

How To: Super Duty Diagnosis on the Cheap!

This will be a multi-part write-up, covering how to diagnose, monitor, and run tests on Ford Super Duty Trucks, focusing on the Ford 7.3L Super Duty as that is the truck that I own, but these tools work for all Super Duty Trucks.

The write-up will go as follows:

PC Based Diagnosis Testing and monitoring with Forscan

Android Based Diagnosis with Forscan Lite

Android based Monitoring with Torque Pro

Android based Self Tests with CarGauge Pro

I will be posting these over the next few days. Starting with PC based Diagnosis.

Part 1: PC Based Diagnosis with Forscan

Everyone on this site has heard of AutoEnginuity, It really is an awesome tool, but when I first heard about it I thought it was crazy, I am a big proponent of Open Source Software and decided to see if there was something cheap or free that would work.

Forscan is a piece of free software that I found, it is not open source, but it works really well.

Now on to the how to!

Required Items:

Laptop PC

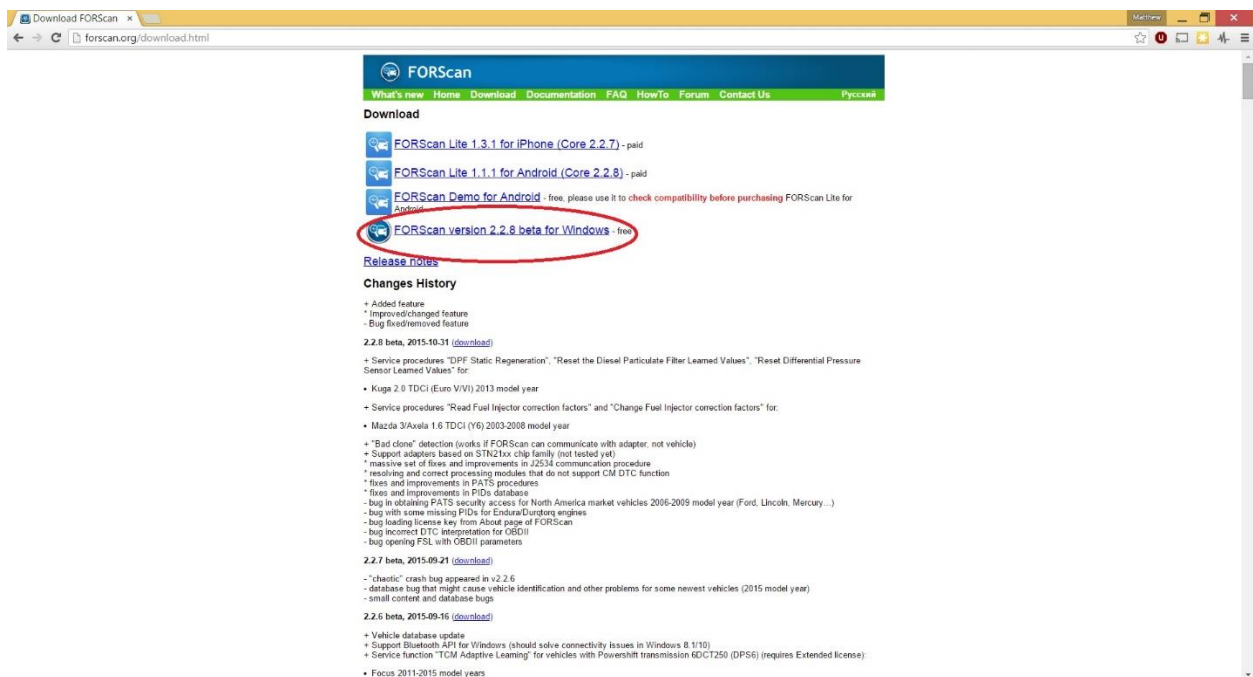
USB Elm 327 Adapter I use this one from amazon: <http://goo.gl/qoTdg9>

Super Duty!

Important Note: This tutorial is written on a PC running windows 8.1 but has been tested on Windows 7, 8, 8.1, and 10.

Step 1: Download and Install Forscan for Windows from their website:

<http://forscan.org/download.html>

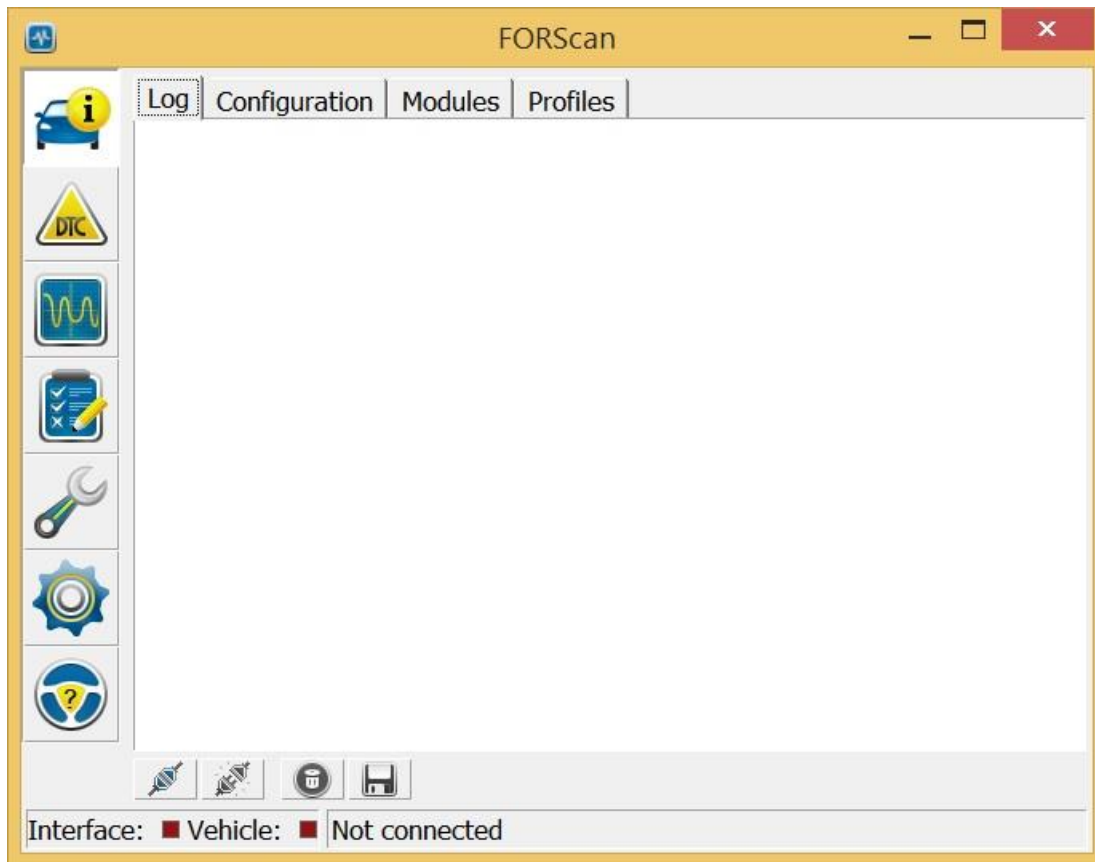


Step 2: Connect your USB ELM327 Adapter to your laptop and to your truck.



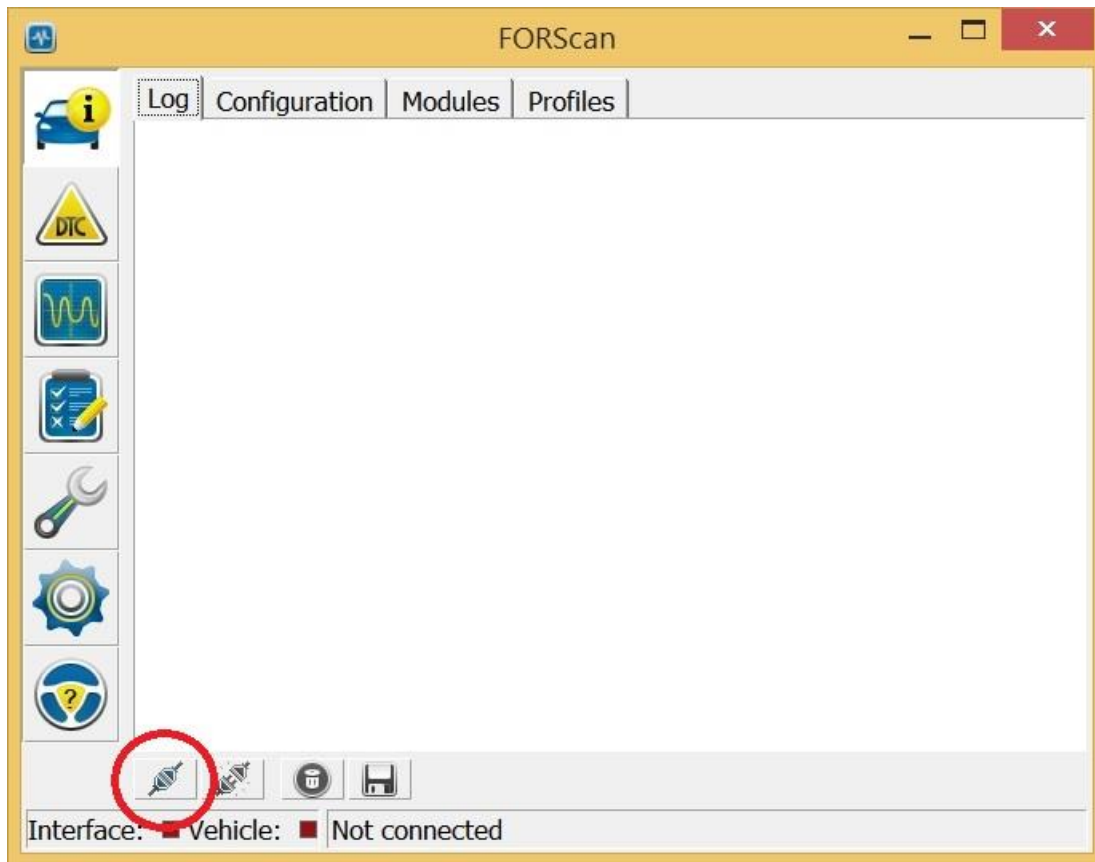
Step 3: Open Forscan on your laptop

You should be greeted with a screen like this:

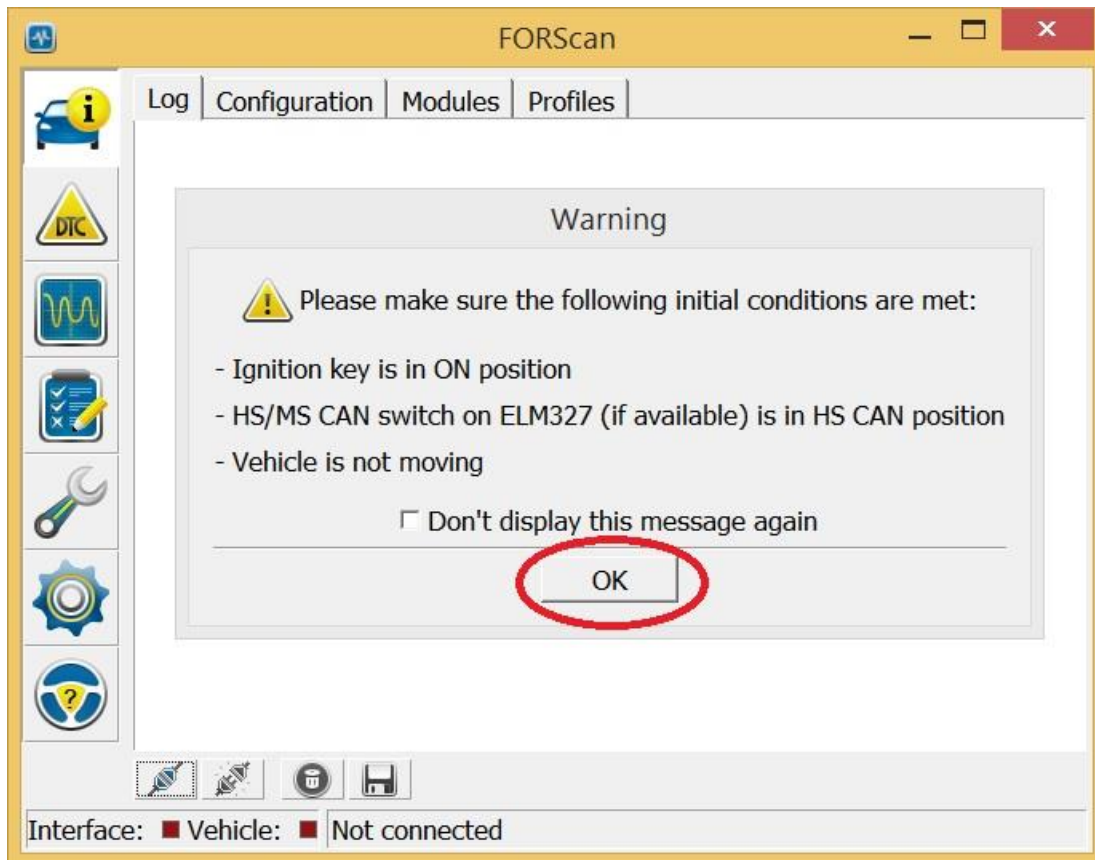


Step 4: Connect to your truck for the first time:

Click on the connect button circled in red

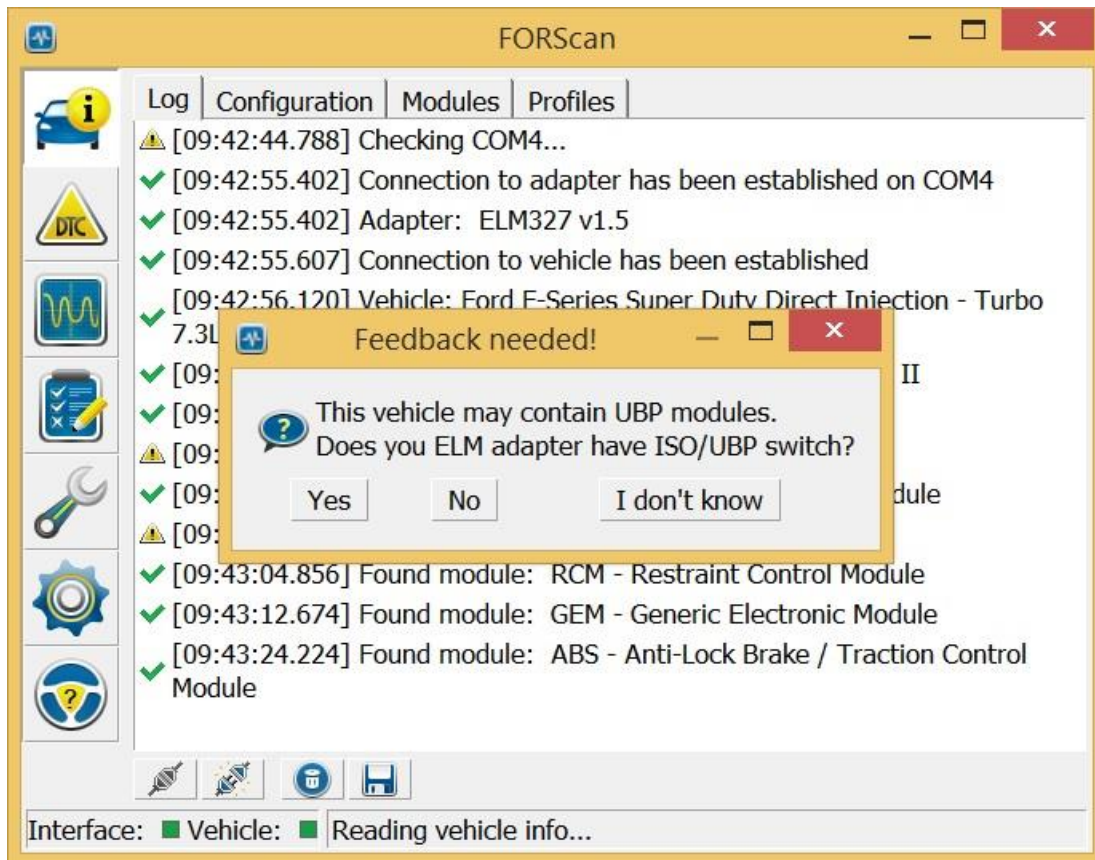


You will get a popup telling you what is required for it to connect, TURN THE KEY ON, then click OK on that popup.



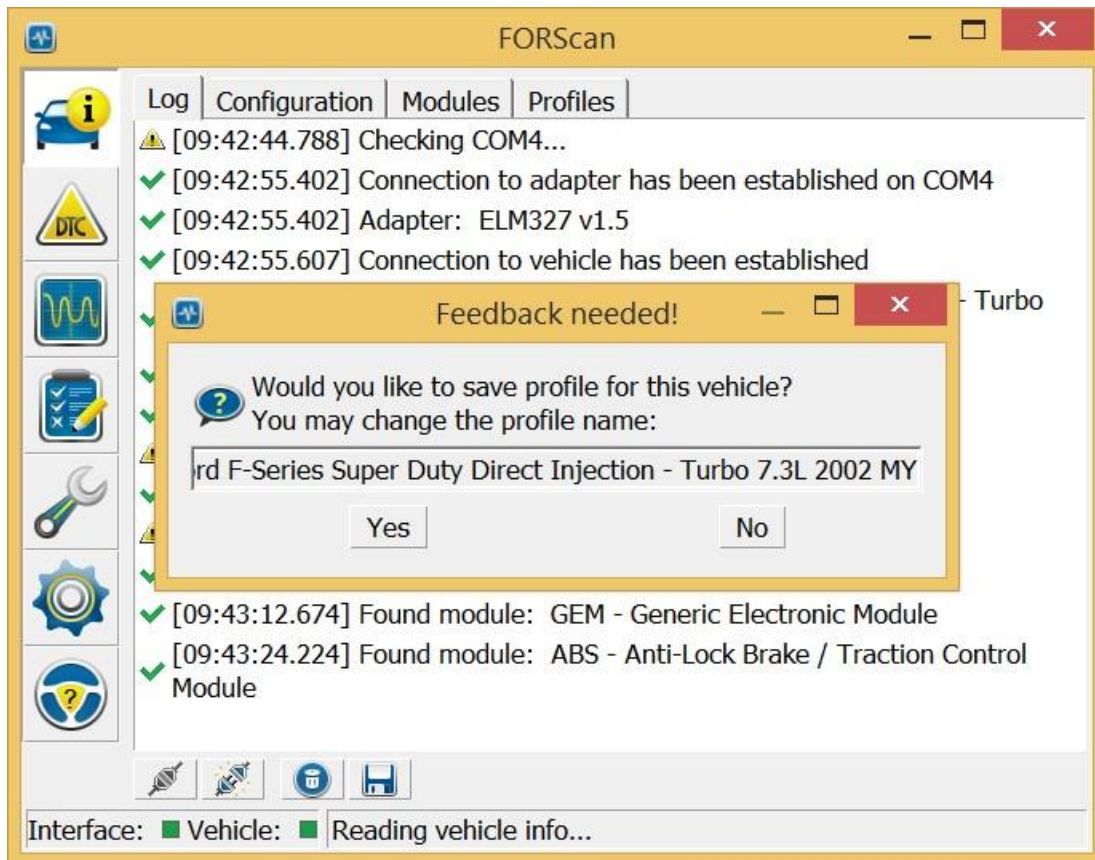
Step 5: Answer Questions

You will get this popup



Unless your adapter has a physical switch on it click NO

Then you will get this

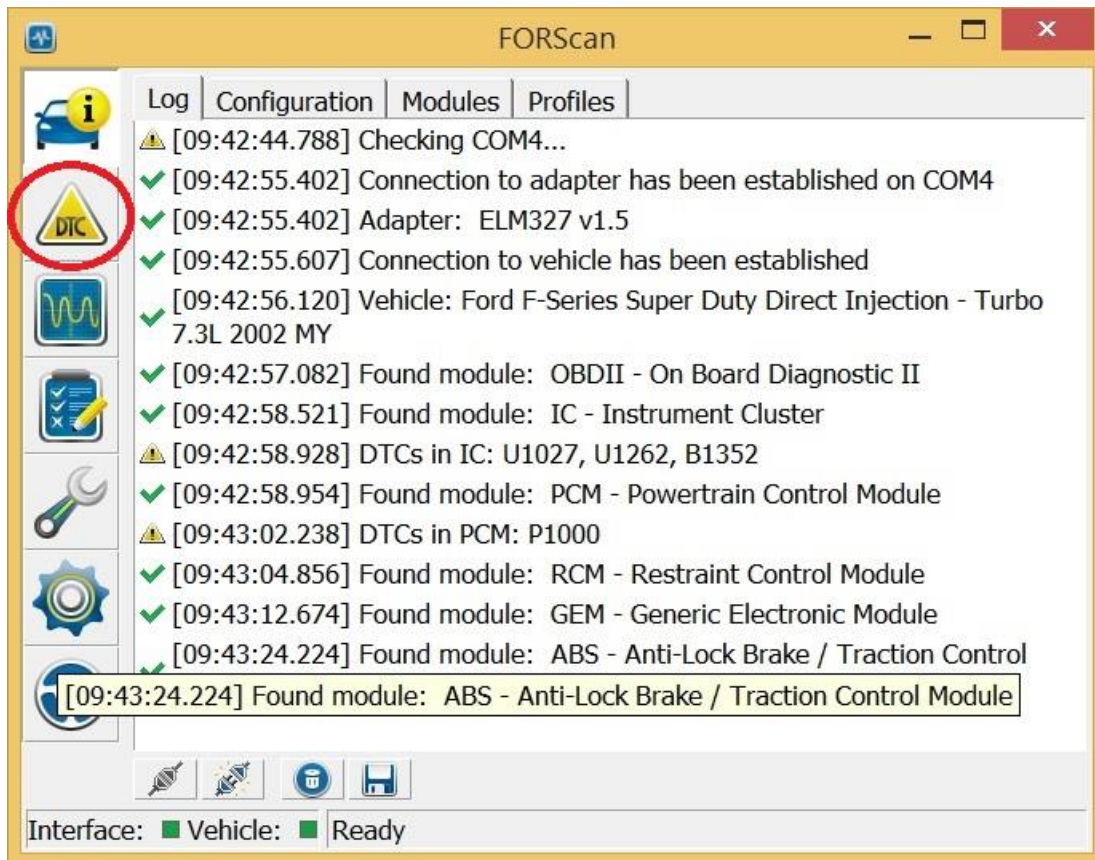


Click Yes. This creates a profile for your truck. From that point forward anytime you connect the Forscan app will remember your dashboard PID's, which we will get to in a bit.

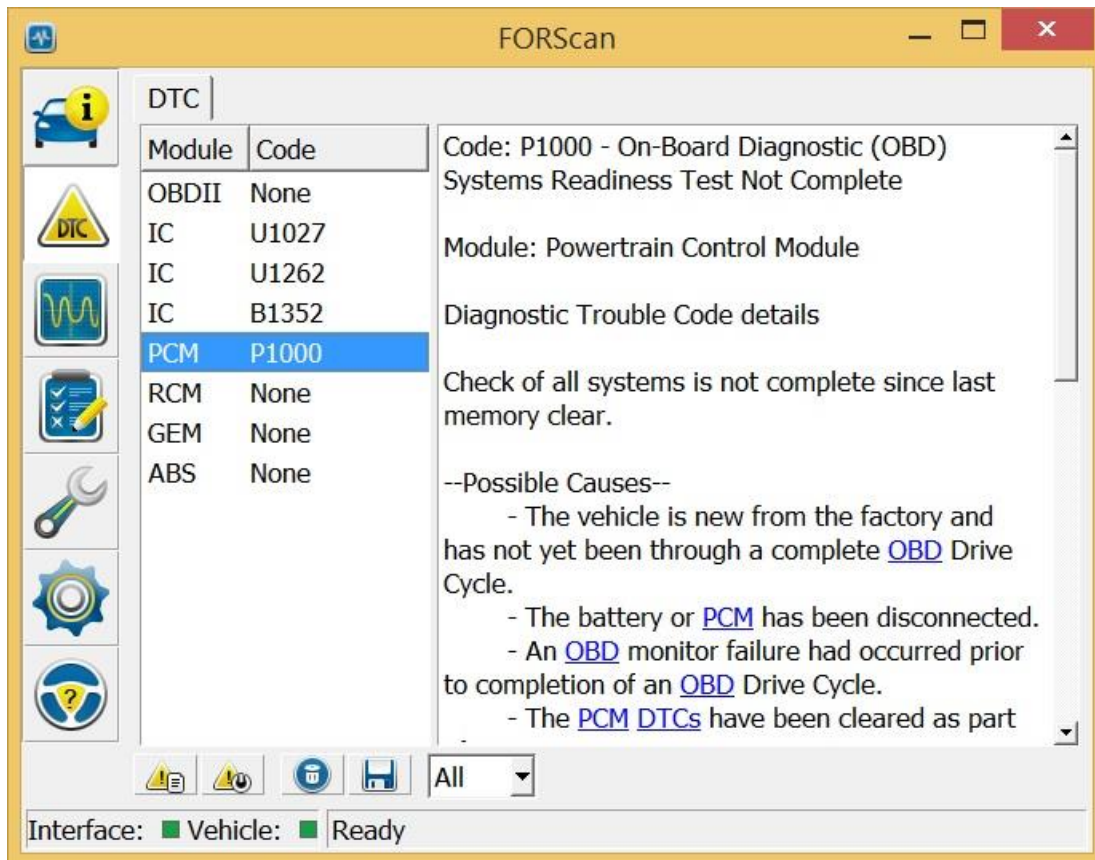
Now that we are connected, let's get to the useful part of this.

DTC checking

Step 1: click on the DTC tab



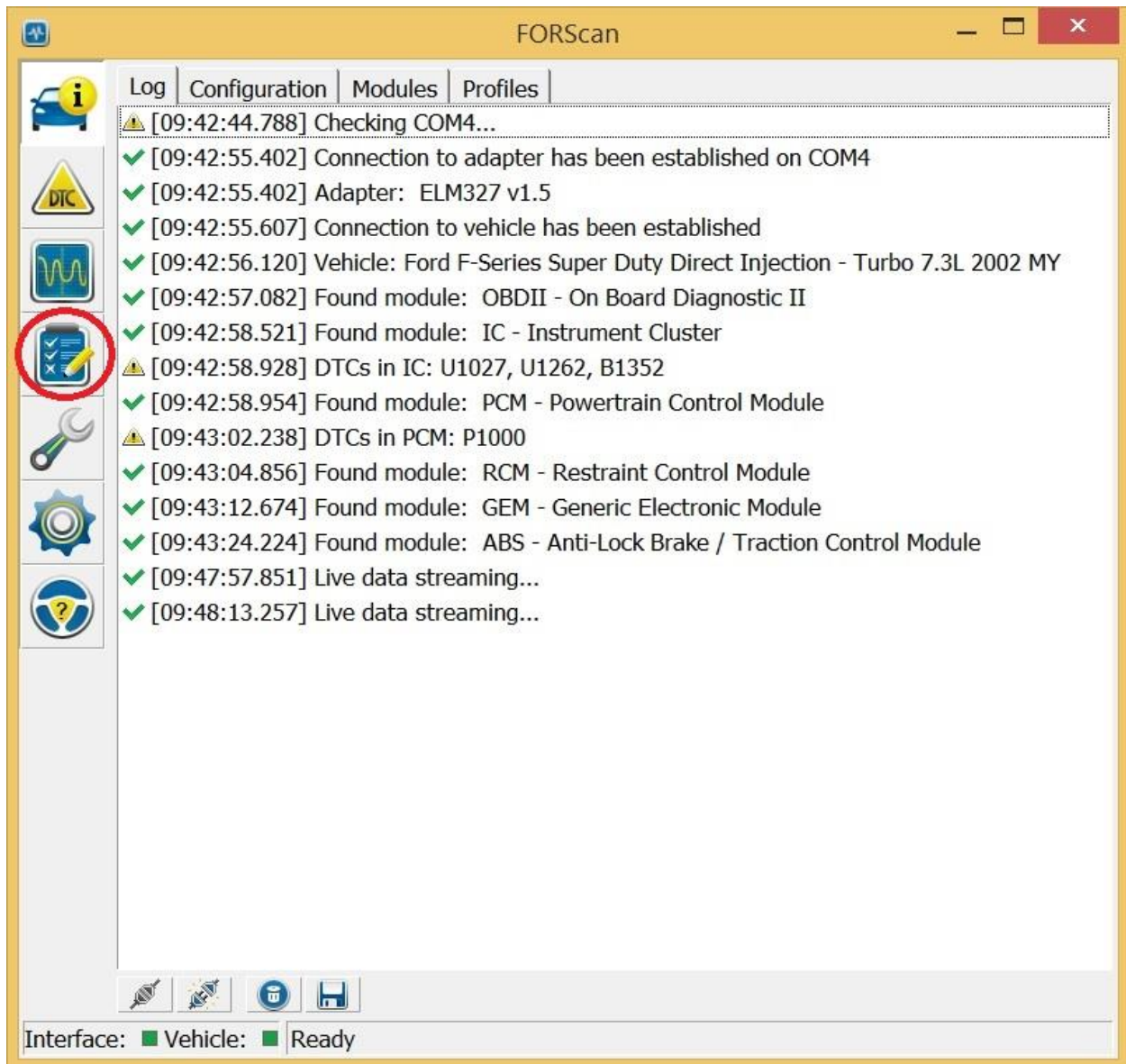
That will take you to a screen showing you all of your DTC's, including Ford Specific, and a brief explanation.



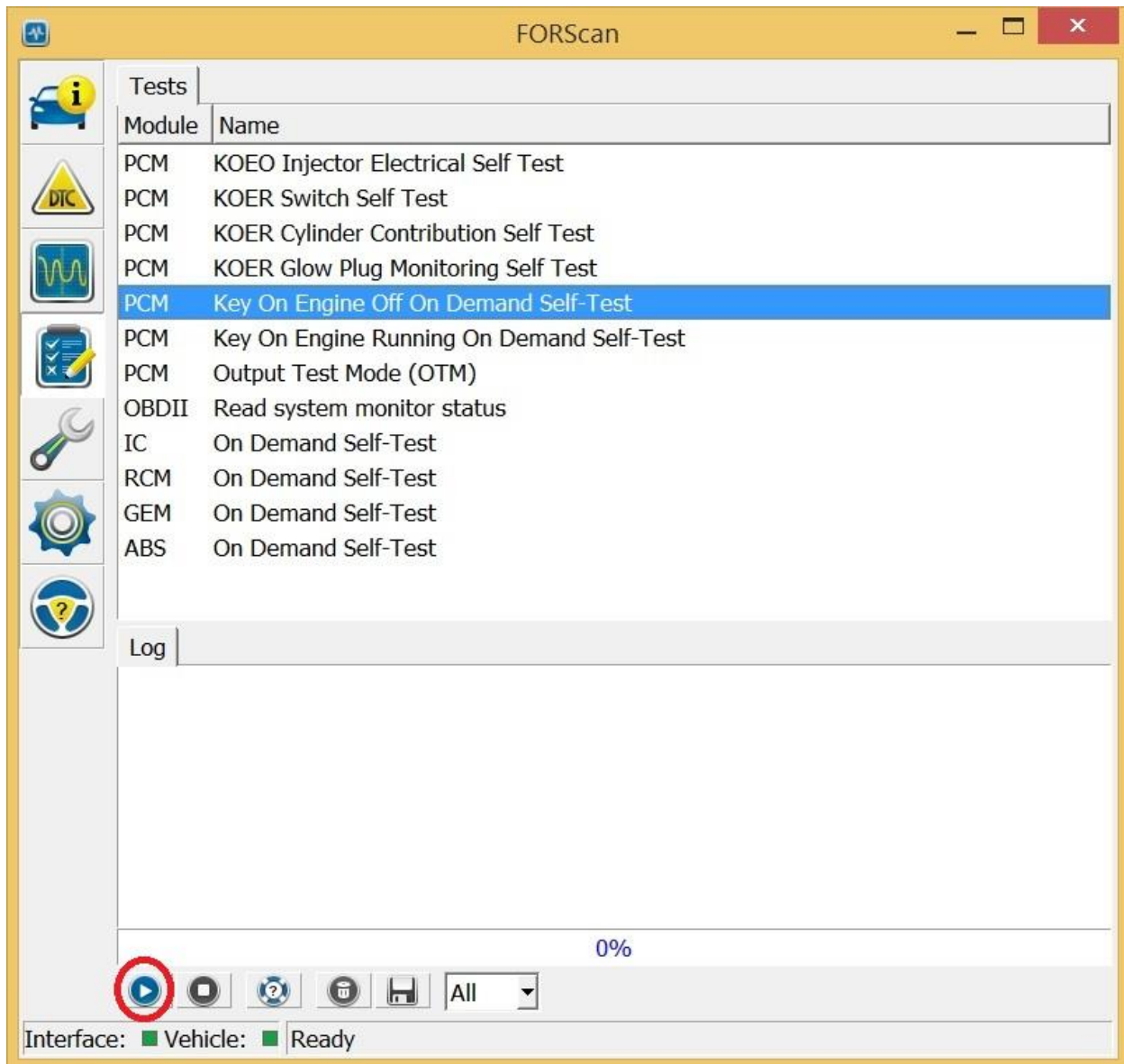
You can click on any of these DTC's to see more details.

Run Self Tests

Click on the self tests button.



Then you will see a list of available self tests.



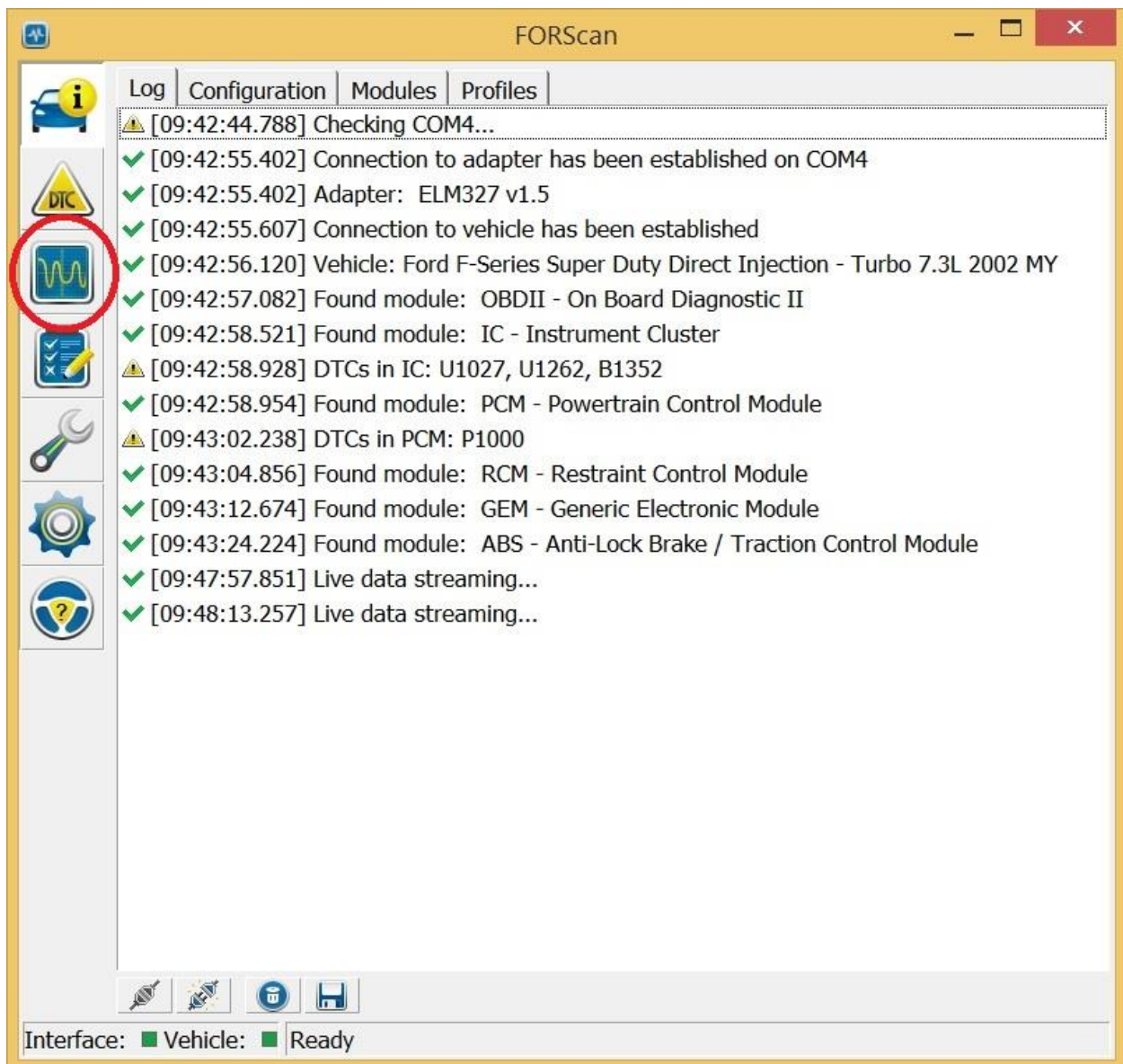
Pick whichever one you want to run and then click the red circled play button, the interface will walk you through them. These self-tests are explained in many places on the forums, I will not be re-explaining them here.

Monitoring with Forscan

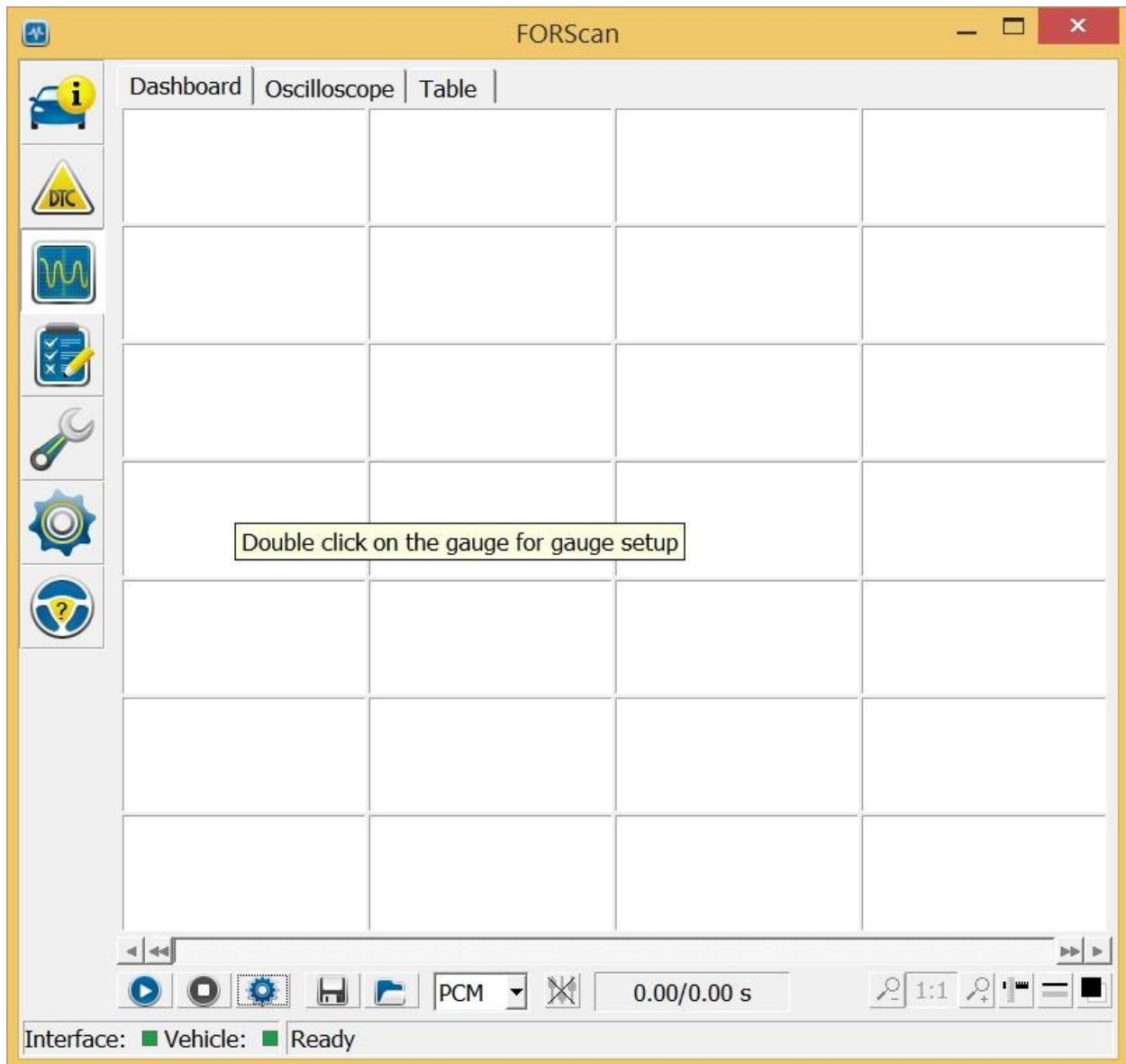
One of the most common things to do with your OBD interface is to monitor parameters in the truck to test for things like a Failing ICP/IPR.

To monitor your truck you will connect as described above.

After that, click on the dashboard icon.

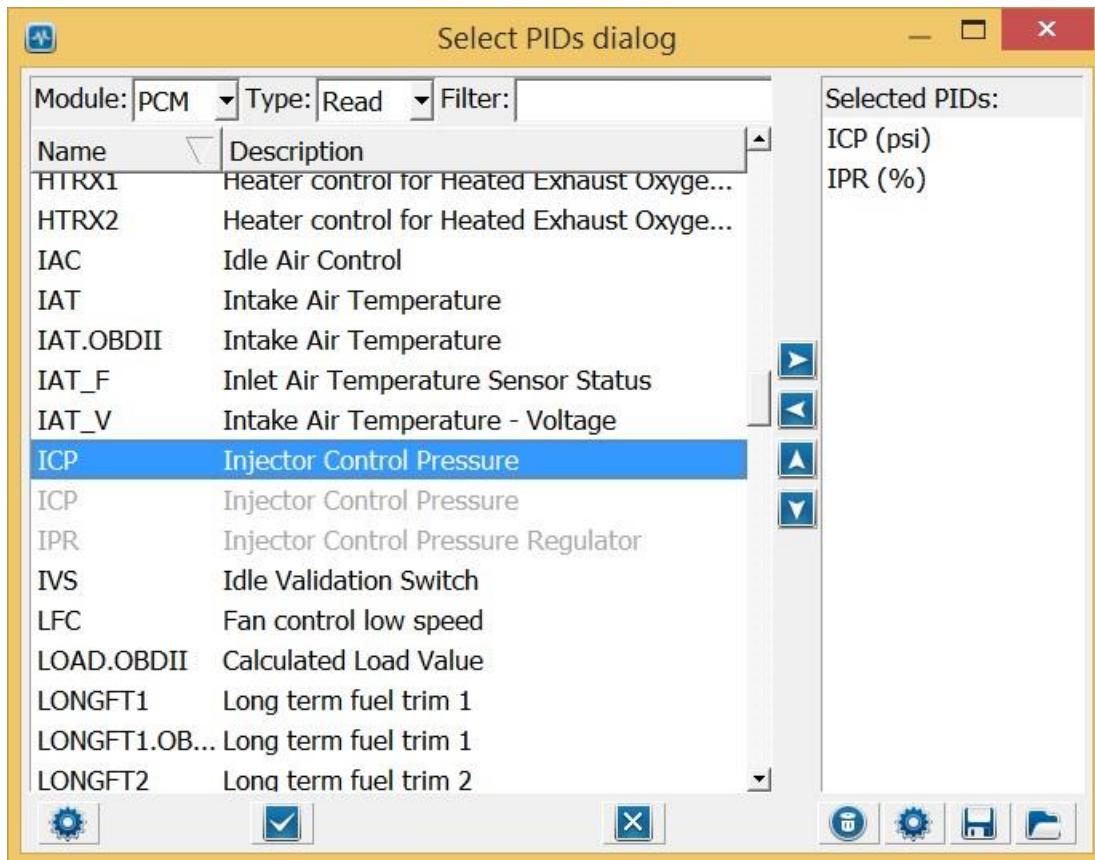


You will see the following screen



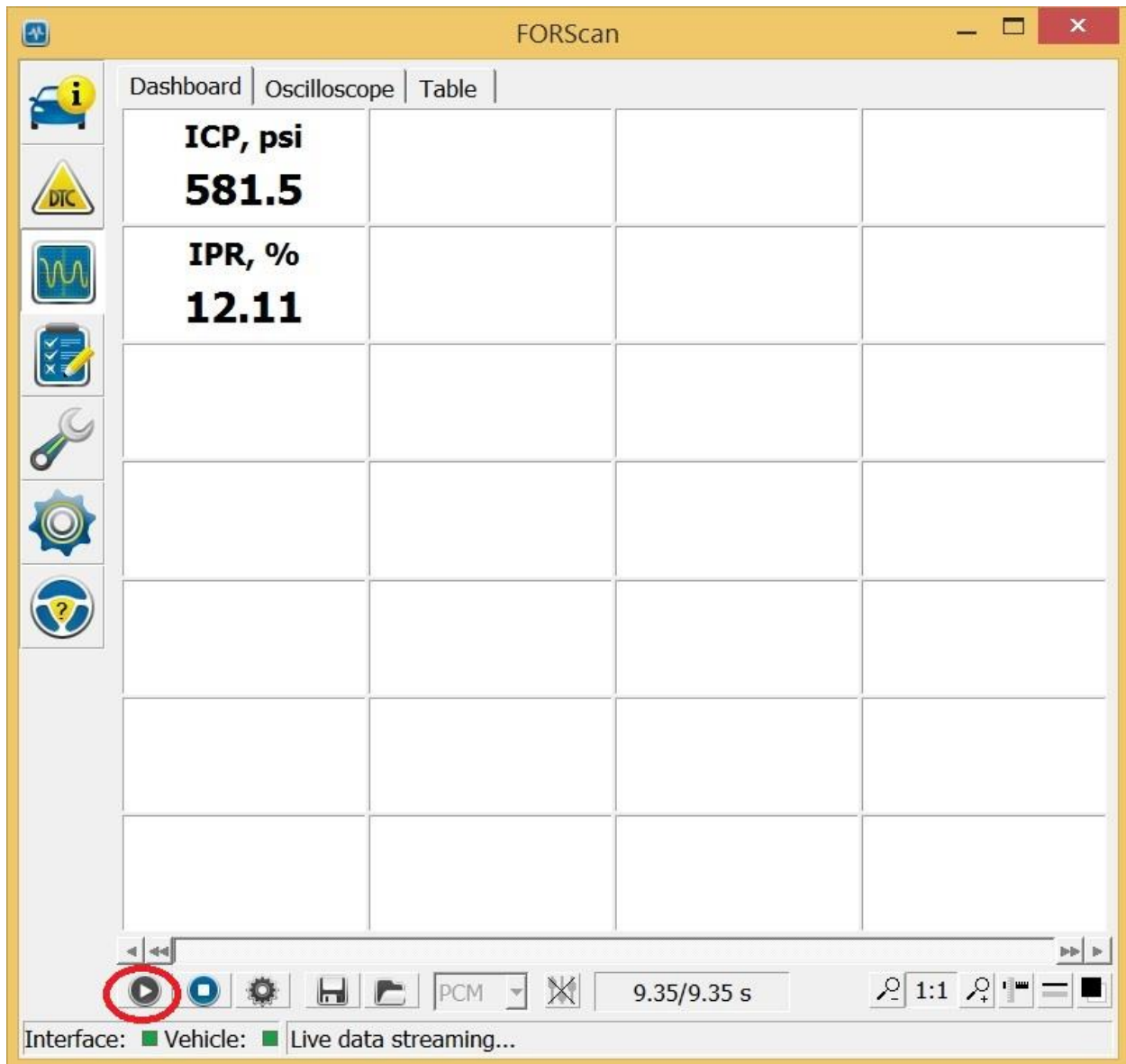
But that doesn't really help, there is no info there!

Double click on any of the white boxes and you will get a popup



Scroll around and find whatever you would like to monitor. There is more here than the 7.3 supports, so some may not work. When you find one you want to monitor, simply double click on it. When you are done, click the checkmark at the bottom of the popup.

That will take you back to the datalog screen. To start actually viewing data click the play button I have circled below.



This is how the data will look.

This concludes the PC Forscan part of this Tutorial. Next up, android!

Part 2: Android based Diagnosis with Forscan Lite

Disclaimer: This tutorial is written with screen shots from a Samsung Galaxy Note 4, but has been tested on half a dozen different phones.

Required items:

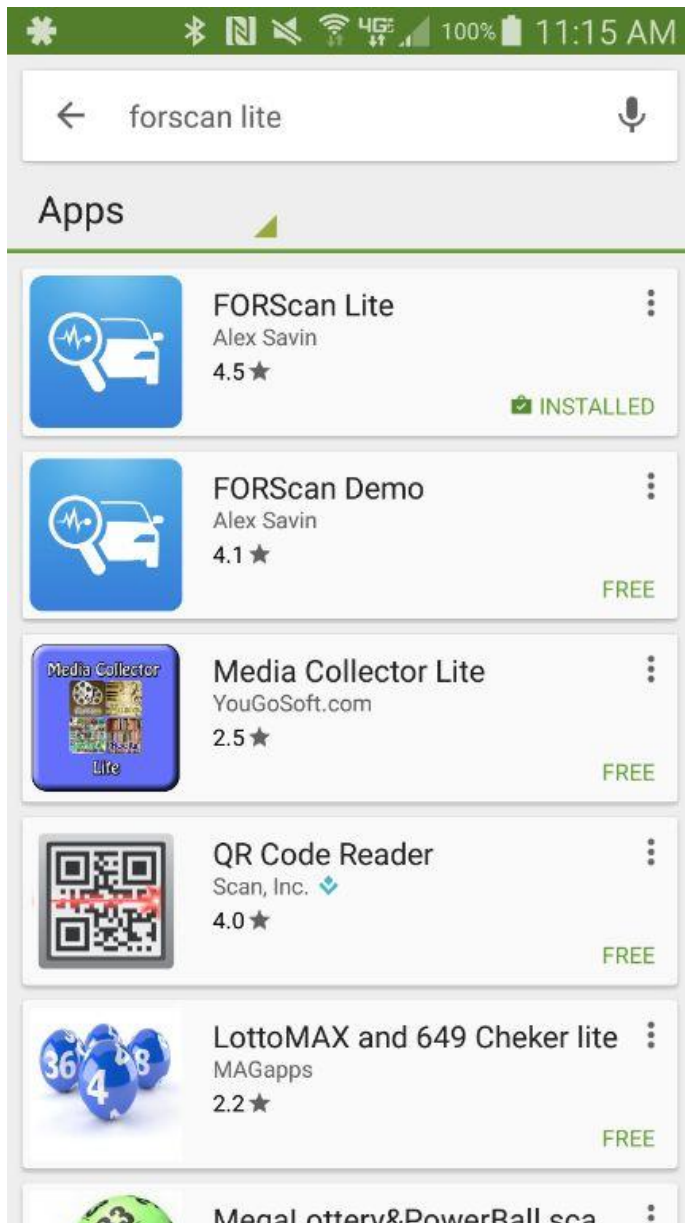
Bluetooth OBD Reader(I use this one: <http://goo.gl/aVPJLa>)

Android Phone or Tablet

Super Duty truck!

Now, to start we need to buy the Forscan Lite app. There is a free app that you can use for testing, this tutorial does not cover that.

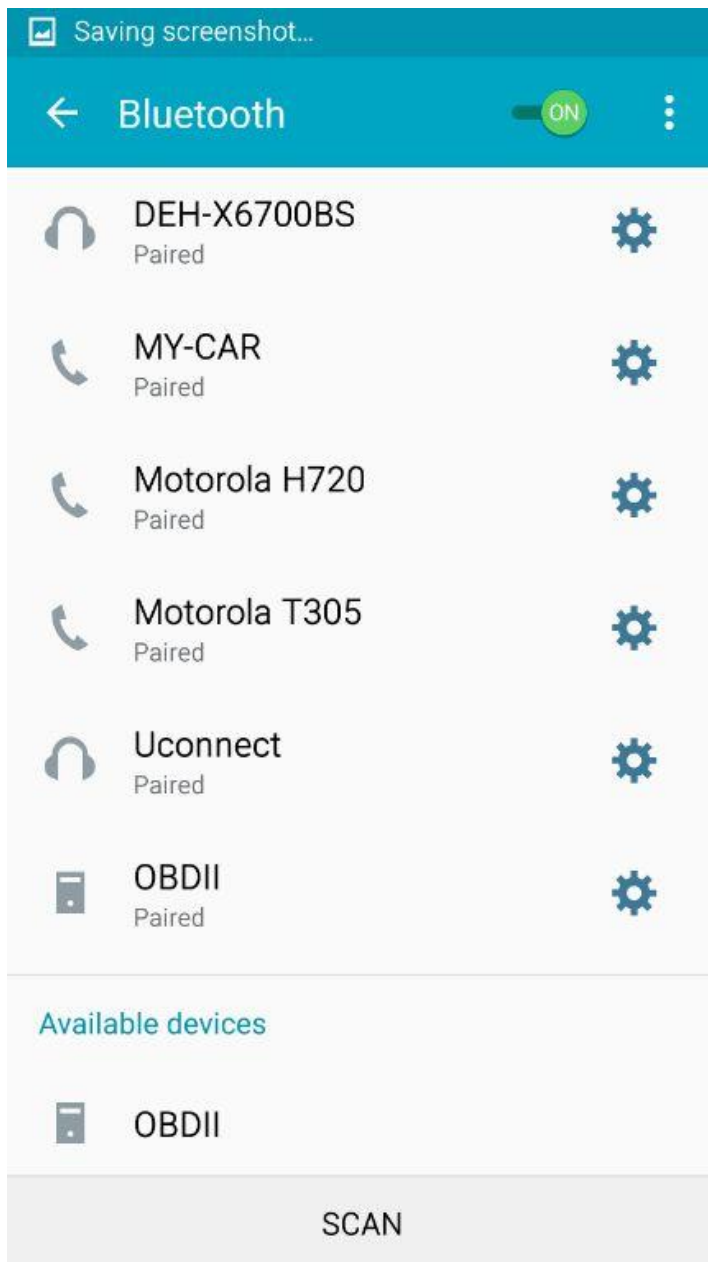
Step 1: Open the google play store, search for Forscan Lite, purchase and install it.



Step 2: Connect your Bluetooth obd reader to your truck and turn the key on.

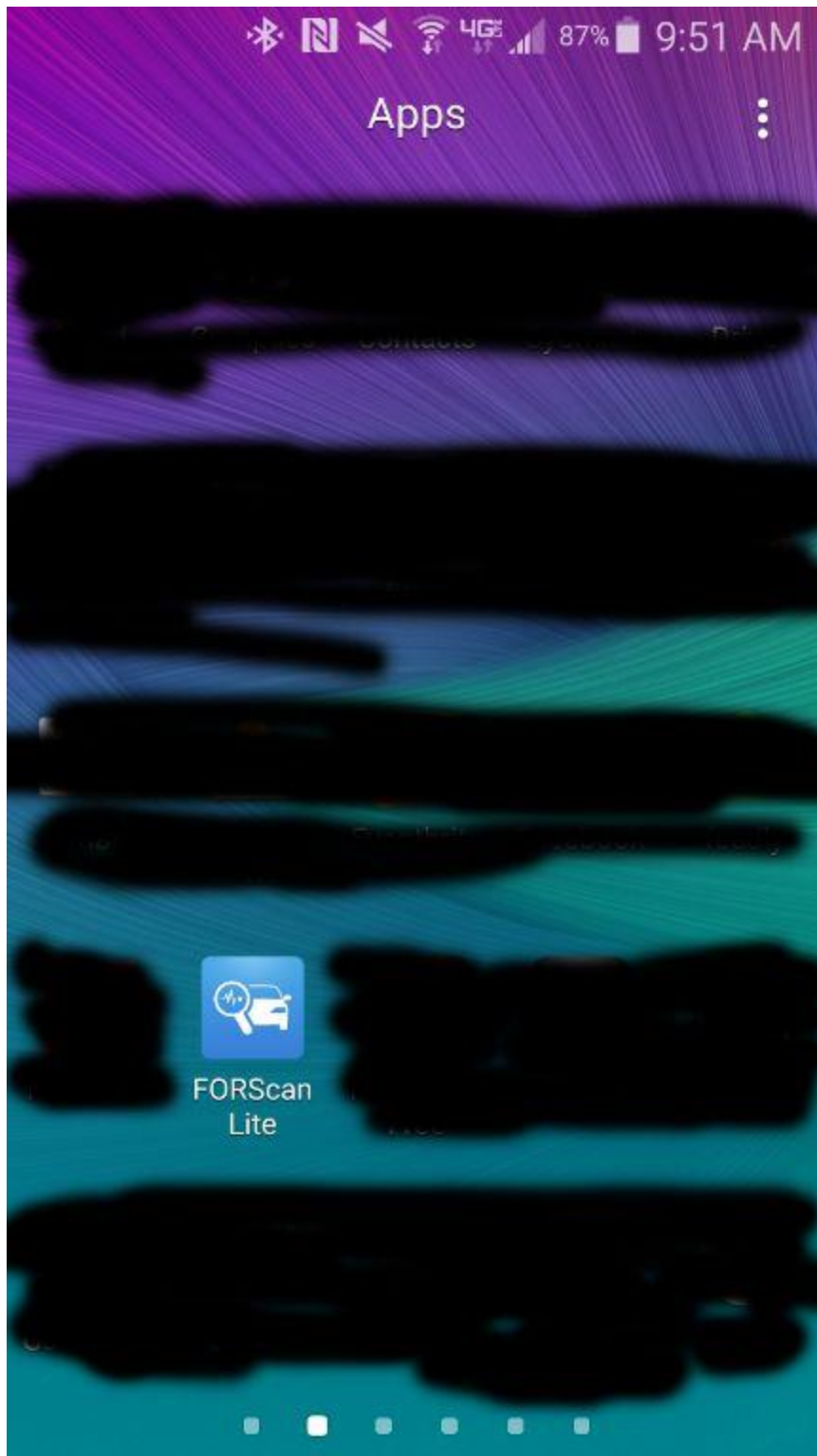


Step 3: Pair your OBD reader to your phone

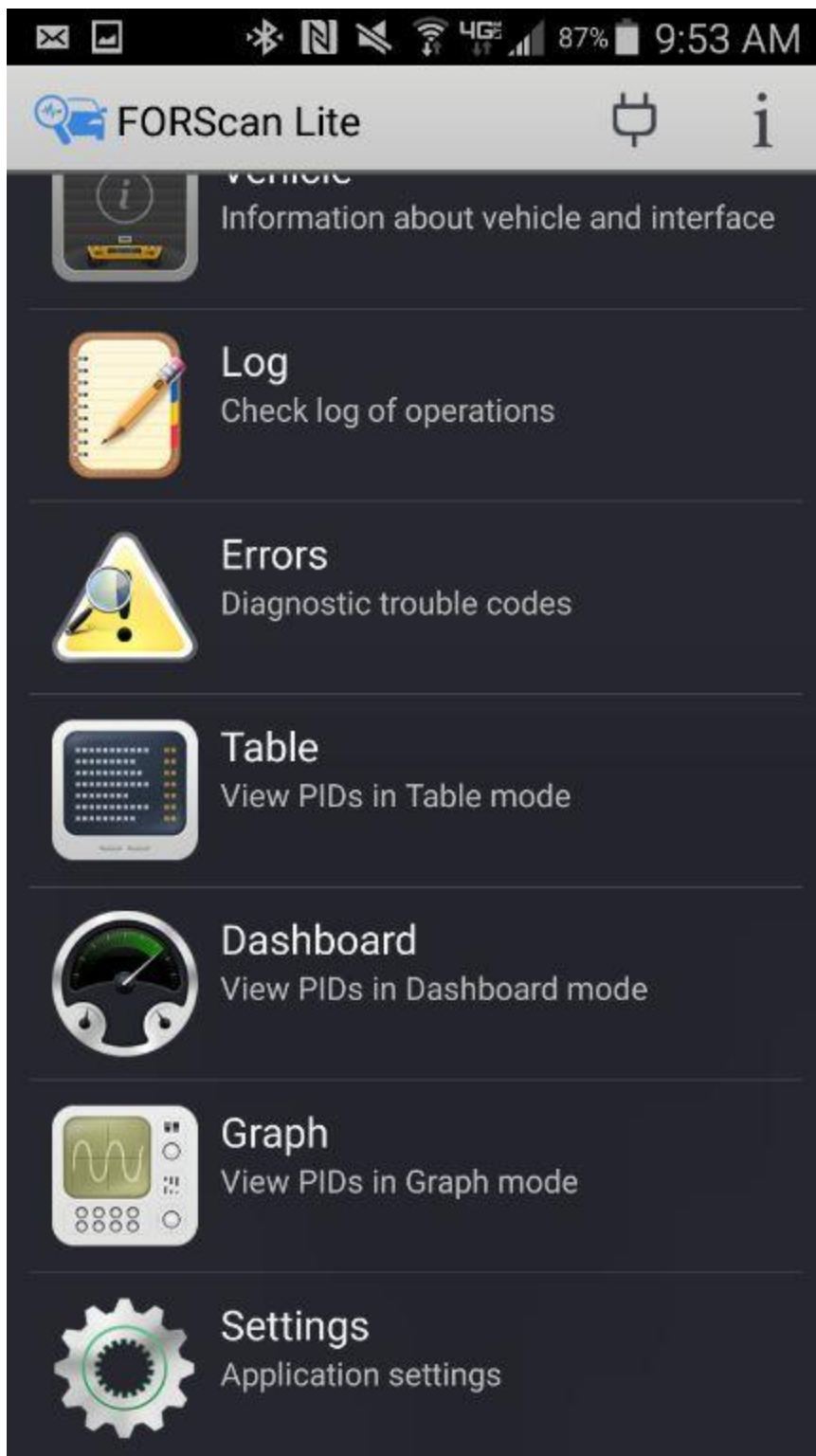


Your phone will ask you for a Bluetooth pin, usually this is 0000 or 1234

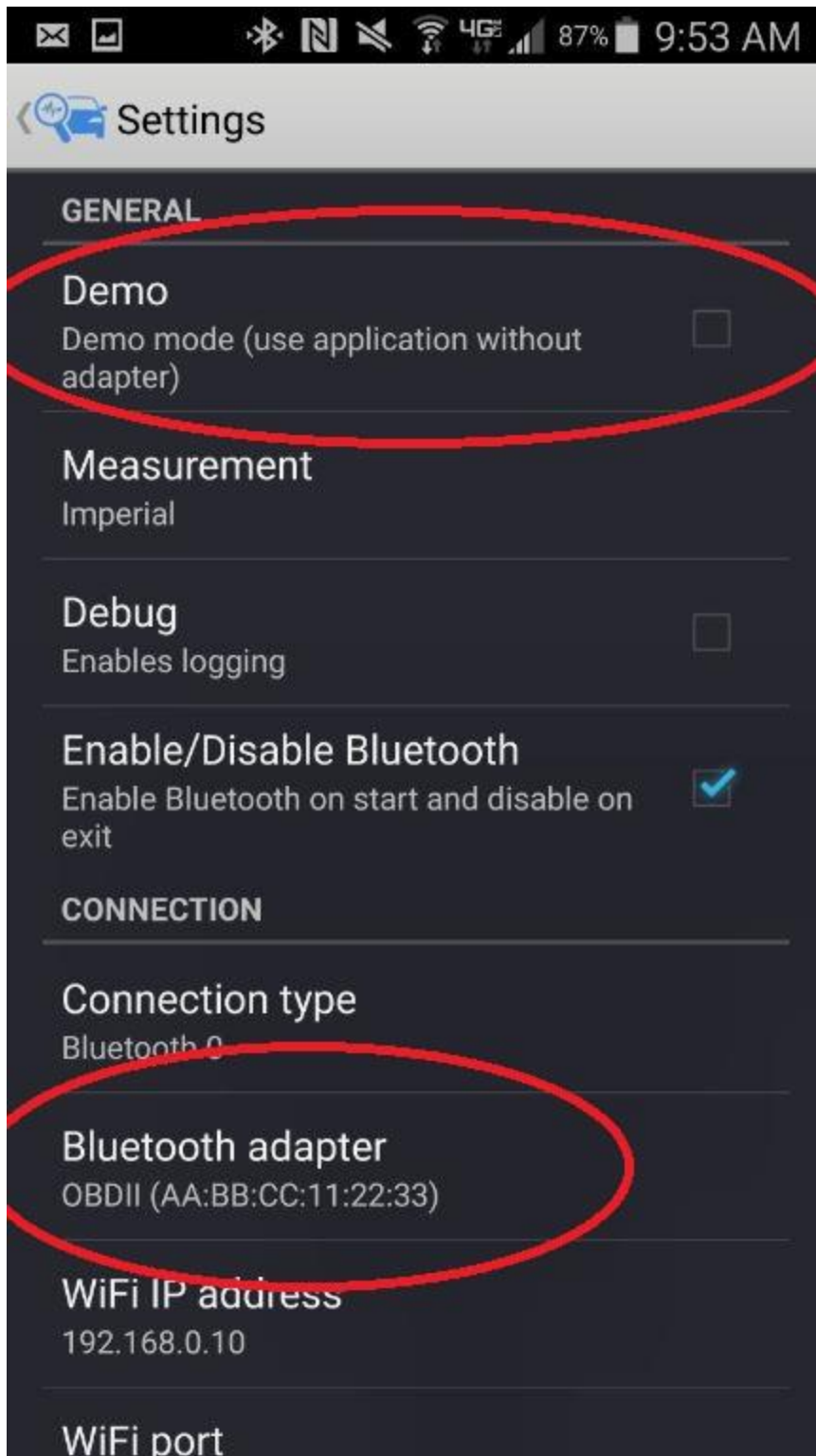
Step 4: Open the Forscan app



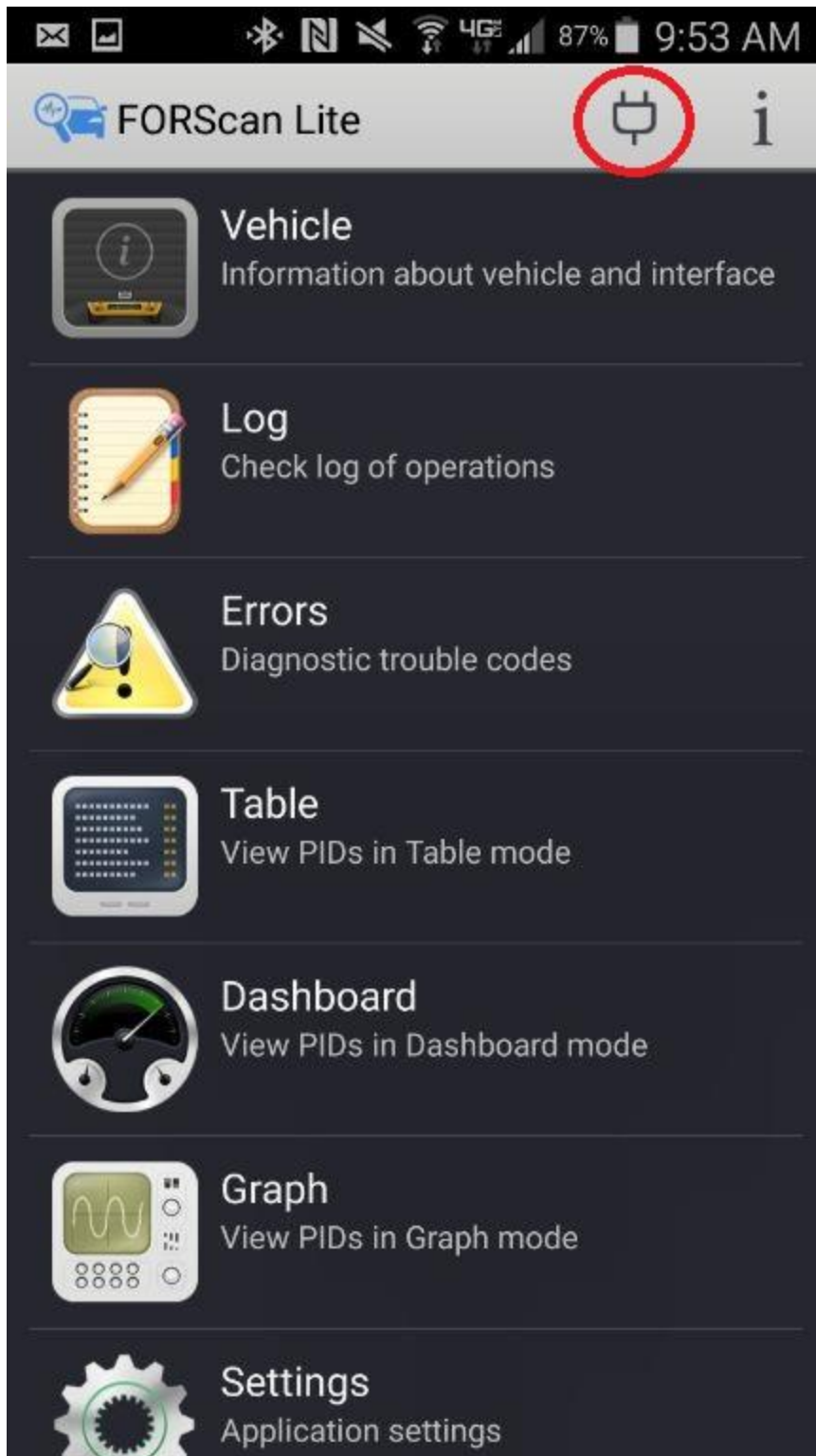
Step 5: Configure the app, scroll down to settings, click settings



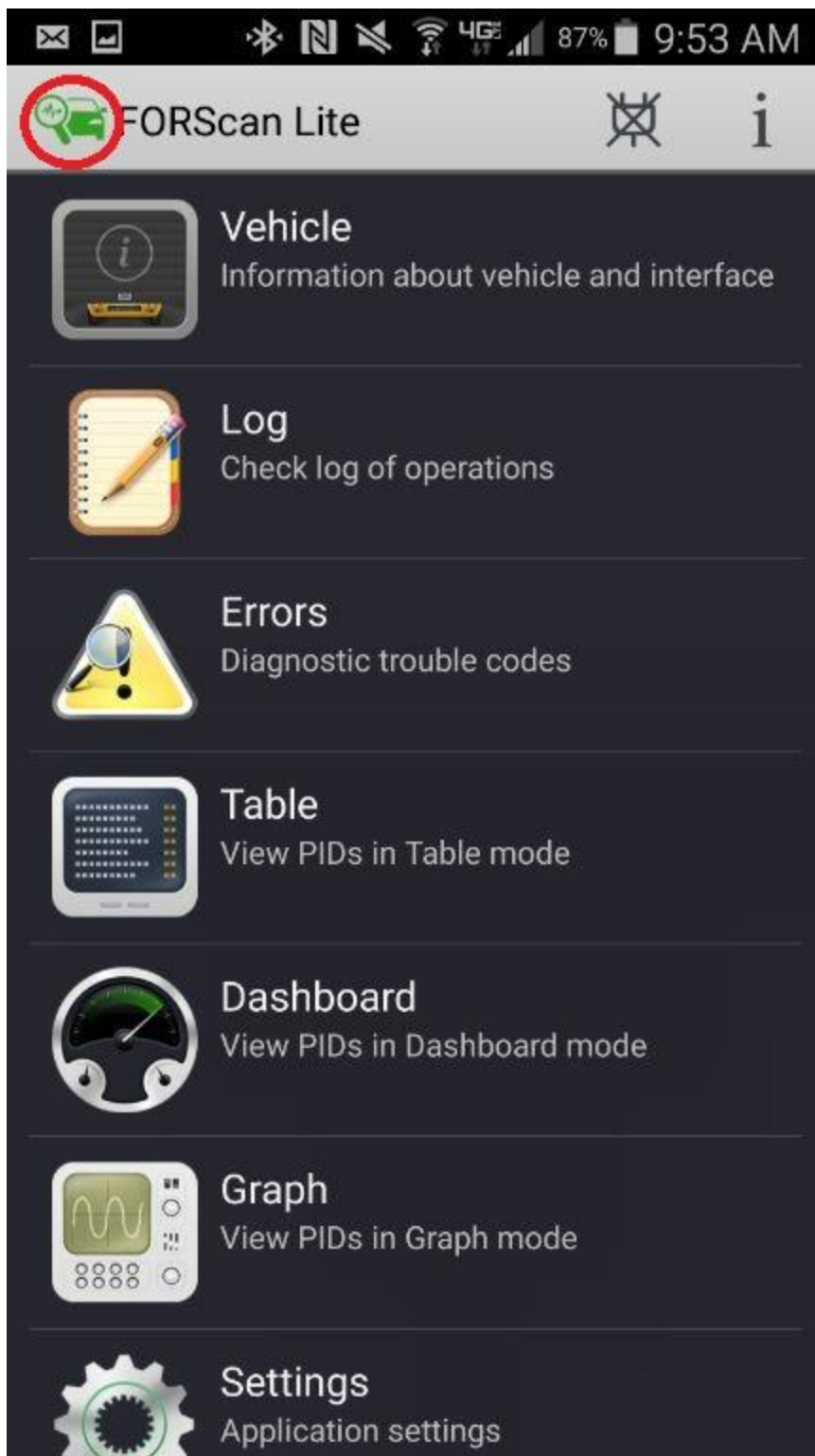
Step 6: In the settings menu make sure Demo mode is not selected and your OBD reader is selected.



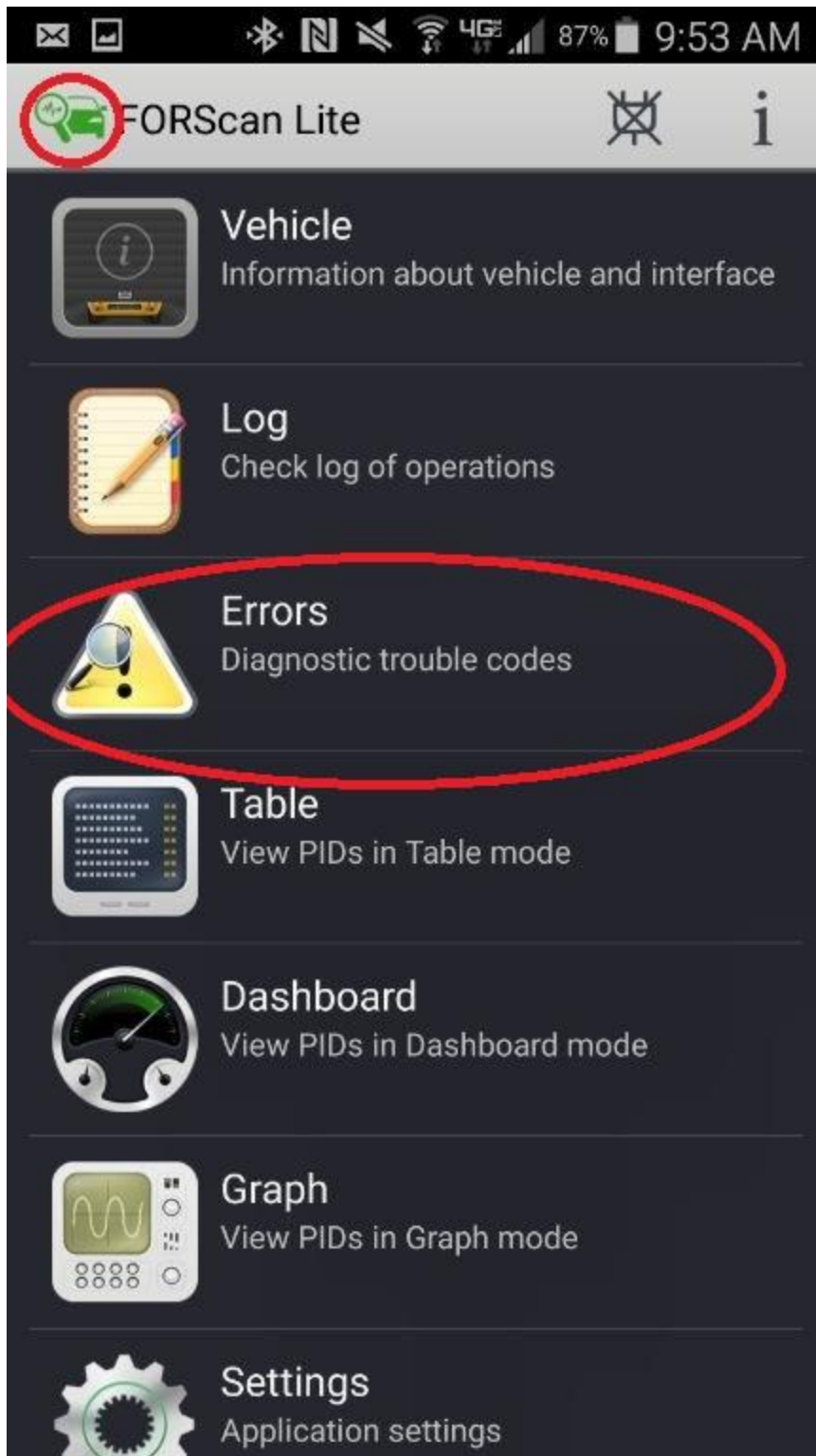
Step 7: Connect to the truck.



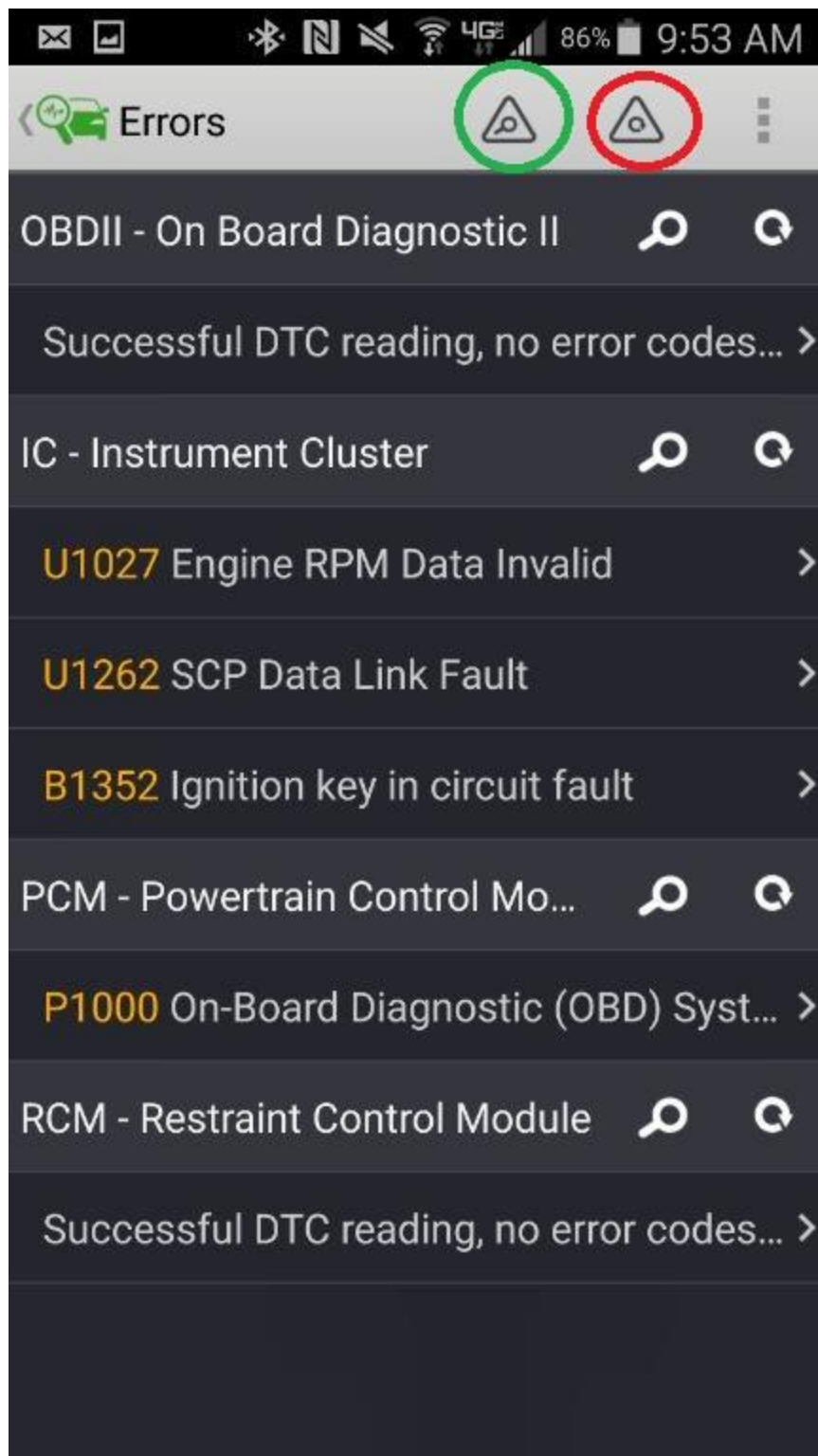
Wait for the light to turn green



Step 8: Select Errors



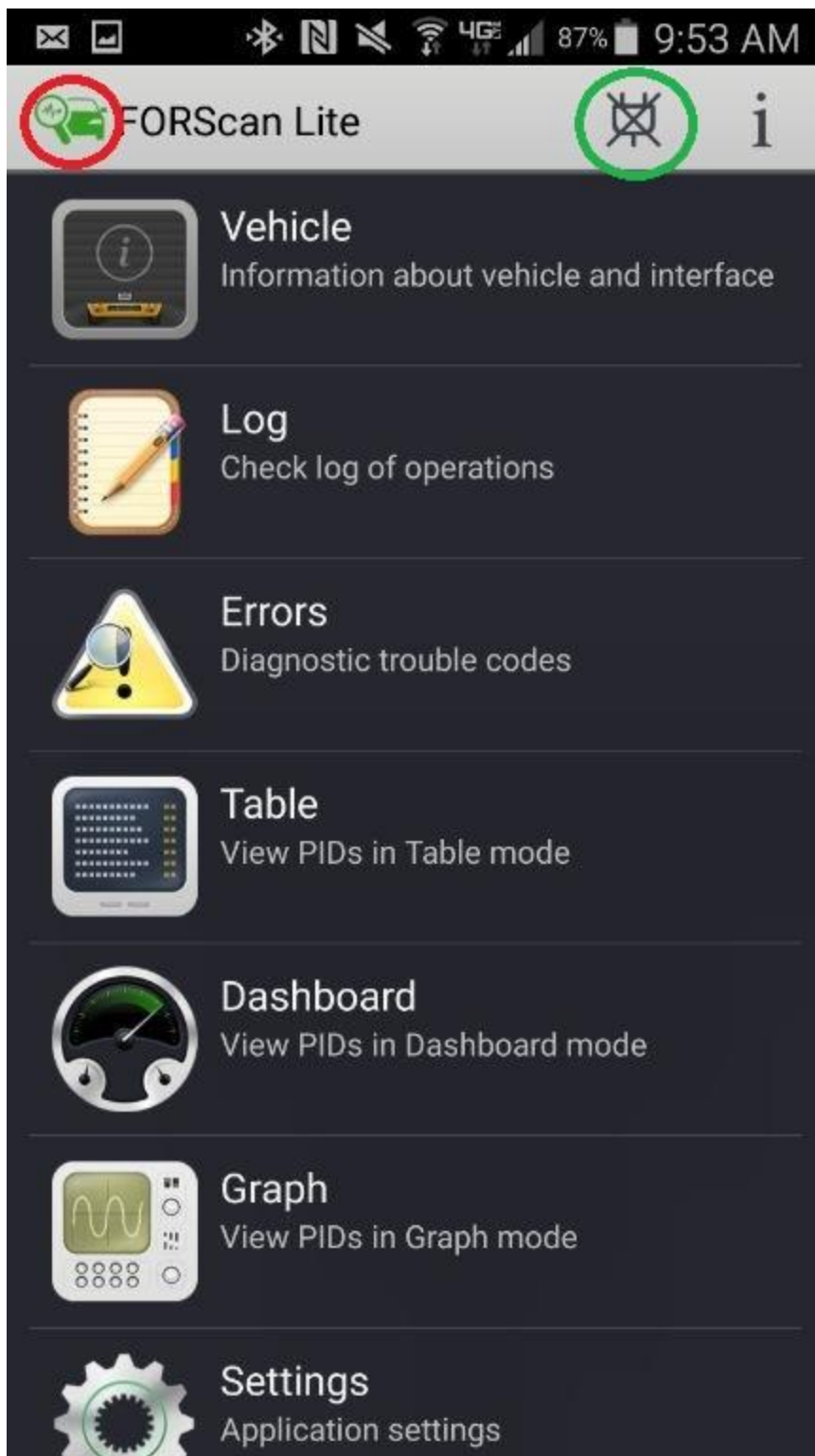
Step 9: See what DTC's your truck has.



The Red Circle clears ALL DTC's, the Green Circle re-scans for any DTC's.

Step 10: Disconnect

Click the button in the green circle to disconnect when done.



Part 3: Monitoring with Torque Pro

Disclaimer: This tutorial is written with screen shots from a Samsung Galaxy Note 4, but has been tested on half a dozen different phones.

Required items:

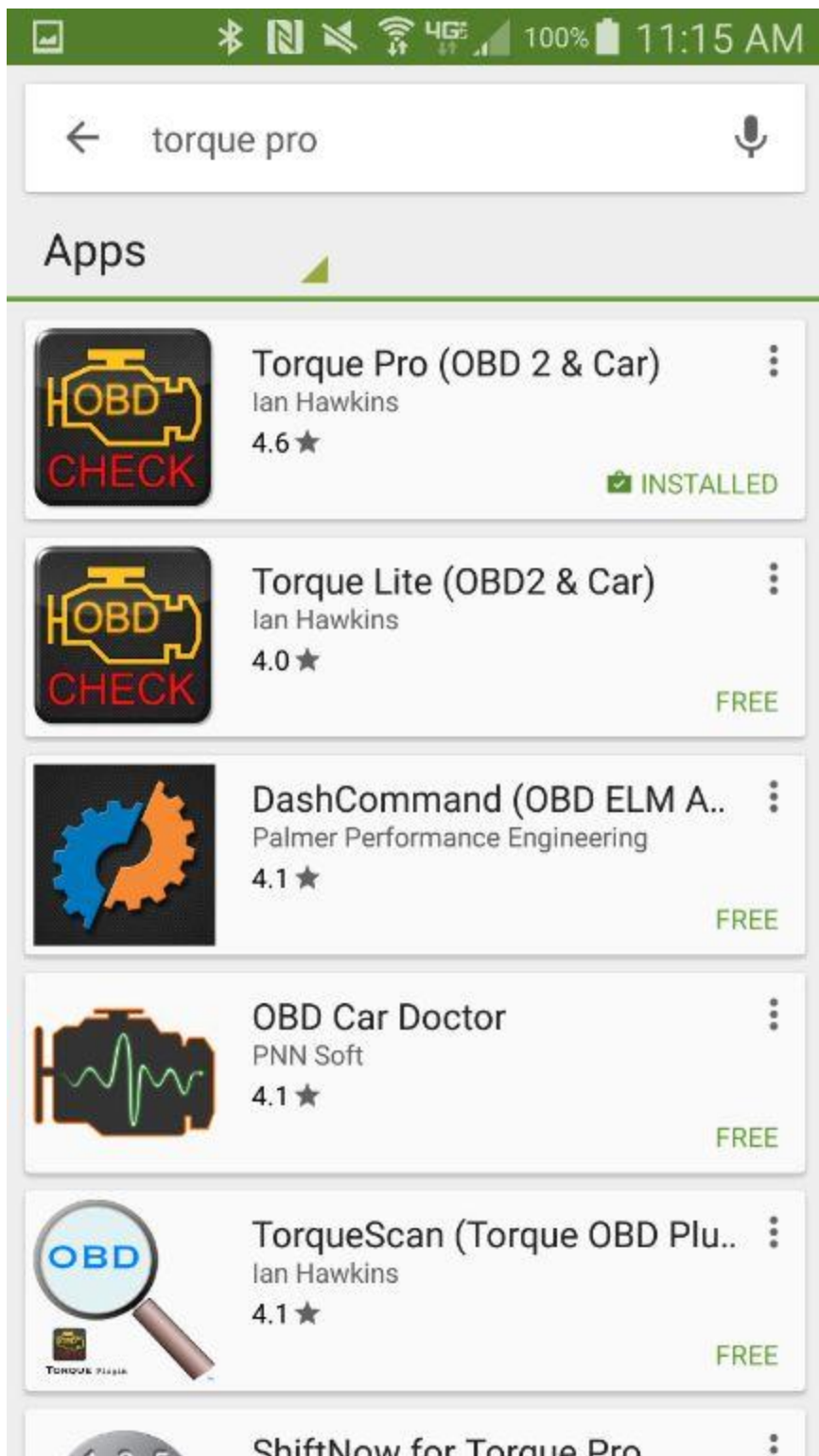
Bluetooth OBD Reader(I use this one: <http://goo.gl/aVPJLa>)

Android Phone or Tablet

Super Duty truck!

Now, to start we need to buy the Torque Pro app. There is a free app that you can use for testing, this tutorial does not cover that.

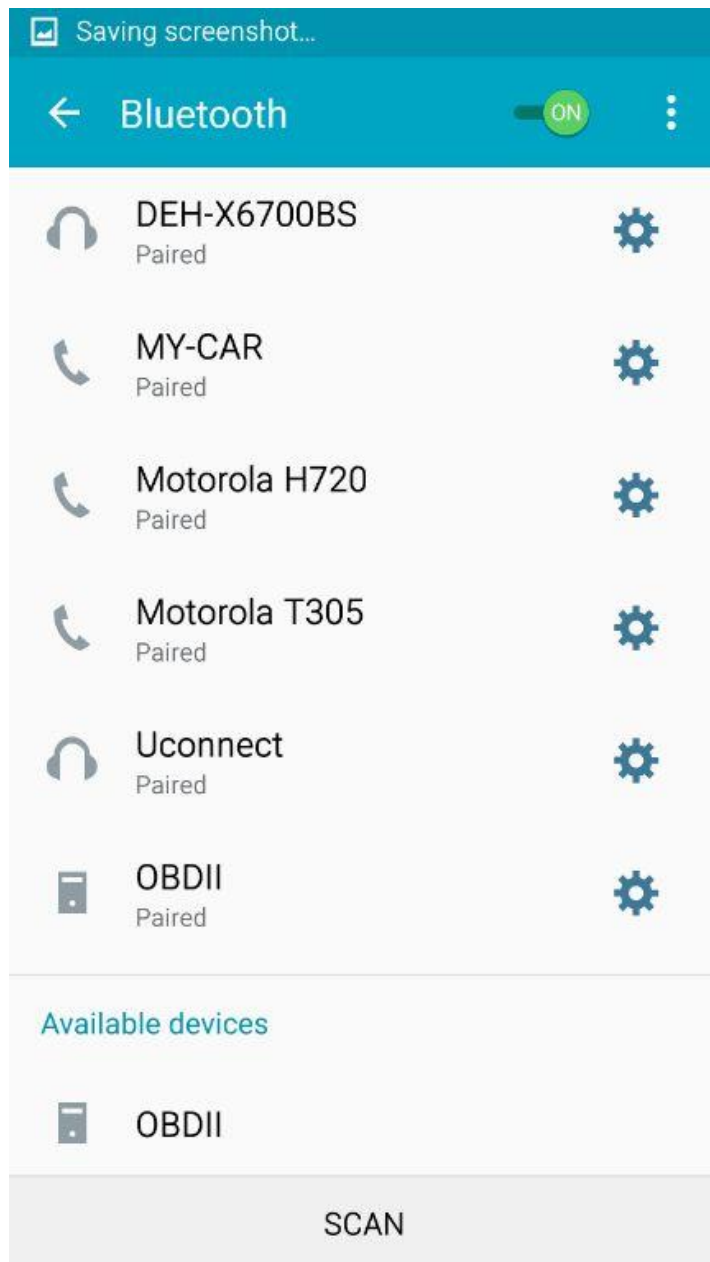
Step 1: Open the google play store, search for Torque Pro, purchase and install it.



Step 2: Connect your Bluetooth obd reader to your truck and turn the key on.



Step 3: Pair your OBD reader to your phone



Your phone will ask you for a Bluetooth pin, usually this is 0000 or 1234

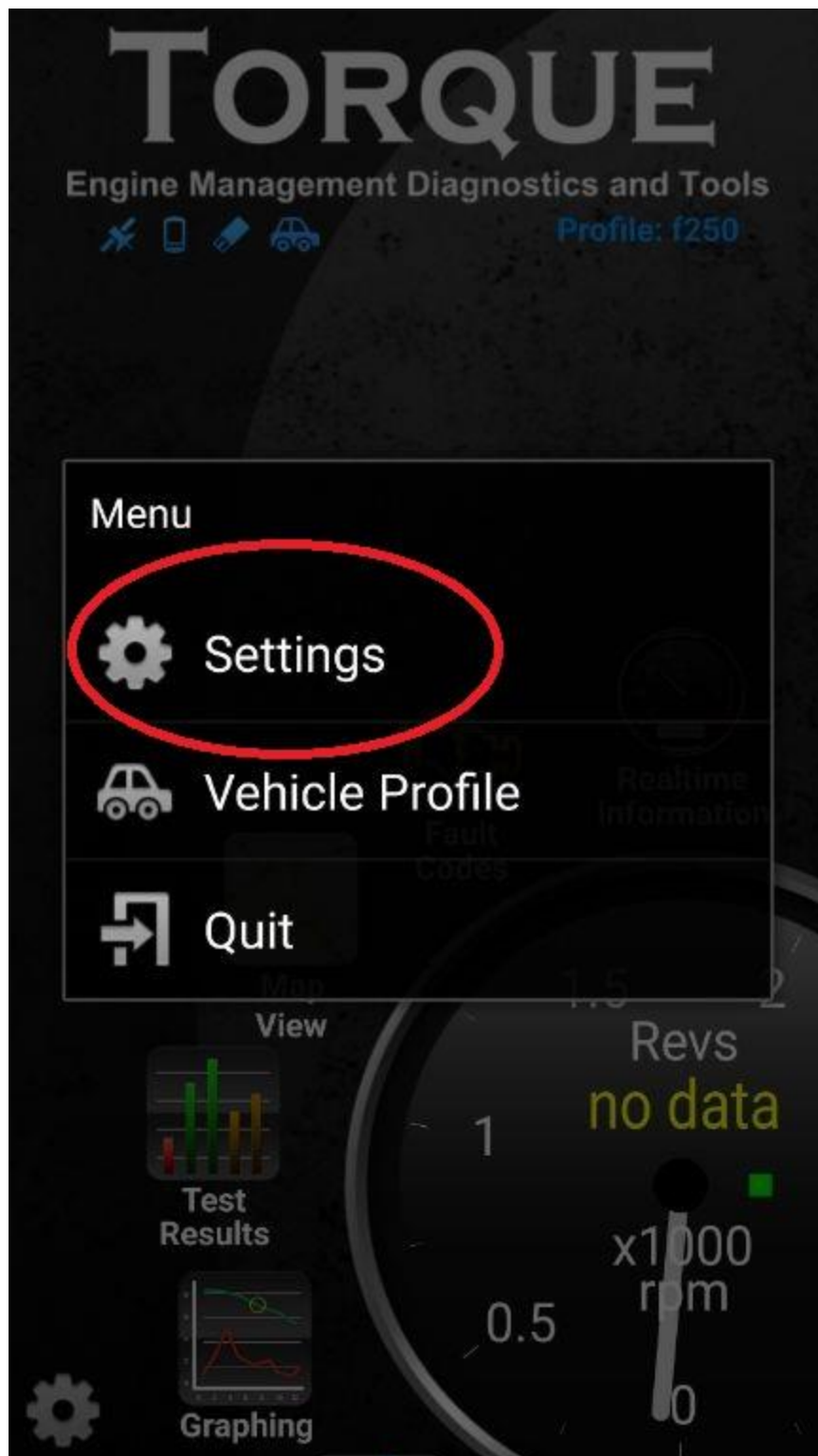
Step 4: Open the Torque Pro app



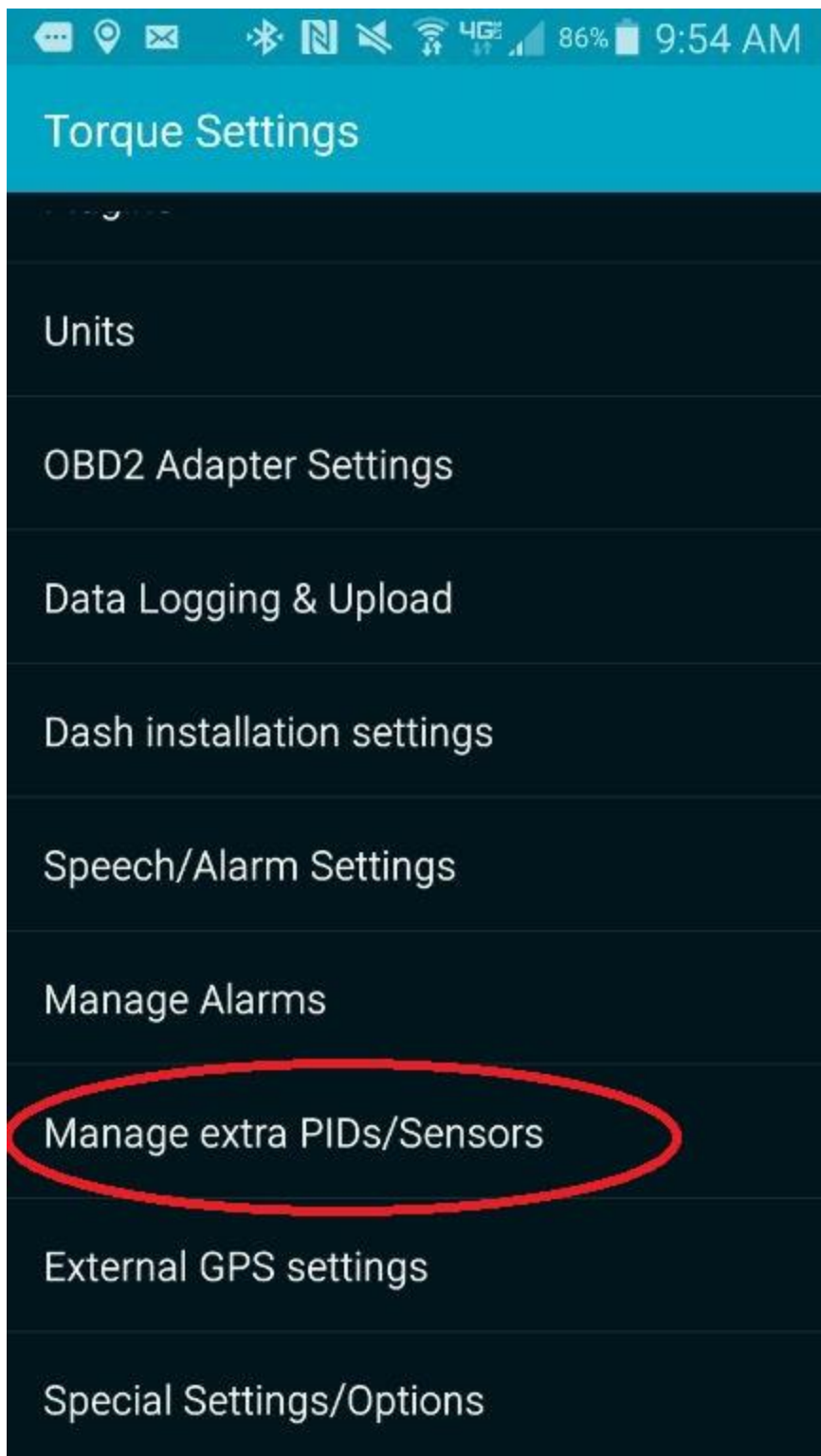
Step 5: Open torque settings to configure the app.



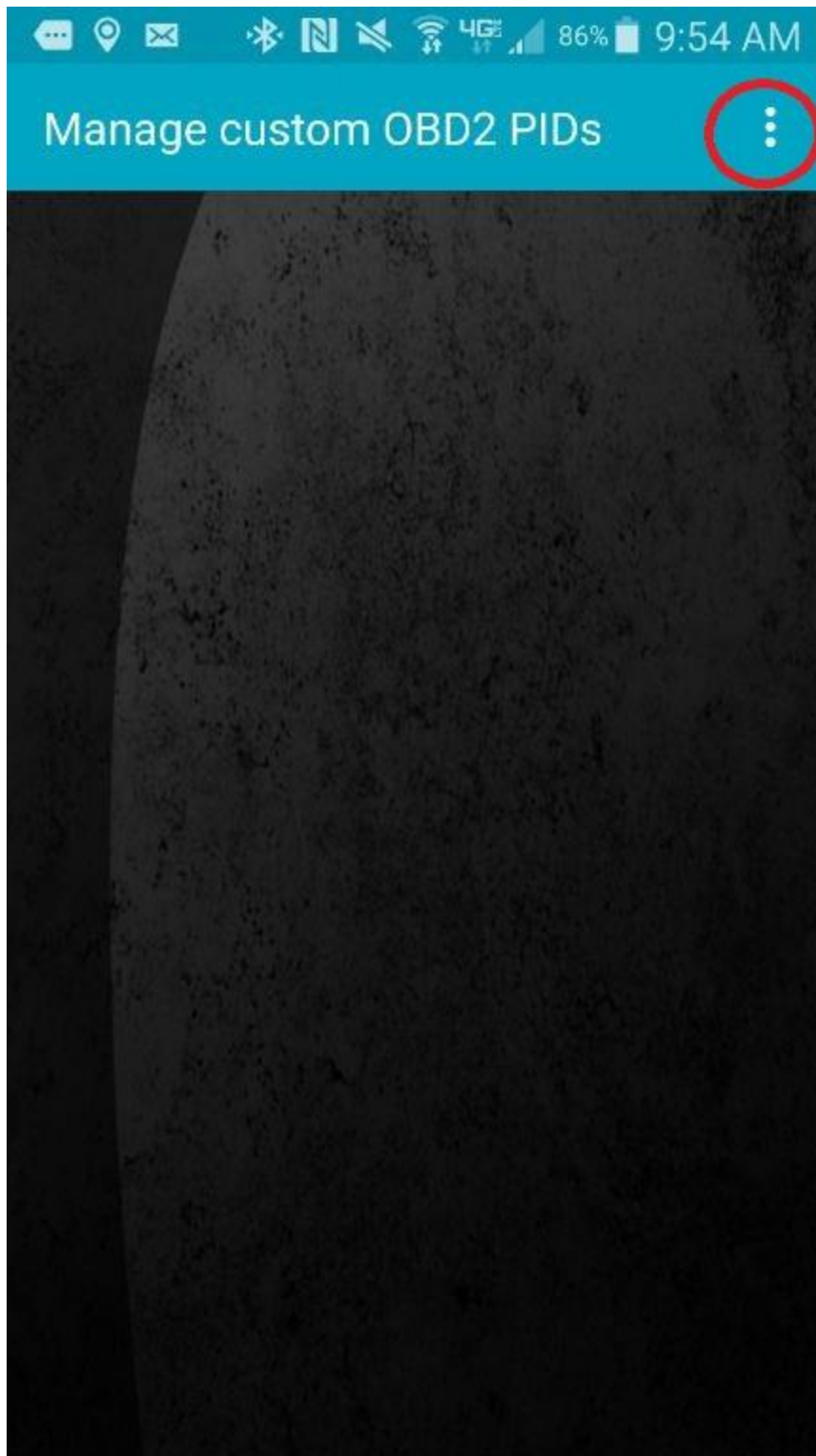
Step 6: Click on Settings



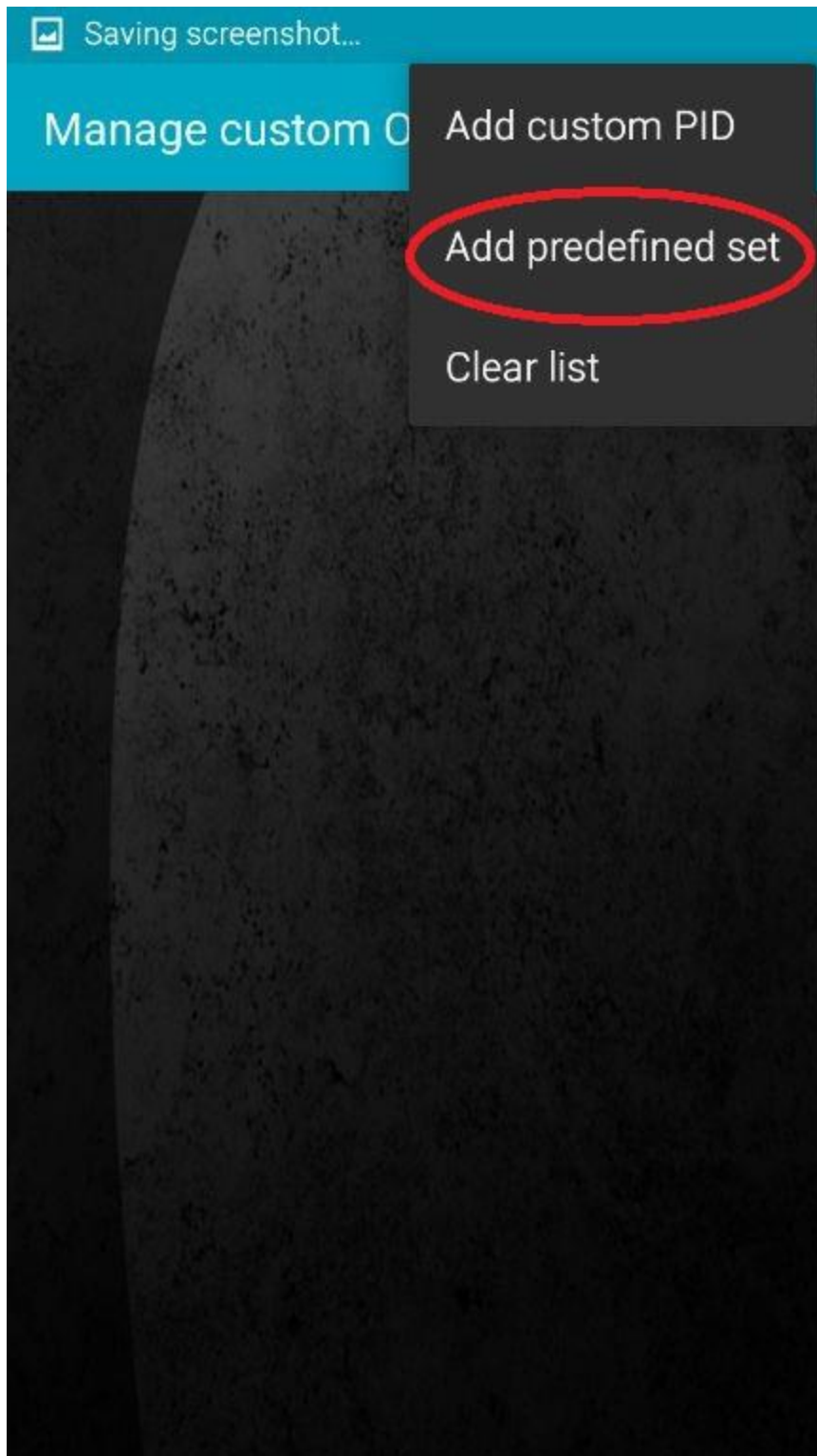
Step 7: scroll down on the screen until you find and click on "Manage Extra PIDs/Sensors"



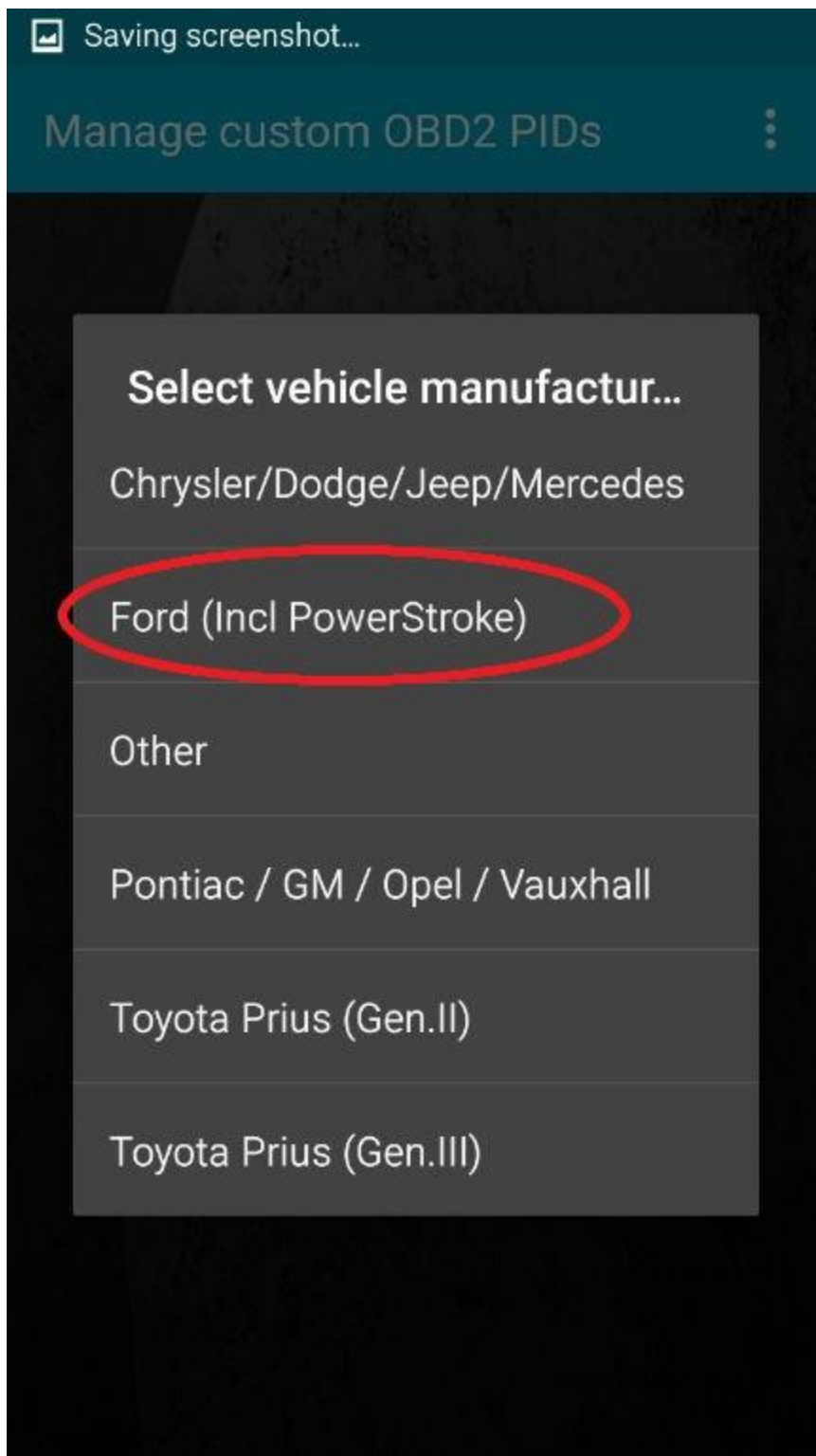
Step 8: click on the menu button in the top right



Step 9: Click on "Add Predefined Set"



Step 10: click on "Ford (Incl. Powerstroke)"



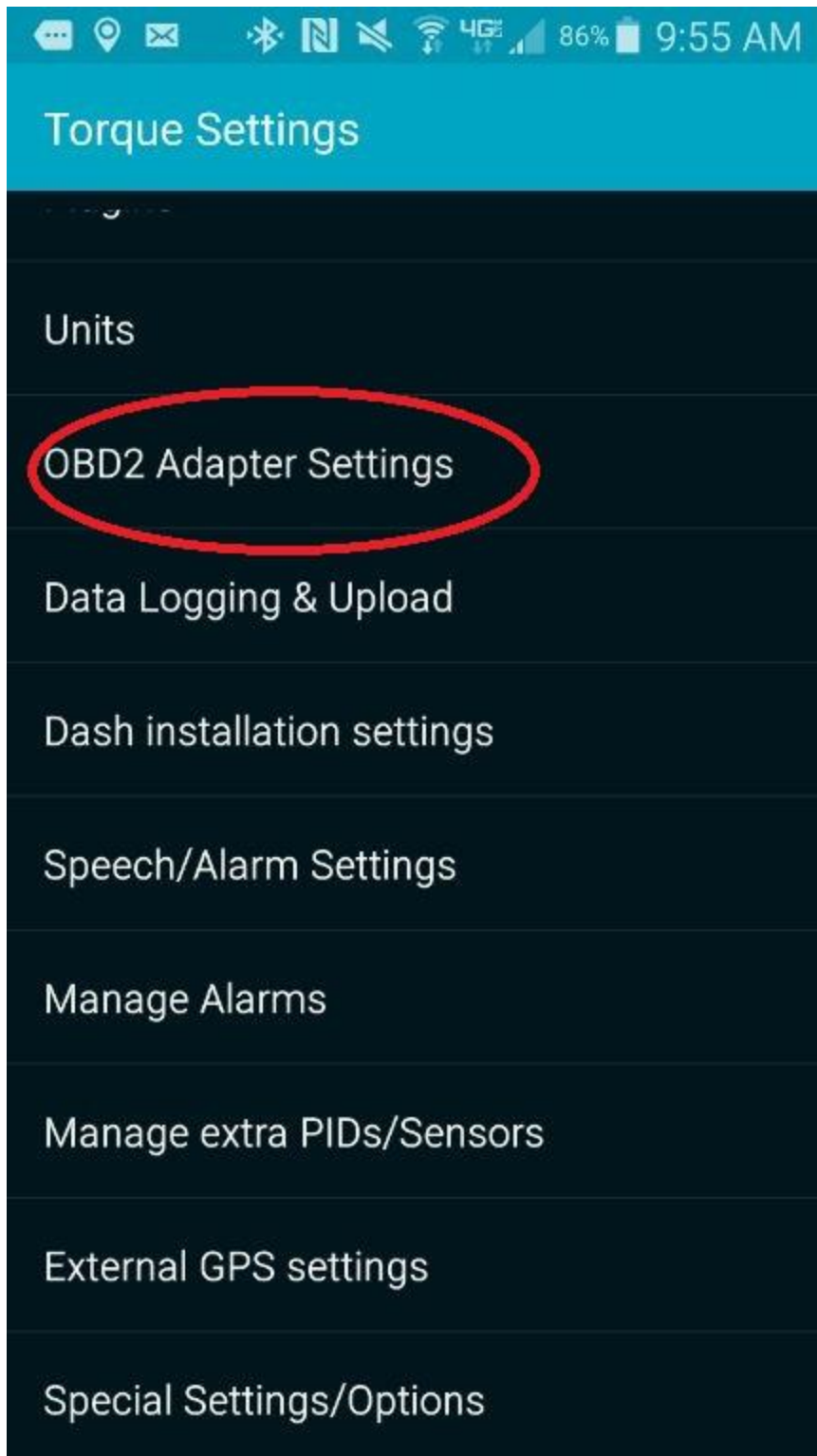
Step 11: Verify you see a large # of new PID's on the screen

 Saving screenshot...

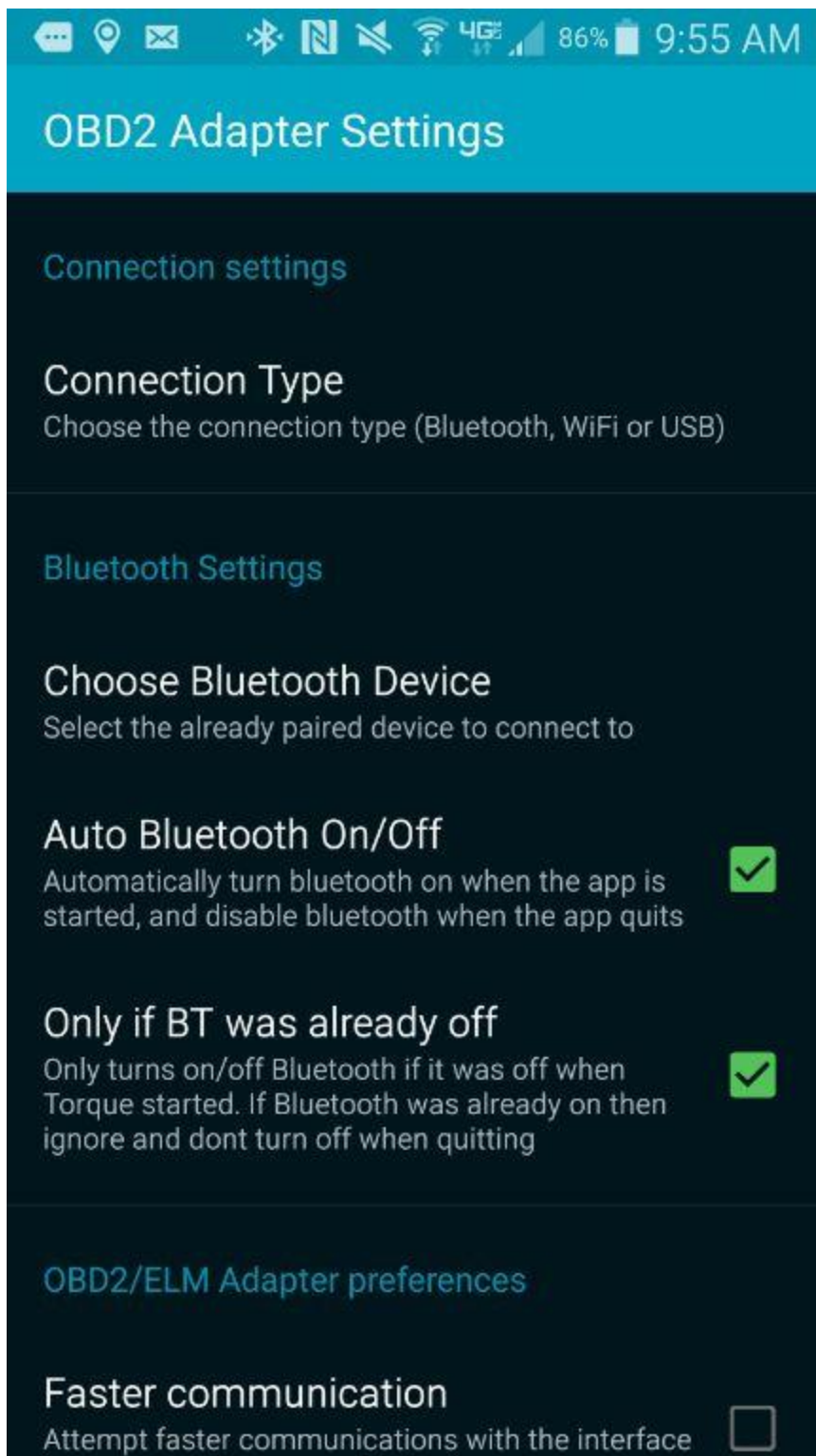
Manage custom OBD2 PIDs

 CURRENT DATA	Coolant temperature(From TCM) PID: 0105 Unit:°C Max/Min:120.0/0.0 Equation: A-40
 CUSTOM PID	FICM Main Power PID: 2209d0 Unit:Volts Max/Min:50.0/0.0 Equation: $((A*256)+B)*(100/256)/100$
 CUSTOM PID	FICM Logic Power PID: 2209cf Unit:Volts Max/Min:50.0/0.0 Equation: $((A*256)+B)*(100/256)/100$
 CUSTOM PID	FICM Vehicle Power PID: 2209ce Unit:Volts Max/Min:50.0/0.0 Equation: $((A*256)+B)*(100/256)/100$
 CUSTOM PID	Fan Speed Sensor PID: 22099f Unit:rpm Max/Min:1000.0/0.0 Equation: $((A*256)+B)*(1/4)$
 CUSTOM PID	Injection Control Pressure PID: 221446 Unit:psi Max/Min:5000.0/0.0 Equation: $((A*256)+B)*(57/100)$
 CUSTOM PID	Fuel pump duty cycle PID: 221672 Unit:% Max/Min:100.0/0.0 Equation: $A*100/128$
 CUSTOM PID	Engine Oil Temp PID: 221310 Unit:°C Max/Min:300.0/0.0 Equation: $((A*256)+B)/100-40$

Step 12: Press the back button to get back to the settings screen, then click on “OBD2 Adapter Settings”



Step 13: Verify connection type, choose Bluetooth device if you wish, Torque will auto find OBD readers if you do not pick.



Step 14: Back all the way out to the home screen of the torque app.

Verify that Torque connects to your reader.

The Red Circle is your GPS Lock, does not matter for monitoring

The Green Circle is your device indicator, it should always be lit

The Blue Circle is connection to OBD reader

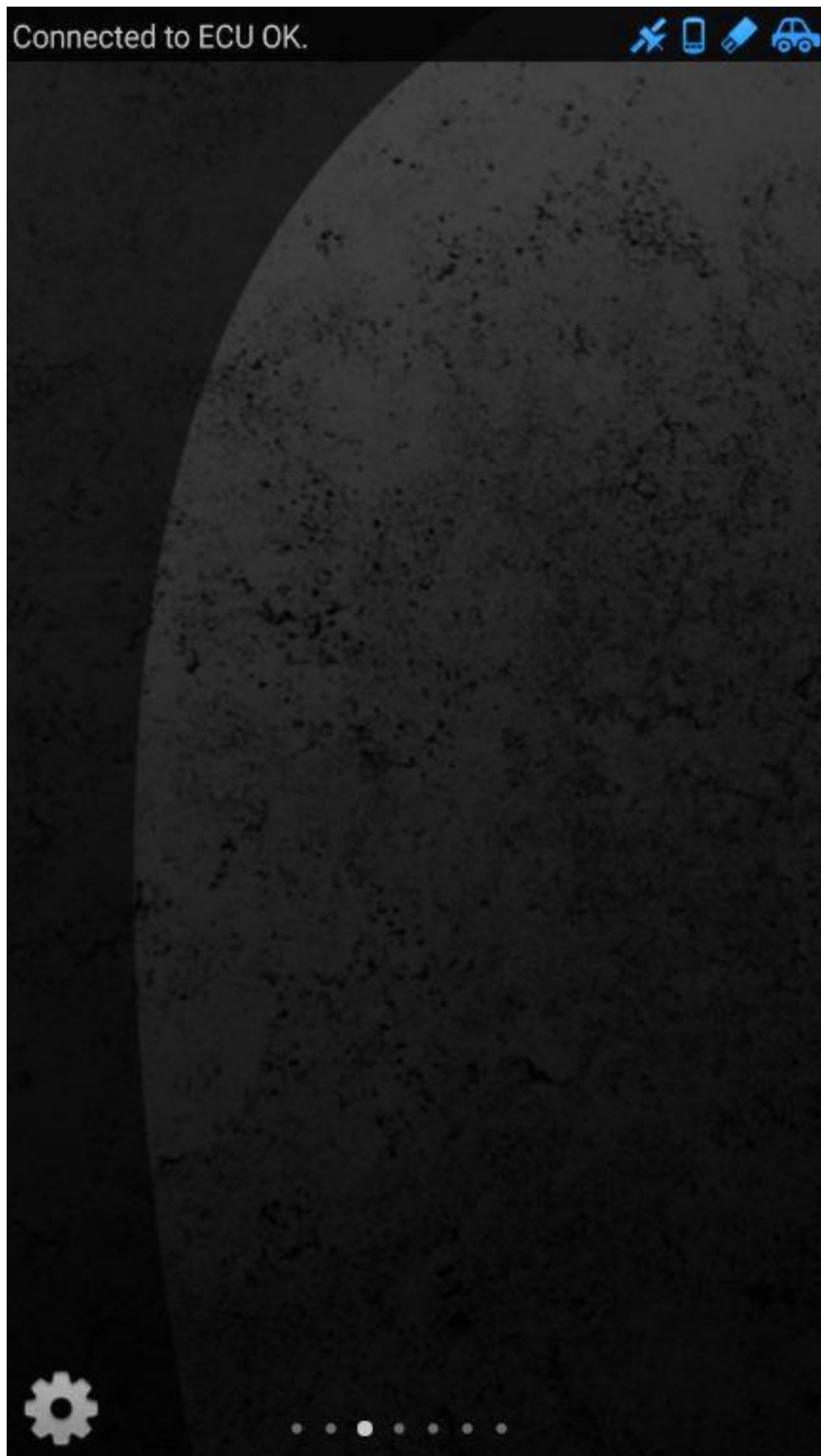
The Orange Circle is the OBD reader's connection to the PCM



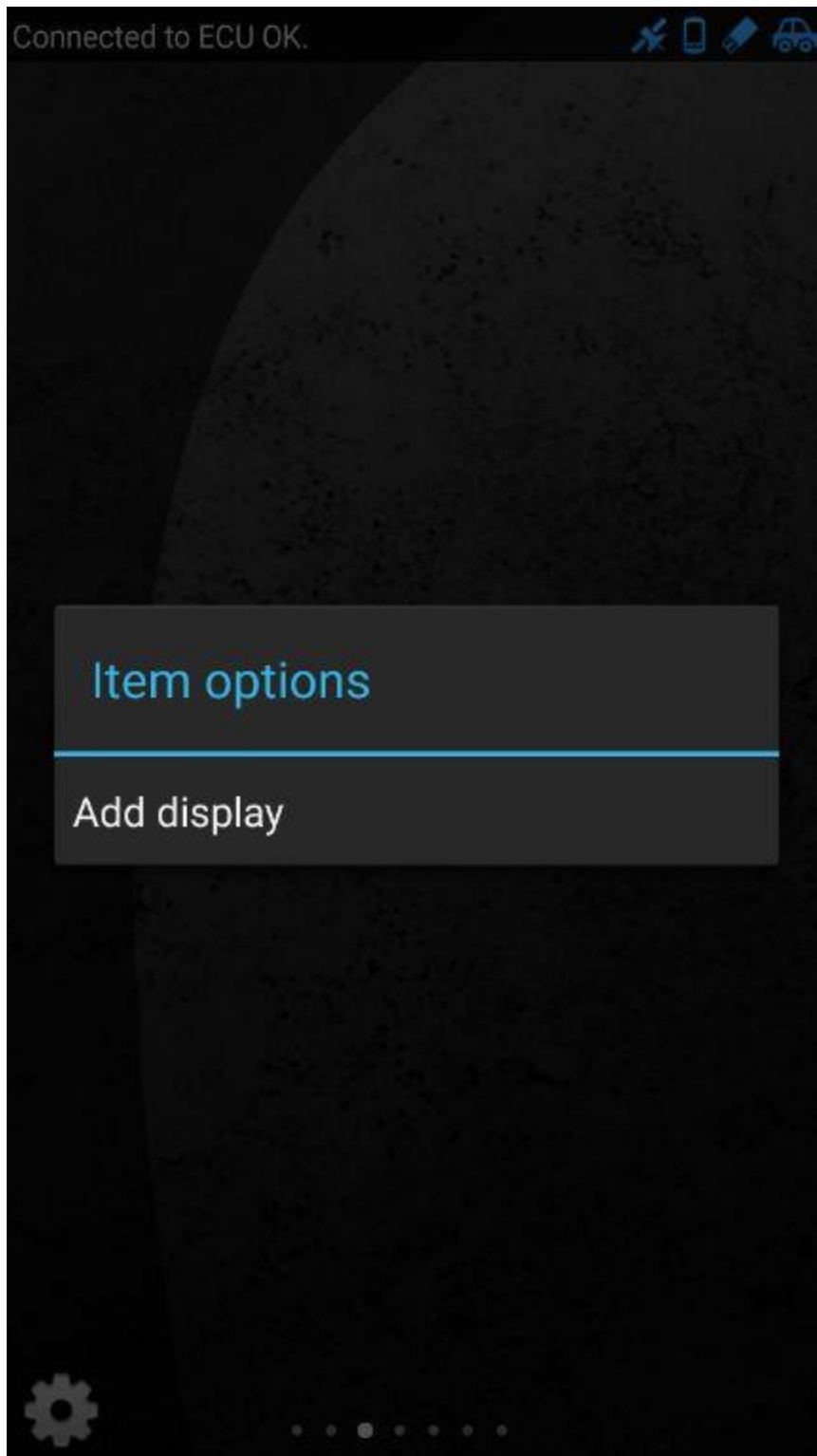
Step 15: Click on realtime information



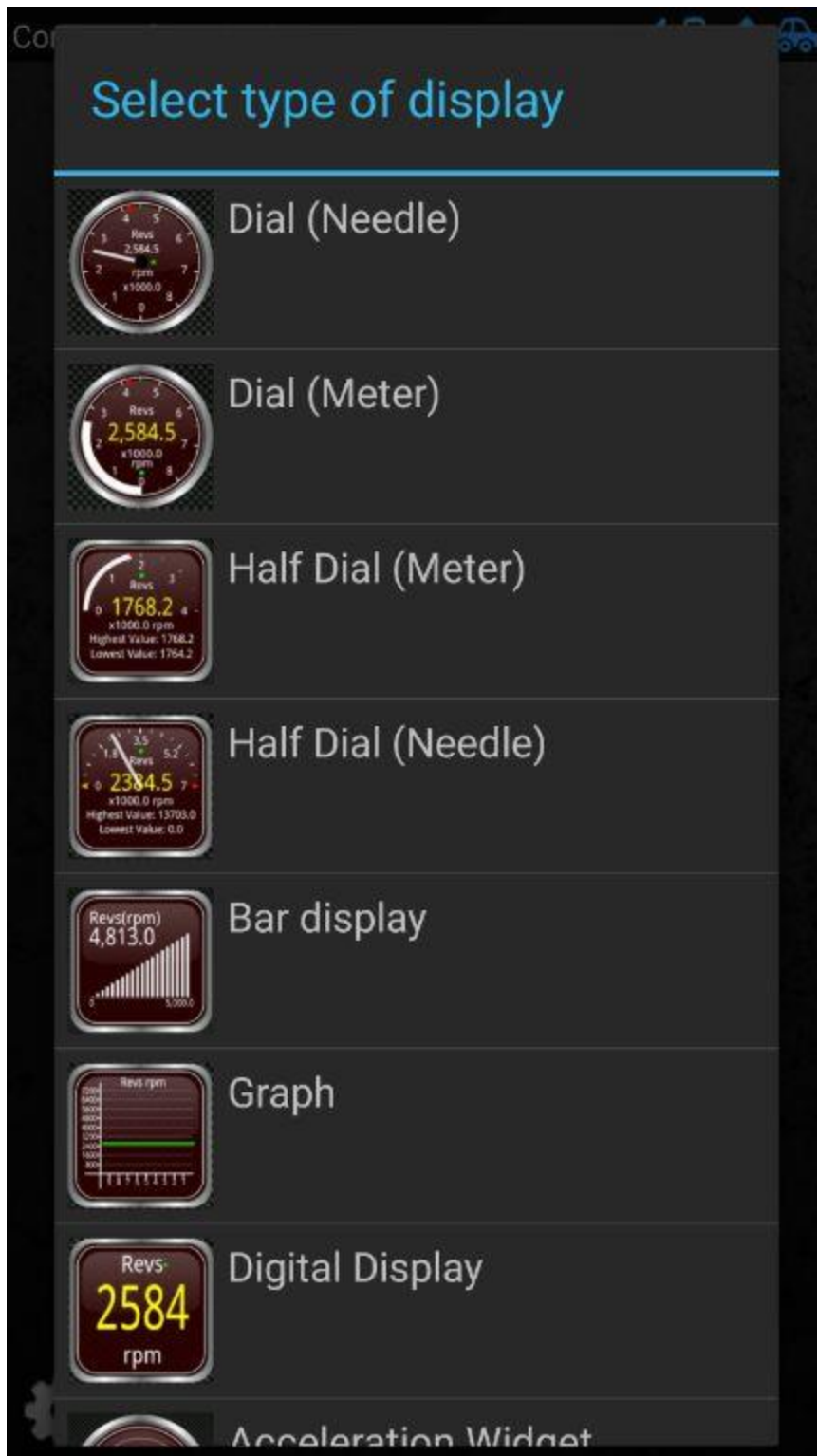
Step 16: Note that you can swipe left and right to get to an empty screen of gauges



Step 17: press and hold on the screen until you see a popup, then click add display



Step 18: Select the type of display you want, I like Dial (needle)



Step 19: Pick the PID you want, for Example ICP

Add sensor (Green = active)

Latest value: 10

GPS vs OBD Speed difference

Latest value: 0 km/h

Horsepower (At the wheels)



Hybrid Battery Charge (%)

IAT2

Injection Control Pressure

Latest value: 3.42 psi

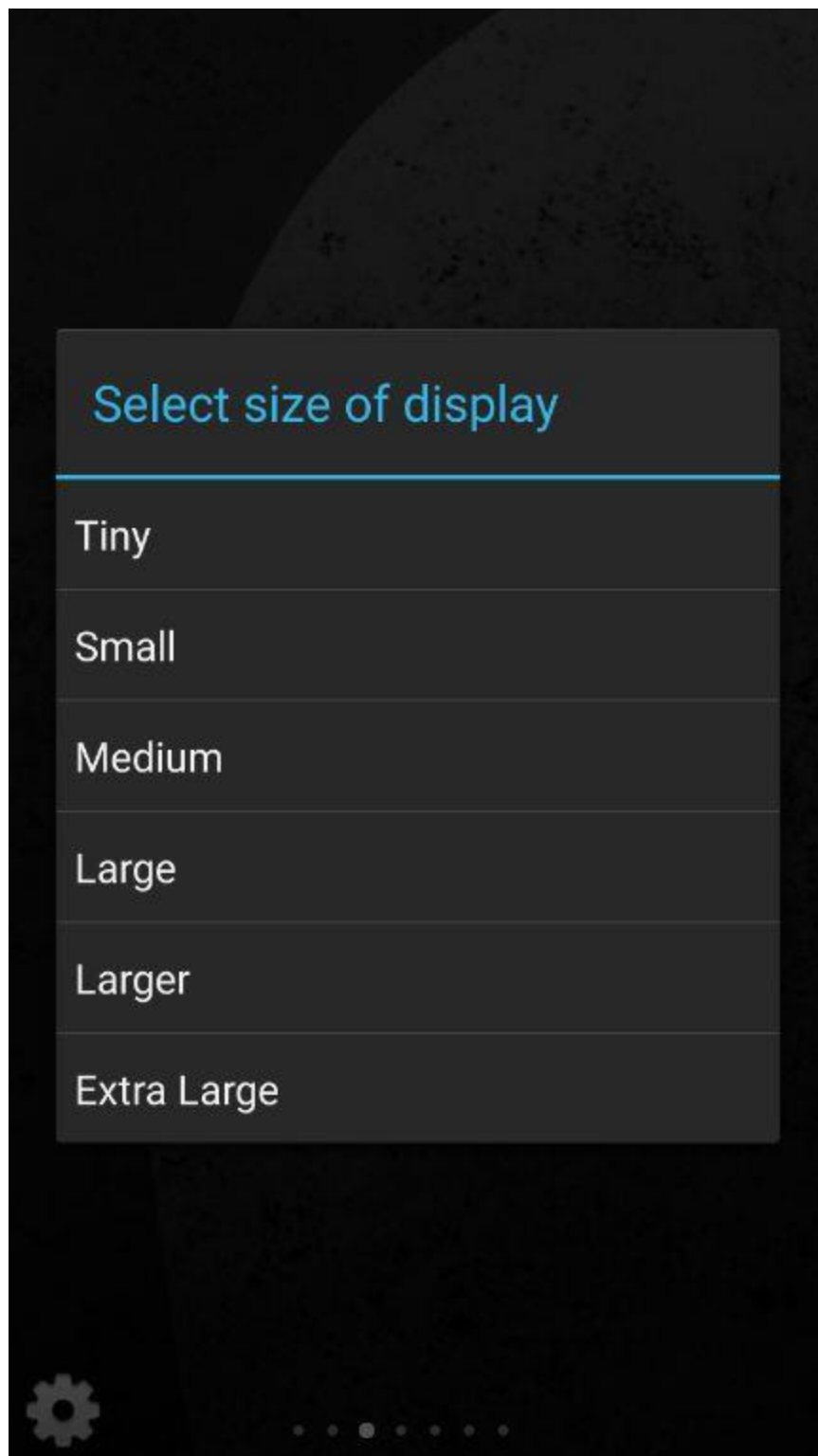
Injector Pressure Regulator Duty Cycle

Latest value: 14.69 %

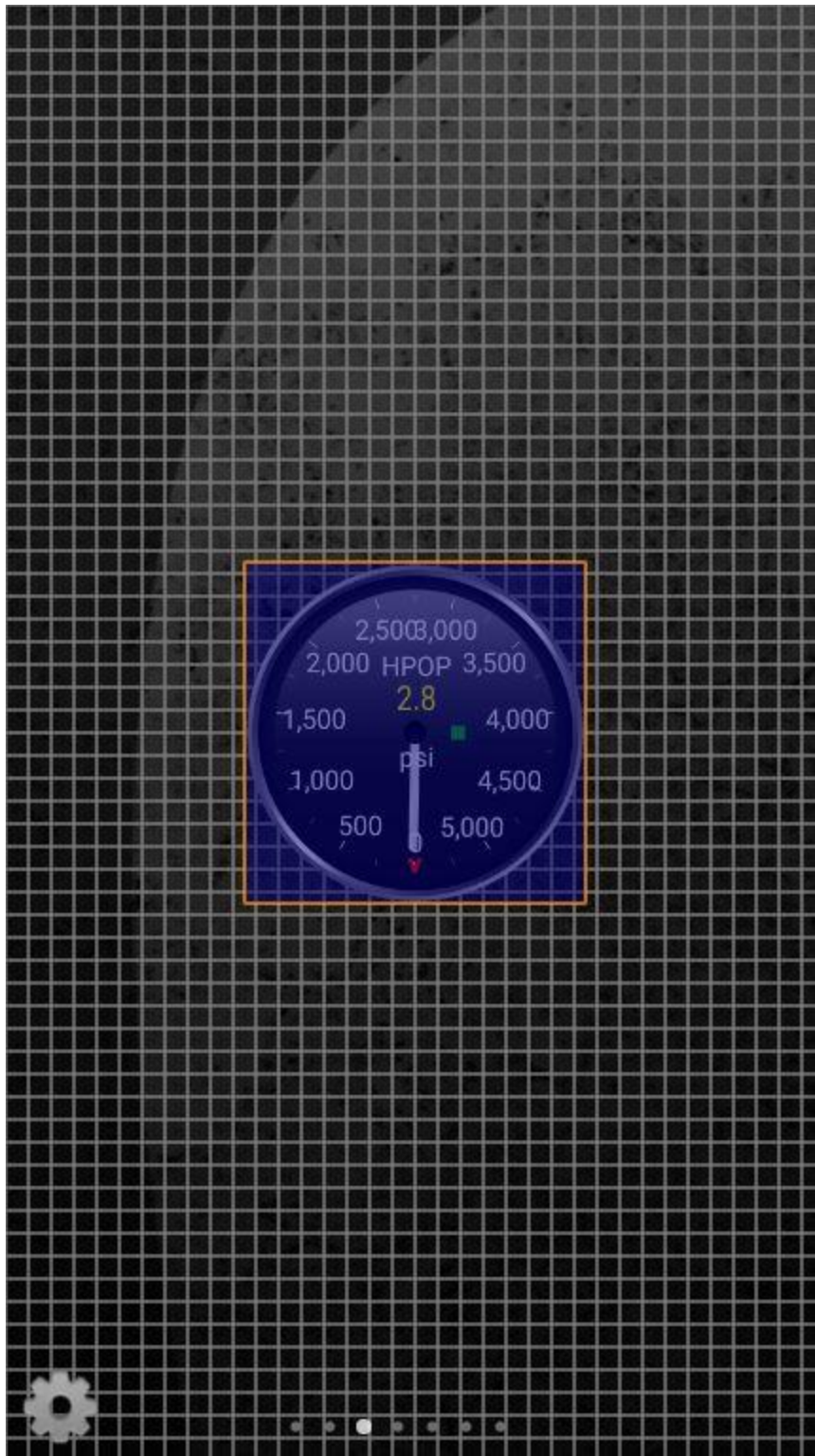
Injector timing before top dead center

Intake Air Temperature

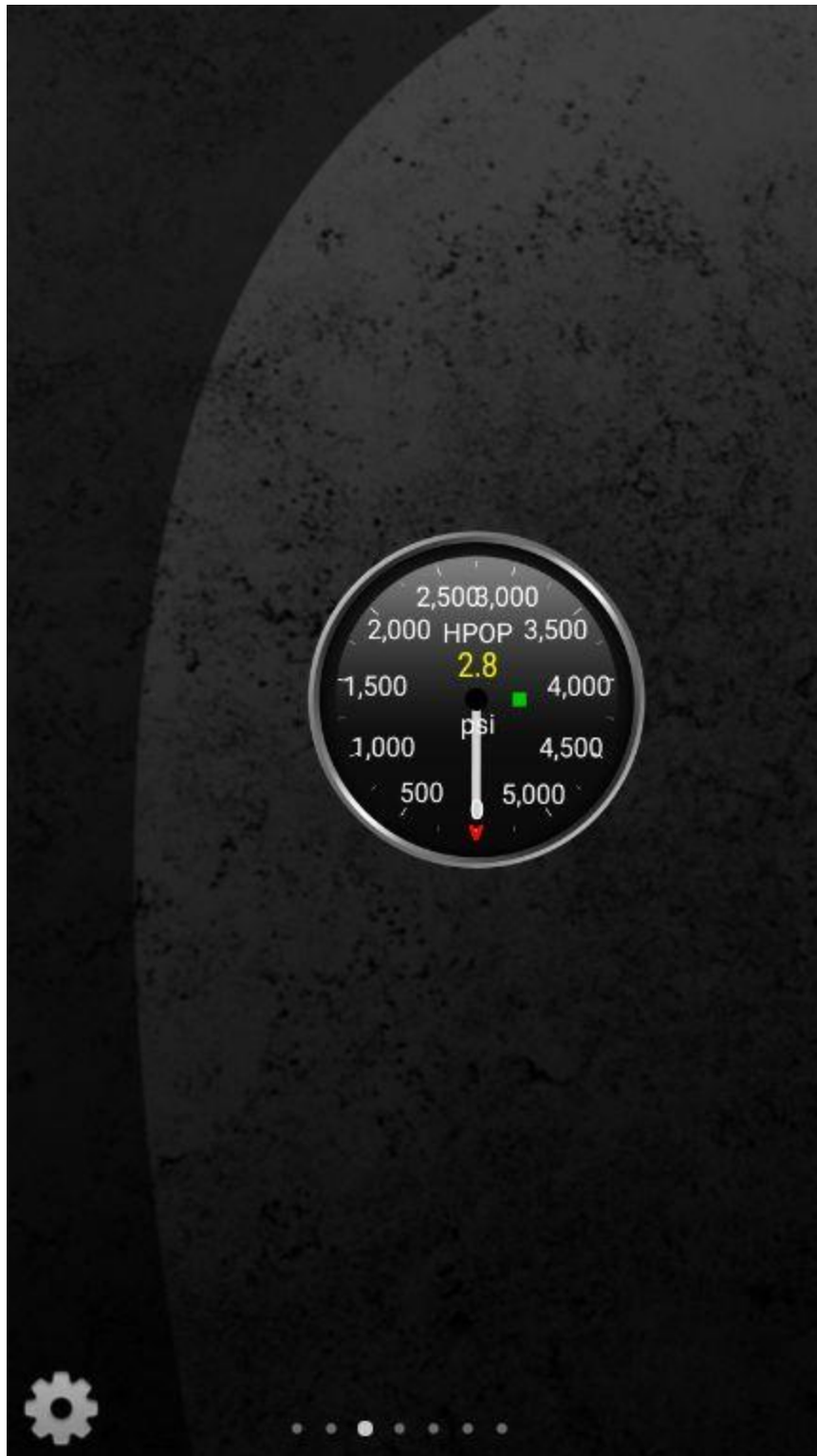
Step 20: Pick a size



Step 21: tap the location you want the gauge, you can also drag it to the grid lines



Step 22: When you tap or release your finger the gauge will lock there.



Repeat steps 17-22 for each gauge you want to add.

Part 4: Monitoring with Torque Pro

Disclaimer: This tutorial is written with screen shots from a Samsung Galaxy Note 4, but has been tested on half a dozen different phones.

Required items:

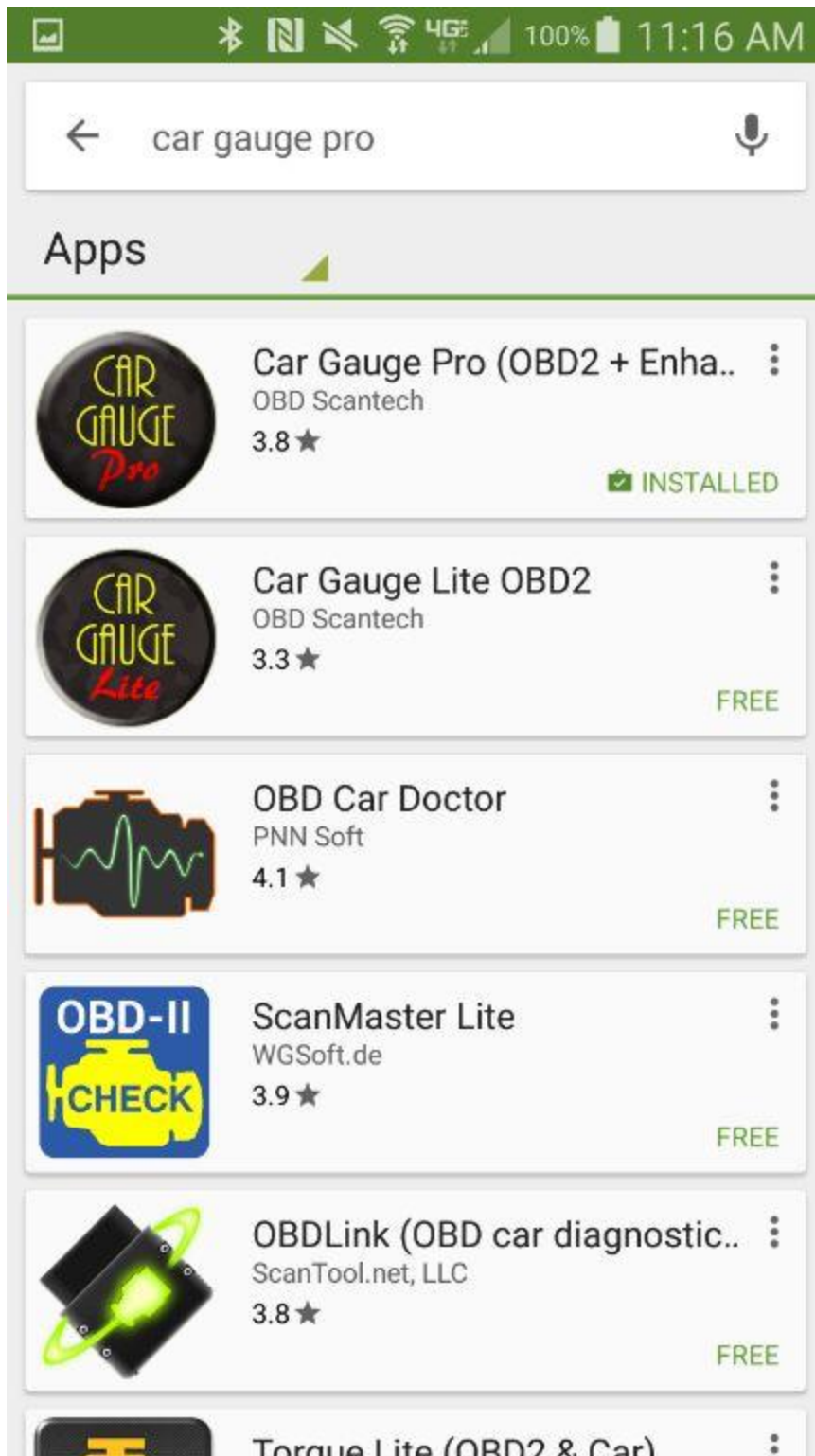
Bluetooth OBD Reader(I use this one: <http://goo.gl/aVPJLa>)

Android Phone or Tablet

Super Duty truck!

Now, to start we need to buy the CarGauge Pro app. There is a free app that you can use for testing, this tutorial does not cover that.

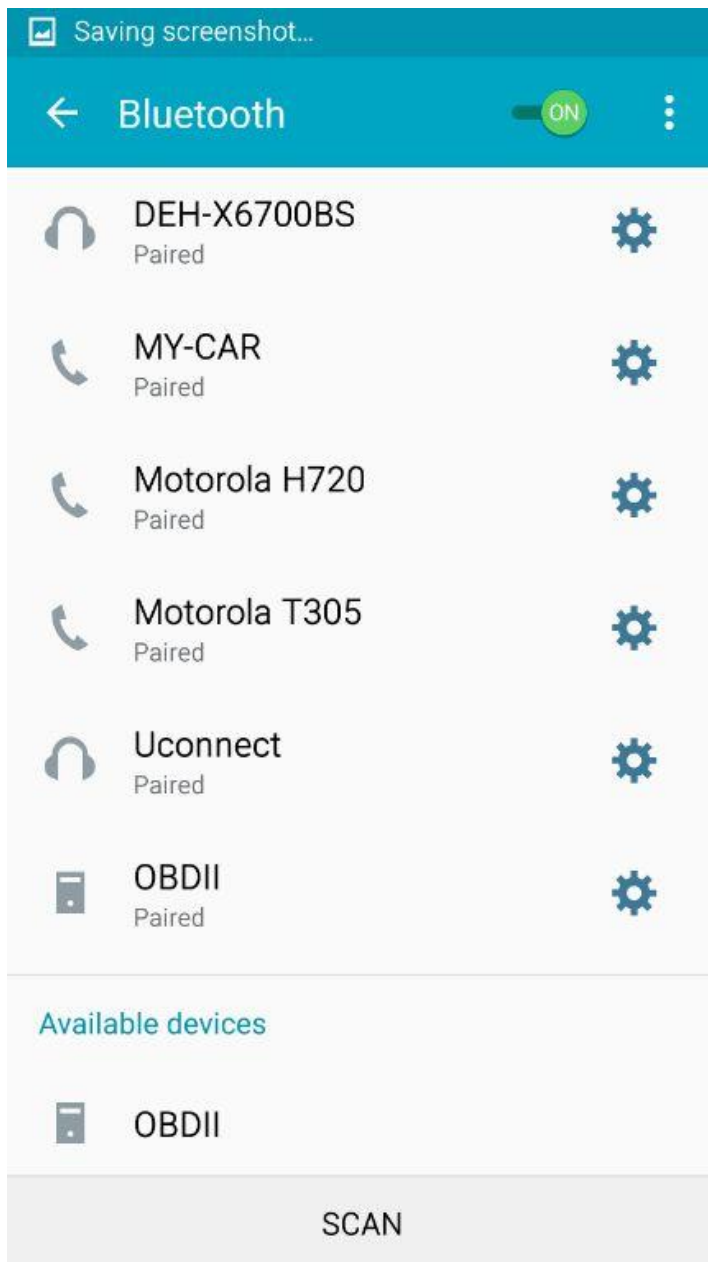
Step 1: Open the google play store, search for Car Gauge Pro, purchase and install it.



Step 2: Connect your Bluetooth obd reader to your truck and turn the key on.

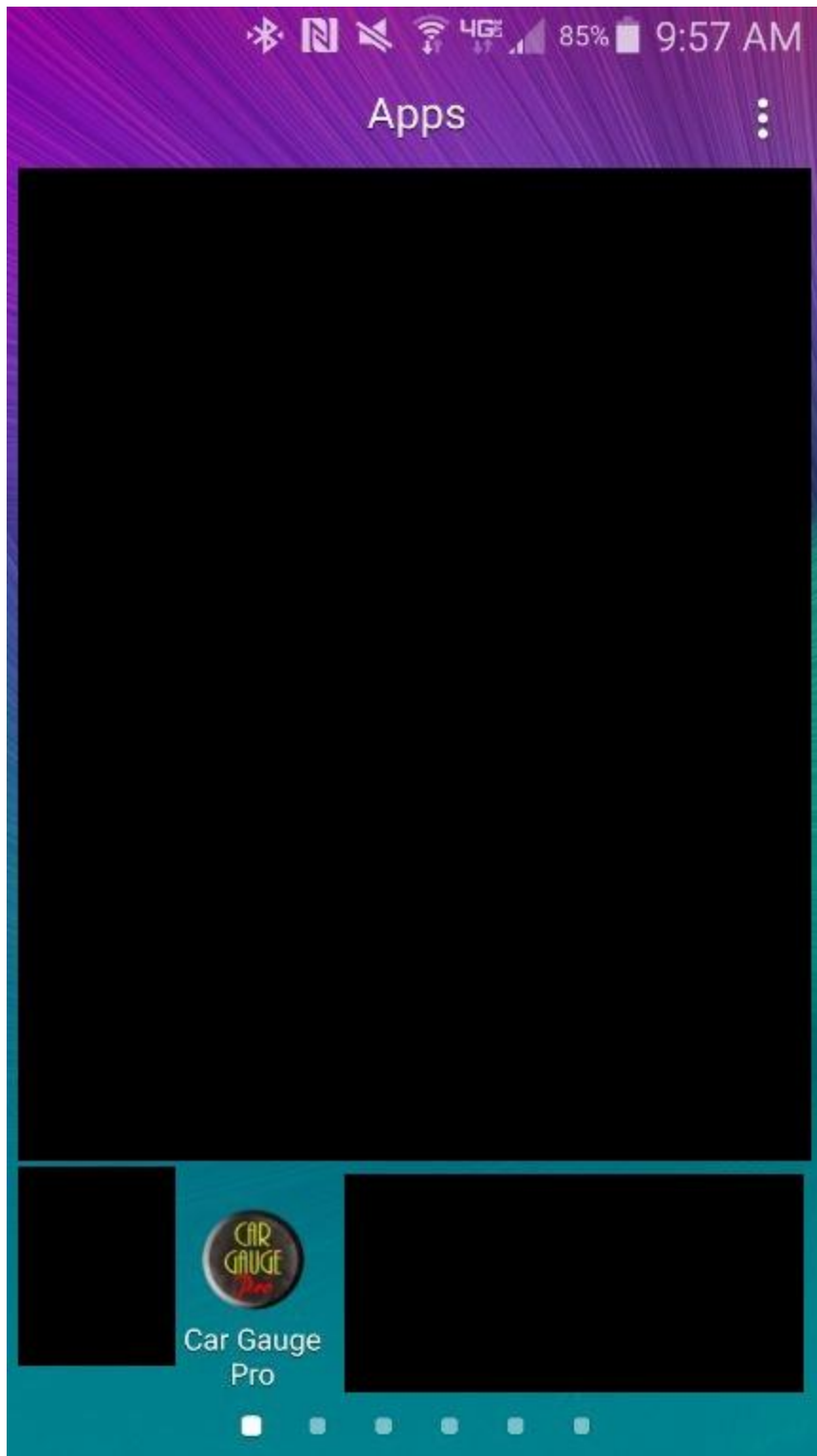


Step 3: Pair your OBD reader to your phone

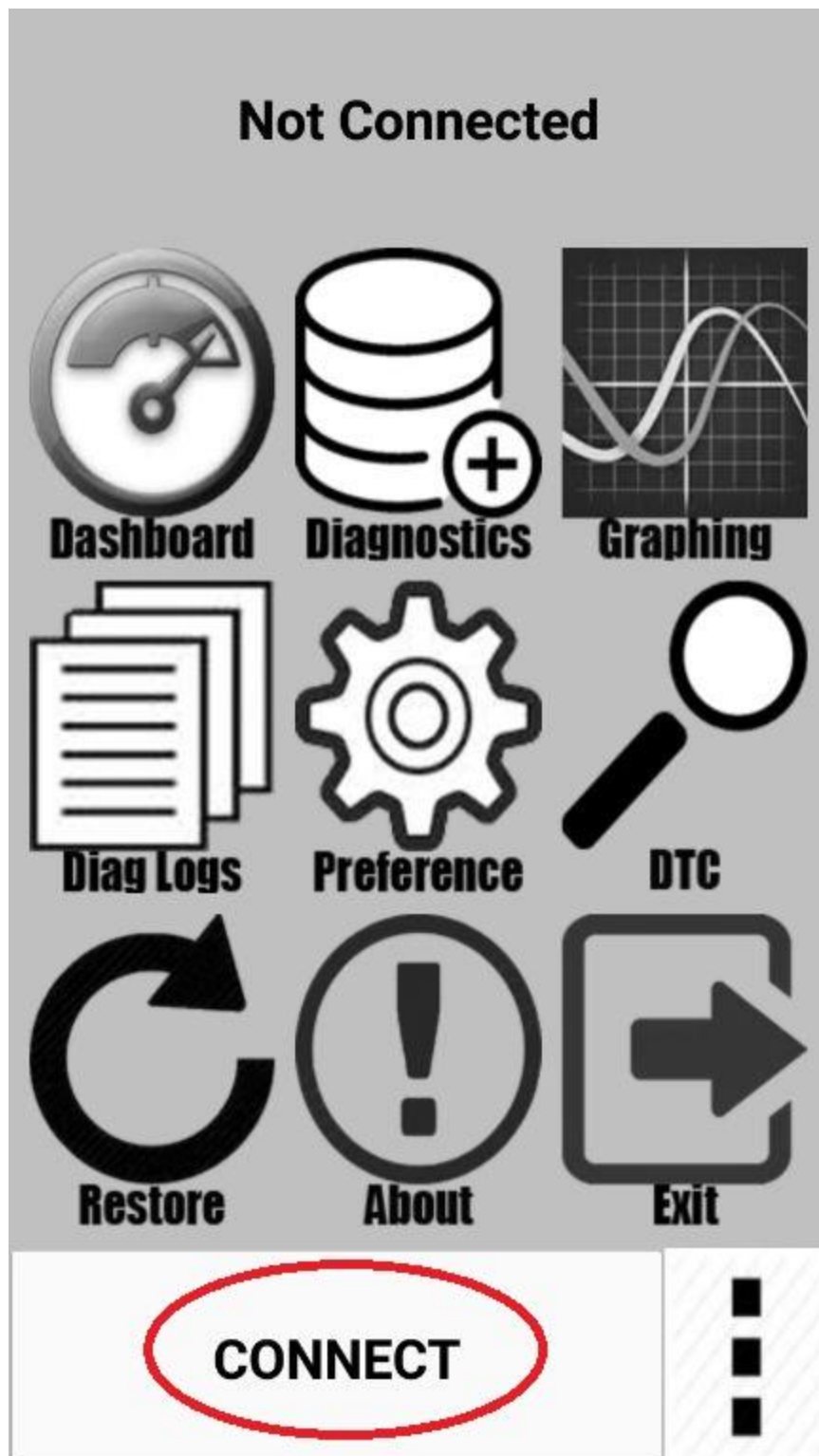


Your phone will ask you for a Bluetooth pin, usually this is 0000 or 1234

Step 4: Open the CarGauge Pro app



Step 5: Click on connect.



Step 6: Select your OBD reader from the popup

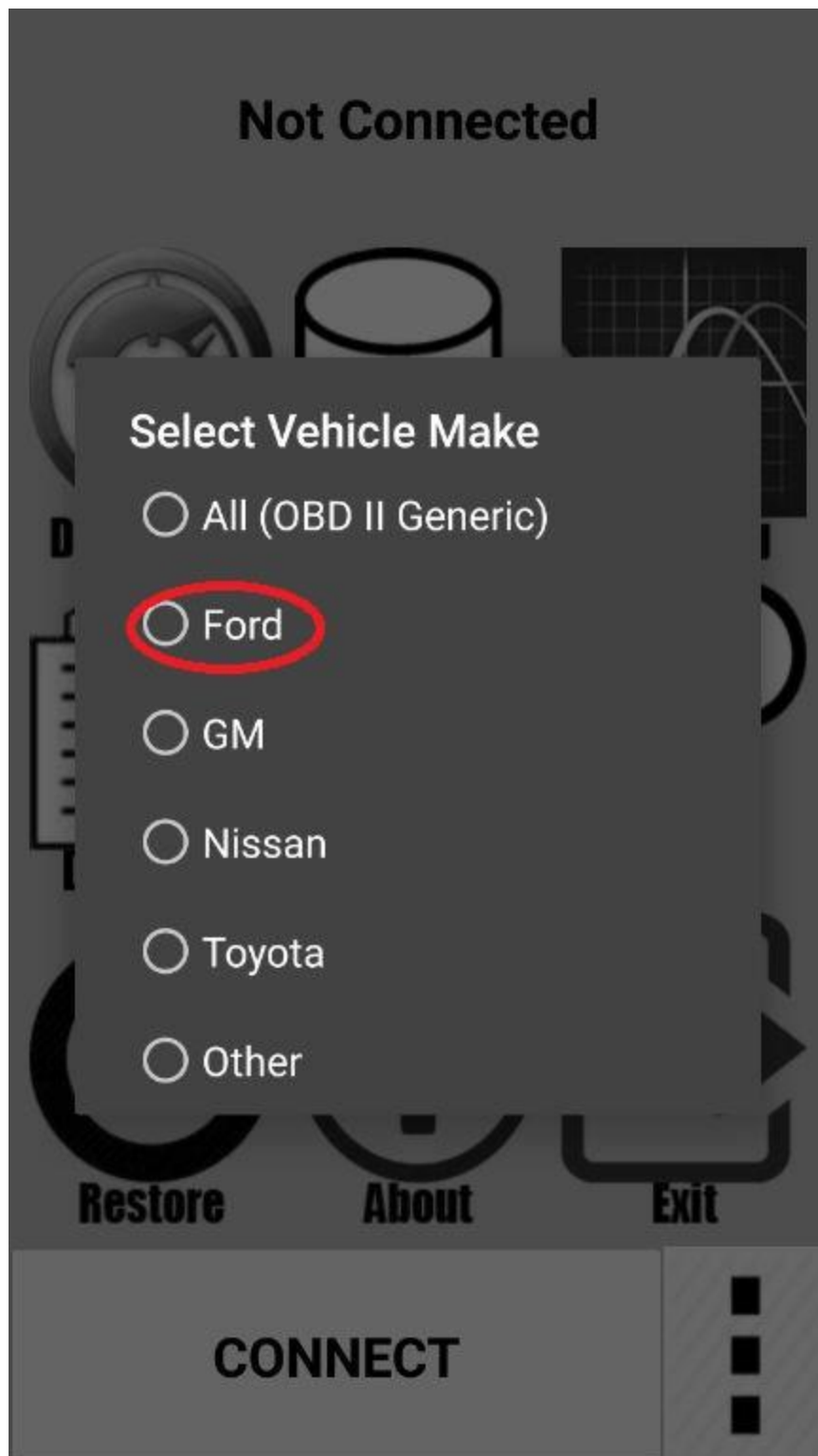
Not Connected

Choose Device

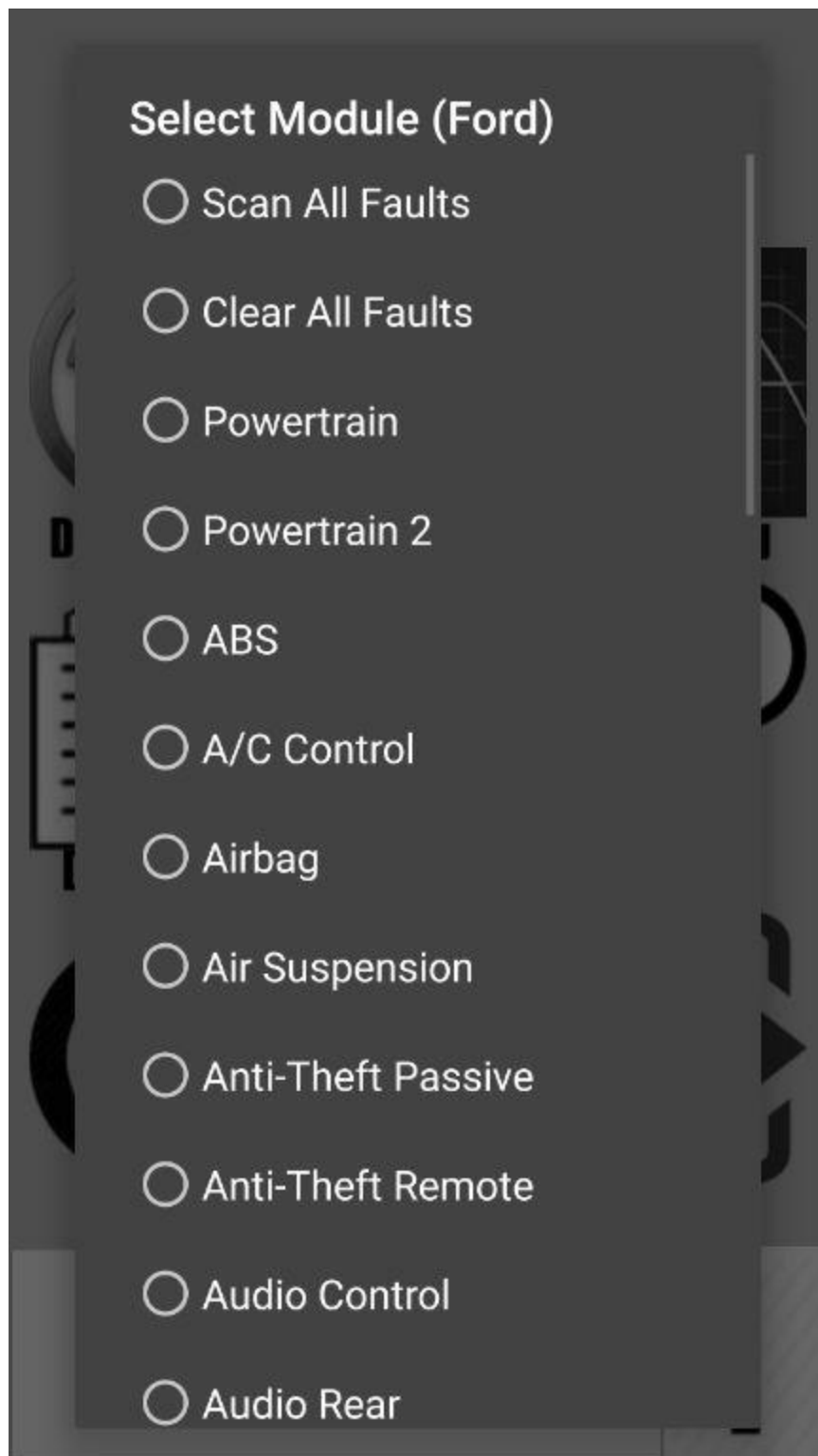
- ☐ Uconnect
- ☐ CAR KIT
- ☐ DEH-X6700BS
- ☐ CASIO GB-X6900B
- ☐ Motorola H720
- ☐ MY-CAR
- ☐ Motorola T305
- ☐ FH-X700BT
- ☐ OBDII
- ☐ Import Pids (Offline)

CONNECT

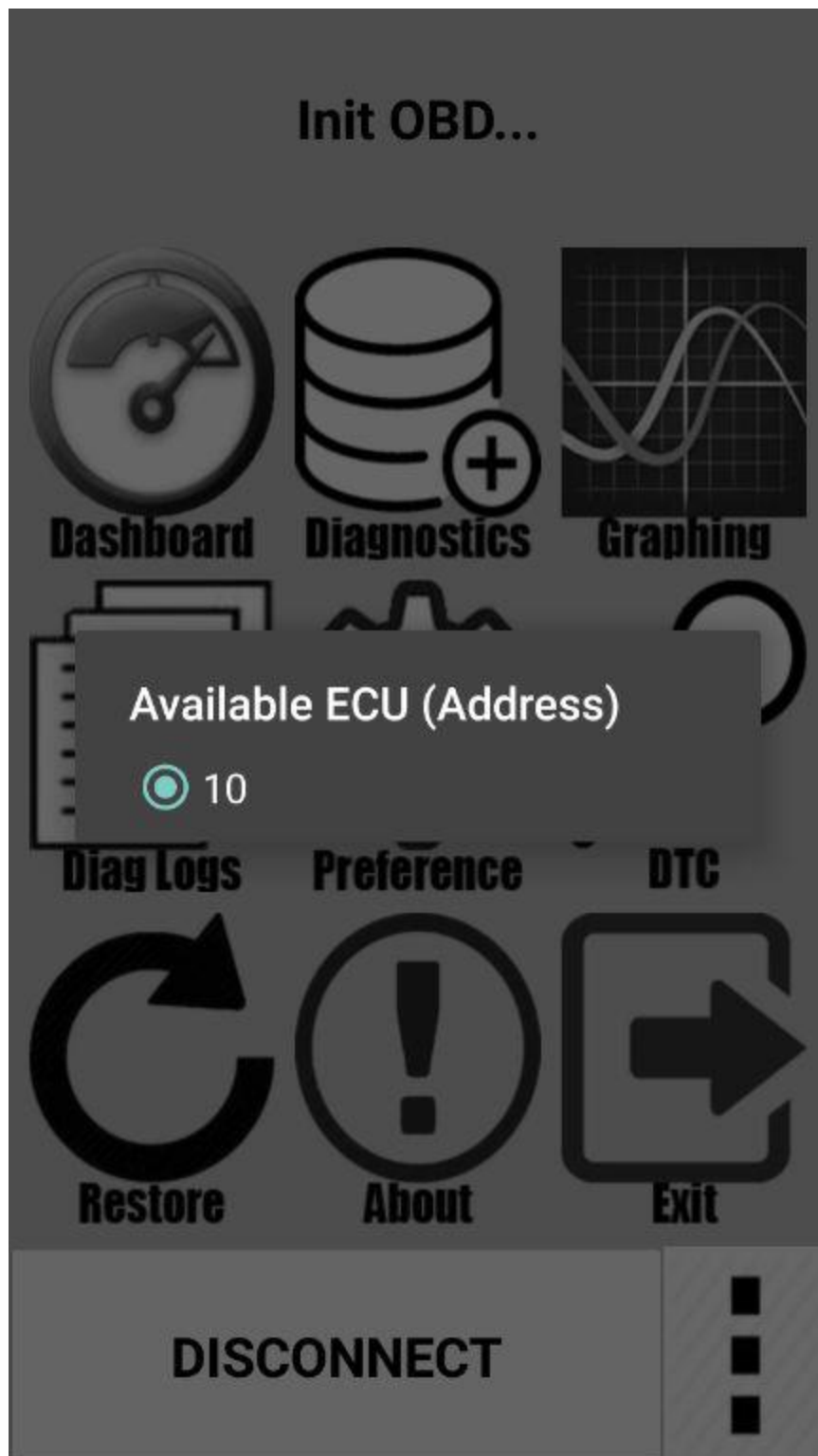
Step 7: Select your vehicle manufacturer (FORD!!)



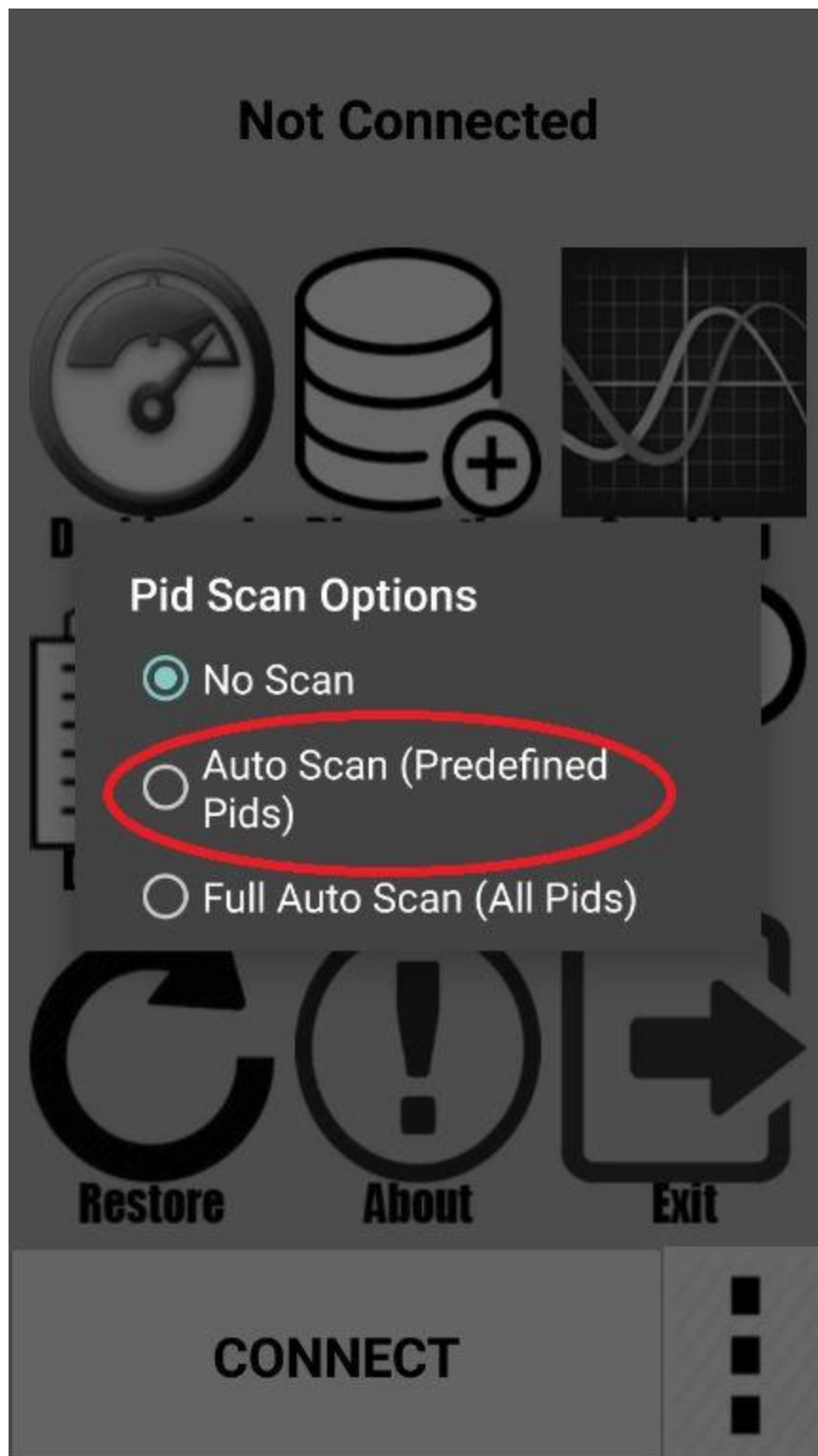
Step 8: Select the Ford Powertrain Module



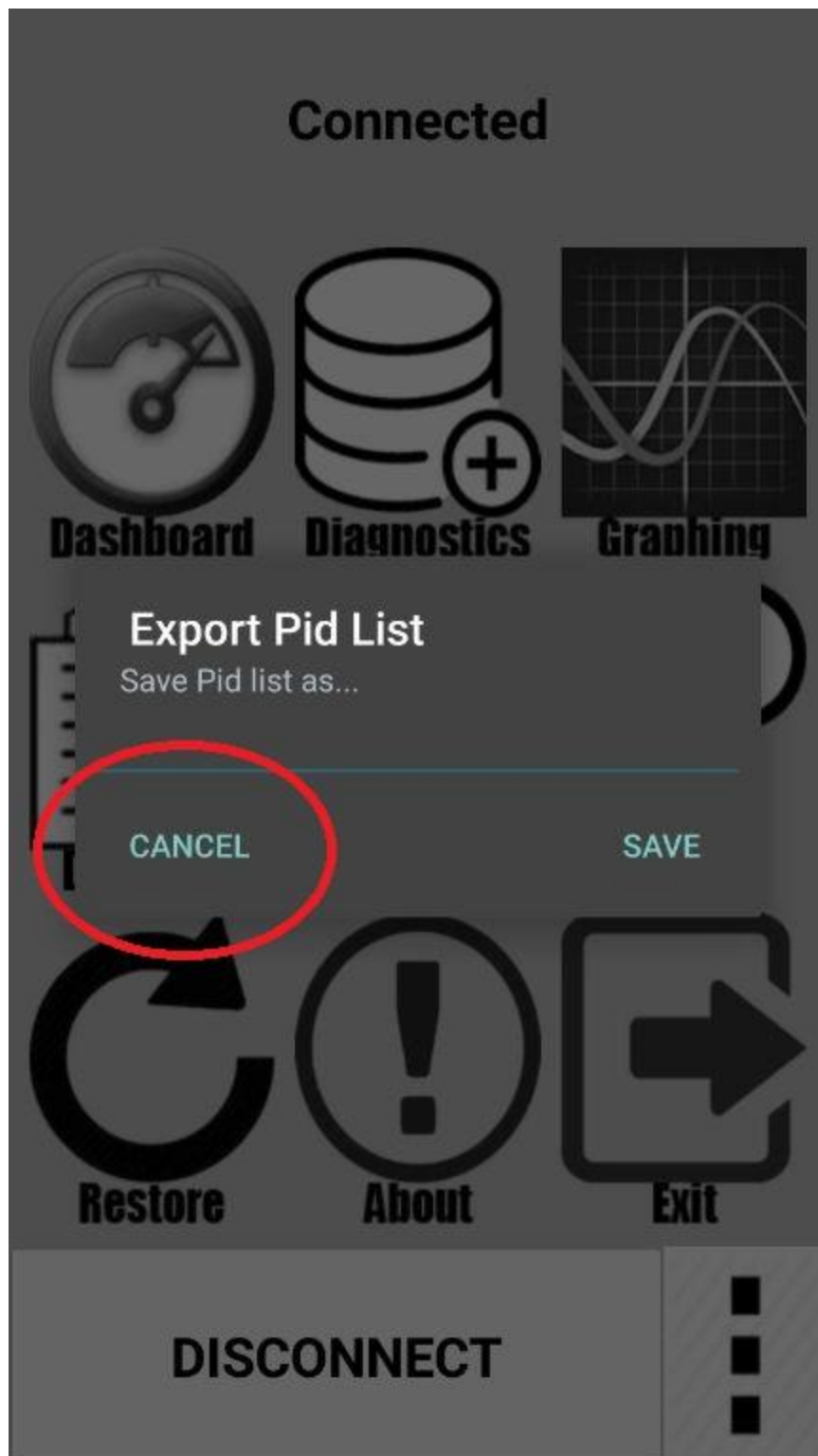
Step 9: Select the ECU



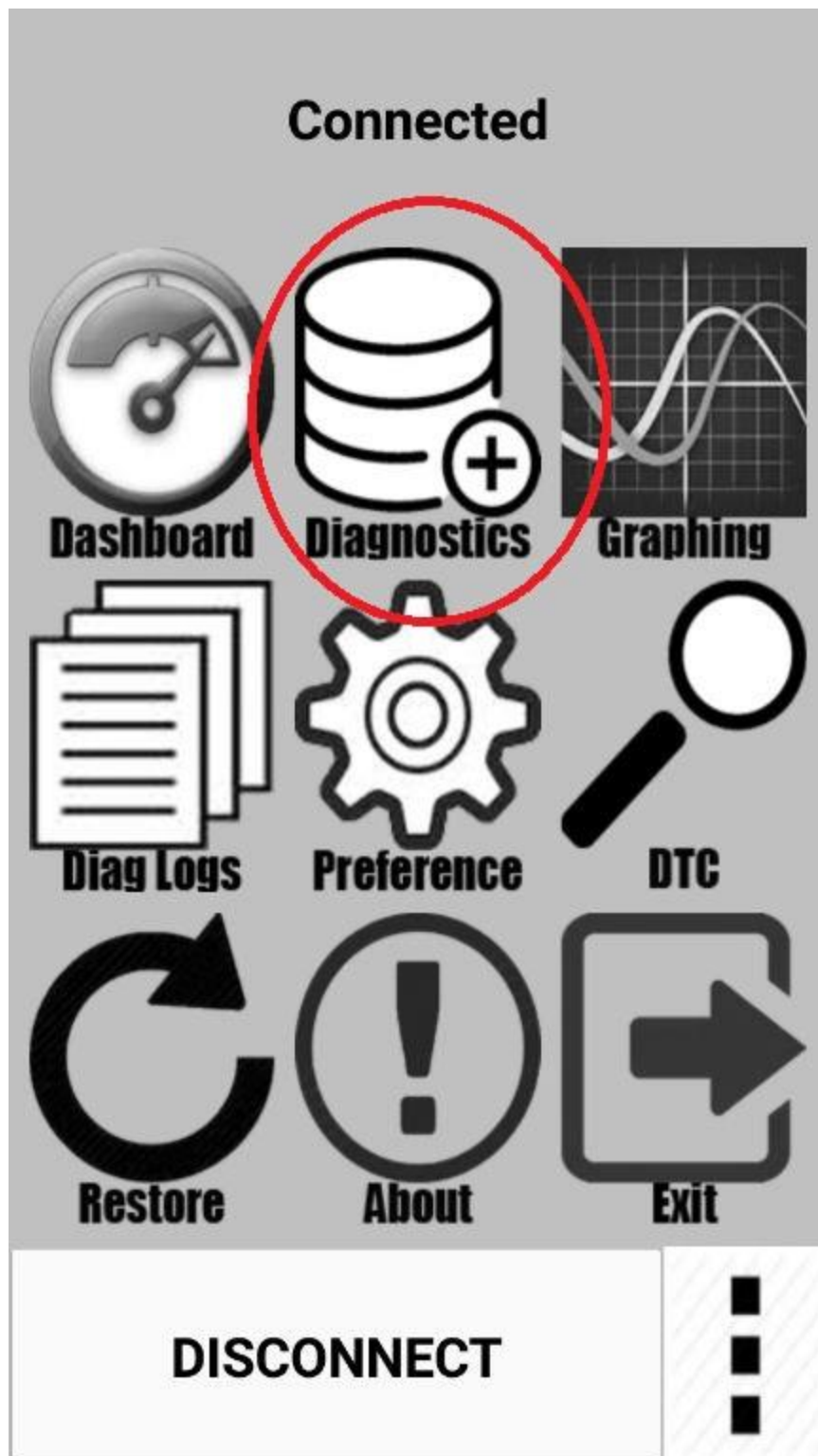
Step 10: Select Auto-Scan for PID's



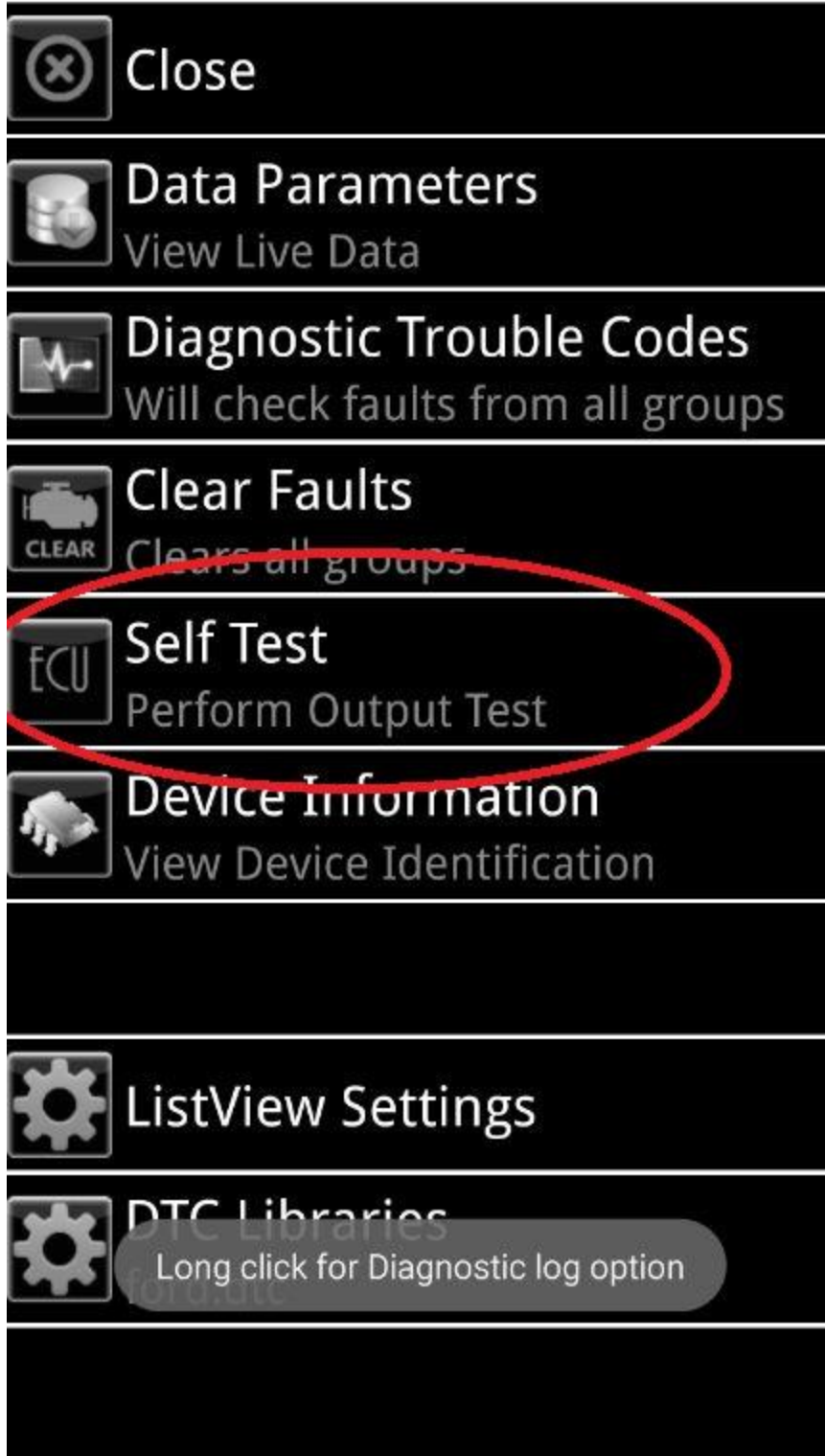
Step 11: click cancel when asked to save the PID list



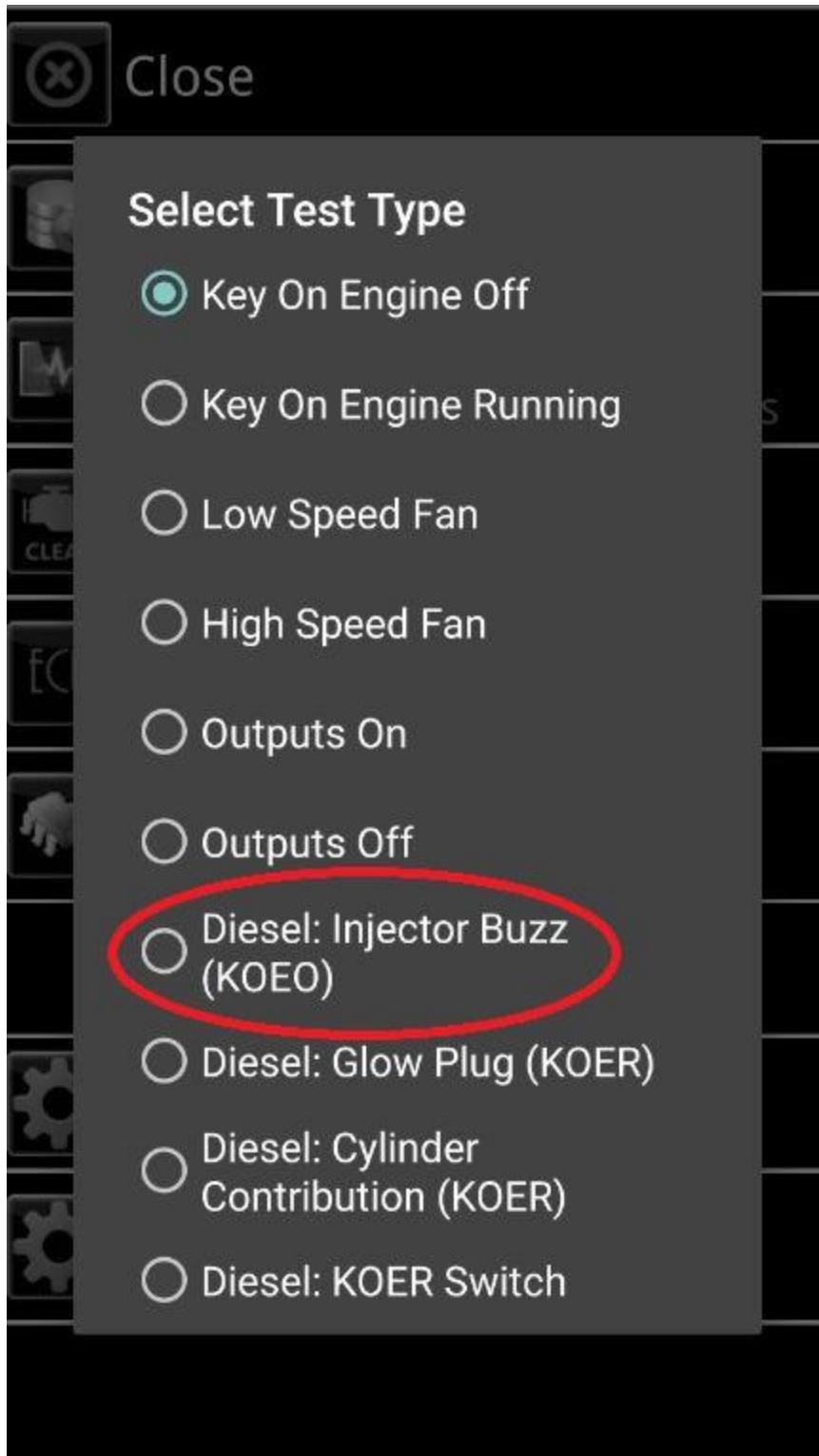
Step 12: Click Diagnostics



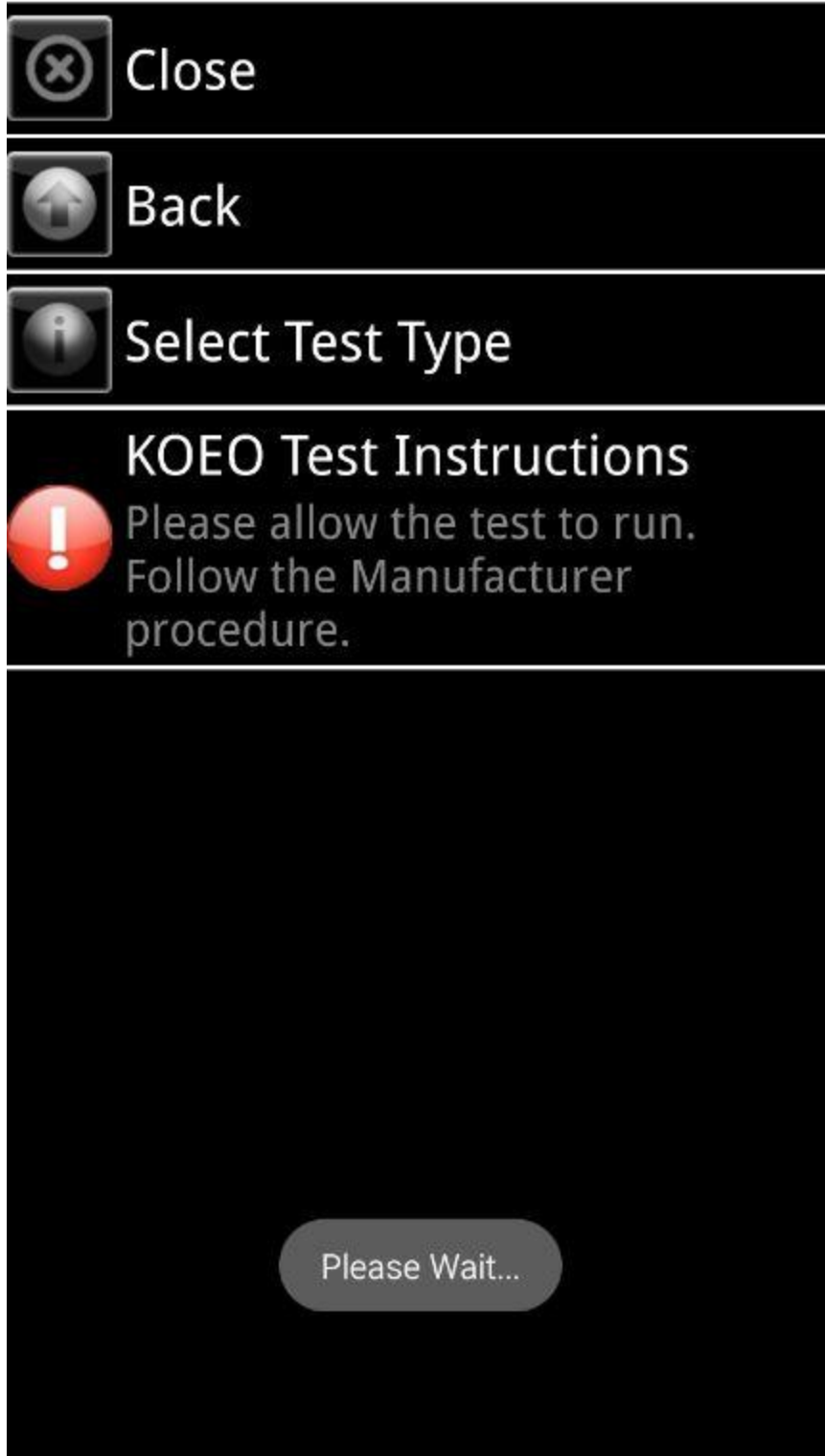
Step 13: Select Self Test



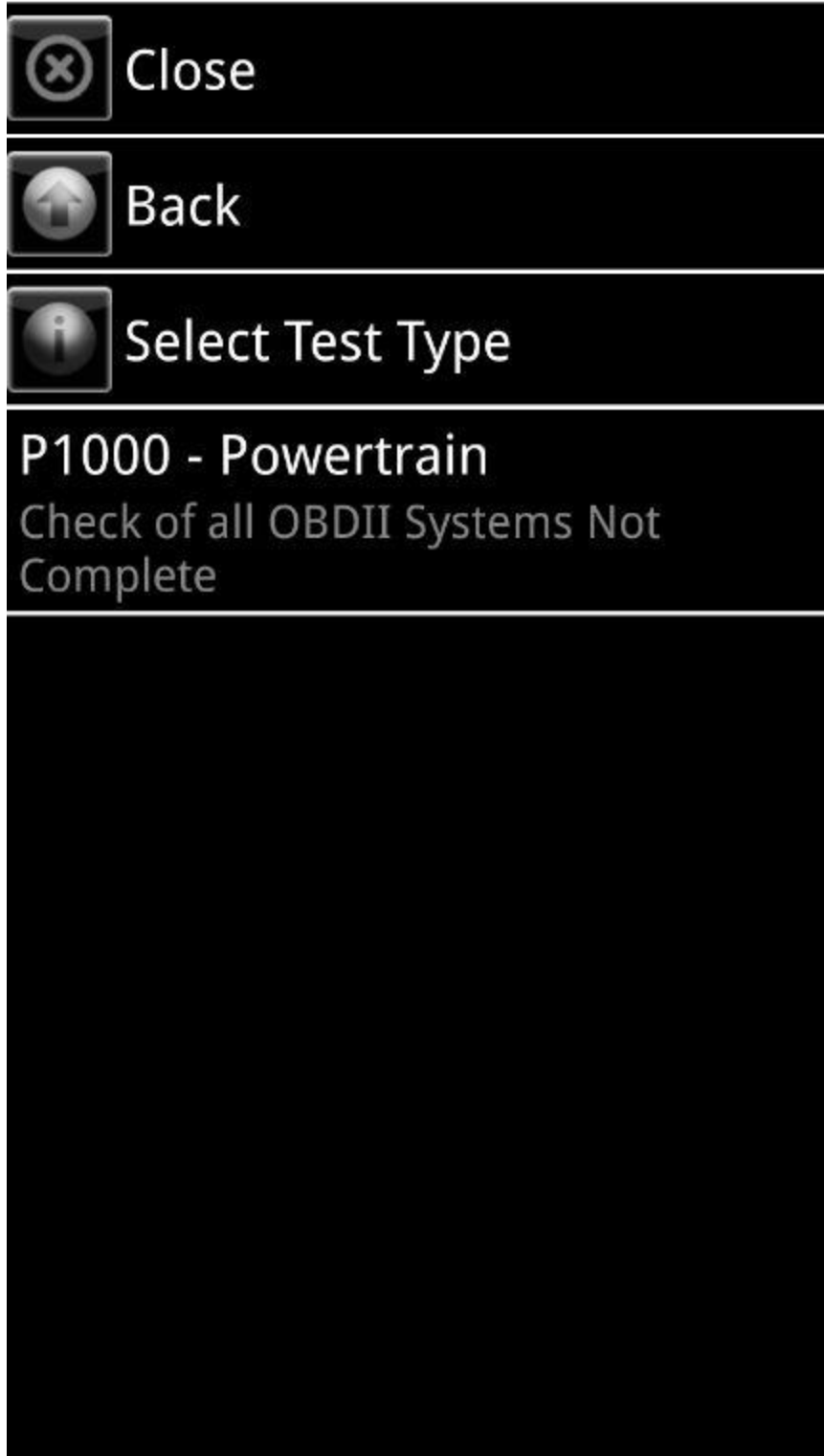
Step 14: Select the test you want to run, for example a Buzz Test



Step 15: let the test run until the red goes away



Step 16: Observe any leftover P codes, deal with accordingly



Step 17: Press back button back to the home screen, then press exit when done.

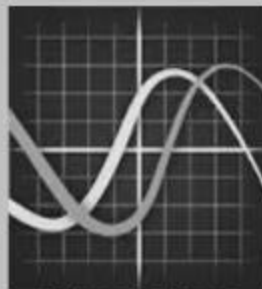
Connected



Dashboard



Diagnostics



Graphing



Diag Logs



Preference



DTC



Restore



About



Exit

DISCONNECT

