

**6 & 12 Volt  
Battery and Systems  
Tester  
with 100 Amp Load**

# DESCRIPTION

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This Load Tester tests 6 or 12 volt automotive-size lead-acid batteries under load. It will also test 6 or 12 volt charging systems and 12 volt starting systems. This tester comes complete with a color-coded precision meter, heavy-duty saw-tooth clamps, and a nickel-chrome plated case.

## SPECIFICATIONS

Load Testing .....	6 or 12 Volt
Charging System Testing .....	6 or 12 Volt Systems
Starting System Testing .....	12 Volt Systems
Meter Accuracy .....	±3%
Meter Scale Range .....	4 to 16 Volts DC
Meter Scale Graduations .....	0.2 Volts

# GENERAL SAFETY INFORMATION

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**DO NOT ATTEMPT TO OPERATE THIS BATTERY TESTER** until reading this entire instruction manual. It contains information necessary for the safe operation of this tester.

## **WARNING**

### **BATTERY EXPLOSION CAN KILL, INJURE, AND CAUSE PROPERTY DAMAGE!**

1. ALWAYS wear safety glasses when working with a lead-acid battery to reduce risk of battery acid contact with eyes.
2. NEVER create a spark or flame near a lead-acid battery. It takes very little to ignite the explosive gasses produced by a lead-acid battery.
3. NEVER connect BOTH tester clamps directly to a battery or arcing may occur. Consult the OPERATION instructions for proper connection and disconnection procedures.
4. NEVER connect the tester clamps to the wrong battery terminals or arcing may occur.
5. NEVER attach the tester clamps to a battery with the load switch pressed or arcing will occur.

## **CAUTION**

### **Hot case can burn skin or cause property damage!**

6. ALWAYS be aware of the high heat created during load testing and the areas of the tester case that become hot. Keep hands clear of these areas and do not allow painted or fabric surfaces to come in contact with these surfaces.

# OPERATION

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1. Follow these steps when battery is installed In vehicle. Be aware that a spark near battery may cause battery explosion.

## **WARNING**

**BATTERY EXPLOSION CAN KILL, INJURE, AND CAUSE PROPERTY DAMAGE! TO REDUCE RISK OF BATTERY EXPLOSION, READ THE FOLLOWING OPERATING INSTRUCTIONS AND THE PREVIOUS SAFETY INSTRUCTIONS PRIOR TO OPERATING THIS TESTER.**

- a. Position cords to reduce risk of damage by hood, door or moving engine parts.
  - b. Stay clear of fan blades, belts, pulleys, and other moving parts that can cause injury to persons.
  - c. Check polarity of battery posts: POSITIVE (POS, P, +) battery post usually has a larger diameter than NEGATIVE (NEG, N, -) post.
  - d. Determine which post of the battery is grounded (connected) to the chassis. If negative post is grounded (as in most vehicles), see item e. If positive post is grounded to the chassis, see item f.
  - e. For negative-grounded vehicle, connect POSITIVE (red) clip from battery tester to POSITIVE (POS, P, +) ungrounded post of battery. Connect NEGATIVE (black) clip to vehicle chassis or engine block away from the battery. Do not connect clip to carburetor, fuel lines or sheetmetal body parts. Connect to a heavy gauge metal part of the frame or engine block.
  - f. For positive grounded vehicle, connect NEGATIVE (black) clip to NEGATIVE (NEG, N, -) ungrounded post of battery. Connect POSITIVE (red) clip to vehicle chassis or engine block away from the battery. Do not connect clip to carburetor, fuel lines, or sheet metal body parts. Connect to a heavy gauge metal part of the frame or engine block.
  - g. When disconnecting, remove clip from vehicle chassis FIRST, then remove the clip from the battery terminal.
2. Follow these steps when battery is outside vehicle. Be aware that a spark near battery may cause battery explosion.

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- a. Check polarity of battery posts: POSITIVE (POS, P, +) battery post usually has a larger diameter than NEGATIVE (NEG, N, -) post.
- b. Attach a 24" long, 6 gauge (AWG) insulated battery cable to NEGATIVE (NEG, N, -) battery post.

- c. Connect POSITIVE (red) clip to POSITIVE (POS, P, +) post of battery.
- d. Position yourself and free end of cable as far away from battery as possible. Then connect the NEGATIVE (black) clip to the free end of the cable.
- e. Do not face battery when making final connection.
- f) When disconnecting, always do so in reverse sequence of connecting procedure and break the first connection while as far away from battery as possible.

## LOAD TESTING BATTERIES (CONVENTIONAL AND MAINTENANCE-FREE, LEAD-ACID, AUTOMOTIVE TYPES)

### CAUTION

**HOT CASE CAN BURN SKIN OR CAUSE PROPERTY DAMAGE! The load applied by this tester generates high heat. Be aware that the front and back surfaces of the case, above the meter and below the handle, can become hot. Keep skin clear from these areas. Also, do not lay hot tester on painted or fabric surfaces.**

For 12 Volt Batteries - Start Here.

For 6 Volt Batteries - Go to Step #3.

1. Determine approximate rating of the battery in Cold Cranking Amps (CCA).
2. When batteries are cold, they perform less efficiently. This will cause test readings to be lower than the true performance of the battery. For testing cold batteries “derate” the battery as follows: For temperatures between 30 and 10 degrees F, read the scale as if the battery were 50 CCA smaller. For temperatures between +10 and -10 degrees F, read the scale as if the battery were 100 CCA smaller. For lower temperatures, read the scale as if the battery were 150 CCA smaller. After double checking to make sure all connections are correct and tight, press the load switch on the bottom of the tester for 10 seconds. Then read the meter scale for the voltage of battery being tested. Refer to the following to determine battery condition.

### CAUTION

**To prevent overheating, press the load switch for 10 seconds at most, then allow tester to cool for 5 minutes before pressing the load switch again if further testing is required.**

3. Green (Good)

**Note:** When testing a 12 volt battery, the needle must be in the green area at the “step” that equals the battery’s Cold Cranking Amp (CCA) rating to be considered “Good”.

Battery capacity is OK. Battery may or may not be fully charged. Perform BATTERY PERCENT OF CHARGE TEST (see end of this manual). If less than a full charge, check for electrical system drain or

possible charging system problems. Recharge battery to full charge before returning to service.

4. Yellow (weak) or Red (bad) and Needle Stays in One Place: Battery capacity is not satisfactory. Battery may be defective or just need recharging. Check specific gravity of battery, or perform BATTERY PERCENT OF CHARGE TEST to determine state of charge. If state of charge is low, recharge battery and retest. If battery is fully charged and still tests weak or bad, replace battery. If battery will not accept a full charge, replace it.
5. Yellow or Red (Weak or Bad) and Needle drops during test: Battery may be defective or very discharged. Release load switch and watch meter. If meter returns to 12 volts or above within several seconds, the battery is probably defective. A slow return of the needle to 12 volts or above indicates that the battery is run down and has little charge. Check specific gravity, or perform BATTERY PERCENT OF CHARGE TEST, recharge if necessary, and retest.

## TESTING STARTING SYSTEM (12 VOLT ONLY)

1. Test battery as indicated above. If battery is not good, do not perform this test. Replace battery, then test starting system. When doing the battery test, read the exact voltage that the battery has under load. If the voltage does not settle in after 10 seconds, the starting test cannot be run.

Load Volts (From Battery Load Test)	Minimum Cranking Voltage
10.2	7.7
10.4	8.2
10.6	8.7
10.8	9.2
11.0	9.7
11.2	10.2
11.4	10.6

2. Using the voltage obtained in the battery test, refer to the following chart (also at the bottom of the meter face) to determine the minimum cranking voltage that should be present during starting. For vehicles with engines larger than 200 cubic inch displacement (3.3 liters), find the Load Volts that you obtained when doing the load test in step #1. Then go directly across to find your vehicle's Minimum Cranking Voltage. If your engine is smaller than 200 cubic inch displacement (3.3 liters), use the next highest Minimum Cranking Voltage found one row down.

**Example:** If the voltage reading during the battery load test in step #1 was 11.0 volts, find 11.0 in the Load Volts column. Then go directly across to find the Minimum Cranking Voltage - 9.7 volts -for an engine larger than 200 cubic inches (3.3 liters). For an engine smaller than 200 cubic inches, move down one row to find a Minimum Cranking Voltage of 10.2 volts.

3. Now disable the vehicle's ignition system so spark plugs will not fire.
4. Crank the engine and read the voltage on the meter.
5. If the reading is lower than the Minimum Cranking Voltage you got in step #2 above, there is excessive current draw in the starting system. Check for poor connection, corrosion, defective cables, or a defective starter motor or solenoid.

## CHARGING SYSTEM TEST

1. With tester connected, start engine and set to fast idle (about 1500 rpm).
2. With all electrical accessories turned off, read the charging system scale for the voltage battery being tested. For 6 volt batteries, read OK, HI, or LOW. For 12 volt batteries, read OK, LOW, or Check Specs.

If OK, go to step #3.

If LOW, the alternator belt may be loose, the alternator may be defective or the voltage regulator may be defective.

If HI (6 Volt Systems), the voltage regulator is most likely defective.

If CHECK SPECS (12 Volt Systems), the alternator output may be alright, or it may be high — depending on the vehicle. Many late model vehicles have alternators that are designed to charge at up to 16 volts, while many older vehicles have lower limits. Because of this, it is necessary to check the vehicle's alternator output specifications to determine whether a reading in this range is to be considered acceptable or too high. If too high for the vehicle being tested, the voltage regulator is most likely defective.

3. Turn on headlights and heater fan to high and read meter. The needle should remain in the green zone. If it drops out of the green zone, a problem is indicated, probably a defective alternator.

## BATTERY PERCENT OF CHARGE TEST (12 VOLT ONLY)

1. Connect tester to battery according to the operating instructions.
2. Press load switch for 10 seconds to remove any surface charge from battery, then release load switch.
3. Wait 1 or 2 minutes for the battery to recover, then read voltage on meter.
4. Using the volt reading, find the corresponding percent-of-charge on the chart below.

Voltage Reading	12.0	12.2	12.4	12.6
% of Charge	25%	50%	75%	100%

# MAINTENANCE

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Clean clamps and case after each use to prevent corrosion from battery fluid. For any other maintenance or service call Battery Tester Service, toll free at (800) 328-2921.

## LIMITED WARRANTY

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Century Manufacturing Co. warrants that for 1 year from the date of original retail purchase, it will repair at no charge for parts and labor, this product proven defective in material or workmanship. If, after reasonable efforts by Century, the product is deemed not repairable, Century will, at its option, refund the original purchase price or supply a replacement unit.

THE TERMS OF THE CENTURY LIMITED WARRANTY CONSTITUTE THE BUYERS SOLE AND EXCLUSIVE REMEDY. THE IMPLIED WARRANTIES OR MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE LIMITED IN DURATION TO THIS EXPRESS WARRANTY. AFTER 1 YEAR FROM DATE OF PURCHASE ALL RISK OF LOSS FROM WHATEVER REASON SHALL BE PUT UPON THE PURCHASER.

CENTURY SHALL NOT BE LIABLE FOR INCIDENTAL AND CONSEQUENTIAL DAMAGES UNDER ANY CIRCUMSTANCES: CENTURY'S LIABILITY, IF ANY SHALL NEVER EXCEED THE PURCHASE PRICE OF THIS MACHINE REGARDLESS OF WHETHER LIABILITY IS PREDICTED UPON BREACH OF WARRANTY (EXPRESS OR IMPLIED), NEGLIGENCE, STRICT TORT OR ANY OVER THEORY.

This warranty extends to each person who acquires lawful ownership within one year of the original retail purchase, but is void if the product has been abused, altered, misused or improperly packaged and damaged when returned for repair.

This warranty applies to the product only and does not apply to any accessory items included with the product which are subject to wear from usage; the replacement or repair of these items shall be at the expense of the owner.

Some states or provinces do not permit the limitation of warranties or limitation of consequential or incidental damages, so the above disclaimer and limitation 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 or province to province.

### **TO OBTAIN SERVICES UNDER THIS WARRANTY**

Bring your Century 100 Amp Tester with sales receipt (or other proof of purchase date) to place of purchase. If it is determined that the product is defective and still under warranty, the product will be exchanged with another unit of the same or equivalent design. Or call (952) 884-3211 or (800) 328-2921.

For answers to questions concerning use, out-of-warranty service, or warranty/service information on other Century products, contact;

Century Mfg. Co.  
9231 Penn Ave. So.  
Minneapolis, MN 55431

(952) 884-3211  
(800) 328-2921