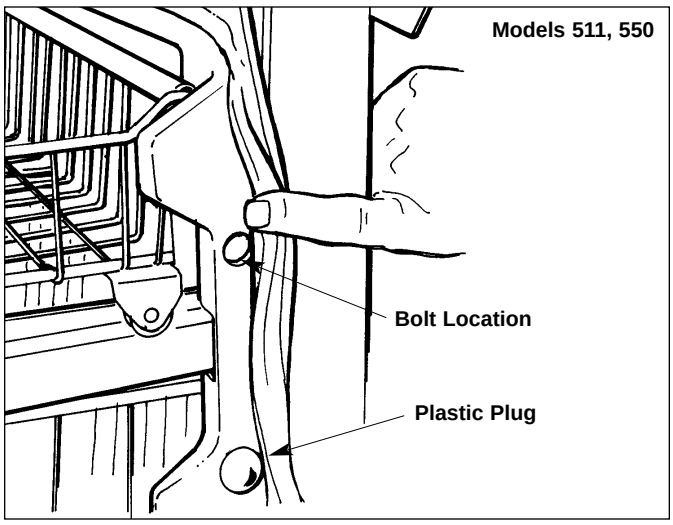


Figure 2-11 Door Pitch Adjustment

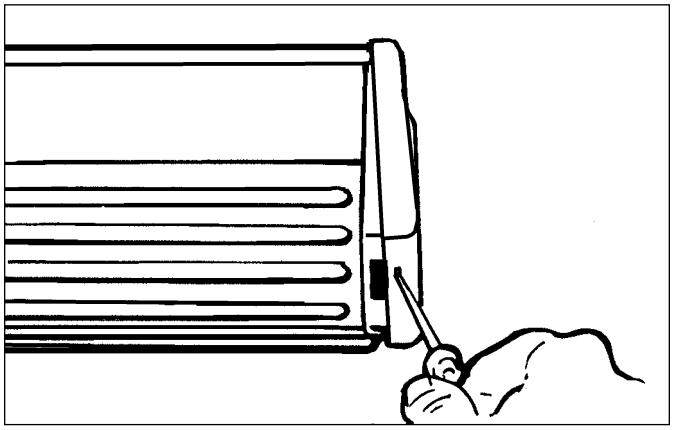


Figure 2-12. Installing/Removing Door Shelf Assy.

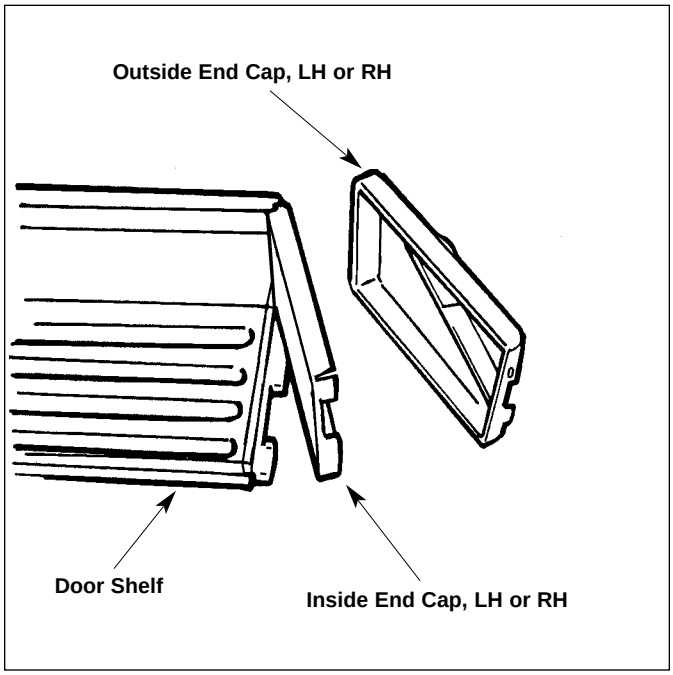


Figure 2-13. Door Shelf Disassembly

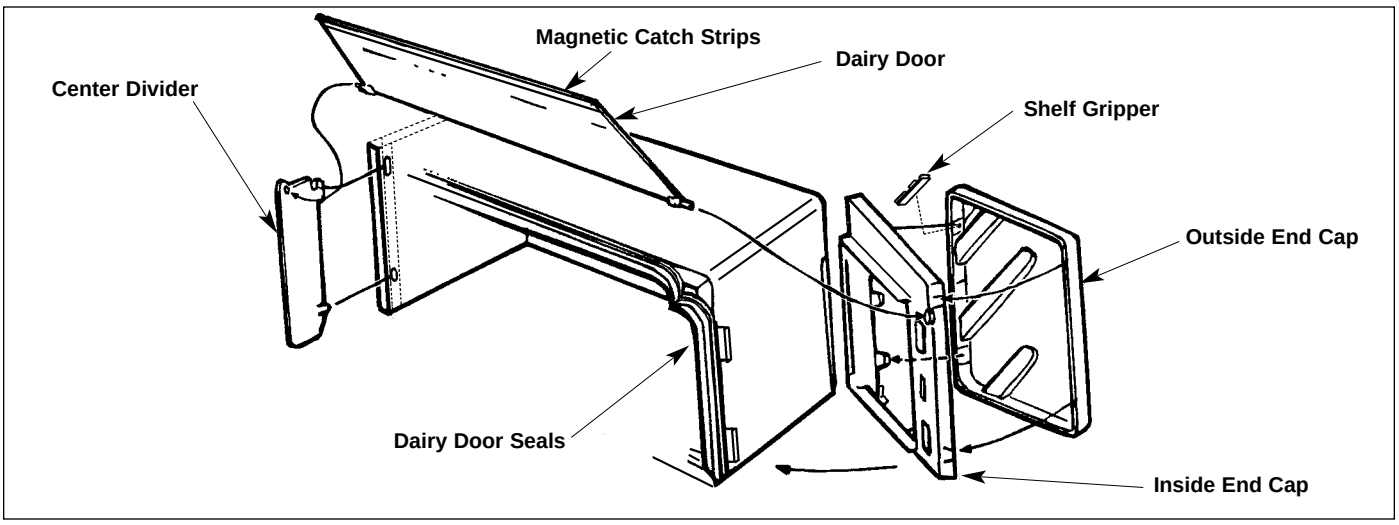


Figure 2-14. Dairy Compartment Assy.

Door Panel Assembly - All Models Except 590

To install or remove a door panel, use the following procedure.

1. Remove the door handle trim moldings from the handle. The trim moldings are held in place with magnets. Place one end of a piece of tape in the center of the molding, and remove molding by pulling on the tape (Figures 2-15).
2. Remove the door handle screws (Figure 2-15) and remove the door handle.
3. Install the selected door panel into the exposed channel.
4. Reinstall the door handle and handle trim moldings.

NOTE: *Extended Grip Full Length Handles, for thicker raised panels are available from your parts or product distributor.*

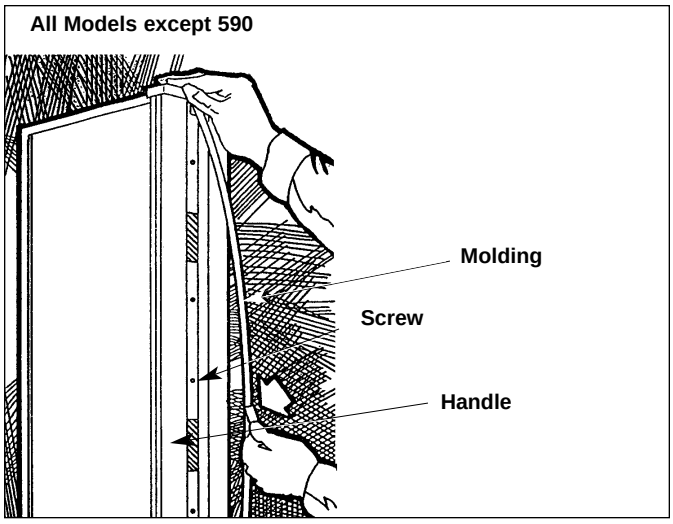


Figure 2-15. Door Moldings and Handle

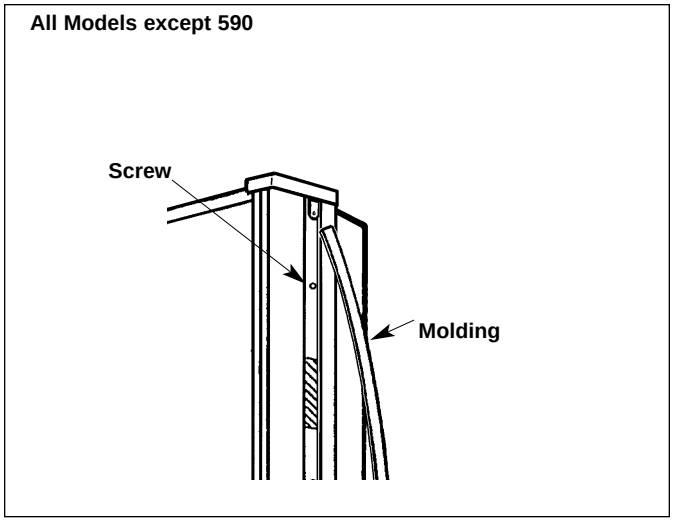


Figure 2-16. Door Moldings

Door Panel Assembly - Model 590

To install or remove a door panel, use the following procedure.

1. Remove the door handle trim moldings (Figure 2-17). The trim moldings are held in place with magnets. Place one end of a piece of tape in the center of the molding, and remove molding by pulling on the tape.
2. Remove the door handles from the freezer and/or refrigerator doors.
3. Remove the trim panel(s) by sliding them out of the doors (Figure 2-18).
3. ***Refrigerator Door Assy. Only.*** Remove the water and ice glasswell by removing the glasswell screw (Figure 2-18). Slide the glasswell up and pull out.
4. Remove the top and bottom trim filler mounting screws and trim fillers (Figure 2-19). Also, remove the vertical trim strip and mounting screw.
5. Install the selected door panels by sliding into the frame on the door.
6. Reverse steps 1 - 4 to reassemble.

Door Dispenser Assembly - Model 590

⚠ WARNING

Always disconnect electrical power at the master power switch before attempting repair.

Use the following procedure to remove the door dispenser assy.

1. Remove the door handle, trim and panels as described on previous page.
2. Remove the glasswell screw. Slide the glasswell assy. up and out (Figure 2-18).
3. Remove the vertical trim strip and screws (Figure 2-19).

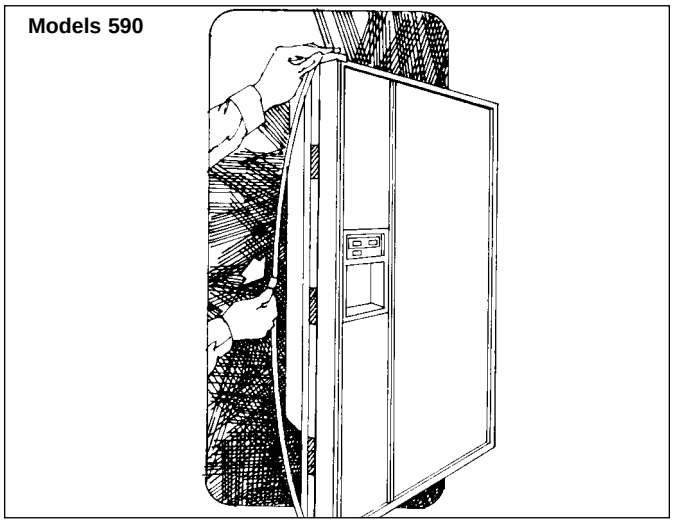


Figure 2-17. Door Trim Molding

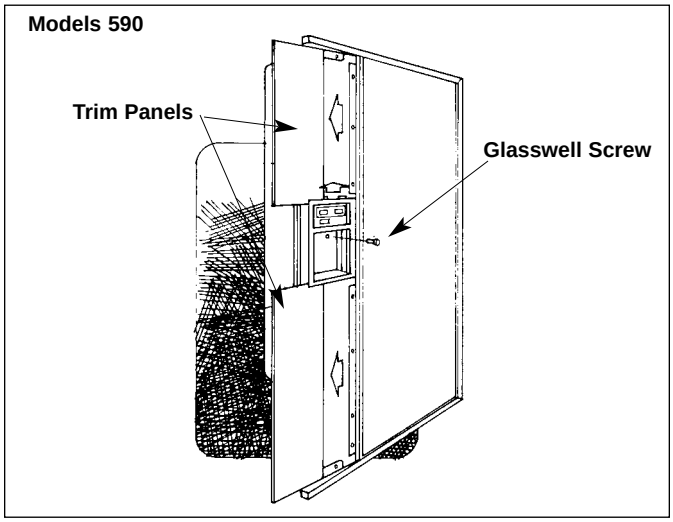


Figure 2-18. Door Trim Panels

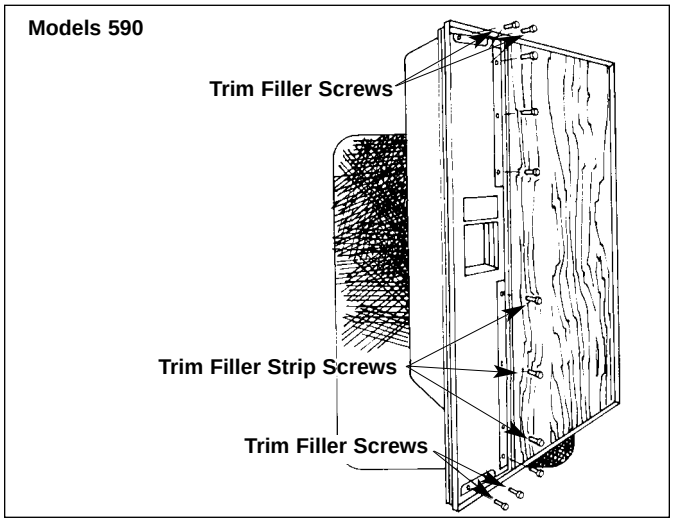


Figure 2-19. Door Trim Screws

4. Remove the six Phillips head screws securing the door dispenser assy., then remove the dispenser by pulling the bottom out and down.
5. Disconnect wiring harnesses and green ground wire from the dispenser.

NOTE: *The door dispenser cannot be field repaired; it must be replaced.*

6. To reassemble, reverse steps 1 - 5.

Door Closer Assemblies

GRAVITY TYPE CLOSER - Model 501R & 501F Prior To Serial No. 836000; Model 511 & 550 Regardless of Serial No.

When the door is closed, the door closer cams (Figure 2-20) should not be totally bottomed-out. Both cams should be riding up and down on each other for the proper closure action.

NOTE: *An Accessory Door Stop Package is available. See DSRH & DSLH in Service Parts Price Book.*

SPRING STOP/CLOSURE ASSY.

The spring door closer assy. allows the door to stop at 130° and utilizes a spring-assist door closing mechanism.

NOTE: *An Accessory Door Stop Package is available which will stop the door at 87°, 90° or 105°. See DS90 and DS105 in Service Parts Price Book.*

NOTE: *Replacement door closer assemblies are supplied with replacement instructions.*

Door Adjustment

NOTE: *The unit must be level before adjusting doors.*

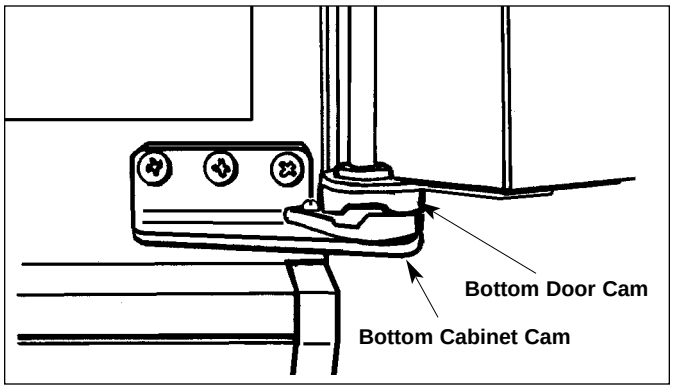


Figure 2-20. Gravity Door Closer

If unit is properly installed, blocked and leveled, it may still be necessary to adjust the door(s) from left to right and/or in and out. Adjustments are performed at the top and/or bottom door hinge(s). In each door hinge are two small Phillips head shipping screws that will need to be removed and discarded before adjustments are made. The remaining larger door hinge screws are then loosened, allowing door adjustment from left to right and/or in and out (Figure 2-21). After adjusting the door, the door hinge screws are tightened back down and the door seal checked for proper gasket sealing.

NOTE: *If a side-by-side unit is properly installed and leveled, and the doors properly adjusted yet one door lines up higher than the other, a bottom hinge spacer (part no. 0183100) is available. The door hinge screws of the lower door hinge are loosened and the hinge spacer(s) inserted between the bottom door trim and the bottom door hinge (Figure 2-22). This will raise the door slightly. The door hinge screws are then tightened back down. Bottom hinge spacer (part no. 0183100) will* ***NOT*** *work on over-and-under units.*

Refrigerator Drawer and Freezer Basket Assemblies - All Models

The crisper drawer and roll-out basket drawer are similar in design. Replacement parts include fronts, windows, baskets and drawers (Figure 2-23).

1. Remove the screws from the bottom of the assembly front.

NOTE: *These screws are not used on the crisper assy.*

2. Release the tabs on the top corners of the fronts using a flat-blade screwdriver. Depress the tab and pull the front forward slightly so the tab will not relock, then repeat for the other side.
3. To reassemble, hold windows and slides in place (if used). Position the bottom of the front piece over the lower tabs, then secure to the the top tabs. Install the screws (if used) through the bottom of the front piece.

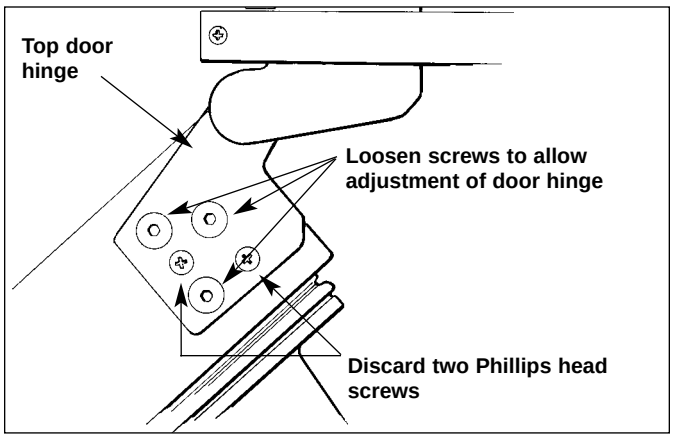


Figure 2-21. Door Adjustment

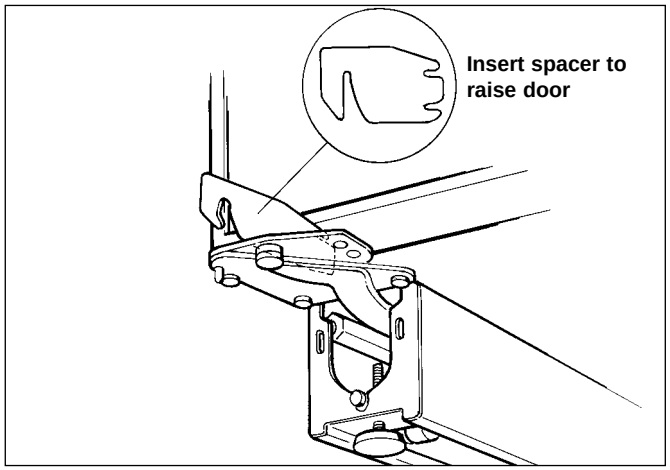


Figure 2-22. #0183100 Hinge Spacer Installation

1. Crisper Drawer Assy.
2. Crisper Drawer
3. Crisper Drawer Front
4. Crisper Glass Front
5. Vent Slide
6. Roll-Out Basket Assy.
7. Roll-Out Drawer Window
8. Roll-Out Drawer Front
9. Roll-Out Basket
10. Screws
11. Retainer, Glass
12. Retainer, Basket
13. Roller & Screw

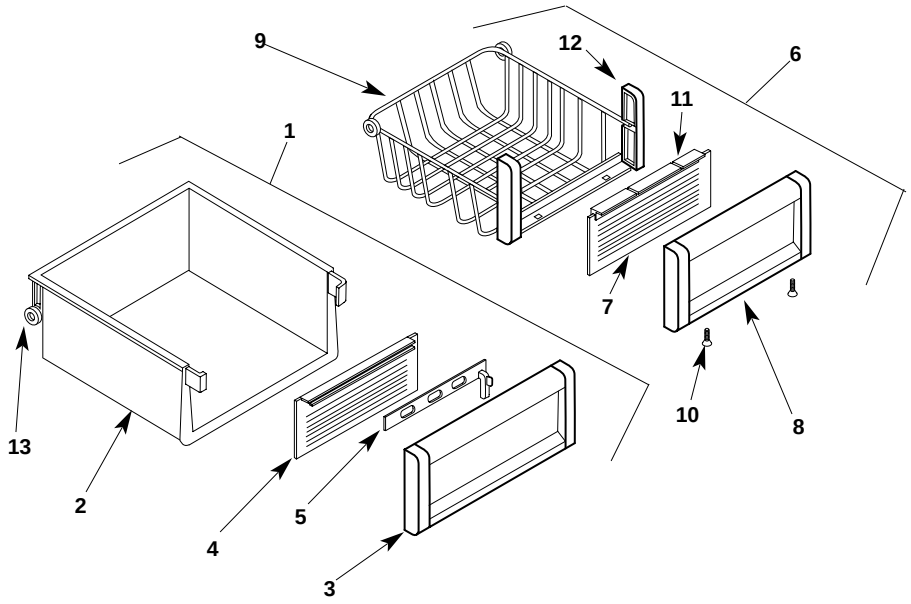


Figure 2-23. Crisper and Roll-Out Basket Assemblies

FREEZER COMPONENTS

⚠WARNING

Always disconnect electrical power to equipment before attempting repairs.

Freezer Fan Motor - Model 501F

1. Remove the overhead light diffuser by grasping the back edge and pulling forward to release, then drop the front edge out of the channel. (Figure 2-24).
2. Remove the two screws from front of fan guard and lift out (Figure 2-25).
3. Tilt the evaporator cover out at the top and lift off of the posts at the bottom.
4. Remove the screws holding the fan shroud in place and disconnect the lighting electrical leads.
5. Remove the fan bracket screws and pull out the bracket and fan motor assy. (Figure 2-26).
6. Disconnect the motor electrical connection (Figure 2-26).
7. To reassemble, reverse steps 1-6.

NOTE: *Clamp position should always be UP (Figure 2-27).*

NOTE: *As a service part replacement, white fan blade, part no. 3-15-006-0, must be used prior to S/N 663116/P679466. From S/N 663116/P679466 to M/P1004775, use the black fan blade, part no. 3-15-045-0. Starting with S/N M/P1004775, use grey fan blade, part no. 3-15-052-0.*

NOTE: Fan blade position after Serial Number 1004775 is 1-5/8".

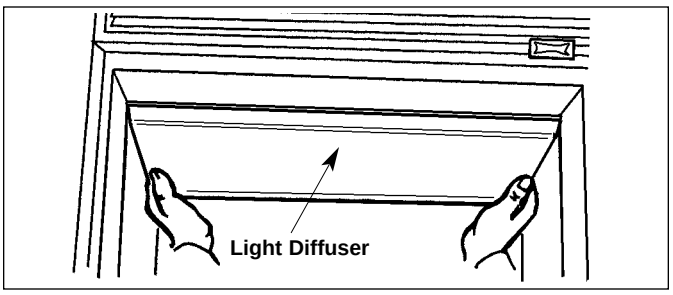


Figure 2-24. Light Diffuser

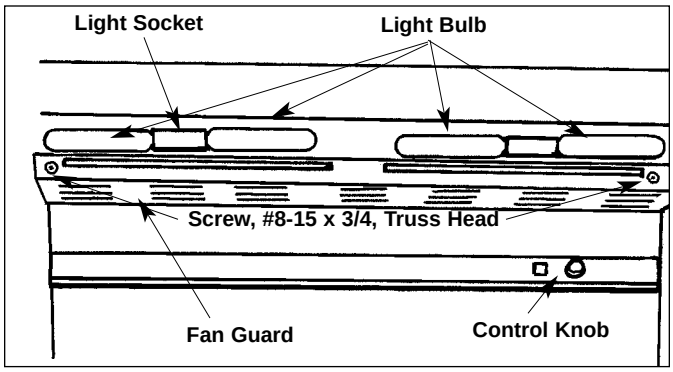


Figure 2-25. Fan Guard

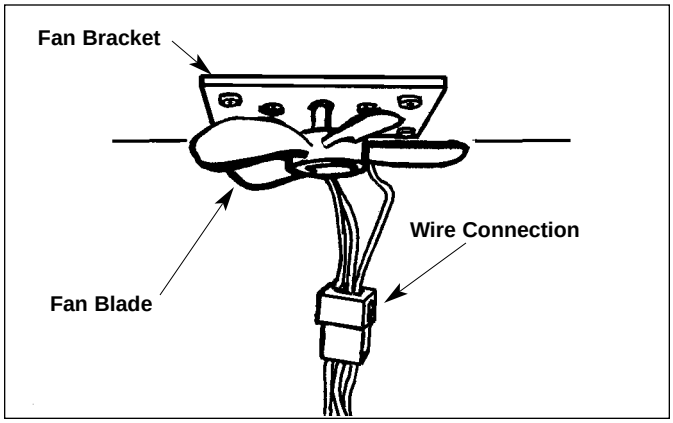


Figure 2-26. Evaporator Fan Blade Assy.

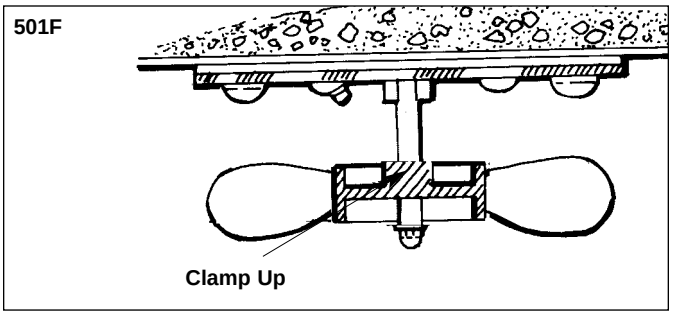


Figure 2-27. Evaporator Fan Assy.

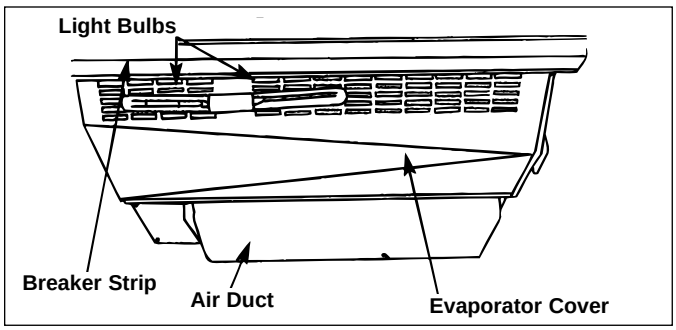


Figure 2-28. Model 511, 550 Freezer Compartment, Top

Freezer Fan Motor - Models 511, 550

1. To access and remove the evaporator fan assembly, the freezer air duct and evaporator cover will need to be removed first (Figure 2-28).
2. Remove the mounting screws at the left side of the fan shroud. Tilt the front edge of the assembly down and disconnect the fan motor wiring from the wire harness (Figure 2-29).
3. Continue to tilt the assembly forward and pull out. The freezer evaporator fan can now be removed from the fan shroud.

NOTE: *When reinstalling freezer evaporator fan assembly, the oblong holes in the rear flange of the fan shroud must be placed over the two upper white pegs in the rear wall.*

Freezer Fan Motor - Models 532, 542, 561

1. To access the freezer evaporator fan motor, remove the freezer duct/shelf (Figure 2-30). Remove the two #10-12 x 1/2 screws from the cover and raise up. Disconnect wire harness and continue to raise up until the top lip of the cover releases from the air diffuser. The fan motor is mounted behind the evaporator on the freezer fan shroud (Figure 2-31).
2. To remove fan, remove the screws (Figure 2-24) from the top of the shroud and pull the shroud forward., The fan assembly will now lift straight up from behind the evaporator (Figure 2-31).

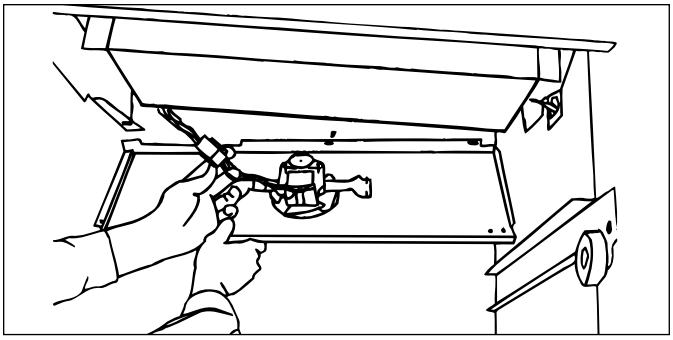


Figure 2-29. Model 511, 550 Freezer Assy.

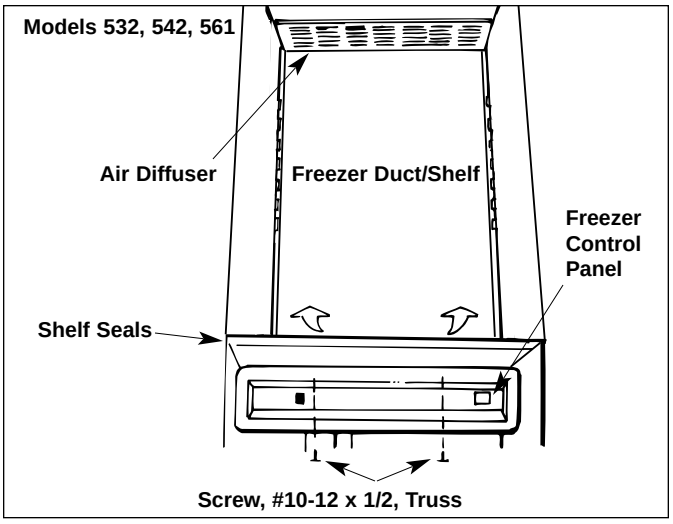


Figure 2-30. Freezer Duct/Shelf

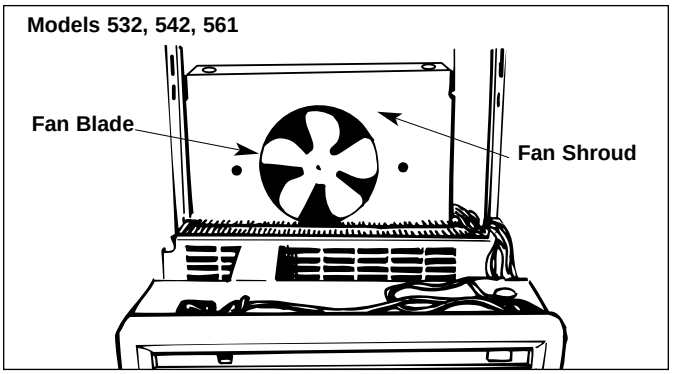


Figure 2-31. Freezer Fan

NOTE: *When reinstalling the fan, angle the bottom of the fan shroud towards the back of the freezer and then raise the top of the shroud into position to secure at top. A properly installed shroud will be parallel to the evaporator.*

3. Reinstall the freezer duct/shelf (Figure 2-30). Insert the top lip of the cover behind the air diffuser and then lower it. Be sure the cutouts in the cover line up with the tabs at the back.

Freezer Fan Motor - Model 590

1. To access the freezer evaporator fan motor, lift off the freezer utility rack (Figure 2-32).
2. Remove the top diffuser. Remove front evaporator cover held in place with two screws at the top and two screws at the bottom (Figure 2-33).

NOTE: *On Model 590, remember to remove screw just below water reservoir area before tilting evaporator cover forward.*

3. Remove two screws, then pull fan motor assembly out (Figure 2-34).

NOTE: *Fan motor wires are held in place by a clip on the side wall.*

4. For reassembly, reverse steps 1 - 3.

NOTE: *After fan motor is installed, make sure fan blade rotates freely.*

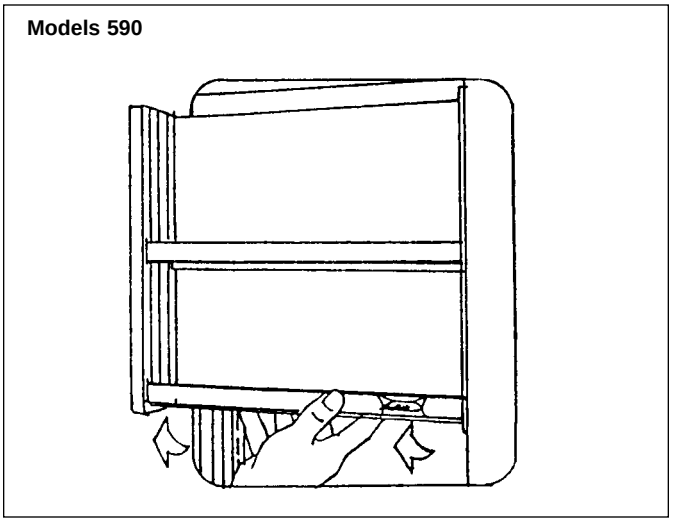


Figure 2-32. Freezer Utility Rack

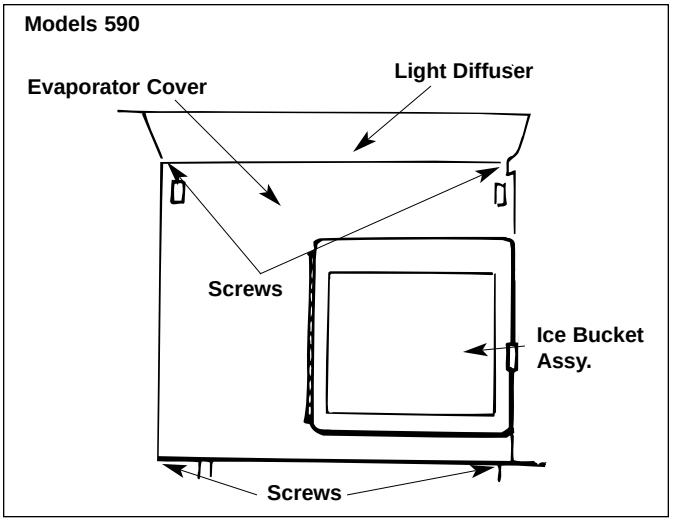


Figure 2-33. Evaporator Cover

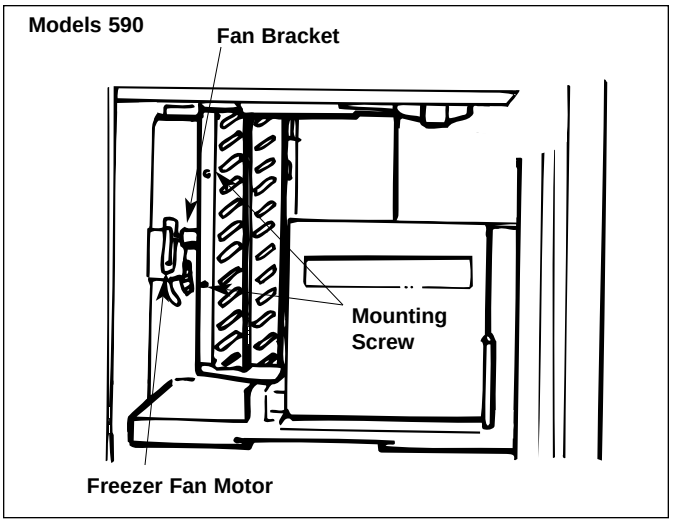


Figure 2-34. Freezer Fan Motor

Ice Maker Assy. - Model 501F

⚠WARNING

Always disconnect electrical power to equipment before attempting repairs.

⚠CAUTION

Do not manually advance the ejector blades on the modular ice maker.

The ice bucket is located in the top right freezer basket (Figure 2-35).

The ice maker is connected to the ice level arm by a connecting rod (Figure 2-36).

When the ice bucket is removed, ice production will stop. There is a tab on the rear left hand corner of the bucket that activates the ice maker switch (Figure 2-36).

1. To access and remove the icemaker assy., remove the top right freezer basket which contains the ice bucket.
2. Slide the connecting rod to the right, off of the icemaker shut-off arm, allowing the ice level arm to drop out of the way.
3. Remove the mounting screw at the bottom left of the icemaker which secures the icemaker bracket to the drain trough enclosure.
4. Extract the two mounting screws at the top rear, above the icemaker mold.
5. Pull the icemaker assy. forward and disconnect the electrical leads from the icemaker.

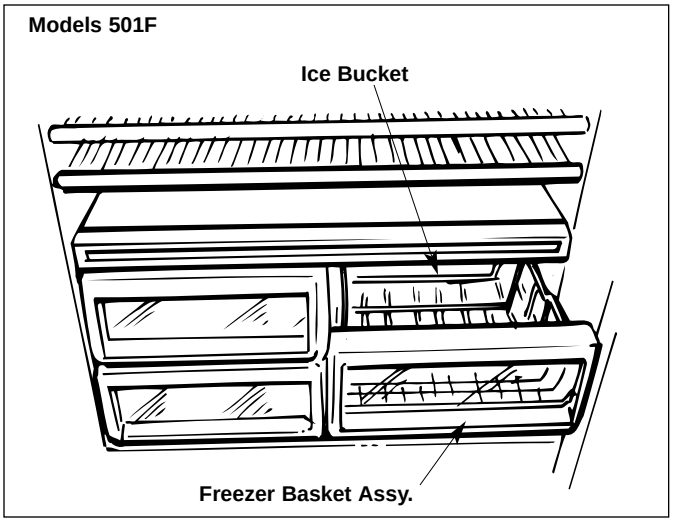


Figure 2-35. Ice Bucket

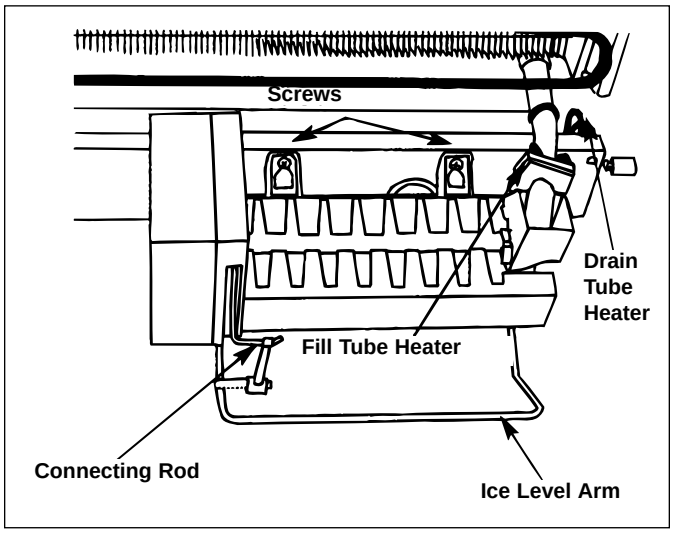


Figure 2-36. Icemaker Area

Compact Ice Maker Assembly Model 550 Prior to Serial Number M/P681166, and between Serial Numbers M/P681565 to M702716/P700765

The ice maker assy. linkage roller contacts the back of the the ice bucket and raises or lowers the ice level arm, when the ice bucket is pushed in or out. Ice production stops when the bucket is removed.

NOTE: If the shut-off arm on the right hand side of the ice maker is not activating the shut-off micro switch, the shut-off arm should be manually adjusted toward the ice maker until contact is achieved.

Modular Ice Maker Assembly Model 511, 550 Between Serial Number M/P681166 to M/7681565, and starting with Serial Number M702716/P700765

⚠WARNING

Always disconnect electrical power to equipment before attempting repairs.

⚠CAUTION

Do not manually advance the ejector arms or drive gear or the main assy. will be destroyed.

The ice bucket is located in the top left rear corner of the top freezer basket (Figure 2-38). A tab on the rear left corner of the bucket activates the icemaker switch. If the ice bucket is out of position, ice production will stop.

NOTE: If the ice maker stops making ice, verify ice bucket is in position and check the shut-off arm to see if it is stuck in the up (off) position.

The ice maker is located in the upper left corner of the freezer compartment and secured to the side wall by two screws above the ice maker and one screw below it (Figure 2-39).

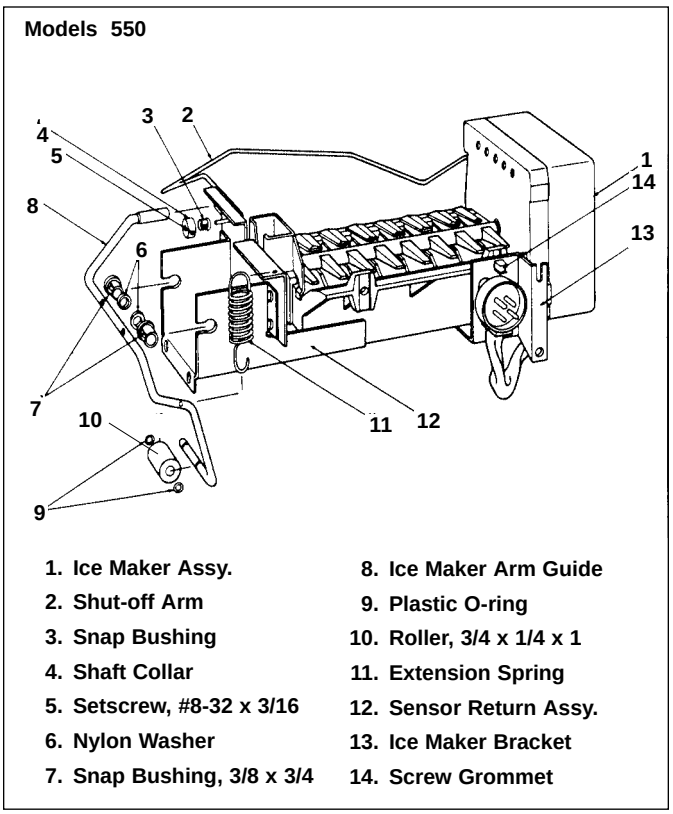


Figure 2-37. Compact Icemaker

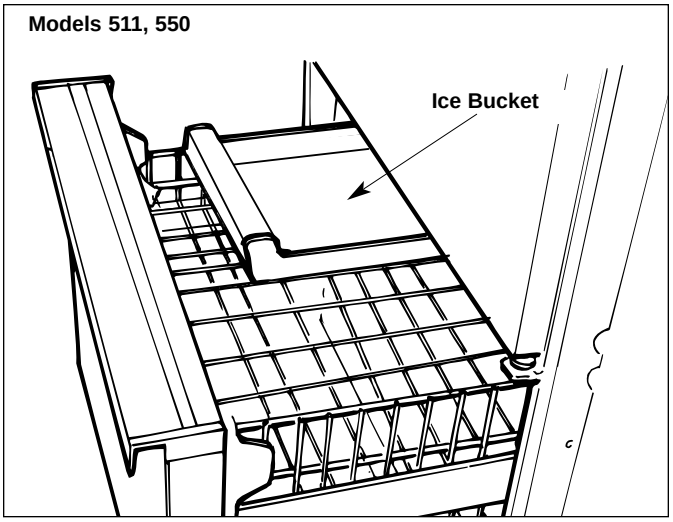


Figure 2-38. Ice Bucket Location

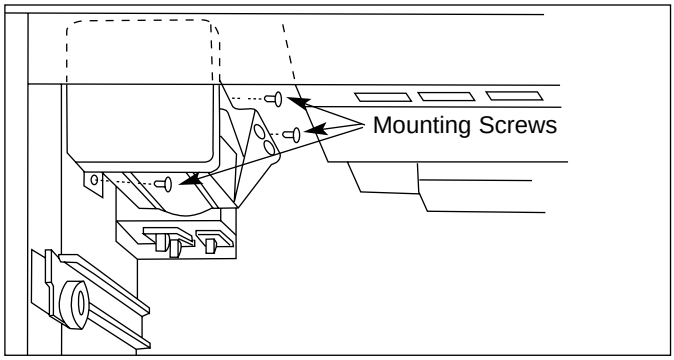


Figure 2-39. Models 511, 550 Icemaker

1. To remove the icemaker, extract the mounting screw at the bottom of the icemaker which secures the icemaker bracket to the left side wall.
2. Then extract the two mounting screws at the top, above the icemaker mold (Figure 2-39).
3. Pull the icemaker assy. down and disconnect the electrical leads from the icemaker.

Ice Maker Assembly - Models 532, 542, 561

⚠WARNING

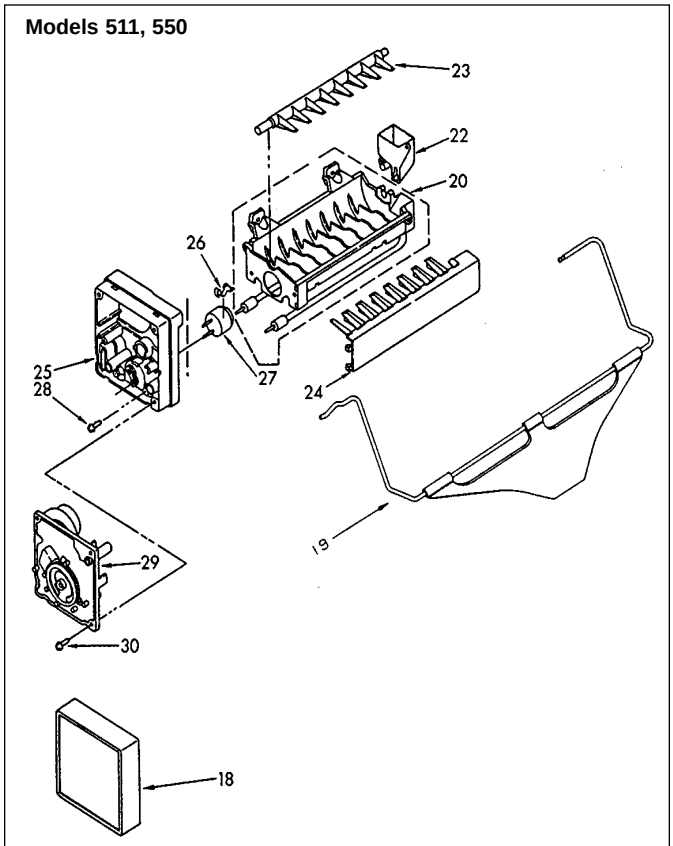
Always disconnect electrical power to equipment before attempting repairs.

⚠CAUTION

Do not manually advance the ejector blades on a modular ice maker or the unit will be damaged.

The back channel of the ice bucket hooks over the ice bucket carriage assembly (Figure 2-41).

The guide on the carriage assy. contacts the arm of the ice maker linkage (Figure 2-42). As the carriage assy. is pulled out, the arm rides up the guide and the linkage will raise allowing clearance for the ice bucket. When the carriage is pushed back, the linkage drops into the ice bucket to sense the level of the ice.



18. Cover
19. Ice Maker Arm
20. Mold & Heater Assy. (Silicone Grease)
22. Bearing & Inlet
23. Ejector
24. Ice Stripper
25. Support
26. Retainer, Thermostat
27. Thermostat
28. Screw, #10-32 x 43/64
29. Module & Motor Assy.
30. Screw, #8-18 x 11/16

Figure 2-40. Modular Icemaker

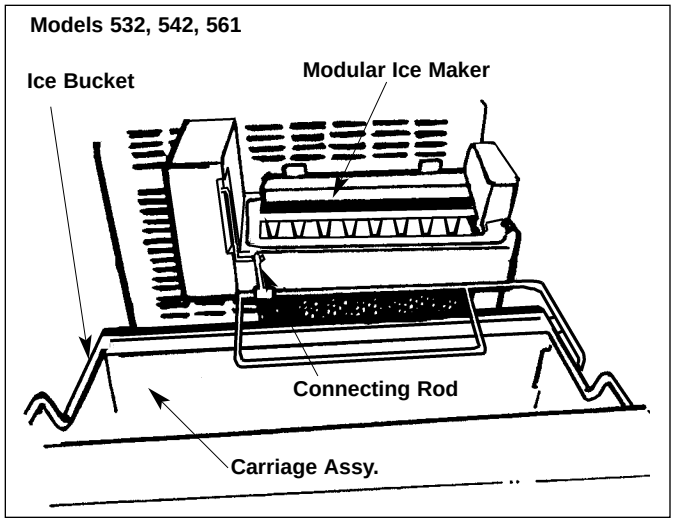


Figure 2-41. Ice Bucket

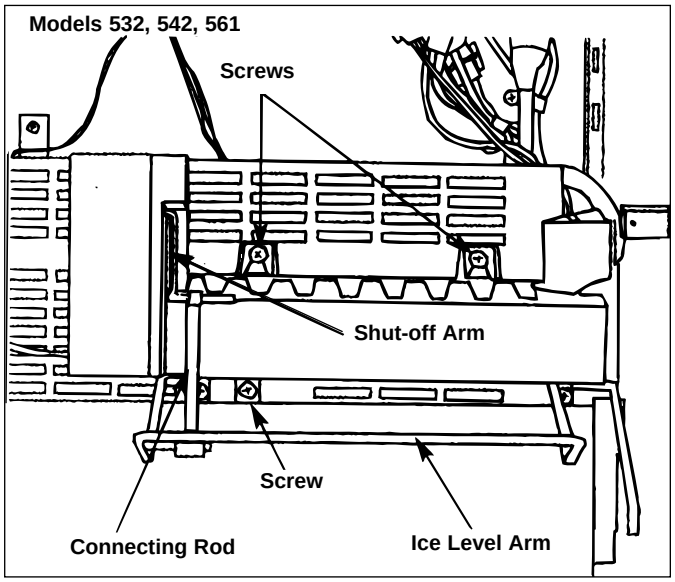


Figure 2-42. Icemaker

The linkage is connected to the ice level arm by a connecting rod (Figure 2-42). As the linkage raises or lowers, the ice level arm raises or lowers.

1. To remove the icemaker, slide the connecting rod to the right,off of the icemaker shut-off arm, allowing the ice level arm to drop out of the way (Figure 2-42).
2. Remove the mounting screw at the bottom left of the icemaker which secures the icemaker bracket to the evaporator cover assembly.
3. Then extract the two mounting screws at the top rear, above the icemaker mold.
4. Pull the icemaker assy. forward and disconnect the electrical leads from the icemaker.

The carriage assy. rolls within the tracks of the slide. To remove, push the carriage in and remove the two front-most screws on each slide. Pull the carriage and slides out together (Figure 2-43).

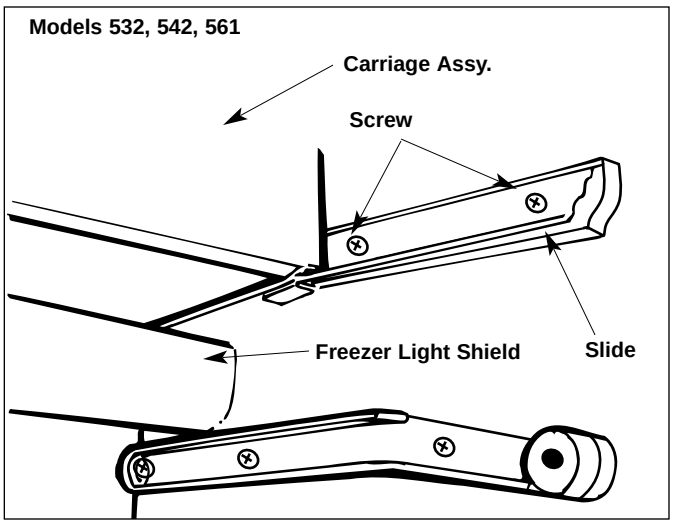


Figure 2-43. Carriage Slides

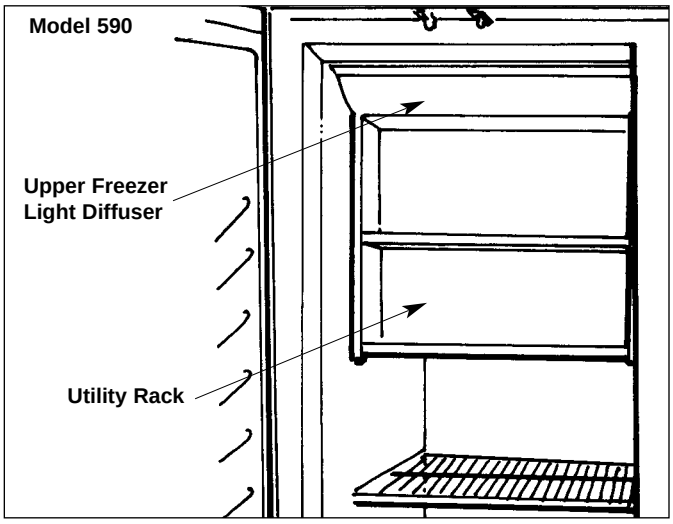


Figure 2-44. Upper Freezer Light Diffuser

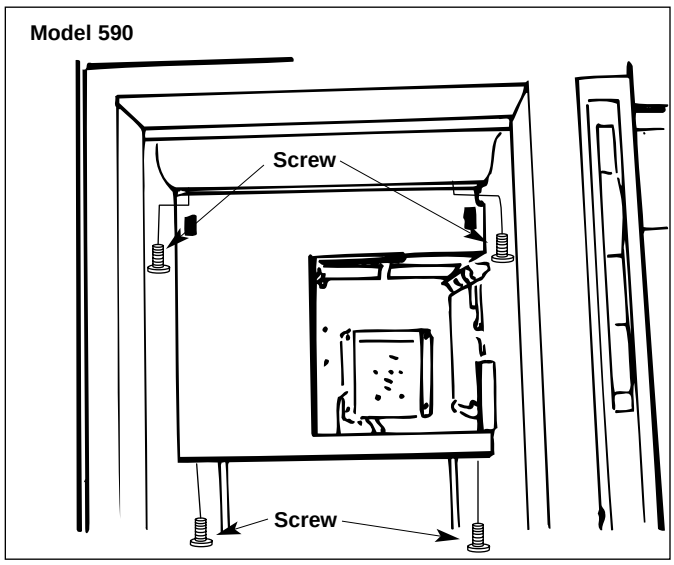


Figure 2-45. Evaporator Cover Removal

Ice Maker Assembly - Model 590

⚠WARNING

Always disconnect electrical power to equipment before attempting repairs.

1. To access the ice maker, lift up and remove the freezer utility rack (Figure 2-44), then remove the top light diffuser. Remove the ice bucket.
2. Remove the front evaporator cover (Figure 2-45). It is secured with two screws on top and two screws on the bottom.
3. Remove rear air duct.
4. Remove the lower evaporator cover by pulling out the two snap pins (Figure 2-46).
5. Remove the bucket mainframe assy. by unscrewing three screws located on the freezer side wall along with the three screws located on the back wall (Figure 2-47).
6. Drop down the bucket mainframe assy. Detach the wiring harness and remove the ice maker.

NOTE: *It is not necessary to drop the bucket mainframe assy. to replace the modular head.*

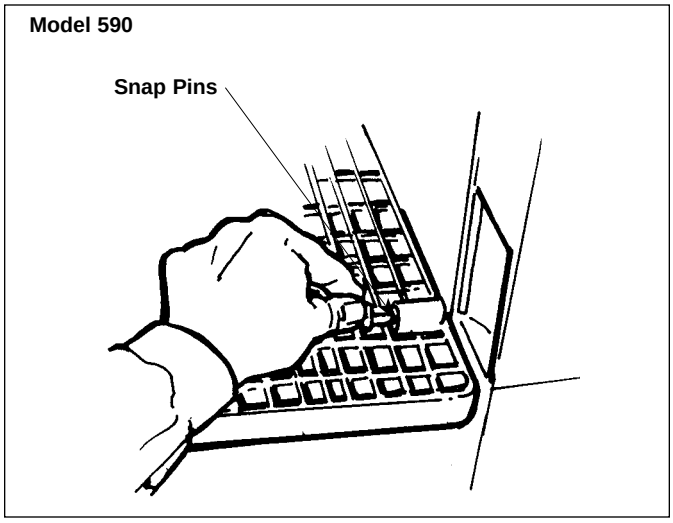


Figure 2-46. Lower Evaporator Cover

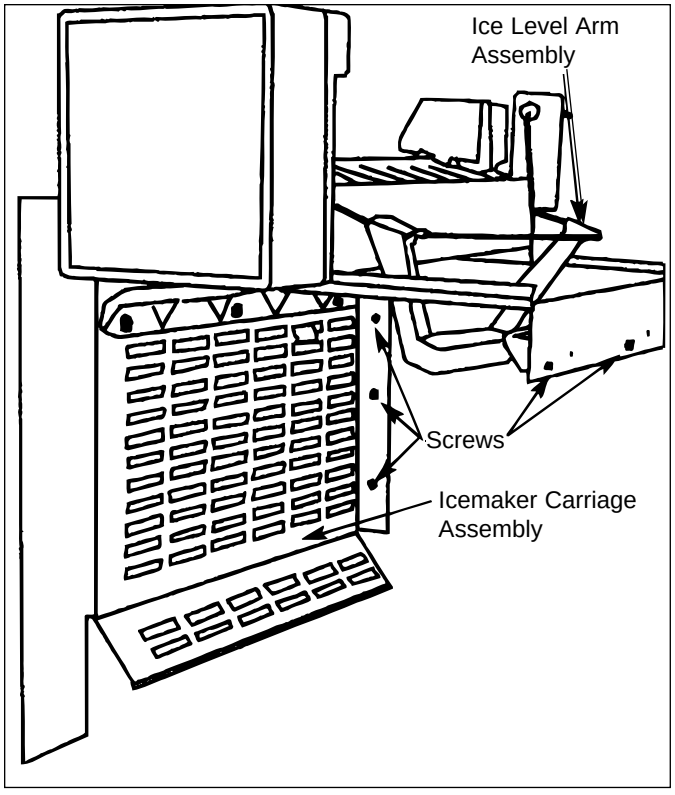


Figure 2-47. Lower Evaporator Cover

Ice Maker Auger Motor Assy. - Model 590

⚠WARNING

Always disconnect electrical power to equipment before attempting repairs.

1. To access the ice auger motor, lift up and remove the freezer utility rack (Figure 2-44), then remove the top light diffuser. Remove the ice bucket.
2. Remove the front evaporator cover (Figure 2-45). It is secured with two screws on top and two screws on the bottom.
3. Remove the four screws and motor bracket (Figure 2-48).
4. Disconnect the motor leads and switch wiring harness (Figure 2-49).
5. To reassemble, reverse steps 1 - 4.

Water Valve Solenoid - Models 501F, 511, 532, 542, 550,561

The water valve is mounted to a bracket behind the kickplate at the left hand side (Figure 2-50).

⚠WARNING

Always disconnect water to the unit and turn electrical power off at the master power switch before attempting repair.

1. To access and remove the water valve, first remove the kickplate.
2. Loosen the mounting screw which secures the valve retainer plate.
3. Push valve up and back.
4. Disconnect electrical leads and inlet and outlet water lines.

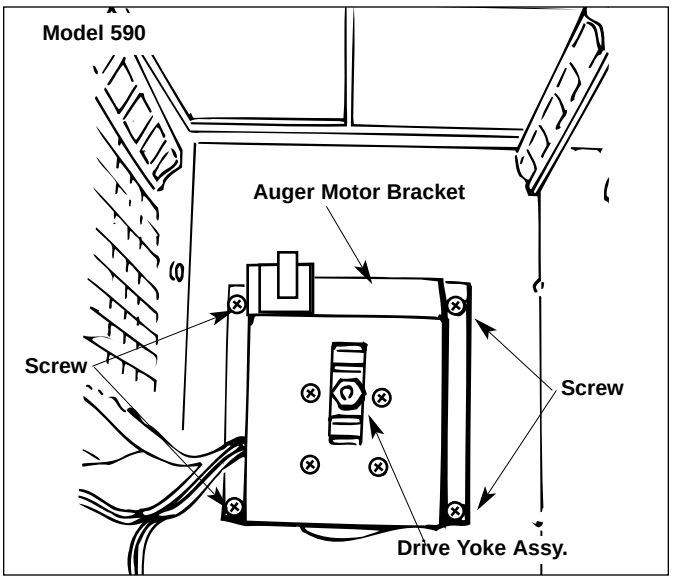


Figure 2-48. Auger Bracket

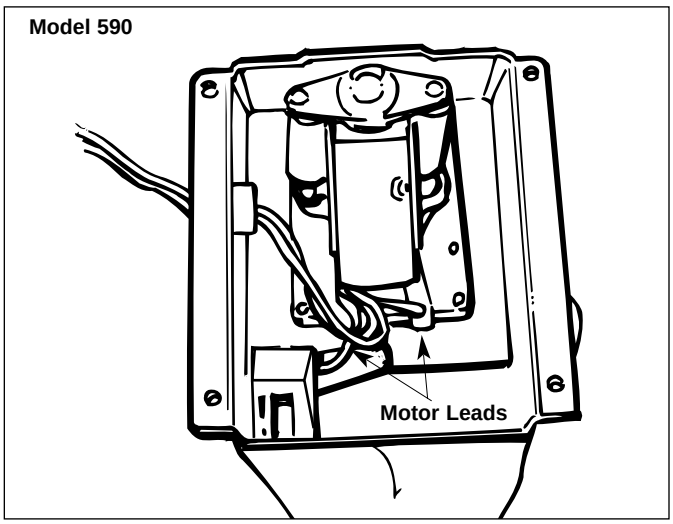


Figure 2-49. Auger Motor Assy.

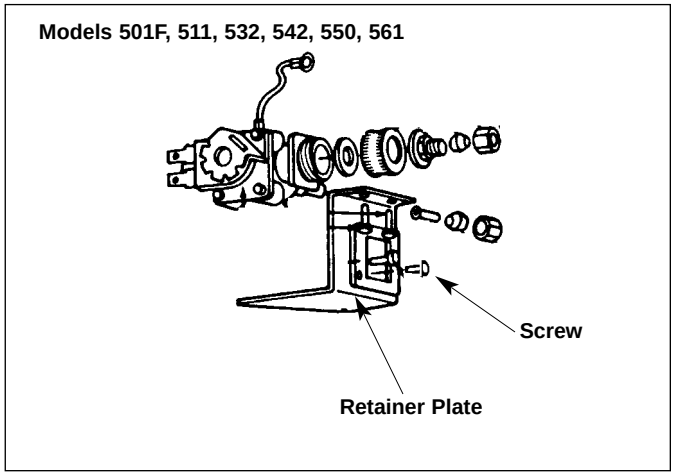


Figure 2-50. Water Valve Solenoid

Dual Water Valve Solenoid - Model 590

⚠WARNING

Always disconnect water to the unit and turn electrical power off at the master power switch before attempting repair.

The dual water valve is located in the compressor area. The water supply connection is located underneath the unit (Figure 2-51). A copper water line from the supply connection is fed up the rear duct to the dual water valve.

Figures 2-52 & 2-53 illustrate the connections at the dual water before and after serial number 1259340.

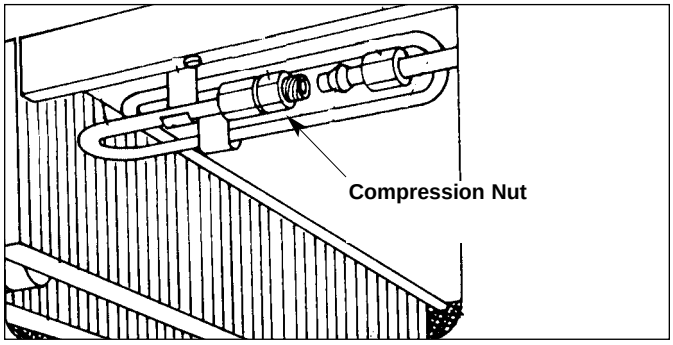


Figure 2-51. Water Supply Connection Location

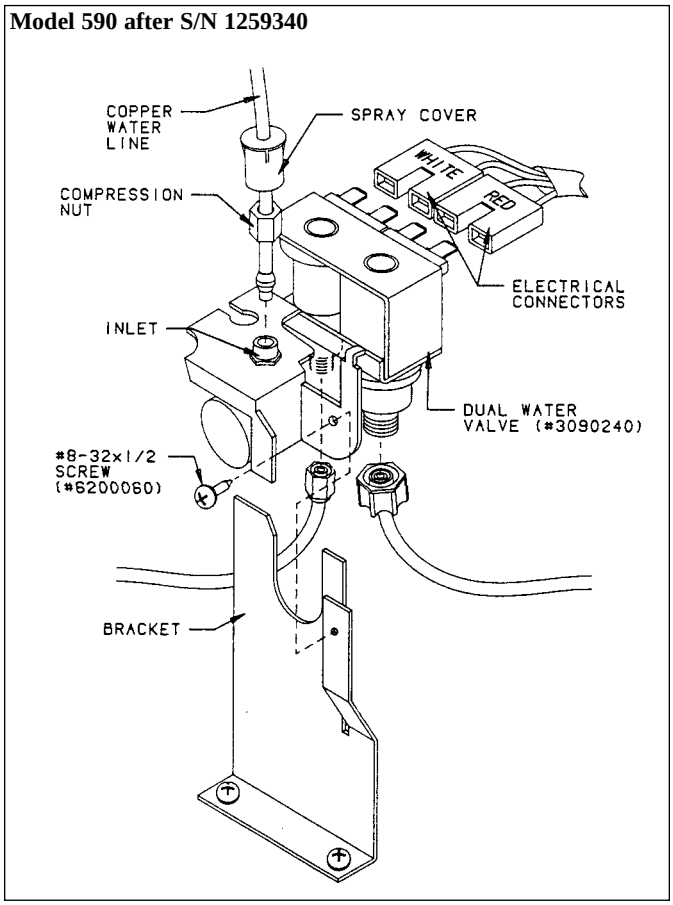


Figure 2-52. Water Valve Connection After S/N 1259340

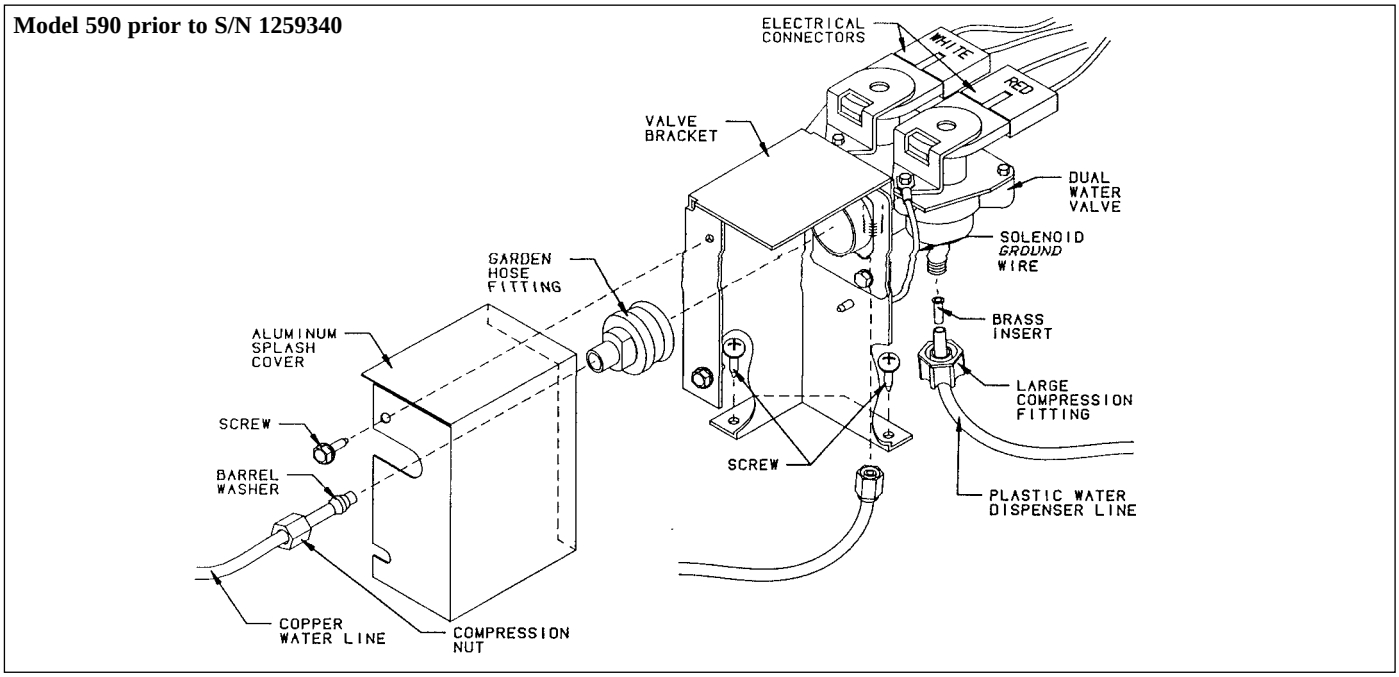


Figure 2-53. Water Valve Connection Prior to S/N 1259340

CONTROLS - MODELS 501R/501F

⚠WARNING

Always disconnect electrical power to equipment before attempting repairs.

For access to the controls, use the following procedure:

1. Remove the overhead light shield by grasping the back edge of the shield and pulling forward to release, then drop the front edge out of the channel. (Figure 2-54).
2. Remove the two screws from the fan guard and lift out (Figure 2-55). Tilt the evaporator cover out at the top and lift off of the posts at the bottom.
3. The refrigerator control is mounted to the evaporator cover (Figure 2-56). Remove the control knob and two nuts. The control will pull off the mounting bracket.

NOTE: *The Model 501F freezer control is mounted as an air sensing coil at back of the evaporator cover, above the evaporator (Figure 5-58).*

NOTE: *It is possible to reinstall the control 180° in the wrong position. Be sure the control readout is proper.*

CONTROLS - MODELS 511, 550

⚠WARNING

Always disconnect electrical power to equipment before attempting repairs.

For access to the controls, use the following procedure:

1. Remove the overhead light shield by grasping the back edge of the shield and pulling forward to release, then drop the front edge out of the channel. (Figure 2-54).
2. Remove the two screws from the fan guard and lift out (Figure 2-55). Tilt the evaporator cover out at the top and lift off of the posts at the bottom.

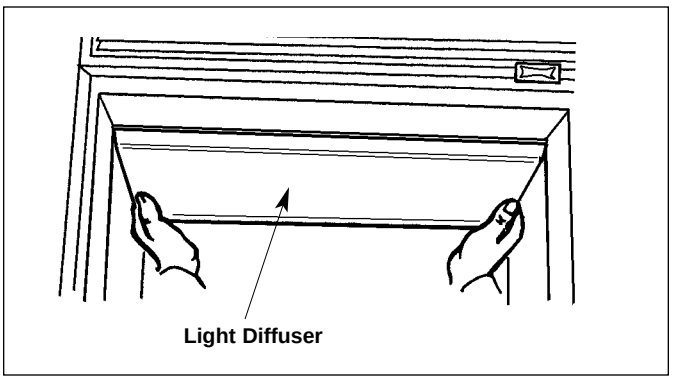


Figure 2-54. Light Diffuser

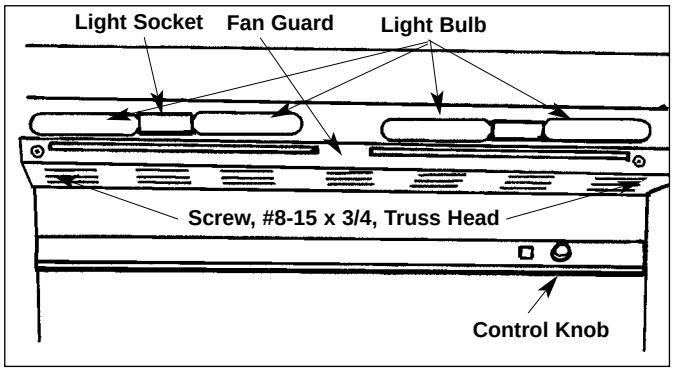


Figure 2-55. Fan Guard

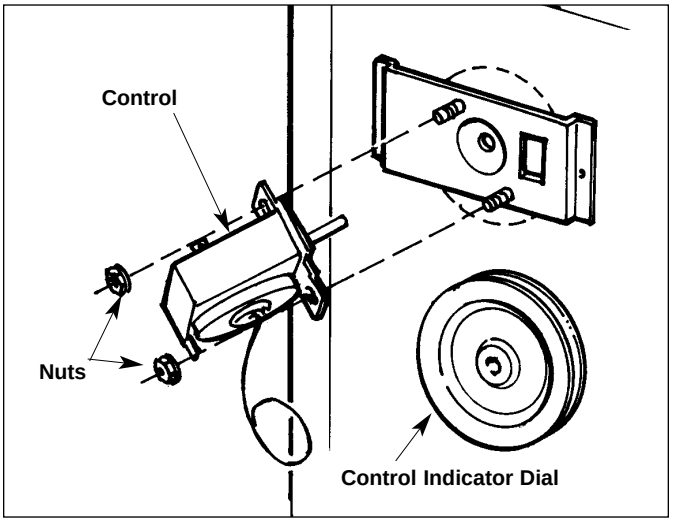


Figure 2-56. Control Assy.

3. The controls are mounted to the evaporator cover (Figure 2-56). Remove the control knobs and nuts. The controls will pull off the mounting bracket.

NOTE: It is possible to reinstall the control 180° in the wrong position. Be sure the control readout is proper.

4. **Refrigerator Control -** The cap tube of the refrigerator control is routed through a channel formed by the evaporator fins. Pull the control bulb from the channel (Figure 2-57).

   When reinstalling the control, follow the instructions that are supplied with the replacement control.

5. **Freezer Control -**The freezer control cap tube is routed to the back of the freezer, through a plastic tube from the refrigerator to the freezer area (Figures 2-58 & 2-59). Straighten the control bulb and pull back through. When reinstalling, push the bulb through the tube, then coil the excess bulb at the outlet.

CONTROLS - MODELS 532, 542, 561

⚠WARNING

Always disconnect electrical power to equipment before attempting repairs.

Refrigerator Control

For access to the refrigerator control, use the following procedure:

1. Remove the overhead light shield by grasping the back edge of the shield and pulling forward to release, then drop the front edge out of the channel. (Figure 2-54).
2. Remove the two screws from the air diffuser and lift out (Figure 2-55). Tilt the evaporator cover out at the top and lift off of the posts at the bottom.
3. The refrigerator control is mounted to the evaporator cover (Figure 2-56). Remove the control knob and two nuts. The control will pull off the mounting bracket.

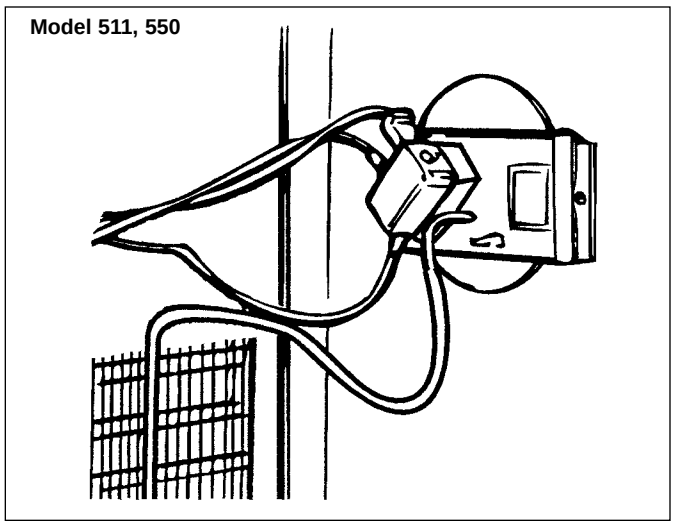


Figure 2-57. Refrigerator Control Routing

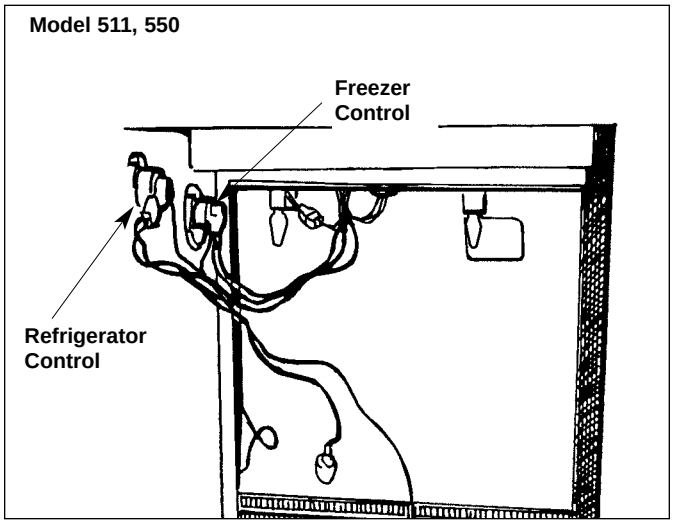


Figure 2-58. Controls Location and Routing

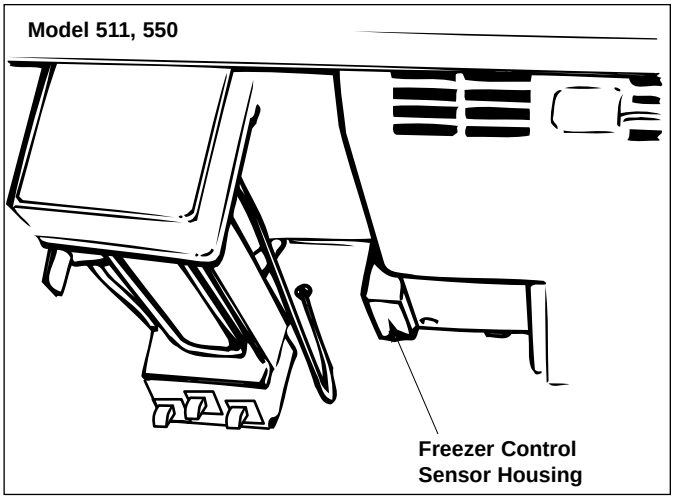


Figure 2-59. Freezer Control

NOTE: It is possible to reinstall the control 180° in the wrong position. Be sure the control readout is proper.

Freezer Control

1. Remove the mounting screws and remove the freezer control panel.

⚠WARNING

Always disconnect electrical power before attempting repairs.

2. Disconnect the wiring block from the back of the panel and pull the panel out.
3. The freezer control and ice maker switch can be accessed from the back of the panel (Figure 2-60).

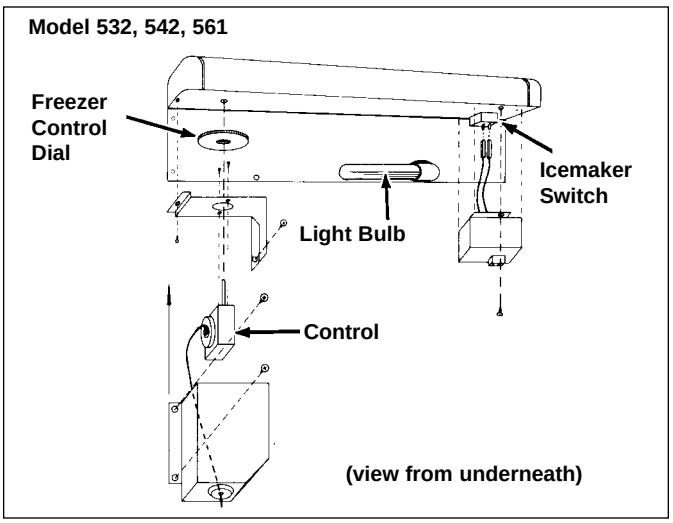


Figure 2-60. Freezer Control Area

CONTROLS - MODEL 590

Refrigerator Control

1. Remove the water tank cover (Figure 2-61).
2. Remove the mounting screw located on the backside of the control panel, then remove the control assy.
3. Remove the three panel screws.
4. Remove the control dials, then remove the control (Figure 2-62 & 2-63) by unscrewing the mounting screws.

NOTE: Complete dual control instructions accompany replacement refrigerator control.

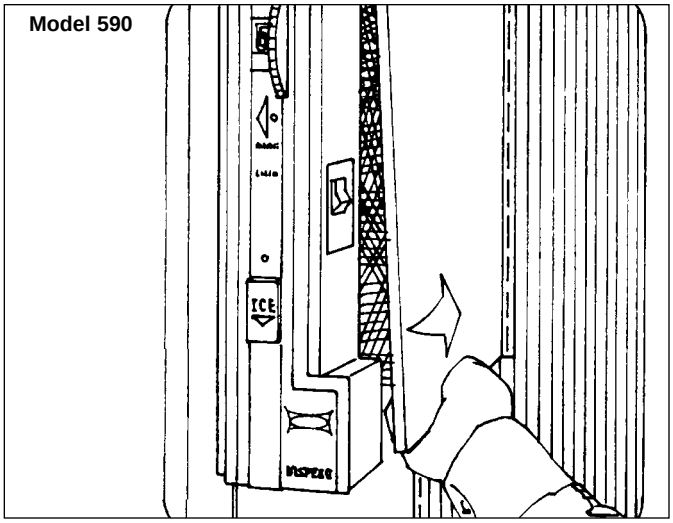


Figure 2-61. Water Tank Cover

Freezer Control

1. Remove the water tank cover (Figure 2-61).
2. Remove the mounting screw located on the backside of the control panel, then remove the control assy.
3. Remove the three panel screws.
4. Remove the control dials (Figure 2-62 & 2-63), then remove the control by unscrewing the mounting screws.

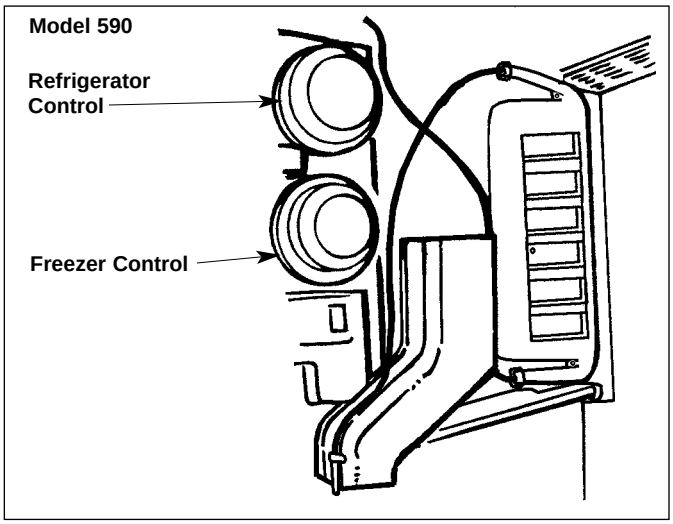


Figure 2-62. Water Tank

5. The freezer control bulb is inserted through a vinyl sleeve that leads to the freezer section.
6. When reinstalling, route the control bulb through a grommet to the freezer section, then downward into a plastic sleeve. The end of the control bulb should extend approximately 1” from the plastic sleeve (Figure 2-64).

Bulk Ice Switch - Model 590

1. Remove the water tank cover to access the bulk ice switch (Figure 2-63).
2. Remove the mounting screw located on the backside of the control panel, then remove the control assy.
3. Remove the three panel screws (Figure 2-63).
4. Remove the switch by pressing in the tabs securing the switch to the panel.

Ice Chute - Model 590

The ice chute is mounted to the center mullion wall (Figure 2-65). If there is a blockage in the chute, remove the water tank cover (Figure 2-61), then depress the two tabs so the front portion of the chute can be removed.

Water Tank Reservoir - Model 590

The water tank reservoir is held in place with three screws (Figure 2-63). The inlet tube at the bottom draws water in from the water valve, the outlet tube at the top carries the water to the dispensing unit.

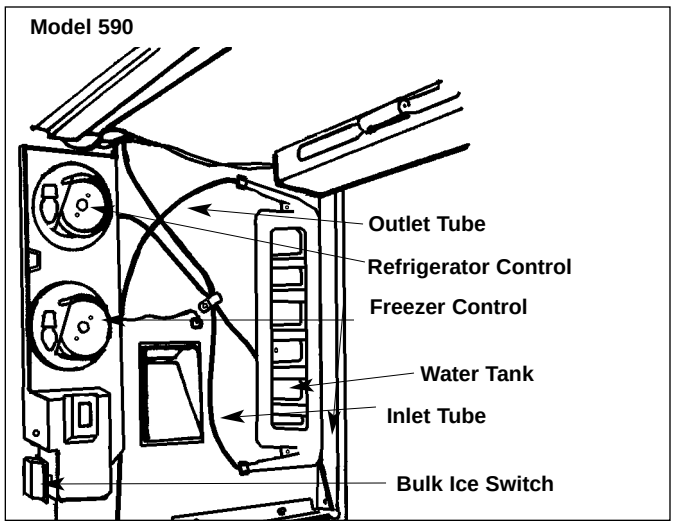


Figure 2-63. Control Panel

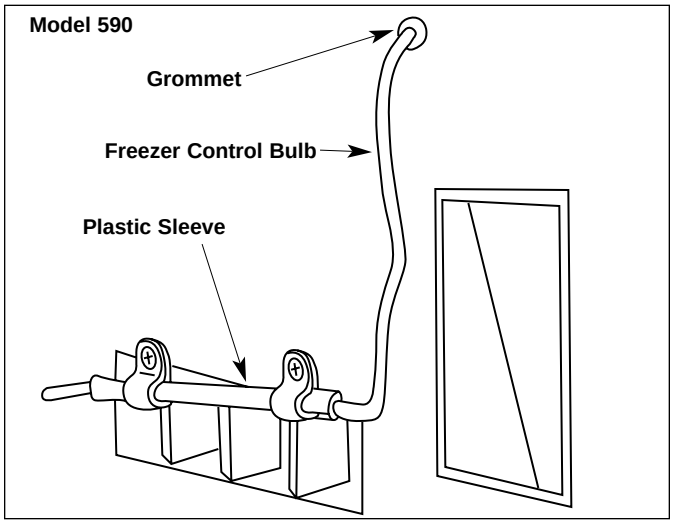


Figure 2-64. Freezer Bulb Routing

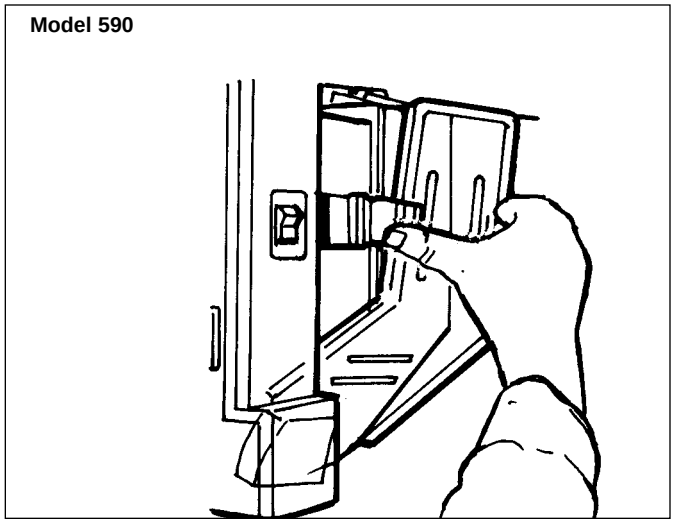


Figure 2-65. Ice Chute

EVAPORATOR ASSEMBLY MODEL 501F

⚠WARNING

Always disconnect electrical power to equipment before attempting repairs.

⚠WARNING

Evaporator coils are sharp and easy to bend; they are also very cold.

The larger finned tubes allow for efficient operation by drawing in the cabinet air and circulating it through this full width evaporator.

The design incorporates an eight pass defrost heater assy. along with a defrost drain tube heater (Figure 2-66). The defrost drain water is caught by the V-shaped drain trough. Because of the the colder temperatures, a drain trough heater keeps the area warm during the defrost cycle only.

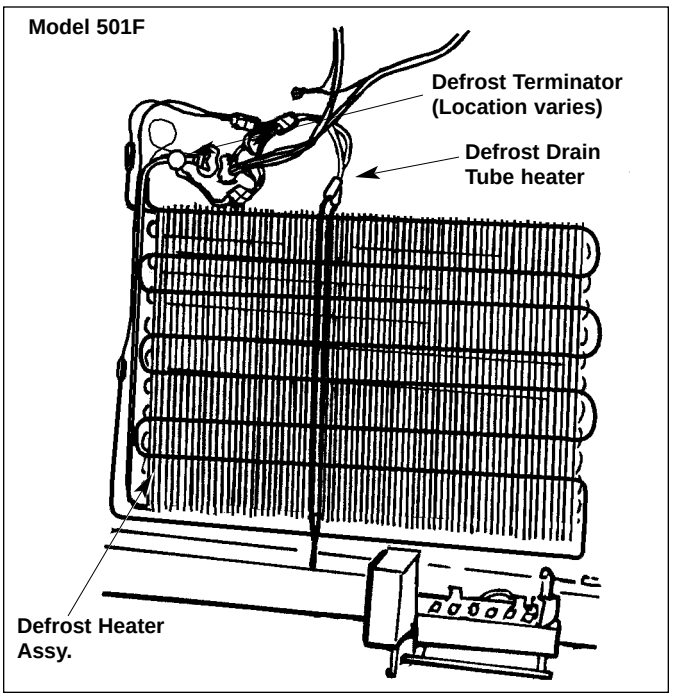


Figure 2-66. Evaporator Assy.

REFRIGERATOR EVAPORATOR ASSEMBLY - ALL MODELS

⚠WARNING

Always disconnect electrical power at the master switch before attempting repairs.

⚠WARNING

Evaporator coils are sharp and easy to bend; they are also very cold.

The larger fin tube design of the evaporator allows for a warmer coil operating temperature. Warmer operating temperatures provide advantages in inside humidity, compressor capacity and control "coil sensing" capabilities (Figure 2-67).

This evaporator coil incorporates an off-cycle defrost. Once the system is pulled down and the control is satisfied, the unit is shut down. The unit will remain off until the 39° F cut-in temperature is reached at the control.

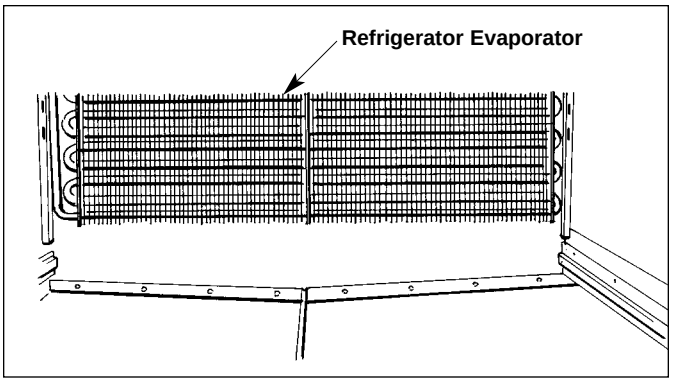


Figure 2-67. Refrigerator Evaporator Assy

LIGHT TERMINATOR

To prevent damage to plastic parts by lights overheating, a thermal switch is incorporated into the light system wiring. This design was incorporated starting with the following serial numbers:

Model	Serial Number
501R	M723972 / P725922
501F	M724222 / P726372
511	M753523
550	M722972 / P721572
532	M722572 / P725022
542	Regardless of Serial Number
561	M726672 & P725322
590	Regardless

The thermal switch specifications are:

Opens: 120°F+/-6°F

Closes: 85°F+/-7°F

On units equipped with the thermal switch, the lights will go off if the door is left open for extended periods (20-25 minutes). To reset the thermal switch, close the door for approximately 20 minutes. The light should then come back on when the door is opened. If it does not, the thermal switch may be faulty.

Before replacing the switch, check the mounting of the switch on the fan guard. It may be necessary to add a 1/8" stainless steel washer between the switch and the guard to prevent the bi-metal in the fuse from compressing (and opening) when the door is opened again.

NOTE: *The thermal switch cannot be retrofitted to units built prior to the serial numbers listed above. The entire fan shroud assembly must be replaced.*

See Figures 2-68 & 2-69 for thermal switch location.

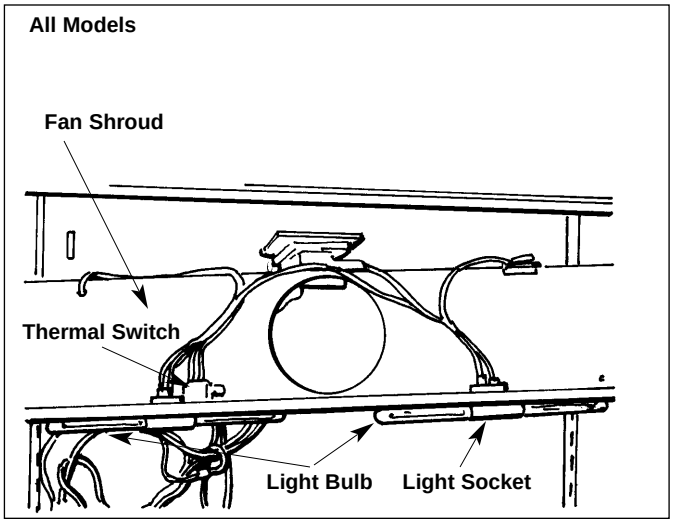


Figure 2-68. Thermal Switch-Refrigerator

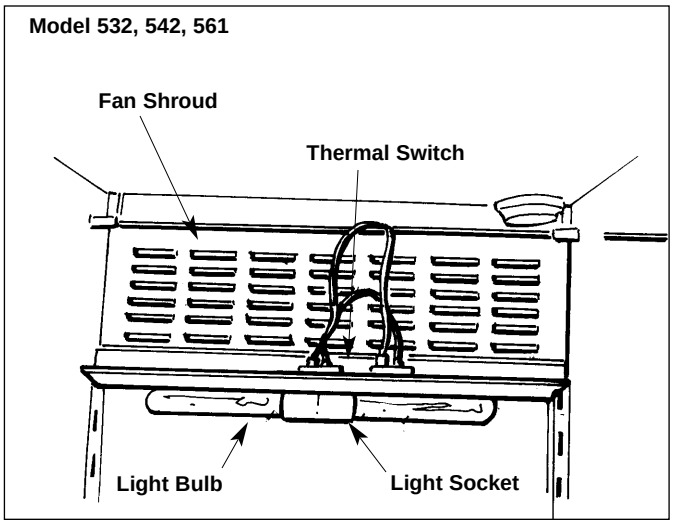


Figure 2-69. Thermal Switch-Freezer

UNIT ROLLER BASE ASSEMBLY

501R After S/N M834654/P835904
501F After S/N M834904/P836154
511 After S/N M830454
532 After S/N M824754/P827404
550 After S/N 824354/832954
561 After S/N 825954/P823654
590 Regardless of Serial Number

⚠ CAUTION

Floor should be protected with appropriate material to avoid damage from very heavy appliance when this unit is moved.

When the front leveling legs screwed all the way up into the base assy., the unit can be rolled in or out of its installation.

Use the adjustment bolt (located in front of the base assy.) to level the rear of the unit (Figure 2-70).

Turn the adjusting bolt clockwise to raise the back of the unit; turn counterclockwise to lower the back of the unit.

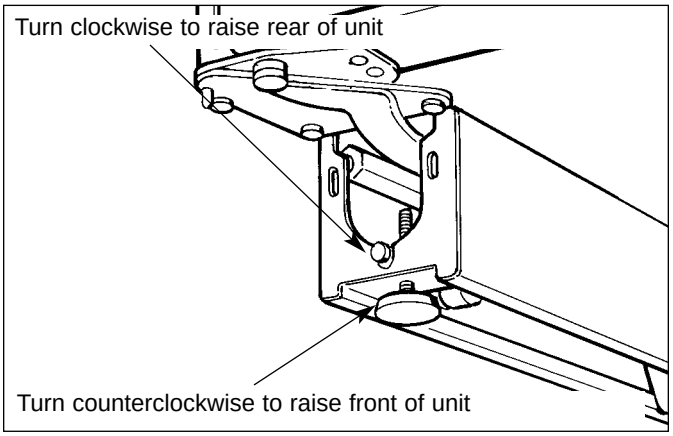


Figure 2-70. Roller Base Assy.

AIR FLOW & FAN BLADE SPACING

NOTE: *In all the following air flow illustrations the white arrow ⇨ signifies Pushed Air, while the shaded arrow ➞ signifies Returned Air.*

Air Flow - Model 501R (Figure 3-1)

The air movement travels up the back channel and across the evaporator coil.

The cold air then discharges at the top of the cabinet and is pulled downward in all directions around the glass storage shelves, maintaining even shelf storage temperatures.

MADISON PRODUCTION PRIOR TO S/N 821353

The evaporator fan motor runs all the time once the door is closed, unless altered during field service repair.

PHOENIX & MADISON PRODUCTION AFTER S/N 821353

The evaporator motor cycles on and off with the compressor.

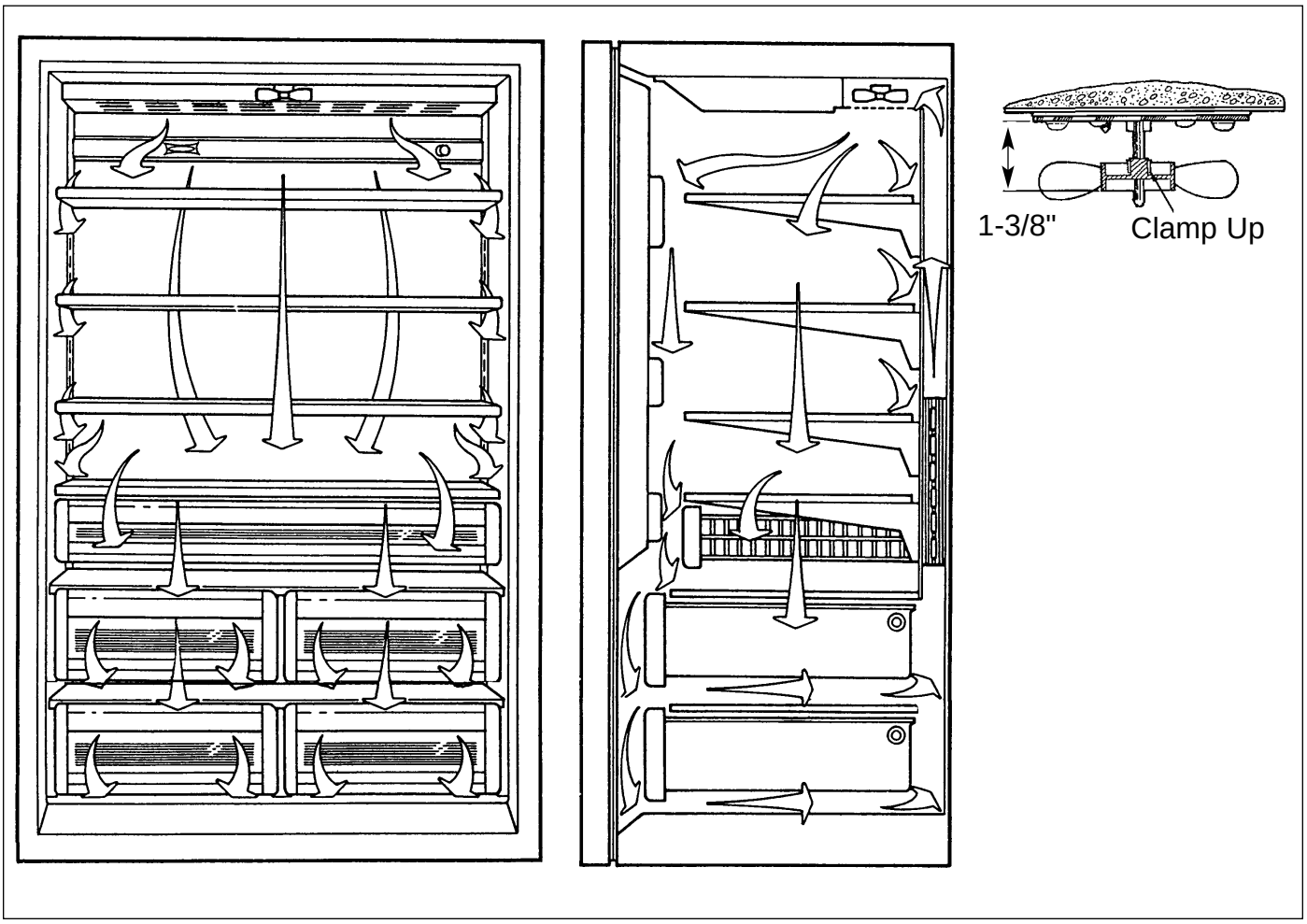


Figure 3-1. Air Flow - Model 501R

Air Flow - Model 501F (Figure 3-2)

The cold air travels up the back channel and across the evaporator coil.

The cold air then discharges at the top of the cabinet and is pulled downward in all directions around the storage shelves, maintaining even shelf storage temperatures.

NOTE: Figure 3-2 shows air flow for units manufactured after S/N M663116/P679466 with black fan blade, part no. 3-15-045-0. Units built prior to these serial numbers use a white fan blade, part no. 3-15-006-0, and the air flow is opposite than that shown. Starting with S/N M/P1004775, fan blade is grey, part no. 3150520.

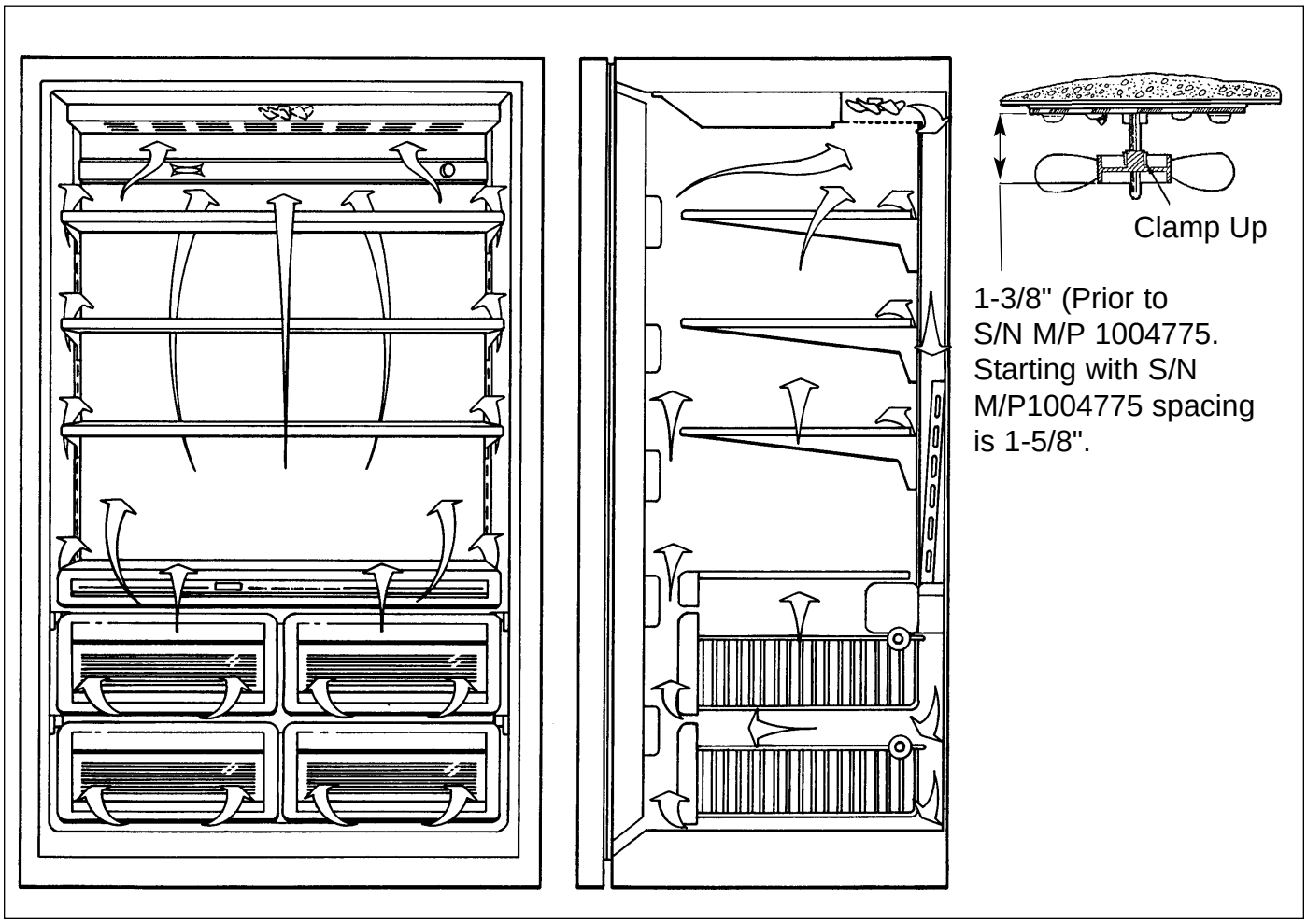


Figure 3-2. Air Flow - Model 501F

Refrigerator Air Flow - Models 511, 550 (Figure 3-3)

The cold air travels up the back channel and across the evaporator coil. The cool air then discharges out the diffuser area and is pulled downward in all directions around the glass storage shelves, maintaining even shelf storage temperatures.

MODEL 511

The refrigerator evaporator fan motor cycles with the refrigerator compressor.

MODEL 550

On Madison production prior to S/N M820553 the refrigerator evaporator fan motor runs all the time once the door is closed unless altered during field service repair.

On Phoenix and Madison production after S/N 820554, the refrigerator evaporator fan motor cycles with the compressor.

Freezer Air Flow - Models 511, 550 (Figure 3-4)

The cabinet air is drawn through the evaporator cover and across the coil. The duct directs the air to the ice maker and down the back.

Refrigerator Air Flow - Models 532, 542, 561 (Figure 3-5)

The air travels up the back channel and across the evaporator coil. The cool air then discharges out of the diffuser area and is pulled downward in all directions across the glass storage shelves, maintaining even shelf storage temperatures.

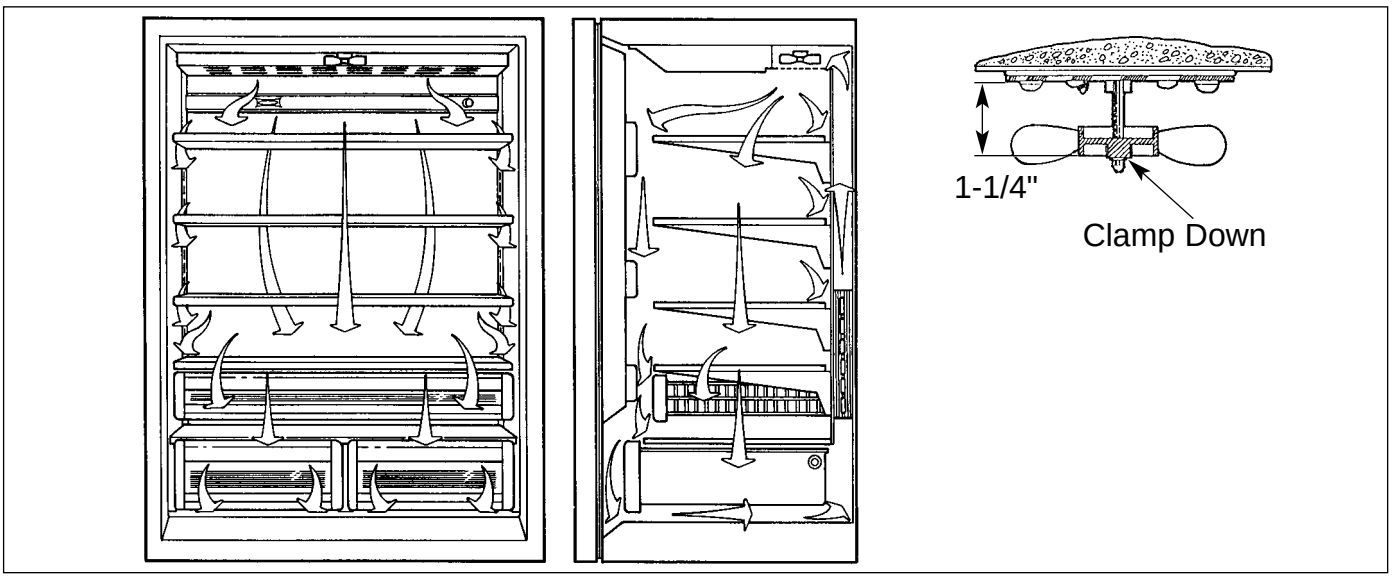


Figure 3-3. Refrigerator Air Flow - Model 511, 550

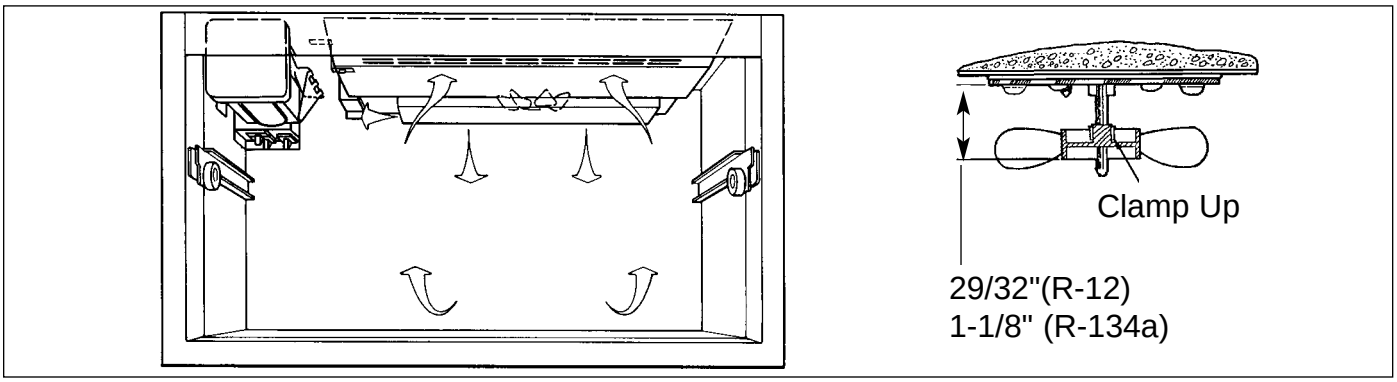


Figure 3-4. Freezer Air Flow - Model 511, 550

MODEL 532

Starting with S/N P629065, units are equipped with a white fan blade, part no. 3-15-021-0. Prior to this serial number, units were equipped with a gray fan blade. However, the white fan blade should be used as a service replacement if the unit experiences temperature problems.

On Madison production prior to S/N M815563 the refrigerator fan motor runs all the time once the door is closed unless altered during field service repair.

On Phoenix and Madison production after S/N 815564, the refrigerator fan motor cycles on and off with the refrigerator control.

MODEL 542

The refrigerator evaporator fan motor cycles with the compressor

MODEL 561

On Madison production prior to S/N M816263 the refrigerator fan motor runs all the time once the door is closed unless altered during field service repair.

On Phoenix and Madison production after S/N 816264, the refrigerator fan motor cycles on and off with the refrigerator control.

Freezer Air Flow - Models 532, 542, 561 (Figure 3-6)

The cabinet air is drawn in by the fan motor across the evaporator and then is forced in two directions.

In one direction, the air is forced up the back channel of the freezer and through the freezer duct assembly. The air diffuser distributes the air evenly throughout the top of the freezer section.

In the other direction, the air is forced into the bottom of the freezer. The heavy cold air cascades down through the freezer baskets. The fan motor pulls the air up and across the freezer control and ice maker, returning to the evaporator coil.

The freezer control senses this return air and shuts down the compressor and fan motor when the set temperature is reached.

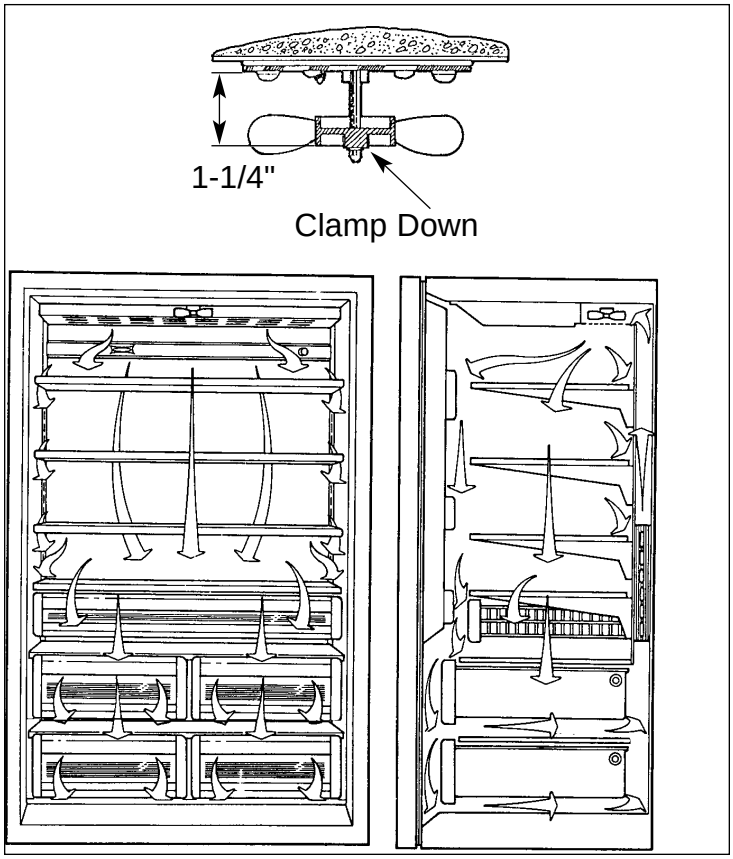


Figure 3-5. Refrigerator Air Flow - Models 532, 542, 561

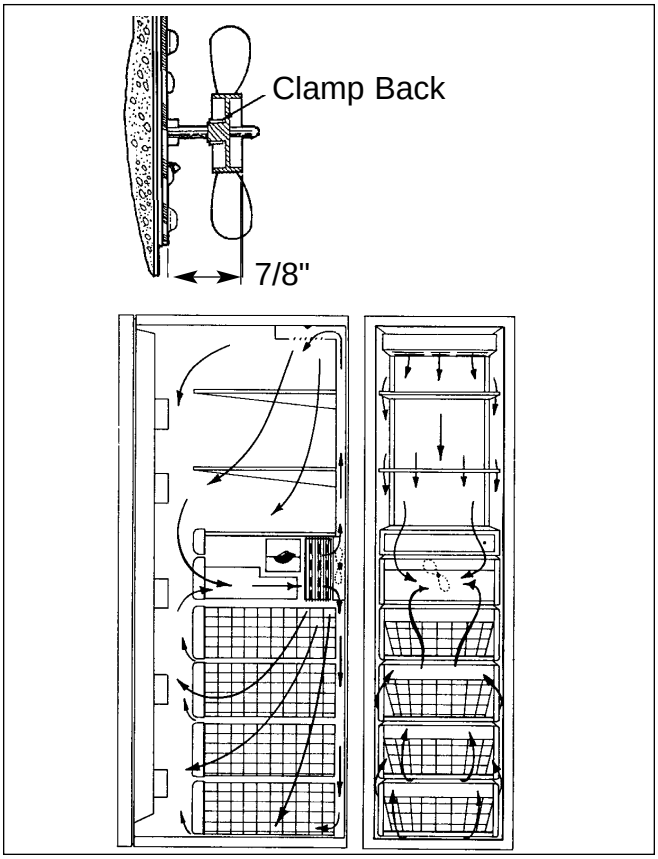


Figure 3-6. Freezer Air Flow - Models 532, 542, 561

Refrigerator Air Flow - Model 590 (Figure 3-7)

The air travels up the back channel and across the evaporator coil.

The cool air discharges out of the diffuser area and is pulled downward in all directions around the glass storage shelves, maintaining even shelf storage temperatures.

The refrigerator evaporator fan motor cycles with the refrigerator compressor.

Freezer Air Flow - Model 590 (Figure 3-8)

The cabinet air is drawn in by the fan motor assy. across the evaporator and then forced downward.

The majority of the air is forced through an air duct located along the back wall into the bottom of the freezer. The remaining air flow cascades down through the freezer baskets. The fan motor pulls the air up and across the freezer control ice maker returning to the evaporator coil.

NOTE: *On units manufactured prior to S/N M862414, if warmer temperatures are experienced in the freezer basket areas, install Freezer Air Duct Kit, part no. 4-20-099-0.*

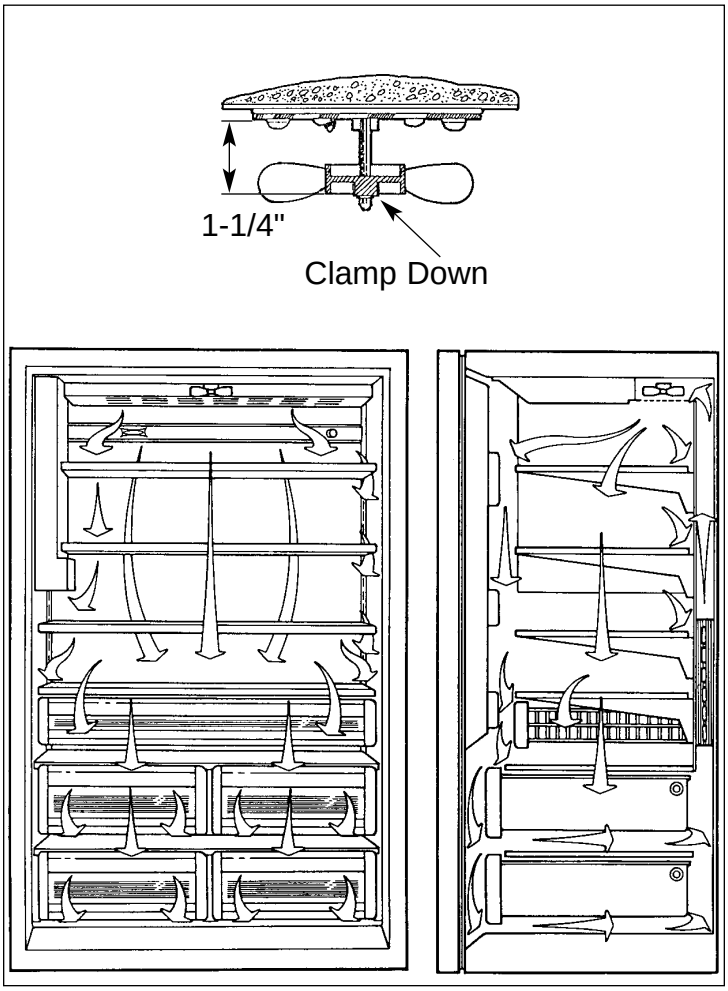


Figure 3-7. Refrigerator Air Flow - Model 690

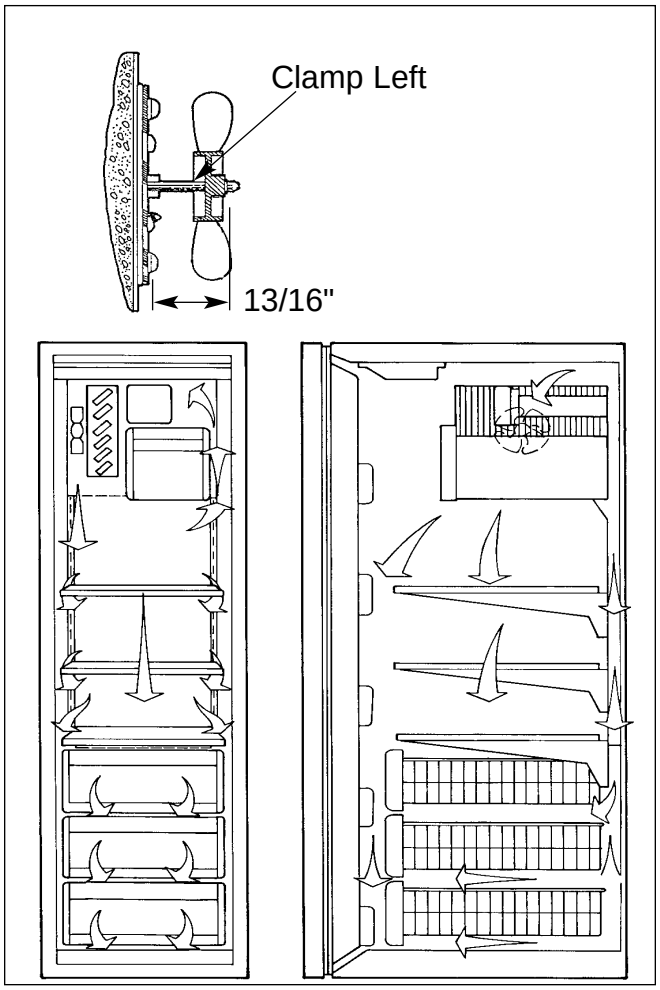


Figure 3-8. Freezer Air Flow - Model 590

MODEL 501R Prior To Serial # M1204240/P1214190	Refrigerator
Charge *(R-12 Refrigerant)* Prior to # M658665/P662865 & From M658666/P662866 to M1204240/P1214190	 8.0 oz. 9.0 oz.
Control (normal #5 setting) Service Part No. - Cut-in/Cut-out	 4201260 39.0°/31.0° F
Compressor Service Part No. Mfg. Part No. Service Compressor Amps Service Compressor BTU's	 4201670 EM30SC 0.8 318
Suction Pressure (PSIG) - Cut-in/Cut-out	 39 / 18
Original Defrost Timer (Cycle) Interval Duration	 ----- -----
Defrost Terminator - Cut-in/Cut-out	 -----
Defrost Heater - Watts - Amps - Ohms	 ----- ----- -----
Drain Tube Heater - Watts - Amps - Ohms	 ----- ----- -----
Drain Trough Heater - Watts - Amps - Ohms	 ----- ----- -----
Fill Tube Heater - Watts - Amps - Ohms	 ----- ----- -----

MODEL 501R Starting with Serial # M1204240/P1214190	Refrigerator
Charge *(R-134a Refrigerant)*	10.0 oz .
Control (normal #5 setting) Service Part No. - Cut-in/Cut-out	 4201260 39.0°/31.0° F
Compressor Service Part No. Mfg. Part No. Service Compressor Amps Service Compressor BTU's	 4201880 EMI30HER 0.9 280
Suction Pressure (PSIG) - Cut-in/Cut-out	 36 / 15
Original Defrost Timer (Cycle) Interval Duration	 ----- -----
Defrost Terminator - Cut-in/Cut-out	 -----
Defrost Heater - Watts - Amps - Ohms	 ----- ----- -----
Drain Tube Heater - Watts - Amps - Ohms	 ----- ----- -----
Drain Trough Heater - Watts - Amps - Ohms	 ----- ----- -----
Fill Tube Heater - Watts - Amps - Ohms	 ----- ----- -----

MODEL 501F Prior To Serial # M/P1204990/P1214440 and except between #M/P1104940 to M/P1105139	Freezer
Charge *(R-12 Refrigerant)*	10.0 oz.
Control (normal #5 setting) Prior to #M66311/P679466 and from #M/P960170 to #M/P960319 and from #M/P996400 to #M/P996574 and starting with #M/P1004775. Service Part No. - Cut-in/Cut-out From #M66311/P679466 to #M/P960170 and from #M/P960319 to #M/P996400 and from #M/P996574 to #M/P1004775. Service Part No. - Cut-in/Cut-out	 3012541 10.0° / -6.0° F 3012750 -3.0°/-18.0° F
Compressor Service Part No. Mfg. Part No. Service Compressor Amps Service Compressor BTU's	 4202560 DA9L 10.8 1151
Suction Pressure (PSIG) - Cut-in/Cut-out	 14 / 1
Original Defrost Timer (Cycle) Prior to #M/P960171 and from #M/P960319 to #M/P996400 and from #M/P996574 to #M/P1004775. - Interval - Duration From #M/P960171 to #M/P960319 and from #M/P996400 to #M/P996574 and starting with #M/P1004775. - Interval - Duration Service (6hr/21min) Part No.	 12 hour Continuous 15 minute 12 hour (comp. run) 15 minute 3081180
Defrost Terminator - Cut-in/Cut-out	 30.0° / 55.0°F.
Defrost Heater - Watts - Amps - Ohms	 640 5.5 2.1
Drain Tube Heater - Watts - Amps - Ohms	 15 0.13 900
Drain Trough Heater - Watts - Amps - Ohms	 50 0.4 260
Fill Tube Heater *(Starting with #M1184540/P1200040)* - Watts - Amps - Ohms	 5 0.04 2600

MODEL 501F Starting with Serial # M/P1204990/P1214440 and between #M/P1104940 to M/P1105139	Freezer
Charge *(R-134a Refrigerant)*	11.0 oz.
Control (normal #5 setting) Service Part No. - Cut-in/Cut-out	 3012541 10.0° / -6.0° F
Compressor Service Part No. Mfg. Part No. Service Compressor Amps Service Compressor BTU's	 4201870 RG108 1.4 830
Suction Pressure (PSIG) - Cut-in/Cut-out	 13 / -1" Vac
Original Defrost Timer (Cycle) - Interval - Duration Service (6hr/21min) Part No.	 12 hour (comp. run) 15 minute 3081180
Defrost Terminator - Cut-in/Cut-out	 30.0° / 55.0°F.
Defrost Heater - Watts - Amps - Ohms	 640 5.5 2.1
Drain Tube Heater - Watts - Amps - Ohms	 15 0.13 900
Drain Trough Heater - Watts - Amps - Ohms	 50 0.4 260
Fill Tube Heater - Watts - Amps - Ohms	 5 0.04 2600

MODEL 511 Prior To Serial # M/P1204690			MODEL 511 Starting with Serial # M/P1204690		
	Refrigerator	**Freezer**		**Refrigerator**	**Freezer**
Charge *(R-12 Refrigerant)* Prior to #M/P964470 and from #M/P964769 to #M/P1004775	7.0 oz.	8.0 oz.	**Charge** *(R-134a Refrigerant)*	10.0 oz.	8.5 oz.
From M/P9644470 to M/P964769 and from #M/P1004775 to #M/P1204690	9.0 oz.	8.0 oz.			
Control (normal #5 setting)			**Control (normal #5 setting)**		
Service Part No.	4201260	3014280	Service Part No.	4201260	3014280
- Cut-in/Cut-out	39.0°/31.0° F	14.0°/-2.0° F	- Cut-in/Cut-out	39.0°/31.0° F	14.0°/-2.0° F
Compressor			**Compressor**		
Service Part No.	4201670	4201400	Service Part No.	4201880	4201870
Mfg. Part No.	EM30SC	D120	Mfg. Part No.	EMI30HER	RG108
Service Compressor Amps	0.8	1.4	Service Compressor Amps	0.9	1.4
Service Compressor BTU's	318	762	Service Compressor BTU's	280	830
Suction Pressure (PSIG)			**Suction Pressure (PSIG)**		
- Cut-in/Cut-out	36 / 16	15 / 1	- Cut-in/Cut-out	38 / 16	14 / -2" Vac
Original Defrost Timer (Cycle)			**Original Defrost Timer (Cycle)**		
Prior to #M/P964470 and from			Interval	----	24 Hour
#M/P964769 to #M/P1004775					(comp. run)
Interval	----	12 Hour	Duration	----	20 Minutes
		Continuous	Service (6hr/21min) Part No.	----	3081180
Duration	----	15 Minutes			
From #M/P964470 to #M/P964769 and					
from #M/P1004775 to #M/P1204690					
Interval	----	24 Hour			
		(comp. run)			
Duration	----	20 Minutes			
Service (6hr/21min) Part No.	----	3081180			
Defrost Terminator			**Defrost Terminator**		
- Cut-in/Cut-out	----	30.0°/55.0°F	- Cut-in/Cut-out	----	30.0°/55.0°F
Defrost Heater			**Defrost Heater**		
- Watts	----	640	- Watts	----	640
- Amps	----	5.5	- Amps	----	5.5
- Ohms	----	21	- Ohms	----	21
Drain Tube Heater			**Drain Tube Heater**		
- Watts	----	7	- Watts	----	7
- Amps	----	0.06	- Amps	----	0.06
- Ohms	----	1890	- Ohms	----	1890
Drain Trough Heater			**Drain Trough Heater**		
- Watts	----	-----	- Watts	----	-----
- Amps	----	-----	- Amps	----	-----
- Ohms	----	-----	- Ohms	----	-----
Fill Tube Heater			**Fill Tube Heater**		
- Watts	----	5	- Watts	----	5
- Amps	----	0.04	- Amps	----	0.04
- Ohms	----	2600	- Ohms	----	2600

MODEL 532 Prior To Serial # M1206090/P1213890 except between #M/P185040 to #M/P1185139, and except between #M/P1203740 to #M/P1203839			MODEL 532 Starting with Serial # M1206090/P1213890 and between #M/P185040 to #M/P1185139, and between #M/P1203740 to #M/P1203839		
	Refrigerator	**Freezer**		**Refrigerator**	**Freezer**
Charge *(R-12 Refrigerant)* *Prior to #M681568*	11.0 oz.	12.0 oz.	**Charge** *(R-134a Refrigerant)*	10.0 oz.	9.0 oz.
From #M681568/P612141 to #M/P964770 and from #M/P965069 to #M/P1004775	7.0 oz.	8.0 oz.			
From #M/P964770 to #M/P965069 and from #M/P1004775 to #M/P1185040 and from #M/P1185139 to #M/P1203740 and from #M/P1203839 to #M1206090/P1213890	10.0 oz.	10.5 oz.			
Control (normal #5 setting) Prior to #M681568/P612141			**Control (normal #5 setting)**		
Service Part No.	4201260	3012670	Service Part No.	4201260	3012742
- Cut-in/Cut-out	39.0°/31.0° F	1.5°/-5.0° F	- Cut-in/Cut-out	39.0°/31.0° F	-1.5°/-8.5° F
Starting with #M681568/P612141					
Service Part No.	4201260	3012742			
- Cut-in/Cut-out	39.0°/31.0° F	-1.5°/-8.5° F			
Compressor			**Compressor**		
Service Part No.	4201670	4201400	Service Part No.	4201880	4202250
Mfg. Part No.	EM30SC	D120	Mfg. Part No.	EMI30HER	DA73
Service Compressor Amps	0.8	1.4	Service Compressor Amps	0.9	1.4
Service Compressor BTU's	318	762	Service Compressor BTU's	280	860
Suction Pressure (PSIG) Prior to #M681568/P612141			**Suction Pressure (PSIG)**		
- Cut-in/Cut-out	36 / 16	10 / 1	- Cut-in/Cut-out	38 / 11	9 / -1" Vac
Starting with #M681568/P612141					
- Cut-in/Cut-out	36 / 16	13 / 4			
Original Defrost Timer (Cycle) Prior to #M681568/P612141			**Original Defrost Timer (Cycle)**		
Interval	----	12 Hour Continuous	Interval	----	24 Hour (comp. run)
Duration	----	15 Minutes	Duration	----	20 Minutes
From#M681568/P612141 to #M/P964770 and from #M/P965069 to #M/P1004775			Service (6hr/21min) Part No.	----	3081180
Interval	----	24 Hour (comp. run)			
Duration	----	15 Minutes			
From#M/P964770 to M/P965069 and from #M/P1004775 to #M1206090/P1213890					
Interval	----	24 Hour (comp. run)			
Duration	----	20 Minutes			
Service (6hr/21min) Part No.	----	3081180			
Defrost Terminator			**Defrost Terminator**		
- Cut-in/Cut-out	----	30.0°/55.0°F	- Cut-in/Cut-out	----	30.0°/55.0°F
Defrost Heater			**Defrost Heater**		
- Watts	----	640	- Watts	----	640
- Amps	----	5.5	- Amps	----	5.5
- Ohms	----	21	- Ohms	----	21
Drain Tube Heater			**Drain Tube Heater**		
- Watts	----	7	- Watts	----	7
- Amps	----	0.06	- Amps	----	0.06
- Ohms	----	1890	- Ohms	----	1890
Drain Trough Heater			**Drain Trough Heater**		
- Watts	----	-----	- Watts	----	-----
- Amps	----	-----	- Amps	----	-----
- Ohms	----	-----	- Ohms	----	-----
Fill Tube Heater			**Fill Tube Heater**		
- Watts	----	5	- Watts	----	5
- Amps	----	0.04	- Amps	----	0.04
- Ohms	----	2600	- Ohms	----	2600

MODEL 542		
	Refrigerator	**Freezer**
Charge *(R-134a Refrigerant)*	9.0 oz.	7.5 oz.
Control (normal #5 setting)		
Service Part No.	4201260	4202742
- Cut-in/Cut-out	39.0°/31.0° F	-1.5°/-8.5° F
Compressor		
Service Part No.	4201880	4202250
Mfg. Part No.	EMI30HER	DA73
Service Compressor Amps	0.9	1.4
Service Compressor BTU's	280	860
Suction Pressure (PSIG)		
- Cut-in/Cut-out	38 / 11	9 / -1" Vac
Original Defrost Timer (Cycle)		
Interval	----	24 Hour (comp. run)
Duration	----	20 Minutes
Service (6hr/21min) Part No.	----	3081180
Defrost Terminator		
- Cut-in/Cut-out	----	30.0°/55.0°F
Defrost Heater		
- Watts	----	516
- Amps	----	4.5
- Ohms	----	26
Drain Tube Heater		
- Watts	----	7
- Amps	----	0.06
- Ohms	----	1890
Drain Trough Heater		
- Watts	----	-----
- Amps	----	-----
- Ohms	----	-----
Fill Tube Heater		
- Watts	----	5
- Amps	----	0.04
- Ohms	----	2600

MODEL 550 Prior To Serial # M1204990/P1214590 except between #M/P1184141 to #M/P1184239			MODEL 550 Starting with Serial # M1204990/P1214590 and between #M/P1184141 to #M/P1184239		
	Refrigerator	**Freezer**		**Refrigerator**	**Freezer**
Charge *(R-12 Refrigerant)* *Prior to #M/P681166*	10.0 oz.	14.0 oz.	**Charge** *(R-134a Refrigerant)* *From #M/P1184140 to #M/P1184239*	10.0 oz.	9.5 oz.
			Starting with #M1204990/P1214590	8.0 oz.	6.0 oz.
From #M/P681166 to #M/P964070 and from #M/P964496 to #M/P1004775	7.0 oz.	8.0 oz.			
From #M/P964070 to #M/P964496 and from #M/P1004775 to #M/P1184141 and from #M/P1184239 to #M1204990/P1214590	8.0 oz.	11.0 oz.			
Control (normal #5 setting)			**Control (normal #5 setting)**		
Service Part No.	4201260	3014280	Service Part No.	4201260	3014280
- Cut-in/Cut-out	39.0°/31.0° F	14.0°/-2.0° F	- Cut-in/Cut-out	39.0°/31.0° F	14.0°/-2.0° F
Compressor			**Compressor**		
Service Part No.	4201670	4201400	Service Part No.	4201880	4202250
Mfg. Part No.	EM30SC	D120	Mfg. Part No.	EMI30HER	DA73
Service Compressor Amps	0.8	1.4	Service Compressor Amps	0.9	1.4
Service Compressor BTU's	318	762	Service Compressor BTU's	280	860
Suction Pressure (PSIG)			**Suction Pressure (PSIG)**		
- Cut-in/Cut-out	36 / 16	13 / 1	- Cut-in/Cut-out	40 / 6	12 / -2" Vac
Original Defrost Timer (Cycle)			**Original Defrost Timer (Cycle)**		
Prior to #M/P681166			Interval	----	24 Hour (comp. run)
Interval	----	12 Hour Continuous	Duration	----	20 Minutes
Duration	----	15 Minutes	Service (6hr/21min) Part No.	----	3081880
From#M/P681166 to #M/P964070 and from #M/P964496 to #M/P1004775					
Interval	----	12 Hour (comp. run)			
Duration	----	15 Minutes			
From#M/P964070 to M/P964496 and from #M/P1004775 to #M1204990/P1214590					
Interval	----	24 Hour (comp. run)			
Duration	----	20 Minutes			
Service (6hr/21min) Part No.	----	3081180			
Defrost Terminator			**Defrost Terminator**		
- Cut-in/Cut-out	----	30.0°/55.0°F	- Cut-in/Cut-out	----	30.0°/55.0°F
Defrost Heater			**Defrost Heater**		
- Watts	----	640	- Watts	----	640
- Amps	----	5.5	- Amps	----	5.5
- Ohms	----	21	- Ohms	----	21
Drain Tube Heater			**Drain Tube Heater**		
- Watts	----	7	- Watts	----	7
- Amps	----	0.06	- Amps	----	0.06
- Ohms	----	1890	- Ohms	----	1890
Drain Trough Heater			**Drain Trough Heater**		
- Watts	----	-----	- Watts	----	-----
- Amps	----	-----	- Amps	----	-----
- Ohms	----	-----	- Ohms	----	-----
Fill Tube Heater			**Fill Tube Heater**		
Starting with #M1184540/P1200040			- Watts	----	5
- Watts	----	5	- Amps	----	0.04
- Amps	----	0.04	- Ohms	----	2600
- Ohms	----	2600			

MODEL 561 Prior To Serial # M/P1198140/P1213190		
	Refrigerator	**Freezer**
Charge *(R-12 Refrigerant)* *Prior to #M/P965470 and from #M/P965869 to #M/P1004775*	7.0 oz.	8.0 oz.
From #M/P965470to #M/P965869 and from #M/P1004775 to #M/P1198140/P1213190	8.0 oz.	9.5 oz.
Control (normal #5 setting)		
Service Part No.	4201260	3012742
- Cut-in/Cut-out	39.0°/31.0° F	-1.5°/-8.5° F
Compressor		
Service Part No.	4201670	4201400
Mfg. Part No.	EM30SC	D120
Service Compressor Amps	0.8	1.4
Service Compressor BTU's	318	762
Suction Pressure (PSIG)		
- Cut-in/Cut-out	36 / 16	15 / 4
Original Defrost Timer (Cycle)		
Prior to #M/P816264		
Interval	----	12 Hour Continuous
Duration	----	15 Minutes
From#M/P816264 to #M/P965470 and from #M/P965869 to #M/P1004775		
Interval	----	12 Hour (comp. run)
Duration	----	15 Minutes
From#M/P965470 to M/P965869 and from #M/P965869 to #M/P1198140/P1213190		
Interval	----	24 Hour (comp. run)
Duration	----	20 Minutes
Service (6hr/21min) Part No.	----	3081180
Defrost Terminator		
- Cut-in/Cut-out	----	30.0°/55.0°F
Defrost Heater		
- Watts	----	640
- Amps	----	5.5
- Ohms	----	21
Drain Tube Heater		
- Watts	----	7
- Amps	----	0.06
- Ohms	----	1890
Drain Trough Heater		
- Watts	----	-----
- Amps	----	-----
- Ohms	----	-----
Fill Tube Heater		
Starting with #M1184540/P1200040		
- Watts	----	5
- Amps	----	0.04
- Ohms	----	2600

MODEL 561 Starting with Serial # M/P1198140/P1213190		
	Refrigerator	**Freezer**
Charge *(R-134a Refrigerant)*	7.0 oz.	7.0 oz.
Control (normal #5 setting)		
Service Part No.	4201260	3012742
- Cut-in/Cut-out	39.0°/31.0° F	-1.5°/-8.5° F
Compressor		
Service Part No.	4201880	4202250
Mfg. Part No.	EMI30HER	DA73
Service Compressor Amps	0.9	1.4
Service Compressor BTU's	280	860
Suction Pressure (PSIG)		
- Cut-in/Cut-out	35 / 9	8 / -1" Vac
Original Defrost Timer (Cycle)		
Interval	----	24 Hour (comp. run)
Duration	----	20 Minutes
Service (6hr/21min) Part No.	----	3081180
Defrost Terminator		
- Cut-in/Cut-out	----	30.0°/55.0°F
Defrost Heater		
- Watts	----	640
- Amps	----	5.5
- Ohms	----	21
Drain Tube Heater		
- Watts	----	7
- Amps	----	0.06
- Ohms	----	1890
Drain Trough Heater		
- Watts	----	-----
- Amps	----	-----
- Ohms	----	-----
Fill Tube Heater		
- Watts	----	5
- Amps	----	0.04
- Ohms	----	2600

MODEL 590 Prior To Serial # M/P1197840			MODEL 590 Starting with Serial # M/P1197840		
	Refrigerator	**Freezer**		**Refrigerator**	**Freezer**
Charge *(R-12 Refrigerant)* *Prior to #M/P965870 and from #M/P966269to #M/P1004775*	7.0 oz.	9.0 oz.	**Charge** *(R-134a Refrigerant)*	7.0 oz.	9.0 oz.
From #M/P965870 to #M/P966269 and from #M/P1004775 to #M/P1198740	10.0 oz.	9.0 oz.			
Control (normal #5 setting)			**Control (normal #5 setting)**		
Service Part No.	4201270	3012881	Service Part No.	4201270	3012881
- Cut-in/Cut-out	37.0°/35.0° F	4.0°/-6.0° F	- Cut-in/Cut-out	37.0°/35.0° F	4.0°/-6.0° F
Compressor			**Compressor**		
Service Part No.	4201670	4201400	Service Part No.	4201880	4202250
Mfg. Part No.	EM30SC	D120	Mfg. Part No.	EMI30HER	DA73
Service Compressor Amps	0.8	1.4	Service Compressor Amps	0.8	1.4
Service Compressor BTU's	318	762	Service Compressor BTU's	280	860
Suction Pressure (PSIG)			**Suction Pressure (PSIG)**		
- Cut-in/Cut-out	36 / 16	10 / 1	- Cut-in/Cut-out	39 / 9	10 / -1" Vac
Original Defrost Timer (Cycle)			**Original Defrost Timer (Cycle)**		
Prior to #M/P965870 and from #M/P966269 to#M/P1004775			Interval	----	24 Hour (comp. run)
Interval	----	12 Hour (comp. run)	Duration	----	20 Minutes
Duration	----	15 Minutes	Service (6hr/21min) Part No.	----	3081180
From#M/P965870 to #M/P966269 and from #M/P1004775 to #M/P1197840					
Interval	----	24 Hour (comp. run)			
Duration	----	20 Minutes			
Service (6hr/21min) Part No.	----	3081180			
Defrost Terminator			**Defrost Terminator**		
- Cut-in/Cut-out	----	30.0°/55.0°F	- Cut-in/Cut-out	----	30.0°/55.0°F
Defrost Heater			**Defrost Heater**		
- Watts	----	640	- Watts	----	640
- Amps	----	5.5	- Amps	----	5.5
- Ohms	----	21	- Ohms	----	21
Drain Tube Heater			**Drain Tube Heater**		
- Watts	----	7	- Watts	----	7
- Amps	----	0.06	- Amps	----	0.06
- Ohms	----	1890	- Ohms	----	1890
Drain Trough Heater			**Drain Trough Heater**		
- Watts	----	15	- Watts	----	15
- Amps	----	0.13	- Amps	----	0.13
- Ohms	----	960	- Ohms	----	960
Fill Tube Heater Starting with #M1184540/P1200040			**Fill Tube Heater**		
- Watts	----	5	- Watts	----	5
- Amps	----	0.04	- Amps	----	0.04
- Ohms	----	2600	- Ohms	----	2600
Mullion Chute Heater			**Mullion Chute Heater**		
- Watts	----	15	- Watts	----	15
- Amps	----	0.13	- Amps	----	0.13
- Ohms	----	960	- Ohms	----	960
Glass Well Heater			**Glass Well Heater**		
- Watts	----	5	- Watts	----	5
- Amps	----	0.04	- Amps	----	0.04
- Ohms	----	2880	- Ohms	----	2880

SECTION 6

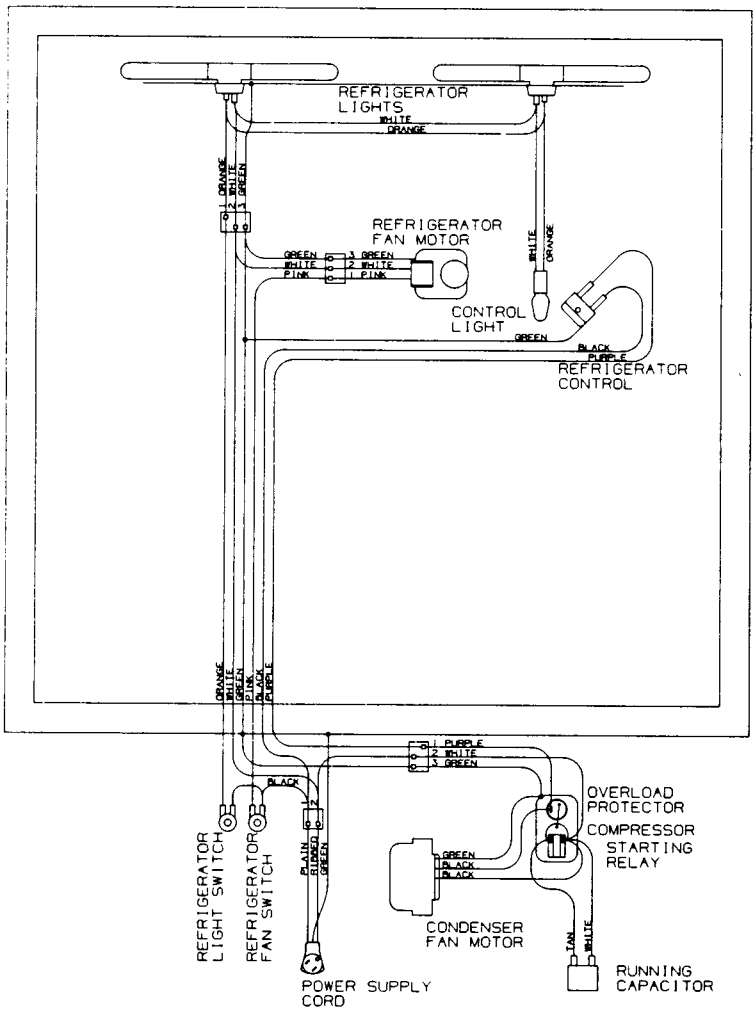
WIRING DIAGRAMS & SCHEMATICS

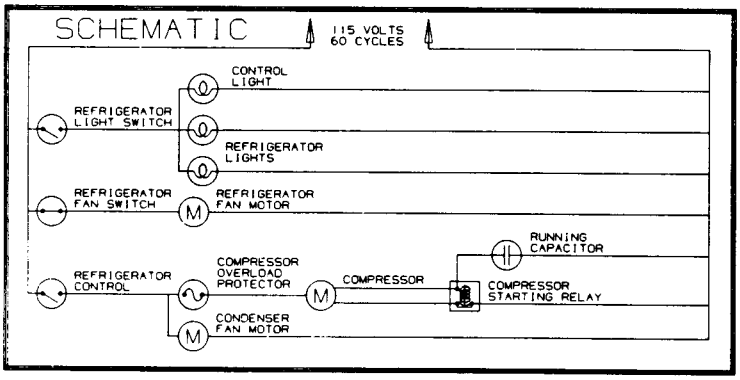
ATTENTION SERVICER: For the first eight years of production, the wiring of 500 Series units differed between the Madison and Phoenix facilities. This means that the wiring diagrams for Madison and Phoenix also differed for the first eight years.

The wiring diagrams in this section are in the best possible Serial Number order, with the diagrams applying to Madison production units preceding those applying to Phoenix production units. In some instances it is necessary to skip over pages to reach the continuation of the next set of applicable serial numbers. This is indicated in a "NOTE" at the top of the appropriate pages.

Before referencing any wiring diagrams in this section, you must know where the unit in question was produced, this is indicated by a "M" (for Madison production) or a "P" (for Phoenix production) at the beginning of the serial number on the serial tag.

WIRING DIAGRAM & SCHEMATIC - 501R
Madison Production Prior to Serial #M723972
(NOTE: See Page 6-4 for start of Phoenix Production Wiring Diagrams)

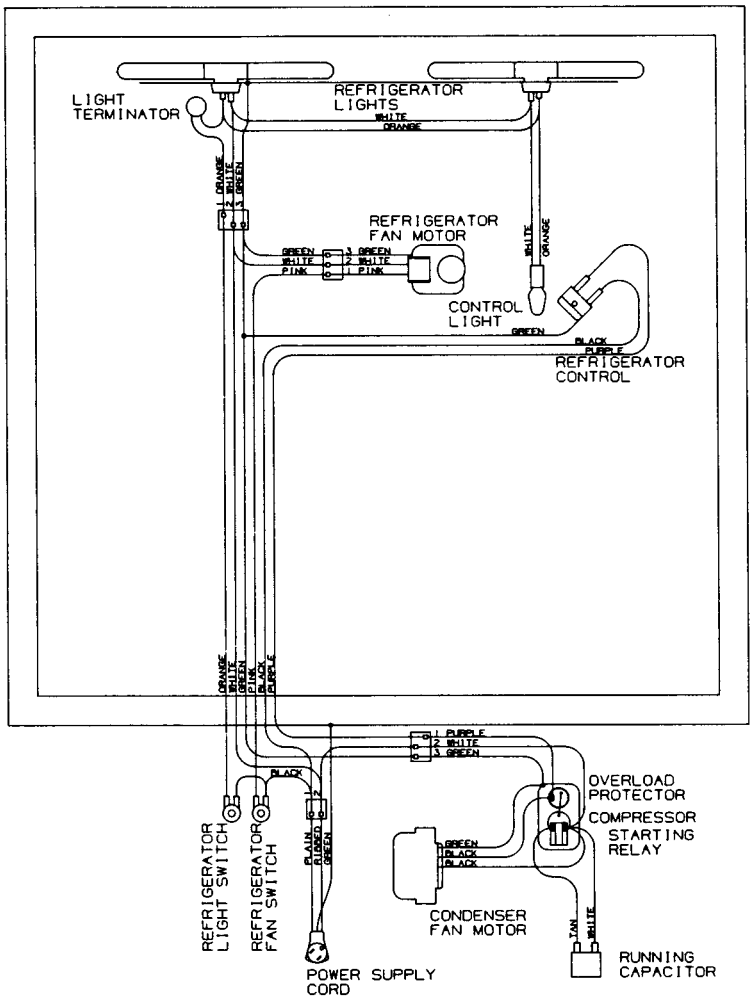




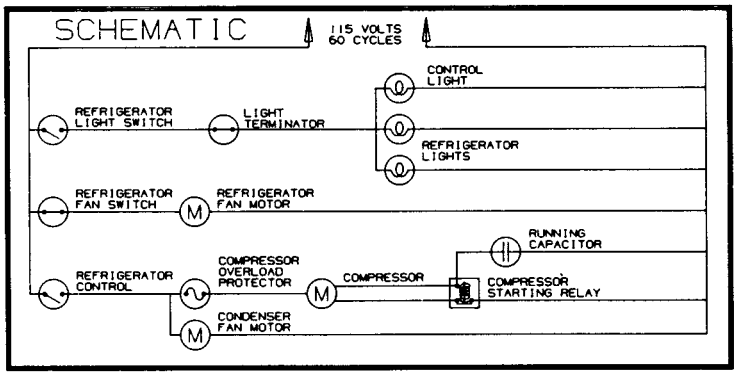
⚠WARNING

This wiring information is provided for use by qualified service personnel only.
Disconnect appliance from electrical supply before beginning service.
Be sure all grounding devices are connected when service is completed.
Failure to observe the above warnings may result in severe electrical shock.

WIRING DIAGRAM & SCHEMATIC - 501R
Madison Production From Serial #M723972 to #M821354
(NOTE: See Page 6-5 for continuation of the next applicable Madison Production serial numbers)



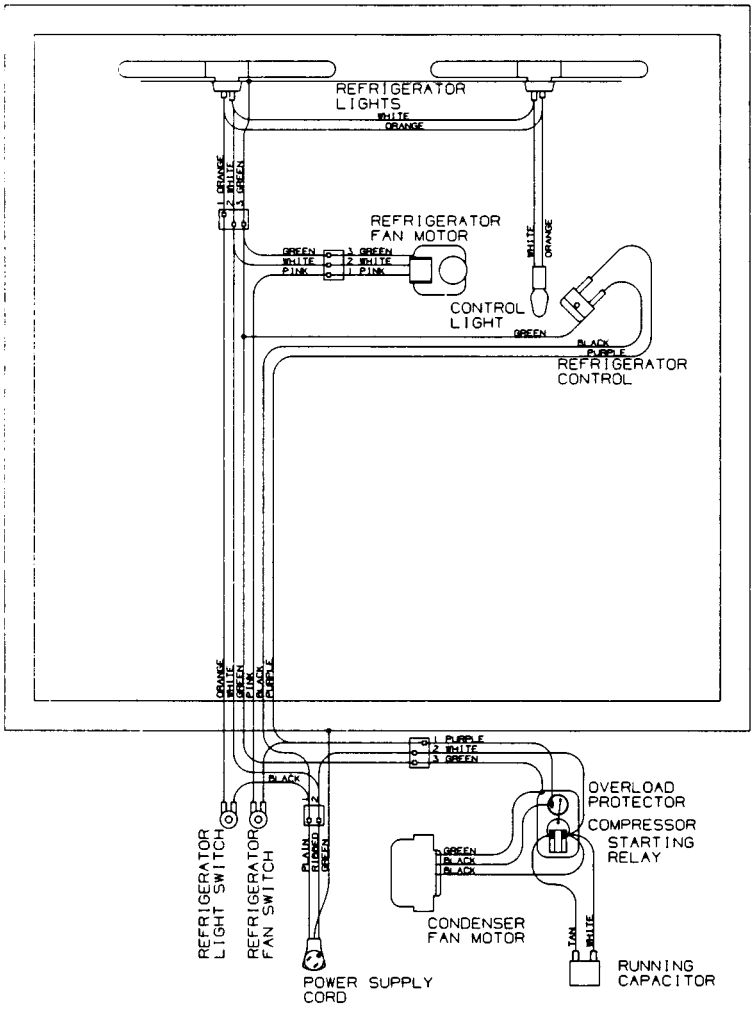
WIRING DIAGRAM
MODEL 501R

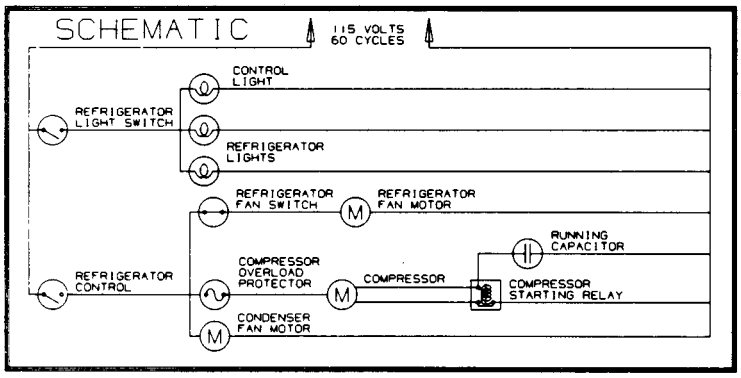


⚠WARNING

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Disconnect appliance from electrical supply before beginning service.
Be sure all grounding devices are connected when service is completed.
Failure to observe the above warnings may result in severe electrical shock.

WIRING DIAGRAM & SCHEMATIC - 501R
Phoenix Production Prior to Serial #P725922





⚠WARNING

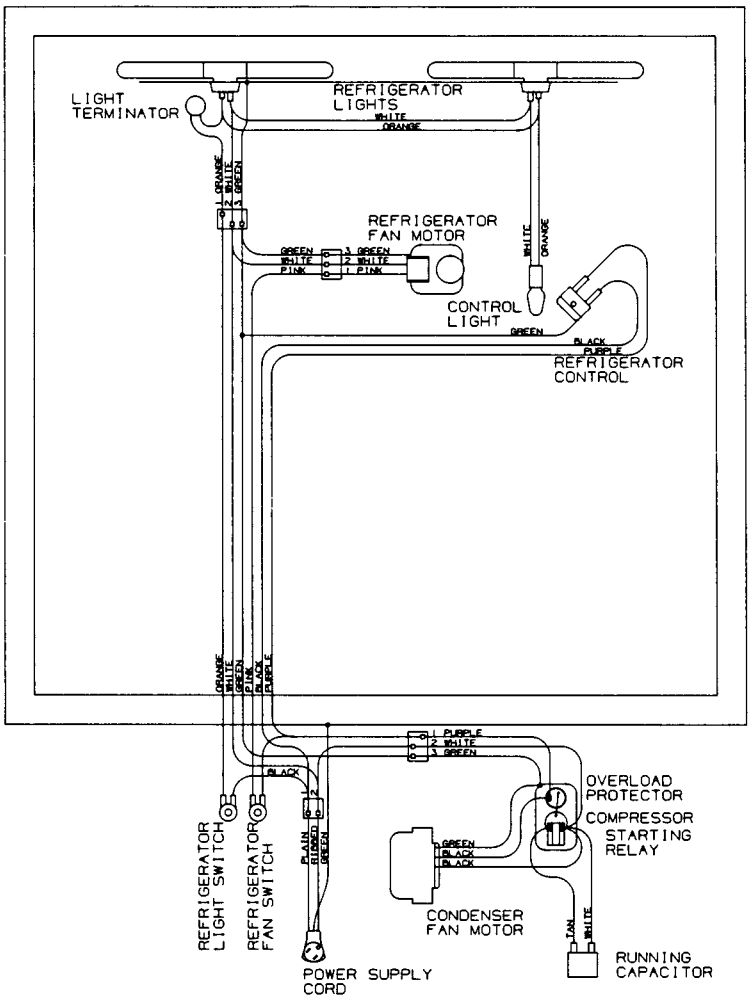
This wiring information is provided for use by qualified service personnel only.

Disconnect appliance from electrical supply before beginning service.

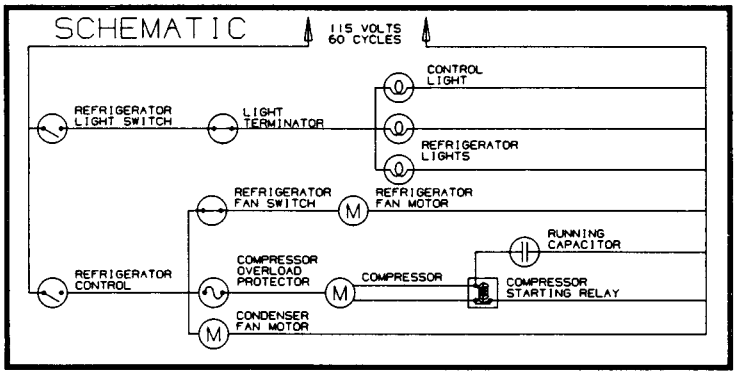
Be sure all grounding devices are connected when service is completed.

Failure to observe the above warnings may result in severe electrical shock.

WIRING DIAGRAM & SCHEMATIC - 501R
Madison/Phoenix Production From Serial #M821354/P725922 to #M/P1004775, except between #M959920 to #M960169



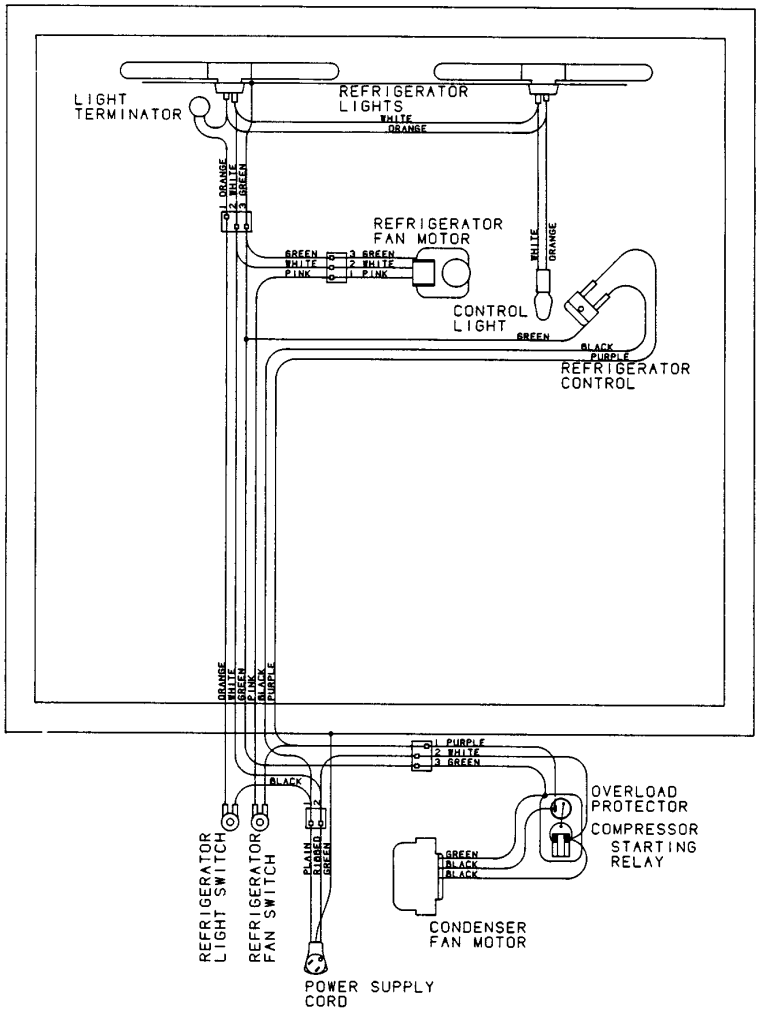
WIRING DIAGRAM
MODEL 501R



⚠WARNING

This wiring information is provided for use by qualified service personnel only.
Disconnect appliance from electrical supply before beginning service.
Be sure all grounding devices are connected when service is completed.
Failure to observe the above warnings may result in severe electrical shock.

WIRING DIAGRAM & SCHEMATIC - 501R
Madison/Phoenix Production Starting with Serial #M/P1004775 and between #M959920 to #M960169

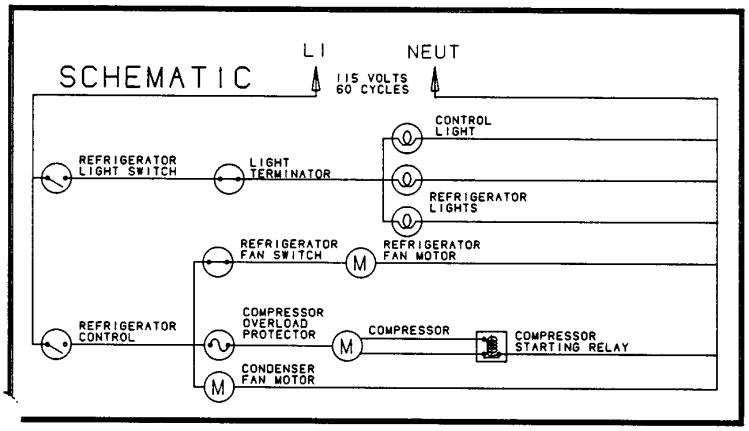


WIRING DIAGRAM MODEL 501R

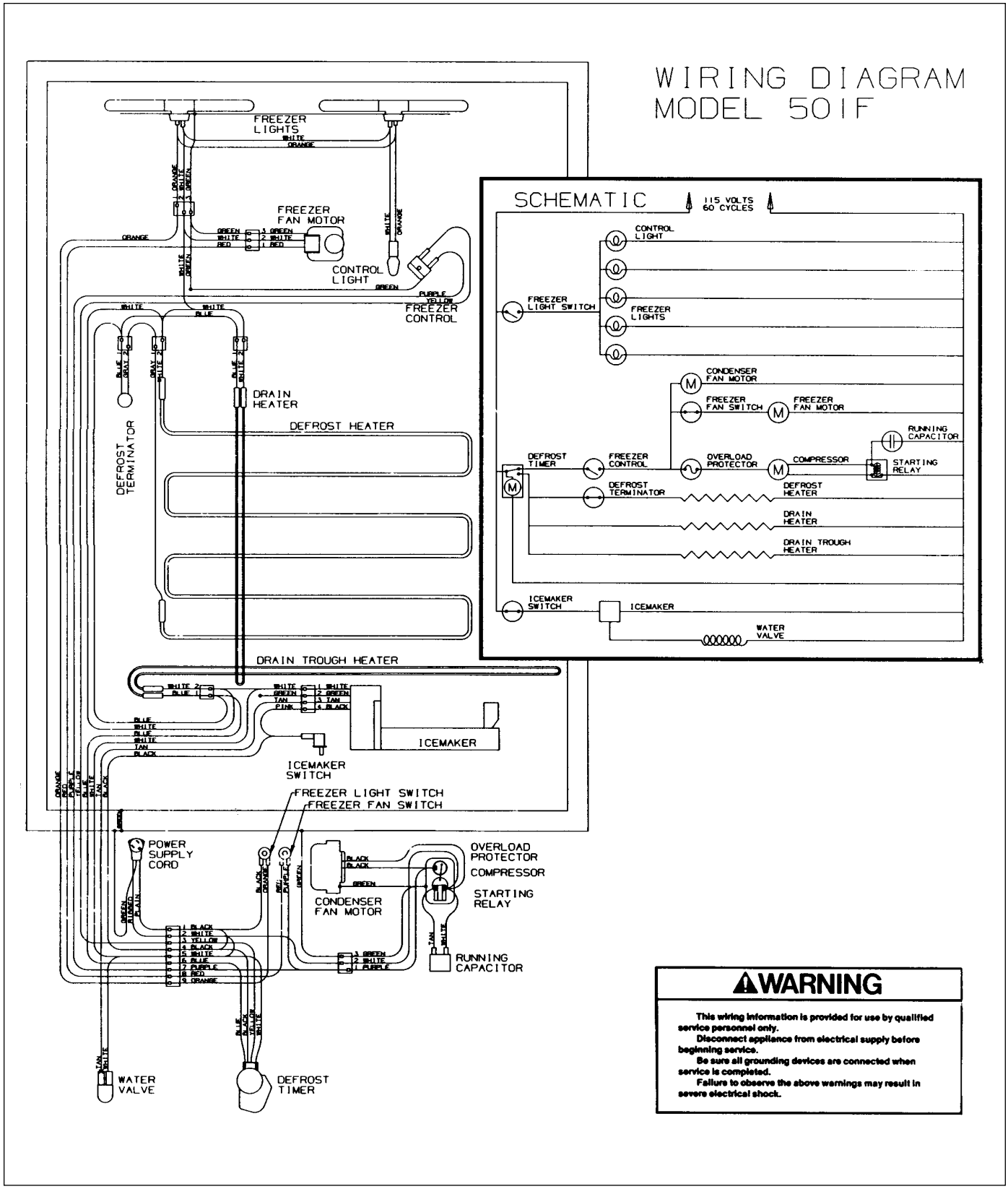
⚠WARNING

This wiring information is provided for use by qualified service personnel only.
Disconnect appliance from electrical supply before beginning service.
Be sure all grounding devices are connected when service is completed.
Failure to observe the above warnings may result in severe electrical shock.

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WIRING DIAGRAM & SCHEMATIC - 501F
Madison Production Prior to Serial #M675466
(NOTE: See Page 6-11 for start of Phoenix Production Wiring Diagrams)



⚠WARNING

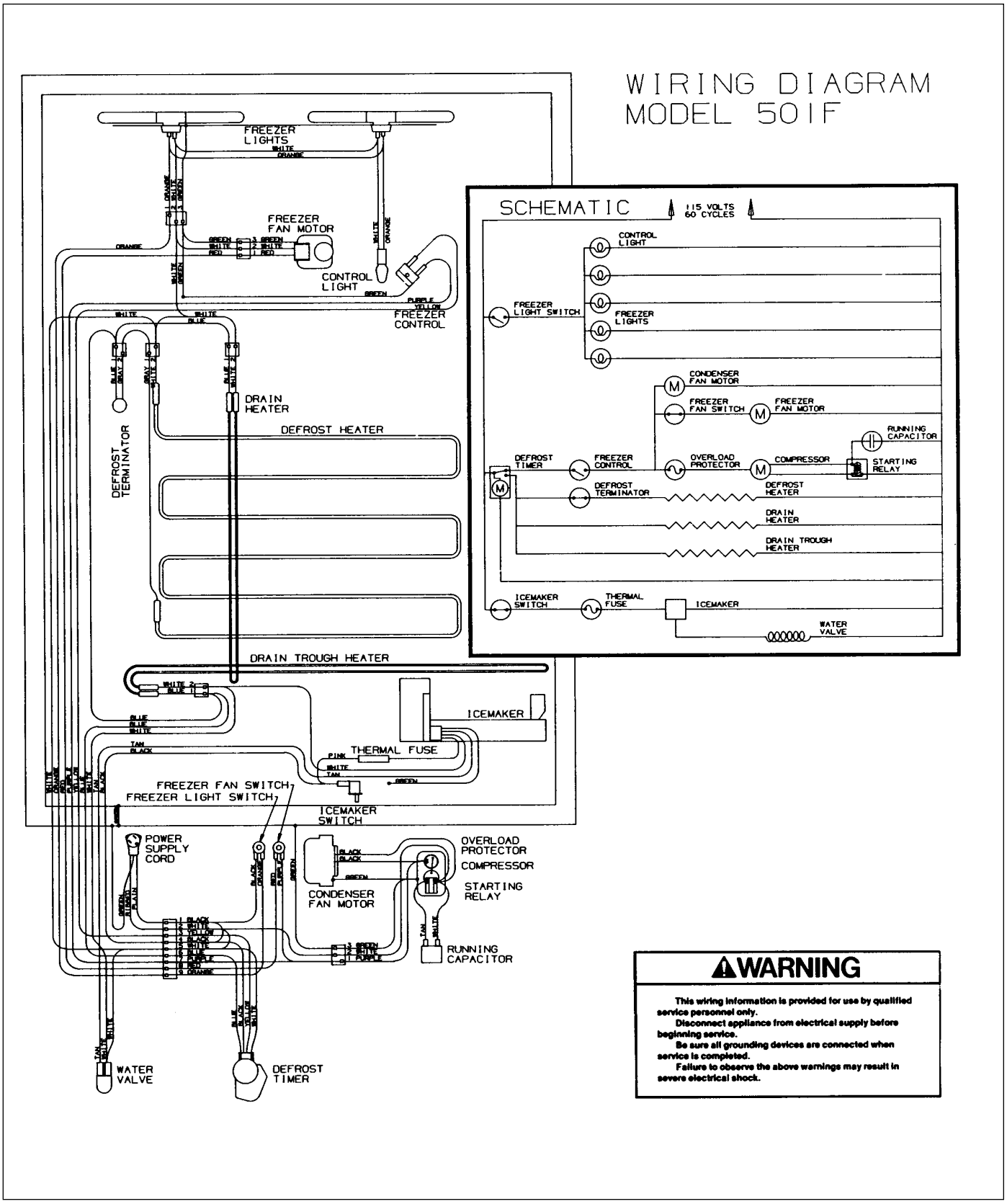
This wiring information is provided for use by qualified service personnel only.

Disconnect appliance from electrical supply before beginning service.

Be sure all grounding devices are connected when service is completed.

Failure to observe the above warnings may result in severe electrical shock.

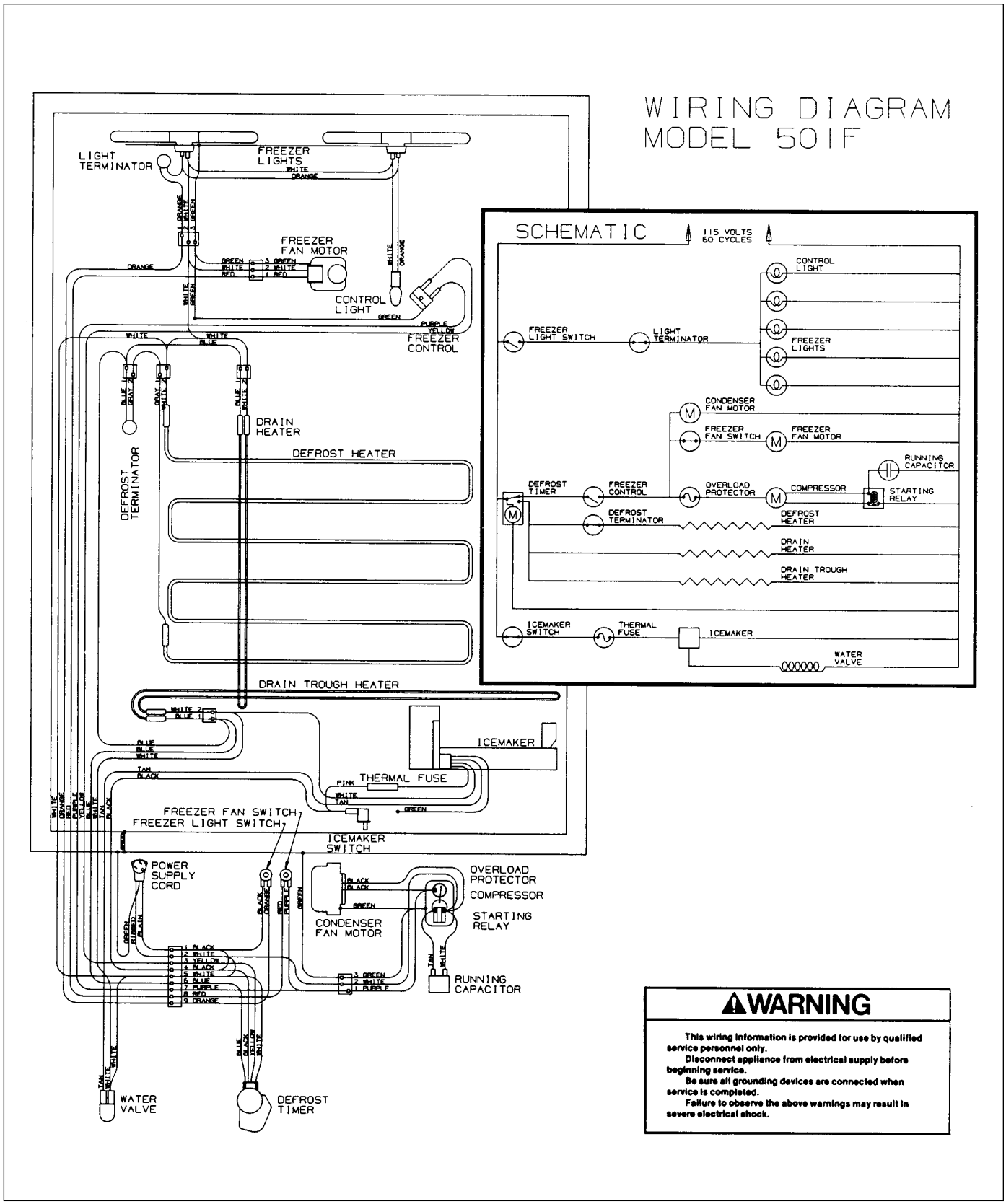
WIRING DIAGRAM & SCHEMATIC - 501F
Madison Production From Serial #M675466 to #M724222



⚠WARNING

This wiring information is provided for use by qualified service personnel only.
Disconnect appliance from electrical supply before beginning service.
Be sure all grounding devices are connected when service is completed.
Failure to observe the above warnings may result in severe electrical shock.

WIRING DIAGRAM & SCHEMATIC - 501F
Madison Production From Serial #M724222 to #M834904



⚠WARNING

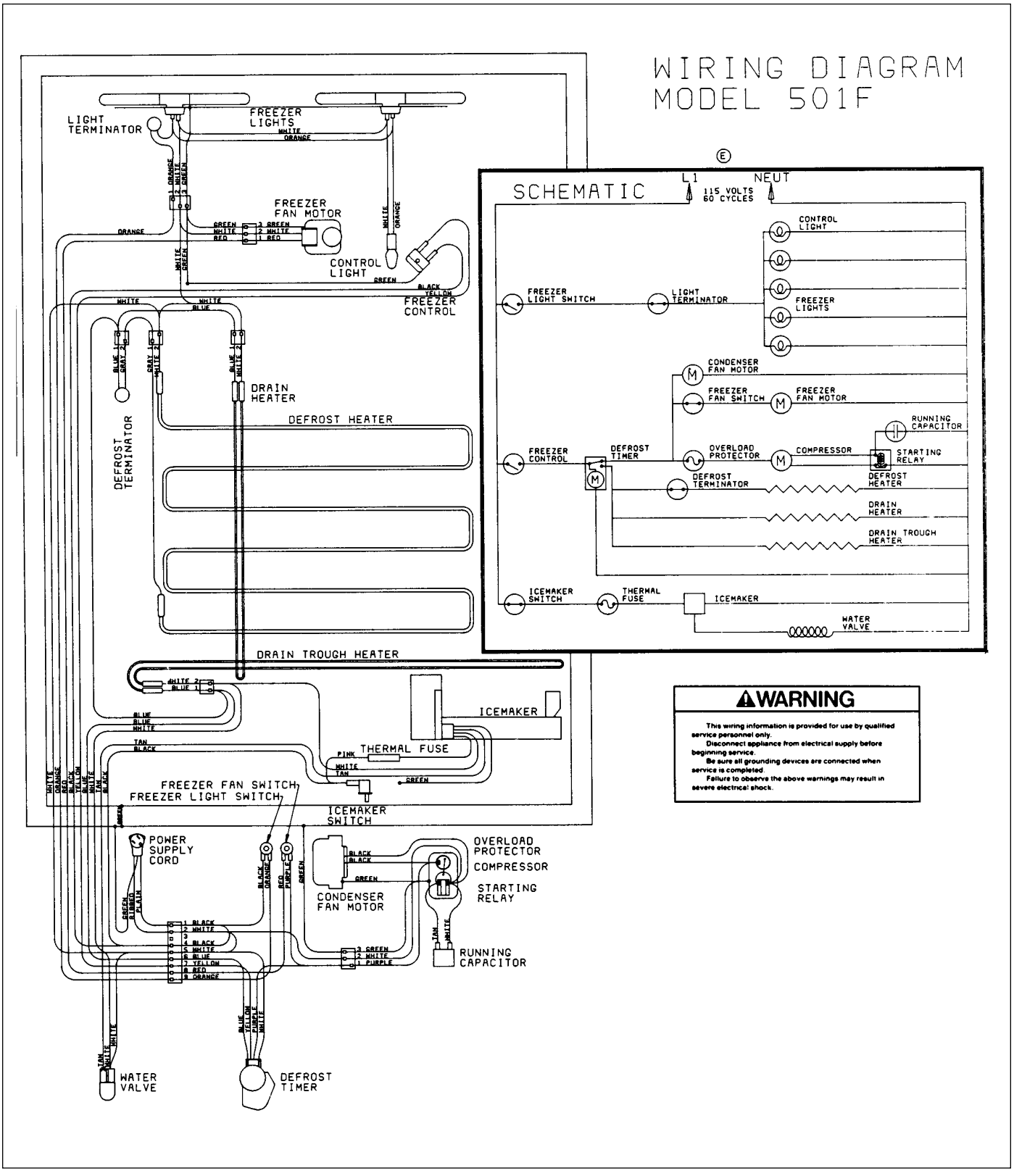
This wiring information is provided for use by qualified service personnel only.

Disconnect appliance from electrical supply before beginning service.

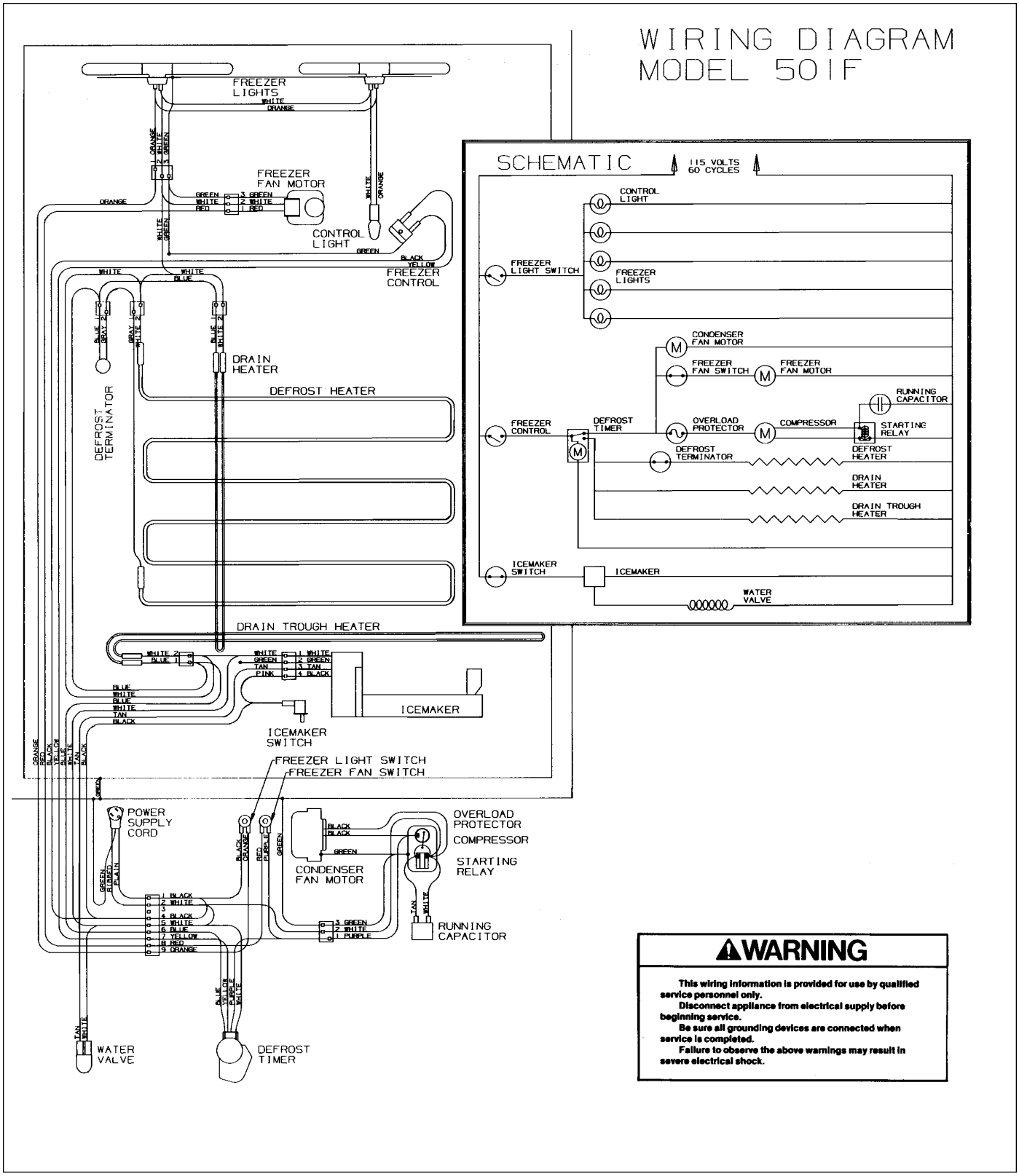
Be sure all grounding devices are connected when service is completed.

Failure to observe the above warnings may result in severe electrical shock.

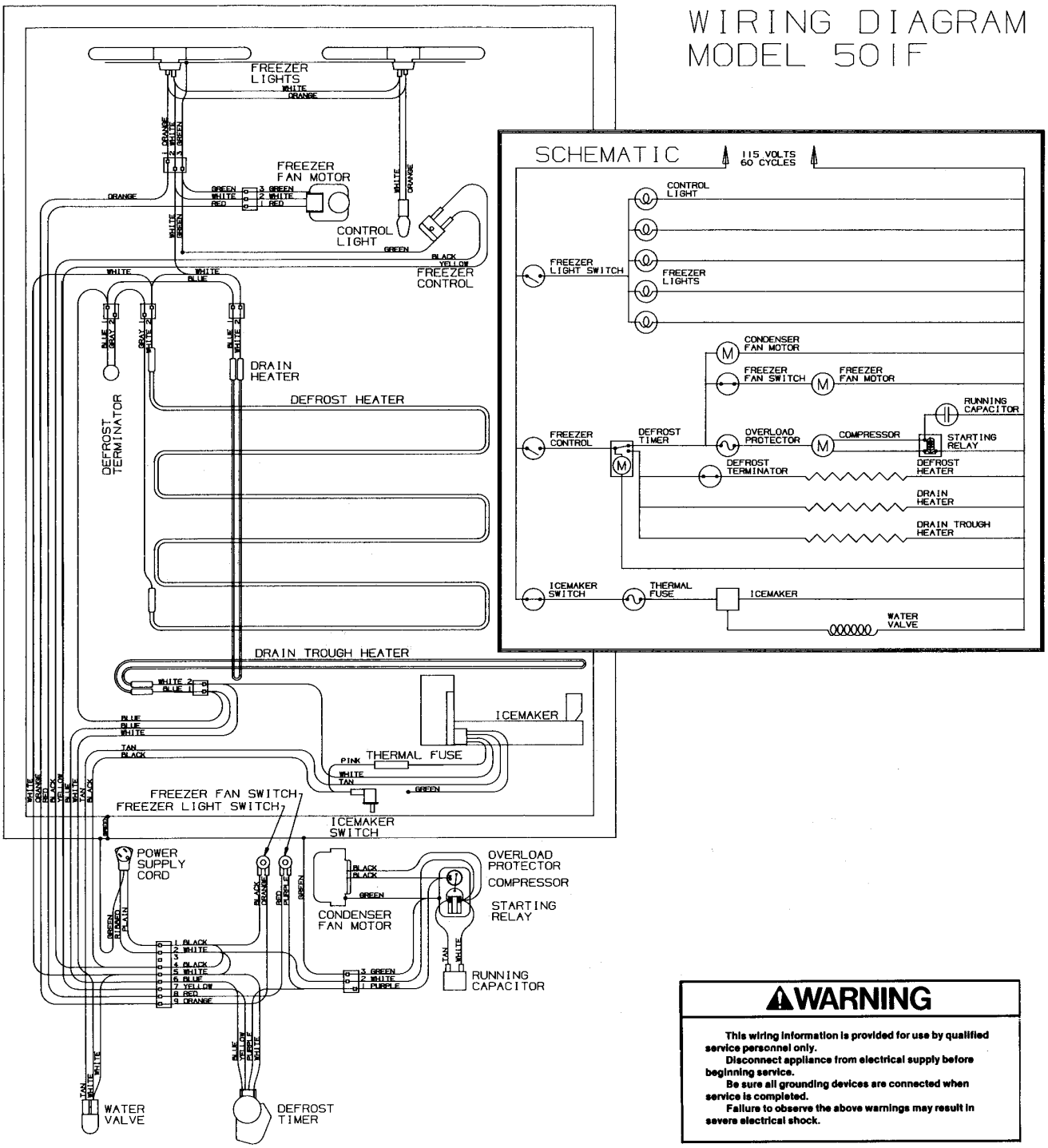
WIRING DIAGRAM & SCHEMATIC - 501F
Madison Production From Serial #M834904 to #M/P1004775, Except
Between #M959920 to #M960169
(NOTE: See Page 6-14 for continuation of the next applicable Madison Production serial numbers)



WIRING DIAGRAM & SCHEMATIC - 501F
Phoenix Production Prior to Serial #P677466



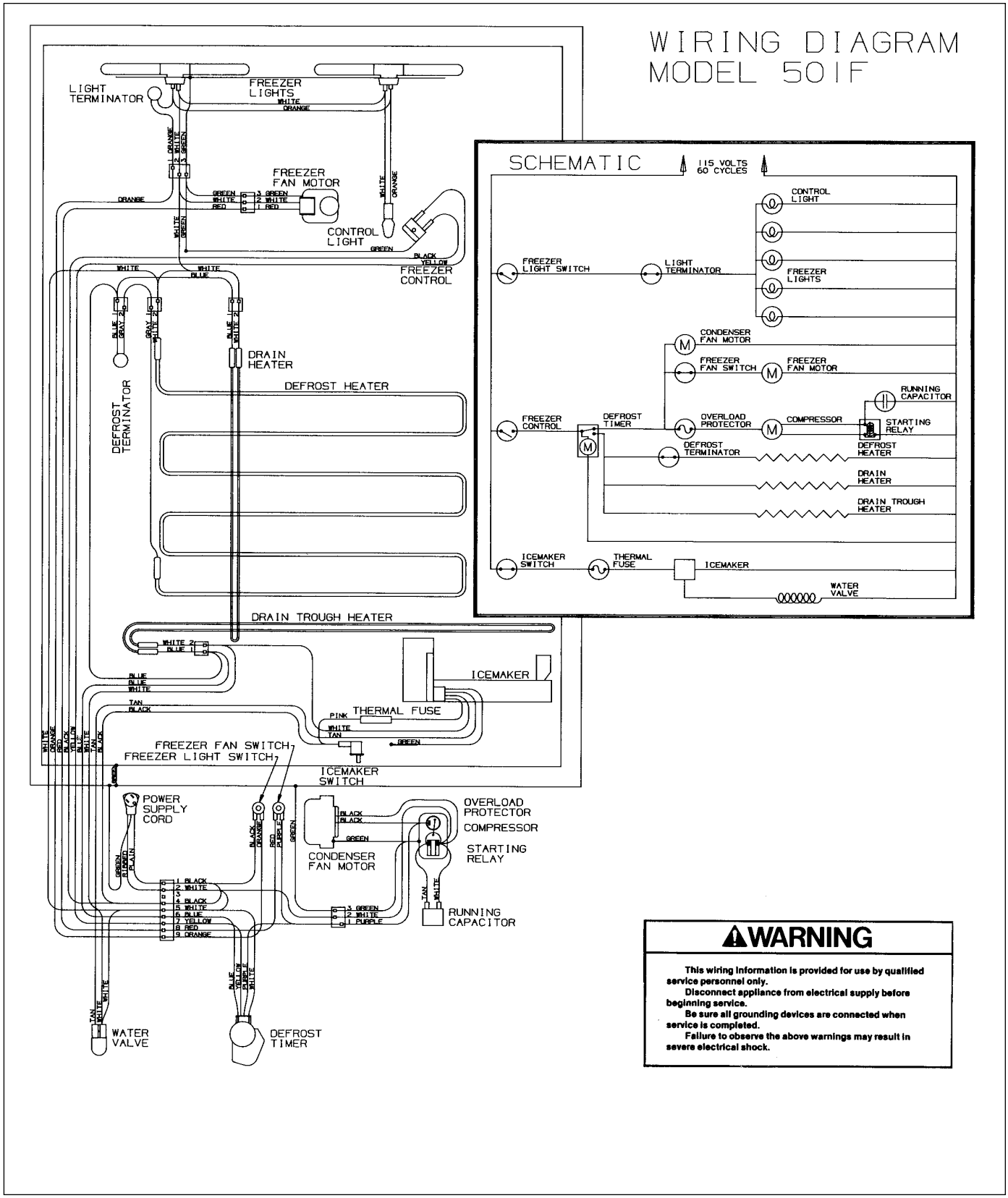
WIRING DIAGRAM & SCHEMATIC - 501F
Phoenix Production From Serial #P677466 to #P726372



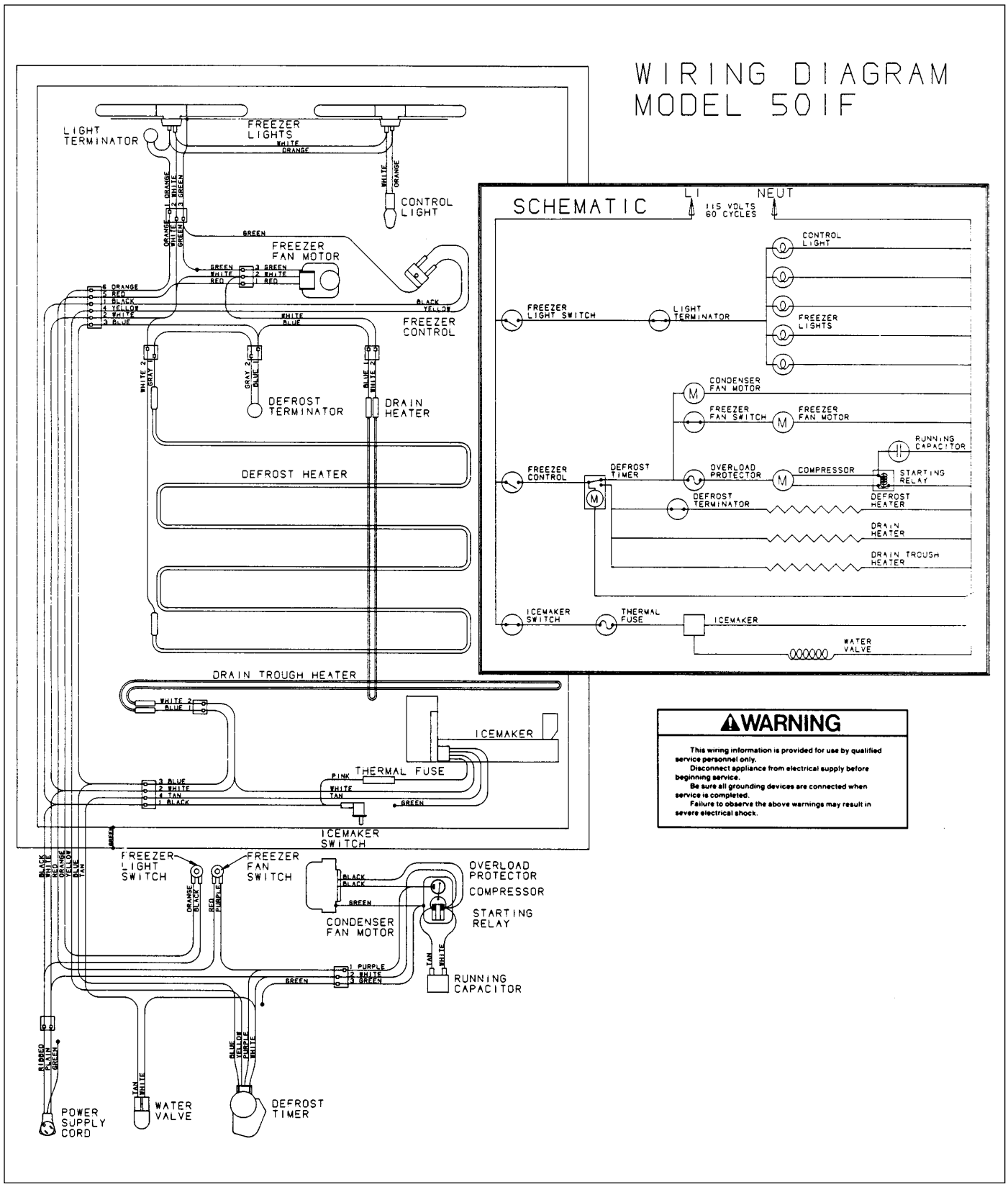
⚠WARNING

This wiring information is provided for use by qualified service personnel only.
Disconnect appliance from electrical supply before beginning service.
Be sure all grounding devices are connected when service is completed.
Failure to observe the above warnings may result in severe electrical shock.

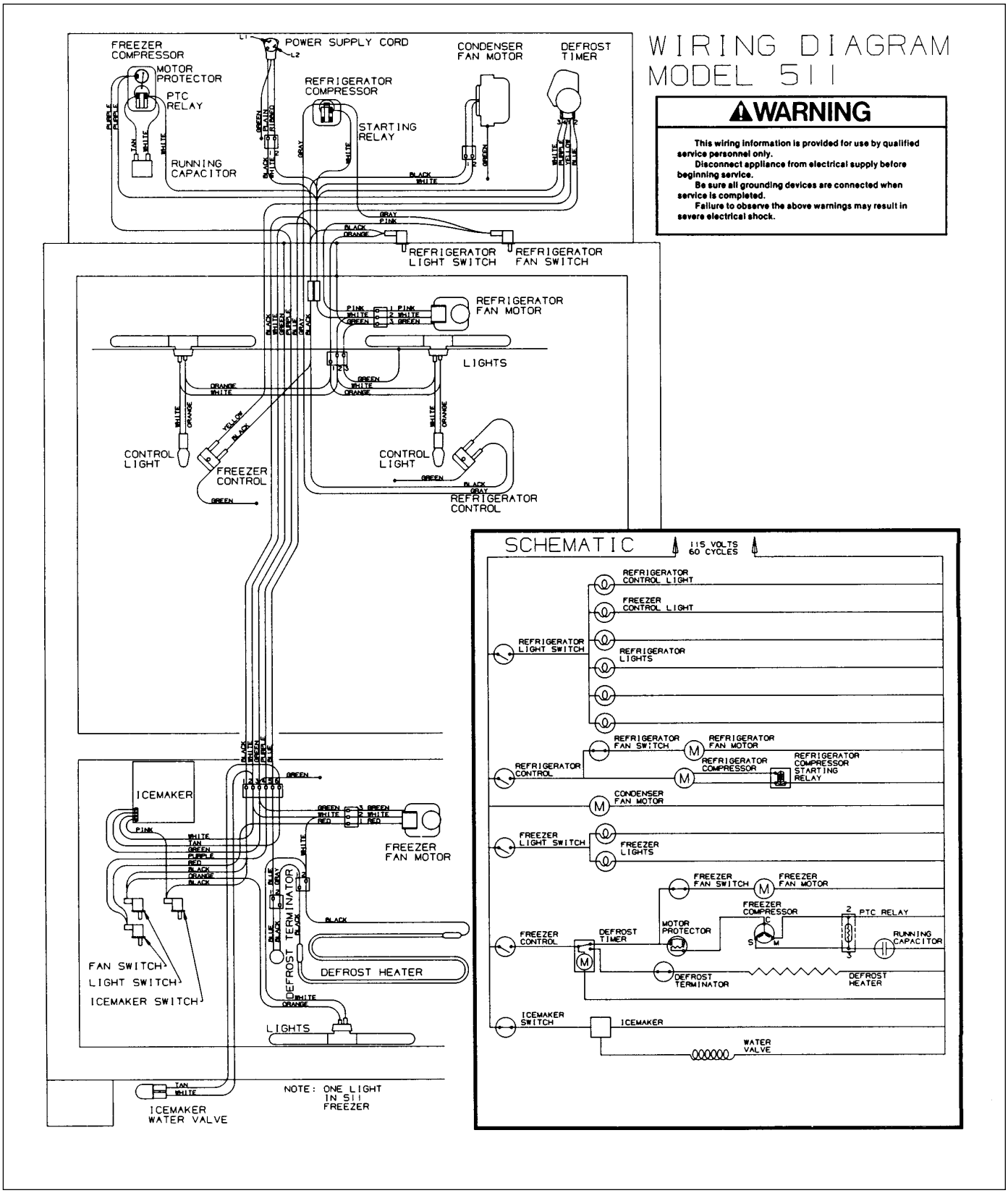
WIRING DIAGRAM & SCHEMATIC - 501F
Phoenix Production From Serial #P726372 to M/P1004775,
Except Between #M959920 to #M960169



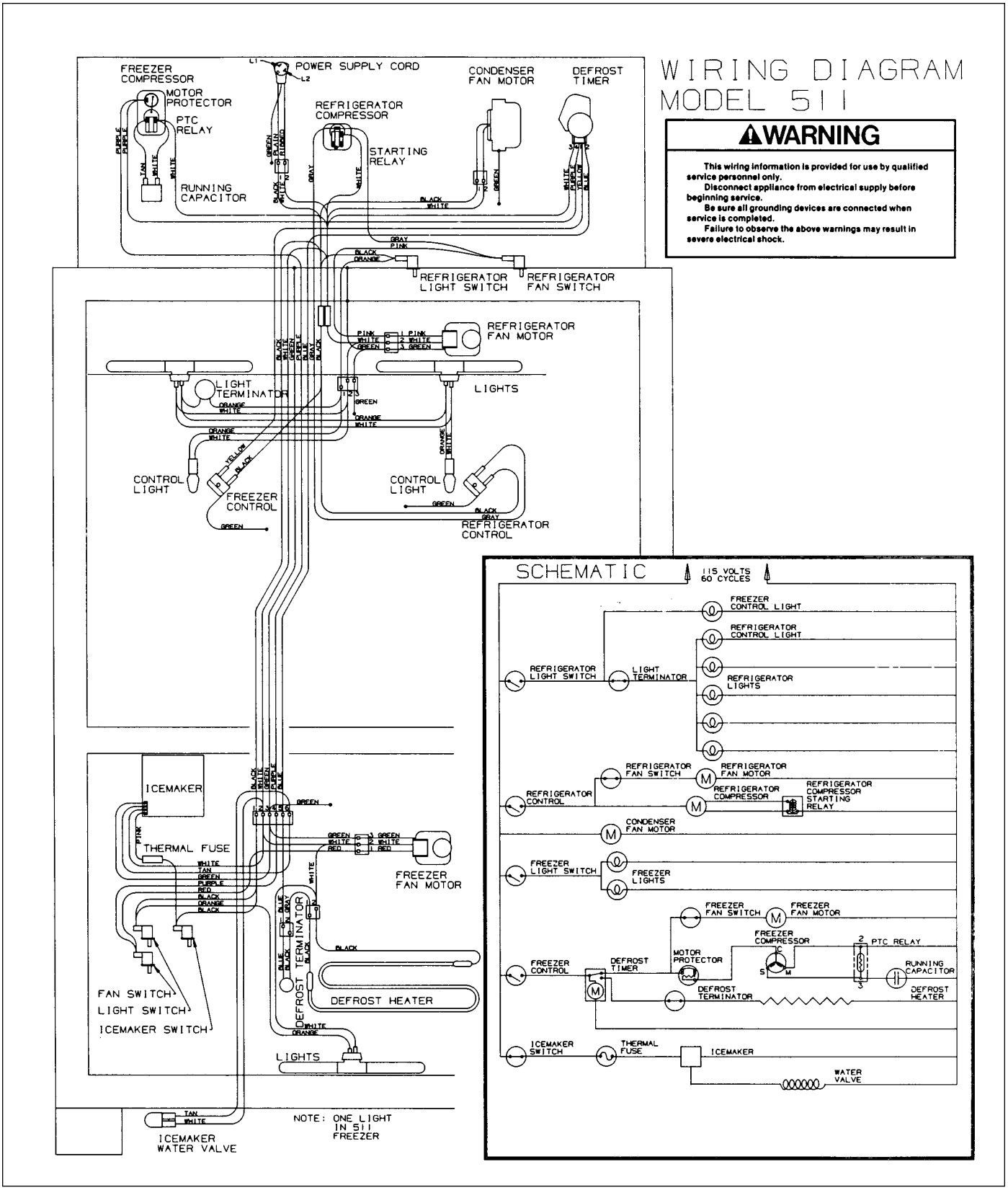
WIRING DIAGRAM & SCHEMATIC - 501F
Madison/Phoenix Production Starting with Serial #M/P1004775, and Between #M959920 to #M960169



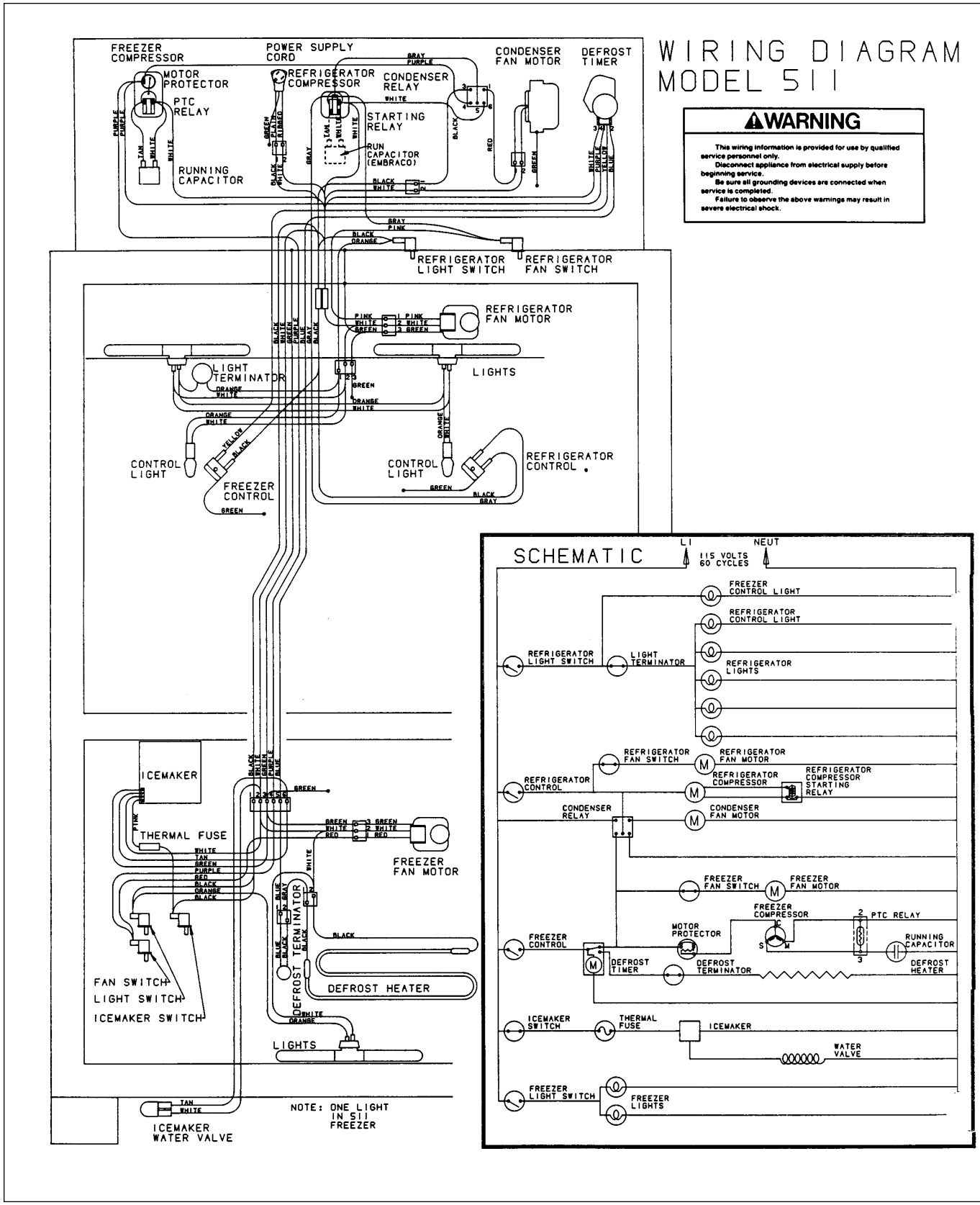
WIRING DIAGRAM & SCHEMATIC - 511
Madison Production Prior to Serial #M753523



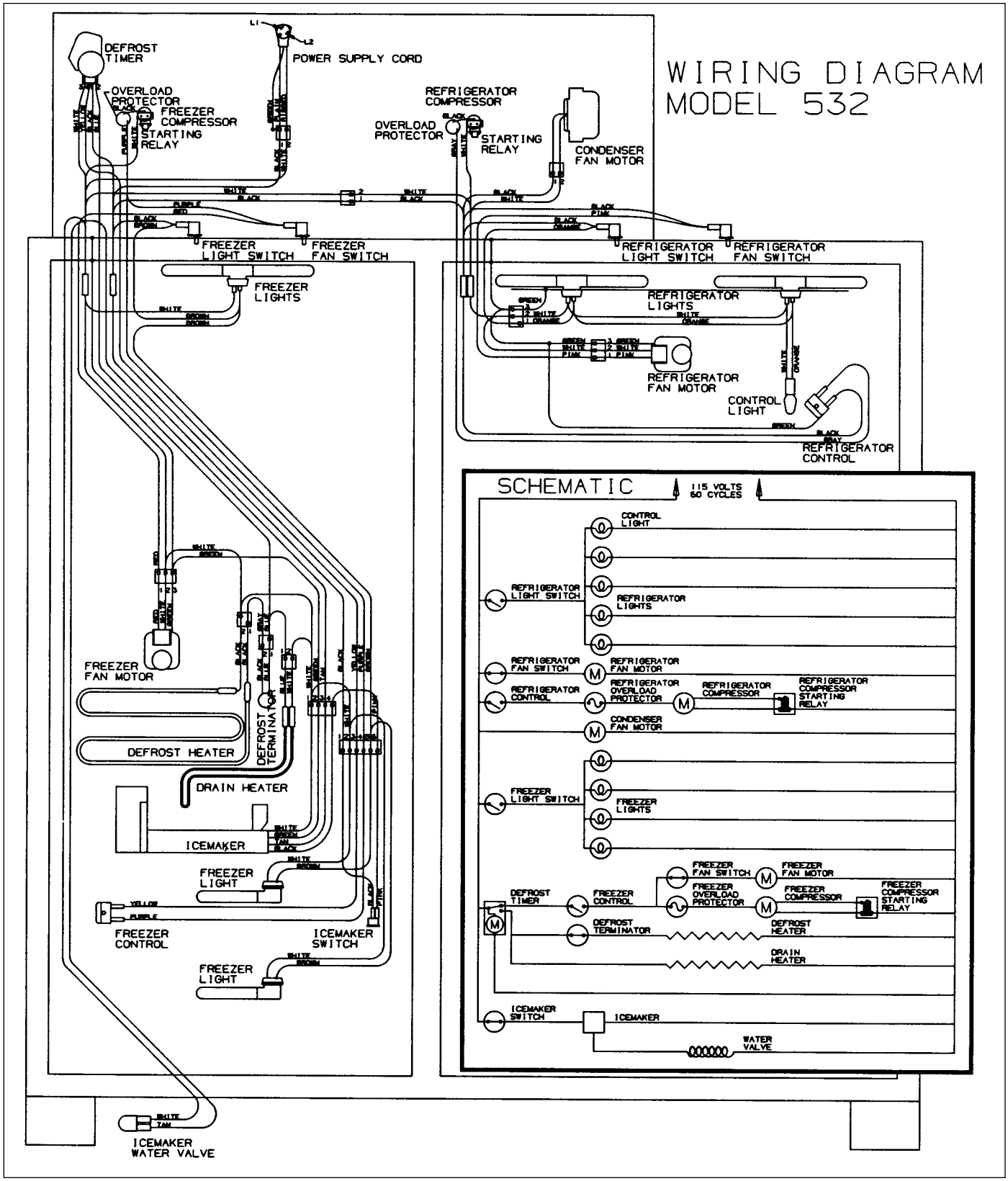
WIRING DIAGRAM & SCHEMATIC - 511
Madison Production From Serial #M753523 to #M1004775, Except
Between #M964470 to #964769



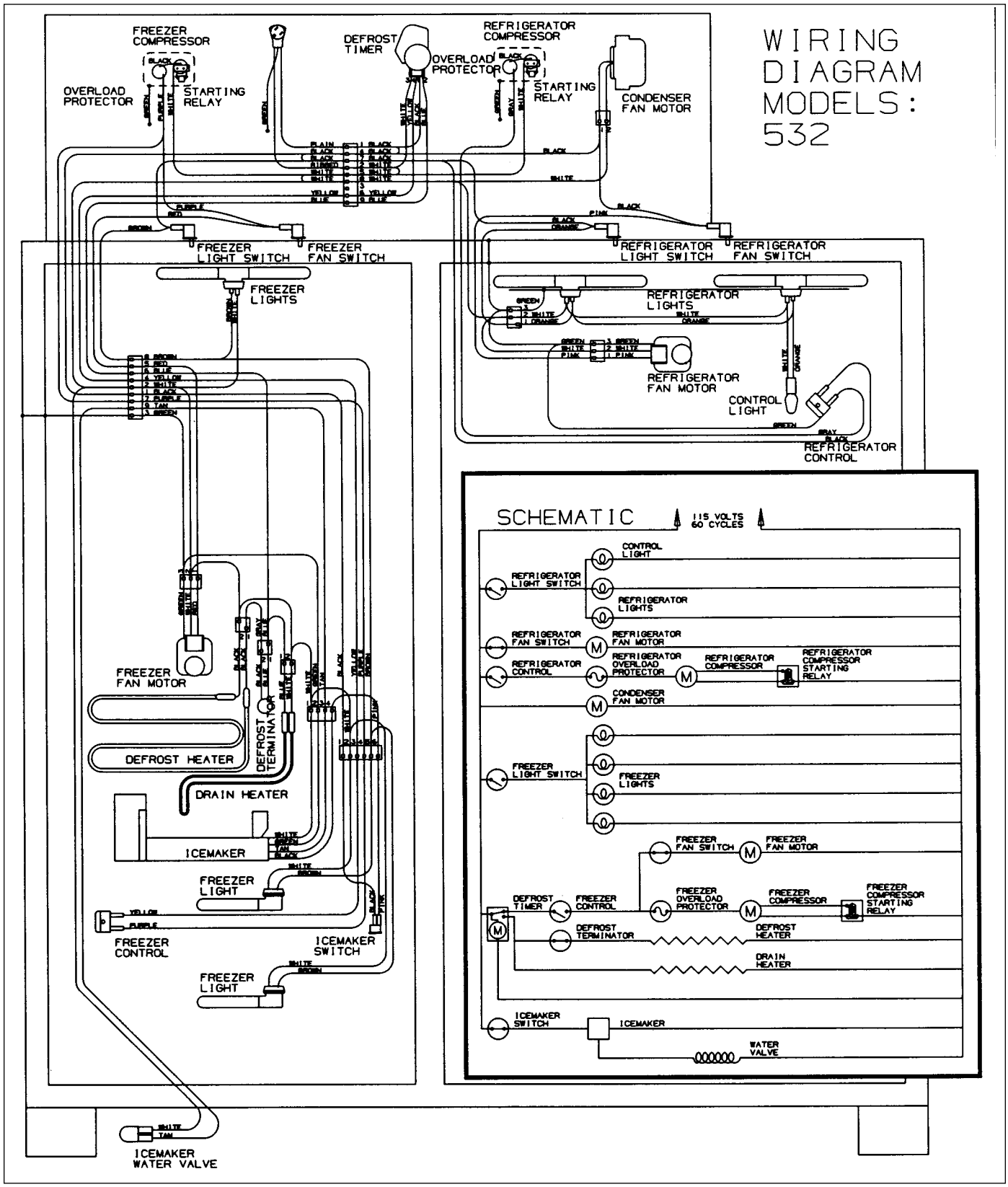
WIRING DIAGRAM & SCHEMATIC - 511
Madison Production Starting with Serial #M1004775 and between #M964470 to #964769



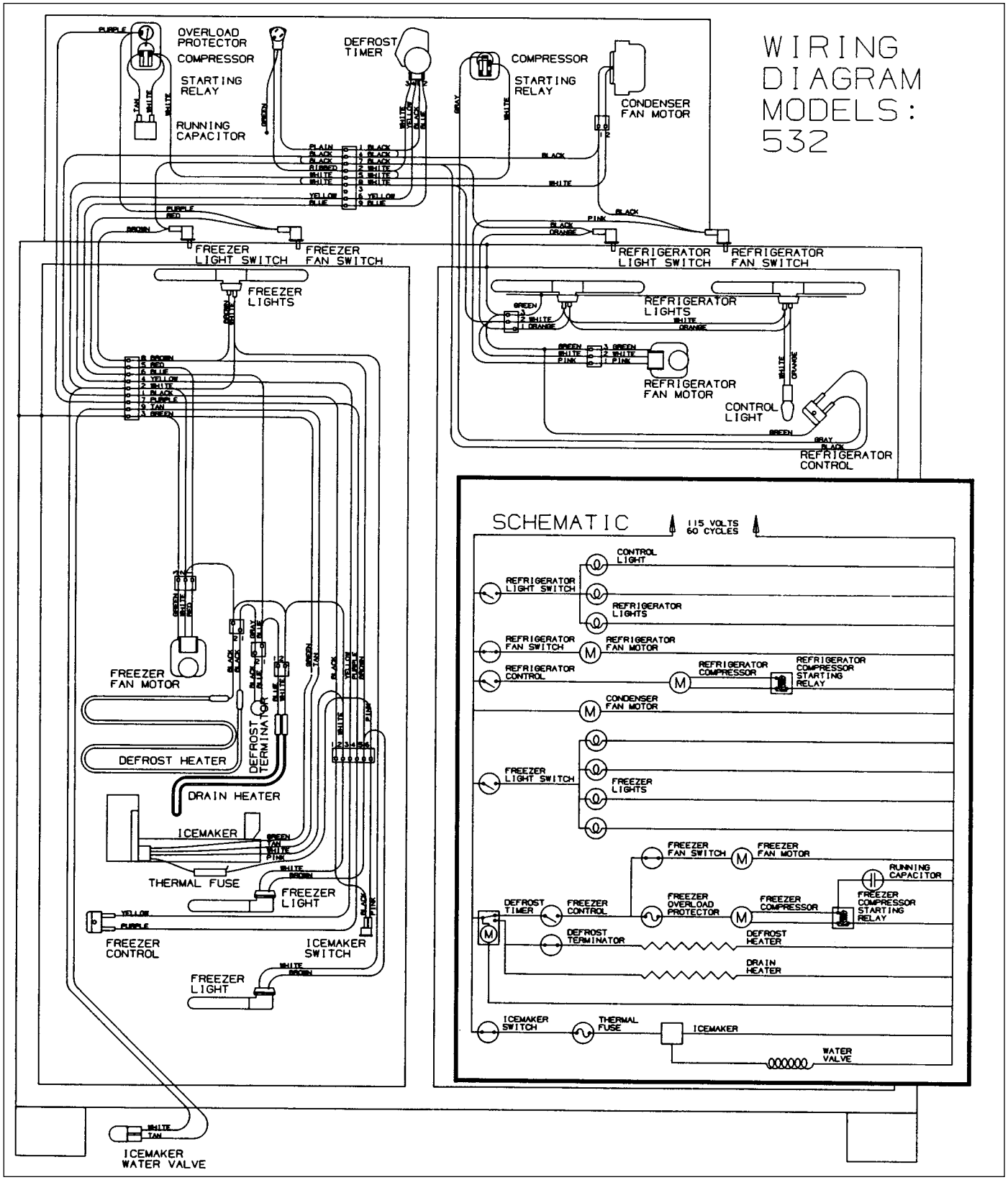
WIRING DIAGRAM & SCHEMATIC - 532
Madison Production Prior to Serial #M616691
(NOTE: See Page 6-22 for start of Phoenix Production Wiring Diagrams)



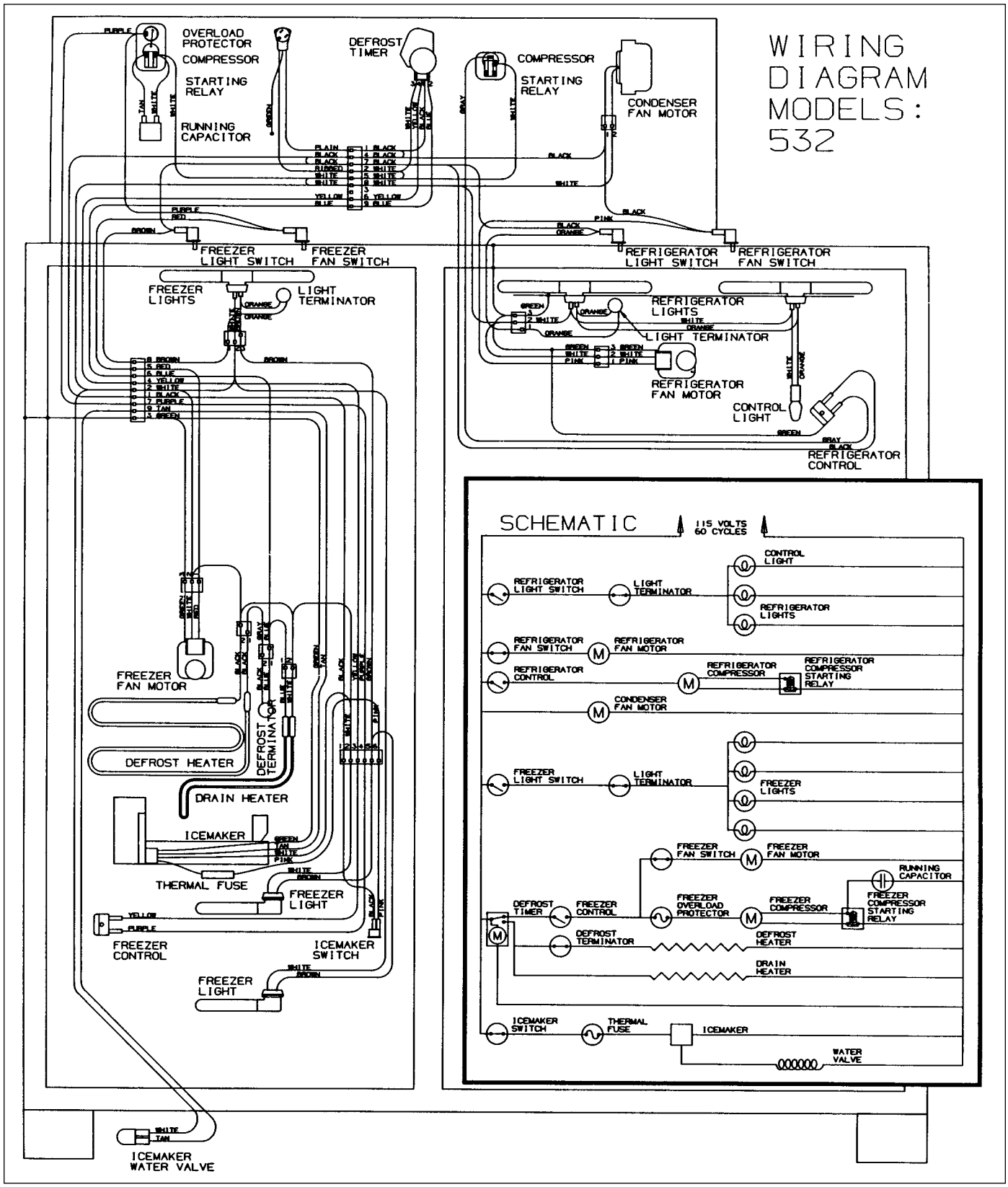
WIRING DIAGRAM & SCHEMATIC - 532
Madison Production From Serial #M616691 to #M681566



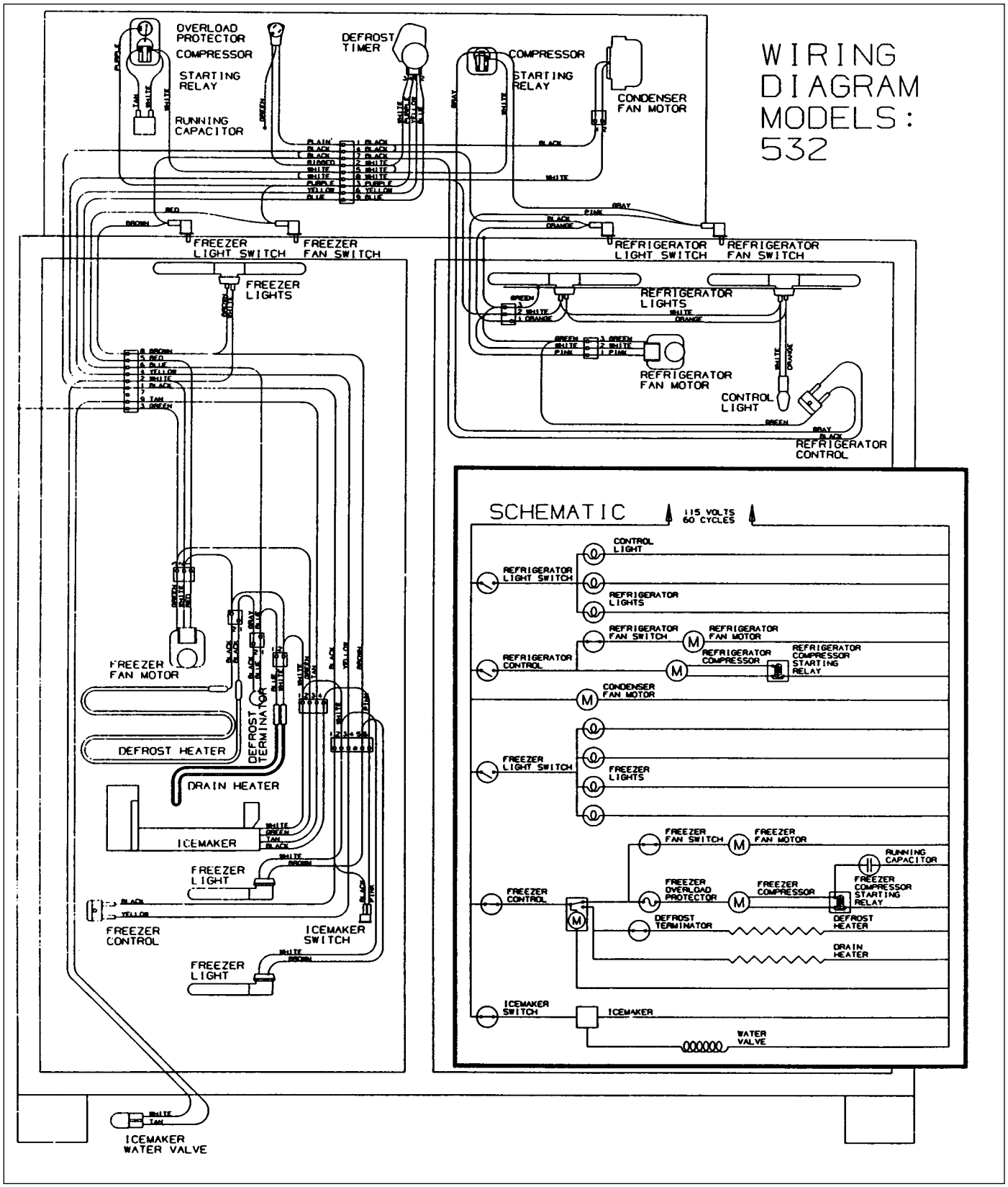
WIRING DIAGRAM & SCHEMATIC - 532
Madison Production From Serial #M681566 to #M722572



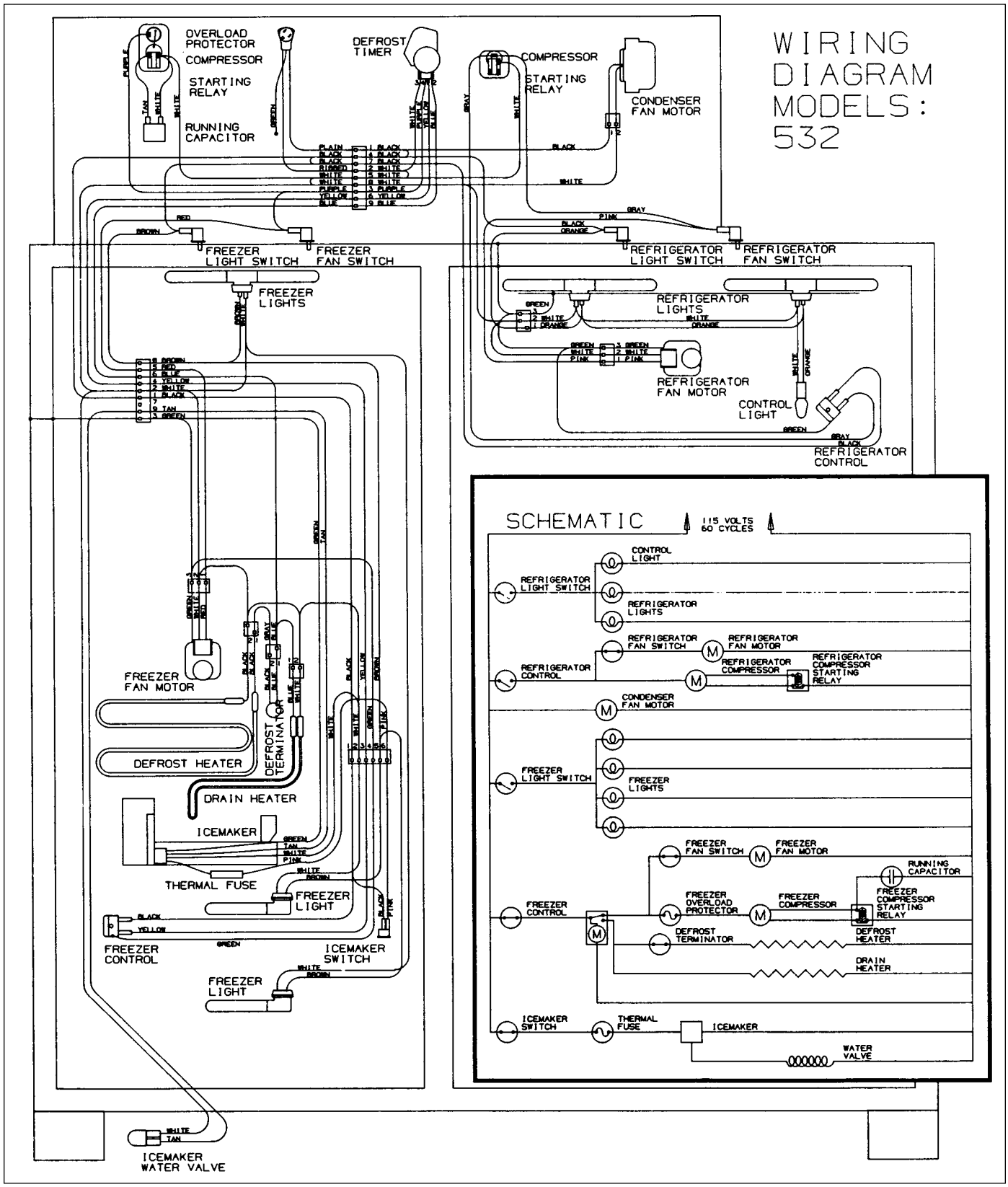
WIRING DIAGRAM & SCHEMATIC - 532
Madison Production From Serial #M722572 to #M815564
(NOTE: See Page 6-24 for continuation of the next applicable Madison Production serial numbers)



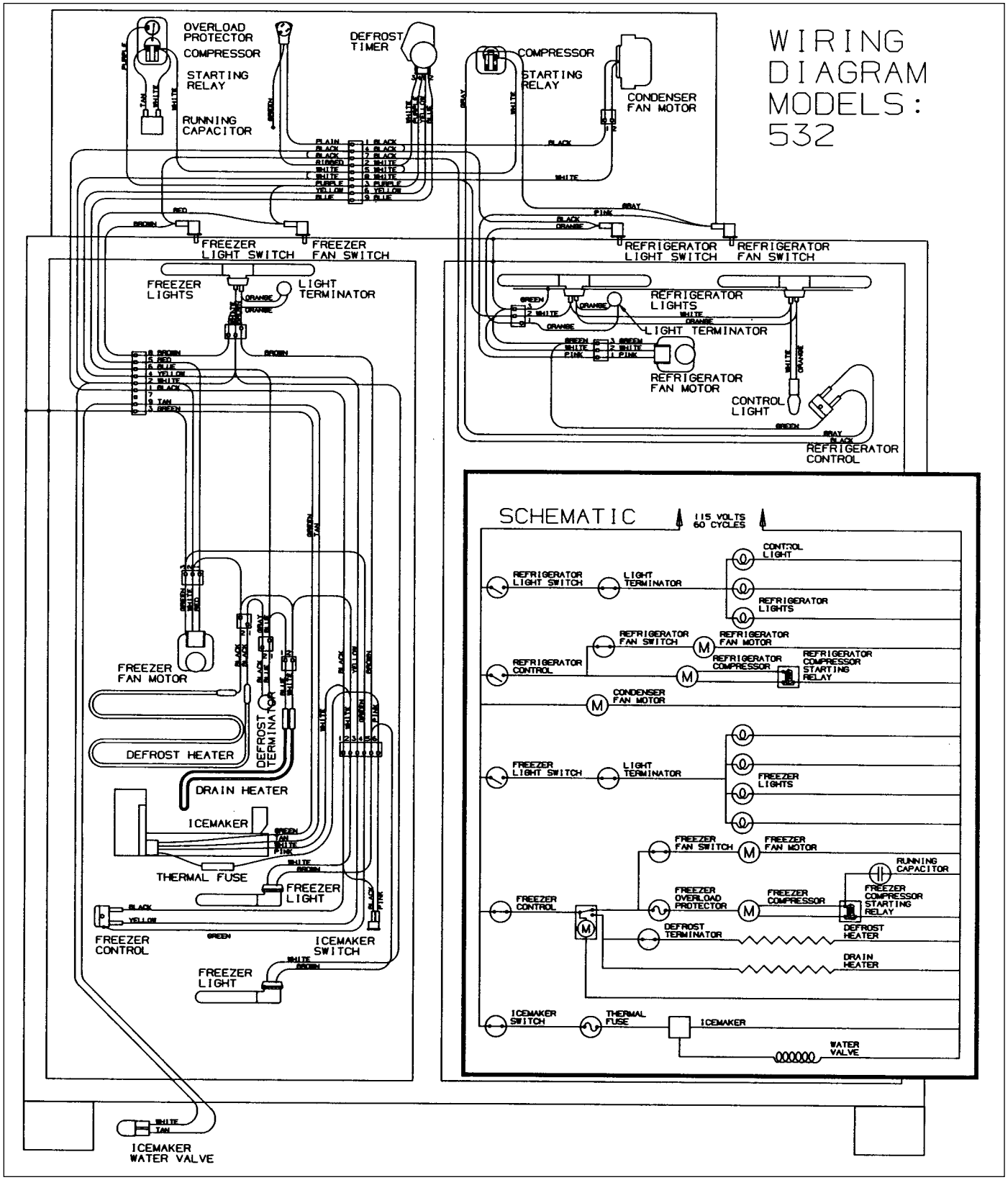
WIRING DIAGRAM & SCHEMATIC - 532
Phoenix Production Prior to Serial #P679166



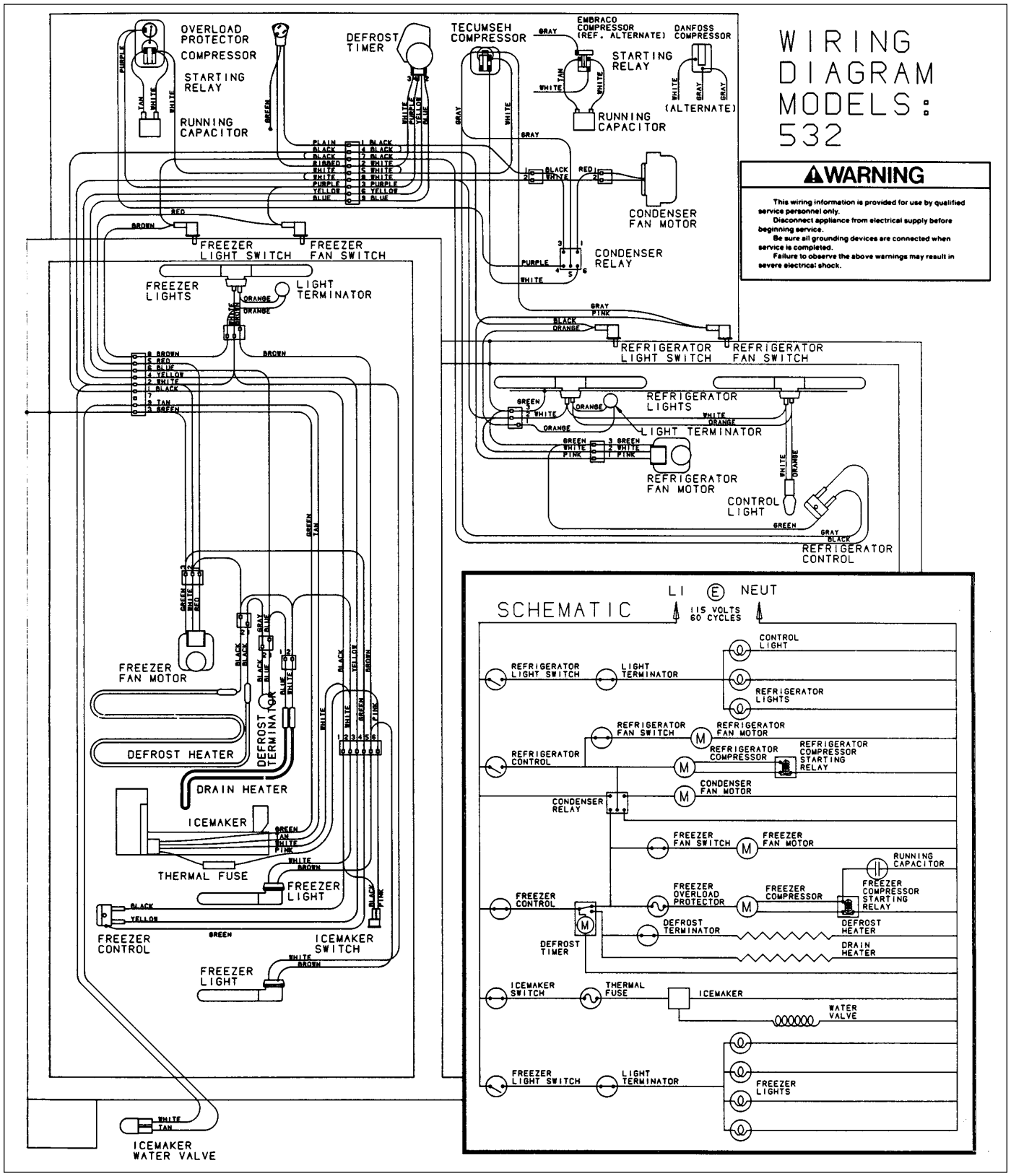
WIRING DIAGRAM & SCHEMATIC - 532
Phoenix Production From Serial #P679166 to #P725022



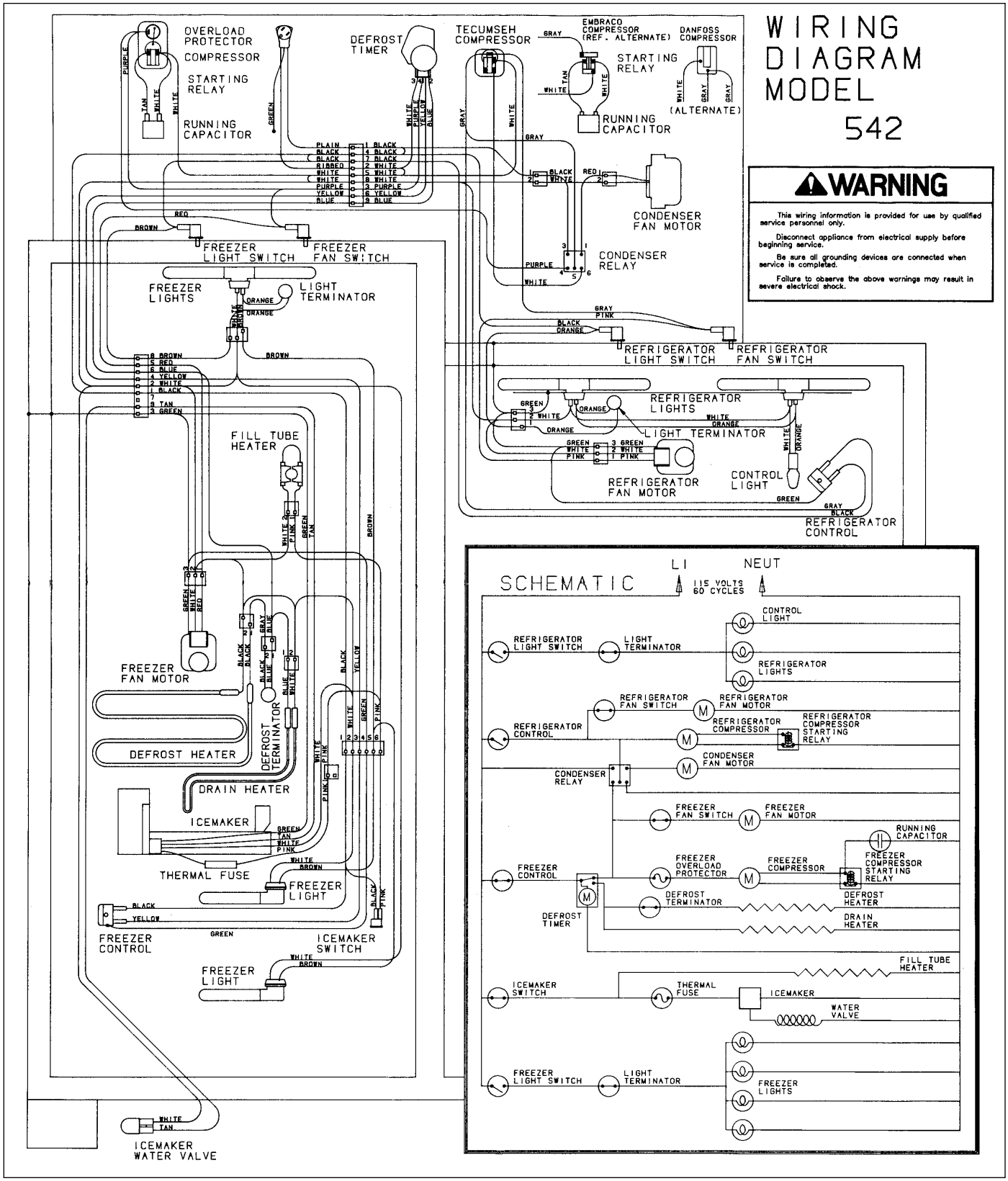
WIRING DIAGRAM & SCHEMATIC - 532
Madison/Phoenix Production From Serial #M815564/P725022 to #M/P1004775, Except Between #M964770 to #M965069, and Except Between #M990700 to #M990999



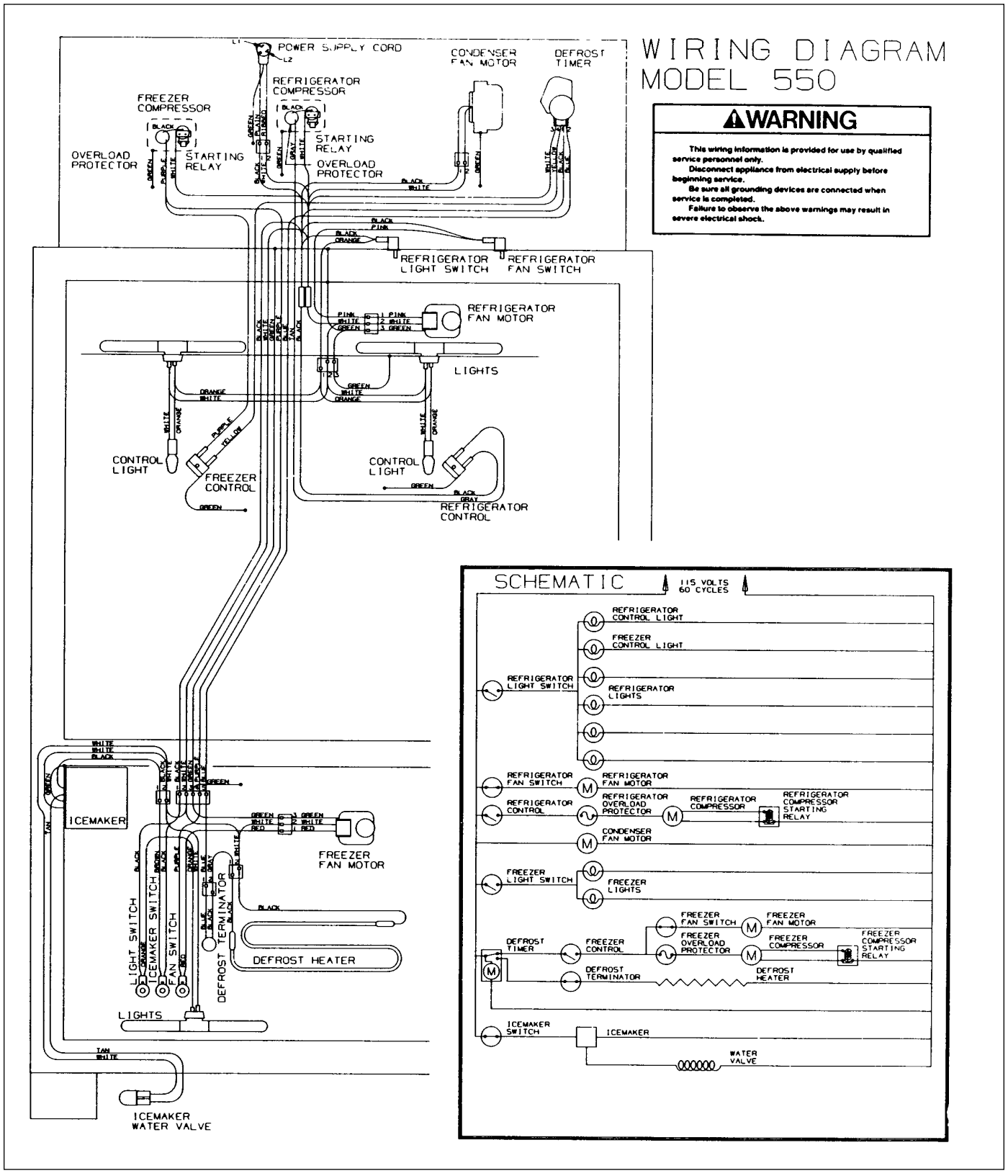
WIRING DIAGRAM & SCHEMATIC - 532
Madison/Phoenix Production Starting with Serial #M/P1004775 and Between #M964770 to #M965069, and Between #M990700 to #M990999



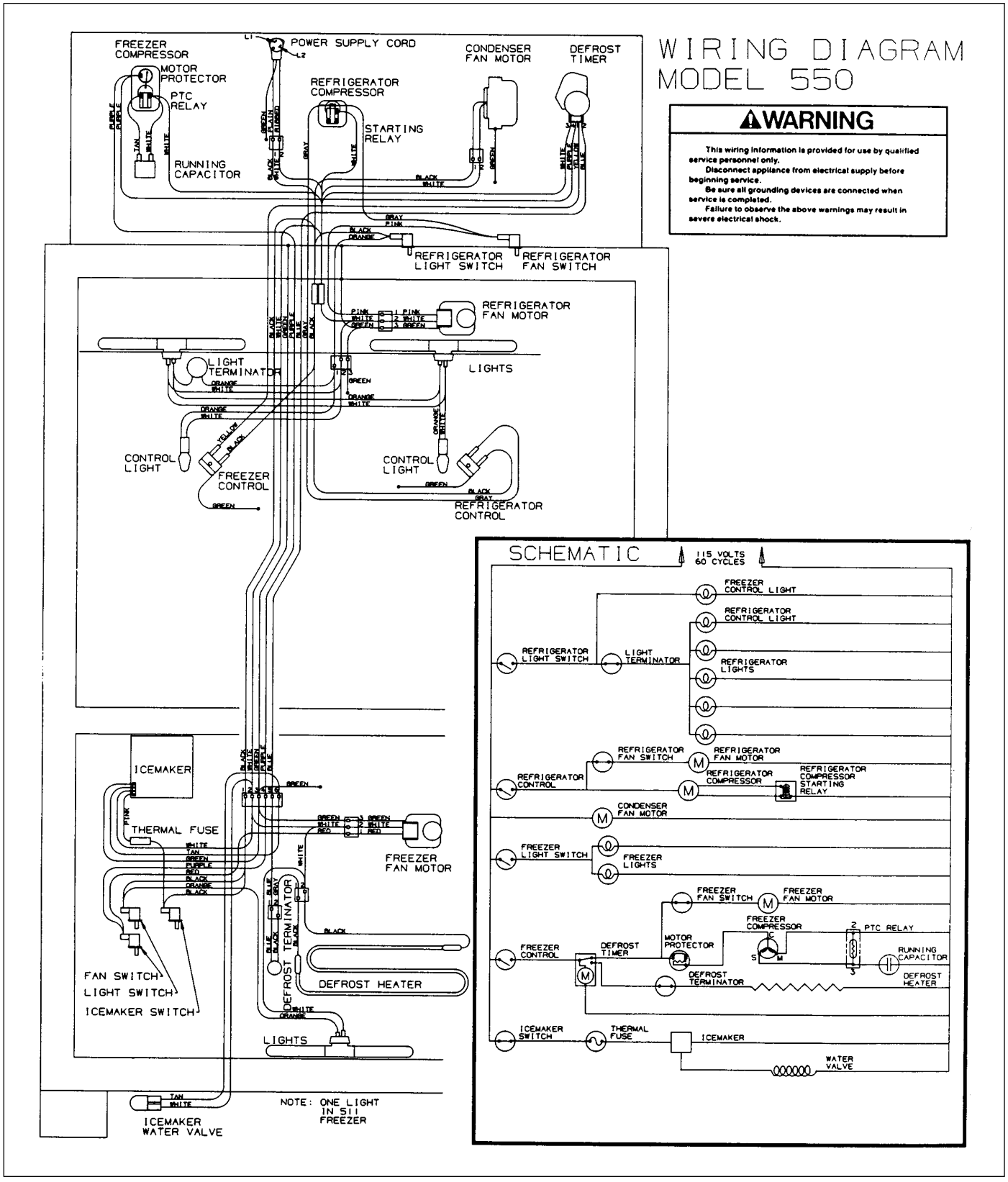
WIRING DIAGRAM & SCHEMATIC - 542



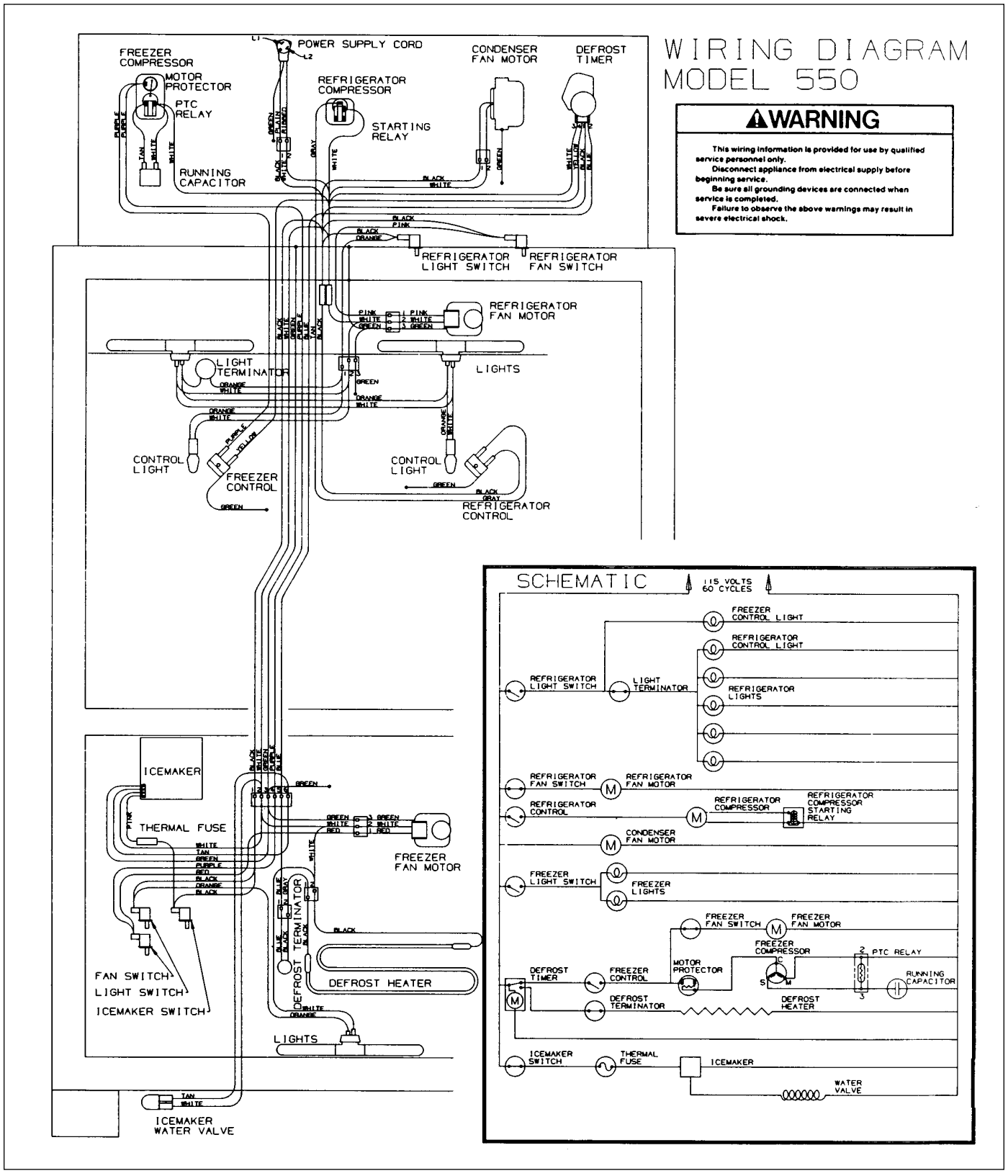
WIRING DIAGRAM & SCHEMATIC - 550
Madison Production Prior to Serial #M68116
(NOTE: See Page 6-30 for start of Phoenix Production Wiring Diagrams)



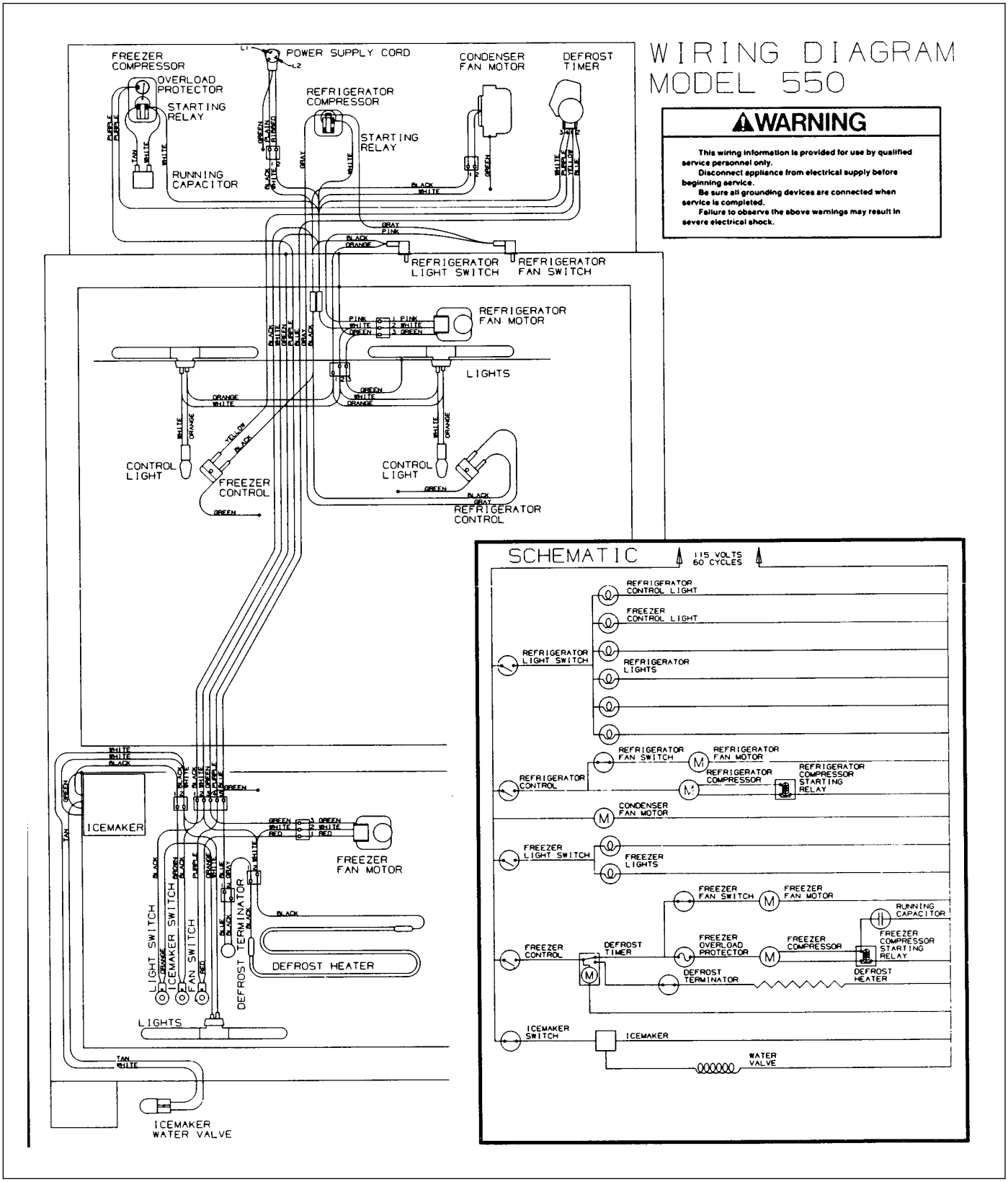
WIRING DIAGRAM & SCHEMATIC - 550
Madison Production From Serial #M681166 to #M722972



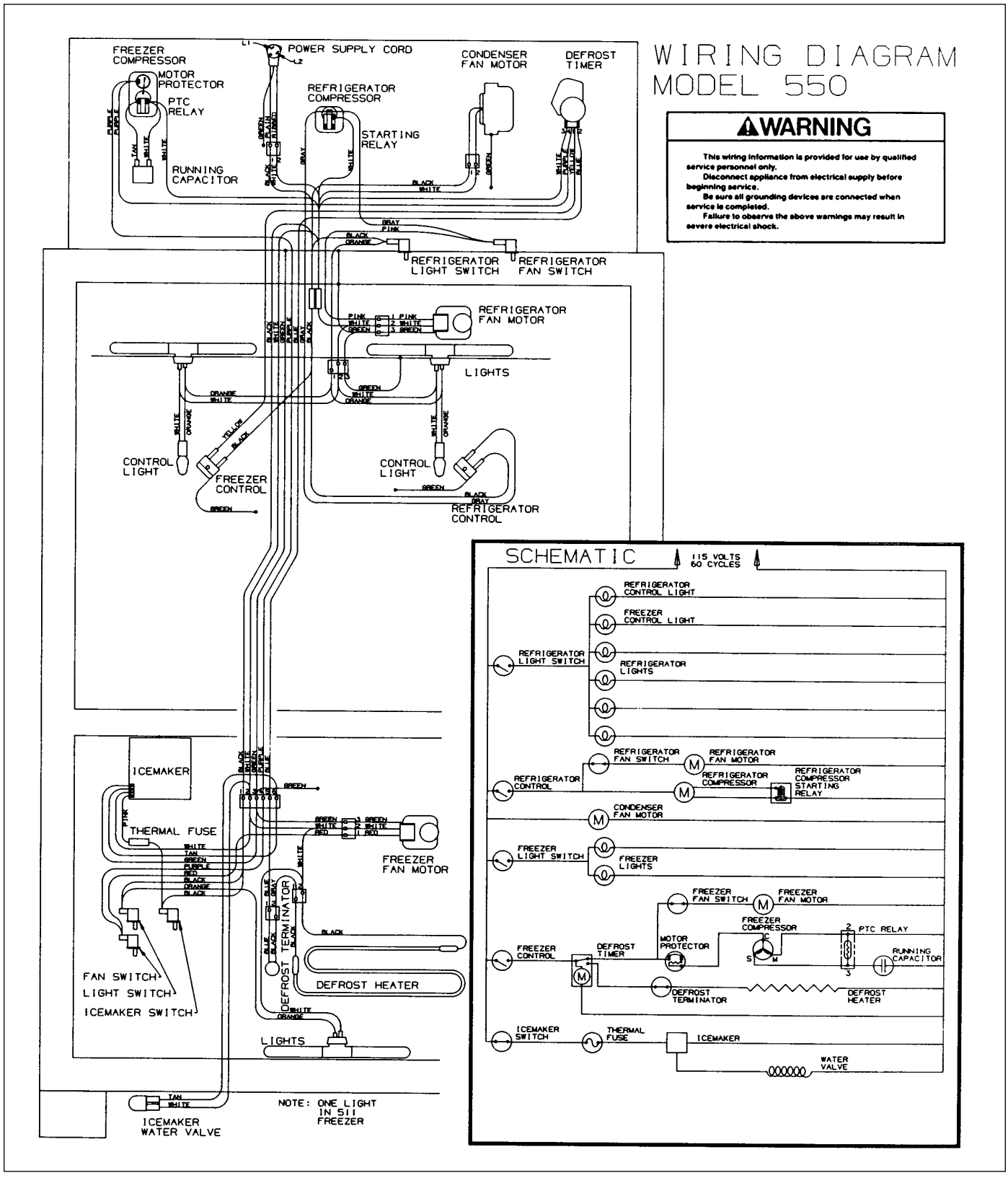
WIRING DIAGRAM & SCHEMATIC - 550
Madison Production From #M722972 to #M802554
(NOTE: See Page 6-32 for continuation of the next applicable Madison Production serial numbers)



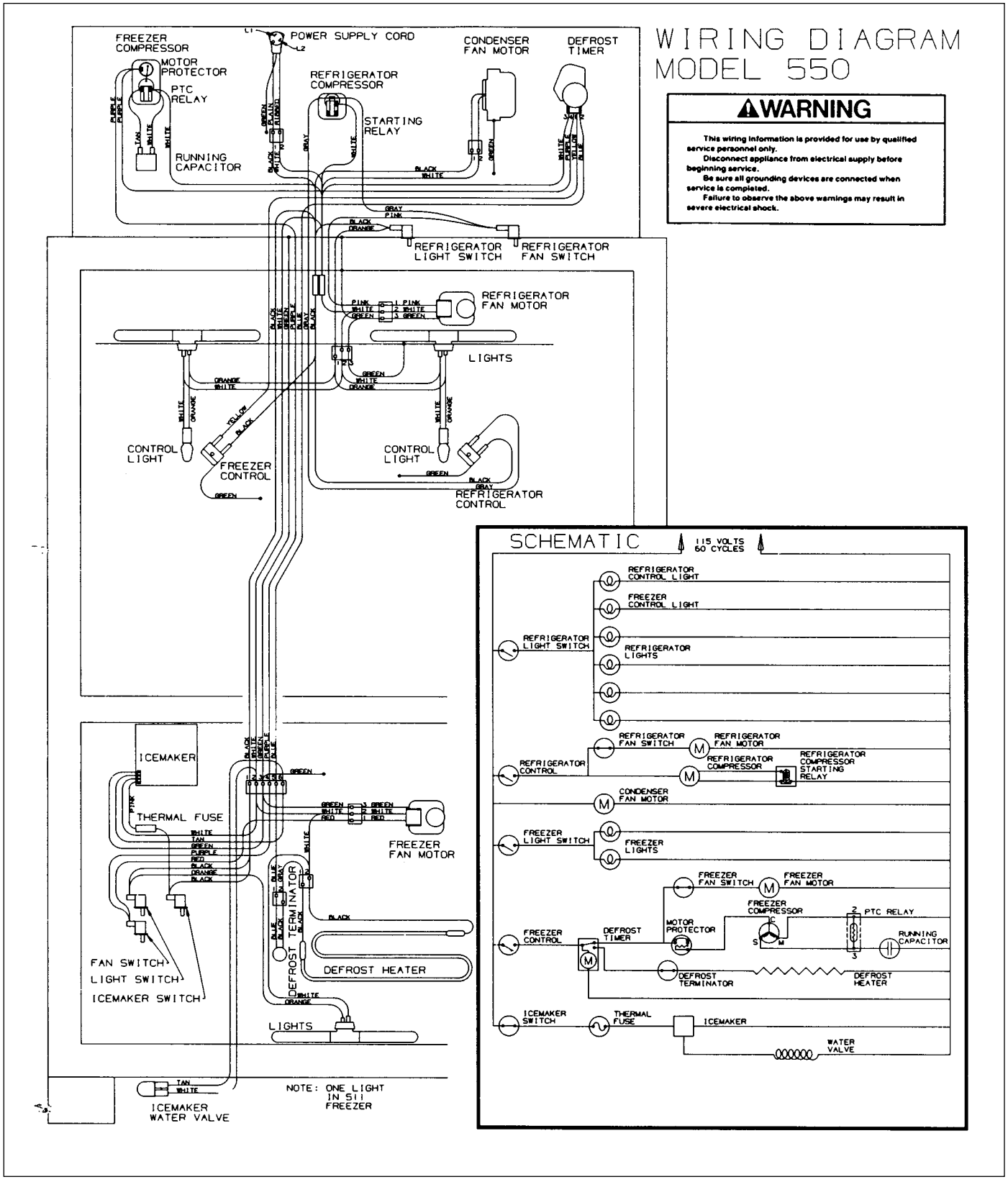
WIRING DIAGRAM & SCHEMATIC - 550
Phoenix Production Prior to #P700765



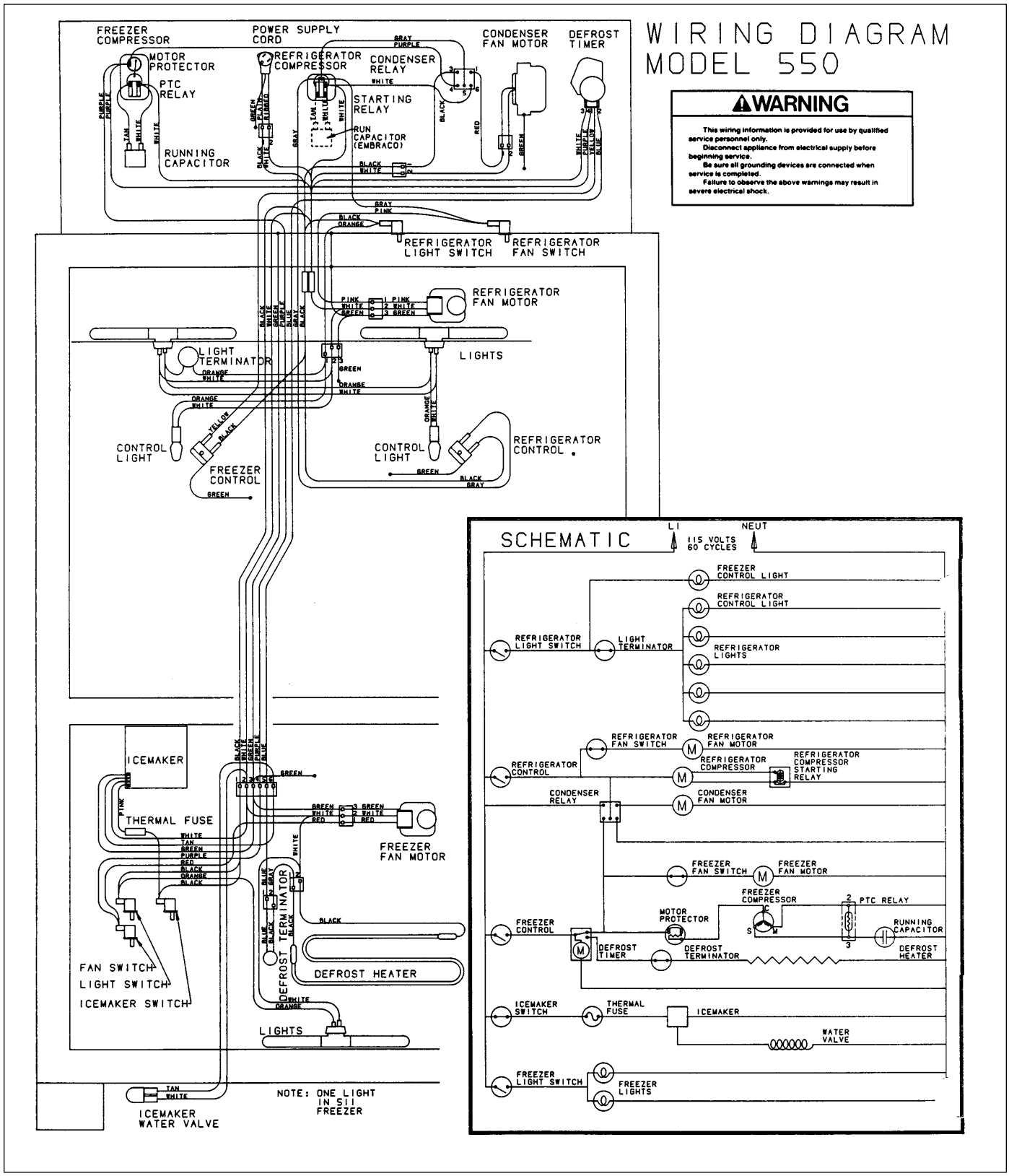
WIRING DIAGRAM & SCHEMATIC - 550
Phoenix Production From Serial #P700765 to #P721572



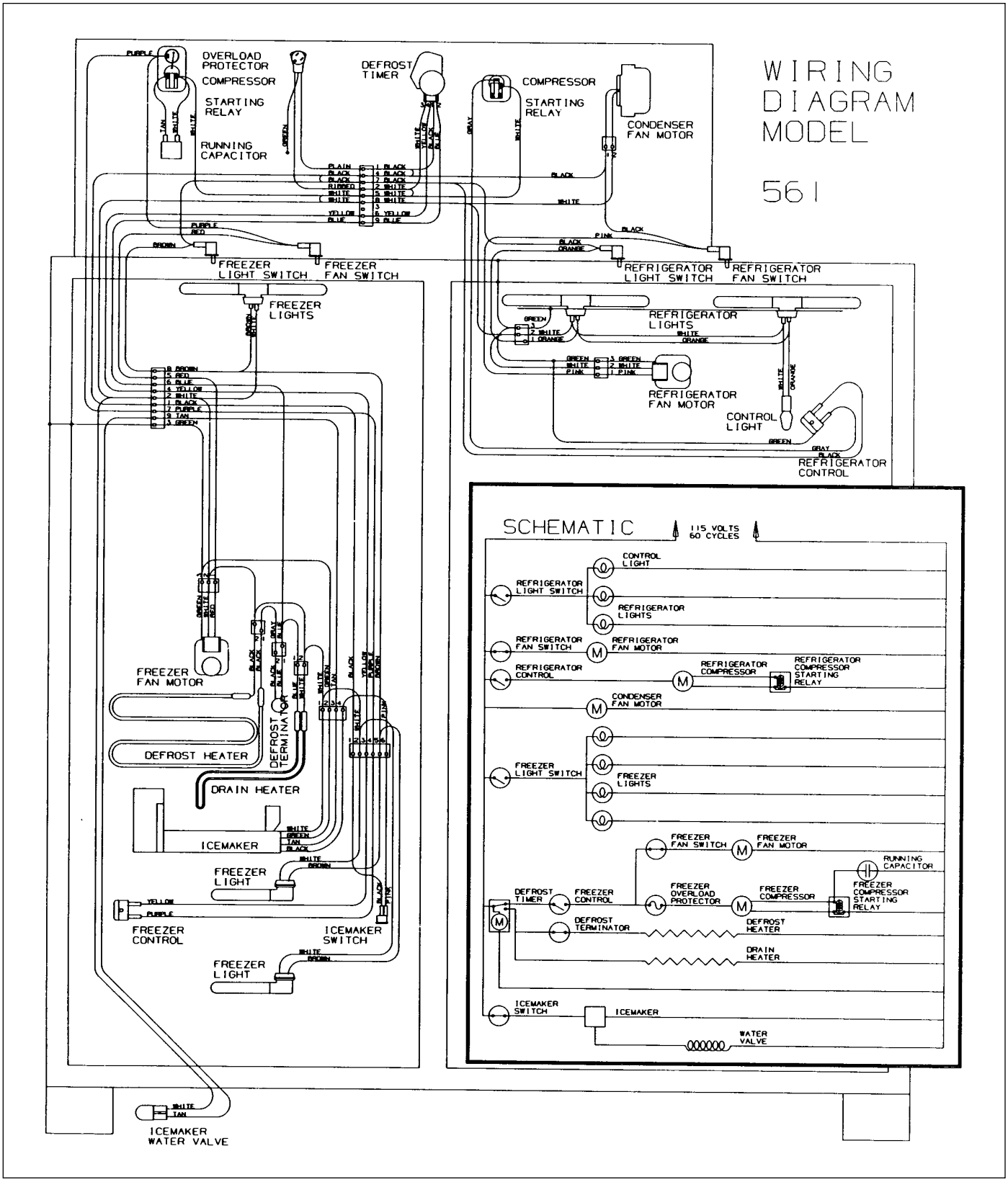
WIRING DIAGRAM & SCHEMATIC - 550
Madison/Phoenix Production From Serial #M820554/P721572 to #M/P1004775, Except Between #M964070 to #M964469, and Except Between #M984750 to #M985149



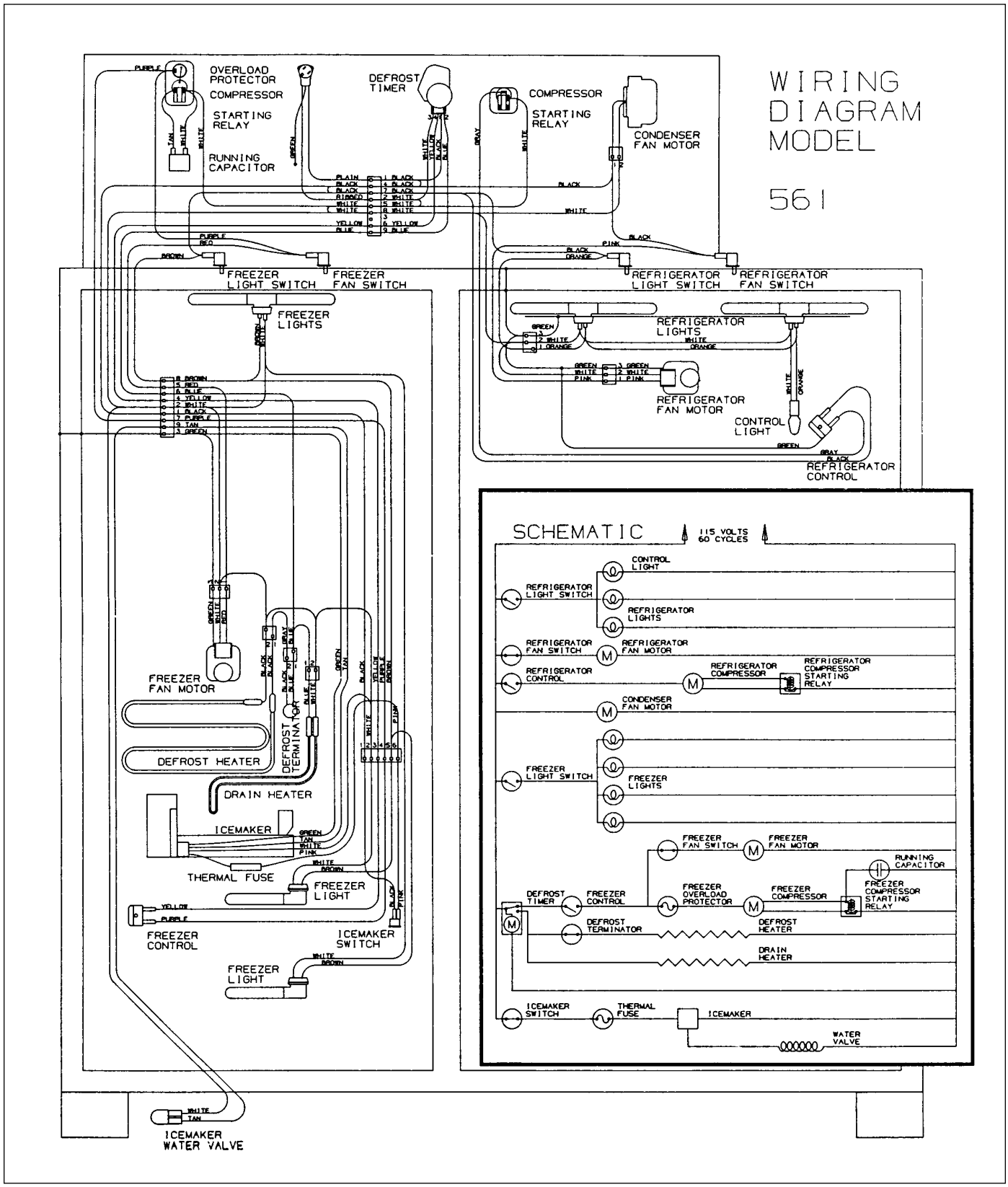
WIRING DIAGRAM & SCHEMATIC - 550
Madison/Phoenix Production Starting with Serial #M/P1004775 and Between #M964070 to #M964469, and Between #M984750 to #M985149



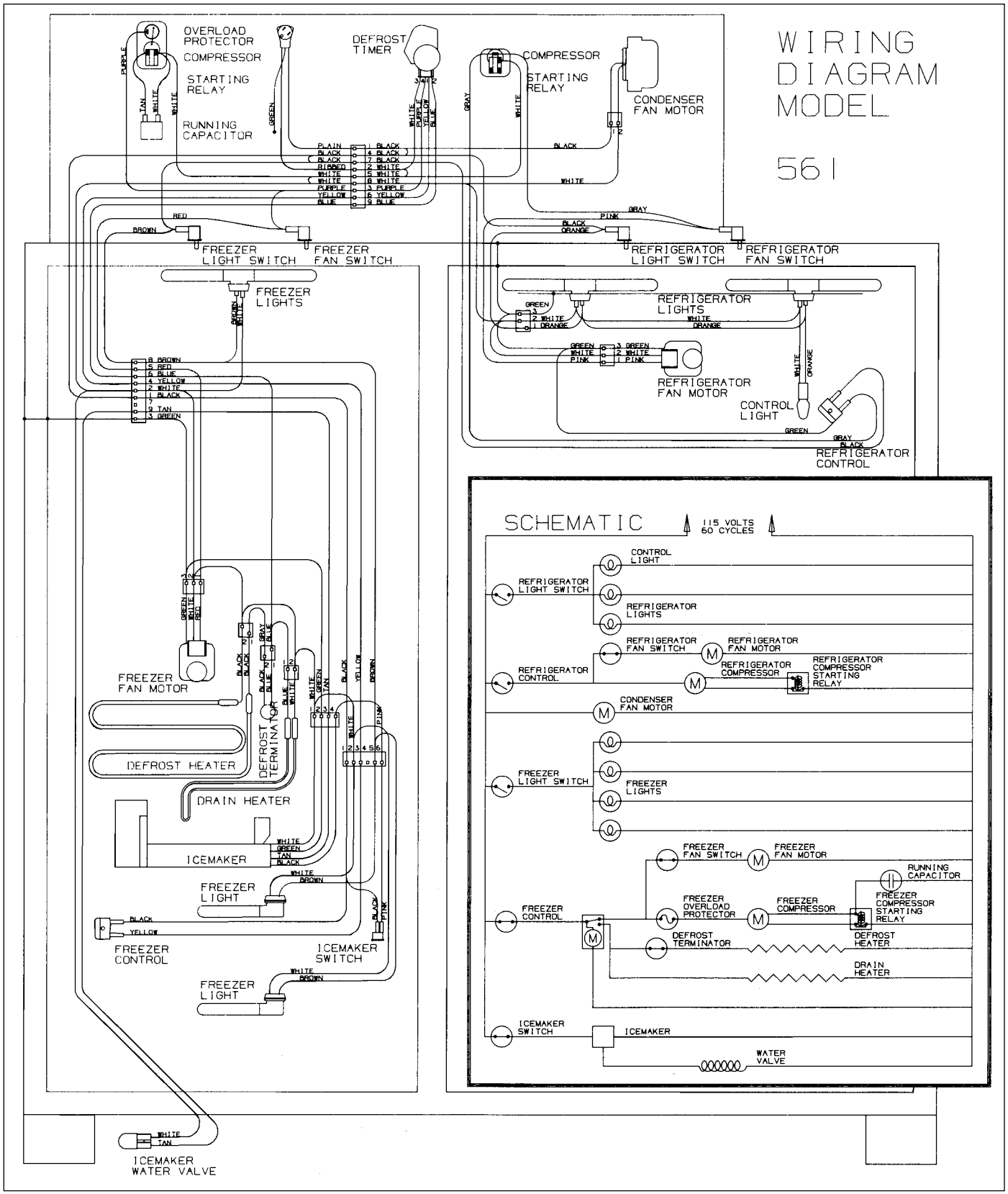
WIRING DIAGRAM & SCHEMATIC - 561
Madison Production Prior to Serial #M680766
(NOTE: See Page 6-36 for start of Phoenix Production Wiring Diagrams)



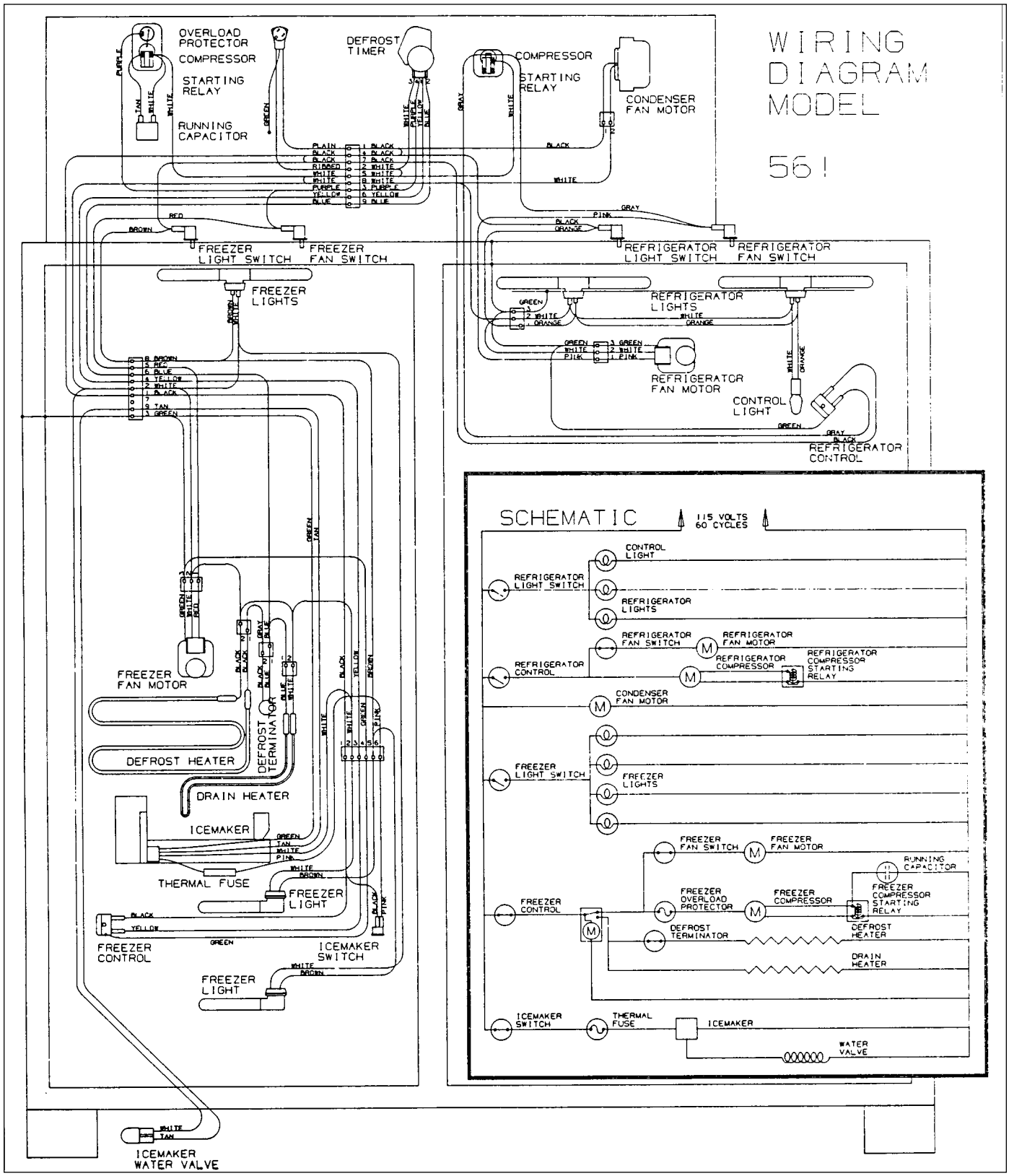
WIRING DIAGRAM & SCHEMATIC - 561
Madison Production From Serial #M680766 to #M816264
(NOTE: See Page 6-38 for continuation of the next applicable Madison Production serial numbers)



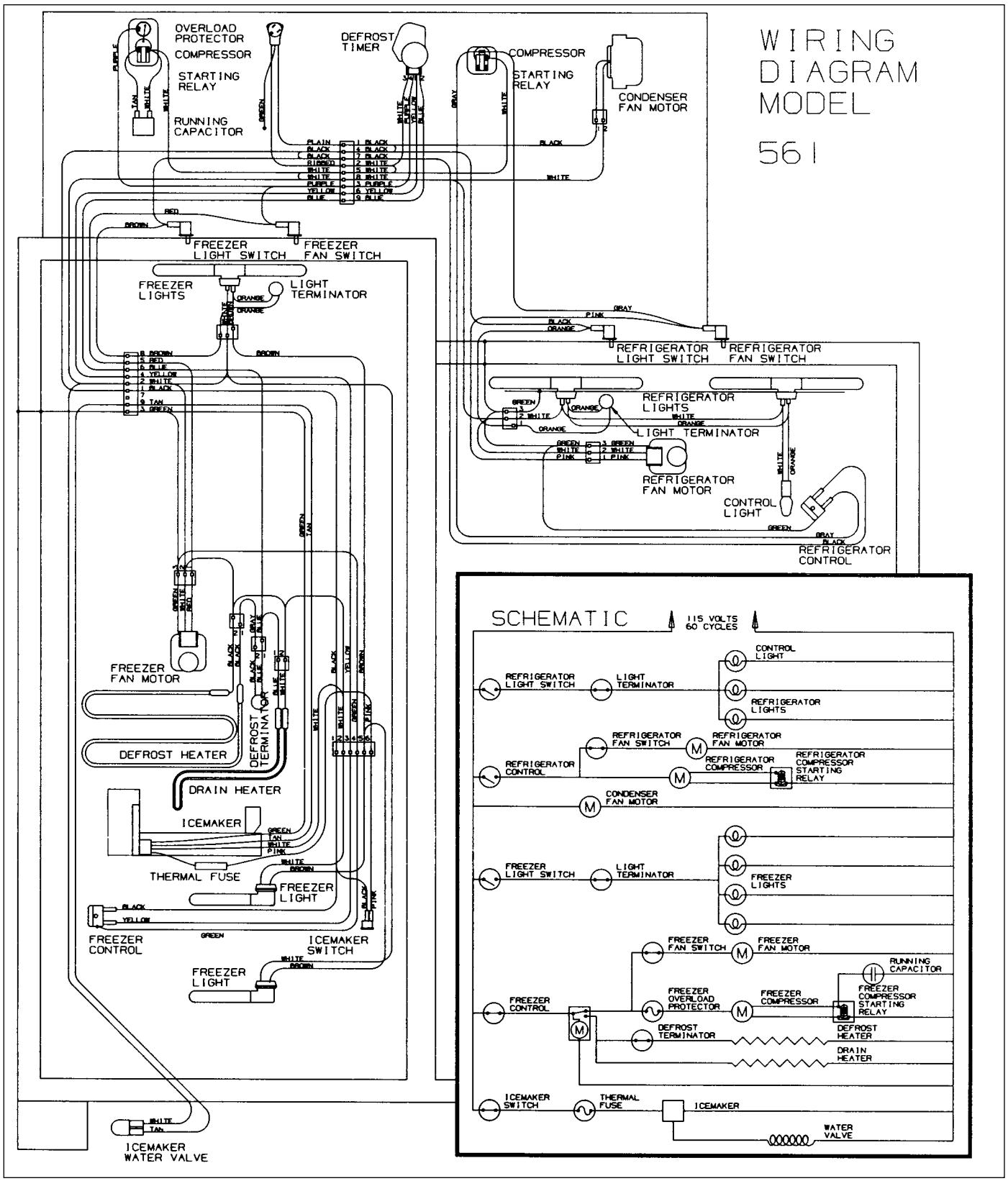
WIRING DIAGRAM & SCHEMATIC - 561
Phoenix Production Prior to Serial #P678866



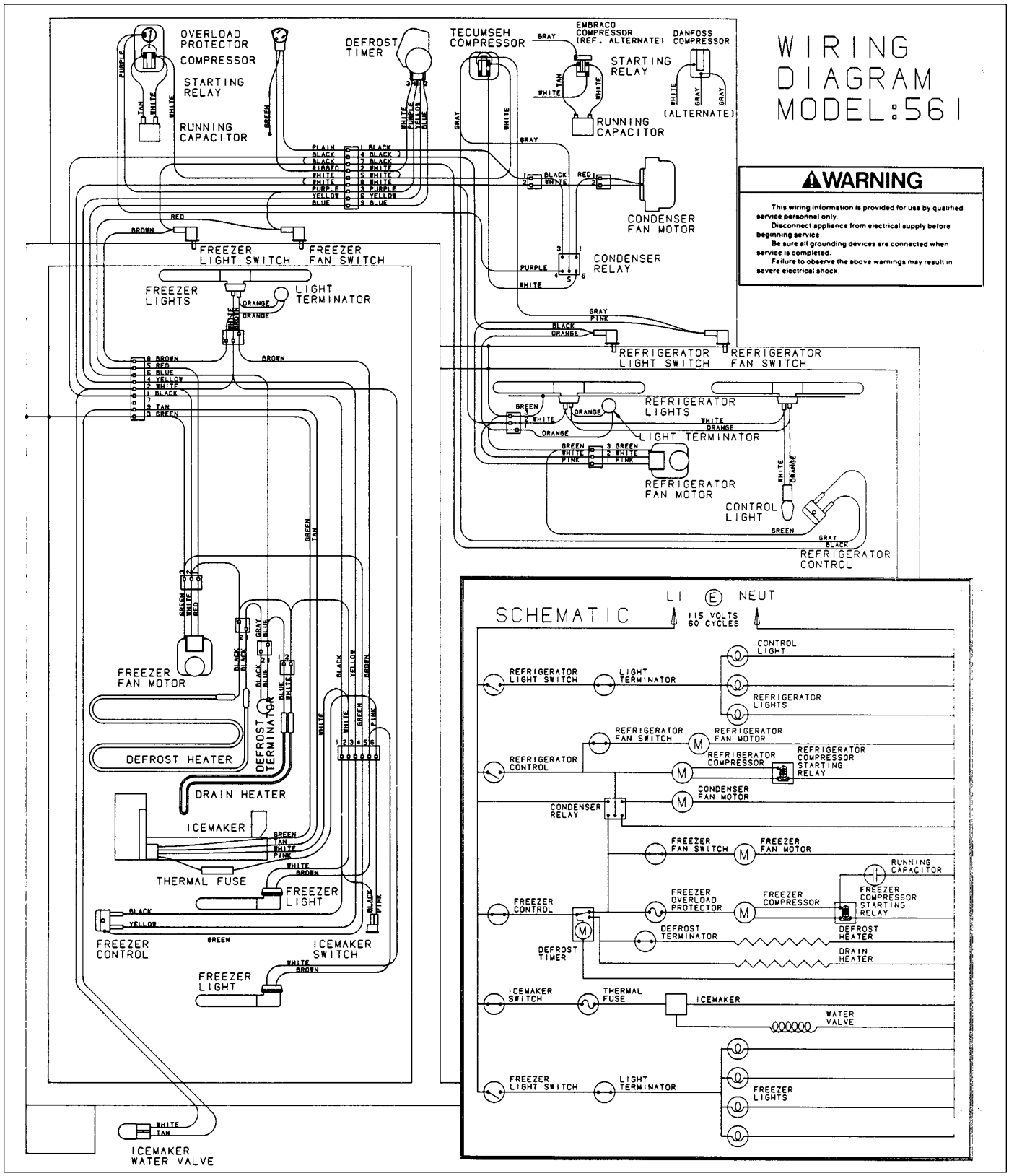
WIRING DIAGRAM & SCHEMATIC - 561
Phoenix Production From Serial #P678866 to #P725322



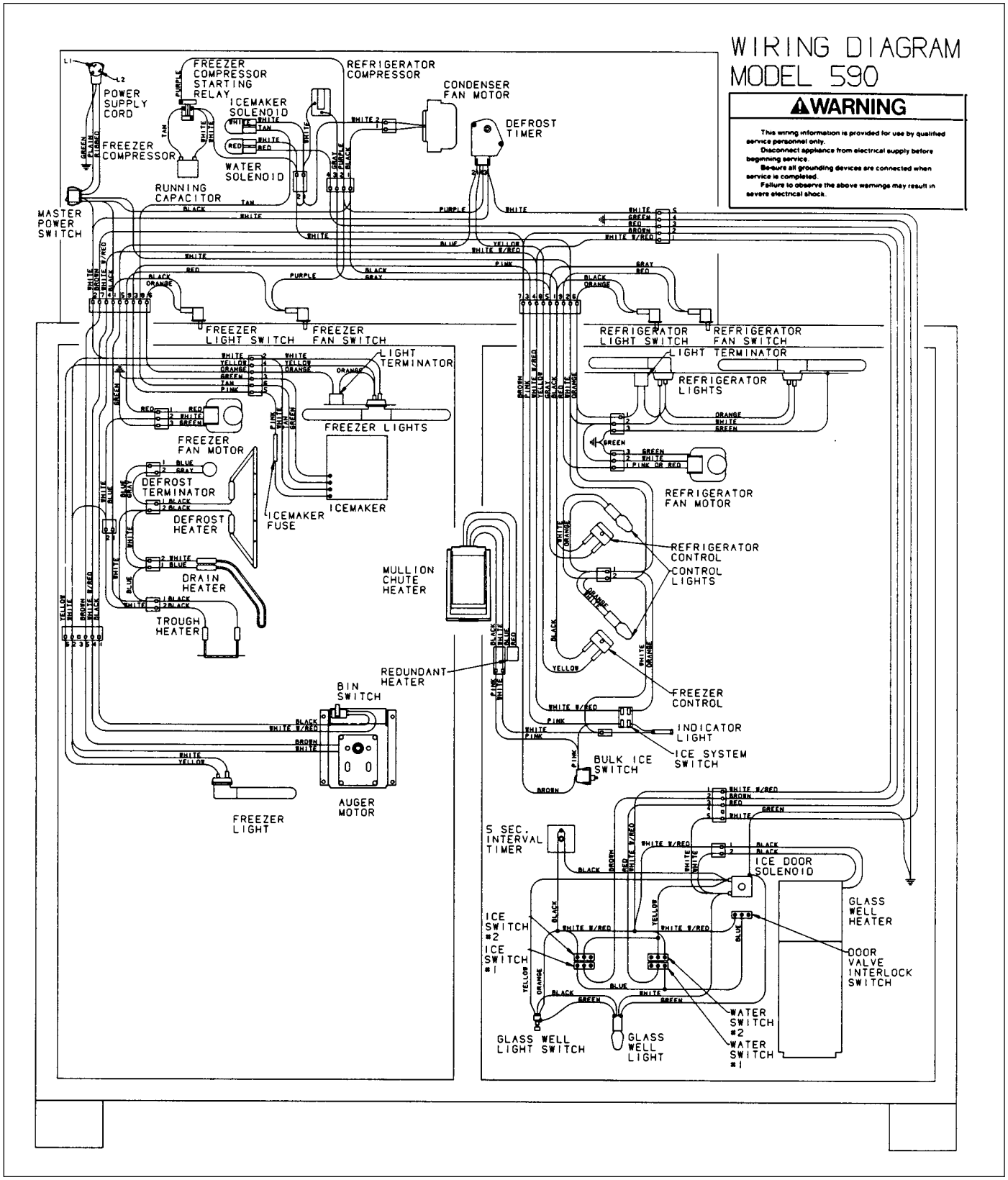
WIRING DIAGRAM & SCHEMATIC - 561
Madison/Phoenix Production From Serial #M816264/P725322 to #M/P1004775,
Except Between #M965470 to #M965869



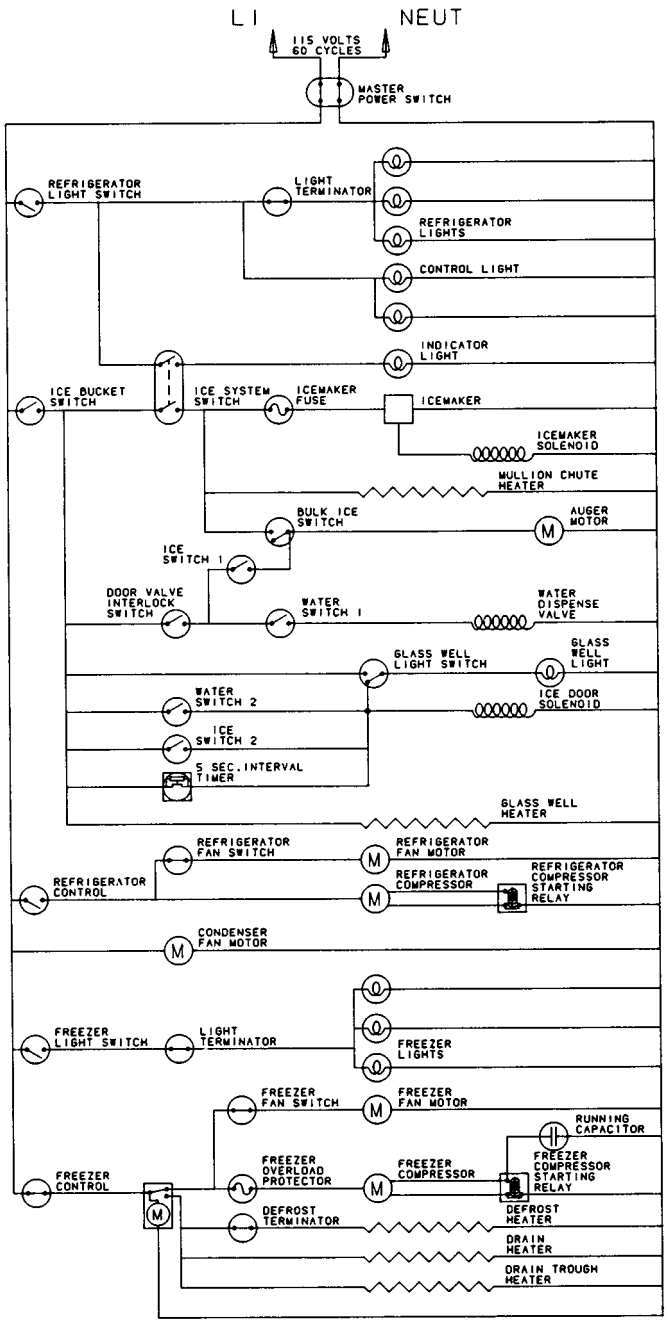
WIRING DIAGRAM & SCHEMATIC - 561
Madison/Phoenix Production Starting with Serial #M/P1004775 and Between #M965470 to #M965869



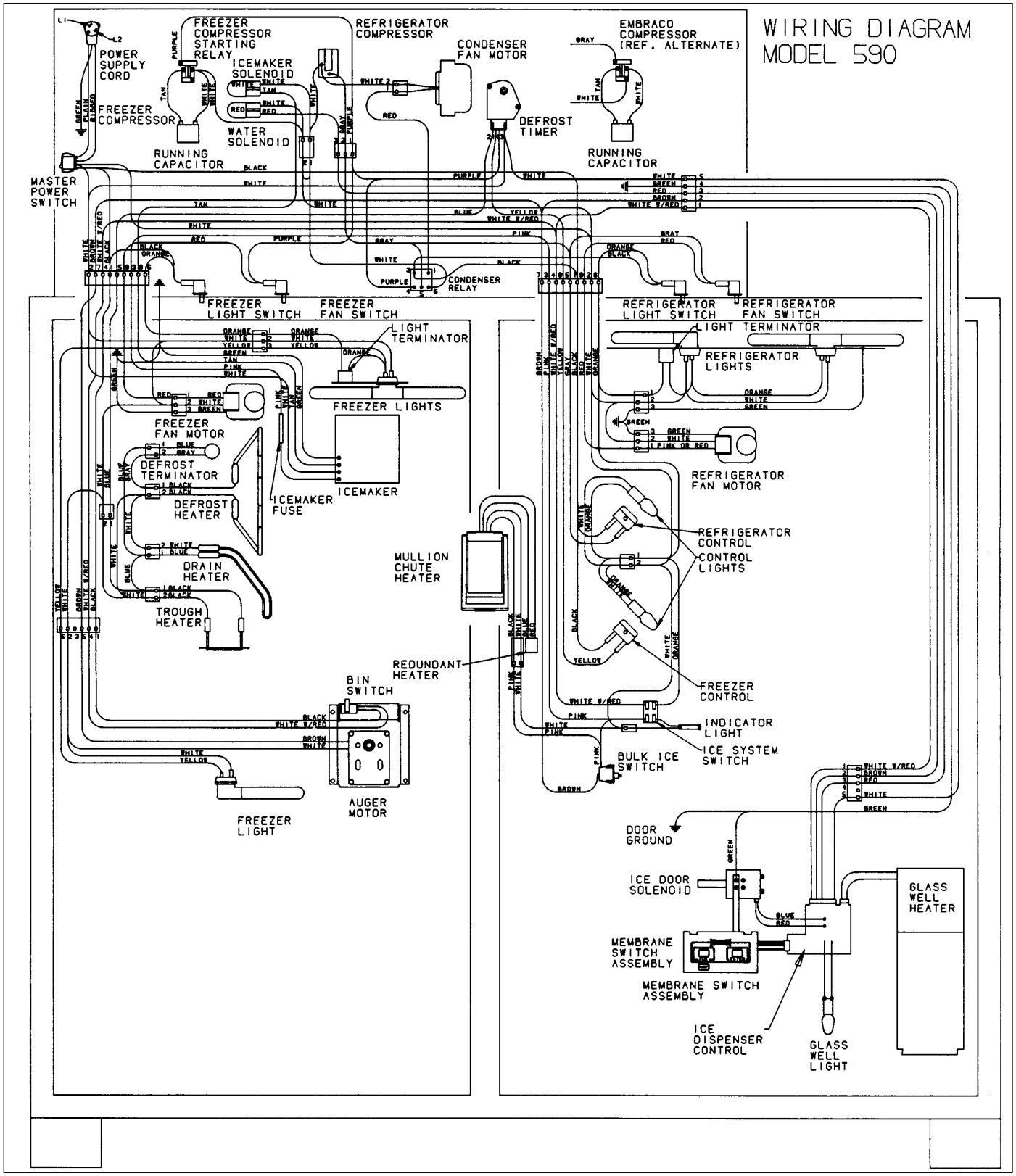
WIRING DIAGRAM - 590
Madison/Phoenix Production Prior to #M/P965870 and From #M/P966269 to #M/P1004775
(See page 6-41 for Schematic)



WIRING SCHEMATIC - 590
Madison/Phoenix Production Prior to #M/P965870 and From #M/P966269 to #M/P1004775



WIRING DIAGRAM - 590
Madison/Phoenix Production Starting with #M/P1004775 and Between #M/P965870 to #M/P966269
(See page 6-43 for Schematic)



WIRING SCHEMATIC - 590
Madison/Phoenix Production Starting with #M/P1004775
and Between #M/P965870 to #M/P966269

