

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, AND CAUTIONS. USE THIS 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.

1. SAFETY INSTRUCTIONS

SAFETY INSTRUCTIONS

- ✓ IF YOU ARE IN ANY DOUBT ABOUT ELECTRICAL SAFETY CONSULT A QUALIFIED ELECTRICIAN.
- ✓ Only for use with 12 - 24 volt DC systems.
- ✗ **DO NOT** apply voltage or current to the probe that exceeds the specified maximum of 24V DC.
- ✗ **DO NOT** use with industrial 110V systems.
- ✗ **DO NOT** use on any circuit directly or indirectly connected to AC lines or any other AC power source.
- ✗ **DO NOT** use with any component or circuits of the ignition system.
- ✓ Before using this device, check the vehicle's electrical wiring and disconnect any part or system sensitive to voltage and current pulses such as air bags, electronic control modules, etc.
- ✓ Always check the instructions and procedures indicated in the vehicle service manual before attempting to disconnect any part or subsystem of the electrical circuit.
- ✓ When not in use, store the probe carefully in a safe, dry, childproof location. Avoid extremes of temperature.
- ✓ **DO NOT** use the unit around explosive gases, vapour or dust. When the power switch is operated (forwards or backwards), battery current is conducted to the tip of the probe which may cause sparks when contacting earth or other certain circuits.
- ✗ **DO NOT** use leads if damaged or if the wire is bared in any way.
- ✗ **DO NOT** use this tester for any purpose other than that for which it has been designed.

2. INTRODUCTION AND INFORMATION

A range of functions allows automotive electricians and mechanics the ability to effectively diagnose short circuits and bad earths and electrical circuits quickly and easily. The 6.1mtr lead connects to the battery supply and reaches to all areas of the vehicle. Fly lead allows continuity and polarity testing with a high-contrast LCD display with 7mm high (12V to 24V) read-out. Activate components for fast diagnoses in situ or prior to installation. Feature audible and Positive/Negative voltage indicator and two integral work lights. The Power Probe 3 Kit, Model No. PP3K includes a cigarette lighter adaptor along with an additional 6.1mtr extension lead. Supplied in a carry-case.



See fig.1.

- 1) Probe Body
- 2) Probe Tip
- 3) 6.1mtr Lead
- 4) Earth Clip
- 5) Positive/Negative Battery Clip
- 6) 12V Vehicle Accessory Socket Adaptor (**PP3K ONLY**)
- 7) Probe Extension Lead (**PP3K ONLY**)

Modes. This Probe has 5 modes to help diagnose more complex auto electrical problems. Below are the 5 modes, what they are and possible applications.

The 5 Modes can be accessed by pressing the Mode button and cycling through each one.

2.1 Mode 1 - Power Probe Mode.

- 2.1.1 While the PP3 is in "Power Probe Mode" and the probe tip is not contacting a circuit, the LCD backlight is on but the display is blank. If the audio tone is turned on you will see a speaker symbol in the lower right corner of the display.
- 2.1.2 Once you contact the probe tip to a circuit the LCD display will indicate the average voltage level of the circuit. The red/green polarity indicators will respond also, showing whether the circuit is positive or negative.
- 2.1.3 A secondary feature in this mode is the peak to peak threshold detection and signal monitoring. When contacting a signal generating circuit such as a speaker wire with audio signals on it, the Probe detects the peak to peak signals and displays the peak to peak voltage on the display, the sound of the signals will be monitored and heard through the Probe speaker.
- 2.1.4 The peak to peak threshold levels are pre-selected by the operator in "**Mode 5**". See **Mode 5** for more information on setting threshold levels.

2.2 Mode 2 - Negative Peak Mode.

- 2.2.1 The Negative Peak Mode monitors a positive circuit and captures the lowest voltage that it has dropped to.
- 2.2.2 The display should also indicate a reading of "0.0" with the probe floating. (This is because no voltage is present). Probe the positive circuit you want to test and tap the mode button once. The LCD display will show the lowest detected voltage of the circuit. If the circuit drops in voltage at anytime, a new lowest reading will be captured and displayed.
- 2.2.3 You can then do a quick tap of the mode button once again to reset the LCD display and indicate the new voltage level on the circuit. Reset the LCD display by doing a quick tap of the mode button as often as necessary.
- 2.2.4 **APPLICATION:** for the use of the "Negative Peak Mode": Lets say you have a circuit that is suspect of losing a connection and the voltage drops, causing something to turn off or malfunction. Probing the circuit and monitoring it in "Negative Peak Mode" will instantly indicate as the circuit drops in voltage. You can monitor the circuit while wiggling wires and pulling on connectors to see if the voltage drops. Since the minimum voltage reading is captured and held on the display, you can inspect it at a later time. You could also perform a battery crank test.

2.3 Mode 3 - Positive Peak Mode.

- 2.3.1 The "Positive Peak Mode", monitors the probed circuit and captures the highest detected voltage.
- 2.3.2 Probe the circuit and it instantly displays and holds the highest voltage reading. This means you can remove the probe from the circuit and the voltage reading remains displayed for your reference.
- 2.3.3 Reset the LCD display by doing a quick tap of the mode button.
- 2.3.4 **APPLICATION:** for the use of the "Positive Peak Mode": If have a circuit that is supposed to be off and is suspected of turning on inappropriately or getting a signal for some reason. Probing the circuit and monitoring it in the "positive peak mode" will instantly indicate as the circuit increases in voltage. You can monitor the circuit while wiggling wires and pulling on connectors to see if the voltage increases. Since the maximum voltage reading is captured and held on the display, you can inspect the reading at a later time. Maybe you have to probe a circuit deep under a dash and the display is obstructed from view. In "Positive Peak Mode" just probe the wire then remove the probe and look at your voltage reading. Connect to starter terminal to capture maximum voltage to the starter while cranking.
- 2.3.5 Quickly finds voltage drops in the wiring & start connection (Solenoid).

2.4 Mode 4 - Peak to Peak Mode.

- 2.4.1 The Peak to Peak Mode measures the difference between the positive and negative peak voltage levels over a 1 second period. With this feature you can measure and monitor for example, the diode rectifier in a charging system while the engine is running.
- 2.4.2 The peak to peak readings will give the technician the data necessary to determine if a diode rectifier is defective or not. A normal peak to peak reading while testing a charging circuit is usually under 1 volt.
- 2.4.3 If a defective rectifier is present the peak to peak reading will be over 1 volt and possibly over 3 volts.
- 2.4.4 When probing in "Peak to Peak Mode" the display shows activity of circuits such as fuel injectors, distributor pick-ups, cam and crank sensors, oxygen sensors, wheel speed sensors and hall effect sensors.
- 2.4.5 Measures fly back voltage of injectors to quickly find a problem.

3. OPERATION

2.5 Mode 5 - Peak to Peak Threshold Setting Mode.

- 2.5.1 Threshold Level Setting for the Peak to Peak Detection in "Power Probe Mode" (**Mode 1**).
- 2.5.2 To set the threshold level for the peak to peak detection in "Power Probe Mode", press and hold the mode button for one second until you hear a beep.
- 2.5.3 You can now toggle the threshold level by a quick tap of the mode button and observing the voltage level settings.
- 2.5.4 The peak to peak threshold voltage settings loop incrementally from 0.2, to 0.5, to 1.0, to 2.0, to 5.0, to 10.0, to 50.0 and return back to 0.2 again.
- 2.5.5 Once you select the desired threshold voltage, press and hold the mode button again until it beeps. This returns you to the "Power Probe Mode" (**Mode 1**). You will know that you are in the "Power Probe Mode" when the LCD display is blank and/or with the "Speaker Symbol" shown in the bottom right corner.

2.6 Polarity Indicator and Audio Tone.

- 2.6.1 The "RED/GREEN Polarity Indicator" lights up when the probe tip voltage matches the battery voltage within ± 0.5 volts. This means that if you contact a circuit that is not a good earth or a good positive, you will not see the "RED/GREEN Polarity Indicator" lighting.
- 2.6.2 The Audio Tone runs parallel to the "RED/GREEN Polarity Indicator, and will also NOT react when contacting a circuit that does not match the battery voltage within ± 0.5 volts.

2.7 Mode Chart.

Mode	Navigation	Display	Output
1	Automatically selected when connected to power source.	<ul style="list-style-type: none"> • Blank • W/audio  • C B  • C B w/audio 	Displays the average D.C voltage. Displays the peak to peak A.C voltage when voltage is greater than Mode 5 threshold setting. Limited to 65V.
2	Press and hold Mode button until a low pitched beep is heard.		Captures the most negative voltage recorded.
3	Press and hold Mode button until a high to high pitched beep is heard.		Captures the most positive voltage recorded.
4	Press and hold Mode button until a low to high pitched beep is heard.		Displays the difference between peak to peak voltage.
5	Press and hold Mode button until a mid pitched beep is heard.		Sets the peak to peak threshold level for Mode 1 display to transition from D.C. to A.C.

3.1 Basic Connections.

- 3.1.1 Unroll the Probe cable. Connect the RED battery clip to the POSITIVE terminal of the vehicle's battery. Connect the BLACK battery clip to the NEGATIVE terminal of the vehicle's battery.
- 3.1.2 Alternatively use the 12V vehicle accessory socket adapter instead of battery clips. (**PP3K ONLY**)
- 3.1.3 When the probe is first connected to the battery, it will sound a quick high beep, then a low beep and then go into "Power Probe Mode" (See **Mode 1**).
- 3.1.4 The two LED work lights will be on to illuminate the test area of the probe.

3.2 Quick Self Test.

- 3.2.1 Press the switch forward to activate the probe with a POSITIVE (+) voltage. The POSITIVE sign (+) LED should light red and the LCD display will read the battery (supply) voltage. If the tone feature is turned on, a high-pitched tone will sound.
- 3.2.2 Press the switch rearward to activate the probe with a NEGATIVE (-) voltage. The NEGATIVE sign (-) LED should light green and the LCD display will read "0.0". If the tone feature is turned on, a low-pitched tone will sound.
- 3.2.3 The probe is now ready to use. If the indicator does not light, depress the reset button of the circuit breaker on the right side of the housing and try the test again.

3.3 Audio Tone On/Off.

- 3.3.1 Quickly press the mode button and release immediately.
- 3.3.2 If a short high beep is heard, the audio tone is turned on; if a short low beep is heard, the audio tone is turned off.

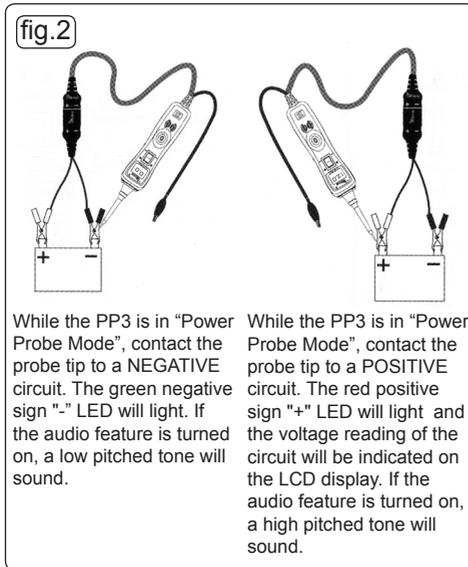
3.4 Circuit Breaker.

- 3.4.1 In "Power Probe Mode" (**Mode 1**) when the circuit breaker tripped, the LCD will display the symbol "C B". All other functions of the probe are still active, so the circuit can still be probed and the voltage reading observed.
- 3.4.2 When the circuit breaker is tripped, the probe will NOT be able to conduct battery current to the tip even when the power switch is pressed.
- 3.4.3 Intentionally tripping the breaker and using the auto probe to probe is an added precaution against accidentally pressing the power switch.

3.5 Voltage and Polarity Testing. See fig.2.

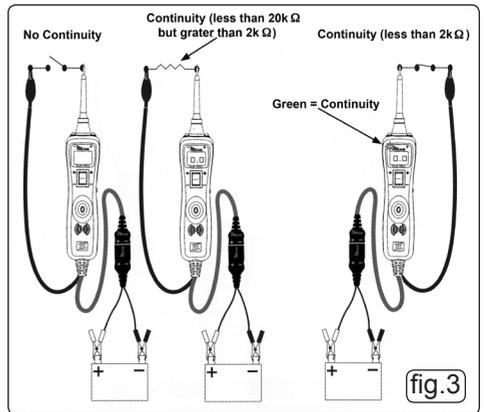
- 3.5.1 While the PP3 is in "Power Probe Mode", contact the probe tip to a POSITIVE circuit. The red positive sign, "+" LED will light and the voltmeter will display the voltage.
- 3.5.2 If the audio feature is turned on, a high-pitched tone will sound.
- 3.5.3 While the PP3 is in "Power Probe Mode", contact the probe tip to a NEGATIVE circuit. The green negative sign, "-" LED will light and the voltmeter will display the voltage.

- 3.5.4 If the audio feature is turned on, a low pitched tone will sound. If neither of the LED indicators light, the power Probe tip has made contact to an OPEN circuit. If the audio feature is turned on, there will be no sound.



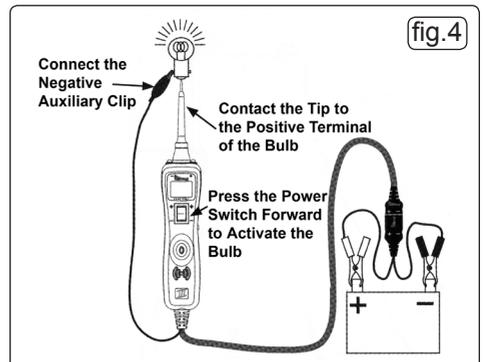
3.6 Continuity Testing. See fig.3.

- 3.6.1 While the probe is in "Power Probe Mode", continuity can be tested on wires and components attached or disconnected from the vehicle's electrical system and by utilizing the Probe tip when connected with a chassis earth or the auxiliary earth lead.
- 3.6.2 The Probe indicates continuity using two resistance levels. When the Probe tip has a resistance to earth of less than 20K Ohms but greater than 2K Ohms the LCD will indicate "0.0" volts but no green "-" LED.
- 3.6.3 When the resistance to earth is less than 2K Ohms the LCD will indicate "0.0" volts and the green "-" LED will illuminate.
- 3.6.4 The higher resistance continuity function is useful for checking spark plug wires, disconnected from ignition, solenoids and magnetic pickup coils
- 3.6.5 The lower resistance continuity for testing relay coils and wiring.
- 3.6.6 Another way to check for continuity of connections to earth or the battery is to use the power switch. If the circuit breaker trips it is clear that there is a good, solid, low-resistance connection.



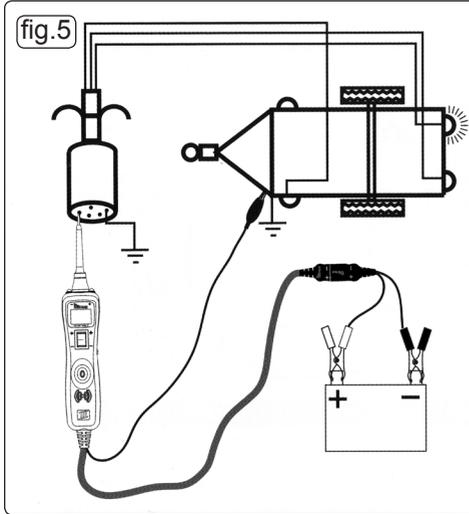
3.7 Activating Components in Your Hand. See fig.4

- 3.7.1 While the Probe is in "Power Probe Mode" components can be activated in your hand. Connect the negative auxiliary clip to the negative terminal or earth side of the component being tested.
- 3.7.2 Contact the probe to the positive terminal of the component, the green negative sign "-" LED indicator should light GREEN indicating continuity through the component.
- 3.7.3 Observe the green LED indicator and quickly depress and release the switch forward (+). If the green LED indicator went out and the red positive sign "+" came on, you may proceed with further activation.
- 3.7.4 If the green LED indicator went off at that instant or if the circuit breaker tripped, the probe has been overloaded. This could happen for the following reasons:
- The contact you are probing is a direct earth or negative voltage.
 - The component you are testing is short-circuited.
 - The component is a very high current component (i.e., starter motor).
- 3.7.5 If the circuit breaker is tripped, reset it by waiting for it to cool down (15 sec.) and then depressing the reset button.



3.8 Testing Trailer Lights and Connections. See fig.5.

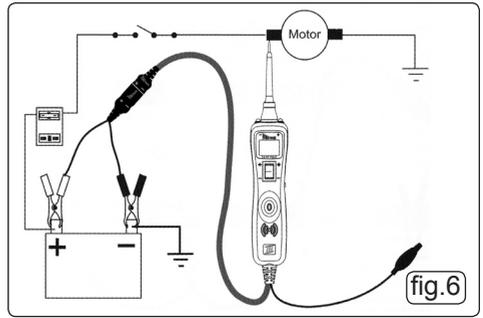
- 3.8.1 Connect the Probe to a good battery.
- 3.8.2 Clip the auxiliary earth clip to the trailer earth.
- 3.8.3 Probe the contacts at the jack and then apply voltage to them. This lets you check the function and orientation of the connector and trailer lights.
- 3.8.4 If the circuit breaker has tripped, that contact is likely earthed. Reset the circuit breaker by letting it cool down (15 sec.) and depressing the reset button until it clicks into place.



3.9 Activating Components in the Vehicle. See fig.6.

- 3.9.1 To activate components with positive (+) voltage, contact the probe tip to the positive terminal of the component. The green negative sign "-" LED should light, indicating continuity to earth.
- 3.9.2 While observing the green "-" LED, quickly depress and release the power switch forward (+). If the green indicator has gone out and the red positive sign (+) LED has come on, you may proceed with further activation.
- 3.9.3 If the green indicator went off at that instant or if the circuit breaker tripped, the Probe has been overloaded. This could happen for the following reasons:
 - The contact is a direct earth.
 - The component is short-circuited.
 - The component is a high-current component (i.e., starter motor).
- 3.9.4 If the circuit breaker has tripped, reset it by allowing it to cool down (15 sec.) and then depress the reset button.

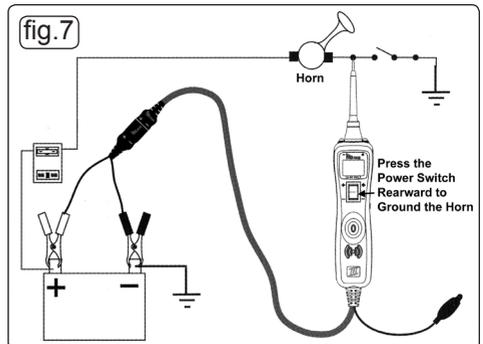
WARNING: Haphazardly applying voltage to certain circuits can cause damage to a vehicle's electronic components. Therefore, it is strongly advised to use the vehicle manufacturers schematic and diagnosing procedure while testing.



3.10 Activating Electrical Components with Earth. See fig.7.

- 3.10.1 Contact the probe tip to the negative terminal of the component, the LED indicator should light RED.
- 3.10.2 While observing the red "+" LED, quickly depress and release the power switch rearward (-). If the red indicator went out and the green negative LED (-) came on you may proceed with further activation.
- 3.10.3 If the green indicator went off at that instant or if the circuit breaker tripped, the Probe has been overloaded. This could have happened for the following reasons:
 - The contact is a direct, positive voltage.
 - The component is short-circuited.
 - The component is a very high current component (i.e., starter motor).
- 3.10.4 If the circuit breaker has tripped, reset it by allowing it to cool down (15 sec.) and then depress the reset button.

WARNING: With this function, if you are contacting a protected circuit, a vehicle's fuse can be blown or tripped if you apply earth to it.



NOTES

3.11 Checking for Bad Earth.

- 3.11.1 Probe the suspected earth wire or contact with the probe.
- 3.11.2 Observe the green negative “-” LED. Depress the power switch forward then release.
- 3.11.3 If the green negative sign “-” LED went out and the red positive sign “+” came on, this is not a true earth.
- 3.11.4 If the circuit breaker tripped, this circuit is more than likely a good earth. Keep in mind that high-current components such as starter motors will also trip the circuit breaker.

3.12 Following and Locating Short-Circuits.

- 3.12.1 In most cases a short circuit will appear by a fuse or a fusible link blowing or an electrical protection device tripping (i.e. a circuit breaker).
This is the best place to begin the search.
- 3.12.2 Remove the blown fuse from the fuse box. Use the Probe to activate and energize each of the fuse contacts. The contact which trips the Probe circuit breaker is the shorted circuit. Take note of this wire's identification code or colour.
- 3.12.3 Follow the wire as far as you can along the wiring harness. For instance if you are following a short in the brake light circuit you may know that the wire must pass through the wiring harness at the door sill. Locate the colour-coded wire in the harness and expose it.
- 3.12.4 Probe through the insulation with the Probe tip depress the power switch forward to activate and energize the wire. If the Probe circuit breaker tripped you have verified the shorted wire.
- 3.12.5 Cut the wire and energize each end with the Probe the wire end which trips the Probe circuit breaker again is the shorted circuit and it will lead you to the shorted area. Follow the wire in the shorted direction and repeat this process until the short is located.

Environmental Protection.



Recycle unwanted materials instead of disposing of them as waste. All tools, accessories and packaging should be sorted, taken to a recycle centre and disposed of in a manner which is compatible with the environment.



When the product is no longer required, it must be disposed of in an environmentally protective way.

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.

IMPORTANT: No liability is accepted for incorrect use of this product.

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

INFORMATION: For a copy of our latest catalogue and promotions call us on 01284 757525 and leave your full name and address, including postcode.



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