PROJECTA

P/No. DT50

12/24 POWER PROBE

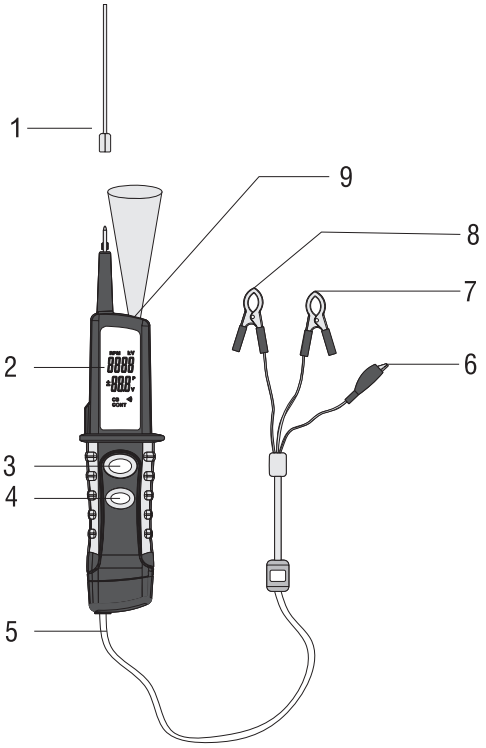
IMPORTANT SAFETY INFORMATION

⚠ WARNING

- Unit may spark when current is provided, and the tip of the probe contacts ground or certain circuits. Therefore, please do not operate it with 110/220volt house voltage as it is only for 12–24volt systems.
- If the circuit breaker of the short circuit protection has been tripped, please do not touch the probe or the extended probe immediately as they will be very hot.
- Please operate all activating functions with the correct testing procedure to avoid causing damage to components when applying voltage arbitrarily.
- When applying current to the components, please push the switch before contact the tip with the components.
- If you use the tester's "polar switch" to test, please add extended probe to the tester's probe.
- When locating missing cylinders or measuring the frequency of the high-tension ignition pulses, DO NOT contact probe tip directly to the secondary ignition circuit.

PRODUCT OVERVIEW

1. Test Probe
2. LCD Display
3. Auto Test/Mode Button
4. Polar Switch
5. Test Lead
6. Ground Testing Lead
7. Black Power Clip
8. Red Power Clip
9. L.E.D. Light



FUNCTIONS

EASY TESTING

Designed to test the automotive electrical system without re-connection between the vehicle battery and testing components.

POLARITY & CONTINUITY CHECK

Determine polarity on positive and negative switched vehicles. Quickly test to see if the circuitry is open or closed.

ACTIVATE COMPONENTS

Activating the components with positive or negative current without jumper wire

LCD DISPLAY

An illuminated digital LCD display will ensure clear and precise data (reading will be stated within 1/10th of a volt)

MEASURE IGNITION PULSES

Measuring frequency of the high-tension ignition pulses. Allows you to calculate the rotational speed of the engine according to the measured frequency

SHORT CIRCUIT PROTECTION

Checks the ground connection without voltage drop test. The short circuit protection system contains a recoverable fuse, so you will not waste fuses during testing.

LOCATE MISSING CYLINDERS

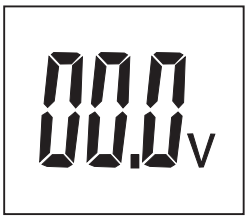
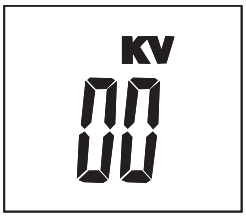
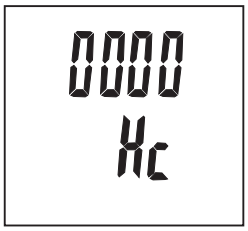
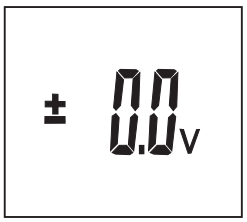
Through capacitive coupling, the tester can sense the high-tension ignition pulses.

PEAK DETECTION

Select the peak threshold level to hear the audible alarm if voltage is greater

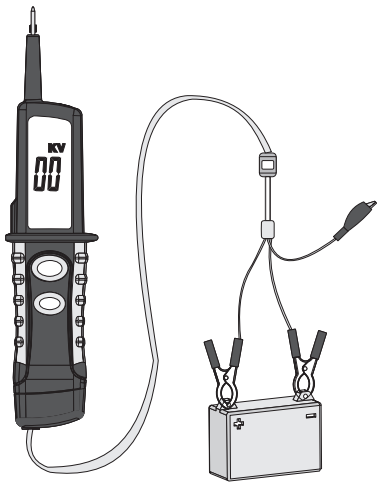
MODE INSTRUCTIONS

The tester has four modes, the four modes can be selected by pressing the mode select button and cycling through each one.

MODE	DISPLAY
Voltage meter Measuring range: 0v-60v	
Locate missing cylinders	
Measuring frequency of ignition pulses the sign "Hc" denotes "Hz"	
Peak Detection	

POWER CONNECTION

1. Hook up the black power clip to the negative of the vehicle battery.
2. Hook up the red power clip to the positive of the vehicle battery.

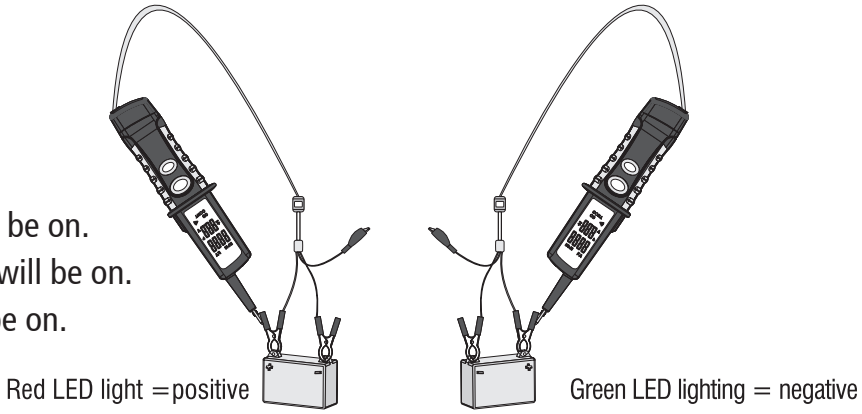


SELF-TEST

- If the tester is working correctly, the condition should be as follows:
  - o Red LED should be on when the polar switch is pushed forward (towards the positive side)
  - o Green LED should be on when the polar switch is pushed backward (towards the negative side)

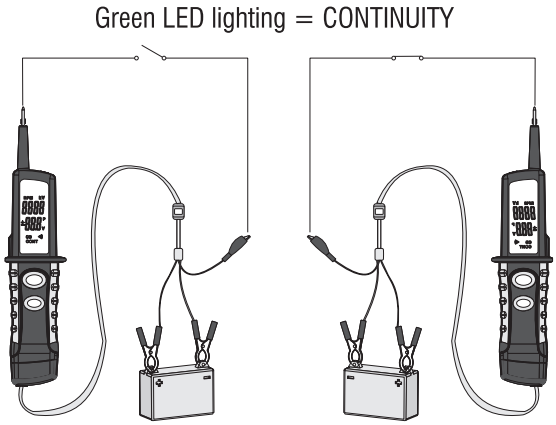
POLARITY TEST

- If the tester tip is in contact with
  - o The positive pole, the red LED will be on.
  - o The negative pole, the green LED will be on.
  - o An open circuit, neither LED will be on.



CONDUCTIVITY TEST

- By using the tester tip and the ground test lead, you can test the conductivity between wires or components which has been disconnected from the vehicle electrical system.
  - o If the current is conductible between wires or components, the green LED should be on.

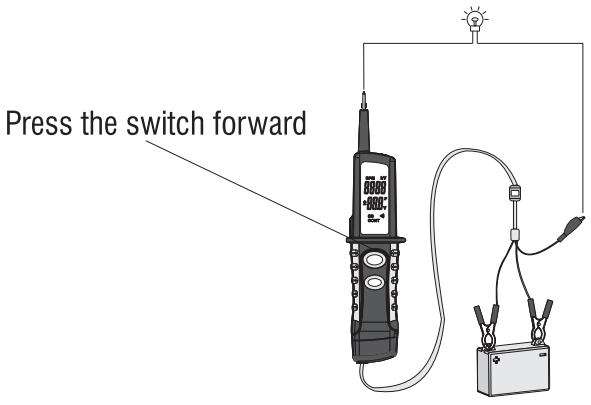


ACTIVATE THE COMPONENTS WITH AUTOMOTIVE ELECTRICAL SYSTEM DISCONNECTED

- By assisting tester tip with the ground test lead, you can activate the testing components with the automotive electrical system disconnected. This function can be used to test light, cooling fans and fuel pumps, etc.

1. Connect the ground test lead with the negative pole of the components.
2. Contact the tester tip with the positive pole of the components. If the green LED is on, it means the testing component is conductible.
3. As the green LED goes on, press the polar switch forward then release it quickly. If the LED goes from green to red, you may proceed with further testing. If the green LED turns off and the red LED does not turn on, or if the circuit protection tripped, it means the tester has overloaded. This may be due to the following reasons:
   a. The component is short circuit, or it has been connected to the ground/ negative pole directly.
   b. The component is a high current component.

- If the circuit breaker of the short circuit protection has tripped, it will reset within 60 seconds.



ACTIVATE COMPONENTS WITH POSITIVE VOLTAGE ONLY

- When you test the components, you can use the tester to provide positive battery voltage to the testing components.

  1. Contact the tester tip with the positive pole of the components. If the green LED is on, it means the testing component is conductible.

  2. As the green LED goes on, press the polar switch forward (+) then release it quickly. If the LED goes from green to red, you may proceed with further testing. If the green LED turns off and the red LED does not turn on, or if the circuit protection tripped, it means the tester has overloaded. This may be due to the following reasons:

     a. The component is short circuit, or it has been connected to the ground/negative pole directly.

     b. The component is a high current component.

- If the circuit breaker of the short circuit protection has tripped, it will reset within 60 seconds.

ACTIVATE COMPONENTS WITH NEGATIVE VOLTAGE ONLY

- Apart from applying the positive voltage, you can also use the tester to provide negative battery voltage to the components.

  1. Contact the tester tip with the negative pole of the component; at this stage, the red LED should be on if the component is working correctly.

  2. Push the polar switch backward (-) then release it quickly. If the LED goes from red to red, you may proceed with further testing. If the red LED turn off and the green LED turns on, or if the circuit protection tripped, it means the tester has overloaded. This may be due to the following reasons:

     a. The component is short circuit, or it has been connected to the ground/negative pole directly.

     b. The component is a high current component.

- If the circuit breaker of the short circuit protection has tripped, it will reset within 60 seconds.

VOLTAGE TEST

- You can use the device to test the voltage of the circuit. However, during the voltage test, do not push the polar switch.

1. If the probe tip is floating (not contacting a circuit), the red and green LED turn off.
2. If the probe tip is contacting a positive circuit, the red positive sign "+" LED will light up and the voltmeter displays the voltage reading.
3. If the probe tip is contacting a negative circuit, the green negative sign "-" LED will light up.

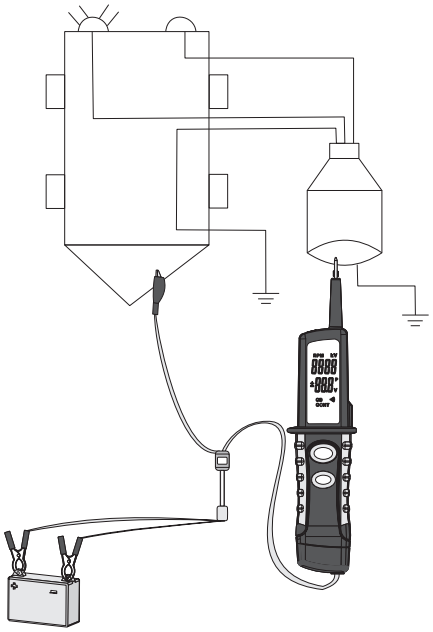
LOCATE MISSING CYLINDERS

- Placing the tester probe tip next to a sparking wire (DO NOT probe it directly), through capacitive coupling, the tester can sense the high-tension ignition pulses and display a voltage reading at the same time. By monitoring each plug wire in this way, you can locate missing cylinders.

WARNING: DO NOT CONTACT PROBE TIP DIRECTLY TO THE SECONDARY IGNITION CIRCUIT

TRAILER LIGHT TEST

1. Connect the ground test lead to the trailer ground.
2. Probe the tip to the outlet of the trailer plug, push the polar switch forward (+), then you can diagnose the function of the trailer light.



PEAK DETECTION

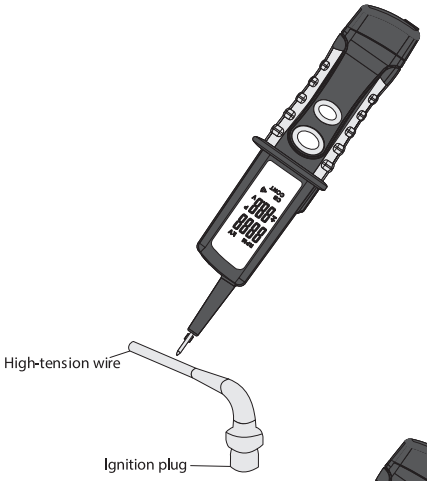
- You can pre-select the peak threshold levels, and then contact a circuit if the voltage is greater than the threshold, you can hear the audible alarm. The peak threshold voltage setting loops incrementally from 0.5, to 1.0, to 2.0, to 5.0, to 48.0 and return to 0.5 again.

MEASURING THE FREQUENCY OF THE HIGH-TENSION IGNITION PULSES

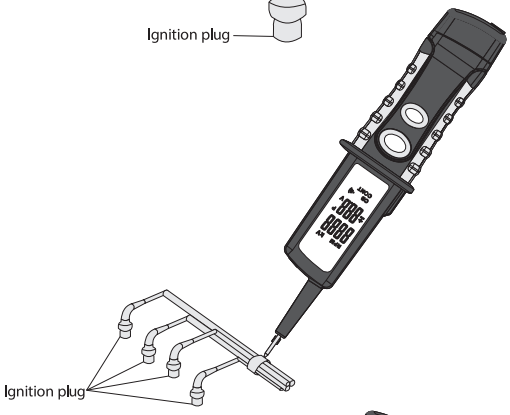
• Placing the tester probe tip next to a sparking wire (DO NOT probe it directly), through capacitive coupling, the tester can sense the high-tension ignition pulses and display a frequency reading at the same time.

MEASURING METHOD

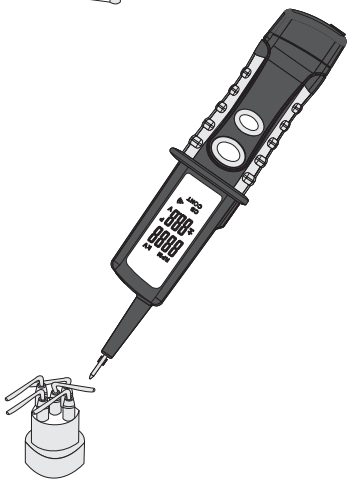
1. Cylinder gasoline engine



2. Distributor type multi-cylinder gasoline engine



High-tension wires of cylinders bundled together



High-tension wire connecting distributor and ignition coil.

As shown in figure 1 and 2, bring the detection head close to the high-tension wire that connects the distributor and the ignition coil, or to the place where all the high-tension wires of the cylinders are together.

3. Multi-cylinder gasoline engine without distributor

- Bring the detection head close to the place where the high-tension wire of each cylinder is bundled together.
- The measurement is impossible if all the high-tension wires are not bundled together since the distance between the detection head and each high-tension wire differs.

SPECIFICATIONS

Applicable engine type: gasoline engine

2-cycle (1, 2, 3, 4-cylinders)

4-cycle (1, 2, 3, 4, 5, 6, 8, 12-cylinders)

Detection method: ignition spark noise detection

Detection object: High-tension wire or ignition cord

CALCULATING THE ROTATIONAL SPEED OF ENGINE

To calculate the rotational speed of the engine according to the measured frequency.

Formula: n=60*f*1/PR

The 'n' denotes the rotational speed of the engine

The 'f' denotes the frequency of high-tension ignition pulses

The 'PR' denotes the ratio coefficient between the 'f' and 'n'

The number of 'PR' types of engines are as follows:

PR	4-Cycle	2-Cycle
1/2	1 cylinder	
1	2 cylinder	1 cylinder
3/2	3 cylinder	
2	4 cylinder	2 cylinder
5/2	5 cylinder	
3	6 cylinder	3 cylinder
4	8 cylinder	4 cylinder
6	12 cylinder	

WARNING: DO NOT CONTACT PROBE TIP DIRECTLY TO THE SECONDARY IGNITION CIRCUIT

WARRANTY STATEMENT

Brown & Watson International Pty Ltd ("BWI") of 1500 Ferntree Gully Road, Knoxfield, Vic., telephone (03) 9730 6000, fax (03) 9730 6050, warrants that all products described in its current catalogue will under normal use and service be free of failures in material and workmanship for a period of three (3) years from the date of the original purchase by the customer as marked on the invoice. This warranty does not cover ordinary wear and tear, abuse, alteration of products or damage caused by the purchaser.

To make a warranty claim the consumer must deliver the product at their cost to the original place of purchase or to any other place which may be nominated by either BWI or the retailer from where the product was bought in order that the warranty assessment may be performed. The consumer must also deliver the original invoice evidencing the date and place of purchase together with an explanation in writing as to the nature of the claim. In the event that the claim is determined to be for a minor failure of the product then BWI reserves the right to repair or replace it at its discretion. In the event that a major failure is determined the consumer will be entitled to a replacement or a refund as well as compensation for any other reasonably foreseeable loss or damage.

This warranty is in addition to any other rights or remedies that the consumer may have under State or Federal legislation.

IMPORTANT NOTE

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

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