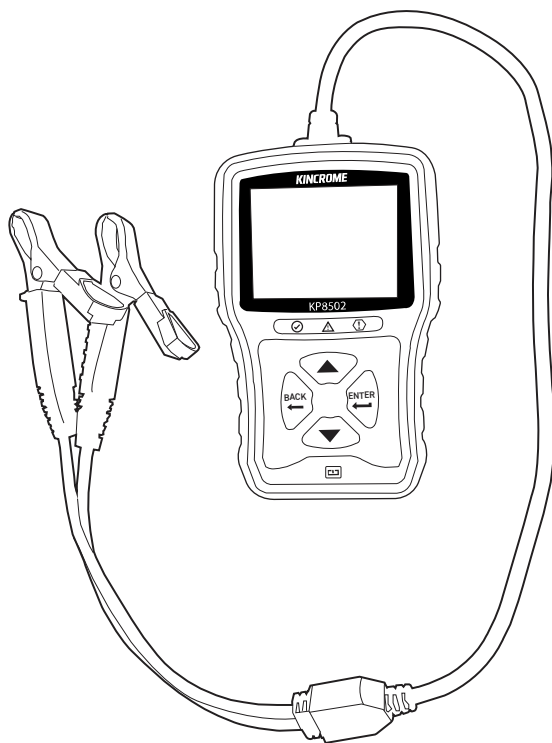


KINCROME

DIGITAL BATTERY TESTER 12/24V DC



KP8502

ED1 May 2023

General Safety Warnings

KP8502



WARNING This operating manual contains important safety information, read carefully & understand all information before operating.
Save this manual for future use.

The warnings, cautions and instructions discussed in this instruction manual cannot cover all possible conditions and situations that may occur. Common sense and caution are factors that cannot be built into this product, but must be supplied by the operator.

WORK AREA

1. Operate in a safe work environment. Keep your work area clean and well lit.
2. Keep anyone not wearing the appropriate safety equipment away from the work area.
Note: Minimize distractions in the work environment.
3. Distractions can cause you to lose control of the tool.
4. When connecting the battery tester analyzer cables to the battery, avoid creating sparks; especially when the battery is being charged. Explosive gases are created during charging. Sparking could also damage the vehicle electrical system.
5. Always lock up tools and keep them out of the reach of children

PERSONAL SAFETY

6. Wear ANSI-approved safety goggles during set up and use of the Battery Tester.
7. Test in a well ventilated area. Explosive gases may be produced during testing. Do not smoke, cause sparks, or strike matches near the battery when testing.
8. Protective, electrically non-conductive clothes and non-skid footwear are recommended when working. Wear steel-toed boots to prevent injury from falling objects.
9. Refer to the user manual of the battery being tested for testing instructions and precautions prior to using the battery tester analyzer.

RISK OF ELECTRIC SHOCK

10. Never touch the clamps and the terminals with wet hands.
11. Do not pull the clamps from the terminals by pulling on the clamp cables.
12. Check the clamp leads for damage before every use.
13. Be certain of the test battery polarity before connecting the battery tester analyzer clamps (X & X). The RED (+) positive battery clamp (X) goes to the positive terminal of the battery. The BLACK (-) negative battery clamp (7) goes to the negative terminal of the battery. Reversing the battery tester analyzer battery clamps (X & X) on the battery may damage the battery tester analyzer.
14. Do not drop the battery tester analyzer as it may affect proper operation.
15. Do not smoke or have open flames near the battery.
16. The warnings and precautions discussed in this manual cannot cover all possible conditions and situations that may occur. It must be understood by the operator that common sense and caution are factors which cannot be built into this product, but must be supplied by the operator.

TESTER USE AND CARE INSTRUCTIONS

17. This battery tester analyzer was designed for specific functions. DO NOT modify or alter the battery tester analyzer, all parts and accessories are designed with built-in safety features that may be compromised if altered.
18. DO NOT use the battery tester analyzer in a way for which it was not designed.
19. Do not connect in reverse polarity.
20. Use this product in accordance with these instructions, taking into account the working conditions and the work to be performed. Use of this product for operations different from those intended could result in a hazardous situation.
21. This product is not a toy. Keep it out of reach of children.
22. Maintain labels and nameplates on the unit. These carry important safety information. If unreadable or missing, contact Kincrome Tools for a replacement.
23. People with pacemakers should consult their physician(s) before use. Electromagnetic fields in close proximity to heart pacemaker could cause pacemaker interference or pacemaker failure. Caution is necessary when near coil, spark plug cables, or distributor of running engine. Engine should be off during distributor adjustment.
24. Undercharged lead-acid batteries will freeze during cold weather. Do not test or charge a frozen battery.
25. Do not smoke or have open flames near the battery.
26. Never remove battery load tester clamps while testing.
27. Ensure automatic vehicles are in park with the handbrake on before starting the engine.

General Safety Warnings

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28. Ensure manual vehicles are in neutral with the handbrake on before starting the engine.
29. Road Safety Road Rules 2009 penalty code 2135, it is illegal to leave "motor vehicle unattended with keys in ignition, motor running, brakes not secured or doors unlocked.

This tester is designed in strict accordance with the IEC/EN61010-1 safety standard, meeting the requirements for double insulation and over voltage protection at CAT III 600V and pollution degree 2.

The Kincrome KP8502 tester is specifically designed for 12V and 24V lead-acid starting batteries. It operates within a voltage range of DC 9V to 36V.

After fully charging the battery being tested, the voltage reading will be higher than the normal value. To obtain an accurate measurement, please turn on the headlights for 2 to 3 minutes and then check the battery once its voltage returns to the normal range.

Prior to performing the test, carefully examine the insulating layer of the clamps. Verify that there are no signs of damage, exposed areas, or disconnections. It is essential not to utilize the tester if the housing is not fully and properly covered, as this can pose a risk of electric shock.

Optional storage battery standards:

CCA:	100-2000
IEC:	100-1400
EN:	100-2000
DIN:	100-1400
JIS:	26A17 - 245H52
GB:	100-1400

BEFORE TESTING

Before you test a battery in a vehicle, turn off the ignition, all accessories and loads. Close all the vehicle doors and the boot lid.

Make sure the battery terminals are clean. Wire brush them if necessary. Clamp the black load lead to the vehicle negative battery terminal. Clamp the red load lead to the vehicle positive battery terminal. Please clamp on the lead part of the terminal only. Clamping on the iron part of the terminal will lead to wrong test results.

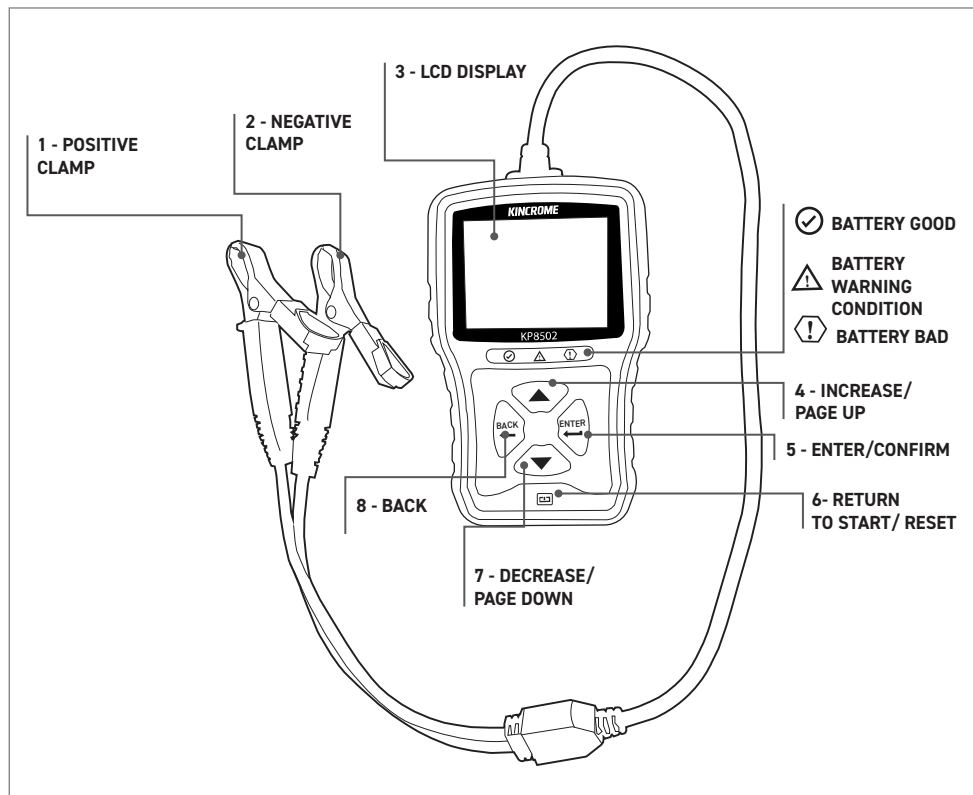
Symbols

The rating plate on your tool may show symbols. These represent important information about the product or instructions on its use.

	Direct Current		Class II Tool, Double Insulated
	Alternating Current		Volts
	Direct Current and Alternating Current		Read the instruction manual before use. Failure to follow the warnings and instructions may result in electric shock, fire and/or serious injury.
	WARNING!		Fuse
	High Voltage, Risk of electric shock		Battery
	Earth		

Know Your Product

KP8502



Specifications

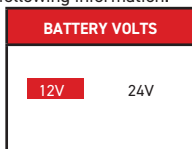
Battery Test Capability	12V DC and 24V DC 100 - 2000CCA/30-220Ah URL A, GEL, AGM, SLA
Measuring Voltage	9V-36V DC
Standards Support	CCA, JIS, DIN, IEC, EN and GB
Operating Temperature	0 to 60°C (-4 to 140 F°)

Storage Temperature	0 to 70°C (-4 to 158 F°)
Battery power	Via Battery Being Tested
Charge Time	4 Hours (Cable) / 6 Hours (Wireless Charger)
Dimensions	97 x 83 x 39 mm

Operation

The tester operates using power from the vehicle battery under test. To begin, connect the RED clamp to the positive terminal and the Black clamp to the negative terminal. It is recommended to connect the RED clamp first before the Black clamp.

Once connected, the tester is ready for use, and the screen will display the following information.

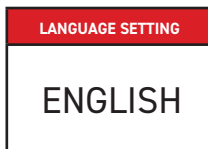
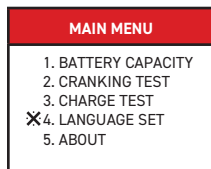


To ensure proper connection, please thoroughly inspect and firmly reattach both clamps to their respective terminals if the screen displays the following information and audible tone can be heard.

**Black clamp (NEG)
contact is bad,
please check**

**Red clamp (POS)
contact is bad,
please check**

SELECTING THE LANGUAGE



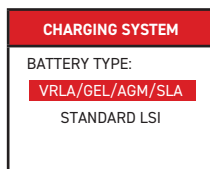
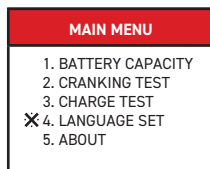
BATTERY CAPACITY TEST

This test determines condition of battery according to rated value labeled on the battery.

First make sure the engine and all devices are off. The voltage value will be higher than that in the normal situation due to the checked battery is fully charged after the vehicle runs for a while. Please turn on the headlights for 2 to 3 minutes, until battery voltage drops to the normal value, then turn off all devices and start testing.

5-1-2. Press ▼ or ▲ to select "1. BATTERY CAPACITY" and press <ENTER> to continue.

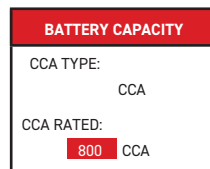
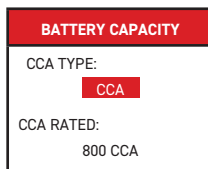
5-1-3. Press ▼ or ▲ to select "BATTERY TYPE" and press <ENTER> to continue.



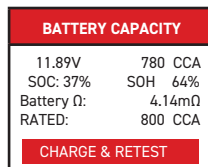
5-1-4. Press ▼ or ▲ to select CCA TYPE which is displayed on the battery rating label, and press <ENTER> to continue.

5-1-5. Press ▼ or ▲ to select CCA RATED which is displayed on the battery rating label.

5-1-6. Press <ENTER> to start Battery Test. The test result



will be displayed as below. Press <BACK> to return to main menu.



Battery State of Health (SOH) and Test Result Reference

LIFE	RESULT	NOTE	LED
>80%	GREAT	Good to Use	GREEN
>60%	NORMAL	Not Bad	GREEN
>45%	CAUTION	Keep Caution	YELLOW
<45%	SUGGEST REPLACE!	Replace Needed	RED

Table Please note that Internal Resistance refers to the sum total resistance of two series connection 12V batteries when testing 24V system.

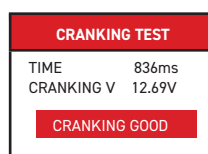
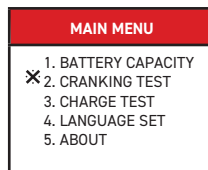
CRANKING TEST

This test determines cranking state by testing cranking voltage and time.

5-2-1. First make sure the engine and all devices are off.

5-2-2. Press ▼ or ▲ to select "2. CRANKING TEST".

5-2-3. Press <ENTER> to Cranking Test interface.



Start engine as guide displayed in the screen.

5-2-4. Test result will be displayed as below. Press <BACK> to return to main menu.

Reading over 9.6V (for 24V system, reading over 16V) means cranking is good.

Reading below 9.6V (for 24V system, reading below 16V) means cranking is abnormal. Please check associated parts , such as connections, wires, starter and battery's terminal corrupted or not.

CRANKING TEST RESULT REFERENCE TABLE

Reference Table (For 12V System)

Cranking Voltage	Cranking Ability	Action to Battery
> 10.7 V	Good	No Action
10.2~10.7 V	Normal	Keep Caution
9.6 ~10.2 V	Bad	Replace It Soon
< 9.6 V	Very Bad	Replace It Immediately

CHARGING TEST

This test determines charging system by testing it's condition under loaded and unloaded status.

MAIN MENU
1. BATTERY CAPACITY
2. CRANKING TEST
3. CHARGE TEST
✕ 4. LANGUAGE SET
5. ABOUT

5-3-1. First make sure the engine and all devices are off .

5-3-2. Press ▼ or ▲ to select "3. CHARGE SYSTEM".

CHARGING SYSTEM
RIPPLE : 650mV LOADED: 13.01V UNLOADED 14.60V
CHARGING GOOD

5-3-3. Press <ENTER> to Charging Test interface. Start engine as guide displayed in the screen.

5-3-4. Test result will be displayed as below. Press <BACK> to return to main menu.

CHARGING TEST RESULT REFERENCE TABLE

Reference Table (For 12V System)

Status	Battery Voltage	Engine Performance
All Electric System Off (Depress Accelerator)	> 13.5	Normal
	13.2~13.5	General
	13.0~13.2	Keep Caution
	<13	Inspection Immediately

All Electric System On (Depress Accelerator)	13.4~14.8	Normal
	13.2~13.4	Keep Caution
	< 13.2	Inspection Immediately
For reference only. Bad batteries will affect the test results.		

FAQ

1. What is the measurement principle of this tester?

The battery will gradually aging with increase of time. The main reason is that it can no longer generate some effectively chemical reaction because of aging of the surface of the battery plate. That is why most of the batteries can longer be used mainly. International Electric and Electronic Engineer Association (IEEE) formally looks the Conductivity Test as one of the standard of checking lead acid storage battery. It points out from IEEE standard 1118-1996 that :Conductivity Test is used to test AC current generated by putting the known frequency and amplitude AC signal to both sides of the battery. AC conductivity value is the ratio of AC current signal which keeps same phase with AC voltage and the AC voltage. This tester is designed from this principle actually.

2. Is the result affected by the installation of negative current for the vehicle?

All the negative currency will affect the result. Therefore please remove the negative currency prior to checking, in order to achieve the accurate data.

3. Can this tester predict when the battery goes down?

The internal resistance of the sealed lead-acid battery is complicated. It is generated by ohm internal resistance, concentration polarization internal resistance, chemical reactions internal resistance and interference effect.. caused by double capacitance's charging. The ingredient of internal resistance and its relative content will change with different test method and different test moment, which can lead to different tested value of the internal resistance. And there is no strict relationship between internal resistance (or conductance) and capacitance of the sealed lead-acid battery. So it is impossible to predict the life of battery according to a single battery's internal resistance. But it can be predicted the life of the battery will be over soon from the sudden increase of its internal resistance and decrease of its conductance.

4. Is the CCA value tested by this tester correct?

CCA is considered as a control standard with the produce of the battery.

According to the accumulated records, the tested value of new battery is 10-15% higher than the standard value, and along with consuming of the battery, the value is getting close to standard, even lower afterward.

5. What is the difference between the method of this tester and the load test method?

The load test method: According to the physical formula $R=V/I$, test equipment forcibly make the high permanent DC current (presently 40- 80A large current is available) go through the battery shortly (about 2-3 seconds). Then the tested voltage of the battery can be used to figure out the internal resistance by the formula.

Disadvantages of load test method:

(1) Just available for large capacitance battery or storage battery. The small capacitance battery can not load 40-80A large current in 2-3 seconds.

(2) When the large current going through the battery, there comes out polarization phenomenon from internal electrode, which can cause polarization internal resistance. As a result it has to be tested in a short time. Otherwise there is a large error of the internal resistance value.

(3) The internal electrode will be damage generally when large current go through the battery.

The method of this tester: Battery is actually equivalent to an active resistance. So we add a fixed frequency and small current to it, and then sample the voltage value. Eventually the internal resistance can be figured out after some operation such as rectification and smoothing.

Advantages of this method:

(1) It can be used for checking almost all the batteries including low capacity battery and internal resistance of the notebook battery exclusively.

(2) It will not harm the battery to use this method.

OFFICE CONTACT DETAILS

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WARRANTY**1 YEAR
WARRANTY**

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