



Model: BT-100

**Battery Load Tester/Charging System Analyzer
For 6 and 12 Volt Batteries**

**READ THE ENTIRE MANUAL BEFORE USING THIS PRODUCT.
FAILURE TO DO SO COULD RESULT IN SERIOUS INJURY.**

IMPORTANT SAFETY INSTRUCTIONS

SAVE THESE INSTRUCTIONS – This manual will show you how to use your tester safely and effectively. Please read, understand and follow these instructions and precautions carefully, as this manual contains important safety and operating instructions.

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 THESE INSTRUCTIONS EACH TIME YOU USE THE TESTER.

WARNING: Pursuant to California Proposition 65, this product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. Wash hands after handling.

- Read the entire manual before using this product. Failure to do so could result in serious injury.
- Use the tester in a well-ventilated area.
- This tester is not intended for use by children.
- Do not expose the tester to rain or snow.
- Do not operate the tester if it has received a sharp blow, been dropped or otherwise damaged in any way; take it to a qualified service person.
- Inspect the battery for a cracked or broken case or cover. If the battery is damaged, do not use the tester.
- Do not disassemble the tester; take it to a qualified service person when service or repair is required. Incorrect reassembly may result in a risk of fire or electric shock.
- Follow these 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.

PERSONAL SAFETY PRECAUTIONS

- Wear complete eye protection and protective clothing when working near lead-acid batteries. Always have someone nearby for help.
- Have plenty of fresh water, soap and baking soda nearby for use, in case battery acid contacts your eyes, skin or clothing. Wash immediately with soap and water and seek medical attention.
- If battery acid comes into contact with eyes, flush eyes immediately for at least 10 minutes and get medical attention.
- Neutralize any acid spills thoroughly with baking soda before attempting to clean up.

- Remove all personal metal items from your body, such as rings, bracelets, necklaces and watches. A lead-acid battery can produce a short circuit current high enough to weld a ring to metal, causing a severe burn.
- Never smoke or allow a spark or flame in the vicinity of the battery or engine.

OPERATING INSTRUCTIONS**BATTERY TEST**

IMPORTANT: During the first use of this tester, you will notice a little smoke and/or a burning smell. This is normal and will stop after a short burn-in period. Also, during regular use, the metal housing of the unit will get hot enough to burn skin or cause property damage; carry by the handle. Neither of these factors will affect the performance of your tester.

1. Turn off the ignition, all accessories and any loads.
2. Clean the battery terminals.
3. Clip the red clamp to the positive (POS, P, +) battery terminal.
4. Clip the black clamp to the negative (NEG, N, -) battery terminal.

6V BATTERY ANALYSIS

1. Read the meter and confirm the battery voltage is in the green "OK" area (see illustration).
2. Press and hold the load switch "on" for a maximum of 10 seconds and read the meter with the load still on. The needle should remain in the green area. If it doesn't, the battery is weak or bad.

CAUTION: To prevent overheating, allow tester to cool for 5 minutes before depressing the load switch again, if further testing is required.

12V BATTERY ANALYSIS

1. Find the Cold Cranking Amps (CCA) range on the meter (see illustration) that matches the CCA rating of the battery being tested.
2. Press and hold the load switch "on" for a maximum of 10 seconds and read the meter with the load still on. Then, refer to Table 1 or the back of the tester.

CAUTION: To prevent overheating, allow tester to cool for 5 minutes before depressing the load switch again, if further testing is required.

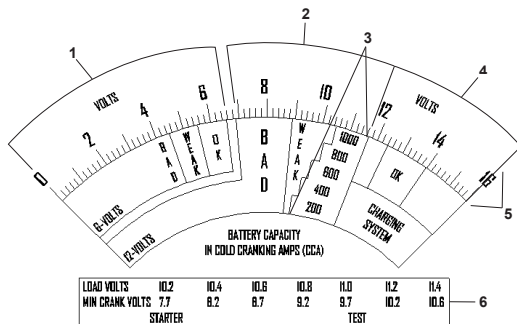
TABLE 1

LOAD TEST	BATTERY CONDITION
Good (green)	The battery capacity is OK. The battery may or may not be fully charged. Check the specific gravity of the battery to determine the state of charge, check for an electrical drain or possible charging system trouble. Recharge the battery to a full level.
Weak or bad, but the needle remains steady. (yellow or red)	The battery capacity is not satisfactory. The battery may be either defective or not fully charged. Check the specific gravity to determine which condition exists. If charging does not bring the specific gravity to the full charge level, the battery should be replaced.
Weak or bad, but the needle continues to fall. (yellow or red)	The battery may be defective or very run-down. Release the load switch and note the voltmeter reaction. Voltage recovery to 12 volts or above within a few seconds indicates a defective battery. A slow voltage recovery indicates a run-down condition. For best results, check the specific gravity.

TESTING THE CHARGING SYSTEM

1. Connect the tester.
2. Start the engine and run it at 1200 to 1500 rpm. CAUTION: Stay clear of moving engine parts.
3. Note the meter reading with all of the electrical accessories off. It should be in the green "OK" band in the "charging system" scale (see illustration).
4. With the headlights and blower motor on high, the meter should remain in the green "OK" band.
5. If the meter reads in the red band or outside the charging system zone, trouble is indicated; most likely a defective alternator.

METER



1. Range for 6 volt battery load testing
2. Range for 12 volt battery load testing
3. Cold cranking amps range
4. Charging system test range
5. Voltage scale
6. Starter test voltage table

STARTER MOTOR TEST

This test identifies excessive starter current draw, which makes starting difficult and shortens battery life. Perform the battery load test first, to make sure the battery is in good condition. If the battery tests either weak or bad, this test cannot be performed.

NOTE: The engine must be at a normal operating temperature.

1. Perform a basic battery load test. Note the exact voltage with the load test on (see meter illustration).
2. Using the load voltage obtained above, see Table 2 or the meter face, to find the minimum cranking voltage listed. If the engine is less than 200 CID, use the next higher minimum cranking voltage. For example, if the load voltage is 11.00, use 10.2 for the minimum cranking voltage instead of 9.7.
3. If possible, disable the vehicle's ignition system so that it will not start. The test works best if the starter cranks for 2 to 5 seconds.
4. Crank the engine and note the voltage reading during engine cranking.
5. If the cranking voltage is below the minimum cranking voltage in Table 2, the starter current draw is excessive. If the starter cranks slowly, check for high resistance or poor connections.

TABLE 2

STARTER TEST VOLTAGE							
LOAD VOLTAGE	10.2	10.4	10.6	10.8	11.0	11.2	11.4
MINIMUM CRANKING VOLTAGE	7.7	8.2	8.7	9.2	9.7	10.2	10.6