

# BATTERY CHARGER/STARTER 2/10/50 AMP INSTRUCTIONS



The **Rockwood 2/10/50 Amp Battery Charger/Starter** is designed with the most current intelligent switching circuitry and technology to safely keep 12 volt automotive, marine, motorcycle, lawn equipment and powersports batteries at peak power and efficiency. It is fully automatic with reverse polarity protection and is switchable for use on standard Lead/Acid, AGM and Gel type batteries as well as offering a choice of 2 Amp or 10 Amp Charging. In addition, the Starting feature will deliver up to 50 Amps of engine starting power.

## SPECIFICATIONS

- Three modes: 12-volt/2 Amp, 12-volt/10 Amp and 12-volt/50 Amp engine start.
- Lead-Acid/Gel-cell and AGM (absorbed glass mat) battery type settings.
- Built-in meter Ammeter displays charge level in amps.
- Heavy-duty transformer and rectifier.
- Built-in Circuit Overload protection.
- Automatic Reverse Polarity detection (requires a minimum of 4 volts DC at the battery terminals)
- Heavy-duty cables and clamps are corrosion-resistant for better connections.
- Connect to side-or top-mount battery terminals.
- Ideal for charging or boosting during winter season when the starting performance of vehicle batteries is lowered by cold or extreme weather conditions.
- Minimum battery voltage for charger to operate = 2.5 volts.
- Input power requirements = 120 V AC, 60 Hz., 310 Watts.

## SAFETY INFORMATION



### READ INSTRUCTIONS!

Thoroughly read and understand manual before using the 20/10/50 Amp Battery Charger/Starter. Save for future reference.



### WARNING!

- Use the Battery Charger for charging 12-volt regular, deep-cycle, sealed Lead-Acid, Gel-cell and AGM (absorbed glass mat) batteries only. It is not intended to supply power to a low-voltage electrical system other than in an automotive application.
- Perform all charging procedures in a safe, dry, well-ventilated area. Batteries produce explosive gases during charging.
- Keep Battery Charger out of reach of children.
- Do not operate this Battery Charger in rain or snow, or allow it to be immersed in water or other liquid.
- Do not open the Battery Charger. There are no user-serviceable parts inside.



## EXPLOSION HAZARDS!

- Do not use this Battery Charger in the presence of flammable fumes or gases.
- Do not use Battery Charger for charging dry-cell batteries that are commonly used with home and portable appliances. These batteries may burst and cause injury to persons and damage to property.
- When lead-acid batteries are charging, they vent explosive hydrogen gas which can be ignited by sparks from electrical connections, matches, cigarette lighters, etc. It is important to read this manual before charging and follow the battery charging and engine starting instructions exactly each time you use this Battery Charger.
- Never charge a frozen battery, as it could explode.
- Do not expose battery to fire or intense heat, as it can explode.



## HEALTH HAZARDS!



- Always wear protective eyewear when using this product. Contact with battery acid can cause blindness and/or severe chemical burns.
- Keep clean, fresh water and soap nearby when working with batteries to clean skin, eyes and clothing which may have contacted battery acid.
- In case of battery acid contact:

**SKIN:** Wash skin thoroughly if battery acid comes in contact with skin, seek medical attention immediately.

**EYES:** Flush eyes with cool water for at least ten minutes. Seek medical attention immediately.



## ELECTRICAL HAZARDS!

- Never operate or store unit in damp or wet conditions.
- If an extension cord is required, a 25' cord is recommended not to exceed 50'. All extension cords must be UL approved, 3 conductor grounded, 18 AWG or greater.
- Always unplug Battery Charger from outlet before attaching or removing clamps to battery terminals.
- Remove all jewelry or metal objects that could cause short circuits. A 12-volt battery will produce a current high enough to weld rings, watches or other similar objects to metal, causing a severe burn.
- This Charger is designed to be used with 12-volt DC battery systems only. Do Not connect to a 6-volt or 24-volt battery system.
- Never touch Charger clamps together or to a common piece of metal. Sparking, explosion or damage to the Charger can result.



## GENERAL CAUTION

- Some late-model vehicle engine management systems may be adversely affected when using the engine starting function. Read the specific vehicle's owner's manual to confirm that external-starting assistance is allowable.
- Excessive engine cranking can overheat and damage a vehicle's starter motor. If an engine fails to start after a repeated number of attempts, discontinue this engine starting procedure and begin a diagnosis of the cause. An Automatic-Reset Overload Breaker is built-in to the Starting Feature circuitry which will automatically shut down the Starting Feature. After a cooling period, it will self-reset.

## BATTERY CHARGER OPERATION

- **Battery Charger Controls** - Battery Charger controls are located on the Front Control Panel. Understand their use before operating the Battery Charger.
- **Charge Rate Switch** - Move the switch to the appropriate setting for the battery you are charging:
- **2-Amp Trickle** - Use for charging small 12-volt batteries, such as those used in motorcycles, garden tractors, ATVs, jet skis and snowmobiles, at a charge rate of up to 2 amps. Refer to manufacturer's specifications on recommended charge rate. This setting can also be used to slowly charge larger batteries. When the battery is fully charged, the Battery Charger current output will taper off then the Battery Charger will automatically shut off. When the battery's charge level drops, the Battery Charger will automatically switch on again, maintaining a full charge.
- **10-Amp Quick Charge** - Use for charging larger 12-volt and automotive batteries at a charge rate of up to 10 Amps. When the battery is fully charged, the Battery Charger current output will taper off and the Battery Charger will automatically shut off. When the battery's charge drops, the Battery Charger will automatically switch on again, maintaining a full charge.
- **50-Amp Engine Start** - Use this feature for delivering up to 50 amps to a 12-volt battery to assist in engine starting.
- **Battery Type Switch** - Select the appropriate setting for the type of battery you are charging, Lead-Acid/Gel or AGM. Note: Most automotive batteries are Lead/Acid or Gel batteries. If unsure of the type of battery being charged, refer to the battery manufacturer for more information.
- **Red Power On/Green Full Charge LED Indicator** - When the battery charger is plugged into AC power and while charging, the red Power-on LED will be illuminated. When the battery has reached a full charge, the Red LED will change to Green, indicating the battery is fully charged.
- **Reverse Polarity Indicator** - The red LED will light when the Battery Charger is not properly connected to the battery. When lit, it will not allow the Battery Charger to begin charging. This feature will only function on batteries that have at least 2.5 volts of charge.
- **Ammeter/Battery Charge Level** - Indicates the rate in amps at which the battery is being charged.

- **Circuit Breaker** - This Battery Charger has an internal, self-resetting circuit breaker that protects the Battery Charger from temporary overloads. When it operates, it generates a “clicking” sound. The ammeter value will reduce to zero when the breaker is open. After a cool-down period, the breaker will automatically close and the ammeter will show a high rate of charge. If the breaker continues to cycle every few minutes, reduce charge rate or discontinue charging.
- **Pre-Charge Activation** - When starting to charge a battery, the current demand will depend on the battery’s percent of charge. The actual current will usually be lower than the current selected on the Battery Charger’s switch, unless the battery is severely discharged. As the battery charge level increases, the current demand level reduces.
- The **Ammeter** is intended to show how the charging process is proceeding; it should not be used to determine the level of battery charge – this should be done using a hydrometer or a voltmeter.

Typically, 12.6V DC is considered full charge for a 12-volt battery if the voltage is measured one hour after the Battery Charger is disconnected. During charging, a nominal 12-volt battery can reach a charge level of 13.6 volts or even higher. To record an accurate battery volt reading, wait at least one hour after removing charger.

## BATTERY CHARGER SET-UP

1. Place this Charger as far away from the battery being charged as the charging cables will permit.
2. When connecting charger clamps to a battery, rock the clamps back and forth on the terminals to ensure a secure connection and reduce the risk of sparking.
3. When using the Battery Charger close to the vehicle’s battery and engine, place the unit on a flat, stable surface, and keep all clamps, cords, clothing and body parts away from moving parts of the vehicle.
4. Refer to the specific vehicle battery charging procedure as found in a shop or owner’s manual.
5. Determine that vehicle charging system is 12 volts. If uncertain, refer to vehicle owners or shop manual.
6. Be sure area around battery is well-ventilated while battery is being charged.
7. If it is necessary to remove battery from vehicle to charge, or to clean terminals, always remove grounded terminal from battery first. Make sure all accessories in the vehicle are turned off to prevent arcing.
8. Clean battery and cable terminals to ensure good contact. Be careful to keep corrosion from coming in contact with eyes or skin. Corrosion build-up can be dissolved with a baking soda-water paste solution.
9. For a battery without cell caps, carefully follow manufacturer’s recharging instructions.
10. For batteries with removable vent caps, add distilled water in each cell until battery acid reaches level specified by battery manufacturer. This helps purge excessive gas from cells. Do not overfill.
11. Do not operate Battery Charger in a closed-in area or restrict ventilation. Marine batteries must be removed from enclosures and charged on shore.

# CHARGING BATTERY

1. Position AC and DC cords to reduce risk of damage by hood, doors, or moving engine parts.
2. Stay clear of fan blades, belts, pulleys and other moving/rotating parts.
3. Select the proper battery type switch position: Standard Lead/Acid AGM or Gel type.  
If unsure, consult a certified automotive technician or contact the battery manufacturer.
4. Check polarity of battery terminals:  
Positive = (+, POS, P)  
Negative = (-, NEG, N)  
**Note:** If polarity is reversed, the “Reverse Polarity” indicator LED will illuminate Red when the Battery Charger is plugged in.
5. Determine which terminal of battery is grounded (connected) to the chassis. If negative terminal is grounded to chassis (as in most vehicles), it is a negative ground system. If positive terminal is grounded to the chassis, it is a positive ground system.
6. **For negative-grounded vehicle**, connect positive (RED) charger clamp from Battery Charger to positive (+, POS, P) ungrounded terminal of battery. Connect negative (BLACK) charger clamp to vehicle chassis or engine block away from battery. Do not connect charger clamp to carburetor, fuel lines or sheet metal body parts. Connect only to heavy gauge metal part of the frame or engine block.
7. **For positive-grounded vehicle**, connect negative (BLACK) charger clamp from Battery Charger to negative (-, NEG, N) ungrounded terminal of battery. Connect positive (RED) charger clamp to vehicle chassis or engine block away from battery. Do not connect charger clamp to carburetor, fuel lines or sheet metal body parts. Connect only to a heavy gauge metal part of the frame or engine block.
8. Plug in the Battery Charger AC cord.
9. When disconnecting Battery Charger, disconnect AC cord, remove clamp from vehicle chassis and then remove clamp from battery terminal.

# CHARGING TIMES

- The Rockwood 2/10/50 Amp Battery Charger/Starter is fully automatic while charging 12-volt batteries. It automatically stops charging when the battery is fully charged.
- To estimate charging time for a discharged battery; divide the AH (Amp/Hour) rating of the battery by the charge rate selected. This is the number of hours required to recharge the battery. For example, a 50 AH (12-volt) battery is discharged to 10 volts. How long should it be charged at the 10-amp rate? Divide the 50 AH by 10 AH. The answer is approximately 5 hours.
- Always round up the charge time by 25% to ensure full charge. In most cases, battery recharge times will vary depending on the age and condition of the battery. Smaller batteries should be charged at the lower rate (2 amps) and add an extra hour to charge time.

# ENGINE STARTING

## Important Notes:

- The engine start function can supply up to 50 Amps of current during engine starting. This function is protected by an Automatic-Reset Overload Breaker, and there is a 5-second cranking limit at this output level.
  - Do not make battery and chassis connections with the Battery Charger connected to AC power.
1. Move the charge rate switch to “50 AMP ENGINE START.”
  2. Attach charger clamps to battery connections, per following procedure, ensuring a good connection.  
**Note:** If polarity is reversed, the “Reverse Polarity” indicator LED will illuminate red when the Battery Charger is plugged in.
  3. Check and confirm polarity of battery terminals:  
Positive = (+, POS, P)  
Negative = (–, NEG, N)
  4. Determine which terminal of battery is grounded (connected) to the chassis. If negative terminal is grounded to chassis (as in most vehicles), it is a negative ground system. If positive terminal is grounded to the chassis, it is a positive ground system.
  5. **For negative-grounded vehicle**, connect positive (RED) charger clamp from Battery Charger to positive (+, POS, P) ungrounded terminal of battery. Connect negative (BLACK) charger clamp to vehicle chassis or engine block away from battery. Do not connect charger clamp to carburetor, fuel lines or sheet metal body parts. Connect only to heavy gauge metal part of the frame or engine block.
  6. **For positive-grounded vehicle**, connect negative (BLACK) charger clamp from Battery Charger to negative (–, NEG, N) ungrounded terminal of battery. Connect positive (RED) charger clamp to vehicle chassis or engine block away from battery. Do not connect charger clamp to carburetor, fuel lines or sheet metal body parts.
  7. Connect only to a heavy gauge metal part of the frame or engine block. Plug Battery Charger power cord into a 110/120-volt, 60Hz AC power outlet. The red “Power On” LED will illuminate.  
**Note:** If polarity is reversed, the “Reverse Polarity” indicator LED will illuminate Red when the Battery Charger is plugged in. Disconnect the Battery Charger and check your connections.
  8. Begin cranking the engine in 3-second intervals until the engine starts with a rest time of 4 minutes between each cranking interval to allow the starter to cool. Cranking longer will trip the Automatic-Reset Overload Breaker. Do not crank the engine for more than 3 seconds at a time. If the engine fails to start, you may change the position of the charge rate switch and charge the battery without disconnecting the Battery Charger from AC power.
  9. Once the engine starts, disconnect the Battery Charger plug from the 110/120-volt AC power outlet.
  10. Disconnect the cables and clamps in the reverse order in which they were connected.  
Disconnect the first cable as far away from the battery as possible.

# TROUBLESHOOTING

- No LED illumination.
  - Check 120 VAC input plug connection.
- Red “Reverse Polarity” LED Illuminated = **DISCONNECT IMMEDIATELY**. This indicates an abnormal condition such as crossed polarity, an internally shorted battery or pinched cable. Do not reconnect until the source of the warning is found.
- No Ammeter Reading/Battery slow to charge or will not charge.
  - Unplug Battery Charger and check terminal condition and connections. Remove and clean battery terminals and cable ends.
  - Check Battery Charger Cable Clamp connections. Wiggle the clamp while holding onto terminal to allow clamp teeth to “bite” into terminal.
  - Check that the correct Charge Rate switch position has been selected for the battery being charged.
  - Check that the correct Battery Type switch position has been selected for the battery being charged.
  - Check that the Charge/Engine Start switch position is in the Charge position.
  - Battery is excessively cold. Charge rate will increase significantly above 32°F.
  - Ensure that sufficient time has been allowed for charging – refer to Charging Time section of these instructions.
  - Make sure the battery voltage is at least 2.5 volts. Battery may be fully discharged and will not accept charging.
  - Battery may be sulfated.
  - Battery may be expired and internally shorted.

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**If you have any questions about the use of this product, please contact**

The Eastwood Technical Assistance Service Department: 800.544.5118 >> email: [techhelp@eastwood.com](mailto:techhelp@eastwood.com)

PDF version of this manual is available online >> [eastwood.com/30462manual](http://eastwood.com/30462manual)

The Eastwood Company 263 Shoemaker Road, Pottstown, PA 19464, USA

US and Canada: 800.345.1178 Outside US: 610.718.8335 Fax: 610.323.6268 [eastwood.com](http://eastwood.com)