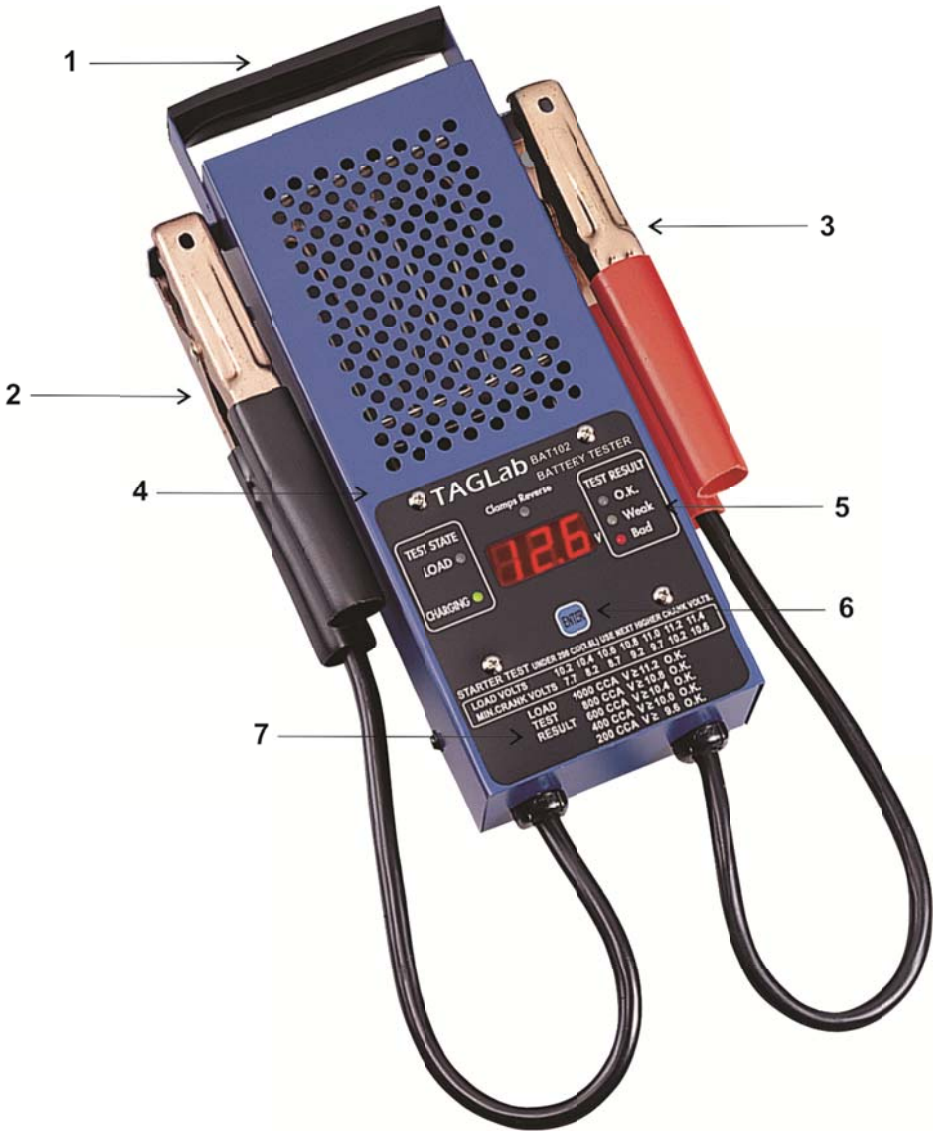
Battery Tester User Manual



1	**Safety Handle**
2	**Terminal connection cable (-) with clamp (black)**
3	**Terminal connection cable (+) with clamp (red)**
4	**Battery Analysis label (on back of tester)**
5	**Digital Display & Status LED**
6	**“ENTER” Button**
7	**Comparison Chart of Load Test Result**

Battery Test (12V Batteries) – (Test State : Load)

- Connect Red clamp to the positive (+) terminal and Black clamp to the negative (-) terminal of the battery.
- At this time, the LED will display the current battery voltage.
- Battery should be fully charged before performing load test.
- Engine and al electrical accessories must be off when testing battery.

- **Press "ENTER" and wait for 10 seconds.**
- Once automatic test cycle is completed, the result will be displayed.
- Refer to the battery analysis table on back of tester or in user manual

BATTERY ANALYSIS

TEST RESULT	BATTERY CONDITION
GREEN LIGHT = OK	**Battery capacity is good.** May or may not be fully charged. Determine state of charge by checking specific gravity (use hydrometer). If gravity is less than full charge, check for possible charging system trouble or electrical drain. Recharge battery to full charge.
GREEN + YELLOW LIGHTS = OK or WEAK	**Review comparison chart of Load Test Result on meter cover.** Check for the corresponding Voltage to your battery rating (CCA). If the voltage displayed is equal or higher, the battery is OK. If it is not battery is WEAK.
YELLOW LIGHT = WEAK	**Battery capacity is unsatisfactory.** Battery may be either: (1) defective or (2) partly discharged. To determine which, check specific gravity. If gravity is over 1.225, battery is considered defective. If gravity is under 1.225, recharge battery and re-test. If cell-to-cell gravity varies more than 0.025 (25 points), cell trouble may exist. If charging does not bring gravity to full charge level, the battery is either sulfated or has lost active material.
RED LIGHT = BAD	**Battery may be defective** (e.g. a bad cell).

LED Code Display = "c.b"

- If the battery voltage is under 12.3V, "c.b" code will be displayed. Please fully charge the battery before test. After charging, please wait for 15-30 minutes to let the voltage stable & perform load test. If the voltage is still below 12.3V with "c.b" code, the battery should be replaced immediately.
- If the battery voltage is above 13.2V, "c.b" code will be displayed. While performing load test on battery connected with vehicle, please turn off the engine & turn on the head light. When battery voltage is under 13.2V then turn off the head light and test the battery.
- If the battery has just finished its charging cycle, the voltage may be unstable. Please wait for 15-30 minutes till the voltage is stable and below 13.2V, before performing a load test.
- If the tester indicates poor battery condition, allow the battery to stabilize for a few minutes and check the open circuit voltage by voltmeter. This is a good measure of the percent charge in the battery.
- The battery is considered charged if it measures 75% or more. If it failed the load test with 75% charge or above, it should be replaced.
- If the battery charge measures less than 75%, it should be charged and load tested again. Replace the battery if it fails again. The values in the following chart are for a 12 volt battery.

OPEN CIRCUIT VOLTS	PERCENT OF CHARGE
11.7 Volts or lower	0
12.0	25
12.2	50
12.4	75
12.6 or higher	100

Cold Temperature Effects

- A battery will test lower when cold than when warm. For more accurate results, please read the battery's nominal rating as per following table.

Temperature Compensation	**1 STEP = 50 Cranking Amps**		
Battery Temperature	-7˚C	-18˚C	-29˚C
Decrease Battery Rating by	1 STEP	2 STEPS	3 STEPS

Charging System Test – (Test State : Charging)

(After battery load test)

- With the tester still connected to the battery, press “ENTER” to toggle the “TEST STATE” lights from “LOAD” to “CHARGING”.
- Start the engine and allow it to reach normal operating temperature.
- Run engine at 1200 to 1500 rpm. (CAUTION: Stay clear of moving engine parts.)
- Read the “TEST RESULT”.
- If the “**RED - Bad**” light illuminates, it indicates a problem in the charging system that will undercharge a battery (less than 13.6V) or overcharge the battery (over 14.8V).
- If the “**GREEN - OK**” light illuminates and the display voltage is between 13.6V - 14.8V, it indicates that the charging system is good.

Starter Motor Test (12V Vehicles)

- This test identifies excessive starter current draw, which makes starting difficult and shortens battery life.
- Perform battery load test first to make sure that the battery is in Good condition.

  NOTE : ENGINE MUST BE AT NORMAL OPERATING TEMPERATURE
- Connect Red clamp to the positive (+) terminal and Black clamp to the negative (-) terminal of the battery.
- Rock clamps back and forth to ensure a good electrical connection.
- **Do not press“ENTER”.**
- Disable the ignition system so the vehicle engine will not start,
- Crank the engine and note the voltage reading during engine cranking.
- A meter reading of 9 volts or less indicates excessive current draw.
- This may be due to bad connections or a failing starter motor, or the battery is too small for the vehicle’s requirements.
- Refer the noted Load Volts and cranking voltage in the following starter test table.
- If cranking voltage is below the min. crank volts in following starter test table, the starter current draw is excessive.

(UNDER 200 CID (3.6L), Use the next higher Min. Crank Volts)

LOAD VOLTS	10.2	10.4	10.6	10.8	11.0	11.2	11.4
MIN. CRANK VOLTS	7.7	8.2	8.7	9.2	9.7	10.2	10.6
STARTER TEST							