

PowerTRONIC Installation Manual- KTM Duke 250 (2017-2023)

Document Version	2	Release Date	01 August 2023
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Application information	Vehicle Specific
Vehicle	KTM
Model	Duke 250
Year of manufacture	2017-2023
PowerTRONIC application	All PowerTRONIC ECUs

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
2. Tools required
3. Installation procedure
 - 3.1 Removing panels, fairing etc
 - 3.2 Routing the harness
 - 3.3 Fuel Injector Connector
 - 3.4 Crankshaft position sensor
 - 3.5 Ignition coil connector
 - 3.6 Throttle Position Connector
 - 3.7 Ground terminal
 - 3.8 Securing the routed harness
 - 3.9 Testing with Stock Coupler
 - 3.10 Plugging in the PowerTRONIC
 - 3.11 Attaching the panels, fairing etc

1. Parts list

1	PowerTRONIC	Piggyback ECU
2	Stock Coupler	Stand by unit <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • Fuel injector connector • Spark/Ignition coil connector • Throttle position sensor connector (TPS) • Crankshaft position sensor connector(CKP) • 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	Main tools	Optional tools
1	M10, M12, M17 Hexagonal socket	Spinner handle
2	M10 T bar Hexagonal Socket wrench	Ratchet handle
3	Wire cutter	Extension bar or Sliding T bar
4	Phillips head screwdriver	

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). Refer [Image 1](#)



Image 1

Note the position of the connector/hoses/wires to be removed. Refer [Image 2](#)

Locate the connectors/hoses/wires

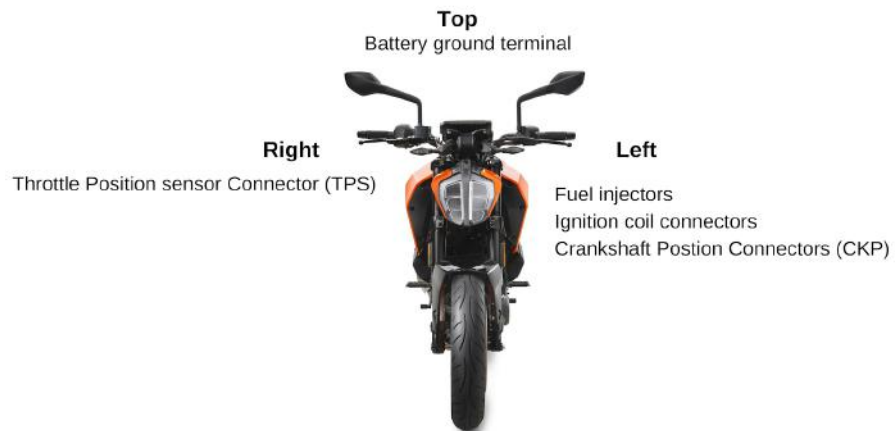


Image 2

3.1.1 Detach the pillion seat by inserting the key into the keyhole shown in **Image 3** and unlock the pillion seat. **Image 4** shows the pillion seat detached.

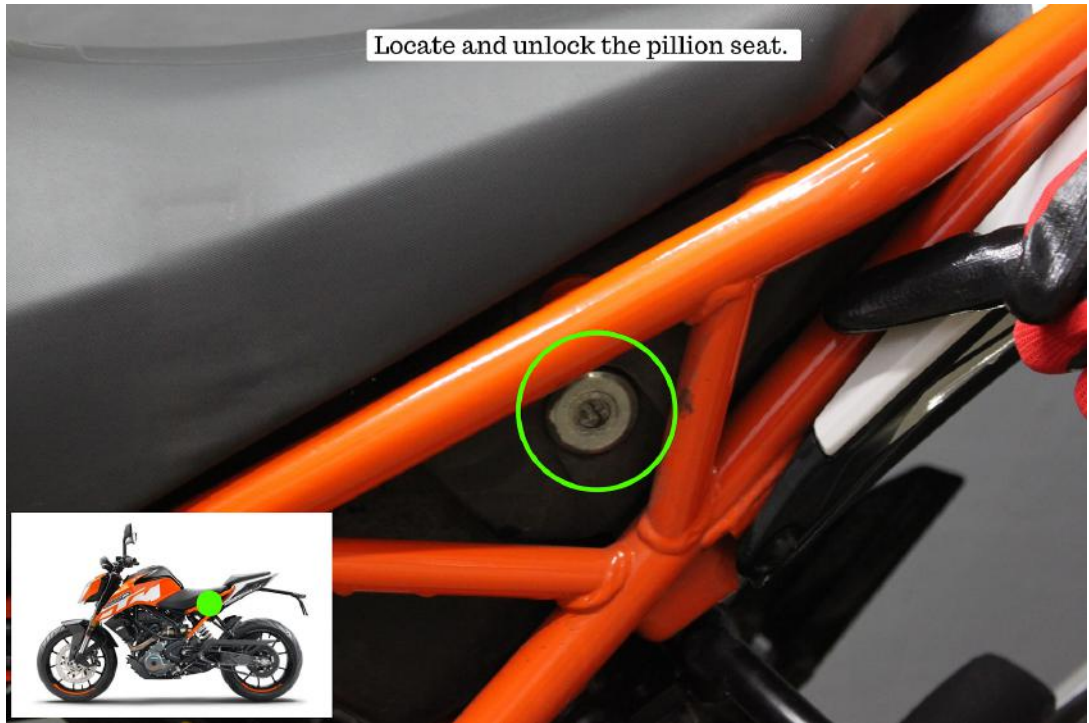


Image 3



Image 4

3.1.2 Detach the rider seat. (Gently lift and slide it towards rear end - Refer [Image 5](#)).



Image 5

3.1.4 Locate and unscrew tank bolt(middle) using M12 Hexagonal socket wrench. Refer [Image 6](#) and [Image 7](#)

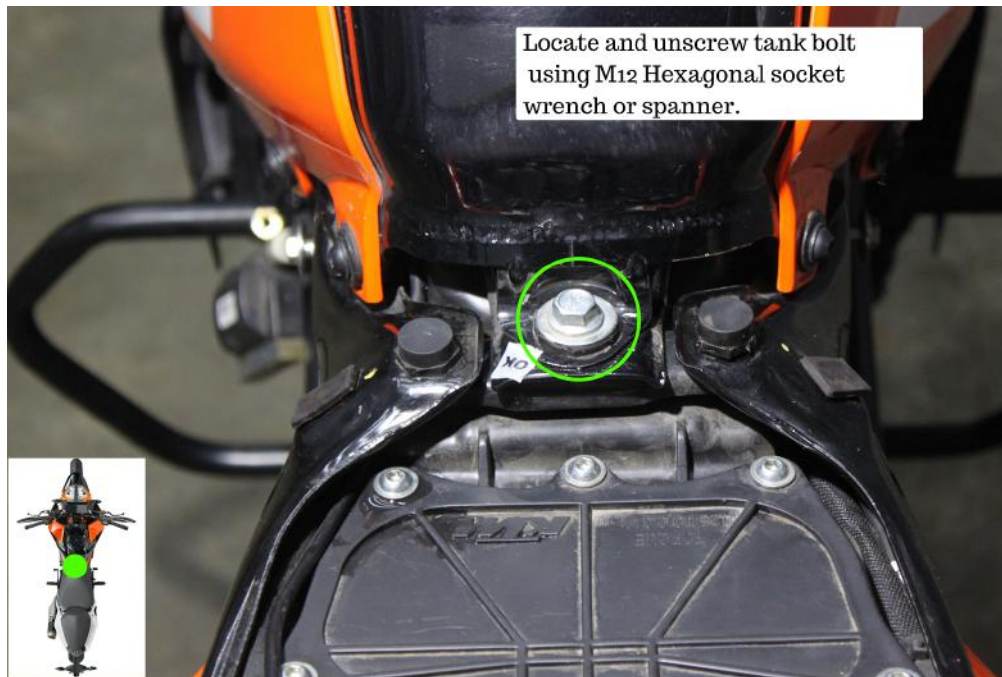


Image 6



Image 7

3.1.5 Locate and unscrew the bolts (side) using M17 Hexagonal socket. Refer [Image 8](#) and [Image 9](#).

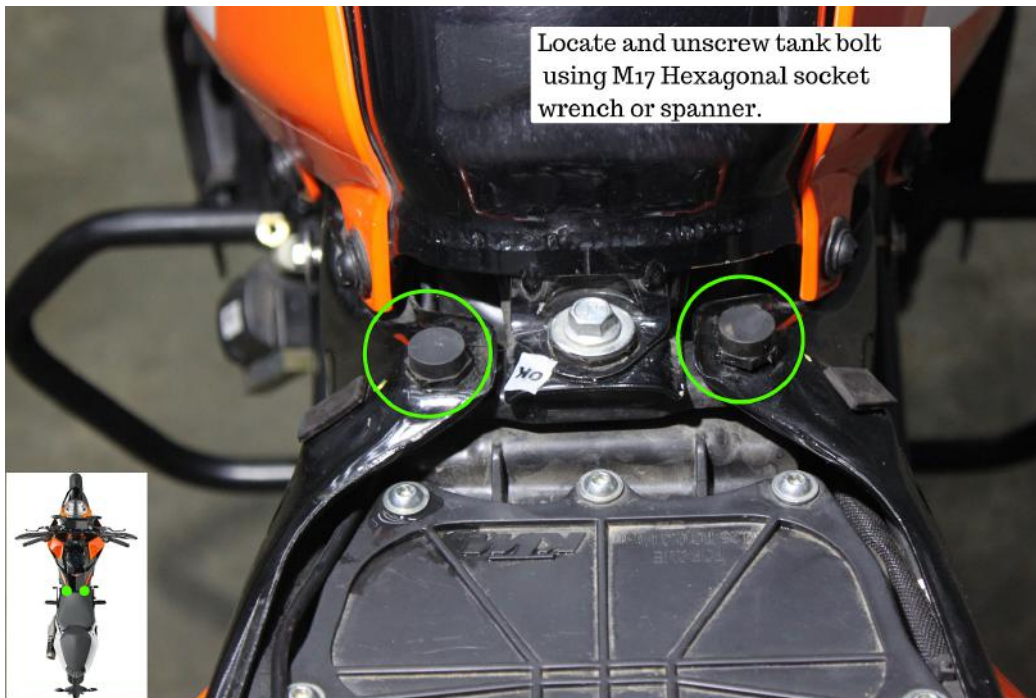


Image 8



Image 9

3.1.6 Gently lift the fuel tank a little and remove the metal part. Refer [Image 10](#).



Image 10

3.1.6 Locate the bolts on the brackets. Refer [Image 11](#).



Image 11

3.1.7 Lift the fairing gently and detach it from the bracket carefully. Refer [Image 12](#)



Image 12

3.1.9 Unscrew the bolts using M5 Hex bit socket from the bracket. Refer **Image 13**.

Note: Lift the fairing gently so that you will have enough space to unscrew the bolts.

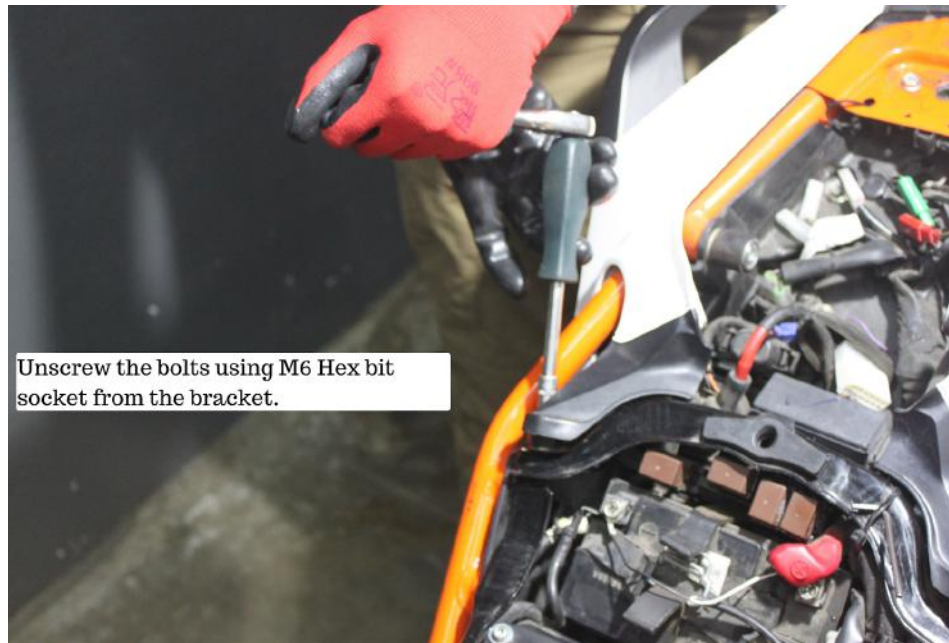


Image 13

3.1.10 Remove the bracket. Refer **Image 14**.

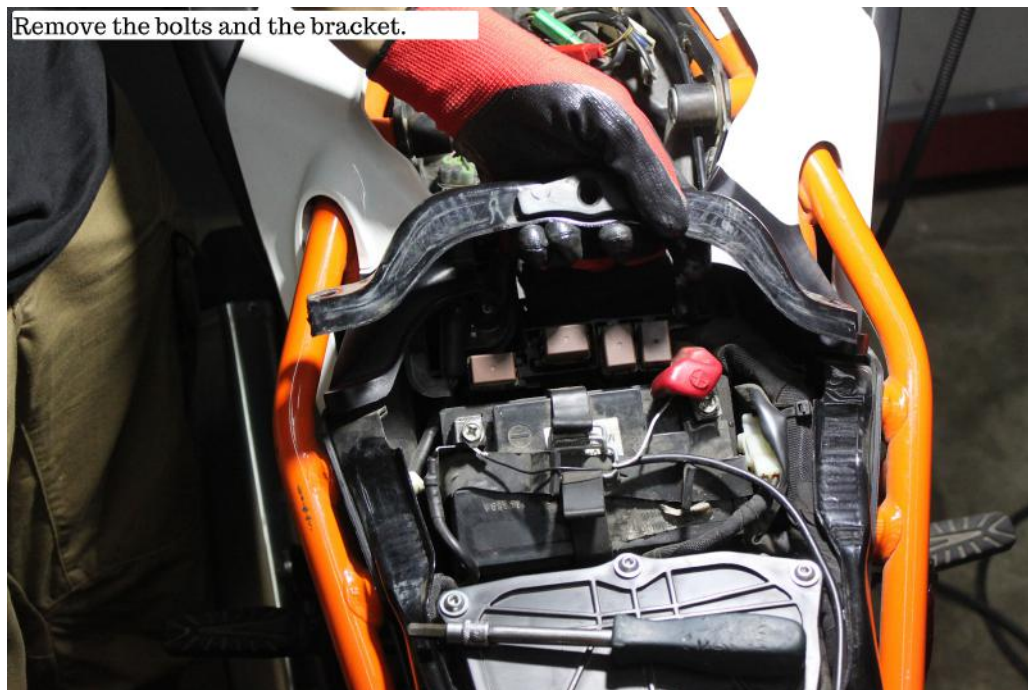


Image 14

3.1.11 Go to the left side of the bike. Locate the bolts from ignition coil cover. Refer [Image 15](#)



Image 15

3.1.12 Unscrew the bolts using M5 Hex bit socket from the ignition coil cover. Refer [Image 16](#)



Image 16

3.1.13 Remove the ignition coil cover. Refer [Image 17](#)

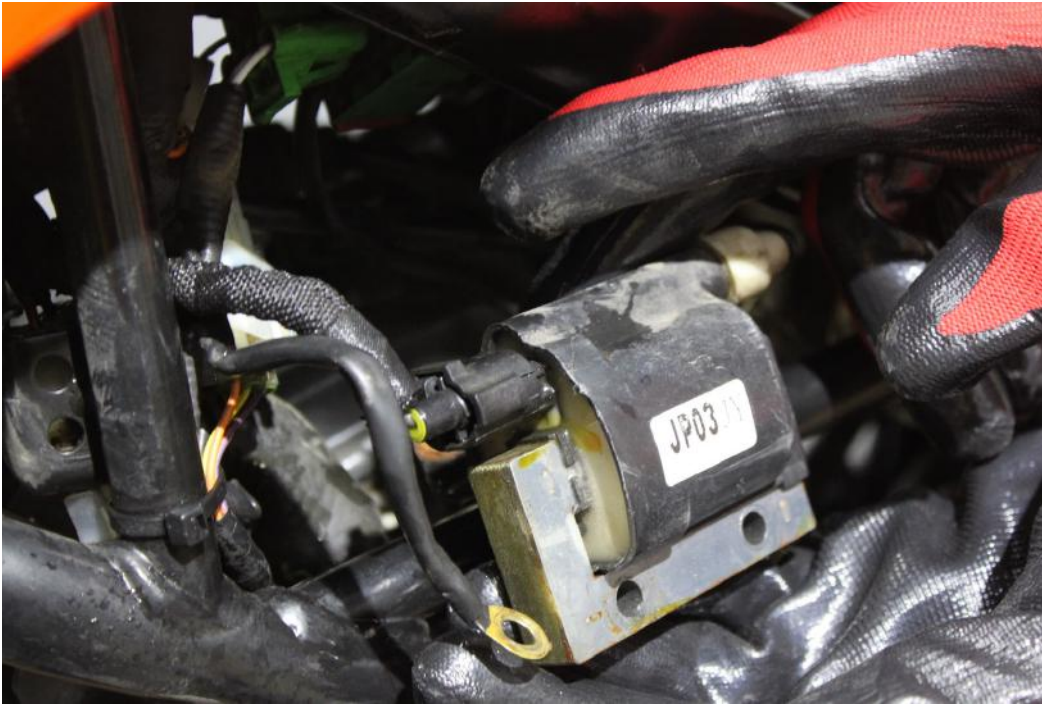


Image 17

3.1.13 Unscrew all the screws of the airbox using M6 hex bit. Refer [Image 18](#)

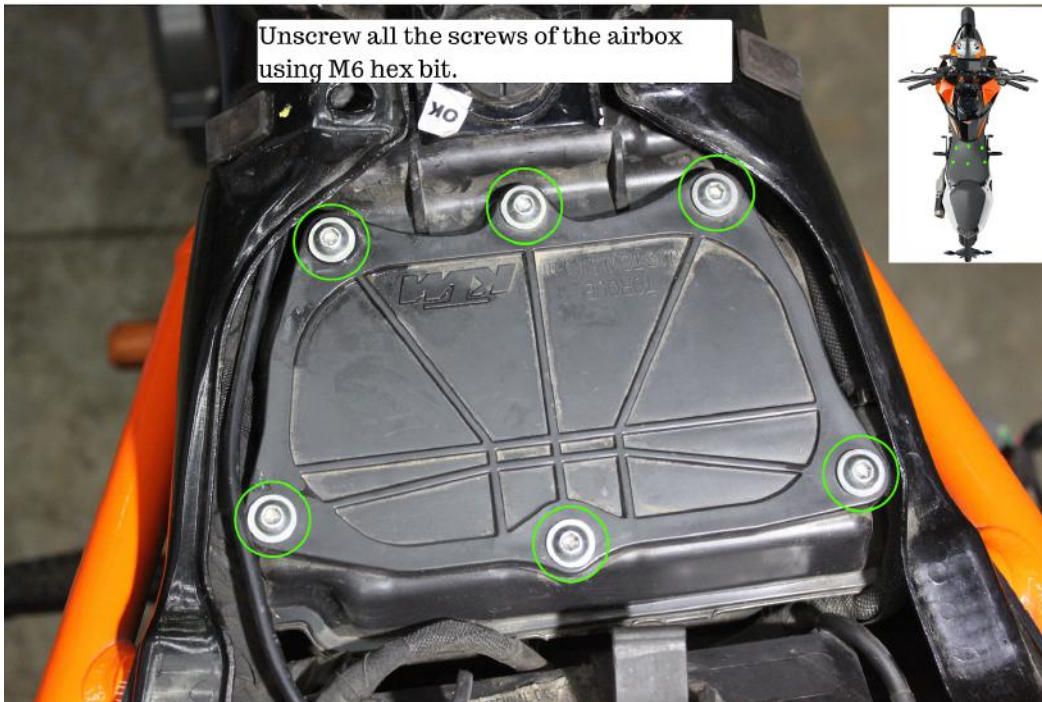


Image 18

3.1.13 Unscrew the side panel bolts using M4 hex bit. Refer [Image 19](#).

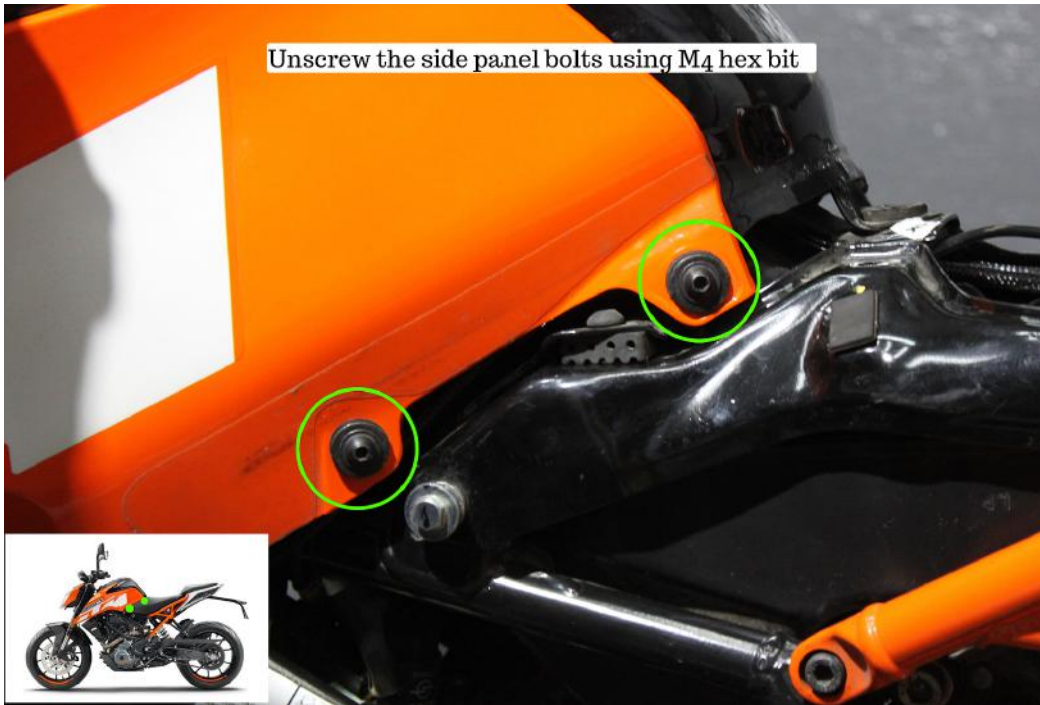


Image 19

3.1.13 Unscrew the side panel bolts using M4 hex bit. Refer [Image 20](#)

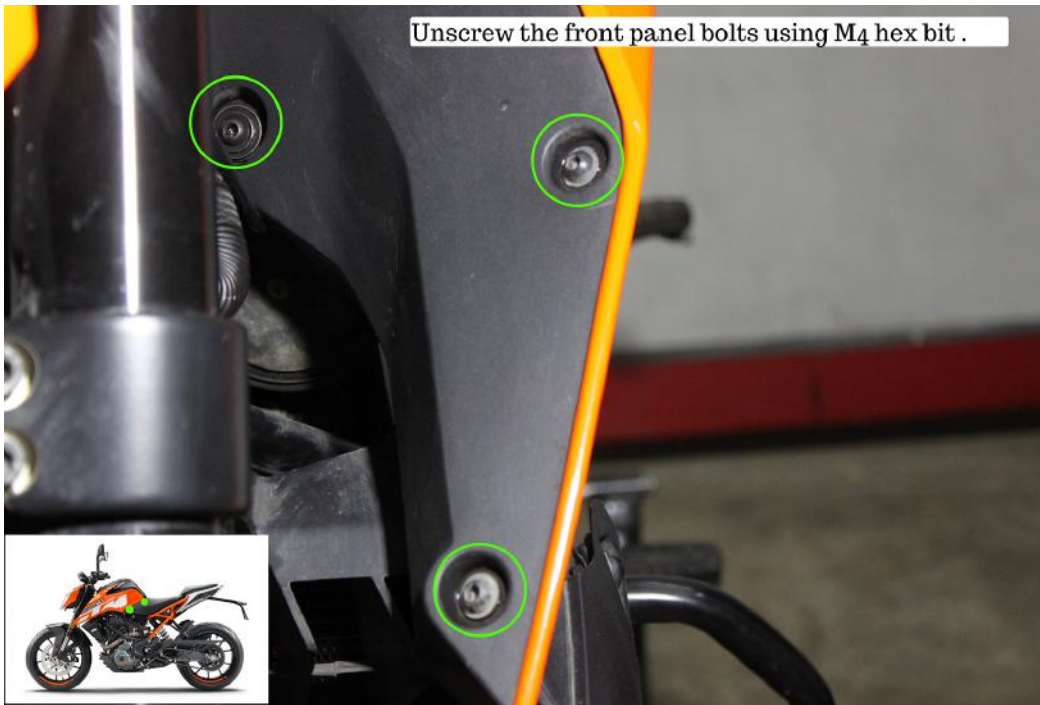


Image 20

3.1.13 Unscrew all the screws of the airbox using M6 hex bit. Refer **Image 21**



Image 21

3.1.13 After removing all the panel bolts, detach the side panel carefully. Repeat the process on the other side also. Refer **Image 22**



Image 22

3.2 Routing the harness

3.2.1 Place the harness on the bike. Note that TPS connector goes to the right side of the bike. All other connectors go to left. Refer **Image 23** and **Image 24**.

Refer the diagram and understand the routing of the harness

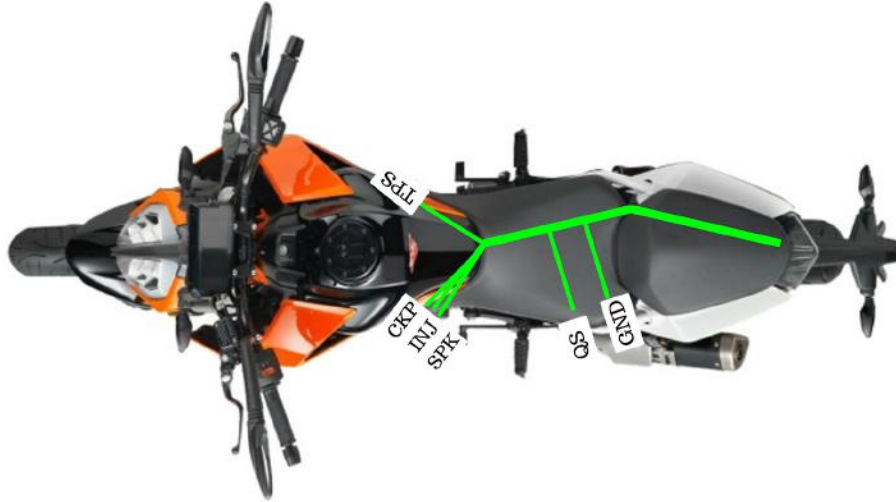
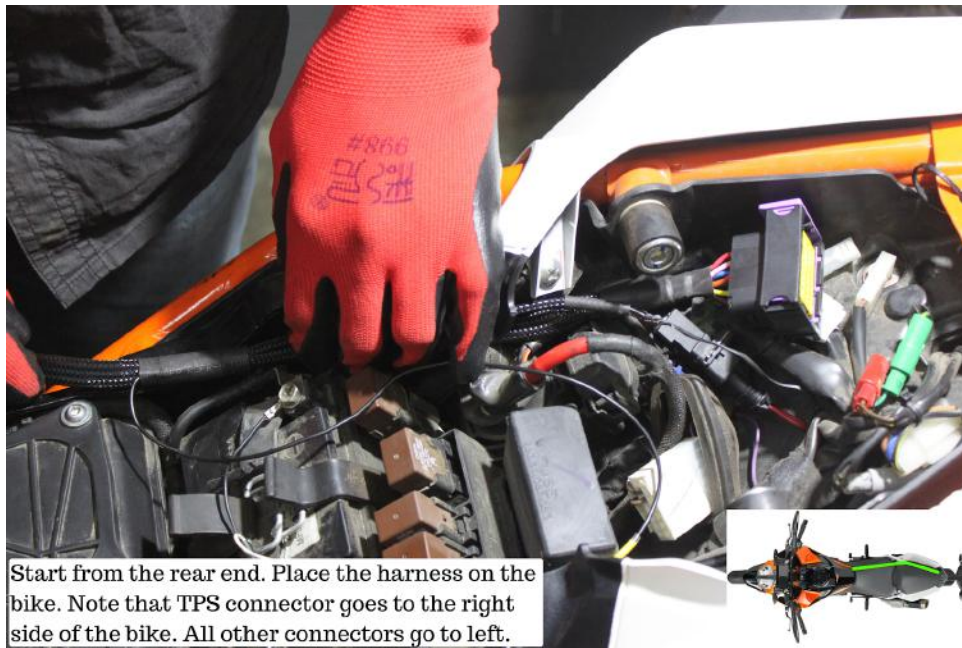


Image 23



Start from the rear end. Place the harness on the bike. Note that TPS connector goes to the right side of the bike. All other connectors go to left.

Image 24

3.2.2 Apply slight pressure and push the harness into the fairing. Refer [Image 25](#).



Image 25

3.2.5 Secure the harness by pushing it under the metal frame. Refer [Images 26](#)



Image 26

3.2.4 Route the connectors under the tank on both sides of the bike and push them into the metal casings. Refer **Image 27**



Image 27

3.2.3 Gently lift the tank from rear a little and carefully route the harness under the tank on both sides. Once the harness is through, route it inside the frame. Refer **Image 28** and **Image 29**.

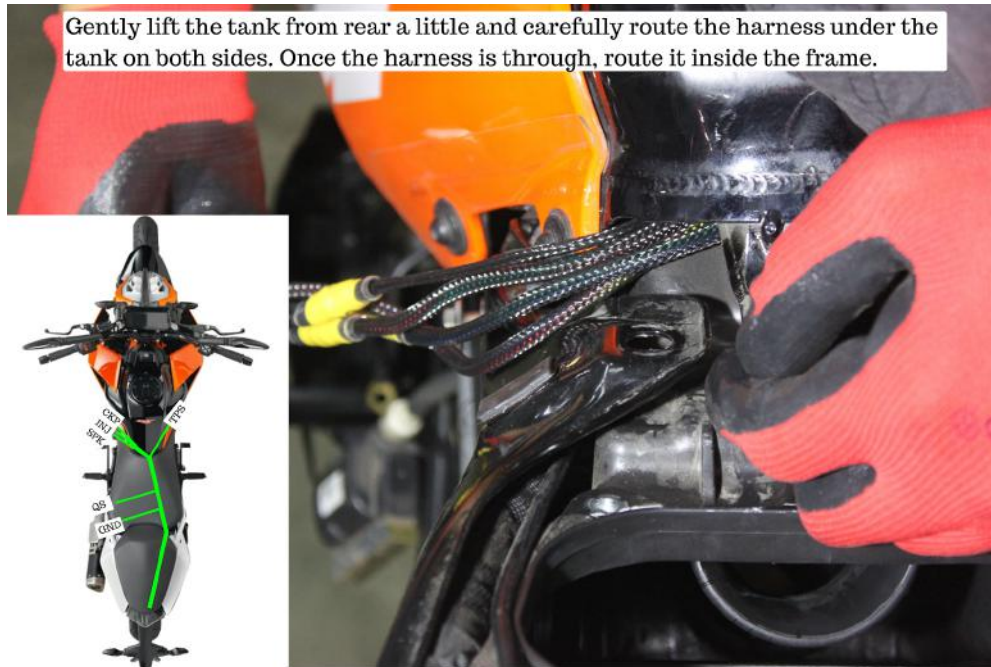


Image 28



Image 29

3.2.3 Repeat the process on the right side for the TPS harness also. Refer [Image 30](#).

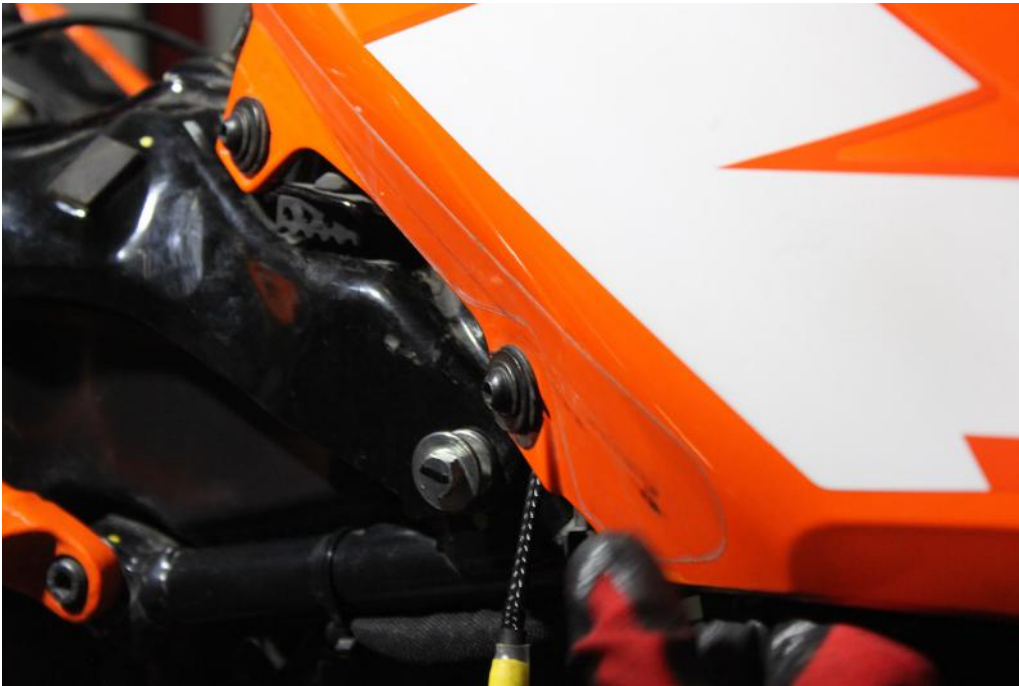


Image 30

3.3 Fuel Injector Connector (Left side of the bike)

3.3.1 Locate the stock injector connector of your bike. Refer to [Image 31](#) and [Image 32](#) below.



Image 31



Image 32

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 33**) below.



Image 33

3.3.4 Connect the female PowerTRONIC injector connector to the stock male injector connector. Refer **Image 34**

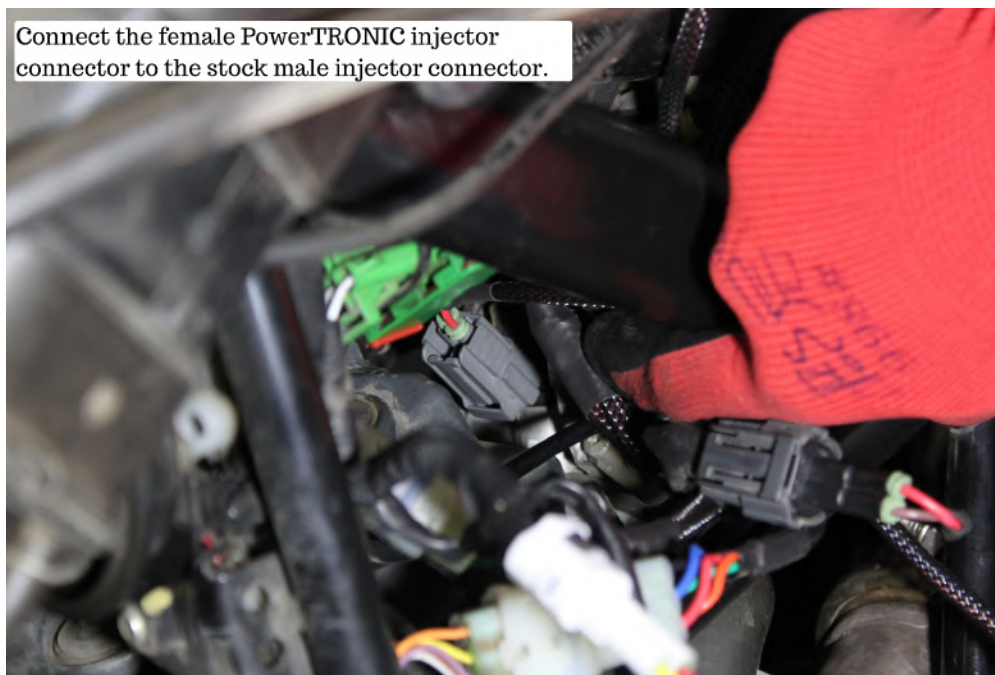


Image 34

3.3.5 Connect the stock female injector connector to the PowerTRONIC male injector connector. Refer [Image 35](#)



Image 35

3.4 Crank position sensor (Left side of the bike)

3.4.1 Locate the stock crankshaft position sensor connector on the bike. Usually located right above the engine. Refer **Image 36** and **Image 37** below.

To identify the CKP connector, locate the connector which include red-white striped wire.



Image 36



Image 37

3.4.2 Disconnect the stock CKP connector. Refer [Image 38](#).

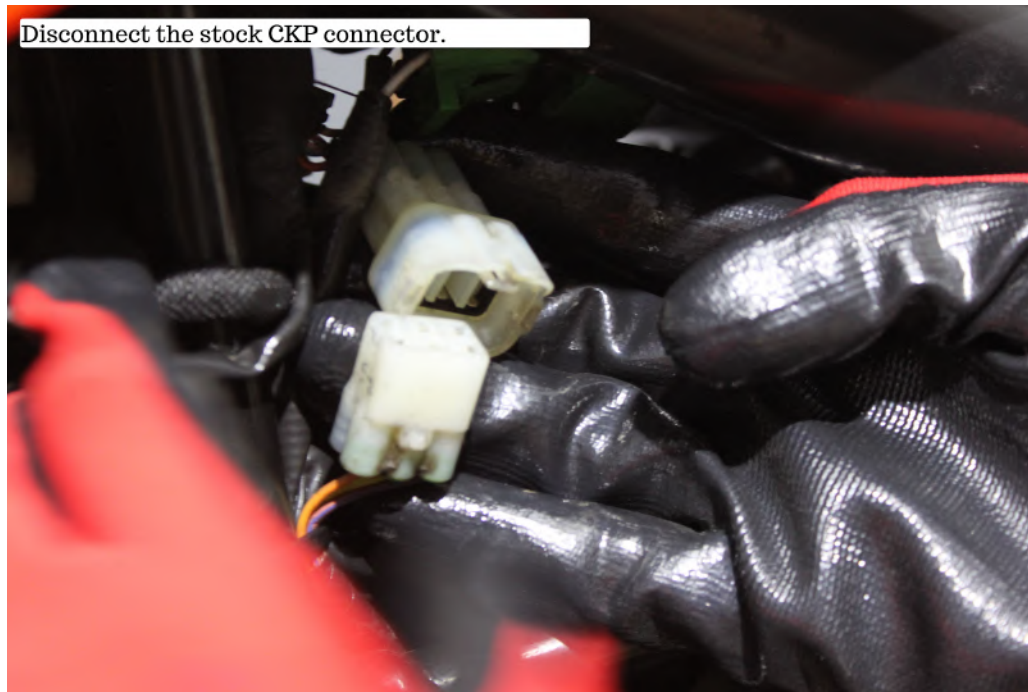


Image 38

3.4.3 Connect PowerTRONIC male CKP connector to the stock female CKP connector. Refer [Image 39](#)



Image 39

3.4.4 Connect the PowerTRONIC female CKP connector to the stock male connector. Refer Image 40



Image 40

3.5 Ignition Coil Connector (Left side of the bike)

3.5.1 Locate the stock Spark/Ignition coil connector on the ignition coil. Usually located right above the engine. Refer **Images 41**.

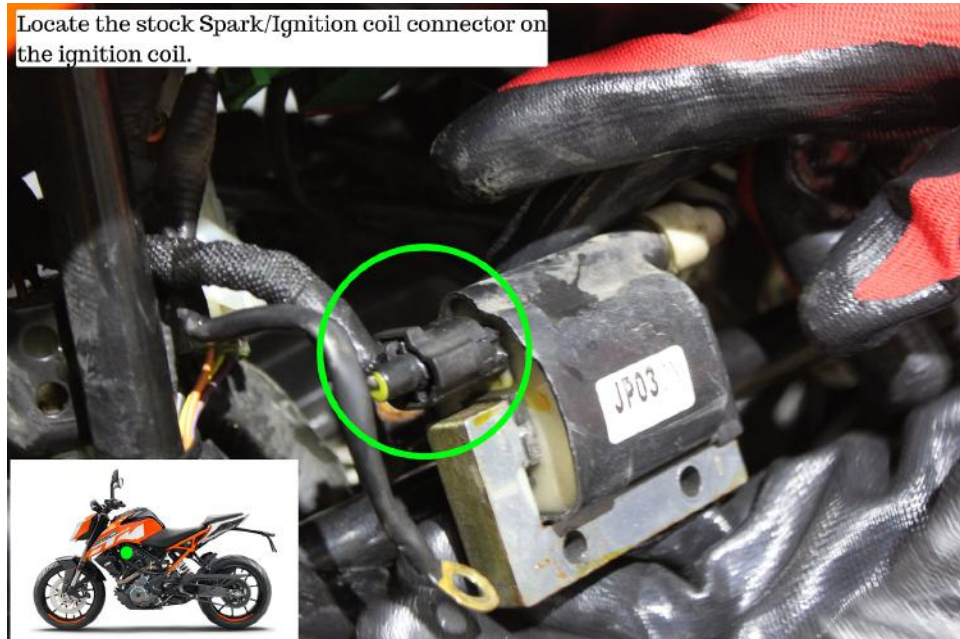


Image 41

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

3.5.3 Disconnect the stock ignition coil connectors. Refer **Image 42** below.



Image 42

3.5.4 Connect the PowerTRONIC Ignition coil male connector to the stock ignition coil female connector. Refer **Image 43** below.

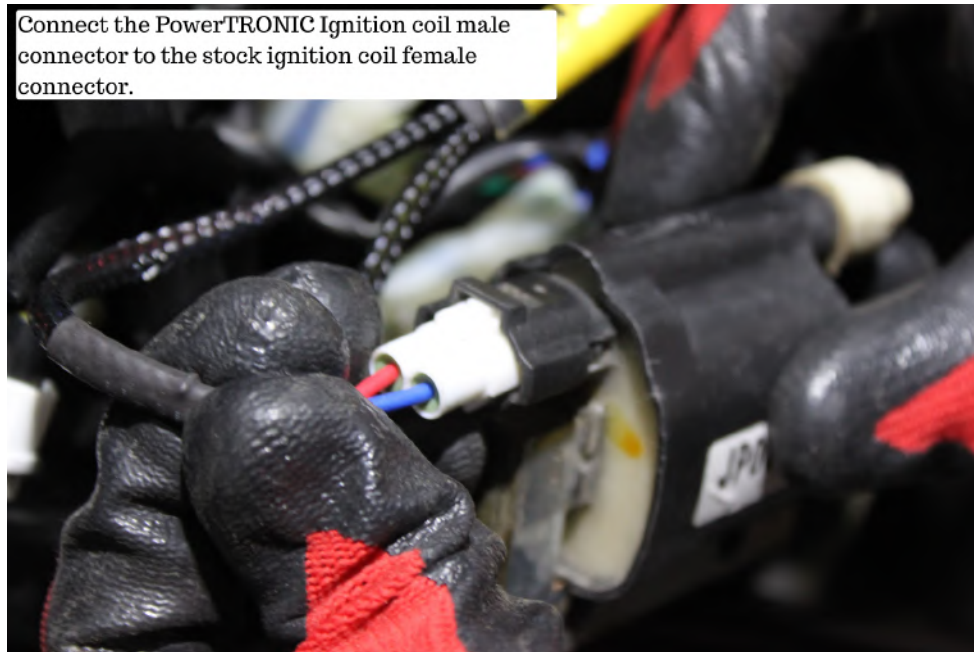


Image 43

3.5.5 Connect the PowerTRONIC Ignition coil female connector to the stock ignition coil male connector. Refer **Image 44** below.



Image 44

3.5.7 Place the connectors and ignition coil back to the original position. Before tightening the bolt of the ignition coil to the frame, make sure the battery negative terminal is kept in place. Refer **Image 45**



Image 45

3.5.8 Connect the Ignition coil cover to the frame. Refer **Image 46**.

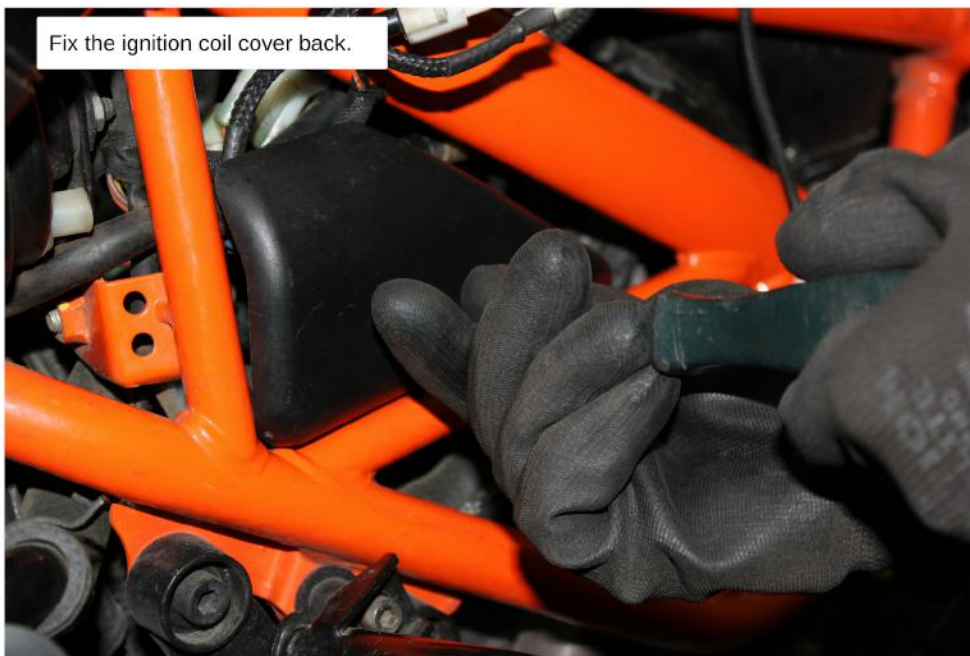


Image 46

Move to the right side of the bike



Image 47

3.6 Throttle position sensor connector (Right side of the bike)

3.6.1 Locate the TPS connector of your bike. It is generally located on the throttle body, parallel to the throttle cable return springs. Refer **Image 48**.



Image 48

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

3.6.3 Disconnect the stock TPS connector. Refer **Image 49**



Image 49

3.6.4 Connect the PowerTRONIC male TPS connector to stock female connector. Refer [Image 50](#).



Image 50

3.6.5 Connect the PowerTRONIC female TPS connector to stock male connector. Refer [Image 51](#).



Image 51

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

3.7 Ground Terminal Connector

3.7.1 Locate and unscrew the battery negative terminal using a Phillips head screwdriver. Refer [Image 52](#)

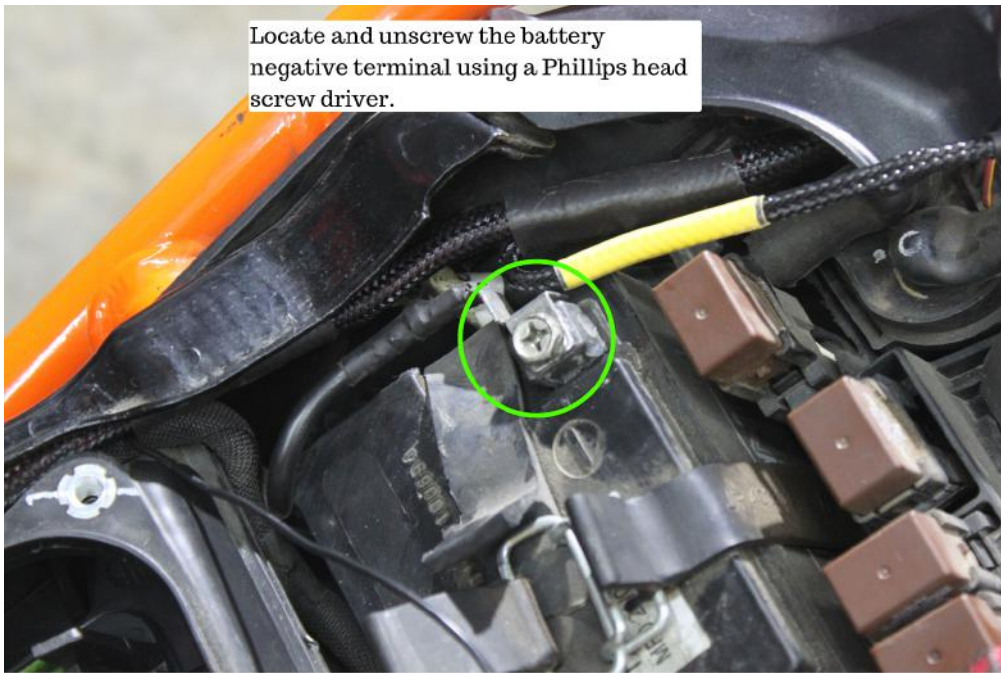


Image 52

3.7.2 Connect the ground terminal connector to the negative terminal of the battery. Refer the [Image 53](#) and [Image 54](#).



Image 53



Image 54

3.8 Securing the harness using ties

3.8.1 Secure the harness away from general heating areas by attaching it to the chassis or frame using the zip ties provided wherever necessary. Refer the [Image 55](#)



Image 55

Important note: The PowerTRONIC harness contains a Quick shifter connector. If you have bought the Quickshifter please attach the connector to it.

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

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.

3.9.3 **DO NOT proceed with PowerTRONIC ECU without verifying the connections with stock coupler.** Refer [Image 56](#).



Image 56

3.10 Plugging in the PowerTRONIC ECU.

Connect the PowerTRONIC to the harness by connecting the 24 pin connector. Secure it in the glove box. Refer [Image 57](#).



Image 57

3.11 Attaching the panels/fairing etc

Attach the panels, fairing as removed from the bike.