

PowerTRONIC Installation Manual- KTM Duke 390 (2012-2016)

Document Version	1	Release Date	02 March 2020
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Application information	Vehicle Specific
Vehicle	KTM
Model	Duke 390
Year of manufacture	2012-2016
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.

Call/Whatsapp:	+919916229292 / +918040929292
E-Mail:	support@powertronicECU.com
Official Website:	www.powertronicECU.com
Social:	www.facebook.com/PowertronicECU/ www.instagram.com/powertronic_ecu/

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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	M8, 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	4,5,6 mm Allen T handle

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](#)

Identify the position of the connections.



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 Locate and unscrew the rider seat bolts using M 10 Hexagonal T handle. Refer [Image 5](#).



Image 5

3.1.3 [Image 6](#) shows both the seat detached.



Image 6

3.1.4 Locate and unscrew the side panel screws 1, 2 and 3 using Phillips head screwdriver and side bolt 4 using M10 hexagonal socket . Refer [Image 7](#).



Image 7

3.1.4 Locate and unscrew the tank rear screws using a Phillips head screwdriver. Refer [Image 8](#).



Image 8

3.1.5 Carefully detach the side panel locks. Refer to **Image 9**.



Image 9

3.1.5 Carefully unscrew the tank front bolts using 5 mm Allen T handle. Refer to **Image 10**.



Image 10

3.1.6 Unscrew the tank lid bolts using 4 mm Allen T handle. Refer **Image 11**.



Image 11

3.1.7 Carefully detach the tank lid. Refer **Image 12**



Image 12

3.1.8 Carefully detach the coolant tank cap. refer [Image 13](#).



Image 13

3.1.9 Carefully detach the fuel tank cover. Refer [Image 14](#).



Image 14

3.2 Routing the harness

3.2.1 Place the harness on the bike. Note that the TPS and Ignition coil connectors go to the right side of the bike. All other connectors go to the left. Refer [Image 15](#).



Image 15

3.2.2 Route the TPS connector on the right side of the bike. Refer [Image 16](#).

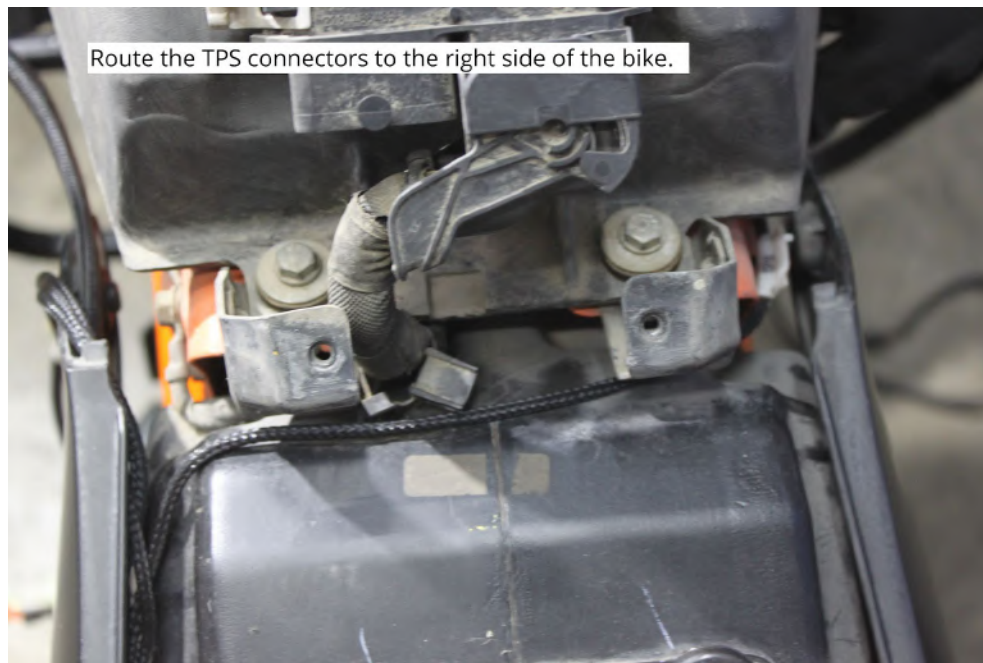


Image 16

3.2.3 Route the INJ and CKP connectors to the left side of the bike. Refer **Image 17**



Image 17

3.2.4 Route the Ground terminal connector to the battery negative. Refer **Image 18**



Image 18

3.3 Fuel Injector Connector (Left side of the bike)

3.3.1 Locate the stock injector connector of your bike. Refer to **Image 19** below.



Image 19

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 20**) below.



Image 20

3.3.4 Connect the female PowerTRONIC injector connector to the stock male injector connector. Refer **Image 21**

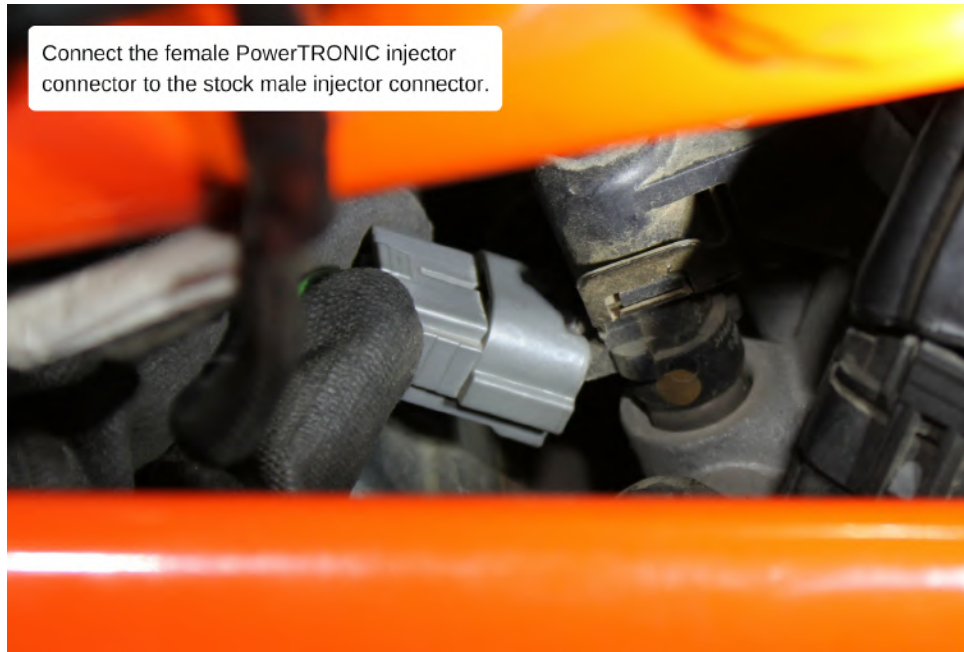


Image 21

3.3.5 Connect the stock female injector connector to the PowerTRONIC male injector connector. Refer **Image 22**



Image 22

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 23**.

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



Image 23

3.4.2 Disconnect the stock CKP connector. Refer **Image 24**.

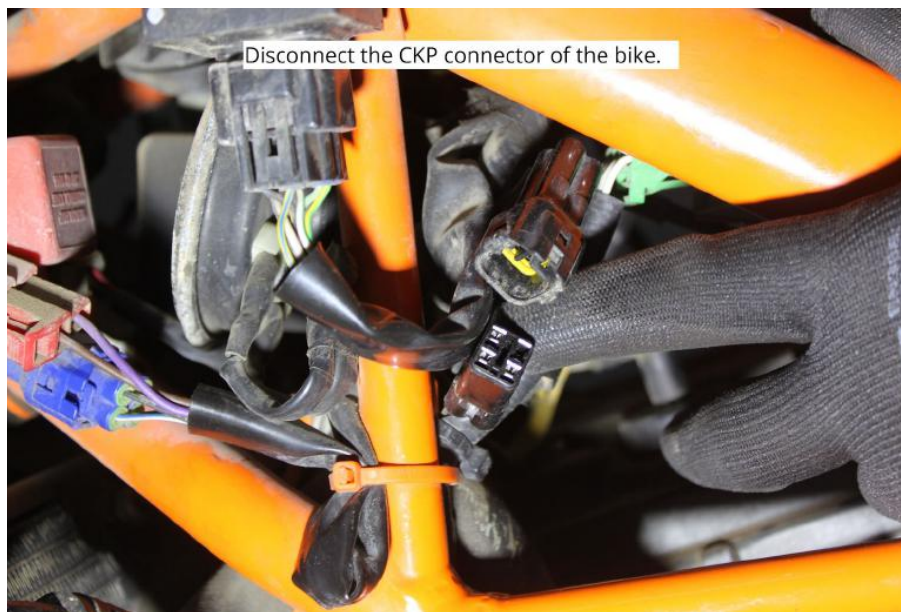


Image 24

3.4.3 Connect PowerTRONIC male CKP connector to the stock female CKP connector. Refer [Image 25](#)

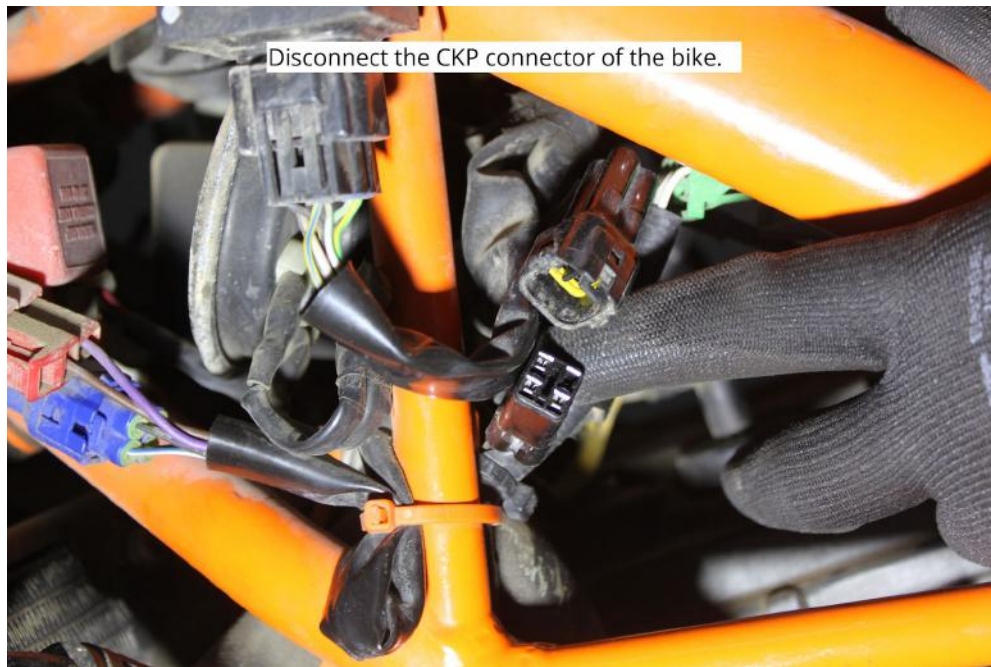


Image 25

3.4.4 Connect the PowerTRONIC female CKP connector to the stock male connector. Refer [Image 26](#)

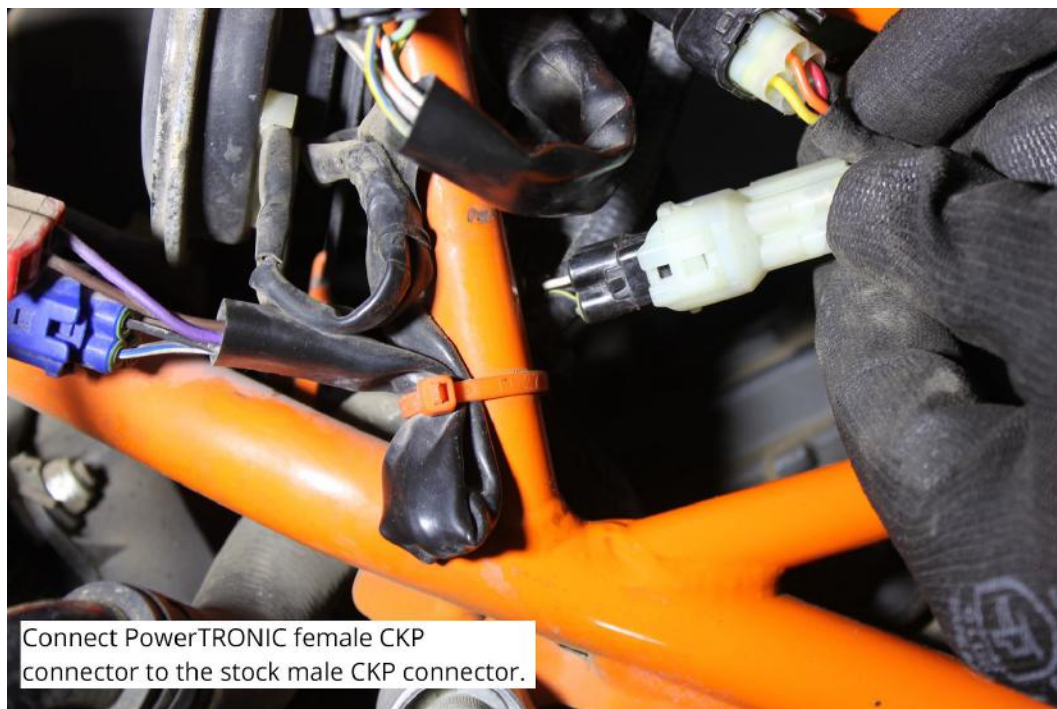


Image 26

3.5 Ignition Coil Connector

3.5.1 Locate the stock Spark/Ignition coil connector on the ignition coil. Refer Images 27.

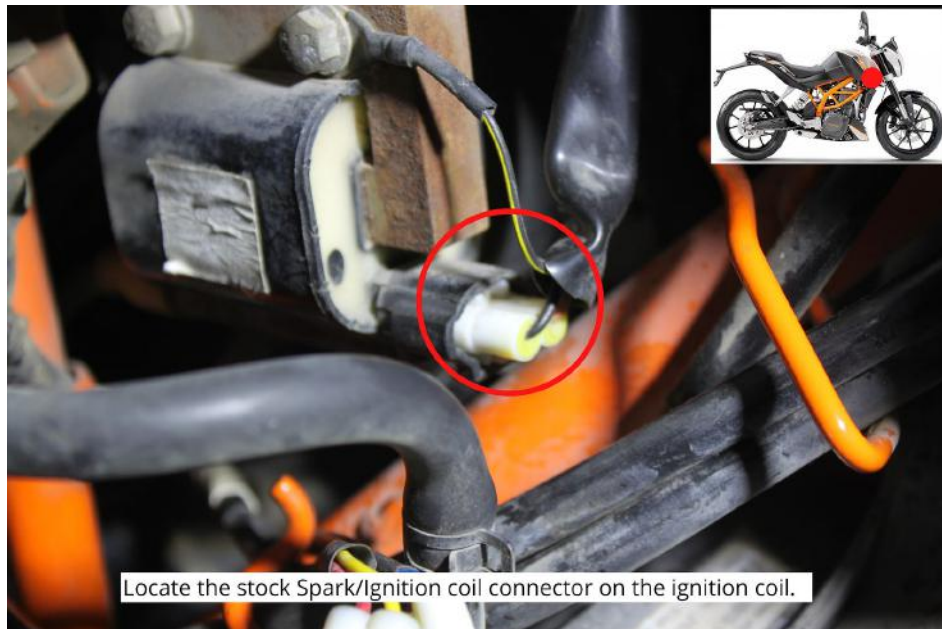


Image 27

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 28 below.



Image 28

3.5.4 Connect the PowerTRONIC Ignition coil male connector to the stock ignition coil female connector. Refer **Image 29** below.



Image 29

3.5.5 Connect the PowerTRONIC Ignition coil female connector to the stock ignition coil male connector. Refer **Image 30** below.

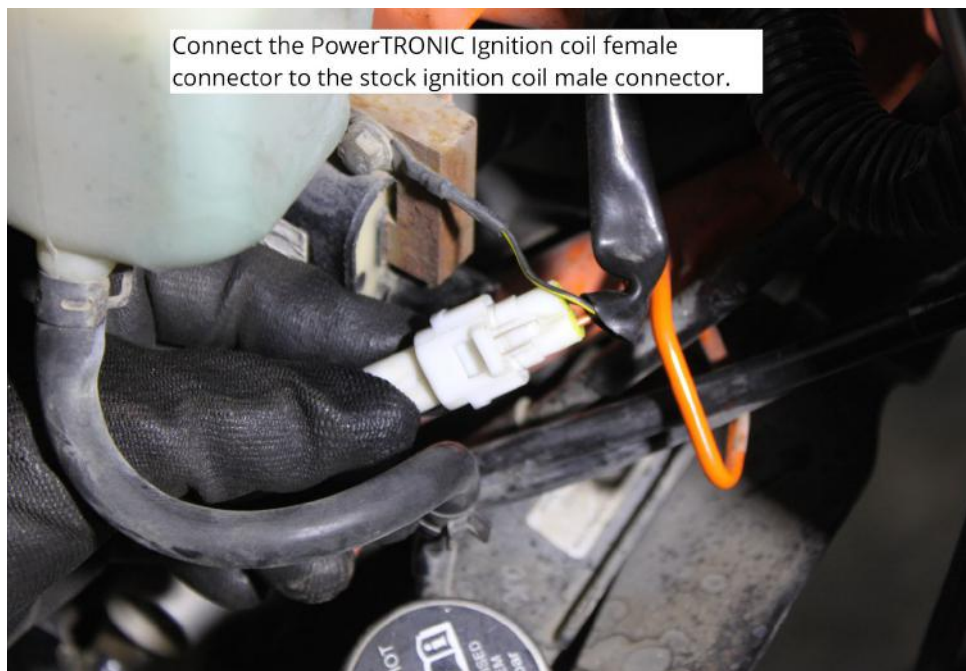


Image 30

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 31](#) and [Image 32](#).



Image 31



Image 32

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 33**

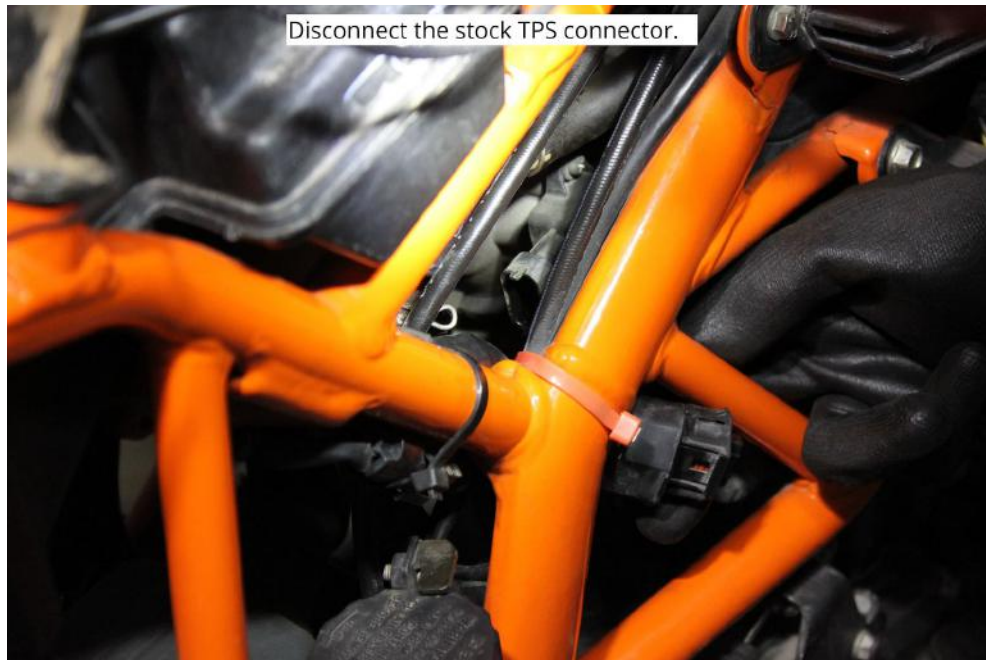


Image 33

3.6.4 Connect the PowerTRONIC male TPS connector to stock female connector. Refer **Image 34**.



Image 34

3.6.5 Connect the PowerTRONIC female TPS connector to stock male connector. Refer **Image 35**.



Image 35

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 36](#)



Image 36

3.7.2 Connect the ground terminal connector to the negative terminal of the battery. Refer to [Image 37](#) and [Image 38](#).



Image 37



Image 38

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 39**



Image 39

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 to the detailed Stock coupler test document.

3.9.3 *DO NOT proceed with PowerTRONIC ECU without verifying the connections with stock coupler. Refer Image 40*



Image 40

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 41**.



Image 41

3.11 Attaching the panels/fairing etc

Attach the panels, fairing as removed from the bike.