



Installation and Operation Instructions Recessable Undercounter Refrigerators & Freezers

For Models: 5CAR & 5CAF



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P.O. Box 997 Richmond, IN 47375

Phone: (765) 962-2521 Fax: (765) 962-2493 Website: www.marvelscientific.com

PART OF AGAR FOODSERVICE GROUP

T H A N K Y O U

Thank you for purchasing a Marvel Scientific Undercounter Refrigerator or Freezer! This unit has passed our strict Quality Control Inspection and meets the high standards set by Marvel Scientific. You have made a quality investment that with proper maintenance will give you years of service.

Please read the following installation and maintenance instructions before installing or using your unit. If you have any questions, please call our Customer Service Department at (800) 962-2521.

IMPORTANT INFORMATION - PLEASE READ

- *Please read these instructions carefully before installing or using. If recommended procedures are not followed, warranty claims will be denied.*
- *Your Warranty Registration information is located on the next page of this manual. Please complete the card and submit it to Marvel Scientific within 10 days of installation. Failure to properly register equipment can void the warranty.*
- *Marvel Scientific reserves the right to change specifications and product design without notice. Such revisions do not entitle the buyer to corresponding changes, improvements, additions or replacements for previously purchased equipment.*

MARVEL COMMERCIAL REFRIGERATION PRODUCTS WARRANTY

Entire Product - One Year Parts and Labor Warranty.

MARVEL warrants to the original purchaser that it will supply all necessary parts and labor to repair or replace in the end user's establishment, any component which is found by an authorized representative of MARVEL to be defective in materials or workmanship, subject to the conditions and exclusions stated below, for the period of one year from date of purchase by the end user.

Refrigeration System-Additional Second Through Fifth Year Parts Only Warranty.

During the four years following expiration of the One Year Warranty, MARVEL warrants to the original purchaser that it will supply replacement parts for the hermetically sealed refrigeration systems which consists of the compressor, evaporator, condenser, drier, and connecting tubing that are found by an authorized representative of MARVEL to be defective in workmanship or materials. Other parts, labor costs, and freight charges are the responsibility of the end user.

If MARVEL is unable to repair or replace the defective product or component, MARVEL shall issue a credit to the buyer for all or part of the purchase price, as MARVEL shall determine. The repair, replacement or payment in the manner described above shall be the sole and exclusive remedy of buyer for a breach of this warranty.

Buyer must give written notice of any alleged defect in the product to MARVEL within 30 days after discovery of the defect by buyer. If notice is not given within such period, any claim for breach of warranty shall be conclusively deemed to have been waived, and MARVEL shall not be liable under these warranties. MARVEL or its agents shall be entitled to examine the product. MARVEL shall have the option of requiring the return of the defective component, transportation prepaid, to establish the claim. The acceptance by MARVEL of any component returned shall not be deemed an admission that the product is defective or in breach of any warranty and, if MARVEL determines that the product is not defective, the component shall be reshipped to the buyer at buyer's expense. No component will be returned to MARVEL without its prior consent.

The above warranties do not cover:

- Shipping costs of replacement parts or returned defective parts.
- Customer education or instructions on how to use the refrigerator/freezer.
- Any content loss, or incidental or consequential damage or loss due to product failure.
- Removal or installation.

Nor do the above warranties cover failure of this product or its components due to:

- Transportation, damage sustained in transit or subsequent damages.
- Use in hostile environments or use for storage of contents hostile to the product.
- Improper installation, misuse, abuse, accident or alteration, use on wiring not conforming to electrical codes, low voltage, failure to provide necessary maintenance, or other unreasonable use.
- Parts or service not supplied or designated by MARVEL.

The above warranties also do not apply if:

- The original Bill of Sale, delivery date or serial number cannot be verified.
- The refrigeration equipment is not in the possession of the original end use purchaser.

THE WARRANTIES SET FORTH HEREIN ARE THE ONLY WARRANTIES EXTENDED BY MARVEL INDUSTRIES AND ARE IN LIEU OF ALL WARRANTIES, EXPRESS, IMPLIED, STATUTORY OR OTHERWISE. IN PARTICULAR, MARVEL MAKES NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

MARVEL'S liability for any defect in the product shall not exceed the purchase price of the product. MARVEL SHALL HAVE NO LIABILITY FOR CONSEQUENTIAL DAMAGES OF ANY KIND WHATSOEVER, INCLUDING, BUT NOT LIMITED TO, PERSONAL INJURY, PROPERTY DAMAGE, LOST PROFITS OR OTHER ECONOMIC INJURY DUE TO ANY DEFECT IN THE PRODUCT.

No person, firm or corporation is authorized to modify, expand or extend these warranties, to waive any of the limitations or exclusions, or to make any other warranty or assume any other obligation for MARVEL INDUSTRIES. These warranties apply only to products used in any of the fifty states of the United States and the District of Columbia.

To obtain performance of this warranty, report any defects to:

MARVEL INDUSTRIES
P.O. Box 997
Richmond, Indiana 47375-0997
Phone: (765) 962-2521 • Toll Free: (800) 962-2521

INSTALLATION INSTRUCTIONS

Proper installation is the first step to operation.

Receiving Shipment

All units are performance tested and thoroughly inspected prior to shipment. Upon leaving the factory, all units are in perfect condition. Upon receipt, examine the exterior of the shipment packaging for any signs of rough handling. If the cabinet is damaged, it should be noted on the delivery slip or bill of lading and signed. A claim must be filed immediately against the carrier indicating the extent and estimated cost of damage incurred.

Uncrating, Installing Adjustable Foot Levelers & Leveling

Tools Needed : 9/16" Box Wrench or Adjustable Wrench • Level • Wooden Blocks (or equivalent) • 4 Adjustable Foot Levelers

WARNING: Never lay your refrigerator or freezer down on either its back, front or sides. This allows compressor oil into the refrigerant lines which can damage the compressor at start-up. If the unit is laid down, it must be set upright for a minimum of 12 hours before starting the compressor. Failure to adhere to the above recommendation will void the warranty.

Uncrating

1. Remove and discard all cardboard crating, packaging material, tape and interior components.
2. Move cabinet as close to final location as possible before removing skid.
3. Remove the shipping skid by tipping the cabinet forward. Remove the shipping bolts with 9/16" box wrench while the cabinet is held in one direction. Repeat this procedure while the cabinet is held in the opposite direction.
4. Use extreme caution when removing the wooden skid, especially when the last bolt is removed. If not properly blocked, the skid will fall to the floor.

Installing Adjustable Foot Levelers

Once the uncrating process is complete, make sure the adjustable foot levelers are safely secured on the bottom of the cabinet for proper support and leveling purposes.

Utilize wooden blocks or equivalent to support the cabinet when placing adjustable foot levelers.



"Adjustable Foot Levelers"

Leveling

Cabinets must be leveled when installed. Failure to level your cabinet may result in doors not sealing, closing properly or condensate water not draining appropriately.

Locating Your New Undercounter Refrigerator or Freezer

Consider the following when selecting a cabinet location:

1. **Clearance** - Undercounter refrigerator or freezer cabinets do not require a clearance between the back of the cabinet and neighboring wall. The front grill is designed to guarantee sufficient air circulation to the condensing unit. However, it will improve the cabinet's efficiency if there is air flowing through the louvers of the rear grill that conceals the condensing unit.
2. **Floor Load** - The floor on which the cabinet will rest must be free of vibration and suitably strong enough to support the combined weights of the cabinet plus the maximum product load.
3. **Ventilation** - The air cooled, self-contained refrigeration system requires a sufficient amount of cool, clean air. Avoid placing the refrigerator or freezer cabinet near heat generating equipment such as ovens, heaters, etc., and out of direct sunlight. Avoid locating the self-contained refrigerator cabinet in an unheated room, or where the room temperature may be below 65°F.

Cabinet Cleaning

Prior to placing your new refrigerator or freezer and all shelves into operation, it is advisable that the interior be washed thoroughly with a mild, non-abrasive detergent and a chlorine free water solution. Rinse with clear water and a sanitizing solution. Allow cabinet to air dry.

Read "Periodic Maintenance" section for additional cleaning instructions.

Installing Shelves

All cabinets with shelves are supplied with pilasters and shelf clip supports. Shelves are easily installed by inserting the shelf support clips into the pilasters so they fit tightly. Align the shelf so the smaller fill wires run from front to rear and rest the shelf on the clips.

Electric Supply

Wiring should be done by a qualified electrician in accordance with local electrical codes. A properly wired refrigerator or freezer will assure proper operation. Electrical supply requirements are on the cabinet serial/data plate located on the upper left interior tank wall inside the cabinet. It is recommended that a direct, properly protected line of the proper size wire be installed from the main supply to your refrigerator or freezer. To assure that the correct voltage is being supplied, while the refrigerator or freezer is in operation take a voltage reading at the compressor-motor electrical connections, or as close to the compressor-motor as possible.

All refrigerator or freezer electrical systems are internally grounded.

Temperature Control

Temperature control should be set to maintain a temperature of 36°F (2.2°C) to 38°F (3.3°C) for refrigerators and 0°F (-17°C) to -5°F (-20.5°C) for freezers.

Installation Checklist

After the cabinet has been installed, leveled and cleaned as described, refer to the following checklist prior to start-up.

- Check for proper electrical hook-up.

- Check exposed refrigeration line connections for leaks. Make sure refrigeration lines are not dented, kinked or rubbing.

- Check condenser fan for freedom to rotate without striking any stationary members.

- Check that cabinet is level.

Product Load

After the refrigerator or freezer has been started and reaches the proper storage temperatures, items may be loaded. For

PERIODIC MAINTENANCE

Marvel Scientific recommends periodic interior and exterior cleaning as outlined. To maintain the stainless steel finish, keep cabinet clear of chlorine or chlorinated mixtures. Use non-abrasive cleaners that do not contain chlorine and a soft cloth or sponge. Below are examples of what can be used.

- **Vinegar** - Used to clean and polish stainless steel. Moisten soft cloth or sponge with undiluted white or cider vinegar and wipe clean.
- **Baking Soda** - Used for die-hard type stains. Mix in one tablespoon of baking soda per one pint of water for recommended solution.
- **Club Soda** - Used to remove streaks.

Exterior Cleaning

1. Clean surface with a sponge and cleaning solution.
2. Polish with a soft cloth, wiping with the grain of the metal.
3. Once a week wipe with a film cutting agent to maintain shine.

Interior Cleaning

1. Remove all items and shelves.
2. Discontinue power to refrigeration system by turning temperature control switch (or dial knob) all the way to the right.
3. Remove loose substances from interior floors, walls and ceiling.
4. Scrub all interior surfaces with warm detergent solution 100°F - 120°F (38°C - 39°C) and a nylon bristled brush.
5. Rinse with clear water and allow to air dry.
6. Reinstall shelves.
7. Restore power to refrigeration system by turning temperature control switch (or dial knob) to the right.
8. Return food to cabinet when temperature indicator reaches safety zone.

Condenser Maintenance

To keep your cabinet running efficiently, it is recommended that you clean the condenser once every three months.

1. Discontinue power to refrigeration system by turning temperature control switch all the way to the left.
2. Make sure all doors and food storage lids are closed.
3. Pull cabinet forward and remove power cord from receptacle.
4. For condensing unit access, remove front and rear grill.
5. Use a vacuum cleaner with proper brush attachments or compressed air to clean the condenser, compressor-motor and related parts.
6. After cleaning, reassemble cabinet and properly restore power.

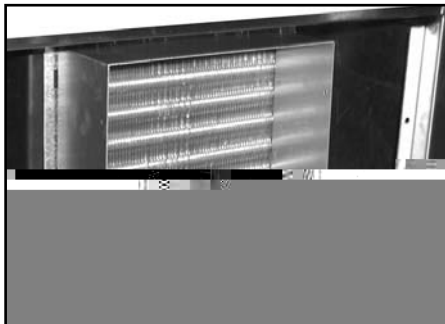


Figure 1
"Condenser Coil"

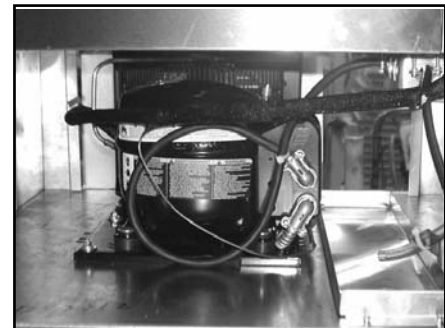


Figure 2
"Compressor"

WARNING: Failure to keep condenser clean may cause premature failure of motor-compressor which will NOT be covered by warranty.

Lubrication

Unless otherwise specified, all Marvel Scientific refrigerators or freezers are equipped with oilless type motors. The motor-compressor is a sealed unit and is constantly lubricated when in operation. The condenser and the evaporator motors are equipped with lifetime oiled bearings which never need to be oiled.

BEFORE CALLING SERVICE GUIDE FOR COMMON PROBLEMS

Caution: Disconnect Power Supply Prior to Attempting Any Service!

Problem	Possible Cause	Remedy
Cabinet not running.	Fuse blown or circuit breaker tripped.	Replace fuse or reset circuit breaker.
	Power cord unplugged.	Plug in cord.
	Main Power switch turned off	Turn power switch on.
	Improper Voltage supplied to cabinet (Voltage does not match Data Plate).	Correct supply voltage (Remove extension cords or other equipment on circuit, etc.)
	Thermostat set too high	Set thermostat to lower temperature.
	Cabinet in defrost cycle. (Freezer models)	Allow defrost cycle to finish.
Condensing Unit on Refrigerator or Freezer runs for prolonged period or continuously.	Excessive amount of warm product loaded in cabinet.	Allow adequate time for product to cool down.
	No product in cabinet.	Load cabinet with product.
	Prolonged door opening or door ajar.	Make sure door is closed when not in use. Avoid prolonged door openings.
	Door gasket not sealing properly.	Check gasket condition. Adjust door or replace gasket.
	Dirty Condenser coil.	Clean the condenser coil.
	Improper air flow around Condensing Unit.	Insure adequate air space, relocate away from heat generating equipment, direct sunlight, or direct path of air conditioning or heating ducts.
	Evaporator coil blocked with ice.	Turn unit off and allow coil to defrost. Make sure thermostat is not set too cold and that door gasket is sealing properly.
Refrigerator or Freezer cabinet temperature too high	Thermostat set too high.	Set thermostat to lower temperature (Refer to Users Manual).
	Poor air circulation in cabinet.	Re-arrange product to allow proper air circulation.
	Exterior Thermometer out of calibration.	Refer to Users Manual for calibration procedure.
	Excessive amount of warm product in cabinet.	Allow adequate time for product to cool down.
	Prolonged door openings or door(s) ajar.	Make sure door(s) are closed when not in use. Avoid prolonged door openings.
	Dirty condenser coil.	Clean the condenser coil.
	Insufficient clearance around cabinet or excessively high ambient temperature.	Insure adequate air space, relocate away from heat generating equipment (ovens, fryers, etc.), and out of direct sunlight.
	Evaporator coil blocked with ice.	Turn unit off and allow coil to defrost. Make sure thermostat is not set too cold. Also, check gasket condition.
Cabinet is noisy	Part(s) loose.	Locate and tighten loose part(s)
	Tubing Vibrating.	Insure tubing is free from contact with other tubing or components,.
Refrigerator is freezing product	Thermostat is set too low.	Set thermostat to higher temperature.
	Cabinet overloaded with product	Remove or rearrange product.
Refrigerator or Freezer Compressor will not start - hums and trips on overload protector.	Dirty Condenser coil.	Clean the condenser coil.
	Excessive heat generated from equipment nearby	Relocate cabinet, or adjacent heat generating equipment.
	Voltage to cabinet too high or too low.	Check and correct supply voltage.
Door won't close tight.	Cabinet is not level.	Level cabinet by adjusting legs or shimming casters.
	Door not seated properly in hinge.	Adjust door on hinges by lifting slightly, rotating and reseating.
Condensation on the face of cabinet.	Facia Heaters are turned OFF.	Turn Exterior Condensate Control Switch on Grill to "ON" position.
Digital thermometer	Cabinet not running or temperature too	

Replacement Parts

REFRIGERATION COMPONENTS:

50599901 COIL, EVAPORATOR (83E18)
50180701 ACCUMULATOR, SUCTION LINE 1/2" X 3/8"
50199001 CAPILLARY TUBING, .042" I.D. x 7' 8" (Refrigerator)
50793301 CAPILLARY TUBING, .036" I.D. x 7'
50730801 DRIER, FILTER
50792701 CONDENSING UNIT, 1/3 HP (Freezer)
50849801 CONDENSING UNIT, 1/4 HP (Refrigerator)
10724501 HEAT EXCHANGER ASSEMBLY, R134a (Refrigerator)
10744601 HEAT EXCHANGER ASSEMBLY, R404A (Freezer)
10536701 DRAIN PAN ASSEMBLY
50572801 DRAIN LINE, PVC

TEMPERATURE CONTROL:

50186301 REFRIGERATOR TEMPERATURE CONTROL
50317501 FREEZER TEMPERATURE CONTROL

ELECTRICAL COMPONENTS:

50182801 HEATER SAFETY THERMOSTAT (Freezer)
50599501 DEFROST TERMINATION / FAN DELAY THERMOSTAT (Freezer)
50606001 JUNCTION BLOCK, RECEPTACLE (Freezer)
50601202 HEATER, DEFROST (Freezer)
50197302 TIMER, 24 HOUR DEFROST (Freezer)
50639801 MOTOR, EVAPORATOR FAN 115V
50602601 BLADE, EVAPORATOR FAN BLADE 6"
44132301 FAN PANEL ASSEMBLY (Complete)
04060301 BRACKET, FAN MOTOR MOUNTING
50625701 FAN GUARD, PLASTIC
50601001 HEATER WIRE, DOOR FRAME (Refrigerator)
50601002 HEATER WIRE, DOOR FRAME (Freezer)
50584101 CORD & PLUG 15 AMP

CABINET HARDWARE:

50273101 HINGE, DOOR PIECE
50273201 HINGE, FASCIA PIECE
50273401 HINGE COVER
50273501 HINGE CAP
50343401 HINGE SHIM (Fascia)
50551801 HINGE PIN
55104001 HINGE ASSEMBLY, COMPLETE
50590102 FOOT, ADJUSTABLE LEVELER (4 per cabinet)
50022501 CLIP, SHELF SUPPORT (4 per shelf)
50600002 SHELF, EPOXY COATED
03221102 PILASTER, SHELVING

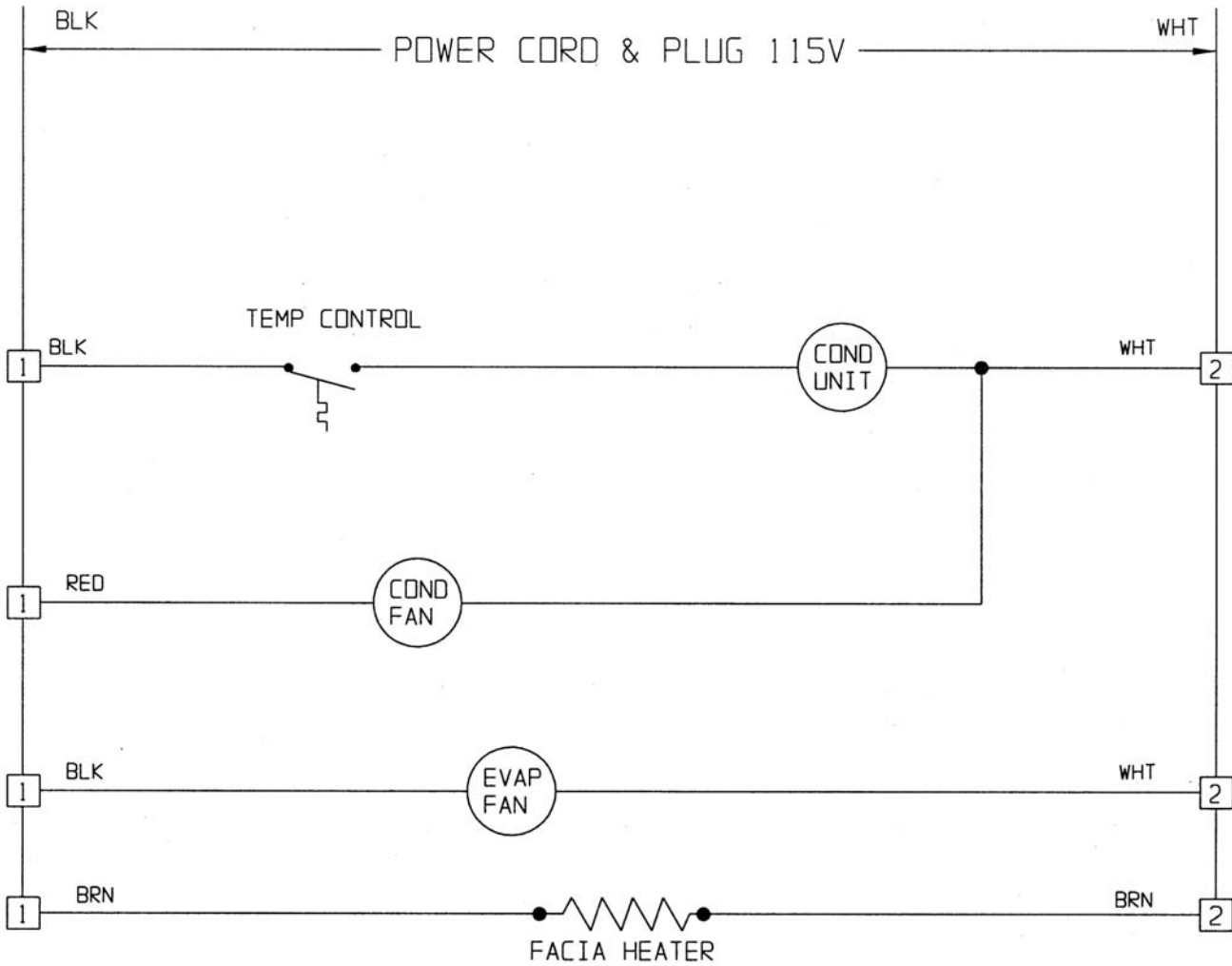
DOORS AND COMPONENTS:

55114003 DOOR ASSEMBLY, LEFT HINGED
55114004 DOOR ASSEMBLY, RIGHT HINGED
50596905 GASKET, DOOR
05091502 LINER, S/S INNER DOOR
50599803 RETAINER, TOP & BOTTOM DOOR GASKET
50599804 RETAINER, SIDE DOOR GASKET
50651102 HANDLE, DOOR

MISCELLANEOUS:

50622601 TRIM STRIP, TOP & BOTTOM
50622701 TRIM STRIP, SIDE
10537701 GRILL, ASSEMBLY, FRONT AIR

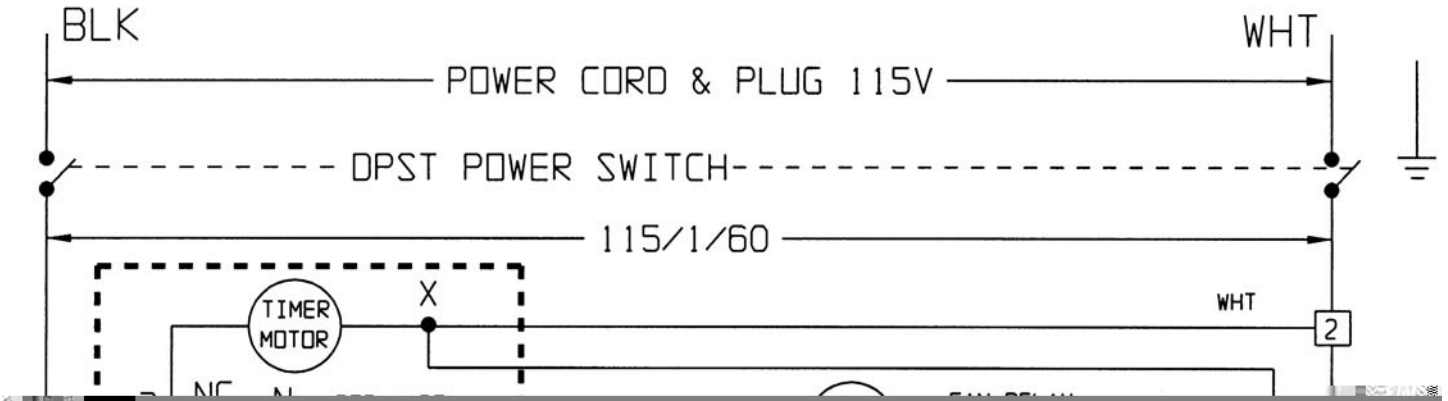
5CAR Wiring Diagram 115V/60HZ/1Ph



 REPRESENTS CONNECTION AT TERMINAL BLOCK

5CAF Wiring Diagram

115V/60HZ/1Ph





Marvel Scientific
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