

Bowmonk BrakeCheck

Electronic Brake Tester



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BrakeCheck User Manual

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Bowmonk Ltd welcomes comments or suggestions relating to the product or this manual. All correspondence should be addressed to:

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Table of Contents

BrakeCheck	5
Unit Description	5
Function Keys	7
Performing a Test	10
Setting the unit up for a Test	10
To Test the Service Brake	11
Service Brake Test Results	12
To Test the Hand Brake	14
Hand Brake Test Results.....	15
To display the Temperature of the Unit	17
To Print using the Cable.....	18
To Print using the Infra-Red Link.....	19
Explanation of Terms	20
Peak Deceleration (Front/Rear)	20
Average Deceleration	20
Peak Acceleration (Left/Right).....	20
Vehicle pulls to the Left (or Right)	20
Stopping Distance (metres):.....	20
Test Speed (km/h):.....	20
Brake Efficiency:.....	20

BrakeCheck

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) and the Hand Brake (parking brake) and 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 unit's status, Current Mode and Displayed Result are all indicated by the LED's.

The BrakeCheck has a 3 character LED display which 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 $^{\circ}\text{C}$ and $^{\circ}\text{F}$.

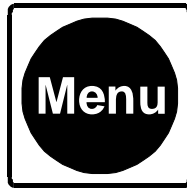
The optional printer can be configured to operate via cable connection or wireless Infra-Red. The Battery Charger is used as the power supply for the printer.

A Battery Charger has been provided. The BrakeCheck should be recharged regularly to ensure it is ready to use when required.

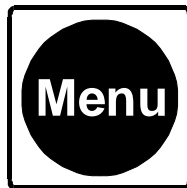
The BrakeCheck should only be charged when the temperature of the unit is between 0°C and 43°C (32°F & 109°F)



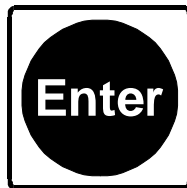
Function Keys



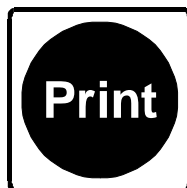
Hold the **Menu** key down for 2 to 3 seconds to turn the BrakeCheck **ON**



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 available) via either the cable or the Infra-Red link, depending upon the configuration of your printer.

When the BrakeCheck is turned ON, the **Service Brake Test** LED will be lit and the display will show:



The unit is ready to begin the Service Brake Test routine.



Press the **Menu** the **Hand Brake Test** LED will be lit and the display will show:



The unit is ready to begin the Hand Brake Test routine.




Press the **Menu** again, the **Service Brake Test** LED and the **Last Test Result** LED will be lit and the display will show:



The unit is ready to display the results of the most recent Service Brake Test.




Press  again, the **Hand Brake Test** LED and the **Last Test Result** LED will be lit and the display will show:




The unit is ready to display the results of the most recent Hand Brake Test.



Press  again, the **Temperature** LED will be lit and the display will show:



Press  again, the **Temperature** LED will be lit and the display will show:



Press  again to return to the beginning.

Performing a Test

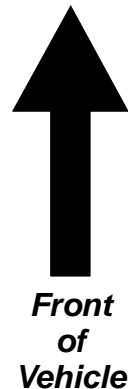
Setting the unit up for a Test

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 to stop the vehicle quickly and safely. Avoid loose and wet surfaces. Avoid areas where there are other vehicles or people.


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

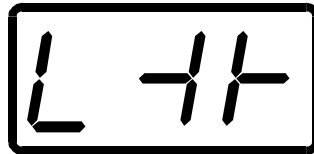


NB. The BrakeCheck should be placed on the vehicle seat or front floor and as close as possible to parallel with the road surface. The unit is fitted with rubber feet to help prevent it from moving around during the test.


To Test the Service Brake

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

Press  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 display must show:



Do NOT tilt the unit to achieve level. Find a more level vehicle test area and ensure the unit is parallel with the road.

Press  again, the unit is now ready to perform the test and the display will show:



Accelerate the vehicle smoothly to approximately 35kph (22mph).

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.

Service Brake Test Results

If the unit powers down, go to the **Service Brake Test / Last Test Result** mode and press



Then, (or if the unit did not power down),

the **Peak Deceleration (Front/Rear)** LED will be lit and the display will show a value, eg:



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



Press again, the **Peak Acceleration (Left/Right)** LED will be lit 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, eg:





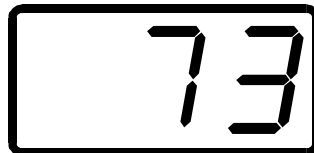
Press **Enter** again, the **Stopping Distance (metres)** LED will be lit and the display will show a value, eg:



Press **Enter** again, the **Test Speed (km/h)** LED will be lit and the display will show a value, eg:




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




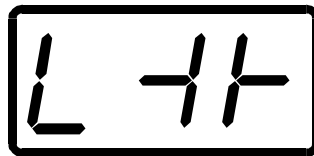
Press **Enter** again, the **Peak Deceleration (Front/Rear)** is displayed again.

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


To Test the Hand Brake

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

Press  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 display must show:



Do Not tilt the unit to achieve level. Ensure the unit is parallel with the road surface and then, if necessary, locate a more level vehicle test area.

Press  again, the unit is now ready to perform the test and the display will show:



Accelerate the vehicle smoothly to approximately 20kph (13mph).

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.

Hand Brake Test Results

If the unit powers down, go to the **Hand Brake Test / Last Test Result** mode and press



then, (or if the unit did not power down),

the **Peak Deceleration (Front/Rear)** LED will now be lit and the display will show a value, eg:


A rectangular digital display with a black border showing the value "0.54" in a seven-segment font.

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

A rectangular digital display with a black border showing the value "0.46" in a seven-segment font.


Press again, the **Peak Acceleration (Left/Right)** LED will be lit 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, eg:

A rectangular digital display with a black border showing the value "0.02" in a seven-segment font.

Press  again, the **Stopping Distance (metres)** LED will be lit and the display will show a value, eg:




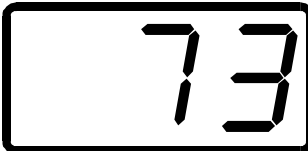
A rectangular digital display showing the number 15.1 in a seven-segment font.

Press  again, the **Test Speed (km/h)** LED will be lit and the display will show a value, eg:




A rectangular digital display showing the number 41 in a seven-segment font.

Press  again, the **Brake Efficiency (%)** LED will be lit and the display will show a value, eg:




A rectangular digital display showing the number 73 in a seven-segment font.

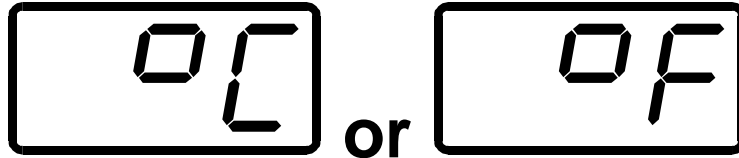
Press  again, the **Peak Deceleration (Front/Rear)** is displayed again.


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

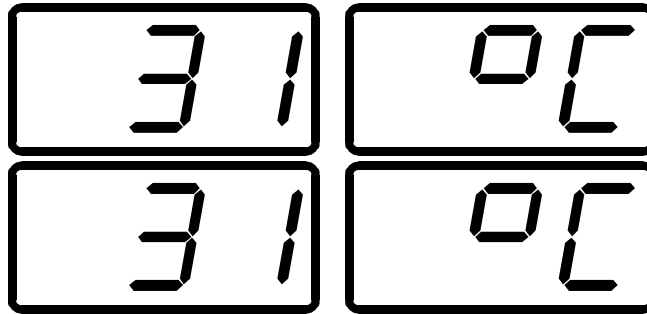
To display the Temperature of the Unit



Press  until the Current Mode is **Temperature** and the display shows the desired temperature scale. I.e:



Press  once, the display will alternate between the measured temperature and the selected scale, for example:



To now display the temperature in Fahrenheit, or to select another Mode,



Press  until the display and LED indicate the desired Mode.

Printing Test Results


The BrakeCheck can output test results to a printer if required. A dot-matrix printer is available and is recommended, although any correctly configured printer can be used. A cable is provided with the printer, or an optional Infra-Red link can be used.

To Print using the Cable


Connect the printer to the power pack provided. Connect the supplied cable to the printer and Brake Check.

If the BrakeCheck has powered-down due to inactivity:




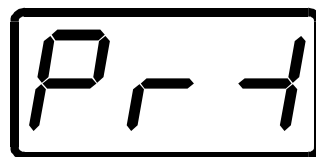
Press  until the Current Mode indicates the test results to be printed. I.e, either **Last...Service Brake Test** or **Last...Hand Brake Test**



Press  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, eg:



Press  once, the display will show:




and the printer will print the results for the last test performed.

To Print using the Infra-Red Link


Plug the power pack into the Infra-Red receiver. Plug the lead from the receiver into the printer.

If the BrakeCheck has powered-down due to inactivity:



Press  until the Current Mode indicates the test results to be printed: ie, **Last Service Brake Test** or **Last Hand Brake Test**




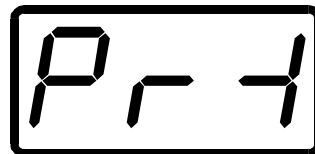
Press  once, (this is not necessary if the unit has not powered-down) the **Peak Deceleration (Front/Rear)** LED will be lit and the display will show a value, eg:



With the BrakeCheck pointing at the Infra-Red receiver,



Press  once, the BrakeCheck will emit a long beep sound, keep the unit pointed at the receiver until a second, short beep is heard. The display will show:



And the printer will print the results for the last test performed.

Explanation of Terms

Peak Deceleration (Front/Rear)

This is the maximum recorded G Force (m/s²) detected during the test, in the front to rear direction.

Average Deceleration

This refers to the average G Force (m/s²) over the duration of the test., in the front to rear direction.

Peak Acceleration (Left/Right)

This is the maximum recorded G Force (m/s²) detected during the test, in the left or right direction.

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 the direction from centre the vehicle is deviating toward during the test.

Stopping Distance (metres):

This is an estimate of the distance the vehicle travels from commencement of braking to 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 an expression of braking performance (%). It is calculated from Test Speed and Stopping Distance and can be compared with statutory requirements.

Interpreting Print Results

```
BrakeCheck
=====

Serial No:   BRK00003
S/W Version: 1.0.2

Test Performed:
  21:25:45 20/12/2002

  Service Brake Test
  =====
Front-Back Acceleration
Peak:          85 %g
Average:       66 %g
Left-Right Acceleration
Peak:          2 %g
Vehicle pulls: LEFT
Test Speed:    41 km/h
Stopping Dist: 9.8 m
Brake Efficiency: 67 %

Calibration Ok
  Due: 17/01/2004

.....
Vehicle Registration
.....
Inspector Name
.....
Signature
```

Designated serial number of the unit
Version of software

Time & date stamp of when test was performed

Shows type of test performed Service or Hand brake

Refer to Explanation of Terms Section

Shows next calibration date

Area to write in relevant information