



6/12/24V DIGITAL BATTERY & ALTERNATOR TESTER

MODEL NO: **BT2002.V2**

Thank you for purchasing a Sealey product. Manufactured to a high standard, this product will, if used according to these instructions, and properly maintained, give you years of trouble free performance.

IMPORTANT: PLEASE READ THESE INSTRUCTIONS CAREFULLY. NOTE THE SAFE OPERATIONAL REQUIREMENTS, WARNINGS & CAUTIONS. USE THE PRODUCT CORRECTLY AND WITH CARE FOR THE PURPOSE FOR WHICH IT IS INTENDED. FAILURE TO DO SO MAY CAUSE DAMAGE AND/OR PERSONAL INJURY AND WILL INVALIDATE THE WARRANTY. KEEP THESE INSTRUCTIONS SAFE FOR FUTURE USE.



Refer to
instructions



Wear eye
protection



Wear
protective
clothing



Wear
protective
gloves



Warning:
explosive
material



Warning:
corrosive
substance

1. SAFETY

DANGER! BE AWARE, LEAD-ACID BATTERIES GENERATE EXPLOSIVE GASES DURING NORMAL BATTERY OPERATION. FOR THIS REASON, IT IS VERY IMPORTANT TO READ AND FOLLOW THESE INSTRUCTIONS CAREFULLY, EACH TIME YOU USE THE BATTERY TESTER.

Follow these instructions and those published by the battery and vehicle manufacturers, and the maker of any equipment you intend to use in the vicinity of the battery. Remember to review warning marks on all products and on engines.

1.1. PERSONAL PRECAUTIONS

- ✓ Ensure that there is another person within hearing range and close enough to come to your aid, should a problem arise when working near a lead-acid battery.
- ✓ Wear safety eye protection and protective clothing. Avoid touching eyes while working near battery.
- ✓ Have fresh water and soap nearby in case battery acid contacts skin, clothing, or eyes.
- ✓ Wash immediately with soap and water if battery acid contacts skin or clothing. If acid enters eye, flush eye immediately with cool, clean running water for at least 15 minutes and seek immediate medical attention.
- ✓ Remove personal metallic items such as rings, bracelets, necklaces and watches. A lead-acid battery can produce a short-circuit current which is high enough to weld such items to the vehicle and cause severe burns.
- ✓ Ensure that hands, clothing (especially belts) are clear of fan blades and other moving or hot parts of engine. Remove ties and contain long hair.
- ✗ **DO NOT** smoke or allow a spark or flame in the vicinity of the battery or engine.

1.2. GENERAL SAFETY

- ✓ Familiarise yourself with the application, limitations and potential hazards of the tester. Also refer to the vehicle manufacturer's hand book. **IF IN ANY DOUBT CONSULT A QUALIFIED VEHICLE ELECTRICIAN.**
- ✓ Ensure that the tester is in good condition before use. If in any doubt do not use the unit and contact a qualified vehicle electrician.
- ✓ Only use recommended attachments and parts. To use unapproved items may be dangerous and will invalidate your warranty.
- ✓ Keep tools and other items away from the engine and ensure that you can see the battery and working parts of engine clearly.
- ✓ Determine the system voltage before using the tester.
- ✓ If the tester receives a sharp knock or blow the unit must be checked by a qualified service agent before using.
- ✓ If the battery terminals are corroded or dirty clean them before using the tester.
- ✓ Keep children and unauthorised persons away from the work area.
- ✗ **DO NOT** disassemble the tester for any reason. The tester must only be checked by qualified service personnel.
- ☐ **WARNING!** To prevent the risk of sparking, short circuit and possible explosion **DO NOT** drop metal tools in the battery area, or allow them to touch the battery terminals.
- ✗ **DO NOT** cross-connect tester to battery. Ensure positive (RED) clamp is to positive terminal and negative (BLACK) clamp is to negative terminal. If battery symbols cannot be distinguished, remember that the negative terminal is the one directly connected to the vehicle bodywork.
- ✗ **DO NOT** use the tester outdoors, or in damp, or wet locations and **DO NOT** use in the vicinity of flammable liquids or gases.
- ✓ Ensure there is effective ventilation to prevent a build-up of explosive gases.
- ✗ **DO NOT** use the tester for a task for which it is not designed.
- ✓ When not in use, store the tester carefully in a safe, dry, childproof location.

2. INTRODUCTION

Professional diagnosis of battery and alternator faults. Test battery condition with as little as 1V of residual charge. No heat, no sparks and no misdiagnosis. Checks condition of starter - no complicated connections or interpretation required. Analyse the vehicle's charging system at rest and under load to determine condition of alternator. Connect and follow the prompts on the LCD screen for straightforward answers. Incorporates simple voltmeter for voltage tests and additional system diagnostics. Rugged construction with protective cover.

3. SPECIFICATION

Model no:.....BT2002.V2
Battery:.....1 x 9V (NOT SUPPLIED)
Rated Battery Voltage6/12V
Charging System Capability6, 12, 24V**
Minimum Power Requirement:.....1.5V
Voltage Range:.....6-24V
Rated SystemsSAE, DIN, EN, IEC, JIS
Test range:.....
.....40-2100 CCA* EN
.....40-2000 CCA* SAE
.....30-1500 CCA* IEC
.....25-1300 CCA* DIN
Note: *CCA = Cold Cranking Amps, **24V Alternator Test Only

4. OPERATION

- ☐ **WARNING!** Ensure that you read, understand and apply the safety and operational instructions before connecting the tester clamps to the battery. Only when you are sure that you understand the procedures is it safe to proceed with the testing process.
- ☐ **WARNING!** *Ensure that the vehicle, or battery, is in a well ventilated area before starting to test.*
- 4.1. Check battery casing for cracks or leakage. If damage is found **DO NOT** test and replace battery.
- 4.2. Clean battery terminals.
- 4.3. If possible, check electrolyte levels and top-up with distilled water as necessary.
- 4.4. Unless otherwise specified tests are carried out with **all** electrical items switched off. **Leaving any items on (boot light, interior light, etc.) can result in expensive misdiagnosis.**
- 4.5. Confirm that the 9V alkaline battery is correctly fitted in the compartment in the rear of the tester.
Note that no results will be displayed until the tester is connected to a vehicle battery.
- 4.6. Connect the red clamp to the positive (+) battery terminal and the black clamp to the negative (-) terminal. When the internal battery becomes discharged the display will read REPLACE INTERNAL 9V DRY BATTERY.
- 4.7. If there is a poor connection the display will read **CHECK CLAMPS**, otherwise the display will read either **BATTERY TEST, SYSTEM TEST** or **LANGUAGE**.
- 4.8. By pressing the **▲▼** buttons the display will cycle through the three options. Press the ENTER button when the option you require is displayed.
- 4.9. To select a different language press enter when the word LANGUAGE is displayed.
- 4.10. Using the up/down buttons select the language of your choice from English, French, German, Spanish, Italian, Portuguese or Japanese.
- 4.11. When the language you require is displayed press the ENTER button to confirm your choice.
- 4.12. BATTERY TEST (6 OR 12V)**
 - 4.12.1. Select 'BATTERY test' using the **▼▲** buttons. Press the ENTER button to confirm your selection.
 - 4.12.2. The display will now prompt you to select BATTERY TYPE.
 - 4.12.3. Using the **▼▲** buttons select either Regular Liquid, AGM Flat Plate, AGM Spiral or VRLA/Gel. Press the ENTER button to confirm your selection.
 - 4.12.4. The display will now prompt you to select an appropriate rating standard. (SELECT RATING)
 - 4.12.5. Using the **▼▲** buttons select from SAE, EN, IEC or DIN. Press the ENTER button to confirm selection.
 - 4.12.6. The display will now prompt you to enter the cold cranking amps of the battery. (SET CAPACITY)
 - 4.12.7. Using the **▼▲** buttons alter the numeric display until it shows the rated cold cranking current (CCA) for the battery.
 - 4.12.8. The display will now ask if the battery is charged.
 - 4.12.9. Using the **▼▲** buttons select YES or NO then press the ENTER button and the battery test will begin.
 - 4.12.10. When the test is complete the display will show the actual voltage and CCA together with one of the following messages:

GOOD & PASS:	Battery OK and ready for use.
GOOD & RECHARGE:	Battery OK but needs recharging.
RECHARGE & RETEST:	Recharge battery and then retest.
BAD & REPLACE:	Battery will not hold charge - replace.
BAD CELL & REPLACE:	Battery has faulty cell(s) - replace.
 - 4.12.11. Press ENTER button to return to menu to select 'SYSTEM TEST' or remove the clamps from the battery if no further tests are required.
- 4.13. STARTER TEST**
 - 4.13.1. Confirm that all electrical items are switched off and that the transmission is in neutral or park and that the parking brake is applied. Start the engine.
 - 4.13.2. Once the engine is running the display will show one of the two following messages.
Cranking voltsV Normal: Press the ENTER button to start the charging system test, see 4.14.
Cranking voltsV Low: Troubleshoot the starter and wiring, following the manufacturer's procedure.

4.14. CHARGING SYSTEM TEST

- 4.14.1. With the engine idling, and having pressed enter after achieving normal cranking voltage, the display will show:
PRESS ENTER FOR CHARGING TEST: Press the ENTER button, the display will now read:
MAKE SURE ALL LOADS ARE OFF: Check loads and then press the ENTER button. The display will now read one of the following:
ALT. IDLE voltsV LOW: Check alternator belt for slip, check alternator-to-battery cable and connections, check alternator.
ALT. IDLE voltsV NORMAL: OK.
ALT. IDLE voltsV HIGH: Check connections, including battery and alternator earths. Check voltage regulator (usually integrated into alternator). Normal regulator voltage is $14.7V \pm 0.5$ but check vehicle manufacturer's specification.
- 4.14.2. Press ENTER and the display will read:
TURN ON LOADS AND PRESS ENTER: Turn on heater blower (to high), main beam headlights and the rear window demist. Do not use cyclic loads such as wipers or air con. Press ENTER. Display will read:
RUN ENGINE UP TO 2500RPM 15 SEC. On older diesels run the engine at 2500rpm for 15secs otherwise press ENTER and the display will read one of the following:
RIPPLE DETECTEDV NORMAL: OK.
RIPPLE DETECTEDV HIGH: If alternator belt and alternator mounting are OK then either there is a faulty diode or the stator is damaged.
- 4.14.3. Press ENTER to continue - the display will read one of the following:
ALT. LOAD voltsV HIGH: Check connections, including battery and alternator earths. Check voltage regulator (usually integrated into alternator). Normal regulator voltage is $14.7V \pm 0.5$ but check vehicle manufacturer's specification.
ALT. LOAD voltsV LOW: Check belt and connections. Check alternator.
ALT. LOAD voltsV NORMAL: OK.
- 4.14.4. Press enter and the display will read:
TEST OVER. TURN OFF LOADS AND ENGINE: Press ENTER to return to beginning of test cycle if retest is required, or remove clamps from battery terminals.

5. MAINTENANCE

- 5.1. Fit /replace battery (NOT SUPPLIED) by removing door on rear of the tester.



BATTERY REMOVAL

Under the Waste Batteries and Accumulators Regulations 2009, Jack Sealey Ltd are required to inform potential purchasers of products containing batteries (as defined within these regulations), that they are registered with Valpak's registered compliance scheme. Jack Sealey Ltd Batteries Producer Registration Number (BPRN) is BPRN00705.



WEEE REGULATIONS

Dispose of this product at the end of its working life in compliance with the EU Directive on Waste Electrical and Electronic Equipment (WEEE). When the product is no longer required, it must be disposed of in an environmentally protective way. Contact your local solid waste authority for recycling information.



ENVIRONMENT PROTECTION

Recycle unwanted materials instead of disposing of them as waste. All tools, accessories and packaging should be sorted, taken to a recycling centre and disposed of in a manner which is compatible with the environment. When the product becomes completely unserviceable and requires disposal, drain any fluids (if applicable) into approved containers and dispose of the product and fluids according to local regulations.

Note: It is our policy to continually improve products and as such we reserve the right to alter data, specifications and component parts without prior notice. Please note that other versions of this product are available. If you require documentation for alternative versions, please email or call our technical team on technical@sealey.co.uk or 01284 757505.

Important: No Liability is accepted for incorrect use of this product.

Warranty: Guarantee is 12 months from purchase date, proof of which is required for any claim.



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