



Recall 16V-689

Engine idle unstable

**G 650 GS (R13/40),
G 650 GS Sertão (R13/40)**

Service Information No. SI 13 003 16

Leadership circle

Marketing

Sale
New motorcycles

Sale
Used motorcycles

Aftersales

Administration

Service Information No. SI 13 003 16

Recall 16V-689 Measure for stabilization of idle

Situation

BMW Motorrad has ascertained that the software of the BMS-E is incorrect. Idling is occasionally unstable (most often after long journeys); the engine stalls with the clutch lever pulled and the engine RPM's drop to idle. The engine may stall again after immediately being restarted.

Vehicles affected

In order to determine if a specific vehicle is affected by this Technical Campaign, it will be necessary to verify all vehicle VINs through a DCS Vehicle History Check. Based on the response of the system, either proceed with the repair or take no further action. Please note, affected VINs may not appear until 24-72 hours after the release of this bulletin.

NHTSA Statement

PERFORM THE PROCEDURE OUTLINED IN THIS SERVICE INFORMATION ON ALL AFFECTED VEHICLES BEFORE CUSTOMER DELIVERY OR THE NEXT TIME THE VEHICLE IS IN THE SHOP FOR MAINTENANCE OR REPAIRS.

BMW Motorcycle dealers must ensure recalls are completed after having been notified by BMW of North America, LLC (BMW Motorrad USA) that a safety-related defect or noncompliance exists in any motor vehicle or item of replacement equipment in the dealer's possession at the time of notification.

In BMW NA's case, this notification would typically be made by the issuance of a recall notification in the form of a Service Information (SI) bulletin or transmission of a Dealer Communication System (DCS) recall message.

Under the National Traffic and Motor Vehicle Safety Act of 1966, as amended, if a recall campaign is announced by BMW NA, dealers must ensure that all recalls on vehicles and new items of replacement equipment are completed BEFORE delivery to the consumer. This means that dealers may not legally deliver new vehicles or new items of replacement equipment to consumers with an open recall.

The Safety Act also prohibits dealers from selling or leasing the vehicle or item of replacement equipment, unless and until the open recall has been completed BEFORE delivery. This also pertains to motorcycles in the Certified Pre-Owned program, and to items of replacement equipment.

Finally, BMW motorcycle dealers should not sell or use parts that have been recalled by BMW Motorrad USA.

Please follow the specific instructions provided by BMW Motorrad USA on the return or disposition of the parts.

Aftersales solution

This recall consists of:

- Working through the maintenance schedule for the remediation of possible mechanical faults
- Updating with **ISTA/P version 3.60.3** or higher

The following part number must be specified in the final report: 8 388 469

Special Tools

Adapter cable (61 0 591) see figure 1 on following page. This adapter cable needs to be connected in line with the ICOM D cable, see Figure 2 on following page. When connected in line, you then turn the ignition switch to ON and turn the switch located on the side of the adapter cable to ON. (A green LED will light up)

The attachments (maintenance schedule and work item 00 60 315) to this Service Information will be published with the Repair and Service Data BMW Motorrad (AIR, from 03/2017). From then on, the description is to be taken from the respective current Repair and Service Data BMW Motorrad.

The work item in the attachment applies by analogy for the other model affected.

Service Information No. SI 13 003 16

Recall 16V-689 Measure for stabilization of idle

Warranty processing

Defect code

00 00 13 18 00	Measures for the stabilization of idling
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FRU numbers

00 60 315	Measures for the stabilization of idling, 15 FRUs
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NOTICE

As all measures for SI 13 002 15 (023)R Engine idle unstable, R13 (00 00 13 16 00) are also performed as part of this Recall, this is closed centrally for all affected vehicles.

Warranty processing of anomalies in the maintenance schedule

Defect code

13 61 97 12 00	Peripheral vehicle check for the stabilization of idling
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NOTICE

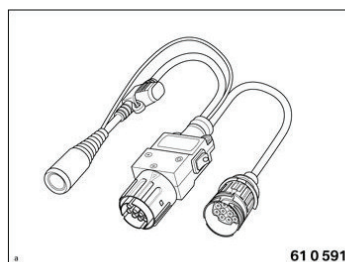
Anomalies within the scope of the maintenance schedule can be billed under the temporary defect "Peripheral vehicle check for the stabilization of idling". Existing job items are to be used. According to the repair manual, approval must be sought from Technical Support prior to performing repairs on the engine.

Questions regarding this bulletin?

For technical inquires in relation to this bulletin	Please contact the PuMA team
For warranty inquires in relation to this bulletin	Motorrad.Warranties@bmwna.com
For parts inquires in relation to this bulletin	Adam.Sacher@bmwnaext.com
Motorcycle Service and Technical Manager	Gordon.McDonnell@bmwna.com
Bulletin authored/published by	Gery.Torok@bmwna.com

Fig. 1

Special tool



No. - Designation

61 0 591 Adapter cable

Function

Power supply for diagnosis

Order No.

83 30 0 444 273

Fig.2



BMW Motorrad

Maintenance schedule - Total documentation

0188 - G 650 GS

00 60 315 Measures for the stabilisation of idling



Customer

Registration No.

Odometer reading

Order No.

Date

Mechanic's + Manager's signature

- Checking battery acid level
- Measuring battery voltage
- Checking the intake air silencer for oil accumulation
- Checking the installation of the ignition coils
- Checking the spark plug images
- Checking the relay and fuse of the DME control unit
- Checking the wiring harness in the area of the steering head for chafe marks and protecting it from damage
- Checking the ground screw connection on the cylinder
- Checking the wiring harness and the plug connection under the seat
- Checking the clamp on the throttle-valve stub for tight fit
- Retrofitting the large heat protection mat, if required
- Installing the battery with the small heat protection mat
- Performing the software update
- Allowing the engine to warm up (teaching in the idle speed adaptation)
- Checking the intake area for tightness
- Checking engine oil level
- Performing vehicle test with [BMW Motorrad] diagnostic system

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*) Billed as a separate item



differing from regular interval

BMW-Motorrad, UX-VA-4
Stand: 06.12.2016

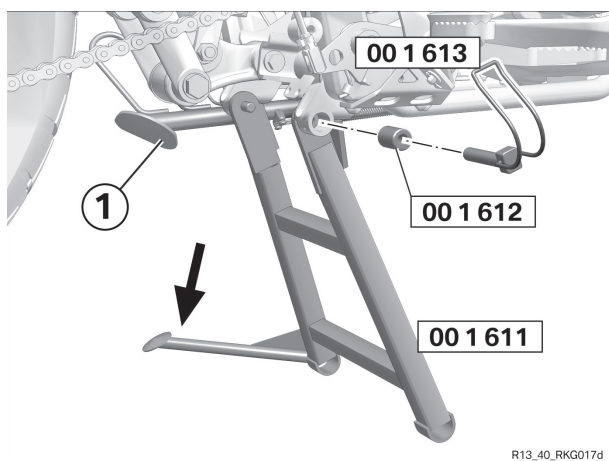
BMW recommends

ADVANTEC
ORIGINAL BMW ENGINE OIL

0188 - G 650 GS

00 60 315 Measures for the stabilisation of idling

1



– without centre stand^{OE} (0636)

► Installing auxiliary stand

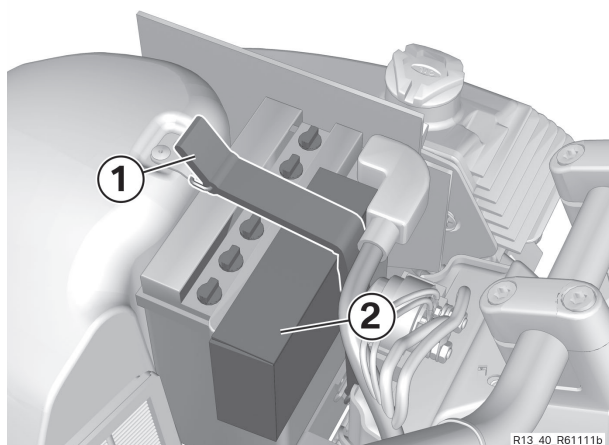
- Place the motorcycle on its side stand **(1)**.
- Insert sleeves (00 1 612) into the frame.
- Position stand (00 1 611) at the frame and secure it with pin (00 1 613).
- Lift the vehicle on to the auxiliary stand: do not apply leverage to the auxiliary-stand lever **(arrow)** in this process; instead, **lift the vehicle**.
- Retract side stand **(1)**.<

2

► Removing trim panel components

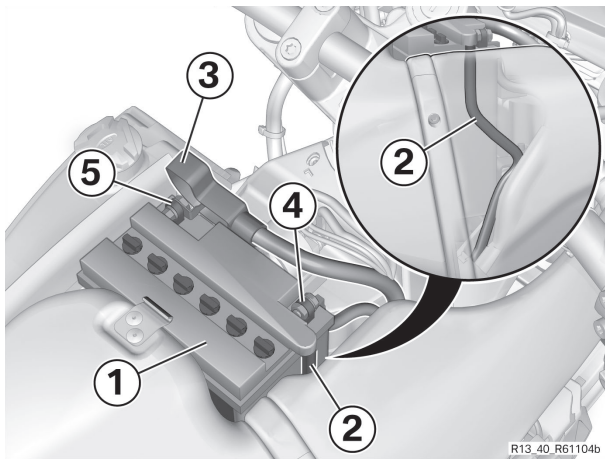
- Remove the seat.
- Remove centre trim panel.
- Remove right fairing side panel.
- Remove left fairing side panel.

3



► Removing battery

- Loosen rubber strap **(1)** and remove small heat protection mat **(2)**.



⚠ CAUTION

Handling of battery acid not in compliance with correct procedure

Danger of injury

- Protect eyes, face, hands, paintwork and clothing.

⚠ ATTENTION

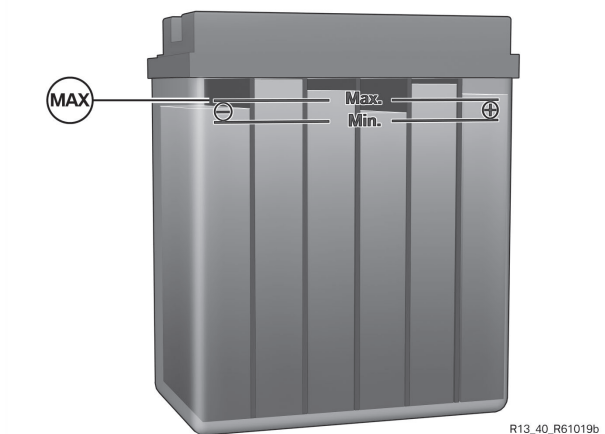
Battery not disconnected in accordance with correct procedure

Risk of short-circuit

- Always proceed in compliance with the specified disconnection sequence.

- Disconnect battery negative lead (4).
- Remove protective cap (3).
- Disconnect battery positive lead (5).
- Disconnect battery breather hose (2).
- Remove battery (1).


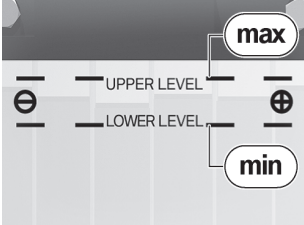
4



► Checking battery acid level

- Check the acid level of the battery cells against the mark on the casing.

Check

 Technical data			
Specified level, battery acid			
			
		Between MIN and MAX marks	

Result

Acid level is too low.

Measure

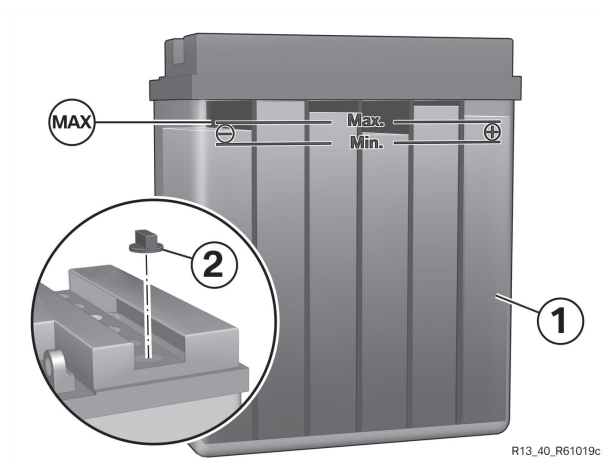
▷ Correct the battery acid level

⚠ CAUTION

Handling of battery acid not in compliance with correct procedure

Danger of injury

- Protect eyes, face, hands, paintwork and clothing.



- Place the battery **(1)** upright.
- Remove plugs **(2)** of the cells in question.
- Fill the affected cells of the battery to the MAX mark, **do not overfill**.

General consumable	
distilled water	83 19 0 394 350, 83 19 0 394 368

- Install sealing plug **(2)**.

5

► Measuring battery voltage

- Measure the battery voltage **with the battery** disconnected.

Check

Technical data			
Battery voltage	Specified value	min 12.5 V	
	Totally discharged, battery faulty	min 11 V	

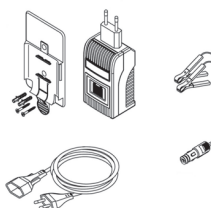
Result

Battery voltage is below the setpoint value:

Measure

- Recharge the battery.

Workshop equipment



Order No.: 81 74 0 421 092

BMW Motorrad battery charger (version for Europe without GB)

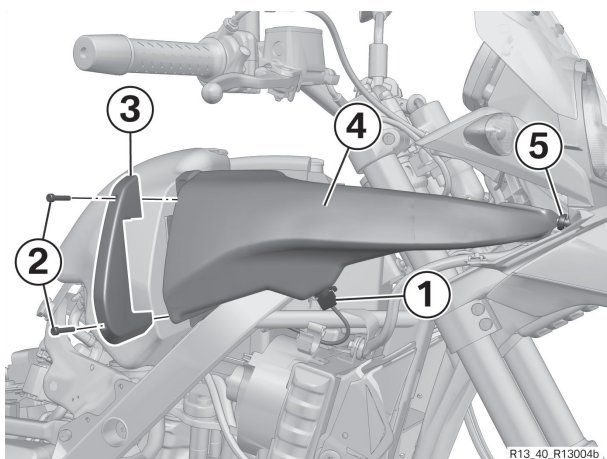
Result

The battery is totally discharged or faulty:

Measure

- Replace the battery.

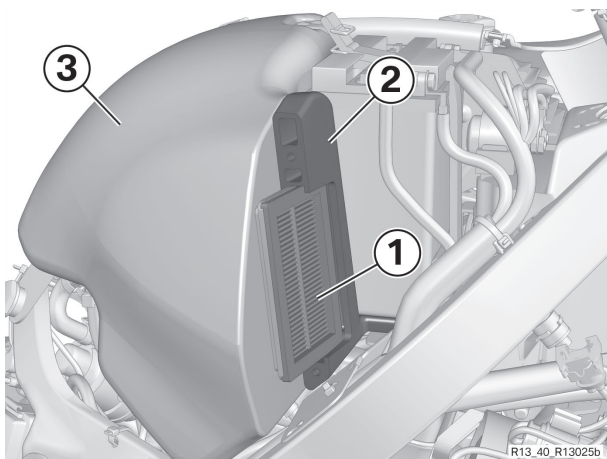
6



► Removing intake air pipe

- Disconnect plug **(1)** for the air temperature sensor.
- Remove screws **(2)**.
- Remove connecting flange **(3)**.
- Disengage intake air pipe **(4)** from rubber grommet **(5)** and remove.

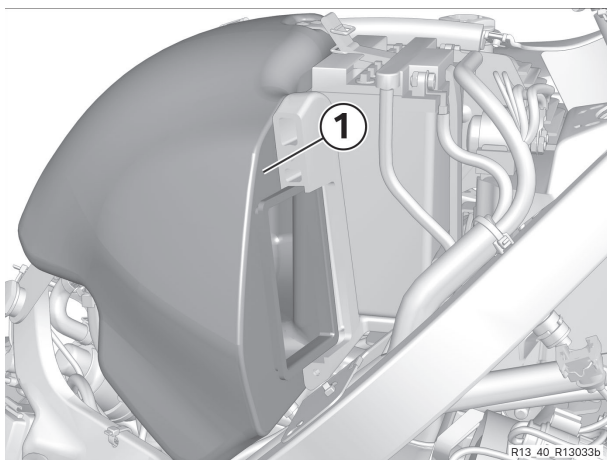
7



► Removing air filter element

- Remove air filter element **(1)** from battery carrier **(2)** and intake air silencer **(3)**.

8



► Checking the intake air silencer for oil accumulation

Check

- Check the intake air silencer **(1)** **on the inside** for oil accumulation.

Result

Small quantity of oil (moist with oil)

Measure

- Clean and dry the inside of the intake air silencer.

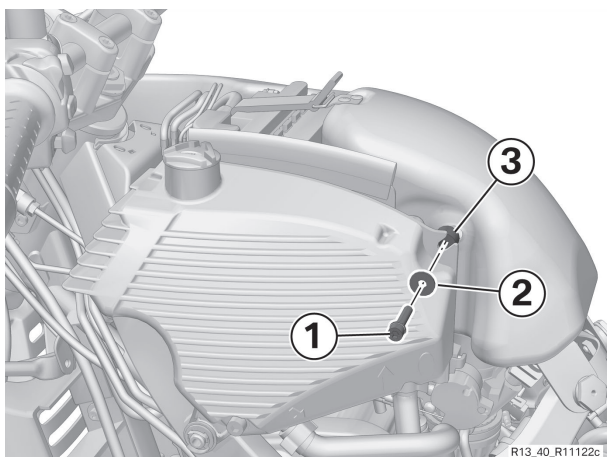
Result

Substantial quantity of oil (oil covers the floor)

Measure

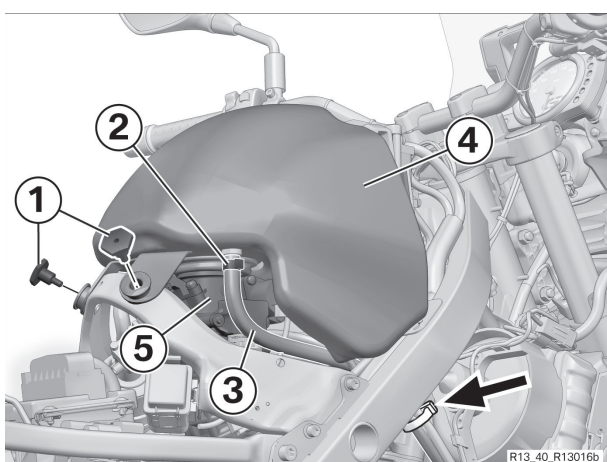
- Contact Technical Support.

9



► Remove the intake air silencer

- Remove screw (1), washer (2) and bush (3).



- Remove screws (1).
- Release clip (2).
- Disconnect breather hose (3).
- Open the cable strap (arrow).
- Remove intake air silencer (4).
- Cover the port of throttle-valve stub (5).

10

► Checking the installation of the ignition coils

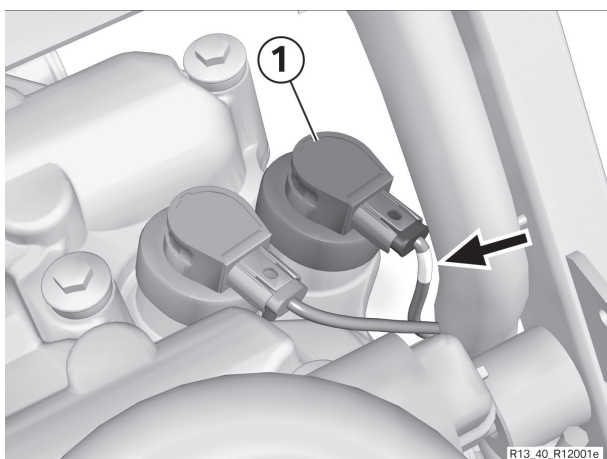


ATTENTION

Mixing up of connecting lines of direct ignition coils

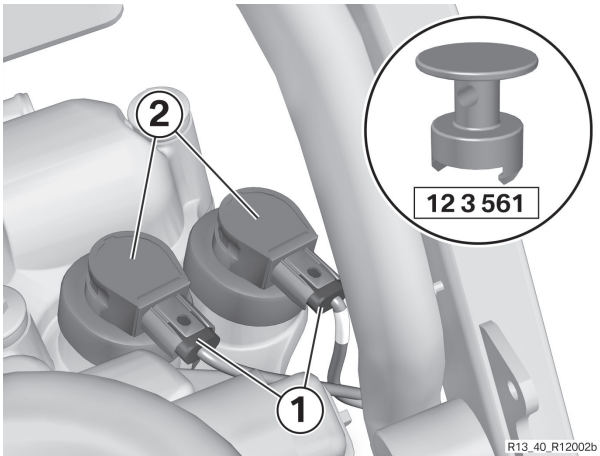
Engine damage

- Note the colour codes of the connecting lines.



- Ensure that the ignition coil (1) (secondary spark plug) is correctly installed and connected.
- The **grey** ignition coil is **on the outside** (secondary spark plug).
- The cable with the **white (Arrow)** colour marking is **on the outside** (secondary spark plug).

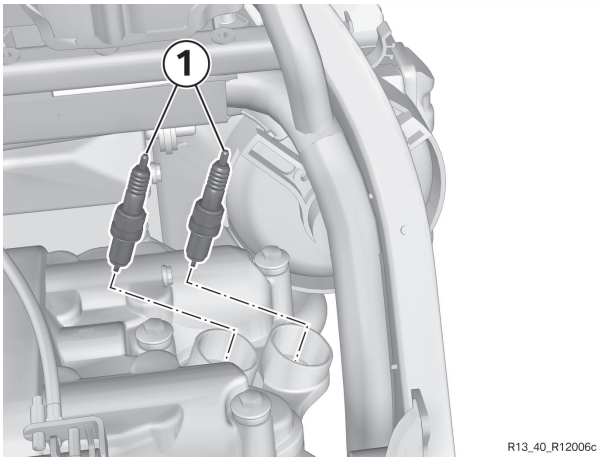
11



► Removing direct ignition coil

- Disconnect plug **(1)**.
- Remove direct ignition coil **(2)** with puller (12 3 561).

12



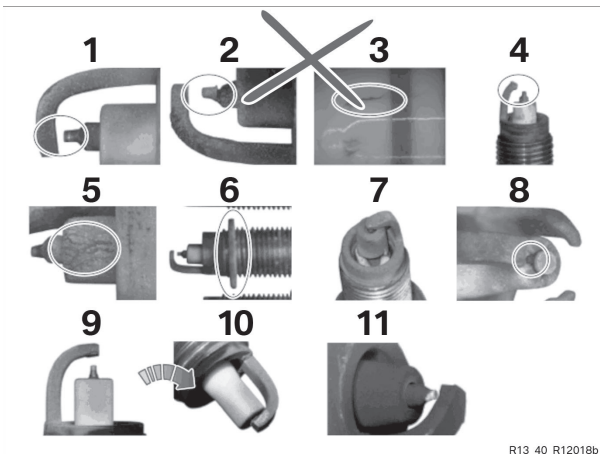
► Removing spark plugs

- Remove spark plugs **(1)** with spark-plug wrench .

13

► Checking the spark plug images

- Checking the spark plug images of the removed spark plugs:



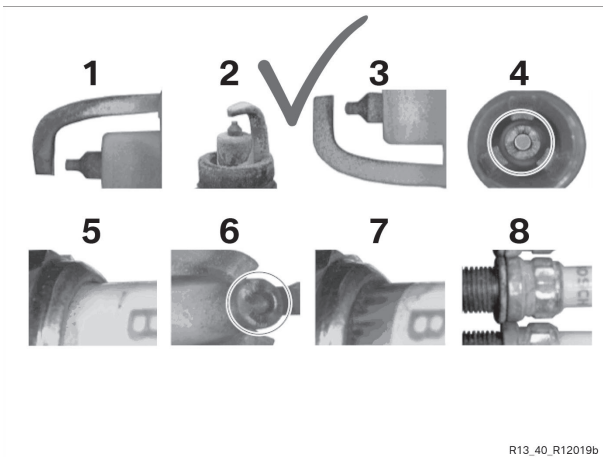
• **Function-critical** spark plug images

- 1 Bent ground electrode
- 2 Erosion or corrosion on the platinum pin and the centre electrode
- 3 Marks made by ignition sparks
- 4 Thermal damage to the ground electrode
- 5 Signs of leakage current due to heavy deposits
- 6 Sealing ring pulled over the threads
- 7 Cross fracture of the insulator
- 8 Insulator that has been sawed into by surface-gap sparks (platinum spark plug)
- 9 Broken insulator not detectable as such in this position

- 10 Broken insulator detectable as such through tilting
- 11 Heavily sooted spark plug

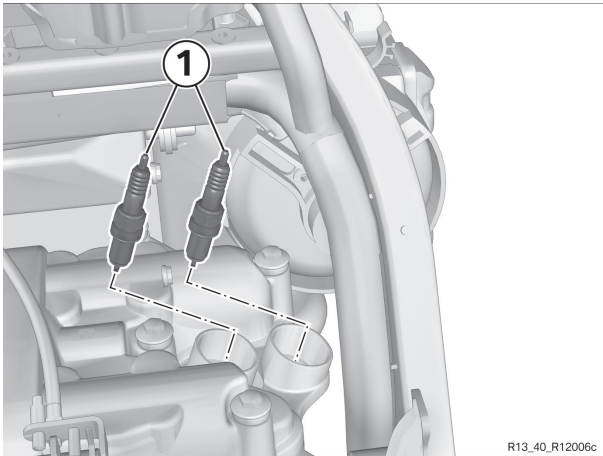
• **Function-uncritical** spark plug images

- 1 Normal deposits of oil incineration ash
- 2 Deposits of oil incineration ash with erosion
- 3 Slightly increased deposits of oil incineration ash
- 4 Spark scoring in the case of surface-gap spark plugs
- 5 Normal brown colouration through glow discharge
- 6 Permitted erosion on the centre electrode
- 7 Slightly increased brown colouration through glow discharge
- 8 Water in the spark plug shaft



R13_40_R12019b

14



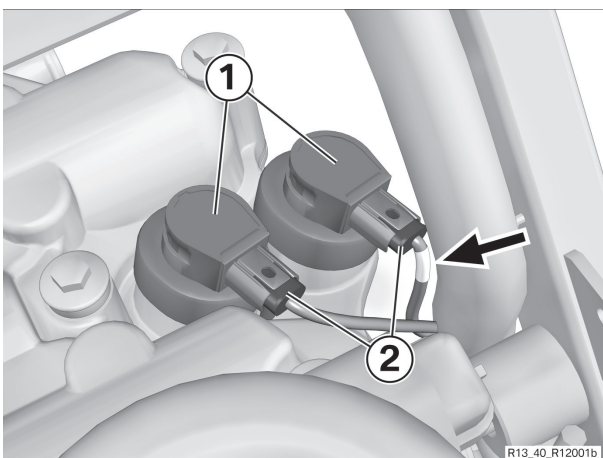
R13_40_R12006c

► Installing spark plugs

- Install spark plugs **(1)** with spark-plug wrench .

Tightening torques			
Spark plug in cylinder head			
M12 x 1.25	23 Nm		
Technical data			
Spark plugs, manufacturer and designation		NGK DR 8 EB	

15



R13_40_R12001b

► Installing direct ignition coils

- Install direct ignition coils **(1)**, the **grey** direct ignition coil is the **outer** coil (secondary spark plug).

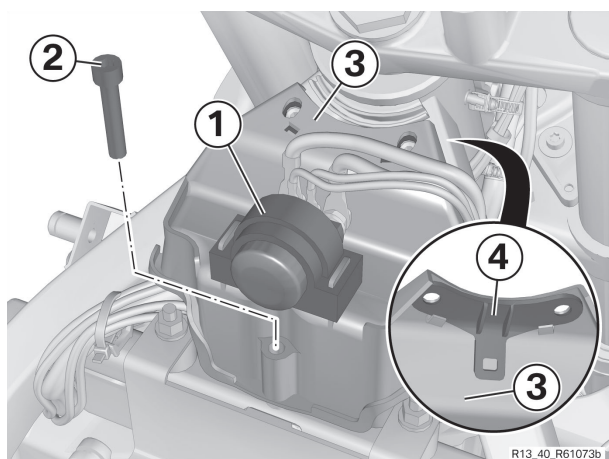
ATTENTION

Mixing up of connecting lines of direct ignition coils Engine damage

- Note the colour codes of the connecting lines.

- Connect plugs **(2)**; colour code **white** on the cable (**arrow**) is **on the outside** (secondary spark plug).

16



► Removing cover of electronic equipment box

ATTENTION

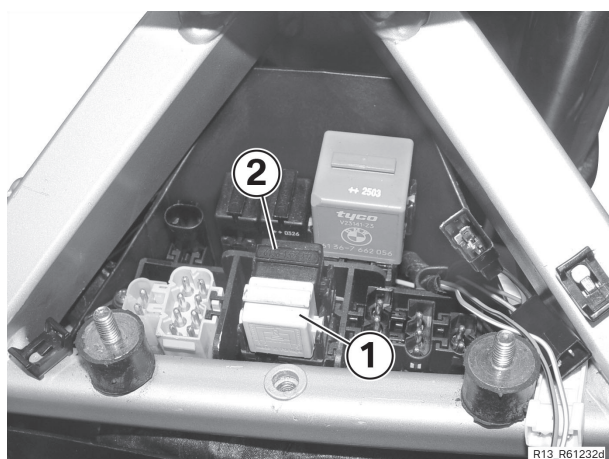
Electrical component with contact to vehicle parts

Risk of short-circuit

- Insulate the electrical component (e.g. with insulating tape).

- Release the starter relay with bracket (1).
- Remove screw (2).
- Remove cover (3), noting bracket (4).

17



► Checking the relay and fuse of the DME control unit

- Remove the relay (1) of the DME control unit.
- Check the contacts for corrosion and clean if necessary.



General consumable

Contact spray	81 22 9 400 208
---------------	-----------------

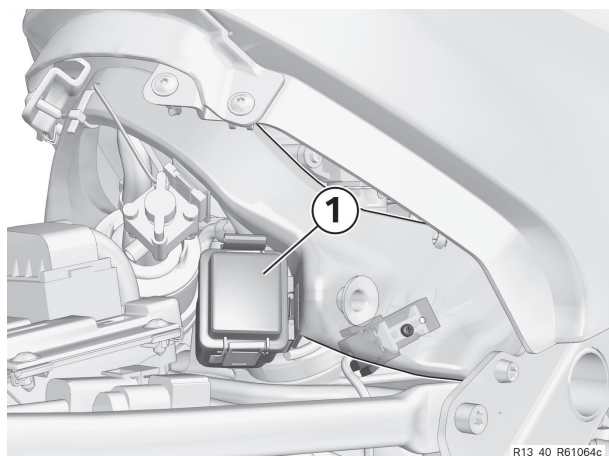
- Install the relay (1) and ensure that it engages while doing so.
- Remove the relay (2) for the load-shedding relay.
- Check the contacts for corrosion and clean if necessary.



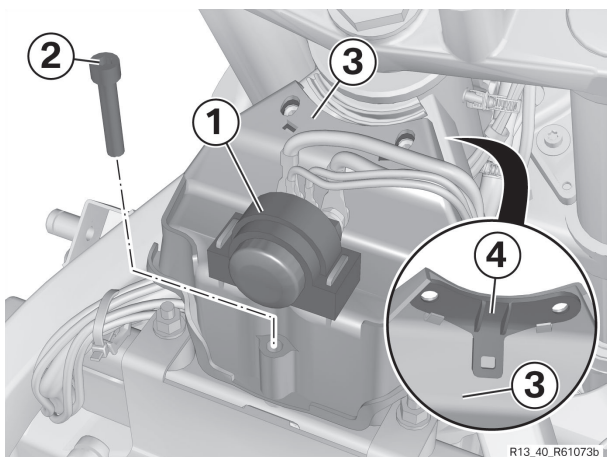
General consumable

Contact spray	81 22 9 400 208
---------------	-----------------

- Install the relay (2) and ensure that it engages while doing so.
- Remove lid (1) of the fuse box.
- Remove fuse F1.
- Check the contacts for corrosion and replace fuse, if necessary.
- Install the fuse F1.



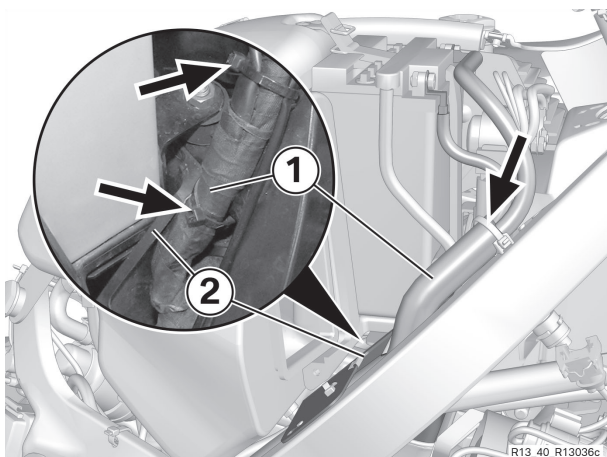
18



► Installing cover of electronic equipment box

- Place cover **(3)** in position, noting bracket **(4)**.
- Install screw **(2)**.
- Secure the starter relay with bracket **(1)**.

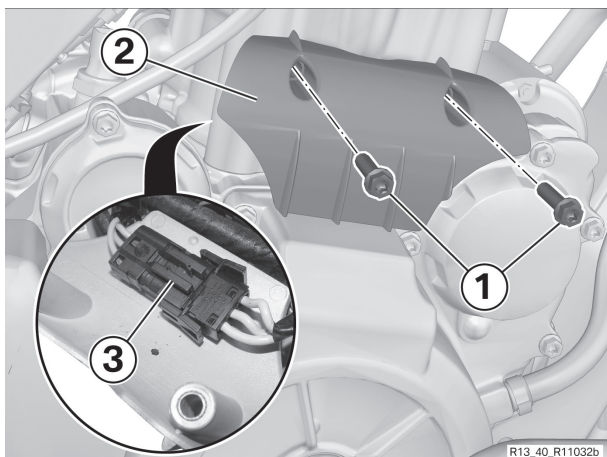
19



► Checking the wiring harness in the area of the steering head for chafe marks and protecting it from damage

- Cut through the cable straps **(arrows)**.
- Check the point of contact of the wiring harness **(1)** and the air duct **(2)** for chafe marks/damage.
- If damaged, repair the wiring harness.
- Pad the point of contact using fabric adhesive tape to avoid future damage.
- Close the cable strap **(arrows)**.

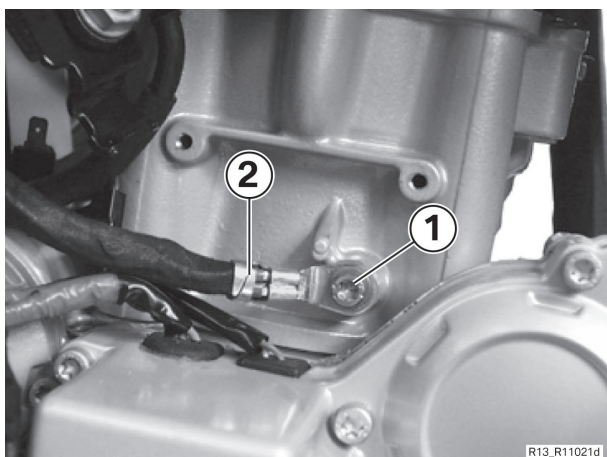
20



► Removing cable cover

- Remove screws **(1)**.
- Turn cable cover **(2)** round and disconnect and disengage plug **(3)** for the voltage regulator.

21



► Checking the ground screw connection on the cylinder

- Check the screw (1) and the ground connection (2) for tight fit and corrosion.



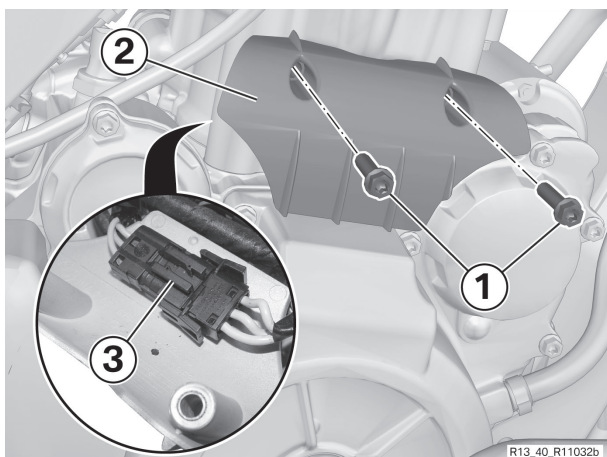
Tightening torques

Wiring harness (earth) to cylinder, right

M6 x 12

8 Nm

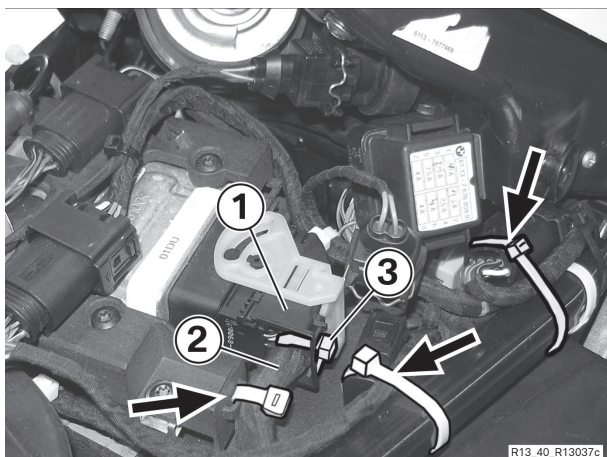
22



► Installing cable cover

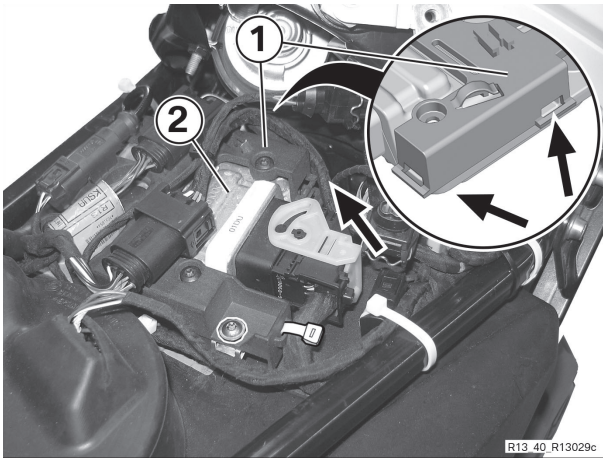
- Connect plug (3) for the voltage regulator and secure it to cable cover (2).
- Secure cable cover (2) with screws (1).

23

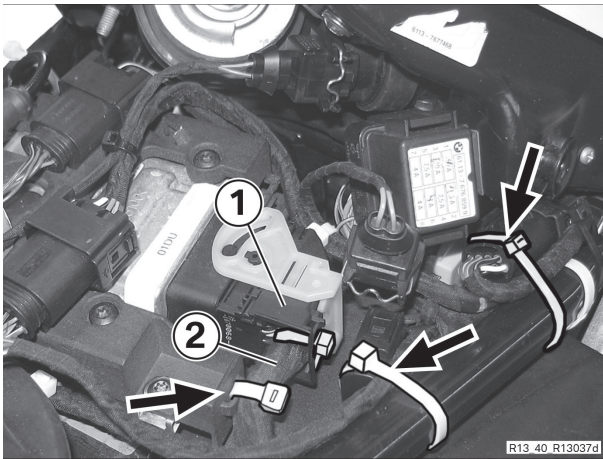


► Checking the wiring harness and the plug connection under the seat

- Cut through the cable straps (arrows).
- Disconnect plug (1) for the BMS control unit.
- Check, if wiring harness (2) is **secured** with cable straps (3) in the connector (1).
- If necessary, retrofit the cable straps (3).

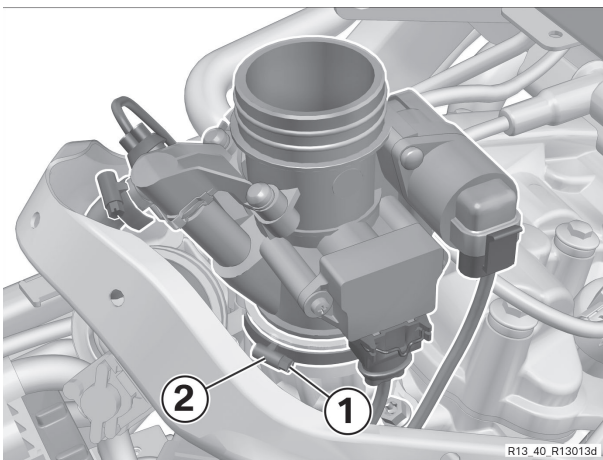


- Check, if the cables are jammed between the cover **(1)** and control unit **(2)** **(Arrow)**.
- If necessary, repair the cables and route them correctly.



- Check the wiring harness for chafe marks/damage.
- Check **only visually** if pins are loose/squashed. The pins vary in length. If required, use a torch and a magnifying glass. Do not insert any tools in the sockets.
- Connect plug **(1)** for the BMS control unit.
- Secure wiring harness **(2)** with the cable straps **(arrows)**.

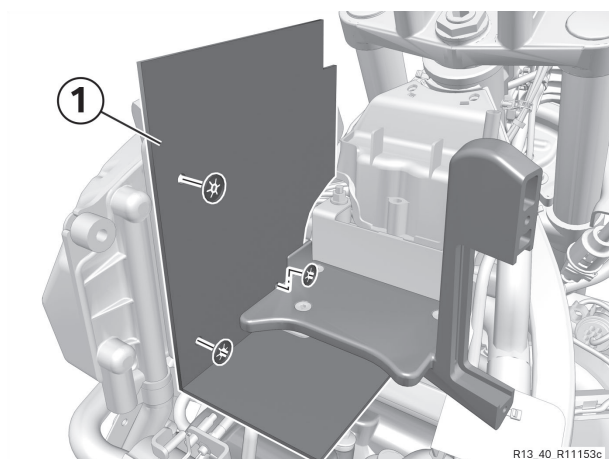
24



► Checking the clamp on the throttle-valve stub for tight fit (analogous to SI 17/2015)

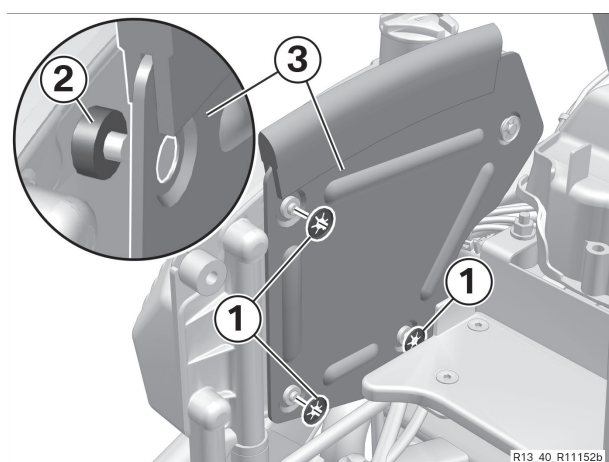
- Check the clamp **(1)** on the throttle-valve stub for tight fit.

Tightening torques		
Throttle body to intake stub		
	1...1.2 Nm	

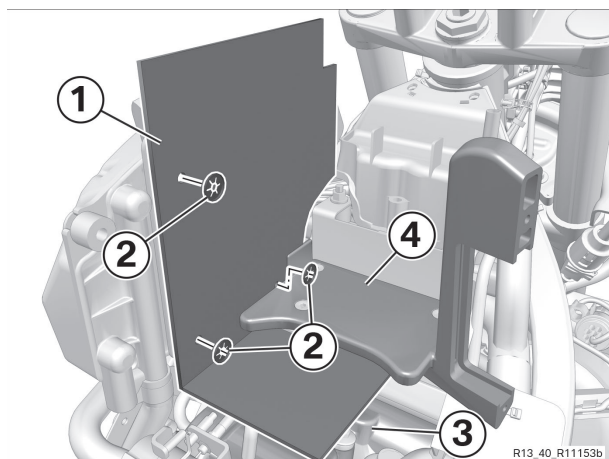


► Retrofitting the large heat protection mat, if required

- Check, if the large heat protection mat **(1)** is installed and retrofit, if required.



- Remove the spring washers **(1)** using diagonal cutting pliers.
- Ensure that the insulator discs **(2)** behind the heat shield **(3)** are not lost.
- **Do not remove** the heat shield **(3)**.

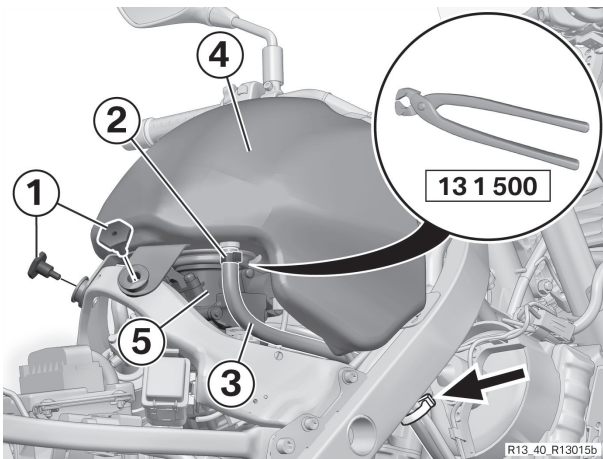


ATTENTION

Contact of battery positive terminal and aluminium side of the heat protection mat

Risk of short-circuit

- Install the heat protection mat correctly: Aluminium side to the oil reservoir, carbon mat towards the battery.
- Secure the large heat protection mat **(1)** with new spring washers **(2)**, **with the aluminium side towards the oil reservoir.**
- Slide the lower section of the large heat protection mat **(1)** between the cylinder head cover **(3)** and the battery holder **(4)**.

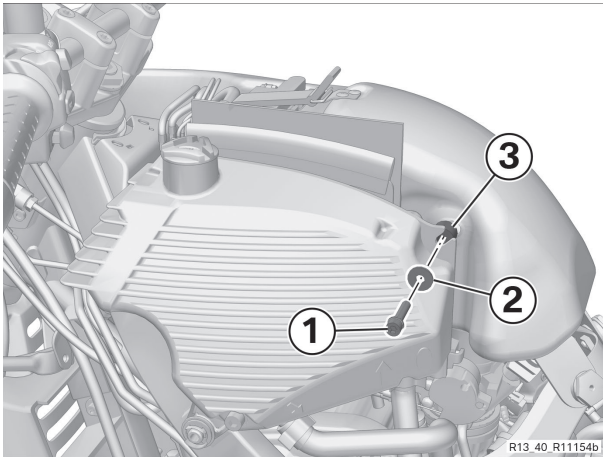


► Install the intake air silencer

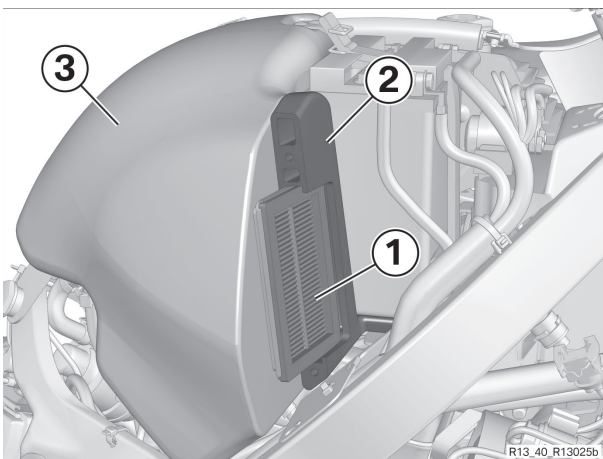
- Secure breather hose (3) and new clip (2) with pliers (13 1 500).
- Expose throttle-valve stub (5).
- Install intake air silencer (4), making sure that intake air silencer (4) is correctly seated on throttle-valve stub (5).
- Install screws (1).

Tightening torques		
Intake air silencer to carrier frame		
M6	8 Nm	

- Route breather hose (3) and secure it with a cable tie (arrow).
- Install screw (1) with washer (2) and bushing (3).

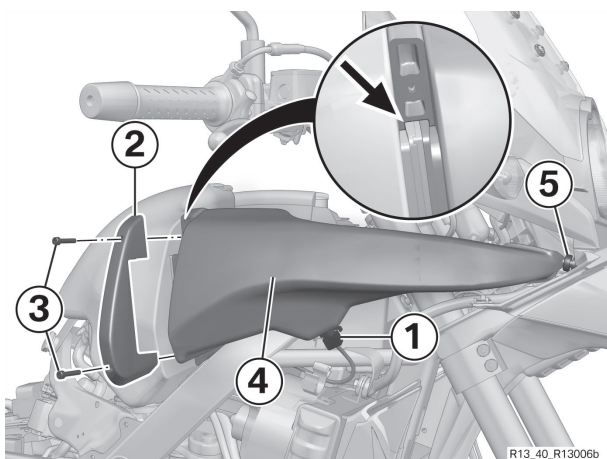


Tightening torques		
Oil tank to intake air silencer		
M6 x 35	4 Nm	



► Installing air filter element

- Clean the inside of intake air silencer (3).
- Install air filter element (1) in battery carrier (2) and intake air silencer (3).



► Installing intake air pipe

- Install intake air pipe (4), noting rubber grommet (5).
- Make sure that all components are correctly seated (**ar-row**).
- Hold flange (2) in position and install screw (3).

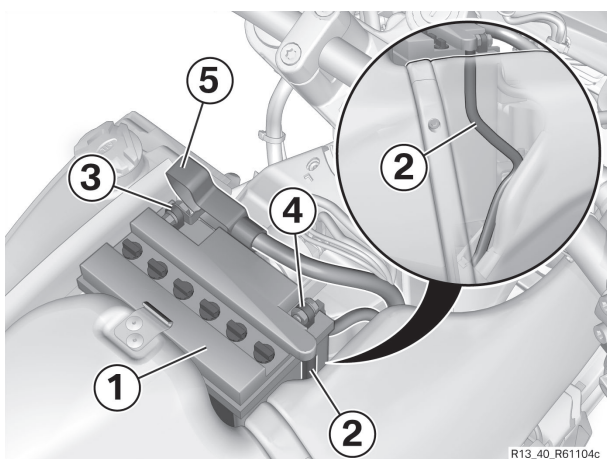


Tightening torques

Flange (air intake pipe) to battery carrier

	2.5 Nm	
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- Connect plug (1) for the air temperature sensor.



► Installing the battery with the small heat protection mat

- Install battery (1).
- Make sure that the routing of breather hose (2) is correct and check that the hose is not kinked or pinched.
- Connect battery breather hose (2) to battery (1).



ATTENTION

Battery not connected in accordance with correct procedure

Risk of short-circuit

- Always proceed in compliance with specified installation sequence.
- Never install a battery without protective cap.

- Connect battery positive lead (3).
- Connect the battery's negative lead (4).



Tightening torques

Wiring harness to battery

M6 x 12	5 Nm	
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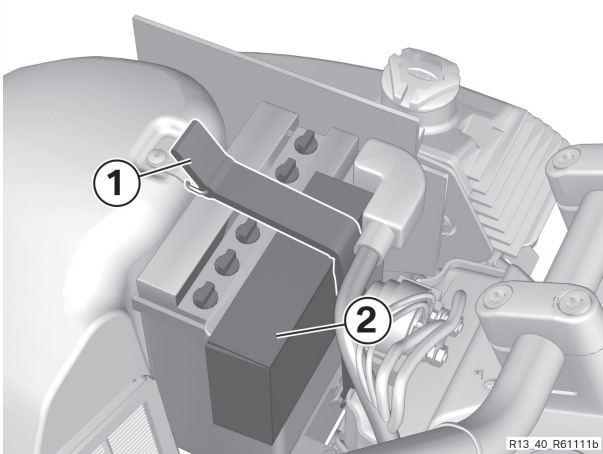
- Lubricate battery terminals (3) and (4).



Lubricant

Acid-free friction-bearing grease	81 22 9 407 174	
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- Secure protective cap (5).



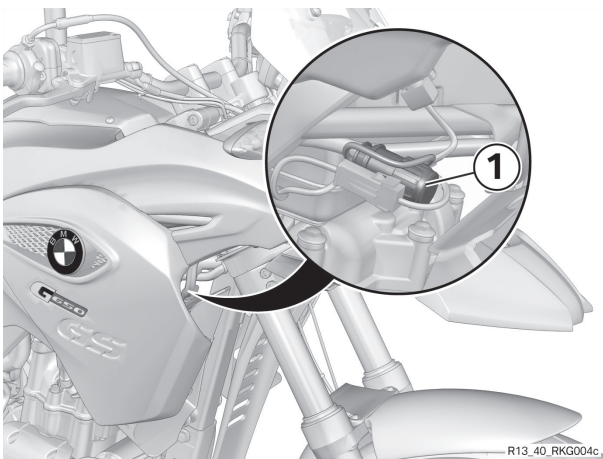
ATTENTION

Contact of battery positive terminal and aluminium side of the heat protection mat

Risk of short-circuit

- Install the heat protection mat correctly: Aluminium side to the front, carbon mat towards the battery.
- Position small heat protection mat (2) with **aluminium side to the outside** and secure with rubber strap (1).

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▶ Connecting BMW Motorrad diagnostic system to vehicle

- Connect the BMW Motorrad battery charger by connecting the red lead to the battery positive terminal or the battery-positive adapter point first and then connect the black lead to the battery negative terminal or ground, as applicable.

NOTICE

When carrying out diagnosis and programming, use a battery charger with 30 A approved by BMW Motorrad that ensures an **on-board system voltage of 13 V**.

- Remove cap (1).
- Connect the BMW Motorrad diagnostic system.

NOTICE

See the information about the BMW Motorrad diagnostic system for all further instructions.

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▶ Performing the software update

- Start the programming routine and follow the instructions issued by the BMW Motorrad diagnostic system.
- Perform the software update.

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▶ Allowing the engine to warm up (teaching in the idle speed adaptation)

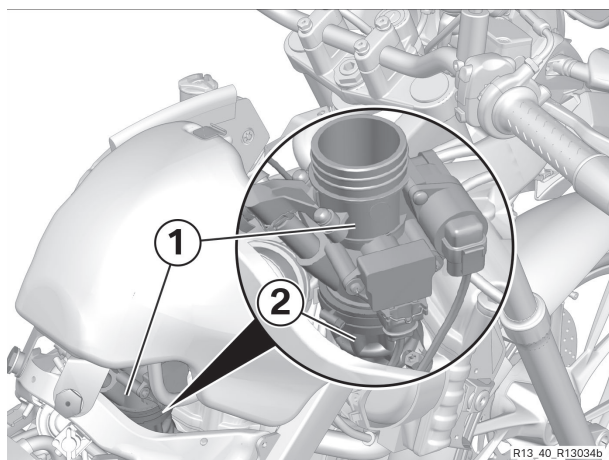
NOTICE

Teaching in of the idle speed adaptation should begin when the engine is cold.

- Allow the engine to idle until the **fan runs twice**.

- During warm-up, do **not accelerate**, the engine must run **at idling speed**.

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► Checking the intake area for tightness

- Allow the engine to run at idling speed.
- Spray Startpilot on the throttle valve **(1)** and intake manifold **(2)**.
- If there is a leak, the speed will increase by itself for a short time. Localise leaks in this way.
- Carry out repair measures, if required.

NOTICE

If repairs are carried out, a readaption is required.

34

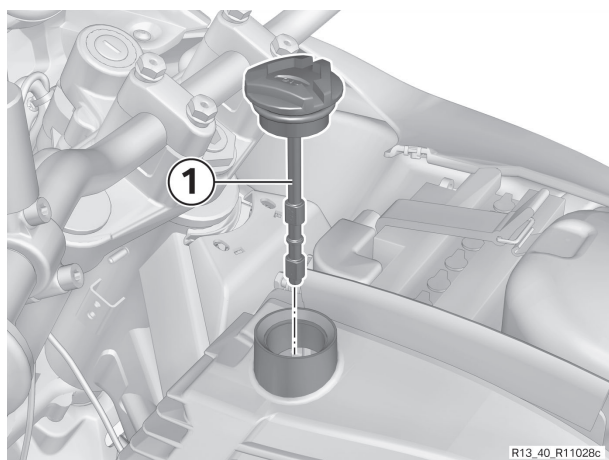
► Checking engine oil level

- Position the motorcycle **upright** and allow the engine to idle until the fan starts up, then allow the engine to continue idling.



Technical data

Engine run time before oil-level check	Motor-cycle upright; after switch-on of the fan motor	3 min	
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- Switch off the engine.
- Remove oil dipstick **(1)** and clean the dipstick.

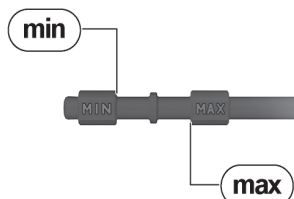
Check


- Seat oil dipstick **(1)** on the oil filler neck arrow but **do not engage the threads**.
- Remove oil dipstick **(1)** and check the oil level.



Technical data

Engine oil, specified level




 Technical data			
		Between MIN and MAX marks	

Result

If the oil level is below the MIN mark:

Measure

- Top up the engine oil.

 Technical data			
Engine oil, quantity for topping up	Differ- ence between MIN and MAX	0.25 l	
	Viscosity class		

Result

If the oil level is above the MAX mark:

Measure

- Correct the oil level.
- Install oil dipstick **(1)**.



► **Performing vehicle test with BMW Motorrad diagnostic system**

- Perform the vehicle test with the BMW Motorrad diagnostic system and read out the fault memory.

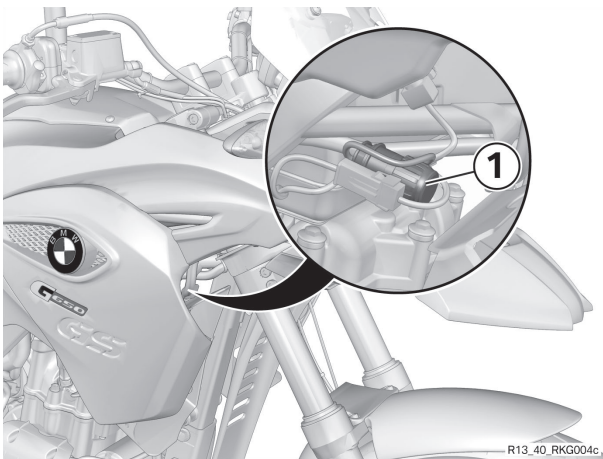
**NOTICE**

When working with the BMW Motorrad diagnostic system, always follow the instructions it issues.

- Follow instructions or use the diagnosis options, as applicable



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► Disconnecting BMW Motorrad diagnostic system from motorcycle

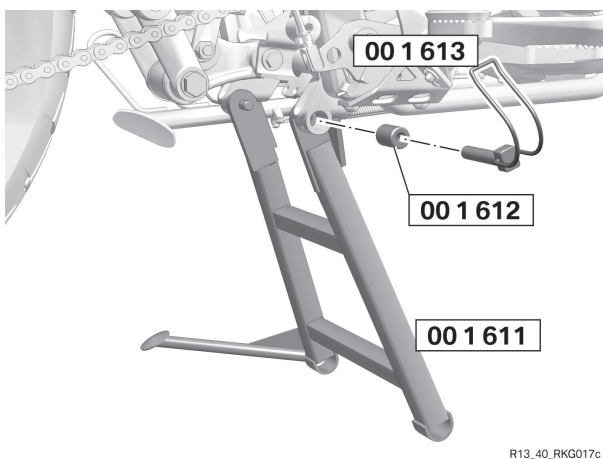
- Close all diagnostic programs and switch off the ignition.
- Disconnect the BMW Motorrad diagnostic system from the motorcycle and secure cap (1).
- Disconnect the BMW Motorrad battery charger from the motorcycle.

37

► Installing trim panel components

- Install the left fairing side panel.
- Install the right fairing side panel.
- Install centre trim panel.
- Install the seat.

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– without centre stand^{OE} (0636)

► Removing auxiliary stand

- Place the motorcycle on its side stand.
- Remove pin (00 1 613) and remove stand (00 1 611).
- Remove sleeves (00 1 612).◇

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► Final check of work performed

- Check the following:
 - The work as performed achieved the intended purpose.
 - All reservoirs and containers have been filled and all fluids and lubricants are at their correct levels.

- All threaded fasteners released beforehand have been correctly retightened.
- The fuel system is free of leaks.
- The lights and signalling equipment are fully operational and the vehicle is roadworthy.
- The brake pads of the front and rear brakes are bedded against the brake discs.

▷ **Function test, engine start suppression**

Requirement

Emergency-off switch (kill switch) not pressed.

Side stand retracted.

Check

- Select neutral.
 - » Neutral telltale light "N" lights up.
- Select a gear.
 - » Neutral indicator light "N" goes out.
- Press the starter button.
 - » Starter does **not** operate.
- Extend the side stand.
- Pull the clutch lever.
- Press the starter button.
 - » Starter turns, but engine **does not** fire.
- Retract the side stand.
- Press the starter button without releasing the clutch lever.
 - » Starter turns and engine fires.

Result

Engine start suppression faulty

Measure

- Check the appropriate parts with the BMW Motorrad diagnostic system.

