

FuelX Autotune- Royal Enfield 650s

Document Version	1	Release Date	14 Sep 2021
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Application information	FuelX
Vehicle	Royal Enfield
Model	Interceptor 650, Continental GT 650
Year of manufacture	2017-2020

Note:

- Read through all instructions before installation and use.
- Ensure that the bike is switched off and the key is out of the ignition before proceeding with the installation.
- Some parts of the bikes might be hot/sharp and may cause burns/cuts. Proceed with extreme caution or wait until the bike has cooled down. Always wear safety gloves.
- When the installation is complete, make sure to secure the wiring loom away from the movable parts or components which tends to heat up during the normal operation of the vehicle at any chance.
- FuelX is intended for motorsport use on a closed course, please check with your local laws before using this product. Race Dynamics is not liable for consequences arising out of using the product.

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1. FuelX

FuelX is an electronic, plug-in, fuel-injection optimizer for modern engines. It either enriches or decreases the AFR in all operating regions according to the rider requirement. It autotune the engine to best operational parameters, constantly monitoring, learning, and adapting to the engine condition, wear and tear, riding style, add-ons (such as air filter and/or exhaust), etc as well as the environmental conditions such as temperature, humidity, altitude, etc. always ensuring the engine performs in the safest and most optimal zones.



FuelX kit contains the following items

- FuelX Module
- Wiring Harness
- Handlebar map switch (Pro version only)
- Zip ties
- Decals
- Quick start guide and Warranty card



Image 1.1

2. FuelX Variants:

FuelX Pro

The FuelX Pro variant has 10 maps that can be changed depending upon the preference of the rider. For the Pro version, the Fuelx contains an additional connector (Refer Image 2.3) for the Handlebar Map switch(Refer Image 2.2)



Image 2.1



Image 2.2

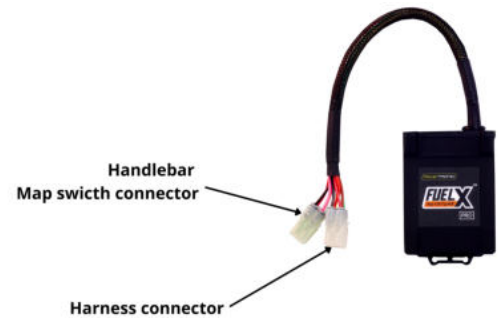


Image 2.3

FuelX Lite

The FuelX Lite variant has a single autotune map and only one connector for harness.



Image 2.4

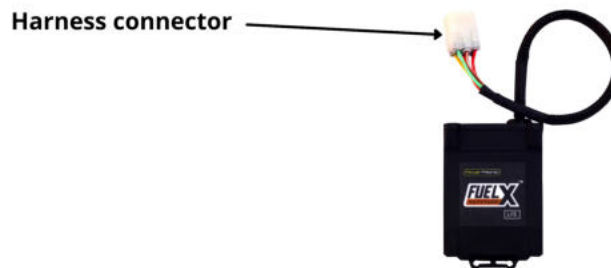


Image 2.5

3. FuelX Harness Connectors

The harness contains only the Lambda connector (O₂).



Image 3.1

The type and number of connectors may vary depending on the vehicle, year of manufacture, and the number of cylinders. Examples of different types of Lambda sensor connectors are shown below.

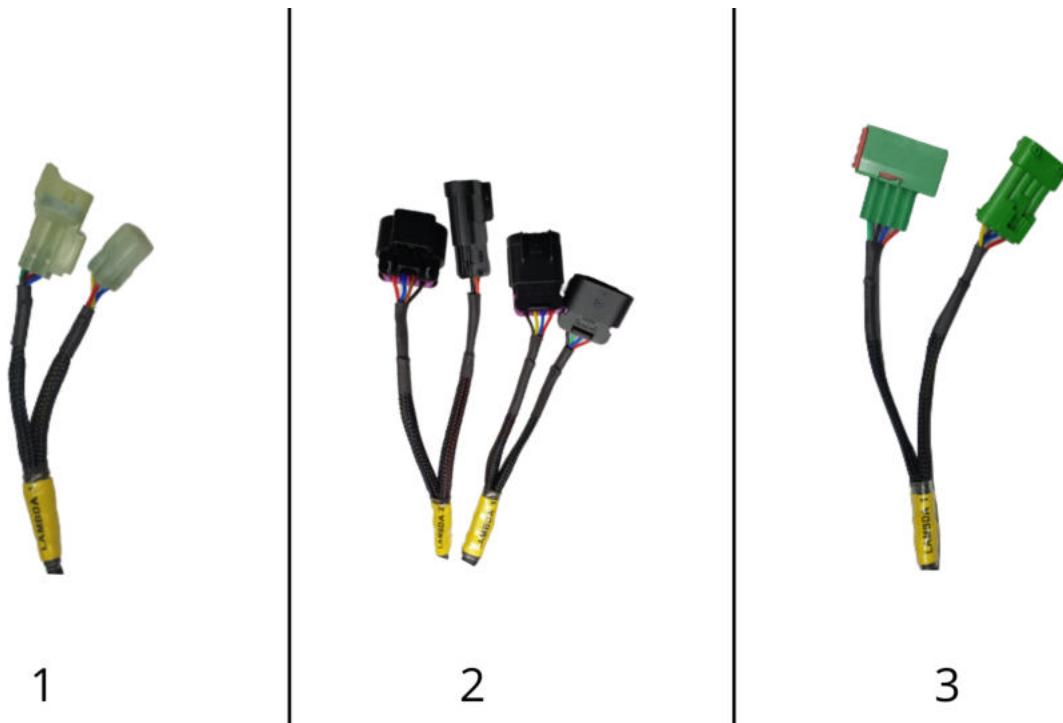


Image 3.2

The FuelX is connected between the Lambda sensor connector and the ECU. The male connector of FuelX, connected to the female of the Lambda sensor and vice versa.

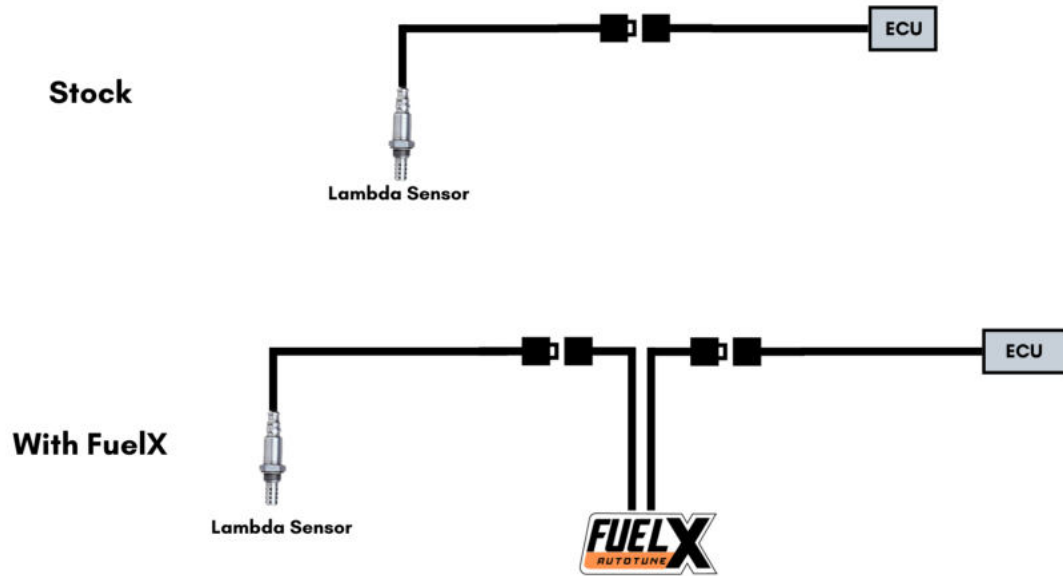


Image 3.3

4. Installation procedure

4.1 Removing panels, fairing

Park the bike using the centre stand on a level surface (Or a paddock stand).



Image 1

Locate the position of the Lambda sensor connectors.



Image 2

4.1.1 Unlock and detach the right-side panel. Refer **Image 3**.



Image 3

4.1.2 Gently detach the panel after unlocking it. Refer **Image 4**.



Image 4

4.1.3 Locate and pull the knob to unlock the seat lock. Refer [Image 5](#).

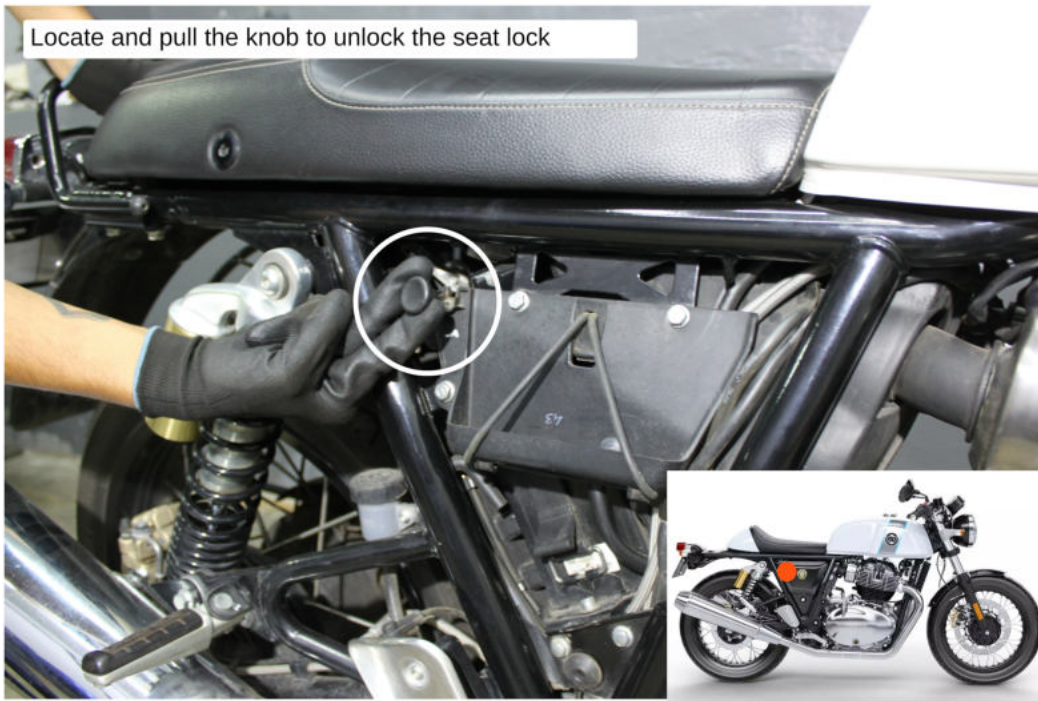


Image 5

4.1.3 [Image 6](#) shows how the seat is unlocked.



Image 6

4.1.4 Detach the seat carefully. Refer **Image 7**.



Image 7

4.1.5 Locate and remove the tank bolts using M10 hexagonal T socket. Refer **Image 8** and **Image 9**



Image 8



Image 9

4.1.7 After removing the bolts, gently lift the rear end of the tank a little. Refer [Image 10](#).



Image 10

4.1.8 Disconnect the vacuum hose 1 carefully. Refer **Image 11**.

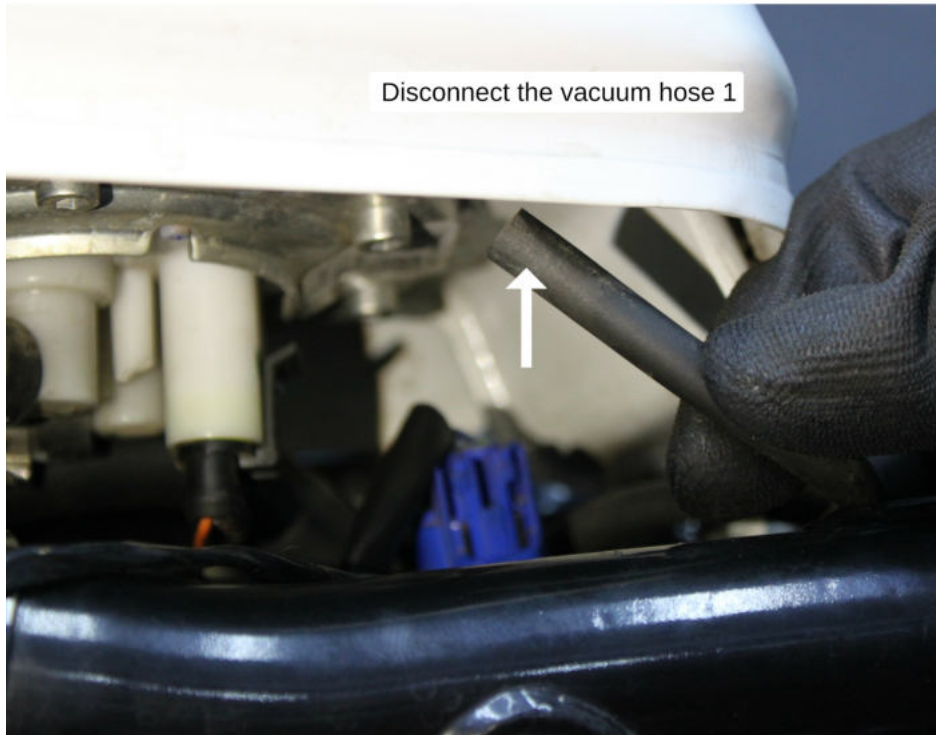


Image 11

4.1.9 Disconnect the vacuum hose 2 carefully. Refer **Image 12**

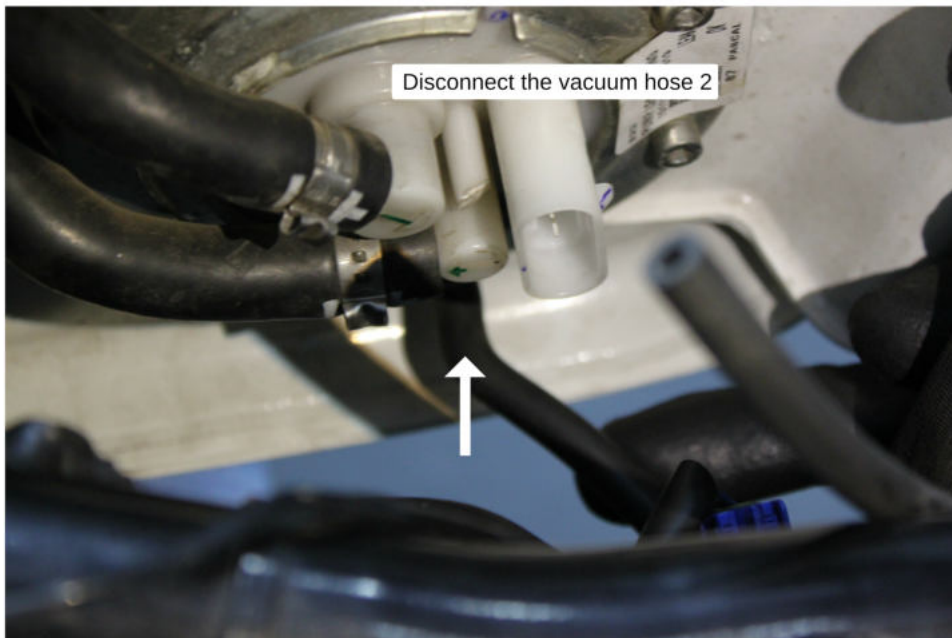


Image 12

4.1.10 Disconnect the fuel pump connector carefully. Refer [Image 13](#).

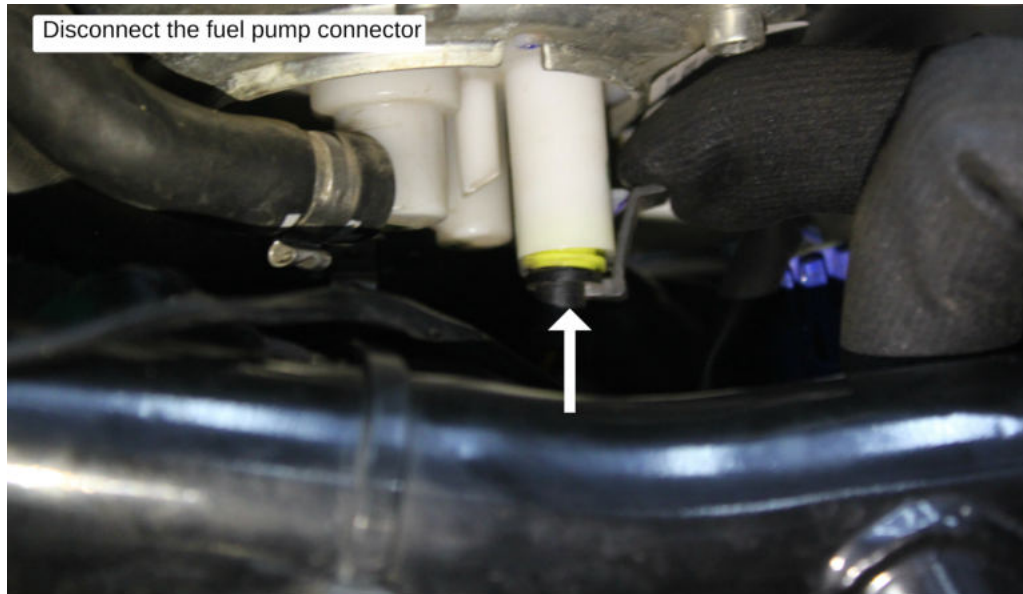


Image 13

4.1.11 Identify and disconnect the fuel gauge connector. Refer [Image 14](#)

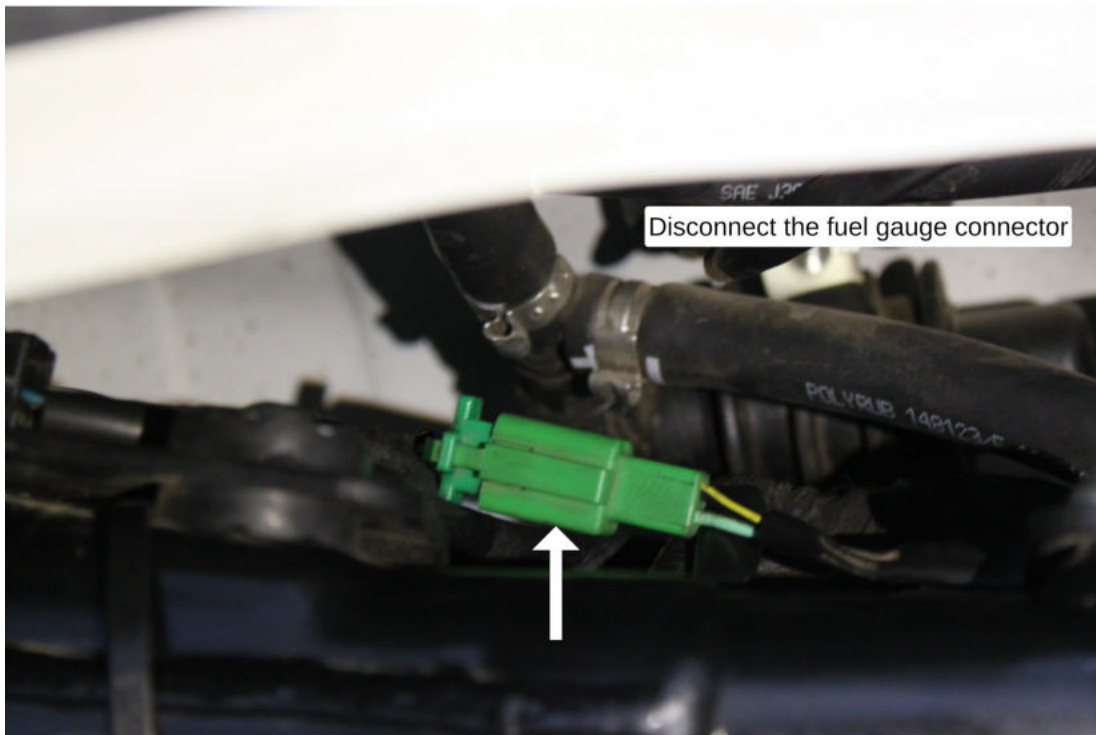


Image 14

4.1.12 Locate and carefully disconnect the fuel line. Refer **Image 15**

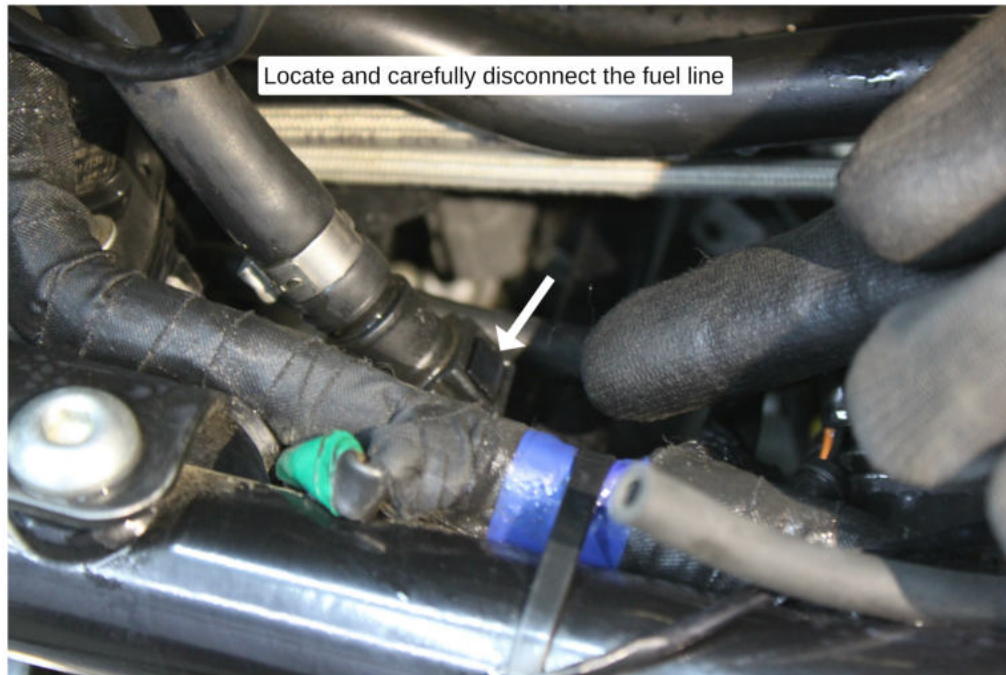


Image 15

4.1.13 Gently lift the tank from tank seating after disconnecting the connections. Refer **Image 16**.



Image 16

4.1.14 Refer the **Image 17** for the disconnected view of the connections.

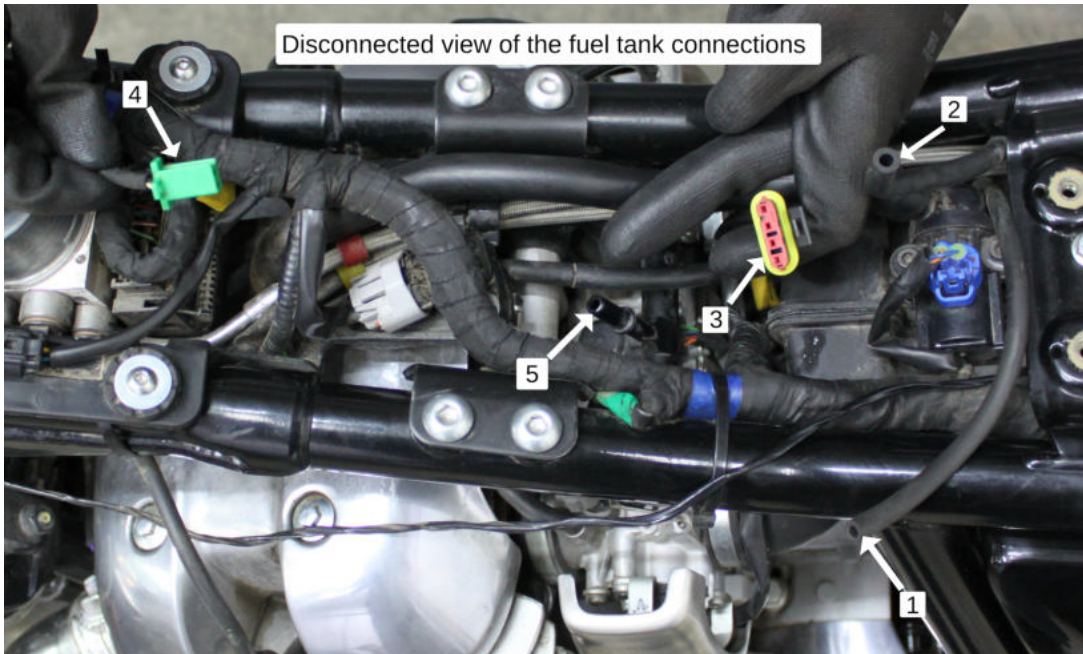


Image 17

4.1.15 Refer the **Image 18** to locate the Lambda sensor and Lambda Sensor Connector

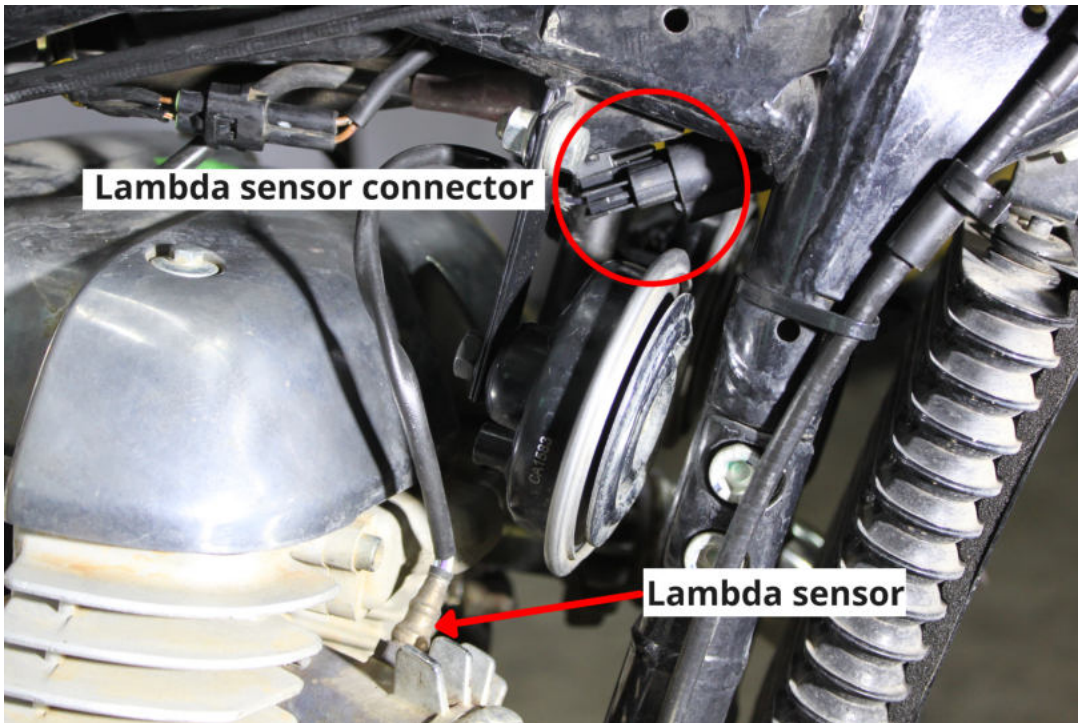


Image 18

4.1.16 Slide the connector back from the lock. Refer the **Image 19**



Image 19

4.1.17 Disconnect the male and female connectors. Refer the **Image 20**.



Image 20

4.1.18 Route the FuelX harness. Refer the **Image 21**.



Image 21

4.1.19 Route the FuelX harness under the frame. Refer the **Image 22**

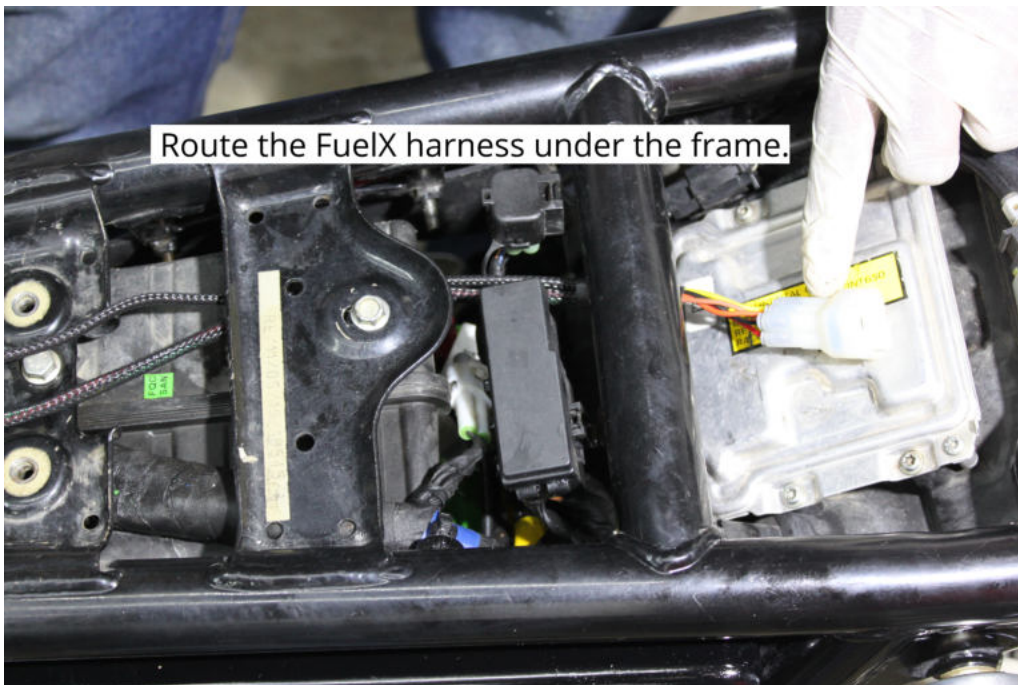


Image 22

4.1.20 Route the FuelX male and female connector as shown in the image. Refer the **Image 23**

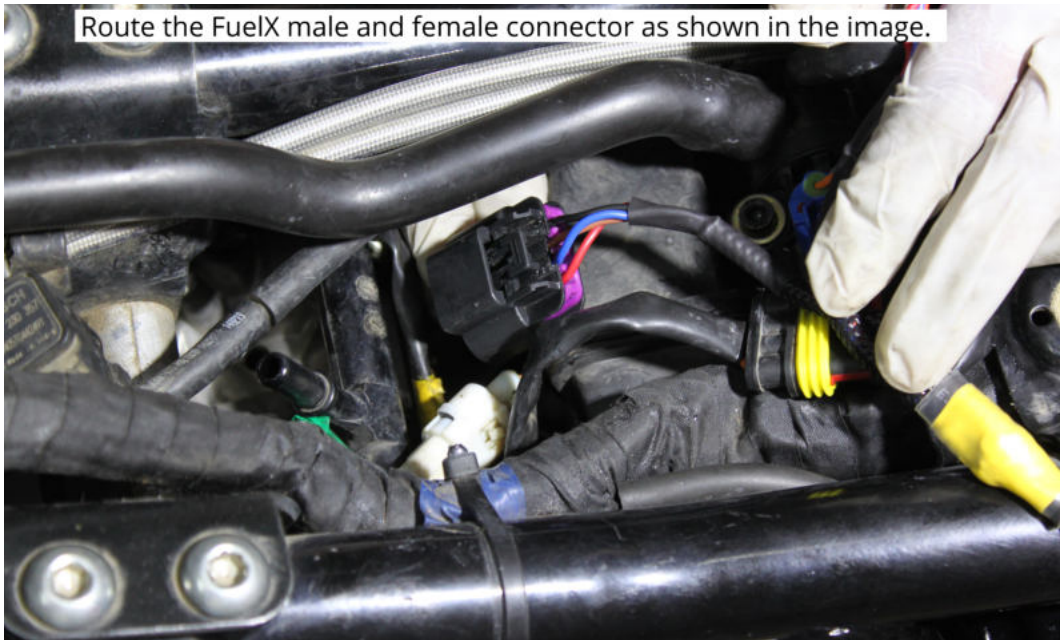


Image 23

4.1.21 Route the FuelX male and female connector as shown in the image. Refer the **Image 24**

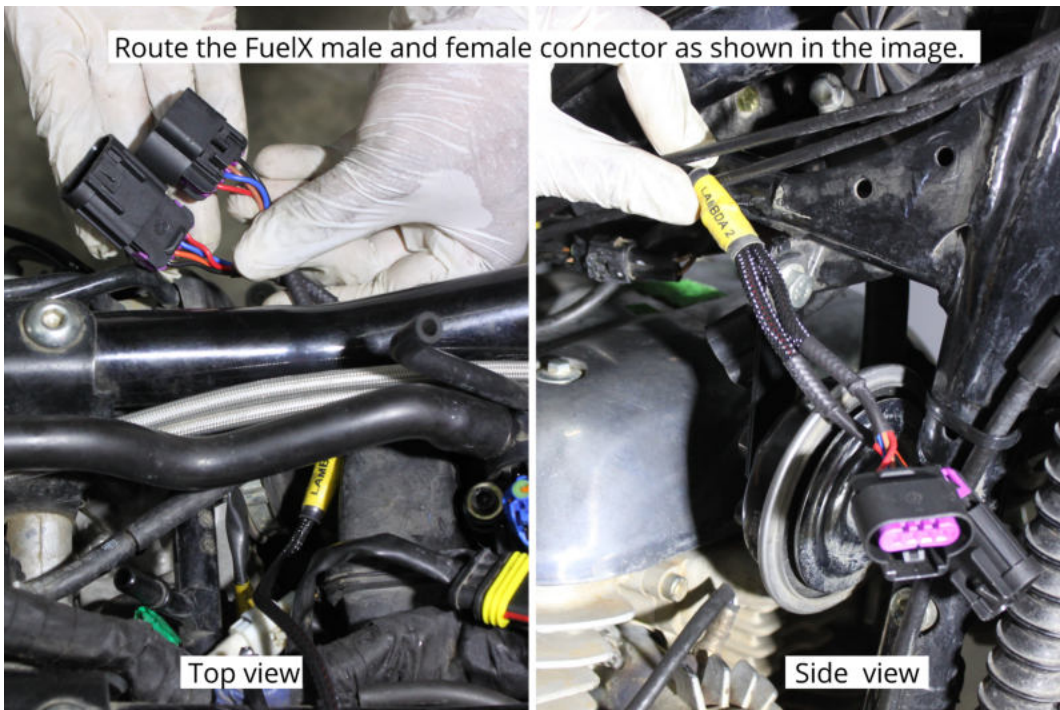


Image 24

4.1.22 Connect the FuelX male connector to Stock female Lambda connector. Refer the **Image 25**



Image 25

4.1.23 Connect the FuelX female connector to Stock male Lambda connector. Refer the **Image 26**



Image 26

4.1.24 Slide the connector back to the lock. Refer the **Image 27**. Repeat the processes on the other side also.



Image 27

4.1.25 For the Handlebar map switch installation, start from the front end. Refer the **Image 28**



Image 28

4.1.26 Route the connector end of the handlebar map switch as shown in the image. Refer the [Image 29](#)



Image 29

4.1.27 Route the handlebar map switch cable to the rear end of the vehicle. Refer the [Image 30](#)

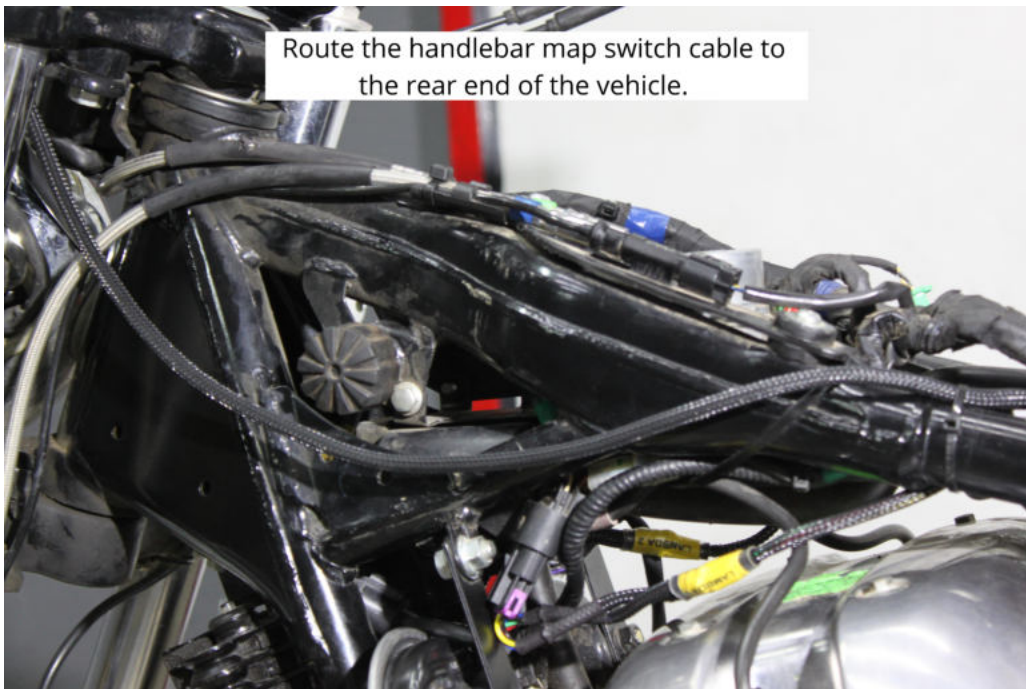


Image 30

4.1.28 Attach the handlebar switch to a suitable position. Refer the [Image 31](#)



Image 31

4.1.29 Using a 2.5 mm Allen key, tighten the bolts. Refer the [Image 32](#)

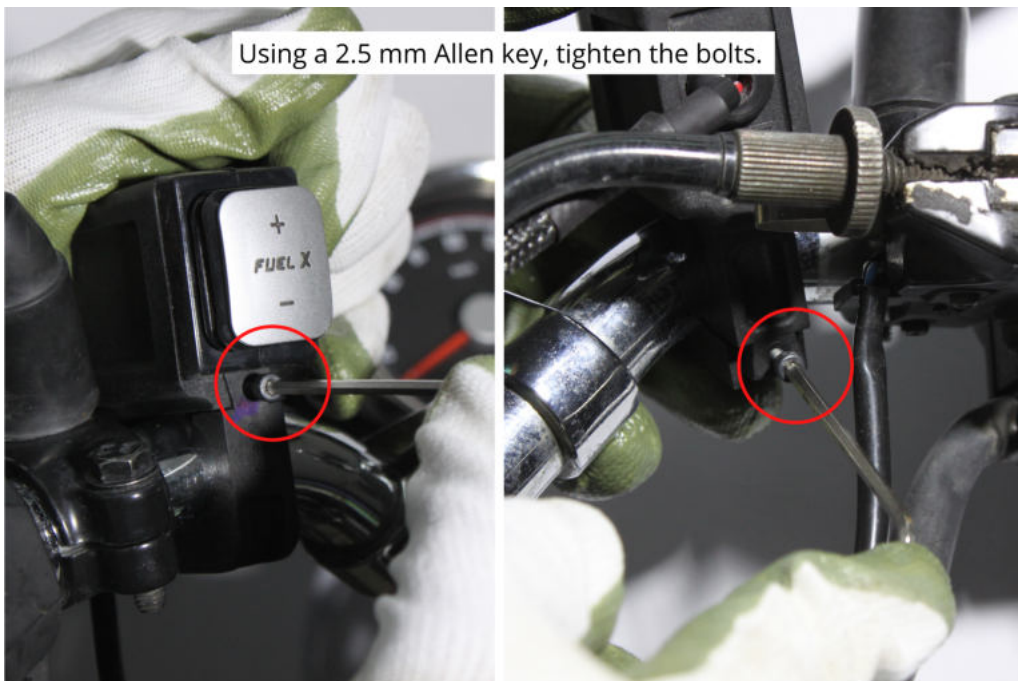


Image 32

4.1.30 Place the FuelX securely under the seat. Refer the **Image 33**



Image 33

4.1.31 Connect the FuelX to the harness. Refer the **Image 34**



Image 34

4.1.32 Connect the handlebar map switch connector to the FuelX connector. Refer the **Image 35**

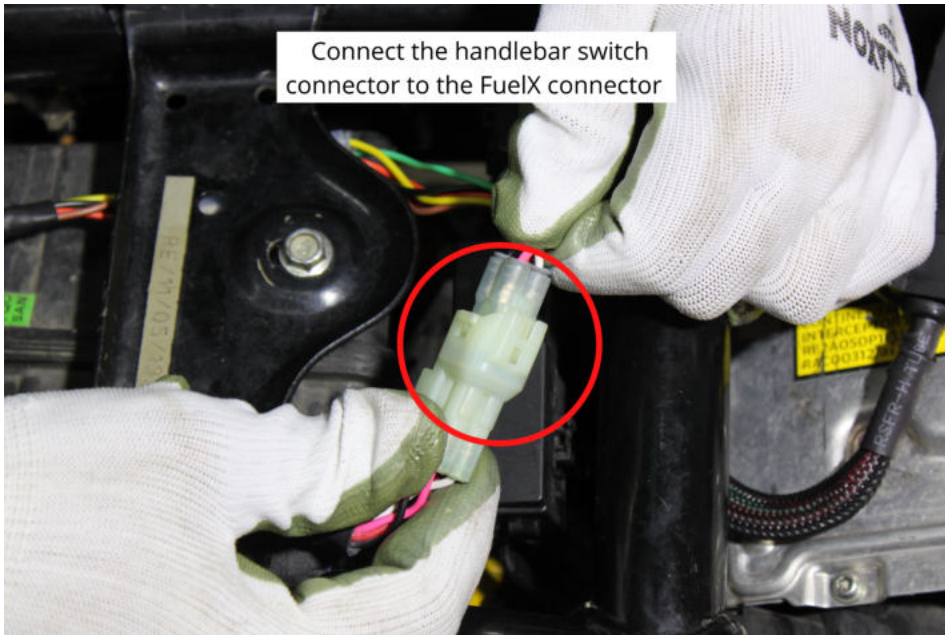


Image 35

4.1.33 Using the provided nylon tags, secure the FuelX and the harness by attaching them to the frame. Refer the **Image 36**

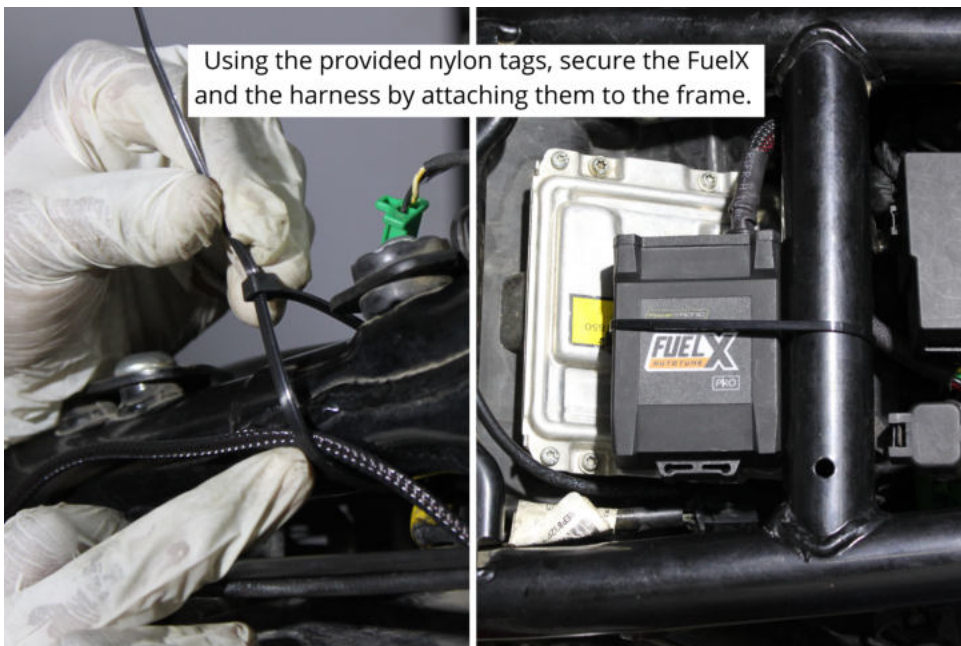


Image 36

5. FuelX Configuration

The Red LED on the FuelX blinks once the FuelX activates.

For Pro versions, maps on the FuelX can be changed according to the preference of the customer. By just pressing the +/- button on the Handlebar map switch. The green LED on the FuelX Handlebar map switch will help the customer to know which map is currently active.

Map No	Map Description
1	LEAN (Less Fuel)
2	
3	STOCK
4	
5	
6	
7	
8	
9	
10	RICH (More Fuel)

Image 5.1

The rider can choose the map according to the fuel enrichment he wants. The first two maps are lean maps.

Map 3 runs with stock AFR set by the OEM manufacturer.

Maps 4 from 10 make the AFR richer as the numbers go higher.

For Lite versions, a single autotune map is provided for adjusting the AFR for the best operational parameters.