

PowerTRONIC Installation Manual- KTM Duke 390 (2017-2019)

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Application information	Vehicle Specific
Vehicle	KTM
Model	Duke 390
Year of manufacture	2017-2019
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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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

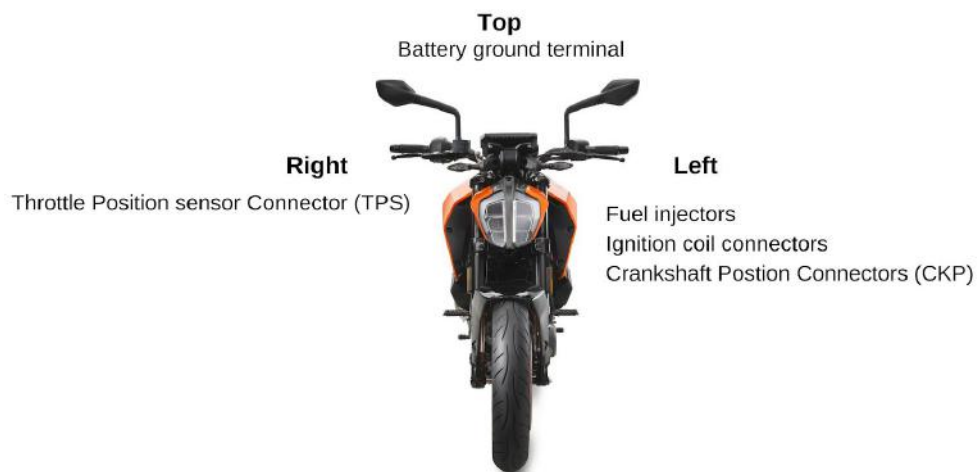


Image 2

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.

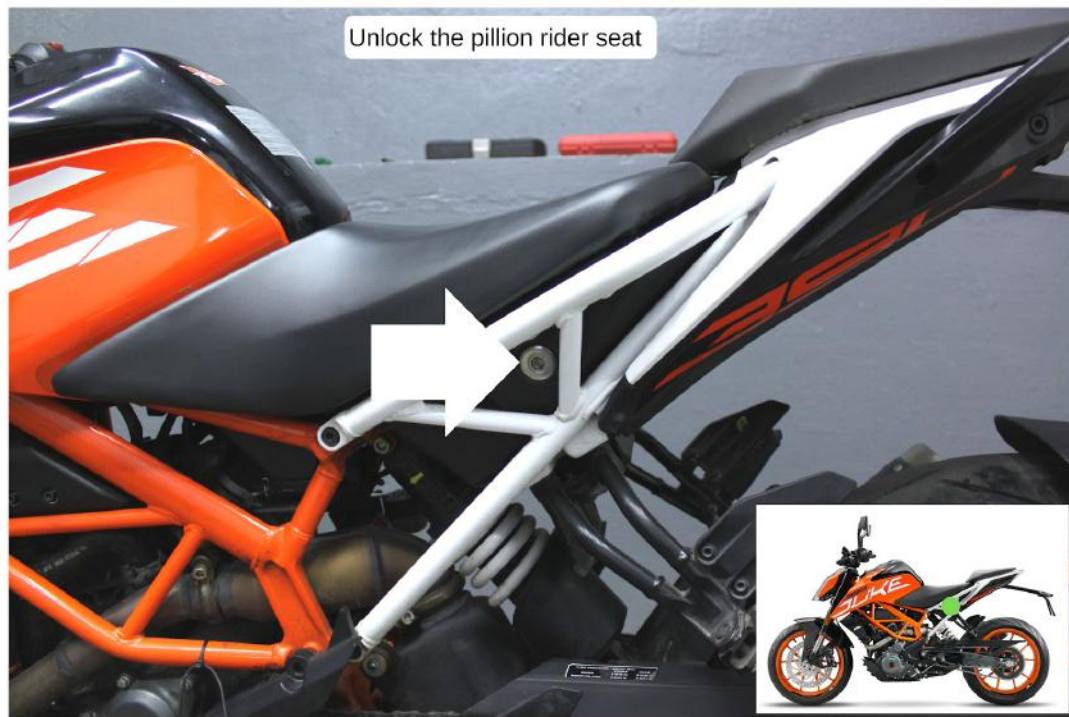


Image 3



Image 4

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



Image 5

3.1.3 **Image 6** shows both the seats detached.



Image 6

3.1.4 Locate and unscrew tank bolt(middle) using M12 Hexagonal socket wrench. Refer **Image 7** and **Image 8**



Image 7



Image 8

3.1.5 Locate and unscrew the bolts (side) using M17 Hexagonal socket. Refer [Image 9](#) and [Image 10](#).



Image 9



Image 10

3.1.6 Locate the bolts on the brackets. Refer **Image 11**.

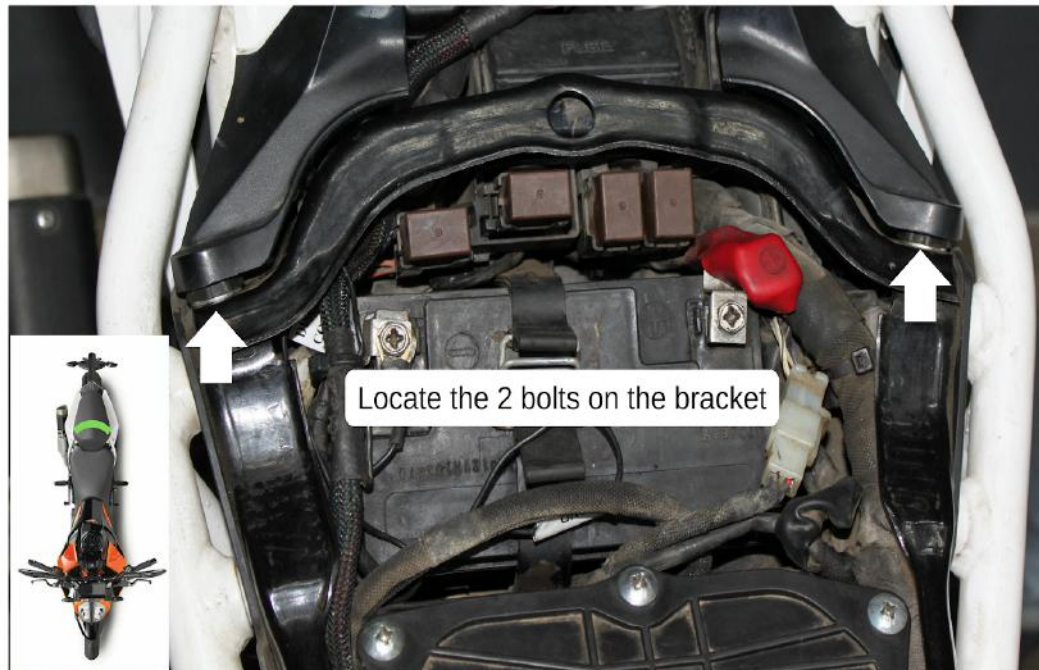


Image 11

3.1.7 Lift the fairing gently and detach it from the bracket carefully. Refer **Image 12**

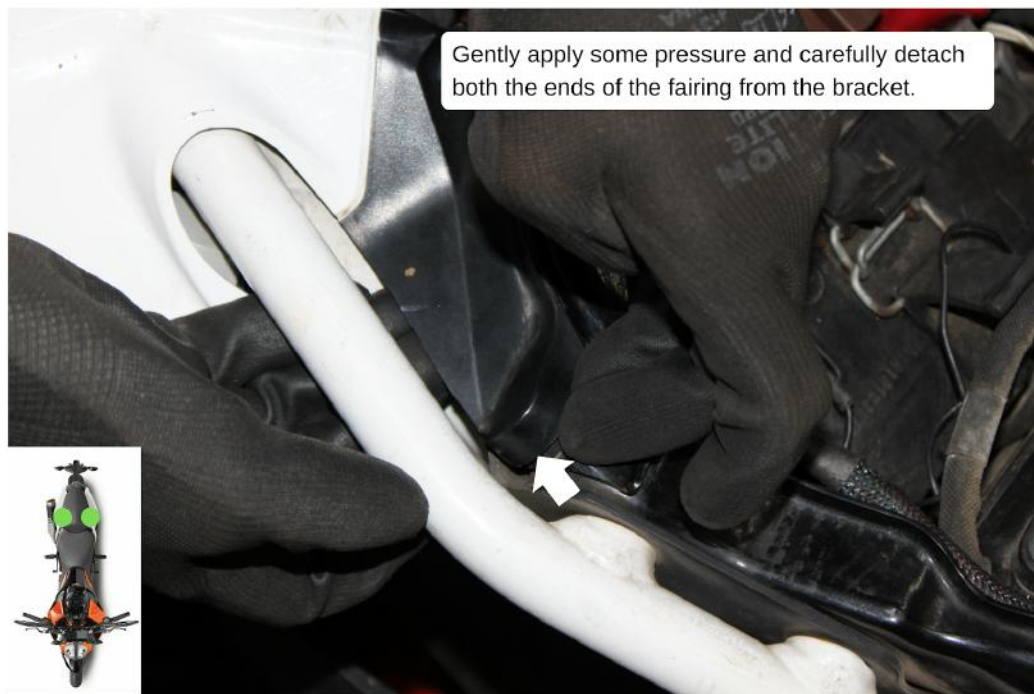


Image 12

3.1.8 Detach the both ends of the fairing. Refer **Image 13**.

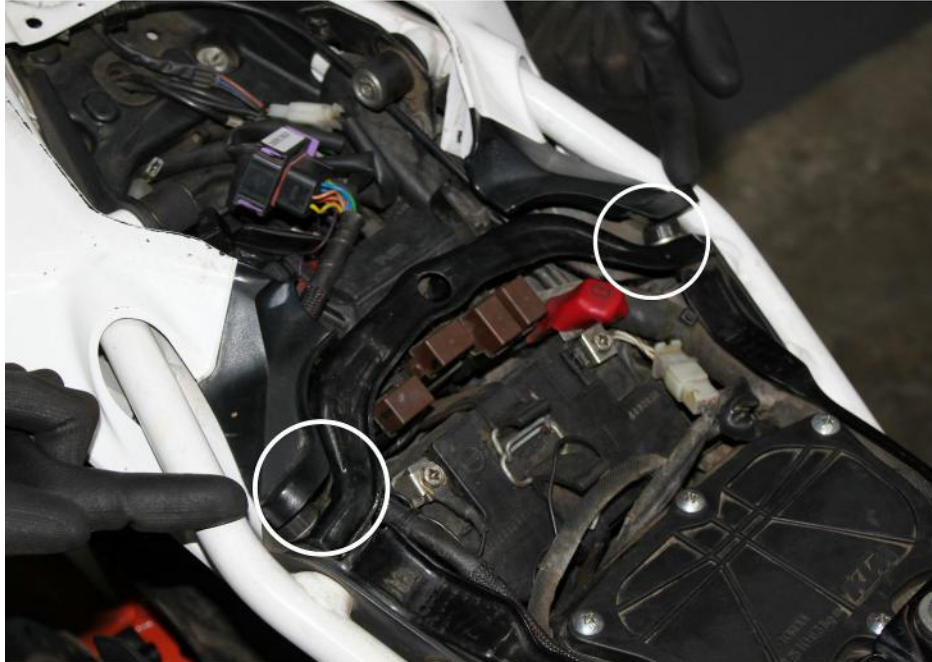


Image 13

3.1.9 Unscrew the bolts using M5 Hex bit socket from the bracket. Refer **Image 14**.

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



Image 14

3.1.10 Remove the bracket. Refer [Image 15](#).



Image 15

3.1.11 Go to the left side of the bike. Locate the bolts from ignition coil cover. Refer [Image 16](#)



Image 16

3.1.12 Unscrew the bolts using M5 Hex bit socket from the ignition coil cover. Refer **Image 17**



Image 17

3.1.13 Remove the ignition coil cover . Refer **Image 18**



Image 18

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 19**.

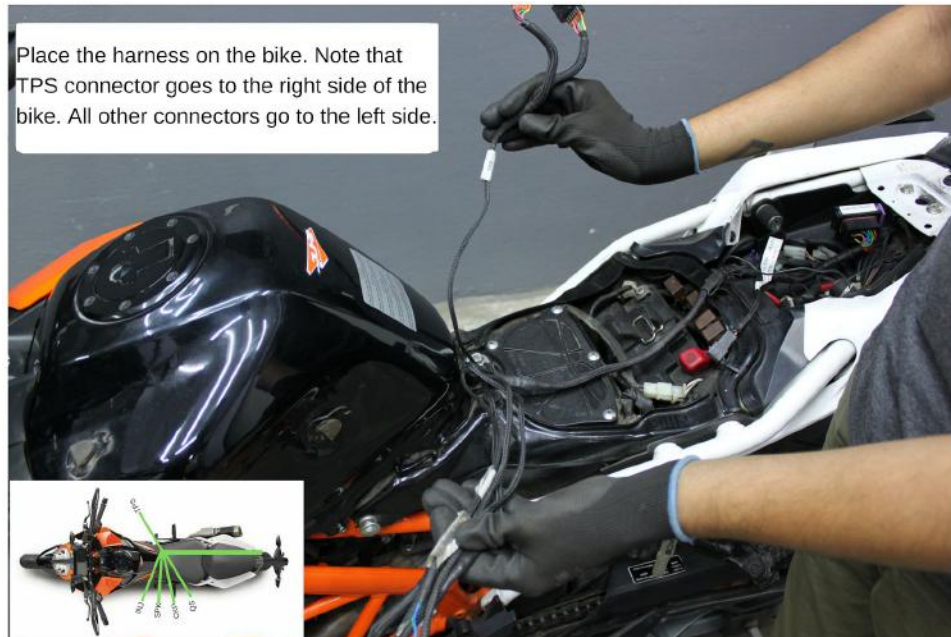


Image 19

3.2.2 Apply slight pressure and push the harness into the fairing. Refer **Image 20**.



Image 20

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 21** Front left fairing is removed to show how the routing is done.

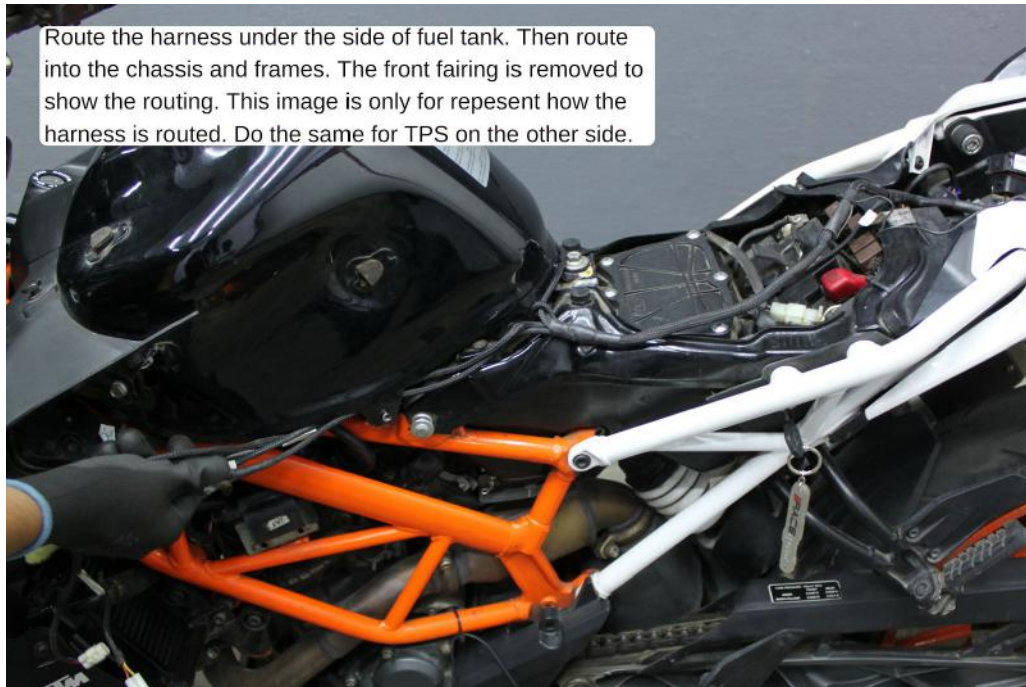


Image 21

3.2.4 Route the connectors under the tank on both the sides of the bike and push them into the metal casings. Refer **Image 22**



Image 22

3.2.5 Secure the harness by pushing it under the metal frame. Refer **Images 23**



Image 23

3.2.6 Route the harness as shown below. Make sure the map switch is placed under the pillion rider seat. (it will be convenient for changing the maps). Refer **Image 24**

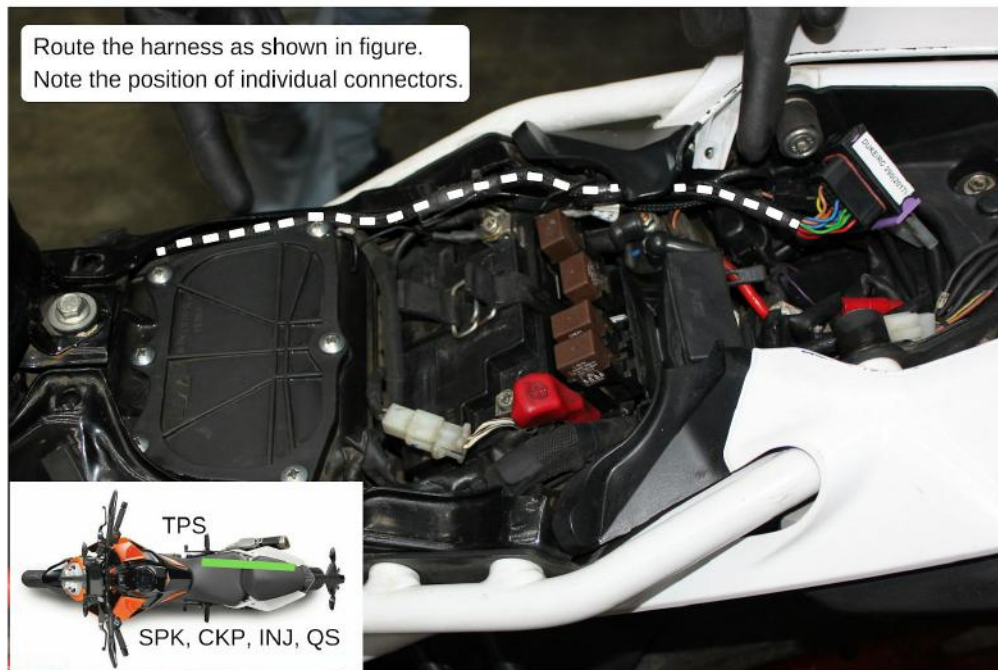


Image 24

3.2.7 Refer **Image 25** for the completed view from top.



Image 25

3.2.8 Refer **Image 26** for completed view from rear end.



Image 26

3.3 Fuel Injector Connector (Left side of the bike)

3.3.1 Locate the stock injector connector of your bike. Refer to **Image 27** and **Image 28** below.



Image 27



Image 28

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 29](#)) below.



Image 29

3.3.4 Connect the female PowerTRONIC injector connector to the stock male injector connector. Refer [Image 30](#)



Image 30

3.3.5 Connect the stock female injector connector to the PowerTRONIC male injector connector. Refer **Image 31**



Image 31

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 32** and **Image 33** below.

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



Image 32



Image 33

3.4.2 Disconnect the stock CKP connector. Refer [Image 34](#).



Image 34

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



Image 35

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



Image 36

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 Image 37 and Image 38 below.



Image 37



Image 38

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 39**](#) below.



Image 39

3.5.4 Connect the PowerTRONIC Ignition coil male connector to the stock ignition coil female connector. Refer [**Image 40**](#) below.



Image 40

3.5.5 Connect the PowerTRONIC Ignition coil female connector to the stock ignition coil male connector. Refer **Image 41** below.



Image 41

3.5.6 Refer **Image 42** for completed view.



Image 42

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 terminals is kept in place. Refer **Image 43**

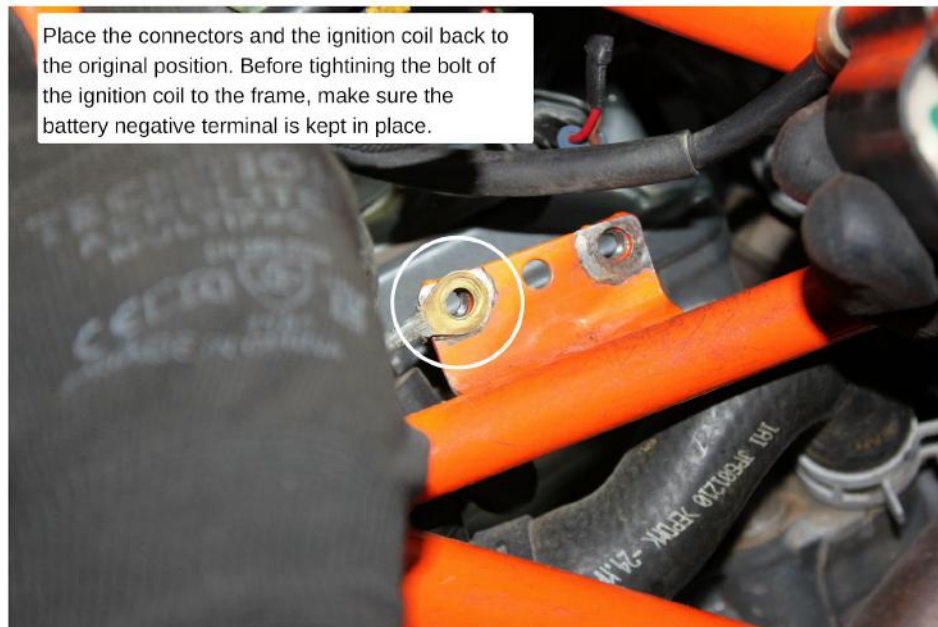


Image 43

3.5.8 Connect the Ignition coil cover to the frame. Refer **Image 44**.

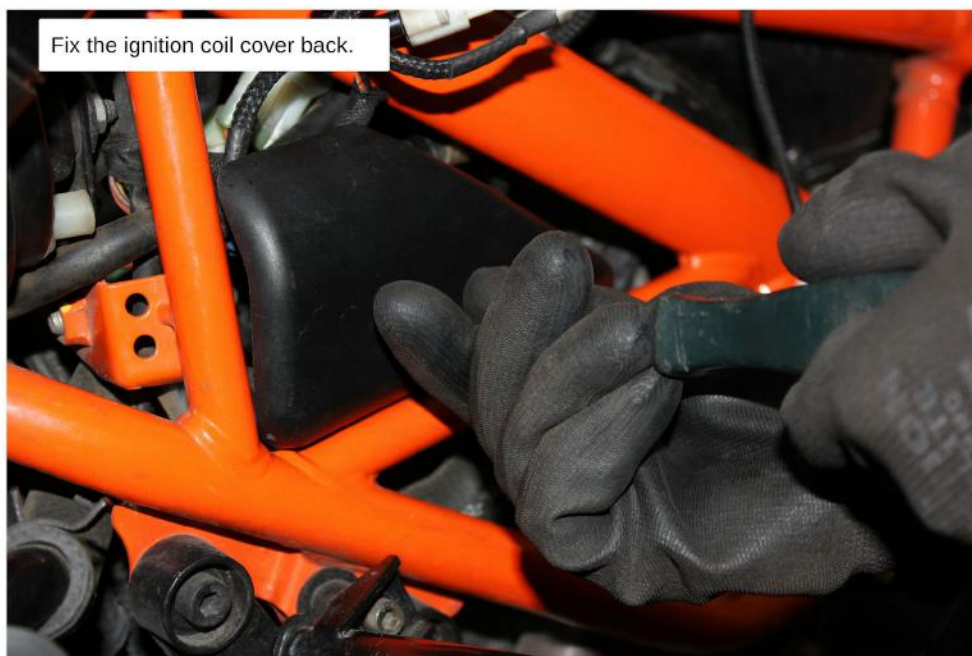


Image 44

Move to the right side of the bike



Image 45

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 46](#) and [Image 47](#) below.



Image 46



Image 47

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 48**



Image 48

3.6.4 Connect the PowerTRONIC male TPS connector to stock female connector. Refer **Image 49**.



Image 49

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



Image 50

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 Identify the Ground terminal connector labelled GND. Refer [Image 51](#)



Image 51

3.7.2 Connect the ground terminal connector to the negative terminal of the battery. Refer the [Image 52](#) and [Image 53](#).

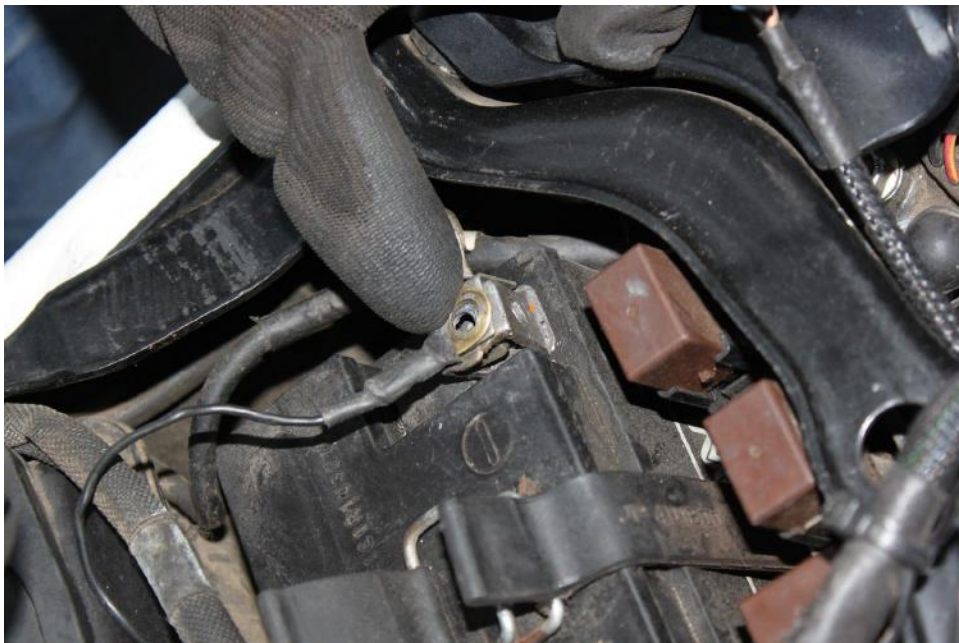


Image 52



Image 53

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 54**



Image 54

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.*

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 55](#).



Image 55

3.11 Attaching the panels/fairing etc

Attach the panels, fairing as removed from the bike.