

# CENTTECH®

## Digital Automotive Battery Analyzer

Item 66892

### ⚠ WARNING

Read this material before using this product.  
Failure to do so can result in serious injury.  
**SAVE THIS MANUAL.**



When unpacking, make sure that the product is intact and undamaged.  
If any parts are missing or broken, please call 1-800-444-3353 as soon as possible.

Visit our website at: <http://www.harborfreight.com>

## Specifications

Functions	Voltage Resistance CCA Value Battery Capacity
Power Source	12V Battery being tested

## Save This Manual

Keep this manual for the safety warnings and precautions, assembly, operating, inspection, maintenance and cleaning procedures. Write the product's serial number in the back of the manual near the assembly diagram (or month and year of purchase if product has no number). Keep this manual and the receipt in a safe and dry place for future reference.

## IMPORTANT SAFETY INFORMATION

The warnings and precautions discussed in this manual cannot cover all possible conditions and situations that may occur. It must be understood by the operator that common sense and caution are factors which cannot be built into this product, but must be supplied by the operator.

1. Use only according to these instructions. Improper setup can create hazards.
2. Wear ANSI-approved safety goggles and heavy-duty work gloves during setup and use.
3. Keep work area clean and well lit.
4. Keep bystanders out of the area during setup and use.
5. Do not use when tired or when under the influence of drugs or medication.
6. This product is not a toy. Do not allow children to play with or near this item.
7. Inspect before every use; do not use if parts are loose or damaged.
8. Do not smoke or have open flames near the battery.
9. Do not connect the Analyzer to the battery while the engine is running.  
Turn the engine off before connecting.
10. Maintain product labels and nameplates. These carry important safety information. If unreadable or missing, contact Harbor Freight Tools for a replacement.



**SAVE THESE INSTRUCTIONS.**

## Operating Instructions



Read the **ENTIRE IMPORTANT SAFETY INFORMATION** section at the beginning of this manual including all text under subheadings therein before set up or use of this product.

## Setup

**Note:** This Analyzer is powered by the battery being tested. No additional battery is required.

1. The clip on the back of the tool can be used to hang the tool.
2. The soft case can be used as a stand while using the tool.
3. The battery should be rested 30 minutes before testing. Vehicle should be turned off with no accessories operating.
4. Attach clamps securely to the battery terminals. Terminals should be cleaned prior to testing.
5. Test a single 12V battery only. Do not connect this analyzer to a series of batteries or an electrical system containing more than one 12V battery. Do not connect to any other electrical system; damage to the analyzer will result.
6. Be careful not to damage the analyzer. Avoid dropping it or dropping items onto it. Do not expose to moisture or chemicals.
7. The analyzer may be used continuously without overheating.

## Analyzing a Battery

1. Attach the Clamps to the battery terminals.
  - a. Attach the RED Clamp (2) to the POSITIVE (+) terminal. Attach the BLACK Clamp (3) to the NEGATIVE (-) terminal.

**Note:** There must be a good connection between the clamps and the terminals. If there is a poor connection, the Clamp sign will appear in the lower left corner of the Display (1), and a “beeping” sound will be heard.

- b. If poor connection signal is received, reconnect the Clamps, and restart the Analyzer (see next paragraph) to restart the test.
2. With the Clamps connected, turn on the ON / OFF Button (4) and perform the following steps:
    - a. Press the ON / OFF (4) Button (4) for 1 second. The Display (1) will light and a single “beep” tone will be heard. All symbols on the Screen will briefly light as the Analyzer goes through test mode.
    - b. Press the OK Button (7) to enter CCA (Cold Cranking Amp) test.
    - c. The numerical display will flash, for you to enter the rated CCA of the Battery. Press the Up/Down Arrow Button (6) to set the flashing digit. Press the SEL button to move between digits.

**Note:** The lowest digit changes in increments of 5 only.

- d. After the rated CCA is entered, press the OK Button (7). The Analyzer will test for 10 seconds.
- e. The unit will beep when the test is complete. Press any button to stop it from beeping.
- f. If the voltage of the battery is too low for testing, a LOW sign will appear at the lower left of the Display. The battery must be charged and then rested for 30 minutes before it can be tested.

## Reading Test Results

1. The Display (1) shows Voltage and Resistance.
  - a. The first column displays the Voltage of the Battery.
  - b. The second column displays the Resistance of the Battery.
2. Press the SEL button and the Display will show input CCA and test CCA.
  - a. The first column shows input CCA value.
  - b. The second column shows test CCA value.
3. The bar graph at the bottom of the Display shows Battery Capacity.
  - a. If the reading is less than 40% the battery is damaged or worn out and must be replaced.
  - b. If the reading is 40-60%, the battery is weak, and replacement should be considered.
  - c. If the reading is 60-80% the battery is workable.
  - d. If the reading is 80-100% the battery is in good condition.
4. To turn OFF the Analyzer, press the ON / OFF Button (4) for 1 second.
5. Remove the Clamps from the battery terminals.

## Understanding CCA

1. CCA (Cold Cranking Amp) values are marked on the battery casing. The CCA rating defines how many amps the battery can deliver at 0° F continuously for 30 seconds before the voltage drops to 7.2 VDC.
2. Temperature strongly affects battery performance. As temperature goes down, the energy production of the battery is reduced, and the amount of energy required to start a vehicle is increased.

° F	° C	Available Battery Energy	Drain on Battery
80° F	26.7° C	100%	100%
32° F	0.0° C	65%	165%
0° F	-17.8° C	40%	250%
-20° F	-28.9° C	25%	350%

3. A higher CCA rated battery is desirable in colder climates.

## Battery Capacity

Battery Capacity can be indicated as Amp Hours (Ah) or Watt Hours (WH).

1. An Amp Hour is measured by continuous discharge for 20 hours.  
For example, if a battery discharges 6 amps continuously for 20 hours before dropping to 10.5 VDC, the Ah rating is 6 amps X 20 hours = 120 Ah.
2. A Watt Hour is simply Voltage times Ah.  
For example, a 12 volt battery rated at 120 Ah is 1440 WH. (12 VDC X 120 Ah = 1440 WH.)

## Battery Resistance

1. Resistance (also called “impedance”) is a measure of the resistance of free flow of electrons within the battery. Lower resistance is better.
2. In a 12V lead-acid battery, 9-13 mOhms (milliOhms) is a good range. Resistance levels over 20 mOhms may indicate a problem.
3. A battery that has just been charged shows increased resistance, therefore the battery must be rested before being tested. Low electrolytes cause increased resistance. Resistance increases during use as the battery is discharged.

## Battery Function

There are four primary functions of a vehicle battery. It is important to test and maintain your battery in good condition to ensure your battery performs these functions:

1. Supplies energy to the starter and other vehicle functions during starting.
2. Makes up for deficiencies of energy supplied by the generator or alternator during operation.
3. Stores excess energy created by the generator or alternator during operation.
4. Buffers the voltage in the vehicle electrical system, protecting components from damage.

## Battery Faults

**SULFATE ACCUMULATION:** Over the life of the battery the chemical reactions on the surface of the plates which store and release energy cause sulfates to build up. This slowly degrades battery performance until the battery must be replaced.

**INSUFFICIENT ELECTROLYTE:** If exposed to air, the battery plates will accumulate sulfates rapidly. Also with low electrolyte, only the portion of the plates in the electrolyte can function.

**SHORT CIRCUIT OF THE BATTERY PLATES:** If the plate insulators are damaged or lead sludge builds up on the bottom of the battery, the plates can short circuit and stop working.

**OVER DISCHARGE OF THE BATTERY:** Lead acid batteries should not be fully discharged. If the battery becomes fully discharged, it may be damaged. A fully discharged battery may be restored by trickle charging over a 36 hour period.

**Note:** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

**Record Product's Serial Number Here:** \_\_\_\_\_

**Note:** If product has no serial number, record month and year of purchase instead.

## PLEASE READ THE FOLLOWING CAREFULLY

THE MANUFACTURER AND/OR DISTRIBUTOR HAS PROVIDED THE PARTS LIST AND ASSEMBLY DIAGRAM IN THIS MANUAL AS A REFERENCE TOOL ONLY. NEITHER THE MANUFACTURER OR DISTRIBUTOR MAKES ANY REPRESENTATION OR WARRANTY OF ANY KIND TO THE BUYER THAT HE OR SHE IS QUALIFIED TO MAKE ANY REPAIRS TO THE PRODUCT, OR THAT HE OR SHE IS QUALIFIED TO REPLACE ANY PARTS OF THE PRODUCT. IN FACT, THE MANUFACTURER AND/OR DISTRIBUTOR EXPRESSLY STATES THAT ALL REPAIRS AND PARTS REPLACEMENTS SHOULD BE UNDERTAKEN BY CERTIFIED AND LICENSED TECHNICIANS, AND NOT BY THE BUYER. THE BUYER ASSUMES ALL RISK AND LIABILITY ARISING OUT OF HIS OR HER REPAIRS TO THE ORIGINAL PRODUCT OR REPLACEMENT PARTS THERETO, OR ARISING OUT OF HIS OR HER INSTALLATION OF REPLACEMENT PARTS THERETO.

## Parts List and Assembly Diagram

Part	Description	Qty
1	Display	1
2	Red (Positive) Battery Clamp	1
3	Black (Negative) Battery Clamp	1
4	ON / OFF Button	1
5	Select (SEL) Button	1

Part	Description	Qty
6	UP / DOWN Arrow Button	1
7	OK Button	1
8	Analyzer Body	1
9	Battery Clamp Leads	2



**Note:** Some parts are listed and shown for illustration purposes only, and are not available individually as replacement parts.

## 90 Day Warranty

Harbor Freight Tools Co. makes every effort to assure that its products meet high quality and durability standards, and warrants to the original purchaser that this product is free from defects in materials and workmanship for the period of 90 days from the date of purchase. This warranty does not apply to damage due directly or indirectly, to misuse, abuse, negligence or accidents, repairs or alterations outside our facilities, criminal activity, improper installation, normal wear and tear, or to lack of maintenance. We shall in no event be liable for death, injuries to persons or property, or for incidental, contingent, special or consequential damages arising from the use of our product. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation of exclusion may not apply to you. THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS.

To take advantage of this warranty, the product or part must be returned to us with transportation charges prepaid. Proof of purchase date and an explanation of the complaint must accompany the merchandise. If our inspection verifies the defect, we will either repair or replace the product at our election or we may elect to refund the purchase price if we cannot readily and quickly provide you with a replacement. We will return repaired products at our expense, but if we determine there is no defect, or that the defect resulted from causes not within the scope of our warranty, then you must bear the cost of returning the product.

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

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