

Rider's Manual (US Model)

F 650 GS

F 650 GS Dakar



**BMW Motorrad
On-board
documentation**

consisting of
Rider's Manual
and Maintenance
Instructions



Important notes



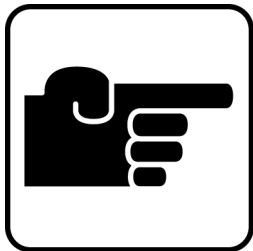
WARNING

This symbol indicates precautions and measures which are essential in protecting the rider and other persons from severe or fatal injury.



CAUTION

Specific instructions and safety precautions intended to prevent damage to the motorcycle. Disregarding them may render the warranty invalid.



NOTE

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

Welcome to BMW

We are delighted that you have chosen a BMW F 650 GS and would like to welcome you to the community of BMW riders. Familiarize yourself with your new motorcycle, so that you can ride it safely and confidently in all traffic situations.

To make sure of this, please read this Rider's Manual carefully before starting to use your new motorcycle. It contains important information on how to operate the controls and how to make the best possible use of all the motorcycle's technical features.

In addition, it contains useful hints and information on the correct equipment for machine and rider, to ensure maximum reliability and safety, and advice on how to maintain the value of your motorcycle.

If you have any questions concerning your motorcycle, your BMW motorcycle retailer will gladly provide advice and assistance.

We hope you enjoy reading this Rider's Manual and wish you many a pleasant, safe journey on your BMW motorcycle.

Best wishes,

BMW Motorrad

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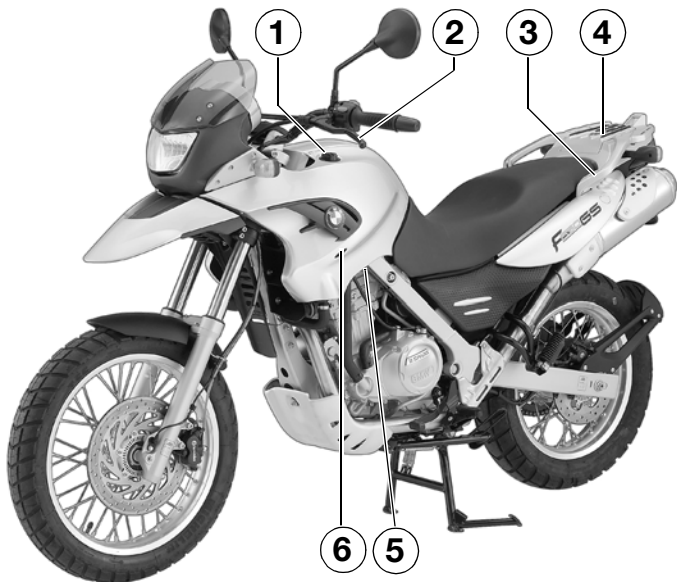
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General view, left side



1 Oil filler neck/dipstick,
engine oil (➡ 24)

2 Clutch lever (➡ 28)

3 Lifting handle (➡ 53)

4 Seat lock (➡ 14)

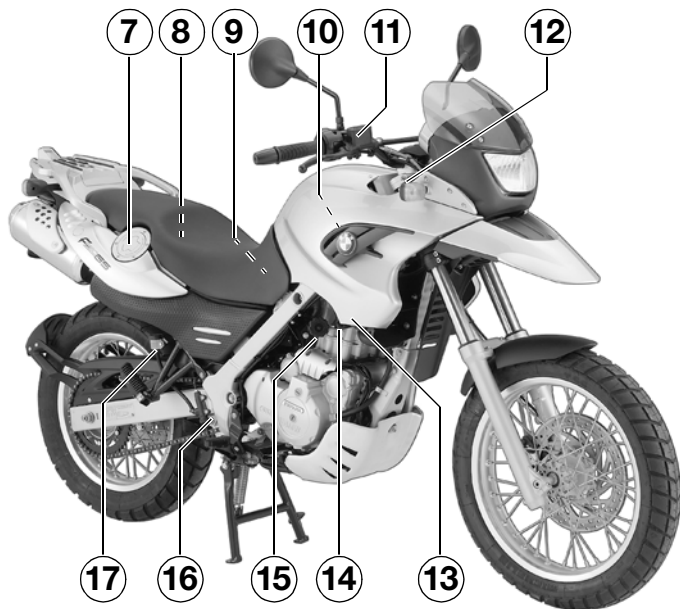
5 On-board socket^{OE}

6 Coolant tank (➡ 43)

() Figure in parentheses ➡ page number for description

^{OE} Optional equipment

General view, right side



- 7** Fuel tank/fuel filler cap
(26, 27)
- 8** Toolkit storage space
- 9** Fuse box
- 10** Air filter (Maintenance Instructions)
- 11** Brake-fluid reservoir for front brake (33)
- 12** Type plate

- 13** Primary spark plug
- 14** Secondary spark plug
- 15** Adjusting knob for spring preload, rear suspension
(36)
- 16** Shock-absorber setting
(35)
- 17** Brake fluid reservoir, rear brake (34)

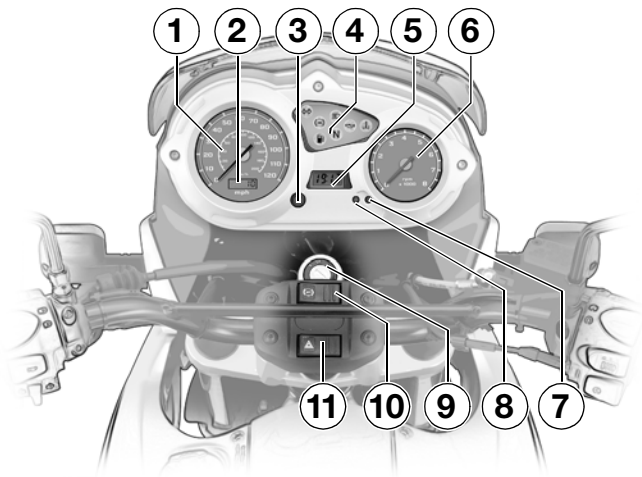
() Figure in parentheses page number for description

Cockpit

1

6

General information and controls



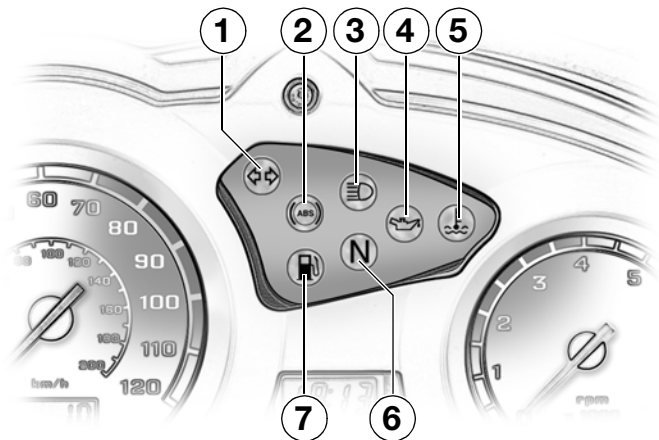
- 1** Speedometer
- 2** Odometer/trip meter
- 3** Reset knob for trip meter
- 4** Indicator and warning lights
- 5** Clock
- 6** Tachometer (➡ 54)
- 7** Button for setting clock, minutes

- 8** Button for setting clock, hours
- 9** Ignition key and steering lock (➡ 8)
- 10** ABS button^{OE}
- 11** Rocker switch, hazard warning flashers^{OE}

^{OE} Optional equipment

() Figure in parentheses ➡ page number for description

Indicator and warning lights



- 1 Repeater,
turn indicators left/right
green
- 2 Warning light, ABS check^{OE}
red (65)
- 3 Indicator light,
high-beam headlight,
blue
- 4 Warning light, engine oil
pressure, **red** (59)
- 5 Warning light, coolant tem-
perature **red** (58)
- 6 Indicator light, neutral
green
- 7 Warning light, fuel
level down to approx. 1 gal
(4 liters) reserve, **yellow**

^{OE} Optional equipment

() Figure in parentheses page num-
ber for description

Ignition key and steering lock

1

8

General information and controls



Keys

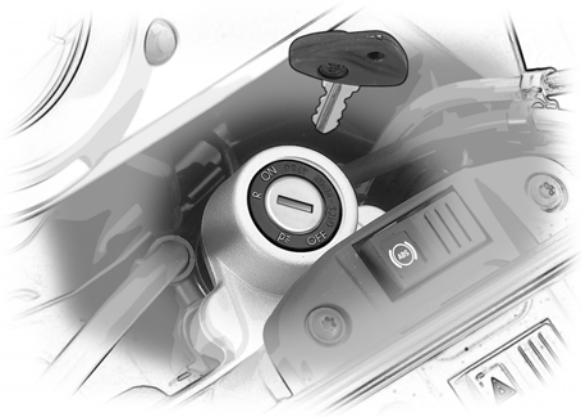
You will receive two master keys and one spare key. The key number is on the accompanying plastic tag.

^{OA} Optional accessory

NOTE

Ignition key and steering lock, tank filler cap lock and seat lock are all operated with the same key. On request, System cases^{OA} can be arranged to lock with the same key.

Ignition key and steering lock



Key positions

WARNING

Never turn the key to OFF or P[<] while riding the motor-cycle

- ON** Operating position, ignition, lights and all electrical circuits switched on
- R *** Ignition and lights off, steering not locked (handlebars can be turned freely to left or right)

* The key can be removed in these positions

- Turn the handlebars to full left lock.

CAUTION

Engage the steering lock with the handlebars in this position only.

- OFF*** Ignition and lights off, steering locked
- P[<] *** Parking light on, steering locked

NOTE

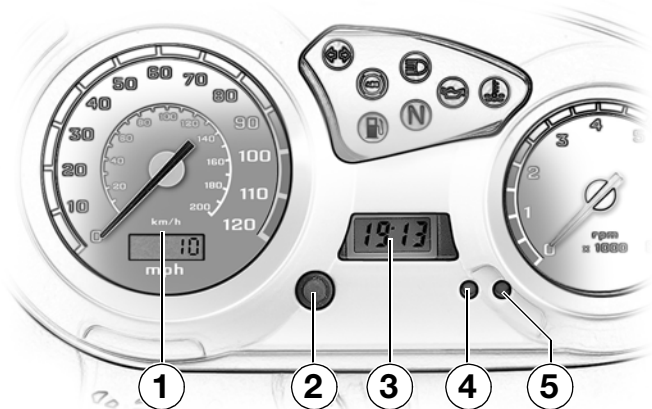
Switch the parking light on for limited periods only. Note state of battery charge.

Odometer/clock

1

10

General information and controls



Odometer/trip meter

Display **1** functions as odometer and trip meter.

- Briefly press button **2** once to switch from odometer to trip meter or vice versa
- To reset the trip meter, select the trip-meter display mode and press and hold down button **2** until the reading resets to zero.

Clock

Note that when you set clock **3** the numbers can only increment; you can set the hours and minutes separately.

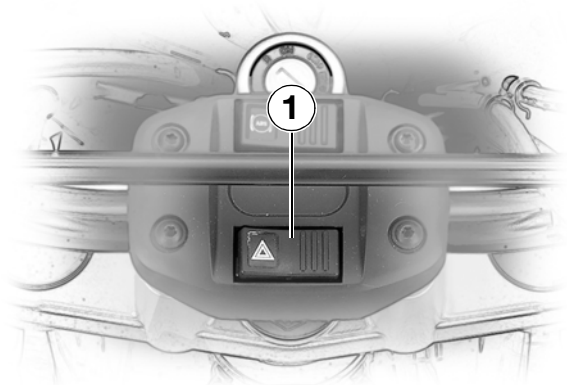
- Switch on the ignition
- Setting the hours:
 - Briefly press button **4**; the clock advances one hour
 - Press and hold down button **4**; the clock continues to advance through the hours.

Setting the minutes:

- Briefly press button **5**; the clock advances one minute
- Press and hold down button **5**; the clock continues to advance through the minutes.

NOTE

The longer you hold down button **4** or **5**, the faster the clock advances.



Hazard warning flashers

NOTE

You cannot activate the hazard warning flashers if the ignition is switched off.

Do not use the hazard warning flashers for longer than absolutely necessary.

Note state of battery charge.

To switch on hazard warning flashers:

- Switch on the ignition
- Operate hazard warning flasher switch **1**
- Hazard warning flashers in operation
- The indicator light in the switch flashes

- Switch off the ignition
- The hazard warning flashers continue to operate

To switch off hazard warning flashers:

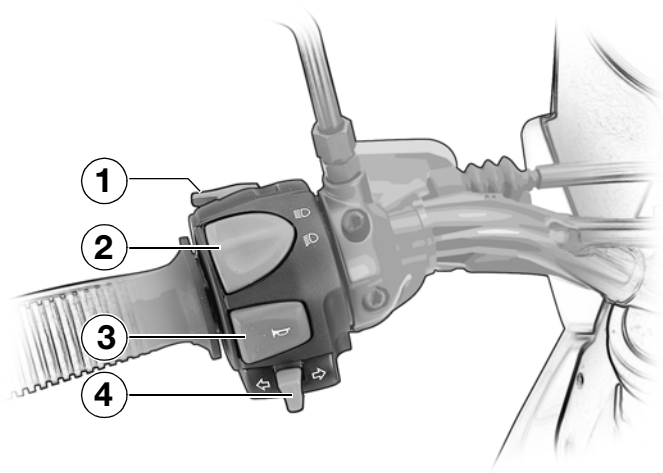
- Operate hazard warning flasher switch **1**
- Hazard warning flashers cease to operate
- The indicator light in the switch is off

Left handlebar fitting

1

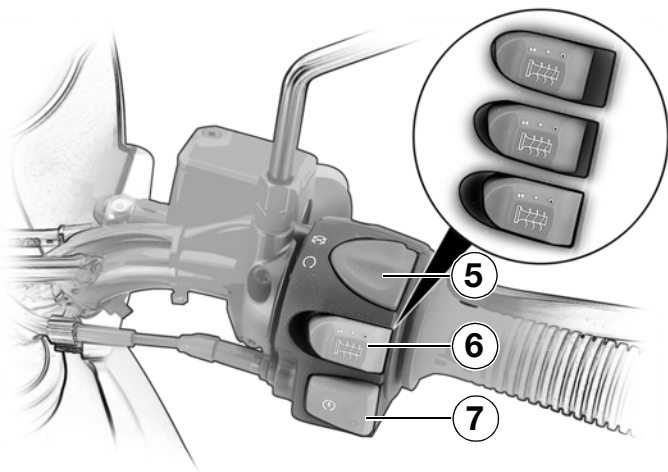
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General information and controls



- 1 Headlight flasher button 
- 2 High-beam/low-beam headlight switch
 -  High-beam headlight
 -  Low-beam headlight
- 3 Horn push 

- 4 Turn indicator switch
 -  Push to the left: left turn indicators operate
 -  Push to the right: right turn indicators operate
 -  Push to center position: Left/right turn indicators off



5 Emergency off (kill) switch for ignition (➡ 56)

✕ Ignition circuit interrupted

○ Ignition circuit closed

6 Switch for heated handlebar grips^{OE}

○ Handlebar-grip heating OFF

• 50%

•• 100%

7 Starter switch (⚡)
(➡ 57)

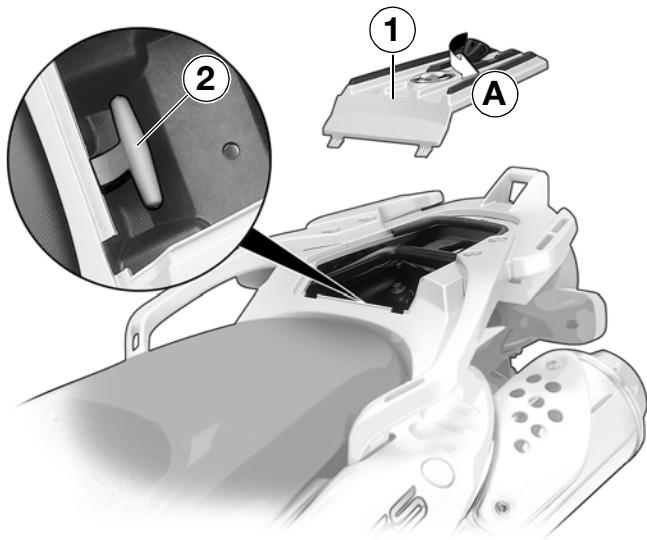
⚠ WARNING

To prevent air from entering the brake circuit:

- **Do not turn the fitting on the handlebar.**
- **Do not turn the handlebars in the clamping blocks.**

() Figure in parentheses ➡ page number for description

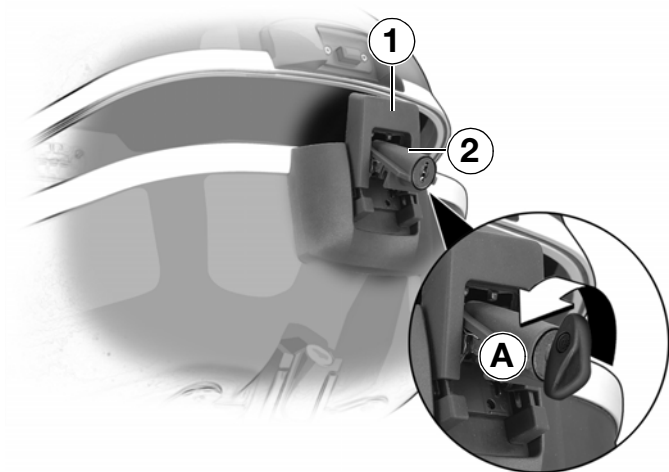
^{OE} Original equipment



Seat, removing/locking

- Place the motorcycle on the main (center) or side stand
 - Make sure the ground is level and firm.
 - Turn the key in the seat lock in direction **A**.
 - Lift cover **1** to remove
 - Pull up locking lever **2**
 - Seat is released
 - Remove the seat
- ⚠ CAUTION**

When installing the seat, make sure that it is firmly located.
- Slip the seat into the guide
 - Press lightly on the seat to engage the seat in seat retainer
 - Insert the cover
 - Lock the seat lock



⚠ WARNING

After an accident or if the motorcycle has fallen over, check that the topcase is correctly secured.

Max. load in topcase: 5 kg (11 lbs)

With the topcase installed, it is advisable not to exceed 130 km/h (80 mph).

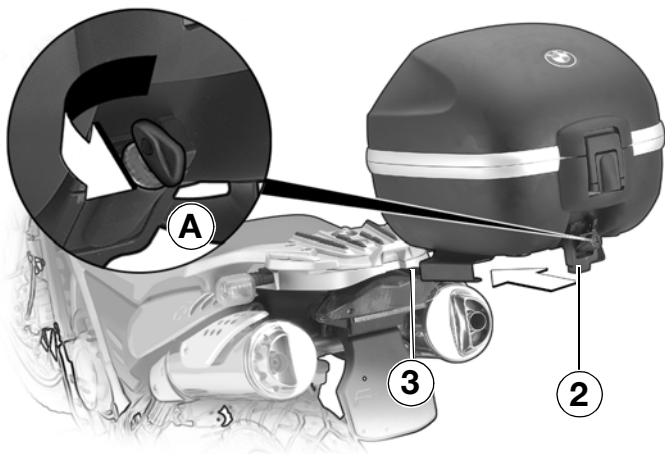
Opening topcase

- Turn the key in the topcase lock in direction **A**
- Swing latch **2** up until the lid of the topcase opens

Closing topcase

- Turn the key in the topcase lock in direction **A**
- Press the topcase lid down
- Engage shackle **1** and push latch **2** down
- Lock the case and remove the key

^{OA} Optional accessory



Removing topcase

- Turn the key in the retainer in direction **A**
- Open engaging hook **2**
- Pull topcase out of holder.

Installing top case

- Turn the key in the retainer to position **A**
- Open engaging hook **2**
- Push the topcase onto the mount from the rear

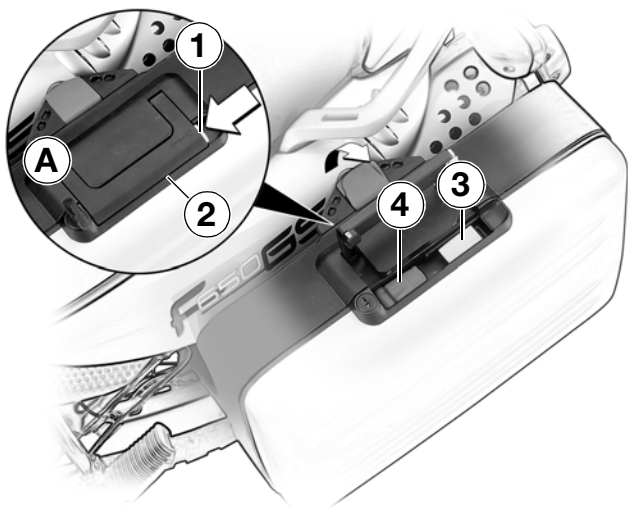
- Close engaging hook **2**

⚠ WARNING

Make sure that retaining hook 2 engages retaining lug 3.

- Lock the case and remove the key

^{OA} Optional accessory



⚠ WARNING

After an accident or if the motorcycle has fallen over, check that the System cases are correctly installed.

Max. load per System case: 5 kg (approx. 11 lbs).

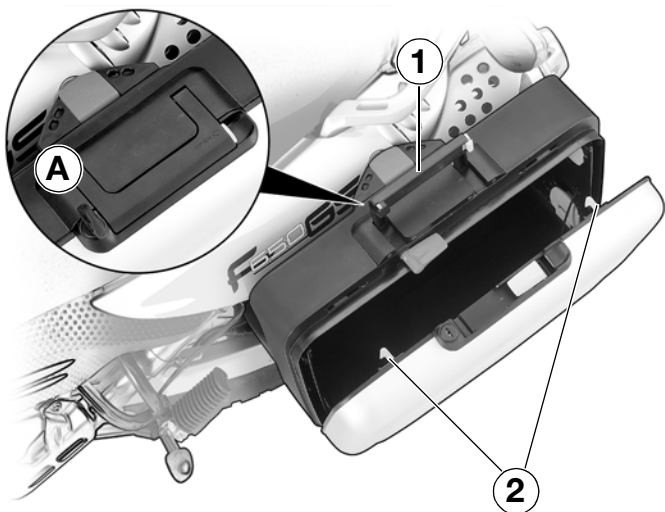
With System cases installed, it is advisable not to exceed 130 km/h (80 mph).

Opening System cases

- Turn the key in the case lock to position **A**

- Release latch **1** by pressing in the direction indicated by the arrow
- Hold down latch **1** and pull up carrying handle **2**
 - Rocker switch **3** and lever **4** are accessible
- Press ribbed part of rocker switch **3**
- Hold the rocker switch down and open the lid of the case

^{OA} Optional accessory



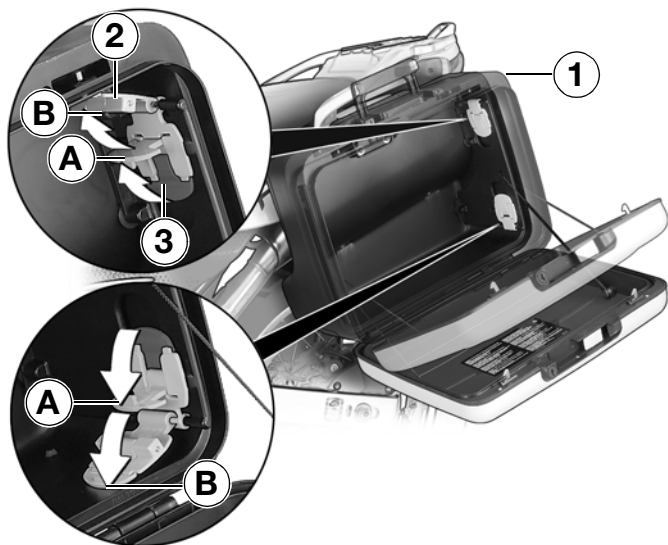
Closing System case

⚠ CAUTION

Before closing carrying handle **1**, make sure that the case lock is in position **A**.
Risk of breaking the locking tongue.

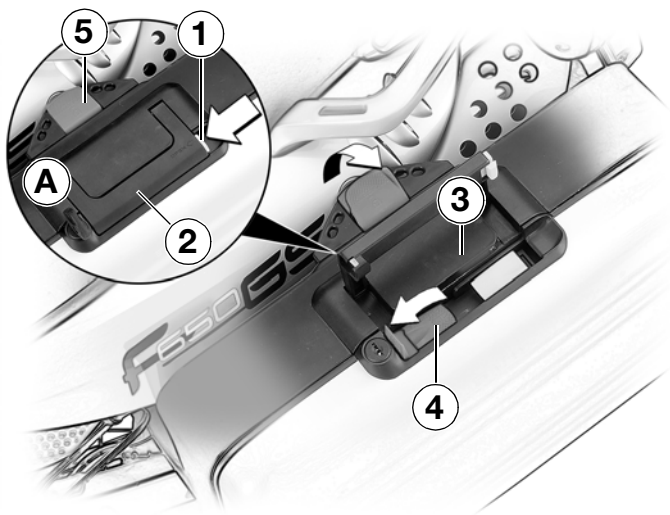
- Turn the key in the case lock to position **A**
- Lift the lid and push it closed until the two hooks **2** at the sides engage with an audible click.
- Fold down carrying handle **1**
- Lock the case and remove the key

^{OA} Optional accessory



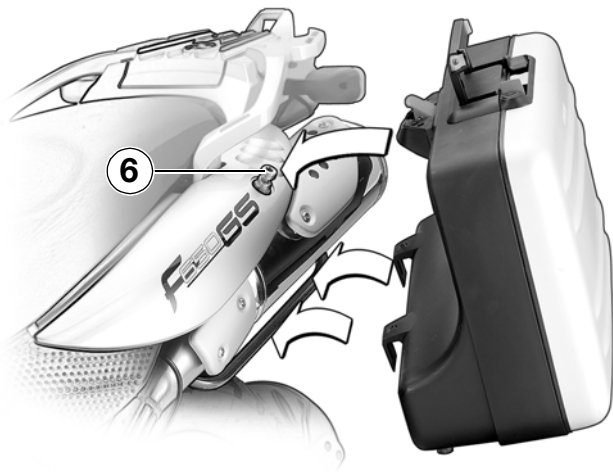
Changing case capacity

- Open the case and remove all its contents
- Disengage four retaining lugs **3** and move them to position **A**
- Press retaining lugs **3** in the direction indicated by the arrow
 - Locking levers **2** are released, position **B**
- Pull or push case frame **1** as far as it will go (to increase or decrease capacity)
- Push in locking levers **2** and engage them
- Engage retaining lugs **3**



Removing System case

- Turn the key in the case lock to position **A**
- Release latch **1** by pressing in the direction indicated by the arrow
- Hold down latch **1** and pull up carrying handle **2**
 - Rocker switch **3** and lever **4** are accessible
- Pull up lever **4**, locking lever **5** snaps open
- Pull locking lever **5** up as far as it will go
- Take a firm grip of the handle and lift the case off the holder



Installing System case

⚠ WARNING

When attaching, make sure that the case is retained securely.

An incorrectly secured case could be lost and endanger other road users.

- Open carrying handle **2**
- Pull locking lever **5** and lever **4** up into "open" position
- Begin by engaging the case in the retaining hoop
 - then engage locking lever **5** in mushroom retainer **6**
- Push locking lever **5** down
- Pivot lever **4** down
 - Locking lever **5** is locked
- Check the security of the case
- Fold down carrying handle **2**
- Lock the case and remove the key

Use the safety checklist – before every journey

Please perform the safety check accurately. If your motorcycle needs any routine maintenance, you can attend to it before the journey starts (► Maintenance Instructions), or have it performed by your authorized BMW motorcycle retailer. This is to ensure that your motorcycle complies with road-vehicle use and safety laws.

A motorcycle in perfect technical condition is essential for your safety and that of other road users.

For this reason, check the details in the following sections before you start the journey:

- Fuel level
- Clutch-lever play
- Brake pressure
- Brake fluid levels (front and rear)
- Operation of the ABS warning light
- Drive chain
- Shock-absorber setting and spring preload
- Wheel rim and tire condition, spokes, tread depth and tire pressures
- Loading
- Coolant level
- Lights
- Check regularly (every time you stop for fuel), on the basis of the following section:
 - Engine oil level (every second stop for fuel)
 - Brake pads

If you encounter any problems or difficulties, please contact your BMW motorcycle retailer. He will provide the necessary advice and assistance.

Engine oil

Checking oil level

⚠ CAUTION

The **red** warning light  (7) for engine oil pressure indicates that the oil pump is delivering very little oil or none at all: do not regard this light as an oil level indicator. Oil pressure builds up after 1-2 seconds and the warning light goes out – the **red** engine oil pressure warning light  should remain off when the engine is running. Check the oil level regularly, each time you stop for fuel (or every second time at the latest).

The oil level might be low if the motorcycle has not been in use for an extended period of time. Under these circumstances top up the oil level only after measuring the oil level in accordance with the instructions.

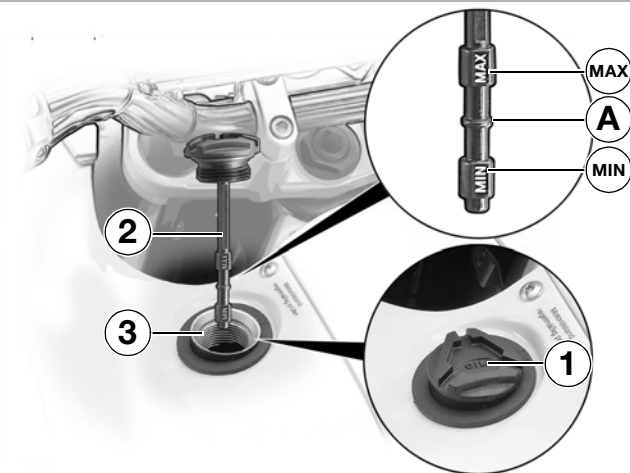
Always check engine oil level with the engine at its regular operating temperature.

Checking the oil level when the engine is cold, just after the engine has been run briefly or when it is not properly warm will falsify the reading, and could lead to the engine being operated with the wrong quantity of oil in the system.

📖 NOTE

The oil temperature affects the reading. The warmer the oil, the higher the oil level in the sump. Check the oil after a run, in order to avoid overfilling.

- Hold the motorcycle upright
 - Make sure the ground is level and firm.
- Check the oil when the engine is at operating temperature (after the motorcycle has been ridden, or else allow the engine to idle until the fan switches on)
- **Allow the engine to idle for at least 1 minute**
- Switch off the engine
- Use the spark plug wrench to remove plug **1**



⚠ CAUTION

To avoid damage to the engine:

- never exceed the maximum oil level.
- However, always keep the oil level above the minimum mark.

- Wipe off oil dipstick **2**, using a clean, lint-free cloth
- To check the oil level, reinsert plug **1** with oil dipstick **2** into its bore, but do not engage the threads

- Check oil level against marks on dipstick:

MAX Maximum level

MIN Minimum level

The difference is equivalent to Approx. 0.4 US quarts (approx. 0.4 liters)

- If necessary, add oil through filler neck **3** until the level reaches middle mark **A**
- Reinstall plug **1**
- Repeat the warm-up procedure and recheck the oil level as described above



Refueling

⚠ WARNING

Fuel is flammable and explosive. Do not smoke. Never bring a naked flame near the fuel tank.

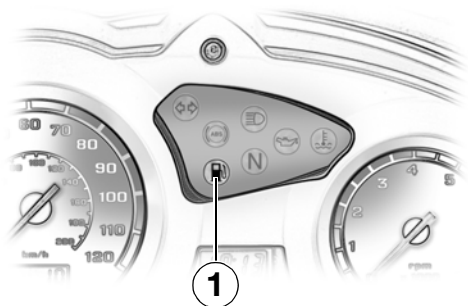
Fuel expands when hot (for instance if the fuel tank is in the sun). For this reason, only fill as far as the lower edge of the filler neck.

⚠ CAUTION

Leaded fuel will destroy the catalytic converter.

Do not run the fuel tank dry or you may damage the engine or catalytic converter.

Wipe off plastic parts immediately if they are wetted with fuel.



- Place the motorcycle on the main (center) or side stand
 - Make sure the ground is level and firm.
- Open the fuel filler cap
- Refuel

CAUTION

Always stop filling the fuel tank when the refueling nozzle automatically shuts off the supply.

- Always use regular unleaded fuel to DIN 51607 or equivalent standard, min. octane number 91 (RON) or 81 (MON)

CAUTION

Always use the key to close the fuel filler cap.

- Close the fuel filler cap

Capacity

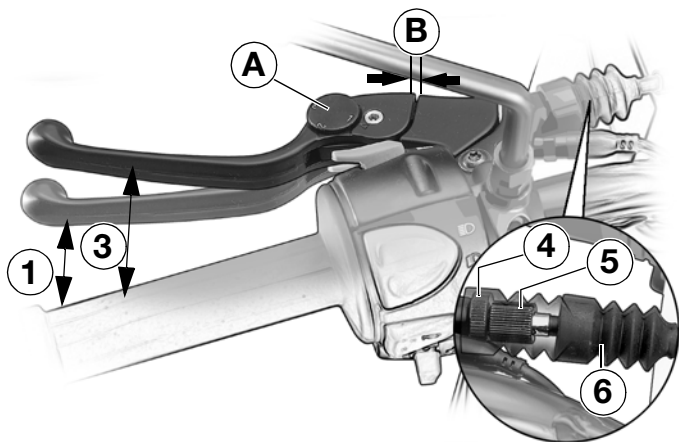
- Total capacity: 4.57 gal (17.3 liters)
- A **yellow** warning light **1** comes on when there are approximately 1 gal (4 liters) of fuel left in the tank

Handlebar levers

2

28

Safety check



Clutch-lever play

⚠ CAUTION

The clutch will be damaged if you ride the motorcycle without play at the clutch lever.

The scope of the BMW Inspection includes basic adjustment of the clutch.

Checking:

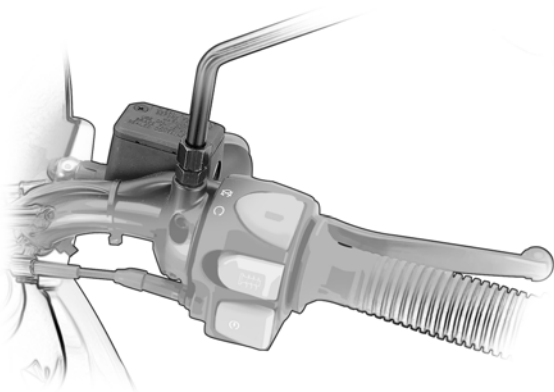
- Pull the lever until resistance is perceptible
- Measure play
Specified value: **B** = 1...2 mm
(0.04...0.08 inch)

Adjusting:

- Push back flexible gaiter **6**
- Slacken locknut **4**
- Turn adjusting screw **5** as necessary
- Firmly retighten locknut **4**
- Recheck lever play
- Pull flexible gaiter **6** back into position over locknut **4** and adjusting screw **5**

Clutch lever, adjusting

- Turn knob **A** to set the most comfortable span:
 - Setting **1**: minimum span
 - Setting **3**: maximum span



Brake pressure, checking

⚠ WARNING

To prevent air from entering the brake circuit:

- Do not turn the handlebars in the clamping blocks
- Do not turn the fitting on the handlebar.

Sudden changes in the amount of play at the lever or a spongy feeling when it is applied may indicate a fault in the hydraulic system.

For this reason, check pressure at the handbrake lever and the brake pedal before starting each journey.

⚠ WARNING

Do not ride the motorcycle if you have any doubts about the safety of the brake system.

Immediately seek the advice of a specialized workshop, preferably your authorized BMW motorcycle retailer.

Work on brake system

WARNING

To ensure reliability have all work on the brake systems performed by a specialized workshop, preferably an authorized BMW motorcycle retailer.

Checking brake system

WARNING

Sudden changes in play or spongy action of the brake lever indicate a fault in the brake system.

Before riding off, therefore, always check the resistance of the front and rear brake levers and test operation of the brakes.

Do not ride the motorcycle if you have any doubts about the safety of the brake system.

Immediately seek the advice of a specialized workshop, preferably an authorized BMW motorcycle retailer.

Checking brake pads

WARNING

Have the brake pads replaced before they wear to the minimum permissible thickness: have the work performed by a specialized workshop, preferably an authorized BMW motorcycle retailer.

Brake pad wear depends on your personal style of riding.

Checking brake fluid level

Gradual wear of the brake pads causes the brake fluid level in the reservoir to drop.

WARNING

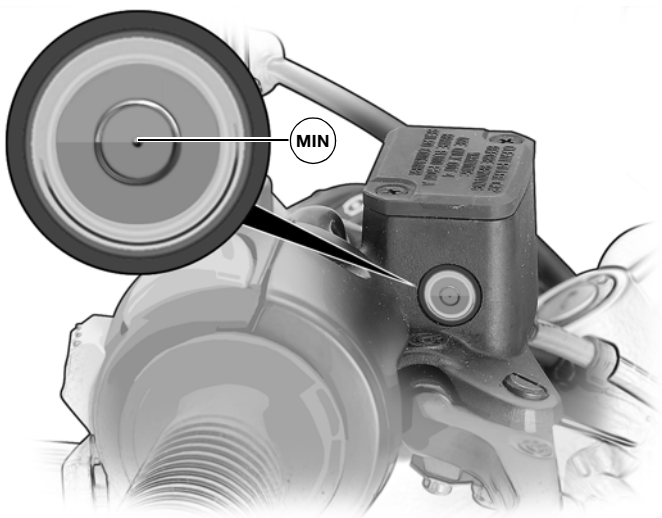
If brake fluid level in the fluid reservoirs for the front or rear brakes has dropped below the MIN mark (► 33, 34) have the brake system checked without delay by a specialized workshop, preferably an authorized BMW motorcycle retailer.

Changing brake fluid

WARNING

Brake fluid is exposed to severe thermal loads, and absorbs moisture from the atmosphere.

Consequently, the brake fluid must be changed regularly by a specialized workshop, preferably an authorized BMW motorcycle retailer.



Checking front brake fluid level

⚠ WARNING

Never permit the brake fluid level to drop below the minimum level (MIN mark).

- Place motorcycle on main (center) stand or hold it upright
 - Make sure the ground is level and firm.

- Move the handlebars to the straight-ahead position
- Check brake fluid level at display:

MIN Minimum level
Halfway up display

🔧 NOTE

Gradual wear of the brake pads causes the brake fluid level in the reservoir to drop.



Checking rear brake fluid level

WARNING

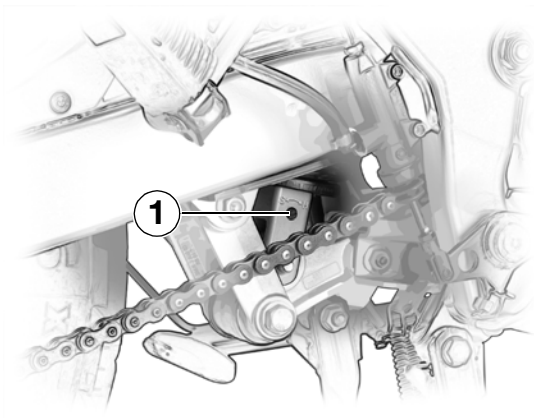
Never permit the brake fluid level to drop below the MIN mark on the brake fluid reservoir

- Place motorcycle on main (center) stand or hold it vertically
 - Make sure the ground is level and firm.

- Check the brake fluid level:
 - MAX** Maximum level
 - MIN** Minimum level

NOTE

Gradual wear of the brake pads causes the brake fluid level in the reservoir to drop.



Adjusting shock absorber

WARNING

If the suspension of your motorcycle has been lowered, the reduction in ground clearance reduces the maximum possible angle of lean for cornering.

Lowering the suspension reduces spring travel. This might result in a less comfortable ride.

Consequently, before setting off you should always adjust suspension travel and damping to suit load (► 38, 39) as accurately as possible.

- Adjust the shock absorber with a screwdriver

Firm setting "H":

- Fully tighten adjusting screw **1**

Basic setting:

- Back off adjusting screw **1** through $\frac{3}{4}$ of a turn to one full turn

Soft setting "S":

- Fully back off adjusting screw **1**

Spring preload

2

36

Safety check



Adjusting spring preload

WARNING

If the suspension of your motorcycle has been lowered, the reduction in ground clearance reduces the maximum possible angle of lean for cornering.

Lowering the suspension reduces spring travel. This might result in a less comfortable ride. Consequently, before setting off you should always adjust suspension travel and damping to suit load (➡ 38, 39) as accurately as possible.

Soft setting (for light rider):

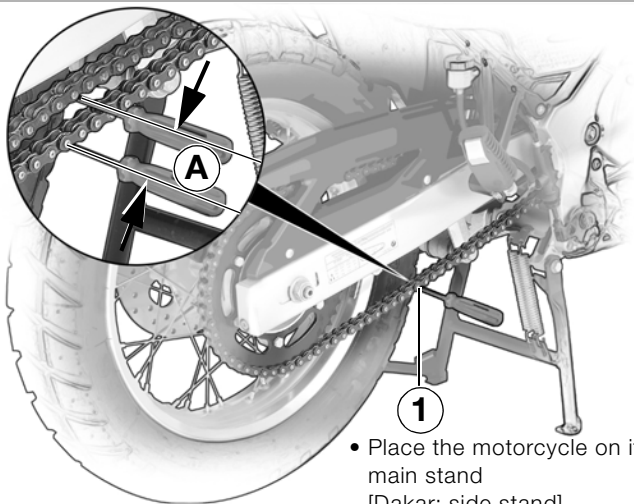
- Turn knob **1** as far as it will go counter-clockwise in the direction indicated by the "**LOW**" arrow

Basic setting (one-up):

- From the **soft** setting, turn knob **1** five clicks clockwise in the direction indicated by the "**HIGH**" arrow [Dakar: twenty clicks]

Firm setting:

- Turn knob **1** clockwise in the direction indicated by the "**HIGH**" arrow



Checking chain

CAUTION

Chain tension has an effect on the rate of wear of the drive chain and the chain sprocket, and it also affects travel of the rear suspension.

Lubricate the chain regularly. Before riding off, always check the chain tension and check the drive chain for damage and wear.

Always make sure that there is no load on the motorcycle when you check the chain.

- Place the motorcycle on its main stand
[Dakar: side stand]
 - Make sure the ground is level and firm.
- Chain stretch is not uniform, so turn the rear wheel until you find the point at which the chain is at its tightest
- When the chain is at its tightest, push it fully up at position **1**
- Check chain slack: specification
A 35...45 mm (1.38...1.77 inch)
[Dakar: 40...50 mm (1.57...1.97 inch)], adjust the drive chain as necessary (➡ Maintenance Instructions)

WARNING

BMW cannot examine or test each product of outside origin on the accessories and tires market to ensure that it can be used on or in connection with BMW motorcycles without constituting a safety risk. Even approval by an official inspection authority or an official permit (General Operating Permit) cannot always provide this guarantee. 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.

NOTE

BMW accessories and other products approved by BMW can be obtained from your BMW motorcycle retailer.

Correct loading

WARNING

Overloading can impair the handling of your motorcycle.

- Make sure that the weight is uniformly distributed between right and left
- Pack heavy items at the bottom and toward the inboard side
- Max. load in each case^{OA} (left and right): 5 kg (approx. 11 lbs)
- Max. load in topcase^{OA} and in tank-top rucksack^{OA} 5 kg (approx. 11 lbs) each
- Check that fastenings are correctly positioned and tight

WARNING

With cases installed, it is advisable not to exceed 130 km/h (80 mph).

^{OA} Optional accessory



⚠ CAUTION

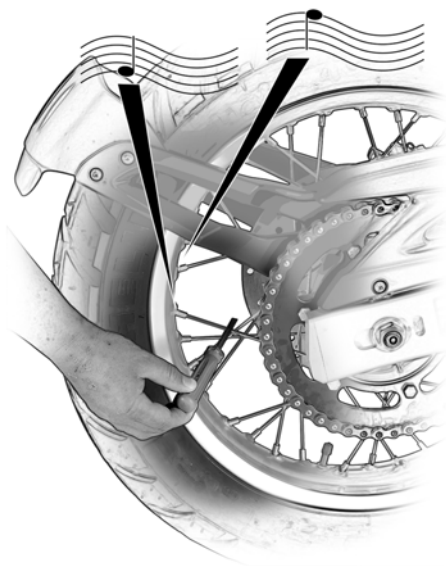
Do not exceed the gross weight limit of 380 kg (838 lbs).

Do not exceed the wheel load limits of 124 kg (273 lbs) at the front and 256 kg (564 lbs) at the rear.

Set the shock absorbers, spring preload and tire pressures to suit gross weight (➡ 35, 36, 41).

The total weight is the sum of:

- motorcycle with full tank
- rider
- passenger
- luggage



Checking wheel spokes

Checking wheel rims

⚠ WARNING

Have damaged wheel rims checked and, if necessary, replaced by a specialized workshop, preferably an authorized BMW motorcycle retailer.

⚠ WARNING

Before riding off, always make sure that the spokes are in perfect condition. Always have damaged spokes and irregular spoke tension rectified immediately by a specialized workshop, preferably an authorized BMW motorcycle retailer.

- Place the motorcycle on its main stand [Dakar: side stand]
 - Make sure the ground is level and firm.
- Tap spokes with a screw-driver and listen for the correct ringing sound

NOTE

If the note varies, spoke tension is uneven (some spokes too loose or too tight).

Checking tire pressures

WARNING

Incorrect tire pressures have a considerable influence on handling and on tire life.

Tire pressures must be chosen to suit the total weight on the motorcycle. Never exceed either the motorcycle's gross weight or the individual wheel load limits (► 39).

Tires cold:

- Unscrew and remove valve cap
- Check/correct tire pressure

Tire pressures:

	front	rear
One-up	1.9 bar (27.56 psi)	2.1 bar (30.46 psi)
Two-up and luggage	2.1 bar (30.46 psi)	2.3 bar (33.36 psi)

- Firmly retighten the valve caps (► 42)

Securing valve caps

WARNING

At high road speeds, tire valves have a tendency to open as a result of centrifugal force.

Use only metal valve caps with rubber seals. Valve caps that are screwed on well prevent air from escaping suddenly.

Checking tire tread depth

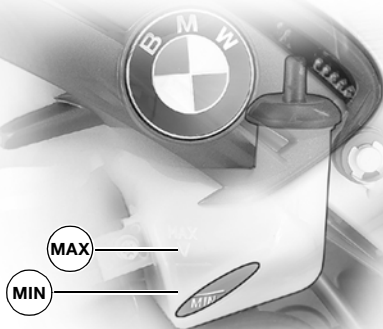
WARNING

Comply with local legal requirements concerning minimum tread depth. Worn tires can impair handling.

- Measure tread depth at the center of the tire tread

BMW's minimum tread depth recommendation:

Front	 2 mm(0.08 in)
Rear	 3 mm(0.12 in)



Checking coolant level

⚠ CAUTION

Always keep the coolant level above the minimum mark. Check coolant level only when the engine is cold.

- Place motorcycle on main (center) stand or hold it vertical
- Check coolant at expansion tank:

MIN Minimum level

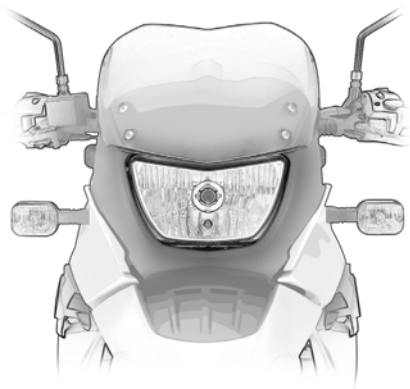
⚠ CAUTION

Never overfill the expansion tank.

- Top up the coolant if necessary (► Maintenance Instructions, Chapter 2)

🔧 NOTE

If the expansion tank is full and the coolant temperature is high (as indicated by **red** warning light  58) or coolant consumption is excessive, consult an authorized BMW motorcycle retailer.



Checking lights

⚠ CAUTION

Always check that all lights are in full working order before riding off.

🔧 NOTE

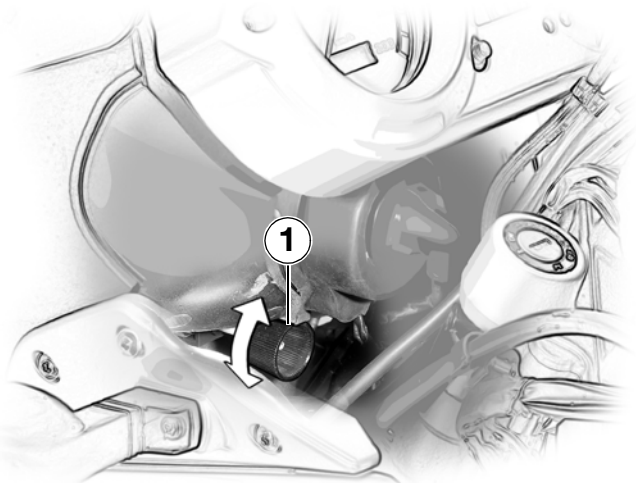
If turn indicator repeater flashes at twice the usual speed:
Defective flasher bulb.
To change bulbs in parking lights, high-beam or low-beam headlight, rear light and brake light:
(➡ Maintenance Instructions, Chapter 2)

Adjusting headlight for RHD/LHD traffic

If the motorcycle is ridden in a country where the opposite rule of the road applies, its asymmetric low headlight beam will tend to dazzle oncoming traffic. Consult a specialized workshop, preferably an authorized BMW motorcycle retailer, to have the headlight adjusted to suit whichever rule of the road applies.

⚠ CAUTION

Adhesive films with unsuitable adhesives can damage the headlight lens.



Adjusting headlight beam throw

Setting with motorcycle heavily loaded:

NOTE

Headlight beam throw is kept constant when spring preload is adjusted to suit load.

For instructions on adjusting spring-strut and shock-absorber settings to suit load, (► 38, 39).

Consult a specialized workshop, preferably an authorized BMW motorcycle retailer, if you are unsure whether the headlight basic setting is correct.

WARNING

Adjust the headlight such that the beam does not dazzle oncoming traffic, but the throw of the light cone adequately illuminates the road ahead of you.

Only if the load carried on the motorcycle is very high, the headlight beam can be further lowered by turning knurled screw **1**.

Handling your motorcycle safely

Each motorcycle has a character all its own. It is time now for you to familiarize yourself with the way your own motorcycle behaves:

- acceleration
- roadholding
- cornering
- braking ...

These are all things you need to become familiar with.

Please remember too that if the motorcycle has not yet covered 1,000 kilometers (approx. 600 miles), the engine is not yet fully run in.

WARNING

The tires need to cover a certain distance before they acquire their full road grip (→ 55).

If you ride at high speed, always bear in mind that various boundary conditions such as the spring preload setting and the shock absorber setting, an unbalanced luggage load, loose clothing, low tire pressure, poor tire tread, and so on, can affect the handling of your motorcycle.

Safe motorcycling doesn't depend on the motorcycle alone.

Your own skill and common-sense are needed too.

The key to genuine safety on the road is a sensible balance between the motorcycle's technical features and the rider's skill, so that together they form a single efficient unit.

Riding safely in traffic and off-road calls for a sense of responsibility to your passenger and to other road users.

WARNING

Do not ride the motorcycle after drinking alcoholic beverages. Even small amounts of alcohol or drugs, particularly if taken in conjunction with medicines, will adversely affect your perception and your ability to assess situations and make decisions, and also slow down your reflexes.

Take to the road now by all means, but think carefully about everything you do.

Risk of fire

High temperatures occur at the exhaust system, particularly at the catalytic converter.

WARNING

Make sure that whether riding or standing still or when the motorcycle is parked, no easily flammable material (for example hay, grass, leaves, clothing or luggage etc.) can come into contact with the hot exhaust system. Do not allow the engine to idle unnecessarily or for prolonged periods of time – risk of overheating or fire. Ride away immediately after starting the engine.

Risk of poisoning

The exhaust fumes contain carbon monoxide, which is colorless and odorless but highly toxic.

WARNING

Inhaling exhaust fumes therefore represents a health risk and can even cause loss of consciousness with fatal consequences.

Do not run the engine in an enclosed space.

Risk of fatal accident

Your motorcycle is equipped with a digital electronic engine management system and a high-power ignition system.

WARNING

When the engine is running or the ignition key on, never touch electrically live parts of the ignition system or the digital engine electronics.

Catalytic converter

CAUTION

To avoid damage to the catalytic converter:

- Do not run the fuel tank dry
- Push-start only when the engine is cold
- Do not run the engine with a spark plug lead disconnected
- Do not exceed the engine-speed limits marked on the tachometer
- Comply with all specified maintenance intervals
- Stop the engine at once if it is misfiring
- In the event of misfiring or a severe drop in engine power, consult a specialized workshop, preferably an authorized BMW motorcycle retailer.

CAUTION

If misfiring or malfunction of the fuel-air mixture preparation system causes unburned fuel to reach the catalytic converter, there is a risk of it overheating and being damaged.

Side stand



Placing motorcycle on side stand

⚠ WARNING

For safety reasons, never sit on the motorcycle with the side stand extended.

⚠ CAUTION

Stop the engine before using the side stand.

Make sure the surface under the stand is firm. On a grade, the motorcycle should always face uphill; select 1st gear.

- Switch off the ignition
- Keep both feet on the ground
- Hold the left handlebar grip with your left hand
- Keep your right hand on the right handlebar grip and the handbrake lever
- Hold the motorcycle upright and balanced
- Use your left foot at the extension pin to extend the side stand fully (arrow)
- Slowly lean the motorcycle to the side until its weight is taken by the stand and dismount from the motorcycle
- Turn the handlebars to full left lock (➡ 9)
- **Check that the motorcycle is firmly supported**



Removing motorcycle from side stand

⚠ WARNING

Make sure the side stand is fully retracted before you ride off.

– Allowing the motorcycle to roll with the side stand extended represents a safety risk.

- Both feet on the ground, no weight on the motorcycle
- Hold the left handlebar grip with your left hand
- Keep your right hand on the right handlebar grip and the handbrake lever
- Slowly raise the motorcycle to the upright position and keep it balanced
- Sit on the motorcycle and use your left foot to retract the side stand
- Turn the ignition key to the "R" or "ON" position (➡ 9)
 - Handlebars unlocked

Main (center) stand



Placing motorcycle on main (center) stand

⚠ WARNING

For safety reasons, never sit on the motorcycle with the main stand extended.

⚠ CAUTION

Stop the engine before using the main stand.

Make sure the surface under the stand is firm.

- Switch off the ignition
- Hold the left handlebar grip with your left hand
- Hold the lifting handle with your right hand
- Place your right foot on the pin of the main stand, and press the stand down until both its curved feet touch the ground
- Apply all your body weight to the pin of the stand
- Pull the motorcycle to the rear and upwards (arrow) until it rests on the main stand
- **Check that the motorcycle is firmly supported**



Removing motorcycle from main stand

CAUTION

Make sure the main stand is fully retracted before you ride off.

- Turn the ignition key to the "R" or "ON" position (➡ 9)
 - Handlebars unlocked
- Hold the left handlebar grip with your left hand
- Hold the lifting handle with your right hand
- Push the motorcycle forward off the main stand
- **Check that the main stand has fully retracted**



CAUTION

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

NOTE

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 rather than high-speed main roads and highways.

Running-in speeds

From 0 to 1,000 km (600 miles)

- Engine speed max. 5,000 rpm and no full-load acceleration
- The first inspection should always be performed after 1,000 km (approx. 600 miles). Make an appointment with your authorized BMW motorcycle retailer in good time, so that the work can be performed punctually.

From 1,000 to 2,000 km (600 to 1,200 miles)

- Engine speeds can be gradually increased after 1,000 km (600 miles)
- Avoid lengthy periods at full load until 2,000 km (1,200 miles) have been covered

Running in new brake pads

WARNING

New brake pads must “bed down” and therefore do not achieve their optimum friction levels during the first 500 km (300 miles).

This slight initial reduction in braking efficiency can be compensated for by exerting greater pressure on the lever. Try to avoid all unnecessary hard braking during this initial period.

Running in new tires

WARNING

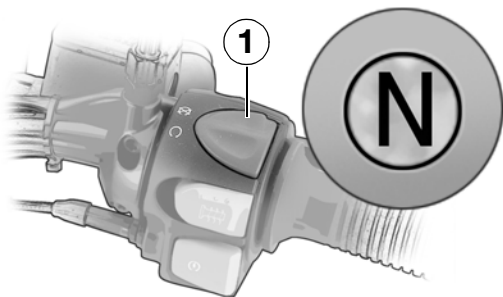
New tires have a smooth surface. This must be roughened by riding in a restrained manner at various heel angles until the tires are run in. This running in procedure is essential if the tires are to achieve maximum grip.

Before you start

3

56

Starting - Riding - Parking



Switch on the ignition

- Engine stop switch **1** in the operating position
- Ignition key **ON** (9)
- Wait until the warning light for coolant temperature (7) stops flashing

In an emergency only:

- Move the kill switch **1** to position
- The electronic engine management, fuel pump and starter motor electrical circuits are de-energized

Fully retract the side stand

NOTE

If the side stand is extended and a gear engaged, you cannot start the motorcycle.

Select neutral

- Neutral indicator light **green** (7) ON

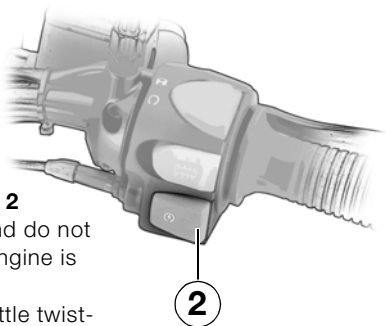
NOTE

Engine does not start:

- Move the gear lever to the position or disengage the clutch

Engine stops when first gear is engaged:

- Fully retract the side stand; if necessary, consult the troubleshooting chart (Maintenance Instructions, Chapter 1)



Starting

- Press starter button **2** (max. 5 seconds) and do not release it until the engine is running smoothly
- Do not turn the throttle twist-grip when starting the engine.

NOTE

After releasing the starter button if the engine does not start, wait at least 5 seconds before pressing the starter button again.

After switching off the ignition, wait 3 seconds before switching it on again.

NOTE

At ambient temperatures below 0 °C (32 °F), pull the lever to disengage the clutch when starting the engine.

CAUTION

If you attempt to start the engine when the battery is flat, you will hear the relay chattering. Further attempts will damage the starter relay and starter motor.

Before trying again: recharge the battery.

CAUTION

Do not allow the engine to idle unnecessarily or for prolonged periods of time – risk of overheating or fire. Ride away immediately after starting the engine.

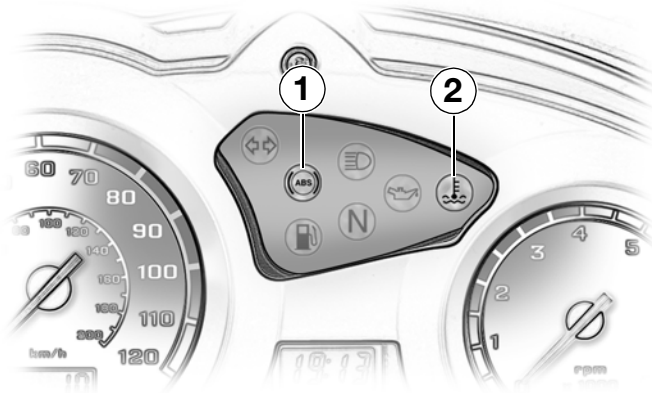
Avoid high engine speeds after a cold start.

Indicator and warning lights

3

58

Starting – Riding – Parking



ABS indicator light

– ABS warning light 1

(► 64-69)

Coolant temperature

Warning light 2  (red) flashes for approx. 3 seconds after you switch on the ignition.

The electronic engine management system initializes itself during this period.

⚠ CAUTION

If the coolant-temperature warning light  comes on, switch off the engine and allow it to cool down.

Check coolant level in the expansion tank (► 43).

If the expansion tank is full, but the warning light remains on, or if coolant consumption is excessive, consult a specialized workshop, preferably your authorized BMW motorcycle retailer.



Engine oil pressure

Warning light **3**  (**red**) goes out above idle speed.

CAUTION

If warning light **3** comes on during the journey, take the following action as soon as traffic conditions permit:

- Disengage the clutch
- Operate the emergency off (kill) switch (► 56)
- Bring the motorcycle safely to a halt
- Check engine oil level (► 24)

CAUTION

If the motorcycle is being ridden and warning light **3** lights up even though the oil level is correct, you must consult a specialized workshop, preferably an authorized BMW motorcycle retailer.

Low fuel level

When warning light **4**  (**yellow**) lights up, the usable quantity of fuel left in the tank is approximately 1 gal (4 liters).

Riding, gear shifts

3

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Starting – Riding – Parking



Load changes

⚠ WARNING

Try not to open or close the throttle abruptly, particularly on wet or slippery roads.

Engine speed

Limit engine speed in accordance with coolant temperature, using the highest engine speeds only when the engine has reached its regular operating temperature.

When the tachometer needle enters the red zone on the dial, the fuel supply is interrupted in order to protect the engine against over-revving.

🔧 NOTE

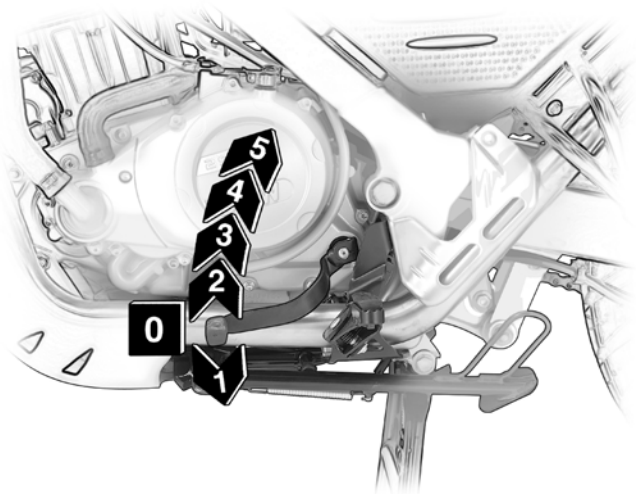
The governor cuts in at 7,400 rpm.

Gearshifts

🔧 NOTE

Never slip the clutch excessively when changing gear. Vary your speed only by using the throttle in a suitable gear, not by slipping the clutch.

It is advisable not to exceed a maximum of 7,000 rpm in any gear.

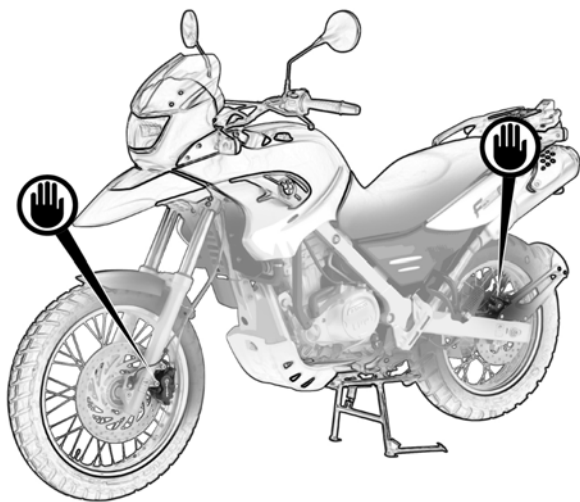


Moving away/upshifts:

- Pull the clutch lever in
- Press down on the gearshift lever (to select first gear) and take your foot off the lever
- Smoothly re-engage the clutch
- Increase engine speed slightly as necessary
- Accelerate when the clutch is fully engaged
- For upshifts into 2nd, 3rd, 4th and 5th gears, proceed in the same way, but lift the gear lever with your foot

Downshifts

- Close the throttle twistgrip
- Pull the clutch lever in
- Select the next-lowest gear: (opposite direction to arrow)
- Smoothly re-engage the clutch



Wet brakes

After the motorcycle has been washed, ridden through water or ridden in the rain, the brake disks and pads may be wet (or iced-over in winter), and may not take effect immediately.

WARNING

The brakes have to dry before they start to bite.

Salt on brakes

The brakes may fail to take effect immediately if the motorcycle was ridden on salt-covered roads and the brakes were not applied for some time.

WARNING

The layer of salt on the brake disks and pads has to be worn off before the brakes start to bite.

Dirt or mud on brakes

When riding on loose surfaces or muddy roads, the brakes may fail to take effect immediately because of dirt or moisture on the disks or brake pads.

WARNING

The brakes have to clean themselves before they start to bite.

Dirt on the brakes increases the rate of pad wear.

Oil and grease on brakes

WARNING

Brake disks and pads must be free from oil and grease.

WARNING

If the brake lever can be moved right to the limit of its travel, this indicates a mechanical or hydraulic fault. The brake system is defective.

Immediately consult a specialized workshop, preferably an authorized BMW motorcycle retailer.

Sensitive electronic control

It takes skill and sensitive control of the brakes to pull up safely on a motorcycle. If the front wheel brake locks and the wheel skids, the necessary longitudinal and lateral stabilizing forces are lost, and a fall can result.

For this reason, the rider seldom makes full use of available braking performance in an emergency.

Anti-lock braking at both wheels greatly reduces the risk of accidents even when road conditions are poor, and shortens braking distance by making more efficient use of the motorcycle's braking capability.

ABS helps optimize safety in emergency-braking situations when the motorcycle is traveling in a straight line.

Extra safety reserves

But remember: the potentially shorter braking distances which 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.

- Never ride without due care and attention, or assume that good fortune will protect you from your own foolishness
- Keep within the allowable speed limits
- Take care when cornering. When you apply the brakes on a corner, the motorcycle's weight and momentum take over and even ABS is unable to counteract their effects

Anti-lock braking system (ABS)^{OE}



3

65

Starting – Riding – Parking

⚠ WARNING

Do not operate high-power radio equipment on the motorcycle. There is a slight risk of it affecting operation of the ABS.

ABS check

Start-up is automatic when the ignition is switched on.

Warning light **1** comes on.

ABS self-diagnosis

When you start the engine and pull away:

- Warning light **1** goes out if the ABS is in correct working order

ABS faults

- ABS warning light **1** remains on:
the ABS function is not available

⚠ CAUTION

If the fault cannot be rectified, immediately consult a specialized workshop, preferably an authorized BMW motorcycle retailer.

ABS is taking effect:

- if a pulsating sensation is perceptible through the hand-brake lever or brake pedal when you apply the brakes

NOTE

Pulsation at the brake lever indicates that the ABS is in action. The ABS prevents the rear wheel lifting, depending on riding style and the applicable boundary conditions.

CAUTION

If the brake lever can be moved right to the limit of its travel, this indicates a mechanical or hydraulic fault.

It is advisable to consult an authorized BMW motorcycle retailer, and have the problem rectified.

^{OE} Optional equipment

Anti-lock braking system (ABS)^{OE}



3

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Starting – Riding – Parking

⚠ WARNING

The ABS shuts down after approx. 10 seconds if you ride with only one wheel in contact with the ground.

ABS is out of action:

⚠ WARNING

If there is a fault in the ABS system – as indicated by warning light 1 – the reserves of safety normally afforded by ABS are not available until the defect has been put right.

There is a risk of dropping the motorcycle if the brakes are applied too hard and the wheels lock or the rear wheel lifts clear of the ground as a result of a high level of front tire adhesion.

- at speeds below 6 km/h (3 mph) (or 12 km/h (6 mph) if brake lever was actuated beforehand)
- when the ignition is switched off
- if the battery is defective or flat (indicated by ABS warning light)
- if there is a fault in the ABS system (➡ 65)
- **The brakes remain fully operational, though without the reserves of safety afforded by ABS.**

Anti-lock braking system (ABS)^{OE}

3

68

Starting – Riding – Parking



Deactivating ABS

WARNING

Never activate or deactivate the ABS unless the motorcycle is at a standstill.

NOTE

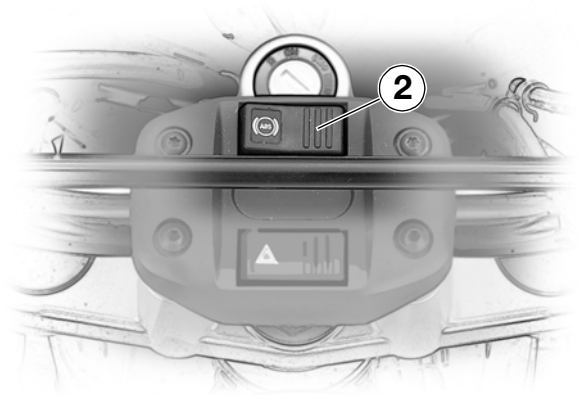
The ABS function is reactivated after you switch off the ignition and switch it on again with the motorcycle at a standstill.

Off-road deactivation

In contrast to road riding, when BMW ABS should always be active in order to prevent wheel lock and a resulting accident, it may be desirable for the rider to be able to lock a wheel or prevent it from rotating on rough terrain or loose surfaces. This is the reason why the ABS can be deactivated.

^{OE} Optional equipment

Anti-lock braking system (ABS)^{OE}



WARNING

When the ABS is deactivated – as indicated by ABS warning light 1 flashing – none of the safety reserves normally offered by the anti-lock braking system are available until the ABS function is reactivated.

There is a risk of dropping the motorcycle if the brakes are applied too hard and the wheels lock or the rear wheel lifts clear of the ground as a result of a high level of front tire adhesion.

After you press the starter button, check whether the ABS is still deactivated.

- With the motorcycle at a standstill and the engine running, press ABS button **2** and hold it down for 3 seconds
- Warning light **1** starts flashing
- Release ABS button **2**
- The ABS function is deactivated
- Warning light **1** continues flashing, but at a slower rate, to remind you that ABS has been deactivated



Know-how...

In recent years, motorcycles' technical design features have become more and more sophisticated.

Electronic engine management, electronic ignition, the catalytic converter or the use of four valves per cylinder are clear signs that far more than basic technical knowledge may be needed to solve certain problems. In addition, high-tech materials are increasingly taking the place of conventional ones, which again calls for thorough and expert knowledge if they are to be handled correctly during repair work.

To be sure of achieving the necessary standard, it is always advisable to consult your authorized BMW motorcycle retailer.

The authorized BMW motorcycle retailer employs staff who attend regular and comprehensive training courses.

Authorized BMW motorcycle retailers also receive all the current technical information and are therefore fully aware of the latest developments.

...technical features...

The authorized BMW motorcycle retailer's staff has the experience and all the necessary facts at its disposal when it comes to solving problems quickly and effectively. Workshops are equipped with the latest technical facilities, for example the special tools developed by BMW, such as the **BMW** diagnosis system and exhaust emissions tester.

Regular visits to the workshop for routine servicing are strongly recommended even after the warranty period has expired. They are the only way to be genuinely certain that your BMW is being kept in perfect working order.

For generous treatment of claims submitted after the warranty period has expired, evidence of regular maintenance by an authorized BMW motorcycle retailer is essential.

Certain signs of wear, moreover, may otherwise not be noticed until it is too late to put them right at moderate cost.

The staff in the authorized BMW motorcycle retailer's workshop 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.

...service

You can obtain accurate advice in all cases, and make appointments with a firm completion deadline which we will comply with punctually. But the most gratifying feeling of all is that your BMW is in genuinely good shape when it leaves the authorized BMW motorcycle retailer's workshop – and above all, safe.

BMW Service Card

A Service Card is available for all new BMW motorcycles.

A wide range of emergency-assistance services are in place to help you in the unlikely event of a problem occurring somewhere far from home.

If you have a breakdown anywhere in Europe, just call our Central Emergency Service number from any telephone.

Our experts are on duty there day and night to arrange assistance for you. They can provide practical advice on what to do next and can make arrangements on your behalf, for example notifying local emergency services anywhere in Europe, recovery and transportation of the motorcycle to the nearest authorized BMW motorcycle retailer, a taxi for you, and even a replacement vehicle and hotel accommodation, if necessary.

BMW Service worldwide

And if your travels take you even further away from home, you have no need to worry: we are represented in more than 100 countries around the world.

NOTE

Call us if you have any questions about the BMW dealership network. You can contact us from any European country on a telephone hotline. The phone numbers are listed in the "Service Contact / Service Kontakt" booklet (see on-board documentation). Or if you prefer you can use the homepage address to contact us on the Internet.

Development...

Motorcyclists have an intensive relationship with nature. BMW has made sure that they continue to enjoy the best possible prospects for successful riding in the future.

This not only because your new BMW is available with exhaust emission control by closed-loop, three-way catalytic converter.

...waste disposal...

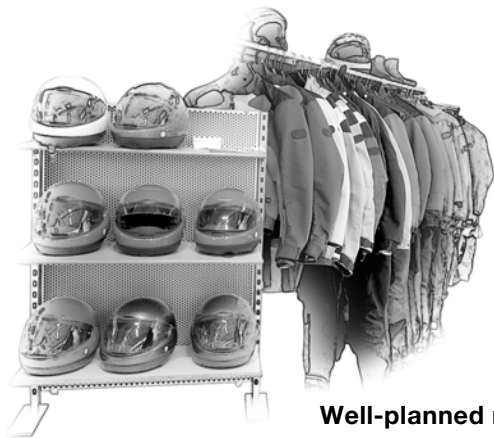
Behind the scenes, in the repair workshop, we do not neglect the pro-environmental aspects of our work either.

Wherever possible, we use environmentally acceptable biodegradable materials. We ensure strict compliance with all environmental legislation, for example the correct disposal of old oil, which is now classified as hazardous waste in many countries.

...recycling

Alongside the correct disposal of environmentally hazardous materials, recycling is another high-priority issue for BMW.

For example, plastics that are marked according to type can more easily be returned to the materials cycle. Remember: when it comes to making repairs to your motorcycle, the authorized BMW motorcycle workshop is far better equipped to protect the environment than you are at home.



The essentials

To reach your destination safely every time, there's only one choice:

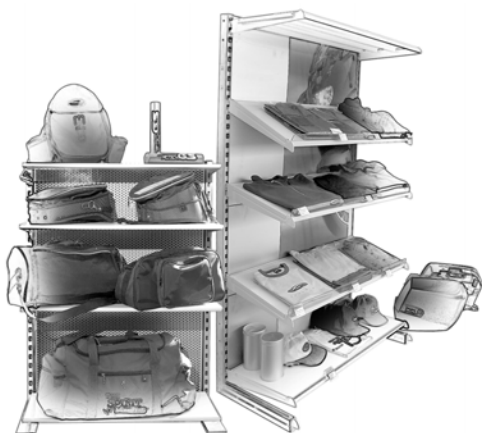
- Helmet
- Suit
- Gloves
- Boots

It is foolish to ride without these items of clothing. This applies even to the shortest journeys, and to every season of the year.

Well-planned riding pleasure

Many motorcyclists have learned the hard way that the proper clothing contributes so much to riding pleasure. You must feel comfortable and relaxed – and your own safety must never be endangered. There is no doubt about it: when buying motorcycling clothing, you simply cannot set your sights too high. It is good to know that the BMW brand can be trusted to supply you with safe, high-quality rider's clothing as well.

Information on the latest products is always available from your authorized BMW motorcycle retailer.



Always an idea ahead

This is our motto – and it is one we live up to. For many years now, BMW has offered the enthusiast everything capable of enhancing the fascination of motorcycling. A unique program that is regularly updated and offers plenty of scope for choosing items according to individual preferences.

Ask your authorized BMW motorcycle retailer for the latest upgrades and retrofits.

Every BMW accessory product is made to the same exemplary standards of design, function and quality as the motorcycle itself. This calls for a great deal of experience, but our engineers are themselves enthusiastic motorcyclists who know what is needed. Whenever development work starts on a new motorcycle, equipment items are also taken into consideration and their practical value confirmed by extensive testing. This is your guarantee of the high quality you expect from BMW.

Cornering and braking need to be practiced

Develop a "sixth sense" for potentially dangerous situations. What this means: look ahead, plan how to avoid possibly dangerous situations and study other road users' behavior with a degree of healthy skepticism.

- Take bends smoothly and rhythmically, avoiding harsh braking and acceleration
- Approach bends slower than you feel they can be taken; a neat riding style will get you to your destination more safely than sheer speed
- Ride at the inner edge of the ideal line, look ahead and plan to leave the bend as smoothly as you entered it

Allow for reaction time when judging braking distances.

- At 50 km/h (approx. 30 mph), for instance, every second lost represents a further distance of about 14 meters (46 feet) before the brakes are applied
- At 90 km/h (approx. 55 mph), this distance grows to 25 meters (82 feet).

Practice applying the brakes with and without an extra load on the motorcycle, and study its reactions on various kinds of road surface.

Work up to the wheel lock limit gradually.

BMW has a worthwhile safety contribution to make in this area too – BMW Safety Training.

These programs are a wonderful opportunity:

systematic basic and follow-up training enables you to master situations close to the limit and keep your motorcycle under supreme control whatever happens.

Now it's your turn

- Regular care is important, with all functions checked before the journey starts.
- Use only genuine BMW accessories. They comply with all the relevant safety requirements and are perfectly matched to the BMW model that you ride
- Your authorized BMW motorcycle retailer is best placed to service your motorcycle
- Do not under any circumstances install unapproved accessories. They may give rise to a safety risk, and invalidate your insurance policy and the motorcycle's general operating permit
- Technical modifications should always be entrusted to the trained specialists employed by your authorized BMW motorcycle retailer.

NOTE

Your local BMW motorcycle retailer can supply you with useful items to accompany the Maintenance Instructions.

- BMW Repair Manual
- BMW set of circuit diagrams

It's good to know you've thought of everything, isn't it?

Our aim is to make your journey safer

We want you to reach all your destinations safely – and we want you to enjoy riding your BMW as a constant source of relaxed pleasure and satisfaction.

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Rider's Manual (US Model)

F 650 GS

F 650 GS Dakar

**BMW Motorrad
On-board
documentation**

consisting of
Rider's Manual
and Maintenance
Instructions

Important notes



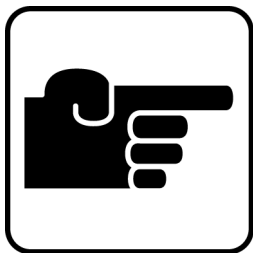
WARNING

This symbol indicates precautions and measures which are essential in protecting the rider and other persons from severe or fatal injury.



CAUTION

Specific instructions and safety precautions intended to prevent damage to the motorcycle. Disregarding them may render the warranty invalid.



NOTE

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

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.

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