BrakeCheck

User Manual

Bowmonk Ltd,
Diamond Road
Norwich,
NR6 6AW
UK
Tel: (44) (0) 1603 485 153
Fax: (44) (0) 1603 418 150
Email: sales@bowmonk.com
Website: www.bowmonk.com

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 LED's indicate all 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 ^{0}C and ^{0}F.

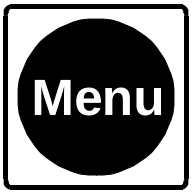
The optional printer can be configured to operate via cable connection or wireless Infrared. Please note the deluxe printer has its own battery charger; do not use the BrakeCheck battery charger to recharge this printer.

A BrakeCheck battery charger has been provided. Low Bat means it needs charging but it will still work, NoB means that the battery is completely flat and the unit is not able to do a test until charged. ie lower than low 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 light goes from solid red to flashing.
There is no off switch on the unit; it will automatically power off after 5 minutes of inactivity.

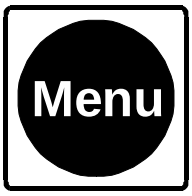
The BrakeCheck should only be charged when the temperature of the unit is between
0^0C and 43^0C (32^0F & 109^0F)


Front of Vehicle
BOWMONK
www.bowmonk.com
Charging Battery
5br
Calibration Required
BrakeCheck
Series 2
Displayed Result
Peak Deceleration (Front/Rear)
Average Deceleration (Front/Rear)
Peak Acceleration (Left/Right)
Vehicle pulls to the Left
Vehicle pulls to the Right
Stopping Distance (metres)
Test Speed (km/h)
Brake Efficiency (%)
Current Mode
Service Brake Test
Hand Brake Test
Last Test Result
Temperature
Setup (see manual)
Menu
Enter
Print

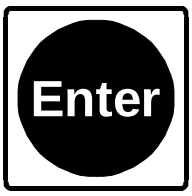
Function Keys



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 BrakeCheck.

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

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

Press 

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.

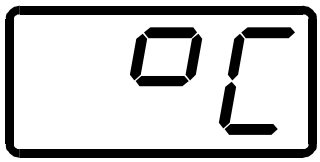
Press 

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.

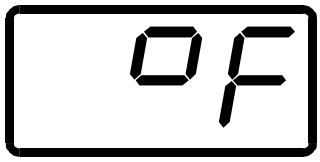
Press 

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.

You can see a Mode within the Current Mode boxed called Setup (see manual). Operators are not allowed to enter Setup as within this setting all the calibration and setup parameters are stored.

Performing a Test

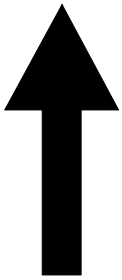
Setting the unit up for a Test

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.



Front of Vehicle

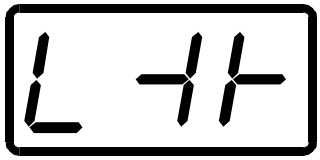
NB. The BrakeCheck should be placed on the vehicle seat or front floor and as close as possible to parallel with the road surface. The unit is fitted with rubber feet to help prevent it from moving around during the test.

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 be followed.

To Test the Service Brake

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

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

Accelerate the vehicle smoothly to approximately 10-15 mph or 15 –20 kph.

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.

If you have BrakeCheck *Plus* the display will indicate at what number the test will be stored, press ENTER to review the results.

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 

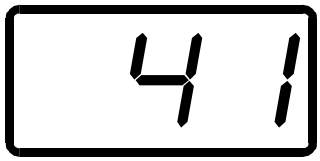
and the **Average Deceleration (Front/Rear)** LED will be lit and the display will show a value, eg:

Press 

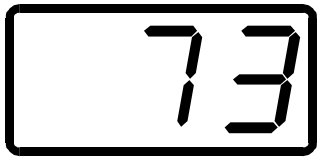
again, the **Peak Acceleration (Left/Right)** LED will be lit and either the **Vehicle pulls to the Left** OR the **Vehicle pulls to the Right** LED will be lit. The display will show a value, eg:

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:



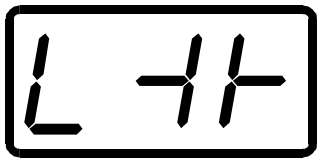
Press Enter again, the **Peak Deceleration (Front/Rear)** is displayed again.

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

To Test the Hand Brake

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

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

Accelerate the vehicle smoothly to approximately 20kph or 15mph.

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:

Press 

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

Press 

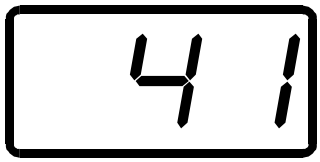
again, the **Peak Acceleration (Left/Right)** LED will be lit and either the **Vehicle pulls to the Left** OR the **Vehicle pulls to the Right** LED will be lit. The display will show a value, eg:

Press 

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

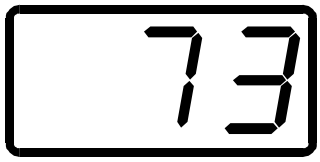
Press 

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



Press 

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



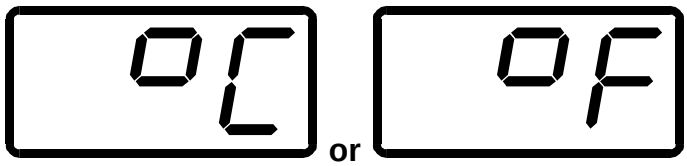
Press 

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

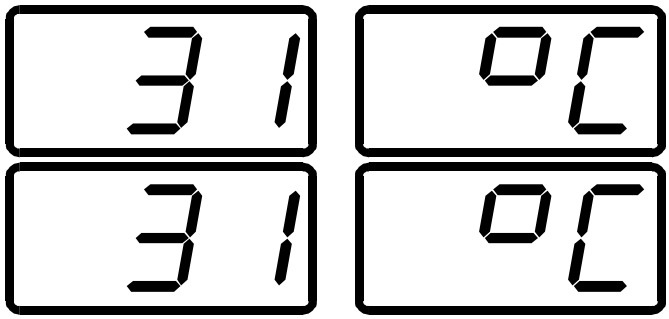
These results will be retained until the next Hand Brake test is performed.

To display the Temperature of the Unit

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



Press Enter 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 Menu until the display and LED indicate the desired Mode.

Printing Stored Tests

BrakeCheck has a 1 TEST MEMORY on the Service Brake and the Hand Brake Test

BrakeCheck *Plus* has a 99 TEST MEMORY on the service and Hand Brake

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

To review the results or download to CabCheckS bring up Sbr on the BrakeCheck display, press MENU three times you should now have two lights indicating Service Brake and Last Test Result, press ENTER, the display will always show you L#, press MENU to increase the test number, if you hold down the MENU button the test numbers will increment rapidly. Once you have decided which test you would like to review or print press ENTER.

You can then press ENTER to review all tests results such as the average performance, the left / right pull and stopping distance.

The BrakeCheck can output test results to a portable printer.

To Print using the Cable

Connect the supplied cable of the printer with the BrakeCheck cable.

If the BrakeCheck has powered-down due to inactivity:

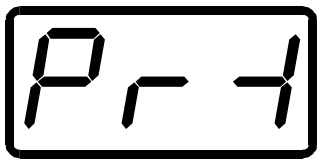
Press 

until the Current Mode indicates the test results to be printed. Ie, 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 Print once, the display will show:



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

To Print using the Infra-Red Printer

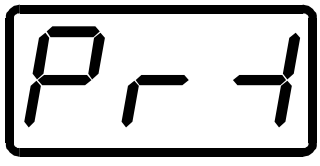
If the BrakeCheck has powered-down due to inactivity:

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

Press Enter 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 front part of the Infra-Red Printer,

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



And the printer will print the results for the last test performed. DO NOT move printer or BrakeCheck while PRT is showing on the LED.

Printing via a PC and CabCheckS

You can also utilise your PC to print your BrakeCheck results. CabCheckS (Computer Aided BrakeCheck Software) is available to help print, store and record additional information about your brake test.
See the separate CabCheckS QRG for an in depth user guide.

Figure 1.

This shows the downloading screen

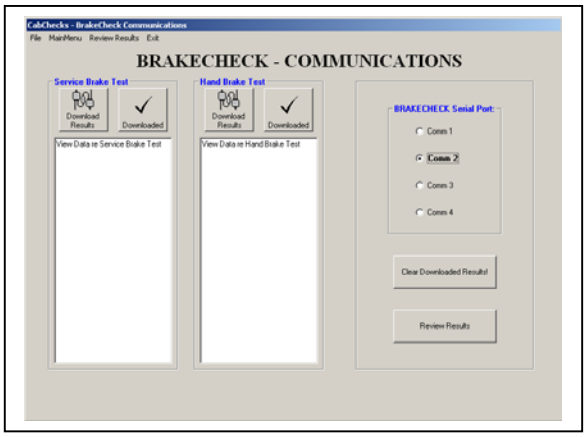
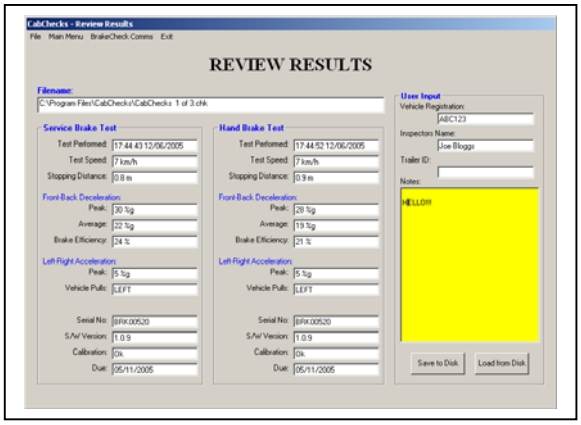


Figure 3:

This shows the data screen where the user adds a vehicle and operator ID, from this screen you can print or save the test.



Explanation of Terms

Peak Deceleration (Front/Rear):

This result corresponds to the Peak 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 one G.#

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 the Average Brake Efficiency figure. It should not be used in the UK for The Statutory MOT Testing (refer to Peak Deceleration at the top of page).
It is calculated from Test Speed and Stopping Distance.

INTERPRETING PRINT OUT 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 relevant details.

WARRANTY: The warranty is 12 months from date purchased.

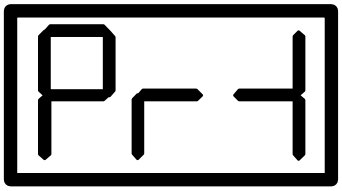
PLEASE NOTE: Deliberate or unintentional damage of the unit may result in the warranty becoming void. Likewise, it the unit is interfered with by anyone other than an authorized service agent, the unit will not be covered under this warranty.

CALIBRATION: BOWMONK recommends that the unit be calibrated every 24 months to ensure accurate operation. Calibration is to be done by Bowmonk Ltd at our approved laboratory in Norwich.

Printer Setup Menu (S/W Version 1.0.51)

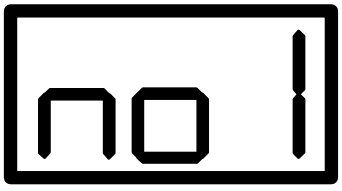
The Infra-red (IR) printer function can be setup to be used with different types of IR printers. From the main menu, press **MENU** until the display shows:

Press **ENTER** to enter the menu. The display will show:



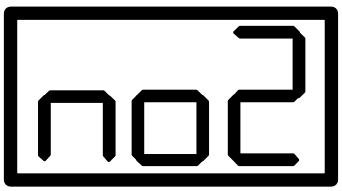
To continue press **ENTER**. The display will then show:

To turn off IR printing completely press **ENTER** or to continue press **MENU**. The display will show:



Printer selection no.1 is for slower IR printers that do not support fast data transfers. All IR printers will work on this option however the printing is slow.

To select this printer mode press **ENTER** or to continue press **MENU**. The display will show:



Printer mode no.2 is for IR printers that support fast data transfer rates. Not all IR printers can use this mode. For printers that do, choose this option by pressing **ENTER**

The printing setting is now changed to your selection and the BrakeCheck will revert to the standard screen ready for testing:

Off = Serial Printing – Disables I/R

No.1= Standard Speed I/R – Kane printers need this selection

No.2= Quicker Speed I/R – Martel printers or I/R2

Charging the Battery

BrakeCheck with USB model:

A USB cable has been provided. The BrakeCheck charging is done via the PC's USB port or by using an approved USB-mains adaptor. The PC must be turned on and not in Standby or Sleep mode during charging. The BrakeCheck should be recharged regularly to ensure it is ready to use when required.

Other BrakeCheck models:

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 0^0C and 43^0C (32^0F & 109^0F)

Charge LED Flash Codes

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
Blink 5 times every two second	Normal charging
One short blink every two second	Battery temperature too high, unplug the charger and allow unit to cool before trying again *
Three short blinks every two second	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 units with serial number BRK02200 or later:

Charging Battery LED	***Description***
Off	The charger is off
On	Fast charge mode
Blink, on 1sec, off 1sec	Battery ready to use
Blink 5 times per second	Normal charging
One short blink per second	Battery temperature too high, unplug the charger and allow unit to cool 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.

For units 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

Vehicle Inspectorate

We Hereby Certify That

MAKE	MODEL	EQUIPMENT
Bowmonk	BrakeCheck	Decelerometer

Met The Requirements for Testing

All Classes

for, and on behalf of, the Garage Equipment Association, administrators of the Vehicle Inspectorate equipment approval scheme.

Chief Executive

Date 14 February 2003

GARAGE EQUIPMENT ASSOCIATION

BOWMONK Ltd

DIAMOND ROAD, NORWICH, NORFOLK, ENGLAND NR6 6AW
Telephone: (01603) 485153
Fax: (01603) 418150
International Tel: (44) 1603 485153
International Fax: (44) 1603 418150
E-mail: info@bowmonk.co.uk
Website: www.bowmonk.com

CALIBRATION CONTRACT

Company Name:

Address:

Tel No.

Meter Type (i.e Mechanical/Brakecheck)

Meter Serial No.

Date:

Signature:

Please complete & return the above details in order for you to fulfil your 2 yearly calibration contract with Bowmonk Ltd.

By providing these details we will be able to provide you with our reminder service.

Yours faithfully

Bowmonk Ltd