

Battery Electrical System Analyser (12-1012)



For testing all 12V automotive starting batteries rated in CCA, DIN, IEC, JIS# and EN. Also for testing vehicle Electrical System.

Quick Start Guide



Caution: Never lay tools on the battery top. You may short the terminals together causing harm to yourself, the tools or the battery. Always follow Battery Council International safety recommendations.



Warning: Battery terminals contain lead compounds which is hazardous to our body if consumed. **Please wash your hand immediately after handling.**

LIMITED WARRANTY

This Battery Electrical System Analyser [12-1012] is warranted to be free from defects in material and workmanship for a period of 12 months from the date of purchase and is subjected to the following terms and conditions:

1. Within the warranty period, the manufacturer will repair or replace, at their options, any defective parts and return to the owner in good working order.
2. Any repaired or replaced parts will be warranted for the balance of the original warranty or 90 days from the date of repair, whichever is longer.
3. Cost of delivery charges incurred for the repair of the product (to and from the manufacturer) will be borne by the owner.
4. The warranty covers only the defects arises as a result of normal use and does not cover those arise from:
 - Unauthorized modification and repair
 - Improper operation or misuse
 - Accident or neglect such as dropping onto hard surfaces.
 - Contact with water, rain or extreme humidity or heat.
 - Physical damages such as cables broken, surface cracks, etc.

Performing Battery Test while it is still in the car:

Vehicle that was running has to have its engine OFF first and then switch ON the headlights for 30 seconds to remove the surface charge. After the headlights had switched OFF, let the battery rest for at least 1 minute to recover before testing commences.

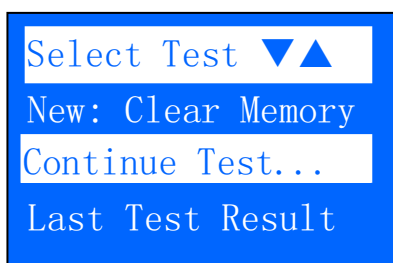
The car engine and all other accessory loads must be **OFF** during test in order to have an accurate result. When attaching the analyser clips, make sure that the battery posts were not oxidized or badly corroded. Clean them first before clamping to it. Do not clamp onto the steel bolts directly which may give inaccurate and inconsistent results.

Testing on stand-alone batteries:

Clean the battery posts with a wire brush prior testing. For side- post batteries, install stud adaptors. Do not use steel bolts for better results.

1. Connect the tester clamps to the battery posts, Red to the positive (+) terminal and Black to the negative (-) terminal. Rock each clamp back and forth for better contact.

2. It will run through a self-test and when completed it displays the Main Menu as shown below:



New: Clear Memory

Clear the last tested results stored in its memory.

Continue Test...

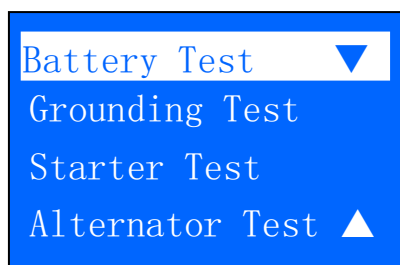
Continue the last test on the same car from where you had stopped.

Last Test Result

Review the test results of the last tested car

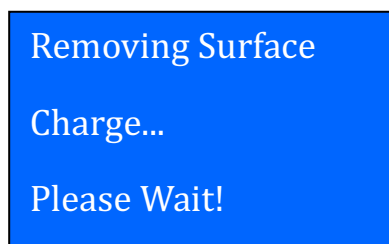
After you have made your choice, selecting "New:

Clear Memory" or "Continue Test..." press  will proceed to the display below:

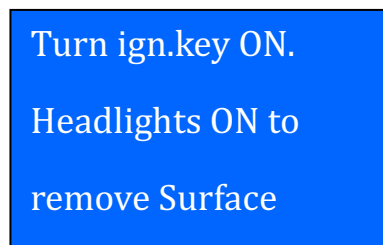


BATTERY TEST

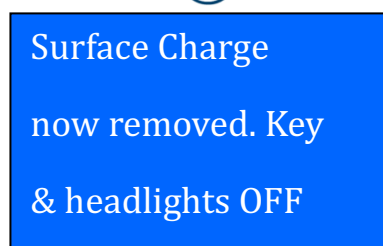
3. If it has detected any surface charge on the battery, it will start to remove and a message is shown below.



4. If the surface charge is too great for the analyser to handle, it will prompt you with the instructions as shown below.



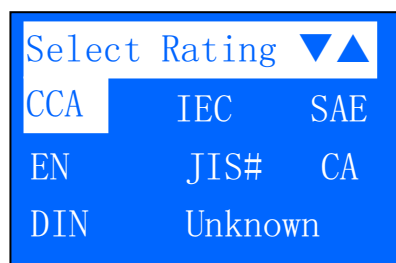
5. Wait until the surface charge removal had completed, the tester will advise as follows and then press  key.



6. If there is no surface charge present, then it will straight away enter into "Select Battery" menu screen as shown below:

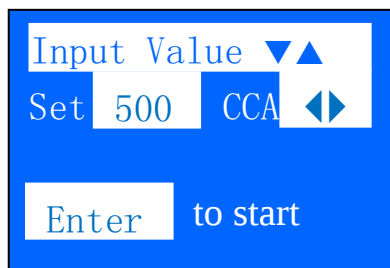


7. Pressing  again will proceed to Battery Test as shown below.



8. Select the rating system: CCA, DIN, EN, JIS#, IEC; according to the battery rating. If you cannot find its rating then select Unknown.
9. If the battery is rated in JIS#, refer to the conversion list provided to convert to CCA rating before keying into the Analyser.
10. Once you had the system rating in mind,

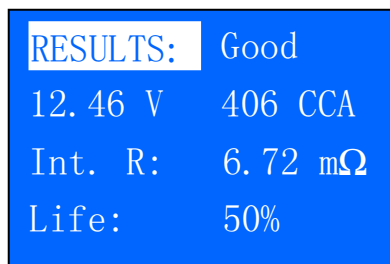
select and press  key and the display will show:



Vehicle Capacity	Approximate Battery CCA Rating
1200 ~ 1600 cc	350 CCA
1600 ~ 2000 cc	500 CCA
2000 ~ 3000 cc	650 CCA
3000 cc and above	750 CCA
M. Benz over 3000 cc	760 CCA

Key in the battery rating values using the ◀ or ▶ key for increase or decreases the values by step of 100 units. For double digits increase or decrease, use the ▲ or ▼ key by step of 5 units each press.

11. Once the rating is confirmed, press  key will start the testing process and will display the result in less than 5 sec.



RESULTS: Good

'Good' indicates the battery in good condition. 'Replace' indicates that the battery needs to be replaced.

Voltage: 12.46V

This indicates the tested battery voltage (12.46V). It depends on the stage of charge on the battery:

CCA (Cold Cranking Amps): 406 CCA

CCA rating is being used here. If other rating (DIN or JIS# or EN or IEC) then it will base on the selected respective rating to calculate the results.

Int. R (Internal Resistance): 6.72mΩ

Internal resistance should fall between **2.0mΩ ~ 15.0mΩ** for normal condition.

LIFE: 50%

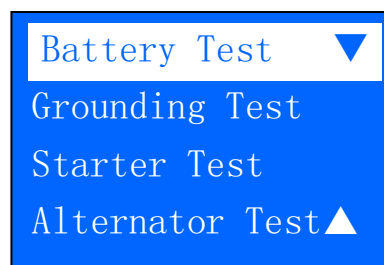
Indicates the battery life expectancy in percentage.

*If the reading is greater than 45%,
RESULT will display Good. Anything less
than 45%, RESULT display Replace.*

ROUGH CCA GUIDE

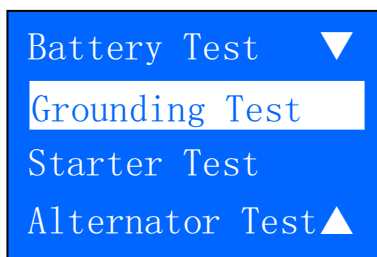
Given below is a rough CCA ratings guide for any unknown battery model basing on the capacity of the vehicle:

12. Press  key twice will return to the Main Menu as shown below:

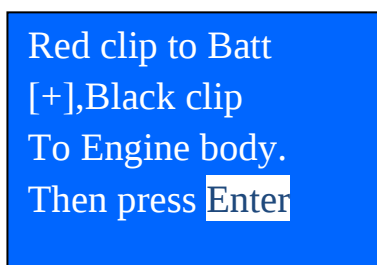


Grounding Test

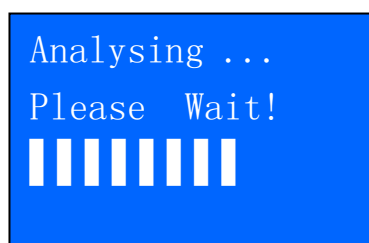
13. Pressing ▼ key once will scroll down to the "Grounding Test"



14. Press  key will proceed to the display as follows.



15. Now transfer the BLACK tester clip from the battery [-] terminal to a suitable position on the engine or chassis body leaving the RED clip still attached to the battery [+] terminal.
16. Now press  key again and it will start analysing.



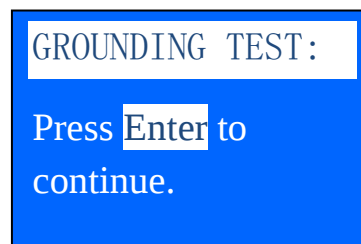
17. Once it has finished analysing, it will prompt you with an instruction stating that you have should unclamp the Black tester clip from the engine or chassis body and transfer to the battery negative [-] terminal within 20 seconds time limit if not the testing procedure has to be repeated again as the gathered data will be lost.

Now clamp the
Black clip to
battery [-] post

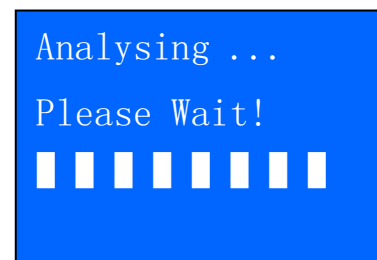
20sec time limit

NOTE: 20 seconds is given to establish the contact to the battery [-] post failing which the data obtained earlier will be lost. Then you need to repeat the whole testing procedures again.

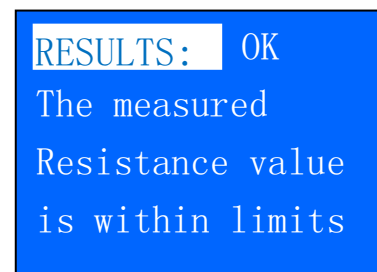
18. Once the Black clip is clamped onto the battery [-] terminal, the Analyser display will light up as shown.



19. Now you need to press  key to proceed and the display will show as follows



20. If the measured resistance reading is within limits, then it will display as follows:



21. If the measured resistance reading has gone beyond the limits, then it will display the screen as follows:

RESULTS:
High Resistance!
Clean contacts
and check cables

Note:

The above indicates that the ground contact from the engine body to the battery is bad. Check for rusted or corroded point of contacts. If found, dismantle it for cleaning or replace before fixing back. Repeat the test again after fixing.

22. If you did not follow the right procedures during the testing, it will display the results as follows:

RESULTS:
Not detected...
Try again follow
right procedure

23. To exit the program, pressing the  key at any moment will exit and return back to main menu screen

Starter Test

Note: Before performing this test, make sure that the battery is fully charged and in good condition.

24. With engine OFF, place the vehicle transmission in NEUTRAL for Manual and PARK for Automatic then apply the parking brake.
25. Pressing ▼ key once will scroll down to the "Starter Test"

Battery Test ▼
Grounding Test
Starter Test
Alternator Test ▲

26. Press  key to continue and the display will show as follows:

Voltage: 12.65V
Crank engine now
Until it starts.
Then press Enter

27. Switch the ignition key to ON and start cranking the engine until it starts. Immediately

after that press  key and the results will show as follows:

Cranking Test
MinVolts: 10.26V
VoltDrop: Normal
Result: OK

28. If the voltage drop is too great during the cranking, the tested results will display as follows and will prompt you to check the starter system.

Min Volts: 7.96V
VoltDrop HIGH
Chk Starter Sys
Battery has aged

29. During cranking when it detects that there is no drop in voltage, it will display the following screen:

Cranking Test
Not detected...
Check connection
and test again

30. To exit the program, pressing the  key at any moment will exit and return back to the main menu screen.

Alternator Test

No load testing at 3000 RPM:

31. With engine OFF, place the vehicle transmission in NEUTRAL for Manual and PARK for Automatic and apply the parking brake.
32. Pressing ▼ key once will scroll down to the "Alternator Test"

Battery Test ▼
Grounding Test
Starter Test
Alternator Test ▲

33. Press  key to continue and the display will show:

Start Engine and
keep it running

Then press 

34. Starts the engine then press  again and the screen will prompt you as shown below:

Rev engine up to
3,000 rpm, 
Continue this rpm
for 10 sec.

35. After that press  key again and it show as below:

▶3000 RPM 
Max 14.07 <15.0 V
Min 13.5 >13.3 V
Enter to proceed

36. Press  key will show the results of the test:

NO LOAD TEST
ChargeVolts:13.96V
Result: Good
Enter to proceed

37. If either minimum or maximum charging volts are not within the voltage range limits then it will display one of the screen as below (Fig. 1 & Fig. 2) and it will prompt you to check the alternator system for the fault.

NO LOAD TEST
Min Charge:12.96V
Result: LOW
Check Alt System

Fig. 1

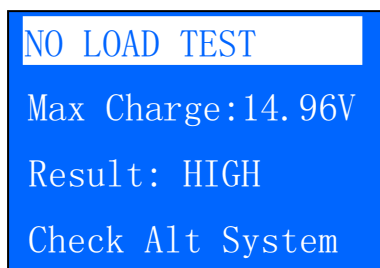


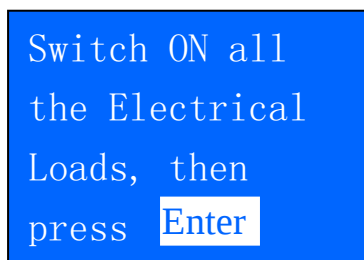
Fig.2

Testing with load at 2,000 RPM:

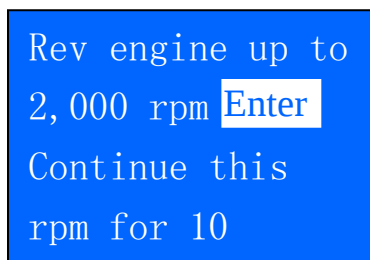
This test is to check the alternator's behavior during loading.

38. Continue from the previous test, proceed to

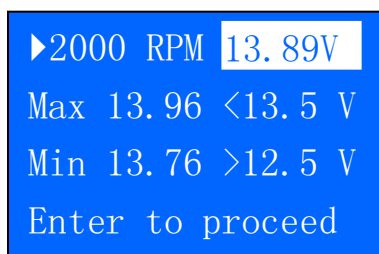
the next step by pressing  key will enter to the display as follows.



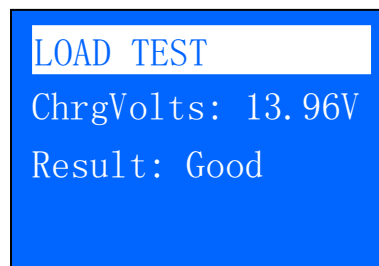
39. You need to switch ON all loads (Head Lights, Radio, Air-condition, Heater, etc) and press enter key will display as follow:



40. After that press key  again and it show as below:



41. Press  key will show the results of the test:



42. To exit the program, pressing the  key at any moment will exit and return back to the main menu screen.

43. If either minimum or maximum charging volts are not within the voltage range limits then it will display one of the screen as below (Fig. 3 & Fig. 4) and it will prompt you to check the alternator system for the fault.

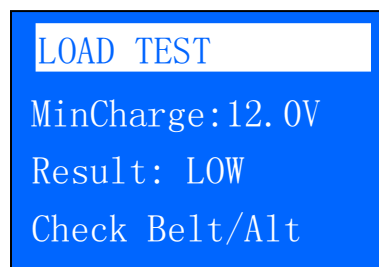


Fig.3

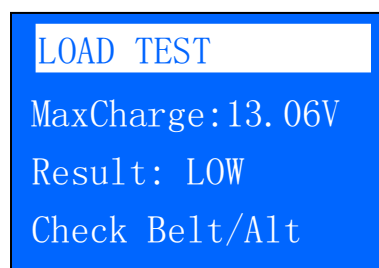
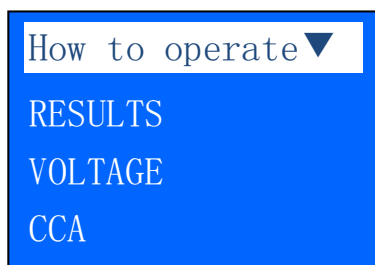


Fig.4

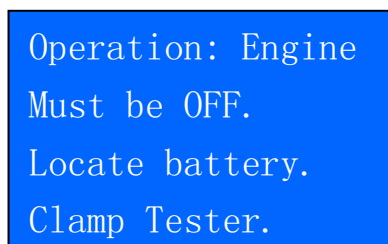
HELP KEY

44. Selecting this key will help you familiarize with the analyser by explaining the various functions and the results.

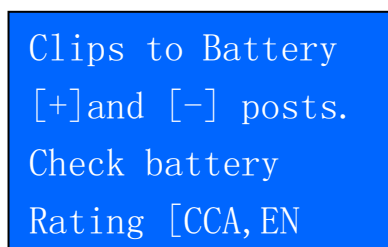
To access to this function, just press the  key during the wakeup and the display:



45. Use the ▲ or ▼ key to scroll to the item you need and then press .



46. Press ►► key to scroll to next page.



47. To exit this function, just press the  key will return back to the main menu display.