Bowmonk
INCORPORATING TAPLEY INSTRUMENTATION

BrakeCheck Standard
User Manual

Bowmonk Ltd, Diamond Road, Norwich, NR6 6AW | Tel: +44 (0)1603 485 153 | Email: sales@bowmonk.com | www.bowmonk.com

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Unit Description

The Bowmonk BrakeCheck is a self-contained unit, incorporating an Accelerometer, which is used to determine your vehicle's braking performance. It can also be used to monitor the condition of the brake components in conjunction with normal, routine inspection.

The BrakeCheck will test the performance of both the Service Brake (foot brake), the Hand Brake (parking brake) and a Secondary Brake (if applicable) and it will report the magnitude of any sideways pull detected during testing.

All of the BrakeCheck's functions are controlled with the three keys on the front panel. The LED's indicate the unit's status, Current Mode and Displayed Result.

The BrakeCheck has a 3-character LED display that shows the unit's status, the test to be performed and the test results. It will also display the temperature of the unit in both °C and °F.

The optional printer is Infrared (wireless) and has its own battery charger; do not use the BrakeCheck battery charger to recharge this printer.

A BrakeCheck battery charger has been provided. Lo Bat means it needs charging but it will still work, No Bat means that the battery is completely flat and the unit is not able to do a test until charged i.e. lower than lo bat. The BrakeCheck should be recharged regularly to ensure it is ready to use when required, we recommend 1 hour per week on regular use, and a full charge will accommodate around 300 tests. The unit is fully charged when the Charging Battery LED goes from flashing to solid red (see LED charging flash codes).

There is no off switch on the unit; it will automatically power off after 5 minutes of inactivity.

The BrakeCheck should only be charged when the temperature of the unit is between 0°C and 43°C (32°F & 109°F)

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Function Keys

Hold the **Menu** key down for 2 to 3 seconds to turn the BrakeCheck on.

Press the **Menu** key repeatedly to change the Current Mode.

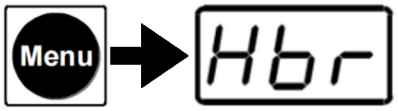
Press the **Enter** key to change the Displayed Result.

Press the **Print** key to send the test results to the printer. (If printer has been purchased)

When the BrakeCheck is turned on, the **Service Brake Test** LED will be lit and the display will show '**Sbr**'.

The device is ready to begin the Service Brake routine.

Press the Menu key and the **Hand Brake Test** LED will be lit and the display will show '**Hbr**'.



The device is ready to begin the Hand Brake routine.

Press the Menu key again and the Secondary Brake Test (both Service Brake and Hand Brake Test LED's will be lit and the display will show 'SEc').

The device is ready to begin the Secondary Brake Test routine.

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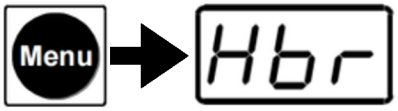
Press the Menu key again, the **Service Brake Test** LED and the Last Test Result LED will be lit and the display will show '**Sbr**'.

The device is ready to display the results of the most recent Service Brake test.

Press the Menu key again, the **Hand Brake Test** LED and the Last Test Result LED will be lit and the display will show '**Hbr**'.

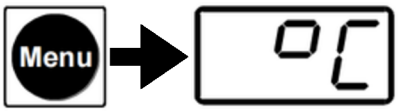


The device is ready to display the results of the most recent Hand Brake test.

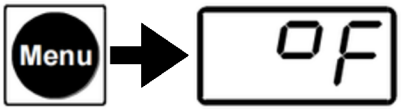
Press the Menu key again, the **Secondary Brake Test** (both **Service and Hand Brake Test LED's** will be lit along with the Last Test Result LED and the display will show '**SEc**'.

The device is ready to display the most recnt Secondary Brake result.

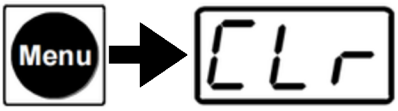
Press the **Menu** key again, the **Temperature** LED will be lit and the display will show '**°C**'.



Press the **Menu** key again, the **Temperature** LED will remain lit and the display will show '**°F**'.



Press the **Menu** key again, no LED's will be lit and the display will show '**CLr**'.



Press the **Menu** key again, the **Setup (see manual)** LED will be lit and the display will show '**Set**'.

Press the **Menu** key again to return to the beginning.

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Setting the unit up for a test

Ensure the battery is charged sufficiently.

Choose a safe test area that is as level as possible.

The test area should be straight, flat and long enough to attain the recommended test speed and then stop the vehicle quickly and safely. Avoid loose and wet surfaces. Avoid areas where there are other vehicles or people.

The vehicle should be stationary at this point.

Place the BrakeCheck in the vehicle with the arrow pointing in the direction of travel.

Please note: The BrakeCheck should be placed on the vehicles seat or footwell and parallel with the road surface. The unit is fitted with rubber feet to help prevent it from moving around during the test.

In the UK, when carrying out a Statutory MOT test it is essential that the brake test procedure detailed in the latest version of the MOT Inspection Manual is followed.

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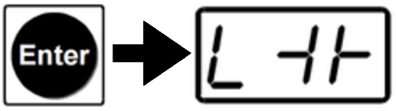
Carrying out a Service Brake test

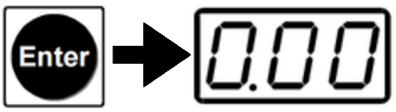
Press the **Menu** key until the Current Mode is **Service Brake Test**.

Press the **Enter** key once, the display will indicate whether or not the unit is level enough to perform the test. Before an accurate test can be performed, the device must be level and display the following:



Do <u>NOT</u> tilt the device to achieve the above. If the device is not level, find a more level vehicle test area and ensure the unit is parallel with the road.

Press the **Enter** key again, the unit will now be ready to perform the test and the display will show:



Accelerate the vehicle smoothly to approximately **20MPH** or **32KPH**.

Without causing the vehicle to skid, apply heavy and consistent pressure to the Service Brake until the vehicle comes to a complete stop as quickly as possible.

The test is now complete, move the vehicle off the roadway if necessary.

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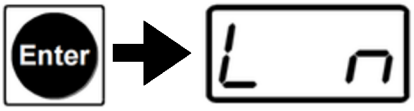
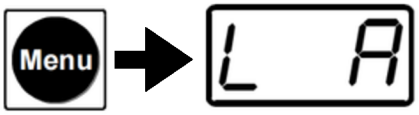
Service Brake test results

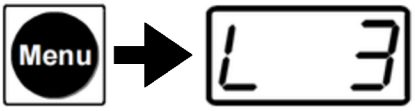
If the device powers down, go to the **Service Brake Test/Last Test Result** mode and press the **Enter** key. Then, (or if the unit did not power down), the display will show a **'L n'**.
This option prints only new tests that have not been previously printed.



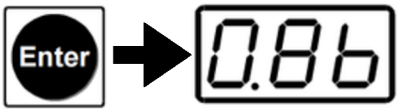
Press the **Menu** key, the display will now show **'L A'**.This option prints all saved tests in the units memory



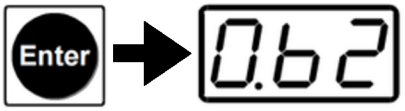
Press the **Menu** key again, the display will now show **'L 3'**, with the number on the right being the location of each test that is performed.



Pressing the **Enter** key with the desired test number on screen will display the results for that test on screen. First result displayed will always be the **Peak Deceleration (Front/Rear)**, this LED will be lit and the display will show a value



Press the **Enter** key, the **Average Deceleration (Front/Rear)** LED will be lit and the display will show a value.



Press the **Enter** key again, the **Peak Acceleration (Left/Right)** and either the Vehicle pulls to the left or the Vehicle pulls to the right LED will be lit. The display will show a value.

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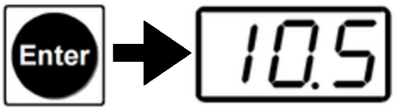
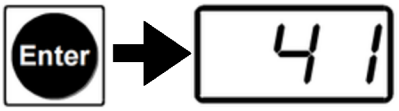
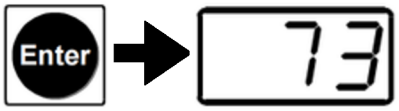
Press the **Enter** key again, the **Stopping Distance (metres)** LED will be lit and the display will show a value.



Press the **Enter** key again, the **Test Speed (KM/H)** LED will be lit and the display will show a value.



Press the **Enter** key again, the **Brake Efficiency (%)** LED will be lit and the display will show a value.



Press the **Enter** key again, the **Peak Deceleration (Front/Rear)** value will be displayed again.

These results will be retained until the next Service Brake test is performed.

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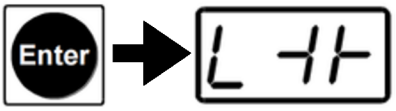
Carrying out a Hand Brake test

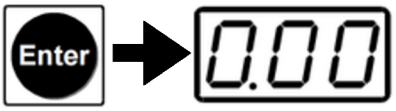
Press the **Menu** key until the Current Mode is **Hand Brake Test**.

Press the **Enter** key once, the display will indicate whether or not the unit is level enough to perform the test. Before an accurate test can be performed, the device must be level and display the following:



Do NOT tilt the device to achieve the above. If the device is not level, find a more level vehicle test area and ensure the unit is parallel with the road.

Press the **Enter** key again, the unit will now be ready to perform the test and the display will show:



Accelerate the vehicle smoothly to approximately **20MPH** or **32KPH**.

Without causing the vehicle to skid, apply the Hand Brake firmly and consistently until the vehicle comes to a complete stop as quickly as possible.

The test is now complete, move the vehicle off the roadway if necessary.

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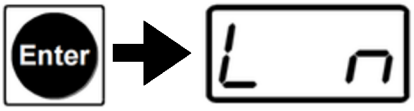
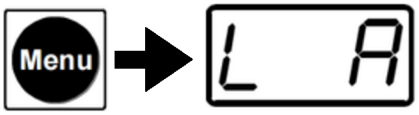
Hand Brake test results

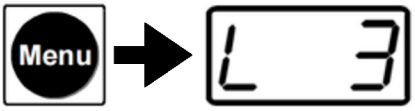
If the device powers down, go to the **Hand Brake Test/Last Test Result** mode and press the **Enter** key. Then, (or if the unit did not power down), the display will show a **'L n'**.
This option prints only new tests that have not been previously printed.



Press the **Menu** key, the display will now show **'L A'**.This option prints all saved tests in the units memory



Press the **Menu** key again, the display will now show **'L 3'**, with the number on the right being the location of each test that is performed.



Pressing the **Enter** key with the desired test number on screen will display the results for that test on screen. First result displayed will always be the **Peak Deceleration (Front/Rear)**, this LED will be lit and the display will show a value

Press the **Enter** key, the **Average Deceleration (Front/Rear)** LED will be lit and the display will show a value.

Press the **Enter** key again, the **Peak Acceleration (Left/Right)** and either the Vehicle pulls to the left or the Vehicle pulls to the right LED will be lit. The display will show a value.

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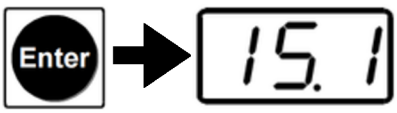
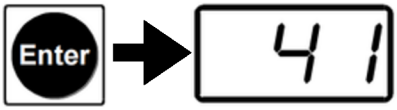
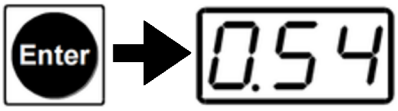
Press the **Enter** key again, the **Stopping Distance (metres)** LED will be lit and the display will show a value.



Press the **Enter** key again, the **Test Speed (KM/H)** LED will be lit and the display will show a value.



Press the **Enter** key again, the **Brake Efficiency (%)** LED will be lit and the display will show a value.



Press the **Enter** key again, the **Peak Deceleration (Front/Rear)** value will be displayed again.

These results will be retained until the next Hand Brake test is performed.

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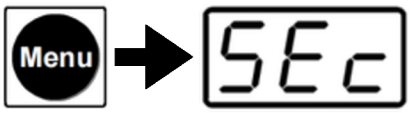
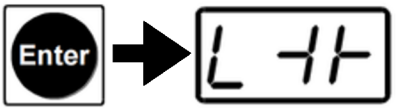
Carrying out a Secondary Brake test

Press the **Menu** key until the Current Mode is **Secondary Brake Test**. Both **Service and Hand Brake LED's** will be lit when selected and the display will show '**SEc**'.

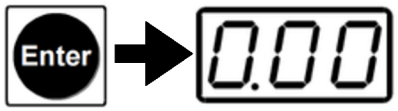


Press the **Enter** key once, the display will indicate whether or not the unit is level enough to perform the test. Before an accurate test can be performed, the device must be level and display the following:



Do <u>NOT</u> tilt the device to achieve the above. If the device is not level, find a more level vehicle test area and ensure the unit is parallel with the road.

Press the **Enter** key again, the unit will now be ready to perform the test and the display will show:



Accelerate the vehicle smoothly to approximately **20MPH** or **32KPH**.

Without causing the vehicle to skid, apply the Secondary Brake firmly and consistently until the vehicle comes to a complete stop as quickly as possible.

The test is now complete, move the vehicle off the roadway if necessary.

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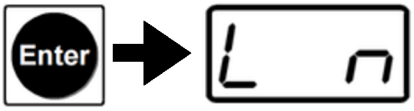
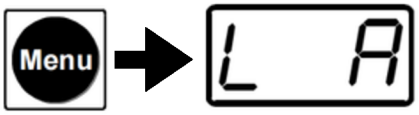
Secondary Brake test results

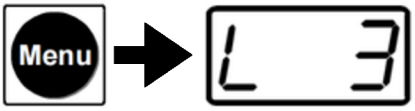
If the device powers down, go to the **Secondary Brake Test/Last Test Result** mode and press the **Enter** key. Then, (or if the unit did not power down), the display will show a **'L n'**.
This option prints only new tests that have not been previously printed.



Press the **Menu** key, the display will now show **'L A'**.This option prints all saved tests in the units memory



Press the **Menu** key again, the display will now show **'L 3'**, with the number on the right being the location of each test that is performed.



Pressing the **Enter** key with the desired test number on screen will display the results for that test on screen. First result displayed will always be the **Peak Deceleration (Front/Rear)**, this LED will be lit and the display will show a value

Press the **Enter** key, the **Average Deceleration (Front/Rear)** LED will be lit and the display will show a value.

Press the **Enter** key again, the **Peak Acceleration (Left/Right)** and either the Vehicle pulls to the left or the Vehicle pulls to the right LED will be lit. The display will show a value.

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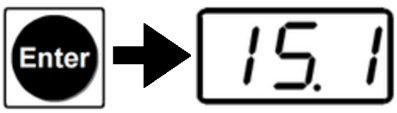
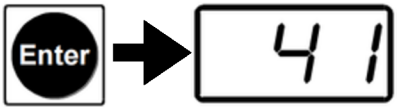
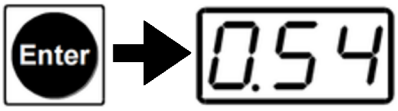
Press the **Enter** key again, the **Stopping Distance (metres)** LED will be lit and the display will show a value.



Press the **Enter** key again, the **Test Speed (KM/H)** LED will be lit and the display will show a value.



Press the **Enter** key again, the **Brake Efficiency (%)** LED will be lit and the display will show a value.



Press the **Enter** key again, the **Peak Deceleration (Front/Rear)** value will be displayed again.

These results will be retained until the next Secondary Brake test is performed.

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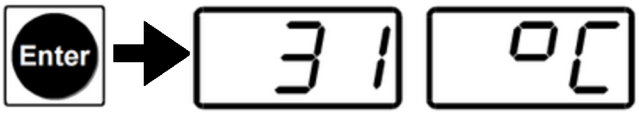
Displaying the temperature of the device

Press the Menu key until the current mode is Temperature and the display shows the desired temperature scale.

Press the Enter key once, the display will alternate between the measured temperature and the selected scale.



To now display the temperature in °F or to select another mode, press the Menu key until the display and LED indicate the desired mode.

Printing Stored Tests

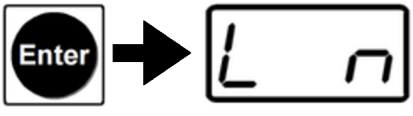
The BrakeCheck Standard has a 99 TEST MEMORY on the Service Brake, Hand Brake and Secondary Brake test.

The tests are stored in the memory, indicated by the number at the end of the test.

To review the results, ensure **'Sbr'** is on the BrakeCheck display.

Press the **Menu** key three times. You should now have two lights lit in current mode (**Service Brake Test** & **Last Test Result**).

Press the **Enter** key. The display will now show **'L n'**. This option will only print results that have not already been printed.



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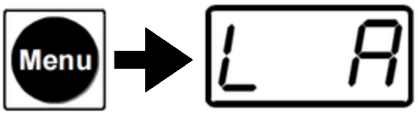
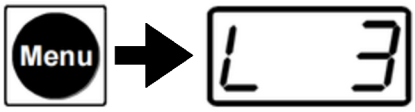
Press the **Menu** key. The display will now show **'L A'**. This option will print all tests saved in the unit's memory,



Press the **Menu** key again, the display will now show **'L 3'**, with the number on the right being the location of each test that is performed. Use the **Menu** key to cycle through to which test number you want to print.



If you now hold the **Menu** key, the test numbers will increment rapidly.

Once you have decided which test you would like to review or print press the **Enter** key to select it.

You can then keep pressing the **Enter** key to cycle through and review all tests results, such as average performance, the left/right pull and stopping distance.

The BrakeCheck can output test results a portable printer **(purchased separately)**.

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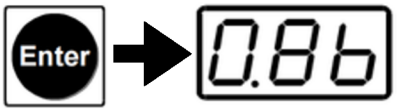
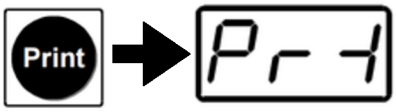
Printing to the infrared printer

If the BrakeCheck has powered down due to inactivity, press the Menu key until the Current Mode indicates the test results to be printed (Last Service Brake Test, Last Hand Brake Test or Last Seondary Brake Test).

Press the Enter key once, (this is not necessary if the unit has not powered down) the Peak Deceleration (Front/Rear) LED will be lit and the display will show a value.



With the BrakeCheck's top edge pointing at the front of the printer, press the **'Print'** key once. The BrakeCheck will emit a long beep sound; keep the device pointed at the printer until a second, short beep is heard. The display will now show **'Prt'** and the printer will print the results for the last test performed. DO NOT move the printer or the BrakeCheck while the LED screen is showing **'Prt'.**



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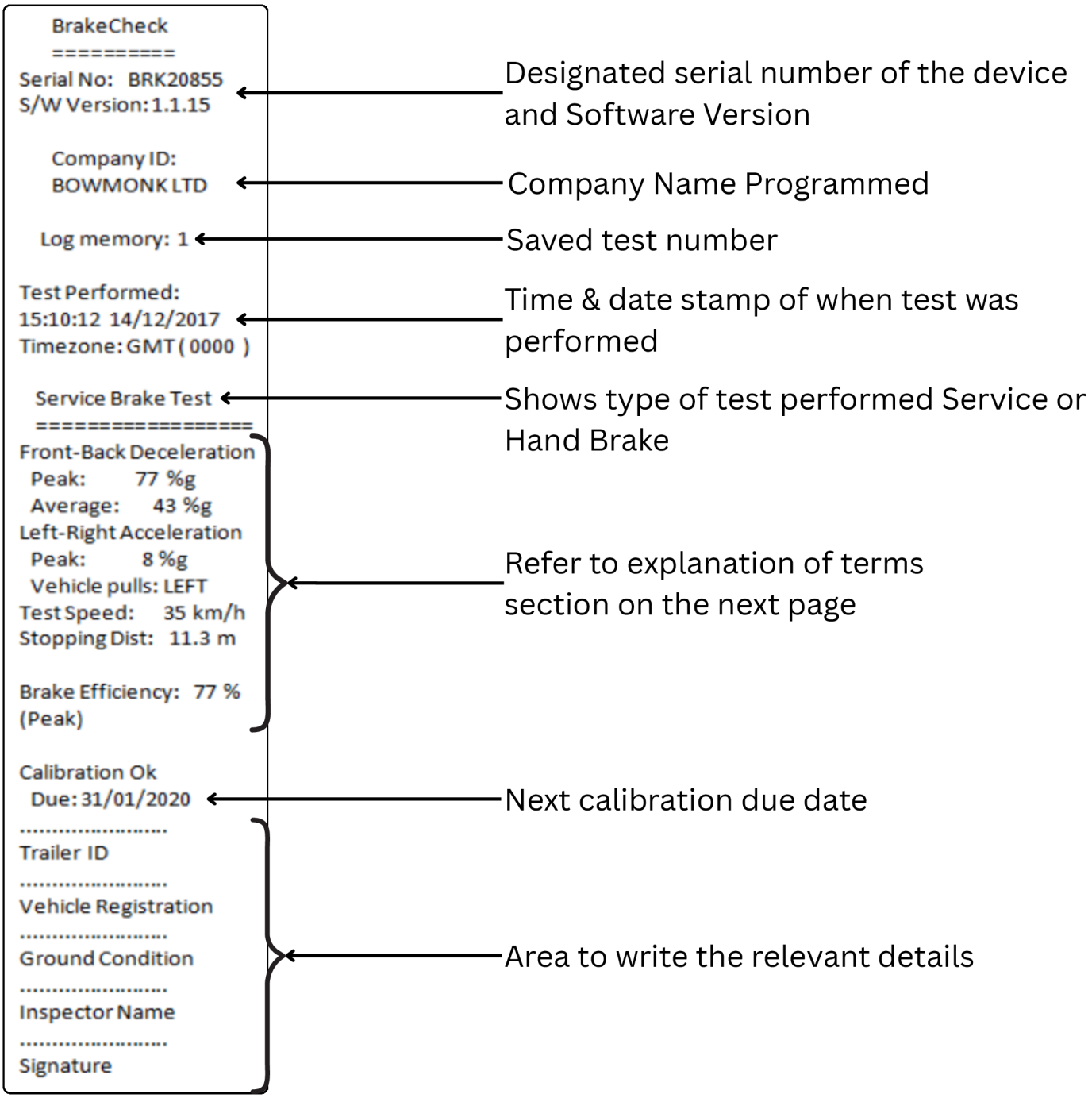
Interpreting Printed Out Results



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Explanation of Terms

Peak Deceleration (Front/Rear)

This is the figure to be used in the UK for Statutory MOT testing.

This is the maximum recorded G forced expressed as a percentage of one G.

Average Deceleration

This refers to the average G force over the duration of the test, in the front to rear direction.

Peak Acceleration (Left/Right)

This is the maximum recorded G force detected during the test, in the left or right direction.

Please Note: This feature is included for reference only. There may not be any regulatory data available to determine if a test result should be considered a Pass or Fail result.

Road Camber, tyre condition, driver action and so on may cause a test vehicle to pull off centre under heavy braking. If the pull is noticeable, it is suggested that the brake components be checked for signs of wear or leaks etc.

Vehicle pulls to the left (or right)

This is an indication of which direction from the centre of the vehicle it is deviating toward during the test.

Stopping Distance (metres)

This is an estimate of the distance the vehicle travels from commencement of braking to a complete stop. It is calculated from Average Deceleration and the test time.

Test Speed (KM/H)

This is an estimate of the speed at which the vehicle was travelling when braking was commenced. It is calculated from Average Deceleration and Stopping Distance.

Brake Efficiency

This is the figure to be used in the UK for Statutory MOT testing.

This is the maximum recorded G force expressed as a percentage of one G.

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Charging the battery & LED flash codes

The BrakeCheck should only be charged when the temperature of the device is between 0°C & 43°C (32°F & 109°F).

The 'Charging Battery' LED gives a visual indication of the charging mode status.

For BrakeCheck with USB model

Charging Battery LED	Description
Off	The charger is off
On	The battery is charged
Blinking 5 times every two seconds	Normal charging
One short blink every two seconds	Battery temperature too high, unplug the charger and allow device to cool down before trying again*
Three short blinks every two seconds	Battery is cold, charger will warm up the batteries before normal charging can start*
One short flash and one long flash every two seconds	Battery has failed to charge*

*If this happens repeatedly the BrakeCheck should be returned for servicing.

For other BrakeCheck devices with serial number prior to BRK02200

Charging Battery LED	Description
Blink	Battery ready to use OR at power up or insertion, battery is cold as topping charge is applied.
On	Soft start/Fast charge
Off	Power down or over/under voltage shut down.

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For other BrakeCheck devices with serial number BRK02200 or later

Charging Battery LED	Description
Off	The charger is off
On	Fast charge mode
Blinking on and off, 1 second interval	Battery ready to use
Blinking 5 times per second	Normal charging
One short blink per second	Battery temperature too high, unplug the charger and allow device to cool down before trying again*
Two short blinks per second	Battery voltage too high or battery disconnected*
Three short blinks per second	Battery is cold, charger will warm up the batteries before normal charging can start*
Four short flashes every two seconds	Battery has failed to charge*

*If this happens repeatedly the BrakeCheck should be returned for servicing.

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Warranty

The warranty is 12 months from the date of purchase.

Please Note: Deliberate of unintentional damage of the unit may result in the warranty becoming void. Likewise, if the unit is interfered with by anyone other than an authorised service agent, the unit will not be covered under this warranty.

Calibration

Bowmonk Ltd recommends that the unit is calibrated every 12 months to ensure accurate operation. Calibration is to be done by Bowmonk Ltd at our approved laboratory in Norwich.

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