

Battery Load Tester

Safety Precautions

- Always wear approved eye protection.
- Always operate the vehicle in a well-ventilated area. **Do not inhale exhaust gases—they are very poisonous!**
- Always keep yourself, tools, and test equipment away from all moving or hot engine parts.
- Always make sure the vehicle is in **Park** (automatic transmission) or **Neutral** (manual transmission) and that the **parking brake** is firmly set. Block the drive wheels.
- Never lay tools on vehicle battery. You may short the terminals together, causing harm to yourself, the tools, or the battery.
- Never smoke or have open flames near vehicle. Vapors from gasoline and charging batteries are highly flammable and explosive.
- Never leave vehicle unattended while running tests.
- Always keep a fire extinguisher suitable for gasoline/electrical/chemical fires handy.
- Always turn ignition key OFF when connecting or disconnecting electrical components, unless otherwise instructed.
- Keep away from engine cooling fan. On some vehicles, the fan may start unexpectedly.
- **Always** follow vehicle manufacturer's warnings, cautions, and service procedures.
- Always be sure to first connect the black grounding clamp to the battery and disconnect it last when testing is complete.
- Never connect/disconnect the tester while holding the LOAD SWITCH to ON.

BATTERY LOAD TESTER

The Battery Load Tester is designed to test the battery condition - a 10 second test indicates if a battery is good and fully charged or faulty. Further testing will show if the faulty condition is due to a partially charged or a defective battery (i.e. - bad cells) or a possible problem with the vehicle electrical system. The test can be performed on partially charged batteries (with a hydrometer reading of 1225 or higher).

The Battery Load Tester can also be used to check the vehicle charging system.

CAUTION!

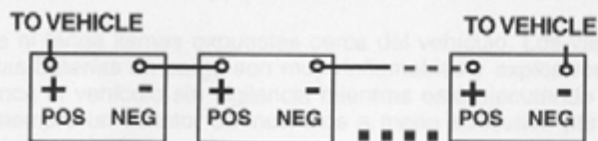
TESTING PROCEDURES AND INFORMATION PROVIDED IN THIS MANUAL ARE INTENDED AS GENERAL GUIDELINES FOR ENGINE TUNE UP AND ADJUSTMENTS ONLY. CONSULT THE APPLICABLE VEHICLE SERVICE MANUALS FOR ALL SPECIFIC TESTS.

DO NOT ACTIVATE AND HOLD THE LOAD SWITCH FOR MORE THAN 15 SECONDS. THIS WILL OVERLOAD THE TESTER RESULTING IN DAMAGE AND VOID THE WARRANTY.

BEFORE TESTING, READ AND FOLLOW ALL SAFETY PRECAUTIONS.

VEHICLE PREPARATION

- **Key OFF, Engine OFF.**
- Disconnect all battery chargers! Battery cannot be tested while being charged
- In all multiple battery systems, all batteries must be tested separately. *Only* batteries connected in series may remain connected during test. See diagram below:



Batteries in Series: All batteries are connected from negative (-) terminal of one to positive (+) terminal of the other, with only one battery's positive (+) and one other's negative (-) connected to the vehicle. Any number of batteries can be connected in series, but each battery **must** be tested separately. *All other types of multiple connections* must be disconnected and isolated from the other.

BATTERY TEST

Battery Temperature

The most accurate test results will be obtained when battery temperature is at approximately 70° F. If testing battery between 70° and 40° F, add 0.1 volt for every 10° F below 70° F. If testing a battery between 70° F and 100° F, subtract 0.1 volt for every 10° F above 70° F.

Connect Tester to Battery (See Figure 1)

1. Connect the black clamp to the battery negative (-) post.
2. Connect the red clamp to the battery positive (+) post.

NOTE

Make sure both sides of each clamp make good contact with the battery posts. If required, rock the clamps back and forth to improve connection.

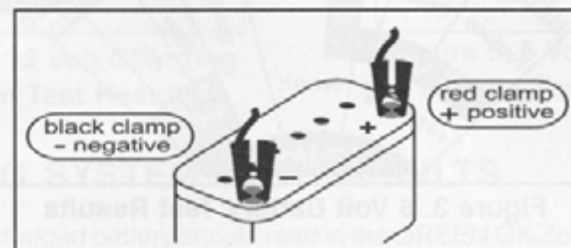


Figure 1. Connection

3. Press and hold the LOAD SWITCH for 10 seconds.
4. Hold the LOAD SWITCH and read the meter (See Figures 2 or 3).
5. Release the LOAD SWITCH immediately after reading the meter.
6. Disconnect the red clamp from the battery.
7. Disconnect the black clamp from the battery.

NOTE

If REPLACE indication is suspected due to the battery being completely discharged because of lights or other accessories being left on, charge battery to full capacity and retest before deciding to replace the battery.

BATTERY TEST RESULTS

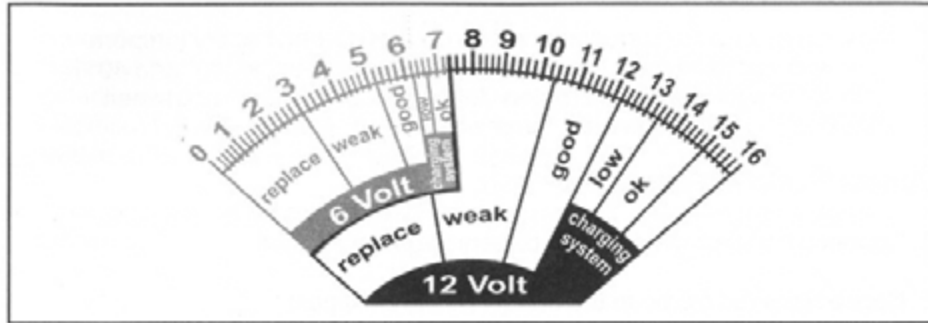


Figure 2. 12 Volt Battery Test Results

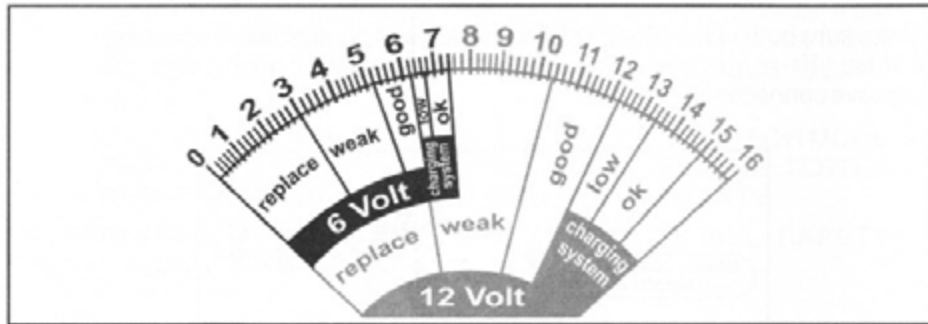


Figure 3. 6 Volt Battery Test Results

GOOD - Battery is in good condition and should start the vehicle in any climate.

NOTE

A WEAK or REPLACE indication may be due to excessive resistance caused by a bad connection or corrosion between battery cables and the battery posts. Remove battery cables from battery, connect the tester directly to the posts and retest.

WEAK - Indicates the battery requires charging. Charge battery at 30 Amps for 5 minutes or at 10 Amps for 15 minutes. Then retest.

RESULTS AFTER CHARGING:

- If battery tests WEAK a second time, this could indicate one or more cells are bad and battery must be replaced.
- If battery reads GOOD, the battery was not sufficiently charged during the first test.

REPLACE - Indicates the battery is bad and requires replacement.

CHARGING SYSTEM TEST

Connect Tester to Battery

1. Connect the black clamp to the battery negative (-) post.
2. Connect the red clamp to the battery positive (+) post.
3. Start vehicle and set idle at 1200 - 1500 RPM and observe meter (See Figures 4 or 5).

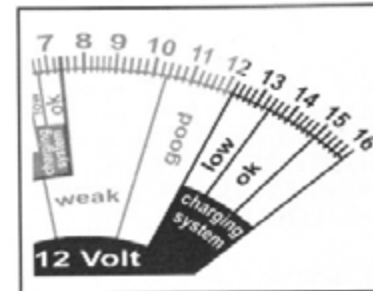


Figure 4. 12 Volt Charging System Test Results

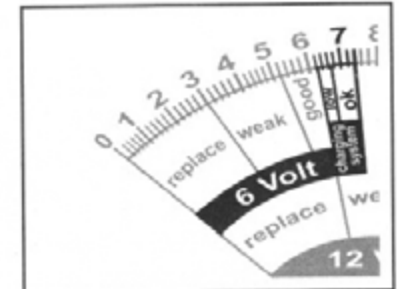


Figure 5. 6 Volt Charging System Test Results

CHARGING SYSTEM TEST RESULTS

OK - A fully charged battery should read in the GREEN OK Zone.

LOW - Indicates a problem with the vehicle charging system and that the battery is not charging properly.

RED ZONE (above 15 volts or 7.5 volts, whichever applies) - Indicates the charging system voltage is too high. Damage to the vehicle electrical system may result.

A decision to REPLACE the alternator or other electrical system components should not be based solely on these test results. Refer to the applicable Vehicle Service Manual for additional testing.