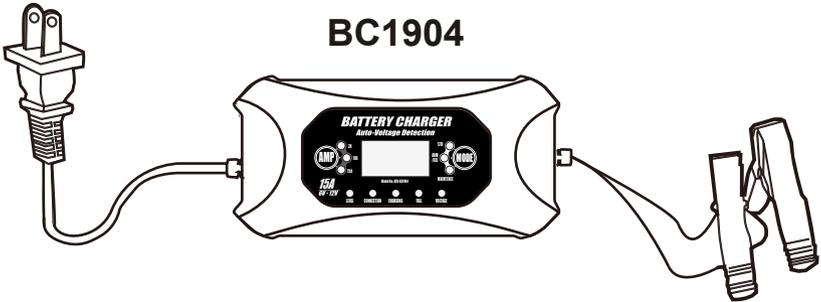
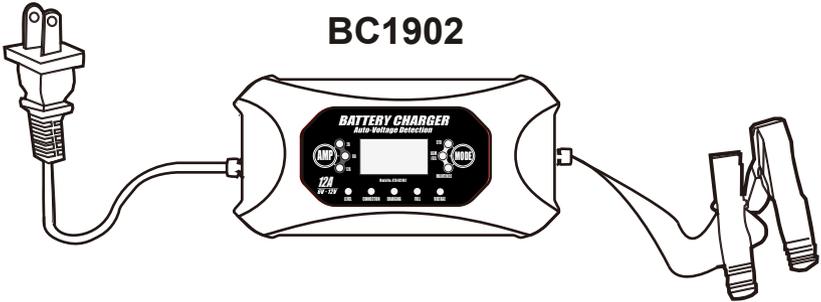
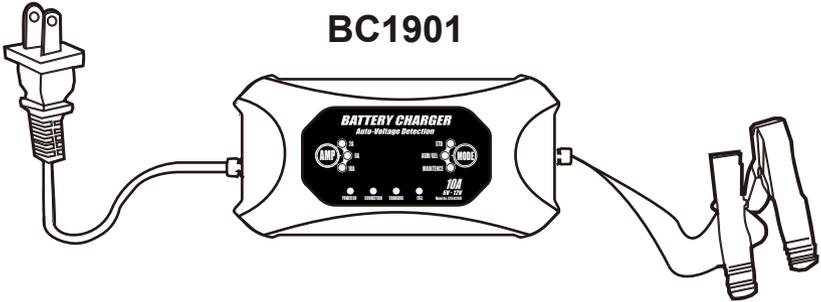


Automatic Battery Charger / Maintainer

Model: BC1901 / BC1902 / BC1904



PLEASE SAVE THIS OWNERS MANUAL AND READ BEFORE EACH USE. This manual will explain how to use the battery charger safely and effectively, Please read and follow these instructions and precautions carefully

Battery Charger / Maintainer

OWNERS MANUAL



Read manual before using product.



Do not expose to rain or snow.



Protect your eyes.



Never smoke or allow flames and sparks.



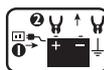
Wear protective clothing.



Keep out of reach of children



Risk of explosion.



Disconnect the main cable before connecting or disconnecting the clamps.



Risk of electric shock.



Use in a well-ventilated area.

1. IMPORTANT SAFETY INSTRUCTIONS – SAVE THESE INSTRUCTIONS.

This manual will show you how to use your charger safely and effectively. Please read, understand and follow these instructions and precautions carefully, as this manual contains important safety and operating instructions. The safety messages used throughout this manual contain a signal word, a message and an icon.

The signal word indicates the level of the hazard in a situation.

▲ DANGER Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury to the operator or bystanders.

▲ WARNING Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury to the operator or bystanders.

▲ IMPORTANT Indicates a potentially hazardous situation which, if not avoided, could result in damage to the equipment, vehicle or property.

▲ WARNING RISK OF ELECTRIC SHOCK OR FIRE.

- 1.1 To reduce the risk of damage to the electric plug or cord, pull by the plug rather than the cord when disconnecting the charger.
- 1.2 An extension cord should not be used unless absolutely necessary. Use of an improper extension cord could result in a risk of fire and electric shock. If an extension cord must be used, make sure:
 - That the pins on the plug of the extension cord are the same number, size and shape as those of the plug on the charger.
 - That the extension cord is properly wired and in good electrical condition.
 - That the wire size is large enough for the AC ampere rating of the charger as specified in section 7.3.
- 1.3 Do not operate the charger with a damaged cord or plug; have the cord or plug replaced immediately by a qualified service person.
- 1.4 Do not operate the charger if it has received a sharp blow, been dropped or otherwise damaged in any way; take it to a qualified service person.
- 1.5 Do not disassemble the charger; take it to a qualified service person when service or repair is required. Incorrect reassembly may result in a risk of fire or electric shock.

⚠️WARNING RISK OF EXPLOSIVE GASES.

- 1.6 WORKING IN THE 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.
- 1.7 To reduce the risk of a battery explosion, follow these instructions and those published by the battery manufacturer and the manufacturer of any equipment you intend to use in the vicinity of the battery. Review the cautionary markings on these products and on the engine.

2. PERSONAL PRECAUTIONS

⚠️WARNING RISK OF EXPLOSIVE GASES.

- 2.1 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.
- 2.2 Be extra cautious, to reduce the risk of dropping a metal tool onto the battery. It might spark or short-circuit the battery or other electrical part that may cause an explosion.
- 2.3 Use this charger for charging LEAD-ACID batteries only. It is not intended to supply power to a low voltage electrical system. Do not use this 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.
- 2.4 NEVER charge a frozen battery.
- 2.5 Consider having someone nearby to come to your aid when you work near a lead-acid battery. Have plenty of fresh water and soap nearby in case battery acid contacts your skin, clothing or eyes.
- 2.6 If battery acid contacts your skin or clothing, immediately wash the area with soap and water. If acid enters your eye, immediately flood the eye with cold running water for at least 10 minutes and get medical attention right away. If battery acid is accidentally swallowed, drink milk, the whites of eggs or water. DO NOT induce vomiting. Seek medical attention immediately.

3. PREPARING TO CHARGE

**⚠️WARNING RISK OF CONTACT WITH BATTERY ACID.
BATTERY ACID IS A HIGHLY CORROSIVE SULFURIC ACID.**

- 3.1 Remove all cord wraps and uncoil the cables prior to using the battery charger.
- 3.2 If it is necessary to remove the battery from the vehicle to charge it, always remove the grounded terminal first. Make sure all of the accessories in the vehicle are off to prevent arcing.
- 3.3 Clean the battery terminals before charging the battery. During cleaning, keep airborne corrosion from coming into contact with your eyes, nose and mouth. Use baking soda and water to neutralize the battery acid and help eliminate airborne corrosion. Do not touch your eyes, nose or mouth.
- 3.4 Add distilled water to each cell until the battery acid reaches the level specified by the battery manufacturer. Do not overfill. For a battery without removable cell caps, such as valve regulated lead-acid batteries (VRLA), carefully follow the manufacturer's recharging instructions.
- 3.5 Read, understand and follow all instructions for the charger, battery, vehicle and any equipment used near the battery and charger. Study all of the battery manufacturer's specific precautions while charging and recommended rates of charge.
- 3.6 Determine the voltage of the battery by referring to the vehicle owner's manual. This charger is equipped with Auto Voltage Detection of 6 or 12 volts.
- 3.7 Make sure that the charger cable clips make tight connections.

4. CHARGER LOCATION

⚠️WARNING RISK OF EXPLOSION AND CONTACT WITH BATTERY ACID.

- 4.1 Locate the charger as far away from the battery as the DC cables permit.
- 4.2 Never place the charger directly above the battery being charged; gases from the battery will corrode and damage the charger.
- 4.3 Do not set the battery on top of the charger.
- 4.4 Never allow battery acid to drip onto the charger when reading the electrolyte specific gravity or filling the battery.

5. 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:

- 5.1 Position the AC and DC cables to reduce the risk of damage by the hood, door and moving or hot engine parts. NOTE: If it is necessary to close the hood during the charging process, ensure that the hood does not touch the metal part of the battery clips or cut the insulation of the cables.
- 5.2 Stay clear of fan blades, belts, pulleys and other parts that can cause injury.
- 5.3 Check the polarity of the battery posts. The POSITIVE (POS, P, +) battery post usually has a larger diameter than the NEGATIVE (NEG, N, -) post.
- 5.4 Determine which post of the battery is grounded (connected) to the chassis.
- 5.5 For a negative-grounded vehicle, connect the POSITIVE (RED) clip from the battery charger to the POSITIVE (POS, P, +) ungrounded post of the battery. Connect the NEGATIVE (BLACK) clip to the vehicle chassis or engine block away from the battery. Do not connect the clip to the carburetor, fuel lines or sheet-metal body parts. Connect to a heavy gauge metal part of the frame or engine block.
- 5.6 For a positive-grounded vehicle, connect the NEGATIVE (BLACK) clip from the battery charger to the NEGATIVE (NEG, N, -) ungrounded post of the battery. Connect the POSITIVE (RED) clip to the vehicle chassis or engine block away from the battery. Do not connect the clip to the carburetor, fuel lines or sheet-metal body parts. Connect to a heavy gauge metal part of the frame or engine block.
- 5.7 Connect charger AC supply cord to electrical outlet.
- 5.8 When disconnecting the charger, disconnect the AC cord, remove the clip from the vehicle chassis and then remove the clip from the battery terminal.

6. 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:

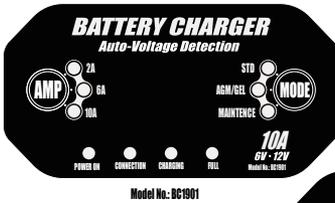
- 6.1 Check the polarity of the battery posts. The POSITIVE (POS, P, +) battery post usually has a larger diameter than the NEGATIVE (NEG, N, -) post.
- 6.2 Attach at least a 24-inch (61 cm) long 6-gauge (AWG) insulated battery cable to the NEGATIVE (NEG, N, -) battery post.
- 6.3 Connect the POSITIVE (RED) charger clip to the POSITIVE (POS, P, +) post of the battery.
- 6.4 Position yourself and the free end of the cable you previously attached to the NEGATIVE (NEG, N, -) battery post as far away from the battery as possible – then connect the NEGATIVE (BLACK) charger clip to the free end of the cable.
- 6.5 Do not face the battery when making the final connection.
- 6.6 Connect charger AC supply cord to electrical outlet.
- 6.7 When disconnecting the charger, always do so in the reverse order of the connecting procedure and break the first connection while as far away from the battery as practical.
- 6.8 A marine (boat) battery must be removed and charged on shore. To charge it onboard requires equipment specially designed for marine use.

7. GROUNDING AND AC POWER CORD CONNECTIONS

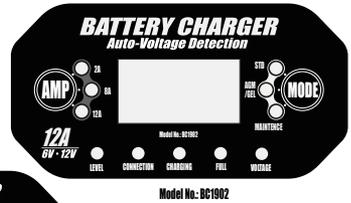
⚠️WARNING RISK OF ELECTRIC SHOCK OR FIRE.

- 7.1 This battery charger is for use on a nominal 230V, 50 Hz circuit. (See the warning label on the charger for the correct input voltage.) 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.
- 7.2 **⚠️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.

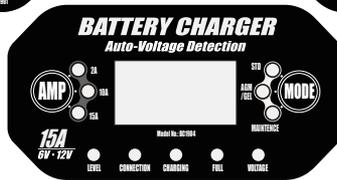
8. CONTROL PANEL



Model No. BC1901



Model No. BC1902



Model No. BC1904

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

Charge Rate Button

Use this button to set the maximum charge rate. Press the button until the desired charge rate is selected.

- 2A – Charges and maintains small batteries. Maintains large batteries.
- 6A 8A 10A – Charges small batteries, such as those commonly used in garden tractors, snowmobiles and motorcycles. Not for charging large batteries.
- 10A 12A 15A – Charges automotive, marine and light truck batteries.

NOTE: Once the charger has started charging the battery; if you press the Charge Rate button once, the output current is shut off. If you press the Charge Rate button again, the current will go back on at the same setting it was when it was turned off. For example: The charger is charging a battery at the fast charge rate setting. If you press the Charge Rate button, the output is turned off. If you press the Charge Rate button again, the output will turn back on at the fast charge rate setting.

Battery Type/Mode Button

Set the type of battery to be charged, or Desulfation Mode:

- STD** (Calcium) – Calcium batteries are acid batteries impregnated with calcium.
- AGM/GEL** (Absorbed Glass Mat/Gel) – AGM batteries have electrolyte absorbed in separators consisting of a sponge-like mass of matted glass fiber. Gel batteries contain gelled electrolytes. These batteries are sealed with valves and should not be opened.
- MAINTENANCE** (Desulfation Mode) – A special mode of operation designed for sulfated batteries.

NOTE: When charging a battery that is not marked, check the manual of the item which uses the battery for the correct battery type. Make sure the battery complies with the safety instructions in Section 2.3.

9. OPERATING INSTRUCTIONS

⚠WARNING This battery charger must be properly assembled in accordance with the assembly instructions before it is used.

Battery Information

This charger can be used with 6 and 12V batteries with rated capacities of 5 Ah to 200 Ah.

Charging

1. Ensure that all of the charger components are in place and in good working condition, for example, the plastic boots on the battery clips.
2. Connect the battery, following the precautions listed in sections 5 and 6.
3. Connect the AC power following the precautions listed in section 7.
4. Select the appropriate settings for your battery.

IMPORTANT This charger does not have an ON/OFF switch. ON and OFF are controlled by plugging in the charger to the AC wall outlet. The charger will not supply current to the battery clips until a battery is properly connected. The clips will not spark if touched together.

Battery Connection Indicator

If the charger does not detect a properly connected battery, the CONNECTED  LED will not light. Charging will not begin if the CONNECTED  LED is not on.

Automatic Charging Mode

When a charge rate is selected, the charger is set to perform an automatic charge. When an automatic charge is performed, the charger switches to the maintain mode automatically after the battery is charged.

Aborted Charge

If charging cannot be completed normally, charging will abort. When charging aborts, the charger's output is shut off and the CHARGING  LED will flash. In that state, the charger ignores all buttons. To reset after an aborted charge, unplug the charger from the AC outlet, wait a few moments and plug it back in.

Desulfation Mode

IMPORTANT Battery must be removed from the car when using this mode, or damage to the car's electrical system may result.

If the battery is left discharged for an extended period of time, it could become sulfated and not accept normal charge. If you select **MAINTENANCE**  , the charger will switch to a special mode of operation designed for sulfated batteries. If successful, the charger will fully desulfate and charge the battery, then the green LED will go on. If desulfation fails, the charger will abort and the CHARGING  (yellow) LED will blink.

Completion Of Charge

Charge completion is indicated by the FULL  LED. When lit, the charger has stopped charging and switched to the Maintain Mode of operation.

Maintain Mode

When the FULL  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. The voltage is maintained at a level determined by the battery type selected.

Maintaining a Battery (Charge Rate)

This charger has a maintenance setting that maintains both 6 and 12 volt batteries, keeping them at full charge. On this setting, it can charge small batteries and maintain both small and large batteries. We do not recommend charging a large battery on the maintenance setting.

NOTE: The maintain mode technology utilized in Schumacher's chargers 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 recommended.

Fan

The charger is designed to control its cooling fan for efficient operation. It is normal for the fan to start and stop when maintaining a fully charged battery. Keep the area near the charger free of obstructions to allow the fan to operate efficiently.

10. MAINTENANCE INSTRUCTIONS

- 10.1 After use and before performing maintenance, unplug and disconnect the battery charger (see sections 5, 6 and 7).
- 10.2 Use a dry cloth to wipe all battery corrosion and other dirt or oil from the battery clips, cords and the charger case.
- 10.3 Ensure that all of the charger components are in place and in good working condition, for example, the plastic boots on the battery clips.
- 10.4 Servicing does not require opening the unit, as there are no user-serviceable parts.
- 10.5 All other servicing should be performed by qualified service personnel.

11. MOVING AND STORAGE INSTRUCTIONS

- 11.1 Store the charger unplugged, in an upright position. The cord will still conduct electricity until it is unplugged from the outlet.
- 11.2 If the charger is moved around the shop or transported to another location, take care to avoid/prevent damage to the cords, clips and charger. Failure to do so could result in personal injury or property damage.

12. TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
CONNECTED LED is not on.	The battery is not connected correctly. Battery voltage is at zero volts.	Check for proper connection to the battery. Turn off everything in the car and try to connect again.
CHARGING LED is blinking.	Charger is in abort mode. Battery is sulfated. Battery is bad.	Unplug the charger from the AC and plug it back in. Use MAINTENANCE  (Desulfation Mode) for 8 hours. Have the battery checked.
FULL CHARGE LED is on, but battery is not fully charged.	Surface charge voltage is high. Battery voltage is very low and the charger detects it as 6V, not 12V.	Replace the battery. Unplug the charger from the AC and plug it back in.
All LEDs are lit in an erratic manner.	A button may have been pressed while the charger was being plugged in.	Unplug the charger from the AC and plug it back in, without touching the control board.

14. SPECIFICATIONS

BC1901

Input	210-240V~ 50/60 Hz, 1.8 A
Output	6/12V  2A, 6A, 10A
Weight	0.59kg
Reverse Polarity Protection	Yes
Operating Temperature	0°-40° C

BC1902

Input	210-240V~ 50/60 Hz, 2.1 A
Output	6/12V $\overline{\text{---}}$ 2A, 8A, 12A
Weight	0.6 kg
Reverse Polarity Protection	Yes
Operating Temperature	0°-40° C

BC1904

Input	210-240V~ 50/60 Hz, 2.3A
Output	6/12V $\overline{\text{---}}$ 2A, 10A, 15A
Weight	0.6 kg
Reverse Polarity Protection	Yes
Operating Temperature	0°-40° C