

# **AUTO STOP<sup>®</sup> Heavy**

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## **In Vehicle Brake Tester**





**DECLARATION OF CONFORMITY**

We, Auto Test Products Pty Ltd. declare under our sole responsibility that the product *AutoStop Heavy* is in conformity with the provisions of the following Council Directive: 1999/5/EC.

A copy of the Declaration of Conformity is available from <http://www.autotest.net.au>

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# 1. UNPACKING AND FIRST TIME USE

Congratulations on your choice of an AutoTest Brake Meter. Please take the time to read this User's Manual before using the AutoStop Heavy Brake Meter in the field. Incorrect or inappropriate use of this instrument may void the warranty. Retain the packing materials for future shipping and transport of the unit for periodic calibration. Please complete the warranty registration card and post it to AutoTest Products Pty Ltd, alternatively visit our website [www.autotest.net.au](http://www.autotest.net.au) and complete your warranty registration on line. Your warranty registration ensures that you are kept up to date on any software or hardware changes to your AutoStop Brake Tester. The packing box of your AutoStop Heavy should contain the following:

1. AutoTest Brake Meter, Model AutoStop HEAVY, complete with Pedal Sensor
2. Long strap for restraining Brake Meter Unit Case
3. Battery Charger
4. User Manual
5. Warranty Registration Card
6. Calibration Certificate
7. Interface Cable
8. Program Disc

## 1.1 Activating your meter

Initially, each meter is locked prior to its shipment. So, before you can perform any brake tests, you must first activate your meter, the activation could is the **SERIAL NO.**

*Step 1:* Switch on meter by pressing the On/Off button;

*Step 2:* Wait for the scrolling prompt "**>Examiner ID? |(Y/N)**", then press the "Yes" button;

*Step 3:* Next, a scrolling message "**SENSOR CHECK - Please take foot off pedal sensor...**" should appear, press the "Yes" button to move onto the next screen;

*Step 4:* At this point, you should see "**Ready>**" on the screen. Press "A" to enter the activation menu;

*Step 5:* In the activation menu, press "Y" in response to the prompt "**>Meter is currently LOCKED. Activate meter? |(Y/N)**";

*Step 6:* Instructions on how to activate the meter should be scrolling across the screen at this point. Press the "Yes" button to begin the activation sequence;

*Step 7:* At the prompt "**Code:** ", enter the **5-digit serial number of your brake meter** (which is printed to the left of the On/Off button) and press "Yes";

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*Step 8:* Upon entering the correct serial number, you should see “**Meter Activated!**” on the display. Now the Test menu is accessible from the “Ready>” prompt by pressing “R”.

Note: The activation process is a one-time procedure, after which the meter cannot be locked again.

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## 2. For Your Safety

Read these simple guidelines. Not following them may be dangerous. Read the complete user guide. Further detailed information is given in this manual.



### **SWITCH ON SAFELY**

Do not switch the device on when wireless device use is prohibited or when it may cause interference or danger.



### **SWITCH OFF WHEN REFUELING**

Do not use the device at a refuelling point. Do not use near fuel or chemicals.



### **SWITCH OFF NEAR BLASTING**

Follow any restrictions. Do not use the device where blasting is in progress.



### **USE SENSIBLY**

Use only in the positions as explained in the product documentation.



### **QUALIFIED SERVICE**

Only qualified personnel may install or repair this product.



### **ACCESSORIES AND BATTERIES**

Use only approved accessories and batteries. Do not connect incompatible products.



### **WATER-RESISTANCE**

Your device is not water-resistant. Keep it dry.



### **CONNECTING TO OTHER DEVICES**

When connecting to any other device, read its user's guide for detailed safety instructions. Do not connect incompatible products.

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### **3. USE OF BATTERY CHARGER AND CARE OF BATTERY**

AutoStop Heavy is fitted internally with a long-life 12volt, fully sealed, rechargeable lead acid battery, which must be charged for up to 10 hours before initial use. The battery charger input is located to the right of the printer. With proper care and use, the battery should last between two and five years.

It is recommended to recharge the battery nightly if the Brake Meter is used regularly. Only an approved battery charger with the correct voltage, waveform and terminal polarity should be used. The battery must never be allowed to fully discharge as it will void the warranty.

The battery should always be recharged if the battery voltage falls below 12 volts (for more information see Section 6 "Checking Calibration"). As a guide, if the Brake Meter is used for one to two tests per day, the battery should be recharged weekly. If the Brake Meter is used more frequently, the battery should be recharged daily.

The AutoStop Heavy is fitted with a low voltage cut-out switch in the circuitry to protect the battery from excessive discharge. If the battery is allowed to discharge to zero (0) volts, and left standing for a long period of time, severe sulfation would occur, raising the internal resistance of the battery to abnormally high levels. In such extreme cases, the battery may not accept a charge. It is vital that the battery of the AutoStop Brake Meter is regularly charged to prevent accidental battery damage.

## 4. OPERATION

### 4.1 Options: Changing & Viewing

To view or change items, ensure the Brake Tester is in the ready mode. "Ready>"

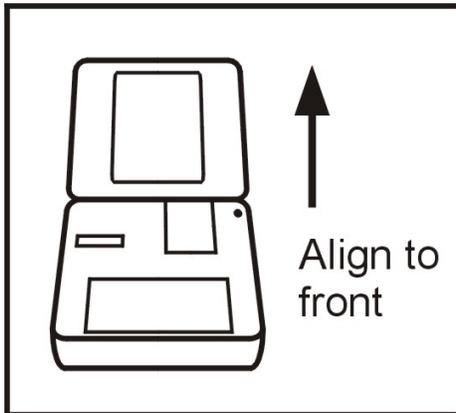
To:	Press	Screen Display
<b>Select Region: VIC, NSW, QLD</b>	From the Ready> position, press "J"	<b>Region: [VIC] [NSW] [QLD]</b> When LCD displays "Region: ___", press "U" or "D" or "J" to select a different region. Once the desired region has been selected, press YES or "ENTER" to save it.  When the region has been changed, the brake meter will automatically update the accelerometer unit and compliance code for the selected region.
Set Acceleration unit	From the Ready> position, press "X", then press "A"	<b>Accel:</b> Can be toggled between % and g by pressing "A" Press "Enter" to return to Ready>
Set Graph Mode	From the Ready> position, press "X", then toggle "G"	<b>Print Graph:</b> can be toggled between 1 and 0 by pressing "G" 1 = On - print the graph with test 0 = Off- don't print the graph with test. Press "Enter" to return to Ready>
Change from Imperial to Metric	From the Ready> position, press "X", then toggle "I"	<b>Imperial:</b> can be toggled between 1 and 0 by pressing "I" 1 = Imperial, 0 = Metric Press "Enter" to return to Ready>
Changing accelerometer trigger level	From the Ready> position, press "X", then press "T"	<b>Accelerometer trigger:</b> can be incremented by pressing "U" key or decremented by pressing "D" key. To set the trigger value to default, press "R". The trigger level is set in 0.01 g resolution.  Press "Enter" to return to Ready>
Changing loadcell trigger level	From the Ready> position, press "X", then press "P"	<b>Loadcell trigger:</b> can be incremented by pressing "U" key or decremented by pressing "D" key. To set the trigger value to default, press "R". The trigger level is set in 5 N resolution.  Press "Enter" to return to Ready>

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## 4.2 Test Conditions & Test Area

While the vertical angle of the Brake Meter will be automatically calculated and compensated for prior to testing, the greatest accuracy will be obtained when the Brake Meter is level to the surface of the road. Therefore, the area used for the test should be as flat as possible. The head wind should be less than 10kph.

## 4.3 Set-Up in Vehicle



AutoStop Heavy must be secure during the entire duration of the test. Misalignment or movement can cause lower (worse) deceleration readings. This could mean test failure if the brake performance is close to the required limits. Secure Heavy in a level or horizontal position in the vehicle with the lid open and facing forward. To prevent movement, use the long strap provided by wrapping it around the brake tester and the passenger seat. Another method is placing a sand bag behind Heavy, thus holding it against a firm surface. Attach the pedal sensor to the brake pedal.

## 4.4 Running the Test

**Note:** The vehicle must be stationary (at a complete stop) prior to commencement of the test. Ideal conditions are to test the vehicle at a location where other vehicles are not present. However, if it is necessary to use another area, such as a public road, only commence the test if no other vehicles are in the area and there is no danger of an accident.

When the Brake Meter and the pedal sensor are both properly secured, turn the unit on and follow the instructions in Section 3.6.

If an incorrect keystroke entry is pressed at any time, press the back-arrow key to erase and then re-enter the correct keystrokes. The “beep” signal indicates the key has been properly pressed and has registered on the display.

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## 4.5 Special Characters

By using the following procedure you may obtain the following Special Characters: To obtain the following characters, press and hold the “-“ key, then press the listed character to obtain the special character.

Press “-“ and HOLD, then Press:	Displayed Character	Press “-“ and HOLD, then Press:	Displayed Character
A	!	N	.
B	“	O	/
C	#	P	(SPACE)
D	\$	Q	!
E	%	R	“
F	&	S	#
G	‘	T	\$
H	(	U	%
I	)	V	&
J	*	W	‘
K	+	X	(
L	,	Y	)
M	-	Z	*

## 4.6 Test Instructions Summary



Step	Initial Screen Display	Instruction	Keys to Press	Final Screen Display
1	Blank Screen	Switch On.	"On/Off"	AutoTest HEAVY Brake Test Unit Software Version No.- Cal Due Date- Examiner ID? Y/N
2	Examiner ID? Y/N	To retain ID (identification of examiner) as listed, press YES or "Y" To alter the ID, press "N"	"Y" or "N"	If N is pressed the meter will prompt <b>New ID: (Step 3)</b> , if Y is pressed the meter will move on to <b>Sensor Check (Step 4)</b>
3	NEW Examiner ID	To change ID: Enter your personal Examiner ID (any alpha/numeric key entry up to 19 digits).	Press the digits of your examiner ID (max 19 digits) then press "Yes".	Scrolling message regarding pedal sensor Auto Zero. <b>Sensor Check- Take Foot off Pedal Sensor and Press Any Key.</b>
4	Sensor Check	Remove all pressure from the pedal sensor. Upon pressing the enter key the unit measures and then compensates for the slope of the vehicle and the 0 Newton point of the pedal sensor.	"Yes"	Ready>
5	Ready>		"I"	Reg No?
6	Test with GPS? Y/N		"Y" or "N"	If Y is pressed, the meter will display "Acquiring position, please wait..." Once a valid GPS position has been found, the meter will automatically continue to <b>Reg. NO? (Step 7)</b> . If N is pressed then the meter will continue to <b>Reg. NO? (Step 7)</b> and perform the brake test without GPS coordinates.
7	Reg. No?	Enter the vehicle ID Number. Up to 19 alpha/numeric characters may be entered. Example VIN No. - Company ID No. - License Plate No.	Press the digits of the vehicle registration, VIN, or other designated numbers and then press "Yes"	Srvc/Emrg? S/E
8	Srvc/Emrg? S/E	Enter "S" if the service brakes are to be tested, or enter "E" if the emergency brakes are to be tested. Entering "E" bypasses the pedal sensor and no brake pedal pressure will be recorded or printed. "E" is also used when testing parasitic braking devices such as retarders. Note: An emergency test is similar to a pendulum type brake test.	Press "S" or "E"	Commence/Reset? C/R

### 3.6 Test Instructions Summary (cont'd)

9	<b>Commence/Res et? C/R</b>	Commence or Abort the test. At this point there should not be any load on the pedal sensor. Pressing " <b>C</b> " will begin measurements and unit will await start criteria's such as deceleration and pedal pressure. Pressing " <b>R</b> " will abort the test.	Press " <b>C</b> " or " <b>R</b> "	<b>Prelude</b> (if the C key is pressed). <b>Ready&gt;</b> (if R key is pressed). If the Brake tester is not sufficiently level after pressing " <b>C</b> ", the following message will flash onto the screen, together with several warning beeps: <b>Slope too large, adjust unit.</b> The LCD will then return to Ready>
10	<b>Prelude</b>	The Brake Tester is ready to start recording. If the vehicle is at a stop, release the brake and gently accelerate the vehicle to the required speed. Apply the brakes by pressing on the pedal sensor attached to the brake pedal (or by using the emergency brake). For Service Brakes, the test is triggered when the pedal sensor detects a load greater than 100 Newtons followed by the vehicle decelerating by more than 0.1g. (Note: both must be met). For emergency brakes, the test is triggered only by the vehicle decelerating by more than 01.g. If the vehicle is in motion, you may gently accelerate to the required speed and follow the same instructions as above.		<b>Calculating ....</b> If data logger is fitted screen will display <b>Save Y/N?</b> Otherwise straight to <b>Print Y/N?</b>
11	<b>Save Y/N</b>	If the Datalogging option is not installed, this will not appear and the LCD will move directly to " <b>DUPLICATE Y/N</b> ". If the Datalogging option is installed, you have the option to save the test by pressing " <b>Y</b> ".	Press " <b>Y</b> " or " <b>N</b> "	If the memory is full, it will not save and will display: " <b>Not Enough Mem.</b> ". If it is not full and the " <b>Y</b> " is pressed, it will save test. If " <b>N</b> " is pressed, the test will not be saved. In either case the LCD will show <b>Print Y/N</b>
12	<b>Print Y/N</b>	Allow the report to be printed.	Press " <b>Y</b> " or " <b>N</b> "	If " <b>Y</b> " the LCD will show " <b>Official Copy</b> ". The unit will begin to print and LCD will then show <b>Normalising</b> as it calculates data for graph presentation. As it prints the graph, the LCD will show <b>Graph</b> . The LCD will now show <b>Duplicate</b> . If " <b>N</b> " the unit will return to <b>Repeat Y/N</b>

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### 3.6 Test Instructions Summary (cont'd)

13	Duplicat Y/N	If you require an additional copy of the test Press "Y". If one copy is sufficient then press "N"	Press "Y" or "N"	If "Y" the display will show "Customer Copy", the unit will begin to print and LCD will then show <b>Normalising</b> as it calculates data for graph presentation. As it prints the graph the LCD will show <b>Graph</b> The LCD will then show <b>Repeat Y/N</b>
14	Repeat ? Y/N	Repeat the test by pressing "Y", stop testing and return to Ready mode by pressing "N"	Press "Y" or "N"	<b>Svrc/Emrg? S/E</b> if "Y" is pressed, <b>Ready&gt;</b> if "N" is pressed

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## 5. TEST DATA STORAGE

### 5.1 Using the Data Logger

The data logger has about 6 MB of memory available to store tests and allows you to recall and either print or upload them to any IBM or IBM compatible computer at a later time. Depending on the length of the tests, you can store up to 100 tests.

Preliminary Function	To	Press	Screen Display
From the Ready> position, press "L". To recall the data, press "R"	Print the Data	"R"	1) XXXX ( Reg no # desired is displayed on the LCD. Then Press "C" for an Customer Copy or "O" for a Official Copy.
From the Ready> position, press "L". To clear the data, press "C"	Clear the Data Logger	"C"	Pressing "C" will show "Clear all (Y/N) Pressing "Y" will clear Data Pressing "N" will not clear the data.
From the Ready> position, press "L". To display storage status information, press "I"	Display Data Logger storage status information	"I"	Tests saved: xx Note: This screen displays the Number of tests stored in the Data Logger. Press any key to go to the next screen.  Mem: xx % used Note: Data Logger memory usage in percentage

### 5.2 Downloading Data

The downloadable model of the AutoStop Heavy is provided with a serial port to attach to any IBM or IBM compatible computer with a spare COM port. An interface cable and download software are required to download test results from the Brake Meter. These are provided with the unit. The uploaded data, formatted as a text file, can be imported into spreadsheet programs such as Excel and Lotus for further detailed examination, or printed. Heavy Brake Meters are shipped with download software (also available on the AutoTest website) for PCs running Microsoft Windows. *Version 7.0 and greater Brake Meters require Version 1.4 of the download software. Earlier version Brake Meters require Version 1.21 of the download software.* You will receive the appropriate software with the unit.

#### 5.2.1 Download Instructions

If you have downloaded the software from the web, simply double-click on the downloaded file to install the software. If you have received the software on CD, insert the CD into your computer CD drive. If the setup program does not run automatically, run the setup.exe program located on the CD to install the software. After the program installation is finished, there will be two new icons on your desktop.

Double-click on the 'Maxi/Heavy Data Logger' icon to run the download software, or double-click on the 'Maxi/Heavy Data Logger Data' icon to access the directory containing all the data files that have been downloaded from the Brake Meter. Each

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time you download test data from a Brake Meter, two log-files are automatically saved into this directory (folder). The filename is displayed in the download software after a download, and is a combination of the Vehicle Registration, Test Date and Test Time. The log-files can be re-opened and printed at any time using the download software, or opened in spreadsheet programs such as Microsoft Excel.

The software is provided free of charge, however you must pay a license fee for each Brake Meter that you wish to use with the software. For example, if you own two brake meters and wish to use them both with the download software, you will need to purchase a license code for each of these brake meters and enter it into the software before you can download the test data. License codes may be purchased from the AutoTest Products website, <http://www.autotest.net.au>. Go to the 'Buy Online' section of the website and enter your contact details to gain access to the Online Catalogue. Near the bottom of the list is the option titled 'Download Software License Code for 1 Brake Meter'. Select 1 of these items, then proceed to Step 3 to enter your Purchasing details. After making the purchase, you will be contacted via email or phone and asked for a serial number, then supplied with the license code for your Brake Meter. Note that for a limited time these license codes may be available free of charge, however you will still need to follow this procedure to receive a license code for each Brake Meter.

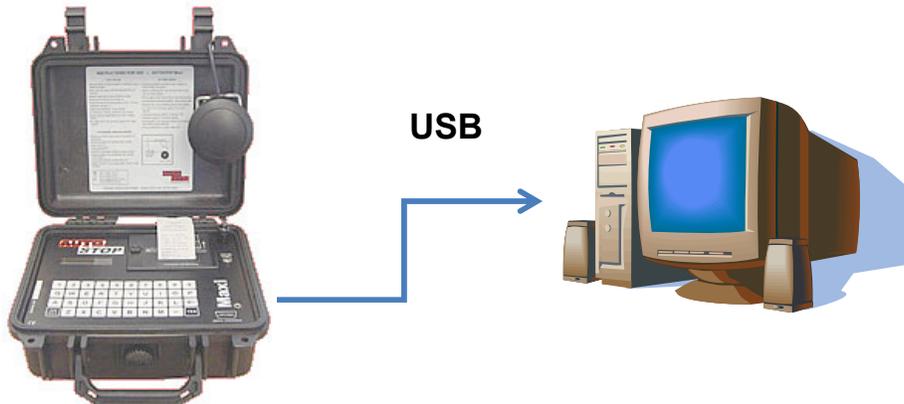
Once you have purchased a license code, you must enter it into the download software. To do this, load the software and click the button labelled 'Help / Add License', then select the 'Add a License' tab at the top of the screen. On the subsequent screen you will see a list of brake meters that have been authorised for use on that computer. To add a brake meter to the list, enter the serial number, along with the license code that you purchased for that specific brake meter, then click the 'Authorise' button. If you entered the license code correctly, the serial number of the brake meter will be added to the list of authorised brake meters, and you will be able to download test data from that brake meter.

Note that if you install the software on a different computer, or under a different login name, you will need to re-enter the license code(s). Be sure to save any purchased codes. AutoTest Products cannot be held responsible for lost license codes.

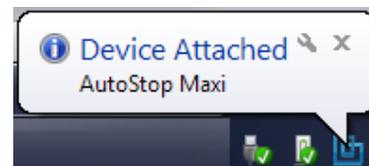
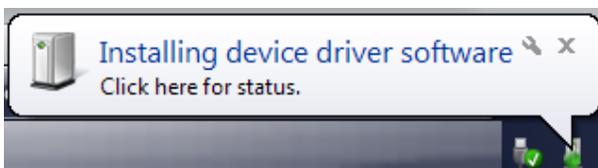
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## 5.2.2 Downloading results via USB

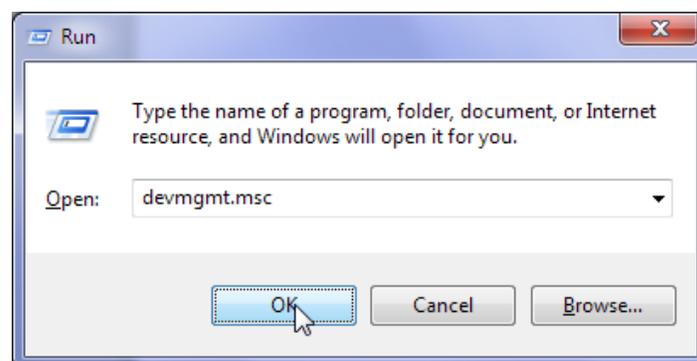
Once the Data Logger software is installed, run the Data Logger software and connect the Brake Meter to the PC via the supplied USB cable.



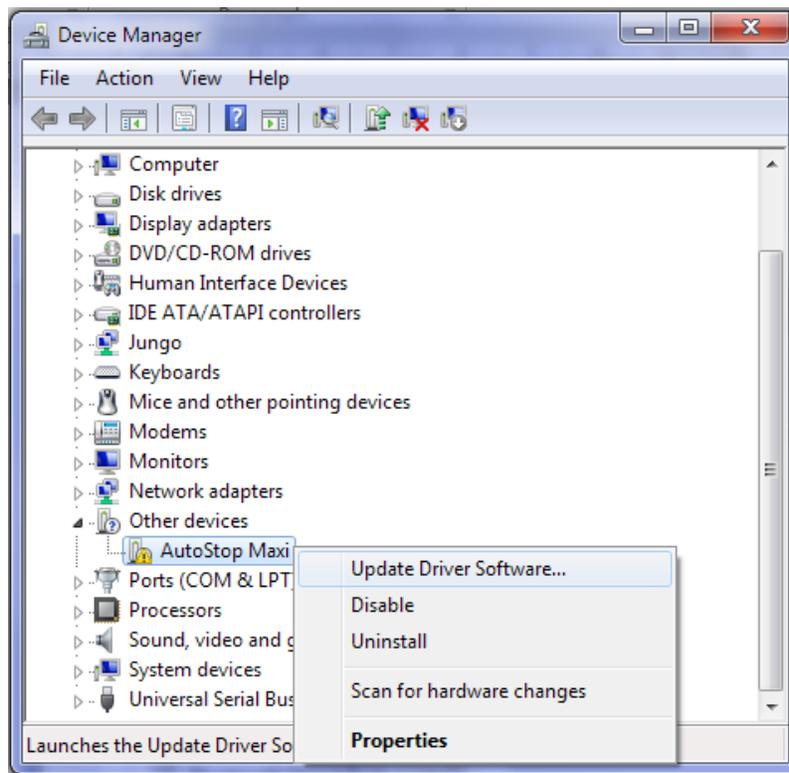
Once the USB cable is connected to the PC, switch ON the Brake Meter by pressing the ON/OFF key. When the Brake Meter is switched ON, the PC will recognise the Brake Meter device and will search for the USB drivers.



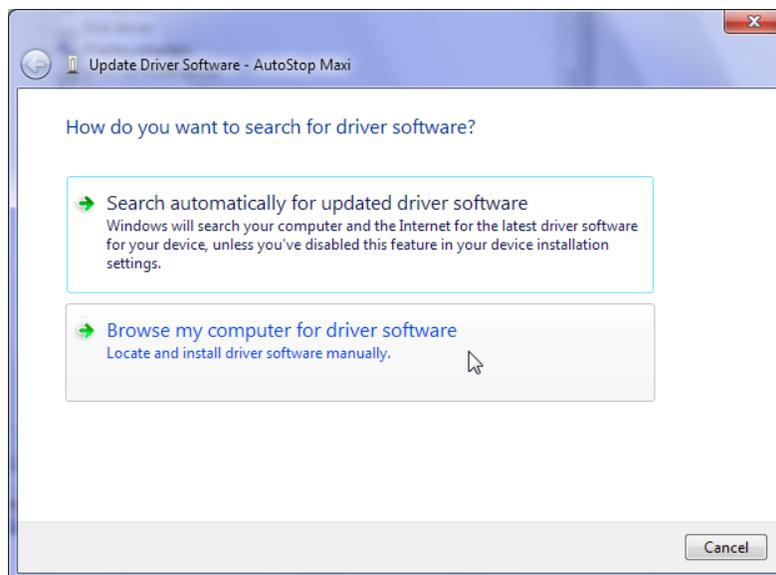
Open device manager to install the USB drivers. The device manager can be accessed by typing 'devmgmt.msc' in the Run Window. The Run Window can be accessed by pressing **Win** + R from the keyboard. Make sure you have administrator level privileges when accessing device manager.



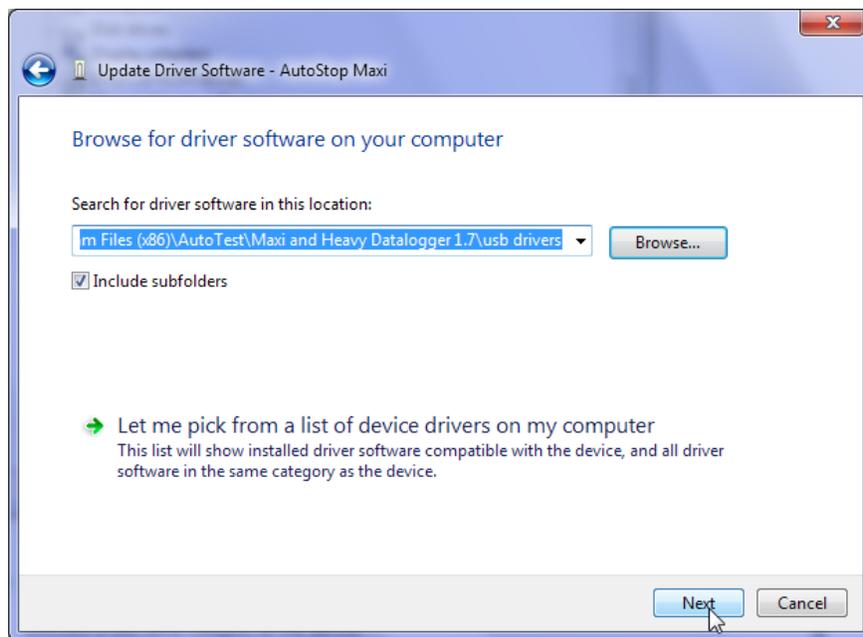
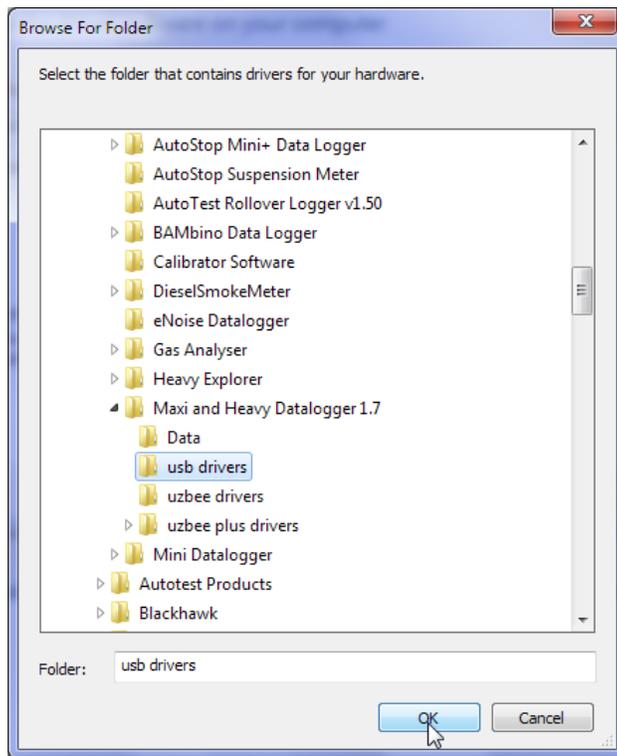
Select the AutoStop Heavy/Maxi device in the device manager (under *Other devices*) and right click on it. Select "Update driver/software".



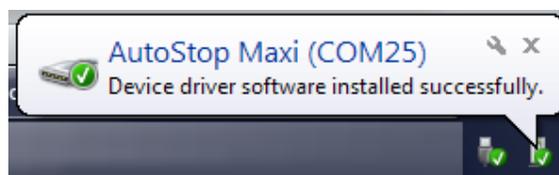
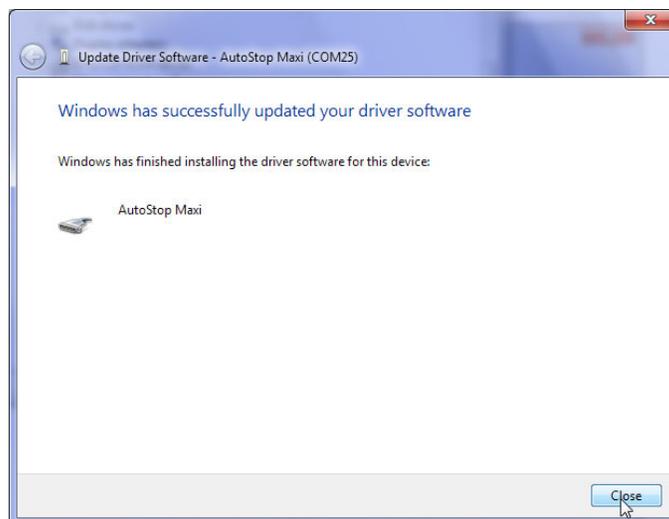
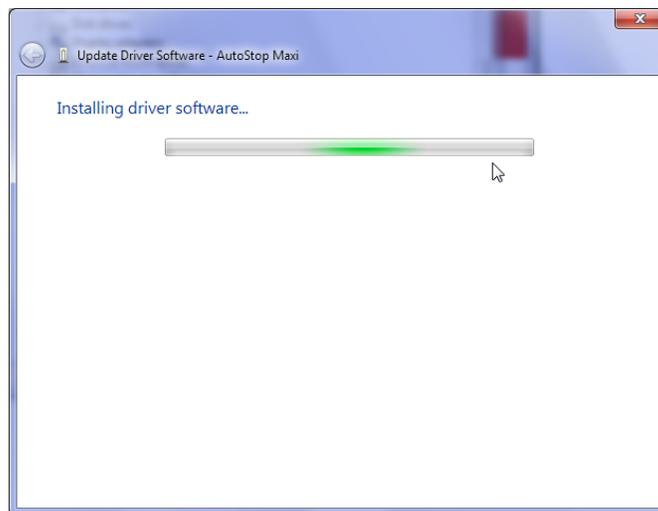
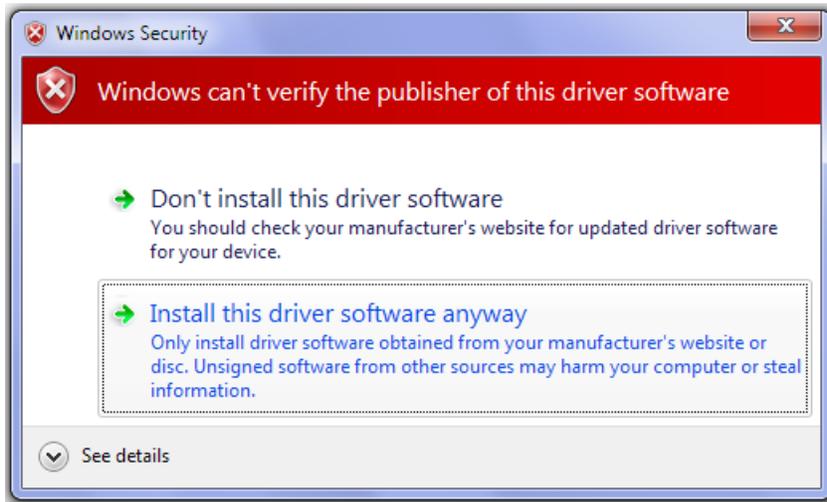
Select “Browse my computer for driver software” to specify the location where the drivers are located.



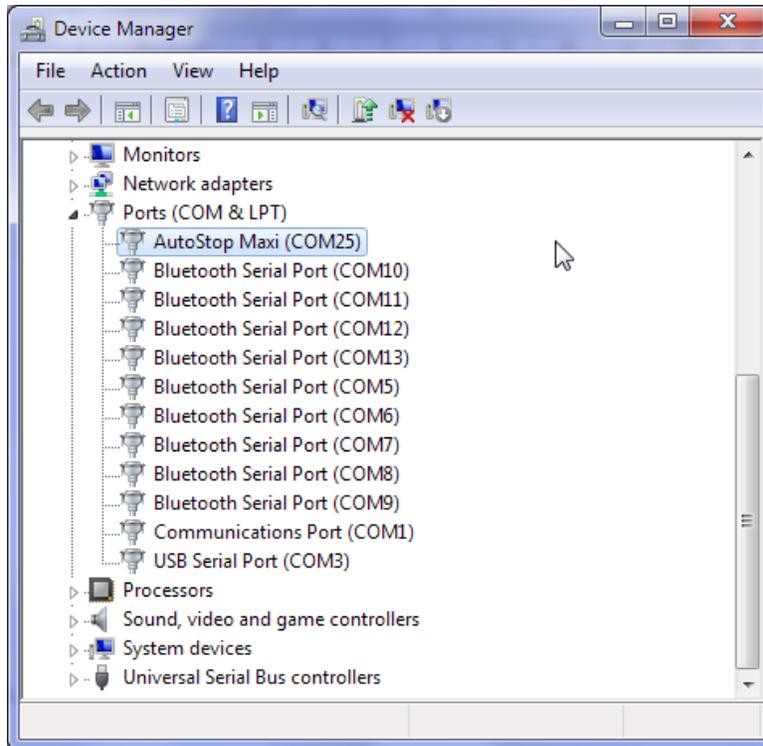
When the browse window is shown, select the USB driver folder located in the directory where the AutoStop Maxi/heavy datalogger software is installed. The default location would be “C:\Program Files (x86)\AutoTest\Maxi and Heavy Datalogger 1.7\USB drivers” on a 64-bit OS, or “C:\Program Files\AutoTest\Maxi and Heavy Datalogger 1.7\USB drivers” on a 32-bit system.



If the Windows displays a warning message, select “Install this driver software anyway”.



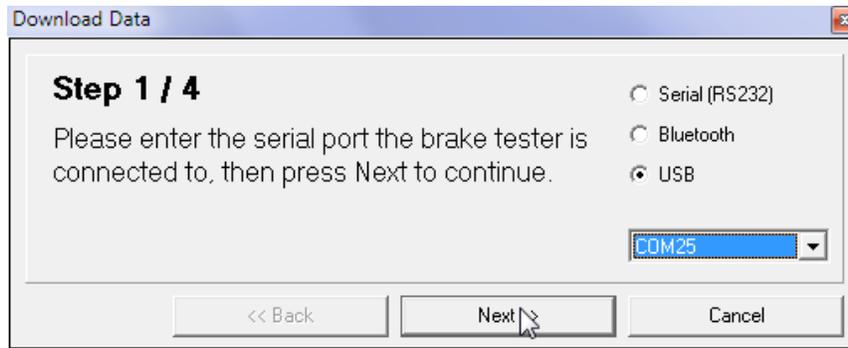
To verify the installation of the USB driver, locate “AutoStop Maxi/heavy” in the device manager under “Ports (COM & LPT)”. If the device drivers are successfully installed, there will be a COM port number written next to the device name. In the following example, the COM port number is “COM25”.



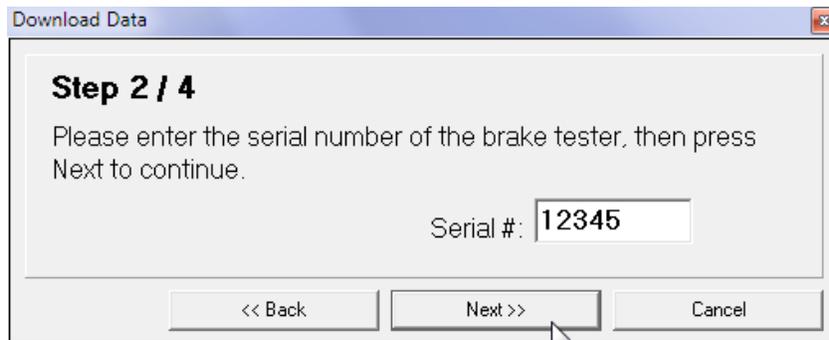
To download the results, open AutoStop Maxi/Heavy datalogger software and click on “Download test(s) from meter” button.



Select USB connection and its COM port number and then press Next.



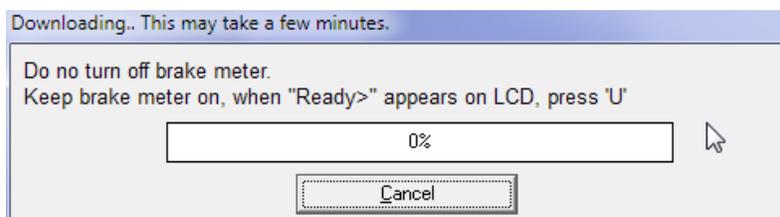
Enter the serial number of the meter and press Next. (Note that you must own a license for the Brake Meter, and have entered the License Code in the 'Add License' section of this program - see below for more information).



In step 3, enter any comments for the test and press Next. These comments will be saved in the output file. In step 4, switch ON the device if it is off.

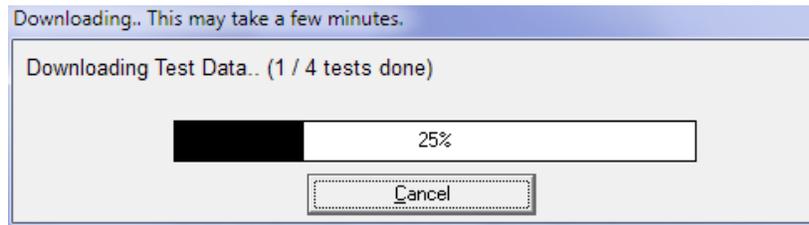


When the Brake Meter displays "Ready>" on the LCD screen, press 'U' from the keypad.



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If the connection is successful, the Brake Meter will display 'Data logging...' while the data is uploaded to the PC, then it will switch itself off.

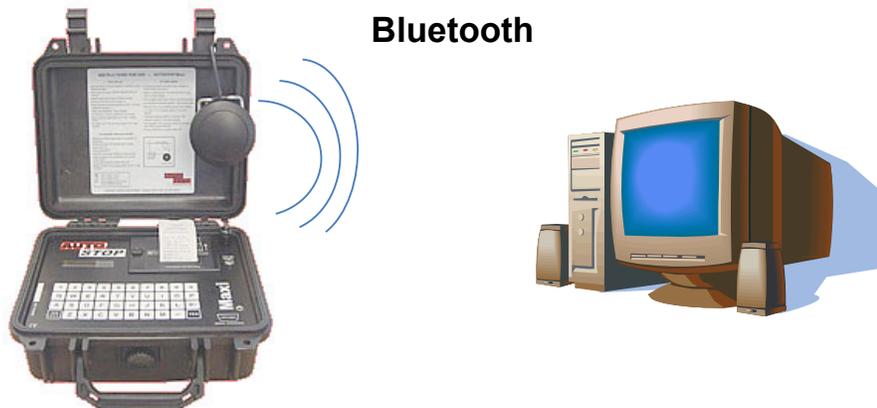


After the data is downloaded and displayed on the screen, click the 'More Data' button to see the full test data, or select Print from the toolbar to print the test and chart data to your printer.

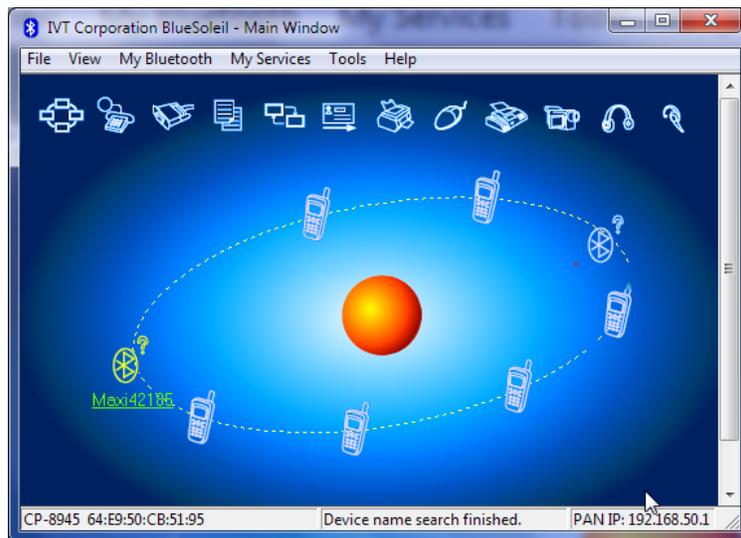
### 5.2.3 Downloading results via Bluetooth

Before connecting AutoStop Maxi/Heavy to PC using the Bluetooth interface, make sure the PC supports the Bluetooth connectivity.

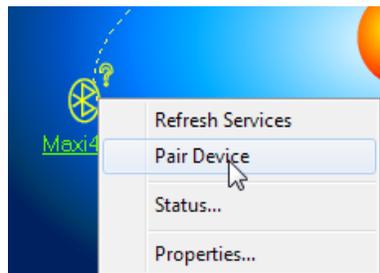
Once the Data Logger software is installed, run the software on the PC and switch ON the brake meter by pressing the ON/OFF key.



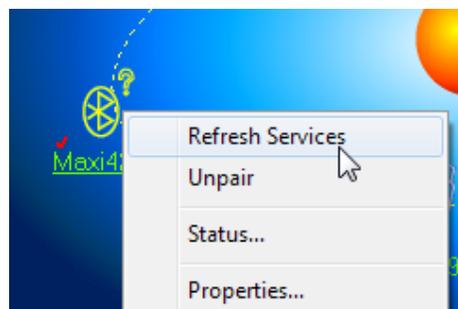
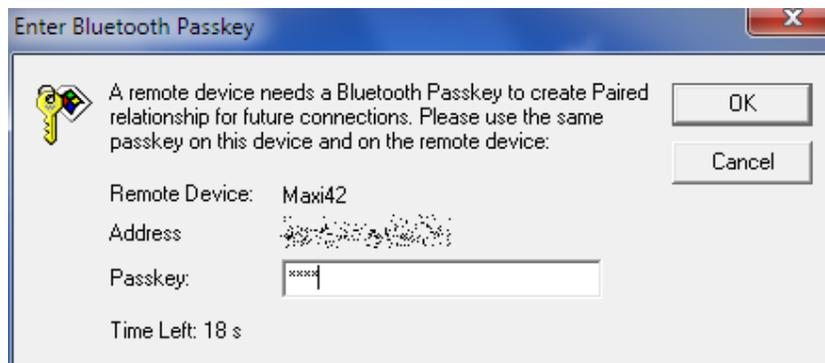
When connecting the Brake Meter for the first time using the Bluetooth interface, user will need to configure the Bluetooth connection. To configure the Bluetooth connection, open your Bluetooth manager program on your PC and search for Maxi##### device, where '#####' is the serial number of the brake meter.



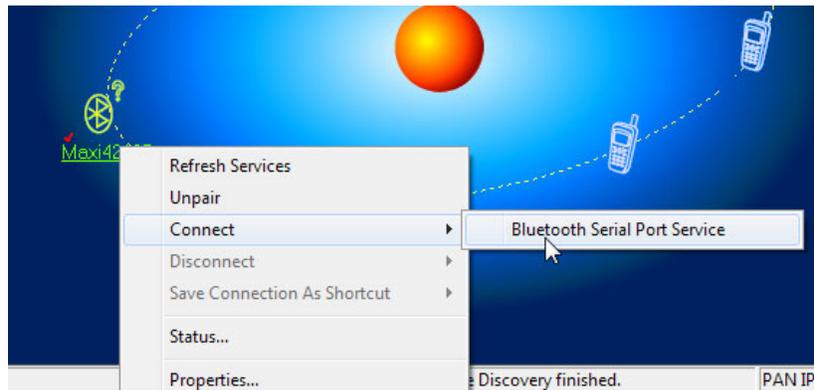
Select the device Maxi##### from the list of discovered Bluetooth devices and create pairing.



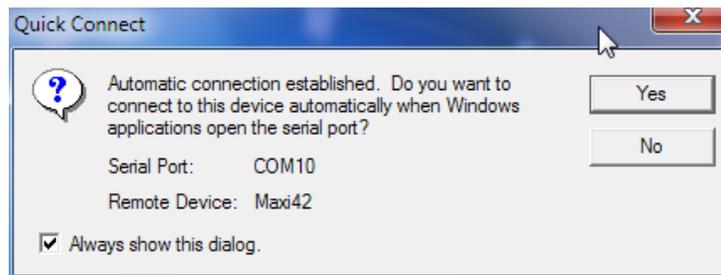
When prompted for the pairing code or pin number, enter "1234".



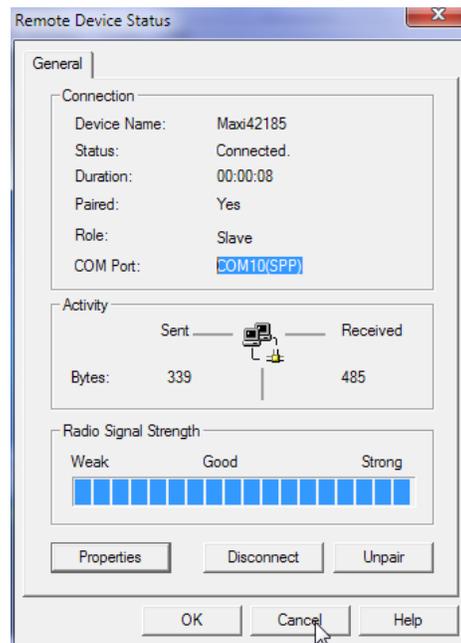
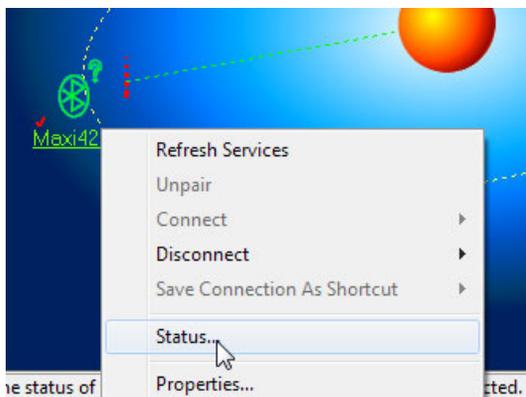
Once the pairing is established, refresh device services and connect using Bluetooth serial port service.



If the following message appears, press Yes.



Check Bluetooth status to obtain the serial port number.



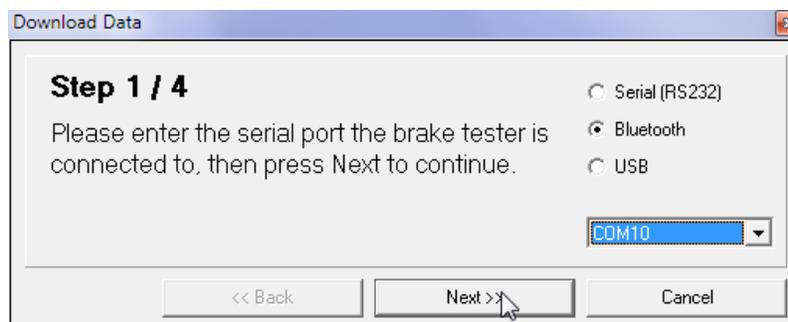
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The above mentioned screenshots may not be the same on every computer. For information regarding Bluetooth device pairing on your PC, please refer to the instruction manual of your Bluetooth managing application.

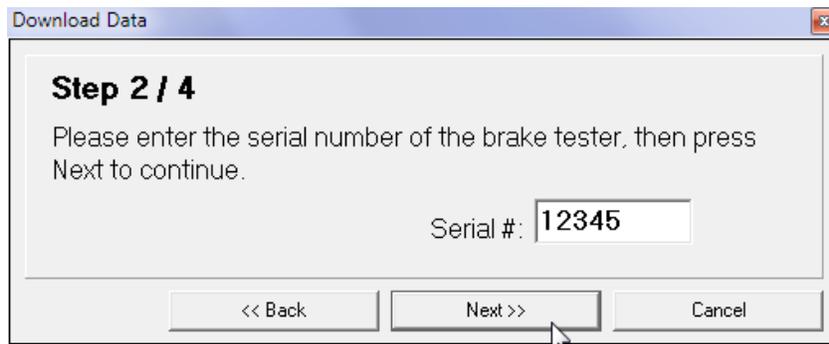
Once the Bluetooth connection is setup, the user can now download test results from the brake meter using the Bluetooth interface. To download the results, open AutoStop Maxi/Heavy datalogger software and click on “Download test(s) from meter” button.



Select Bluetooth connection and its COM port number and then press Next.



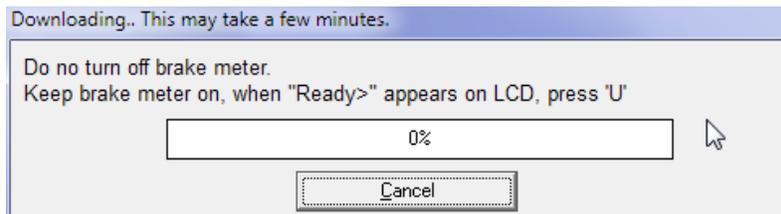
Enter the serial number of the meter and press Next. (Note that you must own a license for the Brake Meter, and have entered the License Code in the 'Add License' section of this program - see below for more information).



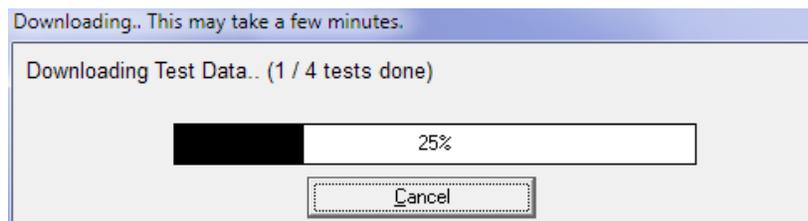
In step 3, enter any comments for the test and press Next. These comments will be saved in the output file. In step 4, make sure the brake meter is switched on then press Next.



When the Brake Meter displays “Ready>” on the LCD screen, press ‘U’ from the keypad.



If the connection is successful, the Brake Meter will display ‘Data logging...’ while the data is uploaded to the PC, then it will switch itself off.



After the data is downloaded and displayed on the screen, click the ‘More Data’ button to see the full test data, or select Print from the toolbar to print the test and chart data to your printer.

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## 5.2.4 Opening a previously saved log-file

- Step 1: Run the Heavy Data Logger software. Click the 'Open test(s)' button and use the mouse to select one or more tests to open. If you hold down the CTRL key you can select multiple tests.
- Step 2: The log-files will be opened and the first test will be displayed on screen. Use the buttons and the list at the top of the screen to view all the different tests or print the data.

## 6. CHECKING SENSORS AND OTHER FUNCTIONS

With the Brake Meter in Ready mode, the battery voltage, deceleration, pedal force, date and time can be checked. **Note:** None of these readings can be adjusted by the operator.

To:	Press	Screen Display
Check battery life	"B"	Bat. life: xxx % The Battery is considered flat when the percentage falls below 85%
Check calibration (Toggle between accelerometer & pedal sensor reading)	"C"  "C"	Cal: x.xx g Acceleration reading This should read close to 0.000 +/- 0.05 on a surface measured as being horizontal and +/- 1.000 +/- 0.05 when vertical Cal: xxx N Pedal Sensor reading - this should be within 20N of zero when no load is applied.
Check the date	"D"	Date: dd mmm yy
Check the time	"T"	Time: hh:mm:ss Note: The internal clock can be changed from Local Standard Time to Day Light Savings. After seeing "T" you may toggle between Standard and Day Light time by pressing "D". Daylight Savings time is indicated with "*".
Check printer feed	"P"	Paper advances until any key is pressed
Contrast on LCD Display	"O"	BL= on or BL = Off Contrast X. Backlight features are not standard (special order). The Contrast may be changed by pressing "U" to go up or "D" to go down. Pressing "E" will exit this function.
Test Printer	"N"	<b>Printing...</b> The built-in printer will printout a demo page. This function could be used to diagnose the printer.

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## 7. CALIBRATION PROCEDURE

The Brake Meter must be re-calibrated periodically. The reason for this is to maintain creditability in tests and acceptance of data according to international standards. Each time the unit is turned on, the LCD will show the date that the re-calibration is due. The calibration due date is also shown on all printouts and upload reports. At the time the unit is due for re-calibration, testing will not be possible. The LCD screen will show: "Calibration due! Contact your vendor for recalibration." Return Brake Meter to AutoTest Products (See Section 7.1).

### 7.1 Return of AutoStop Heavy for Calibration

#### 7.1.1 Packaging

The Brake Meter should be packaged in the original shipping container. However, where this container is not available, remember that you are shipping an electronic instrument. Bubble pack or foam should surround the Brake Tester and should be inserted into a sturdy cardboard box.

#### 7.1.2 Shipping

Labelling - A label noting "Electronic Device - Fragile" should be placed on the box. Freight Carrier - Container should be sent "**Freight Prepaid**". AutoTest Products has no preference on freight carriers. However, the unit should be forwarded by companies such as WARDS, IPEC, UPS, or Federal Express if a expedient delivery is required.

Ship to: The Service Department, AutoTest Products Pty Ltd, 61-63 parsons St, Kensington, Victoria 3031 Australia. Phone: +61 3 88403016.

#### 7.1.3 Documentation

A copy of the purchase order for re-calibration and a packing slip must be included with the shipment. It should note the Purchase Order Number, Date, Serial Number and the address where the unit should be returned to.

## 8. TROUBLESHOOTING

<b>Problem</b>	<b>Potential Cause &amp; Action Necessary</b>
Brake Meter will not turn on	Battery has discharged - charge battery for 12 to 16 hours. Battery charger has failed - check battery charger output with Multimeter, check condition of fittings. Battery or internal electronics have failed - return unit for servicing.
Brake Meter does not record keypad input.	Battery discharged - refer above
Brake Meter turns itself off during use	Battery discharged - refer above
No printout	Out of paper = remove printer cover plate and check paper roll. Refer Section 4
Printout illegible or hard to read	Printer ribbon needs replacing - refer Section 5
"Time out " displayed on printout	Unit not secured into position properly. Foot has been lifted from pedal before vehicle has stopped.
"MEM FAILED" is displayed when Brake Meter is switched ON.	Internal flash memory is not responding or it is faulty. Switch off the unit and return it for servicing.
"Format Mem? Y/N" is displayed when Brake Meter is switched ON.	Internal flash memory is corrupt or unreadable. Press 'N' key to skip formatting. Switch off the unit and return it for servicing. Note: if 'Y' key is pressed, all existing data might get erased.
"Reset All? Y/N" displayed when unit is switched ON.	Clock memory is corrupt. Clock battery is probably flat. Do NOT press 'Y'. Press 'N' and switch off the unit and return the unit for servicing.
"Accelerometer Fail!" displayed when unit is switched ON	Accelerometer chip is faulty. Return the unit for servicing.

For other problems, contact AutoTest Products or any Authorised Service Centre in Australia on (61 3) 88 403 000. Repairs should only be done by an Authorised AutoTest Service Centre in order to ensure the Brake Tester retains its calibration. Refer to Section 11 regarding warranty. For instructions on returning products for calibration or servicing, see Section 7.1.

## 9. SPECIFICATIONS

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## **AutoStop Heavy Brake Tester**

Battery	12 V. 1.9 AH fully sealed lead acid rechargeable
Charger Output	12 V DC, Centre positive, 300 mA
Pedal Sensor	Rated to less than +/- 1N over 0 to 1000N
Accelerometer	Rated to less than +/- 2% over -2.5 to 2.5g

### **Paper**

Wood-free paper	
Max roll diameter	50mm
Width	44.5mm (+/-0.5mm)
Thickness	0.06mm (+/-0.001mm)
Basic Weight	52.3gms (14lb/500 sheet 17"x22")

### **Ribbon**

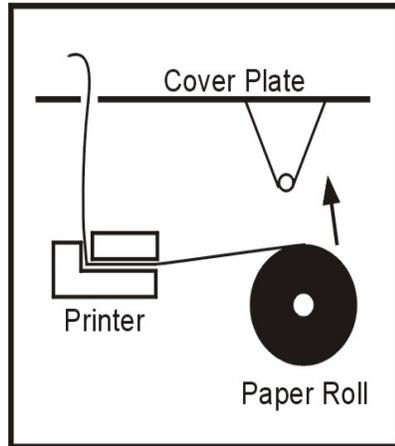
Epson type ERC-05	
Ribbon Life	Equivalent to 2 paper rolls
Print Speed	1.0 line/sec
Colour	Purple or Black
Dimensions	approx. 74mm (w) x 25mm (d) x 7mm (h)

**Note:** The use of proper paper is very important to the operation of the printer. Use of non-standard paper will jam the printer or wear the print head and will void the warranty. Paper and ribbons are available from AutoTest Products as a kit, containing 2 rolls of paper and one ribbon. The replacement of any other components must be carried out by AutoTest Products or an Authorised AutoTest Service Centre.

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## 10. CHANGING PAPER

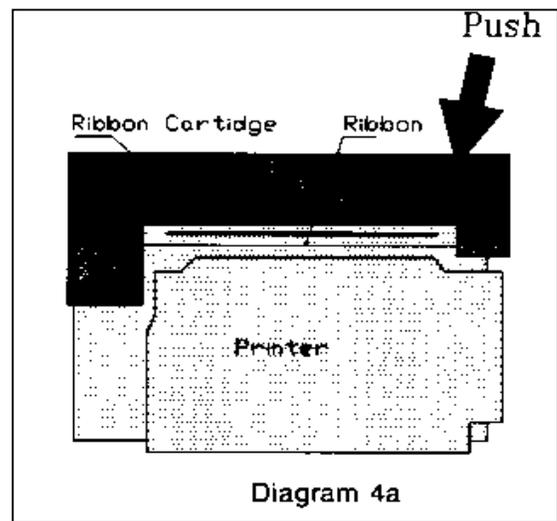
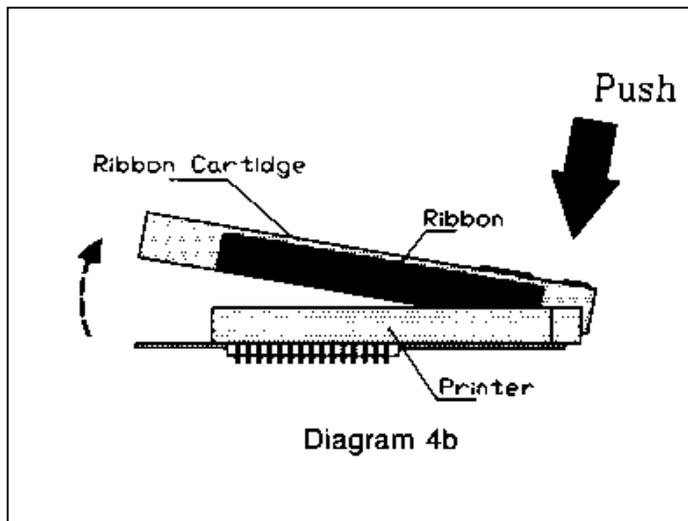
1. Switch the Brake Meter "On" and enter Examiner I.D. to get to the "Ready" mode.
2. Remove the printer cover plate on the top of the keypad by inserting a screwdriver in the buttons and twisting through 90 degrees.
3. Lift out printer cover plate, empty paper roll.



4. Tear off any remaining paper. With the Brake Meter turned on and at the "Ready" mode, press the "P" key on the keyboard to feed any remaining paper through the printer.
5. Press any key to halt paper feed.
6. Remove the old paper core and spindle by gently springing apart the sides of the paper holder. Discard the paper core.
7. Prepare a clean starting edge on the new roll by cutting off the top of the paper.
8. Mount the paper roll on the spindle and load into the paper holder in the orientation shown on the printer cover.
9. Feed the edge of the paper into the printer, press the "P" key on the keypad (at the Ready mode) to feed paper through the printer. Feed 50 to 75mm through the printer.
10. Press any key to halt paper feed
11. Wind up any slack in the paper roll, replace the printer cover plate fitted with the new paper roll and press the hold-down buttons home. Note: The buttons must be correctly aligned before they will click home.
12. Press "Off" when complete.
13. It is important that the paper is of an approved type. Use of an unapproved paper will damage the printer mechanism and void warranty.

## 11. CHANGING PRINTER RIBBON

1. It is recommended that a new printer ribbon be fitted for every two paper rolls consumed.
2. Remove the printer cover plate by following steps 1-3 for changing the paper roll.
3. Gently push down on the right-hand side of the printer ribbon (the word PUSH is embossed on the ribbon cartridge. The left side will flip up and the ribbon may be removed from the printer.
4. Replace the ribbon in the same orientation; with the ribbon facing towards the keypad and the word "PUSH" and "EJECT" on the right-hand side. Locate the left-hand side of the ribbon cartridge in position first, with the ribbon fitting between the metal plate and paper feed guide.
5. Wind up any slack in the paper roll, replace the printer cover plate fitted with the new paper roll and press the hold-down buttons home. Note: The buttons must be correctly aligned before they will click home.
6. Press "Off" when complete.



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## 12. WARRANTY

To ensure prompt warranty service should it be required, please complete warranty registration form, and return to AutoTest Products Pty Ltd within 10 days of purchase of the product.

AutoTest Products Pty Ltd or any Authorised AutoTest Service Centre warrants this product against defects in material and workmanship for a period of 12 months from the original date of purchase. This warranty applies only to products and components supplied by AutoTest Products which can be identified by the trade name or logo affixed to them or by other documents. AutoTest Products does not warrant any products not supplied by AutoTest Products.

**Note:** The use of proper paper is very important to the operation of the printer. Use of non-standard paper will jam the printer and/or wear the print head. Use of non-standard paper will void the warranty. Paper and printer ribbon cartridge are available from AutoTest Products.

During the warranty period, AutoTest Products or any Authorised Service Centre will repair (or at its option replace) any defective component(s) without charge for parts or labour, provided the product is freight prepaid to an authorised AutoTest Service Centre. Transit insurance and return freight will be at the owner's expense.

To obtain calibration, warranty, or non-warranty service, ship the product, freight and insurance prepaid to your nearest AutoTest Service Centre. Attach to the product your name, address, contact phone numbers, description of the problem and if a warranty claim, proof of purchase (dated sales receipt or invoice).

AutoTest Products or any Authorised AutoTest Service Centre reserves the right to refuse warranty repair if accident, abuse, misuse, or misapplication has damaged the product. In transit or as a result of service or modification by other than an Authorised Service Centre, nor are any other warranties expressed or implied, including any regarding merchantability or fitness for any other particular purpose.

AutoTest Products or any Authorised Service Centre is not responsible for incidental or consequential damages resulting from the breach of any express or implied warranty, including damage to property and, to the extent permitted by law, damages for personal injury.

(Express exclusions from warranty) Unless otherwise specified, this warranty does not cover:

- a) modified, abused, neglected, accidentally damaged or excessively worn products, or products that have become damaged or defective as a result of improper use;
- b) repairs attempted or made by other than our regional repair centre or authorised warranty service centre.
- c) conditions or malfunctions caused by the reasonable effects of fair wear and tear or the malfunction of normally wearing parts, which include but are not limited to: Batteries, plugs and leads;
- d) consumable items, such as batteries (beyond 6 months from date of purchase);
- e) AutoTest products that are not distributed through AutoTest's authorised distributors and resellers.

(Warranty non-transferrable) This warranty is not transferrable beyond the original purchaser.

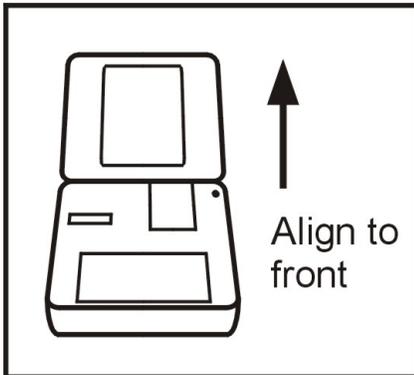
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## 13. QUICK GUIDE

### After Unpacking

Charge the battery for 10 hours before initial use. The battery charger input is located to the right of the printer. With proper care and use, the battery should last between two and five years. It is recommended to recharge the battery nightly if the AutoStop Brake Tester is used regularly. Only an approved battery charger with the correct voltage, waveform and terminal polarity should be used. The battery must never be allowed to fully discharge as it will void the warranty.

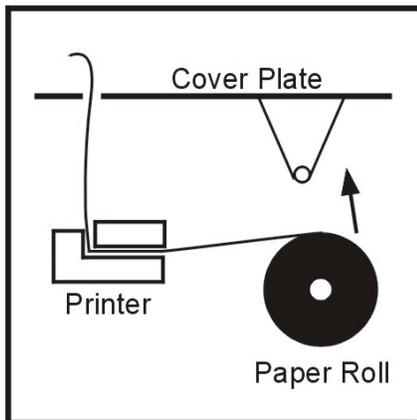
### Set-Up & Testing



1. Secure AutoStop Heavy in vehicle and attach pedal sensor to brake pedal. This will vary from vehicle to vehicle; a mounting bracket or straps may be used.
2. Press "ON".
3. Enter Examiner ID and press "Yes".
4. Remove pressure from pedal sensor. Processor measures zero level of the pedal sensor.
5. Press "Yes" again.
6. Mistakes may be corrected by using the "<" or backspace key.
7. At the "Ready>" prompt, press "I" to initiate test. Enter the vehicle registration number (or VIN number) and press "Yes".
8. Svc/Emrg? S/E. Select Service (S) or Emergency (E) test.

9. Ensure it is safe to run the test.
10. Before starting or repeating the test, remove foot from pedal sensor and brake pedal.
11. Press "C" to commence the test (or "R" to reset/abort).
12. Accelerate to speed and stop when safe.
13. Press "Y" to save or "N" to not save the results (if Brake Tester has data logging option).
14. Press "Y" to print or "N" to skip printing a duplicate.
15. Press "Y" to repeat test, "N" to end test.
16. Press "OFF".

### Change Paper



1. Remove printer cover from panel.
2. Remove paper roll spindle from cradle.
3. Load new roll (see 'Paper Specifications' regarding special paper).
4. Press "ON".
5. Enter Examiner ID and press "Yes".
6. Press "P" to feed paper through printer.
7. Press any key to halt paper feed
8. Replace paper roll assembly and printer cover.
9. Press "OFF".

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## NOTES:

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