

STRONGWAY™

6/12V, 5 AMP AUTOMATIC BATTERY CHARGER

Owner's Manual



⚠ WARNING: Read carefully and understand all ASSEMBLY AND OPERATION INSTRUCTIONS before operating. Failure to follow the safety rules and other basic safety precautions may result in serious personal injury.

Item #6106050

SAVE THESE INSTRUCTIONS

Thank you very much for choosing a Strongway product!

For future reference, please complete the owner's record below:

Serial Number/Lot Date Code: _____

Purchase Date: _____

Save the receipt, warranty, and this manual. It is important that you read the entire manual to become familiar with this product before you begin using it.

This product is designed for certain applications only. Northern Tool and Equipment is not responsible for issues arising from modification or improper use of this product such as an application for which it was not designed. We strongly recommend that this product not be modified and/or used for any application other than that for which it was designed.

For technical questions, please call **1-800-222-5381**.

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WARNING

- Explosive gases! Prevent flames and sparks. Provide adequate ventilation during charging.
- For indoor use. Do not expose to rain.
- For charging 6/12V rechargeable lead acid automotive type and 12V LiFePO4 batteries of the size detailed in the specifications table.
- Do not attempt to charge non-rechargeable batteries. Never charge a frozen battery.
- Do not charge other types of batteries like Nickel Cadmium (NiCad), Nickel-Metal Hydride (Ni-MH), Dry-Cell etc.
- During charging, the battery must be placed in a well-ventilated area, as far as possible from any flame or ignition sources.
- This battery charger is not intended for persons with reduced physical, mental and / or sensory abilities. Similarly, persons that lack experience or knowledge (including children) should be supervised or given suitable instruction.
- Young children should be supervised to ensure that they do not play with the appliance.
- Disconnect the 120V mains supply before making or breaking the connections to the battery.
- The battery charger must be plugged into an earthed or grounded socket-outlet.
- Connection to mains supply must be in accordance with National wiring rules
- If the AC cord is damaged, do not use it. Have the cord replaced or repaired by a qualified person.
- Corrosive substances can escape from the battery. Use suitable personal protective equipment (PPE) including eye protection and keep skin covered where possible. If contact with battery acid occurs, flush the area with plenty of water for at least 10 minutes and promptly seek medical attention.

WARNING

PERSONAL SAFETY

- Stay alert, watch what you are doing, and use common sense when operating the jump starter.
- Do not use the unit while you are tired or under the influence of drugs, alcohol, or medication.
- Dress properly. Do not wear loose clothing, dangling objects, or jewelry. Keep your hair, clothing, and gloves away from the battery.
- Wear the proper personal protective equipment when necessary. Use ANSI Z87.1 compliant safety goggles (not safety glasses) with side shields, or when needed, a face shield.
- Ensure the power switch is off after each use.

WARNING

WORK AREA SAFETY

- Inspect the work area before each use. Keep work area clean, dry, free of clutter, and well-lit.
- Cluttered, wet, or dark work areas can result in injury. Using the product in confined work areas may put you dangerously close to cutting tools and rotating parts.
- Do not use this battery charger where there is a risk of causing a fire or an explosion, e.g., in the presence of flammable liquids, gases, or dust. The product can create sparks, which may ignite flammable liquids, gases, or dust.
- Keep children and bystanders away from the work area while operating the tool. Do not allow children to handle the product.
- Be aware of all power lines, electrical circuits, water pipes, and other mechanical hazards in your work area. Some of these hazards may be hidden from your view and may cause personal injury and/or property damage if contacted.

TECHNICAL PARAMETERS

Part Number	6106050
Charger Type	Intelligent Automatic - 7 Stages
Input Voltage	120 VAC / 60Hz
Input Current	1.2A
Nominal Output Voltage	6V & 12V
Output Current	5A(12V); 2.5A (6V)
Battery Type	Lead-acid (STD, AGM, GEL) and LiFePO4 (LFP)

MAIN FEATURES

MICROPROCESSOR TECHNOLOGY

The latest technology in battery chargers converts 120VAC to 12VDC charging power using electronic components, unlike traditional battery chargers that rely on large heavy transformers. This allows the charger to be lightweight and compact without sacrificing performance. To increase safety, polarity protection prevents the output leads from sparking due to accidental reverse connection or short circuit.

MAXIMISING BATTERY PERFORMANCE

Your battery will run longer when charged using a 7-stage charger, ensuring you get the most from your battery.

MAXIMISE BATTERY LIFE

Batteries used regularly will last longer when charged using a 7-stage charger, extending battery life.

AUTOMATIC MICROPROCESSOR CONTROL

The charger can be left connected to the battery without risk of overcharging. Once the battery is full, the battery charger will automatically monitor the battery and top up the battery when required to ensure it is always ready for use.

LCD DISPLAY / BACKLIGHT

The LCD Display provides a clear, easy-to-read display and a backlight provides visibility in poor light or when dark.

The LCD screen provides the actual battery voltage prior to selecting a "CHARGE OPTION", and displays the voltage and current being applied during charging.

When the charge cycles are complete and the battery is fully charged, the digital display will show FUL. If the clamps are connected incorrectly or if the battery is damaged or unable to be charged, the display will show warning icon.

Note - Batteries with a battery voltage below 10.5V may have been permanently damaged - it is recommended that batteries not be discharged to below 10.5V.

PRODUCT ILLUSTRATION

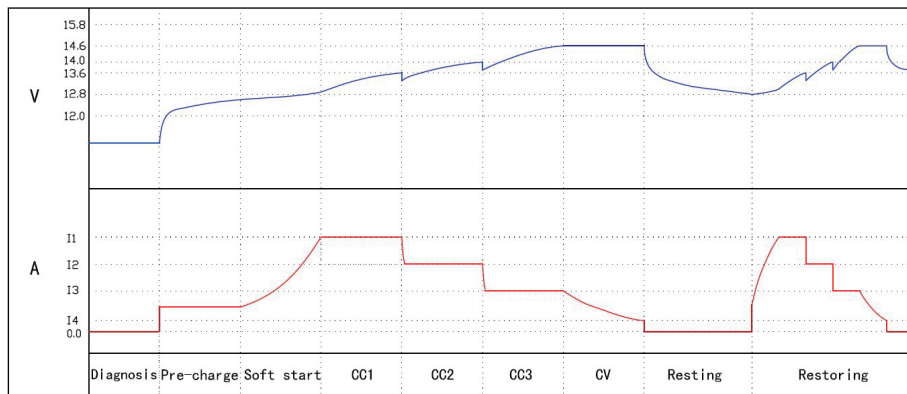


1. Power cord
2. LCD screen
3. Start/Stop button
4. Output cord

ACCESSORIES

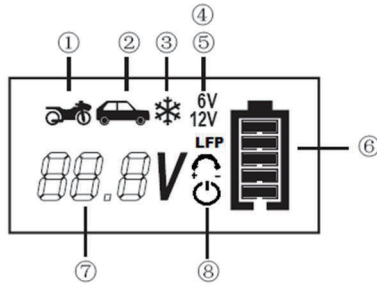
Accessories	Qty
Main unit	1
Clamp cable set	1
O-ring cable set	1
Manual	1







CHARGING STAGE INTRODUCTION



Stage	Function	Description
1	Diagnosis	The charger checks the battery condition and calculates the required charging parameters.
2	Pre-Charge	Pre-charge the battery voltage below 12V to a safe voltage above 11V with a small current, and automatically move to the next step
3	Soft Start	At an increased voltage, the current is slowly increased over time to activate the battery and improve battery charging efficiency.
4	Bulk Charge (Constant Current)	The Bulk Charge settings will reduce the time to charge and ensure better battery health.
	CC1	Quickly charge to 13.6V with maximum current and automatically turn to the next step
	CC2	Current is reduced.
	CC3	The current is further reduced for an improved charge while minimizing electrolytic loss and excess temperature.
5	Constant Voltage	With the increase of battery voltage, the charging current to the battery will then be reduced to avoid battery overcharge.
6	Resting	When the voltage is less than the set value of the judgement for the bad battery, enter the float charging to the battery for a short time of maintenance, and then move to the error mode; if the voltage is greater than the set value, wait for the battery to re-charge.
7	Restoring	The charger will continue charging the battery with a small current to keep the battery voltage in a full state. I, if the battery voltage drops below 12V, stages 1-5, will repeat.

DISPLAY SUMMARY



Digital Display	Condition / Mode
	This icon indicates 2.5A Charge Rate, which is used for charging the small capacity batteries used in motorcycles, ATVs, snowmobiles, personal watercrafts, garden tractors and golf car.
	This icon indicates 5A Charge Rate, which is used for faster charging of small-to-large capacity automotive, marines, deep cycle and farm tractor batteries.
	This icon will appear when selecting the charge mode in cold state, which means the max charging voltage is 0.2V higher than usual.
6V 12V	“6V” will appear when selecting the charge for the 6V batteries. “12V” will appear when selecting the charge for the 12V batteries.
	The icon indicates the charging process.
	The numbers or characters indicate the battery voltage or the error code.
	This icon indicates the charger is powered on and stays at the standby status.

MODE SELECTION BUTTON

Press the Mode Button to select one of the 5 charging modes.

Mode 1: 6V Lead Acid Battery (Icon ① + 6V will appear)

Mode 2: 6V LiFePO4 Battery in the cold state (Icon ① + ③ + ④ will appear)

Mode 3: 12V Lead Acid Battery (Icon ① + ⑤ will appear)

Mode 4: 12V LiFePO4 Battery (Icon ② + ⑤ will appear)

Mode 5: 12V in the cold state (Icon ③ + ⑤ will appear)

OPERATION INSTRUCTION

BEFORE CHARGE

1. Remove the battery from the vehicle before charging if possible.
2. Ensure that all the electrical accessories in the vehicle are off.
3. Carefully follow the battery manufacturer's instructions to recharge.
4. Ensure the surrounding area is well-ventilated during charging.

Note - BEFORE attaching the battery clamps, disconnect (unplug) the battery charger from any supply socket outlet, or ensure the mains supply power is switched to OFF.

STEP 1 - BATTERY MANUFACTURER RECOMMENDATIONS

Before using the battery charger, study the battery manufacturer's recommendations, rates of charge, and any condition peculiar to the battery being charged.

STEP 2 - CHECK THE ELECTROLYTE LEVEL

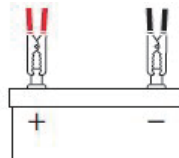
Prior to charging the battery, remove the vent caps and check the electrolyte level.

Note - For batteries without cell caps, follow the battery manufacturer's maintenance and charging instructions.

STEP 3A - CONNECTION WITH BATTERY OUT OF THE VEHICLE

Connect the POSITIVE (RED) lead/battery-clamp from the charger to the POSITIVE battery post. Connect the NEGATIVE (BLACK) lead/battery clamp from the charger to the NEGATIVE battery post.

Note - The POSITIVE terminal of a battery is defined in RED color and may be represented by POS, P, or (+); The NEGATIVE terminal of a battery is defined in BLACK color and may be represented by NEG, N, or (-). Wiggle or swivel the clamps several times – this action ensures integrity of the connection and minimizes sparks/arcing.



STEP 3B - CONNECTION WITH THE BATTERY MOUNTED IN THE VEHICLE

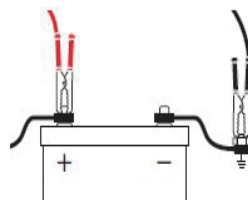
Determine if the vehicle is Positively (+) or Negatively (-) earthed.

Note - The battery terminal NOT connected to the chassis MUST be connected to the Battery Charger first (1st). The second (2nd) clamp from the Battery Charger must be connected to the chassis, away from the battery and fuel lines.

Refer to the following guides for the correct battery clamp connection sequence:

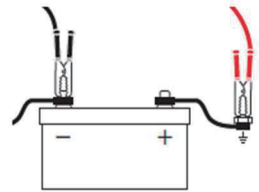
Negatively Earthed (Most Vehicles)

Note - Negatively earthed vehicles usually have a cable (usually BLACK or GREEN) connecting the Negative battery terminal to the vehicle's chassis. Connect the POSITIVE (RED) lead/battery clamp from the battery charger to the Positive (+) battery terminal. Connect the NEGATIVE (BLACK) lead/ battery clamp from the battery charger to the vehicle's chassis - away from the fuel lines or moving parts.



Positively Earthed

Connect the NEGATIVE (BLACK) lead/battery clamp from the battery charger to the Negative (-) battery terminal. Connect the POSITIVE (RED) lead/battery clamp from the battery charger to the vehicle's chassis - away from the fuel lines or moving parts.




STEP 4 - CONNECT TO MAINS POWER

Connect the battery charger to a 120V mains power socket and turn on the mains power.

The digital screen will illuminate to confirm that the Battery Charger is receiving power, and the actual battery voltage will be displayed.

STEP 5 - SELECT VOLTAGE / OPTION

Select the charge option for the battery to be charged and press button on front case

Note - If the battery charger does not detect a properly connected battery, or detects an incorrect battery voltage, 0V and  will display on the screen and charging will not commence.

STEP 6 - CHARGING

An icon of a battery will appear on the top right of the display window during the battery charge sequence – bars will flash inside the battery icon to show that the battery is being charged. The voltage and current being applied to the battery are also displayed on the digital screen.

Note --If at any stage during charging, the battery is found to be faulty, "Err" will be displayed and charging will terminate.

STEP 7 - DISCONNECTION

Once charging is completed and the full battery icon is displayed in the LCD window, BEFORE removing the battery clamps, switch the mains supply power to OFF, and disconnect (unplug) the battery charger from the supply socket outlet.

Note - If left connected, the charger will monitor the battery and maintain the battery ready for use - preventing slow discharge over time, which is detrimental to lead acid batteries.

Battery out of the Vehicle

Remove the NEGATIVE (BLACK) connection first. Then remove the POSITIVE (RED) terminal clamp.

Battery mounted in the Vehicle

Remove the chassis connection first.

Then remove the other battery clamp from the battery terminal.

Q & A

Q. Why does the charger not charge after plugging into the AC power source?

A. There are various reasons that the charger does not work, please check the status as follows,

- Check if any Error LED displays.
- Check if clips are well connected to the battery.
- Check if the AC power source is well connected to.

Q. Why does the charger display an Error during charging?

A. There are several conditions of Error as follows,

- 1, Battery internal Volta < 3.7V or Internal Volts > 15V, screen will display Error.
- 2, If charging time longer than 96 hours, screen will display Error

Q. Can I use the charger as a power supply?

A. Yes. The charger could be used as a power supply, it will offer a 13.6V/15 AMPS max power supply to electronic applications.

Q. Why is there no output on the battery charger's battery clamps when it is turned on?

A. The charger incorporates reverse polarity and short circuit protection that makes it much safer to use. For this reason, the charger will only output power when connected to a battery exhibiting a voltage above 0.5 volts (0.5V).

Q. What is a Faulty Cell?

A. 12 Volt batteries contain 6 cells (24 volts batteries contain 12 cells) - one faulty cell is enough to ruin your battery. If the "ERROR" LED illuminates after a period of charge, you should test the cells using a hydrometer. If one reading is lower than the rest it indicates a faulty cell. It is pointless to continue charging, as the battery needs replacing

LIMITED WARRANTY

Northern Tool and Equipment Company, Inc. "We" or "Us" warrants to the original purchaser only ("You" or "Your") that the Strongway product purchased will be free from material defects in both materials and workmanship, normal wear and tear excepted, for a period of **one year** from date of purchase. The foregoing warranty is valid only if the installation and use of the product is strictly in accordance with product instructions. There are no other warranties, express or implied, including the warranty of merchantability or fitness for a particular purpose. If the product does not comply with this limited warranty, your sole and exclusive remedy is that We will, at our sole option and within a commercially reasonable time, either replace the product or product component without charge to You or refund the purchase price (less shipping). This limited warranty is not transferable.

Limitations on the Warranty

This limited warranty does not cover: (a) normal wear and tear; (b) damage through abuse, neglect, misuse, or as result of any accident or in any other manner; (c) damage from misapplication, overloading, or improper installation; (d) improper maintenance and repair; and (e) product alteration in any manner by anyone other than Us, with the sole exception of alterations made pursuant to product instructions and in a workmanlike manner.

Obligations of Purchaser

You must retain Your product purchase receipt to verify date of purchase and that You are the original purchaser. To make a warranty claim, contact Us at 1-800-222-5381, identify the product by make and model number, and follow the claim instructions that will be provided. The product and the purchase receipt must be provided to Us in order to process Your warranty claim, any returned product that is replaced or refunded by Us becomes our property. You will be responsible for return shipping costs or costs related to Your return visit to a retail store.

Remedy Limits

Product replacement or a refund of the purchase price is Your sole remedy under this limited warranty or any other warranty related to the product. We shall not be liable for: service or labor charges or damage to Your property incurred in removing or replacing the product; any damages, including, without limitation, damages to tangible personal property or personal injury, related to Your improper use, installation, or maintenance of the product or product component; or any indirect, incidental or consequential damages of any kind for any reason.

Assumption of Risk

You acknowledge and agree that any use of the product for any purpose other than the specified use(s) stated in the product instructions is at Your own risk.

Governing Law

This limited warranty gives You specific legal rights, and You also may have other rights which vary from state to state. Some states do not allow limitations or exclusions on implied warranties or incidental or consequential damages, so the above limitations may not apply to You, This limited warranty is governed by the laws of the State of Minnesota, without regard to rules pertaining to conflicts of law, The state courts located in Dakota County, Minnesota shall have exclusive jurisdiction for any disputes relating to this warranty.

STRONGWAY™

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