# Rider's Manual

## G 650 GS

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.


**1 General instructions .... 5**
Overview ..... 6
Abbreviations and symbols ..... 6
Equipment ..... 6
Technical data ..... 7
Currency ..... 7

**2 General views ..... 9**
General view, left side ..... 11
General view, right side ..... 13
Underneath the seat ..... 14
Instrument panel ..... 15
Handlebar fitting, left ..... 16
Handlebar fitting, right ..... 17
Handlebar fitting, centre ..... 18

**3 Status indicators ..... 19**
Status indicators ..... 20
Standard warnings ..... 20
ABS warnings ..... 23

**4 Operation ..... 27**
Ignition switch and steering lock ..... 28
Clock ..... 29
Odometer and tripmeters ..... 30
Lights ..... 30
Turn indicators ..... 31
Hazard warning flashers ..... 31
Emergency off switch (kill switch) ..... 32
Grip heating ..... 33
BMW Motorrad ABS ..... 33
Clutch ..... 34
Mirrors ..... 34
Spring preload ..... 35
Damping ..... 36
Tyres ..... 37
Headlight ..... 37
Seat ..... 38

**5 Riding ..... 41**
Safety instructions ..... 42
Checklist ..... 44
Starting ..... 44
Running in ..... 46
Off-roading ..... 47
Brakes ..... 47
Parking your motorcycle ..... 49
Refuelling ..... 49
Securing motorcycle for transportation ..... 50

**6 Engineering details ..... 53**
Brake system with BMW Motorrad ABS ..... 54

**7 Accessories ..... 57**
General instructions ..... 58
Power sockets ..... 58
Case ..... 59
topcase ..... 61

**8 Maintenance ..... 65**
Notes ..... 66
Toolkit ..... 66
Engine oil ..... 66
Brake system ..... 68
Brake pads ..... 68
Brake fluid ..... 70
Coolant ..... 72

Clutch ..... 73
Tyres ..... 74
Rims ..... 74
Chain ..... 75
Wheels ..... 76
BMW Motorrad front-wheel stand ..... 83
Fuses ..... 84
Bulbs ..... 85
Air filter ..... 91
Jump starting ..... 92
Battery ..... 93
Body panels ..... 96
**9 Care ..... 101**
Care products ..... 102
Washing motorcycle ..... 102
Cleaning easily damaged components ..... 102
Paint care ..... 103
Protective wax coating ..... 104
Laying up motorcycle ..... 104
Restoring motorcycle to use ..... 104
**10 Technical data ..... 105**
Troubleshooting chart ..... 106
Threaded fasteners ..... 107
Engine ..... 109
Fuel ..... 110
Engine oil ..... 110
Clutch ..... 111
Transmission ..... 111
Rear-wheel drive ..... 112
Running gear ..... 112
Brakes ..... 113
Wheels and tyres ..... 113
Electrics ..... 114
Frame ..... 116
Dimensions ..... 117
Weights ..... 117
Riding specifications ..... 118
**11 Service ..... 119**
BMW Motorrad service ..... 120
BMW Motorrad service quality ..... 120
BMW Motorrad mobility services - roadside assistance ..... 120
BMW Motorrad service network ..... 121
Maintenance work ..... 121
Confirmation of maintenance work ..... 122
Confirmation of service ..... 127

## General instructions

Overview ..... 6
Abbreviations and symbols ..... 6
Equipment ..... 6
Technical data ..... 7
Currency ..... 7

## 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

## 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 de-

scriptions 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 Deutsches Institut für Normung e.V. (DIN). 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**

General view, left side ..... 11
General view, right side ..... 13
Underneath the seat ..... 14
Instrument panel ..... 15
Handlebar fitting, left ..... 16
Handlebar fitting, right ..... 17
Handlebar fitting, centre ..... 18

1
2
3
5
4

## General view, left side

**1** Battery (underneath centre trim panel) (➠ 93)
**2** Oil dipstick and engine-oil filler neck (➠ 66)
**3** Seat lock (➠ 38)
**4** Power socket (➠ 58)
**5** Coolant-level indicator (➠ 72)

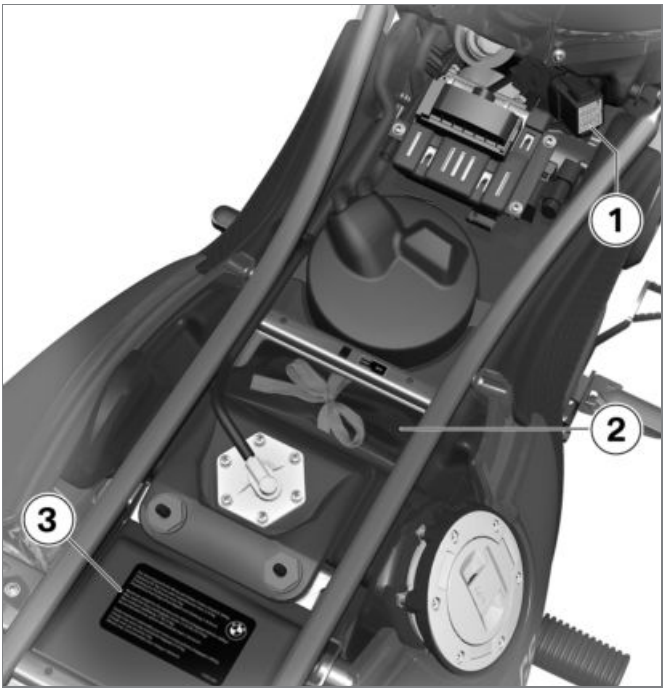
1
2
3
8
7
6
5
4

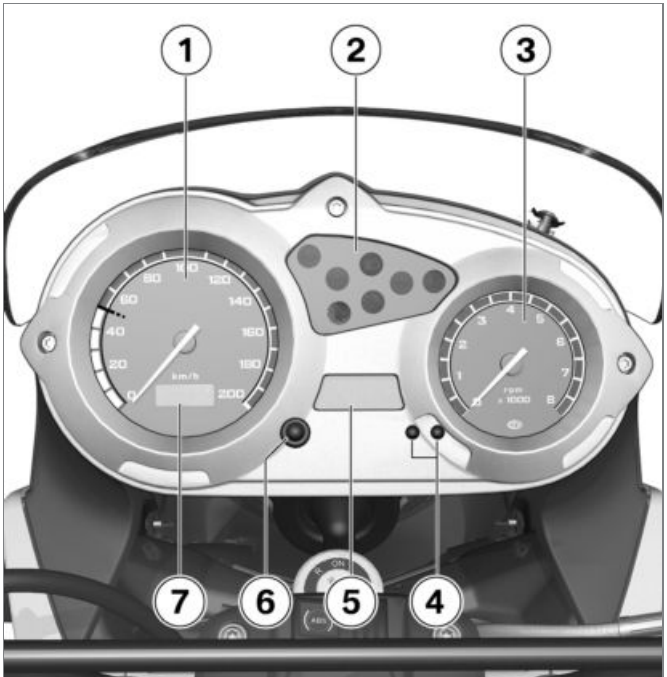
## General view, right side

**1** Fuel filler neck (➠ 49)
**2** Brake-fluid reservoir, front (➠ 70)
**3** Type plate (on right frame tube)
VIN (on steering-head bearing, right)
**4** Air filter (underneath side panel) (➠ 91)
**5** Adjuster for spring preload, rear (➠ 35)
**6** Adjuster for damping characteristic, rear suspension (➠ 36)
**7** Brake-fluid reservoir, rear (➠ 71)
**8** Tyre pressures table (on rear wheel swinging arm)

## Underneath the seat

**1** Fuse box (➠ 84)
**2** Toolkit
**3** Payload table
Tray for Rider's Manual



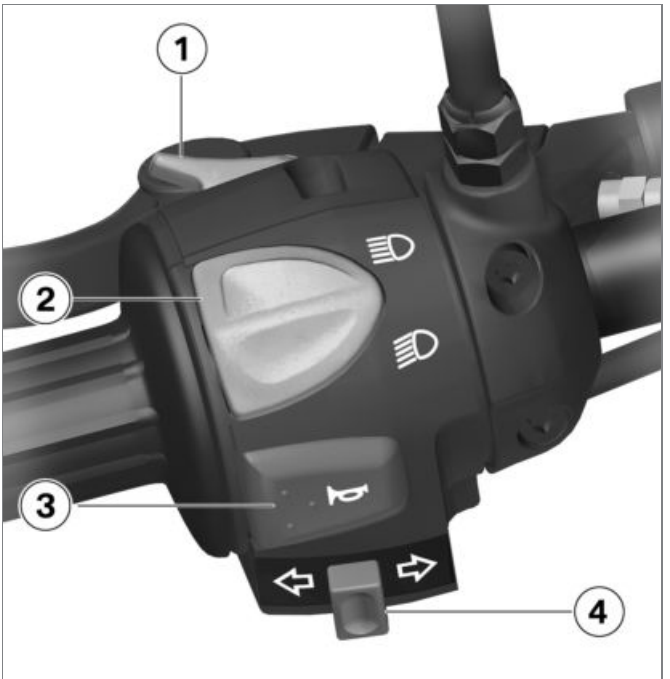



## Instrument panel

**1** Speedometer
**2** Telltale lights (➠ 20)
**3** Rev. counter
**4** Operation of the clock (➠ 29)
**5** Clock
**6** Operating the odometer (➠ 30)
**7** Odometer and tripmeters

## Handlebar fitting, left

**1** Headlight flasher
**2** High-beam headlight (➠ 31)
**3** Horn
**4** Switch for turn indicators (➠ 31)



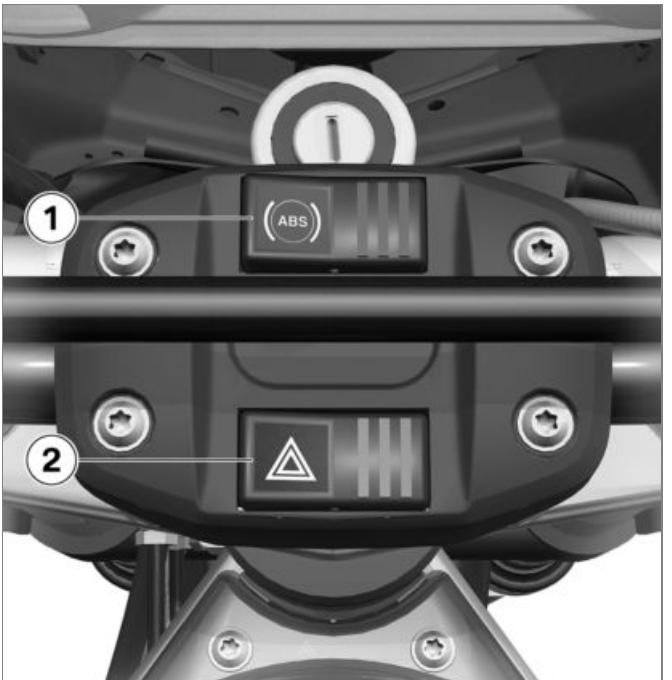
## Handlebar fitting, right

**1** Emergency off switch (kill switch) (➠ 32)
**2** Grip heating (➠ 33)
**3** Starter button (➠ 44)

## Handlebar fitting, centre

**1** Operating the ABS (➠ 33)

**2** Hazard warning flashers (➠ 31)

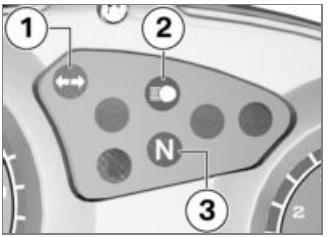


## Status indicators

Status indicators ..... 20
Standard warnings ..... 20
ABS warnings ..... 23

## Status indicators

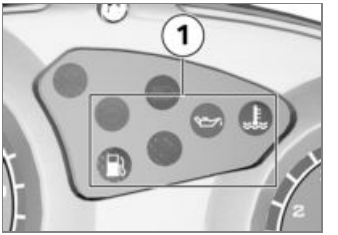
### Telltale lights




**1** Turn indicators
**2** High-beam headlight
**3** Idle

## Standard warnings

### Mode of presentation




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

**Warnings, overview**

| Warning light | Status indicators | Meaning |
|---|---|---|
| shows | | Fuel down to reserve (➠ 22) |
| shows | | Insufficient engine oil pressure (➠ 22) |
| shows | | Coolant temperature too high (➠ 22) |

## Fuel down to reserve

Warning light for fuel down to reserve shows.

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 |
| – approx. 4 l | |

- Refuelling (➠ 49).

## Insufficient engine oil pressure

Warning light for engine 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 (➠ 66).

If the oil level is too low:

- Top up the engine oil (➠ 68).

Possible cause:

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.

- Checking coolant level (➠ 72).

If the coolant level is too low:

- Topping up coolant (➠ 73).

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

### Mode of presentation

ABS warnings are indicated by ABS warning light **1**.

The detailed descriptions start on page (➠ 54), and you will find an overview listing the possible warnings on the next page.

## Warnings, overview

| Warning light | Status indicators | 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.

Possible cause:

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.

Possible cause:

The rider has switched off the ABS system.

- Activating ABS function (➠ 34).

## ABS fault

ABS warning light shows.

Possible cause:

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 (➠ 55).
- Have the fault rectified as quickly as possible by a specialist workshop, preferably an authorised BMW Motorrad dealer.

**Operation**

Ignition switch and steering lock .... 28
Clock ..... 29
Odometer and tripmeters ..... 30
Lights ..... 30
Turn indicators ..... 31
Hazard warning flashers ..... 31
Emergency off switch (kill switch) ..... 32
Grip heating ..... 33
BMW Motorrad ABS ..... 33
Clutch ..... 34
Mirrors ..... 34
Spring preload ..... 35
Damping ..... 36
Tyres ..... 37
Headlight ..... 37
Seat ..... 38

## Ignition switch and steering lock

### Keys

You receive two master keys and one spare key.

Ignition switch and steering lock, tank filler cap lock and seat lock are all operated with the same key.

– with case OA
– with topcase OA

If you wish you can arrange to have the cases and the topcase fitted with locks that can be opened with this key as well. Consult a specialist workshop, preferably an authorised BMW Motorrad dealer.◁

### Switching on ignition

- Turn the key to the **ON** position.

» Parking lights and all function circuits switched on.
» Engine can be started.
» ABS self-diagnosis is performed. (➠ 45)

### Switching off ignition

- Turn the key to the **R** position.

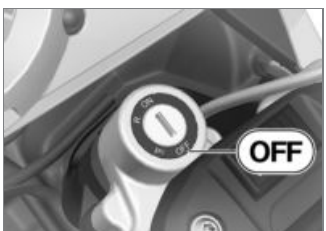
» Lights switched off.
» Handlebars not locked.
» Key can be removed.

### Engaging steering lock without parking lights

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 the full left or right lock position.




- Turn the key to the **OFF** position, while moving the handlebars slightly.

» Handlebars locked.
» Key can be removed.

### Engaging steering lock with parking lights

⚠ 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 the full left or right lock position.

- Turn the key to the **P** position, while moving the handlebars slightly.

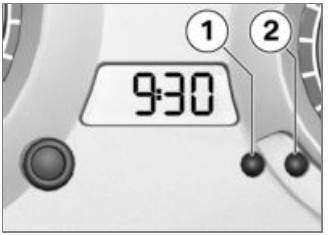
» The parking lights are switched on.
» Handlebars locked.
» Key can be removed.

## Clock

### Setting clock

- Switch on the ignition.

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




- Either repeatedly press or hold down button **1** until the hours number is correct.
- Either repeatedly press or hold down button **2** until the minutes number is correct.

» This completes the process.

## Odometer and tripmeters

### Select the readings

- Switch on the ignition.

- Repeatedly press button **1** until the value you want appears in panel **2**.

Each time the button is pressed the display toggles:

– Total distance covered
– Tripmeter

### Resetting tripmeter

- Switch on the ignition.
- Select the tripmeter.

- Press and hold down button **1** until the tripmeter reading is reset.

## Lights

### Parking light

The parking 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

- Press front section of switch **1** to switch on the high-beam headlight.
- Press rear section of switch **1** to switch off the high-beam headlight.

### Headlight flasher

- Press button **1** to operate the headlight flasher.

## Turn indicators

### Operating flashing turn indicators

- Switch on the ignition.

- Push button **1** to the left to switch on the left flashing turn indicators.
- Push button **1** to the right to switch on the right flashing turn indicators.
- Centre button **1** to cancel the flashing turn indicators.

## Hazard warning flashers

### Operating hazard warning flashers

- Switch on the ignition.

The hazard warning flashers place a strain on the battery. Do not use the hazard warning flashers for longer than absolutely necessary.◀

- Press left section of switch **1** to switch on the hazard warning flashers.
- Switch off the ignition.
- Press right section of switch **1** to switch off the hazard warning flashers.

## 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.

**a** Normal operating position (run)
**b** Engine switched off.

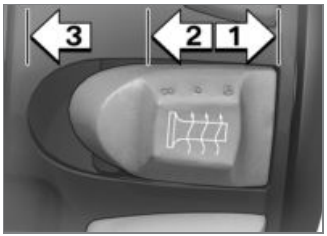
You cannot start the engine unless the kill switch is in the run position.◀

## Grip heating

**1** Grip-heating switch

The handlebar grips have two-stage heating. Stage two is for heating the grips quickly: it is advisable to switch back to stage one as soon as the grips are warm.

The handlebar-grip heating places a strain on the battery. Do not switch on the grip heating unless the engine is running.◀

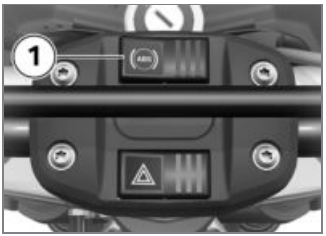



**1** Switch thumbed to right: Heating off.
**2** Switch centred: 50% heating power
**3** Switch thumbed to left: 100% heating power

## BMW Motorrad ABS

### Deactivating ABS function

- Bring the motorcycle to a stop or, if the motorcycle is at a standstill, switch on the ignition.




- Press and hold down button **1** until the ABS warning light changes status.

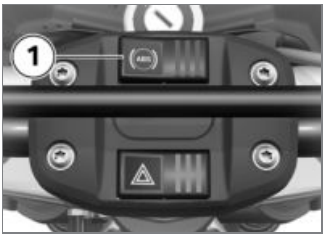
ABS warning light starts to show.

- Release button **1** within two seconds.

ABS warning light remains ON.

» The ABS function is deactivated.

### Activating ABS function




- Press and hold down button **1** until the ABS warning light changes status.

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

- Release button **1** within two seconds.

The ABS warning light remains off or continues to flash.

» The ABS function is activated.

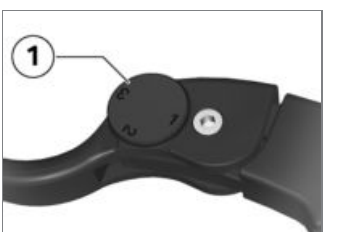
- You also have the option of switching the ignition off and then on again.

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

## Clutch

### Adjusting clutch lever

Attempting to adjust the clutch lever while riding the motorcycle can lead to accidents. Do not attempt to adjust the clutch lever unless the motorcycle is at a standstill.◀




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

The adjusting screw is easier to turn if you push the clutch lever forward.◀

» Adjustment options:

– From position 1: smallest span between handlebar grip and clutch lever

– to position 3: largest span between handlebar grip and clutch lever

## Mirrors

### Adjust the 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 | |

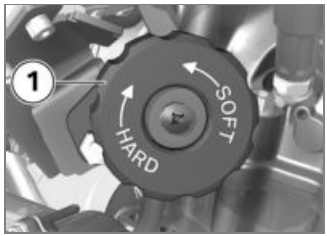
## Spring preload

### Adjustment for rear suspension

It is essential to set spring preload of the rear suspension to suit the load carried by the motorcycle. Increase spring preload when the motorcycle is heavily loaded and reduce spring preload accordingly when the motorcycle is lightly loaded.

### Adjusting spring preload for rear wheel

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




Your motorcycle's handling will suffer if you do not match the spring-preload and damping-characteristic settings. Adjust the damping characteristic to suit spring preload.◀

Adjusting spring preload while the motorcycle is being ridden can lead to accidents. Do not attempt to adjust spring preload unless the motorcycle is at a standstill.◀

- If you want to increase spring preload, turn knob **1** in the direction indicated by the HARD arrow.

- If you want to reduce spring preload, turn knob **1** in the direction indicated by the SOFT arrow.

| |
|---|
| Basic setting of spring preload, rear |
| – Turn the knob counterclockwise to the limit stop, then turn it back 15 clicks. (Full load of fuel, with rider 85 kg) |

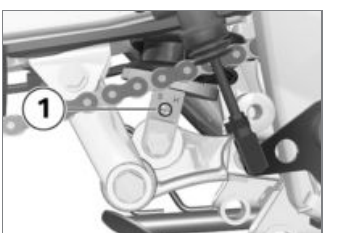
## Damping

### Adjustment for rear suspension

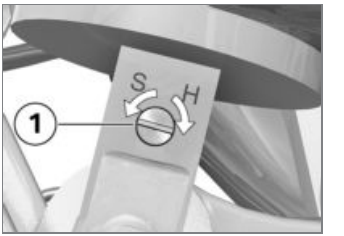
Damping must be adapted to suit spring preload and the surface on which the motorcycle is ridden.
An increase in spring preload requires firmer damping, a reduction in spring preload requires softer damping.
The harder the setting, the more the movement that the spring strut can make to absorb surface irregularities is damped. When you choose a soft setting the spring strut responds all the more rapidly to surface irregularities.

### Adjusting damping for rear wheel

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




- Adjust the damping characteristic, using the tool from the on-board toolkit to turn adjusting screw **1**.




- If you want a harder damping characteristic, use a screwdriver to turn adjusting screw **1** in the direction indicated by the H arrow.
- If you want a softer damping characteristic, use a screwdriver to turn adjusting screw **1** in the direction indicated by the S arrow.

| Rebound stage, basic setting, rear |
|---|
| – turn the bottom adjusting screw as far as it will go in the clockwise direction and then back it off half a turn (Full load of fuel, with rider 85 kg) |

# Tyres

## Checking tyre pressure

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 installed perpendicular to the wheel rim have a tendency to open as a result of centrifugal force.
In order to avoid a sudden loss of tyre pressure, fit a valve cap with rubber sealing ring to the rear tyre and make sure that the cap is screwed on firmly.◀

- Make sure the ground is level and firm and place the motorcycle on its stand.
- Check tyre pressures against the data below.

| Tyre pressure, front |
|---|
| – 1.9 bar (one-up, at tyre temperature 20 °C) |
| – 2.1 bar (two-up and/or with luggage, at tyre temperature 20 °C) |

| Tyre pressure, rear |
|---|
| – 2.1 bar (one-up, at tyre temperature 20 °C) |
| – 2.3 bar (two-up and/or with luggage, at tyre temperature 20 °C) |

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

# Headlight

## Adjusting headlight for driving on right/driving on left

If the motorcycle is ridden in a country where the opposite rule of the road applies, its asymmetric low-beam headlight will tend to dazzle oncoming traffic.
Have the headlight set accordingly by a specialist workshop, preferably an authorised BMW Motorrad dealer.

## Headlight beam throw and spring preload

Headlight beam throw is generally kept constant when spring preload is adjusted to suit load. Spring preload adjustment might not suffice only if the motorcycle is very heavily loaded. Under

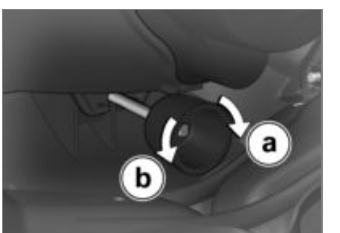
these circumstances, headlight beam throw has to be adjusted to suit the weight carried by the motorcycle.

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

### Headlight beam-throw adjustment

**1** Headlight beam-throw adjustment

Spring preload adjustment might not suffice if the motorcycle is very heavily loaded. Headlight beam throw can be adjusted so as not to dazzle oncoming traffic. This adjustment should be carried out by a specialist workshop, preferably an authorised BMW Motorrad dealer.

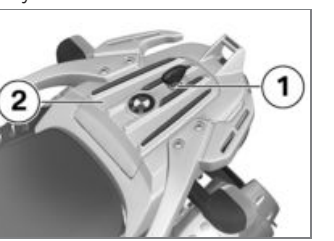



**a** Lengthens beam throw
**b** Shortens beam throw

## Seat

### Remove the seat

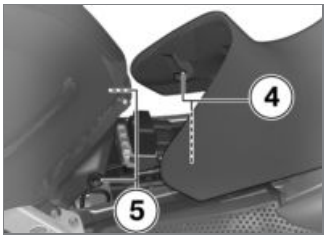
- Make sure the ground is level and firm and place the motorcycle on its stand.




- Use the ignition key to turn stowage-compartment lock **1** clockwise.
- Remove cover **2**.◁

- Pull release lever **3** up while pushing down on the seat at the rear.
- Raise the seat at the rear and release the release lever.
- Remove the seat and place it, upholstered side down, on a clean surface.

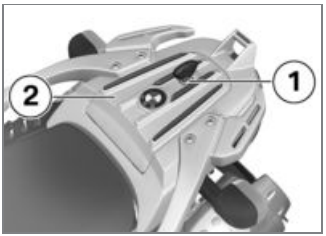
## Installing seat




- Engage mounts **4** of the seat in holders **5** on left and right.
- Lower the seat into position and push it forward as far as it will go.

- Firmly press down on the seat at the rear.

» The seat engages with an audible click.




- Install cover **2**.
- Lock stowage-compartment lock **1** with the ignition key.◁

**Riding**

Safety instructions ..... 42
Checklist ..... 44
Starting ..... 44
Running in ..... 46
Off-roading ..... 47
Brakes ..... 47
Parking your motorcycle ..... 49
Refuelling ..... 49
Securing motorcycle for transportation ..... 50

# 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.

## 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 spring preload, damping characteristic and tyre pressures to suit total weight.

– with case OA

- Ensure that the case volumes on the left and right are equal.
- Make sure that the weight is uniformly distributed between right and left.
- Pack heavy items at the bottom and toward the inboard side.
- Note the maximum permissible payload and the speed limit for riding with cases fitted, as stated on the label inside the case.◁

– with topcase OA

- Note the maximum permissible payload and the speed limit for riding with topcase fitted, as stated on the label inside the topcase.◁

– with tank rucksack OA

- Note the maximum permissible payload of the tank rucksack and the speed limit for riding with a tank rucksack on the motorcycle.

| Payload of tank rucksack |
|---|
| – max 5 kg |

| Maximum permissible speed for riding with the tank rucksack fitted to the motorcycle |
|---|
| – max 130 km/h◁ |

## 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.

## 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.◀

## 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 overheating

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

Tampering with motorcycle settings (e.g. electronic engine management unit, throttle valves, clutch) can cause damages to the components in question and lead to failure of safety-relevant functions. Damage caused in this way is not covered by the warranty.
Do not tamper with the motorcycle in any way that could result in tuned performance.◀

## 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
– Shock absorber setting and spring preload
– 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 **1** in run position **a**.

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.
» ABS self-diagnosis is performed. (➠ 45)

- 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 **2**.

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. (➠ 106)

## ABS self-diagnosis

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.◀

- Do not exceed the rpm limits recommended for running in.

| Running-in speed |
| --- |
| – max 5000 $min^{-1}$ (for the first 1000 km) |

- 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 have to bed down before they can achieve their optimum friction levels. 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.◀

# Off-roading

## After off-roading

BMW Motorrad recommends checking the following after riding the motorcycle off-road:

### Tyre pressure

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.◀

### 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.◀

### Spring preload and shock-absorber settings

The off-road settings for spring preload and shock absorber damping characteristic will impair the motorcycle's handling characteristics on surfaced roads.
If you have been off-roading, remember to correct spring preload and shock-absorber damping characteristics before you return to surfaced roads.◀

### Rims

BMW Motorrad recommends checking the rims for damage after off-roading.

### Air filter element

Engine damage due to clogged air filter element.
If you ride in dusty terrain check the air filter element for clogging at shorter intervals; clan or replace as necessary.◀

Operation in very dusty conditions (desert, steppes, or the like) necessitates the use of air filter elements specially designed for conditions of this nature.

# 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. Under these circumstances the front wheel can lock up.

BMW Motorrad ABS prevents the front wheel from locking up.

## 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 and dirty brakes

Wetness and dirt on the brake discs and the brake pads diminish braking efficiency.
Delayed braking action or poor braking efficiency must be reckoned with in the following situations:

- Riding in the rain or through puddles of water.
- After the motorcycle has been washed.
- Riding on salted or gritted roads.
- After work has been carried on the brakes, due to traces of oil or grease.
- Riding on dirt-covered surfaces or off-road.

Wetness and dirt result in poor braking efficiency.
Apply the brakes lightly while riding to remove wetness and dirt, or dismount and clean the brakes.
Think ahead and brake in good time until full braking efficiency is restored.◀

## Parking your motorcycle

### Side stand

• Switch off the engine.

⚠ 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.◀

• Extend the side stand and prop the motorcycle on the stand.

⚠ 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.◀

• If the camber of the roadway permits, turn the handlebars all the way to the left.

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

### Centre stand

– with centre stand OE

• Switch off the engine.

⚠ 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.◀

⚠ Excessive movements could cause the centre stand to retract, and the motorcycle would topple in consequence.
Do not lean or sit on the motorcycle with the centre stand extended.◀

• Extend the centre stand and lift the motorcycle onto the stand.

## Refuelling

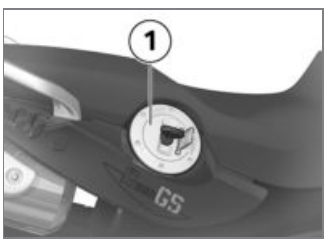
⚠ Fuel is highly flammable. A naked flame close to the fuel tank can cause a fire or explosion.
Do not smoke. Never bring a naked flame near the fuel tank.◀

⚠ Fuel expands when hot. Fuel escaping from an overfilled tank could make its way onto the road surface. This could cause a fall.
Do not overfill the fuel tank.◀

⚠ 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 the protective cap.




- Use the ignition key to unlock fuel filler cap **1** and pop the cap open.
- Refuel with fuel of the grade stated below; do not fill the tank past the bottom edge of the filler neck.

| Recommended fuel grade |
|---|
| – Regular, unleaded<br>– 91 ROZ/RON<br>– 87 AKI |
| **Usable fuel capacity** |
| – approx. 17.3 l |
| **Reserve fuel** |
| – approx. 4 l |

- Press the fuel tank cap down firmly to close.

» Remove the key and close the protective cap.

## Securing motorcycle for transportation

- Make sure that all components that might come into contact with straps used to secure the motorcycle are adequately protected against scratching. Use adhesive tape or soft cloths, for example, for this purpose.

The motorcycle can topple and fall on its side.
Make sure that the motorcycle cannot topple sideways.◀

- Push the motorcycle onto the transportation flat and hold it in position: do not place it on the side stand or centre stand.

Risk of damaging components.
Take care not to trap components such as brake lines or wires.◀

- At the front, secure the straps to the bottom fork bridge on both sides.
- At the rear, secure the straps to the rear footrests on both sides and tighten the straps.
- Tighten all the straps uniformly; the motorcycle's suspension should be compressed as tightly as possible front and rear.

## Engineering details

Brake system with BMW Motorrad ABS ..... 54

# Brake system with BMW Motorrad ABS

## 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 ..... 58
Power sockets ..... 58
Case ..... 59
topcase ..... 61

## 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.

Also bear in mind the information on the effect of wheel size on suspension-control systems (➠ 77).

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 the national road-vehicle construction and use regulations applicable in your country.

## Power sockets

Notes on use of power sockets:

**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**

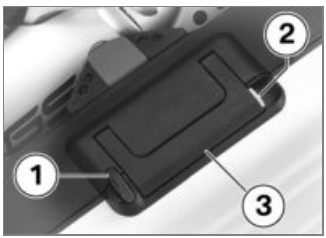
The cables from the power sockets to the auxiliary devices must be routed in such a way that they:

– Do not impede the rider
– Do not restrict the steering angle or obstruct handling
– Cannot be trapped

## Case

– with case[OA]

### Opening cases




- Turn key **1** in the case lock to right angles with the forward direction of travel.
- Press and hold down yellow latch **2** and pull up carry handle **3**.

- Push yellow button **4** down and at the same time pull the lid of the case out.

### Closing cases

- Turn the lock with the key until it is at right angles to the forward direction of travel.

- Close case lid **5**.

» The lid engages with an audible click.

⚠ Closing the carry handle while the case lock is in line with the forward direction of travel can result in damage to the locking tongue.
Make sure that the case lock is at right angles to the forward direction of travel when you close the carry handle.◀

- Push carry handle **3** down.
- Turn the key in the case lock in line with the forward direc-

tion of travel and remove the key from the lock.

## Adjusting case volume

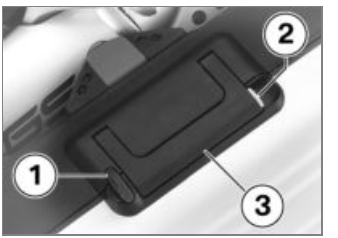
- Open the case and remove all its contents.

- Disengage all four latching levers **1** and open them.
- Adjust the case to the desired volume by sliding the outer casing of the case all the way in or out.

The latching levers cannot be closed unless the outer casing of the case is set to one or other of the two limit stops.◀

- Close and lock all four latching levers **1**.
- Close the case.

## Remove the cases




- Turn key **1** in the case lock to right angles with the forward direction of travel.
- Press and hold down yellow latch **2** and pull up carry handle **3**.

- Pull red release lever **4** up.

» Latching flap **5** pops up.

- Fully open the latching flap.
- Take a firm grip of the handle and lift the case out of the holder.

## Installing cases

- Fully open latching flap **5**, if necessary pulling up red release lever **4**.

- Hook the case into case carrier **6**.
- Turn the case toward the motorcycle, pushing the mount on the case all the way onto mushroom head **7**.

- Push latching flap **5** down as far as it will go and hold it in this position.
- Push red release lever **4** down.

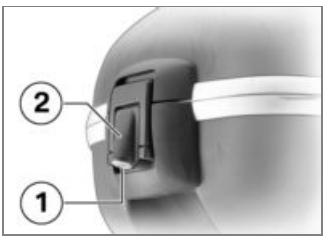
» The latching flap engages.

- Close the carry handle.
- Turn the key parallel with the direction of travel and remove.

## topcase

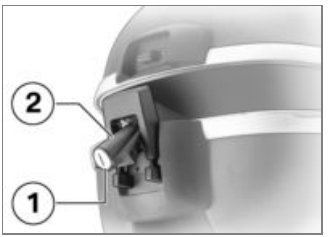
– with topcase OA

## Opening topcase



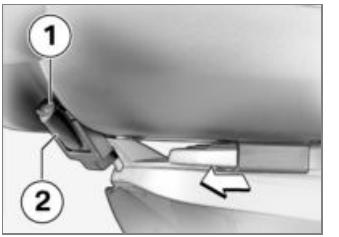

- If applicable, unlock topcase lock **1**.
- Pull up locking lever **2** and open the topcase lid.

## Close the topcase



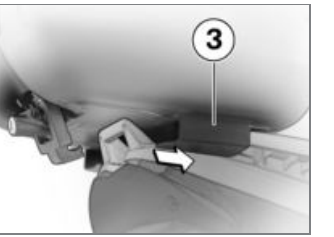

- Close the lid of the topcase and hold it down.
- Push locking lever **2** fully down.
- If applicable, lock topcase lock **1**.

## Removing topcase

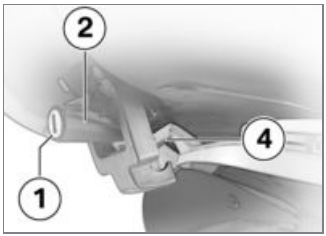



- If applicable, unlock topcase lock **1**.
- Push locking lever **2** down.
- Pull the topcase back and clear of the luggage carrier.

## Installing topcase




- Push the topcase with guides **3** forward onto the adapter plate until seated.




- Push locking lever **2** up, making sure that the lever engages the adapter plate at position **4**.

» The locking lever engages with an audible click.

- If applicable, lock topcase lock **1**.

**Maintenance**

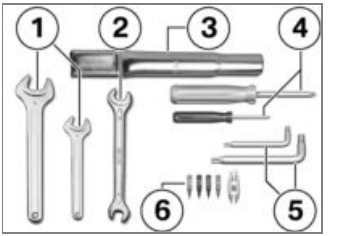
Notes ..... 66
Toolkit ..... 66
Engine oil ..... 66
Brake system ..... 68
Brake pads ..... 68
Brake fluid ..... 70
Coolant ..... 72
Clutch ..... 73
Tyres ..... 74
Rims ..... 74
Chain ..... 75
Wheels ..... 76
BMW Motorrad front-wheel stand ..... 83
Fuses ..... 84
Bulbs ..... 85
Air filter ..... 91
Jump starting ..... 92
Battery ..... 93
Body panels ..... 96

## 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 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 motorcycle technology. If you are in doubt consult a specialist workshop, preferably your authorised BMW Motorrad dealer.

## Toolkit




**1** Open-ended spanner Width across flats 24
Open-ended spanner Width across flats 15
**2** Open-ended spanner Width across flats 14/19
**3** Spark plug wrench
**4** Reversible-blade screwdriver with star-head and plain tips
Small screwdriver with star-head tip
**5** Torx bit, T25
Torx wrench, T45
**6** Spare fuses with puller tool
Minifuses, 4 A, 7.5 A, 10 A and 15 A

## 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.◀

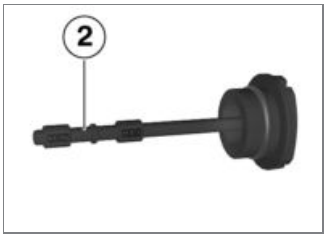
The oil level varies with the temperature of the oil. The higher the temperature, the higher the level of oil in the sump. Checking the oil level with the engine cold or after no more than a short ride will lead to misinterpretation; this in turn, means that the engine will be operated with the incorrect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

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

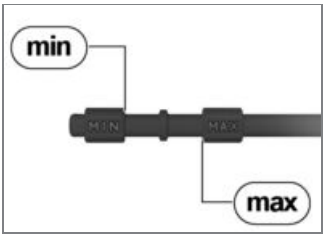
– with centre stand OE

- Check that the engine is at operating temperature, make sure the ground is level and firm and place the motorcycle on its centre stand.◁

- Remove oil dipstick **1**.




- Wipe the oil off MIN-MAX part of dipstick **2** with a clean, dry cloth.
- Seat the oil dipstick on the oil filler neck, but do not engage the threads.
- Remove the oil dipstick and check the oil level.




| Engine oil, specified level |
| --- |
| – Between MIN and MAX marks |

If the oil level is below the MIN mark:

- Top up the engine oil (➠ 68).

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

- Make sure the ground is level and firm and place the motorcycle on its stand.
- Wipe the area around the filler neck clean.

- Remove oil dipstick **1**.

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.◀

- Top up the engine oil to the specified level.
- Check the engine oil level (➠ 66).
- Install the oil dipstick.

## Brake system

### Reliability

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 undertaken by trained and qualified specialists.◀

### Check operation of the 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

### Check the front brake pad thickness

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

- Visually inspect the brake pads to ascertain their thickness. Viewing direction: Between the spokes toward brake caliper **1**.

| | |
|---|---|
| | Brake disc thickness, front |
| – | min 1.0 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:

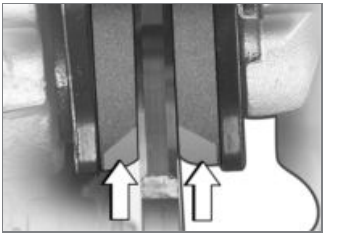
Brake pads worn past the minimum permissible thickness can cause a reduction in braking efficiency and under certain circumstances they can cause damage to the brake system.
In order to ensure the dependability of the brake system, do not permit the brake pads to wear past the minimum permissible thickness.◀

- 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.

- Visually inspect the brake pads to ascertain their thickness. Viewing direction: from the rear toward brake caliper **1**.



| | |
|---|---|
| | Brake-pad wear limit, rear |
| – min 1.0 mm (Friction pad only, without backing plate. The wear indicators must be clearly visible.) | |

If the wear indicating mark is no longer visible:

Brake pads worn past the minimum permissible 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 thickness.◀

- Have the brake pads replaced by a specialist workshop, preferably an authorised BMW Motorrad dealer.

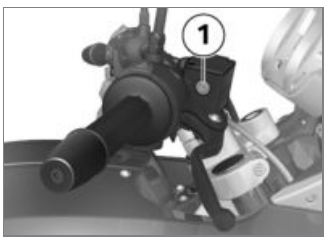
## Brake fluid

### Check the brake-fluid level, front 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.◀

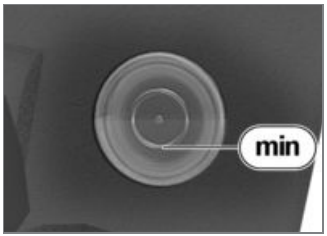
- Make sure the ground is level and firm and hold the motorcycle upright.

– with centre stand OE
- Make sure the ground is level and firm and place the motorcycle on its centre stand.◁
- Move the handlebars to the straight-ahead position.




- 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 |
| – It is impermissible for 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.◀

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

– with centre stand OE
- Make sure the ground is level and firm and place the motorcycle on its centre stand.◁

- 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 |
| – It is impermissible for the brake fluid level to drop below the MIN mark. (Brake-fluid reservoir horizontal) |

If the brake fluid level drops below the permitted level:

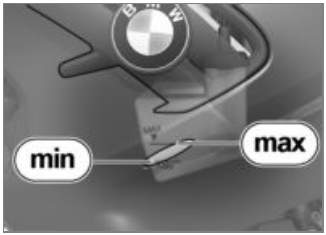
- Have the defect rectified as quickly as possible by a specialist workshop, preferably an authorised BMW Motorrad dealer.

## Coolant

### Checking coolant level

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

- Check the coolant level in expansion tank **1**.




| | |
|---|---|
| | Coolant, specified level |
| – between MIN and MAX marks on the expansion tank | |

If the coolant drops below the permitted level:

- Top up the coolant.

### Topping up coolant

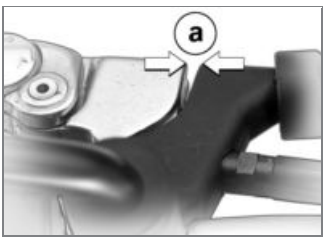
- Removing left side panel (➠ 98).

- Open cap **1** of the coolant expansion tank and top up the coolant to the specified level.
- Checking coolant level (➠ 72).
- Close the cap of the coolant expansion tank.

- Install the left side panel (➠ 99).

## Clutch

### Checking clutch-lever play



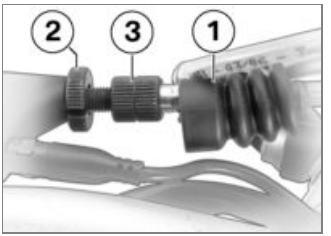

- Pull the clutch lever until resistance is perceptible.
- Measure clutch-lever play **a**.

| | |
|---|---|
| | Clutch, play at handlebar lever |
| – 1...2 mm | |

Clutch-lever play is out of tolerance:

- Adjusting clutch-lever play (➠ 74).

### Adjusting clutch-lever play




- Push back boot **1**.
- Slacken nut **2**.
- To increase clutch play: turn adjusting screw **3** clockwise.
- To reduce clutch play: turn adjusting screw **3** counter-clockwise.
- Checking clutch-lever play (➠ 73).
- Repeat the steps in this procedure until clutch play is set correctly.
- Tighten nut **2**.
- Pull boot **1** back over the adjusting screw.

## Tyres

### Checking tyre tread depth

Your motorcycle's handling and grip can be impaired even before the tyres wear to the minimum tyre tread depth permitted by law.
Have the tyres changed in good time before they wear to the minimum permissible 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 is worn to minimum:

- Replace tyre or tyres, as applicable.

## 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.

### Checking spokes

- Make sure the ground is level and firm and place the motorcycle on its stand.
- Draw the handle of a screwdriver or a similar instrument across the spokes and listen to the notes of the individual spokes.

If the notes vary:

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

## Chain

### Lubricating chain

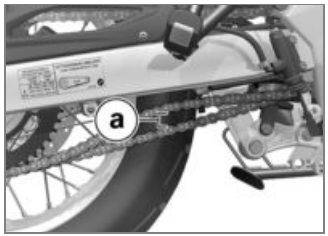
Dirt, dust and inadequate lubrication will result in accelerated wear and significantly shorten the drive chain's useful life.

Clean and lubricate the drive chain at regular intervals.◀

- Lubricate the drive chain every 1000 km at the latest. Lubricate the chain more frequently if the motorcycle is ridden in wet, dusty or dirty conditions.◁
- Switch the ignition off and select neutral.
- Clean the drive chain with a suitable cleaning product, dry it and apply chain lubricant.
- Wipe off excess lubricant.

### Checking chain sag

- Make sure the ground is level and firm and place the motorcycle on its stand.
- Turn the rear wheel until it reaches the position with the lowest amount of chain sag.




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

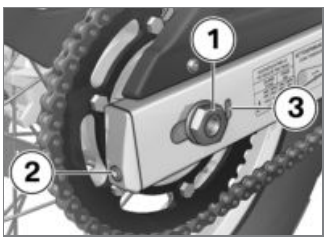
| Chain deflection |
| --- |
| – 35...45 mm (Motorcycle with no weight applied, supported on its centre stand) |

If measured value is outside permitted tolerance:

- Adjust the chain sag (➠ 76).

## Adjust the chain sag

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

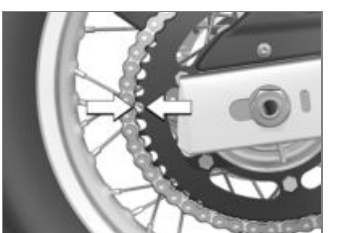



- Slacken quick-release axle nut **1**, counter-holding at the left-hand side if necessary.
- Use adjusting screws **2** on left and right to adjust chain sag.
- Checking chain sag (➠ 75).
- Make sure that scale readings **3** are the same on left and right.
- Tighten quick-release axle nut **1** to the specified torque, counter-holding at the left-hand side if necessary.

| | |
|---|---|
| | Fastener, quick-release axle, rear |
| – | 100 Nm |

## Checking chain wear

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



Accelerated wear.
If a component of the chainset is found to be worn, the entire chainset has to be replaced.◀

- 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

## Tyre recommendation

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.

## Effect of wheel size on suspension-control systems

Wheel size is very important as a parameter for the ABS. In particular, the diameter and the width of a motorcycle's wheels are programmed into the control unit and are fundamental to all calculations. Any change in these influencing variables, caused for example by a switch to wheels other than those installed ex-works, can have serious effects on the performance of the system.
The sensor rings are essential for correct road-speed calculation, and they too must match the motorcycle's system and consequently cannot be changed. If you decide that you would like to fit non-standard wheels to your motorcycle, it is very important to consult a specialist workshop beforehand, preferably an authorised BMW Motorrad dealer. In some cases, the data programmed into the control unit can be changed to suit the new wheel sizes.

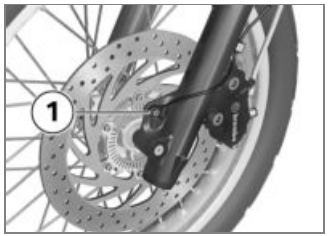
## Removing front wheel

– without centre stand OE

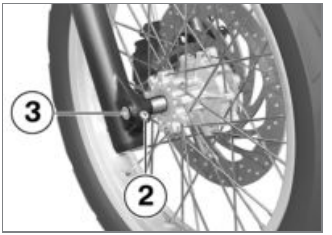
- Make sure the ground is level and firm and place the motorcycle on a suitable auxiliary stand.◁

– with centre stand OE

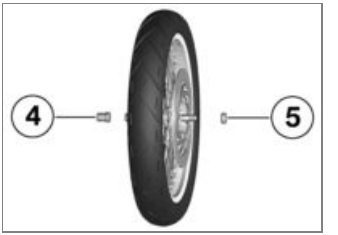
- Make sure the ground is level and firm and place the motorcycle on its centre stand.◁




- Remove screw **1** and remove the ABS sensor from its bore.
- Raise front of motorcycle until the front wheel can turn freely. BMW Motorrad recommends the BMW Motorrad front-wheel stand for lifting the motorcycle.
- Install the front-wheel stand (➠ 83).

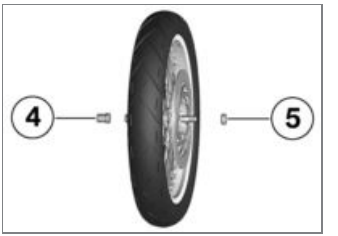



- Release axle clamping screw **2**.
- Remove axle **3**, while supporting the wheel.
- Do not remove the grease from the axle.
- Roll the front wheel forward to remove.




- Remove spacing bushings **4** and **5** from the wheel hub.

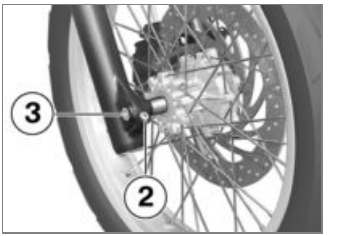
## Installing front wheel




- Slip spacing bushings **5** and **4** onto the wheel hub.

⚠ 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.

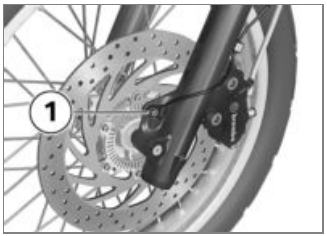



- Raise the front wheel, insert axle **3** and tighten to specified torque.

| Fastener, quick-release axle, front |
|---|
| – 45 Nm |

- Remove the front-wheel stand.
- Apply the front brake and firmly compress the front forks several times
- Tighten axle clamping screw **2** to the specified torque.

| Clamp, front quick-release axle |
|---|
| – 23 Nm |




- Insert the ABS sensor into its bore and install screw **1**.

– without centre stand[OE]
- Remove the auxiliary stand.◁

### Removing rear wheel

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

- Remove two screws **1**.

- Remove three screws **2** and remove the rear-wheel cover.

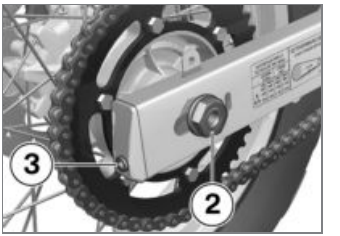
– without centre stand[OE]
- Make sure the ground is level and firm and place the mo-

torcycle on a suitable auxiliary stand.◁

– with centre stand OE

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

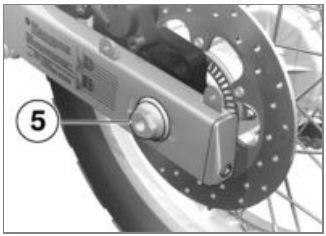
• Remove screw **1** of the speed sensor and remove the speed sensor from the holder.




• Remove axle nut **2**, counter-holding at the left-hand side if necessary.

• Slacken adjusting screws **3** on left and right by turning them counter-clockwise.

• Push the rear wheel as far forward as possible and disengage the chain from sprocket **4**.

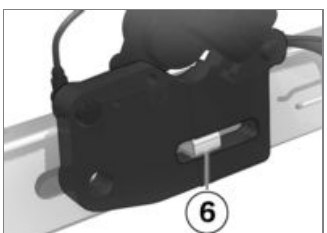



- Remove quick-release axle **5**, supporting the rear wheel as you do so.
- Roll the rear wheel back until it is clear of the swinging arm, while holding the brake caliper on the left-hand side.

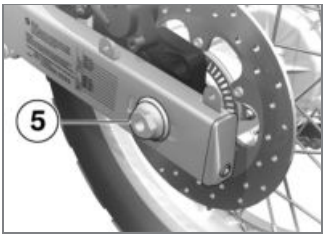
The sprocket and the spacer sleeves on left and right are loose fits in the wheel. Make sure that these parts are not damaged or lost on removal.◀

## Install the rear wheel

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.◀



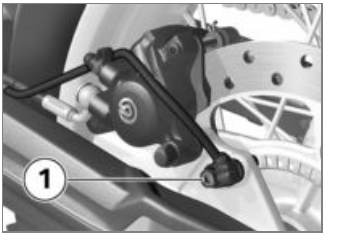

- Make sure that the brake caliper moves on guide **6**.
- Roll the rear wheel into the swinging arm, making sure that the brake disc passes between the brake pads.




- Lift the rear wheel and work quick-release axle **5** through the swinging arm, the brake caliper and the rear wheel.

- Roll the rear wheel as far forward as possible and loop the chain over sprocket **4**.

- Install axle nut **2**, but do not tighten it at this point.




- Seat the speed sensor in the holder and install screw **1** of the speed sensor.
- Adjust the chain sag (➠ 76).

– without centre stand OE

- Remove the auxiliary stand.◁

- Hold the rear-wheel cover in position and install three screws **2**.

- Install two screws **1**.

## BMW Motorrad front-wheel stand

### Install the front-wheel stand

– without centre stand OE

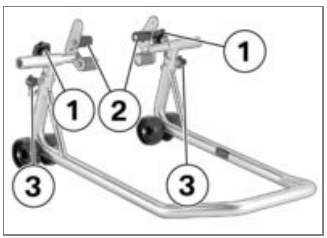
- Place the motorcycle on a suitable auxiliary stand.◁

– with centre stand OE

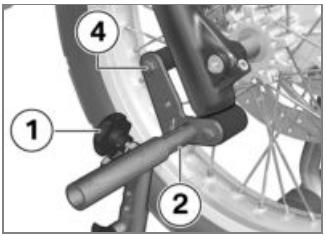
- Make sure the ground is level and firm and place the motorcycle on its centre stand.◁

⚠ 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.◀

- Use the front-wheel stand with the number (0 402 240).




- 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.




- Install rubber buffers **4** in the top positions on left and right.
- 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

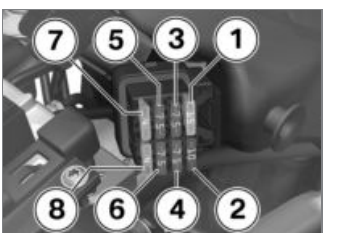
Risk of fire if an attempt is made to jumper defective fuse.
Always replace defective fuses with new fuses of the correct amperage rating.◀

- Switch off the ignition.
- Remove the seat (➠ 38).

- Squeeze the two latches **1** together and remove the fuse cover.
- 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.◀

### Installing fuse




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

The fuse assignments and fuse amperage ratings specified for your motorcycle are listed in the section entitled "Tech-

nical data". The figures in the graphic correspond to the fuse numbers.◀

- Close the fuse cover.
» The latch engages with an audible click.
- Installing seat (➠ 39).

## 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.◀

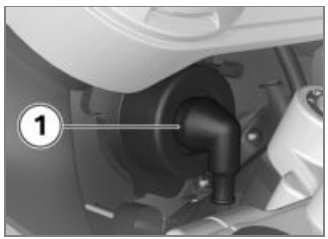
▷ The types of bulb fitted to your motorcycle are listed in the section entitled "Technical data".◀

▷ 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.◀

### Replacing low-beam and high-beam headlight 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.◀

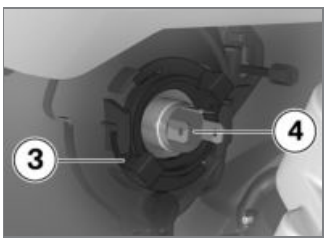
- Make sure the ground is level and firm and place the motorcycle on its stand.
- Switch off the ignition.




- Disconnect plug **1**.

- Remove rubber cap **2**.

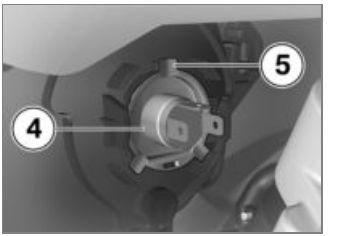
The rubber cap encloses and forms a seal around the wiring for the parking light. Consequently, the rubber cap cannot be removed.◀




- Turn retaining ring **3** counterclockwise to release and remove the ring.
- Remove bulb **4**.

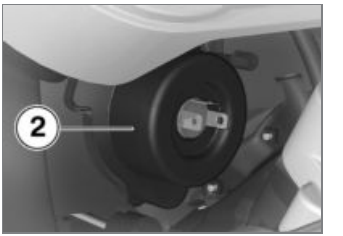
- Replace the defective bulb.

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

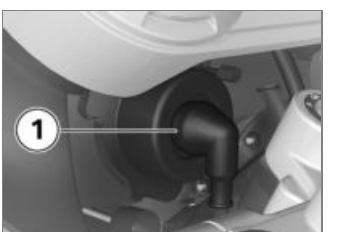



- Install bulb **4**, making sure that tab **5** is correctly positioned.

- Hold retaining ring **3** in position and turn it clockwise to secure.




- Install rubber cap **2**.



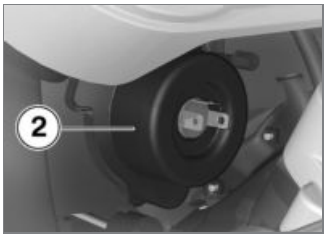

- Connect plug **1**.

## 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.◀

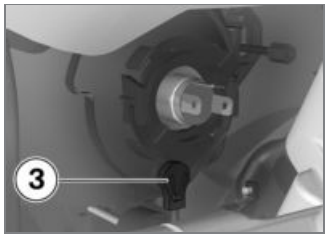
- Make sure the ground is level and firm and place the motorcycle on its stand.
- Switch off the ignition.

- Disconnect plug **1**.




- Remove rubber cap **2**.

▷ The rubber cap encloses and forms a seal around the wiring for the parking light. Consequently, the rubber cap cannot be removed.◀



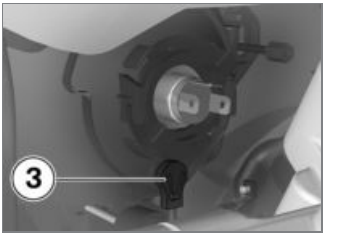

- Pull parking-light socket **3** out of the headlight housing.

- Pull the bulb out of the bulb socket.

• Replace the defective bulb.

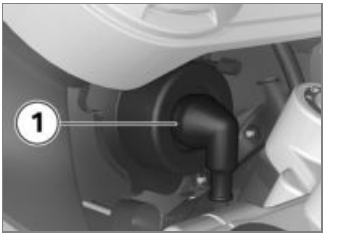
| Bulb for parking light |
| --- |
| – W5W / 12 V / 5 W |

• Insert the bulb into the bulb socket.




• Insert parking-light socket **3** into the headlight housing.

• Install rubber cap **2**.

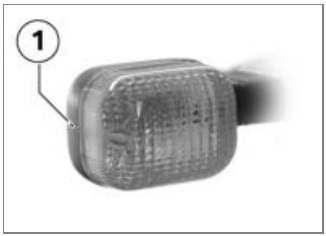



• Connect plug **1**.

## 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.

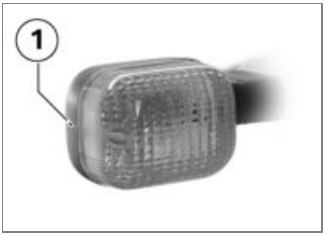
- Press bulb **2** into its socket and turn it counter-clockwise to remove.
- Replace the defective bulb.

| Bulbs for flashing turn indicators, front |
|---|
| – R10W / 12 V / 10 W |

| Bulbs for flashing turn indicators, rear |
|---|
| – R10W / 12 V / 10 W |

- Press bulb **2** into its socket and turn it clockwise to install.

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

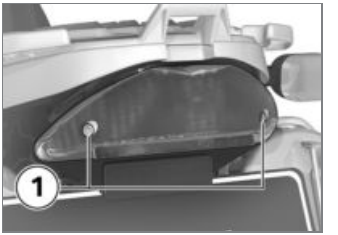



• Install screw **1**.

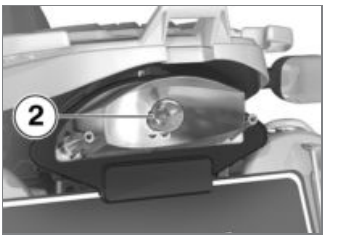
## Replacing rear-light and brake-light bulb

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.



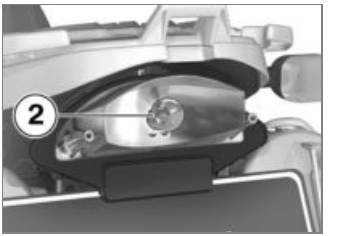

• Remove two screws **1** and remove the rear-light glass.



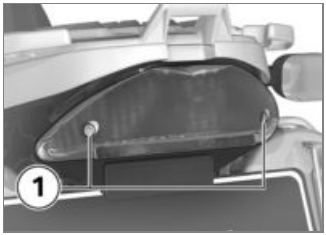

• Press bulb **2** into its socket and turn it counter-clockwise to remove.

• Replace the defective bulb.

| Bulb for tail light/brake light |
| --- |
| – P21/5W / 12 V / 5 W / 21 W |




• Press bulb **2** into its socket and turn it clockwise to install.

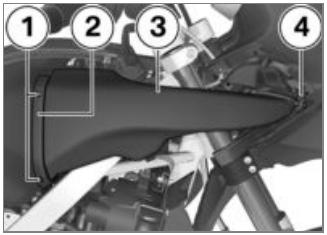



- Hold the rear-light glass in position and install two screws **1**.

## Air filter

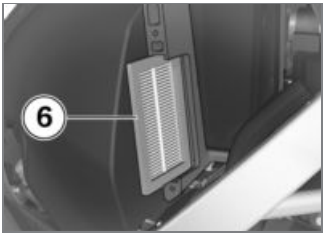
### Replacing air-filter element

- Removing right side panel (➠ 96).




- Remove two screws **1**.
- Pull out connecting flange **2**.
- Disconnect intake air pipe **3** from the air filter housing and remove it from mount **4**.

- Disconnect plug **5**.




- Remove air filter element **6**.

- Insert cleaned or new air filter element **6**.

• Connect plug **5**.

• Seat the intake air pipe in mount **4**.

• Seat the intake air pipe in guides **7** of the air filter housing. Take care not to bend the rubber seals of the air filter element out of shape.

• Install connecting flange **2**.

• Install two screws **1**.

• Install the right side panel (➠ 97).

## 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.◀

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.◀

- Make sure the ground is level and firm and place the motorcycle on its stand.
- Remove the seat (➠ 38).

- Remove cover **1** from the battery connection point.
- Begin by connecting one end of the red jump lead to the motorcycle's battery connection point and the other end to the positive terminal of the donor vehicle's battery.
- Connect one end of the black jump lead to a suitable earthing point on the motorcycle (e.g. screw **2**) and the other end to a suitable earthing point on the donor vehicle or the negative terminal of the donor vehicle's battery.
- Run the engine of the donor vehicle during jump-starting.
- 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 the positive terminal and the battery connection point.

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

- Installing seat (➠ 39).

## 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
– Be sure to read and comply with the instructions for char-

ging 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.◀

- With the battery connected to the motorcycle's on-board electrical system, charge only via the power socket.
- Comply with the operating instructions of the charger.

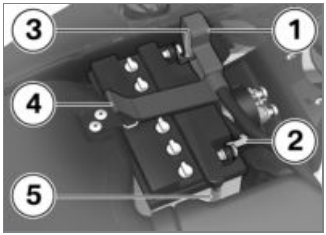
## Charging battery when disconnected

- 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

- Switch off the ignition.
- Remove the centre trim panel (➠ 100).




- Push back cover **1** of the battery's positive terminal.

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

- Disconnect negative lead **2** first.
- Then disconnect positive lead **3**.
- Disengage battery retaining strap **4** and disconnect breather hose **5**.
- Lift the battery up and out; work it slightly back and forth if it is difficult to remove.

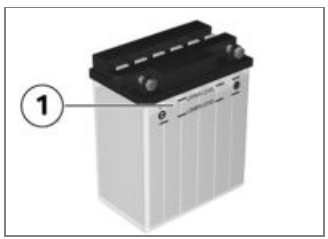
## Install the battery

- Install the battery, making sure to connect breather hose **5**.
- Install battery retaining strap **4**.
- Connect positive lead **3** first.
- Then connect negative lead **2**.
- Push cover **1** into position over the battery positive terminal.
- Install the centre trim panel (➠ 100).

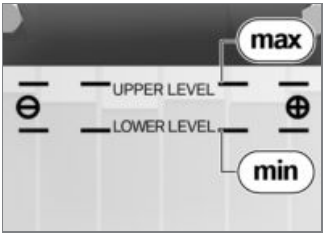
- Setting clock (➠ 29).

## Checking battery-acid level

- Check the acid level regularly at intervals of approximately three months.
- Remove the battery (➠ 94).




- Check the acid level at mark **1**.




| | |
|---|---|
| | Specified level, battery fluid |
| – | distilled water |
| – | Between MIN and MAX marks |

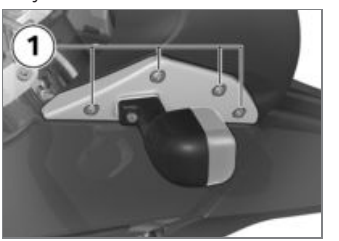
If the acid level is below the MIN mark:

- Top up the battery acid with distilled water to the specified level.

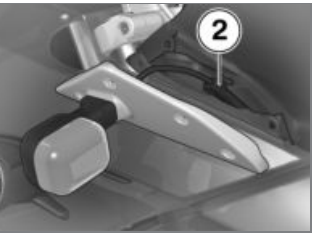
## Body panels

### Removing right side panel

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




- Remove four screws **1** and remove the flashing turn indicator with the side panel.◁



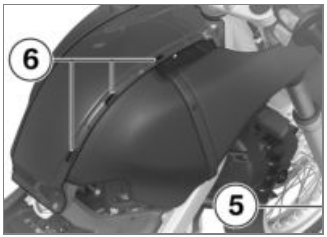

- Disconnect plug **2**.
- Remove the seat (➠ 38).

- Remove two screws **3**.

- Slacken screw **4**.

- Pull the side panel out of the mount at position **5**, then work the side panel up and clear of the motorcycle.

## Installing right side panel

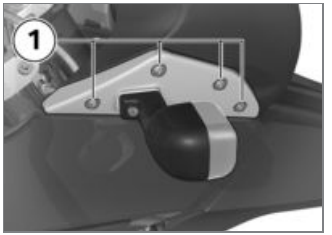



- Seat the side panel in the centre trim panel at points **6** and push it into mount **5**.

- Tighten screw **4**.

- Install two screws **3**.
- Installing seat (➠ 39).

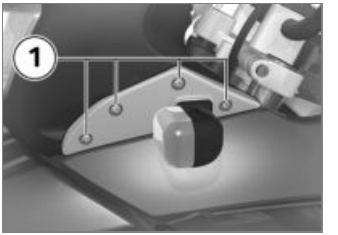
- Connect plug **2**.



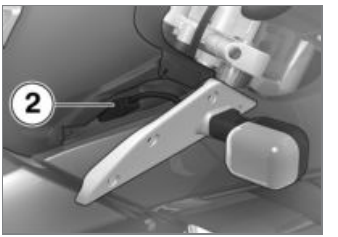

- Hold the flashing turn indicator with side panel in position and install four screws **1**.◁

## Removing left side panel

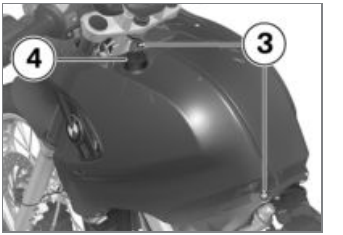
- Make sure the ground is level and firm and place the motorcycle on its stand.




- Remove four screws **1** and remove the flashing turn indicator with the side panel.◁

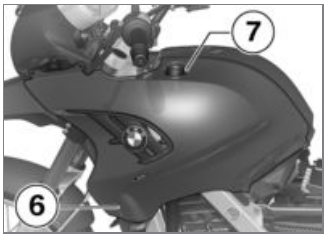



- Disconnect plug **2**.
- Remove the seat (➠ 38).



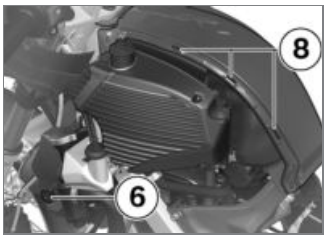

- Remove two screws **3**.
- Remove oil filler cap **4**.

- Slacken screw **5**.




- Pull the side panel out of the mount at position **6**, then work the side panel up and clear of the motorcycle. In this process, take care not to damage rubber boot **7**.

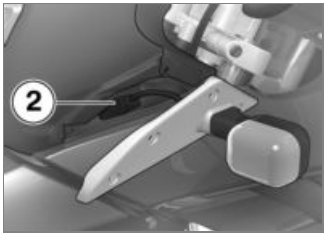
## Installing left side panel




- Lower the side panel over the oil filler neck from above. In this process, take care not to damage rubber boot **7**.
- Seat the side panel in the centre trim panel at points **8** and push it into mount **6**.

- Tighten screw **5**.

- Install oil filler cap **4**.
- Install two screws **3**.
- Installing seat (➠ 39).




- Connect plug **2**.

- Hold the flashing turn indicator with side panel in position and install four screws **1**.◁

## Remove the centre trim panel

- Removing right side panel (➠ 96).
- Removing left side panel (➠ 98).

- Remove two screws **1** and remove the centre trim panel.

## Installing centre trim panel

- Hold the centre trim panel in position and install two screws **1**.
- Install the left side panel (➠ 99).
- Install the right side panel (➠ 97).

## Care

Care products ..... 102
Washing motorcycle ..... 102
Cleaning easily damaged components ..... 102
Paint care ..... 103
Protective wax coating ..... 104
Laying up motorcycle ..... 104
Restoring motorcycle to use ..... 104

## 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 brake discs and brake pads 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 outer preservation.
- Clean the motorcycle.
- Install operational battery.
- Before starting: work through the checklist.

**Technical data**

Troubleshooting chart ..... 106
Threaded fasteners ..... 107
Engine ..... 109
Fuel ..... 110
Engine oil ..... 110
Clutch ..... 111
Transmission ..... 111
Rear-wheel drive ..... 112
Running gear ..... 112
Brakes ..... 113
Wheels and tyres ..... 113
Electrics ..... 114
Frame ..... 116
Dimensions ..... 117
Weights ..... 117
Riding specifications ..... 118

## Troubleshooting chart

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

| Possible cause | Remedy |
|---|---|
| Emergency off switch (kill switch) | Kill switch in operating position (run). |
| Side stand | Retract the side stand (➠ 44). |
| Gear engaged and clutch not disengaged. | Select neutral or pull clutch lever (➠ 44). |
| No fuel in tank | Refuelling (➠ 49). |
| Battery flat | Charge the battery when connected (➠ 94). |

## Threaded fasteners

| Front wheel | Value | Valid |
|---|---|---|
| **Fastener, quick-release axle, front** | | |
| M16 x 1.5 - 10.9 | 45 Nm | |
| **Clamp, front quick-release axle** | | |
| M8 x 20 | 23 Nm | |

| Rear wheel | Value | Valid |
|---|---|---|
| **Fastener, quick-release axle, rear** | | |
| M16 x 1.5 | 100 Nm | |
| **Tensioning screws for drive chain** | | |
| M8 x 70 | 10 Nm | |

| Mirror arm | Value | Valid |
|---|---|---|
| **Union nut, mirror** | | |
| | 20 Nm | |

| Mirror arm | Value | Valid |
|---|---|---|
| **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 | 37 kW, - at engine speed: 6500 $min^{-1}$ |
| – with power reduction OA | 25 kW, - at engine speed: 5500 $min^{-1}$ |
| Torque | 60 Nm, - at engine speed: 4800 $min^{-1}$ |
| – with power reduction OA | 51 Nm, - at engine speed: 4000 $min^{-1}$ |
| Maximum engine speed | max 7500 $min^{-1}$ |
| Idle speed | 1480 $min^{-1}$ |

## Fuel

| | |
|---|---|
| Recommended fuel grade | Regular, unleaded<br>91 ROZ/RON<br>87 AKI |
| Usable fuel capacity | approx. 17.3 l |
| Reserve fuel | approx. 4 l |

**BMW recommends BP fuels**

## Engine oil

| | |
|---|---|
| Engine oil, capacity | 2.3 l, Total capacity (with filter change)<br>1.7 l, Oil tank - prefilling<br>0.6 l, Oil tank - topping up |
| of products recommended by BMW Motorrad and generally admissible viscosity classes | |
| Castrol GPS SAE 10W-40, API SG / JASO MA | ≥-20 °C |
| SAE 10W-40, API SF / SG / SH | ≥-20 °C, Operation in winter |
| SAE 15W-40, API SF / SG / SH | ≥-10 °C |

**BMW recommends** Castrol

| | |
|---|---|
| Oil grades | BMW Motorrad recommends not using oil additives, because they can have a detrimental effect on clutch operation. 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. |

**BMW recommends** Castrol

## 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<br>2.750 (12:33 teeth), 1st gear<br>1.750 (16:28 teeth), 2nd gear<br>1.313 (16:21 teeth), 3rd gear<br>1.045 (22:23 teeth), 4th gear<br>0.875 (24:21 teeth), 5th gear |

## Rear-wheel drive

| | |
|---|---|
| Type of final drive | Chain drive |
| Type of rear suspension | Box-section two-arm fork |
| Secondary transmission ratio | 2,938 |

## Running gear

| | |
|---|---|
| Type of front suspension | Telescopic forks |
| Spring travel, front | 170 mm, At wheel |
| Type of rear suspension | Central spring strut pivoted to lever system with coil spring and single-tube gas-filled shock absorber; spring preload steplessly hydraulically adjustable, rebound stage damping steplessly adjustable. |
| Spring travel, rear | 165 mm, At wheel |

## Brakes

| | |
|---|---|
| Type of front brake | hydraulically actuated disc brake with 2-piston floating caliper |
| Brake-pad material, front | Sintered metal |
| Type of rear brake | Hydraulically actuated 1-piston floating caliper with fixed brake disc |
| Brake-pad material, rear | Organic material |

## Wheels and tyres

| | |
|---|---|
| Recommended tyre sets | 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 | 2.50" x 19" |
| Tyre designation, front | 100 / 90 - 19 |
| **Rear wheel** | |
| Rear wheel type | Spoked wheel |
| Rear wheel rim size | 3.00" x 17" |
| Tyre designation, rear | 130 / 80 - 17 |

| Tyre pressure | |
|---|---|
| Tyre pressure, front | 1.9 bar, one-up, at tyre temperature: 20 °C<br>2.1 bar, two-up and/or with luggage, at tyre temperature: 20 °C |
| Tyre pressure, rear | 2.1 bar, one-up, at tyre temperature: 20 °C<br>2.3 bar, two-up and/or with luggage, at tyre temperature: 20 °C |

## Electrics

| Battery | |
|---|---|
| Battery type | Lead-acid battery |
| Battery rated voltage | 12 V |
| Battery rated capacity | 12 Ah |
| **Spark plugs** | |
| Spark plugs, manufacturer and designation | NGK DR 8 EB |
| Electrode gap of spark plug | 0.6...0.7 mm, When new<br>max 0.9 mm, Wear limit |

| | |
|---|---|
| **Lighting** | |
| Bulb for low-beam and high-beam headlight | H4 / 12 V / 55 W / 60 W |
| Bulb for parking light | W5W / 12 V / 5 W |
| Bulb for tail light/brake light | P21/5W / 12 V / 5 W / 21 W |
| Bulbs for flashing turn indicators, front | R10W / 12 V / 10 W |
| Bulbs for flashing turn indicators, rear | R10W / 12 V / 10 W |
| **Fuses** | |
| Current rating of fuse 1 (for engine electronics) | 15 A |
| Current rating of fuse 2 (for instrument panel, hazard warning flashers, on-board socket, optional accessories and diagnosis plug) | 10 A |
| Current rating of fuse 3 (for horn and headlight flasher) | 7.5 A |
| Current rating of fuse 4 (for low-beam headlight) | 7.5 A |

| | |
|---|---|
| Current rating of fuse 5 (for high-beam headlight) | 7.5 A |
| Current rating of fuse 6 (for instrument panel, flashing turn indicators, hazard warning flashers, brake light and optional accessories) | 7.5 A |
| Current rating of fuse 7 (for rear light and parking light) | 4 A |
| Current rating of fuse 8 (for heated handlebar grips) | 4 A |

## Frame

| | |
|---|---|
| Frame type | Bridge-type steel frame with bottom truss and bolt-on rear frame |
| Type plate location | Main frame, top right on steering head |
| VIN location | Steering head, right |

## Dimensions

| | |
|---|---|
| Length of motorcycle | 2175 mm |
| Height of motorcycle | 1265 mm, Full load of fuel, with rider: 85 kg |
| Width of motorcycle | 910 mm, Across mirrors |
| Front-seat height | 780 mm, Without rider at unladen weight |
| – with lowered suspension[OE] | 750 mm, Without rider at unladen weight |
| – with high seat[OA] | 820 mm, Without rider at unladen weight |

## Weights

| | |
|---|---|
| Unladen weight | 193 kg, DIN unladen weight, ready for road, 90 % load of fuel, without optional extras |
| Permissible gross weight | 380 kg |
| Maximum payload | max 187 kg |

## Riding specifications

| | |
|---|---|
| Top speed | >170 km/h |
| – with power reduction[OA] | 145 km/h |

## Service

BMW Motorrad service ..... 120
BMW Motorrad service quality ..... 120
BMW Motorrad mobility services - roadside assistance ..... 120
BMW Motorrad service network ..... 121
Maintenance work ..... 121
Confirmation of maintenance work ..... 122
Confirmation of service ..... 127

## 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 mobility services - roadside assistance

In the event of a breakdown, the BMW Motorrad mobility services available for each new BMW motorcycle enable 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 breakdown,

contact the Mobile Service organisation of BMW Motorrad. 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
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
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
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
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
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
at the latest

on_____
or, if logged beforehand,

Odometer reading_____

Stamp, signature

## Confirmation of service

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

| Item | Odometer reading | Date |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

| Item | Odometer reading | Date |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

**A**
Abbreviations and symbols, 6
ABS
Control, 18
Engineering details, 54
Self-diagnosis, 45
Switching off and on, 33
Warnings, 23
Accessories
Notes, 58
Air filter
Position on the motorcycle, 13
Replacing, 91

**B**
Battery
Charging battery when connected, 94
Charging battery when disconnected, 94
Installation, 95
Maintenance instructions, 93
Removal, 94
Stowage, 11
BMW Motorrad service, 120
Brake fluid
Checking fluid levels, 70
Reservoir, front, 13
Reservoir, rear, 13
Brake pads
Checking brake-pad thickness, 68
Running in, 46
Brakes
Checking operation, 68
Notes, 47
Technical data, 113
Bulbs
Notes on replacement, 85
Replacing brake-light bulb, 90
Replacing high-beam headlight bulb, 85
Replacing low-beam headlight bulb, 85
Replacing rear light bulb, 90
Replacing side-light bulb, 87
Replacing turn indicator bulb, 88
Technical data, 115

**C**
Care, 101
Case
Operation, 59
Chain
Adjusting sag, 76
Checking sag, 75
Checking wear, 76
Lubricating, 75
Checklist, 44
Clock, 15
Adjusting, 29
Clutch
Adjusting clutch lever, 34
Adjusting handlebar-lever play, 74
Checking play, 73
Technical data, 111
Confirmation of maintenance work, 122
Coolant
Checking fluid level, 72
Fore-and-aft tilt indicator, 11
Topping up, 73

Coolant temperature
Warning, 22

**D**
Damping
Adjuster, rear, 13
Adjusting, 36
Dimensions, 117

**E**
Electrics
Technical data, 114
Emergency off switch (kill switch), 17, 32
Engine
Starting, 17, 44
Technical data, 109
Engine oil
Checking fill level, 66
Filler neck, 11
Oil dipstick, 11
Technical data, 110
Topping up, 68
Engine oil pressure
Warning, 22
Equipment, 6

**F**
Frame
Technical data, 116
Front-wheel stand, 83
Fuel
Filler neck, 13
Refuelling, 49
Technical data, 110
Warning, 22
Fuses, 14

**G**
General views
centre handlebar fitting, 18
Instrument panel, 15
Left handlebar fitting, 16
Left side, 11
Right handlebar fitting, 17
Right side, 13
Telltale lights, 20
Underneath the seat, 14
Grip heating
Control, 17
Operation, 33

**H**
Handlebar fitting, centre
Overview, 18
Handlebar fitting, left
Overview, 16
Handlebar fitting, right
Overview, 17
Hazard warning flashers
Control, 18
Operation, 31
Headlight
Beam throw, 37
Driving on right/driving on left, 37
Headlight flasher, 16, 31
High-beam headlight
Switch, 16
Switching on, 31
Telltale light, 20
Horn, 16

**I**
Idle
Telltale light, 20

Ignition
Switching off, 28
Switching on, 28
Ignition switch, 28
Instrument cluster
Overview, 15

**J**
Jump starting, 92

**K**
Keys, 28

**L**
Laying up, 104
Lights
Headlight flasher, 31
Switch on the high-beam headlight, 31
Switch on the parking lights, 29
Switching on low-beam headlight, 31
Switching on the parking lights, 30
Low-beam headlight
Switching on, 31
Luggage
Instructions for loading, 42

**M**
Maintenance
Notes, 66
Maintenance intervals, 121
Mirrors
Adjusting, 34
Mobility services, 120
Motorcycle
Care, 101
Laying up, 104
Overview, 11, 13
Parking, 49
Restoring to use, 104

**O**
Odometer and tripmeters, 15
Operation, 30
Off-roading, 47

**P**
Parking, 49
Power socket, 11
Notes on use, 58

**R**
Rear-wheel drive
Technical data, 112
Refuelling, 49
Restoring to use, 104
Rev. counter, 15
Rider's Manual
Stowage, 14
Running gear
Technical data, 112
Running in, 46

**S**
Safety instructions, 42
Seat
Installation, 38
Lock, 11
Removal, 38
Service, 120
Side light
Switching on, 30
Spark plugs
Technical data, 114
Speedometer, 15

Spring preload
Adjuster, rear, 13
Adjusting, 35
Standards, 7
Starter, 17
Starting, 44
Status indicators
See also warnings, 20
Standard status indicators, 20
Warnings, 20
Steering lock, 28

**T**
Technical data
Brakes, 113
Bulbs, 115
Clutch, 111
Dimensions, 117
Electrics, 114
Engine, 109
Engine oil, 110
Frame, 116
Fuel, 110
Rear-wheel drive, 112
Running gear, 112
Spark plugs, 114
Standards, 7
Transmission, 111
Tyres, 113
Weights, 117
Wheels, 113
Telltale lights, 15
Overview, 20
Toolkit
Contents, 66
Stowage, 14
Topcase
Operation, 61
Torques, 107
Transmission
Technical data, 111
Transportation
Lashing, 50
Troubleshooting chart, 106
Turn indicators
Operate, 16
Telltale light, 20
Type plate
Position on the motorcycle, 13
Tyres
BMW recommendations, 113
Inflation pressure, 37
Pressures, 114
Recommendations, 76
Running in, 46
Table of tyre pressures, 13, 14
Technical data, 113

**V**
Vehicle identification number
Position on the motorcycle, 13

**W**
Warnings, 20
With ABS, 23
Warnings, overview, 21, 24
Weights, 117
Payload table, 14
Wheels
Change of size, 77
Checking rims, 74
Install the rear wheel, 81
Removing rear wheel, 79
Technical data, 113

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.

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Important data for refuelling

| **Fuel** | |
|---|---|
| Recommended fuel grade | Regular, unleaded<br>91 ROZ/RON<br>87 AKI |
| Usable fuel capacity | approx. 17.3 l |
| Reserve fuel | approx. 4 l |
| **Tyre pressure** | |
| Tyre pressure, front | 1.9 bar, one-up, at tyre temperature: 20 °C<br>2.1 bar, two-up and/or with luggage, at tyre temperature: 20 °C |
| Tyre pressure, rear | 2.1 bar, one-up, at tyre temperature: 20 °C<br>2.3 bar, two-up and/or with luggage, at tyre temperature: 20 °C |

**BMW recommends** Castrol

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