OPERATION AND MAINTENANCE
OF
MECHANICAL FIELD WARD
REFRIGERATOR

NSN4110-01-629-6841
MARVEL MODEL
#4570105-MODIFIED-230/115 VOLT, 60/50 Hz.
CONTRACT #

Marvel Refrigeration
1260 E. VanDeinse St.
Greenville MI 48838
800.223.3900

41012491 revision C

CONTENTS

LIST OF ILLUSTRATIONS

LIST OF TABLES

CHAPTER 1

INTRODUCTION

1-1 Introduction

1-2 This operation and maintenance manual provides you with the necessary information for using and maintaining the Mechanical and Biological Refrigerator, NSN 4110-01-629-6841. The manual includes information for operation, preventive maintenance, and corrective maintenance.

WARNING

WHEN THE REFRIGERANT LINE HAS BEEN OPENED, OR FOR ANY OPERATION REQUIRING OPENING THE REFRIGERANT LINE, ONLY QUALIFIED MAINTENANCE PERSONNEL, USING PROCEDURES AND EQUIPMENT SPECIFIED BY THE MANUFACTURER OR BY DEPOT-LEVEL AUTHORITIES, SHOULD WORK ON THE REFRIGERATION SYSTEM.

ANY MOISTURE THAT IS ALLOWED INTO THE REFRIGERATION LINES WILL COMBINE WITH THE FLUORINE REFRIGERANT TO PRODUCE HYDROFLUORIC ACID, AN EXTREMELY POWERFUL AND CORROSIVE ACID.

1-3 All procedures in this manual refer to the electrical and mechanical elements of operation and maintenance.

1-4 Organization of the manual. As shown in the Table of Contents, this manual is organized as follows:

Chapter 1: INTRODUCTION. Provides information on organization of the manual, purpose of the refrigerator, description and specifications for the refrigerator, list of required equipment, and safety information.

Chapter 2: OPERATION. Tells you shelf life, storage requirements, how to unpack, install, and oper ate the refrigerator, with a brief theory of operation.

Chapter 3: MAINTENANCE. Details the procedures for preventative and corrective maintenance of the refrigerator.

Chapter 4: PARTS LIST. Lists, by assemblies, the replacement parts for the refrigerator, with part numbers and illustrations.

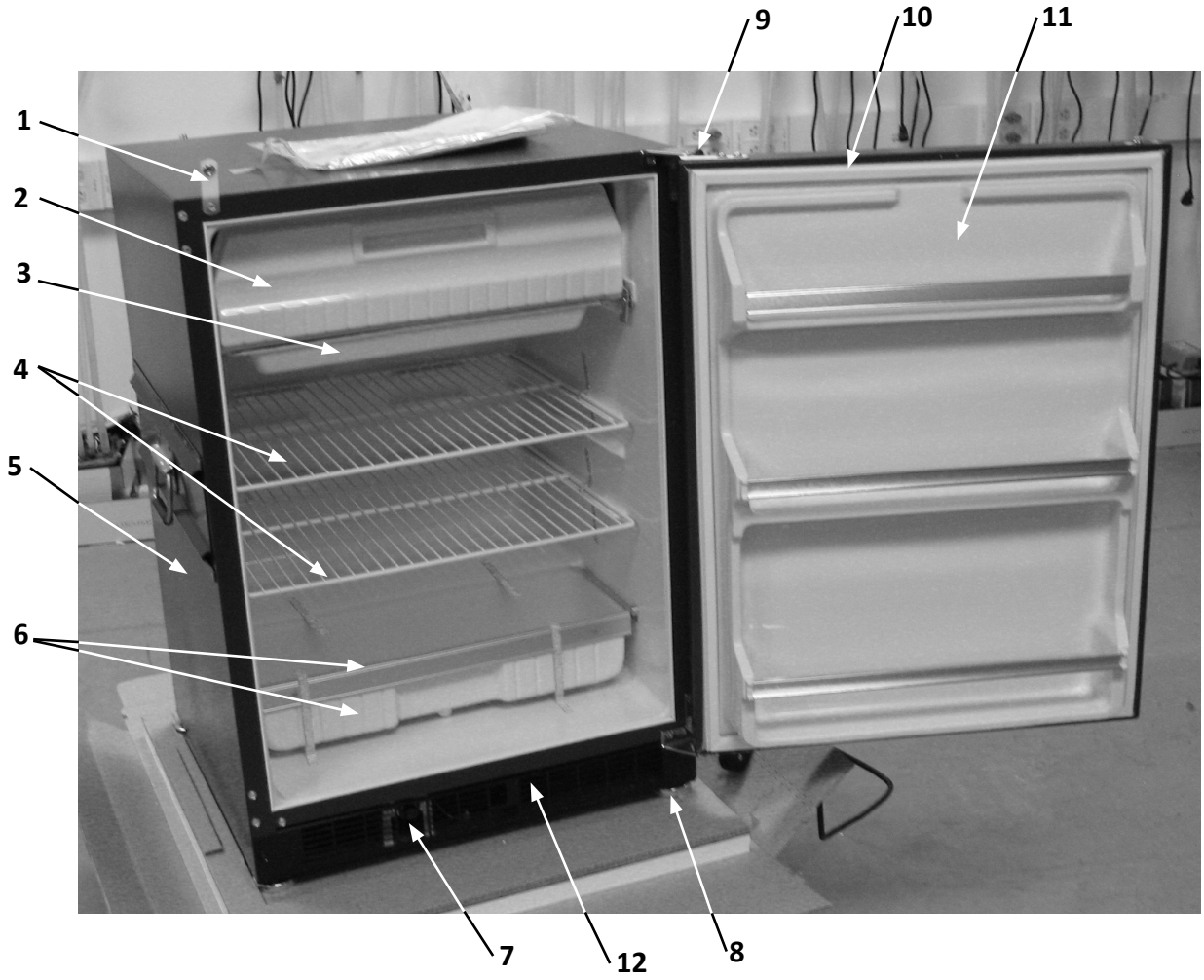
Chapter 5: DIAGRAMS. Contains all illustrations cited in the text, but not otherwise included.

1-5 Purpose of the refrigerator. The refrigerator is to be used as a refrigerator-freezer at ward level in field hospitals as designated by the Department of Defense.

1-6 Description. Refer to Figures 1-1 and 1-2. The refrigerator is light weight and portable, designed for field operations. Providing 6.1 cubic feet of refrigeration and freezing space, the refrigerator incorporates three shelves, drip pan, 0.7 cubic foot freezer compartment, adjustable thermostat, carrying handles, glide feet, and corrosion resisting steel shield for mounting over rear mechanical openings. The refrigerator compartment operates over a temperature range of 34 to 42 degrees Fahrenheit, and the freezer compartment operates over a range of 12 to 20 degrees Fahrenheit. The operation of this unit may vary from unloaded performance when loaded with commodities in various amounts and temperatures.

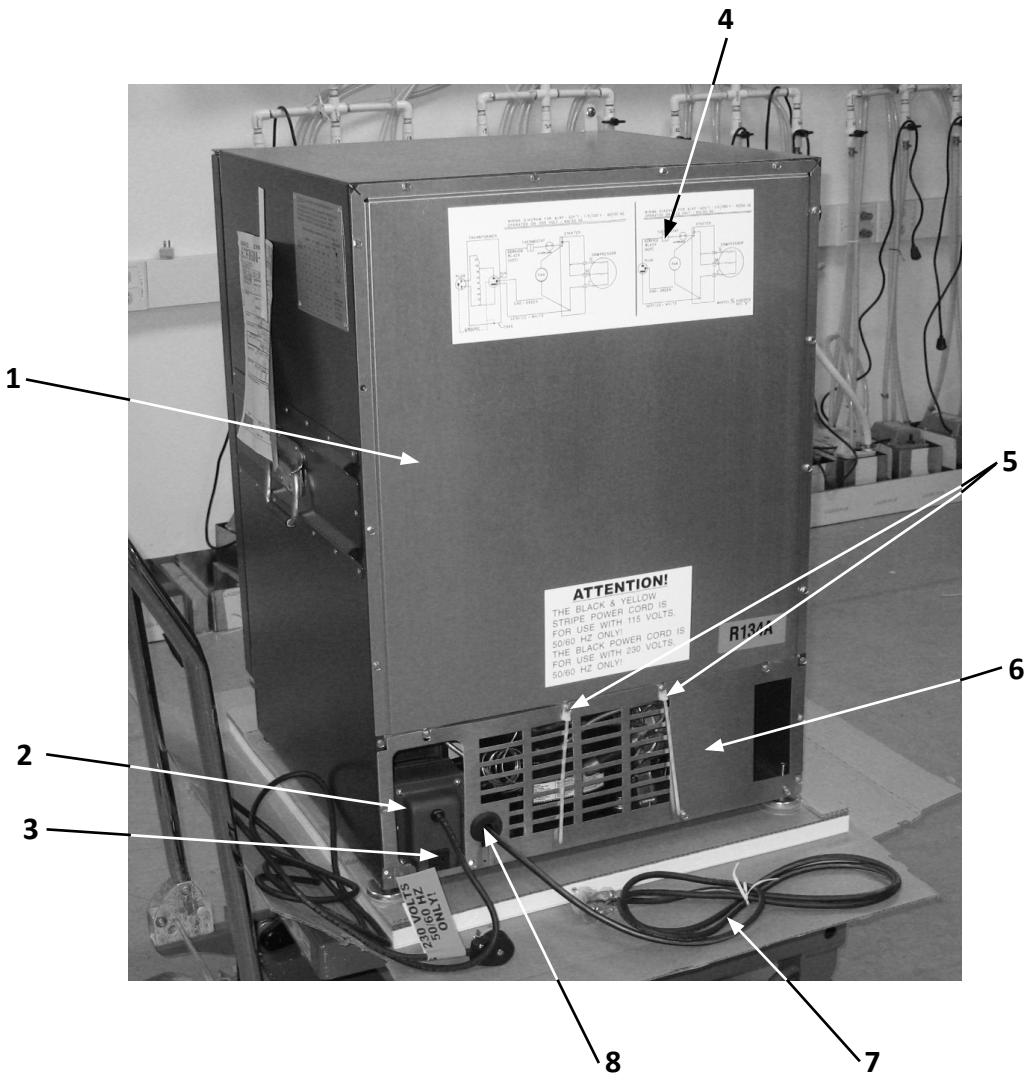
The refrigerator has a 230/115 VAC step-down transformer; it can operate from either 230 or 115 VAC, 60/50 Hz source. Figure 1-2, No. 2, 3, 7.

Figure 1-1. Refrigerator, Front View



1. Restraining strap
2. Freezer door
3. Drip tray
4. Wire shelves (2)
5. Cabinet
6. Crisper shelf and tray
7. Thermostat, behind grill
8. Glides (4)
9. Hinge pin, top
10. Door gasket
11. Door
12. Grill

Figure 1-2. Refrigerator, Rear View



1. Cabinet back cover
2. Transformer/230 Volt Power Cord
3. Transformer/ 115 Volt outlet
4. Wiring diagram
5. Power cord holding strap (2)
6. Stainless steel back shield
7. 115 Volt power cord
8. Grommet

1-7 The outer shell of the refrigerator and the door cover are 1/32nd inch carbon steel with olive drab finish. The inner shell and door liner are plastic. The door has a magnetic latch. There is a door security snap fastener located at the upper left corner for use during transport.

1-8 Specifications. Table 1-1 lists the complete specifications and parameters for the refrigerator, NSN 4110-01-629-6841.

Table 1-1

Parameter	Specification
Acceptable input voltages	115/230 VAC. Step-down transformer provided for use with 230 VAC source.
Acceptable input frequencies	50/60 Hz.
Power consumption	380 watts nominal; 2100 watts maximum surge
Line current, maximum	18 amps inrush at 115 V; 9 amps inrush at 230 V.
Weight	106 lbs.
Volume, internal	6.1 cubic feet
Outer dimensions	34-3/4” H x 25-3/8” W x 24-1/16” D
Internal volume Freezer Refrigerator	 0.7 cubic feet, minimum 4.5 cubic feet, minimum
Pull down times at ambient temperature of: 120 degrees F 100 degrees F 77 degrees F	 5.0 hours, max. 2.0 hours, max. 1-1/4 hours, max.
Nominal weight and volume in shipping container Weight Volume Dimensions	 135 lbs. 16.8 cubic feet 38-1/2” H x 28” W x 27” D
Type of refrigerant	R-134a
Weight of full charge of refrigerant	4.4 oz. (0.27 lb. or 0.12 kg.)

1-9 Required tools. Table 1-2 lists all of the tools required for normal use and maintenance of the refrigerator.

Table 1-2

Description	No. Req.
Hex Key Wrenches, 1/8” and 5/32”	1 of each
Phillips head screwdriver (8” long)	1
Flat blade screwdriver, (small approximately 1/8” wide blade)	1
Hand roller	1
36” x 36” cardboard sheet	1
36” x 36” table or bench	1
Channel lock adjustable pliers	1
Combination open end / box end wrenches	1
any standard multi-meter for checking voltages and continuity of circuits	1
Nut Driver, 5/16” and 3/8”	1 of each

For tools and associated equipment used in maintenance procedures NOT described in this manual, refer to Depot-level maintenance organization or contact the manufacturer:

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1260 E. VanDeinse St.
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800.223.3900

1-10 Safety. ALWAYS observe the warning notice shown after paragraph 1-2 above. Always disconnect power before servicing. Failure to do so could result in property damage, physical injury, or death. For connection to a 230 VAC source, be sure to use the step down transformer, as detailed in par. 2.4h, below.

1-11 When the refrigerator is in operation, the condenser (radiator), the compressor, and the refrigerant lines can get hot enough to burn the skin.

1-12 NEVER use an ungrounded cord or power outlet with this refrigerator. Such a practice can produce electrical shocks and possibly damage operating elements of the system.

CHAPTER 2

OPERATION

2-1 INTRODUCTION

2-2 This chapter details shelf life, storage requirements, unpacking, installation, and operation of the refrigerator, with a brief explanation of the theory of operation.

2-3 SHELF LIFE STORAGE REQUIREMENTS, UNPACKING PROCEDURES, PACKAGING, AND PRESERVATION AND STORAGE INSPECTION.

a. Shelf life. Table 2-1 lists the shelf life for the refrigerator.

Table 2-1

Location	Shelf Life
Indoors	2 years (see Table 2-2 for details)
Outdoors	6 months (see Table 2-2 for details)

b. Storage Requirements. Table 2-2 lists the storage requirements for the refrigerator.

Table 2-2

State of Product	Location	Conditions Required
Cartoned refrigerator	Indoors	Dry building, concrete or wooden floor, temperature maintained between -10° to +120°F.,humidity up to 100% with units not stacked over three high. An earthen floor is acceptable, if a metal, plastic, or wooden material/structure is used that prevents groundwater or rain from coming in contact with the cartons.
Cartoned refrigerator	Outdoors	Cartons covered with weatherproof material and kept off the ground by metal, plastic, or wooden material/structure that prevents groundwater or rain from coming in contact with the cartons. Temperatures to be between -10° to +120°F., humidity up to 100% and units not stacked over two high.
Uncartoned refrigerator	Indoors	Dry building, concrete or wooden floor, temperature maintained between -10° to +120°F.,humidity up to 100% with units not stacked over two high. A heavy wall 24” x 24” piece of cardboard is to be placed on the top of the bottom unit, if the refrigerators are stacked two high, to protect the paint on the bottom unit. An earthen floor is acceptable, if a metal, plastic, or wooden material/structure is used that prevents groundwater or rain from coming in contact with the refrigerators. See par. 2.3.d. for required packaging and preservation procedures.
Uncartoned refrigerator	Outdoors	Refrigerators covered with waterproof material and kept off the ground with a metal, plastic, or wooden material/structure that prevents groundwater or rain from coming in contact with the refrigerators. Temperatures to be maintained between -10° to +120°F.,humidity up to 100% with units not stacked over two high. A heavy wall 24” x 24” piece of cardboard is to be placed on the top of the bottom unit, if the refrigerators are stacked two high, to protect the paint on the bottom unit. See par. 2.3.d. for required packaging and preservation procedures.

c. Unpacking Procedures Unpacking is easy. The refrigerator is shipped in a heavy duty card board carton, with slip-off top and bottom covers held on by plastic straps. To unpack:

1. Stand the carton upright.
2. With tin snips cut the lower plastic band.
3. Pull all four sides of the bottom cover away and down from the sides of the carton.
4. Lifting from the top, pull the carton up and off the refrigerator.
5. Dispose of the carton, wipe off the refrigerator, and its ready for installation.

d. Packaging and Preservation Refrigerators that have been uncartoned and used in service require that the following procedures be done to them before they are made inactive and placed in storage.

1. Turn the thermostat knob to the “OFF” position to deactivate the refrigerator and before removing the electrical plug(s) from the electrical supply outlet(s). The “OFF” position on the thermostat knob is achieved when the “OFF” marking on the knob is at the twelve o’clock position.

2. Remove the refrigerator electrical plug(s) from the electrical supply outlet(s). Roll up each power-cord in an approximate one foot diameter coil. Secure each power cord to the back of the refrigerator with the use of the plastic holding straps on the back of the refrigerator. Snap the strap over its plastic prong until it clips in place.

3. Open the refrigerator door, remove all commodities from the refrigerator, freezer, and door shelves. Empty and dry any ice trays in the freezer compartment.

4. Allow the freezer compartment and its cold plate to completely defrost. You may leave the cabinet and freezer door open to facilitate defrosting. Also, a heat source such as a pan of hot water or a hair dryer may be used to speed up defrosting. NEVER use an ice pick or sharp instrument to chip or break the ice away from the cold plate. Doing so may rupture the aluminum tubes in the cold plate, allowing the refrigerant to escape and causing the system to fail. Escaping refrigerant may cause injury to skin, due to frostbite or blindness to eyes due to contact with the supercold refrigerant liquid/gas.

5. After all ice and frost have been removed from the refrigerator and freezer, thoroughly dry all interior surfaces and parts. Place dried out ice trays in drip tray of refrigerator and the Operation and Maintenance Manual in a 9” x 12” plastic bag. Place bag and manual on the cabinet shelf.

6. Close the cabinet door and snap the plastic door latch onto the button of the top left side of the cabinet door.

7. Remove any dust or dirt that may be on the condenser coils and fins. The condenser is located on the back of the cabinet on the lower right side as you look at the back, just inside the rectangular 5-1/4” x 2-1/4” opening on the stainless steel motor guard. A small vacuum cleaner brush attachment works well in removing any dust or dirt that may exist.

8. Examine the cabinet and door outer painted surfaces. If any nicks or scratches exist in the painted surface, use matching appliance touch up paint to cover and seal any nicks or scratches.

9. The refrigerator is ready for uncartoned storage. See par. 2.3.b. for details.

10. If the refrigerator is to be re-cartoned and placed in storage, obtain a carton service assembly kit from Marvel. Re-carton the unit as specified in the instructions included with the kit. The refrigerator, once re-cartoned, is ready for cartoned storage. See par.2.3.b. for details.

e. Storage Inspection. Storage inspection procedures are based on whether the refrigerators are cartoned or uncartoned. The following paragraphs describe the procedures for both conditions.

1. Cartoned refrigerators. Cartoned refrigerators are to be visually inspected on a periodic basis to determine if they have been damaged and/or if they are wet. If either condition exists, the refrigerator is to be removed from the damaged or wet carton and inspected. If the refrigerator is acceptable, dry it off and re-carton with a carton service assembly kit as specified in the kit's instructions and place the re-cartoned refrigerator back in storage.

2. Uncartoned refrigerators. The following procedures are for storage inspection of uncartoned refrigerators.

a. Refrigerators are to be visually inspected at least once a month. In areas where the humidity is high enough to cause water condensation or dew to occur on the refrigerator's outer surfaces, more frequent inspections and wiping clean and drying off of outer surfaces should be implemented. This is particularly critical in salt air environments or locations near oceans. Depending on the severity of conditions, daily inspections, with cleaning and drying off, may be required. Failure to do so may result in damage to the refrigerator cabinet and door.

b. If cabinet and door painted surfaces have nicks or small areas where the paint has been scraped off, apply touch-up paint to maintain a protective coating on the steel surfaces.

c. Open the cabinet and freezer doors and inspect all interior surfaces and parts for moisture, mold, or mildew. Also, check the door gasket for moisture, mold, or mildew. If mold or mildew exist, use a mild soap and water solution to remove the mold or mildew. Rinse with clean, salt free water and dry thoroughly.

d. Close the cabinet door and snap the plastic door latch into the button on the top left side of the door.

e. If the inspection of the refrigerators required that the units be removed from storage, return the refrigerators back to their storage areas. See par. 2.3.b. for details.

2.4 Installation. Getting the refrigerator ready to operate is simple. Properly dispose of the packing material, position the refrigerator where you want it. Then:

a. Be sure that the refrigerator is placed such that the power cord can reach a properly grounded three-prong electrical outlet. Connect the plug to the electrical outlet at the end of this installation procedure.

For a wall outlet that provides 230 VAC, the refrigerator's 115 VAC electrical plug must be inserted into the transformer's electrical outlet. The 230 VAC electrical plug attached to the power cord coming from the transformer must then be inserted into the 230 VAC wall outlet for proper and safe operation. See fig. 1-2.

b. The four glides (feet) of the refrigerator are non-adjustable. If the refrigerator is on a level surface, the refrigerator will be level. Do not operate the refrigerator at an angle greater than 10 degrees from level. Failure of the refrigeration system may result.

2.4 Installation, continued.

c. At the upper left front corner there is a snap fastened safety strap which holds the door closed during shipment. To open the door, unsnap the safety strap and pull outward on the door. The door has a magnetic door gasket which provides the seal for the refrigerator.

d. Install handle to top of door. With a phillips screwdriver remove the button snap from the top of the door. Place the handle on the door as shown and secure with (2) hex cap screws provided, using the 5/32" hex key. Secure the button snap to the top of the door with the phillips screwdriver. Refer to Figure 2-1.

Figure 2-1

e. At the lower left front corner, behind the grill, which is held on by 2 screws, you will find the thermostat. The tin plated sensor line attached to the thermostat runs up the back of the refrigerator to the upper right rear corner. The sensor lies between the rear panel and the insulation. The dial of the thermostat has an adjustment range of 1 to 7 (7 is the coldest setting). The setting point of the thermostat dial is determined by what number is visible at the twelve o'clock position. When the "OFF" lettering is visible on the thermostat dial at the twelve o'clock position, power to the refrigerator's compressor and the condenser fan motor is shut-off and no cooling of the refrigerator or freezer section will occur. The thermostat position is pre-set at the factory to a setting of 4, or middle setting. Varying ambient temperature may require re-setting the thermostat dial for your installation. Depending on loading conditions of your refrigerator, allow 24 hours for new stabilized temperature settings to occur with each change to the thermostat dial. To facilitate the initial compartment pull - down to operating temperature, remove the drip tray (item #3 in Figure 1-1). Replace the drip tray after approximately 3 hours of operation.

f. See the label located on the right side of the refrigerator for reference thermostat dial settings versus ambient / refrigerator / freezer temperatures in unloaded conditions. Actual amounts of commodities and their initial temperatures and means of usage may require a thermostat setting different than shown on the label to achieve desired refrigerator and freezer temperatures.

g. Before making the power connection, be sure that the interior of the refrigerator is clean.

h. Connect the appropriate electrical plug into the electrical supply outlet. For an outlet that provides 230 VAC, the refrigerator's 115 VAC electrical plug must be inserted into the transformer's electrical outlet. The 230 VAC electrical plug attached to the power cord coming from the transformer must then be inserted into the 230 VAC outlet for proper and safe operation. See fig. 1-2. For 115 VAC electrical outlets, plug the refrigerator's 115 VAC electrical plug directly into the 115 VAC outlet.

2.5 Operation and Theory of Operation. Once prepared as specified above, the refrigerator functions automatically. The following is a brief explanation of how the refrigerator works. This explanation will enable you to operate and maintain the refrigerator most efficiently.

2.6 Refer to fig. 2-2. a functional diagram of the system, and to figs. 4-1, 4-2, and 4-3, which show the components and their location in the refrigerator. To follow the explanation, refer to these figures.

a. The thermostat (located behind the grill at the lower left front of the refrigerator) monitors temperatures inside the refrigerator by way of the evaporator or cold plate temperature. When the sensor

shows a temperature warmer than the adjusted setting, the thermostat's contacts close, completing the circuit that operates the compressor. The compressor takes in the low pressure refrigerant gas and converts it to high pressure refrigerant gas. Passing through the condenser (radiator), the refrigerant gas gives off heat to the air surrounding the condenser, by way of the cooling fins, like any radiator. During this process the high pressure refrigerant gas changes state as it loses heat, coming out of the condenser as a high pressure liquid refrigerant. The dryer / filter blocks particles, and contains a dessicant to remove moisture from the refrigeration system. Moisture (water) in the refrigeration system can damage or cause the refrigeration system to fail. This is due to the moisture reacting with the refrigerant gas to form corrosive acids and sludge that can attack internal refrigeration components causing them to fail and / or clogging the capillary tube that stops the refrigeration system from cooling the refrigerator and freezer. These acids and sludge that are formed by their reaction with moisture are powerful, toxic substances. Refrigeration manufacturers go to great lengths to remove as much moisture and air from the refrigeration system before they inject the refrigerant gas into the system and seal it.

b. From the output side of the dryer/filter, the high pressure liquid flows through the evaporator, which in fact is incorporated into the floor and ceiling of the freezer compartment of the refrigerator. In this process, the refrigerant lowers temperatures by absorbing heat from the interior of the refrigerator, changing in the process to low pressure liquid refrigerant, then to a low pressure refrigerant gas.

c. On fig. 2-2, look at the starter relay. This relay performs 2 important functions: It brings both the thermostat and condenser fan motor into the compressor start circuit, and it provides the required sequence for bringing the compressor to full power. When the thermostat closes, the circuit between the 115 volt power cord and the terminal of the starter relay is completed, and electricity flows through the starter relay and into the start-up and run windings of the compressor. The compressor's electrical motor comes up to speed within one or two seconds and in doing so, allows the power to the starter windings to be disconnected by way of its relay. Also the completion of the electrical circuit provides power to the condenser fan motor. If the fan does not operate the compressor will overheat and cycle off by way of its thermal overload. Connections are shown in fig. 2-2. Notice that EITHER fan motor line can be connected to either terminal on the compressor starter relay. Looking at the connections you will see that each of the two fan motor lines go to each terminal, secured by a spade lug connection.

d. The element marked accumulator is a section of the evaporator that acts as a reservoir, keeping the return line to the compressor filled with low pressure refrigerant gas.

e. The refrigeration system cannot function without proper operation of the fan.

f. Fig. 2-2 shows a system that uses a 230 VAC power source. If your system uses a primary source of 115 VAC, the transformer is not required: plug the 115 VAC electrical plug into the 115 VAC outlet.

g. Notice that the 115 VAC power cord's green wire and a short green wire from one to the compressor's mounting brackets are secured by screws to the cabinet's bare metal base plate. See also fig. 3-1, No. 5.

h. Refer to fig. 2-2. It is important to notice that a failure of the starter relay can appear to be a failure of the compressor. When the relay functions as it should in normal operation, closing of the thermostat's relay allows 115 VAC to flow from the black lead of the refrigerator's power cord through the contacts of the thermostat, along the return wire lead from the thermostat to the compressor's overload, then to the starter relay. The relay activates the compressor and condenser fan motor. The white lead

from the power cord attaches to the starter relay and provides the means to complete the electrical circuit. So, a failure of the starter relay can also look like a problem not only with the compressor, but also the condenser fan motor. Before replacing a compressor, test with a spare starter relay and overload that you can use for replacing the existing starter relay and overload.

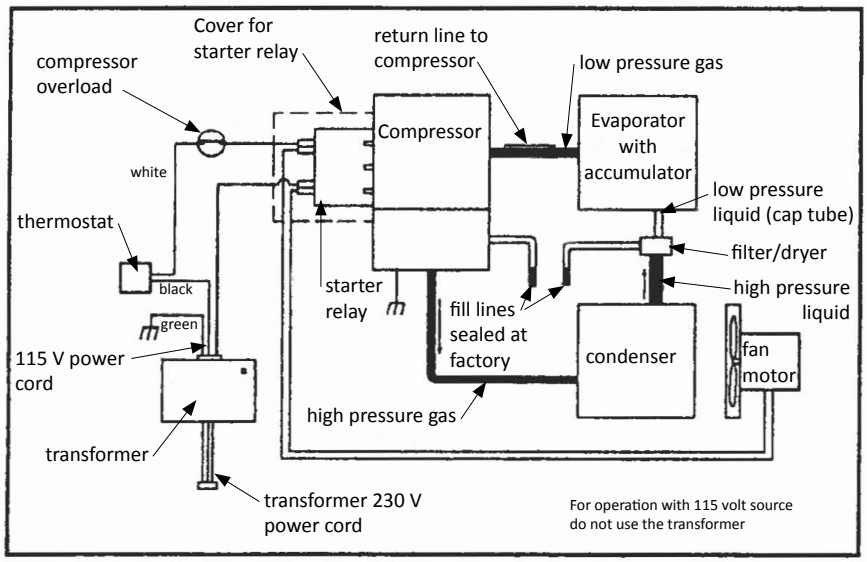


Fig. 2-2. Refrigerator Functional Block Diagram

i. Chapter 3 provides troubleshooting and repair procedures should operational problems arise. Troubleshooting and repair procedures are to be performed ONLY by a qualified technician.

2.7 Limitations. The following items represent the limitations of this refrigerator.

a. The refrigerator is to be limited to the storage of commodities that are typically maintained in household, and light commercial /medical applications. This does NOT include any blood storage applications.

b. This refrigerator is to be used and operated in an indoor setting that provides protection from direct exposure to rain, sunlight, and wind.

c. All power supplies used with this unit must have a properly grounded outlet that is compatible with the ground prong on the electrical plugs used with this refrigerator. The green color wire on the power cord is the ground wire lead. Any electrical plug used with this refrigerator must match up its ground prong with the green wire coming from the power cord. Failure to do so could result in damage to the refrigerator and/or serious injury or death to the user.

d. Chemicals that are known to attack plastic, steel, vinyl, aluminum, and/or copper are not to be stored in this refrigerator. Such use could severely damage the refrigerator and cause it to fail.

e. Flammable materials, or chemicals that react in a flammable or explosive nature when stored with other chemicals are not to be stored in this refrigerator. Such use could result in serious injury or death.

f. This refrigerator is NOT to be used or operated in atmospheres that are considered explosive, flammable, or of a hazardous location nature. Such use could result in serious injury or death.

g. The 500 VA transformer supplied with this refrigerator is for the exclusive use of supplying electrical power to the refrigerator when a 230VAC power supply is available. Do NOT use it to supply electrical power to any other electrical equipment. Such usage could result in damage to the transformer and cause it to fail.

CHAPTER 3

MAINTENANCE

3-1 INTRODUCTION

3-2 This chapter covers preventive and corrective maintenance, including a recommended schedule of maintenance and a brief trouble shooting guide.

3-3 SAFETY In working on this refrigerator, be sure to ALWAYS observe the elements of safety cited in the general introduction, par. 1-2, and at par. 1-9. Before performing any of the following, ALWAYS be sure that the refrigerator is unplugged from its power.

3-4 Preventive Maintenance. The following lists periodic preventative maintenance procedures, to be completed daily, weekly, monthly, and semi-annually to insure continuity of operation and prompt discovery of problems, or potential problems.

DAILY

Check door gasket for proper seal or damage. If damaged see par. 3-10.

Check cold plate for heavy frost accumulation. Defrost if frost is more than 1/4" thick. For defrost procedure, see par. 3-16.

Check that the drip tray is flush against rear cabinet liner wall. If the drip tray is damaged replace it.

Check freezer door for correct operation, sealing, and closure. If the freezer door is damaged, see par. 3-14.

Check commodities in the freezer and refrigerator sections. If necessary, change the thermostat setting (changes temperatures in both compartments). If the thermostat does not work, see par. 3-11.

WEEKLY

Check the refrigerator for scratches or scrapes on outside painted surfaces. Repair with touch up paint to prevent rusting. See parts list, chapter 4.

Check glass shelf and crisper tray for cracks or other damage, replace if necessary, see parts list.

MONTHLY

Check the refrigerator door gasket for accumulation of dirt or possible damage. If dirty wipe clean with a mild detergent. If it is damaged, see par. 3-10.

Check power cord for damage. If it is damaged see par. 3-8 or 3-9.

Check electrical plugs for damage. In case of damage see par. 3-8 or 3-9.

Check fan motor, compressor, and transformer for correct operation. If there is damage, see par. 3-15. Check shelves, crisper tray, liner walls, and refrigerator floor for dirt accumulation and damage. Wipe clean with mild detergent. In case of damage replace shelves and trays (see parts lists in chapter 4)). If liner walls or floor is damaged, return refrigerator to depot-level repair or replacement.

SEMIANNUALLY

Check the condenser coil, fan assembly, compressor, and transformer for accumulation of dirt or dust. If necessary clean with vacuum cleaner. For removal of stainless steel back shield to gain access to the mechanical assembly compartment see par. 3-7c and fig. 1-2.

3-5 Troubleshooting. The following section gives you the procedure for troubleshooting to identify the cause of problems that might occur in refrigerator operation. In each case, the symptom is followed by a procedure for eliminating the problem.

115 VOLT (60/50 Hz) POWER GRID SYSTEM

Symptom: Refrigerator does not cool or operate.
Remedy: Is the 115V plug in a 115 VAC outlet? If not, plug it in.
Is the circuit breaker for the 115V outlet open? If so, reset the circuit breaker.
Is the thermostat dial turned to an operational position (not OFF)? If not, start with a setting of 4 and turn to the setting you want. If the thermostat still does not start the refrigerator, check the thermostat for continuity: turn the dial fully counter-clockwise and check the resistance between the two electrical connectors of the thermostat. It should be an open circuit. Turn the dial clockwise until you hear the click of the contacts inside. From this point on, resistance between the connectors should be approximately zero ohms. If the thermostat checks out bad, see par. 3-11 for replacement procedure.
If the system still does not start, with a new thermostat if the old one failed the continuity test, substitute a new starter relay. Follow par. 3-7 through step g. Then remove the terminal connectors from the relay terminals, pull the relay off the pins holding it to the compressor. Install a new relay onto the compressor plug and reverse the procedure to connect the system for running.

Symptom: Refrigerator operates, but does not cool.
Remedy: Has the refrigerator been turned on for at least an hour?
Is the thermostat set to a low enough temperature. If not, try a lower setting.
If the refrigerator still does not cool open the door and touch the cold plate (evaporator). If the cold plate has frost and is cold to the touch, see par. 3-11, for replacing the thermostat.
If the cold plate is warm, return the refrigerator to depot for further checks and/or replacement.

Symptom: Articles in the refrigerator and/or freezer section are to warm.
Remedy: Has the refrigerator been turned on for at least an hour?
Is the thermostat set to a low enough temperature? If not , try a higher setting.
If the refrigerator still does not cool, open the door and touch the cold plate (evaporator). If the cold plate has frost and is cold to the touch, see par. 3-11, for replacing the thermostat.
If the cold plate is warm, return the refrigerator to depot for further checks and/or replacement.
Symptom: Articles in the refrigerator and freezer section are to cold.
Remedy: Has the refrigerator been on for at least 1 hour?
Is the thermostat setting to high? If so, turn the dial to a lower setting, and let the refrigerator run for at least two hours to check the temperature. If it is still to cold, reduce setting to a lower number.
If changing the thermostat setting does not warm the refrigerator, see par. 3-11, for replacement of the thermostat.

230 VOLT (60/50Hz) POWER GRID SYSTEM

Symptom: Refrigerator does not cool or operate.

Remedy: Is the 230 V electrical plug in a 230 VAC outlet? If not, plug it in.

Is the 115V electrical plug connected to the 115 VAC outlet on the transformer.

Is the circuit breaker for the 230V outlet open? If so, reset the circuit breaker.

Is the thermostat dial turned to an operational position (not OFF)? If not, start with a setting of 4 and turn to the setting you want. If the thermostat still does not start the refrigerator, check the thermostat for continuity: turn the dial fully counter-clockwise and check the resistance between the two electrical connectors of the thermostat. It should be an open circuit. Turn the dial clockwise until you hear the click of the contacts inside. From this point on, resistance between the connectors should be approximately zero ohms. If the thermostat checks out bad, see par. 3-11 for replacement procedure.

If the system still does not start, with a new thermostat if the old one failed the continuity test, substitute a new starter relay. Follow par. 3-7 through step g. Then remove the terminal connectors from the relay terminals, pull the relay off the pins holding it to the compressor. Install a new relay onto the compressor plug and reverse the procedure to connect the system for running.

Symptom: Refrigerator operates, but does not cool.

Remedy: Has the refrigerator been turned on for at least an hour?

Is the thermostat set to a low enough temperature. If not, try a lower setting.

If the refrigerator still does not cool open the door and touch the cold plate (evaporator). If the cold plate has frost and is cold to the touch, see par. 3-11, for replacing the thermostat.

If the cold plate is warm, return the refrigerator to depot for further checks and/or replacement.

Symptom: Articles in the refrigerator and/or freezer section are too warm.

Remedy: Has the refrigerator been turned on for at least an hour?

Is the thermostat set to a low enough temperature? If not , try a higher setting.

If the refrigerator still does not cool, open the door and touch the cold plate (evaporator). If the cold plate has frost and is cold to the touch, see par. 3-11, for replacing the thermostat.

If the cold plate is warm, return the refrigerator to depot for further checks and/or replacement.

Symptom: Articles in the refrigerator and freezer section are too cold.

Remedy: Has the refrigerator been on for at least 1 hour?

Is the thermostat setting too high? If so, turn the dial to a lower setting, and let the refrigerator run for at least two hours to check the temperature. If it is still too cold, reduce setting to a lower number.

If changing the thermostat setting does not warm the refrigerator, see par. 3-11, for replacement of the thermostat.

3-6 Corrective Maintenance Procedure

CAUTION

Before performing any of the following, be sure that the refrigerator is unplugged from its power source.

The following are detailed procedures for replacement of specific functional components of the Marvel 6CRF Refrigerator, NSN 4110-01-629-6841. Before beginning work, you should have on hand, at a minimum, the tools recommended in the list at par. 1-9, and the specified replacement part for the refrigerator. Each separate procedure below tells you what replacement parts to have on hand, how to remove the defective parts, then how to install the replacements.

3-7 Fan Assembly Replacement (Service Assembly 42246338)

a. Position the refrigerator for easy access to front and back.

b. Using a phillips screwdriver remove the (2) screws holding the grill to the front of the cabinet just below the door. Set the screws and grille aside for later reassembly. Remove the (4) phillips head screws and washers (2 on each side) holding the cabinet wrapper to the base plate. Set the screws and washers aside for later reassembly.

c. With the 5/16" nut driver remove the (9) screws holding the back shield to the cabinet and set aside for later reassembly.

d. Using the 5/16" nut driver, remove the mounting screws from the cabinet back, and remove the back. Put the back and the 14 screws aside for later re-assembly. Recessed into the foam insulation, both the large copper suction return line from the evaporator and the thin capillary tube carrying cold liquid from the filter/dryer to the evaporator run up to the upper left corner. Under these lines is the thin aluminum capillary tube/sensor line from the thermostat.

e. With the 5/16" nut driver remove the (2) screws holding the cabinet wrapper to the base plate. See Figure 3-1 item 16.

CAUTION
THE 32-LB MECHANICAL ASSEMBLY IS STILL FULLY ATTACHED TO THE REFRIGERATION SYSTEM
YOU CAN MOVE THE ASSEMBLY ONLY A FEW INCHES OUT OF THE COMPARTMENT WITHOUT DANGER OF DAMAGING THE COPPER REFRIGERANT LINES
BE SURE THAT YOUR WORK SURFACE IS WIDE ENOUGH TO SUPPORT THE MECHANICAL ASSEMBLY WHEN YOU HAVE IT PULLED 4" TO 6" BACK FROM ITS OPERATIONAL POSITION, AND ROTATED A FEW DEGREES HORIZONTALLY...

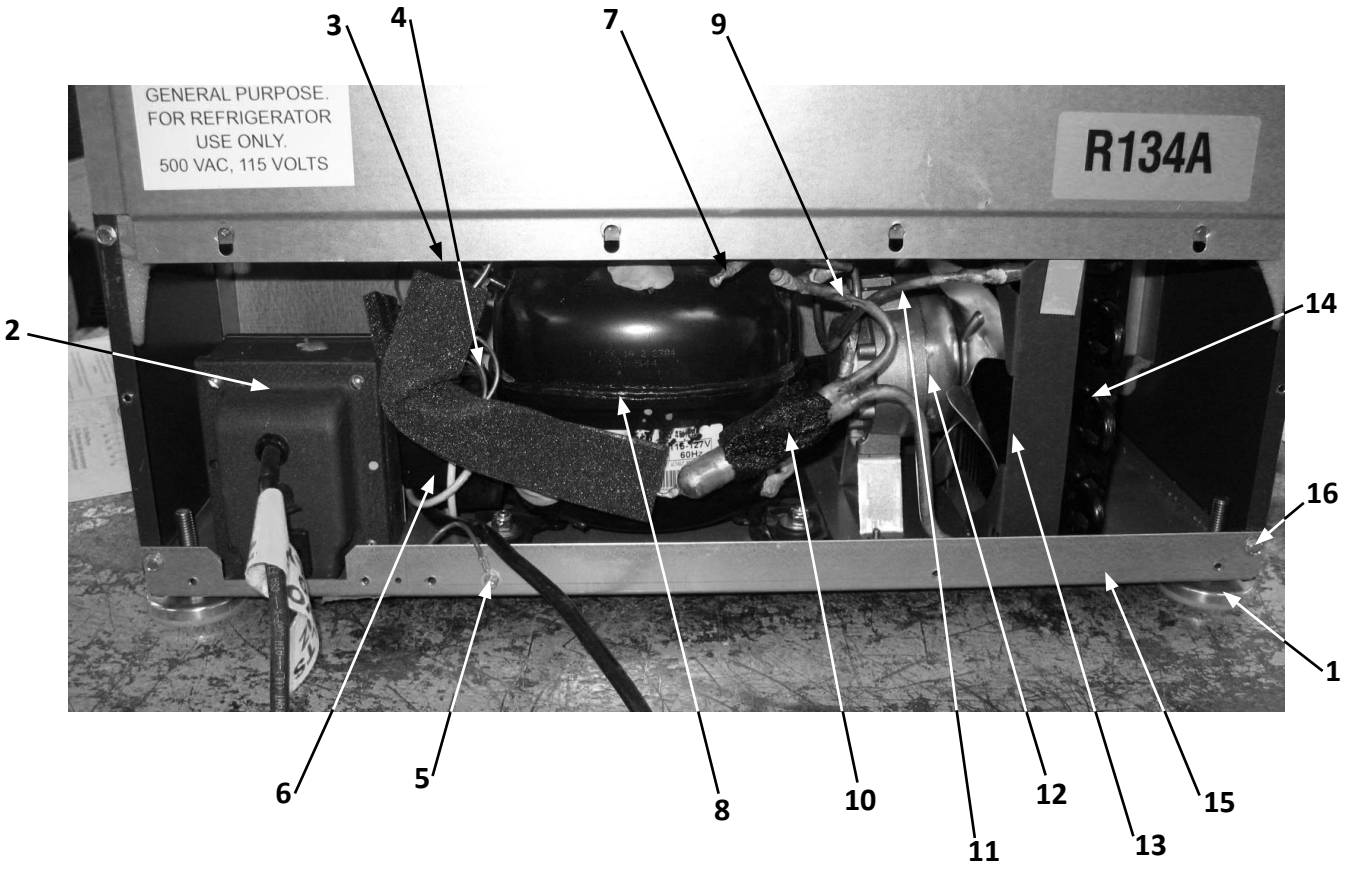
f. Refer to fig. 3-1 Refrigerator Mechanical Assembly. The mechanical assembly is comprised of all the components mounted on the steel base plate at the rear of the refrigerator, fig. 3-1.

g. Locate the wire leads from the fan motor and follow them back to the molex connector from the wire harness. Unplug the fan connector from the wire harness.

h. Use a 3/8" open or box end wrench to remove the (2) nuts fastening the bottom of the fan motor bracket to the base plate. Set the nuts aside for later re-assembly. Carefully pull the fan assembly up and away from the fan guard, toward the compressor, and lift it clear. Discard the old fan assembly.

i. Assembly is the reverse of the above procedure.

Figure 3-1. Refrigerator Mechanical Assembly



1. Glide
2. Transformer
3. Suction line from evaporator
4. Capillary tube
5. Cabinet ground
6. Starter relay cover
7. Low side processing tube
8. Compressor
9. High side processing tube
10. Filter/Dryer
11. Discharge tube to condenser
12. Fan motor assembly/bracket
13. Condenser/fan blade shroud
14. Condenser
15. Base plate
16. Mechanical assembly mounting screws

3-8 Transformer/Power Cord Replacement (Service Assembly 42248378)

NOTE

IF THE TRANSFORMER POWER CORD MUST BE REPLACED, USE THE SAME PROCEDURE AS FOR THE TRANSFORMER: THE CORD IS PERMANENTLY ATTACHED TO THE TRANSFORMER

a. Position the refrigerator for easy access to front and back.

b. Using a phillips screwdriver remove the (2) screws holding the grill to the front of the cabinet just below the door. Set the screws and grille aside for later reassembly. Remove the (4) phillips head screws and washers (2 on each side) holding the cabinet wrapper to the base plate. Set the screws and washers aside for later reassembly.

c. With the 5/16" nut driver remove the (9) screws holding the back shield to the cabinet and set aside for later reassembly.

d. Using the 5/16" nut driver, remove the mounting screws from the cabinet back, and remove the back. Put the back and the 14 screws aside for later re-assembly. Recessed into the foam insulation, both the large copper suction return line from the evaporator and the thin capillary tube carrying cold liquid from the filter/dryer to the evaporator run up to the upper left corner. Under these lines is the thin aluminum capillary tube/sensor line from the thermostat.

e. With the 5/16" nut driver remove the (2) screws holding the cabinet wrapper to the base plate. See Figure 3-1 item 16.

CAUTION

THE 32-LB MECHANICAL ASSEMBLY IS STILL FULLY ATTACHED TO THE REFRIGERATION SYSTEM YOU CAN MOVE THE ASSEMBLY ONLY A FEW INCHES OUT OF THE COMPARTMENT WITHOUT DANGER OF DAMAGING THE COPPER REFRIGERANT LINES BE SURE THAT YOUR WORK SURFACE IS WIDE ENOUGH TO SUPPORT THE MECHANICAL ASSEMBLY WHEN YOU HAVE IT PULLED 4" TO 6" BACK FROM ITS OPERATIONAL POSITION, AND ROTATED A FEW DEGREES HORIZONTALLY...

f. Refer to fig. 3-1, Refrigerator Mechanical Assembly. The mechanical assembly is comprised of all the components mounted on the steel base plate.

g. Using the 5-16" nut driver, loosen and remove the two nuts and (1) lock washer securing the transformer to the base plate (behind the transformer) and (1) nut at the front of the transformer. This detaches the transformer from the mechanical base plate. Set the nuts and lock washer aside for later re-assembly.

h. Discard the old transformer.

i. Re-assembly is the reverse of the above procedure.

3-9 115V Power Cord/Plug Replacement (Service Assembly 42248787)

a. Position the refrigerator for easy access to front and back.

b. Using a phillips screwdriver remove the (2) screws holding the grill to the front of the cabinet just below the door. Set the screws and grille aside for later reassembly. Remove the (4) phillips head screws

and washers (2 on each side) holding the cabinet wrapper to the base plate. Set the screws and washers aside for later reassembly.

c. With the 5/16” nut driver remove the (9) screws holding the back shield to the cabinet and set aside for later reassembly.

d. Using the 5/16” nut driver, remove the mounting screws from the cabinet back, and remove the back. Put the back and the 14 screws aside for later re-assembly. Recessed into the foam insulation, both the large copper suction return line from the evaporator and the thin capillary tube carrying cold liquid from the filter/dryer to the evaporator run up to the upper left corner. Under these lines is the thin aluminum capillary tube/sensor line from the thermostat.

e. With the 5/16” nut driver remove the (2) screws holding the cabinet wrapper to the base plate. See Figure 3-1 item 16.

CAUTION
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YOU CAN MOVE THE ASSEMBLY ONLY A FEW INCHES OUT OF THE COMPARTMENT
WITHOUT DANGER OF DAMAGING THE COPPER REFRIGERANT LINES
BE SURE THAT YOUR WORK SURFACE IS WIDE ENOUGH TO SUPPORT THE
MECHANICAL ASSEMBLY WHEN YOU HAVE IT PULLED 4” TO 6” BACK FROM ITS OPERATIONAL
POSITION, AND ROTATED A FEW DEGREES HORIZONTALLY...

f. Refer to fig. 3-1, Refrigerator Mechanical Assembly. The mechanical assembly is comprised of all the components mounted on the steel base plate.

g. Loosen and remove the power cord green line from the cabinet ground screw, fig. 3-1, No. 5.

h. At the mechanical assembly, use the 8” phillips screwdriver to remove the (2) screws from the power cord clamp that secures the power cord, just to the right of the transformer. Set the clamp and screw aside for later reassembly. Notice the location of the clamp on the power cord, and be sure you replace it at the same location.

i. Unplug the molex connector from the power cord to the harness assembly..

j. Be sure to note the routing pattern of the complete 115 volt harness, then carefully remove the harness from the refrigerator, by pulling the cord out and away from the rear of the stainless steel back shield through the rubber grommet in the back shield. Discard the old power harness.

k. Assembly is the reverse of the above procedure.

3-10 Door Gasket Replacement. (Service Assembly 42241280)

a. Special equipment needed:
Hand roller; 36” square cardboard sheet; 36” square table or bench
NOTE: The gasket is non-adhesive.

b. Place the cardboard on the table to protect the refrigerator door during gasket replacement.

CAUTION
BE SURE TO SUPPORT THE DOOR DURING THIS PROCEDURE
TO PREVENT DAMAGE TO THE DOOR OR INJURY

c. Remove the hinge-pin from the upper door hinge by using a 1/8” hex key, then carefully lift the refrigerator door and place it front down on the cardboard surface.

d. Set the hinge pin aside for later assembly.

e. To remove the old gasket, start at one corner of the door, using your hands only, steadily pull the arrowhead shaped retainer cross-section from the plastic door channel. When you have completely removed the gasket, discard it.

f. To install the replacement gasket, start at one corner of the door channel, and press the corresponding corner of the new door gasket retaining arrowhead into the channel with sufficient force to seat the shoulders of the arrowhead into the channel.

g. When the corner is fully engaged, use the hand roller to roll/push the remainder of the new door gasket into the retaining channel.

h. Inspect the installed door gasket to ensure that the entire length is seated in the retainer channel, and that the gasket is undamaged. Adjust as necessary.

i. Reassembly is the reverse of steps 3-10 a-e above.

3-11 Thermostat Replacement. (Service Assembly 42240589).

a. Position the refrigerator for easy access to front and back.

b. Using a phillips screwdriver remove the (2) screws holding the grill to the front of the cabinet just below the door. Set the screws and grille aside for later reassembly. Remove the (4) phillips head screws and washers (2 on each side) holding the cabinet wrapper to the baseplate. Set the screws and washers aside for later reassembly.

c. The thermostat is located behind the left corner of the grill. It attaches to the harness assembly with two spade lug connectors. Reach behind the thermostat and gently pull the two connectors off by pulling them straight to the rear. DO NOT pull directly on the wires. When the wire/connectors are free of the thermostat body, let them fall free.

d. Loosen and remove the two phillips screws holding the thermostat in place. Discard the screws (use screws from the service kit for reassembly) and pull the green ground wire free of the thermostat. Let the old thermostat body to hang free. It is now suspended from its aluminum capillary sensor tube, which runs back to the right lower corner , then up to the evaporator/freezer section, with the copper refrigerant lines.

e. At the rear, remove the cabinet back, using the 5/16” nut driver to remove the mounting screws. Take the back off and set the screws (14) aside for later reassembly.

CAUTION

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BE SURE THAT YOUR WORK SURFACE IS WIDE ENOUGH TO SUPPORT THE
MECHANICAL ASSEMBLY WHEN YOU HAVE IT PULLED 4” TO 6” BACK FROM ITS OPERATIONAL
POSITION, AND ROTATED A FEW DEGREES HORIZONTALLY...

f. Remove the stainless steel backshield by removing the five screws holding the backshield in place. Put the shield and five screws aside for later reassembly.

g. Open the refrigerator door, remove the drip tray, and set it aside for later reassembly.

h. With a phillips screwdriver, dismount the freezer door by removing the left and right shoulder screws, with springs, and left and right hinge mounting screws. Set the screws aside for reassembly later. Now remove the three phillips screws attaching the evaporator plate to the ceiling of the freezer compartment. This allows the refrigerator's cold plate (evaporator) to hang free by the refrigerant line copper tubing harness.

i. The thermostat thermobulb loop is now accessible behind the cold plate. Reach up and behind the cold plate (evaporator), grasp the thermobulb and pull it away and downward, straightening the loop in the tube in the process.

j. Go to the rear of the refrigerator, and remove the thermostats thermobulb tubing from the cabinet interior by pulling the tubing out and away from the exposed back of the refrigerator. (There will probably be two sections of refrigerator putty applied around the tubing at the top and bottom of the refrigerator back. Remove this putty and replace the putty during reassembly, to maintain insulation). When the tubing is clear of the cabinet, let it hang free.

k. Remove the thermostat body and its attached tubing by pulling the thermostat body out and away from the front of the cabinet. Be sure that the thermostat tubing is straight and does not catch or hang up on any refrigerator parts as it is pulled free. Discard the old thermostat and its tubing.

l. Reassembly is the reverse of the above procedure. Be sure to do the following:

1. When routing the thermostat tubing back to the evaporator be sure that there are no kinks, that all bends are smooth, that the tubing does not rest on the condenser, fan assembly, transformer, or compressor.
2. When removing the old thermostat and tubing, notice the method of routing the tubing, and use it as a guideline for routing the new thermostat and tubing.
3. Also reseal with refrigerator putty and protect all openings and cut-outs in the refrigerator.
4. For ease of installation with the thermostat thermobulb clamp, form the end of the thermostat tubing into a J-shaped loop about 3 to 4 inches long by 3/8 inch to 1/2 inch wide, no wider than the clamp. This provides the best contact between the sensor area and the evaporator shell, to give the most accurate temperature feedback to the thermostat.

3-12 Front Glide Replacement (Service Assembly 42241281)

CAUTION

Be sure that the refrigerator is empty, and that you have it supported at all times.

a. Position the refrigerator to allow easy access to front and back, and on a work surface that allows you to place the refrigerator with either the front or the back end projecting about six inches beyond the edge. This allows access to the glides.

b. For the front glides, remove the grill under the door, by using the small phillips screwdriver to remove the two screws retaining the grill. Set the parts aside for later reassembly. Carefully supporting the refrigerator, push it forward so that the front glides project about six inches beyond the edge of the work surface.

c. Use the combination wrench to break loose and turn the nut securing each front glides threaded shaft, while applying the channel lock pliers to the glides foot to prevent rotation. When each nut is sufficiently loose, simply spin it off, using the other hand to hold the glides foot.

d. Discard the old damaged glides, but set the nuts aside for later reassembly.

e. Assembly is the reverse of the above procedures.

3-13. Rear Glide Replacement. (Service Assembly 42241281).

a. Position the refrigerator for easy access to front and back.

b. Using a phillips screwdriver remove the (2) screws holding the grill to the front of the cabinet just below the door. Set the screws and grille aside for later reassembly. Remove the (4) phillips head screws and washers (2 on each side) holding the cabinet wrapper to the base plate. Set the screws and washers aside for later reassembly.

c. With the 5/16" nut driver remove the (9) screws holding the back shield to the cabinet and set aside for later reassembly.

d. Using the 5/16" nut driver, remove the mounting screws from the cabinet back, and remove the back. Put the back and the 14 screws aside for later re-assembly. Recessed into the foam insulation, both the large copper suction return line from the evaporator and the thin capillary tube carrying cold liquid from the filter/dryer to the evaporator run up to the upper left corner. Under these lines is the thin aluminum capillary tube/sensor line from the thermostat.

e. With the 5/16" nut driver remove the (2) screws holding the cabinet wrapper to the base plate. See Figure 3-1 item 16. Pull the base plate and mechanical assembly out a few inches.

CAUTION

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WITHOUT DANGER OF DAMAGING THE COPPER REFRIGERANT LINES
BE SURE THAT YOUR WORK SURFACE IS WIDE ENOUGH TO SUPPORT THE
MECHANICAL ASSEMBLY WHEN YOU HAVE IT PULLED 4" TO 6" BACK FROM ITS OPERATIONAL
POSITION, AND ROTATED A FEW DEGREES HORIZONTALLY...

f. Use the 3/8" nut driver to loosen and remove from the front and back side of the transformer the three nuts holding the transformer in place. Set the nuts aside for later reassembly. You can now push the transformer/ power cord forward and away from the rear glide nut assembly.

CAUTION

Be sure that the refrigerator is empty, and that you
have it supported at all times.

g. Move the refrigerator so that the rear glides project over the end of the work surface about six inches.

h. Use the combination wrench to break loose and turn the nut securing each front glides threaded

shaft, while applying the channel lock pliers to the glides foot to prevent rotation. When each nut is sufficiently loose, simply spin it off, using the other hand to hold the glides foot.

i. Discard the old damaged glides, but set the nuts aside for later reassembly.

j. Assembly is the reverse of the above procedures.

3-14. Freezer Door Replacement (Service Assembly 42240576)

a. Open the refrigerator door.

b. Use a phillips screwdriver to loosen and remove the left and right shoulder screws with springs, and the left and right hinge mounting screws. Notice how the springs are positioned.

c. If the screws are damaged, discard them, and use the screws from the service assembly kit for reassembly. If not, use the old screws.

d. Discard the old freezer door.

e. Reassembly is the reverse of the above procedure.

3-15. For the assemblies listed below do not attempt repair below depot level. Send the entire refrigerator to the authorized depot level agency for repair or replacement.

- Compressor
- Condenser
- Cold Plate (evaporator) The evaporator encloses the top and bottom of the freezer compartment.
- Refrigerant copper tubing
- Refrigerator cabinet and/or the hinged cabinet handles.

3-16 Defrosting. To defrost the refrigerator.

a. Turn the thermostat knob such that the “OFF” lettering is at the 12 o’clock position. (This will shut off electrical power to the compressor and condenser fan motor.) Record the original thermostat setting.

b. Remove the refrigerators 115 VAC and/or the 230 VAC power cord electrical plugs from the electrical outlet.

c. Open the refrigerator door and the freezer door.

d. Place all perishables from the refrigerator/freezer to another refrigerator/freezer .

e. CAUTION: DO NOT USE ANY SHARP OBJECTS TO REMOVE ICE FROM THE EVAPORATOR OR ANY OTHER PART OF THE REFRIGERATOR.

f. Place a small towel in the floor of the refrigerator to absorb any defrost water that may drip down from the evaporator.

g. When defrosting is complete, take out and empty the drip tray, then wipe down the interior of the refrigerator.

h. Close both doors, plug the power cord into the electrical outlet, reset the thermostat, and wait for at least an hour before replacing perishables. To facilitate the initial compartment pull - down to operating temperature, remove the drip tray (item #3 in Figure 4-1). Replace the drip tray after approximately 3 hours of operation.

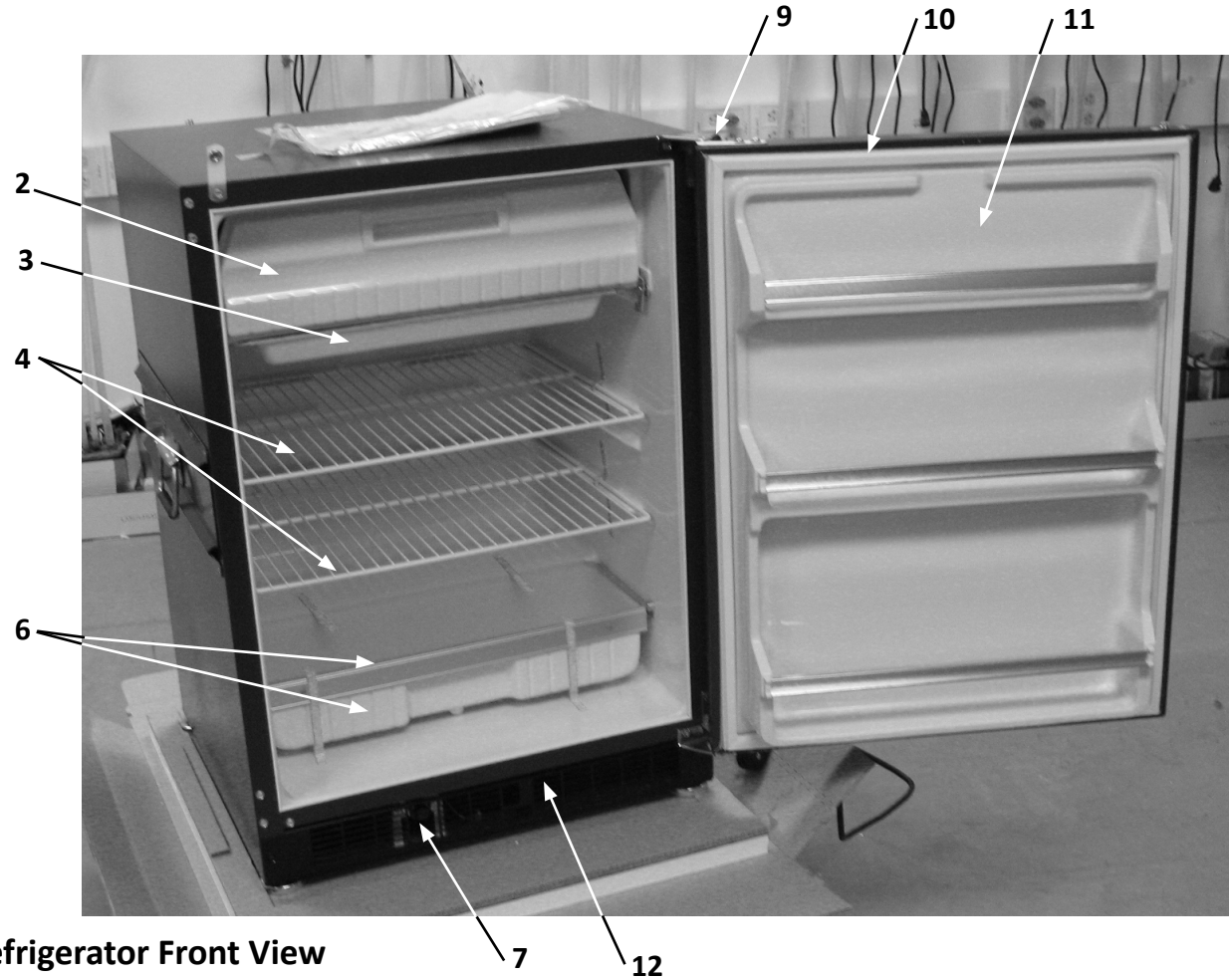


Figure 4-1 Refrigerator Front View

CHAPTER 4

REPLACEMENT PARTS LIST

4-1 INTRODUCTION

4-2 The parts lists are in tabular form, with 4 columns: Reference Designation, part number, description, and quantity.

a. Reference Designation: The figure number, and call out number on that figure for parts shown in the manual. If there is no reference designation number, the part is not illustrated.

b. Part Number: The Marvel part number, or commodity code, if applicable.

c. Description: A brief functional description of the part, with dimensions, other part numbers, or other helpful information.

d. Quantity: The number required for system operation.

4-3 The service assembly numbers are shown in bold, directly underneath each service assembly number is a list of the parts and quantities of what each service assembly contains.

REFERENCE DESIGNATION NUMBER	**PART NUMBER**	**DESCRIPTION**	**QUANTITY**
4-1, No. 2	**42240576**	**Freezer door service assembly**	
	42050077	Evaporator door assembly	1
	41000402	Spring, evaporator door, left	1
	41000403	Spring, evaporator door, right	1
	08204907	#10-32 x 3/4” shoulder screw	2
4-1, No. 11	**42248376**	**Door service assembly**	
	42037240-OD	Door assembly	1
4-1, No. 9	41004106	Hinge pin (top)	1
	41001355	Hinge pin, (bottom)	1
	41011633-CHR	Standard hinge	1
	41011702-CHR	Standard hinge	1
4-1, No. 7	**42240589**	**Thermostat service assembly**	
	41001519	Thermostat, standard	1
	41002094	Thermostat knob	1
	41001389	Wire harness, thermostat ground	1
	41001860	thermostat clamp	1
	41005022	10-32 x 1/2 hex washer head screw	1
	08204886	6-20 machine screw	1
	08205115	#10 lockwasher	1
	08204905	8-32 x 1/4 screw	2

REFERENCE DESIGNATION NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
4-3, No. 12	**42246338**	**Fan Motor Service Assembly**	
	42187560	Fan assembly	1
	1130006A	10-24 x 1/2 Carriage Bolt	2
	08205115	#10 external tooth lock washer	1
	41006874	10-24 Hex Nut	2
4-3, No. 2	**42248378**	**Transformer/power cord service assembly**	
	41003787	Transformer, 230V/115V, with power cord	1
	08205115	#10 Ext. Tooth Lock Washer	1
	41006874	10-24 Hex Nut	3
	1130006A	10-24 x 1/2 Carriage Bolt	3
4-2, No. 7	**42248787**	**115V power cord service assembly**	
	41012490	Power cord 115V, U.S. Govt.	1
	41008713	power cord clamp	1
	41008714	4mm x 20mm screw	2
	41003685	Clamp, with adhesive (leads to thermostat)	1
4-1, No. 10	**42243748**	**Door gasket service assembly**	
	41006705	6.1 Door gasket	1
4-3, No. 1	**42241281**	**Glide service assembly**	
	41000850	Glide	4
	41000851	Nut	4
	42241500	**Ice cube tray service assembly**	
	41000007	Ice cube tray	2
4-1, No. 3	**42241385**	**Drip tray service assembly**	
	41000407	Drip tray	1
4-1, No. 6	**42241952**	**Crisper tray service assembly**	
	41000437	Crisper shelf glass	1
	42210412	Crisper tray	1
4-1, No. 4	**42241346**	**Wire shelf service assembly**	
	41008535	wire shelf	1
	41001395	fastex clip	2
4-3, No. 14	**42248380**	**Condenser Service Assembly**	
	41003609	Condenser	1
	08204930	Pop rivet, aluminum, 1/8” diameter	4
	42101240	drier assembly	1

Figure 4-2 Refrigerator Rear View

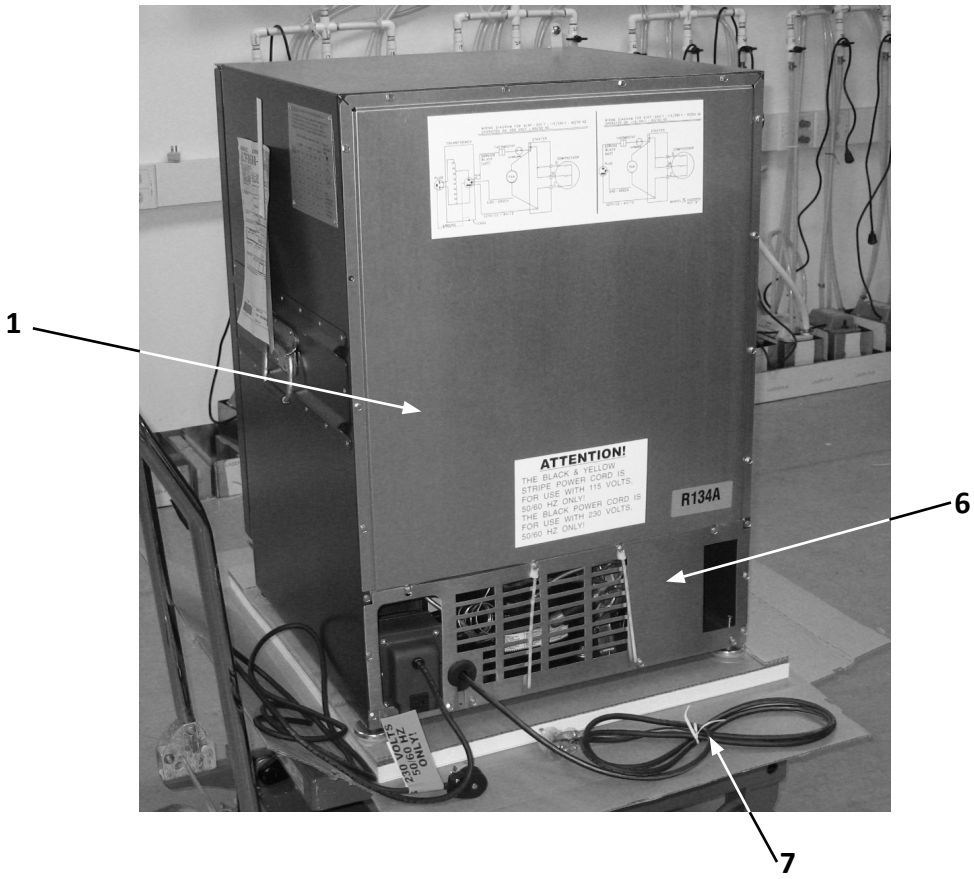
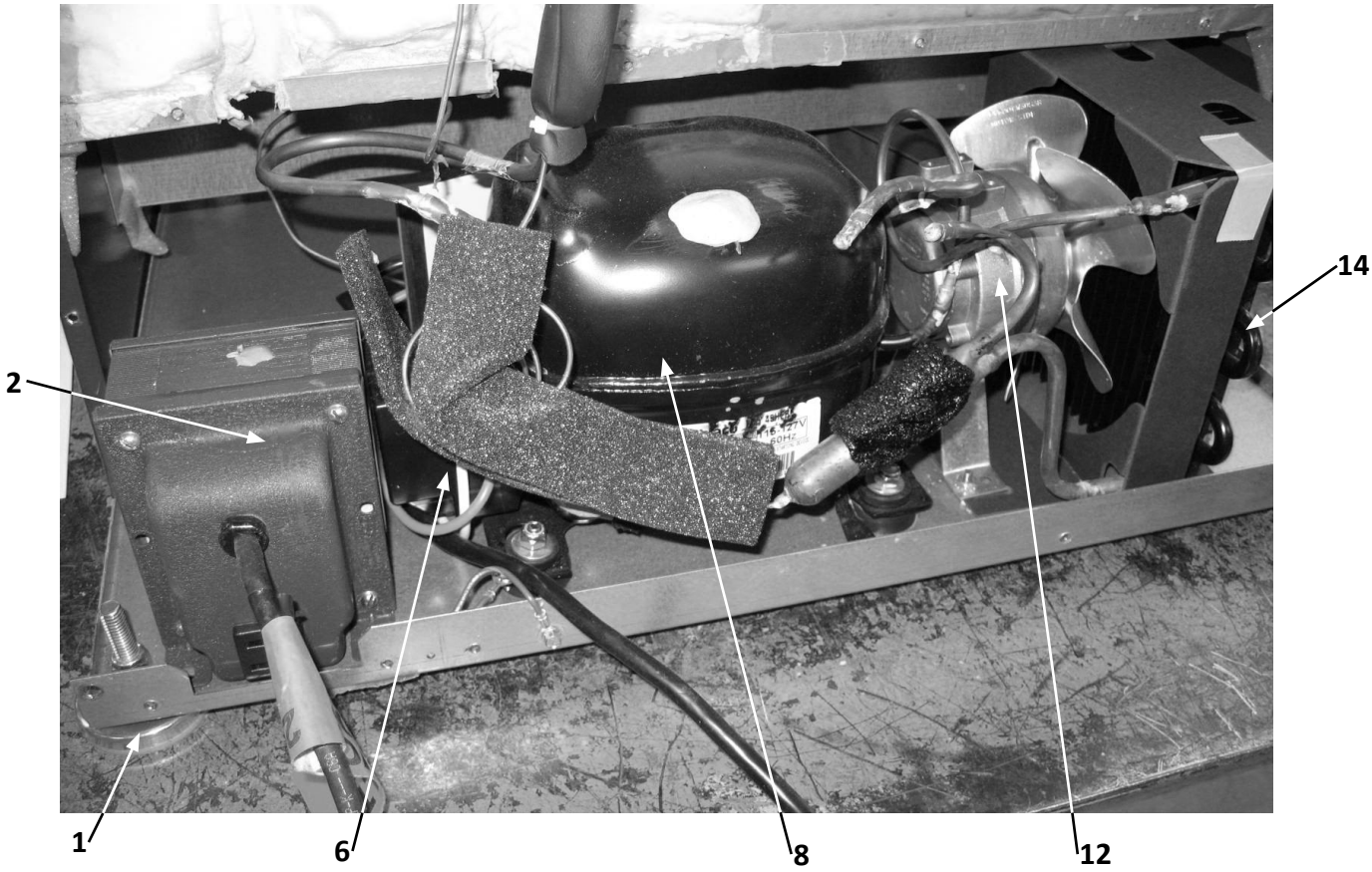


Figure 4-3 Refrigerator Mechanical Assembly



REFERENCE DESIGNATION NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
4-1, No. 12	**42248384**	**Grill service assembly**	
	41011498-BLK	Grill	1
	41008206	#12 screw	2
	41006775	Washer	1
4-2, No. 1	**42241648**	**Cabinet back cover service assembly**	
	41000396	Cabinet back cover	1
	08204928	#10 x 1/2” sheet metal screw	17
4**-2, No. 6**	**42248381**	**Back Shield Service Assembly**	
	41011344	Stainless steel back shield	1
	41002241	grommet	1
	41006098	cable tie	2
	08205098	#10 x 1/2 sheet metal screw	5
4-3, No. 6	**42246574**	**Starter Relay Service Assembly**	
	41008200	Starter relay	1
4**-3, No. 6**	**42245580**	**Overload Service Assembly**	
	41010258	Overload	1
4-3, No. 8	**42248790**	**Compressor Service Assembly**	
	42027709	compressor (includes start relay, overload, grommets,sleeves)	1
	42101240	drier assembly	1
	08204877	5/16 flat washer	4
	08205051	1/4-20 Hex Nut	4
	08205114	1/4-20 x 1-1/4 carriage bolt	4
	42242821	**6.1 Carton service kit assembly**	
	42241283	**Touch-up paint service assembly**	

CHAPTER 5

DIAGRAMS

5-1 INTRODUCTION

5-2 This chapter contains illustrations not located elsewhere in the text. Be sure to refer to the functional block diagram fig. 2-2, for overall operation of the refrigerator.

5-3 The following illustrations are located here: Fig. 5-1 Refrigerator wiring diagram.

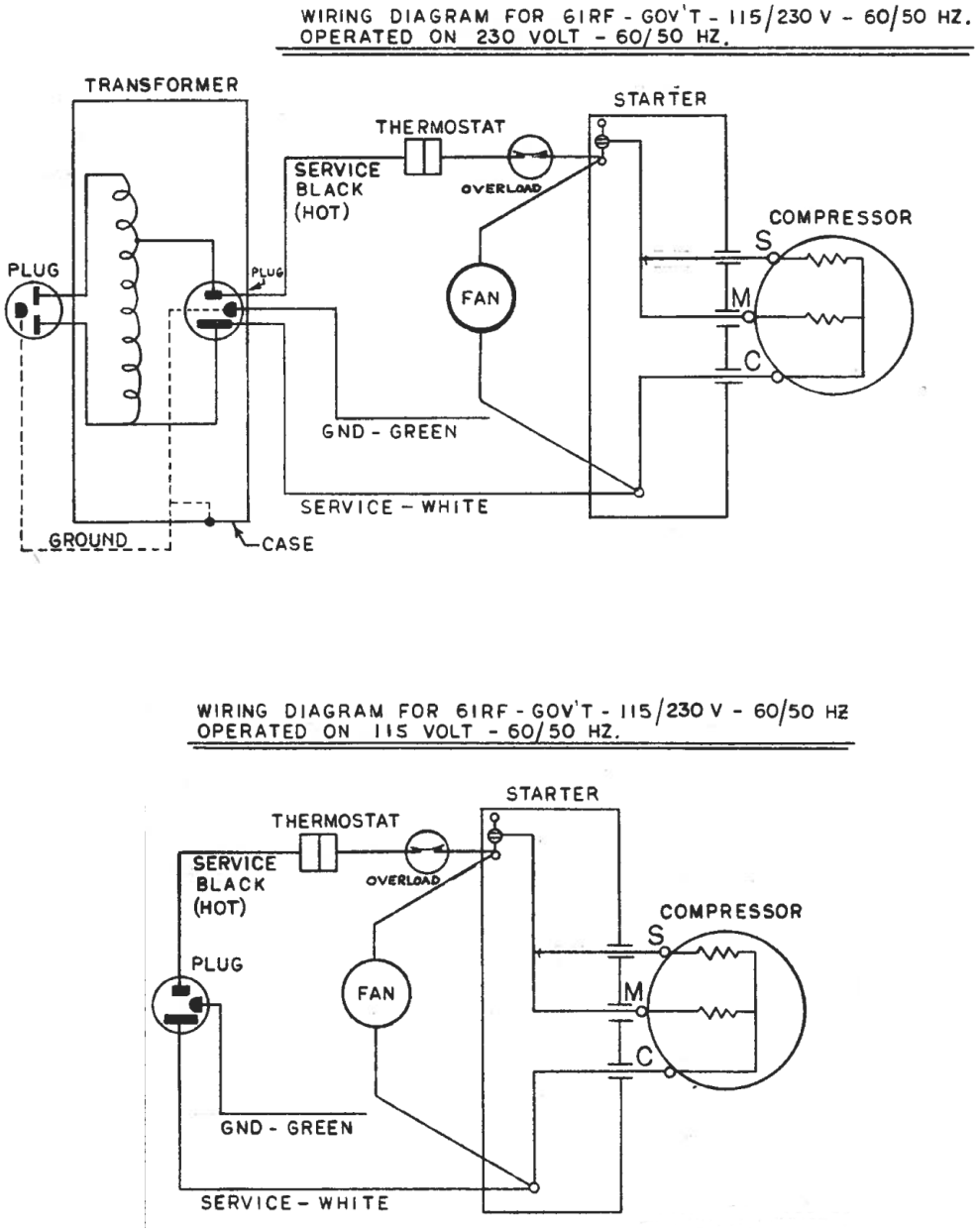


Fig. 5-1 Refrigerator Wiring Diagrams