PowerTRONIC Installation Manual
Royal Enfield Classic 500 [Single Spark] EFI (2009-2019)

Document Version	1	Release Date	29 May 2019

Application information	Vehicle Specific
Vehicle	**Royal Enfield**
Model	**Classic 500 [Single Spark]**
Year of manufacture	**2009-2019**
PowerTRONIC application	All PowerTRONIC ECUs, from firmware version F.3.x onwards

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.
- PowerTRONIC is intended for motorsport use on a closed course, please check with your local laws before using this product. Race Dynamics / PowerTRONIC is not liable for consequences arising out of using the product.

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Table of Contents

1. Parts list

1	PowerTRONIC	Piggyback ECU
2	Stock Coupler	Stand by unit ● Can be connected in place of the PowerTRONIC to run the bike in stock mode if need be. ● Used for the verification of the connections.
3	Harness	Bike specific harness contains the following connectors ● Fuel injector connector ● Spark/Ignition coil tapping wire ● Throttle position sensor connector (TPS) ● Map selection connector ● Quickshifter connector (if applicable) ● Ground terminal
4	USB cable	Can be used to connect the PowerTRONIC to a laptop for throttle calibration or changing maps
5	Nylon Tags	To secure wiring harness
6	User guide and Warranty card	Instructions

2. Tools required

Serial No	Main tools	Optional tools
1	M10, M12 Hexagonal socket	Spinner handle
2	M10 T bar Hexagonal Socket wrench	Ratchet handle
3	M6 Hexagonal bit	Extension bar or Sliding T bar
4	12-13 Spanner	Wire cutter

3. Installation procedure

3.1 Removing panels, fairing

Begin at the left side of the bike.

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

Image 1

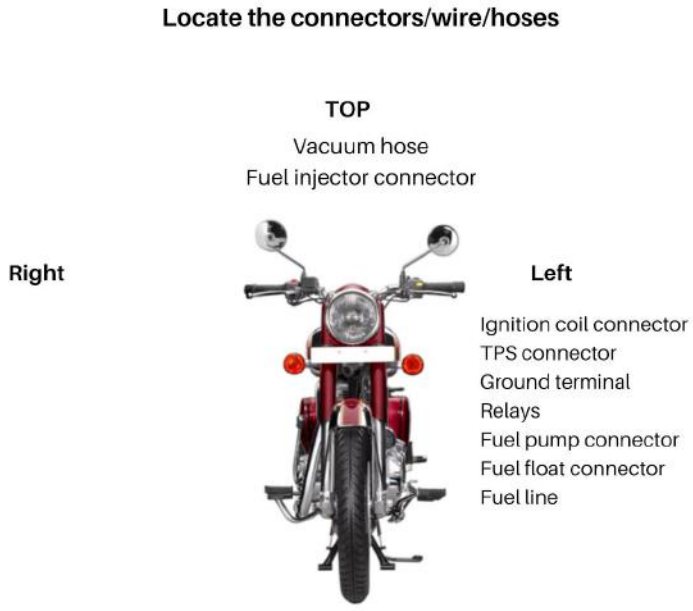

Image 2

3.1.1 Locate the battery box lock and relay box lock on the left side of the bike. Refer **Image 3**.

Image 3

3.1.2 Unlock and open the battery box. Refer **Image 4**.

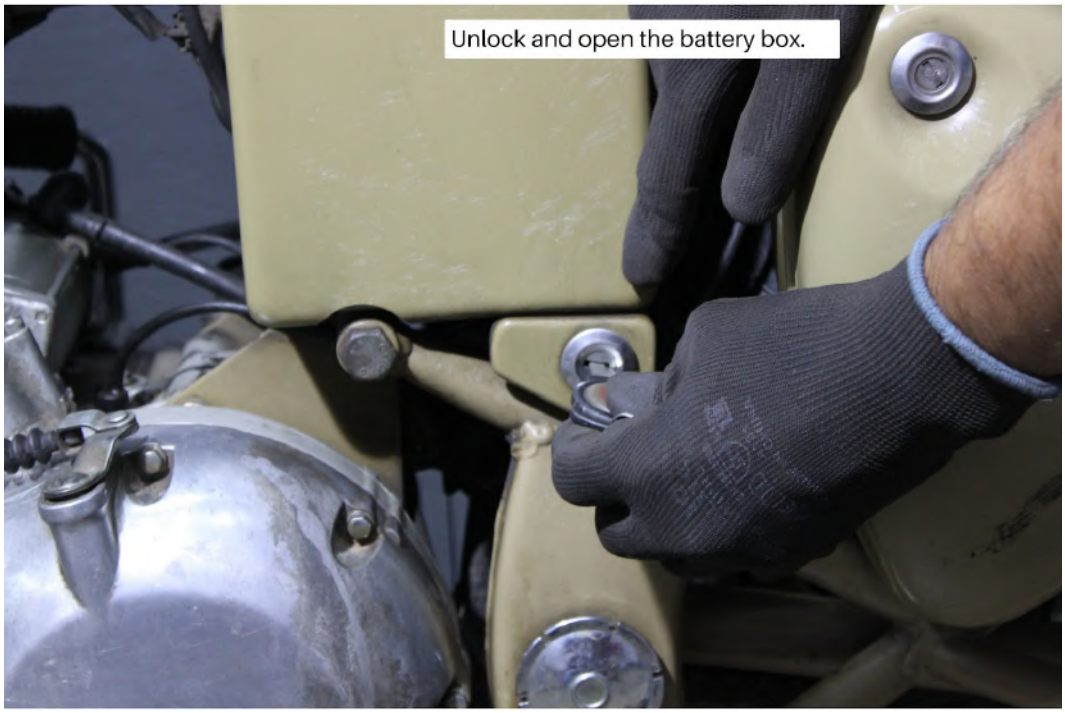

Image 4

3.1.3 Unlock and open the relay box. Refer **Image 5**.

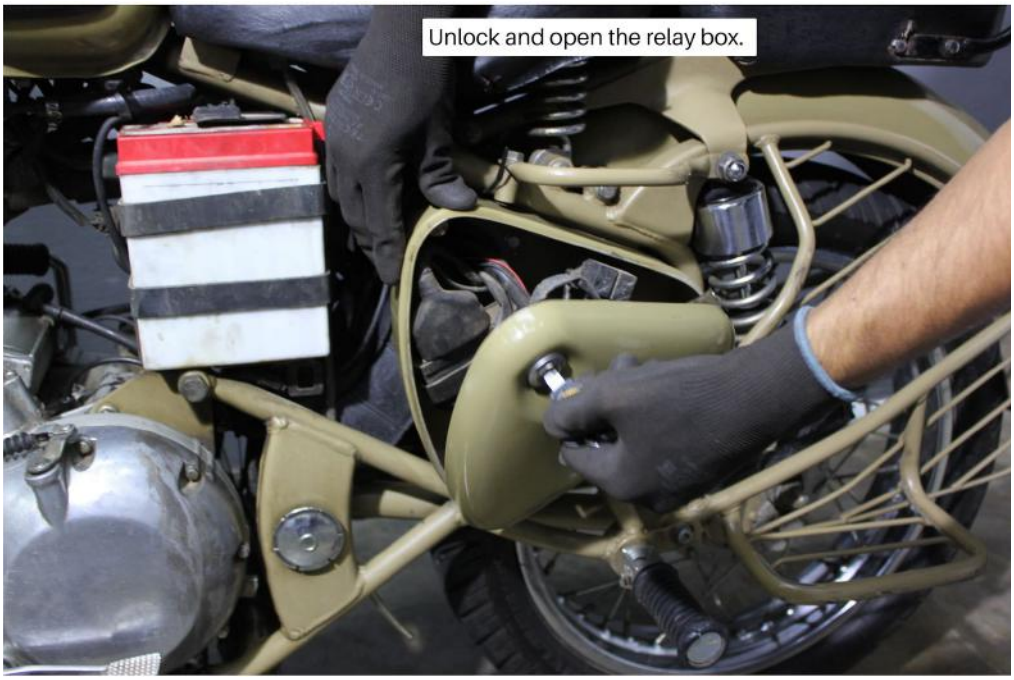

Image 5

3.1.4 Unlock the rider seat mounted bolt. Repeat the process on the other side. Refer **Image 6** and **Image 7**

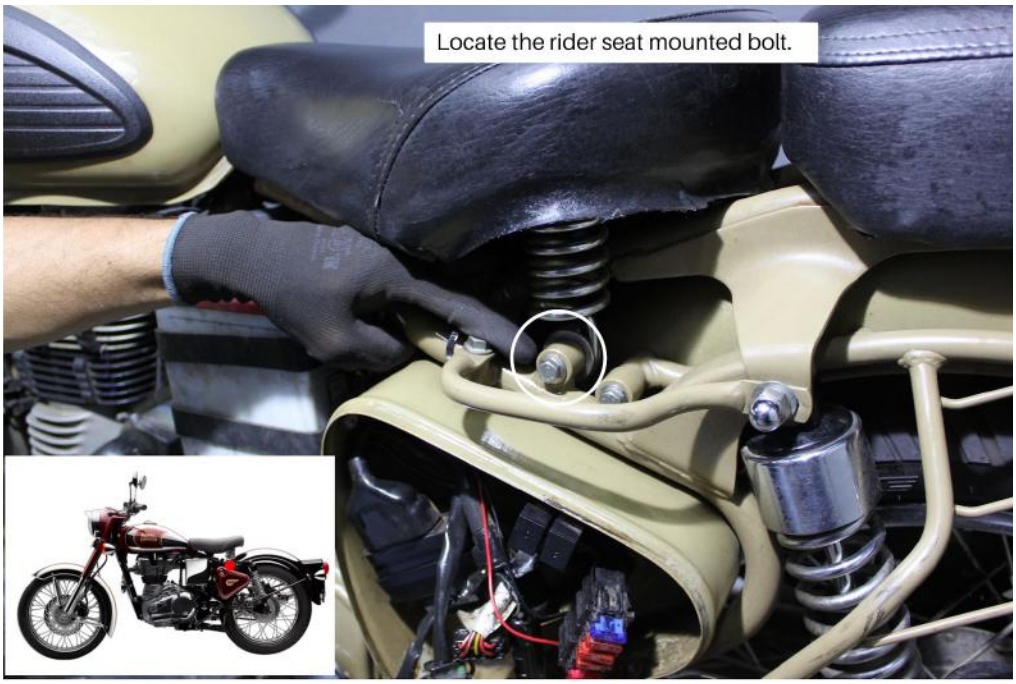

Image 6

Image 7

3.1.5 To unlock the seat mounting bolt, hold the nut with 13mm spanner and use an M12 hexagonal socket to unscrew the bolt. Refer **Image 8** and **Image 9**

Image 8

Image 9

3.1.6 Locate the mounting bolt under the seat. Refer **Image 10**.

Image 10

3.1.7 Unscrew the mounting bolt using the M12 hexagonal socket. Refer **Image 11**

Image 11

3.1.8 Gently detach the seat once all the bolts are removed. Refer **Image 12**

Image 12

3.1.9 Locate the tank bolts. Refer **Image 13**.

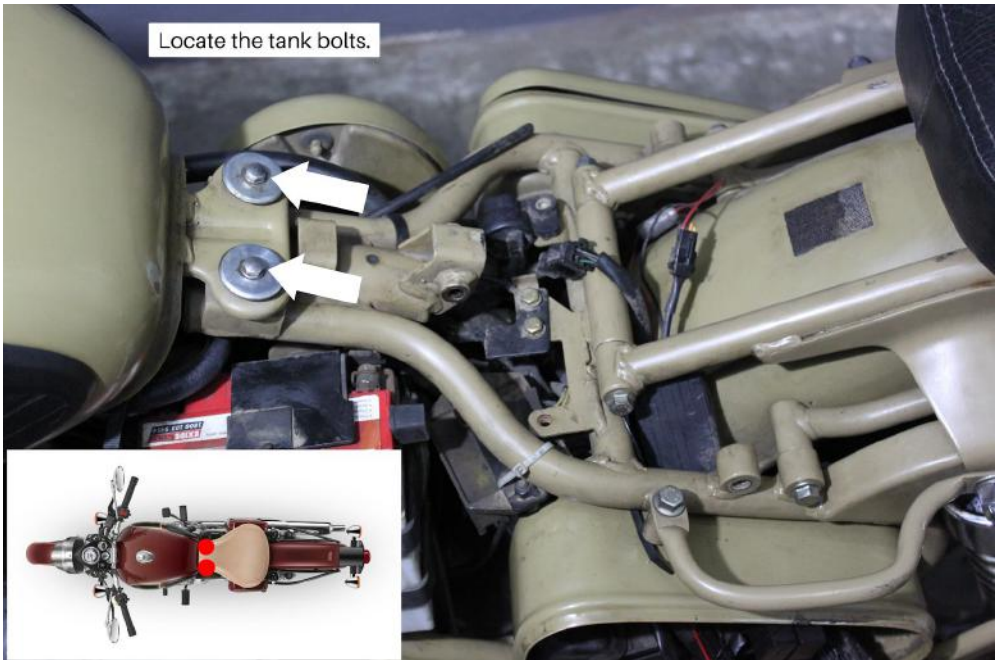

Image 13

3.1.10 Unlock the tank bolts using an M10 T-bar hexagonal socket. Refer **Image 14**

Image 14

3.1.11 Locate the fuel line clamp bolt and unscrew it with M6 Hexagonal bit. Refer **Image 15**

Image 15

3.1.12 After loosening the bolt, gently detach the fuel line from tank. Refer **Image 16**.

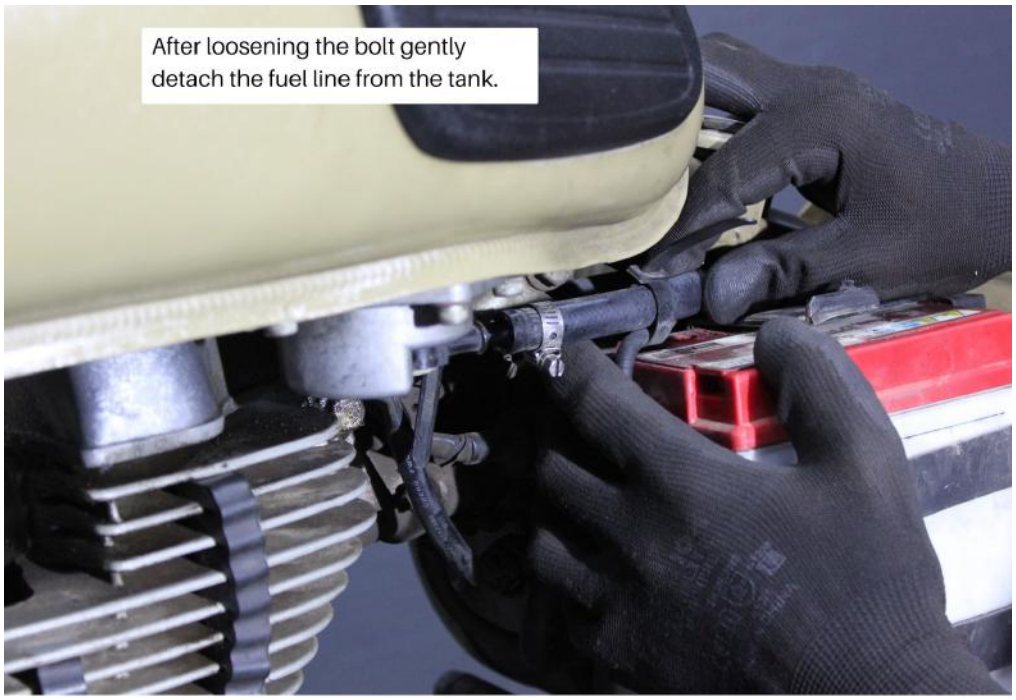

Image 16

3.1.13 Locate and detach the fuel pump connector. Refer the **Image 17** and **Image 18**

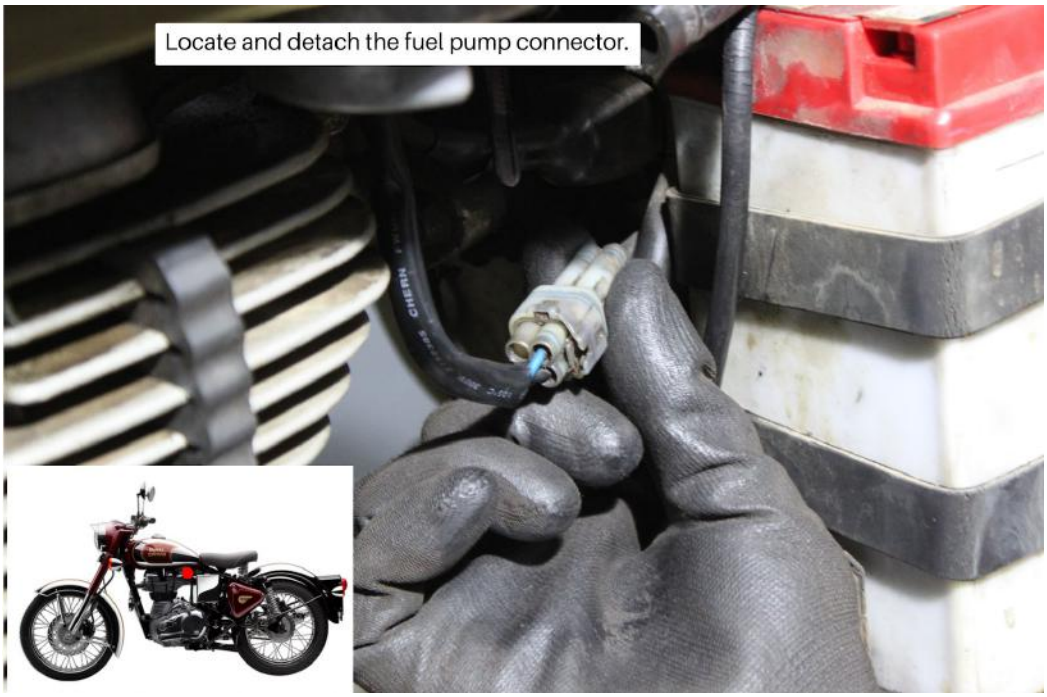

Image 17

Image 18

3.1.14 Locate and disconnect the fuel float connector. Refer **Image 19** and **Image 20**

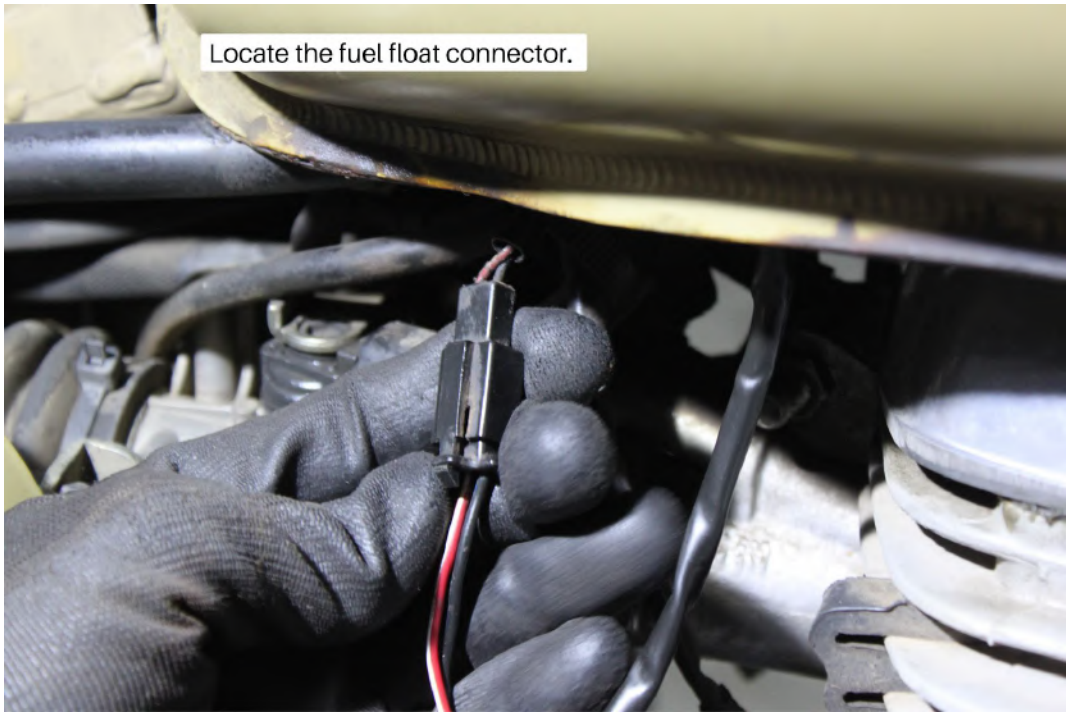

Image 19

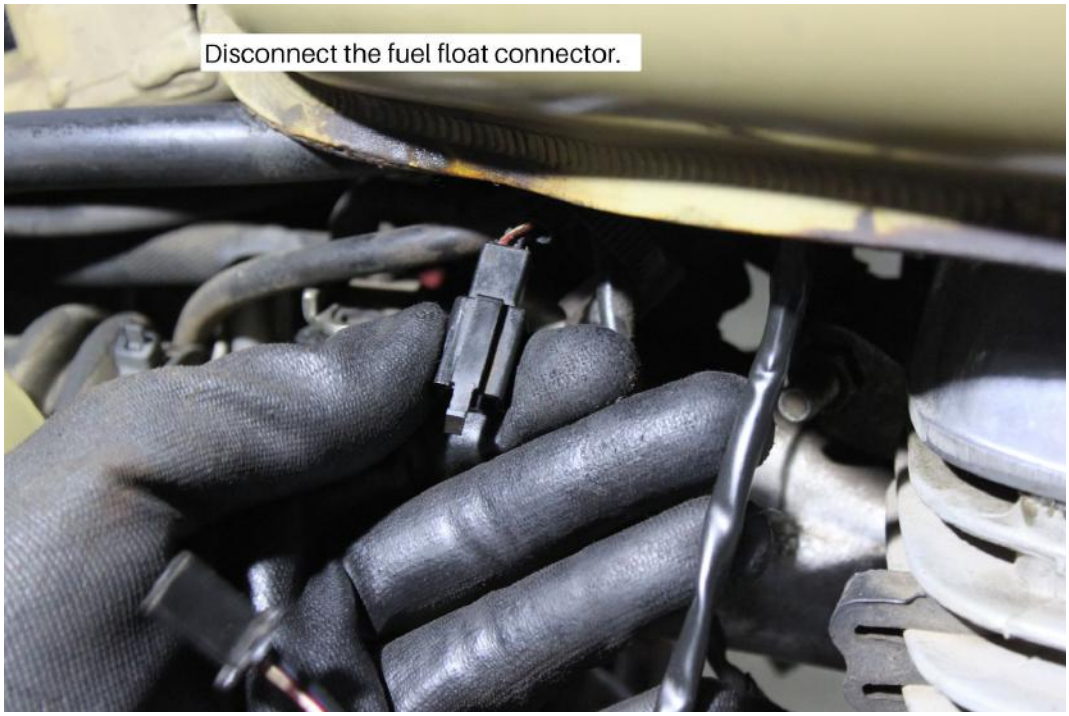

Image 20

3.1.15 Detach the vacuum hose from tank. Refer **Image 21**

Image 21

3.1.16 Detach all the connections/wires/hoses carefully and gently lift the tank. Refer **Image 22**

Image 22

3.2 Routing the harness

3.2.1 Start from the relay box, route each connector terminal of the PowerTRONIC harness though the slot. Refer **Image 23**.

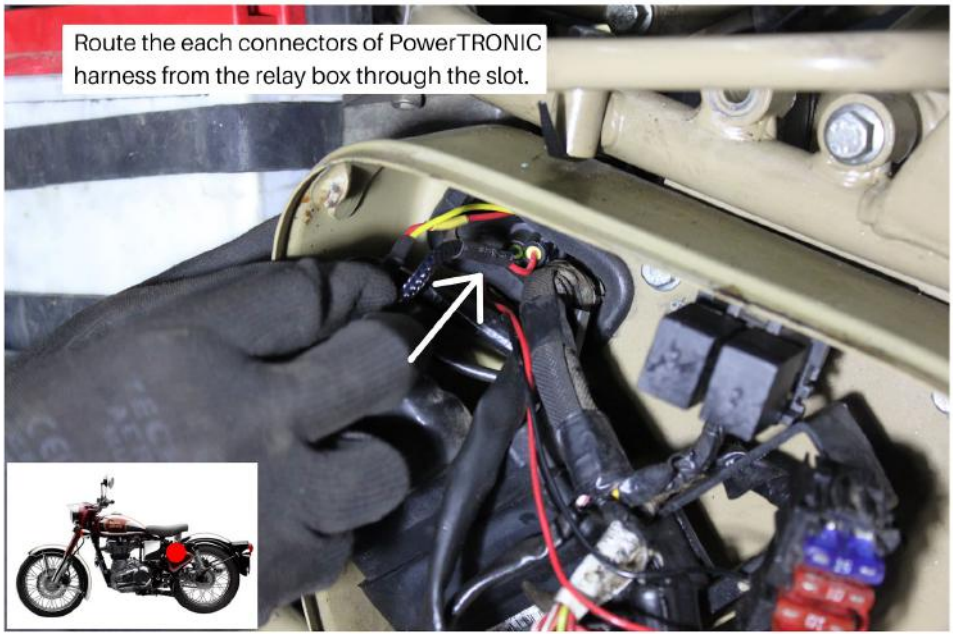

Image 23

3.2.2 Tear the rubber cover a little at the end, push the harness and paste the rubber cover back after harness passes through. Refer **Image 24**

Image 24

3.2.3 Once every connector is passed through, route the PowerTRONIC harness around the battery under the frame. Refer **Images 25** and **Image 26**

Image 25

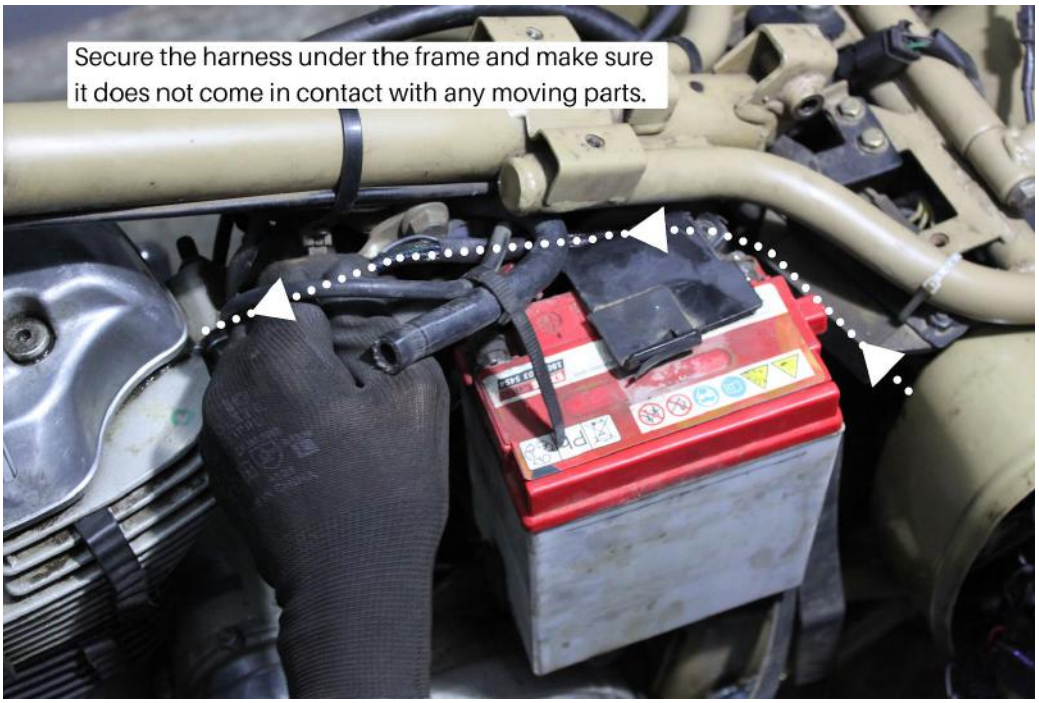

Image 26

3.2.4 Note the position of the connectors, loosen the zip ties provided on the bike and let the Ignition coil pass through it. Fuel injector and TPS connectors are tied near the throttle body. Refer **Images 27** and **Image 28**

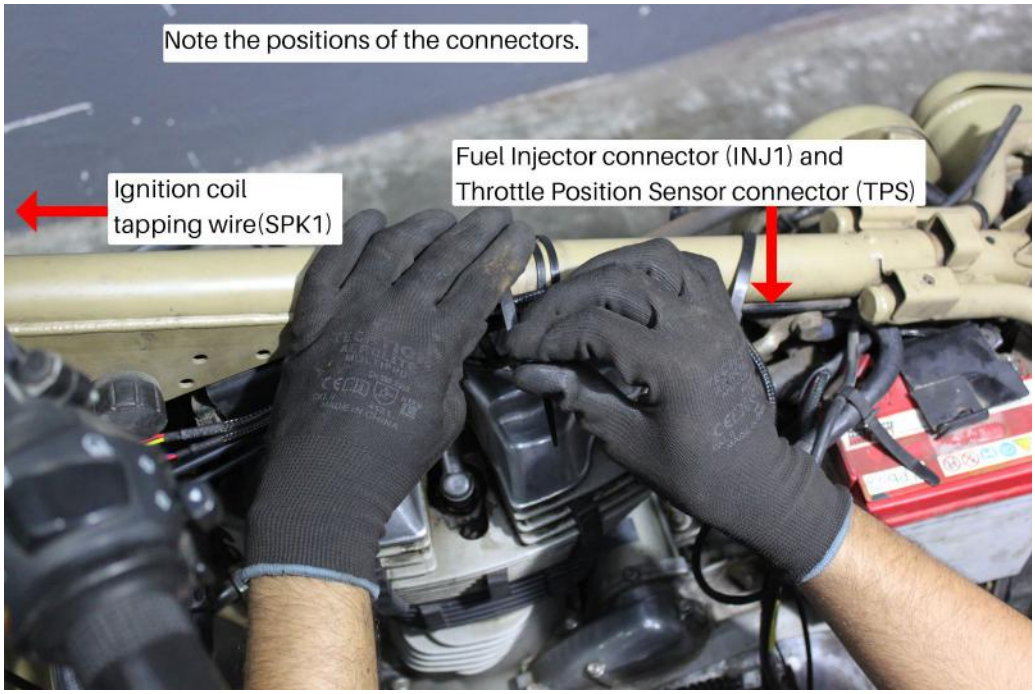

Image 27

Image 28

3.2.5 Route the ground connector of PowerTRONIC harness behind the battery negative terminal. **Images 29**

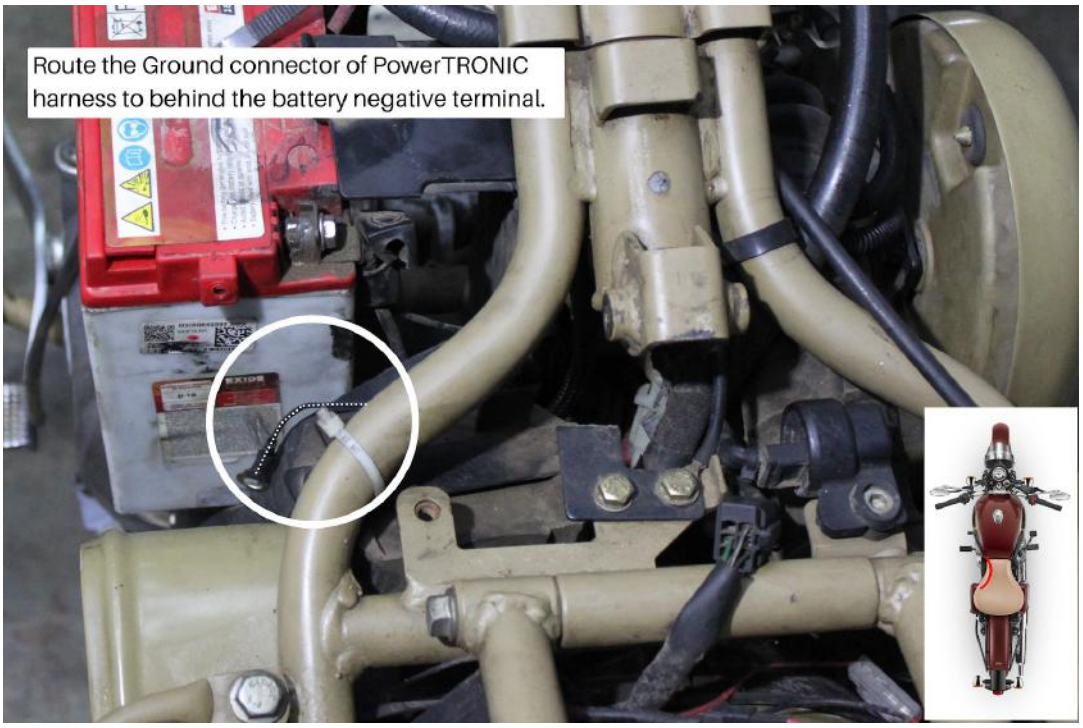

Image 29

3.3 Fuel Injector Connector (Left side of the bike)

3.3.1 Locate the stock injector connector of your bike. Refer the **Images 30**

Image 30

3.3.2 Identify the fuel injector connector in the PowerTRONIC wiring harness. The connectors are labeled 'INJ'
3.3.3 Disconnect the injector connector on your bike. Refer to the zoomed view. (**Image 31**).

Image 31

3.3.4 Connect the female PowerTRONIC injector connector to the stock male injector connector. Refer **Image 32**.

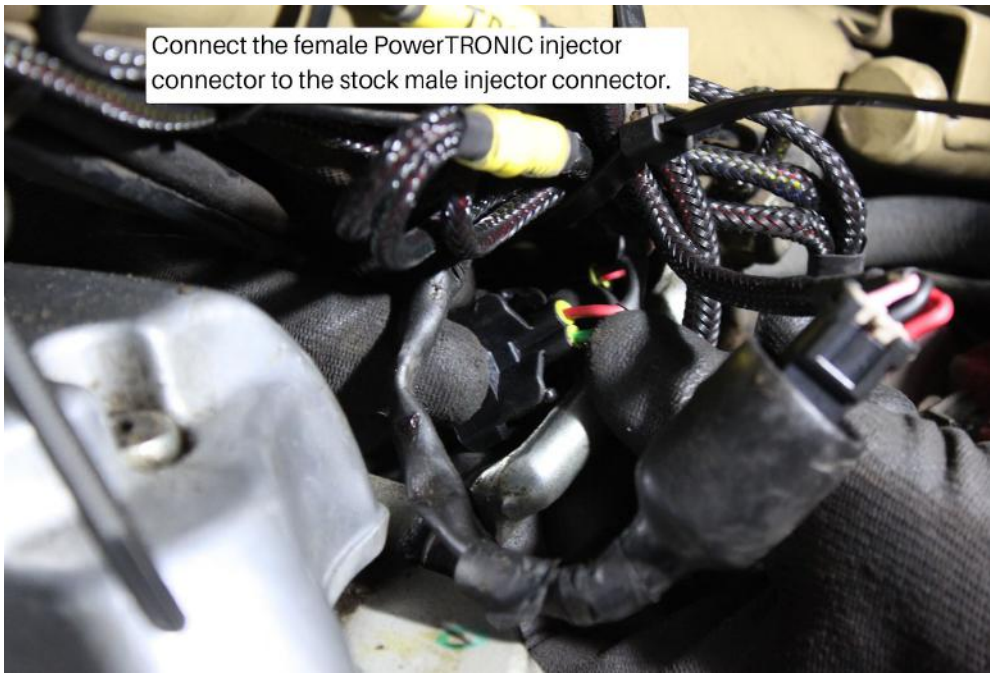

Image 32

3.3.5 Connect the stock female injector connector to the PowerTRONIC male injector connector. Refer **Image 33**.

Image 33

3.4 Ignition Coil Connector (Right side of the bike)

3.4.1 Locate the stock Spark/Ignition coil connector on the ignition coil which is located right above the engine. Refer **Image 34**.

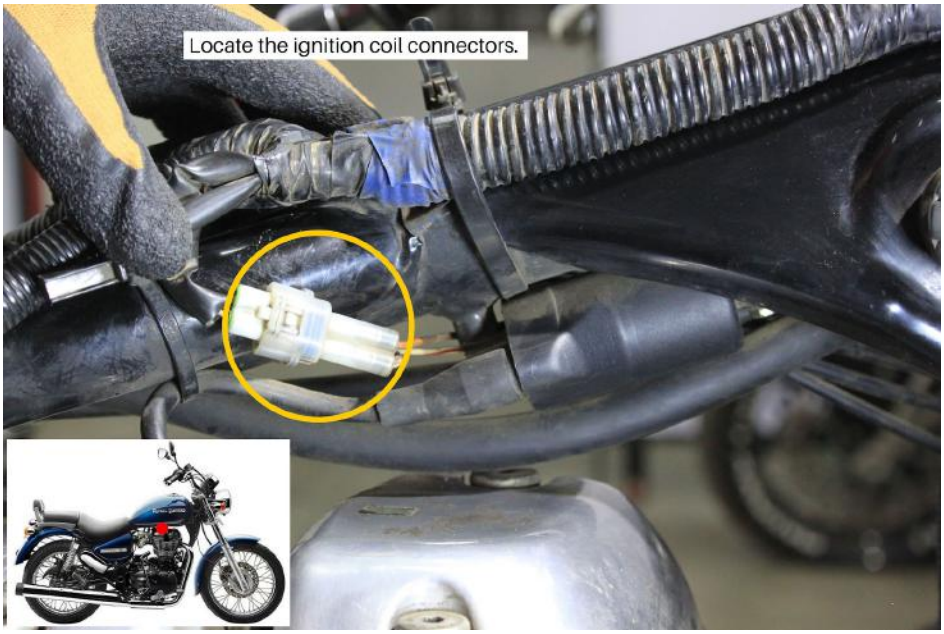

Image 34

3.4.2 Identify the Spark/Ignition coil connector in the PowerTRONIC wiring harness. The connectors are labelled 'SPK'.

3.4.3 Detach the stock ignition coil connectors. Refer **Image 35**.

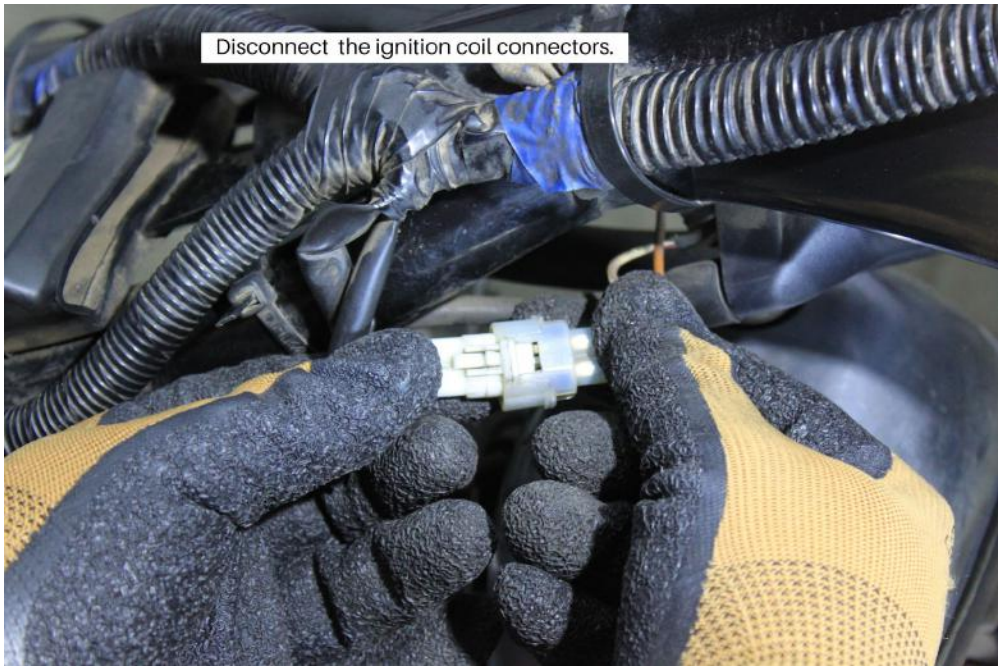

Image 35

3.4.4 Connect the PowerTRONIC male ignition coil connector to the stock female connector. Refer **Image 36**.

Image 36

3.4.5 Connect the PowerTRONIC female ignition coil connector to the stock male connector. Refer **Image 37.**

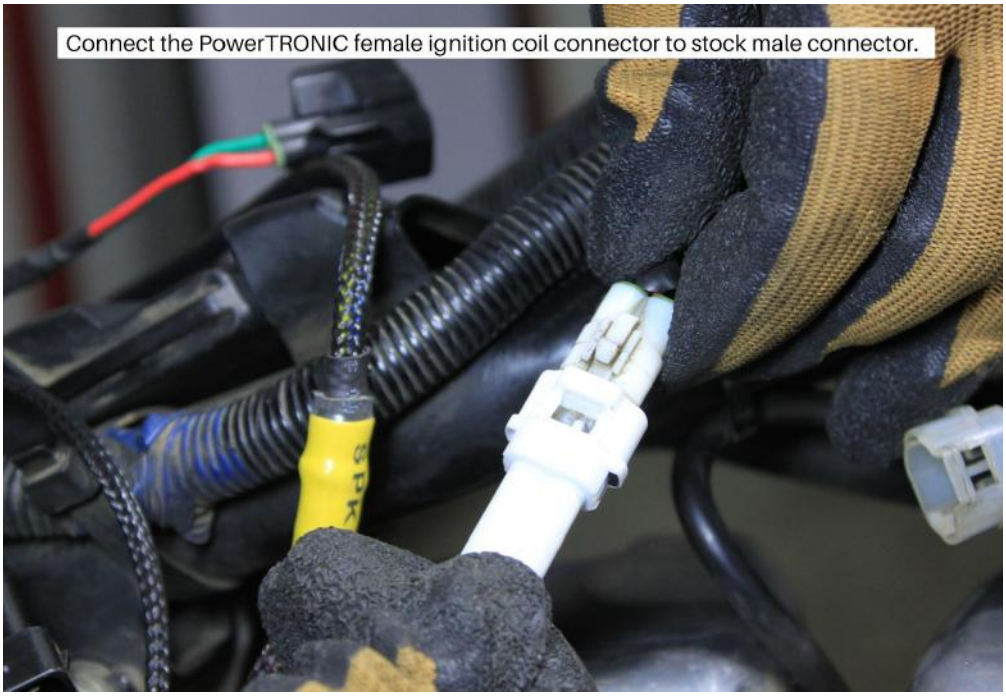

Image 37

3.5 Throttle position sensor connector (Left side of the bike)

3.5.1 Locate the TPS connector of your bike. It is generally located on the throttle body, parallel to the throttle cable return springs. Refer **Image 38** and **39**.

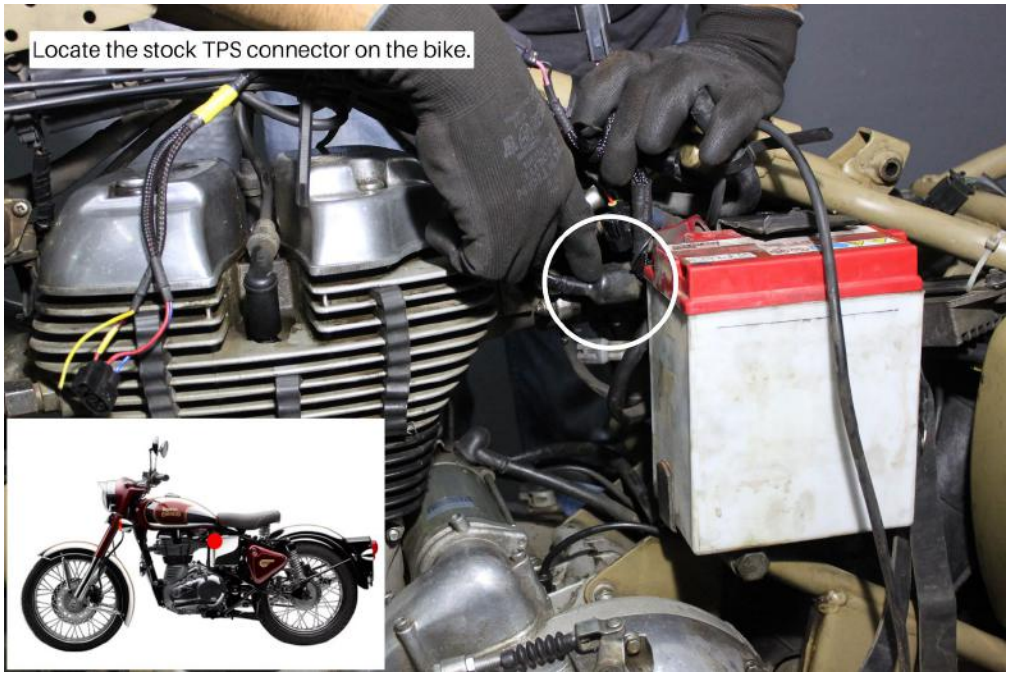

Image 38

Image 39

3.5.2 Identify the Throttle Position sensor connector in the PowerTRONIC wiring harness, labelled as 'TPS'.

3.5.3 Disconnect the stock TPS connector. Refer **Image 40**

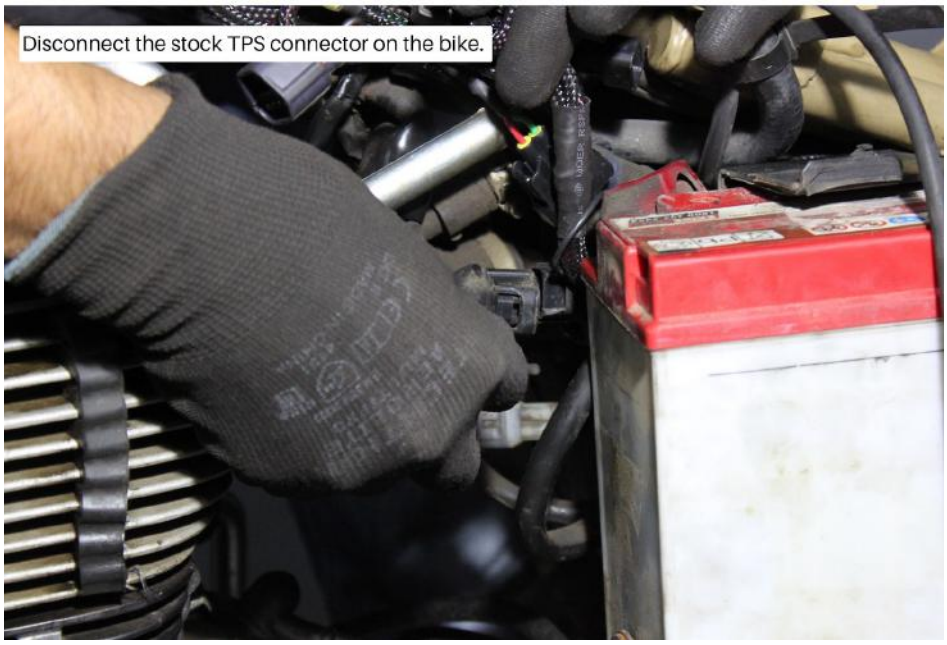

Image 40

3.5.4 Connect the PowerTRONIC male TPS connector to the stock female connector. Refer **Image 41**.

Image 41

3.5.5 Connect the PowerTRONIC female TPS connector to the stock male connector. Refer **Image 42**.

Image 42

3.5.6 We advise you to perform a TPS calibration after the installation of PowerTRONIC ECU.

3.6 Ground Terminal Connector (Left side of the bike)

3.6.1 Identify the Ground terminal connector labelled as GND and connect it to the negative terminal of the battery. Refer the **Image 43** and **Image 44.**

Image 43

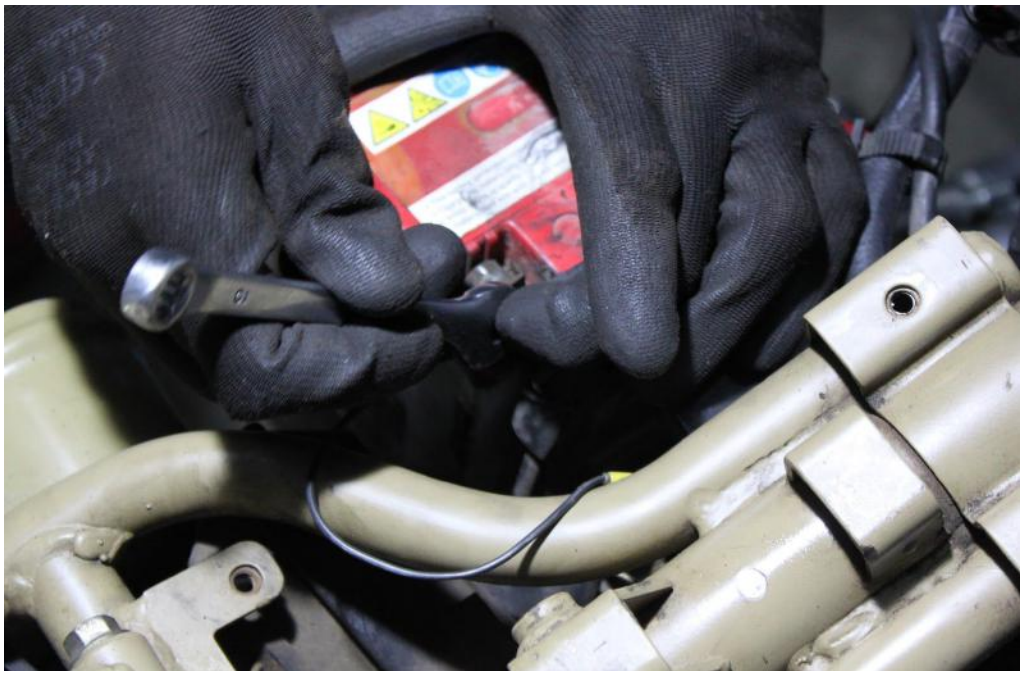

Image 44

3.7 Changing Relays

3.7.1 Locate the stock relays. **Image 45.**

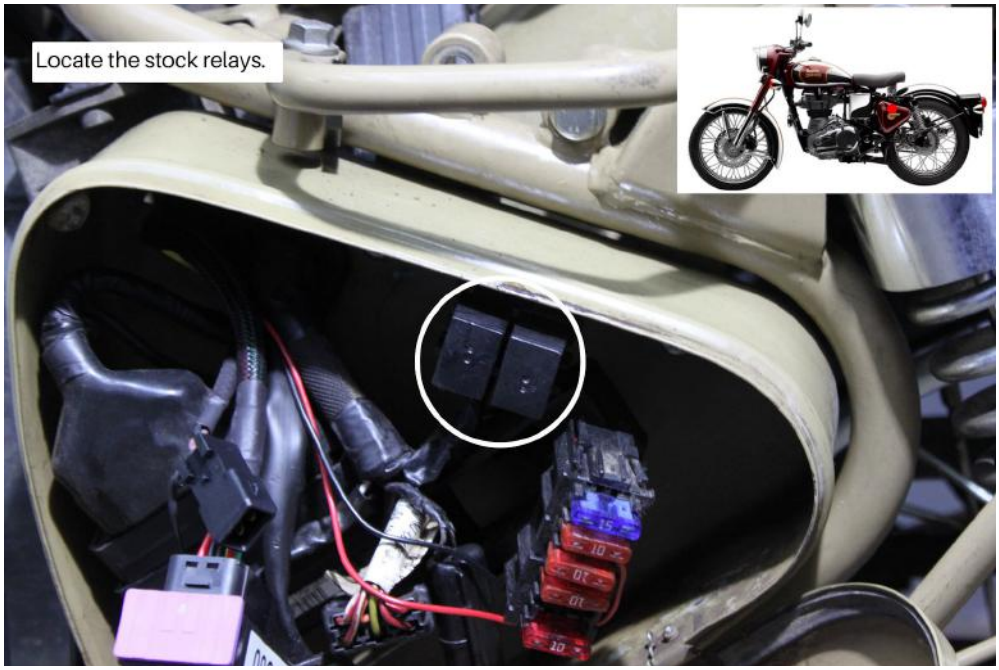

Image 45

3.7.2 Remove the stock relays from the relay kit. Refer **Image 46.**

Image 46

3.7.3 Replace the stock relays with the provided relays. Refer **Image 47.**

Image 47

3.8 Securing the harness using ties

3.8.1 Secure the harness away from hot/moving parts by attaching it to the chassis/frame using the zip ties provided wherever necessary. Refer the **Image 48.**

Image 48

3.9 Testing with the stock coupler

3.9.1 Attach the fuel tank.

3.9.2 You can verify the connections by attaching the stock coupler. Refer detailed Stock coupler test document. Refer **Image 49**

Image 49

DO NOT proceed with the PowerTRONIC ECU without first verifying the connections with stock coupler.

3.10 Plugging in the PowerTRONIC

Remove the key from the ignition, unplug the stock coupler and connect the PowerTRONIC to the harness by connecting it to the 24 pin connector. Secure it in the glove box. Refer **Image 50**.

Image 50

3.11 Attaching the panels fairing etc

Attach the panels, fairing as removed from the bike.