PowerTRONIC Installation Manual- Benelli TNT 600i (2016-2019)

Document Version	1	Release Date	05 June 2019

Application information	Vehicle Specific
Vehicle	**Benelli**
Model	**TNT 600i**
Year of manufacture	**2016-2019**
PowerTRONIC application	All PowerTRONIC ECUs, from firmware version F.3.x onward

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 connectors involved.
3	Harness	Bike specific harness contains the following connectors ● Fuel injector connectors ● Spark connectors ● Throttle position sensor connector (TPS) ● Map selection connector ● Quick shifter connector ● 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	Item with description
1	M5, M4 Hexagonal bit
2	M10, M8 Hexagonal Socket
3	Phillips-Head screwdriver
4	Wire cutter

3. Installation procedure

3.1 Removing panels, fairing

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

Begin at the left side of the bike.

Image 1

Image 2

3.1.1 Locate the pillion rider seat lock. Refer **Image 3.** unlock the pillion seat. Refer **Image 4** also.

Image 3

3.1.2 Unlock the pillion seat. Refer **Image 4**.

Image 4

3.1.3 Gently detach the pillion rider seat. Refer **Image 5**.

Image 5

3.1.4 Locate the rider seat lock inside the compartment. Refer **Image 5**.

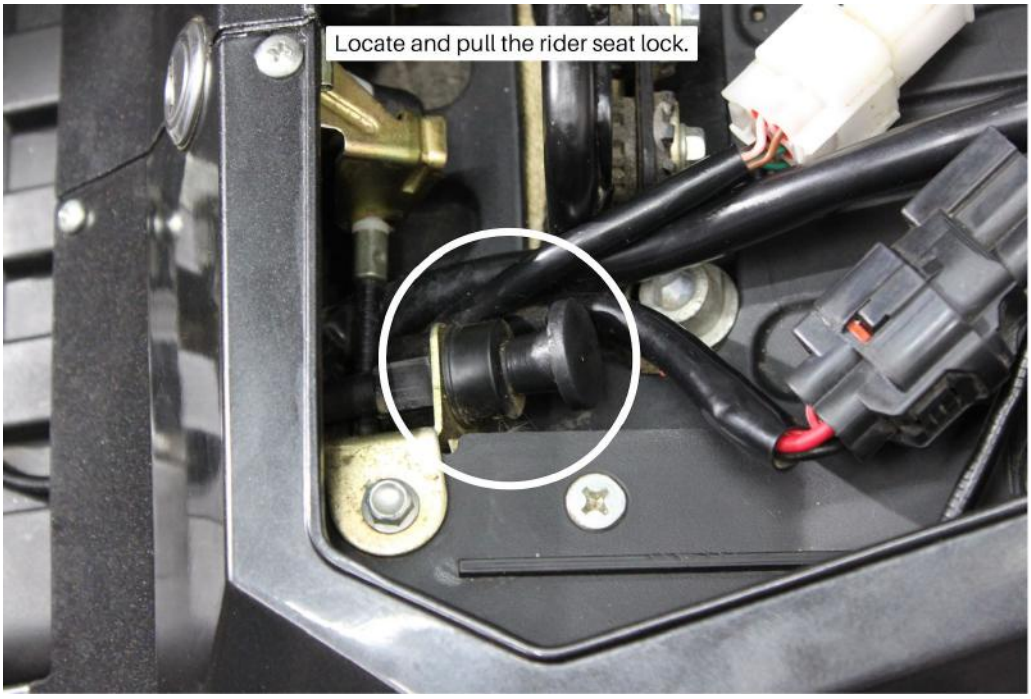

Image 6

3.1.5 Pull the lock and unlock the rider seat. Refer the **Image 7**

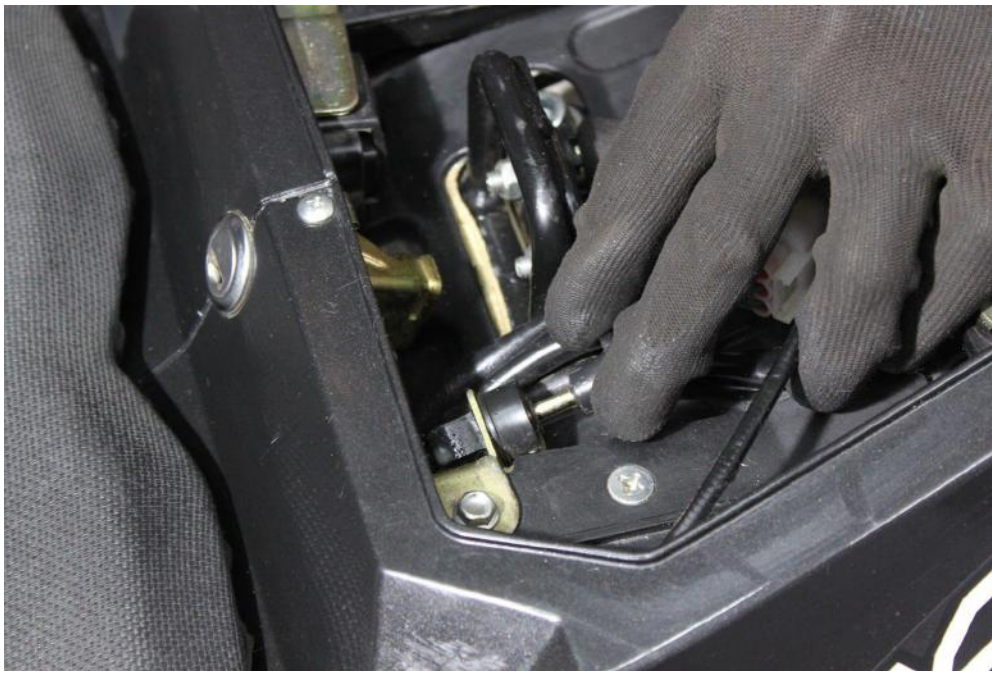

Image 7

3.1.6 Detach the rider seat. Refer **Image 8**.

Image 8

3.1.7 Locate the key slot cover bolts at the front side of the fuel tank. Unscrew the bolts 1, 2 and 3 using M4 hex bit. Refer **Image 9**.

Image 9

3.1.8 After removing the bolts, gently detach the cover from its locking slots and remove it carefully. Refer **Image 10** and **Image 11**

Image 10

3.1.9 Locate the tank cover bolts at the rear side of the tank cover. Unscrew the bolts 4, 5 and 6 that are marked in the picture using M5 hex bit. Refer **Image 10** and **Image 11**

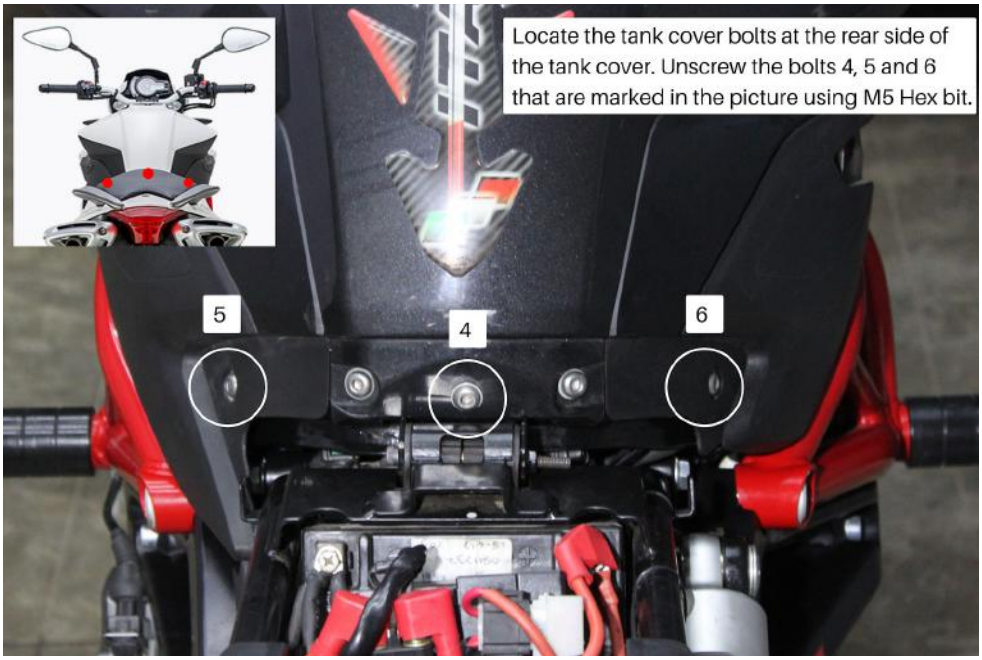

Image 11

3.1.10 Locate the fairing bolts. Unscrew the bolts 7, 8, 9 and 10 that are marked in the picture using M4 hex bit. Note that bolt 8 is accessible only from inside. Refer **Image 12** and **Image 13**

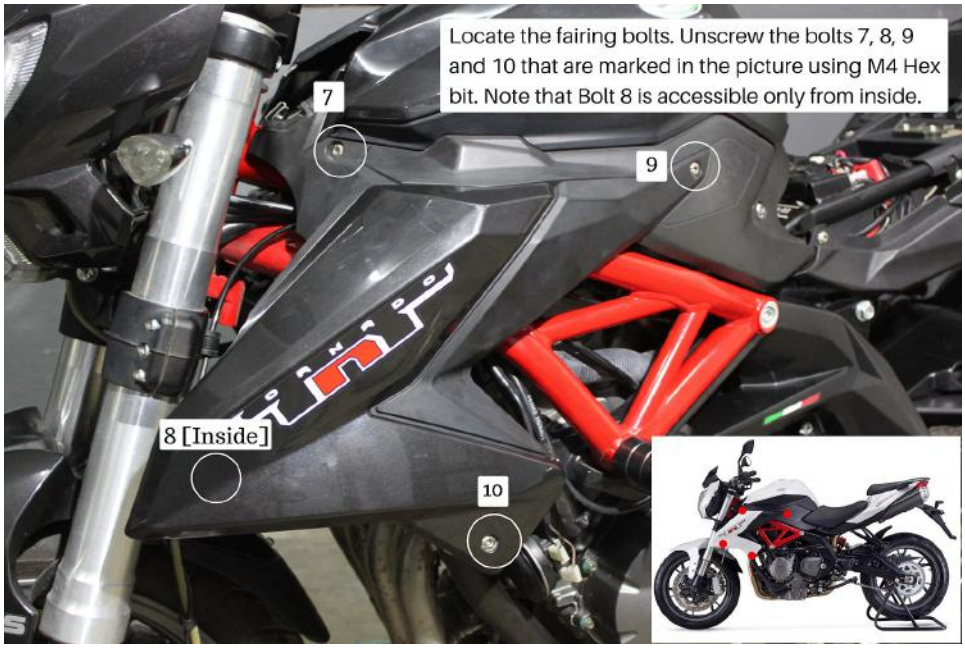

Image 12

Image 13

3.1.11 Locate the bolt on the front end of the tank cover. Unscrew it using M4 hex bit. Refer **Image 14**

Image 14

3.1.12 Detach the side carefully, Repeat the process on the other side of the bike also. Refer **Image 15**

Image 15

3.1.13 After removing the fairings detach the fuel tank cover gently.. Refer **Image 16**

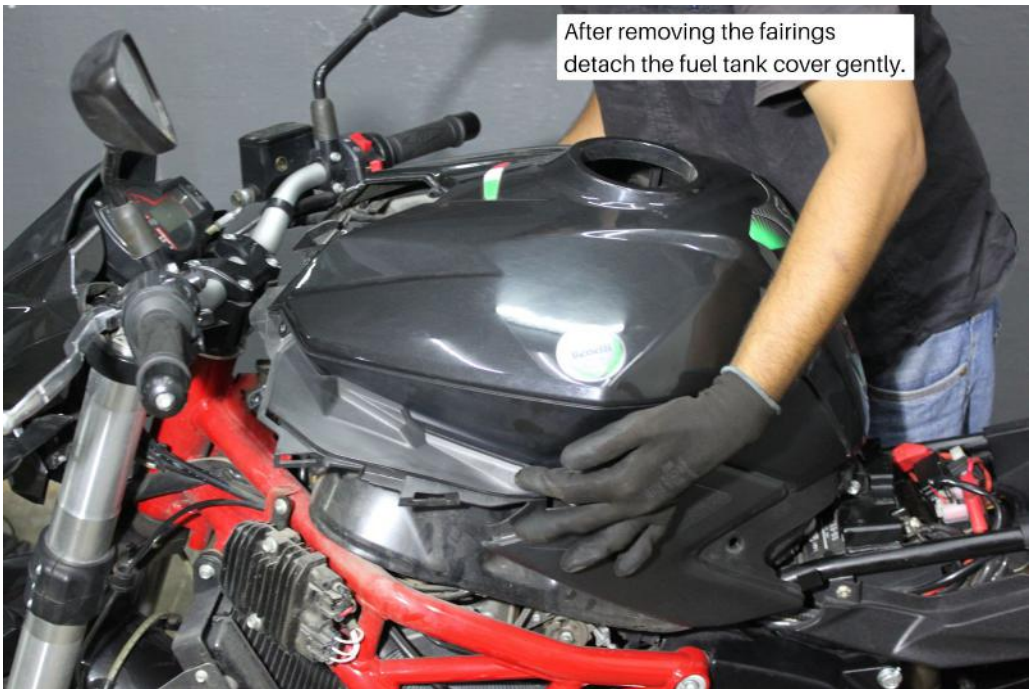

Image 16

3.1.14 Unscrew the tank bolts at the front using M10 Hexagonal Socket. Refer **Image 17** and **Image 18.**

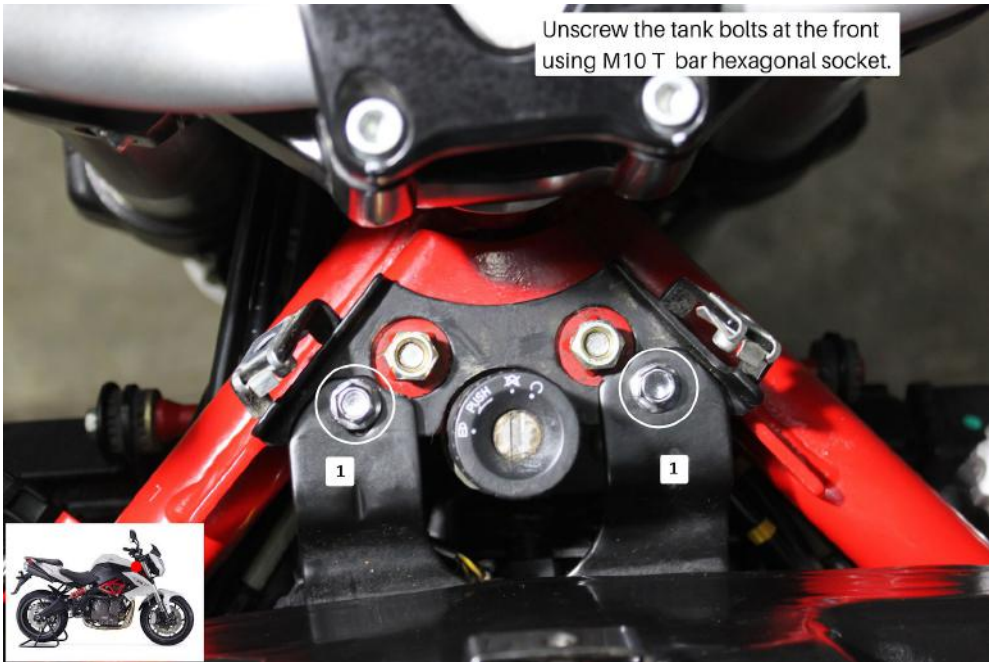

Image 17

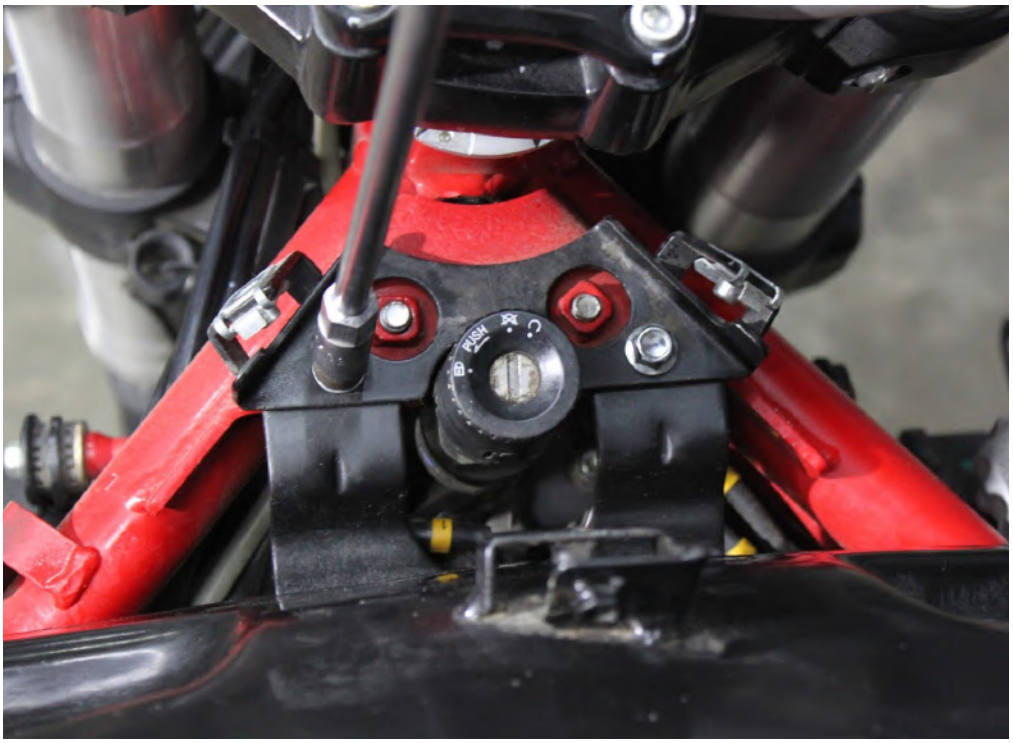

Image 18

3.1.15 Carefully remove the plate after removing the bolts. Refer **Image 19**

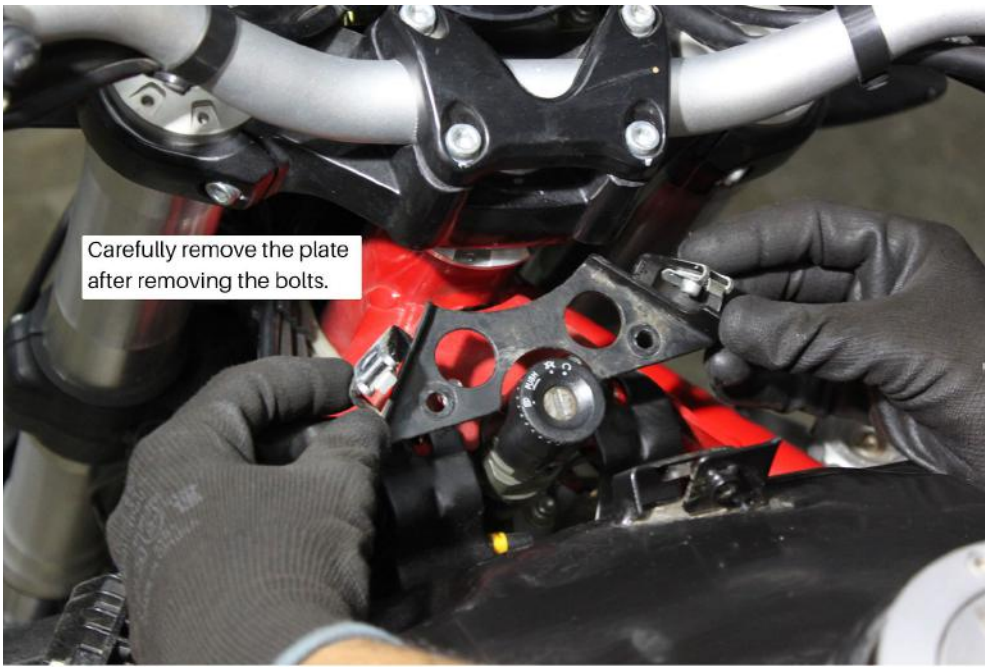

Image 19

3.1.16 Unscrew the bolt at the rear end of the tank using M10 Hexagonal Socket. Refer **Image 20**

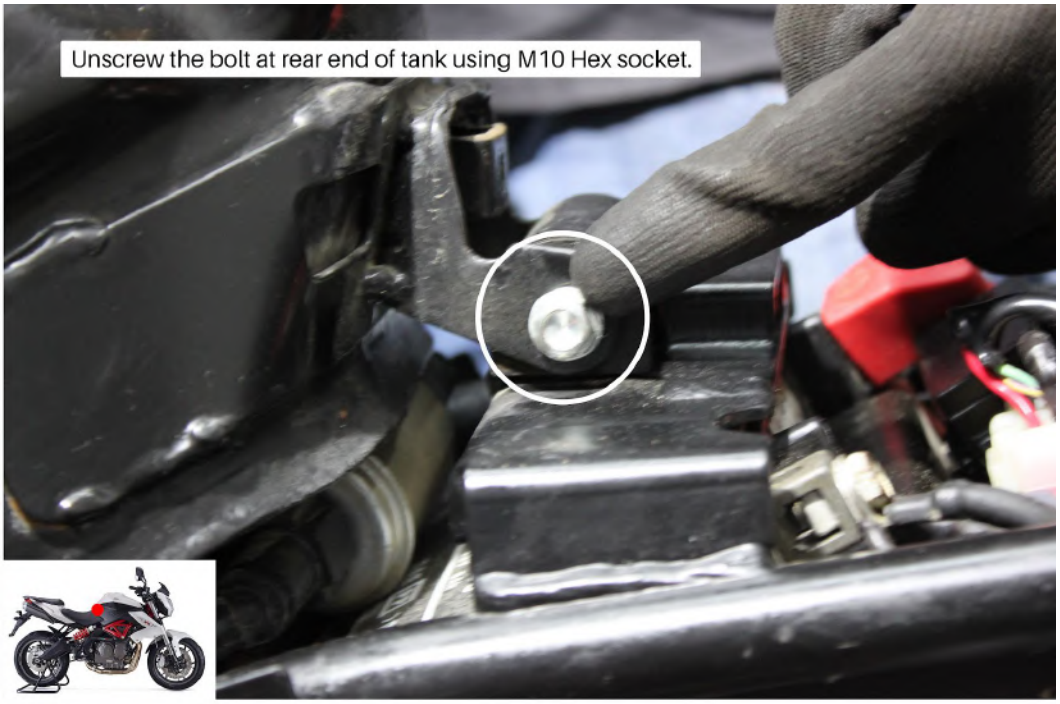

Image 20

3.1.17 Gently lift the fuel tank a little to access the connections under it.

3.1.18 Detach the vacuum hoses 1 and 2. Refer **Images 21**

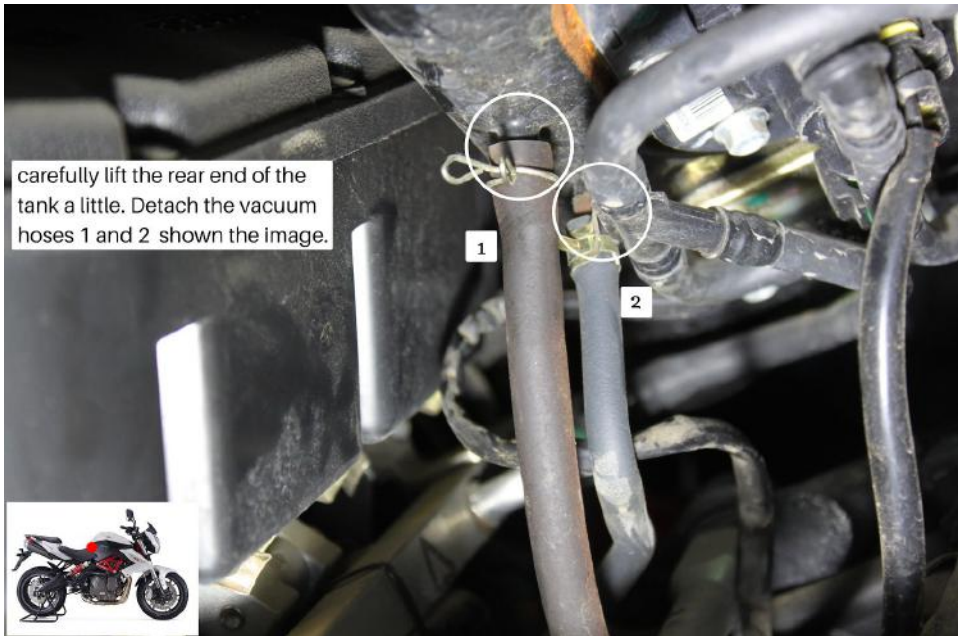

Image 21

3.1.19 Disconnect the fuel pump connector. Refer **Images 22.**

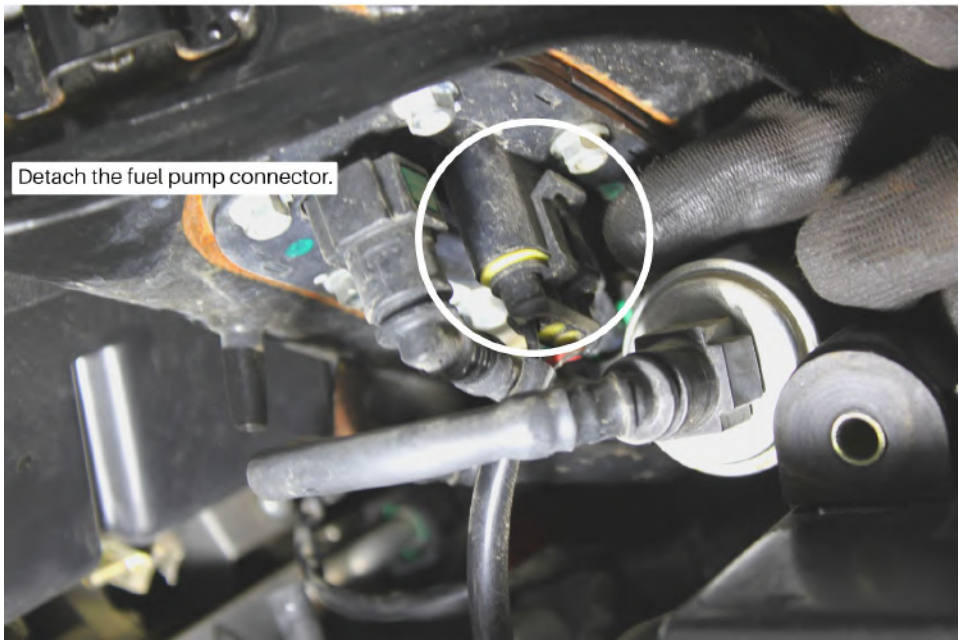

Image 22

3.1.20 Disconnect the fuel lineby pressing the clip and gently pulling it back. Refer **Image 23**.

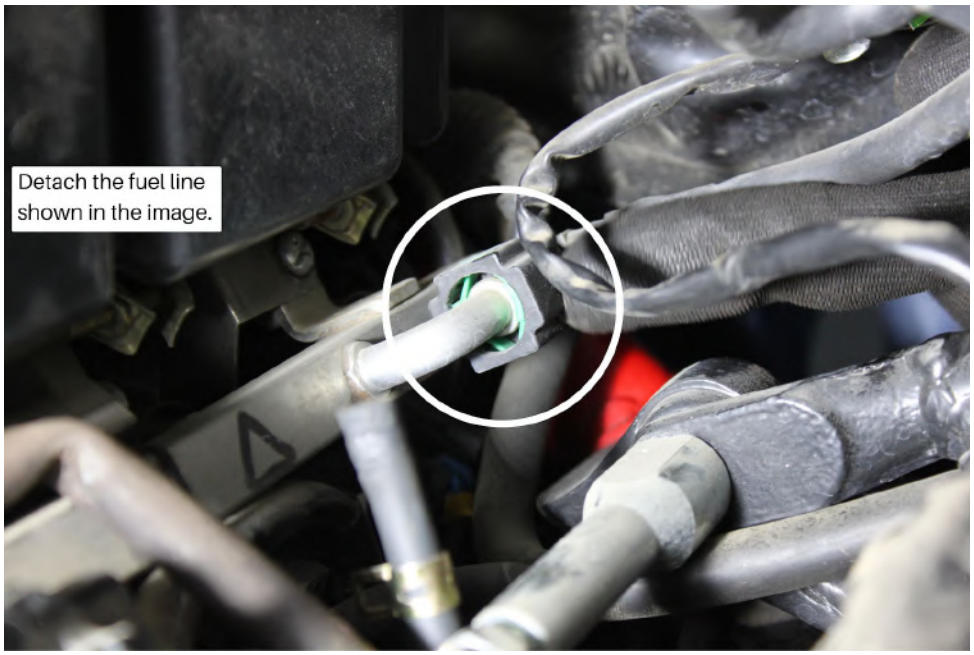

Image 23

3.1.21 Disconnect the fuel gauge connector. Refer **Image 24**

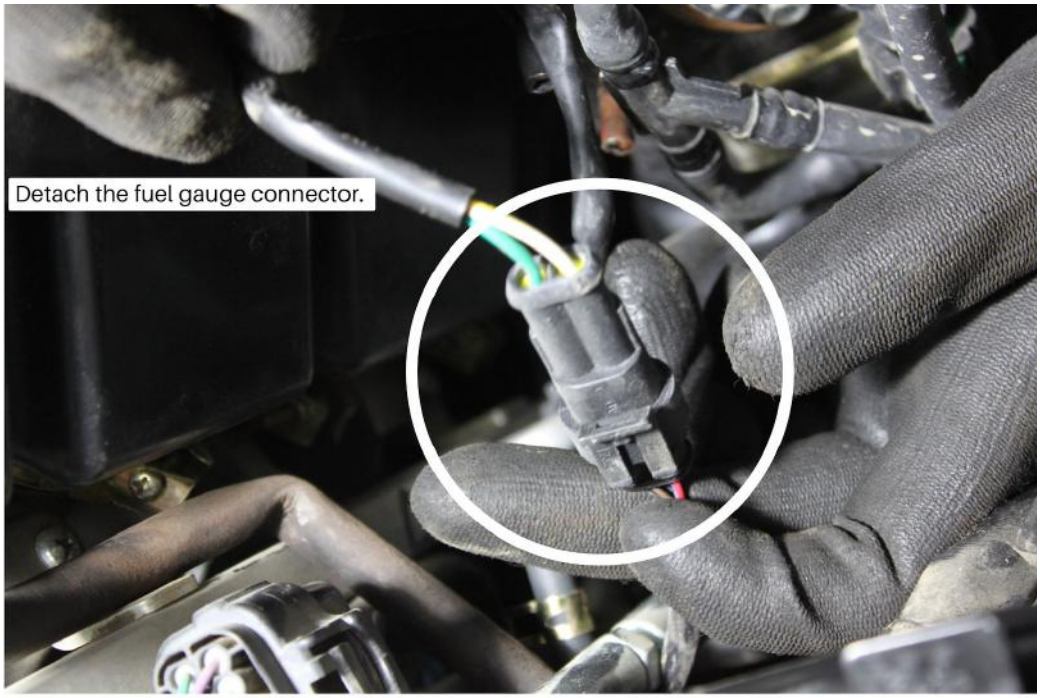

Image 24

3.1.22 Gently lift the fuel tank and place it safe.
3.1.23 Unscrew the air filter box bolts using M8 Hexagonal socket. Refer **Image 25**

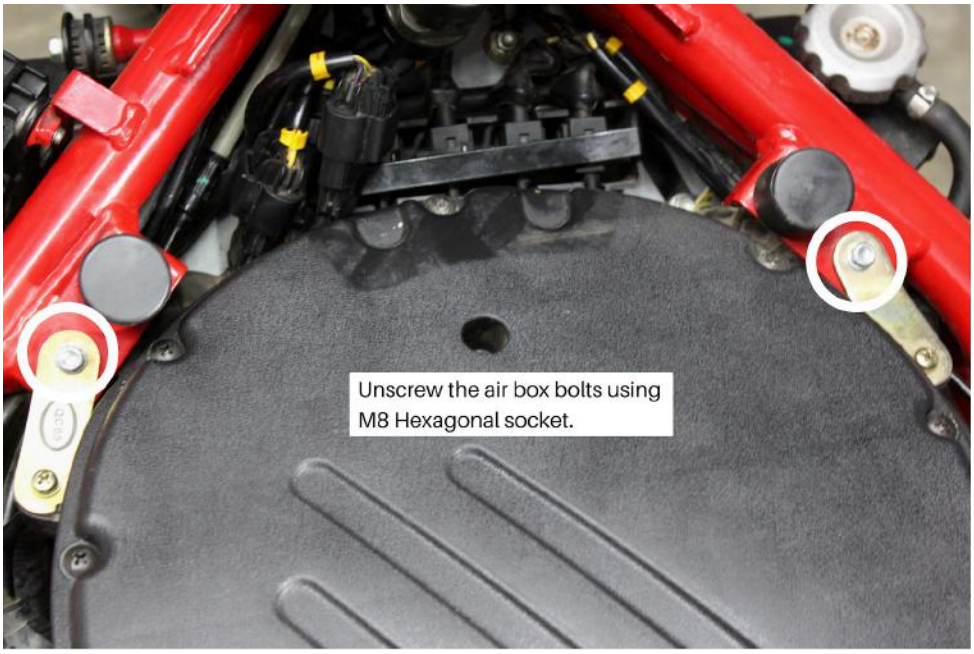

Image 25

3.1.24 Disconnect the left side sensor connector of air filter box. Refer **Image 26**

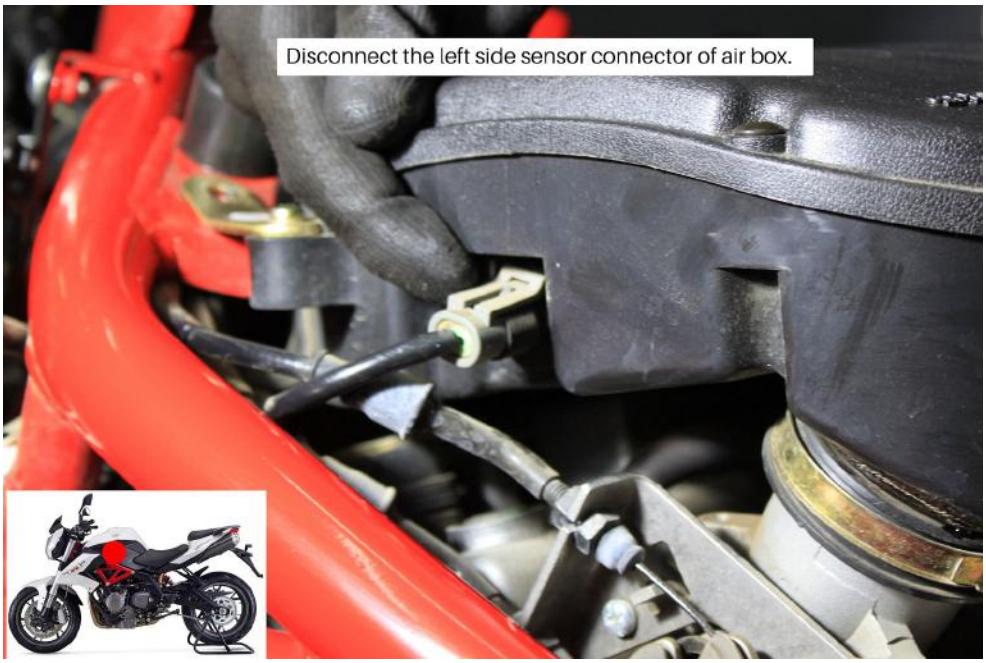

Image 26

3.1.25 Disconnect the right side sensor connector of air box. Refer **Image 27**

Image 27

3.1.26 Disconnect the hose pipe on the right side of the air box. Refer **Image 28**

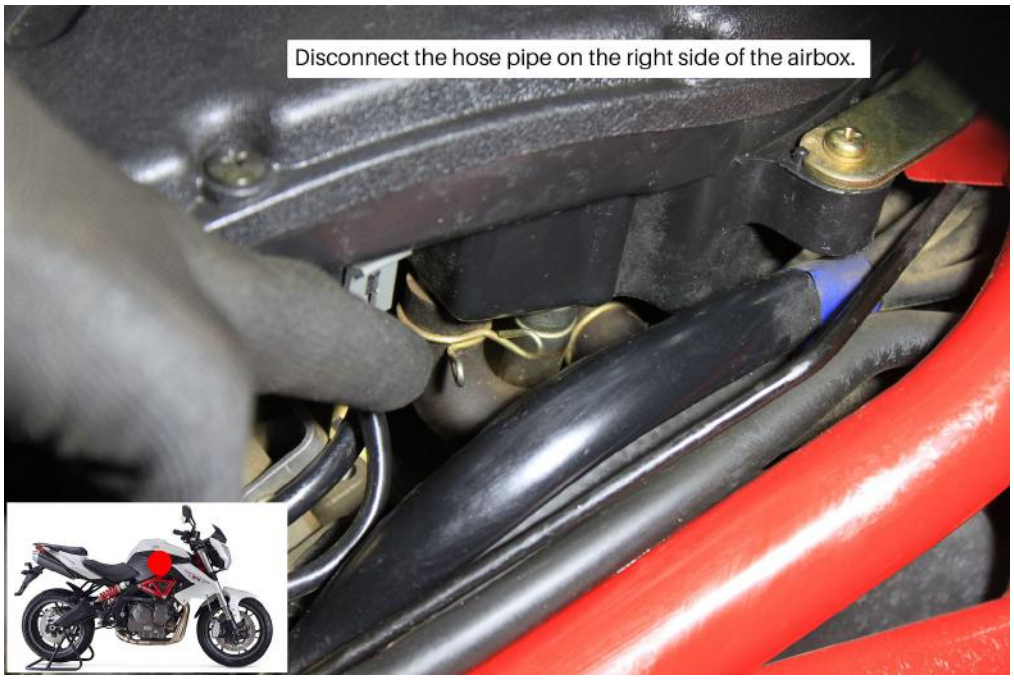

Image 28

3.1.27 Loosen the air filter box clamp screws using a Phillips head screwdriver. Refer **Image 29-A and Image 29-B**

Image 29-A/29-B

3.1.28 After removing all the connections gently detach and lift the air filter box. Refer **Image 30**

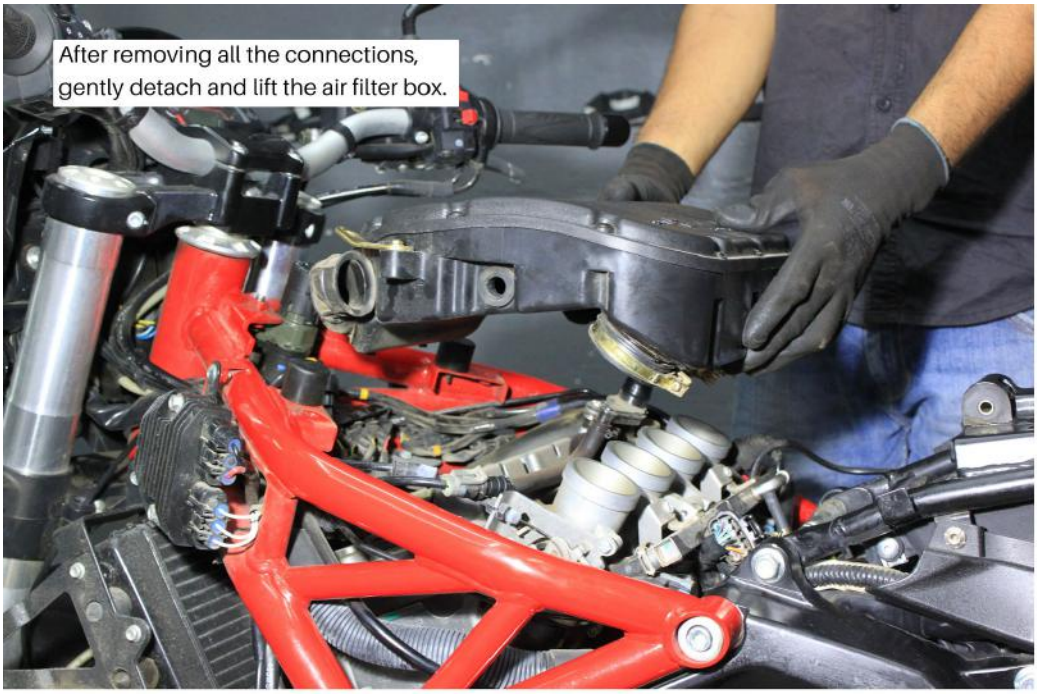

Image 30

3.1.29 Unscrew the seat centre panel screws using Phillips head screwdriver. Refer **Image 31**

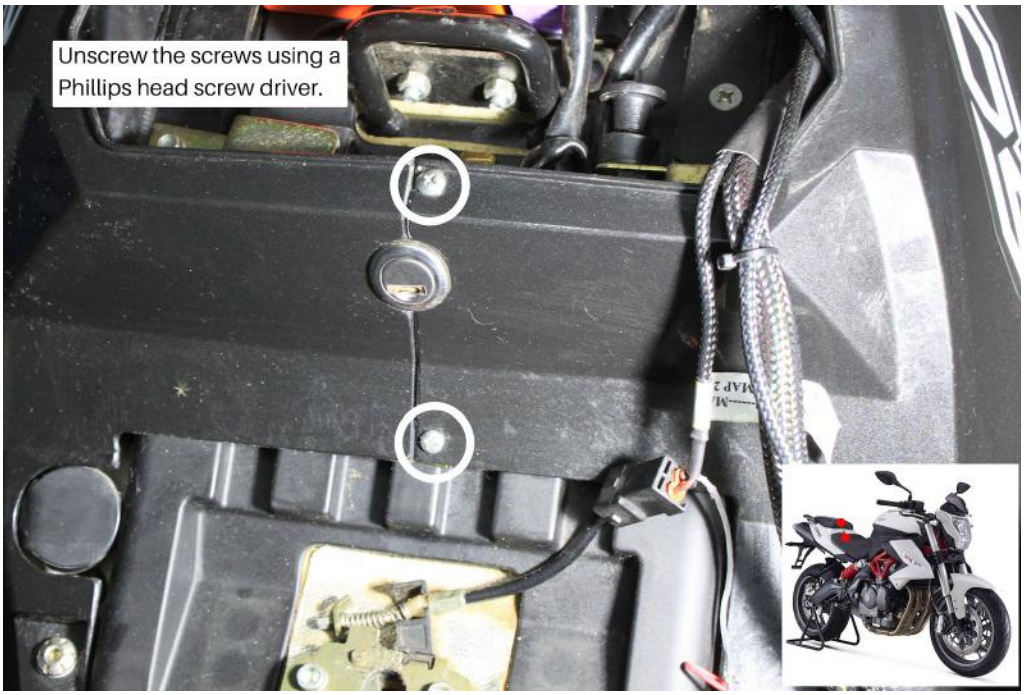

Image 31

3.1.30 Detach the pin behind the key slot carefully. Refer **Image 32**

Image 32

3.1.31 Unscrew the side fairing bolt using M4 hex bit. Refer **Image 33**

Image 33

3.1.32 Unscrew the side fairing bolt using M4 hex bit. Refer **Image 34.**

Image 34

3.1.33 Unscrew the side fairing bolt using M4 hex bit. Refer **Image 35**

Image 35

3.1.34 Unscrew the rear fairing bolt using M4 hex bit. Refer **Image 36**

Image 36

3.1.35 Detach the rear fairing carefully. Refer **Image 37**

Image 37

3.1.36 Unscrew the rear panel screw using a Phillips head screwdriver. Refer **Image 38**

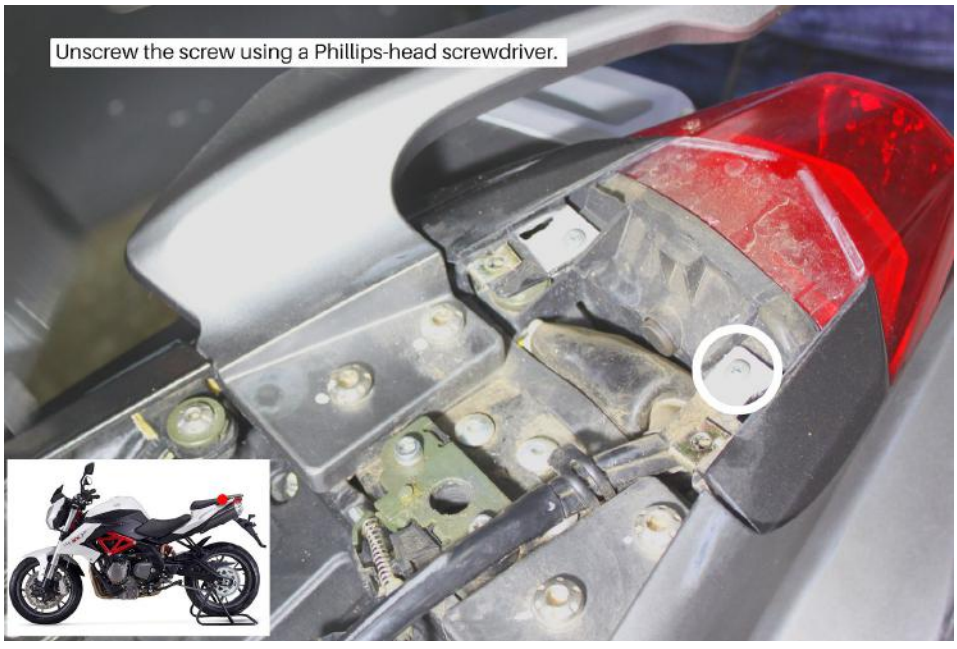

Image 38

3.1.37 After removing all the screws and the bolt, carefully detach the side panel. Refer **Image 39**

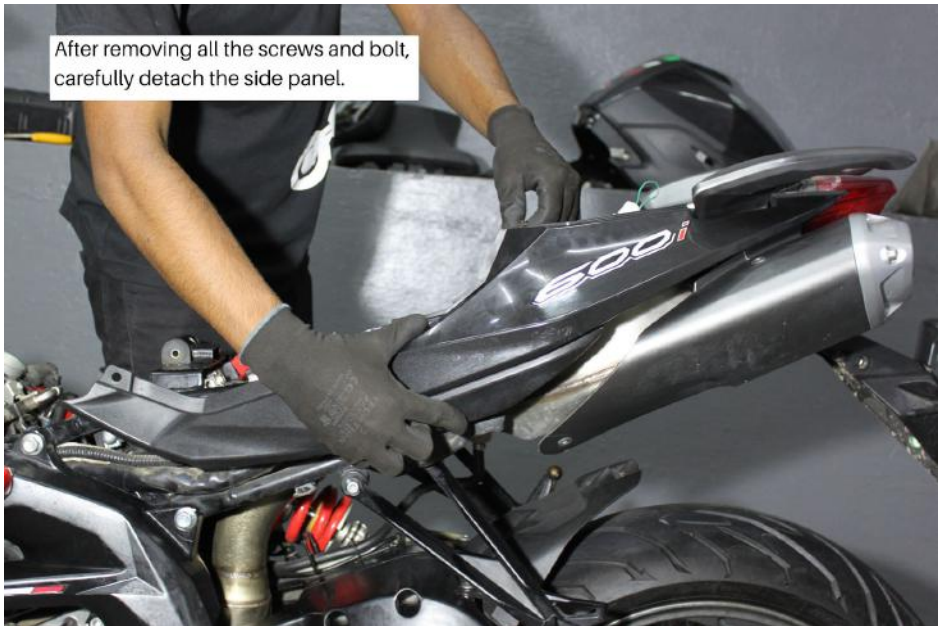

Image 39

3.2 Routing the harness

3.2.1 Starting from the rear end, route each connector terminal to the left side of the bike. Refer **Image 40**.

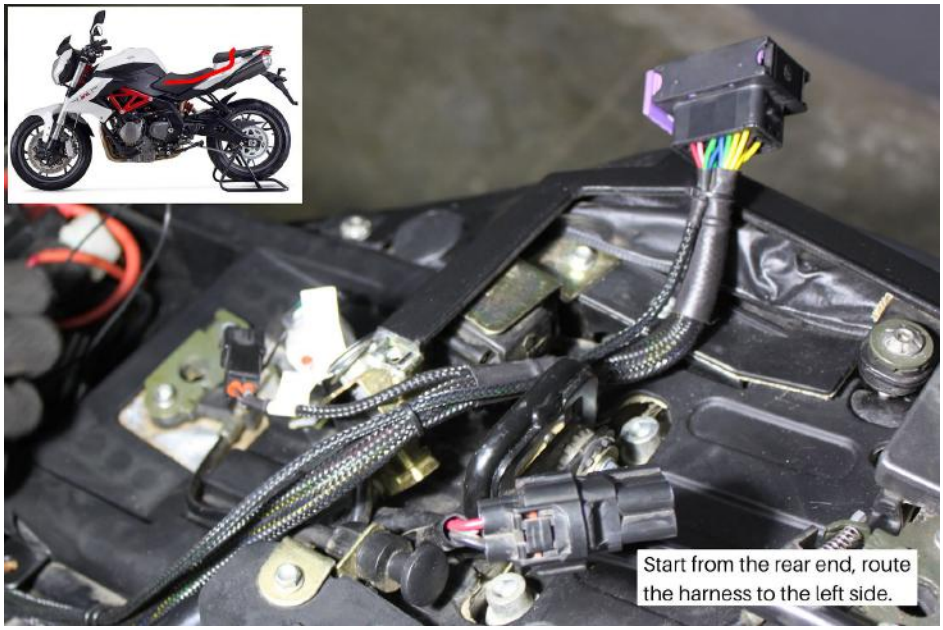

Image 40

3.2.2 Route the harness to the left side of the bike, near the frame. Refer **Image 41.**

Image 41

3.2.3 Route the ground connector of the harness to battery negative terminal. Refer **Image 42**

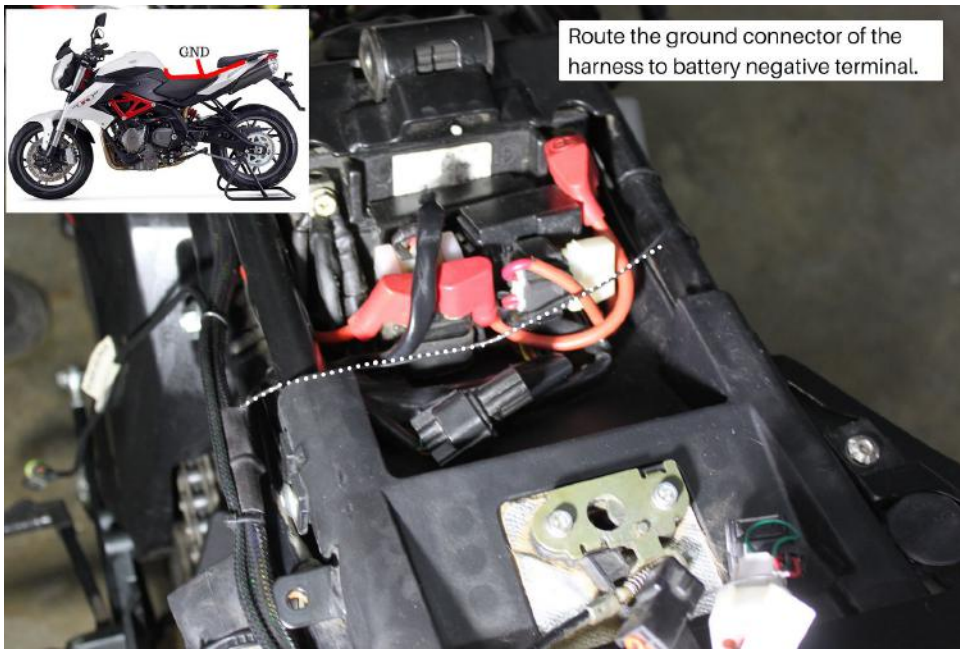

Image 42

3.2.4 Carefully route each connectors of the harness under the frame. Refer **Image 43.**

Image 43

3.2.5 Route each connectors under the rod. Refer **Image 44.**

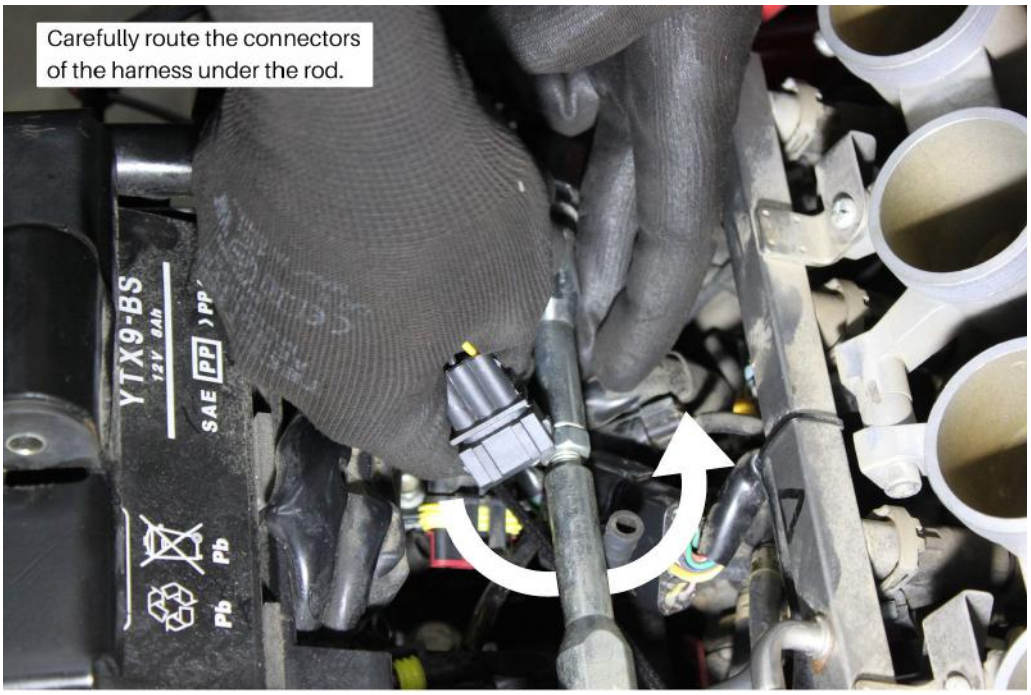

Image 44

3.2.6 Route the TPS harness wire to right side of the bike. Refer **Image 45.**

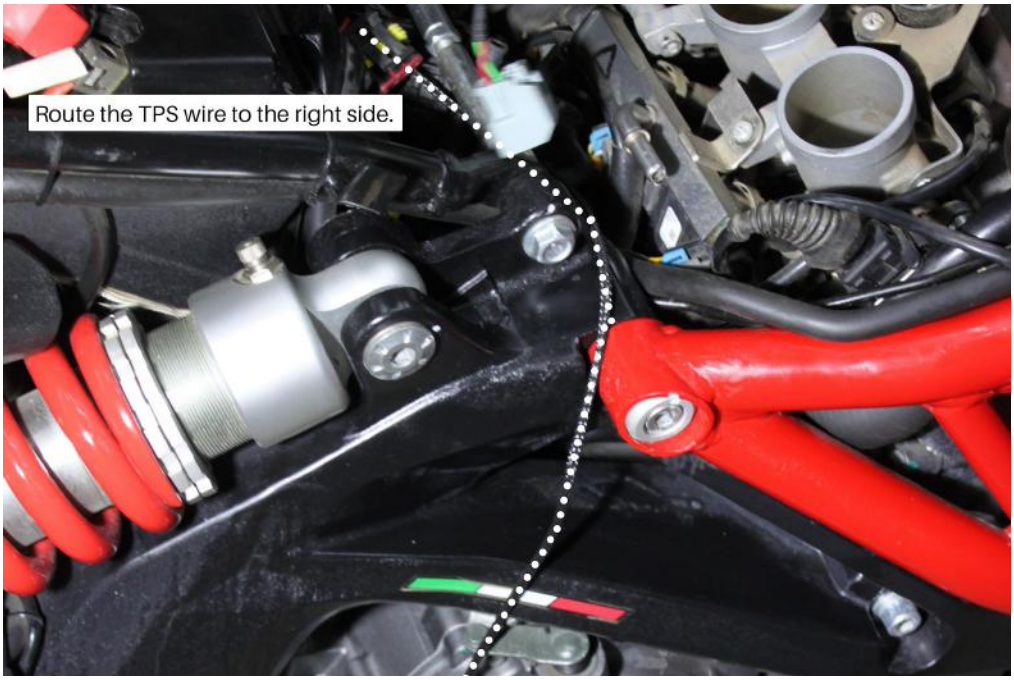

Image 45

3.2.7 Route the ignition coil harness at the left side of the bike under the throttle cable. Refer **Image 46.**

Image 46

3.2.8 Place the end of the ignition coil connectors to the front end. Refer **Image 47.**

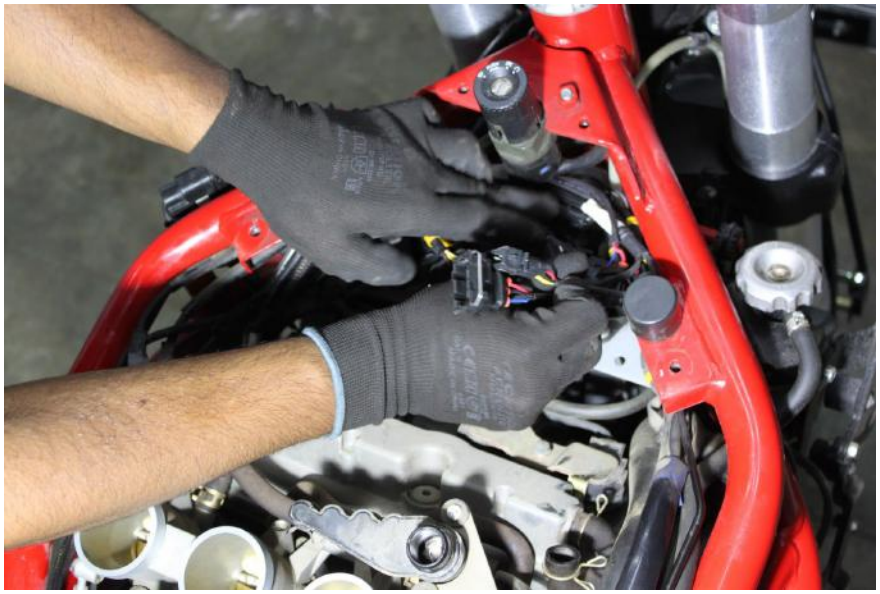

Image 47

3.2.9 Refer the completed view of routing in **Image 48.**

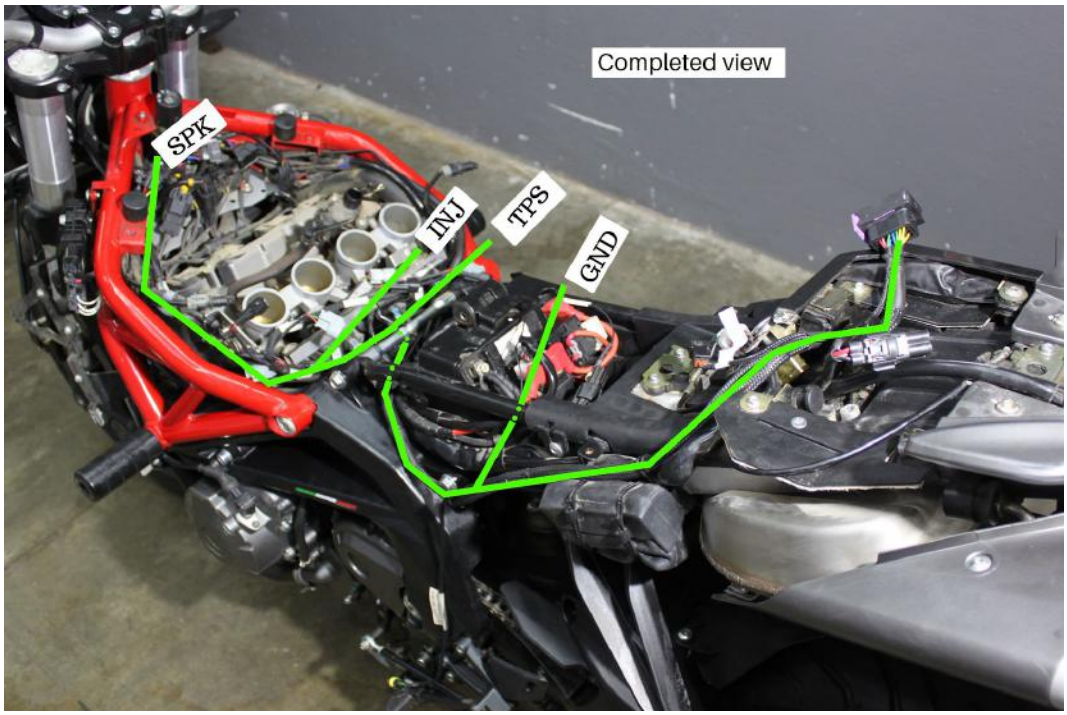

Image 48

Important Note: There are 4 fuel injector connectors and ignition coil connectors. Fuel injectors are labelled as INJ1, INJ2, INJ3, INJ4 and Ignition coil connectors are labelled as SPK1, SPK2, SPK3, SPK4. Before proceeding with the installation, understand the order and then do the installation in the same order for fuel injector and ignition coil connectors.

3.3 Fuel Injector Connector

3.3.1 Locate the stock injector connectors and its order of your bike. Refer **Images 49.**

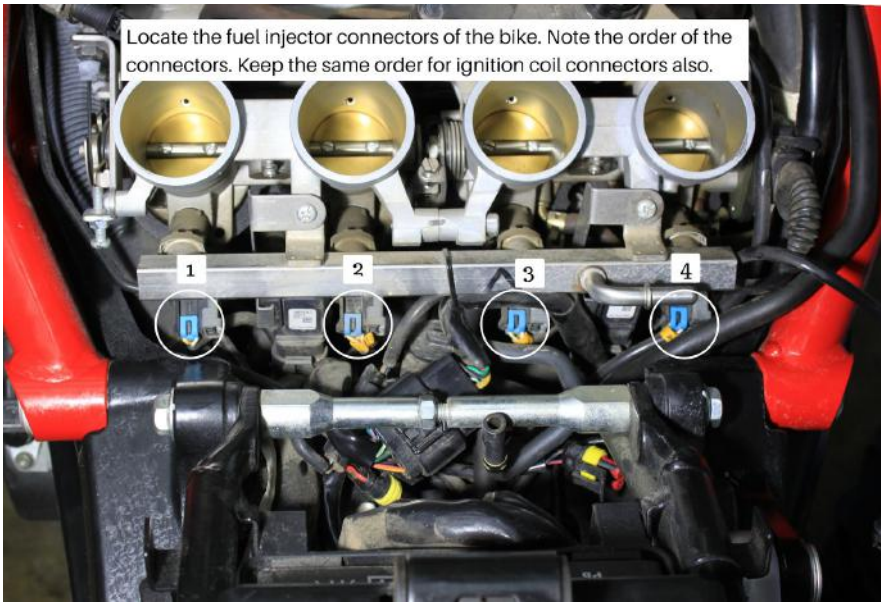

Image 49

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 the zoomed view (**Image 50**)

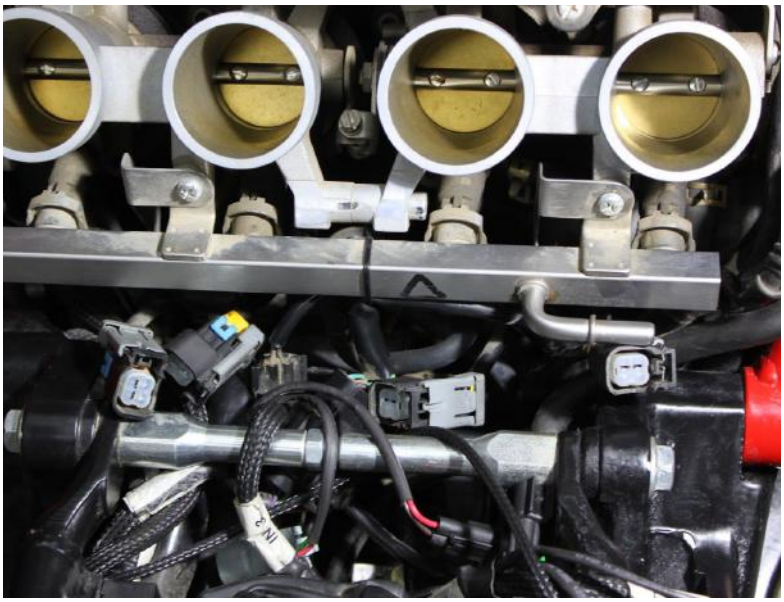

Image 50

3.3.4 Connect the PowerTRONIC female injector connector harness (SPK1) to the stock 1st male injector connector. Repeat the process for remaining 3 connectors. Refer **Image 51**

Image 51

3.3.5 Connect the PowerTRONIC male injector connector (SPK1) to the 1st stock female injector connector. Repeat the process remaining 3 connectors. Refer **Image 52**

Image 52

3.3.6 Refer the completed view in **Image 53.**

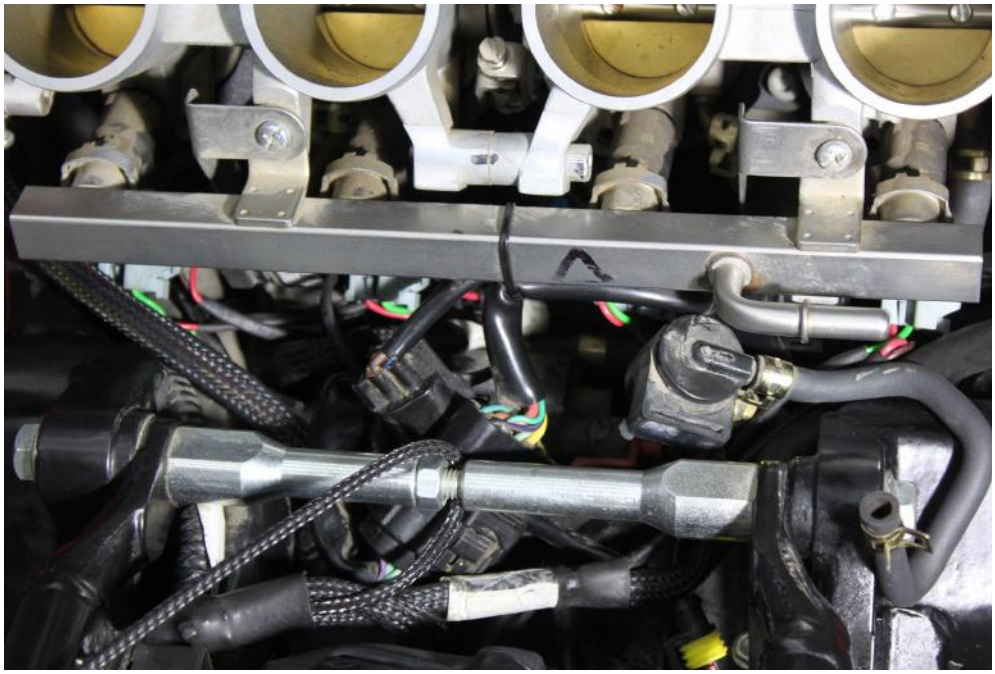

Image 53

3.4 Ignition Coil Connector

3.4.1 Locate the Ignition coil at the front end of the bike. Refer **Images 54**.

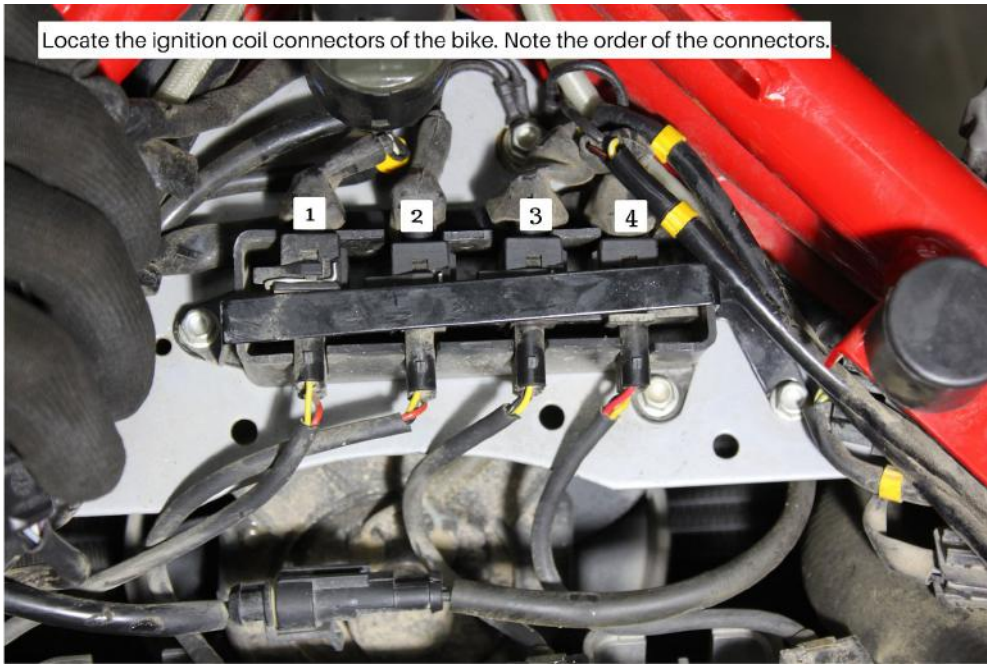

Image 54

3.4.2 Locate the Ignition coil locking bolt and unscrew them using M8 Hex socket. Refer **Images 55**.

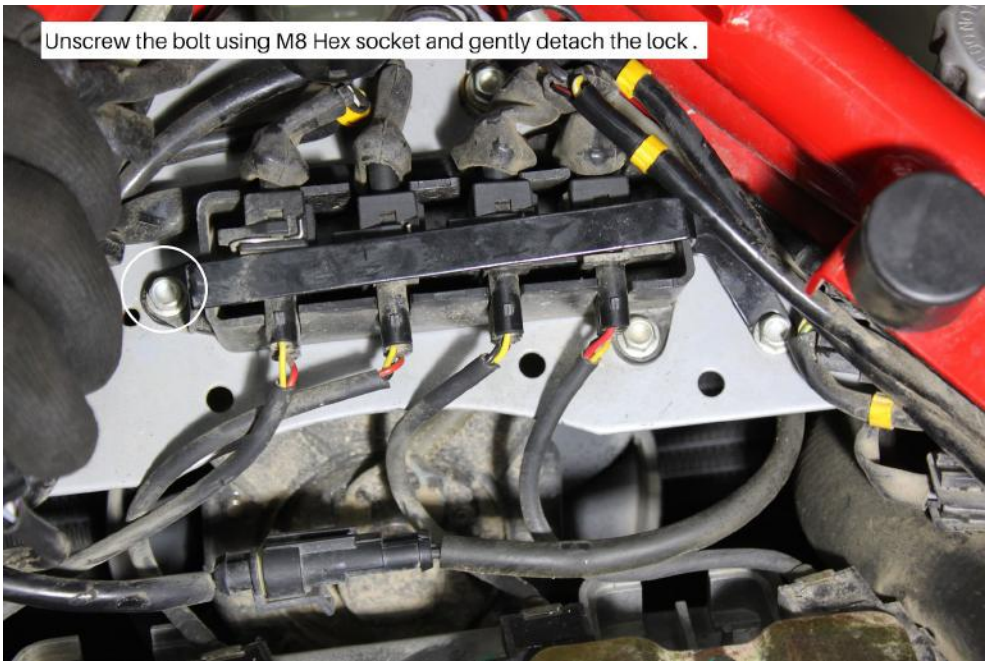

Image 55

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

3.4.4 Disconnect the stock ignition coil connectors. Refer **Image 56**

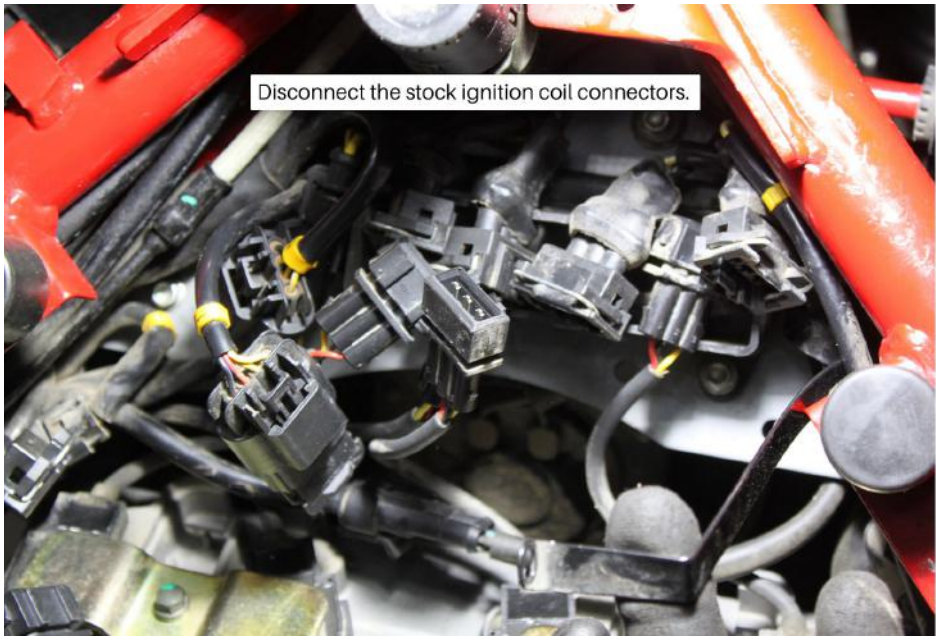

Image 56

3.4.5 Connect the PowerTRONIC Ignition coil female connector(SPK 1) to the 1st stock ignition coil male connector. Refer **Image 57.**

Image 57

3.4.6 Connect the PowerTRONIC Ignition coil male connector (SPK 1) to the 1st stock ignition coil female connector. Refer **Image 58.**

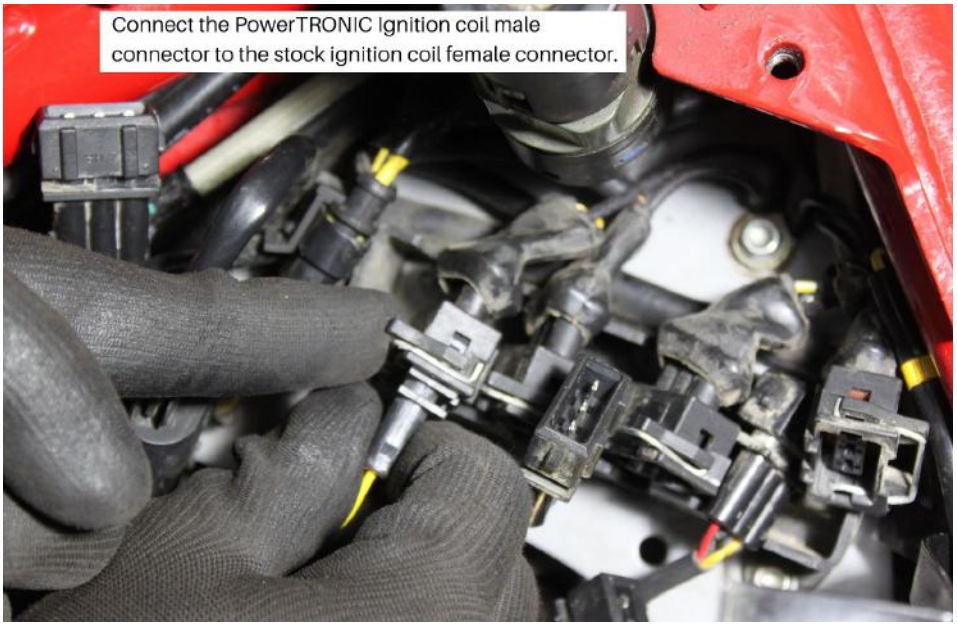

Image 58

3.4.7 Repeat the above steps for the other 3 ignition coils. Refer **Image 59** for completed view.

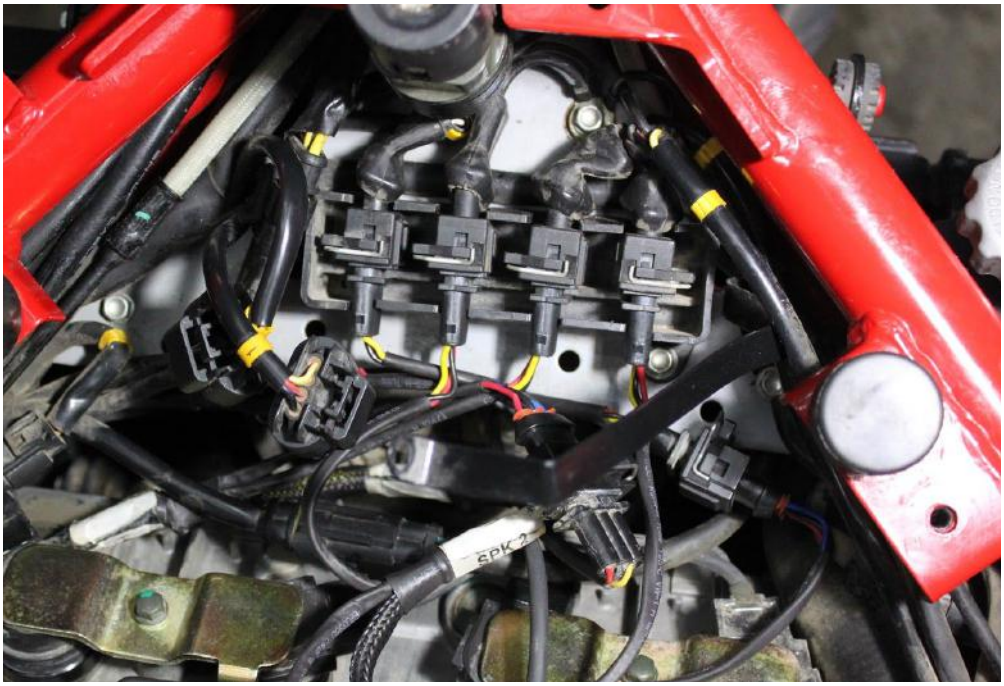

Image 59

3.5 Throttle position sensor connector

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 60** .

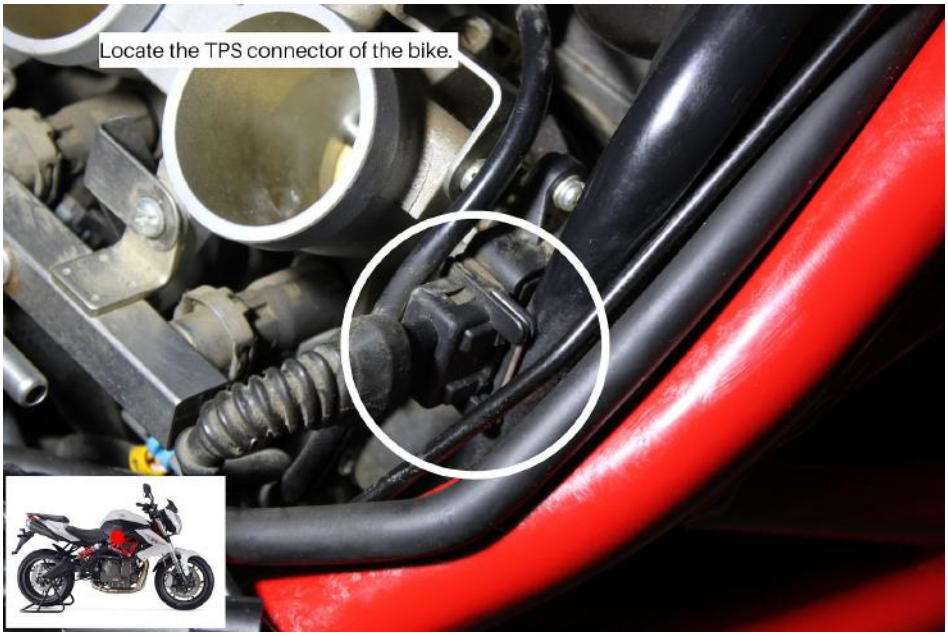

Image 60

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

3.5.3 Disconnect the stock TPS connector. Refer **Image 61.**

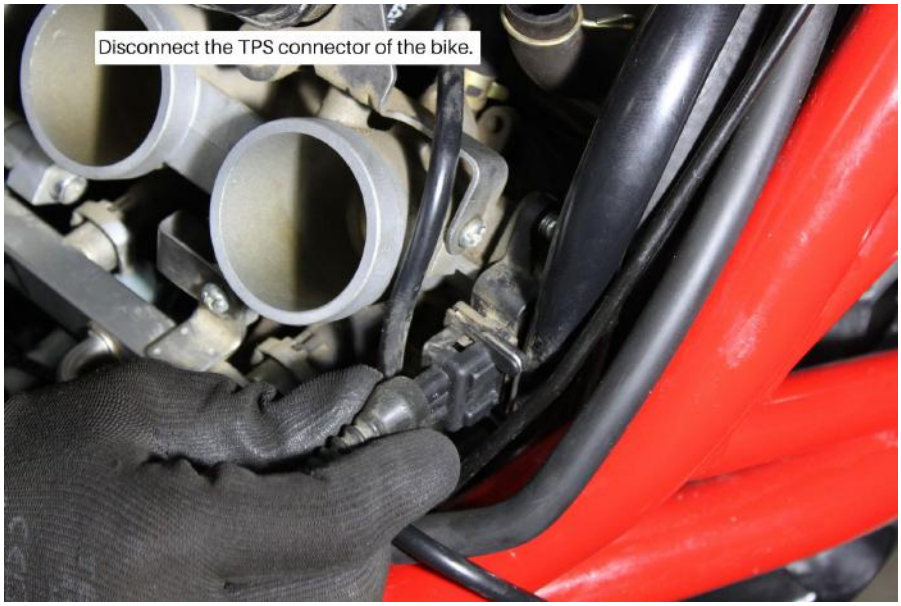

Image 61

3.5.4 Connect the PowerTRONIC female TPS connector to the stock TPS male connector. Refer **Image 62.**

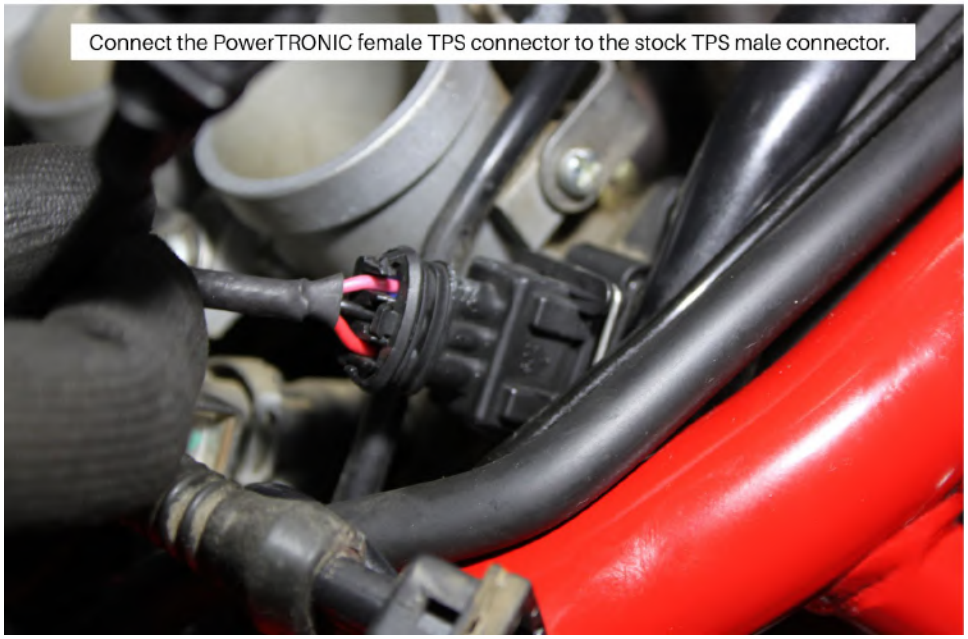

Image 62

3.5.5 Connect the PowerTRONIC male TPS connector to the stock TPS female connector. Refer **Image 63.**

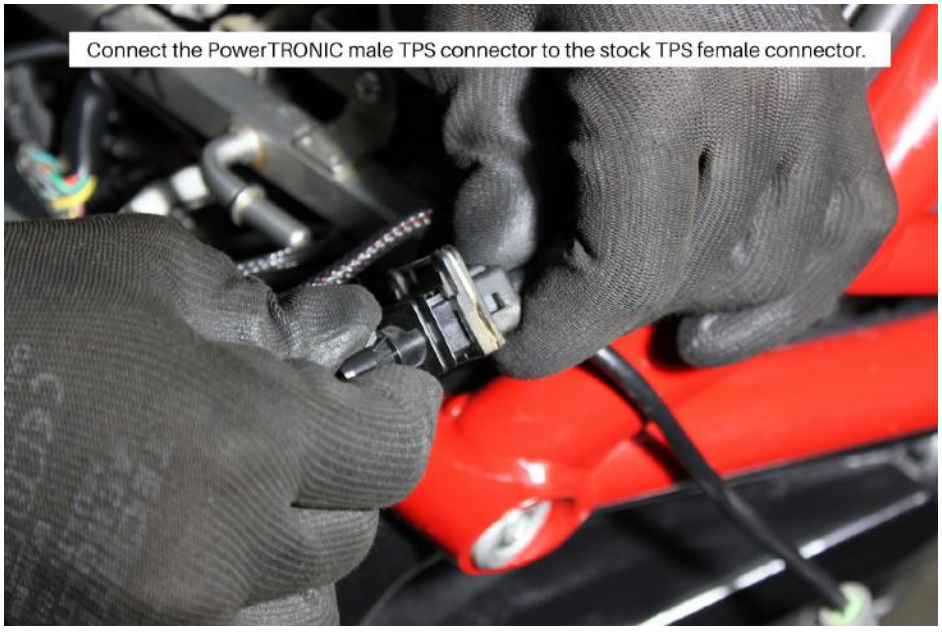

Image 63

3.5.6 We advise you to perform a TPS calibration after the installation of PowerTronic ECU.
Refer the detailed TPS calibration document.

3.6 Ground Terminal Connector

3.6.1 Locate the battery negative terminal of the bike. Refer **Image 64.**

Image 64

3.6.2 Unscrew the battery negative terminal. Refer **Image 65.**

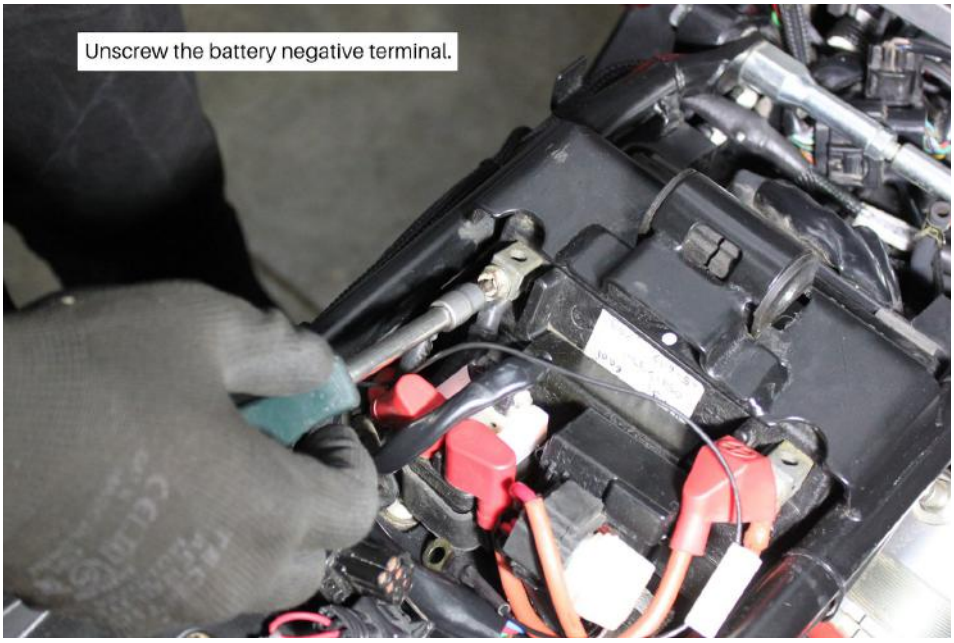

Image 65

3.6.3 Identify the Ground terminal connector labelled as GND and connect it to the negative terminal of the battery. Refer **Image 66**

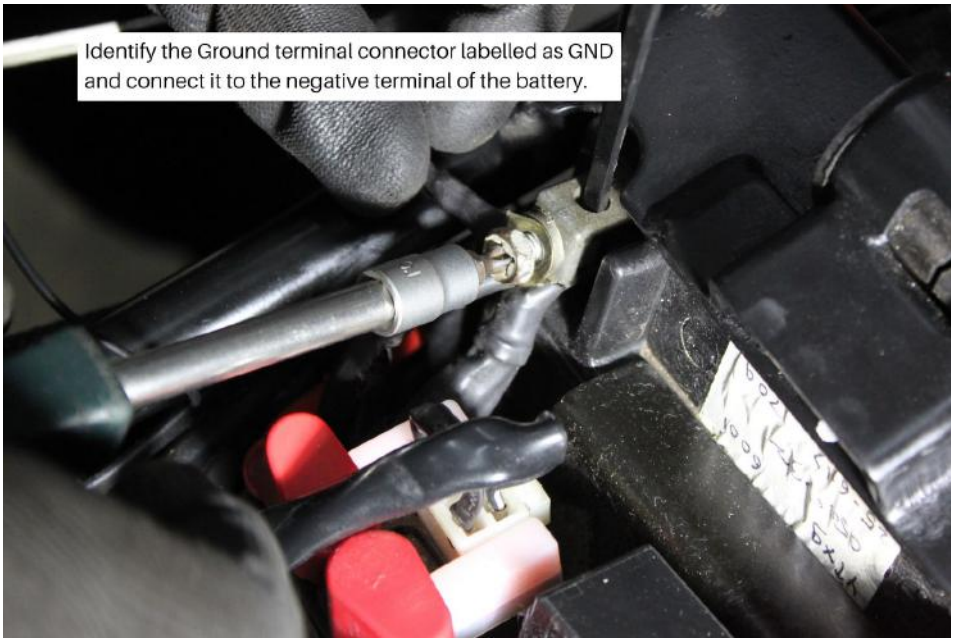

Image 66

3.7 Securing the harness using ties

3.7.1 Secure the harness away from general heating areas by attaching it to the chassis or frame using the zip ties provided wherever necessary. Refer **Image 67.**

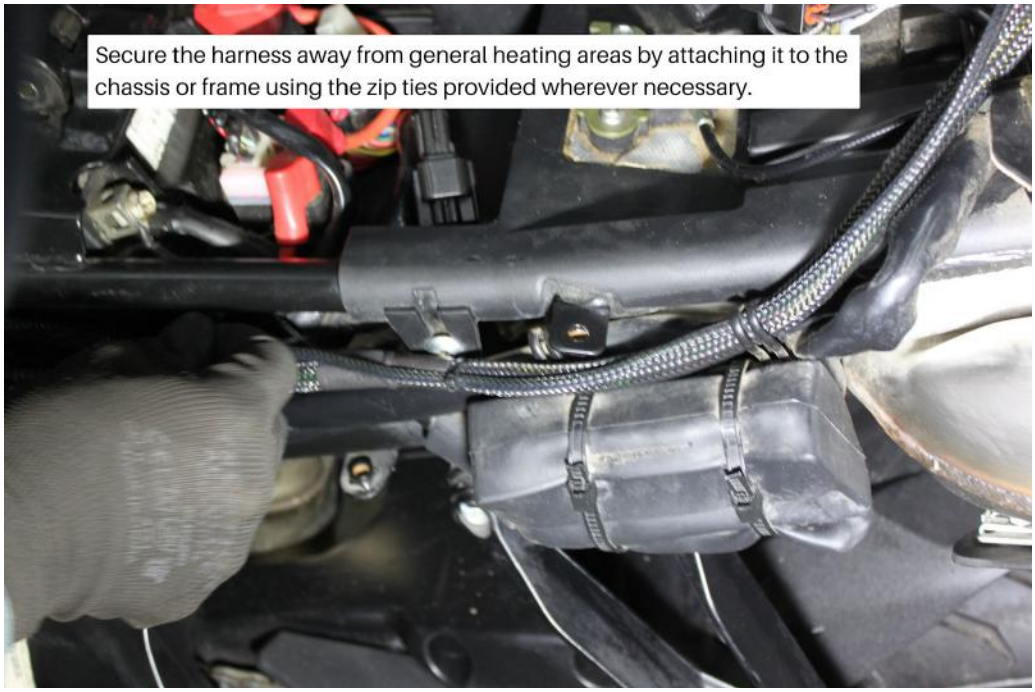

Image 67

Important note: The PowerTRONIC harness contains Quick shifter connector. If you have bought the Quickshifter please attach the connector to it. [Please refer Quick shifter installation manual]

If you have not bought the Quickshifter, you can leave it disconnected but make sure the harness is secured using zip ties provided.

3.8 Testing with the stock coupler

3.8.1 Attach the fuel tank.

3.8.2 You can verify the connections by attaching the stock coupler. Refer detailed Stock coupler test document.

3.8.3 DO NOT proceed with PowerTRONIC ECU without verifying the connections with stock coupler. Refer **Image 68.**

Image 68

3.9 Plugging in the PowerTRONIC

Connect the PowerTRONIc to the harness by connecting the 24 pin connector. Secure it in the glove box. Refer **Image 69.**

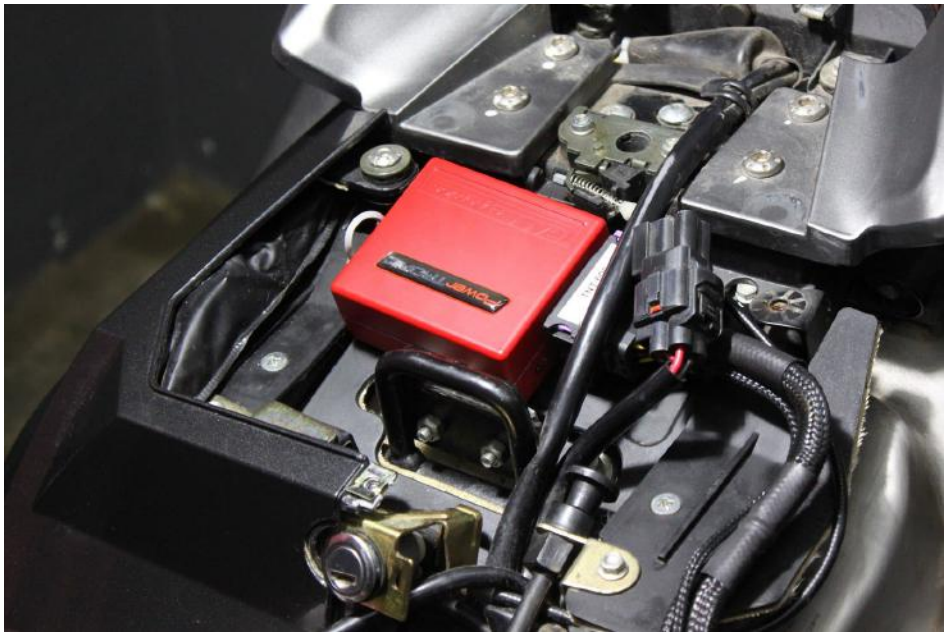

Image 69

3.10 Attaching the panels fairing etc

Attach the panels, fairing as removed from the bike.