Rider's Manual
G 650 Xchallenge

BMW Motorrad

The Ultimate Riding Machine

Motorcycle data/dealership details

Motorcycle data

Model

Vehicle identification number

Colour code

Date of first registration

Registration number

Dealership details

Person to contact in Service department

Ms/Mr

Phone number

Dealership address/phone number (company stamp)

Welcome to BMW

We congratulate you on your choice of a motorcycle from BMW and welcome you to the community of BMW riders.
Familiarise yourself with your new motorcycle so that you can ride it safely and confidently in all traffic situations.
Please read this Rider's Manual carefully before starting to use your new BMW motorcycle. It contains important information on how to operate the controls and how to make the best possible use of all your BMW's technical features.
In addition, it contains information on maintenance and care to help you maintain your motorcycle's reliability and safety, as well as its value.
If you have questions concerning your motorcycle, your authorised BMW Motorrad dealer will gladly provide advice and assistance.

We hope that you will enjoy riding your BMW and that all your journeys will be pleasant and safe.

BMW Motorrad.

Table of Contents

You can also consult the index at the end of this Rider's Manual if you want to find a particular topic or item of information.

General instructions

Overview

Chapter 2 of this Rider's Manual will provide you with an initial overview of your motorcycle. All maintenance and repair work on the motorcycle is documented in Chapter 11. This record of the maintenance work you have had performed on your motorcycle is a precondition for generous treatment of goodwill claims.
When the time comes to sell your BMW, please remember to hand over this Rider's Manual; it is an important part of the motorcycle.

Abbreviations and symbols

Indicates warnings that you must comply with for reasons of your safety and the safety of others, and to protect your motorcycle against damage.

Specific instructions on how to operate, control, adjust or look after items of equipment on the motorcycle.

◀ Indicates the end of an item of information.

• Instruction.

» Result of an activity.

Reference to a page with more detailed information.

◁ Indicates the end of a passage relating to specific accessories or items of equipment.

Tightening torque.

Item of technical data.

OE Optional extra
The motorcycles are assembled complete with all the BMW optional extras originally ordered.

OA Optional accessory
You can obtain optional accessories through your authorised BMW Motorrad dealer; optional accessories have to be retrofitted to the motorcycle.

ABS Anti-lock brake system

Air Damping System

This motorcycle has an air-filled rear suspension system. This Air Damping System, as it is known, does not work in the same way as a conventional steel-spring shock-absorber system. The detailed description of this system starts on page (➠ 34).

Equipment

When you ordered your BMW motorcycle, you chose various items of custom equipment. This Rider's Manual describes optional extras (OE) offered by BMW and selected optional accessories (OA). This explains why the manual may also contain descriptions of equipment which you have not ordered. Please note, too, that your motorcycle might not be exactly as illustrated in this manual on account of country-specific differences. If your BMW was supplied with equipment not described in this Rider's Manual, you will find these features described in separate manuals.

Technical data

All dimensions, weights and power ratings stated in the Rider's Manual are quoted to the standards and comply with the tolerance requirements of the Deutsche Institut für Normung e.V. Versions for individual countries may differ.

Currency

The high safety and quality standards of BMW motorcycles are maintained by constant development work on designs, equipment and accessories. Because of this, your motorcycle may differ from the information supplied in the Rider's Manual. Nor can BMW Motorrad entirely rule out errors and omissions. We hope you will appreciate that no claims can be entertained on the basis of the data, illustrations or descriptions in this manual.

General views


1
2
3
6
5
4

General view, left side

1 Adjuster for damping characteristic, front suspension (compression stage) (➡ 39)
2 Air Damping System (➡ 34)
3 Power socket OE (➡ 60)
4 Adjuster for damping characteristic, rear suspension (➡ 40)
5 Fore-and-aft tilt indicator (➡ 35)
6 Coolant-level indicator (➡ 71)

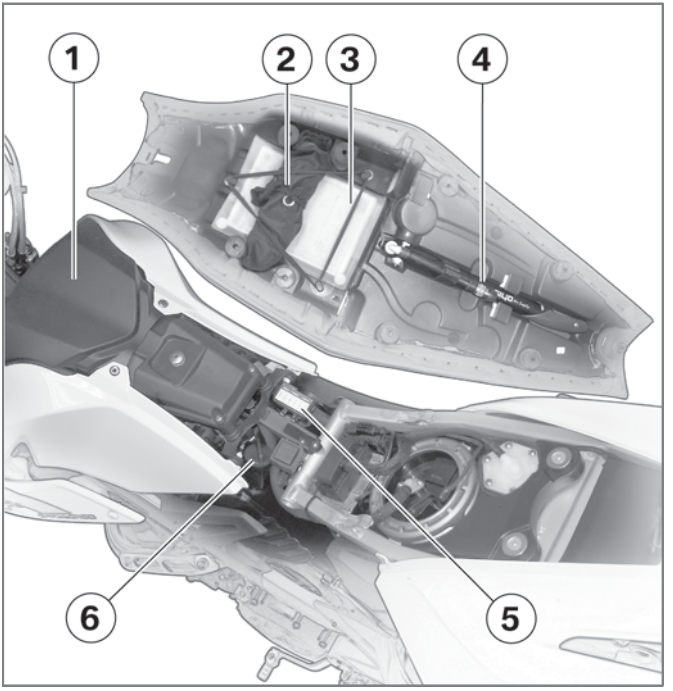

1
2
3
4
5
6
BMW
G 650 X

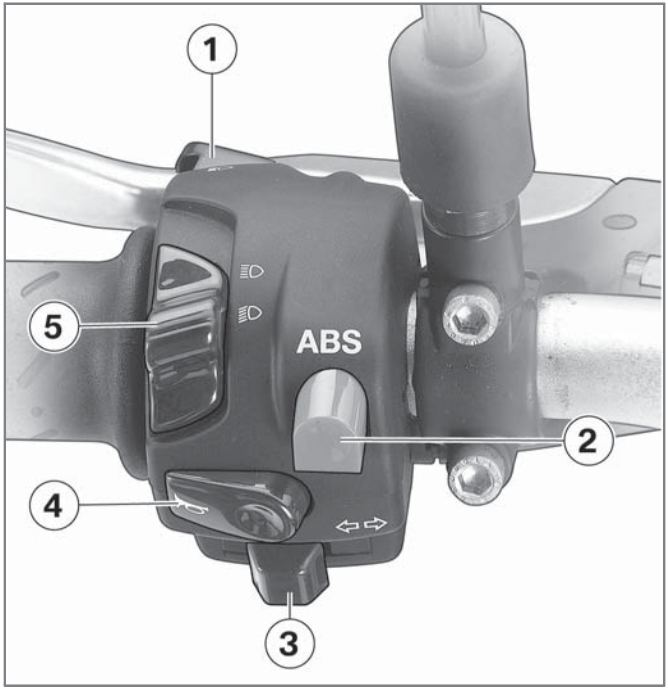
General view, right side

1 Seat lock (➡ 41)
2 Fuel filler neck (➡ 52)
3 Brake-fluid reservoir, front (➡ 69)
4 Adjuster for damping characteristic, front suspension (rebound stage) (➡ 38)
5 ABS fuses, behind the side panel (➡ 85)
6 Brake-fluid reservoir, rear (➡ 70)

Underneath the seat

1 Air-filter box (➠ 92)
2 Toolkit (➠ 64)
3 Rider's Manual
4 Pneumatic pump (➠ 34)
5 Fuse box (➠ 84)
6 Oil dipstick and engine-oil filler neck (➠ 84)



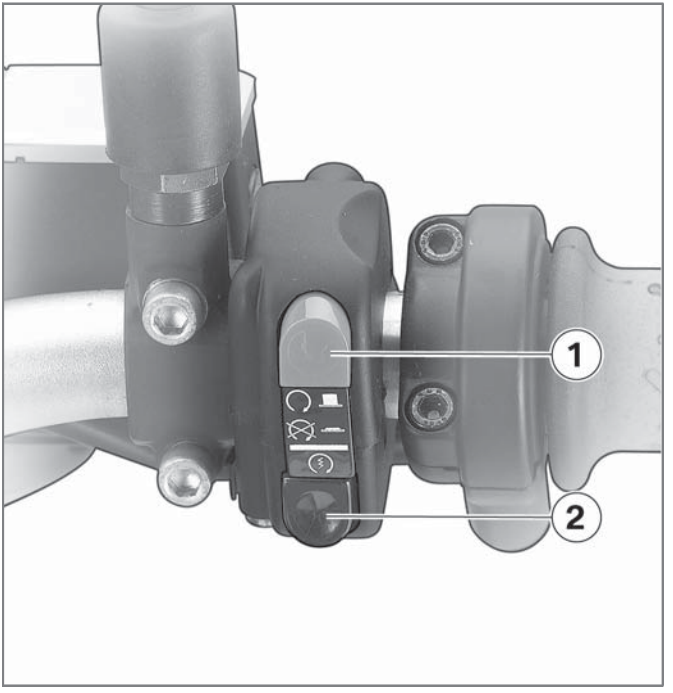


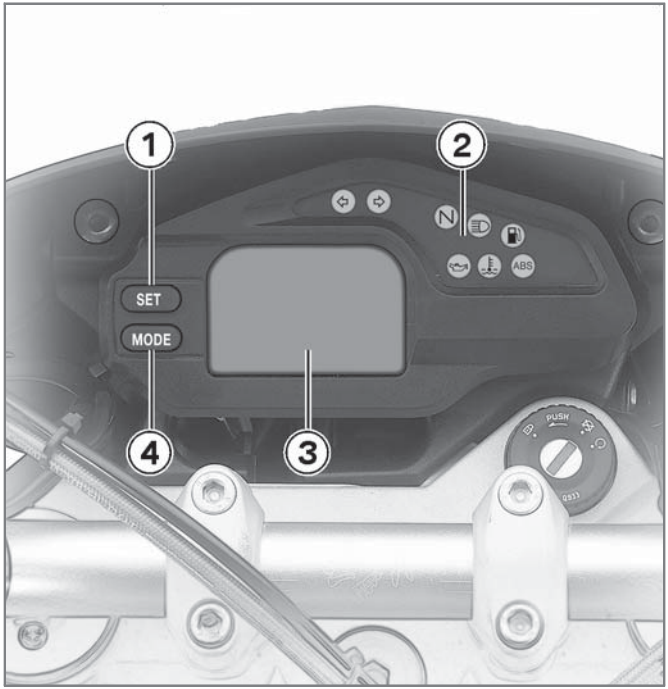
Handlebar fitting, left

1 Headlight flasher
2 Operating the ABS OE (➡ 33)
3 Switch for flashing turn indicators (➡ 32)
4 Horn
5 High-beam headlight (➡ 31)

Handlebar fitting, right

1 Emergency off switch (kill switch) (➡ 32)
2 Starter button (➡ 46)

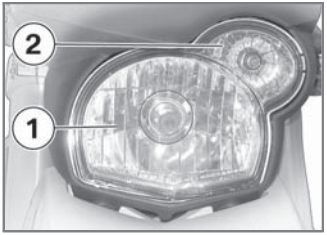




Instrument cluster

1 Set the clock (➡ 29)
Reset the tripmeter (➡ 29)
2 Warning lights (➡ 20)
Telltale lights (➡ 20)
3 Multifunction display (➡ 20)
4 Select readings (➡ 28)

Headlight



1 Low-beam and high-beam headlights
2 Side light

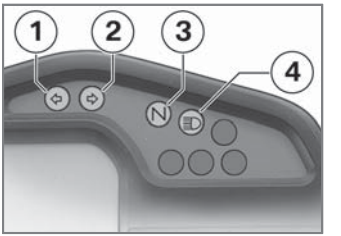
Status indicators

Status indicators

Multifunction display

1 Speedometer
2 Odometer, clock or battery voltage (➠ 28)

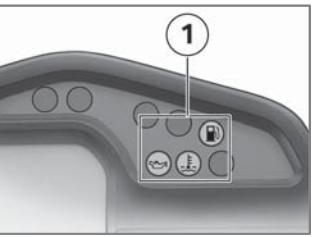
Telltale lights



1 Flashing turn indicators, left
2 Flashing turn indicators, right
3 Idle
4 High-beam headlight

Standard warnings

Mode of presentation



Warnings are indicated by warning lights **1**.
The possible warnings are listed on the next page.

Warnings, overview

	Meaning
 Lights up	Fuel down to reserve (➡ 22)
 Lights up	Insufficient engine oil pressure (➡ 22)
 Lights up	Coolant temperature too high (➡ 22)

Fuel down to reserve

Warning light for fuel down to reserve lights up.

Lack of fuel can result in the engine misfiring and cutting out unexpectedly. Misfiring can damage the catalytic converter; a hazardous situation can result if the engine cuts out unexpectedly.
Do not run the fuel tank dry.◀

Possible cause: The fuel tank contains no more than the reserve quantity of fuel.

Reserve fuel
– ≥2 l

- Refuelling (➡ 52)

Insufficient engine oil pressure

Warning light for oil pressure shows.
The oil pressure in the lube-oil system is too low. Stop immediately and switch off the engine if the warning light shows.

The insufficient oil pressure warning does not fulfil the function of an oil gauge. The only way of checking whether the oil level is correct is to check with the oil dipstick.◀

Possible cause: Engine-oil level too low.
- Check the engine oil level (➡ 65)

If the oil level is too low:
- Top up the engine oil (➡ 67)

If the engine oil level is correct:

Riding when engine-oil pressure is low can result in engine damage.
Do not continue your journey.◀

- Have the fault rectified as quickly as possible by a specialist workshop, preferably an authorised BMW Motorrad dealer.

Coolant temperature too high

Warning light for coolant temperature shows.

Continuing to ride when the engine is overheated could result in engine damage.
You must comply with the instructions below.◀

Possible cause: Coolant level too low.
- Check the coolant level (➡ 71)

If the coolant level is too low:
- Topping up coolant (➡ 72)

Possible cause: Radiator fan defective.

If the radiator fan does not start even though the coolant-temperature warning light shows:

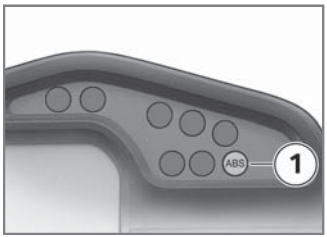
- Have the fault rectified as quickly as possible by a specialist workshop, preferably an authorised BMW Motorrad dealer.

Possible cause: Insufficient cooling.

- If possible, ride in the part-load range to cool down the engine.
- In traffic jams, switch off the engine, but leave the ignition switched on so that the radiator fan continues to operate.
- If the coolant temperature is frequently too high, have the fault rectified as soon as possible by a specialist workshop, preferably an authorised BMW Motorrad dealer.

ABS warnings OE

Mode of presentation



ABS warnings are indicated by ABS warning light **1**.
The detailed descriptions start on page (➠ 56), and you will find an overview listing the possible warnings on the next page.

Warnings, overview

		Meaning
	Flashes	Self-diagnosis not completed (➡ 25)
	Lights up	ABS deactivated (➡ 25)
	Lights up	ABS fault (➡ 25)

Self-diagnosis not completed

ABS warning light flashes.

The ABS function is not available, because self-diagnosis did not complete. The motorcycle has to move forward a few metres for the wheel sensors to be tested.

- Pull away slowly. Bear in mind that the ABS function is not available until self-diagnosis has completed.

ABS deactivated

ABS warning light shows.

The rider has switched off the ABS system.
with OE BMW Motorrad ABS:

- Activate the ABS function (➡ 33)

ABS fault

ABS warning light shows.

The ABS control unit has detected a fault. The ABS function is not available.

- You can continue to ride. Bear in mind that the ABS function is not available. Bear in mind the more detailed information on situations that can lead to an ABS fault (➡ 57).
- Have the fault rectified as quickly as possible by a specialist workshop, preferably an authorised BMW Motorrad dealer.

Operation

Ignition switch and steering lock

Keys

You receive one master key and one spare key.
Ignition switch and steering lock, tank filler cap lock and seat lock are all operated with the same key.

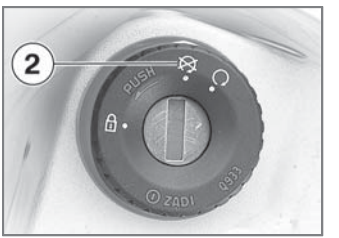
Switching on ignition

- Turn the key to position **1**.
» Side light and all function circuits switched on.
» Engine can be started.
» Pre-ride check is performed. (➠ 47)

with OE BMW Motorrad ABS:

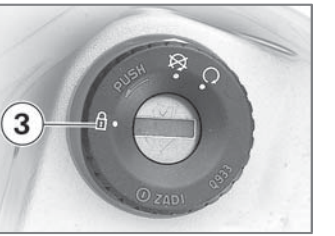
- Turn the key to position **1**.
» ABS self-diagnosis is performed in addition to the checks outlined above. (➠ 48)◁

Switching off ignition



- Turn the key to position **2**.
» Lights switched off.
» Handlebars not locked.
» Key can be removed.

Locking handlebars



- Turn the handlebars all the way to the left
- Turn the key to position **3**, while moving the handlebars slightly.
» Ignition, lights and all function circuits switched off.
» Handlebars locked.
» Key can be removed.

Multifunction display

Selecting readings

- Switch on the ignition.

If the motorcycle is to remain abroad for a lengthy period, you can have the display readouts changed from miles to kilometers or vice versa, if necessary. Under these circumstances consult a specialist workshop, preferably an authorised BMW Motorrad dealer.◀

• Press button **1**.

The display starts with the current value and each time the button is pressed it moves one step through the following sequence:
– Odometer (ODO)
– Tripmeter 1 (Trip I)
– Tripmeter 2 (Trip II)
– Clock
– Battery voltage
– Residual range on reserve quantity of fuel (once fuel level is down to reserve)

Resetting tripmeter

• Switch on the ignition.

• Select the desired tripmeter.

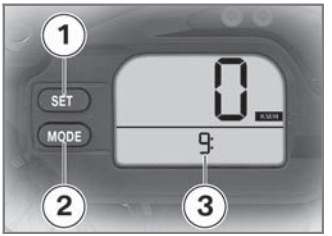
• Press and hold down button **1**.
» The tripmeter is reset to zero.

Setting clock

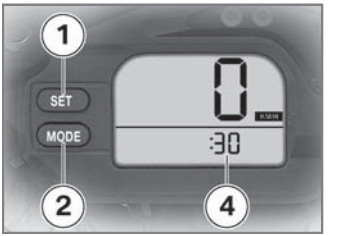
• Switch on the ignition.

You can make this adjustment only when the motorcycle is at a standstill.◀

• Select the clock.

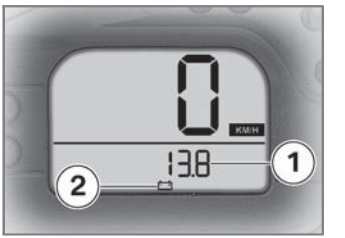


- Press and hold down button **1**.
» Hours reading **3** shows.
- Press button **1**.
» The hours reading increments by one each time you press the button.
- Press button **2**.
» The hours reading decrements by one each time you press the button.



- When the hours reading is correct wait briefly.
» Minutes reading **4** shows.
- Press button **1**.
» The minutes reading increments by one each time you press the button.
- Press button **2**.
» The minutes reading decrements by one each time you press the button.
- When the minutes reading is correct wait briefly.
» The clock is now set and the time appears on the display.
» The procedure is also terminated if speed is greater than zero.

Battery voltage



The battery-voltage reading **1** appears together with the battery symbol **2**.

Residual range on reserve quantity of fuel

Reading **1** is the distance covered since the fuel in the tank dropped to the reserve level.

Lights

Side light

The side lights switch on automatically when the ignition is switched on.

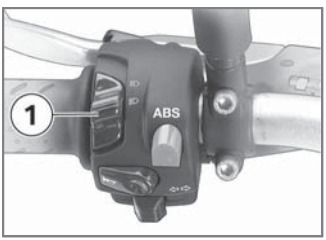
The side lights place a strain on the battery. Do not switch the ignition on for longer than absolutely necessary.◀

Low-beam headlight

The low-beam headlight switches on automatically when the ignition is switched on.

The low-beam headlight places a strain on the battery. Do not switch the ignition on for longer than absolutely necessary.◀

High-beam headlight



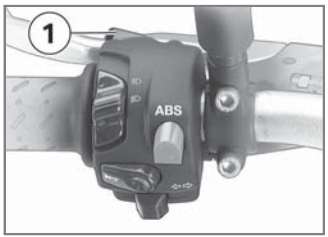
- Push full-beam headlight switch **1** up.

» High-beam headlight switched on.

- Push full-beam headlight switch **1** down.

» High-beam headlight switched off.

Headlight flasher

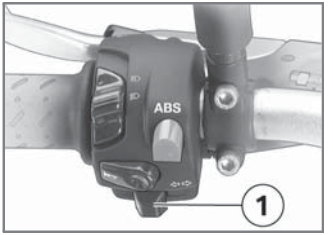


- Press headlight flasher button **1**.

» The high-beam headlight is switched on until you release the button.

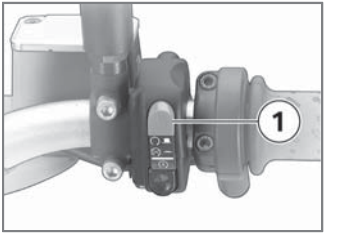
Turn indicators

Operating flashing turn indicators



- Push turn-indicator button **1** to the left.
» Left-hand turn indicators switched on.
» Telltale light for left-hand turn indicators flashes.
- Push the turn-indicator button to the right.
» Right-hand turn indicators switched on.
» Telltale light for right-hand turn indicator flashes.
- Push the turn-indicator button forward.
» Flashing turn indicators switched off.
» Turn indicator telltale light is off.

Emergency off switch (kill switch)

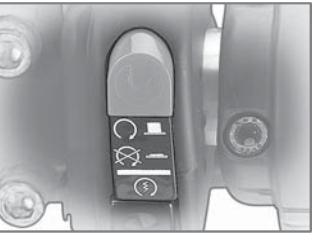


1 Emergency off switch (kill switch)

Operating the kill switch when riding can cause the rear wheel to lock and thus cause a fall.

Do not operate the kill switch when riding.◀

The emergency off switch is a kill switch for switching off the engine quickly and easily.



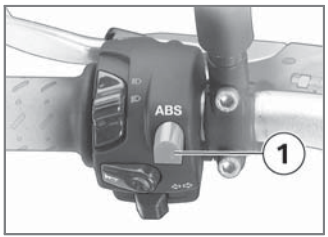
- Switch in normal position: operating position.
- Switch actuated: engine switched off.

You cannot start the engine unless the kill switch is in the run position.◀

BMW Motorrad ABS OE

Deactivating ABS function

- Switch on the ignition, or bring the motorcycle to a stop.



- Press and hold down ABS button **1**.

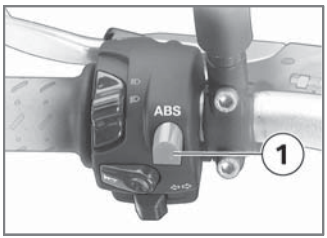
ABS warning light starts to show.

- Release the ABS button within five seconds.

» The ABS function is deactivated.

ABS warning light remains ON.

Activating ABS function



- Press and hold down ABS button **1**.

ABS warning light goes out; if self-diagnosis has not completed it starts flashing.

- Release the ABS button within five seconds.

» The ABS warning light remains off or continues to flash.

» The ABS function is activated.

- Instead of pressing the ABS button, you have the option of switching the ignition off and then on again.

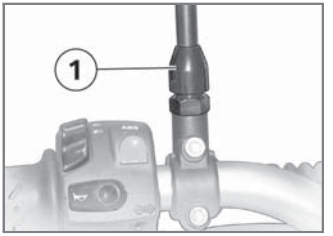
If you switch the ignition off then on again and the ABS light comes back on, there is a fault in the ABS.◀

Mirrors

Adjusting mirrors

- Turn the mirror to the correct position.

Adjusting mirror arm



- Slacken nut **1**.
- Turn the mirror arm to the appropriate position.
- Tighten the nut to the specified tightening torque, while holding the mirror arm to ensure that it does not move out of position.

Union nut, mirror	
– 20 Nm	

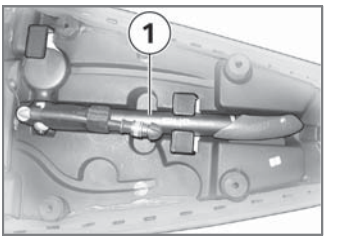
Pneumatic pump

Use

You can use the pump to check, and if necessary correct, the pressure in the Air Damping System (➡ 34) and in the tyres.

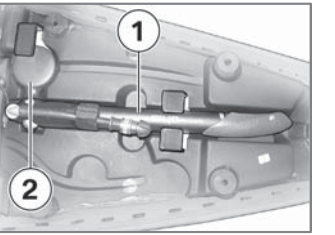
Removing pneumatic pump

- Remove the seat (➡ 41)



- Remove pneumatic pump **1**.

Installing pneumatic pump



- Seat pneumatic pump **1** with pressure gauge **2** down in the holder.
- Install the seat (➡ 42)

Air pressure in the Air Damping System

Air Damping System

This motorcycle has an air-filled rear suspension system known as the Air Damping System.
In this system, it is a volume of air in an enclosed chamber, not a steel spring, that absorbs the

shocks transmitted by the wheel to the suspension.
Spring preload of the Air Damping System is adjusted to suit total weight (motorcycle plus rider, plus luggage) by changing the air pressure in this system. You can use the valve on the Air Damping System to reduce pressure, or you can increase pressure by connecting the pump to this valve.

Fore-and-aft tilt indicator

The fore-and aft tilt indicator on the motorcycle has much the same function as a spirit level, and indeed it is very similar in appearance to an ordinary bubble level. The air-pressure setting is ideal when the fore-and-aft tilt indicator shows that the motorcycle carrying rider and load is horizontal.
Always check the air pressure before riding off.

Adjusting air pressure

It is essential to set the pressure in the Air Damping System to suit the load carried on the motorcycle. Increase air pressure when the motorcycle is heavily loaded and reduce air pressure accordingly when the motorcycle is lightly loaded.
You read the fore-and-aft tilt indicator by sitting on the seat in such a way that you can keep the motorcycle balanced with your feet, but the motorcycle is supporting as much of your weight as possible.
BMW Motorrad recommends setting the air pressure in the Air Damping System marginally higher than would be necessary for the weight of the rider plus the expected weight of the load. You can then reduce the air pressure while sitting on the motorcycle.

Air pressure and temperature

When the Air Damping System is working hard to absorb shocks, the air inside the system becomes warmer. This causes the air to expand with the result that ride height increases, a welcome effect for off-roading. In order to ensure that air pressure is set correctly, you must always check and adjust the air pressure when the Air Damping System is cold, in other words not immediately after the motorcycle has been used for off-roading.
If extreme loads are imposed on the system the increase in temperature can be severe, and under these conditions the effects of the increase in ride height can be perceived as uncomfortable. Under these exceptional circumstances it is a good idea to let air out of the system, using the level gauge to correct the motor-

cycle's fore-and-aft tilt (➡ 35). Remember to readjust accordingly once the system has cooled down again.

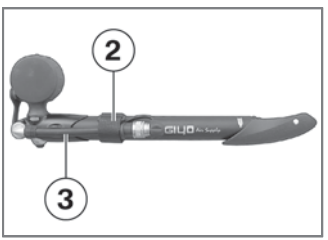
Lengthy periods of disuse

If it is going to be out of use for more than two months, support the motorcycle in such a way that the wheels are not taking any weight, for example by lifting it BMW Motorrad auxiliary stand. Check the air pressures before removing the motorcycle from the auxiliary stand. You can use the pressure gauge on the pneumatic pump for this check.

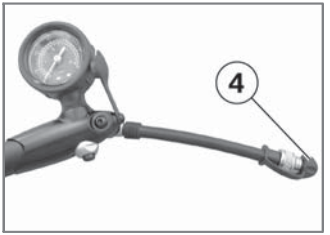
Adjusting air pressure in Air Damping System

- Remove the pneumatic pump (➡ 34)
- Install the seat (➡ 42)

- Remove valve cap **1** from the Air Damping System valve.

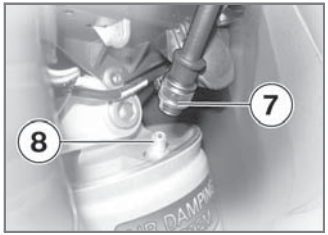


- Open velcro fastener **2** and turn pneumatic-pump hose **3** to the front.



- Remove protective cap **4**.

- Extend handle **5** and disengage retainer **6** of the second piston.



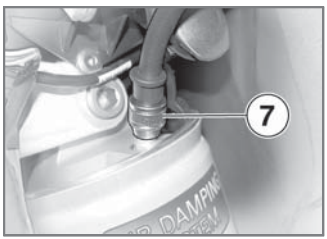
- Connect threaded adapter **7** to valve **8**, allowing the hose and pump to turn with the adapter.

» The pneumatic pump now has an airtight connection to the valve, and the valve is open.

- Pressurise the Air Damping System as per the guideline values below.

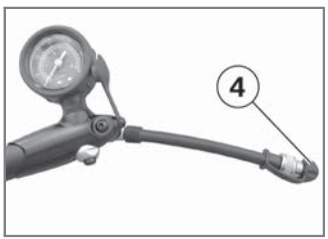
Guide values, Air Damping System
– 6 bar (One-up, rider with helmet and motorcycling wear 65 kg)

Guide values, Air Damping System
– 6.7 bar (One-up, rider with helmet and motorcycling wear 85 kg)
with OA Passenger kit:
– 10.5 bar (Two-up 150 kg)◁

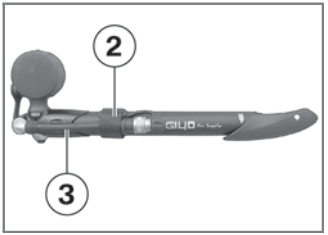


- Remove threaded adapter **7** from the valve.

- Close retainer **6** of the second piston, compress the pneumatic pump and retract handle **5**.



- Install protective cap **4**.



- Turn pneumatic-pump hose **3** toward the pneumatic pump and close velcro fastener **2**.
- Sit on the motorcycle, hold it upright and allow as much of your weight as possible to rest on the motorcycle.
- Push in the valve pin, allow air to escape from the Air Damping System and check the level.

You can use the point of the valve cap to push in the valve pin.◀

- Continue to allow air to escape until the fore-and-aft tilt indicator shows horizontal.
- Screw the valve cap onto the Air Damping System valve.
- Remove the seat (➠ 41)
- Install the pneumatic pump (➠ 34)

Damping

Adjustment for front suspension

You can fine-tune the suspension to the road surface by adjusting both the compression-stage and rebound-stage damping characteristics of the telescopic forks. The rebound-stage setting controls the way the suspension reacts as it extends, whereas the compression-stage setting influences compression of the front forks under load.
The harder the setting, the more the movement that the forks can make to absorb surface irregularities is damped. When you choose a soft setting the forks respond all the more rapidly to surface irregularities.

Adjusting rebound stage for front wheel

- Make sure the ground is level and firm and place the motorcycle on its stand.

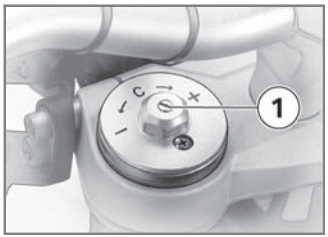
• You adjust the rebound-stage characteristic by turning adjusting screw **1**.

• If you want harder damping, use a screwdriver to turn the adjusting screw in the **+** direction.

• If you want softer damping, use a screwdriver to turn the adjusting screw in the - direction.

Rebound stage, basic setting, front
– Turn adjusting screw as far as it will go in the "+" direction, then back it off 11 clicks in the "-" direction.

Adjusting compression stage for front wheel



• Adjust the compression stage by turning adjusting screw **1**.

• If you want harder damping, use a screwdriver to turn the

adjusting screw in the **+** direction.
- If you want softer damping, use a screwdriver to turn the adjusting screw in the - direction.

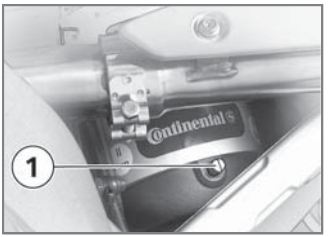
Compression stage, basic setting, front
– Turn adjusting screw as far as it will go in the "+" direction, then back it off 11 clicks in the "-" direction.

Adjustment for rear suspension

The Air Damping System has two settings so that it can be adjusted to suit the type of surface on which you intend riding.
You can turn the adjusting screw any distance in either direction.

Adjusting damping for rear wheel

- Make sure the ground is level and firm and place the motorcycle on its stand.



- Turn adjusting screw **1** to the horizontal position.

» Strong damping characteristic, adjusting screw engages with an audible click.

- Turn adjusting screw **1** to the vertical position.

» Weak damping characteristic, adjusting screw engages with an audible click.

Tyres

Checking tyre pressure

- Make sure the ground is level and firm and place the motorcycle on its stand.

Incorrect tyre pressures impair the motorcycle's handling characteristics and increase the rate of tyre wear.
Always check that the tyre pressures are correct.◀

At high road speeds, tyre valves have a tendency to open as a result of centrifugal force.
Fit metal valve caps with rubber seals and screw them on firmly to prevent sudden deflation.◀

- Check tyre pressures against the data below.

Tyre pressure, front
– 1.8 bar (one-up, tyre cold)

Tyre pressure, front
– 1.9 bar (two-up and/or with luggage, tyre cold)
Tyre pressure, rear
– 2 bar (one-up, tyre cold)
– 2.2 bar (two-up and/or with luggage, tyre cold)

If tyre pressure is too low:
- Correct tyre pressure.

Headlight

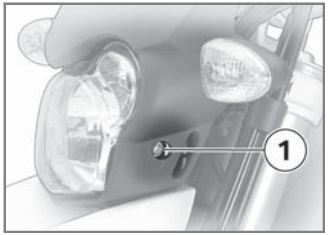
Adjusting headlight for driving on right/driving on left

The motorcycle's headlight beam is symmetric, so there is no need for modification if you intend riding in a country where the opposite rule of the road applies.

Beam throw and air pressure in the Air Damping System

Headlight beam throw is kept constant when the air pressure in the Air Damping System is adjusted to suit load.
Air-pressure adjustment might not suffice only if the motorcycle is very heavily loaded. Under these circumstances, headlight beam throw has to be adjusted to suit the weight carried by the motorcycle.

Consult a specialist workshop, preferably an authorised BMW Motorrad dealer, if you are unsure whether the headlight basic setting is correct.◀

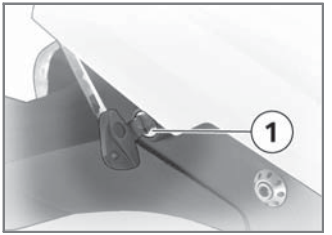


Screws **1** on left and right allow the height of the headlight to be adjusted. This adjustment should be carried out by a specialist workshop, preferably an authorised BMW Motorrad dealer.

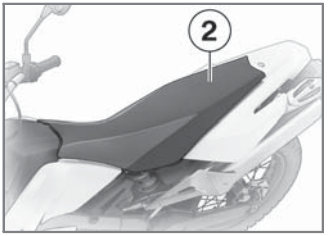
Seat

Removing seat

- Make sure the ground is level and firm and place the motorcycle on its stand.

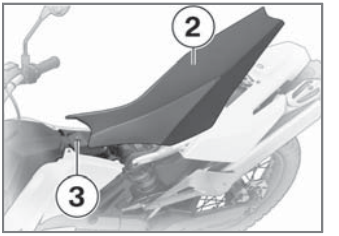


- Use the ignition key to turn seat lock **1** counter-clockwise and hold it in this position.



- Lift seat **2** at the rear and release the key.
- Remove the seat.
- Place the seat, upholstered side down, on a clean surface.

Installing seat



If too much pressure is applied in the forward direction, there is a danger that the motorcycle will be pushed off its stand.
Always make sure that the motorcycle is stable and firmly supported.◀

- Push seat **2** forward into mount **3**.
- Firmly press down on the seat at the rear.

» The seat engages with an audible click.

- Check that the seat is secure.

Riding

Safety instructions

Rider's equipment

Do not ride without the correct clothing. Always wear:
– Helmet
– Motorcycling jacket and trousers
– Gloves
– Boots

This applies even to short journeys, and to every season of the year. Your authorised BMW Motorrad dealer will be glad to advise you on the correct clothing for every purpose.

Speed

If you ride at high speed, always bear in mind that various boundary conditions can adversely affect the handling of your motorcycle:
– Settings of the spring-strut and shock-absorber system
– Imbalanced load
– Loose clothing
– Insufficient tyre pressure
– Poor tyre tread
– Etc.

Correct loading

Overloading and imbalanced loads can adversely affect the motorcycle's handling. Do not exceed the permissible gross weight and be sure to comply with the instructions on loading.◀

Alcohol and drugs

Even small amounts of alcohol or drugs will adversely affect your perception and your ability to assess situations and make decisions, and slow down your reflexes. Medication can exacerbate these effects.

Do not ride your motorcycle after consuming alcohol, drugs and/or medication.◀

Risk of poisoning

Exhaust fumes contain carbon monoxide, which is colourless and odourless but highly toxic.

Inhaling the exhaust fumes therefore represents a health hazard and can even cause loss of consciousness with fatal consequences.
Do not inhale exhaust fumes.
Do not run the engine in an enclosed space.◀

High voltage

Touching live parts of the ignition system with the engine running can cause electric shock.
Do not touch parts of the ignition system when the engine is running.◀

Catalytic converter

If misfiring causes unburned fuel to enter the catalytic converter, there is a danger of overheating and damage.

For this reason, observe the following points:

- Do not run the fuel tank dry.
- Do not attempt to start or run the engine with a spark-plug cap disconnected.
- Stop the engine immediately if it misfires.
- Use only unleaded fuel.
- Comply with all specified maintenance intervals.


Unburned fuel will destroy the catalytic converter.

Note the points listed for protection of the catalytic converter.◀

Risk of fire

Temperatures at the exhaust are high.


Flammable materials (e.g. hay, leaves, grass, clothing and luggage, etc.) could ignite if allowed to come into contact with the hot exhaust pipe.

Do not permit flammable materials to come into contact with the hot exhaust system.◀


Cooling would be inadequate if the engine were allowed to idle for a lengthy period with the motorcycle at a standstill: overheating would result. In extreme cases, the motorcycle could catch fire.

Do not allow the engine to idle unnecessarily. Ride away immediately after starting the engine.◀

Tampering with the control unit of the electronic engine-management system


Tampering with the engine control unit can damage the motorcycle and cause accidents.

Do not tamper with the engine control unit.◀


Tampering with the engine control unit can result in mechanical loads that the motorcycle's components are not designed to withstand. Damage caused in this way is not covered by the warranty.

Do not tamper with the engine control unit.◀

Checklist

Use the following checklist to check important functions, settings and wear limits before you ride off.

- Brakes
- Brake-fluid levels, front and rear
- Clutch
- Clutch fluid level
- Damping-characteristic adjustment and air pressure in the Air Damping System
- Tyre-tread depth and tyre pressures
- Cases correctly installed and luggage secured

At regular intervals:

- Engine oil level (every refuelling stop)
- Brake-pad wear (every third refuelling stop)
- Tension and lubrication of the drive chain

Starting

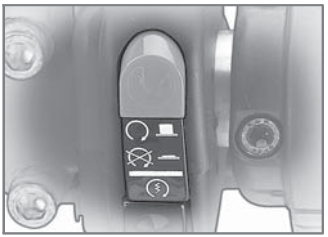
Side stand

You cannot start the motorcycle with the side stand extended and a gear engaged. The engine will switch itself off if you start it with the gearbox in neutral and then engage a gear before retracting the side stand.

Gearbox

You can start the engine when the gearbox is in neutral or if you pull the clutch with a gear engaged.

Starting engine.



- Kill switch in operating position (run).

Gearbox lubrication is ensured only when the engine is running. Inadequate lubrication can result in damage to the gearbox.
Do not allow the motorcycle to roll for a lengthy period of time or push it a long distance with the engine switched off.◀

- Switch on the ignition.

» Pre-ride check is performed. (➡ 47)

with OE BMW Motorrad ABS:

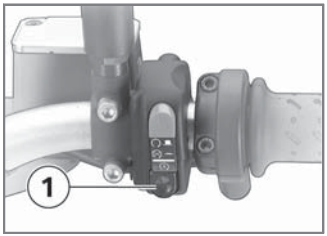
- Switch on the ignition.

» Pre-ride check is performed. (➡ 47)

» ABS self-diagnosis is performed. (➡ 48)◁

- Wait until the warning light for the coolant temperature stops flashing.

▷ The idle actuator is positioned after you switch on the ignition. The coolant-temperature warning light flashes if the idle actuator has not correctly positioned before the pre-ride check completes. In order to avoid subsequent problems, wait for this process to complete before proceeding.◀



- Press starter button **1**.

▷ If ambient temperatures are very low, you might find it necessary to open the throttle slightly when starting the engine. At ambient temperatures below 0 °C, disengage the clutch after switching on the ignition.◀

▷ If the engine fails to start even though the starter turns, insufficient battery voltage might be causing the problem. Recharge the battery before you start the engine, or use jump leads and a donor battery to start.◀

» The engine starts.

» Consult the troubleshooting chart below if the engine refuses to start. (➡ 108)

Pre-ride check

The instrument cluster runs a test of the instruments and the warning lights and telltale lights and the display when the ignition is switched on. This test is known as the "Pre-Ride-Check".

Phase 1

All the telltale and warning lights are switched on briefly, along with all the segments of the multifunction display.

Phase 2

The tyre parameters stored in the memory of the instrument cluster appear briefly on the display.

The instrument cluster then reverts to its normal operating mode.

If a warning light or telltale light did not show as specified above or if a segment or segments of the multifunction display failed to light up:

Some malfunctions cannot be indicated if one of the warning lights fails to show. Make sure that all the warning and telltale lights come on in the pre-ride check.◀

- Have the fault rectified as quickly as possible by a specialist workshop, preferably an authorised BMW Motorrad dealer.

ABS self-diagnosis OE

BMW Motorrad ABS performs self-diagnosis to ensure its operability. Self-diagnosis is performed automatically when you switch on the ignition. The motorcycle has to move forward a few metres for the wheel sensors to be tested.

Phase 1

» Test of the diagnosis-compatible system components with the motorcycle at a standstill.

ABS warning light flashes.

Phase 2

» Test of the wheel sensors as the motorcycle pulls away from rest.

ABS warning light flashes.

ABS self-diagnosis completed

» The ABS warning light goes out.

If an indicator showing an ABS fault appears when ABS self-diagnosis completes:

- You can continue to ride. Bear in mind that the ABS function is not available.
- Have the fault rectified as quickly as possible by a specialist workshop, preferably an authorised BMW Motorrad dealer.

Running in

The first 1000 km

- While running in the motorcycle, vary the throttle opening and engine-speed range frequently.
- Try to do most of your riding during this initial period on twisting, fairly hilly roads, avoiding high-speed main roads and highways if possible.

Exceeding the specified engine speeds while running in will lead to increased engine wear.

Keep to the specified engine speeds for running in.◀

- During the running-in phase, do not exceed the speed limits specified for the various gears.

Maximum speeds during running-in period
– max 35 km/h (1st gear)
– max 55 km/h (2nd gear)
– max 75 km/h (3rd gear)
– max 95 km/h (4th gear)
– max 110 km/h (5th gear)

- No full-load acceleration.
- Avoid low engine speeds at full load.
- Do not omit the first inspection after 500 - 1200 km.

Brake pads

New brake pads must "bed down" and therefore do not achieve their optimum friction levels during the first 500 km. You can compensate for this initial reduction in braking efficiency by exerting greater pressure on the levers.

New brake pads can extend stopping distance by a significant margin.
Apply the brakes in good time.◀

Tyres

New tyres have a smooth surface. This must be roughened by riding in a restrained manner at various heel angles until the tyres are run in. This running in procedure is essential if the tyres are to achieve maximum grip.

Tyres do not have their full grip when new and there is a risk of accidents at extreme angles of heel.
Avoid extreme angles of heel.◀

Riding off-road

Tyre pressures

Tyre pressures reduced for off-road riding impair the motorcycle's handling characteristics on surfaced roads and can lead to accidents.
Always check that the tyre pressures are correct.◀

Dirt or mud on brakes

When riding on loose surfaces or muddy roads, the brakes may fail to take effect immediately because of dirt or moisture on the discs or brake pads.
Apply the brakes in good time until the brakes have been cleaned.◀

The brake pads will wear more rapidly if you ride frequently on unsurfaced tracks or poor roads.
Check the thickness of the brake

pads more frequently and replace the brake pads in good time.◀

Air pressure and damping characteristics

The off-road settings for air pressure in the Air Damping System and the front and rear shock-absorber damping characteristics will impair the motorcycle's handling characteristics on surfaced roads.

If you have been off-roading, remember to correct the air pressure in the Air Damping System and the shock-absorber damping characteristics before you return to surfaced roads.◀

Deactivatable ABS OE

You can deactivate the BMW Motorrad Integral ABS for off-roading (➡ 33).

Brakes

How can stopping distance be minimised?

Each time the brakes are applied, a load distribution shift takes place with the load shifting forward from the rear to the front wheel. The sharper the motorcycle decelerates, the more load is shifted to the front wheel. The higher the wheel load, the more braking force can be transmitted without the wheel locking.

To optimise stopping distance, apply the front brakes rapidly and keep on increasing the force you apply to the brake lever. This makes the best possible use of the dynamic increase in load at the front wheel. Remember to pull the clutch at the same time. In the "panic braking situations" that are trained so frequently braking force is applied as rapidly as possible and with the rider's full force applied to the brake levers; under these circumstances the dynamic shift in load distribution cannot keep pace with the increase in deceleration and the tyres cannot transmit the full braking force to the surface of the road. ABS has to intervene to keep the front wheel from locking; this increases stopping distance.

Descending mountain passes

There is a danger of the brakes fading if you use only the rear brakes when descending mountain passes. Under extreme conditions, the brakes could overheat and suffer severe damage.

Use both front and rear brakes, and make use of the engine's braking effect as well.◀

Wet brakes

After the motorcycle has been washed, ridden through water or ridden in the rain, the brake discs and pads might be wet and the brakes might not take effect immediately.
Apply the brakes in good time until the brakes have dried out.◀

Salt on brakes

The brakes may fail to take effect immediately if the motorcycle was ridden on salt-covered roads and the brakes were not applied for some time.
Apply the brakes in good time until the salt layer on the brake discs and brake pads has been removed.◀

Oil or grease on brakes

Oil and grease on the brake discs and pads considerably diminish braking efficiency.
Especially after repair and maintenance work, make sure that the brake discs and brake pads are free of oil and grease.◀

Dirt or mud on brakes

When riding on loose surfaces or muddy roads, the brakes may fail to take effect immediately because of dirt or moisture on the discs or brake pads.
Apply the brakes in good time until the brakes have been cleaned.◀

The brake pads will wear more rapidly if you ride frequently on unsurfaced tracks or poor roads.
Check the thickness of the brake pads more frequently and replace the brake pads in good time.◀

Parking your motorcycle

Placing motorcycle on side stand

If the ground is soft or uneven, there is no guarantee that the motorcycle will rest firmly on the stand.
Always check that the ground under the stand is level and firm.◀

- Switch off the engine.
- Pull the handbrake lever.
- Hold the motorcycle upright and balanced.
- Use your left foot to extend the side stand fully.

The side stand is designed to support only the weight of the motorcycle.
Do not lean or sit on the

motorcycle with the side stand extended.◀

- Slowly lean the motorcycle to the side until its weight is taken by the stand and dismount to the left.

If the motorcycle is on the side stand, the surface of the ground will determine whether it is better to turn the handlebars to the left or right. However, the motorcycle is more stable on a level surface with the handlebars turned to the left than with the handlebars turned to the right.
On level ground, always turn the handlebars to the left to set the steering lock.◀

- Turn the handlebars to full left or right lock.
- Check that the motorcycle is standing firmly.

On a gradient, the motorcycle should always face uphill; select 1st gear.◀

- Lock the steering lock.

Removing motorcycle from side stand

- Unlock the steering lock.
- From the left, grip the handlebars with both hands.
- Pull the handbrake lever.
- Swing your right leg over the seat and lift the motorcycle to the upright position.
- Hold the motorcycle upright and balanced.

An extended side stand can catch on the ground when the motorcycle is moving and lead to a fall.
Retract the side stand before moving the motorcycle.◀

- Sit on the motorcycle and use your left foot to retract the side stand.

Refuelling

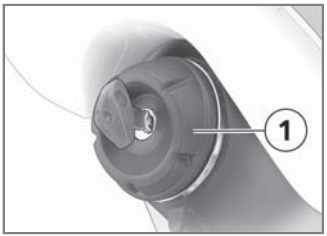
Fuel is highly flammable. A naked flame close to the fuel tank can cause a fire or explosion.
Do not smoke. Never bring a naked flame near the fuel tank.◀

Fuel expands when hot. Fuel escaping from an overfilled tank could make its way onto the rear tyre. This could cause a fall.
Do not fill the tank past the bottom edge of the filler neck.◀

Fuel attacks plastics, which become dull or unsightly.
Wipe off plastic parts immediately if they come into contact with fuel.◀

Leaded fuel will destroy the catalytic converter.
Use only unleaded fuel.◀

- Make sure the ground is level and firm and place the motorcycle on its stand.



- Open fuel tank cap **1** with the ignition key by turning it counter-clockwise.
- Remove the fuel tank cap.
- Refuel with fuel of the grade stated below; do not fill the tank past the bottom edge of the filler neck.

Recommended fuel grade
– 95 ROZ/RON (Super unleaded)

Usable fuel capacity
– ≤9.5 l

Reserve fuel
– ≥2 l

- Place the fuel tank cap in position in the filler neck.
- Close the fuel tank cap with the ignition key by turning it clockwise.

Engineering details

Brake system with BMW Motorrad ABS OE

How does ABS work?

The amount of braking force that can be transferred to the road depends on factors hat include the coefficient of friction of the road surface. Loose stones, ice and snow or a wet road all have much lower coefficients of friction than a clean, dry asphalt surface. The lower the coefficient of friction, the longer the braking distance.

If the rider increases braking pressure to the extent that braking force exceeds the maximum transferrable limit, the wheels start to lock and the motorcycle loses its directional stability; a fall is imminent. Before this situation can occur, ABS intervenes and adapts braking pressure to the maximum transferrable braking force, so the wheels continue to turn and directional stability is maintained irrespective of the condition of the road surface.

What are the effects of surface irregularities?

Humps and surface irregularities can cause the wheels to lose contact temporarily with the road surface; if this happens the braking force that can be transmitted to the road can drop to zero. If the brakes are applied under these circumstances the ABS has to reduce braking force to ensure that directional stability is maintained when the wheels regain contact with the road surface. At this instant the BMW Motorrad ABS must assume an extremely low coefficient of friction, so that the wheels will continue to rotate under all imaginable circumstances, because this is the precondition for ensuring directional stability. As soon as is registers the actual circumstances, the system reacts instantly and adjusts braking force accordingly to achieve optimum braking.

Rear wheel lift

Even under severe braking, a high level of tyre grip can mean that the front wheel does not lock up until very late, if at all. Consequently, ABS does not intervene until very late, if at all. Under these circumstances the rear wheel can lift off the ground, and the outcome can be a high-siding situation in which the motorcycle can flip over.

⚠ Severe braking can cause the rear wheel to lift off the ground.

When you brake, bear in mind that ABS control cannot be relied on in all circumstances to prevent the rear wheel from lifting clear of the ground.◀

What is the design baseline for BMW Motorrad ABS?

Within the limits imposed by physics, BMW Motorrad ABS ensures directional stability on any surface. The system is not optimised for special requirements that apply under extreme competitive situations off-road or on the track.

Special situations

The speeds of the front and rear wheels are compared as one means of detecting a wheel's incipient tendency to lock. If the system registers implausible values for a lengthy period the ABS function is deactivated for safety reasons and an ABS fault message is issued. Self-diagnosis has to complete before fault messages can be issued.
In addition to problems with the BMW Motorrad ABS, exceptional riding conditions can lead to a fault message being issued.

Exceptional riding conditions:

- Riding for a lengthy period with the front wheel lifted off the ground (wheelie).
- Rear wheel rotating with the motorcycle held stationary by applying the front brake (burnout).
- Heating up with the motorcycle on the centre stand or an auxiliary stand, engine idling or with a gear engaged.
- Rear wheel locked for a lengthy period, for example while descending off-road.

If a fault message is issued on account of exceptional riding conditions as outlined above, you can reactivate the ABS function by switching the ignition off and on again.

What significance devolves on regular maintenance?

Invariably, a technical system cannot perform beyond the abilities dictated by its level of maintenance.
In order to ensure that the BMW Motorrad ABS is always maintained in optimum condition, it is essential for you to comply strictly with the specified inspection intervals.◀

Reserves for safety

The potentially shorter braking distances which BMW Motorrad ABS permits must not be used as an excuse for careless riding. ABS is primarily a means of ensuring a safety margin in genuine emergencies.
Take care when cornering. When you apply the brakes on a corner, the motorcycle's weight and

momentum take over and even BMW Motorrad ABS is unable to counteract their effects.

Accessories

General instructions

BMW Motorrad recommends the use of parts and accessories for your motorcycle that are approved by BMW for this purpose. Genuine BMW parts and accessories and other products which BMW has approved can be obtained from your authorised BMW Motorrad dealer, together with expert advice on their installation and use.

These parts and products have been tested by BMW for safety, function and suitability. BMW accepts product liability for them. Conversely, BMW is unable to accept any liability whatsoever for parts and accessories which it has not approved.

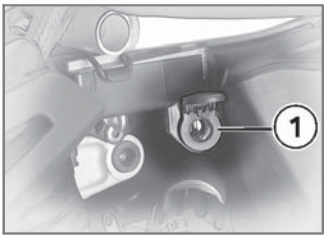
⚠ BMW Motorrad cannot assess each non-BMW product to determine whether it can be used on or in connection with BMW motorcycles without constituting a safety hazard. Country-specific official authorisation does not suffice as assurance. Tests conducted by these instances cannot make provision for all operating conditions experienced by BMW motorcycles and, consequently, they are not sufficient in some circumstances.

Use only parts and accessories approved by BMW for your motorcycle.◀

Whenever you are planning modifications, comply with all the legal requirements. Make sure that the motorcycle does not infringe national road-vehicle construction and use regulations.

Power socket OE

Ratings



Do not attempt to connect a load that would exceed the maximum amperage stated in the technical data for on-board socket **1**.

Operating electrical accessories

Electrically powered accessories inevitably place a strain on the battery. It is essential to ensure that the battery retains its ability to start the engine.

Cable routing

The cables from the power socket to the auxiliary device must be routed in such a way that they:
– Do not impede the rider
– Do not restrict or obstruct the steering angle and handling characteristics
– Cannot be trapped

Incorrectly routed cables can impede the rider. Route the cables as described above.◀

Luggage

Correct loading

Overloading and imbalanced loads can adversely affect the motorcycle's handling. Do not exceed the permissible gross weight and be sure to comply with the instructions on loading.◀

- Set the air pressure in the Air Damping System, the damping characteristic and the tyre pressures to suit total weight.
- Note the maximum permissible payload of the luggage carrier.

Loading luggage carrier
– max 5 kg

Maintenance

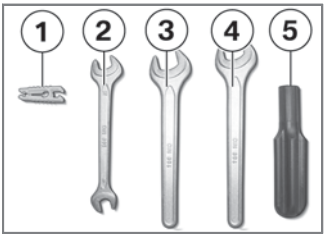
Notes

The Maintenance chapter describes straightforward procedures for checking and replacing certain wear parts.
Special tightening torques are listed as applicable. The tightening torques for the threaded fasteners on your motorcycle are listed in the section entitled "Technical data".
You will find information on more extensive maintenance and repair work in the Repair Manual on DVD/CD-ROM (RepROM) for your motorcycle, which is available from your authorised BMW Motorrad dealer.

Some of the work calls for special tools and a thorough knowledge of motorcycles. If you are in doubt consult a specialist workshop, preferably your authorised BMW Motorrad dealer.

Toolkit

Standard on-board toolkit



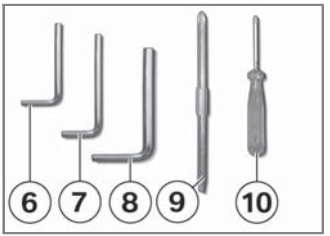
1 Fuse puller
– Replacing fuses

2 Open-ended spanner, w/f 8/10
– Adjusting chain tension

3 Open-ended spanner, w/f 19
– Adjusting mirror arm

4 Open-ended spanner, w/f 19
– Adjusting mirror arm

5 Screwdriver handle
– Holder for screwdriver blade **9**



6 3 mm Allen key
– Replacing headlight bulb

7 4 mm Allen key
– Removing and installing body panels

8 6 mm Allen key
– Adjusting headlight beam throw

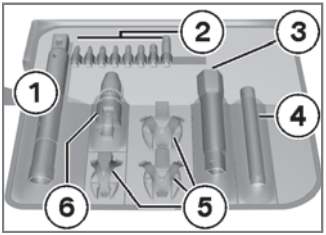
9 Screwdriver blade
– Star-head and flat-tip blade
– Adjusting rear suspension damping

10 Screwdriver, small

– Replacing turn indicator bulbs

On-board toolkit service kit

Your authorised BMW Motorrad dealer can provide the on-board toolkit service kit that you will need if you are considering undertaking more extensive work. You will find information on undertaking work of this nature in the Repair Manual on the CD or DVD also obtainable from your authorised BMW Motorrad dealer.



1 Extending tool holder

– Adapters to accommodate all tools
– Removing and installing spark plugs

2 1/4" bits

– Star-head
– Plain-tip
– Adapter, 1/4" hex to 1/4"square
– 2x hexagon socket wrench insert
– Allen keys, 3 mm, 4 mm and 6 mm

3 Ring spanner, w/f 26

– Removing and installing wheels

4 Electric torch

– LED bulb

5 3x socket

– Adjusting chain tension

6 Adapter

– Adapter for 1/4" bits
– 9x12 mm and 3/8" swivel adapters

Engine oil

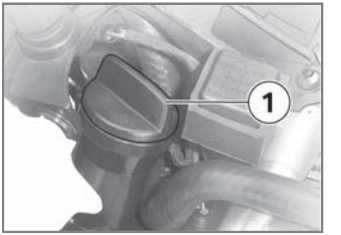
Checking engine oil level

The engine can seize if the oil level is low, and this can lead to accidents.
Always make sure that the oil level is correct.◀

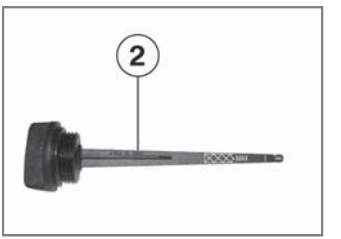
The oil level varies with the temperature of the oil. The higher the temperature, the higher the level of oil in the sump.

Checking the oil level with the engine cold or after no more than a short ride will lead to misinterpretation; this in turn, means that the engine will be operated with the incorrect quantity of oil.
In order to ensure that the engine oil level is read correctly, check the oil level only after a lengthy trip.◀

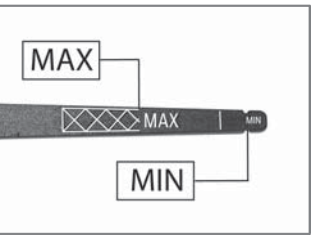
- Allow the engine to idle until the fan starts up, then allow it to idle one minute longer.
- Make sure the ground is level and firm and hold the motorcycle upright.
- Switch off the engine.
- Wipe the area around the oil filler neck clean.



- Remove oil dipstick **1** by turning it counter-clockwise.



- Wipe the oil off MIN-MAX part of dipstick **2** with a clean, dry cloth.
- Turn the oil dipstick clockwise to install.
- Remove the oil dipstick and check the oil level.



Engine oil, specified level
– Engine oil, 15W-40
– Between MIN and MAX marks

If the oil level is below the MIN mark:

- Top up the engine oil (➠ 67)

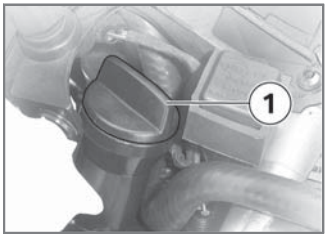
If the oil level is above the MAX mark:

- Have the oil level corrected by a specialist workshop, preferably an authorised BMW Motorrad dealer.

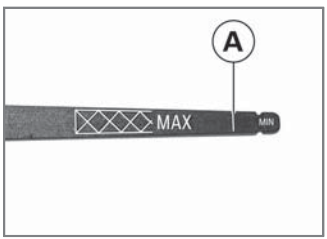
Topping up engine oil

Damage to the engine can result if it is operated without enough oil, but the same also applies if the oil level is too high.
Always make sure that the oil level is correct.◀

- Wipe the area around the filler neck clean.



- Remove oil dipstick **1**.



- Top up the engine oil until the level reaches mark **A**.
- Check the engine oil level (➡ 65)
- Install the oil dipstick.

Brake system

Dependability of the brake system

A fully functional brake system is a basic requirement for the road safety of your motorcycle.
Do not ride the motorcycle if you have any doubts about the dependability of the brake system. Under these circumstances have the brake system checked by a specialist workshop, preferably an authorised BMW Motorrad dealer.

Incorrect working practices endanger the reliability of the brakes.
Have all work on the brake system performed by a specialist workshop, preferably an authorised BMW Motorrad dealer.◀

Checking operation of brakes

- Pull the handbrake lever.
» The pressure point must be clearly perceptible.
- Press the footbrake lever.
» The pressure point must be clearly perceptible.

If pressure points are not clearly perceptible:

- Have the brakes checked by a specialist workshop, preferably an authorised BMW Motorrad dealer.

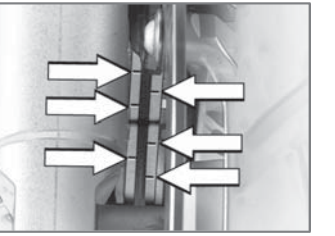
Brake pads

Checking front brake pad thickness

Brake pads worn past the minimum permissible brake-pad thickness can cause a reduction in braking efficiency and under certain circumstances they can cause damage to the brake system.

In order to ensure the dependability of the brake system, do not permit the brake pads to wear past the minimum permissible brake-pad thickness.◀

- Visually inspect the brake pads to ascertain their thickness. Viewing direction: Between wheel and fork tube toward the brake caliper.

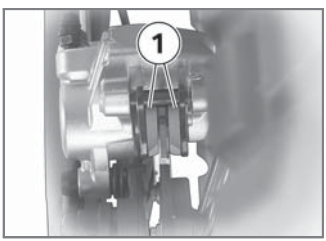


Brake-pad wear limit, front
– min 1 mm (Friction pad only, without backing plate)
– The wear indicators (grooves) must be clearly visible.

If the wear indicating marks are no longer clearly visible:
- Have the brake pads replaced by a specialist workshop, preferably an authorised BMW Motorrad dealer.

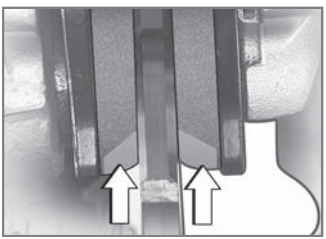
Checking rear brake pad thickness

- Make sure the ground is level and firm and place the motorcycle on its stand.



Brake pads worn past the minimum permissible brake-pad thickness can cause a reduction in braking efficiency and under certain circumstances they can cause damage to the brake system.
In order to ensure the dependability of the brake system, do not permit the brake pads to wear past the minimum permissible brake-pad thickness.◀

- Visually inspect rear brake pads **1** from behind to ascertain their thickness.



Brake-pad wear limit, rear
– min 1 mm (Friction pad only, without backing plate)

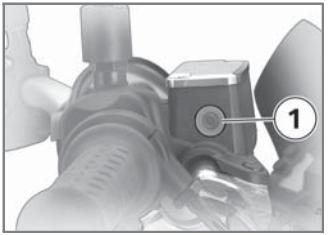
Brake-pad wear limit, rear
– The wear indicators must be clearly visible.

If the wear indicating marks are no longer visible:
- Have the brake pads replaced by a specialist workshop, preferably an authorised BMW Motorrad dealer.

Brake fluid

Checking brake-fluid level, front brakes

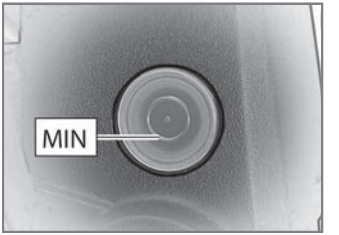
- Make sure the ground is level and firm and hold the motorcycle upright.
- Move the handlebars to the straight-ahead position.



A low fluid level in the brake reservoir can allow air to penetrate the brake system. This significantly reduces braking efficiency.
Check the brake-fluid level at regular intervals.◀

- Check the brake fluid level in front reservoir **1**.

Wear of the brake pads causes the brake fluid level in the reservoir to sink.◀



Brake fluid level, front

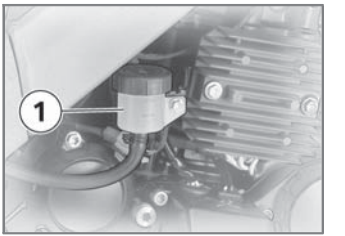
– DOT4 brake fluid

– Do not permit the brake fluid level to drop below the MIN mark. (Brake-fluid reservoir horizontal)

If the brake fluid level drops below the permitted level:

- Have the defect rectified as quickly as possible by a specialist workshop, preferably an authorised BMW Motorrad dealer.

Checking brake-fluid level, rear brakes



A low fluid level in the brake reservoir can allow air to penetrate the brake system. This significantly reduces braking efficiency.
Check the brake-fluid level at regular intervals.◀

- Check the brake fluid level in rear reservoir **1**.

Wear of the brake pads causes the brake fluid level in the reservoir to sink.◀

Brake fluid level, rear

– DOT4 brake fluid

– Do not permit the brake fluid level to drop below the MIN mark. (Brake-fluid reservoir horizontal)

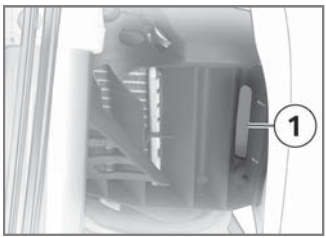
If the brake fluid level drops below the permitted level:

- Have the defect rectified as quickly as possible by a specialist workshop, preferably an authorised BMW Motorrad dealer.

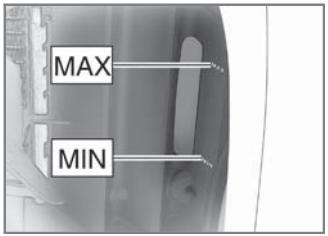
Coolant

Checking coolant level

- Make sure the ground is level and firm and hold the motorcycle upright.



- Read off the coolant level on scale **1** on the coolant expansion tank.



Coolant, specified level

– Between MIN and MAX marks on the expansion tank

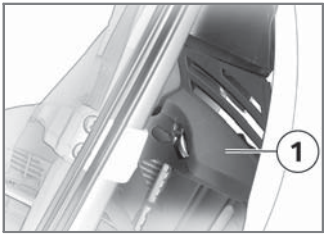
If the coolant level is too low:

- Top up the coolant.

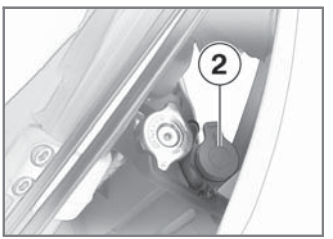
If the coolant level is too high:

- Seek the advice of a specialist workshop, preferably an authorised BMW Motorrad dealer.

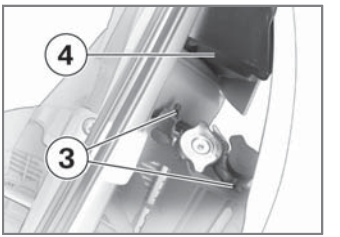
Topping up coolant



- Pull cover of radiator cap **1** forward to remove.



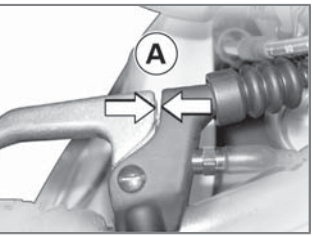
- Open cap of the expansion tank for coolant **2**.
- Top up the coolant to the specified level.
- Close the cap of the expansion tank for coolant.



- Seat the cover of the radiator cap in holders **3**. In this process, guide the top edge of the cover behind the bottom edge of centre trim panel **4**.

Clutch

Checking clutch-lever play



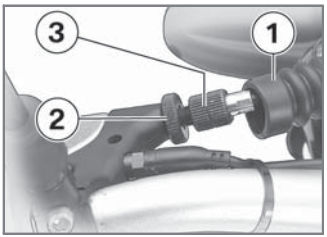
- Pull the clutch lever until resistance is perceptible.
- Measure clutch-lever play **A**.

	Clutch-lever play
–	2...3 mm (Engine cold)

Clutch-lever play is out of tolerance:

- Adjust clutch-lever play (➠ 73)

Adjusting clutch-lever play



- Push back boot **1**.
- Slacken locknut **2**.
- Set clutch-lever play to specification by turning adjusting screw **3**.

» Turning clockwise: increases play.

» Turning counter-clockwise: reduces play.

- Check the clutch-lever play (➡ 72)
- Tighten locknut **2**.
- Pull boot **1** back over the adjusting screw.

Tyres

Checking tyre tread depth

- Make sure the ground is level and firm and place the motorcycle on its stand.
- Measure the tyre tread depth in the main tread grooves with wear marks.

Tyres have wear indicators integrated into the main tread grooves. The tyre is worn out when the tyre tread has worn down to the level of the marks. The locations of the marks are indicated on the edge of the tyre, e.g. by the letters TI, TWI or by an arrow.◀

If the tyre tread no longer complies with the minimum legally required tread depth:

- Replace tyre.

Rims

Checking rims

- Make sure the ground is level and firm and place the motorcycle on its stand.
- Visually inspect the rims for defects.
- Have damaged rims checked and, if necessary, replaced by a specialist workshop, preferably an authorised BMW Motorrad dealer.

Chain

Lubricating chain

- Switch the ignition off and select neutral.

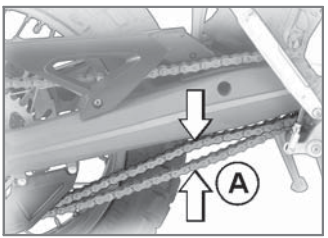
Dirt, dust and inadequate lubrication will result in accelerated wear and significantly shorten the drive chain's useful life.

Clean and lubricate the drive chain at regular intervals.◀

- Clean the drive chain with a suitable cleaning product, dry it and apply chain lubricant.
- Wipe off excess lubricant.

Checking chain tension

- Make sure the ground is level and firm and place the motorcycle on its stand.



- Use a screwdriver to push the chain up and down and measure difference **A**.

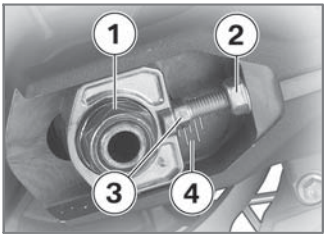
Chain deflection
– 25...30 mm (Motorcycle supported on its side stand)
– 30...35 mm (Rear suspension extended)

If measured value is outside permitted tolerance:

- Adjust the chain tension (➡ 74)

Adjusting chain tension

- Make sure the ground is level and firm and place the motorcycle on its stand.



- Slacken quick-release axle nut **1**.
- Slacken locknuts **2** on left and right by turning them counterclockwise.
- Use adjusting screws **3** on left and right to adjust chain tension.
  - » Turning screws clockwise: reduces chain tension.
  - » Turning screws counter-clockwise: increases chain tension.
- Check the chain tension (➡ 74)

- Make sure that scale readings **4** are the same on left and right.
- Tighten locknuts **2** on left and right by turning them clockwise.

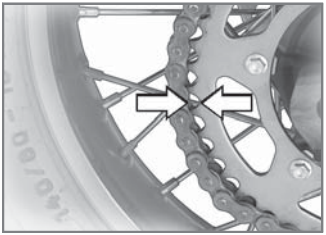
Locknut of the final-drive chain tensioning screw
– 25 Nm

- Tighten quick-release axle nut **1** to the specified tightening torque.

Nut on quick-release axle, rear
– 80 Nm

Checking chain wear

- Make sure the ground is level and firm and place the motorcycle on its stand.



- Pull the chain back at the rearmost point of the sprocket.

» The tips of the sprocket teeth must remain inside the chain links.

If the chain can be pulled back far enough to expose the tips of the sprocket teeth:

- Consult a specialist workshop, preferably an authorised BMW Motorrad dealer.

Wheels

Recommended tyres

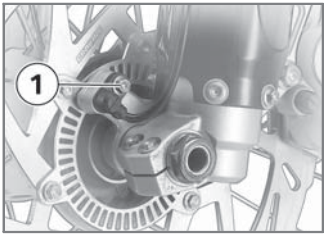
For each size of tyre BMW Motorrad tests and classifies as roadworthy certain makes. BMW Motorrad cannot assess the suitability or provide any guarantee of road safety for other tyres. BMW Motorrad recommends using only tyres tested by BMW Motorrad.

You can obtain detailed information from your authorised BMW Motorrad dealer or on the Internet at www.bmw-motorrad.com.

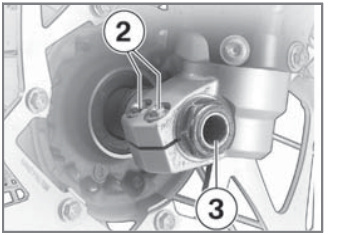
Removing front wheel

- Place the motorcycle on a suitable auxiliary stand. BMW Motorrad recommends the BMW Motorrad auxiliary stand.
- Install the auxiliary stand (➠ 81)

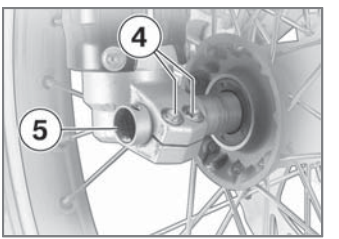
with OE BMW Motorrad ABS:



- Remove screw **1** of the ABS sensor and remove the ABS sensor from the holder.◁
- Use a suitable auxiliary stand to lift the front wheel. BMW Motorrad recommends the BMW Motorrad front wheel stand.
- Install the front wheel stand (➡ 82)



- Slacken left axle clamping screws **2**.
- Remove axle screw **3**.



- Slacken right axle clamping screws **4**.
- Use a screwdriver to remove axle **5**.
- Do not remove the grease from the axle.

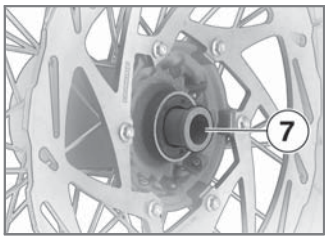
- Hold left slider tube **6** and turn the front wheel left to push the brake pads apart.

⚠ Once the calipers have been removed, there is a risk of the brake pads being pressed together to the extent that they cannot be slipped back over the brake disc on reassembly.

Do not operate the handbrake

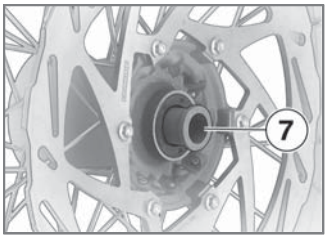
lever when the brake calipers have been removed.◀

- Roll the front wheel clear of the forks.



- Remove spacer sleeve **7**.

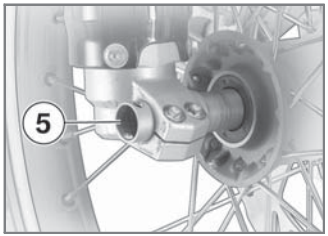
Installing front wheel



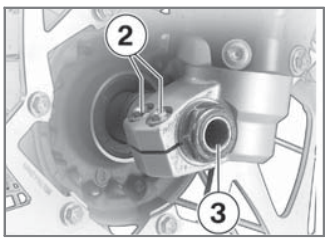
- Install spacer sleeve **7**.

⚠ The front wheel must be installed right way round to rotate in the correct direction. Note the direction-of-rotation arrows on the tyre or the wheel rim.◀

- Roll the front wheel into position between the forks, making sure that the brake disc passes between the brake pads.



- Install axle **5**.



⚠ Threaded fasteners not tightened to the specified torque can work loose or their threads can suffer damage. Always have the security of the fasteners checked by a specialist

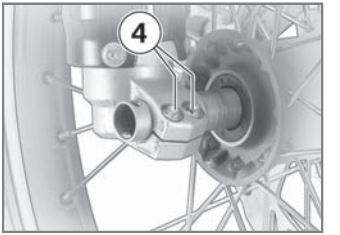
workshop, preferably an authorised BMW Motorrad dealer.◀

- Tighten axle screw **3** to the specified torque; if necessary use a screwdriver to counterhold at the right-hand side.

Nut on quick-release axle, front
– 80 Nm

- Remove the front-wheel stand.
- Without operating the brakes: firmly compress the forks and release; repeat the procedure several times.
- Tighten left axle clamping screws **2** to the specified tightening torque.

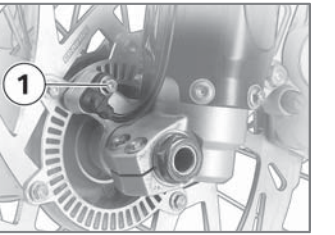
Front-axle retainer
– 10 Nm



- Tighten right axle clamping screws **4** to the specified tightening torque.

Front-axle retainer
– 10 Nm

with OE BMW Motorrad ABS:

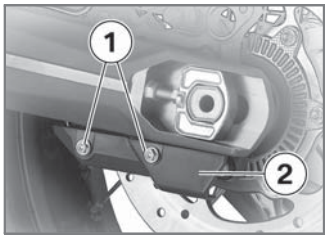


- Seat the ABS sensor in the holder and install screw **1** of the ABS sensor.◁
- Remove the auxiliary stand.
- Firmly pull the brake lever several times to seat the brake pads against the brake disc.

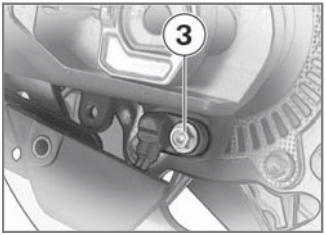
Removing rear wheel

- Place the motorcycle on a suitable auxiliary stand. BMW Motorrad recommends the BMW Motorrad auxiliary stand.

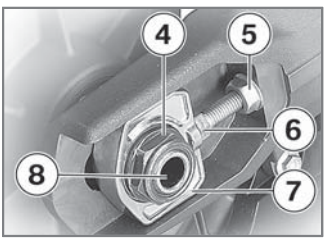
- Install the auxiliary stand (➡ 81)



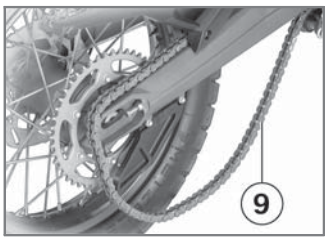
- Remove screws **1** and pull cover **2** down slightly.



- Remove screw **3** of the speed sensor and remove the speed sensor from the holder.



- Remove quick-release axle nut **4**.
- Slacken locknuts **5** on left and right by turning them counterclockwise.
- Back off adjusting screws **6** left and right by turning them clockwise until adjusting plate **7** can be removed.
- Remove quick-release axle **8**.

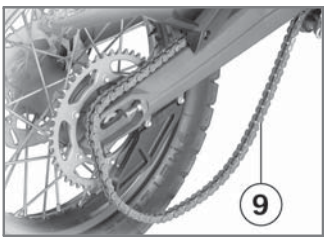


- Roll the rear wheel as far forward as possible and disengage chain **9** from the sprocket.
- Roll the rear wheel back until it is clear of the swinging arm.

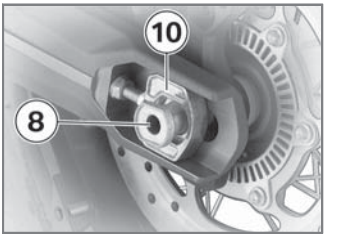
The sprocket and the spacer sleeves on left and right are loose fits in the wheel. Make sure that these parts are not damaged or lost on removal.◀

Installing rear wheel

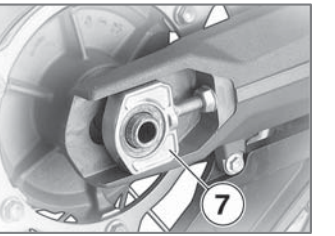
- Roll the rear wheel into the swinging arm, making sure that the brake disc passes between the brake pads.



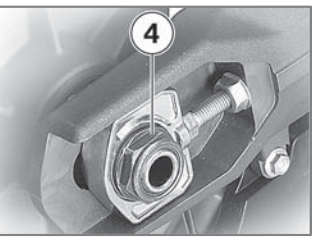
- Roll the rear wheel as far forward as possible and loop chain **9** over the sprocket.



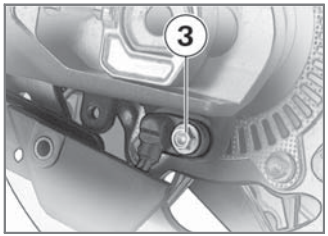
- Seat left adjusting plate **10** in the swinging arm and install quick-release axle **8** in the brake caliper and the rear wheel.
- Make sure that the axle fits into the recess of the adjusting plate.



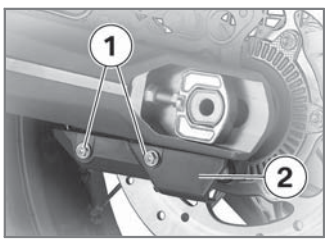
- Install right adjusting plate **7**.



- Install quick-release axle nut **4**, but do not tighten it at this point.



- Seat the speed sensor in the holder and install screw **3** of the speed sensor.

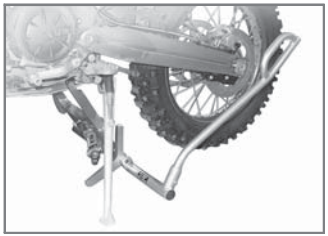


- Place cover **2** in position.
- Install 2 screws **1**.
- Adjust the chain tension (➠ 74)
- Remove the auxiliary stand.

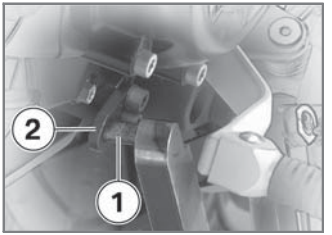
BMW Motorrad auxiliary stand

Installing auxiliary stand

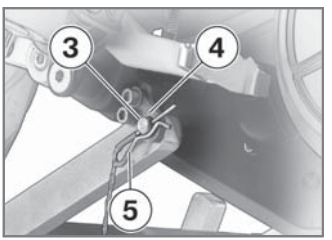
- Make sure the ground is level and firm and place the motorcycle on its stand.
- Use the auxiliary stand with the number (001631) and the H adapter with the number (001639).



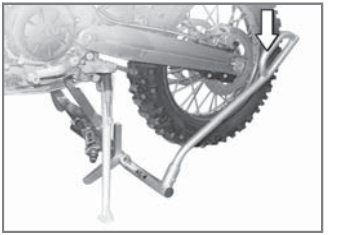
- With the lifting lever to the left, slip the auxiliary stand into position underneath the motorcycle, between the side stand and the rear wheel.



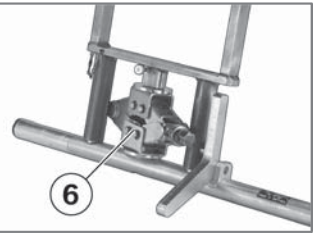
- On the left-hand side, slip stud **1** half-way into mount **2**.



- On the right-hand side, pull stud **3** all the way into mount **4**.
- Push split pin **5** into the hole.



- Bring the motorcycle to the upright position, so that the auxiliary stand is lying flat on the ground.
- Press the lifting lever down to the ground.



- In order to ensure stability, the height of the auxiliary stand can be adjusted by means of scissor-type lifter **6**.

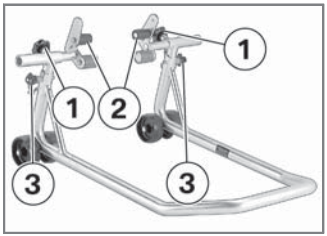
BMW Motorrad front-wheel stand

Installing front wheel stand

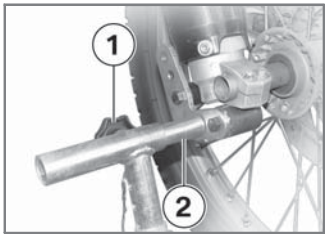
The BMW Motorrad front wheel stand is not designed to support motorcycles not fitted with a centre stand or without other auxiliary stands. A motorcycle resting only on the front

wheel stand and the rear wheel can topple.
Place the motorcycle on its centre stand or another auxiliary stand before lifting the front wheel with the BMW Motorrad front-wheel stand.◀

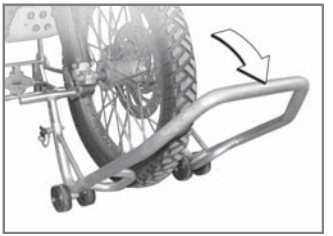
- Place the motorcycle on an auxiliary stand; BMW Motorrad recommends the BMW Motorrad auxiliary stand.
- Install the auxiliary stand (➡ 81)
- Use the front-wheel stand with the number (363970).



- Slacken adjusting screws **1** of the front-wheel stand.
- Push the two adapters **2** apart until the front forks fit between them.
- Use locating pins **3** to set the front-wheel stand to the desired height.
- Centre the front-wheel stand relative to the front wheel and push it against the front axle.



- Align the two adapters **2** so that the front forks are securely seated.
- Tighten adjusting screws **1**.



If the front of the motorcycle is raised too far the auxiliary stand will lift clear of the ground and the motorcycle could topple to one side.
When raising the motorcycle, make sure that the auxiliary stand remains on the ground. If necessary, adjust the height of the front-wheel stand or the auxiliary stand.◀

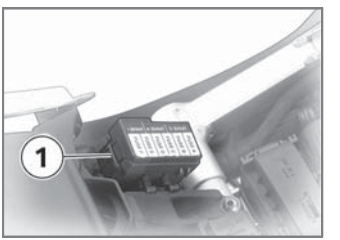
- Apply uniform pressure to push the front-wheel stand down and raise the motorcycle.

Fuses

Removing fuse

Risk of fire if an attempt is made to jumper defective fuse.
Always replace defective fuses with new fuses of the correct amperage rating.◀

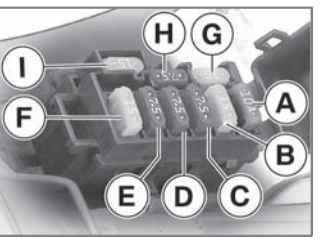
- Switch off the ignition.
- Remove the seat (➡ 41)



- Push latching lever **1** and open the fuse cover.
- Check the fuse-assignment diagram and pull the defective fuse up and out of the fuse box.

If fuse defects recur frequently have the electric circuits checked by a specialist workshop, preferably an authorised BMW Motorrad dealer.◀

Fuse assignment



A ABS (OE) (10 A)
B Engine management control unit (15 A)
C Low-beam headlight (7.5 A)
D Brake light, horn, instrument cluster, diagnosis plug (7.5 A)

E Side light, number-plate light, headlight flasher, high-beam headlight (7.5 A)
F Starter relay, flashing turn indicators, diagnosis plug (15 A)
G Spare fuse (15 A or 10 A for optional extra)
H Spare fuse (7.5 A)
I Spare fuse (15 A)

Installing fuse

- Remove the defective fuse and replace it with a fuse of the correct amperage rating.
- Close the fuse cover.

» The latch engages with an audible click.

- Install the seat (➠ 42)

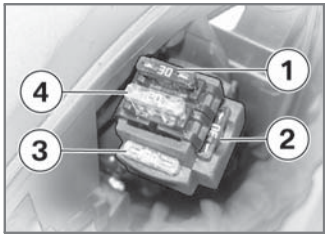
Removing ABS fuse

Risk of fire if an attempt is made to jumper defective fuse.
Always replace defective fuses with new fuses of the correct amperage rating.◀

- Switch off the ignition.
- Remove the right side panel (➠ 99)
- Check the fuse-assignment diagram and pull the defective fuse up and out of the fuse box.

If fuse defects recur frequently have the electric circuits checked by a specialist workshop, preferably an authorised BMW Motorrad dealer.◀

Fuse assignment, ABS OE



1 ABS (30 A)
2 Spare fuse (30 A)
3 Spare fuse (20 A)
4 ABS (20 A)

Installing ABS fuse

- Remove the defective fuse and replace it with a fuse of the correct amperage rating.
- Install the right side panel (➠ 99)

Bulbs

Notes

A defective bulb places your safety at risk because it is easier for other users to oversee the motorcycle.
Replace defective bulbs as soon as possible; always carry a complete set of spare bulbs if possible.◀

The bulb is pressurised and can cause injury if damaged.
Wear protective goggles and gloves when changing bulbs.◀

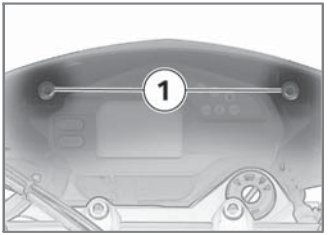
The types of bulb fitted to your motorcycle are listed in the section entitled "Technical data".◀

Do not touch the glass of new bulbs with your fingers. Use a clean, dry cloth to hold the bulbs when handling them. Dirt deposits, in particular oil and grease, interfere with heat radiation from the bulb. This leads to overheating and shortens the bulb's operating life.◀

Removing headlight housing

If it is not standing firmly, the motorcycle could topple in the course of the operations described below.
Always make sure that the motorcycle is stable and firmly supported.◀

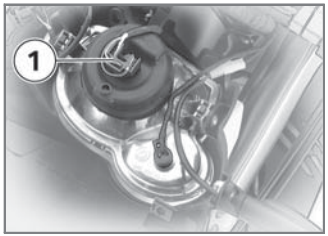
- Make sure the ground is level and firm and place the motorcycle on its stand.



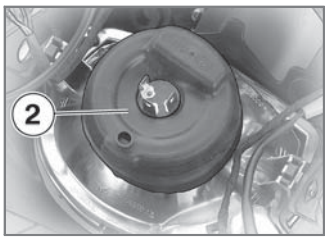
- Remove two screws **1**.
- Ease the headlight housing forward and up to remove.

Replacing low-beam and high-beam headlight bulb

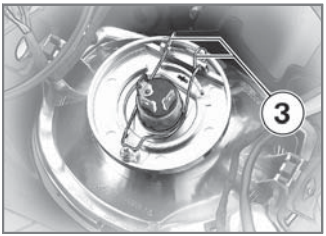
- Switch off the ignition.
- Remove the headlight housing (➡ 86)



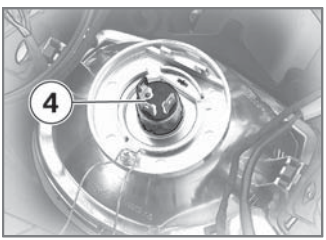
• Disconnect plug **1**.



• Remove rubber cap **2**.

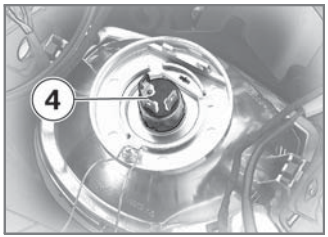


• Disengage spring clip **3** from the latches and swing it up.

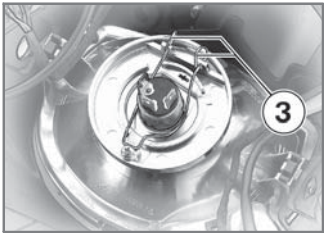


• Remove bulb **4**.
• Replace the defective bulb.

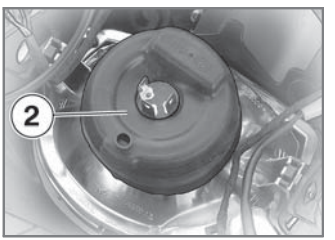
Bulb for low-beam and high-beam headlight
– H4 / 12 V / 55...60 W



• Install bulb **4**.



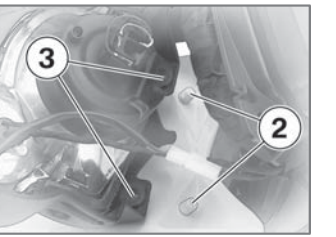
- Close spring retainer **3** and engage it in the catches.



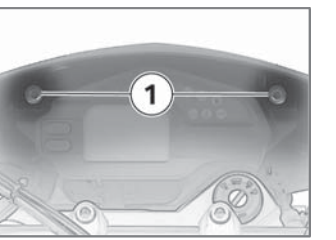
- Install rubber cap **2**.

- Connect plug **1**.
- Install the headlight housing (➡ 88)

Installing headlight housing



- Engage the headlight housing with mounts **3** in holders **2**.

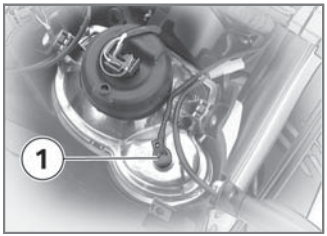


- Install two screws **1**.

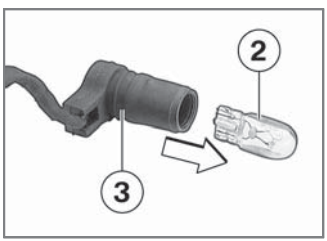
Replacing parking-light bulb

If it is not standing firmly, the motorcycle could topple in the course of the operations described below.
Always make sure that the motorcycle is stable and firmly supported.◀

- Make sure the ground is level and firm and place the motorcycle on its stand.
- Switch off the ignition.
- Remove the headlight housing (➡ 86)

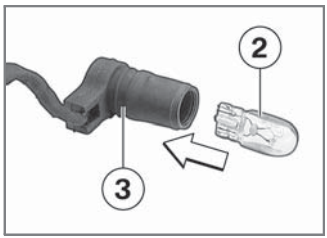


- Pull bulb socket **1** out of the headlight housing.

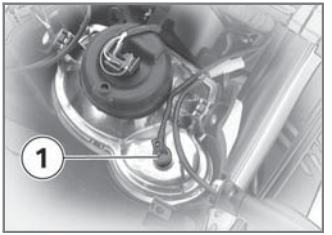


- Pull bulb **2** out of socket **3**.
- Replace the defective bulb.

Bulb for parking light
– W5W / 12 V / 5 W



- Insert bulb **2** into socket **3**.

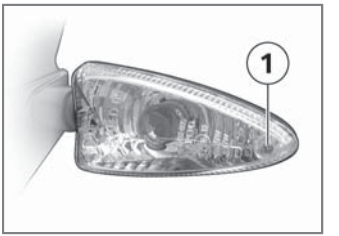


- Insert bulb socket **1** into the headlight housing.
- Install the headlight housing (➡ 88)

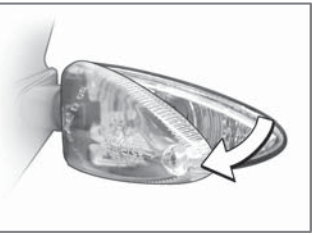
Replacing turn indicator bulbs, front and rear

⚠ If it is not standing firmly, the motorcycle could topple in the course of the operations described below.
Always make sure that the motorcycle is stable and firmly supported.◀

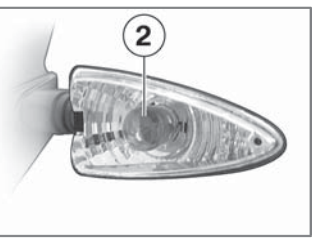
- Make sure the ground is level and firm and place the motorcycle on its stand.



- Remove screw **1**.



- Pull the glass out of the reflector housing at the threaded-fastener side.

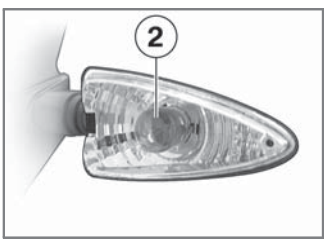


- Turn bulb **2** counter-clockwise and remove it from the bulb housing.

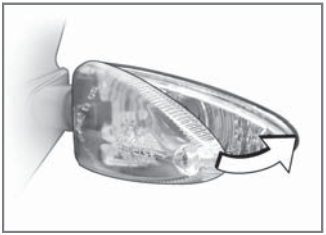
• Replace the defective bulb.

Bulbs for flashing turn indicators, front
– RY10W / 12 V / 10 W

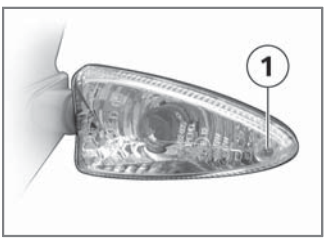
Bulbs for flashing turn indicators, rear
– RY10W / 12 V / 10 W



• Turn bulb **2** clockwise to install it in the bulb housing.



• Working from the inboard side, insert the glass into the bulb housing and close the housing.



• Install screw **1**.

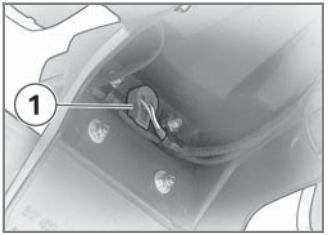
LED rear light

The rear light has to be replaced if more than three of the LEDs in the array fail. Under these circumstances consult a specialist workshop, preferably an authorised BMW Motorrad dealer.

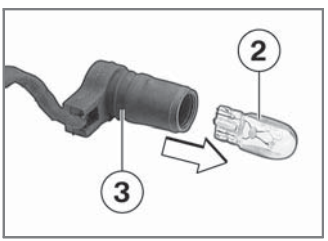
Replacing number-plate light bulbs

If it is not standing firmly, the motorcycle could topple in the course of the operations described below.
Always make sure that the motorcycle is stable and firmly supported.◀

• Make sure the ground is level and firm and place the motorcycle on its stand.

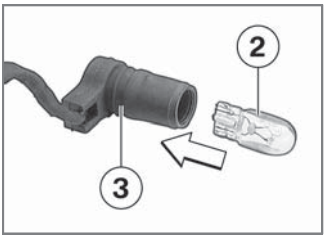


- Pull bulb holder **1** out of the light carrier.

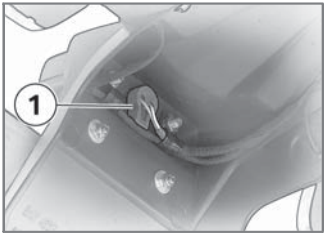


- Pull bulb **2** out of socket **3**.
- Replace the defective bulb.

Bulb for number-plate light
– W5W / 12 V / 5 W



- Insert bulb **2** into socket **3**.



- Seat bulb holder **1** in the light carrier.

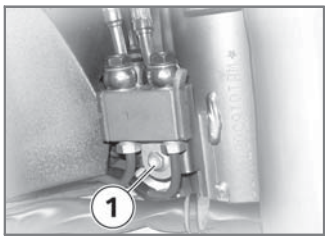
Air filter

Replacing air-filter element

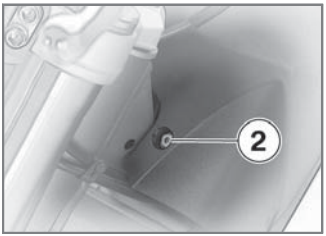
⚠ If it is not standing firmly, the motorcycle could topple in the course of the operations described below.
Always make sure that the motorcycle is stable and firmly supported.◀

- Make sure the ground is level and firm and place the motorcycle on its stand.
- Remove the seat (➡ 41)

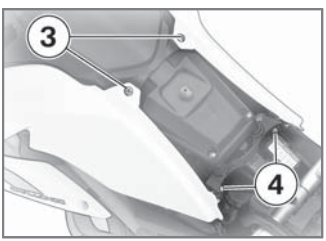
with OE BMW Motorrad ABS:



- For ease of access, slacken screw **1** of the brake-pipe distributor on the right side.◁

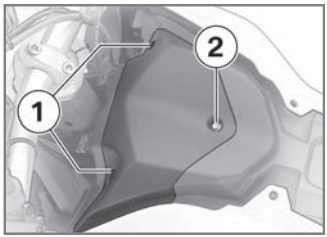


- Remove screws **2** on left and right.

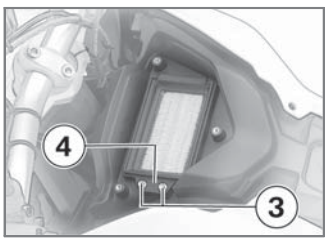


- Remove screws **3**.
- Pull the side panels out of holders **4**.

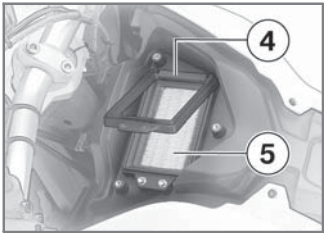
- Push the side panels apart and remove the centre trim panel.



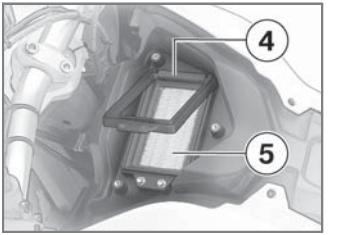
- Remove screws **1** and screw **2** and lift off the air filter cover.



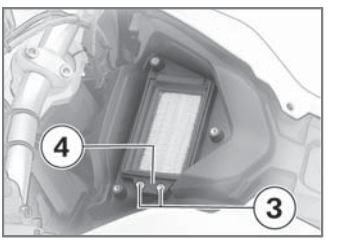
- Remove screws **3** and lift up frame **4** on the left-hand side.



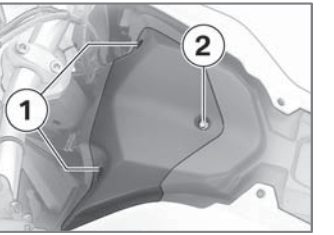
- Remove frame **4** on the right-hand side and remove air filter element **5**.
- Either tap the air filter element clean or replace it, depending on how dirty it is.



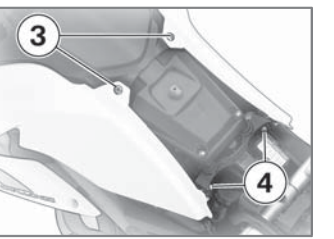
- Install air filter element **5** and install frame **4**.



- Close frame **4** and install screws **3**.

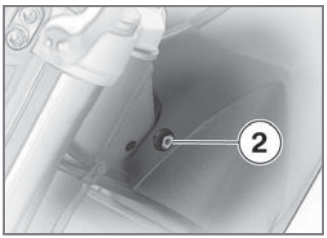


- Place the air filter cover in position and install screws **1** and screw **2**.



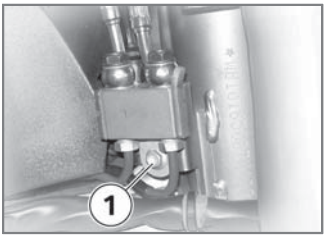
- Push the side panels apart and install the centre trim panel.

- Seat the side panels in holders **4**.
- Install screws **3**.



- Install screws **2** on left and right.

with OE BMW Motorrad ABS:



- Tighten screw **1** of the brake-pipe distributor.◁
- Install the seat (➡ 42)

Jump starting

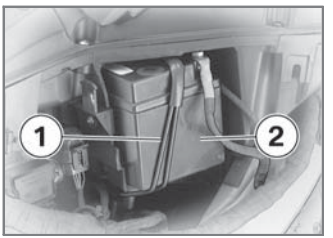
The wires leading to the power socket do not have a load-capacity rating adequate for jump-starting the engine. Excessively high current can lead to a cable fire or damage to the vehicle electronics.
Do not use the on-board socket to jump-start the engine of the motorcycle.◀

Touching live parts of the ignition system with the engine running can cause electric shock.
Do not touch parts of the ignition system when the engine is running.◀

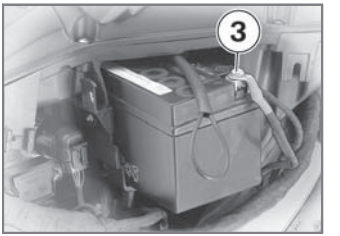
A short-circuit can result if the crocodile clips of the jump leads are accidentally brought into contact with the motorcycle.
Use only jump leads fitted with fully insulated crocodile clips at both ends.◀

Jump-starting with a donor-battery voltage higher than 12 V can damage the vehicle electronics.
Make sure that the battery of the donor vehicle has a voltage rating of 12 V.◀

- Remove the right side panel (➠ 99)
- When jump-starting the engine, do not disconnect the battery from the on-board electrical system.



- Disengage rubber retaining strap **1** from the holder at the bottom and pull battery **2** partly out.
- Run the engine of the donor vehicle during jump-starting.



- Begin by connecting one end of the red jump lead to positive terminal **3** of the discharged battery and the other end to the positive terminal of the donor battery.
- Then connect one end of the black jump lead to the negative terminal of the donor battery, and the other end to a suitable grounding point on this motorcycle.
- Start the engine of the vehicle with the discharged battery in the usual way; if the engine does not start, wait a few minutes before repeating the attempt in order to protect the starter motor and the donor battery.
- Allow both engines to idle for a few minutes before disconnecting the jump leads.
- Disconnect the jump lead from the negative terminal and the ground point first, then disconnect the second jump lead from positive terminal **3**.

Do not use proprietary start-assist sprays or other products to start the engine.◀

- Install the right side panel (➠ 99)

Battery

Maintenance instructions

Correct upkeep, recharging and storage will prolong the life of the battery and are essential if warranty claims are to be considered.

Compliance with the points below is important in order to maximise battery life:
- Keep the surface of the battery clean and dry
- Do not open the battery
- Do not top up with water
- Be sure to read and comply with the instructions for charging the battery on the following pages
- Do not turn the battery upside down

If the battery is not disconnected, the on-board electronics (e.g. clock, etc.) gradually drain the battery. This can cause the battery to run flat. If this happens, warranty claims will not be accepted.
If the motorcycle is to be out of use for more than four weeks, disconnect the battery or connect a suitable trickle charger to the battery.◀

Charging battery when connected

Charging the connected battery directly at the battery terminals can damage the vehicle electronics.
Always disconnect the battery from the on-board circuits before recharging it with a charger connected directly to the battery posts.◀

If you switch on the ignition and the multifunction display and telltale lights fail to light up, the battery is completely flat. Attempting to charge a completely flat battery via the on-board socket can cause damage to the motorcycle's electronics.
If a battery has discharged to the extent that it is completely flat, it has to be disconnected from the on-board circuits and charged with the charger connected directly to the battery posts.◀

- Charge via the power socket (OE), with the battery connected to the motorcycle's on-board electrical system.
- Comply with the operating instructions of the charger.

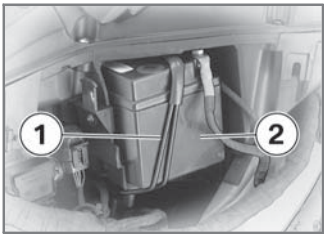
Charging battery when disconnected

- Charge the battery using a suitable charger.
- Comply with the operating instructions of the charger.
- Once the battery is fully charged, disconnect the charger's terminal clips from the battery terminals.

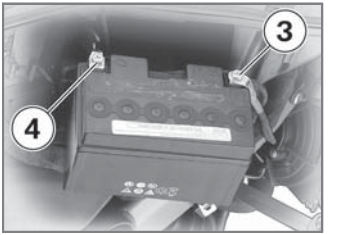
The battery has to be recharged at regular intervals in the course of a lengthy period of disuse. See the instructions for caring for your battery. Always fully recharge the battery before restoring it to use◀

Removing battery

- Remove the right side panel (➡ 99)



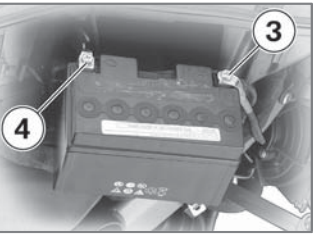
- Disengage retaining strap **1**.
- Remove battery **2**.



⚠ Disconnection in the wrong sequence increases the risk of short-circuits.
Always proceed in the correct sequence.◀

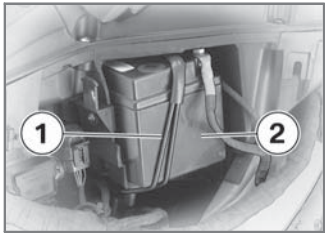
- Disconnect negative battery lead **4** first.
- Then disconnect positive battery lead **3**.

Installing battery



⚠ Installation in the wrong sequence increases the risk of short-circuits.
Always proceed in the correct sequence.◀

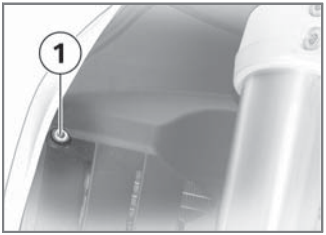
- Connect battery positive lead **3** first.
- The connect battery negative lead **4**.



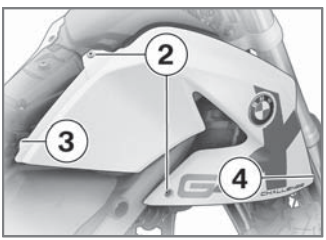
- Install battery **2**, negative terminal first.
- Engage retaining strap **1**.
- Install the right side panel (➡ 99)
- Set the clock (➡ 29)

Removing right side panel

- Make sure the ground is level and firm and place the motorcycle on its stand.
- Remove the seat (➡ 41)

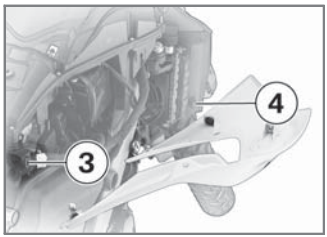


- Remove screw **1** at the front right.

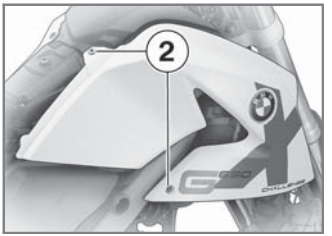


- Remove screws **2**.
- Begin by pulling the side panel out of holder **3**, then pull it to the rear to disengage it from holder **4**.
- Remove the side panel.

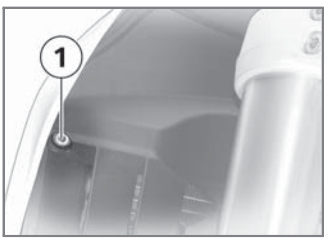
Installing right side panel



- Begin by seating the side panel in holder **4**, then seat it in holder **3**.



- Install screws **2**.

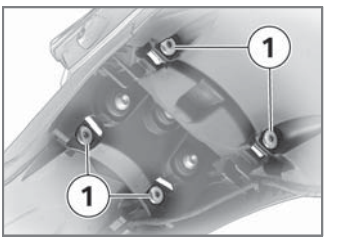


- Install screw **1** at the front right.
- Install the seat (➠ 42)

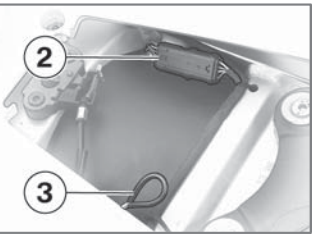
Number-plate carrier

Removing number-plate carrier

- Make sure the ground is level and firm and place the motorcycle on its stand.

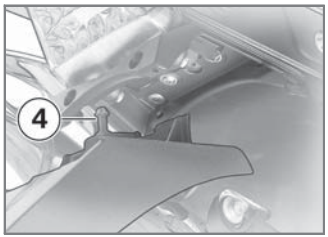


- Remove four screws **1**.



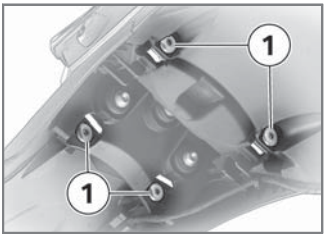
- Disconnect plug **2**.
- Release the number-plate carrier with wire loop **3** and remove, working plug **2** with the cable free.

Installing number-plate carrier

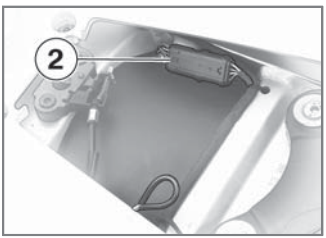


- Manoeuvre the cable into position, hold the number-plate carrier in position and push it up.

» Pin **4** engages with an audible click.



- Install four screws **1**.



- Connect plug **2**.

Care

Care products

BMW Motorrad recommends that you use the cleaning and care products you can obtain from your authorised BMW Motorrad dealer. The substances in BMW Care Products have been tested in laboratories and in practice; they provide optimised care and protection for the materials used in your vehicle.

The use of unsuitable cleaning and care products can damage vehicle components. Do not use solvents such as cellulose thinners, cold cleaners, fuel or the like, and do not use cleaning products that contain alcohol.◀

Washing motorcycle

BMW Motorrad recommends that you use BMW insect remover to soften and wash off insects and stubborn dirt on painted parts prior to washing the motorcycle.

To prevent stains, do not wash the motorcycle immediately after it has been exposed to strong sunlight and do not wash it in the sun.

Make sure that the motorcycle is washed frequently, especially during the winter months.

To remove road salt, clean the motorcycle with cold water immediately after every trip.

After the motorcycle has been washed, ridden through water or ridden in the rain, the brake discs and pads might be wet and the brakes might not take effect immediately.

Apply the brakes in good time until the brakes have dried out.◀

Warm water intensifies the effect of salt.

Use only cold water to wash off road salt.◀

The high pressure of steam cleaners can damage seals, the hydraulic brake system, the electrical system, and the seat. Do not use a steam jet or high-pressure cleaning equipment.◀

Cleaning easily damaged components

Plastics

Clean plastic parts with water and BMW plastic care emulsion. This includes in particular:

- Windscreen and slipstream deflectors
- Headlight lens made of plastic
- Glass cover of the instrument cluster
- Black, unpainted parts

If plastic parts are cleaned using unsuitable cleaning

agents, the surfaces can be damaged.
Do not use cleaning agents that contain alcohol, solvents or abrasives to clean plastic parts.
Even fly-remover pads or cleaning pads with hard surfaces can produce scratches.◀

Soften stubborn dirt and insects by covering the affected areas with a wet cloth.◀

Chrome

Use plenty of water and BMW shampoo to clean chrome, particularly if it has been exposed to road salt. Use chrome polish for additional treatment.

Radiator

Clean the radiator regularly to prevent overheating of the engine due to inadequate cooling. For example, use a garden hose with low water pressure.

Cooling fins can be bent easily.
Take care not to bend the fins when cleaning the radiator.◀

Rubber

Treat rubber components with water or BMW rubber-care products.

Using silicone sprays for the care of rubber seals can cause damage.
Do not use silicone sprays or other care products that contain silicon.◀

Paint care

Washing the motorcycle regularly will help counteract the long-term effects of substances that damage the paint, especially if your motorcycle is ridden in areas with high air pollution or natural sources of dirt, for example tree resin or pollen.

Remove particularly aggressive substances immediately, however, as otherwise the paint can be affected or become discoloured. Substances of this nature include spilt fuel, oil, grease, brake fluid and bird droppings. We recommend BMW vehicle polish or BMW paint cleaner for this purpose.
Marks on the paintwork are particularly easy to see after the motorcycle has been washed. Remove stains of this kind immediately, using cleaning-grade benzene or petroleum spirit on a clean cloth or ball of cotton wool. BMW Motorrad recommends BMW tar remover for removing specks of tar. Remember to wax the parts treated in this way.

Protective wax coating

BMW Motorrad recommends applying only BMW car wax or products containing carnauba wax or synthetic wax.
It is time to rewax the paintwork when water "puddles" on the surface, instead of forming beads.

Laying up motorcycle

- Clean the motorcycle.
- Remove the battery.
- Spray the brake and clutch lever pivots, the side stand pivots and the centre stand pivots (if the motorcycle is fitted with a centre stand) with a suitable lubricant.
- Coat bright metal and chrome-plated parts with an acid-free grease (e.g. Vaseline).
- Stand the motorcycle in a dry room in such a way that there is no load on either wheel.

Before laying the vehicle up out of use, have the engine oil and the oil filter element changed by a specialist workshop, preferably an authorised BMW Motorrad dealer. Combine work for laying up/restoring to use with a BMW service or inspection.◀

Restoring motorcycle to use

- Remove the protective wax coating.
- Clean the motorcycle.
- Install a charged battery.
- Before starting: work through the checklist.
- Before removing the auxiliary stand, check the air pressure in the Air Damping System and adjust if necessary.

Technical data

Troubleshooting chart

Engine does not start at all or is difficult to start.

Possible cause	Remedy
Kill switch activated.	Kill switch in operating position (run).
Side stand extended and gear engaged.	Retract the side stand (➡ 46).
Gear engaged and clutch not disengaged.	Select neutral or pull clutch lever (➡ 46).
No fuel in tank.	Refuelling (➡ 52)
Battery not adequately charged.	Charge the battery when connected (➡ 97)

Threaded fasteners

Front wheel	Value	Valid
Nut on quick-release axle, front		
M20 x 1.25	80 Nm	
Front-axle retainer		
M6	10 Nm	

Rear wheel	Value	Valid
Nut on quick-release axle, rear		
M20 x 1.25	80 Nm	
Locknut of the final-drive chain tensioning screw		
M8	25 Nm	

Mirror arm	Value	Valid
Union nut, mirror		
	20 Nm	
Clamping screw, mirror to handlebar fitting		
	21 Nm	

Engine

Engine design	Single-cylinder four-stroke, double overhead camshafts driven by roller chain, 4 valves operated by bucket tappets, balancing shaft, liquid-cooled cylinder and cylinder head, integral water pump, 5-speed gearbox and dry sump lubrication.
Displacement	652 cm^3
Cylinder bore	100 mm
Piston stroke	83 mm
Compression ratio	11.5:1
Nominal output	39 kW, - at engine speed: 7000 min^{-1}
Torque	60 Nm, - at engine speed: 5250 min^{-1}
Maximum engine speed	max 7500 min^{-1}
Idle speed	1480 min^{-1}

Fuel

Recommended fuel grade	95 ROZ/RON, Super unleaded
Usable fuel capacity	≤9.5 l
Reserve fuel	≥2 l

Engine oil

Engine oil, capacity	2.3 l, with filter change
Lubricant	Engine oil, 15W-40
Engine oil, quantity for topping up	0.25 l, Difference between MIN and MAX
Lubricant	Engine oil, 15W-40
Oil grades	Mineral engine oils of API classification SF to SH. BMW Motorrad recommends not using oil additives, because they can have a detrimental effect on clutch operation. BMW Motorrad recommends not using synthetic oils for the first 10,000 km. Please do not hesitate to contact your authorised BMW Motorrad dealer if you have any questions relating the choice of a suitable engine oil for your motorcycle.

Permissible viscosity classes	
SAE 10 W-40	≥-20 °C, Operation at low temperatures
SAE 15 W-40	≥-10 °C

Clutch

Clutch type	Multiplate clutch running in oil bath

Transmission

Gearbox type	claw-shift 5-speed gearbox
Gearbox transmission ratios	1.946 (37:72 teeth), Primary transmission ratio 2.750 (12:33 teeth), 1st gear 1.750 (16:28 teeth), 2nd gear 1.313 (16:21 teeth), 3rd gear 1.045 (22:23 teeth), 4th gear 0.875 (24:21 teeth), 5th gear

Rear-wheel drive

Type of final drive	Chain drive
Type of rear suspension	Two-arm cast-aluminium swinging arm
Secondary transmission ratio	3.1 (15:47 teeth)

Running gear

Type of front suspension	Upside-down telescopic fork
Spring travel, front	270 mm, At wheel
Type of rear suspension	Air Damping System, rebound-stage damping with 2 selectable settings, "Comfort" and "Sport"
Spring travel at rear wheel	270 mm, At wheel

Brakes

Type of front brake	Hydraulically operated single-disc brake with 2-piston floating caliper and fixed disc
Brake-pad material, front	Organic material
Type of rear brake	Hydraulically operated single-disc brake with 1-piston floating caliper and fixed disc
Brake-pad material, rear	Organic material

Wheels and tyres

Tyre combinations recommended at time of going to press (As at: 01.06.2007)	front: Metzeler Enduro 3, 90/90-21 (54S) rear: Metzeler Enduro 3, 140/80-18 (70S)
	front: Metzeler MCE Karoo, 90/90 - 21 M/ C (54R) M+S rear: Metzeler MCE Karoo, 140/80 - 18 M/ C (70R) M+S The permissible top speed must be indicated by readily noticeable means (e.g. sticker affixed in the rider's field of vision).
without OE BMW Motorrad ABS:	front: Pirelli Scorpion PRO F.I.M., 90/90 - 21 (54M) M+S rear: Pirelli Scorpion PRO F.I.M., 140/80 - 18 (70M) M+S max 130 km/h The permissible top speed must be indicated by readily noticeable means (e.g. sticker affixed in the rider's field of vision).
	You can obtain an up-to-date list of approved tyres from your authorised BMW Motorrad dealer or on the Internet at "www.bmw-motorrad.com".

Front wheel	
Front wheel, type	Spoked wheel
Front wheel rim size	1.60" x 21"
Tyre designation, front	90 / 90 x 21
Rear wheel	
Rear wheel type	Spoked wheel
Rear wheel rim size	2.50" x 18"
Tyre designation, rear	140 / 80 x 18
Tyre pressures	
Tyre pressure, front	1.8 bar, one-up, tyre cold 1.9 bar, two-up and/or with luggage, tyre cold
Tyre pressure, rear	2 bar, one-up, tyre cold 2.2 bar, two-up and/or with luggage, tyre cold

Electrics

Electrical rating of on-board socket	
with OE BMW Motorrad ABS or with OA Power socket:	5 A
Fuses	Plug-in "Minifuses" with ratings of 7.5 A and 15 A
with OE BMW Motorrad ABS:	Plug-in "Minifuses" with ratings of 10 A, 20 A and 30 A
Battery	
Battery, manufacturer and designation	ETZ 10 S
Battery type	AGM (Absorptive Glass Mat) battery
Battery rated voltage	12 V
Battery rated capacity	10 Ah
Spark plugs	
Spark plugs, manufacturer and designation	NGK DR8 EB
Electrode gap of spark plug	0.6...0.7 mm, When new max 0.9 mm, Wear limit

Lighting	
Bulb for low-beam and high-beam headlight	H4 / 12 V / 55...60 W
Bulb for parking light	W5W / 12 V / 5 W
Bulbs for flashing turn indicators, front	RY10W / 12 V / 10 W
Bulbs for flashing turn indicators, rear	RY10W / 12 V / 10 W
Bulb for number-plate light	W5W / 12 V / 5 W

Frame

Frame type	Bridge-type steel frame, load-bearing drive unit and bolt-on rear frame
Type plate location	Front frame, right
VIN location	Front frame, right

Dimensions

Length of motorcycle	2205 mm
Height of motorcycle	1255 mm, without mirrors 1490 mm, with mirrors
Width of motorcycle	907 mm, Across mirrors
Front-seat height	930 mm, Without rider at unladen weight
Ground clearance	285 mm

Weights

Unladen weight	156 kg, DIN unladen weight, ready for road, 90 % load of fuel, without optional extras
Permissible gross weight	335 kg
Maximum payload	179 kg

Riding specifications

Top speed	165 km/h

Service

BMW Motorrad service

Advanced technology requires specially adapted methods of maintenance and repair.

If maintenance and repair work is performed inexpertly, it could result in consequential damage and thus constitute a safety risk.
BMW Motorrad recommends you to have all the associated work on your motorcycle carried out by a specialist workshop, preferably an authorised BMW Motorrad dealer.◀

Your authorised BMW Motorrad dealer can provide information on BMW services and the work undertaken as part of each service. Have all maintenance and repair work carried out confirmed in the "Service" chapter in this manual. Authorised BMW Motorrad dealers are supplied with the latest technical information and have the necessary technical know-how. BMW Motorrad recommends that you contact your authorised BMW Motorrad dealer if you have questions regarding your motorcycle.

BMW Motorrad service quality

Along with its reputation for engineering quality and high reliability, BMW Motorrad is a byword for excellent quality of service. To ensure that your BMW is always in optimum condition, BMW Motorrad recommends that you have the maintenance work required for your motorcycle carried out regularly, preferably by your authorised BMW Motorrad dealer. For generous treatment of claims submitted after the warranty period has expired, evidence of regular maintenance is essential. Certain signs of wear, moreover, may otherwise not be noticed until it is too late to put them right at moderate cost. Your authorised BMW Motorrad dealer's mechanics know every detail of your motorcycle and can take remedial action if necessary before minor faults develop into serious problems. By having the necessary repairs done properly and in good time, you save time and money in the long run.

BMW Motorrad Service Card: on-the-spot breakdown assistance

In the event of a breakdown, the BMW Motorrad Service Card issued with each new BMW motorcycle enables you to access an extensive range of services such as breakdown assistance, motorcycle transportation etc. (details can differ from country to country). In the event of a break-

down, contact BMW Motorrad's Mobile Service. The specialists will provide the necessary advice and assistance.
You will find important country-specific contact addresses and the after-sales service organisation phone numbers in the "Service Kontakt / Service Contact" brochures, along with information on Mobile Service and the dealership network.

BMW Motorrad service network

BMW Motorrad has an extensive after-sales service network in place to look after you and your motorcycle in more than 100 countries. In Germany alone, you have the best possible access to approximately 200 authorised BMW Motorrad dealers.
All information concerning the international dealership network can be found in the brochure "Service Contact Europe" or "Service Contact Africa, America, Asia, Australia, Oceania".

Maintenance work

BMW Pre-delivery Check

Your authorised BMW Motorrad dealer conducts the BMW pre-delivery check before handing over the motorcycle to you.

BMW Running-in Check

The BMW running-in check has to be performed when the motorcycle has covered between 500 km and 1,200 km

BMW Service

The BMW Service is carried out once a year; the extent of servicing can vary, depending on the age of the motorcycle and the distance it has covered. Your authorised BMW Motorrad dealer confirms that the service work has been carried out and enters the date when the next service will be due.
Riders who cover long distances in a year might have to bring in their motorcycles for service before the next scheduled date. It is to allow for these cases that a maximum odometer reading is entered as well in the confirmation of service. Servicing has to be brought forward if this odometer reading is reached before the next scheduled date for the service.

Confirmation of maintenance work

BMW Pre-delivery Check

Completed

on_____

Stamp, signature

BMW Running-in Check

Completed

on_____

Odometer reading_____

Next service
at the latest

on_____
or, if logged beforehand,

Odometer reading_____

Stamp, signature

BMW Service
Completed

on_____

Odometer reading_____

Next service
at the latest

on_____
or, if logged beforehand,

Odometer reading_____

Stamp, signature

BMW Service
Completed

on_____

Odometer reading_____

Next service
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BMW Service
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or, if logged beforehand,

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BMW Service
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Odometer reading_____

Next service
at the latest

on_____
or, if logged beforehand,

Odometer reading_____

Stamp, signature

Confirmation of service

The table is intended as a record of maintenance, warranty and repair work, the installation of optional accessories and, if appropriate, special campaign (recall) work.

Item	Odometer reading	Date

Item	Odometer reading	Date

Details described or illustrated in this booklet may differ from the motorcycle's actual specification as purchased, the accessories fitted or the national-market specification. No claims will be entertained as a result of such discrepancies.
Dimensions, weights, fuel consumption and performance data are quoted to the customary tolerances.
The right to modify designs, equipment and accessories is reserved.
Errors and omissions excepted.

Printed in Italy.

Important data for refuelling

Fuel	
Recommended fuel grade	95 ROZ/RON, Super unleaded
Usable fuel capacity	≤9.5 l
Reserve fuel	≥2 l
Tyre pressures	
Tyre pressure, front	1.8 bar, one-up, tyre cold 1.9 bar, two-up and/or with luggage, tyre cold
Tyre pressure, rear	2 bar, one-up, tyre cold 2.2 bar, two-up and/or with luggage, tyre cold

BMW recommends Castrol

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