



Model: BT-100

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



OWNER'S MANUAL

**READ ENTIRE MANUAL BEFORE
USING THIS PRODUCT**

00-99-000437/0409

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1. IMPORTANT SAFETY INSTRUCTIONS

WARNING – RISK OF EXPLOSIVE GASES.

- 1.1** Working in the vicinity of a lead-acid battery is dangerous. Batteries generate explosive gases during normal operation. For this reason, it is of utmost importance that you follow the instructions each time you use this battery tester.
- 1.2** To reduce the risk of a battery explosion, 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.
- 1.3** **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.
- 1.4** **NOTICE:** During the first use of this tester, you may 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 may get hot, handle with care. Neither of these factors will affect the performance of your tester.

2. 12 VOLT BATTERY ANALYSIS

- 2.1** Look on the label of the battery to be tested and find the Cold Cranking Amps (CCA) rating.
- 2.2** Connect the positive (red) clamp to the positive (POS, P, +) battery post. Connect the negative (black) clamp to the negative (NEG, N, -) battery post. Rock the clamps back and forth to ensure a good electrical connection.
- 2.3** Find the Cold Cranking Amps (CCA) range on the meter (see illustration in section 6) that matches the CCA rating of the battery being tested.
- 2.4** 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.

3. 6 VOLT BATTERY ANALYSIS

- 3.1** Connect the positive (red) clamp to the positive (POS, P, +) battery post. Connect the negative (black) clamp to the negative (NEG, N, -) battery post. Rock the clamps back and forth to ensure a good electrical connection.
- 3.2** Read the meter and confirm the battery voltage is in the green area (see illustration in section 6).
- 3.3** 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.

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 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 Needle Continues to Fall (Yellow or Red)	The battery may be defective or very run down. Release the load switch and note the volt meter 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.

4. TESTING THE CHARGING SYSTEM

- 4.1** Connect the positive (red) clamp to the positive (POS, P, +) battery post. Connect the negative (black) clamp to the negative (NEG, N, -) battery post. Rock the clamps back and forth to ensure a good electrical connection.
- 4.2** Start the engine and run it at 1200 to 1500 rpm. **CAUTION:** Stay clear of moving engine parts.
- 4.3** Note the meter reading with all of the electrical accessories off. It should be in the green “good” band in the “charging system” scale (see illustration in section 6).
- 4.4** With the headlights and blower motor on high, the meter should remain in the green “good” band.
- 4.5** If the meter reads in the red band or outside the charging system zone, trouble is indicated.

5. 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.

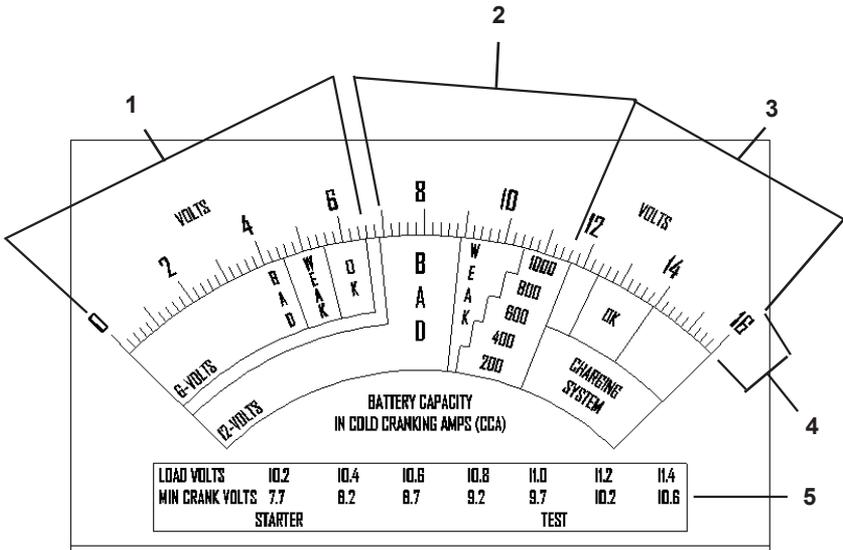
NOTE: The engine must be at a normal operating temperature.

- 5.1 Perform a basic battery load test (see section 2). In addition, note the exact voltage with the load test on (see illustration in section 6). If the battery tests either weak or bad this test cannot be performed.
- 5.2 Using the load voltage obtained above, look on Table 2 or on 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.
- 5.3 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.
- 5.4 Crank the engine and note the voltage reading during engine cranking.
- 5.5 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

6. METER



1. Range for 6 Volt Battery Load Testing
2. Cold Cranking Amps Range (step 2.3)
3. Charging System Test Range (step 4.3)
4. Voltage Scale (step 5.1)
5. Starter Test Voltage Table

6. LIMITED WARRANTY

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