



15.1 Removing the 12-V battery

**Warning**

Risk of injury Battery acid and battery gases cause serious chemical burns.

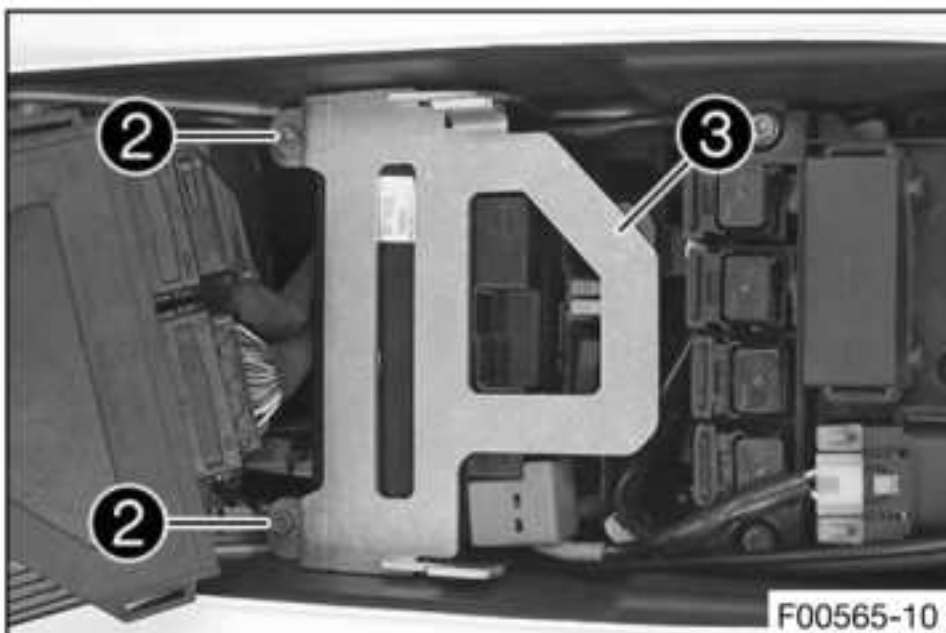
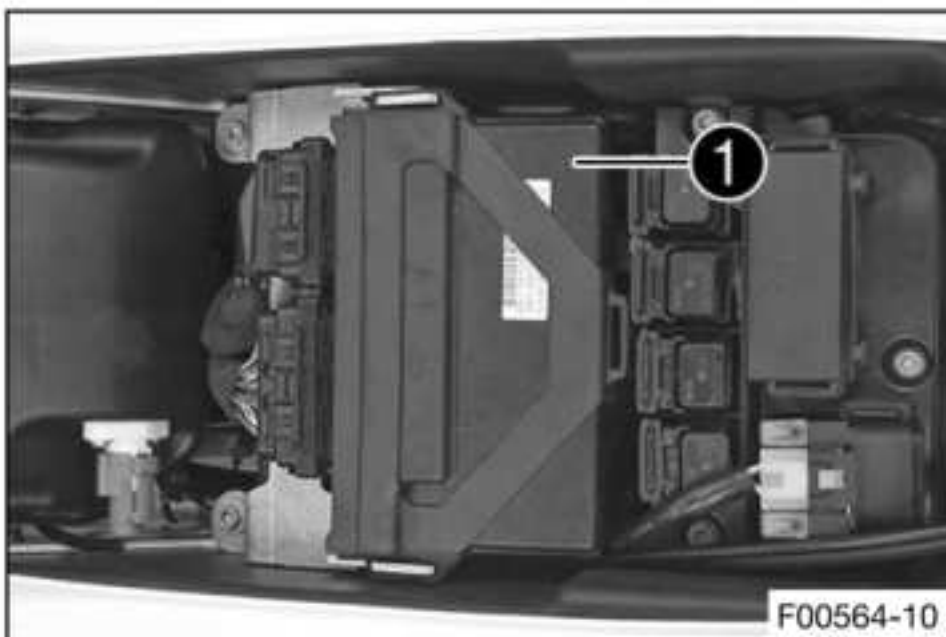
- Keep 12 V batteries out of the reach of children.
- Wear suitable protective clothing and safety glasses.
- Avoid contact with battery acid and battery gases.
- Keep sparks or open flames away from the 12 V battery.
- Only charge 12 V batteries in well-ventilated rooms.
- Rinse the affected area immediately with plenty of water in the event of contact with the skin.
- Rinse eyes with water for at least 15 minutes and consult a doctor immediately if battery acid and battery gases get into the eyes.

Preparatory work

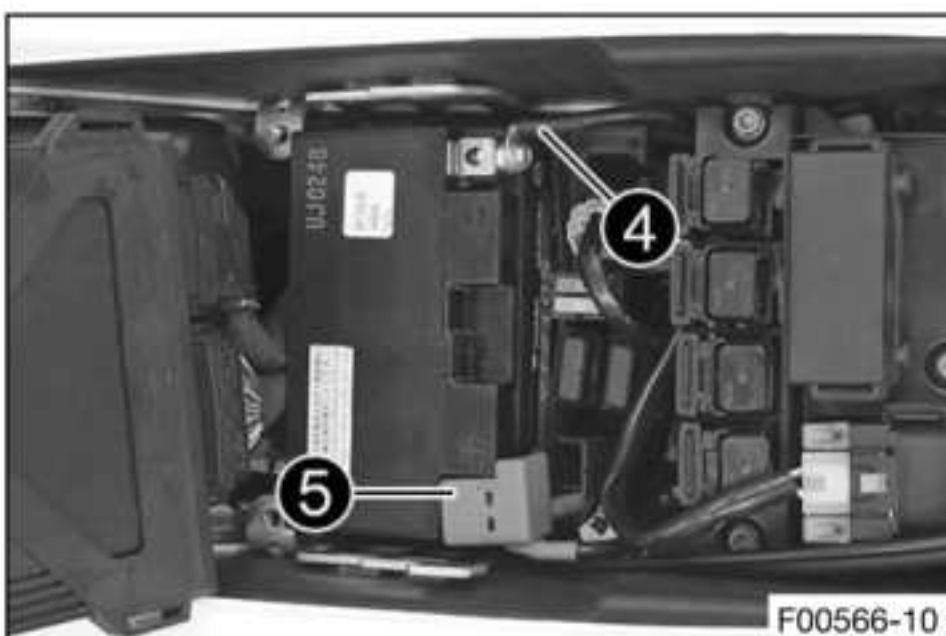
- Switch off the ignition by turning the ignition key to the **OFF**  position.
- Remove the seat. ( p. 93)

Main work

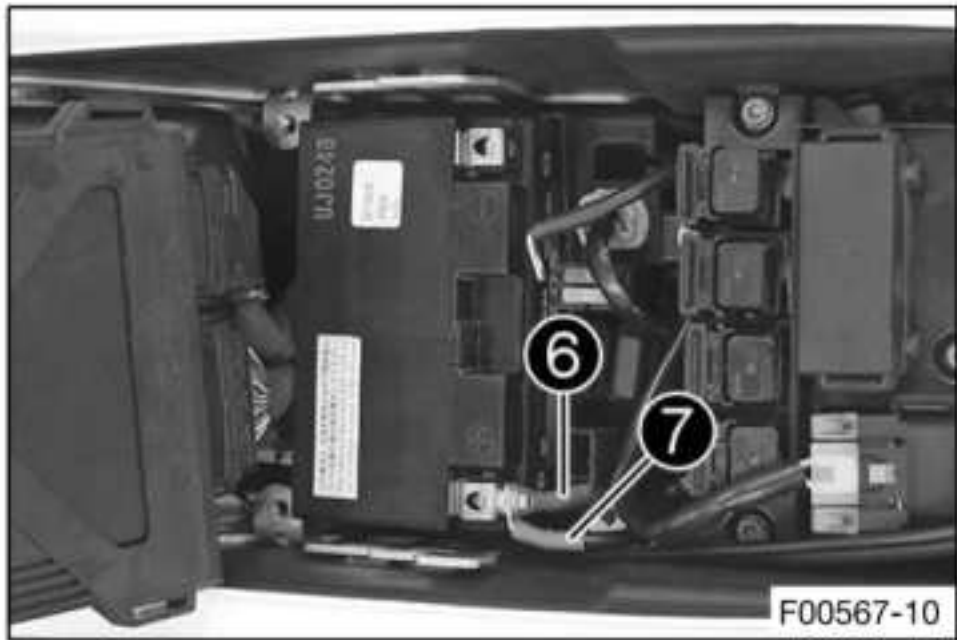
- Pull engine electronics control unit **1** off of the holder and set it to one side.



- Remove screws **2**.
- Pull retaining bracket **3** of the 12-V battery forward and remove it.



- Disconnect negative cable **4** from the 12-V battery.
- Take off positive terminal cover **5**.



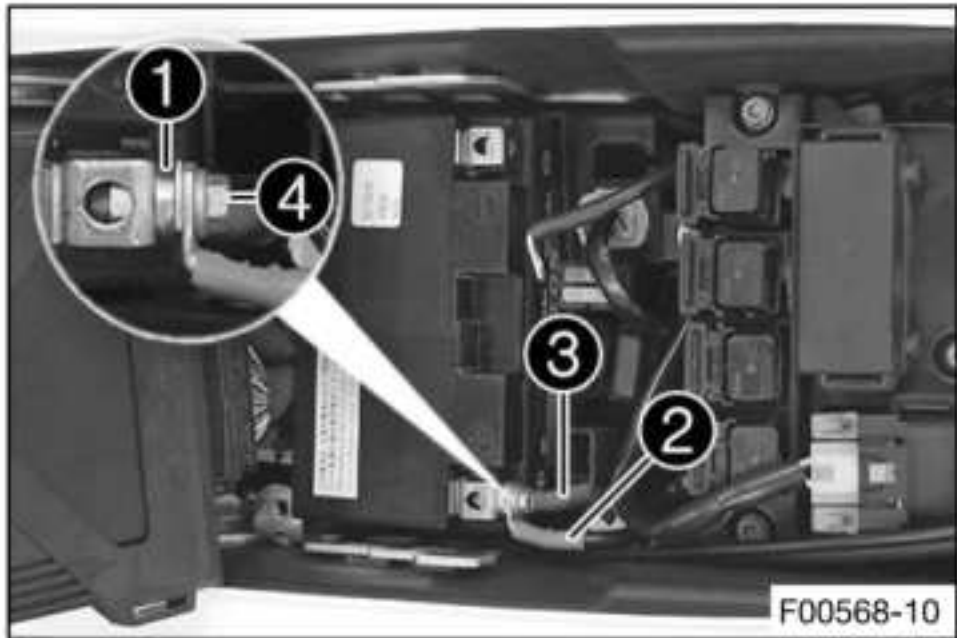
- Disconnect ABS connection cable ⑥ and positive cable ⑦ from the 12-V battery.
- Lift out the 12-V battery.

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Info

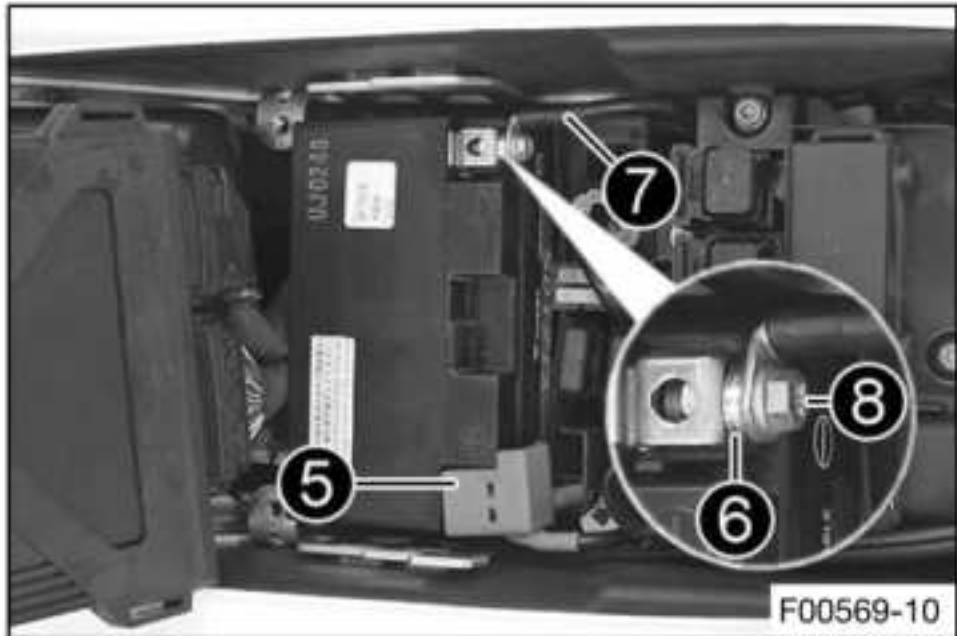
Never operate the motorcycle with a discharged 12-V battery or without a 12-V battery. In both cases, electrical components and safety devices can be damaged. The vehicle will therefore no longer be roadworthy.

15.2 Installing the 12-V battery



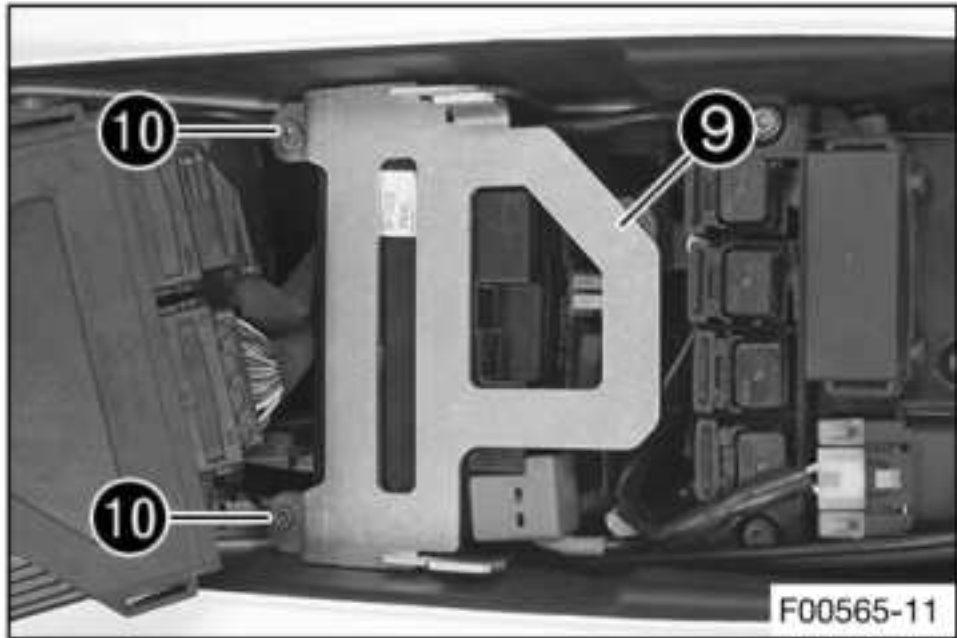
- Main work**
- Insert the 12-V battery into the battery compartment with the terminals facing to the rear.
- 12-V battery (YTZ10S) (p. 319)
- Position washer ①, positive cable ②, and ABS connection cable ③.
 - Mount and tighten screw ④.

Guideline		
Screw, battery terminal	M6	4.5 Nm (3.32 lbf ft)

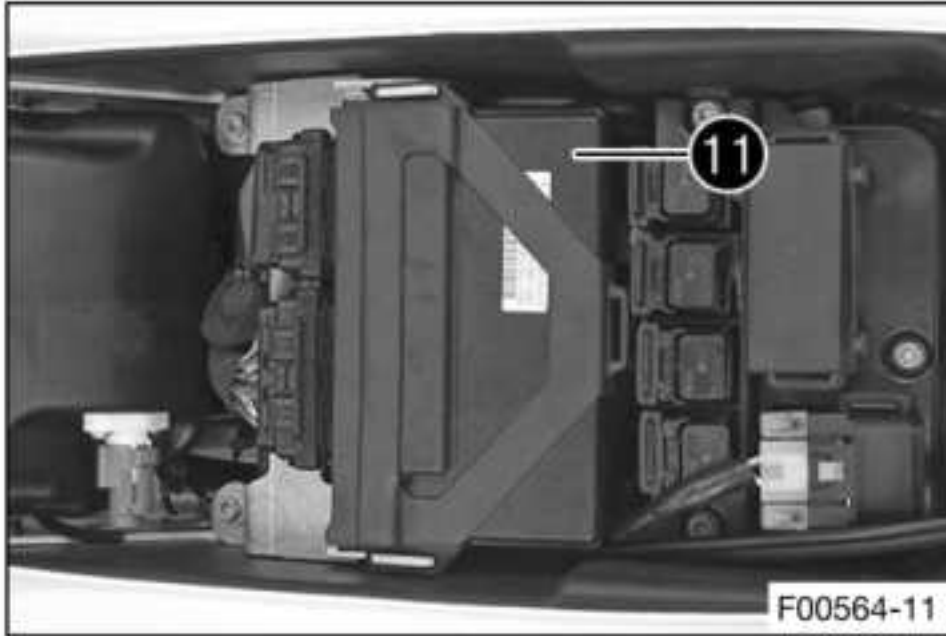


- Position positive terminal cover ⑤.
- Position washer ⑥ and negative cable ⑦.
- Mount and tighten screw ⑧.

Guideline		
Screw, battery terminal	M6	4.5 Nm (3.32 lbf ft)



- Position retaining bracket ⑨ and mount and tighten screws ⑩.
- Guideline
- | | | |
|---------------------------|----|--------------------|
| Remaining screws, chassis | M6 | 10 Nm (7.4 lbf ft) |
|---------------------------|----|--------------------|



- Mount engine electronics control unit 11.

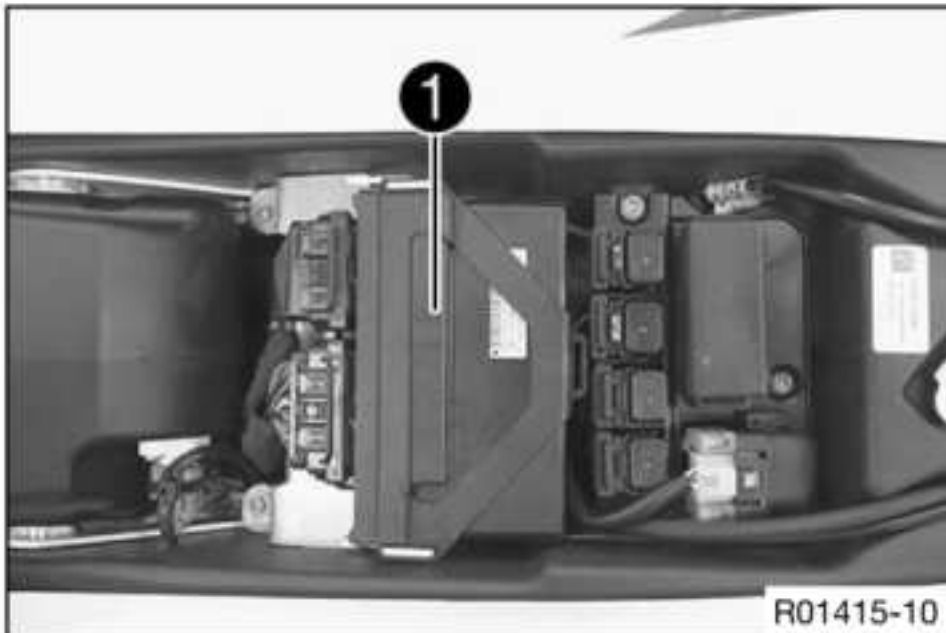
Finishing work

- Mount the seat. (p. 93)
- Adjust the clock. (p. 167)

15.3 Disconnecting the 12-V battery

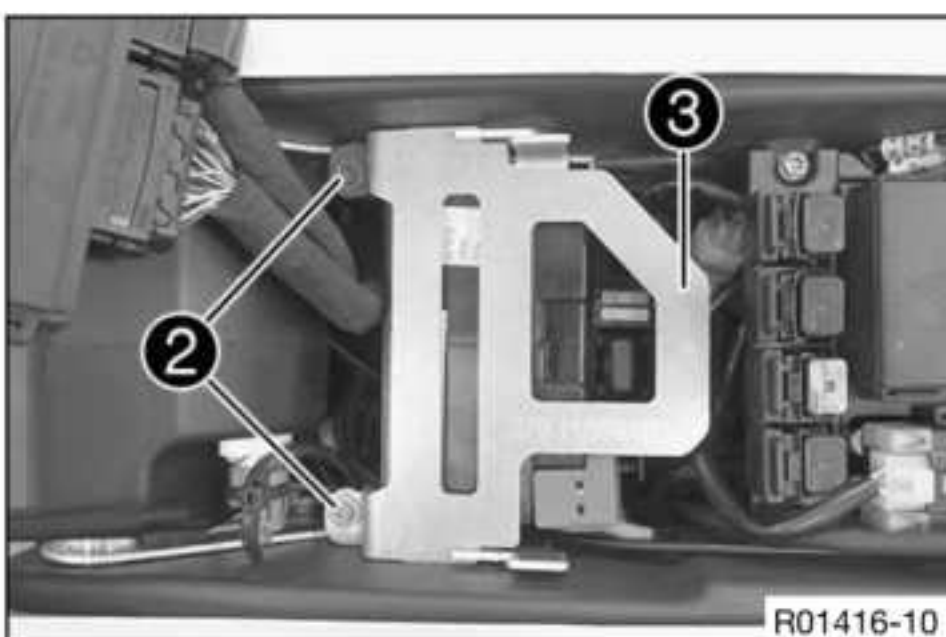
Preparatory work

- Switch off the ignition by turning the ignition key to the **OFF** position.
- Remove the seat. (p. 93)

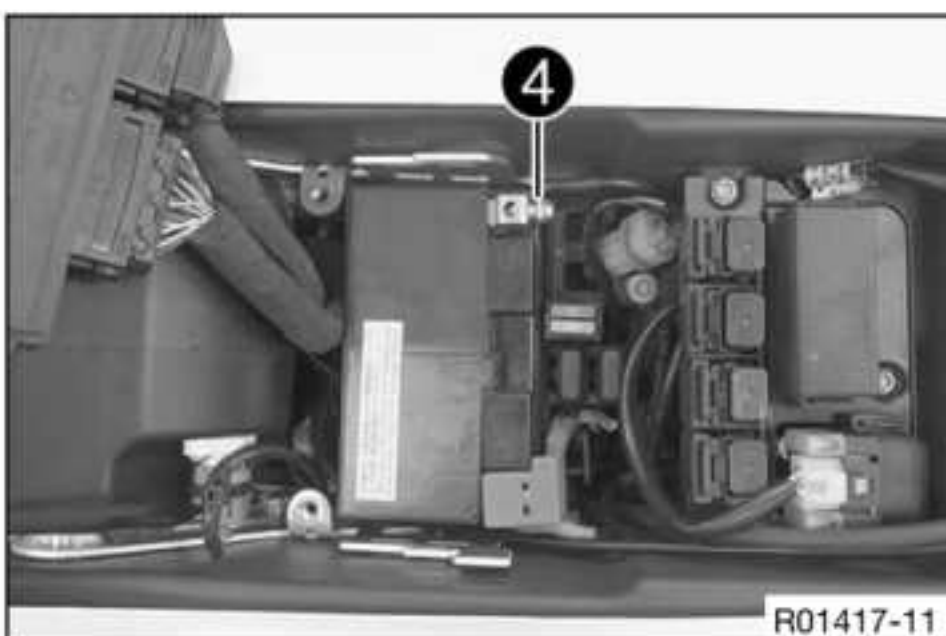


Main work

- Pull engine electronics control unit 1 off the holder and set it to one side.



- Remove screws 2.
- Pull retaining bracket 3 of the 12-V battery forward and remove it.



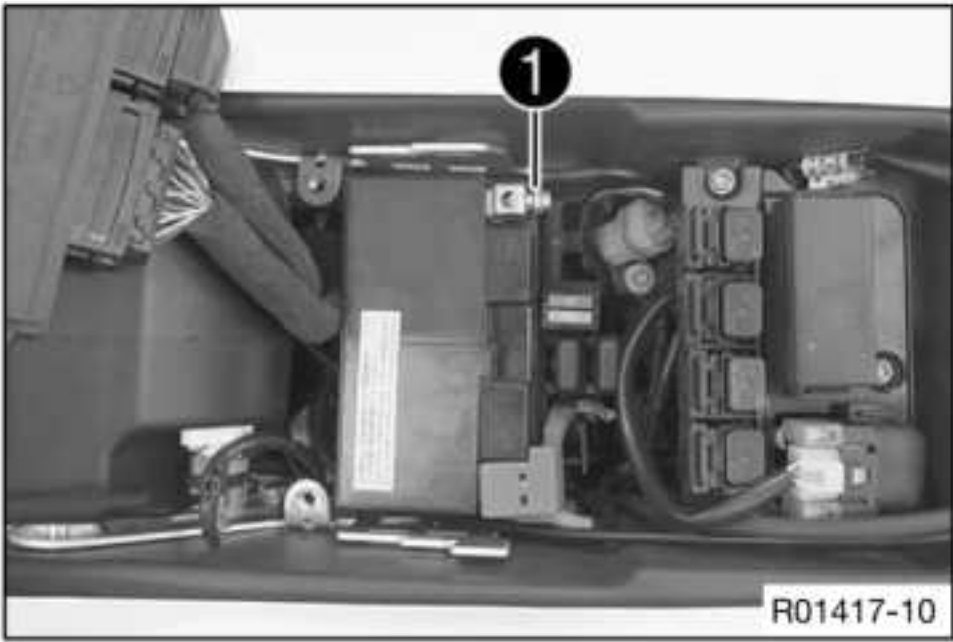
- Disconnect negative cable 4 of the 12-V battery.



Info

Never operate the motorcycle with a discharged 12-V battery or without a 12-V battery. In both cases, electrical components and safety devices can be damaged. The vehicle will therefore no longer be roadworthy.

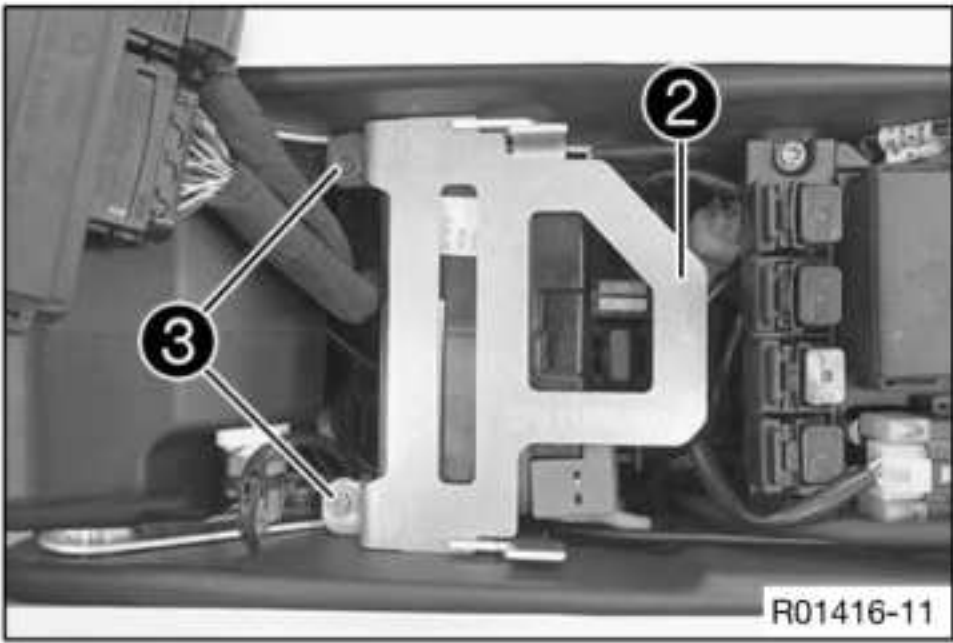
15.4 Connecting the 12-V battery



- Main work**
- Position washer and negative cable ①, and mount and tighten the screw.

Guideline

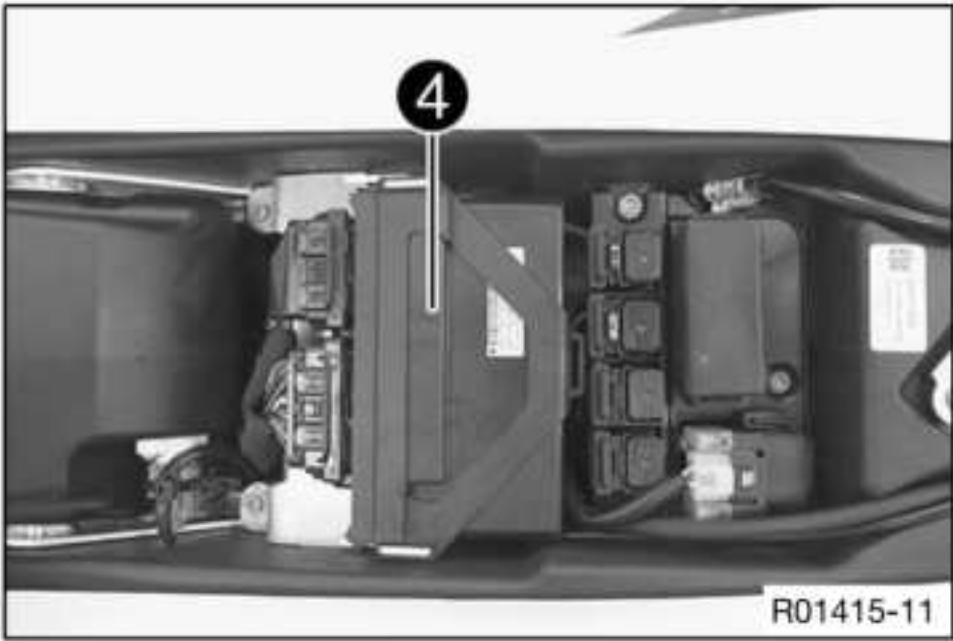
Screw, battery terminal	M6	4.5 Nm (3.32 lbf ft)
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- Position retaining bracket ②.
- Mount and tighten screws ③.

Guideline

Remaining screws, chassis	M6	10 Nm (7.4 lbf ft)
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- Mount engine electronics control unit ④.

- Finishing work**
- Mount the seat. (📖 p. 93)
 - Adjust the clock. (📖 p. 167)

15.5 Charging the 12-V battery

Warning

Risk of injury Battery acid and battery gases cause serious chemical burns.

- Keep 12 V batteries out of the reach of children.
- Wear suitable protective clothing and safety glasses.
- Avoid contact with battery acid and battery gases.
- Keep sparks or open flames away from the 12 V battery.
- Only charge 12 V batteries in well-ventilated rooms.
- Rinse the affected area immediately with plenty of water in the event of contact with the skin.
- Rinse eyes with water for at least 15 minutes and consult a doctor immediately if battery acid and battery gases get into the eyes.



Note

Environmental hazard 12 V batteries contain environmentally hazardous materials.

- Do not dispose of 12 V batteries as household waste.
- Dispose of 12 V batteries at a collection point for used batteries.



Note

Environmental hazard Hazardous substances cause environmental damage.

- Dispose of oils, grease, filters, fuel, cleaning agents, brake fluid, etc., correctly and in compliance with the applicable regulations.



Info

Even if there is no load on the 12-V battery, it discharges steadily.

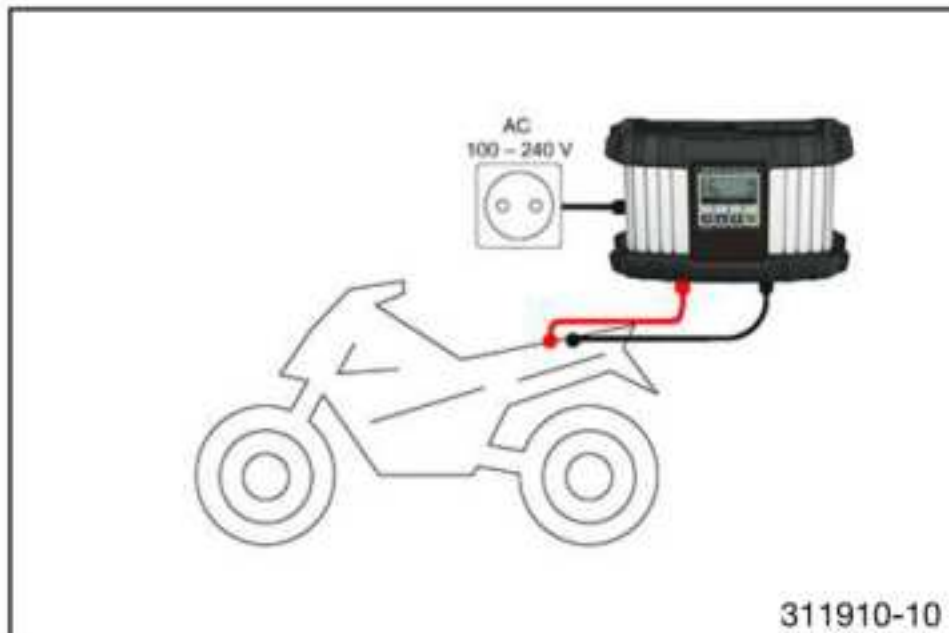
The charging level and the method of charging are very important for the service life of the 12-V battery. Rapid recharging with a high charging current shortens the service life of the battery.

If the charging current, charging voltage, or charging time is exceeded, electrolyte escapes through the safety valves. This reduces the capacity of the 12-V battery.

If the 12-V battery is depleted by repeated starting, the 12-V battery must be charged immediately.

If the 12-V battery is left in a discharged state for an extended period, it will become deeply discharged and sulfating occurs, destroying the battery.

The 12-V battery is maintenance-free. The acid level does not have to be checked.



Preparatory work

- Switch off the ignition by turning the ignition key to the **OFF** position.
- Remove the seat. (p. 93)
- Disconnect the 12-V battery. (p. 141)

Main work

- Connect the battery charger to the 12-V battery. Adjust the battery charger.

EU battery charger **XCharge-professional** (00029095050)
(p. 380)

Alternative 1

US battery charger **XCharge-professional**
(00029095051) (p. 381)

Alternative 2

UK battery charger **XCharge-professional**
(00029095052) (p. 381)

Alternative 3

CH battery charger **XCharge-professional**
(00029095053) (p. 381)



Info

Follow the instructions of the charger and the manual.

- Disconnect the battery charger after charging the 12-V battery.

Guideline

The charging current, charging voltage, and charging time must not be exceeded.	
Recharge the 12-V battery regularly when the motorcycle is not being used	3 months

Finishing work

- Connect the 12-V battery. (📖 p. 142)
- Mount the seat. (📖 p. 93)
- Adjust the clock. (📖 p. 167)

15.6 Checking the charging voltage

Condition

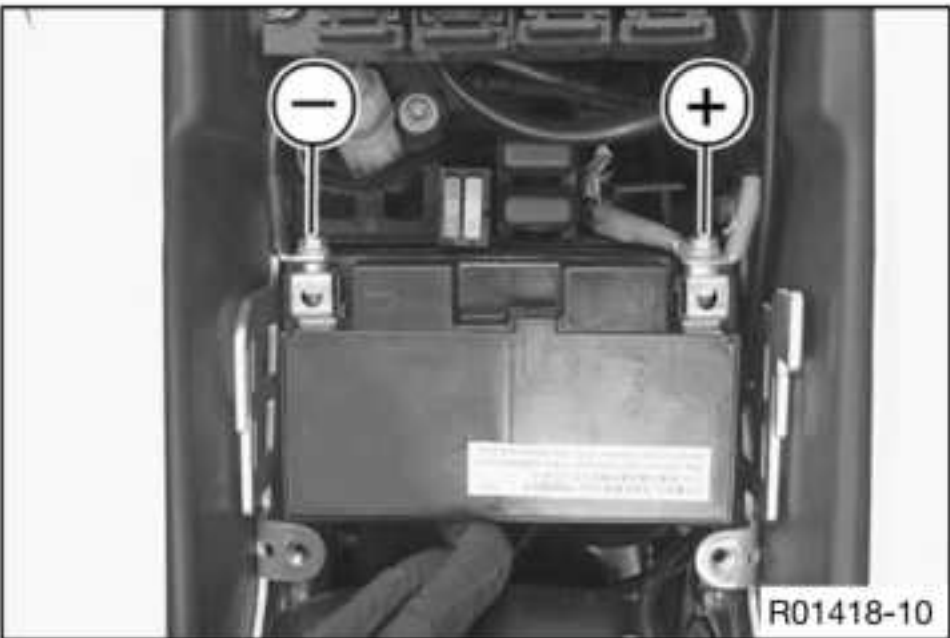
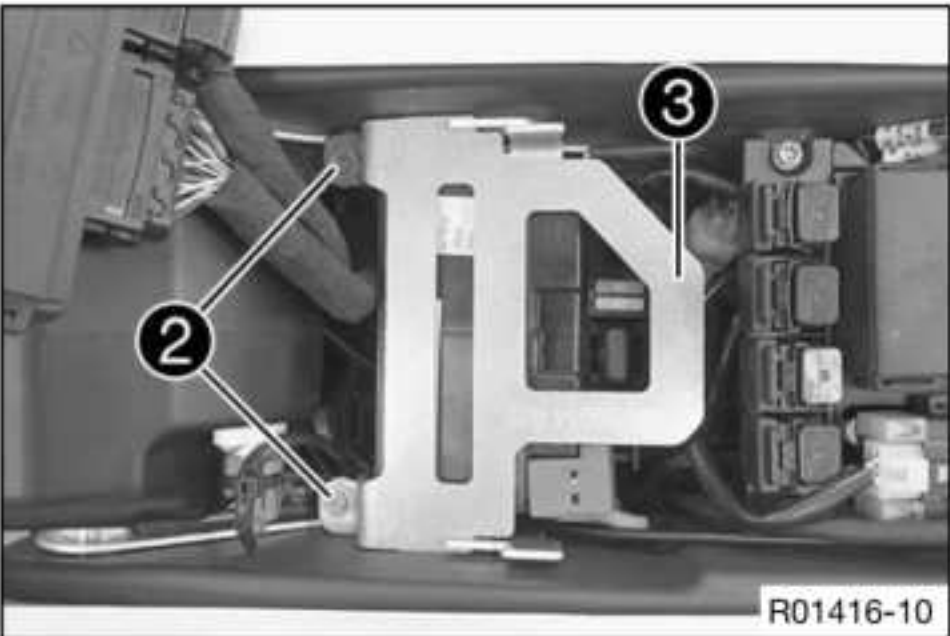
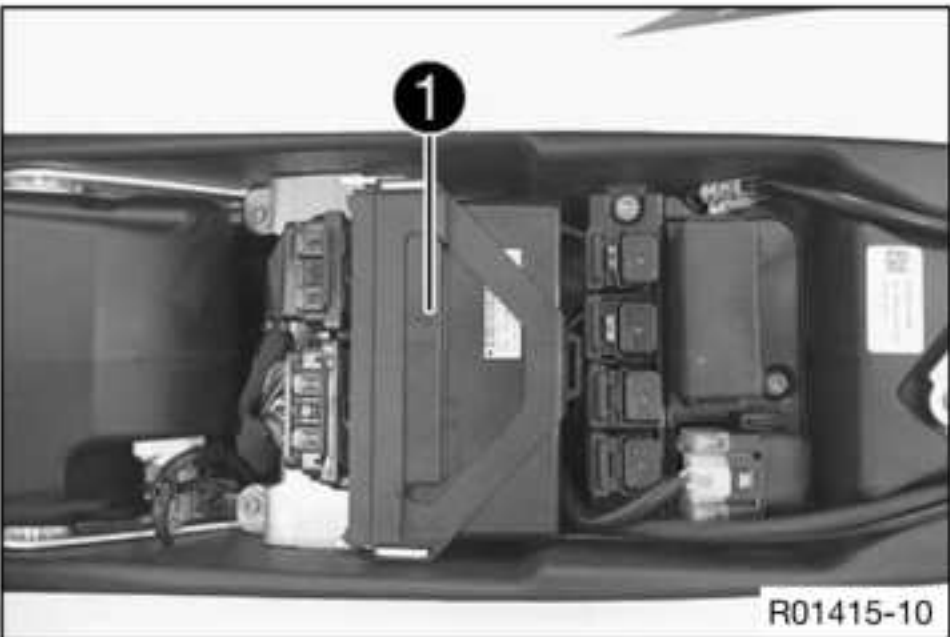
The 12-V battery must be fully functional and completely charged.

Preparatory work

- Remove the seat. (📖 p. 93)

Main work

- Pull engine electronics control unit **1** off of the holder and set it to one side.

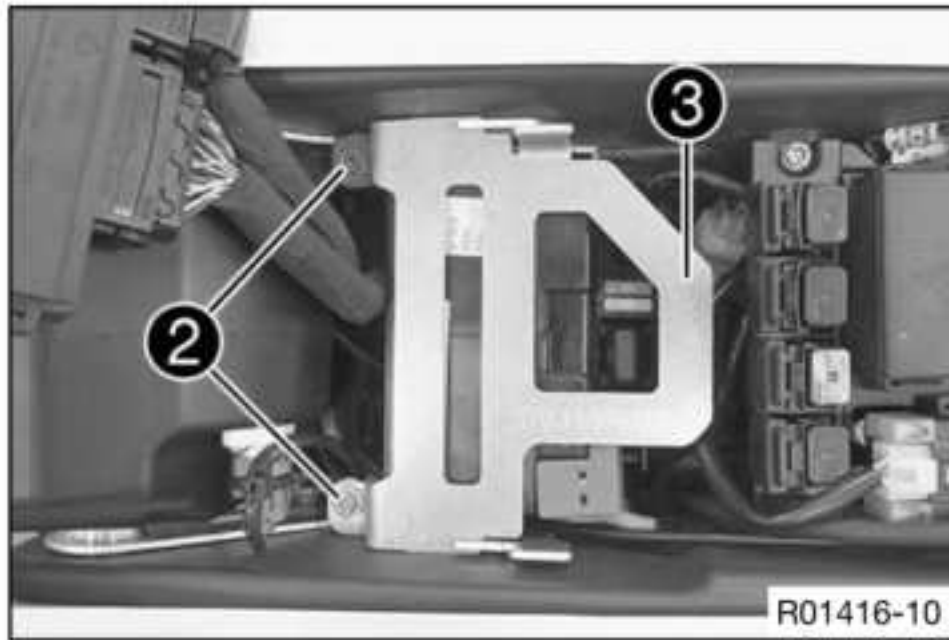


- Remove screws **2**.
- Pull retaining bracket **3** of the 12-V battery forward and remove it.
- Remove positive terminal cover.
- Start the motorcycle to check the function. (📖 p. 17)

- **V** Measure the voltage between the specified points. Measuring point **plus (+)** – Measuring point **Ground (-)**

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

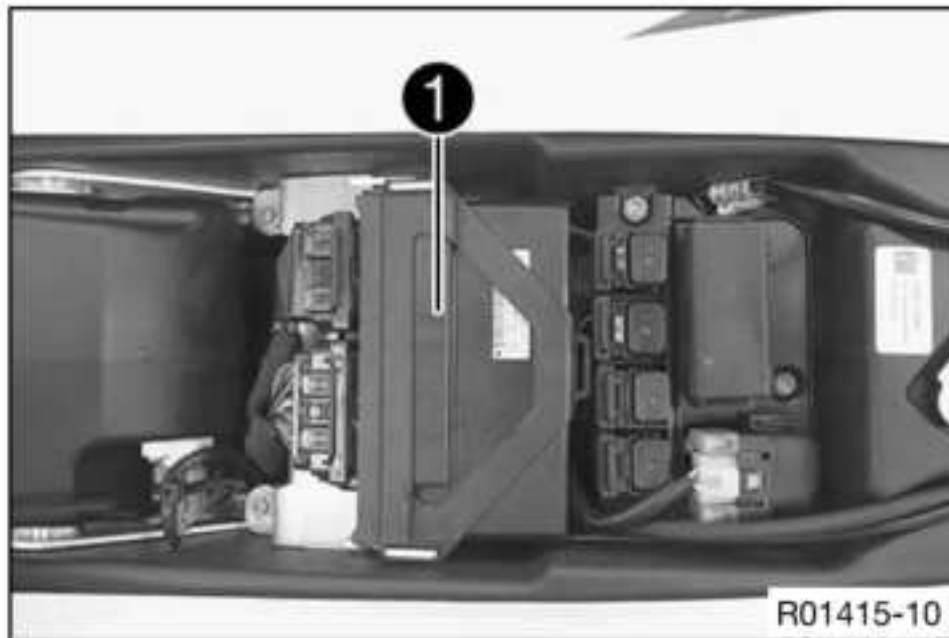
- » If the displayed value is greater than the specified value:
 - Change the voltage regulator.



- Mount the positive terminal cover.
- Position retaining bracket ③.
- Mount and tighten screws ②.

Guideline

Remaining screws, chassis	M6	10 Nm (7.4 lbf ft)
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- Mount engine electronics control unit ①.

Finishing work

- Mount the seat. (p. 93)

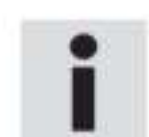
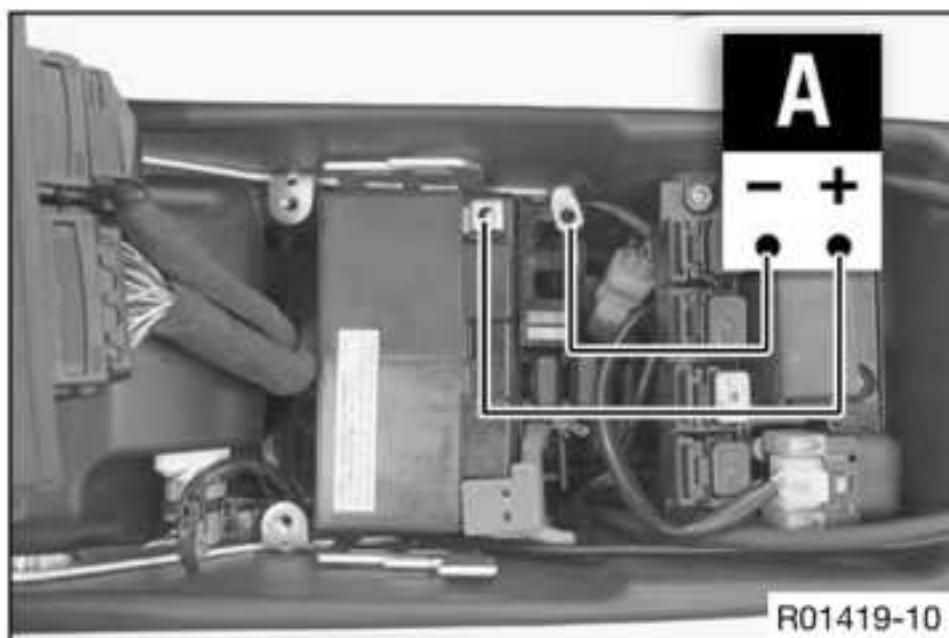
15.7 Checking the open-circuit current

Preparatory work

- Switch off the ignition by turning the ignition key to the **OFF** position.
- Remove the seat. (p. 93)
- Disconnect the 12-V battery. (p. 141)

Main work

- Measure the current between 12-V battery ground (–) and the negative cable.



Info

The value of the open-circuit current only applies to vehicles in their original state without additional power consumers.

Maximum open-circuit current	< 1.0 mA
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- » If the measured value is greater than the specified value:
 - Disconnect the voltage regulator from the wiring harness and perform the measurement again.

Finishing work

- Connect the 12-V battery. (p. 142)
- Mount the seat. (p. 93)
- Adjust the clock. (p. 167)

15.8 Changing the main fuse



Warning

Fire hazard Incorrect fuses overload the electrical system.



- Only use fuses with the required ampere value.
- Do not bypass or repair fuses.



Info

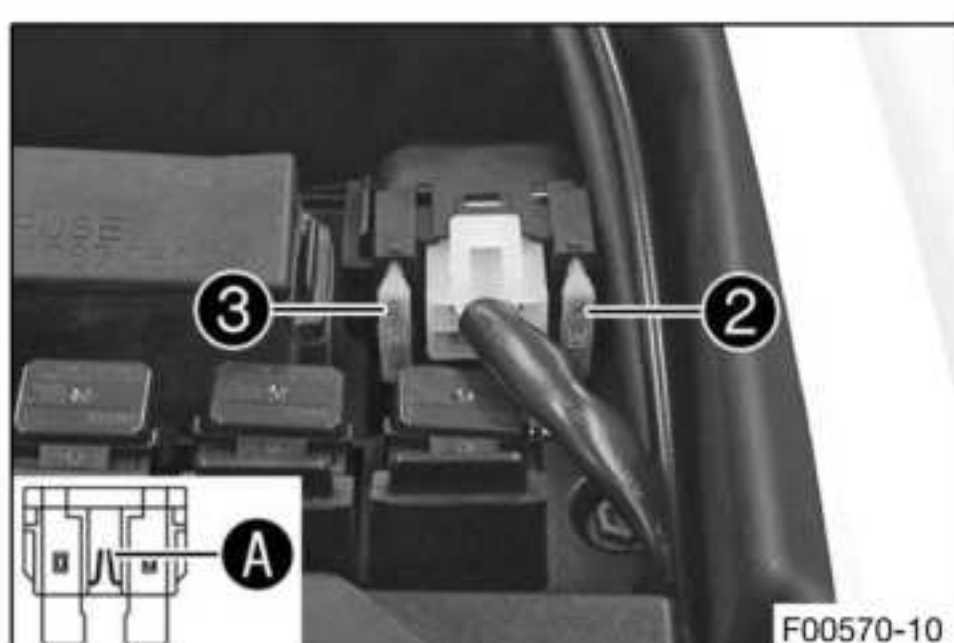
The main fuse protects all power consumers of the vehicle. It is in the housing of the starter relay next to the 12-V battery.

Preparatory work

- Switch off the ignition by turning the ignition key to the **OFF**  position.
- Remove the seat. ( p. 93)

Main work

- Take off protection caps **1**.




- Remove a defective main fuse **2** with needle nose pliers.



Info

A faulty fuse has a burned-out fuse wire **A**.
A spare fuse **3** is located in the starter relay.

- Insert a new main fuse.

Fuse (58011109130) ( p. 319)





Info

Insert a new spare fuse into the starter relay to have it available when needed.

- Check that the electrical system is functioning properly.
- Mount the protection caps.

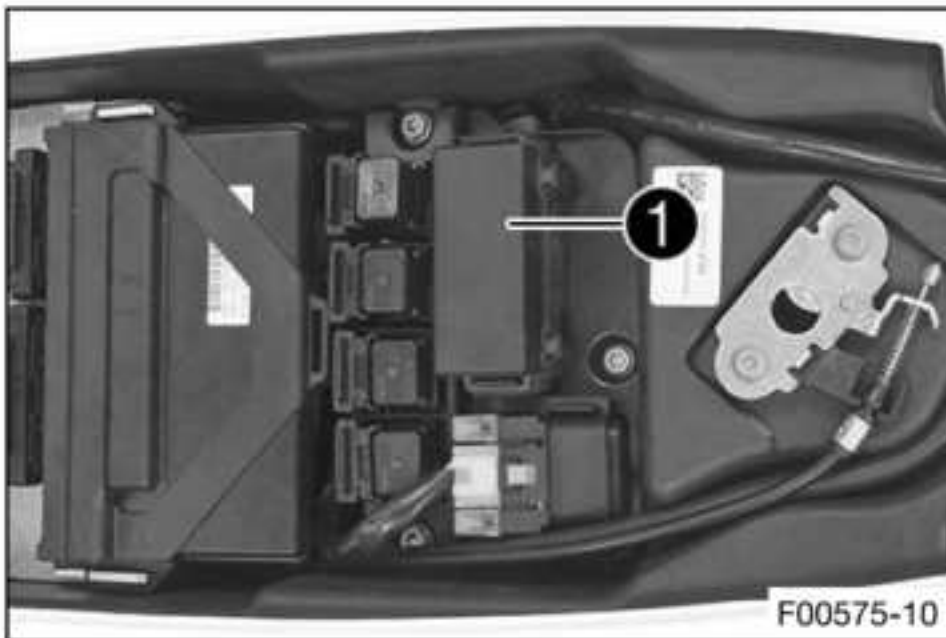
Finishing work

- Mount the seat. ( p. 93)
- Adjust the clock. ( p. 167)

15.9 Changing the fuses of individual power consumers

i Info

The fuse box containing the fuses of individual power consumers is located under the seat.



Preparatory work

- Switch off the ignition by turning the ignition key to the **OFF** position.
- Remove the seat. (p. 93)

Main work

- Open fuse box cover **1**.



- Remove the faulty fuse.

Guideline

Fuse 1 - 10 A - ignition
Fuse 2 - 10 A - ignition, combination instrument, engine electronics control unit, lambda sensor, ABS switch
Fuse 3 - 10 A - fuel pump
Fuse 4 - 10 A - radiator fan
Fuse 5 - 10 A - horn, brake light, turn signal, oil pressure sensor
Fuse 6 - 15 A - high beam, low beam, position light, tail light, license plate lamp
Fuse 7 - 10 A - for auxiliary equipment (permanent positive)
Fuse 8 - 10 A - for auxiliary equipment (accessories connected with ignition switch)
Fuse 9 - 10 A - ABS control unit, diagnostics connector
Fuse 10 - not assigned
Fuse SPARE - 10 A/15 A - spare fuses



Info

A faulty fuse has a burned-out fuse wire **A**.



Warning

Fire hazard Incorrect fuses overload the electrical system.

- Only use fuses with the required ampere value.
- Do not bypass or repair fuses.

- Insert a spare fuse with the correct rating.

Fuse (75011088010) (p. 319)

Fuse (75011088015)



Tip

Replace the spare fuse in the fuse box so that it is available if needed.

- Check that the power consumer is functioning properly.
- Close the fuse box cover.

Finishing work

- Mount the seat. (📖 p. 93)

15.10 Changing the ABS fuses



Warning

Fire hazard Incorrect fuses overload the electrical system.

- Only use fuses with the required ampere value.
- Do not bypass or repair fuses.



Info

Two fuses for the ABS are located under the seat. These fuses protect the return pump and the hydraulic unit of the ABS. The third fuse, which protects the ABS control unit, is located in the fuse box.

Preparatory work

- Switch off the ignition by turning the ignition key to the **OFF** ☒ position.
- Remove the seat. (📖 p. 93)
- Pull the engine electronics control unit off the holder and set it to one side.

Main work

- Remove screws ❶.
- Pull retaining bracket ❷ of the 12-V battery forward and remove it.
- Unlock holding lug ❸ and lift off holder ❹.

