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ANCEL PB100, BA301

ANCEL PB100 Automotive Power Circuit Probe Tester & BA301 6V 12V Car Battery Tester User Manual

Your comprehensive guide to automotive electrical diagnostics and battery health.

1. Introduction

This manual provides detailed instructions for the safe and effective use of your ANCEL PB100 Automotive Power Circuit Probe Tester and ANCEL BA301 6V 12V Car Battery Tester. These tools are designed to assist in diagnosing electrical systems and assessing battery health in various vehicles.

The ANCEL PB100 is a versatile circuit tester capable of power injection, measuring, ground testing, polarity checking, continuity testing, and component activation. The ANCEL BA301 is a professional tool for testing 6V and 12V batteries, providing comprehensive battery health analysis including cranking and charging system tests.

Please read this manual thoroughly before operation to ensure proper usage and prevent damage to the tools or your vehicle.

Figure 1: ANCEL PB100 Circuit Probe Tester and BA301 Battery Tester Combo Kit.

2. ANCEL PB100 Circuit Probe Tester Features

The ANCEL PB100 is an all-in-one super probe circuit tester designed for efficient automotive electrical diagnostics. Key features include:

- **Voltage & Polarity Testing:** Quickly identify positive, negative, and open circuits.
- **Continuity Testing:** Test the continuity of power switches, relays, and diodes.
- **Signal Circuit Testing:** Troubleshoot errors when extracting DTCs from vehicles.
- **Component Activation:** Safely activate components in hand or in the vehicle (e.g., cooling fan, fuel pump, headlights, solenoids).
- **Short Circuit Detection:** Follow and locate short circuits without wasting fuses.
- **Overload Protection:** Built-in protection prevents damage to the tool and vehicle when current exceeds 8A.
- **Long Power Cord:** A 40ft (20ft + 20ft extension) cable allows testing bumper-to-bumper circuits.
- **LCD Backlight & Searchlight:** Clear screen content and easy operation in dark environments.
- **Insulated Alligator Clips:** Ensures safe and easy operation.

Figure 2: Overview of ANCEL PB100 testing and activation capabilities.

Figure 3: Detailed view of ANCEL PB100 advanced features including stainless steel probe, searchlight, LCD backlight, and insulated alligator clips.

3. ANCEL BA301 Car Battery Tester Features

The ANCEL BA301 is an enhanced 6V 12V battery tester designed for efficient battery maintenance and diagnosis. Key features include:

- **Multi-Test Functions:** Performs battery test, cranking test, and charging test.
- **Battery Health Analysis:** Provides State of Health (SOH), Cold Cranking Amps (CCA), voltage, and resistance readings.
- **Cranking Test:** Checks the state of the starter and assesses the battery's ability to start the vehicle.
- **Charging Test:** Verifies proper alternator function and battery charging.
- **One-Click Waveform:** Displays real-time battery voltage waveforms for detailed analysis.
- **Ripple Test:** Measures output voltage stability of the alternator power supply.
- **Professional Repair Advice:** Offers guidance based on test results (Good Battery, Good-Recharge, Charge-Retest, Replace, Bad Cell).
- **Security Protection Design:** Features reverse polarity protection, short circuit protection, and does not require battery charging.
- **Wide Compatibility:** Supports various 6V & 12V battery types (Regular Flooded, AGM Flat Plate, AGM Spiral, GEL, EFB, Lithium Battery) and vehicles (cars, light trucks, ATVs, SUVs, motorcycles, boats, lawn mowers).
- **Data Transfer & Print:** Allows transferring test results to a computer for printing and further analysis.
- **User-Friendly Design:** Bright color LCD display, self-explanatory menu, and highly handheld texture design.

Figure 4: ANCEL BA301 as a professional tool for 6V and 12V battery testing.

Figure 5: ANCEL BA301 Enhanced Battery Tester with 6V/12V, in-vehicle/out-of-vehicle, and multi-test functions.

4. Setup and Connection

4.1 ANCEL PB100 Setup

The PB100 probe requires connection to a 12V or 24V vehicle battery for power. It comes with a long power cord and alligator clips for direct battery connection, or a cigarette lighter adapter for in-cabin power.

1. Connect the red alligator clip to the positive (+) terminal of the vehicle battery.
2. Connect the black alligator clip to the negative (-) terminal of the vehicle battery.
3. Alternatively, plug the cigarette lighter adapter into the vehicle's 12V power outlet.
4. The device will power on automatically once connected.
5. Insert the probe tip into the top of the device.

Figure 6: ANCEL PB100 with its 40ft power cord, suitable for various vehicle types.

4.2 ANCEL BA301 Setup

The BA301 battery tester connects directly to the vehicle battery terminals.

1. Connect the red clamp to the positive (+) terminal of the 6V or 12V battery.
2. Connect the black clamp to the negative (-) terminal of the 6V or 12V battery.
3. The device will power on automatically.

4. Use the arrow buttons to navigate the menu and select the desired test.

Figure 7: ANCEL BA301 can be used for both in-vehicle and out-of-vehicle battery testing.

5. Operating Instructions

5.1 ANCEL PB100 Operation

The PB100 offers various modes for diagnosing electrical systems. Use the mode button to cycle through options like DC voltage, AC voltage, resistance, and diode test.

- **Voltage/Polarity Test:** Touch the probe tip to a circuit. The LCD will display the voltage and indicate polarity (red for positive, green for negative).
- **Continuity Test:** Connect the probe tip to one end of a component and the auxiliary ground lead to the other. A beep indicates continuity.
- **Component Activation:** Press the power switch forward (up) to apply positive voltage or backward (down) to apply ground to the probe tip. This allows you to activate components directly.
- **Short Circuit Detection:** Use the probe to trace the circuit. The device will indicate a short circuit by tripping its internal circuit breaker.

Figure 8: ANCEL PB100 displaying 4 working modes: DC Voltage, Resistance, AC Voltage, and Diode.

Figure 9: ANCEL PB100 activating various components like cooling fan, fuel pump, headlight, and solenoid.

Video: ANCEL PB100 Circuit Tester Demonstration

Your browser does not support the video tag.

This video demonstrates the features and operation of the ANCEL PB100 Circuit Tester, including unboxing and various testing scenarios.

Video: Topdiag Power Probe P60 Demonstration

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This video provides a demonstration of a similar power probe, the Topdiag P60, showcasing its unboxing, features, and various testing capabilities like voltage detection, component activation, and short circuit protection.

Video: Autel PowerScan PS100 Features Introduction

This video introduces the features and functions of the Autel PowerScan PS100, a similar automotive circuit tester, demonstrating its capabilities for electrical system diagnostics.

5.2 ANCEL BA301 Operation

The BA301 provides a user-friendly interface for various battery tests. Navigate using the arrow and ENTER buttons.

- **Battery Test:** Select 'Battery Test' from the main menu. The device will guide you through steps like checking surface charge and turning headlights on/off. It will then display the battery's SOH, CCA, voltage, and internal resistance.
- **Cranking Test:** Select 'Cranking Test'. The device will prompt you to turn off the engine and then start it. It measures cranking time, maximum/minimum voltage during cranking, and assesses starter performance.
- **Charging Test:** Select 'Charging Test'. The device will instruct you to increase engine RPM to 2500 r/min for 10 seconds. It measures loaded/unloaded voltage and ripple, indicating alternator performance.
- **Waveform Analysis:** Access 'Waveform' from the main menu to view real-time battery voltage fluctuations.
- **Review Results:** Select 'Review' to view past test results and waveforms.

Figure 10: ANCEL BA301 displaying battery test results including SOH, CCA, resistance, and voltage.

Figure 11: ANCEL BA301 performing a cranking test, showing time, max/min voltage, and cranking status.

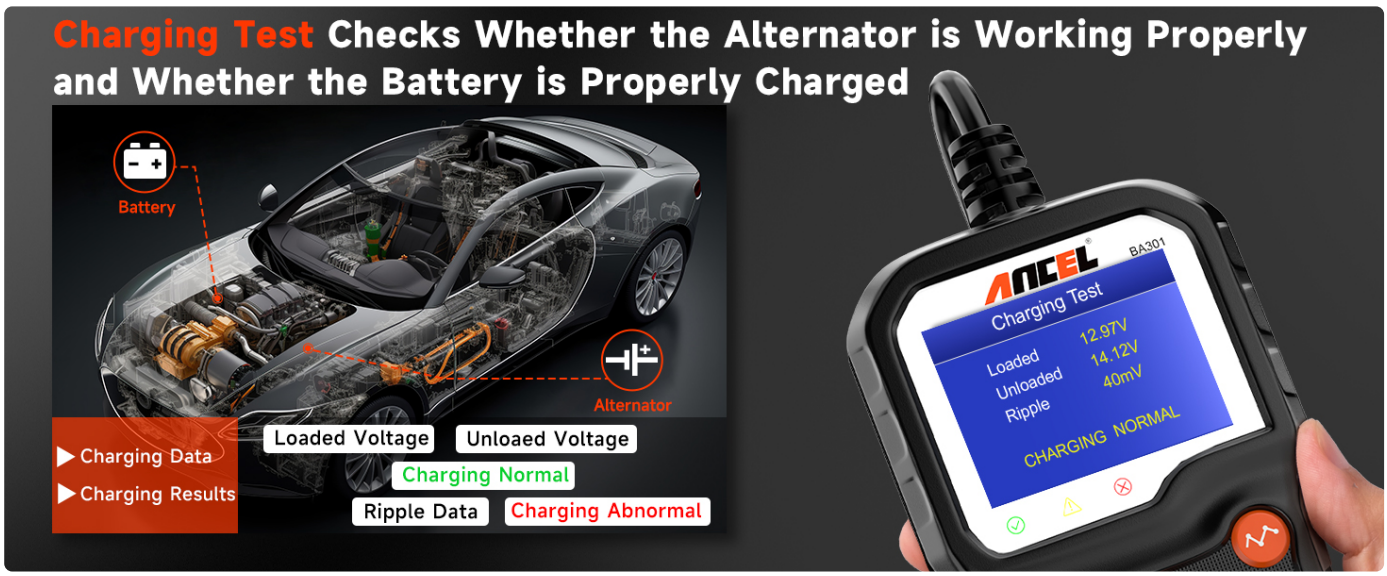

Figure 12: ANCEL BA301 performing a charging test, displaying loaded/unloaded voltage, ripple, and charging status.

Figure 13: ANCEL BA301 displaying real-time battery voltage waveform during starting sequence.

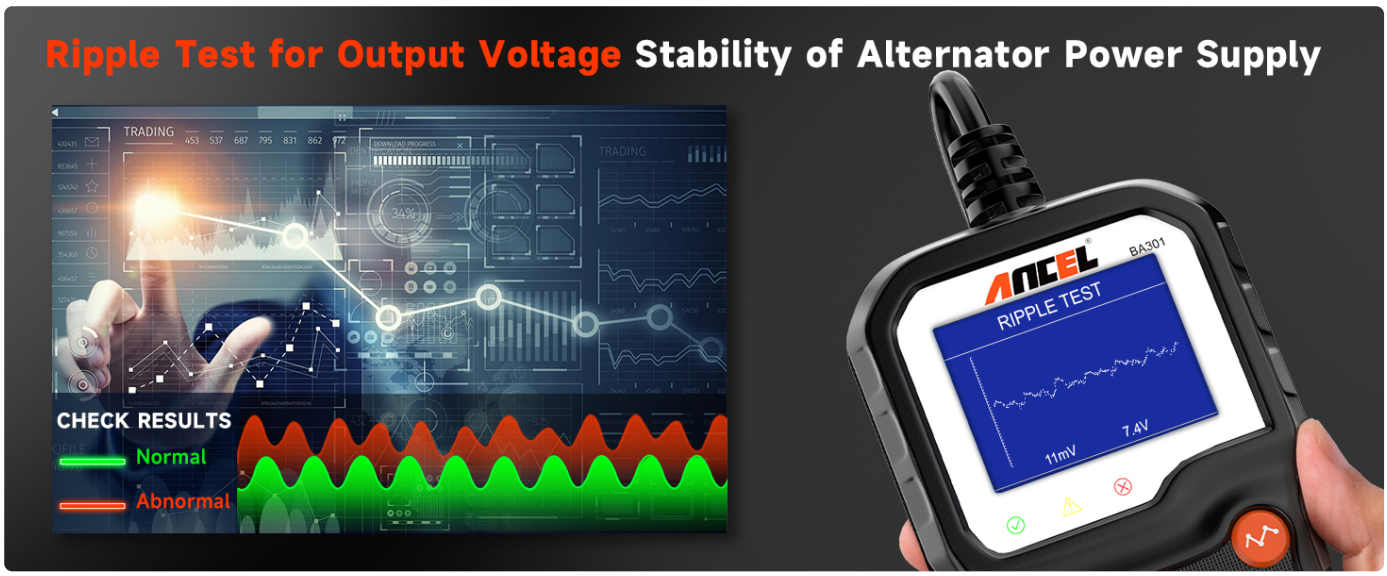

Figure 14: ANCEL BA301 performing a ripple test to assess alternator output voltage stability.

Video: ANCEL BA301 Battery Tester Demonstration

This video demonstrates the ANCEL BA301 Battery Tester's capabilities, including battery health checks, cranking tests, and charging tests, across various battery types and conditions.

6. Troubleshooting

If you encounter issues while using your ANCEL PB100 or BA301, consider the following:

- **No Power:** Ensure all connections are secure and clean. Check the vehicle battery voltage. For PB100, verify the power source (battery or cigarette lighter) is providing adequate voltage.
- **Inaccurate Readings:** Ensure proper connection to terminals. Clean battery terminals if corroded. Verify the correct battery type and CCA rating are selected on the BA301.
- **PB100 Overload Protection:** If the PB100's internal circuit breaker trips, wait for it to cool down (approx. 15 seconds) before resuming operation. This indicates a high current draw or short circuit.
- **BA301 Cranking/Charging Test Issues:** Follow on-screen prompts carefully. Ensure the engine is off for cranking tests and RPM is increased as instructed for charging tests.
- **Consult Manual:** Refer to the detailed instructions in the provided user manual for specific error codes or unexpected behavior.

Figure 15: ANCEL BA301 provides professional repair advice based on battery test results.

7. Specifications

7.1 ANCEL PB100 Circuit Probe Tester

Specification	Value
Operating Voltage	6V - 30V DC
Overload Protection	8A (Internal Circuit Breaker)
Cable Length	40ft (20ft + 20ft Extension)
Display	LCD with Backlight

Specification	Value
Functions	Voltage/Polarity Test, Continuity Test, Component Activation, Short Circuit Detection

7.2 ANCEL BA301 Car Battery Tester

Specification	Value
Operating Voltage	6V - 12V
Supported Battery Types	Regular Flooded, AGM Flat Plate, AGM Spiral, GEL, EFB, Lithium Battery
Test Functions	Battery Test, Cranking Test, Charging Test, Waveform, Ripple Test
Display	Color LCD
Protection	Reverse Polarity, Short Circuit
Supported Languages	English, Chinese, French, Spanish, German, Japanese, Dutch, Italian, Korean, Portuguese, Polish, Russian

Figure 16: ANCEL BA301 compatibility with various 6V and 12V battery types.

Figure 17: ANCEL BA301 compatibility with various vehicle types and supported languages.

8. Safety Information

Always observe the following safety precautions to prevent personal injury or damage to the vehicle/tools:

- Wear appropriate eye protection (safety goggles) and protective clothing.
- Ensure the vehicle is in a well-ventilated area.
- Avoid contact with battery acid. If contact occurs, flush immediately with water and seek medical attention.
- Do not operate the tools near open flames or sparks.
- Ensure the vehicle's ignition is off before connecting or disconnecting the tools, unless instructed otherwise for specific tests.
- Avoid touching moving engine parts or hot surfaces.
- Do not use the tools if they are damaged or if the cables are frayed.
- Always refer to your vehicle's service manual for specific procedures and safety warnings.

Figure 18: ANCEL BA301's security features including reverse polarity protection and short circuit protection.

9. Warranty and Support

Your ANCEL PB100 and BA301 devices come with a standard manufacturer's warranty. Please refer to the warranty card included in your product packaging for specific terms and conditions.

For technical support, troubleshooting assistance, or warranty claims, please contact ANCEL customer service through their official website or the contact information provided in your product documentation.

Figure 19: ANCEL BA301 designed for reliable performance even in adverse weather conditions.

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