

890PT

741X890



OPERATORS MANUAL

Read entire manual before using this product.



MAIN FEATURES

1. Compatible with 6V, 12V, 24V and Li-ion batteries
2. 6V, 12V, and 24V Lead-acid battery test
3. 24V 6T LiON and LiFePO4 battery test
4. 12V & 24V Cranking & Charging System Test
5. Print out test results.

IMPORTANT

- Suggested operation range 0°C (32°F) to 50°C (122°F) in ambient temperature.

! WARNING

WARNING: This product can expose you to chemicals including arsenic, which is known to the State of California to cause cancer.

For more information, go to www.P65Warnings.ca.gov.

Tester should not be exposed nor be used in extreme moisture conditions, such as rain / snow or damage to the tester can result.

PERSONAL SAFETY PRECAUTIONS:

1. Normal caution should be taken when testing any lead acid batteries. Refer to TM 9-6140-200-13, TB 9-6140-252-13 and equipment TMs for specifics.
2. Wear safety glasses and protective clothing.
3. Gloves should be worn if touching lead acid battery surfaces. In the unlikely event that battery acid contacts skin or clothing, wash immediately with soap and water. If acid enters eye, immediately flood eye with running cold water for at least ten minutes and get medical attention immediately.
4. NEVER smoke or allow a spark or flame in vicinity of battery or engine.
5. Be extra cautious to reduce risk of dropping a metal tool onto the battery. It could spark or short-circuit the battery or other electrical parts and could cause an explosion.
6. Remove personal metal items such as rings, bracelets, necklaces and watches when working with a lead acid battery. It can produce a short circuit current high enough to weld a ring or the like to metal causing a severe burn.

PREPARING TO TEST:

1. Be sure area around battery is well ventilated while battery is being tested.
2. Clean battery terminals. Be careful to keep corrosion from contacting with eyes.
3. Inspect the battery for cracked or broken case or cover. If battery is damaged, do not use tester.
4. If the battery is not sealed maintenance free, add distilled water in each cell until battery acid reaches level specified by the manufacturer. This helps purge excessive gas from cells. Do not overfill.
5. It is not necessary to remove equipment batteries or battery cables prior to testing. However, if batteries are paralleled the technician will see capacity results from all paralleled batteries, less the resistance in the cables. If it is necessary to remove battery from vehicle to test, always ensure all accessories are off and remove the main ground terminal from battery first to avoid any arcing.

OPERATION & USE:

Note: Each time you connect the tester to a battery, the tester will run a quick cable verification to ensure a proper connection through the output cables to sensors in the clamp jaws. If the connection checks out OK, the tester will

proceed to the Home Screen. If the connection is poor, the display will show "CHECK CABLE". In this case, check cable connections for visible signs of damage, as you may need to re-connect the clamps to the battery or replace the cable end.

PAPER REPLACEMENT

1. Open the paper roll cover.
2. Place a new paper roll in the compartment. Make sure the thermal side is upside placed as below.
3. Pull a short length of paper from the compartment and press down the cover to close.



PRECAUTIONS FOR USING THE INTEGRATED PRINTER:

To prevent from overheating the integrated printer, it is not recommended to constantly and repeatedly print the same test result.

The printer should rest for at least 1 minute if the print has been working for 2 minutes constantly.

Please avoid extremely operating the printer by constantly and repeatedly printing the same test result.

According to general usage scenarios, it takes about 10-20 seconds to print out a single result based on the type of the test that is performed.

And the next test is usually completed 20-30 seconds later or more after printing the previous result.

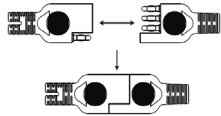
In this case, the printer will always be cooled down enough and ready for printing the result of the second test.

If the integrated printer does start to get warm, please have it rest for a while and cooled down before using the printing function again.

HOW TO REPLACE CABLE END:

1. Detach the clamp lead when the replacement is necessary.
2. Make sure the new clamp lead is well connected.

NOTE: Do not detach the cables unless necessary to make sure the pins are not rusted or corroded by the acid liquid.



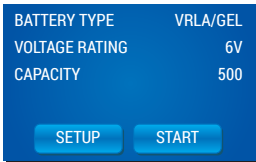
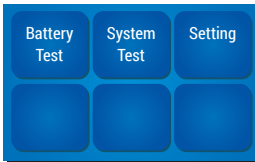
Replace / Install the AA Alkaline batteries.

1. Unscrew the battery cover to access the battery tank.
2. Pull the strap up to remove the AA batteries and install new ones (Always keep the strap under the batteries.).
3. Close the battery cover and tighten the screw.



6V, 12V, & 24V 6T BATTERY TEST:

1. Select BATTERY TEST from the main menu
2. Select SETUP to change the battery setting.
(The user can click "START" if the battery setting is the same as the previous test.)
3. User will need to manually select battery type.



4. Select Battery type: AGM FLAT PLATE, AGM SPIRAL, VRLA/GEL, FLOODED, LiON.
5. Select Voltage rating: 6V, 12V, 24V.
6. Select Rating (Available rating: CCA)
7. Select Capacity: 25~3000 CCA/SAE
8. Start Testing: The 890PT will automatically perform a battery test. Use the directional keys to review the test result. Or move the cursor to the printer icon to print out the result.

SURFACE CHARGE

Note: If the 890PT detects the surface charge, the 890PT will pop up a notification asking the user to turn on loads/headlights for 15 seconds to eliminate the surface charge.

If the 890PT keeps popping up the notification “Turn on loads & headlights for 15 seconds” it might be because the vehicle is equipped with the latest LED headlights and modern vehicle control modules. Turning on loads & headlights for 15 seconds on these vehicles might not be enough to eliminate the surface charge.

Please select “SKIP” to the “Battery Test in Vehicle Setting” to skip the surface charge detection and carry on with the test (Refer to 6V & 12V Battery test item 8).

BATTERY TEST RESULTS

1. GOOD & PASS

The battery is good and capable of holding a charge.

2. GOOD & CHARGE

The battery is good but needs to be recharged.

3. CHARGE & RETEST

Battery is discharged, the battery condition cannot be determined until it is fully charged. Recharge & retest the battery.

4. BAD & REPLACE

If the battery is over 4 years old we recommend replacement. However, if the battery is less than 4 years old we recommend placing on a PulseTech Charger in an attempt to start a charge process prior to replacing the battery. Refer to charger operator instructions for additional details.

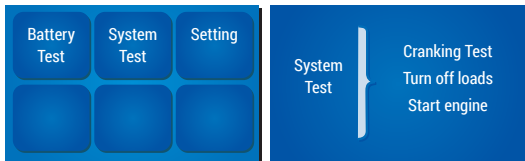
5. LOAD ERROR

The tested battery is bigger than 3000 CCA/SAE or the clamps are not connected properly. Please fully charge the battery and retest after excluding both previous reasons. If reading is the same, the battery should be replaced immediately.

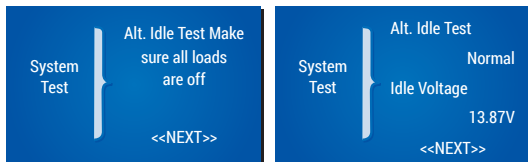
12V & 24V SYSTEM TEST:

1. Select “SYSTEM TEST” from the main menu.
2. Turn off loads and start engine.
3. Use directional keys to review cranking test result.

4. Select NEXT to proceed to charging test.

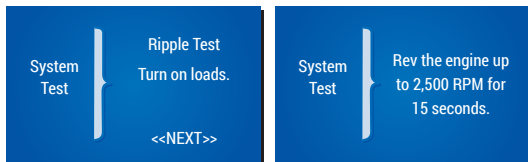


5. Select NEXT when idle test is completed and move on to the ripple & load on test.

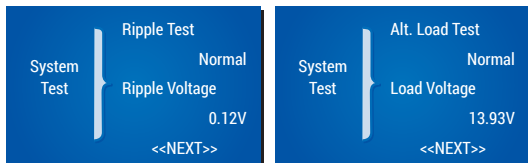


6. Turn on loads and rev engine for 15 seconds.
(The 890PT will countdown 15 seconds)

7. Once completed, the ripple & load test results are displayed.

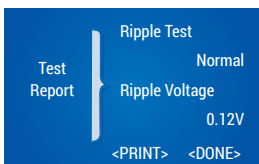
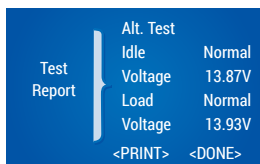


8. Select NEXT to review the complete system test results including the cranking, idle, ripple, & load on test results.



- Use directional keys to switch between 4 different pages of the system test results.
- Select PRINT if you would like to print out the system test result.

CRANKING TEST RESULTS:



1. CRANKING VOLTS NORMAL

The system is showing normal draw. Press «ENTER» to perform the charging system test.

2. CRANKING VOLTS LOW

The cranking voltage is below normal limits. Troubleshoot the starter with manufacturers recommended procedure.

3. CRANKING VOLTS NOT DETECTED

The cranking voltage is not detected.

IDLE TEST RESULTS:

1. HIGH CHARGING VOLTS WHEN TESTING AT IDLE

The voltage output from the alternator to the battery exceeds the normal limits of a functioning regulator. Check to ensure there is no loose connection and the ground connection is normal.

If there is no connection issue, replace the regulator. Since most alternators have the regulator built-in, this will require you to replace the alternator. The normal high limit of a typical automotive regulator is 14.7 volts +/- 0.05. Check manufacturer specifications for the correct limit, as it will vary by vehicle type and manufacturer.

2. CHARGING SYSTEM NORMAL WHEN TESTING AT IDLE

The system is showing normal output from the alternator. No problem is detected.

3. LOW CHARGING VOLTS WHEN TESTING AT IDLE

The alternator is not providing sufficient current to the battery. Check the belts to ensure the alternator is rotating with engine running.

If the belts are slipping or broken, replace the belts and retest. Check the connections from the alternator to the battery. If the connection is loose or heavily corroded, clean or replace the cable and retest. If the belts and connections are in good condition, replace the alternator.

RIPPLE TEST RESULTS:

1. RIPPLE DETECTED NORMAL

Diodes function well in the alternator / starter.

2. NO RIPPLE DETECTED

Ripple is not detected.

3. EXCESS RIPPLE DETECTED

One or more diodes in the alternator are not functioning or there is stator damage. Check to ensure the alternator mounting is sturdy and that the belts are in good shape and functioning properly. If the mounting and belts are good, replace the alternator.

LOAD ON TEST RESULTS:

1. CHARGING SYSTEM HIGH WHEN LOAD ON TESTING

The voltage output from the alternator to the battery exceeds the normal limits of a functioning regulator.

Check to ensure there are no loose connections and that the ground connection is normal. If there are no connection issues, replace the regulator. Since most alternators have the regulator built-in, this will require you to replace the alternator.

2. CHARGING SYSTEM LOW WHEN LOAD ON TESTING

The alternator is not providing sufficient current for the system's electrical loads and the charging current for the battery. Check the belts to ensure the alternator is rotating with the engine running. If the belts are slipping or broken, replace the belts and retest.

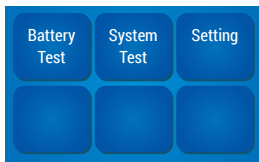
Check the connections from the alternator to the battery. If the connection is loose or heavily corroded, clean or replace the cable and retest. If the belts and connections are in good working condition, replace the alternator.

3. CHARGING SYSTEM NORMAL WHEN LOAD ON TESTING

The system is showing normal output from the alternator. No problem detected.

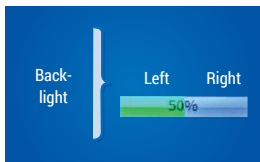
SETTINGS

Enter **SETTING** from the main menu and then select the item you would like to adjust or proceed. For example, select backlight, language, date & time, or customized information.



BACKLIGHT

1. Select **BACKLIGHT** and use directional keys to adjust the brightness of the display.
2. Press **ENTER** to confirm the setting and return to setting menu. Or press **BACK** key to discard the change and return to the setting menu.



LANGUAGE

1. Enter **LANGUAGE** to select the language desired.
2. Press **ENTER** to confirm the setting and return to setting menu. Or press **BACK** key to discard the change and return to the setting menu.



DATE & TIME

Select **DATE & TIME** to adjust the time.

GLOSSARY

What is a GEL battery?

A gel battery is a lead-acid electric storage battery that:

- is sealed using special pressure valves and should never be opened.
- is completely maintenance-free.
- uses thixotropic gelled electrolyte.
- uses a recombination reaction to prevent the escape of hydrogen and oxygen gases normally lost in a flooded lead-acid battery (particularly in deep cycle applications).
- is non-spillable, and therefore can be operated in virtually any position. However, upside-down installation is not recommended.
- Connections must be re-torqued and the batteries should be cleaned periodically.

What is an AGM battery?

An AGM battery is a lead-acid electric storage battery that:

- is sealed using special pressure valves and should never be opened.
- is completely maintenance-free.*
- has all of its electrolyte absorbed in separators consisting of a sponge-like mass of matted glass fibers.
- uses a recombination reaction to prevent the escape of hydrogen and oxygen gases normally lost in a flooded lead-acid battery (particularly in deep cycle applications).
- is non-spillable, and therefore can be operated in virtually any position. However, upside-down installation is not recommended.
- Connections must be re-torqued and the batteries should be cleaned periodically.

What is a VRLA battery?

Valve Regulated Lead Acid Battery – This type of battery is sealed Maintenance Free with a “Bunce” Valve or Valves in the top of them that opens when a preset pressure is realized inside the battery and let’s the excess gas pressure out. Then the valve resets itself. Gel and AGM batteries are examples of VRLA battery types.

What is a SLI battery?

These initials stand for Starting, Lighting and Ignition, which are the three basic functions which a battery has to perform on all normal vehicles. Batteries given this description will have been specifically designed for service on cars and trucks within a voltage controlled electrical system. Those SLI batteries which are intended for heavy haulage vehicles fitted with large diesel motors may often be called COMMERCIAL batteries. They have to be much more powerful and more robust than batteries intended for cars.

What is STATE OF HEALTH?

It means how much battery capacity is left (%) comparing with the marked original battery capacity.

What is STATE OF CHARGE?

It means what percent the battery is actually charged.

What is CCA (COLD CRANKING AMPS)?

The current in amperes which a new fully charged battery can deliver for 30 seconds continuously without the terminal voltage falling below 1.2 volts per cell, after it has been cooled to 0°F and held at that temperature. This rating reflects the ability of the battery to deliver engine starting currents under winter conditions.

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