



# Model 1783 Owner's Manual

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# Model 1783

## GENERAL INFORMATION

### INSTALLATION TOOLS REQUIRED

A 3/16 inch hex wrench for tightening the 2 securing set screws on the battery cable connection terminal blocks to the left of the fan air-intake port. These blocks mate with the straight ends of the 4ft battery cables.

The 1783 is a high-capacity backup power source specifically intended for use with 115V pumps ***within an environment not exceeding 45C/113F ambient temperature.***

The 1783 is designed to operate with an external battery bank whose nominal terminal **voltage is 24V**, and whose single or combined Amp-Hour (Ah). rating does **not exceed 250 Ah**. The continuous load on the 1783 should not exceed **15 amps** running with a maximum **45 amps** momentary startup surge.

A full recharge will take approximately 16 hours for a 24V battery bank rated 100 Ah. The 1783 will maintain batteries at full charge while electricity is available. *See page 13 of this manual to learn more about the charger function indicators.*

### BATTERY TYPE

Only batteries conforming to Battery Council International (BCI) **group size 31 or larger** are recommended, up to a maximum total capacity of 250Ah. **INSTALL ONLY** deep cycle batteries. (wet cell or AGM type) The marine-variety is acceptable. **DO NOT use car batteries.**

### BATTERY BOX

Your selected batteries should be installed in a high-quality plastic or nylon battery box that comes with a lid that is designed for said box. They are commonly available at the place of battery purchase.

### BATTERY CABLES

Included with the 1783 are three battery cables: two 4ft cables, one RED and one BLACK, for connecting the batteries to the 1783, and one RED 1ft cable for bridging between the two batteries. **They are designed specifically for use with the 1783, and are the only approved cables to use with the 1783.** On the two 4ft cables, the ends with straight blade terminals mate with the

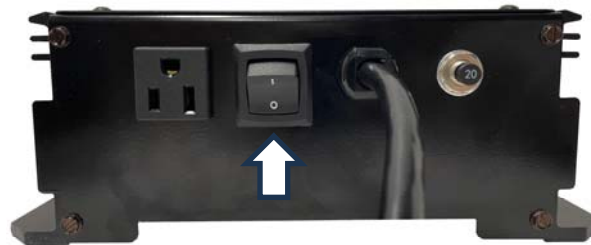
battery cable connectors on the 1783 (RED cable to RED connector, BLACK cable to BLACK connector), while the other ends, as well as the 1ft bridging cable, are fitted with ring terminals that fit over the bolt posts of most batteries.

## QUICK INSTALLATION

**The 1783 is designed to operate within an environment that does not exceed an ambient temperature of 45C/113F**

- a) Install the 1783 in an elevated location free of dripping or pooling water. It is recommended that the unit be placed on a shelf or mounted to a wall. Do not install the 1783 beneath pipes that may sweat, or on surfaces prone to water condensation, leaks, or pooling water.
- b) Make sure the ON/OFF switch is in the OFF position (Figure #1) and that the 1783 power cord is not plugged into an AC outlet.

Figure 1



- c) Place the deep cycle batteries into their protective boxes, and position them so that they can be connected to the 1783 using the provided battery cables. It is recommended to keep your batteries sealed inside their boxes and away from any drips or leaks to prevent corrosion on their terminals. Place your batteries at least 3ft away from the 1783, and away from any potential spark or flame. **Batteries, even in their boxes, should never be placed on top of one another, and should be placed on sturdy, dry surfaces only.**
- d) With your 1783 and batteries in place, connect the two 12V batteries into a 24V battery bank as shown below in **Figure #3**. Begin by connecting the RING end of the 4ft RED cable to the POSITIVE (marked with a +) battery terminal of Battery #1. Next, connect the RING end of the BLACK cable to the NEGATIVE (marked with a -) battery terminal of Battery #2.

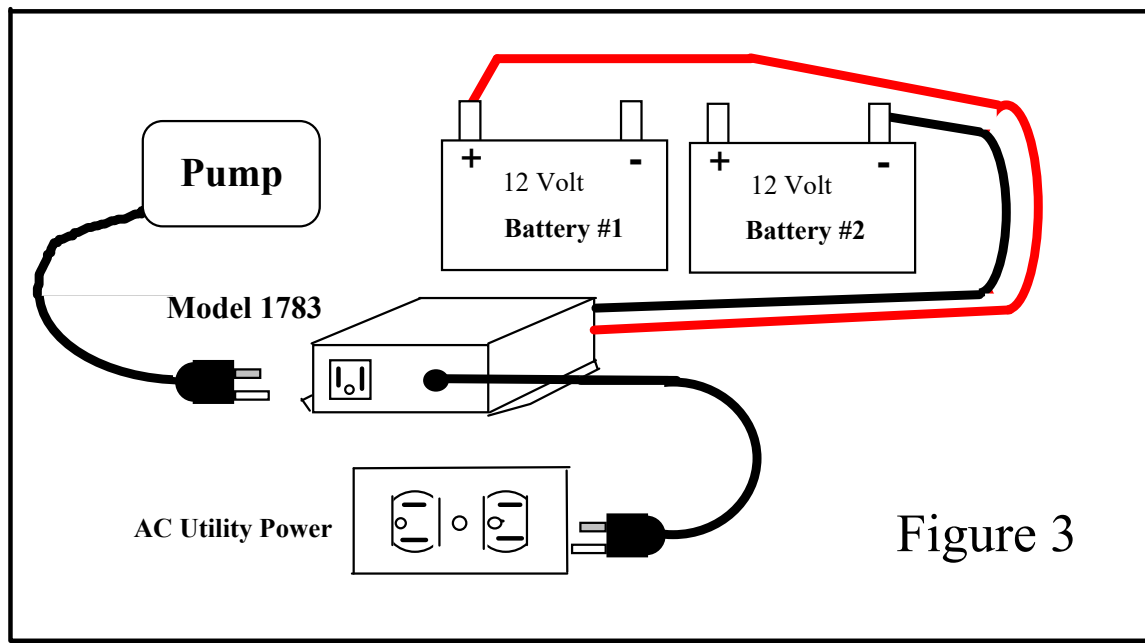
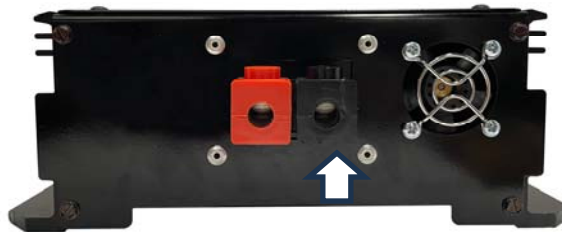


Figure 3

- e) Connect the STRAIGHT end of the BLACK battery cable into the BLACK connection block located as shown in Figure#2. Tighten the screw inside of the block until the cable is snugly secured, and cannot wiggle within the block.

Figure #2



- f) Connect the STRAIGHT end of the RED battery cable into the RED connection block located beside the black block. Tighten the screw inside of the block until the cable is snugly secured, and cannot wiggle within the block.
- g) Lastly, connect the 1ft bridging cable between the two batteries as shown in Figure #4. Secure one end of the cable to the NEGATIVE (-) terminal of Battery #1, being careful not to let the loose end touch Battery #2 or the POSITIVE (+) terminal of Battery #1.
- h) **WARNING: WHEN PERFORMING THIS FINAL STEP, THERE WILL BE A SPARK AT THE BATTERY TERMINAL WHICH IS CONNECTED LAST.** This is normal and expected. Firmly press the

loose end of the bridging cable onto the POSITIVE (+) terminal of Battery #2, avoiding, if possible, any threads on the battery terminal screw (so that the threads are not damaged by the spark). Secure the cable in place on the battery terminal.

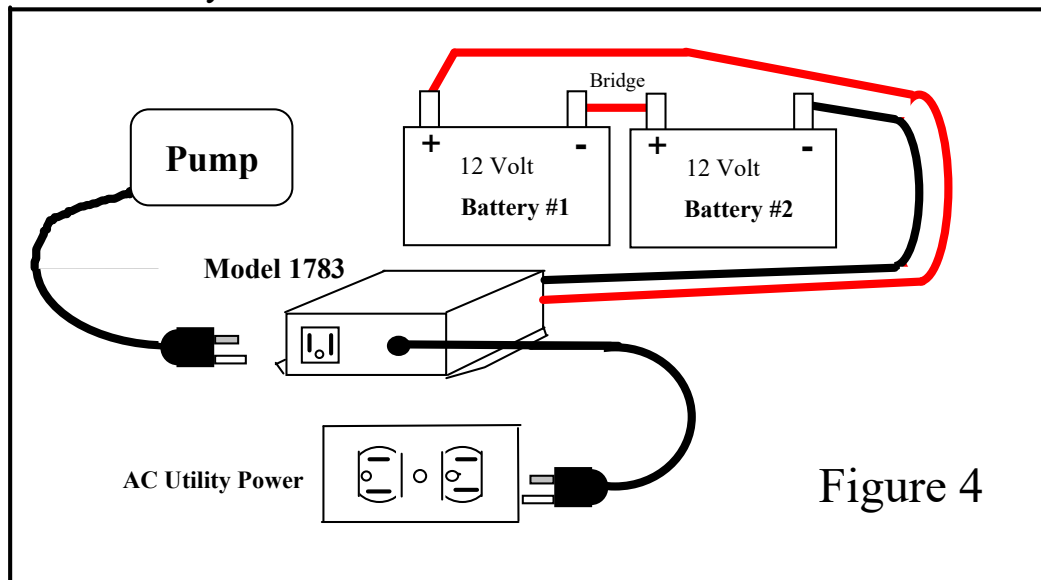


Figure 4

- i) Once all battery connections are made, cover the battery box(es) and secure the lid(s).
- j) Plug the pump into the 1783.
- k) Plug the 1783 into a wall outlet capable of providing 15A.
- l) Turn ON (flip the switch up) the ON/OFF switch located next to the 1783 power cord (see Figure #1). If the “Active When Lit” and “Charging When Flashing” LEDs are ON, then the installation was successful and is now complete.

## QUICK FUNCTIONAL TEST

To make sure the installation is good, it should be tested per the following:

- a) Plug the pump power cord into the 1783, making sure that its level switch or water level allows it to be ON. Ensure the switch on the 1783 is ON. In this state the pump should be pumping within 1-2 seconds.
- b) Disconnect the 1783's AC plug from the wall outlet. This simulates a power failure. After a switch-over delay of 2 seconds, the 1783 should continue to operate, and the blue “Backup Mode” light should be ON. If the blue light is ON but the pump is not operating, check that the pump's level switch has not shut off. If the blue light is OFF and the pump is not operating, review steps (a) through (k) in the previous section.

- c) To ensure that the 1783 is optimally used and properly connected, we recommend that its installation be made by individuals familiar with this user manual or by a licensed electrician. *Read these instructions completely and follow directions carefully.*

## HOW THE 1783 WORKS

When AC utility power is present, the 1783 charges a 24-volt battery bank and monitors the utility power line. At the instant that a power line disruption occurs, the 1783 begins to convert energy stored in the battery bank to AC power to operate the pump. When AC utility power is restored, the 1783 automatically switches the pump power source back to AC utility power, recharges the battery, and monitors the power line.

While the 1783 is a sophisticated electronic device, it should not be expected to perform beyond its limitations, and extreme care should be taken to ensure safe operation within specifications.

## IMPORTANT SAFETY INSTRUCTIONS

**THIS MANUAL CONTAINS IMPORTANT INSTRUCTIONS  
READ AND SAVE THESE INSTRUCTIONS**

**FAILURE TO FOLLOW SAFETY INSTRUCTIONS AND  
WARNINGS COULD RESULT IN *INJURY OR DEATH***

Read all the instructions before installing or operating the 1783.

**ALWAYS disconnect batteries and AC power source from the 1783 before storing, handling, or making any adjustments to the unit.**

## SAFETY WARNINGS

**WARNING:** ELECTRICAL SHOCK HAZARD

Use 1783 only as instructed in this manual. Any other use not recommended by the manufacturer may cause **fire, electric shock, or injury.**

**Do Not** sit or stand on the 1783 unit. **Keep children away!**

**Do Not** place objects on the 1783 unit or allow vents to become blocked.

**Do Not** smoke, use sparking electrical devices, or allow open flame near the unit while working with it.

**Do Not** install the 1783 in locations classified as hazardous per N.E.C. ANSI/NFPA 70 – 1984.

This unit has not been evaluated for use outdoors. **Never operate the 1783 outdoors.**

**Never operate** the 1783 with battery enclosure open.

**Never operate** the 1783 in a wet location.

**Never operate** the 1783 in a location where liquid or moisture will come in contact with, splash, or drip into unit.

**Never operate** the 1783 in an environment that exceeds 45C/113F.

**Do Not** insert or allow foreign objects to enter any ventilation or exhaust opening as this may cause electrical shock and/or fire hazard.

In the event of a short circuit, grounding reduces the risk of electrical shock by providing a safe path to ground. The 1783 must be properly grounded.

The 1783 is equipped with a cord having a ground wire with an appropriate three pronged plug. The plug must be used with an outlet that has been installed and grounded in accordance with all local electrical codes and ordinances. Where a two pronged wall outlet is encountered, it must be replaced with a three pronged outlet by a qualified Electrician to reduce the risk of shock, the third prong must NOT be cut off the plug. **DO NOT attempt to defeat this safety feature.**

Use 1783 only with adequate wiring that is up to electrical code specifications.

Connect to properly grounded outlets only.

**WARNING:** ELECTRICAL SHOCK HAZARD

The 1783 is capable of, and intended to generate electrical voltage when **unplugged** from a wall outlet or when AC power is shut off.

Because 1783 uses batteries to generate 115 volts of AC power, the power cord must be disconnected and the power switch (Figure #1) must be in the OFF position in order to neutralize the 1783. **Failure to disconnect the power cord and turn OFF the power switch could result in electrical shock sufficient to cause injury or death**

**FAILURE TO COMPLY WITH THE ABOVE WARNINGS COULD  
RESULT IN INJURY OR DEATH**



## BATTERY PRECAUTIONS

**WARNING:**  
**IMPORTANT SAFETY INSTRUCTIONS**  
**SAVE THESE INSTRUCTIONS.**

1. Servicing of batteries should be performed or supervised by persons knowledgeable about batteries and the required precautions. Keep unauthorized personnel away from batteries.
2. When replacing batteries, use only models conforming to Battery Council International (BCI) specifications for **Group size 31 or larger** Deep Cycle Marine batteries.

**Larger BCI group sizes and multiple-battery arrays may also be used to increase backup longevity.**

3. **CAUTION – Do Not** dispose of batteries in a fire. The batteries might explode.
4. **CAUTION – Do Not** open or mutilate the batteries. Released electrolyte is harmful to skin and eyes  
**CAUTION –** A battery can present a risk of electrical shock and high short circuit current. The following precautions should be observed when working on batteries.
  - A. Remove Watches, Rings, and other Jewelry and metal objects.
  - B. Use tools with insulated handles.
  - C. Do Not lay tools or metal objects on top of batteries.
  - D. Wear safety goggles and a face shield.
5. **CAUTION –** The electrolyte is a diluted sulfuric acid mixture that is *Corrosive and harmful to the skin and eyes.* It is also electrically conductive. Observe the following rules when working with the electrolyte solution.
  - A. Wear full eye protection and clothing.
  - B. If electrolyte comes in contact with the skin, wash it off immediately.
  - C. If electrolyte comes in contact with the eyes, flush thoroughly with water and seek medical attention immediately.
6. **CAUTION –** Lead acid batteries can present a risk of fire and explosion because they generate hydrogen gases. The following precautions must be followed.

- A. **Do Not** smoke when near batteries.
- B. **Do Not** cause sparks or allow open flame in the battery area.
- C. **Discharge static electricity** from your body and clothing before touching batteries by first touching a grounded surface.

**7. See Battery Manufacturers' installation manual for additional safety and maintenance instructions.**

#### BATTERY BOX

Your selected battery should be stored in a high-quality plastic or nylon battery box with a lid that is designed for this purpose.

#### INSTALLATION LOCATION

- In a typical installation, the 1783 should be mounted on the wall in accordance with all applicable local electrical codes.
- It should be in close proximity to a grounded AC outlet and the battery box (not closer than 3 feet).

#### VENTILATION

- **Do Not** block either the fan or the exit air ports of the 1783. Allow at least 2 inches of air clearance on all sides. Any room in which the 1783 is mounted should have adequate ventilation.

**WARNING! The 1783 has several components with electrical contacts that switch electrical currents. Opening or closing any of these electrical contacts can produce a spark that could ignite an explosive air mixture. To prevent fire or explosion, do not install the 1783 in any area which might contain flammable liquids or gases. Maintain a 3 foot distance between 1783 and the battery box.**

- 1783 produces a potentially dangerous and hazardous electrical current even during a power outage. It is safe when installed and used properly.
- **Keep children away.**

## MAKING CONNECTIONS

After installing the 1783 onto a wall or sturdy, elevated surface, follow these steps.

- Make sure the ON/OFF switch is in the OFF position.
- Connect the Red battery cable to the Red (Positive) + terminal of the 1783.
- Connect the Black battery cable to the Black (Negative) – terminal of the 1783.

**WARNING! DO NOT REVERSE THESE CONNECTIONS. DAMAGE TO THE APPLIANCE 1783 WILL OCCUR AND YOU WILL VOID THE WARRANTY.**

**WARNING! A spark will occur when connecting the bridge cable (third short cable connecting the batteries-see figure #4). This is normal. An explosion hazard may exist if large amounts of flammable liquid or gas is present. INSTALL AND OPERATE 1783 IN A WELL VENTILATED AREA ONLY.**

- Plug the pump into the 1783's AC output receptacle.
- Plug the 1783 into a 120 volt AC outlet.
- Turn ON/OFF switch to the ON position.

Correct installation will result in the “Active When Lit” and “Charging When Flashing” LEDs to be lit.

## INSTALLATION TEST

- After making the connections as instructed above, run the pump to ensure its operation under normal conditions.
- Remove power cord from the AC wall outlet to simulate a power failure. The 1783 will enter Backup Mode (as indicated by the blue “Backup Mode” LED), then power the pump after a 2 second switch-over delay.
- If it is not possible during the test to keep the pump active while removing the 1783 power cord from the AC wall outlet, the 1783 will enter Sleep Mode instead. The 1783 will power the pump once it is reactivated.
- Plug the 1783 AC power cord back into the wall outlet. Cycle the pump. Note that after 2 seconds the “Charging When Flashing” LED has lit. This is normal and is an indication that the 1783 has recognized the return of normal AC power. The 1783 is no longer in Backup Mode, and has returned to its normal state of charging the battery and providing line power.

## CHANGING THE BATTERY

If for any reason the battery needs changing, it is important to follow the steps below, in the order shown to avoid damage to the 1783 unit.

1. Turn the ON/OFF switch on the 1783 to the OFF position.
2. Unplug the input power cord of the 1783 from the wall AC outlet.
3. Unplug the input power cord of the pump from the AC outlet on the 1783.
4. Disconnect the battery cables from the battery. **CAUTION: MAKE SURE THAT THE 1783 IS DISCONNECTED FROM AC POWER AND THAT THE ON/OFF SWITCH IS IN THE OFF POSITION (Figure #1) BEFORE DISCONNECTING BATTERY CABLES.**

Replace the battery. Reconnect the 1783 following the steps (d) through (i) in the section “QUICK INSTALLATION” (on pages 4, 5, and 6).

## MAINTENANCE

Once properly connected, the 1783 requires no maintenance. When AC power fails, it will automatically convert battery power to AC power for operation of the appliance. It will automatically recharge the battery when AC power returns. During all of these times and power transitions, the 1783 requires no manual adjustments.

However, the state of the battery health indicators should also be noted in the event that batteries may require replacement.

<b>SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.</b>
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## Charger Functions

The smart charging system in 1783 is microprocessor controlled to yield optimum charging rates and long battery life for a 24V battery bank. The battery monitor is located on the upper surface of the 1783 and appears as follows:



When the electrical source is restored after a power outage, allowing the resumption of the charging process, there is a 2 second delay during which the charge state of the battery is assessed. After this delay, the “Charging When Flashing” LED indicator will begin flashing, and will remain in this state until the batteries are fully charged. Full charge is indicated when the LED stays on continuously. The bottom LED will also be illuminated until the unit performs its routine battery condition test. The lower three LEDs inform the user regarding the remaining life of the battery.

## Battery Condition Tester

The 1783 has an integrated testing function to evaluate the condition of the connected battery’s health, and displays the result by 1 of 3 LEDs located in the center of the top panel, below the “Charging When Flashing” LED. When the 1783 is switched ON, the test is performed once upon startup, then again every 24 hours.

When performing a condition test after the initial test, the battery will be evaluated over a period of 30 minutes, after which its condition will be displayed as “Good Battery” with a green light, “Weak Battery” with a yellow light, or “Change Battery” with a red light accompanied by a periodic alarm every 2 minutes.

- **GREEN:** If the battery’s condition is shown as “Good,” then the battery is maintaining a healthy capacity and will work reliably.

- **YELLOW:** If the battery's condition is shown as "Weak," then the battery is no longer working at its new full capacity, and should be changed soon to ensure reliability.
- **RED:** If the battery's condition is shown as "Change," then the battery is too old or damaged, and should be replaced immediately. In this case, the battery is no longer rechargeable by the 1783.

### No Battery Connected or Bad Battery Connection

The 1783 requires a solid connection to the battery, and is equipped with a sensor that will notify of a faulty or missing connection to the battery by flashing the red "Change Battery" LED.

### Power Indicator

The "Output Status" indicators shown in Figure #5, which is located on the bottom edge of the cover on the 1783, has two components.

- When the "Active When Lit" LED is illuminated, it indicates that the 1783 is actively outputting power to the output receptacle. This LED function is applicable to both the standby (AC line power present) and Back Up (Battery Power) states.

Figure #5



This LED will be extinguished in the following situations:

- The 1783 is switched OFF
- The 1783 is in Sleep Mode
- The 1783 is in overload
- The circuit breaker on the 1783 is open. (Figure #1)
- A breaker in your utility panel is tripped, and the 1783 is in any of the above states.
- The battery has been depleted while operating in the Standby state.

- When the "Overload" LED is illuminated, excessive power has been or is being drawn from the unit.

## Sleep Mode

When the 1783 is in Backup Mode, it will conserve battery power by shutting off output power to the output receptacle (Figure #1). This happens during the following cases during Backup Mode:

- Nothing is plugged into the output receptacle
- Too small a load is plugged into the output receptacle
- The pump is switched OFF by a level switch

As soon as an adequate load is introduced, the 1783 will wake up, and restore output power. The blue “Backup Mode” LED will remain lit even during Sleep Mode.

## Fan Operation

The air-intake fan, located adjacent to battery connection terminals (Figure #2), is load controlled. To conserve power during battery backup conditions, it operates only when the 1783 is in Backup Mode, and is not in Sleep Mode. This assists in conserving available battery power during an outage.

During on line operation the fan operates during the battery charging cycle when the current draw is heaviest.

## How to Discern When 1783 is Operational in the Backup Mode

1783 is in the backup mode if the switch is in the ON position, and the blue “Backup Mode” LED is lit. This indicates that utility power to the 1783 has been severed in some way.

The “Backup Mode” LED will be lit even if the 1783 is currently Sleep Mode.

## How to Discern When 1783 is Operational in the Standby (Line Power) Mode



When the “Charging When Flashing” LED is ON, the “Backup Mode” LED is OFF, and the 1783 is plugged into an AC outlet, the unit is in standby mode. In this mode, the “Active When Lit” LED will be ON.

## Protection

The 1783 has no user accessible (replaceable) fuses. A 20A power line circuit breaker offers secondary protection during a possible failure.

## Audible Alarm

While operating in Backup Mode, if the battery is depleted below 21.6V, a high-pitched, audible alarm will sound from the 1783. This is meant to alert the user that the 1783 will soon shut off to prevent irreparable damage to the batteries.

If the audible alarm is found to be irritable, it may be turned off by switching the 1783 OFF. IT IS IMPORTANT TO TURN THIS SWITCH BACK ON WHEN THE UNIT’S OPERATION IS REINSTATED. This should take place when utility power comes back on, or after the battery has been replaced. FAILURE TO DO THIS WILL LEAVE THE USER WITHOUT BACK UP PROTECTION.

# Model 1783

Manufactured by  
SEC America Corp.  
S. Burlington, VT, 05403

## Manufacturer's Limited Warranty

1783 is warranted to be free from defects in material and workmanship and to perform within applicable specifications for a period of two years after original shipment. Obligation under this guarantee is limited to repairing or replacing any part thereof, except fuses and pilot lights. This warranty shall apply for a period of 2 years after purchase, provided the unit is returned to us with transportation charges prepaid, and prove after our examination to be defective.

The above limited warranties take the place of all other warranties, expressed or implied, and correction of such defects by replacement or repair shall constitute a fulfillment of all obligations under the terms of the warranties. The warranties do not cover any unit which has been damaged, either in transit, by misuse, accident or negligence. No warranty or representation by anyone other than this company shall be binding on us.

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