

–Save– Important Safety Instructions

Read Rules for Safe Operation and Instructions Carefully

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 each time before using your charger, you read this manual and follow the instructions exactly.

WARNING: Handling the cord on this product or cords associated with accessories sold with this product, will expose you to lead, a chemical known to the State of California to cause cancer and birth defects or other reproductive harm. **Wash hands after handling.**

A. GENERAL BATTERY SAFETY

1. Before you use your battery charger, be sure to read all instructions and cautions printed on:
 - Battery Charger
 - Battery
 - Vehicle or unit using battery
2. Use battery charger on LEAD ACID type rechargeable batteries only, such as used on race cars. Charger is not intended to supply power to low-voltage electrical system other than in an automotive application.

WARNING: 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.
3. Use only attachments recommended or sold by manufacturer. Use of non-recommended attachments may result in fire, electric shock, or injury.
4. When disconnecting the battery charger, pull by the plug not by the cord. Pulling on the cord may cause damage to cord or plug.
5. Locate battery power cord so it cannot be stepped on, tripped over, or subjected to damage or stress.
6. Do not operate charger with damaged cord or plug. Have cord replaced immediately.
7. Do not operate charger if it has received a sharp blow, been dropped, or otherwise damaged in any way. Take it to a qualified professional for inspection and repair.
8. Do not disassemble charger. Take it to a qualified professional when service or repair is required. Incorrect reassembly may result in electric shock or fire.
9. To reduce risk of electric shock, unplug charger from outlet before attempting any maintenance or cleaning.
10. Do not use an extension cord unless absolutely necessary. Use of an improper extension cord could result in fire or electric shock. If an extension cord must be used, make sure that:
 - Pins on plug of extension cord are the same number, size, and shape as those of plug on charger.
 - Extension cord is properly wired and in good electrical condition.
 - Wire size is large enough for AC ampere rating of charger, as specified below:

Length of cord (feet):	25	50	100	150
AWG size of cord:	18	16	12	10
11. Always charge battery in a well-ventilated area. **NEVER** operate in a closed-in or restricted area without adequate ventilation.

WARNING: Risk of explosive gas.
12. Locate charger as far away from battery as DC charger cables permit.
13. Do not expose charger to rain or snow.
14. **NEVER** charge a frozen battery. If battery fluid (electrolyte) is frozen, bring into a warm area to thaw before charging.
15. **NEVER** allow battery acid to drip on charger when reading specific gravity or filling battery.
16. **NEVER** set a battery on top of charger.
17. **NEVER** place charger directly above battery being charged. Gases from battery will corrode and damage charger.
18. **NEVER** touch the battery clamps together when the charger is energized.
19. **NEVER** crank engine with charger attached to battery.

WARNING: Battery chargers get hot during operation and must have proper ventilation. Air needs to flow around entire charger. Do not set on flammable items like carpeting, upholstery, paper, cardboard, etc. Will damage leather and melt plastic and rubber.



B. PERSONAL PRECAUTIONS AND SAFETY

1. **WARNING:** Wear complete eye protection and clothing protection when working with lead-acid batteries.
2. Make sure someone is within range of your voice or close enough to come to your aid when you work with or near a lead-acid battery.
3. Have plenty of fresh water and soap nearby for use if battery acid contacts skin, clothing, or eyes. If battery acid contacts skin or clothing, wash immediately with soap and water.
4. Avoid touching your eyes while working with a battery. Acid particles (corrosion) may get into your eyes! If acid enters your eye, immediately flood eye with running cold water for at least 10 minutes. Get medical attention immediately.
5. Remove all 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.
6. Take care not to drop a metal tool or other metal onto the battery. Metal may cause sparking or short circuit the battery or another electrical device. Sparking may cause an explosion.
7. Always operate battery charger in an open, well-ventilated area.
8. **NEVER** smoke or allow a spark or flame in the vicinity of the battery or engine. Batteries generate explosive gases!

C. PREPARING TO CHARGE

1. Make sure you have a 16 volt lead-acid battery.
2. Clean battery terminals. Take care to keep corrosion from coming in contact with your eyes.
3. If required, add distilled water in each cell until battery acid reaches levels specified by battery manufacturer. This helps purge excessive gas from cells. Do not overfill. For a battery without cell caps, carefully follow manufacturer's recharging instructions.
4. Study all battery manufacturer's specific precautions, such as removing or not removing cell caps while charging, and recommended rates of charge.
5. Be sure area around battery is well ventilated while battery is being charged. Gas can be forcefully blown away by using a piece of cardboard or other non-metallic material as a fan.
6. 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.
7. A marine (boat) battery must be removed and charged on shore. To charge it on board requires equipment specially designed for marine use.

D. LED DISPLAY

LED Indicators: The battery charger has three LED lights. They indicate different functions.

RED LED - A steady glow indicates POWER ON. Red LED flashes if there is a problem. (i.e. battery isn't charged within 8 hours).

YELLOW LED - A steady glow indicates proper connection to the battery. Flashing yellow indicates no connection or reverse connection.

GREEN LED - A steady glow indicates that Float-mode Monitoring is keeping your battery maintained at full charge.

As a safety precaution, after 24-hours of charging, the charger automatically switches OFF.

E. CIRCUIT BREAKER

This battery charger is equipped with a self-resetting circuit breaker. This device protects the charger from temporary overloads. In the event of an overload, the circuit breaker will trip open and after a short cooling off period will reset automatically. This process is known as cycling and can be recognized by an audible clicking sound.

NOTE: Clicking sound is normal. Wait until charger automatically resets itself.

CAUTION: Persistent clicking (more than 30 minutes) may indicate reverse connection or shorted battery cells. (See **TROUBLESHOOTING**)

F. OPERATING INSTRUCTIONS: CHARGING BATTERY OUT OF THE VEHICLE

When charging battery out of the vehicle, take care to determine the battery type. To reduce risk of a spark near battery, follow these steps when battery is outside vehicle. **WARNING:** A spark near battery may cause battery explosion. **WARNING:** When removing battery from vehicle or boat, disconnect grounded post first. When disconnecting, make sure all accessories are off, so as not to cause an arc. (**NOTE:** A marine (boat) battery must be removed and charged on shore. (To charge on board requires special equipment designed for marine use.) **WARNING:** When reinstalling battery, attach the ground post first.

1. Perform these steps with the ON/OFF switch in the OFF position.
2. Check polarity of battery posts. Battery case will be marked by each post: POSITIVE (POS, P, +) and NEGATIVE (NEG, N, -). **NOTE:** The positive battery post usually has a larger diameter than the negative post.
3. Attach a 24-inch long (or longer) 6-gauge (AWG) insulated battery cable to NEGATIVE (NEG, N, -) battery post. (Purchase cable separately.)
4. Connect POSITIVE (RED) charger clamp to POSITIVE (POS, P, +) battery post. Rock clamp back and forth to make good connection.
5. Position yourself and free end of 24-inch cable as far away from battery as possible. Then connect NEGATIVE (BLACK) charger clamp to free end of cable. **WARNING:** Do not face battery when making final connection. Rock clamp back and forth to make a good connection.

FIGURE 1 shows the connection.

6. Plug charger AC cord into 120 volt outlet.
7. Select ON position on ON/OFF switch.

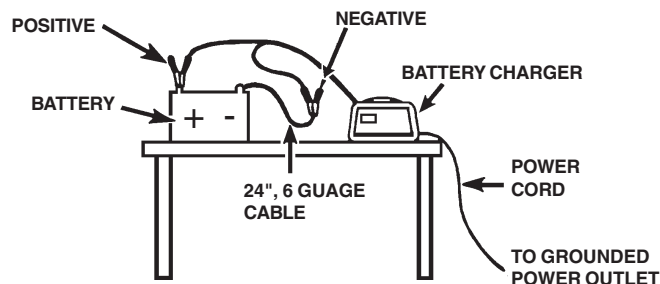


FIGURE 1: CONNECT NEGATIVE BATTERY CLAMP TO 24-INCH CABLE END

8. When battery is fully charged, push ON/OFF switch to OFF, unplug charger from AC power source.
9. When battery is fully charged and charger is unplugged, (1) remove clamp from end of 24-inch long cable connected to NEGATIVE battery post, then (2) remove clamp from Positive battery post, in that order.
10. Clean and store battery charger.

G. OPERATING INSTRUCTIONS: CHARGING BATTERY IN VEHICLE

When charging battery in vehicle, take care to determine the battery type and which pole is grounded. To reduce risk of a spark near battery, follow these steps when battery is inside vehicle. **WARNING:** A spark near the battery may cause battery explosion.

1. Perform these steps with the ON/OFF switch in the OFF position.
2. Position AC power cord and DC charging cords to reduce risk of damage by hood, door, or moving engine parts.
3. Stay clear of fan blades, belts, pulleys, and other parts that can cause injury.
4. Check polarity of battery posts. Battery case will be marked by each post: POSITIVE (POS, P, +) and NEGATIVE (NEG, N, -). **NOTE:** The positive battery post usually has a larger diameter than the negative post.
5. Determine which post of battery is grounded (connected) to chassis. **NOTE:** The negative post is normally grounded.

NEGATIVE GROUNDED POST

- 6A. For negative-grounded vehicle, connect POSITIVE (RED) clamp from battery charger to POSITIVE (POS, P, +) ungrounded post of battery. Connect NEGATIVE (BLACK) clamp to vehicle chassis or engine block away from battery. Connect to a heavy-gauge metal part of the frame or engine block.

WARNING: Do not connect clamp to carburetor, fuel lines, or sheet-metal body parts. **NOTE:** Attach clamps to battery post and twist or rock back and forth several times to make a good connection. This tends to keep clamps from slipping off terminals and helps to reduce risk of sparking.

FIGURE 2 shows connections for a negative-grounded battery.

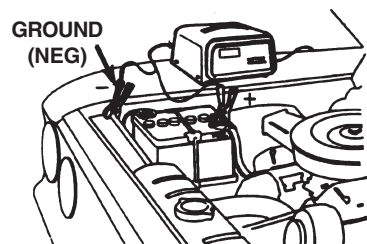


FIGURE 2: CONNECTION TO NEGATIVE GROUNDED BATTERY

POSITIVE GROUNDED POST

- 6B. For positive-grounded vehicle, connect NEGATIVE (BLACK) clamp from battery charger to NEGATIVE (NEG, N, -) ungrounded post of battery. Connect POSITIVE (RED) clamp to vehicle chassis or engine block away from battery. Connect to a heavy-gauge metal part of the frame or engine block.
7. Plug charger AC cord into a grounded 120 volt outlet.
8. Select the ON position on the ON/OFF switch.
9. When battery is fully charged, push the ON/OFF switch to OFF, unplug charger from AC power source.
10. Remove charger clamps from (1) chassis and (2) battery post, in that order.
11. Clean and store battery charger.

H. TROUBLESHOOTING

PROBLEM	POSSIBLE	SOLUTION
Red LED doesn't light	Charger is not plugged in AC outlet is dead.	Plug in. Plug in a lamp or other appliance to check for voltage.
Charger will not turn ON when properly connected to power.	Battery recently used in vehicle and is fully charged.	Battery doesn't need charging.
Charger will not turn OFF.	Battery has problem and will not take full charge. Battery is connected to application that draws a small current (such as a vehicle's dome light).	Have battery checked. Requires more time to charge: continue charging..

I. MAINTENANCE/CLEANING INSTRUCTIONS

Little maintenance is required for the battery charger.

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| <ol style="list-style-type: none"> 1. After use, wipe all battery corrosion and other dirt or oil from clamps, cord, and the charger case. Use a dry cloth. 2. Coil charger cords to prevent damage. | <ol style="list-style-type: none"> 3. Have any cracked or frayed cords replaced by a qualified professional. 4. Store battery charger in a clean, dry area. |
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LIMITED WARRANTY

DSR CORPORATION, 801 BUSINESS CENTER DRIVE, MOUNT PROSPECT, ILLINOIS, 60056-2179 MAKES THIS LIMITED WARRANTY TO THE ORIGINAL PURCHASER AT RETAIL OF THIS PRODUCT. THIS LIMITED WARRANTY IS NOT TRANSFERABLE.

DSR Corporation warrants this battery charger for one year from date of purchase at retail against defective material or workmanship. If such should occur, the unit will be repaired or replaced at the option of the manufacturer. It is the obligation of the purchaser to forward the unit together with proof of purchase, transportation and/or mailing charges prepaid to the manufacturer or its authorized representative.

This limited warranty is void if the product is misused, subjected to careless handling, or repaired by anyone other than the manufacturer or its authorized representative.

The manufacturer makes no warranty other than this limited warranty and expressly excludes any implied warranty including any warranty for consequential damages.

THIS IS THE ONLY EXPRESS LIMITED WARRANTY AND THE MANUFACTURER NEITHER ASSUMES NOR AUTHORIZES ANYONE TO ASSUME OR MAKE ANY OTHER OBLIGATION TOWARDS THE PRODUCT OTHER THAN THIS EXPRESS LIMITED WARRANTY. THE MANUFACTURER MAKES NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR PURPOSE OF THIS PRODUCT AND EXPRESSLY EXCLUDES SUCH FROM THIS LIMITED WARRANTY.

SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES OR LENGTH OF IMPLIED WARRANTY SO THE ABOVE LIMITATIONS OR EXCLUSIONS MAY NOT APPLY TO YOU.

THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE.