

model no. 011-1587-2



## MANUAL BATTERY CHARGER



### IMPORTANT:

This manual contains important safety and operating instructions. Read all instructions and follow them when using this product.

### INSTRUCTION MANUAL

model no. 011-1587-2 | contact us 1-800-528-6817



**DO NOT RETURN THIS PRODUCT TO THE STORE!  
QUESTIONS? CALL CUSTOMER SERVICE, HOTLINE:  
1-800-528-6817.**

This MotoMaster® product carries a five (5) year warranty against defects in workmanship and materials. At its discretion, MotoMaster® Canada agrees to have any defective part(s) repaired or replaced free of charge, within the stated warranty period, when returned by the original purchaser with proof of purchase. This product is not guaranteed against wear or breakage due to misuse and/or abuse.

Imported by MotoMaster® Canada, Toronto, Canada M4S 2B8

## TECHNICAL SPECIFICATIONS

Input voltage	120 V AC
Input frequency	60 Hz
Input current	10 A charging/40 A engine start
Output voltage	6 V/12 V DC
Output current	40 A/6 V DC 2/10/40 A/12 V DC 100 A/6 V engine start 200 A/12 V engine start
Power cord	6' (1.8 m)

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Before using your MotoMaster® battery charger, be sure to read and save these safety instructions. Failure to do so could result in serious injury or death.

#### Abbreviations and Acronyms

A	Amp (Ampere)
AC	Alternating current
DC	Direct current
Ah	Amp-hour
mA	Milliampere
cm	Centimetre
mm	Millimetre
V	Volt

#### IMPORTANT SAFETY INSTRUCTIONS

- **SAVE THESE INSTRUCTIONS.** This manual contains important safety and operating instructions.
- Keep out of reach of children.
- **DO NOT** expose the charger to rain or snow.
- 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, or damage to property.
- To reduce the risk of damage to the electric plug or cord, pull by the plug rather than by the cord when disconnecting the charger.
- 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:

- i. The pins on the plug of the extension cord are the same number, size and shape as those of the plug on the charger.
- ii. The extension cord is properly wired and in good electrical condition.
- iii. The wire size is large enough for the AC ampere rating of the charger.
- **DO NOT** operate the charger if it has received a sharp blow, been dropped, or damaged. Take it to a qualified service person.

#### PERSONAL PRECAUTIONS

- **NEVER** smoke or allow a spark or flame in the vicinity of a battery or engine.
- 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, causing a severe burn.
- Use this charger for charging 6 V and 12 V lead-acid batteries only. It is not intended to supply power to a low voltage electrical system other than in a motor-starting application.
- **NEVER** charge a frozen battery.



#### WARNING!

DO NOT operate the charger with a damaged cord or plug. Have the cord or plug replaced immediately by a qualified service person.

#### WARNING! ELECTRIC SHOCK HAZARD

- To reduce the risk of electric shock, unplug the charger from the outlet before attempting any maintenance or cleaning. Simply turning off the controls will not reduce this risk.
- **DO NOT** disassemble the charger. Take it to a qualified service person when service or repair is required. Incorrect reassembly will result in a risk of fire or electric shock.

- **NEVER** overcharge a battery.
- Consider having someone nearby to come to your aid when you work near a lead acid battery.
- Battery acid is a highly-corrosive sulfuric acid. Have plenty of fresh water and soap nearby in case battery acid comes into contact with your skin, clothing or eyes.
- Wear complete eye and body protection, including safety goggles and protective clothing. Avoid touching your eyes while working near the battery.
- If battery acid comes into contact with 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 seek 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.

## PREPARING TO CHARGE

- 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.
- Be sure the area around the battery is well-ventilated while the battery is being charged.

- 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.
- 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.
- Read, understand and follow all instructions for the charger, battery, vehicle and any equipment used near the battery and charger. Study the entire battery manufacturer's specific precautions while charging, and understand the recommended rates of charge.
- Determine the voltage of the battery by referring to the vehicle's owner's manual and make sure that the output voltage selector switch is set to the correct voltage. If the charger has an adjustable charge rate, charge the battery at the lowest rate first.
- Make sure that the charger cable clips make tight connections.

### WARNING! EXPLOSION HAZARD

- Working in the vicinity of a lead-acid battery is dangerous. Batteries generate explosive gases during normal operation. For this reason, it is important that you follow the instructions each time you use the charger.
- To reduce the risk of a battery explosion, follow the 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.
- **DO NOT** drop a metal tool onto the battery. It could cause a spark or short-circuit the battery or other electrical part which could cause an explosion.
- **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.



## CHARGER LOCATION

- Place the charger as far away from the battery as the DC cables permit.
- **NEVER** place the charger directly above the battery being charged.
- **DO NOT** set the battery on top of the charger.
- **DO NOT** set the battery charger on flammable items, such as carpeting, upholstery, paper, cardboard, etc. The charger always generates heat and may damage leather and melt plastic or rubber.
- **NEVER** allow battery acid to drip on charger when reading electrolyte specific gravity or filling battery.
- **DO NOT** operate the charger in a closed-in area or restrict the ventilation in any way.

## DC CONNECTION PRECAUTIONS

- Connect and disconnect the DC output clips only after setting all the charger switches to the "OFF" position and removing the AC plug from the electrical outlet. **NEVER** allow the clips to touch each other.

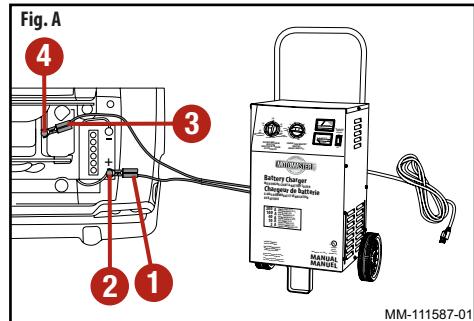
## FOLLOW THESE STEPS WHEN BATTERY IS INSTALLED IN VEHICLE

- Position the AC and DC cables to reduce the risk of damage by the hood, door and moving or hot engine parts.
- Stay clear of fan blades, belts, pulleys and other parts that can cause injury.

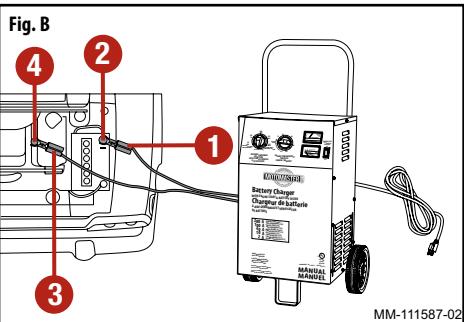
### NOTE:

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.

- Check the polarity of the battery posts. The positive (pos, P, +) battery post usually has a larger diameter than the negative (neg, N, -) post.
- Determine which post of the battery is grounded (connected) to the chassis. If the negative post is grounded to the chassis (as in most vehicles), see step (i). If the positive post is grounded to the chassis, see step (ii).
  - i. For a negative-grounded vehicle, connect the positive (red) clip (1) from the battery charger to the positive (pos, P, +) ungrounded post (2) of the battery. Connect the negative (black) clip (3) to the vehicle chassis or engine block (4) away from the battery (see Fig. A).



- ii. For a positive-grounded vehicle, connect the negative (black) clip (1) from the battery charger to the negative (neg, N, -) ungrounded post (2) of the battery. Connect the positive (red) clip (3) to the vehicle chassis or engine block (4) away from the battery (see Fig. B).



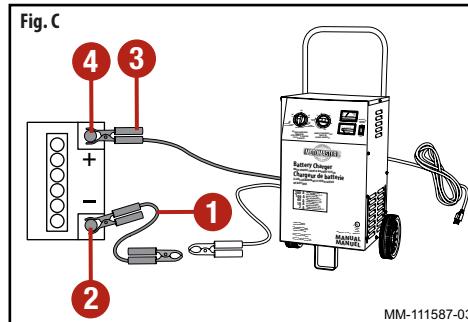
- Connect charger AC supply cord to electrical outlet.
- When disconnecting the charger, turn OFF all switches, disconnect the AC cord, remove the clip from the vehicle chassis, and then remove the clip from the battery terminal.
- See CALCULATING CHARGE TIME for length of charge information.

## FOLLOW THESE STEPS WHEN BATTERY IS OUTSIDE OF VEHICLE

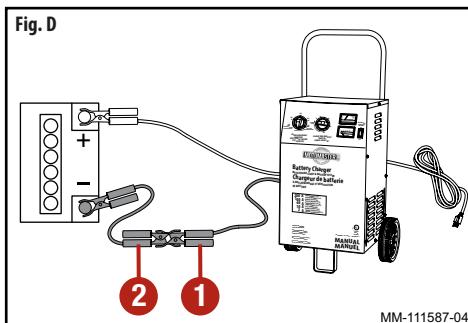
- Check the polarity of the battery posts. The positive (pos, P, +) battery post usually has a larger diameter than the negative (neg, N, -) post.
- Ensure that all of the charger components are in place and in good working condition,

including the plastic boots on the battery clips.

- Attach at least a 24" (61 cm) long 6-gauge (AWG) insulated battery cable (1) to the negative (neg, N, -) battery post (2) (see Fig. C).
- Connect the positive (red) charger clip (3) to the positive (pos, P, +) post (4) of the battery (see Fig. C).



- 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 (1) to the free end of the cable (2). Do not face the battery when making final connection (see Fig. D).



### WARNING

- Connect the charger clip to a heavy-gauge metal part of the frame or engine block.
- DO NOT connect the charger clip to the carburetor, fuel lines or sheet-metal body parts.



- Connect charger AC supply cord to electrical outlet.
- 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.

- Recommended minimum AWG size for extension cord.

Length of cord	25' (7.6 m)	50' (15.2 m)	100' (30.5 m)	150' (45.7 m)
AWG* size of cord	16	12	10	8

\* AWG: American Wire Gauge

## GROUNDING AND AC POWER CORD CONNECTIONS

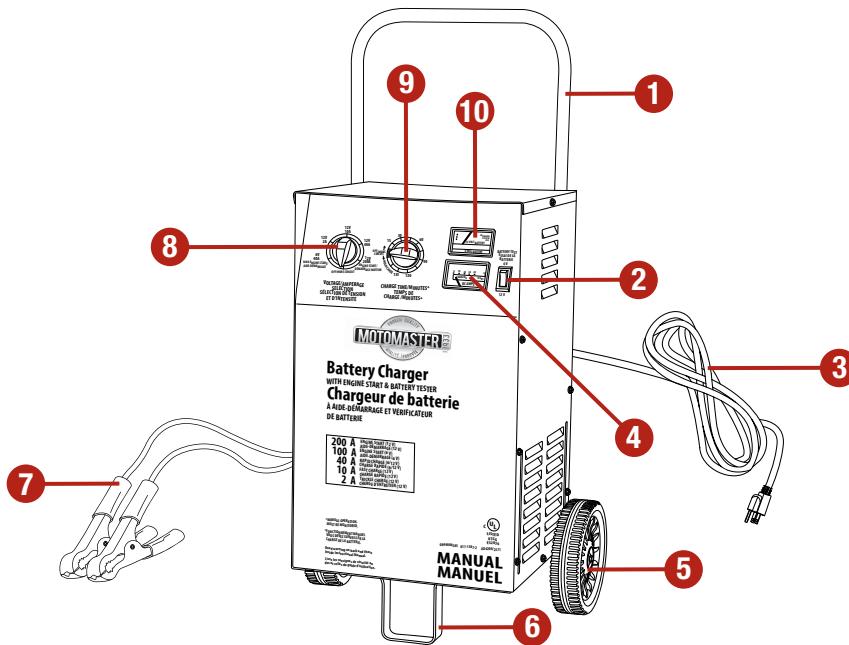
- This battery charger is for use on a nominal 120 V circuit and has a grounded plug. The charger must be grounded to reduce the risk of electric shock. The plug must be plugged into an outlet that is properly installed and grounded in accordance with all local codes and ordinances. The plug pins must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

### NOTE:

- A marine (boat) battery must be removed and charged on shore. To charge it onboard requires equipment specially designed for marine use.
- Remove all cord wraps and uncoil the cables prior to using the battery charger.
- A buzz or hum is normal when the output cables have been disconnected and the AC power cord is still connected to an electrical source (i.e. wall outlet).
- Pursuant to Canadian regulations, use of an adapter plug is not allowed in Canada.

## FEATURES

1 Handle	6 Foot
2 Battery tester switch	7 Battery cables
3 Power cord	8 Charge rate selector
4 Ammeter	9 Timer
5 Wheel	10 Voltmeter



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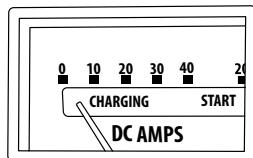
## MOTOMASTER® MANUAL BATTERY CHARGER FEATURES

- Automatic charger shut-off
- Heavy-duty transformer
- Heavy-gauge steel case with powder-coated finish

## BATTERY CHARGER COMPONENTS

**AMMETER** - The ammeter **4** indicates the amount of current that is being drawn by the battery. As a battery takes on a charge, it draws less current from the charger. Correspondingly, the meter will show less current is being drawn by the battery. When the current stops decreasing, the battery is charged. When using the 2 A charge rate, it may be difficult to detect activity on the meter. The meter does not have the resolution to display this low rate.

The START area of the meter indicates when a high rate of current is being drawn from the charger. It is normal for the meter to be on the START area while using engine start.



**BATTERY TESTER SWITCH** - Use the battery tester switch **2** to set the scale of the voltmeter to either 6 volt or 12 volt DC to match the battery or batteries being charged.

**Note:** This does not change the output voltage of the charger.

**CHARGE RATE SELECTOR** - Use the charge rate selector **8** to select the charge rate or engine-starting setting you require.

**2 A slow charge rate:** Ideal for charging small batteries in motorcycles, ATVs, snowmobiles, lawn tractors and more.

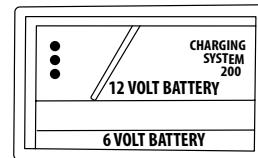
**10 A fast or 40 A rapid charge rate:** Ideal for quickly charging large batteries in cars, trucks, boats, RVs, farm equipment and more.

**100 A/200 A engine start:** To assist in engine cranking of 12 V systems and for more powerful engine boosting.

**TIMER** - The timer **9** allows you to set a specified time for charging. After the timer expires, the charger stops charging your battery. The timer should be in the OFF position before connecting the charger.

**HOLD** - This position allows for continuous charging.

**VOLTMETER** - The voltmeter **10** indicates the voltage at the battery clips. The charger does not need to be plugged into an AC outlet.



## ASSEMBLY INSTRUCTIONS

It is important to fully assemble your charger before use. Remove all cord wraps and uncoil the cables prior to using the battery charger. Follow these instructions for assembly.

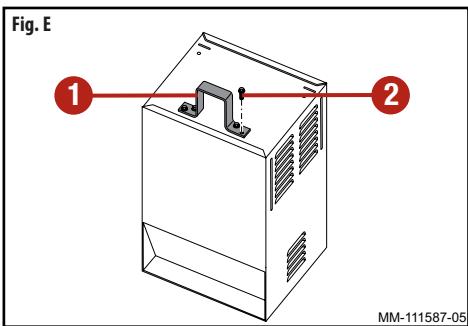
### MATERIALS REQUIRED

MATERIALS (INCLUDED)	QUANTITY
10-32, thread cutting screws	2
1/4-20, thread cutting screws	4
Cross-head sheet-metal screws	4
Wheels	2
Axle	1
Axle caps	2
Axle brackets	2
Handle	1
Foot	1

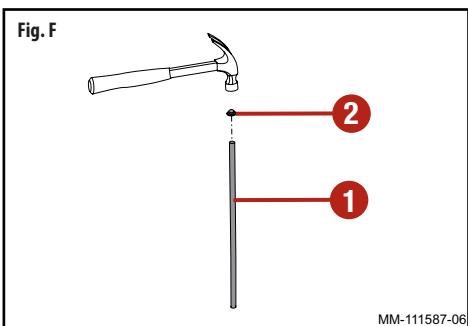
### TOOLS REQUIRED

TOOLS
3/8" wrench (for mounting foot)
5/16" wrench (for mounting wheels)
1/4" wrench (for mounting handle)
Hammer
Screwdriver (flat blade)
Screwdriver (cross-head)

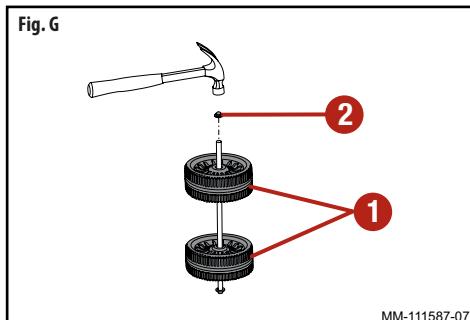
1. Remove the charger from the packing materials and place upside down on a flat surface.
2. Attach the foot (1) and secure it with the four 1/4-20 thread cutting screws (2) provided (see Fig. E).



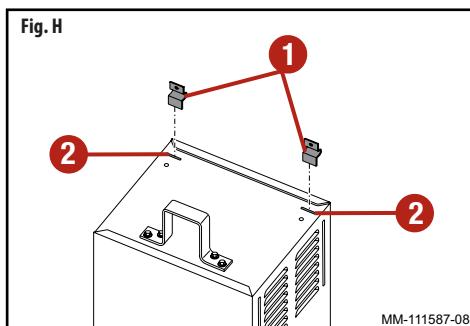
3. Hold the axle (1) upright on the floor or work surface. Then, using a hammer, tap one of the axle caps (2) onto the top end of the axle. Be sure to tap the axle cap on straight (see Fig. F).



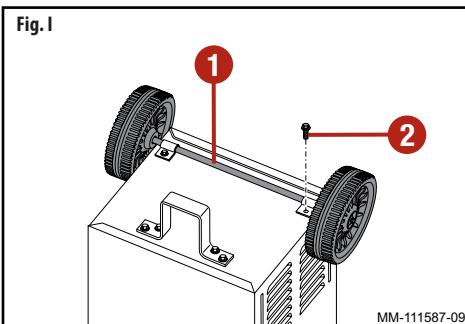
4. Slide both wheels (1) onto the axle with the recessed hubs facing out as shown. Install the second axle cap (2) (see Fig. G).



5. Place one end of each bracket (1) into the slot (2) on the bottom of the charger (see Fig. H).

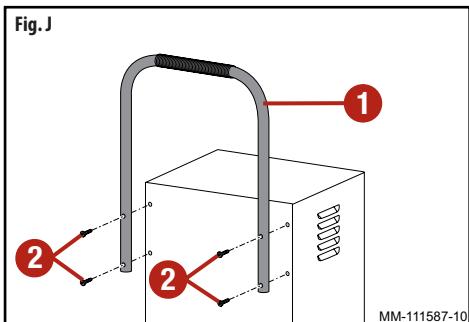


6. Place the axle assembly (1) under each bracket. Attach the brackets using the two 10-32 thread cutting screws (2) provided (see Fig. I).



7. Turn the charger right side up onto its foot and wheels. Align the handle (1) so the screw holes are aligned with the screw holes on the upper back corners of the charger. Attach the handle using the four cross-head screws (2) provided (see Fig. J).

**Note:** If the charger comes with a plastic grip, slide that onto the handle until it is centred at the top.



## OPERATION

### CHARGING A BATTERY

1. Ensure that all of the charger components are in place and in good working condition, including the plastic boots on the battery clips.
2. Connect the battery, following the precautions listed in previous sections.
3. Select the appropriate settings for your battery.
4. Connect the AC power, following the precautions listed in grounding and AC power cord connections → page 8.
5. Select the appropriate time and charge rate.
6. When charging is complete, turn the charge rate selector to the OFF position, unplug the AC cord, and then remove the clamps from the battery.

### MANUAL CHARGING

When a manual charge is performed, the charger will continue to charge and will not shut off. You must keep a visual check on the ammeter to determine when the battery is charged. Be sure to monitor the charging process and stop it when the battery is charged. Not doing so may cause damage to your battery or result in other property damage or personal injury.

### WARNING

- Follow all safety instructions and precautions for charging your battery. Wear complete eye protection and clothing protection. Charge your battery in a well-ventilated area.
- This battery charger must be properly assembled, in accordance with the assembly instructions, before it is used.

### CAUTION! EQUIPMENT DAMAGE

Using the ENGINE START feature without a battery installed in the vehicle could cause damage to the vehicle's electrical system.

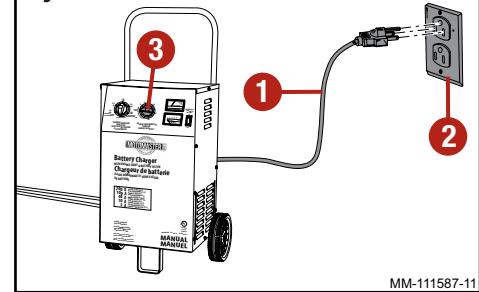
NOTE: If you have charged the battery and it still will not start your car, do not use the ENGINE START feature, or it could damage the vehicle's electrical system.

### USING THE ENGINE START FEATURE

Your charger can be used to jump-start your car if the battery is low. Follow these instructions on how to use the ENGINE START feature.

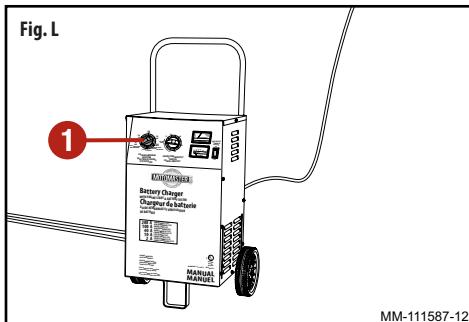
1. Set the charge rate selector and the timer to the OFF position.
2. With the charger unplugged from the AC outlet, connect the charger to the battery following the instructions given in "Charging the battery installed in a vehicle" → page 6.
3. Plug the charger AC power cord (1) into the AC outlet (2), and then move the timer switch (3) from OFF to the HOLD position (see Fig. K).

Fig. K



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- With the charger plugged in and connected to the battery of the vehicle, set the charge rate selector (1) to the appropriate ENGINE START position (6 V or 12 V) (see Fig. L).



- Crank the engine until it starts or 5 seconds pass. If the engine does not start, wait 4 minutes before cranking again. This allows the charger and battery to cool down.

**Note:** If the charger comes with a plastic grip, slide that onto the handle until it is centred at the top.

- If the engine fails to start, charge the battery for 5 more minutes before attempting to crank the engine again.
- After the engine starts, move the charge rate selector and timer to the off position and unplug the AC power cord before disconnecting the battery clips from the vehicle.
- Clean and store the charger in a dry location.

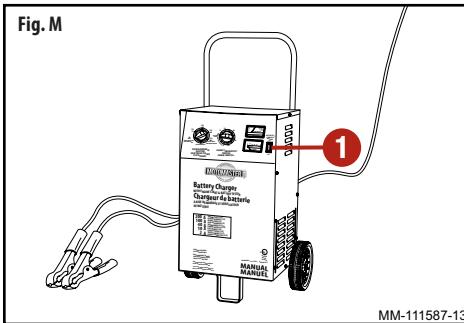
**Note:** If the engine turns over but never starts, there is not a problem with the starting system. There is a problem elsewhere in the vehicle. STOP cranking the engine until the problem has been diagnosed and corrected.

## USING THE BATTERY VOLTAGE TESTER

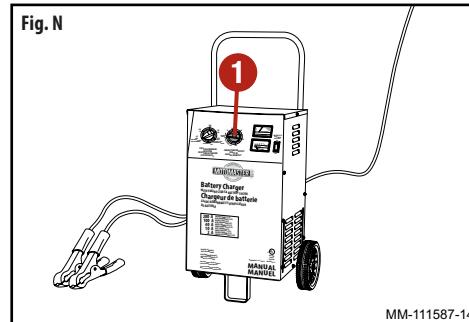
- Set the battery test switch (1) to the correct setting (6 V or 12 V) to match the battery

to be tested (see Fig. M).

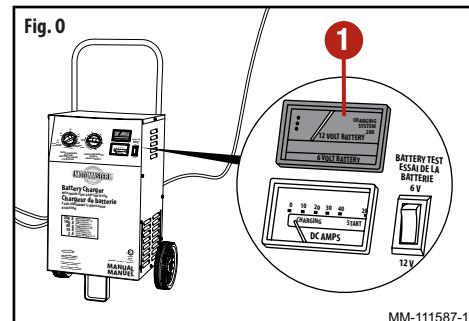
**Note:** This does not change the output voltage of the charger.



- Set the timer switch (1) to the OFF position (see Fig. N).



- Connect the battery to the charger as specified in previous sections. The charger does not need to be plugged into an AC outlet.
- Read the voltmeter (1) (see Fig. O).



**CALCULATING CHARGE TIME**

Use the following table to more accurately determine the time it will take to bring a battery to full charge.

Find your battery's rating on the chart below, and note the charge time given for each charger setting. The times given are for batteries with a 50% charge prior to recharging. Add more time for severely discharged batteries.

BATTERY SIZE/RATING		CHARGE RATE/CHARGING TIME			
		2 A	10 A	40 A	
Small batteries	Motorcycle, garden tractor, etc	6 – 12 Ah	2 – 4 hr	NR	NR
		12 – 32 Ah	4 – 10 hr	NR	NR
Cars/trucks	200 – 315 CCA	40 – 60 RC	11 1/4 – 14 1/2 hr	2 1/4 – 3 hr	1/2 – 3/4 hr
	315 – 550 CCA	60 – 85 RC	MAINTAIN ONLY	3 – 3 3/4 hr	3/4 – 1 hr
	550 – 1000 CCA	85 – 190 RC	NR	3 3/4 – 7 hr	1 – 1 3/4 hr
Marine/deep-cycle		80 RC	NR	3 1/2 hr	NR
		140 RC	NR	5 1/2 hr	NR
		160 RC	NR	6 hr	NR
		180 RC	NR	6 1/2 hr	NR

CCA: Cold cranking amps.

RC: Reserve capacity.

Ah: Amp hour.

NR: Not recommended.

## MAINTENANCE

- After use, and before performing maintenance, unplug and disconnect the battery charger.
- Use a dry cloth to wipe all battery corrosion and other dirt or oil from the battery clips, cords, and the charger case.
- Ensure that all of the charger components are in place and in good working condition.
- Servicing does not require opening the unit, as there are no user-serviceable parts.
- All other servicing should be performed by qualified service personnel.

## STORAGE

- Store the charger unplugged, and in an upright position. The cord will still conduct electricity until it is unplugged from the power outlet.
- Store the charger inside, in a cool, dry place.
- Do not store the clips on the handle, clipped together, on or around metal, or clipped to cables.
- 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.

## TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
No reading on the ammeter.	<ul style="list-style-type: none"> <li>Charger is not plugged in.</li> <li>Clips are not making a good connection to the battery.</li> <li>Connections are reversed.</li> <li>Battery is defective (will not accept a charge).</li> <li>2 A charge rate is being used.</li> </ul>	<ul style="list-style-type: none"> <li>Plug the charger into an AC outlet.</li> <li>Check for poor connection to battery and frame.</li> <li>Unplug the charger and reverse the clips.</li> <li>Have battery checked.</li> <li>Ammeter may show no activity at the 2 A charge rate.</li> </ul>
Ammeter reading stays high.	<ul style="list-style-type: none"> <li>Battery is severely discharged.</li> <li>Wrong battery voltage</li> </ul>	<ul style="list-style-type: none"> <li>Continue charging battery for two more hours. If the problem continues, have the battery checked.</li> <li>Verify the voltage settings or output ratings on the charger are correct.</li> </ul>
Ammeter reads less than selected charge rate when charging a discharged battery.	<ul style="list-style-type: none"> <li>Extension cord is too long or wire gauge is too small.</li> <li>Weak cell or sulfated plate in battery.</li> <li>Battery is only partially discharged.</li> </ul>	<ul style="list-style-type: none"> <li>Use a shorter or heavier gauge extension cord.</li> <li>A sulfated battery will eventually take a normal charge if left connected. If the battery will not take a charge, have it checked.</li> <li>Continue to charge the battery.</li> </ul>
The charger is making an audible clicking sound.	<ul style="list-style-type: none"> <li>Circuit breaker is cycling.</li> <li>Battery is defective.</li> <li>Severely discharged battery, but otherwise it is a good battery.</li> <li>Reverse connections at battery</li> </ul>	<ul style="list-style-type: none"> <li>The settings may be wrong. Check the charger settings.</li> <li>Have the battery checked.</li> <li>The battery may not want to accept a charge due to a run-down state. Allow charging to continue until battery has a chance to recover sufficiently to take a charge. If more than 20 minutes, stop charging and have the battery checked.</li> <li>Shut the charger off and correct the lead connections.</li> </ul>

PROBLEM	POSSIBLE CAUSE	SOLUTION
Charger will not turn on when properly connected.	<ul style="list-style-type: none"> <li>AC outlet is dead.</li> <li>Poor electrical connection</li> </ul>	<ul style="list-style-type: none"> <li>Check for open fuse or circuit breaker supplying AC outlet.</li> <li>Check power cord and extension cord for loose fitting plug.</li> </ul>
The measured current is much lower than what was selected.	The charger reached the maximum voltage and is reducing the current.	No problem. This is a normal condition.
Short or no start cycle when cranking engine.	<ul style="list-style-type: none"> <li>Drawing more than the engine start rate.</li> <li>Failure to wait 5 minutes between cranks.</li> <li>Clips are not making a good connection.</li> <li>The charger may be overheated.</li> <li>Battery may be severely discharged.</li> </ul>	<ul style="list-style-type: none"> <li>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.</li> <li>Wait 5 minutes of rest time before the next crank.</li> <li>Check for poor connection at battery and frame.</li> <li>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.</li> <li>On a severely discharged battery, charge for 10 to 15 minutes in the manual charge rate, to help assist in cranking.</li> </ul>
Charger makes a loud buzz or hum.	<ul style="list-style-type: none"> <li>Transformer laminations vibrate (buzz).</li> <li>Shorted Diode Assembly or Output Rectifier Assembly (hum).</li> </ul>	<ul style="list-style-type: none"> <li>No problem. This is a normal condition.</li> <li>Have charger checked by a qualified technician.</li> </ul>

**NOTE:**

If the above solutions do not eliminate the problem, contact 1-800-528-6817 for assistance.

model no. 011-1587-2 | contact us 1-800-528-6817

### **BEFORE RETURNING FOR REPAIRS**

- When a charging problem arises, make certain that the battery is capable of accepting a normal charge. Use a good battery to double check all connections, the AC outlet for a full 120 volts, the charger clips for correct polarity, and the quality of the connections from the cables to the clips and from the clips to the battery system. The clips must be clean.
- When a battery is very cold, partially charged, or sulfated, it will not draw the full rated amperes from the charger. It is both dangerous and damaging to a battery to force higher amperage into it than it can effectively use in recharging.
- When an unknown operating problem arises, please read the complete manual and call the customer service number for information. This will usually eliminate the need for return.