

**03202500**



# Start / Stop Battery & Electrical System Analyser

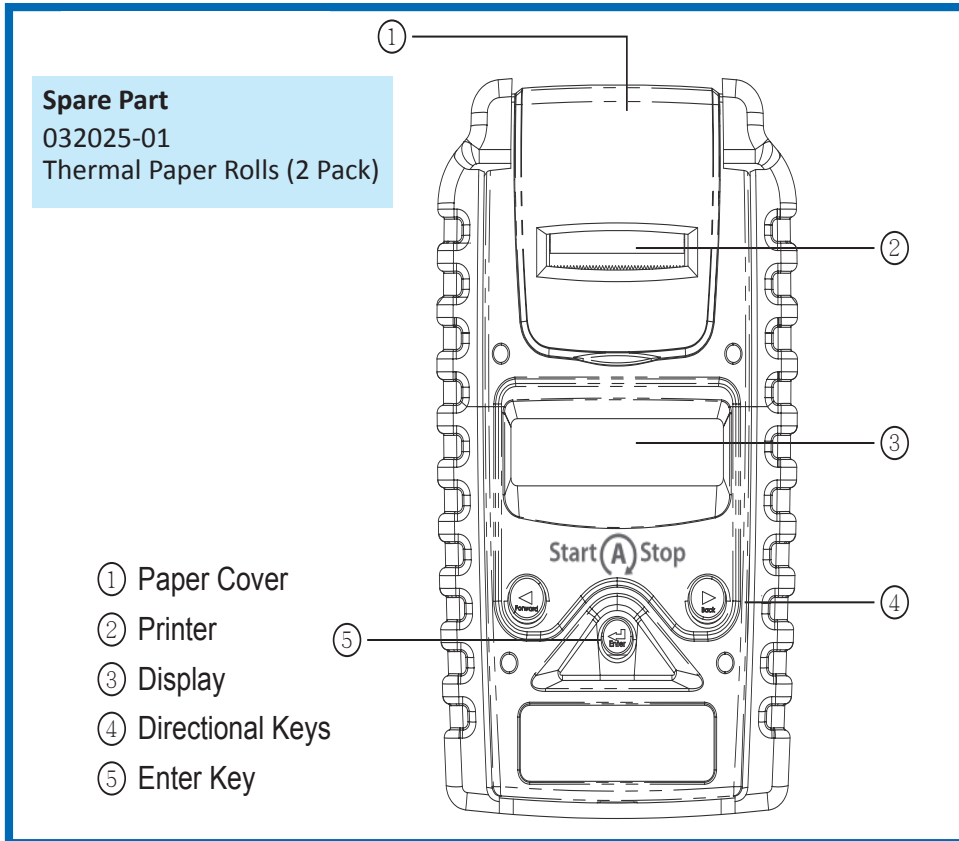


**IMPORTANT - PLEASE READ THESE INSTRUCTIONS CAREFULLY BEFORE USING THIS PRODUCT**

**TEST PROCEDURES / OPERATING INSTRUCTIONS**

**IMPORTANT**

1. For testing 6 and 12 volt batteries, and 12 and 24 volt charging & starting systems.  
(ONLY 12 volt for START & STOP battery test)
2. Suggested operating range: 0°C (32°F) to 50°C (122°F) in ambient temperature.



**WARNING**

1. Working in the vicinity of a lead acid battery can be dangerous. Batteries generate explosive gases during normal battery operation. For this reason, it is of utmost importance, if you have any doubt, that each time before using your tester, you read these instructions very carefully.
2. To reduce risk of battery explosion, follow these instructions and those published by the battery manufacturer and manufacturer of any equipment you intend to use in the vicinity of the battery. Observe cautionary markings on these items.
3. Do not expose the tester to rain or snow.

**PERSONAL SAFETY PRECAUTIONS**

1. Someone should be within range of your voice or close enough to come to your aid when you work near a lead acid battery.
2. Have plenty of fresh water and soap nearby in case battery acid contacts skin, clothing or eyes.
3. Wear safety glasses and protective clothing.
4. If battery acid contacts skin or clothing, wash immediately with soap and water. If acid enters eye, immediately flood eye with cold running water for at least ten minutes and get medical attention immediately.
5. NEVER smoke or allow a spark or flame in vicinity of battery or engine.
6. 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.
7. Remove personal metal items such as rings, bracelets, necklaces and watches when working with a lead acid battery. It could produce a short circuit current high enough to weld a ring or metal causing a severe burn.

### PREPARING TO TEST

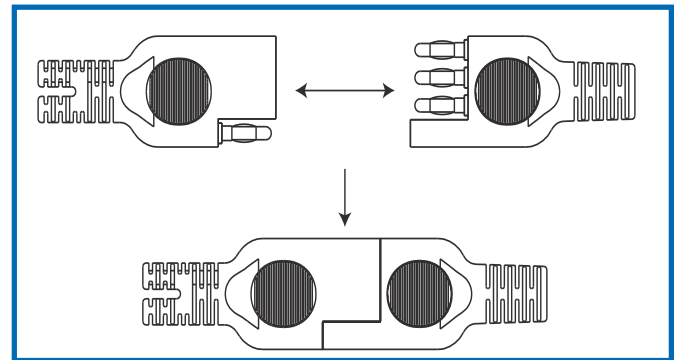
1. Be sure area around battery is well ventilated while battery is being tested.
2. Clean battery terminals. Be careful to keep corrosion from coming into contact with eyes.
3. Inspect the battery for cracked or broken case or cover. If battery is damaged, do not use tester.
4. If the battery is not sealed maintenance free, add distilled water in each cell until battery acid reaches specified level. This helps purge excessive gas from cells. Do not overfill.
5. If necessary to remove battery from vehicle to test, always remove ground terminal from battery first. Make sure all accessories in the vehicle are off to ensure you do not cause any arcing.

### OPERATION & USE

#### REPLACEMENT OF WIRE LEAD

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.**



### BEFORE TEST

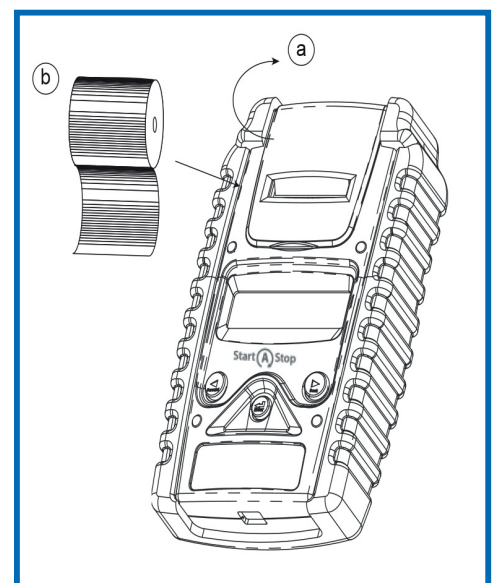
1. Before you test a battery in a vehicle, turn off the ignition, all accessories and loads. Close all the vehicle doors including the boot.
2. Make sure you have put 4 x AA 1.5V batteries into the battery chamber. Oxryde batteries are NOT recommended because of the initial 1.7 Volt output. If the internal 1.5V batteries run out of power, the display will show "POWER LOW". Replace the AA 1.5V batteries before starting a new test.

**Note: Nothing will be seen on the display until the tester is connected to a vehicle battery.**

3. Make sure the battery terminals are clean. Wire brush them if necessary. Connect the red clamp to the positive battery terminal post; connect the black clamp to the negative battery terminal post. For the most accurate results, clamp on the lead part of the terminal only. Attaching to the clamp or fixture rather than directly on the terminal will lead to inaccurate test results.

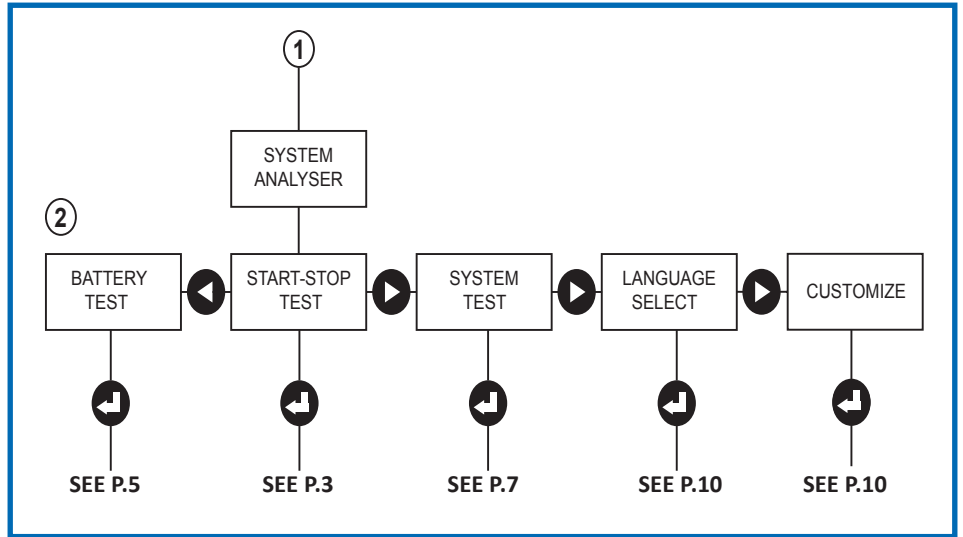
#### 4. Paper Load:

- a. Open the clear cover.
- b. Place a new paper roll in the compartment.
- c. Paper will be fed automatically when the sensor of printer is sensed.



## QUICK START CHART

1. Switch on the device by connecting the clamps on the battery.
2. Choose an option in the menu.



## START-STOP BATTERY TEST

1. Press the ◀ ▶ key to select START-STOP Test.  
At this stage, you will find 3 tests for selection:

**START-STOP TEST**  
**BATTERY TEST**  
**SYSTEM TEST**

START-STOP  
TEST

2. Press the ◀ ▶ key to select battery type:

**a. EFB**  
**b. AGM FLAT PLATE**

Press «ENTER» to confirm choice.

BATTERY TYPE  
EFB

3. Press the ◀ ▶ key to select battery rating:

**SAE (CCA), EN, IEC or DIN.**

Press «ENTER» to confirm choice.

SELECT RATING  
SAE

4. Press the ◀ ▶ key to input the battery capacity:

**SAE (CCA): 40~2, 000**

**EN: 40~2, 100**

**DIN: 25~1, 300**

**IEC: 30~1, 500**

Press «ENTER» to begin test.

SET CAPACITY  
XXXX SAE

5. Testing battery.

TESTING

6. When test is completed, the display shows the results as follows  
(Press the ◀ ▶ key to select: **SOH (STATE OF HEALTH)** or **SOC (STATE OF CHARGE)**)

**GOOD & PASS**

The battery is good & capable of holding a charge.

GOOD & PASS  
XX.XXV XXXXSAE

**GOOD & RECHARGE**

The battery is good but needs to be recharged.

GOOD & RECHARGE  
XX.XXV XXXXSAE

**RECHARGE & RETEST**

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

RECHARGE & RETEST  
XX.XXV XXXXSAE

**BAD & REPLACE**

The battery will not hold a charge.  
It should be replaced immediately.

BAD & REPLACE  
XX.XXV XXXXSAE

**BAD CELL & REPLACE**

The battery has at least one cell short circuit.  
It should be replaced immediately.

BAD CELL & REPLACE  
XX.XXV XXXXSAE

7. End of test. Proceed with printout if required.

## BATTERY TEST

1. Press the ◀ ▶ key to select Battery Test.  
At this stage, you will find the 3 tests for selection:

**START-STOP TEST**  
**BATTERY TEST**  
**SYSTEM TEST**

Press «ENTER» button to proceed the test for regular starting battery.

BATTERY TEST  
XX.XXV

2. Press the ◀ ▶ key to select battery type:

**a. REGULAR FLOODED**  
**b. AGM FLAT PLATE**  
**c. AGM SPIRAL**  
**d. VRLA/GEL**

Press «ENTER» to confirm choice.

BATTERY TYPE  
AGM FLAT PLATE

3. Press the ◀ ▶ key to select battery rating:

**SAE (CCA), EN, IEC, DIN or JIS.**

Press «ENTER» to confirm choice.

SELECT RATING  
SAE

4. Press the ◀ ▶ key to input the battery capacity:

SAE (CCA): 40~2,000  
EN: 40~2,100  
DIN: 25~1,300  
IEC: 30~1,500  
JIS: Battery Type No.

Press «ENTER» to begin test.

SET CAPACITY  
XXXX SAE

5. When test is completed, the display shows the results as follows  
(Press the ◀ ▶ key to select: **SOH (STATE OF HEALTH)** or **SOC (STATE OF CHARGE)**)

**GOOD & PASS**

The battery is good & capable of holding a charge.

GOOD & PASS  
XX.XXV XXXXSAE

**GOOD & RECHARGE**

The battery is good but needs to be recharged.

GOOD & RECHARGE  
XX.XXV XXXXSAE

**RECHARGE & RETEST**

Battery is discharged.

The battery condition cannot be determined until it is fully charged. Recharge & retest the battery.

RECHARGE & RETEST  
XX.XXV XXXXSAE

**BAD & REPLACE**

The battery will not hold a charge.  
It should be replaced immediately.

BAD & REPLACE  
XX.XXV XXXXSAE

**BAD CELL & REPLACE**

The battery has at least one cell short circuit.  
It should be replaced immediately.

BAD CELL & REPLACE  
XX.XXV XXXXSAE

6. End of test. Proceed with printout if required.

**NOTE: The following messages may also be displayed:**

**LOAD ERROR**

The tested battery is bigger than 2000SAE (CCA).  
Or the connection is not properly established.  
Check the capacity of the battery & make sure the clamp lead is properly connected.

LOAD ERROR

**24V SYSTEM PRINTING**

To print 24V system test result, user must save the test result first. The test result will be recorded until you connect to a 12V battery. The message to check printout will be displayed after you reconnect to battery.

PRINT 24V SYSTEM  
RESULT? YES

### SYSTEM TEST

1. Press «ENTER» button, you will view the following screen.
2. Turn off all vehicle accessory loads such as lights, air conditioning, radio, etc. before starting the engine.
3. When the engine is started, one of the three results will be displayed along with the actual reading measured.

SYSTEM TEST  
XX.XXV

TURN OFF LOADS  
START ENGINE

### CRANKING VOLTS NORMAL

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

CRANKING VOLTS  
XX.XXV    NORMAL

### CRANKING VOLTS LOW

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

CRANKING VOLTS  
XX.XXV    LOW

### CRANKING VOLTS NO DETECTED

The cranking voltage is not detected.

CRANKING VOLTS  
NO DETECTED

4. If the cranking voltage is normal, press «ENTER» to begin charging system test.

PRESS ENTER FOR  
= CHARGING TEST =

5. Press the «ENTER» key, you will view the following screen.

MAKE SURE ALL  
LOADS ARE OFF

6. Press the «ENTER» key, one of the three results will be displayed along with the actual reading measured.



#### LOW CHARGING VOLTS WHEN TEST 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.

ALT. IDLE VOLTS  
XX.XXV      LOW

#### CHARGING SYSTEM NORMAL WHEN TEST AT IDLE

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

ALT. IDLE VOLTS  
XX.XXV      NORMAL

#### HIGH CHARGING VOLTS WHEN TEST 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.

ALT. IDLE VOLTS  
XX.XXV      HIGH

- Following the charging system at idle, press «ENTER» for the charging system with accessory loads. Turn on the blower to high (heat), high beam headlights, and rear defogger (if equipped). Do not use cyclical loads such as air conditioning or windscreen wipers.

TURN ON LOADS  
AND PRESS ENTER

- When testing older model diesel engines, the user need to run up the engine to 2500 rpm for 15 seconds. You will view the screen as follows:

RUN ENGINE UP TO  
2500 RPM 15 SEC.

- Press «ENTER» to look for the amount of ripple from the charging system to the battery. One of two testing results will be displayed along with the actual testing measured.

**RIPPLE DETECTED NORMAL**

Diodes function well in the alternator / stator.

RIPPLE DETECTED  
XX.XXV NORMAL

OR

NO RIPPLE DETECT

**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.

RIPPLE DETECTED  
XX.XXV HIGH

10. Press the «ENTER» key to continue the charging system with accessory loads. One of the three results will be displayed along with the actual testing measured.

**CHARGING SYSTEM HIGH WHEN TEST WITH ACC. LOADS**

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.

ALT. LOAD VOLTS  
XX.XXV HIGH

**CHARGING SYSTEM LOW WHEN TEST WITH ACC. LOADS**

The alternator is not providing sufficient current for the systems 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.

ALT. LOAD VOLTS  
XX.XXV LOW

**CHARGING SYSTEM NORMAL WHEN TEST WITH ACC. LOADS**

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

ALT. LOAD VOLTS  
XX.XXV NORMAL

**SETTINGS & INFORMATION RETRIEVAL****LANGUAGE SELECT**

1. Hook the tester up to a battery.
2. The tester defaults to the BATTERY TEST display. Press the directional keys to get to the LANGUAGE SELECT display.
3. Press ENTER and the display will show the language options. Press the directional keys to select the language you want the tester to display.
4. Press ENTER and the display returns to BATTERY TEST.

**CUSTOMIZE**

1. Hook the tester up to a battery.
2. The tester defaults to the BATTERY TEST display. Press the directional keys to get to the CUSTOMIZE display.
3. Press ENTER and the display will show an blinking underline for the dealer information input. Use directional key for the alphanumeric selection (A-Z, 0-9, space & symbols). Press ENTER key to confirm and move forward to next letter.
4. Press ENTER and the display returns to BATTERY TEST.