

**Multistrada 1200 MultiToolLite 1.3**

Updated – JULY 30th, 2014 – GooglePlay Version 3

Manual – 22nd Apr 2015

**BETA TESTING**

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## Introduction

Please note: The App and this document is still a "Work In Progress"...

Very simply, MultiTool Lite will reset your service warning light and help you wind the Odometer forward if you have had to replace the dashboard.

## Uses BlueTooth or Android Compatible WiFi ELM327

BlueTooth ELM327's are everywhere these days.

If going down the WiFi route, be cautious about which WiFi ELM you purchase. It must be an Android compatible type (ie supports Infrastructure Mode, not Ad Hoc mode).

BlueTooth is more common, but the WiFi adapter has some advantage in terms of distance or range.

A downside of the WiFi one is that if it isn't being used, it eventually goes into power saving mode and needs to be unplugged and reconnect it to start it up again.

<p>Blue Tooth OBDII diagnostic dongles are available "frickin' everywhere", ranging in price from about \$10AU upwards.</p> <p>In theory the more expensive ones *may* work better, however all development work for this project has been with 'cheap' knock-offs from China sourced off EBAY.</p> <p>These must be ELM327 devices (V1.4 or later)</p> <p>My personally view is bigger is better, as bigger *may* have a bigger antennae</p>	
<p>More recently, some WiFi ELM's have become available that do support Infrastructure connections.</p> <p><b>CAUTION:</b> WiFi dongle must support infrastructure connections, because Android cannot make use of AdHoc only WiFi dongles.</p> <p>Eg: The <b>AutoDoctor007</b> works great !</p>	

**CAUTION:** leaving the dongle attached to the bike will eventually drain the battery unless the bike is ridden or charged regularly.

## What's it do ?

From your Android Phone:

- Reset the Oil Service warning (also resets Desmo for pre 2012 Multi's)
- Reset the Desmo Service warning (2012 Multi's onwards)
- Can wind the Odometer forward (at about 500 kph )

## Main Requirements

This then brings us to the requirements for this Application.

- Android, plain and simple ! (note: root kitted phones and other OS's may not work correctly)
- Android 2.2 or later with BlueTooth or WiFi supported.
- A BlueTooth or WiFi OBDII diagnostic adapter (ELM327 or STN1110)
- It's preferable if you can power the phone externally, if you plan on using it for extended periods during Odo Winding. (see Known issues for advice on screen settings).

Please note that the App was developed for use on a smart phone. The screen layout as such, is PORTRAIT, to suit the shape of a phone.

This leads to a useability issue if trying to use an Android based PC.

MultiTool Group member ChrisW has found an app that will rotate the screen for you to work around this issue. The app suggested is 'Smart Rotator'.

Nice work Chris !

## Other Products

MultiTool Lite is a cut down version of MultiTool TB, which is designed to work in conjunction with a TuneBoy flashed ECU.

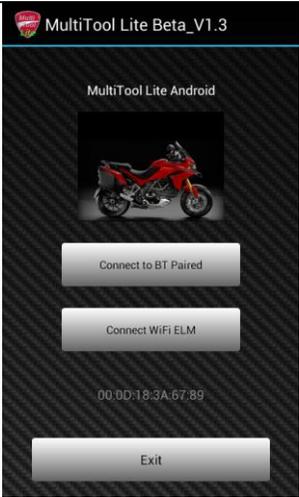
**MultiTool Lite does not require a TuneBoy flashed ECU.**

The differences are described here :

	Data	TuneBoy Trim	MultiTool TB	MultiTool Lite	MultiTool decaf
<p>Ultimately, <b>TuneBoyTrim</b> is the tool to use if you want to record ALL of the performance data.</p> <p>The <b>MultiTool TB</b> records a subset.</p> <p>However the MultiTool also records information w.r.t. the CC function, as well as GPS position data.</p> <p><b>MultiTool Lite</b> does not require a TuneBoy ECU as it only sends Dash commands.</p>	WINDOWS	ANDROID	ANDROID	ANDROID	WINDOWS
	RPM				
	Throttle Position %				
	Air Fuel ratio				
	Speed				
	Fuel Trims				
	Ign Trims				
	Air temp				
	Engine temp				
	ECU flags				
	CC set speed				
	CC RES speed				
	Gear				
	Last nudge button pushed				
	Kill pressure				
	Blip pressure				
	Manifold Air Pressure				
	Throttle Position Trim				
	Total Fuel Value				
	Ign Advance				
	GPS satellites				
	GPS Longitude				
	GPS Latitude				
	GPS SPEED				
	RPM break points				
	ODO wind forward				
	Service Resets Multistrada				
	Service Resets Panagale				Not tested
Service Resets Diavel				Not tested	
TPS reset				Not tested	
APS reset				Not tested	
PIN erase				Not tested	
ELM327 reset					
Query supported PID's					

## The Screens Explained

### Start Screen Main buttons

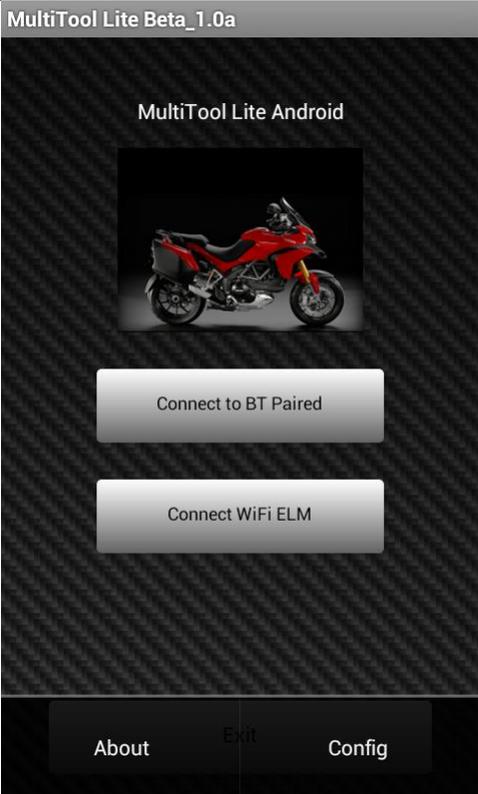
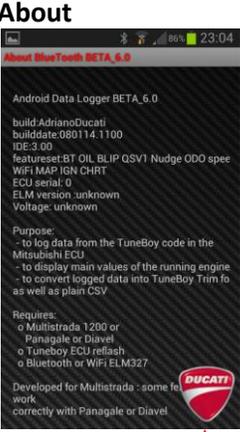
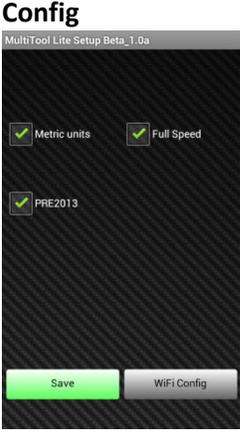
<p>The start Screen gives you several options :</p> <p><b>Connect to BT Paired</b> : connects to a BlueTooth device you have already paired with.</p> <p>If you have previously connected to a BT device, then the MAC address is displayed. A 'long press' of the 'Connect to BT paired' button will connect to this device without resorting to the picklist of paired devices.</p> <p><b>Connect to WiFi ELM</b> : connects to a WiFi ELM device.</p>	
<p>While the phone is connecting to your ELM, a BLUE field will appear for BT connections and a GREEN field will appear for WiFi connections...</p>	

#### **Additional Notes :**

Although the BlueTooth ELM327 powers up when plugged into the bike, and you can 'pair' and connect to it with your phone, the application won't actually 'connect' unless the bike is powered on. (Key On).

- **WiFi** users need to note that the WiFi ELM must support 'Infrastructure' mode connections (Not just AdHoc).
- **WiFi** users must make the phone connect to the Wifi device when it has powered up.
- **CAUTION** Leaving the BT or WiFi dongle attached to the bike will drain your battery regardless of manufacturer's sleep modes.

Start Screen 'Soft Menu' buttons

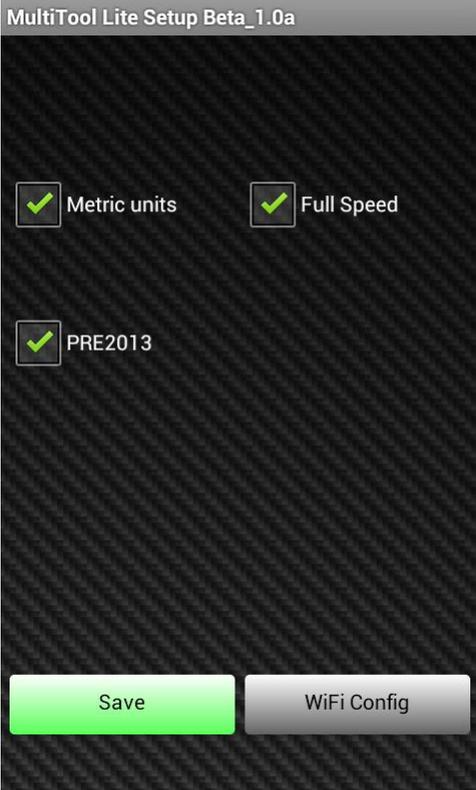
<p><b>Two extra functions exist via Androids 'soft' menu button.</b></p> <p><b>About :</b> Help and About.</p> <p><b>Config:</b> Allows some personal customization of this application.</p>	
<p><b>ABOUT</b> offers some info about your device, the Application and your session stats.</p> <p>*Click the Ducati Logo for Web Help.</p>	
<p><b>CONFIG</b> allows setting of some program defaults</p>	 <p>Tap to access Web Help</p>

**Additional Notes :**

## Configuration Screen

This allows the persistent configuration of various 'personal' features for the App.

Configurable features include :

<p><b>Metric units</b> (Imperial if not ticked)</p> <p><b>Full Speed</b> (Winds ODO at aprox 500kph) Otherwise 299kph is used...</p> <p><b>PRE2013</b> is used in calculating the speed for ODO If you have a pre2013 model you need to check this ON.</p> <p><b>WiFi Config</b> takes you to the WiFi Config Screen.</p>	
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### Additional Notes :

MultiToolLite has no idea what bike you have.!

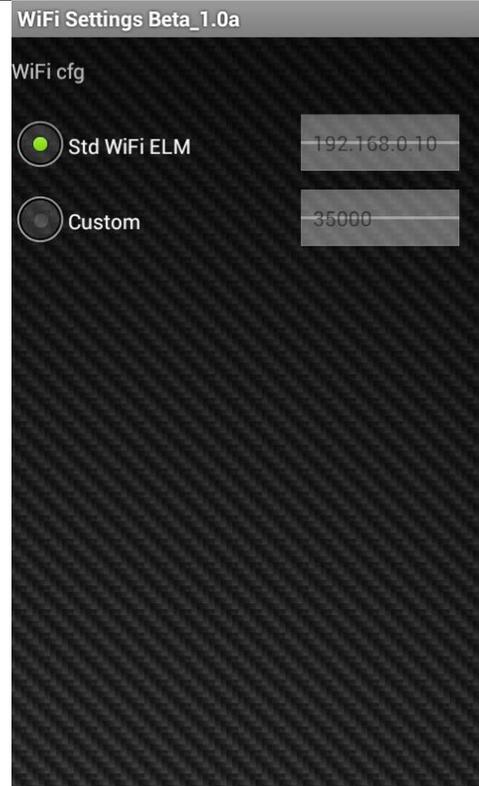
## WiFi Settings

One default WiFi device setting is provided.

A 'custom' setting is available, if you have a weird WiFi device that uses a different IP and or port.  
(See your devices instructions w.r.t. IP address and TCP port)

I have had good results with the AutoDoctor007 with the one exception that it goes to sleep if you're not using it, and needs a power reset to wake it up.

Don't forget, you need to connect your phone to the devices WiFi network.



### Additional Notes :

The AutoDoctor has one annoying habit.

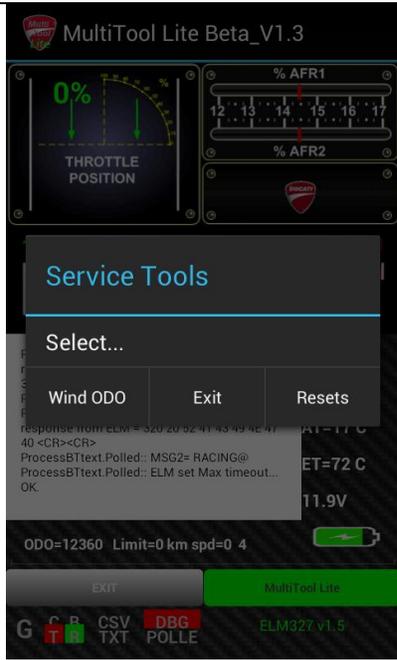
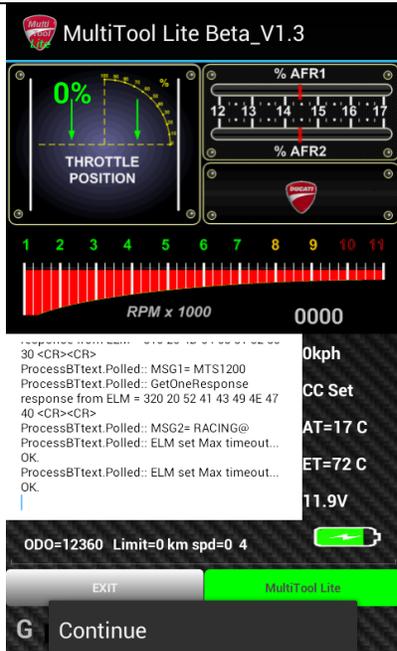
If you don't actively use it for a period of time, it goes into PowerSaving mode, which :

- drops your WiFi link to the bike
- requires a power reset to wake up.

I've also found that even in sleep mode, after being connected to the bike for 3-4 days straight without running the bike, I had lost enough charge that I couldn't start the bike ... Doh !

## Tools Choice ?

From the main screen , simply connecting to the bike will open the Other Tools choice box.

<p>The 'Other Tools' option presents as a dialog box with three options.</p> <p><b>Resets :</b> Service reset commands</p> <p><b>Exit :</b> Steps back to the main screen.</p> <p><b>Wind ODO :</b> Wind the ODO forward at approx 500kph until specified target is reached.</p> <p>These options do not require a TuneBoy flashed ECU.</p>	
<p>Occasionally the App returns to the main screen but does not display the pop-up box.</p> <p>As a workaround, the phone MENU button will display a 'Continue' command to force the pop-up.</p> <p>Note also, the main screen now displays :</p> <ul style="list-style-type: none"> <li>• Current ODO reading</li> <li>• Current Engine Temp</li> <li>• Current Air Temp</li> <li>• and phone battery state</li> </ul> <p>as well as has the Rx LED re-instated.</p>	

**Additional Notes :**

## Bike Resets

Simply select the reset you want, and hit Reset it!

Some of these command are bike model/year specific, and most are NOT TESTED fully.

**OIL** resets both OIL and Desmo on pre 2013 Multi's

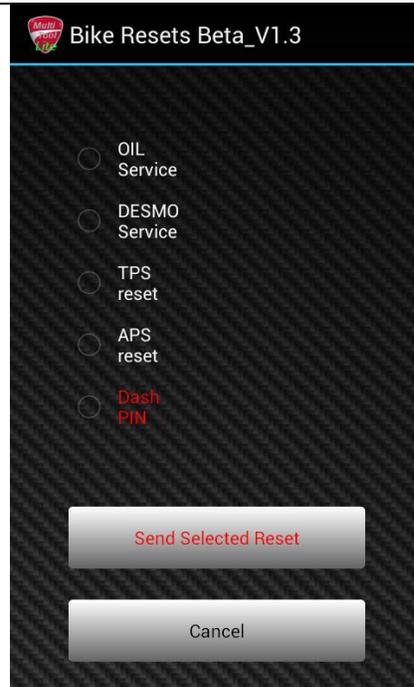
2013 and later Multi's use specific commands for each.

Dash PIN works on my 2010-11 test bed.  
This sets the dash back to NO PIN so you can enter a new one. (not tried on an actual bike yet)

TPS, APS, and AFT also need to be confirmed.

The TB test's simply open the Throttle Bodies to that % amount for a few seconds.

For the obvious reasons, MultiTool expects you are NOT running the engine at the time.



### Additional Notes :

#### Service Resets

It is NOT possible to reset your service interval warning before it has appeared.

le: You can only reset it once you have reached a service interval, and the warning has actually been displayed. (You cannot accidentally reset it in advanced).

#### General

Some of the RESET commands are bike/model specific. I own only a single 2010 Multi.

	OIL	DESMO	TB10%	TB50%	TB100%	PIN	TPS	APS
<b>Multi 2010</b>	OK	OK	OK	OK	OK	TBD	not tested	not tested
<b>Multi 2013</b>	OK	OK	not tested					
<b>Panigale</b>	not tested							
<b>Diavel</b>	not tested							

## ELM327 Resets

The ELM327 can get quite confused especially if the device is used with other apps...

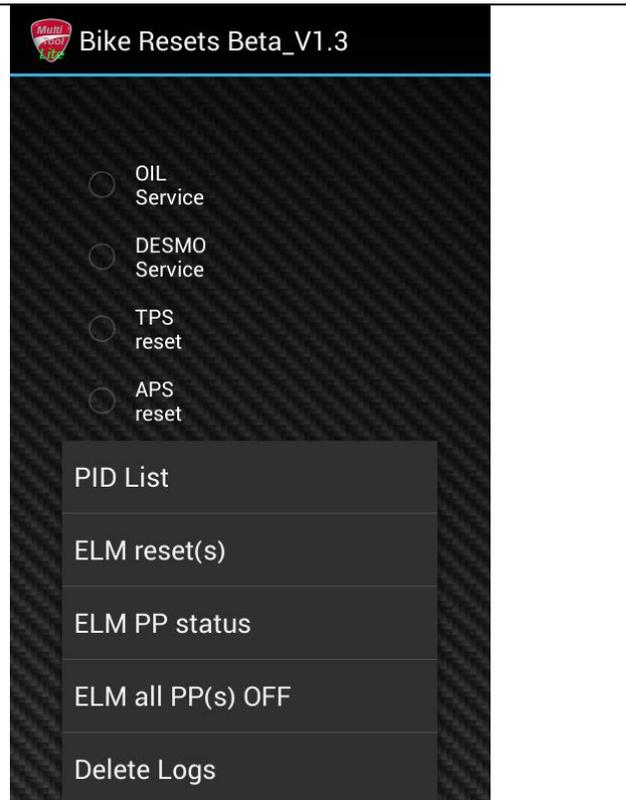
I have added the main RESET commands to help get the ELM327 back to a known state if required.

ELM327 reset commands are access from the phone MENU button when the Resets screen is displayed

In addition, as the app now creates a detailed log file every time it is run, there is a button now to delete the log files.

(Note, there will always be at least ONE log file in existence)...

- **PID list** = list the supported PID's
- **ELM resets** = generic ELM327 reset commands
- **ELM PP status** = show the PP registers
- **ELM all PP's OFF** = turn OFF all PP registers
- **Delete logs** = delete log files



### Additional Notes :

## ODO winder function

A common complaint on early Multi's is the DASH being replaced, and the service intervals now being out of step. This function allows you to wind your ODO forward

Selecting this option will ask if you really want to do this .. Even if you say YES, you can still back out and do nothing.

The feature will next ask you to enter your **TARGET** mileage and **GO**.

Pressing **GO** will take you back to the Main Logging screen, and the status of the ODO winding is reported on the Status Line.

Winding stops when the **target Odo** is reached (usually). And can be stopped manually if required. (Even just exiting the App will stop the winder)

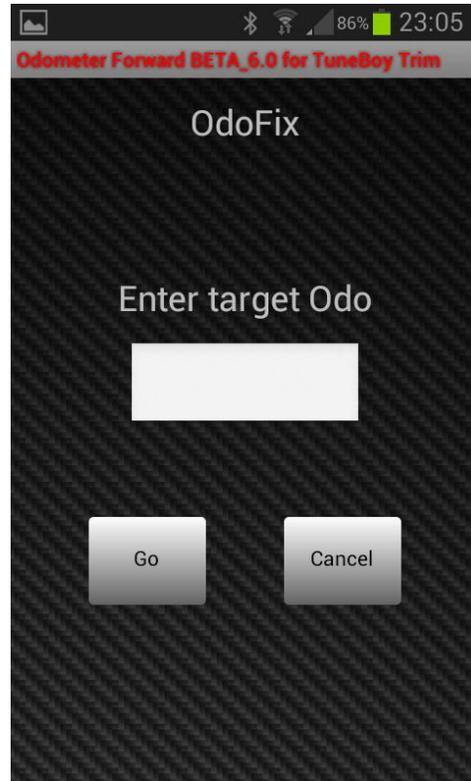
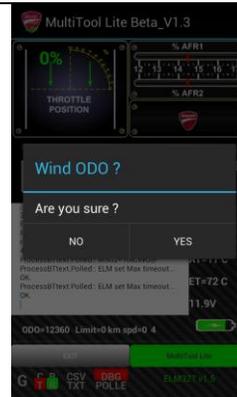
### IMPORTANT!!

Winding the ODO needs to have the bikes **BBS** computer disconnected, and the bike jumpered to stay on.

See Appendix: **Disconnect BBS**

**NOTE:** 500kph sounds fast, but if you have 10,000km to catch up... this will take 20 hours! (Do it in manageable chunks over a few evenings).

*Note: The TARGET Odo value is not dependant on your settings w.r.t. Miles or Km's. It just the value displayed on the dash regardless of the units.  
Ie: you don't have to convert anything.*



### Additional Notes :

See below for comments on how to disconnect the BBS and jumpering the bike to stay on.

**WARNING** : The ODO can only be wound forward. You CANNOT wind it back. (Use caution. Be alert)

**WARNING** : You cannot wind past 99,999. The dash stops there and you need a new dash (again).

## Installation

Now that you've read all about it, why not get it ?

- Simply Download the App from Google's Play Store.
- Connecting the BT or WiFi hardware to the bike, is simply done by using an adapter cable that connects the device to your bikes 4-pin diagnostic connector.
- TuneBoy users can use the same adapter cable that came with your TuneBoy hardware.
- **NOTE:** Non TuneBoy users will have to **make their own** adapter cable. (see "Make your own Adapter Cable" below)

### Note about the BETA test download

As the application is flagged as a BETA in the Play Store, it is only available, (visible), to users that have opted to sign up to the MultiTool Google Group.

Either place a join request via Google Groups, or email me directly and I can add you as a direct add member.

Once you are signed up, make sure your phone or tablet is signed in to google with the ID you registered into the group, and follow the links for access at <http://www.madcogz.com/MultiToolLite>

If I get enough feedback from the testers as to the usability, I can promote the App from Beta to Production, and the whole 'need to be registered' thing goes away ....

### Installing the APK file on your Android

Get it from the Google Play store:

As the App is still BETA, only subscribed/registered users can follow the download links from <http://www.madcogz.com/MultitoolLite>

### Connecting the hardware

You will need to make or source an adapter cable to go from the 4pin Ducati Diagnostic connector to the 16 pin OBDII connector. Now plug your BlueTooth or WiFi ELM327 into the ODBII port.

It should power up straight away, and you can 'pair' and connect to it with your phone.



*(Photos Courtesy Paul Doty: many thanks )*

## Make your own Adapter Cable

- TuneBoy users can use the same adapter cable that came with your TuneBoy hardware.
- **NOTE:** Non TuneBoy users will have to **make their own** adapter cable.
- Or simply **buy** one. Contact [Sales@tuneboy.com.au](mailto:Sales@tuneboy.com.au)

An adapter cable will be needed to go between the Diagnostic plug and your ELM327.

A suggested cct is provided.

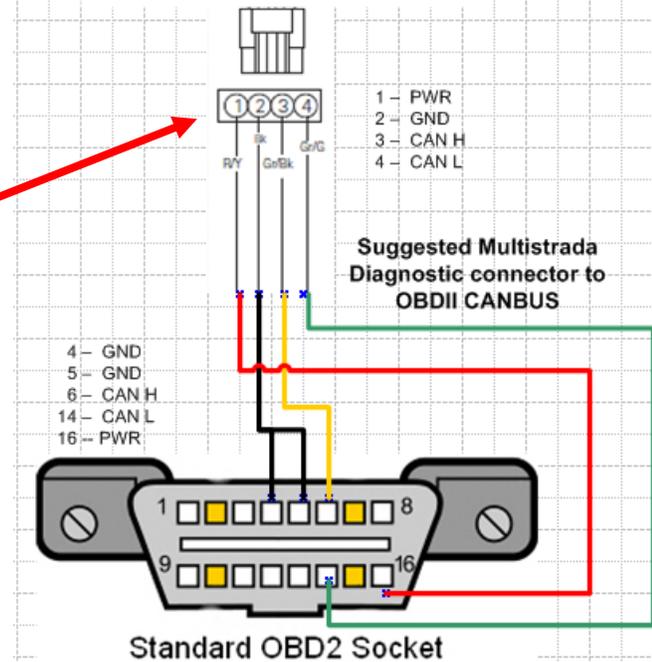
The 4-ping plug required is a :  
4w Sicma Miniseal Male Black 1.5mm  
By DELPHI

Any standard OBD2 socket can be used.

**Warning:** Pin1 (PWR) is always live on the bike.

**Warning:** Be very careful of the pin out.

Test it carefully with a multi meter before connection.



**Warning:** You are making this cable of your own free will.

**Warning:** the PWR pin is always live (+12v), even if the bike is off.

**Warning:** the color codes in the diagram are simply to allow for easier reading and may have **NO RESEMBLANCE to the colors of the wires in the cable you have purchased.**

The 4-ping plug required is a :  
4w Sicma Miniseal Male Black 1.5mm  
By DELPHI



## Reporting Problems

You can email the group at [MultiTool@googlegroups.com](mailto:MultiTool@googlegroups.com) for group therapy.

Or you can email me directly at [witcieslik@gmail.com](mailto:witcieslik@gmail.com)

I will only respond if you provide me with enough details. (This is not my dayjob!)

### Download/install issues

- Google Group ID
- Phone model
- Version of Android

### Application Issues

- Google Group ID
- Version of APP
- Bike model and year
- Phone model
- Version of Android
- Particular function not working
- Description
- LogFile(s)

### DEBUG log file

The debug log files are stored on the phone under :

- \Phone\Android\data\com.MultiToolLite\files

Eg: When the phone is attached to my laptop it appears as

- Computer\GT-I9100T\Phone\Android\data\com.MultiToolLite\files

### Personal issues

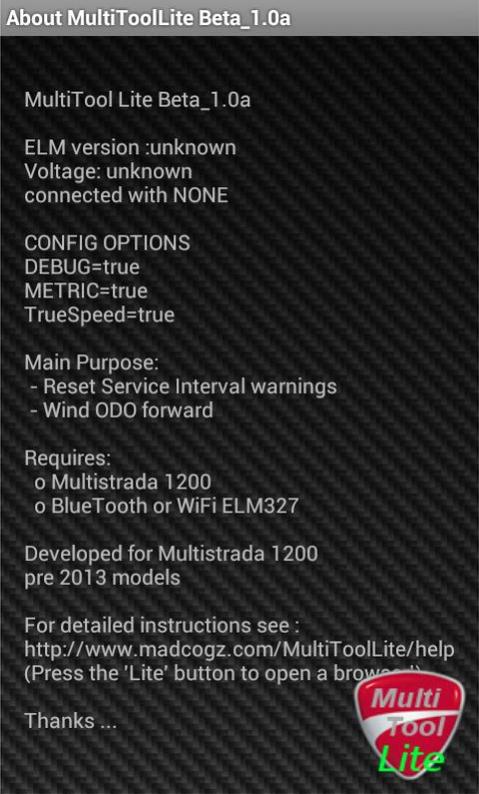
- See your doctor

## Acknowledgments

This App would not have been possible without the patience, support and guidance of **Wayne from TuneBoy.com.au**, in providing the data, and much advice and education and seeding the desire to learn more about using the ELM 327 and Canbus operation, especially for our Multi's.

## Appendices

### Appendix: About

<p><b>Help and About</b> From the main screen a soft button will access the 'About' screen.</p> <p><b>Help</b> A click of the MultiTool Lite button will open a browser session to the on-line help at : <a href="http://www.madcogz.com/MultiTool/help">http://www.madcogz.com/MultiTool/help</a></p>	
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**Additional Notes :**

- Touch the Ducati Icon to open a browser to the On-Line help at <http://www.madcogz.com/MultiTool/help>

## Appendix: BBS Disconnection

To make use of the ODO winding feature, you must first **disconnect the BBS**.

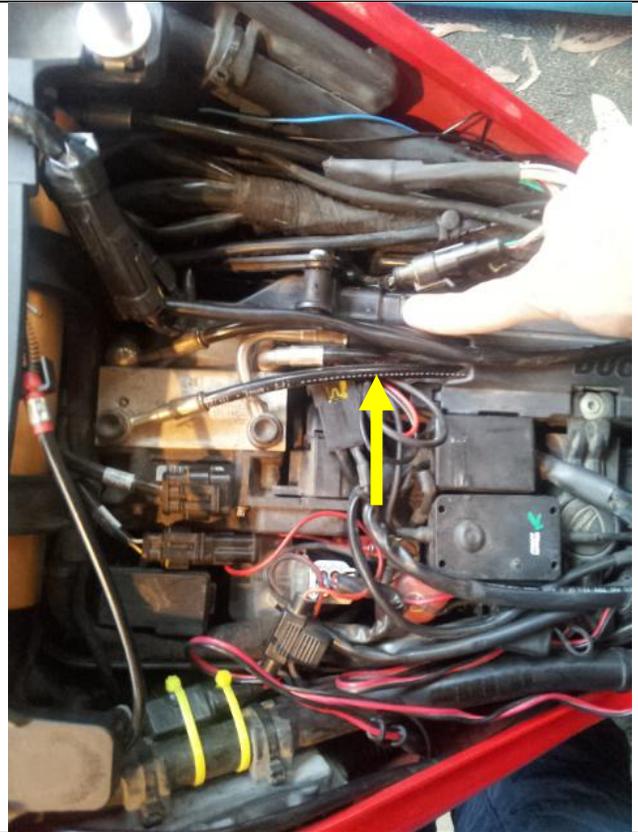
To disconnect the BBS, simply unplug the connector my, overexposed, finger is on. (see photo)

This connector has a 'push' tab on it's face, facing the center of the bike.

To release it, reach under the plastic duct and push the tab, with a finger, outwards to the LHS of the bike, while wiggling the connector itself, forward, and off.

ie: push tab in direction of arrow in photo...

**Do not try and start your bike with the BBS disconnected !!!**



**And keeping the bike powered on.**

If you turn the bike on but don't have it running, it will shut down again after only a few minutes.

One trick to keep it 'ON' is to jumper a wire from the +ve terminal of the battery to the +ve lead in the Accessory Socket. (ie the center pin).

You can easily make a jumper lead using a merit plug and an alligator clip.

### **Warning**

Obviously if you get this wrong you could blow a fuse or something even worse...

## Appendix: Version History

My Version	Google PlayStore Version	Comment
1.0	1	- 1 <sup>st</sup> Beta release – published via Google Play Store
1.2	2	- Higher reliance on reading responses from ELM - Read Air Temp, Eng Temp from CANBUS - More debugging info - ELM version displayed on screen - Android 5 support
1.3	3	- Re-instate Rx LED and phone battery status - Add BT connect to last device (long press) - Show MAC of last BT device - All CANBUS data now requested with headers to aid in debugging - Much more debugging info - ELM reset commands (Phone Menu button in Resets screen) - Continue button (Phone menu in main screen)
		-

## Appendix: Tested with :

The following Android devices are undergoing testing.

Phone	CPU	speed	API		Android	
Samsung Galaxy S2 (GT-I9100)	Dual core, ARM	1200 MHz	15	ICS	4.0.3	Wit
Samsung Galaxy S2 (GT-I9100T)	Cortex-A9					