

PROSERIES™

MODEL:

PST-200

100 Amp

**Digital Battery Load Tester/
Charging System Analyzer**

for 12 Volt Batteries

OWNERS MANUAL



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

1. 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.

WARNING:

RISK OF EXPLOSIVE GASES.

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.

- 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.

2. PERSONAL SAFETY PRECAUTIONS

- Wear complete eye and clothing protection 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.
- Be extra cautious, to reduce risk of dropping a metal tool onto battery. It might spark or short-circuit battery or other electrical part that may cause explosion.

3. PREPARING TO TEST

- Be sure area around battery is well ventilated while battery is being tested.
- Clean battery terminals. Be careful to keep corrosion from coming in contact with eyes.
- If the battery is not sealed, maintenance-free, add distilled water in each cell until battery acid reaches level specified by battery manufacturer. This helps purge excessive gas from cells. Do not overfill.
- If necessary to remove battery from vehicle for testing, always remove grounded terminal from battery first. Make sure all accessories in the vehicle are off, so as not to cause an arc.

4. OPERATING INSTRUCTIONS

IMPORTANT: For testing 12 volt batteries only. Suggested operational range 32°F (0°C) to 122°F (50°C) ambient air temperature.

12 VOLT BATTERY ANALYSIS

Press "START TEST" and wait for 10 seconds. Once automatic test cycle is completed, your test results will be:

1. 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 fully charged level.

2. GREEN + YELLOW LIGHTS = OK BUT WEAK

Review the load test result with the comparison chart on the tester cover to see if this battery is "OK" or not. If it is "OK", go up to 1ST "OK" state. If it is not, go down to 3rd "WEAK" state.

3. YELLOW LIGHT = WEAK

Battery capacity is unsatisfactory. Battery may be either: (1) defective or (2) partially 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 fully charged level, the battery is either sulfated or has lost active material.

4. RED LIGHT = BAD

Battery may be defective (e.g. a bad cell).

NOTE: If pre-test battery voltage is below 12.3V, tester will not allow and should not perform the load test. Please fully charge battery and retest.

| TEMPERATURE COMPENSATION | 1 STEP = 50 CRANKING AMPS | | |
|----------------------------|---------------------------|---------|---------|
| Battery temperature | +20°F | 0°F | -20°F |
| Decrease battery rating by | 1 STEP | 2 STEPS | 3 STEPS |

If the tester indicates poor battery condition, allow the battery to stabilize for a few minutes and check the open circuit voltage with 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 |

TESTING THE CHARGING SYSTEM (After Battery Load test)

1. With the tester still connected to the battery, press "START TEST" to toggle the "TEST STATE" lights from "LOAD" to "CHARGING".
2. Start the engine and allow it to reach normal operating temperature.
3. Run engine at 1200 to 1500rpm. CAUTION: Stay clear of moving engine parts.
4. Read the results. Illumination of the RED-"BAD" light indicates a problem in the charging system that will undercharge a battery (less than 13.6V), or overcharge the battery (over 14.8V).

STARTER MOTOR TEST (12 Volt vehicles only)

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

NOTE: ENGINE MUST BE AT NORMAL OPERATING TEMPERATURE.

1. Connect negative (black) clamp to the negative (NEG, N, -) battery post. Connect positive (red) clamp to the positive (POS, P, +) battery post. ROCK clamps back and forth to ensure a good electrical connection. Do not click "START TEST".
2. Disable the system ignition so the vehicle engine will not start.
3. Crank the engine and note the voltage reading during engine cranking.
4. A meter reading of 9 volts or less indicates excessive current draw. This may be due to bad connections, a failing starter motor, or the battery is too small for the vehicle's requirements.