

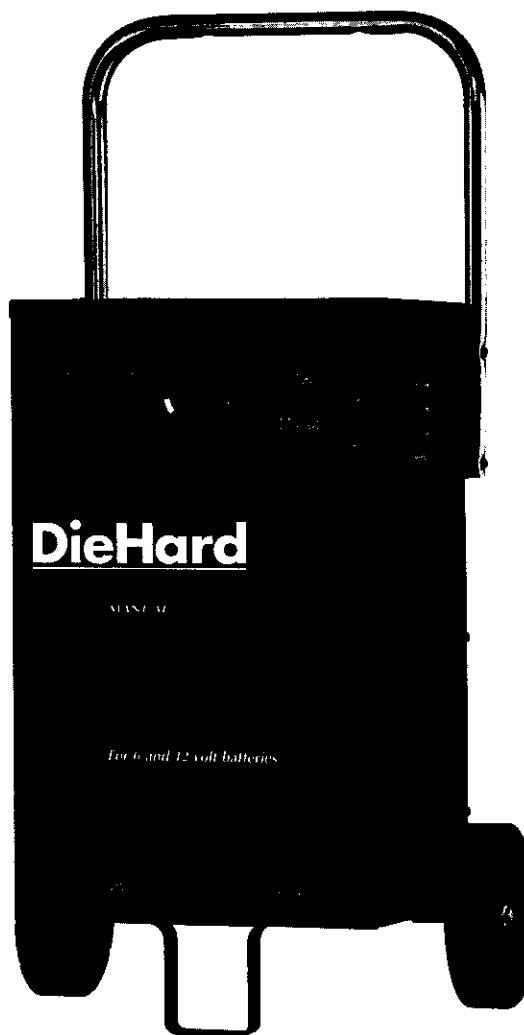
OWNER'S MANUAL

DieHard[®]

BATTERY CHARGER
50/15/2 Amp
Manual

ENGINE STARTER
With Battery Tester
225/125 Amp

Model No.
200.71231



CAUTION:
Read all Safety Rules and Operating Instructions,
and follow them with each use of this product.

Sears, Roebuck and Co., Hoffman Estates, IL 60179 U.S.A.

0099000313-402

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Please read this Manual before using your Battery Charger

The DieHard model 71231 Manual Battery Charger/Engine Starter, offers a wide range of features to accommodate the needs for home or light commercial use. This manual will show you how to use your charger safely and effectively. Please read and follow these instructions and precautions carefully.

For information about troubleshooting, call toll-free from anywhere in the U.S.A. 7 am to 4:30 pm CT Monday through Friday.

1-800-SEARS-64 (1-800-732-7764).

For repair parts or the location of a Sears Parts and Repair Center call:

1-800-4-MY-HOME® (1-800-469-4663).

Warranty

FULL THREE-YEAR WARRANTY

If, within three years from the date of purchase this battery charger fails due to a defect in material or workmanship, RETURN IT TO THE NEAREST SEARS STORE IN THE UNITED STATES, and Sears will repair or replace it, free of charge.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Sears, Roebuck and Co., Dept 817WA,
Hoffman Estates, IL 60179

Important Safety Instructions

– SAVE THESE INSTRUCTIONS –

WARNING

To reduce the risk of explosion, explosive gases, or injury while using your battery charger, follow the precautions listed below:

- Read all instructions and cautions printed on the battery charger, battery, and vehicle or equipment using battery.
- Use charger only on lead-acid type rechargeable batteries, such as those used in cars, trucks, tractors, airplanes, vans, RV's, trolling motors, etc. This charger is not intended to supply power to a low voltage electrical system other than in an automotive application.
- Use only attachments recommended or sold by manufacturer. The use of attachments not recommended by the manufacturer may result in fire, electric shock, or injury.
- Do not disassemble charger. Take it to a qualified service professional if service or repair is required. Incorrect assembly may result in fire or electrical shock.
- To reduce risk of electrical shock, unplug the charger from the outlet before attempting any maintenance or cleaning.
- Always charge battery in a well ventilated area.

Help us help you

Remember:

- Place charger as far away from battery being charged as the charger cables will permit.
- Do not expose charger to rain or snow.
- Never charge a frozen battery. If battery fluid (electrolyte) becomes frozen, bring battery into a warm area to thaw before you begin charging.
- Never allow battery acid to drip on charger when reading specific gravity or filling battery.
- Never set a battery on top of the charger.
- Never place charger directly above battery being charged. The gases from the battery will corrode and damage the charger.
- Never use charger for charging dry-cell batteries that are commonly used with home appliances. These batteries may burst and cause personal injury.
- Never touch the battery clamps together when the charger is energized.
- Never operate charger if it has received a hard blow, been dropped, or otherwise damaged. Take it to a qualified professional for inspection and repair.
- Be sure to position the charger power cord to prevent it from being stepped on, tripped over, or damaged.
- Never pull out the plug by the cord when unplugging the charger. Pulling on the cord may cause damage to the cord or the plug.
- Do not operate the charger if it has a damaged power cord or plug. Have the cord replaced.

Personal Safety Precautions

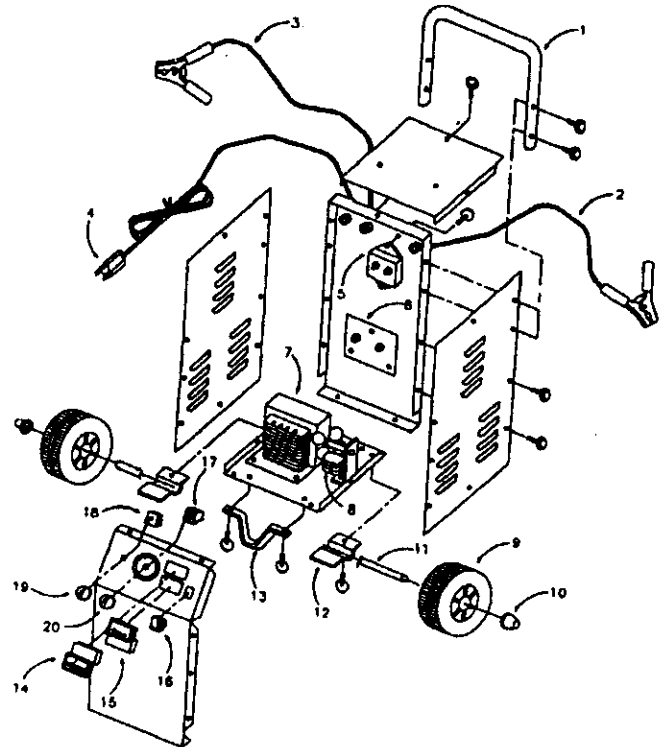
For your own personal safety, please follow the following precautions:

- Wear complete eye and clothing protection when working with lead-acid batteries.
- Be sure that someone is within range of your voice to come to your aid if needed while you work with or are near a lead-acid battery.
- Have plenty of fresh water and soap nearby for use in case battery acid contacts your eyes, skin, or clothing. If this happens, wash immediately with soap and water. Then get medical attention.
- Avoid touching your eyes while working with a battery. Acid particles (corrosion) may get into your eyes. If this occurs, flush eyes immediately with running cold water for at least 10 minutes. Then immediately get medical attention.
- Remove all personal metal items from your body, such as rings, bracelets, necklaces, and watches while working with a lead-acid battery. A battery can produce a short circuit current high enough to weld a ring (or the like) to metal, causing a severe burn.
- Take care not to drop any metal tool or metal object onto the battery. This may spark or short circuit the battery or another electrical device that may cause an explosion.
- Always operate your battery charger in an open, well ventilated area.
- Never smoke or allow a spark or flame in the vicinity of the battery or engine. Batteries generate explosive gases.
- Neutralize any acid spills thoroughly with baking soda before attempting to clean up.

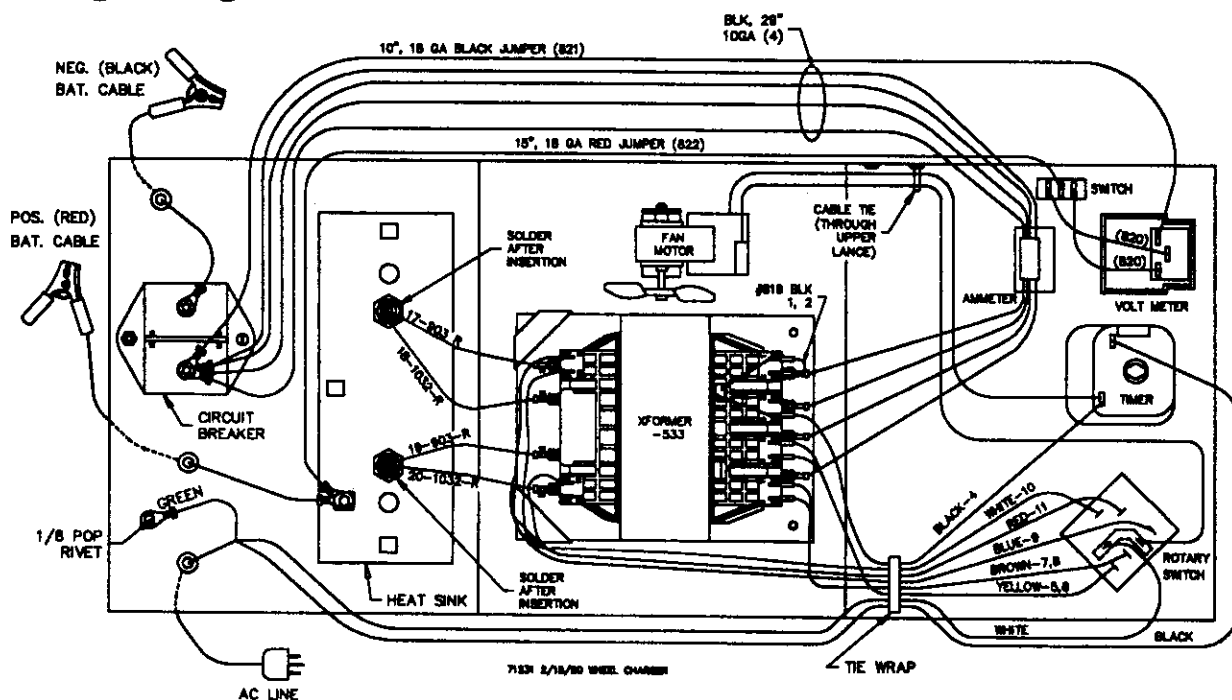
Parts

This section shows an illustration of your battery charger. Use it to become familiar with where all the parts are located, and what they look like.

Replacement Parts List DieHard 71231		
Item	Description	Part Number
1.	Handle	3599000286
2.	Negative (BLK) Cable w/clamps	3899000391
3.	Positive (RED) Cable w/clamps	3899000408
4.	Power Cord	90026125
5.	Circuit Breaker Assembly	3999000065
6.	Rectifier Assembly	2299001081
7.	Transformer	93026533
8.	Fan Motor	0099000063
9.	Wheel	0099000080
10.	Hub Cap	5200000008
11.	Axle	0099000060
12.	Axle Mtg. Brackets	1199004366
13.	Mounting Foot	1199003352
14.	Voltmeter	5399200013
15.	Ammeter	5399100131
16.	Rocker Switch 2 Position	0499000050
17.	Timer	0099000094
18.	Rotary Switch	0499000051
19.	Rotary Switch Knob	0099000045
20.	Timer Control Knob	0099000096
21.	Owner's Manual	0099000313



Wiring Diagram



Before Using Your Battery Charger

It is important to prepare your charger for use. This section will tell you how to assemble the charger, ground and connect the power cord, and prepare to charge a battery.

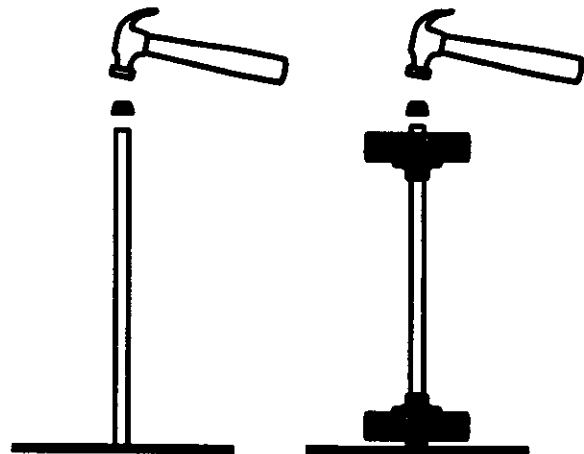
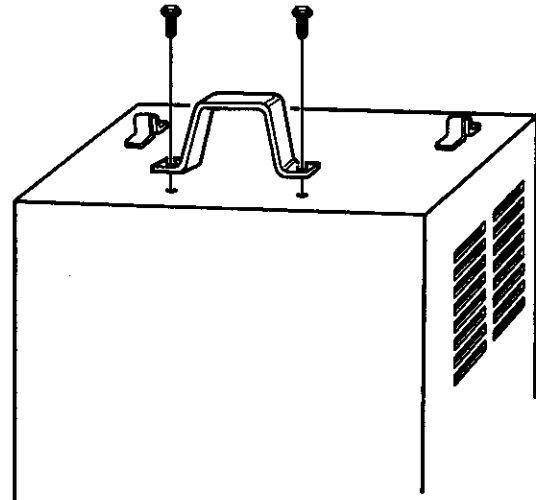
Assembling your charger

It is important to fully assemble your charger before use. Follow these instructions for easy assembly.

PARTS:	TOOLS NEEDED:
Two 10-32 thread cutting screws	3/8" wrench (for mounting foot)
Two 1/4-20 thread cutting screws	5/16" wrench (for wheels)
Two wheels	Hammer
One axle	Phillips screwdriver
Two axle caps	
Two axle brackets	
One handle	
One mounting foot	

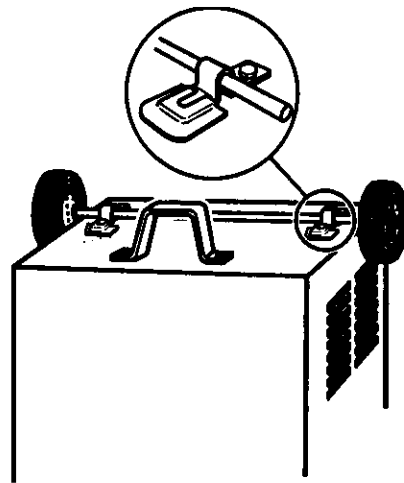
To attach the axle assembly:

1. Remove charger from packing materials and place upside down on a flat surface. Attach mounting foot and secure with the two 1/4-20 thread cutting screws.
2. Hold axle upright on floor or work surface. Then, using a hammer, tap one of the plastic hubs onto the top end of the axle. Be sure to tap the hub on straight. Slide both wheels onto the axle with the hubs facing inward.



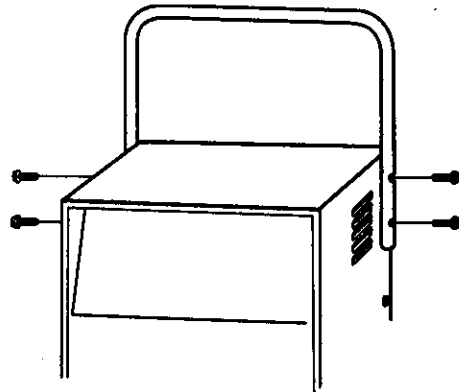
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3. Tap the other axle cap onto the opposite end of the axle and place the axle assembly onto the bottom of the charger. Place one end of the bracket into slot, then place the axle assembly under each bracket. Fasten the other side of the brackets using the two 10-32 screws provided.



To attach the handle:

Turn the charger right side up onto its foot and wheels. Remove the two top screws from each side of the charger and align with the screw holes on the handle. Attach the handle using the same screws.



Plugging it in

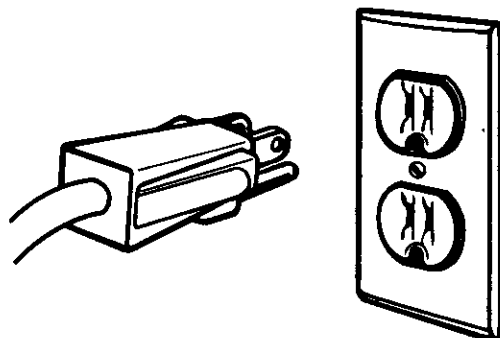
WARNING

Electrical Shock Hazard

Be sure that power cord fits properly into outlet. If not, have a qualified technician install a proper outlet. Never alter the AC cord or plug provided. Improper connection can result in electrical shock.

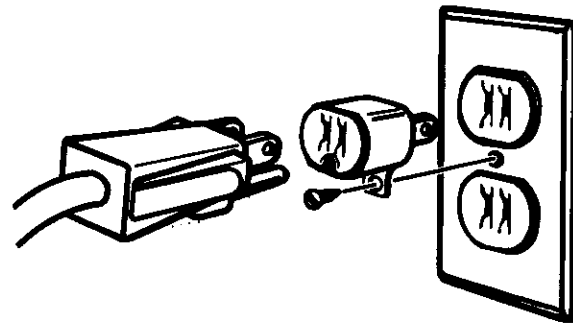
Your charger should be grounded to reduce the risk of electrical shock.

Your charger is equipped with an electrical cord that has an equipment grounding conductor and a grounding plug designed to be used on a 120 volt circuit. The plug must be plugged into an outlet that has been properly installed and grounded in accordance with all local codes and ordinances.



A **TEMPORARY** adapter may be used to connect the charger to a two-pole outlet if a properly grounded outlet is not available. Use the adapter **ONLY** until a properly grounded outlet can be installed by a qualified electrician.

⚠ WARNING: Improper adapter connection can result in electrical shock.



Before using an adapter as illustrated, be certain that the center screw of the outlet plate is grounded. The green colored grounding clip of the adapter must be attached by a metal screw to a properly grounded outlet. If unsure whether outlet is properly grounded, contact a professional electrician. If necessary, replace the original outlet cover screw with a longer one that will secure the grounding clip to the outlet cover and make a ground connection to the grounded outlet.

Using an extension cord

The use of an extension cord is not recommended. If you must use an extension cord, please make sure that you follow these guidelines:

- Make sure the pins on the plug of the extension cord are the same number, size, and shape as those of the plug on the charger.
- Use only 3-conductor (grounded) extension cord when necessary.
- Check that the extension cord is properly wired and in good electrical condition.
- Use the recommended minimum AWG (American Wire Gauge) to be sure that wire size is large enough for the rating of the charger.

MINIMUM RECOMMENDED EXTENSION CORD				
Length of Cord, In Feet	25	50	100	150
AWG* Size of Cord	18	14	12	10

*AWG=American Wire Gauge

Preparing your battery to be charged

It is important that you read and follow these guidelines while you are preparing to charge your battery.

- Make sure that you have a 12 volt or 6 volt lead-acid battery. Set the volt/amp selector switch to match the voltage rating of the battery to be charged.
- Clean the battery terminals. Be careful to keep corrosion from getting in or around your eyes.
- If you have a battery with removable cell caps, if required, add distilled water to each cell until the battery acid reaches the level indicated by the manufacturer. This will help purge excessive gases from the cells. Be careful not to overfill. If you have a sealed battery without cell caps, no action is necessary. Continue to the next step listed below.
- Take time to read all battery manufacturer's specific precautions, such as removing or not removing cell caps while charging, and recommended rates of charge.
- Wear safety glasses. See additional "Personal Safety Precautions" on page 2.
- Be sure that the area around the battery is well ventilated while it is being charged. If ventilation is poor, gas can be manually blown away by using a piece of cardboard or other non-metallic material as a fan.
- If it is necessary to remove the battery from the vehicle to charge it, always remove the grounded terminal from the battery first. A spark may be caused if all accessories in the vehicle are not completely turned off.

NOTE: A marine battery installed in a boat must be removed and charged on shore.

Using Your Battery Charger

To obtain the best results from your battery charger, you must know how to use it properly. This section tells how to set the controls and how to charge a battery in and out of the vehicle.

Setting the controls

All the controls for your charger are located on the front of the unit. Follow these instructions to obtain the accurate charge level for your battery.

VOLT/AMP SELECTOR:

The volt/amp selector switch allows you to select an amp charge rate and battery voltage type to match your charging needs. Read the following operating instructions for making the proper settings for charging a battery and using the engine start feature.

TIMER:

The timer is designed to allow your battery to be charged for a designated amount of time. To accurately charge your battery, you must know the size of the battery in ampere hours or reserve capacity in minutes, as well as the state of charge. Since this information is often not known, the timer limit is set at 2.25 hours. This will help prevent the battery from overcharging to a point where it can be damaged. If you do not know the charge state of your battery, it is best to start out with the timer set at one hour or less.

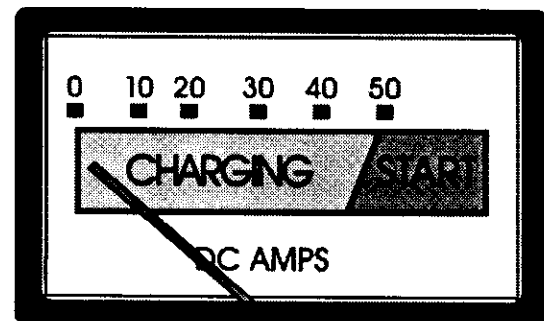
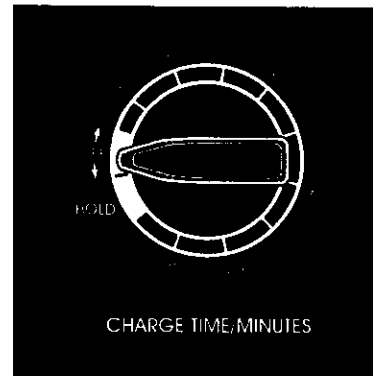
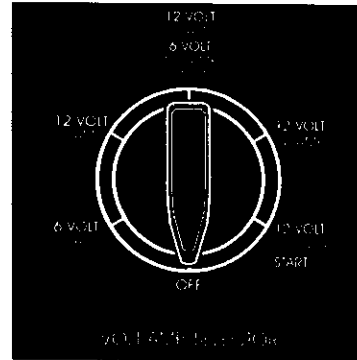
HOLD FEATURE:

This position overrides the timer, allowing the charger to continue charging for over 2.25 hours. This feature is most often used when the charging rate is 2 or 15 amps. Using this feature requires you to monitor the charging and to stop the charger when the battery is fully charged. Otherwise, charger will not stop and may cause damage to your battery.

AMMETER:

The ammeter indicates the measured amount of amperes being drawn by the battery. When you first start charging a battery, the reading will be high, with the needle around 50 or "START" when the selector is in the 50 amp charge position. As the battery becomes charged, the reading will decrease to 15 or 20 amps at full charge. This will be your indicator to stop charging. With the selector switch set to the 15 amp position, the meter needle should display 15 amps for a discharged battery and 7-8 amps when the battery is fully charged.

If you are using the 2 amp charge rate, you may see little or no meter needle activity.

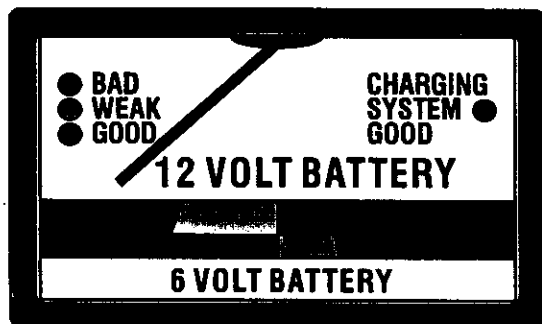


The "START" area of the ammeter indicates a high rate of current being drawn by the battery. For example, when cranking an engine, the needle will be at the far right side of the "START" area since the starter will be drawing up to 225 amps from the charger.

VOLTMETER:

To obtain an accurate reading of your battery's voltage before you charge, use the voltmeter as follows:

1. Set the timer to the OFF position, put the voltage selector switch at 12 or 6 VOLT according to the battery you are testing, and then connect the charger as indicated in "Charging your battery in the vehicle" on page 10. Charger does not have to be plugged into an outlet.
2. If a battery has recently been charged or in a vehicle that has been run recently, you may want to turn your headlights on for a few minutes before you read the meter so as not to get a false reading from a surface charge. Then shut lights off and read the meter, by observing the color coding (see below).



BATTERY TEST

This test is based on the terminal voltage of the battery. If the battery is installed in the vehicle, make sure the engine and all accessories are turned off.

1. Set the volt/amp selector switch to the OFF position.
2. Set the battery test switch to 6 VOLT for 6 volt batteries or 12 VOLT for 12 volt batteries.
3. Set the timer switch to the OFF position.
4. Read lower 6 VOLT BATTERY section of meter for 6 volt batteries and read upper 12 VOLT BATTERY section for 12 volt batteries.
5. Both 6 volt and 12 volt battery sections are divided into three color zones:
 - A. Green - Good battery.
 - B. Yellow - Weak battery.
 - C. Red - Bad battery.

NOTE: If the meter needle is in the Red or Yellow area, the battery may only need charging. If, after charging, the needle still indicates in the Red or Yellow area, have the battery tested by a qualified technician.

The meter needle may point to the Lighter Green section of the meter if this test is done on a recently charged battery or a battery from a vehicle that has been run recently.

ALTERNATOR/GENERATOR TEST

1. Set the volt/amp selector switch to the OFF position.
2. Set the battery test switch to 6 or 12 volts.
3. Set the timer switch to the OFF position.
4. With the charger off, and the clamps properly hooked up to the battery, start the engine and while it is at a fast idle, read the charging system meter. The battery should be in a good state of charge before doing this test.
5. The voltmeter is divided into three color zones:
 - A. Green and Lighter Green – Charging system is good.
 - B. Yellow – Alternator output is low.
 - C. Red – Charging system is bad.

NOTE: If meter needle points to Red or Yellow, the charging system may have loose fan belts, defective voltage regulator or alternator. Additional tests may be required to find the exact cause. Take the vehicle to a qualified service center.

Charging Your Battery

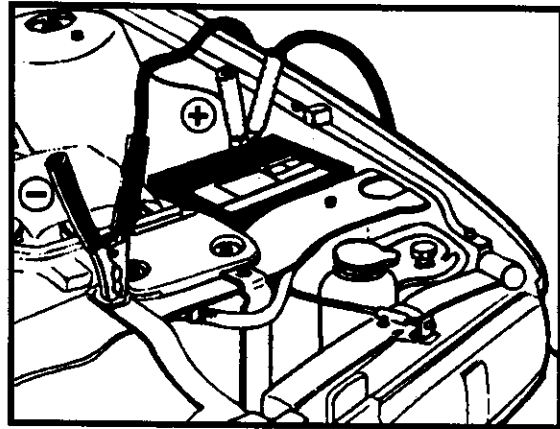
Charging your battery in the vehicle:

1. Arrange the power cord and charging cords carefully in order to avoid damage that could be caused by the hood, door, or moving engine parts.
2. Keep clear of the fan blades, belts, pulleys, and other parts that can cause injury.
3. Check the polarity of the battery posts using the identification marks on the battery case: POSITIVE (POS,P, +) and NEGATIVE (NEG,N, -).
4. Identify which post of the battery is ground or connected to the chassis. **THE NEGATIVE POST IS NORMALLY THE ONE THAT IS GROUNDED.**

5. **To charge a negative grounded post system:** Connect the red (POSITIVE) battery charger clamp to the ungrounded POSITIVE (POS,P,+) post of the battery. Then connect the black (NEGATIVE) clamp to a heavy metal part of the chassis or engine block, away from the battery. Do not connect clamp to carburetor, fuel lines, or sheet metal parts.

To charge a positive grounded post system: Connect the black (NEGATIVE) battery charger clamp to the NEGATIVE (NEG,N,-) ungrounded post of the battery. Then connect the red (POSITIVE) clamp to a heavy unpainted metal part of the chassis or engine block. Do not connect clamp to carburetor, fuel lines, or sheet metal parts.

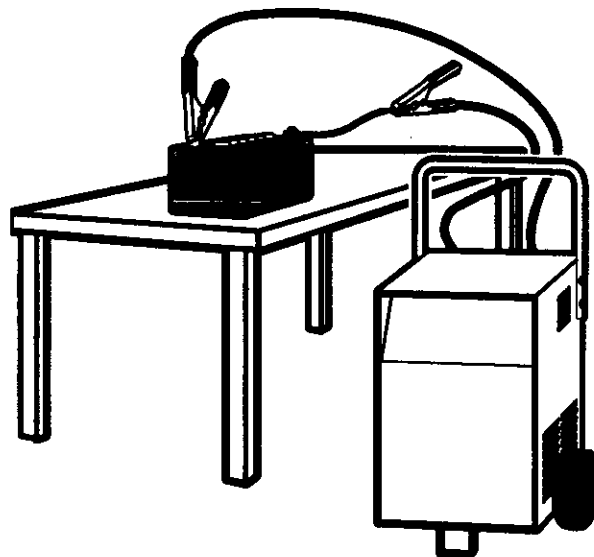
6. Connect the clamp to the battery post and twist or rock back and forth to make a solid connection. This will help keep the clamps from slipping off the posts and causing sparks.
7. Set VOLT/AMP SELECTOR switch and TIMER to the OFF position. Next plug the power cord into a grounded AC outlet.
8. Set the TIMER to the desired charge time, from 30-135 minutes. If more than 135 minutes of charging time is needed the HOLD position can be used. When using the HOLD feature the battery being charged must be monitored closely to avoid over charging.
9. Set the VOLT/AMP SELECTOR to the desired charge position. (See "CHARGE RATE" chart on page 12 for correct settings.)
10. When battery is fully charged, the ammeter pointer will be in the farthest left position and the voltmeter pointer will be in the green area of the meter.
11. When the battery is fully charged, turn timer knob to OFF position, then unplug the charger power cord. Stand away from battery and remove the charger clamps from the NEGATIVE end of the cable first, then from the POSITIVE post.
12. Clean and store the battery charger in a dry location.



NEGATIVE GROUNDED SYSTEM

Charging your battery outside the vehicle:

1. Remove battery from vehicle, making sure to disconnect grounded terminal first with all power turned off to the vehicle.
REMEMBER: A marine battery should be removed and charged on shore unless special equipment designed for marine use is available. Hydrogen gas emissions can create an explosion if battery is charged on board your boat.
2. Check the polarity of the battery posts as indicated on the battery case: POSITIVE (POS,P,+) and NEGATIVE (NEG,N,-).
NOTE: On top-post batteries, the positive battery terminal usually has a larger diameter than the negative one.
3. Connect the red (POSITIVE) charger clamp to the POSITIVE post of the battery. Be sure to rock the clip back and forth to make a solid connection.
4. Attach a 6-gauge (AWG) or a 4-gauge (SAE) insulated battery cable of at least 24-inches in length to the NEGATIVE battery post. This cable will provide a safer connection because any arcing and sparking will not occur directly over the battery. (The battery cable is not provided with the charger, but may be purchased at most automotive accessory outlets.)
5. Take the other end of the 6-gauge (AWG) or a 4-gauge (SAE) insulated 24-inch cable and, standing as far away from the battery as possible, connect the black (NEGATIVE) charger clamp to the free end of the cable. Be sure to rock the clamp back and forth to make a solid connection.
IMPORTANT: Wear safety glasses and face away from battery while you are making the final connection.
6. Set the VOLT/AMP SELECTOR switch and TIMER to the OFF position. Next plug the power cord into a grounded AC outlet.
7. Set the TIMER to the desired charge time, from 30-135 minutes. If more than 135 minutes of charging time is needed the hold position can be used. When using the HOLD feature the battery being charged must be monitored closely to avoid over-charging.
8. Set the VOLT/AMP SELECTOR to the desired charge position. (See "CHARGE RATE" chart on page 12 for correct settings.)
9. When battery is fully charged, the ammeter pointer will be in the farthest left position and the voltmeter pointer will be in the green area of the meter.
10. When the battery is fully charged, turn timer knob to the OFF position, then unplug the charger power cord. Stand away from battery and remove the charger clamps from the NEGATIVE end of the cable first, then from the POSITIVE post.
11. Clean and store the battery charger.



Calculating charge times

The Chart Method

Use the following table to more accurately determine the time it will take to bring a battery to full charge. First, identify where your battery fits into the chart.

- Small batteries — motorcycles, garden tractors, etc. — are usually rated in Ampere Hours (AH). For example: 6 to 12 AH, or 12 to 32 AH.
- Batteries in cars and smaller trucks are usually rated in Reserve Capacity (RC), Cold-Cranking Amps (CCA), or both.

- Marine, or deep-cycle batteries are usually rated in Reserve Capacity (RC).
- **NR** means that the charger setting is **NOT RECOMMENDED**.

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-percent charge** prior to recharging. Add more time for severely discharged batteries.

BATTERY SIZE/RATING			CHARGE RATE/CHARGING TIME - HOURS		
			2 AMP	15 AMP	50 AMP
SMALL BATTERIES	Motorcycle, garden tractor, etc.	6 - 12 AH	2 - 4	NR	NR
		12 - 32 AH	4 - 10	NR	NR
CAR/TRUCKS	200 - 315 CCA	40 - 60 RC	11 - 14	1½ - 2	1/2 - 5/8
	315 - 550 CCA	60 - 85 RC	14 - 18	2 - 2½	5/8 - 3/4
	550 - 1000 CCA	85 - 190 RC	18 - 35	2½ - 4½	¾ - 1½
MARINE/DEEP CYCLE		80 RC	18	2½	NR
		140 RC	27	3½	NR
		160 RC	30	4	NR
		180 RC	33	4½	NR

The Hydrometer or Electronic Method

To find the time needed to fully charge your battery, determine the battery's charge level with a hydrometer or electronic Percent-of-Charge Tester. The following table will help you convert hydrometer readings to percent of charge values.

SPECIFIC GRAVITY	PERCENT OF CHARGE	PERCENT OF CHARGE NEEDED
1.265	100%	0%
1.225	75%	25%
1.155	25%	75%
1.120	0%	100%

When you know the percent of charge and the Amp Hour (AH) rating of your battery, you can calculate the approximate time needed to bring your battery to a full charge.

To convert Reserve Capacity to Amp Hours, divide Reserve Capacity by 2, and add 16:

$$\text{Amp Hours} = \frac{\text{Reserve Capacity}}{2} + 16$$

To calculate time needed for a charge:

- Find the percent of charge needed. (A battery at 50 percent charge that will be charged to 100 percent needs another 50 percent (.50).
- Multiply the Amp Hour rating by the charge needed (.50) and divide by the charger setting (2, 20 or 60 amps).
- Multiply the result by 1.25 and you'll have the time needed, in hours, to bring the battery to full charge.
- Add one additional hour for a deep-cycle battery.

Example:

$$\frac{\text{Amp Hour Rating} \times \% \text{ of charge needed} \times 1.25}{\text{Charger Setting}} = \text{hours of charge}$$

$$\frac{100 \text{ (AH Rating)} \times .50 \text{ (charge needed)} \times 1.25}{15 \text{ (Charger Setting)}} = 4.1625 \text{ hours}$$

$$\frac{100 \times .50}{15} = 2.5 \times 1.25 = 3.125$$

You would need to charge your 100-Ampere Hour Battery for a little more than 4 hours at the 15-Amp charge rate using the above example.

Using the engine start feature

Your battery 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 timer knob to the OFF position. Then follow the instructions for how to connect the charger to the battery in the section "Charging your battery in the vehicle" on page 10.
2. Plug in the charger and set the timer to the HOLD position.
3. Set the volt/amp selector switch to the engine start position for a 12 volt battery and the charger at the 225 amp rating. For a 6 volt battery, set the charger at the 125 amp rating, and then crank the engine. Crank the engine for no more than five seconds and if it does not start, wait four minutes before cranking again. During extremely cold weather, or if the battery is severely exhausted, charge the battery for about five minutes before cranking the engine.
4. If the engine does not start, charge the battery for five more minutes in the 50 amp position, before cranking it again for three seconds.
5. After the engine starts, unplug charger power cord from the outlet. Then, move the volt/amp selector switch to OFF before disconnecting the DC clamps.

IMPORTANT: Do not try to start the engine without a battery in it. You could cause damage to the electrical system.

If the engine does turn over, but never starts up, there is not a problem with the starting system, there is a problem somewhere else with the vehicle. STOP cranking the engine until the other problem has been diagnosed and corrected.

Maintenance and care

A minimal amount of care can keep your battery charger working properly for years.

1. Clean the clamps each time you are finished charging. Wipe off any battery fluid that may have come in contact with the clamps to prevent corrosion.
2. Coil the input and output cords neatly when storing the charger. The cords can be wrapped around the handle of the charger. This will help prevent accidental damage to the cords and charger.
3. Occasional cleaning of the case of the charger with a soft cloth will keep the finish shiny and help prevent corrosion.

Troubleshooting

Performance problems often result from little things that you can fix yourself. Please read through this table for a possible solution if a problem occurs.

PROBLEM	POSSIBLE CAUSE	SOLUTION/REASONS
No reading on the ammeter.	Clamps are not making a good connection. 2 amp charge rate is being used.	Check for poor connection at battery. Make sure clamps and posts are clean. Battery may not want to accept a charge due to excessive run down state. Ammeter may show no activity at the 2 amp setting.
No reading on ammeter, charger fan not working.	AC cord and/or extension cord is loose. Poor electrical connection.	Check AC outlet and extension cords for loose fitting plug. Check for open fuse or circuit breaker supplying AC outlet.
No reading on voltmeter.	Battery severely discharged. Test switch may be in the wrong switch position.	Continue to charge battery for another two hours. If problem continues, call Sears Service at 1-800-SEARS-64. Check if test switch is in proper 6 or 12 volt position.
Voltmeter pointer always to righthand side of meter.	Battery severely discharged. Test meter may be in the wrong switch position.	Continue to charge battery for another two hours. If problem continues, call Sears Service at 1-800-SEARS-64. Check if test switch is in proper 6 or 12 volt position.
Circuit breaker in charger cycles on and off with a clicking sound.	Shorted battery clamps. Shorted battery. Charger leads reversed. Volt/Amp Selector Switch set to the START position.	Circuit breaker cycles when current draw is too high. Separate the clamps. Check for worn cables and replace if needed. Have a Sears Service Center test the battery. Correct connections. Correct Volt/Amp Selector setting.
Short start cycle when cranking engine.	Drawing more than 225 amps for a period equal to or less than 5 seconds. Failure to wait for 4 minutes (240 seconds) between cranks.	Crank time varies with the amount of current drawn. If cranking draws more than 225 amps, crank time may be less than 5 seconds. Wait 4 minutes before next crank.
Ammeter reads less than selected charge rate when charging a discharged battery.	Extension cord too long or wire gauge is too small. Weak cell or sulfated plate in battery. The battery is only partially discharged.	Use shorter or heavier gauge extension cord. Sulfated battery will eventually take a normal charge after a period of time. If the battery will not take a charge, have a Sears Service Center test the battery. Continue to charge battery.
Charger makes a loud buzz or hum.	Transformer laminations vibrate (buzz). Shorted diode (hum).	Continue charging. Buzz is not abnormal. Have charger tested by a Sears technician.

If the above solutions do not eliminate the problem...
call toll-free from anywhere in the U.S.A.
1-800-SEARS-64
(1-800-732-7764)
7 AM to 4:30 PM CT Monday through Friday

For information about troubleshooting, call toll-free from anywhere in the
U.S.A. 7 am to 4:30 pm CT Monday through Friday.
1-800-SEARS-64 (1-800-732-7764).

For repair parts or the location of a Sears Parts and Repair Center call:
1-800-4-MY-HOME® (1-800-469-4663).