

# Automatic Battery Charger

## OWNERS MANUAL

### PLEASE SAVE THIS OWNERS MANUAL AND READ BEFORE EACH USE.

This manual will explain how to use the charger safely and effectively. Please read and follow these instructions and precautions carefully.

## 1. IMPORTANT SAFETY INSTRUCTIONS – SAVE THESE INSTRUCTIONS

- 1.1 **SAVE THESE INSTRUCTIONS** – This manual contains important safety and operating instructions.
- 1.2 Keep out of reach of children.
- 1.3 Do not expose the charger to rain or snow.
- 1.4 Use of an attachment not recommended or sold by the battery charger manufacturer may result in a risk of fire, electric shock or injury to persons.
- 1.5 To reduce the risk of damage to electric plug and cord, pull by the plug rather than the cord when disconnecting charger.
- 1.6 An extension cord should not be used unless absolutely necessary. Use of improper extension cord could result in a risk of fire and electric shock. If an extension cord must be used, make sure:
  - The pins on plug of extension cord are the same number, size and shape as those of plug on charger.
  - The extension cord is properly wired and in good electrical condition.
  - The wire size is large enough for AC ampere rating of charger as specified in section 8.
- 1.7 Do not operate charger with damaged cord or plug – replace the cord or plug immediately.
- 1.8 Do not operate charger if it has received a sharp blow, been dropped, or otherwise damaged in any way; take it to a qualified serviceman.
- 1.9 Do not disassemble charger; take it to a qualified serviceman when service or repair is required. Incorrect reassembly may result in a risk of electric shock or fire.
- 1.10 To reduce risk of electric shock, unplug charger from outlet before attempting any maintenance or cleaning. Turning off controls will not reduce this risk.
- 1.11 **WARNING: RISK OF EXPLOSIVE GASES.**
  - a. WORKING IN VICINITY OF A LEAD-ACID BATTERY IS DANGEROUS. BATTERIES GENERATE EXPLOSIVE GASES DURING NORMAL BATTERY OPERATION. FOR THIS REASON, IT IS OF UTMOST IMPORTANCE THAT YOU FOLLOW THE INSTRUCTIONS EACH TIME YOU USE THE CHARGER.
  - b. To reduce risk of battery explosion, follow these instructions and those published by battery manufacturer and manufacturer of any equipment you intend to use in vicinity of battery. Review cautionary markings on these products and on engine.

## 2. PERSONAL SAFETY PRECAUTIONS

- 2.1 Consider having someone close enough by to come to your aid when you work near a lead-acid battery.
- 2.2 Have plenty of fresh water and soap nearby in case battery acid contacts skin, clothing, or eyes.
- 2.3 Wear complete eye protection and clothing protection. Avoid touching eyes while working near battery.
- 2.4 If battery acid contacts skin or clothing, wash immediately with soap and water. If acid enters eye, immediately flood eye with running cold water for at least 10 minutes and get medical attention immediately.

*For the manual with Spanish,  
visit [www.batterychargers.com](http://www.batterychargers.com) or call 1-800-621-5485.*

*Para obtener el manual en español,  
visite [www.batterychargers.com](http://www.batterychargers.com) o llame al 1-800-621-5485.*

- 2.5 NEVER smoke or allow a spark or flame in vicinity of battery or engine.
- 2.6 Be extra cautious to reduce risk of dropping a metal tool onto battery. It might spark or short-circuit battery or other electrical part that may cause explosion.
- 2.7 Remove personal metal items such as rings, bracelets, necklaces, and watches when working with a lead-acid battery. A lead-acid battery can produce a short-circuit current high enough to weld a ring or the like to metal, causing a severe burn.
- 2.8 Use charger for charging 6V and 12V LEAD-ACID (STD, AGM or GEL) rechargeable batteries. It is not intended to supply power to a low voltage electrical system other than in a starter-motor application. Do not use battery charger for charging dry-cell batteries that are commonly used with home appliances. These batteries may burst and cause injury to persons and damage to property.
- 2.9 NEVER charge a frozen battery.

### 3. PREPARING TO CHARGE

- 3.1 If necessary to remove battery from vehicle to charge, always remove grounded terminal from battery first. Make sure all accessories in the vehicle are off, so as not to cause an arc.
- 3.2 Be sure area around battery is well ventilated while battery is being charged.
- 3.3 Clean battery terminals. Be careful to keep corrosion from coming in contact with eyes.
- 3.4 Add distilled water in each cell until battery acid reaches level specified by battery manufacturer. Do not overfill. For a battery without removable cell caps, such as valve regulated lead acid batteries, carefully follow manufacturer's recharging instructions.
- 3.5 Study all battery manufacturer's specific precautions while charging and recommended rates of charge.
- 3.6 Determine voltage of battery by referring to car owner's manual and make sure that output voltage selector switch is set at correct voltage. If charger has adjustable charge rate, charge battery initially at lowest rate.

### 4. CHARGER LOCATION

- 4.1 Locate charger as far away from battery as DC cables permit.
- 4.2 Never place charger directly above battery being charged; gases from battery will corrode and damage charger.
- 4.3 Never allow battery acid to drip on charger when reading electrolyte specific gravity or filling battery.
- 4.4 Do not operate charger in a closed-in area or restrict ventilation in any way.
- 4.5 Do not set a battery on top of charger.

### 5. DC CONNECTION PRECAUTIONS

- 5.1 Connect and disconnect DC output clips only after setting any charger switches to "off" position and removing AC cord from electric outlet. Never allow the clips of charger to touch each other. Clips may be energized and they may spark.
- 5.2 Attach clips to battery and chassis, as indicated in sections 6 and 7.

### 6. FOLLOW THESE STEPS WHEN BATTERY IS INSTALLED IN VEHICLE

**WARNING: A SPARK NEAR THE BATTERY MAY CAUSE A BATTERY EXPLOSION.  
TO REDUCE THE RISK OF A SPARK NEAR THE BATTERY:**

- 6.1 Position AC and DC cords to reduce risk of damage by hood, door, or moving engine part.
- 6.2 Stay clear of fan blades, belts, pulleys, and other parts that can cause injury to persons.
- 6.3 Check polarity of battery posts. POSITIVE (POS, P, +) battery post usually has larger diameter than NEGATIVE (NEG, N, -) post.
- 6.4 Determine which post of battery is grounded (connected) to the chassis. If negative post is grounded to chassis (as in most vehicles), see (6.5). If positive post is grounded to the chassis, see (6.6).

- 6.5 For negative-grounded vehicle, connect POSITIVE (RED) clip from battery charger to POSITIVE (POS, P, +) ungrounded post of battery. Connect NEGATIVE (BLACK) clip to vehicle chassis or engine block away from battery. Do not connect clip to carburetor, fuel lines, or sheet-metal body parts. Connect to a heavy gauge metal part of the frame or engine block.
- 6.6 For positive-grounded vehicle, connect NEGATIVE (BLACK) clip from battery charger to NEGATIVE (NEG, N, -) ungrounded post of battery. Connect POSITIVE (RED) clip to vehicle chassis or engine block away from battery. Do not connect clip to carburetor, fuel lines, or sheet-metal body parts. Connect to a heavy gauge metal part of the frame or engine block.
- 6.7 When disconnecting charger, turn switches to off, disconnect AC cord, remove clip from vehicle chassis, and then remove clip from battery terminal.
- 6.8 See *Operating Instructions* for length of charge information.

**7. FOLLOW THESE STEPS WHEN BATTERY IS OUTSIDE VEHICLE**

**WARNING: A SPARK NEAR THE BATTERY MAY CAUSE A BATTERY EXPLOSION.  
TO REDUCE THE RISK OF A SPARK NEAR THE BATTERY:**

- 7.1 Check polarity of battery posts. POSITIVE (POS, P, +) battery post usually has a larger diameter than NEGATIVE (NEG, N, -) post.
- 7.2 Attach at least a 24-inch-long 6-gauge (AWG) insulated battery cable to NEGATIVE (NEG, N, -) battery post.
- 7.3 Connect POSITIVE (RED) charger clip to POSITIVE (POS, P, +) post of battery.
- 7.4 Position yourself and free end of cable as far away from battery as possible – then connect NEGATIVE (BLACK) charger clip to free end of cable.
- 7.5 Do not face battery when making final connection.
- 7.6 When disconnecting charger, always do so in reverse sequence of connecting procedure and break first connection while as far away from battery as practical.
- 7.7 A marine (boat) battery must be removed and charged on shore. To charge it on board requires equipment specially designed for marine use.

**8. GROUNDING AND AC POWER CORD CONNECTIONS**

- 8.1 This battery charger is for use on a nominal 120 volt circuit and has a grounded plug. The charger must be grounded, to reduce the risk of electric shock. The plug must be plugged into an outlet that is properly installed and grounded in accordance with all local codes and ordinances. The plug pins must fit the receptacle (outlet). Do not use with an ungrounded system.
- 8.2 **DANGER:** Never alter the AC cord or plug provided – if it does not fit the outlet, have a proper grounded outlet installed by a qualified electrician. An improper connection can result in a risk of an electric shock or electrocution.

**NOTE:** Pursuant to Canadian Regulations, use of an adapter plug is not allowed in Canada. Use of an adapter plug in the United States is not recommended and should not be used.

**8.3 USING AN EXTENSION CORD**

The use of an extension cord is not recommended. If you must use an extension cord, follow these guidelines:

- Pins on plug of extension cord must be the same number, size, and shape as those of plug on charger.
- Ensure that the extension cord is properly wired and in good electrical condition.
- Wire size must be large enough for the AC ampere rating of charger, as specified:

Length of cord (feet)	25	50	100	150
AWG* size of cord	16	12	10	8

\*AWG-American Wire Gauge

## 9. ASSEMBLY INSTRUCTIONS

9.1 Remove all cord wraps and uncoil the cables prior to using the battery charger.

## 10. CONTROL PANEL

### ON/OFF SWITCH

Use this switch to select between the Charge/Maintain rate, Boost rate and the Engine Start mode.

**OFF** – When the switch is in this position (middle), the charger is turned off.

**BOOST or CHARGE/MAINTAIN** – When the switch is in this position, the Rate Selection button can be set to either the 2<>6A Charge/Maintain or the Boost setting.

**ENGINE START** – When the switch is in this position, the Engine Start LED will be on.

### DIGITAL DISPLAY

The Digital Display gives a digital indication of amperage, voltage or % of charge. If you manually stop the charging process (by pressing the START/STOP button), the display will show **OFF**.

**NOTE:** During charging, the display could go into sleep mode and will not show the amperage, percentage of charge or voltage of the battery. To turn the display back on, press the Display button. Keep pressing the display button to turn off the display and save energy.

### DISPLAY BUTTON

Use this button to set the function of the digital display to one of the following:

**Battery %** – The Digital Display shows an estimated charge percentage of the battery connected to the charger's battery clamps, when charging. When the starting battery voltage is below 8.0V, the battery percentage is not yet available and will show "----"

**Amps** – The display will show the approximate charging current.

**Voltage** – The Digital Display shows the voltage at the charger battery clamps, in DC volts.

### RATE SELECTION BUTTON

Use this button to select one of the following:

**2<>6A CHARGE/MAINTAIN** – For charging small and large batteries. **Not recommended for industrial applications.**

**BOOST** – For quickly adding energy to a severely discharged or large capacity battery.

**200A ENGINE START (12V)** – Provides 200 amps for cranking an engine with a weak or run-down battery. Always use in combination with a battery.

**150A ENGINE START (6V)** – Provides 150 amps for cranking an engine with a weak or run-down battery. Always use in combination with a battery.

### START/STOP BUTTON

Press to immediately begin charging your properly connected battery.

### LED INDICATORS

**CLAMPS REVERSED (red) LED flashing:** The connections are reversed.

**CHARGING (yellow/orange) LED lit:** The charger is charging the battery.

**CHARGED/MAINTAINING (green) LED lit:** The battery is fully charged and the charger is in maintain mode.

**NOTE:** See *Operating Instructions* for a complete description of the charger modes.

## BATTERY TYPE BUTTON

Use this button to select the type of battery.

**STD** – Used in cars, trucks and motorcycles, these batteries have vent caps and are often marked “low maintenance” or “maintenance-free”. This type of battery is designed to deliver quick bursts of energy (such as starting engines) and has a greater plate count. The plates are thinner and have somewhat different material composition. Standard batteries should not be used for deep-cycle applications.

**AGM** – The Absorbed Glass Mat construction allows the electrolyte to be suspended in close proximity with the plate’s active material. In theory, this enhances both the discharge and recharge efficiency. The AGM batteries are a variant of Sealed VRLA (valve regulated lead-acid) batteries. Popular uses include high-performance engine starting, power sports, deep-cycle, solar and storage batteries.

**GEL** – The electrolyte in a GEL cell has a silica additive that causes it to set up or stiffen. The recharge voltages on this type of cell are lower than those for other styles of lead-acid battery. This is probably the most sensitive cell in terms of adverse reactions to overvoltage charging. Gel batteries are best used in VERY DEEP cycle application and may last a bit longer in hot weather applications. If the wrong battery charger is used on a gel cell battery, poor performance and premature failure will result.

## 11. OPERATING INSTRUCTIONS

### **WARNING: A SPARK NEAR THE BATTERY MAY CAUSE AN EXPLOSION.**

**WARNING:** When the unit is in either the Boost/Charge or Engine Start mode, the clamps are energized and will spark if touched together.

### **CHARGING A BATTERY IN THE VEHICLE**

1. Turn off all the vehicle’s accessories.
2. Keep the hood open.
3. Clean the battery terminals.
4. Set the ON/OFF switch to the OFF position.
5. Lay the AC/DC cables away from any fan blades, belts, pulleys and other moving parts.
6. Connect the battery, following the precautions listed in sections 6 and 7.
7. Connect the charger to an electrical outlet.
8. With the charger plugged in and connected to the battery of the vehicle, set the ON/OFF switch to the Boost/ Charge/Maintain position.
9. Select the Charge/Maintain rate and the battery type.
10. Press the START/STOP button to begin charging.
11. When disconnecting the charger, set the switch to the OFF position, disconnect the charger from the AC power, remove the clamp from the vehicle chassis, and then remove the clamp from the battery terminal.

### **CHARGING A BATTERY OUTSIDE OF THE VEHICLE**

1. Place battery in a well-ventilated area.
2. Clean the battery terminals.
3. Set the ON/OFF switch to the OFF position.
4. Connect the battery, as described in section 7.
5. Connect the charger to an electrical outlet.
6. With the charger plugged in and connected to the battery, set the ON/OFF switch to the Boost/Charge/ Maintain position.
7. Select the Charge/Maintain rate and the battery type.
8. Press the START/STOP button to begin charging.
9. When disconnecting the charger, set the ON/OFF switch to the OFF position, disconnect the charger from the AC power, disconnect the negative clamp, and finally the positive clamp.
10. A marine (boat) battery must be removed and charged on shore.

## BOOST MODE

**NOTE:** The unit will automatically switch to Boost mode, depending on the voltage. To select the Charge/Maintain mode, press the Rate Selection button.

While in Boost mode, the display will show **BOOST ON**. If a bad battery is detected, **BAD BATTERY** will be shown on the display.

**NOTE:** Boost mode will remain energized until the START/STOP button is pressed or the main ON/OFF switch is set to the OFF position.

## CHARGE/MAINTAIN MODE

To select this mode, press the Rate Selection button until the green 2<6A Charge/Maintain LED lights. The display will show the charger voltage. To change the mode on the display, press the Display button. When the battery is fully charged, the green Charged/Maintaining LED will light. If charging cannot be completed, **BAD BATTERY** will be shown on the display. The battery may be bad; have it checked.

**NOTE:** If voltage of battery is under 12.8V, charger will automatically go into Boost mode to quickly add energy to the battery. To abort/skip the temporary Boost and force the charger into the Charge/Maintain mode, press the Rate Selection button again (while still boosting).

## USING THE ENGINE START FEATURE

Your battery charger can be used to jump start your car if the battery is low. Follow all safety instructions and precautions for charging your battery. Wear complete eye protection and protective clothing.

**WARNING:** Using the Engine Start feature **WITHOUT** a battery installed in the vehicle will damage the vehicle's electrical system.

**NOTE:** If you have charged the battery and it still will not start your car, do not use the Engine Start feature, or it could damage the vehicle's electrical system. Have the battery checked.

1. Set the switch to the OFF position.
2. With the charger unplugged from the AC outlet, connect the charger to the battery following the instructions given in the *Follow These Steps When Battery Is Installed In Vehicle* section.
3. Plug the charger AC power cord into the AC outlet.
4. With the charger plugged in and connected to the battery of the vehicle, set the ON/OFF switch to the Engine Start position and select either the 200A/12V or 150A/6V rate. Press START/STOP to activate. If the battery is properly connected, the display will show **ENGINE START ON** for the first 2 minutes and then the display will show **READY**. If display shows **0.0V**, check the battery connections.
5. When the display shows **READY**, crank the engine until it starts or 5 seconds pass. If the engine does not start, wait a few minutes before cranking again. This allows the charger and battery to cool down.  
**NOTE:** During extremely cold weather, or if the battery is under 2 volts, boost the battery for 5 minutes before cranking the engine.

**NOTE:** After 3 minutes in Engine Start mode, the charger will enter into a cool-down period of 180 seconds, to allow the charger and the battery to cool down.

6. If the engine fails to start, use the Boost rate for 5 minutes before attempting to crank the engine again.
7. After the engine starts, move the switch to the OFF position and unplug the AC power cord before disconnecting the battery clips from the vehicle.
8. Clean and store the charger in a dry location.

**NOTE:** If the engine does not start but never starts, there is not a problem with the starting system; there is a problem somewhere else with the vehicle. STOP cranking the engine until the other problem has been diagnosed and corrected.

## ABORTED CHARGE

If charging cannot be completed normally, charging will abort. When charging aborts, the charger's output is shut off, and the display will show **CHARGE ABORTED - BAD BATTERY**. Do not continue attempting to charge this battery. Have it checked or replaced.

## DESULFATION MODE

The display will show **BAD BATTERY** when a sulfated battery is detected, and the charger will go into desulfation mode. If the desulfation is not successful after 10 hours, the charger will go into abort mode and the display will show **CHARGE ABORTED - BAD BATTERY**.

## COMPLETION OF CHARGE

Charge completion is indicated by the Charged/Maintaining (green) LED. When lit, the charger has switched to the maintain mode of operation.

## MAINTAIN MODE (FLOAT MODE MONITORING)

When the Charged/Maintaining (green) LED is lit, the charger has started maintain mode. In this mode, the charger keeps the battery fully charged by delivering a small current when necessary. If the charger has to provide its maximum maintain current for a continuous 12 hour period, it will go into abort mode (see *Aborted Charge* section). This is usually caused by a drain on the battery or the battery could be bad. Make sure there are no loads on the battery. If there are, remove them. If there are none, have the battery checked or replaced.

## MAINTAINING A BATTERY

This unit charges and maintains 6 and 12 volt batteries, keeping them at full charge.

**NOTE:** The maintain mode technology allows you to safely charge and maintain a healthy battery for extended periods of time. However, problems with the battery, electrical problems in the vehicle, improper connections or other unanticipated conditions could cause excessive current draws. As such, occasionally monitoring your battery and the charging process is required.

## FAN OPERATION

It is normal for the fan to be on for a while after Engine Start operation to allow the charger to cool down. Keep the area near the charger clear of obstructions to allow the fan to operate efficiently.

## BATTERY CHARGING TIMES

APPLICATION	BATTERY SIZE	CHARGING TIME (Hours)			
		2A	6A	8A	10A
<b>POWERSPORTS</b> ↓	6Ah	6	2	1.75	1.5
	32Ah	15	5	4.5	4
<b>AUTOMOTIVE</b> ↓	300 CCA	12	4	3.5	3
	1000 CCA	30	10	8.5	7
<b>MARINE</b> ↑	50Ah	15	5	4.25	3.5
	105Ah	33	11	9.5	8

Times are based on a 50% discharged battery and may change, depending on age and condition of battery.

## 12. DISPLAY MESSAGES

**0.0V** – No battery is detected.

**CONNECT CLAMPS** (Voltage LED lit) – Plugged into the AC outlet without the clamps connected to a 6 or 12V battery.

**xx.xV** – Battery voltage is displayed.

**----** – Battery percentage is not yet available (starting voltage is below 8.0V).

**xx.xA** – Charging current is displayed.

**xxo/o** –Percentage of battery charge is displayed.

**WARNING - CLAMPS REVERSED** (red Reversed LED flashing) – Plugged into the AC outlet and the clamps are connected backwards to a battery. Scrolls until condition is corrected.

**ANALYZING BATTERY** (yellow/orange Charging LED lit) – The charger is checking the condition of the battery.

**BAD BATTERY** – A sulfated battery is detected.

**CHARGE ABORTED - BAD BATTERY** Circumstances that could cause an Abort situation during charging:

- The battery is severely sulfated or has a shorted cell and can't reach a full charge.
- The battery is too large or there is a bank of batteries and it doesn't reach full charge within a set time period.

Circumstances that could cause an Abort situation during maintaining:

- The battery is severely sulfated or has a weak cell and will not hold a charge.
- There is a large draw on the battery and the charger has to supply its maximum maintain current for a 12 hour period to keep the battery at full charge.

**CHARGING 6V – xxo/o** (yellow/orange Charging LED lit) – Plugged into the AC outlet and correctly connected to a discharged 6V battery.

**CHARGING 12V – xxo/o** (yellow/orange Charging LED lit) – Plugged into the AC outlet and correctly connected to a discharged 12V battery.

**BATTERY DISCONNECTED** – The charger's connection to the battery has been lost.

**FULLY CHARGED - AUTO MAINTAINING** (green Charged/Maintaining LED solid) – Plugged into the AC outlet and correctly connected to a fully charged 6 or 12V battery.

**BOOST ON** (yellow/orange Charging LED lit) – The charger is in Boost mode.

**ENGINE START ON** – Shows during the first 2 minutes of Engine Start mode.

**READY** (yellow/orange Charging LED lit) – Shows after 2 minutes in Engine Start mode. The charger is ready for Engine Start.

**COOL DOWN xxx SECONDS REMAINING** (yellow/orange Charging LED lit) – The charger is in a mandatory 3 minute (180 second) cool down state.

### 13. MAINTENANCE AND CARE

A minimal amount of care can keep your battery charger working properly for years.

- Clean the clamps each time you are finished charging. Wipe off any battery fluid that may have come in contact with the clamps to prevent corrosion.
- Occasionally cleaning the case of the charger with a soft cloth will keep the finish shiny and help prevent corrosion.
- Coil the input and output cords neatly when storing the charger. This will help prevent accidental damage to the cords and charger.
- Store the charger unplugged from the AC power outlet in an upright position.
- Store inside, in a cool, dry place. Do not store the clamps on the handle, clipped together, on or around metal, or clipped to the cables.

## 14. TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
The charger will not turn on when properly connected.	AC outlet is dead.	Check for open fuse or circuit breaker supplying AC outlet.
	Poor electrical connection.	Check power cord and extension cord for loose fitting plug.
	Battery is defective.	Have battery checked.
Battery clamps do not spark when touched together.	The charger is equipped with a START/STOP button. It will not supply current to the battery clamps until the START/STOP button is pressed.	No problem; this is a normal condition.
The battery is connected and the charger is plugged in, but is not charging.	The charger is in tester mode, not charge mode.	Press the START/STOP button to activate a mode.
I cannot select a 6V or 12V setting.	The charger is equipped with Auto Voltage Detection, which automatically detects the voltage and charges the battery.	No problem; this is normal.
No reading on the digital display.	Charger is not plugged in.	Plug the charger into an AC outlet.
	No power at the receptacle.	Check for open fuse or circuit breaker supplying AC outlet.
	The display is in sleep mode, during charging.	Press the Display button to turn the display back on.
Yellow/orange Charging LED is solid and the display shows <b>ANALYZING BATTERY</b> .	The charger needs to check the condition of the battery.	The charger has not completed the checking process. This process can last for up to 5 minutes, if the starting voltage is below 8.0V.
The display shows <b>BAD BATTERY</b> .	The battery is sulfated.	Have the battery checked, and replace, if necessary.
The display shows <b>CHARGE ABORTED - BAD BATTERY</b> .	The battery is sulfated and desulfation has failed.	Have the battery checked, and replace, if necessary.
	The battery is too large for the charger.	You need a charger with a higher amp rate.
The display shows <b>CONNECT CLAMPS</b> .	The clamps are not making a good connection.	Check for poor connection at battery and frame.

PROBLEM	POSSIBLE CAUSE	SOLUTION
Short or no start cycle when cranking engine.	No power at receptacle.	Check for open fuse or circuit breaker supplying AC outlet.
	AC cord and/or extension cord is loose.	Check power cord and extension cord for loose fitting plug.
	The clamps are not making a good connection.	Check for poor connection at battery and frame.
	Failure to wait 3 minutes between cranks.	Wait 3 minutes of rest time before the next crank.
	The battery may be severely discharged.	On a severely discharged battery, use the Boost mode for few minutes, to help assist in cranking.
	The battery is drawing more than the engine start rate.	Crank time varies with the amount of current drawn. If cranking draws more than the engine start rate, crank time may be less than 5 seconds.
	The charger may be overheated.	The thermal protector may have tripped and needs a little longer to reset. Make sure the charger vents are not blocked. Wait and try again.

## 15. FCC INFORMATION

**WARNING:** Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class B Digital Device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

## 16. BEFORE RETURNING FOR REPAIRS

For REPAIRS OR RETURNS, visit [365rma.com](http://365rma.com)

*Visit [batterychargers.com](http://batterychargers.com) for Replacement Parts.*

## 17. LIMITED WARRANTY

For information on our one year limited warranty, please visit [batterychargers.com](http://batterychargers.com) or call 1-800-621-5485 to request a copy.

*Go to [batterychargers.com](http://batterychargers.com) to register your product online.*