

INFODESK 2025

READY   
TO RACE

450 SX-F  
450 XC-F

ITEM NO. 3240106EN



**KTM**



This manual was written on the basis of the latest information for this model series. We reserve the right to make changes in the interest of technical advancement without at the same time updating this manual.

We shall not provide a description of general workshop methods. Likewise, safety rules that apply in a workshop are not specified here. It is assumed that the work will be performed by a fully trained mechanic.

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This document is valid for the following models:

450 SX-F EU (F8401Y5)

450 SX-F US (F8475Y5)

450 SX-F BR (F8440Y5)

450 XC-F US (F8475Y0)



3240106en










05.06.2024

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## 1.1 Symbols used

The meaning of specific symbols is described below.

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	Indicates an expected reaction (e.g. of a work step or a function).
	Indicates an unexpected reaction (e.g. of a work step or a function).
	Indicates a page reference (more information is provided on the specified page).
	Indicates information with more details or tips.
	Indicates the result of a testing step.
	Indicates a voltage measurement.
	Indicates a current measurement.
	Indicates a resistance measurement.
	Indicates the end of an activity including potential rework.

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## 1.2 Formats used

The typographical formats used in this document are explained below.

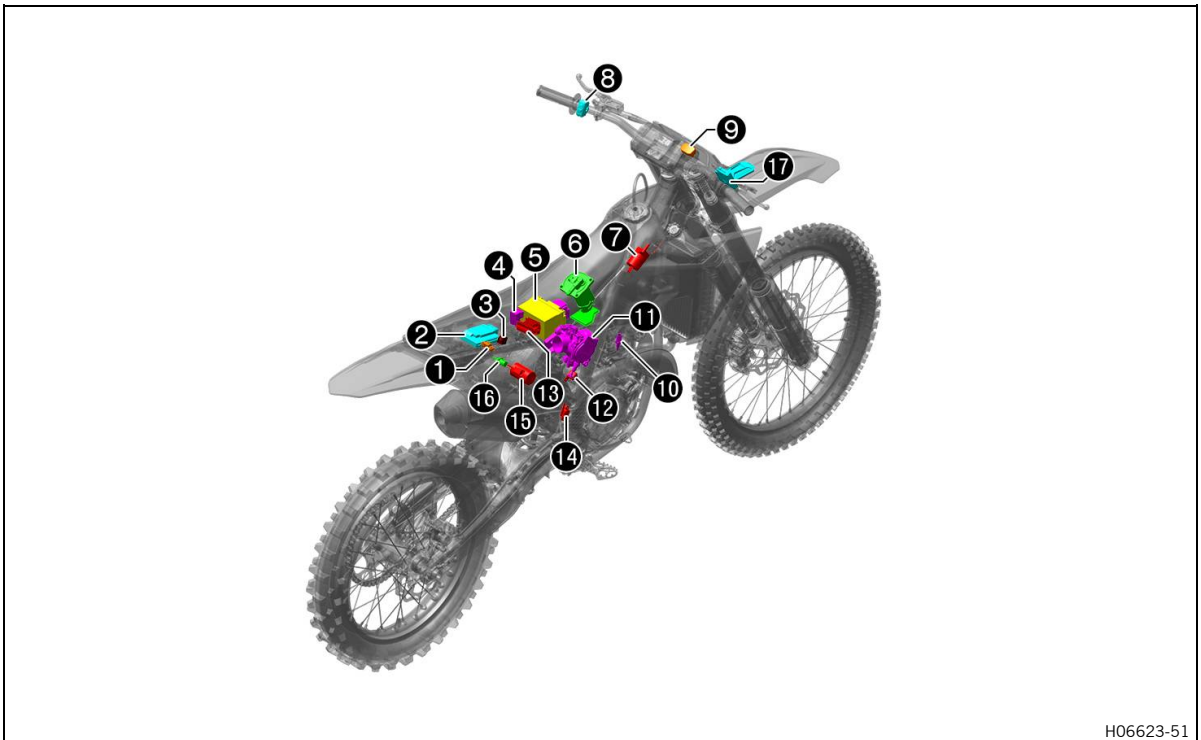
---

<b>Proprietary name</b>	Indicates a proprietary name.
<b>Name<sup>®</sup></b>	Indicates a protected name.
<b>Brand<sup>™</sup></b>	Indicates a brand available on the open market.
<b><u>Underlined terms</u></b>	Refer to technical details of the vehicle or indicate technical terms, which are explained in the glossary.

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## 2 ENGINE MANAGEMENT SYSTEM COMPONENTS

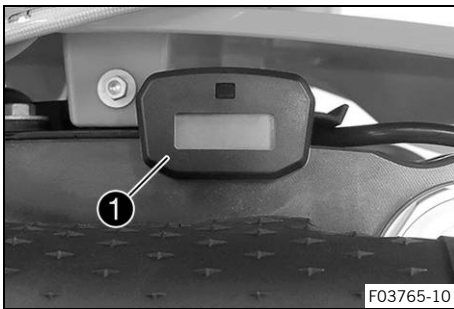
### 2.1 Overview of the engine management system



H06623-51

- ❶ Tilt sensor (📖 p. 16)
- ❷ Engine control unit (📖 p. 17)
- ❸ Diagnostics connector (📖 p. 17)
- ❹ Overview of relays (📖 p. 7)
- ❺ 12 V battery (📖 p. 8)
- ❻ Fuel pump (📖 p. 6) **(450 SX-F EU, 450 SX-F US, 450 SX-F BR)**
- ❼ Fuel pump (📖 p. 7) **(450 XC-F US)**
- ❼ Ignition coil (📖 p. 11)
- ❽ Combination switch, left
- ❾ Combination instrument (📖 p. 5)
- ❿ Coolant temperature sensor (📖 p. 9)
- ⓫ Throttle valve position sensor circuit A (📖 p. 14)
- ⓫ Induction manifold pressure sensor (📖 p. 15)
- ⓫ Injection valve, cylinder 1 (📖 p. 13)
- ⓬ Crankshaft speed sensor (📖 p. 11)
- ⓬ Voltage regulator (📖 p. 8)
- ⓭ Gear position sensor (📖 p. 17)
- ⓭ Capacitor (📖 p. 8)
- ⓮ Intake air temperature sensor (📖 p. 12)
- ⓮ Connectivity Unit (📖 p. 18)

## 2.2 Combination instrument



The combination instrument ① is attached in front of the handlebar.

The combination instrument shows the total number of operating hours of the engine.

The operating hour counter begins counting when the engine is started and stops when the engine is switched off.

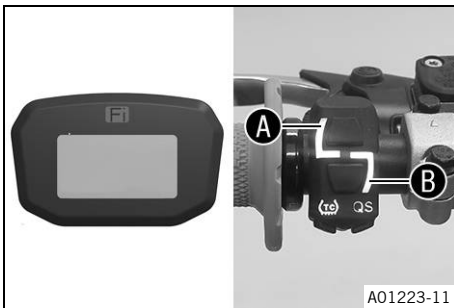
### **i** Info

Nothing can be cleared or adjusted on the combination instrument.

As soon as the diagnostics tool is connected, the service hour counter starts running.

Before longer diagnostic sessions, unplug the service hour counter behind the start number plate.

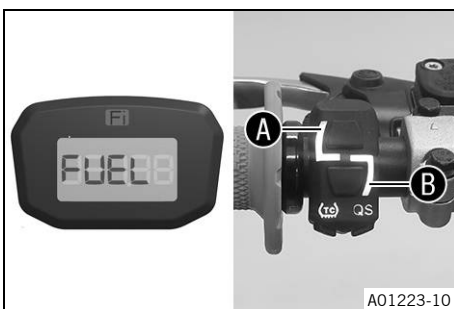
## 2.3 Overview of indicator lamps (450 SX-F EU, 450 SX-F US, 450 SX-F BR)



### Possible states

<b>Fi</b>	Malfunction indicator lamp lights up/flashes orange – The <u>OBD</u> has detected a malfunction in the vehicle electronics. The malfunction indicator lamp also lights up if traction control is activated and the speed limiter intervenes.
<b>(TC)</b>	TC indicator lamp lights up orange – <u>TC</u> is enabled or is currently intervening. The TC indicator lamp flashes if <u>launch control</u> is activated.
<b>QS</b>	QS indicator lamp lights up blue – The quickshifter is activated. The QS indicator lamp flashes when the quickshifter is being programmed.
<b>L</b>	Indicator lamp <b>A</b> lights up white – <u>STANDARD</u> mapping is activated.
<b>7</b>	Indicator lamp <b>B</b> lights up green – <u>ADVANCED</u> mapping is activated.

## 2.4 Overview of indicator lamps (450 XC-F US)



### Possible states

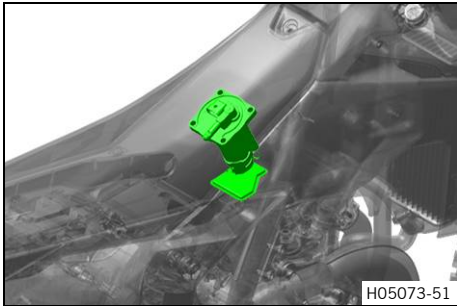
<b>Fi</b>	Malfunction indicator lamp lights up/flashes orange – The <u>OBD</u> has detected a malfunction in the vehicle electronics. The malfunction indicator lamp also lights up if traction control is activated and the speed limiter intervenes.
<b>(TC)</b>	TC indicator lamp lights up orange – <u>TC</u> is enabled or is currently intervening. The TC indicator lamp flashes if <u>launch control</u> is activated.
<b>QS</b>	QS indicator lamp lights up blue – The quickshifter is activated. The QS indicator lamp flashes when the quickshifter is being programmed.
<b>L</b>	Indicator lamp <b>A</b> lights up white – <u>STANDARD</u> mapping is activated.
<b>7</b>	Indicator lamp <b>B</b> lights up green – <u>ADVANCED</u> mapping is activated.

## 2 ENGINE MANAGEMENT SYSTEM COMPONENTS

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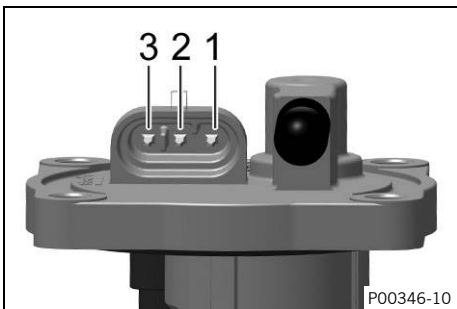
**FUEL** is displayed – The fuel level has reached the reserve mark.

### 2.5 Fuel pump (450 SX-F EU, 450 SX-F US, 450 SX-F BR)



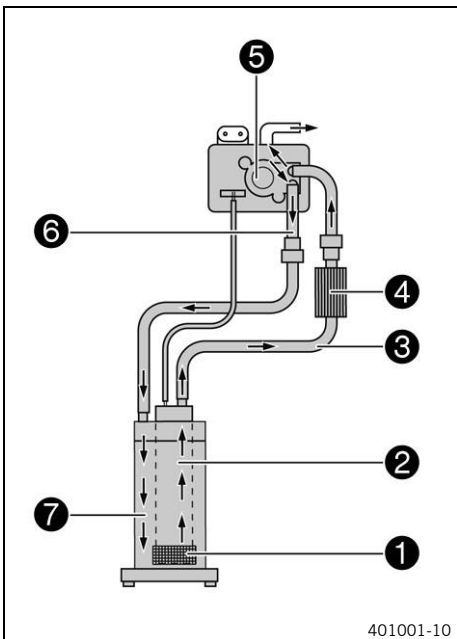
#### Installation location

- The fuel pump is located inside the fuel tank.



#### Pin overview

1	Not assigned
2	Control wire
3	Power supply



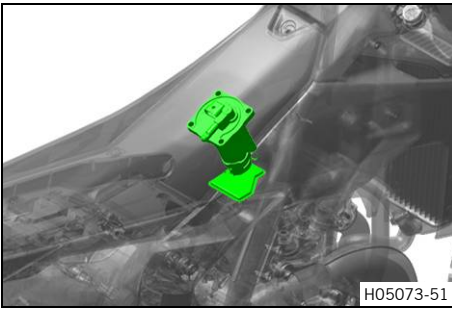
#### Functional description

- The fuel passes through the fuel screen **1** before entering the electrically driven vane pump **2**. This delivers the fuel via the fuel line **3** and the fuel filter **4** and on into the pressure regulator **5**. The pressure regulator ensures an even fuel pressure under all load conditions. Excess fuel flows back via hose **6** into pump housing **7**.

#### Fuel pressure

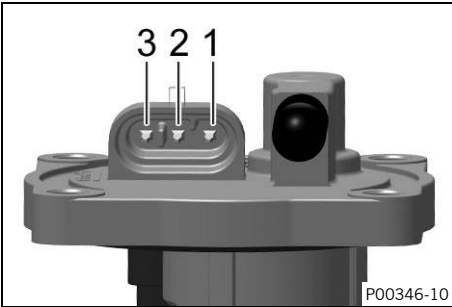
Under all load conditions	3.3 ... 3.7 bar (48 ... 54 psi)
---------------------------	---------------------------------

## 2.6 Fuel pump (450 XC-F US)



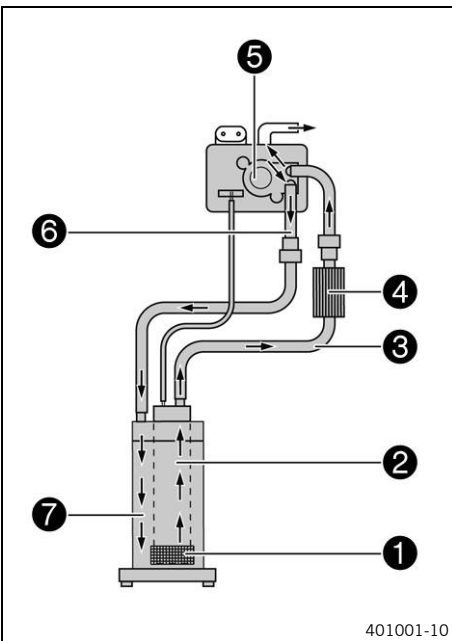
### Installation location

- The fuel pump is located inside the fuel tank on the left.



### Pin overview

- |   |                                |
|---|--------------------------------|
| 1 | Signal wire, fuel level sensor |
| 2 | Control wire                   |
| 3 | Power supply                   |



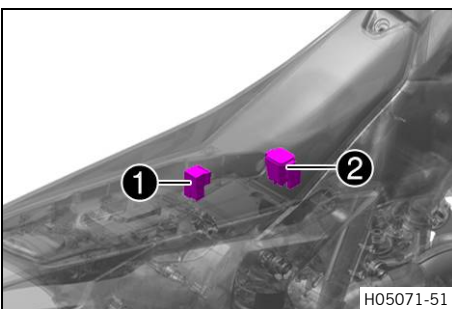
### Functional description

- The fuel passes through the fuel screen **1** before entering the electrically driven vane pump **2**. This delivers the fuel via the fuel line **3** and the fuel filter **4** and on into the pressure regulator **5**. The pressure regulator ensures an even fuel pressure under all load conditions. Excess fuel flows back via hose **6** into pump housing **7**.

### Fuel pressure

Under all load conditions	3.3 ... 3.7 bar (48 ... 54 psi)
---------------------------	---------------------------------

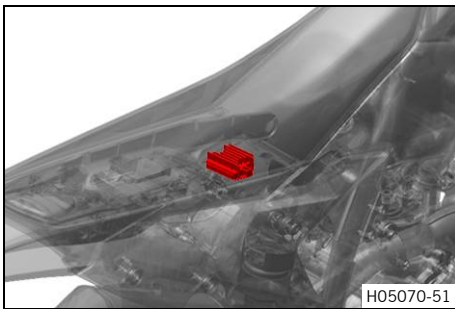
## 2.7 Overview of relays



### Overview of relays

- 1** Power relay
- 2** Starter relay with main fuse

## 2.8 Voltage regulator



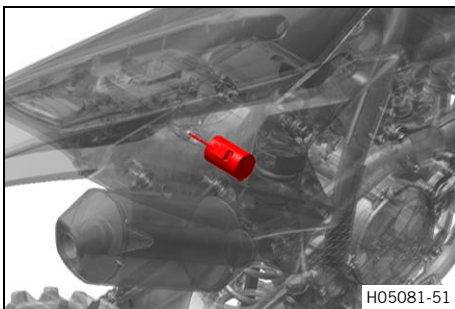
### Installation location

- The voltage regulator is located under the seat.

Voltage regulator connector **EY** (📖 p. 128) pin assignment

Voltage regulator connector **EE** (📖 p. 128) pin assignment

## 2.9 Capacitor



### Installation location

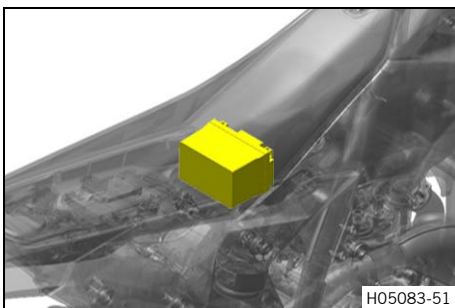
- The capacitor is located in the air filter box.

### Component description

- The capacitor stabilizes the power supply of the engine control unit.

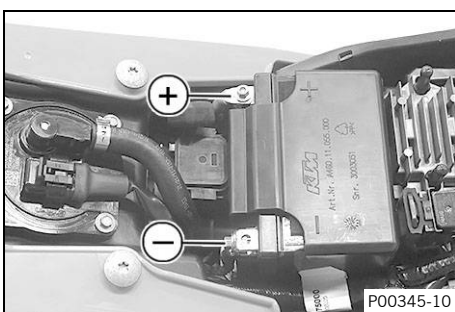
Capacitor connector **AS** (📖 p. 126) pin assignment

## 2.10 12 V battery



### Installation location

- The 12 V battery is located under the seat.



### Measuring point overview

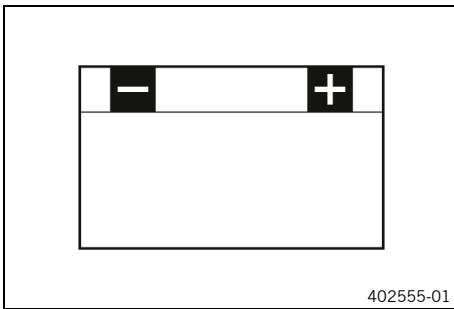
Ground (-)

plus (+)

Battery voltage "VBAT"	9.6 ... 15.4 V
---------------------------	----------------

12 V battery (HJTZ5S-FP-C)

## 2.11 Starting power of lithium-ion batteries at low temperatures



Lithium-ion batteries are far lighter than lead batteries, have a low self-discharge rate, and have more starting power at temperatures over 6 °C (43 °F).

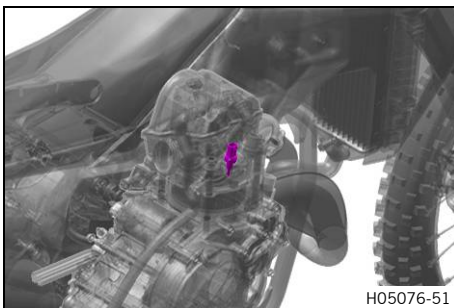
Several attempts to start may be required. Press the start button for 5 seconds, and wait 15 seconds between attempts. At low temperatures, wait for 30 seconds. The pauses are necessary so that the heat created can distribute through the lithium-ion battery and the lithium-ion battery is not damaged.

The starting power increases as the battery warms up.

Always make sure the lithium-ion battery is charged to that there is enough power to spare for starting at low temperatures.

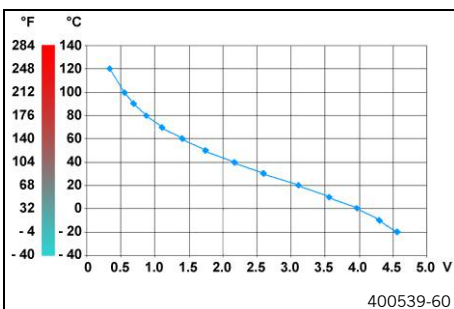
After 6 unsuccessful starting attempts, do not try again, and check the vehicle for other errors instead.

## 2.12 Coolant temperature sensor



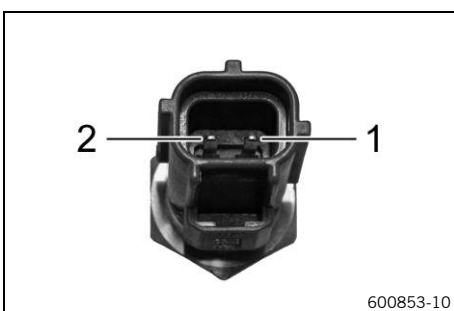
### Installation location

- The coolant temperature sensor is located on the right cylinder head.



### Component description

- The coolant temperature sensor is an NTC resistor. In NTC resistors, the resistance decreases with increasing temperature; however, the "nil" value is never reached. When the temperature decreases, the resistance increases; however, the "infinite" value is never reached.



### Pin overview

- |   |               |
|---|---------------|
| 1 | Sensor ground |
| 2 | Signal wire   |

### Functional description

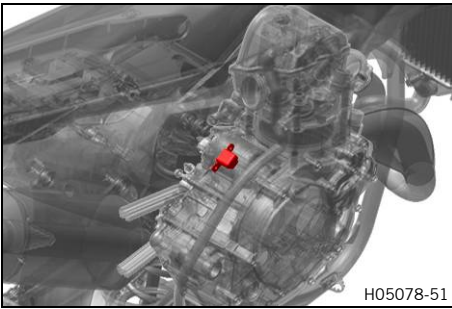
- The coolant temperature sensor is used for the engine control.

Coolant temperature sensor	
Resistance at: -20 °C (-4 °F)	13.50 ... 16.50 kΩ
Voltage at: -20 °C (-4 °F)	4.5 V
Resistance at: -10 °C (14 °F)	8.24 ... 10.08 kΩ
Voltage at: -10 °C (14 °F)	4.3 V
Resistance at: 0 °C (32 °F)	5.17 ... 6.31 kΩ

## 2 ENGINE MANAGEMENT SYSTEM COMPONENTS

Voltage at: 0 °C (32 °F)	3.9 V
Resistance at: 10 °C (50 °F)	3.33 ... 4.07 kΩ
Voltage at: 10 °C (50 °F)	3.5 V
Resistance at: 20 °C (68 °F)	2.21 ... 2.70 kΩ
Voltage at: 20 °C (68 °F)	3.1 V
Resistance at: 30 °C (86 °F)	1.49 ... 1.83 kΩ
Voltage at: 30 °C (86 °F)	2.5 V
Resistance at: 40 °C (104 °F)	1.04 ... 1.27 kΩ
Voltage at: 40 °C (104 °F)	2.1 V
Resistance at: 50 °C (122 °F)	730 ... 892 Ω
Voltage at: 50 °C (122 °F)	1.7 V
Resistance at: 60 °C (140 °F)	526 ... 642 Ω
Voltage at: 60 °C (140 °F)	1.4 V
Resistance at: 70 °C (158 °F)	385 ... 471 Ω
Voltage at: 70 °C (158 °F)	1.0 V
Resistance at: 80 °C (176 °F)	286 ... 350 Ω
Voltage at: 80 °C (176 °F)	0.86 V
Resistance at: 90 °C (194 °F)	216 ... 264 Ω
Voltage at: 90 °C (194 °F)	0.68 V
Resistance at: 100 °C (212 °F)	165 ... 202 Ω
Voltage at: 100 °C (212 °F)	0.6 V
Resistance at: 110 °C (230 °F)	128 ... 156 Ω
Voltage at: 110 °C (230 °F)	0.44 V
Resistance at: 120 °C (248 °F)	100 ... 122 Ω
Voltage at: 120 °C (248 °F)	0.34 V

## 2.13 Crankshaft speed sensor



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### Installation location

- The crankshaft speed sensor is located on the left side of the engine below the alternator cover.

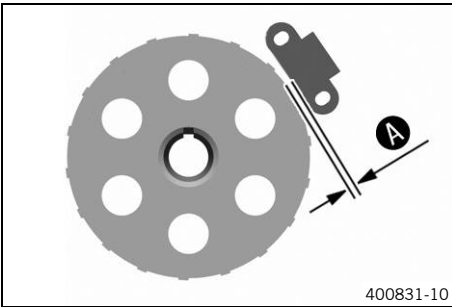
### Component description

- The crankshaft speed sensor consists of a permanent magnet and an induction coil with a soft iron core. The counter piece to the crankshaft speed sensor is the sensor wheel whose 18 teeth are equidistant except in one place where one tooth is wider. The sensor wheel is attached to the alternator rotor. The rotor is connected to the crankshaft. There is a small air gap between the crankshaft speed sensor and the sensor wheel.

Crankshaft speed sensor connector **AT** (📖 p. 127) pin assignment

### Functional description

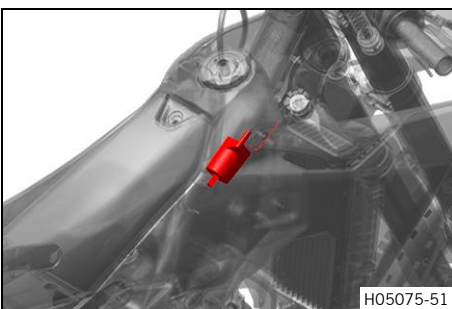
- The magnetic flux through the induction coil depends on whether a gap or a tooth is opposite to the crankshaft speed sensor. A tooth bundles the magnetic leakage flux of the permanent magnet while a gap weakens it. When the rotor and thus the sensor wheel turns, a magnetic field change is caused by each tooth. The change in the magnetic field generates an alternating voltage in the induction coil. The number of pulses per time unit are a measure of the rotating speed of the rotor. The wider tooth on the sensor wheel allows the engine control unit to detect the current position of the crankshaft. Distance **A** can be set.



400831-10

Crankshaft speed sensor/rotor – distance	0.70 mm (0.0276 in)
Crankshaft speed sensor	
Resistance at: 20 °C (68 °F)	80 ... 120 Ω
Voltage at starting engine speed	2 ... 4 V

## 2.14 Ignition coil

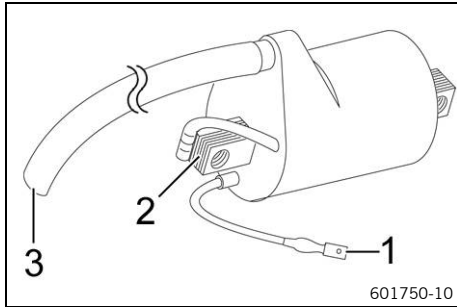


H05075-51

### Installation location

- The ignition coil is located above the valve cover in the frame.

## 2 ENGINE MANAGEMENT SYSTEM COMPONENTS



### Pin overview

1 (+) Control wire

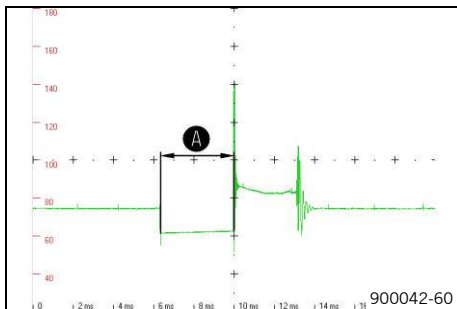
2 (-) Ground

3 Ignition wire

### Ignition coil

Primary winding resistance at: 20 °C (68 °F)	0.425 ... 0.575 $\Omega$
Secondary winding resistance at: 20 °C (68 °F)	11.075 ... 15.525 k $\Omega$

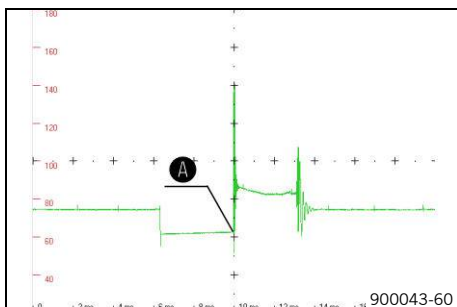
### 2.15 Dwell



### Function description

- The dwell angle **A** is the number of crankshaft degrees that the primary circuit is closed and the magnetic field builds up. The time is stated for which the primary circuit is closed.

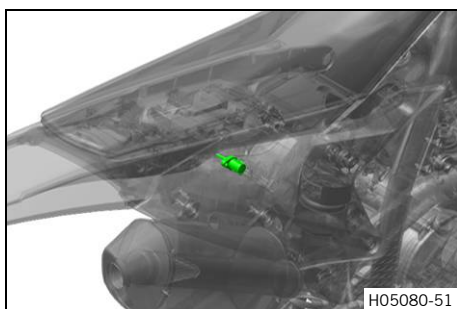
### 2.16 Ignition point



### Function description

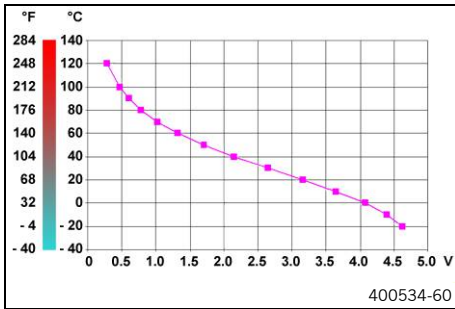
- The ignition point **A** is set relative to TDC and is expressed as a crankshaft angle. The spark is generated by interrupting the primary circuit.

### 2.17 Intake air temperature sensor



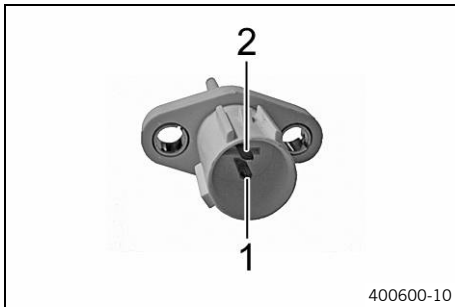
### Installation location

- The intake air temperature sensor is located on the air filter box.



### Component description

- The intake air temperature sensor is an NTC resistor. In NTC resistors, the resistance decreases with increasing temperature; however, the "nil" value is never reached. When the temperature decreases, the resistance increases; however, the "infinite" value is never reached.

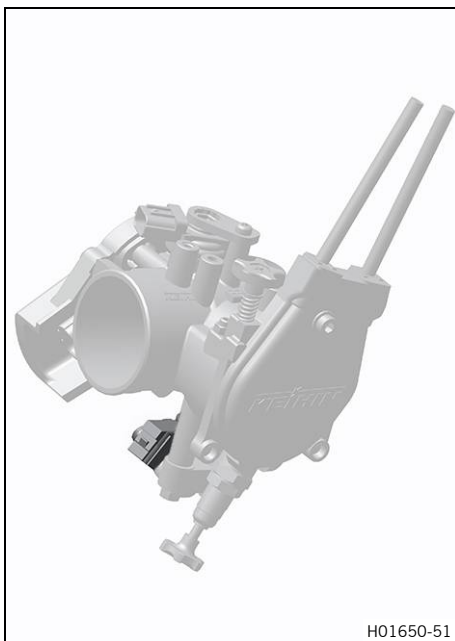


### Pin overview

- |   |               |
|---|---------------|
| 1 | Sensor ground |
| 2 | Signal wire   |

Intake air temperature sensor	
Resistance at: -20 °C (-4 °F)	18.80 kΩ
Voltage at: -20 °C (-4 °F)	4.67 V
Resistance at: 20 °C (68 °F)	2.57 kΩ
Voltage at: 20 °C (68 °F)	3.14 V
Resistance at: 40 °C (104 °F)	1.136 kΩ
Voltage at: 40 °C (104 °F)	2.15 V
Resistance at: 100 °C (212 °F)	0.1553 kΩ
Voltage at: 100 °C (212 °F)	0.46 V

## 2.18 Injection valve, cylinder 1



### Installation location

- Injector cylinder 1 is located on the throttle valve body at the bottom.

### Component description

- The injection valve consists of a solenoid, a spring-loaded plunger, a needle valve, and a filter. When current flows through the coil in the solenoid, a magnetic field is generated which attracts the plunger, overcoming the spring force; this lifts the needle valve off its seat. Fuel is discharged through eight injection holes and forms two conical jets. When the current is switched off, the magnetic field collapses and the spring closes the needle valve. The filter keeps any contamination out of the holes.

## 2 ENGINE MANAGEMENT SYSTEM COMPONENTS



### Pin overview

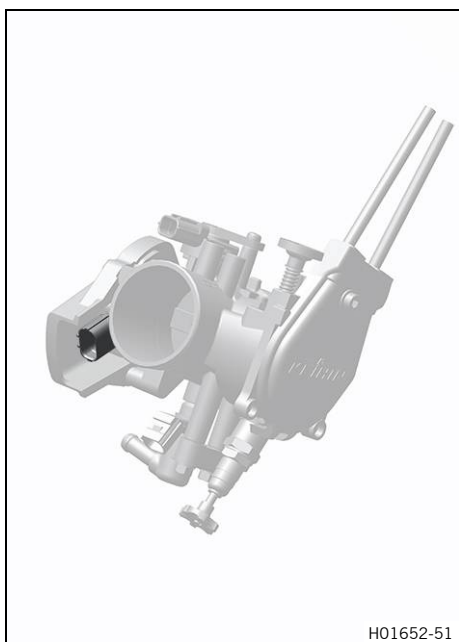
- |   |              |
|---|--------------|
| 1 | Power supply |
| 2 | Control wire |

### Functional description

- The injection valve is supplied with power via terminal 15. The engine control unit calculates the injection rate required and grounds the injection valve via the amplification stage in the engine control unit. The longer the injection valve is connected to ground, the greater the fuel quantity injected.

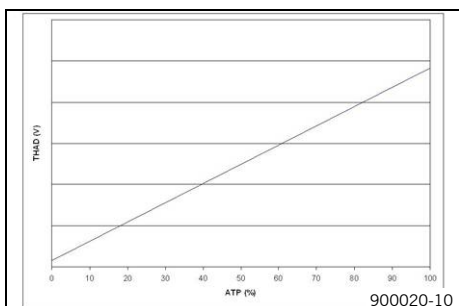
Injector	
Resistance at: 20 °C (68 °F)	9.97 ... 11.03 Ω

### 2.19 Throttle valve position sensor circuit A



### Installation location

- Throttle valve position sensor circuit A is located on the left side of the throttle valve body.



### Component description

- The throttle valve position sensor circuit A has a linear characteristic line and operates as a potentiometer.

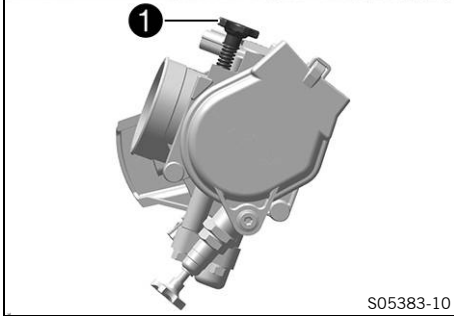
Circuit A throttle valve position sensor connector **FT** (📖 p. 128) pin assignment

### Functional description

- The output voltage of the throttle valve position sensor is dependent on the opening angle of the throttle valve and is sent via the signal wire to determine the throttle valve position.

Throttle valve position sensor circuit A	
Voltage "THAD"	0.4 ... 4.58 V
Throttle valve position sensor, circuit A signal "ATP"	0 ... 100 %

## 2.20 Idle speed adjusting screw



The idle setting of the throttle valve body substantially influences the vehicle's starting behavior, a stable idle speed, and the vehicle's response when the throttle is opened.

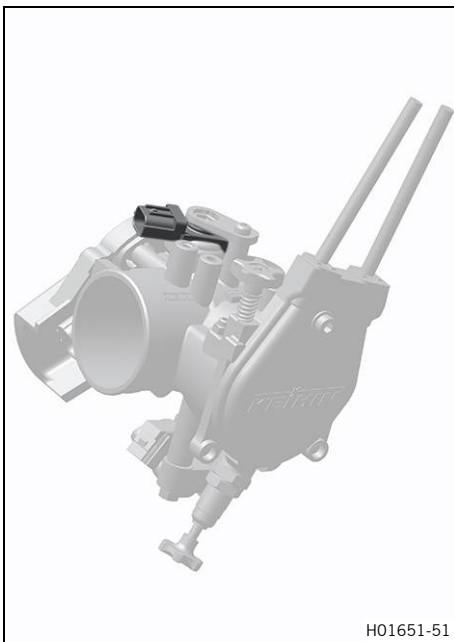
An engine with a correctly set idle speed is easier to start than an engine with the idle speed set incorrectly.

The idle speed is adjusted using the idle speed adjusting screw ①.

Increase the idle speed by turning the idle speed adjusting screw clockwise.

Decrease the idle speed by turning the idle speed adjusting screw counterclockwise.

## 2.21 Induction manifold pressure sensor

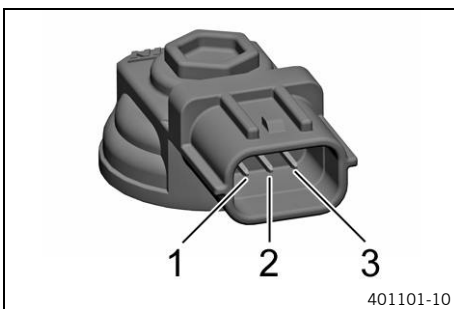


### Installation location

- The induction manifold pressure sensor is located at the top left of the throttle valve body.

### Component description

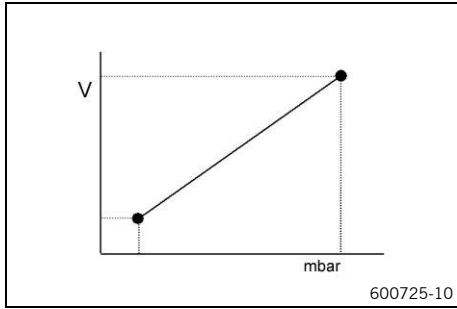
- The electronics and a measuring cell are located in the housing of the induction manifold pressure sensor. In the measuring cell a diaphragm encloses a reference pressure chamber. When the shape of the diaphragm is altered by external pressure, the conductivity of the measuring resistors, and thus the measured voltage, is altered. The measured voltage is processed by the electronic system and forwarded to the engine control unit.



### Pin overview

1	Power supply
2	Signal wire
3	Sensor ground

## 2 ENGINE MANAGEMENT SYSTEM COMPONENTS

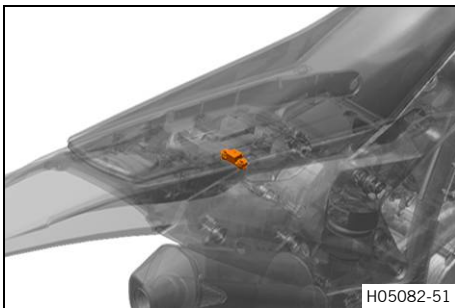


### Functional description

- The output voltage of the induction manifold pressure sensor depends on the induction manifold pressure and is output via the signal wire. The voltage signal drops when pressure decreases. This means that when the throttle valve is closed with resulting low manifold pressure (due to the suction effect of the engine), a low voltage signal is emitted from the induction manifold absolute pressure sensor. When the throttle valve is fully open, the manifold pressure is roughly equal to the ambient air pressure and the voltage signal is high.

Induction manifold pressure sensor voltage	
at: 133 mbar (1.93 psi)	0.498 V
at: 1,200 mbar (17.4 psi)	3.408 V

### 2.22 Tilt sensor

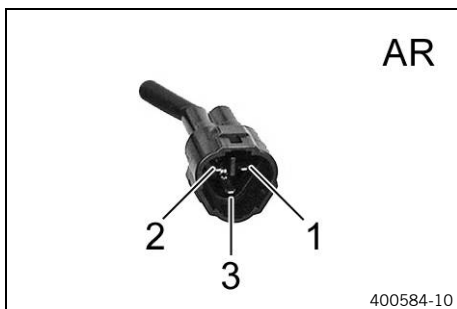


### Installation location

- The tilt sensor is located under the seat.

### Component description

- The sensor functions on the basis of the Hall effect. The tilt sensor contains a pendulum with a magnet. The pendulum passes over a Hall sensor. The electronics of the tilt sensor evaluate the Hall voltage and activate the signal voltage.



### Pin overview

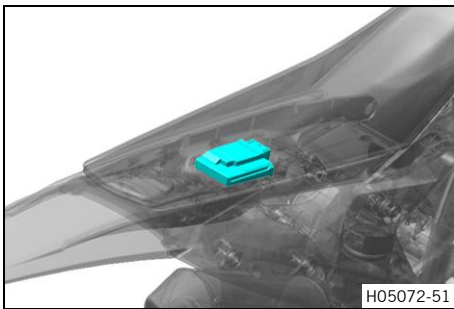
1	Sensor ground
2	Power supply
3	Signal wire

### Functional description

- The tilt sensor is connected in series to measuring resistances on the voltage side and ground side, both of which are in the engine control unit. Depending on the vehicle inclination, the electronic system of the tilt sensor switches the signal voltage either toward the voltage or toward the ground using a resistor. The engine control unit detects the inclination of the vehicle on the basis of the voltage value of the signal wire.

Tilt sensor	
Voltage (Rollover AD) "no fall detected"	0.4 ... 1.4 V
Voltage (RolloverAD) "fall detected"	3.7 ... 4.1 V

## 2.23 Engine control unit



### Installation location

- The engine control unit is located under the seat.

### Info

When an engine control unit from the parts center is initially programmed, it is given an identity. This means that if the engine control unit is specified, e.g. with the flash container KA480xxxxxx (450 SX-F series), the engine control unit is defined as a version A480 and can from this point on only be used on model series A480 (specifically installed control unit).

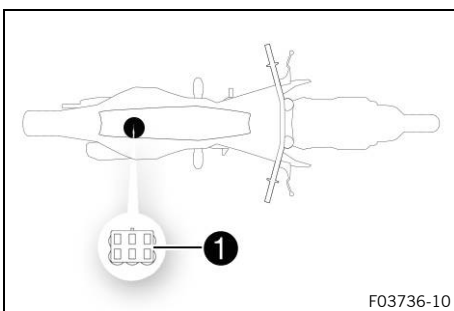
After completing programming, the vehicle identification number must be entered into the engine control unit using the "Coding" function.

As soon as the diagnostics tool is connected, the service hour counter starts running.

Before longer diagnostic sessions, unplug the service hour counter behind the start number plate.

Engine control unit connector **HY** (📖 p. 130) pin assignment

## 2.24 Diagnostics connector



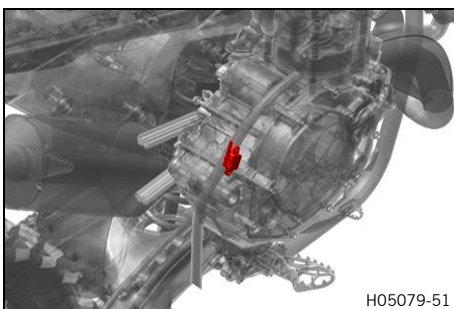
Diagnostics connector ❶ is located under the seat.

### Info

As soon as the diagnostics tool is connected, the service hour counter starts running.

Before longer diagnostic sessions, unplug the service hour counter behind the start number plate.

## 2.25 Gear position sensor



### Installation location

- The gear position sensor is located on the left section of the engine case.

### Component description

- The gear position sensor comprises one sensor path.

Gear position sensor connector **JL** (📖 p. 131) pin assignment

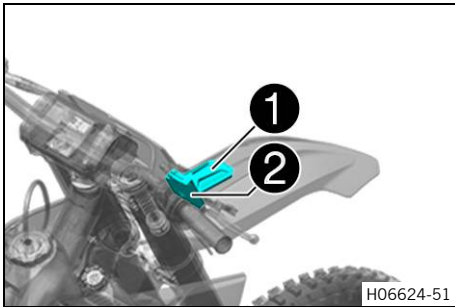
### Functional description

- The sensor path output voltage is transmitted to the engine control unit via a signal wire. This enables the engine control unit to identify the exact position of the shift shaft.

Gear position sensor voltage	
Gear 1	0.525 ... 0.725 V
Gear N	0.910 ... 1.090 V
Gear 2	1.275 ... 1.475 V
Gear 3	2.025 ... 2.225 V

Gear 4	2.775 ... 2.975 V
Gear 5	3.525 ... 3.725 V

### 2.26 Connectivity Unit



#### Installation location

- The Connectivity Unit is located behind the start number plate.

#### Setup

- The Connectivity consists of the **1** aerial and the **2** control unit.

#### Component description

- The Connectivity Unit is equipped with a Bluetooth module, which allows it to be paired with a smartphone, and it offers a wide range of functions and setting options.

Connectivity Unit connector **OJ** (📖 p. 131) pin assignment

<b>Blink code for malfunction indicator lamp</b>	<b>Fi</b> 09 Malfunction indicator lamp flashes 9x short
<b>Display on diagnostic tool</b>	P0105 <b>"Induction manifold pressure sensor"</b> <b>"Input signal too high"</b>
<b>Error level condition</b>	Induction manifold pressure sensor – input signal too high Voltage: $\geq 4.121$ V Time: $\geq 3$ s
<b>Function check</b>	Induction manifold pressure sensor – checking the voltage (📖 p. 19)
<b>Possible cause</b>	Induction manifold pressure sensor – the signal wire is faulty (📖 p. 20)
	Induction manifold pressure sensor – the ground wire is faulty (📖 p. 20)
	Induction manifold pressure sensor – the signal wire has a short circuit to plus (terminal 30) (📖 p. 21)
	Induction manifold pressure sensor – the signal wire has a short circuit to ignition plus (terminal 15) (📖 p. 22)
	Induction manifold pressure sensor – the signal wire has a short circuit to the sensor power supply (📖 p. 22)

## Induction manifold pressure sensor – checking the voltage

### Condition

The diagnostics tool is connected and running.

- Select **"Engine control unit" > "Measured value" > "Induction manifold pressure sensor for cylinder 1 voltage (PM1AD)"** and **"Induction manifold pressure sensor for cylinder 1 signal (PM1M)"**.

Induction manifold pressure sensor voltage	
at: 133 mbar (1.93 psi)	0.498 V
at: 1,200 mbar (17.4 psi)	3.408 V

- » If the displayed value is equal to the setpoint value:
  - Clear the fault memory using the KTM diagnostics tool.
  - Take a test ride.
  - Read out the fault memory using the KTM diagnostics tool.
- » If the displayed value is above the setpoint value:
  - Check the next possible cause:  
Induction manifold pressure sensor – the signal wire is faulty (📖 p. 20)
  - Check the next possible cause:  
Induction manifold pressure sensor – the ground wire is faulty (📖 p. 20)
  - Check the next possible cause:  
Induction manifold pressure sensor – the signal wire has a short circuit to plus (terminal 30) (📖 p. 21)
  - Check the next possible cause:  
Induction manifold pressure sensor – the signal wire has a short circuit to ignition plus (terminal 15) (📖 p. 22)
  - Check the next possible cause:  
Induction manifold pressure sensor – the signal wire has a short circuit to the sensor power supply (📖 p. 22)

### 3 ENGINE CONTROL TROUBLE CODE

#### Induction manifold pressure sensor – the signal wire is faulty

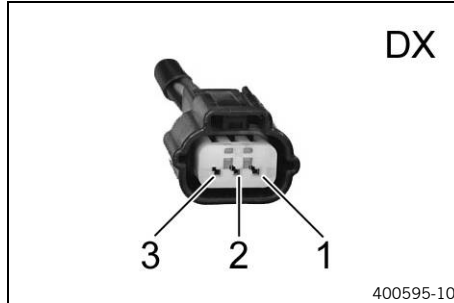
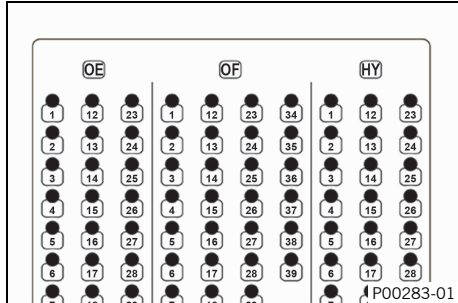
##### Condition

The diagnostics tool is disconnected.


Engine control unit is disconnected. (📖 p. 17)

The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.

Induction manifold sensor is disconnected. (📖 p. 15)



##### Induction manifold pressure sensor – check the signal wire.

-  Measure the resistance between the specified points.  
Break out box connector **HY** pin **27** – Induction manifold pressure sensor, connector **DX** pin **2**

Resistance	$\leq 0.6 \Omega$
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- » If the specifications have not been met:
  - Check engine control unit connector **HY** (📖 p. 130) pin **27** and connector **DX** (📖 p. 127) pin **2**.
  - Check the cable from engine control unit connector **HY** (📖 p. 130) pin **27** to connector **DX** (📖 p. 127) pin **2**.
- » If the specifications have been met:
  - Check the next possible cause:  
Induction manifold pressure sensor – the ground wire is faulty (📖 p. 20)

#### Induction manifold pressure sensor – the ground wire is faulty

##### Condition

The diagnostics tool is disconnected.

Engine control unit is disconnected. (📖 p. 17)

The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.

Induction manifold sensor is disconnected. (📖 p. 15)

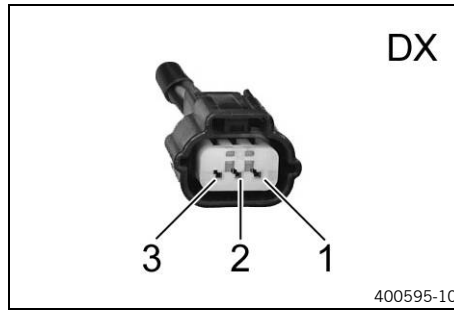
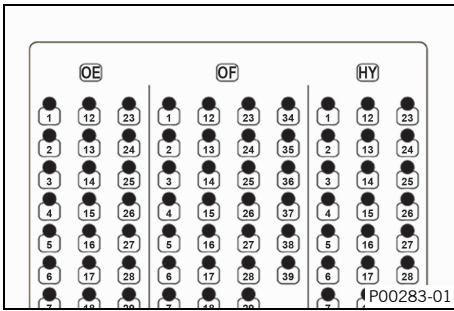
Throttle valve position sensor circuit A is disconnected. (📖 p. 14)

The coolant temperature sensor is disconnected. (📖 p. 9)

The tilt sensor is disconnected. (📖 p. 16)

The intake air temperature sensor is disconnected. (📖 p. 12)

The gear position sensor is disconnected. (📖 p. 17)



### Induction manifold pressure sensor – check the ground wire.

- **Ω** Measure the resistance between the specified points.  
Break out box connector **HY** pin 17 – Induction manifold pressure sensor, connector **DX** pin 3

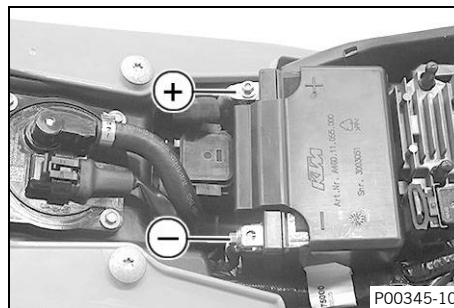
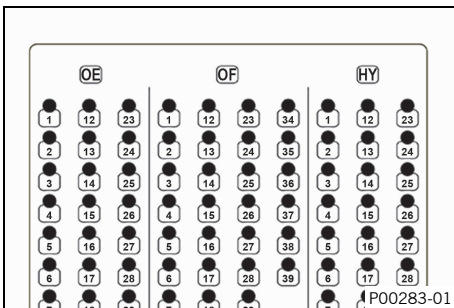
Resistance	≤ 0.6 Ω
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- » If the specifications have not been met:
  - Check engine control unit connector **HY** (p. 130) pin 17 and connector **DX** (p. 127) pin 3.
  - Check the cable from engine control unit connector **HY** (p. 130) pin 17 to connector **DX** (p. 127) pin 3.
- » If the specifications have been met:
  - Check the next possible cause:  
Induction manifold pressure sensor – the signal wire has a short circuit to plus (terminal 30) (p. 21)

### Induction manifold pressure sensor – the signal wire has a short circuit to plus (terminal 30)

#### Condition

The diagnostics tool is disconnected.  
 Engine control unit is disconnected. (p. 17)  
 The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.  
 Induction manifold sensor is disconnected. (p. 15)



### Induction manifold pressure sensor – check the signal wire for a short circuit to plus (terminal 30).

- **V** Measure the voltage between the specified points.  
Break out box connector **HY** pin 27 – Measuring point **Ground (-)**

Voltage	< 0.1 V
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- » If the specifications have not been met:
  - Check the cable from engine control unit connector **HY** (p. 130) pin 27 to connector **DX** (p. 127) pin 2 for a short circuit to plus (terminal 30).
- » If the specifications have been met:
  - Check the next possible cause:  
Induction manifold pressure sensor – the signal wire has a short circuit to ignition plus (terminal 15) (p. 22)

## Induction manifold pressure sensor – the signal wire has a short circuit to ignition plus (terminal 15)

### Condition


The diagnostics tool is disconnected.

Engine control unit is disconnected. (📖 p. 17)

The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.

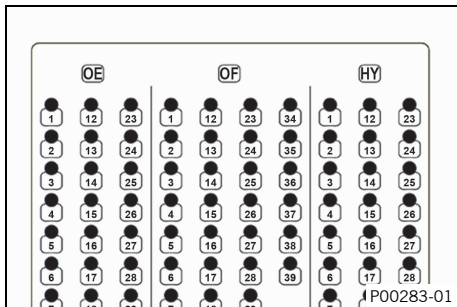
Induction manifold sensor is disconnected. (📖 p. 15)

### Induction manifold pressure sensor – check the signal wire for a short circuit to ignition plus (terminal 15).

-  Measure the resistance between the specified points.  
Break out box connector **HY** pin **27** – Break out box connector **HY** pin **1**

Resistance	$\infty \Omega$
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- » If the specifications have not been met:
  - Check the cable from engine control unit connector **HY** (📖 p. 130) pin **27** to connector **DX** (📖 p. 127) pin **2** for a short circuit to ignition plus (terminal 15).
- » If the specifications have been met:
  - Check the next possible cause:  
Induction manifold pressure sensor – the signal wire has a short circuit to the sensor power supply (📖 p. 22)



## Induction manifold pressure sensor – the signal wire has a short circuit to the sensor power supply

### Condition


The diagnostics tool is disconnected.

Engine control unit is disconnected. (📖 p. 17)

The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.

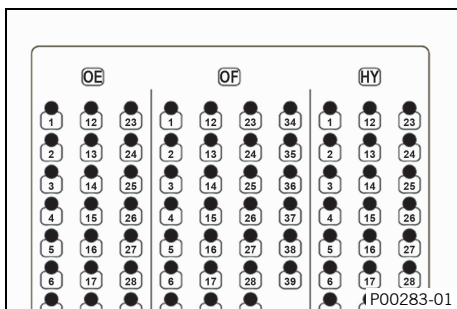
Induction manifold sensor is disconnected. (📖 p. 15)

### Induction manifold pressure sensor – check the signal wire for a short circuit to sensor power supply.

-  Measure the resistance between the specified points.  
Break out box connector **HY** pin **27** – Break out box connector **HY** pin **12**

Resistance	$\infty \Omega$
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- » If the specifications have not been met:
  - Check the cable from engine control unit connector **HY** (📖 p. 130) pin **27** to connector **DX** (📖 p. 127) pin **2** for a short circuit to the sensor power supply.



<b>Blink code for malfunction indicator lamp</b>	<b>Fi</b> 09 Malfunction indicator lamp flashes 9x short
<b>Display on diagnostic tool</b>	P0107 <b>"Induction manifold pressure sensor"</b> <b>"Input signal too low"</b>
<b>Error level condition</b>	Induction manifold pressure sensor – input signal too low Voltage: $\leq 0.215$ V Time: $\geq 3$ s
<b>Function check</b>	Induction manifold pressure sensor – checking the voltage (📖 p. 23)
<b>Possible cause</b>	Induction manifold pressure sensor – the signal wire has a short circuit to sensor ground (📖 p. 23)
	Induction manifold pressure sensor – the signal wire has a short circuit to ground (terminal 31) (📖 p. 24)
	Induction manifold pressure sensor – the power supply is faulty (📖 p. 24)

## Induction manifold pressure sensor – checking the voltage

### Condition

The diagnostics tool is connected and running.

- Select **"Engine control unit" > "Measured value" > "Induction manifold pressure sensor for cylinder 1 voltage (PM1AD)"** and **"Induction manifold pressure sensor for cylinder 1 signal (PM1M)"**.

Induction manifold pressure sensor voltage	
at: 133 mbar (1.93 psi)	0.498 V
at: 1,200 mbar (17.4 psi)	3.408 V

- » If the displayed value is equal to the setpoint value:
  - Clear the fault memory using the KTM diagnostics tool.
  - Take a test ride.
  - Read out the fault memory using the KTM diagnostics tool.
- » If the displayed value is below the setpoint value:
  - Check the next possible cause:  
Induction manifold pressure sensor – the signal wire has a short circuit to sensor ground (📖 p. 23)
  - Check the next possible cause:  
Induction manifold pressure sensor – the signal wire has a short circuit to ground (terminal 31) (📖 p. 24)
  - Check the next possible cause:  
Induction manifold pressure sensor – the power supply is faulty (📖 p. 24)

## Induction manifold pressure sensor – the signal wire has a short circuit to sensor ground

### Condition

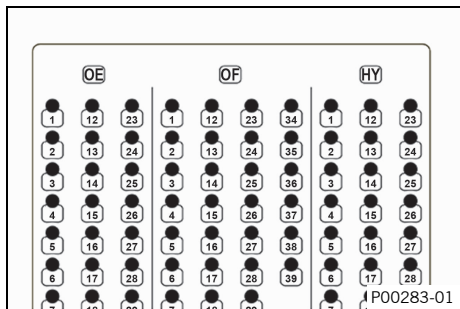
The diagnostics tool is disconnected.

Engine control unit is disconnected. (📖 p. 17)

The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.

Induction manifold sensor is disconnected. (📖 p. 15)

### 3 ENGINE CONTROL TROUBLE CODE



#### Induction manifold pressure sensor – check the signal wire for a short circuit to sensor ground.

- Measure the resistance between the specified points.  
Break out box connector **HY** pin **27** – Break out box connector **HY** pin **17**

Resistance	$\infty \Omega$
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- » If the specifications have not been met:
  - Check the cable from connector **DX** (p. 127) pin **2** to engine control unit connector **HY** (p. 130) pin **27** for a short circuit to sensor ground.
- » If the specifications have been met:
  - Check the next possible cause:  
Induction manifold pressure sensor – the signal wire has a short circuit to ground (terminal 31) (p. 24)

#### Induction manifold pressure sensor – the signal wire has a short circuit to ground (terminal 31)

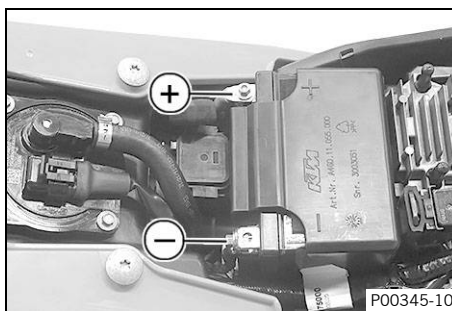
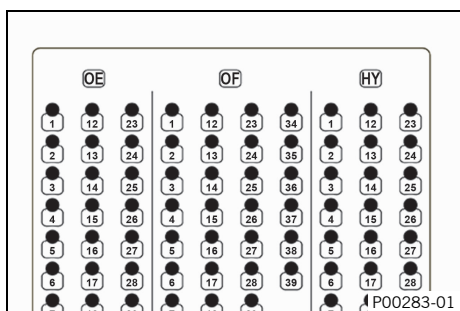
##### Condition

The diagnostics tool is disconnected.

Engine control unit is disconnected. (p. 17)

The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.

Induction manifold sensor is disconnected. (p. 15)



#### Induction manifold pressure sensor – check the signal wire for a short circuit to ground (terminal 31).

- Measure the resistance between the specified points.  
Break out box connector **HY** pin **27** – Measuring point **Ground (-)**

Resistance	$\infty \Omega$
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- » If the specifications have not been met:
  - Check the cable of connector **DX** (p. 127) pin **2** to engine control unit connector **HY** (p. 130) pin **27** for a short circuit to ground (terminal 31).
- » If the specifications have been met:
  - Check the next possible cause:  
Induction manifold pressure sensor – the power supply is faulty (p. 24)

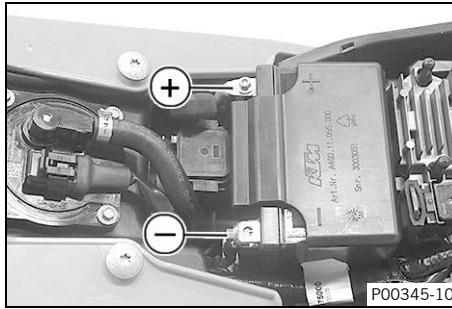
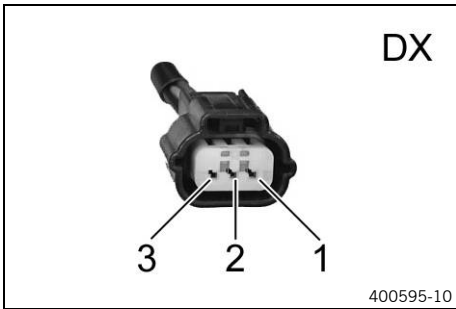
#### Induction manifold pressure sensor – the power supply is faulty

##### Condition

The diagnostics tool is connected and running.

Engine control unit is connected. (p. 17)

Induction manifold sensor is disconnected. (p. 15)



**Induction manifold pressure sensor – check the power supply.**

- **V** Measure the voltage between the specified points.  
Induction manifold pressure sensor, connector **DX** pin **1** – Measuring point **Ground (-)**



**Info**

For the measurement, the measuring points must be subjected to a 12 V/21 W bulb load.

Voltage	4.9 ... 5.1 V
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- » If the specifications have not been met:
  - Check connector **DX** (📖 p. 127) pin **1**.
  - Check the wire from connector **DX** (📖 p. 127) pin **1** according to the wiring diagram.

### 3 ENGINE CONTROL TROUBLE CODE

<b>Blink code for malfunction indicator lamp</b>	<b>Fi</b> 13 Malfunction indicator lamp flashes 1x long, 3x short
<b>Display on diagnostic tool</b>	P0110 "Intake air temperature sensor" "Input signal too high"
<b>Error level condition</b>	Intake air temperature sensor – input signal too high Voltage: $\geq 4.824$ V Time: $\geq 3$ s
<b>Function check</b>	Intake air temperature sensor – checking the voltage (📖 p. 26)
<b>Possible cause</b>	Intake air temperature sensor - the value is not plausible (📖 p. 27)
	Intake air temperature sensor – the signal wire is faulty (📖 p. 27)
	Intake air temperature sensor – the ground wire is faulty (📖 p. 28)
	Intake air temperature sensor – the signal wire has a short circuit to plus (terminal 30) (450 SX-F BR) (📖 p. 28)
	Intake air temperature sensor – the signal wire has a short circuit to ignition plus (terminal 15) (📖 p. 29)
	Intake air temperature sensor – the signal wire has a short circuit to the sensor power supply (📖 p. 29)

#### Intake air temperature sensor – checking the voltage

##### Condition

The diagnostics tool is connected and running.

- Select **"Engine control unit" > "Measured values" > "Intake air temperature sensor voltage (TAAD)"** and **"Intake air temperature sensor (TA)"**.

Intake air temperature sensor	
Voltage at: $-20$ °C ( $-4$ °F)	4.67 V
Voltage at: $20$ °C ( $68$ °F)	3.14 V
Voltage at: $40$ °C ( $104$ °F)	2.15 V
Voltage at: $100$ °C ( $212$ °F)	0.46 V

- » If the displayed value is equal to the setpoint value:
  - Clear the fault memory using the KTM diagnostics tool.
  - Take a test ride.
  - Read out the fault memory using the KTM diagnostics tool.
- » If the displayed value is above the setpoint value:
  - Check the next possible cause:  
Intake air temperature sensor - the value is not plausible (📖 p. 27)
  - Check the next possible cause:  
Intake air temperature sensor – the signal wire is faulty (📖 p. 27)
  - Check the next possible cause:  
Intake air temperature sensor – the ground wire is faulty (📖 p. 28)
  - Check the next possible cause:  
Intake air temperature sensor – the signal wire has a short circuit to plus (terminal 30) (450 SX-F BR) (📖 p. 28)
  - Check the next possible cause:  
Intake air temperature sensor – the signal wire has a short circuit to ignition plus (terminal 15) (📖 p. 29)
  - Check the next possible cause:  
Intake air temperature sensor – the signal wire has a short circuit to the sensor power supply (📖 p. 29)


## Intake air temperature sensor - the value is not plausible

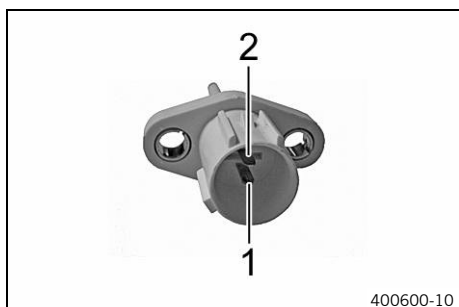
### Condition

The diagnostics tool is disconnected.

The intake air temperature sensor is removed. (📖 p. 12)

### Intake air temperature sensor - check the resistance.

-  Measure the resistance between the specified points.  
Intake air temperature sensor pin 1 – Intake air temperature sensor pin 2



Intake air temperature sensor	
Resistance at: -20 °C (-4 °F)	18.80 kΩ
Voltage at: -20 °C (-4 °F)	4.67 V
Resistance at: 20 °C (68 °F)	2.57 kΩ
Voltage at: 20 °C (68 °F)	3.14 V
Resistance at: 40 °C (104 °F)	1.136 kΩ
Voltage at: 40 °C (104 °F)	2.15 V
Resistance at: 100 °C (212 °F)	0.1553 kΩ
Voltage at: 100 °C (212 °F)	0.46 V

- » If the specifications have not been met:
  - Change the intake air temperature sensor.
- » If the specifications have been met:
  - Check the next possible cause:  
Intake air temperature sensor – the signal wire is faulty (📖 p. 27)

## Intake air temperature sensor – the signal wire is faulty

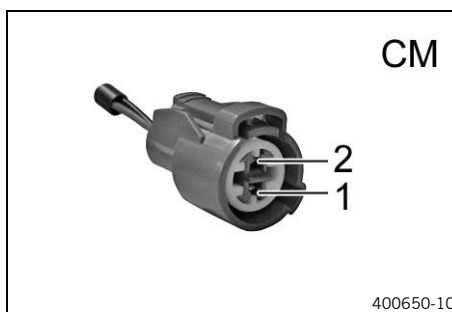
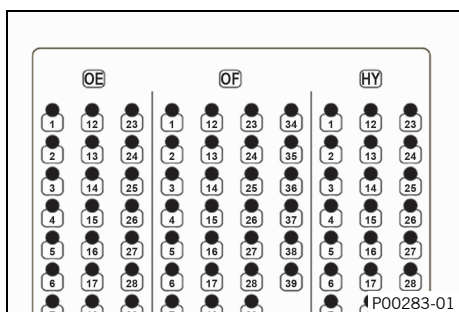
### Condition

The diagnostics tool is disconnected.


Engine control unit is disconnected. (📖 p. 17)

The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.

The intake air temperature sensor is disconnected. (📖 p. 12)



### Intake air temperature sensor – check the signal wire.

-  Measure the resistance between the specified points.  
Break out box connector **HY** pin 19 – Intake air temperature sensor connector **CM** pin 1

### 3 ENGINE CONTROL TROUBLE CODE

Resistance	$\leq 0.6 \Omega$
------------	-------------------

- » If the specifications have not been met:
  - Check engine control unit connector **HY** (p. 130) pin **19** and connector **CM** (p. 127) pin **1**.
  - Check the cable from engine control unit connector **HY** (p. 130) pin **19** to connector **CM** (p. 127) pin **1**.
- » If the specifications have been met:
  - Check the next possible cause:
    - Intake air temperature sensor – the ground wire is faulty (p. 28)

#### Intake air temperature sensor – the ground wire is faulty

##### Condition

The diagnostics tool is disconnected.

Engine control unit is disconnected. (p. 17)

The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.

The intake air temperature sensor is disconnected. (p. 12)

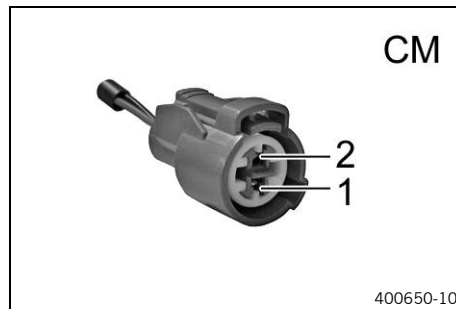
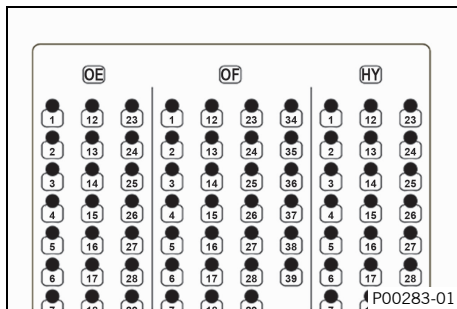
Induction manifold sensor is disconnected. (p. 15)

Throttle valve position sensor circuit A is disconnected. (p. 14)

The coolant temperature sensor is disconnected. (p. 9)

The tilt sensor is disconnected. (p. 16)

The gear position sensor is disconnected. (p. 17)



##### Intake air temperature sensor – check the ground wire.

- Measure the resistance between the specified points.  
Break out box connector **HY** pin **17** – Intake air temperature sensor connector **CM** pin **2**

Resistance	$\leq 0.6 \Omega$
------------	-------------------

- » If the specifications have not been met:
  - Check engine control unit connector **HY** (p. 130) pin **17** and connector **CM** (p. 127) pin **2**.
  - Check the cable from engine control unit connector **HY** (p. 130) pin **17** to connector **CM** (p. 127) pin **2**.
- » If the specifications have been met:
  - Check the next possible cause:
    - Intake air temperature sensor – the signal wire has a short circuit to plus (terminal 30) (450 SX-F BR) (p. 28)

#### Intake air temperature sensor – the signal wire has a short circuit to plus (terminal 30) (450 SX-F BR)

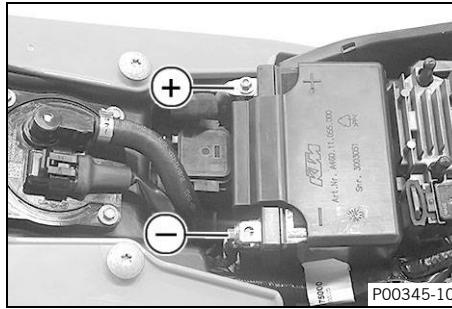
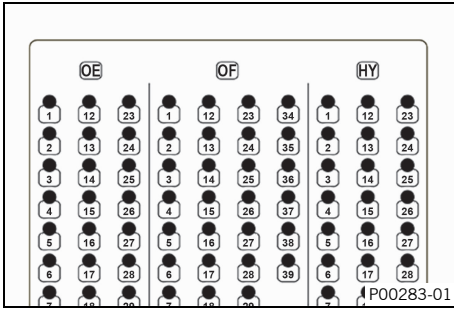
##### Condition

The diagnostics tool is disconnected.

Engine control unit is disconnected. (p. 17)

The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.

The intake air temperature sensor is disconnected. (p. 12)



### Intake air temperature sensor – check the signal wire for a short circuit to plus (terminal 30).

- **V** Measure the voltage between the specified points.  
Break out box connector **HY** pin **19** – Measuring point **Ground (-)**

Voltage	≤ 0.1 V
---------	---------

- » If the specifications have not been met:
  - Check the cable from engine control unit connector **HY** (📖 p. 130) pin **19** to connector **CM** (📖 p. 127) pin **1** for a short circuit to plus (terminal 30).
- » If the specifications have been met:
  - Check the next possible cause:  
Intake air temperature sensor – the signal wire has a short circuit to ignition plus (terminal 15) (📖 p. 29)

### Intake air temperature sensor – the signal wire has a short circuit to ignition plus (terminal 15)

#### Condition

The diagnostics tool is disconnected.  
 Engine control unit is disconnected. (📖 p. 17)  
 The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.  
 The intake air temperature sensor is disconnected. (📖 p. 12)

### Intake air temperature sensor – check the signal wire for a short circuit to ignition plus (terminal 15).

- **Ω** Measure the resistance between the specified points.  
Break out box connector **HY** pin **19** – Break out box connector **HY** pin **1**

Resistance	∞ Ω
------------	-----

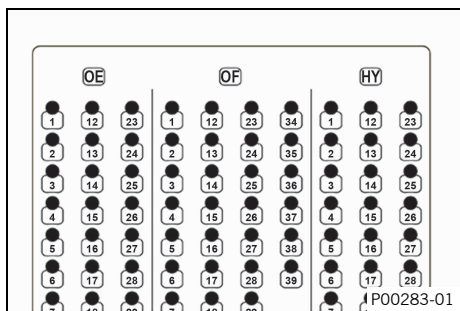
- » If the specifications have not been met:
  - Check the cable from engine control unit connector **HY** (📖 p. 130) pin **19** to connector **CM** (📖 p. 127) pin **1** for a short circuit to ignition plus (terminal 15).
- » If the specifications have been met:
  - Check the next possible cause:  
Intake air temperature sensor – the signal wire has a short circuit to the sensor power supply (📖 p. 29)

### Intake air temperature sensor – the signal wire has a short circuit to the sensor power supply


#### Condition

The diagnostics tool is disconnected.  
 Engine control unit is disconnected. (📖 p. 17)  
 The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.  
 The intake air temperature sensor is disconnected. (📖 p. 12)

### 3 ENGINE CONTROL TROUBLE CODE



**Intake air temperature sensor – check the signal wire for a short circuit to the sensor power supply.**

-  Measure the resistance between the specified points.  
Break out box connector **HY** pin **19** – Break out box connector **HY** pin **12**

Resistance	$\infty \Omega$
------------	-----------------

- » If the specifications have not been met:
  - Check the cable from engine control unit connector **HY** (📄 p. 130) pin **19** to connector **CM** (📄 p. 127) pin **1** for a short circuit to the sensor power supply.

<b>Blink code for malfunction indicator lamp</b>	<b>Fi</b> 13 Malfunction indicator lamp flashes 1x long, 3x short
<b>Display on diagnostic tool</b>	P0112 <b>"Intake air temperature sensor"</b> <b>"Input signal too low"</b>
<b>Error level condition</b>	Intake air temperature sensor – input signal too low Voltage: $\leq 0.195$ V Time: $\geq 3$ s
<b>Function check</b>	Intake air temperature sensor – checking the voltage (📖 p. 31)
<b>Possible cause</b>	Intake air temperature sensor - the value is not plausible (📖 p. 31)
	Intake air temperature sensor – the signal wire has a short circuit to ground (terminal 31) (📖 p. 32)
	Intake air temperature sensor – the signal wire has a short circuit to sensor ground (📖 p. 33)

## Intake air temperature sensor – checking the voltage

### Condition

The diagnostics tool is connected and running.

- Select **"Engine control unit" > "Measured values" > "Intake air temperature sensor voltage (TAAD)"** and **"Intake air temperature sensor (TA)"**.

Intake air temperature sensor	
Voltage at: -20 °C (-4 °F)	4.67 V
Voltage at: 20 °C (68 °F)	3.14 V
Voltage at: 40 °C (104 °F)	2.15 V
Voltage at: 100 °C (212 °F)	0.46 V

- » If the displayed value is equal to the setpoint value:
  - Clear the fault memory using the KTM diagnostics tool.
  - Take a test ride.
  - Read out the fault memory using the KTM diagnostics tool.
- » If the displayed value is below the setpoint value:
  - Check the next possible cause:  
Intake air temperature sensor - the value is not plausible (📖 p. 31)
  - Check the next possible cause:  
Intake air temperature sensor – the signal wire has a short circuit to ground (terminal 31) (📖 p. 32)
  - Check the next possible cause:  
Intake air temperature sensor – the signal wire has a short circuit to sensor ground (📖 p. 33)

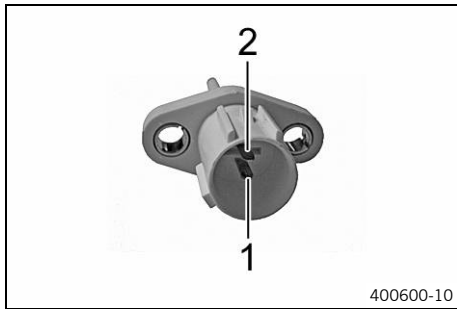
## Intake air temperature sensor - the value is not plausible

### Condition

The diagnostics tool is disconnected.

The intake air temperature sensor is removed. (📖 p. 12)

### 3 ENGINE CONTROL TROUBLE CODE



#### Intake air temperature sensor - check the resistance.

- $\Omega$  Measure the resistance between the specified points.  
Intake air temperature sensor pin 1 – Intake air temperature sensor pin 2

Intake air temperature sensor	
Resistance at: -20 °C (-4 °F)	18.80 k $\Omega$
Voltage at: -20 °C (-4 °F)	4.67 V
Resistance at: 20 °C (68 °F)	2.57 k $\Omega$
Voltage at: 20 °C (68 °F)	3.14 V
Resistance at: 40 °C (104 °F)	1.136 k $\Omega$
Voltage at: 40 °C (104 °F)	2.15 V
Resistance at: 100 °C (212 °F)	0.1553 k $\Omega$
Voltage at: 100 °C (212 °F)	0.46 V

- » If the specifications have not been met:
  - Change the intake air temperature sensor.
- » If the specifications have been met:
  - Check the next possible cause:  
Intake air temperature sensor – the signal wire has a short circuit to ground (terminal 31) (📖 p. 32)

#### Intake air temperature sensor – the signal wire has a short circuit to ground (terminal 31)

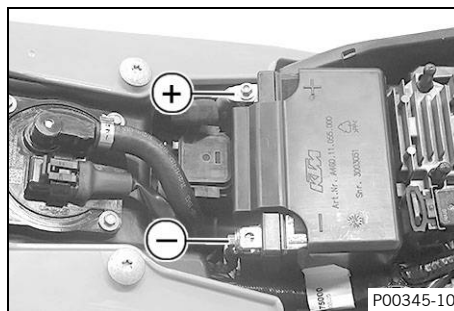
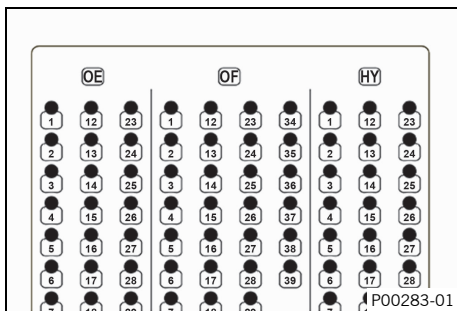
##### Condition

The diagnostics tool is disconnected.

Engine control unit is disconnected. (📖 p. 17)

The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.

The intake air temperature sensor is disconnected. (📖 p. 12)



#### Intake air temperature sensor – check the signal wire for a short circuit to ground (terminal 31).

- $\Omega$  Measure the resistance between the specified points.  
Break out box connector **HY** pin 19 – Measuring point **Ground (-)**

Resistance	$\infty \Omega$
------------	-----------------

- » If the specifications have not been met:
  - Check the cable from engine control unit connector **HY** (📖 p. 130) pin 19 to connector **CM** (📖 p. 127) pin 1 for a short circuit to ground (terminal 31).
- » If the specifications have been met:

- Check the next possible cause:  
Intake air temperature sensor – the signal wire has a short circuit to sensor ground (📖 p. 33)

## Intake air temperature sensor – the signal wire has a short circuit to sensor ground

### Condition


The diagnostics tool is disconnected.

Engine control unit is disconnected. (📖 p. 17)

The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.

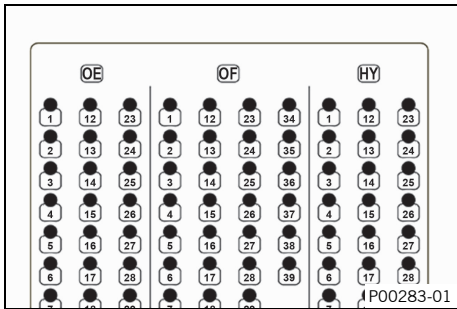
The intake air temperature sensor is disconnected. (📖 p. 12)

### Intake air temperature sensor – check the signal wire for a short circuit to sensor ground.

-  Measure the resistance between the specified points.  
Break out box connector **HY** pin **19** – Break out box connector **HY** pin **17**

Resistance	$\infty \Omega$
------------	-----------------

- » If the specifications have not been met:
  - Check cable from engine control unit connector **HY** (📖 p. 130) pin **19** to connector **CM** (📖 p. 127) pin **1** for a short circuit to sensor ground.



### 3 ENGINE CONTROL TROUBLE CODE

<b>Blink code for malfunction indicator lamp</b>	<b>Fi</b> 12 Malfunction indicator lamp flashes 1x long, 2x short
<b>Display on diagnostic tool</b>	P0115 <b>"Coolant temperature sensor"</b> <b>"Input signal too high"</b>
<b>Error level condition</b>	Coolant temperature sensor – input signal too high Voltage: $\geq 4.785$ V Time: $\geq 3$ s
<b>Function check</b>	Coolant temperature sensor – checking the voltage (🔧 p. 34)
<b>Possible cause</b>	Coolant temperature sensor - the value is not plausible (🔧 p. 35)
	Coolant temperature sensor – the signal wire is faulty (🔧 p. 36)
	Coolant temperature sensor – the ground wire is faulty (🔧 p. 37)
	Coolant temperature sensor – the signal wire has a short circuit to plus (terminal 30) (🔧 p. 37)
	Coolant temperature sensor – the signal wire has a short circuit to ignition plus (terminal 15) (🔧 p. 38)
	Coolant temperature sensor – the signal wire has a short circuit to the sensor power supply (🔧 p. 38)

#### Coolant temperature sensor – checking the voltage

##### Condition

The diagnostics tool is connected and running.

- Select **"Engine control unit" > "Measured values" > "Coolant temperature sensor voltage cylinder 1 (TWAD)"** and **"Coolant temperature sensor cylinder 1 (TW)"**.

Coolant temperature sensor	
Voltage at: -20 °C (-4 °F)	4.5 V
Voltage at: -10 °C (14 °F)	4.3 V
Voltage at: 0 °C (32 °F)	3.9 V
Voltage at: 10 °C (50 °F)	3.5 V
Voltage at: 20 °C (68 °F)	3.1 V
Voltage at: 30 °C (86 °F)	2.5 V
Voltage at: 40 °C (104 °F)	2.1 V
Voltage at: 50 °C (122 °F)	1.7 V
Voltage at: 60 °C (140 °F)	1.4 V
Voltage at: 70 °C (158 °F)	1.0 V
Voltage at: 80 °C (176 °F)	0.86 V
Voltage at: 90 °C (194 °F)	0.68 V
Voltage at: 100 °C (212 °F)	0.6 V
Voltage at: 110 °C (230 °F)	0.44 V
Voltage at: 120 °C (248 °F)	0.34 V

- » If the displayed value is equal to the setpoint value:
  - Clear the fault memory using the KTM diagnostics tool.
  - Take a test ride.
  - Read out the fault memory using the KTM diagnostics tool.
- » If the displayed value is above the setpoint value:
  - Check the next possible cause:  
Coolant temperature sensor - the value is not plausible (🔧 p. 35)

- Check the next possible cause:  
Coolant temperature sensor – the signal wire is faulty (🔧 p. 36)
- Check the next possible cause:  
Coolant temperature sensor – the ground wire is faulty (🔧 p. 37)
- Check the next possible cause:  
Coolant temperature sensor – the signal wire has a short circuit to plus (terminal 30) (🔧 p. 37)
- Check the next possible cause:  
Coolant temperature sensor – the signal wire has a short circuit to ignition plus (terminal 15) (🔧 p. 38)
- Check the next possible cause:  
Coolant temperature sensor – the signal wire has a short circuit to the sensor power supply (🔧 p. 38)

## Coolant temperature sensor - the value is not plausible

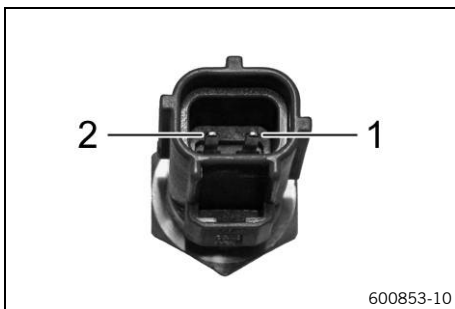
### Condition

The diagnostics tool is disconnected.

The coolant temperature sensor is disconnected. (🔧 p. 9)

### Coolant temperature sensor - check the resistance.

- $\Omega$  Measure the resistance between the specified points.  
Coolant temperature sensor pin 1 – Coolant temperature sensor pin 2



Coolant temperature sensor	
Resistance at: -20 °C (-4 °F)	13.50 ... 16.50 kΩ
Voltage at: -20 °C (-4 °F)	4.5 V
Resistance at: -10 °C (14 °F)	8.24 ... 10.08 kΩ
Voltage at: -10 °C (14 °F)	4.3 V
Resistance at: 0 °C (32 °F)	5.17 ... 6.31 kΩ
Voltage at: 0 °C (32 °F)	3.9 V
Resistance at: 10 °C (50 °F)	3.33 ... 4.07 kΩ
Voltage at: 10 °C (50 °F)	3.5 V
Resistance at: 20 °C (68 °F)	2.21 ... 2.70 kΩ
Voltage at: 20 °C (68 °F)	3.1 V
Resistance at: 30 °C (86 °F)	1.49 ... 1.83 kΩ
Voltage at: 30 °C (86 °F)	2.5 V
Resistance at: 40 °C (104 °F)	1.04 ... 1.27 kΩ
Voltage at: 40 °C (104 °F)	2.1 V
Resistance at: 50 °C (122 °F)	730 ... 892 Ω
Voltage at: 50 °C (122 °F)	1.7 V
Resistance at: 60 °C (140 °F)	526 ... 642 Ω

### 3 ENGINE CONTROL TROUBLE CODE

Voltage at: 60 °C (140 °F)	1.4 V
Resistance at: 70 °C (158 °F)	385 ... 471 Ω
Voltage at: 70 °C (158 °F)	1.0 V
Resistance at: 80 °C (176 °F)	286 ... 350 Ω
Voltage at: 80 °C (176 °F)	0.86 V
Resistance at: 90 °C (194 °F)	216 ... 264 Ω
Voltage at: 90 °C (194 °F)	0.68 V
Resistance at: 100 °C (212 °F)	165 ... 202 Ω
Voltage at: 100 °C (212 °F)	0.6 V
Resistance at: 110 °C (230 °F)	128 ... 156 Ω
Voltage at: 110 °C (230 °F)	0.44 V
Resistance at: 120 °C (248 °F)	100 ... 122 Ω
Voltage at: 120 °C (248 °F)	0.34 V

- › If the specifications have not been met:
  - Change the coolant temperature sensor.
- › If the specifications have been met:
  - Check the next possible cause:  
Coolant temperature sensor – the signal wire is faulty  
(🔧 p. 36)

#### Coolant temperature sensor – the signal wire is faulty

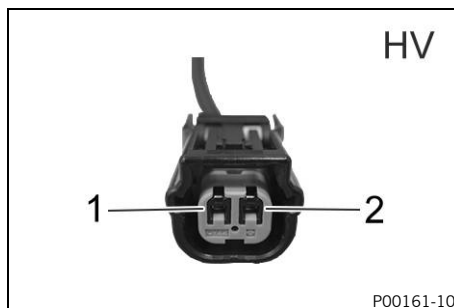
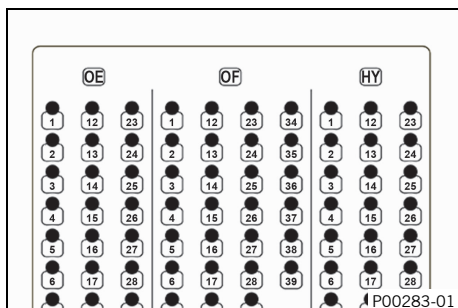
##### Condition

The diagnostics tool is disconnected.


Engine control unit is disconnected. (🔧 p. 17)

The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.

The coolant temperature sensor is disconnected. (🔧 p. 9)



##### Coolant temperature sensor – check the signal wire.

-  Measure the resistance between the specified points.  
Break out box connector **HY** pin **21** – Coolant temperature sensor connector **HV** pin **1**

Resistance	$\leq 0.6 \Omega$
------------	-------------------

- » If the specifications have not been met:
  - Check engine control unit connector **HY** (📖 p. 130) pin **21** and connector **HV** (📖 p. 129) pin **1**.
  - Check the cable from engine control unit connector **HY** (📖 p. 130) pin **21** to connector **HV** (📖 p. 129) pin **1**.
- » If the specifications have been met:
  - Check the next possible cause:  
Coolant temperature sensor – the ground wire is faulty (📖 p. 37)

### Coolant temperature sensor – the ground wire is faulty

#### Condition

The diagnostics tool is disconnected.

Engine control unit is disconnected. (📖 p. 17)

The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.

The coolant temperature sensor is disconnected. (📖 p. 9)

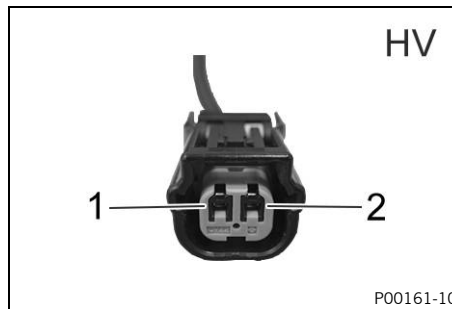
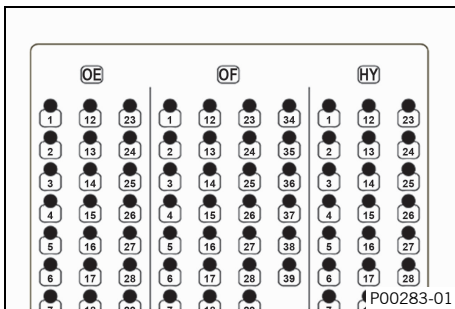
Induction manifold sensor is disconnected. (📖 p. 15)

Throttle valve position sensor circuit A is disconnected. (📖 p. 14)

The tilt sensor is disconnected. (📖 p. 16)

The intake air temperature sensor is disconnected. (📖 p. 12)

The gear position sensor is disconnected. (📖 p. 17)



#### Coolant temperature sensor – check the ground wire.

- Measure the resistance between the specified points.  
Break out box connector **HY** pin **17** – Coolant temperature sensor connector **HV** pin **2**

Resistance	$\leq 0.6 \Omega$
------------	-------------------

- » If the specifications have not been met:
  - Check engine control unit connector **HY** (📖 p. 130) pin **17** and connector **HV** (📖 p. 129) pin **2**.
  - Check the cable from engine control unit connector **HY** (📖 p. 130) pin **17** to connector **HV** (📖 p. 129) pin **2**.
- » If the specifications have been met:
  - Check the next possible cause:  
Coolant temperature sensor – the signal wire has a short circuit to plus (terminal 30) (📖 p. 37)

### Coolant temperature sensor – the signal wire has a short circuit to plus (terminal 30)

#### Condition

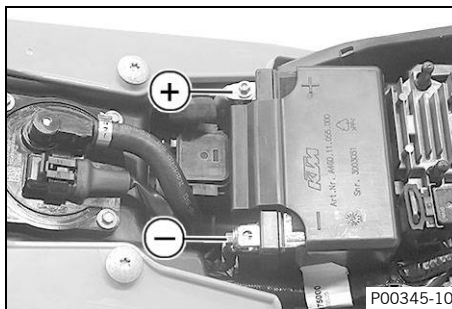
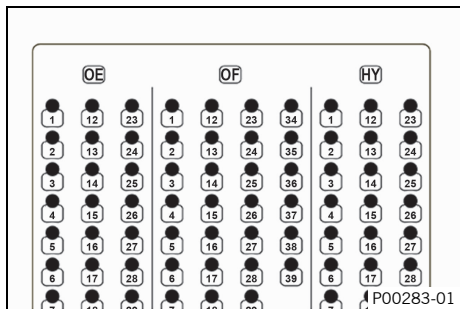
The diagnostics tool is disconnected.

Engine control unit is disconnected. (📖 p. 17)

The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.

The coolant temperature sensor is disconnected. (📖 p. 9)

### 3 ENGINE CONTROL TROUBLE CODE



#### Coolant temperature sensor – check the signal wire for a short circuit to plus (terminal 30).

- **V** Measure the voltage between the specified points.  
Break out box connector **HY** pin **21** – Measuring point **Ground (-)**

Voltage	≤ 0.1 V
---------	---------

- » If the specifications have not been met:
  - Check the cable from engine control unit connector **HY** (p. 130) pin **21** to connector **HV** (p. 129) pin **1** for a short circuit to plus (terminal 30).
- » If the specifications have been met:
  - Check the next possible cause:  
Coolant temperature sensor – the signal wire has a short circuit to ignition plus (terminal 15) (p. 38)

#### Coolant temperature sensor – the signal wire has a short circuit to ignition plus (terminal 15)

##### Condition

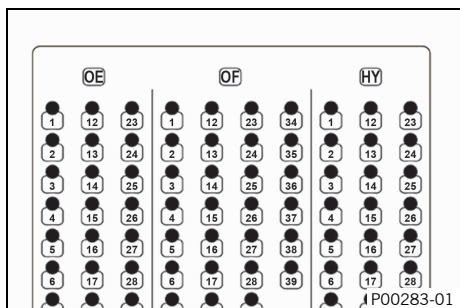
The diagnostics tool is disconnected.  
 Engine control unit is disconnected. (p. 17)  
 The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.  
 The coolant temperature sensor is disconnected. (p. 9)

#### Coolant temperature sensor – check the signal wire for a short circuit to ignition plus (terminal 15).

- **Ω** Measure the resistance between the specified points.  
Break out box connector **HY** pin **21** – Break out box connector **HY** pin **1**

Resistance	∞ Ω
------------	-----

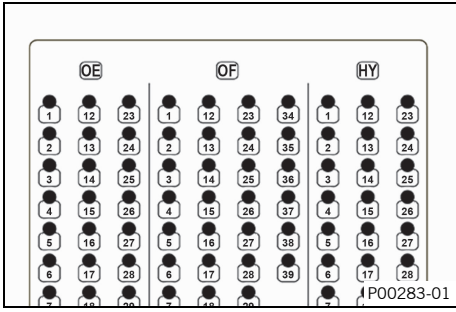
- » If the specifications have not been met:
  - Check the cable from engine control unit connector **HY** (p. 130) pin **21** to connector **HV** (p. 129) pin **1** for a short circuit to ignition plus (terminal 15).
- » If the specifications have been met:
  - Check the next possible cause:  
Coolant temperature sensor – the signal wire has a short circuit to the sensor power supply (p. 38)




#### Coolant temperature sensor – the signal wire has a short circuit to the sensor power supply

##### Condition

The diagnostics tool is disconnected.  
 Engine control unit is disconnected. (p. 17)  
 The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.  
 The coolant temperature sensor is disconnected. (p. 9)



**Coolant temperature sensor – check the signal wire for a short circuit to the sensor power supply.**

-  Measure the resistance between the specified points.  
Break out box connector **HY** pin **21** – Break out box connector **HY** pin **12**

Resistance	$\infty \Omega$
------------	-----------------

- » If the specifications have not been met:
  - Check the cable from engine control unit connector **HY** (📖 p. 130) pin **21** to connector **HV** (📖 p. 129) pin **1** for a short circuit to the sensor power supply.

### 3 ENGINE CONTROL TROUBLE CODE

<b>Blink code for malfunction indicator lamp</b>	<b>Fi</b> 12 Malfunction indicator lamp flashes 1x long, 2x short
<b>Display on diagnostic tool</b>	P0117 "Coolant temperature sensor" "Input signal too low"
<b>Error level condition</b>	Coolant temperature sensor – input signal too low Voltage: $\leq 0.137$ V Time: $\geq 3$ s
<b>Function check</b>	Coolant temperature sensor – checking the voltage (🔧 p. 40)
<b>Possible cause</b>	Coolant temperature sensor - the value is not plausible (🔧 p. 41)
	Coolant temperature sensor – the signal wire has a short circuit to ground (terminal 31) (🔧 p. 42)
	Coolant temperature sensor – the signal wire has a short circuit to sensor ground (🔧 p. 43)

#### Coolant temperature sensor – checking the voltage

##### Condition

The diagnostics tool is connected and running.

- Select "Engine control unit" > "Measured values" > "Coolant temperature sensor voltage cylinder 1 (TWAD)" and "Coolant temperature sensor cylinder 1 (TW)".

Coolant temperature sensor	
Voltage at: -20 °C (-4 °F)	4.5 V
Voltage at: -10 °C (14 °F)	4.3 V
Voltage at: 0 °C (32 °F)	3.9 V
Voltage at: 10 °C (50 °F)	3.5 V
Voltage at: 20 °C (68 °F)	3.1 V
Voltage at: 30 °C (86 °F)	2.5 V
Voltage at: 40 °C (104 °F)	2.1 V
Voltage at: 50 °C (122 °F)	1.7 V
Voltage at: 60 °C (140 °F)	1.4 V
Voltage at: 70 °C (158 °F)	1.0 V
Voltage at: 80 °C (176 °F)	0.86 V
Voltage at: 90 °C (194 °F)	0.68 V
Voltage at: 100 °C (212 °F)	0.6 V
Voltage at: 110 °C (230 °F)	0.44 V
Voltage at: 120 °C (248 °F)	0.34 V

- » If the displayed value is equal to the setpoint value:
  - Clear the fault memory using the KTM diagnostics tool.
  - Take a test ride.
  - Read out the fault memory using the KTM diagnostics tool.
- » If the displayed value is below the setpoint value:
  - Check the next possible cause:  
Coolant temperature sensor - the value is not plausible (🔧 p. 41)
  - Check the next possible cause:  
Coolant temperature sensor – the signal wire has a short circuit to ground (terminal 31) (🔧 p. 42)
  - Check the next possible cause:  
Coolant temperature sensor – the signal wire has a short circuit to sensor ground (🔧 p. 43)

## Coolant temperature sensor - the value is not plausible

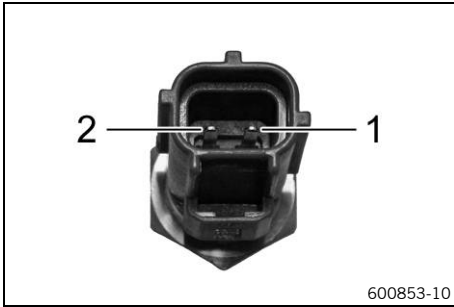
### Condition

The diagnostics tool is disconnected.

The coolant temperature sensor is disconnected. (🔧 p. 9)

### Coolant temperature sensor - check the resistance.

- $\Omega$  Measure the resistance between the specified points.  
Coolant temperature sensor pin 1 – Coolant temperature sensor pin 2



Coolant temperature sensor	
Resistance at: -20 °C (-4 °F)	13.50 ... 16.50 k $\Omega$
Voltage at: -20 °C (-4 °F)	4.5 V
Resistance at: -10 °C (14 °F)	8.24 ... 10.08 k $\Omega$
Voltage at: -10 °C (14 °F)	4.3 V
Resistance at: 0 °C (32 °F)	5.17 ... 6.31 k $\Omega$
Voltage at: 0 °C (32 °F)	3.9 V
Resistance at: 10 °C (50 °F)	3.33 ... 4.07 k $\Omega$
Voltage at: 10 °C (50 °F)	3.5 V
Resistance at: 20 °C (68 °F)	2.21 ... 2.70 k $\Omega$
Voltage at: 20 °C (68 °F)	3.1 V
Resistance at: 30 °C (86 °F)	1.49 ... 1.83 k $\Omega$
Voltage at: 30 °C (86 °F)	2.5 V
Resistance at: 40 °C (104 °F)	1.04 ... 1.27 k $\Omega$
Voltage at: 40 °C (104 °F)	2.1 V
Resistance at: 50 °C (122 °F)	730 ... 892 $\Omega$
Voltage at: 50 °C (122 °F)	1.7 V
Resistance at: 60 °C (140 °F)	526 ... 642 $\Omega$
Voltage at: 60 °C (140 °F)	1.4 V
Resistance at: 70 °C (158 °F)	385 ... 471 $\Omega$
Voltage at: 70 °C (158 °F)	1.0 V
Resistance at: 80 °C (176 °F)	286 ... 350 $\Omega$
Voltage at: 80 °C (176 °F)	0.86 V
Resistance at: 90 °C (194 °F)	216 ... 264 $\Omega$

### 3 ENGINE CONTROL TROUBLE CODE

Voltage at: 90 °C (194 °F)	0.68 V
Resistance at: 100 °C (212 °F)	165 ... 202 Ω
Voltage at: 100 °C (212 °F)	0.6 V
Resistance at: 110 °C (230 °F)	128 ... 156 Ω
Voltage at: 110 °C (230 °F)	0.44 V
Resistance at: 120 °C (248 °F)	100 ... 122 Ω
Voltage at: 120 °C (248 °F)	0.34 V

- » If the specifications have not been met:
  - Change the coolant temperature sensor.
- » If the specifications have been met:
  - Check the next possible cause:  
Coolant temperature sensor – the signal wire has a short circuit to ground (terminal 31) (📖 p. 42)

#### Coolant temperature sensor – the signal wire has a short circuit to ground (terminal 31)

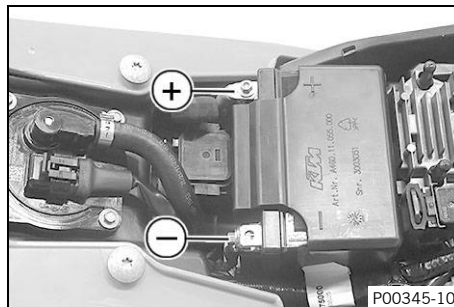
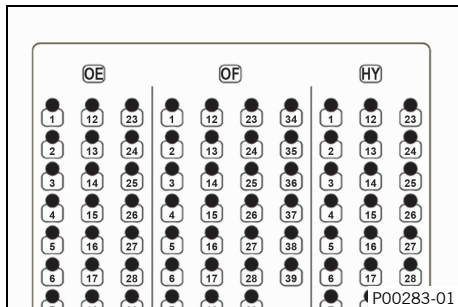
##### Condition

The diagnostics tool is disconnected.

Engine control unit is disconnected. (📖 p. 17)

The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.

The coolant temperature sensor is disconnected. (📖 p. 9)



##### Coolant temperature sensor – check the signal wire for a short circuit to ground (terminal 31).

- Measure the resistance between the specified points.  
Break out box connector **HY** pin **21** – Measuring point **Ground (-)**

Resistance	$\infty \Omega$
------------	-----------------

- » If the specifications have not been met:
  - Check the cable from engine control unit connector **HY** (📖 p. 130) pin **21** to connector **HV** (📖 p. 129) pin **1** for a short circuit to ground (terminal 31).
- » If the specifications have been met:
  - Check the next possible cause:  
Coolant temperature sensor – the signal wire has a short circuit to sensor ground (📖 p. 43)

## Coolant temperature sensor – the signal wire has a short circuit to sensor ground

### Condition


The diagnostics tool is disconnected.

Engine control unit is disconnected. (📖 p. 17)

The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.

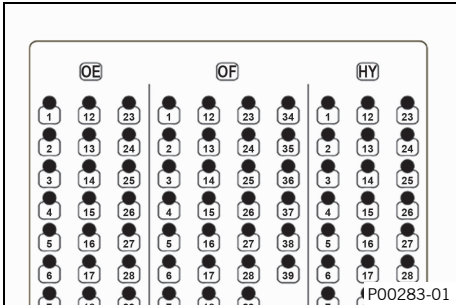
The coolant temperature sensor is disconnected. (📖 p. 9)

### Coolant temperature sensor – check the signal wire for a short circuit to sensor ground.


-  Measure the resistance between the specified points.  
Break out box connector **HY** pin **21** – Break out box connector **HY** pin **17**

Resistance	$\infty \Omega$
------------	-----------------

- » If the specifications have not been met:
  - Check cable from engine control unit connector **HY** (📖 p. 130) pin **21** to connector **HV** (📖 p. 129) pin **1** for a short circuit to sensor ground.



### 3 ENGINE CONTROL TROUBLE CODE

<b>Blink code for malfunction indicator lamp</b>	 06 Malfunction indicator lamp flashes 6x short
<b>Display on diagnostic tool</b>	P0120 <b>"Circuit A throttle valve position sensor"</b> <b>"Input signal too low"</b>
<b>Error level condition</b>	Throttle valve position sensor circuit A – input signal too low Voltage: $\leq 0.352$ V Time: $\geq 3$ s
<b>Function check</b>	Throttle valve position sensor circuit A - checking the voltage (📖 p. 44)
<b>Possible cause</b>	Throttle valve position sensor circuit A – signal wire is faulty (📖 p. 44)
	Throttle valve position sensor circuit A – the signal wire has a short circuit to ground (terminal 31) (📖 p. 45)
	Throttle valve position sensor circuit A – the signal wire has a short circuit to sensor ground (📖 p. 46)
	Throttle valve position sensor circuit A – the power supply is faulty (📖 p. 46)

#### Throttle valve position sensor circuit A - checking the voltage

##### Condition

The diagnostics tool is connected and running.

- Select **"Engine control unit" > "Measured values" > "Throttle position sensor circuit A voltage (THAD)"**.

Throttle valve position sensor circuit A	
Voltage <b>"THAD"</b>	0.4 ... 4.58 V

- » If the displayed value is equal to the setpoint value:
  - Clear the fault memory using the KTM diagnostics tool.
  - Take a test ride.
  - Read out the fault memory using the KTM diagnostics tool.
- » If the displayed value is below the setpoint value:
  - Check the next possible cause:  
Throttle valve position sensor circuit A – signal wire is faulty (📖 p. 44)
  - Check the next possible cause:  
Throttle valve position sensor circuit A – the signal wire has a short circuit to ground (terminal 31) (📖 p. 45)
  - Check the next possible cause:  
Throttle valve position sensor circuit A – the signal wire has a short circuit to sensor ground (📖 p. 46)
  - Check the next possible cause:  
Throttle valve position sensor circuit A – the power supply is faulty (📖 p. 46)

#### Throttle valve position sensor circuit A – signal wire is faulty

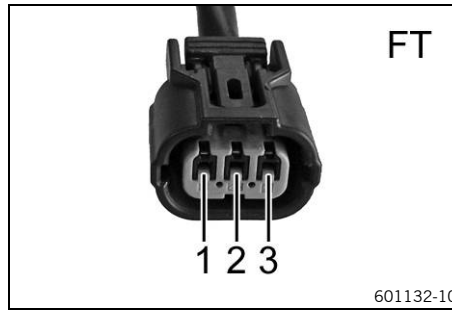
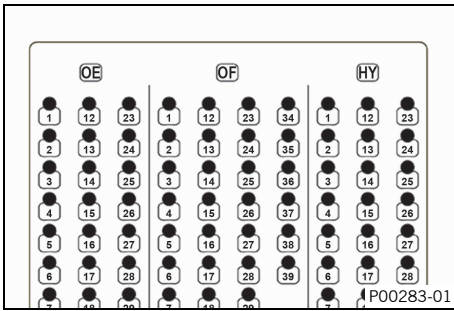
##### Condition

The diagnostics tool is disconnected.

Engine control unit is disconnected. (📖 p. 17)

The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.

Throttle valve position sensor circuit A is disconnected. (📖 p. 14)



### Throttle valve position sensor circuit A – check the signal wire.

- Measure the resistance between the specified points.  
Break out box connector **HY** pin 15 – Throttle valve position sensor circuit A, connector **FT** pin 2

Resistance	≤ 0.6 Ω
------------	---------

- » If the specifications have not been met:
  - Check engine control unit connector **HY** (p. 130) pin 15 and connector **FT** (p. 128) pin 2.
  - Check the cable from engine control unit connector **HY** (p. 130) pin 15 to connector **FT** (p. 128) pin 2.
- » If the specifications have been met:
  - Check the next possible cause:  
Throttle valve position sensor circuit A – the signal wire has a short circuit to ground (terminal 31) (p. 45)

### Throttle valve position sensor circuit A – the signal wire has a short circuit to ground (terminal 31)

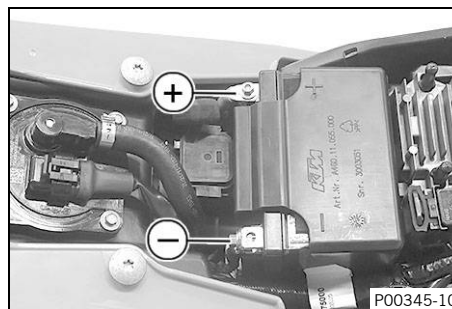
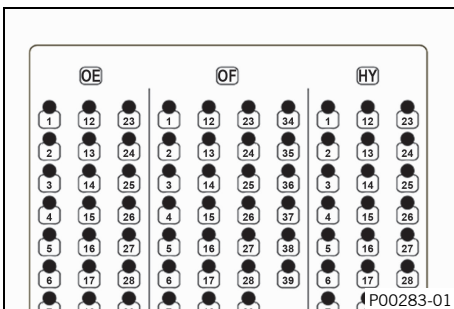
#### Condition

The diagnostics tool is disconnected.

Engine control unit is disconnected. (p. 17)

The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.

Throttle valve position sensor circuit A is disconnected. (p. 14)



### Throttle valve position sensor circuit A – check the signal wire for a short circuit to ground (terminal 31).

- Measure the resistance between the specified points.  
Break out box connector **HY** pin 15 – Measuring point **Ground (-)**

Resistance	∞ Ω
------------	-----

- » If the specifications have not been met:
  - Check the cable from engine control unit connector **HY** (p. 130) pin 15 to connector **FT** (p. 128) pin 2 for a short circuit to ground (terminal 31).
- » If the specifications have been met:
  - Check the next possible cause:  
Throttle valve position sensor circuit A – the signal wire has a short circuit to sensor ground (p. 46)

## Throttle valve position sensor circuit A – the signal wire has a short circuit to sensor ground

### Condition


The diagnostics tool is disconnected.

Engine control unit is disconnected. (📖 p. 17)

The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.

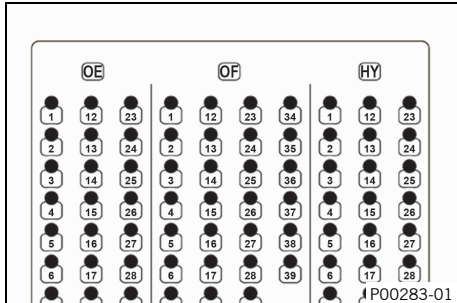
Throttle valve position sensor circuit A is disconnected. (📖 p. 14)

### Throttle valve position sensor circuit A – check the signal wire for a short circuit to sensor ground.

-  Measure the resistance between the specified points.  
Break out box connector **HY** pin **15** – Break out box connector **HY** pin **17**

Resistance	$\infty \Omega$
------------	-----------------

- » If the specifications have not been met:
  - Check cable from engine control unit connector **HY** (📖 p. 130) pin **15** to connector **FT** (📖 p. 128) pin **2** for a short circuit to sensor ground.
- » If the specifications have been met:
  - Check the next possible cause:  
Throttle valve position sensor circuit A – the power supply is faulty (📖 p. 46)



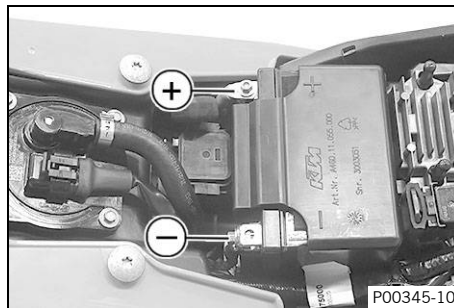
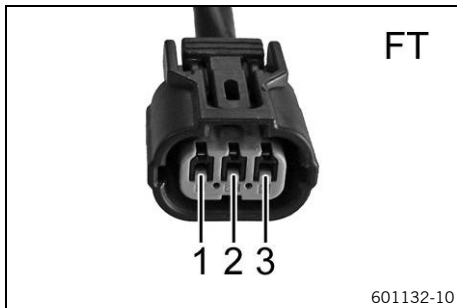
## Throttle valve position sensor circuit A – the power supply is faulty

### Condition


The diagnostics tool is connected and running.

Engine control unit is connected. (📖 p. 17)

Throttle valve position sensor circuit A is disconnected. (📖 p. 14)



### Throttle valve position sensor circuit A – check the power supply.

-  Measure the voltage between the specified points.  
Throttle valve position sensor circuit A, connector **FT** pin **1** – Measuring point **Ground (-)**

### Info

For the measurement, the measuring points must be subjected to a 12 V/21 W bulb.

Voltage	4.9 ... 5.1 V
---------	---------------

- » If the specifications have not been met:
  - Check the cable from connector **FT** (📖 p. 128) pin **1** to engine control unit connector **HY** (📖 p. 130) pin **12**.

<b>Blink code for malfunction indicator lamp</b>	<b>Fi</b> 06 Malfunction indicator lamp flashes 6x short
<b>Display on diagnostic tool</b>	P0123 <b>"Circuit A throttle valve position sensor"</b> <b>"Input signal too high"</b>
<b>Error level condition</b>	Throttle valve position sensor circuit A – input signal too high Voltage: $\geq 4.785$ V Time: $\geq 3$ s
<b>Function check</b>	Throttle valve position sensor circuit A - checking the voltage (📖 p. 47)
<b>Possible cause</b>	Throttle valve position sensor circuit A – the signal wire has a short circuit to plus (terminal 30) (📖 p. 47)
	Throttle valve position sensor circuit A – the signal wire has a short circuit to ignition plus (terminal 15) (📖 p. 48)
	Throttle valve position sensor circuit A – the signal wire has a short circuit to the sensor power supply (📖 p. 49)
	Throttle valve position sensor circuit A – ground wire is faulty (📖 p. 49)

### Throttle valve position sensor circuit A - checking the voltage

#### Condition

The diagnostics tool is connected and running.

- Select **"Engine control unit" > "Measured values" > "Throttle position sensor circuit A voltage (THAD)"**.

Throttle valve position sensor circuit A	
Voltage <b>"THAD"</b>	0.4 ... 4.58 V

- » If the displayed value is equal to the setpoint value:
  - Clear the fault memory using the KTM diagnostics tool.
  - Take a test ride.
  - Read out the fault memory using the KTM diagnostics tool.
- » If the displayed value is above the setpoint value:
  - Check the next possible cause:  
Throttle valve position sensor circuit A – the signal wire has a short circuit to plus (terminal 30) (📖 p. 47)
  - Check the next possible cause:  
Throttle valve position sensor circuit A – the signal wire has a short circuit to ignition plus (terminal 15) (📖 p. 48)
  - Check the next possible cause:  
Throttle valve position sensor circuit A – the signal wire has a short circuit to the sensor power supply (📖 p. 49)
  - Check the next possible cause:  
Throttle valve position sensor circuit A – ground wire is faulty (📖 p. 49)

### Throttle valve position sensor circuit A – the signal wire has a short circuit to plus (terminal 30)

#### Condition

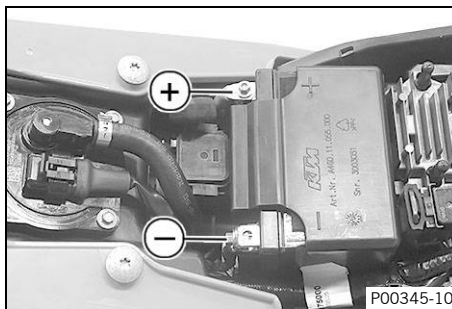
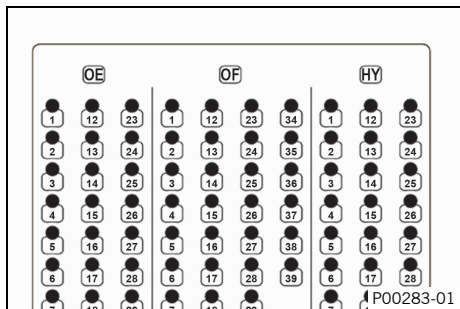
The diagnostics tool is disconnected.

Engine control unit is disconnected. (📖 p. 17)

The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.

Throttle valve position sensor circuit A is disconnected. (📖 p. 14)

### 3 ENGINE CONTROL TROUBLE CODE



#### Throttle valve position sensor circuit A – check the signal wire for a short circuit to plus (terminal 30).

- **V** Measure the voltage between the specified points.  
Break out box connector **HY** pin **15** – Measuring point **Ground (-)**

Voltage	≤ 0.1 V
---------	---------

- » If the specifications have not been met:
  - Check the cable from engine control unit connector **HY** (p. 130) pin **15** to connector **FT** (p. 128) pin **2** for a short circuit to plus (terminal 30).
- » If the specifications have been met:
  - Check the next possible cause:  
Throttle valve position sensor circuit A – the signal wire has a short circuit to ignition plus (terminal 15) (p. 48)

#### Throttle valve position sensor circuit A – the signal wire has a short circuit to ignition plus (terminal 15)

##### Condition

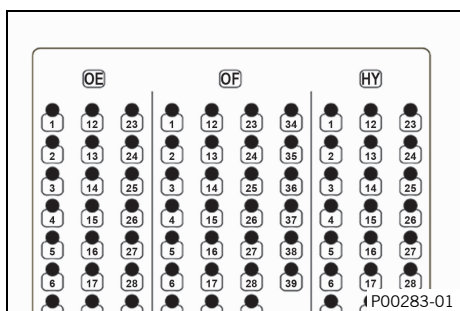
The diagnostics tool is disconnected.  
 Engine control unit is disconnected. (p. 17)  
 The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.  
 Throttle valve position sensor circuit A is disconnected. (p. 14)

#### Throttle valve position sensor circuit A – check the signal wire for a short circuit to ignition plus (terminal 15).

- **Ω** Measure the resistance between the specified points.  
Break out box connector **HY** pin **15** – Break out box connector **HY** pin **1**

Resistance	∞ Ω
------------	-----

- » If the specifications have not been met:
  - Check the cable from engine control unit connector **HY** (p. 130) pin **15** to connector **FT** (p. 128) pin **2** for a short circuit to ignition plus (terminal 15).
- » If the specifications have been met:
  - Check the next possible cause:  
Throttle valve position sensor circuit A – the signal wire has a short circuit to the sensor power supply (p. 49)



## Throttle valve position sensor circuit A – the signal wire has a short circuit to the sensor power supply

### Condition


The diagnostics tool is disconnected.

Engine control unit is disconnected. (📖 p. 17)

The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.

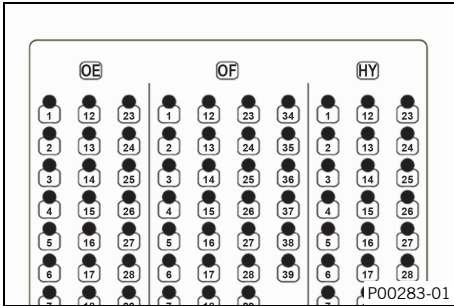
Throttle valve position sensor circuit A is disconnected. (📖 p. 14)

### Throttle valve position sensor circuit A – check the signal wire for a short circuit to the sensor power supply.

-  Measure the resistance between the specified points.  
Break out box connector **HY** pin **15** – Break out box connector **HY** pin **12**

Resistance	$\infty \Omega$
------------	-----------------

- » If the specifications have not been met:
  - Check the cable from engine control unit connector **HY** (📖 p. 130) pin **15** to connector **FT** (📖 p. 128) pin **2** for a short circuit to the sensor power supply.
- » If the specifications have been met:
  - Check the next possible cause:  
Throttle valve position sensor circuit A – ground wire is faulty (📖 p. 49)



## Throttle valve position sensor circuit A – ground wire is faulty

### Condition

The diagnostics tool is disconnected.

Engine control unit is disconnected. (📖 p. 17)

The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.

Throttle valve position sensor circuit A is disconnected. (📖 p. 14)

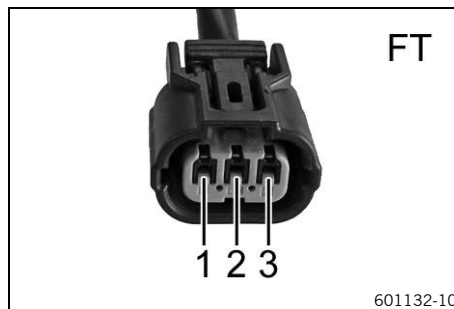
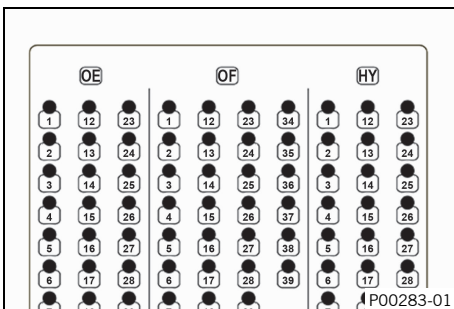
Induction manifold sensor is disconnected. (📖 p. 15)

The coolant temperature sensor is disconnected. (📖 p. 9)


The tilt sensor is disconnected. (📖 p. 16)

The intake air temperature sensor is disconnected. (📖 p. 12)

The gear position sensor is disconnected. (📖 p. 17)



### Throttle valve position sensor circuit A – check the ground wire.

-  Measure the resistance between the specified points.  
Break out box connector **HY** pin **17** – Throttle valve position sensor circuit A, connector **FT** pin **3**

Resistance	$\leq 0.6 \Omega$
------------	-------------------

- » If the specifications have not been met:
  - Check engine control unit connector **HY** (📖 p. 130) pin **17** and connector **FT** (📖 p. 128) pin **3**.

### 3 ENGINE CONTROL TROUBLE CODE

- Check the cable from engine control unit connector **HY** (📖 p. 130) pin **17** to connector **FT** (📖 p. 128) pin **3**.

<b>Blink code for malfunction indicator lamp</b>	<b>Fi</b> 33 Malfunction indicator lamp flashes 3x long, 3x short
<b>Display on diagnostic tool</b>	P0201 <b>"Injection valve cylinder 1"</b> <b>"Circuit fault"</b>
<b>Error level condition</b>	Injection valve cylinder 1 – circuit fault Time: ≥ 2.0 s
<b>Function check</b>	Injection valve cylinder 1 – checking the control (📖 p. 51)
<b>Possible cause</b>	Injection valve cylinder 1 - the value is not plausible (📖 p. 52)
	Injection valve cylinder 1 – the power supply is faulty (📖 p. 52)
	Injection valve, cylinder 1 – the control wire has a short circuit to plus (terminal 30) (📖 p. 53)
	Injection valve cylinder 1 – the control wire has a short circuit to ignition plus (terminal 15) (📖 p. 53)
	Injection valve cylinder 1 – the control wire has a short circuit to the sensor power supply (📖 p. 54)
	Injection valve cylinder 1 – the control wire is faulty (📖 p. 54)
	Injection valve, cylinder 1 – the control wire has a short circuit to ground (terminal 31) (📖 p. 55)
	Injection valve cylinder 1 – the control wire has a short circuit to sensor ground (📖 p. 55)

## Injection valve cylinder 1 – checking the control

### Condition

The diagnostics tool is connected and running.

- Execute **"Engine control unit" > "Actuator test" > "Injection valve cylinder 1"**.

Injector	Operating noise
----------	-----------------

- » If the specified value is reached:
  - Clear the fault memory using the KTM diagnostics tool.
  - Take a test ride.
  - Read out the fault memory using the KTM diagnostics tool.
- » If the specification is not reached:
  - Check the next possible cause:  
Injection valve cylinder 1 - the value is not plausible (📖 p. 52)
  - Check the next possible cause:  
Injection valve cylinder 1 – the power supply is faulty (📖 p. 52)
  - Check the next possible cause:  
Injection valve, cylinder 1 – the control wire has a short circuit to plus (terminal 30) (📖 p. 53)
  - Check the next possible cause:  
Injection valve cylinder 1 – the control wire has a short circuit to ignition plus (terminal 15) (📖 p. 53)
  - Check the next possible cause:  
Injection valve cylinder 1 – the control wire has a short circuit to the sensor power supply (📖 p. 54)
  - Check the next possible cause:  
Injection valve cylinder 1 – the control wire is faulty (📖 p. 54)
  - Check the next possible cause:  
Injection valve, cylinder 1 – the control wire has a short circuit to ground (terminal 31) (📖 p. 55)
  - Check the next possible cause:  
Injection valve cylinder 1 – the control wire has a short circuit to sensor ground (📖 p. 55)

## Injection valve cylinder 1 - the value is not plausible



400598-10

### Condition

Injection valve cylinder 1 is disconnected. (📖 p. 13)

### Injection valve cylinder 1 - check the resistance.

- $\Omega$  Measure the resistance between the specified points.  
Injection valve, cylinder 1 pin 1 – Injection valve, cylinder 1 pin 2

Injector	
Resistance at: 20 °C (68 °F)	9.97 ... 11.03 $\Omega$

- » If the specifications have not been met:
  - Change the injector.
- » If the specifications have been met:
  - Check the next possible cause:  
Injection valve cylinder 1 – the power supply is faulty (📖 p. 52)

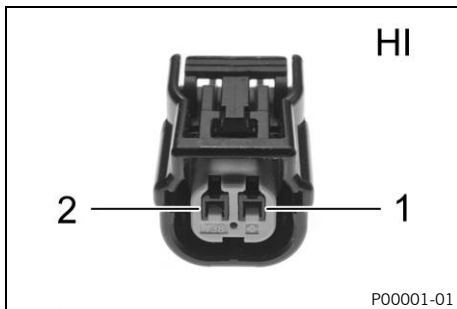
## Injection valve cylinder 1 – the power supply is faulty

### Condition

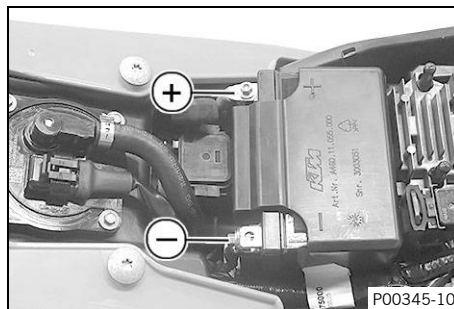
The diagnostics tool is connected and running.

Engine control unit is connected. (📖 p. 17)

Injection valve cylinder 1 is disconnected. (📖 p. 13)



P00001-01



P00345-10

### Injection valve, cylinder 1 – check the power supply.

- **V** Measure the voltage between the specified points.  
Injection valve cylinder 1, connector **HI** pin 2 – Measuring point **Ground (-)**

### **i** Info

For the measurement, the measuring points must be subjected to a 12-V/21 W bulb load.

The value must not deviate from the battery voltage "VBAT" by more than 1 V.

- » If the specifications have not been met:
  - Check connector **HI** (📖 p. 129) pin 2.
  - Check the cable from connector **HI** (📖 p. 129) pin 2 to the next node in the wiring harness.
- » If the specifications have been met:
  - Check the next possible cause:  
Injection valve, cylinder 1 – the control wire has a short circuit to plus (terminal 30) (📖 p. 53)

## Injection valve, cylinder 1 – the control wire has a short circuit to plus (terminal 30)

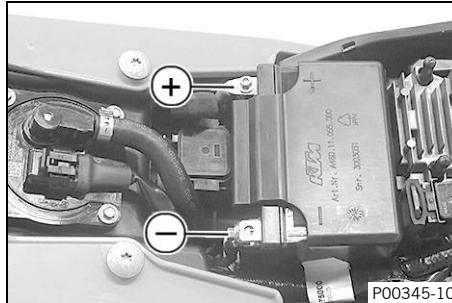
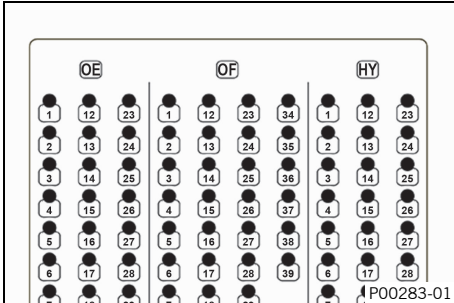
### Condition

The diagnostics tool is disconnected.

Engine control unit is disconnected. (📖 p. 17)

The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.

Injection valve cylinder 1 is disconnected. (📖 p. 13)



### Injection valve cylinder 1 – check the control wire for a short circuit to plus (terminal 30).

- **V** Measure the voltage between the specified points.  
Break out box connector **HY** pin 4 – Measuring point **Ground (-)**

Voltage	< 0.1 V
---------	---------

- » If the specifications have not been met:
  - Check the cable from engine control unit connector **HY** (📖 p. 130) pin 4 to connector **HI** (📖 p. 129) pin 1 for a short circuit to plus (terminal 30).
- » If the specifications have been met:
  - Check the next possible cause:  
Injection valve cylinder 1 – the control wire has a short circuit to ignition plus (terminal 15) (📖 p. 53)

## Injection valve cylinder 1 – the control wire has a short circuit to ignition plus (terminal 15)

### Condition

The diagnostics tool is disconnected.

Engine control unit is disconnected. (📖 p. 17)

The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.

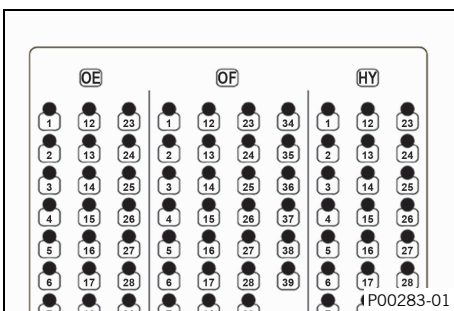
Injection valve cylinder 1 is disconnected. (📖 p. 13)

### Injection valve cylinder 1 – check the control wire for a short circuit to ignition plus (terminal 15).

- **Ω** Measure the resistance between the specified points.  
Break out box connector **HY** pin 4 – Break out box connector **HY** pin 1

Resistance	$\infty \Omega$
------------	-----------------

- » If the specifications have not been met:
  - Check the cable from engine control unit connector **HY** (📖 p. 130) pin 4 to connector **HI** (📖 p. 129) pin 1 for a short circuit to ignition plus (terminal 15).
- » If the specifications have been met:
  - Check the next possible cause:  
Injection valve cylinder 1 – the control wire has a short circuit to the sensor power supply (📖 p. 54)



## Injection valve cylinder 1 – the control wire has a short circuit to the sensor power supply

### Condition


The diagnostics tool is disconnected.

Engine control unit is disconnected. (📖 p. 17)

The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.

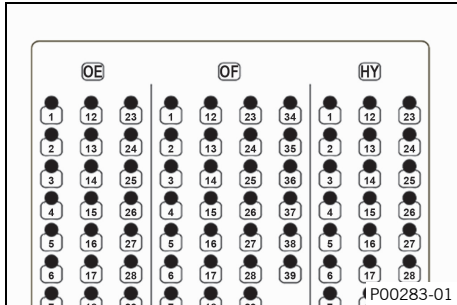
Injection valve cylinder 1 is disconnected. (📖 p. 13)

### Injection valve cylinder 1 – check the control wire for a short circuit to the sensor power supply.

-  Measure the resistance between the specified points.  
Break out box connector **HY** pin **4** – Break out box connector **HY** pin **12**

Resistance	$\infty \Omega$
------------	-----------------

- » If the specifications have not been met:
  - Check the cable from engine control unit connector **HY** (📖 p. 130) pin **4** to connector **HI** (📖 p. 129) pin **1** for a short circuit to the sensor power supply.
- » If the specifications have been met:
  - Check the next possible cause:  
Injection valve cylinder 1 – the control wire is faulty (📖 p. 54)



## Injection valve cylinder 1 – the control wire is faulty

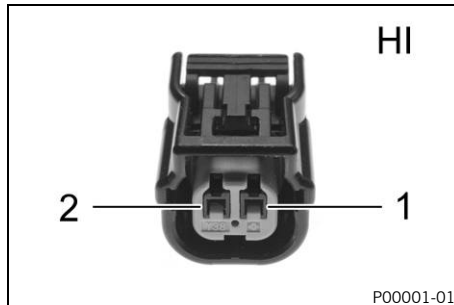
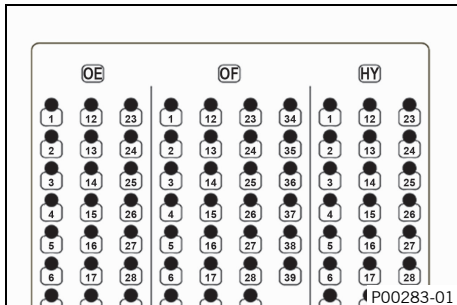
### Condition

The diagnostics tool is disconnected.


Engine control unit is disconnected. (📖 p. 17)

The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.

Injection valve cylinder 1 is disconnected. (📖 p. 13)



### Injection valve cylinder 1 – check the control wire.

-  Measure the resistance between the specified points.  
Break out box connector **HY** pin **4** – Injection valve cylinder 1, connector **HI** pin **1**

Resistance	$\leq 0.6 \Omega$
------------	-------------------

- » If the specifications have not been met:
  - Check engine control unit connector **HY** (📖 p. 130) pin **4** and connector **HI** (📖 p. 129) pin **1**.
  - Check the cable from engine control unit connector **HY** (📖 p. 130) pin **4** to connector **HI** (📖 p. 129) pin **1**.
- » If the specifications have been met:
  - Check the next possible cause:  
Injection valve, cylinder 1 – the control wire has a short circuit to ground (terminal 31) (📖 p. 55)

## Injection valve, cylinder 1 – the control wire has a short circuit to ground (terminal 31)

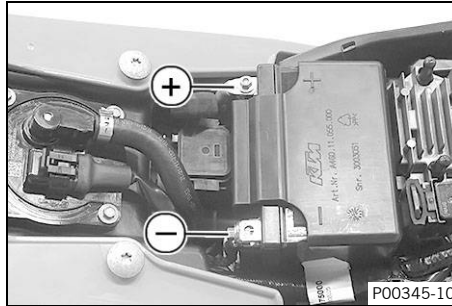
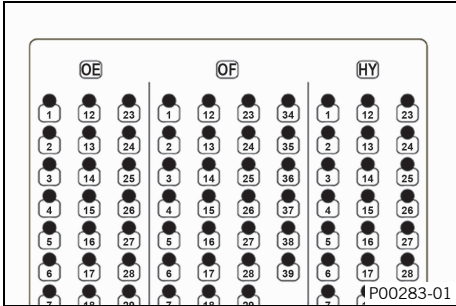
### Condition

The diagnostics tool is disconnected.

Engine control unit is disconnected. (📖 p. 17)

The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.

Injection valve cylinder 1 is disconnected. (📖 p. 13)



### Injection valve cylinder 1 – check the control wire for a short circuit to ground (terminal 31).

- Measure the resistance between the specified points.  
Break out box connector **HY** pin 4 – Measuring point **Ground (-)**

Resistance	$\infty \Omega$
------------	-----------------

- » If the specifications have not been met:
  - Check the cable from engine control unit connector **HY** (📖 p. 130) pin 4 to connector **HI** (📖 p. 129) pin 1 for a short circuit to ground (terminal 31).
- » If the specifications have been met:
  - Check the next possible cause:  
Injection valve cylinder 1 – the control wire has a short circuit to sensor ground (📖 p. 55)

## Injection valve cylinder 1 – the control wire has a short circuit to sensor ground

### Condition

The diagnostics tool is disconnected.

Engine control unit is disconnected. (📖 p. 17)

The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.

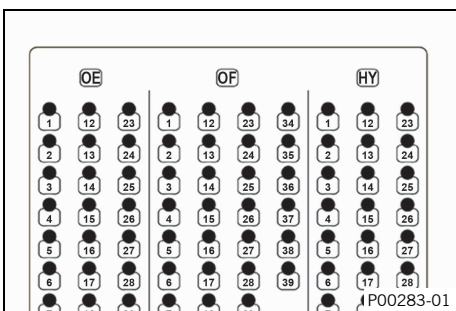
Injection valve cylinder 1 is disconnected. (📖 p. 13)

### Injection valve cylinder 1 – check the control wire for a short circuit to sensor ground.

- Measure the resistance between the specified points.  
Break out box connector **HY** pin 4 – Break out box connector **HY** pin 17

Resistance	$\infty \Omega$
------------	-----------------

- » If the specifications have not been met:
  - Check cable from engine control unit connector **HY** (📖 p. 130) pin 4 to connector **HI** (📖 p. 129) pin 1 for a short circuit to sensor ground.



### 3 ENGINE CONTROL TROUBLE CODE

<b>Blink code for malfunction indicator lamp</b>	<b>Fi</b> 02 Malfunction indicator lamp flashes 2x short
<b>Display on diagnostic tool</b>	P0335 <b>"Crankshaft speed sensor"</b> <b>"Circuit fault"</b>
<b>Error level condition</b>	Crankshaft speed sensor – circuit fault The induction manifold pressure sensor delivers a normal signal (engine running), while the crankshaft speed sensor does not generate any signal at all. Time: ≥ 2.0 s
<b>Function check</b>	Crankshaft speed sensor – checking the signal (🔧 p. 56)
<b>Possible cause</b>	Crankshaft speed sensor - the value is not plausible (🔧 p. 57)
	Crankshaft speed sensor - short circuit to ground (🔧 p. 57)
	Crankshaft speed sensor – signal wires are faulty (🔧 p. 58)
	Crankshaft speed sensor – the signal wires have a short circuit to ground (terminal 31) (🔧 p. 58)
	Crankshaft speed sensor – the signal wires have a short circuit to sensor ground (🔧 p. 59)
	Crankshaft speed sensor – the signal wires have a short circuit to plus (terminal 30) (🔧 p. 59)
	Crankshaft speed sensor – the signal wires have a short circuit to ignition plus (terminal 15) (🔧 p. 60)
	Crankshaft speed sensor – the signal wire has a short circuit to the sensor power supply (🔧 p. 60)

#### Crankshaft speed sensor – checking the signal

##### Condition

The diagnostics tool is connected and running.

- Select **"Engine control unit" > "Measured values" > "Engine speed (NE)"**.
- Execute the start procedure.

<b>"Engine speed (NE)"</b>	Starter speed
----------------------------	---------------

- » If the specified value is reached:
  - Clear the fault memory using the KTM diagnostics tool.
  - Take a test ride.
  - Read out the fault memory using the KTM diagnostics tool.
- » If the specification is not reached:
  - Check the next possible cause:  
Crankshaft speed sensor - the value is not plausible (🔧 p. 57)
  - Check the next possible cause:  
Crankshaft speed sensor - short circuit to ground (🔧 p. 57)
  - Check the next possible cause:  
Crankshaft speed sensor – signal wires are faulty (🔧 p. 58)
  - Check the next possible cause:  
Crankshaft speed sensor – the signal wires have a short circuit to ground (terminal 31) (🔧 p. 58)
  - Check the next possible cause:  
Crankshaft speed sensor – the signal wires have a short circuit to sensor ground (🔧 p. 59)
  - Check the next possible cause:  
Crankshaft speed sensor – the signal wires have a short circuit to plus (terminal 30) (🔧 p. 59)
  - Check the next possible cause:

Crankshaft speed sensor – the signal wires have a short circuit to ignition plus (terminal 15)  
 (📖 p. 60)


- Check the next possible cause:  
 Crankshaft speed sensor – the signal wire has a short circuit to the sensor power supply (📖 p. 60)

## Crankshaft speed sensor - the value is not plausible

### Condition

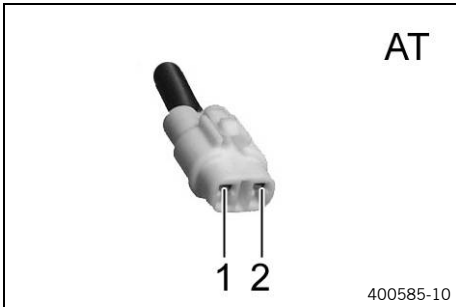
Crankshaft speed sensor is disconnected. (📖 p. 11)

### Crankshaft speed sensor - check the resistance.

-  Measure the resistance between the specified points.  
 Crankshaft speed sensor connector **AT** pin 1 –  
 Crankshaft speed sensor connector **AT** pin 2

Crankshaft speed sensor	
Resistance at: 20 °C (68 °F)	80 ... 120 Ω

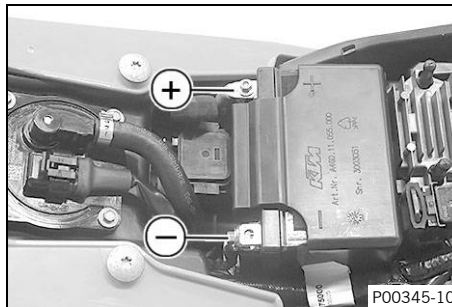
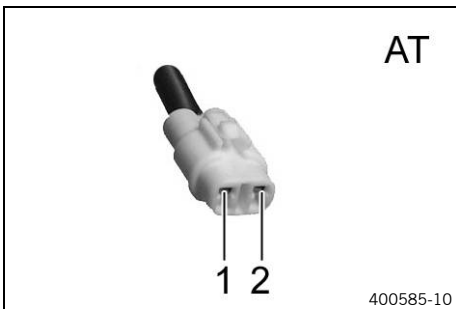
- » If the specifications have not been met:
  - Change the crankshaft speed sensor.
- » If the specifications have been met:
  - Check the next possible cause:  
 Crankshaft speed sensor - short circuit to ground  
 (📖 p. 57)




## Crankshaft speed sensor - short circuit to ground

### Condition

Crankshaft speed sensor is disconnected. (📖 p. 11)



### Crankshaft speed sensor - check the resistance.

-  Measure the resistance between the specified points.  
 Crankshaft speed sensor connector **AT** pin 1 – Measuring point **Ground (-)**

Resistance	∞ Ω
------------	-----

- » If the specifications have not been met:
  - Change the crankshaft speed sensor.
- » If the specifications have been met:
  - Check the next possible cause:  
 Crankshaft speed sensor – signal wires are faulty (📖 p. 58)

## Crankshaft speed sensor – signal wires are faulty

### Condition


The diagnostics tool is disconnected.

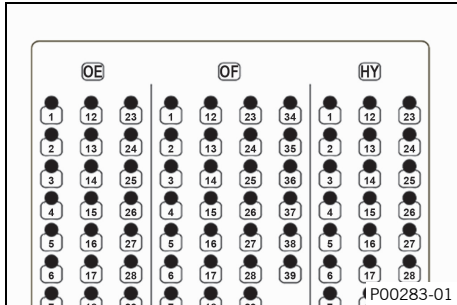
Engine control unit is disconnected. (📖 p. 17)

The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.

Crankshaft speed sensor is connected. (📖 p. 11)

### Crankshaft speed sensor – check the signal wire.

-  Measure the resistance between the specified points.  
Break out box connector **HY** pin **24** – Break out box connector **HY** pin **23**



Crankshaft speed sensor	
Resistance at: 20 °C (68 °F)	80 ... 120 Ω

- » If the specifications have not been met:
  - Check engine control unit connector **HY** (📖 p. 130) pin **24** and pin **23**.
  - Check connector **IF** (📖 p. 130) pin **2** and connector **IF** (📖 p. 130) pin **1**.
  - Check the cable from engine control unit connector **HY** (📖 p. 130) pin **24** to connector **IF** (📖 p. 130) pin **2**.
  - Check the cable from engine control unit connector **HY** (📖 p. 130) pin **23** to connector **IF** (📖 p. 130) pin **1**.
- » If the specifications have been met:
  - Check the next possible cause:  
Crankshaft speed sensor – the signal wires have a short circuit to ground (terminal 31) (📖 p. 58)

## Crankshaft speed sensor – the signal wires have a short circuit to ground (terminal 31)

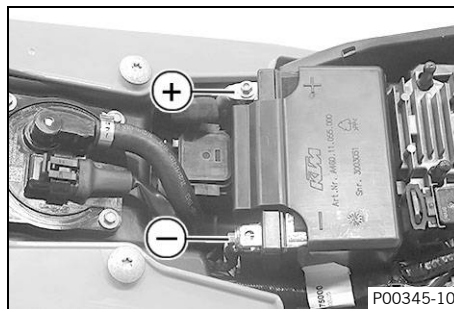
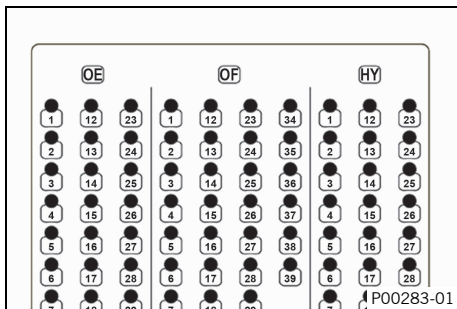
### Condition

The diagnostics tool is disconnected.


Engine control unit is disconnected. (📖 p. 17)

The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.

Crankshaft speed sensor is connected. (📖 p. 11)



### Crankshaft speed sensor – check the signal wires for a short circuit to ground (terminal 31).

-  Measure the resistance between the specified points.  
Break out box connector **HY** pin **24** – Measuring point **Ground (-)**

Resistance	∞ Ω
------------	-----

- » If the specifications have not been met:

- Check the cable from engine control unit connector **HY** (📖 p. 130) pin **24** to connector **IF** (📖 p. 130) pin **2** for a short circuit to ground (terminal 31).
- Check the cable from engine control unit connector **HY** (📖 p. 130) pin **23** to connector **IF** (📖 p. 130) pin **1** for a short circuit to ground (terminal 31).
- » If the specifications have been met:
  - Check the next possible cause:
    - Crankshaft speed sensor – the signal wires have a short circuit to sensor ground (📖 p. 59)

## Crankshaft speed sensor – the signal wires have a short circuit to sensor ground

### Condition


The diagnostics tool is disconnected.

Engine control unit is disconnected. (📖 p. 17)

The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.

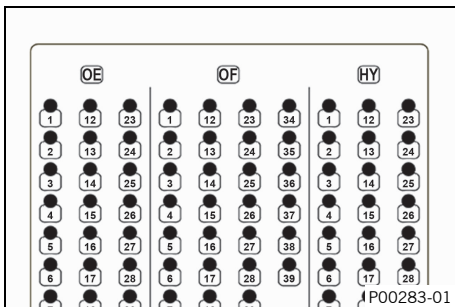
Crankshaft speed sensor is connected. (📖 p. 11)

### Crankshaft speed sensor – check the signal wires for a short circuit to sensor ground.

-  Measure the resistance between the specified points.  
Break out box connector **HY** pin **24** – Break out box connector **HY** pin **17**

Resistance	$\infty \Omega$
------------	-----------------

- » If the specifications have not been met:
  - Check cable from engine control unit connector **HY** (📖 p. 130) pin **24** to connector **IF** (📖 p. 130) pin **2** for a short circuit to sensor ground.
  - Check cable from engine control unit connector **HY** (📖 p. 130) pin **23** to connector **IF** (📖 p. 130) pin **1** for a short circuit to sensor ground.
- » If the specifications have been met:
  - Check the next possible cause:
    - Crankshaft speed sensor – the signal wires have a short circuit to plus (terminal 30) (📖 p. 59)



## Crankshaft speed sensor – the signal wires have a short circuit to plus (terminal 30)

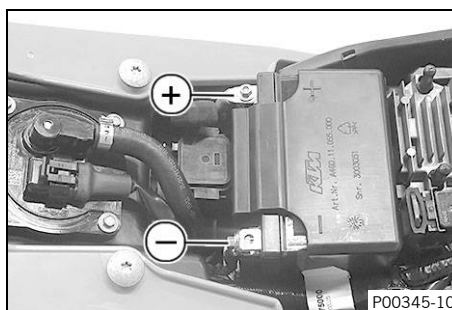
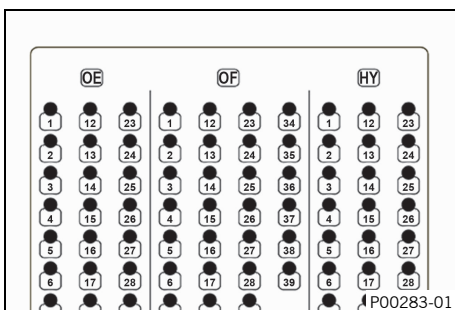
### Condition

The diagnostics tool is disconnected.


Engine control unit is disconnected. (📖 p. 17)

The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.

Crankshaft speed sensor is connected. (📖 p. 11)



### Crankshaft speed sensor – check the signal wires for a short circuit to plus (terminal 30).

-  Measure the voltage between the specified points.  
Break out box connector **HY** pin **24** – Measuring point **Ground (-)**

### 3 ENGINE CONTROL TROUBLE CODE

Voltage	< 0.1 V
---------	---------

- » If the specifications have not been met:
  - Check the cable from engine control unit connector **HY** (📖 p. 130) pin **24** to connector **IF** (📖 p. 130) pin **2** for a short circuit to plus (terminal 30).
  - Check the cable from engine control unit connector **HY** (📖 p. 130) pin **23** to connector **IF** (📖 p. 130) pin **1** for a short circuit to plus (terminal 30).
- » If the specifications have been met:
  - Check the next possible cause:  
Crankshaft speed sensor – the signal wires have a short circuit to ignition plus (terminal 15) (📖 p. 60)

#### Crankshaft speed sensor – the signal wires have a short circuit to ignition plus (terminal 15)

##### Condition


The diagnostics tool is disconnected.

Engine control unit is disconnected. (📖 p. 17)

The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.

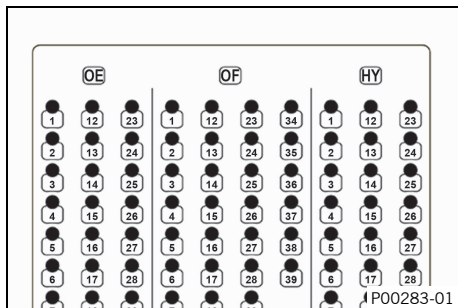
Crankshaft speed sensor is connected. (📖 p. 11)

##### Crankshaft speed sensor – check the signal wire for a short circuit to ignition plus (terminal 15).

-  Measure the resistance between the specified points.  
Break out box connector **HY** pin **24** – Break out box connector **HY** pin **1**

Resistance	$\infty \Omega$
------------	-----------------

- » If the specifications have not been met:
  - Check the cable from engine control unit connector **HY** (📖 p. 130) pin **24** to connector **IF** (📖 p. 130) pin **2** for a short circuit to ignition plus (terminal 15).
  - Check the cable from engine control unit connector **HY** (📖 p. 130) pin **23** to connector **IF** (📖 p. 130) pin **1** for a short circuit to ignition plus (terminal 15).
- » If the specifications have been met:
  - Check the next possible cause:  
Crankshaft speed sensor – the signal wire has a short circuit to the sensor power supply (📖 p. 60)



#### Crankshaft speed sensor – the signal wire has a short circuit to the sensor power supply

##### Condition


The diagnostics tool is disconnected.

Engine control unit is disconnected. (📖 p. 17)

The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.

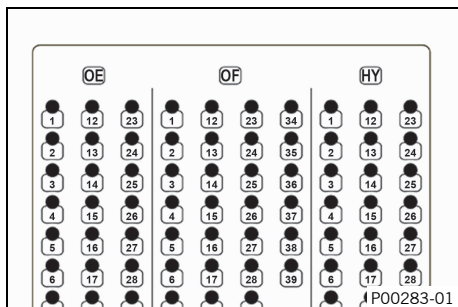
Crankshaft speed sensor is connected. (📖 p. 11)

##### Crankshaft speed sensor – check the signal wire for a short circuit to the sensor power supply.

-  Measure the resistance between the specified points.  
Break out box connector **HY** pin **24** – Break out box connector **HY** pin **12**

Resistance	$\infty \Omega$
------------	-----------------

- » If the specifications have not been met:



- Check the cable from engine control unit connector **HY** (📖 p. 130) pin **24** to connector **IF** (📖 p. 130) pin **2** for a short circuit to the sensor power supply.
- Check the cable from engine control unit connector **HY** (📖 p. 130) pin **23** to connector **IF** (📖 p. 130) pin **1** for a short circuit to the sensor power supply.

### 3 ENGINE CONTROL TROUBLE CODE

<b>Blink code for malfunction indicator lamp</b>	<b>Fi</b> 37 Malfunction indicator lamp flashes 3x long, 7x short
<b>Display on diagnostic tool</b>	P0351 "Ignition coil" "Circuit fault"
<b>Error level condition</b>	Ignition coil – circuit fault Time: ≥ 2.0 s
<b>Function check</b>	Checking the ignition coil (📖 p. 62)
<b>Possible cause</b>	Ignition coil - the value is not plausible (📖 p. 62)
	Ignition coil - the value is not plausible (📖 p. 63)
	Ignition coil – control wire is faulty (📖 p. 63)
	Ignition coil – the control wire has a short circuit to ground (terminal 31) (📖 p. 64)
	Ignition coil – control wire has a short circuit to plus (terminal 30) (📖 p. 64)
	Ignition coil – the control wire has a short circuit to the sensor power supply (📖 p. 65)

#### Checking the ignition coil

##### Condition

The diagnostics tool is connected and running.

- Execute **"Engine control unit" > "Actuator test" > "Ignition cylinder 1, spark plug 1"**.

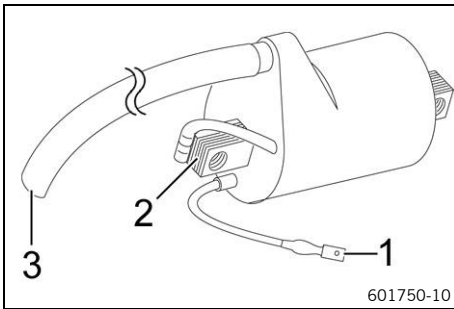
Spark plug	Operating noise
------------	-----------------

- » If the specified value is reached:
  - Clear the fault memory using the KTM diagnostics tool.
  - Take a test ride.
  - Read out the fault memory using the KTM diagnostics tool.
- » If the specification is not reached:
  - Check the next possible cause:  
Ignition coil - the value is not plausible (📖 p. 62)
  - Check the next possible cause:  
Ignition coil - the value is not plausible (📖 p. 63)
  - Check the next possible cause:  
Ignition coil – control wire is faulty (📖 p. 63)
  - Check the next possible cause:  
Ignition coil – the control wire has a short circuit to ground (terminal 31) (📖 p. 64)
  - Check the next possible cause:  
Ignition coil – control wire has a short circuit to plus (terminal 30) (📖 p. 64)
  - Check the next possible cause:  
Ignition coil – the control wire has a short circuit to the sensor power supply (📖 p. 65)

#### Ignition coil - the value is not plausible

##### Condition

The ignition coil is disconnected. (📖 p. 11)



### Ignition coil - check the resistance.

- $\Omega$  Measure the resistance between the specified points.  
Ignition coil pin 1 (+) – Ignition coil pin 2 (-)

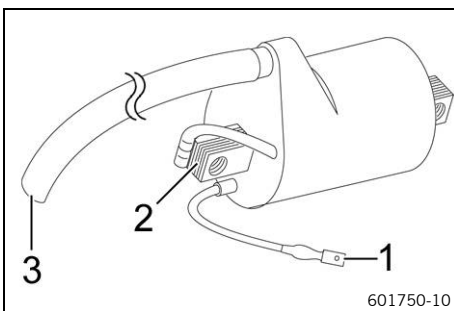
Ignition coil	
Primary winding resistance at: 20 °C (68 °F)	0.425 ... 0.575 $\Omega$

- » If the specifications have not been met:
  - Change the ignition coil.
- » If the specifications have been met:
  - Check the next possible cause:  
Ignition coil - the value is not plausible (🔧 p. 63)

### Ignition coil - the value is not plausible

#### Condition

The ignition coil is disconnected. (🔧 p. 11)



### Ignition coil - check the resistance.

- $\Omega$  Measure the resistance between the specified points.  
Ignition coil pin 1 (+) – Ignition coil pin 3

Ignition coil	
Secondary winding resistance at: 20 °C (68 °F)	11.075 ... 15.525 k $\Omega$

- » If the specifications have not been met:
  - Change the ignition coil.
- » If the specifications have been met:
  - Check the next possible cause:  
Ignition coil – control wire is faulty (🔧 p. 63)

### Ignition coil – control wire is faulty

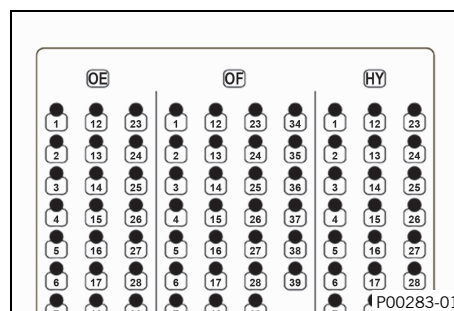
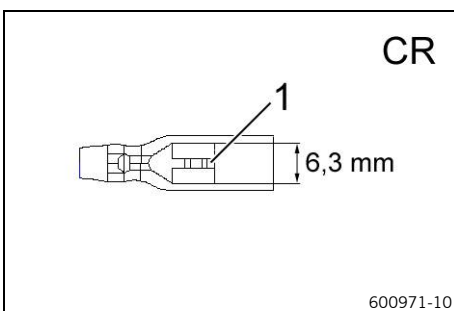
#### Condition

The diagnostics tool is disconnected.

Engine control unit is disconnected. (🔧 p. 17)

The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.

The ignition coil is disconnected. (🔧 p. 11)



### Ignition coil - check the control wire.

- $\Omega$  Measure the resistance between the specified points.  
Ignition coil, connector **CR** pin 1 – Break out box connector **HY** pin 11

Resistance	0.6 $\Omega$
------------	--------------

- » If the specifications have not been met:
  - Check engine control unit connector **HY** (🔧 p. 130) pin 11 and connector **CR** (🔧 p. 127) pin 1.

### 3 ENGINE CONTROL TROUBLE CODE

- Check the cable from engine control unit connector **HY** (📖 p. 130) pin **11** to connector **CR** (📖 p. 127) pin **1**.
- » If the specifications have been met:
  - Check the next possible cause:
    - Ignition coil – the control wire has a short circuit to ground (terminal 31) (📖 p. 64)

#### Ignition coil – the control wire has a short circuit to ground (terminal 31)

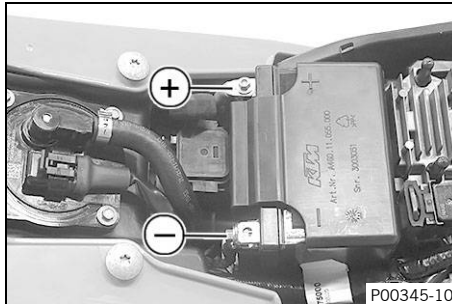
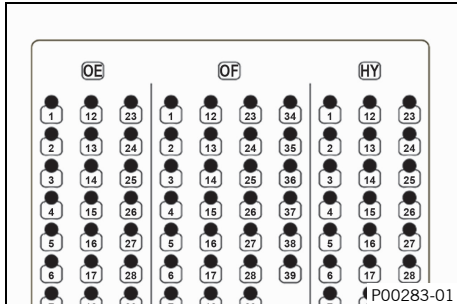
##### Condition

The diagnostics tool is disconnected.

Engine control unit is disconnected. (📖 p. 17)

The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.

The ignition coil is disconnected. (📖 p. 11)



#### Ignition coil – check the control wire for a short circuit to ground (terminal 31).

- Measure the resistance between the specified points.  
Break out box connector **HY** pin **11** – Measuring point **Ground (-)**

Resistance	$\infty \Omega$
------------	-----------------

- » If the specifications have not been met:
  - Check the cable from engine control unit connector **HY** (📖 p. 130) pin **11** to connector **CR** (📖 p. 127) pin **1** for a short circuit to ground (terminal 31).
- » If the specifications have been met:
  - Check the next possible cause:
    - Ignition coil – control wire has a short circuit to plus (terminal 30) (📖 p. 64)

#### Ignition coil – control wire has a short circuit to plus (terminal 30)

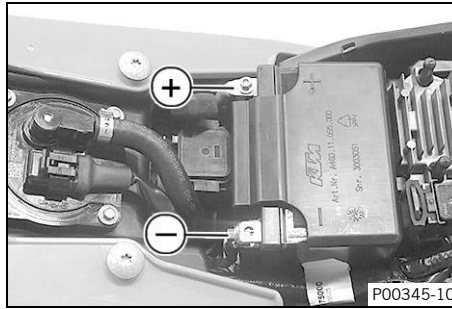
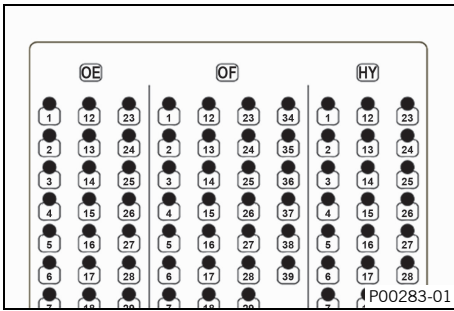
##### Condition

The diagnostics tool is disconnected.

Engine control unit is disconnected. (📖 p. 17)

The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.

The ignition coil is disconnected. (📖 p. 11)



**Ignition coil - check the control wire for a short circuit to plus (terminal 30).**

- **V** Measure the voltage between the specified points.  
Break out box connector **HY** pin 11 – Measuring point **Ground (-)**

Voltage	< 0.1 V
---------	---------

- » If the specifications have not been met:
  - Check the cable from engine control unit connector **HY** (p. 130) pin 11 to connector **CR** (p. 127) pin 1 for a short circuit to plus (terminal 30).
- » If the specifications have been met:
  - Check the next possible cause:  
Ignition coil – the control wire has a short circuit to the sensor power supply (p. 65)

**Ignition coil – the control wire has a short circuit to the sensor power supply**

**Condition**

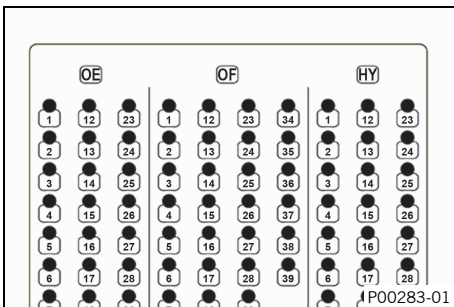
Engine control unit is disconnected. (p. 17)  
 The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.  
 The ignition coil is disconnected. (p. 11)

**Ignition coil – check the control wire for a short circuit downstream of the sensor power supply.**

- **Ω** Measure the resistance between the specified points.  
Break out box connector **HY** pin 11 – Break out box connector **HY** pin 12

Resistance	$\infty \Omega$
------------	-----------------

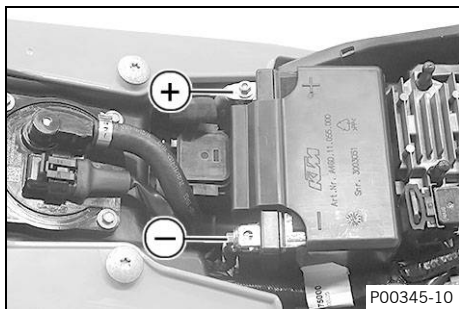
- » If the specifications have not been met:
  - Check the cable from engine control unit connector **HY** (p. 130) pin 11 to connector **CR** (p. 127) pin 1 for a short circuit to the sensor power supply.



### 3 ENGINE CONTROL TROUBLE CODE

<b>Blink code for malfunction indicator lamp</b>	<b>Fi</b> 65 Malfunction indicator lamp flashes 6x long, 5x short
<b>Display on diagnostic tool</b>	P0603 "EEPROM" "Malfunction"
<b>Error level condition</b>	EEPROM – malfunction Read data and write data are different.
<b>Function check</b>	Resetting the engine control unit (📖 p. 66)
<b>Last measure if none of the documented causes leads to elimination of the fault</b>	– Contact customer service.

#### Resetting the engine control unit



- Disconnect the negative terminal of the 12-V battery.
- Wait for 10 minutes.
- Connect the negative terminal of the 12-V battery.
- Clear the fault memory using the KTM diagnostics tool.
- Read out the fault memory using the KTM diagnostics tool.
  - » If the malfunction persists:
    - Change the engine control unit.

**Last measure if none of the documented causes leads to elimination of the fault**

- Contact customer service.

<b>Blink code for malfunction indicator lamp</b>	<div style="border: 1px solid black; padding: 2px; display: inline-block; font-weight: bold; font-size: 1.2em;">Fi</div> 22 Malfunction indicator lamp flashes 2x long, 2x short
<b>Display on diagnostic tool</b>	P0914 <b>"Gear position sensor"</b> <b>"Input signal too low"</b>
<b>Error level condition</b>	Gear position sensor – input signal too low Time: ≥ 0.1 s
<b>Function check</b>	Checking the gear position sensor (📖 p. 67)
<b>Possible cause</b>	Gear position sensor – the signal wire has a short circuit to ground (terminal 31) (📖 p. 67)
	Gear position sensor – the signal wire has a short circuit to sensor ground (📖 p. 68)
<b>Last measure if none of the documented causes leads to elimination of the fault</b>	– Change the gear position sensor.

## Checking the gear position sensor

### Condition

The diagnostics tool is connected and running.

- Select **"Engine control unit" > "Measured values" > "Gear position sensor voltage (GPAD)"** and **"Gear position sensor (GP)"**.

Gear position sensor voltage	
Gear 1	0.525 ... 0.725 V
Gear N	0.910 ... 1.090 V
Gear 2	1.275 ... 1.475 V
Gear 3	2.025 ... 2.225 V
Gear 4	2.775 ... 2.975 V
Gear 5	3.525 ... 3.725 V

- » If the displayed value is equal to the setpoint value:
  - Clear the fault memory using the KTM diagnostics tool.
  - Take a test ride.
  - Read out the fault memory using the KTM diagnostics tool.
- » If the displayed value is below the setpoint value:
  - Check the next possible cause:  
 Gear position sensor – the signal wire has a short circuit to ground (terminal 31) (📖 p. 67)
  - Check the next possible cause:  
 Gear position sensor – the signal wire has a short circuit to sensor ground (📖 p. 68)

## Gear position sensor – the signal wire has a short circuit to ground (terminal 31)

### Condition

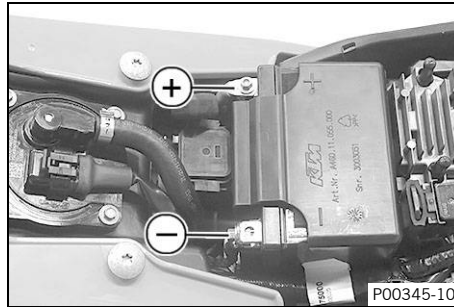
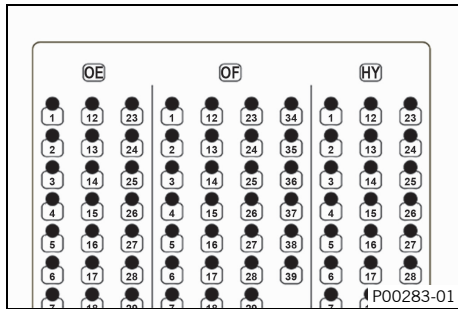
The diagnostics tool is disconnected.

Engine control unit is disconnected. (📖 p. 17)

The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.

The gear position sensor is disconnected. (📖 p. 17)

### 3 ENGINE CONTROL TROUBLE CODE



#### Gear position sensor – check the signal wire for a short circuit to ground (terminal 31).

- Measure the resistance between the specified points.  
Break out box connector **HY** pin **18** – Measuring point **Ground (-)**

Resistance	$\infty \Omega$
------------	-----------------

- » If the specifications have not been met:
  - Check the cable from engine control unit connector **HY** (p. 130) pin **18** to connector **JM** (p. 131) pin **2** for a short circuit to ground (terminal 31).
- » If the specifications have been met:
  - Check the next possible cause:  
Gear position sensor – the signal wire has a short circuit to sensor ground (p. 68)

#### Gear position sensor – the signal wire has a short circuit to sensor ground

##### Condition

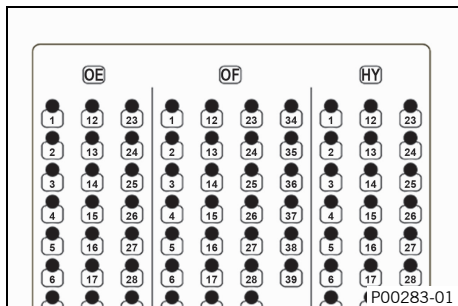
The diagnostics tool is disconnected.  
 Engine control unit is disconnected. (p. 17)  
 The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.  
 The gear position sensor is disconnected. (p. 17)

#### Gear position sensor - check the signal wire for a short circuit to sensor ground.

- Measure the resistance between the specified points.  
Break out box connector **HY** pin **18** – Break out box connector **HY** pin **17**

Resistance	$\infty \Omega$
------------	-----------------

- » If the specifications have not been met:
  - Check cable from engine control unit connector **HY** (p. 130) pin **18** to connector **JM** (p. 131) pin **2** for a short circuit to sensor ground.
- » If the specifications have been met:
  - Change the gear position sensor.



<b>Blink code for malfunction indicator lamp</b>	<b>Fi</b> 22 Malfunction indicator lamp flashes 2x long, 2x short
<b>Display on diagnostic tool</b>	P0917 <b>"Gear position sensor"</b> <b>"Input signal too high"</b>
<b>Error level condition</b>	Gear position sensor – input signal too high Time: ≥ 0.1 s
<b>Function check</b>	Checking the gear position sensor (📖 p. 69)
<b>Possible cause</b>	Gear position sensor – the signal wire is faulty (📖 p. 70)
	Gear position sensor – the ground wire is faulty (📖 p. 70)
	Gear position sensor – the power supply is faulty (📖 p. 71)
	Gear position sensor – the signal wire has a short circuit to plus (terminal 30) (📖 p. 72)
	Gear position sensor – the signal wire has a short circuit to ignition plus (terminal 15) (📖 p. 72)
	Gear position sensor – the signal wire has a short circuit to the sensor power supply (📖 p. 73)
<b>Last measure if none of the documented causes leads to elimination of the fault</b>	– Change the gear position sensor.

## Checking the gear position sensor

### Condition

The diagnostics tool is connected and running.

- Select **"Engine control unit" > "Measured values" > "Gear position sensor voltage (GPAD)"** and **"Gear position sensor (GP)"**.

Gear position sensor voltage	
Gear 1	0.525 ... 0.725 V
Gear N	0.910 ... 1.090 V
Gear 2	1.275 ... 1.475 V
Gear 3	2.025 ... 2.225 V
Gear 4	2.775 ... 2.975 V
Gear 5	3.525 ... 3.725 V

- » If the displayed value is equal to the setpoint value:
  - Clear the fault memory using the KTM diagnostics tool.
  - Take a test ride.
  - Read out the fault memory using the KTM diagnostics tool.
- » If the displayed value is below the setpoint value:
  - Check the next possible cause:  
Gear position sensor – the signal wire is faulty (📖 p. 70)
  - Check the next possible cause:  
Gear position sensor – the ground wire is faulty (📖 p. 70)
  - Check the next possible cause:  
Gear position sensor – the power supply is faulty (📖 p. 71)
  - Check the next possible cause:  
Gear position sensor – the signal wire has a short circuit to plus (terminal 30) (📖 p. 72)
  - Check the next possible cause:  
Gear position sensor – the signal wire has a short circuit to ignition plus (terminal 15) (📖 p. 72)

### 3 ENGINE CONTROL TROUBLE CODE

- Check the next possible cause:  
Gear position sensor – the signal wire has a short circuit to the sensor power supply (📖 p. 73)

#### Gear position sensor – the signal wire is faulty

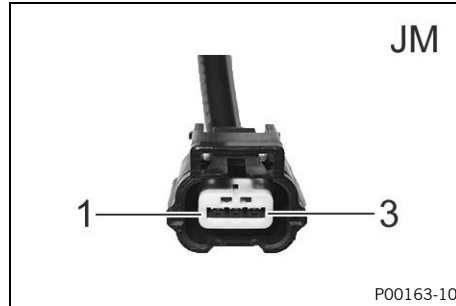
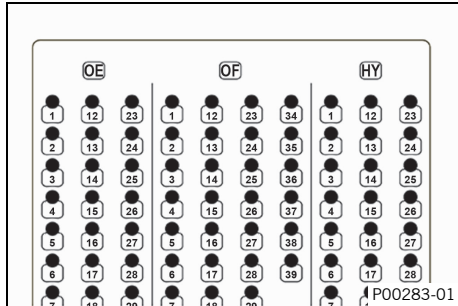
##### Condition

The diagnostics tool is disconnected.


Engine control unit is disconnected. (📖 p. 17)

The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.

The gear position sensor is disconnected. (📖 p. 17)



##### Gear position sensor – check the signal wire.

-  Measure the resistance between the specified points.  
Break out box connector **HY** pin **18** – Gear position sensor, connector **JM** pin **2**

Resistance	$\leq 0.6 \Omega$
------------	-------------------

- » If the specifications have not been met:
  - Check engine control unit connector **HY** (📖 p. 130) pin **18** and connector **JM** (📖 p. 131) pin **2**.
  - Check the cable from engine control unit connector **HY** (📖 p. 130) pin **18** to connector **JM** (📖 p. 131) pin **2**.
- » If the specifications have been met:
  - Check the next possible cause:  
Gear position sensor – the ground wire is faulty (📖 p. 70)

#### Gear position sensor – the ground wire is faulty

##### Condition

The diagnostics tool is disconnected.

Engine control unit is disconnected. (📖 p. 17)

The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.

The gear position sensor is disconnected. (📖 p. 17)

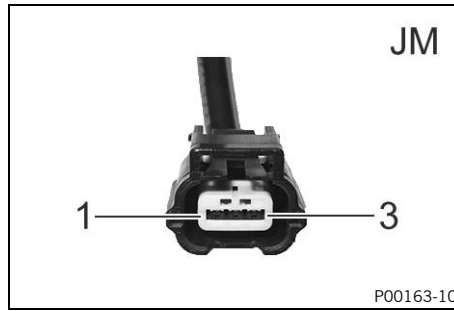
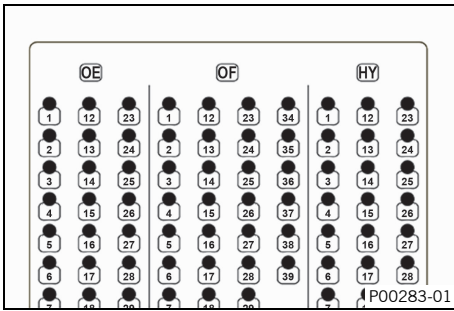
Induction manifold sensor is disconnected. (📖 p. 15)

Throttle valve position sensor circuit A is disconnected. (📖 p. 14)

The coolant temperature sensor is disconnected. (📖 p. 9)

The tilt sensor is disconnected. (📖 p. 16)

The intake air temperature sensor is disconnected. (📖 p. 12)



### Gear position sensor – check the ground wire.

- Measure the resistance between the specified points.  
Break out box connector **HY** pin **17** – Gear position sensor, connector **JM** pin **3**

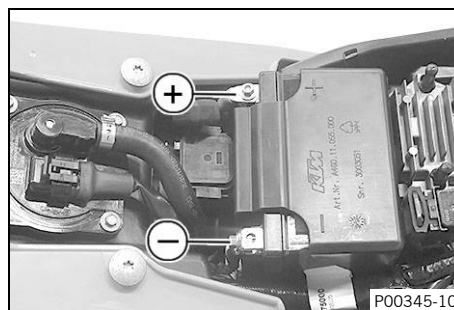
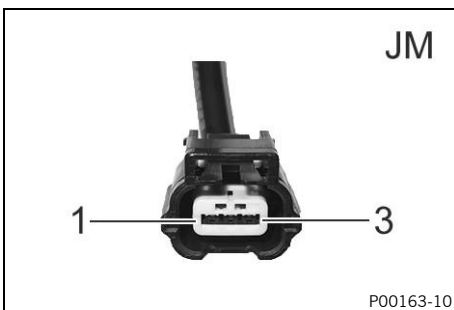
Resistance	$\leq 0.6 \Omega$
------------	-------------------

- » If the specifications have not been met:
  - Check engine control unit connector **HY** (p. 130) pin **17** and connector **JM** (p. 131) pin **3**.
  - Check the cable from engine control unit connector **HY** (p. 130) pin **17** to connector **JM** (p. 131) pin **3**.
- » If the specifications have been met:
  - Check the next possible cause:  
Gear position sensor – the power supply is faulty (p. 71)

### Gear position sensor – the power supply is faulty

#### Condition

The diagnostics tool is connected and running.  
Engine control unit is connected. (p. 17)  
The gear position sensor is disconnected. (p. 17)



### Gear position sensor – check the power supply.

- Measure the voltage between the specified points.  
Gear position sensor, connector **JM** pin **1** – Measuring point **Ground (-)**

**Info**  
For the measurement, the measuring points must be subjected to a 12 V/21 W bulb.

Voltage	4.9 ... 5.1 V
---------	---------------

- » If the specifications have not been met:
  - Check connector **JM** (p. 131) pin **1**.
  - Check engine control unit connector **HY** (p. 130) pin **12**.
  - Check the cable from engine control unit connector **HY** (p. 130) pin **12** to connector **JM** (p. 131) pin **1**.
- » If the specifications have been met:

### 3 ENGINE CONTROL TROUBLE CODE

- Check the next possible cause:  
Gear position sensor – the signal wire has a short circuit to plus (terminal 30) (📖 p. 72)

#### Gear position sensor – the signal wire has a short circuit to plus (terminal 30)

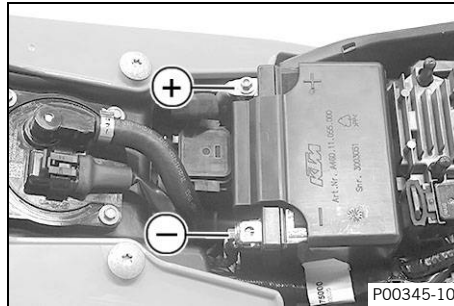
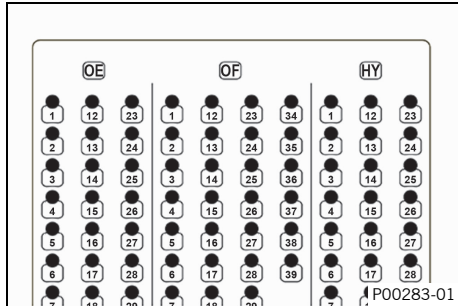
##### Condition

The diagnostics tool is disconnected.

Engine control unit is disconnected. (📖 p. 17)

The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.

The gear position sensor is disconnected. (📖 p. 17)



#### Gear position sensor – check the signal wire for a short circuit to plus (terminal 30).

- **V** Measure the voltage between the specified points.  
Break out box connector **HY** pin **18** – Measuring point **Ground (-)**

Voltage	≤ 0.1 V
---------	---------

- » If the specifications have not been met:
  - Check the cable from engine control unit connector **HY** (📖 p. 130) pin **18** to connector **JM** (📖 p. 131) pin **2** for a short circuit to plus (terminal 30).
- » If the specifications have been met:
  - Check the next possible cause:  
Gear position sensor – the signal wire has a short circuit to ignition plus (terminal 15) (📖 p. 72)

#### Gear position sensor – the signal wire has a short circuit to ignition plus (terminal 15)

##### Condition

The diagnostics tool is disconnected.

Engine control unit is disconnected. (📖 p. 17)

The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.

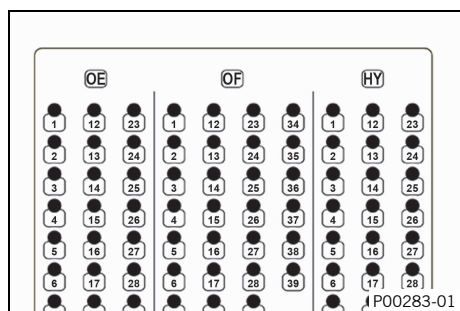
The gear position sensor is disconnected. (📖 p. 17)

#### Gear position sensor – check the signal wire for a short circuit to ignition plus (terminal 15).

- **Ω** Measure the resistance between the specified points.  
Break out box connector **HY** pin **18** – Break out box connector **HY** pin **1**

Resistance	∞ Ω
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- » If the specifications have not been met:
  - Check the cable from engine control unit connector **HY** (📖 p. 130) pin **18** to connector **JM** (📖 p. 131) pin **2** for a short circuit to ignition plus (terminal 15).
- » If the specifications have been met:
  - Check the next possible cause:  
Gear position sensor – the signal wire has a short circuit to the sensor power supply (📖 p. 73)



## Gear position sensor – the signal wire has a short circuit to the sensor power supply

### Condition


The diagnostics tool is disconnected.

Engine control unit is disconnected. (📖 p. 17)

The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.

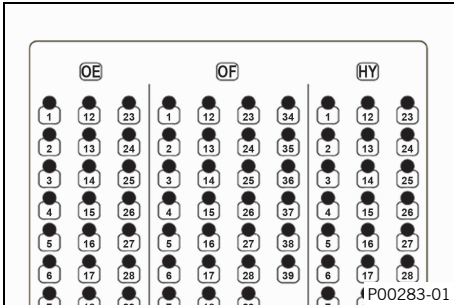
The gear position sensor is disconnected. (📖 p. 17)

### Gear position sensor – check the signal wire for a short circuit to the sensor power supply.

-  Measure the resistance between the specified points.  
Break out box connector **HY** pin **18** – Break out box connector **HY** pin **12**

Resistance	$\infty \Omega$
------------	-----------------

- » If the specifications have not been met:
  - Check the cable from engine control unit connector **HY** (📖 p. 130) pin **18** to connector **JM** (📖 p. 131) pin **2** for a short circuit to the sensor power supply.
- » If the specifications have been met:
  - Change the gear position sensor.



### 3 ENGINE CONTROL TROUBLE CODE

<b>Blink code for malfunction indicator lamp</b>	<b>Fi</b> 22 Malfunction indicator lamp flashes 2x long, 2x short
<b>Display on diagnostic tool</b>	P0919 "Gear position sensor" "ERROR"
<b>Error level condition</b>	Gear position sensor malfunction
<b>Possible cause</b>	Incorrect installation position of the gear position sensor (🔧 p. 74)
<b>Last measure if none of the documented causes leads to elimination of the fault</b>	– Contact customer service.

#### **Incorrect installation position of the gear position sensor**

- Check that the gear position sensor is seated correctly. The cable tie on the sensor must be located at the top.

Sensor is correctly attached.

- » If the specifications have not been met:
  - Attach the gear position sensor correctly.
- » If the specifications have been met:
  - Contact customer service.

<b>Blink code for malfunction indicator lamp</b>	<b>Fi</b> 41 Malfunction indicator lamp flashes 4x long, 1x short
<b>Display on diagnostic tool</b>	P1231 <b>"Fuel pump controller"</b> <b>"Short circuit to ground or open circuit"</b>
<b>Error level condition</b>	Fuel pump controller – short circuit to ground/open circuit The engine is switched off: ≥ 3 s
<b>Function check</b>	Checking the fuel pump controller (📖 p. 75)
<b>Possible cause</b>	Fuel pump – the value is not plausible (📖 p. 75)
	Fuel pump – the control wire is faulty (📖 p. 76)
	Fuel pump controller – the power supply is faulty (📖 p. 76)
	Fuel pump – the control wire has a short circuit to ground (terminal 31) (📖 p. 77)
	Fuel pump – the control wire has a short circuit to sensor ground (📖 p. 78)

## Checking the fuel pump controller

### Condition

The diagnostics tool is connected and running.

- Execute **"Engine control unit" > "Actuator test" > "Function test of fuel pump controller"**.

Fuel pump	Operating noise
-----------	-----------------

- » If the specified value is reached:
  - Clear the fault memory using the KTM diagnostics tool.
  - Take a test ride.
  - Read out the fault memory using the KTM diagnostics tool.
- » If the specification is not reached:
  - Check the next possible cause:  
Fuel pump – the value is not plausible (📖 p. 75)
  - Check the next possible cause:  
Fuel pump – the control wire is faulty (📖 p. 76)
  - Check the next possible cause:  
Fuel pump controller – the power supply is faulty (📖 p. 76)
  - Check the next possible cause:  
Fuel pump – the control wire has a short circuit to ground (terminal 31) (📖 p. 77)
  - Check the next possible cause:  
Fuel pump – the control wire has a short circuit to sensor ground (📖 p. 78)

Last measure if none of the documented causes leads to elimination of the fault

- Contact customer service.

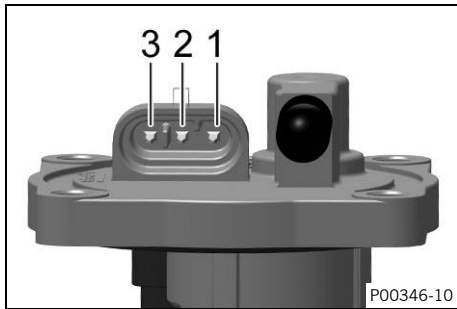
## Fuel pump – the value is not plausible

### Condition


The fuel pump is disconnected. (📖 p. 6) (450 SX-F EU, 450 SX-F US, 450 SX-F BR)

The fuel pump is disconnected. (📖 p. 7) (450 XC-F US)

### 3 ENGINE CONTROL TROUBLE CODE



#### Fuel pump - check the resistance.

-  Measure the resistance between the specified points.  
Fuel pump pin **2** – Fuel pump pin **3**

Fuel pump	
Resistance at: 20 °C (68 °F)	0.9 ... 1.3 Ω

- » If the specifications have not been met:
  - Change the fuel pump.
- » If the specifications have been met:
  - Check the next possible cause:  
Fuel pump – the control wire is faulty (📖 p. 76)

#### Fuel pump – the control wire is faulty

##### Condition

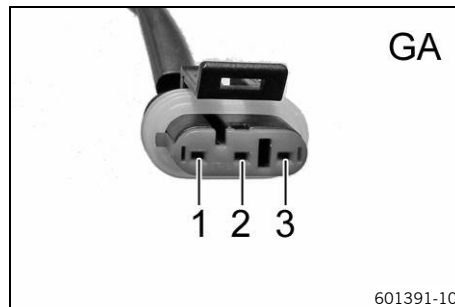
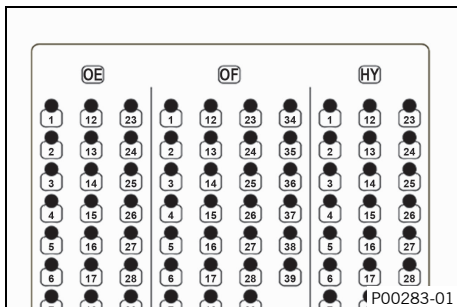
The diagnostics tool is disconnected.

Engine control unit is disconnected. (📖 p. 17)


The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.

The fuel pump is disconnected. (📖 p. 6) (450 SX-F EU, 450 SX-F US, 450 SX-F BR)

The fuel pump is disconnected. (📖 p. 7) (450 XC-F US)



#### Fuel pump – check the control wire.

-  Measure the resistance between the specified points.  
Break out box connector **HY** pin **10** – Fuel pump, connector **GA** pin **2**

Resistance	≤ 0.6 Ω
------------	---------

- » If the specifications have not been met:
  - Check engine control unit connector **HY** (📖 p. 130) pin **10** and connector **GA** (📖 p. 129) pin **2**.
  - Check the cable from engine control unit connector **HY** (📖 p. 130) pin **10** to connector **GA** (📖 p. 129) pin **2**.
- » If the specifications have been met:
  - Check the next possible cause:  
Fuel pump controller – the power supply is faulty (📖 p. 76)

#### Fuel pump controller – the power supply is faulty

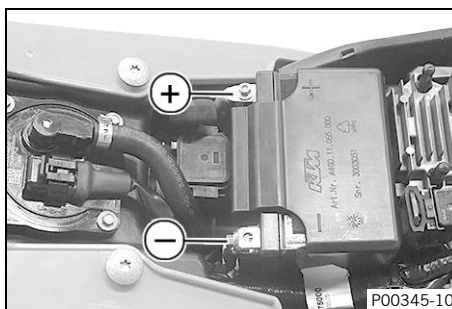
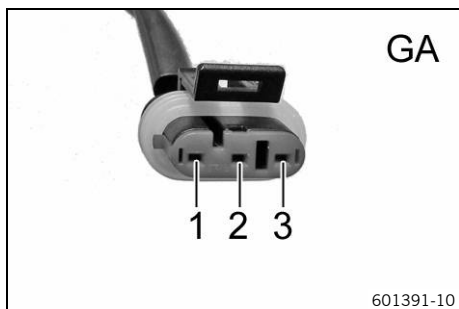
##### Condition

The diagnostics tool is connected and running.

Engine control unit is connected. (📖 p. 17)

The fuel pump is disconnected. (📖 p. 6) (450 SX-F EU, 450 SX-F US, 450 SX-F BR)

The fuel pump is disconnected. (📖 p. 7) (450 XC-F US)



### Fuel pump controller – check the power supply.

- **V** Measure the voltage between the specified points.  
Fuel pump, connector **GA** pin **3** – Measuring point **Ground (-)**



#### Info

For the measurement, the measuring points must be subjected to a 12 V/21 W bulb.

The value must not deviate from the battery voltage "VBAT" by more than 1 V.

- » If the specifications have not been met:
  - Check connector **GA** (📖 p. 129) pin **3**.
  - Check the cable from connector **GA** (📖 p. 129) pin **3** to the next node in the wiring harness.
- » If the specifications have been met:
  - Check the next possible cause:  
Fuel pump – the control wire has a short circuit to ground (terminal 31) (📖 p. 77)

### Fuel pump – the control wire has a short circuit to ground (terminal 31)

#### Condition

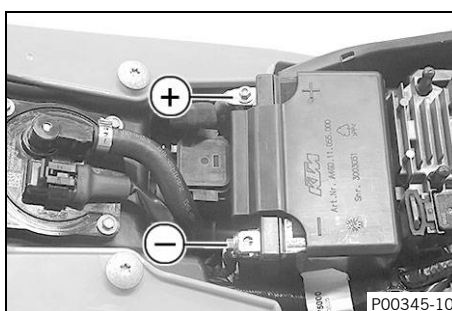
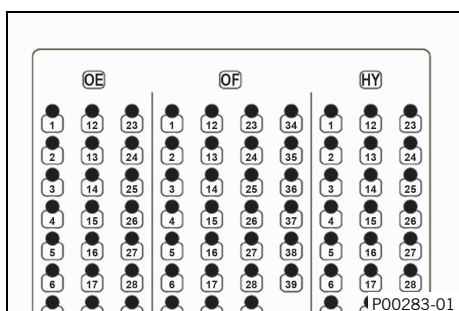
The diagnostics tool is disconnected.

Engine control unit is disconnected. (📖 p. 17)

The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.

The fuel pump is disconnected. (📖 p. 6) (450 SX-F EU, 450 SX-F US, 450 SX-F BR)

The fuel pump is disconnected. (📖 p. 7) (450 XC-F US)



### Fuel pump – check the control wire for a short circuit to ground (terminal 31).

- **Ω** Measure the resistance between the specified points.  
Break out box connector **HY** pin **10** – Measuring point **Ground (-)**

Resistance	$\infty \Omega$
------------	-----------------

- » If the specifications have not been met:
  - Check the cable from engine control unit connector **HY** (📖 p. 130) pin **10** to connector **GA** (📖 p. 129) pin **2** for a short circuit to ground (terminal 31).
- » If the specifications have been met:
  - Check the next possible cause:  
Fuel pump – the control wire has a short circuit to sensor ground (📖 p. 78)

## Fuel pump – the control wire has a short circuit to sensor ground

### Condition

The diagnostics tool is disconnected.


Engine control unit is disconnected. (📖 p. 17)

The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.

The fuel pump is disconnected. (📖 p. 6) (450 SX-F EU, 450 SX-F US, 450 SX-F BR)

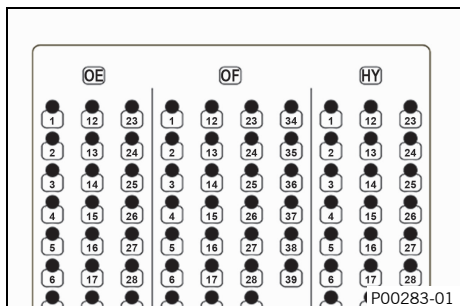
The fuel pump is disconnected. (📖 p. 7) (450 XC-F US)

### Fuel pump – check the control wire for a short circuit to sensor ground.

-  Measure the resistance between the specified points.  
Break out box connector **HY** pin **10** – Break out box connector **HY** pin **17**

Resistance	$\infty \Omega$
------------	-----------------

- » If the specifications have not been met:
  - Check cable from engine control unit connector **HY** (📖 p. 130) pin **10** to connector **GA** (📖 p. 129) pin **2** for a short circuit to sensor ground.
- » If the specifications have been met:
  - Contact customer service.



<b>Blink code for malfunction indicator lamp</b>	<b>Fi</b> 41 Malfunction indicator lamp flashes 4x long, 1x short
<b>Display on diagnostic tool</b>	P1232 "Fuel pump controller" "Short circuit to plus"
<b>Error level condition</b>	Fuel pump controller - short circuit to plus The engine is switched off: ≥ 3 s
<b>Function check</b>	Checking the fuel pump controller (🔧 p. 79)
<b>Possible cause</b>	Fuel pump controller – the power supply is faulty (🔧 p. 79)

## Checking the fuel pump controller

### Condition

The diagnostics tool is connected and running.

- Execute **"Engine control unit" > "Actuator test" > "Function test of fuel pump controller"**.

Fuel pump	Operating noise
-----------	-----------------

- » If the specified value is reached:
    - Clear the fault memory using the KTM diagnostics tool.
    - Take a test ride.
    - Read out the fault memory using the KTM diagnostics tool.
  - » If the specification is not reached:
    - Check the next possible cause:  
Fuel pump controller – the power supply is faulty (🔧 p. 79)
- Last measure if none of the documented causes leads to elimination of the fault
- Contact customer service.

## Fuel pump controller – the power supply is faulty

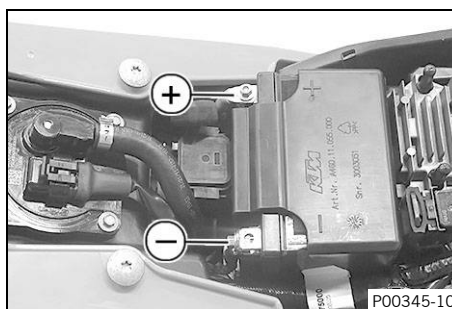
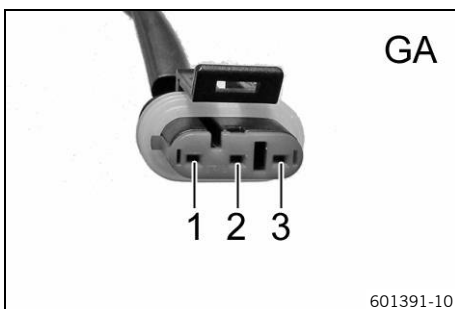
### Condition

The diagnostics tool is connected and running.

Engine control unit is connected. (🔧 p. 17)

The fuel pump is disconnected. (🔧 p. 6) (450 SX-F EU, 450 SX-F US, 450 SX-F BR)

The fuel pump is disconnected. (🔧 p. 7) (450 XC-F US)



### Fuel pump controller – check the power supply.

- **V** Measure the voltage between the specified points.  
Fuel pump, connector **GA** pin **3** – Measuring point **Ground (-)**

**i Info**  
For the measurement, the measuring points must be subjected to a 12 V/21 W bulb.

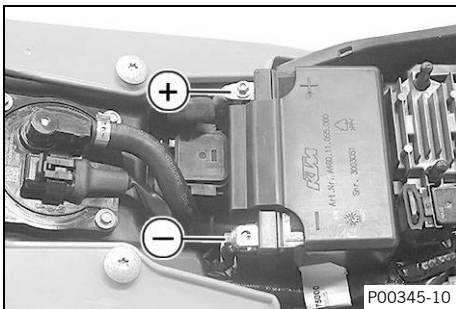
### 3 ENGINE CONTROL TROUBLE CODE

The value must not deviate from the battery voltage "VBAT" by more than 1 V.

- » If the specifications have not been met:
  - Check connector **GA** (📖 p. 129) pin **3**.
  - Check the cable from connector **GA** (📖 p. 129) pin **3** to the next node in the wiring harness.
- » If the specifications have been met:
  - Contact customer service.

<b>Blink code for malfunction indicator lamp</b>	<b>Fi</b> Malfunction indicator lamp flashes continuously
<b>Display on diagnostic tool</b>	P1609 "THREF" "Malfunction"
<b>Error level condition</b>	THREF – internal malfunction of the engine control unit
<b>Function check</b>	Resetting the engine control unit (📖 p. 81)
<b>Last measure if none of the documented causes leads to elimination of the fault</b>	– Contact customer service.

## Resetting the engine control unit



- Disconnect the negative terminal of the 12-V battery.
- Wait for 10 minutes.
- Connect the negative terminal of the 12-V battery.
- Clear the fault memory using the KTM diagnostics tool.
- Read out the fault memory using the KTM diagnostics tool.
  - » If the malfunction persists:
    - Change the engine control unit.

**Last measure if none of the documented causes leads to elimination of the fault**

- Contact customer service.

### 3 ENGINE CONTROL TROUBLE CODE

<b>Display on diagnostic tool</b>	P1583 "Combination switch, left side" "Button malfunction"
<b>Error level condition</b>	Combination switch, left side – buttons pressed longer than 20 seconds
<b>Function check</b>	Checking the combination switch on the left side (🔧 p. 82)
<b>Last measure if none of the documented causes leads to elimination of the fault</b>	– Contact customer service.

#### Checking the combination switch on the left side

- Check the function of the buttons for the combination switch on the left side.
  - » If the buttons do not function properly:
    - Change the combination switch on the left side.

#### **Last measure if none of the documented causes leads to elimination of the fault**

- Contact customer service.

<b>Blink code for malfunction indicator lamp</b>	<b>Fi</b> 15 Malfunction indicator lamp flashes 1x long, 5x short
<b>Display on diagnostic tool</b>	P1631 <b>"Tilt sensor"</b> <b>"Input signal too low"</b>
<b>Error level condition</b>	Tilt sensor – input signal too low Voltage: $\leq 0.176$ V Time: $\geq 25.5$ s
<b>Function check</b>	Checking the tilt sensor (📖 p. 83)
<b>Possible cause</b>	Tilt sensor – the power supply is faulty (📖 p. 83)
	Tilt sensor – the signal wire has a short circuit to ground (terminal 31) (📖 p. 84)
	Tilt sensor – the signal wire has a short circuit to sensor ground (📖 p. 85)

## Checking the tilt sensor

### Condition

The diagnostics tool is connected and running.

- Select **"Engine control unit" > "Measured values" > "Rollover sensor voltage (rollover AD)"**.

Tilt sensor	
Voltage (Rollover AD) <b>"no fall detected"</b>	0.4 ... 1.4 V
Voltage (RolloverAD) <b>"fall detected"</b>	3.7 ... 4.1 V

- » If the displayed value is equal to the setpoint value:
  - Clear the fault memory using the KTM diagnostics tool.
  - Take a test ride.
  - Read out the fault memory using the KTM diagnostics tool.
- » If the displayed value is below the setpoint value:
  - Check the next possible cause:  
Tilt sensor – the power supply is faulty (📖 p. 83)
  - Check the next possible cause:  
Tilt sensor – the signal wire has a short circuit to ground (terminal 31) (📖 p. 84)
  - Check the next possible cause:  
Tilt sensor – the signal wire has a short circuit to sensor ground (📖 p. 85)

## Tilt sensor – the power supply is faulty

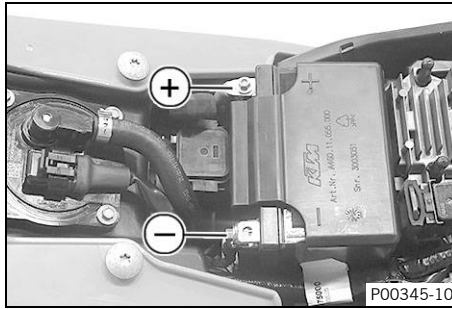
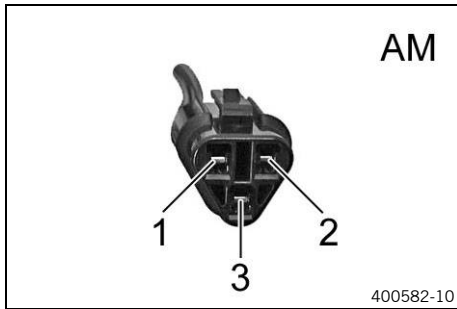
### Condition

The diagnostics tool is connected and running.

Engine control unit is connected. (📖 p. 17)

The tilt sensor is disconnected. (📖 p. 16)

### 3 ENGINE CONTROL TROUBLE CODE



#### Tilt sensor – check the power supply.

- **V** Measure the voltage between the specified points.  
Tilt sensor connector **AM** pin **2** – Measuring point **Ground (-)**

#### **i** Info

For the measurement, the measuring points must be subjected to a 12 V/21 W bulb.

Voltage	4.9 ... 5.1 V
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- » If the specifications have not been met:
  - Check connector **AM** (📖 p. 126) pin **2**.
  - Check the wire from connector **AM** (📖 p. 126) pin **2** according to the wiring diagram.
- » If the specifications have been met:
  - Check the next possible cause:  
Tilt sensor – the signal wire has a short circuit to ground (terminal 31) (📖 p. 84)

#### Tilt sensor – the signal wire has a short circuit to ground (terminal 31)

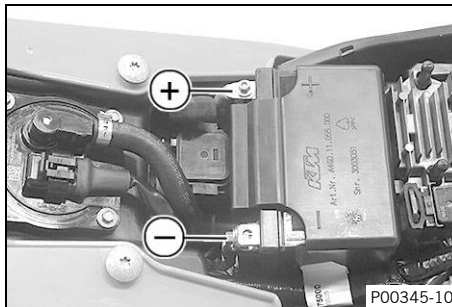
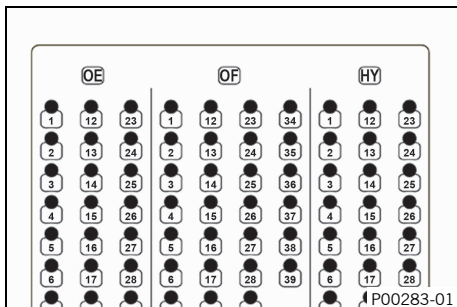
##### Condition

The diagnostics tool is disconnected.

Engine control unit is disconnected. (📖 p. 17)

The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.

The tilt sensor is disconnected. (📖 p. 16)



#### Side stand sensor – check the signal wire for a short circuit to ground (terminal 31).

- **Ω** Measure the resistance between the specified points.  
Break out box connector **HY** pin **16** – Measuring point **Ground (-)**

Resistance	$\infty \Omega$
------------	-----------------

- » If the specifications have not been met:
  - Check the cable from engine control unit connector **HY** (📖 p. 130) pin **16** to connector **AM** (📖 p. 126) pin **3** for a short circuit to ground (terminal 31).
- » If the specifications have been met:
  - Check the next possible cause:  
Tilt sensor – the signal wire has a short circuit to sensor ground (📖 p. 85)

## Tilt sensor – the signal wire has a short circuit to sensor ground

### Condition


The diagnostics tool is disconnected.

Engine control unit is disconnected. (📖 p. 17)

The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.

The tilt sensor is disconnected. (📖 p. 16)

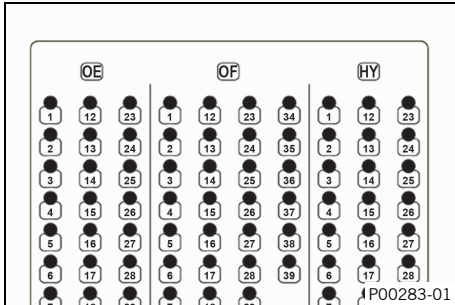
### Tilt sensor – check the signal wire for a short circuit to sensor ground.

-  Measure the resistance between the specified points.  
Break out box connector **HY** pin **16** – Break out box connector **HY** pin **17**

Resistance	$\infty \Omega$
------------	-----------------

- » If the specifications have not been met:

- Check cable from engine control unit connector **HY** (📖 p. 130) pin **16** to connector **AM** (📖 p. 126) pin **3** for a short circuit to sensor ground.



### 3 ENGINE CONTROL TROUBLE CODE

<b>Blink code for malfunction indicator lamp</b>	<b>Fi</b> 15 Malfunction indicator lamp flashes 1x long, 5x short
<b>Display on diagnostic tool</b>	P1632 "Tilt sensor" "Open / input signal too high"
<b>Error level condition</b>	Tilt sensor – open / input signal too high Voltage: $\geq 4.57$ V Time: $\geq 25.5$ s
<b>Function check</b>	Checking the tilt sensor (📖 p. 86)
<b>Possible cause</b>	Tilt sensor – the signal wire has a short circuit to plus (terminal 30) (450 SX-F BR) (📖 p. 86)
	Tilt sensor – the signal wire has a short circuit to ignition plus (terminal 15) (📖 p. 87)
	Tilt sensor – the signal wire has a short circuit to the sensor power supply (📖 p. 87)
	Tilt sensor – the signal wire is faulty (📖 p. 88)
	Tilt sensor – ground wire is faulty (📖 p. 88)

#### Checking the tilt sensor

##### Condition

The diagnostics tool is connected and running.

- Select "**Engine control unit**" > "**Measured values**" > "**Rollover sensor voltage (rollover AD)**".

Tilt sensor	
Voltage (Rollover AD) " <b>no fall detected</b> "	0.4 ... 1.4 V
Voltage (RolloverAD) " <b>fall detected</b> "	3.7 ... 4.1 V

- » If the displayed value is equal to the setpoint value:
  - Clear the fault memory using the KTM diagnostics tool.
  - Take a test ride.
  - Read out the fault memory using the KTM diagnostics tool.
- » If the displayed value is above the setpoint value:
  - Check the next possible cause:  
Tilt sensor – the signal wire has a short circuit to plus (terminal 30) (450 SX-F BR) (📖 p. 86)
  - Check the next possible cause:  
Tilt sensor – the signal wire has a short circuit to ignition plus (terminal 15) (📖 p. 87)
  - Check the next possible cause:  
Tilt sensor – the signal wire has a short circuit to the sensor power supply (📖 p. 87)
  - Check the next possible cause:  
Tilt sensor – the signal wire is faulty (📖 p. 88)
  - Check the next possible cause:  
Tilt sensor – ground wire is faulty (📖 p. 88)

#### Tilt sensor – the signal wire has a short circuit to plus (terminal 30) (450 SX-F BR)

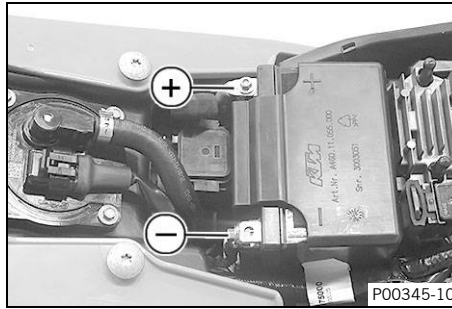
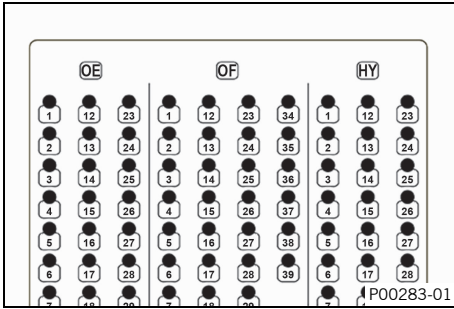
##### Condition

The diagnostics tool is disconnected.

Engine control unit is disconnected. (📖 p. 17)

The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.

The tilt sensor is disconnected. (📖 p. 16)



### Tilt sensor – check the signal wire for a short circuit to plus (terminal 30).

- **V** Measure the voltage between the specified points.  
Break out box connector **HY** pin **16** – Measuring point **Ground (-)**

Voltage	< 0.1 V
---------	---------

- » If the specifications have not been met:
  - Check the cable from engine control unit connector **HY** (📖 p. 130) pin **16** to connector **AM** (📖 p. 126) pin **3** for a short circuit to plus (terminal 30).
- » If the specifications have been met:
  - Check the next possible cause:  
Tilt sensor – the signal wire has a short circuit to ignition plus (terminal 15) (📖 p. 87)

### Tilt sensor – the signal wire has a short circuit to ignition plus (terminal 15)

#### Condition

The diagnostics tool is disconnected.  
 Engine control unit is disconnected. (📖 p. 17)  
 The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.  
 The tilt sensor is disconnected. (📖 p. 16)

### Tilt sensor – check the signal wire for a short circuit to ignition plus (terminal 15).

- **Ω** Measure the resistance between the specified points.  
Break out box connector **HY** pin **16** – Break out box connector **HY** pin **1**

Resistance	$\infty \Omega$
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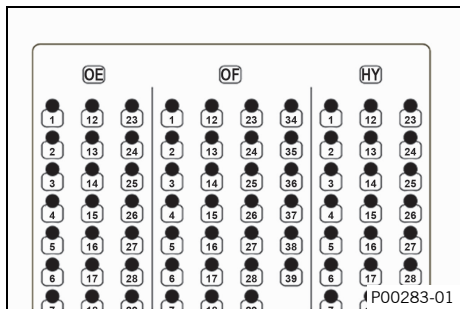
- » If the specifications have not been met:
  - Check the cable from engine control unit connector **HY** (📖 p. 130) pin **16** to connector **AM** (📖 p. 126) pin **3** for a short circuit to ignition plus (terminal 15).
- » If the specifications have been met:
  - Check the next possible cause:  
Tilt sensor – the signal wire has a short circuit to the sensor power supply (📖 p. 87)

### Tilt sensor – the signal wire has a short circuit to the sensor power supply

#### Condition

The diagnostics tool is disconnected.  
 Engine control unit is disconnected. (📖 p. 17)  
 The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.  
 The tilt sensor is disconnected. (📖 p. 16)

### 3 ENGINE CONTROL TROUBLE CODE



**Tilt sensor – check the signal wire for a short circuit to the sensor power supply.**

- Measure the resistance between the specified points.  
Break out box connector **HY** pin **16** – Break out box connector **HY** pin **12**

Resistance	$\infty \Omega$
------------	-----------------

- » If the specifications have not been met:
  - Check the cable from engine control unit connector **HY** (📖 p. 130) pin **16** to connector **AM** (📖 p. 126) pin **3** for a short circuit to the sensor power supply.
- » If the specifications have been met:
  - Check the next possible cause:  
Tilt sensor – the signal wire is faulty (📖 p. 88)

#### Tilt sensor – the signal wire is faulty

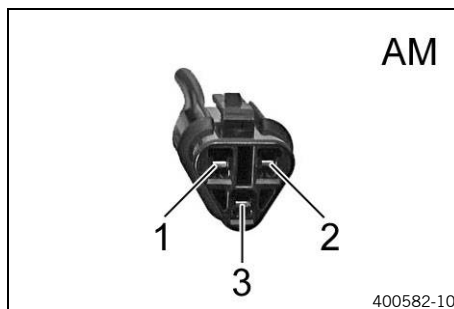
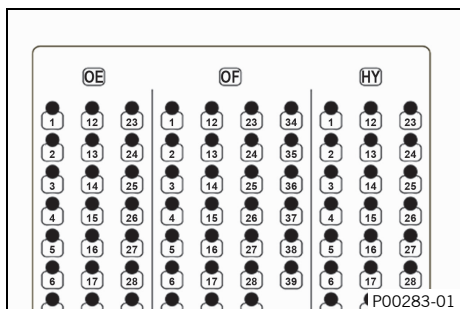
**Condition**

The diagnostics tool is disconnected.

Engine control unit is disconnected. (📖 p. 17)

The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.

The tilt sensor is disconnected. (📖 p. 16)



**Tilt sensor – check the signal wire.**

- Measure the resistance between the specified points.  
Break out box connector **HY** pin **16** – Tilt sensor connector **AM** pin **3**

Resistance	$\leq 0.6 \Omega$
------------	-------------------

- » If the specifications have not been met:
  - Check engine control unit connector **HY** (📖 p. 130) pin **16** and connector **AM** (📖 p. 126) pin **3**.
  - Check the cable from engine control unit connector **HY** (📖 p. 130) pin **16** to connector **AM** (📖 p. 126) pin **3**.
- » If the specifications have been met:
  - Check the next possible cause:  
Tilt sensor – ground wire is faulty (📖 p. 88)

#### Tilt sensor – ground wire is faulty

**Condition**

The diagnostics tool is disconnected.

Engine control unit is disconnected. (📖 p. 17)

The break-out box is connected to the engine control unit wiring harness with adapter **00029095015**.

The tilt sensor is disconnected. (📖 p. 16)

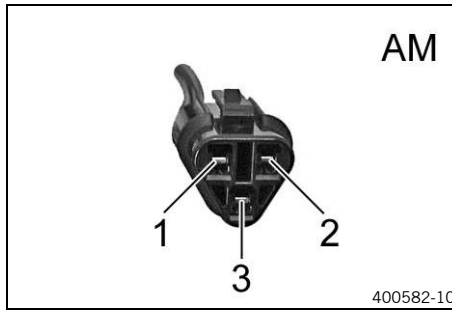
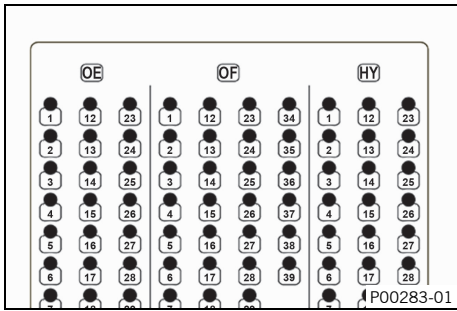
Induction manifold sensor is disconnected. (📖 p. 15)

Throttle valve position sensor circuit A is disconnected. (📖 p. 14)

The coolant temperature sensor is disconnected. (📖 p. 9)

The intake air temperature sensor is disconnected. (📖 p. 12)

The gear position sensor is disconnected. (📖 p. 17)



**Tilt sensor – check the ground wire.**

- Measure the resistance between the specified points.  
Break out box connector **HY** pin **17** – Tilt sensor connector **AM** pin **1**

Resistance	≤ 0.6 Ω
------------	---------

- » If the specifications have not been met:
  - Check engine control unit connector **HY** (📖 p. 130) pin **17** and connector **AM** (📖 p. 126) pin **1**.
  - Check the cable from engine control unit connector **HY** (📖 p. 130) pin **17** to connector **AM** (📖 p. 126) pin **1**.

### 3 ENGINE CONTROL TROUBLE CODE

<b>Blink code for malfunction indicator lamp</b>	<b>Fi</b> 21 Malfunction indicator lamp flashes 2x long, 1x short
<b>Display on diagnostic tool</b>	P1660 "Battery voltage" "Input voltage too high"
<b>Error level condition</b>	Battery voltage – input voltage too high Engine control unit power supply: $\geq 15.98$ V Time: $\geq 2$ s
<b>Function check</b>	Checking the charging voltage (📖 p. 90)
<b>Last measure if none of the documented causes leads to elimination of the fault</b>	– Contact customer service.

#### Checking the charging voltage



#### Condition

The 12-V battery must be fully functional and completely charged.

- Remove the seat.
- Pull back the positive terminal cover.
- Start the motorcycle to check the function.
- **V** Measure the voltage between the specified points.  
Measuring point **plus (+)** – Measuring point **Ground (-)**

Charging voltage	
5,000 rpm	13.5 ... 15.0 V

- » If the displayed value is less than the specified value:
  - Check the plug-in connections from the alternator to the voltage regulator.
  - Check the plug-in connections from the voltage regulator to the wiring harness.
  - Check the stator winding of the alternator.
- » If the displayed value is greater than the specified value:
  - Change voltage regulator.
- Mount the seat.

#### Last measure if none of the documented causes leads to elimination of the fault

- Contact customer service.

<b>Blink code for malfunction indicator lamp</b>	<b>Fi</b> 91 Malfunction indicator lamp flashes 9x long, 1x short
<b>Display on diagnostic tool</b>	P1690 <b>"CAN bus communication"</b> <b>"faulty"</b>
<b>Error level condition</b>	CAN bus communication – faulty
<b>Possible cause</b>	Software version/coding incorrect (📖 p. 91) Check the CAN bus total resistance (📖 p. 91)
<b>Last measure if none of the documented causes leads to elimination of the fault</b>	– Contact customer service.

### Software version/coding incorrect

- Connect the diagnostics tool and start it.
- Read out the fault memory using the KTM diagnostics tool.
- Clear the fault memory using the KTM diagnostics tool.
- Switch off the ignition for 20 seconds.
- Read out the fault memory using the KTM diagnostics tool.

Fault memory is empty.
------------------------

- » If the specifications have not been met:
  - Check that the software in the control units is up to date.
  - Check all model-specific variant coding and equipment-specific settings for all control units.
- » If the specifications have been met:
  - Check the next possible cause:
    - Check the CAN bus total resistance (📖 p. 91)

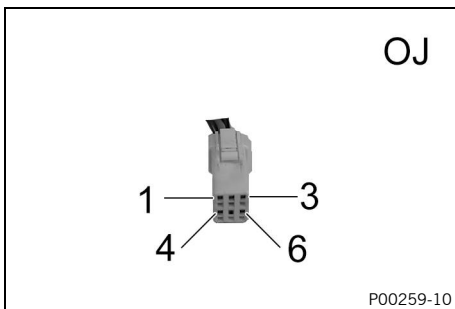
### Check the CAN bus total resistance

#### Condition

The diagnostics tool is disconnected.  
Connectivity Unit is disconnected. (📖 p. 18)

#### CAN bus total resistance – check the resistance.


- Measure the resistance between the specified points.  
Connectivity unit connector **OJ** pin **2** – Connectivity unit connector **OJ** pin **3**



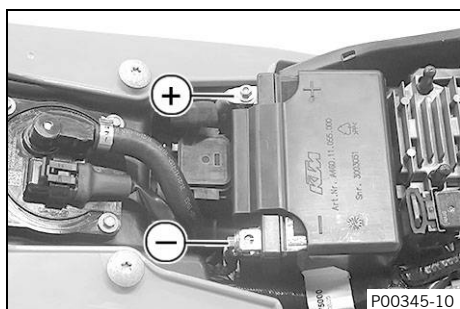
CAN bus total resistance	
Resistance on connected engine control unit and CAN bus terminating resistor: 20 °C (68 °F)	54 ... 66 Ω

- » If the specifications have not been met:
  - Check the CAN bus wires.
- » If the specifications have been met:
  - Contact customer service.

## 4 TROUBLE CODE, CONNECTIVITY UNIT

<b>Connectivity Unit blink code</b>	 Indicator lamp flashes red once
<b>Display on diagnostic tool</b>	B10F149 "Connectivity Unit" "Accelerator sensor malfunction"
<b>Error level condition</b>	Accelerator sensor malfunction
<b>Function check</b>	Resetting the Connectivity Unit (🔧 p. 92)
<b>Last measure if none of the documented causes leads to elimination of the fault</b>	– Contact customer service.


### Resetting the Connectivity Unit



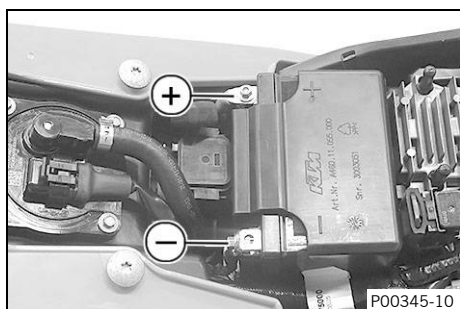
- Disconnect the negative terminal of the 12-V battery.
- Wait for 10 minutes.
- Connect the negative terminal of the 12-V battery.
- Clear the fault memory using the KTM diagnostics tool.
- Disconnect the diagnostics tool for 20 seconds.
- Read out the fault memory using the KTM diagnostics tool.
  - » If the error persists:
    - Change Connectivity Unit.

**Last measure if none of the documented causes leads to elimination of the fault**

- Contact customer service.

<b>Connectivity Unit blink code</b>	 Indicator lamp flashes red once
<b>Display on diagnostic tool</b>	B10F349 "Connectivity Unit" "GPS sensor malfunction"
<b>Error level condition</b>	GPS sensor malfunction
<b>Function check</b>	Resetting the Connectivity Unit (📖 p. 93)
<b>Last measure if none of the documented causes leads to elimination of the fault</b>	– Contact customer service.

### Resetting the Connectivity Unit




- Disconnect the negative terminal of the 12-V battery.
- Wait for 10 minutes.
- Connect the negative terminal of the 12-V battery.
- Clear the fault memory using the KTM diagnostics tool.
- Disconnect the diagnostics tool for 20 seconds.
- Read out the fault memory using the KTM diagnostics tool.
  - » If the error persists:
    - Change Connectivity Unit.

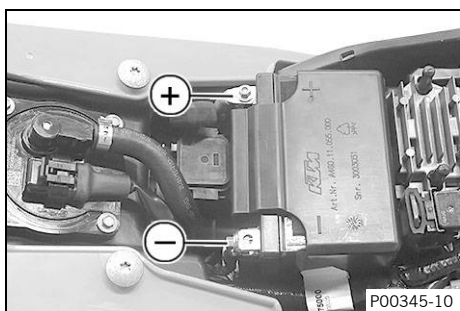
**Last measure if none of the documented causes leads to elimination of the fault**

- Contact customer service.

## 4 TROUBLE CODE, CONNECTIVITY UNIT

<b>Connectivity Unit blink code</b>	 Indicator lamp flashes red four times
<b>Display on diagnostic tool</b>	B10F449 "Connectivity Unit" "Bluetooth malfunction"
<b>Error level condition</b>	Bluetooth malfunction
<b>Function check</b>	Resetting the Connectivity Unit (🔧 p. 94)
<b>Last measure if none of the documented causes leads to elimination of the fault</b>	– Contact customer service.


### Resetting the Connectivity Unit



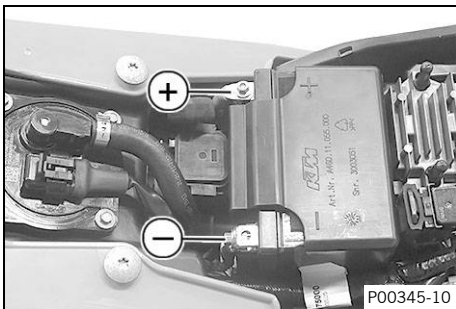
- Disconnect the negative terminal of the 12-V battery.
- Wait for 10 minutes.
- Connect the negative terminal of the 12-V battery.
- Clear the fault memory using the KTM diagnostics tool.
- Disconnect the diagnostics tool for 20 seconds.
- Read out the fault memory using the KTM diagnostics tool.
  - » If the error persists:
    - Change Connectivity Unit.

**Last measure if none of the documented causes leads to elimination of the fault**

- Contact customer service.

<b>Connectivity Unit blink code</b>	 Indicator lamp flashes red three times
<b>Display on diagnostic tool</b>	B10F549 "Connectivity Unit" "WLAN malfunction"
<b>Error level condition</b>	WLAN malfunction
<b>Function check</b>	Resetting the Connectivity Unit (📖 p. 95)
<b>Last measure if none of the documented causes leads to elimination of the fault</b>	– Contact customer service.

### Resetting the Connectivity Unit




- Disconnect the negative terminal of the 12-V battery.
- Wait for 10 minutes.
- Connect the negative terminal of the 12-V battery.
- Clear the fault memory using the KTM diagnostics tool.
- Disconnect the diagnostics tool for 20 seconds.
- Read out the fault memory using the KTM diagnostics tool.
  - » If the error persists:
    - Change Connectivity Unit.

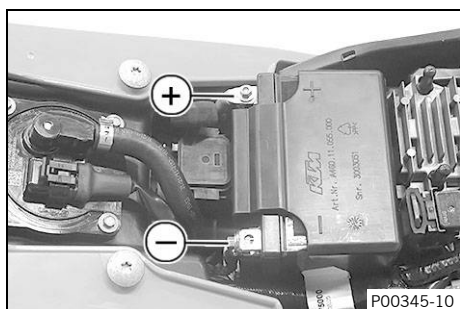
**Last measure if none of the documented causes leads to elimination of the fault**

- Contact customer service.

## 4 TROUBLE CODE, CONNECTIVITY UNIT

<b>Connectivity Unit blink code</b>	 Indicator lamp flashes red once
<b>Display on diagnostic tool</b>	B10F649 "Connectivity Unit" "LED malfunction"
<b>Error level condition</b>	LED malfunction
<b>Function check</b>	Resetting the Connectivity Unit (🔧 p. 96)
<b>Last measure if none of the documented causes leads to elimination of the fault</b>	– Contact customer service.


### Resetting the Connectivity Unit



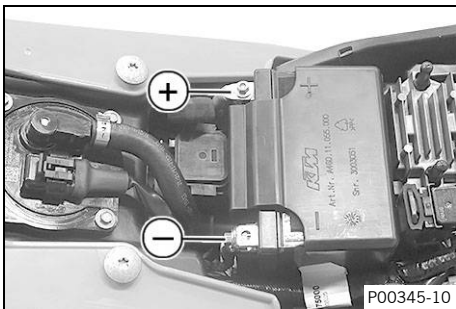
- Disconnect the negative terminal of the 12-V battery.
- Wait for 10 minutes.
- Connect the negative terminal of the 12-V battery.
- Clear the fault memory using the KTM diagnostics tool.
- Disconnect the diagnostics tool for 20 seconds.
- Read out the fault memory using the KTM diagnostics tool.
  - » If the error persists:
    - Change Connectivity Unit.

**Last measure if none of the documented causes leads to elimination of the fault**

- Contact customer service.

<b>Connectivity Unit blink code</b>	 Indicator lamp flashes red once
<b>Display on diagnostic tool</b>	B10F701 "Connectivity Unit" "Button malfunction"
<b>Error level condition</b>	Button pressed for more than 60 seconds
<b>Function check</b>	Resetting the Connectivity Unit (📖 p. 97)
<b>Last measure if none of the documented causes leads to elimination of the fault</b>	– Contact customer service.

## Resetting the Connectivity Unit




- Disconnect the negative terminal of the 12-V battery.
- Wait for 10 minutes.
- Connect the negative terminal of the 12-V battery.
- Clear the fault memory using the KTM diagnostics tool.
- Disconnect the diagnostics tool for 20 seconds.
- Read out the fault memory using the KTM diagnostics tool.
  - » If the error persists:
    - Change Connectivity Unit.

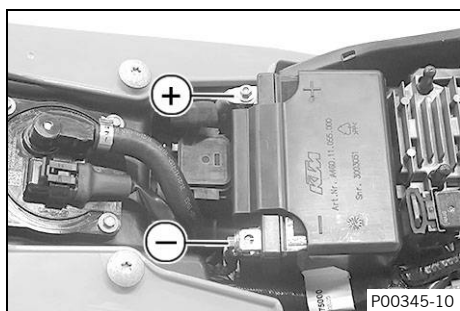
**Last measure if none of the documented causes leads to elimination of the fault**

- Contact customer service.

## 4 TROUBLE CODE, CONNECTIVITY UNIT

<b>Connectivity Unit blink code</b>	 Indicator lamp flashes red once
<b>Display on diagnostic tool</b>	B10F842 "Connectivity Unit" "Memory faulty"
<b>Error level condition</b>	Memory faulty
<b>Function check</b>	Resetting the Connectivity Unit (🔧 p. 98)
<b>Last measure if none of the documented causes leads to elimination of the fault</b>	– Contact customer service.


### Resetting the Connectivity Unit



- Disconnect the negative terminal of the 12-V battery.
- Wait for 10 minutes.
- Connect the negative terminal of the 12-V battery.
- Clear the fault memory using the KTM diagnostics tool.
- Disconnect the diagnostics tool for 20 seconds.
- Read out the fault memory using the KTM diagnostics tool.
  - » If the error persists:
    - Change Connectivity Unit.

**Last measure if none of the documented causes leads to elimination of the fault**

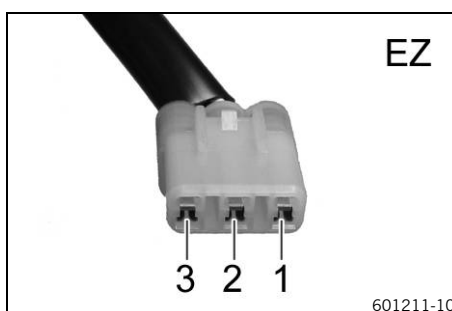
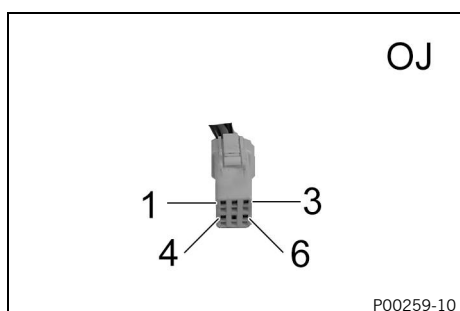
- Contact customer service.

<b>Connectivity Unit blink code</b>	 Indicator lamp flashes red once
<b>Display on diagnostic tool</b>	B10FB13 "Control wire, power relay" "Open circuit"
<b>Error level condition</b>	Control wire, power relay – circuit interrupted
<b>Possible cause</b>	Power relay – the control wire is faulty (📖 p. 99)
	Power relay – the control wire has a short circuit to plus (terminal 30) (📖 p. 99)
	Power relay – the control wire has a short circuit to ground (terminal 31) (📖 p. 100)
<b>Last measure if none of the documented causes leads to elimination of the fault</b>	– Contact customer service.


## Power relay – the control wire is faulty

### Condition

- The diagnostics tool is disconnected.
- Engine control unit is disconnected. (📖 p. 17)
- Connectivity Unit is disconnected. (📖 p. 18)
- Voltage regulator is disconnected.
- Power relay is disconnected.



### Power relay – check the control wire.

-  Measure the resistance between the specified points.  
 Connectivity unit connector **OJ** pin **5** – Voltage regulator, connector **EZ** pin **1**

Resistance	$\leq 0.6 \Omega$
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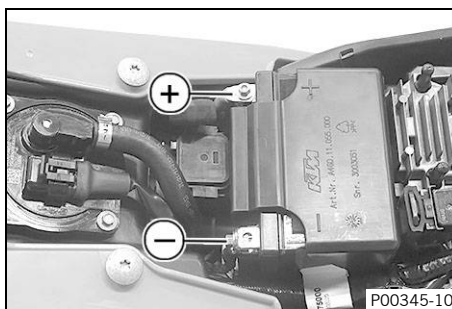
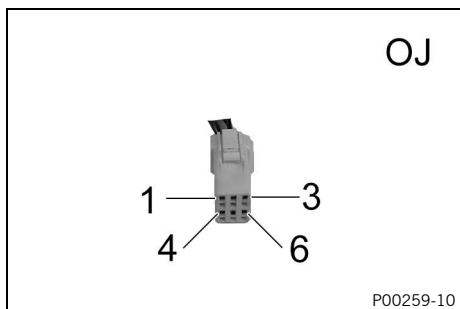
- » If the specifications have not been met:
  - Check the cable from engine control unit connector **OJ** (📖 p. 131) pin **5** to connector **EZ** (📖 p. 128) pin **1**.
- » If the specifications have been met:
  - Check the next possible cause:  
 Power relay – the control wire has a short circuit to plus (terminal 30) (📖 p. 99)

## Power relay – the control wire has a short circuit to plus (terminal 30)

### Condition

- The diagnostics tool is disconnected.
- Connectivity Unit is disconnected. (📖 p. 18)

## 4 TROUBLE CODE, CONNECTIVITY UNIT



### Power relay – check the control wire for a short circuit to plus (terminal 30).

- **V** Measure the voltage between the specified points.  
Connectivity unit connector **OJ** pin **5** – Measuring point **Ground (-)**

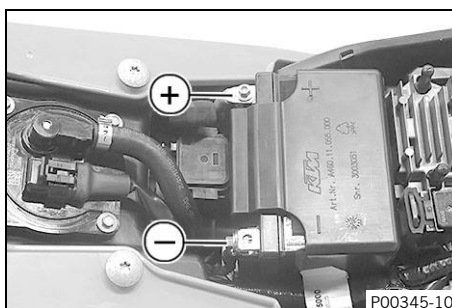
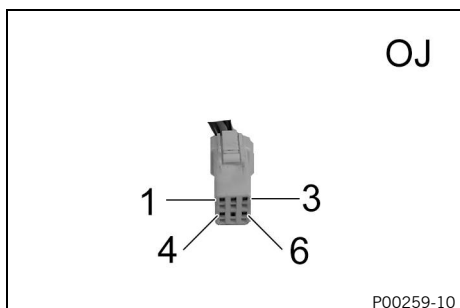
Voltage	< 0.1 V
---------	---------

- » If the specifications have not been met:
  - Check the cable from connector **OJ** (p. 131) pin **5** against the wiring diagram for a short circuit to plus (terminal 30).
- » If the specifications have been met:
  - Check the next possible cause:  
Power relay – the control wire has a short circuit to ground (terminal 31) (p. 100)

### Power relay – the control wire has a short circuit to ground (terminal 31)

#### Condition

The diagnostics tool is disconnected.  
 Engine control unit is disconnected. (p. 17)  
 Connectivity Unit is disconnected. (p. 18)  
 Voltage regulator is disconnected.  
 Power relay is disconnected.




### Power relay – check the control wire for a short circuit to ground (terminal 31).

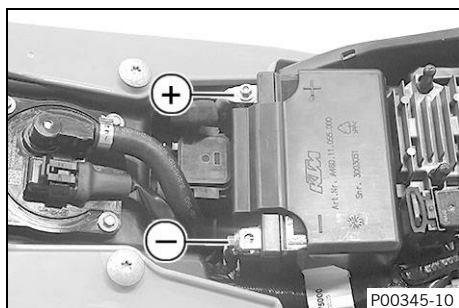
- **Ω** Measure the resistance between the specified points.  
Connectivity unit connector **OJ** pin **5** – Measuring point **Ground (-)**

Resistance	$\infty \Omega$
------------	-----------------

- » If the specifications have not been met:
  - Check the cable from connector **OJ** (p. 131) pin **5** against the wiring diagram for a short circuit to ground (terminal 31).
- » If the specifications have been met:
  - Contact customer service.

<b>Connectivity Unit blink code</b>	 Indicator lamp flashes red once
<b>Display on diagnostic tool</b>	B10FC17 "Connectivity Unit" "Power supply exceeded"
<b>Error level condition</b>	Power supply exceeded Voltage: $\geq 16$ V
<b>Function check</b>	Checking the charging voltage (📖 p. 101)
<b>Last measure if none of the documented causes leads to elimination of the fault</b>	– Contact customer service.

## Checking the charging voltage



### Condition

The 12-V battery must be fully functional and completely charged.

- Remove the seat.
- Pull back the positive terminal cover.
- Start the motorcycle to check the function.
- **V** Measure the voltage between the specified points.  
 Measuring point **plus (+)** – Measuring point **Ground (–)**




Charging voltage	
5,000 rpm	13.5 ... 15.0 V

- » If the displayed value is less than the specified value:
  - Check the plug-in connections from the alternator to the voltage regulator.
  - Check the plug-in connections from the voltage regulator to the wiring harness.
  - Check the stator winding of the alternator.
- » If the displayed value is greater than the specified value:
  - Change voltage regulator.
- Mount the seat.

### Last measure if none of the documented causes leads to elimination of the fault


- Contact customer service.

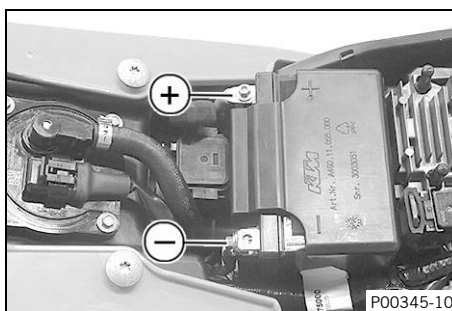
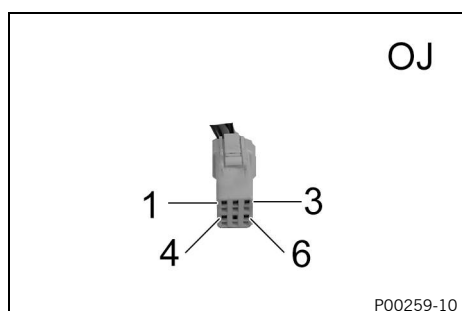
# 4 TROUBLE CODE, CONNECTIVITY UNIT

<b>Connectivity Unit blink code</b>	 Indicator lamp flashes red once
<b>Display on diagnostic tool</b>	B10FD16 "Connectivity Unit" "Power supply below specification"
<b>Error level condition</b>	Power supply below specification Voltage: $\leq 8$ V
<b>Possible cause</b>	Connectivity Unit – power supply 1 is faulty (  p. 102) Connectivity Unit – power supply 2 is faulty (  p. 102)
<b>Last measure if none of the documented causes leads to elimination of the fault</b>	– Contact customer service.


## Connectivity Unit – power supply 1 is faulty

### Condition

The diagnostics tool is connected and running.  
Connectivity Unit is disconnected. ( p. 18)



### Connectivity Unit – check power supply 1.




-  Measure the voltage between the specified points.  
Connectivity unit connector **OJ** pin 1 – Measuring point **Ground (-)**



### Info


For the measurement, the measuring points must be subjected to a 12 V/21 W bulb.

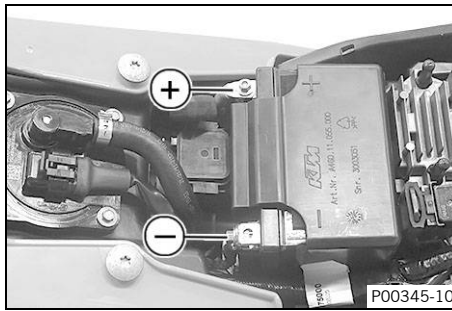
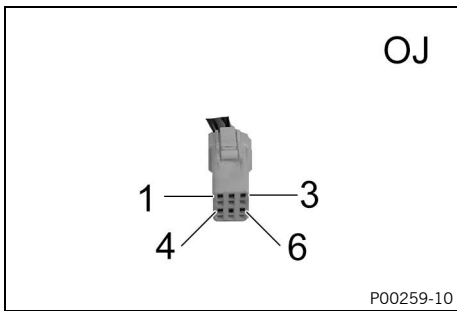
The value must not deviate from the battery voltage "**VBAT**" by more than 1 V.

- » If the specifications have not been met:
  - Check connector **OJ** ( p. 131) pin 1.
  - Check the cable from connector **OJ** ( p. 131) pin 1 to the next node in the wiring harness.
- » If the specifications have been met:
  - Check the next possible cause:  
Connectivity Unit – power supply 2 is faulty ( p. 102)

## Connectivity Unit – power supply 2 is faulty

### Condition

The diagnostics tool is connected and running.  
Connectivity Unit is disconnected. ( p. 18)



### Connectivity Unit – check power supply 2.

- **V** Measure the voltage between the specified points.  
Connectivity unit connector **OJ** pin **6** – Measuring point **Ground (-)**




#### Info

For the measurement, the measuring points must be subjected to a 12 V/21 W bulb.

The value must not deviate from the battery voltage "**VBAT**" by more than 1 V.

- » If the specifications have not been met:
  - Check connector **OJ** (📖 p. 131) pin **6**.
  - Check the cable from connector **OJ** (📖 p. 131) pin **6** to the next node in the wiring harness.
- » If the specifications have been met:
  - Contact customer service.

<b>Connectivity Unit blink code</b>	 Indicator lamp flashes red once
<b>Display on diagnostic tool</b>	B10FE4B "Connectivity Unit" "Temperature too high"
<b>Error level condition</b>	Temperature too high Temperature: $\geq 70\text{ °C}$ ( $\geq 158\text{ °F}$ )
<b>Function check</b>	Checking the Connectivity Unit temperature (🔧 p. 104)
<b>Last measure if none of the documented causes leads to elimination of the fault</b>	– Contact customer service.

## Checking the Connectivity Unit temperature

### Condition

The diagnostics tool is connected and running.

- Check the plausibility of the Connectivity Unit temperature being exceeded.


### Guideline

Result is plausible.
----------------------

- » If the specified value is reached:
  - Clear the fault memory using the KTM diagnostics tool.
  - Read out the fault memory using the KTM diagnostics tool.
- » If the specification is not reached:
  - Change Connectivity Unit.

### Last measure if none of the documented causes leads to elimination of the fault

- Contact customer service.

<b>Connectivity Unit blink code</b>	 Indicator lamp flashes red once
<b>Display on diagnostic tool</b>	B10FF00 "Connectivity Unit" "Temperature too low"
<b>Error level condition</b>	Temperature too low Temperature: $\leq -10$ °C ( $\leq 14$ °F)
<b>Function check</b>	Checking the Connectivity Unit temperature (📖 p. 105)
<b>Last measure if none of the documented causes leads to elimination of the fault</b>	– Contact customer service.

### Checking the Connectivity Unit temperature

#### Condition

The diagnostics tool is connected and running.

- Check the plausibility of the Connectivity Unit temperature being exceeded.

#### Guideline


Result is plausible.
----------------------

- » If the specified value is reached:
  - Clear the fault memory using the KTM diagnostics tool.
  - Read out the fault memory using the KTM diagnostics tool.
- » If the specification is not reached:
  - Change Connectivity Unit.

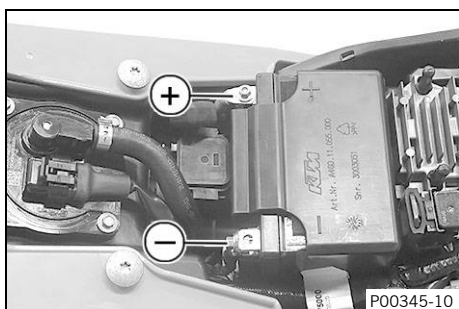
#### Last measure if none of the documented causes leads to elimination of the fault

- Contact customer service.

## 4 TROUBLE CODE, CONNECTIVITY UNIT

<b>Connectivity Unit blink code</b>	 Indicator lamp flashes red once
<b>Display on diagnostic tool</b>	B110092 "Connectivity Unit" "CPU overload"
<b>Error level condition</b>	CPU overload
<b>Function check</b>	Resetting the Connectivity Unit (🔧 p. 106)
<b>Last measure if none of the documented causes leads to elimination of the fault</b>	– Contact customer service.


### Resetting the Connectivity Unit



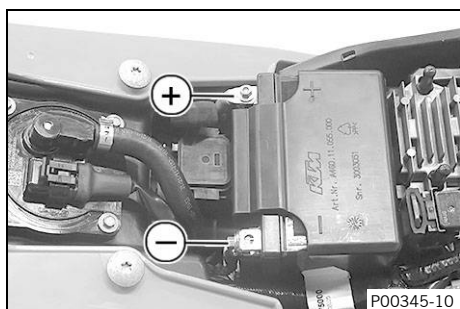
- Disconnect the negative terminal of the 12-V battery.
- Wait for 10 minutes.
- Connect the negative terminal of the 12-V battery.
- Clear the fault memory using the KTM diagnostics tool.
- Disconnect the diagnostics tool for 20 seconds.
- Read out the fault memory using the KTM diagnostics tool.
  - » If the error persists:
    - Change Connectivity Unit.

**Last measure if none of the documented causes leads to elimination of the fault**

- Contact customer service.

<b>Connectivity Unit blink code</b>	 Indicator lamp flashes red once
<b>Display on diagnostic tool</b>	B110192 "Connectivity Unit" "RAM overload"
<b>Error level condition</b>	RAM overload
<b>Function check</b>	Resetting the Connectivity Unit (📖 p. 107)
<b>Last measure if none of the documented causes leads to elimination of the fault</b>	– Contact customer service.

### Resetting the Connectivity Unit




- Disconnect the negative terminal of the 12-V battery.
- Wait for 10 minutes.
- Connect the negative terminal of the 12-V battery.
- Clear the fault memory using the KTM diagnostics tool.
- Disconnect the diagnostics tool for 20 seconds.
- Read out the fault memory using the KTM diagnostics tool.
  - » If the error persists:
    - Change Connectivity Unit.

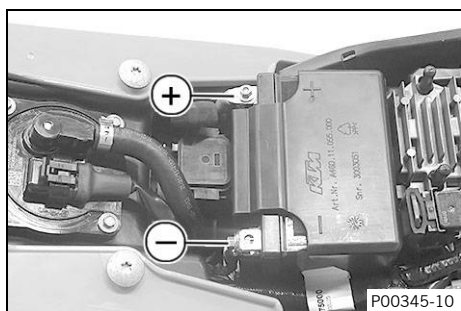
**Last measure if none of the documented causes leads to elimination of the fault**

- Contact customer service.

## 4 TROUBLE CODE, CONNECTIVITY UNIT

<b>Connectivity Unit blink code</b>	 Indicator lamp flashes red seven times
<b>Display on diagnostic tool</b>	B110292 "Connectivity Unit" "ROM overload"
<b>Error level condition</b>	ROM overload
<b>Function check</b>	Resetting the Connectivity Unit (🔧 p. 108)
<b>Last measure if none of the documented causes leads to elimination of the fault</b>	– Contact customer service.


### Resetting the Connectivity Unit



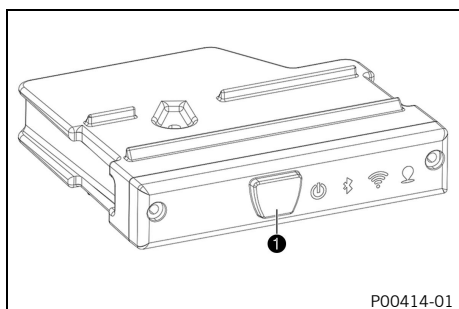
- Disconnect the negative terminal of the 12-V battery.
- Wait for 10 minutes.
- Connect the negative terminal of the 12-V battery.
- Clear the fault memory using the KTM diagnostics tool.
- Disconnect the diagnostics tool for 20 seconds.
- Read out the fault memory using the KTM diagnostics tool.
  - » If the error persists:
    - Change Connectivity Unit.

**Last measure if none of the documented causes leads to elimination of the fault**

- Contact customer service.

<b>Connectivity Unit blink code</b>	 Indicator lamp flashes red six times
<b>Display on diagnostic tool</b>	B110300 "Connectivity Unit" "Deviation in VIN"
<b>Error level condition</b>	VIN does not match
<b>Function check</b>	Resetting Connectivity Unit to factory settings (🔧 p. 109)
<b>Last measure if none of the documented causes leads to elimination of the fault</b>	– Contact customer service.

### Resetting Connectivity Unit to factory settings




- Press and hold the ❶ button (6 s...12 s) – the Connectivity Unit is prepared for being reset to factory settings.
- Press and hold the ❶ button (12 s...18 s) – the Connectivity Unit is reset to factory settings.
- Reconnect the Connectivity Unit to the app on the smartphone.
- Clear the fault memory using the KTM diagnostics tool.
- Disconnect the diagnostics tool for 30 seconds.
- Read out the fault memory using the KTM diagnostics tool.
  - » If the error persists:
    - Change Connectivity Unit.

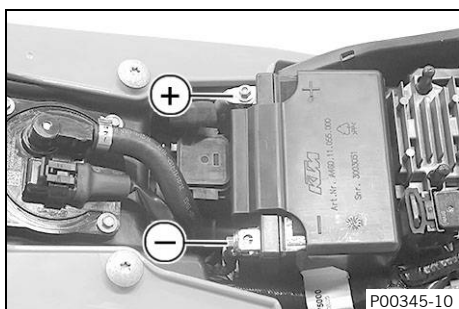
**Last measure if none of the documented causes leads to elimination of the fault**

- Contact customer service.

## 4 TROUBLE CODE, CONNECTIVITY UNIT

<b>Connectivity Unit blink code</b>	 Indicator lamp flashes red eight times
<b>Display on diagnostic tool</b>	B110600 "Connectivity Unit" "Reset with active fuse"
<b>Error level condition</b>	Attempt a reset with active fuse
<b>Function check</b>	Resetting the Connectivity Unit (🔧 p. 110)
<b>Last measure if none of the documented causes leads to elimination of the fault</b>	– Contact customer service.


### Resetting the Connectivity Unit



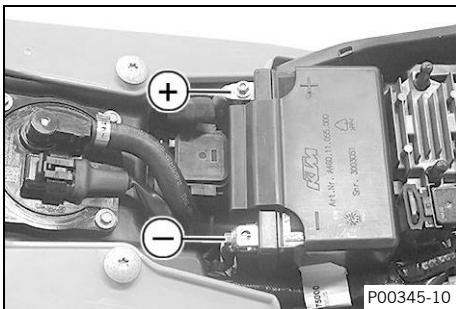
- Disconnect the negative terminal of the 12-V battery.
- Wait for 10 minutes.
- Connect the negative terminal of the 12-V battery.
- Clear the fault memory using the KTM diagnostics tool.
- Disconnect the diagnostics tool for 20 seconds.
- Read out the fault memory using the KTM diagnostics tool.
  - » If the error persists:
    - Change Connectivity Unit.

**Last measure if none of the documented causes leads to elimination of the fault**

- Contact customer service.

<b>Connectivity Unit blink code</b>	 Indicator lamp flashes red once
<b>Display on diagnostic tool</b>	B110744 "Connectivity Unit" "Data storage error"
<b>Error level condition</b>	Flash storage formatted due to storage damage
<b>Function check</b>	Resetting the Connectivity Unit (📖 p. 111)
<b>Last measure if none of the documented causes leads to elimination of the fault</b>	– Contact customer service.

### Resetting the Connectivity Unit




- Disconnect the negative terminal of the 12-V battery.
- Wait for 10 minutes.
- Connect the negative terminal of the 12-V battery.
- Clear the fault memory using the KTM diagnostics tool.
- Disconnect the diagnostics tool for 20 seconds.
- Read out the fault memory using the KTM diagnostics tool.
  - » If the error persists:
    - Change Connectivity Unit.

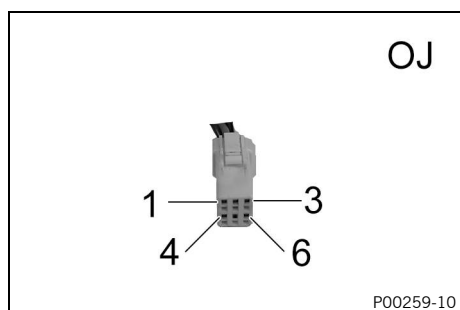
**Last measure if none of the documented causes leads to elimination of the fault**

- Contact customer service.

## 4 TROUBLE CODE, CONNECTIVITY UNIT

<b>Connectivity Unit blink code</b>	 Indicator lamp flashes red twice
<b>Display on diagnostic tool</b>	U100288 "Connectivity Unit" "CAN bus communication faulty"
<b>Error level condition</b>	CAN bus communication faulty
<b>Possible cause</b>	Check the CAN bus total resistance (🔧 p. 112)
<b>Last measure if none of the documented causes leads to elimination of the fault</b>	– Contact customer service.


### Check the CAN bus total resistance



#### Condition


The diagnostics tool is disconnected.  
Connectivity Unit is disconnected. (🔧 p. 18)

#### CAN bus total resistance – check the resistance.

-  Measure the resistance between the specified points.  
Connectivity unit connector **OJ** pin **2** – Connectivity unit connector **OJ** pin **3**

CAN bus total resistance	
Resistance on connected engine control unit and CAN bus terminating resistor: 20 °C (68 °F)	54 ... 66 Ω

- » If the specifications have not been met:
  - Check the CAN bus wires.
- » If the specifications have been met:
  - Contact customer service.


<b>Connectivity Unit blink code</b>	 Indicator lamp flashes red twice
<b>Display on diagnostic tool</b>	U100408 "Connectivity Unit" "Faulty CAN bus communication with engine control unit"
<b>Error level condition</b>	Faulty CAN bus communication with engine control unit
<b>Possible cause</b>	Check the CAN bus total resistance (📖 p. 113)
<b>Last measure if none of the documented causes leads to elimination of the fault</b>	– Contact customer service.

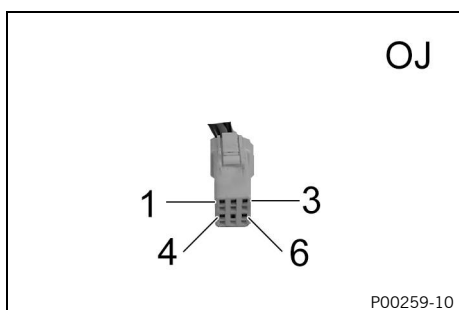
## Check the CAN bus total resistance

### Condition

The diagnostics tool is disconnected.  
 Connectivity Unit is disconnected. (📖 p. 18)

### CAN bus total resistance – check the resistance.


-  Measure the resistance between the specified points.  
 Connectivity unit connector **OJ** pin **2** – Connectivity unit connector **OJ** pin **3**



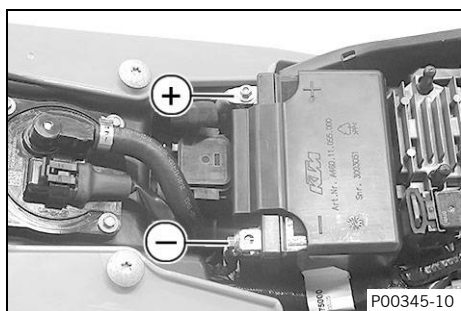
CAN bus total resistance	
Resistance on connected engine control unit and CAN bus terminating resistor: 20 °C (68 °F)	54 ... 66 Ω

- » If the specifications have not been met:
  - Check the CAN bus wires.
- » If the specifications have been met:
  - Contact customer service.

## 4 TROUBLE CODE, CONNECTIVITY UNIT

<b>Connectivity Unit blink code</b>	 Indicator lamp flashes red once
<b>Display on diagnostic tool</b>	U101201 "Connectivity Unit" "CAN bus hardware communication faulty"
<b>Error level condition</b>	CAN bus driver faulty
<b>Function check</b>	Resetting the Connectivity Unit (🔧 p. 114)
<b>Last measure if none of the documented causes leads to elimination of the fault</b>	– Contact customer service.

### Resetting the Connectivity Unit

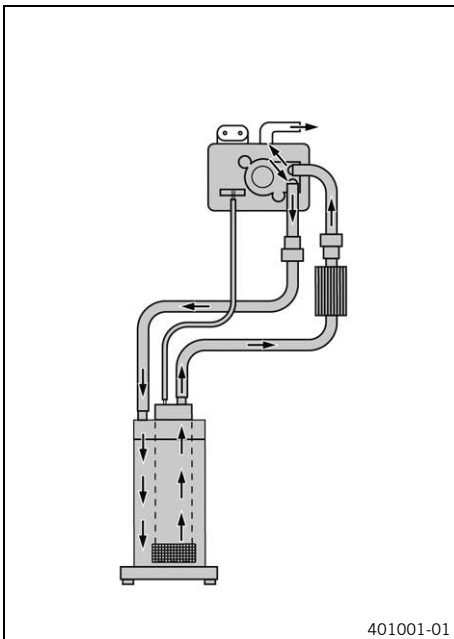


- Disconnect the negative terminal of the 12-V battery.
- Wait for 10 minutes.
- Connect the negative terminal of the 12-V battery.
- Clear the fault memory using the KTM diagnostics tool.
- Disconnect the diagnostics tool for 20 seconds.
- Read out the fault memory using the KTM diagnostics tool.
  - » If the error persists:
    - Change Connectivity Unit.

**Last measure if none of the documented causes leads to elimination of the fault**

- Contact customer service.

## 5.1 Fuel pump controller operation



### Functional description

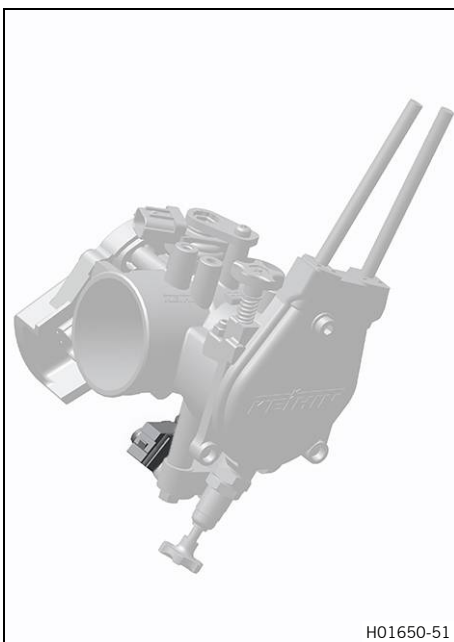
- The engine control unit activates the fuel pump controller.



### Info

The test can be interrupted by pressing the "Quit" button.

## 5.2 Injection valve cylinder 1 function



### Functional description

#### Note

**Material damage** Insufficient fuel lubricant has a negative effect on the service life of the injection valve.

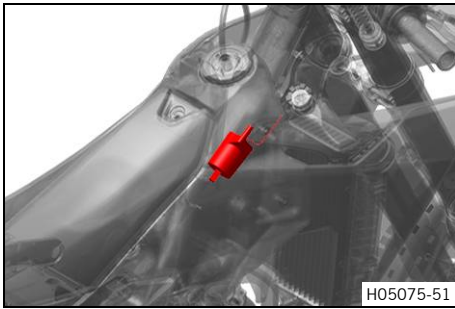
- Perform the actuator test only when the throttle valve body is connected to the fuel line.
- The injection valve is supplied with power via terminal 15. After the actuator test is started, the engine control unit switches the injection valve ground signal on/off. An acoustic confirmation signal confirms correct operation.



### Info

The test ends automatically after 10 seconds.

## 5.3 Ignition cylinder 1 function



### Functional description



#### Warning

**Risk of injury** The ignition system is under high voltage.

- Do not touch any affected metal parts or the ends of the connection cables during and immediately after the measurement.

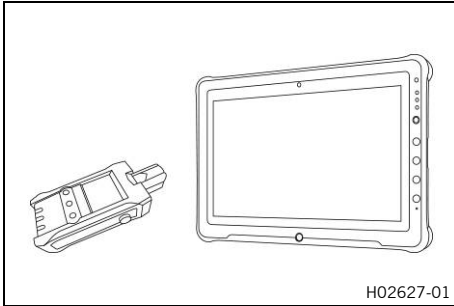
- After the actuator test starts, the engine control unit triggers a thyristor in the control unit. In this way, the capacitor can be abruptly discharged. An audible signal or a test spark plug is used to check the function of the ignition.



#### Info

The test is interrupted by pressing the **"Quit"** button.

## 6.1 Performing the initialization run



### Condition

The diagnostics tool is connected and running.  
Software version is up to date. All model-specific variant codes are correct.

- Execute **"Engine control unit" > "Functions" > "Clear adaptation values"**.
- ✓ The adaptation values are deleted.
- Program the gear position sensor. (📖 p. 118)
- Program the quickshifter. (📖 p. 118)
- Select **"Engine control unit" > "Functions" > "Initialization Run"**.

### Guideline

The instructions must be followed precisely.

- ✓ Initialization run successful.

### **i** Info

If initialization is not completed or if the initialization process was interrupted, the entire process must be restarted.

- Check adaptation values for plausibility and error memory for entries using the diagnostics tool.



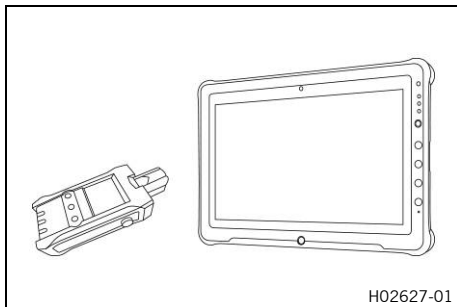
## 7.1 Program the gear position sensor

### Condition

The diagnostics tool is connected and running.

### Main work

- Execute "**Engine control unit**" > "**Functions**" > "**Program the gear position sensor**".
- Follow the instructions in the diagnostics tool exactly.



### Final steps

- Program the quickshifter. (📖 p. 118)

## 7.2 Programming the quickshifter



### Info

If the shifting performance of the quickshifter starts to decrease, it must be reprogrammed.



- Carry out start procedure.
- Press and hold the QS button ❶ for at least 10 seconds.
  - ✓ The QS indicator lamp flashes.
- Pull the clutch lever, engage first-gear and hold the shift lever all the way down.
- Briefly press the QS button ❶.
  - ✓ The QS indicator lamp lights up blue, the teaching procedure was successful.

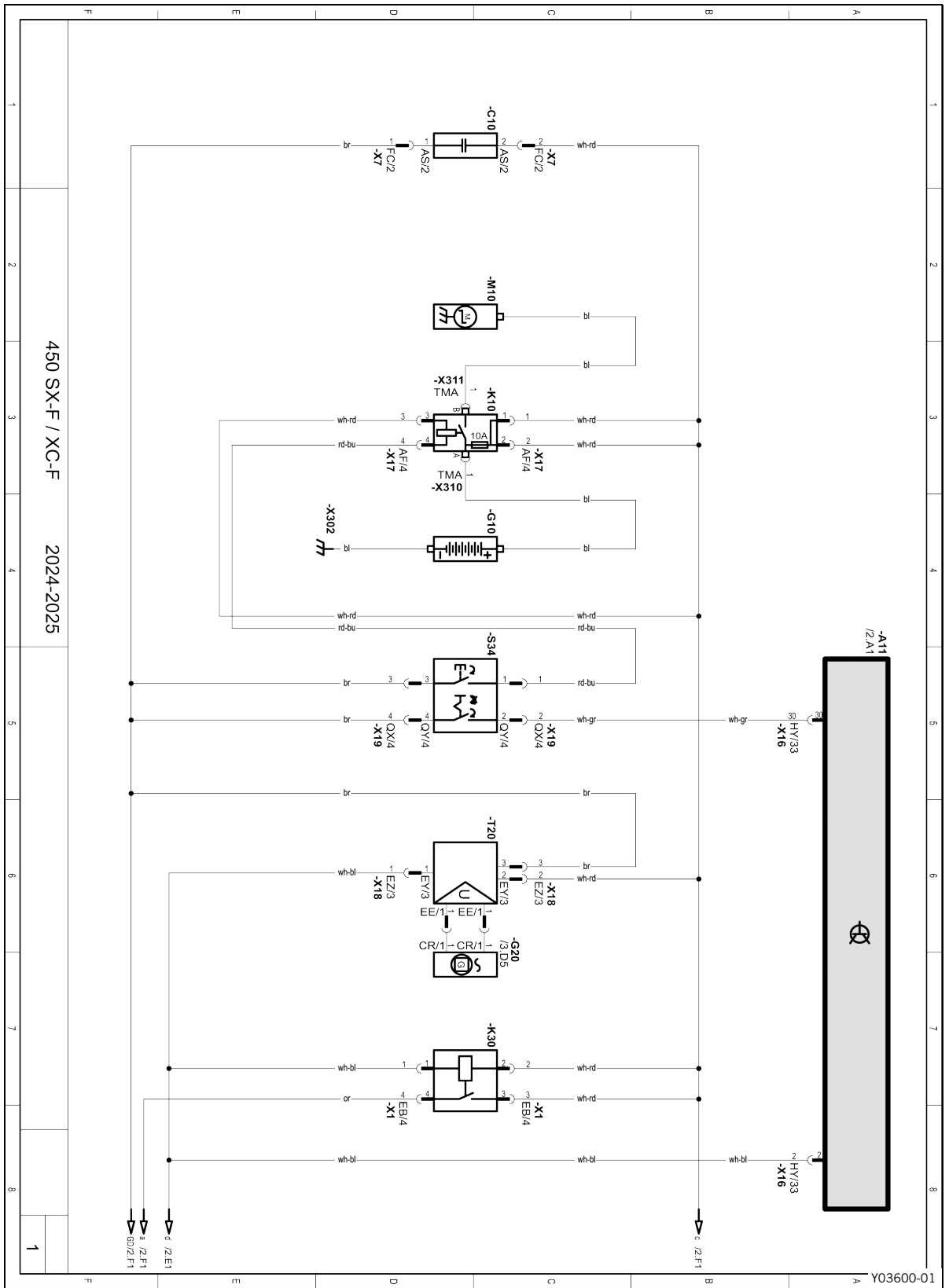


### Info

If the quickshifter cannot be activated, the teaching procedure was unsuccessful and must be repeated.

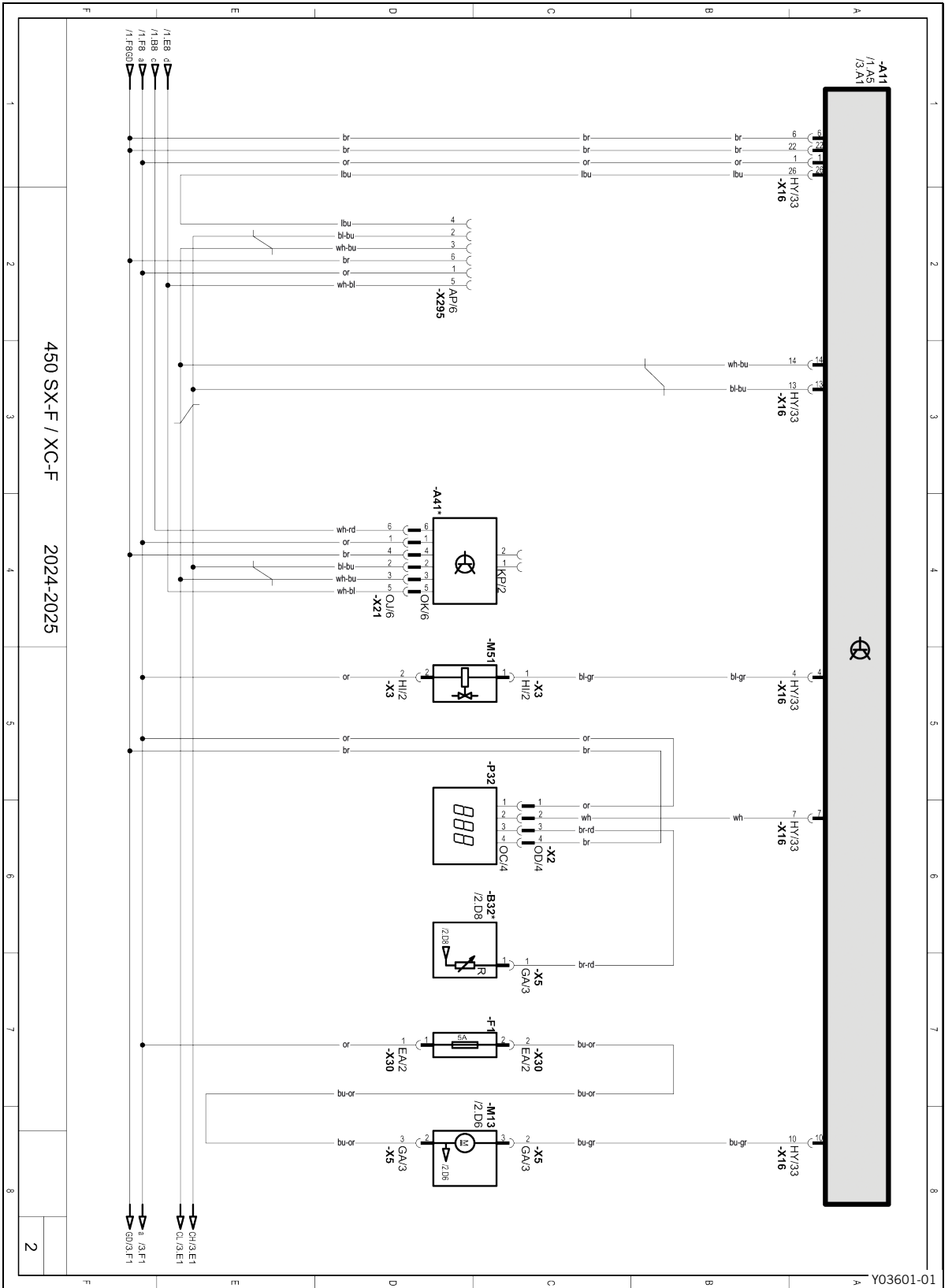


# 8 WIRING DIAGRAM



**Components:**

A11	Engine control unit
C10	Capacitor
G10	12-V battery
G20	Alternator
K10	Starter relay with main fuse
K30	Power relay
M10	Starter motor
T20	Voltage regulator
S34	Combination switch, right



**Components:**

A11	Engine control unit
A41	Connectivity Unit (if installed)
B32	Fuel level sensor (if installed)
F1	Fuse
M13	Fuel pump
M51	Injection valve
P32	Service hour counter
X295	Diagnostics connector



**Components:**

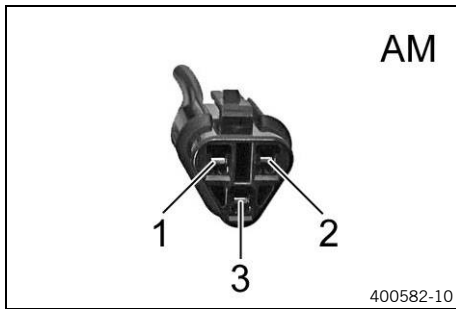
A11	Engine control unit
B12	Intake air temperature sensor
B21	Coolant temperature sensor
B26	Tilt sensor
B34	Gear position sensor
B37	Crankshaft speed sensor
B41	Induction manifold pressure sensor
B43	Throttle valve position sensor
R30	Terminating resistor (if installed)
R51	Ignition coil
S33	Combination switch (if fitted)

**Cable colors:**

bl	Black
br	Brown
bu	Blue
gn	Green
gr	Gray
lbu	Light blue
or	Orange
pk	Pink
pu	Violet
rd	Red
wh	White
ye	Yellow

# 9 CONNECTOR OVERVIEW

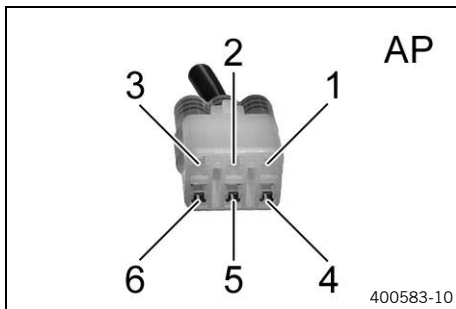
## 9.1 Tilt sensor connector AM



### Pin overview

1	Sensor ground
2	Power supply
3	Signal wire

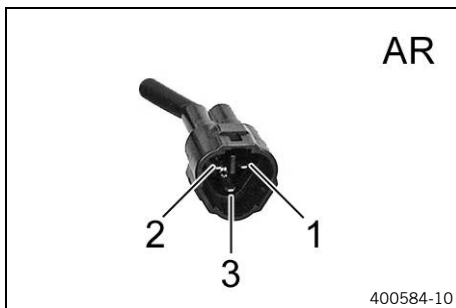
## 9.2 Diagnostics connector AP



### Pin overview

1	Wired ground
2	CAN high
3	CAN low
4	K wire
5	Power supply (terminal 15)
6	Ground

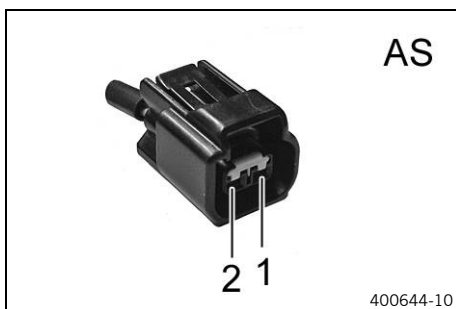
## 9.3 Tilt sensor connector AR



### Pin overview

1	Sensor ground
2	Power supply
3	Signal wire

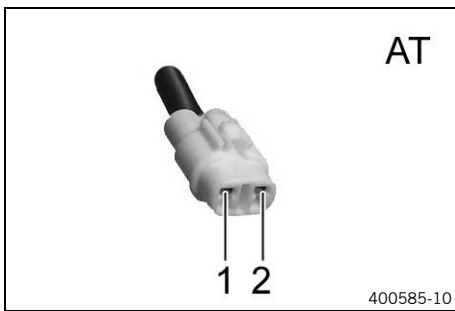
## 9.4 Capacitor connector AS



### Pin overview

1	Ground (terminal 31)
2	Power supply (terminal 15)

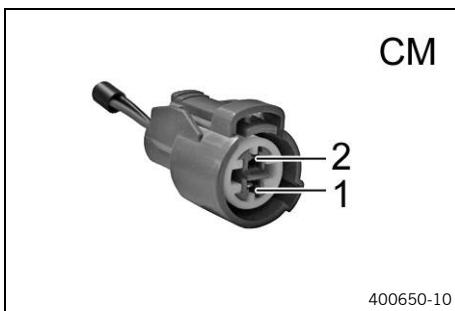
## 9.5 Crankshaft speed sensor connector AT



### Pin overview

- |   |             |
|---|-------------|
| 1 | Signal wire |
| 2 | Signal wire |

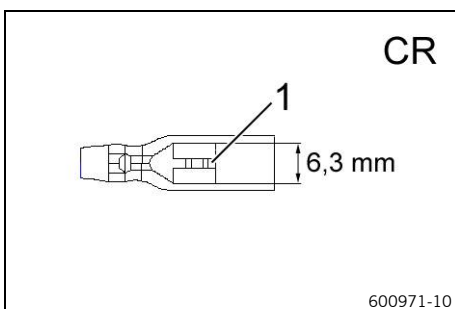
## 9.6 Intake air temperature sensor connector CM



### Pin overview

- |   |               |
|---|---------------|
| 1 | Signal wire   |
| 2 | Sensor ground |

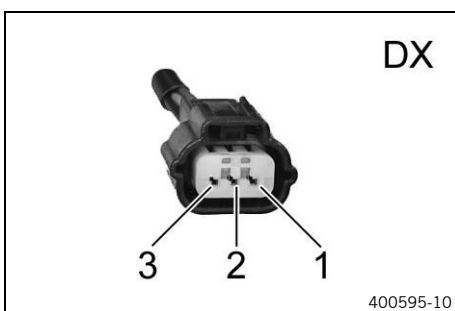
## 9.7 Ignition coil, connector CR



### Pin overview

- |   |              |
|---|--------------|
| 1 | Control wire |
|---|--------------|

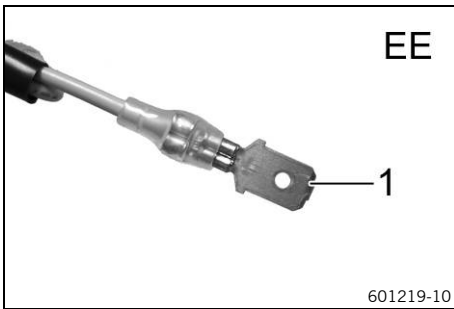
## 9.8 Induction manifold pressure sensor, connector DX



### Pin overview

- |   |               |
|---|---------------|
| 1 | Power supply  |
| 2 | Signal wire   |
| 3 | Sensor ground |

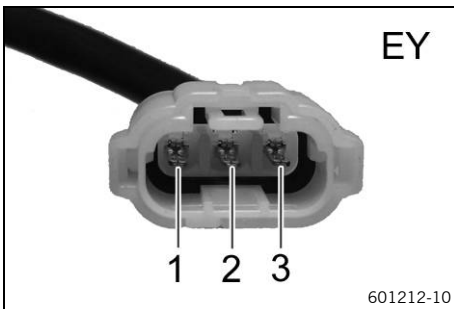
## 9.9 Voltage regulator, connector EE



### Pin overview

1	Signal wire
---	-------------

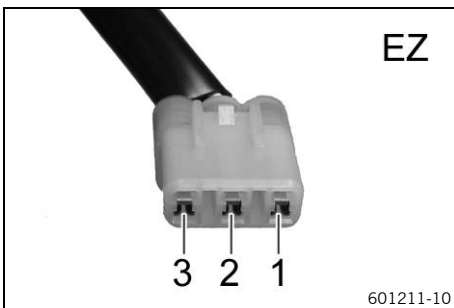
## 9.10 Voltage regulator, connector EY



### Pin overview

1	Control wire
2	Power supply (terminal 15)
3	Ground (terminal 31)

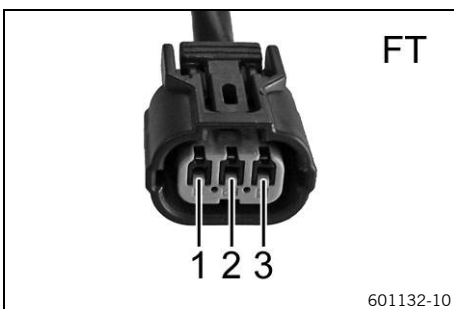
## 9.11 Voltage regulator, connector EZ



### Pin overview

1	Control wire
2	Power supply (terminal 15)
3	Ground (terminal 31)

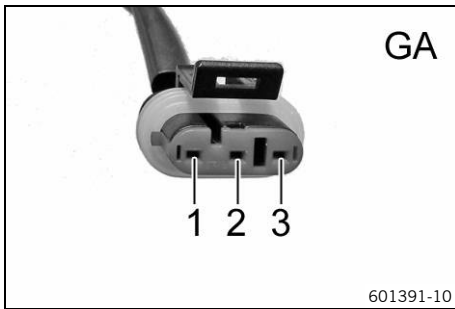
## 9.12 Throttle valve position sensor circuit A, connector FT



### Pin overview

1	Power supply
2	Signal wire
3	Sensor ground

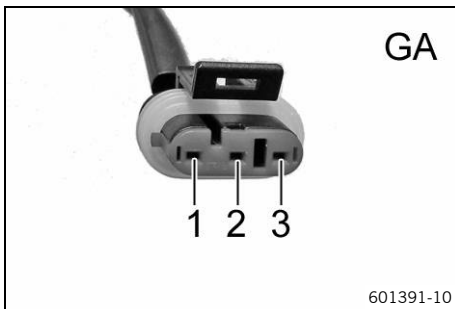
## 9.13 Fuel pump, connector GA (450 SX-F EU, 450 SX-F US, 450 SX-F BR)



### Pin overview

- |   |              |
|---|--------------|
| 1 | Not assigned |
| 2 | Control wire |
| 3 | Power supply |

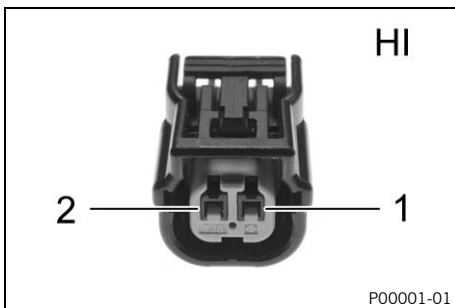
## 9.14 Fuel pump, connector GA (450 XC-F US)



### Pin overview

- |   |                                |
|---|--------------------------------|
| 1 | Signal wire, fuel level sensor |
| 2 | Control wire                   |
| 3 | Power supply                   |

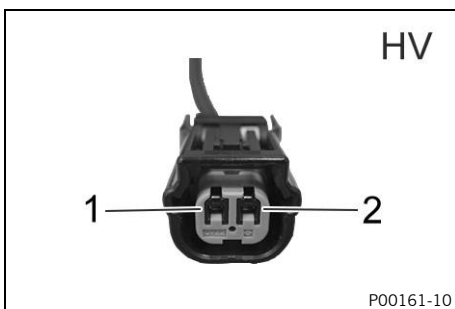
## 9.15 Injection valve cylinder 1, connector HI



### Pin overview

- |   |              |
|---|--------------|
| 1 | Control wire |
| 2 | Power supply |

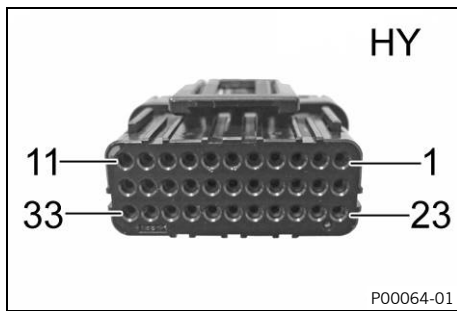
## 9.16 Coolant temperature sensor connector HV



### Pin overview

- |   |               |
|---|---------------|
| 1 | Signal wire   |
| 2 | Sensor ground |

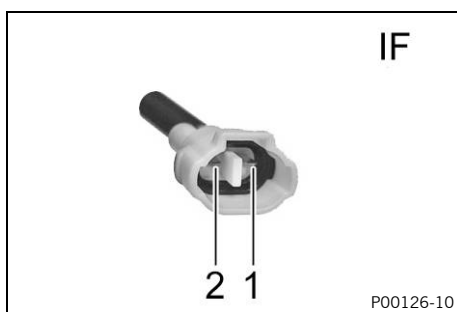
## 9.17 Engine control unit connector HY



### Pin overview

1	Power supply (terminal 15)
2	Wired ground from voltage regulator
3	Not assigned
4	Control wire, injection valve
5	Not assigned
6	Ground (terminal 31)
7	Control wire <b>FI</b> malfunction indicator lamp
8	Not assigned
9	Not assigned
10	Control wire, fuel pump relay
11	Control wire, ignition coil
12	Power supply, sensor
13	CAN high
14	CAN low
15	Signal wire, throttle valve position sensor
16	Signal wire, tilting sensor
17	Sensor ground
18	Signal wire, gear position sensor
19	Signal wire, intake air temperature sensor
20	Not assigned
21	Signal wire, coolant temperature sensor
22	Ground (terminal 31)
23	Signal wire, crankshaft speed sensor
24	Signal wire, crankshaft speed sensor
25	Not assigned
26	K wire, KTM diagnostics tool
27	Signal wire, induction manifold pressure sensor
28	Not assigned
29	Not assigned
30	Control wire, stop button
31	Not assigned
32	Not assigned
33	Ground (terminal 31)

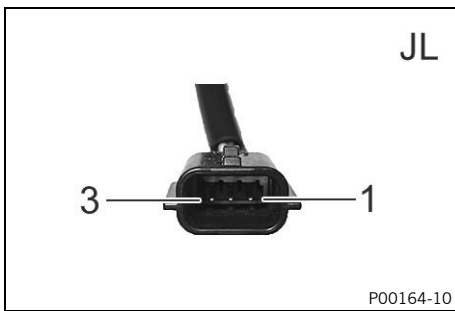
## 9.18 Crankshaft speed sensor connector IF



### Pin overview

1	Signal wire
2	Signal wire

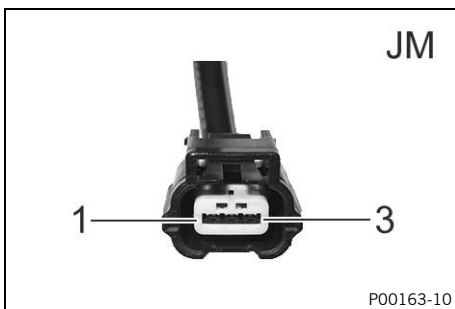
## 9.19 Gear position sensor, connector JL



### Pin overview

1	Power supply
2	Signal wire
3	Ground

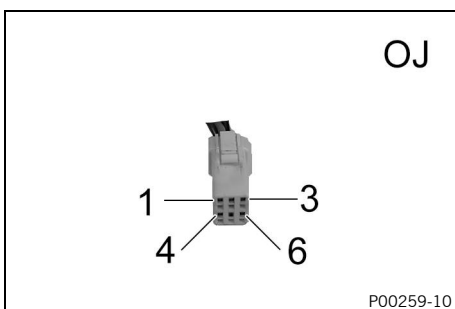
## 9.20 Gear position sensor, connector JM



### Pin overview

1	Power supply
2	Signal wire
3	Sensor ground

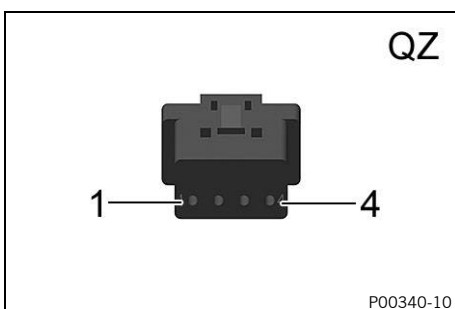
## 9.21 Connectivity unit connector OJ



### Pin overview

1	Power supply (terminal 15)
2	CAN high
3	CAN low
4	Ground
5	Ground
6	Power supply (terminal 30)

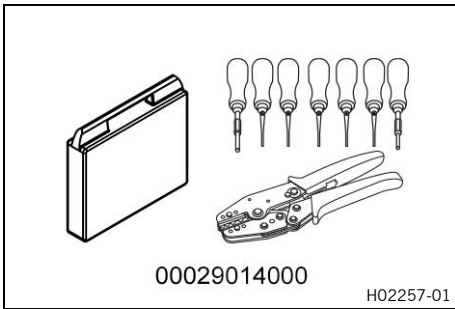
## 9.22 Map select switch connector QZ



### Pin overview

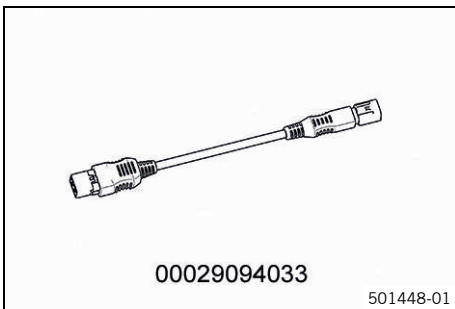
1	Power supply
2	CAN high
3	CAN low
4	Ground wire

## Cable connector unlocking kit



Art. no.: 00029014000

## Diagnostics adapter cable

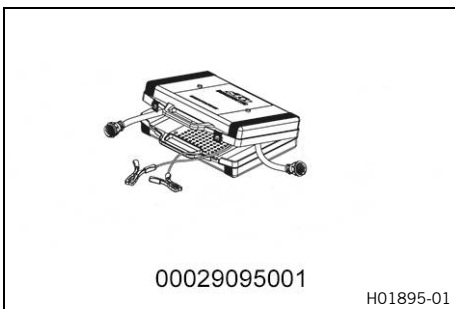


Art. no.: 00029094033

### Feature

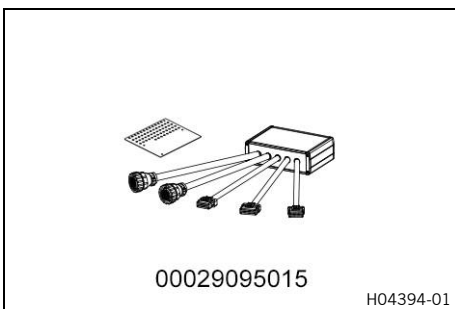
Length approx.	25.8 cm (10.16 in)
----------------	--------------------

## Break out box



Art. no.: 00029095001

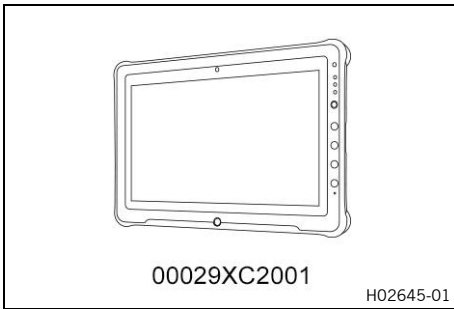
## Adapter and template KTKS



Art. no.: 00029095015

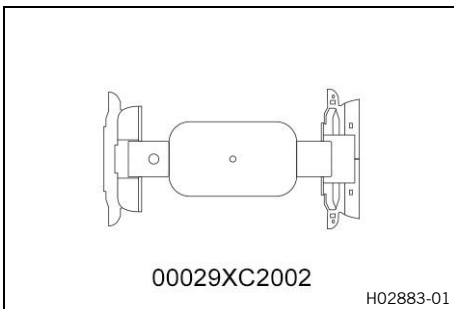
**Diagnostics tablet**

Art. no.: 00029XC2001



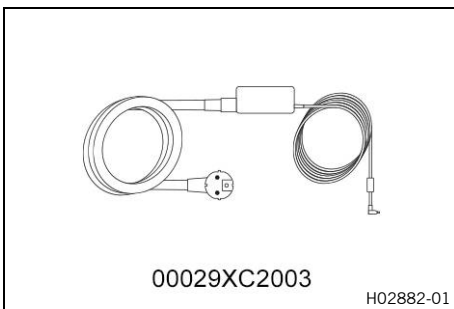
**Hand strap**

Art. no.: 00029XC2002



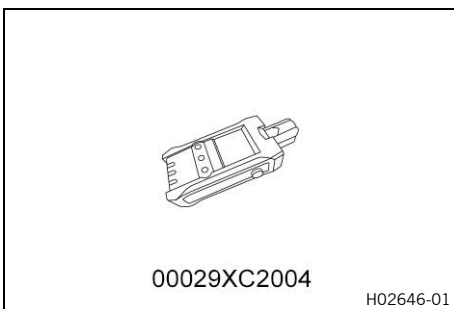
**Battery charger**

Art. no.: 00029XC2003

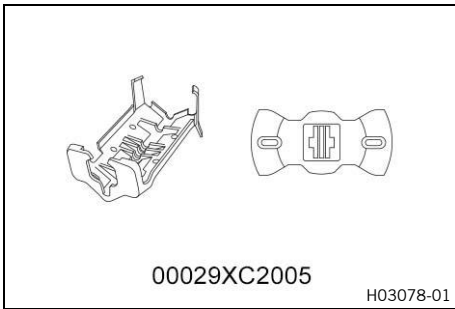


**VCI**

Art. no.: 00029XC2004

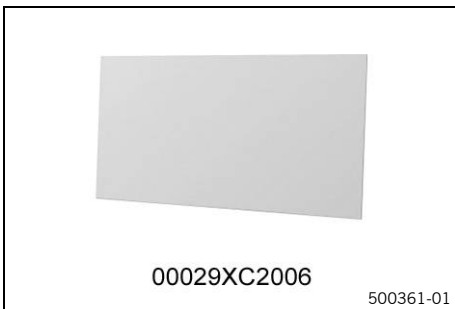


## VCI attachment



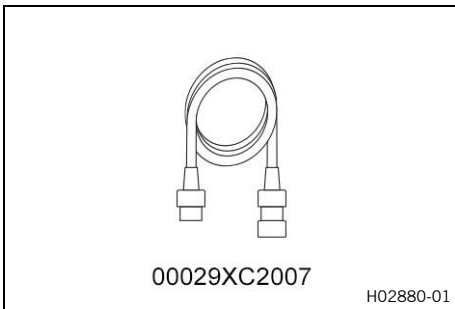
Art. no.: 00029XC2005

## Protective film



Art. no.: 00029XC2006

## Diagnostics cable extension



Art. no.: 00029XC2007

### Feature

Length approx.	1.15 m (3.77 ft)
----------------	------------------

## USB cable



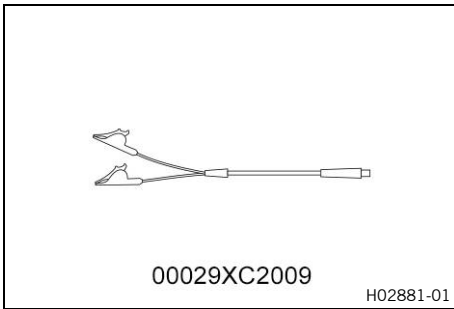
Art. no.: 00029XC2008

### Feature

Length approx.	5 m (16 ft)
----------------	-------------

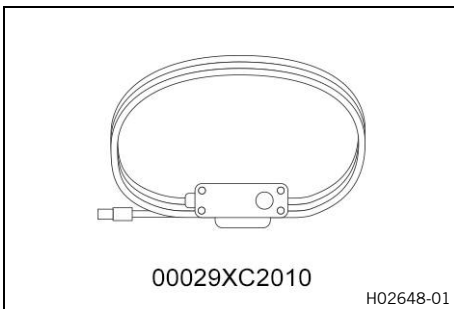
**12-V power supply cable**

Art. no.: 00029XC2009



**RideRecorder trigger**

Art. no.: 00029XC2010



**Case**

Art. no.: 00029XC2011

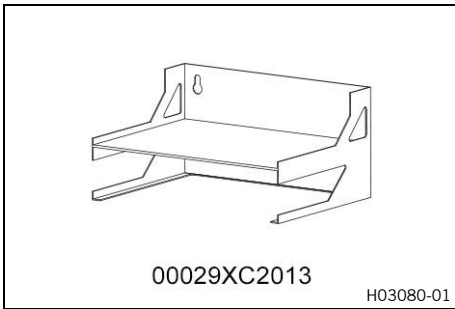


**Docking station**

Art. no.: 00029XC2012

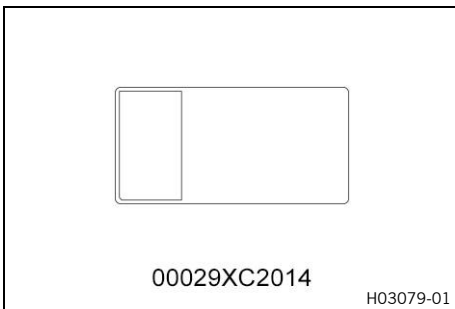


## Wall attachment



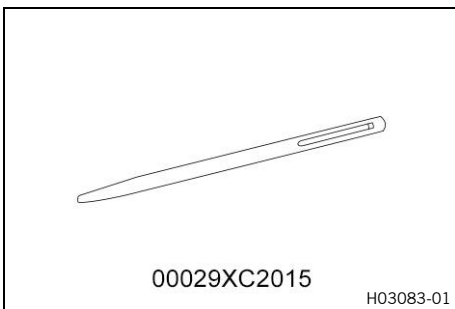
Art. no.: 00029XC2013

## Battery



Art. no.: 00029XC2014

## Input stylus



Art. no.: 00029XC2015

-	Launch control	Vehicles electronics functions for achieving the best possible acceleration from a standing position
OBD	On-board diagnosis	Vehicle system, which monitors the specified parameters of the vehicle electronics
TC	Traction Control	Auxiliary function of the motor control that reduces engine torque with spinning rear wheel

## 12 LIST OF ABBREVIATIONS

Art. no.	Article number
ca.	circa
cf.	compare
e.g.	for example
etc.	et cetera
i.a.	inter alia
no.	number
poss.	possibly

**1**

**12 V battery** . . . . . 8

**12-V battery**  
starting power . . . . . 9

**C**

**Capacitor** . . . . . 8

**Combination instrument** . . . . . 5

**Connectivity Unit** . . . . . 18

**Coolant temperature sensor** . . . . . 9

**Crankshaft speed sensor** . . . . . 11

**D**

**Diagnostics connector** . . . . . 17

**E**

**Engine control unit** . . . . . 17

**F**

**Fuel pump** . . . . . 6-7

**G**

**Gear position sensor** . . . . . 17  
programming . . . . . 118

**I**

**Idle speed adjusting screw** . . . . . 15

**Ignition coil** . . . . . 11

**Indicator lamps**  
Overview . . . . . 5

**Induction manifold pressure sensor** . . . . . 15

**Initialization run**  
performing . . . . . 117

**Injection valve** . . . . . 13

**Intake air temperature sensor** . . . . . 12

**L**

**Lithium-ion battery**  
starting power . . . . . 9

**O**

**Overview of indicator lamps** . . . . . 5

**Overview of relays** . . . . . 7

**Q**

**Quickshifter**  
programming . . . . . 118

**S**

**Starting power**  
lithium-ion batteries at low temperatures . . . . . 9

**T**

**Throttle valve position sensor circuit A** . . . . . 14

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